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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 96

NO 1 THRU 13

JUL - SEP-1901

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XCVI.

JULY 2 TO SEPTEMBER 24, INCLUSIVE,

1901.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1902.

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ERRATA.

677,504, page 64, in heading, assignment, residence of assignee, for "Danville, N. Y." read *Dansville, N. Y.*

678,259, page 374, second claim, line 2, for the word "latter" read *lateral.*

678,653, page 555, sixth claim, line 5, for the word "shaft" read *frame.*

678,802, page 601, in heading, title of invention, for "Car-Truck" read *Truck and Bolster Construction for Railway-Cars.*

678,892, page 664, fifth claim, line 3, strike out the word "air" and the hyphen following it.

679,715, page 1021, in heading, assignment, name of assignee, for "Walter Fichett" read *Walter Fickett.*

679,858, page 1097, second claim, lines 2 and 3, strike out the words "adapted to communicate with the upper ring" and insert the same before the word "and," line 3; same claim and line, after the word "lower" insert the word *composition.*

679,985, page 1145, in heading, title of invention, for "Process of Manufacturing Copper Sulfates" read *Process of Manufacturing Copper Sulfate.*

680,007, page 1151, in heading, assignment, residence of assignee, for "Ardmore, Scotland" read *Ardmore, Gourock, Scotland.*

680,194, page 1219, eighth claim, line 1, for the compound word "building-arm" read *builder-arm.*

680,354, page 1293, in heading, date of application filed, for "June 25, 1900" read *July 25, 1900.*

680,490, page 1342, in heading, assignment, name of first-mentioned assignee, for "Frederick L. Grommer" read *Frederick L. Grammer.*

681,133, page 1615, in heading, after residence of patentee, insert *assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania.*

682,152, page 2043, second claim, line 2, and third claim, line 2, for the word "switchboard" read *switch-cord.*

682,249, page 2099, in heading, title of invention, "Process of Making Carbon Pigments" read *Process of Making Carbon.*

682,583, page 2213, fifth claim, line 5, for the compound word "cross-heads" read *cross-head.*

682,874, page 2345, fourth claim, line 5, for the word "arm" read *arms.*

683,173, page 2467, in heading, assignment, for "assignor, by mesne assignments, of two-thirds to Phil Barber Jones, of Nashville, Tenn." read *assignor, by direct and mesne assignments, of two-thirds to Benjamin Barry Coffey, of Abbeville, Miss., and Phil Barbour Jones, of Nashville, Tenn.*

34,798, (Design,) page 630, in heading, assignment, name of last-mentioned assignee, for "George Counter" read *George Caunter.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JULY—SEPTEMBER, 1901.

Patents No. 677,331 to 677,845.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

Vol. 96.—No. 1. TUESDAY, JULY 2, 1901. Price—$5 per year.

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Total issue	611	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alaska Territory			Nevada		
Alabama	1		New Hampshire	5	
Arizona Territory			New Jersey	25	4
Arkansas	2		New Mexico Territ'y	1	
California	16	1	New York	91	10
Colorado	5		North Carolina	1	
Connecticut	10		North Dakota		
Delaware			Ohio	27	2
District of Columbia	4		Oklahoma Territ'y	2	
Florida			Oregon	1	
Georgia	3		Pennsylvania	64	3
Idaho	3		Rhode Island	3	2
Illinois	69	6	South Carolina	1	
Indian Territory			South Dakota		
Indiana	13	2	Tennessee	6	1
Iowa	10		Texas	8	
Kansas	2		Utah	1	
Kentucky	3	1	Vermont		
Louisiana			Virginia	4	
Maine	1	1	Washington	3	
Maryland	5		West Virginia	1	1
Massachusetts	50	5	Wisconsin	11	3
Michigan	5		Wyoming	2	
Minnesota	4	4	U. S. Army		
Mississippi	2		U. S. Navy	1	
Missouri	18	2			
Montana	2		Total to citizens of the United States	488	48
Nebraska	2				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1		Italy	1	
Australia			Jamaica		
Austria-Hungary	5		Japan		
Barbadoes			Mexico	1	
Belgium			Netherlands		
Brazil			New South Wales	1	
British Guiana			New Zealand	1	
Canada	5		Norway		
Cape Colony			Peru		
China			Russia	2	
Colombia			San Salvador		
Cuba			Scotland	3	
Denmark			South Australia		
Egypt			Spain		
England	18		Sweden		
Finland			Switzerland		
France	7		Turkey in Asia		
Germany	24		Victoria	1	
Guatemala			Western Australia		
Haiti					
India			Total to citizens of foreign countries	71	
Ireland	1				

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

Department of the Interior,
United States Patent Office,
Washington, D. C., June 3, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 25, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. •DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	June 18	June 15	29
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	June 8	June 12	203
106	II. Farm Stock, Products, etc.	June 8	June 10	190
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 4	June 6	164
260	VIII. Furniture, Beds, Store Furniture, etc.	June 1	June 12	376
258	X. Carriages and Wagons	June 1	June 10	63
127	XIX. Paper Manufactures, Lamps, and Gas-Fittings.	May 31	June 11	149
196	XXIII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	May 29	June 11	191
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	May 28	June 12	221
128	XXIV. Sewing-Machines, Apparel and Toilet.	May 28	June 12	178
147	XXII. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	May 27	June 12	140
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	May 27	June 12	110
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 27	June 12	110
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255	XII. Mechanical Engineering, Store-Service, etc.	May 27	June 11	204
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209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Barriery, Nut and Bolt Locks, etc.	May 25	June 7	206
80	XXVIII. Pneumatics, Air and Gas Engines, etc.	May 25	May 20	240
	Between one and two months.			
258	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	May 22	June 10	127
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240	VII. Velocipedes, Games, and Toys	May 20	June 12	194
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 20	June 7	139
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243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	May 15	May 15	478
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	May 13	May 27	311
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	May 11	June 4	245
138	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 7	June 11	159
243	XVIII. Steam-Engineering, etc	May 7	May 17	325
213	XVII. Printing, Type-Writing Machines, and Linotyping.	May 7	May 16	289
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Under one month.			
•Designs	June 14	June 19	80
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‡Labels and Prints	June 22	June 25	1

Changes in Classification.

(ORDER No. 1,415.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1901.

The following changes in classification of inventions are hereby ordered, to take effect this day:

Division XVI, class 177, Electric Signaling, abolish subclasses—

1. Alarms—	Alarms—
199. Æquoreal,	286. Hose,
200. Barokinetic,	201. Safe,
2. Burglar,	

the patents composing the same being transferred to class 178, Telegraphy, in which the following subclasses are hereby established:

309. Alarms—	Alarms—
310. Æquoreal,	313. Hose,
311. Barokinetic,	314. Safe.
312. Burglar,	

Division XVI, class 177, Electric Signaling, abolish subclasses—

3. Annunciators—	Annunciators—
139. Drop,	287. Elevator,
157. Drop-system,	140. Step-by-step,

the patents composing the same being transferred to class 179, Telephony, in which the following subclasses are hereby established:

Annunciators—	Annunciators—
188. Drop,	190. Elevator,
189. Drop-system,	191. Step-by-step.

Transfer class 177, Electric Signaling, from Division XVI to Division XXIII.

F. I. ALLEN,
Commissioner.

(ORDER No. 1,417.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 28, 1901.

Class 156, Curtains, Shades, and Screens, is hereby transferred from Division VIII to Division XXXVI.

F. I. ALLEN,
Commissioner.

Amendments to Allowed Applications.

Hereafter all amendments proposed to allowed applications and all petitions and requests relating thereto shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action. (Order 629 amended October 15, 1898.)

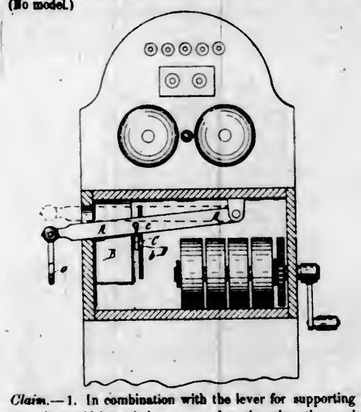
Access to Pending Applications.

Hereafter no person except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

PATENTS

GRANTED JULY 2, 1901.

677,331. TIME-INDICATOR FOR TELEPHONES. THOMAS BARNET, Sydney, New South Wales. Filed Jan. 20, 1899. Serial No. 702,799. (No model.)



Claim.—1. In combination with the lever for supporting the telephone-receiver said lever being arranged to rise when the receiver is removed therefrom, registering mechanism, a clock mechanism for operating the registering mechanism, a ratchet-wheel connected with the clock-spring for winding the same, a lever C pivoted on the shaft of the ratchet-wheel, a pivoted pawl carried by the said lever C and normally engaging the ratchet, a connection between the said lever and the receiver-supporting lever whereby the lever C will move when the receiver is removed and a pin in the path of the pawl for throwing the same out of engagement with the ratchet-wheel when the receiver is removed.

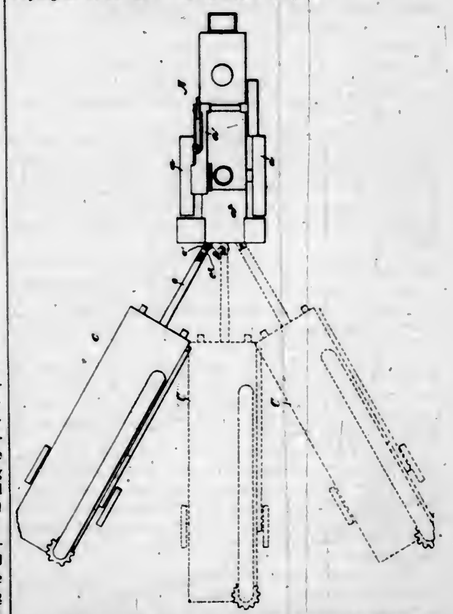
2. In combination with the lever for supporting the telephone-receiver said lever being arranged to rise when the receiver is removed therefrom, registering mechanism, a clock mechanism for operating the registering mechanism, a ratchet-wheel connected with the clock-spring for winding the same, a lever C pivoted on the shaft of the ratchet-wheel, a pivoted pawl carried by the said lever C and normally engaging the ratchet, a connection between the said lever and the receiver-supporting lever whereby the lever C will move when the receiver is removed and a pin in the path of the pawl for throwing the same out of engagement with the ratchet-wheel when the receiver is removed, a balance-wheel and a lever on the shaft of the ratchet-wheel for setting the balance-wheel in motion, substantially as described.

677,332. TRACTION-ENGINE. JOHN B. BARTHOLOMEW, Peoria, Ill., assignor to the Avery Manufacturing Company, same place. Filed Aug. 23, 1900. Serial No. 27,847. (No model.)

Claim.—1. In a traction-engine, the combination of the body of the engine, the traction and supporting wheels carrying said body, the engineer's platform attached to said body at the end thereof, and the vertically-pivoted, laterally-movable and longitudinally-extensible draft device beneath the said platform and connected with said parts of the engine and having a reacting spring held uniformly at all times relative to the line of draft exerted on said draft device, substantially as set forth.

2. In a traction-engine, the combination of the body of the engine, the supporting and traction wheels attached thereto, the engineer's platform attached to said body at the end thereof, and the vertically-pivoted, laterally-movable draft device attached to said parts beneath the platform, having its center of draft substantially central of said platform and having a coupling device at or near said rear edge, said draft device extending on straight lines continuously across said center, substantially as set forth.

3. In a traction-engine, the combination of an axially-short and radially-expanded pivot, and a draw-bar axially rigid with said pivot and adapted to swing therewith in horizontal planes, said draw-bar having a coupling device movable toward and from said pivot.



4. In a traction-engine, the combination of an axially-short and radially-expanded pivot, and a draw-bar axially rigid with said pivot, adapted to swing therewith in horizontal planes and longitudinally movable relative to said pivot.

5. In a traction-engine, the combination of a vertically-pivoted draft device extending continuously rigidly across its draft-center, and having a draft-spring forward of the draft-center and laterally movable with said draft device.

6. With a traction-engine, the combination of a draft device comprising a vertically-pivoted draw-bar having a coupling device movable toward and from the pivotal axis and a draft-spring forward of the draft-center and laterally movable with said draw-bar.

7. With a traction-engine, the combination of a draft device consisting of a radially expanded or extended pivot-body, a draw-bar connected directly with said pivot-body and having its coupling end movable radially thereto and a draft-spring engaging said pivot-body and draw-bar.

8. With a traction-engine, the combination of a draft device consisting of a pivot-body connected with said engine, a draw-bar laterally movable with said pivot-body and longitudinally movable relative thereto, and a draft compression-spring forward of said pivot-body and connected with the same and with the draw-bar.

9. In a traction-engine, the combination of an axially-short and radially expanded or extended pivot, a draw-bar axially rigid with said pivot and adapted to swing therewith in horizontal planes, said draw-bar having a coupling device movable toward and from said pivot, and guiding and vertically-staying means for the outer end of said draw-bar.

10. In a traction-engine, the combination of an axially-short and ra-

dially expanded or extended pivot, a draw-bar axially rigid with said pivot, adapted to swing therewith in horizontal planes and longitudinally movable relative to said pivot and guiding and vertically-staying means for the outer end of said draw-bar.

11. In a traction-engine, the combination of a vertically-pivoted draw-bar having a coupling device movable toward and from the draft-center, a draft compression-spring forward of the draft-center and laterally movable with said draw-bar and guiding and vertically-staying means for the outer end of the draw-bar.

12. In a traction-engine, the draft device consisting of the combination of a curved bearing-plate, attached to said engine, a saddle sliding on said plate, a shank longitudinally movable in said saddle and having a spring bearing on the same and the coupling device attached to said shank.

13. In a traction-engine, a draft device consisting of the combination of a bearing-plate attached to said engine, and having a curved bearing-surface, and a horizontal slot, a saddle sliding on said plate, a shank passing through said slot and saddle and longitudinally movable therein, a draft-spring interposed between said shank and saddle, and a draw-head having a coupling device and attached to said shank.

14. In a traction-engine, a draft device comprising the draw-head B' having upper and lower horizontal plates, the horizontally-movable hook pivoted between said plates and adapted to cooperate therewith for the engagement of the coupling-pin, a spring connecting said hook with the draw-head and means for pivotally connecting said draw-head with the engine.

15. The herein-described draft device consisting of the combination of the curved bearing-plates 2, 2, having an intermediate horizontal slot, the saddle 8 bearing and sliding on said plates, a draw-head having the shank movable in said slot and saddle and connected loosely with the latter, said draw-head having at its rear end a vertical slot or space, and a spring-actuated hook mounted in the draw-head and adapted to close the said space.

16. The herein-described draft device having a draw-head composed of top and bottom plates 18, bifurcated at their rear ends, having the stop 19 spacing said ends, the shank 12 fixed between and spacing the forward ends of said plates and a spring-actuated hook pivoted between said plates and engaging said stop and adapted to close the space between the ends of the plates, substantially as set forth.

17. In a traction-engine, the combination of the body A having the fire-box, the platform a^3 attached to said fire-box at the end of the engine, and a coupling-bar having a vertical pivot attached to and beneath the inner portion of said platform, said bar having longitudinal movement through said vertical pivot.

18. In a traction-engine, the combination of the engine-body A having the fire-box, the engineer's platform a^3 attached to said fire-box at the end of the engine, a coupling-bar having a vertical pivoting means attached to and beneath the inner portion of said platform, said bar having longitudinal movement through said pivoting means, and a draft-spring interposed between said coupling-bar and pivoting means and bearing directly against the latter.

19. In a traction-engine, the combination of a vertical pivot-bearing connected with said engine and movable on a vertical axis, a coupling-bar engaging and longitudinally movable through said pivot-bearing and a draft-spring interposed between and bearing directly against said bearing and bar.

677,333. **THRESHER-BELT GUIDE.** JOHN B. BARTHOLOMEW, Peoria, Ill. Original application filed May 4, 1900, Serial No. 15,526. Divided and this application filed Dec. 7, 1900. Serial No. 39,055. (No model.)



Claim.—1. A belt-guide having a pulley of substantially conical form provided at its smaller end with a flange, and an axial support for said pulley inclined to the plane of the belt, substantially as set forth.

2. A belt-guide having a conical body portion adapted to lie under one side of a belt, and a flange which extends vertically by the side of the belt and having an inner surface which is also conical, substantially as set forth.

3. A belt-guide having a support for one side edge of the belt, consisting of a pulley with a conical body, mounted on an axis inclined to the plane of the belt, and a flange at the small end of the conical body having an inner surface at right angles to the plane of the belt, in combination with a suitable support for the other side of the belt, substantially as set forth.

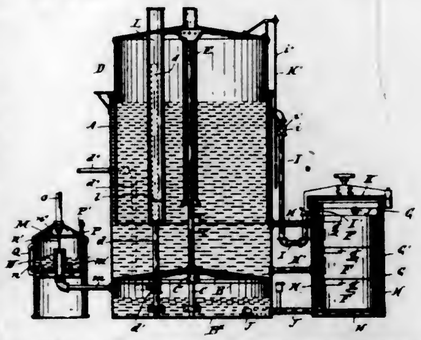
4. A belt-guide comprising a pair of belt-supporting pulleys having their axes inclined toward each other and adapted to support a belt partly on each pulley, and each formed with a belt-retaining flange at its outer end, substantially as set forth.

5. A belt-guide comprising a pair of belt-supporting pulleys of substantially conical form having their wider ends turned inward, and having their axes inclined toward each other, substantially as set forth.

6. A belt-guide comprising a pair of belt-supporting pulleys of substantially conical form with slightly-rounded surfaces, and having their axes inclined to each other, substantially as set forth.

7. A belt-guide having a pair of belt-supporting pulleys with their axes inclined toward the plane of the belt, and also inclined longitudinally of the belt, substantially as set forth.

677,334. **ACETYLENE-GAS GENERATOR.** GEORGE W. BENEDICT and JOHN J. GRAF, Cincinnati, Ohio, assignors to the Union Light & Heat Company, same place. Filed Nov. 5, 1900. Serial No. 35,479. (No model.)



Claim.—1. In an acetylene-gas generator of the class described, as a means for regulating the intermittent flow of water to the carbid-holder, a rod K', attached to the bell and provided with a series of teeth i'', a four-sided valve-cock i, one of whose sides is provided with a series of teeth i' to correspond with teeth i'', on the rod K', the arrangement of the teeth being such that when the teeth are out of engagement, one side of the valve-cock without teeth will be in contact with the rod K', and so lock the valve-cock in this position, substantially as described.

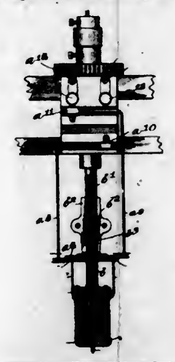
2. In an acetylene-generator of the class described, a carbid-holder consisting of an outer tank, an inner tank, the two being secured at the top to a flanged ring, the two tanks being separated by the thickness of the flanged ring and the inner tank being of less depth than the outer tank, thus leaving a water-jacket completely surrounding the sides and bottom of the inner tank, a lid fitting on top of said flanged ring with means for holding the same gas-tight in place in combination with a series of buckets for holding the carbid, substantially as and for the purpose described.

3. In an acetylene-generator of the class described, an outer tank, an inner tank of less depth than that of the outer tank, a ring provided with a flange which fits between the upper edges of said tank, said tanks being riveted to the same in such a way that a space is left surrounding the sides and bottom of said inner tank, an opening in said ring for the admission of water and a second opening for the exit of gas, in combination with a series of buckets resting one upon the other for containing the carbid, and a top resting on said ring, with means for securing said top gas-tight in place and connections between said water-space whereby water is allowed to circulate, substantially as and for the purpose described.

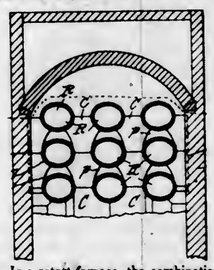
677,335. **ELECTRIC SOLDERING DEVICE FOR CAN-CAPPING MACHINES.** JULIUS H. C. BUERSTATTE, Manitowoc, Wis. Filed Sept. 17, 1900. Serial No. 30,216. (No model.)

Claim.—1. A can-soldering device for can-capping machines comprising a steel adapted to flow solder, when hot, a supply-circuit, a non-inductive, electric, heating conductor surrounding said steel, and fixed thereto, a means for moving said steel and accompanying heating conductor, and movable electric conductors adapted to maintain constant connections between said heating conductor and said supply-circuit.

2. A soldering device for can-capping machines comprising a steel adapted to flow solder, an electric heating conductor, doubled upon itself, and wound about the said steel, leaving two outside terminals, a spindle to which said steel is attached, two insulated conducting-disks fixed to said spindle, and comprising the terminals of the electric-heating-conductor rollers engaged with the said disks, and conductors upon which said rollers are adapted to be reciprocated, substantially as set forth.



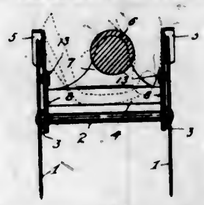
677,336. **RETORT GAS-FURNACE.** HUGO BURGMANN, Altona, Germany. Filed Feb. 26, 1900. Serial No. 6,631. (No model.)



Claim.—1. In a retort-furnace, the combination with the retorts of carriers whose proximate faces form a passage between two superposed retorts, fit snugly around the lower one of the two retorts and form at their upper end a cradle for the upper one of said retorts fitting snugly around the lower half thereof, for the purpose set forth.

2. In a retort-furnace, the combination with the retorts, of self-supporting carriers having proximate concave faces forming a cradle encompassing and fitting snugly one-half of the perimeter of a retort and having similar faces of greater curvature below the first-named faces forming an arch above each retort, for the purpose set forth.

677,337. **MEAT OR VEGETABLE CUTTER.** MURDICK CAMERON, Duluth, Minn. Filed Jan. 25, 1901. Serial No. 44,659. (No model.)

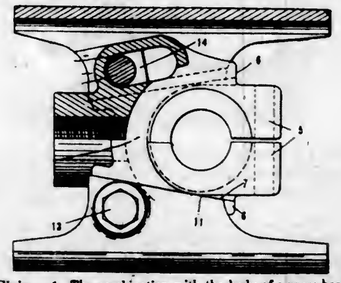


Claim.—1. The combination with a frame, having a pair of open seats and a handpiece, of an axle fitting in said open seats and provided at its ends with cutting-disks, and an axle-latch pivoted to said frame, and provided with a pair of laterally-spaced plates or members having open seats that extend transversely of the open seats of said frame and cooperate therewith to simultaneously connect said axle in working position and vice versa, substantially as described.

2. A cutter of the character described, comprising a frame, a pair of cutting-disks, guards on said frame overlying said cutters, and a handpiece on said frame extending transversely of and above the axis of said cutters, but located below said guards and the upper edges of said cutters, substantially as described.

3. The combination with the frame 4 having the guards 5, of the pair of cutting-disks 1 having the axle 2 mounted in said frame and the handpiece 6 secured to said frame, which handpiece extends transversely of said axle 2, below said guards 5, and nearer to one of said guards and cutters than to the others, substantially as and for the purposes set forth.

677,338. **CROSS-HEAD.** HARRY C. CLAY, Columbus, Ind., assignor to Reeves & Company, same place. Filed Feb. 25, 1901. Serial No. 48,707. (No model.)



Claim.—1. The combination with the body of a cross-head having an ear projecting therefrom, of a shoe provided with a pair of flanges adapted to straddle said ear, means for clamping said flanges upon the ear, and means carried by the body for engaging the shoe and holding the same in alinement with the body.

2. The combination with the body of a cross-head having an ear projecting therefrom, and a shoulder formed at the inner end of said ear and inclined toward the axis of motion, of a shoe provided with a pair of flanges adapted to straddle said ear and rest upon said shoulders, and means for clamping said flanges upon said ear.

3. The combination with the body of a cross-head having an ear projecting therefrom, and a shoulder formed at the inner end of said ear and inclined toward the axis of motion, of a shoe provided with a pair of flanges adapted to straddle said ear and rest upon said shoulders, a slot formed in said ear, and a bolt passing through said flanges and slot.

677,339. **CENTER PUNCH AND GAGE.** EDWIN M. COMSTOCK, Cascade Valley, N. Y. Filed Nov. 1, 1900. Serial No. 35,119. (No model.)



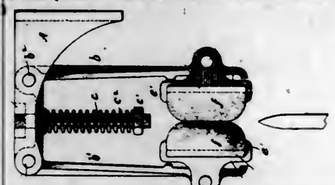
Claim.—1. In a center punch and gage, the combination with a scale-bar terminating in an enlarged head or block provided with a vertical opening and a fixed indicating-point and a set-screw, of a punch, provided with a shoulder and an annular groove or recess, removably mounted within the said opening of the block, a longitudinally-adjustable block mounted upon the said scale-bar, and provided with a fixed indicating-stud and laterally-extending ears whereby the parts may be held in proper position, substantially as described.

2. As a new article of manufacture, a center punch and gage, the same consisting of a scale-bar terminating in an enlarged head or block provided with a fixed indicating-point and a set-screw, a guideway or recess formed upon the surface of said scale-bar and extending longitudinally thereof to a point adjacent to the said block, a punch, provided with a shoulder and an annular groove or recess, removably mounted within the said block, a longitudinally-adjustable block mounted upon the said scale-bar and provided with a fixed indicating-stud and a thumb-screw the point of which rests and slides within the recess of the scale-bar, and ears extending laterally from the said block whereby the parts are held in proper position, substantially as and for the purpose set forth.

3. A center punch and gage, the same consisting of a scale-bar provided with a longitudinal groove and terminating in an enlarged head or block having a fixed indicating-point and a set-screw, a punch, provided with a shoulder and an annular groove or recess, mounted within the said block, a longitudinally-adjustable indicating-block mounted upon the scale-bar and provided with laterally-extending ears whereby the same is held in a horizontal position, and a fixed indicating-stud carried by the

said block, said stud having its point or center directly beneath the front face of the block, substantially as shown and for the purpose specified.

677,840. ELECTRIC SWITCH. ALLAN COWPERTHWAIT and NILS O. LIBERTHSON, New York, N. Y., assignors to Alonzo B. See and Walter L. Tyler, Brooklyn, N. Y. Filed Feb. 4, 1901. Serial No. 46,839. (No model.)



Claim.—1. A switch-contact consisting of a pair of bell-crank levers, a tilting contact-seat at the free end of each lever, a carbon block in each seat and means for yieldingly holding the blocks in contact with each other

2. A switch-contact consisting of a pair of bell-crank levers, a spring acting against adjacent ends of said levers to throw the other ends together and contact-surfaces on the abutting faces of said other ends, substantially as described.

3. A switch-contact consisting of a pair of bell-crank levers, having arms substantially parallel to each other, and other arms substantially in line and projecting toward each other, facing contacts on the parallel arms, a rod passing between the ends of the other arms, a nut on the end of said rod and a spring on the rod inserted between the nut and the ends of said arms in line with each other.

677,841. MANUFACTURE OF STOVEPIPE-ELBOWS, &c. THOMAS P. CRARY, Middleport, Ohio. Filed Mar. 18, 1901. Serial No. 51,621. (No model.)



Claim.—1. A tubular article which is bent at an angle, the same consisting of two sections complementary to each other, each struck up and shaped out of one piece of sheet metal which pieces are afterward joined to form the article complete, surplus metal at the inside of the turns being disposed of by overlapping and surplus surface being provided for by drawing apart again portions of such overlapped surplus metal, such latter being flattened down smoothly resulting in a surface devoid of corrugations.

2. A sheet-metal article, parts of which are curved in two directions or planes at the same time, metal in excess of the superficial area required at such places being provided by overlapping portions of the blank correspondingly to prevent tearing thereat and to compensate for the action of the press-dies whereby parts of the overlapping metal are drawn apart again, resulting in an article of smooth surface and devoid of corrugations.

3. A blank for a tubular article to be bent at an angle and containing at its inner side portions where the metal is curved in two directions at the same time and which blank contains surplus metal for such portions obtained by folding, doubling up, or otherwise bending the blank before subjected to the operation of the press-dies and which surplus metal compensates for the draw of these latter and by being more or less flattened and straightened out again prevents breakage of the blank thereat.

4. An article of tubular shape bent at an angle which causes parts of it at the inner side of the turn to be curved in two directions at the same time, said article consisting of two sections shaped by press-dies to be complementary to each other, so as to permit their ultimate connection to complete the intended article, forming the same with a round and smooth side devoid of corrugations, such parts of the blanks out of which these sections are shaped and which are at the inner sides of the turn where the metal is curved in two directions, being provided with surplus metal obtained by folding, doubling up or otherwise bending the blank thereat so as to prevent tearing at these places when the blanks are subjected to the action of the press.

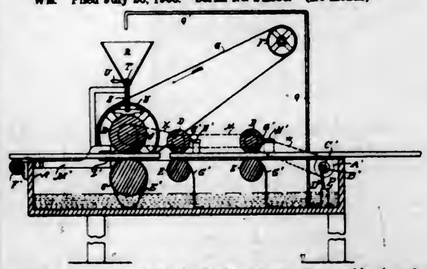
677,842. TRACK-FASTENING. SHERMAN P. DAY and CHARLES R. NEAL, Sellersburg, Ind., assignors of one-half to John M. Meloy and Asro C. Crim, same place. Filed Feb. 9, 1901. Serial No. 46,680. (No model.)

Claim.—1. A track-fastening, comprising a support or base, having a rail-chair, a transverse rail-engaging shoulder at one side of the chair, an upstanding shoulder disposed at the opposite side of the chair and spaced therefrom, a rail-clamp slidably mounted upon the support or base and located between the upstanding shoulder and the chair, a longitudinally-adjustable rod or bolt passing loosely through the upstanding shoulder and having its inner end in operative relation to the clamp, an angular head upon the opposite outer end of the bolt or rod and lying in engagement with the base to prevent rotation of the bolt, and an adjusting-nut upon the bolt and lying in engagement with the inner side of the upstanding shoulder.



2. A track-fastening, comprising a cross-tie, having a terminal raised rail-chair, provided with an outer transverse rail-engaging shoulder, which is undercut upon its inner side, an upstanding rib or shoulder located at the opposite side of the chair and spaced therefrom, there being a substantially T-shaped flanged groove formed in the upper face of the tie and located between the rib and the chair, the enlarged portion of the groove being located next to the rib, a clamping member slidably mounted over the groove, and provided with opposite pendent flanges slidably embracing the tie, the inner portion of the upper face of the clamp being flush with and forming a continuation of the rail-chair, and also having an overhanging flange to embrace a rail-flange, a removable headed pin passing vertically through the clamp member, and provided upon its upper projected end with a nut, the head being slidably received within the flanged groove, and an adjusting-bolt passing loosely through an opening in the rib, the inner end of the bolt being received within a socket in the clamping member, and the opposite end having an angular head lying in engagement with the tie, and an adjusting-nut carried by the bolt and lying in engagement with the inner face of the rib.

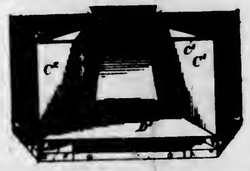
677,843. PAINTING-MACHINE. HENRY J. DELANEY, Milwaukee, Wis. Filed July 20, 1900. Serial No. 24,268. (No model.)



Claim.—1. In a liquid-distributing machine, the combination of a liquid reservoir or tank; a pair of liquid-distributing rollers having their opposing surfaces at or near the line of the upper surface of said tank; means for conducting liquid from said reservoir to both of said rollers simultaneously; one or more finishing-rollers adapted to receive the material as it is fed between said distributing-rollers; two vertical guiding-rollers yieldingly supported near said liquid-distributing rollers; a sprocket-wheel affixed to the shaft of said upper distributing-rollers; a sprocket-wheel attached to the shafts of one or more of said upper finishing-rollers; and a sprocket chain or chains communicating between said sprocket wheel or wheels; whereby all of said upper rollers are simultaneously driven, substantially as and for the purpose specified.

2. In a liquid-distributing machine, the combination of a liquid reservoir or tank; a pair of liquid-distributing rollers, one located above the other; one or more finishing-rollers adapted to receive the material as it is fed between said distributing-rollers; means for communicating motion simultaneously to said distributing and finishing rollers; a distributing-reservoir located above the upper one of said distributing-rollers; a regulating-valve located in the discharge-duct of said reservoir; means for forcing liquid from said lower reservoir to said upper reservoir; means for leading liquid from said lower reservoir to said lower distributing-roller; scraping-plates supported yieldingly against the surfaces of said distributing-roller; and troughs for conducting the surplus material from the upper distributing-rollers back to the liquid-tank, all substantially as and for the purpose specified.

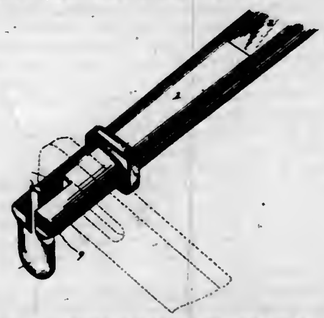
677,844. VENTILATOR. THOMAS A. DUNCAN, Chicago, Ill. Filed Dec. 10, 1900. Serial No. 39,346. (No model.)



Claim.—1. In a ventilator, the combination with suitable walls inclosing an upright cold-air flue and an adjoining warm-air flue, of an evaporating-partition between the two flues, means for supplying said partition with a suitable evaporating material, a heat-absorbing wall upon the opposite side of the warm-air flue and means for concentrating the sun's rays upon said heat-absorbing wall; substantially as described.

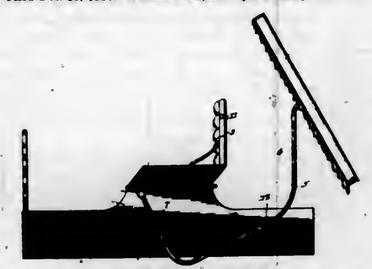
2. In a ventilator, the combination with suitable walls inclosing an upright cold-air flue and an adjoining warm-air flue, of an intermediate partition adapted for evaporation of suitable material, means for supplying such material to said partition and means for drying the air in the warm-air flue; substantially as described.

677,845. TRACE-FASTENER. ISAAC L. EDWARDS, Aurora, Ill. Filed Jan. 7, 1901. Serial No. 42,426. (No model.)



Claim.—A combined trace-fastener and whiffletree-ferrule, consisting of a solid tapered body, having an intermediate integral annular enlargement forming a shoulder, the inner and larger end of the body being socketed longitudinally to form a ferrule for the reception of one end of a whiffletree, and the opposite smaller end being bifurcated longitudinally, with the inner end wall of the bifurcation beveled or inclined, and an inverted substantially T-shaped latch, which has its stem portion intermediately pivoted between the sides of the bifurcation, with its outer end beveled or inclined to correspond with the inner end wall of the bifurcation, and the outer end or head portion of the latch being constructed to form a continuation of the tapered body when the latch is swung into longitudinal alinement therewith, the latch normally hanging in a substantially vertical position and projecting at opposite sides of the body.

677,846. VEHICLE-TOP. WILLIAM J. ESTES, Shawnee, Okla. Filed Dec. 10, 1900. Serial No. 39,417. (No model.)



Claim.—1. The combination with a vehicle-body, and a seat thereon, of a top, and opposite standards supporting the top, each standard being located in rear of the seat, and having a forwardly-projecting bottom arm, which lies below the seat, and has its outer end pivotally connected to the vehicle-body.

2. The combination with a vehicle-body, and a seat thereon, having a back, of a top, opposite standards pivoted upon the body and supporting the top, and detachable connections between the standards and the adjacent ends of the back.

3. The combination with a vehicle-body, and a seat thereon, having a back, of opposite supporting-standards for the top, and each standard having a lateral arm, which is pivotally connected to the vehicle-body, and detachable connections between the standards and the adjacent ends of the back, whereby the standards form braces for the back.

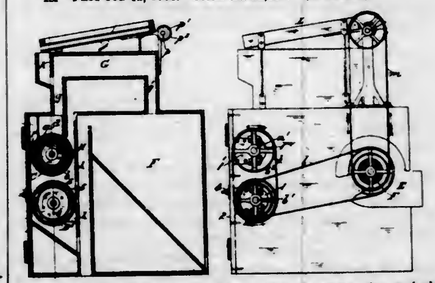
4. The combination with a vehicle-body, and a seat thereon, having a back, of a top, opposite standards therefor, each standard being located at the back of the seat, and having a bottom forwardly-projecting arm, which lies below the seat, and has its forward end pivoted to the vehicle-body, and a detachable connection between the intermediate portion of each standard and the adjacent end of the back of the seat.

5. A vehicle-top, having opposite pendent supporting-standards, lateral arms projecting in the same direction from the bottoms of the standards, and pivotal connections at the outer ends of the arms and for application to a vehicle-body.

6. A vehicle-top, having opposite pendent supporting-standards, bottom terminal pivotal connections for the respective standards, and intermediate detachable seat-engaging fastenings carried by the standards.

7. The combination with a vehicle body, having a seat thereon, and a back for the seat, of a top, opposite supporting-standards therefor and pivotally connected to the body at one side of the back, and detachable connections between the standards and the adjacent ends of the back, whereby the standards form braces for the back.

677,847. GRAIN-SCOURING MACHINE. JOHN T. EWAN, Bethalto, Ill. Filed Oct. 12, 1900. Serial No. 32,857. (No model.)



Claim.—1. In a grain-scouring machine, an outer casing or inclosure, a series of brush-cylinders mounted therein adjacent to the front wall of said casing, sectional bearings for the shafts of said cylinders, the front edge of the outer section of each bearing being located along the vertical edge of the wall carrying the same, whereby the said section may be removed together with the cylinders and their supporting-shafts, and removable doors having their hinge-line spanning the front edge of the outer section of each bearing, substantially as set forth.

2. In a grain-scouring machine, an outer casing or inclosure, a series of revolving cylinders mounted therein adjacent to the front wall of said casing, sectional bearings for the shafts of said cylinders, the front edge of the outer section of each bearing being disposed along the outer ver-

tical edge of the wall carrying the same, strips secured to the said vertical edges, and doors hinged to said strips, substantially as set forth.

3. In a grain-scouring machine, a suitable cylinder comprising terminal heads, annular grooves disposed along the inner adjacent faces of the heads, suitable brush-staves spaced suitable distances apart having their ends inserted into said grooves, tie-rods for drawing the heads against the staves, a central shaft, means for securing the heads to the shaft, and a yielding elastic deflecting-strip carried by each stave in front of the advancing wall of the brushes the latter being disposed along the outer surface of each stave, substantially as set forth.

4. In a grain-scouring machine, a suitable cylinder having a series of peripherally-disposed brush-staves spaced suitable distances apart, the advancing edge of each stave being provided with a yielding elastic leather deflecting-strip extending substantially the full height and length of the brushes the latter being disposed along the outer surface of each stave, substantially as set forth.

677,848. CARBON BRUSH. WALTER C. FISH, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Feb. 23, 1901. Serial No. 49,261. (No model.)



Claim.—1. A carbon commutator-brush having an open notch, and a flexible conductor laid longitudinally and fastened in said notch.

2. A carbon commutator-brush containing an open notch, and a flexible conductor laid longitudinally and soldered in said notch.

3. A carbon commutator-brush having an open notch, and a flexible conductor received longitudinally in said notch in conducting relation with said brush.

4. A carbon commutator-brush having an open slot, a flexible conductor received longitudinally in said slot, and a mass of solder covering said conductor.

5. A carbon commutator-brush having an open notch, a flexible conductor received longitudinally in said notch, and a mass of solder filling said notch.

6. A carbon commutator-brush having an open notch, a flexible conductor received longitudinally in said notch, and a mass of solder in said notch and flush with the sides thereof.

7. A carbon brush having an open notch whose surface is electroplated, and a flexible conductor in contact with said surface.

8. A carbon brush having an open notch whose surface is electroplated, and a flexible conductor fastened against said surface.

9. A carbon brush having an open notch with an electroplated surface, and a flexible conductor soldered to said surface.

10. A carbon brush having an open notch with an electroplated surface, a flexible conductor received in said notch, and a mass of solder covering said conductor and united with said surface.

11. A carbon brush having an open notch with an electroplated surface, a flexible conductor received in said notch, and a mass of solder filling the notch and flush with the sides of the carbon.

12. A carbon brush having an open notch with an electroplated surface, a flexible conductor in said notch, a mass of solder filling the notch and fastening the conductor, and a film of electroplating covering the joint.

13. A copper-plated carbon commutator-brush having a braided-wire conductor laid longitudinally and soldered in a notch in said brush.

14. A copper-plated carbon brush having a braided-wire conductor soldered in a notch in said brush, and a coating of copper plate covering the joint and the upper part of the brush.

15. The method of connecting a flexible conductor with a carbon brush, which consists in notching the brush, electroplating the surface of the notch, laying the conductor in the notch, and soldering the two together.

16. The method of connecting a flexible conductor with a carbon brush, which consists in making a notch in the brush, electroplating the surface of the notch, laying the conductor in the notch, and filling the notch with solder.

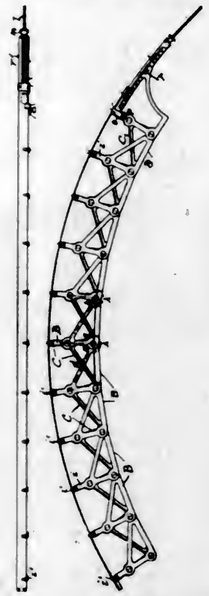
17. The method of connecting a flexible conductor with a carbon brush, which consists in making a notch in the brush, electroplating the surface of the notch; laying the conductor in the notch, filling the notch with solder, and making the solder flush with the sides of the brush.

18. The method of connecting a flexible conductor with a carbon brush, which consists in notching the brush, electroplating the notch, laying the conductor therein, filling the notch with solder, and dressing off the solder and the brush to a gage.

19. The method of connecting a flexible conductor with a carbon brush, which consists in notching the brush, electroplating the notch, laying the conductor therein, filling the notch with solder, dressing off the solder and the brush, and electroplating them to cover the joint.

20. The combination with a carbon commutator-brush, of a flexible conductor laid longitudinally and fastened in a notch in a side of the brush, and extending therefrom in a line lengthwise of the brush.

677,849. ADJUSTABLE CURVED RULER. PRINCE A. GAGARIN, St. Petersburg, Russia. Filed Apr. 6, 1900. Serial No. 11,834. (No model.)



Claim.—1. A ruler or the like having in combination front and rear series of bell-crank levers, the levers of each series being pivoted together, and the levers of the different series being connected together by different pivots, the bell-crank levers being extended equal distances beyond the last-mentioned pivots, a flexible strip on the ends of said extended arms, one end of the strip being fixed, and means for limiting the movement at the opposite end of the strip consisting of a screw *l*, and a gage or scale for indicating the adjustment of the screw.

2. The combination of several bell-crank levers in series, said levers having right-angle arms, the right angle of one lever being pivoted to the outer end of one of the arms of the next lever in the series and so on for following levers, a second series of like but reversed bell-crank levers beside the first series, the free arm of each lever of the first series being pivoted to the adjacent like arm of the second series, whereby the pivots connecting the different series remain in line with each other in a straight line or in an arc of a circle the radius of which varies with the adjustment given to the levers.

3. The combination in an adjustable flexible device, of a plurality of series of bell-crank levers with arms at right angles, the long arm of one lever being pivoted to the right angle of the next lever in each series, the short arm of the adjacent levers in the different series being pivoted together, the levers of one series being reverse to that of the adjoining series, and a flexible strip supported at a uniform distance from the pivots connecting the levers of the different series.

4. An adjustable device having in combination a plurality of series of bell-crank levers side by side, the levers of one series being reversed with respect to those of the other series, pivots connecting the levers of each series, other pivots connecting together the levers of the different series, a flexible strip adapted to assume arc shape of different radii, means for limiting the bend, and a scale or gage therefor.

5. An adjustable device having in combination a plurality of series of bell-crank levers side by side, the levers of one series being reversed with respect to those of the other series, pivots connecting the levers of each series, other pivots connecting together the levers of the different series, a flexible strip adapted to assume arc shapes of different radii, and means for fastening the strip in its adjusted position.

677,850. TOOL-HOLDER. CHARLES W. GRANT, Derby, Conn., assignor, by mesne assignments, to Frank James Nevins, Brooklyn, N. Y. Filed Dec. 20, 1900. Serial No. 40,584. (No model.)



Claim.—1. A tool-holder comprising a body having a longitudinal hole and at its forward end an abutment 11 with a vertical hole, and an abutment 13, an eyebolt whose eye is adapted to lie between the abutments, to rest on abutment 11 and to register with the hole therein and the end of whose shank extends through the longitudinal hole and is threaded and a nut for drawing up the eyebolt between the abutments.

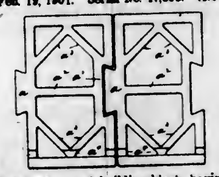
2. The combination with a body having a longitudinal hole and at its forward end an abutment with a vertical hole and an abutment 13, and an eyebolt whose eye is adapted to register with the vertical hole and the end of whose shank extends through the longitudinal hole, of a tool with a base having an engaging surface and a shank adapted to pass through the eye and engage the vertical hole and means for drawing up the eyebolt between the abutments so that the engaging surface will be forced against abutment 13 and the shank of the tool will be clamped by the eye.

3. The combination with a body having at its forward end an abutment with a vertical hole and an abutment 13, and an eye between the abutments, of a tool having a shank provided with a groove, a base having an oblique hole to receive said shank, a shank 20 adapted to engage the eye and the vertical hole, and a socketed dog which is adapted to engage the groove and also abutment 13 and means for drawing the eye between the abutments so that both the tool and the base will be locked to the body.

4. The combination with a tool having a shank provided with a groove, a base having a hole to receive said shank and a dog socketed therein and adapted to engage the groove, of a body having an abutment adapted to be engaged by the base and the dog and means for drawing said base and dog into engagement with the abutment, whereby the tool and the base will be locked to the body.

5. The combination with a tool having a shank provided with a groove, a base having a hole to receive said shank, a dog socketed in the base and adapted to engage the groove and means, as a set-screw and groove, for retaining the dog without locking it, of a body having an abutment adapted to be engaged by the base and the dog and means for drawing the base into engagement with the abutment, substantially as shown, for the purpose specified.

677,851. BUILDING-BLOCK. BALTHASAR HAFFNER, Maurer, N. J. Filed Feb. 19, 1901. Serial No. 47,898. (No model.)



Claim.—A hollow fireproof building-block having a receding section to form a groove, an opposite outwardly-projecting section to form a tongue, and diagonal braces extending from the ends of the receding section and tongue respectively to the top and bottom of the block, substantially as specified.

677,852. CONVERTIBLE DUMP-CAR. HARRY S. HART, Chicago, Ill., assignor to Rodger Ballast Car Company, same place. Filed Mar. 22, 1901. Serial No. 52,227. (No model.)

Claim.—1. In a car of the class described, the combination of a supporting-frame portion, a hopper portion with its inclined sides made in two sections—one a fixed section forming the lower part of the hopper and provided with a discharging-door and the other an upper movable section arranged when in one position to form the upper portion of the inclined hopper side and in the other to form a flat dumping-platform, substantially as described



2. In a car of the class described, the combination of a supporting-frame portion, a hopper with its apex arranged longitudinally of the car and its inclined sides made in two sections—one a fixed section forming the lower portion of the hopper secured to the frame and provided with a discharging-door and the other an upper movable section arranged in one position to form the upper portion of the inclined hopper sides and in another position to form a flat dumping-platform, and means for supporting such movable sections in both positions, substantially as described.

3. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex arranged longitudinally of the car near its center portion with the inclined sides thereof made in two sections—one a lower section rigidly secured to the frame portion and the other foldably secured thereto so that it may be laid in a flat plane to form a dumping platform or bottom of a car or inclined to form a portion of the hopper sides, and means for supporting this foldable section in a flat plane and permitting it to swing downwardly to discharge the material therethrough, substantially as described.

4. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex arranged longitudinally thereof near the center of the car with its inclined side portions made in two sections, the lower rigidly or immovably secured to the frame of the car and provided with a discharging-door forming a portion of the incline and the upper foldably secured thereto at or near the floor-level so that it may be laid in a flat plane to form the bottom of a car or inclined to form a portion of the hopper, and movable means for supporting the foldable side sections in a flat plane to form a floor or permit them to drop down and discharge material therethrough or between them, substantially as described.

5. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex arranged longitudinally of the car and near the center thereof and with a discharging-door at its lower portion, the inclined sides thereof being made in two sections foldably secured together and the upper section arranged to be laid in a flat plane to form the bottom of a car or inclined to form a portion of the hopper, and a rocking center beam arranged longitudinally of and near the center of the car by which the movable sections of the hopper are supported to form a flat bottom and which may be rocked to one side or the other to permit such sections to drop downwardly and discharge the material between them, substantially as described.

6. In a car of the class described, the combination of a side supporting-frame portion, a hopper having its apex arranged longitudinally thereof near the center with its inclined sides made in two sections, the lower rigidly or comparatively immovably secured to the frame of the car and provided with a discharging-door forming a portion of the incline and an upper section foldably secured thereto so that it may be laid in a flat plane or inclined to form the upper portion of the hopper, a rocking center beam arranged longitudinally of and near the center of the car to support the foldable sections of the hopper in a flat plane and which can be swung from side to side to permit them to drop down and discharge material between them, and inclined end portions movably secured to and in the car sides, substantially as described.

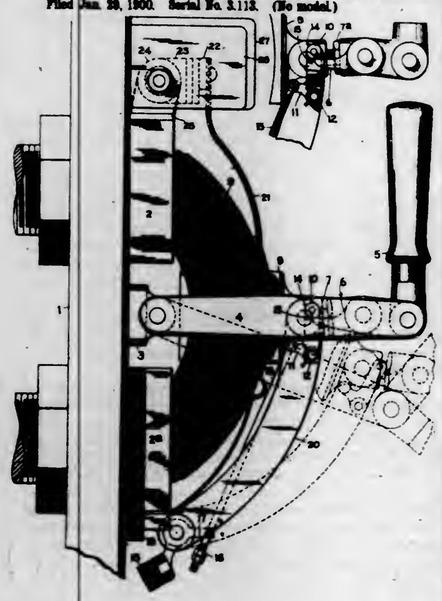
7. In a car of the class described, the combination of a side supporting-frame portion, a hopper having its apex arranged longitudinally thereof near the center with its inclined sides made in two sections—a lower section rigidly or immovably secured to the frame of the car and provided with a discharging-door forming a portion of the incline and an upper section foldably secured thereto so that it may be laid in a flat plane to form the bottom of a car or inclined to form a portion of the hopper side, vertical sides secured to the car-frame and provided with grooved guiding portions therein, and inclined end portions provided with projections engaging the grooved portions of the vertical sides to hold them in an inclined upper position to complete the hopper and permit such ends to be moved and laid in a flat plane, substantially as described.

8. In a car of the class described, the combination of a supporting-frame portion, vertical sides secured thereto and provided with swinging sections adapted to be swung outwardly, means for locking and holding such sections in closed position, a hopper portion having its apex arranged longitudinally of the car near its central portion with its sides made in two sections—a lower section immovably secured to the car-frame and provided with a discharging-door forming an inclined part thereof and upper sections foldably secured to the latter sections to complete the flat floor in one position and inclined to form a portion of the hopper sides in the second position, and inclined ends movably secured to the vertical sides of the car, substantially as described.

9. In a car of the class described, the combination of a supporting-frame portion provided with immovable floor-sections, vertical sides made into two sections—an upper fixed section and a lower swinging section arranged to be swung outwardly, means for holding the swinging sections of the vertical sides in their closed position, a hopper portion having its apex arranged longitudinally of the car near its central portion with its inclined sides made in two sections—a lower section immovably secured to the car-frame and provided with a discharging-door forming an inclined part thereof, and an upper section foldably secured thereto to complete the floor portion in one position and inclined to form a portion of the hopper in the second position, and a rocking center beam to support the swinging sections of the hopper in a flat plane and arranged to be rocked from side to side to permit such swinging sections to drop down and discharge such material between them, substantially as described.

10. In a car of the class described, the combination of a supporting-frame portion provided with immovable floor-sections, vertical sides made in two sections—an upper fixed section and a lower swinging section arranged to be swung outwardly, means for holding the swinging sections of the vertical sides in their closed position, a hopper portion having its apex arranged longitudinally of the car near its central portion with its inclined sides made in two sections—a lower section immovably secured to the car-frame and provided with a discharging-door forming an inclined part thereof and an upper section foldably secured thereto to complete the floor portion in one position and inclined to form a portion of the hopper in a second position, a rocking center beam to support the swinging sections of the hopper in a flat plane and arranged to be swung from side to side to permit such sections to drop down and discharge such material between them, grooved guiding portions secured to the vertical sides of the car near each end and at the inner side thereof, and inclined hopper ends provided with projections engaging the grooved guiding portions of the vertical sides by which they are supported and in which they are moved from an inclined to a flat plane or vice versa, substantially as described.

677,353. **CIRCUIT-BREAKER.** EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 29, 1900. Serial No. 3,113. (No model.)



Claim.—1. A circuit-breaker comprising an elastically-yielding movable contact, a pivoted frame mounted on the base supporting the contact, and a handle for cramping the contact between fixed parts of the frame.

2. A circuit-breaker comprising fixed circuit-terminals, an elastically-yielding bridging contact, a pivoted cramping-frame mounted on the base between the terminals, a handle on said frame for compressing the contact within the frame, a latch for locking the contact when set, and a stop for limiting the opening movement.

3. A circuit-breaker comprising fixed circuit-terminals, an elastically-yielding bridging contact, a cramping-frame pivoted to the base between the terminals, a toggle for setting the contact, and a stop for limiting the opening movement.

4. A circuit-breaker comprising fixed and movable contacts, a cramping-frame pivoted to the base, a toggle for setting the contacts in engagement, a releasing device, and an arm secured to the base and pivoted to the movable contact to limit the degree of separation of the contacts.

5. A circuit-breaker comprising fixed and movable contacts, a cramping-frame pivoted to the base, a toggle for setting the contacts, a releasing device, and a rigid link between the base and the toggle to limit the degree of separation of the contacts.

6. A circuit-breaker comprising fixed circuit-terminals mounted on a vertical board, a cramping-frame pivoted to the board between the terminals, carrying a bridging contact, a toggle acting against the frame to set the contact, and a link pivoted to the toggle at a point below the frame to limit the opening movement of the circuit-breaker.

7. An automatic circuit-breaker comprising fixed and movable contacts on a vertical board, a pivoted cramping-frame carrying the movable contact, a toggle for setting the contact, a stop for arresting the fall of the frame when the toggle is released, a detent to latch the toggle when set, and a magnetic releasing device for the detent.

8. A circuit-breaker provided with a movable bridging contact, and a shunt-contact mounted on the same support having one end flexibly connected by a fixed connection with one of the circuit-terminals and the other end adjusted to break at the other circuit-terminal after the bridging contact has opened.

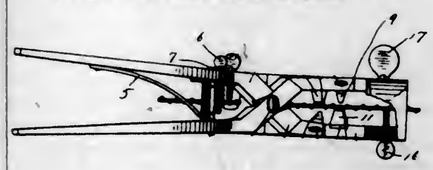
9. A circuit-breaker comprising fixed contacts, a movable bridging contact, and a bridging shunt-contact of flexible conductor mounted on the same support and having one end permanently fixed to one of the circuit-terminals and the other end adapted to open the circuit after the bridging contact has left the terminals.

10. A circuit-breaker comprising fixed terminals, an elastic bridging contact formed of a bundle of curved metal sheets, a cramping-frame and toggle supporting the contact, said frame being pivoted between the fixed terminals to drop by gravity when released, and a link fixed at an angle to the frame to limit the extent of its fall.

11. A circuit-breaker comprising fixed terminals, a bridging contact movable with relation thereto, and a shunt-contact carried by the same support as the bridging contact and movable with the same, said shunt-contact engaging by a fixed connection with one terminal and adapted to open its connection with the other terminal independently of the bridging contact.

12. A circuit-breaker for heavy currents, comprising fixed and movable contacts, a shunt-contact, a blow-out magnet formed of a single helical winding of metal, and metal plates engaging its ends connecting respectively with the shunt-contact and one terminal over a large area of contact-surface.

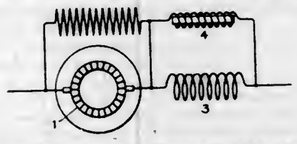
677,354. **SAW-SET.** JOHN T. HILDAHL, Sparta township, Minn. Filed Jan. 19, 1901. Serial No. 43,846. (No model.)



Claim.—1. A saw-set comprising, in combination, a vise for holding the saw, a pair of staggered anvil-blocks adjustable in said vise, crosswise of the saw, and a pair of levers pivoted to said vise and having staggered dies on their jaws mounted for adjustment lengthwise of the saw, for coöperation with the anvil-blocks in the vise, substantially as described.

2. A saw-set comprising in combination with a channel-piece 3, of the adjustable anvil-blocks 11 mounted thereon, the adjusting-screws 13 for adjusting said anvil-blocks, the set-screws 16 for aligning the saw, the spring-pressed levers 1 pivoted to said channel-piece 3 at 2 and provided with the seats 8, and the setting-dies 9 the stems of which are adjustably mounted in said seats 8, substantially as described.

677,355. **REGULATION OF DYNAMO-ELECTRIC MACHINES.** HENRY M. HOBART, Berlin, Germany, assignor to General Electric Company, of New York. Filed Jan. 5, 1901. Serial No. 42,259. (No model.)



Claim.—1. The combination of a dynamo-electric machine provided with a winding, and a reactive adjusting-shunt for said winding.

2. A compound-wound dynamo-electric machine having an inductive shunt about its series winding.

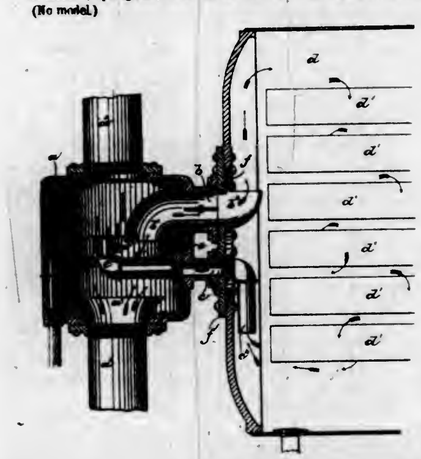
3. The combination of a dynamo-electric machine provided with a winding, an adjusting-shunt therefor, and means for causing the time constant of the shunt to approximate that of the winding.

4. A dynamo-electric machine having a series winding, and a circuit possessing inductance shunted across points in said winding.

5. The combination of a dynamo-electric machine provided with a series winding, and an adjusting-shunt for said winding formed in part at least of a bar or bars of magnetic material.

6. A dynamo-electric machine, a regulating-coil therefor, and a reactive adjusting-shunt for said coil.

677,356. **INDUCTION-CHAMBER AND OIL-ELIMINATOR.** JOHN J. HOPPER, Springfield, Ohio. Filed Mar. 6, 1901. Serial No. 50,077. (No model.)



Claim.—1. The combination with the exhaust-pipe of a steam-engine and a feed-water heater, of a chamber in said exhaust-pipe having inlet and outlet ports to said heater, the lower side of said inlet being extended and curved to discharge the steam into the upper portion of said heater, and said outlet being extended downwardly to exhaust air and gases from the lower portion of said heater, substantially as specified.

2. The combination with the exhaust-pipe of a steam-engine and a feed-water heater, of a chamber in said exhaust-pipe having inlet and outlet ports to said heater, the inlet-port for said heater extending in said chamber and opening downwardly partially over said exhaust-inlet to carry steam to said heater, and the outlet-port for said heater extending in said chamber and opening upwardly above said exhaust-inlet and toward the exhaust-outlet to exhaust air and gas from said heater, substantially as specified.

3. The combination with the exhaust-pipe of a steam-engine and a feed-water heater, of a chamber in said exhaust-pipe, an upwardly and outwardly flaring flange from the exhaust-pipe inlet in said chamber, the inlet-port for said heater extending at one end in said chamber and opening downwardly over said exhaust-inlet to convey steam to said heater, the lower side of the other end of said inlet-port being extended and curved to direct the steam into the upper portion of said heater, said outlet-port of said heater at one end being extended downwardly into said heater and at the other end extended into said chamber and opening upwardly above said exhaust-inlet and toward the exhaust-outlet to exhaust air and gas from said heater, substantially as specified.

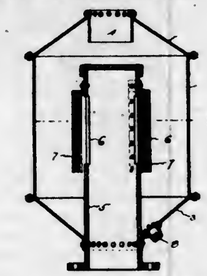
4. The combination with a feed-water heater and the exhaust-pipe of a steam-engine, of a chamber in said exhaust-pipe, a bell-shaped exhaust-inlet into said chamber, an annular projection extending around the inner walls of said chamber having upturned flanges forming a gutter, a pipe in said gutter extending from above the bottom of same to near the bottom of said chamber, and water retained in the bottom of said chamber, substantially as specified.

5. The combination with a feed-water heater and a chamber having an inlet and outlet for the exhaust from a steam-engine, of an annular projection extending around the inner walls of said chamber having upturned flanges forming a gutter, a pipe in said gutter extending from above the bottom of said gutter to near the bottom of said chamber, an inlet-port extending and opening downwardly partially over said exhaust-inlet in said chamber at one end and at the other extended so as to discharge upwardly into said heater, an outlet-port extending downwardly in said heater at one end and at the other inwardly and opening upwardly above exhaust-inlet in the direction of the exhaust-outlet, valves in said inlet and outlet ports to cut off steam from said heater and a pipe in the bottom of said chamber to carry off oil and water, substantially as specified.

6. The combination with a feed-water heater and a chamber having inlet and outlet ports to said heater, of an intermediate plate between said heater and chamber whereby only one opening in said heater is required to connect said inlet and outlet ports.

7. The combination with the exhaust-pipe of a steam-engine and a feed-water heater of a chamber in said exhaust-pipe having inlet and outlet ports to said heater, the lower side of said inlet being extended and curved to discharge the steam into the upper portion of said heater and said outlet being extended at one end downwardly in said heater and at the other end in said chamber to exhaust air and gases from the lower portion of said heater, and valves to control said inlet and outlet ports, substantially as specified.

677,357. **EXHAUST-HEAD.** ARTHUR S. HYDE, Hartford, Conn., assignor to the Whitlock Coil Pipe Company, Elmwood, Conn. Filed Apr. 17, 1901. Serial No. 56,282. (No model.)



Claim.—1. An exhaust-head having a shell with a vapor-outlet through the upper end and an exhaust-inlet through the lower end with longitudinally-extending slots through the exhaust-inlet pipe and deflecting-wings fastened to the inlet-pipe and extending in front of the slots, and a drip-outlet through the bottom of the shell, substantially as specified.

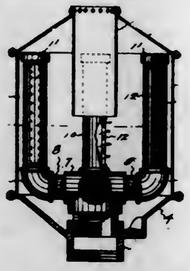
2. An exhaust-head having a cylindrical shell with tapering caps at the ends, a vapor-outlet pipe extending through the upper cap, an exhaust-inlet pipe extending through the lower cap, said inlet-pipe being provided with longitudinally-extending slots and with deflecting-wings projecting from the pipe in front of the slots, and a drip-outlet through the lower cap, substantially as specified.

677,358. **EXHAUST-HEAD.** ARTHUR S. HYDE, Hartford, Conn., assignor to the Whitlock Coil Pipe Company, Elmwood, Conn. Filed Apr. 17, 1901. Serial No. 56,283. (No model.)

Claim.—1. An exhaust-head having a shell with a vapor-outlet through the upper end, an exhaust-inlet through the lower end, radially-extending pipes connected with the exhaust-inlet, upwardly-extending pipes with openings through one side connected with the radial pipes, and a drip-outlet through the lower end of the shell, substantially as specified.

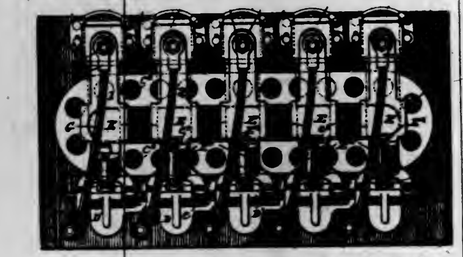
2. An exhaust-head having a cylindrical shell with tapering caps at

the ends, a vapor-outlet through the upper cap, an exhaust-inlet through the lower cap, a cross-T connected with the inlet, pipes extending outwardly from the cross-T, pipes with openings through one side extending upwardly from the outwardly-extending pipes, and a drip-opening through the lower cap, substantially as specified.



3. An exhaust-head having a cylindrical shell with tapering caps at the ends, a vapor-outlet through the upper cap, an exhaust-inlet through the lower cap, a cross-T connected with the inlet, nipples extending outwardly from the branches of the cross, L's connected with the nipples, upwardly-extending pipes with openings through one side, connected with the L's, and a drip-outlet through the lower cap, substantially as specified.

677,359. **ELECTROMAGNET.** JOHN D. ILDER, Yonkers, N. Y., assignor to the Otis Elevator Company, East Orange, N. J. Filed Apr. 17, 1900. Serial No. 13,260. (No model.)



Claim.—1. A multiple magnet comprising a base, a plurality of cores mounted on the base, a coil embracing all the cores, and a plurality of armatures coöperating with the cores, substantially as described.

2. A multiple magnet comprising a base, a plurality of cores mounted on the base, a coil embracing all the cores, a plurality of standards, and an armature mounted on each standard, substantially as described.

3. A multiple magnet comprising a base, a plurality of cores mounted on the base, a coil embracing all the cores, a plurality of standards, an armature pivoted to each standard, and means for independently adjusting the armatures with relation to the cores, substantially as described.

4. A multiple magnet comprising a base, a plurality of cores mounted on the base, a coil embracing all the cores, standards, and armatures pivoted to the standards the armatures being provided with lugs, substantially as described.

5. A multiple magnet comprising a base, a plurality or cores mounted on the base, a coil embracing all the cores, standards, armatures pivoted to the standards the armatures being provided with lugs, and adjustable bolts connected to the lugs and bearing on the standards, substantially as described.

6. The combination with a base, a plurality of U-shaped pieces each forming a core, a yoke, and a standard, of a coil embracing the cores, and contacts supported on the standards, substantially as described.

7. The combination with a base, a plurality of U-shaped pieces each forming a core, a yoke, and a standard, of a coil embracing the cores, contacts supported on the standards, a series of arms, and an armature mounted on each arm carrying a contact, substantially as described.

8. The combination with a base, of a plurality of cores, a coil embracing all the cores, a plurality of standards carrying contacts, a plurality of arms, an armature carrying a contact mounted on each arm, and means for independently adjusting the armatures, substantially as described.

9. The combination with an armature provided with a lug and carrying a contact, of a conductor connected to the contact, and a projection connected to the armature for supporting the conductor, substantially as described.

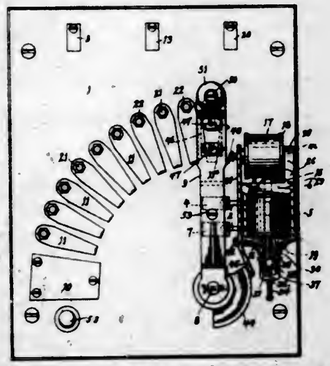
10. The combination with a pivoted armature provided with a lug, of an adjustable bolt in the lug, means for securing the bolt in position, a contact on the armature, a conductor connected to the contact, and a projection supporting the conductor, substantially as described.

11. The combination with a contact comprising a plate carrying pins, of a socket mounted on the pins, a contact-block carried by the socket, and springs interposed between the plate and socket, substantially as described.

12. The combination with an armature carrying a metallic contact-plate, of two spring-controlled contacts one of which is of metal and the other of carbon, the contacts being arranged substantially as described so that the armature-plate first impinges on the carbon contact and then on the metallic contact, substantially as set forth.

13. The combination with an armature having a flat-faced metallic contact, of two flat-faced spring-controlled contacts one of which is of carbon and the other of metal, the carbon projecting beyond the metal contact, substantially as described.

677,360. **ELECTRIC-CURRENT CONTROLLER.** CHARLES H. KENNEY, Milwaukee, Wis. Filed May 6, 1901. Serial No. 58,886. (No model.)



Claim.—1. In a controller for electric current, an iron frame, an electromagnet-spool and its coil mounted on the frame, and a solenoid-spool and its coil suspended on the frame from a medial bar thereof located between the electromagnet-spool and the solenoid-spool.

2. In a controller for electric current, an iron frame, an electromagnet-spool mounted on the frame, a solenoid-spool having a non-magnetic tubular axial member, and an iron screw through a part of the frame located between the two spools and turning by its thread into the tubular axial member of the solenoid-spool.

3. In electrical devices, an iron frame, a solenoid-spool having a tubular non-magnetic axial member, and an iron screw through a member of the frame and turning by its thread into the tubular member of the spool and suspending the spool removably on the frame, the screw being adapted to serve as a magnetic pole of the solenoid.

4. In electric devices, an iron frame, a solenoid-spool having a tubular non-magnetic axial member, an iron screw through a member of the frame and turning by its thread into the tubular member of the spool and suspending the spool on the frame, the screw being adapted to serve as a magnetic pole of the solenoid, and a soft-iron solenoid-core supported normally on the frame and arranged to travel vertically in and be guided by the tubular member of the solenoid.

5. In electrical devices, an iron frame, a solenoid-spool having a non-magnetic tubular axial member, means suspending the spool on the frame, a solenoid-core adapted to travel endwise in the tubular axial member of the spool, a block of insulating material secured to the end of the solenoid-core and guided in its movements with the core by ways in the frame, and means for adjusting the core to a desired position in the spool-tube.

6. In electrical devices, an iron frame, a solenoid-spool having a non-magnetic tubular axial member, an iron magnetic spool-screw in the frame turning into the non-magnetic tubular member of the spool at the top, a solenoid-core movable endwise in the tubular member of the spool, a block of insulating material fixed on the lower end of the core, and an adjustable screw in the frame on the end of which said block and core are supported normally, the core being adapted by means of the set-screw to be adjusted at a greater or less distance from the iron magnetic pole-screw.

7. In electrical devices, an iron frame, an electromagnet-coil mounted on the frame, the coil having lined terminal contact-posts adjacent to the frame, a solenoid-coil mounted in the frame, a solenoid-core movable endwise in the hollow axis of the solenoid-coil, an insulating-block on the outer end of the core and an electric contact-strip on the insulating-block adapted to be put into contact with said contact-posts when the core under magnetic energy is drawn into the solenoid-coil.

8. In electrical devices, an integral iron frame, an iron core secured rigidly to the iron frame, an electromagnet spool and coil on said core, an armature arranged to contact with the free extremity of said core and with a parallel member of said frame, a solenoid spool and coil mounted on the same frame, a solenoid-core movable endwise in the solenoid-spool, an insulating-block on the free end of the solenoid-core, an electric contact-piece fixed on the insulating-block, and electric contact-posts disposed to be connected by the contact-piece on said insulating-block when the solenoid-core is drawn into its coil by magnetic energy, the contact-posts being connected electrically to terminals of the electromagnet-coil.

9. In combination in electrical devices, an iron frame having an integral projecting member 26 substantially at a right angle to the part 29, an iron core 38 parallel with part 29 and secured detachably and magnetically to the member 26, an electric-coil spool on said core, and a movable armature adapted to be attracted to and to connect the core and the part 29 as magnetic poles.

10. In combination in electrical devices, an iron frame having an integral projecting member 26 substantially at a right angle to the part 29, an iron core 38 parallel with part 29 secured detachably and magnetically to the member 26, an electric-coil spool on said core, a movable armature adapted to be attracted to and to connect the core and the part 29 as magnetic poles, and a brass screw 43 inserted in said core and passing loosely through the armature and serving as a non-magnetic guide for the armature.

11. In electrical devices, an iron frame provided with a core supporting an electric coil, an armature hinged on the frame by a screw passing loosely through the armature medially, the armature being arranged to contact with said core and a part of the frame as magnetic poles and having a finger extension beyond its hinge adapted to serve as a switch-locking device.

12. In electrical devices, an iron frame provided with a core supporting an electric coil, an armature hinged on the frame by a screw passing loosely through the armature medially, the armature being arranged to contact with said core and a part of the frame as magnetic poles and having a finger extension beyond its hinge adapted to serve as a switch-locking device, and a swinging switch-arm provided with a segment having notches adapted to be engaged by the finger on the armature.

13. In electrical devices, a solenoid-spool provided with a non-magnetic tubular axial member, a soft-iron magnetic pole in one extremity of the tubular axial member, an iron solenoid-core movable endwise in the tubular axial member of the spool and a non-magnetic pin in the end of the core adapted to contact with the magnetic pole and prevent the direct contact of the core with the pole when attracted thereto by the energy of the solenoid.

14. In electrical devices, a solenoid-spool provided with a non-magnetic tubular axial member, a soft-iron magnetic pole in one extremity of the tubular axial member, an iron solenoid-core movable sidewise in the tubular axial member of the spool, an elongated block of insulating material disposed transversely of and secured medially to the end of the core, an electric contact-piece mounted on the insulating-block at a distance from the core, and an adjustable supporting-screw bearing against the end of the core.

15. In electrical devices, a swinging switch-arm, a post provided with a collar, and a spring secured at one end to and coiled about the post and bearing against the switch-arm, the spring acting expansively to hold the arm to the collar and torsionally to throw the arm around in one direction laterally.

16. In electrical devices, a swinging switch-arm, an electric contact-block provided with a plurality of pins passing loosely through the switch-arm, and means for holding the block yieldingly away from the arm.

17. In electrical devices, a swinging switch-arm, an electric contact-block provided with a plurality of pins passing loosely through the switch-arm, a spring bearing against the block and held adjustably on the arm adapted to push the block yieldingly away from the arm.

18. In electrical devices, a swinging switch-arm, an electric contact-block provided with a plurality of pins passing loosely through the switch-arm, a flat spring fulcrumed medially on the arm and bearing at one end on the block and provided with a shoulder at its other end, a nut engaged by the shoulder and a screw revolubly in the arm turning into the nut and adapted to regulate the strength of the spring.

19. In electrical devices, a swinging switch-arm, an electric contact-block provided with a plurality of pins passing loosely through the switch-arm, means for holding the block yieldingly away from the arm, and a flexible copper strip connected to the arm and to the block.

20. In electrical devices, a segmental contact-piece provided at one end with a tang and a shoulder directed substantially at a right angle to the principal plane of the contact-piece, and means for securing the other end of the contact-piece to a support.

21. In a controller for electric current, an integral iron frame, an electromagnet mounted on the frame, a solenoid mounted on the frame and electrically connected to the armature of a motor, and means adapted to short-circuit the electromagnet by an electric overload of the motor-armature to a predetermined extent.

22. In a controller for electric current, an integral iron frame, an electromagnet mounted on the frame, a solenoid on the frame and electrically connected to the armature of a motor, an armature held magnetically to the frame, and means for releasing magnetically the armature by short-circuiting the electromagnet at a predetermined overload of the motor-armature.

23. In a controller for electric current, an iron frame, an electromagnet-spool and its coil mounted on the frame, and a solenoid-spool and its coil mounted on the frame, a medial bar of the frame being located between the electromagnet-spool and the solenoid-spool.

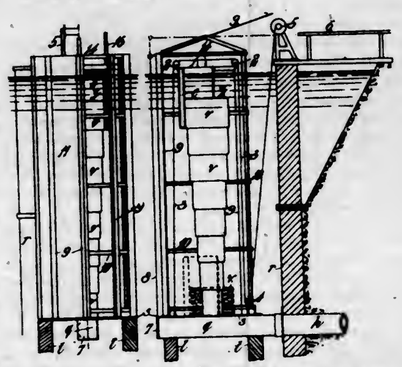
24. In a controller for electric current, an integral iron frame, an electromagnet and a solenoid mounted on the frame, an armature hinged to the frame, and means for magnetically releasing the armature by short-circuiting the electromagnet.

25. In a controller for electric current, an integral iron frame, an electromagnet and a solenoid mounted on the frame, and means for short-circuiting the electromagnet.

26. In a controller for electric current, an integral iron frame, an electromagnet and a solenoid mounted on the frame, an armature held magnetically to the frame, and means for magnetically releasing the armature by short-circuiting the electromagnet.

27. In a controller for electric current, an integral iron frame arranged to act as magnetic poles to both an electromagnet and a solenoid attached thereto, and means for short-circuiting the electromagnet by the solenoid.

677,361. **WATER MODULE OR DELIVERY REGULATOR.** CHARLES H. LIVESAY, Ealing, England. Filed Feb. 19, 1900. Serial No. 5,744. (No model.)



Claim.—1. Apparatus for controlling the flow of water from a river to a hydraulic works comprising a water-delivery pipe leading to the hydraulic works and having an inlet located below the lowest water-level in the river, means for opening and closing the inlet to said delivery-pipe, a water-controlling pipe located in the river and capable of rising and falling with the level thereof, said controlling-pipe having its lower end in connection with said delivery-pipe and its upper end near to and below the surface of the river, and means for supporting said controlling-pipe so as to maintain its upper end near to but below the level of the river.

2. Apparatus for controlling the flow of water from a river to a hydraulic works comprising a water-delivery pipe leading to the hydraulic works and extending into the river, below the lowest water-level thereof, a water-controlling pipe located in the river, having its lower end in connection with said delivery-pipe and capable of rising and falling with said river, a buoyant body located in said river and connected to the upper end of said water-controlling pipe so as to support the upper end of the latter at a suitable distance below the surface of the river, and a grid-like structure that is supported from the bed of the river and is adapted to protect said controlling-pipe, and to prevent the passage of weeds and other comparatively large floating bodies to the top of said controlling-pipe, substantially as described.

3. Apparatus for controlling the flow of water from a river to a hy-

draulic works, comprising a water-delivery pipe leading to the hydraulic works, a water-controlling pipe located in the river, having its lower end in connection with said delivery-pipe, and capable of rising and falling with said river, a buoyant body connected to the upper end of said water-controlling pipe, and adjusting means comprising a flexible connector whereby the position of said buoyant body and the upper open end of the pipe, relatively to the level of the river, can be simultaneously varied from the bank of the river against the lifting action of said buoyant body.

4. Apparatus for controlling the flow of water from a river to a hydraulic works, comprising a water-delivery pipe leading to the hydraulic works, a telescopic water-controlling pipe arranged vertically in the river, a buoyant body connected to the upper end of said telescopic pipe so as to support the same near to but below the level of said river, a stationary horizontal support to the upper and lower sides of which the lowest section of said telescopic pipe and the inlet end of the water-delivery pipe are respectively connected, through a hole in which these pipes communicate with each other, and upon which the other concentrically-arranged sections of the telescopic pipe can successively rest as the level of the river falls, and means for carrying said support independently of said water-delivery pipe, substantially as described.

5. Apparatus for controlling the flow of water from a river to a hydraulic works comprising a water-delivery pipe leading to the hydraulic works and located below the lowest water-level in said river, a second pipe extending into and supported within said river below the lowest water-level thereof, so as to constitute an extension of said delivery-pipe and having an inlet through which water can be admitted direct from the river to said pipe, means for controlling said inlet, a telescopic water-controlling pipe arranged vertically in the river and having its lower end in connection with said delivery-pipe through said second pipe, and a buoyant body connected to the upper end of said telescopic pipe, so as to support the same near to but below the level of said river, substantially as described.

6. Apparatus for controlling the flow of water from a river to a hydraulic works comprising a water-delivery pipe leading to the hydraulic works, a telescopic water-controlling pipe arranged vertically in said river and having its lower end in connection with said water-delivery pipe, a lower fixed support upon which the sections of the pipe can successively rest as the level of the river falls, a float supporting the upper end of said telescopic pipe near to but below the level of said river, and a protective grid-like frame surrounding said telescopic pipe, arranged to guide said pipe vertically and to support the same laterally, substantially as described.

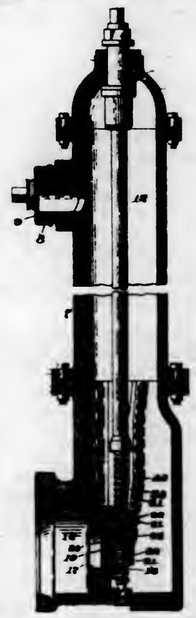
7. Apparatus for controlling the flow of water from a river to a hydraulic works comprising a water-delivery pipe leading to the hydraulic works, a telescopic water-controlling pipe arranged vertically in said river and having its lower end in connection with said water-delivery pipe, a float supporting the upper end of said telescopic pipe near to but below the level of said river, and means whereby the position of the upper open end of the controlling-pipe relatively to the level of the river can be adjusted from the side of the river independently of the action of said float, substantially as described.

8. Apparatus for controlling the flow of water from a river to a hydraulic works, comprising a water-delivery pipe leading to the hydraulic works, a telescopic water-controlling pipe arranged vertically in said river and having its lower end in connection with said water-delivery pipe, a float fixed to and supporting the upper end of said telescopic pipe near to and below the level of said river, a fixed support for the lower end of said telescopic pipe, guide-pulleys connected to said float, a guide-pulley connected to said fixed support, a flexible connector secured at one end to said fixed support, passing over the pulleys carried by the float and under the guide-pulley connected to said fixed support, and means located on the bank of the river for drawing up the other end of said flexible connector and simultaneously depressing said float and the upper end of said pipe, substantially as described.

9. Apparatus for controlling the flow of water from a river to a waterworks, docks or the like, comprising a water-delivery pipe *h* leading to the waterworks docks or the like, a fixed pipe *q* located in said river and in connection with said delivery-pipe, a fixed support above said pipe *q*, a vertical telescopic water-controlling pipe having its lowest section fixed to said support and in communication with said pipe *q*, a float connected to the top section of said telescopic pipe and supporting the same near to but below the level of said river, and a protective framework surrounding said telescopic pipe, provided with a grid, and in which said telescopic pipe is guided, substantially as described for the purposes specified.

677,862. HYDRANT. CHRISTIAN H. LOETSCHER, Sayre, Pa., assignor to the Clayton Wheel & Foundry Company, same place. Filed Dec. 20, 1900. Serial No. 40,565. (No model.)

Claim.—1. In a fire-hydrant, the combination with the valve-seat, of a valve, and an operating-wedge therefor having a vertical screw-threaded opening, and a threaded operating-stem working in said opening, said valve and wedge having reversely-arranged coöperating surfaces each constructed of substantially a divided frustum of a cone, and said valve having independent movement about the vertical axis of said stem, as described.



2. In a fire-hydrant, the combination with the valve-seat, of a valve, and an operating-wedge therefor, said valve having in its inner surface a concavity shaped substantially as an inverted divided frustum of a cone, and provided with a lug above and below said concavity, said lugs having each an opening, and said wedge having on its opposite surface a projection fitting said concavity and shaped substantially as a divided frustum of a cone, the wedge also having a threaded opening, and a threaded operating-stem working in said opening of the wedge and passing loosely through the openings in said lugs, substantially as described.

3. In a fire-hydrant, the combination with the valve-seat, of a valve having independent movement about a vertical axis, and an operating-wedge for the valve, said wedge being provided with lateral wings having inclined surfaces, and inclined guides for said wings arranged interiorly of the base of the hydrant at the sides of the waterway, substantially as described.

4. In a fire-hydrant, the combination with the valve-seat, of the valve, and an operating-wedge therefor, said wedge provided with lateral wings having widened extremities formed with inclined surfaces, and inclined guides for said wings arranged interiorly of the base of the hydrant at the sides of the waterway therein.

5. In a fire-hydrant, the combination with the valve-seat, of the valve, and an operating-wedge therefor having a closing movement in excess of the valve, said wedge provided with lateral wings having widened extremities formed with inclined surfaces, and inclined guides for said wings located interiorly of the base of the hydrant at the sides of the waterway therein.

6. In a fire-hydrant, the combination with the valve-seat, of a valve, and an operating-wedge therefor, said valve and wedge having reversely-arranged coöperating wedging-surfaces each constructed substantially of a divided frustum of a cone, said wedge also provided with lateral wings having inclined surfaces, and inclined guides for said wings located interiorly of the base of the hydrant at opposite sides of the waterway therein.

7. In a fire-hydrant, the combination with the valve-seat, of a valve, and an operating-wedge therefor, said valve and wedge having reversely-arranged coöperating wedging-surfaces each constructed substantially of a divided frustum of a cone, said wedge also provided with lateral wings having widened extremities formed with inclined surfaces, and inclined guides for said wings located interiorly of the base of the hydrant-base at the sides of the waterway therein.

8. In a fire-hydrant, the combination with the valve-seat, of the valve having independent movement about a vertical axis, and an operating device therefor constructed to permit such movement, said device having lateral wings, and guides for said wings arranged interiorly of the base of the hydrant at the sides of the waterway, substantially as described.

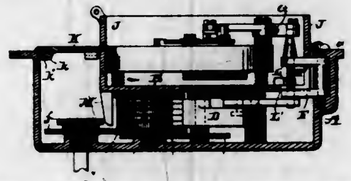
9. In a fire-hydrant, the combination with the valve-seat, of the valve having independent movement about a vertical axis, and an operating device therefor constructed to permit such movement, said device provided with lateral wings having inclined surfaces at the ends, and inclined guides for said wings arranged interiorly of the base of the hydrant at the sides of the waterway, substantially as described.

10. In a fire-hydrant, the combination with the valve-seat, of the valve having independent movement about a vertical axis, and an operating device therefor constructed to permit such movement, said device provided with lateral wings having widened or elongated extremities formed with inclined surfaces, and inclined guides for said extremities arranged interiorly of the base of the hydrant at the sides of the waterway, substantially as described.

11. In a fire-hydrant, the combination with the valve-seat, of the valve having independent movement about a vertical axis, and an operating device therefor constructed to permit such movement, said device having an opening-and-closing movement in excess of the valve and provided with lateral wings having widened or elongated extremities formed with inclined surfaces, and inclined guides for said extremities arranged interiorly of the base of the hydrant at the sides of the waterway, substantially as described.

12. In a fire-hydrant, the combination with the valve-seat, of the valve, and an operating device therefor, said device provided with lateral wings having widened or elongated extremities formed with inclined surfaces, and the outer surface of said device being rounded between the vertical edges thereof, and inclined guides for said extremities arranged interiorly of the base of the hydrant at the sides of the waterway therein, substantially as described.

677,363. COMBINED TIME AND COMBINATION LOCK. EDWARD H. MIX, Stamford Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Feb. 26, 1901. Serial No. 48,787. (No model.)



Claim.—1. In combination of a casing containing a combination-lock mechanism, a separate casing containing time-lock mechanism, the latter casing interlocking with the former and provided with a projection or lug which, unless the combination is set, prevents the removal of the time-lock casing from the combination-lock casing substantially as described.

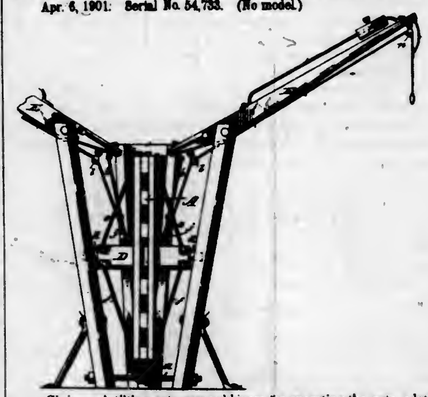
2. The combination with a casing containing combination-lock mechanism, of an independent casing containing time-lock mechanism, the latter casing interlocking with the former and provided with a projection or lug which unless the combination is set prevents the removal of the time-lock casing from the combination-lock casing, and means designed to hold the fence of the combination-lock mechanism out of engagement with the tumblers for a predetermined time under the control of the time-lock mechanism.

3. The combination with a casing containing combination-lock mechanism, of a casing containing time-lock mechanism, the two casings having interlocking shoulders, and the time-lock-mechanism casing having a lug adapted to engage the tumblers for locking said latter casing within the larger casing.

4. The combination with a casing containing combination-lock mechanism, of a casing containing time-lock mechanism, and provided with a depending lug adapted to engage the tumbler-wheels of the combination-lock, the two casings being provided with interlocking lugs, and means connecting the time mechanism and the fence of the combination-lock mechanism whereby the combination-lock mechanism is rendered inoperative by the time mechanism.

5. The combination with a casing containing combination-lock mechanism, of a casing containing time mechanism the two casings having lugs which are interlocked and disengaged by a sliding or longitudinal movement, the casing containing the time mechanism having a depending lug which engages the tumbler or combination wheels, and prevents a separation of the two lock-cases, and means connecting the time mechanism with the fence of the combination mechanism whereby the combination-lock is rendered inoperative by the time mechanism.

677,364. FARM-GATE. JAMES E. MOORE, Bozeman, Mont. Filed Apr. 6, 1901. Serial No. 54,733. (No model.)



Claim.—A tilting gate, pivoted levers for operating the gate, a latch upon the gate provided with a cam latching end, supporting or suspending springs engaging guides at the front and rear ends of the latch and upon its under and upper sides respectively, a main spring engaging a guide upon the side of the latch, and a rope or cable connected to the rear end of the latch and extending over suitable pulleys and connecting with the outer ends of the levers by means of supplemental ropes or cables, substantially as and for the purpose described.

677,365. SNAP-HOOK. FRANK MORRISON, Hamilton, Mont. Filed Mar. 25, 1901. Serial No. 52,861. (No model.)



Claim.—1. A snap-hook, having a lateral projection upon the inner side of the shank extended toward and directly opposite the terminal of the bill, and a spring-actuated tongue, the free outer end of which is bifurcated to straddle the bill, and is provided with opposite longitudinal flanges that normally overlap the respective opposite sides of the terminal of the bill and the projection, whereby the ends of the flanges close the opening between the terminal of the bill and the projection, the outer ends of the flanges being convexed.

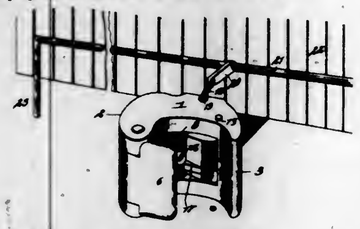
2. A snap-hook, having the terminal of its bill projected inwardly, a lateral projection upon the shank, located directly opposite the terminal of the bill and projected toward the same, the projection and the terminal of the bill forming seats or bearings for a link or ring which may be engaged with the bill, and a tongue, the free end of which normally extends between the outer ends of the projection and the terminal of the bill and closes the entrance opening into the bill.

3. A snap-hook, comprising a straight shank, having a bill at one end, the terminal of the bill being recurved, and provided with opposite outwardly-directed projections, a lateral inwardly-directed projection upon the shank extended toward and opposite the terminal of the bill, the inner side of the projection being disposed substantially at right angles to the shank, and the outer side being beveled inwardly toward the bill, a pivotal tongue mounted upon the shank, with its outer free end bifurcated to straddle the bill, and provided with opposite longitudinal flanges which overlap the terminal of the bill and the projection on the shank, the outer ends of the flanges being convexed, and a spring interposed between the tongue and the shank, whereby the free end of the tongue is normally held in yieldable engagement with the inner sides of the lateral projections upon the bill.

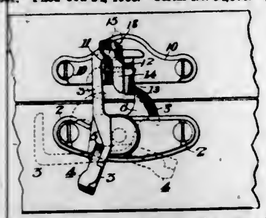
677,366. CAR-COUPLING. ALBERT A. MOSS, Plymouth, Pa. Filed Aug. 27, 1900. Serial No. 28,192. (No model.)

Claim.—A car-coupling comprising a draw-head, a coupling-knuckle pivoted thereto, and having a cam-flange upon its rear side, the upper face of the cam inclining upwardly toward the rear free end of the knuckle, a vertically-movable and rearwardly-swinging locking device pivotally mounted upon the draw-head and arranged in locked engagement with the rear free end of the knuckle, an intermediate transverse trip-rib upon

the outer side of the locking device, located above the bottom of the draw-head, and having its under face located in the path of the inward or rearward swing of the upper inclined face of the cam-flange on the knuckle, the cam-flange and the trip-rib being in engagement only during the inward swing of the knuckle, an upwardly and rearwardly inclined elevating-rib upon the bottom of the draw-head and in the path of the inward swing of the bottom of the locking device, and means for disengaging the locking device from the knuckle, the free end portion of the locking device being located in the path of the inward or rearward swing of the rear free end of the knuckle, whereby the locking device is swung rearwardly by the rearward movement of the knuckle.



677,367. AUTOMATIC SASH-LOCK. JAMES A. MCCANDLESS, Omaha, Nebr. Filed Oct. 24, 1900. Serial No. 34,176. (Model.)



Claim.—1. A sash-lock, comprising a bearing secured to the lower sash a lever pivotally secured to the said bearing, an extension forming a rigid part of said lever and having a lower inclined surface, a dog for securing the lever in a locked position, a bearing secured to the upper sash, a dog pivotally secured to the same and having an extension with which the lever coöperates, and a cam-surface formed on said dog with which the inclined surface of the extension of the lever coöperates for operating the lever in a closed position, as and for the purpose described.

2. A sash-lock comprising a bearing adapted to be secured to the lower sash, a hook-shaped lever pivotally secured to said bearing, an extension forming a rigid part of said lever and actuated thereby, an inclined flat surface formed on said extension, a bearing adapted to be secured to the upper sash, uprights forming a part of said bearing one of which is provided with an extension, a dog pivotally secured to said uprights, a stop located between the latter against which the dog rests, an extension forming a part of said dog with which the hook-shaped lever coöperates, a cam-surface formed on the dog and adapted to be brought in contact with the inclined surface of the extension of the lever, and a suitable lock or catch carried by the latter and adapted to coöperate with a recess formed in the bearing carried by the lower sash, as and for the purpose described.

677,368. PROCESS OF MANUFACTURING LEATHER. JAMES C. MCCONNELL, Cornelia, Ga. Filed Nov. 13, 1900. Serial No. 36,421. (No specimens.)

Claim.—1. The process of tanning hides, consisting in first dehairing the hides, then impregnating them with a solution of alum, then sammying them, then splitting them, and then mineral-tanning them, for the purposes set forth.

2. The process of tanning hides, consisting in first dehairing the hides, then impregnating them with a solution of alum and salt, then sammying them, then splitting them, then tanning them, and then staffing them, for the purposes set forth.

3. The art of tanning hides, consisting of dehairing the hides, then impregnating them with a preserving and protecting substance, such as alum, then sammying them, then splitting them, then mineral-tanning them, and then staffing them, for the purposes set forth.

4. The process of tanning hides, consisting of first dehairing the hides, then impregnating them with a preservative astringent in solution, then sammying them, then splitting them, then tanning them, and then staffing them.

5. The art of tanning hides, consisting of dehairing the hides, then impregnating them with alum and salt, then mineral-tanning them, and then staffing them at a high temperature, namely at 175° Fahrenheit or above as and for the purposes set forth.

677,369. NECK-YOKE FASTENING. THOMAS M. MCVAY, Summerfield, Ohio. Filed Apr. 15, 1901. Serial No. 55,878. (No model.)



Claim.—1. The combination, with a pole-sleeve, and the end portion of a pole provided with a stop for the sleeve, one of the said parts being provided with a projection and the other said part being provided with an L-shaped slot having its circumferential portion inclined so as to draw the sleeve toward the stop as it engages with the said projection; of means for pivotally connecting the said sleeve with a neck-yoke, substantially as set forth.

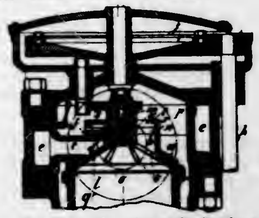
2. The combination, with a pole-sleeve provided with an L-shaped slot and a band which bridges the open end of the said slot, of the end portion of a pole provided with a projection for engaging with the said slot, and means for pivotally connecting the said sleeve with a neck-yoke, substantially as set forth.

3. The combination, with the tapered end portion of a pole provided with a collar and a projection, of a tapered sleeve provided with an L-shaped slot for engaging with the said projection, the circumferential portion of the said slot being inclined so as to draw the sleeve toward the collar when turned in one direction, and a neck-yoke pivotally connected with the said sleeve, substantially as set forth.

4. The combination, with the end portion of a pole provided with a projection and a stop, of a sleeve provided with an L-shaped slot which engages with the said projection and draws the sleeve tight against the said stop, said sleeve having also an integrally-formed loop at its front end, a neck-yoke which is freely movable in the said loop, and a vertical pin connecting the said neck-yoke and loop, substantially as set forth.

5. The combination, with a neck-yoke, and a bearing connected to the rear side of the middle part thereof; of a loop which loosely encircles the said neck-yoke and bearing, said loop being provided with means for connecting it to a vehicle-pole, and a vertical pin passing through the said loop and bearing, substantially as set forth.

677,370. ROTARY CUT-OFF VALVE. CHARLES PIGUET, Lyon-Vaise, France, assignor to La Société Piguet & Cie., same place. Filed Nov. 12, 1900. Serial No. 36,296. (No model.)

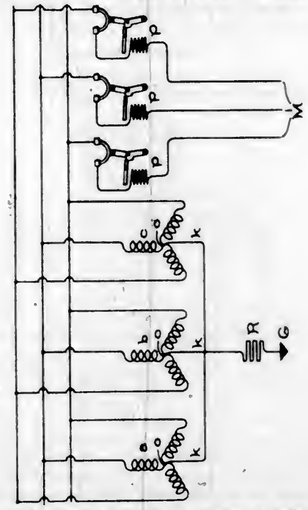


Claim.—1. In a rotary slide-valve mechanism for motors operated by an elastic fluid, a circular casing attached to the motor an annular discharge-chamber within said casing, a circular central inlet-chamber within said casing and communicating with the source of fluid-pressure, a central shaft supported vertically in the casing, gearing adapted to rotate said shaft, an upper perforated disk loosely mounted on said shaft, mechanism adapted to control the position of said disk, a slotted inlet-disk beneath the upper disk keyed on the central shaft and adapted to communicate periodically with the inlet-chamber and a slotted discharge-disk beneath the inlet-disk also keyed on the central shaft and adapted to open communication periodically with the annular discharge-channel.

2. In a circular inclosed distributer for elastic fluid under pressure, the central shaft *k* the gear-wheel *j* keyed on said shaft, the pinion *i* keyed on the shaft *h* passing through the casing and adapted to be rotated by an outside force, inlet and outlet chambers for the pressure fluid, and a plurality of perforated disks on said central shaft adapted to control the passage of the motor fluid.

3. In a circular inclosed distributer for elastic fluid under pressure, the circular outlet-channel *e* the concentric superposed supply-chamber *p*, the perforated admission-disk *r* having an upward toothed prolongation, the adjustable rack *s* engaging with said toothing, the revolving slotted admission-disk *f* in contact with the disk *r* and the slotted escape-disk *l* maintained by spring-pressure in contact at its center with the concentric disk *f*.

677,371. ELECTRICAL DISTRIBUTION. WILLIAM R. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed June 12, 1899. Serial No. 720,292. (No model.)



Claim.—1. The combination of a source of current, mains leading therefrom, circuit-breakers in said mains, a connection between ground and a point of neutral potential on said source and means for limiting the flow of current to ground.

2. The combination with a multiphase alternating-current system, of a circuit-breaking device or devices in a conductor or conductors of said system, and a grounded neutral with a resistance in circuit therewith.

3. The combination with a three-phase alternating-current system, of circuit-breaking devices for said system, an electrical connection between ground and a point of neutral potential in the system and a resistance included in said electrical connection.

4. The combination of a plurality of three-phase alternating-current generators with "star" connected generating-windings in multiple with each other, and electrical connections between the neutral points of said windings and ground.

5. The combination of a source of current, feeders connected thereto, circuit-breaking devices in said feeders, an electrical connection between ground and a neutral point of the system, and a resistance included in said electrical connection.

6. The combination of a source of multiphase current, feeders connected thereto, circuit-breaking devices in said feeders, an electrical connection between ground and a neutral point of the system, and a resistance included in said electrical connection.

677,372. BROOM-HANDLE EXTENSION-COUPLING. JACOB A. PULESKI, Menasha, Wis. Filed Mar. 6, 1901. Serial No. 50,139. (No model.)



Claim.—1. In a broom or similar handle extension-coupling formed of sheet metal into a trough-like shape and being provided with a stiffening-rib integral with it and extending along the back of said trough, a slot in said rib having a plurality of notches arranged therein at different distances from the bottom of said trough, and an integral wire-link member provided with a loop for engaging either one of said notches and thereby adapting said coupling to broom, or similar handles of different diameters, said link member being provided with eyes at the ends of the wire to which a clamping-lever is linked for clamping a broom, or other handle within said coupling, substantially as set forth.

2. In a broom or similar handle extension-coupling formed of sheet metal into a trough-like form and having an eccentric lever linked thereto for clamping a handle therein, a spring-link member therefor consisting of a single piece of wire bent into loop for inclosing the trough of said coupling, an eye at each end of the wire for the connection therewith of the aforesaid eccentric lever, and intermediate said loop and eyes the coil-springs 5, 5, for adapting said lever for engaging and holding securely handles of different diameters, substantially as described.

3. In a broom or similar handle extension-coupling formed of a trough-like shape and having an eccentric lever linked thereto for clamping a handle therein, one or more spurs extending inward in the bottom of said trough for engaging the handle as the eccentric of said lever forces said handle against the bottom of the trough and thereby hold said handle from circular or longitudinal movement therein, substantially as set forth.

4. In a broom or similar handle extension-coupling formed of a trough-like shape, one end of which is permanently secured to a suitable rod or pole and the other end is provided with means for clamping a broom or similar handle therein, a pointed pin secured in the upper end of the aforesaid rod or pole for entering the lower end of a broom or similar handle as it is inserted in said coupling for holding said end of the broom or similar handle securely therein, substantially as described.

677,373. BICYCLE-HANDLE. JOHN M. RAUHOFF, Chicago, Ill. Filed Dec. 20, 1897. Serial No. 662,528. (No model.)

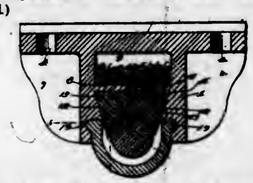


Claim.—1. The combination with housed resilient revoluble handle-bar ends, of a taper-surfaced body and members having correspondingly-tapered bearing-surfaces, mechanism to advance said tapering body, axially, to hold and release one of said handle-bars, substantially as specified.

2. The combination with housed revoluble handle-bars, of a taper-surfaced body and members with correspondingly-tapered bearing-surfaces, mechanism to, axially, adjust said tapered body to a fixed position, and means connected to said adjusting mechanism to, axially, reciprocate said tapered body independently of said fixed adjustment, to hold and release one of said handle-bars, substantially as specified.

3. The combination with housed revoluble handle-bars and screw-threaded male and female members whereof one is adjustable with respect to the other, of a taper-surfaced body, reciprocable by said threaded members, members with bearing-surfaces opposed to said tapered body, revoluble bearings between said surfaces, and means connected to said threaded mechanism to adjust its axial position to hold and release one of said handle-bars, substantially as specified.

677,374. JOURNAL-BOX. SAMUEL REYNOLDS and SAMUEL J. REYNOLDS, Plymouth, Pa. Filed Feb. 25, 1901. Serial No. 48,829. (No model.)



Claim.—1. A journal-box, which is open at its bottom and the lower portions of opposite sides, there being a partition dividing the interior of the box into an upper oil-chamber and a bottom journal-receiving chamber, which are in mutual communication, a removable bottom closing the open lower side of the box, and having an upwardly-directed terminal projection closing the adjacent open side of the box, and a bearing-block removably inserted into the lower chamber.

2. A journal-box, having an open bottom and opposite open lower side portions, an intermediate horizontal partition dividing the interior of the box into an upper oil-chamber and a lower journal-receiving chamber, the walls of the latter being provided with pairs of upper and lower grooves a bearing-block removably inserted into the upper pair of grooves and through one open side of the box, and a removable bottom inserted into the lower grooves from the same open side of the box, and having an upwardly-directed projection closing said open side of the box and retaining the bearing-block in place.

3. A journal-box, having an intermediate horizontal partition dividing the interior of the box into an upper oil-chamber, and a lower journal-receiving chamber, there being perforations formed in the partition, the lower chamber having an open bottom and open sides at opposite ends of the open bottom, there being corresponding inwardly and down-

wardly inclined opposite wall portions in the lower chamber forming an upper dovetailed groove, and corresponding grooves formed below the lower edges of the inclined wall portions, a dovetailed bearing-block removably inserted into the dovetailed groove through one open side of the chamber, and having a concaved under side for the reception of an axle, and a concaved bottom removably inserted into the lower grooves, and having an upwardly-directed terminal plate or projection closing one end of the chamber and both grooves.

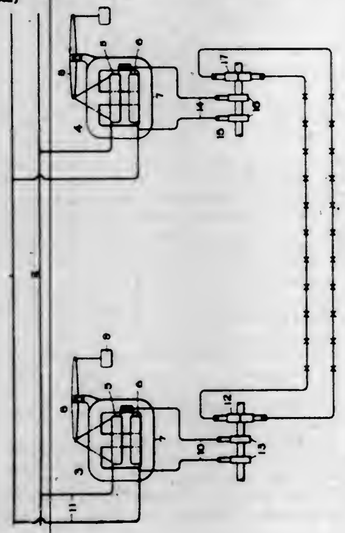
4. A journal-box, having an upper oil-chamber, and a lower journal-receiving chamber, which are in mutual communication, the lower chamber being open at opposite ends and at the bottom thereof, the inner walls of the lower chamber having pairs of upper and lower grooves formed therein, a bearing-block inserted removably into the upper grooves, and a removable bottom inserted into the lower grooves.

5. A journal-box, having an upper oil chamber, and a lower journal-receiving chamber, which is open at its bottom and at opposite ends, there being perforations formed through the wall between the two chambers, one side of the box having an opening communicating with the upper chamber, the upper portions of opposite inner walls of the lower chamber being inclined inwardly in opposite directions and downwardly to form a dovetailed groove, there being other corresponding grooves formed below the dovetailed groove, a dovetailed bearing-block removably fitted into the dovetailed groove, and having perforations registering with those of the box, a removable concaved bottom having opposite outwardly-directed longitudinal flanges received within the respective lower grooves, and provided with an outer terminal upstanding end piece which closes the adjacent open end of the box, and means for fastening the bottom against accidental displacement.

6. A journal-box, having an upper oil-chamber, and a lower journal-chamber, which is open at opposite ends the two chambers being in mutual communication, perforate projections upon the outer side of the box and at opposite sides of one open end thereof, a removable bearing-block fitted in the journal-chamber, and a transverse key or fastening removably passed through the perforate projections and extending transversely across the adjacent open end of the box and also across the bearing-block.

7. A journal-box, having an upper oil-chamber, a lower journal-chamber which is open throughout its bottom and also at opposite ends, there being perforations formed through the division-wall between the two chambers, a removable bearing-block fitted in the upper portion of the lower chamber, a removable bottom for said chamber, and having a terminal plate or end piece rising across the outer end of the bearing-block, there being perforate projections upon the outer side of the box and at opposite sides of the bottom end plate, and a key or fastening passed through the perforate projections and lying across the outer side of said bottom end plate.

677,375. SYSTEM OF ELECTRICAL DISTRIBUTION. EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 24, 1900. Serial No. 17,781. (No model.)

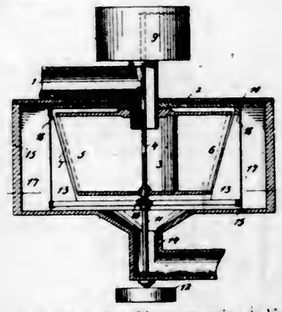


Claim.—1. The combination of a plurality of constant-current circuits, a rectifier in each circuit, and a circuit including said rectifiers in series.

2. The combination of a plurality of constant-current circuits, a rectifier in each circuit and a series circuit including translating devices arranged alternately with said rectifiers.

3. A plurality of constant-current compensators and a single circuit fed with rectified current derived from said compensators.

677,376. TURBINE FOR WATER-MAINS. MORITZ (RECTE MOSES) SCHARFBERG, Berlin, Germany. Filed Nov. 5, 1900. Serial No. 35,532. (No model.)



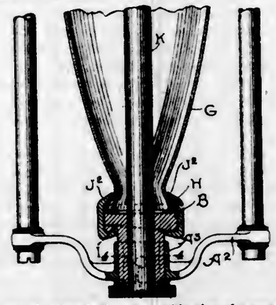
Claim.—1. In combination with a water-main, a turbine wheel having two exit-passages inclined in regard to the circumferential wall, said turbine wheel receiving the water axially and driving an indicating device for registering the amount of water received; an outer turbine wheel having a closed bottom surrounding the inner turbine wheel and adapted to receive the water volumes therefrom so as to be rotated in a direction opposite to that of the inner turbine wheel, blades fitted to the inner circumferential wall of the outer turbine wheel inclined in opposite direction to the exit-passages of the inner turbine wheel; four oppositely-located exit-openings in the circumferential wall of the outer turbine wheel, the shaft of which being adapted to transmit its rotation by suitable transmission means to an accumulator of suitable construction and a casing surrounding the outer turbine wheel, said casing having blades fitted to its inner circumferential wall inclined in opposite direction to the blades of the outer turbine wheel so as to receive the spent water from the four exit-openings of the aforesaid turbine wheel and conduct same to an exit-pipe from whence it reaches its place of consumption, substantially as described and shown.

2. In combination with a water-main, a turbine wheel of conical shape in transverse section and rotatable around a vertical shaft, said turbine wheel having two exit-passages inclined in regard to the circumferential wall, and receiving the water axially, an indicating device of suitable construction in connection with the aforesaid vertical shaft to register the amount of water which passes through the said turbine wheel; an outer turbine wheel, having a closed bottom, surrounding the inner turbine wheel and adapted to receive the water volumes therefrom so as to be rotated in opposite direction to that of the inner turbine wheel; blades of triangular shape to correspond to the conical circumferential wall of the inner turbine wheel, fitted to the inner circumferential wall of the outer turbine wheel at oblique angles to tangent planes in opposite direction to the exit-passages of the inner turbine wheel; four oppositely-located exit-openings in the circumferential wall of the outer turbine wheel, suitable transmission means in connection with the shaft of the latter to transmit its rotation to an accumulator of suitable construction; a casing surrounding the outer turbine wheel having blades fitted to its inner circumferential wall inclined in opposite direction to the blades of the outer turbine wheel so as to receive the spent water from the four exit-openings of the aforesaid turbine wheel; and an exit-pipe in connection with the said casing to receive the water after same has rotated the turbine wheels and to conduct same to its place of consumption, substantially as described and shown.

677,377. GLOBE-HOLDER FOR ARC-LAMPS. GEORGE E. STEVENS, Lynn, Mass., assignor to the General Electric Company, of New York. Filed July 23, 1899. Serial No. 725,343. (No model.)

Claim.—1. In an electric-arc lamp, the combination of a globe, a support therefor, a ring-clamp surrounding the support, means fixed on the clamp for gripping the globe, and lugs on the clamp for moving it into and out of operative position, and means for preventing the support from turning.

2. In an electric-arc lamp, the combination of a removable globe having a flaring end, a seat or support therefor, a number of rigidly-united fingers or lugs between which the globe may be removed sidewise, and means integral with the fingers for forcing them into engagement with the globe, whereby the latter is seated, the said support and means always being secured together.



3. In a globe-holding device, the combination of a support, a removable globe having a flaring end, a seat therefor, a clamping-ring having fingers or lugs between which the globe may be removed sidewise, a cam-surface, and lugs on the ring which engage with the cam-surface and force the fingers on the clamping-ring against the flange on the globe and thereby seat it, and means for securing the seat to the support.

4. In a combined carbon and globe holder, the combination of a seat for the globe, a support for the carbon, two tapered cam-surfaces on the holder, a clamping-ring, projections formed integral with the ring for gripping the globe, and other projections on the under side of the ring which engage with the cam-surfaces and act to force the globe against its seat.

5. In an arc-lamp, the combination of a yoke, a globe-holder having a tubular shank which is mounted in the yoke, a lug or key on the shank for preventing the holder from turning, and a nut for retaining the holder in place.

6. In an arc-lamp, the combination of a yoke, a globe-holder comprising a tubular shank and an expanded head, a cam-surface formed on the head, a key or projection formed on the tubular shank, and means for retaining the holder in place.

7. As an article of manufacture, a combined carbon and globe holder, consisting of a tubular shank having keys thereon, and an expanded head for receiving the globe, a shoulder on the shank for engaging with the yoke of the lamp, and a nut for securing the holder in place.

8. In an electric-arc lamp, the combination of a yoke, a globe-holder mounted in the yoke, a receptacle formed in the yoke, in which is located an elastic washer forming a seat for the globe, means for preventing the holder from turning, a clamping-ring having lugs which engage with the globe, and other lugs which engage with the holder, and means for retaining the holder in place.

9. In an electric-arc lamp, the combination of a frame, a removable globe-holder arranged to be mounted in the frame, said holder comprising a shank having an enlarged head forming a seat for the globe, and a clamping-ring having projections engaging with the under side of the seat, and other projections for engaging with the globe and forcing it against the seat, the projections being placed around the head in a manner to prevent the removal of the ring.

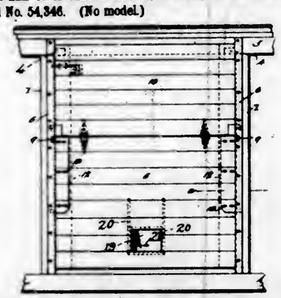
677,378. BICYCLE-TIRE. COLUMBUS STONE, Manchester, Tenn., assignor of one-half to Charles B. Rodes, same place. Filed Apr. 23, 1901. Serial No. 57,137. (No model.)



Claim.—1. A vehicle-tire comprising a tube having a helical spring disposed therein and in contact with the inner periphery thereof, and warp-wires interwoven transversely with the convolutions of the helix to hold them from falling over.

2. A vehicle-tire comprising a tube, a corrugated wire bent into spiral form and disposed within the tube and with the wire in continuous contact with the inner surface of the tube, and a transverse lacing-wire engaged with certain corrugations of adjacent convolutions of the spiral to hold the convolutions from falling over.

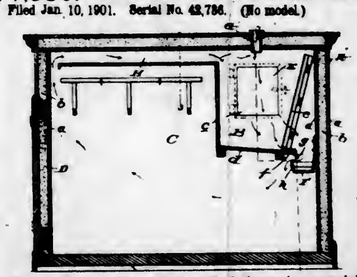
677,379. GRAIN-DOOR. PETER J. STONE, Athens, Pa., assignor of one-half to Abram I. Decker, Waverly, N. Y. Filed Apr. 4, 1901. Serial No. 54,346. (No model.)



Claim.—1. In combination with a doorway having vertical slots in its sides, said slots open at their upper ends and having lateral openings communicating with said slots, angle-plates on the sides of said doorway, said angle-plates having vertical slots and lateral openings, registering with those of the doorway, the inner sides of said angle-plates projecting above the slotted sides thereof, a door having hinge-plates at its sides, said plates being provided at their outer edges with projecting heads and arms adapted to operate in said slots, said heads having hooks to engage the sides of said angle-plates at the upper ends of said slots, to form pivots for the door, said hooks having flanges 15^a on one side and grooves 15^b on the opposite side, for the purposes set forth, and said arms being adapted to register with the lateral openings in said slots when said door is raised to the upper side of the doorway, substantially as described.

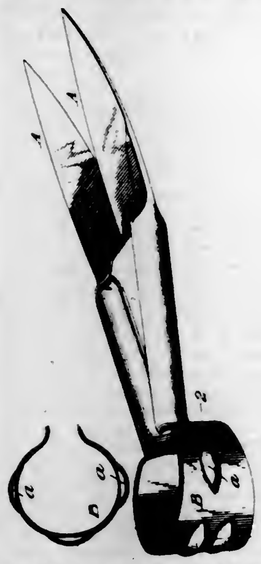
2. In combination with a doorway having vertical slots in its sides, said slots open at their upper ends and having lateral openings communicating therewith, at points between the upper and lower sides of the doorway, angle face-plates on the sides of the doorway, said angle-plates having slots and lateral openings registering with those of the sides of the doorway, a door having hinge-plates at its sides, provided at their outer edges with projecting heads and arms adapted to operate in said slots, said heads having hooks to engage the sides of the doorway at the upper ends of said slots and form pivots for the door, and said arms being adapted to register with the lateral openings in said slots when said door is raised to the upper side of the doorway, to permit the inward swinging thereof, said arms and said angle-plates locking said door against other than vertical movement when said door is lowered, substantially as described.

677,380. REFRIGERATOR. WILLIAM THOMAS, Pittsburg, Pa. Filed Jan. 10, 1901. Serial No. 42,786. (No model.)



Claim.—In the refrigerator described, the casing containing a refrigerating-chamber and an ice-chamber, the latter being located in the upper portion of the casing at one end thereof and formed by the imperforate upright wall arranged adjacent to the refrigerating-chamber, the open-work upright wall *e* arranged remote from the refrigerating-chamber, and the imperforate bottom wall extending between the walls *c* and *e* and having the depending lip *g* at its edge remote from the refrigerating-chamber, the transverse trough arranged below the bottom wall of the ice-chamber and so that one of its walls is overhung by the lip *g* of said bottom wall, and a passage for air is formed between it and said lip; the said trough extending throughout the width of the casing and outside the same so as to carry off water as soon as the same is received from the ice-chamber, and the flue arranged adjacent to the top of the casing and communicating at one end with the upper portion of the ice-chamber and extending therefrom to a point adjacent to the opposite end of the casing whereby it is adapted to receive air from the upper corner of the refrigerating-chamber and thereby insure the circulation of air throughout the length of said refrigerating-chamber, as specified.

677,881. SHEARS. WILLIAM H. THORNLEY and WILLIAM J. BAER, Reading, Pa. Filed Oct. 25, 1900. Serial No. 34,255. (No model.)



Claims.—1. A pair of shears the bow of which is provided with means integral therewith for keeping the blades in alinement and preventing torsional strain thereon.

2. Shears the bow of which is provided with a protuberance, as and for the purpose specified.

3. Shears, the bow of which is provided with a plurality of protuberances as and for the purpose specified.

677,882. CONVERTIBLE CHAIR. ELWIN L. THOMPSON, Baldwinsville, Mass. Filed Mar. 28, 1901. Serial No. 53,287. (No model.)



Claim.—1. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the upper ends of the other pair of cross-legs and to the base, and locking means independent of the cross-legs, directly coöperating with the links to maintain the chair elevated.

2. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, a toggle connection between the upper ends of the other pair of cross-legs and the base, and a locking device independent of the cross-legs, to directly coöperate with the toggle connection when the chair is elevated.

3. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the upper ends of the other pair of cross-legs and to the base, a cross-bar connecting the links, and a locking device to engage the cross-bar when the chair is elevated.

4. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the upper ends of the other pair of cross-legs and to the base and extended above the pivotal connection with the latter, a cross-bar rigidly connecting the upper ends of the links, and a latch on the chair-seat to engage the cross-bar when the chair is elevated.

5. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, an arched bar having depending sides pivoted to the base and extended below it, pivotal connections between the lower ends of said extensions and the upper ends of the other pair of cross-legs, and a locking device to engage the arched bar when the chair is elevated.

6. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having rigidly-attached depending legs, side bars connecting the lower ends of said legs and located in the planes of the outer cross-legs, pivotal connections between the side bars and the upper ends of said outer cross-legs, a toggle connection between the side bars and the upper ends of the other pair of cross-legs, and a locking device to coöperate with the toggle connection when the chair is elevated, the side bars resting on the upper sides of the outer cross-legs when the chair is lowered.

7. In a convertible chair, pivoted cross-legs longitudinally convex on their inner, under sides to form rockers when the chair is lowered, and rigid transverse connections between opposite pairs of cross-legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, a toggle connection between the upper ends of the other pair of cross-legs and the base, and a manually-released locking device to automatically engage the toggle connection when the chair is elevated and maintain it in such position.

677,883. CONVERTIBLE CHAIR. ELWIN L. THOMPSON, Baldwinsville, Mass. Filed Mar. 28, 1901. Serial No. 53,288. (No model.)



Claim.—1. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, and locking means to normally maintain such engagement.

2. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, and means mounted on the links to engage the stops when the chair is elevated and prevent pivoted movement of the links.

3. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, depending links pivoted to the base and at their lower ends pivoted to the upper ends of the other pair of cross-legs, stops on the latter to engage the links when in substantially vertical position, the chair being elevated, and means to lock the links in such position.

4. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, and connected notched latches fulcrumed on the links and adapted to coöperate with the stops when the chair is elevated, the connection between the latches constituting a handpiece.

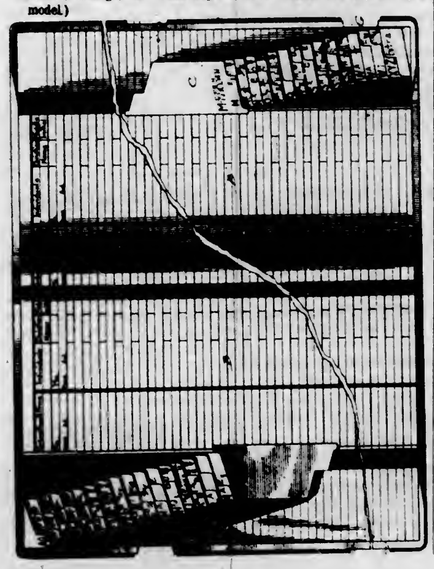
5. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, connected latches fulcrumed on the links and adapted to coöperate with the stops when the chair is elevated, and means to limit pivotal movement of the latches.

6. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, connected latches fulcrumed on the links and adapted to coöperate with the stops when the chair is elevated, and means to automatically set the latches when the chair is changed from lowered to elevated position.

7. In a convertible-chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, connected latches fulcrumed on the links and adapted to coöperate with the stops when the chair is elevated, means to limit pivotal movement of the latches, and means to set the latches when the chair is elevated from lowered position.

8. In a convertible chair, pivoted cross-legs curved on their inner, under sides to form rockers when the chair is lowered, and transverse connections between opposite pairs of said legs, combined with a chair-seat having a rigid base fulcrumed on the upper ends of one pair of cross-legs, links pivoted to the base and to the upper ends of the other pair of legs, stops on the latter to engage the links when the chair is elevated, and an ⌐-shaped bar fulcrumed at its ends on the links and having notches in its sides to receive the stops and thereby lock the parts from relative movement when the chair is elevated.

677,884. INDEX. CHARLES G. THROOP and WALTER L. HENDRICKS, Chicago, Ill. Filed Sept. 5, 1900. Serial No. 29,059. (No model.)



Claim.—1. The right and left hand index-book having a plurality of leaves for each principal letter, and each leaf being provided with a part projecting from the side thereof and printed upon both faces so as to form duplicate indexes, and the leaves being cut to a common side line both above and below the index projections, the entire alphabet and its subdivisions being visible wherever the book is opened, the printing upon the face of the projections serving in the right-hand index being at the bottom of the projections and the printing upon the face serving in the left-hand index being at the top of the projections, and the printed portions of the projections varying in width in horizontal directions, substantially as specified.

2. The right and left hand index-book having a plurality of leaves for each principal letter, and each leaf provided with a side index projection printed upon both faces, the leaves being cut to a common line both above and below the projections, and the projections being notched at top and bottom, substantially as specified.

677,885. MANUFACTURE OF ARTIFICIAL MARBLE. JOHN TUCKWELL, Glasgow, Scotland. Filed Feb. 23, 1901. Serial No. 48,454. (No specimens.)

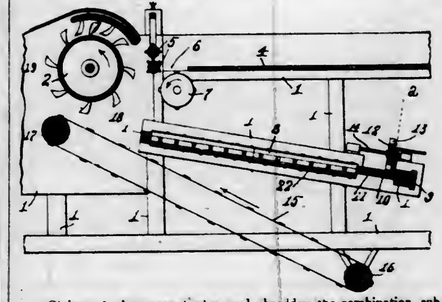
Claim.—1. The process of manufacturing artificial marble which consists in molding a composition consisting of Keene's marble-cement, white silver sand, ground alum and litharge, in the proportions named, mixed with water and allowed to set, coating same with enamel-paint and baking at a temperature of 155° Fahrenheit, polishing with rottenstone and water, coating with varnish and again stoving at above temperature and finally polishing with a composition of beeswax, turpentine and precipitated chalk substantially as set forth.

2. The process of manufacturing artificial marble which consists in molding a composition consisting of Parian cement, Keene's marble-cement, white silver sand, ground alum and litharge, in the proportions named, mixed with water and allowed to set, coating same with enamel-paint and stoving at a temperature of 155°, polishing with rottenstone and water, coating with varnish and again stoving at above temperature and finally polishing with a composition of beeswax, turpentine, and precipitated chalk substantially as set forth.

3. The process of manufacturing artificial marble which consists in molding a composition consisting of Parian cement, Keene's marble-cement, white silver sand, ground alum and litharge in the proportions named, mixed with water and allowed to set, coating same with enamel-paint, stoving at a temperature of 155°, polishing with rottenstone, varnishing and again stoving, graining the surface with colors and stoving at a temperature of 250° finally rubbing down with rottenstone and polishing with a composition of beeswax, turpentine and precipitated chalk substantially as set forth.

4. An artificial marble consisting of Parian cement, Keene's marble-cement, white silver sand, ground alum and litharge, in the proportions named.

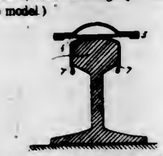
677,886. CORN HUSKER AND SHREDDER. FREEMAN M. TERGUARDEN and JOSEPH B. HIMES, Newcastle, Ind., assignors to the Chief Husker and Shredder Company, same place. Filed Aug. 10, 1900. Serial No. 26,468. (No model.)



Claim.—1. In a corn husker and shredder, the combination, substantially as set forth, of a series of inclined parallel husking-rolls having metallic bodies provided with longitudinal grooves, ribs of wood secured within said grooves and having their outer surfaces flush with the peripheral metallic surfaces of the rolls, and teeth projecting outwardly from said ribs, whereby husks projecting from the ears are gripped between said ribs and the ear held to the rolls while the teeth attack the husks clinging to the ears and pull them to position to be gripped by the ribs and stripped from the ears and drawn downward between the metallic surfaces of the rolls.

2. In a corn husker and shredder, the combination, substantially as set forth, of a toothed cylinder arranged to have its upper surface move in the direction of entry of the stalks to the machine, a toothed concave disposed over said cylinder, a pair of snapping-rolls disposed in front of said cylinder and serving to feed stalks to the cylinder and to snap the ears therefrom, a series of parallel husking-rolls disposed below and adapted to catch the ears falling from said snapping-rolls, and a carrier disposed below said husking-rolls and cylinder and adapted to receive the husks passing through said husking-rolls and to carry the same within reach of the outwardly-moving teeth upon the lower portion of the beating-cylinder, whereby said teeth attack said husks and carry them upwardly and thence onwardly through the concave to shred and discharge said husks along with the stalks.

677,387. DETONATOR FOR RAILWAY SIGNALING. VICTOR VON NEUMAN, Vienna, Austria-Hungary. Filed Apr. 21, 1900. Serial No. 13,774. (No model.)



Claim.—1. A detonator for railway signaling consisting of an upper shield-plate and a lower base-plate comprising a chamber for detonating explosives between them and suitably connected together, the upper shield-plate being stronger than the lower base-plate.

2. A detonator for railway signaling consisting of an upper shield-plate and a lower base-plate comprising a chamber for detonating explosives between them and connected together by a seam, the upper shield-plate being stronger than the base-plate and the seam being of such a strength as to release the base-plate under the stress of an explosion.

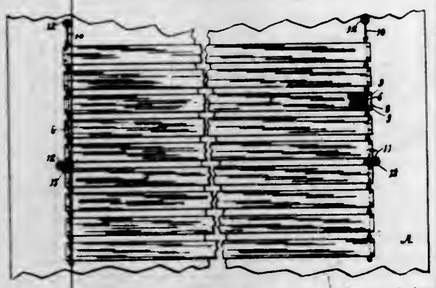
3. A detonator for railway signaling consisting of an upper shield-plate provided with a chamber or chambers for the explosive charge in combination with a flat base-plate connected to the shield-plate.

4. A detonator for railway signaling consisting of an upper shield-plate and a lower base-plate connected therewith in combination with means for holding the detonator on the rail.

5. A detonator for railway signaling consisting of an upper shield-plate provided with a chamber or chambers for an explosive charge, a lower base-plate secured thereto by a lap-seam, the lower base-plate being of less strength than the shield-plate.

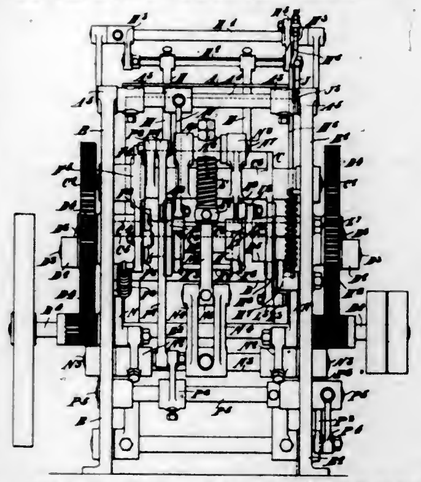
6. A detonator for railway signaling consisting of an upper shield-plate provided with a chamber or chambers for an explosive charge, a lower base-plate secured thereto by a lap-seam, the lower base-plate being of less strength than the shield-plate, and the lap-seam of such strength as to release the base-plate under the stress of the explosive.

677,388. SIDEWALK-COVER. JOHN WAGNER, Milwaukee, Wis. Filed Oct. 19, 1899. Serial No. 734,070. (No model.)



Claim.—A sidewalk-cover, comprising a series of flat wood slats disposed transversely of the length of the cover but parallel to and separated equal distances from each other, each slat being provided in each end with a medial groove parallel with the flat faces of the slat, elongated wire-rod links consisting severally of a straight body part as long as the width of the slat and fitted in the groove in the slat and of terminal eyes, the eye at one end of the link being disposed in a plane at a right angle to the eye of the other end of the link, the links of each slat being coupled to the links of the adjacent slat flexibly, pins in the slats transversely of the furcate ends and adjacent to the links securing the links in place, hooks hinged in eyes of the links, and anchors adapted to be fixed in a sidewalk, said anchors having eyes adapted to be engaged releasably by the hooks attached to the covers.

677,389. PLATEN PRINTING-PRESS. FRED WAITE, Otley, England. Filed Jan. 5, 1899. Serial No. 701,280. (No model.)



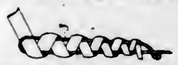
Claim.—1. In combination, the form, the traveling platen, the gripper on the front edge of said platen arranged when open to form no obstruction to the sheet being drawn away over the front edge of the platen and delivered at the rear of the machine, and the frisket-fingers pivotally arranged when open to form no obstruction to the removal of the sheet in the manner stated, substantially as described.

2. In combination with the printing-form and table, the traveling platen, a bell-crank lever pivoted at the end of said platen, a gripper-bar carried by said bell-crank and arranged to clamp the paper sheet against the edge of the platen, tappets pivoted to the platen-frame adapted to operate said bell-crank levers, a rocking lever having lugs or projections arranged to operate said tappets, and means for rocking said lever, substantially as described.

3. In combination, the bed and platen with means for operating them, the rocking arms H^3, the rock-shaft journaled in said arms, the frisket-fingers carried by said rock-shaft and the arms carried by the rock-shaft and having a curved slot engaging a guiding projection on the frame, substantially as described.

4. In combination, the swinging platen, the bed D mounted on swinging arms with means for operating the same, a crank-shaft having a crank-arm linked to one of said swinging arms, a cross-piece carried by the platen and a rod yieldingly connecting said cross-piece with arms on said crank-shaft, the said arms being arranged so that they are passing the dead-center while the platen is momentarily at rest in the printing position with the object of obtaining an easy stop, substantially as described.

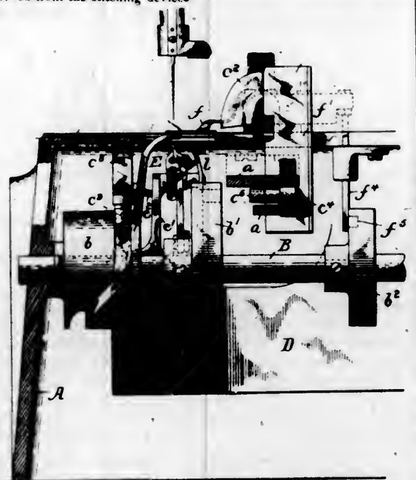
677,390. HAIR-CRIMPER. CYNTHIA L. WALTERS, Perkins, Okla. Filed Dec. 21, 1900. Serial No. 40,634. (No model.)



Claim.—As an article of manufacture, a hair-crimper consisting of a resilient fork having a long prong provided with a hook and a short prong provided with a lateral detent, and a seat formed in said detent adapted to receive said long prong when engaged by the detent, and whereby said prongs are retained without contact in the same plane; substantially as set forth.

677,391. BUTTONHOLE-SEWING MACHINE. EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Aug. 3, 1900. Serial No. 25,778. (No model.)

Claim.—1. In a buttonhole-stitching machine, the combination with a stitch-forming mechanism comprising non-tilting looping devices, of upper and lower cutting devices movable in unison horizontally toward and from the stitch-forming devices, automatic means for shifting said cutting devices horizontally and for causing the same to perform their cutting function, a needle throat-plate independent of said cutting devices, automatic means for displacing said throat-plate from working position when the said cutting devices are shifted toward the stitch-forming devices to cut a buttonhole-slit in stitching position, and automatic means for restoring said throat-plate to its working position when the cutting devices are removed from the stitching devices



2. In a buttonhole-stitching machine, the combination with stitch-forming devices, of upper and lower cutting devices movable in unison toward and from said stitch-forming devices, automatic means for shifting said cutting devices toward and from said stitch-forming devices and for causing them to perform their cutting function, a needle throat-plate separate from or independent of said cutting devices, a spring for yieldingly holding said throat-plate in its normal or working position and for restoring it to said position after it has been displaced, and means for displacing said throat-plate from working position when the cutting devices are moved toward said stitch-forming devices.

3. In a buttonhole-stitching machine, the combination with stitch forming devices, of upper and lower cutting devices movable toward and from said stitch-forming devices, automatic means for shifting said cutting devices toward and from said stitch-forming devices and for causing them to perform their cutting function, a movable needle throat-plate separate from or independent of said cutting devices, and a spring for yieldingly holding said throat-plate in its normal or working position and for restoring it to said position after it has been displaced, said yielding throat-plate being arranged to be engaged by the lower member of the said cutting devices so as to be displaced from working position thereby when the cutting devices are shifted toward the said stitch-forming devices.

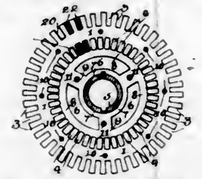
4. In a buttonhole-stitching machine, the combination with stitch-forming devices, of two cutting members movable toward and from said stitch-forming devices and comprising a lower member consisting of a thin open throat-plate or die down into which the upper member or die descends, automatic means for operating said upper member, a movable needle throat-plate separate from or independent of said lower cutting member, automatic means for displacing said needle throat-plate from working position when the cutting members are shifted toward the said stitch-forming devices, and automatic means for restoring said needle throat-plate to its normal or working position when the said cutting members are removed from the said stitch-forming devices.

677,392. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. CHARLES DE WITT ANDERSON, Chicago, Ill. Filed Aug. 27, 1900. Serial No. 28,154. (No model.)

Claim.—1. An element for use in the construction of armatures consisting of a disk having in its periphery a number of notches and having also a number of openings arranged in a circular series concentric with its axis and corresponding in number and radial disposition with said notches, substantially as set forth.

2. An element for use in the construction of armatures consisting of a disk having in its periphery a number of notches and having also a central opening and between said notches and opening a circular series of openings corresponding in number and radial disposition with said notches, substantially as set forth.

3. An element for use in the construction of armatures consisting of a disk having in its periphery a number of notches and having between its periphery and its center a number of openings corresponding in width and radial disposition with said notches, substantially as set forth.



4. An element for use in the construction of armatures consisting of a disk having a central opening, a number of openings arranged equidistant in a circular series concentric with said central opening, and a number of equidistant peripheral notches corresponding in width and radial disposition with the openings of the circular series aforesaid, substantially as set forth.

5. An element for use in the construction of armatures consisting of a disk having a series of peripheral notches, a number of openings arranged in a circular series concentric with the disk, a central opening, and openings between said central opening and the circular series of openings, substantially as set forth.

6. An armature having a laminated core and a spider supporting it, said core and spider comprising a number of similar disks each having a number of peripheral notches and a number of openings arranged in a circular series concentric with the disk corresponding in number and radial disposition with said notches, and means for securing said disks together so that the peripheral notches and the openings register, substantially as set forth.

7. An armature having a laminated core and a spider for supporting the core, said core and spider comprising a number of disks, each having a number of equidistant peripheral notches and a number of openings corresponding in width and radial disposition with said notches, and means for securing the several disks together so that the notches and openings register, substantially as set forth.

8. An armature having a laminated core comprising a number of disks, each having a number of peripheral notches and a number of openings arranged in a circular series concentric with the disk, means for securing said disks together with their notches and openings registering so that the notches form longitudinal grooves in the periphery of the core and the openings form longitudinal passages through the core, and coils wound longitudinally through the grooves and passages, substantially as set forth.

9. An armature having a laminated core comprising a number of disks, each having a number of peripheral notches and a number of openings arranged in a circular series concentric with the disk, and corresponding in number and radial disposition with said notches, means for securing said disks together with their notches and openings registering so that the notches form longitudinal grooves in the periphery of the core and the openings form longitudinal passages through the core, and coils wound longitudinally through the grooves and passages, substantially as set forth.

10. An armature having a laminated core made up of a number of disks and a number of rings, each of the disks having in its periphery a number of notches and having also a number of openings arranged in a circular series concentric with the disk and each of the rings having a number of peripheral notches corresponding with the peripheral notches of the disks, means for securing said disks and rings together so that their peripheral notches register and form longitudinal grooves in the core, the rings being arranged upon both sides of the disks, and coils wound longitudinally through said grooves and openings, substantially as set forth.

11. An armature having a laminated core comprising a number of disks and a number of rings, each of the disks having a number of peripheral notches and a number of openings arranged in a circular series concentric with the disk, and each of the rings having in its periphery a number of notches corresponding with the notches of the disks and in its inner margin a number of notches corresponding with the openings of the disks, means for securing said disks and rings together so that the peripheral notches register and form longitudinal grooves in the periphery of the core, while the openings register and form longitudinal passages through the core, and coils wound longitudinally through the grooves and passages, substantially as set forth.

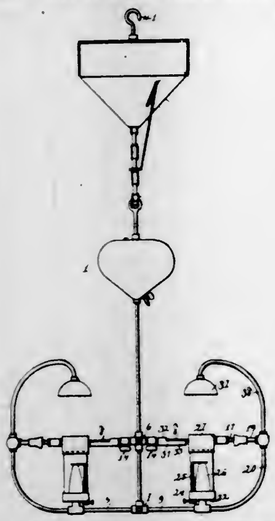
12. An armature having a core and a support therefor, comprising a number of disks, each having a series of equidistant peripheral notches and a circular series of openings corresponding in width and radial disposition with the notches, a series of rings disposed upon both faces of the assembled disks, each of said rings having a series of peripheral notches

corresponding in width and radial disposition with the peripheral notches of the disks and having also in its inner margin a series of notches corresponding in width and radial disposition with the openings of the disks, and means for securing the disks and rings together, substantially as set forth.

13. An armature having a core and a support therefor, the core being extended at both ends beyond said support, and a cup-shaped shield located within one of the overhanging ends of the core and projecting beyond said end, substantially as set forth.

14. An armature having the sleeve 5, a number of disks 1, each having a central opening in which said sleeve fits and each having a number of peripheral notches and a number of openings corresponding in width and radial disposition with said notches, said disks being arranged with their similar features registering, means for securing the disks to the sleeve 5, a number of rings 2 having notches 15 and 16 registering with the notches and openings aforesaid of the disks, and means for securing the disks and rings together, substantially as set forth.

677,393. VAPOR-BURNING LAMP. ROBERT O. APPLEGATE, Kansas City, Mo. Filed Jan. 30, 1899. Serial No. 703,874. (No model.)



Claim.—1. In a vapor-burning lamp, the combination with a suitable burner, a vaporizing-tube arranged to be heated from the burner, a supply-tube communicating therewith, and a mixing-tube arranged between the vaporizing-tube and the burner, of a smoke-bell arranged over the burner, and a tube supporting and communicating with the smoke-bell and communicating with the burner through the mixing-tube whereby the heated air and unconsumed vapor from the burner are collected and carried over to the mixing-tube substantially as and for the purpose set forth.

2. In a vapor-burning lamp the combination with a suitable burner provided with a chimney and an envelop of incandescing material, a vaporizing-tube arranged to be heated from the burner, a supply-pipe communicating with said vaporizing-tube, and a mixing-tube arranged between the said vaporizing-tube and the burner, of a smoke-bell arranged over the chimney and a tube communicating with said smoke-bell, and with the mixing-tube whereby the heated air and unconsumed vapor from the burner are collected and carried over to the mixing-tube; substantially as set forth.

3. In a vapor-burning lamp, the combination with a suitable burner, a vaporizing-tube arranged to be heated from the burner, and provided with a tip having a minute discharge-opening, a supply-tube communicating with said vaporizing-tube, an air-tube having a bell-mouthed opening into which said tip discharges, and a mixing-tube communicating with the burner, of a smoke-bell arranged over the chimney, a tube connected and communicating with said smoke-bell, whereby the heated air and unconsumed vapor from the burner are collected and carried over to the mixing-tube, and a union or coupling through which said air-tube and smoke-bell tube communicate with said mixing-tube, having curved passages for the direction of the flow of the vapor, air and gases from said tubes to the mixing-tube, substantially as set forth.

4. In a vapor-burning lamp, the combination with the air-tube, the smoke-bell tube and the mixing-tube of a union or coupling through which said air-tube and smoke-bell tube communicate with the mixing-tube, having curved passages for the direction of the flow of the vapor, air and gases from said tubes to the mixing-tube, substantially as set forth.

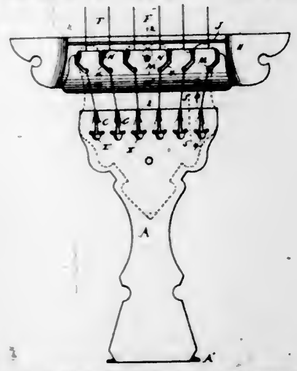
677,394. WASHBOILER. FRANCIS M. BAIN, Ann Arbor, Mich. Filed July 3, 1900. Serial No. 22,464. (No model.)



Claim.—1. The combination with a washboiler, of a clothes-containing device removably housed therein, and comprising a bottom plate, a single end wall, a handle thereon, opposite upstanding sides located substantially midway between the opposite ends of the bottom plate, and a swinging bail-handle having its opposite ends provided with a detachable pivotal connection with the respective upstanding sides of the device.

2. A clothes-containing attachment for washboilers, comprising a bottom plate, a stiffening-strip applied to the lower side of the plate, and having one end bent upwardly to form an upstanding end wall, the edges of the strip being beaded, a marginal stiffening-wire inclosed within the beads, the intermediate portion of the wire being extended above the wall and formed into a handle, and the lower portions of the beads forming supports, and opposite side walls, having loops at their upper ends.

677,395. GUITAR ATTACHMENT. KILIAN BECK, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,200. (No model.)



Claim.—1. A guitar-tailpiece, having one end doubled over on the under side to form a pocket, slots in the top of said pocket extending lengthwise of the tailpiece, the sides of adjacent slots being bent up toward each other to form wings, substantially as herein set forth.

2. A guitar-tailpiece, having one end doubled over on the under side to form a pocket, tapering slots in the top of said pocket extending lengthwise of the tailpiece, tapering sides of the adjacent slots being bent up toward each other to form wings, and depressions in the upper surface of the tailpiece at the wider ends of the slots, substantially as herein set forth.

3. A string-grip for guitars composed of a strip of metal secured on a bridge and provided with L-shaped slots extending inward from one edge of the strip, one edge of each slot being bent up to form a wing, substantially as herein set forth.

4. A string-grip for guitars, composed of a strip of sheet metal having slots extending inward from one edge and terminating in recesses extending toward said edge, substantially as herein set forth.

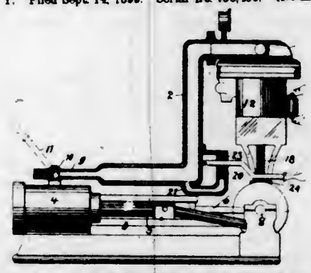
677,396. FENCE-POST. THOMAS W. BROWN, Chattanooga, Tenn. Filed Apr. 14, 1900. Serial No. 12,815. (No model.)

Claim.—A fence-post having tapering hooks punched out of the post-body, and a slot near the top, in combination with a curved cross-arm passing through the slot and loosely riveted to the post.

677,396.



677,397. HYDROCARBON-MOTOR. WILLIAM BRUENING, New York, N. Y. Filed Sept. 14, 1899. Serial No. 730,459. (No model.)



Claim.—1. A power-shaft, in operative connection with a motive-fluid generator, said generator including in combination one or more explosion chambers having a suitable source of fuel-supply communicating therewith, devices operated by the power-shaft for effecting a plurality of explosions of fuel in said chamber or chambers during a single rotation of the power-shaft, and means for automatically disconnecting said devices from the power-shaft and thereby interrupting the explosions upon the attainment of a predetermined gas-pressure.

2. A power-shaft in operative connection with a motive-fluid generator, said generator including in combination one or more explosion-chambers having a suitable source of fuel-supply communicating therewith, a reservoir communicating with the explosion chamber or chambers, devices operated by the power-shaft for effecting a plurality of explosions of fuel in said chamber or chambers during a single rotation of the power-shaft, and means for automatically disconnecting said devices from the power-shaft and thereby interrupting the explosions upon the attainment of a predetermined gas-pressure in the reservoir.

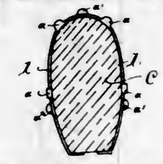
3. A power-shaft in operative connection with a motive-fluid generator, said generator including in combination an explosion-chamber having a suitable source of fuel-supply communicating therewith, a reservoir communicating with the explosion-chamber, a piston working in said explosion-chamber, means for applying the pressure in the reservoir to drive the power-shaft, the power-shaft being in operating connection with said piston, whereby the piston is operated by said shaft, and means for disconnecting said shaft and piston upon the attainment of a predetermined pressure in the reservoir.

4. A power-shaft in operative connection with a motive-fluid generator, said generator including in combination an explosion-chamber having a suitable source of fuel-supply communicating therewith, a reservoir communicating with the explosion-chamber, a piston working in said explosion-chamber, means for applying the pressure in the reservoir to drive the power-shaft, the power-shaft being in operating connection with said piston, whereby the piston is operated by said shaft, and means for disconnecting said shaft and piston upon the attainment of a predetermined pressure in the reservoir, and means for effecting a plurality of explosions of fuel in said chamber during a single rotation of the power-shaft.

5. A power-shaft in operative connection with a motive-fluid generator, said generator including in combination a series of explosion-chambers having a source of fuel-supply communicating therewith, devices operated by the power-shaft for effecting a plurality of explosions in said chambers during a single rotation of the power-shaft, said explosions taking place in sequence in the several chambers, and means for automatically disconnecting said devices from the power-shaft, and thereby interrupting the explosions upon the attainment of a predetermined gas-pressure.

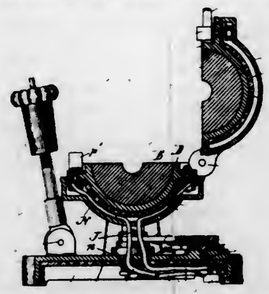
6. A power-shaft in operative connection with a motive-fluid generator, said generator including in combination a series of explosion-chambers having a source of fuel-supply communicating therewith, a reservoir communicating with said chambers, devices operated by the power-shaft for effecting a plurality of explosions in said chambers during a single rotation of the power-shaft, said explosions taking place in sequence in the several chambers, and means for automatically disconnecting said devices from the power-shaft and thereby interrupting the explosions upon the attainment of a predetermined gas-pressure in the reservoir.

677,398. HORSESHOE-PAD. AUGUST BUER, Hanover, Germany. Filed Sept. 2, 1899. Serial No. 729,312. (No model.)



Claim.—In antislipping horseshoe-pads, the combination of a pad C having on its outer circumference a concave groove, with a clamp A having on its inner circumference a corresponding convex surface, and provided with flaps *a* projecting laterally from the hoof edge so as to take over the top surface of the horseshoe, and with flaps *a'* projecting laterally from the ground edge and taking into recesses of the bottom surface of the horseshoe, and eyes *a°* provided in the back of the clamp to allow of the introduction of tongs for pressing the clamp together, the whole for the purpose as set forth.

677,399. ELECTRIC VULCANIZER. ANDREW J. CONLIN, Cambridge, Mass., assignor to the Simplex Electrical Company, Boston, Mass. Filed Sept. 10, 1900. Serial No. 29,543. (No model.)



Claim.—1. In an electric vulcanizer a tubular mold having an upper and a lower clamping member, the lower member being mounted upon a base and in close proximity thereto, a rheostat within said base, an electric heating-coil substantially surrounding said mold, and electrical connections between the heating-coil and the rheostat.

2. In an electric vulcanizer a tubular mold having two clamping members, one of said members being mounted upon a base and in close proximity thereto, a rheostat within said base, an electric heating-coil substantially surrounding said members, electric contacts borne by said clamping members, and adapted to close the heating-circuit simultaneously with the mechanical closing of the mold, electrical connections between the heating-coil and the rheostat.

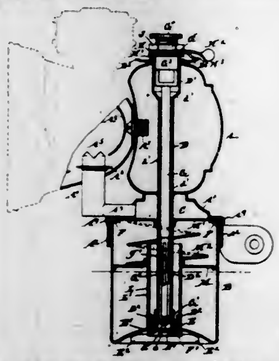
3. In an electric vulcanizer a tubular mold having an upper and a lower clamping member, the latter being mounted upon a base and in close proximity thereto, a rheostat within said base, an enamel heating-coil on the outer side of each of said members, covers adapted to protect said enamel heating-coils, automatic spring-contacts borne by said members adapted to close the heating-circuit simultaneously with the closing of the mold, and electrical connections between the rheostat and the heating-coil.

4. In an electric vulcanizer a clamp consisting of two parts journaled together and means for clamping said parts together, electrical heating resistances on the outer side of each of said clamping parts, a tubular mold open at either end consisting of filling-blocks removably fitted within said clamping parts, spring-contact members borne by said clamping parts and adapted to close the heating-coil circuit simultaneously with the closing together of the clamps, and a rheostat in close proximity to said clamping parts and controlling the amount of heat in the heating resistances.

5. In an electric vulcanizer, a clamp consisting of two parts journaled together and means for clamping said parts together, each of said clamping parts consisting of an inner and an outer shell with an air-space between, electrical heating resistances on the outer side of the inner shells, and a tubular mold within said clamp.

6. In an electric vulcanizer, a clamp consisting of two parts journaled together and means for clamping said parts together, each of said clamping parts consisting of an inner and an outer shell with an air-space between, electrical heating resistances on the outer side of the inner shells, a tubular mold within said clamp, and a rheostat in close proximity to said clamping parts, and controlling the amount of heat in the heating resistances.

677,400. ACETYLENE-GAS-GENERATING LAMP. WILLIAM P. CRARY, New York, N. Y. Filed Dec. 18, 1899. Renewed Dec. 31, 1900. Serial No. 41,730. (No model.)



Claim.—1. In an acetylene-lamp, a water-chamber, a carbid-cup fitting therein, a water-supply tube extending downwardly from said chamber into said cup, and means for separably attaching the latter to said tube, all combined substantially as herein specified.

2. In an acetylene-lamp, a water-chamber, a carbid-cup fitting thereto, a water-supply tube extending downwardly from said chamber into said cup and screw-threaded at the lower end, and a nut operated from below said cup and extending through the bottom thereof, adapted separably to attach the cup to said chamber, all combined substantially as herein specified.

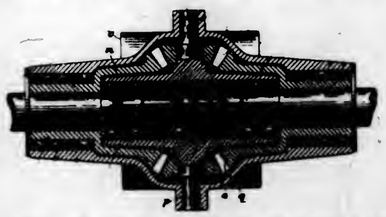
3. In an acetylene-lamp, a water-chamber, a carbid-cup fitting thereto, a water-supply tube extending from said chamber downwardly into said cup, a valve located in said tube, a tubular nut operated from below said cup and extending through the bottom of the latter, adapted separably to attach the cup to said chamber and also serve in distributing the water passing said valve, all combined substantially as herein specified.

4. In an acetylene-lamp, the water-chamber A, having the extension A', the carbid-cup B adapted to fit against said extension, and having an aperture in its bottom, a water-supply tube D extending from said chamber into said cup, and screw-threaded at its lower end, and the tubular nut E having the distributing-openings e', adapted to engage said tube through said apertures and force the cup into close contact with said extension, all combined substantially as herein specified.

5. The water-chamber A and extension A' therein, the gasket F carried thereby, the carbid-cup, B, having an aperture in the bottom, a water-supply tube D, screw-threaded at the lower end, extending downwardly from said chamber into said cup, and having a valve-seat d, the tubular nut E having the groove e^2 and distributing-openings e' therein, adapted to engage said tube through said apertures and protecting means as the string e^3 lying in said groove, all combined and arranged to serve substantially as, and for the purposes herein specified.

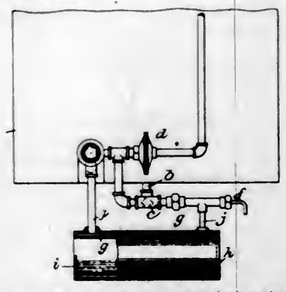
6. In an acetylene-lamp, a carbid-cup serving as a gas-chamber, a water-chamber, a water-supply tube extending therefrom into said cup, a valve-seat at the lower end of said tube and a valve-rod and plug inclosed therein, in combination with the flange G^2 having the notches g on the upper end of said rod, the ring H and its spur H' adapted to engage one of said notches, the arm H^2 and spring H^3 on said ring, the relatively-fixed flange D^2 having notches d^2 and stops d^3 d^4 adapted to engage said spring, and the nut J for holding said ring in place, all substantially as herein specified.

677,401. EQUALIZING MECHANISM FOR VEHICLE-WHEELS. THOMAS B. DOOLEY, Malden, Mass., assignor to Everett D. Wiggin, trustee, Boston, Mass. Filed Apr. 27, 1900. Serial No. 14,569. (No model.)



Claim.—The combination with a divided shaft or axle; of a sleeve embracing the meeting ends thereof and having radial studs; roller-bearings interposed between the said sleeve and the shaft on each side of the dividing-line thereof; bevel-pinions journaled on the said radial studs; gears engaging said pinions and embracing the ends of the sleeve and formed beyond the latter with sleeve portions embracing the shaft members respectively and secured thereto; a sectional casing embracing the gears and having bosses for the radial studs; and roller-bearings interposed between the said casing and the sleeve portions of the gears, substantially as described.

677,402. PRELIMINARY VAPORIZER FOR HYDROCARBON-BURNERS. THOMAS B. DOOLEY, Malden, Mass., assignor to Everett D. Wiggin, trustee, Boston, Mass. Filed Nov. 1, 1900. Serial No. 35,099. (No model.)



Claim.—1. A preliminary vaporizer for hydrocarbon-burners comprising a double-walled cylindrical shell with an annular space between the walls forming a vaporizing-chamber and end portions providing a trough within the shell for volatile fluid; together with supply connections to the said vaporizing-chamber and outlet connections therefrom for vapor.

2. The combination with a supply-pipe leading from a source of hydrocarbon and a vapor-nozzle for feeding a burner; of a preliminary vaporizer consisting of a double-walled shell having a space between the walls forming a vaporizing-chamber with which said supply-pipe and vapor-nozzle communicate, said shell having end portions providing a trough within the shell for volatile fluid, substantially as described.

3. A preliminary vaporizer for hydrocarbon-burners, the same comprising a double-walled shell having a narrow space between the walls, a hydrocarbon-supply conduit opening into said space, a vapor-conduit leading out of the same, and end portions forming a trough within the shell for containing a charge of volatile fluid, substantially as and for the purpose described.

4. A preliminary vaporizer for hydrocarbon-burners comprising a horizontally-arranged double-walled shell wholly closed at one end and partially closed at the other so as to provide a trough within the shell for a charge of volatile fluid; a vaporizing-chamber being formed between the walls of the shell and the latter having connections for hydrocarbon supply and for vapor discharge, substantially as described.

677,403. POST-HOLE AUGER. JAMES J. DRISCILL, Henderson, Ky. Filed Aug. 11, 1900. Serial No. 26,641. (No model.)

Claim.—1. In a post-hole anger, the combination, with an angular shaft, the lower end of which is provided with a bit, the upper end with means for rotating it, of a series of tapering substantially V-shaped cutters pivotally secured to the shaft adjacent to the bit, one wing of each cutter being flat and lying in the plane of the side of the shaft to which it is secured, and the opposite wing being curved slightly outward and sharpened, a slide upon the shaft above the cutters, rods for connecting the slide with the cutters, and means for locking said slide in its adjusted positions, substantially as described.



2. In a post-hole auger, the combination, with an angular shaft, the lower end of which is provided with a bit and the upper end with means for rotating it, a series of tapering substantially V-shaped buckets pivotally secured to the shaft adjacent to the bit, one wing of each of which is slotted at its upper end, two arms secured to each face of the shaft and projecting laterally therefrom upon opposite sides of said wing, a bolt through the outer ends of said arms and through said slot, a slide upon the shaft above the cutters, rods from the slide to the cutters, and means for securing the slide in its adjusted positions, substantially as described.

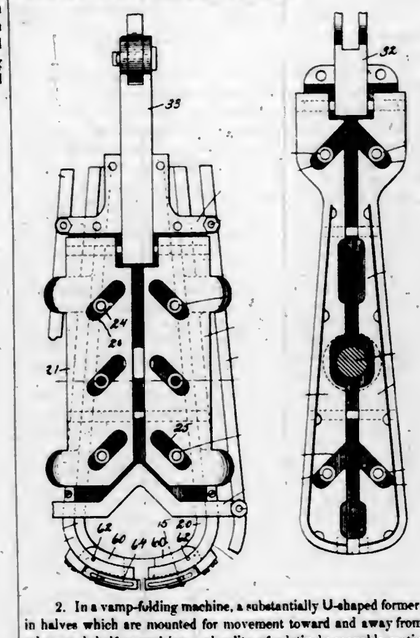
3. In a post-hole auger, the combination, with an angular shaft, the lower end of which is provided with a bit, and the upper end with means for rotating it, of tapering substantially V-shaped cutters pivotally secured to the shaft adjacent to the bit, one wing of each of which is flat and the other wing is curved, of a cover for each cutter secured to the upper edge of the flat wing, guide-arms for each cutter at the upper portion of the flat wing, and means for moving said cutters toward and from the shaft, substantially as described.

4. In a post-hole anger, the combination, with a shaft, the lower end of which is provided with a bit and the upper end with means for rotating it, of tapering substantially V-shaped cutters pivotally secured at their lower ends to the shaft adjacent to the bit, guide-arms for the upper ends of each cutter, and a cover for each cutter provided with an extension adapted to project over the cover of the adjacent cutter when the auger is closed, and means for moving said cutters toward and from the shaft, substantially as described.

5. In a post-hole anger, the combination, with a shaft, the lower end of which is provided with a bit, the upper end with means for rotating it, of laterally-adjustable cutters pivotally secured to the shaft adjacent to the bit, and a bucket above the cutters, said bucket comprising a strip of material having staples at one end and holes at the other, and a key for locking said staples in said holes, substantially as described.

677,404. FOLDING-MACHINE. GEORGE F. DUNN, Brockton, Mass., assignor of one-half to the Brockton Supply Company, same place. Filed Oct. 24, 1900. Serial No. 34,171. (No model.)

Claim.—1. In a vamp-folding machine, a substantially U-shaped former composed of halves which are mounted for movement diagonally toward and away from each other, and means to produce a longitudinal travel of the bend or end portion of the former during such movement, greater than the lateral movement of each half.



2. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement toward and away from each other, each half comprising a plurality of relatively movable sections.

3. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement diagonally toward and away from each other, each half comprising a plurality of relatively movable sections.

4. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement toward and away from each other, each half comprising a side section and an end section relatively movable with respect to said side section, the end sections in the two halves overlapping.

5. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement toward and away from each other, each half comprising a side section and an end section pivoted to said side section, the end sections in the two halves overlapping.

6. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement diagonally toward and away from each other, each half comprising a side section and an end section pivoted to said side section, and a guiding connection between each side section and the end section of the opposite half.

7. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement diagonally toward and away from each other, each half comprising a side section and an end section pivoted to said side section, and two diagonally-arranged guides connected with the respective side sections and converging forwardly, each guide being engaged with the end section of the opposite half.

8. In a vamp-folding machine, a substantially U-shaped former made in halves which are mounted for movement diagonally toward and away from each other, each half comprising a side section and an end section pivoted to said side section, two diagonally-arranged slotted guides connected with the respective side sections and converging forwardly, and a stud on each end section operating in the slot of the guide on the opposite half.

9. In a vamp-folding machine, a work-supporting table having a substantially U-shaped inner edge, and comprising a plurality of sections mounted for relative movement to expand and contract the opening inclosed by said edge.

10. In a vamp-folding machine, a work-supporting table having a substantially U-shaped inner edge, and comprising a plurality of sections lapped to preserve the continuity of said edge and mounted for relative movement to expand and contract the opening inclosed by said edge.

11. In a vamp-folding machine, a work-supporting table having a substantially U-shaped inner edge, and comprising two halves mounted

for movement diagonally toward and away from each other to contract and expand the opening inclosed by said edge.

12. In a vamp-folding machine, a work-supporting table having a substantially U-shaped inner edge, and comprising two halves mounted for movement diagonally toward and away from each other to contract and expand the opening inclosed by said edge, and means to simultaneously so move said halves.

13. In a vamp-folding machine, a work-supporting table having a substantially U-shaped inner edge, and comprising two halves mounted for movement diagonally toward and away from each other to contract and expand the opening inclosed by said edge, operating mechanism adapted to simultaneously so move said halves, and a plurality of stops determining different positions of said mechanism and corresponding to different vamp sizes.

14. In a folding-machine, a former and a folder, mechanism for imparting substantially parallel movements of different extent respectively to said former and folder to fold the work, and mechanism for imparting simultaneously adjusting movements of substantially equal extent to said former and folder for different sizes of work.

15. In a folding-machine, a former and a folder, mechanism for imparting substantially parallel movements of different extent respectively to said former and folder to fold the work, mechanism including two screws of different pitch for adjusting the said former and folder respectively for different sizes of work, and means for simultaneously rotating said screws.

16. In a folding-machine, a former and a folder, mechanism for imparting substantially parallel movements of different extent respectively to said former and folder to fold the work, two levers of different length connected to said former and folder respectively, and movable to impart said folding movements, adjusting mechanism including two screws of different pitch for varying the positions of said levers for different sizes of work, and means for simultaneously rotating said screws.

17. In a vamp-folding machine, a former and a folder both substantially U-shaped and expansible and contractible, mechanism for imparting expanding and contracting movements of different extent respectively to said former and folder in the operation of folding the work, and adjusting mechanism for imparting simultaneously expanding and contracting movements of substantially equal extent respectively to said former and folder for different sizes of vamps.

18. In a folding-machine, a work-supporting table, a former, a folder, and a clamp adapted to descend upon the work supported upon the table to hold the same from movement.

19. In a folding-machine, a work-supporting table, a former, a folder, a former-carrier, and a clamp yieldingly mounted upon said carrier and moved thereby to clamp the work upon the table or release the same.

677,405. **COMBINATION HOE AND WEEDER.** SARAH E. FERRIS, Monroe, administratrix of Thomas B. Ferris, deceased, and FRANK B. FERRIS, Detroit, Mich.; said Sarah E. Ferris, administratrix, assignor to said Frank B. Ferris. Filed Oct. 1, 1900. Serial No. 31,608. (No model.)

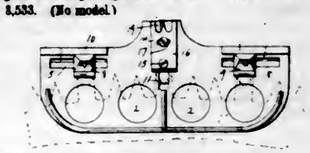


Claim.—1. A combination hoe and weeder formed with a series of teeth integrally united with a transverse thickened stiffening-blade at their upper ends, the spaces between the teeth made pointed at their upper ends, said teeth crowned in cross-section and having blunt edges toward the upper ends thereof, said blade made narrower than the length of the teeth, substantially as described.

2. A combination hoe and weeder formed with a series of teeth integrally united with a transverse stiffened blade at their upper ends, all of said teeth crowned in cross-section on the front face thereof, the space between the teeth made pointed at their upper ends, said blade made thicker in cross-section than the teeth, the teeth being curved longitudinally on the front face thereof adjacent to the base of the blade, and said blade made narrower than the length of the teeth, substantially as described.

3. A combination hoe and weeder formed with a series of teeth integrally united with a transverse stiffened blade at their upper ends, said teeth crowned in cross-section, the space between the teeth made pointed at their upper ends, said blade made thicker in cross-section than the teeth, the teeth being curved longitudinally on the front face thereof adjacent to the blade, the outer edges of the outer teeth being inclined inward toward their lower extremities, and having outer cutting edges, substantially as described.

677,406. **SAW-GAGE.** CHESTER F. FOWLER, Columbia City, Oreg., assignor to George Page, Sara, Wash. Filed Mar. 13, 1900. Serial No. 8,553. (No model.)

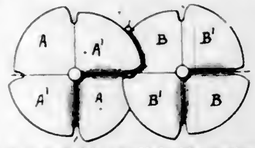


Claim.—1. A device of the character described, consisting of a plate having formed therein a vertical slot, a handle pivoted to said plate and carrying a sliding plate fitting said vertical slot, a swage-plate pivoted to said sliding plate and adapted to be adjusted vertically and laterally, and means for indicating the true vertical position of said swage-plate, substantially as set forth.

2. A device of the character described, consisting of a plate having formed therein a central vertical slot, and on each side thereof, a horizontal slot, a handle-lever pivoted to said plate and carrying a swage-plate adapted to be adjusted vertically and laterally, means for indicating the vertical position of said swage-plate, and guide-blocks adjustably secured in said horizontal slots, as set forth.

3. A device of the character described, consisting of a plate having formed therein a central vertical slot, and on each side thereof, a horizontal slot, a handle pivoted to said plate, a swage-plate secured to said handle and formed with a pointer and with an arm on each side of said pointer, and guide-blocks adjustably secured in said horizontal slots, substantially as described.

677,407. **TOBACCO-STRIPPING MACHINE.** FREDERICK G FRANKENBERG, Chicago, Ill. Filed Aug. 21, 1900. Serial No. 27,529. (No model.)



Claim.—1. A pair of disks provided with a registering series of notches in their edges and having the metal adjacent to said notches offset substantially as described, and means for rotating said disks so as to cause said notches to engage the stems of leaves.

2. A pair of disks provided with a registering series of notches in their edges and having the metal adjacent to said notches offset, and also having portions of their peripheries cut away adjacent to the forward edges of said notches, substantially as described.

3. In a tobacco-stemming machine, a pair of stem-stripping blades formed of a pair of rotary disks having a registering series of notches in their edges, means for embracing the stem of a leaf within two such notches by the movement of said disks, means for drawing the stem through the opening formed by such notches, and means for discharging the stripped leaf by a further movement of said disks.

4. In a tobacco-stemming machine, a pair of rotary disks having a registering series of stem-gripping notches in their edges and having their peripheries cut away adjacent to the forward edges of the slots, substantially as described.

5. In a tobacco-stripping machine, a pair of stem-stripping knives arranged to embrace the stems of leaves by the movement of said knives, devices for drawing a stem through said knives when it is embraced by them, and means for discharging the leaf by a further movement of said knives.

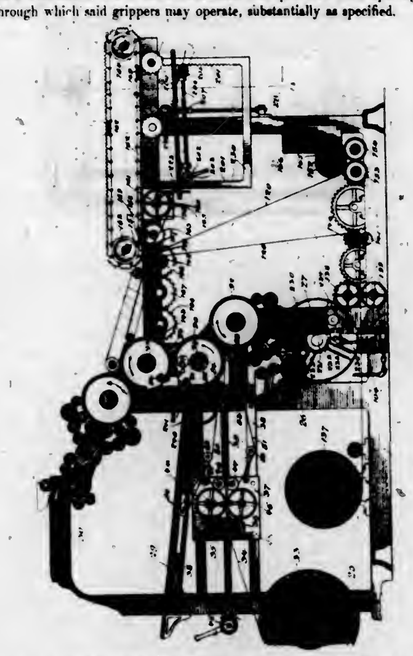
6. A pair of disks provided with notches in their edges and having the metal adjacent to said notches offset in opposite directions, means for rotating said disks so as to cause the notches of opposite disks to register with each other, and a yielding support for one of said disks.

677,408. **PRINTING-PRESS.** CARLYLE B. FUNK, Chicago, Ill. Filed Mar. 14, 1900. Serial No. 8,579. (No model.)

Claim.—1. A printing-press wherein are combined an impression-cylinder, a continuous offset-web moving over said cylinder and provided with openings as set forth, and means for controlling the printed sheet acting thereon through said openings, substantially as specified.

2. A printing-press wherein are combined an impression-cylinder, a continuous offset-web moving over said cylinder and provided with openings through which the grippers may move into and out of the cylinder, and grippers carried by the cylinder and adapted to move through the web, substantially as specified.

3. A printing-press wherein are combined an impression-cylinder, a series of grippers supported in said cylinder and having a quick outward movement, and a continuous offset-web provided with openings through which said grippers may operate, substantially as specified.



4. A printing-press wherein are combined an impression-cylinder, a series of grippers supported in said cylinder, movable radially in and out of the cylinder and also movable forward to seize the sheet, and a continuous offset-web provided with openings through which said grippers may operate, substantially as specified.

5. A printing-press wherein are combined an impression-cylinder, a series of grippers in said cylinder movable radially outward, then forward, then inward against the cylinder-surface, then outward, then backward and finally radially inward to its starting position in the cylinder, and a continuous offset-web having openings through which said grippers may operate, substantially as specified.

6. A printing-press wherein are combined an impression-cylinder, a series of grippers in said cylinder having a quick radial movement in and out of the cylinder, means for imparting such movement to the grippers, and a continuous offset-web having openings through which said grippers may operate, substantially as specified.

7. The combination with the impression-cylinder and the offset-web having gripper-openings, of the grippers, the eccentric for operating the grippers radially and the cam-grooves and pins for imparting the forward and back movements, substantially as specified.

8. The combination with the impression-cylinder and the offset-web having gripper-openings, of the grippers and the eccentrics for moving the grippers in and out of the cylinder, substantially as specified.

9. The combination with the impression-cylinder and the offset-web having gripper-openings, of the grippers, the eccentric for moving the grippers in and out, and means for rocking the eccentric-shaft, substantially as specified.

10. The combination with the impression-cylinder and the offset-web having gripper-openings, of the grippers, the eccentric for moving the grippers in and out, the segment and pinion for rocking the eccentric-shaft, the cam for operating said segment in one direction, and the spring for operating the segment in the other direction, substantially as specified.

11. The combination with the impression-cylinder and the offset-web having gripper-openings, of the grippers, the eccentric for moving the grippers in and out, and spring-actuated devices for imparting a quick movement to said grippers in one direction, substantially as specified.

12. The combination with the impression-cylinder and the offset-web having gripper-openings, of the grippers, the eccentric for moving the grippers in and out, the segment and pinion for operating said eccentric-shaft, and a stationary cam for actuating said segment in one direction, substantially as specified.

13. The combination with the second impression-cylinder, the offset-web and the grippers working through the web, of the first impression-cylinder also having grippers, and having an air-exhaust for controlling the advance edge of the sheet after its grippers have let go, substantially as specified.

14. The combination in a printing-press with the continuous offset-web, of means for forming gripper-openings in the web, substantially as specified.

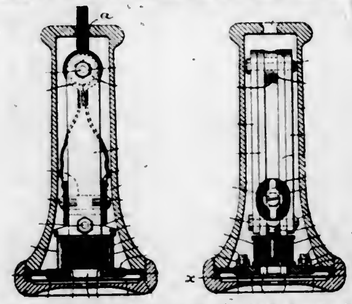
15. The combination in a printing-press, with a continuous offset-web, the impression-cylinder over which the web moves, and grippers carried by said cylinder, of means for forming openings in said web through which said grippers may operate, substantially as specified.

16. The combination with the second impression-cylinder, of a continuous tympan or offset web, traveling with and enwrapping the cylinder, and having series of perforations extending across the web and occurring at distances apart equal to the circumference of the cylinder, and grippers in the cylinder movable outward through said perforations and seizing the sheets so that they are caused to travel smoothly and concertedly, substantially as specified.

17. The combination with the second impression-cylinder, of a perforated tympan or offset web traveling with and enwrapping said cylinder, the perforations in such web registering with openings in the cylinder, and means for controlling the printed sheet operating thereon through said perforations and cylinder-openings, substantially as specified.

18. The combination with the second impression-cylinder, of a perforated tympan or offset web traveling with and enwrapping the cylinder, the perforations in such web registering with openings in the cylinder, a series of grippers moving through said openings and perforations and operated by eccentrics mounted on a rod or shaft, a pinion on the end of said rod, a segment-gear meshing with said pinion, and a cam and spring operating said segment and causing it to operate the eccentrics, substantially as specified.

677,409. **TELEPHONE-RECEIVER.** WILLIAM D. GHARKY, Philadelphia, Pa. Filed Sept. 4, 1900. Serial No. 28,861. (No model.)



Claim.—1. In a telephone-receiver, a magnet structure having a pole-piece and polar winding, a diaphragm secured in the field of the pole-piece, a disk adjustably located between the diaphragm and the polar winding and carrying the entire magnet structure, and an inclosing shell and cap, substantially as described.

2. In a telephone-receiver, the combination with an earpiece and a diaphragm, of a disk adjustably mounted in close proximity to said diaphragm, a magnet structure mounted upon and carried in its entirety by said disk, and a shell adapted to inclose the parts and engage the earpiece, substantially as described.

3. In a telephone-receiver, a diaphragm, a magnet structure comprising a permanent magnet together with a pole-piece and its windings, means adjustably located between the diaphragm and winding for securing said diaphragm and supporting the entire magnet structure, and an inclosing shell, substantially as described.

4. In a telephone-receiver, a diaphragm, a magnet structure, a disk carrying said structure in its entirety and rigidly secured thereto between the magnet-windings and the diaphragm, and means for adjusting and securing said disk with relation to the diaphragm, together with an inclosing shell, substantially as described.

5. In a telephone-receiver, the combination with an earpiece and a diaphragm, of a disk in close proximity to said diaphragm and adapted to secure it within the earpiece, a magnet structure mounted upon and carried in its entirety by said disk, the pole-pieces of said magnet structure projecting through said disk and having shoulders to rest thereagainst, and a shell adapted to inclose the parts and engage the earpiece, substantially as described.

6. In a telephone-receiver, an earpiece, a diaphragm, a ring carry-

ing said diaphragm and secured to the earpiece, a disk adjustably attached to said ring, a magnet structure including a pole-piece and its winding mounted upon said disk, means for maintaining said disk and ring in rigid adjustment, and a shell inclosing said magnet structure and secured to the earpiece, substantially as described.

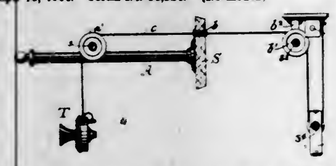
7. In a telephone-receiver, an earpiece, a diaphragm, an annular flange threaded peripherally to engage the earpiece, and holding the diaphragm, a disk threaded to engage said flange, a magnet structure mounted upon said disk, the pole-pieces projecting through said disk and the magnet-windings being on the opposite side thereof from the diaphragm, means for locking said flange and disk in fixed relative position, and an inclosing shell engaging the earpiece and securing said flange therein against rotation, substantially as described.

8. In a telephone-receiver, a diaphragm, a permanent magnet and its accessories, means located between said diaphragm and the magnet-winding for supporting the magnet structure, a spool at the head of the permanent magnet and a connecting-cord secured thereto, together with electrical connections and a containing-shell, substantially as described.

9. In a telephone-receiver, a magnet structure, a diaphragm, a spool located near the end of the magnet structure farthest from the diaphragm and between the magnet-limbs, and a connecting-cord mechanically secured to said spool, together with electrical connections and a containing-shell, substantially as described.

10. In a telephone-receiver, a magnet structure carrying windings, a diaphragm, a distance piece or block near the end of the magnet structure opposite said diaphragm, a ring loosely fitting said distance-piece, and a connecting-cord electrically connected to the windings and mechanically secured to said ring, substantially as described.

677,410. OPERATOR'S SUSPENSION SET FOR TELEPHONE-SWITCHBOARDS. WILLIAM D. GHARKY, Philadelphia, Pa. Filed Sept. 19, 1900. Serial No. 30,520. (No model.)



Claim.—1. In an operator's suspension set, a supporting-standard in proximity to a switchboard, a traveler carrying pulleys mounted on said standard, fixed pulleys to coöperate with the pulleys on the traveler, a transmitter suspended by bare circuit-wires passing over said pulleys, and a weight to counterbalance the weight of said transmitter, substantially as described.

2. In an apparatus of the class described, a base, a bracket composed of a split tube secured thereto, a traveler comprising a body portion and a rearwardly-projecting lug carrying wheels, a transmitter, and means for adjustably suspending said transmitter from said traveler-wheels and securing it in the adjusted position, substantially as described.

3. In an apparatus of the class described, a switchboard, a base, a split-tube bracket secured to said base and projecting in front of the switchboard, a traveler working within said tube and provided with a lug extending rearwardly upon said lug, a transmitter and means for suspending the same from the traveler-pulleys whereby said traveler is retained in the tube in its adjusted position, substantially as described.

4. In an apparatus of the class described, a switchboard, a bracket secured to the frame thereof, a traveler upon said bracket, a transmitter, bare circuit-wires secured to and adapted to support said transmitter in front of the switchboard and passing over said traveler, a counterweight acting upon said circuit-wires to balance the transmitter, together with means for insulating said circuit-wires from their supports and from each other, substantially as described.

5. An apparatus of the class described, a switchboard, a support mounted thereon, a traveler adjustably mounted on the support, a transmitter, a means for adjustably supporting the transmitter from the traveler, such means being also arranged to maintain the traveler in adjusted position with regard to its support, substantially as described.

677,411. CARPET-SWEEPER FENDER. STANLEY GREACEN, Bloomfield, N. J. Filed May 5, 1899. Serial No. 715,764. (No model.)

Claim.—1. The combination with a carpet-sweeper casing of an external elastic fender passing horizontally around the casing and having a cavity extending throughout its length, and a thread or wire lying in the cavity, passing around the casing and binding said fender between the thread or wire and the outer face of the casing.

2. The combination with a carpet-sweeper casing, of a fender consisting of a rubber tube and bound to the casing by means of a thread within said tube, substantially as described



677,412. WEB-HOLDING DEVICE FOR WAGE-SCALES, &c. ARAN B. HARMON, Rochester, N. Y. Filed Apr. 5, 1900. Serial No. 11,752. (No model.)



Claim.—1. In a web-holding device, the combination with the base, a removable casing extending over and coöperating with the base and having an aperture therein, of a removable holding-frame and web-holding rollers journaled therein, said frame being detachable from the base by a longitudinal movement, and a web attached at its ends to the rollers and guided in proximity to the aperture in the casing.

2. In a web-holding device, the combination with a base, and a removable casing coöperating with the base and having an aperture therein, of a removable frame in the casing having web-holding rollers, a web or sheet connected to the rollers, guides for holding the web in proximity to the aperture in the casing, and a roller-operating device on the base detachably engaged with one of the web-rollers.

3. In a web-holding device, the combination with a base, a removable casing coöperating with the base and having an aperture therein, of a removable frame in the casing, the web-holding rollers journaled therein, a web or sheet attached at its ends to the rollers, and guides for the web, a gear on one of said rollers, an operating-gear on the base adapted to engage with the roller-gear and a stationary frame or bracket mounted on the base and supporting the operating-gear.

4. In a web-holding device, the combination with a base, the bracket thereon, and the operating-gear mounted on the bracket, of the removable casing having the aperture, the frame detachably connected to the base, the web-rollers geared together and mounted thereon, the gear on one of the rollers adapted to mesh with the operating-gear, and a web connected to the rollers.

5. In a web-holding device, the combination with a base, an operating-gear thereon, and a removable casing having apertures, of two pairs of rollers arranged in the casing, the rollers of each pair being geared together and one roller of each engaged by the operating-gear and webs or sheets connected to each roller.

6. The combination with the casing, of a removable frame therein embodying the plates at the ends, having open bearings at the top, supporting-rollers in the bearings, two rollers journaled in the plates, gearing connecting them, and a web having markings on both sides connected at its ends to the rollers and extending over the supports successively with both sides outwardly.

7. The combination with a base having the guides, a frame supported on and movable longitudinally of the guides, the rollers journaled in the frame and connected for simultaneous operation in opposite directions, of the web-sheet having markings upon its opposite sides connected

at its ends to the rollers, the gear upon one of the rollers, an operating-gear engaging therewith, and a bracket supporting the latter and secured to the base.

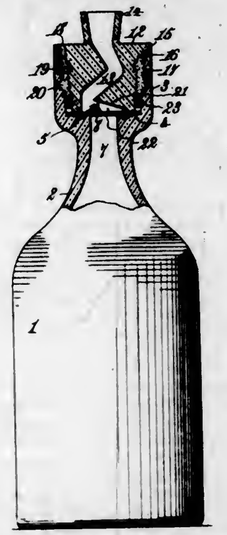
8. The combination with a base having the guides, a frame movably supported on the base and held by the guides, the rollers supported in the frame and provided with intermeshing gears upon one end, and the gear upon the opposite end of one of the rollers, of the operating-gear supported in bearings stationary on the base, the web, having markings upon its opposite sides connected at its opposite ends to the rollers, and the removable casing coöperating with the base and inclosing the parts and provided with the apertures arranged above the rollers.

9. The combination with a base, a frame secured thereon, the rollers journaled in the frame having the intermeshing gears upon one end, and the gear upon the opposite end of one of the rollers, of the operating-gear supported on the base and meshing with the last-mentioned gear, the sheet or web having the markings upon its opposite sides connected at its ends to the rollers, the removable casing coöperating with the base and inclosing the parts and provided with the slots or apertures above the rollers, and the handle connected to the operating-gear extending to the exterior of the casing.

10. The combination with a base having the guides, a frame movably attached to the base by said guides, and the rollers supported in the frame, the sheet or web having markings upon its opposite sides connected at its ends to the rollers, the guides for said sheet journaled in the frame above the rollers, and the intermeshing gears arranged upon one end of the latter, of the gear mounted upon the opposite end of one of the rollers, an operating-gear engaging therewith and supported in bearings stationary on the base and provided with an operating knob or handle, and the removable casing inclosing the parts having the slots arranged above the guides.

11. The combination with a base, separate frames arranged thereon, each provided with a pair of rollers connected for simultaneous operation in opposite directions, and sheets or webs having markings thereon connected at their ends to the rollers of each pair, of an operating-gear supported in a bearing mounted on the base, pinions arranged upon one of the rollers of each pair engaging the gear, whereby the separate webs may be operated together, and a removable casing inclosing the parts and provided with the slots above each roller.

677,413. NON-REFILLABLE BOTTLE. EDWARD HOERICHS, Baltimore, Md., assignor to Thomas A. Bryan, Charles H. Boone, and Edward Hoerichs, same place. Filed Nov. 1, 1900. Serial No. 35,137. (No model.)



Claim.—1. In combination with a bottle having a valve-seat in its neck, a flap-valve located on said seat, a plug secured in said neck and resting upon said valve, said plug having a passage extending through the same and provided in its bottom with a recess for permitting the flap of the valve to rise, substantially as described.

2. In combination with a bottle having a valve-seat in its neck, a flap-valve located on said seat, a plug in said neck resting on said valve, a filling of plaster of-paris between the plug and neck, said plug having a zigzag passage extending through the same and provided in its bottom with a recess for permitting the flap of the valve to rise and in its top with an opening through which the plaster-of-paris is poured, substantially as described.

3. In combination with a bottle having a valve-seat in its neck, a flap-valve located on said seat, a plug in said neck provided with a zigzag passage, and having an annular flange overlapping the edge of the neck, said plug being of less circumference than the interior of the neck and having in its top an opening, and a filling of plaster-of-paris poured in through said opening to fill up the space between the plug and the neck and lock the former securely in place in the latter, substantially as described.

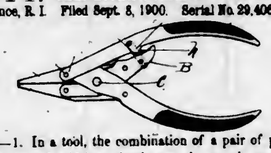
4. In combination with a bottle having a neck provided with a valve-seat and an interior groove, a flap-valve located on said seat, a grooved plug in said neck provided with a zigzag passage and having an annular flange overlapping the edge of the neck, said plug being of less circumference than the interior of the neck and having at its lower end a packing-ring and in its top an opening, and a filling of plaster-of-paris poured in through said opening to fill up the space between the plug and the neck and lock the former securely in place in the latter, substantially as described.

5. In combination with a bottle having its neck provided with a valve-seat, a valve on said seat comprising a valve member 8 of a soft, pliable substance, and a similar valve member 10 of a pliable, springy substance located on the valve member 8, and a plug secured in said neck above said valve, and having a zigzag passage therein, substantially as described.

6. In combination with a bottle having its neck provided with a valve-seat, a valve on said seat comprising a valve member 8 of soft pliable substance and a similar valve member 10 of mica located on the valve member 8, and a plug secured in said neck above said valve and having a zigzag passage therein, substantially as described.

7. In combination with a bottle having a neck provided with a valve-seat, a valve on said seat comprising a valve member 8 of a soft, pliable substance and a valve member 10 of a pliable, springy substance, and a plug secured in said neck and resting upon said valve to hold it in place and having a zigzag passage extending therethrough, substantially as described.

677,414. SELF-LOCKING PLIERS. MATTHEW M. HOWLAND, Providence, R. I. Filed Sept. 8, 1900. Serial No. 29,406. (No model.)



Claim.—1. In a tool, the combination of a pair of plier-jaws pivoted together, one of said jaws having notches made on the upper side of it back of said pivot, a bar or handle pivoted to the other jaw before said pivot, and having a projection on its under side arranged to catch in said notches, substantially as described.

2. The combination in a tool of a pair of plier-jaws pivoted together one of said jaws having notches in its upper side back of the pivot, a closing-handle pivoted at one end to the other jaw and having a projection on its under side arranged to catch in said notches, with means to connect said closing-handle with the rear end of the jaw with notches, substantially as described.

3. The combination in a tool of a pair of plier-jaws connected together by a pivot, a bar pivoted to one of the jaws before said pivot and bearing on the other jaw back of said pivot, a link to connect said bar or handle with said other jaw, substantially as described.

4. In a tool the combination of a pair of plier-jaws connected together by a central pivot, a closing-bar having one end pivoted to one of said jaws on one side of the central pivot and bearing on the other jaw on the other side of said pivot, a link to connect the closing-bar with one of the jaws, substantially as described.

677,415. CUSHION-TIRE. WEBBER G. KENDALL, Providence, R. I. Filed Nov. 6, 1900. Serial No. 35,626. (No model.)



Claim.—1. A cushion-tire, comprising a fabric formed into a convolute, each convolution thereof being spaced from the next adjacent one by means of single or individual supports.

2. A cushion-tire, comprising a fabric, provided with individual projecting supports, formed into a convolute, each convolution being spaced apart from another by said supports, forming air-chambers.

3. A cushion-tire, comprising a fabric, having one of its surfaces partially provided with individual projections, formed into a convolute, each convolution spaced apart from another by said projections, and a cover for the tire integral with the fabric.

4. A cushion-tire, comprising a strip or blank of tire-forming material having one of its surfaces provided with individual projections, said strip or blank curled or rolled to form a convolute each convolution being spaced apart by said projections, forming air-chambers.

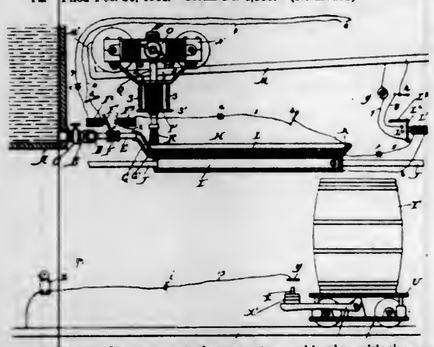
5. A cushion-tire, comprising a strip or blank of tire-forming fabric having one of its surfaces provided with individual projections, said strip or blank curled or rolled to form a convolute, each convolution being spaced apart by said projections, forming air-chambers, and an outer covering.

6. A cushion-tire, comprising a strip or blank of rubber, having one of its surfaces provided with individual projections, said strip or blank curled or rolled in convolute form, each convolution being spaced apart by said projections, forming air-chambers, and an outer covering.

7. A cushion-tire, comprising a strip or blank of rubber having one of its surfaces partly provided with individual projections, said strip or blank curled or rolled in a convolute, each convolution being spaced apart by said projections, forming air-chambers, and a covering integral with the strip or blank.

8. A cushion-tire, comprising a tire-forming fabric formed into a convolute, individual projections for spacing apart the convolutions to form air-chambers, said individual projections being positively secured to each convolution spaced thereby.

677,416. EVAPORATING-PAN. ISIDOR KITSEE, Philadelphia, Pa. Filed Feb. 26, 1900. Serial No. 6,599. (No model.)



Claim.—1. In an evaporating-pan, the combination with the pan proper, of a movable carrier arranged adjacent to said pan, and electromagnetically-controlled means arranged upon said carrier for removing the residual products after evaporation.

2. In an evaporating-pan, the combination with the pan proper, of electromagnetic means for controlling the inflow of the liquid to said pan, and electromagnetically-controlled means for removing the residual products of the pan after evaporation.

3. In an evaporating-pan, the combination with the pan proper, of electromagnetic means for controlling the inflow of the liquid to said pan, a movable carrier arranged adjacent to said pan, and means arranged upon said carrier for removing the residual products after evaporation.

4. In an evaporating-pan, the combination with the pan proper, of an inlet-pipe for feeding said pan with the liquid to be evaporated, a valve arranged in said pipe, electromagnetic means for actuating said valve, a movable carrier arranged adjacent to said pan, and means arranged upon said carrier for removing the residual products after evaporation.

5. In an evaporating-pan, the combination with the pan proper, of electromagnetic means for controlling the flow of the liquid to said pan, an electric circuit comprehending the pan as a part thereof, said circuit controlling said electromagnetic means, a movable carrier arranged adjacent to said pan, and means arranged upon said carrier for removing the residual products after evaporation.

6. In an evaporating-pan, the combination with the pan proper, of a valve for controlling the flow of the liquid thereto, an electric circuit controlling said valve for closing the same when the liquid contents of the pan have reached a predetermined height, a second electric circuit controlling said valve for opening the same when the liquid contents have been evaporated, and electromagnetic means for removing the residual products after evaporation.

7. In an evaporating-pan, the combination with the pan proper, of a valve for controlling the flow of the liquid thereto, an electric circuit in which is included electromagnetic means for closing said valve when the liquid contents of the pan have reached a predetermined height, a second electric circuit including electromagnetic means for opening said valve when the liquid contents have been evaporated, a movable carrier arranged adjacent to the pan, and means arranged upon said carrier for removing the residual products after evaporation.

8. In an evaporating-pan, the combination with the pan proper, of a valve for controlling the flow of the liqoid thereto, electromagnetic means for opening and closing said valve, an electrically-operated carrier arranged adjacent to the pan, means arranged upon said carrier for removing the residual products after evaporation, and an electric circuit in which the pan is included, said circuit controlling the movements of the carrier.

9. In an evaporating-pan, the combination with the pan proper, of a valve for controlling the flow of the liqoid to said pan, electromagnetic means for opening and closing said valve, an electrically-operated carrier arranged in proximity to the pan, a sweeper arranged upon said carrier for removing the residual products after evaporation, and an electric circuit including the pan as part thereof, said circuit controlling the movements of said carrier.

10. In an evaporating-pan, the combination with the pan proper, of a valve for controlling the flow of the liquid thereto, electromagnetic means for opening and closing said valve, a movable carrier arranged adjacent to said pan, a sweeper arranged upon said carrier for removing the residual products after evaporation, electromagnetic means for operating said sweeper to position the same in operative relation to the pan, and an electric circuit for controlling the movements of said carrier.

11. In an evaporating-pan, the combination with the pan proper, of a valve for controlling the flow of the liquid thereto, electromagnetic means for opening and closing said valve, an electrically-operated carrier arranged in proximity to the pan, a sweeper arranged upon said carrier, electromagnetic means for operating said sweeper to position the same in operative relation to the pan, means for removing the sweeper from such relation, and an electric circuit controlling the movements of said carrier.

12. In an evaporating-pan, the combination with the pan proper, of electromagnetic means for controlling the flow of the liquid thereto, electromagnetic means for removing the residual products after evaporation, a receptacle for receiving the residual products, and means operatively related to said receptacle for indicating the filling thereof.

677,417. CLUTCH MECHANISM. HOWARD F. KNIGHT, Croydon, England. Filed Nov. 22, 1900. Serial No. 37,325. (No model.)

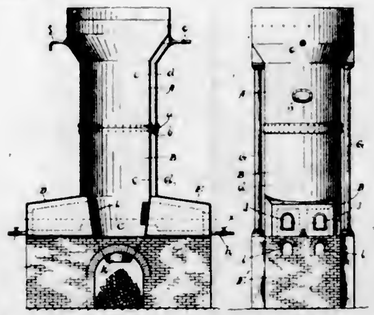


Claim.—1. The improved clutch mechanism comprising an outer ring, an inner ring and an intermediate ring, a pawl or pawls arranged in connection with recesses in the said rings in such a manner that any relative movement of the said rings causes the movement of the said pawl or pawls, ratchet-teeth on the inner ring with which the pawl or pawls is or are designed to engage and means for momentarily setting up a friction between the inner and the intermediate rings greater than that which exists between the intermediate and the outer ring, substantially as described.

2. In clutch mechanism, the combination of an inner ring having ratchet-teeth on its periphery, an intermediate ring rotating upon the said inner ring, an outer ring carried by the intermediate ring, a pawl or pawls carried in recesses in the said outer and intermediate rings and designed to engage with the teeth on the inner ring, springs on the inner ring the surfaces of which are eccentric to the surface of the said inner ring and balls arranged between the inner ring and the intermediate ring and designed to produce friction between the inner and intermediate rings greater than that which exists between the intermediate and outer rings, substantially as described.

677,418. LIMEKILN. GILBERT L'ESPERANCE and JOHN G. L'ESPERANCE, Detroit, Mich. Filed Oct. 26, 1900. Serial No. 34,423. (No model.)

Claim.—1. A limekiln composed of a substructure of brick extending up and forming the ash-pit section and a superstructure removably supported thereon and composed of an enlarged base-section forming the furnace-chamber, and a stack or flue supported on the base-section having its lower end surrounded by the same, the stack and base-section being composed of inner and outer walls of sheet-iron forming between them a water-space continuous throughout the whole and in contact with the inner wall of the structure and means for circulating water through said water-space.



2. A limekiln consisting of the ash-pit section of brick and a superstructure supported thereon and integrally composed of a lower or base section forming the combustion-chamber and a stack having a contracted portion at or near the lower end, said base-section and stack being formed with inner and outer walls of sheet-iron forming a space between them continuous throughout the whole and forming a water-jacket in contact with the whole of the inner wall of the structure and means for supplying water thereto

3. A limekiln composed of an ash-pit section of brick and a stack removably supported upon said ash-pit section, said stack being formed of an inner and an outer concentric wall of iron extending from near the bottom to near the top thereof to form a continuous water-chamber around the stack and adapted to protect the inner wall of the stack, having suitable inlets and outlets for the water contained therein, and furnace-chambers adjacent to and communicating with the interior of the stack, at or near the base thereof.

4. In a limekiln, the combination with a substructure of brick forming the ash-pit section and the vertical bottom outlet of the kiln, of a stack formed of a single structure of iron removably supported thereon, said stack being formed of concentric inner and outer walls forming between them a hollow space continuous throughout the stack from the bottom to near the top and constituting a water-jacket around the whole of the inner wall of the structure, provided with suitable inlet and outlet pipes to maintain the water therein said stack having furnace-chambers on opposite sides of the base adjacent to and communicating with the interior of the stack.

5. In a limekiln, the combination with a substructure of brick forming the ash-pit section and adapted for the removal of the burnt lime from the bottom, of a superstructure removably supported thereon and forming a single portable structure, comprising a stack formed of concentric inner and outer walls forming between them a water-space and furnace-chambers on opposite sides of the stack formed of inner and outer walls forming between them a water-space communicating with the water-space of the stack and means for feeding and regulating the flow of water through said space.

6. In a limekiln, the combination with a substructure of brick forming the ash-pit section and adapted for the removal of the burnt lime, of a superstructure removably supported thereon composed of an upper and lower section detachably-secured together at their meeting ends and comprising a hopper at its upper end, a discharge-hopper and furnace-chambers at its lower end, and a stack or flue intermediate said ends, said stack and furnace-chamber being composed of an inner and outer wall forming between them a space constituting a water-jacket around the whole of the inner wall of the structure, provided with suitable inlet and outlet pipes to maintain the water therein.

7. In a limekiln, the combination with a substructure of brick forming the ash-pit section and adapted for the removal of the burnt lime, of a superstructure removably supported thereon, comprising a stack formed of concentric inner and outer walls forming between them a water-space and furnace-chambers on opposite sides of the stack formed of inner and outer walls forming between them a water-space communicating with the water-space of the stack, and a vertical central hollow partition-wall forming a water-space dividing each of said furnace-chambers into two compartments opening into said stack and means for supplying water to said water-space.

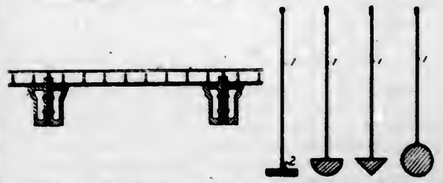
8. In a limekiln for burning lime, the combination with the supporting-base of the superstructure removably mounted thereon comprising the stack portion having a hopper at its upper end and contracted portion C at its lower end, lateral furnace-chambers D E on opposite sides of said contracted portion of the stack and communicating therewith, said stack and furnace-chambers being composed of the inner and outer walls *c d* forming a water-space between the same, the supply and discharge pipes *e f* communicating with said water-space and the peep-holes *o p* connecting said inner and outer walls through said water-space.

677,419. CUTTING IMPLEMENT. WILLIAM R. LOTT, Mineola, Tex. Filed June 27, 1900. Serial No. 21,807. (No model.)



Claim.—The combination with a head, of a shank thereto, a handle upon the shank, a lever, one end of which is pivoted within the inner end of the head, a handle to the lever, a laterally-extending arm to said lever, a detachable cutting-blade projecting through and pivoted within the head, a link connection between said blade and the arm of the lever, an inwardly-extending cutting-blade, a stem thereto seated within a recess in the end of the head and a bolt for detachably securing the stem in said recess.

677,420. FIREPROOF FLOOR AND GIRDER. EDMOND MOLLOY, Philadelphia, Pa. Filed May 14, 1900. Serial No. 16,618. (No model.)



Claim.—1. The combination of girders provided with a vertical web of sheet material, and the clamping parts extending along said web, and a carrying structure formed of vertical webs of sheet material extending between said girders, and blocks having faces fitting closely against said webs and extending between them, substantially as described.

2. The girders provided with a vertical web of sheet material and clamping parts extending along said web, and formed by a series of blocks made of a fireproofing material and having faces fitting against said web, and means for clamping said faces against said web, substantially as described.

3. A girder consisting of a supporting member formed of a sheet material wrapped around a portion of stiffer material, and having upwardly-projecting webs and blocks formed of fire-resisting material having faces fitting against the web and means for clamping said blocks upon said web, substantially as described.

4. The sustaining member, consisting of a piece of stiffer material around which a piece of sheet material is wound, to form the lower side of the supporting member, a piece of stiffer material around which the sheet material is wound toward the upper side of said supporting member, and a web formed of sheet material extending between said pieces of stiffer material; substantially as described.

5. The hollow girder-block consisting of the inner wall projecting above the rest of the block, one face of which wall fits against the web of the supporting member, and the lower and outside walls, forming the exterior of the girder, substantially as described.

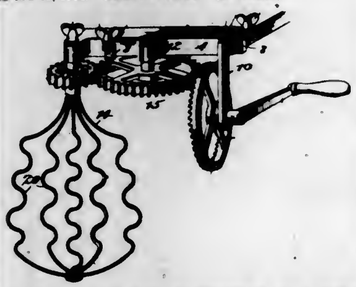
6. The combination with girders formed of a supporting member formed of a piece of stiffer material and a piece of sheet material wrapped around said piece of stiffer material, and forming an upwardly-projecting web, and blocks having plane faces fitting against said web, but not extending to the top thereof, but secured to clamp the said member up a portion of the height of its web, of a carrying structure, extending between said girders, and resting on said blocks, and having a cement upper surface surrounding and clamping the upper end of said supporting member of said girder; substantially as described.

7. The combination with girders formed of a supporting member formed of a piece of stiffer material, and a piece of sheet material wound around said piece of stiffer material and forming an upwardly-projecting web, and blocks having plane faces fitting against said web, but not extending to the top thereof, and secured to clamp said web between them for the distance to which they extend, said blocks having an inset in their sides part way down the same, and a carrying structure extending between said girders and resting upon said inset in said blocks, of a cement-floor covering, extending over said carrying portion and holding and clamping the portion of the web of the supporting member of the girder that projects above the blocks substantially as described.

8. A girder consisting of a supporting member formed of a piece of stiffer material, and a piece of sheet material wound around said piece of stiffer material, and forming an upwardly-projecting web therefrom, and hollow blocks placed on either side of said supporting member, and provided with plane faces fitting close against said web, means for clamping said faces against said web, and a cement filling for the hollow interior of said blocks; substantially as described.

9. The flooring-blocks having the flat-faced portion *e*, the portions having the vertical faces *f*, *f*, and the ribs *g*, *g*, extending between the parts having the faces *f*, *f*, substantially as described.

677,421. CAKE-BEATER. KATE H. MCRAE, Cripplecreek, Colo. Filed Oct. 19, 1900. Serial No. 33,563. (No model.)

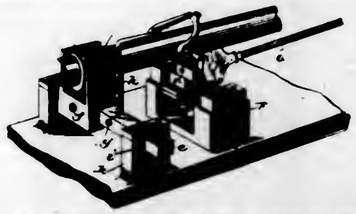


Claim.—1. In a cake-beater, the combination, with a hanger, angular in cross-section, the front wall of which is provided with projections, of a beater and means for operating the same journaled in said projections, and clamps for securing the hanger in position, the upper arm of each clamp being perforated at each end and the lower clamp having its ends bent in opposite directions to the main portion, and one of the ends being perforated and screw-threaded, a screw through the inner end of the upper arm into the top of the hanger, and a clamping-bolt passed loosely through the perforation in the outer end of said arm and engaging with the screw-threaded end of the lower arm, substantially as described.

2. In a cake-beater, the combination of a hanger having a downwardly-extending arm formed with a horizontal bearing at its lower end, and laterally-extending projections formed with vertical bearings, a shaft mounted in the horizontal bearing of the arm and carrying a crank-handle and a gear-wheel, a shaft mounted in the vertical bearing of the adjacent lateral projection and carrying a gear meshing with said driving-gear, a removable beater, positioned at its upper end in the vertical bearing of the other projection and having an annular shoulder disposed at the lower end of said bearing and a screw-threaded portion projecting at the upper end of the bearing, a thumb-nut upon said threaded portion of the shaft, a beater carried by said shaft, and a pinion meshing with the intermediate gear-wheel, and means for securing said hanger to the support, substantially as described.

677,422. LOOP-SPREADER MECHANISM FOR SEWING-MACHINES. LAMBERT OSBERGHAUS, Boston, Mass., assignor to the Union Special Sewing Machine Company, Chicago, Ill. Filed Sept. 8, 1897. Serial No. 650,906. (No model.)

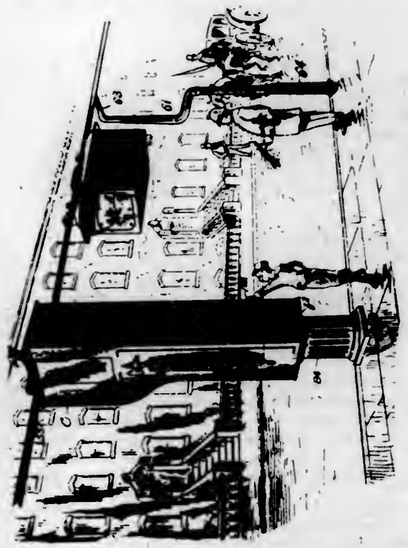
Claim.—1. In a sewing-machine, a driving-shaft, a transverse shaft, a thread-carrying looper thereon, means for oscillating said looper in the direction of its length, a carrier supported in fixed bearings, a spreader thereon and means for sliding said carrier laterally bodily at right angles to the axis of the driving-shaft, and the longitudial axis of the looper, whereby said spreader engages the under thread and forces it away from the looper and into such position that the needle passes into its bight; substantially as described.



2. In a sewing-machine, a driving-shaft, a thread-carrying looper supported on a transverse axis and means for oscillating it in the direction of its length, an eccentric on the driving-shaft, a forked block embracing said eccentric and arranged to have bodily vibrating movement, and a spreader carried by the forked block, whereby said spreader engages the under thread and forces it away from the looper and into such position that the needle passes into its bight; substantially as described.

3. In a sewing-machine, a driving-shaft, a thread-carrying looper supported on a transverse axis and means for oscillating it in the direction of its length, an eccentric on the driving-shaft, a forked block embracing said eccentric, a bar secured to the forked block, a spreader on said bar, and supports for said bar, in which it has a sliding movement, whereby said spreader engages the under thread and forces it away from the looper and into such position that the needle passes into its bight; substantially as described.

677,423. MAIL-SERVICE SYSTEM. GEORGE A. OWEN, Springfield, Mass. Filed Oct. 15, 1898. Serial No. 693,814. (No model.)



Claim.—1. In a mail-service system, a conveyer having a mail-receiving receptacle, means for the support, guidance and propulsion of the conveyer and post-stations located at suitably-distant intervals to and past which the conveyer is carried, provided with a mail-box and means operated by the presence of the conveyer at a post-station for discharging the mail-matter in the post-station mail-box into the receiving-receptacle therefor in the conveyer.

2. In a mail-service system, a conveyer having downwardly-opening compartments therein for the individual mail and removable bases therefor and provided with a motor and a traction wheel or roller therewith connected, means for the support and guidance of the conveyer, and feed and return current conductors, with which the motor is in electrical connection, and a source of electrical energy therewith connected, and post-stations located at suitably-distant intervals to and past which the conveyer is carried having individual upwardly-open mail-receiving receptacles, and means for insuring the automatic displacement of said removable bases for permitting the discharge from the conveyer of the individual mail therein into the corresponding receiving-boxes therefor in the post-stations, for the purpose set forth.

3. In a mail-service system, a conveyer having compartments therein for the assorted individual mail and having a receiving-receptacle, means for the support, guidance and propulsion of the conveyer, post-stations located at suitably-distant intervals to and past which the conveyer is carried, having individual-mail-receiving receptacles and having an elevating mail-box in which promiscuous mail may be posted, means for insuring the discharge from the conveyer of the individual mail therein into the corresponding receiving-boxes therefor in the post-stations, and means operated by the conveyer at a post-station for insuring the discharge of the promiscuous mail from the post-station mail-box into said receiving-receptacle therefor in the conveyer.

4. In a mail-service system, a conveyer having compartments therein for the assorted individual mail, having a receiving-receptacle, and provided with an electric motor having a roller or traction-wheel therewith connected, means for the support and guidance of the conveyer, an electrical feed-conductor with which the said motor is in electrical connection, stations to and past which the conveyer is carried, having individual-mail-receiving receptacles and having a receptacle for mail posted thereat, means for insuring the discharge from the conveyer of the individual mail therein into the corresponding receiving-boxes therefor in the post-station, and means operated by the conveyer at a post-station for insuring the discharge of the mail from the station mail-box into said receiving-receptacle therefor in the conveyer.

5. In a mail-service system, a conveyer having compartments therein for the assorted individual mail with removable bases or temporary supports for the mail therein, means for the support, guidance and propulsion of the conveyer, post-stations located at suitably-distant intervals to and past which the conveyer is carried, having individual-mail-receiving receptacles with upwardly-opening chutes or passages leading thereto, and having their arrangement corresponding to that of given like series of said conveyer compartments and directly over which the conveyer is guided in its intermittently-traveling course, means actuated by the presence of the conveyer at a post-station, for insuring the displacement of the removable base for those compartments corresponding to the receiving-boxes therefor in the post-station.

6. In a mail-service system, a conveyer having compartments therein for the assorted individual mail, a movable base to support the mail therein, a catch for restraining the base in its position under the compartments, a spring for exerting a withdrawing force on said base, means for the support, guidance, and propulsion of the conveyer, a post-station to and past which the conveyer is carried, having individual-mail-receiving receptacles with upwardly-opening chutes or passages leading thereto, and having their number and arrangement corresponding to that of a given series of said conveyer-compartments and directly over which the conveyer is guided in its intermittently-traveling course, an abutment provided at the post-station against which said restraining-catch contacts for the release of the latter insuring the displacement of the removable base for those compartments corresponding to the receiving-boxes therefor in the post-station.

7. In a mail-service system, a conveyer having compartments therein for the assorted individual mail, a spring-roller, a curtain having a winding engagement with the roller and adapted to be drawn under the compartments to constitute a temporary base therefor, a catch for restraining the curtain in its position under the compartments, means for the support, guidance and propulsion of the conveyer, a post-station to and past which the conveyer is carried, having individual-mail-receiving receptacles with upwardly-opening chutes or passages leading thereto, and having their number and arrangement corresponding to that of a given series of said conveyer-compartments, an abutment provided at the post-station and operating on the presence of the conveyer at the post-station for the release of the catch insuring the displacement of the removable base for those compartments corresponding to the receiving-boxes therefor in the post-station.

8. In a mail-service system, a conveyer having compartments therein for the assorted individual mail, a spring-roller, a curtain having a winding engagement with the roller and adapted to be drawn under the compartments to constitute a temporary base therefor, a rocker-shaft on the conveyer having a catch for restraining the curtain in its position under the compartments and having a shaft-rocking arm, means for the support, guidance and propulsion of the conveyer, a post-station to and past which the conveyer is carried, having individual-mail-receiving receptacles with open chutes or passages leading thereto, an abutment provided at the station and operating on the presence of the conveyer at the station to swing the said shaft-rocking arm for the release of the catch insuring the displacement of the removable base for those compartments corresponding to the receiving-boxes therefor in the post-station.

9. In a mail-service system, a conveyer having compartments therein for the assorted individual mail, a spring-roller, a curtain having a winding engagement with the roller and adapted to be drawn under the compartments to constitute a temporary base therefor, two or more rocker-shafts on the conveyer having catches for restraining the curtain in its position under the compartments and having shaft-rocking arms, means for the support, guidance and propulsion of the conveyer, post-stations to and past which the conveyer is carried successively, having individual-mail-receiving receptacles with open chutes or passages leading thereto, an abutment provided at a suitable position at each post-station and operating on the presence of the conveyer at a given post-station to swing one of the said shaft-rocking arms for the release of the catch insuring the displacement of the removable base for the portion or series of the compartments corresponding to receiving-boxes therefor in such post-stations.

10. In a mail-service system, a conveyer consisting of a hollow body or casing open at its base and having therein a plurality of compartments for assorted individual mail, a movable base provided in common to, and capable of covering a series of said compartments at the bases thereof for the compartments, means for insuring a displacing movement to said base from under the compartments, restraining devices for confining the base temporarily in position under the several compartments of a series, and a device for operating the restraining means, for the purpose set forth.

11. In a mail-service system, a conveyer consisting of a hollow body or casing open at its base and having therein several horizontally-arranged series of compartments for assorted individual mail, arranged, the various series, in tiers one above the other, a movable horizontal base for each tier of the compartments, means for insuring a displacing movement to the base from under the compartments, one after another successively from the lowermost to the upper one, restraining devices for confining the said base temporarily in position under their respective compartments, and devices extended externally of the conveyer, for operating the restraining means, for the purpose set forth.

12. In a mail-service system, a conveyer consisting of an open-base casing having therein a plurality of individual-mail compartments and having an opening through its end wall, a spring-roller, a curtain or flexible apron having a winding engagement on said roller and adapted to be drawn therefrom temporarily under the compartments, a catch device to engage the curtain, catch-device-operating extension externally of the conveyer to be automatically actuated in the manner set forth, combined with a rod for insertion through said opening to force the curtain to its catch-restrained position under the compartments.

13. In a mail-service system, a conveyer consisting of a motor-carrying top and a hollow body or casing open at its base and having therein a plurality of compartments at the same level, a movable base for compartments, means for, and in common to a series of the compartments insuring a displacing movement of the base from under the compartments, restraining devices for retaining the base in place under the compartments, a device extended externally of the conveyer operating to release the restraining device, a trackway on which the conveyer has a running support, provided with a current-conductor for the propulsion of the motor on said track, substantially as set forth.

14. In a mail-service system, a conveyer consisting of a motor-carrying top, and a hollow body or casing separable from said top, open at its base and having therein a plurality of compartments, a movable base for the compartments, means for insuring a displacing movement of the base from under the compartments, restraining devices for retaining the base in place under the compartments, a device extended externally of the conveyer operative to release the restraining device, combined with a trackway on which the conveyer has a running support, provided with a current-conductor for the propulsion of the motor on said track, and means for temporarily connecting the compartment-casing to the motor-supporting top.

15. In a mail-service system, a conveyer comprising a casing open at its base, and having series of compartments for individual mail at opposite sides of the casing, separate curtain-rollers at the ends of and beneath the compartments provided with springs and curtains in winding engagement thereon, a rock-shaft extended from side to side of the casing provided with catches 32 and a rocking arm and a second rock-shaft sleeved on the first rock-shaft also provided with catches 32 and an operating-arm, substantially as described.

16. In a mail-service system, a conveyer comprising a casing open at its base and having series of compartments for individual mail arranged side by side, separate curtain-rollers at one end of, and beneath the compartments provided with springs, and curtains in winding engagement thereon, two or more rock-shafts arranged at the end of the casing, and between such end and the roller, extended from side to side of the casing provided with catches 32 and a rocking arm and a second series of rock-shafts sleeved on the first-named rock-shafts also provided with catches 32 and operating-arms, substantially as described.

17. In a mail-service system, a conveyer comprising an open-base casing having therein tiers of multiple-series compartments one above another, and comprising two tiers of such compartments occupying the side halves or portions of the casing, curtains to constitute movable bases for each side series of each compartment-tier, a spring-roller for each said curtain located within the casing at the end of, and beneath the respective compartment series, rock-shafts at the end of the casing opposite the curtain-roller and one or more like shafts between the ends of the casing, each extended from side to side and by one end projected beyond the casing, and provided with the rocking arm and also with catches 32 for the curtain end, other rock-shafts sleeved on the first-named rock-shaft movable independently thereof also having curtain-catches and the external operating-arms, substantially as and for the purposes set forth.

18. In a mail-service system, the casing of the conveyer open at its base and provided with base-opening compartments for individual mail, a curtain having at its free end engagement pins or members, and having a winding engagement on a spring-roller which is provided therefor at one end of the casing, a rock-shaft having the catch hooked arms thereof to engage the curtain-pins having counterpoise weighted arms for maintaining the catches in their positions of engagement having the upstanding arm for rocking the shaft and the stop 40 provided on the casing adjacent said arm, substantially as described.

19. In a mail-service system, the combination with the conveyer, substantially as described, having an electric motor provided with a traction-roller wheel 54, of the track 55, and the roller 58, the arms 57, 57, and the cross-bar 56, substantially as described.

20. In a mail-service system, the combination with the track of the conveyer having an electric motor and the traction-roller 54 therewith connected, the roller 58, the arms 57, 57, the cross-bar 56, and the upstanding bracket 60, supporting the roller 59, all as shown.

21. The combination with the track of inverted-trough form, a post-supported bracket-arm 63, the cable 62, the return-wire 65, having the tongue 64 comprising the insulating and the clamping blocks 67, 67, one united to the other and one thereof supported by said bracket 63, substantially as described.

22. The combination with electric conductor, trackway, of the conveyer consisting of a compartment-inclosing casing having the recessed legs 44 and the separable top provided with the swing-bolts 43 and confining-nuts, and having an electric motor, mounted thereon, and a traction-wheel driven by the motor, and running on said track, substantially as described.

23. In a mail-transmission system, the combination with the conveyer comprising the series of individual-mail compartments and means for automatically controlling the delivery successively from different portions thereof, and having the top 26 and an electric motor supported pendent therefrom within the conveyer provided with a pinion-wheel on its armature-shaft, a bracket or journal-support above the conveyer having the traction-roller and united gear-wheel journaled thereon and an intermediate gear between the aforesaid gear and pinion, and means for establishing a feed-current through the trackway.

24. In a mail-transmission system, in combination, a feed-conductor trackway, a motor-provided conveyer having a guiding-support thereon, a post-station past which the trackway has its course and provided with a movable arresting device thereat for the conveyer, and a device actuated by the motor of the conveyer for displacing said movable arresting device, leaving the motor free to have its propulsive movement after being arrested for an instant at the station, for the purpose set forth.

25. In a mail-transmission system, in combination, a feed conductor and conveyer support, and the motor-provided conveyer to run thereon having a motor-driven screw 90 located externally of the conveyer, a post-station past which the trackway runs having a half-nut normally in position across the path of the said screw, and adapted to be engaged by said screw, and movably supported whereby, through the turning of the screw said half-nut is forced away from its screw-obstructing position, permitting the resumption of the traveling movement of the conveyer, and means for returning the half-nut to its normal, obstructing position, substantially as and for the purpose set forth.

26. In a mail-transmission post system, the combination with the elevated conductor-trackway and the motor-provided conveyer, propulsively guided on said trackway and having the motor-driven screw 90, of a post-station past which the trackway extends, provided with a bracket or extension-support located adjacent the course of travel of the conveyer, and provided with a half-nut 94 having a sliding engagement on said support, and having a spring applied for normally forcing said half-nut into a position to be engaged by said motor-driven screw, carried by the conveyer, substantially as and for the purpose set forth.

27. The combination with the supporting part 93 mounted in a station and provided with the dovetailed rib and the angularly-arranged and perforated lug 98, of the half-nut 94 having a sliding support on said ribbed part 93, and provided with the extension-stem 96 passed through the perforation of said lug 98, and having the stop 99 and a spring 95, substantially as shown, and for the purpose set forth.

28. In a mail-service system, the post-station consisting of a suitable elevated hollow structure, a trackway extending through the top thereof, the said post-station having at a lower portion thereof, a series of letter-receiving boxes, and chutes leading respectively thereto from an upper portion of the station, said chutes being upwardly open for the purpose set forth.

29. In a mail-service system, the post-station comprising an inclosed hollow structure, having a post therefor on which it is supported in an elevated position and provided at its upper portion with a vacant space for the passage therethrough of a mail-conveyer, having swinging doors at its rear and forward ends, provided at a lower portion thereof with the series of individual letter lock-boxes having upwardly-open chutes leading downwardly thereto from a place within the post-station under the level traversed by the conveyer, and a supporting-trackway for the conveyer extending to and through an upper portion of the post-station, substantially as described.

30. In a mail-transmission system, a post-station having a letter-box therein for receiving mail posted at the post-station, a trackway running along and past the post-station, a conveyer propulsively supported on said track and provided at one side thereof with mail-receiving receptacle, elevating and lowering means for said post-station mail-box actuated by the presence of the conveyer within the post-station, whereby the box may be raised to deliver the contents thereof into the receptacle therefor in the conveyer.

31. In a mail-transmission system, a post-station having therein a movably-supported letter-box with an opening through its side for the discharge therethrough of its contents, and having an inclined base, the trackway, the conveyer having the mail-receiving receptacle *a* with sidewise opening therein to, means actuated by the conveyer, provided in the station for elevating and lowering the post-station mail-box upon the presence of the conveyer at the post-station, whereby the box may be brought to its delivering position, opposite the open-sided receptacle for the reception of the mail in the conveyer, and means for maintaining the post-station-mail-box-discharging opening closed, while in its lowered positions, substantially as and for the purposes set forth.

32. A conveyer provided with the multiple series of individually-assorted-mail compartments, and means for insuring successively the discharge of different portions thereof as explained, and having in the side thereof, the mail-receiving compartment *a*, provided with the sectional inwardly-opening doors 82, 82, and closing-springs therefor, as described.

33. In a mail-transmission system, a post-station having therein removably-supported letter-box with a mail-receiving opening and with a mail-discharging opening provided with a door, the trackway, the conveyer, having the mail-receiving receptacle *a* with a sidewise opening and spring-closed sectional doors therefor, means actuated by the conveyer provided in the post-station for elevating and lowering the post-station mail-box and for opening and closing the mail-box door, upon the presence of the conveyer at the station, substantially as and for the purposes set forth.

34. In a mail-service system, the combination with a conveyer having a compartment for the reception or collection therein of promiscuous mail, of a post-station to and past which the conveyer is moved having a mailing-box movably mounted and an opening through the wall of the post-station leading into said box, means actuated by the conveyer for moving the mail-box into delivering proximity thereto, a shield, to cover said opening, in relation to which the mail-box is arranged so as to open and close it by the changing positions of said box, substantially as described.

35. In a mail-service system, the combination with a conveyer having compartments from which to deliver individual assorted mail, and having a compartment for the reception or collection therein of promiscuous mail, of a post-station to and past which the conveyer is moved having a series of individual letter-boxes and having a mailing-box movably mounted and an opening through the wall of the post-station leading into said box, means actuated by the conveyer for moving the mail-box into delivering proximity thereto, a shield to cover said opening in relation to which the mail-box is arranged so as to open and close it by the changing positions of said box, substantially as described.

36. The post-station having the mailing-opening through its wall, the shield 120 provided with the abutment member 122 and having the guide-stem 123, the guide 125 for said stem and the spring 124 exerting elevating pressure upon the shield, combined with the movable letter-box arranged to engage the said shield-abutment, the conveyer having a mail-receiving compartment, and operating, when reaching a post-station, to move the mail-box for the delivery of its contents into said receiving-compartment, substantially as described.

37. The post-station having the mailing-opening through its wall, and provided internally with the abutment member 117 thereabove, of the post-station mail box having the discharging-opening and a hinged door for normally closing the same, the lever-arm 105 secured to, and extending from the hinged edge of the door, the thrust-rod 106 secured to said lever, and means for elevating the mail-box whereby its thrust-rod is brought to a crowding engagement against and moved by said abutment, substantially as shown.

38. The post-station provided with the movably-supported mail-box D, and having a door 86, a drum provided with a pinion, and a cord or like flexible support for the mail-box having winding engagement with said drum, a sector-rack meshing said pinion and a connection between the door and said rack, whereby the opening and closing movements of the door cause rotational movement to said drum, substantially as and for the purpose set forth.

39. In a mail-transmission system, in combination, the post-station provided with the mail-box D, and having a door 86, a drum provided with a pinion, a cord or like flexible support for the mail-box having winding engagement with the drum, the pivoted lever provided with a sector-rack, a link connecting the door and said lever, the track extending through the station and the motor-provided conveyer movable on the track, and adapted to be passed through the station automatically operating said door, for the purposes set forth.

40. In a mail-transmission system, in combination, the post-station having the door 86, the pinion-provided drum, the sector-lever connected to the door, and the abutment 117, the station letter-box D, having the inclined base with the door 104 provided with the arm 105 radially extended from the door-hinge and the upwardly-extended thrust-rod 106, the drum-engaged box-supporting cord 107, the trackway and the conveyer, substantially as and for the purposes set forth.

41. In a mail-transmission system, the post-station, consisting of a hollow structure with vacant upper part and inwardly-opening flap-doors at its rear, and outwardly-opening flap-doors at its front and provided therewithin and therebelow with the upwardly-opening series of chutes which extend downwardly and forwardly terminating in mail lock-boxes *b*, having individual doors, the trackway extended through the upper part of the post-station, and the conveyer propulsively supported on the trackway and adapted to pass through the door-provided upper part of the post-station, automatically operating said doors, and means for normally maintaining said doors closed.

42. In a mail-transmission system, a post-station comprising a series of individual receiving letter lock-boxes, and a hollow post or pillar supporting said post-station, fixed and movable contacts in each box and normally open circuit-conductors therewith connected, and having connected therewith within houses or other desired locations, distant from the station, signaling apparatuses corresponding to the respective boxes, the movable contact in each box being adapted to be automatically closed against its adjacent contact by mail-matter in the box, the electric wires comprised in the several circuits being adjacent the post-station combined in a cable which is passed through said hollow pillar, substantially as described and shown.

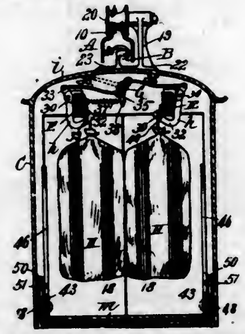
43. The combination with one or more post-stations substantially as described, of an elevated trackway running through the upper part of each post-station, and a conveyer guided along the trackway with provisions for its propulsion, and adapted to pursue a course to and through the post-stations, and mechanism coöperating between each post-station and the conveyer when therein for effecting the delivery of mail from the conveyer downwardly to suitable receivers therefor in the post-station.

44. The conveyer having a series of compartments in horizontal tiers as described, each downwardly opening, removable flexible closures for the lower openings of the several tiers of compartments, and a removable top for the conveyer, and means for detachably confining same.

45. In a mail-transmission system, post-stations having openings through upper portions thereof and individual boxes with upwardly-opening chutes or continuations all terminating in a horizontal plane and in proximity, as shown and described.

677,424. TRANSMISSION SYSTEM FOR MAIL OR OTHER SERVICE. GEORGE A. OWEN, Springfield, Mass. Filed Oct. 15, 1898. Serial No. 693,615. (No model.)

Claim.—1. In a mail-service or other transmission system, the combination with an overhead trackway, of inverted-U form provided therewithin with sheaves 16 and a cable running thereon, and provided at a suitable point or points along its length with the inclined parts *g*, of a conveyer having at its top the uprights 19 carrying the rollers *b* which run on the top of the trackway and having the upright *d* formed with the jaw 24, the lever *f* pivoted to the upright, one member 27 of which constitutes the movable jaw coacting in proximity to the jaw 24, the other member of said lever being provided with the roller 29, and the spring 31, all substantially as described and shown.



2. In a mail-service system, the combination with a trackway and elevated supports therefor, of a conveyer having a running support on the trackway and means for causing its propulsion thereon, a beam or bar supported within an upper part of the conveyer, hook-like supports for mail-receptacles provided on said beam adapted to receive the engagement therewith of loops or eyes provided on said receptacles, and means operated from the exterior of the conveyer, for causing the disengagement of said receptacles from their supports, for the purpose set forth.

3. In a mail-service system, the combination with an elevated trackway, of a conveyer having a dependent running support on and along said way, and means for causing its propulsion, hook-like supports for mail-receptacles provided within the upper portion of said conveyer and adapted to receive the engagement therewith of the loops or eyes provided on said receptacles, said conveyer also having a base normally horizontally supported and adapted to be swung downwardly relative to the lower portion of the conveyer, and means adapted to be operated from the exterior of the conveyer for disengaging the said receptacles from their support, for the purpose set forth.

4. In a mail-service system, a conveyer having a beam within the upper part thereof provided with a series of hook-levers pivotally mounted thereon, the hook members thereof being in proximity to a lower edge portion of the beam, a rock-shaft having radial arms and connecting-rods between said arms and members of said hook-levers, and means for rocking said shaft, substantially as and for the purpose set forth.

5. In a mail-service system, a conveyer having supported therewithin a series of elevated pivoted hook-levers, and a fixed part as the one 39 beyond and adjacent which the hook extremities of said levers protrude, and means for causing the swinging movement of the hook-levers whereby their extremities retreat from their extensions beyond said part 39, for the purpose of casting off the receptacles suspended thereon, substantially as set forth.

6. In a mail-service system, a conveyer having beams E E ranging opposite each other and having the hook-levers A A pivoted thereon, flanges or plates extending below the edges of the beams through and beyond which the hooked extremities of the levers protrude, a rock-shaft ranged between said beams and having the oppositely-extending arms 35, 35, and the arm 38 with the retracting-spring 37 applied thereto, the connecting-rod 36, 36, uniting said arms 35 and the members of the hook-levers opposite the hooked ends thereof and an operating-lever *j* provided on said shaft, substantially as and for the purposes set forth.

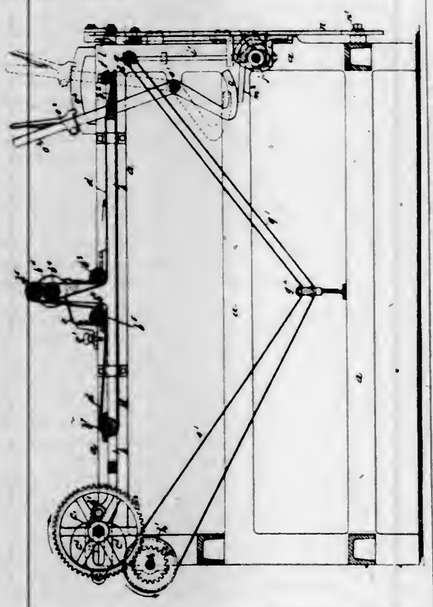
7. In a mail-service system, a conveyer having therewithin supports for mail-receptacles, and means for causing the disengagement of said receptacles from said supports, and provided at its lower portion with a closing floor-like section, one end of which is pivotally connected to the conveyer and having means provided at its other end for detachably supporting it in its horizontal, and closing positions, and adapted on detachment, to permit the downswinging of said closing section, substantially as described.

8. In a mail-service system, a conveyer having therewithin supports for mail-receptacles, and means for causing at pleasure the disengagement of said receptacles from the supports, said conveyer being provided at its lower portion with a closing floor-like section provided with upstanding side flanges having the further upwardly-extended bars with the arc-formed slots, pivots for connecting in portions of the opposite flanges to the opposite walls of the conveyer at one end thereof, opposite studs inwardly projected from the side walls of the conveyer engaging through the said arc slots and detachable means for supporting said section in its horizontal closing position, detachable to permit the downswinging of said section, substantially as described.

9. In a mail-service system, a conveyer having therewithin supports for mail-receptacles, and having at its lower portion the floor-like section *m* with the upstanding longitudinally-slotted side flanges having the further upwardly-extending opposing portions 46 with the arc-formed slots 47 and having at the ends of said flanges pivotal supports within the sides of the conveyer, and a second section *n* also provided with upstanding side flanges arranged alongside the side flanges of the first-named section, provided with the studs 49 engaged in the longitudinal slots of said first flanges, provided with the end hooks 50, the studs 52 to be engaged by said hooks and the studs 51 provided on the walls of the conveyer for engaging said arc slots, all substantially as and for the purposes set forth.

10. In a mail-service system, an overhead trackway, and a conveyer having a running support thereon, means for the propulsion of the conveyer along the trackway, the longitudinally-ranging beams E E supported within the upper portion of the conveyer having the ear-lugs 30, 30, in series thereon, the hook-formed levers A pivotally mounted in said ear-lugs, the plates 41 having their lower edges extended below the beams, through and beyond which the hook extremities of said levers protrude, forming supports for mail-receptacles, the rock-shaft G extending between said beams and having their oppositely-extending lever-arms 35, 35, the rods 36, 36, connecting said arms 35 with the hook-levers, an operating-lever for said rock-shaft and a retracting-spring for said shaft, the floor-like section *m* having the upstanding longitudinal slotted side flanges, and the pivots 44 connecting the ends of said flanges to one end of the lower portion of the conveyer, the upwardly-extending bars continuing beyond said side flanges, the second floor-like section *n* having the studs 49 in supporting and sliding engagement with said slotted flanges and provided with the end hooks 50, and the studs 52 and 51, all substantially as and for the purposes set forth.

677,425. UNHAIRING-MACHINE. JOHN C. ROTER, Brooklyn, N. Y., assignor to Joseph Goldin, Samuel Rosenthal, Meyer Wolfsohn, and Jacob Schreiber, New York, N. Y. Filed Oct. 22, 1900. Serial No. 33,357. (No model.)



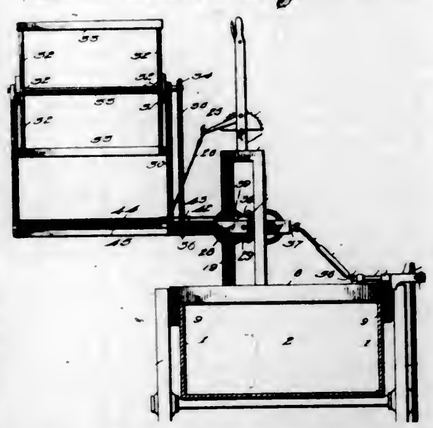
Claim.—1. In an unhairing-machine, the combination of a reciprocating slide, with an endless apron supported thereby, means for intermittently feeding said apron, a pair of brushes, a pair of pivoted upper shear-blades, and a vertically-movable lower shear-blade, substantially as specified.

2. In an unhairing-machine, the combination of a pair of pivoted upper shear-blades, with a vertically-movable slide, pivoted links for connecting the inner ends of the blades to the slide, and with a vertically-movable lower shear-blade adapted to coact with the upper shear-blades, substantially as specified.

3. In an unhairing-machine, the combination of a pair of pivoted upper shear-blades, with a lower shear-blade, rods that support the lower blade, tappets pivoted to the rods, cams engaging the tappets, and adjustable stops above the tappets, substantially as specified.

4. In an unhairing-machine, the combination of the following elements: a reciprocating slide, a series of rollers carried thereby, an endless apron engaging the rollers, a pawl and ratchet for intermittently advancing the apron, an upper brush carried by the slide, a vertically-movable rotatable brush below the slide, a pair of pivoted upper shear-blades, and a coacting vertically-movable lower shear-blade, substantially as specified.

677,426. CANE-TOPPER. OLIVER PALM, Albany, Tex. Filed Aug. 28, 1900. Serial No. 28,350. (No model.)

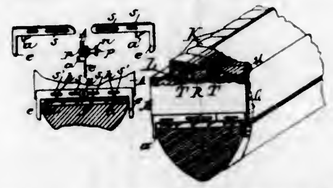


Claim.—1. The combination with a fixed frame, of two sets of parallel standards thereon one set at each side thereof, a moving frame between the sets of standards, arms to the frame extending over the outer faces of the standards, rollers journaled upon the arms and revoluble between the standards on each side, a lever pivoted above the moving frame, a hooked arm thereto, a bail secured to said arm and the ends thereof being fastened to the sliding frame, means for locking the lever in adjusted position, teeth upon the moving frame, a sickle slidably mounted thereon, a shaft upon the fixed frame, and means for imparting motion from said shaft to the sickle.

2. The combination with a fixed frame having a shaft journaled thereon, two sets of parallel standards one set at each side of the fixed frame, a sliding frame between the sets of standards, arms to the frame extending over the outer faces of the standards, rollers journaled thereto and revoluble between the standards, a shaft journaled upon the moving frame, an extensible shaft connecting the shafts of the two frames and connected thereto by universal joints, a lever fulcrumed upon the fixed frame and above the standards, a hooked frame thereto, a bail connecting said arm with the sides of the sliding frame, teeth upon the sliding frame, a sickle thereon, means for imparting motion to the sickle from the shafts, standards upon the sliding frame, a reel thereon, and means for imparting motion to the reel from said shafts.

3. The combination with a wagon having a sprocket secured to one of the wheels, of a frame upon said wagon, arms thereto extending over the sides of the wagon and adapted to prevent lateral movement of the frame, a shaft journaled upon the frame, a sprocket loosely mounted thereon, a chain connecting the sprockets of the shaft and wheel, a collar slidably mounted upon the shaft and revoluble therewith, lugs to the collar adapted to engage recesses in the sprocket on the shaft, a lever for throwing the collar into engagement with the sprocket, parallel standards upon opposite sides of the fixed frame, a sliding frame, arms at opposite sides thereof extending over the outer faces of the standards, rollers journaled to the arms and mounted between the standards, said standards forming guides therefor, a lever fulcrumed above the standards, a hooked arm thereto, a bail connecting said arm to the sides of the sliding frame, teeth upon the sliding frame, a sickle slidably mounted thereon, a shaft journaled upon said frame, standards to the frame, a reel journaled therebetween and above the sickle, means for imparting motion to the reel and sickle from the shaft on the sliding frame, and an extensible shaft connecting the shafts of the two frames, said shaft being connected thereto by universal joints.

677,427. ATTACHMENT FOR STRINGED INSTRUMENTS. ALBERT PIETSCH, Milwaukee, Wis. Filed July 17, 1900. Serial No. 23,971. (No model.)



Claim.—1. In an attachment for stringed instruments, the combination with a suitable double-walled casing, of pivot-rods B, C and V mounted in the casing, of double links D and E pivotally mounted on rods B and C, presser-bars G mounted on the free ends of the double links, springs S combined with the presser-bars and raised to a sufficient point of tension by the cross-rod V for causing the presser-bars to return to their normal retracted position after operation, fingers F of the presser-bars provided at their acting parts with springs for contacting with the strings, and teeth T having an angular bend to offer sufficient surface for action and to cause less wearing during operation, all substantially as described.

2. In an attachment for stringed instruments, the combination with a series of independently-movable presser-bars G, which are provided with fingers F for contacting with the strings of the instrument, double-crank cross-rods R which extend across the entire nest of presser-bars G and which are pivotally mounted in the casing, and teeth T extending up from said presser-bars and having angular bend in line with the cross-rods R, whereby when a cross-rod R is actuated, it operates the presser-bars whose teeth are in its line of travel; substantially as described.

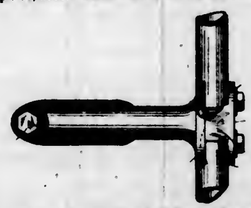
3. In an attachment for stringed instruments, the combination with a suitable casing, of keys K projecting therefrom, double-crank cross-rods R beneath the foot part L of the keys K, a nest of presser-bars G with teeth T projecting upward therefrom and arranged beneath the double-crank cross-rods R, double links D and E upon which said presser-bars are mounted, springs *s* for normally holding the presser-bars in an elevated position, and fingers F projecting from the presser-bars G and in line with the strings; substantially as described.

4. In an attachment for stringed instruments, the combination, with a suitable double-walled casing, of double-crank cross-rods mounted in the casing, and presser-bars G, provided with teeth T and fingers F, which are operated by the double-crank cross-rods; substantially as described.

5. In an attachment for stringed instruments, the device for supporting and adjusting the attachment above the strings, consisting of two parts each with a projection *e* and a stand *a*, corresponding slits *s*, *s*, *s'*, *s'* to be connected with both ends of the attachment by the hooks *h* and the bolt-screw *p* and to be adjusted above the strings on the neck of the instrument by said slots and hooks, bolt-screw *p* and nut *n*, all substantially as shown and specified.

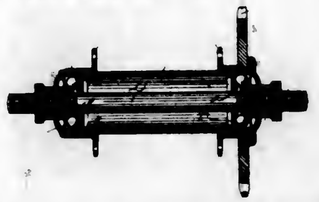
6. In an attachment for stringed instruments, the device therefor for fastening the same to the neck of the instruments which consists of the rods Q and the straps O provided with eyelets for the reception of the corresponding hook of the rods Q, which latter are provided with a screw-thread and a nut U so that they can be drawn upward; substantially as described.

677,428. STEERING DEVICE FOR BICYCLES. GEORGE G. SPENCER, Chicago, Ill., assignor to the Chicago Handle Bar Co., of Illinois. Filed Apr. 28, 1900. Serial No. 14,701. (No model.)



Claim.—In a steering device for bicycles, in combination, a stem having a forwardly-projecting arm, an elongated plate at the end of such arm, the plane of the plate being transverse to the axis of the arm, a handle-bar of two sections separately pivoted to the plate, the hubs of the handle-bar sections having intermeshing gear-teeth, a single binding-plate lying against the outer faces of such hubs, the pivots of the handle-bar sections passing through the binding-plate and being threaded into the first-mentioned plate.

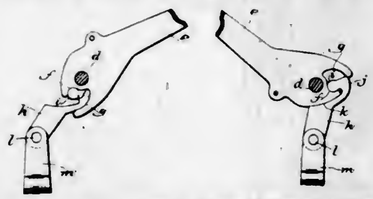
677,429. HUB. LEE STURGES, Elmhurst, Ill. Filed Sept. 30, 1899. Serial No. 732,149. (No model.)



Claim.—1. A vehicle-hub comprising a cylindric barrel of tubing, end caps screwed thereon having at opposite ends outwardly and inwardly extending integral flanges, and outwardly-facing bearing-cups clamped between the ends of the barrel and the inwardly-extending flanges at the outer ends of the caps.

2. A hub comprising a cylindric barrel of tubing, end caps screwed thereon each having at its inner end an outwardly-projecting integral flange and at the outer end an inwardly-projecting integral flange, an outwardly-facing bearing-cup located in each cap, and ball-retainers interposed between said cups and the outer flanges of the caps; said cups and ball-retainers being clamped between the ends of the barrel and the outer flanges of the caps.

677,430. DRIVING CONNECTION FOR TYPE-BARS. ANDREW W. STEIGER, Boston, Mass., assignor, by mesne assignments, to Augustus L. Hoffman, Frederic S. Converse, and Frederic J. Leach, trustees, Lyons, N. Y. Filed Aug. 20, 1900. Serial No. 27,421. (No model.)



Claim.—1. In a type-writer, a pivoted type-bar having a segmental bearing and a link having a segmental pivot seated in the bearing, combined with a segmental boss on the link concentric with and diametrically opposite to the said pivot and a segmental guard on the type-bar concentric with and diametrically opposite to the bearing, a fulcrum-plate to support the pivot of the type-bar and grooves in the plate having walls adapted to maintain the link and bar in alinement, substantially as described.

2. In a type-writer, the combination with a link having a pivot, of a pivoted type-bar having an eccentric corresponding bearing and a guard to keep the pivot of the link seated in the bearing of the type-bar, means for preventing the link from turning on its pivot in the bearing of the type-bar when first pulled in the direction to start the type-bar but after the type-bar moves allowing free rotation of the pivot of the link in the bearing of the bar, substantially as described.

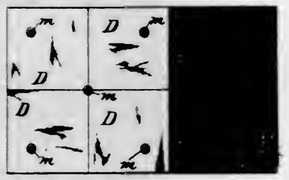
3. In a type-writer, a link having a permanent connection with a crank and a connection continuing but an instant after the key is touched with a type-bar to give to it a starting twist about its pivot through a long leverage and a permanent connection between the link and bar to apply the pull of the crank to the bar through a shorter leverage thereafter, substantially as described.

4. In a type-writer, a pivoted type-bar, a link pivoted to the type-bar and an actuating device pivoted to the link, combined with means to prevent the link from turning on its pivot in the type-bar until the actuating device has started the said bar from its position of rest, substantially as described.

5. In a type-writer, a link permanently jointed to a crank and a type-bar permanently jointed to the link, a separable contact between the link and bar that interlocks them to apply a momentary starting twist to the bar from the joint of the crank with the link, and means, acting upon separation of the link and bar at the separable contact, to transmit the

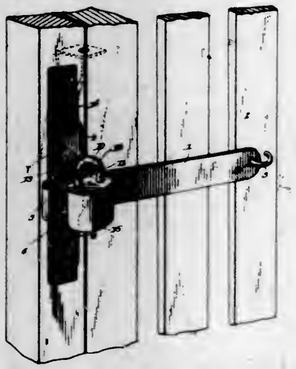
pull of the crank entirely to the joint of the link with the bar, substantially as described.

677,431. **REFRIGERATOR.** MOSES BEMINGER, Chicago, Ill., assignor to the Brunswick-Balke-Collender Co., same place. Filed Apr. 29, 1901. Serial No. 57,866. (No model.)



Claim.—In a tiled refrigerator, the combination with the outer wooden wall; and the outer tile covering, of an intermediately-located layer of paper, or equivalent fabric, glued or cemented to said wooden wall and to which the tiles are glued or cemented; all substantially as and for the purposes set forth.

677,432. **LATCH.** JACOB BIEBL, Seymour, Ind. Filed Jan. 14, 1901. Serial No. 43,213. (No model.)



Claim.—1. A device of the class described comprising a vertical keeper composed of a front and a back spaced apart to provide a recess or opening, a hasp arranged in the recess or opening and adapted to be raised and lowered, a vertically-disposed plate or member located above the front of the keeper and adapted to the moved laterally of the keeper to and from the front to confine and release the hasp, and a padlock detachably engaging the movable plate or member and the front of the keeper, substantially as described.

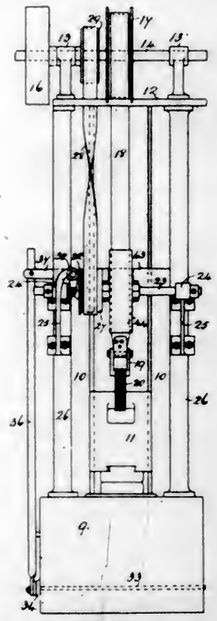
2. A device of the class described comprising a vertical keeper having a front and back and provided at its front with a projecting lip or flange set at an angle to form a stop, and a pivoted plate or member mounted above the front of the keeper and arranged to swing laterally of the said keeper and provided with a corresponding lip or flange arranged at an angle and adapted to abut against the said lip or flange, said lips or flanges being arranged to be engaged by a padlock, substantially as described.

3. A device of the class described comprising a hasp, a keeper having a front and back and provided at its front with an outwardly-extending lip or flange having a perforation, said keeper receiving the hasp between its front and back, and a pivoted plate or member mounted above the front of the keeper and having a projecting lip or flange provided with an opening adapted to register with that of the flange of the keeper to receive the shackle of the padlock, substantially as and for the purpose described.

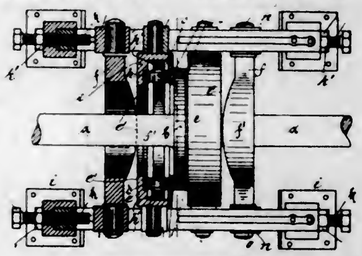
677,433. **DROP-STAMP.** EDWARD S. BRETT, Coventry, England. Filed Apr. 15, 1901. Serial No. 55,530. (No model.)

Claim.—In drop-stamps the combination with the anvil, the guides, and the hammer-head, raising-band, and continuously-running pulley 17, of the pulley 29, arms 22 22, pulley 44, mounted on shaft 23, and clutch device with its operating mechanism, all substantially as set forth and shown.

677,433.



677,434. **THRUST-BEARING.** HEINRICH BRIEKMANN, Munich, Germany. Filed Apr. 12, 1901. Serial No. 55,484. (No model.)



Claim.—1. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, a pair of journals secured to said head, a box engaging each of said journals, and means for adjusting said boxes axially of the shaft.

2. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage a face of said disk, a pair of journals secured to said head, a box engaging each of said journals, means for adjusting said boxes axially of the shaft, a second head containing bearings arranged to engage the opposite face of said disk, a pair of journals secured to said second head, a box engaging each of said latter journals, and means for adjusting said latter boxes axially of the shaft.

3. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, a pair of journals secured to said head, a box engaging each of said journals, means for adjusting said boxes axially of the shaft, and means for permitting said head to swing about an axis perpendicular to said journals.

4. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage a face of said disk, a pair of journals secured to said head, a box engaging each of said journals, means for adjusting said boxes axially of the shaft, means for permitting said head to swing about an axis perpendicular to said journals, a second head containing bearings arranged to engage the opposite face of said disk, a pair of journals secured to said second head, a box engaging each of said latter journals, means for adjusting said latter boxes axially of the shaft, and means for permitting said second head to swing about an axis perpendicular to said journals.

5. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, a pair of journals secured to said head, a box engaging each of said journals, said boxes being arranged to move in a plane parallel with the axis of said shaft, a ring having projecting portions on one face so arranged as to engage said head on a line that is perpendicular to said shaft and also perpendicular to the axis of said head, a pair of journals secured to said ring, and a second pair of boxes engaging said journals on the ring, said latter boxes being arranged to move in a plane parallel with the axis of said shaft.

6. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, a pair of journals secured to said head at the extremities of a diameter, a box engaging each of said journals, a pair of slotted frames, said boxes being arranged to slide in the said slots in the frames, said frames being so arranged that said boxes move in a plane parallel with the axis of said shaft, and means for permitting said head to swing about an axis that is perpendicular to said plane.

7. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, means for supporting said head so that it can swing on an axis that is transverse to the said shaft, said supporting means being arranged to move in a plane parallel with said shaft, a ring having projecting portions on one face so arranged as to engage said head on a line that is perpendicular to the axis of said shaft and also perpendicular to the axis of the said head, and means for supporting said ring.

8. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, means for supporting said head so that it can swing on an axis that is transverse to the said shaft, said supporting means being arranged to move in a plane parallel with said shaft, a ring having projecting portions on one face so arranged as to engage said head on a line that is perpendicular to the axis of said shaft and also perpendicular to the axis of the said head, means for supporting said ring, and means for adjusting said supporting means.

9. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, means for supporting said head so that it can swing on an axis that is transverse to the said shaft, said supporting means being arranged to move in a plane parallel with said shaft, a ring having projecting portions on one face so arranged as to engage said head on a line that is perpendicular to the axis of said shaft and also perpendicular to the axis of the said head, said ring being supported so as to swing on an axis that is parallel with the axis of the said head and that intersects the axis of the said shaft.

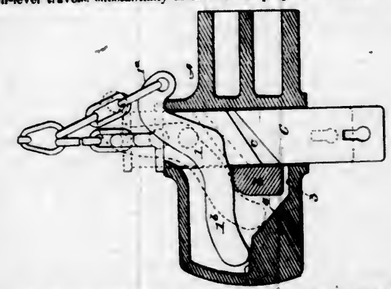
10. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearings arranged to engage said disk, a pair of journals secured to said head at the extremities of a diameter, a box engaging each of said journals a pair of slotted frames, said boxes being arranged to slide in the slots in said frames, said frames being so arranged that said boxes move in a plane parallel with the axis of said shaft, a ring having projecting portions on one face so arranged as to engage said head on a line that is perpendicular to the said shaft and also perpendicular to the axis of said head, a pair of journals secured to said ring, and a second pair of boxes also sliding in the said slots in said frames, said second boxes engaging said journals on said ring.

11. In a thrust-bearing, the combination with a shaft having a disk secured transversely thereto, of a head containing bearing arranged to engage said disk, a pair of journals secured to said head at the extremities of a diameter, a box engaging each of said journals, a pair of slotted frames, said boxes being arranged to slide in the slots in said frames, said frames being so arranged that said boxes move in a plane parallel with the axis of said shaft, a ring having projecting portions on one face so arranged as to engage said head on a line that is perpendicular to the said shaft and also perpendicular to the axis of said head, a pair of journals secured to said ring, a second pair of boxes also sliding in the said slots in said frames, said second boxes engaging said journals on said ring, and means for adjusting the position of said second boxes.

677,435. **CAR-COUPLING.** HARRY C. BUHOUP, Chicago, Ill., assignor to the McConway and Torley Company, Pittsburg, Pa. Filed Nov. 3, 1900. Serial No. 35,400. (No model.)

Claim.—1. In a car-coupling of the vertical or Janney type, having a knuckle and a locking-pin, the combination with the locking-pin, of a pin-lever for lifting and setting the locking-pin, said lever having a fulcrum within the coupler-head and also a seat within the coupler-head, whereby the locking-pin is set and supported independently of the knuckle, substantially as and for the purposes specified.

2. In a car-coupling having a knuckle and a locking-pin, the combination with the locking-pin, of a pin-lever for actuating and setting said locking-pin, and an incline within the coupling-head upon which the pin-lever travels, substantially as and for the purposes specified.

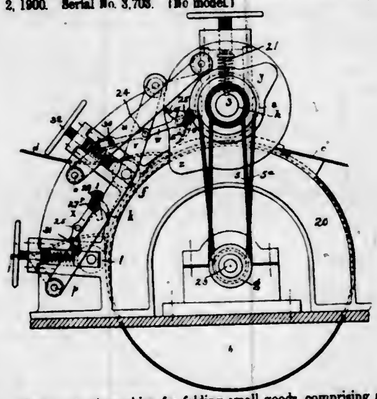


3. In a car-coupling of the vertical or Janney type, having a vertically-moving lock, the combination with said lock, of a lever for lifting and setting said lock, and an inclined fulcrum for the end of the lever within the head, substantially as and for the purposes specified.

4. In a car-coupling of the vertical or Janney type, the combination with a locking-pin, of a pin-lever pivoted thereon for actuating the locking-pin an incline within the coupler-head for the travel of the arm of the lever within the coupler-head, and a seat within the coupler-head for supporting the lever and locking-pin in a set position independent of the knuckle, substantially as and for the purposes specified.

5. In a car-coupling of the vertical or Janney type, the combination with a locking-pin, of a pin-lever, and a coupling having an upper lever seat or support, a lower lever seat or support, and an incline connecting said upper and lower seats for the travel of the pin-lever between said upper and lower seats, substantially as and for the purposes specified.

677,436. **MACHINE FOR FOLDING TABLE-NAPKINS OR OTHER FLAT LINEN ARTICLES.** EUGÈNE COLLOM, Cannes, France. Filed Feb. 2, 1900. Serial No. 3,703. (No model.)



Claim.—1. A machine for folding small goods, comprising a cylinder, a roller coöperating with said cylinder and driven by the pressure caused by passing the goods between the two, a device arranged to contact with the cylinder and lead the goods from the surface of the cylinder, a creasing-roller contacting with the cylinder beyond said device and a knife timed to fold said goods before it has entirely left the cylinder over said device and move with it toward the creasing-roller, substantially as described.

2. A machine for folding small goods, comprising a rotating cylinder, a roller coöperating therewith and driven by the pressure of goods between said roller and cylinder, plates for leading the goods off said cylinder at different points, folding-knives operated from said roller and organized to displace said plates and carry the goods toward yielding creasing-rolls, substantially as described.

3. A machine for folding small goods, comprising a rotating cylinder, a roller coöperating therewith, a device for stripping the goods from said cylinder, a creasing-roller contacting with the cylinder, a knife timed to crease said goods before being entirely stripped from the cylinder and to return it to the cylinder and under the creasing-roller, substantially as described.

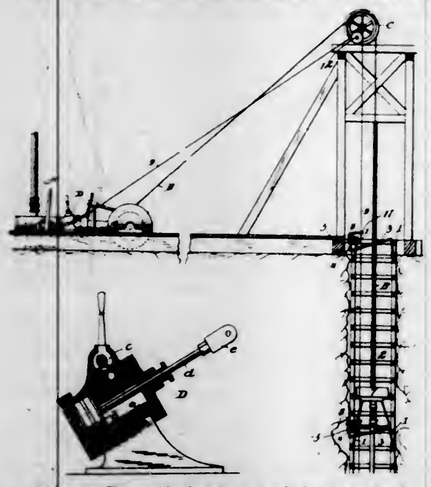
4. A machine for the mechanical folding of flat pieces of linen, comprising the combination of a rotating cylinder and as many folding devices arranged around this cylinder as there are folds to be made in the same direction, each of these devices comprising a guide-plate supported at one edge against the cylinder in such a manner that it can be moved away therefrom, a knife having an intermittent to-and-fro movement arranged above the plate so as to press on the article to be folded in the angle formed between the plate and the cylinder and a pressing-roller arranged beneath the plate, the whole substantially as and for the purpose set forth.

5. A machine for the mechanical folding of flat pieces of linen, comprising the combination of a rotating cylinder, as many folding devices arranged around this cylinder as there are folds to be made in the same direction, each of these devices comprising a guide-plate supported at one edge against the cylinder in such a manner that it can be moved away therefrom, a knife having an intermittent movement arranged above the plate so as to press on the article to be folded in the angle formed between the plate and the cylinder, and a pressing-roller arranged beneath the plate, a roller mounted above the cylinder in such a manner that while it does not touch, it is sufficiently near said cylinder to be caused to rotate when the piece to be folded passes beneath and a mechanism for operating the knives by means of the roller, substantially as described.

6. A machine for the mechanical folding of flat pieces of linen, comprising the combination of a rotating cylinder, as many folding devices arranged around this cylinder as there are folds to be made in the same direction, each of these devices comprising a guide-plate supported at one edge against the cylinder in such a manner that it can be moved away therefrom, a knife having an intermittent to-and-fro movement arranged above the plate so as to press on the article to be folded in the angle formed between the plate and the cylinder and a pressing-roller arranged beneath the plate, a roller mounted above the cylinder in such a manner that while it does not touch, it is sufficiently near said cylinder to be caused to rotate when the piece to be folded passes beneath and a mechanism with a variable speed for operating the knives by means of the roller, substantially as described.

7. A machine for the mechanical folding of flat pieces of linen, comprising the combination of a rotating cylinder, as many folding devices arranged around this cylinder as there are folds to be made in the same direction, each of these devices comprising a guide-plate supported at one edge against the cylinder in such a manner that it can be moved away therefrom, a knife having an intermittent to-and-fro movement arranged above the plate so as to press on the article to be folded in the angle formed between the plate and the cylinder and a pressing-roller arranged beneath the plate, a second rotating cylinder arranged at right angles to the first, as many folding devices similar to the first and arranged around the second cylinder as there are folds to be made at right angles to the first, and means for conducting the article to be folded from the first to the second cylinder, substantially as and for the purpose set forth.

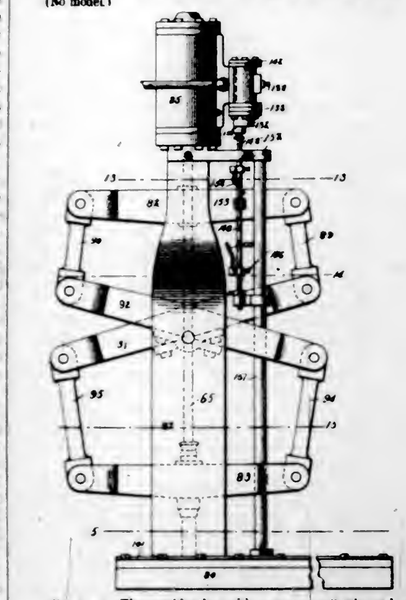
677,437. SAFETY APPARATUS FOR SETTING CAGE-CHAIRS IN MINING-SHAFTS. ALEXANDER CARSTENS and JAMES H. HENLEY, Leadville, Colo. Filed Sept. 27, 1900. Serial No. 31,320. (No model.)



Claim.—1. The combination of a cage and a hoisting-engine therefor, cage-chairs at various levels to support said cage, setting devices for said cage-chairs, and an operating element, as a cork or the like, connected to said setting devices and extending to a point near said hoisting-engine, for the purpose set forth, substantially as described.

2. The combination of a cage and means to raise and lower the same, a series of cage-chairs at various levels to support said cage, each of said cage-chairs having a setting-lever, an operating-cord, connected to the said setting-levers, and means to actuate said cord, substantially as described.

677,438. PUMPING APPARATUS. MATTHEW T. CHAPMAN and MARK C. CHAPMAN, Aurora, Ill. Filed Apr. 6, 1894. Serial No. 506,645 (No model.)



Claim.—1. The combination with an outer well-tube and an inner well-tube, of a foundation-tube fitted in the outer tube and adapted to support the inner tube, and separately-arranged wedges for locking said foundation-tube in position within the outer well-tube, said wedges being adapted to be operated to lock said foundation-tube in place by the weight of the inner tube, substantially as described.

2. The combination with an outer well-tube, and an inner well-tube, of a foundation-tube fitted in the outer tube and having a conical portion the smaller end of which is lowermost, wedges corresponding to the taper of the conical portion of the foundation-tube and adapted for locking said foundation-tube in position within the outer well-tube, and a spring for forcing said wedges onto the conical portion of the foundation-tube to cause them to separate and fill the space between the foundation-tube and outer well-tube, substantially as described.

3. The combination with a well-tube, and a foundation-tube, the lower end of which is smaller in diameter than the interior of the well-tube, of a collar adapted to move upon the lower portion of said foundation-tube, wedges secured to said collar and adapted to lock the foundation-tube, and a spring under said collar for forcing the wedges upward and outward to bind in the space between the foundation-tube and well-tube, substantially as described.

4. The combination with a well-tube, and a foundation-tube having a conical portion, the lower end of said foundation-tube being smaller in diameter than the interior of the well-tube, of wedges arranged around the smaller part of said foundation-tube and adapted to move upon the conical portion of said tube, and a spring under said wedges for forcing the wedges onto the cone to fill the space between the foundation-tube and the well-tube, substantially as described.

5. The combination with a well-tube, and a foundation-tube having a conical portion, the lower end of said foundation-tube being of smaller diameter than the interior of the well-tube, of wedges adapted to move upon the conical portion of said foundation-tube, a collar upon the lower end of said foundation-tube, and a spring between said collar and said wedges for forcing the wedges onto the cone, substantially as described.

6. The combination with a well-tube, and a foundation-tube having a conical portion, the lower end of said foundation-tube being of smaller diameter than the interior of the well-tube, of wedges adapted to move upon the conical portion of said foundation-tube, a collar upon the lower end of said foundation-tube, a spring between said collar and said wedges for forcing the wedges onto the cone, vertical slots in the lower portion of said foundation-tube, and a pin moving in said slots, substantially as described.

7. The combination with a well-tube, and a foundation-tube having a conical portion terminating in a lower end which is of smaller diameter than the interior of the well-tube, of a collar adapted to move upon the lower portion of said foundation-tube, wedges secured to said collar and adapted to move upon the conical portion of said foundation-tube, a collar adjustable upon the lower end of said foundation-tube, and a spring between said two collars for the purpose of forcing the wedges onto the cone, substantially as described.

8. The combination with a well-tube, and a foundation-tube having a conical portion, the lower end of said foundation-tube being of smaller diameter than the interior of the well-tube and provided with vertical slots, of a collar adapted to move upon the lower portion of said foundation-tube, wedges secured to said collar and adapted to move upon the conical portion of said foundation-tube, a collar adjustable upon the lower end of said foundation-tube, a spring between said two collars for the purpose of forcing the wedges onto the cone, and a pin secured to said first-mentioned collar and moving in the vertical slots of the lower end portion of the foundation-tube, substantially as described.

9. The combination with outer and inner well-tubes, said inner tube having a removable internal collar secured thereto at its upper end, of packing above said collar and inner tube, and a hollow cone for expanding said packing, substantially as described.

10. The combination with outer and inner well-tubes, said inner tube being imperforate and having an internal collar in its upper end, of packing above said collar and inner tube, and a hollow cone adapted to be forced downward for the purpose of expanding said packing, said cone having an external shoulder, substantially as described.

11. The combination with inner and outer well-tubes, of packing for the upper portion of said inner tube, a hollow cone for expanding said packing, said cone having an elongated part extending into the inner tube, an external shoulder on said elongated part, and a collar secured to the upper part of said inner tube, substantially as described.

12. The combination with inner and outer well-tubes, and packing for the upper portion of said inner tube, of a hollow cone for expanding said packing, said cone having an elongated part extended into said inner tube, a collar secured in the upper end of said inner tube, a shoulder upon the lower end of the elongated part of the cone, a valve-rod, and a plunger carried thereby, substantially as described.

13. The combination with a well-tube, plunger-rods, and a plunger-operating engine, of a sliding plate or engine-support adapted to be moved over the well-tube and having a recess for the passage of the plunger-rods, said recess being open at one side to permit movement of the engine away from over the well, pivotally-mounted walking-beams, horizontal pivots for said beams, said pivots being at diametrically opposite sides of the plunger-rods, and being arranged to provide a passage for one of the plunger-rods corresponding to the recess in said sliding plate, whereby movement of the pump-operating mechanism to one side of the well is permitted without removal of the pumping-rods, substantially as described.

14. The combination with a well-tube and pump-rods, of walking-beams, a shaft on which said beams are pivoted, said shaft having a central recess or bend for the passage of one of the pump-rods and to permit lateral movement of the two-plunger-pump-actuating mechanism away from the pump-rods and from over the well without removal of said rods, a plate supporting the engine, said plate being adapted to move over the well, and having a recess corresponding to the recess in said shaft, substantially as described.

15. The combination with a well-tube, plunger-rods, and a plunger-operating engine, of a sliding plate or engine-support adapted to be moved over the well-tube and having a recess for the passage of the plunger-rods, said recess being open at one side to permit movement of the engine from over the well, pivotally-mounted walking-beams, horizontal pivots for said beams, said pivots being at diametrically opposite sides of the plunger-rods and being arranged to provide a passage for one of the plunger-rods corresponding to the recess in said sliding plate, upper and lower cross-heads connected to said walking-beams, the lower cross-head having a removable section in line with the recess in said sliding plate and the passage between the pivots of the walking-beams, whereby the pump-operating mechanism may be moved to one side of the well without the removal of the plunger-rods, substantially as described.

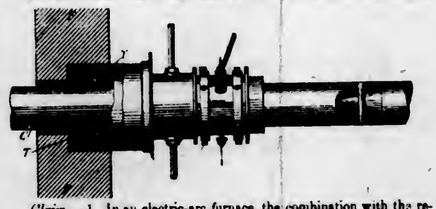
16. The combination with the well-tubes, the pump-rods, and the upper and lower cross-heads, of a two-plunger pumping-engine having walking-beams, such as 91, 92, connected with said cross-heads, and a crank-shaped shaft for said walking-beams approximately perpendicular to the pump-rods but having a central bend for permitting lateral movement of the engine to one side from over a well, to give room for removing the pumping-rods from the well, a base-plate for the engine, said plate having a recess open at one side, corresponding to the recess in said shaft, and a removable section in the lower cross-head, arranged, when removed, to provide a passage corresponding to the recess in the base-plate, for the passage of the pump-rod during the lateral shifting of the base-plate, and operating mechanism carried by said base-plate, substantially as described.

17. The combination with the inner and outer well-tubes and the pumping-valves, of an adjustable foundation-rest for supporting the pumping-valves and inner well-tube, the said foundation-rest being coned and provided with a collar and collapsible spring-pressed wedges, the spring being compressible and the wedges adapted to collapse in lowering the foundation-rest, whereby the increase of weight on the foundation-rest by insertion of the inner well-tube and pumping-valves and the weight of water or oil being pumped, will force the wedges onto the cone and into firm engagement with the well-tubes, substantially as described.

18. The combination with a pump-cylinder and valves, of an adjustable foundation-rest consisting of a coned body having slots in its lower end and an internal flange at the top, tapering wedges on said coned body, a collar to which said wedges are attached, a spring for said collar and wedges, and a pin passed through the slots of the coned body and engaged in said collar, the said pin being accessible to a tool for compressing the spring to loosen and release the wedges so that the foundation-rest may be withdrawn by means of the flange at the upper end of the coned body, substantially as described.

19. The combination with a well-tube, and pump-cylinder, of a screw-threaded collar in the upper end of the pump-cylinder, and adjustable packing above the pump-cylinder and collar for preventing sediment from filling the space between the cylinder and the well-tube in which the pump-cylinder is placed, and means for compressing said packing against the well-tube and upon the pump-cylinder, substantially as described.

677,439. ELECTRIC-ARC FURNACE. RAMON C. CONTARDO, Sevres, France. Filed Aug. 24, 1900. Serial No. 27,914. (No model.)



Claim.—1. In an electric-arc furnace, the combination with the refractory lining of the furnace, of a hollow sleeve, having an extended bearing-surface and means for a water-pressure circulation, a stationary friction contact-sleeve, connected thereto and in prolongation thereof, and an electrode adapted to pass through both sleeves, and in close contact with the extended bearing-surface of the hollow sleeve, substantially in the manner and for the purpose set forth.

2. An electric furnace, the combination with the refractory lining, of a hollow metal sleeve secured thereto, said sleeve being provided with means for a water-pressure circulation, and a stationary friction contact-sleeve comprising a number of segments adapted to compress the electrode, rings compressing the segments and adjusting devices between the rings and segments, and the segments being provided with cable-terminals, the whole being arranged substantially as described so that the electrode can move toward the interior of the furnace, insuring a constant electrical resistance, and the destruction of the exterior portion of the electrode avoided, as set forth.

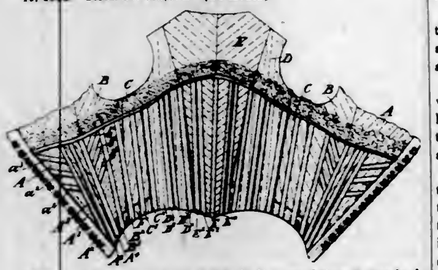
677,440. INCANDESCENT ELECTRIC LAMP. BERNARD M. DRAKE, London, England, assignor of one-half to Nernst Electric Light, Limited, same place. Filed Dec. 11, 1900. Serial No. 39,481. (No model.)



Claim.—1. In an incandescent lamp having an electrolytic incandescent filament and electric conductors in contact with the filament, the combination with the anode contact of heat-radiating devices projecting beyond the outer surface of the contact, for the purpose of dissipating the excessive heat there generated, substantially as set forth.

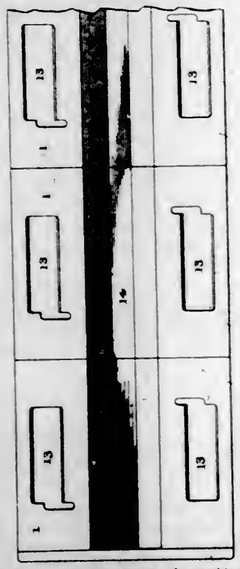
2. The combination with an electrolytic incandescent filament and electric conductors in contact with opposite ends thereof, of coatings for both contacts composed of the same materials as the filament, and heat-radiators projecting through, and beyond the outer surface of the coatings, substantially as set forth.

677,441. CORSET. LOUISE DYER, Bayswater, England; William D. Baldwin administrator of said Louise Dyer, deceased. Filed Aug. 19, 1898. Serial No. 689,044. (No model.)



Claim.—A foundation for a lady's bodice, consisting of two back pieces, E, joined together by a vertical seam two under-arm pieces, C, intermediate pieces, D, joined to the back pieces and to the under-arm pieces and cut to form the rear portions of the armholes, two front pieces, A, shaped at their upper ends to fit the bust, intermediate pieces, B, joined to the front pieces and to the under-arm pieces, and cut to fit the bust, and to form the front portions of the armholes, a vertically-arranged bone extending along the seam joining the two back pieces, a set of vertical bones arranged along the inner portion of each side piece and converging toward the bottom, a set of short bones extending from the outer edge of each front piece diagonally downward across the bust portion of each front piece to the set of vertically-arranged bones at the inner edge thereof, a set of short bones extending from said set of vertically-arranged bones diagonally upward across the bust portion of each intermediate piece, B, and other vertically-arranged bones interposed between the sets of bones at the inner edges of the front pieces and the bone at the seam which joins the back piece.

677,442. SECTIONAL TABLE OR BENCH. GEORGE M. EAMES, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Apr. 13, 1901. Serial No. 55,711. (No model.)



Claim.—1. In a sectional work-table, the combination of supporting-legs with table-sections mounted thereon, clamping-knees fixed to said sections and bolted together, and adjusting-screws carried by said clamping-knees and coöperating therewith and with the supporting-legs to force said table-sections against and hold them in position upon said legs, substantially as set forth.

2. In a sectional work-table, the combination of supporting-legs with table-sections mounted thereon, clamping-knees fixed to said sections and bolted together, and adjusting-screws carried by said clamping-knees and coöperating therewith and with the supporting-legs to permit a limited lengthwise adjustment of said sections and to force the sections against and hold them in position upon said legs, substantially as set forth.

3. In a sectional work-table, the combination of supporting-legs with table-sections mounted thereon, clamping-knees applied to said sections and bolted together, and adjusting-screws tapped in said clamping-knees and adapted to bear against said supporting-legs, substantially as set forth.

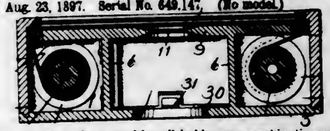
4. In a sectional table, the combination of supporting-legs provided with inclined abutments, table-sections mounted on said legs, clamping-knees applied to said sections and bolted together, and adjusting-screws tapped in said clamping-knees and adapted to bear against the inclined abutments formed on said supporting-legs, substantially as set forth.

5. In a sectional table, the combination of supporting-legs, table-sections mounted thereon, clamping-knees applied to said sections and bolted together, one of said clamping-knees being provided with a finger or extension adapted to bear against an adjacent supporting-leg, and adjusting-screws tapped in said clamping-knees and adapted to bear against said supporting-legs, substantially as set forth.

6. A sectional work table or bench, having a series of sections butt-jointed, clamping-knees applied to the adjacent ends of said sections, supporting-legs arranged between adjacent knees and receiving the abutting ends of the sections, and means to connect the knees about the legs, substantially as set forth.

7. A sectional work table or bench, having a series of sections butt-jointed, clamping-knees applied to the adjacent ends of such sections, supporting-legs arranged between adjacent knees and receiving the abutting ends of the sections, means to connect the knees about the legs, and means to adjust the sections about the legs, substantially as set forth.

677,443. PHOTOGRAPHIC-ROLL HOLDER. GEORGE EASTMAN, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed Aug. 23, 1897. Serial No. 649,147. (No model.)



Claim.—1. In a photographic-roll holder, the combination with the casing having the front opening, of the film-support having the aperture therein, the receiving and supply spool chambers in rear of the support, and near opposite ends thereof, spool centering and holding devices in the chambers, a ratchet-wheel connected to the centering device in the winding-spool chamber, and a pawl preventing its rotation toward the edge of the support, substantially as described.

2. In a photographic-roll holder, the combination with the casing having the front opening, of the film-support having the observation-aperture therein, the winding and supply spool chambers in rear of the support, and spool-centering devices in the spool-chambers.

3. In a photographic-roll holder, the combination with the casing having the front opening, of the film-support having the observation-opening therein, the spool-chambers at the rear of the film-support, film-spools mounted in the chambers, each containing sensitized film and opaque paper wound thereon, the film on the supply-spool being wound inside the paper, and that on the winding-spool being wound outside the paper and the paper being in contact with the support as it passes from one spool to the other, ratchet devices for preventing backward rotation of the winding-spool, and a manually-operated detent for arresting the supply-spool, substantially as described.

4. In a photographic-roll holder, the combination with the casing, the removable frame embodying the film-support, which latter is provided with the observation-aperture, the cover 5 having the aperture coinciding with that in the film-support, and the partitions 6 forming spool-chambers, the ratchet-wheel in the winding-spool chamber, and the pawl coöperating therewith, and the removable spool-operating spindle coöperating with the ratchet-wheel, substantially as described.

5. In a photographic-roll holder, the combination with the casing having the opening, of the removable frame having the film-support, the supply and winding spool chambers in the frame in rear of the support, the hinged plate at the end of the winding-spool chamber, the ratchet-wheel and pawl on the plate, the spool-engaging stud on the wheel, and the removable spindle extending through the casing into the supply-spool chamber and engaging the ratchet-wheel, substantially as described.

6. In a photographic-roll holder, the combination with the casing having the opening, the removable frame having the film-support and spool-chambers in rear thereof, the hinged plates at the ends of the chambers, the detent-wheel on one plate having the projection for engaging a spool, and a movable detent for coöperating therewith, a ratchet-wheel on the other plate, a pawl coöperating therewith, a spool-engaging projection on said ratchet-wheel, and a removable spindle passing through a spool-chamber and engaging the ratchet-wheel, substantially as described.

7. The combination with the casing having the opening and the pivoted spool-detent mounted therein capable of operation from the exterior of the casing, of the removable frame having the spool-chambers, the hinged plate at the end of the winding-spool chamber, the ratchet-wheel and pawl mounted thereon, the removable spindle passing through the casing and engaging the ratchet-wheel, the hinged plate at the end of the supply-spool chamber, the rotatable detent-wheel thereon having the spool-engaging stud, and the spool-engaging stud on the opposite end of said chamber, substantially as described.

8. The combination with the casing having the front opening, the removable frame having the film-support provided with the aperture, the spool-chambers at opposite ends of the rear side of the support, and spool centering and holding devices therein, of the movable locking-plate on the frame having the projecting end engaging the casing, and the perforated ears, and the pins on the casing with which said ears coöperate, substantially as described.

9. A photographic-roll holder consisting of a casing having an opening in the front and a removable slide for covering the same, a film-support in rear of said opening having a sight-aperture therein, and spool-centering devices located within the casing in rear of the film-support.

10. A photographic-roll holder consisting of a casing having a front opening, a removable door for the opening, a film-support in rear of said opening having a sight-aperture arranged centrally thereof, and spool centering and winding devices in the casing and in rear of the film-support.

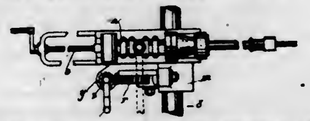
11. A photographic-roll holder embodying a casing open at front and rear, a removable slide for covering the front opening and a roll-carrier in the casing, embodying a back board for covering the rear, having secured thereto a film-support lying in rear of and in close proximity to the front opening in the casing and having a sight-aperture therein, and spool winding and centering devices secured to the carrier and in rear of the film-support.

12. In a photographic-roll holder, the combination with an outer casing open at the rear and having a slide for opening and closing the front, a roll-carrier fitting in the open rear portion and consisting of a front board having an observation-aperture, a rear board and top and bottom walls connecting the front and rear boards, a supply-roll and a take-up spool mounted in the top and bottom walls on opposite sides and an observation-tube leading from the rear board to the observation-aperture in the front board.

13. In a photographic-roll holder, the combination with an outer casing open at the rear and having a removable slide for closing the front, a roll-carrier fitting in the rear portion of the casing embodying the top and bottom supports, a front board or film-support arranged in rear of the front opening in the casing having a sight-aperture therein, spool-centering devices on the top and bottom supports and in rear of the front board, and a rear board having a sight-aperture therein registering with the aperture in the front board and means extending from the front to the rear board for excluding the light from the spools.

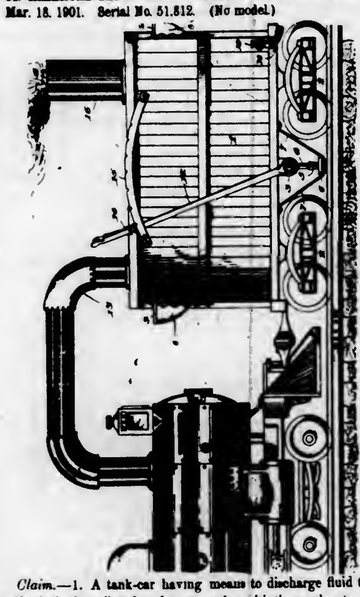
14. In a holder for cartridge-rolls of film, the combination with a film-support over which the film passes, having a sight-aperture therein, of spool centering and operating devices located in rear of said support and on opposite sides of the sight-aperture therein, whereby markings of the back of the material passing from spool to spool over the support are visible from the rear of the support.

677,444. STONE-CUTTING MACHINE. FRITZ EBENDER, Wellesweiler, and FERDINAND GARELLY, Jr., Saarbrücken, Germany. Filed Oct. 15, 1900. Serial No. 33,138. (No model.)



Claim.—The combination with a rock-drilling machine, of a suitable support, a sleeve adjustable longitudinally on said support, a toothed segment carried in a bearing on said sleeve and capable of being rocked from a horizontal to a vertical plane or any intermediate position, in said bearing, a connecting-piece pivoted in the hub of said segment at the axis thereof and extending laterally therefrom, to which connecting-piece said drilling-machine is secured, and an adjusting device carried by the drilling-machine and in constant engagement with the segment in whatever plane the latter is placed.

677,445. TANK-CAR FOR PREVENTING VEGETABLE GROWTH ON RAILROAD-BEDS. SARAH P. E. ERICKSON, Scandia, Kans. Filed Mar. 18, 1901. Serial No. 51,812. (No model.)



Claim.—1. A tank-car having means to discharge fluid therefrom onto the bed of a railroad, and a connection with the smoke-stack of a locomotive to utilize the exhaust-steam from the locomotive for heating the contents of said tank-car, substantially as described.

2. A tank-car having a discharge-valve disposed transversely under the same, and provided with a plurality of depending discharge-nozzles 4, hangers depending from the bottom of the car, a cross-board supported by said hangers, and a plurality of flexible discharge-tubes 5 forming the lower terminals of the nozzles 4 and retained in openings in said cross-board, substantially as described.

3. A tank-car having means to discharge fluid therefrom onto the bed of a railroad, a connection with the smoke-stack of a locomotive to utilize the exhaust from the locomotive to heat the contents of said tank-car, and a supplemental smoke-stack, substantially as described.

677,446. TACKLE-BLOCK. JAMES M. ERVIN, Cleveland, Ohio, assignor to the Cleveland Block Company, same place. Filed Mar. 14, 1901. Serial No. 51,067. (No model.)



Claim.—1. In tackle-blocks, a block having side plates with open eyes to receive the ends of the sheave-pin, said plates having a flat surface about said eyes and slots cut through the plates about said eyes to receive the cotter-pins, substantially as described.

2. A tackle-block having sheet-metal side plates, said plates being straight and flat at both sides from end to end and having each a straight, flat depression centrally on its inside from the top down past the middle of the plate, an eye through said depressed portion and open slots entering said eye, substantially as described.

3. A tackle-block having sheet-metal side plates straight and flat from edge to edge transversely except a central straight and flat swell midway between the sides of the plates and extending from their top downward, said swell being on the outside of each plate and flat from edge to edge and having an open eye for the sheave-pin and slots entering said eyes to receive the cotter-pins, and holes at the ends of the said plates through which they are tied together, substantially as described.

4. In tackle-blocks, a set of sheet-metal side plates with holes lat-

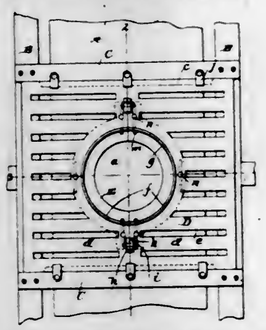
erally through their ends, and bridge-plates between the ends of said side plates having lugs at their outer edges engaged in and riveted about the said holes in the side plates, substantially as described.

5. A tackle-block having side plates with depressions of equal depth and width their entire length centrally in said plates from the top of the plates downward centrally thereof, a yoke-shaped strap resting at its sides in said depressions and a sheave-pin through said strap and plates and a bridge-piece having edges resting against said strap and plates and lugs on said edges extending through said plates and riveted thereupon, substantially as described.

6. A tackle-block having sides with flat depressions lengthwise at their centers, a yoke-shaped strap with flat sides in said depressions, a sheave-pin engaged through said strap and sides, bridge-plates having lugs at their edges riveted upon said sides and a division-plate engaged in slots in said bridge-pieces, substantially as described.

7. A tackle-block having side plates and a strap, and bridge-plates connecting said block at its ends, the said bridge-plates having lugs located in the side plates and the lower bridge-plate constructed to engage the becket directly thereupon, substantially as described.

677,447. **STOVEPIPE-HOLDER.** VICTOR ETHIER, Webster, Mass. Filed Feb. 23, 1901. Serial No. 49,339. (No model.)



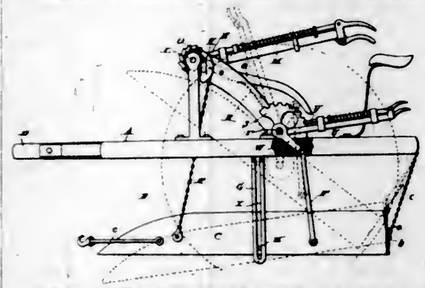
Claim.—1. The combination with the wall of an apartment, and a chimney having the hole *a*; of the stovepipe-holder comprising the flat main frame connected to the wall of the apartment and having the opening of larger size than the pipe to be held, the flat pipe-holder proper arranged against the inner side of the flat main frame and having the opening corresponding in size to the hole *a* in the chimney and the pipe to be held, and a loose connection between the main frame and pipe-holder proper whereby they are free to move vertically with respect to each other.

2. A stovepipe-holder comprising cross-bars adapted for connection to the studding comprised in the wall of an apartment, and having flanges *c*, turn-buttons pivotally connected to said cross-bars, a main frame arranged between the cross-bars and held against the flanges thereof by the turn-buttons, and having an opening larger in diameter than the pipe to be held, a pipe-holder proper arranged at the inner side of the main frame and having an opening of a size corresponding to that of the pipe to be held, and a loose connection between the main frame and pipe-holder proper whereby they are free to move vertically with respect to each other.

3. A stovepipe-holder comprising cross-bars adapted for connection to the studding comprised in the wall of an apartment, and having flanges *c*, turn-buttons pivotally connected to said cross-bars, a main frame comprising plates arranged between the cross-bars and held against the flanges thereof by the turn-buttons; said plates having semicircular notches in their meeting edges of a size to form an opening larger in diameter than the pipe to be held, and a connection between said plates, a pipe-holder proper arranged at the inner side of the main frame, and comprising plates having semicircular notches in their inner edges of a size to form an opening adapted to snugly receive the pipe to be held, and rivets connected to the plates of the main frame and extending through vertical slots in the plates of the pipe-holder proper.

4. In a stovepipe-holder, the combination of the flat main frame comprising plates arranged edge to edge and connected together; said plates having notches in their meeting edges of a size to form an opening larger in size than the pipe to be held, the flat pipe-holder proper arranged at and against the inner side of the flat main frame and comprising plates arranged edge to edge, and having notches in their inner edges of a size to form an opening adapted to snugly receive the pipe to be held, and a loose connection between the main frame and the pipe-holder proper.

677,448. **WHEELED EARTH-SCRAPER.** WILLIAM H. FORKER, Meadville, Pa. Filed Apr. 2, 1901. Serial No. 54,079. (No model.)

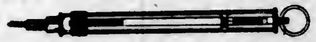


Claim.—1. The combination of the main frame, the scraper flexibly and adjustably slung at front and rear beneath the same, fixed vertical guides depending from the frame and studs on the sides of the scraper engaging the slots of said guides.

2. The combination of the main frame, having depending vertical guides, and transverse shafts mounted thereon, the scraper having lateral studs and being slung beneath said frame by flexible connections at front and rear, and power devices on said shafts for operating and adjusting said connections to raise and lower the scraper as set forth.

3. The combination in an earth-scraper of the tail-board *a*, chain *c*, connected by one end to the rear end of the main frame and bolt *b*, by which the automatic opening and closing is effected, substantially as described.

677,449. **COMBINED CALENDAR, PEN, AND PENCIL.** PETER FRASER, Fulham, England. Filed Nov. 6, 1899. Serial No. 736,027. (No model.)



Claim.—In a combined calendar, pen and pencil, the combination with a cylindrical casing having a lengthwise display-slot; of a roller rotatably located in the slotted end of said case; and a calendar-sheet wrapped around said roller, said sheet being gummed along its two greater edges and transversely perforated to divide it into spaces indicating the twelve months of the year each of said spaces having displayed thereon the name of the distinguishing month, days of the week, and the numerals comprising the days of the week and month; and an end extension on said roller, and a flanged cap loosely mounted on said casing, substantially as specified.

677,450. **PROCESS OF MERCERIZING.** FERNAND GROS and PAUL BOURCART, Remiremont, France. Filed Apr. 29, 1899. Serial No. 715,062. (Specimens.)

Claim.—The process for imparting to cotton the glossy appearance of silk, characterized by first twisting the unspun material when in the state of a sliver into a "cord" of just sufficient strength to withstand mercerization, then stretching such cord taut, then submitting it to the mercerization process, after which the cord is untwisted or restored to the state in which it was prior to such treatment.

677,451. **ADJUSTABLE FIREBACK.** EDWARD H. HEADFORD, Dubuque, Iowa. Filed Mar. 27, 1900. Serial No. 10,342. (No model.)



Claim.—1. In an adjustable fireback, the combination with the front, of the movable end wings, oppositely-arranged racks on the wings, a pinion carried by the front interposed between the racks for moving the wings in opposite directions and means for locking the wings in their adjusted position.

2. In an adjustable fireback, the combination with a front, of movable end wings and means carried by the front for moving the wings simultaneously and equally, substantially as described.

3. In an adjustable fireback, the combination with a front plate, of movable end wings, movable bottom plates, means for simultaneously and equally moving the wings, and means on the bottom plates for securing the wings in their adjusted positions, substantially as described.

4. In an adjustable fireback, the combination with a front plate, of movable end wings, movable bottom plates, a pinion carried by the front plate for simultaneously and equally moving the wings, and means on the bottom plates for securing the wings in their adjusted positions, substantially as described.

5. In an adjustable fireback, the combination with the front, of movable end wings having extensions thereon, racks on the extensions arranged opposite each other, a pinion located between the racks, and having a shaft extending through the front, and means for securing the wings in their adjusted positions, substantially as described.

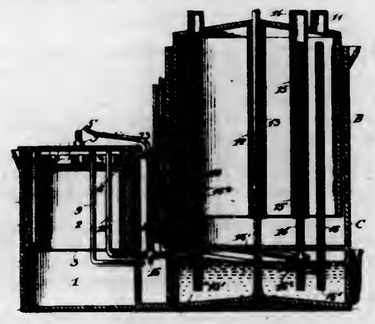
6. In an adjustable fireback, the combination with the front, of adjustable end wings, bottom plates movable with the end wings, a series of teeth on one bottom plate and a spring-tongue on the other plate having a tooth engaging the teeth of the other plate, substantially as described.

7. An adjustable fireback comprising a front plate, end and bottom plates movably held by the front plate, a key-shaft extending through the front plate and a gear connection between the key-shaft and end plates for moving the same simultaneously and equally, substantially as described.

8. In an adjustable fireback, the combination with a front plate, of adjustable side plates, adjustable bottom plates, a rotatable adjusting device located between the bottom plates and front plate, and engaging the end plates, and means extending through the front for rotating the adjusting device, substantially as described.

9. In an adjustable fireback, the combination with a front, of movable end wings, mechanism for moving the wings, and means on the back for locking the wings in their adjusted positions, substantially as described.

677,452. **ACETYLENE-GAS GENERATOR.** HORACE A. HOLMES, Manton, Mich. Filed May 13, 1899. Serial No. 716,628. (No model.)



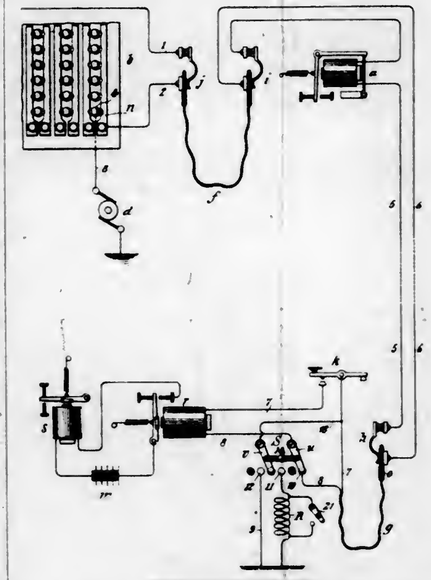
Claim.—In an acetylene-gas generator, the combination with the generator and gasometer having a movable bell; of a water-supply tank, a chamber or compartment within the same, a pipe leading from said chamber to the generator, and a valve in said pipe adapted to be controlled by the movement of the bell, said chamber having a small opening into the main tank, whereby it is gradually refilled when emptied, substantially as and for the purpose set forth.

677,453. **TELEGRAPH SWITCHING APPARATUS.** FRANCIS W. JONES, New York, N. Y. Filed Mar. 16, 1901. Serial No. 51,476. (No model.)

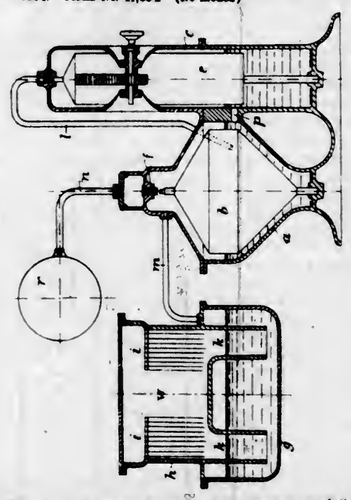
Claim.—1. The combination of a main telegraph-line, a main station, a loop connected into said line at the main station, extending to a substation, an electromagnet in said circuit at the main station, telegraph instruments included in said loop at the substation, a switch at the substation having three fixed contacts connected to a divided terminal of the loop, a grounded artificial resistance, and a ground, respectively, and two movable contacts connected to the other divided terminal of the loop and to a tap-wire 13 connected to the opposite side of the loop at a point between the instruments and main line.

2. The combination of a main telegraph-line, a main station, a substation-loop connected into said line at the main station, a magnet adjusted to respond to an abnormal current strength in said loop at the main station, telegraph instruments included in said loop at the substation, a switch at the substation having two separable contact-points included in one side of said loop and a contact connected to a grounded resistance whereby the loop may be divided and the artificial resistance substituted for one side thereof without affecting the magnet at the main station.

3. The combination of a main telegraph-line, a main station, a substation-loop connected into said line at the main station, a magnet adjusted to respond to an abnormal current strength in one side of said loop at the main station, telegraph instruments in said loop at the substation, means for reversing the connection of said instruments with respect to the loop at the substation, and a switch at said station having two separable contact-points included in one side of said loop with a ground-contact whereby the loop may be divided, either side thereof grounded, and the substation instruments included in such grounded circuit.



677,454. **APPARATUS FOR CUTTING INTO AND OUT OF CIRCUIT LIQUID RHEOSTATS OPERATED BY MEANS OF COMPRESSED AIR.** KOLOMAN VON KANDÓ, Budapest, Austria-Hungary. Filed Dec. 31 1900. Serial No. 41,654. (No model.)

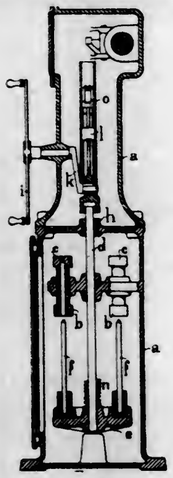


Claim.—1. Apparatus for cutting into and out of circuit liquid rheostats operated by means of compressed air, comprising two intercommunicating vessels partially filled with liquid, a piston contained in one of said vessels, means for actuating said piston, a float contained in the other said vessel, an automatically-closing compressed-air-inlet valve at the top

of said float vessel, opened by the float on rising, means for supplying compressed air through said valve, means for allowing the compressed air to escape from said float vessel when required, and means for connecting the top of said float vessel with the liquid rheostat, all substantially as and for the purposes hereinbefore set forth.

2. Apparatus for cutting into and out of circuit liquid rheostats, comprising two intercommunicating vessels partially filled with liquid, a piston contained in one of said vessels, means for actuating said piston, a float contained in the other said vessel, an automatically closing compressed-air-inlet valve at the top of said float vessel opened by the float on rising means for supplying compressed air through said valve, and a compressed-air outlet located above the normal level of the liquid in said vessel, in combination with a liquid rheostat consisting of a pressure-chamber containing a liquid, and a chamber containing plates, and conduits connecting said chambers, and means for connecting said pressure-chamber with the top of said float vessel, all substantially as and for the purposes hereinbefore set forth.

677,455. SWITCH FOR MULTIPHASE ALTERNATING-CURRENT MOTORS. KOLOMAN VON KANDÓ, Budapest, Austria-Hungary. Filed Dec. 31, 1900. Serial No. 41,656. (No model.)

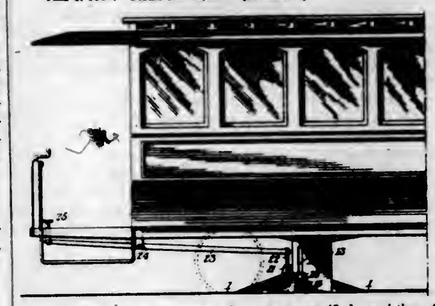


Claim.—1. A switch for multiphase-current motors, comprising a spindle having axial and longitudinal motion, a frame carried by said spindle, metal insulated rods mounted on said frame, stationary insulating-sockets provided with electrical contacts and adapted to receive said rods and so complete the circuit on longitudinal motion of the spindle, means for rotating said spindle on its axis, means for imparting longitudinal motion to said spindle, a device for retaining the spindle when it has been thus operated and an electromagnet releasing said device on the passage of a current above a certain maximum intensity, whereby the spindle is set free and can return to its first position and break the connection between said socket-contacts and metal rods, all substantially as described.

2. A switch for multiphase-current motors, comprising a spindle having axial and longitudinal motion, a frame carried by said spindle, metal insulated rods mounted on said frame, stationary insulating-sockets provided with electrical contacts and adapted to receive said rods and so complete the circuit on longitudinal motion of the spindle, means for rotating said spindle on its axis, a slide articulated to said spindle, guideways for said slide, means for sliding said slide and spindle, a stationary pivotal spring device for retaining the spindle when it has been thus operated, a spring-engagement device pivoted to said slide and coöperating with said retaining device, and an electromagnet releasing said device on the passage of a current above a certain maximum intensity, whereby the spindle is set free and can return to its first position and break the connection between said socket-contacts and metal rods, all substantially as described.

3. The devices for longitudinally sliding, retaining and releasing the spindle *d*, comprising a slotted slide articulated to the spindle, guideways for said slide, crank mechanism engaging in said slot and traveling said slide in its guideways, spring-clicks pivoted to said slide, stationary pivotal double-armed spring-jaws engaging with said clicks on travel of the slide, armatures carried by said jaw-arms and an electromagnet which, on the passage of a current above a certain maximum intensity, opens said jaws by attracting said armatures, thus releasing said clicks and allowing the spindle to return to its first position, all substantially as described.

677,456. RAILWAY. GILBERT LARSON, Bothell, Wash. Filed Jan. 5, 1901. Serial No. 42,257. (No model.)



Claim.—1. A slot-cover for the purpose specified, consisting of a flexible strip adapted to be attached to the road-bed and to overlie the slot therein, and a series of metallic strips attached to and extending longitudinally beneath the free edge of the cover, substantially as and for the purpose described.

2. A slot-cover for the purpose specified, consisting of a flexible strip composed of sections, and splice-plates connecting the adjacent ends of the sections and extending longitudinally thereof, substantially as described.

3. A slot-cover for the purpose specified, consisting of a flexible strip made in sections, and slotted splice-plates connecting the adjacent ends of the sections, substantially as described.

4. A slot-cover for the purpose specified, consisting of a sectional flexible strip, pins or studs on the adjacent ends of the sections, and slotted splice-plates associated therewith, substantially as described.

5. A slot-cover for the purpose specified, consisting of a flexible strip provided with transverse slits, and splice-plates connecting the slitted portions of the strip, substantially as described.

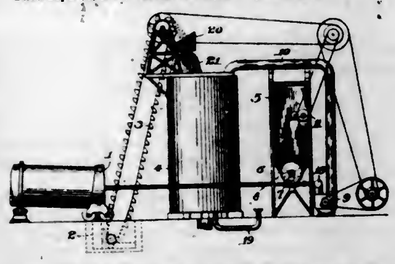
6. The combination with the slot-rails of a road-bed, of an anchoring-strip embedded in the road-bed extending along one side thereof, and a slot-cover having one edge secured to said anchoring-strip, substantially as described.

7. The combination with the slot-rails of a road-bed, of an anchoring-strip embedded in the road-bed and extending along the outside of one of the slot-rails, and a flexible slot-covering strip attached along one edge to the anchoring-strip and projecting across the slot, substantially as described.

8. The combination with the shank of a grip or plow, of a shoe mounted to slide up and down on said shank, and an operating-lever for lifting said shoe out of contact with the road-bed, substantially as described.

9. The combination with the shank of a grip or plow having a vertical slot therein, of a shoe having flanges embracing said shank, and one or more bolts passing through said flanges and playing up and down in the slot in the shank, substantially as described.

677,457. APPARATUS FOR CALCINING CEMENT. BENJAMIN B. LATHBURY, Philadelphia, and HENRY S. SPACKMAN, Ardmore, Pa. Filed Sept. 26, 1900. Serial No. 31,152. (No model.)



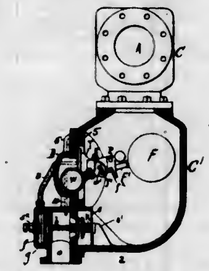
Claim.—1. In combination in an apparatus for the utilization of powdered fuel in the calcination of cement, a fuel-discharge pipe, a receiver mounted therein and adapted to feed said fuel to the air-blast, a powdered-fuel receptacle, means such as the screw conveyer 6 for conveying fuel from said receptacle to said receiver, a cooler, a hot-air conduit connecting said cooler and said fuel-discharge pipe, and a blower communicating with said hot-air conduit intermediate between said cooler and said fuel-discharge pipe, whereby a continuous air-current is created through said cooler and fuel-discharge pipe, substantially as described.

2. In an apparatus for the calcination of cement, a calcining-furnace, a cooler wherein the temperature of the clinker is lowered by subjection to air-currents, means for transferring said clinker from said furnace to said cooler, a fuel-discharge pipe, a hot-air conduit connecting said cooler and said fuel-discharge pipe, a blower adapted to create a continuous air-current through said cooler, hot-air conduit and fuel-discharge pipe, a receiver mounted in said fuel-discharge pipe and adapted to mix said fuel with said air-currents and a powdered-fuel bin communicating with said receiver by means of a screw conveyer, substantially as described.

3. In an apparatus for the calcination of cement, a calcining-furnace, a cooler wherein the temperature of the clinker is lowered by subjection to air-currents, means such as the conveyer 3 for transferring said clinker from said furnace to said cooler, the double bucket 22 adapted to receive said clinker from the conveyer, a fuel-discharge pipe, a hot-air conduit connecting said cooler and said fuel-discharge pipe, a blower communicating with said hot-air conduit and adapted to create a continuous air-current through said cooler, hot-air conduit and fuel-discharge pipe, a receiver mounted in said fuel-discharge pipe and adapted to mix said fuel and said air-current, and a powdered-fuel bin communicating with said receiver by means of a screw conveyer, substantially as described.

4. In combination, the cooler 4, the double bucket 22 communicating therewith, the cement-kiln 1, means such as the conveyer 3 for conveying the product of said kiln to said double bucket, the discharge-pipe 8 having mounted therein the receiver 7, the powdered-fuel receptacle 5 communicating with said receiver by means of the worm 6, and means such as the hot-air conduit 10 and fan 9 whereby a continuous updraft of cold air is created through said cooler and a discharge of hot air is created through said discharge-pipe, substantially as described.

677,458. STEAM-ELIMINATOR. JOHN LLOYD, Fortyfort, WILLIAM LLOYD, Tamaqua, and RICHARD O. JONES, Jeanesville, Pa. Filed Feb. 18, 1901. Serial No. 47,844. (No model.)



Claim.—1. In a steam-eliminator, a collecting-chamber having a discharge-valve and a piston controlling the discharge-valve, in combination with a valve controlling supply of steam to the said piston, a float controlling this steam-valve and a trip device between the float and steam-valve, all substantially as described.

2. In a steam-eliminator a collecting-chamber having a discharge-valve and a piston controlling the discharge-valve, in combination with a valve controlling the supply of steam to the said piston, a float, a weighted lever to operate the steam-valve and having a pin-and-slot connection with the float and a tripping-pawl to lock the weighted lever, but adapted to be thrown out by the float.

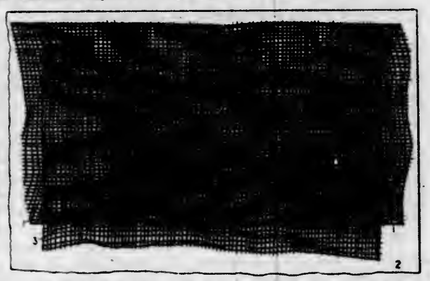
3. In a steam-eliminator, a collecting-chamber having a discharge-valve and a piston controlling the discharge-valve, in combination with a valve controlling the supply of steam to the piston, a weighted lever to open said steam-valve, a catch to lock the lever with the steam-valve closed and a float to act on the catch on rising and to close the steam-valve on descending, substantially as described.

677,459. ORNAMENTING CARDBOARD, &c. JAMES W. MCCABE, New York, N. Y. Filed Dec. 28, 1899. Serial No. 741,808. (Specimens.)

Claim.—1. The method of imparting a watered-silk finish to cardboard or the like, by producing irregular or unmatched superposed sheet-fabric impressions thereon.

2. The method of imparting a watered-silk finish upon cardboard or the like, by pressing superposed unmatched sheets of fabric thereon.

3. The method of imparting to cardboard or the like an ornamental fabric pattern resembling the grain of oak, by producing superposed crossed or unmatched impressions of plainly-woven fabric thereon.



4. The method of imparting to cardboard or the like an ornamental fabric pattern resembling the grain of oak, by impressing superposed and unmatched sheets of muslin or the like thereon.

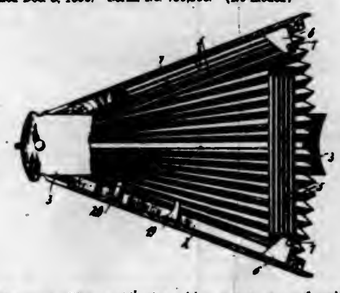
5. The method of imparting to cardboard or the like an ornamental fabric pattern by subjecting it to the pressure of superposed sheets of fabric pasted upon a plate.

6. The method of imparting simultaneously to cardboard or the like both a fabric or woven finish and a rilievo design, by pressing the cardboard against a cloth-faced and engraved plate.

7. The method of imparting to cardboard or the like both a fabric or woven finish and a rilievo design, by engraving the design upon a plate, then pasting a sheet of fabric upon the plate, then laying a sheet of cardboard or the like upon the plate thus prepared, and then subjecting the whole to pressure.

8. The method of imparting to cardboard or the like both an ornamental or figured fabric effect and a rilievo design, by subjecting it to the pressure of superposed sheets of fabric pasted upon a plate having an engraved design.

677,460. PHOTOGRAPHIC MAGAZINE-CAMERA. ANDRÉ MIETHE, Graz, Germany, assignor to C. P. Goerz, Friedenau, Germany. Filed Dec. 5, 1899. Serial No. 739,300. (No model.)



Claim.—1. The combination with a camera-case, of a plurality of plate-holders, and a common axle carrying the plate-holder frames secured to the sides of the camera-case and extending parallel therewith, said plate-holders carrying the unexposed plates resting normally out of exposing position, the motion of said frames being positively controllable from without the case, substantially as described.

2. The combination with a camera-case, of one or two plate-holder frames hinged to the sides of the camera-case, the camera-case having a book-like shape, said case, comprising the folding sides, the bellows and a fixed portion intermediate of the ends of the sides to which each side is hinged, said portion forming the lens-holder, substantially as described.

3. The combination with a camera-case, of one or two plate-holder frames hinged to the sides of the camera-case to move toward and from the same, and a lever extending outside of the case for positively moving the holder carrying the unused plates from the position to one side of the exposing position into exposing position, substantially as described.

4. The combination with a camera-case, of a pivotally-supported plate-holder frame hinged to the sides of the camera-case, means for controlling the motion of said frame from without the case, all of the holders normally occupying a position to one side of the exposing position, and means for retaining some of the plate-holders, while the others are swung out with the frame into exposing position, substantially as described.

5. The combination with a camera-case, of a plurality of plate-holder frames hinged to the sides of the camera-case, means for control-

ling the motion of said frames from without the case said means comprising a twice-bent crank pivoted to the side and extending through the bottom of the case, said crank being movably fastened to the bottom of the frame, substantially as described.

8. The combination with a camera-case, of a plate-holder frame hinged to the sides of the camera-case, means for controlling the motion of the frame from without the case, plate-holders carried by the frame, projections carried by said holders and means for engaging said projections to retain the holder carrying the used plates out of engagement with said frame, substantially as described.

7. The combination with a camera-case, of a plate-holder frame hinged to the sides of the camera-case, means for controlling the motion of said frame from without the case, plate-holders, projections arranged in a row carried by the same, a slider bearing a shoulder at one and an open slot at the other end, said slot embracing the projections of the plate-holders, substantially as described.

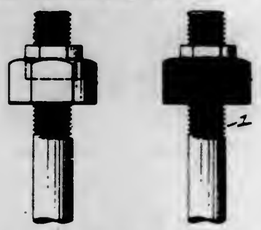
8. The combination with the camera-case, of plate-holder frames hinged to the sides of the camera-case, means for controlling the motion of said frames from without the case, plate-holders, projections carried thereby arranged in a row, and a spring-governed finger to retain the projections that are driven behind it, substantially as described.

9. The combination with a camera-case, of a plate-holder frame hinged to the side of the camera-case, means for controlling the motion of said frame from without the case, plate-holders, projections carried by the same arranged in a row, a spring-governed finger to retain the projections that are driven behind it, means for moving the plate-holder frame toward the finger the breadth of one projection in swinging it in after each exposure, substantially as described.

10. The combination with a camera-case, of a plate-holder frame hinged to the side of the camera-case, means for controlling the motion of said frame from without the case, plate-holders, projections carried thereby arranged in a row, a spring-governed finger retaining the projections that are driven behind it, a ratchet fastened to the camera-case and bearing as many ratchets as there are plate-holders, a spring-governed trigger fastened to the bottom of the frame adapted to catch in said ratchet, whenever the frame is swung against the side of the camera-case, substantially as described.

11. The combination with a camera-case, of a plate-holder frame hinged to the side of the camera-case, means for controlling the motion of said frame from without the case, plate-holders, projections carried thereby arranged in a row, a spring-governed finger retaining the projections that are driven behind it, means for moving the plate-holder frames toward the finger including a flange-embracing slider and a catch for preventing said slider from following the motion of the frame, substantially as described.

677,461. NUT-LOCK. LOUIS J. MATHIAS, Toledo, Ohio. Filed Mar. 27, 1901. Serial No. 53,089. (No model.)

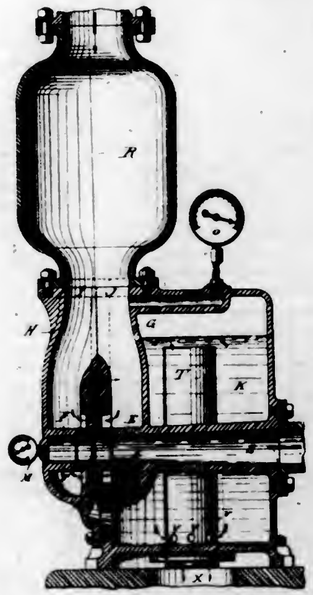


Claim.—In a nut-lock, the combination with the screw-threaded shank of a bolt, of a main nut, an internally-screw-threaded eccentric recess in the upper face of said main nut, and an externally-screw-threaded lock-nut, eccentric to the shank of the bolt, disposed in said recess, and suitable engaging surfaces upon said lock-nut to permit of rotating the same independent of the main nut, as set forth.

677,462. CONDENSING APPARATUS. PLACIDE NEBERAUX, Five-Lille, France. Filed Sept. 28, 1900. Serial No. 31,419. (No model.)

Claim.—1. In a condenser of the class described, the combination with a chamber and a water-tank communicating with each other, of a condensing-water conduit, leading into said chamber a pair of oppositely-arranged converging disks within the chamber, a pair of converging and diverging disks concentrically arranged around said converging disks, means for leading fluid, to be condensed, into said chamber, and means for expelling condensation-water from the water-tank, substantially as set forth.

2. In a condenser of the class described, the combination with a chamber and a water-tank communicating with each other, of a condensing-water conduit, leading into said chamber a pair of oppositely-arranged converging disks within the chamber, a pair of converging and diverging disks concentrically arranged around said converging disks, a series of converging cones arranged apart from each other between said pairs of disks, means for leading fluid to be condensed into said chamber and means for expelling condensation-water from the water-tank, substantially as set forth.



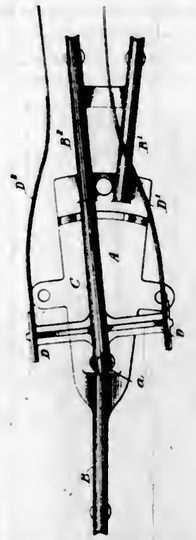
3. In a condenser of the class described, the combination with the chamber and a water-tank communicating with each other, of a condensing-water conduit, leading into said chamber a pair of oppositely-arranged converging disks within the chamber, a pair of converging and diverging disks, concentrically arranged around said converging disks, a series of converging cones arranged apart from each other between said pairs of disks, a suitable reservoir arranged above and communicating with said chamber for leading fluid to be condensed into the latter, and means for expelling condensation-water from the water-tank, substantially as set forth.

4. In a condenser of the class described, the combination with a chamber and a water-tank communicating with each other, of a condensing-water conduit, leading into said chamber, a pair of oppositely-arranged converging disks within the chamber, a pair of converging and diverging disks concentrically arranged around said converging disks, a series of converging cones arranged apart from each other between said pairs of disks, a suitable reservoir arranged above and communicating with said chamber for leading fluid to be condensed into the latter, and a vertically-arranged tube within the water-tank, said tube provided at its bottom with perforations and connected to a suitable discharge-conduit, substantially as set forth.

677,463. FROG FOR USE IN CONNECTION WITH OVERHEAD CONDUCTORS OF ELECTRICAL TRAMWAYS OR RAILWAYS. HUGH G. NICHOLSON, Bellevue, Ireland. Filed Apr. 12, 1901. Serial No. 55,506. (No model.)

Claim.—1. A frog for use with overhead conductors of electrical tramways or railways the said frog consisting of a movable point-tongue or switch having secured to it an arm or arms with a piece or pieces extending longitudinally therefrom and arranged to be acted upon by the trolley-head (or trolley-pole or some part connected therewith) so that the point-tongue or switch is thereby set in proper position by the trolley-head (or the like) as the trolley-wheel approaches the point-tongue or switch substantially as hereinbefore described.

2. A frog for overhead conductors of electric railways having a movable point-tongue, arms projecting downwardly therefrom, and horizontal arms carried at the ends of the downwardly-projecting arms and adapted to be operated by the trolley-pole to move the point-tongue to the position desired and hold it there until the trolley-wheel has left the point-tongue.

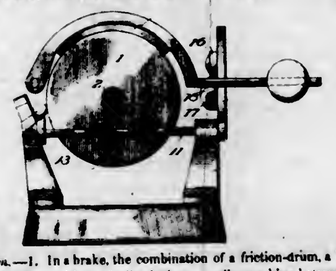


3. A frog for overhead conductors of electric railways having a movable point-tongue, spring means to keep it normally in one position and means secured to the tongue adapted to be operated by the trolley of the car to move said tongue from its normal spring-controlled position to that desired, substantially as described.

4. A frog for overhead conductors of electric railways, having a movable point-tongue, spring means to normally hold the tongue in a certain position, a downwardly-projecting arm secured to the tongue, a horizontal arm at the lower end thereof, adapted to be operated by the trolley of the car to move the tongue from its normal spring-controlled position to that desired, substantially as described.

5. A frog for overhead conductors of electric railways, having a movable point-tongue, a downwardly-projecting arm to the tongue, horizontal arms carried at the lower end thereof, a second shorter downwardly-projecting arm secured to the point-tongue and also carrying a horizontal arm at its lower end, substantially as and for the purpose described.

677,464. BRAKE. GEORGE W. NESTLE, Chicago, Ill., assignor of two-thirds to Everett W. Brooks and Robert L. Gifford, same place. Filed Feb. 6, 1901. Serial No. 46,230. (No model.)



Claim.—1. In a brake, the combination of a friction-drum, a brake-shoe coacting therewith; an inclined plane; a roller working between said drum and inclined plane and adapted to be wedged therebetween when the brake is moving in one direction; and means for holding said brake-shoe and said roller out of their working positions, substantially as described.

2. In a brake, the combination of a friction-drum, a brake-shoe suitably supported and arranged to coact therewith, an inclined plane; a roller working between said drum and inclined plane; a rock-shaft carrying means for positively moving said roller out of working contact with said drum; a lever connected with said rock-shaft; and means for operating said lever and for simultaneously raising the brake-shoe, substantially as described.

3. In a brake, the combination of a friction-drum, a brake-shoe suitably supported and arranged to coact therewith, an inclined plane; a roller working between said drum and inclined plane; a rock-shaft carrying means for positively moving said roller out of working contact with said drum; a lever connected with said rock-shaft; and a cam-rod arranged to coact with said brake-shoe and the aforesaid lever and move said brake-shoe and roller out of working contact with said drum, substantially as described.

4. In a brake the combination of a friction-drum, a brake-shoe suitably supported and arranged to coact therewith; an inclined plane; a roller working between said drum and inclined plane permitting the drum to work freely in one direction and wedging between the drum and inclined surface when the drum moves in the opposite direction; and means for moving said brake-shoe and roller out of working contact with said drum; the said means for moving the roller being adjustable whereby the movement of the shoe and roller may be timed, substantially as described.

5. In a brake, the combination of a friction-drum; a brake-shoe coacting therewith; an inclined plane and a roller acting with said drum and plane and permitting the said drum to move freely in one direction; a rock-shaft carrying a lever arranged to move said roller out of contact with said drum; means for operating said lever and for raising the brake-shoe; the lever for moving the roller being provided with an adjusting-screw, whereby the movements of the roller and brake-shoe may be timed substantially as described.

677,465. PIANO. LEVI W. NORCROSS, Paris, Tex. Filed Sept. 10, 1900. Serial No. 29,579. (No model.)



Claim.—1. In a piano, the combination with a case comprising a bottom and sides, sills disposed transversely of the sides and beams disposed longitudinally of the sides and bottom and engaged with the sills, of a string-frame disposed against the beams and having recesses in its edges to receive the sills.

2. In a piano, the combination with a case comprising bottom and sides, sills disposed transversely of the sides, a beam upon the upper face of the bottom and beams engaged with the sills and extending inwardly therebeyond, of a string-frame adapted to lie against the rear faces of the beams and having recesses in its edges to receive the sills, said frame having also perforations for engagement of holding means passed into the beams.

3. The combination with a piano-case having beams lying in a common vertical plane extending longitudinally through the case and transverse sills intersecting the beams, of a string-frame disposed against the rear faces of the beams and having means for holding it removably in place, said frame being slidably engaged with the sills for movement longitudinally thereof into and out of position against the beams.

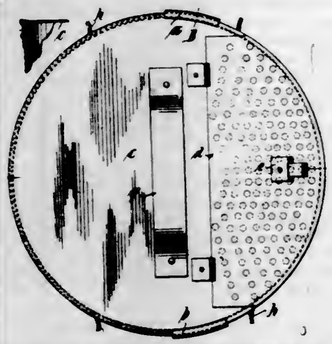
4. The combination with a piano-case having beams lying with their rear faces in a common plane passing longitudinally through the case, of a string-frame disposed against the rear faces of the beams, said frame having perforations therein to receive securing means engaged with the beams, said frame being bodily movable at right angles to the plane of the beams into and out of position against the beams.

5. The combination with a piano-case having beams lying with their rear faces in a common plane passing longitudinally through the case, of a string-frame disposed against the rear faces of the beams and having perforations therein, and securing means passed through the perforations and into the beam; said frame being bodily movable at right angles to the plane of the beams into and out of position against the beams.

6. The combination in a piano with a front board having the upper portion thereof hinged to fold flat against the lower portion, of a cover hinged in advance of the front board for movement to cover the keyboard and to uncover the keyboard and lie at an inclination against or behind the hinged section of the front board interchangeably, a music-rest dis-

posed in advance of and below the hinge of the cover-board and in position to support music against the keyboard-cover, and a music-rest carried by the hinged front board.

677,466. POT FOR COOKING PURPOSES. JOHANNES OETKER, Paderborn, Germany. Filed Jan. 28, 1901. Serial No. 45,006. (No model.)



Claim.—In a pot or cooking utensil, the combination with the body of the pot, provided with fixed inwardly-projecting lugs *a b* raised above and projecting over its upper rim, of the cover *c* provided with the perforated segment and the hinged flap *d*, and having the front portion of its edge flat and adapted to rest on the upper rim of the pot and pass under the inwardly-projecting lugs *a b* and having the rear portion of its edge provided with a flange or downturned rim *f* adapted to abut against the outer face of the rim of the pot.

677,467. DUMPING-BARROW. GEORGE D. POTTER, Wallace, Idaho. Filed Nov. 30, 1900. Serial No. 38,190. (No model.)



Claim.—1. A dumping-barrow, comprising a substantially U-shaped yoke, the rear ends of the limbs of which extend upwardly, handles applied to each upwardly-extended limbs, an axle provided with suitable wheels and to which axle the yoke is secured by its limbs, with its front end projecting forwardly beyond the axle, and a tray or body pivotally secured to said front end of the yoke, the said yoke and handles constituting a frame which is substantially parallel with the rear wall of the tray and is capable of being used to tilt the tray to discharge its load, as set forth.

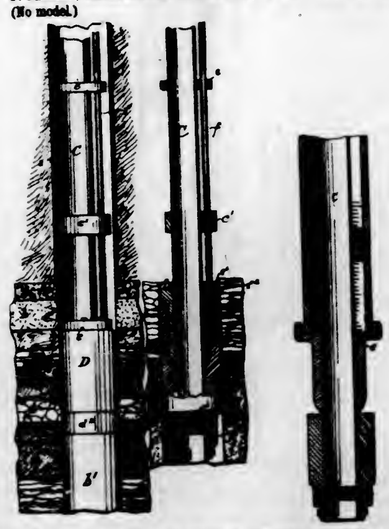
2. A dumping-barrow, having a tilting body or tray, a frame to which said body or tray is pivoted, and a gravity-latch pivoted to the tray and adapted to automatically engage with the frame when the parts are in position for trundling and to be automatically disengaged from said frame when the tray is turned over or tilted, substantially as described.

3. In a two-wheeled barrow, the combination of a tray, a frame to which it is hinged, and dead-wheels or skids applied to the tray eccentrically with relation to the wheels, substantially as described.

4. In a two-wheeled barrow, the combination of a tray or body, a frame secured to the axle of the wheels and projecting forwardly and at its forward end pivotally connected with the tray, and skids or dead-wheels applied to the body eccentrically with relation to the wheels, whereby the tray or body may be tilted and raised from the floor or other level in its tilted position.

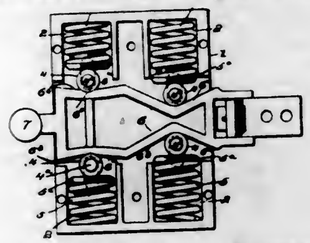
5. In a wheeled barrow, the combination of a frame, extending forwardly beyond the axle of the wheels and having the body hinged thereto and extending rearwardly and forming handles, and rear legs on the body provided with a movable reach adapted to engage with the cross-bar connecting the handles, substantially as and for the purpose described.

677,468. PACKING DEVICE FOR TUBULAR WELLS. CHARLES F. PERELAR, Cincinnati, Ohio. Filed Aug. 13, 1900. Serial No. 26,784. (No model.)



Claim.—In a tubular well apparatus, the combination of a terminal tube-section; an annulus of rubber or similar material secured at its lower end upon said tube-section; a conical expander guided and vertically adjustable upon said tube-section above said rubber annulus; a fixed collar secured to said tube-section above the expander, and a screw-threaded operating element connected rotatively with the expander and operatively engaging the collar by screw-threads in or upon the same, substantially as set forth.

677,469. DRAFT-RIGGING FOR RAILWAY-CARS. JOHN RAWLES, East Galesburg, Ill., assignor of eleven-sixteenths to John L. Griffith and George H. McElvain, same place, and Harry C. Bishop, Chicago, Ill. Filed Dec. 21, 1900. Serial No. 40,645. (No model.)



Claim.—1. In a draft-rigging for railway-cars, the combination with a draw-bar having on its opposite sides converging inclines, of spring-supported oppositely-placed rollers arranged to maintain constant contact with the inclines of the draw-bar, substantially as and for the purposes specified.

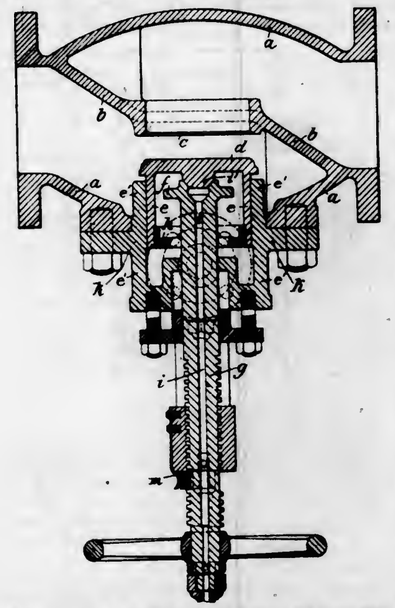
2. In a draft-rigging for railway-cars, the combination with a draw-bar having inclines, and yielding rollers which coact with the inclines of the draw-bar, of a casing having guides for the yielding rollers, substantially as and for the purposes specified.

3. In a draft-rigging for railway-cars, the combination with an endwise-movable draw-bar having inclines and a tail-post or stop, of a housing with which the tail-post or stop of the draw-bar engages, and spring-pressed rollers which engage the inclines of the draw-bar, substantially as and for the purposes specified.

4. In a draft-rigging for railway-cars, the combination with a draw-bar having converging inclines terminating in a roller-seat, of yielding rollers arranged to engage the draw-bar, substantially as and for the purposes specified.

5. In a draft-rigging for railway-cars, the combination with an endwise-movable draw-bar having a plurality of converging inclines of different pitch or inclination, of yieldingly-supported rollers arranged to maintain constant contact with said inclines, substantially as and for the purposes specified.

677,470. STEAM-VALVE. OTTOKAR RICHTER, Kiel, Germany. Filed Dec. 18, 1900. Serial No. 40,328. (No model.)

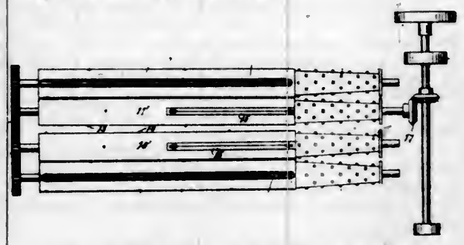


Claim.—1. A steam-valve having a double-seated valve-body for the automatic closure of a steam-pipe on its one side and of a connection with the external atmosphere on its other side, said valve-body being under the weight of the steam-pipe pressure on the one side and of the boiler-pressure on the other side substantially as set forth.

2. In a steam-valve for the automatic closure of steam-pipes the combination of a casing, a diagonal partition therein, a valve-seat formed in said partition, a circular valve-plate having a conical edge fitting on said seat, a hollow cylindrical extension on the other side of said valve-plate, a cover on said casing, a sleeve formed in said cover and receiving said cylindrical extension, a screw-threaded valve-spindle mounted in said sleeve, a flanged head on said spindle within said hollow extension, a ring screwed into the threaded free end of said extension so as to afford a free play of the spindle within the valve-body, a central channel formed in the spindle and having a connection with the external atmosphere, a valve-seat in the inner end of said channel, a cone secured to the valve-plate and resting normally on the latter seat and a pipe connection to be connected with the boiler and entering said sleeve out of the reach of said valve extension, substantially as described and set forth.

677,471. COMBINED CORN-HUSKER AND FODDER SHREDDER. ADOLPH ROSENTHAL, Milwaukee, Wis., assignor to Rosenthal Husker Company, same place. Filed Feb. 4, 1901. Serial No. 45,832. (No model.)

Claim.—1. In a corn-husking machine, the combination of husking-rollers adapted to have cornstalks pass therebetween, and provided with means for separating the stalks from the ears, and for husking the ears, means for rotating the rollers, a sieve beneath the rollers and adapted to receive thereon the stalks and husks which pass between the rollers, and also adapted to permit any shelled corn which may have passed between the rollers and thereby deposited on the sieve to pass through the openings of said sieve to a place of deposit, feed-rolls at one end of the sieve, and between which rolls the stalks and husks are fed by the sieve, a rotary cutter adapted to act on the stalks and husks as they leave the feed-rolls, a fan-casing having a conduit leading therefrom, and to which casing the cut stalks and husks pass from the rotary cutter, and a fan within the casing for forcing or blowing the cut material into the conduit and through said conduit to a place of deposit.



2. In a corn-husking machine, the combination of husking-rollers adapted to have cornstalks pass therebetween, and provided with means for separating the stalks from the ears, and for husking the ears, means for rotating the rollers, an inclined sieve beneath the rollers, adapted to receive thereon the stalks and husks which pass between the rollers, and also adapted to permit any shelled corn which may have passed between the rollers and thereby deposited on the sieve to pass through the openings of said sieve to a place of deposit, feed-rolls at one end of the sieve, the sieve being on a gradual downward incline toward the rolls, and said rolls adapted to receive therebetween the stalks and husks which are fed downwardly thereto by the downwardly-inclined sieve, a rotary cutter adapted to act on the stalks and husks as they leave the feed-rolls, a fan-casing having a conduit leading therefrom, and to which casing the cut stalks and husks pass from the rotary cutter, and a fan within the casing for forcing or blowing the cut material into the conduit, and through said conduit to a place of deposit.

3. In a corn-husking machine, the combination of husking-rollers adapted to have cornstalks pass therebetween, and provided with means for separating the stalks from the ears, and for husking the ears, means for rotating the rollers, a sieve beneath the rollers and adapted to receive thereon the stalks and husks which pass between the rollers, and also adapted to permit any shelled corn which may pass between the rollers and be thereby deposited on the sieve to pass through the openings of said sieve to a place of deposit, a main shaft having a wheel thereon, means for driving said main shaft, an auxiliary shaft having a wheel thereon and also having a crank connection with one end of the sieve, the opposite end of said sieve provided with a slotted portion, a transverse pin entering said slot, and a belt connection between the wheel of the main shaft and the wheel of the auxiliary shaft.

4. In a corn-husking machine, the combination of husking-rollers adapted to have cornstalks pass therebetween, and provided with means for separating the stalks from the ears, and for husking the ears, means for rotating the rollers, a sieve beneath the rollers, and adapted to receive thereon the stalks and husks which pass between the rollers, and also adapted to permit any shelled corn which may pass between the rollers and be thereby deposited on the sieve to pass through the openings of said sieve to a place of deposit, a hopper above the roller, a cutter-bar running longitudinally of the lower portion of the hopper, said bar having a slotted portion at one end, a pin passing through said slotted portion, a shaft having a crank connection with the opposite end of the bar, said shaft having also mounted thereon a wheel, feed-rolls at one end of the sieve, the shafts thereof at corresponding ends having intermeshing gears, and the shaft of the lower roll having at its opposite end a toothed wheel; and the shaft of the upper roll at this end also provided with a wheel, a shaft at a desired distance from the feed-rolls and having a cutter mounted thereon, said shaft also having a wheel mounted thereon, a fan-casing having a conduit leading therefrom, a fan mounted on the cutter-shaft and located within the casing, a main shaft having a wheel thereon, means for driving the main shaft, a belt leading from the wheel of the main shaft to the wheel of the cutter-shaft, a toothed wheel on the cutter-shaft meshing with the toothed wheel on one end of the shaft of the lower feed-roll, and a belt connecting the wheel on one end of the upper feed-roll with the wheel on the end of the crank-shaft which actuates the cutter-bar.

677,472. PLATE-METAL ARCH. THOMAS F. ROWLAND, New York, N. Y. Filed Feb. 2, 1900. Serial No. 3,873. (No model.)



Claim.—1. A metal plate arched longitudinally and laterally and having a strengthening-plate subsequently welded to the crown thereof

and to the walls contiguous to said crown, substantially as and for the purposes above set forth.

2. A metal plate arched longitudinally and laterally, having its side walls protruded and its crown broadened, and having a strengthening-plate subsequently welded to the crown thereof and to the walls contiguous to said crown, substantially as and for the purposes above set forth.

3. A metal plate arched longitudinally and laterally, having its side walls protruded, and having a strengthening-plate subsequently welded to the under side of said crown and to the walls contiguous thereto, substantially as and for the purposes above set forth.

4. The herein-described method of making an improved plate-metal arch which consists in arching a metal plate longitudinally and laterally and integrally attaching a strengthening-plate to the crown thereof and the walls immediately contiguous said crown, substantially as and for the purposes set forth.

5. The herein-described method of making an improved plate-metal arch which consists in arching a metal plate longitudinally and laterally broadening the crown of the arch and protruding the side walls adjacent the crown, and integrally attaching a strengthening-plate to said crown and the walls of the arch immediately contiguous thereto, substantially as and for the purposes set forth.

6. The herein-described method of making an improved plate-metal arch which consists in arching a metal plate longitudinally and laterally, and integrally attaching a strengtheniug-plate to the under side of the crown of said arch and to the walls of the arch immediately contiguous thereto, substantially as and for the purposes set forth.

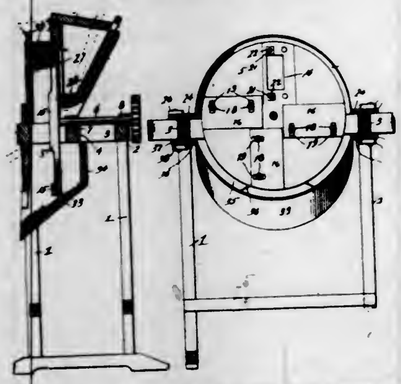
7. A plate-metal arch formed of a metal plate arched longitudinally and transversely and having a welded strengthening-plate at its crown.

8. An arch formed of a metal plate arched longitudinally and transversely and having an interior welded strengthening-plate at its crown and the walls adjacent the same.

9. An arch formed of plate-metal arched longitudinally and transversely, having its side walls protruding adjacent the crown and having a welded strengthening-strip at its crown.

10. An arch formed of plate metal arched longitudinally and transversely, having its side walls protruding adjacent the crown and having a welded strengthening-plate inside said crown and said adjacent side walls

677,473. VEGETABLE-CUTTER. RICHARD E. ROYAL, Tell City, Ind. Filed Oct. 8, 1900. Serial No. 32,425. (No model.)



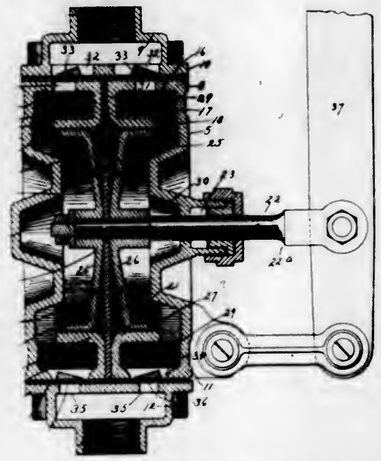
Claim.—1. In a vegetable-cutter, the combination with a supporting-frame, having transverse end cleats upon the top thereof, of a knife-wheel mounted between the cleats, a hopper having opposite end sills abutting against the respective cleats, a wheel-casing carried by the hopper and housing the upper half of the wheel, turn-buttons carried by the cleats and overlapping the respective sills, and a chute housing the lower half of the wheel.

2. In a vegetable-cutter, the combination with a supporting-frame, of a knife-wheel, a shaft therefor, means for turning the shaft, and a hopper supported upon the frame at one side of the wheel, the inner side of the hopper having a discharge-opening adjacent to the wheel, and the outer side having an opening for the shaft, and a hood extending inwardly from the opening and arching over the shaft.

3. In a vegetable-cutter, the combination of corner-uprights, longitudinal side bars, opposite end cross-bars, an intermediate longitudinal bar, transverse end cleats upon the upper and lower sides of the frame, a knife-wheel located between the intermediate bar and one of the side bars, a hopper located adjacent to one side of the knife-wheel and having a discharge-opening communicating with the wheel, opposite end sills abutting against the respective end cleats, a casing carried by the hopper and housing the upper half of the wheel, turn-buttons carried by the cleats and overlapping the sills, and a chute, having external end cleats abutting against the under cleats of the frame, and turn-buttons carried by the latter cleats and overlapping the cleats of the chute, the latter housing the lower half of the knife-wheel.

4. In a vegetable-cutter, the combination with a supporting-frame, having opposite transverse cleats, of a knife-wheel mounted between the cleats, and an adjustable hopper, having opposite transverse end sills, which are longitudinally slidably mounted upon the transverse cleats, whereby the hopper is adjustable toward and away from the knife-wheel.

677,474. PUMP. BRIDGMAN RUSSELL, London, England. Filed Nov. 16, 1900. Serial No. 36,667. (No model.)



Claim.—1. A pump comprising a casing having an interior concentric barrel or guide open at both ends and divided vertically between said barrel or guide and the walls of the casing, so as to form separate side compartments, said side compartments having top and bottom inlet and outlet openings, a flexible diaphragm secured vertically and transversely of said barrel or guide, and dividing the same into separate parts, an operating-rod passing through one side of the casing and through said barrel or guide and through said diaphragm, and a diaphragm-guard consisting of two parts secured to said operating-rod on the opposite sides of said diaphragm, substantially as shown and described.

2. A pump comprising a casing having an interior concentric barrel or guide open at both ends and divided vertically between said barrel or guide and the walls of the casing, so as to form separate side compartments, said separate side compartments having top and bottom inlet and outlet openings, a flexible diaphragm secured vertically and transversely of said barrel or guide, and dividing the same into separate parts, an operating-rod passing through one side of the casing and through said barrel or guide and through said diaphragm, and a diaphragm-guard consisting of two parts secured to said operating-rod on the opposite sides of said diaphragm, said parts of said guard being cylindrical in cross-section and comprising a circular head and a flange or rim, and the adjacent sides of said heads being beveled or convex, substantially as shown and described

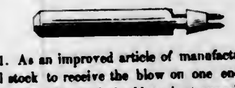
3. A pump comprising a casing having an interior concentric barrel or guide open at both ends and divided vertically between said barrel or guide and the walls of the casing, so as to form separate side compartments, said side compartments having top and bottom inlet and outlet openings, a flexible diaphragm secured vertically and transversely of said barrel or guide, and dividing the same into separate parts, an operating-rod passing through one side of the casing and through said barrel or guide and through said diaphragm, and a diaphragm-guard consisting of two parts secured to said operating-rod on the opposite sides of said diaphragm, said parts of said guard being cylindrical in cross-section and comprising a circular head and a flange or rim, and the adjacent sides of said heads being beveled or convex, and being also perforated, substantially as shown and described.

4. A pump comprising a casing having an interior concentric barrel or guide open at both ends and divided vertically between said barrel or guide and the walls of the casing, so as to form separate side compartments, said side compartments having top and bottom inlet and outlet openings, a flexible diaphragm secured vertically and transversely of said barrel or guide, and dividing the same into separate parts, an operating-rod passing through one side of the casing and through said barrel or guide and through said diaphragm, and a diaphragm-guard consisting of two parts secured to said operating-rod on the opposite sides of said diaphragm, substantially as shown and described.

5. A pump comprising a cylindrical casing having an interior concentric barrel or guide open at both ends, a diaphragm arranged centrally in said barrel or guide and dividing the same into separate parts, and an operating-rod passing through one side of the casing and through said diaphragm, and provided with a guard composed of two parts, one on each side of said diaphragm said guard being adapted to move in said barrel or guide, and said casing being provided with inlet and outlet openings, substantially as shown and described.

6. A pump, comprising a cylindrical casing, having an interior barrel or guide open at both ends and divided by a transverse flexible diaphragm, an operating-rod passing through one side of said casing and through said diaphragm and provided with a diaphragm guard, consisting of two parts secured thereto on the opposite sides of the diaphragm and freely movable in said barrel or guide, said casing being provided at the opposite sides with inlet and outlet openings respectively, substantially as shown and described.

677,475. CENTER-PUNCH. GEORGE SCHRADE, Walden, N. Y. Filed Nov. 14, 1900. Serial No. 36,538. (No model.)



Claim.—1. As an improved article of manufacture a center-punch having a metal stock to receive the blow on one end and two punch-points only, set in the other end of said stock at opposite sides of the center of said end and at a fixed distance apart laterally, whereby a plurality of centers, equally spaced, may be conveniently marked, substantially as shown and described.

2. A center-punch consisting of a metal stock to receive the blow of a hammer on one end and two removable punch-points inserted in the opposite end of said stock, at a fixed distance apart laterally, whereby a plurality of centers, equally spaced, may be conveniently marked, as and for the purposes shown and described.

3. As an improved article of manufacture, a center-punch having a stock adapted to receive the blow of a hammer on one end, two punch-points set removably in sockets in the opposite end of said stock, at a fixed distance apart laterally, said stock having lateral recesses to afford access to the bottom of said sockets, as and for the purposes set forth.

4. The stock of a center-punch consisting of a metal body adapted to receive the blow of a hammer on one end and with two sockets in the other end to receive centering punch-points, at a fixed distance apart laterally, substantially as shown, and for the purpose described.

5. The stock for a center-punch consisting of a metal body adapted to receive the blow of a hammer on one end, with two punch-point sockets at the other end at a fixed distance apart laterally, said stock having lateral recesses to afford access to the bottom of said sockets, substantially as and for the purpose set forth.

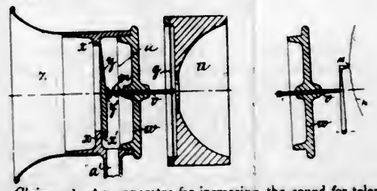
6. As an improved article of manufacture a center-punch and spacer consisting of a stock having lateral recesses in its respective sides, sockets in its end for punch-points at a fixed distance apart laterally, punch-points in said sockets the sockets extending, respectively, partially through the said recesses, the depth of the recesses being sufficient to expose a portion of the punch-point when inserted in the socket, substantially as shown and described.

7. The stock for a center-punch consisting of a metal body adapted to receive the blow of a hammer on one end, with punch-point socket in the other end and recess in the side, said socket extending partially through the said recess, and the recess extending only partially through the socket, substantially as shown and described.

8. The stock for a center-punch consisting of a metal body adapted to receive the blow at one end with two punch-point sockets at the other end at a fixed distance apart laterally, and recesses in the respective sides of said stock, said sockets extending partially through the recesses and the recesses extending only partially through the sockets substantially as shown and described.

9. As an improved article of manufacture a center-punch consisting of a metal stock adapted to receive the blow of a hammer on one end, having recess in its side, socket in its end for a punch-point, punch-point in said socket, the socket extending partially through said recess, the depth of the recess being sufficient to expose a portion of the punch-point when inserted in the socket and leave a space between the base of the punch-point and the floor of the recess, substantially as shown and described.

677,476. SOUND-INCREASING DEVICE. HORACE L. SHORT, New Malden, England. Filed Apr. 29, 1899. Serial No. 715,075. (No model.)



Claim.—1. An apparatus for increasing the sound for telephones, phonographs and a similar instrument having a part adapted to vibrate in accordance with sound-waves comprising a valve for controlling the passage of a fluid-current, said valve consisting of a plate provided with slits and movable tongues for controlling said slits and a connection leading from said valve to the said vibrating part, substantially as described.

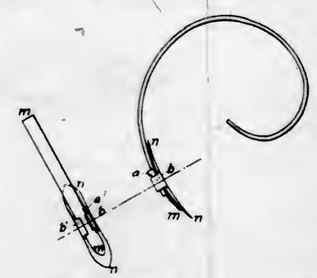
2. In combination, the valve-box having air inlet and discharge portions, a grating of parallel bars in said chamber forming a valve-seat, a hinged grating of corresponding bars forming a valve, and means for vibrating said valve, substantially as described.

677,477. ELECTRIC DETONATOR-FUSE. GEORGE SMITH and DAVID CORRIE, Polmont, Scotland. Filed Feb. 23, 1900. Serial No. 6,294. (No model.)



Claim.—An electric fuse composed of a detonator-tube, tapering tube contained in said detonator-tube, a soft plug contained in said tapering tube and having the walls of the latter pressed inwardly thereabout, said plug having an opening to receive the primer, as set forth.

677,478. AGRICULTURAL-IMPLEMENT TOOTH. HENRY G. SMITH, Ithaca, N. Y. Filed Feb. 21, 1901. Serial No. 48,331. (No model.)



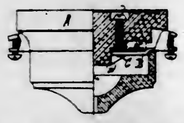
Claim.—1. The combination with the permanent tooth of a harrow or like implement, of the double-end reversible tooth-point described consisting of a plate with integral side wings turned back from its central position the inside of said wings being of greater width than the permanent tooth and the wedge-shaped key shown and described inserted so that the same will lie over the edge and side of the permanent tooth and force the same into position substantially as shown and described.

2. The combination with the permanent tooth of a harrow or like implement of the double-end reversible tooth-point, a right-angular-shaped key having projecting head and parallel with both the double-end reversible tooth-point and the permanent tooth and directly engaging the same substantially as shown and described.

677,479. ELECTRICAL ROSETTE CUT-OUT. GEORGE B. THOMAS, Hartford, Conn., assignor to The Perkins Electric Switch Manufacturing Company, same place. Filed Mar. 22, 1901. Serial No. 52,358. (No model.)

Claim.—1. A cut-out having a cap and base each having a rim and

provided with interlocking contacts whose rear engaging faces are in the same plane with the rim-joint between cap and base, substantially as described.



2. A cut-out having a base and an attachable cap, the latter having a rim and shoulders with contact-fingers mounted on the shoulders flush with the face of said rim, substantially as described.

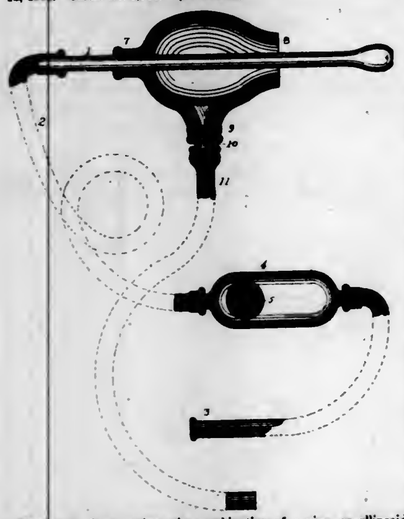
3. A cut-out having a base and a cap and engaging fingers carried by the two parts, the base having a rim and having shoulders whose faces carry the base-fingers and are in the same plane with said rim, substantially as described.

4. A cut-out having a base and detachable cap, each provided with rims and with shoulders and fingers on the shoulders to interlock with the fingers on the other part, the shoulders on the cap being flush with the rim of the cap, while the shoulders on the base are flush with the rim of the base, substantially as described.

5. A cut-out having a base having grooves and contact-fingers bridging the grooves with a cap having contact-fingers to engage under the base-fingers, those on the cap being each split into two parts, one narrow and flexible and the other part wide and rigid, as and for the purpose set forth.

6. A cut-out having contact-fingers and connecting-plates and shoulders on which the plates are mounted, the shoulders being notched for the reception and protection of the fuse-wires, substantially as described.

677,480. SYRINGE. MARY K. THOMAS, Akron, Ohio. Filed Mar. 12, 1900. Serial No. 8,388. (No model.)



Claim.—1. In a syringe the combination of a pipe, an ellipsoidal bulb having a mouth toward the discharge of said pipe larger than said pipe, and a flexible opening opposite said mouth to fit and slide on said pipe, a tube attached to said pipe arranged to be connected with a source of fluid-supply, a bulb interposed in said tube larger in diameter than said tube, and a ball in said bulb having a roughened surface, substantially as shown and described.

2. As improved article of manufacture consisting of a bulb arranged at its end to be connected with tubes, and having inclosed a ball having a roughened surface, substantially as shown and described.

3. The herein-described syringe consisting of a pipe, an ellipsoidal bulb having a mouth toward the discharge of said pipe larger than said pipe, and a flexible opening opposite said mouth to fit and slide on said pipe, a lateral opening in said bulb arranged to be connected with a discharge pipe, a discharge-pipe connected with said opening, a tube attached to the pipe arranged to be connected with a source of fluid-supply, a ball interposed in said tube, and a ball in said bulb, substantially as shown and described.

677,481. REFRIGERATOR. AUGUSTE F. VILLEPIGUE, Dodge City, Kans. Filed Mar. 15, 1901. Serial No. 51,371. (No model.)



Claim.—1. A device of the class described comprising a casing, a vertical series of removable drawers, and the lids or doors arranged at the front of the casing and supported in an open or raised position by the said drawers when the latter are closed and arranged to close automatically the spaces occupied by the front of the drawers when the same are removed, substantially as described.

2. A device of the class described comprising a casing having a cooling-chamber, removable drawers, and the automatically-closing drop-lids located at the front of the casing and normally supported in an elevated position by the drawers and arranged to close the front of the casing automatically when the drawers are removed, said lids being also arranged to limit the outward movement of the drawers, substantially as described.

3. A device of the class described comprising a casing having a cooling-chamber, removable drawers, and the lids hinged at their upper edges at the top of the drawers and arranged to close the spaces between the drawers at the front of the casing, said lids being supported by the said drawers and arranged to engage the back thereof to limit the outward movement of the drawers, substantially as and for the purpose described.

4. A device of the class described comprising a casing having a cooling-chamber, removable drawers provided with projecting portions at the back, and the hinged drop lids or doors resting upon the sides of the drawers and supported in an elevated position by the same and arranged to drop and close the front of the casing automatically when the drawers are removed, said lids or doors being arranged to be engaged by the said projecting portions of the drawers, substantially as described.

677,482. LEAD-PENCIL INITIAL-STAMP. HARRY A. WORTHINGTON, Grinnell, Iowa. Filed Feb. 28, 1901. Serial No. 49,369. (No model.)



Claim.—1. In a stamp, a lead-pencil or kindred holder, a type applied to an end thereof, a tube removably fitted to the end of the holder bearing the type, and a detachable closure for the outer end of said tube and provided at its inner end with an inking-pad for the said type, substantially as set forth.

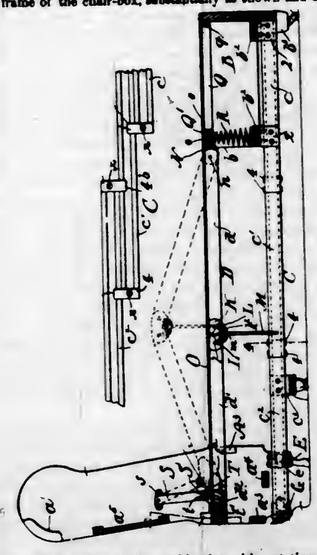
2. In a stamp, a pencil or like holder, a type fitted to an end thereof, and a sleeve applied to the end of the holder and having an inturned portion to overlap and confine the type and having an outer portion projected from the inturned part for printing a border around the type, substantially as set forth.

3. In a stamp, a pencil or holder having a type at its outer end, a tube removably fitted to the outer end of the holder, a plug detachably fitted to the outer end of the tube, and an inking-pad secured to the inner end of the plug and carried thereby, substantially as set forth.

677,483. CHAIR-BEDSTEAD. RICHARD J. WELLER, New York, N. Y., assignor, by mesne assignments, to the Weller Manufacturing Company, same place. Filed Dec. 10, 1900. Serial No. 39,708. (No model.)

Claim.—1. A chair-bedstead, comprising a stationary head embodying upright sides and cross-beams, and extensible lower rails comprising respectively sliding sections with upper and lower grooves, and the clamps connecting them, and a sliding seat portion connected to the outer ends of the said sections, and upper rails comprising respectively two folding sections, connected together, plates and toothed segments connecting them, and means for detachably connecting the said lower rails to the sides of the said head, and means for pivotally attaching the upper rails to said sides, and a woven-wire spring, substantially as shown and described.

2. A chair-bedstead, comprising a stationary head embodying upright sides and cross-beams, an extensible lower framework comprising slides having upper and lower grooves and clamps connecting them, a sliding chair-box having a swinging frame therein, an upper framework embodying folding rails, a cross-beam connecting said rails, brackets with studs thereon connected to the said upper rails and the cross-beam, and swinging hangers having sockets therein for engagement with the said studs, and a woven-wire spring, and spiral springs supporting the said swinging frame of the chair-box, substantially as shown and described.

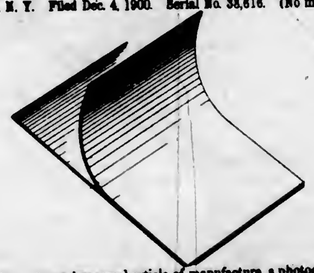


3. As a chair-bedstead, the combination with a stationary head and a sliding box, of telescopic lower rails and folding top rails which connect the head to the box, and swinging hangers detachably connecting the folding top rails to the said head, and the blocks for holding the folding rails in horizontal position, substantially as shown and described.

4. As a chair-bedstead, the combination with a woven-wire spring, of a stationary head and a sliding box, a swinging frame within said box, and springs supporting said frame, and folding top rails and telescopic bottom rails, and swinging hangers connecting the folding top rails to the head and pivots connecting them to the box, and means permanently connecting the telescopic rails to the box, and tongue-and-groove devices connecting them to the head, whereby the parts can be readily disconnected, substantially as shown and described.

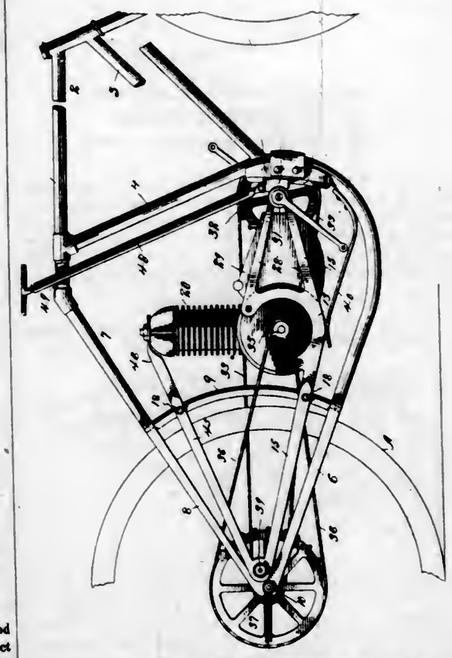
5. A chair-bedstead comprising a stationary head embodying upright sides and cross-beams, and extensible lower rails comprising respectively sliding sections with upper and lower grooves, and the clamps connecting them, and a sliding seat portion connected to the outer ends of said sections, and upper rails comprising respectively two folding sections connected together, plates and toothed segments connecting them, and a U-shaped cross-bar connecting said plates, and means for detachably connecting the said lower rails to the sides of the said head, and means for pivotally attaching the upper rails to said sides, and a mattress-supporting spring, substantially as shown and described.

677,484. PHOTOGRAPH-PLATE. PIERRE V. W. WELSH, New York, N. Y. Filed Dec. 4, 1900. Serial No. 38,616. (No model.)



Claim.—As an improved article of manufacture, a photograph-plate comprising a sheet-metal body, and a facing of waterproof paper cemented to the body.

677,485. FRAME FOR MOTOR-BICYCLES. EDWARD Y. WHITE, San Antonio, Tex. Filed Jan. 12, 1901. Serial No. 43,050. (No model.)



Claim.—1. In a bicycle-frame, the upper and lower front bars connected to the steering-post, and connected to a brace which extends from the upper to the lower bar, and then curves downward and backward to a fork which extends beside the rear wheel and carries the rear-axle bearings, and a driving-motor supported on said brace between its upright portion and the rear wheel.

2. In a bicycle-frame, the steering-post, upper and lower front bars and a separate brace connecting them, upper and lower rear bars and a brace connecting them, and an auxiliary frame supporting a motor-engine between said front and rear braces, in combination.

3. The combination with the main bicycle-frame, of an auxiliary frame pivoted to the main frame, a spring-support for the free end of the auxiliary frame, and a motor-engine supported on the auxiliary frame.

4. The combination with the main frame of a bicycle, of an auxiliary frame yieldingly connected thereto, an engine attached to the auxiliary frame, a spring interposed between the main and auxiliary frames, and a guide-piece on the auxiliary frame in position to move along a slideway on the main frame, substantially as described.

5. The main frame of a bicycle having a substantially vertical guideway, an auxiliary frame pivoted to the main frame near one end, and guided on the slideway near the other end of the auxiliary frame, and means for holding the engine rigidly to the auxiliary frame.

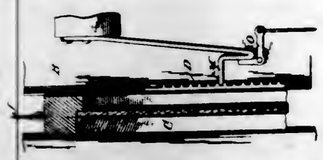
6. The combination with the main frame of a bicycle having an upright brace, of a forked auxiliary frame pivoted to the main frame near the rear-hub bearing, and a curved brace connecting the upper and lower rear bars of the main frame, said brace passing through fixed pieces on the auxiliary frame and serving as a guide therefor, substantially as described.

7. The combination with the main frame of a bicycle, of an auxiliary frame pivoted to said main frame, said auxiliary frame having top and bottom members, an engine held to said top and bottom members of the auxiliary frame, and a spring supporting the auxiliary frame, substantially as described.

8. In a bicycle-frame, the combination of a hinged auxiliary frame, engine, and supporting-spring, of a basket on said auxiliary frame inclosing the engine, and a spring supporting the auxiliary frame.

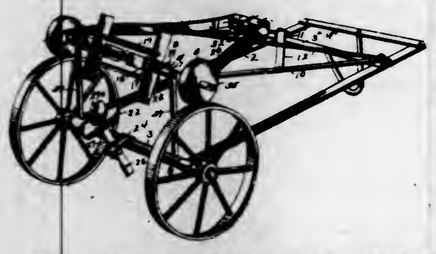
9. In a bicycle, the combination with the main frame, of an auxiliary frame composed of top and bottom members connected by a hinge to the main frame, an engine interposed between said top and bottom members and secured to both, and a spring sustaining said auxiliary frame, substantially as described.

677,486. DEVICE FOR FASTENING SASHES, DOORS, OR SHUTTERS. OTIS WILLIAMS, St. Johnsville, N. Y. Filed Jan. 8, 1901. Serial No. 42,537. (No model.)



Claim.—A slidable sash, door or shutter, means for automatically raising the same, a rack upon the front side thereof, and an automatically-acting paw to engage the rack, said pawl consisting of a spring-arm terminating at its free end in a pawl, and a pivoted bell-crank lever engaging the free end of the spring-arm below the pawl, and suitable means for operating the lever, substantially as and for the purpose specified.

677,487. WIRE-REELING MACHINE. CHARLES L. WRIGHT, Lyndon, Ill. Filed Mar. 27, 1901. Serial No. 53,106. (No model.)



Claim.—1. In a machine of the class described, the combination of a frame having carrying-wheels, means for supporting and for rotating a spool, and the vertically-adjustable support arranged to receive the spool and capable of movement to discharge the spool, substantially as described.

2. In a machine of the class described, the combination of a frame having carrying-wheels, a transverse shaft adapted to receive a spool and connected with the said frame, means for communicating motion from the carrying-wheels to the shaft, and a movable support located beneath the shaft and arranged to receive and support a spool while the same is being placed in position, substantially as described.

3. In a machine of the class described, the combination of a frame having carrying-wheels, a transverse shaft connected with the frame and provided with a removable section, means for communicating motion from the carrying-wheels to the shaft, and a movable support located beneath the removable section of the shaft and adapted to receive a spool, substantially as described.

4. In a machine of the class described, the combination of a main frame provided with carrying-wheels, a resilient frame connected with the main frame and provided with bearings, a transverse shaft journaled in the bearings, friction-wheels mounted on the shaft and resting upon the carrying-wheels, and a support located beneath the shaft and adapted to receive a spool, substantially as described.

5. In a machine of the class described, the combination of a main frame having carrying-wheels, a movable frame connected at its front end to the main frame and extending rearward to the carrying-wheels and provided with bearings, a transverse shaft journaled in the bearings, friction-wheels mounted on the transverse shaft and engaging the carrying-wheels, and a movable guide hinged to the machine by the transverse shaft, and adapted to be swung backward and forward, substantially as described.

6. In a machine of the class described, the combination of a main frame having carrying-wheels, an inclined frame connected at its front end to the main frame and provided with bearings, a transverse shaft journaled in the bearings, wheels mounted on the transverse shaft and engaging the carrying-wheels, a support located beneath the shaft and adapted to receive the spool, and a guide, substantially as described.

7. In a machine of the class described, the combination of a frame having carrying-wheels, a transverse shaft connected with the frame and provided with friction-wheels engaging the carrying-wheels, and the guide comprising the sides mounted on the transverse shaft, the loop connecting the sides and provided at its bottom with an opening, and the antifriction-rolls arranged in the loop, substantially as described.

8. In a machine of the class described, the combination of a frame having carrying-wheels, a shaft connected with the frame and composed of central and end sections having overlapping adjacent ends, the central section being adapted to receive a spool, the clamps engaging the adjacent ends of the sections of the shaft and arranged to engage a spool, and means for rotating the shaft, substantially as described.

9. In a machine of the class described, the combination of a frame having carrying-wheels, a shaft connected with the frame and composed of central and end sections, the central section being adapted to receive a spool, a clamp composed of adjustably-connected sections and provided with a flange for engaging the spool, substantially as described.

10. In a machine of the class described, the combination of a frame having carrying-wheels, means for rotating a spool and for detachably holding the same, and a support composed of a head or seat adapted to receive the spool, and a stem adjustably secured to the machine and adapted to hold the head or seat at the desired elevation, substantially as described.

11. A machine of the class described provided with a slotted bracket, and having a spool-support composed of a head or seat, and a stem adjustably secured in the slot of the bracket and capable of a limited forward-and-backward movement, substantially as described.

12. A machine of the class described provided with a bracket, and having a support composed of a stem adjustably mounted on the bracket, and a head or seat carried by the stem and having opposite sides provided with spool-receiving recesses, substantially as described.

13. In a machine of the class described, the combination of a frame having carrying-wheels, a transverse shaft connected with the frame and provided with wheels adapted to receive motion from the carrying-wheels, a support or brace connected with the transverse shaft and detachably engaging the axle and adapted to hold the wheels of the transverse shaft out of gear, substantially as described.

14. In a machine of the class described, the combination with a frame having carrying-wheels, of a shaft connected with the frame and provided with wheels adapted to receive motion from the carrying-wheels, a brace or support extending from the frame to the transverse shaft and detachably connected with one of the parts and adapted to hold the wheels of the transverse shaft out of engagement to permit the said transverse shaft to be operated by hand, substantially as described.

677,488. MEANS FOR SECURING HANKS. FRANK P. WIEBURN, Brooklyn, and LOUIS BUHLE, Woodhaven, N. Y. Filed Mar. 18, 1901. Serial No. 51,613. (No model.)



Claim.—A sample package of tobacco consisting of a plurality of hanks or hands of tobacco-leaf the shanks of which are in proximity, a band tightly surrounding said shanks and having overlapping ends, and a spur or spurs penetrating said overlapping ends and each of the underlying shanks, whereby the latter are held individually and collectively against displacement so as to prevent the removal or substitution of a hank or hand as herein set forth.

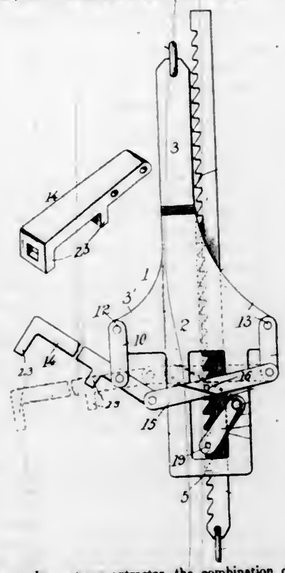
677,489. WATER-BAG. SARAH A. WOODS, Flushing, N. Y. Filed Aug. 6, 1900. Serial No. 25,985. (No model.)



Claim.—1. A water-bag provided with an extended handle, of such stiffness as to enable the bag to be manipulated or moved from point to point, said handle being tubular in form, whereby the bag may be filled therethrough and means for closing the bag, substantially as shown and described.

2. A water-bag provided with an extended handle, of such stiffness as to enable the bag to be manipulated or moved from point to point, said handle being tubular in form, whereby the bag may be filled therethrough, and said handle being provided at the end thereof with a ring, substantially as shown and described.

677,490. STUMP-EXTRACTOR. WILLIAM H. WRIGHT, Gilmanton, N. H., assignor of one-half to Ossian Wilbur Goss, Lakeport, N. H. Filed Apr. 24, 1901. Serial No. 57,307. (No model.)



Claim.—1. In a stump-extractor, the combination of a frame, a ratchet-bar movable therein, a toggle-jointed lever having its respective sections suspended from and adapted to swing with relation to said frame, one of said sections of said toggle-jointed lever having an element to engage the ratchet-teeth of said ratchet-bar, and a gravity-detent engaging said ratchet-bar, substantially as described.

2. In a stump-extractor, the combination of a frame, a ratchet-bar movable therein, a toggle-jointed lever comprising the sections 14, 15, the latter engaging the ratchet-teeth of said ratchet-bar, links connecting said sections to said frame, a gravity-detent to engage the teeth of said ratchet-bar, and a spring to connect said gravity-detent to said section 15 of said toggle-jointed lever, whereby said gravity-detent may be operated by said toggle-jointed lever, for the purpose set forth, substantially as described.

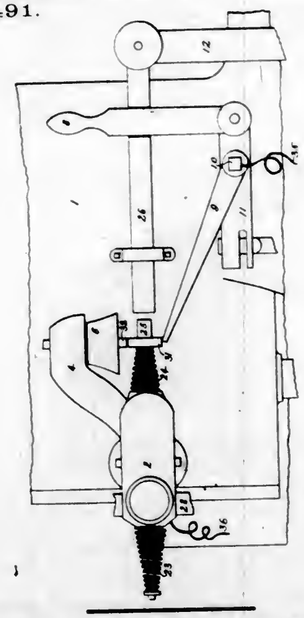
3. In a stump-extractor, the combination of a frame, a ratchet-bar movable therein, a toggle-jointed lever comprising the sections 14, 15, the latter engaging the ratchet-teeth of said ratchet-bar, links connecting said sections to said frame, and a gravity-detent to engage the teeth of said ratchet-bar, substantially as described.

677,491. IGNITER FOR GAS-ENGINES. CLYDE ALLEN, Hazleton, Iowa. Filed Feb 14, 1901. Serial No. 47,194. (No model.)

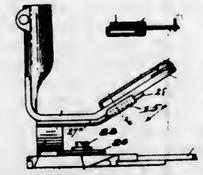
Claim.—1. In a gasolene-engine having an electrical sparking device, the combination of the contact-piece 41, the insulated conductor 39, insulated lever 9 and valve-stem nut 25 with sleeve 31, with the cylinder 1, piston 37, conductors 35 and 36 and suitable means for imparting an electrical current to said conductors, substantially as shown and described.

2. In a gasolene-engine having an electrical sparking device, the combination of the cylinder 1, piston 37, valve-stem nut 25 with sleeve 31, governor 5 having spindle 32 adapted to engage said sleeve 31, with the insulated circuit-breaker 9, conductors 35 and 36, conductor 39, spring book-shaped contact-piece 41, and suitable means for imparting an electrical current to the conductors, all substantially as shown and described.

677,491.



677,492. WELT-GUIDE FOR SEWING-MACHINES. CHARLES H ALLEN, Marlboro, Mass. Filed Sept. 10, 1900. Serial No 29,530. (No model.)



Claim.—1. A work-guide for sewing-machines comprising two members, one of which is hook-shaped to receive the working portion of the other, means for attaching one of said members to the throat-plate, and means for slidingly supporting the other of said members on the presser-foot.

2. A work-guide for sewing-machines comprising a fixed member and a hook-shaped member, the hook thereof embracing the working portion of the fixed member, means for slidingly supporting the shank of the hook-shaped member on the presser-foot, and means to support the fixed member on the throat-plate.

3. A work-guide for sewing-machines consisting of two members one of which is hook-shaped to receive the working portion of the other one, in combination with a presser-foot to slidingly support one of said members, and a spring connected respectively with the presser-foot and the member which it supports.

4. The combination with a throat-plate, of an adjustably-mounted sole-guide supported by the throat-plate, a welt-guide consisting of two members one of which is yieldingly mounted, and the other of which is connected with said adjustably-mounted sole-guide.

5. The combination with a throat-plate, and with a presser-foot, of a slide supported by the presser-foot, a spring connected respectively with the slide and the presser-foot, said slide constituting an adjustable member of a welt-guide, a second and relatively fixed member yieldingly connected with the throat-plate to coöperate with said slide.

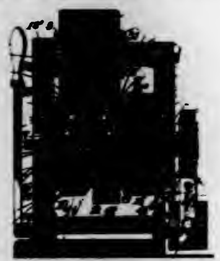
6. A welt-guide for sewing-machines comprising relatively fixed and movable members, the movable member being hook-shaped, and the fixed member comprising a spring-shank having at its free end a transverse head forming a working portion which is received by the hook of the movable member, means for slidingly attaching said movable member to the presser-foot, and means for attaching the fixed member to the throat-plate of a sewing-machine.

7. The combination of a presser-foot of a sewing-machine having an upturned portion, of a work-guide, comprising a hook-shaped member

slidably supported on said presser-foot, and a fixed member having a guiding edge which is embraced by said hook-shaped member.

8. A guide mechanism for sewing-machines comprising a sole-guide and means to adjustably secure the same to the throat-plate, a welt-guide comprising two members, means for yieldingly mounting one of said members on the presser-foot, and means for attaching the other to said sole-guide with the working face thereof parallel to the working edge of the said sole-guide.

677,498. **REVERSING MECHANISM.** HORACE L. ARNOLD, Brooklyn, N. Y., assignor to John A. Hill, New York, N. Y. Filed Oct. 11, 1900. Serial No. 32,717. (No model.)



Claim.—1. In reversing mechanism, the combination, with a tubular shaft; of expansible clutch-rings carried by said shaft; gears loosely mounted with relation to the shaft; sets of toggles adapted to engage the clutch-rings, to expand the same and lock the gears in position; a reciprocatory device mounted within the shaft and adapted to actuate the toggles; and means for reciprocating said device.

2. In reversing mechanism the combination, with a hollow shaft having a series of openings, of expansible rings loosely mounted with relation to said shaft; gear-wheels loosely surrounding the rings; means for driving said gear-wheels; a series of sets of toggles for expanding the rings; and means located within the hollow shaft for actuating said toggles.

3. In reversing mechanism, the combination, with a hollow shaft, said shaft having a series of openings; a gear carried by said shaft; a sleeve secured to said shaft and also having a series of openings in line with those of the shaft; a series of toggles having globular ends; an expansible ring surrounding the sleeve; a gear-wheel surrounding said ring; a tubular spindle movable within the hollow shaft and having openings for the reception of the inner globular ends of the toggles; and means for reciprocating said spindle.

4. The combination, with a driving-shaft, of a gear carried by said shaft; a driven shaft; a gear loosely mounted thereon and in mesh with the gear of the driving-shaft; a second gear also loosely mounted on said driven shaft; a pinion intermediate said second gear on the driven shaft and the gear on the driving-shaft; devices for clutching the loosely-mounted gears to the driven shaft at will; and means including a movable part having a cam-slot with neutral and active portions for actuating the clutching devices.

5. The combination, with driving mechanism, of a driven shaft; expansible rings loosely mounted with relation to said shaft; bands of antifriction material surrounding said rings; gear-wheels surrounding said bands; a series of toggles for expanding the rings and thereby locking the desired gear-wheel to the shaft; means for adjusting said toggles; and means for actuating the toggles.

6. The combination, with driving mechanism, of a driven shaft carrying a power-transmitting element; expansible rings loosely mounted with relation to said shaft; gear-wheels surrounding said rings; sets of devices for at will expanding one of said rings; means for adjusting said devices; and means for actuating said devices.

7. The combination, with driving mechanism, of a tubular driven shaft having a series of openings; an expansible clutch-ring loosely mounted with relation to said shaft; an antifriction-band of indurated fiber surrounding said clutch-ring; a gear-wheel loosely mounted upon said band; a series of toggles; a reciprocatory device located within the tubular shaft and adapted to actuate said toggles; means for adjusting said toggles; a lever for actuating said reciprocatory device; and a movable head having a cam-slot provided with a neutral and an active portion for actuating said lever.

8. The combination, with driving mechanism, of a driven shaft; expansible rings loosely mounted with relation to said driven shaft; sets of toggles for expanding said ring; gear-wheels supported upon the rings; a tubular spindle for actuating the toggles; cones within said spindle for adjusting said toggles; means for adjusting said cones; and means for reciprocating the tubular spindle.

9. The combination, with a tubular shaft, of sets of toggles; means for actuating said toggles; expansible rings loosely mounted with relation to the shaft; gear-wheels loosely mounted with relation to said rings; means for driving said gear-wheels; a reciprocatory device for actuating the toggles; cones against which the inner ends of the toggles bear; and means for adjusting the cones.

10. The combination, with a tubular shaft having a series of openings, of a hollow spindle having a series of openings and mounted within the shaft; sets of toggles having globular ends; a device for actuating said toggles; means located within the hollow spindle for independently adjusting each set of toggles; expansible rings loosely mounted with relation to the shaft; gears loosely surrounding said rings; and mechanism for driving said gears in reverse directions.

11. The combination, with a tubular shaft having a series of openings, of a hollow spindle also having a series of openings; expansible rings loosely mounted with relation to the shaft; toggles for expanding said rings; gears driven in reverse directions and loosely mounted on the shaft; means for driving said gears; a lever for reciprocating the hollow spindle; a rock-shaft; and a head carried by said rock-shaft and having a cam for actuating the lever.

12. The combination, with driving mechanism, of a tubular shaft having a series of openings; expansible rings loosely mounted with relation to said shaft; gear-wheels mounted on the rings; means for driving said gears; toggles having rounded ends the upper portions of which fit within sockets in the rings; a hollow spindle located within the tubular shaft and provided with openings for the reception of the inner ends of the toggles; means carried by said spindle for adjusting the toggles; a pivoted lever connected with one end of the spindle and adapted to reciprocate the same; a rock-shaft; and a head carried by said rock-shaft, said head having a cam-slot formed with neutral and active portions.

13. The combination, with a driving-shaft, and a gear carried by said shaft, of a long pinion in mesh with said gear; a tubular shaft; expansible clutch-rings loosely mounted with relation to said shaft; gear-wheels supported by said clutch-rings, one of the gear-wheels being in mesh with said long pinion and the other with the gear-wheel carried by the driving-shaft; toggles for actuating the expansible rings to lock the gear-wheel desired to the tubular shaft; means for adjusting said toggles; means for actuating said toggles; a pivoted lever; ball-bearings connecting said lever with the means for actuating the toggles; a rocker having a cam-slot and formed with neutral active and locking portions; and means for actuating said rocker.

14. The combination, with a tubular shaft having a series of openings, of a reciprocatory spindle located within and rotating with said shaft; toggles fitted within the openings of the shaft and adapted to be actuated by said spindle as it is reciprocated; clutch devices actuated by said toggles; gear-wheels controlled by the clutch devices; means for driving said gear-wheels; a pivoted lever in which one end of the spindle is journaled; and a movable device having a cam-slot provided with neutral, active and locking portions for actuating said lever.

15. The combination, with a tubular shaft having a series of openings, of a hollow spindle mounted for reciprocation within said shaft, said spindle rotating with the shaft; toggles actuated by said spindle; gear-wheels loosely mounted with relation to the shaft; means for driving said gear-wheels; expansible rings controlled by the toggles; a pivoted lever having a yoke-shaped portion; ball-bearings carried by said lever and spindle; a cap-ring carried by said spindle and having trunnions to which the yoke-shaped portion of the lever is attached; and means for actuating said lever.

16. The combination, with a shaft, of gear-wheels loosely mounted with relation to said shaft; means for driving said gear-wheels; toggles and intermediate devices for locking either of said gear-wheels so that it will rotate with the shaft; means for actuating the toggles; opposing cones upon which the inner ends of said toggles bear; and means for adjusting said cones.

17. The combination, with a tubular shaft, of gear-wheels loosely mounted with relation to said shaft; means for driving said gear-wheels; clutch devices for locking either of said gear-wheels to the shaft; cones for adjusting a part of said clutch devices; and means for independently adjusting the cones.

18. The combination, with a tubular shaft, of gears carried by said shaft; means for driving said gears; a tubular spindle mounted within said shaft, said spindle having a series of openings and being provided with internally-threaded portions at each end; toggles the inner ends of which project through said openings; clutch devices actuated by said toggles; a pair of opposing cones; an adjustable rod having an end threaded in one end of said shaft; an internally and an externally threaded sleeve located in the other end of said shaft; a tube bearing against one of the cones and having a threaded end inserted in said sleeve; and a plug threaded into said tube and serving to bear against the end of the rod and lock the parts together.

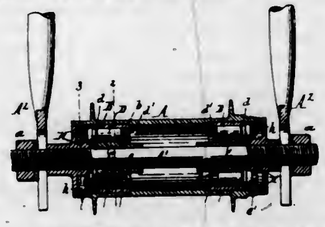
19. The combination, with a tubular shaft having a series of openings and carrying a power-transmitting device, of means for driving said shaft; a tubular spindle mounted for rotary movement with said shaft and also having a series of openings; toggles having their ends located within the openings of the spindle; an adjustable rod passing through said spindle and bearing a cone; a second cone mounted on said rod opposite the first-named cone; means for independently adjusting said cones; and devices actuated by the toggles.

20. The combination, with a tubular shaft having a slot, of means for driving said shaft; a wedge-shaped key inserted in the slot of the shaft, said key having a projection on its inner end; a sleeve surrounding said shaft; screws passing through the sleeve and entering the key; a tubular spindle located within the shaft and having a slot for the reception of the projection on the end of the key; means for reciprocating said spindle; and clutch mechanism actuated by the spindle.

21. The combination, with a tubular shaft having a series of openings, of a sleeve also having a series of openings; a key for securing said sleeve to the shaft; a hollow spindle having a series of openings and mounted for rotation with the shaft; a series of toggles having globular ends, the inner ends of said toggles being fitted within the openings in the spindle, expansible clutch-rings having sockets on their inner sides for receiving the outer ends of the toggles; gear-wheels loosely surrounding the expansible rings; means for rotating said gear-wheels in reverse directions; a rod having a threaded portion inserted in one end of the hollow spindle; a cone carried by said rod adjacent to said threaded portion; an opposing cone also carried by said rod; a tube having a threaded end; a sleeve within the spindle with which the threaded end of said tube is engaged; a pivoted lever connected with the end of the spindle and having bearings for the reception of said end; a rocker having a cam-slot with a middle neutral portion; inclined active portions at each side of said middle portions; and locking portions at its ends; and means for actuating said rocker.

22. The combination, with a hollow shaft having a series of openings, of a sleeve surrounding said shaft, and secured thereto, said sleeve also having a series of openings in line with those of the shaft; an expansible ring loosely surrounding said sleeve; a gear loosely surrounding the ring and in engagement with a part of reversing mechanism; reversing mechanism; a series of toggles for expanding the ring; a device movable within the hollow shaft and adapted to actuate said toggles; and means for operating said device.

677,494. **ROLLER-BEARING.** GEORGE E. BARTHOLOMEW, Buffalo, N. Y., assignor of one-half to Albert A. Engle, same place. Filed Dec. 13, 1900. Serial No. 39,599. (No model.)

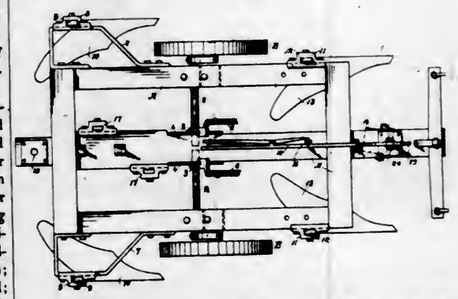


Claim.—1. The combination with an axle having bearing-rings mounted loosely thereon, of a casing surrounding the axle and provided at its ends, opposite said rings, with internal bearing-rings, means for preventing endwise movement of said loose axle-rings, a set of rollers interposed between the concentric bearing-rings at each end of the casing and each provided with an annular flange which bears against the outer end of the adjacent ring of the casing, and cones mounted on the axle at opposite ends of the casing and bearing with their beveled faces against the peripheral outer ends of said rollers, substantially as set forth.

2. The combination with an axle having bearing-rings mounted loosely thereon, of a casing surrounding the axle and provided at its ends, opposite said rings, with internal bearing-rings, a set of rollers interposed between the concentric bearing-rings at each end of the casing and each provided with an annular flange which bears against the outer end of the adjacent ring of the casing, a pair of connected vertical separating-rings for each set of rollers, surrounding the axle and provided with openings which receive journals arranged at the ends of the rollers, each of said inner bearing-rings having a shoulder which abuts against the outer face of the corresponding inner separating-ring, and cones mounted on the axle at opposite ends of the casing and bearing with their beveled faces against the peripheral outer ends of said rollers, substantially as set forth.

677,495. **VINEYARD-PLOW.** JOHN A. BILL, Pleasanton, Cal. Filed May 6, 1901. Serial No. 58,837. (No model.)

Claim.—1. The combination in a plow of a main frame, main bearing-wheels, having independent crank-axles with journal-boxes, operating-levers and segmental holding-racks, a supplemental centrally-located bearing-wheel with standard and operating-lever, boxes for the support of said standard and of the main wheel-axles, and means whereby said boxes may be shifted upon the frame and the relative position of the bearing-wheels changed.



2. The combination in a plow of a plow-frame, plows having standards, sockets fixed to the frame adapted to receive said standards, main and supplemental bearing-wheels and operating-levers, means whereby the standard-sockets and the wheel-boxes and supports may be changed and the relative position of the plows reversed.

3. The combination in a plow of a main frame, main and supplemental bearing-wheels with operating-levers, brackets fixed upon the outer rear angles of the main frame having plow-standard sockets carried upon their outer sides, other plow-standard sockets adjustably carried upon the front of the frame and in lines interior to those of the rearmost plows whereby said plows may be adjusted to travel in different lines and to throw the earth toward the center.

4. The combination in a plow of a main frame, brackets fixed upon the outer rear angles having vertical plow-standard sockets carried upon their outer faces whereby the rearmost plows may be set exterior to the main frame to throw the earth inwardly, other vertical plow-standard sockets adjustably fixed upon the front of the main frame in lines interior to the rearmost sockets whereby the front plows are set on lines of travel interior to those of the rear plows to throw the dirt inwardly, main bearing-wheels having independent crank-axles, journal-boxes in which said axles are turnable, said boxes being adjustably fixed between the front and rearmost plows, a supplemental bearing-wheel, a socket within which the vertical standard of said wheel is slidable at the rear of the main frame, and levers by which each of the wheels may be independently adjusted.

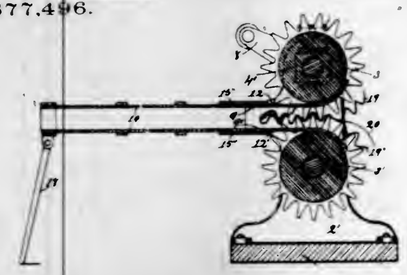
5. The combination in a plow of a main frame having plow-standard sockets fixed thereto in which the plows may be supported to throw the earth either outwardly or inwardly, a supplemental bearing-wheel having a vertical standard, sockets in the front and rear of the main frame in either of which said standard may be carried and a reversible operating-lever therefor fulcrumed to the main frame, main bearing-wheels having independent crank-axles, exterior boxes adjustably fixed to the main frame and interior boxes and segmental racks fixed to the central portion of the frame and levers fulcrumed thereto by which said bearing-wheels may be independently adjusted to regulate the depth of the plows.

6. The combination in a plow of a main frame and plow-standard sockets carried thereby, main bearing-wheels having independent crank-axles, boxes fixed to the outer sides of the main frame in which said axles are turnable, boxes fixed upon the central portion of the frame in which the inner ends of said shafts are turnable, said interior boxes carrying segmental racks, and levers fulcrumed and turnable to independently adjust the wheels and pawls by which said levers are engaged with the racks at any point of adjustment and a supplemental independently-adjustable bearing-wheel having a standard and sockets upon the front and rear of the main frame in which said standard may be supported.

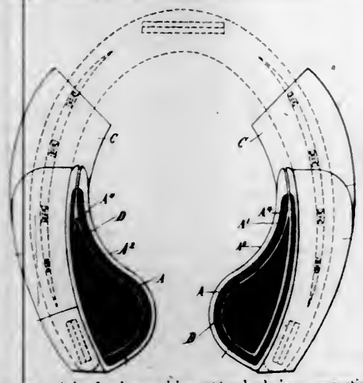
677,496. **PLAITING-MACHINE.** HENRY S. BROWN, New York, N. Y. Filed Feb. 4, 1901. Serial No. 45,885. (No model.)

Claim.—A machine of the class herein described comprising a pair of longitudinally-corrugated, meshing rollers; finger-strips arranged at the rear of said rollers and provided with fingers, the fingers of one of said strips extending forwardly and coöperating with one of said rollers, and the fingers of the opposite strip extending forwardly and coöperating with the opposite roller; a storage-crate detachably fastened at said strips to receive the material passing between such strips; and means for imparting a rotary movement to one of said rollers.

677,496.



677,497. HOOF-PAD. JOHN A. BUCK, Brooklyn, N. Y. Filed Apr. 4, 1901. Serial No. 54,346. (No model.)



Claim.—1. A hoof-pad comprising rubber heel-pieces respectively formed for the right and left sides of the shoe, comprising rubber cushioning-bodies projecting inwardly of the hoof to protect the frog, and a pair of separate strips or backings therefor, the said heel-pieces being mounted upon the inner edges of the said strips whereby they may be adjusted to lie against the inner edges of the rear ends of the horseshoe with the strips beneath the same.

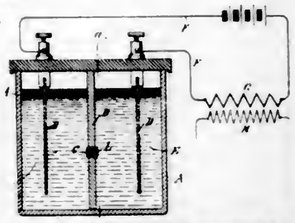
2. A hoof-pad comprising two separate rubber heel-pieces and respectively formed for the right and left sides of the shoe formed with segmental curved outer facings adapted to lie against the inner edges of the rear ends of the horseshoe and embodying a rubber cushion projecting radially from the ends of the shoe and provided with curved inner edges to form cushions flared at the rear end and gradually decreasing forwardly, the said heel-pieces being provided exteriorly with integral outwardly-projecting flanges forwardly flared or widened, said heel-pieces and flanges being secured to strips or backings, which with the said flanges project above the horseshoe.

3. A hoof-pad comprising two separate rubber heel-pieces respectively formed for the right and left sides of the shoe formed with segmentally-curved outer facings adapted to lie against the inner edges of the rear ends of the horseshoe and embodying rubber cushions projecting radially from the ends of the shoe and provided with curved inner edges to form cushions flared at the rear and gradually decreasing forwardly, the said heel-pieces being provided exteriorly with integral outwardly-projecting flanges forwardly flared or widened, said heel-pieces and flanges being secured individually to separate strips or backings which project slightly beyond the forward ends of the said heel-pieces and are adapted to be adjusted independently beneath the horseshoe to bring the heel-pieces into contact or coincident with the inner edges of the rear ends of the horseshoe.

677,498. ELECTRIC-CURRENT INTERRUPTER. EUGENE W. CALDWELL, New York, N. Y. Filed May 4, 1899. Serial No. 715,557. (No model.)

Claim.—1. An electric interrupter comprising two electrodes, a conducting fluid between them, a perforated insulating separating medium between the electrodes forming a reduced section of the fluid between the electrodes and means for subjecting said reduced portion of the fluid to pressure.

2. An electric interrupter comprising two electrodes, a conducting liquid between them, a perforated wall of insulating material between said electrodes, forming a reduced section of said conducting liquid, said reduced section of said liquid being subjected to the pressure of the superposed liquid.

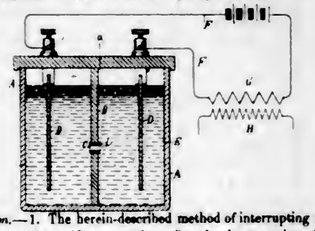


3. An electric interrupter comprising two electrodes, a conducting liquid between them, and a perforated insulating separating medium between the electrodes maintaining a uniform open relation of the liquid to the electrodes.

4. An electric interrupter comprising two circuit-terminals, a liquid conductor between them and in continuous open relation to them, a perforated wall of insulating material between them, and means for adjusting the size of the opening in the wall.

5. An electric interrupter comprising the vessel A, the outer electrode K, the tube I and contained electrode K, the said tube having an open passage J through the same, for the purposes set forth.

677,499. METHOD OF INTERRUPTING ELECTRIC CURRENTS. EUGENE W. CALDWELL, New York, N. Y. Original application filed May 4, 1899, Serial No. 715,557. Divided and this application filed May 20, 1901. Serial No. 61,035. (No specimens.)



Claim.—1. The herein-described method of interrupting an electric current by passing said current through a circuit, a portion of which is composed of a conducting fluid, by confining a part of said fluid and by heating and vaporizing said part.

2. The herein-described method of interrupting an electric current by passing said current through a circuit, a portion of which is composed of a conducting fluid, by confining a part of said fluid and by vaporizing the same by the heat produced by said current.

3. The herein-described method of interrupting an electric current by passing the same through a circuit, a portion of which is composed of a conducting fluid, by confining a part of said fluid and by subjecting the same to pressure and by heating and vaporizing said confined part of the fluid.

4. The herein-described method of interrupting an electric current by passing the same through a circuit, a portion of which is composed of a conducting fluid, by confining a part of said fluid and by subjecting the same to the pressure of the superposed fluid and by vaporizing said confined part of the fluid by the heat produced by a passing current.

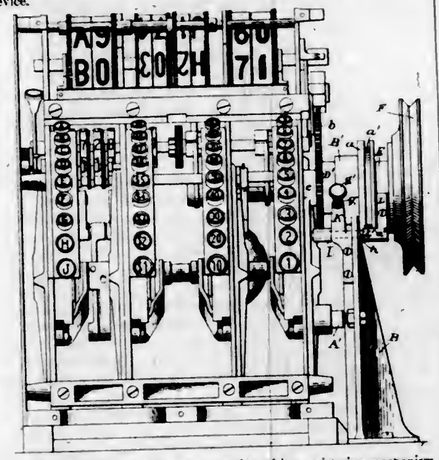
5. The herein-described method of interrupting an electric current by passing the same through a circuit, a portion of which is composed of a conducting fluid by confining a part of said fluid and by vaporizing the same by a passing current.

677,500. CASH-REGISTER. JOSEPH P. CLERAL, Dayton, Ohio, assignor, by mesne assignments, to the National Cash Register Company, Jersey City, N. J. Filed Oct. 11, 1897. Serial No. 654,795. (No model.)

Claim.—1. In a cash-register, the combination with the registering mechanism, of a continuously-moving power device, means for establishing an operative relation between said registering mechanism and said power device, a series of keys representing low denominations and arranged to control both the registering mechanism and said means and a second series of keys representing higher denominations and arranged to control the register mechanism only.

2. In a cash-register, the combination with the registering mechanism, of a continuously-moving power device, a series of keys representing

cents, a second series of keys representing higher denominations and clutch means controlled only by the cent-keys for throwing on the power device.



3. In a cash-register, the combination with a registering mechanism, of a continuously-moving power device, a series of keys for controlling the registering mechanism, a detent-plate cooperating with a part only of said keys, a normally inoperative clutch between the registering mechanism and the power device and means connecting the detent-plate and said clutch.

4. In a cash-register, the combination with a registering mechanism, of a series of keys representing cents, a second series of keys of higher denominations, a continuously-moving pulley, a clutch interposed between the pulley and the registering mechanism, and devices actuated only by the series of keys representing cents for operating the clutch to establish an operative relation between the pulley and registering mechanism.

5. The combination with a registering mechanism, of a series of keys for controlling the same, a normally inoperative clutch between the registering mechanism and a power device, a movable member coöperating with the keys for bringing the power device into connection with the registering mechanism when said keys are operated and means independent of said keys for actuating said movable member to operate the clutch.

6. In a cash-register, the combination with a registering mechanism, a power-wheel, a power-sleeve, a clutch between said wheel and sleeve, means for operating said clutch and a stationary grooved ring arranged to engage a projection of said clutch to cause the latter to be operated during a full revolution of the power-wheel and then be released.

7. In a cash-register, the combination with a registering mechanism, of a shaft, a power-sleeve on said shaft, a power-wheel loose on said sleeve, a movable clutch between said sleeve and wheel, a stationary ring having an annular groove formed with an offset, a projection on the clutch extending into said annular groove and normally lying in the offset thereof and means for forcing said clutch forward and the projection out of said offset so that the latter will travel in the annular groove.

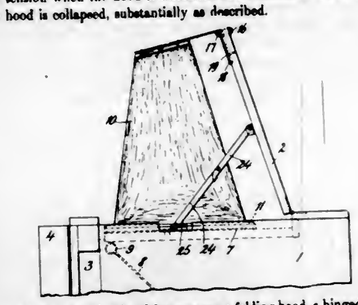
8. In a cash-register, the combination with a registering mechanism, of a power device, a normally inoperative connection between said mechanism and device, registering-keys arranged to set said connecting means for operation, and devices independent of said keys for setting said connecting means.

9. In a cash-register, the combination with a registering mechanism, of a series of keys, a power device, a clutch for connecting said power device and registering mechanism, a sliding bar for operating said clutch, means connecting said bar to the keys and independent means for moving said bar.

677,501. FOCUSING-HOOD FOR CAMERAS. ALBERT D. DAVIS, Yonkers, N. Y. Filed Apr. 11, 1901. Serial No. 55,355. (No model.)

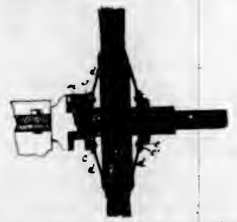
Claim.—1. In a focusing-hood for cameras, a folding hood, a hinged lid, and a member connecting the outer end of the hood with the lid, a joint being provided at the junction of said member with the lid which is under tension when the hood is distended and relieved of the tension when the hood is collapsed, substantially as described.

2. In a focusing-hood for cameras, a folding hood, and a hinged lid, the side of the hood toward the lid being formed independently of said lid, and a member connecting the outer end of the hood with the lid, a joint being provided at the junction of said member with the lid which is under tension when the hood is distended and relieved of its tension when the hood is collapsed, substantially as described.



3. In a focusing-hood for cameras, a folding hood, a hinged lid formed with a recess, a member attached to the outer end of the hood and provided at one end with an elongated eye adapted to enter the recess in the lid, and a pintle for hinging the eye end of said member to the lid, substantially as described.

677,502. ROTARY BRUSH. FRANK G. FARNHAM, Honesdale, Pa. Filed June 5, 1900. Serial No. 19,162. (No model.)



Claim.—1. A rotary brush comprising a carrying member, brush material carried thereby, opposing disks having parallel portions abutting against opposite sides of said brush material, and inner truss portions inclining outwardly leaving open spaces between the disks and brush material, and means on said carrying member for applying pressure to said truss portions, substantially as described.

2. A rotary brush comprising a carrying member, rings carried thereby, opposing disks carried by said rings, and brush material interposed between said disks, each of said disks comprising a flat portion abutting against its respective ring and having its inner edge seated in a groove therein, an inclined or conical truss portion, and a flat portion bearing against the face of the brush material, substantially as described.

3. A rotary brush comprising a tubular carrying member, brush material thereon, disks abutting against said brush material and having trussed central portions, spaced from said brush material, means for applying pressure to said trussed central portions, and means for securing said carrying member upon an operating shaft or spindle, substantially as described.

4. A rotary brush comprising a tubular split carrying member, brush material carried thereby, lugs on said member on opposite sides of said split or division, and a screw coöperating with said lugs for binding the member on an operating-shaft, substantially as described.

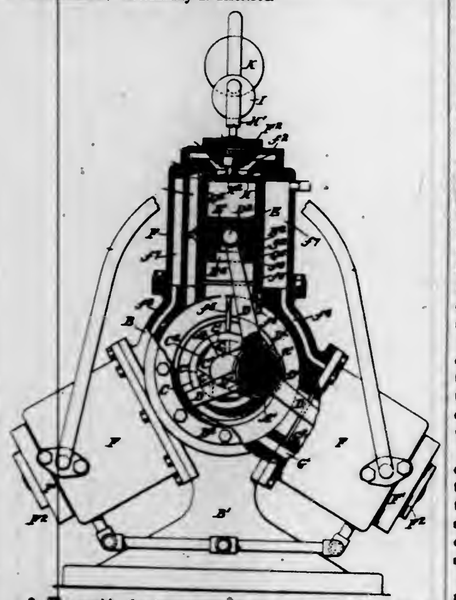
5. In a rotary brush, a tubular carrying member having a split channeled portion or ring provided with lugs in said channel, a screw coöperating with said lugs for tightening said split portion, a guard-spring encircling the same and closing said channel, and brush material carried by said member, substantially as described.

6. In a rotary brush, a carrying member, brush material thereon comprising brush fiber cloth and cement with the fiber projecting beyond the cloth and cement, rings on said member, disks carried by said rings having inclined truss portions and flat portions abutting against the cemented portion of said brush material and having inwardly-turned outer edges projecting beyond the cemented portion and serving to compress and support the uncemented portion, substantially as described.

7. A rotary brush comprising a carrying member, rings carried thereby, opposing disks carried by said rings and reinforcing-bands of flexible material carried by the edges of said disks, and brush material between said disks, substantially as described.

677,503. COMPRESSOR. WILLIAM J. FRANCIS, New Brunswick, N. J., assignor to the Brunswick Refrigerating Company, same place. Filed Jan. 4, 1900. Serial No. 294. (No model.)

Claim.—1. The combination with the piston, and its cylinder having an annular valve-port in its head, of an open-ended sleeve surrounding the said piston and in frictional contact therewith for operation thereby to open and close said valve-port; correspondingly-opposed annular shoulders being formed on the cylinder and sleeve between their ends and between which is formed a closed cushion-chamber, and a fluid-supply for said chamber; substantially as described.



2. The combination in a compressor with the piston, its cylinder, an annular suction-valve port and a discharge-valve port in the cylinder-head, and a discharge-valve, of an open-ended sleeve-valve surrounding the piston and operated by the friction thereof, to control the suction-port, a closed annular cushioning-chamber between the adjacent walls of said sleeve and cylinder to cushion the return movement of the sleeve, and an oil-separator, a pipe connecting the separator with the discharge side of the cylinder-head, and an oil-pipe leading from said separator to the said cushioning-chamber; substantially as described.

3. The combination in a compressor with the piston, its cylinder, an annular suction-valve port and a discharge-valve port in the cylinder-head, and a discharge-valve, of an open-ended sleeve-valve surrounding the piston and operated by the friction thereof to control the suction-port, a closed annular cushioning-chamber between the adjacent walls of the said sleeve and cylinder to cushion the return movement of the sleeve, an oil-separator, a pipe connecting the separator with the discharge side of the cylinder-head, an oil-pipe leading from the separator to the cushioning-chamber, and a reducing-valve in said oil-pipe and having controlling means whereby the pressure exerted in the cushioning-chamber on the sleeve-valve may be increased beyond the suction-pressure under which the machine is operated and thereby to close the suction sleeve-valve, substantially as described.

4. In a compressor, the combination with the cylinder, the piston, the crank-shaft to which said piston is connected, an annular suction-valve port and a discharge-valve port at the outer end of the cylinder, a discharge-valve, an open-ended sleeve-valve surrounding the piston, a closed annular cushioning-chamber for said sleeve between it and the cylinder, an annular oil-passage in the cylinder near its inner end and covered by the said sleeve and pipes or passages leading from said annular oil-passage to the bearing of the crank-shaft and crank-pin, of an oil-separator connected with the discharge side of the cylinder, a pipe leading from the oil-separator to the said cushioning-chamber and a fluid-pressure regulator in said pipe; substantially as described.

5. The combination, in a compressor with a cylinder having a valve-seat, a bore to receive and support the valve and provided with an annular shoulder, of a valve having a snug fit in said bore and having a shoulder forming with the first-named shoulder, a cushioning-chamber, and an oil-circulating system including the suction and discharge passages and having a pipe or passage connecting it with the cushioning-chamber, substantially as described.

6. In a compressor, the combination with the cylinder, the piston, the crank-shaft to which said piston is connected, an annular suction-valve port and a discharge-valve port at the outer end of the cylinder, a discharge-valve, an annular cushioning-chamber between the stem of said valve and its casing and comprising opposed shoulders on the two above the inner working face of the valve, an open-ended sleeve-valve in said cylinder, a closed annular cushioning-chamber for said sleeve between it and the cylinder and comprising opposed annular shoulders, an annular oil-passage in the cylinder near its inner end and covered by the inner end of the sleeve-valve, and pipes or passages leading from said oil-passage to the crank-pin and bearing, of an oil-separator connected with the discharge side of the cylinder, an oil-pipe leading from the oil-separator to the cushioning-chamber of the sleeve-valve and provided with a pressure-reducing valve, and a pipe leading from the said oil-pipe to the cushioning-chamber of the discharge-valve; substantially as described.

7. The combination with the cylinder, its piston, and the annular suction-valve port, of a sleeve-valve surrounding the piston and controlling said suction-valve port; the cylinder and sleeve-valve being provided between their ends with opposed shoulders forming a cushioning-chamber for said sleeve in its return movement, of an oil-separator connected with the discharge side of the cylinder, an oil-pipe leading from the separator to the said cushioning-chamber and provided with a pressure-regulating valve, a receiver connected with the oil-separator to receive the purified compressed air or gas, a pipe leading from the bottom of the receiver to the said oil-pipe and provided with a check-valve; substantially as described.

8. In a compressor, the combination with a discharge-valve and a closed cushioning-chamber between it and its casing, and independent of the compression-cylinder, of a pipe or passage having connection with the discharge side of the compressor to supply oil to said cushioning-chamber, under pressure of the discharge and resist the return of the valve to its seat; substantially as described.

9. In a compressor, the combination of a discharge-valve and a closed cushioning-chamber between it and its casing and independent of the compressor-cylinder, with an oil-circulating system including the suction and discharge passages of the compressor and having a pipe or passage connecting it with the said cushioning-chamber to supply it with oil under pressure and cushion the return of the valve to its seat; substantially as described.

10. The combination, in a compressor, with the discharge-valve and a closed cushioning-chamber between it and its casing, and independent of the compression-cylinder, of an oil-separator connected with the discharge-passage of the compressor and also connected with said cushioning-chamber to supply the same with oil to resist the return of the valve to its seat; substantially as described.

11. In a compressor, the combination of a discharge-valve having an enlargement on its stem, a casing or guide therefor forming a cushioning-chamber between itself and the enlargement on the valve-stem, and an oil-separator connected with the discharge-passage of the compressor and with said chamber; substantially as described.

12. In a compressor, the combination of an oil-circulating system including the suction and discharge passages of the compressor, cushioning-chambers for said valves connected with said oil system and a pressure-reducer included in said system between the discharge and the suction side of the compressor, and independent of the gas-discharge pipe.

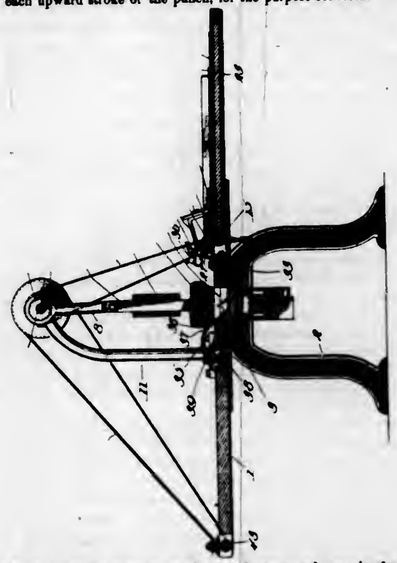
13. In a compressor, the combination of a suction-valve having a liquid cushion, an oil-circulating system including the suction and discharge passages and connected with said liquid cushion, and a pressure-reducer included in said system between the discharge and said liquid cushion and independent of the gas-discharge pipe.

14. In a compressor, the combination of an oil-circulating system including the suction and discharge passages of the compressor, cushioning-chambers for said valves connected with said oil system, an oil-separator included in said system, and a pressure-reducer between the oil-separator and the suction side of the compressor and independent of the gas-discharge pipe.

15. In a compressor, the combination with a suction-valve having a cushioning-chamber, an oil-circulating system including the suction and discharge passages and connected with the said cushioning-chamber, an oil-separator, a pressure-reducer included in said system, a compressed-air receiver, and a pipe leading from the receiver to the oil-pipe between its pressure-reducer and the cushioning-chamber and provided with a check-valve, substantially as described.

677,504. CARD-CUTTING MACHINE. FREDERICK J. GEORGE, Elgin, and LOUIS DELIVOUX, Chicago, Ill., assignors, by direct and mesne assignments, to Frederick A. Owen, Danville, N. Y. Filed Mar. 5, 1900. Serial No. 7,286. (No model.)

Claim.—1. The combination of a frame and bed, a punch and die, a pair of feed-rollers in front of the punch, a pair of feed-rolls behind the punch, a pawl pivotally supported behind the punch and having its engaging end normally resting on the bed closely adjacent to the die-opening and in the pathway of the feed, whereby said engaging end will normally engage the rear edge of each opening made in the material by the punch, and means for automatically lifting the engaging end of the pawl upon each upward stroke of the punch, for the purpose set forth.



2. The combination with a pair of feed-rollers and a carrier for advancing the sheet to said feed-rollers, of a stop mechanism consisting of an unbalanced lever arranged with its normally down-swinging end resting upon the passing sheet and with its other end held down thereby in front of the succeeding sheet, substantially as described.

3. The combination with a pair of feed-rollers and a carrier for advancing the sheet to said feed-rollers, of a stop mechanism consisting of an unbalanced lever arranged with its normally down-swinging end resting upon the passing sheet and with its other end held down thereby in front of the succeeding sheet, the latter end of the lever being provided with a loosely-attached point having a limited independent movement, substantially as described.

4. In a card-cutting machine, a frame and bed, a punch and die, feed-rolls in front of the punch, feed-rolls in rear of the punch, rapidly-revolving feed-off rolls beyond these latter rolls, a pawl pivotally supported behind the punch and having its engaging end normally resting on the bed adjacent to the rear edge of the die-opening and in the line of the feed, whereby said engaging end will normally engage the rear edge of each opening made in the card as it passes beneath the punch and thereby intermittingly retard the sheet, and a pivoted latch carried by the punch to automatically lift the pawl with each upward stroke of the punch, substantially as and for the purpose set forth.

5. The combination with feeding devices, a carrier for advancing sheets to said devices, and a stop or regulator mechanism for permitting the sheets to be fed in succession from the under side of a stack mounted upon the carrier, said mechanism embracing a gravitating device for automatically engaging the forward edge of the lowermost stationary sheet and a movable part for raising said gravitating device the distance of one sheet, said movable part engaging the passing sheet and being operated automatically by the complete passage of the sheet, substantially as set forth

6. The combination of a pair of feed-rolls, a carrier for advancing the sheets thereto, and a stop or regulator mechanism for permitting the sheets to be carried to the feed-rolls intermittingly, said mechanism consisting of a movable part adapted to normally rest on the passing sheet on the leaving side of the rolls and a gravitating part adapted to normally rest upon the passing sheet on the other side of the rollers adjacent to the stack of sheets being fed, this gravitating part being automatically raised the distance of one sheet upon the complete passage of the passing sheet under the movable part.

677,505. STRAP CONNECTION. SAMUEL W. GIBBS and CHARLES MORTIMER, Somerset, Mass. Filed Feb. 4, 1901. Serial No. 46,001. (No model.)

Claim.—1. The combination with a buckle member having side walls and open across its faces, said side walls being provided with cooperating transverse openings, of a strap, a box rectangular in cross-section embedded in said strap and extending transversely through the same, said box having an opening therein transverse the strap, wings upon the sides of said box, and a removable pin adapted to engage the openings in said buckle-walls and box and retain the said buckle and strap together; substantially as described.



2. The combination with a buckle member having side walls and open across its faces, said side walls being provided with coöperating transverse openings, of a strap having a transverse opening therethrough adapted to register with said openings in the said buckle-walls, and a removable pin adapted to pass through the openings in said buckle and engage any one of said openings in the strap; substantially as described.

3. The combination with a strap, of a box embedded therein and having an opening extending transverse said strap, said box being polygonal in cross-section, and side wings upon said box; substantially as described.

4. In a strap, a layer having a notch therein, in combination with a box having a side wing entering said notch, said layer and box being secured together; substantially as described.

5. In a strap, a sectional layer having a notch in the section ends, and a box having side wings entering said notches, said layer and box being secured together; substantially as described.

6. In a strap, a box having a side wing intermediate its ends, and a strap layer having its end abutting against said box proper and provided with a notch receiving said wing, said layer and box being secured together; substantially as described.

7. In a strap, a box having a rectangular side wing intermediate its ends, and a strap layer having its end abutting against said box proper and provided with a rectangular notch receiving said wing, said layer and box being secured together; substantially as described.

8. In a strap, outer layers, a box between the same, rectangular side wings upon said box intermediate its ends, said wings having thread-openings therethrough, an intermediate sectional strap layer having its section ends abutting against the sides of the box proper and provided with rectangular notches receiving said box-wings, and stitches securing said strap layers together and passing through said thread-openings in the box-wings; substantially as described.

9. In a device of the nature indicated, a part having a buckle pivoted thereto and provided with a strap-end guard, said buckle having side walls, each of which is provided with a pin-hole, one of said holes being screw-threaded, and also having a cross-piece between said side walls at its free end, a strap having a transverse opening therethrough adapted to register with said pin-holes, and a removable pin adapted to enter said pin-holes and opening and having a screw-threaded portion to engage with the screw-threaded hole; substantially as described.

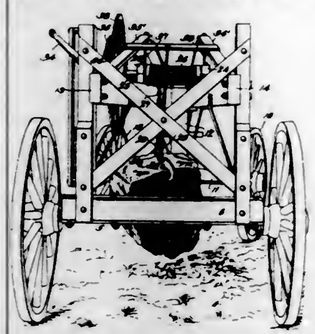
677,506. BOX-LID HOLDER. WILLIAM GIBB, Jr., St. Marys, Pa. Filed Mar. 22, 1901. Serial No. 52,377. (No model.)



Claim.—A box-lid holder formed of a single piece of metal and comprising a shank having at its lower end a pair of offset box-engaging jaws formed by bending the lower portion of the shank upwardly and bending said upturned portion at an intermediate point downwardly, the downwardly-extending extremity comprising one jaw and being arranged

to engage the interior rear face of the box at the corner and the upwardly-bent portion and shank contiguous thereto comprising the other jaw and engaging the exterior rear face of the box, the shank being bent at the upper end of the intermediate bend of the lower portion, whereby said shank is offset from the jaws, and will thus be located alongside of the end of the lid when the jaws are in place upon the box, and a pair of lid-engaging jaws arranged at the upper end of the shank, said latter jaws comprising a coil arranged to embrace the end edge of the lid and having its free end offset to form an operating-finger for spreading the sections of the coil apart.

677,507. STONE-LIFTER. FRANK GOTSHER, Lancaster, N. H. Filed Feb. 18, 1901. Serial No. 47,830. (No model.)



Claim.—A device of the class described comprising a supporting-frame including front and rear axletrees, uprights upon the rear tree, a post upon the front tree, beams connected with the post and uprights and disposed to diverge rearwardly, wheels connected with the axletrees, pillow-blocks upon the beams, a longitudinally-corrugated winding-drum having a shaft journaled in the blocks, a ratchet-wheel upon the shaft, and a lever having pawls disposed for alternate engagement with the ratchet to rotate the latter when the lever is rocked.

677,508. BOILER-LEVELING DEVICE. PETER N. GRIBBI and JACOB S. WALCH, Montague, Cal. Filed Apr. 4, 1901. Serial No. 54,269. (No model.)



Claim.—1. The combination with a boiler or threshing-machine and the bearing-wheel axle thereof of an adjusting screw and nut, a clip to which the lower end of the screw is secured, and a plate secured to the axle and pivoted within the clip whereby the axle is allowed to turn with relation to the clip and screw.

2. The combination with a vehicle and a wheel-axle thereof, of a stirrup upon which the end of the vehicle is supported, a nut carried within the stirrup, a screw passing through said nut, and upon which the part carried thereby may be raised or lowered by turning the nut, a clip upon which the lower end of the screw is carried, said clip fitting the vehicle-axle, a plate fixed to the axle and passing through the clip, a swivel-pin passing through a socket in the plate at right angles with the axle, and a reach-rod and connection from the clip to the opposite end of the vehicle.

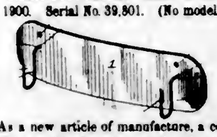
3. The combination with a vehicle and the bearing-wheel axle thereof of an adjusting screw and nut, a swivel-clip turnably connected with the axle, upon which the lower end of the screw is supported, a reach extending between said axle and the rear portion of the vehicle, a stirrup as support within which the nut is contained and upon which the vehicle is carried above the axle, said support having an oval opening within which the nut is seated, whereby the latter maintains its alinement with the screw when the parts are raised or depressed.

4. The combination with a vehicle and the wheel-axle thereof, of a screw connected with the axle, a nut fitting said screw, a sleeve and support upon which the vehicle rests, said sleeve having a socket within which the nut is turnable, said socket having the opening within which the nut rests, made oval and the lower end which rests upon the flange of the nut made convex to allow automatic adjustment with relation to the nut and screw.

5. The combination with a vehicle and the wheel-axle thereof of a screw supported from the axle, a nut fitting the screw, a sleeve and support upon which the vehicle is carried and within which sleeve the nut is turnable, a keyway made longitudinally upon the screw, a spring-pressed latching-plate passing through the nut and adapted to engage the keyway to hold the nut and screw at any point of adjustment.

6. The combination with a vehicle and the wheel-axle thereof of a screw supported from the axle, a support for the vehicle having a sleeve, a nut loosely fitting the sleeve, and a means whereby the nut is turnable to raise or lower it upon the screw, a keyway cut longitudinally in the screw, a latching-plate extending through the side of the nut adapted to engage said keyway, a spring by which said plate is normally pressed against the screw, and a nut turnable to retract the plate and disengage the latch when the device is to be operated to raise or lower the vehicle.

677,509. SKIRT-SUPPORTER. MARY E. GROVE, Pittsburg, Pa. Filed Dec. 13, 1900. Serial No. 39,801. (No model.)

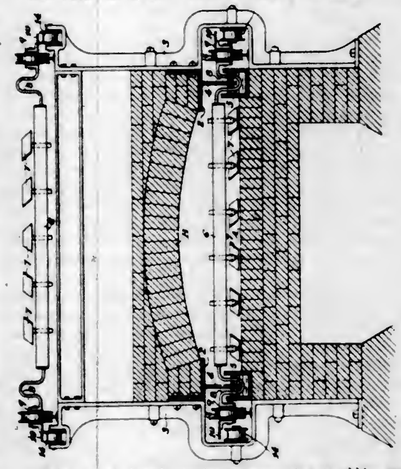


Claim.—1. As a new article of manufacture, a combined waist and skirt holder comprising a thin flat plate having hooks secured thereto, said hooks extending outwardly from said plate whereby necks or offsets are formed, and said hook then extending downwardly and being bent outwardly and upwardly and being provided with sharpened points, whereby said hooks are adapted to be passed through the waist with the body of the hooks lying in front of the same and the plate lying against the inside of said waist.

2. As a new article of manufacture, a combined waist and skirt holder comprising a thin flat plate provided with holes, and hooks projecting through said holes and having their rear ends turned upward and secured to the inner upper side of said plate, said hooks extending outwardly from the outer face of the plate whereby necks or offsets are formed, said hooks then extending downwardly and being bent outwardly and upwardly and provided with sharpened points, whereby said hooks are adapted to be passed through the waist with the body of the hooks lying in front of the same and the plate lying against the inner side of the waist.

3. As a new article of manufacture, a combined waist and skirt holder comprising a thin flat plate provided with holes, and hooks projecting through said holes and having their inner ends turned upward and flattened, rivets for securing said upturned ends to the plate, said hooks projecting outwardly from the outer face of the plate whereby necks or offsets are formed, and then extending downwardly and being bent outwardly and upwardly and having sharpened points, whereby said hooks are adapted to be passed through the waist and have their bodies lie in front of the same and the plate lying against the inner surface of the waist.

677,510. ROASTING-FURNACE. BENJAMIN HALL, Nevada City Cal. Filed Jan. 18, 1901. Serial No. 43,690. (No model.)



Claim.—1. A hearth roasting-furnace, rakes or rabbles operating therein, driving mechanism located outside the furnace-walls, and connected with the rakes or rabbles, and means inclosing the connections and forming a mobile seal in the side walls of the furnace whereby the heat and gases are confined within, and cold air prevented from entering the furnace, during the passage of the rakes or rabbles through the ore and over the hearth of said furnace.

2. In combination with an ore-roasting furnace having openings in its side walls, rakes or rabbles within said furnace, a driving mechanism exterior to the furnace-walls and connecting through the openings with the rakes or rabbles, and means forming a liquid seal for said openings whereby the heat, dust and gases, are confined within the roasting-chamber, while permitting the rakes or rabbles to be operated through said openings.

3. In an ore-roasting furnace, a chamber having stirrers or scrapers adapted to move over the floor of the furnace, tracks parallel with and exterior to the furnace, trucks or carriages mounted and movable upon said tracks, arms connecting the exterior trucks with the interior stirrers, troughs or channels between the trucks and furnace-chamber containing a substance which will form a seal, and plates centrally disposed with reference to the troughs and dipping into the contained substance, the arms connecting the carriage with the stirrers being bent so as to dip into the substance in the troughs, whereby a seal is effected.

4. In an ore-furnace, an ore-chamber having stirrers or scrapers by which the ore is stirred and advanced, troughs or channels formed exterior to the furnace, with depending plates extending centrally into said channels, a substance placed within said channels to cover the depending plate and form a seal therewith, tracks exterior to the furnace, carriages adapted to travel upon said tracks, and arms having one end connected with the carriage and the other with the stirrers or scrapers, said arms being bent so as to dip into the sealing-channels and pass beneath the depending plates.

5. A horizontal ore-furnace having traveling stirrers or scrapers movable through said furnace, carriages exterior to the furnace, means for operating the carriages, connections between said carriages and the stirrers whereby they are moved in unison, and troughs in the side walls of the furnace and containing a sealing substance to prevent the ingress or egress of hot or cold air or vapor, the connections between the carriages and the stirrers being bent to pass through the sealing material in the channels.

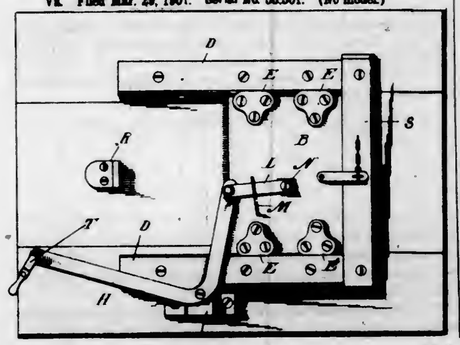
6. A roasting or desulfurizing furnace, having a trough in its side walls provided with sealing material, a scraper or stirrer adapted to move over the furnace-hearth, an arm extending from said scraper and passing through the sealing material, and driving means exterior to the furnace connected to the arm for moving the scraper over the hearth, substantially as set forth.

7. A roasting-furnace having rakes or rabbles movable over the furnace-floor, carrying devices exterior to the furnace, connections between said devices and the rakes, and troughs in the side walls of the furnace and containing a mobile substance forming a continuous seal through which the connecting-arms move, and depending plates, the lower edges of which dip into the sealing substance above the line of travel of the arms.

8. In combination with an ore-roasting furnace having openings in its side walls, rakes or rabbles within said furnace, a driving mechanism exterior to the furnace-walls and connecting through the openings with the rakes or rabbles, means forming a liquid seal for said openings, whereby the heat, dust and gases, are confined within the roasting-chamber, while permitting the rakes or rabbles to be operated through said openings, and means by which the sealing liquid is removed and circulated.

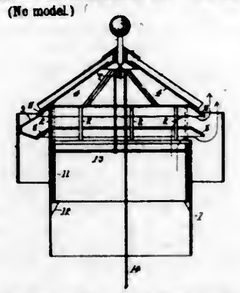
9. A horizontal furnace having upper and lower portions of the side walls made rigid, an intermediate portion extending from end to end and including means forming a mobile seal, whereby the sides of the furnace are continuously closed, rakes or rabbles within the furnace-chamber, and driving means exterior of the furnace and connecting with the rakes or rabbles through said intermediate portion.

677,511. CAR-DOOR OPENER. JOSEPH H. HAMILTON, Huddleston, Va. Filed Mar. 29, 1901. Serial No. 53,501. (No model.)



Claim.—In combination with the car-door, the tracks, the guide-plates, the angle-lever, and the bracket on which said lever is pivoted, a central pin secured to the face of the door, a link pivoted at one end to said pin, its other end pivoted to said lever, stops to limit the movements of the door, and a pivoted locking-lever for holding the door-actuating lever in a locked relation, as set forth.

677,512. COMBINED SKYLIGHT AND VENTILATOR. FRED M. HARPHAM and ALFRED AKERS, Akron, Ohio. Filed Apr. 29, 1901. Serial No. 57,964. (No model.)

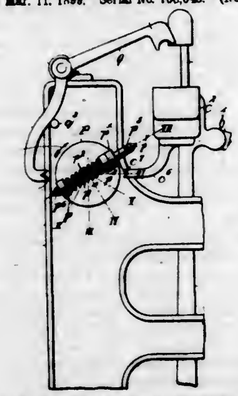


Claim.—1. An improved combined skylight and ventilator consisting of a flue to pass through the roof of a building, with a roof having glazed openings supported at a distance above its upper end, and a sleeve sliding in said flue adapted to be raised and close the opening between the flue and its roof and means for raising said sleeve, substantially as shown and described.

2. An improved ventilator for shops, of a flue to pass through the roof and a roof for said flue supported at a distance from its upper end, of a sleeve arranged to slide in said flue and means to raise said sleeve to close the space between the flue and its roof, substantially as shown and described.

3. An improved ventilator and skylight, consisting of a flue to take air from an apartment, and a roof for said flue supported at a distance above its upper end and annular deflecting-plates about the opening between said flue and roof, of a sleeve arranged to slide in said flue to close the opening between the flue and roof, a pulley supported in said roof and a cord running over said pulley to raise said sleeve, substantially as shown and described.

677,513. PICK-FINDER FOR LOOMS. KIRKLEY HYDE, Lowell, Mass., assignor to the Draper Company, Hopedale, Mass., and Portland, Me. Filed Mar. 11, 1899. Serial No. 708,643. (No model.)



Claim.—1. In a loom, filling-supplying mechanism, a controlling member therefor, a detector to detect the absence of filling, devices governed by said detector and rendered operative upon detection of filling failure to effect movement of said controlling member to a predetermined position, and means to thereafter effect movement of said controlling member from such position into position to effect the operation of the filling-supplying mechanism.

2. In a loom, filling-supplying mechanism, a controlling member therefor, a detector to detect the absence of filling, devices governed by said detector and rendered operative upon detection of filling failure to effect movement of said controlling member in one direction to a predetermined position, and independent means to effect subsequent movement

of said controlling member in the opposite direction into operating position ready to cause the operation of the filling-supplying mechanism.

3. In a loom, filling-supplying mechanism, a controlling member therefor, a detector to detect the absence of filling, devices governed by said detector and rendered operative upon detection of filling failure to effect movement of said controlling member to starting position, means to effect subsequent movement of said controlling member into operating position, and means to change the starting position of said member to thereby vary the extent of its subsequent movement and the time of operation of the filling-supplying mechanism.

4. In a loom, filling-supplying mechanism, a controlling member therefor having main and auxiliary movements, a detector to detect the absence of filling, means governed by or through said detector upon failure of filling to effect auxiliary movement of the controlling member into operative position, the main movement of said member thereafter effecting the operation of the filling-supplying mechanism, and means to effect such main movement.

5. In a loom, filling-supplying mechanism, a controlling member therefor having a longitudinal, and an angular movement, a filling-detector, means the operation of which is governed by said detector upon failure of the filling to effect angular movement of said controlling member to a predetermined position, and to effect subsequent reverse movement thereof into operative position, and independent means to effect the longitudinal movement of said member to operate the filling-supplying mechanism.

6. In a loom, filling-supplying mechanism, a controlling member therefor, having continuous and intermittent auxiliary movements into operating position, and a main independent movement, separate means to effect the two auxiliary movements, a filling-detector, devices governed thereby to cause successive, continuous and auxiliary movements of said controlling member upon detection of filling failure, and means to thereafter impart the main movement to said controlling member to operate the filling-supplying mechanism.

7. In a loom, filling-supplying mechanism, a controlling member therefor, a rotatable carrier for said member and relative to which it is also movable, means to move said carrier to a predetermined position, and separate means to move it subsequently to place the controlling member in operating position, a filling-detector, devices between it and said carrier, operative upon detection of filling failure to cause the successive operation of said separate means, and a banter to move the controlling member relatively to its carrier when in operative position, to effect the operation of the filling-supplying mechanism.

8. In a loom, filling-changing mechanism, a controlling member therefor, means to impart to it a continuous movement to a predetermined position, a filling-detector, devices governed thereby to permit the operation of said means to cause continuous movement of the controlling member upon detection of filling failure, an adjustable stop to determine the position to which the controlling member is so moved, means to thereafter move said controlling member step by step from such position into operating position, and a banter to engage and move said controlling member when in operating position, to thereby actuate the filling-changing mechanism.

9. In a loom, filling-changing mechanism, a controlling member therefor, a filling-detector, means including a spring, operative upon detection of filling failure to move the controlling member to starting position, separate means to move said controlling member step by step from starting position into operating position, and a device to move the controlling member when in the latter position to thereby actuate the filling-changing mechanism.

10. In a loom, the lay, filling-changing mechanism, a controlling member therefor, an angularly-movable spring-controlled carrier upon which it is movably mounted, connections between the lay and carrier, to move the latter step by step into normal position, a detent to retain the carrier in such position, means, including a filling-detector, to withdraw said detent and permit spring-impelled movement of the carrier to a predetermined position, subsequent movement thereof by or through the lay bringing the controlling member into position to effect operation of the filling-changing mechanism, and means to prevent withdrawal of the detent during the step-by-step movement of the carrier

11. In a loom, the lay, filling-changing mechanism, a controlling member therefor, an angularly-movable spring-controlled carrier upon which it is movably mounted, connections between the lay and carrier, to move the latter step by step into normal position, a detent to retain the carrier in such position, means, including a filling-detector, to withdraw said detent and permit spring-impelled movement of the carrier to a predetermined position, subsequent movement thereof by or through the lay bringing the controlling member into position to effect operation of the filling-changing mechanism, means to prevent withdrawal of the detent during the step-by-step movement of the carrier, and an adjustable stop to determine the extent of movement of the carrier.

12. In a loom, filling-supplying mechanism, a controlling member therefor, a detector to detect the absence of filling, means controlled by detecting action of the detector to effect the movement of said controlling member to a predetermined position, separate means to effect subsequent movement of said member in the same path from such position into operating position to cause actuation of the filling-supplying mechanism on the next succeeding pick of the cycle corresponding to that pick on which failure of filling was detected, and means to prevent detecting action of the detector during movement of the controlling member into operative position.

13. In a loom, a filling-detector, filling-supplying mechanism, normally inoperative means for controlling and actuating said mechanism, including a controlling member having continuous movement in one direction and an intermittent movement in the opposite direction, means controlled by or through detecting action of said detector to move said member to starting position and separate means to thereafter move the said member intermittingly for a predetermined number of picks into position to effect operation of the filling-supplying mechanism, and means to retain said detector inoperative during such intermitting movement.

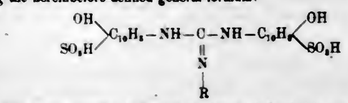
14. In a loom, filling-supplying mechanism, normally inoperative controlling means therefor including an angularly-movable controlling member movable into operative position through a variable arc dependent upon the number of harness members, a filling-detector to detect the absence of filling, means controlled by detecting movement thereof to effect the movement of said controlling member into initial position means to thereafter move said member into operative position in accordance with that pick on which filling failure is detected, to thereupon effect the operation of the filling-supplying mechanism, and means to effect such operation of said mechanism.

15. In a loom, filling-supplying mechanism, including a transferrer, its actuating-dog, and a banter, a normally inoperative controlling member movable into operative position between said dog and banter, a filling-detector, and means the operation of which is controlled by or through detection of filling failure thereby to effect movement of said controlling member into starting position, and means to thereafter move said member intermittingly for a predetermined number of picks into operative position.

16. In a loom, filling-supplying mechanism, controlling means therefor including a dog, a banter, a spring-controlled and normally inoperative controlling member between the dog and banter, and a detent to prevent spring-impelled movement of said member, a detector to detect the absence of filling, connections between the detector and detent, to release said spring-controlled member upon detection of filling failure, means to thereafter move said member step by step into operative position between the dog and banter, to effect a change of filling by the operation of the dog, means to produce the operation of the dog, a device to determine the extent of movement of said controlling member, and means to retain the detector inoperative between the release of said member and its movement into operative position.

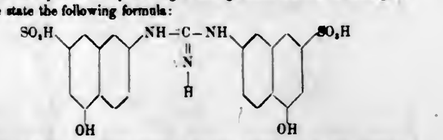
677,514. GUANIDIN COMPOUND AND PROCESS OF MAKING SAME. ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Feb. 20, 1901. Serial No. 48,167. (Specimens.)

Claim.—1. The process for producing new guanidin derivatives having the hereinbefore-defined general formula:



which process consists in heating the herein-defined thio-urea compounds of amidonaphthol sulfonic acids with amins in the presence of lead oxid, substantially as hereinbefore described.

2. The process for producing a new guanidin derivative having in a free state the following formula:



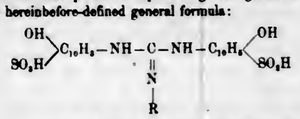
by first heating the herein-defined thio-urea compound of beta,-amido-alpha,-naphthol-beta,-sulfonic acid with ammonia and lead oxid and then isolating the new guanidin derivative thus obtained, substantially as hereinbefore described.

3. The herein-described new guanidin derivatives of amidonaphthol sulfonic acids which in the shape of the sodium salts are grayish powders readily soluble in hot and soluble in cold water and being soluble with difficulty in dilute mineral acids. capable of combining with diazo compounds, valuable azo dyestuffs being thus produced, substantially as hereinbefore described.

4. The herein-described new guanidin derivative of beta,-amido-alpha,-naphthol-beta,-sulfonic acid which, in the shape of the sodium salt, is a grayish powder difficultly soluble in cold and soluble in hot water, soluble with difficulty in dilute mineral acids and in alcohol, insoluble in ether and being capable of combining with one and likewise with two molecules of diazo compounds, valuable azo dyestuffs being thus produced, substantially as hereinbefore described.

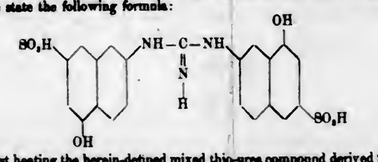
677,515. MIXED GUANIDIN DERIVATIVES AND PROCESS OF MAKING SAME. ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Feb. 20, 1901. Serial No. 48,168. (Specimens.)

Claim.—1. The process for producing new guanidin derivatives having the hereinbefore-defined general formula:



which process consists in heating the herein-defined mixed thio-urea compounds of amidonaphthol sulfonic acids with amins in the presence of agents capable of absorbing sulfureted hydrogen, and then isolating the guanidin derivatives thus produced, substantially as hereinbefore described.

2. The process for producing a new guanidin derivative having in a free state the following formula:



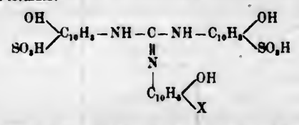
by first heating the herein-defined mixed thio-urea compound derived from beta,-amido-alpha,-naphthol-beta,-sulfonic acid and from beta,-amido-alpha,-naphthol-beta,-sulfonic acid with ammonia and lead oxid, and then isolating the new guanidin derivative thus produced, substantially as hereinbefore described.

3. The herein-described new mixed guanidin derivatives of amidonaphthol sulfonic acids which, in the shape of the sodium salts, are grayish powders readily soluble in hot and soluble in cold water, being soluble with difficulty in dilute mineral acids and being capable of combining with diazo compounds, valuable azo dyestuffs being thus produced, substantially as hereinbefore described.

4. The herein-described new mixed guanidin derivative derived from beta,-amido-alpha,-naphthol-beta,-sulfonic acid and from beta,-amido-alpha,-naphthol-beta,-sulfonic acid which, in the shape of the sodium salt, is a grayish powder soluble in cold and readily soluble in hot water, being soluble with difficulty in alcohol and insoluble in ether and being capable of combining with one and likewise with two molecules of diazo compounds, valuable azo dyestuffs being thus produced, substantially as hereinbefore described.

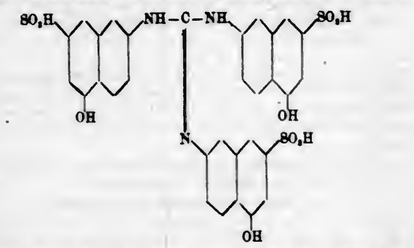
677,516. RED AZO DYE AND PROCESS OF MAKING SAME. ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Feb. 25, 1901. Serial No. 48,739. (Specimens.)

Claim.—1. The process for producing new azo dyestuffs which process consists in combining three molecules of diazo compounds with one molecule of the herein-defined guanidin derivatives having in a free state the general formula:



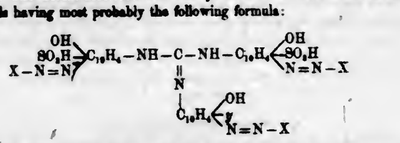
in which formula X means a hydrogen atom which may be replaced by a sulfonic group then precipitating the resulting dyestuffs by means of a suitable salt and finally isolating the same from the reaction mixture, substantially as hereinfore described.

2. The process for producing a new trisazo dyestuff which process consists in first combining three molecules of diazotized paraxylidin with one molecule of the guanidin derivative obtained from the thio-urea compound of beta,-amido-alpha,-naphthol-beta,'-sulfonic acid and from beta,-amido-alpha,-naphthol-beta,-sulfonic acid having the following formula:



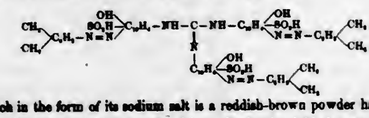
secondly precipitating the resulting dyestuff with the aid of a suitable salt, and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

3. The herein-described new azo dyestuffs which are alkaline salts of acids having most probably the following formula:



in which formula X—N=N— and *y* have the herein-defined meaning, and which are from reddish-brown to dark-brown powders having a metallic luster, soluble in water with from orange to bluish-red color and dyeing unmordanted cotton from orange to bluish-red shades, substantially as hereinbefore described.

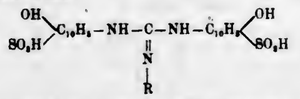
4. The herein-described new trisazo dyestuff being an alkaline salt of an acid having most probably the following formula:



which in the form of its sodium salt is a reddish-brown powder having a metallic luster, soluble in water with a red color, insoluble in concentrated hydrochloric acid, being dissolved by concentrated sulfuric acid of 66° Baumé with bluish-red color which is not changed on the addition of a small quantity of ice, while on the addition of a larger quantity of ice a dark-brown precipitate is obtained, dyeing unmordanted cotton red shades, substantially as hereinbefore described.

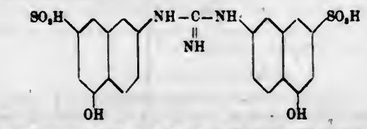
677,517. RED AZO DYE AND PROCESS OF MAKING SAME. ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Feb. 25, 1901. Serial No. 48,740. (Specimens.)

Claim.—1. The process for producing new azo dyestuffs which process consists in first combining two molecules of diazo compounds with one molecule of a guanidin derivative having in a free state the herein-defined general formula:



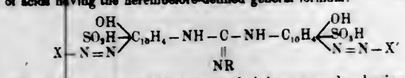
secondly precipitating the resulting dyestuffs by means of a suitable salt and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

2. The process for producing a new diazo dyestuff which process consists in first combining two molecules of diazotized para-xylidin with one molecule of the dioxydinaphthyl-guanidin disulfonic acid having in a free state the formula:



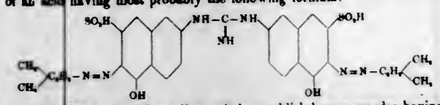
secondly precipitating the resulting dyestuff with the aid of a suitable salt, and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

3. The herein-described new azo dyestuffs which are alkaline salts of acids having the hereinbefore-defined general formula:



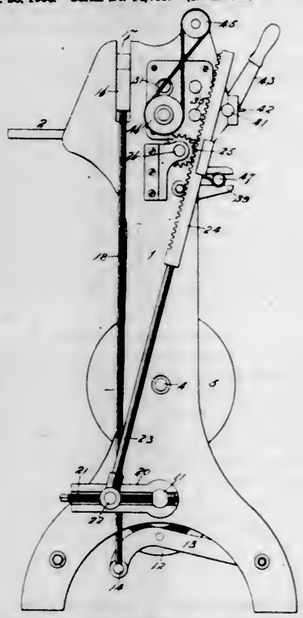
and which are from reddish-brown to dark-brown powders having a metallic luster, dissolving in water with from orange to bluish-red color, dyeing unmordanted cotton from orange to bluish-red shades which are of a remarkable fastness to acids and to light, substantially as hereinbefore described.

4. The herein-described new disazo dyestuff being an alkaline salt of an acid having most probably the following formula:



which in the shape of the sodium salt is a reddish-brown powder having a metallic luster, soluble in water with a red color, insoluble in concentrated hydrochloric acid and being dissolved by concentrated sulfuric acid of 66° Baumé with a bluish-red color which is not changed by the addition of a small quantity of ice, while on the addition of a larger quantity of ice the dyestuff is precipitated in the shape of reddish-brown flakes, dyeing unmordanted cotton red shades of a remarkable fastness to acids and to light, substantially as hereinbefore described.

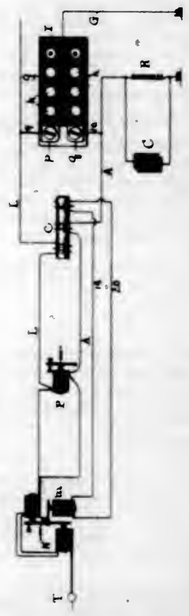
677,518. **SHEARING-MACHINE.** ARTHUR I. JACOBS, Hartford, Conn., assignor to the Smyth Manufacturing Company, same place. Filed Apr. 23, 1900. Serial No. 14,708. (No model.)



Claim.—In combination in a shearing-machine, annular slitting-cutters adjustably mounted upon parallel shafts, feed-rolls mounted upon parallel shafts, a rewinding-roll mounted upon a shaft parallel with the cutter and feed shafts, gearing connecting the cutter and feed shafts, a driving connection between a feed-shaft and the rewinding-shaft, a reciprocating shearing-blade, a driving-shaft bearing an adjustable crank and cams, a rack, pinion and pawl mechanism connecting the crank and the cutter and feed gearing, and levers and rods connecting the cams and the shearing-blade, substantially as specified.

677,519. **PROTECTION OF MULTIPLE-TELEGRAPH INSTRUMENTS.** FRANCIS W. JONES, New York, N. Y. Filed Feb. 13, 1899. Serial No. 705,304. (No model.)

Claim.—In a multiple telegraph, the combination of one or more receiving instruments equipped with two coil-sections each, a main line, an artificial line, a lightning-arrester having two separate parallel plates or connections, a grounded contact-plate equidistant with respect to the first-named plates or connections and an electrical connection between the first-named plates and points of equal potential in the main and artificial lines, respectively.



677,520. **WHEEL-SECURING DEVICE.** THOMAS A. KROGH, West Hoboken, N. J. Filed Oct. 31, 1900. Serial No. 34,986. (No model.)



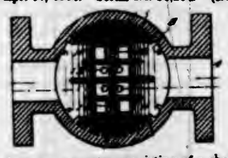
Claim.—1. An axle provided with a spindle, the end of which is screw-threaded, and that portion thereof adjacent to the screw-threaded portion being angular in form, said spindle being also provided with a loose washer which is mounted thereon adjacent to said angular portion, and with a stationary washer mounted on said angular portion, and with a nut adapted to be screwed onto the threaded portion of said spindle, said washers being provided in their adjacent surfaces with grooves forming a ball-race, substantially as shown and described.

2. An axle provided with a spindle, the end of which is screw-threaded, and that portion thereof adjacent to the screw-threaded portion being angular in form, a wheel mounted on said spindle and the hub of which, at its outer end, is provided with an annular space formed by an annular flange, a loose washer mounted on said spindle within said annular flange, and provided at its perimeter with an outwardly-directed flange, a stationary washer mounted on the angular portion of said spindle adjacent to the loose washer, and a nut adapted to be screwed onto the threaded portion of the spindle and to bear on the stationary washer, substantially as shown and described.

3. An axle provided with a spindle, the end of which is screw-threaded, and that portion thereof adjacent to the screw-threaded portion being angular in form, a wheel mounted on said spindle and the hub of which, at its outer end, is provided with an annular space formed by an annular flange, a loose washer mounted on said spindle within said annular flange, and provided at its perimeter with an outwardly-directed flange, a stationary washer mounted on the angular portion of said spindle adjacent to the loose washer, and a nut adapted to be screwed onto the threaded portion of the spindle, and to bear on the stationary washer, said

movable and said stationary washer being provided in their adjacent surfaces with grooves forming a ball-race, substantially as shown and described.

677,521. **STEAM-SEPARATOR.** JOSEPH R. LEWIS, Hartford, Conn., assignor to the Whitlock Coil Pipe Company, Elmwood, West Hartford, Conn. Filed Apr. 17, 1901. Serial No. 56,294. (No model.)

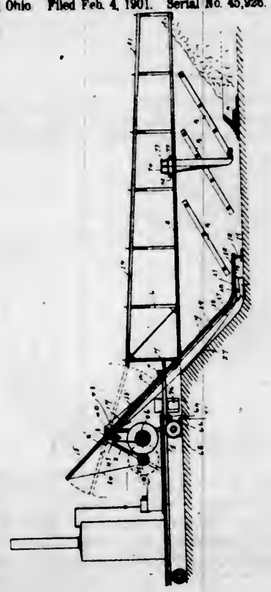


Claim.—1. A steam-separator consisting of a shell having a steam-inlet and a steam-outlet near the upper end, and a drip-outlet at the lower end, a bridge less in width than the width of the steam-chamber extending across the interior from below the steam-inlet to below the steam-outlet, a baffle-plate in front of the steam-inlet and extending from the bridge to the top of the steam-chamber, ribs projecting from the baffle-plate toward the steam inlet and outlet, openings in the bridge at the bottom of the pockets between the ribs, passages in the steam-chamber around the edges of the baffle-plate, and ribs projecting inwardly from the side walls of the shell toward the baffle-plate, substantially as specified.

2. A steam-separator consisting of a shell having a steam-inlet and a steam-outlet near the upper end, and a drip-outlet at the lower end, a bridge less in width than the width of the steam-chamber extending across the interior from below the steam-inlet to below the steam-outlet, a baffle-plate in front of the steam-inlet and extending from the bridge to the top of the steam-chamber, ribs of different width projecting from the baffle-plate toward the steam-inlet and extending from the bridge to the top of the steam-chamber, openings through the bridge at the bottom of the pockets between the ribs, and passages in the steam-chamber around the edges of the baffle-plates, substantially as specified.

3. A steam-separator consisting of a shell having a steam-inlet and a steam-outlet near the upper end, and a drip-outlet at the lower end, a bridge less in width than the width of the steam-chamber extending across the interior from below the steam-inlet to below the steam-outlet, and declining from both sides toward the middle, a baffle-plate in front of the steam-inlet and extending from the lowest point of the upper surface of the bridge to the top of the steam-chamber, ribs projecting from the baffle-plate toward the steam inlet and outlet, openings through the bridge at the bottom of the pockets between the ribs, and passages in the steam-chamber around the edges of the baffle-plate, substantially as specified.

677,522. **TRENCH-DIGGING MACHINE.** JOHN H. W. LIEBE, Toledo, Ohio. Filed Feb. 4, 1901. Serial No. 45,926. (No model.)



Claim.—1. In a trench-digging machine, the combination with a frame mounted on wheels and provided with means of self-propulsion, of a declined track-beam supported by the frame, and having its lower end deflected by a curve and adapted to trail horizontally in a trench; a shoe adapted to support the lower end of the track-beam; a tripping scoop pendently mounted and adapted to travel on the track-beam, and having an expansible mouth provided with a cutting edge; a bail for the scoop, adapted to expand the mouth of the scoop under the strain of a pull on the bail sufficient to overcome the cutting resistance of the scoop; hoisting mechanism mounted on the frame and connected to the bail, adapted to pull the scoop up the track-beam, and means to trip and dump the scoop.

2. In a trench-digging machine, a frame mounted on wheels, a trailing track-beam, pivotally supported by the rear end of the frame and declined in a trench, and having a curved lower end portion, a tripping scoop mounted on the trailing track-beam, hoisting mechanism mounted upon the frame, cables attached to the scoop and connected with the hoisting mechanism, a shoe adapted to support the curved lower end of the track-beam and adjust the depth of the cut of the scoop, a trailing structure linked to the rear of the frame, pendently supporting a rearwardly-declined dumping track-beam, vertically-projecting trusses secured to the frame, a switching track-beam fulcrumed on the trusses and adapted to switch the scoop from the trench track-beam to the dumping track-beam, and vice versa, means to oscillate the switching-beam and connect it with and disconnect it from either the trench or dumping track, and means secured to the rear end of the dumping track-beam to trip the scoop, and dump the contents into the trench.

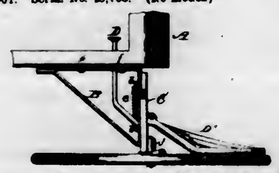
3. In a trench-digging machine, a frame mounted on wheels, hoisting mechanism mounted upon the frame, a track-beam supported by the frame and declined to enter a trench and formed with a curved end portion, a tripping scoop pivotally pendent from a carrier mounted on the track-beam, cables connected to the hoisting mechanism and secured to the scoop by an expanding bail, comprising levers pivotally secured to the mouth of the scoop and fulcrumed to a spreading-bar to expand the mouth of the scoop under the strain of the cable, tripping-hooks secured to the carrier, adapted to engage the scoop, and a trip secured to the track-beam, adapted to trip the scoop by disengaging the hooks.

4. In a trench-digging machine, the combination of a scoop comprising a wheeled carrier mounted on a track, a scoop pendently pivoted from the rear of the carrier, a yoke pendently supporting the front of the carrier, an axle secured to the yoke, having a sheave mounted thereon, a tie-bar secured to the scoop, tripping-hooks pivotally mounted on the yoke axle, adapted to engage the tie-bar to support the scoop, a bail comprising lever-arms pivotally secured to the sides of the scoop, a spreader adapted to fulcrum the lever-arms, links connected to the free ends of the arms and to a cable, adapted to contract the free arms of the levers and expand the mouth of the scoop, and a cable rove over the yoke-sheave, secured to the tie-bar at one end and to the hoisting mechanism at the other, adapted to hoist the mouth of the scoop to engagement with the trip-hooks.

5. In a trench-digging machine, a self-propelled vehicle provided with hoisting mechanism, a declined track extending into a trench and supported from the rear of the vehicle, an overhead-supported track trailed by the vehicle, a tripping scoop adapted to travel along the tracks in a pendent position, cable connections from the scoop to the hoisting mechanism, an oscillating track fulcrumed above the vehicle, adapted to switch the scoop from one track to the other, and means to oscillate the switching-track.

6. The combination, in a trench-digging machine, of an elastic metal scoop, U-shaped in cross-section, and provided with a cutting edge at its mouth, with a bail, pivoted to the upturned sides of the scoop and adapted to spread the mouth of the scoop and increase the width of its cut, when the scoop is drawn through the earth by the bail.

677,523. **CAR-FENDER.** SAMUEL LIND, Davenport, Iowa. Filed Jan. 18, 1901. Serial No. 43,765. (No model.)



Claim.—1. A street-car fender comprising a horizontal wheel, an upright frame connected thereto, and a frame extending over the front portion of the wheel and hinged to the upright frame, substantially as and for the purpose set forth.

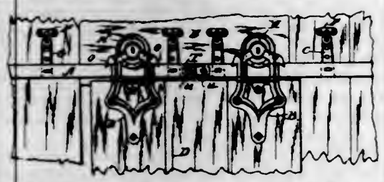
2. A street-car fender comprising a horizontal wheel, an upright

frame to which the wheel is connected, a frame projecting over the front part of the wheel and hinged to the upright frame, and means substantially as described for rendering the fender spring-actuated, substantially as and for the purpose described.

3. A fender for street-cars, comprising a horizontal wheel formed in two hinged sections, an upright frame to which the wheel is detachably connected, and a frame extending over the front of the wheel and hinged to the upright frame, substantially as and for the purpose specified.

4. A fender for street-cars, consisting of an upright frame, a bracket or brackets to which the frame is detachably connected and adapted to slide up and down, a suitable spring or springs connecting with the frame to retain it in its normal position, a foot-lever connecting with the upright frame, a frame extending horizontally from the upright frame and hinged thereto, and a horizontal wheel suitably connected to the upright frame, substantially as and for the purpose set forth.

677,524. DOOR-HANGER. WILLIAM LOUDEN, Fairfield, Iowa. Filed Aug. 30, 1900. Serial No. 29,495. (No model.)



Claim.—1. A door-hanger having a frame consisting of a horizontally-disposed top part carrying a wheel, two vertically-set side parts connected thereto and extending downwardly to and containing bolt-holes for connection to a door, then inwardly contracted and joined together to form a single lower end, also containing a bolt-hole, and a horizontally-disposed brace connecting the vertical sides together adjoining the track and the door, substantially as described.

2. A door-hanger having a frame consisting of a horizontally-disposed top part carrying a wheel, two vertically-set side parts connected thereto and extending downwardly to and containing bolt-holes for connection to a door, then inwardly contracted and joined together to form a single lower end, also containing a bolt-hole, a horizontally-disposed brace connecting the vertical sides together adjoining the track and the door, and a downwardly-extending plate formed on the lower edge of said brace and having a bolt-hole, substantially as described.

3. A door-hanger having a frame consisting of a horizontally-disposed top part carrying a wheel, two vertically-set side parts connected thereto and extending downwardly to and containing bolt-holes for connection to a door, then inwardly contracted and joined together to form a single lower end, also containing a bolt-hole, a horizontally-disposed brace connecting the vertical sides together adjoining the track and the door, and an upwardly and inwardly extending guide lug formed on the upper edge of said brace between the side parts, substantially as described.

4. In a door-hanger, the combination with a track of a frame carrying a wheel to run on said track, and the sides of said frame having upwardly and inwardly inclined edges adjacent to the track-rail, the lower ends of said inclined edges being extended below the upper edge of the track-rail, and their upper ends to the upper edges of the hanger-frame, whereby they are adapted to run under, lift up and carry off any obstructions which may be on the track, substantially as described.

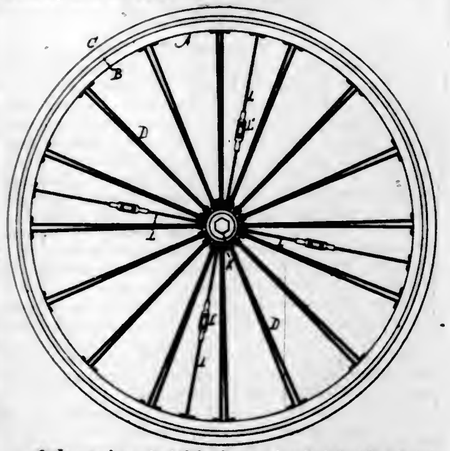
5. In a door-hanger the combination of a track composed of abutting sections of rail supported so their opposite edges will be left free from attachments and be held in the same vertical plane and having slotted holes midway of their width near each abutting end, and a splice-plate of less width than the rail and having flattened lugs on one of its faces near each of its ends adapted to enter said slotted holes whereby the abutting sections will be held in alinement with each other, substantially as described.

6. A door-hanger having a frame formed with an angle adapted to fit the side and top of a door, and a web connecting the faces of the angle and adapted to be driven into the edge of the door, substantially as described.

7. In a door-hanger having a track with abutting sections of rail, and fixed supports secured thereto at a distance from the abutting ends, an independent splice-plate joining said ends together and holding the rails in alinement with each other independently of said supports, substantially as described.

677,525. CARRIAGE-WHEEL. CORA R. LOVERIN, Nashua, N. H., administratrix of TRUE LOVERIN, deceased. Filed Apr. 3, 1900. Renewed Dec. 27, 1900. Serial No. 41,234. (No model.)

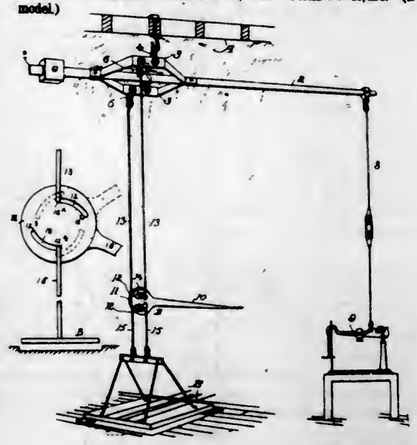
Claim.—1. In a carriage-wheel of the character described, the felly provided with the elongated lug E of substantially the shape shown set into the felly with its outer surface flush with the inner surface of the felly and curved to correspond with the circle described by the inner surface of the felly, said lug being of sufficient length and adapted to receive the end of two spokes one of which follows the other; the hub provided with the externally screw-threaded tubes H screwed radially therein and formed with nuts H′ integral with and at the outer ends of the tubes, said hubs being provided with suitable recesses next the inner ends of the tubes; and the pairs of metallic spokes D extending through said adjustable tubes and held in position by heads D″ at their inner ends, and each pair of spokes extending through one of the lugs E and held in place therein by heads D′, substantially as described.



2. In a carriage-wheel of the character described, the felly; the hub; the metallic spokes D arranged in pairs and with their outer ends secured to said felly and their inner ends secured adjustably to said hub; and the intermediate single supplemental strengthening-spokes L, each placed between two pairs of spokes D and made in two rigid parts the inner ends of which are connected by a tightening device and the outer ends secured to the felly and hub, substantially as set forth.

3. In a carriage-wheel of the character described, the hub comprising the collar N, hub proper K and bushing K′, said hub and collar being coincidently bored and said bushing being provided with the opening *k* connecting with the bore and hub; the annular oil-reservoir P secured to said hub; and the screw R, R″ extending through said reservoir into the bore in the hub and provided with the longitudinal slot U and vertical connecting-hole V, substantially as described.

677,526. WEIGHING-MACHINE. JOHN MAHER, San Francisco, Cal., assignor, by direct and mesne assignments, to Suspension Beam Scale Co., of California. Filed Dec. 19, 1900. Serial No. 40,428. (No model.)



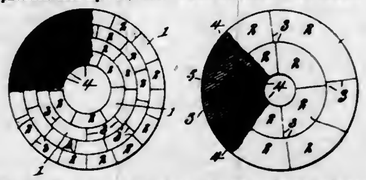
Claim.—1. In a weighing-machine, a balance-beam having a portion between its opposite ends provided with open frames or outriggers, one on each side, suspending knife-edges upon said frames, and other knife-edges upon these frames from which the load is suspended.

2. In a weighing-machine, the combination of a beam, an outrigger upon each side thereof at a point between the opposite ends of the beam, and a double series of knife-edges on the outriggers one series suspending the beam from a point above and the other series suspending the load, and adjustable connections between the beam and a second weighing-beam.

3. The combination in a weighing-machine of a balance-beam having outriggers, means of suspending said beam from its outriggers to an overhead support, a short track-section dependent from said outriggers adapted to form part of a main trolley-line system, and means of connection of the section and the two parts of the main line near the contiguous ends of the section and these parts whereby the section is held in alinement with said parts.

4. The combination in a weighing-machine, with an overhead support, of a balance-beam having outriggers, a fulcrum projection upon either of these outriggers, upon which the balance is supported, similar fulcrum projections from which a load-support is depended, said support consisting of a short track fitting as a section in a main trolley-line, arms upon the main track, links connecting these arms and the platform-track whereby lateral or horizontal displacement is prevented, and a vertical movement of the platform permitted.

677,527. CARTRIDGE. HUDSON MAXIM, Brooklyn, N. Y. Original application filed Aug. 24, 1899, Serial No. 728,304. Divided and this application filed Apr. 19, 1901. Serial No. 56,651. (No model.)



Claim.—1. An explosive charge having a plurality of concentric tubes of smokeless powder each of which tubes is built up of a plurality of longitudinal sections provided with uniformly-disposed transverse perforations.

2. An explosive charge having a plurality of concentric tubes of explosive material each of which tubes is built up of a plurality of transversely-perforated longitudinal sections.

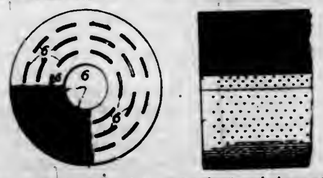
3. In an explosive charge a cylindrical mass of explosive material divided by radial planes into longitudinal sections, which sections are provided with transverse or lateral perforations.

4. In an explosive charge a cylindrical mass of explosive material divided by radial planes into longitudinal sections, which sections are provided with uniformly-disposed transverse or lateral perforations.

5. An explosive charge having a plurality of concentric tubes or cylinders of explosive material with lines of demarcation between the tubes for the flame of ignition, said tubes or cylinders being divided into a plurality of transversely-perforated longitudinal sections.

6. An explosive charge having a plurality of concentric, laterally-vented tubes or cylinders of explosive material which tubes or cylinders are divided into a plurality of longitudinal sections.

677,528. CARTRIDGE. HUDSON MAXIM, Brooklyn, N. Y. Original application filed Aug. 24, 1899, Serial No. 728,304. Divided and this application filed Apr. 23, 1901. Serial No. 57,153. (No specimens.)



Claim.—1. An integral mass or unit of explosive material in the form of a rod or bar provided with a plurality of longitudinal perforations each of which has a plurality of lateral vents.

2. An integral mass or unit of explosive material in the form of a rod or bar provided with a plurality of uniformly-disposed longitudinal perforations, and a plurality of lateral vents which connect with said longitudinal perforations.

3. An integral mass or unit of explosive material in the form of a rod or bar provided with a plurality of longitudinal perforations, and a plurality of uniformly-disposed lateral vents transecting a plurality of said longitudinal perforations.

4. An integral mass or unit of explosive material in the form of a rod or bar provided with a plurality of longitudinal perforations so disposed as to present substantially equal thicknesses of material between all the burning-surfaces, and a plurality of uniformly disposed lateral vents for said longitudinal perforations.

5. An integral mass or unit of explosive material provided with a central longitudinal perforation and a plurality of other longitudinal perforations arranged around said central perforation, and a plurality of lateral vents which act to simultaneously vent both the central and the other longitudinal perforations.

6. An integral mass or unit of explosive material provided with a central longitudinal perforation and a plurality of other longitudinal perforations symmetrically arranged around said central perforation, and a plurality of lateral vents extending from said central perforation and transecting one or more of the other longitudinal perforations.

7. An integral mass or unit of explosive material provided with a plurality of longitudinal perforations, a plurality of lateral vents to said longitudinal perforations and a plurality of laterally-opening cells.

8. An integral mass or unit of explosive material provided with a plurality of longitudinal perforations, a plurality of uniformly-disposed lateral vents to said longitudinal perforations, and a plurality of uniformly-disposed laterally-opening cells.

9. A cartridge-charge consisting of a bundle or fagot of integral units of explosive material in the form of rods or bars provided with a plurality of uniformly-disposed longitudinal perforations and a plurality of lateral vents transecting a plurality of said longitudinal perforations.

10. An integral mass or unit of explosive material in the form of a rod or bar provided with a plurality of longitudinal perforations so disposed as to present substantially equal thicknesses of material between the perforations, each of which longitudinal perforations has a plurality of lateral vents.

11. A cartridge-charge consisting of a bundle or fagot of integral units of explosive material in the form of rods or bars provided with a plurality of longitudinal perforations each of which longitudinal perforations has a plurality of lateral vents.

12. A cylindrical rod or bar of explosive material having a plurality of longitudinal perforations each of which has a burning-surface concentric with the rod or bar, and a plurality of lateral vents for said longitudinal perforations.

13. A rod or bar of explosive material having a central longitudinal perforation and a plurality of other longitudinal perforations, each of which has a burning-surface parallel with some part of the burning-surface of the central perforation, and a plurality of lateral vents for said longitudinal perforations.

677,529. WRENCH. JOHN J. A. MILLER, Denver, Colo. Filed Dec. 4, 1900. Serial No. 38,661. (No model.)



Claim.—1. In a wrench, the combination with the wrench-bar having a fixed jaw at one end, an inclined recess in one of its edges at its opposite or handle end, an adjustable jaw slidably mounted on said wrench-bar, a thimble secured to said handle end projecting above the handle and provided with an oblong hole, a spirally-grooved rod supported at one end in said thimble and extending through said adjustable jaw and keys secured in said adjustable jaw and extending into the spiral grooves of said spirally-grooved rod, substantially as described.

2. In a wrench, the combination of the wrench-bar having a fixed jaw at one end and a handle portion at its opposite end, an inclined recess in its handle and extending upward toward the fixed jaw, an adjustable jaw slidably mounted on said wrench-bar and a hole through said adjustable jaw with a spiral rod extending loosely through said hole provided with spiral flutes, keys secured to said adjustable jaw and extending into said flutes and having one end of said rod rest against said fixed jaw, a thimble secured to the handle end of said wrench-bar and containing an oblong hole extending from the recess in said wrench-bar to the top of said thimble in which the adjacent end of said rod extends, and a spring secured in said recess and arranged to hold said rod up against the top of said thimble and in alinement with said wrench-bar, substantially as described.

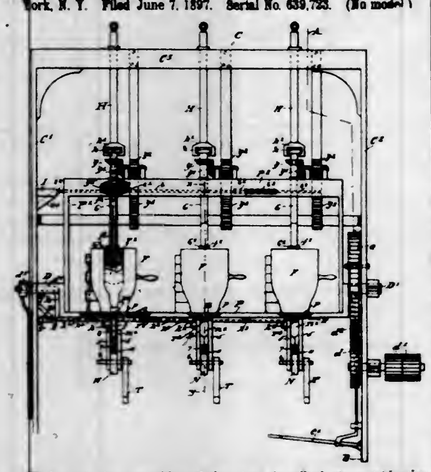
3. In a wrench, the combination with the wrench-bar and the fixed jaw having the handle portion and the inclined recess in said handle por-

tion of the side recesses in said handle portion, the thimble secured in said recesses, the adjustable jaw slidably mounted on said wrench-bar, the spirally-grooved clamping-rod extending through said jaw, the keys in said jaw extending into the grooves of said clamping-rod, the spring secured in said inclined recess and arranged to bear resiliently on the under side of said clamping-rod, substantially as described.

4. In a wrench, the combination of the wrench-bar the fixed jaw at one end of said wrench-bar, the adjustable jaw slidably mounted on said wrench-bar and the handle portion at the opposite end of said wrench-bar having an inclined recess extending upward toward the adjustable jaw, with the thimble, the spirally-grooved clamping-rod having a reduced spring portion adjacent to its spiral portion and supported at one end in said thimble and extending loosely through said adjustable jaw to said fixed jaw, the key secured in said adjustable jaw and arranged to extend loosely into the spiral flutes of said clamping-rod, and the spring secured in the recess of said wrench-bar and arranged to bear against the under side of said clamping-bar, a wedge-shaped strip secured to the opposite edge of said wrench-bar from said recess, and a ring surrounding loosely said handle portion and said wedge strip, substantially as described.

5. In a wrench, the combination with the wrench-bar having a fixed nut or pipe engaging jaw at one end, a handle portion at its opposite end containing an inclined recess extending upward toward said fixed jaw, the thimble secured to said handle end, the spring secured in said recess, and the spirally-grooved rod supported at one end in said thimble and having a spring portion adjacent to the thimble-supported end, an adjustable nut or pipe engaging jaw on said wrench-bar slidably keyed to said spirally-grooved rod, the wedge strip secured to the opposite edge of said wrench-bar from said inclined recess, and the holding-ring surrounding loosely said handle portion of said wrench-bar and spirally-grooved rod, substantially as described.

677,580. GLASS-BLOWING MACHINE. DANIEL MURRAY, New York, N. Y. Filed June 7, 1897. Serial No. 639,723. (No model.)



Claim.—1. In a machine of the class described, the combination with a platform supported by offset trunnions, of a wheel on said trunnions, adapted to contact a driving member, but having caves to break said contact.

2. In a machine of the class described, the combination of a revoluble platform with offset trunnions, with matrix-disks adapted to rotate therein, when said platform is revolved.

3. In a machine of the class described, the combination with a revoluble platform having offset trunnions and carrying matrix-disks, of means for rotating said disks, when said platform is revolved.

4. In a machine of the class described, the combination with a movable platform having offset trunnions and carrying matrix-disks, of means for rotating said disks, and thereby said matrices, or a portion thereof, by a movement of said platform.

5. In a machine of the class described, a blowpipe, provided with means for the advance thereof, said means adapted to retain said pipe in an advanced position, for a certain period, and release said pipe for return.

6. In a machine of the class described, a plumb-weight, having a center of rotation adapted to revolve about a support-center, and means adapted to actuate a blowpipe by said movements.

7. In a machine of the class described, a plumb-weight, having a center of rotation revolving about a support-center, a cam actuated by said movements, and a blowpipe by said cam.

8. In a machine of the class described, a plumb-weight, adapted to rotation by revolving the center of rotation about a support-center, a toothed member actuated by said movements, and a blowpipe actuated by said member.

9. In a machine of the class described, a revoluble platform, a plumb-weight journaled thereto, and adapted to rotation, when said platform is operated, and means to actuate a blowpipe by said movements.

10. In a machine of the class described, a revoluble platform, a plumb-weight thereon, having a center of rotation, adapted to revolve about the center of support of said platform, a cam journaled with, and adapted to rotation by said weight when rotated, and a blowpipe actuated by said cam.

11. The combination, with a revoluble platform hanging by offset trunnions, of matrices thereon, blowpipes thereunder, fluid-conduits to said pipes, and means to reciprocate said pipes to control the flow of fluid thereto, and introduce said pipes to said matrices, by, and during a revolution of said platform.

12. The combination, with a revoluble platform hanging by offset trunnions, of matrices thereon, blowpipes thereto, and means to rotate said matrices, or portions thereof, by, and during a revolution of said platform.

13. The combination, with a revoluble platform hanging by offset trunnions, of matrices thereon, blowpipes thereto, means to reciprocate said pipes, and rotate said matrices, or portions thereof, at predetermined periods, by, and during a revolution of said platform.

14. In combination, with a revoluble platform, having matrices thereon, and carrying an arch-beam thereover, of means, on said beam, adapted to rotate said matrices, or portions thereof, by, and during a portion of the revolution of said platform, and supported parts.

15. In combination, with a revoluble platform, having matrices thereon, and carrying an arch-beam thereover, of a plunger, to enter and compress molten metal in said matrices, and means on said beam, adapted to carry and rotate said plunger, and thereby said matrices, or portions thereof, by, and during a portion of the revolution of said platform and supported parts.

16. In combination, with a revoluble platform, having matrices thereon, and carrying an arch-beam thereover, of plungers for said matrices, tubular shafts in said beam, carrying the shanks of said plungers, and means for the rotation of said shafts, plungers and matrices, by, and during a portion of the revolution of said platform and supported parts.

17. In combination, with a tubular shaft, having suitable support, and a matrix thereunder, of a plunger, with a shank in said shaft, and adapted to reciprocate therein, and enter said matrix, and adjustable means in said shaft to determine the position of said plunger when returned.

18. In combination with a revoluble platform, having matrices thereon, and carrying an arch-beam thereover, of plungers for said matrices, tubular shafts in said beam, carrying the shanks of said plungers, and having means thereon to contact stationary members provided in the path of revolution of said arch-beam, during a portion of the revolution of said platform, to rotate said shafts, plungers, and matrices at right angles to said revolution.

19. In combination with a tubular shaft, having end movement in a supporting member adapted to revolve and carry said shaft, of means for locking said shaft from movement during said revolution.

20. In combination, with a tubular shaft, having end movement in a supporting member, adapted to revolve and carry said shaft, of automatic means for locking said shaft from end movement during said revolution, and to release same at a predetermined point.

21. In combination with a tubular shaft, supported in a revoluble member adapted to carry same, of means to engage said shaft for end movement, when said member is stationary.

22. In combination with a tubular shaft, supported in a revoluble member, of means to engage said shaft for end movement, when said member is stationary, and means to lock said shaft during said revolution, and to release same at a predetermined point.

23. In combination with a tubular shaft, supported in a revoluble member, at right angles thereto, of means on said shaft to engage stationary members for rotation, during a portion of the revolution of said support.

24. In combination with a tubular shaft, supported in a revoluble member, at right angles thereto, of gearing on said shaft and support, one of said gears adapted to engage a rack-segment provided in the path of revolution thereof with said support, to rotate said shaft.

25. In combination with a tubular shaft, having suitable support, a matrix thereunder, and a plunger, with a shank adapted to reciprocate in said shaft, of means to lock said shaft and shank for simultaneous lifting thereof, and adapted to release said plunger to drop in said matrix.

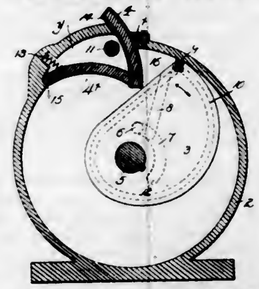
26. A glass-blowing machine, comprising a main frame, a platform trunnioned therein, and carrying matrices thereon and blowpipes thereunder, and means to reciprocate said pipes, to control compressed fluid to said matrices, by, and during a revolution of said platform.

27. A glass-blowing machine, comprising a main frame, a platform trunnioned therein, carrying matrices thereon, an arch-beam thereover, blowpipes thereunder, and means on said beam to enter and compress molten metal in said matrices, and on said platform to enter said pipes to inflate said metal, and return said compression means to a predetermined point, by, and during a revolution of said platform.

28. A glass-blowing machine, comprising a main frame, a platform trunnioned therein, carrying matrices thereon, an arch-beam thereover, blowpipes thereunder, and means on said beam to enter and compress molten metal in said matrices, and on said platform to enter said pipes to inflate said metal, and return said compression means to a predetermined point, and means to rotate said matrices or portions thereof, by, and during a revolution of said platform.

29. A glass-blowing machine, comprising a main frame, a platform trunnioned therein carrying matrices thereon, an arch-beam thereover, blowpipes thereunder, and means on said beam to enter and compress molten metal in said matrices, and on said platform to enter said pipes, to inflate said metal and return said compression means to a predetermined point, for rotation thereof, in or with said matrices, or portions thereof, by, and during portions of a single revolution of said platform.

677,581. ROTARY ENGINE. ELMER R. ALBERT, Malta, Idaho. Filed July 17, 1899. Serial No. 724,149. (No model.)



Claim.—1. In combination with the cylinder and piston, an abutment-plate freely movable toward and from the center of the cylinder to rest on the piston at all times and a pivoted arm carrying the said abutment-plate, said arm being formed on a curve corresponding substantially to that of the inner periphery of the cylinder, said abutment-plate being pivoted adjacent to the inner periphery of the cylinder with its inner surface arranged to form a continuation of the inner surface of the cylinder, substantially as described.

2. In combination, the cylinder, the piston and the abutment comprising a pivoted arm with a spring for forcing the arm constantly toward the piston and the abutment-plate connected with the end of the same and extending outwardly from the said arm, said arm being curved and forming a continuation of the inner periphery of the cylinder when said arm is in its outermost position, substantially as described.

677,582. YIELDING AUTOMATIC ADJUSTABLE CAR-FENDER. SCOTT W. ALEXANDER, Los Angeles, Cal. Filed Sept. 6, 1899. Serial No. 729,651. (No model.)

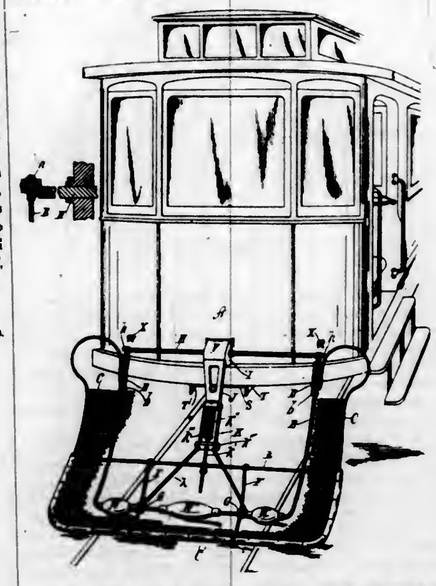
Claim.—1. In a car-fender the combination of a supporting-frame supported by the car; a receiving-frame comprising a rod bent to form the front and sides of the frame and having its upper ends slidingly connected with the supporting-frame; a cross-bar, one or more running-bars connected with and extending between the cross-bar and the front member of the supporting-frame; and links connecting the running-bars with the front of the supporting-frame.

2. The combination with a car, of a supporting-frame pivoted to the car and extending forward from the car; means for holding the supporting-frame practically rigid relative to the car and adapted to be released; a spring for throwing the supporting-frame upward; a yielding frame slidingly mounted upon the supporting-frame and springs for normally holding the yielding frame in a forwardly-extended position.

3. In a car-fender the combination with a car of a frame pivoted to the car; a hanger pivoted to the car; a connecting device pivotally connecting the hanger with the frame; and means for operating the hanger to raise or lower the frame.

4. In a car-fender the combination with a car, of a frame pivoted to the car; a hanger pivoted to the car below the axis of the pivot of the frame; a connecting device pivotally connecting the hanger with the frame; and means for operating the hanger to raise and lower the frame.

5. In a car-fender the combination with a car, of a frame pivoted to the car; a hanger pivoted to the car; an extensible connecting device pivotally connecting the hanger with the frame; means for normally contracting the connecting device; and means for operating the hanger to raise and lower the frame.



6. In a car-fender the combination with a car, of a frame pivoted to the car; a hanger pivoted to the car; a yoke pivoted to the front of the frame; a rod pivoted to the hanger and sliding through the yoke and a spring to move the rod into the yoke.

7. In a car-fender the combination with a car, of a frame pivoted to the car; a hanger pivoted to the car and connected to the frame to raise and lower the same; a pinion fastened to the hanger; and a lever pivoted to the car and provided with a cogged segment meshing with the pinion.

8. In a car-fender the combination with a car, of a frame pivoted to the car; a hanger pivoted to the car and connected with the frame to raise and lower the same; a pinion fastened to the hanger; a lever pivoted to the car, and provided with a cogged segment meshing with the pinion; and means for normally holding the frame up.

9. In a car-fender the combination with a car, of a frame pivoted to the car; a hanger pivoted to the car and connected with the frame to raise and lower the same; a pinion fastened to the hanger; a lever pivoted to the car and provided with a cogged segment meshing with the pinion; means for yieldingly holding the frame up; a ratchet-wheel fastened to the hanger; and a pawl for holding the ratchet-wheel.

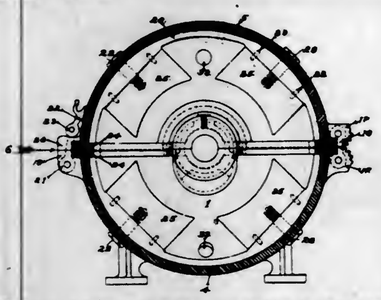
10. In a car-fender, the combination of a frame pivoted to the car and arranged to be brought into position with its free portion elevated against the car and thus out of the way; resilient means for yieldingly holding the frame up with its free portion against the car; and a ratchet device for holding the frame against the action of said resilient means, and arranged to allow the frame to be readily forced down against the force of said resilient means.

11. In a car-fender the combination with a car, of a frame; a hanger connected with the frame; means for yieldingly holding the hanger up; means for throwing the hanger down; a ratchet-wheel fastened to the hanger; a lever provided with pawl-escapement for the ratchet-wheel; and means for withdrawing one of the pawls from its operative position.

12. In a car-fender the combination with a car, of a box mounted upon the car; a king-bolt fastened to the box and extending through the frame of the car to turn therein; a cross-bar fastened to the lower end of the king-bolt; a tension-rod connecting one end of the bar with the car-truck at a point on one side of the mid-line thereof; a tension-rod connecting the other end of the bar with the car-truck on the opposite side of the mid-line; and the fender carried by the box.

13. The combination with a car, of a car-fender frame; mechanism for raising and lowering the car-fender frame; a spring-actuated curtain-roller fastened to the car and a curtain on said roller and extending over the frame-operating mechanism and attached to a moving part of the fender, substantially as set forth.

677,533. CASING FOR DYNAMO-ELECTRIC MACHINES. CHAS. DE WITT ANDERSON, Chicago, Ill. Filed Oct. 14, 1899. Serial No. 733,593. (No model.)



Claim.—1. A casing for dyname-electric machines having an armature-chamber in the nature of a drum formed in two longitudinal parts, and two closed bearing-chambers, each formed in two longitudinal parts, one part of each bearing-chamber being integral with one part of the armature-chamber, these latter parts of the bearing-chambers being so disposed that the ends of that part of the armature-chamber with which they are integral intersect and join them transversely intermediate of their ends, substantially as described.

2. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts, two closed bearing-chambers, each formed in two longitudinal parts, one part of each bearing-chamber being integral with one part of the armature-chamber and so disposed that the ends of the part of the armature-chamber with which they are integral intersect and join them transversely intermediate of their ends, and pillow-blocks integral with the latter parts of the bearing-chambers and disposed opposite the intersection therewith of the ends of the last-aforesaid part of the armature-chamber, substantially as set forth.

3. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts 4 and 5, two closed bearing-chambers 2 and 3, each formed in two longitudinal parts, one part of each bearing-chamber being integral with the part 4 of the armature-chamber and so disposed that the ends of the part 4 intersect and join the corresponding parts of the bearing-chambers transversely intermediate of their ends, and pillow-blocks 12 arranged in the bearing-chambers opposite the ends of the part 4, the pillow-blocks being provided with openings for the free circulation of oil, substantially as set forth.

4. A casing for dynamo-electric machines comprising an armature-chamber formed in two longitudinal parts 4 and 5, and two closed bearing-chambers, each formed in two longitudinal parts, one part of each bearing-chamber being integral with the part 4 of the armature-chamber and the other part of each bearing-chamber being a separate part, the part 5 and the last-aforesaid separate parts of the bearing-chambers being provided with features that meet and form a tight joint, substantially as set forth.

5. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts 4 and 5, and two closed bearing-chambers, each formed in two longitudinal parts, one part of each bearing-chamber being integral with the part 4 and so disposed that the ends of the part 4 intersect and join the bearing-chambers transversely, each of the lower parts of the bearing-chambers being provided with a pillow-block arranged opposite the ends of the part 4, each of the upper parts of the bearing-chambers being provided with an internal flange immediately above the pillow-block, and means for securing the two parts of the armature-chamber and the two parts of each of the bearing-chambers together, substantially as set forth.

6. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts 4 and 5 of curved (substantially cylindrical) cross-section intermediate of its ends, the ends being closed, two closed bearing-chambers 2 and 3, each formed in two longitudinal parts, the lower part of each bearing-chamber being integral with the part 4 and so disposed that the ends of the part 4 intersect and join the lower parts of the bearing-chambers transversely intermediate of their ends, and means for securing together the upper and lower parts of the bearing-chambers, the upper part 5 of the armature-chamber and the upper parts of the bearing-chambers being provided with features which meet and form a tight joint, the bearing-chambers being provided with openings for receiving the armature-shaft, substantially as described.

7. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts, a two-part ring supported by the armature-chamber and forming a closed magnetic circuit, and field-magnet pole-pieces secured to said ring, substantially as set forth.

8. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts, a separate ring formed in two parts, each secured to one part of the armature-chamber and forming together a closed magnetic circuit, and field-magnet pole-pieces secured to said ring, substantially as set forth.

9. A casing for dynamo-electric machines having an armature-chamber made of non-magnetic material, a magnetic ring secured within the armature-chamber and forming a closed magnetic circuit, and field-magnet cores carried by said ring, substantially as set forth.

10. A casing for dynamo-electric machines having an armature-chamber made of non-magnetic material and in two longitudinal parts, a magnetic ring formed in two parts, each secured to one part of the armature-chamber and forming together a closed magnetic circuit, and field-magnet pole-pieces secured to said ring, substantially as set forth.

11. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts, a separate magnetic ring formed in two parts, each secured to one part of the casing and forming together a closed magnetic circuit, means for preventing the movement of the ring relatively to the casing, an armature, and field-magnet pole-pieces carried by the ring, substantially as set forth.

12. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts, a magnetic ring formed in two parts, each carried by one part of the casing and forming together a closed magnetic circuit, the two parts of the casing and the two parts of the ring having engaging features which prevent the movement of the ring relatively to the casing, and field-magnet pole-pieces carried by the ring, substantially as set forth.

13. A casing for dynamo-electric machines having an armature-chamber formed in two longitudinal parts, a magnetic ring formed in two parts, each carried by one part of the armature-chamber, the magnetic ring being provided with seats for the pole-pieces of the field-magnets, pole-pieces, and means for securing said pole-pieces to said seats, substantially as set forth.

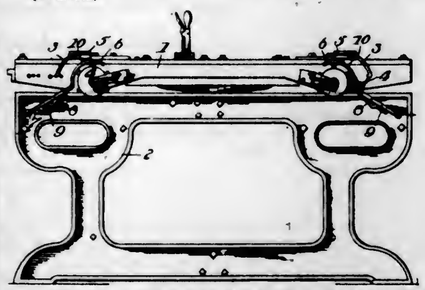
14. A casing for dynamo-electric machines having an armature-chamber in the nature of a drum formed in a plurality of longitudinal parts separable one from another, said parts having at their meeting edges flanges within the drum, a separate magnetic ring formed in a plurality of parts corresponding with the parts of the drum, means for securing the parts of the magnetic ring to the parts of the drum, and field-magnet pole-pieces carried by the ring, substantially as set forth.

15. A casing for dynamo-electric machines having an armature-chamber, two bearing-chambers, and lugs on one of the bearing-chambers within the armature-chamber, and means for attaching the brush-holders to said lugs, substantially as set forth.

16. A casing for dynamo-electric machines having an armature-chamber formed in two parts, perforated ears formed on said parts and arranged in coöperating pairs, and links pivoted to the ears of the two parts for holding them in operative relation to each other, substantially as set forth.

17. A casing for dynamo-electric machines having an armature-chamber formed in two parts, perforated ears formed on said parts and arranged in coöperating pairs, and links pivoted to said ears, at least one pair of ears being provided with intermeshing teeth, substantially as set forth.

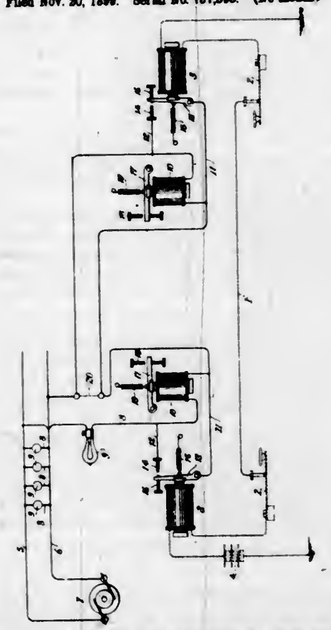
677,534. ATTACHMENT FOR SHINGLE-SAWING MACHINES. HARRY G. BLANCHARD, Bay, Ark. Filed Dec. 3, 1900. Serial No. 38,476. (No model.)



Claim.—1. In combination with a shingle-sawing machine having a toothed wheel and pivoted hook for operating the same, an attachment consisting of a lever fulcrumed to the machine and having a curved end swinging into and out of the plane of the wheel and thus adapted to be interposed between the wheel and the hook and a suitable means for operating said lever.

2. In combination with a shingle-sawing machine having a toothed cam and a hook for operating the same, a lever fulcrumed to one end of a U-shaped iron, said U-shaped iron attached to the machine, the opposite end of said iron being elongated passing under the lever and forming a guide for the same, the free end of the said lever adapted to be interposed between the wheel and the hook, and a means for operating the lever.

677,535. TELEGRAPH APPARATUS. JOHN BURRY, Fort Lee, N. J. Filed Nov. 20, 1899. Serial No. 737,593. (No model.)



Claim.—1. In telegraphy, the combination of a main line, a relay therein, a receiver having an electromagnet, a local circuit consisting of a bridge in an electric-light circuit and in which bridge the coils of said electromagnet are continuously included, and a shunt for said magnet controlled by the armature of said relay, substantially as described.

2. In telegraphy, the combination of a main line, a relay therein, a receiver having an electromagnet, electric-light mains, a lamp-socket, a bridge between said mains and in which said socket and said electromagnet are included in series an incandescent lamp for said socket, and a shunt for said magnet controlled by the armature of said relay, substantially as described.

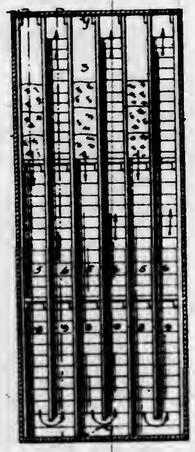
3. In telegraphy, the combination of a number of line-relays, and electromagnets of an equal number of receiving instruments, with a single local circuit comprising a single bridge in an electric-light circuit in which bridge the coils of said magnets are continuously included, and an independent shunt for each of said electromagnets in which the corresponding relay-armature is included, substantially as described.

4. In a telegraph system, the combination of a number of line-relays, and electromagnets of an equal number of receiving instruments, with a local circuit comprising a single bridge in an electric-light circuit in which bridge the coils of said electromagnets are continuously included, and an independent shunt for each of said electromagnets in which the corresponding relay-armature and its back stop are included, substantially as described.

5. In a telegraph system, the combination of a number of line-relays, and electromagnets of an equal number of receiving instruments, with a local circuit comprising a single bridge in an electric-light circuit in which a lamp-socket an incandescent lamp and the coils of said electromagnets are continuously included, and an independent shunt for each of said electromagnets in which the corresponding relay-armature is included, substantially as described.

6. In a telegraph system, the combination of a number of line-relays, and electromagnets of an equal number of receiving instruments, with a local circuit comprising a single bridge in an electric-light circuit in which a lamp-socket an incandescent lamp and the coils of said electromagnets are continuously included in series, and an independent make-and-break shunt for each of said electromagnets in which the corresponding relay-armature and its back stop are included, substantially as described.

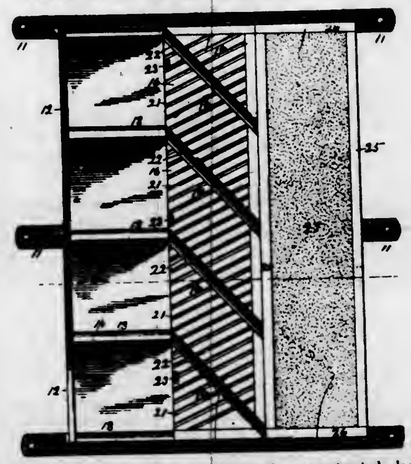
677,536. INDIRECT AIR-CIRCULATING SYSTEM FOR COLD-STORAGE APPARATUS. MADISON COOPER, Minneapolis, Minn. Filed Nov. 19, 1900. Serial No. 36,966. (No model.)



Claim.—1. The combination, in a refrigerator or cold-storage apparatus, with a suitable ice-chamber or air-cooling room, of one or more storage-rooms arranged below said ice-chamber, and vertical ducts arranged side by side and in the same vertical plane, between the walls of said storage-rooms, each pair of ducts being connected at their lower ends, and one duct of each pair communicating with the lower part of the ice-chamber, and the other with the upper part of the ice-chamber, substantially as described and for the purpose set forth.

2. The combination, in a refrigerator or cold-storage apparatus, with a suitable ice-chamber or air-cooling room, of one or more storage-rooms arranged below said air-cooling room, and provided with the outer wall 7 and the inner wall 10, the studs 8 and 9 arranged between said walls and forming, with said walls, the vertical ducts 5 and 6 arranged side by side and communicating at their lower ends, the duct 5 being connected with the lower part of the ice-chamber or air-cooling room, and the duct 6 with the upper part thereof, substantially as described.

677,537. APPARATUS FOR GOLD-MINING. MILO COVEL, Chicago, Ill. Filed Apr. 26, 1900. Serial No. 14,387. (No model.)

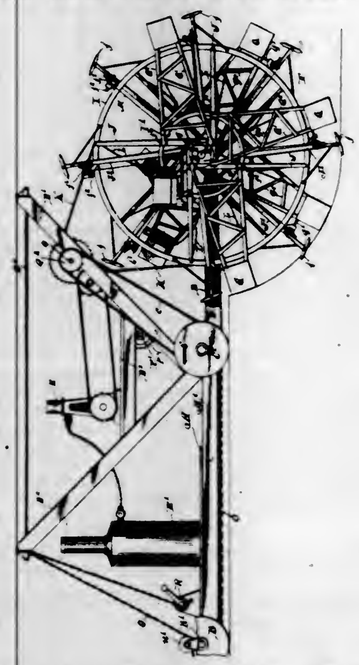


Claim.—1. An ore-washer and separating apparatus, to be located along the line of the beach in position to utilize the wave action, and comprising a table-bed, on which the gold-bearing earth is deposited, a riffle-frame, located one step lower than said bed and a reversible fabric pad, located in turn a step lower than the riffle-frame and all joined together edgewise and adapted to receive the wave action endwise, substantially as described.

2. An ore-washer and separating apparatus, comprising a table-bed, provided with an elevated back, a riffle-frame, consisting of a number of slats, running diagonally and separated by narrow openings communicating with a chamber below said riffle, a number of guide-bars, crossing said slats diagonally in the opposite direction and set widely apart, and a fabric pad, adapted to collect and retain the fine gold coming from said riffle, substantially as described.

3. In an ore-washing and separating apparatus, the combination with a table-bed, provided with a number of parallel cleats, of a riffle-frame, the guide-bars, running across said riffle in a diagonal plane with reference to said cleats, and a fabric pad-section, joining the riffle-frame on the side opposite to that of the table-bed, substantially as described.

677,538. EXCAVATING APPARATUS. RICHARD DALTON, Willmette, Ill. Filed Jan. 17, 1900. Serial No. 1,720. (No model.)



Claim.—1. An excavating apparatus embracing a rotative wheel scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect to the wheel, said arms being arranged alternately at opposite sides of the wheel and the scoops on opposite sides of the wheel being adapted to stand in overlapped relation with each other circumferentially when in their retracted positions.

2. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect to the wheel, said arms being arranged alternately at opposite sides of the wheel and plows attached to the wheel at both sides thereof, and means for adjusting said arms laterally to afford a desired width of cut.

3. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect to the wheel, said arms being arranged alternately at opposite sides of the wheel and reversible double-ended plows attached to the wheel at both sides thereof.

4. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect to the plane of the wheel, said arms being pivoted to the wheel so as to swing about axes oblique to the plane of rotation of the wheel, so that the said arms tend to move both outwardly and inwardly by the action of gravity, and means supplementing the action of gravity in the return of the arms from their extended to their retracted positions acting on said arms to insure their return before the scoops on the same reach the ground in their downward movement.

5. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect thereto, and connections between the said arms whereby outward movement of each arm will produce inward movement of another arm.

6. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect thereto, connecting-chains between the said arms and guide-pulleys for the same, whereby outward movement of each arm produces inward movement of another arm.

7. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with said wheel and capable of lateral movement relatively to the plane of the wheel, chains connecting each arm with the wheel and acting to limit the outward movement of the arm, arm-actuating chains connecting the limiting-chains with each other, and guide-pulleys for said arm-actuating chains.

8. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted to the wheel and having lateral movement relatively thereto, and locking means securing the scoops to the periphery of the wheel and acting to hold the scoops from movement in the direction of the plane of the wheel.

9. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted to said wheel and having lateral movement relatively thereto, locking devices for holding the scoops from movement with respect to the wheel in the direction of its plane of rotation and means for automatically releasing said locking devices to permit the lateral movement of the scoops.

10. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted to said wheel and having lateral movement relatively thereto, spring-actuated latches on the wheel adapted to engage the scoops, catches acting on the latches to hold the same temporarily out of position for engagement with the scoops, and means operated by each of the said arms acting to release the catch associated with one of the other arms.

11. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted to the wheel and movable with respect thereto, said arms being located alternately on opposite sides of said wheel, spring-actuated latches on the wheel engaging the scoops to hold the same from backward movement with respect to the plane of the wheel, and chains connecting each arm with the latch belonging to an arm at the opposite side of the wheel.

12. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted to the wheel and movable laterally with respect thereto, said arms being pivotally connected with the wheel so as to swing about axes oblique to the plane of rotation of the wheel, whereby said arms tend to move both outwardly and inwardly by the action of gravity, and oblique guides at the sides of the wheel located in position to support and guide the scoops in the outward lateral movement of the same under the action of gravity.

13. An excavating apparatus embracing a rotative wheel, provided with a circular rim, scoop-bearing arms pivoted to the wheel and movable laterally with respect thereto, and driving means for the wheel embracing a driving-pulley and a driving-belt trained around said driving-pulley and the rim of the said wheel.

14. An excavating apparatus embracing a rotative wheel provided with a circular rim, scoop-bearing arms pivoted to the wheel and movable at their outer ends laterally with respect thereto, means for locking the scoops to the onter part of the wheel when said scoops are in their retracted position and means for driving the wheel embracing a driving-pulley and a driving-belt trained around said pulley and said wheel-rim.

15. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted thereto and movable laterally with respect to said wheel, a movable supporting-frame, a wheel-carrying frame pivoted to the supporting-frame, a motor and driving-gear for the wheel mounted on said wheel-carrying frame, and adjusting means for changing the angle of the carrying-frame with respect to the supporting frame.

16. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted thereto and movable laterally of the wheel, a movable supporting-frame, a wheel-carrying frame pivoted to the supporting-frame, a motor and driving-gear for the wheel, mounted on said wheel-carrying frame, and tractive means for advancing the apparatus, said tractive means acting on the wheel-carrying frame to lift the weight of the excavating-wheel when the same is in operation.

17. An excavating apparatus embracing a movable supporting-frame, a wheel-carrying frame pivoted thereto, a wheel mounted on said carrying-frame and provided with scoop-bearing arms, a traction-cable and means acting on the same to advance the apparatus, said traction-cable being arranged to exert tension on the wheel-carrying frame at a point distant from its pivot and in a direction to lift the wheel.

18. An excavating apparatus embracing a rotative wheel laterally-movable scoop-bearing arms pivoted thereto, a movable supporting-frame, a wheel-carrying frame pivoted to the supporting-frame, a motor and driving-gear for the wheel mounted on said wheel-carrying frame, a traction-cable acting in the supporting-frame and engaging said wheel-carrying frame at a point distant from the pivot thereof and a winch for exerting tractive strain on the said cable whereby strain on said cable in advancing the machine tends to lift the wheel.

19. An excavating apparatus embracing a rotative wheel, scoop-bearing arms on said wheel, a movable supporting-frame, a wheel-carrying frame pivoted to the supporting-frame, a motor and driving-gear for the wheel, tractive means comprising a winch and a cable having one of its ends secured to the wheel-carrying frame, at a point distant from its pivot and its other end applied to said winch, and operative connections between said motor and said winch.

20. An excavating apparatus embracing a rotative wheel provided with scoop-bearing arms, a movable supporting-frame, a wheel-carrying frame pivoted thereto, a motor and driving-gears for the wheel mounted on the wheel-carrying frame, a winch also mounted thereon and comprising a rotative barrel or drum, a pulley yieldingly secured to the supporting-frame and acting as a tension member for the winch, and operative connections between said motor and winch.

21. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivoted thereon, a movable supporting-frame, a wheel-carrying frame pivoted thereon, a motor, and driving-gear for the wheel mounted on the wheel-carrying frame, winch also mounted thereon, and operative connection between the motor and the winch comprising a ratchet-wheel on the winch-shaft, a pawl to hold said ratchet-wheel from rotation in one direction, an oscillatory pawl mounted on the frame and engaging said ratchet-wheel, a wheel rotated by the motor, a wrist-pin thereon and a connecting-rod engaging said wrist-pin and the said oscillatory pawl.

22. An excavating apparatus comprising a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect to the wheel, and means for variably limiting the inward movement of the arms, whereby excavations of varying widths may be made.

23. An excavating apparatus embracing a rotative wheel, scoop-bearing arms pivotally connected with the wheel and capable of lateral movement with respect to the wheel, a series of plows attached to the wheel between the scoops, means for variably limiting the inward movement of said scoops to give a varied width of cut, and means for adjusting said plows laterally of the wheel, whereby the latter may be changed in position to correspond with the position of the scoops.

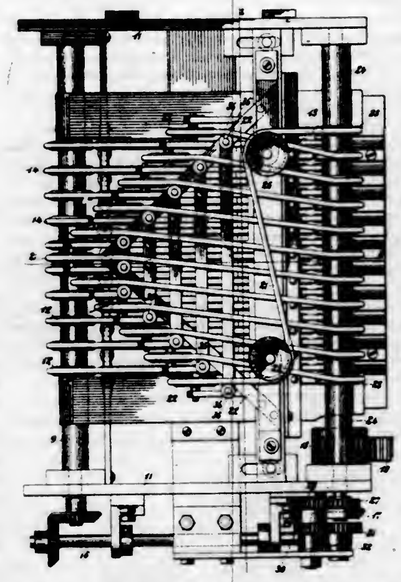
677,539. TEMPORARY FASTENER FOR SHOES. ERNEST E DONOVAN, North Grafton, Mass., assignor to Edwin B Story, same place. Filed July 5, 1900. Serial No. 22,513. (No model.)



Claim.—1. As an article of manufacture, a temporary fastener for shoes comprising a sheet-metal plate having perforations along opposite edges thereof, eyelets each having a flaring end of less diameter than said perforations inserted through said plate from the rear side thereof, and each having a flange of greater diameter than said perforations, and a sheet-metal cap fitting over the flaring end of each eyelet and crimped in place thereon after the end of said eyelet has been inserted through said plate to form studs, substantially as described.

2. As an article of manufacture, a temporary fastener for shoes comprising a sheet-metal plate 10 having perforations 11 along opposite edges thereof, eyelets 12, each having a flaring end of less diameter than said perforations inserted through said plate from the rear side of the plate, and having a flange of greater diameter than said perforations, and a round-topped sheet-metal cap 13 fitting over the flaring end of each eyelet and crimped in place thereon after said eyelet has been inserted from the rear side of the plate, the tops of said caps being split and expanded to form spring-catches for engaging the eyelets of a shoe, substantially as described.

677,540. FEEDING DEVICE FOR PLAITING-MACHINES. JOSEPH A. GROEBLI, New York, N. Y., assignor to the Kursheedt Manufacturing Company, same place. Filed Mar. 15, 1900. Serial No. 8,707. (No model.)



Claim.—1. In a machine for operating upon fabric, the combination in a unitary structure of the following-named instrumentalities, to wit: a puffing organism comprising in its structure means for longitudinally compacting fabric, a feeder therefor operating in harmony therewith, comprising in its structure a plurality of belt lengths, the said belt lengths being located in different planes the lines of travel of the belts intersecting each other in a plane intermediate of the planes of travel of the portions of the belt which are operative to immediately effect the feeding, and means for driving the said belt lengths, whereby the fabric may be fed and compacted laterally into corrugated form by the feeder and may be compacted longitudinally by the puffing organism.

2. In a machine for operating upon fabric, the combination in a unitary structure of the following-named instrumentalities, to wit: a puffing organism comprising in its structure means for longitudinally compacting fabric, a feeder therefor comprising two series of belt-carrying wheels, means for driving the same, belt lengths carried thereby and arranged to be driven by the said wheels in separate planes, the wheels carrying one belt length intervening between the wheels carrying the other belt length so as to feed the fabric forward in longitudinally-corrugated form.

3 In a machine for operating upon fabric, the combination in a unitary structure, of fabric-puffing organism adapted to compact or gather the fabric longitudinally and a fabric-feeder therefor adapted to bring the said fabric to the puffing organism in a corrugated or laterally-compacted condition, the said feeder comprising in its structure a series of spaced fabric-guiding means and belt lengths intervening between and located beyond the working lengths of the said guiding means whereby the guiding means and feed-belt lengths will intermesh with each other and means for driving the belt lengths.

4. In a machine for operating upon fabric, the combination of two sets of feed-wheels, sets of belt lengths passing around the said feed-wheels, the said sets of belt lengths and feed-wheels intermeshing with each other, whereby the said belt lengths will constitute a fabric-feeder adapted to laterally compact a fabric by bending the same into corrugated form, means for driving said belt lengths and wheels, and means for longitudinally compacting the said fabric, substantially as described.

5. In an organism for puffing fabric, the combination of puffing means adapted to longitudinally compact a fabric and a feeder therefor comprising in its structure two oppositely-placed intermeshed feed-belt lengths with means for moving the same, the belt lengths on the under side of the fabric meshing with the belt lengths on the upper side of the fabric so that the fabric will be laterally compacted into corrugated form.

6. In a machine for operating upon fabric, the combination of a puffing organism and a plurality of belt lengths with driving means there-

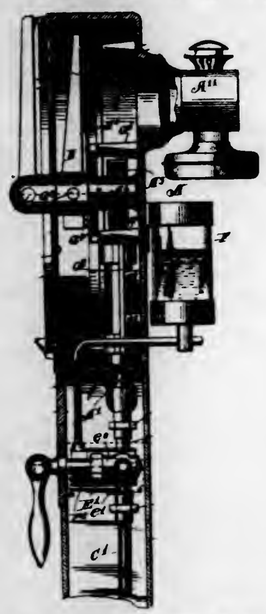
for, the said belt lengths being divided into two sets or groups, the operating portions of the upper group intervening between the operating portions of the lower group and being located respectively below the operating portions of the lower group, whereby the fabric will be laterally compacted.

7. In a machine for operating upon fabric, the combination of a pulling organism comprising in its structure means for longitudinally compacting fabric and a feeder for laterally compacting the said fabric comprising in its structure a series of spaced fabric-guiding means, a feed-belt whose operating lengths intervene between the said longitudinally-arranged guiding means and means for driving the feed-belt.

8. In a machine for operating upon fabric, the combination in a unitary structure of the following-named instrumentalities, to wit: means for longitudinally compacting a fabric and means for laterally compacting the said fabric into corrugated form, the said last-mentioned means comprising in its structure series of belt-carrying wheels, one series thereof being arranged in echelon and belt lengths carried by the said wheels and arranged to be driven in separate planes, one set of belt lengths intervening between the other set of belt lengths and the axes of the wheels carrying the other set of belt lengths, and means for driving the said belt lengths.

9. In a fabric-feeder, the combination of a plurality of sets of belt lengths and driving means therefor, one set of belt lengths intervening between the other set of belt lengths and its driving means, whereby the said belt lengths will be effective to guide and transport a fabric in a corrugated condition.

677,541. SIGNALING DEVICE. ROBERT H. GRIESCOW and HOWARD H. ORMORE, Chicago, Ill., assignors of one-third to Donald MacLean, same place. Filed Feb. 26, 1900. Serial No. 6,502. (No model.)



Claim.—1. The combination with a transmitting and a receiving device, each embracing a dial having visual characters thereon, and an indicating-pointer coöperating with each dial, of connections between said devices by which a movement of one of said pointers on its dial moves the other pointer a like extent on its dial, embracing two shifting columns of liquid contained in normally-independent pipes extending between said devices, and a source of liquid-supply in communication with both of said liquid-pipes through connections embracing check-valves which open toward said pipes.

2. The combination with a transmitting and receiving device, each comprising two cylinders, a plunger in each cylinder and a rack connected with each plunger, of a gear-pinion between and meshing with adjacent racks, a pointer actuated by said gear-pinion, a dial on each device coöperating with the pointer thereof, two pipes extending between and connecting the cylinders of the devices and normally independent of each other, a casing contained in each pipe, a suitable source of liquid-supply, a discharge-pipe connected therewith having two branches, one of which is connected with each casing, and an inwardly-opening check-valve located between the discharge end of each branch and the liquid-pipes.

3. A transmitting device comprising a casing, a dial therein, a pointer coöperating with said dial and constructed to constitute an actuating-lever for the device, a metallic strip in said casing parallel with the plane in which the pointer moves and of a length approximately equal to the length of the traverse of the pointer, a switch-lever which oscillates toward and from the strip, which is normally out of contact therewith and is adapted for physical contact with said strip, and connections between the lever and pointer for moving the former into physical contact with the strip.

4. A transmitting device comprising a casing, a dial therein, having thereon a series of orders, a pointer coöperating with said dial and constructed in itself to constitute an actuating-lever for the device, a metallic strip in said casing parallel with the plane in which said pointer moves, a switch-lever which oscillates toward and from the strip, and is normally out of contact therewith, connections between the lever and the pointer for moving the former into contact with the strip, and notches in said casing, one in line with each other on the dial and designed to receive the pointer when it is moved to bring the switch-lever into contact with said strip.

5. A transmitting device comprising a circular casing, a shaft journaled concentrically therein, a gear-pinion rigid on said shaft, two cylinders, plungers therein, parallel racks on said plungers on opposite sides of said gear-pinions and meshing therewith, a pointer on the shaft constructed to constitute an actuating-lever for the device, a dial with which said pointer coöperates, a metallic segment in said casing which is insulated from the casing and concentric with said shaft, an oscillatory lever carried by said shaft, which is normally out of contact with said segment and adapted for physical contact therewith, said lever being electrically connected with the shaft, and the pointer being pivoted to the shaft to swing in a plane parallel with the axis of the shaft and constructed to oscillate the lever to move it into physical contact with the segment.

6. A transmitting device comprising a circular casing, a shaft journaled concentrically therein, a gear-pinion rigid on said shaft, cylinders in said casing, plungers in the cylinders, parallel racks on said plungers on opposite sides of the gear-pinion and meshing therewith, a dial, an actuating-lever outside of said dial which oscillates in a plane at right angles to the axis of the shaft and is connected therewith, a metal segment within said casing concentric with the shaft, a switch-lever pivoted to said shaft and oscillating in a plane parallel with the actuating-lever and laterally-separated pins mounted loosely in openings in said shaft and bearing at their opposite ends against the adjacent sides of the switch and actuating levers.

7. A receiving device comprising a casing, a dial therein, a pointer coöperating with said dial, a series of separated contact-pieces in said casing electrically connected with each other and arranged in a plane parallel with the plane of movement of the pointer, a switch-lever movable with the pointer and designed to have contact severally with the said contact-pieces, metal strips in said casing adjacent to said series of contact-pieces and insulated therefrom, and a spring on said switch-lever adapted to have contact with one of said strips simultaneously with the contact of the switch-lever with one of the adjacent contact-pieces.

8. A receiving device comprising a casing, a shaft therein, a dial in the casing, a pointer on the shaft coöperating with said dial, a series of separated contact-pieces in said casing electrically connected with each other and arranged in a plane parallel with the plane of movement of the pointer, a switch-lever electrically connected with said shaft and movable with the pointer, and designed for contact severally with said contact-pieces, metal strips in said casing adjacent to the said series of contact-pieces and insulated therefrom, and a spring on said switch-lever adapted to have contact with one of said strips simultaneously with the contact of the switch-lever with one of the contact-pieces.

9. A receiving device comprising a circular casing, a rotative shaft mounted concentrically therein, a dial in said casing, a pointer on the shaft coöperating with said dial, a ring in said casing concentric with said shaft, and made of insulating material, separated contact-pieces on said ring electrically connected with each other, a switch-lever rotating with said shaft adapted to contact severally with said contact-pieces metal segments connected with said ring and insulated from said contact-pieces, and a spring or strip on said switch-lever adapted to have contact with one of said segments simultaneously with the contact of said switch-lever with one or more of the contact-pieces on the ring.

10. The combination with the movable pointers of transmitting and receiving devices, and connections for giving synchronous and equal movement thereto, of an electric signaling-circuit having included therein parts of said devices, and adapted to be closed by movement of the actuating member of the transmitting device, said circuit being incapable of being closed when the pointers are out of their normal relation with respect to each other.

11. The combination with a transmitting and receiving device, each embracing a dial having characters thereon indicating the various orders to be transmitted and received, an indicating-pointer coöperating with the dial and means for giving synchronous movement to said pointers of the two devices, of an electrical signaling-circuit extending between said transmitting and receiving devices embracing a movable switch-lever in each device, a contact-strip in one device with which the associated lever is designed for contact, a plurality of separated and electrically connected contact-pieces in the other device with which the associated lever is designed to severally have contact, said last-mentioned lever being made of less width than the distance between said contact-pieces.

12. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon indicating the various orders to be transmitted or received, an indicating-pointer coöperating with each dial, and means for giving synchronous and equal movement to said pointers of the two devices, of an electric signaling-circuit which is closed by oscillation of the transmitting-pointer.

13. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon to indicate various orders to be transmitted or received, an indicating-pointer coöperating with each dial, and connections between said pointers by which movement of one of the pointers on its dial moves the other pointer a like distance on its dial, embracing two shifting columns of liquid contained in metal pipes extending between said devices, of an electric signaling-circuit between said transmitting and receiving devices which embrace as a part thereof said liquid-pipes.

14. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon indicating the various orders to be transmitted or received, an indicating-pointer which coöperates with each dial, and means for giving synchronous and equal movement to said pointers, of means for producing an automatic audible alarm when an order is transmitted from the transmitting device to the receiving device, said alarm being interrupted when the normal relation of the pointers with respect to each other is disturbed.

15. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon, indicating the various orders to be transmitted or received, an indicating-pointer which coöperates with said dial, and means for giving synchronous and equal movement to said pointers, of means for producing an automatic audible alarm both at the receiving device and transmitting device when a new order is transmitted from the transmitting device to the receiving device, said alarm being interrupted when the normal relation of the pointers with respect to each other is disturbed.

16. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon, an indicating-pointer which coöperates with said dial, and means for giving synchronous and equal movements to said pointers, of means for producing an automatic audible alarm, both at the receiving device and transmitting device when a new order is transmitted, said means including an electric switch which closes a circuit extending between said devices, and the means being constructed to continue an alarm until the order is executed or withdrawn.

17. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon, an indicating-pointer which coöperates with said dial, and means for giving synchronous and equal movements to said pointers, of an electric circuit extending between said devices for producing an automatic alarm both at the receiving device and the transmitting device, when a new order is transmitted, said circuit embracing a switch-lever located in each of the transmitting and receiving devices and movable with the pointer of said device.

18. The combination with a transmitting and a receiving device, each embracing a dial and a pointer which coöperates therewith, the pointer on the transmitting device constituting an actuating-lever, and connections between said levers whereby movement of one gives synchronous and equal movement to the other, of an electric signaling-circuit extending between the receiving and transmitting devices, said transmitting device being provided with a contact-plate approximating the length of the traverse of the pointer and an oscillatory switch-lever which are included within said electric signaling-circuit, said lever being normally out of contact with said plate, and adapted to be moved into physical contact therewith, and connections between said actuating lever or pointer of the transmitting device and said switch-lever whereby the switch-lever is actuated to be moved into physical contact with said contact-plate.

19. The combination with transmitting and receiving devices each embracing a circular dial and a pointer coöperating therewith, the pointer of the transmitting device constituting an actuating-lever, and connections between said pointers whereby movement of one produces synchronous and equal movement of the other, of an electrical signaling-circuit extending between said transmitting and receiving devices embracing as a part thereof a metallic segment in said receiving device of a length approximating that of the traverse of the pointer, a switch-lever therein which oscillates toward and from the segment, which is normally out of contact with said segment, but adapted for physical contact therewith, and connections between the actuating-lever and said switch-lever for moving the latter into physical contact with said segment.

20. The combination with a transmitting and receiving device, movable indicating-pointers on said devices, connections between said pointers for giving synchronous and equal movement to one by movement of the other, a reversing-lever and its quadrant adjacent to the receiving device, three contact-pieces on the quadrant, a switching-lever pivoted to one of the contact-pieces adapted to be actuated by the reversing-lever to alternately engage the other contact-pieces, which latter are included in an automatic alarm-circuit extending between the receiving and transmitting devices.

21. The combination with a transmitting and receiving device, each embracing a dial having visual characters thereon, indicating the various orders to be transmitted or received, an indicating-pointer which coöperates with said dial, and means for giving synchronous and equal movement to said pointers, of an electric circuit for producing an automatic audible alarm at the receiving device when a new order is transmitted from the transmitting device to the receiving device and arranged to continue the alarm until the order has been executed or withdrawn, said circuit embracing three contact-pieces insulated from each other, and a lever actuated by a part connected with the engine and designed to bring one of said contact-pieces alternately into electrical connection with the other contact-pieces.

22. The combination with means for transmitting a signal which is visually indicated at its point of reception, of an electrical circuit for producing an automatic audible alarm at the point of reception of the signal, when an order on the astern side is transmitted at the time the vessel is moving ahead and designed to continue said alarm until the order is complied with or withdrawn and vice versa, said circuit including a single switch-lever which is positively actuated to open the alarm-circuit in both directions of movement of the reversing-lever or like parts of the engine.

23. The combination with a transmitting device and a receiving device the latter of which is located in the engine-room, means for transmitting orders from the transmitting device which are visually indicated on the receiving device, and a lever connected with the engine, of an electric alarm-circuit including parts of said transmitting device and receiving device, and including also as a part thereof a single switch-lever which is positively actuated by said engine-lever in both directions of its movement.

24. The combination with the pipe C C', the casings E E' in communication therewith, plugs closing the outer ends of said casings, a passage extending between and connecting said casings, a valve in said passage, a liquid-reservoir, a discharge-pipe connected at one end therewith and provided at its other end with branches which are connected with passages in said plugs, and check-valves on the inner ends of said plugs over the passages therein.

25. The combination with a pipe C C, the casings E E' in communication therewith, plugs closing the outer ends of said casings, a passage extending between and connecting said casings, a valve in said passage, a liquid-reservoir, a discharge-pipe connected at one end therewith and provided at its other end with branches which are connected with passages in said plugs, and check-valves on the inner ends of said plugs fitting over the passages therein, said check-valves consisting of rubber cups which are open at their ends adjacent to the passages and provided at their other ends with slits, said slitted ends of said cups being conical on their exterior surfaces.

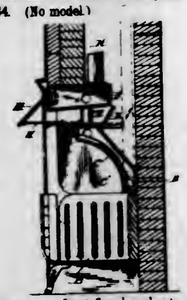
26. The combination with a transmitting and receiving device, each embracing a dial and an indicating-pointer coöperative therewith, of connections between said devices embracing two shifting columns of liquid contained in normally-independent pipes extending between said devices, a shell containing two chambers, each of which is connected with one of the pipes and located side by side, said shell being provided with a self-contained passage extending between the chambers therein, a valve for closing said passage having a handle which is accessible from the transmitting device, a liquid-supply pipe connected at one end with a supply-reservoir and provided at its other end with branches connected with the shell, and inwardly-opening check-valves between said pipes and said chambers.

27. A transmitting device comprising a circular casing, a shaft journaled concentrically therein, a gear-pinion rigid on said shaft, parallel racks on the opposite sides of said pinion and meshing therewith, a metal segment within the casing concentric with the shaft, said shaft being provided at its outer end with an integral enlargement having therein a socket, a switch-lever pivoted at one end in said socket, a pointer pivoted to the outer end of said shaft outside of said switch-lever and laterally-separated pins mounted loosely in openings in the said enlarged part of the shaft, and bearing at their opposite ends against the adjacent sides of the switch and actuating levers on opposite sides of their pivots.

28. The combination with a transmitting and receiving device, said transmitting device embracing a casing, and a hollow stand to the upper end of which said casing is attached, a pair of cylinders in said casing which project at their lower ends into the upper end of the stand and are connected at the upper end of the stand to liquid-containing pipes which extend to the receiving device, casings in said liquid-pipes located side by side which are connected by a transverse passage, a valve in said passage which normally closes the same, and a handle connected with said valve which extends outside of said stand, said stand being provided opposite to said casings with a removable closure, the removal of which permits access to the casings.

29. The combination with a transmitting and receiving device, the former embracing a casing, a dial thereon, a pointer which is constructed to constitute an actuating-lever, said device embracing parts therein which are included in an electric signaling-circuit, and which circuit is closed by pressing the lever inwardly, a rim on the casing, and notches on the rim corresponding in position to the orders on the dial said lever or pointer being adapted to be pressed into said notches to close said circuit.

677,542. **FIREPLACE-HEATER.** JOHN H HEITLAND, Quincy, Ill., assignor of one-half to D. O. Lane, Palmyra, Mo. Filed Nov. 9, 1900. Serial No. 35,934. (No model.)



Claim.—1. In an open-front fireplace-heater, the combination with the fire-tile, forwardly-curved back above said tile, substantially horizontal flue above said back and box above the flue, of a damper in said flue, a hood pendulously mounted in front of said flue and a link connection between said hood and damper whereby when the hood is moved outwardly the damper will be closed and the passage of the heated products beneath the box retarded; substantially as described.

2. In an open-front fireplace-heater the combination with the fire-tile, the water-back having forwardly-extending sides and forwardly-curved rear portion located above said tile and terminating in a substantially horizontal top, the water-box located above the water-back and connected therewith by circulating-pipes and forming between said box and back a substantially horizontal flue, of a damper located in said flue, a hood pendulously supported in front of the water-box and a link connection between said hood and damper whereby when the hood is swung outwardly the damper will be closed and the passage of products of combustion over the water-back and under the box retarded; substantially as described.

3. In a fireplace-heater the combination with the fire-tile, water-back and water-box located above said back and having a corrugated under surface with circulating-pipes connecting said box and back, of a damper having an upwardly-extending L-shaped portion adapted to close the space between the box and back while allowing the products of combustion to pass through the valleys of the corrugations, a hood pendulously supported in front of the water-box and means for operating said hood and damper to check or promote the draft; substantially as described.

4. In a fireplace-heater, the combination with the fire-tile, water-back and water-box located above said back, of a damper having an upwardly-extending L-shaped portion adapted to close the space between the box and back, and the body portion of which constitutes a deflector for directing the draft toward the front, a hood pendulously supported in front of the fire-box and means for operating said hood and damper to check or promote the draft; substantially as described.

677,548. **FISH-SCALING IMPLEMENT.** ELIAS S. HERRINGTON, Payette, Idaho. Filed June 12, 1900. Serial No. 20,054. (No model.)

Claim.—1. A fish-scaling implement, comprising a body, having a combined fish-engaging rest and scale-rucking member for raising the free edges of fish-scales, and a scaling-blade carried by the body and located in rear of and above the rest, for taking under the elevated scales without damaging the flesh of the fish, the interval between the blade and the rest forming a space for receiving the rucked-up edges of the fish-scales.

2. A fish-scaling implement, comprising a substantially rectangular skeleton frame, the opposite longitudinal side bars of which have longitudinal grooves in their inner faces and opening outwardly at the front end of the frame, the front cross-bar being located below the open ends of the grooves, a pendent handle-frame at the rear end of the body-frame, and having a lower transverse end bar, an intermediate upright handle-bar within the handle-frame, a laterally and upwardly bowed scaling-blade fitted in the opposite grooves of the side bars, and having a front toothed scaling edge located in rear of the front end bar, and a set-screw to detachably hold the blade to the frame.



3. A fish-scaling implement, having an upwardly and rearwardly inclined body-frame, a pendent handle-frame at the rear end thereof, and a scaling-blade carried by the body-frame, the forward and lower end bars of the respective frames forming rests for engagement with a fish.

4. A fish-scaling implement, comprising a pair of angularly-related frames, the outer end bars of which form rests for engagement with a fish, and a scraping-blade carried by one of the frames, and having its active edge located adjacent to the outer end bar and in rear thereof.

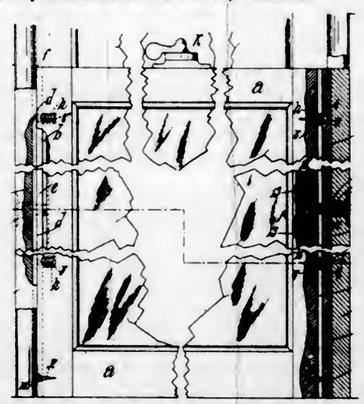
5. A fish-scaling implement, comprising a skeleton upwardly and rearwardly inclined frame, having a front and bottom end bar forming a fish-engaging and scale-rucking member, a rear fish-engaging rest pendent from the frame, and a transverse scaling-blade carried by the frame and located in rear of and above the rucking-bar, the interval between the said rocking-bar and the scaling-blade forming a space for the reception of the rucked-up edges of the scales.

677,544. **PIVOTED WINDOW.** BENJAMIN HIPOLITO, Los Angeles, Cal. Filed May 29, 1900. Serial No. 18,459. (No model.)

Claim.—1. The combination of a sash-body provided in its edge with a groove; a pivot member fastened to the sash-body and extending outward from the bottom of the groove; a tongue mounted in the groove and provided with a hole fitted upon the stem of the pivot member; a bar on the grooved edge of the sash-body and provided with a groove to face the groove of the sash-body; a socket member fastened to the bar and provided with a socket to receive the stem of the pivot member; a screw screwed through the socket member and into the pivot member; and means for moving the tongue across and retracting it from the plane of the contacting faces of the bar and the sash-body.

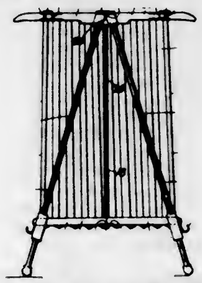
2. The combination of the grooved sash-body provided with a socket in the groove; a spiral spring in the socket; a washer on the spiral spring; a screw through the washer and spiral spring and screwed into the sash-body; a tongue to play in the groove and provided with a socket large enough to admit the head of the screw, but not to admit the washer; and a bar pivoted to the sash-body and provided with a groove to receive the outer edge of the tongue.

3. In a window, a pivoting device for pivoting a bar to the sash-body comprising a pivot member to be fastened to the sash-body and furnished with a stem having a screw-threaded socket in its end; a socket member having a cylindrical stem provided with a socket to fit the stem of the pivot member, and with a countersink opposite the socket, a perforation between the countersink and the socket to receive a screw; a flange extending laterally beyond the socket-stem; and a screw inserted through the perforation and screwed into the pivot member.



4. In a window, a pivoting device for pivoting a bar to the sash-body comprising a pivot member to be fastened to the sash-body and furnished with a stem; a socket member having a cylindrical stem provided with a socket to fit the stem of the pivot member, and provided with a perforation opening into said socket; a flange extending laterally beyond the socket-stem; and means extending through the hole and fastening the stem to the pivot member in said socket.

677,545. **COMBINED TRAY-STAND AND NAPKIN-RECEPTACLE.** WILLIAM H. JOHNSON, Atlantic City, N. J. Filed Oct. 16, 1900. Serial No. 33,244. (No model.)



Claim.—1. A device of the class described comprising a collapsible receptacle, folding top bars connected with the receptacle, folding bottom bars, and the folding legs, substantially as described.

2. A device of the class described comprising a collapsible receptacle, the folding top and bottom bars composed of hinged sections and pivotally connected with the receptacle, and the folding legs hinged at their upper ends and pivotally connected near their lower ends with the receptacle, substantially as described.

3. A device of the class described comprising a collapsible receptacle, the folding top and bottom bars, the folding connecting-bars pivoted to the top and bottom bars, and the folding legs, substantially as described.

4. A device of the class described comprising a receptacle, the upper and lower side bars pivotally connected with the receptacle, the top bars being composed of inner and outer sections hinged together and adapted to fold to a vertical position and capable of swinging downward to arrange the inner sections upon the top of the receptacle, and legs, substantially as described.

5. A device of the class described comprising a receptacle, the upper side bars composed of inner and outer sections hinged together, the outer section being pivoted to the receptacle, the lower side bars composed of sections hinged together and pivotally connected with the receptacle, the connecting-bars pivotally connected with the upper and lower side bars and provided between their ends with joints, whereby they are adapted to fold with the inner sections of the upper side bars, and legs, substantially as described.

6. A device of the class described comprising a receptacle, the folding upper side bars pivoted to the receptacle and composed of inner and outer sections hinged together, the lower side bars pivoted to the receptacle and composed of hinged sections, the folding connecting-bars extending from the upper side bars to the lower ones, and the folding legs pivoted to the receptacle at the outer ends of the sections of the bottom bars and hinged at their upper ends, substantially as described.

7. A device of the class described comprising a receptacle composed of the front provided with an opening, the back, the flexible top, bottom and sides connecting the front and back, the top being provided with an opening and having a door for covering the same, the folding top and bottom bars connected to the receptacle, and the legs supporting the receptacle, substantially as described.

8. A device of the class described comprising a receptacle, the folding upper and lower side bars pivotally connected with the receptacle, the hinged legs connected at their upper ends and pivoted near their lower ends to the receptacle, the folding bars connecting the upper and lower side bars, and the bracket carried by the legs and arranged to support the upper side bar, substantially as described.

9. A device of the class described comprising a receptacle, the folding upper and lower side bars connected with the receptacle, the hinged legs also connected with the receptacle, the folding connecting-bars extending from the lower side bar to the upper side bar, and the bracket mounted on the legs and forming a support for the upper side bar and serving as a guide for the connecting-bar, substantially as described.

10. A device of the class described comprising a receptacle, the folding upper and lower side bars connected with the receptacle, the hinged legs, the folding connecting-bar extending from the lower side bar to the upper side bar, and the approximately L-shaped bracket supported by the legs and arranged to receive the upper side bar and provided with an opening for the connecting-bar, substantially as described.

677,546. **NUT-LOCK.** HENRY C. KARLSON, New York, N. Y. Filed Dec. 10, 1900. Serial No. 39,390. (No model.)



Claim.—1. A nut-lock comprising a washer with an opening through the flat portion thereof, two slits surrounding the said opening and conforming to the faces and corners of a nut, after which the slits diverge to the outer contour of the washer.

2. A nut-lock, consisting of an approximately round washer, having an approximately circular opening with a segment removed, containing also three slits, the central slit running for a short distance from the circumference of the washer in the direction of a radius, and two slits running for a short distance parallel to and on opposite sides of the central slit, after which they each conform to a portion of the contour of a nut, substantially as described.

3. A nut-lock, consisting of an approximately round washer, with an opening formed to a circle having a segment removed, the washer slitted to form two wings to conform to the faces and corners of a nut, and two horns capable of being spread and bent under the wings.

4. A nut-lock, comprising an approximately round nut-lock washer, containing an opening formed to a circle with a segment removed, the washer slitted to obtain two wings with edges to conform to the faces and corners of a nut, horns contained in the washer bent under the wings, in combination with a bolt having a flat key-seat on its longitudinal surface substantially as described.

5. A nut-lock, comprising an approximately round nut-lock washer, having a central opening formed to a circle with a segment removed, the washer slitted for two wings with the edges of the wings conforming to the contour of the faces and corners of nuts, horns also contained in the washer to be bent under the wings substantially as described.

6. A nut-lock, comprising an approximately round nut-lock washer, having a central opening in the form of a circle with a segment removed, the washer slitted for two wings and two horns, the edges of the wings to conform to the contour of the faces and corners of nuts, the horns disposed to be spread under the wings, in combination with a bolt containing a flat key-seat substantially as described.

7. A nut-lock comprising a partially-round nut-lock washer, having a central opening in the form of a circle with a segment removed, the washer slitted for two wings and two horns, the edges of the wings made to conform to the contour of the faces and corners of nuts, the horns capable of being spread and bent under the wings, two lugs contained in

the contour of the washer, in combination with a bolt containing a flat key-seat on its longitudinal surface substantially as described.

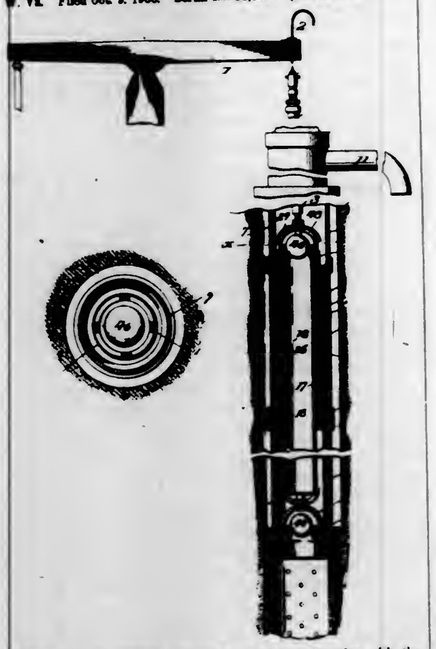
8. A nut-lock comprising a partially-round nut-lock washer with a circular central opening, the washer slitted for two wings to conform to the faces and corners of nuts and bolt-heads, horns also contained in the washer to be bent under the wings, a bent lug in the outer contour of the washer, substantially as described.

9. A nut-lock, comprising a circular washer containing a circular opening, the washer slitted for two wings with edges to conform to the contour of the faces and corners of nuts and bolt-heads, horns contained in the washer to be bent and spread under the wings, in combination with a depression in the washer substantially as described.

10. A nut-lock, comprising a circular washer, having a central opening in the form of a circle with a segment removed, the washer slitted for two wings and a horn, the edges of the wings made to conform to the contour of the faces and corners of nuts, the horn bent under the wings, in combination with a bolt containing a flat key-seat on its longitudinal surface substantially as described.

11. A nut-lock, comprising a circular washer having a central opening in the form of a circle with a segment removed, the washer slitted for two wings, the edges of the wings made to conform to the faces and corners of nuts, in combination with a bolt containing a flat key-seat on its longitudinal surface substantially as described.

677,547. PUMPING APPARATUS. JOSEPH R. KIRK, Sistersville, W. Va. Filed Oct. 9, 1900. Serial No. 33,595. (No model.)



Claim.—1. In pumping apparatus, and in combination with the pump-piston consisting of a tubular body provided at opposite ends with upwardly-opening valves and arranged to operate in a casing, a stuffing-box to maintain a tight joint between the body of the pump-piston and its casing and comprising upper and lower sets of packing-rings constructed to obtain a close fit against the respective walls of the piston-body and the casing therefor, substantially as set forth.

2. In pumping apparatus, the combination with the pump-piston arranged to operate in a casing and comprising a tubular body having upwardly-opening valves at its ends, a stuffing-box having inner and outer shoulders intermediate of its ends, packing-rings fitted within and upon the respective end portions of the stuffing-box and held against the respective shoulders thereof, and end pieces fitted to the extremities of the stuffing-box and clamping the packing-rings against the coacting shoulders, substantially as set forth.

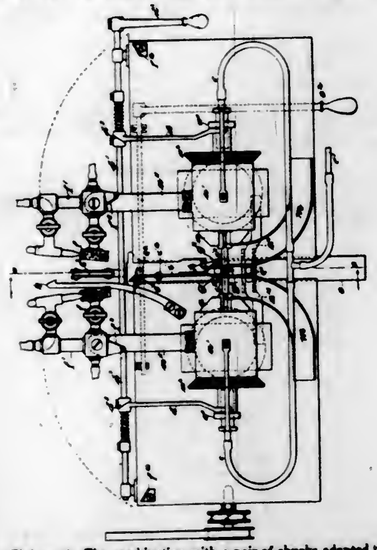
3. In pumping apparatus, and in combination with the pump-piston comprising a tubular body provided at its ends with upwardly-opening valves, a sectional stuffing-box having the sections united at their inner ends and of different diameters and providing inner and outer shoulders, packing-rings fitted within the upper section and against the inner shoulder and other packing-rings slipped upon the lower section against the outer shoulder and end pieces fitted to the outer terminal portions of the respective sections and clamping the corresponding packing-rings, substantially as specified.

4. In pumping apparatus, and in combination with the piston, operating-line, and hollow guide-tube, a stuffing-box, a connection fitted to the upper end of the stuffing-box, and clips located within the said connection and clamped against opposite sides of the operating-line and lined with Babbitt metal or kindred composition, substantially as set forth.

5. In pumping apparatus, and in combination with the piston, pump-tubing, operating-line and hollow guide-tube, a stuffing-box secured to the upper end of said guide-tube, a connection having an inner shoulder, a packing-gland, and clips having their inner ends flanged and clamped between the inner shoulder of said connection and the terminal of the stuffing-box, said clips being lined with Babbitt metal or kindred composition, substantially as set forth.

6. In pumping apparatus, and in combination with the piston, pump-tubing, operating-line, and hollow guide-rod, a connection between the operating-line and the said hollow guide-rod, metal-lined clips located within the connection, and set-screws let into the threaded openings in the side of said connection to cause said clips to clamp opposite sides of the operating-line, substantially as set forth.

677,548. MACHINE FOR MAKING GLASS CAPS. FREDERICK H. LOVERIDGE, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 23, 1900. Serial No. 37,464. (No model.)



Claim.—1. The combination with a pair of chucks adapted to hold a length of glass tubing, of means for rotating the chucks together in the same direction at the same speed, means for heating the glass tubing at a point between the chucks, a pair of nippers adapted to grasp the glass tubing where heated, means for retracting the nippers and simultaneously swinging each of the chucks about an axis at an angle with its axis of rotation, whereby the central heated portion of the glass tubing is drawn out and severed from the two ends, and means for blowing air into the two ends within the chucks to round out the heated tips, as set forth.

2. The combination with a pair of chucks adapted to hold a length of glass tubing, of means for rotating the chucks together in the same direction at the same speed, a mounting for each chuck permitting it to be swung, while rotating, about an axis at an angle with its axis of rotation, a gas-jet or fire carried by the mounting of each chuck, to swing therewith, said fires being adapted to heat the glass tubing intermediate of the chucks, a pair of nippers adapted to grasp the heated portion of the tubing, and means for swinging the chucks and for simultaneously retracting the nippers, whereby the heated portion of the tubing is drawn out and severed from the ends held by the chucks, as set forth.

3. The combination with a pair of chucks adapted to hold a length of glass tubing, of means for heating the glass tubing between the two chucks, a pair of nippers adapted to grasp the heated portion, means for swinging each chuck about an axis at an angle with its axis of rotation, means for simultaneously retracting the nippers, whereby the central heated portion is drawn out and finally severed from the ends held by the chucks, and a kicking-lever automatically actuated in retracting the nippers, for disengaging the withdrawn portion of glass from the nippers, as set forth.

4. The combination with a pair of chucks, each having jaws adapted to grasp the end of a length of glass tubing which may be placed in the chucks, of a longitudinally-movable core for each chuck, a soft-rubber tip for each of said tubular cores adapted to form an air-tight cushion between the tubular core and the glass tubing, and means for blowing air through said tubular cores, substantially as described.

5. The combination with a pair of chucks, each having jaws adapted to grasp the end of a length of glass tubing which may be placed in the chucks, of a longitudinally-movable tubular core for each chuck, a soft-rubber tip for each of said tubular cores, adapted to form an air-tight cushion against the end of the glass tubing held in the chuck, a connection between each movable tubular core and the jaws of its chuck, whereby said jaws are operated in the movement of the core, a spring for each chuck tending to keep the core normally pressed forward and the jaws tightened, and means for simultaneously retracting the cores of both chucks and opening the jaws thereof, as set forth.

6. The combination with a pair of rotatable chucks, of a mounting for each chuck adapted to swing about an axis at right angles with the axis of rotation of the chucks, means for rotating the chucks, a sliding cross-bar and means for reciprocating the same, a pin *e'* carried by the cross-bar, and extensions for the swinging mountings of said chucks, said extensions having slots engaged by said pin, whereby the chucks are swung around together by the reciprocation of the cross-bar, as set forth.

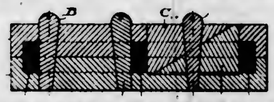
7. The combination with a pair of rotatable chucks, of a mounting for each chuck adapted to swing about an axis at right angles with the axis of rotation of the chucks, a sliding cross-bar and means for reciprocating the same, a pin *e'* carried by the cross-bar, extensions for the swinging mountings of said chucks, said extensions having slots engaged by said pin, whereby the chucks are swung around together by the reciprocation of the cross-bar, and a pair of nippers carried by the cross-bar for grasping the central portion of a section of heated glass tubing held by said chucks and drawing it out, as set forth.

8. The combination with a pair of chucks adapted to hold a length of glass tubing, of means for rotating the chucks together in the same direction at the same speed, a mounting for each chuck permitting it to be swung while rotating about an axis at an angle with its axis of rotation, a gas-jet or fire carried by the mounting of each chuck to swing therewith, said fires being adapted to heat the glass tubing between the chucks, a pair of nippers adapted to grasp the heated portion of the tube, means for swinging the chucks and for simultaneously retracting the nippers, whereby the heated portion of the tubing is drawn out and severed from the ends held by the chucks, and means for swinging the gas-jets relatively to the chucks, to bring the points of the flames to play upon the ends of the glass pieces held by said chucks, as set forth.

9. The combination with a pair of rotatable chucks adapted to hold a length of glass tubing, each of said chucks having a mounting permitting the same to swing, while rotating, about an axis at an angle with its axis of rotation, a fire for heating the glass tubing at a point between the two chucks, a pair of nippers adapted to grasp the glass tubing where heated, and means for swinging the chucks and for simultaneously retracting the nippers, whereby the heated portion of the tubing is drawn out, as set forth.

10. The combination with a pair of rotatable chucks adapted to hold a length of glass tubing, of means for heating the tubing at a point between the chucks, a pair of nippers adapted to grasp a heated portion of the tubing, and means for retracting said nippers, whereby the central portion of the glass tubing is drawn out and severed from the ends held by the chucks, as set forth.

677,549. MOLD FOR MAKING CASTINGS. ROBERT F. LUDLOW, Philadelphia, Pa. Filed Jan. 30, 1900. Serial No. 2,172. (No model.)

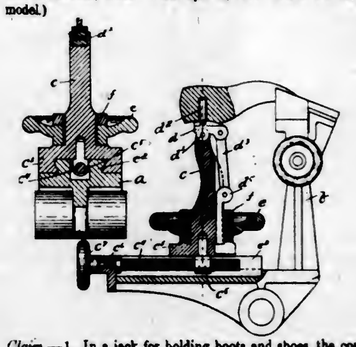


Claim.—1. In a mold for making castings, the combination with the drag and cope, of movable superposed members provided with inclined contacting portions and normally forming part of the mold and of its shaping-surface; substantially as described.

2. In a mold for making castings, the combination with the drag and cope, of movable members normally forming part of the shaping-surface of the mold and having reversely-inclined superposed portions, and a locking device to hold said movable members primarily in set or operative positions; substantially as described.

3. In a mold for making castings the combination of the drag and cope, of removable members having reversely-inclined contacting portions and arranged at one side of and projecting into the mold-cavity.

677,550. JACK FOR HOLDING BOOTS OR SHOES. WILLIAM C. MEYER, Boston, Mass. Filed Apr. 17, 1900. Serial No. 13,195. (No model.)



Claim.—1. In a jack for holding boots and shoes, the combination with a toe-support, of a heel-support consisting of a block having means for engaging the heel end of the last, an upright support to which said block is pivoted, having a circular portion provided with a vertical guideway, a rack-bar disposed in said guideway, a link connecting said pivoted block with said rack-bar, a nut disposed on said circular portion of the upright support which engages and operates said rack-bar, and means for holding said nut in position on the upright support, substantially as described.

2. In a jack for holding boots and shoes, the combination with a toe-support, of a heel-support consisting of a block having means for engaging the heel end of the last, an upright support to which said block is pivoted, having a circular portion provided with a vertical guideway, a rack-bar disposed in said guideway, a link connecting said pivoted block with said rack-bar, a nut disposed on said circular portion of the upright support which engages and operates said rack-bar, and means for holding said nut in position on the upright support, a base on which said upright support is mounted, and means for moving it along on said base toward and from the toe-support, substantially as described.

677,551. RADIATOR-VALVE. EVERETT P. ALLEN, Chicago, Ill., assignor of one-half to William C. Hill, same place. Filed Apr. 30, 1900. Serial No. 14,813. (No model.)



Claim.—In a radiator-valve, the combination of a casing comprising a dome and a base, said base being provided with a vertical partition dividing it into a steam-inlet chamber and a chamber for the return of the water of condensation and also with a thermostatic chamber communicating with the last-named chamber, an air-valve, and a thermostat secured within the thermostatic chamber and adapted to operate said air-valve.

677,552. VALVE FOR RADIATORS. EVERETT P. ALLEN, Chicago, Ill., assignor of one-half to William C. Hill, same place. Filed May 21, 1900. Serial No. 17,318. (No model.)

Claim.—1. An air-valve for a radiator comprising a hollow casing provided with a steam-inlet and an air-outlet, a valve adapted to close said air-outlet, a thermostatic member, a float carrying a valve to prevent ingress of air into said radiator, said thermostatic member and float being interposed between said valves.



2. An air-valve for a radiator comprising a hollow base provided with a steam-inlet and a water-outlet, an upper dome provided with an air-outlet, an apertured diaphragm between said base and said dome, a valve-closure to close said air-outlet, a float to operate said valve, a valve-closure carried by said float to close said diaphragm-aperture, and a thermostatic member interposed between the valve-closure of the air-outlet and the valve-closure of the diaphragm.

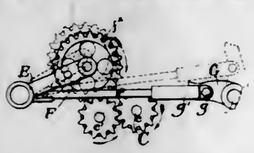
3. An air-valve for radiators comprising a hollow base having a steam-inlet, an upper dome provided with an air-outlet, an apertured diaphragm secured between said base and said dome, a valve-closure to close said air-outlet, a thermostatic member, a float, carrying a valve-closure to close said diaphragm-aperture against the passage of air from said air-outlet to said steam-inlet, said thermostatic member and float being interposed between said valve-closures.

4. In an air-valve for radiators, the combination with a casing having a duct adapted to form a communication with a radiator and an air-vent, valves for controlling said duct and vent, one of said valves being carried by a float, and a thermostat operatively interposed between the float and the other valve.

5. An air-valve for a radiator comprising a hollow base provided with a steam-inlet and an air-outlet, an upper dome provided with an air-outlet, an apertured diaphragm between said base and said dome, a valve-closure to close said air-outlet, a valve-closure to close said diaphragm-aperture, a float connected to said diaphragm-closure, and a metallic thermostatic member interposed between said air-outlet closure and said float.

6. In an air-valve for radiators the combination with a casing having a duct to communicate with a radiator and an air-vent, of a float and thermostat carried thereby designed to close said vent; said float being constructed to close communication between the casing and a radiator.

677,553. AUTOMATIC GRAIN-BINDER. JOHN F. APPLEBY, Chicago, Ill. Filed Apr. 11, 1901. Serial No. 55,304. (No model.)



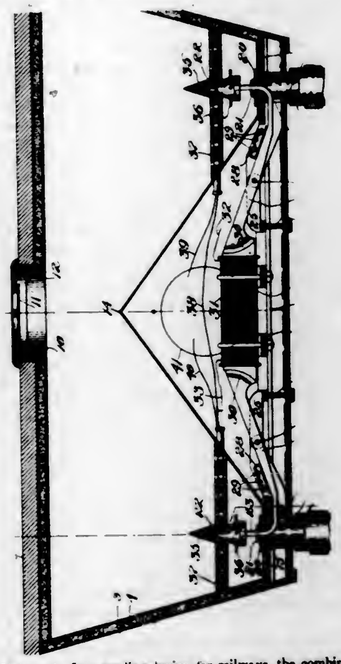
Claim.—1. In an automatic grain-binder, the combination with a constantly-rotating driving-shaft and a binding mechanism actuated thereby, of an intermittently-rotating packer-shaft, a rocking support in which said packer-shaft is journaled, gears mounted upon said driving-shaft and packer-shaft, and means actuated by said binding mechanism for rocking said support, thereby moving the packer-shaft gear into and out of mesh with the driving-shaft gear, or gear actuated thereby, substantially as described.

2. In an automatic grain-binder, the combination with a constantly-rotating driving-shaft and a binding mechanism actuated thereby, of an intermittently-rotating packer-shaft, a rocking support in which said packer-shaft is journaled, spur-gears mounted upon said driving-shaft and packer-shaft, an oscillating needle-shaft and a mechanism connecting said needle-shaft with said rocking support whereby the oscillation of the needle-shaft shall rock the support and thereby move the packer-shaft into and out of mesh with the driving-shaft gear or gear actuated thereby, substantially as described.

3. In an automatic grain-binder, the combination with a constantly-rotating driving-shaft, and a binding mechanism intermittently actuated thereby, of an intermittently-rotating packer-shaft, a rocking support in which said packer-shaft is journaled, spur-gears secured to the said driving-shaft and packer-shaft, an intermittently-vibrating needle, and a connection between said needle and said rocking support whereby the vibration of the needle shall rock the support and thereby move the packer-shaft gear into and out of mesh with the driving-shaft gear or gear actuated thereby, substantially as described.

4. In an automatic grain-binder, the combination with a constantly-rotated driving-shaft, and a binding mechanism intermittently actuated thereby, of a constantly-rotated gear actuated by said driving-shaft, an intermittently-rotating packer-shaft, a rocking support in which said packer-shaft is journaled, a spur-gear secured to said packer-shaft, an intermittently-vibrating needle, and an extensible connection between said needle and said rocking support whereby the vibration of the needle shall rock the support and thereby move the packer-shaft gear into and out of mesh with said constantly-rotated gear, substantially as described.

677,554. SAND-BOX FOR CARS. ABBOTT L. BACON, Franklin, Mass. Filed Oct. 27, 1900. Serial No. 34,609. (No model.)



Claim.—1. In a sanding device for railways, the combination of a sand-box, an outlet therefrom having a raised rim extending upward around the opening of the outlet, a valve having a depending rim adapted to inclose the raised rim of the outlet, and means to raise and lower the valve and thereby open and close the outlet.

2. In a sanding device for railways, the combination of a sand-box, an outlet therefrom having a raised rim extending upward around the opening of the outlet, a conical valve having a depending rim adapted to inclose the raised rim of the outlet, and means to raise and lower the valve and thereby open and close the outlet.

3. In a sanding device for railways, the combination of a sand-box, an outlet therefrom, a conical valve adapted to close the outlet, a lever below said valve for raising and lowering the latter, and a shield above the valve and into which the latter enters when raised, whereby in being raised from the outlet to open the latter the valve is progressively relieved from the pressure of sand, and in being lowered again upon the outlet to close the same the valve is progressively subjected to greater sand-pressure.

4. In a sanding device for railways, the combination of a sand-box, an outlet therefrom, means to open and close the outlet, a perforated grating above the outlet to arrest gravel and the like, and separate the particles of sand, and electrical means to heat the plate.

5. In a sanding device for railways, the combination of, a sand-box, an outlet therefrom, means to open and close the outlet, and a perforated plate constituting a rheostat above the outlet, whereby to heat the sand, prevent the passage of gravel, and separate the particles of sand.

6. In a sanding device for railways, the combination of a sand-box, an outlet therefrom, a movable valve covering the outlet, a perforated plate above the outlet, means to heat the plate, and a hollow shield extending upward from the plate to receive the valve and relieve it from pressure of sand.

7. In a sanding device for electric-railway cars, the combination of a sand-box, a valve for the outlet thereof, an electromagnet in electrical communication with the trolley a lever having a connected armature cooperating with said magnet and also connected with said valve, and means for manually controlling the operation of said electromagnet

8. In a sanding device for railways, the combination of a sand-box having two compartments, outlets in the said compartments, means to open and close the outlets, levers connected with such means at their outer ends and provided with armatures at their proximate ends, and a magnet interposed between the armatures.

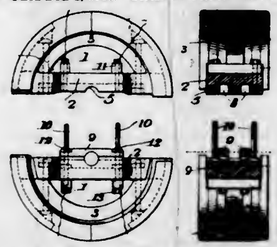
9. In a sanding device for railways, the combination of a sand-box having two outlets, valves for the outlets, levers connected with such valves and provided with armatures, and a magnet coöperating with the armatures.

10. In a sanding device for railways, the combination of a sand-box, a partition within the same dividing off its middle lower portion and separating the remaining space into two sand-compartments, outlets for the said compartments, valves for the outlets, levers pivoted beneath the partition, connected with such valves and provided with armatures at their proximate ends, and a magnet interposed between the armatures.

11. In a sanding device for railways, the combination of a sand-box, mechanism to control the discharge of sand therefrom, actuating means to set the said mechanism in operation, and retarding devices for automatically continuing said mechanism in operation for a predetermined period after said actuating means has ceased to act.

12. In a sanding device for railways, the combination of, a sand-box, electrically-operated mechanism to control the discharge of sand therefrom, a switch in the electric circuit, a spring to open the switch, and means to momentarily retard the action of the spring.

677,555. WOOD SPLIT PULLEY. DAVID B. BAKER, Tacoma, Wash. Filed Dec. 1, 1900. Serial No. 38,340. (No model.)



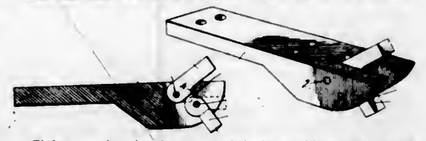
Claim.—1. A split pulley comprising sections formed of beams, segmental webs secured to the beams, bolts passing through the webs and through the ends of the beams for holding them together, the said bolts being arranged on chords of the pulley, peripheral sections secured to the said webs, and means for binding the beams to a shaft, substantially as described.

2. A split pulley comprising beams forming the bases of pulley-sections, said beams having recesses formed within them, gripping-bars located within the said recesses, bolts passed through the gripping-bars, the heads of the said bolts engaging the gripping-bars directly for drawing them toward the shaft, brace-bars also slipped upon said bolts outside the beams and nuts outside the brace-bars for drawing the pulley-sections together over the gripping-bars, substantially as described.

3. A split pulley comprising sections formed of beams and segmental pieces secured together, gripping-bars mounted between the beams, the said bars of opposite sections being arranged out of alinement with each other, so that they may pass each other to some extent, bolts passing through the beams and the ends of the gripping-bars, and nuts for securing the beams together, and nuts for engaging the ends of the gripping-bars, whereby they may be forced against the shaft to which the pulley is to be attached, substantially as described.

4. A split pulley comprising beams adapted to be bolted together, peripheral sections secured to the said beams, gripping-bars arranged out of alinement so as to pass each other somewhat, for holding the sections of the pulley together and adapted to engage the shaft to which the pulley is to be attached, and bolts for securing the beams and gripping-bars in position, substantially as described.

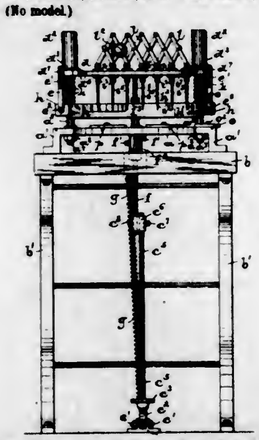
677,556. STANDARD FOR LOGGING-CARS. JOHN C. BARROW, Ellisville, Miss. Filed Dec. 27, 1900. Serial 41,258. (No model.)



Claim.—1. In a logging car or sled, the combination of a standard having its inner end pivotally connected to a bolster and provided on its under side with a shoulder, and a detent pivotally connected to the bolster, having an outward-extending arm and provided at its inner end with a cam to engage the under side of said standard, the said cam having a shoulder adapted to clear that of said standard when said detent is turned to a horizontal position and thereby disengage said standard, for the purpose set forth, substantially as described.

2. As a new article of manufacture, a base-plate adapted to be secured on the bolster of a car or the like and having a vertical open slot in its outer end, a standard having its inner end pivotally secured in said slot, said standard having a shoulder on its lower side, and a detent pivotally mounted in said slot, said detent having an outward-extending arm and rounded on one side at its inner end concentrically with its pivot and adapted to bear against the under side of the standard, the said detent being further provided at its inner end with a shoulder which is adapted to disengage the shoulder of the standard when said detent is raised to a horizontal position and thereby release said standard, substantially as described.

677,557. APPARATUS FOR MARKING BUTTONHOLE-FLIES. WILLIAM T. BENJAMIN, Newark, N. J. Filed Oct. 3, 1900. Serial No. 31,870. (No model.)



Claim.—1. The machine for marking buttonhole-flies of shoes herein described, consisting, essentially, of a marking-base and means for securing said base in position, the said base having a curved slot, uprights on said base, a yoke slidably arranged on said uprights, the said yoke having a pair of tubular bearings fitted over said uprights on the marking-base, projections extending from said tubular bearings, a curved bar secured to said projections, forming with the yoke an opening corresponding to and in alinement with the curved slot in the marking-base, a marking mechanism slidably arranged in said opening, and means connected with said yoke for bringing said marking mechanism down upon and marking the positions of the buttonholes in the shoe-fly, substantially as and for the purposes set forth.

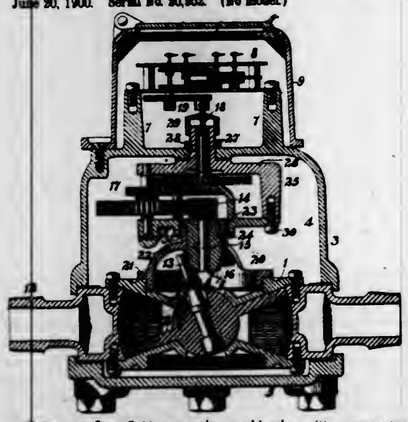
2. In a machine for marking buttonhole-flies of shoes, the combination, with a marking-base having a curved slot, and uprights on said base, of a yoke having tubular bearings slidably arranged on said uprights, projections extending from the sides of said tubular bearings, a curved bar secured to said projections, forming with the yoke an opening corresponding to and in alinement with the curved slot in the marking-base, a series of slides movably arranged in said opening, but one of said slides being secured in a fixed and an immovable position in said opening, said slides having shoulders arranged directly above and below the upper and

lower faces of said yoke and the curved bar, a marking-tool extending in a downward direction from each slide, perforated ears connected with each slide and a system of levers pivotally connected with said slides for moving them back and forth in the opening formed by the yoke and the curved bar, substantially as and for the purposes set forth.

3. The machine for marking buttonhole-flies of shoes herein described, consisting, essentially, of a marking-base *a* provided with lugs *a'* and means for securing said base in position, the said base having a curved slot, uprights on said base, a yoke slidably arranged on said uprights, the said yoke having a pair of tubular bearings fitted over said uprights on the marking-base, projections extending from said tubular bearings, a curved bar secured to said projections, forming with the yoke an opening corresponding to and in alinement with the curved slot in the marking-base, a marking mechanism slidably arranged in said opening, and a combined holding and stripping means arranged on said uprights, directly beneath said vertically-sliding yoke, and a spring on each upright between said combined holding and stripping means and said yoke, said stripping means being connected with said yoke by means of links *e*, secured at their lower ends to said stripping means by screws e^2 and being provided with slots *e'* into which extend screws d^7 for slidably attaching said slotted ends of the links to said yoke, and means constructed and arranged for first bringing said combined holding and stripping means down upon the buttonhole-fly and then bringing the marking mechanism down and marking the positions of the buttonholes, substantially as and for the purposes set forth.

4. In a machine for marking the buttonhole-flies of shoes, the combination, with a base having a curved slot, of uprights on said base, a vertically-movable yoke having tubular bearings fitted over and sliding on said uprights, projections extending from said tubular bearings, a curved bar secured to said projections, forming with the yoke a curved slot, slides in said slot, a marking-tool connected with each slide, and a system of lazy-tongs pivotally connected with said slides, for lateral adjustment of the said slides and the marking-tools connected with said slides, and a combined holding and stripping plate, also movably arranged on said uprights, said stripping-plate being connected with said yoke by means of links *e* secured at their lower ends to said stripping-plate by means of screws e^2 and provided with slots *e'* into which extend screws d^7 for slidably attaching said slotted ends of the links to said yoke, substantially as and for the purposes set forth.

677,558. FLUID-METER. HORACE CHERRMAN, Wilkinsburg, Pa., assignor to the Pittsburg Meter Company, of Pennsylvania. Filed June 20, 1900. Serial No. 20,952. (No model.)



Claim.—1. In a fluid-meter, the combination with a power-transmitting member and fluid-actuated driving means therefor, of an outwardly-projecting bearing for the power-transmitting member, a train of gearing and a frame therefor that is supported independently of and without attachment to said bearing and has an opening into which the bearing projects to insure a proper coöperative relation between the power-transmitting member and the train of gearing.

2. In a fluid-meter, the combination with a power-transmitting member, and fluid-actuated driving means therefor, of a bearing-block for the power-transmitting member, a train of gearing receiving motion from the said power-transmitting member and a frame therefor that is supported independently of and without attachment to said bearing-block and has an opening of greater diameter than the bearing-block into which the latter projects.

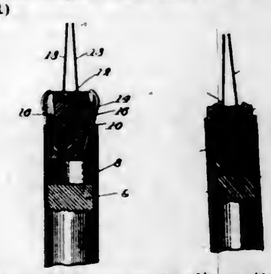
3. In a fluid-meter, the combination with a power-transmitting member and a fluid-actuated driving means therefor, of an open-work frame having a cylindrical bearing-block for the power-transmitting member, a train of gearing receiving motion from said power-transmitting member and a frame therefor that is supported independently of and without attachment to said bearing-block and has a centering-opening into which said bearing-block projects when the parts are assembled in operative relations.

4. In a fluid-meter, the combination with a two-part casing, a measuring-chamber located in said casing and removably supported by the lower part thereof, a piston in said measuring-chamber, a pinion operated by said piston and a train of gearing receiving motion from said pinion, of a bearing-block for the pinion-shaft that is supported by the measuring-chamber and a frame for the train of gearing that is supported by the upper part of the casing and has a centering recess or opening of larger diameter than the bearing-block into which said block projects when the parts are assembled in operative relations.

5. In a fluid-meter, the combination with a measuring-chamber, a two-part separable casing therefor, a piston and gearing operated thereby, of two independent frames for separable portions of said gearing which have a loose-fitting, centering relation to each other and which are respectively supported by the two parts of the casing, one being attached to the corresponding part of the casing and the other to the measuring-chamber.

6. In a fluid-meter, the combination with a fluid-actuated member, a chamber therefor, gearing operated by said member and a two-part casing for said chamber, member and gearing, of two frames for said gearing which have a loose-fitting, centering relation but are not attached to each other and are respectively supported by one part of the casing and by the measuring-chamber.

677,559. BUTTON-SUPPORT FOR TUFTING-MACHINES. JAMES H. CLOTER, Chicago, Ill. Filed Jan. 19, 1900. Serial No. 1,904. (No model.)



Claim.—1. A button-support for tufting-machines having means normally out of position and movable into position to engage the button to hold the shank thereof in a perpendicular position and acting to release the button by a pull on the shank thereof and means for actuating said engaging means, substantially as described.

2. A button-support for tufting-machines having retaining means for holding the shank of a button in a perpendicular position, said retaining means being adjustable to move into and out of position to engage the button, means for operating said retaining means, and a tufting-peg arranged in suitable relation to said means, substantially as described.

3. A button-support for tufting-machines having elastic retaining means normally out of position and movable into position to engage the button to hold the shank thereof in a perpendicular position and acting to release the button by a pull on the shank, substantially as described.

4. A button-support for tufting-machines, having an endwise-movable member, a recess adapted to receive the head of a button, a clamp for securing it therein, and means for operating said clamp by endwise movement of said movable member.

5. A button-support for tufting-machines, having an endwise-movable member, a recess adapted to receive the head of a button, an elastic clamp for securing it therein, and means for operating said clamp by endwise movement of said movable member.

6. A button-support for tufting-machines, consisting of an external sleeve, a reciprocating block therein adapted to support the button, and a retaining device operated by the movement of said block in said sleeve to retain the button-shank in a perpendicular position or to release it, substantially as described.

7. A button-support for tufting-machines, consisting of an external sleeve, a reciprocating block fitted therein, and a clamping device operated by the inward movement of said block to clamp the head of a button to said block, said block being adapted to release said button-head when moved outwardly, substantially as described.

8. A button-support for tufting-machines, consisting of an external sleeve, a sliding block adapted to move in said sleeve, said block being adapted to support a button at its upper end, and laterally-movable clamps operated by the movement of said block in said sleeve for clamping and releasing the button-head, substantially as described.

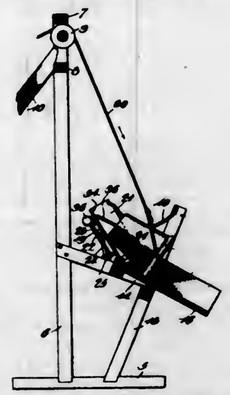
9. The combination of an external sleeve, a block adapted to slide therein, said block being adapted to support a button at its upper end, and clamps carried by said block, said clamps being arranged normally to project outward beyond the inner edge of said sleeve and to be moved inward by the inward movement of said block to engage said button, substantially as described.

10. The combination of an external sleeve, a block adapted to slide therein, said block being adapted to support a button at its upper end, clamps carried by said block, said clamps being arranged normally to project outward beyond the inner edge of said sleeve and to be moved inward by the inward movement of said block to engage said button, and means for limiting the movement of said block, substantially as described.

11. The combination of a sleeve, a block 10 having vertical slots 16 and a transverse passage 15, and a clamp 14 consisting of a wire bent to substantially U shape, the lower portion of said wire being fitted in said passage 15, the side portions of said wire being fitted in said slots 16 and normally projecting outward, the upper ends of said wire being bent inward, substantially as described.

12. The combination of a tufting-board, one or more perpendicular tufting-pins secured thereto, each of said pins carrying a button-supporting block and a button-holding clamp, said blocks being movable longitudinally of said pins and being adapted by such longitudinal movement to operate said clamps to engage or release a button, substantially as described.

677,560. ORE-BUCKET DUMPER AND CHUTE. LOUIS COLLIER, Cripplecreek, Colo. Filed Mar. 16, 1901. Serial No. 51,496. (No model.)



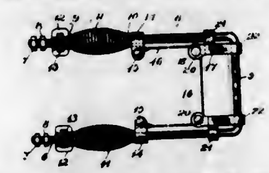
Claim.—1. A device of the class described comprising a fixed chute-section a chute-section pivoted to the fixed section at its rear end, said pivoted section having a notch in its free end, a bucket having a button attached to and suspended from its bottom, the connecting medium for said button being adapted to engage in the notch, to hold the bucket while being dumped into the fixed chute-section.

2. A device of the class described comprising a fixed chute-section and movable chute-section pivoted to the fixed chute-section, a shift-rod connected with the pivoted section for operating it, and a bucket adapted to rest upon the pivoted section and for movement thereby to lie upon the fixed section, said bucket having means for engagement with the pivoted section for holding it while being dumped into the fixed chute-section.

3. A device of the class described comprising a fixed chute-section, a movable chute-section pivoted to the fixed chute-section and having a notched free end, guides upon the bottom of the pivoted chute-section, a rock-lever slidably engaged with the guides, a shift-rod connected with the rock-lever for operating it, and a bucket having a button attached to the bottom thereof and spaced therefrom, said button being adapted to lie against the bottom of the pivoted chute-section and with its connection in the notch thereof.

677,561. PICKER-STAFF-CHECKING DEVICE. FRANK B. COSTER, Sharon, Mass. Filed Jan. 7, 1901. Serial No. 42,310. (No model.)

Claim.—1. A picker-staff check comprising a pair of guides adapted to be mounted at the sides of the picker-staff path, members having vertical extensions free to move on the guides, a check-strap secured to the vertical members, means for sustaining the intermediate portion of the strap, and resistances connected with such vertical members.

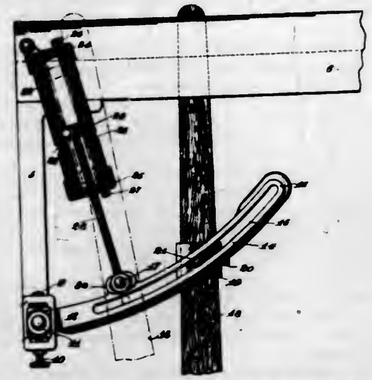


2. A picker-check comprising a U-shaped frame, means for securing the same in position, spring resistances adjustably mounted on the arms of the frame and having guide members movable on said arms, a strap secured at its ends to such guide members, and rolls mounted in the frame for sustaining intermediate portions of the strap.

3. A picker-check comprising a barrier, a frame in which the barrier is mounted, a support for the frame, means for adjusting the frame longitudinally in its support, a spring resistance on the frame and connected with the barrier, and means for adjusting the spring resistance independently of the frame adjustment.

4. The combination with the frame having the end 5 and the arms 6 6, of the yokes 12 and the frames 14 movable on the arms 6, the springs 11 11 secured between the yokes and the frames, the nuts 13 working on the arms 6 within the yokes, the strap 18 secured to the pins 15 of the frames 14, and the frames 17 having the perforated ears 21 working on the arms 6 and the hooks 22 engaging the end 5, and provided with the rolls 20 on which the intermediate portion of the belt is sustained as and for the purpose described.

677,562. PNEUMATIC PICKER-CHECKING DEVICE. FRANK B. COSTER, Sharon, Mass. Filed Jan. 14, 1901. Serial No. 43,118. (No model.)



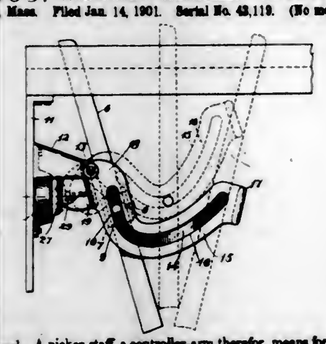
Claim.—1. A picker-check comprising an arm, means for pivotally mounting the same in a loom, connections between the picker-staff and said arm, whereby the operation of the picker-staff causes the swinging of the arm, and means positively connected with said arm for exerting resistance to its swinging motion at times.

2. A picker-staff check comprising an arm adapted to be pivotally supported in a loom, means adapted to be mounted on the picker-staff for causing the swinging of the arm, a cylinder, and a compressor working in the cylinder, and connections between the compressor and the arm.

3. A picker-staff check comprising a cylinder adapted to be pivotally supported on the loom-lay and having vents at its ends and at points intermediate its ends, a piston working through an axial perforation in one of the cylinder ends and having a head, an arm adapted to be pivotally mounted and pivotally connected with the piston, said arm having a curved slot or guide, and a box adapted to be adjustably secured to the picker-staff and having a pin working in said slot or guide.

4. The combination, with the bracket 5 depending from the loom-lay and furnished with the adjustable bearings as 8, the levers 12 having the pivots 11 journaled in said bearings the plates 13 and 14 having the slots 15 and the end 16 and the extension 17 on the plate 14, and the box secured to the picker-staff and having the pins 21 working in slots 15, of the cylinder 22 pivotally mounted on the lay 6 and having the vents 23, and the piston 28 having the head 29 and the slotted end 30 working on the extension 17, as and for the purpose described.

677,563. PICKER STAFF CONTROLLER. FRANK B. COBURN, Sharon, Mass. Filed Jan. 14, 1901. Serial No. 43,119. (No model.)



Claim.—1. A picker-staff, a controller-arm therefor, means for movably supporting the arm in a loom, connections between the arm and the staff whereby the arm may be moved, and resistance means for resisting the movement of the arm at both ends of its throw.

2. A picker-staff, a controller-arm therefor, means for movably mounting the arm in a loom, connections between the arm and the staff whereby the arm may be moved, and a resistance disconnected from said arm and adapted to resist the movement thereof at times.

3. A picker-staff, a controller-lever pivotally mounted and having a cam, connections therebetween whereby the lever may be swung and a resistance bearing on the cam.

4. A picker-staff, a bearing-pin secured thereto, a lever pivotally mounted and having a path or guide in which the bearing-pin works, and means for resisting the movement of the lever at times.

5. A picker-staff, a bearing projection secured thereto, a lever pivotally mounted and having a cam at one end and a curved guide in which the projection may work, and a resistance device against which the cam permanently bears.

6. A picker-staff furnished with a lateral projection, a lever having a curved guide in which the bearing may work, and a pneumatic cushion in permanent operative relation with the lever.

7. A picker-staff furnished with a lateral projection, a lever pivotally mounted and having a curved guide-slot in which the projection works and a cam, and a pneumatic cushion against which the cam bears with increased pressure at times.

8. In a picker-staff controller, the pneumatic cushion comprising the chamber having the inwardly-contracted wall furnished with the annular supporting-face and the annular securing-lip, and the convex diaphragm having the circumferential flange, secured between said support and lip, the depressed central portion and the perforated riding button secured in said depression.

9. In a picker-staff controller, the pneumatic cushion or resistance, a cam mounted in bearing relation thereto and adapted to compress the same at times, and connections between the cam and the picker-staff whereby the cam is brought into such compressive relation at both ends of the picker-staff throw.

10. The combination with a bracket adapted to be secured in a loom and having a pneumatic cushion, and the controller-lever having the plates 14 and 15, the plate 15 having the slot 16, the end 17, the base 18 and the cam 19 pivotally supported by such bracket, of the box 7, provided with means whereby it may be secured to a picker-staff, and having the pin 9 with its sleeve 10 adapted to travel in the slot 16, as and for the purpose described.

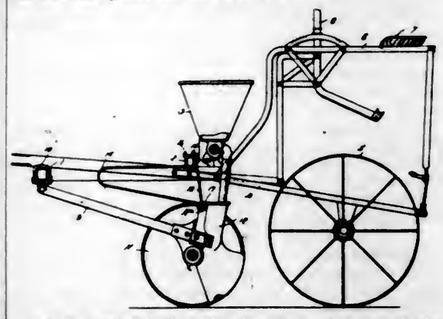
677,564. GRAIN-DRILL. HARRY H. DODSON and LOUIS C. EVANS, Springfield, Ohio, assignors to P. P. Mast & Company, same place. Filed Mar. 23, 1901. Serial No. 52,531. (No model.)

Claim.—1. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having its ends connected to the frame and drag-bar respectively, substantially as described.

2. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having its ends connected to the frame and drag-bar, respectively, and its intermediate portion free, substantially as described.

3. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having the end of its upper arm secured to the frame and the end of its lower arm pivotally connected with the drag-bar, substantially as described.

4. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having the end of its upper arm secured to the frame and the end of its lower arm pivotally connected with the drag-bar, and its intermediate portion free, substantially as described.



5. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having the rear end of its upper arm secured to the frame and the rear end of its lower arm pivotally connected with the drag-bar near the rear end thereof, the remaining portion of said spring extending forward from its points of connection and being free and unrestrained, substantially as described.

6. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having its ends connected to the frame and drag-bar, respectively, and a stop to limit the separation of the bar and frame, substantially as described.

7. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having its ends connected to the frame and drag-bar, respectively, and a stop-rod connected with the drag-bar and adapted to engage the frame to limit the separation of the bar and frame, substantially as described.

8. In a grain-drill, the combination, with a main frame and a drag-bar pivoted thereto at its forward end and carrying a furrow-opener, of a U-shaped spring having the end of its upper arm secured to the frame and the end of its lower arm pivotally connected with the drag-bar, a stop-rod also pivotally connected with the drag-bar and adapted to engage the frame to limit the separation of the bar and frame, and a guide carried by the frame through which the upper end of said rod passes, substantially as described.

9. In a press-drill of the character described, the combination, with a main frame, a press-wheel frame pivotally connected therewith at the rear, and means for raising and lowering said main frame, of a seedbox mounted on said main frame, drag-bars pivoted to said main frame and provided with furrow-opening and seed-depositing devices, and U-shaped springs interposed between the main frame and each drag-bar, each spring having its ends respectively connected with said main frame and the corresponding drag-bar, substantially as described.

10. In a grain-drill, the combination, with a main frame, of U-shaped springs, each having the end of its upper arm secured to said frame and the end of its lower arm adapted for connection with a drag-bar, and interchangeable disk and runner drag-bars, each adapted for detachable pivotal connection at its front end with the frame, and provided at its rear with a connection to receive and detachably hold the end of the lower arm of the corresponding spring, substantially as described.

11. In a grain-drill, the combination, with a main frame, of U-shaped springs, each having the end of its upper arm secured to said frame and the end of its lower arm provided with an eye, and interchangeable disk and runner drag-bars, each adapted for detachable pivotal connection at its front end with the frame and provided at its rear with a trunnion or projection to receive the eye on the end of the lower arm of the corresponding spring, and with means for detachably securing said eye on said trunnion, substantially as described.

12. In a grain-drill, the combination, with a main frame, and interchangeable detachably-pivoted drag-bars provided respectively with runners and disks, of U-shaped springs, each secured at one end to the frame and provided at the other end with an eye, corresponding stop-rods having eyes at their lower ends and adapted to engage the frame at their limit of downward motion, said frame being provided with guides for said rods, each drag-bar being provided with a similarly-located trunnion or projection to receive the eyes of the corresponding spring and stop-rod, and with means for detachably securing them on said trunnion, substantially as described.

13. In a grain-drill furrow-opener, a disk having a hub provided with an extension on its rear or inner side, in combination with a support having a trunnion entering said hub, a sleeve surrounding said hub extension at its top and sides and open at the bottom, and a downwardly-extending shield at the front edge of said bottom opening, substantially as described.

14. In a grain-drill furrow-opener, the combination, with a drag-bar, of a disk having a hub provided with an extension on its rear or inner side, a support consisting of a clip secured to the drag-bar and having a trunnion entering said hub, a sleeve surrounding said hub extension at its top and sides and open at the bottom, and a downwardly-extending shield at the front edge of said bottom opening, and a seed-tube having a plate part with an extension or wing, and separately secured to said drag-bar in the rear of said clip and its downwardly-extending shield, substantially as described.

15. In a grain-drill furrow-opener, the combination, with a support having a trunnion and a securing-bolt passing through the same, of a disk having a hub to fit said trunnion, said hub extending beyond said trunnion and bolt and being provided in said extension with a shouldered recess, a removable disk fitting against said shoulder in said recess, and a removable securing device, such as a cotter-pin, substantially as described.

16. In a grain-drill furrow-opener, the combination, with a disk having a hub provided with an oil-hole, of a pin carried by said hub, an oil-hole cover pivoted and slidable on said pin, and a spring to normally depress said cover, said hub being provided with parallel ribs or shoulders to embrace said cover at the sides thereof when closed, substantially as described.

17. In a grain-drill furrow-opener, the combination, with a disk having a hub provided with an oil-hole, of a pin carried by said hub, an oil-hole cover pivoted and slidable on said pin, and a spring to normally depress said cover, said hub being provided with parallel ribs or shoulders extending longitudinally of said hub beyond the end of said cover and embracing said cover on each side when closed, substantially as described.

18. In a grain-drill furrow-opener, the combination, with a furrow-opening disk, of a boot arranged adjacent to the rear face of the disk back of the center thereof and comprising a lower or shield portion standing clear of the disk at its rear edge, and an upper tubular portion cut away at the side adjacent to the disk to accommodate the same and provided with a transverse extension at its rear having an edge conforming to the shape of the adjacent portion of the disk and lying close to the same, whereby said extension forms a guard and scraper to prevent clogging of the seed-tube by the soil carried up by the disk, substantially as described.

677,565. DENTAL CLAMP. JESSE A. DUNN, Chicago, Ill. Filed Dec. 12, 1898. Serial No. 698,966. (No model.)



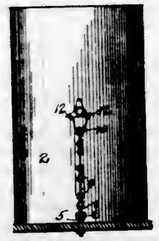
Claim.—1. A dental clamp, comprising two jaws having a sliding connection by which they are attached together near one end, said jaws being bent outwardly at the other ends, the outwardly-bent ends projecting at an angle to the ends which are connected together and provided with beaks or engaging faces between which the tooth is received, a spring connected with one jaw and bearing against the other, so as to normally force the beaks or engaging faces toward each other, and a mechanical reinforcing device for aiding the force of the spring in fixing the clamp in position.

2. A dental clamp, comprising two separate jaws sliding bodily with relation to each other to vary the tooth-space between them, one of said jaws provided with an engaging device which movably engages the other jaw, so as to connect the jaws together, a set-screw connected with one of said jaws and adapted to bear against the other, so that the jaws may be rocked one about the other in order to vary the distance between the engaging faces, the ends of said jaws bent outwardly so as to be in a different plane from the plane of said set-screw.

3. A dental clamp, comprising two jaws provided with opposed engaging faces or beaks, the ends of said jaws being bent at an angle to the parts upon which the beaks are formed, so as to be out of the plane of said beaks, said bent ends overlapping and connected together so that they may be slid one along the other to vary the tooth-space between the beaks.

4. A dental clamp, comprising two jaws provided with opposed engaging faces or beaks, the ends of said jaws being bent at an angle to the parts upon which the beaks are formed, said bent ends overlapping and connected together so that they may be slid one along the other to vary the tooth-space between the beaks, and means for pivotally moving said jaws with relation to each other when the clamp is attached to the tooth, so as to force the beaks toward the tooth.

677,566. MILK-CAN-SECURING MEANS. ELON EATON, Edwards, N. Y. Filed Jan. 10, 1901. Serial No. 42,723. (No model.)

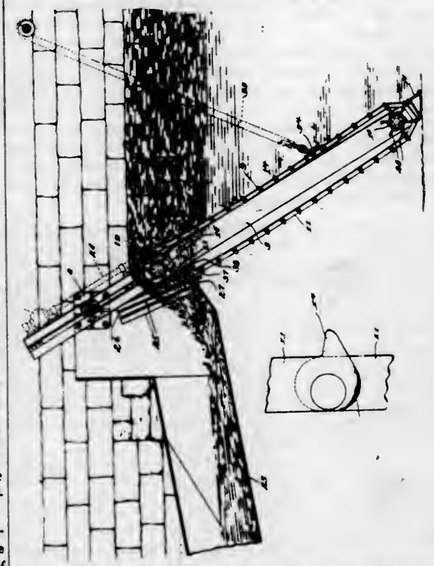


Claim.—1. The combination of a support; a can-body seated thereon and having handles; and connections between the handles and the support, each connection being positive and yielding to a limited extent to permit of a slight relative movement of the can and support in the direction of the axis of the can.

2. The combination of a support; a can-body seated thereon and having handles; and connections between the handles and the support, each connection being adjustably carried by the support, the opposite end of the connection having spring engaging members adapted to be received by and exert pressure against opposite sides of said handles and removable therefrom without disturbing the position of the connection relative to the support.

3. As a means for securing cans relative to a support therefor, connections between the support and the handles on the can, comprising a series of links having at one end a bolt adapted to be connected adjustably with said support, said bolt having a swiveled connection with a series of links, and a spring-coil located at the opposite end of said links, said coil having its free ends extended and terminating with hook-shaped ends, the intermediate portions of said free ends being bent to place the hook-shaped ends in lateral alinement, said ends being adapted to be removably secured in the can-handles.

677,567. FLUME-SCREEN. JOHN R. FREEMAN, Providence, R. I. Filed Feb. 18, 1901. Serial No. 47,721. (No model.)



Claim.—1. A flume-screen having an endless revolving screening-surface provided with a series of projections to catch the foreign material.

2. A flume-screen comprising an endless screening-apron composed of a series of links pivoted together, and means to support and rotate the same.

3. A flume-screen comprising an endless screening-apron composed of links pivotally connected together, each of which has a projection thereon to engage and lift the foreign material.

4. In a flume-screen, a frame, drums secured thereto and extending across the flume, an endless screening-apron supported on said drums, and means to rotate one of said drums, said apron being provided with a series of projections to catch and lift the foreign material.

5. In a flume-screen, a supporting-frame, a pair of drums secured thereto, an endless screening-apron supported by said drums, said apron being composed of links pivotally connected together, each having a hook or projection extending outwardly therefrom, and means to rotate one of said drums.

6. In a flume-screen, a frame removably mounted in, and extending across a flume or canal, and an endless rotating screening-apron supported on said frame, said apron having extended from its surface a series of projections.

7. In a flume-screen, a frame removably mounted in, and extending across a flume, or canal, an endless rotating screening-apron supported on said frame, said screening-apron having a series of projections thereon to catch and lift the rubbish, and means to rotate the said apron.

8. In a flume-screen, a pivotally-suspended frame which is adapted to normally rest on the bottom of the flume, an endless rotating screening-apron supported on said frame, and means to swing the frame about its pivotal point, whereby the screen may be removed from the frame.

9. In a flume-screen, a pivotally-suspended frame having a pair of drums thereon, an endless screening apron supported on said drums, a hopper or platform adjacent the upper drum to receive the rubbish from the screen, means to rotate one of the drums and means to swing the frame about its pivotal point.

10. In a flume-screen, a pivotally-suspended frame, an endless revolving screen carried thereby, means to rotate said screen, and a series of spring clearing-fingers carried by the frame and projecting through the screen.

11. In a flume-screen, a pivotally-suspended frame, a pair of drums carried thereby, an endless screening-apron supported on said drums, said apron comprising a series of links pivotally connected together, each link having a projection extending outwardly therefrom to engage the rubbish means to rotate one of said drums, and a series of spring clearing-fingers carried by said frame and projecting through the screen.

12. In a flume-screen, a pivotally-suspended frame, an endless screening-apron carried thereby, means to vary the elevation of the top of the screen, and means to swing the screen about its pivotal point and thus raise the same from the flume.

13. In a flume-screen, a pivotally-suspended frame having a pair of drums thereon, an endless screening-apron supported on said drums, said apron comprising a series of links pivotally connected together and suitably spaced apart, each of said links having a projection extending outwardly therefrom, means to rotate one of said drums, and a hopper or platform adjacent the upper drum adapted to receive the rubbish from the screen.

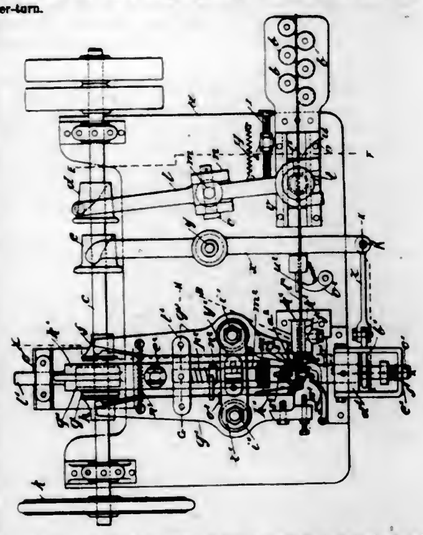
14. In a flume-screen, a pivotally-suspended frame, an endless revolving screen supported thereby, and means to revolve the screen, said frame having a grid at either side thereof and rigid therewith, said grid filling the space between the sides of said frame and the side walls of the flume or canal.

677,568. CHAIN-MAKING MACHINE. EUGÈNE F. GIRAUD, Doubiecourt, France. Filed Feb. 12, 1900. Serial No. 4,869. (No model.)

Claim.—1. In a chain-making machine the combination of a slide m' perpendicularly arranged in relation to the movement of the wire from which the chain is being made, a mandrel and a cutter both vertically movable and supported in a projecting head of the slide, two jaws mounted on levers pivoted so that each jaw terminates adjacent to the line of movement of said wire beyond the cutter and capable of oscillating in a horizontal plane, a rod m^2 having a groove in its outer end to receive the link-wire, a gripper for the formed link, means for giving the gripper a quarter-turn, whereby the formed link is held and given a quarter-turn before it is released so that when the wire is advanced it will pass through the link thus formed, linking the next link with it.

2. In a chain-making machine the combination of a slide m', a mandrel and a cutter both vertically movable and supported in a projecting head of the slide, two jaws mounted on levers pivoted so that each jaw terminates adjacent to the line of movement of said wire beyond the cutter and capable of oscillating, a rod m^2 having a groove in its outer end to receive the link-wire on the near side of the mandrel, a gripper for the formed link, means for giving the gripper a quarter-turn before the link-forming wire is again advanced, and an adjustable stop x^2 in line with said wire to exactly limit the feed of the wire.

3. In a machine for making chains the combination of a mandrel the point of which has the shape of the inside of the links of the chain, a movable slide supporting the mandrel, means for actuating the mandrel, comprising a cam g', said slide, a cam g, an intermediate pivoted lever f^3, levers d^2 and x', and a spring u' normally holding said end a^2 in operative position, two link-forming jaws h', means for moving the jaws to bend the wire around the mandrel, a gripper c' adapted to seize the link just formed, and means for giving the gripper holding the link a quarter-turn.



4. In a machine for making chains the combination of a fixed socket j^3, means for feeding wire therethrough, link-forming jaws, slide m', means for moving the slide, a cutter, a roller h^2 on the cutter, an inclined plane i^3 in position to enter in advance of the roller when the slide is advanced for raising the cutter after the wire has been cut to leave a free space for movement of the link-forming jaws.

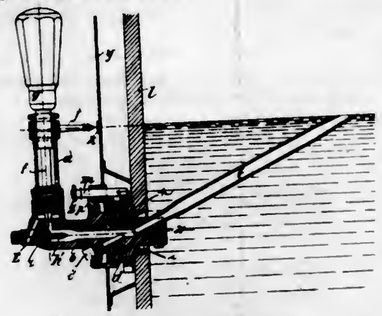
5. In a machine for making chains the combination of means for feeding a wire, means including a cutter for cutting the wire, a mandrel, means for bending the wire around said mandrel, a rod m^3, a stop n^3, a spring p^3 pressing against the stop, whereby said rod m^3 can yield allowing the shaping-jaws to close the link around the outer side of the mandrel, a slide carrying the mandrel, cutter, rod m^3, stop n^3 and the spring p^3, and means for reciprocating the slide.

6. In a machine for making chains the combination of a frame a, a driven shaft c, lever l, a horizontal pivot and a vertical pivot therefor, cam d on shaft c formed to move lever l in a vertical plane and then to swing said lever horizontally, means at one end of lever l operated by the vertical movement of lever l to clutch the link-forming wire, means for returning lever l to its original position, means for preventing the wire being retracted by such return movement, a support for the end of the wire to be cut, cutter f', slide m', means for moving the slide, means controlled by movement of slide m' for reciprocating the cutter, slide m' having a head r' forming a guide for the cutter, a mandrel s' parallel with the cutter and guided in said head r', the mandrel having an end a^2 the transverse cross-section of which is of the shape of the inside of the link to be formed, there being a longitudinal groove b^3 in one side of said end adapted to receive one side of the preceding link, lever x', lever d^2 pivoted on slide m', one end of lever x' engaging the mandrel, the other end being in the path of movement of lever d^2 at intervals, cam g for moving lever d^2 to retract the mandrel, pivoted levers g', g' having jaws h', and cams on shaft c to swing levers g', g' on their pivots.

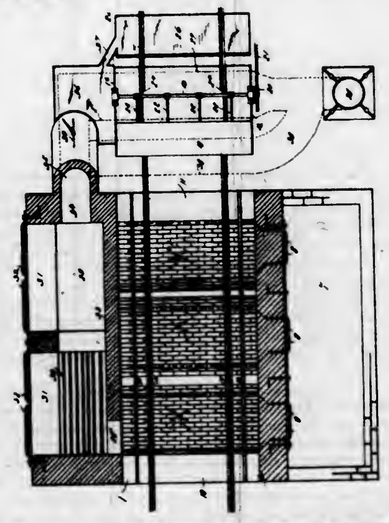
677,569. TESTING-VALVE. EMILE HAPNER, Mülhausen, Germany. Filed Apr. 30, 1900. Serial No. 14,905. (No model.)

Claim.—1. The combination with a boiler or other liquid-receptacle, of a nut arranged within an opening in the wall of the receptacle; a hollow shaft rotatably supported within said nut and provided with an outlet, an inclined tube within the boiler communicating with an inclined opening in the inner end of said shaft, a pipe communicating with the outer end of said shaft; a screw-valve within said pipe provided with a handle; an index-finger carried by said pipe; a stationary scale and means for securing the rotatable shaft at different positions.

2. The combination with a boiler, of a nut arranged within an opening in the boiler-wall and having internal annular recesses; a rotatable hollow shaft supported within the nut and provided with a discharge-plug; a hollow pipe communicating with the outer end of the shaft; a screw-valve within said pipe having a handle by means of which the shaft is turned; an inclined pipe within the boiler communicating with an inclined opening at the inner end of the shaft; a scale and index; and means for securing the shaft at different positions.



677,570. APPARATUS FOR COATING IRON PIPES. MARYLAND M. HEDGES, Chattanooga, Tenn., assignor to the Chattanooga Pipe and Foundry Company, same place. Filed Mar. 14, 1901. Serial No. 51,100. (No model.)



Claim.—1. An apparatus for coating pipes comprising an oven for heating the pipes, a vat or tank located adjacent to said oven and adapted to contain a coating material, and an inclined way extending through the oven and to the vat or tank, substantially as described.

2. An apparatus for coating pipes comprising an oven for heating the pipes, a vat or tank located adjacent to said oven and adapted to contain a coating material, an inclined way extending through the oven and to the vat or tank, whereby the heated pipes are successively fed by gravity into said tank, and automatic mechanism for successively discharging the pipes from said tank, substantially as described.

3. An apparatus for coating pipes comprising an oven for heating the pipes, said oven being provided with a discharge-opening controlled by a door, a vat or tank located adjacent to said oven and adapted to contain a coating material, and an inclined way extending through the oven and through the discharge-opening thereof to the vat or tank, substantially as described.

4. In an apparatus for coating pipes, the combination, with an oven for heating the pipes, provided with receiving and discharge openings at different levels, and doors controlling said openings, of a vat or tank located adjacent to the discharge-opening and adapted to contain a coating material, and an inclined way extending through the oven from the receiving-opening to and through the discharge-opening and to the vat or tank, substantially as described.

5. In an apparatus for coating pipes, the combination, with an oven for heating the pipes, said oven being provided with receiving and discharge openings at different levels, and doors for controlling said openings, of a vat or tank located adjacent to the discharge-opening and adapted to contain a coating material, and an inclined way extending from a point outside of the oven through the receiving-opening thereof and also through the oven and its discharge-opening to the vat or tank, substantially as described.

6. An apparatus for coating pipes comprising an oven for heating the pipes, a vat or tank located adjacent to said oven and adapted to contain a coating material, an inclined way extending through the oven and to the vat or tank, and a discharge-flue extending from the oven underneath the vat or tank to heat the same, substantially as described.

7. An apparatus for coating pipes comprising an oven for heating the pipes, a vat or tank located adjacent to said oven and adapted to contain a coating material, an inclined way extending through the oven and to the vat or tank, a stack or discharge, a flue extending from the oven underneath the vat or tank to the stack or discharge, said flue being provided with a damper between the oven and the vat, and a by-pass extending from said flue between the oven and damper to a point in said flue between the vat and discharge, substantially as described.

8. In an apparatus for coating pipes, the combination, with an oven having inclined ways, of a vat or tank located at the lower end of said ways, a rotating shaft extending longitudinally above said vat, and arms secured to said shaft and adapted to successively lift the pipes from said vat, said vat being provided with means for supporting the pipes in the path of said arms, substantially as described.

9. In an apparatus for coating pipes, the combination, with a heating-oven provided with inclined ways, of a coating-vat located at the lower end of said ways, a rotating shaft located above said vat and provided with arms, said vat being provided with means for supporting the pipes in the path of said arms, and inclined ways arranged at the discharge side of said vat to receive the pipes as they are discharged from said arms, substantially as described.

10. In an apparatus for coating pipes, the combination, with a heating-oven having inclined ways, of a coating-vat located at the lower end of said ways, a rotating shaft extending longitudinally above said vat, and arms secured to said shaft and successively set back thereon so as to lift and support the pipes in an inclined position, substantially as described.

11. In an apparatus for coating pipes, the combination, with a heating-oven having inclined ways, of a coating-tank located at the lower end of said ways and provided with a bottom having curved supporting-rails thereon, and a rotating shaft provided with arms, the ends whereof pass close to the bottom of the tank and below the upper edges of the supporting-rails thereon, substantially as described.

12. In an apparatus for coating pipes, the combination, with a heating-oven having inclined ways, of a coating-vat located at the lower end of said ways, a rotating shaft having arms to lift the pipes from said vat, inclined ways extending from the discharge side of said vat to receive the pipes as they are discharged from the arms, and a drip-tray located underneath said last-mentioned ways, substantially as described.

13. In an apparatus for coating pipes, the combination, with a heating-oven, and a coating-vat adjacent thereto, of inclined ways extending through the oven to the vat and consisting of parallel supporting-rails, on which the cylindrical portions of the pipes may roll by gravity, and guard-rails located outside of said supporting-rails, substantially as described.

14. In an apparatus of the character described, the combination, with a pipe-heating oven, a pipe-coating vat located adjacent thereto, and inclined ways extending through said oven to said vat, of a fittings-heating chamber located adjacent to said oven, a fittings-coating vat located adjacent to said pipe-coating vat, and a flue extending from said oven through said fittings-heating chamber and underneath both vats, substantially as described.

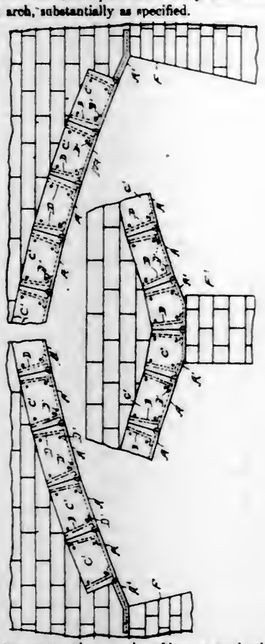
15. In an apparatus of the character described, the combination, with a heating-oven, and a pipe-coating vat adapted to receive the pipes from said oven and provided with means for discharging the pipes from said vat, of inclined ways to receive the pipes as they are discharged from said vat, a drip-tray located beneath said inclined ways, and a fittings-coating vat located adjacent to said drip-tray and adapted to receive the discharge therefrom, substantially as described.

16. In an apparatus for coating pipes, a heating-oven having in its upper portion an inclined way along which the pipes may travel by gravity, and a suitable outlet for the products of combustion, said oven having in its lower portion heating-furnaces separated from the upper portion by perforated arches, substantially as described.

677,571. BRIDGE CONSTRUCTION. GEORGE W. HEFFNER, Dayton, Ohio. Filed Apr. 12, 1901. Serial No. 55,567. (No model.)

Claim.—1. In a bridge construction, a series of base-plates having marginal flanges projecting therefrom, a series of receptacles secured within said base-plates and having outwardly-tapering sides, each of said base-plates and receptacles forming a section, and the said sections being united at the marginal flanges, whereby there is provided a structure con-

sisting of a series of sections between which are provided spaces adapted to contain cement, the spaces at the upper portions of said receptacles being smaller than at the lower portions whereby each section constitutes a key in the arch, substantially as specified.



2. In a bridge construction, a series of base-plates having marginal flanges and united in the form of an arch, the central ones of such base-plates being of larger dimensions than the remaining ones, the base-plates adjacent to the abutments or piers being angular in cross-section so as to provide a connection with a pier or abutment, a series of receptacles secured to said base-plates, the walls of said receptacles tapering outwardly so as to provide suitable spaces between said receptacles, the said spaces being of greater width adjacent to the base-plates, and the said spaces being filled with cement throughout, the interior of the receptacles also being covered with cement, and a layer of sand or gravel throughout the upper sides of said receptacles.

3. In a bridge construction, a series of base-plates having marginal flanges by means of which the plates are united in the form of an arch, the line of centermost plates in the arch being of larger dimensions than the remaining plates, and the plates on each extreme end of the arch being angular in cross-section whereby a portion of said end plates is supported on the abutments or piers, the marginal flanges of said plates being of a tapering form so as to provide suitable intervening spaces between said plates, the said spaces being of larger area adjacent to the bottom of the plates, and cement throughout said spaces whereby the entire structure becomes firmly united, and each of such plates acts as a key to hold the adjacent plates in the arch.

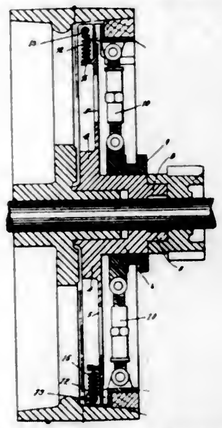
677,572. **DAMPER.** LOUIS HOEPFNER, Philadelphia, Pa. Filed Mar. 22, 1900. Serial No. 9,748. (No model.)



Claim.—1. A damper comprising a frame having an opening, flanges about the opening, a tongue projecting inwardly from the front flange, a damper pivoted to the side flanges, and adapted to seat against the front and rear flanges an arm projecting from the center of the damper a link pivoted to the arm and projecting over the tongue of the front flange, and an operating-rod secured to the link.

2. A damper comprising a frame having a vertical strip and depending flange-openings located on opposite sides of the strip, flanges about the openings, tongues projecting inwardly from the front flange, dampers pivoted to the side flanges, and adapted to seat against the front and rear flanges, arms projecting from the centers of the dampers, links pivoted to the arms and projecting over the tongues of the front flanges and operating-rods secured to the links.

677,573. **FRICTION-CLUTCH.** EDWARD HUBER, Marion, Ohio. Filed Apr. 4, 1901. Serial No. 54,256. (No model.)



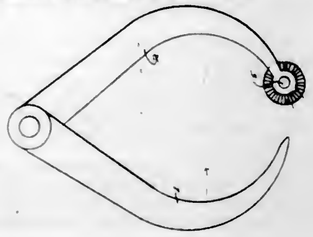
Claim.—1. In a friction-clutch, the combination, with a member provided with an annular friction-surface, of a second member having radial slots or ways, clutch-shoes having pivots mounted in said slots or ways, centripetally-acting springs connected with said clutch-shoes, a longitudinally-movable collar rotating with said second member, and toggle-arms pivoted to said collar and to said shoes, substantially as described.

2. A friction-clutch comprising a member having an annular friction-surface, and a second member having radial slots or ways, clutch-shoes having pivots mounted in said slots or ways, centripetally-acting springs connected to said pivots, a longitudinally-sliding collar rotating with said second member, and toggle-arms pivoted to said collar and to the clutch-shoes eccentrically of the pivots of these latter, substantially as described.

3. A friction-clutch comprising a member having an annular friction-surface, and a second member consisting of a spider having radially-slotted arms, clutch-shoes having laterally-extending lugs provided with pivot-bolts passing through the slots of said arms, a collar longitudinally movable relatively to the axis of rotation of the clutch, toggle-arms pivoted to said collar and to the clutch-shoes eccentrically of the pivots of these latter, and centripetally-acting springs connecting the pivots of the clutch-shoes with the corresponding radial arms, substantially as described.

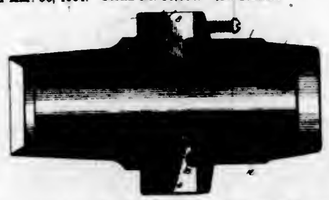
4. A friction-clutch comprising a shaft, a pulley secured thereon and having an internal friction-surface, a spider comprising radial arms and a hub loosely mounted on said shaft, a pinion also loosely mounted on said shaft and in engagement with the hub of the spider, clutch-shoes, each provided with lateral arms and a pivot-bolt connecting said arms, the corresponding spider-arm being radially slotted to receive said pivot-bolt, centripetally-acting springs connecting said pivot-bolts with the respective spider-arms, a collar longitudinally movable on the hub of the spider, and toggle-arms pivoted to said collar and to the clutch-shoes eccentrically of the pivots of these latter, substantially as described.

677,574. **CALIPERS.** CHARLES A. HUESTIS, Yonkers, N. Y. Filed Sept. 22, 1900. Serial No. 30,804. (No model.)



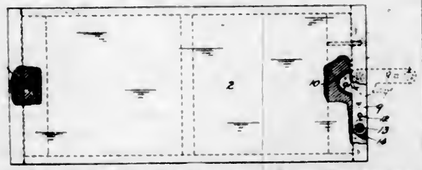
Claim.—A pair of calipers, having one contact-point end bifurcated, a cam received within the bifurcation and projecting at the outer end thereof, radial scale-marks upon one face of the cam, a fixed pivot-pin passing through the cam and the sides of the bifurcation, an adjusting binding-nut upon that end of the pivot-pin which is opposite the scale-marks, and an index or pointer upon one side of the bifurcation and coöperating with the scale-marks of the cam.

677,575. **VEHICLE-HUB.** ZACHARY T. KALE, Newcastle, Va. Filed Mar. 30, 1901. Serial No. 53,697. (No model.)



Claim.—A hub of the class described comprising the inner section 1 having a threaded extension and provided with an annular series of spoke-sockets open at one end and provided at the other end with dovetailed walls, said sockets being provided at their open ends with notches and having the short annular wall 15, located at the bottom of the sockets, the dovetailed spokes provided with grooves to register with the notches and having recesses at their lower ends to receive the bottom wall 15, said spokes abutting against the inner face of the bottom wall 15, whereby they are held against outward movement through the open ends of the sockets, and the section 2 engaging the threaded extension of the section 1 and closing the ends of the sockets and provided with an annular rib engaging the grooves and notches, substantially as described.

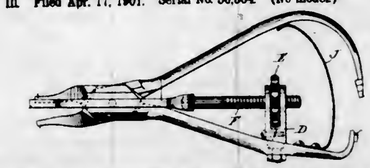
677,576. **BOX-FASTENER.** GEORGE F. KNAPP, St. Louis, Mo. Filed Mar. 23, 1901. Serial No. 52,574. (No model.)



Claim.—1. In a box-lid fastener, a suitable lid, a resilient lever pivotally secured to the under side thereof exterior to the adjacent wall of the box, a laterally-disposed wing forming the short arm of the lever, a pocket formed in the wall of the box for the reception of said wing, and means carried by the under surface of the lid for locking the lever when swung to its engaging position, substantially as set forth.

2. In a box-lid fastener, a suitable lid, a resilient lever or spring pivotally secured to the under side of the lid at a point outside the adjacent wall of the box, a lateral wing forming the short arm of the lever, a pocket formed in the wall of the box, a pin or peg carried by the under surface of the lid, the long arm of the lever having a hole for the passage of the peg to lock the lever when swung to its engaging position, substantially as set forth.

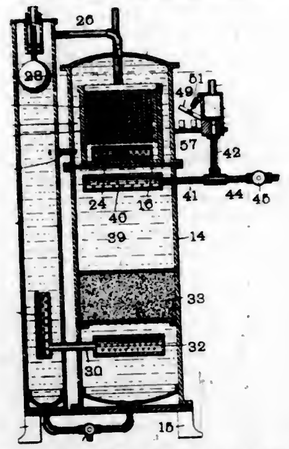
677,577. **DENTAL FORCEPS.** HOWARD N. LANCASTER, Chicago, Ill. Filed Apr. 17, 1901. Serial No. 56,304. (No model.)



Claim.—The combination with a pair of forcep-beaks of a fork propelled through grooves by means of a thumb-wheel and threaded shaft; said thumb-wheel being set in the forcep-handle.

677,578. **APPARATUS FOR PURIFYING LIQUIDS BY ELECTROLYSIS.** FREDERICK W. LESP and WILLIAM KOEDDING, St. Louis, Mo. Filed Oct. 1, 1900. Serial No. 31,634. (No model.)

Claim.—1. In an electrolytic purifier for liquids, a vessel for the liquid, supply and discharge pipes for said liquid, a plurality of electrodes in said vessel, means for passing a current of electricity through said electrodes and liquid, a current-reverser, and automatic means controlled by the flow of the liquid for actuating said current-reverser.



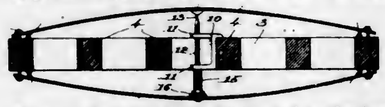
2. In an electrolytic purifier for liquids, a vessel in which the liquid is subjected to the action of an electric current, a plurality of electrodes in said vessel, supply and discharge passages for the liquid, a movable member situated in one of said passages, and a switch and a current-reverser controlled by said movable member for making, breaking and reversing the direction of flow of the current in the circuit.

3. In an electrolytic purifier for liquids, a vessel in which the liquid is subjected to the action of an electric current, a plurality of electrodes in said vessel, supply and discharge passages for the liquid, a movable member in one of said passages, and a current-reverser actuated by said movable member.

4. In an electrolytic purifier for liquids, a vessel for the liquid, a plurality of electrodes in said vessel, means for passing a current of electricity through said electrodes and liquid, a chamber into which the liquid from said vessel is discharged, means for imparting a rotary motion to the liquid in said chamber, and an outlet-opening situated axially in said chamber.

5. In an electrolytic purifier for liquids, a vessel for the liquid, a plurality of electrodes in said vessel, means for passing a current of electricity through said electrodes and liquid, a cylindrical chamber, a passage discharging the liquid from said vessel tangentially into said cylindrical chamber, and a discharge-opening located axially in said cylindrical chamber.

677,579. **SOUNDING-BOARD FOR PIANOS.** GEORGE LUTZ, Cambridge, Mass. Filed Jan. 9, 1901. Serial No. 42,607. (No model.)



Claim.—1. In a piano, two oppositely-curved sounding-boards, a central support between the same, and means fixedly attached thereto and bearing against each sounding-board and serving to maintain them in their curved position.

2. In a piano, two sounding-boards spaced apart to form a sound-chest therebetween, and a fixedly-mounted sound-post bearing at its ends against the sounding-boards.

3. In a piano, two sounding-boards spaced apart so as to form a sound-chest therebetween, a sound-post bearing at its ends against the sounding-boards, and means to fixedly support the said sound-post intermediate its ends.

4. In a piano, two oppositely-curved sounding-boards, and a fixedly-supported sound-post bearing at its ends against the convex side of each sounding-board.

5. In a piano, two oppositely-curved sounding-boards forming a sound-chest therebetween, a sound-post bearing against each sounding-board, and means to fixedly support said sounding-post intermediate its ends.

8. In a piano, two oppositely-curved sounding-boards, a metallic pin or post bearing at each end against the convex side of the sounding-board, and means for fixedly sustaining the post at its central portion, the said post serving to transmit the vibrations from one sounding-board to the other.

7. In a piano, two oppositely-curved sounding-boards, a lengthwise-adjustable metallic post bearing at each end against the convex side of the sounding-board, and means for fixedly sustaining the post at its central portion, the said post serving to transmit the vibrations from one sounding-board to the other.

8. In a piano, two oppositely-curved sounding-boards, a fixedly-mounted bracket, a metallic pin fast therein, and bearing at one end against one sounding-board, a sleeve screw-threaded on the other end of said pin and bearing against the other sounding-board, said pin serving to transmit the vibrations from one sounding-board to the other.

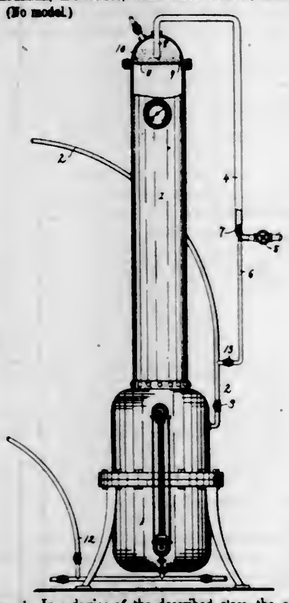
9. In a piano, two oppositely-curved sounding-boards and a resonator between the same, said resonator comprising a fixedly-mounted bracket, a metallic pointed pin screw-threaded in said bracket, a socket-piece resting against one sounding-board, and in which the point of the pin rests, and a sleeve screw-threaded on the other end of said pin and bearing against the other sounding-board.

10. In a piano, two oppositely-curved sounding-boards, V-shaped ribs fast to the framing of the piano and against which the sounding-boards rest near their edges, and adjustable means for securing the edges of the sounding-boards to the framing of the piano adjacent to said ribs, whereby an even tension may be applied to each sounding-board.

11. In a piano, two oppositely-curved sounding-boards, on opposite sides of the back framing, and means connected to one of the posts of the framing and bearing against each of said sounding-boards and sustaining them in their curved condition, combined with bearing-ribs fast on said framing near the edges of said boards, and adjusting means for securing the edges of said sounding-boards to the said framing, said adjusting means being adjacent the ribs.

12. In a piano, two oppositely-curved sounding-boards, a metallic pin or post bearing at each end against the convex side of the sounding-boards, and means for fixedly holding said pin centrally of its length, said pin serving to transmit the vibrations from one sounding-board to the other, combined with bearing-ribs fast on the said framing near the edges of said sounding-boards, and screws for securing the edges of the sounding-boards to the framing, said screws being adjacent the ribs whereby an even tension on the sounding-boards may be produced.

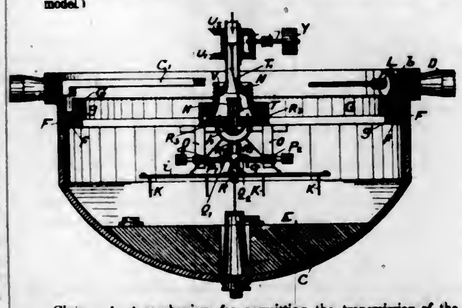
677,580. CARBONATING APPARATUS. PHILIP MADLENER and OTTO MADLENER, Milwaukee, Wis. Filed Feb. 27, 1901. Serial No. 49,098. (No model.)



Claim.—1. In a device of the described class, the combination of an inclosing chamber; a partition-wall subdividing the same and provided with projections on its under surface; ducts leading through said partition-wall to the projections; a liquid-supply pipe communicating with the chamber above the partition, and extending downwardly within the chamber to a point in proximity to the partition, said liquid-supply pipe having a greater capacity than the aggregate capacity of the ducts in the partition.

2. In a device of the described class, a receptacle subdivided by a horizontal partition-wall, having downwardly-extending projections, and ducts leading through said wall and projections; a gas-supply pipe communicating with said chamber below said partition; a liquid-supply pipe communicating with said chamber above the partition and extending downwardly therein toward said partition-wall; and a gas-supply pipe arranged to discharge into the liquid-supply pipe; said liquid-supply pipe being of greater capacity than the combined capacity of said ducts, whereby a body of liquid under pressure is maintained on the upper surface of the partition in sufficient quantity to cover the mouth of the supply-pipe, and prevent the separation of the gas from the liquid.

677,581. MECHANISM FOR TRANSMITTING THE READINGS OF SHIPS' COMPASSES TO DISTANT POINTS. EBERHARD F. W. VON MANTEY, Kiel, Germany. Filed Apr. 20, 1900. Serial No. 13,633. (No model.)



Claim.—1. A mechanism for permitting the transmission of the readings of a ship's compass to distant points of observation consisting of the combination with an ordinary ship's compass of a disk or wheel concentrically pivoted in the vicinity of the magnetic needle, means for rotating said disk in either direction, and means for controlling the direction of rotation of said disk according to the relative position thereto assumed by the needle substantially as and for the purpose set forth.

2. A mechanism for permitting the transmission of the readings of a ship's compass to distant points of observation consisting of the combination with an ordinary ship's compass of a disk or wheel concentrically pivoted in the vicinity of the magnetic needle, means for rotating said disk in either direction, a vessel continuously fed with compressed air, attached to the needle and provided with means for emitting the air in the shape of a jet, a pair of fans movably attached to said disk, and means for controlling the direction of rotation of said disk when either of the fans is struck by the air-jet, substantially as and for the purpose described.

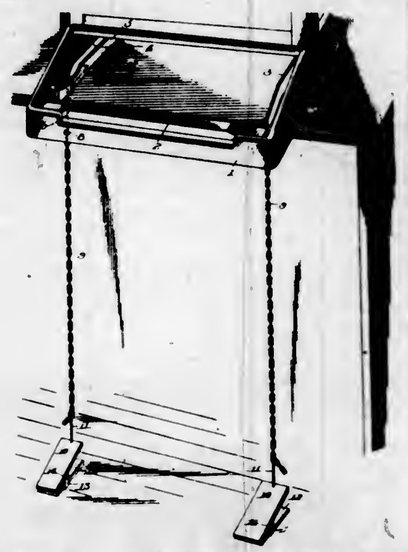
3. The combination with a ship's compass of a disk or wheel placed within the bowl of the compass and adapted to be rotated concentrically with the magnetic needle, a shaft journaled in fixed bearings outside the bowl and driven continuously in one direction of rotation by a suitable motor, reversing-gear interposed between said shaft and said disk and means for controlling said reversing-gear according to the relative position assumed by said disk with regard to the needle, substantially as and for the purpose set forth.

4. The combination with a ship's compass of a disk or wheel pivoted concentrically within the compass-bowl, the magnetic needle being suspended therefrom, a shaft journaled in fixed bearings outside the bowl and driven continuously in one direction of rotation by a suitable motor, reversing-gear interposed between said shaft and said disk and means for controlling said reversing-gear according to the relative position assumed by said disk with regard to the needle, substantially as and for the purpose set forth.

5. The combination with a ship's compass of a disk or wheel placed within the bowl of the compass and adapted to be rotated concentrically with the magnetic needle, a shaft journaled in fixed bearings outside the bowl and driven continuously in one direction of rotation by a suitable motor, reversing-gear interposed between said shaft and said disk, of a vessel continuously fed with compressed air attached to the needle and provided with means for emitting said air in the shape of a jet, a pair of fans attached to said disk and adapted to be rocked when struck by the jet of air, and means for operating said reversing-gear accordingly as the one or the other of said fans is rocked substantially as and for the purpose set forth.

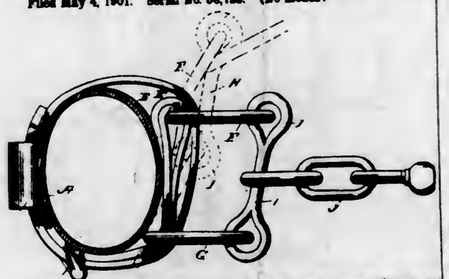
6. The combination with a ship's compass of a disk or wheel preferably placed within the bowl of the compass and adapted to be rotated concentrically with the magnetic needle, a shaft journaled in fixed bearings outside the bowl and driven continuously in one direction of rotation by a suitable motor, reversing-gear interposed between said shaft and said disk, a vessel continuously fed with compressed air, attached to the needle and adapted to emit said air in the shape of a plurality of jets arranged so as to counterbalance each other's reaction, pairs of fans attached to said disk and adapted to be rocked when struck by the air-jets, and means for operating said reversing-gear accordingly as the one or the other fan of said pairs is rocked, substantially as and for the purpose set forth.

677,582. TYPE-WRITER ATTACHMENT. WILLIAM B. MARTIN, Fayetteville, Tenn. Filed Nov. 16, 1900. Serial No. 36,788. (No model.)



Claim.—A type-writer attachment comprising a hooked rod adapted to be hooked over the shift-key or space-bar of the machine; in combination with a treadle adapted to be placed on the floor in vertical alinement with said rod; and a flexible connection between said rod and treadle.

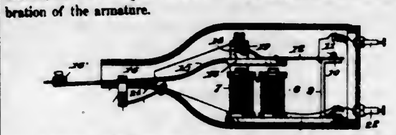
677,588. ANIMAL-HOPPLE. JACOB P. MEALS, Rawlings, Wyo. Filed May 4, 1901. Serial No. 58,722. (No model.)



Claim.—An improved hopple consisting of ordinary securing-straps and a connecting-chain, the end links of the chain and the securing-straps being connected together by means of vertically-disposed parallel links, connected at one end with the straps, and at the opposite end vibratively connected with a horizontal bar the latter passing through the end link of the chain, substantially as and for the purpose set forth.

677,584. ELECTRIC MANDOLIN-PLAYER. ALEXANDER I. MITCHELL, Rumford Falls, Me. Filed Feb. 25, 1901. Serial No. 48,827. (No model.)

Claim.—1. A device of the class described comprising an electromagnet, a vibratory armature in the field of force of the magnet a make and break for the circuit of the magnet, and a plectrum carried by the armature, and extending in a direction at right angles to the direction of vibration of the armature.



2. A device of the class described comprising an electromagnet, a vibratory armature for the magnet, a make and break for the circuit of the magnet, a plectrum carried by the armature for vibration therewith and extending in a direction at right angles to the direction of vibration of the armature, and means for holding the armature against vibration.

3. A device of the class described comprising an electromagnet, a vibratory armature for the magnet, a make and break for the circuit of the magnet, a plectrum carried by the armature for vibration therewith, means for holding the armature against vibration, and a circuit-closer operable by the holding device.

4. A device of the class described comprising an electromagnet, a vibratory armature for the magnet, a plectrum carried by the armature for vibration therewith, a casing in which the magnet is inclosed and from which the plectrum projects, a loop disposed in operative relation to the armature to hold it against vibration, a spring-finger engaged with the casing and loop to hold the latter in operative position, a make and break for the magnet-circuit, and a circuit-closer for the magnet including said spring and adapted to close the circuit when the loop is moved to release the armature.

677,585. VEHICLE. RILEY MCCLASKEY, Rockwood, Wyo. Filed Jan. 22, 1901. Serial No. 44,433. (No model.)



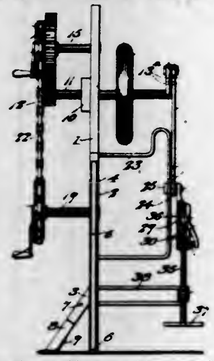
Claim.—1. In an axle construction, the combination with the wooden portion of an axle proper, of metallic jackets or skeins adapted to receive each end thereof and a coupling having vertical side flanges to receive said axle and skeins and draw the latter toward each other, as set forth.

2. In vehicle construction, an axle; a metallic sleeve or casing adapted to receive each end of the axle; a journal carried by each sleeve and a coupling device having outwardly-inclined lugs adapted to engage apertures within the inner end of each of said casings whereby when said coupling is forced against said inner ends the latter will be drawn securely toward each other and retained until said coupling is removed, all substantially as specified and for the purpose set forth.

3. In a vehicle construction, the combination of skeins terminating in screw-threaded hollow journals and meeting in their centers with an axle, a coupling for said meeting ends, a bearing for the hollow journals having a screw-threaded end and a nut therefor, all arranged as set forth.

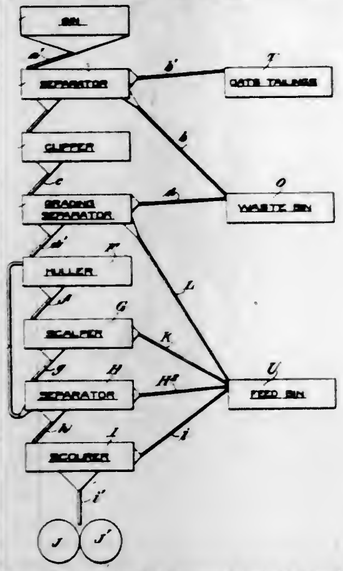
4. As an improvement in vehicle construction, the herein-described axle comprising the axle proper 1; metallic casings adapted to receive the end of the axle and having an integral journal upon the outer end thereof in combination with a coupling provided with outwardly-inclined lugs adapted to fit in suitable apertures provided for their reception in the inner end of the casings and suitable means to secure the coupling in place whereby the inclined lugs will be forced within the apertures and thereby draw the casings toward each other in the manner specified and for the purpose set forth.

677,586. CHURNING-MACHINE. BILL H. MCDANIEL, Kosse, Tex. Filed Apr. 28, 1900. Serial No. 14,783. (No model.)



Claim.—A churning-machine comprising an upright or standard, a driven shaft having a crank, a guide-bracket, a slide traveling in the guide-bracket, a pitman whereby the slide is carried on the crank, a socket-block having a socket and an opening, a latch pivoted in the opening, and a dasher having a rod formed with an inclined notch in which the latch engages for detachably supporting the dasher in the socket-block.

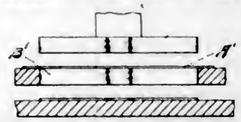
677,587. OAT STOCK-FEED AND PROCESS OF PRODUCING SAME. JOHN D. HAGEL and HENRY R. HAGEL, Bushnell, Ill. Filed Apr. 5, 1901. Serial No. 54,195. (No specimens.)



Claim.—1. The herein-described process of producing a stock-feed from oats, consisting in cleaning, hulling and dusting uncooked and unheated natural oats, separating the dirt and clippings therefrom, and collecting the hulls, screenings and fine nutritious dust obtained therefrom and mixing them to form a stock-feed, all substantially as and for the purpose described.

2. The herein-described compound for stock-feed, comprising the uncooked and unheated hulls, clippings, screenings, and fine dustings obtained as by-products incident to the milling of oats.

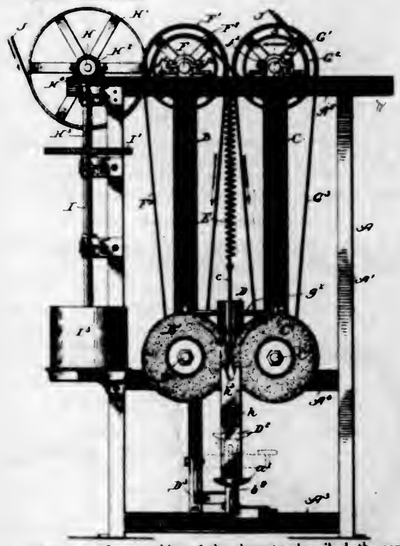
677,588. PROCESS OF PRODUCING TUFTING-BUTTONS. FRED A. NEIDER, Augusta, Ky. Filed Oct. 27, 1900. Serial No. 34,564. (No model.)



Claim.—1. The process of making the back and prongs for a tufting-button for cushion-seats, which consists of the following steps, first in punching a blank from a metal strip, second, feeding said blank over a couple of movable jaws while they are held apart a distance equal to the width of the back, third, forcing said blank down through the jaws in said position by a second die the shape of which is that of the figure formed by the inner lines of the prongs and back in their completed form, and fourth, bringing the movable jaws toward each other to bend the prongs and back against said second die, forming a mushroom-head, substantially as set forth.

2. The process of making a tufting-button which consists of the following steps, first in punching a blank consisting of an enlarged central portion forming the back, and prongs upon each side consisting of enlarged bases merging in reduced portions with parallel sides, second feeding said blank over a couple of movable jaws while they are held apart a distance equal to the width of the back, third forcing said blank down through the jaws in said position by a second die which has a foot sloping inward to a reduced shank, fourth bringing the movable jaws together to bend the prongs against said second die, forming thereby a mushroom-head, and fifth completing the button by placing a cap upon the back, substantially as shown and described.

677,589. BRUSHING, GRINDING, OR POLISHING MACHINE. BENJAMIN NICHOLS, Jamestown, N. Y. Filed Mar. 5, 1901. Serial No. 49,905. (No model.)



Claim.—1. In a machine of the character described, the combination with a main frame of swinging frames secured thereto, grinding or polishing disks journaled in the said swinging frames, means for yieldingly holding said swinging frames together in a given position to oppose separation of the disks, and means for imparting rotary motion to said disks, substantially as described.

2. The combination with a main frame, of swinging frames pivotally connected therewith toward their upper ends, shafts journaled toward the lower ends of said swinging frames and equipped with grinding or polishing disks, means for yieldingly holding said swinging frames with a given degree of separating and yieldingly opposing further separation, and means for imparting rotary motion to the disks, substantially as described.

3. The combination with a main frame of swinging frames connected therewith, grinding or polishing disks operatively connected with the lower portion of said swinging frames, a spring connecting the lower ends of said swinging frames and a stop limiting the relative approach of the lower ends of said swinging frames, substantially as described.

4. The combination with a main frame of shafts journaled in the upper portion thereof, swinging frames pivotally supported concentric with said shafts, parallel shafts journaled in the lower ends of said swinging frames and equipped with grinding or polishing disks, and belt connection between the parallel shafts at each swinging frame, substantially as described.

5. The combination with a main frame, of shafts journaled in the upper portion thereof, swinging frames pivotally supported concentric with said shafts, parallel shafts journaled in the lower ends of said swinging frames and equipped with grinding or polishing disks, belt connection between the parallel shafts at each swinging frame, and a belt communicating motion to both said upper shafts, substantially as described.

6. The combination with a main frame, of parallel shafts at the upper portion thereof, journal-boxes fixed to the main frame and receiving said shafts and provided with projecting sleeves, swinging frames pivotally connected with said sleeves, parallel shafts journaled toward the lower ends of said swinging frames and equipped with grinding or polishing disks, belt-and-pulley connection between each set of shafts at each swinging frame, and means for communicating motion to the upper shafts, substantially as described.

7. The combination with the main frame of yieldingly-supported disks, and a resiliently-held work-holder coacting with said disks, substantially as described.

8. The combination with a main frame, of yieldingly-supported rotary disks, a spring-held work-holder coacting with said disks, and means for manually moving the work-holder relatively to the disks, substantially as described.

9. The combination with a main frame, of yieldingly-held swinging frames, shafts journaled toward the lower ends of said swinging frames and equipped with disks, a guide connected with the main frame, a yieldingly-held slide connected with said guide, a work-holder connected with said slide, and means for manually moving said work-holder in one direction, substantially as described.

10. The combination with a main frame, and operatively-mounted polishing or grinding disks and a work-holder movable toward and away from the disks, said work-holder being swiveled to swing in a plane parallel to the axes of the disks, substantially as described.

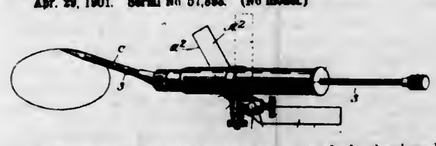
11. The combination with a main frame, of operatively-mounted polishing or grinding disks, a work-holder movable toward and away from the disks, said work-holder being swiveled to swing in a plane parallel to the axes of the disks, and a curved gage having its radii of curvature intersecting the axis upon which said holder is swiveled, substantially as described.

12. The combination with a main frame, of operatively-mounted polishing or grinding disks having horizontal axes, a work-holder movable toward and away from the disks, a vertical axis upon which the said work-holder is pivoted, and a vertically-disposed concave gage having radii of curvature intersecting a prolongation of said axis, substantially as described.

13. The combination with a main frame, yieldingly-connected swinging frames supported thereon, grinding or polishing disks operatively mounted toward the lower ends of said swinging frames, means for communicating motion to said disks, a polishing-fluid receptacle located adjacent to the disks, a vertically-disposed stirrer-shaft equipped at its lower end with a stirrer located within said receptacle and connecting means between said stirrer-shaft, and means for operating said disks, substantially as and for the purpose set forth.

14. The combination with a main frame and yieldingly-held rotary disks, of a yieldingly-held movable slide connected with the main frame, a foot-lever connected with said slide, and a work-holder connected with said slide, substantially as described.

677,590. ELLIPSOGRAPH. FRED OLDFIELD, Chicago, Ill. Filed Apr. 29, 1901. Serial No. 57,893. (No model.)



Claim.—1. An ellipsograph, comprising a standard, a bearing adjustable vertically on the standard and angularly in a vertical plane, and means for securing it with respect to both such adjustments; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis of the latter.

2. An ellipsograph, comprising a graduated standard, a bearing adjustable vertically on the standard and angularly in a vertical plane, and means for securing it with respect to both such adjustments; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis of the latter.

3. An ellipsograph, comprising a standard, a bearing adjustable vertically on the standard and angularly in a vertical plane; means for securing it with respect to both such adjustments; a shaft sliding and rotating in such bearing; a marker carried by the shaft and adjustable toward and from the axis of the latter; and a graduated arc about the center of the angular adjustment of the bearing in the vertical plane, and means for reading on said arc such angular adjustment.

4. An ellipsograph, comprising a graduated standard, a bearing adjustable vertically on the standard and angularly in a vertical plane, means for securing it in respect to both such adjustments and for indicating the angular adjustment; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis of the latter.

5. An ellipsograph, comprising a standard, a bearing adjustable about the standard and vertically thereon, and also angularly in a vertical plane, and means for securing it with respect to each of such adjustments; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis thereof; the standard having a base provided with a horizontal straight edge at one side, and means for indicating the adjustment of the bearing about the standard angularly with respect to said straight edge.

6. An ellipsograph, comprising a standard, a bearing adjustable about the standard and vertically thereon, and also angularly in a vertical plane, and means for securing it with respect to each of such adjustments; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis thereof; the standard having a base provided with a horizontal straight edge at one side.

7. An ellipsograph, comprising a standard having a base provided with a straight edge; a bearing adjustable vertically on the standard and also angularly in a vertical plane, adapted to be fixed with respect to the vertical plane of said straight edge; a shaft sliding and rotating in such bearing; and a marker carried by the shaft, adjustable toward and from the axis thereof.

8. An ellipsograph, comprising a standard having a base composed of two parts pivoted together and each having a straight edge and adapted to be adjusted about their pivot to vary the angle of such straight edges to each other; a bearing adjustable vertically on the standard and angularly in a vertical plane, and means for securing it with respect to both such adjustments; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis of the latter.

9. An ellipsograph, comprising a standard having a base consisting of two parts pivoted together, each having a straight edge and adapted to be adjusted and secured together about their pivot to vary and fix the angle between their straight edges, and means for indicating such angle; a bearing adjustable vertically on the standard and angularly in a vertical plane, and means for securing it with respect to both such adjustments; a shaft sliding and rotating in such bearing, and a marker carried by the shaft and adjustable toward and from the axis of the latter.

10. An ellipsograph, comprising a standard, a sleeve-bearing adjustable vertically thereon and angularly in a vertical plane; means for securing it in respect to each of such adjustments; a shaft telescoping and rotating in said sleeve-bearing; a marker hinged to the lower end of the shaft, and means for securing it in adjustment as to its divergence from the shaft-axis; the other end of the shaft protruding from the sleeve and provided with a suitable knob or handle for rotating and sliding the shaft in the sleeve.

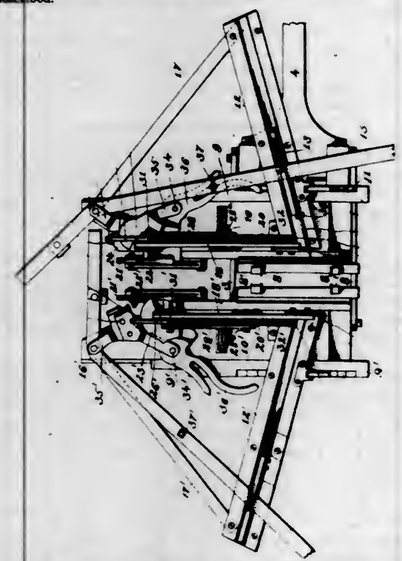
677,591. BROOM-SEWING MACHINE. HARVEY S. PAGE, St. Louis, Mo., assignor to Lois B. Page, same place. Filed July 9, 1896. Serial No. 598,545. (No model.)

Claim.—1. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides located at each side of said jaws, channel-bars carried by said slides, needle-carriers arranged to operate in said bars, and needles fixed to said carriers, substantially as described.

2. In a broom-sewing machine, the combination of means for holding the broom, a series of needles for stitching said broom, and a threader comprising bars and slitted rubber strips carried by said bars adapted to receive and hold the sewing-twine under tension, substantially as described.

3. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides, needle-carriers and the needles fixed thereto, means for operating said needle-carriers, reciprocating threaders arranged to receive the sewing-twine, means for retracting said threaders.

and springs whereby the threaders are projected forwardly, substantially as described.



4. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides, needle-carriers and the needles fixed thereto, means for operating said needle-carriers, reciprocating threaders arranged to receive the sewing-twine, drivers having connection with said threaders, means for retracting said drivers, and springs arranged to project said drivers forwardly, substantially as described.

5. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides, needle-carriers and the needles fixed thereto, means for operating said needle-carriers, reciprocating threaders, drivers having connection with said threaders, means for retracting said drivers, dogs arranged to hold said drivers in retracted positions, springs arranged to project the drivers forwardly, and means for tripping said dogs, substantially as described.

6. In a broom-sewing machine, the combination of a frame, broom-holding jaws, needle-carriers and the needles fixed thereto, reciprocating threaders, means for operating said threaders and slitted strips carried by said threaders adapted to receive the sewing-twine and deliver it to said needles, substantially as described.

7. In a broom-sewing machine, the combination of a frame, broom-holding jaws, needle-carriers and the needles fixed thereto, reciprocating threaders, means for operating said threaders, reciprocating slides on which said parts are mounted, standards on said slides provided with cam-grooves, and pins carried by said threaders arranged to operate in said grooves to cause said threaders to rise and fall in their forward movement, substantially as described.

8. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides mounted on said frame, racks on said frame, pawls carried by said slides arranged to engage said racks, needle-carriers and the needles fixed thereto, and means for operating said needle-carriers, substantially as described.

9. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides mounted on said frame, needle-carriers and the needles fixed thereto, reciprocating threaders, drivers connected to said threaders, hand-levers for operating said needle-carriers, springs adapted to move said threader forwardly, and means for retracting said drivers, comprising cam members having arms arranged to be engaged by said hand-levers, substantially as described.

10. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides, needle-carriers and the needles fixed thereto, hand-levers by which said needle-carriers are actuated, reciprocating threaders, drivers connected to said threaders, springs arranged to project said drivers and threaders forwardly, cam members arranged to engage said drivers, said cam members being provided with slotted arms adapted to be engaged by said hand-levers for the purpose of moving the arms and retracting said drivers, substantially as described.

11. In a broom-sewing machine, the combination of a frame, broom-holding jaws, reciprocating slides, needle-carriers and the needles fixed thereto, hand-levers by which said needle-carriers are actuated, reciprocating needle-threaders, drivers connected to said threaders, springs arranged to project said drivers and threaders forwardly, spring-posts fixed to said slides adapted to engage said drivers when retracted, cam members pivoted to said slides adapted to retract said drivers and also to press said spring-posts sidewise for the purpose of releasing said drivers, said cam members being arranged to be engaged by said hand-levers whereby they are actuated, substantially as described.

677,592. CLUTCH. HENRY W. PATRICK, Birmingham, England. Filed June 9, 1900. Serial No. 19,792. (No model.)



Claim.—1. A clutch comprising a ring having a recess, a disk having a long circumferential recess and working snugly within the ring, a sliding pawl of approximately one-half the length of the circumferential recess and adapted to move back and forth therein, and means adapted to bear against either end of the sliding pawl according to the position of the latter with relation thereto to throw the sliding pawl in or out of the recess in the ring.

2. A clutch comprising a ring having a recess, a disk having a long circumferential recess and working snugly within the ring, a sliding pawl of approximately one-half the length of the circumferential recess and adapted to move back and forth therein, and a spring located in the disk and adapted to bear against either end of the sliding pawl according to the position of the latter with relation thereto to throw the sliding pawl in or out of the recess in the ring.

3. In a clutch, the combination with a recessed disk; of a pawl movable longitudinally within said recess, and a spring-controlled ball contacting with the pawl and adapted to automatically tilt the same into the recess in the ring only when the pawl is moving in one direction.

4. In a clutch, the combination with a recessed disk, of a pawl slidably mounted therein and having a convex end, a spring-controlled ball mounted within the disk and operating upon said pawl, and a ring inclosing the disk provided with a recess having an inclined inner surface, said ball adapted to automatically project the pawl into engagement with the walls of the recess within the ring.

5. In a clutch, the combination with a recessed disk, of a pawl slidably mounted therein and having a convex end, a spring mounted within the disk, a ball seated upon said spring and bearing upon the inner surface of the pawl, a recessed ring inclosing the disk, said ball adapted to automatically project the pawl into engagement with the walls of the recess within the ring, and face-plates secured to said disk and overlapping the inner edges of the ring.

6. In a clutch, the combination with a recessed disk; of a pawl movable longitudinally within said recess, a recessed ring mounted upon the disk, and a spring-controlled ball contacting with the pawl and adapted to automatically tilt the same into a recess in the ring when the pawl is at one end of its recess and to hold the same out of engagement with the recesses in the ring when said pawl is at the opposite end of its recess.

677,593. GRINDING-MACHINE. HENRY PEARCE, Campana, Argentina. Filed Nov. 13, 1900. Serial No. 36,238. (No model.)

Claim.—1. In a grinding or like machine, the combination of a rotary tool, means for moving said tool in a circuitous, curved or planetary path about the piece to be acted on, and means for adjusting the tool to vary the extent of said path, as described.

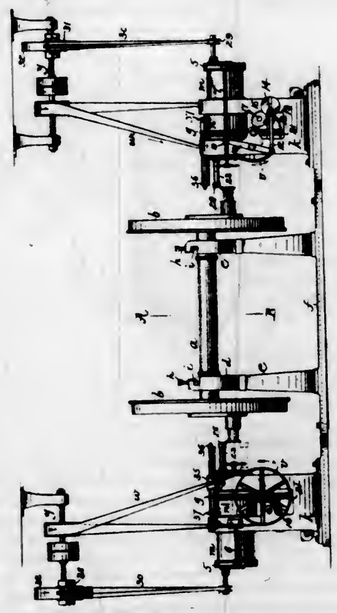
2. In a grinding or like machine, the combination of a rotary tool, means for moving said tool in a circuitous, curved or planetary path about the piece to be acted on, means for reciprocating the tool in a direction at right angles to said path, and means for adjusting the tool to vary the extent of its path, as described.

3. In a grinding-machine, the combination of a rotating cylinder, a rotating tool-holder carried by said cylinder and a rotating tool mounted in said holder, as described.

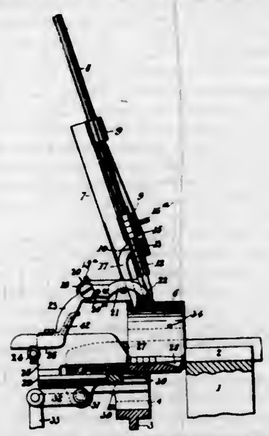
4. In a grinding-machine, the combination of two rotating members, one eccentrically mounted with respect to the other, and a rotating tool carried by said eccentrically-mounted member, as described.

5. The combination of a grinding-machine, of a revolving tool, means for reciprocating said tool and means for adjusting the extent of reciprocation, as described.

677,593.



677,594. MACHINE FOR PACKING CIGARETTE-MOUTHPIECES. EDWARD T. POLLARD, London, England, assignor to Bernhard Baron, same place. Filed Sept. 18, 1900. Serial No. 30,446. (No model.)

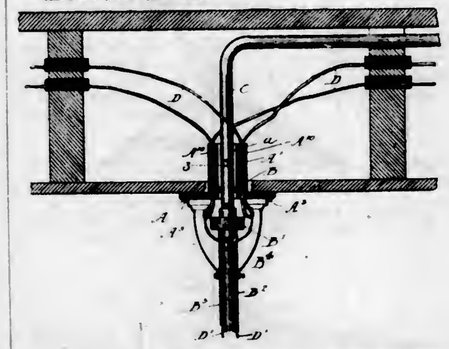


Claim.—1. In a machine for packing cigarette-mouthpieces, the combination with a tube for holding such mouthpieces, of a spring-pressed part for gripping same therein, a plunger, means carried by same for releasing the gripping means, an arm, means for pivotally carrying same on the machine, a knife-edge on one end of said arm adapted to act on the mouthpieces released by the spring part, and a part carried by the plunger adapted to strike the other end of said arm in the rearward movement of the plunger, so that the mouthpieces are knocked off by the knife-edge in front of the plunger ready for its forward delivering movement.

2. In a machine for packing cigarette-mouthpieces and in combination, a plunger, a part having a space through which the plunger works, a notch in the passage-way so formed and means for delivering the mouthpieces onto said notch whereby they are directed in their fall.

3. In a machine for packing cigarette-mouthpieces and in combination, a tube for holding the mouthpieces having means for holding the mouthpieces at the discharging end, a spring for operating same in one direction, an arm carried by the holding means, a plunger for discharging the released mouthpieces, and a part carried by the plunger adapted to strike the arm and release the pressure on the mouthpieces when the plunger is in line with the tube so that the mouthpieces fall on said plunger.

677,595. CEILING-PLATE FOR COMBINATION LIGHT-FIXTURES. FRANK G. PROCUNIER, Chicago, Ill. Filed Nov. 30, 1900. Serial No. 38,104. (No model.)



Claim.—1. A ceiling-plate for combination light-fixtures, comprising an axially-apertured hub and an extended flange at one end thereof, the hub having the longitudinal apertures A^{10} for electric conducting-wires.

2. A ceiling-plate for combination light-fixtures, comprising an axially-apertured hub and an extended flange at one end thereof, provided at the end opposite that from which the hub extends, with the drip-bead, A^3.

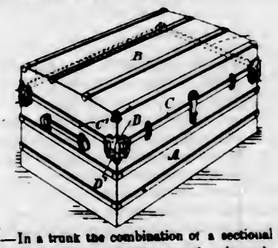
3. A ceiling-plate for combination light-fixtures, comprising an axially-apertured hub and an extended flange at one end of the hub, the hub having longitudinal apertures for the electric conducting-wires, and the flange having on a face opposite that from which the hub extends a drip-bead A^3, near the periphery.

4. A ceiling-plate for a combination light-fixture, comprising a hub having an axial aperture for the gas-pipe of the fixture provided with lateral apertures extending longitudinally through it for the conducting-wires, and having a widely-extended flange at one end, the gas-pipe aperture having its wall provided with an annular groove a^2, and a compressible ring, B, lodged in such groove, and adapted to grip the pipe.

5. A ceiling-plate for a combination light-fixture, having an aperture for a gas-pipe and a guard for the conducting-wires extending upwardly from the plate and protruding through the ceiling; and a packing in the gas-pipe aperture around said pipe.

6. A ceiling-plate for a combination light-fixture, comprising a flange adapted to seat upward against the ceiling, and having an extension from its upper side of the plate apertured to the top of such extension to admit the gas-pipe and the conducting-wires, and inclose the same to a point well above the upper surface of the ceiling.

677,596. TRUNK. OTTO RADSOW, Philadelphia, Pa. Filed Mar. 30, 1901. Serial No. 53,642. (No model.)

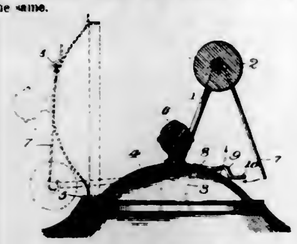


Claim.—In a trunk the combination of a sectional valance-strip, a corner-clamp having offsets adapted to receive the ends of the valance-strips and means of securing the same together substantially as described.

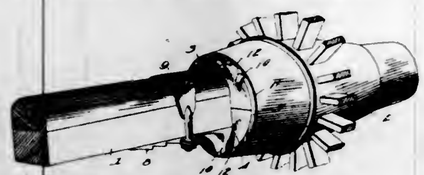
677,597. DEVICE ADAPTED FOR OPERATING KETTLE-LIDS. CURTIS U. REGARDS, Pottsville, N. Y. Filed June 6, 1898. Renewed Mar. 16, 1901. Serial No. 51,556. (No model.)

Claim.—In combination with a kettle having a pivoted bail and a hinged lid, a substantially V-shaped rod pivotally connected at its ends to the bail on opposite sides of the grip thereof, a catch consisting of a spring-

wire fixed at one end to the lid, said wire having at an intermediate portion an upward-bowed section and at the lower end of said bowed section an outwardly-extending end, the intermediate portion of the V-shaped rod adapted to pass under the catch and be retained in the upward-bowed section of the same.



677,598. SAND-BAND. WARREN H. ROBINSON, Keene Valley, N. Y. Filed Sept. 12, 1900. Serial No. 29,847. (No model.)



Claim.—1. In a sand-band for the hubs of vehicles, the combination with the axle and the hub, of a two-part disk mounted on the axle and interlocking with each other, and formed with locking-lugs on their exposed faces, and a conical casing to inclose the inner portion of the hub and formed with an inwardly-directed vertical flange having notches therein to pass over the lugs on the disks, whereby the casing may be turned and locked in position by the lugs, substantially as described.

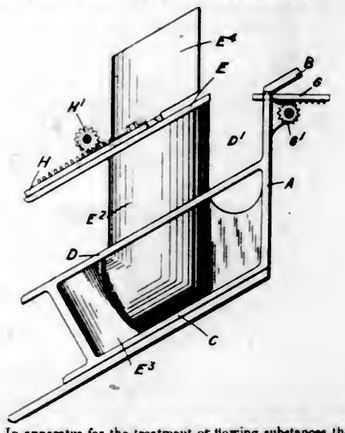
2. In a sand-band for vehicle-hubs, the combination with the axle and the hub, of a disk or plate having an open-end slot to engage over the axle and having a cut-away portion 7, a disk or plate 4, formed with a central slot to seat over the axle and an arm 8 adapted to be secured to the axle, and both sections of the disks being provided with locking-lugs 10, and a conical casing reaching about the inner portion of the hub, and formed with an inward annular flange having notches to permit the passage of the lugs on the disks, whereby the casing may be turned and locked in position by the lugs on the disks substantially as described.

3. In a sand-band for vehicle-hubs, the combination with the axle and hub, of a disk 3 formed with a vertical open-end slot 6, and a cut-away portion 7, having an overhanging flange at its upper end, and locking-lugs 10, a second disk-section 4, formed to set about the axle from the under side and having an inclined upper edge to engage the overhanging flange of the other disk-section and having an arm 8 secured to the axle, and locking-lugs, and a conical casing arranged on the inner portion of the hub and formed with an inward-directed annular flange having notches for the passage of the lugs on the disk-sections, whereby the casing may be turned and the locking-lugs thereby lock it in position, substantially as described.

677,599. CHEMICAL APPARATUS. WILLIAM J. ROBINSON and HENRY HIGGINS, Annan, Scotland. Filed Jan. 19, 1901. Serial No. 43,929. (No model.)

Claim.—1. In apparatus for the treatment of flowing substances the combination of an inclined surface to receive a flowing substance, a second inclined surface to receive the substance from the first surface the lower end of the first surface being vertically above the upper end of the second and separated from it, means for interrupting the upper stratum of the substance flowing on the first surface and conveying it into contact with the second surface and means for interrupting the lower stratum of the substance flowing on the first surface and conveying it onto the top of the substance flowing on the second surface.

2. In apparatus for the treatment of flowing substances the combination of an inclined surface to receive a flowing substance, a second inclined surface to receive the substance from the first surface the lower end of the first surface being vertically above the upper end of the second and separated from it, means for interrupting the upper stratum of the substance flowing on the first surface and conveying it into contact with the second surface, means for interrupting the lower stratum of the substance flowing on the first surface and conveying it onto the top of the substance flowing on the second surface and means for controlling the proportion of substance conveyed by the intermediate surface.



3. In apparatus for the treatment of flowing substances the combination of an inclined surface to receive a flowing substance, a second inclined surface to receive the substance from the first surface the lower end of the first surface being vertically above the upper end of the second, means for maintaining the two adjacent ends of the surfaces at a given distance from each other, an intermediate inclined surface for bearing a flowing substance interposed between the lower end of the first surface and the upper end of the second and adapted to interrupt the flowing substance, a guide-piece opposed to the lower edge of the first inclined surface and means for conveying the substance received upon the guide-piece onto the second inclined surface at a point behind a vertical line beneath the delivery edge of the intermediate inclined surface, substantially as set forth.

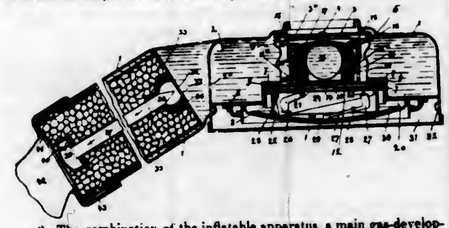
4. In apparatus for the treatment of flowing substances the combination of an inclined surface to receive a flowing substance, a second inclined surface to receive the substance from the first surface the lower end of the first surface being vertically above the upper end of the second, means for maintaining the two adjacent ends of the surfaces at a given distance from each other, an intermediate inclined surface for bearing a flowing substance interposed between the lower end of the first surface and the upper end of the second and adapted to interrupt the flowing substance, a guide-piece opposed to the lower edge of the first inclined surface, means for conveying the substance received upon the guide-piece onto the second inclined surface at a point behind a vertical line beneath the delivery edge of the intermediate inclined surface and means for controlling the proportion of substance conveyed by the intermediate surface substantially as set forth.

5. In apparatus for the treatment of flowing substances the combination of an inclined surface to receive a flowing substance, a second inclined surface to receive the substance from the first surface the lower end of the first surface being vertically above the upper end of the second, means for maintaining the two adjacent ends of the surfaces at a given distance from each other, an intermediate inclined surface for bearing a flowing substance interposed between the lower end of the first surface and the upper end of the second and adapted to interrupt the flowing substance, a guide-piece opposed to the lower edge of the first inclined surface, means for conveying the substance received upon the guide-piece onto the second inclined surface at a point behind a vertical line beneath the delivery edge of the intermediate inclined surface and means for controlling the proportions of substance conveyed by the intermediate surface and guide-piece respectively substantially as set forth.

6. An apparatus for the treatment of flowing substances comprising an inclined surface B to receive a flowing substance, a second inclined surface B' to receive the flowing substance from surface B and a device for transposing the strata of the flowing substance comprising a back wall A between the surfaces B and B', a top wall E beyond the surface B, a bottom wall C forming a continuation of the second surface B', and intermediate shelf D between surfaces B and B', a passage D' between the surface B and shelf D, a passage E', E², E³, extending from the surface B to the bottom wall C and a guide-wall E⁴ on the top wall E substantially as set forth.

677,600. ACETYLENE-GENERATOR FOR LIFE-SAVING APPARATUS. JOHANNES RUCK, Oldenfelde, near Alt-Rahlstedt, Germany. Filed Mar. 23, 1901. Serial No. 52,638. (No model.)

Claim.—1. In a life-saving apparatus the combination of a main and an auxiliary gas-generating compartment, and means whereby the generation of gas in the auxiliary compartment causes the generation of gas in the main compartment, substantially as described.



2. The combination of the inflatable apparatus, a main gas-developing device connected therewith, and an auxiliary developing device, means for starting the auxiliary device into action, and means whereby the generation of gas in the auxiliary device starts the main developing device into action.

3. The combination of an inflatable member, a gas-generating compartment connected therewith, a secondary gas-generating compartment, means for admitting water to the secondary generator to generate gas therein, and means actuated by the expansion of gas in the secondary holder for forcing water into the main gas-generator.

4. The combination of a carbid-holder, a water-receptacle therein, a water-chamber surrounding said holder, a second carbid-holder, connected to the water-chamber, a partition between the second holder and water-chamber, and means for breaking the water-receptacle in the first generator, whereupon the expansion of gas generated therein eventually causes the rupture of said partition and forces water into the second holder, substantially as described.

5. In a life-saving apparatus an auxiliary acetylene-gas-developing device adapted to compress the water into the main carbid-receiver to develop the gas to fill the main buoyant part of the life-saving apparatus, substantially as described.

6. In a life-saving apparatus, the combination of an auxiliary acetylene-gas-developing device adapted to force the water into the main gas-generating apparatus, with the main gas-generating apparatus, substantially as described.

7. In a life-saving apparatus a chamber 2 containing water, a receptacle 33 containing carbid, and an auxiliary gas-generating device for forcing the water of said chamber into the receptacle 33, when the apparatus is to be used, substantially as described.

8. In a life-saving apparatus, an auxiliary acetylene-gas-developing device, comprising a bulb 15 containing water, means for breaking said bulb on the apparatus being thrown or placed into the water, a receptacle surrounding the bulb 15 and containing carbid, a bag of elastic material adapted to expand on the water escaping from the broken bulb, coming into contact with the carbid and generating acetylene gas; a chamber 2 surrounding or inclosing the said bag and containing water, a receptacle 33 containing carbid, an elastic diaphragm 35 covering a hole in the end of said receptacle 33, a pointed blade adapted on the elastic diaphragm being pressed in by the pressure of the water to perforate said diaphragm 35 so as to admit the water to the carbid in the main gas-developing apparatus, substantially as described.

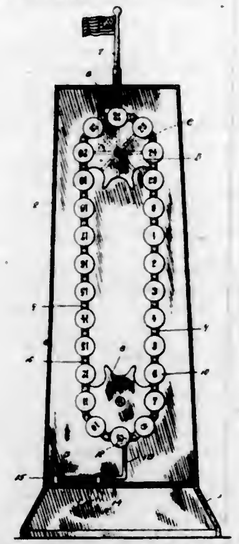
9. In a life-saving apparatus, an auxiliary acetylene-gas-developing device, comprising a bulb 15 containing water, means for breaking said bulb on the apparatus being thrown or placed into the water, said means comprising a hammer 21, pivoted below the bulb, a catch 26 supporting said hammer, a frame 24 supporting said catch 26, a roller 25 secured to said frame 24, a two-armed lever 27 adapted in its normal position by bearing against the roller 25 to keep the frame 24 in its raised position, so that the catch 26 remains in contact with the hammer 21, an elastic diaphragm 29 adapted on the apparatus being placed or thrown into water to raise the other end of the lever 27 and thus to release the catch 26 and enable the hammer to strike under the action of a spring against the bulb and break the same, substantially as described.

10. In a life-saving apparatus, an auxiliary acetylene-gas-developing device, comprising a bulb 15 containing water, a hammer 21 adapted on its being released from a catch 26 to break said bulb, a receptacle surrounding the bulb 15 and containing carbid, a bag of elastic material adapted to expand on the water escaping from the broken bulb coming into contact with the carbid and generating acetylene gas, a chamber 2 inclosing the said bag and containing water; a receptacle 33 containing carbid and means for enabling the water in the receptacle 2 to pass into the receptacle 33 under the action of the gas in the preliminary acetylene-generating apparatus, substantially as described.

11. In a life-saving apparatus, an auxiliary acetylene-gas-developing device, comprising a bulb 15 containing water means for breaking said bulb on the apparatus being thrown or placed into the water, a bag of elastic material adapted to expand on the water escaping from the broken bulb coming into contact with the carbid and generating acetylene gas; a chamber 2 inclosing said bag and containing water, an elastic diaphragm in the wall of said chamber, a metal plate on said diaphragm, a knob 4 on said diaphragm, a receptacle 33 containing carbid and means for enabling the water in the receptacle 2 to pass into the receptacle 33 under the action of the gas in the preliminary acetylene-generating apparatus, substantially as described.

12. In a life-saving apparatus, a main gas-developing device comprising a receptacle 33 containing carbid, a membrane 35 covering a hole in the end of said receptacle, a pointed blade adapted on the membrane being pressed in to puncture said membrane, a tube 37 connected with the hole in the end of the receptacle 33, and a perforated headpiece at the end of said tube, substantially as described.

677,601. TOY BANK. SIMON SCHMAUS, Buffalo, N. Y., assignor of one-half to Jacob Schneider, same place. Filed Jan. 21, 1901. Serial No. 44,170. (No model.)



Claim.—1. A toy bank comprising a base, a casing supported thereon and formed with an aperture; a chain or belt revolubly supported within the casing, numbered disks on said chain or belt adapted to register with said aperture, a locking device for the casing; and means operated by said chain or belt for unlocking the casing at each revolution of the chain or belt.

2. The combination with a base; having an ear extending therefrom; of a casing hinged to the base and extending over said ear; a slide upon the base engaging the ear and the casing; a spring for holding said slide normally in engagement therewith; sprockets or pulleys journaled within the casing; a chain or belt mounted upon the sprockets or pulleys; a stud extending from the chain or belt and adapted to engage the slide once upon each revolution of the chain or belt and withdraw the same from engagement with the casing; and means for imparting motion to the sprockets or pulleys and chain or belt.

3. The combination with a base having an ear extending therefrom; of a casing hinged to the base and extending from the ear; a spring-controlled slide mounted upon the base and normally engaging the ear and the casing; sprockets or pulleys journaled within the casing; a chain or belt mounted upon the sprockets or pulleys; a stud extending from the chain or belt and adapted to contact with and withdraw the slide once upon each revolution of the chain or belt; disks mounted upon the chain or belt and adapted to be exposed successively through an aperture within the casing; a toothed wheel to one of the sprockets or pulleys; a rod adapted to revolve said wheel; and an inlet to the casing.

677,602. DEVICE FOR LIFTING AND HANDLING INVALIDS. HARRY R. SHARRER, Hammond, Ind. Filed Sept. 28, 1900. Serial No. 31,374. (No model.)

Claim.—1. In a device of the kind described, uprights pivotally se-

cured at their lower ends at opposite ends of the bed to permit their upper ends to swing toward each other and a flexible stretcher having its ends secured to the free ends of opposite uprights, in combination with levers connected at one end to the free ends of the uprights and having complementary locking means upon their free ends, substantially as described.



2. In a device of the kind described, uprights pivotally secured at their lower ends at opposite ends of a bed to permit their upper ends to swing toward each other, and a flexible stretcher having its ends adjustably secured to the free ends of opposite uprights, in combination with levers connected at one end to the free ends of the uprights and having complementary locking means upon their free ends, substantially as described.

3. The combination with uprights connected in pairs and pivoted one pair at each end of the bed to allow their free ends to approach each other, of a stretcher provided with means near its ends to adjustably engage the uprights, and mechanism for forcing said uprights toward their respective bed ends and locking them in such position, substantially as described.

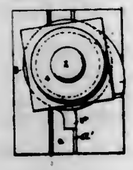
4. The combination of four uprights connected in pairs and pivotally secured respectively at opposite ends of a bed, a flexible stretcher provided with means at its ends to adjustably engage the opposite pairs of uprights and toggle mechanism arranged to force the tops of the uprights apart, elevating said stretcher and locking the same in a horizontal position above the bed, substantially as described.

5. In a device of the class described a stretcher of canvas or the like having its ends turned over and sewed in parallel lines transversely of the stretcher, thereby providing a plurality of parallel openings through the stretcher adapted to receive a rod upon which said stretcher is secured, and a plurality of parallel webs sewed transversely of the stretcher each provided at the ends with hooks adapted to laterally support the stretcher.

6. In a device of the class described two pairs of uprights provided at their upper ends with forks or crotches, a bar extending from one to the other of each pair and connecting the lower ends thereof, and hooks at the lower ends of said uprights adapted to engage a part of the bed-frame, in combination with a flexible stretcher having adjustably secured in each end a rod, and levers provided at their outer ends with parallel flanges, apertures in said flanges adapted to receive one end of said rod and forming a bearing for the fork of an upright, said levers being provided at their inner ends with complementary locking means, substantially as described.

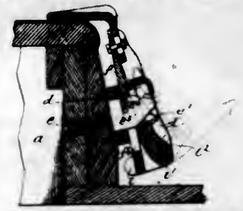
7. In a device of the class described, a pair of uprights connected at their lower ends and provided at their upper ends with forks or crotches, means for pivoting said pair of uprights on the ends of a bed-frame, a flexible stretcher provided at each end with a connecting-rod adapted to be engaged by said forks or crotches, in combination with levers each provided at one end with flanges adapted to receive one end of the rods, and the fork of an upright, and provided at the other end with coacting locking means, whereby the inner ends of said levers may be rigidly secured together when in locking position, said levers being of such certain length that when the meeting ends are brought together the same form a toggle to force the corresponding uprights at opposite ends of the device apart.

677,603. NUT-LOCK. THOMAS R. SHORTELL, Pittsburg, Pa. Filed Mar. 30, 1900. Serial No. 10,750. (No model.)



Claim.—In a nut-lock, the combination of a bolt, a nut, a fish-plate and a locking-spring, one end of said spring seated horizontally on a shoulder projection in the groove of said fish-plate and the other end of said spring being upturned to act as a dog against the return movement of the nut when the spring is compressed.

677,604. HATCHWAY-COVER FASTENING. HENRY I. SMITH, Buffalo, N. Y., assignor of one-half to Charles P. Walsh, same place. Filed Apr. 13, 1901. Serial No. 56,412. (No model.)



Claim.—1. The combination of a lug adapted to be secured to the coaming, a clamping-bracket guided on said lug, and a clamping-lever pivoted to the bracket and adapted to edgage against the lug for tightening the bracket, substantially as set forth.

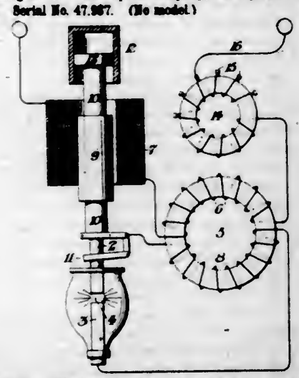
2. The combination of a lug adapted to be secured to the coaming, and provided with a rearwardly-inclined wedging-face, of a clamping-bracket provided with a face which engages against said wedging-face, and a clamping-lever pivoted to the bracket and adapted to engage against the lug for tightening the bracket, substantially as set forth.

3. The combination of a lug adapted to be secured to the coaming and provided in its upper side with a notch having a wedging-face, of a clamping-bracket provided with a wedging portion which enters said notch as the bracket is forced down, and a clamping-lever which is pivoted to the bracket and engages against the under side of the lug for forcing the bracket down, substantially as set forth.

4. The combination of a lug adapted to be secured to the coaming and provided on its upper side with a rearwardly-inclined wedging-face, of a clamping-bracket provided with a face which engages against said wedging-face, and a clamping-lever pivoted to the lower portion of the bracket and provided with a short arm which bears against said lug and above said arm with an opening through which the lug projects when the lever is closed against the bracket, substantially as set forth.

5. The combination of a lug adapted to be secured to the coaming, a clamping-bracket guided on said lug, a clamping-lever pivoted to said bracket and adapted to engage against the lug for drawing the bracket down, and a link attached to the lever and adapted to engage the lug for forcing the bracket upward, substantially as set forth.

677,605. ELECTRIC-ARC LAMP. THOMAS SPENCER, Philadelphia, Pa., assignor to Helios-Upton Company, same place. Filed Feb. 19, 1901. Serial No. 47,967. (No model.)



Claim.—1. The combination with an electric-arc lamp; of a transformer whose primary coil is in series circuit with the regulating-coil of the lamp, and whose secondary coil is in series circuit with the lamp-arc; whereby compensating adjustment of the length of the arc is effected by a fluctuation of the current through the primary coil of the transformer before the corresponding fluctuation in the current induced in the secondary coil is manifested at the arc.

2. The combination with an electric-arc lamp; of a transformer whose

primary coil is in series circuit with the regulating-coil of the lamp, and whose secondary coil is in series circuit with the lamp-arc; and a self-induction in series with the primary coil of said transformer and said regulating-coil; whereby compensating adjustment of the length of the arc is effected by a fluctuation of the current through the primary coil of the transformer before the corresponding fluctuation in the current induced in the secondary coil is manifested at the arc.

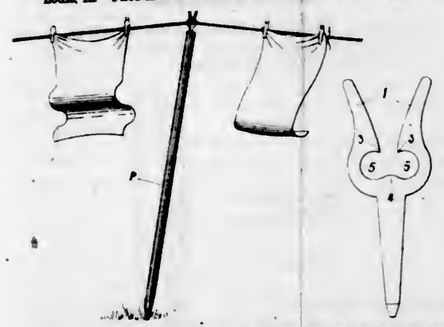
3. The combination with an electric-arc lamp; of a transformer whose primary coil is in series circuit with the regulating-coil of the lamp, and whose secondary coil is in series circuit with the lamp-arc; a choking-coil in series with the primary coil of said transformer and said regulating-coil; and means to adjustably vary the effective self-induction of said choking-coil; whereby compensating adjustment of the length of the arc is effected by a fluctuation of the current through the primary coil of the transformer before the corresponding fluctuation in the current induced in the secondary coil is manifested at the arc.

4. In an electric-arc lamp comprising opposed carbons, the combination with a regulating-coil arranged to separate said carbons; of the primary coil of a transformer in series circuit with said regulating-coil; and the secondary coil of said transformer in series circuit with the arc between said carbons, substantially as set forth.

5. In an electric-arc lamp comprising opposed carbons, the combination with a plunger operative to separate said carbons; of a regulating-coil arranged to actuate said plunger; the primary coil of a transformer in series circuit with said regulating-coil; and the secondary coil of said transformer in series circuit with the arc between said carbons, substantially as set forth.

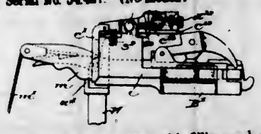
6. In an electric-arc lamp comprising opposed carbons, the combination with a plunger operative to separate said carbons; of a regulating-coil arranged to actuate said plunger; the primary coil of a transformer in series circuit with said regulating-coil; the secondary coil of said transformer in series circuit with the arc between said carbons; and a variable resistance in series circuit with said regulating-coil, substantially as set forth.

677,606. CLOTHES-LINE POLE. CHARLES B. ST. CLAIR, East St. Louis, Ill. Filed Mar. 27, 1901. Serial No. 53,070. (No model.)



Claim.—In a clothes-line pole, a suitable line-supporting fork having outwardly-flaring arms, claws at the lower ends of the inner edges of the arms, recesses at the base of the fork below each claw, and a central rounded ridge at the base of the fork, substantially as set forth.

677,607. WEFT-REPLENISHING LOOM. EDWARD S. STIMPSON, Hopedale, Mass., assignor to Draper Company, same place. Filed Apr. 5, 1901. Serial No. 54,437. (No model.)



Claim.—1. In a loom provided with filling-replenishing mechanism, a controlling-feeler therefor to intermittingly engage and be moved by the filling in the shuttle, and means to effect movement of the feeler in a substantially rectilinear path.

2. In a loom provided with filling-replenishing mechanism, a controlling-feeler therefor to intermittingly engage and be moved by the filling in the shuttle, a swinging carrier on which the feeler is fulcrumed, and means to effect movement of the feeler in a substantially rectilinear path.

3. In a loom, a feeler-carrier mounted to rock on a vertical pivot, a feeler fulcrumed on the carrier and adapted to be bodily moved by intermitting engagement with the filling in the shuttle, and means to guide the feeler in a substantially rectilinear path when it is moved.

4. In a loom, a feeler-carrier mounted to rock on a vertical pivot, a feeler fulcrumed on the carrier and adapted to be bodily moved by intermitting engagement with the filling in the shuttle, and a fixed guide in sliding engagement with the feeler between its fulcrum and its filling-engaging face, to counteract the swinging movement of the carrier and effect movement of the feeler in a substantially rectilinear path.

5. In a loom, a feeler-carrier mounted on a vertical pivot and swung in one direction by engagement of the feeler with the filling in the shuttle, a spring to move it in the opposite direction, a feeler fulcrumed on the carrier, and means to effect the movement of the feeler in a substantially rectilinear path.

6. In a loom, a feeler intermittingly moved by engagement with the filling in the shuttle until exhausted to a predetermined extent, means to effect such movement of the feeler in a substantially rectilinear path, automatic filling-replenishing mechanism, and means to control the time of its operation, including a governing member moved into inoperative position by filling-induced movement of the feeler, operative positioning of said member effecting actuation of the controlling means.

7. In a loom provided with filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including a latch, a latch-carrier, an adjustable seat thereon, a detent to coöperate therewith and maintain the latch operative, a feeler intermittingly moved by engagement with the filling in the shuttle until exhausted to a predetermined extent, and devices between the detent and the feeler, to withdraw the latter from its seat and render the latch inoperative at each filling-induced movement of the feeler, adjustment of the seat determining the minimum effective movement of the feeler necessary to render the latch inoperative.

8. In a loom provided with filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including a latch, a latch-carrier, a movable seat thereon, a detent to coöperate therewith and maintain the latch operative, a feeler intermittingly moved by engagement with the filling in the shuttle until exhausted to a predetermined extent, and devices between the detent and the feeler, to withdraw the latter from its seat and render the latch inoperative at each filling-induced movement of the feeler, and means to adjust the seat in the direction of movement of the detent, to thereby determine the minimum effective movement of the feeler necessary to withdraw the detent and thereby render the latch inoperative.

9. In a loom provided with filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including a latch, a latch-carrier, a sliding seat thereon, means to adjust it, a clamping device to retain it in adjusted position, a detent to coöperate therewith and maintain the latch inoperative, a feeler intermittingly moved by engagement with the filling in the shuttle until exhausted to a predetermined extent, and devices between the detent and the feeler, to withdraw the latter from its seat and render the latch inoperative at each filling-induced movement of the feeler.

10. In a loom provided with filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including a latch normally in the path of the actuator, a latch-carrier, a sliding, shouldered seat thereon, means to adjust the seat on the latch-carrier, a detent to coöperate with the shouldered seat and at such time maintain the latch operative, a swinging arm on which the detent is mounted, and a feeler operatively connected with the arm and intermittingly moved by engagement with the filling in the shuttle until exhausted to a predetermined extent, adjustment of the seat on the latch-carrier determining the minimum effective movement of the feeler necessary to withdraw the detent from the seat and thereby determining the corresponding extent of exhaustion of the shuttle in the filling.

11. In a loom provided with automatic filling-replenishing mechanism, controlling means, and a vibrating actuator for said means, the latter including a latch normally in the path of the actuator, a slotted latch-carrier having a shelf, a seat movable thereon and having an overhanging shoulder, a retaining-bolt on the seat extended through the slot in the latch-carrier and provided with a clamping-nut, an adjusting-screw in engagement with the bolt and rotatably mounted on the latch-carrier, to adjust the position of the seat on the latch-carrier, a detent to coöperate with the shoulder of the seat and maintain the latch operative, and means to periodically withdraw the detent and permit the latch to move into inoperative position until the filling in the shuttle has been exhausted to a predetermined extent.

677,608. WEFT-REPLENISHING LOOM. EDWARD S. STIMPSON, Hopedale, Mass., assignor to Draper Company, same place. Filed Apr. 5, 1901. Serial No. 54,438. (No model.)

Claim.—1. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means,

the latter including an upturned feeler intermittingly rocked in a vertical plane by engagement with the filling in the shuttle until exhausted to a predetermined extent, a fulcrum for the feeler located below the lay-path, and a member moved into inoperative position by filling-induced movements of the feeler, the actuator coöperating with said member when the movement of the feeler is insufficient to render the member inoperative.



2. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including an upturned, elongated arm bent rearwardly at its upper end to constitute a feeler to intermittingly engage the filling in the shuttle and rock the arm until the filling is exhausted to a predetermined extent, a horizontal fulcrum for the arm, located below the lay-path, and a member normally adapted to coöperate with the actuator but moved into inoperative position by filling-induced movement of the feeler, the long radius of the feeler effecting movement of the latter in an arc of slight curvature.

3. In a loom provided with filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including an upturned feeler, a fixed fulcrum therefor located below the lay-path, the feeler intermittingly engaging and being moved by the filling in the shuttle until exhausted to a predetermined extent, an upturned, laterally-offset arm fulcrumed coaxially with the feeler and operatively connected therewith, and a member moved into inoperative position by or through change of position of the arm due to filling-induced movement of the feeler.

4. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including an upturned feeler intermittingly rocked in a vertical plane by engagement with the filling in the shuttle until exhausted to a predetermined extent, a fulcrum for the feeler located below the lay-path, a member normally in position to coöperate with the actuator, a detent to retain said member in such position, and connections between the feeler and the detent to withdraw the detent at each filling-induced movement of the feeler and thereby effect inoperative positioning of the said member.

5. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator, for said means, the latter including an upturned feeler intermittingly rocked in a vertical plane by engagement with the filling in the shuttle until exhausted to a predetermined extent, a fulcrum for the feeler located below the lay-path, a member normally in position to coöperate with the actuator, a detent to retain said member in such position, connections between the feeler and the detent, to withdraw the latter at each filling-induced movement of the feeler, and thereby effect inoperative positioning of the said member, and means to adjust the said connections.

6. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including an upturned feeler intermittingly rocked in a vertical plane by engagement with the filling in the shuttle until exhausted to a predetermined extent, a fulcrum for the feeler located below the lay-path, a detent, an arm on which it is mounted, fulcrumed coaxially with the feeler, connections between said arm, and the feeler, to effect simultaneous rocking movement thereof, and a member maintained in operative position by the detent, filling-induced movements of the feeler periodically withdrawing the detent to thereby effect movement of the said member into inoperative position.

7. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including an upturned feeler intermittingly rocked in a vertical plane by engagement with the filling in the shuttle until exhausted to a predetermined extent, a fulcrum for the feeler located below the lay-path, a detent, an arm on which it is mounted, fulcrumed coaxially with the feeler, connections between said arm and the feeler, to effect simultaneous rocking movement thereof, means to vary the angle between the feeler and the detent-arm, and a member maintained in operative position by the detent, filling-induced movements of the feeler periodically withdrawing the detent to thereby effect movement of the said member into inoperative position.

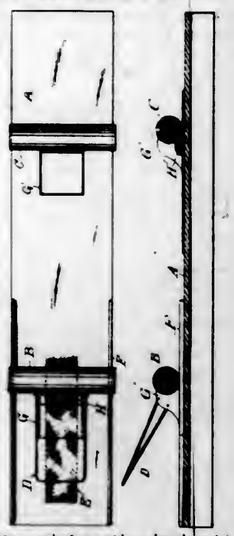
8. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including an upturned swinging arm rearwardly bent at its upper end to constitute a feeler to intermittingly engage the filling in the shuttle, a horizontal rock-shaft to which the arm is secured at its lower end, vertically-adjustable bearings for the rock-shaft, located below the lay-path, a second upturned and laterally-offset arm adjustably mounted on the rock-shaft and of greater length than the feeler-arm, a detent on the offset arm, a member normally held by the detent in position to coöperate with the actuator, filling-induced movements of the feeler withdrawing the detent periodically, and effecting inoperative positioning of said member, until the filling in the shuttle is exhausted to a predetermined extent.

9. In a loom, automatic filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including a latch, a latch-carrier, an adjustable seat thereon, a detent which coöperates with the seat to maintain the latch in the path of the actuator, a feeler intermittingly rocked in a vertical plane by engagement with the filling in the shuttle until exhausted to a predetermined extent, a detent-carrying arm connected to rock with the feeler, and a common fulcrum for the feeler and arm, located below the lay-path, adjustment of the seat determining the amount of filling to be withdrawn from the shuttle before operation of the replenishing mechanism.

10. In a loom provided with filling-replenishing mechanism, means to control the time of its operation, and an actuator for said means, the latter including a latch normally in the path of the actuator, a pivotally-mounted latch-carrier, a reversible block movably mounted on the latch-carrier, and provided with two detent-seats, a clamp to hold the block in adjusted position on the latch-carrier, an adjusting device to move the block and adjust the position of the operative seat, a detent, a rocker-arm on which it is mounted, and a feeler fulcrumed below the lay-path and rocked in a vertical plane by intermitting engagement with the filling in the shuttle until exhausted to a predetermined extent, failure of filling-induced movement of the feeler to withdraw the detent from the seat operating to maintain the latch in position to be engaged by the actuator, to effect actuation of the filling-replenishing mechanism.

11. In a loom, filling-replenishing mechanism, an upturned arm bent rearwardly at its upper end to form a filling-feeler, a horizontal fulcrum for said arm, located below the lay-path, the feeler intermittingly engaging the filling in the shuttle and being rocked thereby in a vertical plane, means to effect return movement of the feeler, and connections between the filling-replenishing mechanism and the feeler to effect the operation of the former when, by exhaustion of the filling in the shuttle to a predetermined extent, the filling-induced movements of the feeler attain their minimum effective amplitude.

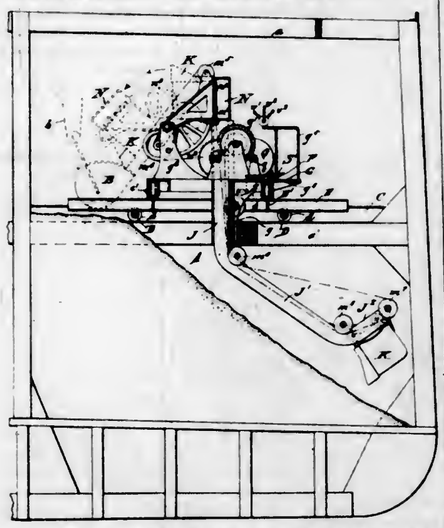
677,609. METHOD OF MAKING WIRE-GLASS PLATES. JAMES A. SWEARER and CHARLES R. TOTHEROE, Parnassus, Pa. Filed Mar. 17, 1898. Serial No. 709,405. (No specimens.)



Claim.—1. The method of making wire-glass plates, which consists in rolling the lower half of the plate simultaneously with the cementing to the top thereof of the wire network, and after the formation of said lower half has been entirely completed rolling the top half of the plate upon said completed lower half.

2. The method of making wire-glass plates, which consists in rolling the lower half of the plate simultaneously with the cementing to the top thereof of the wire network, and, after the lower half has been entirely completed rolling the molten glass to form the top half of the plate upon said completed lower half which supports in its stiffened condition the pressure of the second rolling.

677,610. UNLOADING APPARATUS. RICHARD THEW, Lorain, Ohio, assignor to the Thew Automatic Shovel Company, same place. Filed Aug. 29, 1900. Serial No. 28,398. (No model.)



Claim.—1. In an unloading apparatus, an elevating-bucket, a guide member therefor adapted to extend down in the hold of a boat, which guide member has a vertical portion and beneath this a downwardly-inclined portion and at the end of this an upwardly-inclined portion, combined with means for moving the bucket along all such portions, substantially as described.

2. In an unloading apparatus, a guide member adapted to extend down into the hold of a boat, said guide member being hollow and open on its front side, combined with a bucket adapted to stand on the front side of the guide member and having wheels occupying the hollow thereof and connected with the bucket through the opening in the front thereof, substantially as described.

3. In an unloading apparatus, the combination of a guide member suitably supported and having a vertical portion and a laterally-extended portion beneath the same, said member being hollow and open on its front and under side, a bucket on the outside of said member, wheels carried by the bucket through the said opening of the guide member, and means for elevating the bucket up said guide member and dumping it at the upper end thereof, substantially as described.

4. In an unloading apparatus, the combination of a wheel-truck, a rotatable table thereon, a vertical housing carried by said table, an adjustable guide member within said housing extending down beneath the truck, a bucket, and means for causing it to travel along said guide member, substantially as described.

5. In an unloading apparatus, in combination, a rotatable table, a vertical housing carried thereby, a guide member occupying said housing and extending laterally beneath the same, said guide member being hollow, a bucket guided by said guide member, means for elevating said bucket along the same, means for controlling the downward movement of said guide member, means for rotating said table, substantially as described.

6. In an unloading apparatus, a wheel-truck, a horizontal circular track carried thereby, a horizontal table, wheels carried thereby taking in said track, a circular rack carried by said track, a coöperating pinion carried by said table, means on the table for rotating said pinion whereby the table may be rotated, a vertical housing carried by said table, a guide member adjustable vertically within said housing and adapted to extend downward therefrom, a bucket guided by said guide member, cables for elevating said bucket along the same, and means carried by said table for driving said cables, substantially as described.

7. In an unloading apparatus, an adjustable guide member, a bucket guided thereby, cables secured to said bucket and adapted to draw it in opposite directions along said guide member, mechanism with respect to which said guide member is adjustable for taking in one cable and simultaneously paying out the other, and means for increasing the effective length of said cables whereby the guide member may be adjusted, substantially as described.

8. In an unloading apparatus, a vertically-adjustable guide member, guide-pulleys carried thereby, a bucket guided by said guide member, a raising-cable secured to said bucket and passing around said guide-pulleys and onto a winding-drum, a backing-cable secured to said bucket and passing around said guide-pulleys and onto another winding-drum, combined with said drums and with means for causing them to rotate simultaneously, one paying out its cable and the other taking in its cable, and means for disengaging said drums and allowing the effective length of cable to vary, substantially as described.

9. In an unloading apparatus, in combination, a vertically-adjustable guide member, guide-pulleys carried thereby, a bucket guided by said guide member, a raising-cable secured to said bucket and passing around said guide-pulleys and onto a winding-drum, a backing-cable secured to said bucket and passing in the opposite direction around guide-pulleys and in the opposite direction onto another winding-drum, combined with said drums and with means for clamping them rigid with each other and for unlocking them and allowing the effective length of cable to increase and thus provide for the lowering of the guide member, and means for holding said guide member in its desired position and releasing it therefrom and allowing it to move downward, substantially as described.

10. In an unloading apparatus, the combination of a rotatable table, a guide member adapted to extend therefrom down into the hold of the vessel, a bucket guided by said guide member, guide-pulleys carried by said guide member, a drum-shaft carried by said table, means carried by said table for rotating said shaft, a pair of drums on said shaft one rigid with the shaft and one loose with it, a clutch for clamping the loose drum rigid, and cables winding onto said two drums in opposite directions and passing around the guide-pulleys carried by the guide member and secured to the bucket and leading therefrom in opposite directions, and means for adjusting said guide member vertically with reference to said table and for holding it in the desired position, substantially as described.

11. In an unloading apparatus, the combination of a guideway adapted to extend down into the hold of a boat, a bucket guided thereby, means for elevating the bucket up to the guideway, and a cradle near the upper end of the guideway adapted to receive the bucket and turn over with it, substantially as described.

12. The combination with a wheel-truck, a platform carried thereby adapted to support the bucket of an ordinary derrick, a pivoted cradle, an excavating-bucket, guideways therefor adapted to extend down into the hold of the vessel, and means for causing said bucket to travel along said guideways and into said cradle and for thereafter turning said cradle to cause said bucket to dump into the derrick-bucket, substantially as described.

13. The combination with a wheel-truck, a rotatable table thereon, a vertical housing carried by said table, a pivoted cradle at the upper end of said housing, an adjustable guide member leading downward from said housing, a bucket guided by said guide member, and means for causing the same to travel up said guide member and into said cradle, and for turning over the cradle when the bucket is in it, substantially as described.

14. In an unloading apparatus, the combination of a guide member adapted to extend down into the hold of a boat, a bucket guided thereby, means for elevating the bucket up the guide member, a pivoted cradle having an opening into which said bucket may pass and engage the cradle, cables for elevating said bucket, and means whereby the continuous elevation thereof when it is engaged by the cradle turns over both the cradle and bucket, substantially as described.

15. In an unloading apparatus, in combination, a bucket, guides therefor, a pivoted cradle located near the upper end of said guides and adapted to receive the bucket, guide-pulleys carried by said cradle, a winding-drum, an elevating-cable secured to said bucket and passing over pulleys on the cradle to said winding-drum, and means for causing the bucket to engage the cradle so that the continued travel of the bucket turns over both the cradle and bucket, substantially as described.

16. In an unloading apparatus, the combination of a bucket, a guide therefor, a dumping-cradle near the upper end of said guide adapted to receive the bucket, a raising-cable for said bucket, guide-pulleys carried by said cradle over which said cable passes, a backing-cable secured to said bucket and leading therefrom in substantially the opposite direction to elevating the cable, and means for simultaneously taking in one cable and paying out the other, substantially as described.

17. In an unloading apparatus, in combination, a dumping-cradle, guides leading downward therefrom, a bucket adapted to travel along said guides, cables leading from said bucket, guide-pulleys carried by said cradle, a rotating shaft, winding-drums thereon, an elevating-cable leading from said bucket around guide-pulleys on said cradle to one of said drums, a backing-cable leading from the other of said drums around suitable guide-pulleys to the bucket, said cables winding on the drums in opposite directions so that as one is paid in the other is paid out, and means for rotating said drum-shaft, substantially as specified.

18. In an unloading apparatus, a pivoted dumping-cradle, a guideway leading downward therefrom, a bucket guided by said guideway, guide-pulleys carried by said cradle on opposite sides of its pivots, an elevating-cable leading around the pulley beneath the pivot of the cradle

and the pulley above that pivot, and then downward to the bucket, a guide-pulley suitably carried near the lower end of the bucket-path, a backing-cable secured to the bucket and passing around said last-mentioned guide-pulley, means for simultaneously taking in one cable and paying out the other, substantially as described.

19. In an unloading apparatus, a guide member, a bucket adapted to be guided by said guide member, guide-palleys carried by the guide member, cables leading in opposite directions from the bucket passing over said guide-palleys, means for taking in one cable and paying out the other, a pivoted cradle located at the upper end of said guide member and adapted to receive said bucket, and means for causing the bucket to pass into the cradle and turn over with it when the bucket is elevated, substantially as described.

20. The combination of a hollow guide member having a vertical portion and a laterally-extended portion at the lower edge thereof, said guide member having an opening in its front and under side, a bucket having wheels within the member connected through said opening whereby the bucket is guided by the member, a cradle located above said bucket and having an opening to receive the bucket and an opening to receive the wheels, means for limiting the independent movement of the bucket and cradle, means for thereafter raising the bucket whereby both bucket and cradle are turned over, substantially as described.

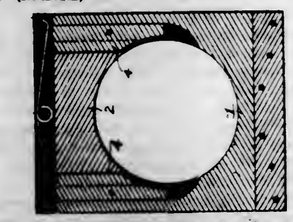
21. In an unloading apparatus, a pivoted dumping-cradle, a guideway leading downward therefrom, a bucket guided by said guideway and adapted to occupy said cradle and turn over with it, means for raising said bucket into said cradle and for turning over the cradle and bucket together, a backing-cable secured to said bucket and adapted to pull downward from a point behind the pivot of the cradle when it is turned over, combined with means for so pulling the backing-cable and thereby returning the cradle, substantially as described.

22. In an unloading apparatus, in combination, a pivoted dumping-cradle, a guideway leading downward therefrom, a bucket guided by said guideway and adapted to occupy said cradle and turn over with it, means for limiting the independent movement of the bucket and cradle whereby continued elevation of the bucket turns over the cradle, elevating-cables adapted to raise said bucket, and backing-cables secured to the bucket and adapted to draw downward from the dumped cradle at a point at the rear of the pivot thereof and thereby return the cradle and bucket, and means for operating said cables, substantially as described.

23. In an unloading apparatus, in combination, a pivoted dumping-cradle, a guideway leading downward therefrom, a bucket guided by said guideway and adapted to occupy said cradle and turn over with it, a pair of raising-cables secured to said bucket passing around suitable guide-palleys on said cradle, and a pair of backing-cables secured to said bucket wider apart than said elevating-cables, guides on the under side of said cradle far enough apart to allow the bucket to pass between them but adapted to receive the backing-cables when the bucket and cradle turn over, and suitable guide-palleys for said cables, substantially as described.

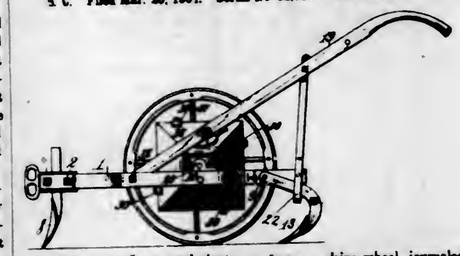
24. A pivoted cradle having an opening through it adapted to receive a bucket, a pair of guide-palleys m^3 m^3 on opposite sides of the opening above the pivot of the cradle, a pair of guide-palleys m^4 m^4 alined therewith below the pivot of the cradle, a pair of rigid segments carried on the under side of the cradle, combined with a bucket, a pair of elevating-cables secured thereto and each passing over palleys m^3 m^3, and backing-cables extending from the bucket when it is in the cradle in alinement with said segments, means for taking in the elevating-cables and paying out the backing-cables when the bucket is in the cradle whereby the cradle and bucket are turned over, and means for thereafter paying out the elevating-cables and taking in the backing-cables whereby the latter pulling on the segments bring the cradle and bucket back to normal position, substantially as described.

677,611. DUST-GUARD. JULIAN H. AKERS, Columbus, Ohio, assignor to James Timms, same place. Filed Feb. 25, 1901. Serial No. 48,817. (No model.)



Claim.—In a dust-guard, the combination of two members, both movable relatively to each other, the lower member having two uprights and an intermediate curved face, the upper member having a curved lower face and mounted to slide in the uprights of the lower member, one of said members having lateral tongues to move in vertical grooves in the other member, the upper ends of the uprights and the upper end of the upper member having alined grooves, and a spring housed in said grooves, said spring being coiled between its ends and bearing upon the upper member to force it downwardly on a journal and the ends of the spring connected with said uprights and exerting an upward force on said lower member to press it upwardly against the journal.

677,612. SEED-PLANTER. ANDREW L. ALEXANDER, Piedmont, S. C. Filed Mar. 23, 1901. Serial No. 52,610. (No model.)



Claim.—1. In a seed-planter, a frame, a drive-wheel journaled therein, a dropper connected thereto and formed of a pair of frustum-shaped sections, gage-strips interposed between said sections for forming outlets at the corners thereof, a furrow-opener connected to the frame, adjustable covering-blades attached to the frame, and handles adjustably connected to the frame.

2. In a seed-planter, the combination with a supporting-frame having handles, a furrow-opener, and a pair of covering-blades attached thereto, of a dropper formed of a pair of hollow sections, gage-strips interposed between said sections and forming outlets, a drive-wheel journaled to the frame, and spokes forming agitators attached to said wheel and extending through said dropper for connecting the same to the wheel.

3. In a seed-planter, a frame, a shaft journaled thereto, a dropper mounted on said shaft and consisting of a pair of hollow sections, gage-strips interposed between said sections for forming outlets at the corners thereof, means for connecting said sections together, means for adjusting said strips, and a drive-wheel suitably connected to said dropper.

4. In a seed-planter, a dropper formed of a pair of sections, adjustable gage-strips interposed between said sections for forming outlets at the corners thereof, a drive-wheel surrounding said dropper, spokes forming agitators connected to said wheel and extending through the dropper, a frame, and means for suitably supporting said dropper and wheel from said frame.

5. In a seed-planter, the combination with a frame, of a dropper connected thereto and formed of a pair of frustum-shaped hollow sections, one of which is provided with a supply-opening, a cover therefor, means for connecting said sections together, a series of adjustable gage-strips interposed between said sections for forming outlets at the corners thereof, and supported by the connecting means for the sections, and a drive-wheel suitably connected to said dropper.

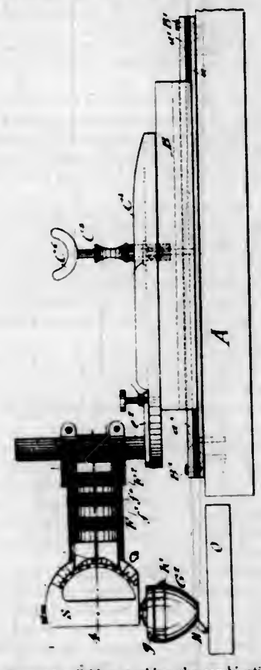
6. In a seed-planter, the combination with a frame, of a dropper connected thereto and formed of a pair of frustum-shaped hollow sections, one of which is provided with a supply-opening, a cover therefor, a series of closure-strips interposed between the sections for connecting the latter together, a series of adjustable gage-strips interposed between said sections, supported by and overlapping said closure-strips, said gage-strips forming outlets at the corners of the sections, and a drive-wheel suitably connected to said dropper.

7. In a seed-planter, the combination with a frame, of a dropper connected thereto and formed of a pair of hollow sections, one of which is provided with a supply-opening, a cover therefor, a series of strips interposed between the sections for connecting the latter together, a series of gage-strips interposed between said sections, supported by and overlapping said closure-strips, said gage-strips forming outlets, means for adjusting said gage-strips, a drive-wheel, and spokes connected to said wheel for forming agitators and extending through said dropper for connecting the same to the wheel.

677,613. DIAMOND-POLISHING MACHINE. OTTO ARNDT, New York, N. Y. Filed Feb. 14, 1901. Serial No. 47,310. (No model.)

Claim.—1. In a diamond-polishing machine, the combination of a bed-plate provided with guideways, a slide-block guided on said ways, antifriction-balls located in raceways of the bed-plate and slide-block, a wear-plate located between the antifriction-balls and the slide-block, means

acting on the wear-plate for binding the wear-plate upon the balls and in turn upon the bed-plate, and for binding the slide-block upon the bed-plate, whereby the slide-block may be rigidly connected with the bed-plate, and a dop suitably supported from the slide-block, substantially as set forth.



2. In a diamond-polishing machine, the combination of a bed-plate provided with guideways, a slide-block guided on said ways, antifriction-balls located in raceways between the bed-plate and slide-block, an adjustable slide-plate on said block, means for clamping the slide-plate to the block, means for clamping the slide-block to the bed-plate, a dop, and a dop-supporting frame suitably supported from the slide-plate, substantially as set forth.

3. In a diamond-polishing machine, the combination of a bed-plate, a slide-block guided on the same, an adjustable slide-plate on said block, means for clamping said slide-plate to the block, a standard at the end of said slide-plate, a horizontal frame secured adjustably to said standard, a dop-supporting frame, means for adjusting the same on said horizontal frame, a dop, means for adjusting the dop on its axis, and a clutch supported in an inclined position in said dop for holding the diamond or other stone, substantially as set forth.

4. In a diamond-polishing machine, the combination of a bed-plate, a slide-block guided on the same, an adjusting slide-plate on said slide-block, means for clamping the slide-plate to the slide-block, a standard supported at the end of said slide-plate, a horizontal frame guided on said standard, means for adjusting the frame on said standard, a graduated segmental frame guided in the end of said horizontal frame, means for adjusting the segmental frame in suitable position thereon, a dop supported thereon, means for axially adjusting said dop, and an inclined stone-holding clutch supported in said dop, substantially as set forth.

5. In a diamond-polishing machine, the combination of a bed-plate, a slide-block guided thereon, a standard suitably supported above the slide-block, a horizontal frame mounted on said standard and adjustable around its longitudinal axis, a dop-supporting frame, adjustable at an angle to the aforesaid frame, a dop, and means for holding the stone on the dop, substantially as set forth.

6. The combination with the dop, provided with an inclined hole, of a forked spring-clutch, the bifurcations of which project through one end of the hole and are adapted to clutch a stone, said clutch being longitudinally movable in said hole, and means at the other end of said hole, for operating the clutch and for fixing it against movement, substantially as set forth.

7. The combination, with a dop-supporting spindle provided with a ball, of a dop provided with means for retaining a stone, said dop having a socket for receiving said ball, whereby a ball-and-socket joint is formed between the dop and the spindle, said ball being fixed relatively to the dop, and said dop being adjustable at various angles of inclination to the relatively fixed ball, substantially as set forth.

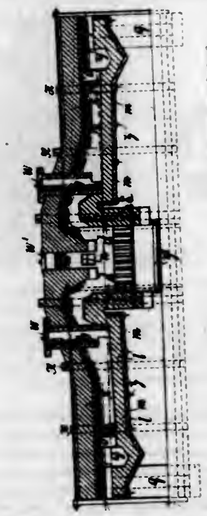
8. The combination, with a dop for a diamond-polishing machine, of an inclined stone-holding clutch carried by the dop, substantially as set forth.

9. The combination, with a dop-supporting spindle provided with a ball, of a dop provided with an inclined stone-holding clutch, said dop having a socket for receiving said ball, whereby the dop and clutch are adjustable at various angles to the ball, substantially as set forth.

10. The combination, with a clutch having suitable jaws, of a soft filling-piece inserted within said jaws and closing the space between the inner ends of the jaws, so that a stone may be seated in said filling-piece and be clutched by the outer ends of the jaws, substantially as set forth.

11. The herein-described clutch, consisting of a split body provided with recessed jaws offset from the split so as to form shoulders or abutments at the outer end of the split, and a soft-metal filling-piece resting between said jaws, against said shoulders, and the extremities of the said jaws projecting beyond the filling-piece so as to clutch a stone and to retain it in the seat formed by the filling-piece, substantially as set forth.

677,614. APPARATUS FOR THE TREATMENT OF ORES. JOHN ARMSTRONG, Ealing, England. Filed Nov. 17, 1899. Serial No. 737,345. (No model.)



Claim.—1. In a reverberatory furnace, the combination of a grate capable of holding a considerable thickness of fuel, a charging-hopper for supplying fuel without admission of air, a bridge, a deep hopper having an opening at the bottom beyond the bridge for the admission of the pulverulent charge with the smallest practicable quantity of air, a working hearth, a sump beyond the working hearth, draft-flues beyond the sump, and the working door beyond the draft-flues whereby the air is prevented from entering either at the sump, the working hole, or the charging-orifice in deleterious quantities, as any air seeking to enter the door escapes through the draft-flues instead of entering the furnace in a direction contrary to the draft and uncombined oxygen is kept from entering at the grate or fuel-entrance.

2. In a reverberatory furnace, for use with a reducing-flame, a grate of the fire-chamber separated by a bridge from the furnace-chamber having transverse fire-bars supported alternately on each side and supported on and sloping downward to a central longitudinal bar or support and a central deep and substantially parallel-sided hopper containing fuel and having an open bottom at the normal height of the fuel in the grate and large openings in the fire-chamber walls on either side below the grate whereby the grate can be kept filled to a uniform depth and clinkering effected without admitting air, substantially as described.

3. In combination with a reverberatory furnace for working with a reducing-flame, a grate, a deep substantially parallel-sided charging-hopper over said grate, and having its lower end dipping down to the normal level of the fuel on the grate, a bridge rising above the level of the bottom of the charging-hopper, and a similar deep charging-hopper beyond the bridge for admitting the pulverulent charge, whereby no further oxygen can pass from the grate or either of the charging-hoppers

when the latter are kept filled to the bed of the furnace, and the pulverulent charge is delivered quietly to the level of the grate without flying out as dust.

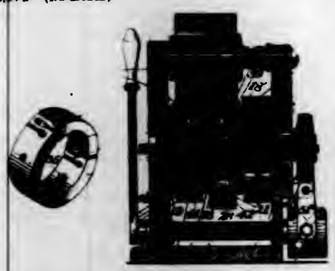
4. In a reverberatory furnace, the combination of the hearth *h*, the bridge *i* having opening *o*, sump *g* beyond, the exit-flues *q* beyond the sump, and the working door *p* located between and beyond the entrances to said exit-flues, whereby the working door can be kept open and all parts of the furnace stirred therefrom without danger of free oxygen entering the furnace.

5. In a reverberatory furnace the combination of the grate *e*, the bridge *d*, the hearth *h* beyond the bridge *d*, the bridge *i* beyond the hearth *h*, and the sump *g* beyond the bridge *i*, draft-openings *q* beyond the bridge *i*, and beyond these and in line with the center line of the hearth the working hole *p*, substantially as described.

6. In a reducing-furnace, the combination of the furnace-grate having transverse bars *e* dipping down toward the center, the bridge *d* with vertical sides and the sides of the furnace cut away below the grate whereby clinkering-bars can be passed up through the grate to clear the bridge sides of clinker without opening any door

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677,615. CLUTCH. HORACE L. ARNOLD, Brooklyn, N. Y., assignor to John A. Hill, East Orange, N. J. Filed Dec. 17, 1900. Serial No. 40,074. (No model.)



Claim.—1. The combination, with a tubular shaft having a series of openings, of a sleeve secured to said shaft and also having a series of openings registering with those of the shaft; an expansible ring surrounding the sleeve; an antifriction-strip covering the ring; a device loosely mounted over the ring and adapted to be locked to the sleeve when the ring is expanded; toggles for expanding the ring; and means for actuating said toggles.

2. The combination, with a tubular shaft having a series of openings, of a sleeve secured to said shaft and also having a series of openings; an expansible ring surrounding said sleeve; an antifriction-strip covering the ring; a device loosely mounted over the ring and adapted to be locked to the sleeve when said ring is expanded; toggles operating through the openings of the shaft and sleeve and adapted to expand said ring; means for actuating said toggles and means for adjusting the toggles.

3. The combination, with a shaft, of an expansible ring provided with sets of slots; one slot of each set being intermediate the other slots and opening into the side of the ring opposite to that into which said other slots open; a member surrounding said ring and adapted to be locked thereto when the ring is expanded; and means for expanding the ring.

4. In a clutch, the combination, with a shaft, of an expansible ring provided with sets of slots, some of which open into one side of the ring and others into the opposite side of said ring; a member surrounding said ring; and means for expanding the ring.

5. An expansible clutch-ring having slots with enlarged inner ends said slots opening into the sides of the ring.

6. An expansible clutch-ring having a set of slots of keybole shape, one of said slots being located intermediate the other slots, and two of said slots being cut from one side of the ring and the other from the opposite side of said ring.

7. An expansible clutch-ring having separated sets of slots opening into the sides of the ring, one slot of each set being intermediate the other slots of the set and opening into the opposite side of the ring from the other slots.

8. An expansible clutch-ring provided with sets of slots with enlarged ends, said slots being filled with lubricating material, and some of the slots opening into one side of the ring and others into the opposite side of said ring.

9. An expansible clutch-ring having sets of slots of three each, two slots of each set being cut from one side of the ring, and the third and intermediate slot of each set being cut from the opposite side of said ring.

10. An expansible clutch-ring having sets of slots with enlarged ends, each set consisting of three slots two of which open into one side of the ring, and the third and intermediate slot of each set opening into the opposite side of said ring.

11. In a clutch, the combination, with a shaft having openings, of an expansible clutch-ring having sets of slots, one slot of each set being located intermediate the other slots of the set, and said clutch-ring also having sockets; of lubricating packing filling the slots; toggles passing through the openings in the shaft and having their ends seated in the sockets of the ring; and a reciprocatory device within the shaft for actuating the toggles.

12. In a clutch, the combination, with a tubular shaft having openings in its periphery, of a sleeve keyed to said shaft and having openings registering with those of the shaft; an expansible ring having a series of sets of slots filled with lubricating material; toggles in engagement with said ring; a device for actuating the toggles and located within the tubular shaft; and a lever for reciprocating said device.

13. In a clutch, the combination, with a tubular shaft having a series of openings, of an expansible ring carried by said shaft, said ring having slots with enlarged ends, some of which open into one side of the ring and others into the opposite side of said ring; devices for expanding the ring; means located within the shaft for actuating said devices; a member surrounding the ring and adapted to be locked to the shaft when said ring is expanded; and antifriction-washers located at each side of said ring and said member.

14. The combination, with a clutch, of means for actuating said clutch; a pivoted lever for operating the clutch-actuating means; a rocker having a cam-slot with intermediate and terminal neutral portions and with active portions for operating said lever; and means for actuating the rocker.

15. The combination, with a tubular shaft having openings, of an expansible ring; a sleeve on said shaft and having openings; a band of antifriction material covering said ring; a gear-wheel sleeved upon said band and ring; sets of toggles having globular ends; a hollow spindle movable within the shaft and having openings for the reception of one end of the toggles; a pivoted lever connected to said spindle; and a cam for actuating said lever.

16. The combination, with a tubular shaft having openings and a slot, of a sleeve surrounding said shaft; a key secured to the sleeve and entering the slot of the shaft, said key having a projection; an expansible ring surrounding the sleeve; a member adapted to be locked to rotate with the shaft when the ring is expanded; toggles for expanding the ring; a hollow spindle for actuating the toggles and having a slot for the reception of the projection on the key; a lever for reciprocating said spindle; and a cam for actuating said lever.

17. The combination, with a tubular shaft having openings, of toggles working through said openings; an expansible ring with which the ends of the toggles are in engagement; a reciprocatory spindle having openings for the reception of the opposite ends of the toggles; means for actuating said spindle; a rod having a cone bearing against the toggles; means for adjusting said rod; and means for locking the rod and spindle together after the rod has been adjusted.

18. The combination, with a tubular shaft having openings, of an expansible ring; toggles passing through the openings of the shaft and engaging the ring; a member sleeved upon the ring; a spindle within the shaft and having openings for the reception of the ends of the toggles, said spindle having a nut at one end; an adjustable rod having a threaded end inserted in said nut; and means for reciprocating the spindle.

19. In a friction-clutch, the combination, with a tubular shaft having openings, of an expansible ring; toggles passing through the openings of the shaft and in engagement with said ring; a member sleeved upon the ring; a reciprocatory spindle having a series of openings for receiving the ends of the toggles and having internally-threaded surfaces at each end; an adjustable rod having a threaded end inserted in one of the internally-threaded surfaces of the spindle; a thimble threaded into the opposite end of the spindle; a tube carried by the thimble and surrounding the rod; and a plug threaded into the tube and bearing against the end of the rod.

20. The combination, with a tubular shaft, of an expansible ring loosely mounted with relation to said shaft; a device mounted over the ring; sets of toggles passing through openings in the shaft and engaging with sockets on the inner side of said device; a tubular spindle for actuating said toggles; means within the spindle for adjusting the toggles; a pivoted lever for actuating the tubular spindle; and a rocker having a cam-slot with neutral and active portions for actuating said lever.

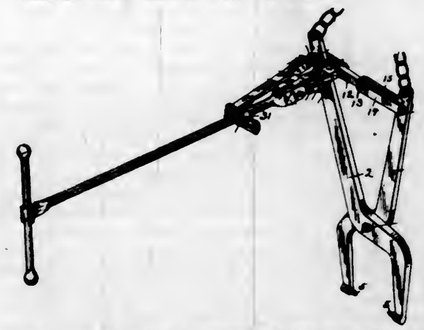
21. The combination, with a tubular shaft having a series of openings, of a sleeve keyed to said shaft and also having a series of openings; an expansible ring loosely mounted upon the sleeve and having sockets on its inner side; a series of toggles having globular ends; a hollow spindle mounted within the shaft and having openings for the reception of the inner ends of said toggles; a pivoted lever for actuating said spindle; and a movable head having a cam-slot with neutral and active portions for actuating said lever.

22. The combination, with a tubular shaft having a slot and a series of openings, of a wedge-shaped key inserted in the slot, said key having a projection on its inner side; a sleeve surrounding said shaft; screws passing through the sleeve and entering the key; a tubular spindle having a slot for the reception of the projection on the key and a series of openings; toggles passing through the openings of the shaft, their inner ends being located in the openings of the spindle; an expansible ring with which the outer ends of the toggles engage; a member sleeved on said ring; means for adjusting the toggles; and means for reciprocating the tubular spindle.

23. The combination, with a friction-clutch, of toggles for actuating said clutch; a reciprocatory spindle for actuating the toggles; a yoke connected to said spindle; a lever carrying the yoke; a head having a cam-slot with neutral and active portions for actuating said lever; and means for actuating said head.

24. The combination, with a tubular shaft having openings, of a sleeve keyed to said shaft and having openings in registration with those of the shaft; toggles passing through the openings of the sleeve and shaft; an expansible ring surrounding the sleeve; a gear loosely mounted on the ring; an antifriction-band between said gear and ring; a tubular spindle having openings for the reception of the inner ends of the toggles; a rod carrying a cone for adjusting said toggles; a pivoted lever; a yoke carried by the lever and connected to the spindle; a rock-shaft; and a head carried by said rock-shaft and having a cam-slot with neutral, active and locking portions in which the end of the lever is received.

677,616. TONGS. LOUIS FREDERICK, Baldwin township, Pa. Filed Mar. 7, 1901. Serial No. 50,263. (No model.)



Claim.—1. In tongs, the combination of tong-levers, of a link, a rigid support on one of said tong-levers within which said link is journaled, a swinging support on the other tong-lever, a connection between said swinging support and said link, and a handle connected to that end of said link journaled in said rigid bearing.

2. In tongs, the combination with tong-levers, of a link, a shaft rigidly secured to one end of said link, a rigid support on one of said tong-levers within which said shaft is journaled, a handle connected to said shaft, a swinging support on the opposite tong-lever, and connection between said swinging support and the other end of said link.

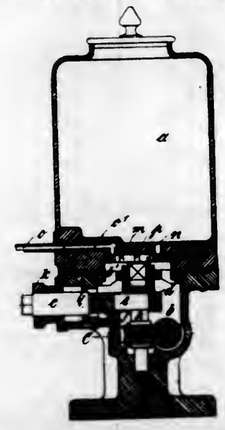
3. In tongs, the combination with tong-levers, of bars rigidly secured to one of said tong-levers, a shaft journaled in the ends of said bars, a link rigidly secured to said shaft, swinging arms on the opposite tong-lever, connection between said swinging arms and said link, and a handle connected to said shaft.

4. In tongs, the combination with tong-levers, of a rigid support on one of said tong-levers, a link journaled in said support, a swinging support on the opposite tong-lever, connection between said swinging support and said link, a handle connected to said link where it is journaled in said rigid support, a guide on said handle, and a rod extending from said tong-lever having the rigid support to said guide on said handle.

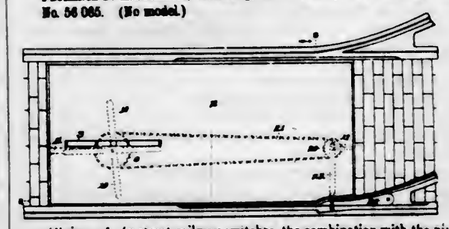
677,617. LUBRICATING-PUMP. LOUIS FRIEDMANN, Vienna, Austria-Hungary. Filed Aug. 1, 1899. Serial No. 725,806. (No model.)

Claim.—1. In combination with an oil-reservoir, a pump-chamber beneath the same, a shaft in said chamber, an intermeshing worm and wheel for rotating the shaft, an eccentric on the shaft, an eccentric-strap surrounding the eccentric, a pump-piston connected to the eccentric-strap, an outlet-port from the reservoir, a duct communicating with a delivery-pipe, a rotating slotted disk in the uppermost part of the pump-chamber connected to the eccentric-shaft whereby the pump-chamber is alternately brought into communication with the oil-reservoir and the delivery-pipe, substantially as described.

2. In combination with an oil-reservoir, a pump-chamber and shaft provided with an eccentric driven from the outside, a slotted disk on said shaft, an eccentric-strap surrounding the eccentric, a pump-piston screwed into said eccentric strap, and a stuffing-box in the lateral bore of the side of the pump-chamber through which the piston operates so as to permit its detachment from and replacement on said eccentric-strap without necessitating the removal of any other parts of the pump, substantially as described.



677,618. SWITCH-THROWING DEVICE. ANDREW A. BAKER and FLORENCE F. HEFFERNAN, Pittsburg, Pa. Filed Apr. 16, 1901. Serial No. 56,085. (No model.)



Claim.—1. In street-railway switches, the combination with the pivoted switch-tongue, of a casing located in the bed of the track between the rails, said casing having a cover provided with a slot, a shaft mounted for rotation on the bottom of the casing near one end thereof, a sprocket-wheel secured on said shaft, a spider mounted on the shaft near its upper end, a shaft mounted for rotation on the bottom of the casing near the opposite end thereof, a crank carried by said shaft, a sprocket-wheel mounted on the shaft, a chain connecting said sprockets, an operating-rod connected to the crank and to the switch-tongue, and means carried by the car for engagement with the spider to actuate the switch-tongue, substantially as described.

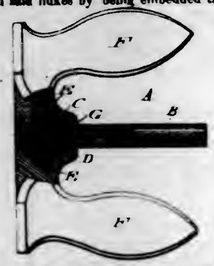
2. In street-railway switches, the combination with the switch-tongue, of a casing located in the bed of the track between the rails thereof, a cover for said casing, said cover provided with a slot, a shaft 5 journaled on the bottom of the casing, a sprocket mounted on said shaft, a spider mounted on said shaft, a shaft 15 journaled in the casing near the opposite end thereof to the shaft 5, a sprocket secured on said shaft 15, a crank carried by the shaft 15, a yielding operating-rod connecting the crank to the switch-tongue, a sprocket-chain connecting said sprockets, and means carried by the car adapted to enter said slot and engage the spider for actuating said switch-tongue, substantially as described.

677,619. ANCHOR. FREDERICK BALDT, Sr., Chester, Pa. Filed June 7, 1900. Serial No. 19,344. (No model.)

Claim.—1. A cast-metal anchor comprising a shank having an opening at one end, and a head provided with integral flukes, said head being cast about said shank and having a pin passing through said opening in said shank with a socket of sufficiently greater diameter to permit freedom of pivotal motion only between the shank and head, said pin forming the sole medium of connection between the shank and head.

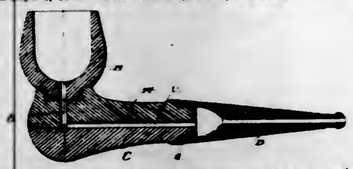
2. In an anchor, a shank having an opening therein, flukes, and a pin passing through said opening in the shank, said pin being rigidly connected with said flukes and extending into and partially through the same, and having its ends embedded therein.

3. In an anchor, a shank, flukes, and a pin passing through said shank and partially through said flukes, and having heads on either end for engagement with said flukes by being embedded therein.



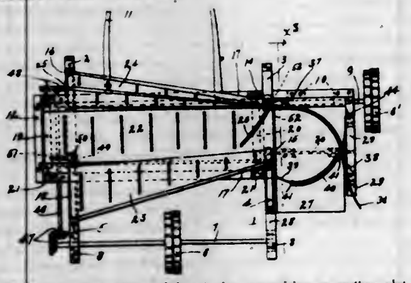
4. In an anchor, a shank having an opening therein, flukes, a pin passing through said opening, and means on said pin for engagement with said flukes.

677,620. TOBACCO-PIPE. WILLIAM B. BARBOUR, Trenton, N. J. Filed Sept. 1, 1899. Serial No. 729,200. (No model.)



Claim.—The herein-described tobacco-pipe consisting essentially of a bowl, a stem carrying the bowl and provided with a smoke-passage *c*; the said stem being made up of two longitudinal sections, threaded at their outer ends, one of which sections has a longitudinal key *d* of dovetail form in cross-section extending throughout its length and tapered or reduced in width from its inner to its outer end, and the other a correspondingly-shaped longitudinal groove *e* extending throughout its length and tapered or reduced in width from its inner to its outer end to snugly receive the key, and a mouthpiece having threads to engage the outer threaded ends of the stem-sections, substantially as and for the purpose set forth.

677,621. BUNDLE-CARRYING ATTACHMENT FOR HARVESTERS. CARL N. BARQUIST, Pelican Lake, Minn. Filed Dec. 4, 1900. Serial No. 38,658. (No model.)



Claim.—1. A bundle-receiving device comprising an endless platform-apron, an arighting-apron gradually extending from an inclined toward a vertical position from its receiving toward its delivery end, and a tilting platform receiving from said aprons.

2. A bundle-receiving device comprising a platform-apron or endless carrier, and endless arighting and butting aprons coöperating therewith, which latter aprons gradually extend from inclined toward vertical positions from their receiving toward their delivery ends, a tilting platform receiving from said aprons, and a yielding or expansible shock-holder permitting the accumulation of bundles on the said tilting platform.

3. A bundle-carrying device, comprising the tilting platform 27 pivoted at 30, the guide-board 36 following the forward and outer portion of said platform, the overlapping spring-rods 39, 40, affording a shock-holder and means for delivering the bundles grain end upward onto the said platform, substantially as described.

4. A bundle-carrying device comprising an endless platform apron or canvas 22, the arighting-canvas 23 inclined at its receiving portion and more closely approaching a vertical at its delivery portion, whereby the bundles are gradually arighted, and a dumping device receiving an accumulation of bundles from the said aprons and automatically dumping the same, substantially as described.

5. In a bundle-carrying device, the combination with a track having traction-wheels, of the endless canvases or conveyers 22, 23 and 24, driven from said traction-wheels, which canvases 23 and 24 are inclined at their receiving portions and gradually approach the vertical toward their delivery portions, the revolving packer 26 working at the delivery portions of said aprons, the spring-held dumping-platform 27 receiving from the said aprons, the guide-board 36 following the forward and outer portions of said dumping-platform, and the overlapping spring-rods 39, 40 affording a yielding shock-holder substantially as described.

677,622. COVER FOR CASES, &c. NATHAN BARNEY, New York, N. Y. Filed Dec. 6, 1900. Serial No. 38,928. (No model.)



Claim.—1. The combination with a case of sheet metal, of an opening therein, a tapered rim surrounding said opening, a sheet-metal cover having a tapered projecting portion, said tapered projecting portion being adapted to fit into said opening and against said rim, and turn-buttons connected to the can-top and having shoulders beveled upon their under faces, said shoulders being adapted to extend upon the cover, whereby said turn-buttons serve to wedge together the tapered rim of the top and the tapered projecting portion of the cover; substantially as described.

2. In a sheet-metal can, a top having a peripheral portion extending inwardly from the can-walls and a depressed portion bounded by said peripheral portion, said depressed portion having an opening therein, an inwardly and downwardly tapering rim surrounding said opening, in combination with a cover having a tapering projecting portion to fit against said tapering rim and a slotted flange bounding said projecting portion and adapted to lie upon the depressed portion of the can-top, and turn-buttons swiveled in said depressed portion of the top and adapted to project through the slots of the cover when the parts are assembled, said turn-buttons having shoulders beveled upon their under sides, whereby the cover can be firmly clamped upon the can-top with the projecting cover portion wedged against the rim of the top, the said cover and turn-buttons not projecting above the top surface of said can-top; substantially as described.

677,623. TYPE-WRITING MACHINE. WALTER J. BARRON, Brooklyn, N. Y., assignor to Densmore Typewriter Company, Syracuse, N. Y. Filed Mar. 22, 1901. Serial No. 52,264. (No model.)

Claim.—1. In a type-writing machine, the combination of a pivoted type-bar, an obstruction thereon, and a key-operated lever pivoted eccentrically of said type-bar and engaging the same at said obstruction so as to lock the type-bar.

2. In a type-writing machine, the combination of a type, a key, means, including two levers, for transmitting the movement of the key to the type, said levers having a sliding engagement, and an obstruction upon one of said levers for coöperating with the other of said levers to lock the type.

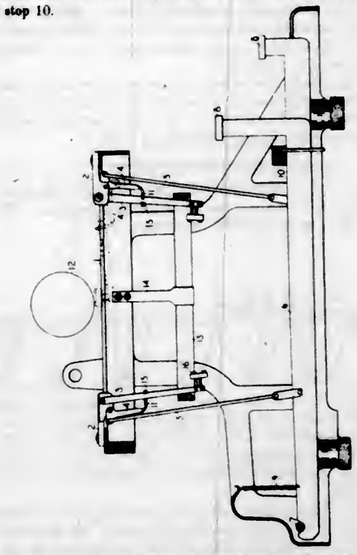
3. In a type-writing machine, the combination of a type-bar, a key-operated lever engaging said type-bar, and an obstruction upon the type-bar for coöperating with said lever to lock the type-bar.

4. In a type-writing machine, the combination of a type-bar, an obstruction thereon, and an actuating-lever provided with an eye which engages said type-bar and is also arranged to coöperate with said obstruction to lock the type-bar.

5. In a type-writing machine, the combination of a type-bar having a notch, an actuating-lever having an angularly-arranged eye which engages said type-bar in register with said notch, and a key for operating said lever.

6. In a type-writing machine, the combination of a platen, a radial pivoted lever, a type-bar pivoted between the said lever and the printing-center, an eye upon said lever for engaging the type-bar, and an obstruction upon said type-bar at said eye.

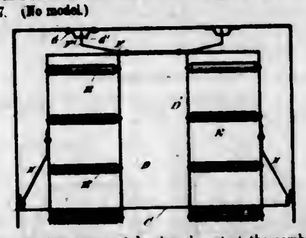
7. In a type-writing machine, the combination of a platen, type-bar 3 having an obstruction thereon, lever 4 having an eye for engaging said type-bar and said obstruction, key-lever 6 connected to said lever 4, spring 9, and stop 10.



8. In a type-writing machine, the combination of a type-bar having a notch or depression, an actuating-lever 4 having an eye normally seated in said depression, and a key for moving the eye out of the depression and causing the eye to actuate the type-bar.

9. In a type-writing machine, the combination of a type-bar, an obstruction, and a key-operated device having an eye for swinging said type-bar and also coöperating with said obstruction to lock the type-bar.

677,624. ADJUSTABLE SHELF AND SUPPORT THEREFOR. DEAN A. BECKWITH, New York, N. Y. Filed Mar. 28, 1900. Serial No. 10,547. (No model.)

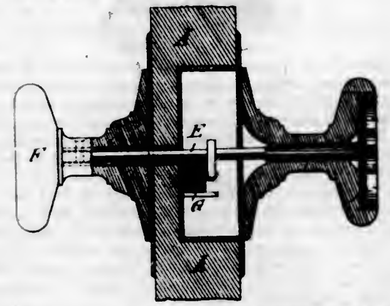


Claim.—1. In a device of the class described, the combination with a receptacle having uprights on its sides near the front and on its back, of a shelf provided at its front with catches for engaging the front uprights and at its rear with a spring-bar having catches at its ends for engaging the rear uprights, and spring-braces secured to the shelf and adapted to snap behind the front uprights when the shelf is placed in position, substantially as described.

2. In a device of the class described, the combination with a receptacle having recessed or apertured uprights on its sides near the front, and recessed or apertured uprights on its back, of a shelf, a supporting-bar on the front of the shelf, said bar projecting beyond the ends of the shelf and having catches for engaging the recesses or apertures of the front uprights, a supporting-bar on the rear of the shelf, said bar being of spring material and having catches at its ends for engaging the recesses or apertures of the rear uprights, and spring-braces secured to the shelf and extending forwardly and outwardly, said braces being adapted to snap behind the front uprights when the shelf is placed in position, substantially as described.

3. A shelf, provided at its front with a sidewise-extending front supporting-bar formed at its ends with rearwardly-extending catches, a rear supporting spring-bar at the rear end of the shelf and provided with rearwardly-extending catches at its ends, and spring locking-braces, each secured at one end on the side of the shelf and extending forward and outward, substantially as shown and described.

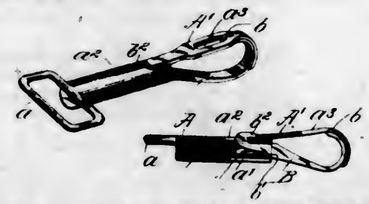
677,625. DOOR-KNOB. CARL F. BIELE, New York, N. Y. Filed Jan. 18, 1901. Serial No. 43,748. (No model.)



Claim.—1. A door-knob, consisting of an outer recessed false knob, an inner movable auxiliary knob, and a rotatable operating-spindle connected with said auxiliary knob, substantially as set forth.

2. A door-knob, consisting of an outer recessed false knob made integral with the rose-plate and secured to the door, a rotatable auxiliary knob located in the recess of the false knob, and provided with recesses for the fingers of the hand, and a rotatable operating-spindle connected with said auxiliary knob, substantially as set forth.

677,626. SNAP-HOOK. JOHN W. BOOTH, Washington, Mo. Filed July 30, 1900. Serial No. 25,217. (No model.)



Claim.—1. In a self-closing snap-hook, the combination of a shank having an extension, and a tongue loosely mounted in the shank and having hooks at its extremities for engaging said shank and said extension; substantially as described.

2. In a self-closing snap-hook the combination with a hollow shank and an extension, of a swinging hook-tongue loosely mounted in, and longitudinally movable relatively to said shank, and provided with means at its outer extremity for interlocking with said extension, and a spring in the shank for holding the hook-tongue in its closed position; substantially as described.

3. In a snap-hook, the combination with a hollow shank having an opening, of an apertured extension, a tongue having hooks at its extremities adapted to coöperate with said opening and aperture, a shoulder on said tongue, and a spring-pressed plunger coöperating with said shoulder; substantially as described.

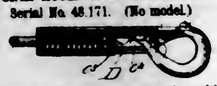
4. In a self-closing snap-hook, the combination with a hollow shank, of a spring-pressed plunger arranged in said shank, an extension on said shank, said shank and extension being provided with openings, and a tongue loosely mounted in said shank and having hooks at its ends of different lengths for coöperating with said openings; substantially as described.

5. In a self-closing snap-hook, the combination with a shank, of a tongue capable of longitudinal and rotary motion, means for locking said tongue against rotation when in its home position and a spring bearing against a shoulder on the bottom edge of the tongue; substantially as described.

6. In a self-closing snap-hook, the combination with a shank, of a tongue capable of longitudinal and rotary motion with respect to said shank, a spring engaging the tongue at one edge for holding said tongue in its closed position, and means for preventing rotation of the tongue when in such position; substantially as described.

7. In a snap-hook, the combination with a shank having an extension, such shank and extension being provided with a notch a' and openings a^2 and a^3, respectively, a spring-pressed plunger arranged in the shank, and a hook-tongue provided with a hook b at its outer extremity for coöperating with the front wall of the opening a^2, a shoulder b' for coöperating with the plunger, and a hook b^2 for coöperating with the front wall of the opening a^3; substantially as described.

677,627. SNAP-HOOK. JOHN W. BOOTH, Washington, Mo. Filed Feb. 20, 1901. Serial No. 48,171. (No model.)



Claim.—1. In a snap-hook, the combination with a shank provided with an apertured extension, of a hook-tongue having a head on its front end coöperating with the aperture in said extension, a head on its inner end, and a plug which is introduced into the forward end of the shank for forming a guideway for coöperating with said last-mentioned head, necessitating a longitudinal movement being imparted to the hook-tongue before the same can be swung; substantially as described.

2. In a snap-hook, the combination with a shank provided with an extension, said extension having an opening whose front portion is contracted, of a hook-tongue having a head on its outer end for coöperating with said opening, a head on the inner end of said tongue, a plug arranged in the forward end of the shank for coöperating with said last-mentioned head, and a spring-pressed plunger arranged in the shank; substantially as described.

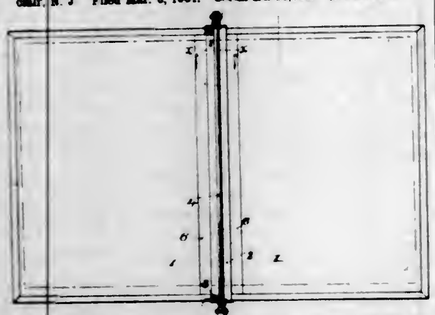
3. In a snap-hook, the combination with a shank having an apertured hood extension, of a hook-tongue having a head on its outer end coöperating with the opening in said hood extension, a head on the inner end of said hook-tongue, a plug introduced into the forward end of the shank, and having rearwardly-extending prongs for receiving said head and providing a guideway therefor, and a spring-pressed plunger for exerting a constant pressure against the hook-tongue at a point beneath the head on its inner end; substantially as described.

4. In a snap-hook the combination with a shank, of a hook-tongue having a head on its inner end, a plug introduced into the forward end of the shank and providing a guideway for said head, the forward portion of said way being formed by parallel walls, while the rearmost portion is enlarged to permit the head to turn, and a spring-pressed plunger coöperating with the hook-tongue at a point beneath the head; substantially as described.

5. In a snap-hook, the combination with a shank, of a head-tongue formed with a head on its inner end, and a plug arranged in the front end of the shank for coöperating with said head, said plug having prongs c' and c^2, the latter of which are notched as at c^3, and projections c^4; substantially as described.

6. In a snap-hook, the combination with a hollow shank, of a hook-tongue, a plug introduced into the front end of the bore of said shank for coöperating with the inner end of the hook-tongue, a plunger having a bifurcated forward end for coöperating with the hook-tongue, the rear end of said plunger having a centering projection d and a guiding projection d', and a spring arranged behind said plunger; substantially as described.

677,628. TEMPORARY BINDER. THEODORE F. BOURNE, Montclair, N. J. Filed Mar. 6, 1901. Serial No. 50,006. (No model.)



Claim.—1. A binder comprising covers, a back provided with slotted lugs near the ends, a bar adapted to travel in said slots and to coact with the back, and providing a free space beneath the bar throughout its length between the lugs, and springs adapted to press the bar toward the back for clamping the part to be held therebetween, substantially as described.

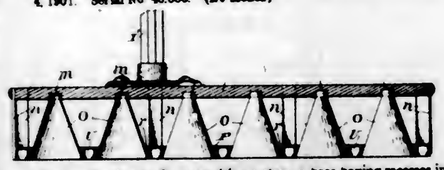
2. In a binder, the combination of covers, a back, slotted lugs near the ends of the latter, a bar adapted to travel in said slots and to coact with the back, and providing a free space beneath throughout its length between the lugs, and springs connected with the lugs to press the cross-bar toward the back, substantially as described.

3. In a binder, the combination of covers, a back, slotted lugs near the ends of the latter, a bar adapted to travel in said slots and to coact with the back, coiled springs each having a portion bearing upon the bar to press it toward the back, and headed supports secured to the lugs, the coils of the springs lying between the lugs and the heads of the supports, substantially as described.

4. In a binder, the combination of covers, a back, a bar to coact therewith slotted lugs near the ends of the bar, springs to press the bar toward the back, and means for maintaining the bar in an outward position, substantially as described.

5. In a binder, the combination of a back, a bar to coact therewith slotted lugs near the ends of the bar, springs to press the bar toward the back, and sockets to coact with the bar and the springs to maintain the bar in an outward position, substantially as described.

677,629. WASHING-MACHINE. CHARLES S. BRADFORD, West Union, Ohio, assignor of one-half to Harvey J. Thompson. Filed Feb. 4, 1901. Serial No. 46,006. (No model.)



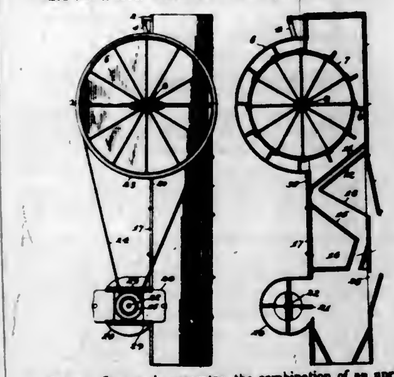
Claim.—1. A pounder comprising a stem, a base having recesses in its bottom, funnel-shaped tubes having their small ends within said recesses in said plate, downwardly-projecting arms carried by said plate, and transversely and longitudinally arranged bars carried by said arms and surrounding said funnel-shaped tubes and secured thereto, substantially as described.

2. A clothes-pounder comprising an operating-stem, a supporting-plate carried by said stem, funnel-shaped members carried by bottom of said plate, transverse strips secured to said members and having their outer faces notched and longitudinal strips having their inner faces notched and registering with the notches in the other members, and soldered to said funnel-shaped members, substantially as described.

3. A clothes-pounder comprising a stem, a supporting-plate carried by said stem, funnel-shaped members carried by bottom of said plate, transverse inverted-U-shaped strips having rolled outer edges secured to said funnel-shaped members and having their outer faces notched and longitudinal inverted-U-shaped strips having rolled outer edges and notched inner faces registering with the notches in the transverse strips and soldered to said funnel-shaped members, substantially as described.

4. A clothes-pounder comprising a stem, a supporting-plate carried by said stem, funnel-shaped members carried by the bottom of said plate, and inverted-U-shaped strips surrounding the lower edges of said funnel-shaped members, substantially as described.

677,630. GRAIN-SEPARATOR. AUGUST F. BRASS, St. Louis, Mo. Filed Oct. 1, 1900. Serial No. 31,710. (No model.)



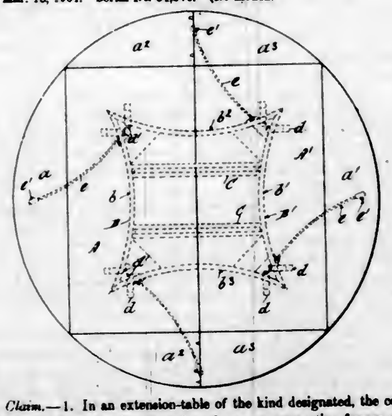
Claim.—In a grain-separator, the combination of an upright chute or casing having a concave recess in the inner face of one wall, a half-drum mounted on and forming part of the opposite wall, a motor-wheel journaled in line with the junctare of the half-drum and casing, and projecting only on its descending side into said casing and recess, and provided with L-shaped plates with their bases secured to the periphery of the drum and their radial portions formed with flanges; and a slide operated from the side of the casing over the half-drum so as at all times to leave a feed-opening directly over the buckets.

677,631. CUFF-BUTTON. GOTTLIEB BREDA, New York, N. Y. Filed Jan. 19, 1901. Serial No. 43,864. (No model.)



Claim.—A cuff-button provided with a shank, a pivoted head extending over both sides thereof, and a pair of hooks that converge toward the head, substantially as specified.

677,632. TABLE. HORATIO J. BREWER, New York, N. Y. Filed Mar. 18, 1901. Serial No. 51,576. (No model.)



Claim.—1. In an extension-table of the kind designated, the combination of the two fixed top panels and concave supporting-frames connected by extension-bars sliding telescopically on each other, leaves formed with convex outer edges and hinged to the said fixed top panels, means for supporting the leaves in an extended position, and means for holding said leaves against the under sides of said fixed panels, substantially in the manner and for the purpose described.

2. In an extension-table of the kind designated, the combination of the two fixed panels and concave supporting-frames connected by extension-bars, two segmental end leaves, one attached to the outer broad edge of each of said fixed top panels, and half-segmental leaves attached to the narrow edges of each of said top panels, together with means for supporting each of said leaves in an extended position, and means for holding each of said leaves against the under side of the said fixed top panels, substantially in the manner and for the purpose set forth

3. In an extension-table of the kind designated the combination of the fixed top panels A, A', and supporting-frames B, B', formed with concave external surfaces b, b', b^2, b^2, the extension-bars C, C', connecting said frames and fixed top panels, the segmental end leaves a, and a', hinged respectively to the fixed panels A, A', the half-segmental leaves a^2, a^3, hinged to the fixed top panel A, the half-segmental leaves a^2, a^3, hinged to the other fixed top panel A', brackets attached to the framework for holding the leaves extended, and bolts supported upon the framework for holding the leaves against the under sides of the said fixed top panels, substantially as set forth.

4. In an extension-table of the kind designated the combination of the fixed top panels A, A', and supporting-frames B, B', formed with the concave external surfaces b, b', b^2, b^2, the extension-bars C, C', the segmental end leaves a, and a', hinged respectively to the fixed panels A, A', the half-segmental leaves a^2, a^3, hinged to the fixed top panel A, the half-segmental leaves a^2, a^3, hinged to the other fixed top panel A', the extension-brackets e, e, pivotally supported on the framework, stops e', e', on the under sides of the leaves for regulating the position of said supporting-brackets when extended, and bolts d, d, supported on the framework and adapted to hold the leaves up against the under side of the said fixed top panels A, A', for the purpose and substantially in the manner set forth.

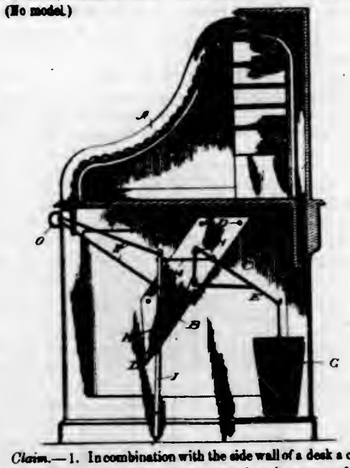
5. In a table, the combination of the frame formed in two sections B, B', united by extension-bars C, C', and formed with concave external sides b, b', b^2, b^2, and mortises b^4, the bolts d, in said mortises, the swinging brackets e, pivotally secured to the frame-sections, the fixed top panels A, A', secured to the frame-sections, and the leaves a, a', a^2, a^3, hinged to the fixed top panels and formed with convexly-curved outer edges, the whole arranged and operating substantially in the manner and for the purpose set forth.

677,683. ZINC ELEMENT FOR GALVANIC BATTERIES. HORATIO J. BREWER, New York, N. Y. Filed Mar. 25, 1901. Serial No. 52,732. (No model.)



Claim.—A zinc electrode for galvanic batteries made in two sections formed with means by which their abutting ends are positively coupled together, and a covering of insulating material protecting the lower end of the upper section and the upper extremity of the lower section for the purpose set forth.

677,684. BASKET ATTACHMENT FOR DESKS. ARTHUR S. BUSSELLE, Ottumwa, Iowa. Filed Mar. 22, 1901. Serial No. 52,410. (No model.)

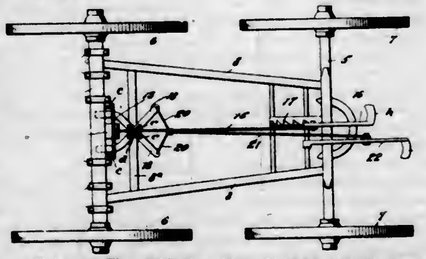


Claim.—1. In combination with the side wall of a desk a crane or arm adapted to support a basket or other receptacle at its outer or free end, and hinged at the opposite end to the desk, and an operative vibrating lever pivoted to the desk and connected at its upper end with the swinging crane, substantially as and for the purpose set forth.

2. In combination with the swinging crane C secured to the board B a lever I pivotally connected to the board B and having its upper end linked with the swinging arm of the crane, and means substantially as described for vibrating the lever I, as and for the purposes set forth.

3. The combination and arrangement of the basket-supporting crane C, hinged to the desk A, the lever I pivotally connected with the desk, and at its upper end to the crane by a link M, a foot-pedal L at the lower end of lever I, and the operating devices N O at the upper end, whereby the crane may be operated by the hand or foot, substantially as hereinbefore set forth.

677,685. VEHICLE-BRAKE. JOSEPH M. CALLAHAN and JEFFERSON D. SHORT, Henrietta, N. C. Filed Mar. 26, 1901. Serial No. 53,044. (No model.)

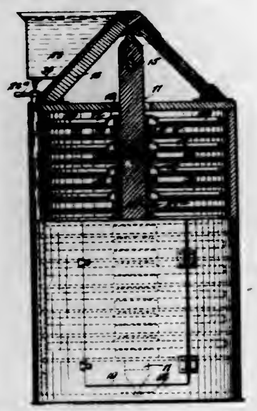


Claim.—1. The combination with a vehicle, of a guide-block on the rear axle, two locking-bars held to slide in the guide-bar, springs pressing the locking-bars outwardly, a lazy-tongs device adapted to retract the locking-bars and compress the springs, means for operating the lazy-tongs device from the front of the vehicle, and means for holding the locking-bars retracted against the stress of the springs but releasable from the front of the vehicle.

2. The combination with a vehicle, and a longitudinally-perforated guide-block on the rear axle thereof, of spring-pressed locking-bars slidable in the guide-block, a lazy-tongs device loosely supported on the running-gear of the vehicle and connected with the locking-bars for their retraction, an upright rockable lever at the front of the vehicle, and a pusher-rod pivoted by its respective ends to the lazy-tongs device and the upright lever.

3. The combination with a vehicle, a longitudinally-perforated guide-block held on the lower side of the rear axle of the vehicle, locking-bars slidable in the guide-block, and expansive springs pressing the locking-bars outward, of a lazy-tongs device comprising two crossed members held to rock on the running-gear of the vehicle, like ends of said members being loosely connected by link-rods with the locking-bars, means for rocking the lazy-tongs members from the front of the vehicle, a slide-bar, detent-pins on said bar adapted to respectively engage within transverse apertures in the inner portions of the locking-bars, a toothed rack at the front of the vehicle, a link-bar extended forwardly from the slide-bar, and a lever pivoted between its ends upon the forward end of said link-bar and adapted to interlock with the teeth of the rack.

677,686. WASHING-MACHINE. EDWARD CAMPBELL, Winnipeg, Canada, assignor to himself and Calvin James Wardrope, same place. Filed Aug. 23, 1900. Serial No. 28,270. (No model.)

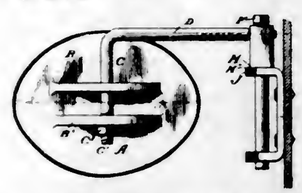


Claim.—1. In a washing machine, a tubular body, a shaft mounted to revolve in said body, a series of partitions located within the body, having corrugated or ribbed upper faces and openings through which the shaft passes, the said partitions being provided at said openings with upwardly-extending flanges, a series of rubbers located one above each partition, the said rubbers being attached to the said shaft, each rubber having a corrugated or roughened face, an upwardly-extending marginal flange and an inner flange around the shaft, the rubbers being also provided with series of apertures between their flanges, and means located within the said body whereby the water is conducted to the various compartments formed by the said partitions consecutively from the upper compartment to the lower, as described.

2. In a washing-machine, a body and a series of partitions forming compartments independent of each other and adapted to receive clothes, each partition having a rubbing-surface on its upper face, a rotary rubber in each compartment, having ribs or corrugations on its under face, and a stand-pipe which is passed through the partitions, which stand-pipe is provided with a series of chambers, each of said chambers being provided with an inlet and an outlet opening, each inlet and outlet opening being located at opposite sides of the partition, the said stand-pipe being adapted to receive water and to conduct the same from one compartment to the other, as specified.

3. In a washing-machine, the combination, with the body having a series of compartments independent one from the other and adapted to receive clothes, the said compartments being formed by series of partitions having an upper rubbing-face, apertured rubbers mounted to rotate over each partition, which rubbers have their lower faces roughened, both the partitions and rubbers being adapted to receive a supply of water, of a stand-pipe mounted to turn in said body, which stand-pipe extends through openings in the said partitions, partitions located within the stand-pipe, dividing the same into a series of chambers, each of which chambers is provided with apertures in a side of the stand-pipe, the said apertures being located one above and the other below a partition in the body, for the purpose set forth.

677,637. ADJUSTABLE SWINGING MANHOLE-PLATE. MICHAEL E. CASEY, Mansfield, Ohio. Filed Nov. 22, 1900. Serial No. 37,371. (No model.)



Claim.—1. A manhole-plate provided with a rib cast integral therewith, and apertures formed in the rib, a swinging bar secured to the manhole-plate, a stationary brace, a pivot-bolt received in the brace, and a collar formed on the bolt, the collar provided with an aperture therein to receive the end of the swinging bar.

2. An adjustable manhole-plate having ribs cast integral therewith, the ribs provided with apertures therein, a swinging bar received in the apertures in the ribs, the end of the bar turned to receive a nut whereby the plate is capable of being vertically adjusted on the bar, a brace, and a pivot-bolt held therein, the other end of the swinging bar being held in the pivot-bolt.

3. An adjustable manhole-plate having ribs cast integral therewith the ribs provided with apertures therein, a swinging bar received and held in these apertures, a brace, a pivot-bolt held loosely in the brace, a collar formed on the head of the pivot and having an aperture therein, the end of the swinging bar adjustably received and supported in the aperture in the collar of the pivot-bolt and means for retaining the swinging bar in any of its adjusted positions in the pivot-bolt.

4. An adjustable manhole-plate having ribs cast integral therewith, the ribs provided with apertures, a swinging bar loosely received and adjustably held in the apertures in the ribs, to permit the plate to swing on the bar as a pivot, a brace and a collar pivot-bolt loosely received and held on the brace, the bolt having an aperture to receive and secure the end of the swinging bar, whereby the plate and bar are supported by the pivot-bolt which turns in the brace as the swinging bar is moved.

5. The combination with a support, of a manhole-plate, a bar pivotally connecting the plate with the support, and a nut for adjusting the plate on the bar.

6. The combination with a support, and manhole-plate, of a connecting-bar pivotally connected to each of said parts, and a nut screwed on the bar upon which the plate rests whereby the plate may be adjusted vertically.

7. The combination with a support, and manhole-plate, of a connecting-bar pivotally connected to each of said parts, and means whereby the plate may be adjusted vertically, horizontally and axially with relation to its support.

8. An adjustable manhole-plate, a swinging bar pivotally and adjustably secured to the manhole-plate, a brace, a pivot-bolt loosely held in the brace, a collar formed on the pivot-bolt having an aperture therein to receive the swinging bar and a set-screw whereby the swinging bar may be adjusted with relation to the pivot-bolt.

9. An adjustable manhole-plate, ribs cast integral therewith having apertures therein, an L-shaped bar received in the apertures, a brace, and a pivot-bolt loosely journaled in the brace, the L-shaped bar secured to the pivot-bolt whereby the manhole-plate, the L-shaped bar and the pivot-bolt may be easily disengaged from the brace without the use of tools.

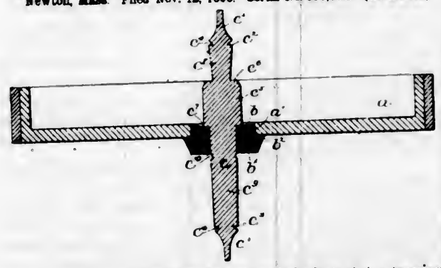
10. In a steam-boiler, the combination with a manhole-plate having two horizontal ribs cast thereon, said ribs having holes drilled therein, of an L-shaped bar received in the holes, the bar having a thread cut on the end to receive a nut whereby to raise or lower the manhole-plate vertically, a U-shaped brace attached to the head of the boiler, the projecting ends of the brace having holes drilled therein, a pivot-bolt, a collar on the upper portion of the pivot-bolt provided with a hole drilled at right angles therewith, the L-shaped bar adapted to be received in the hole, the pivot-bolt also provided with a hole drilled in its top, a set-screw held therein whereby to retain the L-shaped bar in place, after adjustment.

11. An adjustable swinging manhole-plate having ribs cast integral therewith and holes formed in the ribs, the holes adapted to receive one end of an L-shaped bar, the bar having a thread cut on one end thereof to receive a nut whereby to adjust said plate vertically, on the L-shaped bar, a U-shaped brace, a pivot-bolt received in the brace, the bolt having a collar on the upper portion thereof, adapted to come in contact with the end of the brace and act as a bearing, said pivot-bolt having a hole drilled in the collar end thereof, to receive the opposite end of the L-shaped swinging bar.

12. In a boiler, a manhole-plate, a U-shaped brace, a pivot collar-bolt, an L-shaped swinging bar with a thread cut thereon and a set-screw

to provide a means of vertically and laterally adjusting the manhole-plate, substantially as and for the purpose described.

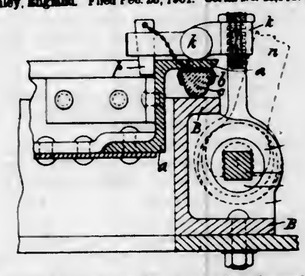
677,638. BALANCE-STAFF FOR WATCHES. DUANE H. CHURCH, Newton, Mass. Filed Nov. 12, 1896. Serial No. 606,194. (No model.)



Claim.—1. A balance-staff having conical pivots c' c', a tapering portion c^3, and an enlargement c^4 forming two shoulders c^5 c^5, substantially as described.

2. A balance-staff having end pivots, an enlargement c^4 between the pivots forming two abrupt shoulders c^5 c^5, a tapering portion c^3 between the shoulders c^5 and one of the pivots, and a portion c^2 between the shoulder c^5 and the other of the pivots.

677,639. COVER FOR GAS-PURIFIERS. THOMAS S. CLAPHAM, Keighley, England. Filed Feb. 23, 1901. Serial No. 48,513. (No model.)



Claim.—1. In apparatus of the class described, the combination with an upwardly-extending flange surrounding the opening of the tank or receptacle, of a lid or cover therefor fitting within said flange and having an outwardly-projecting portion overhanging said flange, and having holding-bars on the under sides thereof said holding-bars being dovetail-shaped in cross-section, rubber strips secured in said holding-bars, and clamping means extending from a point below the upper edge of said flange and upward and over the projecting portion of the cover and adapted to draw the strips of the cover tightly down upon said flange.

2. In apparatus of the class described, the combination with an upwardly-extending flange surrounding the opening of the tank or receptacle, of a lid or cover therefor fitting within said flange and having an outwardly-projecting portion overhanging said flange, elastic packing carried by said outwardly-projecting portions, and a plurality of simultaneously-operated hooks adapted to bear on the upper portion of the cover to draw the cover down upon said flange.

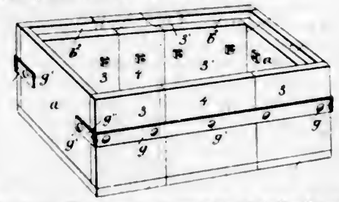
3. In apparatus of the class described, the combination with an upwardly-extending flange surrounding the opening of the tank or receptacle, of a lid or cover therefor fitting within said flange and having an outwardly-projecting portion overhanging said flange, elastic packing carried by said outwardly-projecting portions, and a plurality of simultaneously-operated hooks adapted to bear on the upper portion of the cover to draw the cover down upon said flange, said hooks having means whereby their overhanging portions may be independently adjusted.

4. In apparatus of the class described, a lid or cover, a yielding substance mounted to intervene between same and the part against which it has to fit, hooks for laying hold of said lid, connecting-rods and eccentrics for operating said hooks and shafts upon which said eccentrics are mounted substantially as herein specified.

5. In apparatus of the class described, a lid or cover, a yielding substance interveuing between same and the other parts, hooks for laying hold of said lid, connecting-rods and eccentrics for operating said hooks, square shafts upon which said eccentrics are mounted and bushes to form the rotary bearings for said square shafts substantially as herein set forth.

6. In apparatus of the class described, a lid or cover, a yielding substance beneath said lid, means for holding down said lid, shafts for operating said means gears for coupling said shafts together and handle devices for transmitting motion to said shafts substantially as herein specified.

677,640. SARCOPHAGUS. WILLIAM A. CREW, Salisbury, Md. Filed May 11, 1900. Serial No. 16,330. (No model.)



Claim.—1. The grave-vault consisting of similar flat end blocks, similar side, top and bottom walls, said side walls composed of flat rectangular interchangeable blocks having rabbeted overlapping vertical edges, the top and bottom walls composed of flat rectangular interchangeable blocks having rabbeted overlapping edges, the vertical end edges of the side walls being rabbeted, and said end blocks fitted in said rabbeted portions and between said side walls, whereby the end blocks and side walls are braced against inward movement, the top and bottom edges of the end blocks and side walls being rabbeted throughout, as described, the side and end edges of the top and bottom walls being similarly rabbeted throughout, the flanges of the top and bottom walls overlapping the top and bottom edges, respectively, of the side walls and end blocks, and the unrabbeted portions thereof resting in the rabbeted portions of said side walls and end blocks, whereby the side and end walls are braced against inward tilting and the top and bottom walls each have a double seat on the end blocks and side walls, substantially as described.

2. The grave-vault composed of the ends, sides, and top and bottom walls, the top and bottom walls being formed of overlapping sections, interchangeable with each other, the end walls being formed of the solid blocks, the side walls being formed of the interchangeable sections overlapping each other as described, the side sections being formed with the holes therethrough, the rods extending along the exterior of the sides and overlapping the end blocks, and the securing-bolts passed through said bars and through the holes of the sides and secured to keep the side blocks from falling outward, said blocks making up the vault formed rectangular with the flat parallel faces, whereby the blocks can be easily crated for shipment, substantially as described.

677,641. SYSTEM OF WATER FILTRATION AND PURIFICATION. MILES L. DAVIS, Lancaster, Pa. Filed May 2, 1900. Serial No. 15,206. (No model.)

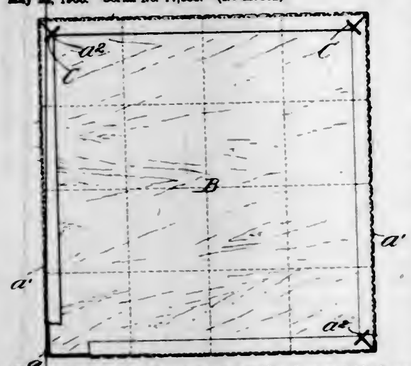


Claim.—1. A system of water filtration and purification comprising: a tank having a sloping bottom, with an inclined outlet-chute at the lower edge of said bottom, and a bridge-wall along said edge separating said chute from said bottom, said chute adapted to convey filtered water to a receiving-well, and with means provided for the exit of washings at the lowest point of the tank; a series of parallel tubes, with apertures through their upper faces, arranged on top of said bottom and extending from the lower to the upper edge thereof, and a feed-pipe arranged along said upper edge with one end projecting beyond a side of the tank, said parallel tubes having their plugged lower ends abutting against the bridge-wall and their upper ends secured into the side of said feed-pipe, with a layer of cement embedding the parallel tubes to their upper face-apertures, and overlying the feed-pipe; a filtering medium arranged in trapezium form above said tubes and feed-pipe, entirely covering the sloping bottom, with a long sloping lower face extending to the bridge-wall, a short horizontal top face, and a short sloping upper face extending to the side wall at the shallower end of the tank, forming with said wall a channel or recess for the reception of water to be filtered, with means provided for the induction of water thereinto, and for the eduction of washings therefrom; and with means provided, such as force-pumps or injectors, for the injec-

tion of filtered water, chemicals, and air, separately or simultaneously; all substantially as described and for the purpose hereinbefore set forth.

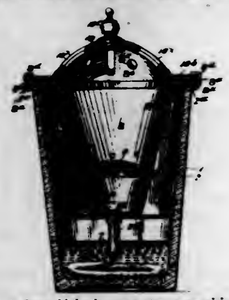
2. In a system of water filtration and purification having a tank with an inclined bottom and an inclined chute at the lower edge thereof with a bridge-wall along said edge parting said chute and bottom, a series of tubes arranged on said bottom and extending from the lower to the upper edge thereof, with a feed-pipe arranged along said upper edge and projecting beyond a side of the tank, said tubes having their lower ends against said bridge-wall and their upper ends tapped into said feed-pipe with a line of apertures in each one in their upper faces, a layer of cement covering said feed-pipe and embedding said tubes up to said lines of apertures, with a filtering mass arranged on said layer of cement as shown, with means provided for the induction of unfiltered water into the tank above said filtering mass and the eduction of filtered water from its lower end, with injectors connected with the feed-pipe for cleansing and purifying the filtering mass, and with means provided for the exit of washings from the tank, all substantially as described and for the purpose hereinbefore set forth.

677,642. PACKAGE. HARRY C. DUCKERT, St. Louis, Mo., assignor to the M. C. Wetmore Tobacco Company, same place. Filed May 23, 1900. Serial No. 17,655. (No model.)



Claim.—In a package, the combination with a sheet-metal body portion comprising a bottom and side walls interlocked by seams *a*, a perforated crimp *a'* extending entirely across the upper portion of each side wall a short distance from the edge thereof, a cover, inclined cut-away portions a^2 at the upper corners of the said walls above the crimps adapted to permit the turned-over flanges of the sides to lie flat on the surface of the cover and prevent their overlapping each other and also preventing the same when turned downwardly from coming in contact with the seams *a*, and means for temporarily securing the turned-over flanges to the cover, substantially as described.

677,643. FORMALDEHYDE-GENERATOR. FRED G. DIETERICH, Washington, D. C. Filed Mar. 6, 1901. Serial No. 50,104. (No model.)



Claim.—1. A formaldehyde-generator, comprising in combination, the holder 1, the casing 2, detachably supported upon the rim of the holder 1, and having a burner in its bottom, and a gas-generating means, comprising a hollow body 8, having a member 8^a, adapted to detachably rest upon the rim of the holder 1, and a catalytic disk, held within the body 8, for coöperating with the burner, said body 8 being of less diameter than the casing 1, whereby an air-space is produced between the casing 2, and said body 8, the aforesaid member 8^a, having air-inlets opening into the said air-space, for the purposes specified.

2. A formaldehyde-generator, comprising in combination, a holder, a casing carrying a burner, detachably mounted in the said holder, and adapted to separate the holder into an upper and a lower compartment, the lower one of which is for holding wood-spirit; an oxidizing-chamber having a catalytic member for coöperating with the burner, detachably supported in the upper compartment, substantially as shown and described.

3. In a formaldehyde-generator, the combination with the holder 1, the casing 2, having a diameter and a depth less than that of the holder, and provided with an annular rim of greater diameter than that of the holder, an oxidizing-chamber consisting of the hollow body 8, of less diameter and depth than casing 2, and having an annular rim 8^a, adapted to rest on the rim of the said casing 2, said rim 8^a, having air-inlets; and the platinized disk 9, in the member 8, all being arranged substantially as shown and for the purposes described.

4. In a formaldehyde-generator, the combination with a holder, a casing supported thereon, separating the holder into an upper and a lower compartment, and a burner supported on the bottom of the casing; of a gas-generating means detachably suspended within the casing, said means including a catalytic medium for coöperating with the burner, and devices for controlling the inflow of air to the gas-generating means.

5. In a formaldehyde-generator, the combination with the holder, a casing supported therein, separating said holder into an upper and a lower compartment and adapted to close off air to the lower compartment; of the member 8, detachably supported in the aforesaid upper compartment, a platinized diaphragm held in the member 8, and means for controlling the inflow of air to said member 8, forming an attached part of said member 8, as specified.

6. A formaldehyde-generator, comprising a holder, a casing supported therein, and adapted to divide said holder into separate upper and lower compartments, and a gas-generating means suspended within the upper-casing compartment, detachably connected with such casing and removable therewith from the holder as a unitary structure, as specified.

7. In a formaldehyde-generator, of the character described, a holder having a plurality of compartments, a member having an oxidizing-chamber in one of said compartments, having gas-escape openings and air-inlets, and means mounted upon the oxidizing-chamber for simultaneously controlling the admission of air to the oxidizing-chamber, and the escape of gas therefrom substantially as described.

8. A formaldehyde-generator, comprising in combination, a holder, a tapering casing having a rim for resting upon the upper edge of the holder, and a wick-tube in its bottom, a hollow member suspended within the casing, and of a less height than that of the casing, said hollow member having a rim, adapted to project over the casing-rim, having air-inlets, said hollow member having gas-escape openings in its top, a turn-plate on the said top for controlling the air-inlets, and the gas-outlets aforesaid, and a platinized disk held in the hollow member to coöperate with the burner, for the purposes specified.

9. A formaldehyde-generator, comprising the following elements in combination; an open-top holder, a cup-shaped casing pendently and detachably supported within the holder, and adapted to separate the same into an upper and a lower compartment, the lower being adapted to receive the wood-spirit, said casing having a burner in its base, a hollow member adapted to be detachably suspended upon the upper end of the cup-shaped casing, a platinized disk held within the hollow member to coöperate with the burner, said hollow member having a top portion provided with openings for the ingress of air to and the egress of vapor from said hollow member, as set forth.

10. In a formaldehyde-generator, a holder, a tapered casing, having openings in the top and detachably supported on and projected down into the holder, a burner on the bottom of the casing, and a member supported within the casing, having an oxidizing-chamber for coöperating with the burner, for the purposes specified.

11. In a formaldehyde-generator, a holder, and a casing pendently supported on the holder, said casing having an annular flange at its upper end to engage the upper edge of the holder, and a burner at the bottom, and a member having an oxidizing-chamber and formed with an annular flange, whereby to pendently support it on the casing-flange.

12. In a formaldehyde-generator, a casing having an annular flange, and a burner; a member having an oxidizing-chamber pendently supported in the casing, and having an annular flange to rest on the other flange.

13. In a formaldehyde-generator, a casing having an annular flange, a member having an oxidizing-chamber extending down into the casing, said member having an annular flange to rest upon the other flange, and having an opening, the oxidizing-chamber having gas-discharges, and a cut-off supported and adapted to turn on the annular flange having the air-openings, said cut-off having two sets of openings to coöperate with the gas-discharges from the oxidizing-chamber, and the air-inlets, for the purposes described.

14. In a formaldehyde-generator of the character described, the combination with the holder 1, the tapering casing 2, said casing having means for supporting it within the holder, and a burner on the bottom of said casing; of the tapering member 8, having an apertured annular flange 8^a, adapted to rest upon the upper edge of the casing 2, and a slotted top 8^c, and the oxidizing-diaphragm 9, held within the member 8, all being arranged substantially as shown and for the purposes described.

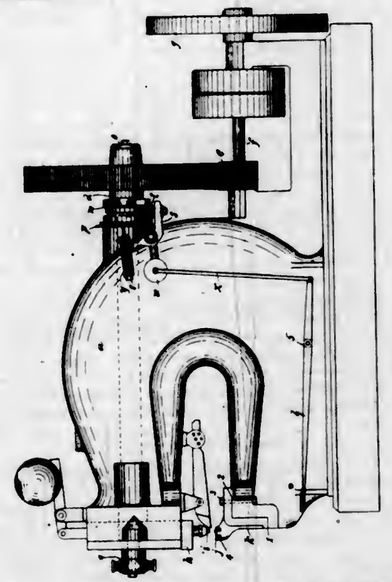
15. A formaldehyde-generator, comprising an ordinary tumbler, and a gas-generating means, removably supported within the tumbler, said means consisting of the casing 1, having a flange to engage the tumbler edge, a wick in its bottom adapted to dip into the bottom of the tumbler, and a hollow member having discharge-openings at the top, an annular flange to rest on the casing-flange, having air-inlets opening between the walls of the hollow member and the casing-wall, said hollow member being of a depth less than that of the casing, and a platinized diaphragm held within the said hollow member to oppose the burner end of the wick in the bottom of the casing.

16. A means for generating formaldehyde gas, comprising a burner, a member having an oxidizing-chamber, provided with air-inlets and gas-outlets, a catalytic medium in said chamber for coöperating with the burner, and devices whereby to detachably support the said generating means upon and within an ordinary tumbler or cup-shaped holder.

17. A means for generating formaldehyde, comprising a casing, supportable upon and within an ordinary drinking-tumbler, and having a wick-holding tube in its bottom, an oxidizing-chamber within the casing, and a platinized diaphragm therein held over the wick-tube, said chamber having air-inlets and gas-outlets, substantially as shown and described.

18. As a new article for the purposes specified, a cup-shaped casing having a laterally-projecting portion, whereby it is adapted to be detachably supported within an ordinary drinking-tumbler, said casing having a wick-receiving tube, extended through its bottom, a hollow body open at the top and bottom of less diameter than the casing, and having means for detachably supporting it upon and within the casing, a platinized diaphragm held within the hollow body, and over the wick-holding tube, air-inlets to the lower end of the hollow body, and a top member having a handle, gas-escape openings, and means for detachably connecting it with the top of the hollow body having the platinized diaphragm, all being arranged substantially as shown and described.

677,644. PUNCHING AND SHEARING MACHINE. JOHN F. DOOLITTLE, Cleveland, Ohio, assignor to the Cleveland Punch and Shear Works Company, same place. Filed Dec. 14, 1900. Serial No. 39,869. (No model.)



Claim.—1. In a machine of the class described, the combination with a shaft and a clutch thereon, of a yoke fulcrumed to the frame of the machine and means for swinging the same, spring thrust-pins carried by said yoke adapted to abut against the sliding member and force it into engagement with the driving member of said clutch, a roller journaled on said yoke, and circumferential shoulders on said sliding clutch member adapted to engage said roller by means of which said clutch member may be automatically disengaged and held apart from the driving member of said clutch, substantially as set forth.

2. In a punching and shearing machine, the combination with a main shaft and a clutch thereon, of a sliding member of said clutch provided with two circumferential shoulders the outer shoulder having a lateral cam with its apex flush with the inner shoulder, a counterweighted yoke fulcrumed to the frame of the machine forward of the under side of said sliding clutch member, a roller journaled on said yoke adapted to bear against said shoulders, spring thrust-pins carried by said yoke adapted to abut against the forward face of said sliding clutch member, and mechanism for swinging said yoke, substantially as set forth.

3. In a punching and shearing machine, the combination with a main shaft and a clutch thereon, of a sliding member of said clutch, a ring secured thereon provided with a circumferential shoulder having a lateral cam with its apex flush with the rear face of said ring, a counterweighted yoke fulcrumed to the frame of the machine forward of the under side of said sliding clutch member, a roller journaled on said yoke adapted to bear against either the shoulder or rear face of said ring, spring thrust-pins carried by said yoke adapted to abut against the forward face of said sliding clutch member, and mechanism for swinging said yoke, substantially as set forth.

4. In a punching and shearing machine, the combination with a main shaft and a clutch thereon, of a sliding member of said clutch provided with two circumferential shoulders, a lateral cam formed in the outer with its apex flush with the inner of said shoulders, a counterweighted yoke fulcrumed to the frame of the machine forward of the under side of said sliding clutch member, a roller journaled on said yoke midway of its connecting-arm adapted to bear against said shoulders, spring-barrels carried by the upright arms of said yoke each containing a suitable spring, thrust-pins adapted to abut against the forward face of said sliding clutch member projecting through the rear ends of the respective barrels and having heads inside of the barrels engaging said springs, and mechanism for swinging said yoke, substantially as set forth.

5. In a machine of the class described, the combination with a shaft having a projecting end provided with a keyway, of means for rotating said shaft by hand comprising a suitable bar-receiving hub mounted loosely upon the projecting end of said shaft, a flat key fitted to slide in a keyway in said hub having a beveled edge to engage the keyway in said shaft and provided with a suitable spring to hold it against the shaft, and means for retaining said hub and key upon the shaft, substantially as set forth.

6. In a machine of the class described, the combination with a main shaft projecting through the front thereof and provided with a keyway, of a hub having sockets for hand-bars mounted loosely upon the projecting end of said shaft, a flat key fitted to slide in a deep keyway in said hub and provided with a beveled inner edge to engage the keyway in said shaft, a spring suitably set in said hub adapted to bear against the outer edge of said key, and means for retaining said hub and key upon the shaft, substantially as set forth.

7. In a machine of the class described, the combination with a reciprocating slide-block, a punch or shear-blade attached thereto and means for driving the same, of an angle-plate bolted to the bed of the machine having its lower edge supported by an offset in the bed and its horizontal wing provided with a recess in its under face fitting over a corresponding elevation on the bed, a bracket projecting forward and upward from said angle-plate, and means for securing a die or shear-blade holder in the upper face of said bracket, substantially as set forth.

8. In a machine of the class described, the combination of a slide-block carrying a punch or shear-blade, a shaft provided with a clutch for reciprocating the same, means for throwing said clutch into engagement with the driving mechanism and for automatically disengaging the said clutch when the said slide-block reaches the upper end of its stroke, and means on said shaft for rotating it by hand in one direction but riding loose on the shaft when revolved in the reverse direction, substantially as set forth.

677,645. SHINGLING-BRACKET. CHARLES D. ELKINS, Pine Bluff, Ark. Filed Mar. 8, 1901. Serial No. 50,377. (No model.)

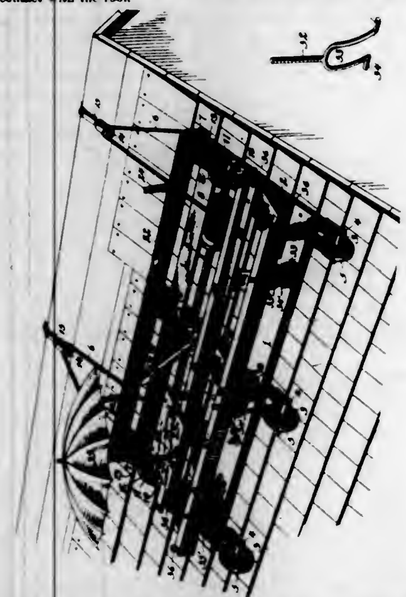
Claim.—1. The combination with a shingling-bracket, of a combined shingle-gage and runner extending along the upper edge thereof and adapted to move in contact with the roof, and means for moving the bracket up and down on the roof.

2. The combination with a shingling-bracket, of a combined shingling-gage and runner extending along the upper edge of the bracket and adapted to move in contact with the roof, supporting-wheels in rear of the bracket, and means for moving the shingling-bracket up and down on the roof.

3. The combination with a shingling-bracket, of a combined shingle-gage and runner extending along the upper edge thereof and adapted to move in contact with the roof.

4. The combination with a shingling-bracket, of a combined shingle-

gage and runner hinged to the upper edge thereof and adapted to move in contact with the roof.



5. The combination with a shingling-bracket, of a combined shingle-gage and runner extending along the upper edge thereof, said gage being adjustable to different positions in one of which it constitutes a shingle-gage and in the other a runner.

6. The combination with a shingling-bracket, of a combined shingle-gage and runner extending along and hinged to the upper edge of the bracket, said gage and runner being V-shaped in cross-section.

7. The combination with a shingling-bracket, of a combined shingle-gage and runner hinged to the upper edge thereof and provided with projecting shoes.

8. The combination with a shingling-bracket, and raising and lowering means therefor, of supporting-wheels at the rear of the bracket, and a combined shingle-gage and runner at the front of the bracket.

9. The combination with a shingling-bracket, and raising and lowering means therefor, of a rail-bed, parallel track-rails extending lengthwise of the bracket, a traveling carriage thereon, and means for leveling the rail-bed.

10. The combination with a shingling-bracket, of a rail-bed hinged thereto, parallel track-rails extending lengthwise of the bracket, a traveling carriage thereon, and means for raising and lowering the outer portion of the rail-bed.

11. The combination with a shingling-bracket, of a rail-bed hinged thereto, a traveling carriage mounted thereon, rail-bed-supporting posts, and means connected with said posts for raising and lowering the rail-bed.

12. The combination with a shingling-bracket, of a rail-bed hinged thereto, a track thereon, a traveling carriage, track-supporting posts, and means for adjusting the rail-bed up and down on said posts.

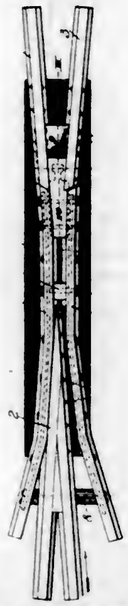
13. The combination with a shingling-bracket, and a rail-bed hinged thereto, of a track on said bed, a traveling carriage, track-supporting posts hinged to the bracket-frame, and means for adjusting the rail-bed up and down upon said posts.

14. The combination with a shingling-bracket, of a rail-bed hinged thereto, a track thereon, a traveling carriage, supporting-posts having bifurcated lower ends hinged to the shingling-frame, and means for adjusting the rail-bed up and down on said posts.

15. The combination with a shingling-bracket, of a rail-bed, track-rails mounted thereon and provided with overhanging guard-flanges, a carriage supported by said rails and having its wheels housed in the overhanging guard-flanges, and stops at the ends of the rail for limiting the movement of the carriage in opposite directions.

677,646. RAILWAY-FROG. HENRY ELLIOT, St. Louis, Mo. Filed Feb. 25, 1901. Serial No. 48,774. (No model.)

Claim.—1. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, and shifting rails rigidly connected together and movably held to the bed-plate and which have a hinged connection with the heel-rails back of the ends of the latter and between the same, substantially as set forth.



2. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, shifting rails movably held to the bed-plate, and a hinge connecting the shifting rails to the heel-rails and consisting of two members, one of which is secured to the heel-rails and provided with a socket, and the other of which is secured to the shifting rails and which is provided with a head to fit in the socket of its mate, substantially as set forth.

3. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, shifting rails movably held to the bed-plate, and a hinge connecting the shifting rails to the heel-rails and which is composed of two members, one member being secured to the heel-rails and provided with a T-socket, and the other member being secured to the shifting rails and which is provided with a T-head to fit in said socket, substantially as set forth.

4. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, shifting rails movably held to the bed-plate, and a hinge connecting the shifting rails to the heel-rails and which is composed of two members, one member being secured to the heel-rails and having a socket and the other member being secured to the shifting rails and which is provided with a head fitting in said socket, and a flange overhanging the head, substantially as set forth.

5. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate; shifting rails movably held to the bed-plate, and a hinge connecting the shifting rails to the heel-rails and which is composed of two members, one member being secured to the heel-rails and having a socket, and the other member being secured to the shifting rails and having a head fitting in said socket and having also vertical flanges bearing against the heads of the heel-rails substantially as described.

677,647. RAILWAY-FROG. HENRY ELLIOT, St. Louis, Mo. Filed Feb. 25, 1901. Serial No. 48,775. (No model.)

Claim.—1. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, and shifting rails rigidly connected together and movably held to the bed-plate and which have a loosely-hinged connection with the heel-rails whereby the shifting rails can fleet as they are moved, substantially as set forth.

2. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the plate, shifting rails rigidly connected together and loosely resting on said plate, and bars secured to the shifting rails and loosely hinged to the heel-rails whereby the shifting rails can fleet as they are moved, substantially as set forth.

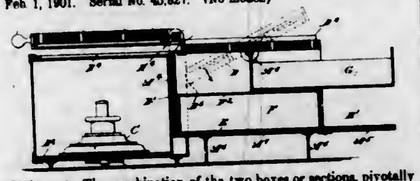
3. In a railway-frog, the combination of a bed-plate, point and heel rails firmly secured to the bed-plate, shifting rails rigidly connected together and movably resting on the bed-plate, and a bar secured to each shifting rail, said bars being hinged to the heel-rails beyond the ends of the shifting rails, substantially as set forth.



4. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, shifting rails movably secured to the bed-plate, a bridge-bar secured to the shifting rails and which passes beneath the point-rails, and bars rigidly secured to the shifting rails and which are connected to the heel-rails by bolts passing through sleeves 15; said bars being beveled at 13, substantially as set forth.

5. In a railway-frog, the combination of a bed-plate, point and heel rails rigidly secured to the bed-plate, shifting rails movably held to the bed-plate, bars rigidly secured to the shifting rails and which are loosely bolted to the heel-rails, and blocks secured to the heel-rails and fitting in notches in said bars, substantially as set forth.

677,648. MACHINE FOR MAKING COMMUNION-WAFERS. JOHANN J. EUGSTER, New Riegel, Ohio. Filed July 5, 1899. Renewed Feb. 1, 1901. Serial No. 45,627. (No model.)



Claim.—1. The combination of the two boxes or sections, pivotally connected and one larger than the other to fit over the same, the smaller section having its bottom at a higher level than the larger section, a die-plate at the top of the smaller section, and a heating-plate adapted to be brought on top of said die-plate.

2. The combination of the two boxes or sections, pivotally connected and one larger than the other to fit over the same, the smaller section having its bottom at a higher level than the larger section, a die-plate at the top of the smaller section, a heating device in the larger section, and a heating-plate pivoted adjacent to the junction of the two sections and adapted to swing from a position above the heating device into contact with the die-plate.

3. The combination of the box or frame, the transverse shaft journaled therein, the longitudinal arms carried by said shaft and provided with guideways, the heating-plate arranged to slide in said guideways, and the die-plate arranged upon the frame in the path of the heating-plate.

4. The combination of the box or frame, the transverse shaft journaled therein, the die-plate journaled upon the frame about a horizontal axis, and the heating-plate carried by said transverse shaft.

5. The combination of the box or frame, the transverse shaft journaled therein, the die-plate arranged upon the frame, and the heating-plate carried by said transverse shaft, the die-plate having a series of perforations located at the periphery of the die or dies proper, and the heating-plate having a series of correspondingly-located perforations.

6. The combination of the box or frame, the die-plate journaled upon the frame about a horizontal axis, and the heating-plate movable toward and from the die-plate.

7. The combination of the frame having a die-plate at one end of its top and an aperture at the other end thereof, a heating device below said aperture, and a transverse shaft carrying a heating-plate arranged to swing from a position above said aperture into registry with the die-plate.

8. The combination of the frame having a die-plate at one end of its top and an aperture at the other end thereof, a heating device below said aperture, a box or plate extending between the heating device and said aperture, and a transverse shaft carrying a heating-plate arranged to swing from a position above said aperture into registry with the die-plate.

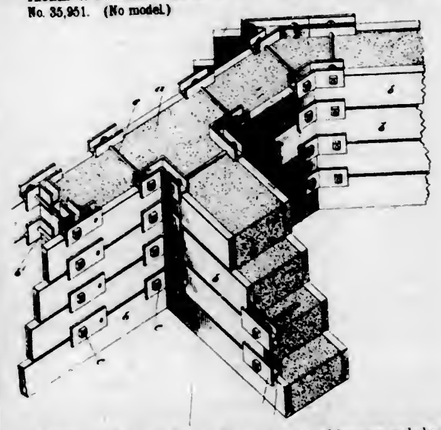
9. The combination of the frame, the tilting die-plate journaled therein to turn about a horizontal axis, the heating-plate adapted to register with the die-plate, the sliding waste-box located below the tilting die-plate and arranged to scrape the lower surface thereof, and the apertured support on which rests said waste-box.

10. The combination of the frame, the tilting die-plate journaled therein to turn about a horizontal axis, the heating-plate adapted to register with the die-plate, the sliding waste-box located below the tilting die-plate and arranged to scrape the lower surface thereof, the apertured support on which rests said waste-box, and another box containing both the waste-box and the support.

11. The combination of the frame having a hinged end, a tilting die-plate adjacent to said hinged end, a box located below said die-plate and having a hinged end adjacent to the hinged end of the frame, an open-top support located at the bottom of said box, a waste-box located in the upper part of the box and adapted to slide on said support, said waste-box being arranged to scrape the lower edge of the die-plate, and a heating-plate adapted to register with the tilting die-plate.

12. The combination of the die-plate having dies and through-perforations adjacent thereto, the heating-plate movable to and from the die-plate and having through-perforations adapted to register with those of the die-plate, and the paste-ejector having pins located correspondingly to said perforations.

677,649. COMBINED BOX-CAP AND SHOE-PLANK HOLDER. THOMAS C. FARRELL, Washington, N. J. Filed Nov. 9, 1900. Serial No. 35,951. (No model.)



Claim.—1. In a building appliance, a combined box-cap and shoe plank holder, comprising vertical side walls with a horizontal web extending between them, and a passage extending through the web in the plane thereof.

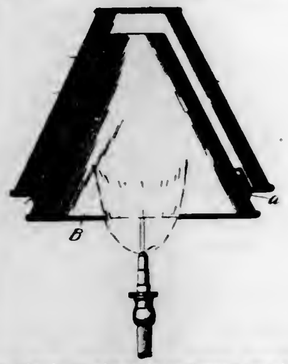
2. In a building appliance, a combined box-cap and shoe-plank holder, having vertical side walls with a horizontal web extending between them, the web having a passage through it in the plane thereof, and the web having enlargements at its upper and lower sides surrounding the point at which the passage is formed.

3. A mold for forming concrete walls, the mold comprising shoe-planks, combined box-caps and shoe-plank holders engaged therewith, and a bolt passing across the wall between the combined box-caps and shoe-plank holders.

4. In a building appliance, a combined box-cap and shoe-plank

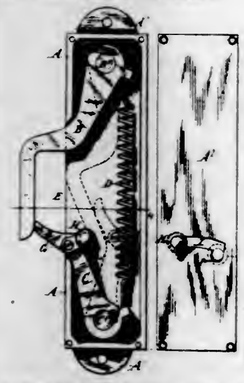
holder, comprising vertical side members, and a horizontal web extending between them, and the combined box-cap and shoe-plank holder being in essentially the form of a Y, for the purpose specified.

677,650. **HEATING ATTACHMENT FOR GAS-BURNERS.** ABRAHAM M. FORRESTER, Philadelphia, Pa., assignor of one-half to Lizzie F. Hale, same place. Filed Jan. 21, 1901. Serial No. 44,137. (No model.)



Claim.—A heating attachment for gas-burners, comprising an outer conical part and an inner conical part said parts being open at their lower ends and adapted to be supported directly above the burner, the main portion of the inner part being within the outer part and provided with a wide opening at its upper end, the outer conical part being closed at its upper end and having its walls substantially parallel with those of the inner part, the two forming an annular passage between said inner and outer parts, whereby the inner part will become highly heated and will radiate heat inwardly, and also outwardly into the passage aforesaid, and whereby a strong current of air and the products of combustion will pass up within the inner part, pass freely into said annular passage and be deflected sharply downward below the attachment, substantially as described.

677,651. **LADDER.** HERBERT L. FRIZELL, Boston, Mass. Filed Nov. 22, 1900. Serial No. 37,323. (No model.)

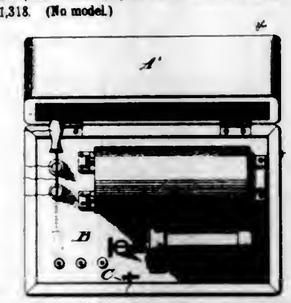


Claim.—1. An extension-ladder lock comprising a casing A, adapted to be secured to the extension-ladder and to slide therewith upon the supporting-ladder; two levers B, and C, pivoted within the case and connected by an actuating-spring D, the levers extending through the edge of the case, and being constructed and arranged so that lever B, overlaps lever C, while they automatically engage the rounds of the supporting-ladder in opposite directions and securely lock the two ladders against sliding upon, or separating from, each other, substantially as specified.

2. An extension-ladder lock comprising a casing, two spring-levers pivoted within the case and outwardly extended in the manner and for the purpose stated, and an attachment to the under lever, extended through the face of the casing, whereby the lever may be alone closed and secured in the case to unlock or release the ladder, as specified.

3. An extension-ladder lock comprising a case A; a pair of spring-levers B and C, pivoted to the case and arranged to act upon and in relation to each other as specified; a spring D, connecting the two levers; a link G pivoted to lever C; there being a slot I, formed in the face-plate of the casing; and a stud H, secured in link G, through slot I, by which lever C may be alone closed and secured in the case; all substantially as and for the purposes specified.

677,652. **PORTABLE ELECTRIC BATTERY.** MARIE E. FULD, Baltimore, Md. Filed May 17, 1900. Renewed May 21, 1901. Serial No. 61,318. (No model.)

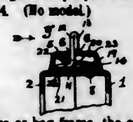


Claim.—1. In a portable electric battery the combination with a box having a hinged cover, of a false top pivoted in the said box, a battery-cell, induction-coil and connections mounted on the said false top, and a receptacle below the false top, substantially as described.

2. In a portable electric battery the combination with a box having a hinged cover, of a false top pivoted in the said box and having the battery-cell, induction-coil and connections mounted thereon, a pivoted switch mounted upon said false top and having a lever extending through the plane of the hinged cover when the switch is closed, and a receptacle below said false top, substantially as described.

3. In a portable electric battery, the combination with a box having a hinged cover, of a false top pivoted in the said box and having the battery-cell, induction-coil and connections mounted thereon, a pivoted switch mounted upon said false top and arranged to be opened by the closing of the cover, and a receptacle below the said false top, substantially as described.

677,653. **BAG-FRAME CATCH.** ALBERT P. FULLER, Newark, N. J., assignor to the J. E. Mergott Company, of New Jersey. Filed Mar. 30, 1901. Serial No. 53,634. (No model.)



Claim.—1. In a purse or bag frame, the combination, with a pair of frame-sections, of a catch on one of said frame-sections, comprising, a box-shaped casing having a centrally-arranged and longitudinally-extending slot in its upper surface, holding or locking catch in said casing formed with a member at right angles, or approximately so, to the body of said catch, said body and a portion of said right-angled member being arranged directly within the casing, and another portion of said member extending from said slot in the casing, and constituting a finger-piece centrally arranged and extending longitudinally above the slot in the upper surface of said casing, and said member having a lateral motion in said slot, substantially as and for the purposes set forth.

2. In a purse or bag frame, the combination, with a pair of frame-sections, of a catch on one of said frame-sections, comprising a box-shaped casing having a centrally and longitudinally arranged slot in its upper face, and a spring-actuated holding or locking catch in said casing formed with a member at right angles, or approximately so, to the body of the catch, said body and a portion of said right-angled member being arranged directly within the casing, and another portion of said member extending from said slot in the casing centrally and longitudinally above the slot in the upper surface of casing, and said member having a lateral motion in said slot, substantially as and for the purposes set forth.

3. In a purse or bag frame, the combination, with a pair of frame-sections, of a catch on one of said frame-sections, comprising a box-shaped casing having a centrally and longitudinally arranged slot in its upper face, and a spring-actuated holding or locking catch in said casing formed with a member at right angles, or approximately so, to the body of the catch, said body and a portion of said right-angled member being arranged directly within the casing, and another portion of said member extending from said slot in the casing centrally and longitudinally above the slot in the upper surface of the casing, and said member having a lateral motion

in said slot, and said upwardly-extending member having a bent-over and downwardly-projecting end piece closed down against said member to provide a finger-piece of double thickness, substantially as and for the purposes set forth.

4. In a purse or bag frame, the combination, with a pair of frame-sections, one of said frame-sections having lug-receiving openings, of a catch on the other frame-section, comprising, a box-shaped casing and a spring-actuated holding or locking catch in said casing, formed with an upwardly-extending member, said body and a portion of said upwardly-extending member being arranged directly within the casing, and another portion of said member extending from said slot in the casing and also extending in a longitudinal direction above the upper surface of said casing, and having a bent-over and downwardly-projecting end piece closed down against said member to provide a finger-piece, and holding-lugs forced from the body of said catch adapted to engage the lug-receiving openings in the other frame-section, substantially as and for the purposes set forth.

5. In a purse or bag frame, the combination, with a pair of frame-sections, of a catch on one of said frame-sections, comprising, a casing and a spring-actuated holding or locking catch in said casing, formed with an upwardly-extending member, said member extending in a longitudinal direction above the upper surface of said casing, and having a bent-over and downwardly-projecting end piece closed down against said member to provide a finger-piece, an end member 14 bent upon the body of said catch, a spring provided with a bent portion 19 arranged beneath said member 14, and angular end pieces on said spring constructed to engage the inner surface of said casing, substantially as and for the purposes set forth.

6. In a purse or bag frame, the combination with a pair of frame-sections, one of said frame-sections having lug-receiving openings, of a catch on the other frame-section, comprising, a casing and a spring-actuated holding or locking catch in said casing, formed with an upwardly-extending member, said member extending in a longitudinal direction above the upper surface of said casing, and having a bent-over and downwardly-projecting end piece closed down upon said member to provide a finger-piece, an end member 14 bent upon the body of said catch, a spring provided with a bent portion 19 arranged beneath said member 14, and angular end pieces on said spring constructed to engage the inner surface of said casing, and holding-lugs forced from the body of said catch adapted to engage the said lug-receiving openings in the other frame-section, substantially as and for the purposes set forth.

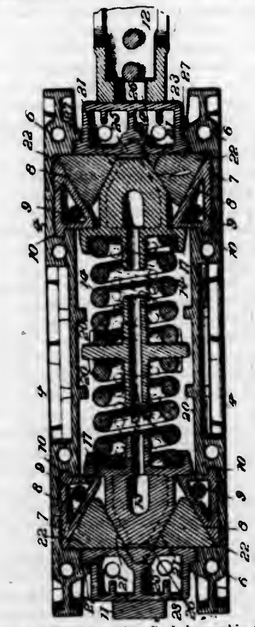
7. The herein-described holding-catch, consisting, essentially, of a box-shaped casing, having a centrally-arranged and longitudinally-extending slot in its upper surface, and a catch-plate in said casing provided with an angular member extending from said plate and said plate and a portion of said angular member being arranged directly within said casing and another part of said angular member projecting from said opening in said casing, said member being constructed to extend in a longitudinal direction above said casing and having a lateral movement in said slot, and having a downwardly-extending end piece closed down against said member to provide a finger-piece of double thickness, and said plate being formed with holding-lugs forced from the body of the plate, substantially as and for the purposes set forth.

8. The herein-described holding-catch, consisting, essentially, of a casing having a centrally and longitudinally arranged opening in its upper surface, and a catch-plate in said casing provided with an upwardly-extending member 12 extending into and through the opening in said casing, and a downwardly-projecting end piece 13 connected with said member 12 forming a finger-piece of double thickness, an end member 14 upon said catch-plate, and a spring 18 having a holding portion 19 arranged beneath said end member 14, and angular end pieces 20 at the ends of said spring in engagement with the inner portion of said casing, substantially as and for the purposes set forth.

9. The herein-described holding-catch, consisting, essentially, of a casing having a centrally and longitudinally arranged opening in its upper surface, and a catch-plate in said casing provided with an upwardly-extending member 12 extending into and through the opening in said casing, and a downwardly-projecting end piece 13 connected with said member 12 forming a finger-piece of double thickness, an end member 14 upon said catch-plate, a spring 18 having a holding portion 19 arranged beneath said end member 14, and angular end pieces 20 at the ends of said spring in engagement with the inner portion of said casing, and oppositely-projecting side members 16 having holding-lugs 21 forced out therefrom, substantially as and for the purposes set forth.

677,654. **DRAFT OR BUFFING RIGGING.** RICHARD D. GALLAGHER, Jr., New York, N. Y., assignor to Standard Coupler Company, same place. Filed Apr. 8, 1901. Serial No. 54,900. (No model.)

Claim.—1. In a mechanism such as described, the combination of the following instrumentalities, to wit: a yielding resistance member and a pressure-transmitting member arranged in alinement and both simultaneously movable lineally, a wedge-block having oppositely-inclined faces interposed between said members and movable transversely, and a guiding-support independent of said members with which the wedge-block coöperates in its transverse movement, as and for the purpose specified.



2. In a mechanism such as described, the combination of the following instrumentalities, to wit, a yielding resistance member, a pressure-transmitting member arranged in alinement therewith and both simultaneously movable lineally, a guiding-support, said members and guiding-support each having a friction-face arranged at a different angle from the friction-faces on the other members, and a wedge-block having friction-faces coöperating with the friction-faces on the two members and guiding-support respectively, for the purpose specified.

3. In a mechanism such as described, the combination with a yielding resistance member, a pressure-transmitting member, both movable lineally, and a guiding-support, each having a friction-face angularly disposed with relation to the other and forming an angular chamber between them, of a block mounted loosely in said chamber whereby the lineal movement of one member is transmitted to the other by the angular displacement of the block, substantially as described.

4. In a mechanism such as described, the combination with a yielding resistance member, a pressure-transmitting member, and a guiding-support each having a friction-face angularly disposed with relation to the other and forming an angular chamber between them, of an angular wedge-block mounted in said chamber and having correspondingly angularly disposed friction-faces coöperating with the faces of the other members, whereby the lineal movement of one member is transmitted to the other by the angular displacement of the wedge-block as and for the purpose set forth.

5. In a mechanism such as described, the combination with a spring-supported resistance member, a pressure-transmitting member both movable lineally and having friction-faces angularly disposed with relation to each other and a guiding-support having a friction-face disposed in a plane at an angle to the line of lineal movement of the other members, of a block interposed between said friction-faces and operating to transmit the lineal movement of one member to the other by being displaced in the plane of the guiding-support by contact with said friction-faces; as and for the purpose set forth.

6. In a mechanism such as described, the combination with a spring-supported resistance member, a pressure-transmitting member both movable lineally and having friction-faces angularly disposed with relation to each other and a fixed guiding-support having a friction-face angularly disposed with relation to the other faces whereby an angular chamber is formed between said faces, of a wedge-block located in said chamber and having friction-faces corresponding in angular disposition to and coöperating with the friction-faces on the members and support respectively to

transmit the lineal movement of one member to the other; substantially as described.

7. In a mechanism such as described, the combination of the following instrumentalities, to wit; a spring-supported resistance member, a pressure-transmitting member arranged in alinement therewith and both simultaneously movable lineally and a differential driving mechanism interposed between said members whereby a differential lineal movement is imparted by one member to the other, for the purpose set forth.

8. In a mechanism such as described, the combination of the following instrumentalities, to wit; a spring-supported resistance member, a pressure-transmitting member arranged in alinement therewith and both simultaneously movable lineally and a differential driving mechanism interposed between the members and embodying transversely-movable wedge-blocks and coöperating inclines, for the purpose set forth.

9. In a mechanism such as described, the combination of the following instrumentalities, to wit; a spring-supported resistance member, a pressure-transmitting member, both movable lineally, a fixed guiding-support having an inclined face and wedge-blocks interposed between said members and movable on the inclined face of the guiding-support; substantially as described.

10. In a mechanism such as described, the combination with a guiding-support having an inclined inner face, a yieldingly-supported resistance member having a face disposed at an angle to the face on the support and a pressure-transmitting member having a face disposed at an angle to the before-mentioned faces whereby an angular chamber is formed, said members being movable lineally with relation to the guiding-support, of a wedge-block interposed in the chamber between said faces; substantially as described.

11. In a mechanism such as described, the combination with a guiding-support having oppositely-disposed inclined faces, a yieldingly-supported resistance member having faces disposed at angles to the faces on the support and a pressure-transmitting member having faces disposed at angles to the before-mentioned faces whereby two angular chambers are formed, of independent wedge-blocks interposed in the chambers between said faces; substantially as described.

12. In a mechanism such as described, the combination with the guiding-support having oppositely-inclined faces, the yieldingly-supported resistance member having oppositely-inclined faces and wedge-blocks interposed between the inclined faces of the resistance member and inclined faces of the guiding-support, of a pressure-transmitting member having faces coöperating with said wedge-blocks; substantially as described.

13. In a mechanism for the purpose specified, the combination with a yieldingly-supported resistance member, having inclined faces, a supporting guide member having faces inclined oppositely to the faces on the resistance member and triangular wedge-blocks interposed between said faces, of a pressure-transmitting member coöperating with said wedge-blocks; substantially as described.

14. In a mechanism for the purpose specified, the combination with a yieldingly-supported resistance member having inclined exterior faces, a fixed supporting guide member having inclined interior faces and loose wedge-blocks interposed between said faces, of a pressure-transmitting member coöperating with said blocks; substantially as described.

15. In a mechanism such as described, the combination with a yielding pressure-resisting member, a pressure-transmitting member and interposed wedge-blocks for transmitting the movement of one member to the other, of a frame surrounding said wedge-blocks and having internal inclined faces constituting supporting-guides with which the wedge-blocks coöperate; substantially as described.

16. In a mechanism such as described, the combination with a yielding pressure-resisting member, having external inclined faces, a frame surrounding said member to constitute a guide therefor and having internal inclined faces and loose wedge-blocks interposed between said faces, of a pressure-transmitting member coöperating with said wedge-blocks; substantially as described.

17. In a mechanism such as described, the combination with oppositely-disposed pressure-resisting members and a spring interposed between said members to separate them, of a pressure-transmitting member arranged lineally with respect to said resisting members and loose transversely-movable wedge-blocks interposed between said pressure resisting and transmitting members with guides for said blocks whereby a differential movement is imparted from one to the other in either direction; substantially as described.

18. In a mechanism such as described, the combination with pressure-resisting members having external inclined faces and a spring interposed between said members for separating them, of a pressure-transmitting member, loose wedge-blocks interposed between each of said resisting members and the transmitting member and fixed supporting-guides having inclined faces with which the wedge-blocks coöperate; substantially as described.

19. In a draft-rigging, the combination with the cheek-plates, the removable frames mounted therein and having the internal inclined faces, the followers mounted in said frames and having the external inclined faces, the draw-bar and strap and the working heads, of the loose wedge-blocks interposed between said inclined faces and the working heads and a spring interposed between the followers; substanitally as described.

20. In a draft-rigging, the combination with the cheek-plates, the removable frames mounted therein and having internal inclined faces, bolts uniting said frames and cheek-plates, the followers having external inclined faces and the spring interposed between said followers, of the working heads, shoulders on the cheek-plates for limiting the outward movement of the heads and flanges coöperating with the frames for limiting their inward movement and wedge-blocks interposed between the inclined faces and working heads; substantially as described.

21. In a draft-rigging, the combination with the cheek-plates, a frame mounted in vertical seats in said plates and having internal inclined faces, a spring-pressed follower having external inclined faces and working in said frame and a working head with stops for limiting its lineal movement, of loose wedge-blocks interposed between the frame-follower and head; substantially as described.

22. In a draft-rigging a frame having a central opening and internal inclined faces combined with a follower having a wedge-shaped projection, loose wedge-blocks interposed between the inclined faces of the frame and follower and a working head coöperating with said wedge-block; substantially as described.

23. In a draft-rigging, the combination with the resistance-springs arranged in tandem and followers between which the springs are confined, of a coupling interposed between the springs and having a lineal movement, and centrally-arranged coöperating hubs on the coupling and followers of such length as to contact when the springs are compressed for limiting the movement of the followers and coupling toward each other; substantially as described.

24. In a draft-rigging the combination with the resistance-springs arranged in tandem, followers between which the springs are confined, a coupling interposed between the springs and having a lineal movement and hubs on the coupling and followers of such length as to contact when the springs are compressed for limiting the movements of the followers and coupling toward each other, of cheek-plates for supporting the parts and fixed stops on the cheek-plates coöperating with the coupling for limiting the movement of the coupling; substantially as described.

677,655. **SPRING ATTACHMENT FOR FISH-HOOKS.** ALBERT D. GARY, Lavonia, Ga., assignor of three-fifths to Joseph W. Cannon, Charles A. Addington, and William H. Addington, same place. Filed Apr. 9, 1901. Serial No. 55,009. (No model.)



Claim.—1. A spring attachment for fish-hooks comprising a wire curved as described, a spring, one end of which has a fixed connection with said wire and the other end a slidable connection with the curved portion of the wire, so that when the spring is tripped the free end of the spring sliding along the wire raises its free end and the hook secured thereto, as specified.

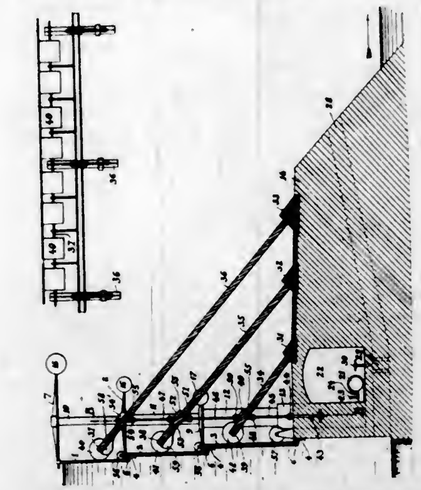
2. The attachment herein described comprising a bowed spring and a bent wire which are permanently connected at the extremity of one leg of the spring, and slidably connected at the extremity of the other, where they are also adapted for temporary locking engagement, substantially as shown and described.

3. The improved spring attachment for fish-hooks comprising a bowed spring having a loop at the extremity of one leg, and a bent wire which is connected with the other leg and adapted to slide and lock in said loop, substantially as shown and described.

4. The improved spring attachment for fish-hooks comprising the U-shaped spring having one of its legs provided with a loop and engaging point, and a wire connected with the other leg and having one or more adjacent notches, the body of the wire being held slidably in the said loop and curved downward, substantially as shown and described.

5. The combination, with the automatic spring attachment comprising a bowed spring and a bent wire connected at one point and adapted for releasable engagement at another, of a hook and snood, the latter being attached to the lower end of the wire, as shown and described.

677,656. **DAM.** NICOLAS GERRASIMOFF, St. Petersburg, Russia. Filed May 28, 1900. Serial No. 18,285. (No model.)



Claim.—1. A vertically-extensible dam comprising independently-supported and vertically-movable damming elements, for the purpose set forth.

2. A vertically-extensible dam comprising independently-supported damming elements movable relatively to each other and non-interdependent means limiting such movement, for the purpose set forth.

3. A vertically-extensible dam comprising a plurality of abutting dam-sections each comprising damming elements movable vertically relatively to each other, for the purpose set forth.

4. A vertically-extensible dam comprising a plurality of abutting dam-sections each comprising damming elements movable vertically relatively to each other and mechaniam organized to move the elements of each section independently of those of the other section or sections, for the purpose set forth.

5. A vertically-extensible dam comprising damming elements movable vertically relatively to each other, a fluid-operated piston connected with each of said elements, a source of fluid-supply under pressure common to all the pistons and means for varying the pressure of the fluid on the pistons actuating the damming elements, for the purpose set forth.

6. A vertically-extensible dam comprising damming elements movable vertically relatively to each other, telescopic fluid-operated pistons, one for each of said elements, a source of supply of fluid under pressure common to all the pistons and means for varying the pressure of the fluid acting on the several pistons, for the purpose set forth.

7. A vertically-extensible dam comprising vertically-extensible sections, power-pistons for operating the same, and cross-heads for connecting said sections to the pistons, for the purpose set forth.

8. A vertically-extensible dam comprising vertically-extensible sections, power-pistons for operating the same, cross-heads for connecting the sections to the pistons and counterweights on the cross-heads for balancing the sections, for the purpose set forth.

9. A vertically-extensible dam comprising vertically-extensible sections, power-pistons for operating the same, and means operated by said pistons for receiving the thrust exerted by the backwater against the sections, for the purpose set forth.

10. A vertically-extensible dam comprising vertically-extensible dam-sections, power-pistons for operating the same, counterweighted cross-heads carried by the pistons and supporting the dam-sections, means for raising and lowering the pistons independently of each other, and means operated by the dam-sections for receiving the thrust exerted by the backwater against said sections, substantially as and for the purpose set forth.

11. A dam comprising one or more gate-sections, power-pistons for operating the same, cross-heads carried by said pistons and supporting the gate-sections, braces pivoted behind the gate-sections and adapted to be raised thereby, means for limiting the movement of said braces and means for operating the power-pistons, substantially as and for the purpose set forth.

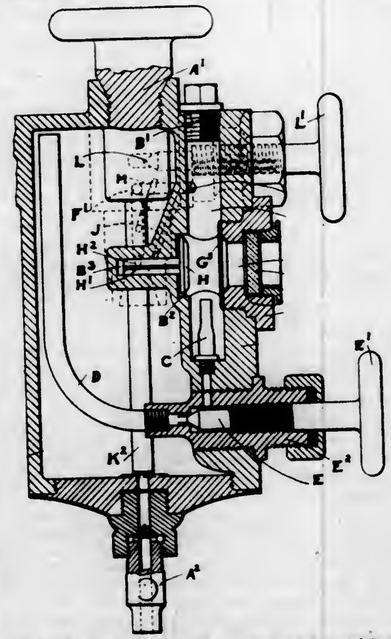
12. A dam comprising a plurality of gate-sections, a plurality of power-pistons for operating the same, cross-heads mounted on the pistons and supporting said gate-sections, a sill, a brace for each of said gate-sections pivoted in said sill, cables connecting said braces, means for anchoring said cables, roller-bearings mounted in the ends of the braces and adapted to bear against the gate-sections, and means for raising and lowering the power-pistons, substantially as set forth.

13. A dam comprising a plurality of vertically-movable gate-sections mounted one in front of the other, a sill, power-pistons mounted therein, a cross-head mounted on each piston and connected to a gate-section, a counterweight on each cross-head, braces pivoted in bearings mounted on the sill, roller-bearings carried by said braces adapted to bear against the gate-sections, a cable anchored in the sill connecting the braces, rollers on the tops of the gate-sections and between the same and means for operating the pistons, substantially as set forth.

14. A vertically-extensible dam comprising vertically-extensible damming elements and non-interdependent means for extending the same, for the purpose set forth.

15. A vertically-extensible dam comprising vertically-extensible damming elements and power-pistons for operating the elements, for the purpose set forth.

677,657. **SIGHT-FEED LUBRICATOR.** WALTER GRIMES and CHARLES C. WAKEFIELD, London, England. Filed Jan. 21, 1901. Serial No. 44,139. (No model.)



Claim.—1. In a lubricator the combination of a conduit, the oil-passage, communicating between the steam-pipe and conduit, an inlet and an outlet in the conduit, a window through which the passage of oil from the inlet to the outlet is visible, a valve within the conduit and a passage leading from the oil-passage to the rear of the valve, through which steam passes; whereby the valve under the action of the back pressure of steam through the oil-passage communicating with said conduit shuts off communication between the conduit and the window if the latter breaks without interrupting or altering the flow of oil.

2. In a lubricator the combination of a conduit, the passage com-

manicating between the steam-pipe and conduit, an inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an aperture in the conduit between the inlet and outlet, a window closing the aperture, a valve-seat between the window and the conduit, a valve within the conduit and a passage leading from the oil-passage to the rear of the valve, through which steam passes, whereby the valve under the action of the back pressure of steam through the oil-passage is forced into the valve-seat and shuts off communication between the conduit and the window if the latter breaks without interrupting or altering the flow of oil.

3. In a lubricator the combination of a conduit, the oil-passage communicating between the steam-passage and conduit, a valve-controlled inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an aperture in the conduit between the inlet and the outlet, a transparent disk forming a removable window closing the aperture, a screwed plug to secure said disk in position, a valve-seat between the window and the conduit, a recess in the wall of the conduit opposite to the valve-seat and a valve loosely held in such recess, a passage leading from the oil-passage to said recess, by which steam is admitted to the recess, whereby the valve under the action of the back pressure of steam through the oil-passage is forced into the valve-seat and shuts off communication between the conduit and the window if the latter breaks without interrupting or altering the flow of oil.

4. In a lubricator the combination of a conduit, the oil-passage communicating between the steam-pipe and conduit, a valve-controlled inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an aperture in the conduit between the inlet and the outlet, a transparent disk forming a removable window closing the aperture, a screwed plug to secure said disk in position, a valve-seat between the window and the conduit, a recess in the wall of the conduit opposite to the valve-seat, a valve loosely held in such recess and having a stem provided with passages to admit steam to the back of the valve, and a passage between the oil-passage and the recess accommodating the stem of the valve through which back pressure of steam through the oil-passages is communicated to said recess substantially as and for the purpose set forth.

5. In a lubricator the combination of a conduit, the oil-passage communicating between the steam-passage and conduit, a valve-controlled inlet for oil near the bottom of said conduit, an outlet near the top of the conduit, an inlet for steam to the body of the lubricator, a by-pass connecting the steam-inlet with the oil-outlet, an aperture in the conduit between the inlet and the outlet, a transparent disk forming a removable window closing the aperture, a screwed plug to secure said disk in position, a valve-seat between the window and the conduit, a recess in the wall of the conduit opposite to the valve-seat and a valve loosely held in such recess, a passage leading from the oil-passage to said recess by which steam is admitted to the recess, whereby the valve under the action of the back pressure of steam through the oil-passage is forced into the valve-seat and shuts off communication between the conduit and the window if the latter breaks without interrupting or altering the flow of oil.

677,658. **DISK-HARROW ATTACHMENT.** HENRY J. HEIDER, Templeton, Iowa. Filed Jan. 12, 1901. Serial No. 43,063. (No model.)



Claim.—1. An attachment for the purpose specified, comprising a swiveled post, a supporting-wheel connected therewith, a coupling-bar through which the post passes, a pivotal head on the post, and a draft-pole directly attached to and made rigid with the pivotal head, whereby the pole has a vertical as well as a horizontal movement.

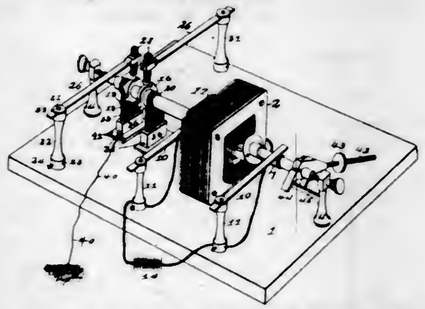
2. An attachment for the purpose specified, comprising a swivel-post, a supporting-wheel connected therewith, means for connecting a draft-pole to said post, a hammer-strap formed with an opening to receive the swivel-post, and a coupling-bar forming attaching means for connecting the device to a farming implement.

3. An attachment for the purpose specified, comprising a swivel-post, a supporting-wheel connected therewith, means for connecting a draft-pole to said post, a coupling-bar having a bearing for said post, a hammer-strap formed with an opening to receive the post, and a whiffle-tree interposed between the hammer-strap and coupling-bar.

4. An attachment for the purpose specified, comprising a swivel-post, a supporting-wheel connected therewith, means for connecting a draft-pole to said post, a coupling-bar in which the post is journaled, a hammer-strap formed with an opening to receive said post, and stop-pins carried by the post and arranged one above the hammer-strap and one beneath the coupling-bar.

5. An attachment for the purpose specified comprising a swivel-post, a supporting-wheel connected therewith, and a pivotal head on the post adapted to connect with a draft-pole, said head comprising a body portion adapted to be bolted to the pole, and parallel ears embracing and pivotally connected to the upper end of the swivel-post.

677,659. **RELAY.** REINHOLD HERMAN, Crafton, Pa. Filed Nov. 21, 1900. Serial No. 37,241. (No model.)



Claim.—1. In a relay, the combination of a magnet, a rotatable armature, an armature-shaft, contact-rings mounted on said shaft for the local circuit, contact-springs engaging said rings, cam-contacts mounted on the armature-shaft for the main circuit, adjustable contact-holders, non-fusible contacts adjustably mounted in said holders, and means carried by the armature-shaft for breaking the circuit between the cam-contacts and the non-fusible contacts.

2. In a relay, a field-magnet having a rotatable armature-shaft, cam-contacts mounted on said shaft for the main-line circuit, a fuse connecting said cam-contacts, contact-rings mounted on the armature-shaft for the local circuit, adjustable contact-springs engaging said contact-rings, adjustable contact-holders for the main-line circuit, non-fusible contacts adjustably mounted in said holders, and conducting-plates mounted in close proximity to the cam-contacts with a ground connection to said plates, substantially as described.

3. In a relay, the combination of a field-magnet, a local circuit connected thereto, a rotatable armature, a main-line circuit, contact-disks mounted on the rotatable armature, a fuse between said disks, and non-fusible contacts for engagement with said disks when the armature-shaft is actuated.

4. In a relay, the combination with the magnet and the local circuit connected thereto, of a rotating armature fusible contacts for said local circuit, a main-line circuit, contact-disks and non-fusible contacts for said main-line circuit, and a fuse between said disks, as and for the purpose described.

5. In a relay, the combination of a field-magnet, a local circuit connected thereto, a rotatable armature, a main-line circuit, contact-disks mounted on the rotatable armature, a fuse between said disks, non-fusible contacts for engagement with said disks when the armature-shaft is actuated, and means for grounding an excessive charge of current over the main-line circuit to prevent the same passing to the field-magnet and local circuit, substantially as described.

6. In a relay, the combination of a field-magnet, a local circuit connected thereto, a rotatable armature, a main-line circuit, contact-disks mounted on the rotatable armature, fusible connections between said disks, non-fusible contacts for engagement with said disks when the armature-shaft is actuated, means for grounding an excessive charge of current over the main-line circuit to prevent the same passing to the field-magnet and local circuit, and means for counterbalancing said armature, substantially as described.

7. In a relay, the combination of a field-magnet, a local circuit connected thereto, a rotatable armature, fusible contacts for said local circuit, a main-line circuit, contact-disks and non-fusible contacts for the main-line circuit, a fuse between said disks, and adjustable contact-holders for said contacts, substantially as described.

8. In a relay, a field-magnet, a local circuit connected thereto, a rotatable armature, a main-line circuit, non-fusible contacts for the main-line circuit, spring contact-holders in which said non-fusible contacts are adjustably mounted, and means for grounding an excessive charge of current over the main-line circuit to prevent the same passing to the field-magnet and local circuit, substantially as described.

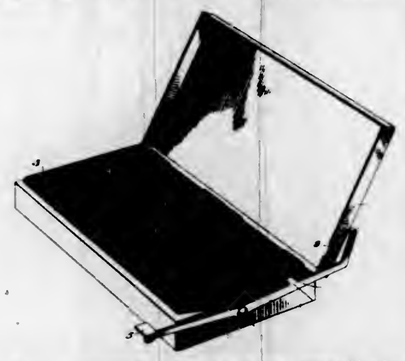
9. In a relay, a field-magnet, a local circuit connected thereto, fusible contacts for the said local circuit, a rotatable armature, a main-line circuit, non-fusible contacts for the main-line circuit, adjustable contact-holders in which the non-fusible contacts are adjustably mounted, contact-disks for the main-line circuit, fusible connections between said disks, and means for counterbalancing said armature, substantially as described.

10. In a relay, a field-magnet, a local circuit connected thereto, a rotatable armature, fusible contacts for said local circuit, spring-contacts therefor, a rotatable armature, means for counterbalancing the movement of the armature, a main-line circuit, non-fusible contacts for the main-line circuit, contact-holders for said non-fusible contacts, contact-disks carried by the rotatable armature to be engaged by the non-fusible contacts, and fusible connections between said disks, substantially as described.

11. In a relay, the combination with a field-magnet, and the local circuit connected thereto, of a rotatable armature, fusible contacts for said local circuit, a main-line circuit, contact-disks and non-fusible contacts for said main-line circuit, and fusible connections between said disks, substantially as described

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677,660. **BOX-LID OPENER OR CLOSER.** NORMAN P. HICKS, Brooklyn, N. Y. Filed Dec. 15, 1900. Serial No. 40,058. (No model.)



Claim.—1. In connection with a box having a hinged lid, a lever having pivotal connection with one end of the box, a finger extended inward from said lid and adapted for engagement with the inner side of the lid, and a finger on the end of said lever rearward of the rear edge of said box and adapted for engaging with the outer side of the lid and operating to move the lid to its closing position upon a downward pressure on the front end of the lever, as set forth.

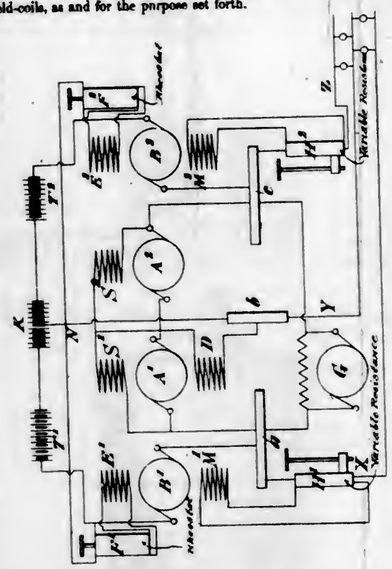
2. In connection with an inking-pad box having a swinging lid, of a lever pivoted to one end of the box and having a portion extended forward at the front edge of the box, and a portion extended rearward beyond the rear edge of the box, the said rear portion being turned upward and then inward, and a finger on the lever between its pivotal point and rear end, and adapted to pass between the box and the lid, substantially as specified.

677,661. **APPARATUS FOR REGULATING PRESSURE IN ELECTRIC MAINS CONNECTED TO STORAGE BATTERIES.** JOHN S. HIGHFIELD, St. Helens, England. Filed Mar. 12, 1901. Serial No. 50,850. (No model.)

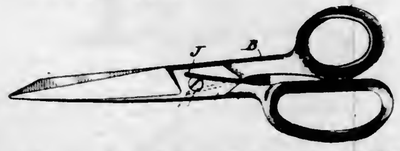
Claim.—1. The combination of a generator, a storage battery and a booster, the armature of said booster being connected with said generator and with said battery, and the field-magnets thereof being composed of two windings one of which is connected with the line on opposite sides of a variable resistance and the other of which is provided with means whereby the flow of current therethrough may be controlled, as and for the purpose set forth.

2. The combination of a generator, a storage battery and a booster, the armature of said booster being connected with said generator and with said battery, and the field-magnets thereof being composed of two windings one of which is connected with the line on opposite sides of a variable resistance, and a reversing and regulating switch for controlling the flow of current through the other of said coils, as and for the purpose set forth.

3. The combination of a generator, a storage battery, a booster having its armature connected with said generator and with said battery and having its field-magnets composed of two windings, one of which is connected with the line on opposite sides of a variable resistance, a switch for controlling the flow of current through the other of said windings, and a balancing-motor for the booster connected with said generator and having shunt field-coils, and a supplemental coil D connected with one of said field-coils, as and for the purpose set forth.



677,662. **SHEARS.** HARVEY L. HOPKINS, Chicago, Ill., assignor of one-half to Louie C. Rollo, same place. Filed Apr. 29, 1901. Serial No. 57,953. (No model.)



Claim.—1. A pair of scissors or shears, combined with a U-shaped spring located between the handles and having its arms lying on either side of the shears and connected thereto independently of the pivot.

2. A pair of scissors or shears, combined with a U-shaped spring located between the handles and having its arms lying on either side of the shears and connected thereto eccentrically to the pivot.

3. A pair of scissors or shears, combined with a U-shaped spring located between the handles and having its arms lying on either side of the shears and connected thereto eccentrically to the pivot, said spring being formed with a coil at the bend.

4. A pair of scissors or shears, combined with a U-shaped spring located between the handles and having its arms extended forward on either side and connected to the blades in front of the pivot.

5. A pair of scissors or shears, combined with a U-shaped spring located between the handles with its arms extended forward on either side and connected to the blades in front of the pivot, said arms being connected to the blades at points above and below the pivot, respectively.

6. A pair of scissors or shears, combined with a U-shaped spring located between the handles and having its arms lying on either side of the shears and connected thereto eccentrically to the pivot, said spring being formed with a coil at the bend, and with interned ends at the extremities of its arms to engage depressions in the blades.

677,663. **CUFF-HOLDER.** RUSSELL M. HUGHES, San Antonio, Tex. Filed Apr. 27, 1901. Serial No. 57,706. (No model.)

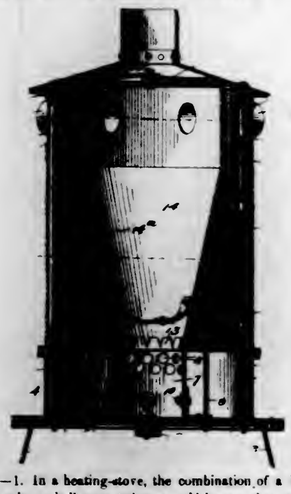
Claim.—1. In a cuff-holder, the combination of the two separable parts, each having a button on its forward end, lateral flanges on one part for guiding and retaining the other part, intermediate knobs or projections on both parts for manipulating them, and protuberances on the rear ends of the parts adapted to interlock when the parts are brought together, substantially as described.

2. The herein-described cuff-holder, comprising the part A having

button a, flanges a', knob a^2, and protuberance a^3; with the part B having button b, shoulders b', knob b^2 and protuberance b^3, all substantially as and for the purpose set forth.



677,664. **HEATING-STOVE.** JOHN E. JAMES, Worthington, Pa., assignor of one-half to Jesse H. King and Hugh M. Willson, same place. Filed Feb. 28, 1901. Serial No. 49,306. (No model.)



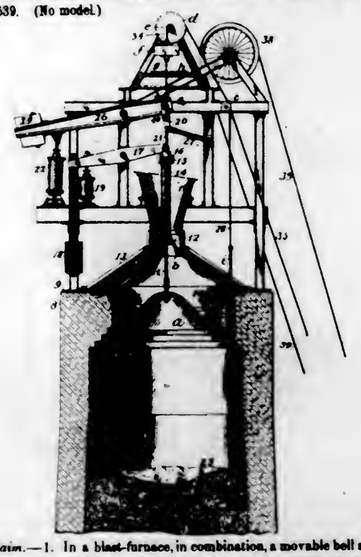
Claim.—1. In a heating-stove, the combination of a base having apertures therein, a shell mounted upon said base and surrounding said apertures and provided with a central opening in its top, an annular partition secured within the shell and provided with openings in its upper end, a conical heating-drum having an asbestos covering and seated over the opening in the shell and open at its lower end to communicate therewith, said drum being closed at its upper end and provided adjacent thereto with lateral outlets, a hood over the drum, standards surrounding the drum and extending between the base and hood, a burner surrounding the base of the drum and an open-work fender surrounding said standards and drum, substantially as described.

2. The combination with a suitably-supported base having apertures therein, of a shell mounted upon said base and surrounding said apertures and provided with a central opening in its top, an annular partition secured within the shell and provided with openings in its upper end, a conical heating-drum seated over the open end of the shell and partition and communicating therewith, said drum being closed at the top and having an outer asbestos covering, hot-air pipes extending radially from the upper end of said drum, and a burner for supplying gas to the exterior of said drum, substantially as set forth.

3. The combination with a suitably-supported base having perforations, of a shell mounted upon said base and inclosing said apertures and consisting of an annular band and a cap, tubular posts, bolts extending through the base, shell and cap and screwed into the lower ends of said posts, a heating-drum mounted upon said shell and having an open end communicating with said shell, said drum being provided with an asbestos covering, a band surrounding the upper end of said drum, hot-air pipes extending radially from the upper end of said drum and projecting through said band, cross-strips secured to the upper end of said drum and having their ends projecting over the ends of said standards, screws for fastening said cross-strips to said standards, and a burner located around the lower end on the exterior side of the heating-drum, substantially as set forth.

4. The combination with a suitably-supported base having perforations, of a shell mounted upon said base and inclosing said apertures and consisting of an annular band and a cap, tubular posts, bolts extending through the base, shell and cap and screwed into the lower ends of said posts, a heating-drum mounted upon said shell and having an open end communicating with said shell, said drum being provided with an asbestos covering, a band surrounding the upper end of said drum, hot-air pipes extending radially from the upper end of said drum and projecting through said band, cross-strips secured to the upper end of said drum and having their ends projecting over the ends of said standards, screws for fastening said cross-strips to said standards, screws for fastening said band to said standards, and a burner located around the lower end on the exterior side of the heating-drum, substantially as set forth.

677,665. **STOCK-LINE RECORDER FOR BLAST-FURNACES.** JOSEPH R. JOHNSON, Jr., Pittsburg, Pa. Filed Jan. 16, 1901. Serial No. 43,539. (No model.)



Claim.—1. In a blast-furnace, in combination, a movable bell adapted to open and close the mouth of the furnace, a test-rod adapted to rest on the stock, a lost-motion device between the bell and the test-rod, whereby the latter is compelled to rise when the bell is lowered, but is free to fall only on descent of the stock-line on which it rests, a mechanism for recording the movements of the test-rod both in period and degree, and suitable connections between the latter and said recording mechanism, substantially as specified.

2. In combination with the charging mechanism of a blast-furnace, a test-rod, penetrating the cover of such furnace from the top, to rest upon the stock, a suspensory cord or wire for said test-rod, a supporting drum and axle, to which drum the cord is attached, a counterweight suspended from the axle, a time and space recording mechanism connected with said drum and axle to record the movements thereof, and a connection from the counterweight to the charging mechanism of the furnace, whereby the charging movement depresses said counterweight and raises the test-rod, and the restoring movement of the charging mechanism permits the test-rod to find a seat on the stock in the furnace, substantially as specified.

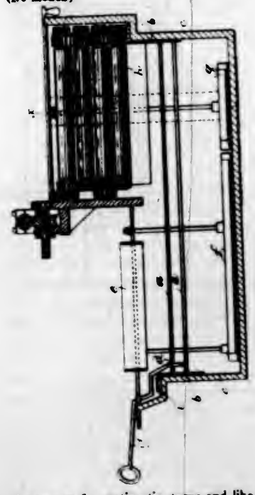
3. The combination of a test-rod, a suspensory means therefor, a counterweight, connecting mechanism between the counterweight and the test-rod whereby one rises as the other falls, a furnace-bell, a connection from the bell to the counterweight, a time and space recording mechanism, and a cord connecting said recording mechanism with the suspensory means of the test-rod, whereby the movements of the latter are recorded in period and degree, substantially as specified.

4. The combination of a vertically-suspended test-rod, a drum and axle supporting the same from the drum, a counterweight suspended from the axle, overbalancing the test-rod, a supplementary weight suspended from the drum by a cord moving in unison with the test-rod, and with the latter counterbalancing the counterweight, a time and space recording mechanism connected with said cord to record the movements of the test-rod, a furnace-bell, and a yielding connection between said bell and said counterweight, whereby the latter descends with the opening of the bell, raising the test-rod, but ascends independently of the bell, by the overbalancing action of the test-rod and supplementary weight, substantially as specified.

5. In combination, a suspended test-rod, a suspended counterweight, connecting mechanism between the two, whereby as one rises the other falls, a rising and falling charging-bell, and mechanism connected to said charging-bell, forming connection with said counterweight on each downward movement of the bell to bring the counterweight down simultaneously, but independent of action upon said counterweight on any upward movement of said bell, substantially as specified.

6. In combination, a counterweight f, drum d, axle e from which the counterweight is suspended, parallel rods s, u, passing through said counterweight, said rods linked together by links 30, 31, a spring for separating said rods, a detent 33, spring-cam t, a rising and falling charging-bell connected to rod s, a rising and falling test-rod connected to drum d, a recording mechanism, and a connection between the recording mechanism and the drum whereby the movements of the test-rod are recorded, substantially as specified.

677,666. **APPARATUS FOR COATING TIN, TERNE, OR LIKE PLATES.** THOMAS KENDRICK, Swansea Valley, England, assignor to George Brown Hammond, Neath, England. Filed Mar. 1, 1901. Serial No. 49,499. (No model.)



Claim.—1. Apparatus for coating tin, terne and like plates comprising a pot for containing molten coating metal, horizontal guide-bars extending through said pot, a plate-pusher which travels lengthwise of said bars and moves the plates edgewise, and an adjustable plate-supporting shoe and a plate-lifting shoe, as set forth.

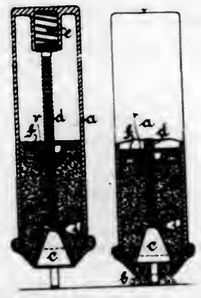
2. Apparatus for coating tin, terne and like plates comprising a pot for containing molten coating metal, horizontal guide-bars extending through said pot, a plate-pusher which travels lengthwise of said bars, and moves the plates edgewise, a handle connected to said pusher, a vertically-adjustable plate-supporting shoe and a plate-lifting shoe, as set forth.

3. Apparatus for coating tin, terne and like plates comprising a pot for containing molten coating metal, horizontal guide-bars extending through said pot, a plate-pusher which travels lengthwise of said bars and moves the plates edgewise, a plate-supporting shoe and a plate-lifting shoe arranged end to end within the pot, a flux-box above said supporting-shoe and delivery-rolls above said lifting-shoe, as set forth.

4. Apparatus for coating tin, terne and like plates comprising a pot for containing molten coating metal, horizontal guide-bars extending through said pot and converging toward one end, a plate-pusher which travels lengthwise of said guide-bars and moves the plates edgewise between said bars, a vertically-adjustable supporting-shoe beneath the diverging end portions of said bars, a flux-box above the diverging portions of said bars, a plate-lifting shoe beneath the converging end portions of the guide-bars and delivery-rolls above said converging portions of said bars, as set forth.

677,667. **BOX FOR DISTRIBUTING POWDERY OR PASTY SUBSTANCES.** PAUL KIRSCHNER, Dresden, Germany. Filed Apr. 3, 1901. Serial No. 54,136. (No model.)

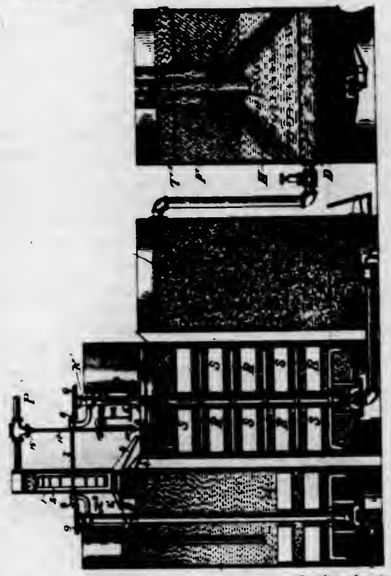
Claim.—A box for containing powdery or pasty substances and for delivering the same in desirable quantities, consisting of a shell having a delivery-outlet, a valve for opening and closing said outlet, a spindle within said shell carrying said valve, a spring applied to said spindle for closing said valve, and a piston fitted to said shell for assisting the delivery of the substance therefrom and having a ratchet engagement with said spindle, substantially as herein described.



677,668. **PROCESS OF PURIFYING WATER.** CHARLES H. KOYL, New York, N. Y. Filed Dec. 15, 1900. Serial No. 39,990. (No specimens.)

Claim.—The improved process of treating, for purposes of purification, water containing free carbonic-acid gas in solution, which consists in preparing the water by intimately mixing it with lime-water in excess of what is required to unite with the free carbonic-acid gas, and next with sodium carbonate to unite with the excess of lime-water, and then adding to the thus-prepared water ferrous sulfate, substantially as and for the purposes hereinbefore set forth.

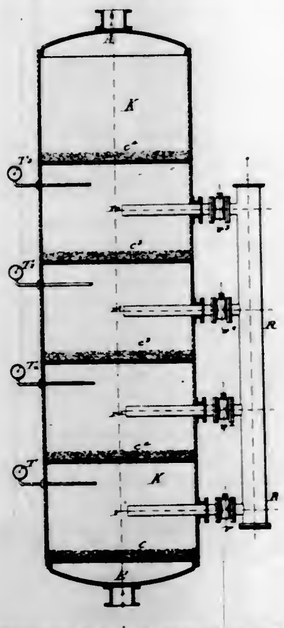
677,669. **APPARATUS FOR SOFTENING AND PURIFYING WATER.** CHARLES H. KOYL, New York, N. Y. Filed Feb. 11, 1901. Serial No. 46,834. (No model.)



Claim.—In apparatus for the continuous purification of water, a reaction-tank in which the water is chemically treated and the precipitates resulting from that treatment are formed, a settling-tank, and an interposed agglomerating-tank through which the water from the reaction-tank passes on its way to the settling-tank, having at its lower end an inlet communicating with the outlet of the reaction-tank and at its upper end an outlet communicating with the inlet of the settling-tank, substantially as and for the purposes hereinbefore set forth.

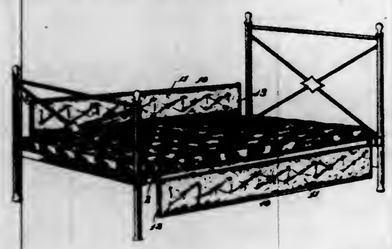
677,670. **METHOD OF MAKING SULFUR TRIOXID.** CONSTANTIN KRAUSS and JOSEPH WAGR, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vorm. Meister, Lucius & Brüning, same place. Filed Feb. 18, 1899. Serial No. 705,965. (No specimens.)

Claim.—1. The improvement in the art of manufactaring sulfuric anhydrid by the contact method which consists in introducing into the contact-chamber a current of gas containing sulfur dioxid and oxygen heated to the temperature of conversion and introducing at another point of said contact-chamber a comparatively cool current of gas containing sulfur dioxid and oxygen, substantially as described.



2. The improvement in the art of manufacturing sulfuric anhydrid by the contact method which consists in passing a portion of the gas containing sulfur dioxid and oxygen heated to the temperature of conversion through a portion of the contact material, then mixing with the reaction gases therefrom a further quantity of comparatively cool gas containing sulfur dioxid and oxygen and then passing said mixed gases through a further portion of contact material, substantially as described.

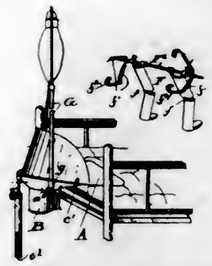
677,671. **BEDSTEAD ATTACHMENT.** HANS C. LAUREN, Newman, Cal. Filed Dec. 21, 1900. Serial No. 40,625. (No model.)



Claim.—1. In a guard for bedsteads, the combination with brackets detachably clamping the side rail of the bed at different points of its length and provided with upright plates disposed substantially at right angles to the side rail and provided with a notch in their upper portions, of a guard extending lengthwise of the bed having plates, a shifting or loose pivotal connection, between the plates on the guard and the upright plates, said plates on the guard being each equipped with a lug adapted to enter the notch or recess, said lugs and recesses or notches being positioned to engage when the guard is in upright position, and the shifting or loose pivotal connections being such as to allow the guard to swing outwardly and downwardly.

2. In a guard for bedsteads, the combination with brackets detachably clamping the side rail of the bed at different points of its length and provided with upright plates disposed substantially at right angles to the side rail which have bosses projecting from their faces and are provided with notches in their upper portions, of a guard extending lengthwise of the bed, plates connected to the guard which are provided with elongated slots loosely receiving the bosses, said bosses constituting pivots for the plates and receiving the strain, locking-lugs projecting from the plates attached to the guard and adapted to drop into the notches when the guard is in upright or raised position, thereby locking the guard, and screws threaded into the bosses and serving to retain the plates thereon.

677,672. **BEDSTEAD ATTACHMENT.** EDWIN A. LIBBY, Keene, N. H. Filed Feb. 6, 1901. Serial No. 46,239. (No model.)



Claim.—1. An invalid-bed attachment, comprising a saddle or support, adapted for connection with the side of a bed, and provided with a depression, an outlet-opening in said depression, a removable vessel connected with the under side of the saddle, and a removable shield on the upper side of the vessel in front of said opening; substantially as described.

2. An invalid-bed attachment, comprising a saddle or support provided with two springs, a grapple-hook connecting said springs, and adapted to engage the lower edge of a bed-rail, a rib on the under side of the saddle to engage the bed-rail at its upper side, and an adjustable telescopic standard supporting the outer end of the saddle and containing a spring forcing its members apart; substantially as described.

3. The combination with the saddle and its attaching and supporting devices, said saddle having an outer depressed portion provided with an outlet-opening, of a shield provided with pins to enter apertures near the outer edge of the saddle, and also having depending brackets to engage the outer edge of the saddle and steady the shield; substantially as described.

4. The combination with a saddle or support for the patient, and means for supporting the same at the side of a bed, of leg-forms having means for supporting their inner ends, and provided with means for sustaining their outer ends from the floor; substantially as described.

5. In an invalid-bed attachment, the leg-forms, adjustably connected at their inner ends, and provided at their outer ends with vertically-adjustable standards; substantially as described.

6. In an invalid-bed attachment, the leg-forms, articulated at the knees, adjustably connected by a rod at their inner ends and provided at their outer ends with vertically-adjustable standards; substantially as described.

7. In an invalid-bed attachment, the leg-forms articulated at the knees, a rod adjustably connecting the inner ends of the leg-forms and provided with springs and hooks carried thereby to grasp the bed-rail, and adjustable standards supporting the outer ends of the leg-forms; substantially as described.

677,673. **STRETCHER.** DENNIS H. MAHAN, U. S. Navy. Filed Jan. 2, 1901. Serial No. 41,848. (No model.)

Claim.—1. A stretcher provided with a transverse buttock-piece, substantially as described.

2. A stretcher, made of unyielding material and provided with a transverse buttock-piece, substantially as described.

3. A stretcher, made of unyielding material and provided with a transverse buttock-piece and a foot-rest, substantially as described.

4. A stretcher provided with a transverse buttock-piece and fastening-bands, substantially as described.

5. A stretcher provided with a transverse buttock-piece, a foot-rest and fastening-bands, substantially as described.

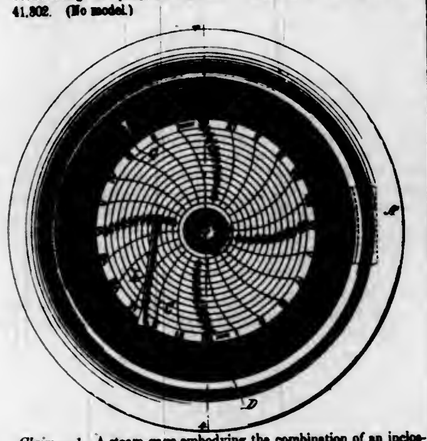
6. A stretcher, provided with a buttock-piece, a foot-rest, fastening means and means for carrying said stretcher, substantially as described.

7. A stretcher, provided with a buttock-piece, a foot-rest, fastening-bands, hand-loops and slings, substantially as described.

677,678.



677,674. **RECORDING-GAGE OF STEAM-PRESSURE ON BOILERS.** COLEMAN J. MANNING, Medford, Mass., assignor to the American Steam Gauge Company, Boston, Mass. Filed Jan. 2, 1901. Serial No. 41,802. (No model.)

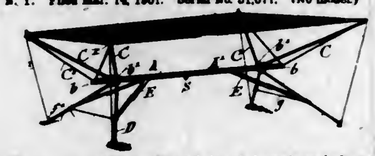


Claim.—1. A steam-gage embodying the combination of an inclosing case; a fixed dial secured to the case, and graduated and numbered to express the number of pounds pressure on the boiler; a detachable dial rotated by clockwork within the case, and graduated and numbered as described; and two independent indicating mechanisms operated simultaneously by the steam-pressure, one marking a record on the movable dial while the other indicates the same result on the fixed dial, and the two being combined and arranged to coöperate in securing a more reliable gage by each serving a special purpose, as described, and together affording a means of readily detecting any faulty action in either, substantially as specified.

2. A steam-gage embodying the combination of an inclosing case; a dial fixed to the case and graduated and numbered to express on its face the number of pounds pressure on the boiler; an index operated by the steam-pressure acting on mechanism comprising a Bourdon tube attached to a steam-inlet and suitable connecting mechanism attached to the free end of the tube and constructed and arranged to turn the index-spindle; a detachable dial rotated by clockwork, and graduated and numbered as described; and a marking-index adapted to trace a line on the moving dial and operated by the steam-pressure acting on mechanism comprising an additional Bourdon tube, attached to the steam-inlet, and connected by a system of adjustable levers, with the axis of the tracing-index; all substantially as specified.

3. A steam-gage embodying the combination of an inclosing case A, a graduated and numbered dial D, fixed to the case; a detachable dial C, rotated by clockwork within the case, and graduated and numbered as described; two separate and independent indicating mechanisms operated by the steam-pressure, one to actuate index G, to indicate on dial D, and comprising a Bourdon tube, or tubular spring F, attached at one end to the steam-inlet E and at its free end F′ connected by a link J, to an adjustable slotted link J′ secured by a screw J^2 to a sector-lever K, turning on a pivot K′ and the sector K^2 meshing with a pinion M, on the spindle M′ which turns the index G; and the other to actuate the tracing-arm to indicate on dial C, and comprising an outer Bourdon tube, or tubular spring H, attached at one end to the inlet E, and at its free end H′ connected by an adjustable link N, with a slotted adjustable link P, secured to a lever-arm P′ by a screw P^2, the arm being attached to a vertical spindle I′ by which index I is turned: the two independent indicating mechanisms being operated directly and simultaneously by the steam-pressure and so as to agree in their separate dial indications, all substantially as and for the purposes specified.

677,675. **FOLDING CRIB.** HENRY F. MENSTELL, New York, N. Y. Filed Mar. 14, 1901. Serial No. 51,077. (No model.)

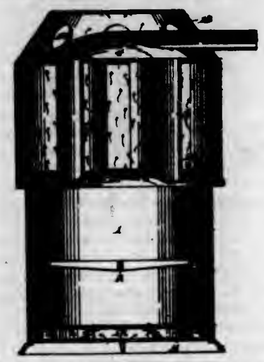


Claim.—1. A folding crib, consisting of a frame formed of a center rod, pivoted and braced web-supporting arms, pivoted and braced legs independent of the arms, and a web supported at the upper ends of the upwardly-extending arms, substantially as set forth.

2. A folding crib; consisting of two main sections each provided with a tubular center-rod section connected at their inner ends, said center rod being provided with lugs, downwardly-extending legs, and upwardly-extending arms pivoted to lugs of the center rod, braces for connecting the legs with the outer ends of the arms, braces connecting the legs with the center rod and a web supported by the upper ends of the arms, substantially as set forth.

3. A folding crib comprising a frame, consisting of a tubular center rod having hooked ends, said center rod being provided with lugs, folding legs and arms pivoted to lugs of the center rod, folding braces pivoted to the center rod and the legs, and stiffening-braces connecting the upper ends of the arms with the hooked ends, of the center rod and with the lower ends of the legs, substantially as set forth.

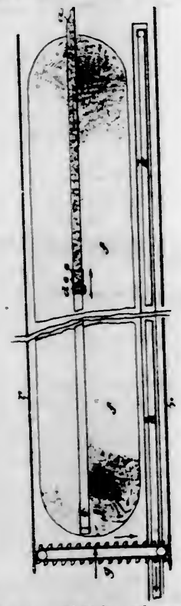
677,676. **HOT-AIR FURNACE.** CHARLES MESSER, Coraopolis, Pa. Filed Feb. 16, 1901. Serial No. 47,583. (No model.)



Claim.—In a furnace, the combination of an inner casing, vertical flues extending from said inner casing, a dome communicating with said vertical flues, an outlet-pipe horizontally arranged communicating with said dome, an outer casing surrounding the sides and base of said inner casing forming an air-chamber between the inner and outer casings having an air-inlet at its base, angle-irons secured between the base of the

inner casing and bottom of the outer casing, an air-outlet in its upper portion, an outwardly-extending annular flange formed integral with said outer casing, an upper outer casing of greater diameter than the said outer casing removably secured in said outwardly-extending flange, a hood arranged to the upper end of said upper casing having suitable outlets, and suitable supports attached to the under face of the outer casing forming an air-space between said casing and the floor communicating with said air-inlet, all parts being arranged and operating substantially as set forth and described.

677,677. **PROCESS OF STORING AND AVERAGING MATERIALS IN BULK.** EDWIN H. MEISTER, San Luis Potosi, Mexico. Filed Mar. 23, 1901. Serial No. 52,388. (No model.)



Claim.—1. The process of storing and averaging materials in bulk, which consists in distributing the materials in horizontal layers longitudinally in an elongated bank, said layers being of different quality and then removing the material uniformly from a cross-section of said elongated bank, substantially as set forth.

2. The process of storing and averaging materials in bulk, which consists in distributing the materials in horizontal layers longitudinally in an elongated bank, said layers being of different quality and then removing the materials uniformly from a cross-section along planes inclined at the angle of repose substantially as described.

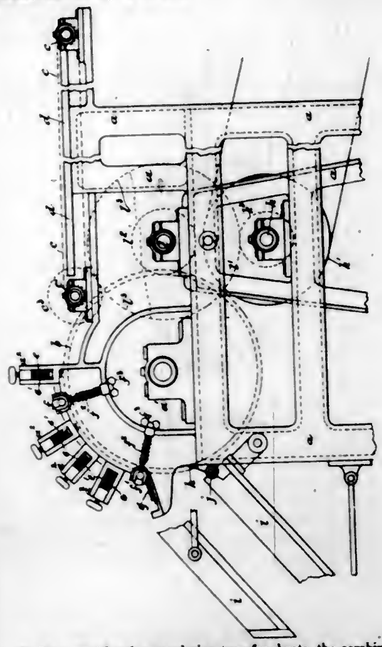
3. The process of storing and averaging materials in the preparation of furnace charges, which consists in distributing the materials in horizontal layers with respect to the length of an elongated prismatic bank, said layers being of different quality and in removing the materials uniformly with respect to a transverse section of said bank substantially as set forth.

4. The process of storing and averaging materials, which consists in distributing the materials in horizontal layers longitudinally in an elongated bank, said layers being of different quality, and in removing the end portions of said bank to a second bank, and then removing the materials from the remainder of the elongated bank uniformly with respect to a transverse section thereof, substantially as set forth.

5. The process of storing and averaging materials, which consists in distributing the materials in horizontal layers longitudinally in an elongated bank, said layers being different quality, and in removing the end portions of said bank, and redistributing the materials from said end portions in a second elongated bank, and in removing the materials from both banks uniformly with respect to the transverse sections of said banks, substantially as set forth.

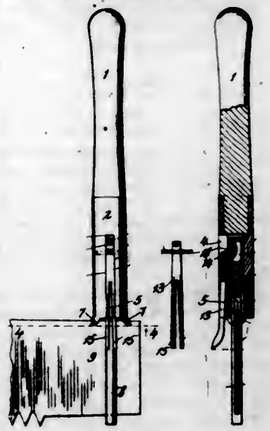
677,678. **MACHINE FOR COLORING OR POWDERING LITHOGRAPHIC OR OTHER TRANSFER SHEETS.** HENRI MICHAUD, Limoges, France, assignor to the Potters Decorative Supply Company, Limited, Hanley, England. Filed Nov. 20, 1900. Serial No. 37,124. (No model.)

Claim.—1. In a machine for powdering transfer-sheets, the combination of a rotating cylinder, a number of fixed brushes arranged across said cylinder to spread the powder on the sheets, a spring-pressed elastic roller arranged intermediate of a pair of said brushes, and a spring-pressed elastic roller arranged beyond the last brush, such elastic rollers acting against the cylinder to draw forward the sheets and press the powder on the latter, substantially as set forth.



2. In a machine for powdering transfer-sheets, the combination of a rotating cylinder and spring-pressed elastic rollers acting against such cylinder to draw forward the transfer-sheets, revolving endless tapes or bands passing around rollers to feed the transfer-sheets to the cylinder, a series of brushes to apply and spread the powder over such sheets, a steel blade or doctor to collect the excess of color on the surface of the last elastic roller, a series of springs acting against the cylinder to detach the sheets therefrom, a roller to prevent the buckling of said sheets, and a box or receiver into which the sheets are automatically and continuously delivered, substantially as herein set forth.

677,679. **HANDLE FOR SAW-BLADES.** JOHN W. MILLER, Dongola, Ill., assignor of one-half to George W. Dillow, same place. Filed Apr. 8, 1901. Serial No. 54,901. (No model.)



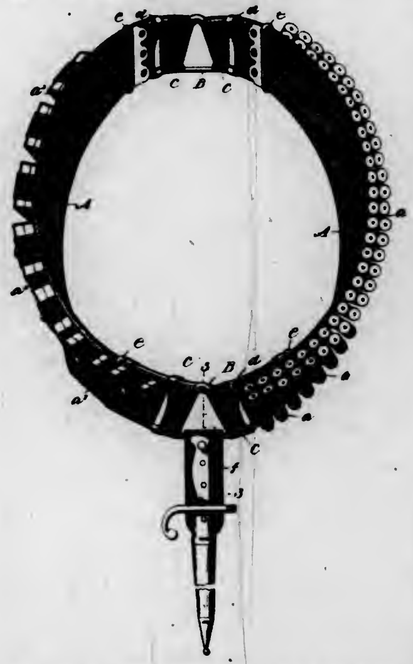
Claim.—1. A saw-handle comprising the socket formed with a central bore and a slot in its wall, the saw-loop fitting in the central bore, and the operating and locking lever passing through the slot in the socket and in engagement with the saw-loop, said lever being formed with spring-jaws to hold it in locking position, substantially as described.

2. A saw-handle comprising the socket formed with a central bore and a slot in its wall, the saw-loop fitting in the central bore, the cap having threaded engagement with the saw-loop and formed with a slot to receive a part of an operating-lever, and the pivoted operating and locking lever passing through the slot in the wall of the socket and having a part entering the slot in the cap to the saw-loop, substantially as described.

3. A saw-handle comprising the socket formed with a central bore and a dovetailed slot in its wall, the saw-loop fitting in the bore of the socket, and the slotted spring-jaw operating and locking lever passing through the slot in the socket and in operative engagement with the saw-loop, substantially as described.

4. The saw-handle comprising the socket formed with a central bore and a dovetailed slot in its wall, the saw-loop fitting in the bore of the socket and provided at its inner end with a threaded cap formed with a slot, and the slotted spring-jaw operating and locking lever passing through the slot in the socket and having a part entering the slot in the cap to the saw-loop, substantially as described.

677,680. **CARTRIDGE BELT OR BANDOLEER.** ARSON MILLS, Washington, D. C., and THOMAS C. ORNDORFF, Worcester, Mass. Filed Jan. 17, 1901. Serial No. 43,653. (No model.)



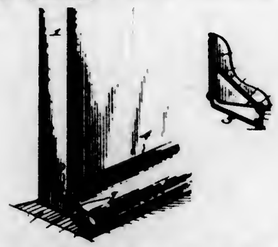
Claim.—1. A cartridge-bandoleer, composed of belt-sections provided with cartridge-receiving pockets, in combination with triangular-shaped loops detachably connected to said sections, substantially as hereinbefore set forth.

2. A cartridge-bandoleer composed of belt-sections provided with cartridge-receiving pockets, and adjustable in length, and triangular-shaped loops detachably connecting said sections, substantially as hereinbefore set forth.

3. A cartridge-bandoleer composed of belt-sections provided with cartridge-receiving pockets and plain ends folded back on themselves and provided with fastening devices, in combination with triangular-shaped connecting metal loops, each having one of its legs composed of two short lengths or prongs *b*, substantially as and for the purposes hereinbefore set forth.

4. A cartridge-bandoleer composed of belt-sections provided with cartridge-receiving pockets, triangular-shaped metallic loops detachably connecting said sections, and an attachment secured to the loop or loops to serve as a support for a portion of the equipment or outfit of the wearer, substantially as hereinbefore set forth.

677,681. **AUTOMATIC WEATHER-STRIP FOR DOORS.** WILLIAM R. MORGAN, Mound City, Ill. Filed Mar. 25, 1901. Serial No. 52,860. (No model.)

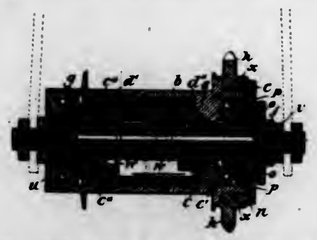


Claim.—1. In a weather-strip, the combination of the covering-strip hinged or pivoted to the lower end of the door and provided with a keeper, and a spring-actuated catch member adapted to engage said keeper and retracted and projected by the opening and closing of the door, the covering-strip being adapted to drop down free from engagement with the catch member upon the closing of the door and to be engaged and elevated by said catch member upon the opening of the door, substantially as described.

2. In a weather-strip, the combination of a hinged or pivoted covering-strip provided with a keeper-opening having an inclined guide-wall, and a spring-actuated catch projected and retracted upon the opening and closing of the door, said catch member having an inclined catch device cooperating with the said guide-wall and opening to elevate the covering-strip when brought into engagement therewith, substantially as described.

3. In a weather-strip, the combination of a fixed strip secured to the lower edge of the door, a hinged covering strip or plate upon the under side of said fixed strip and provided with an opening having an inclined guide wall or ledge, and a spring-actuated catch member composed of spring-wire secured to the fixed strip and bent to form a movable arm, a contact-piece, and an inclined catch member cooperating with the said inclined wall or guide-ledge and keeper-opening in the covering-strip, substantially as described.

677,682. **COASTER-BRAKE FOR BICYCLES.** ROBERT L. MORSE, New Bedford, Mass. Filed May 3, 1901. Serial No. 58,651. (No model.)



Claim.—A coaster-brake for bicycles, comprising a stationary shaft supported in the frame of the bicycle; a sleeve, having one or more friction-cones integral therewith adapted to have a longitudinal motion on said shaft; a hub having inclined surfaces projecting inwardly therefrom adapted to engage said friction-cones; a sprocket fitting on said hub, having its inner diameter provided with inclines and balls, acting as a clutch to revolve the hub with the sprocket, when revolved in a forward direction; a cup-flanged sleeve, adapted to take onto the cone-sleeve and be adjusted thereon, the edge of said cup-flange having inclines provided with balls adapted to bear against a washer interposed between said balls and the side of said sprocket; screws, seated in the flange of said sleeve, having their outer ends adapted to have a longitudinal motion through apertures in a flanged nut adjustably secured to said shaft; and the usual ball-cups, balls, and cones, on which the hub revolves, substantially as shown and described.

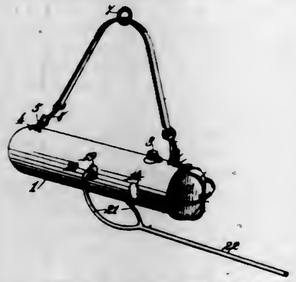
677,683. **FOLDING CRATE.** WILLIAM P. MURPHY, McKeesport, Pa. Filed Apr. 18, 1901. Serial No. 56,477. (No model.)

Claim.—In a device of the character described, a bottom, a strip

secured to the front edge thereof and extending above the said bottom, a front, a pair of three-leaf hinges countersunk and secured to the outer face of said front, to the upper edge of the said strip and to the upper face of the bottom, a removable screw securing said hinge to the upper edge of the said strip, hasps carried on the inner face of the front, end pieces mounted upon the bottom at each end thereof, strap-hinges countersunk and secured to the inner face of said end pieces, to the upper face, outer edge and lower face of the bottom, latch-plates countersunk in the inner face of said end pieces, a back piece, a hinge countersunk and secured to the inner face thereof and to the lower face of the bottom, hasps secured to the inner face of said back piece, a lid or cover, a three-leaf hinge countersunk and secured to the underneath face of the said lid or cover, and to the outer face and upper edge of said back piece, a screw for removably securing the said hinge to the said upper edge, hasps carried by the said lid or cover, and latch-plates carried by the front 3 to receive the hasps carried by the lid or cover to secure the said lid or cover in a locked position, substantially as described.



677,684. CHURN. JOSEPH H. MCCAUSLAND, Lampasas, Tex. Filed Feb. 11, 1901. Serial No. 46,562. (No model.)

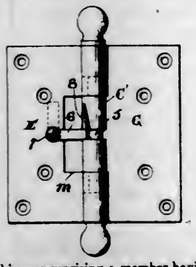


Claim.—1. In a churn, the combination with a cylindrical body having one end open and a cap for closing its open end, of a dasher located within said body, the said dasher being of greater length than said body and being longitudinally compressible.

2. In a churn, the combination with a cylindrical body having one end open, and a cap for closing its open end, of a dasher located within said body, the said dasher being made from spring-wire, coiled to form a plurality of convolutions, and of greater length than said body, as and for the purpose set forth.

3. In a churn, the combination with a cylindrical body having one end open, and a cap for closing its open end, of a dasher located within said body, the said dasher being made from spring-wire, coiled to form a plurality of convolutions, having a straight portion intermediate its ends and of greater length than said body, and a spirally-arranged blade secured to said straight portion.

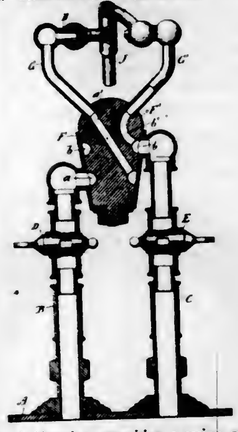
677,685. HINGE. NEWTON W. MCCOURT, Bradford, Pa. Filed Apr. 3, 1900. Serial No. 11,737. (No model.)



Claim.—1. A hinge comprising a member having at its inner edge a projecting lug with longitudinally-extending reduced studs at its ends, a coacting member having ears between which the said lug is adapted to be placed, the said ears having laterally-extending slots with open outer ends for the reception of the said studs, the said lug having a peripheral groove, and a locking member carried by the coacting member, the locking member engaging the said groove of the lug member, substantially as described.

2. A hinge comprising a member having at its inner edge a projecting lug with longitudinally-extending reduced studs at its ends, and the coacting member having ears between which the said lug is adapted to be placed, the said ears having laterally-extending slots with open ends for the reception of the said studs, the said lug member having a peripheral groove and a lateral notch communicating therewith, the said coacting member having a vertically-movable button adapted to engage the said groove and to be moved vertically through the said notch, substantially as described.

677,686. BLOWPIPE. JOHN MCLOUGHLIN, Boston, Mass. Filed Feb. 7, 1901. Serial No. 46,378. (No model.)



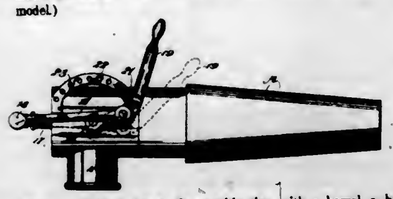
Claim.—1. A blowpipe, comprising a casing, gas and air supply pipes connected with the casing, a revoluble body mounted in the casing and provided with ports, one registering with the gas and the other with the air supply pipe, and a swinging nozzle carried by the body and connected with the ports thereof, as set forth.

2. A blowpipe, comprising a nozzle having air and gas supply pipes, a valve mounted to turn and register at all times with the gas and air supply pipes, and a connection carried by the valve and on which the said pipes are mounted to swing, said valve and connection independently connecting said pipes with the gas and air supply, as set forth.

3. A blowpipe having a valve-casing connected with a gas-supply and an air-supply, a valve-plug turnable in said casing and having ports for connection at all times with said supplies, and a blowpipe-nozzle mounted to swing on said valve-plug and having connection with the ports thereof, as set forth.

4. A blowpipe, comprising a valve-casing provided with air and gas supply ports arranged in different planes, a valve-plug mounted to turn in the casing and having annular ports, one registering with the air-port and the other with the gas-port, and independent channels leading from the said annular ports, feed-pipes secured to said valve-plug and opening into said channels, a blowpipe-nozzle, and pipes connected with said nozzle and having a swivel connection with the feed-pipes, as set forth.

677,687. FAUCET. JOSEPH HAGENBAST, Bayonne, and JOHN HÜLS, Elizabeth, N. J. Filed Dec. 8, 1900. Serial No. 39,163. (No model.)



Claim.—1. In a faucet, the combination with a barrel, a hollow head attached to said barrel, said head having an outlet forming a portion thereof, and a lever pivoted upon said head, of a valve located within the head, which valve consists of a disk having a central flanged extension and a rubber cap which engages with the peripheral portion of the disk and with the flanged extension thereof, the cap entirely covering said extension and the valve being adapted to be seated against the forward end of the barrel, a stem attached to said valve having a guided movement in the head and extended out beyond the same, a substantially U-shaped yoke extended from the stem and having pivotal connection with said lever at a point adjacent to its fulcrums, a rack secured to the head, and a pin carried by the said lever for engaging with said rack to hold the lever in an adjusted position, substantially as specified.

2. In a faucet, the combination, with a barrel, a hollow metallic head removably attached to the said barrel, a portion of the barrel extending within said head, which extending portion of the barrel is out of engagement with the inner face of the said head, said head having an outlet forming a portion thereof, and a yoke-shaped lever pivoted upon the said head, which lever straddles the head, while the members of the said lever at their lower ends have a forward and outward inclination, of a valve located within the head, which valve consists of a disk having a central flanged extension and a rubber cap which engages with the peripheral portion of the disk and with the flanged extension thereof, the cap entirely covering said extension, the said valve being adapted to be seated against the forward or extending end of the barrel, a stem attached to the said valve, having guided movement in the head and extending out beyond the same, a cross-bar attached to said stem, a substantially U-shaped yoke secured to the ends of the said cross-bar and having pivotal connection with said lever at a point adjacent to its fulcrums, a rack secured to the head, having apertures therein, and a pin carried by the said lever, adapted to enter any one of the apertures in the said rack, for the purpose set forth.

677,688. BASIC FIRE-BRICK COMPOUND. SPENCER R NEWBERRY, Sandusky, Ohio. Filed Feb. 15, 1900. Serial No. 5,354. (No specimens.)

Claim.—1. The herein-described refractory compound, which consists essentially of tricalcium silicate and free magnesia and contains no free lime, said compound being basic and permanent, and non-slaking on exposure to air.

2. The herein-described refractory compound, which consists essentially of tricalcium silicate, dicalcium aluminate and free magnesia, and contains no free lime, said compound being basic and permanent, and non-slaking on exposure to air.

677,689. WATCH-BARREL. OLOF OHLSON, Waltham, Mass., assignor to the American Waltham Watch Company, same place. Filed Nov. 23, 1900. Serial No. 37,966. (No model.)



Claim.—1. A spring-barrel and main-wheel structure, and its arbor comprising two separable members having a threaded engagement, and each provided with a journal adapted to occupy a bearing in the movement.

2. A spring-barrel and main-wheel structure, and an arbor comprising two separable members having a threaded engagement and provided with flanges between which the said structure is held as to axial movement in both directions.

3. A spring-barrel, a main wheel detached therefrom, and an arbor consisting of separable members having flanges outside of said barrel and wheel whereby the arbor is retained in engagement with the barrel and wheel structure as to axial movement in both directions.

4. A main wheel, an arbor comprising two separable members having a threaded engagement and a barrel detached from the main wheel and having a bottom wall held between the two arbor members and non-rotatively engaged with the arbor.

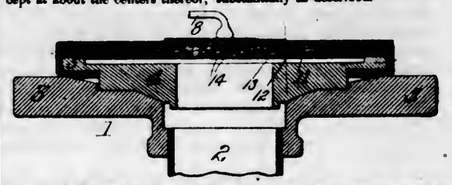
5. A main wheel having an elongated hub provided with jeweled bearings at its ends, a barrel detached from said main wheel, and an arbor held in non-rotative engagement with said barrel and mounted to rotate in said bearings.

677,690. SOUND-BOX. WARREN R OUTTEN, St. Louis, Mo. Filed Feb. 19, 1901. Serial No. 48,005. (No model.)

Claim.—1. The combination with a sound-box, of an overhanging needle-bar, a support therefor, a removable diaphragm-ring, a diaphragm stretched over said ring, and a metallic disk on the diaphragm for engaging the overhanging end of the needle-bar; substantially as described.

2. A composite diaphragm composed of a number of layers, attached together throughout, except at about the centers thereof; substantially as described.

3. A diaphragm-ring in combination with a diaphragm composed of a number of layers stretched over the ring and secured together except at about the centers thereof; substantially as described.



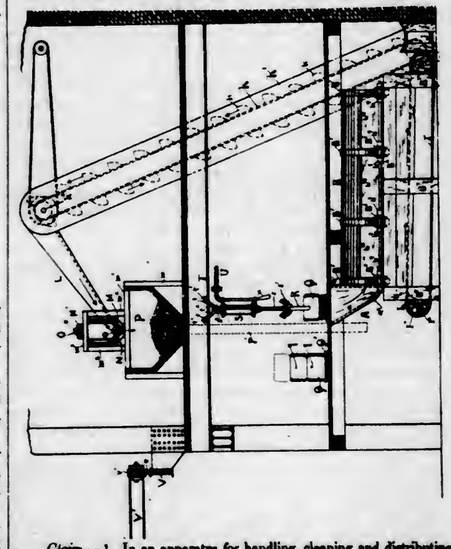
4. A diaphragm composed of a number of layers secured together except at about the centers thereof, and liquid between the unattached portions; substantially as described.

5. A diaphragm composed of a number of layers having a self-hardening bond between their margins, said bond spacing the layers and forming inclosed chambers; substantially as described.

6. A diaphragm composed of a number of layers having a self-hardening bond between their margins, said bond spacing the layers and forming inclosed chambers, and liquid in said chambers; substantially as described.

7. In combination with a ring, of a diaphragm composed of a number of layers stretched thereover, a bond between the margins of the layers for spacing the same and forming inclosed chambers, liquid in said chambers, and a metallic disk on the outermost layer whose edges overlap the inner perimeter of the bond between the layers; substantially as described.

677,691. APPARATUS FOR HANDLING, CLEANING, AND DISTRIBUTING CASTINGS. GEORGE W. PACKER, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Aug. 15, 1900. Serial No. 26,907. (No model.)



Claim.—1. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder adapted to receive castings thereinto at one end and deliver cleaned castings therefrom at the other end and formed of circumferential binding hoops or rings, each hoop or ring having a peripheral tread and a series of inwardly-projecting ears on its inner face, and longitudinal bars attached to the inwardly-projecting lugs or ears of the hoops or rings to leave open interstices or spaces between the bars longitudinally of the tumbler or separating-cylinder its full length for the discharge of the material removed from the castings, and means located in coöperative relation to the tumbler or cylinder on the under side for conveying away the removed material discharged through the interstices or spaces of the tumbler or separating-cylinder, substantially as described.

2. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder adapted to receive castings thereinto at one end and deliver cleaned castings therefrom at the other end and formed of circumferential binding hoops

or rings, each hoop or ring having a peripheral tread and a series of inwardly-projecting ears on its inner face, and longitudinal bars attached to the inwardly-projecting lugs or ears of the hoops or rings to leave open interstices or spaces between the bars longitudinally of the tumbler or separating-cylinder its full length for the discharge of the material removed from the castings, means located in coöperative relation to the tumbler or cylinder on the under side for conveying away the removed material discharged through the interstices or spaces of the tumbler or separating-cylinder, and means located in coöperative relation to the delivery end of the tumbler or separating-cylinder receiving and conveying away the cleaned castings discharged at the delivery end of the cylinder, substantially as described.

3. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder adapted to receive castings thereinto at one end and deliver cleaned castings therefrom at the other end and having a body formed of circumferential binding hoops or rings, each hoop or ring having a peripheral tread and an interior rim united by a neck or web and each hoop or ring having on the interior rim a series of inwardly-projecting lugs or ears, and longitudinal bars each bar having a flange and a rim standing at right-angle relation one to the other for the attachment of the bar to the ears or lugs of the hoops or rings leaving open interstices or spaces longitudinally of the tumbler or separating-cylinder its full length for the discharge of the material removed from the castings by the revolution of the main tumbler or separating-cylinder, means located in coöperative relation to the tumbler or separating-cylinder on the under side receiving and conveying away the removed material discharged through the interstices or spaces of the tumbler or cylinder, means located in coöperative relation to the delivery end of the receiving and conveying-away means for the removed material and means located in coöperative relation to the delivery end of the tumbler or cylinder receiving and conveying away the cleaned castings discharged at the delivery end of the cylinder, substantially as described.

4. In an apparatus for handling, cleaning and distributing castings, a revoluble main tumbler or separating-cylinder receiving the castings thereinto and having a downward inclination toward its delivery end and having its body formed of bars set apart, leaving longitudinal open interstices or spaces between them the full length of the tumbler or separating-cylinder, to have the revolution of the tumbler or separating-cylinder as a whole clean the castings from adhering material by the action of the bars discharge the cleaned castings at the delivery end of the cylinder and escape the removed material through the longitudinal open interstices or spaces from the receiving to the delivery end of the tumbler or separating-cylinder, substantially as described.

5. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder having its body formed of longitudinal bars with interstices or spaces between the bars for the discharge of the material removed from the castings, means for revolving the main tumbler or separating-cylinder, and deflecting-boards, one on each side of the cylinder, for preventing side escape of the material discharged, substantially as described.

6. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned, an endless conveyer or elevator receiving the cleaned castings at the delivery end of the main tumbler or separating-cylinder, a receiver or trough into which the castings are delivered from the endless conveyer or elevator, and an endless conveyer operating in the receiver or trough to carry the castings away from the point of reception, substantially as described.

7. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned, an endless conveyer or elevator receiving the cleaned castings at the delivery end of the tumbler or cylinder, a receiver or trough into which the castings are discharged from the endless conveyer or elevator, an endless conveyer operating in the receiver or trough to move the castings forward therein from the receiving-point, and a hopper or chute for the castings when removed from the receiver or trough, substantially as described.

8. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned, an endless conveyer or elevator receiving the cleaned castings at the delivery end of the tumbler or cylinder, a receiver or trough in which the castings are discharged from the endless conveyer or elevator, an endless conveyer operating in the receiver or trough to move the castings forward therein from the receiving-point, a hopper or chute for the castings when removed from the receiver or trough, and a tumbling barrel receiving the castings from the chute or hopper for the final cleaning, substantially as described.

9. In an apparatus for handling, cleaning and distributing castings, a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned, the combination of an endless conveyer or hopper receiving the cleaned castings at the delivery end of the tumbler or cylinder, a receiver or trough into which the castings are delivered from the endless conveyer or elevator, an endless conveyer operating in the receiver or trough to move the castings forward from the receiving-point, a series of hoppers or chutes adjacent to and alongside of the receiver or trough, and a series of tumbling barrels, one for each hopper or chute and into which the castings pass from the hopper or chute for the final cleaning action, substantially as described.

10. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned and having its body formed with longitudinal interstices or spaces for the discharge of the material removed from the castings, an endless conveyer traveling beneath the tumbler or cylinder and receiving the discharged material thereinto, an endless traveling apron or belt receiving the material from the endless conveyer, an endless elevator or conveyer having pockets receiving the material from the traveling belt, a receiver or trough into which the material is discharged from the pockets of the endless elevator or conveyer, and an endless conveyer operating in the receiver or trough to move the material therein from its point of reception, substantially as described.

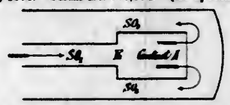
11. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned and having its body provided with longitudinal interstices or spaces for the discharge of the material removed from the castings, an endless conveyer traveling beneath the tumbler or separating-cylinder and receiving the discharged material thereinto, an endless traveling apron or belt receiving the material from the endless conveyer, an endless elevator or conveyer having pockets receiving the material from the traveling apron or belt, a receiver or trough into which the material is discharged from the pockets of the endless elevator or conveyer and having throughout its length drop-sections, and an endless conveyer operating in the receiver or trough to move the material therein from its point of reception for discharge at the opening formed by a dropped section of the receiver or trough, substantially as described.

12. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned and having its body provided with longitudinal interstices or spaces for the discharge of the material removed from the castings, an endless conveyer traveling beneath the tumbler or separating-cylinder and receiving the discharged material thereinto, an endless traveling apron or belt receiving the material from the endless conveyer, an endless elevator or conveyer having pockets receiving the material from the traveling apron or belt, a receiver or trough into which the material is discharged from the pockets of the endless elevator or conveyer and having throughout its length drop-sections, an endless conveyer operating in the receiver or trough to move the material therein from its point of reception for discharge at the opening formed by a dropped section of the receiver or trough, and a hopper for each drop-section receiving the material thereinto as discharged at the drop-section when down or open, substantially as described.

13. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving thereinto the castings to be cleaned and having its body provided with longitudinal interstices or spaces for the discharge of the material removed from the castings, an endless conveyer traveling beneath the tumbler or separating-cylinder and receiving the discharged material thereinto, an endless traveling apron or belt receiving the material from the endless conveyer, an endless elevator or conveyer having pockets receiving the material from the traveling apron or belt, a receiver or trough into which the material is discharged from the pockets of the endless elevator or conveyer and having throughout its length drop-sections, an endless conveyer operating in the receiver or trough to move the material therein from its point of reception for discharge at the opening formed by a dropped section of the receiver or trough, a hopper for each drop-section receiving the material thereinto as discharged at the drop-section when down or open, and a discharge-pipe leading from the hopper, substantially as described.

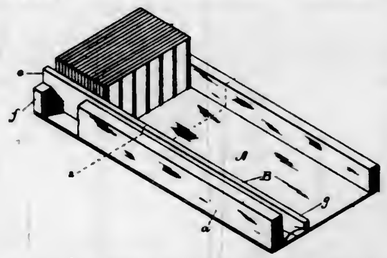
14. In an apparatus for handling, cleaning and distributing castings, the combination of a revoluble main tumbler or separating-cylinder receiving the castings thereinto and having its body provided with longitudinal interstices or spaces for the discharge of the material removed from the castings, an endless elevator or conveyer receiving the castings from the delivery end of the tumbler or cylinder, a receiver or trough into which the castings are discharged from the endless elevator or conveyer, an endless conveyer operating in the receiver or trough and moving the castings forward as discharged into the receiver or trough, an endless conveyer traveling beneath the tumbler or cylinder and receiving the discharged material thereinto, a traveling apron or belt receiving the material from the delivery end of the endless conveyer, an endless elevator or conveyer having pockets receiving the material from the traveling apron or belt, a receiver or trough into which the material is delivered from the pockets of the endless elevator or conveyer, and a conveyer in the receiver or trough moving the material therein from its point of reception, for separating the castings and the packing or other material in the tumbler or cylinders, dividing the travel of the two and delivering the two at different points, substantially as described.

677,692. PROCESS OF MAKING SULFUR TRIOXID. PHILIPP PAULI and CONSTANTIN KRAUSS, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vorm. Meister, Lucius & Brüning, same place. Filed Apr. 20, 1898. Serial No. 678,354. (No specimens.)



Claim.—The herein-described process of making sulfuric anhydrid, which consists in passing a heated gas containing sulfur dioxid and oxygen through a contact substance, and then removing from the thus-produced sulfuric anhydrid the heat of reaction, by conducting the same, after passing the contact substance, in proximity to an ingoing quantity of cooler sulfur dioxid and air, whereby an exchange of heat is effected, substantially as set forth.

677,693. GALLEY-LOCK. ULYSSES S. G. PEOPLES and CHARLES F. WALTHER, Baltimore, Md. Filed Nov. 30, 1900. Serial No. 38,140. (No model.)



Claim.—1. The combination of a printer's type-galley provided with a bottom, *i*, one transverse end bar, *f*, and two side bars secured to the said bottom, the inner wall of one side bar being beveled from top to bottom whereby to produce a greater width across the galley at the top of the said two side bars than at the said bottom, *i*; and a sidestick adapted to abut against said beveled wall and wedge downwardly between it and the type resting on said bottom, as set forth.

2. The combination of a printer's type-galley having the inner wall of one side beveled from top to bottom whereby to produce a greater width across the galley at the top of the side bars than at the bottom; and a sidestick adapted to abut against said beveled wall and wedge between it and the type, the forward end of said stick being provided with a forwardly-projecting lip adapted to bear upon the transverse end bar of said galley, as set forth.

677,694. STANDARD ADAPTED FOR CULTIVATOR SHARES OR SHOVELS. ALVY G. PERRY, Coldwater, Miss. Original application filed Oct. 9, 1900, Serial No. 32,510. Divided and this application filed Dec. 26, 1900. Serial No. 41,106. (No model.)

Claim.—1. A standard for cultivator shares or shovels, comprising a bar of suitable material longitudinally grooved or recessed and concaved on its forwardly-projecting lower end, a series of bearings or seats formed by said concavity, and means for securing said share or shovel upon said bearings or seats.

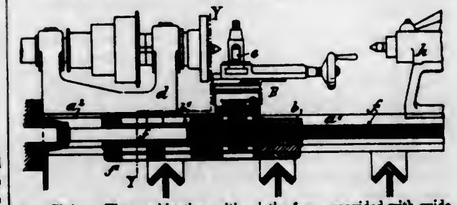
2. A standard for cultivator shares or shovels, comprising a bar of suitable material longitudinally grooved or recessed and concaved on its forwardly-projecting lower end, a series of bearings or seats of unequal height formed by said concavity, and means for securing the share or shovel upon said bearings or seats.

3. A standard for cultivator shares or shovels, comprising a metallic bar square or rectangular in cross-section at its lower end and from thence grooved or concaved on its four sides, said grooves or concavities increasing in depth from their lower ends to the upper end of the standard, substantially as described.

4. A standard for cultivator shares or shovels, comprising a metallic bar provided with a round and threaded tenon at its upper end and with an annular flange or collar below said tenon, said flange or collar being provided on its upper side with an annular groove immediately adjacent to the base of the tenon, the standard being square or rectangular in cross-section at its lower end and from thence grooved or concaved on its four sides upward to the collar, substantially as described.



677,695. SLIDE-REST FOR LATHES. JULIUS W. VON PITTLER, Leipsic-Gohlis, Germany, assignor to the Leipziger Werkzeug Maschinen Fabrik, vormals W. V. Pittler, A. G., same place. Filed June 28, 1900. Serial No. 722,129. (No model.)



Claim.—The combination, with a lathe-frame provided with guide-ways extending under the head-stock and tail-stock, of a slide-rest, the carriage of which is longitudinally extended and guided in said ways, and said carriage being provided with a drop-opening for conducting off the falling shavings and chips, a screw-spindle for feeding the carriage, said spindle passing through said drop-opening, and a protecting-sleeve in said opening and inclosing said spindle, substantially as set forth.

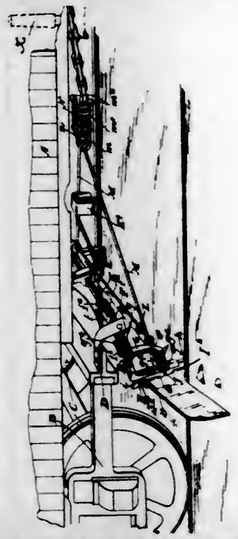
677,696. RAILWAY-TRACK CLEANER. MICHAEL POWER, Toronto, Canada. Filed Nov. 19, 1900. Serial No. 36,999. (No model.)

Claim.—1. In a track-cleaning device, the combination with the rocker-shaft and suitable supports for the ends of the same on the truck-frame, of the tool-holding frames secured at the forward end on the rocker-shaft, the tools suitably held therein, means for counterbalancing the weight of the tools and frame to normally hold said tools elevated, the cross-bars connected at their ends by bolts or their equivalents to the lower end of the tool-holding frame and means for operatively connecting the cross-bar to the operating means as and for the purpose specified.

2. In a track-cleaning device, the combination with the rocker-shaft and suitable supports for the ends of the same on the truck-frame, of the tool-holding frames secured at the forward end on the rocker-shaft, the tools suitably held therein, means for counterbalancing the weight of the tools and frame to normally hold said tools elevated, the cross-bars connected at their ends by bolts or their equivalents to the lower end of the tool-holding frame and the forwardly-extending rods, the operating-mast and a suitable connection between such rods and the mast as and for the purpose specified.

3. In a track-cleaning device, the combination with the rocker-shaft and suitable supports for the ends of the same on the truck-frame, of the tool-holding frame secured at the forward end on the rocker-shaft, the tools suitably held therein, the cross-bars connected at their ends by bolts or their equivalents to the lower end of the tool-holding frame and the

forwardly-extending rods, the operating-mast, the U-shaped link to which the front ends of the rod are connected provided with hooked ends, the spiral spring encircling the U-shaped link, the bar extending into the spring and having an eye to receive the rear end of the spiral spring, the mast and the chain connecting the bar to the mast as and for the purpose specified.



4. In a track-cleaning device, the combination with the rocker-shaft and suitable supports for the ends of the same on the truck-frame and tool-holding frames secured at the forward end on the rocker-shaft and having downwardly-extending front portions and rear portions connected together by the straddle-legs, the cross-bar extending between the straddle-legs at each end, and the bolts extending through straddle-legs and the ends of the cross-bar and the tool suitably secured in the supporting-frame and means for connecting the cross-bar to the operative means as and for the purpose specified.

5. In a device of the class described, the combination with the rocker-shaft and support therefor, of the supporting-arms secured at their forward end to said shaft, and having diverging stops at the side edges of their upper and lower faces, the tools, the supporting-frames therefor having jaws inclosing said rear end of said arms and pivotally connected to the same, said jaws being confined by said stops and springs secured to the arms coacting with said tool-supporting frames, substantially as described.

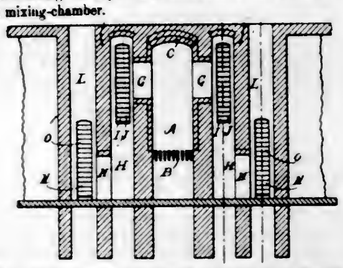
6. In a device of the class described, the combination with the tool-supporting frame suitably held in position and provided with a downwardly-extending rear portion having a rear recess provided with teeth and having laterally-extending lugs on each side of each downwardly-extending portions, of the back plate provided with the ribs and slots on each side of the ribs, such ribs being designed to fit on each side of the tool and the bolts extending through the slots in the back plate and shovel and through the laterally-extending lugs in the tool-holding frame as and for the purpose specified.

7. The combination with the tool-holding frame having the laterally-extending rear lugs, of the back plate having the shovel secured to one side thereof provided with a downwardly-extending inner portion, the recess in front of the back plate, the slots in the back plate and shovel and the bolts extending through the slots in the back plate and shovel and holes in the laterally-extending lugs whereby a limited vertical adjustment to the shovel and plate is permitted as and for the purpose specified.

677,697. FURNACE FOR DRIERS. WILLIAM H. PRIEST, Austin, Ill., assignor to The Saladin Pneumatic Malting Construction Co., Chicago, Ill. Original application filed Aug. 15, 1896, Serial No. 602,622. Divided and this application filed May 31, 1900. Serial No. 18,568. (No model.)

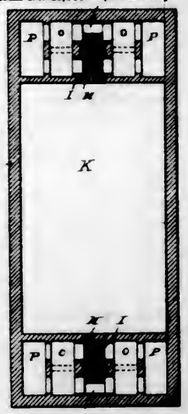
Claim.—1. A device of the kind specified, comprising a covered combustion-chamber, a covered mixing-chamber at the side of said combustion-chamber and opening thereto adjacent the top of each, a second mixing-chamber at the opposite side and substantially coextensive with said first mixing-chamber, and open thereto at the bottom of each, and air-flues entering each mixing-chamber on a level with its induction-flue.

2. A device of the kind specified, comprising a combustion-chamber covered by an arch, a mixing-chamber having a discharge-opening at the top, an intermediate mixing-chamber located between the combustion-chamber and the first-named mixing-chamber, a flue connecting said combustion-chamber and said intermediate mixing-chamber at the top of each, a flue connecting said mixing-chambers at the bottom of each, and air-flues entering the top of said intermediate and bottom of said first-named mixing-chamber.



3. A device of the kind specified, comprising a combustion-chamber covered by an arch and provided with discharge-flues adjacent the top, a downdraft mixing-flue on each side of said combustion-chamber, air-valves in said mixing-flues, a mixing-flue beyond each of said downdraft-flues, open at the top and communicating with the latter at the bottom of each, and air-valves in said last-named mixing-flues, whereby the hot air and products of combustion from said combustion-chamber are divided and mixed with cool air and discharged at divergent points.

677,698. MALT-DRIER. WILLIAM H. PRIEST, Austin, Ill., assignor to The Saladin Pneumatic Malting Construction Co., Chicago, Ill. Filed Feb. 11, 1901. Serial No. 46,853. (No model.)



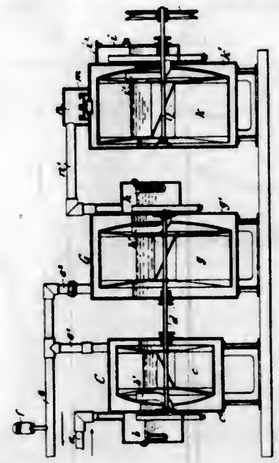
Claim.—In a malt-drier, the combination with the drying-chamber and malt-floors, of a central hopper-floor below said malt-floors, a furnace at each end of said hopper-floor, and a covered hot-air chamber above each of said furnaces and communicating with the space between said hopper-floor and the lowermost malt-floor, substantially as described.

677,699. GAS AND AIR MIXER. GUSTAV RAAP, Berlin, Germany, assignor to the "Soiax" Gesellschaft mit Beschränkter Haftung, same place. Filed Nov. 21, 1898. Serial No. 696,994. (No model.)

Claim.—1. The combination of a gas-feed device and an air-feed device connected to move in unison, each of said devices having an inlet and an outlet independent of those of the other device with an air-forcing device for supplying a current of air to drive said air-feed device, while said gas-feed device is driven by the gas supplied from a gas-main, substantially as set forth.

2. The combination of a gas-feed device and an air-feed device connected to move in unison, with an air-forcing device for supplying a current of air to the air-feed device, a service-pipe into which both of said devices discharge, and a device controlled by the pressure within said service-pipe for governing the action of said air-forcing device, substantially as set forth.

3. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected with said gas-meter to move in unison therewith but having an independent inlet, a service-pipe into which both of said meters discharge, and an air-forcing device for supplying a current of air to said air-meter, substantially as set forth.



4. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected with said gas-meter to move in unison therewith, a service-pipe into which both of said meters discharge, an air-forcing device for supplying a current of air to said air-meter, and a device controlled by the pressure within said service-pipe, for governing the action of said air-forcing device, substantially as set forth.

5. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected with said gas-meter to move in unison therewith, means for collecting and mixing the gas leaving said gas-meter and the air leaving said air-meter, a service-pipe into which the gas and air mixture is discharged, an air-forcing device for supplying a current of air to said air-meter, and a device controlled by the pressure of the gas and air mixture for governing the action of said air-forcing device, substantially as set forth.

6. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected with said gas-meter to move in unison therewith, means for collecting and mixing the gas leaving said gas-meter, and the air leaving said air-meter, a service-pipe into which the gas and air mixture is discharged, an air-forcing device, means for conducting the compressed air from said air-forcing device to said air-meter, and a device controlled by the pressure of the gas and air mixture for governing the action of said air-forcing device, substantially as set forth.

7. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected positively to operate in unison with said gas-meter, a service-pipe, an air-compressing device, means for conducting the compressed air therefrom to said air-meter, means for collecting and mixing the gas leaving said gas-meter and the air leaving said air-meter, means for conducting the gas and air mixture to said service-pipe, and a device controlled by the pressure within said service-pipe for governing the action of said air-forcing device, substantially as set forth.

8. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected positively to operate in unison with said gas-meter, a service-pipe, an air-compressing device, means for conducting the compressed air therefrom to said air-meter, a back-pressure valve arranged between said air-forcing device and said air-meter, means for collecting and mixing the gas leaving said gas-meter and the air leaving said air-meter, means for conducting the gas and air mixture to said service-pipe, and a device controlled by the pressure of the gas and air mixture for governing the action of said device, substantially as set forth.

9. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected positively to operate in unison with said gas-meter, a service-pipe, an air-forcing device, a storage vessel for receiving the compressed air, a back-pressure valve arranged between said air-forcing device and said storage vessel, means for conducting the compressed air from said storage vessel to said air-meter, means for collecting and mixing the gas leaving said gas-meter and the air leaving said air-meter, means for conducting the gas and air mixture to said service-pipe, and a device controlled by the pressure of the gas and air mixture for governing the action of said air-forcing device, substantially as set forth.

10. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected positively to operate in unison with said gas-meter, a service-pipe, an air-forcing device, a storage vessel, loaded with adjustable weights, for receiving the compressed air, a back-pressure valve arranged between said air-forcing device and said storage vessel, means for conducting the compressed air from said storage vessel to said air-meter, means for collecting and mixing the gas leaving said gas-meter and the air leaving said air-meter, means for conducting the gas and air mixture to said service-pipe, and a device controlled by the pressure of the gas and air mixture for governing the action of said air-forcing device, substantially as set forth.

11. The combination with a gas-meter arranged to be connected with a gas-main, of an air-meter connected positively to operate in unison with said gas-meter, a service-pipe, an air-forcing device, a storage vessel constructed as a bellows loaded with weights, for receiving the compressed air, a back-pressure valve arranged between said air-forcing device and said storage vessel, means for conducting the compressed air from said storage vessel to said air-meter, means for collecting and mixing the gas leaving said gas-meter and the air leaving said air-meter, means for conducting the gas and air mixture to said service-pipe, and a device controlled by the pressure of the gas and air mixture for governing the action of said air-forcing device, substantially as set forth.

12. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which meter is revolved by the gas introduced, of an air-meter of similar construction, the drum of which is connected with said gas-drum to move in unison therewith, a service-pipe into which both of said meters discharge, an air-forcing device for supplying a current of compressed air to said air-meter, so that the compressed air will revolve the drum of same, and a device controlled by the pressure within said service-pipe for governing the action of said air-forcing device, substantially as set forth.

13. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of said meter being revolved by the gas introduced, of an air-meter of similar construction, the drum of which is connected with said gas-drum to move in unison therewith, means for collecting and mixing the gas leaving said gas-drum and the air leaving said air-drum, a service-pipe into which the gas and air mixture is discharged, an air-forcing device for supplying a current of air to said air-meter, so that the compressed air will revolve the drum of the same, and a device controlled by the pressure of the gas and air mixture for governing the action of said air-forcing device, substantially as set forth.

14. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-meter of similar construction, the drum of which is connected with said gas-drum to move in unison therewith, while both drums are inclosed in a common casing, the space inside which above the liquid-level serves for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, an air-forcing device for supplying a current of air to said air-drum, so that the same will be revolved by the compressed air, and a device controlled by the pressure of the gas and air mixture discharged, for governing the operation of said air-forcing device, substantially as set forth.

15. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and connected with said gas-drum to move in unison, the space above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, an air-forcing device, means for conducting the compressed air therefrom to said air-drum, a back-pressure valve arranged between said air-forcing device and said air-drum, and a device controlled by the pressure of the gas and air mixture discharged, for governing the action of said air-forcing device, substantially as set forth.

16. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and connected with said gas-drum to move in unison, the space above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, an air-forcing device, a storage vessel for receiving the compressed air, a back-pressure valve arranged between said air-forcing device and said storage vessel, means for conducting the compressed air from said storage vessel to said air-drum, which will be thereby revolved, and a device controlled by the pressure of the gas and air mixture discharged, for governing the action of said air-forcing device, substantially as set forth.

17. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and connected with said gas-drum to move in unison therewith, the space

above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, an air-forcing device, a storage vessel constructed as a bellows loaded with weights for receiving the compressed air, a back-pressure valve arranged between said air-forcing device and said storage vessel, means for conducting the compressed air from said storage vessel to said air-drum, which will be thereby revolved, and a device controlled by the pressure of the gas and air mixture discharged, for governing the action of said air-forcing device, substantially as set forth.

18. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and coupled to its drum by a shaft common to them, the space above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, a bellows sucking in and compressing air, means for actuating said bellows, means for conducting the compressed air from said bellows to said air-drum which will be thereby revolved, a back-pressure valve arranged between said air sucking and compressing bellows and said air-drum, and a device controlled by the pressure of the gas and air mixture discharged for governing the action of said bellows, substantially as set forth.

19. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and coupled to its drum by a shaft common to them, the space above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, a pair of bellows sucking in and compressing air, means for actuating said pair of bellows, means for conducting the compressed air from said pair of bellows to said air-drum, which will be thereby revolved, a back-pressure valve arranged between said pair of air sucking and compressing bellows and said air-drum, and a device controlled by the pressure of the gas and air mixture discharged for governing the action of said pair of bellows, substantially as set forth.

20. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and coupled to its drum by a shaft common to them, the space above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, a bellows sucking in and compressing air, means for actuating said bellows, a storage vessel receiving the compressed air and constructed as a bellows loaded with weights, a back-pressure valve arranged between said air sucking and compressing bellows and said storage vessel, means for conducting the compressed air from said storage vessel to said air-drum, which will be thereby revolved, and a device controlled by the pressure of the gas and air mixture discharged, for governing the action of said bellows, substantially as set forth.

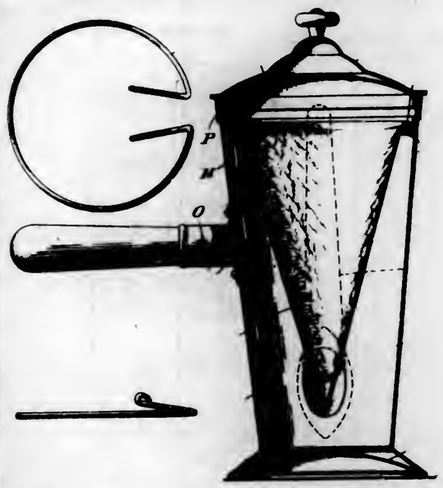
21. The combination with a wet gas-meter arranged to be connected with a gas-main, the drum of which is revolved by the gas introduced, of an air-drum of similar construction inclosed in the casing of said gas-meter and coupled to its drum by a shaft common to them, the space above the liquid-level serving for collecting and mixing the gas and the air leaving the two drums, a service-pipe into which the gas and air mixture is discharged, a pair of bellows sucking in and compressing air, means for actuating said pair of bellows, a storage vessel connected therewith for receiving the compressed air and constructed as a bellows loaded with weights, a back-pressure valve arranged between said pair of bellows and said storage vessel, means for conducting the compressed air from said storage vessel to said air-drum, which will be thereby revolved, and a device controlled by the pressure of the gas and air mixture discharged, for governing the action of said pair of bellows, substantially as set forth.

22. The combination of a gas-feed device and an air-feed device connected to move in unison and each having an independent inlet, and a service-pipe into which both of said devices discharge, with an air-forcing device for supplying a current of air to the air feed device to operate the same.

23. The combination of a gas-feed device and an air-feed device connected to move in unison, and a service-pipe into which both of said devices discharge, with an air-forcing device for supplying a current of air to the air-feed device to operate the same, a mechanism for driving said air-forcing device, and mechanism, controlled by the pressure within the said pipe, and operatively connected with said driving mechanism to govern the action thereof.

24. The combination of a gas-feed device and an air-feed device connected to move in unison, with an air-forcing device for supplying a current of air to the air-feed device to operate the same, a mechanism for driving said air-forcing device, and a speed-changing device for said driving mechanism, controlled by the pressure within the said pipe.

677,700. COFFEE-POT. ABRAHAM L. RICH, Salt Lake City, Utah. Filed Nov. 2, 1900. Serial No. 35,373. (No model.)

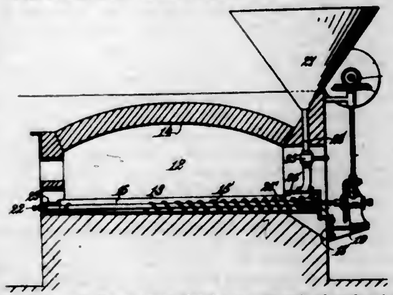


Claim.—1. The combination of a coffee-pot made with downwardly-tapering sides and provided with an opening near its top, an interior air-tube communicating with the opening and extending downwardly to the bottom, a handle located opposite the tube and extending outwardly at right angles to the pot, a flanged ring secured to the interior of the pot and a filter supported by said ring, substantially as described.

2. The combination of a coffee-pot made with downwardly-tapering sides and provided with an opening near its top, an interior air-tube communicating with said opening and terminating near the bottom, a spout, a handle secured to the side of the pot opposite the air-tube and projecting outwardly at right angles to the spout and the pot, a flanged ring secured to the interior of the pot, a filter supported from said ring and provided with a retaining-spring having its ends bent inwardly and upwardly to form handles, said spring adapted to be retained on the flanged ring and support the filter, substantially as described.

3. The combination of a coffee-pot made with downwardly-tapering sides and provided with an opening near its top, an interior air-tube communicating with said opening and terminating near the bottom of the pot, a spout, a handle secured to the side of the pot opposite the air-tube and projecting outwardly at right angles to the spout and the top, a filter supported within the pot, a retaining-spring having its ends bent inwardly and upwardly and retaining the filter in position within the pot, a pedestal provided with a false bottom, and a cover having a disk-shaped spring placed therein to maintain the same in its normal shape.

677,701. ORE-ROASTING FURNACE. JOHN ROGER, Denver, Colo. Filed Feb. 12, 1901. Serial No. 47,096. (No model.)

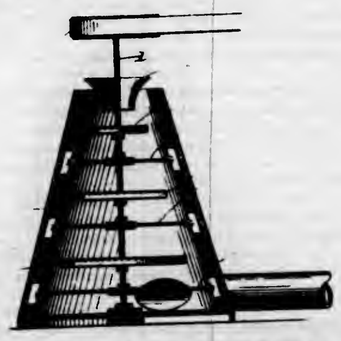


Claim.—1. In an ore-roasting furnace, a roasting-hearth and a feed-screw located below and coextensive with the hearth transversely thereof, said feed-screw being tapered from its ore-receiving end toward its opposite end.

2. In an ore-roasting furnace, a roasting-hearth, and a feed device located below the hearth and coextensive with the same transversely thereof, constructed and arranged to elevate the ore onto said hearth and simultaneously to distribute the same across said hearth.

3. In an ore-roasting furnace, a roasting-hearth and a feed-screw located below the hearth having portions of its thread removed, and of progressively-decreasing taper from its ore-receiving end to the opposite end thereof.

677,702. PULVERIZING-MILL. WILLIAM M. RUSSELL and FRANK P. RIXON, New York, N. Y. Filed Aug. 20, 1897. Renewed Dec. 10, 1900. Serial No. 39,280. (No model.)



Claim.—1. In a pulverizing-mill, the combination of a substantially vertical imperforate casing which expands gradually downward and the inner walls of which are straight, said casing having an inlet at the upper part and an outlet at the lower part, a vertically-disposed shaft journaled in said casing, arms extending from said shaft in groups or series, the arms of one group or series being shorter than those of the group or series next below, bats carried by said arms, the bats of one group or series being nearer the shaft than those of the series next below, and obstructions within the casing located between the groups or series of arms and above the upper group or series, the outer surface or periphery of one obstruction being nearer the shaft than that of the obstruction next below and also within the plane of the bats next below and at a distance from the walls of the casing, whereby material passing downward through the casing is caused to move outward and away from the shaft, substantially as set forth.

2. In a pulverizing-mill, the combination of a substantially vertical imperforate casing which expands gradually downward and the inner walls of which are straight, said casing having an inlet at the upper part and an outlet at the lower part, a vertically-disposed shaft journaled in said casing, arms extending from said shaft in groups or series, the arms of one group or series being shorter than those of the group or series next below, bats carried by said arms, the bats of one group or series being nearer the shaft than those of the series next below, said bats being inclined from the vertical to act as an obstruction to the passage of material downward through the casing, whereby the bats pulverize material, retard its passage through the casing, mix it with air and expel the mixture from the casing, substantially as set forth.

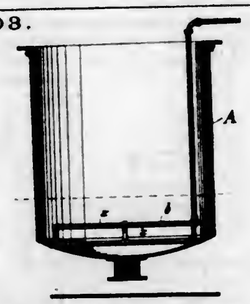
3. In a pulverizing-mill, the combination of a substantially vertical imperforate casing which expands gradually downward and the inner walls of which are straight, said casing having an inlet at the upper part and an outlet at the lower part, a vertically-disposed shaft journaled in said casing, arms extending from said shaft in groups or series, the arms of one group or series being shorter than those of the group or series next below, bats carried by said arms, the bats of one group or series being nearer the shaft than those of the series next below, and disks or plates carried by the shaft above the upper group or series of arms and between the other groups or series of arms, the diameter of one disk or plate being less than that of the arms and of the disk or plate next below, and the diameter of said disks or plates being less than the diameter of the casing, substantially as set forth.

677,703. PROCESS OF PRODUCING WAX-LIKE BODIES BY THE ACTION OF OXIDIZING AGENTS. ERNST SCHLIEMANN, Hamburg, Germany. Filed Sept. 3, 1898. Serial No. 690,221. (No specimens.)

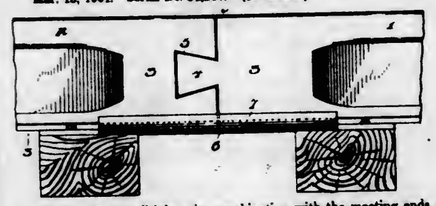
Claim.—1. A process for the production of a wax-like product, consisting in injecting air into a molten mixture of rosin and paraffin, substantially as described.

2. A process for the production of a wax-like product consisting in exposing a melted mixture of rosin and paraffin to the action of an oxidizing agent.

677,708.

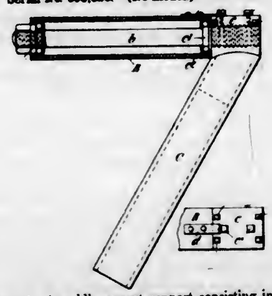


677,704. RAIL-JOINT. HENRY H. SCHWER, Verona, Pa. Filed Mar. 15, 1901. Serial No. 51,267. (No model.)



Claim.—In a rail-joint, the combination with the meeting ends of the rails which are enlarged in the web to the thickness of the tread, a dovetailed mortise carried on the end of one rail extending transversely to and formed integral with said enlarged end, the engaging end of the adjacent rail forming a correspondingly-shaped recess to receive said mortise extending transversely through said enlarged end, and the chair-plate, upturned sides formed integral with said chair-plate engaging the base of said rails, flat lugs secured on the base-plate at each end of said upturned sides, and fastening means arranged in said lugs, substantially as described.

677,705. SADDLE OR SEAT SUPPORT. JOHN A. SHAW-MACKENZIE and ERNEST A. CROWLEY, London, England. Filed Nov. 8, 1898. Serial No. 695,836. (No model.)

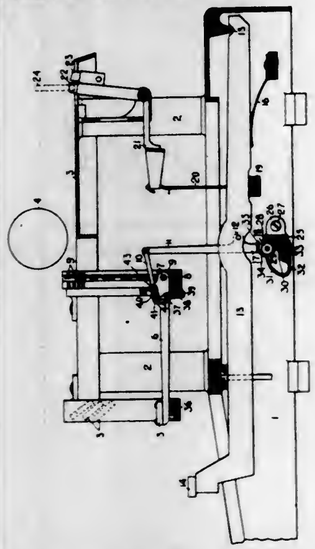


Claim.—1. A saddle or seat support consisting in the combination of a post having a longitudinal socket formed thereon, of a longitudinal tubular saddle-pin to which the saddle is directly attached by the usual means, of a spindle carrying said saddle-pin and detachably secured in said socket, said saddle-pin being capable of slight axial oscillatory movement on said spindle and of means for limiting said movement of the saddle-pin substantially as specified.

2. A saddle or seat support consisting in the combination of a post having a longitudinal socket formed thereon, of a longitudinal tubular saddle-pin, to which the saddle is directly attached by the usual means, of a spindle carrying said saddle-pin and detachably secured in said socket, of a projection upon the inner end of said saddle-pin, and of stops formed on the end of said socket and between which said projection enters, to limit the axial oscillatory movement of said saddle-pin.

3. A saddle or seat support consisting in the combination of a post having a longitudinal socket formed thereon, of a removable spindle adapted to be secured in either end of said socket, of a saddle or seat having a longitudinal tubular saddle-pin adapted to be rotatably mounted upon said spindle, and of a longitudinal projection upon the inner end of said pin and adapted to overlap either end of said socket and to enter between stops on either end of said socket, to limit the oscillatory movement of said saddle-pin.

677,706. **TYPE-WRITING MACHINE.** CHARLES H. SHEPARD, Brooklyn, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed Mar. 13, 1901. Serial No. 50,907. (No model.)



Claims.—1. In a type-writing machine, the combination of a series of type-bars, a series of keys, operative connections extending from the keys to the type-bars, and a series of catches for locking the type-bars in normal position, said catches being releasable by said keys.

2. In a type-writing machine, the combination of a series of type-bars, a series of keys, a series of connections extending from the type-bars to the keys, and a series of catches arranged at the type-bars for locking them in normal position, said catches being releasable by said keys through said connections.

3. In a type-writing machine, the combination with a series of type-bars, of a series of keys, operative connections extending from the keys to the type-bars, and a catch for locking each type-bar in normal position, each of said catches being moved by its key to a releasing position at the initial portion of the printing stroke of the key and before the movement of the type-bar begins.

4. In a type-writing machine, the combination with a series of type-bars, of a series of keys, a series of levers operated by said keys, a series of links, and a series of catches releasable by said links, said catches locking the type-bars in normal position.

5. In a type-writing machine, the combination of a series of type-bars, a series of levers, a series of links connected to said levers and each having a lost-motion connection to its type-bar, and a series of catches movable by said links before the movement of the type bar begins.

6. In a type-writing machine, the combination with a series of type-bars, of a series of keys, a series of catches, and fixed means coöperating with said catches for locking the type-bars in normal position.

7. In a type-writing machine, the combination with a series of type-bars mounted in a segment, of a series of key-controlled catches coöperating with said segment to lock the type-bars in normal position.

8. In a front-strike writing-machine, the combination with a platen, of a series of rearwardly-striking type-bars, a series of operating-levers connected by links to said type-bars, keys for operating said levers, and catches controlled by said links, said catches operating to lock the type-bars in normal position.

9. In a front-strike writing-machine, the combination with a platen, of a system of rearwardly-striking type-bars, a system of upwardly-directed levers connected by links to said type-bars, a series of key-bearing levers connected to said levers and extending rearwardly beneath the type-bars, and means releasable by said links for locking the type-bars in normal position.

10. In a type-writing machine, the combination with a series of type-bars, of a series of operating-levers directly connected to said type-bars by type-bar-locking devices, and a series of key-levers connected to said levers.

11. In a front-strike writing-machine, the combination with a platen, of a series of rearwardly-striking type-bars, a series of upwardly-directed operating-levers therefor, and type-bar-locking devices directly connecting said levers to said type-bars.

12. In a type-writing machine, the combination with a series of type-bars and a series of catches therefor, of a series of key-operated levers having means for releasing said catches and operating said type-bars.

13. In a front-strike writing-machine, the combination with a platen, of a system of rearwardly-striking type-bars, catches therefor, and a system of upwardly-directed key-operated levers having means for releasing said catches and operating said type-bars.

14. In a front-strike writing-machine, the combination with a platen, of a series of rearwardly-striking type-bars, a segment upon which they are pivoted, a series of catches coöperating with said segment to lock said type-bars in normal position, and a series of upwardly-directed levers having means for releasing said catches and operating said type-bars.

15. In a type-writing machine, the combination with a series of type-bars, of a series of catches, and a series of operating-levers having means for releasing said catches and operating said type-bars.

16. In a type-writing machine, the combination with a series of type-bars, of a series of key-controlled pivoted catches for locking said type-bars in normal position.

17. In a type-writing machine, the combination with a type-bar, of a lever connected thereto by a slotted link, and a catch controlled by said link, said catch locking the type-bar in normal position.

18. In a type-writing machine, the combination with a series of type-bars, of a series of catches pivotally connected thereto, and keys for releasing said catches and moving said type-bars.

19. In a type-writing machine, the combination with a series of type-bars, of a series of pivoted catches, and a series of key-operated levers for releasing said catches and moving said type-bars.

20. In a type-writing machine, the combination of a type-bar, a key-operated lever, a catch pivoted upon said type-bar, a slotted link connecting said lever to said type-bar, and means upon said link for moving said catch to release the type-bar.

21. In a type-writing machine, the combination with a type-bar, of an operating-lever therefor, and a link connecting said lever to the type-bar, said link having means for locking the type-bar in normal position.

22. In a type-writing machine, the combination with a type-bar, of a catch pivoted thereon, a lever, and a link connected at one end to said lever and at the other end connected to said type-bar and to said catch.

23. In a type-writing machine, the combination with a type-bar, of segment 8, catch 38 pivoted on the type-bar, finger 41 upon the catch, link 10 connected to said finger, and key-operated lever 11 connected to said link.

24. In a type-writing machine, the combination of type-bar 6, segment 8, catch 38 pivoted on said type-bar and engaging said segment, pin 44, finger 41 upon said catch, stud 43 upon said type-bar, slotted link 10 engaging said stud and having pin 40 engaging said finger 41, and key-operated lever 11 to which said link is connected.

25. In a type-writing machine, the combination of a type-bar, a type-bar catch, a spring for said catch, and a key for releasing said catch and moving said type-bar.

26. In a type-writing machine, the combination of a type-bar, a catch, a key for moving said catch and releasing said type-bar, and a spring for returning said key, type-bar and catch to normal position.

27. In a type-writing machine, the combination of a type-bar, a spring-pressed lever connected thereto by a slotted link, and a catch controlled by said link and held in normal position by said spring through said link.

28. In a type-writing machine, the combination of a series of type-bars, a series of key-operated levers, and a fixed cam for vibrating said levers so as to speed the type-bars as they approach the printing-point.

29. In a type-writing machine, the combination of a type-bar, a lever connected thereto, means for moving the lever endwise, and a fixed cam for vibrating said lever during the endwise movement thereof.

30. In a type-writing machine, the combination of a series of type-bars, a series of key-bearing levers, a series of sublevers pivoted upon said key-bearing levers, and connected to said type-bars, and a fixed cam arranged transversely of said sublevers and engaged thereby for vibrating said sublevers and speeding the type-bars as they approach the printing-point.

31. In a type-writing machine, the combination of a series of type-bars, a series of key-levers, a series of sublevers pivoted on said key-levers and connected to said type-bars, and a transverse fixed bar having an oblique face engaged by the ends of said sublevers.

32. In a type-writing machine, the combination of a type-bar, a lever connected thereto, means for moving said lever endwise, a roller on said lever, and a fixed cam engaged by said roller, said cam being obliquely disposed so as to cause a vibration of said lever during the endwise movement thereof.

33. In a type-writing machine, the combination of a series of type-bars, a series of operating-levers therefor, cam-bar 25 arranged transversely of said levers and engaged thereby, coacting cam-plate 31 arranged opposite to said cam-bar, and slots 34 formed in said cam-plate for receiving said levers.

34. In a front-strike writing-machine, the combination with a platen of a series of rearwardly-striking type-bars, a series of key-levers extending beneath said type-bars, a series of upwardly-directed cross-levers pivoted on said key-levers, bar 25 fixed transversely below said key-levers and having a forwardly and downwardly sloping cam-surface, rollers 18 on the lower ends of said cross-levers, and fixed cam-plate 31.

35. In a front-strike writing-machine, the combination with a series of rearwardly-striking type-bars, of a series of key-levers extending rearwardly beneath said type-bars, a series of upwardly-directed cross-levers pivoted upon said key-levers, rollers 18 upon the lower ends of said cross-levers, and fixed transverse cam-bar 25 engaged by said rollers.

36. In a front-strike writing-machine, the combination with a platen, of a system of rearwardly-striking type-bars, key-levers 13 extending rearwardly beneath the type-bars, cross-levers 11 pivoted on said key-levers and connected to said type-bars, rollers 18 upon the lower ends of said cross-levers, cam-bar 25 arranged transversely and engaged by said rollers, coacting cam-plate 31, and springs 16.

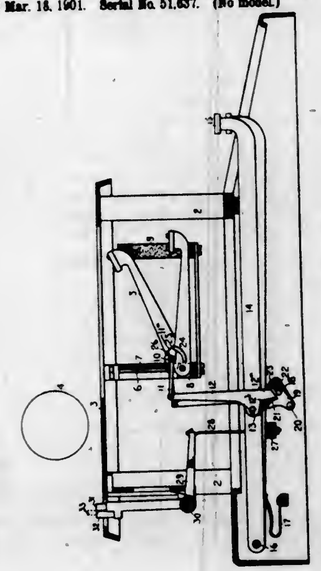
37. In a type-writing machine, the combination with a series of type-bars, of a series of levers connected thereto, means for moving said levers endwise, rollers upon the ends of said levers, transverse bar 25 engaged by said rollers, and cam-plate 31 secured upon said bar and having slots 34 for receiving said levers.

38. In a type-writing machine, the combination with a type-bar, of an endwise-movable lever connected thereto, and a fixed cam having both a sloping face 28 arranged at an acute angle to the endwise movement of said lever and a sloping face 30 arranged at an obtuse angle to the endwise movement of said lever, so as to speed the type-bar as the latter approaches the printing-point.

39. In a type-writing machine, the combination with a type-bar, of an endwise-movable lever connected thereto, and a fixed cam having both a sloping face 28 arranged at an acute angle to the endwise movement of said lever and also a sloping face 30 arranged at an obtuse angle to the endwise movement of said lever so as to speed the type bar as the latter approaches the printing-point, said cam also having an intervening curved portion 29 between the sloping faces 28 and 30.

40. In a front-strike writing-machine, the combination of a platen, a series of rearwardly-striking type-bars, a series of key-levers extending beneath said type-bars, a series of cross-levers pivoted on said key-levers and connected to said type-bars, rollers 18 upon said cross-levers, and a fixed transverse cam-bar 25 arranged rearwardly of and below said rollers.

677,707. **TYPE-WRITING MACHINE.** CHARLES H. SHEPARD, Brooklyn, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed Mar. 18, 1901. Serial No. 51,637. (No model.)



Claim.—1. In a front-strike writing-machine, the combination with a platen, of a rearwardly-striking type-bar, a lever 12 connected thereto, a key-lever upon which said lever 12 is pivoted, and a vibrating abutment connected to said lever 12 for causing the latter to vibrate independently upon the key-lever during the operation of the latter, said lever 12 having a pin-and-slot engagement with said vibrating abutment, and the latter having an arm for contacting with said lever 12 so as to accelerate the independent vibration thereof upon said key-lever.

2. In a front-strike writing-machine, the combination with a platen, of a rearwardly-striking type-bar, a lever 12 connected thereto, a key-lever upon which said lever 12 is pivoted, a pivoted abutment engaging said lever 12 and vibrated thereby, and an arm upon said abutment for engaging said lever 12 and accelerating the independent vibration thereof upon said key-lever.

3. In a front-strike writing-machine, the combination with a platen, of a rearwardly-striking type-bar, a lever 12 connected thereto, a key-lever upon which said lever 12 is pivoted, a pivoted abutment engaging said lever 12 and vibrated thereby, and an arm upon said abutment for engaging said lever 12, said arm having a curved working surface such that the point of contact between said arm and said lever 12 moves gradually during the printing stroke toward the pivot of said lever 12, so as to accelerate the independent vibratory movement of the latter.

4. In a front-strike writing-machine, the combination with a platen, of a type-bar, link 11 connecting the type-bar to upright lever 12 pivoted upon horizontal key-lever 14 and having downwardly-extending arm 12^a, stud 18 upon said arm, and vibratory abutment 19 having slot 22 engaged by said stud, and also having curved arm 21 for engaging said arm 12^a to gradually accelerate the independent vibration of the lever 12 upon its pivot.

5. In a front-strike writing-machine, the combination with a platen, of a series of rearwardly-striking type-bars, a series of upwardly-extending levers 12 connected thereto, a series of key-levers 14 upon which said levers 12 are fulcrumed, said key-levers extending rearwardly beneath the type-bars, a series of vibratory abutments 19 pivoted upon a transverse rod 20 and having slots 22 engaged by studs 18 upon said levers 12, and a series of curved arms 21 formed upon the vibratory abutments 19 and adapted to engage the levers 12 so as to gradually accelerate the independent vibration of the latter upon their pivots.

6. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of keys, connections between the keys and the type-bars, including a series of links, and devices fixed upon the type-bars for coöperating with said links to lock the type-bars in normal position, each of said links having a lost-motion engagement with its type-bar so that it may have a limited endwise releasing movement independently of the type-bar.

7. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of keys, connections from the type-bars to the keys, including a series of levers, and a series of links extending from said levers to said type-bars, each of said links having a catch portion, each of said type-bars having a coöperative projection, and each of said links also having a pin-and-slot connection with its type-bar, so that at the initial movement of said link, said catch may be withdrawn from said projection, and so that by a further movement of said link the type-bar may be swung to the platen.

8. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of key-operated levers, a series of links connecting said levers to the said type-bars, a projection 11^a upon each link, a coacting lateral projection fixed upon each type-bar, a stud 10 upon each type-bar, and a slot 26 in each link.

9. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of key-operated levers connected thereto by links, slots 26 in the links, catches 11^a upon said links, and coacting arc-shaped projections 24 upon said type-bars.

10. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of key-operated levers connected thereto by links, slots 26 in the links, catches 11^a upon said links, coacting arc-shaped projections 24 upon said type-bars, and notches 25 formed in said catches.

11. In a type-writing machine, the combination with a platen, of a type-bar, a key-lever, a second lever pivoted upon the key-lever and connected to the type-bar, a stud 18 and a ledge 12^b upon the second lever, and a vibratory abutment having both a slot for engaging said stud, and an edge for engaging said ledge 12^b so as to accelerate the vibration of said second lever.

677,708. **AUTOMATIC TIRE-INFLATER.** GEORGE B. STACY, Boston, Mass., assignor to Alexander H. Spencer, New York, N. Y. Filed Nov. 12, 1900. Serial No. 36,358. (No model.)

Claim.—1. An automatic tire-inflater, comprising a pump having a spring-pressed plunger with a hollow stem for removable attachment to the tire-valve, a pump-cylinder movable on said plunger, and a stirrup around the tire and connected with said pump-cylinder, as set forth.

2. An automatic tire-inflater, comprising a pump having a plunger with a hollow stem for removable attachment to the tire-valve, a pump-cylinder movable on said plunger, a stirrup around the tire and connected with said pump-cylinder, and a spring interposed between said plunger and one end of the said cylinder, as set forth.



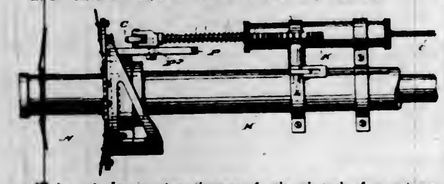
3. An automatic tire-inflater, comprising a pump having a spring-pressed plunger with a hollow stem for removable attachment to the tire-valve, a pump-cylinder movable on said plunger, and a stirrup around the tire and connected with said pump-cylinder, the connection between the stirrup and cylinder being adjustable, as set forth.

4. An automatic tire-inflater, comprising a pump-cylinder, a piston in the cylinder and having a hollow rod, a spring surrounding the said rod between the piston and one cylinder-head, an apertured cross-head to which the piston-rod is secured, said cross-head being adapted to be secured to the tire-valve, and a stirrup adapted to pass around the tire and having its members passing through the cross-head and secured to the said cylinder, substantially as described.

5. In an automatic tire-inflater, the combination with a pump-cylinder, a spring-pressed piston in the cylinder and having a hollow rod, an apertured cross-head to which the piston-rod is secured, said cross-head being adapted for connection with the tire-valve, a stirrup adapted to pass around the tire and having its ends passing through the cross-head, and adjustable locking devices for securing the members of the stirrup to the pump-cylinder, substantially as described.

6. In an automatic tire-inflater, the combination with a pump-cylinder, and a spring-pressed piston in the cylinder and having a hollow piston-rod adapted to be secured to the tire-valve, of a stirrup adapted to pass around the tire and having its members working in guideways carried by the cylinder, and spring-catches for engaging the members of the stirrup to lock them in position, substantially as described.

677,709. **AUTOMATIC TANK-PUMP FOR AUTOMOBILES.** GEO. B. STACY, Boston, Mass., assignor to Alexander H. Spencer, New York, N. Y. Filed Nov. 13, 1900. Serial No. 36,366. (No model.)



Claim.—1. In an automatic pump for the air-tank of an automobile, the combination, with a running wheel and a cam fixed thereon, of a pump-cylinder fixed as to rotation, a piston working therein and having a rod adapted to engage the cam, a slotted guideway fixed parallel to the piston-rod, a projection on said rod which works in said slot and is provided with a head working on the inner side of the guideway, substantially as shown and described.

2. In an automatic pump for the air-tank of an automobile, the combination, with the wheel, cam, cylinder, and piston having a rod engaging the cam and working loose in the cylinder-head, of a guide for the rod in its reciprocations, said guide being fixed between the cam-wheel and cylinder so that it is engaged by the head of the rod, as shown and described.

3. An automatic pump for the air-tank of automobiles, comprising a longitudinally-movable pump-cylinder, a plunger movable therein, a cam on one of the wheels of the automobile and engaging the outer end of the plunger-rod, and means under the control of the operator, for shifting said cylinder toward or from said cam, to increase or diminish the stroke of the plunger in the said cylinder, as set forth.

4. An automatic pump for the air-tank of automobiles, having a cylinder movable relatively to its plunger, to increase or diminish the stroke of the plunger in the cylinder, the said means comprising a rack on the cylinder, and a gear-wheel in mesh with the rack, and adapted to be turned by the operator in charge of the automobile, as set forth.

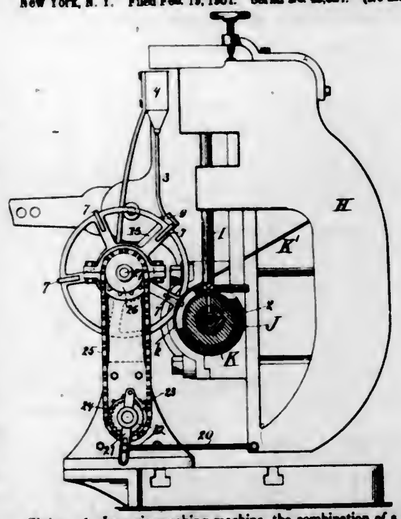
677,710. **AIR-PUMP FOR PNEUMATIC TIRES.** GEORGE B. STACY, Boston, Mass., assignor to Alexander H. Spencer, New York, N. Y. Filed Nov. 13, 1900. Serial No. 36,367. (No model.)



Claim.—1. A pump for pneumatic tires, comprising a sleeve for attachment to the rim and tire of a wheel, a barrel having an outer and an inner head, of which the outer head contains a suction-valve and the inner head is adjustably attached to said sleeve, the inner head projecting into the barrel and having an internal passage for the air and ports leading from the passage through the inner end of the head into the barrel, a plunger operating in said barrel and adapted to be seated on the inner end of said inner head, to limit the movement of the plunger and its stem in an outward direction, the stem of the plunger extending through the sleeve into the tire, and a spring pressing the stem to hold the plunger normally to its seat in the said head, the said stem having its inner enlarged portion formed with a longitudinally-extending groove opening into the tire, as set forth.

2. A pump for pneumatic tires, comprising a sleeve secured to the rim and tire of a wheel, a barrel having an outer and an inner head, of which the outer head contains an air-suction valve and the inner head has a threaded bore for screwing on said sleeve and a small bore for the passage of the plunger-stem, the inner end of said head projecting into the barrel and having ports leading to the threaded bore, a plunger in said barrel and having its stem consisting of a grooved portion opening into the tire and the bore of the sleeve, to establish communication between the barrel and the tire, said stem also having a reduced portion fitted in the small bore of said inner head, and a coil-spring on the reduced portion of the stem for pressing said plunger and holding the latter normally seated on the end of the barrel-head, to close the parts thereof, as set forth.

677,711. **RIVET-FEEDING APPARATUS.** FREDERICK W. STAFF, Brooklyn, N. Y., assignor to John A. Wilbur, borough of Manhattan, New York, N. Y. Filed Feb. 19, 1901. Serial No. 48,037. (No model.)



Claim.—1. In a pipe-making machine, the combination of a rivet-carrier, a pipe-carrier, and means for rotating the rivet-carrier and the pipe-carrier toward each other to insert a rivet in a rivet-hole of the pipe, substantially as set forth.

2. In a pipe-making machine the combination of a rivet-carrier, means for delivering rivets singly to the rivet-carrier, a pipe-carrier, and means for rotating the rivet-carrier and the pipe-carrier toward each other to insert a rivet in a rivet-hole of the pipe, substantially as set forth.

3. In a pipe-making machine, in combination, a rivet-carrier having one or more rivet-holding clamps thereon, means for delivering the rivets singly to the clamp or each of the clamps, a pipe-carrier, means for rotating the rivet-carrier and the pipe-carrier toward each other to insert a rivet in a rivet-hole of the pipe, and means for forcing a rivet out of the clamp or each of the clamps and into a rivet-hole in the pipe, substantially as set forth.

4. In a rivet-feeding apparatus, the combination of a carrier, having one or more rivet-holding clamps thereon, a spreader for temporarily opening the clamp or each of the clamps for the reception of a rivet, and means for delivering the rivets into position to be separately engaged by the clamp or clamps as the clamp or each of the clamps is closed after having been opened by the spreader, substantially as set forth.

5. In a rivet-feeding apparatus, the combination of a chute, a carrier having one or more rivet-holding clamps thereon, a spreader constructed to temporarily open the clamp or each of the clamps for the reception of a rivet, and a holder arranged to separately receive the rivets from the chute and arranged to hold the rivets, one at a time, in position to be separately engaged upon the closing of the clamp or one of the clamps at a time after having been opened by the spreader, substantially as set forth.

6. In a rivet-feeding apparatus, the combination of a chute, a carrier, a holder constructed to separately hold the rivets in position to be engaged by the carrier and a separator constructed to convey the rivets separately from the chute to the holder, substantially as set forth.

7. In a rivet-feeding apparatus, the combination of a chute, a carrier having one or more rivet-holding clamps thereon, a spreader for temporarily opening the clamp or each of the clamps for the reception of a rivet, and a separator constructed to convey the rivets singly from the chute into position to be engaged by the clamp or one of the clamps as the clamp or each of the clamps is closed after having been opened by the spreader, substantially as set forth.

8. In a rivet-feeding apparatus, the combination of a chute, a carrier having one or more rivet-holding clamps thereon, a spreader constructed to temporarily open the clamp or each of the clamps for the reception of a rivet, a holder constructed to separately hold the rivets in position to be engaged upon the closing of the clamp or one of the clamps at a time after having been opened by the spreader, and a separator constructed to separately convey the rivets from the chute to the holder, substantially as set forth.

9. In a rivet-feeding apparatus, the combination of a chute, a carrier having one or more rivet-holding clamps thereon, a spreader constructed to temporarily open the clamp or clamps, a holder for retaining rivets in the chute, a second holder constructed to separately hold the rivets in position to be engaged upon the closing of the clamp or each of the clamps, and a separator for separately conveying the rivets from the first-mentioned holder to the last-mentioned holder, substantially as set forth.

10. A rivet-feeding apparatus comprising a rotating carrier and means for actuating the same, a plurality of rivet-holding clamps thereon having jaws constructed to close upon and engage the rivets, means for presenting the rivets to the jaws and means for discharging the rivets from the jaws, substantially as set forth.

11. In a rivet-feeding apparatus the combination of a rotating carrier, means for actuating the same, a plurality of rivet-holding clamps thereon, means for separately opening the clamps and separately holding the rivets in position to be engaged upon the reclosing of the clamps, and means for discharging the rivets from the clamps, substantially as set forth.

12. In a rivet-feeding apparatus, the combination of a rotating carrier and means for actuating the same, a plurality of rivet-holding clamps on the carrier, a spreader located in the path of the clamps, means for delivering the rivets into position to be separately engaged by the clamps as the clamps are successively moved clear of the spreader, and means for discharging the rivets from the clamps, substantially as set forth.

13. In a rivet-feeding apparatus, the combination of a chute, a rotating carrier, and means for actuating the same, a plurality of rivet-holding clamps on the carrier, a spreader located in the path of the clamps, a holder arranged to separately receive the rivets from the chute and separately hold the rivets in position to be engaged by the clamps as the clamps are successively moved clear of the spreader, and means for discharging the rivets from the clamps, substantially as set forth.

14. In a rivet-feeding apparatus, the combination of a chute, a rotating carrier, and means for actuating the same, a plurality of rivet-holding clamps on the carrier, a separator constructed so as to be actuated by the clamps, successively, to convey the rivets separately from the chute into position to be engaged by the clamps, and means for discharging the rivets from the clamps, substantially as set forth.

15. In a rivet-feeding apparatus, the combination of a chute, a rotating carrrier, and means for actuating the same, a plurality of rivet-holding clamps on the carrier, a spreader located in the path of the clamps, a separator constructed so as to be actuated to convey the rivets separately from the chute into position to be engaged by the clamps as the clamps are successively moved clear of the spreader, and means for discharging the rivets from the clamps, substantially as set forth.

16. In a rivet-feeding apparatus, the combination of a chute, a rotating carrier, and means for actuating the same, a plurality of rivet-holding clamps on the carrier, a spreader located in the path of the clamps, a holder for retaining rivets in the chute, a second holder located so as to separately hold the rivets in position to be engaged by the clamps as the clamps are successively moved clear of the spreader, a separator constructed so as to be actuated by the clamps, successively, to convey the rivets separately from the first-mentioned holder to the last-mentioned holder, and means for discharging the rivets from the clamps, substantially as set forth.

17. A rivet-feeding apparatus comprising a carrier, and means for actuating the same, a plurality of spring rivet-holding clamps thereon, a spreader located in the path of the clamps and adapted to successively open the same, and means for separately presenting the rivets in position to be engaged by the spring-clamps as they are successively closed, substantially as set forth.

18. A rivet-feeding apparatus comprising a carrier and means for actuating the same, a plurality of spring-clamps thereon, each adapted to hold a rivet, a spreader located in the path of the clamps and adapted to successively open the same, a chute and a separator for separately conveying the rivets from the chute into position to be engaged by the spring-clamps as they are successively closed, substantially as set forth.

19. A rivet-feeding apparatus comprising a carrier and means for actuating the same, a plurality of spring rivet-holding clamps thereon, a spreader located in the path of the clamps and adapted to successively open the same, a chute, a holder for retaining rivets in the chute, a second holder located so as to separately hold the rivets in position to be engaged by the clamps as they are successively closed, and a separator for separately conveying the rivets from the first-mentioned holder to the last-mentioned holder, substantially as set forth.

20. A rivet-feeding apparatus comprising a rotating carrier, means for actuating the same, a plurality of rivet-holding clamps thereon, means for separately presenting the rivets to the clamps, discharging-plungers, one for each clamp, constructed to open the jaws of the clamp and force the rivet out of the same, and means for actuating each of the plungers at a predetermined point in the revolution of the carrier, substantially as set forth.

21. A rivet-feeding apparatus comprising a rotating carrier, means for actuating the same, a plurality of spring rivet-holding clamps thereon, a spreader located in the path of the clamps and adapted to successively open the same, means for separately presenting the rivets in position to be engaged by the spring-clamps as they are closed after having been opened by the spreader, discharging-plungers, one for each clamp constructed to open the jaws of the clamp and force the rivets out of the same, and means for actuating each of the plungers at a predetermined point in the revolution of the carrier, substantially as set forth.

22. In a rivet-feeding apparatus, in combination, a rotating carrier having thereon a plurality of spring rivet-holding clamps each consisting of the spring-jaws 7, 7, means for successively opening the jaws to separately receive the rivets and for separately presenting the rivets in position to be engaged by the jaws as they are closed, discharging-plungers 17, one for each clamp, cam-rollers 19 thereon and cams 18 coöperating therewith, substantially as set forth.

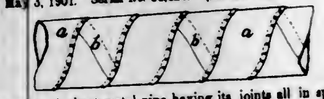
23. In a rivet-feeding apparatus, in combination, a rotating carrier having thereon a plurality of rivet-holding clamps, each consisting of spring-jaws 7, 7, a spreader 9 located in the path of the jaws and constructed to open the same, means for separately presenting the rivets in position to be engaged by the jaws as they move clear of the spreader, discharging-plungers 17, one for each clamp, the outer ends of which are located within the jaws and which are movable outwardly to force the rivets out of the jaws, and means for actuating the plungers at a predetermined point in the revolution of the carrier, substantially as set forth.

24. In a rivet-feeding apparatus, in combination, a rotating carrier having thereon a plurality of rivet-holding clamps each consisting of the spring-jaws 7, 7, a spreader 9 located in the path of the jaws and constructed to open the same, a chute 3 having its delivery end at the spreader, a spring-holder 6 for retaining rivets in the chute, a second spring-holder 10 located so as to separately hold the rivets in position to be engaged by the jaws as they move clear of the spreader, a rotating separator constructed to be successively actuated by the jaws 7 to separately convey the rivets from the spring-holder 6 to the spring-holder 10,

and means for discharging the rivets from the jaws at a predetermined point in the revolution of the carrier, substantially as set forth.

25. In a rivet-feeding apparatus, in combination, a rotating carrier having thereon a plurality of rivet-holding clamps each consisting of the spring-jaws 7, 7, a spreader 9 located in the path of the jaws and constructed to open the same, a chute 3 having its delivery end at the spreader, a spring-holder 6 for retaining rivets in the chute, a second spring-holder 10 located so as to separately hold the rivets in position to be engaged by the jaws as they move clear of the spreader, the rotating separator 11 constructed to be successively actuated by the jaws 7 and having arms adapted to engage the lower rivet in the spring-holder 6 and move the same into the spring-holder 10, and means for discharging the rivets from the jaws at a predetermined point in the revolution of the carrier, substantially as set forth.

677,712. SPIRAL-JOINTED SHEET-METAL PIPE. FREDERICK W. STAPP, Brooklyn, N. Y., assignor to John A. Wilbur, New York, N. Y. Filed May 3, 1901. Serial No. 58,627. (No model.)



Claim.—1. A sheet-metal pipe having its joints all in spiral lines and at oblique angles to each other at points of intersection and oblique to longitudinal lines of the pipe, substantially as set forth.

2. A sheet-metal pipe having a continuous riveted spiral joint and interrupted welded spiral joints, the riveted joints being at oblique angles to the spiral joint at points of intersection and oblique to longitudinal lines of the pipe, substantially as set forth.

677,713. LATCH. BENJAMIN A. STEVENS, Toledo, Ohio. Filed Jan. 11, 1901. Serial No. 42,844. (No model.)



Claim.—1. The combination of a door, a casing therefor, a latch pivoted upon the door or casing, a hook or catch upon the casing or door arranged to engage said latch, a screw-threaded bolt bearing in the overhanging portion of said hook, and arranged to engage against said latch after said latch has engaged said hook, substantially as described.

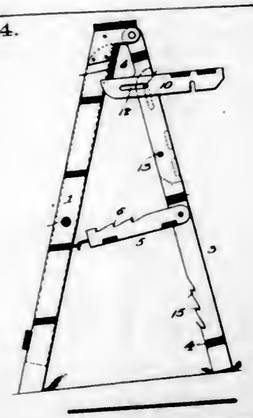
2. The combination of a door, a casing therefor, a latch pivoted upon the door or casing so as to swing in a plane parallel thereto, a hook or catch upon the casing or door arranged to engage said latch, a screw-threaded bolt having a bearing attached to said casing and arranged to engage against said latch, and an overhanging piece upon the door or casing adapted to engage the inner end of said latch, substantially as described.

3. The combination of a door, a casing therefor, a latch pivoted upon the door or casing so as to swing in a plane parallel thereto, a hook or catch, upon the casing or door arranged to engage said latch, a screw-threaded bolt bearing in the overhanging portion of said hook and arranged to engage against said latch said overhanging portion being provided with a raised portion on its inner side between the bolt and the end of the hook, substantially as described.

677,714. COMBINED STEP-LADDER AND TABLE. HIRAM C. STOUT, Alliance, Ohio. Filed Mar. 29, 1901. Serial No. 53,425. (No model.)

Claim.—A step-ladder comprising the stepped part, the leg-frame pivotally connected thereto and the bars of which have notches, a brace-frame having teeth and pivoted to the leg-frame, a secondary leg-frame of side bars pivoted medially of their length to the outer sides of the stepped part, the bars of said secondary leg-frame connected at their opposite ends by cross-bars arranged to engage the outer and the inner sides of the stepped part the primary leg part having pivoted thereto a slotted slidable frame arranged to be supported in a horizontal position by the secondary frame and the said toothed frame 5 and the notched leg-frame 3 arranged for engagement with the inner cross-bar of the secondary leg-frame in the way and for the purpose stated.

677,714.



677,715. FIRE-EXTINGUISHER. GEORGE W. THOMPSON, Nashville, Tenn. Filed May 8, 1900. Serial No. 15,868. (No model.)



Claim.—1. The combination with the valve, the prop, the lever, and a support or bar lying outside the path of such lever, of the fusible retaining-strip 1, secured to the prop and having the arms 3 and 4 said strip being connected with the support or bar and forming a support for the lever substantially as set forth.

2. The herein-described automatic sprinkler comprising the valve, the prop, the lever, the screw on which said lever pivots, the rail H, and the fusible retaining means independent of said rail and operating to secure the lever in position against such rail substantially as set forth.

3. The combination of the valve having a seat for the prop, and a curved guide overlying the same, the prop bearing in said seat and having an opening for the curved guide, and a fusible retaining means for the prop substantially as set forth.

4. The combination of the valve, the prop arranged at one end to hold the valve closed, a pivoted lever having an arm engaged with the other end of the prop, a support or bar lying outside the path of such lever, and a fusible retaining-strip secured at one end to the prop, and held at its other end to the support or bar and forming between its ends a support for the lever whereby to hold the same in position to hold the valve closed, substantially as set forth.

677,716. AUTOMATIC FIRE-EXTINGUISHER. GEORGE W. THOMPSON, Nashville, Tenn. Filed July 27, 1900. Serial No. 25,052. (No model.)



Claim.—1. In a stationary fire-extinguisher, the combination with air and water pipes, and a connecting casing or box, of two valves, arranged therein, for normally closing the respective pipes, and movable vertically, and levers fulcrumed and interposed between the valves, and having adjustable bearings for contact with said levers, substantially as shown and described.

2. In a stationary fire-extinguisher, the combination with air and water pipes and a connecting casing or box, of valves arranged in the latter and normally closing the respective pipes, interposed levers and screw-stems working in said valves and bearing on the respective levers, as shown and described.

3. In a stationary fire-extinguisher, the combination, with the air and water pipes and connecting casing having interior projections in its upper portion which serve as valve-stops, of a valve arranged in the latter, and gravity-hooks hung over the valve so that their free beveled ends are in the path of the vertical movement of said valve for automatically engaging it as it rises, and holding the same suspended in contact with the said projections or stops, as shown and described.

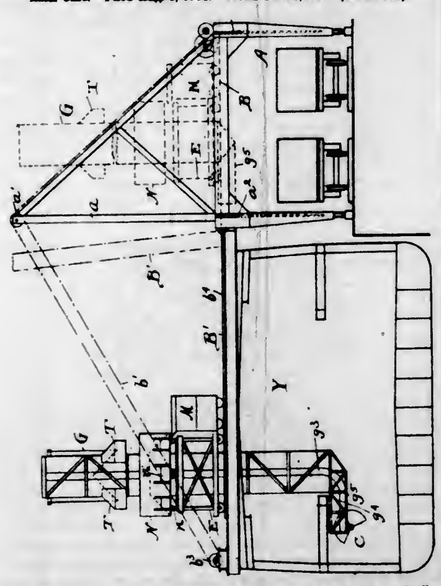
4. In a stationary fire-extinguisher, the combination, with air and water pipes and the connecting-casing having webs projecting in the upper portion of its chamber, of a valve arranged in the casing, hooks pivoted to and pendent from said webs and having beveled ends lying in the path of the valve and thus adapted to ride over the valve as it rises and engage the same to hold it suspended against the webs, which thereby serve as stops, as shown and described.

677,717. BED-LOUNGE. GEORGE M. THOMURE, St. Louis, Mo. Filed Jan. 21, 1901. Serial No. 44,007. (No model.)



Claim.—In a device of the class described, the combination of a suitable base, a seat hinged to the front end thereof and adapted to swing outwardly, pivoted legs connected to said seat and adapted to support the same when the seat is extended, a rear rail connected to the base, side rails connected to the base and having each a groove in the under side of the top strip thereof, extension-rails slidably mounted in the grooves, and a detachable rail to be connected to the outer edge of the seat when extended.

677,718. UNLOADING APPARATUS. GEORGE E. TITCOMB, Cleveland, Ohio. Filed Aug. 9, 1900. Serial No. 26,333. (No model.)



Claim.—1. In unloading apparatus, the combination of a vertically-adjustable member capable of extending down into the hold of a boat and having its lower end extended laterally, continuous bucket-guides carried by said member and its lateral extension, and means for rotating said member on a substantially vertical axis, with a bucket movable in said guides, and means for moving said bucket in both directions along said guides, substantially as specified.

2. In an unloading apparatus, the combination of a wheel-truck, a horizontally-rotatable member supported thereby and horizontally rotatable thereon and having a vertical opening through it, a vertical guide member adjustably supported by said rotatable member in said opening, bucket-guides carried by said guide member, a bucket, and means for causing it to travel along said guides, substantially as described.

3. In an unloading apparatus, the combination of a wheel-truck, a horizontally-rotatable member supported by said wheel-truck, a vertical guide member housed in said horizontally-rotatable member and vertically adjustable therein, said guide member having its lower end extended laterally, a bucket, and means for causing it to travel along the lateral extension and up the guide member, substantially as described.

4. In unloading apparatus, the combination of tracks adapted to support a wheel-truck over the hold and in line with the hatchway of a boat, a wheel-truck movable thereon, a vertically-adjustable member supported by said wheel-truck and capable of extending through the hatchway into the hold of said boat, and bucket-guides carried by said member, with a bucket bodily movable in said guides, and means for raising and lowering said bucket along said guides, substantially as specified.

5. The combination, with a support, of a skeleton platform pivoted thereto and adapted to project substantially horizontally therefrom or be tipped up, a self-contained excavating, elevating and discharging apparatus adapted to be supported on said platform when horizontal or bodily shifted onto said support to allow the platform to be tipped up, and an ancillary conveyer for receiving the discharge of said self-contained apparatus without requiring its said bodily shifting, substantially as described.

6. The combination with a support, a skeleton platform pivoted thereto and adapted to project substantially horizontally therefrom, cooperating tracks on said platform and support, an excavating and elevating apparatus supported on said tracks and adapted to be moved bodily in and out thereon, and an ancillary conveyer supported on a track on said platform and adapted to receive the discharge of said elevating apparatus without requiring its said bodily movement, substantially as described.

7. In unloading apparatus, the combination of a skeleton platform adapted to be supported over the boat to be unloaded, a wheel-truck movable upon said platform, a vertically-adjustable member supported by the said truck and having a laterally-extended foot on its lower end, continuous bucket-guides carried by said member and its foot, a bucket, and means for moving said bucket in both directions along said bucket-guides, substantially as described.

8. In unloading apparatus, the combination of a skeleton platform, a wheel-truck movable upon the same, a rotatable ring carried by said truck, a tubular member which is vertically adjustable through said ring and has a laterally-extended foot on its lower end, internal bucket-guides carried by said member and its foot, and means for moving a bucket in both directions along said guides, substantially as specified.

9. In unloading apparatus, the combination of a skeleton platform, a wheel-truck movable thereon, a tubular member which is supported by the said truck and is vertically adjustable through said truck and has a laterally-extended foot on its lower end, a rotatable annular hopper surrounding said member, internal bucket-guides in said member and its foot, and means for moving a bucket in both directions along said guides, substantially as specified.

10. In unloading apparatus, the combination of a skeleton platform, a wheel-truck, a rotatable ring carried by said truck, a tubular member which is vertically adjustable through said ring and has a laterally-extended skeleton foot on its lower end, internal bucket-guides in said member and its foot, a bucket, a set of cables for moving said bucket inward on the horizontal track and upward through said tubular member, other cables for moving the bucket downward and outward along said foot, and winding-drums for taking in and paying out said cables located on the top of said tubular member, substantially as specified.

11. In unloading apparatus, the combination of the wheel-truck, a vertically-adjustable tubular member supported by said truck, a bucket, means for raising and lowering the bucket through said member, an annular hopper surrounding said member, deflecting-plates hinged to said member, and means for moving them out of the way of the upwardly-moving bucket and then into inclined position beneath said bucket, substantially as specified.

12. In unloading apparatus, the combination of the wheel-truck, a vertically-adjustable tubular member supported by it, a bucket, means for raising and lowering the bucket through said member, an annular hopper surrounding said member, and deflecting-plates hinged to said member and having outwardly-extended arms, a vertically-movable beam, means for raising the same when the bucket is near its top position, and links connecting said beam with the arms on said deflecting-plates, substantially as described.

13. In unloading mechanism, the combination of a frame, a vertically-adjustable skeleton platform supported thereby, an extension skele-

ton platform hinged to said platform, means for swinging said extension-platform on its hinge, tracks on said two platforms, a wheel-truck movable on said tracks, a vertically-adjustable tubular member supported by said truck and having a laterally-extended foot, bucket-guides in said member and its foot, a bucket movable in said guides, means for moving the bucket from one end to the other of said guides, and means for opening and closing the bucket, substantially as specified.

14. In unloading mechanism, the combination of a frame, a vertically-adjustable skeleton platform supported thereby, an extension skeleton platform hinged to said platform, means for swinging said extension-platform on its hinge, tracks on said two platforms, a wheel-truck movable on said tracks, a rotatable ring mounted upon said truck, a vertically-adjustable tubular member movable through said ring, and having a laterally-extended foot, bucket-guides in said member and its foot, a bucket movable in said guides, means for moving the bucket from one end to the other of said guides, and means for opening and closing the bucket, substantially as specified.

15. In unloading mechanism, the combination of a frame, a vertically-adjustable skeleton platform supported thereby, an extension skeleton platform hinged to said platform, means for swinging said extension-platform on its hinge, tracks on said two platforms, a wheel-truck movable on said tracks, a rotatable ring mounted upon said truck, a vertically-adjustable tubular member movable through said ring, and having a laterally-extended foot, bucket-guides in said member and its foot, a bucket movable in said guides, means for moving the bucket from one end to the other of said guides, and means for opening and closing the bucket, an annular hopper surrounding said member and supported by said truck, substantially as specified.

16. In unloading mechanism, the combination of a tubular member having a laterally-extended foot on its lower end, bucket-guides in said member and its foot, a bucket-supporting frame, a horizontal shaft mounted in said frame, rolls on the ends of said shaft for engagement with said bucket-guides, sheaves secured to said shaft, cables wound in opposite directions on said sheaves, winding-drums on the top of said members and capable of independently taking up and paying out said cables, other cables secured to rings loose on said shaft, sheaves at the outer end of said foot around which said cables pass, winding-drums on the top of the member for taking in and paying out said cable, two bucket-shells hinged to said frame, two sets of chains secured to the edges of said shells, two sets of idler-sheaves for guiding said chains, and sheaves secured to said shaft for winding up and unwinding said chains, substantially as specified.

677,719. SPOUT FOR INK-BOTTLES. HARRY J. VALENTINE, Hempstead, N. Y., assignor to William Vogel & Brothers, Brooklyn, N. Y. Filed Apr 17, 1901. Serial No. 56,240. (No model.)



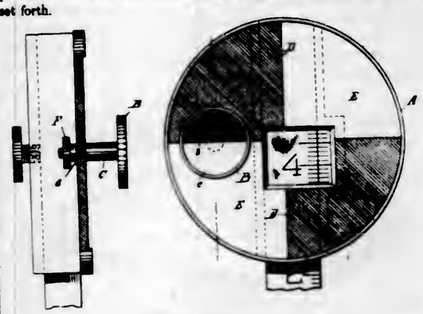
Claim.—1. A spout for ink-bottles or the like, the same consisting of a tubular sheet-metal body provided with an aperture or perforation at one side of its lower end, portions of which body overlap, and a longitudinal partition bent inwardly from the inner of said overlapping portions and extending through the tubular body so as to form two longitudinal passages, one of which only is provided with said aperture, substantially as set forth.

2. A spout for ink-bottles or the like, the same consisting of a tubular tapering body of sheet metal, provided with a longitudinal partition bent up from the same and forming two passages through the tubular body, and a perforation or aperture in the lower end of said spout for one passage, the outer edge of the blank of which the tubular body is composed being simply laid over and bent around the corresponding adjoining portion of the tubular body, substantially as set forth.

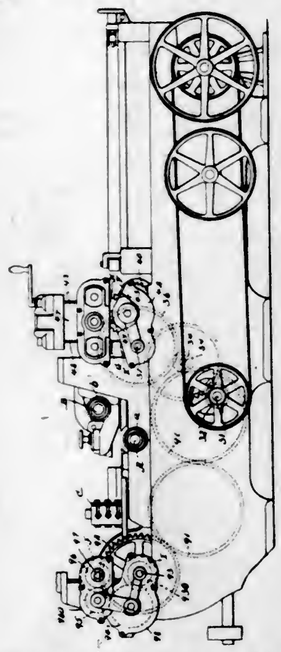
3. A blank for spouts for ink-bottles or the like, said blank consisting of a trapezoidal main portion provided at one side with a rhomboidal wing, said main portion having a perforation or aperture in one end and a tapering extension at the other end, substantially as set forth.

677,720. TARGET FOR LEVELING-RODS. THEODORE W. VAN HOEVEN, Troy, N. Y., assignor to the Keuffel & Esser Company, Hoboken, N. J. Filed Sept. 24, 1897. Serial No. 652,927. (No model.)

Claim.—In a target for leveling-rods, a main disk having its front surface quartered by alternate colors, a smaller disk having its face bi-colored, a shank connected with said disk, and means for detachably uniting said shank to the main disk at one side of the vertical center of the latter in such manner that the smaller disk shall be projected from the main disk, and so arranged that the line of division between the two colors on the face of the smaller disk shall, when the rod is vertical, exactly coincide with the line of division between the two colors in one hemisphere on the main disk, substantially as described and for the purpose set forth.



677,721. FLOORING-MACHINE. WILLIAM O. VIVARTTAS, Weehawken, N. J., assignor to H. B. Smith Machine Company, Smithville, N. J. Original application filed Dec. 13, 1900, Serial No. 39,790. Divided and this application filed Mar. 16, 1901. Serial No. 51,467. (No model.)



Claim.—1. The combination, with a feed-roller, of a train of gears for driving the same, means for adjusting the feed-roller thereby varying the relative positions of the shafts of adjacent gears of the train, and a casing connecting the shafts of two of the gears, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends.

2. The combination, with a feed-roller, of a driven gear connected thereto so as to drive the same, a driving-gear, an intermediate gear driven by the driving-gear and driving the driven gear, means for adjusting the feed-roller thereby moving the driven gear connected thereto, and a casing connecting the shafts of the intermediate gear and its driving-gear, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends, and links connecting the intermediate gear and the gear driven thereby.

ing connecting the shafts of two of the adjacent engaging gears, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends.

3. The combination, with a feed-roller, of a driven gear connected thereto so as to drive the same, a driving-gear, an intermediate gear driven by the driving-gear and driving the driven gear, means for adjusting the feed-roller thereby moving the driven gear connected thereto, a casing connecting the shafts of the intermediate gear and one of the gears engaging the same, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends, and links connecting the shafts of the intermediate gear and the other gear engaging the same.

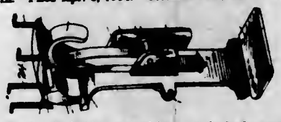
4. The combination, with a feed-roller, of a driven gear connected thereto so as to drive the same, a driving-gear, an intermediate gear driven by the driving-gear and driving the driven gear, means for adjusting the feed-roller thereby moving the driven gear connected thereto, and a casing connecting the shafts of the intermediate gear and its driving-gear, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends.

5. The combination, with the feed-roller, of a driven gear connected thereto so as to drive the same, a driving-gear, an intermediate gear driven by the driving-gear and driving the driven gear, means for adjusting the feed-roller thereby moving the driven gear connected thereto, a casing connecting the shafts of the intermediate gear and its driving-gear, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends, and links connecting the intermediate gear and the gear driven thereby.

6. The combination, with the stationary lower feed-roller and the upper feed-roller and means for vertically adjusting the latter, of a driven gear connected to the upper feed-roller, so as to drive the same, a driving-gear, an intermediate gear driven by the driving-gear and driving the driven gear, a casing connecting the shafts of the intermediate gear and the driving-gear, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends, and links connecting the intermediate gear and the gear driven thereby.

7. The combination, with the stationary lower feed-roller, the upper feed-roller and means for vertically adjusting the latter, of a driven gear connected to and driving the upper feed-roller, a driving-shaft, driving connection therefrom to the lower feed-roller, a driving-gear on the driving-shaft, an intermediate gear driven by the driving-gear and driving the driven gear, a casing connecting the shafts of the intermediate gear and the driving-gear, said casing having side members which extend from shaft to shaft on opposite sides of the last-named gears and which project at each end beyond the periphery of the gear and are connected together at their outer ends, and links connecting the intermediate gear and the gear driven thereby.

677,722. REIN SUPPORT AND LOCK. AUGUST F. VORKELLER, Chicago, Ill. Filed Apr. 8, 1901. Serial No. 54,729. (No model.)



Claim.—1. A rein-holder comprising a main body provided with a rein-securing aperture and having a curved enlargement at its upper end projecting over said aperture, and a clamping-arm pivoted to the main body below the aperture provided with a clamping-head at its upper end to act in conjunction with the under surface of the curved enlargement in clamping the reins, said clamping-arm being pivoted in front of its center of gravity and having its greater weight above its pivot whereby it is normally held in its clamped position, substantially as described.

2. A rein-support comprising in its construction a main body, a rein-receiving aperture therethrough, an enlarged curved portion above said aperture, an arm pivotally secured to said main body, a curved handle secured to the upper end of said arm and extending rearwardly therefrom and means for clasping a pair of reins whereby the weight of the inner end of the reins will fall upon said handle and tend to increase the force of said clasping means, substantially as described.

3. A rein-support comprising in its construction a main body, a rein-receiving aperture formed therein, an arm pivotally secured to the said main body, a transverse elongated portion, adapted normally to rest within said aperture, and secured to the upper end of said arm and provided with rearwardly-extending ratchet-teeth in its upper face, a lock for controlling the pivotal movement of said arm and a spring beneath said arm for pressing the lower end of the same outwardly, whereby reins passed through said aperture will be firmly clasped, substantially as described.

4. A rein-support comprising in its construction a main body portion, an arm pivoted thereto and adapted to clasp reins between itself and a portion of said body portion and means for locking said arm, comprising a segmental toothed rack and a bolt carried by the lower end of said arm and adapted to be controlled by a key and to engage said rack, substantially as described.

5. A rein-support comprising in its construction a main body, lugs extending therefrom, an arm pivoted to said lugs, means for permitting of the clasping said reins by said arm, and means for locking said arm in different pivotal positions, comprising a segmental toothed rack upon each of said lugs and bolts carried by the lower end of said arm and adapted to engage said rack and be controlled by a key, substantially as described.

6. A rein-support comprising in its construction a main body portion, means for receiving and retaining a pair of reins and means for securing said support to various points of a vehicle to which the same is applied, comprising a rearwardly-extending plate provided with apertures for receiving securing means, a plate extending at right angles and secured to one of the sides of said body portion and provided with apertures for receiving securing means, upwardly-extending arms secured to the upper end of said holder and provided with apertures for receiving securing means, lugs extending laterally from the sides of said main body and provided with apertures for receiving securing means and transversely-arranged strips provided with apertures adapted to register with the apertures of said lugs and receive securing means passed therethrough whereby the holder may be secured to the dashboard, side, roof or roof-supporting rod of a vehicle to which the supporter is applied, substantially as described.

677,728. TOY. CHARLES W. WALTERS, Richmond, Va. Filed Mar. 13, 1901. Serial No. 50,951. (No model.)



Claim.—1. A toy, comprising a tank having a resilient front wall, a lid hinged to fold upon the tank and frictionally engage with the resilient front wall, a figure, a torsional spring comprising two twisted strands extending transversely in the tank and loosely secured in opposite sides thereof, said strands having engagement with the lower limbs of the figure and exerting torsional-spring tension thereon when the figure is depressed and the lid folded upon the tank, said figure being elevated by the spring when the lid is released.

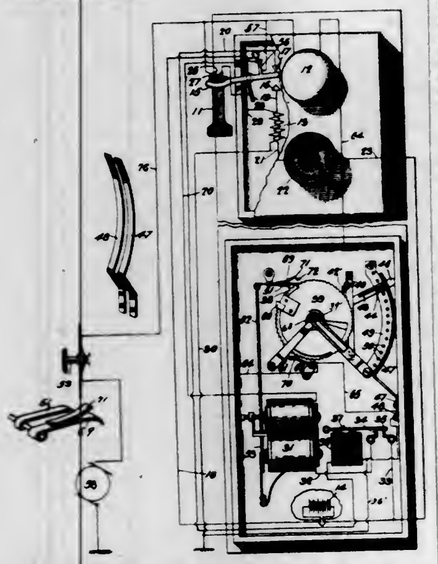
2. A toy, comprising a rectangular tank having a resilient front wall, a lid hinged to fold thereon and adapted to catch on said front wall, a nude figure, a torsion-spring device, comprising two adjustable plugs engaging in opposite perforations in the sides of the tank, and a doubled and twisted cord placed on the ankles of the figure and connected by its ends with the inner ends of the plugs, the cord having torsional force which adapts it to throw up the folded figure and lid, when the lid is released from the front wall of the tank.

3. A toy, comprising a rectangular tank having a resilient front wall, a lid having a like form to that of the tank and provided with a continuous depending flange hinged upon the rear side of the tank, said flange catching upon the resilient front wall of the tank, a figure, a torsion-spring device, comprising two adjustable plugs engaging in opposite perforations in the sides of the tank near its rear wall, a double cord looped around the ankles of the figure and connected by its ends with the inner ends of the plugs, said cord by twisting it having torsional force that adapts it to throw up the folded figure and lid when the lid is released from the resilient tank-wall, and a loose sheet representing water in the tank.

677,724. AUTOMATIC TELEPHONE-SWITCH. WILLIAM D. WATKINS, San Jose, Cal., assignor of one-half to John W. Bolster, same place. Filed Oct. 18, 1900. Serial No. 33,504. (No model.)

Claim.—1. A device of the class described comprising a plurality of sets of relatively fixed and movable contacts of which the contacts of one set are normally engaged, and electromechanical means for disengaging the normally-engaged contacts and simultaneously moving the movable contact of the other set toward engagement with its corresponding contact and subsequently permitting reëngagement of the first set of contacts.

2. A device of the class described comprising an alarm-circuit, a circuit-closer for said circuit comprising a plurality of relatively fixed and movable sets of contacts, of which the contacts of one set are normally engaged, and electromechanical means for disengaging the normally-engaged contacts and for simultaneously moving the movable contact of the other set toward engagement with its corresponding contact and for permitting reëngagement of the normally-engaged contacts after the second set of contacts are engaged.



3. A device of the class described comprising an alarm-circuit, a circuit-closer for said circuit comprising a plurality of series of relatively fixed and movable contacts, of which the contacts of one set are normally engaged, electromechanical means for disengaging the normally-engaged contacts and for simultaneously moving the movable contact of the other set toward engagement and for permitting reëngagement of the normally-engaged contacts after the engagement of the second set, and means for varying the relative positions of the contacts of the second set with respect to each other.

4. A device of the class described comprising two sets of relatively fixed and movable contacts, the contacts of one set lying normally disengaged and the contacts of the other set lying normally engaged, an electromagnet having an armature, independent means operably connected with said armature for moving the contacts simultaneously from their normal positions to engage the normally-disengaged contacts, means for holding the normally-engaged contacts in disengaged position, and means for releasing the normally-engaged contacts when the normally-disengaged contacts have been engaged, to permit reëngagement of the normally-engaged contacts.

5. A device of the class described comprising independently-pivoted ratchets each carrying a contact, contacts for engagement by the contacts of the ratchets, one pair of contacts lying normally engaged and the other pair lying normally disengaged, an electromagnet having an armature, a pawl for each ratchet operably connected with the armature for movement to operate the ratchets simultaneously from their normal positions to engage the normally disengaged contacts, and means in the path of the pawl of the ratchet which carries the normally-engaged movable contact, for disengaging said pawl and holding it disengaged to permit said ratchet to return and reëngage the normally-engaged contacts.

6. A device of the class described comprising an alarm or signal circuit, a circuit-closer for said circuit comprising two sets of relatively fixed and movable contacts, the contacts of one set lying normally engaged and the contacts of the other set lying normally disengaged, a ratchet carrying each of the movable contacts, a pawl for operating each ratchet means for operating the pawls simultaneously to actuate the ratchets to move the contacts from their normal positions to their relatively-opposite positions, a retaining-pawl for the ratchet carrying the normally-disengaged movable contact, and means for disengaging the pawl of the ratchet of the normally-engaged movable contact to permit it to return to its normal position, said retaining-pawl lying in the path of return movement of the normally-engaged contact for disengagement thereby from its ratchet.

7. A device of the class described comprising independently-pivoted ratchets each carrying a contact, contacts for engagement by the contacts of the ratchets, one pair of contacts lying normally engaged and the other pair of contacts lying normally disengaged, a pawl for operating each ratchet, a common means for actuating the pawls, the pawl of the ratchet that carries the normally-disengaged contact lying normally out of engagement with said ratchet and the other pawl lying normally in engagement with its ratchet, said ratchets when actuated being adapted to move their contacts from their normal positions to their opposite positions, a retaining-pawl for holding the normally-disengaged contact in operative position, said retaining-pawl being operable by return movement of the normally-engaged contact to release said normally-disengaged contact, and means for releasing the pawl of the ratchet of the normally-engaged contact to permit it to return.

8. A device of the class described comprising an electric circuit, and a circuit-closer for said circuit, said circuit-closer including two pivoted ratchets, a movable contact carried by each ratchet, a fixed contact for each of the movable contacts, said contacts being included in said circuit, one pair of coöperating contacts lying normally engaged and the other pair lying normally disengaged, an electromagnet having a vibratory armature, an operating-pawl for each ratchet operably connected with the armature, the pawl of the normally-engaged contact lying normally engaged with its ratchet and the other pawl lying normally disengaged, a retaining-pawl for the last-named ratchet, said ratchets being movable by their pawls to move the contacts from their normal positions to their reversed positions, a stop in the path of movement of the pawl of the ratchet of the normally-engaged contact for raising said pawl from engagement, and means for returning the ratchets when released, the retaining-pawl being adapted for disengagement when the normally-engaged contact is returned, to permit return movement of the normally-disengaged contact.

677,725. RUG-STRAIGHTENER. GEORGE T. WEEKS, Edon, Ohio. Filed Apr. 8, 1901. Serial No. 54,354. (No model.)



Claim.—1. The combination with a rug having keeper-pockets on its lower side near the corners thereof, of resilient stretcher members adapted to engage their ends within the keeper-pockets and hold the rug straight.

2. The combination with a rug having a plurality of keeper-pockets on the lower side thereof at the corners and near the side edges, of a plurality of resilient stretcher members, which are crossed in pairs and have their ends engaged with the keeper-pockets, said members when in straight condition serving to straighten the rug.

677,726. TABLE. LOUIS WELKER, Sr., Williamsport, Pa. Filed Oct. 17, 1900. Serial No. 33,385. (No model.)



Claim.—1. In a table, the combination with the top and depending side bars, of a diagonal brace secured at its ends to the side bars in proximity to and spaced from a corner of the table and leaving an open space above it and under the table-top, and a leg secured solely to and bearing against the bottom face of said diagonal brace.

2. The combination with a table and depending side bars, each having a groove in the inner face in proximity to the corners of the table, of diagonal braces having beveled ends, tongues projecting from said beveled ends and entering the grooves in the side bars and a leg secured to the under face of each diagonal brace.

3. In a table, the combination with the top and side bars, of diagonal corner-braces secured at their ends to and supported by the side bars and leaving open spaces above them and under the table-top, a leg having a flat bearing against the under face of each brace, a screw secured to the upper end of each leg and passing through the respective diagonal braces, and a nut on each screw and bearing upon the brace whereby the legs are secured solely to said corner-braces and spaced from the extreme corners of the table.

4. In a table, the combination with a top and side bars having grooves in their inner faces near their lower edges in proximity to the corners of the table, of diagonal braces having flanges or tongues on their respective ends to fit into the grooves in the side bars or strips, blocks secured to the side bars and braces at the respective ends of the latter, legs and means securing said legs to the under faces of the braces.

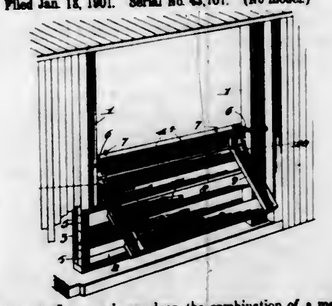
677,727. SHUTTLE FOR WIRE-WEAVING LOOMS. WALTER I. WHITEHURST, Baltimore, Md. Filed Oct. 29, 1900. Serial No. 34,740. (No model.)



Claim.—1. In a shuttle, the combination of a removable bobbin, a flanged bobbin-holder carrying a central pintle for the bobbin, a hub adapted to rotate loosely about the central pintle with means to connect it with the bobbin, and a coiled spring, one end of which is attached to the said hub, and the other end free and provided with a frictional device which bears against the inner surface of the said bobbin-holder, substantially as specified.

2. In a shuttle, the combination of a flanged bobbin-holder carrying a central pintle for the bobbin, a hub adapted to rotate loosely about the central pintle having pins which enter the under side of the bobbin, and a coiled spring one end of which is attached to the said hub, and the other free and provided with a friction-disk which bears against the inner peripheral surface of the bobbin-holder, substantially as specified.

677,728. GRAIN-CAR DOOR. ELMER V. WILLIAMS, St. Louis, Mo. Filed Jan. 18, 1901. Serial No. 43,707. (No model.)

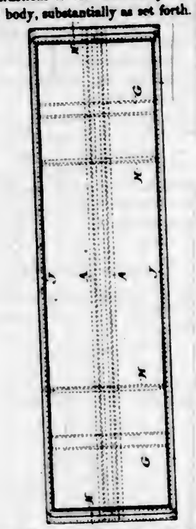


Claim.—1. In a grain-car door, the combination of a main frame detachably secured in the doorway of the car and having a series of cross-bars separated from each other, an outwardly-swinging frame hinged to the main frame and comprising slats arranged to close the spaces between said cross-bars and cleats secured to the outer face of the main frame and spaced to engage the inner faces of the jambs at each side of the doorway to position the door in such doorway whether the swinging frame be open or closed.

2. In a grain-car door, the combination of a main frame detachably secured in the doorway of the car and having a series of cross-bars separated from each other, an outwardly-swinging frame hinged to the main frame and comprising slats arranged to close the spaces between said cross-bars and cleats secured to the outer face of the main frame and spaced to engage the inner faces of the jambs at each side of the doorway to position the door in such doorway whether the swinging frame be open or closed, and a laterally-swinging hook secured to each end of the main frame adapted to engage the jamb on each side of the doorway.

677,729. CAR CONSTRUCTION. WILLIAM H. WOODCOCK, Lansdowne, Pa. Filed Apr. 12, 1900. Serial No. 12,506. (No model.)

Claim.—1. A metal-bodied car, the essential members of which consist of lengths of commercial rolled structural metal shapes; the members forming the respective sides of the car-body being bent at right angles to form the component fractions of the ends and joined at the median longitudinal axis of said body, substantially as set forth.



2. A railway-car having its body formed of flanged rolled metal beams placed vertically on flange, each horizontal layer of such beams being composed of two beams bent to the rectangular contour of the car under-frame, the ends of the two beams abutting and tie-plates uniting said abutting ends, substantially as herein shown and described.

677,730. PROCESS OF INSULATING CONDUCTORS. CLINTON E. WOODS, Chicago, Ill., assignor of two-thirds to Peter F. Turner, same place. Filed Apr. 12, 1901. Serial No. 55,466. (No model.)

Claim.—1. An insulated conductor comprising a suitable conductor with a coating formed of animal-intestines.

2. An insulated conductor comprising a suitable conductor with a coating formed of animal-intestines laid on so that the edges overlap and the coating thus forms a continuous sheath about the conductor.

3. An insulated conductor comprising a suitable conductor with a coating formed of animal-intestines laid on so that the edges overlap and the coating thus forms a continuous sheath about the conductor, said intestines applied in the form of spirally-wound ribbons.

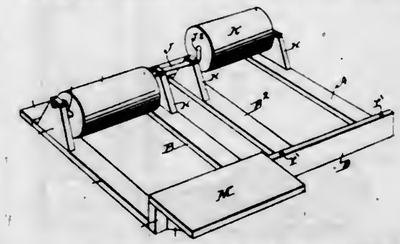
4. An insulated conductor comprising a conductor proper with a sheath formed of animal-intestines, and an exterior additional covering.

5. An insulated conductor comprising a conductor proper with a sheath formed of animal-intestines, and an exterior waterproof covering.

6. A method of insulating conductors which consists in covering the same with cleaned but moistened animal-intestines.

7. A method of insulating conductors which consists in covering the same with cleaned but moistened animal-intestines, and then covering such intestines with a waterproofing preparation.

677,731. PORTABLE BOOK-SUPPORT. WILLIAM P. ALLRED, Corydon, Iowa. Filed Apr. 15, 1901. Serial No. 55,923. (No model.)



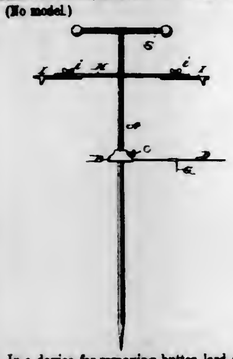
Claim.—1. In a book support and leveler, a base, a rock-shaft having cranks projected in reverse ways from its axis mounted upon bearers,

bearers fixed to a base, to operate in the manner set forth for the purposes stated.

2. A book-support and book-leveler consisting of a base having a fixed bar projecting above its front edge to engage the end of a book, bearers fixed to the rear edge portion of the base to support a rock-shaft having cranks that extend in reverse ways from the axis of the shaft and rollers on the cranks, arranged and combined to operate in the manner set forth for the purposes stated.

3. A book support and leveler comprising a portable base, a bar fixed on top of the front edge of the base to engage the end of a book, bearers fixed in alinement with each other on top of the rear edge portion of the base to support a rock-shaft, a rock-shaft having two cranks projecting in reverse ways from the axis of the shaft and rollers on the cranks and the shaft mounted on said bearers and an arm-rest attached to the front edge of the base, arranged and combined to operate in the manner set forth for the purposes stated.

677,782. **DEVICE FOR REMOVING BUTTER, &c., FROM VESSELS.** WILLIAM M. BLANEY, Homer, N. Y. Filed Dec. 6, 1900. Serial No. 38,823. (No model.)



Claim.—1. In a device for removing butter, lard and the like from vessels the combination with a central vertical stem, of a knife-blade projecting at right angles to said stem and adjustable longitudinally of said stem with means for securing the blade in its adjusted position; substantially as described.

2. In a device for removing butter, lard and the like from vessels the combination with the central rotary stem, adjustable brace for holding said stem centrally of the vessel and block longitudinally adjustable on said stem, of a horizontally-projecting knife mounted in the block; substantially as described.

3. In a device of the character described for removing butter, lard and the like from vessels, the combination with the central rotary stem, brace for holding said stem centrally of the vessel, adjustable knife projecting at right angles to the stem and the vertically-arranged supplemental blade adjustably mounted on said knife; substantially as described.

677,783. **FRUIT-JAR HOLDER.** SIMEON L. BRAY, Evansville, Ind., assignor to William J. Schaefer, Petersburg, Ind. Filed Mar. 2, 1901. Serial No. 49,599. (No model.)



Claim.—1. A jar-holder, comprising a base, a post mounted thereon, and a clamping-lever having swinging connection with the post and provided with an opening to receive the neck of a jar, substantially as specified.

2. A jar-holder, comprising a base, a post having hinged connection therewith, and a clamping-lever having hinged connection with the upper end of the post, the said clamping-lever having an opening through it to receive the neck of a jar, substantially as specified.

3. A jar-holder, comprising a base, a post having hinged connection therewith, a clamping-lever having hinged connection with the upper portion of the post, the said lever having an opening to receive the neck of a jar, and a packing on the wall of said opening, substantially as specified.

4. A fruit-jar clamp, comprising a base, a post having swinging connection therewith, a hinge-section on the upper end of said post, a clamping-lever having an opening to receive the neck of a jar, a hinge-section on said clamping-lever, a removable pintle for engaging with the two hinge-sections, and eyes on the inner side of the post to which the hinge-section on the lever may be attached by the pintle, substantially as specified.

5. A fruit-jar holder, comprising a post and sections hinged to the opposite ends of the post, one of said sections having an opening through which the neck of a jar may pass, the other section serving as a base for the jar, substantially as specified.

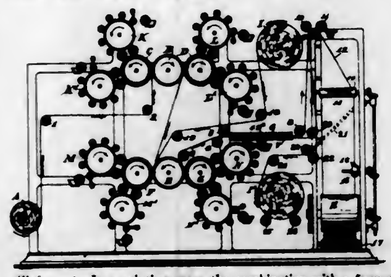
677,784. **SET OF DRAWERS.** ADOLF FIENKRATH, Barmen, Germany. Filed Dec. 10, 1900. Serial No. 39,411. (No model.)



Claim.—1. The combination with a casing, of a flap hinged thereto to cover a drawer-opening, a drawer in said opening and a handle attached to said drawer and means for moving said handle toward said flap to hold said flap in closed position, substantially as described.

2. The combination with a casing, of a spring-pressed flap, hinged thereto, a drawer in said casing, a handle secured to said drawer and projecting outside of said flap, and a spring acting to force said handle against said flap to hold the latter closed against the opening action of its spring, substantially as described.

677,785. **PRINTING-PRESS.** JOSEPH L. FIRM, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Jan. 30 1900. Serial No. 3,264. (No model.)



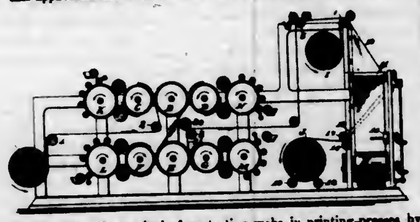
Claim.—1. In a printing-press, the combination with a form-cylinder, of an inking device therefor movable into and out of action, levers engaging said inking mechanism to move it and composed of two adjustable members, means for actuating said levers in time with the form-cylinders, substantially as described.

2. In a printing-press, the combination with a form-cylinder, of an inking device therefor movable into and out of action, levers engaging said inking mechanism to move it and composed of two adjustable members, and means for actuating said levers in time with the form-cylinders and adjustable stops limiting the return of said inking mechanism, substantially as described.

3. In a printing-press, the combination with a form-cylinder, of an inking mechanism therefor mounted to have a rocking movement to clear it from the form-cylinder, means for rocking said inking mechanism, and adjustable stops limiting the movement of said mechanism toward the form-cylinder, substantially as described.

4 In a printing-press the combination with a form-cylinder of two inking mechanisms therefor and means for alternately applying ink to alternate and different segments of the form-cylinder by means of alternate inking mechanisms.

677,786. **METHOD OF USING OFFSET-WEBS.** JOSEPH L. FIRM, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Original application filed Jan. 11, 1900, Serial No. 968. Divided and this application filed Feb. 23, 1900. Serial No. 6,138. (No model.)



Claim.—1. The method of protecting webs in printing-presses by the use of an offset-web which consists in folding the printing and offset webs together longitudinally and then removing and opening out the offset-web, substantially as described.

2. The method of protecting a web during printing which consists in running an offset-web therewith and folding the two together longitudinally, then opening and rolling up the offset-web, substantially as described.

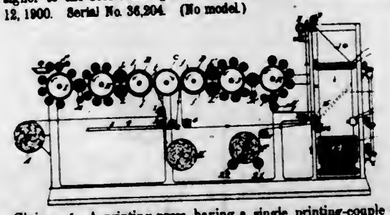
3. The method of protecting a web during printing which consists in running an offset-web therewith and folding the two together longitudinally with the offset-web inside, then partially opening both webs, removing the offset-web, completing the opening thereof and rolling up the same, substantially as described.

4. The method of protecting a web during printing which consists in running an offset-web in contact with the first-printed side of the web while printing the opposite side, then transferring the offset-web to the opposite side of the printed web between the points where it is printed and folded, substantially as described.

5. The method of protecting a web during printing which consists in running an offset-web in contact with the first-printed side of the web while printing the opposite side, then transferring the offset-web to the opposite side of the printed web, longitudinally folding the two webs together, and then removing the offset web from between the folds of the printed web, substantially as described

6. The method of protecting a web during printing which consists in running an offset-web in contact with the first-printed side of the web while printing the opposite side, then transferring the offset-web to the opposite side of the printed web, longitudinally folding the two webs together, and then removing the offset-web from between the folds of the printed web, then rolling up the offset-web, substantially as described.

677,787. **PRINTING-PRESS.** JOSEPH L. FIRM, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Nov. 12, 1900. Serial No. 36,204. (No model.)



Claim.—1. A printing-press having a single printing-couple consisting of a single impression-cylinder and plural form-cylinders of equal length and coacting therewith to print both sides of the web, means for conducting a half-width web between one end half of said impression-cylinder and form-cylinders to print one side of the web, means for turning and shifting the web into line with the other end halves of impression and form cylinders and means for passing the web between said other halves of the impression and form cylinders to print the other side of the web, substantially as described.

2. A printing-press having a single printing-couple consisting of a single impression-cylinder, two form-cylinders of equal length coöperating therewith to print both sides of the web, said form-cylinders having forms secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof whereby only half the surface of the web is printed at a time by each form-cylinder; the forms upon one cylinder printing in the spaces left blank by the forms upon the other cylinder and means for turning and shifting a half-width web coming from one end halves of the cylinders and presenting it to the other end halves of the cylinders to print the other side thereof in the same manner, substantially as described.

3. A printing-press having a single printing-couple consisting of a single impression-cylinder and plural form-cylinders of equal length coacting therewith to print both sides of the web, means for conducting a half-width web between one end half of said impression-cylinder and form-cylinders to print one side of the web, means for turning and shifting the web into line with the other end halves of the impression and form cylinders, means for passing the web between said other halves of the impression and form cylinders to print the other side of the web and means for conducting an offset-web between the web being printed and the impression-cylinder during the second passage of the web about the impression-cylinder, substantially as described.

4. A printing-press having a single printing-couple consisting of a single impression-cylinder and plural form-cylinders of equal length and coöperating therewith to print both sides of the web, said form-cylinders having forms secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof whereby only one-half the surface of the web is printed at a time by each form-cylinder; the forms upon one cylinder printing in the spaces left blank by the forms upon the other cylinder, means for turning and shifting a half-width web coming from one of the end halves of the cylinders and presenting it to the other end halves of the cylinders to print the other side of the web in the same manner and means for conducting an offset-web between the web being printed and the impression-cylinder during the second passage of the web about the impression-cylinder, substantially as described.

5. A printing-press having a single printing-couple consisting of an impression-cylinder and two form-cylinders of equal length coacting therewith to print both sides of the web, means for conveying a half-width web between one end half of said impression-cylinder and form-cylinders to print one side of the web; the form and impression cylinders being proportioned to bring the same surfaces in contact at all times, means acting upon the web after one side is printed to turn the web and shift it into line with the other end halves of the impression and form cylinders and means for conducting the web between said other end halves of the impression and form cylinders to print the other side of the web.

6. A printing-press having a single printing-couple consisting of a single impression-cylinder and two form-cylinders of equal length coöperating therewith to print both sides of the web; said form-cylinders having forms secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof, whereby only one-half the surface of the web is printed at a time by each form-cylinder; the forms upon one cylinder printing in the spaces left blank by the forms upon the other cylinder, the form and impression cylinders being proportioned to bring the same forms in contact with the same spaces of the impression-cylinder at all times and means for turning and shifting a half-width web coming from one of the end halves of the cylinders and for presenting it to the other end halves of the cylinders to print the other side thereof in the same manner, substantially as described.

7. A printing-press having a single printing-couple consisting of an impression-cylinder and two form-cylinders coöperating therewith to print both sides of the web, the forms upon any circumferential zone of either cylinder being duplicates of each other, means for passing a half-width web in succession between opposite end halves of the cylinders and means for reversing the web between said successive passages whereby each of the end halves of the cylinders prints upon a different side of the web, substantially as described.

8. A printing-press having a single printing-couple consisting of an impression-cylinder and two form-cylinders coöperating therewith to print both sides of the web, the forms upon any circumferential zone of either cylinder being duplicates of each other, means for passing a half-width web in succession between opposite end halves of the cylinders and means for reversing the web between said successive passages whereby each of the end halves of the cylinders prints upon a different side of the web and means for conveying an offset-web between the printed web and the impression-cylinder during the second passage of the printed web about the impression-cylinder, substantially as described.

9. A printing-press having a single printing-couple consisting of an impression-cylinder and two form-cylinders of equal length coöperating therewith to print both sides of the web, said form-cylinders having forms secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof whereby only half the surface of the web is printed at a time by each form-cylinder; the forms upon one cylinder printing in the spaces left blank by the forms upon the other cylinder, the forms upon any circumferential zone of either cylinder being duplicates of each other, means for passing a half-width web in succession between opposite end halves of the cylinder and means for reversing the web between said successive passages whereby each of the end halves of the cylinders prints upon a different side of the web, substantially as described.

10. A printing-press having a single printing-couple consisting of an impression-cylinder and two form-cylinders of equal length coöperating therewith to print both sides of the web, said form-cylinders having forms

secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof whereby only half the surface of the web is printed at a time by each form-cylinder; the forms upon one cylinder printing in the spaces left blank by the forms upon the other cylinder, the forms upon any circumferential zone of either cylinder being duplicates of each other, means for passing a half-width web in succession between opposite end halves of the cylinder and means for reversing the web between said successive passages whereby each of the end halves of the cylinders prints upon a different side of the web, means for conveying an offset-web between the printed web and the impression-cylinder during the second passage of the printed web about the impression-cylinder, substantially as described.

11. A printing-press having a single printing-couple consisting of an impression-cylinder, a pair of form-cylinders of equal length coöperating therewith to print both sides of the web each form-cylinder having forms of substantially equal size secured thereto so that both circumferentially and longitudinally each form is adjacent to a space of substantially equal size whereby only half of one surface of the web is printed by each cylinder at the same passage of the web; each form-cylinder printing upon the spaces of the web left blank by the other form-cylinder, means for passing a half-width web in succession between opposite end halves of the cylinders and means for reversing the web between said successive passages, substantially as described.

12. A printing-press having a single printing-couple consisting of an impression-cylinder, a pair of form-cylinders of equal length coöperating therewith to print both sides of the web, each form-cylinder having forms of substantially equal size secured thereto so that both circumferentially and longitudinally each form is adjacent to a space of substantially equal size whereby only half of one surface of the web is printed by each cylinder at the same passage of the web; each form-cylinder printing upon the spaces of the web left blank by the other form-cylinder, means for passing a half-width web in succession between opposite end halves of the cylinders and turning-bars adapted to turn and laterally shift the web between said successive passages, substantially as described.

677,738. **PRINTING-PRESS.** JOSEPH L. FIRE, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Jan. 9, 1901. Serial No. 42,621. (No model.)



Claim.—1. The combination with two sets of folding mechanisms, of a combined offset-web and sheet-carrier and means whereby said offset-web conveys the folded web between said folding mechanisms.

2. In a printing-press, the combination with two separated sheet-manipulating devices, of an offset-web and means for conducting it between said sheet-manipulating devices, along with the sheets being manipulated, whereby the offset-web acts also as a sheet-carrier.

3. In a printing-press, in combination with a longitudinal folder, and a transverse folder acting successively upon the web, of rollers engaging opposite sides of the web after leaving the longitudinal folder, and means for introducing offset-webs between the web and said rollers and between the web and the rollers of the transverse folder, substantially as described.

4. In a printing-press, the combination with a longitudinal folder, and a transverse folder successively engaging the web, with rollers engaging the outer surfaces of the web after leaving the longitudinal folder, and offset-webs passing with the printed web successively about one of said rollers and one of the folding-rollers of the transverse folder, substantially as described.

5. In a printing-press, the combination with a longitudinal folder, and a transverse folder successively engaging the web, with rollers engaging the outer surfaces of the web after leaving the longitudinal folder, an offset-web passing successively about one of said rollers and one of the folding-rollers of the transverse folder and means for carrying the offset-web outside of the transverse folder between said rollers, substantially as described.

6. The combination with a web-folding mechanism, of an offset-web and means for conducting it successively in contact with both sides of the folded web, substantially as described.

7. The combination with a web-folding mechanism, of an offset-web and means for simultaneously conducting different parts of the offset-web in contact with opposite sides of the folded web while being folded.

8. The combination, with a web folding and delivering mechanism, of an offset-web, means for successively conducting the offset-web in contact with both sides of the folded web while being folded, and means for conducting the offset-web about the delivering mechanism between said successive contacts with the folded web.

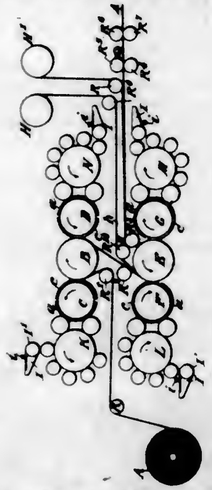
9. The combination with web folding and cutting mechanisms, of an offset-web, means for conducting the offset-web in contact with the folded web, and means for separating the two webs and for passing the offset-web outside of and about such folding and cutting mechanisms as lie on the same side of the folded web with the offset-web, substantially as described.

10. The combination with web folding and cutting mechanisms, of an offset-web, means for conducting the offset-web in contact with the folded web, and deflecting-rollers for the offset-web whereby it may be passed about such folding and cutting mechanisms as lie upon the same side of the folded web as the offset-web.

11. The combination with a transverse folding mechanism having folding-rollers, of an offset-web passing about a folding-roller.

12. The combination with a transverse folding mechanism having folding-rollers engaging opposite sides of the folded paper, of an offset-web and means for conducting the offset-web in succession about both folding-rollers between said rollers and the printed web.

677,739. **PRINTING-PRESS.** JOSEPH L. FIRE, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Aug. 13, 1900. Renewed Apr. 27, 1901. Serial No. 57,537. (No model.)



Claim.—1. A printing-press having an impression-cylinder and a pair of form-cylinders for printing one side of a web, each form-cylinder having forms secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof, whereby only half the surface of the web is printed on one cylinder, each form-cylinder of a pair printing upon the spaces of the web left blank by the other cylinder of the pair, substantially as described.

2. A printing-press having an impression-cylinder and a pair of form-cylinders for printing one side of a web each form-cylinder having forms secured thereto upon alternating and substantially equal spaces both circumferentially and longitudinally thereof, whereby only half the surface of the web is printed on one cylinder, each form-cylinder of a pair printing upon the spaces of the web left blank by the other cylinder, and the impression-cylinder being proportioned to oppose the same surfaces to the same forms at all times, substantially as described.

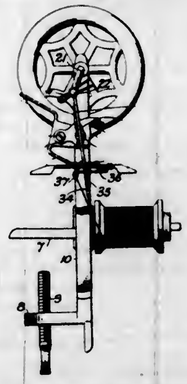
3. A printing-press having an impression-cylinder and a pair of form-cylinders for printing one side of a web, each form-cylinder having forms of substantially equal size secured thereto so that both circumferentially and longitudinally each form is adjacent to a space of substantially equal size, whereby only half the surface of the web is printed on one cylinder, each form-cylinder of a pair printing upon the spaces of the web left blank by the other cylinder of the pair, substantially as described.

4. A printing-press having form-cylinders and forms secured thereto upon alternate and substantially equal spaces both circumferentially and longitudinally thereof, whereby only half the surface is covered by forms, all the forms upon any circumferential belt or zone being duplicates, substantially as described.

5. A printing-press having an impression-cylinder and a pair of form-cylinders for printing one side of a web, each form-cylinder having forms of substantially equal size secured thereto so that both circumferentially and longitudinally each form is adjacent to a space of substantially equal size, whereby only half the surface of the web is printed on one cylinder, each form-cylinder of a pair printing upon the spaces left blank by the other cylinder of the pair, and all the forms upon the same circumferential zone being duplicates, substantially as described.

6. A printing-press employing two form-cylinders for perfecting each side of the web, said form-cylinders having forms secured thereto to alternate with blank spaces substantially equal thereto in size, both circumferentially and longitudinally thereof, and the forms of the second cylinder of each pair printing in the spaces left blank by the first cylinder of said pair.

677,740. **NEEDLE-FEED CHAIN-STITCH SEWING-MACHINE.** HENRY J. HADDOCK, New York, N. Y., assignor to George T. Batchelor, South Orange, N. J., and Samuel Stenson, Sea Cliff, N. Y. Filed Oct. 27, 1900. Serial No. 34,553. (No model.)



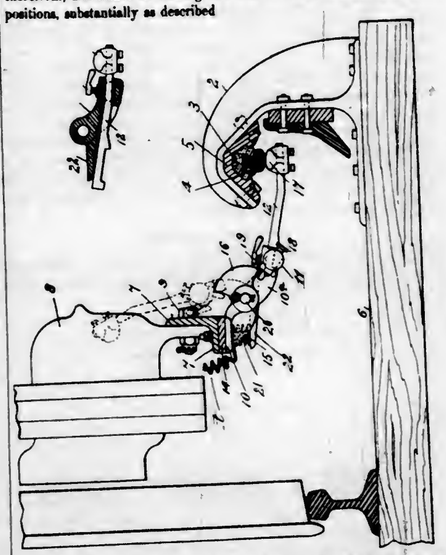
Claim.—1. A sewing-machine comprising a shaft, means to rotate the same, a crank formed on one end thereof, a needle mounted on said crank and provided with a hook adjacent to the lower end thereof, a plate, a spring-controlled presser-foot pivotally mounted on the frame, a guide-plate pivotally mounted on the pivot on which the presser-foot is mounted and provided with a segmental slot, a screw passing through said slot into a part of said presser-foot, and means to feed the thread to said needle, as and for the purpose set forth.

2. A sewing-machine comprising a shaft, means to rotate the same, a crank formed on one end thereof, a needle mounted on said crank and provided with a hook adjacent to the lower end thereof, a plate, a spring-controlled presser-foot pivotally mounted on the frame, a guide-plate pivotally mounted on the pivot on which the presser-foot is mounted and provided with a segmental slot, a screw passing through said slot into said presser-foot, a spring secured at one end thereof to the under side of said plate and having the free end thereof extending obliquely in the transverse path of said needle, and means to protect the point of the needle, as and for the purpose set forth.

677,741. **MEANS FOR SUPPORTING AND MANIPULATING CONTACT-SHOES OF ELECTRICALLY-PROPELLED RAILWAY-CARS.** HERBERT C. HASTINGS and LOUIS R. WALKER, Springfield, Mass., assignors to Henry A. Chapin, same place. Filed Feb. 21, 1901. Serial No. 48,224. (No model.)

Claim.—1. In an electric-railway system comprising a suspended third rail, presenting its under surface for shoe-contact, a shoe for electrical contact with said under surface of said rail, and means connecting said shoe with a car, whereby said shoe is maintained in operative contact with said under rail-surface, and means whereby the same may be moved horizontally from under said rail toward said car, and thence upward against the side of the car, and means for temporarily securing the shoe and the connected supports thereof in said upward position, substantially as described.

2. In an electric-railway system, comprising a suspended third rail, a shoe for electrical contact with the under side of said rail, a shoe-arm carrier pivotally connected to the side of a car for vertically-swinging movements, an arm to which said shoe is attached having a sliding connection with said carrier, whereby said shoe is moved in substantially a right line from said car to a contact position under said rail and is withdrawn therefrom, and means for locking said arm and shoe in either of said two positions, substantially as described



3. In an electric-railway system of the class described, an arm carrying the contact-shoe of the third rail, a swinging arm-carrier pivotally connected to the side of a car, means for slidingly connecting said arm and carrier, a segmental projection on a fixed part of said pivot connections adjoining the car, and a sliding bolt on said carrier engaging said projection and retaining said carrier, supporting-arm, and shoe, in upwardly or downwardly swung positions, substantially as described.

4. In an electric-railway system comprising a suspended third rail, a shoe for electrical contact with the under side of said rail, and means connecting said shoe with a car whereby said shoe is maintained in operative contact with said rail, and whereby the same may be moved from under said rail and swung upward to a position opposite the side of said car, and means whereby said shoe may be supported in said removed position, substantially as described.

677,742. **CONVEYER-CHAIN.** JOSEPH C. HOSMER Paterson, N. J., assignor to himself and Thomas E. Platt, same place. Filed Jan. 16, 1901. Serial No. 43,493. (No model.)



Claim.—1. The combination with a series of gravity-buckets, of conveyer-chains each comprising oppositely-placed similar offset links in pairs having eyes at the ends for pivot-pins with the eyes at one end of each pair passing between the eyes at one end of the adjacent pair, rollers between said eyes, pivot-pins passing through said rollers and said eyes, intermediate hubs, sleeves between the hubs and bolts passing through the hubs and sleeves to connect the links in pairs, substantially as specified.

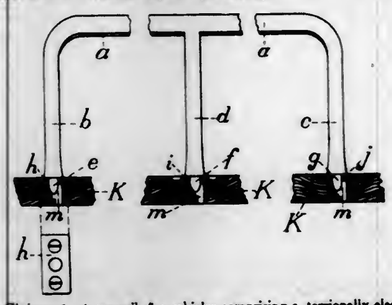
2. The combination with a series of gravity-buckets of conveyer-chains each comprising oppositely-placed similar offset links in pairs having eyes at the ends for connecting-shafts, with the eyes at the end of each pair passing between the eyes at the end of the adjacent pair, intermediate hubs, sleeves between the hubs and bolts passing through the hubs and sleeves to connect the links in pairs, substantially as specified.

3. The combination with a series of gravity-buckets, of conveyer-chains each comprising similar pairs of oppositely-placed links having eyes at the ends and means for connecting the links in pairs, the eyes at one end of each pair passing between the eyes at the end of the next adjacent pair of links, of rollers between the eyes, pivot-pins passing through said rollers and the eyes in the ends of the links, bushings over said pivot-

pins and between the same and the bearing-surfaces of said eyes, and means whereby one end of every pair of links and a bushing are connected to move together, the adjacent ends of the next pair of links being free to move on said bushings, substantially as and for the purposes set forth.

4. The combination with a series of gravity-buckets, of conveyer-chains each comprising similar pairs of oppositely-placed links having eyes at the ends and means for connecting the links in pairs, the eyes at one end of each pair passing between the eyes at the end of the next adjacent pair of links, of rollers between the eyes, pivot-pins passing through said rollers and the eyes in the ends of the links, bushings over said pivot-pins, and between the same and the bearing-surfaces of said eyes, each of said bushings having a lug on one end fitting into a groove in the bearing-surface of one eye in the outside link of a pair, whereby one end of each pair of links and a bushing are connected to move together over the pivot-pin, the ends of the next adjacent pair of links being free to move on the bushing, substantially as specified.

677,743. TOE-RAIL FOR VEHICLES. SHERIDAN P. HOYALING, Ira, N. Y., assignor of one-half to Fay Clifford Adams, same place. Filed Mar 1, 1901. Serial No. 49,657. (No model.)



Claim.—1. A toe-rail for vehicles comprising a torsionally-elastic horizontal rail portion *a* having end posts *c*, *c* provided with hooked ends to engage sockets in the vehicle-bed, and an intermediate bracing and supporting post *d* secured to said rail *a* and adapted to be sprung relative to said end posts *c*, *c*, and engage at its lower end with a suitable socket in the bed of the vehicle.

2. A toe-rail for vehicles comprising a torsionally-elastic horizontal rail portion *a* having rearwardly-raked end posts *c*, *c*, formed integral therewith and provided with socket-engaging hooks *e*, *g*, at their lower ends to engage suitable sockets in the vehicle-bed, and a forwardly-inclined integral bracing and supporting post *d* intermediate said end posts *c*, *c*, said intermediate post *d* being adapted to be sprung outwardly from said end posts *c*, *c* and having a socket-engaging hook at its lower end to enter a suitable socket in the vehicle-bed and lock the toe-rail in place.

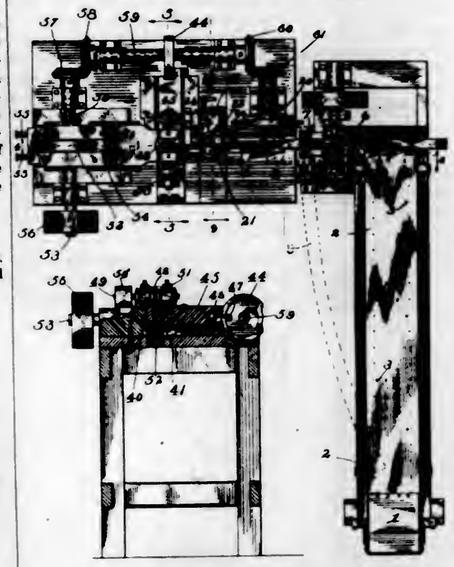
677,744. MACHINE FOR STRAIGHTENING AND TRIMMING LINKS OF CHAIN BELTS. JOHN C. HOWE, Indianapolis, Ind., assignor of one-half to Julius M. Kaminsky and Clinton E. Prouse, same place. Filed Sept. 24, 1900. Serial No. 30,880. (No model.)

Claim.—1. In a machine for straightening and trimming the links for chain belts, the combination, of a chute by which the links are conveyed thereto, a traveling carrier leading to said chute, an elevating-carrier for depositing the links thereon, and a star-wheel positioned above said traveling carrier near the point of its delivery to said chute in near proximity thereto and revolving oppositely to the travel thereof, whereby links are prevented from remaining piled on top of each other at the point where they are delivered to said chute, substantially as set forth.

2. The combination, in a machine of the class described, of an elevating-carrier for carrying the links to the feeding devices, a transverse traveling carrier arranged to receive the links therefrom and deliver them to a chute leading to the operating mechanism, said chute arranged to deliver the links to the machine proper, and a device positioned above the entrance to said chute for preventing the clogging of said chute, substantially as set forth.

3. The combination, in a machine of the class described, with the chute by which the links are conveyed thereinto and the carrier leading to said chute, of a pivoted curved gate positioned at the end of said carrier and above said chute, said gate being operated by the links as they pass, whereby when the chute is filled the succeeding links will be by said gate switched overboard and not permitted to enter the chute, substantially as set forth.

4. The combination, in a machine of the class described, with the operating mechanism, of a chute for delivering the links one by one to the machine, three plungers mounted to slide across said chute and connected to a jointed and pivoted bar arranged to operate the two end plungers oppositely to the center plunger, and mechanism connected therewith for operating the same, substantially as set forth.



The combination, in a machine of the class described, of a link-carrying chute leading thereto, stop-plungers arranged to intercept the links in their descent, levers for operating said stop-plungers, a rock-shaft extending from a position adjacent to said levers down to alongside reciprocating mechanism of the machine and provided with arms at its upper and lower ends, a lever extending into the path of the reciprocating mechanism, a link connecting one of the arms on the rock-shaft with said lever, and springs acting oppositely to the force which drives said rock-shaft, substantially as and for the purposes set forth.

6. The combination, in a machine of the class described, with the mechanism thereof, of a chute for leading the links to said mechanism, said chute being flattened and widened at the lower end and provided with a projection, as 17, whereby the links will be caused to turn over when they reach the lower end of said chute if not already in the proper upright position, and means for carrying the links horizontally across and out of the flattened lower end of said chute, substantially as set forth.

7. The combination, in a machine of the class described, of a reciprocating link-carrier, a revoluble center, mechanism connecting said carrier and said center terminating in a lever the end whereof extends to alongside the lip of the link during the first movement thereof by the link-carrier, said lever end being adapted to pass within said lip when the link is in one position or to be moved thereby when in another position, whereby the center is caused to revolve or permitted to remain at rest according to the position of the link passing through, substantially as and for the purposes set forth.

8. The combination, in a machine of the class described, of a double link-carrier, and a revolving center arranged alongside said link-carrier, said carrier being adapted to force the link into said center at its first movement and to force the same out of said center to between gripping and straightening dies at its second movement, and mechanism adapted to be set in motion by the passage of the link when in one position or permitted to remain at rest when the link is in the other position, substantially as and for the purposes set forth.

9. The combination, in a machine of the class described, of a revolving center whereby a link in its passage through the machine may be caused to assume a uniform position, said center consisting of a rotary structure have ingress and egress openings for the link and provided with a spur-wheel, a rack-bar arranged alongside said spur-wheel, a slide passing through said rack and adapted to engage with the link-carrier, connections consisting of levers extending from said slide up to alongside the path of the link, and means whereby the same may be actuated when the link is in one position and permitted to remain at rest when the link is in the other position.

10. The combination, in a machine of the class described, of a rotating center whereby the link is positioned for subsequent operations, a spring-mounted gripping-jaw in said center whereby the link is gripped and held when forced into said center until the link-carrier is retracted, an arm for operating said gripping-jaw having a suitable contact-point, and said link-carrier also having a contact-point adapted to strike the contact-point on said arm and thus release the link and permit the same to fall to its second position, substantially as set forth.

11. The combination, in a machine of the class described, of a reciprocating link-carrier, 18, having two link-actuating projections, 36 and 37, one at a higher level than the other, a link-receiving center, 21, having a spring-actuated jaw, 31, and a jaw-actuating lever, 33, said reciprocating link-carrier being provided with a contact-point adapted to actuate said lever 33 when said carrier is retracted and thus permit the link to drop from the first to the second positions, substantially as set forth.

12. The combination, in a machine of the class described, with the link-carrier, of a link-receiving rotatable center, 21, having suitable openings to receive the link, means whereby the link is held at one elevation until released, and shoulders to receive the link when the same is permitted to descend, said shoulders being protected by a fabric as described.

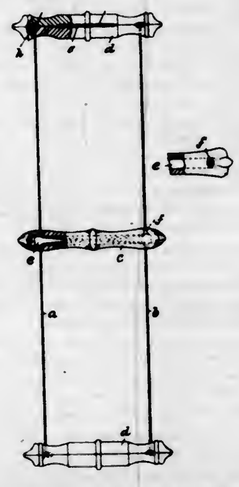
13. The combination, in a machine of the class described, of suitable link-positioning apparatus, suitable gripping and straightening dies, and a reciprocating carriage carrying a milling-wheel whereby protuberances on the links may be trimmed off.

14. The combination, in a machine of the character described, of suitable link-positioning mechanism, and gripping and straightening dies adapted to receive the link and straighten and hold the same, one of said dies being stationary and the other adapted to reciprocate, the plunger of the reciprocating die being operated by a cam-wheel, and the positioning mechanism and said cam-wheel being geared together whereby they are caused to move in fixed relation to each other, substantially as set forth.

15. The combination, in a machine of the character described, of a link receiving and positioning mechanism, the gripping and straightening dies, a reciprocating carriage carrying a milling-wheel for trimming the links, a cam for operating one of said gripping and straightening dies, and a cam for operating the carriage carrying the milling-wheel, the several mechanisms being geared together and caused to operate synchronously, substantially as set forth.

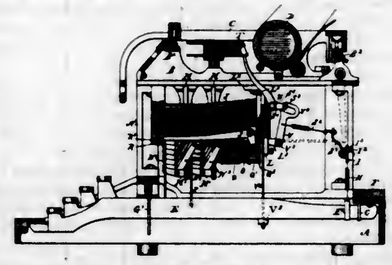
16. The combination, in a machine of the character described, of suitable gripping and straightening dies, a carriage carrying a milling-wheel, a cam whereby said milling-wheel carriage is driven forward, springs whereby said milling-wheel carriage is retracted, and means whereby the gripping and straightening dies are caused to operate simultaneously with said milling-wheel, substantially as set forth.

677,745. TOY. JOHN MAURO, Paterson, N. J., assignor of one-half to Thomas F. O'Grady, same place. Filed Nov. 30, 1900. Serial No. 38,240. (No model.)



Claim.—The combination of cords or other flexible devices presenting contrasts to each other, and a movable device penetrated by said cords and having a cavity and alined orifices communicating with said cavity, said cords being arranged to cross each other within said movable device extending through said orifices, substantially as described.

677,746. TYPE-WRITING MACHINE. GEORGE H. SMITH, Cedar Rapids, Iowa, assignor to Union Typewriter Company, Jersey City, N. J. Filed Apr. 13, 1901. Serial No. 55,665. (No model.)



Claim.—1. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-levers, the width of the system of type-bars being less than the width of the system of key-levers, and an intermediate system of bell-cranks connected to the type-bars and to the key-levers, the bell-cranks having prolonged axes, which extend transversely of the machine, and each bell-crank having one arm which is practically in line with its connected type-bar and having another arm which is practically in line with its connected key-lever.

2. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-levers, the width of the system of type-bars being less than the width of the system of key-levers, and an intermediate system of bell-cranks having prolonged axes which extend transversely of the machine, each bell-crank having an arm which is practically in line with its type-bar and is connected thereto by a link, and also having an arm which is practically in line with its key-lever and is connected thereto by a link.

3. In a type-writer, the combination of a series of key-levers, a curved series of radial type-bars, a bearing adapted to support said type-bars and standing in a practically vertical plane, a series of crank-shafts provided each with arms at an angle to each other and arranged in different vertical planes, a series of links connected at one set of their ends to the short arms of the type-bars and at the other set of their ends to one set of the arms on the crank-shafts, and a second series of practically parallel links connected at one set of their ends to the key-levers and at the other set of their ends to the other set of crank-arms.

4. In a type-writer, the combination of a series of radial type-bars and their bearing, said bars lying practically horizontally when at rest, a series of key-levers, a depending bracket, rock-shafts mounted in two ascending, diverging and overlapping series on said bracket, a series of arms on said rock-shafts, a series of links connecting the said arms to the said key-levers, a second series of arms upon said rock-shafts and offset from the first series of arms, and a second series of links connecting said second series of arms to said type-bars.

5. In a type-writer, the combination with a series of radial type-bars and their connecting-links, and a bearing for said bars set in a practically vertical plane, of a double series of rock-shafts arranged in a vertical plane and in an ascending and overlapping order, a fixed arm on each rock-shaft in practically the same vertical plane as the type-bar arm to which it connects, another arm on each rock-shaft adjustable to the same vertical plane as the key-lever to which it connects, a support for said rock-shafts, a series of key-levers, and links to connect the key-levers and the type-bars, respectively, with said rock-shaft arms.

6. In a type-writer, the combination with a series of radial type-bars and their supporting-bearing, of a series of rock-shafts having each an arm to connect with one of said type-bars, and another arm to connect with a key-lever, a stirrup-shaped support for each rock-shaft, adjustable cone-bearings in said stirrups, a double-inclined, downwardly-converging bracket on which said stirrups are mounted in successive steps, key-levers, and connecting-links, substantially as and for the purpose set forth.

7. In a type-writing machine, the combination with a platen, of a system of rearwardly-striking type-bars, a system of key-bearing levers the system of levers being of greater width than the system of type-bars, a set of links which are attached to the type-bars and extend longitudinally thereof, a set of links which are attached to the key-levers and extend upwardly therefrom, and a system of bell-cranks connecting said set of links, said bell-cranks having prolonged axes extending transversely of the machine, and each bell-crank having at the inner end of its axis an arm engaged by a type-bar link and having at the outer end of its axis an arm engaged by a key-lever link.

8. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-

levers extending rearwardly beneath the type-bars, a system of links which are attached to the type-bars and extend longitudinally thereof, a system of links which are attached to the key-levers and extend upwardly therefrom, the width of the system of key-lever links being greater than the width of the system of type-bar links, levers extending transversely of the machine from said key-lever links to said type-bar links, and bearings for said levers.

9. In a type-writing machine, the combination with a platen, of a curved series of rearwardly-striking radial type-bars, a series of bell-cranks connected to said type-bars, the bell-cranks having arms at the outer ends of their axes, and the latter being prolonged transversely of the machine, and a system of key-levers connected to said bell-crank arms.

10. In a type-writing machine, the combination with a platen, of a curved series of rearwardly-striking radial type-bars, a series of bell-cranks connected to said type-bars, the bell-cranks having arms at the outer ends of their axes, and the axes being prolonged transversely of the machine, and a system of key-levers extending beneath the bell-cranks and connected by upwardly-extending links to said bell-crank arms.

11. In a type-writing machine, the combination with a platen, of a curved series of rearwardly-striking radial type-bars, a series of bell-cranks connected to said type-bars, the axes of said bell-cranks being prolonged transversely of the machine and lying one above another, and a system of key-levers connected to arms extending from the outer ends of the axes of the bell-cranks.

12. In a type-writing machine, the combination with a platen, of a curved series of rearwardly-striking radial type-bars, a series of bell-cranks connected to said type-bars, the axes of said bell-cranks being prolonged transversely of the machine and lying one above another, a system of key-levers connected to arms extending from the outer ends of the axes of the bell-cranks, a series of transversely-arranged stirrups in which said axes are mounted, and means for supporting said stirrups.

13. In a type-writing machine, the combination with a platen, of a curved series of rearwardly-striking radial type-bars, a series of forwardly-extending links attached at their rear ends to said type-bars, a series of bell-cranks having upwardly-extending arms engaged by the forward ends of said links and also having forwardly-extending arms, a series of key-levers beneath said bell-cranks, and a series of links extending upwardly from said key-levers to said forwardly-extending bell-crank arms, the width of the system of key-lever links being greater than the width of the system of type-bar links, and each bell-crank having a long transverse axis, the upwardly-extending arm of the bell-crank being arranged at the inner end and its forwardly-extending arm at the outer end of said axis.

14. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type bars, a system of key-levers, and a system of intermediate bell-cranks connected to said type-bars and key-levers, the system of bell-cranks being divided into two sets, one set arranged forwardly of the other, and each bell-crank having a prolonged axis or hub which extends transversely of the machine.

15. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-levers, a system of intermediate bell-cranks connected to said type-bars and key-levers, the system of bell-cranks being divided into two sets, one set arranged forwardly of the other, and each bell-crank having a prolonged axis or hub which extends transversely of the machine, and links connecting said bell-cranks to the type-bars, the links from one set of bell-cranks passing between the type-bar-operating arms of the other set of bell-cranks.

16. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-levers, a system of intermediate bell-cranks connected to said type-bars and to said key-levers, the system of bell-cranks being divided into two sets, one set arranged forwardly of the other, and each bell-crank having a prolonged axis or hub which extends transversely of the machine, links connecting said bell-cranks to the type-bars, the links from one set of bell-cranks passing between the type-bar-operating arms of the other set of bell-cranks, and two transverse rows of links connecting the bell-cranks to the key-levers.

17. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of bell-cranks extending beneath the type-bars, a system of key-levers extending beneath the type-bars, said bell-cranks being divided into two transverse sets and each bell-crank having a prolonged axis or hub, short links connecting the rear set of bell-cranks to the type-bars, long links connecting the forward set of bell-cranks to the type-bars, and upwardly-extending links connecting the key-levers to the bell-cranks.

18. In a type-writing machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-levers, and an intermediate system of bell-cranks connected to the type-bars and the key-levers, said system of bell-cranks being divided into a plurality of sets, each set extending transversely of the machine, the bell-cranks having prolonged transverse axes which are arranged one above another, and each bell-crank having an arm at the outer end of its axis which is connected to the key-lever, and an arm at the inner end of its axis which is connected to the type-bar.

19. In a type-writing machine, the combination with a plateu, of a series of rearwardly-striking type-bars, a series of key-levers, a series of intermediate bell-cranks connected to the type-bars and to the key-levers, the axes of said bell-cranks lying transversely of the machine, and means for adjusting at least one arm of each bell-crank in a direction parallel with its axis.

20. A bearing for radial type-bars, comprising an arched front plate terminating forwardly in a head semicircular in section having a pivot-groove equal in depth and width central to said head, and a back plate fitted to said front plate, with a plane face abutting on the groove therein, a portion of the back plate forming a continuation of the semicircular head, and the head being slotted radially to receive type-bars, substantially as described.

21. The described bearing for type-bars, comprising a pair of arched angle-plates, the front part of the front plate forming a segmental head, semicircular in cross-section, with a rounded groove central to said head, the depth and diameter of the groove being equal, and the back plate having a segmental portion abutting on said groove and forming a continuation of said semicircular head, substantially as described.

22. A type-writer type-bar composed of two similar but opposing parts of thin metal, each having at the angle in the body a circular boss pressed outwardly, with a central hole therein, a pivot-pin with an enlarged middle seated between said bosses, an adjacent rib concentric with the boss at a little distance therefrom, and a longitudinal rib extending therefrom, the two parts of the type-bar being soldered or otherwise fastened together, substantially as described.

23. A type writer type-bar provided with lateral bosses on each side, concentric with the pivot-pin, and an adjacent segmental rib or projection concentric with said pin and flush with said bosses, a short distance from them, substantially as and for the purpose set forth.

24. A type-bar guide pivoted to tilt forwardly and downwardly after each impression, an oscillating cam engaging therewith, and adapted to delay the guide at the guiding position during the entire period of contact of the type-bar therewith, a rock-shaft to which said cam is attached, and a connection off said rock-shaft with the universal bar, substantially as and for the purpose set forth.

25. A pivoted type-bar guide adapted to tilt forwardly and downwardly after each impression, and having a projecting arm with a stud thereon, an oscillating cam engaging with said stud, and adapted to tilt said guide and hold it in guiding position during the contact of the type-bar therewith and mechanism substantially as described for oscillating said cam.

26. In a front-strike writing-machine, the combination with a platen, of a curved system of rearwardly-striking radially-arranged type-bars, a system of key-levers, and a plurality of sets or rows of intermediate bell-cranks connected to said type-bars and key-levers, one set being arranged forwardly of another, and each set or row extending transversely of the machine.

27. In a front-strike writing-machine, the combination with a platen, of a curved system of rearwardly-striking radially-arranged type-bars, a plurality of sets of bell-cranks connected thereto, one set being arranged forwardly of another and each set being arranged transversely of the machine, and keys connected to said bell-cranks.

28. In a front-strike writing-machine, the combination with a platen, of a curved system of radially-arranged type-operating arms, a plurality of groups of bell-cranks, one group being arranged forwardly of another, short links and long links connecting said bell-cranks to the type-operating arms, and keys connected to said bell-cranks.

29. In a front-strike writing-machine, the combination with a platen, of a curved system of radially-arranged type-bars, two sets of bell-cranks arranged below the type-bars, fixed supports for said bell-cranks, alternating short links and long links connecting said bell-cranks to the type-bars, and key-levers connected to said bell-cranks.

30. In a front-strike writing-machine, the combination with a platen, of a curved system of radially-arranged type-bars, two sets of bell-cranks arranged below the type-bars, alternating short links and long links connecting said bell-cranks to the type-bars, and key-levers connected to said bell-cranks, the bell-cranks in each set being mounted in ascending series.

31. In a front-strike writing-machine, the combination with a platen, of a curved system of radially-arranged type-bars, two sets of bell-cranks arranged below the type-bars, fixed supports for said bell-cranks, short links and long links connecting said bell-cranks to the type-bars, the bell-cranks in each set being mounted in ascending series, and two sets or rows of links connecting said bell-cranks to said key-levers, the links in each set or row being of graduated lengths, according to the elevations of their connected bell-cranks.

32. In a front-strike writing-machine, the combination with a platen, of a curved system of rearwardly-striking radially-arranged type-bars, a plurality of sets of bell-cranks, one set being arranged forwardly of another and all of the sets extending transversely of the machine, means for connecting said bell-cranks to said type-bars, a system of key-levers, and a plurality of sets of links connecting said bell-cranks to said key-levers.

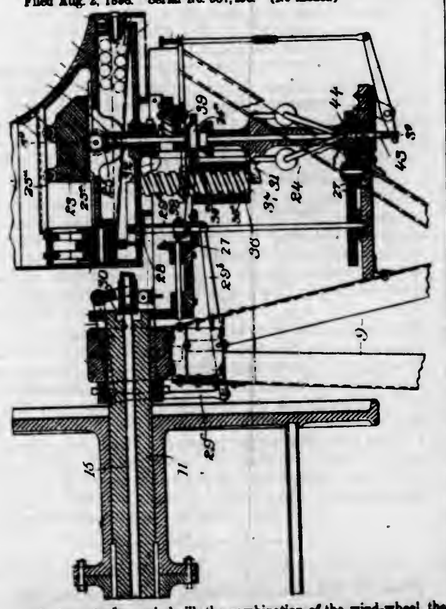
33. In a front-strike writing-machine, the combination with a platen, of a curved system of rearwardly-striking radial type-bars, a system of key-levers extending beneath the type-bars, a system of bell-cranks arranged between the type-bars and the key-levers, said system of bell-cranks being divided into a plurality of sets, one set arranged forwardly of the other, and the several bell-cranks being connected to the key-levers, and sets of links connecting said bell-cranks to said type-bars, the links of one set of bell-cranks passing between the type-bar-operating arms of another set of bell-cranks.

34. In a front-strike writing-machine, the combination with a platen, of a curved system of rearwardly-striking radially-arranged type-bars, a system of key-levers arranged below the type-bars, two sets of bell-cranks, one set arranged forwardly of the other, two sets of links extending forwardly from the type-bars to the bell-cranks, and two transverse rows of links extending upwardly from said key-levers to forwardly-extending arms formed upon said bell-cranks.

35. In a front-strike writing-machine, the combination with a platen, of a curved system of rearwardly-striking radially-arranged type-bars, two sets of bell-cranks arranged beneath the type-bars, one set arranged forwardly of the other, means for connecting said bell-cranks to said type-bars, fixed supports for said bell-cranks, a system of key-bearing levers extending rearwardly beneath said type-bars, bell-cranks and supports, said levers being fulcrumed at their rear ends, and two sets of links extending upwardly from said key-bearing levers to forwardly-directed arms formed upon said bell-cranks.

36. In a front-strike writing-machine, the combination with a platen, of a curved series of rearwardly-striking radially-arranged type-bars, a system of key-levers, the width of the type-bar system being less than the width of the key-lever system, and bell-cranks connected to the type-bars and key-levers, the bell-cranks at the sides of the system having their type-operating arms widely separated or offset from their key-lever arms, and the separation or offsetting of said arms being gradually less toward the middle of the system, as the key-levers become less out of line with their connected type-bars.

677,747. WINDMILL. ALBERT A. H. STERNBS, New York, N. Y. Filed Aug. 2, 1886. Serial No. 687,496. (No model.)



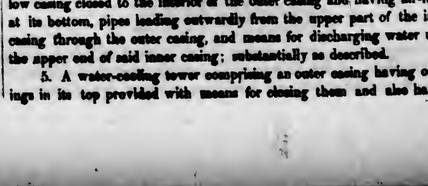
Claim.—1. In a windmill, the combination of the wind-wheel, the vane, gearing connecting the wheel and vane, a clutch forming part of said gearing, a governor, an automatic trip and means whereby the trip controls the clutch through the action of the governor or independently under excessive wind-pressure.

2. The combination of the wind-wheel, a vane geared to the wheel, a motor mounted upon the vane and having its winding mechanism driven from the wind-wheel, a clutch forming part of the gearing between the wheel and vane, a governor, an automatic trip and means whereby the trip controls the clutch through the action of the governor or independently under excessive wind-pressure.

3. The combination with a wind-wheel, of a vane geared to the wheel, means by which the vane is rendered self-returning, a clutch forming part of the gearing between the wheel and vane, a speed-governor, an automatic trip, and means whereby the trip controls the clutch through the action of the governor or independently under the influence of excessive wind-pressure, as specified.

4. In combination, a wind-wheel rotatable about a horizontal axis, a carrying-platform rotatable about a vertical axis, a vane, means for returning the vane to its normal position, gearing connecting the wheel and vane, a clutch forming part of said gearing, an automatic trip controlling the clutch, together with a speed-governor coöperating therewith, and a brake for the vane-gearing controlled by the automatic trip, as specified.

677,748. COIN-CONTROLLED DISPENSING DEVICE. DANIEL SULLIVAN, St. Louis, Mo., assignor to Charles F. Kelly and Henry L. Weeks, same place. Filed Aug. 20, 1900. Serial No. 27,434. (No model.)



Claim.—1. In a coin-controlled dispensing device, a suitable receptacle, a spring-actuated platform located at the bottom of the same for the support of a bonbon-box, means for locking the platform against depression when once in its elevated position, a spring-actuated lid hinged to the receptacle, a catch carried by the lid, a spring-controlled pivoted trigger located wholly above the platform and engaging the catch, a rotatable spindle mounted adjacent to the trigger, a spring for actuating the spindle in one direction, an arm carried by the spindle adapted to advance the coin against the lower arm of the trigger, a coin-chute, a coin-slot formed in the lid communicating with the coin-chute, the coin being deposited in a compartment located adjacent to the lower arm of the trigger after the coin has passed said trigger, substantially as set forth.

2. In a coin-controlled dispensing device, a receptacle, a spring-actuated platform located at the bottom of the same, a spring-controlled rotatable follower adapted to engage the bottom of the platform, and means for limiting the movement of the follower when the platform has been elevated to its highest position, substantially as set forth.

677,749. WATER-COOLING TOWER. JOSEPH R. SWENDEMAN, Boston, Mass. Filed Mar. 8, 1901. Serial No. 50,392. (No model.)

Claim.—1. A water-cooling tower comprising an outer casing, a hollow inner casing closed to the interior of the outer casing and having external baffles or ribs, means for cooling the said inner casing from its interior, a water-discharging device above the inner casing, air-outlets in the outer casing and means for supplying said outer casing with air-currents.

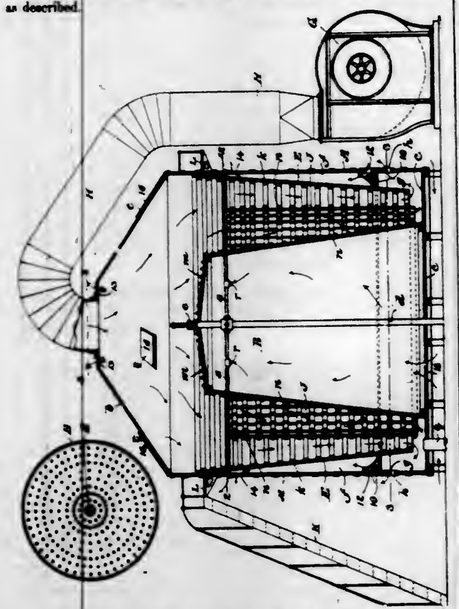
2. A water-cooling tower comprising an outer casing, a hollow inner casing arranged centrally within the outer casing and provided with baffles or ribs to impede the downward flow of the water, means for discharging the water on top of said inner casing and an air-supply pipe discharging downward through the top of the outer casing above said water-supply; the outer casing having air-outlets near its lower end; substantially as described.

3. The combination with a water-cooling tower having its inner wall inclined, of a cone-frustum, arranged centrally within the same, said cone-frustum and the inclined wall of the tower encircling the same, being provided with ledges or projections adapted to retard the flow of the water thereover, substantially as described.

4. A water-cooling tower, comprising the outer casing, an inner hollow casing closed to the interior of the outer casing and having air-inlets at its bottom, pipes leading outwardly from the upper part of the inner casing through the outer casing, and means for discharging water upon the upper end of said inner casing; substantially as described.

5. A water-cooling tower comprising an outer casing having openings in its top provided with means for closing them and also having

openings at its bottom, an inner hollow casing closed to the interior of the outer casing, provided with means for directing cooling air-currents through it and having parallel ribs or baffles to retard the flow of water and means for spraying water on top of the inner casing; substantially as described.

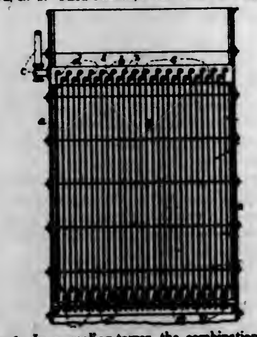


6. In a water-cooling tower, the combination with the outer wall, of the inwardly-inclined inner wall, provided with ledges or projections to retard the flow of the water thereover, and arranged to form an air-space between said walls, said air-space having inlet and outlet openings, substantially as described.

7. In a water-cooling tower, the combination with the inner wall and the cone-frustum arranged centrally within the same, of the suspended vertical boards having horizontal projections or ledges on their opposite sides, substantially as described.

8. A water-cooling tower comprising an outer casing, having an air-supply at its top, an inner closed casing having air-inlets at its bottom, a water-supply pipe extending up through the inner casing and having a sprayer discharging upon the top of said inner casing, horizontal air-outlet pipes supported at their inner ends on the water-pipe and extending outwardly through both casings, the vertically-disposed annular series of boards in the space between said two casings and means for suspending said boards from the said air-outlet pipes; substantially as described.

677,750. COOLING-TOWER. CLIFTON H. WHEELER, Shorthills, N. J., assignor to the Wheeler Condenser and Engineering Company, New York, N. Y. Filed Feb. 16, 1901. Serial No. 47,554. (No model.)



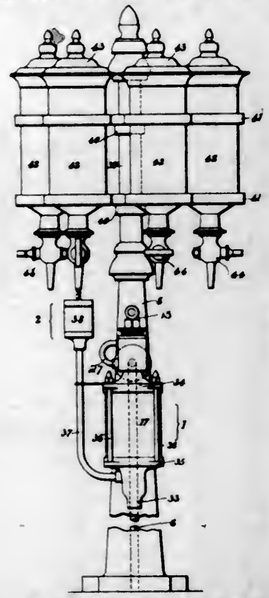
Claim.—1. In a cooling-tower, the combination with devices for supplying fluid to be cooled, mats placed vertically and spaced apart and devices for suspending the mats at their upper ends, of supports extending through the tower below the mats, strips of metal secured to and along the lower ends of the mats and hooks passing through and engaging the mats at the strips of metal with the stems of the hooks passing through the said supports and means connected to the stems of the hooks below the supports for drawing down the mats and applying a tension thereto and taking up the slack, substantially as set forth.

2. In a cooling-tower, the combination with devices for supplying fluid to be cooled, mats placed vertically and spaced apart, and devices for suspending the mats at their upper ends, of angle-irons extending through the tower below the mats, strips of metal secured to and along the lower ends of the mats, and hooks with threaded stems engaging the mats at the strips of metal and passing through the angle-irons and nuts upon the stems of the hooks below the angle-irons for drawing down the mats and applying a tension thereto and taking up the slack, substantially as set forth.

3. In a cooling-tower, the combination with devices for supplying fluid to be cooled, of pipes in series receiving such fluid and having perforations along their under surfaces, mats of suitable material placed vertically and at spaced-apart intervals, plates secured along the upper edges of the mats and hooks connected to the said plates and passing over the supply-pipes for suspending the mats from the pipes, and angle-irons extending through the tower below the mats, strips of metal secured to and along the lower ends of the mats, and hooks with threaded stems engaging the mats at the strips of metal and passing through the angle-irons and nuts upon the stems of the hooks below the angle-irons for drawing down the mats, and applying tension thereto and taking up the slack, substantially as specified.

4. In a cooling-tower, the combination with devices for supplying fluid to be cooled, of pipes in series receiving such fluid, extending across within the tower and having perforations along their under surfaces at one side of the vertical center, angle-iron bars extending across within the tower near the lower end, series of mats placed vertically and at spaced-apart intervals, stiffening strips or plates of metal along their top and bottom edges and means for securing the same in place and hooks at the upper and lower ends of the mats for suspending them from the pipes and connecting them to the angle-iron bars, the mats being so hung that the perforations of the pipes come directly over the upper edges of the mats for the fluid to discharge upon the mats, substantially as specified.

677,751. SODA-WATER FOUNTAIN. BERNHARD BARON, London, England. Filed Nov. 20, 1899. Serial No. 737,671. (No model.)



Claim.—1. In combination, a chamber, means for connecting same with a reservoir of carbonated water, a rotatable valve-plug having a passage therein adapted to put the chamber in connection with the reservoir and with a gas-snifting passage alternately, an outlet-valve for the chamber and means for opening same connected with the rotatable valve-plug and controlled by the movement of same substantially as described.

2. In combination, a chamber, means for connecting same with a reservoir of carbonated water a rotatable valve-plug having a passage therein adapted to put the chamber in connection with the reservoir and with a gas-snifting passage alternately an outlet-valve for the chamber, a rod carrying such valve means connecting the rod and rotatable valve-plug so that a movement of the latter will open and close the outlet-valve and a handle for rotating the valve-plug substantially as described.

3. In combination, a chamber, means for connecting same with a reservoir of carbonated water, a rotatable valve-plug having a passage therein adapted to put the chamber in connection with the reservoir and with a gas-snifting passage alternately, a hollow stem to such plug, an outlet-valve for the chamber, a rod carrying such valve, arms carried by such rod, arms carried by the hollow stem, cam-surfaces on such arms adapted to act on the arms of the rod and raise same together with the outlet-valve when the valve-plug is turned into one position and a spring adapted to restore the rod and valve substantially as described.

4. The combination with a chamber, of a valve adapted to permit carbonated water to pass to said chamber and to snift the excess of gas from the upper surface of said water, of a receiving vessel for syrup connected to said chamber, a valve for permitting the mixing of the water with the syrup, a valve for allowing the discharge of the water so treated, a series of receptacles for syrup and means for revolubly mounting them above the receiving vessel so that any one may be brought over such receiving vessel substantially as described.

5. In combination, a chamber, a valve adapted to permit carbonated water to pass to said chamber and to snift the excess of gas from the upper surface of the water, a second chamber connected to the first, a valve for normally closing the connection between the chambers, means connecting the two valves whereby the second is opened by the first after the snifting has taken place, and a third valve controlling an outlet from the second chamber and connected to the second valve, said third valve being opened on the opening of the second to allow the treated water to flow out substantially as described.

6. In combination, a frame, a series of receptacles for syrup held in same a pillar extension on which said frame is revolubly mounted, a tap for each receptacle, a pillar carrying the extension, and also a pipe connected with a supply of carbonated water, a tap attached to such pillar having means for holding a charge of carbonated water, and for snifting the gas from the surface of same and a vessel carried by such tap and situated in the path of revolution of the receptacles to receive syrup from same, and adapted to pass it to the charge before it leaves the tap substantially as described.

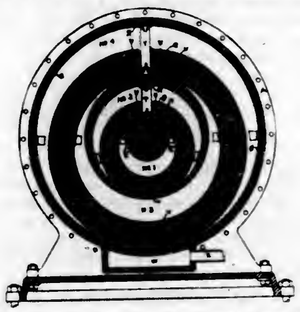
7. In apparatus for supplying aerated liquids, the combination with the reservoir containing the aerated liquid, of an intermediate chamber provided with two compartments, a two-way valve located near the upper part of one of said compartments, a double valve located within the other compartment and adapted to control openings leading from the first to the second mentioned compartment and also openings leading from the last-mentioned compartment to the outlet of the apparatus; a handle for operating the two-way valve, means for actuating the said double valve through a rod connecting the said means with the said handle, and an external conduit leading to the last-mentioned of the aforesaid two compartments substantially as and for the purpose specified.

8. In apparatus for supplying aerated liquids, the combination with the reservoir containing the aerated liquid, of the rotary frame carrying a series of vessels containing other liquids to be mixed with the aerated liquid, the intermediate chamber formed with two compartments, one adapted to receive the aerated liquid and means for regulating the admission of the liquids to and their escape from said intermediate chamber substantially as and for the purpose specified.

9. In apparatus for supplying aerated liquids, the combination with the aerated-liquid reservoir, of a rotary frame carrying a series of vessels containing other liquids to be mixed with the aerated liquid, an intermediate chamber formed with two compartments located one above the other, a double valve situated at the bottom of said chamber and adapted to control the flow of the liquids from the said compartments to an outlet, a two-way valve situated at the top of the said chamber and adapted to control the flow of the liquid from the aerated-liquid reservoir into the upper compartment and the escape of the superfluous gas from said compartment and means for connecting said valves together so that they can be moved by a single handle substantially as described.

677,752. ROTARY ENGINE. THOMAS B. BELLAS, Joplin, Mo., assignor of one half to William B Ross, same place. Filed Sept. 19, 1900. Serial No. 30,494. (No model.)

Claim.—1. The combination of the stationary parts and the revolving sleeves forming working chambers with said stationary parts, a valve held to rotate with said sleeves, connections or channels whereby the motive agent may pass from one chamber to another, a normally stationary adjustable sleeve controlling the admission and cut-off of the motive agent to and from one of said chambers, and means for adjusting said sleeve.



2. The combination of the stationary parts and the revolving sleeves forming working chambers with said stationary parts, a valve held to rotate with said sleeves, connections or channels whereby the motive agent may pass from one chamber to another, a normally stationary adjustable sleeve having ports which in one position of the sleeve are closed to stop the engine, while in a second position the sleeve-ports admit the motive agent to one working chamber only, and in a third position the sleeve-ports admit the live motive agent directly to a plurality of working chambers, and means for adjusting said sleeve.

3. The combination of the stationary parts and the revolving sleeves forming working chambers with said stationary parts, a valve held to rotate with said sleeves, connections or channels whereby the motive agent may pass from one chamber to another, a normally stationary reversing-valve movable about diametrically with reference to the revolving sleeves and provided at each side of the center with apertures one-half of which are arranged to register with said connecting-channels at a time, while the other apertures of the reversing-valve are closed, and means for shifting said reversing-valve.

677,753. SPECTACLE OR EYEGLASS CASE. WILLIAM E. BIRMINGHAM, Philadelphia, Pa. Filed May 4, 1900. Serial No. 15,663. (No model.)



Claim.—1. A spectacle or eyeglass case, having a back piece, a front piece forming a pocket, a flange projecting forwardly from the edge of the back piece opposite the mouth of said pocket, and a flap or cover hinged to the back piece at the rear of said flange and at the junction of said flange and back piece, said flap or cover extending forwardly and over said flange.

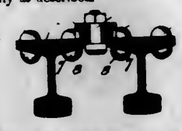
2. A spectacle or eyeglass case having a back piece, a plate secured against the front side thereof and having its upper edge flush with the upper edge of the back piece, a forwardly-projecting flange at the upper edge of said plate, a front piece forming a pocket opening toward said flange, and a flap or cover hinged to the upper edge of said back piece at the base of said flange.

3. A spectacle or eyeglass case, consisting of a back piece and a separate plate secured together side by side, a forwardly-projecting flange at the upper edge of said plate, a front piece forming a pocket opening toward said flange, and a flap or cover hinged to said back piece and extending forwardly and over said flange and the mouth of said pocket and adapted to be secured to said front piece.

4. A spectacle or eyeglass case consisting of a back piece and a front piece forming a pocket, the plane of said pocket being substantially parallel with said back piece, a flap or cover hinged to said back piece opposite the mouth of said pocket, and a flange projecting from the back piece opposite the mouth of said pocket and in front of the hinge connection between the flap or cover and back piece, said flange extending transversely to the plane of the pocket, and said flap or cover extending forwardly and over said flange.

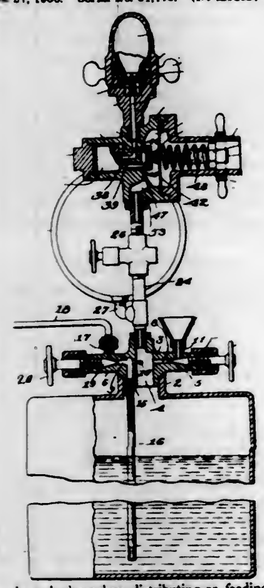
677,754. METALLIC TIE. ARTHUR M. BOWMAN, Bellevue, Pa. Filed Sept. 19, 1900. Renewed Dec. 6, 1900. Serial No. 38,959. (No model.)

Claim.—1. A metallic railway-tie composed of two inverted T-rails set parallel and closely adjacent to each other, connecting tie-plates resting on the flat upper flanges of the rail-bases and secured thereto by through-bolts or rivets, and rail-clamps removably secured to the said tie-plates, the lower heads of the rails being adapted to anchor the tie in the road-bed; substantially as described.



2. A metallic railway-tie composed of two inverted T-rails set parallel and slightly separated from each other, connecting tie-plates resting on the flat upper flanges of the rail-bases and secured thereto by through-bolts or rivets, and rail-clamps removably secured to the said tie-plates at intermediate points over the space between the rail-bases, the lower heads of the rails being adapted to anchor the tie in the road-bed; substantially as described.

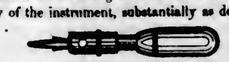
677,755. APPARATUS FOR DISTRIBUTING OR FEEDING COAL-OIL OR OTHER HYDROCARBONS. JOSEPH G. BRANCH, St. Louis, Mo. Filed Sept. 27, 1900. Serial No. 31,175. (No model.)



Claim.—In a hydrocarbon distributing or feeding apparatus, the combination with a tank having a screw-threaded neck upon the upper end thereof, of a valve-casing screwed upon said neck having a central chamber therein, a duct on one side of said chamber, and a plurality of laterally-extending nipples, one of which communicates with said duct and the others of which communicate with said chamber, a pipe communicating with said duct, leading downwardly therefrom and terminating at a point adjacent to the bottom of said tank, a service-pipe leading from the nipple which communicates with said duct, a valve controlling the passage from said duct to said service-pipe, the other nipples having respectively filling and vent openings therein and valves controlling the passages from said filling and vent openings to said tank, a vertically-disposed pressure-supply pipe upon the upper end of said valve-casing communicating with the central chamber in said casing, a cut-off cock in said pressure-supply pipe and a pressure-gage communicating with said pipe, a reducing-valve at the upper end of said pressure-supply pipe, a tubular support for a compressed-gas capsule upon the upper end of the casing of said reducing-valve and communicating therewith, puncturing means for said capsule in the passage through said support and a cap screwing upon said support for forcing a capsule down into contact with said puncturing means, as and for the purpose set forth.

677,756. LANCET. ROBERT CALDWELL, Auckland, New Zealand. Filed Aug. 2, 1900. Serial No. 25,654. (No model.)

Claim.—1. A lancet comprising a slotted body, knives mounted in the body to move in and out of the slots thereof, said knives being normally held within the body by spring-pressure, and a sliding sleeve-like member loosely mounted on the body and connected with the knives to move them in and out of the slots as it is slid up and down on the said body, said connection also serving to retain the sliding sleeve-like member on the body of the instrument, substantially as described.



2. A lancet, comprising a body provided with opposing slots, knives mounted in the body to move in and out of the said slots, said knives being normally held within the body by spring-pressure, a sleeve-like member mounted to slide on the body, and means for connecting the said sliding member with the knives to move the latter in and out of the slots as the sleeve-like member is slid back and forth on the body, said means also serving to retain the sleeve-like member on the body and limit its movement thereon, substantially as described.

3. A lancet, comprising a cylinder provided with opposite longitudinal slots, a rod provided with slots, knives mounted in the rod and cylinder and adapted to have their cutting edges project out through the slots of the rod, and a sleeve loosely mounted on the cylinder and carrying a transverse pin, said pin passing through the slots of the cylinder and between the shanks of the knives, substantially as described.

4. A lancet, comprising a slotted cylinder, a rod secured to one end of the cylinder and provided with slots, a collar at the junction of the rod with the cylinder, knives mounted in the cylinder and rod, and a sleeve loosely mounted on the cylinder and carrying a pin, said pin passing through the slot of the cylinder and between the shanks of the knives, substantially as described.

5. A lancet, comprising a slotted cylinder, a rod secured to and projecting from the cylinder and provided with slots, knives projecting from a holder and mounted in the cylinder and rod, a catch carried by the holder of the knives and engaging the cylinder to hold the knives in position, and a sleeve loosely mounted on the cylinder and carrying a pin, said pin passing through the slot of the cylinder and between the shanks of the knives, substantially as described.

6. A lancet, consisting of a cylinder having one end notched and provided with a longitudinal slot, a rod secured to and projecting from the cylinder, said rod being provided with slots, knives projecting from a holder and provided with an opening between their shanks, said knives being mounted in the cylinder and rod, a catch on the holder of the knives and engaging the notched end of the cylinder, a sleeve mounted loosely on the cylinder and a pin passing through the sleeve, the slot of the cylinder and the opening between the shanks of the knives, substantially as described.

677,757. WIRE-FENCE MACHINE. CURTIS C. CARTER, Jacksonville, Ill. Filed June 30, 1900. Serial No. 22,191. (No model.)

Claim.—1. In a machine of the character described, the combination of a frame, a series of twister-heads mounted therein comprising gearing adapted to be rotated in opposite directions and to operate upon the fastening wires or staples, and means for preventing the entanglement of the ends of the fastening wires or staples in the gearing, substantially as set forth.

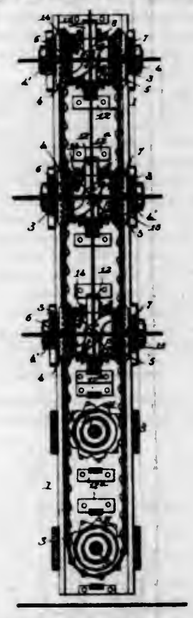
2. In a machine of the character described, the combination of a frame, a series of twister-heads mounted therein comprising gearing adapted to be rotated in opposite directions and to act upon the fastening wires or staples, means for preventing the entanglement of the ends of the fastening wires or staples in the gearing, and means for simultaneously rotating the series of twister-heads, substantially as set forth.

3. In a machine of the character described, the combination of a frame, a series of twister-heads mounted therein, comprising gearing adapted to be rotated in opposite directions and to twist the fastening wires or staples upon the horizontal strands, and means for preventing the entanglement of the ends of the fastening wires or staples in the gearing, substantially as set forth

4. In a machine of the character described, the combination of a frame, a series of twister-heads mounted therein comprising slotted gearing adapted to be rotated in opposite directions and to act upon the fastening wires or staples, means for preventing the entanglement of the ends of the fastening wires or staples in the gearing, and means for simultaneously rotating the series of twister-heads, substantially as set forth.

5. In a machine of the character described, the combination of a frame, slotted U-shaped supports attached thereto, twister-heads carried by said supports comprising gearing adapted to be rotated in opposite directions and to twist the fastening wires or staples upon the horizontal strands, means for preventing the entanglement of the ends of the fastening wires or staples in the gearing, and means for simultaneously rotating the series of twister-heads, substantially as set forth.

6. In a machine of the character described, the combination of a frame, slotted U-shaped supports adjustably attached thereto, twister-heads carried by said supports, means for simultaneously rotating the series of twister-heads, and means for preventing the entanglement of the ends of the fastening wires or staples in the gearing, substantially as set forth.



677,758. ADJUSTABLE SUPPORTING DEVICE. HARRY T. COLDWELL, Newburgh, N. Y., and FRED R. SHARPE, Portland, Me. Filed Nov. 9, 1900. Serial No. 35,933. (No model.)



Claim.—1. In an adjustable supporting device, the combination with a spring-actuated drum, provided with a series of ratchet-teeth rigidly connected therewith and facing in one direction and a series of ratchet-teeth rigidly connected with said drum and facing in the opposite direction, of a double-acting pawl, having portions for engaging either series of ratchet-teeth, to positively hold the drum against movement in either direction and a flexible connection wound on said drum, substantially as described.

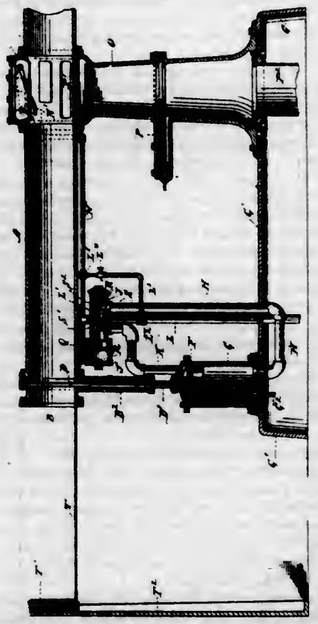
2. In an adjustable supporting device, the combination with the spring-actuated drum provided with a series of ratchet-teeth facing in one direction, a series of ratchet-teeth facing in the opposite direction, and a series of pawl-disengaging projections, of a double-acting pawl having portions to engage either of said series of said ratchet-teeth and portions adapted to be engaged by said projections and a flexible connection wound upon said drum, substantially as described.

3. In an adjustable supporting device, the combination with a spring-actuated drum provided with a series of ratchet-teeth facing in one direction, a series of ratchet-teeth facing in the opposite direction and a series of pawl-disengaging projections, of a pawl capable of moving bodily up and down, and having opposite edges for engaging the teeth of said opposite series of ratchet-teeth, vertical guides engaging said pawl between its edges and a flexible connection wound on said drum, substantially as described.

4. In an adjustable support, the combination with the spring-actuated drum, provided with lateral flanges having oppositely-facing ratchet-teeth and a series of pawl-disengaging projections alternating with said teeth and a frame having vertically-disposed guiding portions, of a double-acting pawl having opposite edges adapted to engage the said ratchet-teeth and having between said teeth-engaging edges parts loosely engaging the guiding portions of said frame and a flexible connection wound upon said drum, substantially as described.

5. In an adjustable support, the combination with the frame provided with vertical guiding portions, and an attaching device, of a spring-actuated drum mounted in said frame and having flanges provided with oppositely-facing ratchet-teeth and pawl-disengaging projections, a double-acting pawl having central portions loosely engaging said vertical guiding portions and having edges on opposite sides of said central portion to engage said ratchet-teeth, a cord wound upon said drum, and an attaching device secured to said cord, substantially as described.

677,759. PNEUMATIC-DESPATCH-TUBE APPARATUS. JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Aug. 23, 1899. Serial No. 728,149. (No model.)



Claim.—1. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, a cylinder, a piston in said cylinder and connected to said gate, an air-supply, a communication between said cylinder and an air-supply, a valve controlling said communication, mechanism operated by the traveling carrier for operating said valve to release air-pressure from said cylinder for opening said gate, and means independent of the traveling carrier for closing said gate.

2. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, mechanism operated by the traveling carrier independently of air in the transmission-pipe and of the air compressed by the travel of the carrier for opening said gate, and means actuated independently of the traveling carrier for closing said gate.

3. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, a valve operated by compressed air for controlling said air-supply to close the gate, and mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for releasing said compressed air to open the gate.

4. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, a valve operated by compressed air for controlling said air-supply to close the gate,

mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for releasing said compressed air to open the gate, and means independent of the traveling carrier for closing said gate.

5. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, a valve mechanism for controlling said air-supply and operated by compressed air to close said gate, and means operated independently of the air compressed by the travel of the carrier and acting on said valve mechanism for controlling said air-supply to open the gate.

6. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for closing said gate, mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for releasing said air-pressure to open the gate, and means independent of the traveling carrier for closing said gate.

7. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for closing said gate, mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for releasing said air-pressure to open the gate, means actuated independently of the traveling carrier for closing said gate, and means for controlling the closing of said gate.

8. In an apparatus of the character described, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for opening said gate, means actuated independently of the traveling carrier for closing said gate, and means for controlling the closing of said gate.

9. In an apparatus of the character described, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for opening said gate, means actuated independently of the traveling carrier for closing said gate, and a valve controlling the flow of air for regulating the closing of said gate.

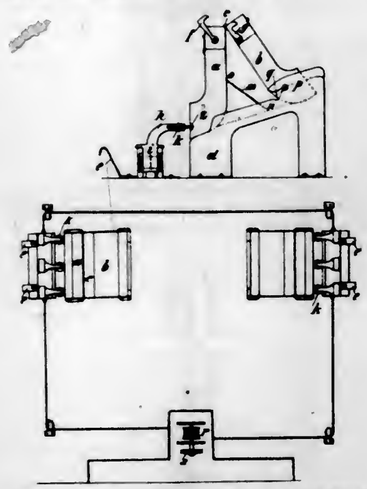
10. In an apparatus of the character described, a transmitting-tube, a gate closing said tube, a cylinder, a piston in said cylinder and connected to said gate, an air-supply for operating said gate, a communication between said cylinder and said air-supply, a valve controlling said communication, mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for operating said valve to release the air-pressure from one side of said piston and to admit it to the other side of said piston in said cylinder for opening said gate, and means independent of the traveling carrier for operating said valve to release the air-pressure which opened the gate and to admit air-pressure to the cylinder for closing said gate.

11. In an apparatus of the character described, a transmitting-tube, a gate closing said tube, a cylinder, a piston in said cylinder and connected to said gate, an air-supply for operating said gate, a communication between said cylinder and said air-supply, a valve controlling said communication, mechanism operated by the traveling carrier independently of the air compressed by the travel of the carrier for operating said valve to release the air-pressure from one side of said piston and to admit it to the other side of said piston in said cylinder for opening said gate, means independent of the traveling carrier for operating said valve to release the air-pressure which opened the gate and to admit air-pressure to the cylinder for closing said gate, and a valve controlling the flow of air for regulating the closing of said gate.

12. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, a cylinder, a piston in said cylinder and connected to said gate, a communication between said cylinder and said air-supply on each side of said piston, a valve-chamber located between said cylinder and said air-supply and in communication with said air-supply and said cylinder on each side of said piston, a valve mechanism in said valve-chamber controlling said communications and operated by said air-supply to admit air to said cylinder to close said gate, an outlet to the atmosphere for the air-pressure which operates said valve mechanism, a valve controlling said outlet, mechanism connected to said valve and located in the path of the traveling carrier and operated thereby to open the valve to allow the escape of said air-pressure which operates the valve mechanism, means for moving said valve mechanism to admit the air to the cylinder on the opposite side of said piston to open said gate, and means for closing said gate after the discharge of the carrier.

13. In an apparatus of the character specified, a transmitting-tube, a gate closing said tube, an air-supply for operating said gate, a cylinder, a piston in said cylinder and connected to said gate, a communication between said cylinder and said air-supply on each side of said piston, a valve-chamber located between said cylinder and said air-supply and in communication with said air-supply and said cylinder on each side of said piston, a valve mechanism in said valve-chamber controlling said communications and operated by said air-supply to admit air to said cylinder to close said gate, an outlet to the atmosphere for the air-pressure which operates said valve mechanism, a valve controlling said outlet, mechanism connected to said valve and located in the path of the traveling carrier and operated thereby to open the valve to allow the escape of said air-pressure which operates the valve mechanism, a spring for moving said valve mechanism to admit the air to the cylinder on the opposite side of said piston to open said gate, and means for closing said gate after the discharge of the carrier.

677,760. **LIFE-BOAT.** BENVENUTO GIANESE, Genoa, Italy. Filed Sept. 12, 1899. Serial No. 730,309. (No model.)



Claim.—1. A life-saving apparatus comprising inclined guides, a float constructed of hinged sections supported on said guides and adapted to slide thereon, a retaining device adapted to engage the lower section of the float to hold the same back, and means for moving said retaining device to release the float, substantially as described.

2. The combination of an inclined guide, the supports located in front thereof in the continuation of the incline, a float supported on the incline and adapted to slide thereon, the retaining device engaging the float, and means for moving the retaining device to release the float, substantially as described.

677,761. **DASHBOARD.** HERBERT L. HALL, Rochester, N. Y. Filed Oct. 31, 1900. Serial No. 35,086. (No model.)

Claim.—1. The combination of the adjustable dashboard, its supporting-standards, and the bracing between the standards, as and for the purposes set forth.

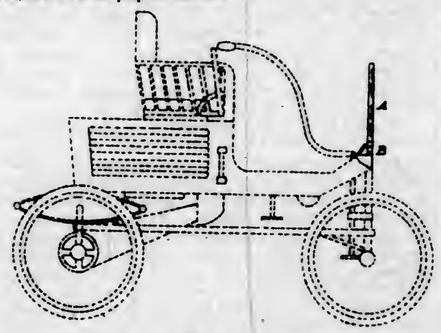
2. The combination of the adjustable dashboard, its supporting-standards, the brace between the standards, and the base connecting the same as and for the purposes set forth.

3. The combination of the adjustable dashboard, its supporting-standards, the spring-roller, and the movable supporting-bar, as and for the purpose set forth.

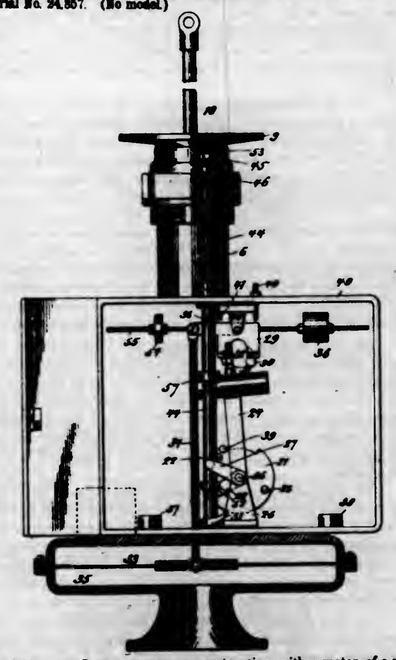
4. The combination of the adjustable dashboard, the standards having slots on their inner faces, the roller for the apron, and means for holding the apron in its distended position, as and for the purposes set forth.

5. The combination of the base, the double standards on each side

of the same, the apron and means for holding it in the distended position, as and for the purposes set forth.



677,762. **REGULATOR.** DANIEL H. HAYWOOD, New York, N. Y., assignor to Beverly W. Wrenn, same place. Filed July 26, 1900. Serial No. 24,857. (No model.)



Claim.—1. In a regulator, the combination, with a motor, of a motor-controller, a falling weight adapted in its movement to operate the motor-controller, a tripping device for releasing the weight, and weight-restoring means which restores the weight during each operation of the motor and prior to the next succeeding operation thereof, and is operated by the motor.

2. In a regulator, the combination, with a motor, of a motor-controller, a falling weight adapted in its movement to engage and operate the motor-controller, but normally out of engagement therewith, a tripping device for releasing the weight, and means for restoring the weight after each fall thereof and prior to the next succeeding operation of the motor.

3. In a regulator, the combination with a motor, of a motor-controller, a pivoted actuating device whose pivotal point is normally below its center of gravity, a tripping device for releasing the actuating device, and restoring means which restores the actuating device during each operation of the motor and prior to the next succeeding operation thereof, and is operated by the motor.

4. In a regulator, the combination, with a motor, of a motor-controller, a pivoted actuating device whose pivotal point is normally below its center of gravity, a tripping device for releasing the actuating device, and means for restoring the actuating device to its normal position after each fall thereof and prior to the next succeeding operation of the motor; said actuating device being adapted in its falling to engage and actuate the motor-controller, but being normally out of engagement therewith.

5. In a regulator, the combination, with a motor, of a motor-controller, a pivoted weight, a tripping device which normally holds the weight with its center of gravity above and nearly in a vertical line with its pivotal point, but just out of such vertical line, and is adapted to release the weight and permit it to fall, and means operated by the motor for restoring the weight to such upright position after each fall thereof.

6. In a regulator, the combination with a motor, of a motor-controller, a pivoted weight out of normal engagement with the motor-controller, a tripping device for releasing the pivoted weight, and means intermediate of the motor-controller and the pivoted weight whereby the motor-controller may be engaged with, and operated by, the pivoted weight after it has been released by the tripping device and has passed through a portion of its movement.

7. In a regulator, the combination, with a motor, of a motor-controller, a pivoted weight whose pivotal point is normally below its center of gravity and nearly, but just out of, a vertical line therewith, means for restoring the weight after each fall thereof, and a yielding catch and tripping device, which receives and holds the weight when so restored, until operated to release the weight.

8. In a regulator, the combination, with a motor, of a motor-controller, a pivoted weight, a yielding catch and tripping device which receives the weight when raised and holds the same in a nearly, but not quite, vertical position, until operated to release the weight, and means for raising the weight.

9. In a regulator, the combination, with a motor, of a motor-controller, a pivoted weight, a yielding catch and tripping device which receives the weight when raised and holds the same in a nearly, but not quite, vertical position, until operated to release the weight, and means operated by the motor for raising the weight.

10. In a regulator, the combination with a motor, of a motor-controller, a pivoted weight adapted to fall on either side of its support, means actuated by the motor in its operation for returning the pivoted weight to a position at which its center of gravity is above its point of support and slightly to one side of a vertical line passing through the said point of support, and upon that side of such line which is opposite to the side upon which the weight last fell, and a tripping device for releasing the weight to permit the same to fall upon that side of its center of support at which it has been set.

11. In a regulator, the combination, with a motor, of a motor-controller, a pivoted actuating device adapted in its movement to operate the motor-controller, a pivoted tripping device for releasing the actuating device, an automatic controlling device connected to the tripping device upon one side of its pivotal support, and a counterbalance for the controlling device.

12. In a regulator, the combination with a motor, of a motor-controller, an actuating device, a tripping device for releasing the actuating device, an automatic controlling device for actuating the tripping device, a counterbalance tending to move the automatic controlling device in one direction, a compensating device operating to partially neutralize the effect of the counterbalance, and means operated by the motor in its movement in one direction for placing the compensating device out of such operative engagement.

13. In a regulator, the combination with a motor, of a motor-controller, an actuating device, a tripping device for releasing the actuating device, a counterbalance-weight tending to move the automatic controlling device in one direction, a compensating weight operating to partially neutralize the effect of the counterbalance-weight, and means operated by the motor in its movement in one direction for placing the compensating weight out of such operative engagement.

14. In a regulator, the combination with a motor, of a motor-controller, an actuating device adapted in its movement to operate the motor-controller, a pivoted tripping device, a diaphragm attached to the tripping device upon one side of its pivotal support, a counterbalance secured to the tripping device at the other side of its pivotal support, a compensating device pivotally mounted in axial line with the axis of movement of the tripping device, means whereby the compensating device is in engagement with the tripping device during one portion of the movement of the motor, and means whereby the compensating device is moved out of engagement with the tripping device during another portion of the movement of the motor.

15. In a regulator, the combination with a motor, of a motor-controller, a pivoted weight adapted in its movement to operate the motor-controller, a tripping device for releasing the weight, and a resetting device for restoring the weight operated by the motor, and engaging the weight near the completion of a stroke of a motor.

16. In a regulator, the combination with a motor, of a motor-controller, a pivoted weight adapted in its movement to operate the motor-

controller, a tripping device for releasing the weight, and a resetting device for restoring the weight operated by the motor, and engaging the weight near the completion of a stroke of the motor in either direction.

17. In a regulator, the combination with a motor, of a motor-controller, a pivoted weight adapted in its movement to operate the motor-controller, a tripping device for releasing the weight, a resetting-rod carried by the motor and means operated by the resetting-rod in its movement to restore the weight.

18. In a regulator, the combination with a motor, of a motor-controller, an actuating device adapted in its movement to operate the motor-controller, a tripping device for releasing the actuating device, a resetting-rod carried by the motor, a resetting-sleeve engaging with the resetting-rod, and a cam carried by the resetting-sleeve and adapted in its movement to engage with and restore the actuating device.

19. In a regulator, the combination with a motor, of a motor-controller, an actuating device adapted in its movement to operate the motor-controller, a tripping device for releasing the actuating device, a resetting-rod carried by the motor, a resetting-sleeve having a limited movement and in its movement adapted to restore the actuating device, and a friction device for preventing the accidental movement of the resetting-sleeve.

20. In a regulator, the combination with a motor, of a motor-controller, an actuating device for operating the controller, a tripping-plate, and a catch upon said plate, the said catch being rigid in one direction but yielding in the other.

21. In a regulator, the combination with a motor, of a motor-controller, an actuating device for operating the motor-controller, a tripping-plate, and two catches mounted upon the said plate, the said catches adapted to coact with the actuating device and to release the same in opposite directions, and each of the said catches being rigid in one direction and yielding in the other.

22. In a regulator, the combination with a motor, of a motor-controller, an actuating device adapted to operate the motor-controller a tripping device for releasing the actuating device, a resetting-rod carried by the motor, a resetting-sleeve having a limited movement with respect to a stationary support, a compensating device adapted at certain times to coact with the tripping device, and means carried by the resetting-sleeve for restoring the actuating device and for placing the compensating device in or out of engagement with the tripping device.

23. In a regulator, the combination with an actuating device, movable alternately in opposite directions from a position in which it is set for operation, of a pivoted tripping-plate, and catches carried thereby and adapted each to permit the actuating device to pass when the same is moving in one direction and to hold said actuating device from moving in the opposite direction until the tripping-plate is operated so as to release the actuating device.

24. In a regulator, the combination with an actuating device, movable alternately in opposite directions from a position in which it is set for operation, of a pivoted tripping-plate, and catches carried thereby and adapted each to permit the actuating device to pass when the same is moving in one direction and to hold said actuating device from moving in the opposite direction until the tripping-plate is operated so as to release the actuating device, said catches and the portion of the actuating device with which they engage being constructed and arranged to cause the pressure of the actuating device on either side of said catches, when said actuating device is in position for operation, to compensate for friction in the operation of the tripping mechanism.

25. In a regulator, the combination, with a pivoted actuating device, movable alternately in opposite directions from a position in which it is set for operation, of a pivoted tripping-plate, and tripping-pawls carried thereby and adapted each to permit the actuating device to pass when the same is moving in one direction and to hold said actuating device from moving in the opposite direction until the tripping-plate is operated so as to release the actuating device, said pawls being pivoted to the tripping-plate at points within the arc of travel of the portion of the actuating device with which they engage, and the coacting surfaces of the pawls and actuating device being beveled, so as to cause the pressure of said actuating device on either side of said pawls, when the actuating device is in position for operation, to compensate for friction in the operation of the mechanism.

26. In a regulator, the combination, with an actuating device adapted to control suitable mechanism, of a tripping device for releasing the actuating device, a counterbalance connected to the tripping device, a compensating device adapted to be in operative connection with the tripping device, and means for placing the compensating device out of such operative connection at intervals.

27. In a regulator, the combination, with a motor, a motor-controller, and an actuating device adapted to move alternately in opposite directions from a position in which it is set for operation, when released by a tripping device, and in such movement to operate the motor-controller, of a pivoted tripping device adapted to so release the actuating device when operated, a diaphragm attached to the tripping device upon one side of its pivotal support, a counterbalance connected to the tripping device and tending to operate the same in opposition to the diaphragm, a compensating device adapted to be placed in operative connection with the tripping device, and when so connected to oppose the counterbalance, and means for restoring the actuating device to position for operation, after each operation thereof, and for disengaging the compensating device from said tripping device and counterbalance after the operating device has operated in one direction and until it operates in the other direction.

28. In a regulator, the combination, with a motor, a motor-controller, and a pivoted actuating device adapted to move alternately in opposite directions from engagement with a tripping device, when released by such tripping device, and in such movement to operate the motor-controller, of a pivoted tripping device adapted to release said actuating device when operated, a diaphragm attached to the tripping device upon one side of its pivotal support, a counterbalance connected to the tripping device and tending to operate the same in opposition to the diaphragm, a compensating device adapted to be placed in operative connection with the tripping device, and when so connected to oppose the counterbalance, and a resetting device arranged to be moved alternately in opposite directions as the motor operates, and when so moved to reset the actuating device, said resetting device being arranged likewise to disengage the compensating device from said tripping device and counterbalance during motion of the resetting device in one direction.

29. In a regulator, the combination, with a motor, a motor-controller, a power-storing actuating device for operating the motor-controller, and means for restoring the actuating device to condition for operation after each operation thereof, of a tripping device, which engages the actuating device only when the same has been placed in condition for operation.

30. In a regulator, the combination, with a motor, of a motor-controller, a power-storing actuating device for operating the motor-controller, and means operated by the motor for restoring the actuating device to condition for operation after each operation thereof, of a tripping device, adapted to be automatically controlled, which engages the actuating device only when the same has been placed in condition for operation.

31. In a regulator, the combination, with a motor, a motor-controller, a power-storing actuating device for operating the motor-controller, and means operated by the motor for restoring the actuating device to condition for operation after each operation thereof, of a tripping device which engages the actuating device only when the same has been placed in condition for operation, and a pressure-operated controlling device connected to said tripping device, and adapted to operate the same.

32. In a regulator, the combination, with a motor, a motor-controller, a power-storing actuating device adapted to move alternately in opposite directions from a position in which it is set for operation, and in such movement to operate, and reverse, the motor-controller, and means operated by the motor for restoring the actuating device to condition for operation after each operation thereof, of a tripping device which engages the actuating device only when the same has been placed in condition for operation.

33. In a regulator, the combination, with a motor, a motor-controller, a pivoted actuating device, whose pivotal point is normally below its center of gravity, a tripping device for releasing the actuating device, and means operated by the motor for restoring the actuating device to its normal position, of a pressure-operated controlling device, adapted to be operated by the changes of pressure within the combustion-chamber, and arranged when so operated to operate the tripping device.

34. In a regulator, the combination, with a motor, a motor-controller, a pivoted weight adapted in falling to operate the motor-controller, and means operated by the motor for raising the said weight into engagement with the said tripping device after each fall of the weight, of a pressure-operated controlling device, arranged to be operated by variations in pressure in a combustion-chamber, connected with said tripping device, and arranged to operate said tripping device in accordance with changes of pressure in such combustion-chamber.

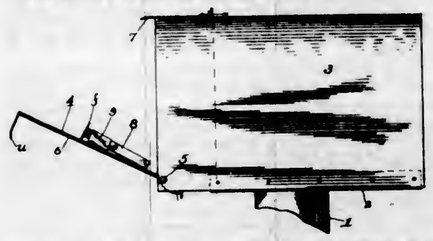
35. In a regulator, the combination, with a motor, a motor-controller, a falling weight adapted in its movement to operate the motor-controller, a tripping device for releasing the weight, and weight-restoring means which restores the weight during each operation of the motor prior to the next succeeding operation thereof, of a pressure-operated controlling device, adapted to be operated by changes of pressure within a combustion-chamber, and adapted when so operated to operate said tripping device.

36. In a regulator, the combination, with a motor, a motor-controller, a pivoted weight whose pivotal point is normally below its center of gravity, and nearly but just out of, a vertical line therewith, means for restoring the weight after each fall thereof, and a yielding catch and tripping device, which receives and holds the weight when so restored, until operated to release the weight, of a pressure-operated controlling device controlling the operation of such tripping device.

37. In a regulator, the combination, with a motor, a motor-controller, a pivoted weight adapted to fall on either side of its support, means for returning the pivoted weight to a position at which its center of gravity is above its point of support and slightly to one side of a vertical line passing through the said point of support, and upon that side of such line which is opposite to the side upon which the weight last fell, and a tripping device for releasing the weight to permit the same to fall upon that side of its center of support at which it has been set, of a pressure-operated controlling device, adapted to be operated by changes of pressure within a combustion-chamber, and controlling the operations of said tripping device.

38. In a regulator, the combination, with a motor, a motor-controller, a pivoted weight, adapted to fall on either side of its support, means for returning the pivoted weight to a position at which its center of gravity is above its point of support and slightly to one side of a vertical line passing through the said point of support, and upon that side of said line which is opposite to the side upon which the weight last fell, a tripping-plate, catches thereon, each adapted to permit free passage of the weight in one direction, and to hold it, until said tripping-plate be operated, against movement in the other direction, and a pressure-operated controlling device, adapted to operate said tripping-plate.

677,768. LETTER-BOX. ANDREW I. HENRY, Ladoga, Ind. Filed Sept. 24, 1900. Serial No. 30,852. (No model.)



Claim.—1. The combination of a letter-box, a door hinged thereto by a horizontal pintle at the lower edge thereof, a support secured on the inner side of said door, and a removable receptacle for receiving letters and the like adapted to be inserted within said support, substantially as and for the purposes set forth.

2. The combination, in a letter-box, of the hinged door thereto provided with a support for a removable pocket, and said pocket, the same having flanges which hold it away from the surface of the door, substantially as shown and described.

3. The combination, with a letter-box, of a removable pocket adapted to be secured therein having uniform flanges upon both sides thereof, whereby the same is adapted to be placed in position in its support and its surface held away from the wall carrying said support, irrespective of which side is placed next the wall, substantially as set forth.

677,764. HEATING APPARATUS. ALFRED M. HEWLETT, Kewanee, Ill. Filed Oct. 13, 1900. Serial No. 32,955. (No model.)



Claim.—1. A radiator consisting of a plurality of separable end and intermediate sections having one dimension in cross-section longer than the other, the intermediate sections being arranged in transverse rows and disposed angularly with reference to the end sections so that the side portions of the radiator are formed by the broad outer surfaces of the sections at the ends of the transverse rows, and couplings connecting said sections, substantially as described.

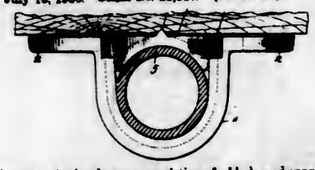
2. A radiator consisting of a plurality of communicating end and intermediate radiator-sections, the intermediate sections being arranged in transverse rows, the length of said rows being substantially equal to the width of said end sections and coupling devices connecting said sections, substantially as described.

3. A radiator consisting of a plurality of communicating end and intermediate radiator-sections having one dimension in cross-section longer than the other, the intermediate sections being arranged in transverse rows, the side portions of the radiator being formed by the broad outer surfaces of the sections at the ends of the transverse rows, the length of said rows being substantially equal to the width of the end sections, and coupling devices connecting said sections, substantially as described.

4. A radiator consisting of a plurality of separable end and intermediate sections, the intermediate sections being arranged in transverse rows, the length of said rows being substantially equal to the width of said end sections, each of said sections having a projecting stub or stubs, the stubs of the different sections being arranged to abut to form pipes between adjacent sections, and an external rotatable collar fitting over the abutting ends of each pair of stubs, said collars having lugs adapted to engage corresponding lugs carried by the stubs to bind the stubs together, substantially as described.

5. A radiator consisting of a plurality of separate radiator-sections, each having a projecting stub or stubs, the adjacent stubs being arranged to abut to form a pipe between the sections, an external collar adapted to fit over the abutting ends of said stubs, said collar having lugs adapted to engage corresponding lugs carried by the stubs to bind said stubs together, and annular flanges carried by said sections and overlapping the ends of said collar, substantially as described.

677,765. PIPE-HANGER. HENRY W. HOERR, St. Louis, Mo. Filed July 16, 1900. Serial No. 23,817. (No model.)



Claim.—1. A pipe-hanger, consisting of a U-shaped supporting-casting adapted to receive and support a pipe, and provided on each end with an aperture for the reception of fastening means, a plate carried within said U-shaped casting, the said plate having integral projections which operate against the ends of the U-shaped member to retain the said plate in position, one side of said plate being adapted to rest upon the pipe and the other side being provided with a projection which is substantially parallel with the sides of the member, substantially as specified.

2. In a pipe-hanger the combination of a substantially U-shaped member adapted to receive a pipe to be supported and provided on each end with an aperture for the reception of fastening means, with a second member having its sides fitting within the limbs of the U-shaped member without substantial play, one face of said member being adapted to rest against the pipe and the other provided with a projection which is substantially parallel with the sides of the member.

677,766. HYDROCARBON-VAPOR BURNER. GEORGE C. HOLT and JOHN W. MCDANIEL, Chicago, Ill. Filed Aug. 8, 1900. Serial No. 26,309. (No model.)



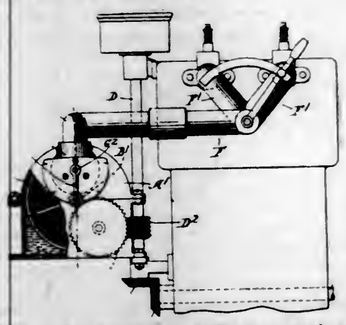
Claim.—1. In a hydrocarbon-vapor burner, the bent generator-pipe having the gauze-stopped ends and gravel filling, the burner-tip at its lower end, and the adjustable heater attached to the pipe above the burner-tip and below the bend and in line with said tip and bend, substantially as specified.

2. In a hydrocarbon-vapor-burner, the combination with the gravel-filled generator-pipe having the transverse bend in its middle portion, of the burner-tip and needle screw-valve at its lower end below said bend,

and the tubular heater open at its lower end and having a gauze cap at its upper end provided with a ring-form attachment and adjustable on the lower portion of said pipe between and in line with said burner-tip and transverse bend, substantially as specified.

3. In a hydrocarbon-vapor burner, the combination with the bent generator-pipe, of the burner-tip at its end, and below the bend, and the adjustable tubular heater open at its lower end, partially closed at its upper end with wire-gauze, and provided with a sliding attachment on the lower portion of said pipe, between, and in line with said burner-tip and the bend of the pipe, substantially as specified.

677,767. **HYDROCARBON-SPRAYING DEVICE FOR GASOLENE-ENGINES.** THOMAS B. JEFFERY, Chicago, Ill. Filed June 14, 1900. Serial No. 20,244. (No model.)



Claim.—1. In a spraying device for the purpose stated, a capillary screen and means for charging it with the liquid to be sprayed; an air passage or chamber through or from which the engine is supplied with spray-charged air; means for causing air impulses through the air passage or chamber in uniform time relation with the engine's action, said passage or chamber having a mouthpiece whose mouth or aperture is non-circular and stands adjacent to the screen, such mouthpiece being movable to cause different dimensions of the mouth, at will, to stand transverse to the direction of movement of the screen past the mouth.

2. In a spraying device for the purpose stated, a capillary screen; means for giving it movement in the direction of its superficial extent and for charging it at one part of its path of movement with the liquid to be sprayed; an air passage or chamber terminating at one side of the screen, and having a mouthpiece whose mouth or aperture is non-circular and stands closely adjacent to the screen, such mouthpiece being movable to cause different dimensions of the mouth at will to stand transverse to the movement of the screen past the mouth.

3. In a spraying device for the purpose stated, a capillary screen and means for giving it movement in the direction of its superficial extent and for charging it at one part of its path of movement with the liquid to be sprayed; an air passage or chamber terminating at one side of the screen, and having a mouthpiece whose mouth or aperture is non-circular and stands adjacent to the screen; means for causing an air-current toward and into such mouth in impulses corresponding to the engine's action, such mouthpiece being movable to cause different dimensions of the mouth, at will, to stand transverse to the direction of movement of the screen past the mouth.

4. In a spraying device for the purpose stated, a capillary screen; means for giving it movement in the direction of its superficial extent and for charging it at one part of its path of movement with the liquid to be sprayed; an air passage or chamber having a mouthpiece whose mouth or aperture is non-circular and stands adjacent to the screen, such mouthpiece being rotatable about an axis at right angles to the path of movement of the screen past the mouth, said mouth being of different dimensions in different directions radial to said axis.

5. In a spraying device for the purpose stated, a rotating screen; a liquid-containing chamber into and out of whose liquid contents the screen passes as it rotates; an air passage or chamber having a mouthpiece intruded into the liquid-containing chamber, above the liquid-level thereof, and having its mouth or aperture adjacent to the surface of the screen, such mouthpiece being rotatable about an axis at right angles to the path of movement of the screen past the mouth; and said mouth being of different dimensions in different directions radial to said axis.

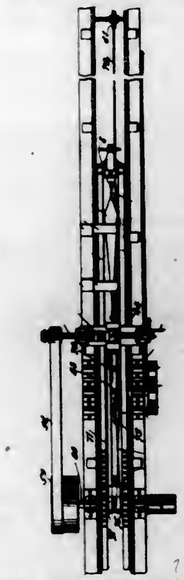
6. In a spraying device for the purpose stated, in combination with a chamber adapted at its lower part to contain liquid to be sprayed, a rotating capillary screen and means for rotating it in such chamber to cause it to pass into and out of the liquid at the lower part and to expose the submerged portion above the liquid at the upper part of said chamber; an air passage or chamber leading through the chamber-wall, having its opening into the chamber facing the screen; a mouthpiece at such opening, having a mouth or aperture adjacent to the screen, such aperture being of different dimensions in different directions in a plane parallel with the plane of movement of the screen, such mouthpiece being movable to change its dimension in the direction of the movement of the screen past it.

7. In a spraying device for the purpose stated, a capillary screen; means for giving it movement in the direction of its superficial extent and for charging it at one part of the path of its movement with the liquid to be sprayed; an air passage or chamber, terminating at one side of the screen; a mouthpiece, controlling the communication of such air-passage with the chamber, and standing adjacent to the screen, the mouth or aperture through such mouthpiece being oblong in a plane parallel to the screen; and means for rotating the mouthpiece about an axis at right angles to said plane to change the direction of its respective dimensions relative to the direction of movement of the screen.

8. A spraying device for the purpose stated, comprising a liquid-containing chamber, a rotating screen which, at one part of its path of rotation, dips into the liquid in the chamber, the wall of the chamber facing the screen having a hollow boss whose cavity leads into that of the chamber; and an air-pipe connected laterally into such boss; a mouthpiece which stands adjacent to the capillary screen and controls the communication between the cavity and the boss, said mouthpiece having a stem extending out through the boss; the mouth or aperture in said mouthpiece having different dimensions along different lines radial to the axis of the stem, and an indicating device on the protruding extremity of the stem.

9. In a spraying device for the purpose stated, a rotating capillary screen; a liquid-containing chamber, into and out of whose liquid contents the screen passes as it rotates; an air-passage having a mouthpiece intruded into the chamber above the liquid-level thereof, and having its mouth or aperture adjacent to the screen, such mouthpiece being rotatable about an axis at right angles to the path of movement of the screen past the mouth, and such mouth being of different dimensions in different directions radial to said axis.

677,768. **OAR-MAKING MACHINE.** WILLIAM T. JOHNS, New Westminster, Canada. Filed Sept. 15, 1900. Serial No. 30,060. (No model.)



Claim.—1. In a machine for cutting work in irregular shapes, a frame comprising side pieces, a head-stock having lugs movable in guide-channels formed in said side pieces, a tail-stock having lugs movable in channels in said side pieces, the last-named channels being slightly higher than the first-named channels, switch-tongues arranged between the adjacent ends of the two channels, a switch-tongue-shifting device carried by the head-stock, and a cutter operating between the head and tail stocks, substantially as specified.

2. In a machine for cutting work in irregular shapes, a frame comprising side pieces provided with longitudinal channels on their inner sides, the said channels having portions arranged on different horizontal planes, a head-stock movable in one portion of the channels, a tail-stock movable from one portion to the other portion of said channels, and means carried by the head-stock for controlling a shifting device from one portion of the channels to the other.

3. In a machine for cutting work in irregular shapes, a frame comprising side pieces, a head-stock having lugs movable in guide-channels formed in said side pieces, a tail-stock having lugs movable in channels in said side pieces, the last-named channels being slightly higher than the first-named channels, switch-tongues arranged between the adjacent ends of the two channels, a switch-tongue-shifting device carried by the head-stock, and a cutter-head having its axis extended transversely to the movement of the work, substantially as specified.

4. In an oar-making machine, a frame having side portions provided with channels, the said channels having elevated sections, switch-tongues forward of said elevated sections, a carriage guided in said channels, a head-stock mounted on the carriage, a tail-stock mounted on the carriage, shifting shoes, a rock-shaft carried by the head-stock and carrying said shoes, an operating-lever for said rock-shaft, and a cutter-head for operating on the work, substantially as specified.

5. In a machine for cutting work in irregular shapes, a cutter-head, a carriage movable transversely of the axis of the cutter-head, a tail-stock on said carriage, a head-stock on said carriage, comprising a spindle carrying a spur and mounted to rotate and to have a longitudinal movement on the head-stock, a notched disk attached to the said spindle, a shifting-lever mounted to swing on the spindle, a locking-bolt on said lever and adapted for engaging in either one of the notches of the disk, and means for engaging the said shifting-lever to deflect it laterally, substantially as specified.

6. In a machine for cutting work in irregular shapes, a cutter-head, a carriage, a head-stock connected to said carriage and consisting of a spindle mounted to rotate relatively to the head-stock and to move longitudinally, a spur connected with said spindle, a shifting-lever having swinging connection with the spindle, means for locking said lever to the spindle, a tappet-arm adjustable longitudinally with relation to the lever, and a pattern with which said tappet-arm is designed to engage for shaping a part of the work, substantially as specified.

7. In a machine for cutting work in irregular shapes, the combination with a cutter and a carriage movable relatively to the cutter, of a head-stock comprising a base, a sleeve on said base, a spindle movable in the sleeve, a disk attached to the spindle and having peripheral notches, a lever extended upward relatively to the spindle, a locking-bolt mounted on said lever and adapted to engage in any one of the notches of the disk, a tappet-arm movable longitudinally in an opening formed in the lever, a finger-piece extended from said arm outward through a slot in a wall of the lever, a latch for engaging with said finger-piece, and a pattern adapted to be engaged by said tappet-arm, substantially as specified.

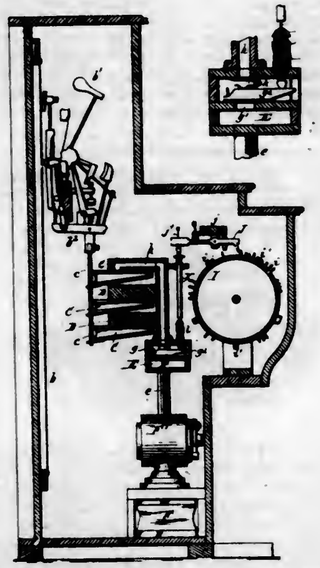
8. In a machine for cutting work in irregular shapes, the combination with a cutter and a carriage movable relatively to the cutter, of a head-stock, comprising a base-plate, a sleeve on said base-plate, a spindle movable in the sleeve, a disk attached to the spindle and having peripheral notches equally spaced apart, a collar mounted to rotate on the spindle, a lever extended upward from said collar, a locking-bolt mounted on said lever and adapted to engage in either one of the notches of the disk, a tappet-arm movable longitudinally in an opening formed in the lever, a finger-piece extended from said arm outward through a slot in a wall of the lever, a latch for engaging with said finger-piece, and a pattern adapted to be engaged by said tappet-arm, substantially as specified.

9. In a machine for cutting work in irregular shapes, the combination with a cutter and a carriage movable relatively to the cutter, of a head-stock, comprising a base-plate, a sleeve on said base-plate, a spindle movable in the sleeve, a disk attached to the spindle and having peripheral notches equally spaced apart, a collar mounted to rotate on the spindle, a lever extended upward from said collar, a locking-bolt mounted on said lever and adapted to engage in either one of the notches of the disk, a tappet-arm movable longitudinally in an opening formed in the lever, a finger-piece extended from said arm outward through a slot in a wall of the lever, a latch for engaging with said finger-piece, a pattern adapted to be engaged by said tappet-arm, and springs for moving said latch to its normal position, substantially as specified.

10. In a machine for making oars, a carriage for the work, a cutter-head shaft adjustable transversely of the movement of the carriage, two cutter-heads arranged side by side on the shaft, and means for holding said shaft as adjusted, substantially as specified.

677,769. **AUTOMATIC MUSICAL INSTRUMENT.** EUGENE DE KLEIST, North Tonawanda, N. Y. Filed June 18, 1900. Serial No. 20,673. (No model.)

Claim.—1. In a pneumatic-actuating mechanism for musical instruments, the combination with a member to be actuated, of an exhaust-chamber, a motor-pneumatic controlling the action of said member and connected with said exhaust-chamber by a duct or passage, an exhaust-valve controlling said passage, a collapsible vent-tube connected with said passage, a rod arranged to actuate said exhaust-valve and carrying a vent-valve which closes against the free end of said vent-tube, a rotary pin-barrel, and a lever operating said valve-rod and actuated by the pin-barrel, substantially as set forth.



2. In a pneumatic-actuating mechanism for musical instruments, the combination with a member to be actuated, of an exhaust-chamber, a motor-pneumatic controlling the action of said member and connected with said exhaust-chamber by a duct or passage, an exhaust-valve controlling said passage, a collapsible vent-tube connected with said passage, a rod arranged to actuate said exhaust-valve and carrying a vent-valve which closes against the free end of said vent-tube, and which is adjustable toward and from said tube, a rotary pin-barrel, and a lever operating said rod and actuated by said pin-barrel, substantially as set forth.

3. In a pneumatic-actuating mechanism for musical instruments, the combination with the member to be actuated, of an exhaust-chamber, a motor-pneumatic controlling the action of said member and connected with said exhaust-chamber by a duct or passage having a vent, an exhaust-valve controlling said passage, a vent-valve applied to said vent, a spring acting to withdraw said vent-valve from said vent, a rotary pin-barrel, and actuating devices for said valves controlled by said pin-barrel and operating to close said vent-valve when the exhaust-valve is opened, substantially as set forth.

4. In a pneumatic-actuating mechanism for musical instruments, the combination with the member to be actuated, of an exhaust-chamber, a motor-pneumatic controlling the action of said member and connected with said exhaust-chamber by a duct or passage having a vent, an exhaust-valve controlling said passage and having a spring for closing the same, a rod arranged to actuate said exhaust-valve, and carrying a vent-valve which controls said vent, a spring independent of the closing-spring of the exhaust-valve, which acts upon said valve-rod and tends to withdraw the vent-valve from said vent, a rotary pin-barrel, and a lever operating said valve-rod and actuated by the pin-barrel, substantially as set forth.

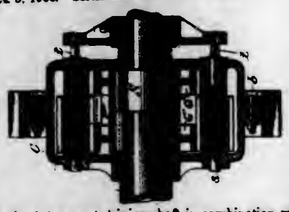
5. In a pneumatic-actuating mechanism for musical instruments, the combination with the members to be actuated, of an exhaust-chamber, valve-chambers surmounting said chamber and connected therewith by independent ports, exhaust-valves controlling said ports, motor-pneumatics controlling the action of said members and each connected with one of said valve-chambers, collapsible vent-tubes communicating with said valve-chambers, rods or stickers passing through said vent-tubes and operating said exhaust-valves, and provided with vent-valves which close against the free ends of said vent-tubes, springs applied to said valve-rods and tending to raise the same, a pin-barrel, and levers operating said valve-rods and actuated by said pin-barrel, substantially as set forth.

677,770. TOOL. EDWARD D. C. KOETH, Tipton, Mo. Filed July 30, 1900. Serial No. 25,323. (No model.)



Claim.—A tool consisting of two handles having enlarged jaws on their outer ends with square recesses in their adjacent sides and with the flat portions 11, a projection 4 rigid with one of said jaws and the other jaw having an opening through which the said projection is passed, in combination with suitable devices having integral square projections adapted to rest within the said recesses, and having openings through said projections to receive the projection 4, and shoulders formed integral with their outer portions which are adapted to rest against the surfaces 11, substantially as specified.

677,771. MEANS FOR CONNECTING DIFFERENTIAL GEARING TO DRIVING-AXLES OF VEHICLES. EDWARD T. BIRDSALL, New Rochelle, N. Y., assignor to Desberon Motor-Car Co., same place. Filed Oct. 5, 1900. Serial No. 32,077. (No model.)



Claim.—1. A two-part driving-shaft in combination with differential gearing carried thereby and means for interconnecting said shaft and gearing in such manner that the strains shall be equally distributed to all parts of the gearing and both parts of the shaft, together with means for locking or holding the same in either of two positions so that the driving-shaft may be driven as a unit or independently, substantially as described.

2. A two-part driving-shaft in combination with differential gearing carried thereby, and a spider provided with means for interconnecting all of said parts in such manner that the strains shall be distributed equally to all parts of the gearing and both parts of the shaft, together with means for locking or holding the same in either of two positions so that the driving-shaft may be driven as a unit or independently, substantially as described.

3. A two-part driving-shaft in combination with differential gearing carried thereby and a spider provided with means for connecting it to the shafting of all of the pinions of the differential gearing and in such manner as to interconnect all of the parts together, together with means for locking or holding the same in either of two positions so that the driving-shaft may be driven as a unit or independently, substantially as described.

4. A two-part driving-shaft, differential gearing comprising gear-wheels and pinions carried thereby and connected thereto; in combination with a spider having longitudinal movement on one part of the shaft, said spider being provided with rectangular-shaped openings adapted to receive the rectangular-shaped ends of the shafts of the pinions, substantially as described.

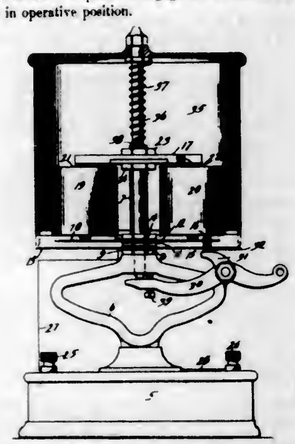
677,772. ELECTRIC WHISTLE. STUART A. BROWN, Mount Fair, Va. Filed Dec. 16, 1899. Serial No. 740,563. (No model.)

Claim.—1. A device of the class described comprising an electromagnet, a vibratory body in the field of the magnet, an electric circuit for the magnet including a make-and-break, a resonator disposed to cover the magnet, and a lever operatively connected with the cover and the make-and-break to expose the magnet and move the make-and-break into initial contact.

2. A device of the class described comprising an electromagnet, a vibratory diaphragm in the field of the magnet, an electric circuit for the magnet including a make-and-break, a movable casing for the magnet, and a lever operably connected with the casing and with the make-and-break to move the casing and establish initial contact of the make-and-break.

3. A device of the class described comprising an electromagnet, a vibratory diaphragm in the field of the magnet, an electric circuit for the magnet and including a make-and-break operable by the diaphragm, a movable casing for the magnet, and a lever connected with the casing and make-and-break for moving the casing and establishing initial contact of the make-and-break.

4. A device of the class described comprising an electromagnet having a support, a rod slidably mounted in the support, a casing for the magnet carried by the rod and movable therewith to cover and uncover the magnet, a pivoted lever in operative relation to the rod to move it, a vibratory diaphragm in the field of the magnet, an electric circuit for the magnet including a make-and-break operable by the diaphragm, and a finger upon the lever disposed to engage the make-and-break and move and hold it in operative position.



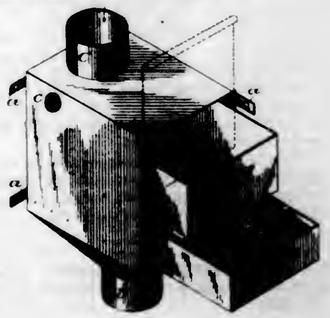
5. An electric whistle comprising an electromagnet, a vibratory diaphragm disposed in the field of the magnet with the lines of force of the field to concentrate at diametrically opposite points and adjacent to the periphery thereof, a make-and-break including the diaphragm and a contact for engagement thereby, and means for shifting the magnet to vary the angular distance between the contact-point and the adjacent point of concentration of the lines of force.

6. An electric whistle comprising an electromagnet, a vibratory body in the field of the magnet, an electric circuit for the magnet and including a make-and-break, and an electromagnet in operative relation to the make-and-break to move it into initial contact, the second electromagnet being connected in multiple with the first electromagnet.

7. An electric whistle comprising a diaphragm supported at its center and having its peripheral portion free to vibrate, a multipolar electromagnet having unlike poles disposed at diametrically opposite points of the diaphragm at one side thereof and adjacent to the periphery of the diaphragm, and a make-and-break including a contact carried by the diaphragm adjacent to the periphery thereof, said contact and the poles of the magnet being relatively movable to vary the angular distance therebetween to vary the tone produced, the make-and-break being included in the circuit of the electromagnet.

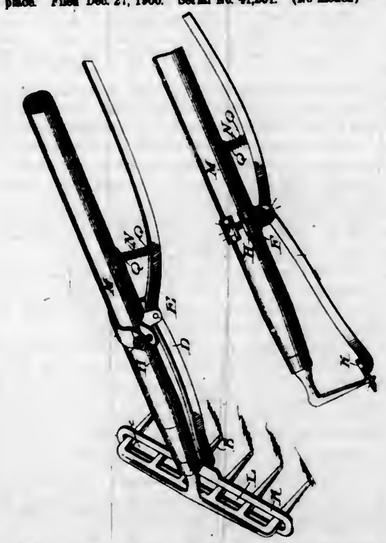
8. An electric whistle comprising a diaphragm supported at its center and having its peripheral portion free to vibrate, a multipolar electromagnet having unlike poles disposed at diametrically opposite points of the diaphragm at one side thereof and adjacent to the periphery of the diaphragm, and a make-and-break in the circuit of the electromagnet and comprising a contact carried by the diaphragm adjacent to the periphery thereof and spaced an angular distance from the adjacent pole of the electromagnet.

677,778. FILTER. ORA BURRRIDGE, Farmington, Ill. Filed July 16, 1900. Serial No. 23,779. (No model.)



Claim.—The combination with the receiver provided with the screened ventilator-opening of the adjustable drawers and the water-tight door arranged to slide upon the front of the receiver its lower end entering inside the receiver when the door is closed substantially as described.

677,774. CLEANING ATTACHMENT FOR RAKES. WILLIAM R. DAWSON, Augusta, Ga., assignor of one-half to Ryerson S. Guess, same place. Filed Dec. 27, 1900. Serial No. 41,201. (No model.)

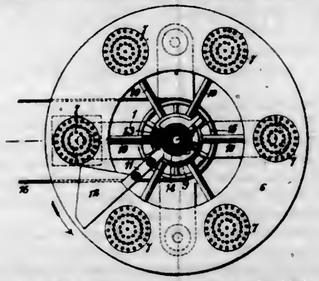


Claim.—1. In a cleaning and clearing attachment for a rake, a bar adapted to traverse the teeth of the rake, a lever carrying said bar, a bearing for said lever attachable to the handle of the rake, a tongue extending from said bearing in the longitudinal direction of said handle, and a spring seated on said tongue and adapted to press against said lever.

2. In a cleaning and clearing attachment for a rake, a lever provided with a bar adapted to traverse the teeth of the head of the rake, a clamping device on which said lever is mounted, a tongue on said clamp, and a returning spring, the latter being seated on said tongue and adapted to bear against said lever, said tongue extending from said clamp in the longitudinal direction of the head of the rake and adapted to rest on said handle.

3. A pair of plates adapted to clamp the handle of the rake, eyes on said plates, screws in said eyes, a lever mounted on one of said plates, a tongue extending from said plate in the longitudinal direction of the handle and adapted to rest upon said handle and a spring interposed between said lever and said tongue and bearing against said lever.

677,775. MICA-SPLITTING MACHINE. ISAAC DE KAISER, Pittsburg, and CHARLES W. HADFIELD, Braddock, Pa., assignors to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Oct. 22, 1897. Serial No. 656,013. (No model.)



Claim.—1. The combination with a table and a blade which are relatively movable, of means for producing an unbalanced atmospheric pressure upon that portion of the table which is adjacent to the blade whereby material to be treated will be held firmly in position.

2. In a machine for splitting mica, the combination with a stationary blade and a movable table parallel to each other and means for producing a partial vacuum beneath the material to be treated whereby such material will be held in position by atmospheric pressure.

3. The combination with a blade and a relatively movable table provided with sets of perforations, of means for producing a partial vacuum beneath each set of perforations as it comes into position beneath the blade.

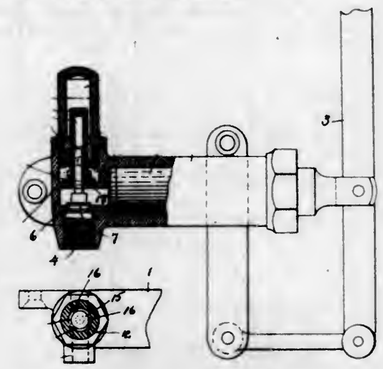
4. In a machine for splitting mica or analogous material, the combination with a splitting-blade and a table provided with sets of perforations and movable in a plane parallel and adjacent to said blade, of means for producing suction through each set of perforations as it comes into position beneath the blade.

5. The combination with a stationary splitting-blade and a perforated table the upper surface of which is parallel and adjacent to said blade, of means for rotating said table and means for producing a partial vacuum beneath the perforations in the table.

6. A clamping-support for sheet material comprising a table provided with sets of perforations and means for alternately producing and destroying a partial vacuum beneath each set of perforations.

7. In a machine for splitting mica, the combination with a table and means for rotating the same, of means for producing an unbalanced atmospheric pressure successively upon the upper surface of the table at different points and a knife or blade located parallel and adjacent to the upper surface of the table.

677,776. PUMP. JOSEPH DEVANTERY, New York, N. Y., assignor to the Locomobile Company of America, same place. Filed May 12, 1900. Serial No. 16,457. (No model.)



Claim.—1. In a pump, the combination of a cylinder and contained piston, a port or passage connected with the interior of the cylinder, a freely-movable check-valve controlling said port, and a closed air pocket or chamber located behind the valve and connecting through a contracted passage with the interior of the pump-cylinder, said pocket being adapted to retain a small body of air, which acts as a cushion to seat the valve, said contracted passage being located in position to be sealed by the liquid being acted upon by the pump.

2. In a pump, the combination of a cylinder and contained piston, a port or passage connected with the interior of the cylinder, a freely-movable check-valve controlling said port, and a closed air pocket or chamber located behind the valve and connecting through a contracted passage with the interior of the pump-cylinder, said pocket being adapted to retain a small body of air, which acts as a cushion to seat the valve, and having a valve-stem guide at its mouth, the valve having a stem which projects through said guide into the pocket and operates as a piston therein, said contracted passage being located in position to be sealed by the liquid being acted upon by the pump.

3. In a pump for liquids, the combination of a cylinder and contained piston, a port or passage connected with the interior of the cylinder, a freely-movable check-valve controlling said port and having a stem, a guide closely fitting said stem except at one or more points where relatively small air-passages are formed alongside of the stem, the said air-passages being located in position to be sealed by the liquid being acted upon by the pump, and a closed air chamber or pocket of substantial size, located behind the stem and connecting with the interior of the cylinder through said air passage or passages, said pocket being adapted to retain a small body of air which acts as a cushion to seat the valve, and is retained in the pocket by the pumped liquid sealing said air passage or passages.

677,777. PARALLEL-RULER. HENRY GOLDMAN, Chicago, Ill. Filed Dec. 6, 1897. Serial No. 660,940. (No model.)



Claim.—1. The combination with a parallel-edged ruler of a pair of parallel rollers near said edges, a channel between said rollers, an ink-absorbing device within said channel and provided with wiping edges which simultaneously engage both of said rollers.

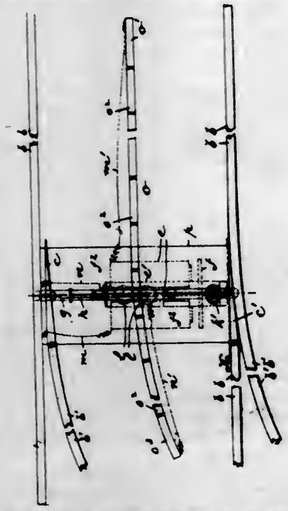
2. The combination with a parallel-edged ruler of two sets of parallel rollers, the sets being on opposite sides of the ruler, the axes of one set of rollers being transverse to the axes of the other set.

3. The combination with a parallel-edged ruler of two sets of parallel rollers, one set on each opposite face of said ruler, the axes of one set of rollers arranged transversely to the axes of the other set of rollers, and channels with ink-absorbing devices between said rollers, which wipe said rollers, substantially as described.

4. A ruler, comprising a body portion having two sets of rollers, one on each face thereof, the rollers on one face having axes transverse to the axes of the rollers on the other face, the axes of both sets of rollers being substantially fixed.

5. A ruler, comprising a body portion having two sets of rollers, one on each face thereof, the rollers on one face having axes transverse to the axes of the rollers on the other face, the axes of both sets of rollers being substantially fixed, each roller provided with a series of parallel grooves which divide the surface into a series of separated parts.

677,778. ELECTRIC-SWITCH RAILWAY. ANDREW L. HATFIELD, Newark, N. J., assignor to Frederick H. Riggs, same place. Filed June 20, 1900. Serial No. 20,914. (No model.)



Claim.—1. In a railway-switch-operating device, the combination with a switch-tongue, of a sliding frame carrying said switch-tongue, a primary electromagnet for sliding said frame, a lever for locking said frame against sliding and a secondary electromagnet for operating said lever, substantially as set forth.

2. In a switch-operating device for railways, the combination with a switch-tongue, of a sliding frame connected to said switch-tongue, an electromagnet adapted to slide said frame, a spring for restoring said frame to normal position, a locking-lever for said frame, a secondary electromagnet for releasing said locking-lever, and means for completing the circuit through said electromagnets from the car substantially as set forth.

3. In a railway-switch-operating device, the combination of a transversely-sliding frame having at the top a bar to which the switch-tongue is pivoted and at the bottom a sleeve *f*, having an armature *f'* thereon, a supporting-bar *h*, extending through said sleeve and upon which the frame slides an electromagnet for attracting said armature and sliding the frame, a locking-lever having a hooked end holding said armature to the magnet, means for releasing said lever, and a spring for throwing the frame to carry the armature away from the magnet, substantially as set forth.

4. In an electric-switch-operating device, the combination of a third rail, and a plunger carried by the car and adapted to engage the said third rail to transmit current thereto, said plunger having a socketed wheel-carrier at its lower end, a spring in said socket and a plunger-rod entering said socket against the spring and being held by a transverse pin working in an elongated aperture in the rod, substantially as set forth.

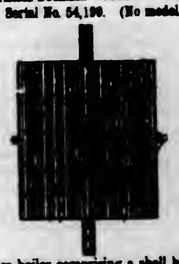
5. The combination with a railway-switch tongue, of an electromagnet for throwing said switch-tongue, a device for positively locking said switch-tongue when thrown, and a secondary electromagnet for releasing said locking device, a box or casing inclosing said electromagnets and locking device, and mechanically-operated releasing means extending from said locking device outside of the said box or casing, substantially as set forth.

6. The combination with a railway-switch, of an electromagnet for throwing said switch, means for automatically locking said switch in position when thrown, a secondary electromagnet for releasing said locking means, a casing containing said electromagnets and locking means, and a lever connected to said locking means and extending outside the casing, whereby the switch can be mechanically operated as well as electrically, substantially as set forth.

7. The combination with a railway-switch, of a sliding frame rigidly connected to the switch, an electromagnet adapted to slide said frame in one direction, a catch for locking said frame in the position given it by the electromagnet, a secondary electromagnet adapted to release said locking-catch electrically, a lever by which the catch can be mechanically released, and a spring for restoring the sliding frame to initial position when the locking-catch is released, substantially as set forth.

8. In a switch-operating device, the combination of a sliding frame rigidly connected to the switch, a bar A, upon which said frame slides, an armature fast on said frame and projecting at opposite sides of said bar, stationary electromagnets at the sides of said bar and adapted to attract said armature to slide the frame, means for locking the frame in position when slid, means for releasing said locking means, and a spring for sliding the frame away from the electromagnets, substantially as set forth.

677,779. STEAM-BOILER. CHARLES A. KITTS, Oswego, N. Y. Filed Apr. 3, 1901. Serial No. 54,199. (No model.)



Claim.—1. A steam-boiler comprising a shell having opposite perforated heads and fire-flues within the shell and having their opposite ends inserted in the apertures of the heads, and a transverse plate between the heads and provided with perforations receiving the flues, said plate being slightly rotatable for permitting the alinement of its apertures with those of the boiler-heads when the flues are being inserted in position, and means for preventing endwise movement of the plate.

2. The combination with a steam-boiler composed of opposite hollow sections formed of substantially the same size and having adjacent ends open and secured to each other and their outer ends provided with perforated heads, an intermediate transverse perforated plate between and substantially parallel with the heads, said plate being movable independently of the heads for alining its apertures with those of the heads after the boiler-sections are secured together, and flues inserted through the apertures of the heads and plate and having their opposite ends secured to the heads.

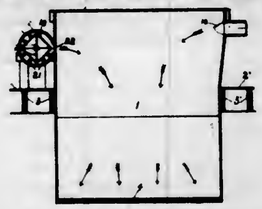
3. A steam-boiler comprising a cylindrical shell having opposite perforated heads, a circular plate loosely supported transversely within the shell and formed of substantially the same diameter as the interior of the shell, said plate being formed with apertures corresponding to the perforations in the heads and provided with steam-passages therethrough, and flues passed through the apertures and perforations of said plate and heads and having their ends secured to the heads.

4. In a steam-boiler the combination of oppositely-arranged hollow sections having their adjacent ends open and secured to each other and their opposite ends provided with heads having flue-openings, a plate loosely supported within the shell between the meeting ends of the sections and one of said heads and arranged substantially parallel with the heads, said plate being provided with flue-openings and steam-passages therethrough, and flues inserted through said openings of the heads and plate and secured to the heads and bars or rods secured to the plate and projecting in opposite directions therefrom for engaging the opposite heads and preventing endwise movement of the plate.

5. In a steam-boiler the combination of oppositely-arranged hollow sections having their adjacent ends open and secured to each other and their opposite ends provided with heads having flue-openings, a plate loosely supported in the shell between the meeting ends of the sections and one of said heads and arranged substantially parallel with the heads, said plate being provided with flue-openings and steam-passages therethrough, and flues inserted through said openings of the heads and plate and secured to the heads and bars or rods secured to the plate and projecting in opposite directions therefrom for engaging the opposite heads and preventing endwise movement of the plate.

6. The combination with an upright tubular boiler of a transverse plate loosely mounted in the boiler between its opposite heads and parallel therewith, said plate being provided with openings receiving the flues and with oppositely-projecting arms engaged with the heads for holding the plate from endwise movement.

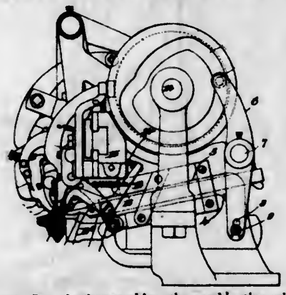
677,780. COTTON-MATTRESS-FORMING DEVICE. JESSE C. KYLE, Birmingham, Ala., assignor of one-half to Walter B. Archibald, same place. Filed May 14, 1900. Serial No. 16,615. (No model.)



Claim.—1. In a device for forming cotton mattresses, a lint-box in combination with a fan and cotton-flue arranged to discharge air and cotton into the said box approximately on the same horizontal plane and at opposite sides of the box and an inclined deflector transversely arranged above the cotton-flue in position to act on the entire current of cotton and direct it as a whole obliquely inward and downward to meet a similarly-directed converging current of air from the said fan substantially as set forth.

2. In a device for forming cotton mattresses, a lint-box in combination with a fan and cotton-flue arranged to discharge air and cotton into the said box approximately on the same horizontal plane and at opposite sides of the box and an adjustably-inclined deflector transversely arranged above the cotton-flue in position to act on the entire current of cotton and direct it as a whole obliquely inward and downward to meet a similarly-directed converging current of air from the said fan substantially as set forth.

677,781. LASTING-MACHINE. JOHN S. LADD, Boston, Mass. Filed July 5, 1899. Serial No. 722,219. (No model.)



Claim.—1. In a lasting-machine, the combination with an upper-stretching device and its carrier, of a pusher or holder and its carrier, independent mechanisms to actuate the carriers to advance the stretching device to stretch the upper, and to thereafter force the pusher or holder against the upper, the paths of movement of the stretching device and the pusher or holder being substantially in the plane of the bottom of the last, substantially as described.

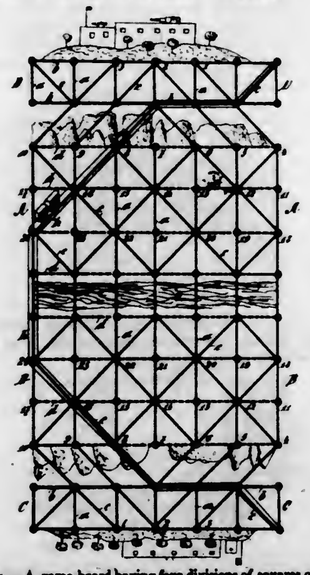
2. In a lasting-machine, the combination with an upper-stretching device, and mechanism to impart thereto first a movement toward the last in substantially the plane of the bottom of the last and thereafter a movement at substantially a right angle to the bottom of the last, of a pusher or holder cooperating with said stretching device to engage the upper below the stretching device and force it against the shoulder of the sole, substantially as described.

3. In a lasting-machine the combination with a stretching device, and mechanism to cause said stretching device to engage the upper and impart thereto first inward, and thereafter upward stretching movements, of a pusher arranged to engage the upper below the stretching device and means to lock the pusher in its advanced position, substantially as described.

4. In a lasting-machine the combination with stitch-forming mechanism, of an upper-stretching device and its carrier, a pusher or holder and its carrier, and independent mechanisms for actuating the carriers to cause the stretching device to stretch the upper over the sole and the pusher or holder to engage the upper below the stretching device and hold it while the stitch-forming mechanism is actuated to unite the upper and sole, substantially as described.

5. In a lasting-machine the combination with stitch-forming mechanism, of a stretching device and means to actuate the same to cause it to engage the upper and impart thereto a stretching movement first substantially in the plane of the bottom of the last and thereafter substantially at a right angle to the bottom of the last, a pusher or holder and mechanism to actuate the pusher or holder to cause it to engage the upper and hold it while the stitch-forming mechanism is actuated to unite the upper and sole, substantially as described.

677,782. WAR GAME. JÖRG LAEN, Vienna, Austria-Hungary. Filed Oct. 19, 1900. Serial No. 33,632. (No model.)



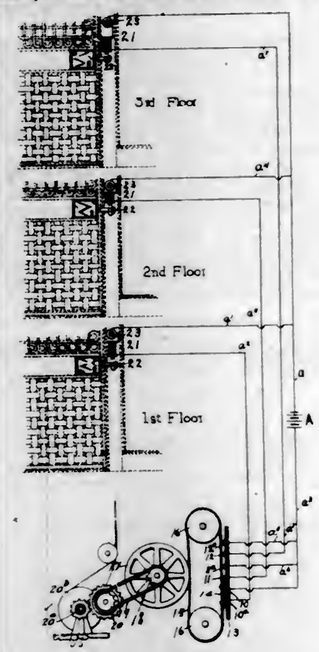
Claim.—A game-board having four divisions of squares of equal size arranged in longitudinal and cross alinement, the two center divisions being connected by longitudinal lines only, the corners of said squares forming points to receive the game-pieces, diagonal lines connecting and passing over the squares on opposite sides of the longitudinal center of the board, the diagonal lines on the central divisions crossing each other at right angles, and a pictorial representation of a "track" extending from one corner of the board to the opposing corner at the opposite end of the board and leading from one of the end divisions to the other end division and traversing the central divisions, following certain of the diagonal, cross and longitudinal lines of the divisions, substantially as described.

677,783. CONTROLLING DEVICE FOR ELECTRICAL DOOR-OPENERS. GEORGE A. LE FEVRE, New York, N. Y. Filed July 30, 1900. Serial No. 25,259. (No model.)

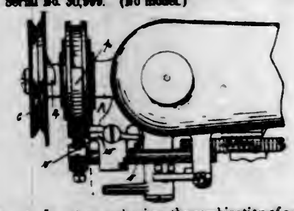
Claim.—1. In an elevator, the combination with the operating mechanism and the electrical door-openers, of a circuit-closer automatically operated by the movement of a portion of the elevator apparatus as the car reaches a floor, and a second circuit-closer operative in connection with the first circuit-closer to release the door-opener.

2. In an elevator, the combination with the operating mechanism and the electrical door-openers at the several floors of the elevator-well,

of a centralized series of contacts comprising a pair of contacts in the circuit of each door-opener, a contact-plate slidable over the several pairs of contacts, and means for moving the contact-plate from the elevator-operating mechanism, said means being timed so that the plate will engage a pair of contacts at the same time that the elevator-cage comes opposite the door-opener which is in the circuit of the said contacts.



677,784. STOP MECHANISM FOR SEWING OR OTHER MACHINES. FRANCIS T. LEILICH, San Francisco, Cal. Filed Sept. 24, 1900. Serial No. 30,999. (No model.)



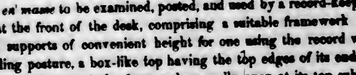
Claim.—1. In a stop mechanism, the combination of a shaft, a pulley rotating coaxially with said shaft, means for imparting rotation to the pulley independently of the shaft, a stop, and a clutch-body rotating with the shaft and longitudinally shiftable thereon to be engaged by the pulley when moved in one direction and to engage the stop when moved in the other direction, and resilient means for imparting motion from the pulley to the clutch-body and absorbing the motion of the clutch-body when arrested by the stop, substantially as described.

2. In a stop mechanism, the combination of a shaft, a loose pulley rotating thereon, a stop, and a clutch longitudinally shiftable on the shaft but rotating therewith, said clutch comprising a clutch-body, a device revolvable with the clutch-body, but having an independent rotary movement relative thereto and arranged to engage the loose pulley when shifted in one direction, a device revolvable with the clutch-body, but having an independent rotary movement relative thereto and arranged to engage the stop when moved in the opposite direction, and resilient means interposed between said devices and the clutch-body for breaking the force of the impact, substantially as described.

3. In a stop mechanism, the combination of a shaft, a loose pulley rotating thereon, a stop, and a clutch, longitudinally shiftable on the shaft to be engaged by the pulley when moved in one direction and to engage the stop when moved in the opposite direction, and comprising a clutch-body rotating with the shaft and two impact-rings resiliently connected with the clutch-body, one to resiliently communicate the rotation of the pulley, and the other to break the force of the impact upon the stop, substantially as described.

4. In a stop mechanism, the combination of a shaft, a loose pulley rotating thereon, a stop, and a clutch longitudinally shiftable on the shaft to be engaged by the pulley when moved in one direction and to engage the stop when moved in the opposite direction, and comprising a clutch-body rotating with the shaft and having a semicircular slot, two impact-rings, one arranged to be engaged by the pulley, and the other to engage the stop, when the clutch is correspondingly shifted, said rings having studs in the respective ends of the slot, and a coiled spring in said slot between said studs, substantially as described.

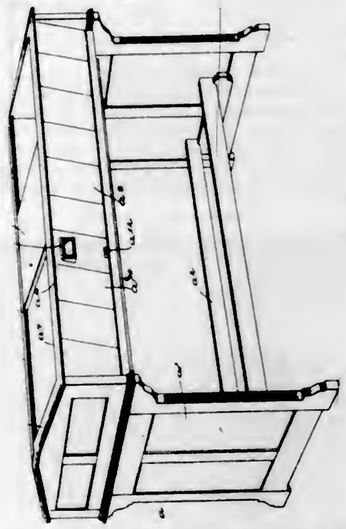
677,785. EYEGLASS-CASE. ABBOTT L. MARINER, Medford, Mass., assignor to Louis E. Kirstein and Abraham Asher, Boston, Mass. Filed May 3, 1901. Serial No. 58,562. (No model.)



Claim.—1. The improved case herein described, comprising a tray having a cover hinged thereto, the adjacent portions of the tray and cover being provided with recesses containing hinge members having their abutting ends respectively provided with a wedge and a tapered slot and a spring arranged to force the said ends together.

2. In a case of the character described, the combination of a cover A and tray B, respectively provided with tubular portions *a*, *b*, and a coiled spring C, and hinge members D, E, located in said tubular portions, the said members being provided with fins F, adapted to enter slots in said tubular portions, whereby the hinge members are prevented from turning in the tubular portions when the cover is opened or closed.

677,786. CARD-LEDGER DESK. GEORGE B. MELENEY, Chicago, Ill., assignor to Library Bureau, Boston, Mass. Filed Sept. 10, 1900. Serial No. 29,525. (No model.)



Claim.—1. A desk of the kind described, in which card-records are kept *en masse* to be examined, posted, and used by a record-keeper standing at the front of the desk, comprising a suitable framework including rigid supports of convenient height for one using the record while in a standing posture, a box-like top having the top edges of its ends slanting downwardly toward the front and normally open at its top substantially from back to front of said box-like portion for regular continuous use, and provided with a front sloping gently inwardly toward the bottom from the front edge thereof for a substantial distance, to afford the user a comfortable support for a corresponding substantial distance when he occupies a standing posture against the front of the desk while examining cards at the rear part thereof.

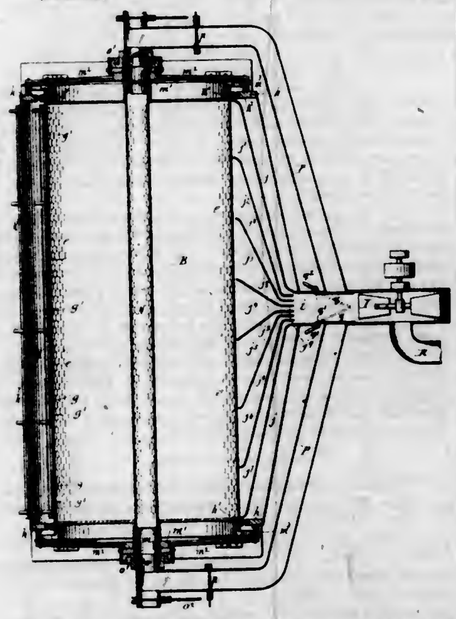
2. A desk of the kind described, in which card-records are kept *en masse* to be examined, posted, and used by a record-keeper standing at the front of the desk, comprising a suitable framework including rigid supports of convenient height for one using the record while in a standing posture, a box-like top having the top edges of its ends slanting downwardly toward the front and normally open at its top for regular continuous use, and provided with a front sloping inwardly toward the bottom thereof to permit the user to maintain a comfortable standing posture against the front of the desk while examining cards at the rear part thereof, said top terminating at its upper front edge in a rail rounded at its upper front edge flush with said sloping front, and the latter sloping inwardly as shown for a substantial distance for the user to rest against.

3. A desk of the kind described, comprising a suitable framework including rigid supports, a box-like top having the top edges of its ends slanting downwardly toward the front and open at its top for use and provided with a front sloping inwardly toward the bottom thereof, a movable table mounted in said top substantially flush with the front edge thereof, and tracks for the same to travel on longitudinally of the desk.

4. A desk of the kind described, comprising a suitable framework including rigid supports, a box-like top having the top edges of its ends slanting downwardly toward the front and open at its top for use, and provided with a front sloping inwardly toward the bottom thereof, said front consisting of the contiguous front ends of removable card-holders, each of said front ends being sloping and cooperating with the rest of the front ends to make a substantially continuous and uniformly-inclined front to the desk.

5. A desk of the kind described, comprising end supports, a top carried thereby, a back rail, a lower front rail, an intervening space normally open when in use, and a series of card-holders contained in and removable from said top, said card-holders each having a receptacle for cards and being provided with a front end outwardly inclined toward its top, the said several card-holders occupying positions in the desk side by side and constituting separate compartments in said top, and the several front ends of said holders constituting a sloping front to said top, with its top edge substantially flush with the front part of said front rail.

677,787. MALTING AND DRYING APPARATUS. FREDERICK H. C. MEY, Buffalo, N. Y. Filed Aug. 14, 1900. Serial No. 26,836. (No model.)



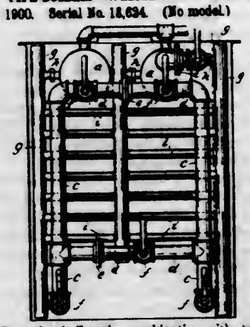
Claim.—1. The combination with a perforated rotary drum, of an air-chamber applied to the outer side of the drum and communicating at its inner side with the interior thereof, said chamber being provided with a central air-inlet and having internal partitions which lead from said inlet and diverge as they approach the periphery of the drum for distributing the incoming air-current throughout the length of the drum and an air-propelling device connected with the inlet of said air-chamber, substantially as set forth.

2. The combination with a rotary malting-drum provided with inlets and means for inducing air-currents through the same, of a longitudinal series of sprinkler-pipes arranged along the drum, branch pipes connecting each sprinkler-pipe with a water-supply pipe, and a regulating-cock arranged in each branch pipe, whereby the supply of water to different parts of the drum can be regulated, substantially as set forth.

3. The combination with a perforated rotary drum having an axial air-discharge tube, of stationary air-exit pipes arranged at the ends of the drum in line with its axial tube and connected with the latter by union-joints and provided with valves or dampers, an air-chamber applied to the outer side of the drum and communicating at its inner side with the interior thereof, a fan-case having its discharge-spout connected with said air-chamber, auxiliary air-pipes leading from said discharge-spout to said air-exit pipes, respectively, and connected with said pipes on the inner side of their dampers, a damper arranged in each of said auxiliary air-pipes, and a valve arranged in said discharge-spout for directing the air from the fan either into said air-chamber or into said auxiliary air-pipes, substantially as set forth.

4. The combination with a perforated rotary drum having an axial air-discharge tube, of stationary air-exit pipes arranged at the ends of the drum in line with its axial tube and connected with the latter by union-joints and provided with valves or dampers, an air-chamber applied to the outer side of the drum and communicating at its inner side with the interior thereof, a fan-case having its discharge-spout connected with said air-chamber, auxiliary air-pipes leading from said discharge-spout to said air-exit pipes, respectively, and connected with said pipes on the inner side of their dampers, a damper arranged in each of said auxiliary air-pipes, and a pair of swinging valves pivoted in said spout and arranged to close the adjacent ends of said auxiliary air-pipes when moved against the sides of the discharge-spout and to open said pipes and bridge the discharge-spout when swung inwardly against each other, substantially as set forth.

677,788. PIPE-BOILER. WALTER MACFARLANE, Seattle, Wash. Filed May 31, 1900. Serial No. 18,634. (No model.)



Claim.—1. In a pipe-boiler, the combination with steam and water drums, of vertical pipes connected to said drums and arranged in close order to form walls, and horizontal quill-pipes connected to said vertical pipes and arranged in plurality of horizontal rows, with spaces therein, adjacent to the front and rear of the boiler, to form return-current channels for the passage of the gases of combustion.

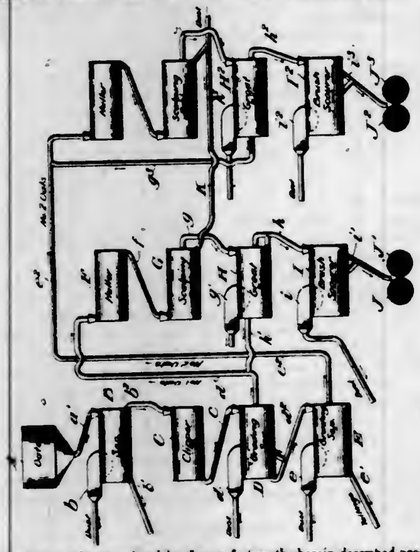
2. In a pipe-boiler, the combination with steam-drums *a* and water-drums *b*, of vertical pipes *g* connected in close order to said drums and arranged in series to form walls, and horizontal quill-pipes *i* connected to said vertical pipes and arranged in a series of horizontal rows, with open spaces between the pipes so disposed as to form a return-current channel for the gases of combustion, with some of the quill-pipes interposed as partitions in each channel.

3. In a pipe-boiler, the combination with steam and water drums, of vertical pipes detachably connected to said drums and arranged in a plurality of series to form walls, and horizontal quill-pipes connected alternately to vertical pipes on opposite sides and interlocking with one another to form a horizontal row or wall of pipes.

4. In a pipe-boiler, the combination with steam-drums *a* and water-drums *b*, of vertical pipes *g* arranged in close order to form walls and connected to the said steam and water drums, and horizontal quill-pipes *i* connected to said vertical pipes and arranged in close order to form channel-walls with open spaces so disposed at the ends as to reverse the current of the combustion-gases in the channels alternately from the rear and front of the boiler.

677,789. ROLLED-OATS PROCESS. JOHN D. HAGEL and HENRY R. HAGEL, Bushnell, Ill. Filed Sept. 13, 1900. Serial No. 29,936. (No specimens.)

Claim.—1. As an improved article of manufacture the herein-described product from oats in their natural condition consisting of the uncooked and unheated, hulled, natural oat-kernels pressed into flakes.

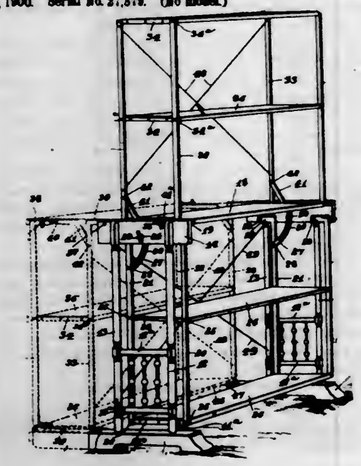


2. As an improved article of manufacture the herein-described product from oats consisting of the uncooked and unheated, hulled kernels of oats in their natural condition graded to uniform size, cleaned and pressed into flakes.

3. The herein-described process of manufacturing rolled oats, consisting in cleaning and clipping the oats and subsequently separating the oats from the chaff caused by the clipping of the grain, grading the clipped oats to obtain uniform length thereof, hulling such graded oats, cleaning and separating the kernels from the hulls, and finally flaking the kernels for the purpose and substantially as described.

4. The herein-described process of treating oats in a natural uncooked and unheated condition consisting in cleaning, clipping and separating the oats, grading them according to size to obtain uniform lengths of kernels, then separately treating each grade of oats in a hulling-machine to detach the hulls from the kernels, then cleaning and separating the hulls from the kernels and separating any unhulled kernels from the hulled ones, cleaning the separated kernels, and finally flaking them, for the purpose and substantially as described.

677,790. DISPLAY-RACK. WILLIAM NORTHGRAVES, Perth, Canada, assignor of one-half to John S. Feehan, Dekalb, Ill. Filed Aug. 24, 1900. Serial No. 27,579. (No model.)



Claim.—1. A display-rack consisting of a stand, a lower rack-section, an upper rack-section having the front and back standards supporting the shelves and hingedly connected or pivoted at the back standards only to the stand and capable of adjustment to position in vertical alinement with, or of inversion in rear of, the lower rack-section, and means for supporting said upper rack-section in its adjusted positions, substantially as described.

2. A display-rack comprising a stand, a lower rack-section supported thereon, an upper rack-section having a pivotal connection at its lower rear corner only to said stand and capable of adjustment to positions either in vertical alinement with said stand, at an angle thereto, or of inversion in rear of said stand, and locking means for said upper rack-section to sustain it in its elevated or inclined positions, substantially as described.

3. A display-rack comprising a stand, a lower rack-section pivoted to said stand, an upper rack-section hinged at its lower rear corner only to the stand, and independent locking devices each connected with one rack-section and clamped adjustably to the stand, the locking device for the upper rack-section having an element connected to said rack-section at one side of its pivotal attachment to said stand, whereby said locking device is adapted to sustain the upper rack-section in either an elevated position over the lower section, or at an angle thereto and to the stand, substantially as set forth.

4. A display-rack comprising a stand, a lower rack-section having the upright bars and the elbow-jointed connection with said stand and adjustable thereon to vertical or inclined positions, shelves pivoted to the bars of said lower rack-section, the quadrants pivoted to the lower rack-section, and means for clamping the quadrants to the stand, an upper rack-section having at its rear corner only a hinged connection to the stand and adjustable to vertical, inclined or inverted positions, and an independent locking device for holding said upper rack-section in either of its adjusted positions, substantially as described.

5. A display-rack comprising a stand, an upper rack-section having the elbow-hinged connection at its rear corner only with said stand and capable of adjustment to either a vertical, inclined or inverted position, locking-rails connected to the upper rack-section, and clamps for confining the locking-rails to the stand, whereby the rails may be adjusted or removed, substantially as described.

6. A display-rack comprising a stand, an upper rack-section hinged at its lower rear corner only to said stand and capable of adjustment to the elevated or inverted positions as described, the locking-bars pivoted to said upper rack-section at points adjacent to the hinged connection of the rack to the stand, and means for clamping said bars detachably and individually to the stand, substantially as described.

7. In a display-rack, the combination of a stand provided with the brackets and a table-top secured to the brackets, a lower shelved rack-section having pivotal connection with said stand below the table-top, an upper shelved rack-section having a permanent hinge connection at its rear corner only with the stand, and independent locking devices each connected to one rack-section and adapted to be clamped to the stand, substantially as described.

8. A display-rack comprising a stand having parallel side bars, a table-top secured permanently to said stand and having its end portions terminating within the sides thereof and forming therewith intervening spaces, an upper rack-section having a hinged connection at its rear corner only with said stand, the locking-rails pivoted to said upper rack-section and fitting loosely in the spaces between the table-top and the sides of the stand, means for clamping said locking-rails to the stand, and a lower rack-section supported by the stand, substantially as described.

9. A display-rack comprising a stand having the hinged foot-pieces foldably connected thereto, a lower rack-section, an upper rack-section hinged to the stand and arranged to be lowered and to rest upon said foot-pieces, and independent clamping devices each connected to one rack-section and clamped to the stand, substantially as described.

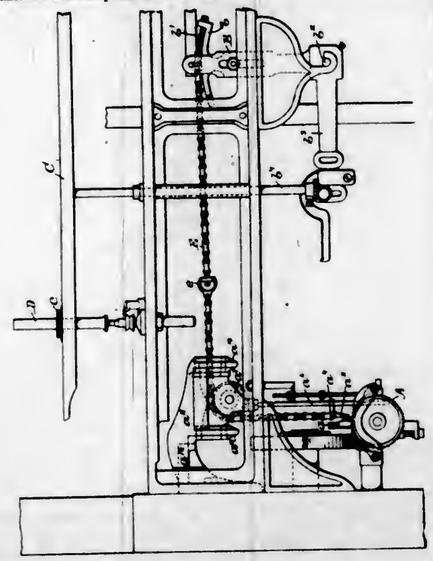
677,791. SPINNING-MACHINE. OSCAR L. OWEN, Whitinsville, Mass., assignor to the Whitin Machine Works, Incorporated, same place. Filed Nov. 30, 1900. Serial No. 38,111. (No model.)

Claim.—1. In a spinning-machine, the combination with the bobbin-building mechanism and the rocker-arm, of a sheave, a swinging support for the sheave and a flat chain connecting the builder mechanism with the rocker-arm, as described.

2. In a bobbin-building mechanism for spinning-machines, a sheave journaled in a yoke and a pivotal support for the yoke, in combination with a flat chain supported on the sheave and connecting the bobbin-building mechanism with the ring-rail-operating mechanism, and a swivel in the chain, as described.

3. In a bobbin-building mechanism, the combination with a flat chain, of a sheave journaled in a yoke, trunnions on the yoke, a passage for the chain through one of the trunnions, and bearings for the trunnions, as described.

4. In a spinning-machine, the combination with the bobbin-building mechanism and the segmental slide, of the member a^3, the stud a^4 on the member, the flat chain E, the sheave a^7, the yoke a^6, the rocking support for the yoke and the slotted arm a^5 secured to the yoke and engaging with the stud a^4, whereby the movement of the segmental slide is transmitted to the yoke, as described.

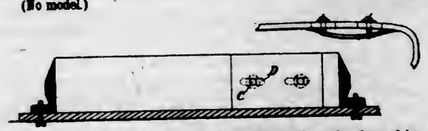


677,792. BUTTONHOLE-CASING. ROBERT H. PIPER, Wakefield Mass., assignor of one-third to Edward B. Kelley, same place. Filed Sept. 9, 1899. Renewed Oc. 27, 1900. Serial No. 34,049. (No model.)



Claim.—A buttonhole-facing comprising a front and a rear member, each of which is slotted and joined to the other by a row of stitches around the slotted portion, the front member consisting of two pieces, one of which is larger than the other and has its edges folded over and secured to the other piece, and the other member has its ends pointed and its sides parallel and is formed from a single piece of material folded longitudinally and having its edges secured together.

677,793. DIE FOR CUTTING OUT CIGAR-WRAPPERS. EMANUEL PISKO, New York, N. Y. Filed Nov. 14, 1900. Serial No. 36,436. (No model.)



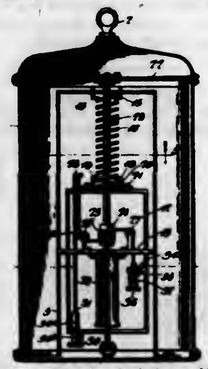
Claim.—1. A die having a portion of its cutting edge formed by a supplemental adjustable piece, substantially as described.

2. A die having a portion of its cutting edge formed by a supplemental piece, substantially as described.

3. A die for cutting out cigar-wrappers having a portion of its cutting edge formed of the approximate shape of the natural leaf and having on that side of the die a supplemental adjustable cutting edge, substantially as described.

677,794. PRICE-SCALE. JOHN W. POPPE, Washington, D. C., assignor to the Automatic Scale Company. Filed Dec. 24, 1900. Serial No. 40,948. (No model.)

Claim.—1. In a device of the class described, the combination of a casing, a shaft, a rotary chart connected with the shaft, a flexible connection wound around the shaft and adapted to be moved longitudinally to rotate the said shaft, a spring-resisted weight-receptacle connected with and adapted to actuate the flexible connection, an adjusting device connected with one end of the said flexible connection and adapted to move the same in either direction, and a tension device arranged at the other end of the flexible connection and coöperating with the said adjusting device to moving the flexible connection longitudinally in either direction, substantially as described.



2. In a device of the class described, the combination of a casing, a shaft, a flexible connection wound around the shaft and adapted to be moved longitudinally to rotate the same a spring-resisted weight-receiver for moving the flexible connection longitudinally, a tension device arranged at one end of the flexible connection, and an adjusting device located at the other end of the flexible connection and coöperating with the said tension device to move the flexible connection longitudinally in either direction, substantially as described.

3. In a device of the class described, the combination of a casing, a shaft, guides located at opposite sides of the shaft, a movable frame arranged in the said guides, a flexible connection carried by the movable frame and wound around the shaft, a spring-resisted weight-receptacle for actuating the flexible connection, a tension device arranged at one end of the flexible connection, and an adjusting device arranged at the other end of the flexible connection and coöperating with the tension device to move the said flexible connection longitudinally in either direction independently of the movable frame, substantially as described.

4. In a device of the class described, the combination of a casing, a shaft, a flexible connection wound around the shaft, a spring-resisted weight-receiver adapted to actuate the flexible connection, an adjusting device composed of a movable rod secured to one of the terminals of the flexible connection and provided with screw-threads, and a nut engaging the latter, and a tension device connected with the other terminal of the flexible connection and coöperating with the adjusting device to enable the said flexible connection to be moved longitudinally in either direction, substantially as described.

5. In a device of the class described, the combination of a vertically-disposed approximately-cylindrical casing, a stationary frame or support arranged within the casing, a vertically-movable frame guided on the stationary frame or support, a spring connecting the vertically-movable frame with the stationary frame or support, a vertical shaft journaled in suitable bearings within the casing, a rotary chart connected with the vertical shaft, a flexible connection wound around the vertical shaft and connected with the vertically-movable frame, and guides connected with the stationary frame and located at opposite sides of the shaft and receiving the flexible connection, substantially as described.

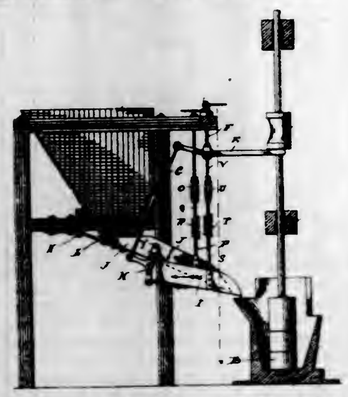
6. In a device of the class described, the combination of a vertical casing, a vertical frame or support fixed to the casing, a vertically-movable frame guided on the fixed frame, a shaft arranged within the casing, a rotary chart connected with and actuated by the shaft, a spring connected with the vertically-movable frame, a flexible connection wound around the shaft, an adjusting device arranged at one of the terminals of the flexible connection and connecting the same with the vertically-movable frame, and a tension device located at the other end of the flexible connection, and coöperating with the adjusting device to move the flexible connection longitudinally in either direction independently of the movable frame, substantially as described.

7. In a device of the class described, the combination of a casing, a stationary frame arranged within the casing, a vertically-movable frame guided by the stationary frame, a spring connecting the said frames, an adjusting device mounted on the vertically-movable frame and engaging the spring and adapted to lengthen and shorten the same, a shaft extending through the spring and supported by the stationary frame, a chart connected with the shaft, a weight-receiver suspended from the vertically-

movable frame, and means for communicating motion from the vertically-movable frame to the shaft, substantially as described.

8. In a device of the class described, the combination of a vertical casing, a stationary frame, a vertically-movable frame guided on the stationary frame, a vertical spring connecting the frames, a vertical shaft extending through the spring and supported by the stationary frame, a rotary chart arranged within the casing and connected with the upper end of the vertical shaft, a flexible connection wound around the vertical shaft, and means for adjustably connecting the flexible connection with the vertically-movable frame, substantially as described.

677,795. **FEEDER FOR STAMP-MILLS.** ALEXANDER C. PRATT, San Francisco, Cal., assignor to Pratt Mining Machinery Co., same place. Filed Aug. 10, 1900. Serial No. 26,503. (No model.)



Claim.—1. In an ore-feeder, the combination of a feed box or hopper, a feed-spout hinged thereto, and a dropper-spout connected to and underlapping the feed-spout, and means for reciprocating the dropper-spout in the direction of the length of the feed-spout, substantially as described.

2. In an ore-feeder, the feed-box, a feed-spout hinged thereto, a dropper-spout underlapping the feed-spout and connected thereto by a crank-lever, spring-supports for the outer or free ends of both spouts, and means for intermittingly rocking the crank-lever and thereby advancing and retracting the dropper-spout, substantially as described.

3. In an ore-feeder, the feed-box, a feed-spout hinged thereto and having its outer end vertically adjustable, a dropper-spout underlapping the feed-spout and connected thereto by a crank-lever, an actuator-lever connected by link to this crank-lever, and a tappet on a stamp-mill engaging said actuator-lever, all combined.

4. In an ore-feeder as described, the feed-spout hinged thereto and having its outer end vertically adjustable and spring-supported, the dropper-spout having a movable hinge connection at its rear end to said feed-spout, and its front end vertically adjustable and spring-supported independently of the feed-spout a lever connection from the stamp-rod to the movable hinge of the dropper-spout, and means for adjusting the hinged position of the dropper-spout, all combined substantially as described.

5. In an ore-feeder, the combination with a feed box or hopper, of two spouts below the same, the one spout inclosing the delivery end of the other and in close contact therewith, so that the inclosed spout acts as a scraper for the inclosing spout, and means for advancing and retiring both the spouts, substantially as described.

677,796. **PACKING DEVICE FOR TUBULAR WELLS.** CHARLES F. PREBLAR, Cincinnati, Ohio. Filed Aug. 13, 1900. Serial No. 26,785. (No model.)

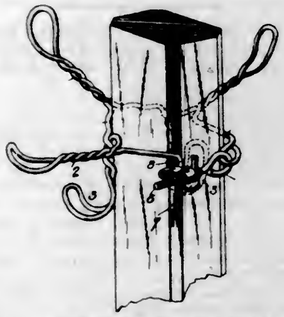
Claim.—1. In combination with an expansible plug provided with an axial bolt and a compression-nut thereon, an inner tube detachably engaging and suspending the plug by connection with its axial bolt, and an outer tube having a rotative and detachable engagement with the compression-nut, substantially as set forth.

2. In apparatus of the character indicated, in combination with the expansible plug, its axial bolt and a rotatable compression-nut on said bolt and having side wings, and the operating-tube having slots adapting it to fit over and detachably engage the wings of the compression-nut.

3. The combination of the expansible plug and its means of longitudinal compression and radial expansion, the inner tube having a screw connection with the bolt, and the plunger seating in the cross-slot of the bolt and in the opposite vertical slots of the tube, substantially as set forth.



677,797. **ADJUSTABLE RACK.** FREDERICK REHMANN, Westpoint, N. Y., assignor to William Pettibone, New York, N. Y. Filed Oct. 7, 1898. Renewed Mar. 13, 1901. Serial No. 51,009. (No model.)



Claim.—1. A rack consisting of a single piece of wire forming a collar and hooks, said hooks having their outer ends looped and the wire separating at their inner ends, and constituting the collar portion and means to draw the ends of the wire together and clamp the collar around a support, as set forth.

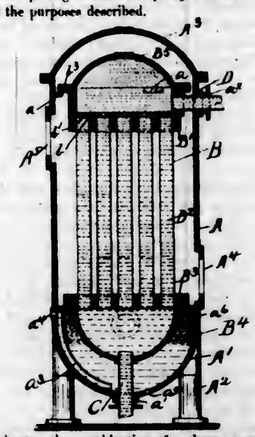
2. A rack consisting of a single piece of wire forming a collar and hooks, the latter having their outer ends looped and the wire separating at their inner ends and constituting the collar portion, the wire at one end terminating in an eye and the other end terminating in a hook, a lock-bar having one end passing through said eye and the other end resting in said hook, and means to draw the two ends together and clamp the collar around a support, substantially as set forth.

677,798. **HEATER.** GEORGE B. RIBLET, Erie, Pa. Filed May 18, 1900. Serial No. 17,112. (No model.)

Claim.—1. In a heater, the combination of a steam-drum; a water-chamber comprising pipes unobstructed throughout the greater part of their length through which the water passes; and a reducer for said pipes to induce a flow in all the pipes.

2. In a heater, the combination of the steam-drum; a water-chamber arranged in said steam-drum comprising a series of water-pipes; an entrance leading to said water-pipes; and a reducer for reducing the capacity of said water-pipes to approximately the capacity of said entrance to induce a flow in all the pipes.

3. In a feed-water heater, the combination of a drum; a water-chamber in said drum, comprising a series of pipes; a reducer for said pipes, having a beveled opening with the sharp edge of the bevel toward the entrance end for the purposes described.



4. In a heater, the combination of a drum; a water-chamber arranged in said drum; means for supporting said chamber in said drum, said means being arranged to allow free relative expansive movement of said chamber and drum; and a water-pipe passing through said drum into said chamber at a point remote from said securing means, said pipe being arranged in the line of the expansive movement of the chamber at the point of connection.

5. In a heater, the combination of a drum; a chamber in said drum; means for securing said chamber at one end in said drum, said chamber being arranged to have free expansive movement away from said securing means; and a water-pipe passing through said drum into said chamber at a point remote from said securing means, said pipe being arranged in line with the expansive movement of said chamber at the point of connection.

6. In a heater, the combination of an upright drum; a water-chamber suspended from the top in said drum and arranged to have free expansive movement from the point of suspension; and an upright entrance-pipe extending through the bottom of the drum into the bottom of the chamber and connections between said pipe, chamber and drum, arranged to allow relative movement between the bottom of the chamber and the bottom of the drum.

7. In a heater, the combination of a drum, having a receptacle for receiving condensation; a water-chamber arranged in said drum, having the entrance or initial part of said chamber arranged in said receptacle; and a pipe leading from the bottom of said receptacle to a point near the top of said receptacle for carrying off the surplus supply of water.

8. In a heater, the combination of the drum, A, having the bottom, A', cover, A^2, inlet and outlet openings, A^4 and A^5; a water-chamber comprising the heads, B' and B^3, pipes, B^2, cap, B^4 and cover, B^5; means for suspending said chamber in said drum from a point near the top of said drum; the entrance-pipe, C, passing through the stuffing-box, a', into the bottom of the chamber; the outlet-pipe, D, extending from the head, B', laterally through the stuffing-box, a^2, out of the drum; and the reducing-plate, b, having the opening, b', of a total area approximating the area of the pipe, C, said opening, b', being arranged to register with the pipes, B^2.

677,799. **CLOSET-SEAT.** MARTHA T. ROBINSON, Bloomsburg, Pa. Filed Oct. 6, 1900. Serial No. 32,236. (No model.)

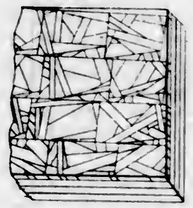


Claim.—1. A closet-seat, comprising a seat portion, arms having hinge connection with the seat, a back having hinge connection with the seat, hangers hinged to the seat, and a hinged foot-rest supported by the hangers, substantially as specified.

2. A portable seat for a closet and fastening devices for securing the portable seat to a fixed seat, the said fastening devices passing through the opening of the fixed seat and engaging with the under side thereof, substantially as specified.

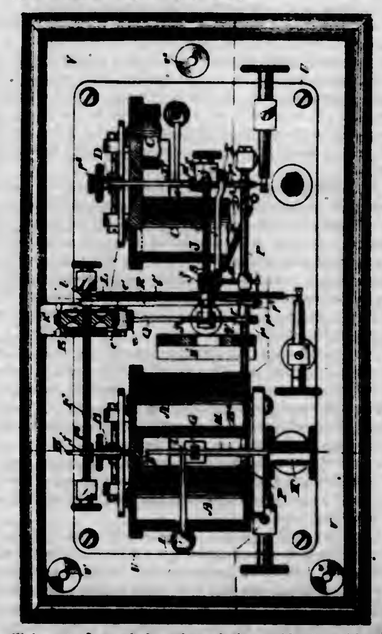
3. A portable seat for a closet, bolts extended downward from the seat, clamping-plates adjustable on said bolts, and securing-nuts on the bolts, substantially as specified.

677,800. **PROCESS OF THE MANUFACTURE OF MOSAIC ART PANELS.** WILLIAM J. ROCKWOOD, Monrovia, Cal. Filed Jan. 15, 1900. Serial No. 1,583. (No specimens.)



Claim.—The process of making mosaic woodwork by gluing strips of wood together, of different widths and kinds and sawing them diagonally in different angles and widths and then rearranging the pieces so made with whole pieces and gluing them together so there will be a whole piece between each composite strip, then sawing again as before and alternating whole pieces between the composite strips each time gluing them together for six or eight times, and then sawing the work up as before and gluing together without the whole pieces, and repeating the last part of the process three or four times making a series of composite strips which being glued together make a final substantially finished lumber which is then cut into thin veneers, substantially as set forth.

677,801. **PRINTING-TELEGRAPH.** JOHN ROGGINGER, Milwaukee, Wis., assignor to the Falk Company, same place. Filed Nov. 6, 1899. Serial No. 735,983. (No model.)



Claim.—1. In a printing-telegraph the combination with a break-wheel, of a receiving instrument comprising a type-wheel, a setting-magnet adapted when energized to turn said type-wheel an interval which

corresponds with the spaces between the type or characters of said type-wheel, and included in an electric circuit controlled by said break-wheel, and a printing-magnet adapted when energized to produce an impression and to feed the paper on which the impression is made, said magnet being included in a circuit which is controlled by said setting-magnet, substantially as and for the purposes set forth.

2. In a printing-telegraph the combination with a break-wheel, of a receiving instrument comprising a setting-magnet included in a circuit which is controlled by said break-wheel, a type-wheel adapted to be turned by said magnet intervals corresponding with the spaces between the types or characters, a printing-magnet included in a circuit which is controlled by the setting-magnet, said printing-magnet being adapted to impress the paper against the type-wheel when it has been turned into position by the setting-magnet for printing the desired characters, and to feed the paper forward for the next impression, and automatic means for turning the type-wheel back to the starting-point after each impression, substantially as and for the purposes set forth.

3. In a printing-telegraph the combination with a number of break-wheels or call-boxes each adapted to produce a distinguishing series of breaks or impulses in an electric circuit, of a receiving instrument comprising a setting-magnet included in a circuit which is controlled by said break-wheels or call-boxes, a type-wheel adapted to be turned by said magnet intervals corresponding with the spaces between the characters, a printing-magnet included in a circuit which is controlled by the setting-magnet, and adapted to produce impressions of the type on the paper when the type-wheel has been turned into the proper positions therefor by the setting-magnet and to feed the paper forward a short distance between each impression, and a longer distance after the record of the complete signal is printed, and automatic means for turning the type-wheel back to its initial position after each impression, substantially as and for the purposes set forth.

4. In a printing-telegraph the combination of a type-wheel, an armature-lever having a pawl-and-ratchet connection for turning said wheel intervals corresponding with the spaces between the characters on said wheel, a setting-magnet arranged to actuate said lever, a printing-magnet adapted to press the paper against said wheel and to feed the paper forward an interval after each impression, a circuit-breaker in the circuit of the printing-magnet adapted to be opened by said armature-lever, and a retarding device adapted to prevent the closing of said circuit-breaker between successive vibrations of said lever in turning the type-wheel into position to print any given character, substantially as and for the purposes set forth.

5. In a printing-telegraph the combination of a type-wheel, an armature-lever adapted to turn said wheel by successive impulses into position for printing certain characters, a printing-magnet adapted to produce the impression after the type-wheel is turned into position for printing any character and to feed the paper forward an interval after each impression, a circuit-breaker controlling the supply of current to the printing-magnet and comprising two contacts one of which is adapted to be moved out of engagement with the other by the operation of said armature-lever, and a check cylinder and piston adapted to prevent the engagement of said contacts while the type-wheel is being turned into position for printing any given character, substantially as and for the purposes set forth.

6. In a printing-telegraph the combination with a type-wheel, means for automatically turning it into position for printing any desired character thereon, and means for turning said wheel back to its initial position after each impression is made, of a paper-feeding wheel, an armature-lever having a pawl-and-ratchet connection for turning said feeding-wheel, a magnet arranged to actuate said lever, and a circuit-breaker adapted to open the circuit through said magnet while the type-wheel is being turned into position for printing a character and to close said circuit when said wheel comes to rest, substantially as and for the purposes set forth.

7. In a printing-telegraph the combination with a type-wheel and means for setting the same in position for printing the several characters thereon, of an impression-lever provided with a platen for pressing the paper against said wheel, a rock-shaft provided with an arm, a roller having obliquely-elongated bearings in said arm and adapted in passing over a shoulder between a depressed and raised portion of said lever to momentarily press the platen against the type-wheel, a magnet for operating said rock-shaft, and means for closing the circuit through said magnet after the type-wheel has been set to print a character, substantially as and for the purposes set forth.

8. In a printing-telegraph the combination with a type-wheel and a magnet adapted to set the same for printing any of the characters thereon, of a ratchet-wheel fixed on the type-wheel shaft, means for turning said type-wheel when released backward to its initial position, a detent-lever adapted by engagement with said ratchet-wheel to hold the type-wheel against backward rotation in position for printing any of said characters, a projection adapted by engagement with said lever to stop said type-wheel in its initial position, and a magnet arranged to disengage said detent-lever from said ratchet-wheel after each impression, substantially as and for the purposes set forth.

9. In a printing-telegraph the combination with a type-wheel and a magnet for turning said wheel step by step into position for printing any of the characters thereon, of a gear engaging a pinion on the type-wheel shaft, means tending to turn said gear in the direction to return said type-wheel to its initial position, a ratchet-wheel and a detent adapted to hold said type-wheel against backward rotation in position for printing any character, means for disengaging said detent from said ratchet-wheel after each impression is made, and a home stop for arresting said type-wheel when turned backward in its initial position, substantially as and for the purposes set forth.

10. In a printing-telegraph the combination of a rotary type-wheel, a magnet adapted to turn said type-wheel into position for printing any character thereon, a magnet adapted to produce the impression after the type-wheel is set, a rock-shaft arranged to be turned in one direction by the setting-magnet and in the other direction by the printing-magnet, a detent-lever and ratchet-wheel adapted to hold the type-wheel against backward rotation in position to print any character thereon, an arm on said rock-shaft arranged to disengage said lever and ratchet-wheel and to release the type-wheel when the rock shaft is turned by the printing-magnet and to cause said detent to engage the ratchet-wheel when the rock-shaft is turned by the other magnet, and means for turning the type-wheel backward and stopping it in its initial position after each impression, substantially as and for the purposes set forth.

11. In a printing-telegraph the combination with a type-wheel and two magnets arranged to turn said wheel into position for printing and to produce the impression of the characters, of a rock-shaft arranged to be turned in one direction by one of said magnets and in the other direction by the other magnet, a lever provided with a platen opposite said wheel and on the opposite side of its fulcrum with depressed and raised portions forming a shoulder between them, an arm on said rock-shaft and a roller having oblique slotted bearings in said arm and resting upon said lever in position to pass over said shoulder when said rock-shaft is turned by either of said magnets, substantially as and for the purposes set forth.

12. In a printing-telegraph the combination with a type-wheel and two magnets, one of which is arranged to turn said wheel into position for printing, and the other to produce the impression of the characters, of a rock-shaft arranged to be turned in one direction by one of said magnets and in the other direction by the other magnet, and provided with two arms, an impression-lever provided on one side of its fulcrum with a platen opposite the type-wheel and on the other side of its fulcrum with a depression in the upper side, a roller having oblique slotted bearings in one of said arms and carried by said arm in engagement with said lever, and a detent-lever and ratchet-wheel adapted to hold the type-wheel against backward rotation in position for printing any of the characters thereon, said lever being engaged on the opposite side of its fulcrum from the ratchet-wheel by the other arm on said rock-shaft, substantially as and for the purposes set forth.

13. In a printing-telegraph the combination with a type-wheel, means for turning the same into position for printing the several characters thereon and means for producing impressions of the characters, a paper-feeding wheel the shaft of which is provided with a worm and with a ratchet-wheel, an armature-lever having a pawl adapted to turn said ratchet-wheel, a magnet for actuating said lever, a circuit-breaker operated by said armature-lever to alternately open and close the circuit of said magnet, a lever adapted to be moved by said worm lengthwise of the worm-shaft, a lever connected with the worm-actuated lever and adapted at the limit of its movement in one direction to prevent the closing of said circuit-breaker, and means for automatically returning the worm-actuated lever to its initial position, substantially as and for the purposes set forth.

14. In a printing-telegraph the combination with the printing mechanism, of a magnet, an armature-lever, a paper-feeding wheel having a pawl-and-ratchet actuating connection with said lever, a circuit-breaker in circuit with said magnet, a compound lever having an actuating connection with said armature-lever, a spring connecting the members of said compound lever which is adapted to move said circuit-breaker back and forth and to alternately open and close the circuit, and automatic means for preventing the closing of said circuit-breaker when the paper has been fed forward the desired distance, substantially as and for the purposes set forth.

15. In a printing-telegraph the combination with printing mechanism, of a paper-feeding wheel, an armature-lever having an actuating connection with said wheel, a magnet for operating said lever, a circuit-breaker adapted to alternately open and close the circuit through said magnet and having an actuating connection with said lever, a worm connected with the paper-feeding wheel and a stop adapted to be actuated by said worm and to prevent the closing of said circuit-breaker, substantially as and for the purposes set forth.

16. In a printing-telegraph the combination with printing mechanism, of two magnets, a paper-feeding wheel adapted to be turned by the second magnet, and two circuit-breakers controlling the circuit of the second magnet, one operated by the first magnet and the other by the second magnet, the first circuit-breaker being arranged to hold the circuit open while the printing mechanism is being set for printing, and the second circuit-breaker being adapted when the first circuit-breaker is closed to alternately open and close the circuit, substantially as and for the purposes set forth.

17. In a printing-telegraph the combination with printing mechanism, of two magnets, a paper-feeding device operated by the second magnet, two circuit-breakers controlling the circuit of the second magnet, one operated by the first magnet and the other by the second magnet, the first circuit-breaker being adapted to hold the circuit open while the printing mechanism is being set to print a given character, and the second circuit-breaker being adapted, when the first circuit-breaker is closed, to alternately open and close the circuit, stop mechanism operated by the second magnet to prevent the closing of the second circuit-breaker at the proper time, and releasing mechanism operated by the first magnet to close said second circuit-breaker, substantially as and for the purposes set forth.

18. In a printing-telegraph the combination with printing mechanism, of two magnets, paper-feeding mechanism operated by the second magnet, two circuit-breakers controlling the circuit of the second magnet, one operated by the first magnet and the other by the second magnet, the first circuit-breaker being adapted to hold the circuit open while the printing mechanism is being set to print a given character, and the second circuit-breaker being adapted to alternately open and close the circuit when the first circuit-breaker is closed, a rock-shaft adapted to be turned in one direction by one magnet and in the other direction by the other magnet, a worm arranged to be turned with the paper-feeding wheel, a lever movable transversely to and lengthwise of said worm, a spring tending to hold said lever in engagement with said worm and to move it toward one end thereof, an arm on said rock-shaft adapted when turned by the first magnet to throw said lever out of engagement with said worm and allow it to resume its initial position, a stop-lever connected with the worm-actuated lever and adapted to prevent the closing of the second circuit-breaker at the proper time, substantially as and for the purposes set forth.

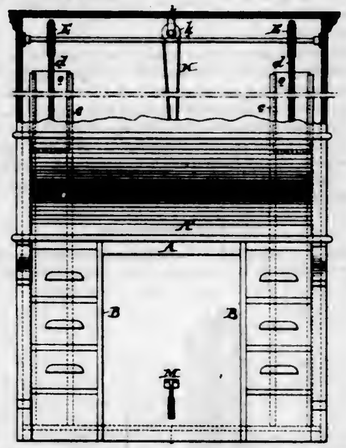
19. In a printing-telegraph the combination of a type-wheel, a magnet for setting said type-wheel for printing any of the several characters thereon, an impression-lever for producing the impression of the characters, a detent-lever for holding the type-wheel against backward rotation in position for printing any character, and for stopping it in its return movement at the starting-point, means tending to return said wheel to its initial position, a second magnet, two circuit-breakers controlling the circuit of said second magnet, one operated by the first magnet and the other by the second magnet, a paper-feeding wheel actuated by the second magnet, a worm connected with said feeding-wheel, a lever movable transversely to and lengthwise of said worm, means tending to yieldingly hold said lever in engagement with said worm and to carry it toward one end thereof, a stop-lever connected with said worm-actuated lever and adapted at the proper time to prevent the closing of the second circuit-breaker, and a rock-shaft adapted to be turned in one direction by one magnet and in the other direction by the other magnet and provided with arms arranged to engage with and actuate at the proper times said impression, detent and worm levers, substantially as and for the purposes set forth.

20. In a printing-telegraph the combination with a main circuit including a source of current, one or more break-wheels or signal-transmitting instruments and a relay-magnet, and a local circuit including a source of current and contacts of said relay, of a receiving instrument comprising printing mechanism, two magnets, one adapted to set the printing mechanism and the other to make the impressions and to feed the paper, the first magnet being included in the local circuit in series with the source of current and relay-contacts, and the second magnet being in a circuit independent of the relay and including a source of current, and two circuit-breakers controlling the circuit of the second magnet, one circuit-breaker operated by the first magnet and the other circuit-breaker by the second magnet, substantially as and for the purposes set forth.

21. In a printing-telegraph, the combination with a type-wheel and a magnet adapted to set the same for printing any of the characters thereon, of a ratchet-wheel fixed on the type-wheel shaft, means for turning said type-wheel when released, backward to its initial position, a detent-lever adapted by engagement with said ratchet-wheel to hold the type-wheel against backward rotation in position for printing any of said characters, a magnet arranged to disengage said detent-lever from said ratchet-wheel after each impression, and a stop for arresting said type-wheel when turned backward in its initial position, substantially as described.

22. In a printing-telegraph, the combination with a type-wheel, means for turning the same into position for printing the several characters thereon and means for producing impressions of the characters, a paper-feeding wheel, the shaft of which is provided with a ratchet-wheel, an armature-lever having a pawl adapted to turn said ratchet-wheel, a magnet for actuating said lever, a circuit-breaker operated by said armature-lever to alternately open and close the circuit of said magnet, and means operated by said magnet to prevent the closing of said circuit-breaker and to arrest the operation of said armature-lever when the paper has been advanced a predetermined distance by said feeding-wheel, substantially as described.

677,802. **OFFICE-DESK.** JOHN R. ROHRER, Philadelphia, Pa., assignor to Elwood Rohrer, same place. Filed Oct. 8, 1900. Serial No. 32,380. (No model.)



Claim.—1. In a desk, the combination with the main frame of the desk having the usual pedestal or pedestals at the forward part and a vertical covered compartment at its rear portion of greater height than the table portion of the desk, with a vertically-adjustable frame guided in said vertical compartment and provided with one or more compartments a portion of which are normally exposed and at all times above the writing-table of the desk and a portion shielded back of the pedestal portions thereof.

2. In a desk, the combination of the main frame of the desk having the usual pedestal or pedestals at the forward part and a vertical covered compartment at its rear portion of greater height than the table portion of the desk, with a vertically-adjustable frame guided in said vertical compartment and provided with one or more compartments a portion of which are normally exposed and at all times above the writing-table of the desk and a portion shielded back of the pedestal portions thereof, and power devices for adjusting the vertically-adjustable frame in its compartment.

3. In a desk, the combination of the main frame of the desk having the usual pedestal or pedestals at the forward part and a vertical covered compartment at its rear portion of greater height than the table portion of the desk, with a vertically-adjustable frame guided in said vertical compartment and provided with one or more compartments a portion of which are normally exposed and at all times above the writing-table of the desk and a portion shielded back of the pedestal portions thereof, power devices for adjusting the vertically-adjustable frame in its compartment, and counterweights for counterbalancing the vertically-adjustable frame.

4. In a desk, the combination of the main frame of the desk having the usual pedestal or pedestals at the forward part and a vertical covered compartment at its rear portion of greater height than the table portion of the desk, with a vertically-adjustable frame guided in said vertical compartment and provided with one or more compartments a portion of which are normally exposed and at all times above the writing-table of the desk and a portion shielded back of the pedestal portions thereof, power devices for adjusting the vertically-adjustable frame in its compartment, and a locking device for holding the vertically-adjustable frame in any adjusted position desired.

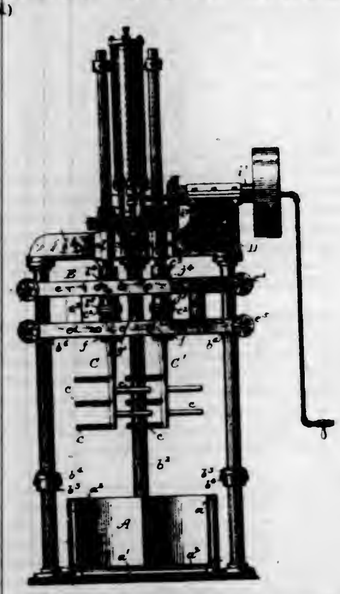
5. In a desk, the combination of the main frame of the desk having the usual pedestal or pedestals at the forward part and a vertical covered compartment at its rear portion of greater height than the table portion of the desk, with a vertically-adjustable frame guided in said vertical compartment and provided with one or more compartments a portion of which are normally exposed and at all times above the writing-table of the desk and a portion shielded back of the pedestal portions thereof, power devices for adjusting the vertically-adjustable frame in its compartment, consisting of a pulley at the top of the rear compartment of the desk, a cable connected with the adjustable frame and guided over said pulley, a lever structure at the lower part of the desk, a large pulley to the periphery of

which the cable is attached, a small pulley secured to the large pulley, and a band secured to the periphery of the small pulley at one end to the lever at the other end, whereby a small movement of the lever produces a large movement of the adjustable frame.

6. In a desk, the combination of the main frame having a shallow writing-table portion and a vertical inclosed compartment at the rear of the desk extending both above and below said table portion, and open at the front immediately at the table portion for a part of its height above the table portion, a vertically-adjustable frame adapted to said vertical compartment and provided with shelves or divisions, and means for adjusting the said frame vertically in said compartment.

7. In a desk, the combination of the main frame having a shallow writing-table portion and a vertical inclosed compartment at the rear of the desk extending both above and below the said table portion and open at the front immediately at the table portion, for a part of its height above the table portion, a vertically-adjustable frame adapted to said compartment and provided with shelves or divisions, counterbalancing devices for counterbalancing the adjustable frame but not sufficient to normally elevate it whereby it may descend by gravity when released, locking devices for locking the frame in its adjusted position, and means for adjusting the said frame vertically in said compartment.

677,803. MACHINE FOR MIXING EXPLOSIVES. JOHN C. SCHRADER, Dover, N. J. Filed July 9, 1900. Serial No. 22,965. (No model.)



Claim.—1. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle guided and supported by said frame, stirrers independently journaled in said cross-head and supported thereby, and means for rotating said stirrers, substantially as described.

2. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle guided and supported by said frame, rotating mechanism supported by said frame above said cross-head, and stirrers revolved by said mechanism suspended from said cross-head and independently journaled in and supported thereby, substantially as described.

3. In a machine for mixing explosive compounds, the combination of a mixing-receptacle, revolvable stirrers suspended therein but supported wholly outside of and above said receptacle, means for raising said stirrers, means whereby said stirrers will be permitted to descend by gravity, and means for retarding their descent, all of said means being located outside of and above said receptacle, substantially as described.

4. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, stirrers suspended in said receptacle, means for rotating said stirrers, a vertically-movable cross-head in which said stirrers are independently journaled, and means for raising and lowering said cross-head, located outside of and above said receptacle, substantially as described.

5. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle guided and supported by said frame, stirrers independently supported by said cross-head, means for raising and lowering said cross-head, and means fixed with relation to the main frame for rotating said stirrers, substantially as described.

6. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle, a vertically-movable cross-head above said receptacle guided by said frame, stirrers suspended from said cross-head, means for rotating said stirrers, and a cylinder and piston supported by said frame above said cross-head for raising and lowering the same, substantially as described.

7. In a machine for mixing explosive compounds, the combination of a mixing-receptacle, stirrers suspended therein from a point above said receptacle, and a cylinder and piston for raising and lowering said stirrers located above the same, substantially as described.

8. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle guided by said frame, stirrers suspended from said cross-head, means for revolving said stirrers, means located above said cross-head for raising it, means whereby said cross-head will be free to descend by gravity, and means for retarding such descent, substantially as described.

9. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle guided by said frame, stirrers independently supported by and suspended from said cross-head, means for rotating said stirrers, and adjustable means for supporting said cross-head, substantially as described.

10. In a machine for mixing explosive compounds, the combination of a mixing-receptacle, horizontally-revolvable stirrers suspended in said receptacle, and means permitting the automatic rising of the stirrers when the material offers sufficient resistance to the rotation thereof, substantially as described.

11. In a machine for mixing explosive compounds, the combination of a mixing-receptacle, stirrers suspended in said receptacle, adapted to force material toward the bottom thereof, and means permitting said stirrers to be automatically raised for lessening the pressure upon the material when the latter offers sufficient resistance to the action of the stirrers, substantially as described.

12. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle supported and guided by said frame, stirrers independently suspended from said cross-head and supported wholly thereby, means for raising and lowering said cross-head, rotating mechanism fixedly supported by said frame and suitable connections between said mechanism and stirrers whereby said cross-head may be raised and lowered independently of the rotating mechanism, substantially as described.

13. In a machine for mixing explosive compounds, the combination of a mixing-receptacle, a vertically-movable cross-head above said receptacle consisting of a pair of cross-bars arranged one above another and connected together to afford a space between, stirrers journaled in and supported by the lower cross-bar, and a rotatable shaft passing through the upper cross-bar and coupled to said stirrers in the space between the two cross-bars, substantially as described.

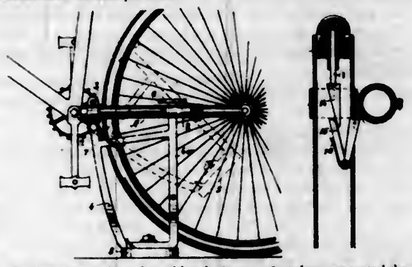
14. In a machine for mixing explosive compounds, the combination of a frame, a mixing-receptacle fixed with relation thereto, a vertically-movable cross-head above said receptacle guided and supported by said frame, stirrers suspended in said receptacle independently journaled in and supported by said cross-head, rotating mechanism supported by said frame above said cross-head, and slidable connections between said mechanism and stirrers, substantially as described.

15. In a machine for mixing explosive compounds, the combination with a mixing-receptacle, of stirrer-blades suspended therein having downwardly-inclined faces and adapted to revolve in horizontal planes, means for revolving said blades, and bearings which will permit the rising of the blades during their rotation, substantially as described.

16. In a machine for mixing explosive compounds, the combination of a mixing-receptacle, a vertically-movable cross-head above said receptacle, stirrers suspended from said cross-head, and a cover for said receptacle secured to said cross-head by yielding connections, substantially as described.

677,804. BICYCLE BRAKE AND SUPPORT. JOSEPH SCHULTE, Jr., Monterey, Cal., assignor of one-half to Henry J. Hennebur, same place. Filed Oct. 18, 1900. Serial No. 33,641. (No model.)

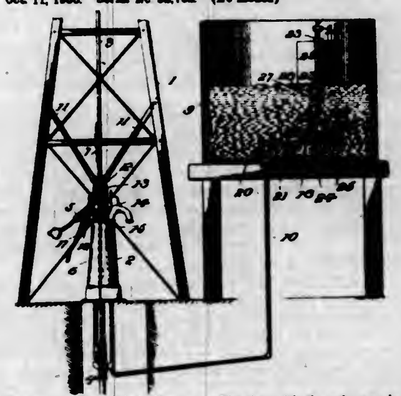
Claim.—1. The combination with a bicycle-frame of a pivoted turnable structure having a shoe adapted to contact with the ground, a foot-piece turnable about the pivot-point of the structure to depress the shoe, and having an independent rocking movement, a spring-latch connected with and movable in unison with the rocking footpiece, a catch with which it engages after the shoe has been brought into contact with the ground, a releasing device and a returning-spring whereby the parts are caused to resume their normal position.



2. A structure pivoted to a bicycle-frame, a footpiece connected therewith, movable about the pivot-point, a shoe carried at the lower end of the structure and movable therewith so as to contact with the ground by pressure upon the footpiece, a latch engaging a fixed catch to retain the parts in position when the shoe rests upon the ground, and a disengaging device consisting of a tilting footpiece, a rod and wedge carried thereby adapted to disengage the latch and a spring by which the parts are returned to their normal position.

3. The combination with a bicycle-frame of a structure having one angle pivoted thereto, a shoe carried upon the lower portion, a rocking footpiece movable about the pivotal point by which the shoe may be forced into contact with the ground, a latch operated by the rocking movements of the footpiece by which said shoe is locked in this position, and means whereby the front wheel is prevented from turning while the machine is supported by the footpiece.

677,805. WINDMILL. ALBERT T. SCOTT, Dedance, Iowa. Filed Oct. 11, 1900. Serial No. 32,762. (No model.)



Claim.—1. In a windmill, the combination with the valve mechanism for controlling the flow of water into the tank, and a float-controlled support having rigid connection with the valve-controlling lever, of a detent mechanism for holding the free end of the valve-controlling lever elevated, and a stop in the path of the float to release the detent mechanism prior to the actuation of the float-controlled support by the descent of the float, substantially as described.

2. In a windmill, and in combination with the valve mechanism for controlling the inflow of water into the tank, and a float-controlled support having rigid connection with the valve-controlling lever, a stop having a limited vertical movement on the float-controlled support, a detent mechanism for holding the free end of the valve-controlling lever elevated, transversely-spaced arms secured to the upper end of the detent, and rigid connections between the free ends of said spaced arms and the aforementioned movable stop, substantially as set forth.

677,806. KNITTING-MACHINE NEEDLE. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis E. D. Williams, Ashbourne, Pa. Filed Dec. 3, 1900. Serial No. 38,468. (No model.)

Claim.—1. A knitting-machine needle having a projecting butt composed of primary and secondary members formed by bending the needle-stem, in combination with locking means within the lateral dimensions of the butt so formed for preventing lateral displacement in either direction, of either member of the butt in respect to the other, substantially as specified.



2. A knitting-machine needle having a projecting butt consisting of primary and secondary members formed by bending the needle-stem, in combination with means forming part of the metal of the needle itself for preventing lateral displacement in either direction, of either member of the butt in respect to the other.

3. A knitting-machine needle having a projecting butt composed of primary and secondary members formed by bending the needle-stem, in combination with locking means within the lateral dimensions of the butt so formed, for locking the members of the butt together against lateral displacement in either direction, substantially as specified.

4. A knitting-machine needle having a projecting butt consisting of primary and secondary members formed by bending the needle-stem, in combination with means forming part of the metal of the butt, for locking the members of said butt together against lateral displacement in either direction.

5. A knitting-machine needle having a projecting butt comprising primary and secondary members having laterally-engaging tongues and recesses for locking them together against lateral displacement in either direction.

6. A knitting-machine-needle blank having its stem bent to form, at an angle to each other, members of a projecting butt, said members having tongues and recesses adapted to interlock when the bending of the members of the butt has been completed.

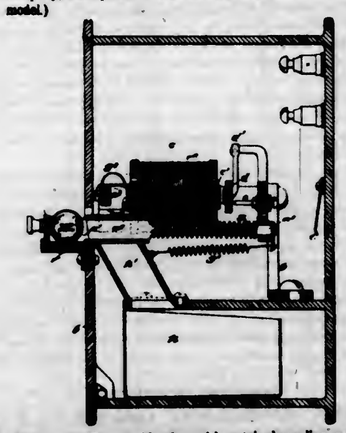
7. A knitting-machine needle having a projecting butt and a bent and doubled shank below the same, said double shank being combined with means, within the lateral dimensions of the shank so formed, for preventing lateral displacement of one member of said double shank in respect to the other.

8. A knitting-machine needle having a projecting butt and a bent and doubled shank below the same, said double shank having means, forming part of the metal of the shank, for preventing lateral displacement of one member of the shank in respect to the other.

9. A knitting-machine needle having a projecting butt and doubled shank below the same, both formed by bending the stem of the needle, in combination with means, within the lateral dimensions of the butt and shank so formed, for preventing lateral displacement of either member of the butt or shank in respect to the other.

10. A knitting-machine needle having a projecting butt and a doubled shank below the same, both formed by bending the needle-stem, in combination with means, forming part of the metal of the butt and shank, for preventing lateral displacement of either member of said butt or shank in respect to the other.

677,807. COIN-COLLECTOR FOR TELEPHONE TOLL-LINES. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 30, 1900. Serial No. 38,101. (No model.)



Claim.—1. The combination with a telephone-line extending between a substation and a central station; and a coin-controlled mechan-

ism determining the continuity of a call-signal circuit of said telephone-line; of an electromagnetic characteristic signal-transmitting device irresponsive to the deposition of appropriate coins, but responsive to, and actuated by the deposition of iron coin blanks, disks, or slugs; substantially as set forth.

2. The combination with a telephone toll-line extending from a substation to a central office, of a toll-collector at the substation for receiving coins, an electromagnetic signal-transmitting device connected with the telephone-line at the substation, in association with the toll-collector, said signal-transmitting device being unaffected by non-magnetic coins, but being adapted to be actuated by an iron coin blank or slug, to transmit a signal over the telephone-line, and a signal-receiving appliance *t* connected with the line at the central office, responsive to such signal, whereby the use of iron blanks instead of coins in the toll-collector may be detected by the central-office operator, as set forth.

3. The combination with a coin-receiver *a* comprising a pair of plates a' a^2 insulated magnetically from one another and separated to receive a coin between them, of an electromagnet *c* having rear core extensions between which said coin-receiver is mounted, said extensions forming a heel-piece for said magnet having a normal magnetic gap adapted to be closed on the deposition of an iron coin-blank, an electric circuit including the winding of said electromagnet, including a source of current and a signal-receiving instrument *t*, a relay-armature for the magnet and switch-contacts operated thereby controlling said circuit, said armature being normally irresponsive to the magnet, but being responsive to the increased attractive force thereof when the magnetic gap in the heel-piece of the magnet is closed by an iron coin blank or slug; whereby the deposition of an iron blank instead of coin in the coin-receiver causes the transmission of a signal, as set forth.

4. The combination with a telephone-line extending between a substation and a central station, of a toll device at the substation having a coin-receiver *a* comprising a pair of magnetic plates a' a^2 adapted to receive a coin between them, a magnet *c* having rear core extensions between which said coin-receiver is mounted, said extensions forming the heel-pieces for said magnet having a normal magnetic gap between the plates a' a^2 adapted to be closed by an iron coin-blank deposited in the coin-receiver, a call-signal circuit for the telephone-line, switching mechanism adapted to be actuated by a coin in the coin-receiver for controlling said call-signal circuit, an armature for the said electromagnet *c*, normally inert but adapted to be drawn up when the attractive force of the magnet is increased by the closing of the magnetic gap in the heel-piece of said magnet, a signal-transmitting device controlled by said relay-armature, and a signal-receiving appliance at the central office responsive to the characteristic signal transmitted thereby, substantially as set forth.

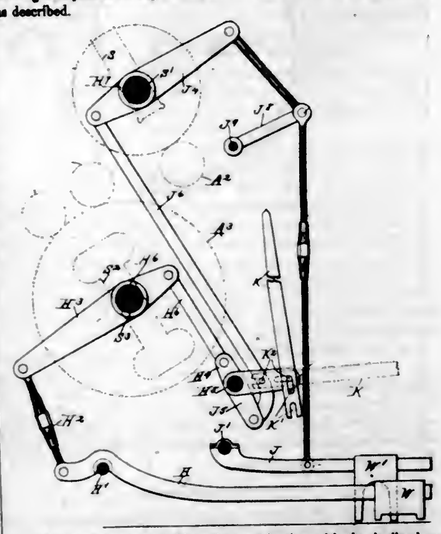
5. The combination with a telephone toll-line extending from a substation to a central office, of an operator's telephone instrument at the central office and means for connecting the same with the line, a toll-collector at the substation for receiving coins, and an electromagnetic signal-transmitting device at the substation connected with the telephone-line, in association with said toll-collector, said signal-transmitting device being unaffected by non-magnetic coins, but being adapted to be actuated by iron coin-blanks used in place of coins, said signal-transmitter being adapted when actuated to change the electrical condition of the line, whereby a signal is produced in the telephone-receiver which may be perceived by the operator, substantially as set forth.

6. The combination with a telephone toll-line and a coin-collecting appliance at the station thereof having a socket or channel for the reception of the coin, of a magnet having its magnetic field directed upon said channel or socket, whereby the resistance of the magnetic circuit is reduced by a token or mass of magnetic material in the channel or socket, a magnetically-operated switch responsive to increased magnetization of said magnet, and an electric signal-circuit controlled by said switch at the substation containing a signal-indicating device at the central office, substantially as described.

7. The combination with a telephone line and a coin-collecting appliance at the station thereof, a calling-circuit and a switch of the said coin-collecting appliance operated with the aid of a deposited coin controlling said signaling-circuit, said coin-collecting appliance having a socket or channel for the deposit of a coin, of a magnet and an armature therefor adapted to remain unattracted by the normal field of said magnet, the field of said magnet being directed upon said channel or socket, whereby the field of the magnet is increased and the armature is attracted when a mass of iron is placed in the socket or channel, a switch controlled by said armature, and a signal-circuit containing a signal-indicating appliance at the central office controlled by said switch of the armature, as described.

677,808. IRONING-MACHINE. ALONZO SHARP, Troy, N. Y., assignor to the Adams Laundry Machinery Company, same place. Filed Mar. 3, 1900. Serial No. 707,564. (No model.)

Claim.—1. In an ironing-machine, two sets of presser-rollers, each comprising a relatively large clothed roller and one or more relatively small polishing-rollers, so arranged that the relatively large rollers occupy approximately the same vertical plane, and the small and large rollers of each set occupy approximately parallel inclined planes; in combination with a supporting-frame having similarly-inclined slideways in which the journals of one roller of each set are movable, respectively along the inclined planes occupied by the small and large rollers of the respective sets; and a system of interconnecting levers common to each set of rollers for moving such journals along the respective inclined slideways, substantially as described.



2. In an ironing-machine, the combination with the inclined way connecting an upper with an under set of pressure-rollers; of a pair of small feed-rolls provided with intermeshing pinions, and an intermediate friction-roll engageable with one of such feed-rolls and with the more slowly moving roller of the under set of pressure-rollers, substantially as described.

3. In an ironing-machine, the combination with an upper set of pressure-rollers having the plane connecting the axes of the individual rollers in the set inclined; of an under set of pressure-rollers comprising a clothed roller and two polishing-rollers having the radial plane which passes from the axis of the clothed roller midway between the axes of the polishing-rollers inclined and approximately parallel with the radial plane connecting the axes of the upper set of rollers; an inclined way interposed between the two sets of rollers; and a stripper for one of the polishing-rolls, substantially as described.

4. In an ironing-machine having an upper and an under set of pressure-rollers, the under set consisting of a slowly-rotating clothed roller and a pair of rapidly-rotating polishing-rollers, the combination with the polishing-rollers and pinions fixed upon and larger in diameter than the rollers and lapping each other; of a driving-gear having its perimeter adapted to engage and actuate both lapping pinions, substantially as described.

677,809. THREE-BALL METALLIC FLEXIBLE-JOINT COUPLING. GEORGE W. SHIELDS, Louisville, Ky., assignor to The Shields Flexible Joints Company, same place. Filed Dec. 17, 1900. Serial No. 40,116. (No model.)



Claim.—1. A flexible pipe-joint coupling comprising three independently-movable conduit-sections all balls jointed together on universal joints of equal radii, and means independent of the intermediate section for holding the outer sections against movement apart or away from the intermediate section.

2. In a flexible-joint coupling the combination of movable pipe connections or balls, an intermediate joint-piece forming a conduit from one pipe to another or to others and having bearings fitting said pipe connections externally in which bearings the said pipe connections are movable, and an outer casing around said joint-piece and having bearings fitting said pipe connections in or on which bearings said pipe connections are movable.

3. In a flexible-joint coupling the combination of movable pipe connections or balls, a casing or bearing-piece having bearings in or on which said pipe connections fit and are adapted to turn, and an intermediate joint-piece having bearings fitting and partly inclosing said pipe connections and independent of said bearing-piece.

4. In a flexible-joint coupling the combination of movable pipe connections or balls, a bearing-piece forming with said pipe connections joints in or on which the said connections may turn, and an intermediate joint-piece opposing said connections to hold the same in contact with said bearing-piece and fitting said connections externally with joints or bearings in which the latter may turn.

5. In a flexible-joint coupling the combination of a movable pipe, ball or connection having a bearing-surface, an opposing pipe or connection, a bearing piece or casing acting to hold said pipes from movement away from each other and having a bearing in or on which said movable pipe may turn, and an intermediate joint-piece or conduit-section fitting said pipes externally and having a bearing for said movable pipe.

6. In a flexible-joint coupling the combination of two or more pipes, balls or conduit-sections provided with bearing-surfaces, an intermediate joint-piece and conduit-section fitted to said pipes to allow the flexion of one or more of the latter, and an exterior bearing-piece fitted to said pipes on the same bearing-surfaces as said intermediate joint-piece to allow flexion, extending past said intermediate joint-pieces and holding said pipes or balls in proper relation to the latter.

7. In a flexible-joint coupling the combination of movable pipe connections, balls or ends, an intermediate joint-piece forming a conduit from one pipe to another and having bearings fitting said pipe connections externally and an exterior bearing-piece fitting said pipe connections and holding all of said parts in proper relation to each other, said bearing-piece being formed in two or more adjustable parts.

8. A flexible joint for pipes consisting of three round hollow metallic balls, one placed between the other two, the one placed in the middle having circular openings at its opposite poles, the end balls having radial nozzles threaded to receive piping projecting outward and circular openings diametrically opposite to the nozzle and of the same diameter, the end balls projecting into the middle ball through its polar openings and furnishing bearings on their outer surface for the inner ball, said balls inclosed and held in juxtaposition by a hollow case divided in the middle into two equal parts having outwardly-projecting flanges around the middle edges and circular openings in its ends of diameter sufficient to allow the end balls to project outwardly to the same distance as they enter the inner ball, said case in contact only with the outer balls near its ends where its inner surface is ground to fit the outer surface of the end balls and furnish bearings for the same, substantially as described and for the purposes specified.

9. In a flexible-joint pipe-coupling the combination of two hollow balls having bearing-surfaces, a casing or bearing-piece fitting said surfaces to hold the balls from movement away from each other and allow their flexion, and an intermediate joint and conduit-piece having bearings engaging the convex surfaces of said hollow balls.

10. In a flexible conduit-coupling the combination of a plurality of hollow balls, one or more of which is movable, a joint-piece intermediate of said balls, forming a conduit-section from one ball to another and having outwardly-concave bearings engaging the convex surfaces of said balls to hold the same from movement toward each other, and a bearing-piece extending past said joint-piece and having bearings on said balls to hold the same against said joint-piece.

11. In a flexible pipe-joint the combination of pipe-sections having ball-bearing surfaces, an intermediate conduit-section or joint-piece having narrow edges bearing on said ball-surfaces and acting to hold said pipe-sections apart, and a connecting means acting to hold said pipe-sections together and having bearings engaging said pipe-sections.

677,810. PNEUMATIC TIRE. URIEL P. SMITH, Chicago, Ill., assignor of one-half to Thomas Kane, same place. Filed Oct. 17, 1900. Serial No. 33,373. (No model.)

Claim.—1. A bicycle-tire composed of a number of layers, one or more of said layers being soluble, substantially as described.

2. A bicycle-tire composed of a number of layers, one or more of said layers being unvulcanized and soluble, substantially as described.

3. A bicycle-tire composed of a number of concentric layers, one or more of said layers being soluble, substantially as described.



4. A bicycle-tire composed of a number of layers, one or more of said layers being interposed and soluble, substantially as described.

5. A bicycle-tire composed of a number of layers, one or more of said layers consisting of a dry, soluble, cementitious substance, substantially as described.

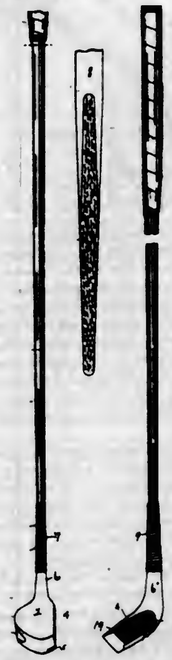
6. A bicycle-tire composed of a number of layers, one or more of said layers consisting of a dry, soluble and unvulcanized substance, substantially as described.

7. A bicycle-tire composed of a number of layers, one or more of said layers consisting of a dry, soluble cement, substantially as described.

8. A pneumatic tire having an inner layer of vulcanized rubber surrounded by a layer consisting of dry, unvulcanized cement, a layer of fabric surrounding said layer of cement, and an outer layer of vulcanized rubber surrounding said fabric, substantially as described.

9. A pneumatic tire having an outer and inner layer of vulcanized rubber, and an interior layer of duck, or other fabric vulcanized to the outer layer and secured to the inner layer by means of a layer of unvulcanized, dry cement, substantially as described.

677,811. GOLF-CLUB. GEORGE W. MATTERN, Dayton, Ohio, assignor to the Crawford, McGregor & Canby Co., same place. Filed Mar. 29, 1901. Serial No. 53,431. (No model.)



Claim.—1. As a new article of manufacture, a golf-club, the head and shaft portions of which are united by a side splice, the side of the shaft lying parallel with the face of the head being rounded or semi-oval in cross-section.

2. A golf-club, the head and shaft portions of which are united by a side splice, the side of the shaft which is parallel with the face or striking side of the head, being rounded or semi-oval in cross-section, and the opposite side of said shaft being flat.

3. A golf-club, the head and shaft portions of which are united by

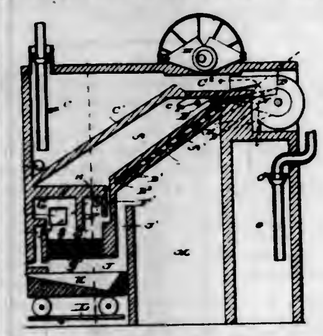
a side splice, the edge of the grain of the wood comprising the shaft lying in planes at right angles to the width of the head, the side of the shaft lying on the face side of the head being rounded or semi-oval in cross-section, and the opposite side of said shaft being flat, so that an excess of material lies throughout the shaft on that side nearest the face of the head, viewed from the longitudinal center of said shaft, substantially as and for the purpose specified.

4. A golf-club, the head and the shaft portions thereof being united by a side splice, the neck of the head being on the face side of said head, the grain of the wood comprising the shaft, head and neck portions lying parallel, one side of said shaft having a flat surface, and the opposite side having a rounded or semi-oval surface.

5. A golf-club, the head and shaft portions thereof being united by a side splice, the splice being opposite the face or striking-surface of said head, the side of the shaft which lies on the face or striking side of the head being semi-oval or rounded in cross-section, and the opposite side of said shaft being flat, the grain of the wood comprising both the shaft and the head portions extending in parallel directions.

6. A golf-club, the shaft and head portions of which are united by a side splice, the splice end of the shaft being on the side opposite the face or striking-surface of the head, the shaft above the splice being flat on one side and semi-oval or rounded on the other, the flat surface being on the side opposite the face or striking-surface of the head, and the handle or grip portion being rectangular in cross-section.

677,812. FURNACE. THOMAS SMITH, Hopewell, N. Mex., assignor of one-half to Eugene C. R. Jaccard and Arthur C. Sweet, Kansas City, Mo. Filed Oct. 5, 1900. Serial No. 732,671. (No model.)



Claim.—1. In a furnace of the character described, the combination with a reduction-chamber and fire-box, a combustion-chamber, and a grate between the combustion-chamber and the reduction-chamber and fire-box, of a portable crucible within the combustion-chamber, and a base therefor.

2. A furnace of the character described, having a roasting-chamber provided with an inclined hearth, means for discharging the gases from said chamber, a reduction-chamber communicating with the roasting-chamber, a fire-box adjacent to, and communicating with, the reduction-chamber, a combustion-chamber beneath the fire-box and reduction-chamber and communicating with said fire-box through a flue, the bottom of the fire-box provided with interstices, and a crucible within the combustion-chamber.

3. In a furnace of the character described, the combination of a roasting-chamber, a reduction-chamber communicating therewith, a fire-box communicating with, and adjacent to, the reduction-chamber, a combustion-chamber beneath the fire-box and reducing-chamber and having a flue between the combustion-chamber and the fire-box, and means for utilizing the products of combustion from the combustion-chamber for heating the hearth of the roasting-chamber.

4. In a furnace of the character described, the combination of a dust-chamber, a flue passing thereto, an ore-supply and a roasting-chamber both communicating with said flue, a reduction-chamber, a fire-box adjacent thereto and communicating therewith, a combustion-chamber connected to the fire-box by a flue, a grate above the combustion-chamber, and means for utilizing the products of combustion from the combustion-chamber for heating the hearth of the roasting-chamber and as a hot blast into the flue of the dust-chamber.

5. In a furnace of the character described, the combination with a dust-chamber and its flue, a roasting-chamber communicating therewith, and a hearth in the roasting-chamber provided with a chamber and an exit-chamber, of a fan communicating through flues with each of said chambers and with said exit-chamber, whereby the burned gases from the combustion-chamber are utilized for a blast into the dust-chamber flue and the burned gases of the hearth-chamber are discharged into the chamber.

6. A furnace having a roasting-chamber, a hearth therefor provided with a chamber having an exit, and an oxid-chamber, said roasting and hearth chambers connected by a passage, whereby gases are conducted from the roasting-chamber to the hearth-chamber, lateral air-inlet ports for the hearth-chamber, and an air-blast generator communicating with said oxid-chamber, substantially as set forth.

7. In a furnace of the character described, the combination with the roasting-chamber, of a reduction-chamber communicating therewith, a fire-box adjacent to and communicating with the reduction-chamber, a combustion-chamber, a flue connecting the fire-box and combustion-chamber, a flue extending from the upper portion of the reduction-chamber, and a crucible beneath the outlet of said flue, adapted to receive volatilized metals from the flue.

8. In a furnace of the character described, the combination of a dust-chamber, a flue passing thereto, an ore-feed above the flue, a roasting-chamber communicating with the flue, inlets for admitting air and water to the roasting-chamber, whereby desulfurization of ore is accomplished, a hearth to the roasting-chamber having a chamber therein, a passage connecting the roasting and hearth chambers adapted to conduct the sulfurous gases to the hearth-chamber to be utilized for heating the hearth, and a fan at one end of said flue, and communicating with the hearth-chamber, adapted to force pure air upon the ore as fed to the furnace and to discharge the burned gases from the hearth-chamber.

9. In a furnace, the combination of an ore-crusher, arranged above the furnace, a dust-chamber having a flue just below said ore-crusher, a reducing-chamber, a roasting-chamber communicating with said dust-chamber, said reducing-chamber arranged in communication with said roasting-chamber, a flue between said roasting-chamber and dust-chamber an air-blast generator or fan arranged to pass an air-blast through said last-referred-to flue and the furnace, and means for heating said air-blast, substantially as set forth.

10. In a furnace, the combination of an ore-crusher, a dust-chamber, having a flue just below said ore-crusher, a reducing-chamber, a roasting-chamber, communicating with said reducing-chamber, a flue between said roasting-chamber, and dust-chamber, an air-blast generator or fan arranged to pass an air-blast through said referred-to flue to and through the ore, and means for heating said air-blast, substantially as set forth.

677,818. JOINT FOR STOVEPIPES. ARTHUR ST. ARMAND, Ste. Geneviève de Batiscan, Canada. Filed June 11, 1900. Serial No. 19,979. (No model.)



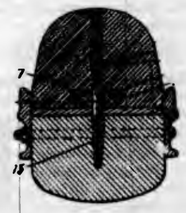
Claim.—1. A detachable joint for sheet-metal articles, comprising a longitudinal flange *a*, formed upon one edge of the sheet metal and terminating in a locking-lug, and an inwardly-extending offset portion a' formed upon the other edge of the sheet, said offset portion a' provided with a closely-arranged flange a^2 which is provided at its opposite ends with a locking-lug a^3 and a locking-lip a^4, the parts being arranged and adapted for service substantially as described for the purposes set forth.

2. A detachable joint for sheet-metal articles, comprising a body portion having an offset formed with a flange and a groove at one end thereof, a locking-lug on one edge of the offset and at one edge of the article, and a flange located on the other edge of the article and provided with a groove and with a locking-lug at the opposite end from the first-named lug, said lugs arranged to have engagement with the grooved portions and the two edges of the joint being received in the offset to lie substantially flush, as set forth.

3. A joint for sheet-metal articles comprising an offset having a closely-arranged flange terminating at one end in a locking-lip and at its other end in a locking-lug, and another flange arranged to abut the first-named flange and provided with a lug for interlocking engagement with said lip, substantially as described.

677,814. RUBBER TIRE. CHARLES W. STAPLETON, New York, N. Y. Filed Nov. 23, 1900. Serial No. 37,511. (No model.)

Claim.—1. The combination with a rubber tire of a retaining device, comprising parallel bands, a plurality of cross-bars connected therewith and extending to the base plane of the tire, as and for the purpose set forth.



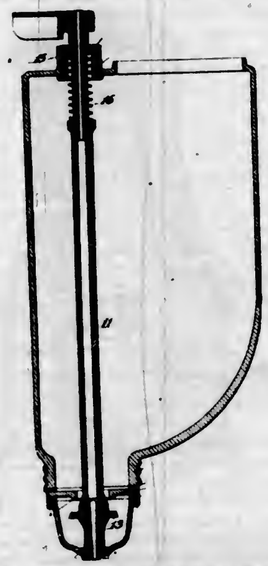
2. The combination with a rubber tire of a retaining device, comprising two parallel bands having rounded edges, a plurality of cross-bars secured to said bands and extending to the base plane of the tire, said cross-bars being rabbeted at the upper edges, and the bands being mounted in said rabbeted edges, as and for the purpose set forth.

3. A rubber tire, a retaining device mounted therein, comprising two parallel bands, a plurality of cross-bars connecting the same and extending to the base plane of the tire, said tire being provided with a vertical passage therethrough to the center of each of said cross-bars, as and for the purpose set forth.

4. A rubber tire, a retaining device mounted therein, the same comprising two parallel bands, a plurality of cross-bars connecting the bands and having a central passage therethrough, said tire being provided with a vertical passage coinciding with the passage in each of said cross-bars, as and for the purpose set forth.

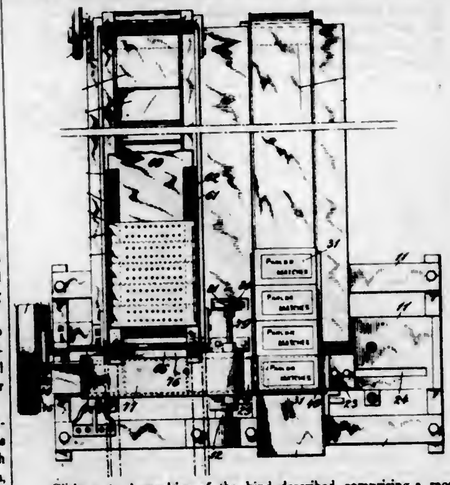
5. The combination with a vehicle-wheel of a rubber tire, a retaining device mounted therein and comprising two parallel bands a plurality of cross-bars connecting the same and extending to the base plane of said tire, said cross-bars being provided with apertures therethrough, vertical passages in said tire which coincide with the apertures in the cross-bars, a retaining-screw passing through the cross-bars into the felly of the wheel, and a rubber plug mounted in each of the passages through the rubber tire, as and for the purpose set forth.

677,815. SYRUP-JAR. JOSHUA W. SUTTON, Brooklyn, N. Y., assignor to the American Soda Fountain Company, Boston, Mass. Filed Nov. 30, 1900. Serial No. 38,108. (No model.)



Claim.—In a syrup-jar, the combination of a jar provided with a threaded neck at the lower end thereof, a packed disk engaging the lower end of said neck, a packed measuring-chamber body engaging said disk, a clamping-ring for clamping the disk and body in position upon said neck, and valves controlling the admission and exit of syrup to and from the measuring-body, substantially as set forth.

677,816. MACHINE FOR BOXING MATCHES. WILLIAM R. SWETT, Boundbrook, N. J., assignor to Joseph H. Swett, South Orange, N. J. Filed June 19, 1900. Serial No. 20,812. (No model.)



Claim.—1. A machine of the kind described, comprising a raceway, means for delivering trays and shucks transversely into the raceway, a movable gate or abutment to limit the said transverse movement of the shucks into and across the raceway, a plunger mechanism for pushing the trays into the shucks, and mechanism for automatically moving said shuck-limiting abutment to permit the lateral discharge of the combined shucks and trays.

2. A machine of the kind described, comprising a raceway to contain shucks and trays, a sliding head or ram having its upper ends projecting into the raceway, one end of the head forming a plunger to push the trays, and the opposite end having a tongue to enter the shucks, a cam to actuate the head, a movable gate or abutment to limit the transverse movement of the shucks through the raceway, and cam-actuated mechanism for moving the said gate or abutment, substantially as described.

3. A machine of the kind described, comprising parallel belts to carry trays and shucks, a raceway traversing the paths of the belts to receive the trays and shucks, a sliding head or ram projecting into the raceway, said head carrying a plunger to engage the trays, and a tongue to open the shucks, a cam to actuate the head, a movable gate or abutment in the path of the shucks to limit their transverse movement across the raceway, and automatic means for moving the said gate or abutment, substantially as described.

4. The combination with the raceway arranged for the passage of match-trays, and a throat discharging into the raceway, of the following unloading instrumentalities, to wit: mechanism for carrying and unloading a match-frame, a belt or carrier movable below the said frame-carrying means and substantially parallel therewith, and a second belt or carrier above the raceway and at an angle to the first carrier, said second carrier discharging into the above-mentioned throat.

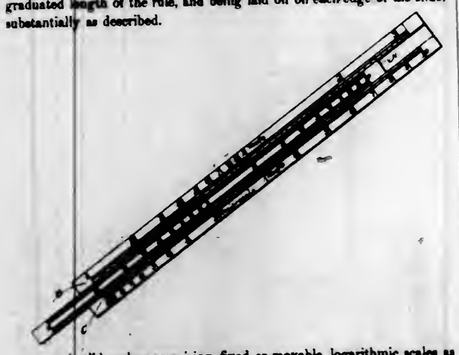
5. A machine of the kind described, comprising a raceway, a head or ram slidable through the raceway, one end of the said head or ram carrying a plunger to push the trays and the opposite end a tongue to enter and open the partially-collapsed and imperfectly-opened shucks, a throat discharging into the raceway, mechanism for carrying and unloading a match-frame, a belt or carrier movable below the said frame-carrying mechanism and substantially parallel therewith, and a second belt or carrier above the raceway and at an angle to the first carrier, said second carrier discharging into the above-mentioned throat.

677,817. SLIDE-RULE. EDWIN THACHER, Paterson, N. J., assignor of one-half to Edson M. Scofield, Youngstown, Ohio. Filed Feb. 27, 1900. Serial No. 6,717. (No model.)

Claim.—1. A slide-rule, comprising a plurality of logarithmic scales relatively adjustable, one of said scales formed of two parts, one above the other, having a combined length equal to the graduated length of the rule, substantially as described.

2. A slide-rule, comprising a plurality of logarithmic scales relatively adjustable, one of said scales formed of two equal parts, one above the other, having a combined length equal to the graduated length of the rule, and arranged upon one side of the transverse center of the rule, substantially as described.

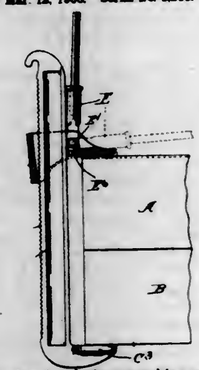
3. A slide-rule, comprising a fixed and movable logarithmic scale arranged upon one side of the transverse center of the rule, said fixed scale being composed of two equal parts, one above the other, having a combined length equal to the graduated length of the rule, and said movable scale being formed of one part having a length equal to one-half the graduated length of the rule, and being laid off on each edge of the slide, substantially as described.



4. A slide-rule, comprising fixed or movable logarithmic scales as follows: a direct scale of roots composed of two equal parts arranged one above the other upon one side of the transverse center of the rule (whether base or slide) and having a combined length equal to the graduated length of the rule, in combination with a direct and a reversed scale of squares each composed of one part having a length equal to one-half the graduated length of the rule and arranged upon the opposite side of the transverse center of the rule, the direct scales reading from left to right and the reversed scale reading from right to left, substantially as described.

5. A slide-rule, composed of base and slide members, bearing the following logarithmic scales, viz: scale A upon each side of the transverse center of the slide, and upon each edge thereof, reading from left to right; scale B upon one side of the transverse center of the base, reading from left to right; scale C upon the same side of the transverse center of the base, reading from right to left; scale D arranged in two equal parts, one above the other, upon the opposite side of the transverse center of the base, reading from left to right; each of said scales A, B and C having a length equal to one-half the graduated length of the rule, and scale D having a combined length equal to the graduated length of the rule, substantially as described.

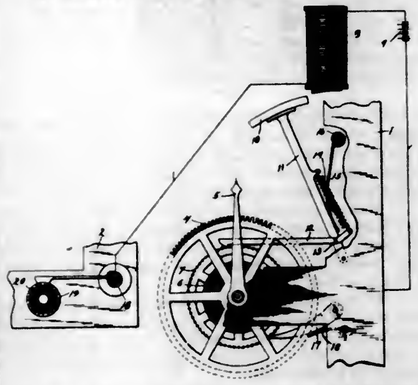
677,818. **FOUNDRY-CLAMP.** ALEXANDER M. THOMPSON, Chicago, Ill. Filed Mar. 12, 1900. Serial No. 8,268. (No model.)



Claim.—1. A clamping device, comprising two clamping parts, a connecting-piece therefor, one of said clamping parts provided with an enlarged opening through which the connecting-piece passes, a series of engaging devices at the rear of said connecting-piece, an engaging device on said clamping part adapted to coöperate with the engaging devices on the connecting-piece, a cam provided with lugs which engage projecting parts on the inner face of said enlarged opening, said cam held in position by engagement with said connecting-piece.

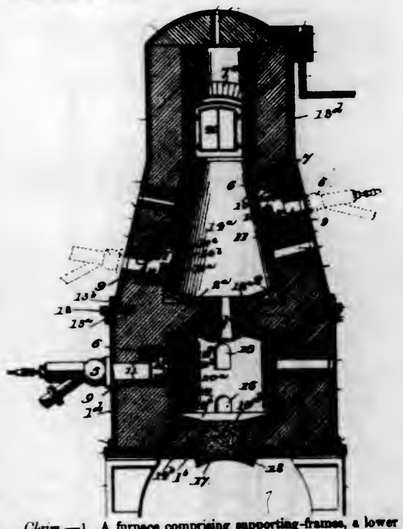
2. A clamp, comprising a suitable foot and an adjustable clamping part, a connecting-piece between them, said adjustable clamping part provided with an enlarged opening through which the connecting-piece passes, a series of engaging devices on said connecting-piece, said adjustable clamping part provided with a projecting end which projects to one side of its engaging face, an engaging device on said projecting end adapted to coöperate with the engaging devices on the connecting-piece and a cam adapted to engage said adjustable clamping part and the connecting-piece, so that, when moved, it rocks said adjustable clamping part about the engaging part thereof.

677,819. **ELECTRIC SELF-WINDING CLOCK.** DAVID W. THOMPSON, Chicago, Ill. Filed Feb. 3, 1900. Serial No. 3,790. (No model.)



Claim.—A contact device for electric self-winding clock-movements one member of which is connected with and operated by the shaft carrying the inner end of the mainspring and the other member of which is connected with and operated by the outer end of the mainspring, so that the unwinding and rewinding of the mainspring directly closes and opens the electric circuit, both of said members being supported upon and removable with said shaft and rotating in the same direction about the axis thereof, substantially as described.

677,820. **MELTING, SMELTING, AND CRUCIBLE FURNACE.** WILLIAM H. THORNLEY, Reading, Pa. Filed June 26, 1900. Serial No. 721,950. (No model.)



Claim.—1. A furnace comprising supporting-frames, a lower plate having a vertical flange, a jacket seated upon the plate and surrounded by the vertical flange, a body seated upon the plate and having a receptacle, fuel-passages extending through the body having outwardly-inclined floors, deflector-walls, and inclined roofs, burner-openings extending through the body, inclined outlets beneath the burner-openings merged into the inclined floors, and hydrocarbon-burners inserted into the burner-openings in front of the deflector-walls.

2. A furnace comprising a body having a lower receptacle formed with vertical walls having a lower outlet-opening for the discharge of the molten metal, and an upper outlet-opening for the discharge of the slag, an upper receptacle formed with a lower part having upwardly-converging walls, and with an upper part having vertical walls, a collar having an opening connecting the receptacles, fuel-passages and deflector-walls, located at different heights at the sides of the receptacles, burner-openings located in front of the deflector-walls, and hydrocarbon-burners inserted into the burner-openings.

3. A furnace comprising a body having a base formed with a manhole, a lower receptacle formed with vertical walls having a lower outlet-opening for the discharge of the molten metal, and an upper outlet-opening for the discharge of the slag, an upper receptacle formed with a lower part having upwardly-converging walls and with an upper part having vertical walls, a collar having an opening connecting the receptacles, fuel-passages and deflector-walls located at different heights at the sides of the receptacles, burner-openings located in front of the deflector-walls, hydrocarbon-burners inserted into the burner-openings, and a door closing the manhole.

4. A furnace comprising a body having a lower receptacle formed with vertical walls having a lower outlet-opening for the discharge of the molten metal, and an upper outlet-opening for the discharge of the slag, an upper receptacle formed with a lower part having upwardly-converging walls and with an upper part having vertical walls, a collar having an opening connecting the receptacles, fuel-passages and deflector-walls located at different heights at the sides of the receptacles, outwardly-inclined floors extending from the deflector-walls, burner-openings located in front of the deflector-walls, inclined outlets beneath the burner-openings merged into the inclined floors, and hydrocarbon-burners inserted into the burner-openings.

5. A furnace comprising a plate having a manhole, a body seated upon the plate and having a base formed with a manhole, a lower receptacle having a depressed bottom formed with a manhole, and vertical walls having a lower outlet-opening for the discharge of the molten metal, and an upper outlet-opening for the discharge of the slag, an upper receptacle formed with a lower part having upwardly-converging walls and with an upper part having vertical walls, a collar having an opening connecting the receptacles, fuel-passages and deflector-walls located at different heights at the sides of the receptacles, burner-openings located in front of the deflector-walls, hydrocarbon-burners inserted into the burner-openings, a sand filling in the manhole, and a door closing the manhole.

6. A furnace comprising supports, a lower plate having a vertical flange, a lower jacket seated on the plate and surrounded by the vertical flange, an upper plate supported upon the lower jacket and having pendent vertical flanges surrounding the upper end of the lower jacket, and upwardly-extending vertical flanges, the upper jacket having an upwardly-converging lower part seating upon the upper plate, and a vertical upper part, a body seating upon the lower plate and having a lower receptacle formed with vertical walls having a lower outlet-opening for the discharge of the molten metal and an upper outlet-opening for the discharge of the slag, an upper receptacle formed with a lower part having upwardly-converging walls and with an upper part having vertical walls, a collar having an opening connecting the receptacles, fuel-passages and deflector-walls located at different heights at the sides of the receptacles, burner-openings located in front of the deflector-walls, and hydrocarbon-burners inserted into the burner-openings.

7. A furnace comprising removable bricks having passages leading therethrough, hydrocarbon-burners entering the passages, and deflector-walls, located in the passages opposite to the ends of the burners; the outlets of the passages being inclined downward at an angle.

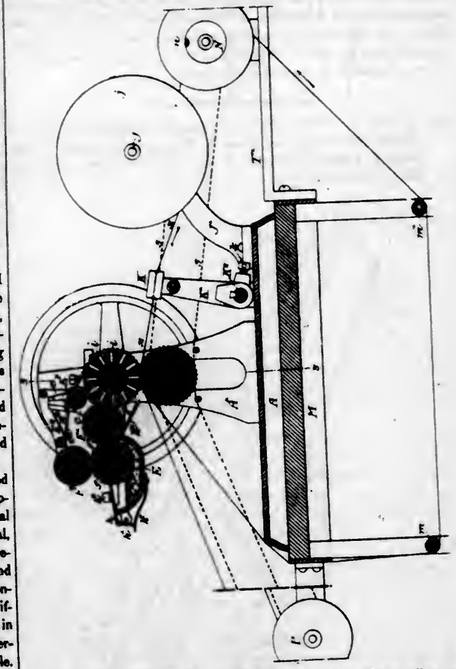
8. A removable brick for a furnace formed with an angular passage therethrough, a downwardly-inclined floor, an upwardly-extending deflector-wall having a downward incline at the outlet to the passage and an angular roof.

677,821. **LABEL-PRINTING MACHINE.** STEPHEN B. TILY, JOHN G. RENFOE, and MARTIN O. RENFOE, Philadelphia, Pa., assignors to John Wanamaker, same place. Filed Aug. 29, 1900. Serial No. 28,437. (No model.)

Claim.—1. The combination in a label printing and cutting machine, of two rollers, hollow cutters carried by each roller, type carried by one roller independently of the cutters, means for inking the type, and a platen made of a resilient material carried by the other roller, substantially as described.

2. The combination in a label-printing machine, of two rollers, hollow cutters carried by said rollers, one of said rollers having a border-printing face, type carried by said roller independently of the cutter and of the border-printing face, means for inking said type, and a platen composed of a yielding material carried by the other roller, substantially as described.

3. The combination in a label-printing machine, of two rollers each having hollow cutters, a platen composed of a resilient material mounted in the hollow cutters of one roller, detachable type mounted in the hollow cutter of the other roller and independently of said cutter, and means for inking said type, substantially as described.



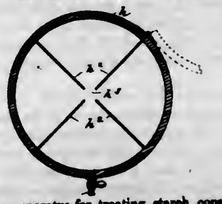
4. The combination in a label-printing machine, of two rollers, cutters thereon, type on one roller, and a platen on the other whereby the label is printed and cut simultaneously, the cutters being so arranged as to only partially cut the label, and means for winding said partly-cut strip of labels on a spool or roll, substantially as described.

5. The combination in a machine for printing and cutting labels, a series of type carried by one roll, a series of platens carried by the other roll and cutters carried by each roll, each cutter being scalloped in form and constructed to incompletely sever a label from the one next to it, the labels being thereby delivered from the machine in the form of a strip, substantially as described.

6. The combination in a combined label cutting and printing machine, of a platen-roll, a printing-cylinder, cutters on the platen-roll and printing-cylinder, means for inking the printing-cylinder, the cutters being so arranged as to cut the waste from the label and leave an uncut portion connecting each label, substantially as described.

7 The combination in a label printing and cutting machine, of a platen-roll having a series of longitudinal grooves therein, segments arranged to fit said grooves, means for normally holding the segments to the platen-roll independently of the grooves, said segments having a cutting edge, a yielding platen surrounded by the cutting edges, a type-cylinder, a cutting edge thereon, and type detachably secured to the type-cylinder, substantially as described.

677,822. **APPARATUS FOR TREATING STARCH.** JOHN H. TOOF, Concord, N. H. Filed Jan. 18, 1900. Serial No. 1,833. (No model.)

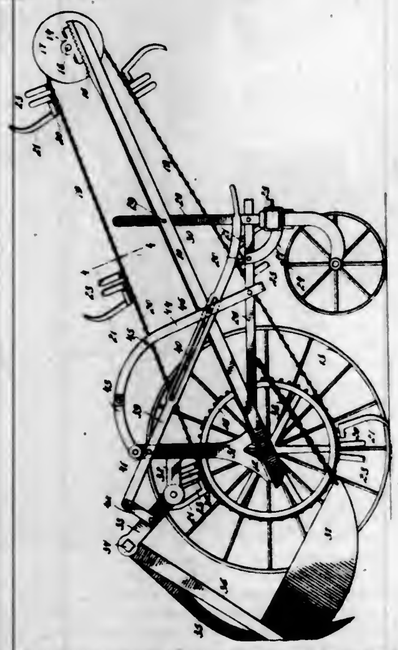


Claim.—1. An apparatus for treating starch consisting in a drum having a series of screen-partitions extending from its inner periphery to near its center, leaving said center open for the passage of starch from

one position to the other entirely around the cylinder, substantially as described.

2. An apparatus for treating starch consisting in a drum having a series of screen-partitions extending from its inner periphery to near its center, leaving said center open for the passage of starch from one partition to the other entirely around the cylinder and an opening leading to the space between two of the partitions, said opening being closed by a cover, substantially as described.

677,823. **STONE AND DIRT LOADING MACHINE.** CHARLES C. TROXELL, Cornwall-on-the-Hudson, N. Y., assignor of one-half to Josephine M. Conness, Newburgh, N. Y. Filed Oct. 6, 1900. Serial No. 32,215. (No model.)



Claim.—1. In combination, a wheel-supported frame, endless carriers mounted to travel on the frame, pockets formed on the carriers, fingers forming parts of said pockets, which fingers are adapted to pick up material, guard-fingers at the rear of the frame, guard-plates coacting with the fingers, between which guard-plates the carriers pass, and an adjusting mechanism for the fingers and guard-plates, as described.

2. A machine for loading stone and dirt, comprising a wheel-supported frame, endless carriers mounted to travel on the frame, pockets formed on the carriers, curved fingers forming parts of said pockets, which fingers are adapted to pick up material, guard-fingers at the rear of the frame, and guard-plates at the sides of the frame adjacent to the guard-fingers and adapted for engagement with the ground, for the purpose set forth.

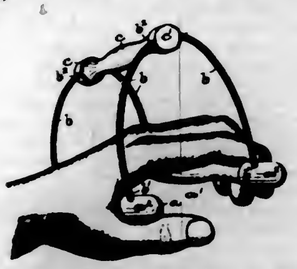
3. In a machine for loading stones and dirt, a wheel-supported adjustable frame, endless chains mounted on the said frame, receiving motion from the supporting-wheels of the frame, cross-bars attached to the endless chains, fingers carried by the cross-bars, slats having barriers at their ends, which slats are carried by the chains and are located adjacent to the cross-bars, guard-fingers adjustably located at the rear of the frame, guard-plates adjustably placed adjacent to the lower portions of the guard-fingers, and means for raising and lowering the guard plates and fingers, as set forth.

4. In a stone and dirt loading machine, a wheel-supported frame, carriers provided with pockets supported by the frame, a series of downwardly and forwardly curved guard-fingers adjustably connected with the frame, guard-plates connected with the supports for the guard-fingers, the lower edges of which guard-plates are convexed, and a lever connected with the supporting structure for the guard-plates and guard-fingers, which lever serves to raise or lower the said guard plates and fingers, and a locking device for the lever, substantially as described.

5. In a stone and dirt loading machine, the combination, with a main frame, supporting-wheels located at the rear of said frame, caster-wheels adjustably connected with the forward portion of the main frame, pulleys mounted at the forward portion of said main frame, sprocket-wheels secured on the axle connecting the supporting-wheels, endless chains passed over the sprocket-wheels and pulleys, cross-bars connecting the endless chains, curved fingers attached to said cross-bars, and slats also connecting the endless chains, which slats are located adjacent to the cross-bars and in front of the fingers, the slat having their ends at an angle to their body portions, of arms pivotally connected with the rear portion of the main frame, a cross-bar connecting said arms, downwardly and forwardly curved guard-fingers secured to the cross-bar connecting said arms, supporting-bars likewise attached to the cross-bar near its ends, guard-plates secured at one of their ends to the said supporting-bars, a flexible connection between the forward ends of the guard-plates and the main frame, and an adjusting-lever connected with the said pivoted arms, as and for the purpose set forth.

6. In a stone and dirt loading machine, the combination, with a main frame, supporting-wheels located at the rear of the said frame, caster-wheels adjustably connected with the forward portion of the main frame, pulleys mounted at the forward portion of said main frame, sprocket-wheels secured on the axle connecting the supporting-wheels, endless chains passed over the sprocket-wheels and pulleys, cross-bars connecting the endless chains, curved fingers attached to the said cross-bars, and slats also connecting the endless chains, which slats are located adjacent to the cross-bars and in front of the fingers, the slats having their ends at an angle to their body portions, of arms pivotally connected with the rear portion of the main frame, a cross-bar connecting said arms, downwardly and forwardly curved guard-fingers secured to the cross-bar connecting said arms, guard-plates secured at one of their ends to the said supporting-bars, a flexible connection between the forward ends of the guard-plates and the main frame, an adjusting-lever connected with the said pivoted arms, caster-wheels located beneath the forward portion of the machine, a cross-bar connecting the said wheels, and standards extending from the said cross-bar, which standards have adjustable connection with the main frame, whereby the said main frame may be adjusted to and from the ground, and held in such adjustment, as set forth.

677,824. **DEVICE FOR DEVELOPING MUSCLES OF THE HANDS AND FINGERS.** GUSTAVUS TROXLER, Jr., Newark, N. J., assignor to John Holmes, same place. Filed Oct. 27, 1900. Serial No. 34,553. (No model.)



Claim.—1. An exercising device for developing the muscles of the hand and fingers, comprising, an upper bar and a pair of lower and movable bars or hand portions, and a connecting spring device between said upper bar and the said lower and movable bars or hand portions, adapted to normally force said bars or hand portions in opposite directions from each other, but said bars or hand portions being capable of being forced toward each other by pressure from the hand or fingers, substantially as and for the purposes set forth.

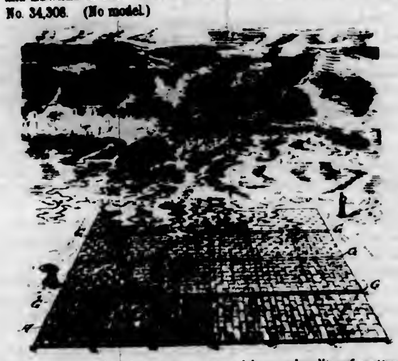
2. An exercising device for developing the muscles of the hand and fingers, comprising, a pair of movable bars or hand portions, and ∩-shaped spring bands or wires having their ends connected with and secured to said movable bars or hand portions, substantially as and for the purposes set forth.

3. An exercising device for developing the muscles of the hand and fingers, comprising a pair of movable bars or hand portions, a ∩-shaped spring band or wire having its ends connected with and secured to said movable bars or hand portions, substantially as and for the purposes set forth.

4. An exercising device for developing the muscles of the hand and fingers, comprising a pair of movable bars or hand portions, and a pair of ∩-shaped spring bands or wires having their ends connected with and secured to said movable bars or hand portions, and an intermediately-arranged bar on said ∩-shaped spring bands or wires, substantially as and for the purposes set forth.

5. The herein-described exercising device for developing the muscles of the hand and fingers, consisting, essentially, of a pair of lower bars or hand portions *a* and *a'*, each provided with end portions a^2, spring wires or bands *b* having their free ends *b'* connected with and secured to said end portions a^2, and an upper bar *c* having perforated end portions *c'* through which the highest points or parts b^2 of said spring wires or bands are passed, and are secured therein, substantially as and for the purposes set forth.

677,825. **BEACH-PROTECTOR.** CHARLES H. VAN ORDEN, Catskill, and EDWARD B. COOMBS, New York, N. Y. Filed Oct. 25, 1900. Serial No. 34,308. (No model.)



Claim.—1. A beach-protector, comprising a plurality of mattresses each formed of a fiber material bound in place by warps and bars attached to each mattress to stiffen the same and provide a means for fastening the mattresses together, as set forth.

2. A beach-protector, comprising a plurality of mattresses connected with each other and having spaces between the mattresses, and means for anchoring the mattresses to the beach, as set forth.

3. A beach-protector, comprising a plurality of mattresses arranged in rows with spaces between the rows, means for connecting the mattresses with each other, and means for anchoring the connected mattresses to the beach, as set forth.

4. A beach-protector, comprising a plurality of mattresses each formed of a fiber material bound in place by warps and bars attached to each mattress to stiffen the same and provide a means for fastening the mattresses together, and anchors engaging sundry of the said bars, to secure the mattresses in place on the beach, as set forth.

5. A beach-protector, provided with a mattress formed of a fiber material bound in place by warps, the fiber material being arranged lengthwise in the direction of the current, and bars secured to the mattress by said warps, to stiffen the mattress, the bars being arranged diagonally to the mattress, as set forth.

6. A beach-protector having a mattress formed of a fibrous woven material, and crossing-bars attached to the mattress and projecting beyond the sides thereof, for connection with the projecting ends of the bars of adjacent mattresses, as set forth.

7. A beach-protector, comprising a plurality of mattresses of a fibrous woven material, bars attached to said mattresses and projecting beyond the sides thereof, the projecting ends of the bars adjacent to the mattresses being fastened together, and anchors for anchoring the mattresses to the beach, the anchors engaging sundry of the bars at the connected ends thereof, as set forth.

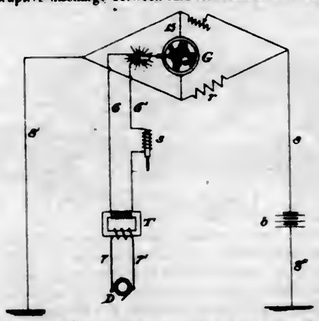
677,826. **CONTROLLING MEANS FOR ELECTRIC CIRCUITS.** RICHARD VARLEY, Jr., Jersey City, N. J. Filed Aug. 16, 1900. Serial No. 27,031. (No model.)

Claim.—1. The combination, with an electric circuit having a pair of terminals separated by a spark-gap, of a controlling device associated with and supported for movement relative to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said terminals.

2. The combination, with an electric circuit having a pair of terminals separated by a spark-gap, of an automatic controlling device associated with and supported for movement relative to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said terminals.

3. The combination, with a local circuit having a pair of terminals separated by a spark-gap, of a controlling-circuit, and a controlling device governed by said controlling-circuit and supported for movement relative to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said terminals of the local circuit.

4. The combination, with a local circuit having a pair of terminals separated by a spark-gap, of a controlling-circuit, and a controlling device included in said controlling-circuit and supported for movement relative to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said terminals of the local circuit.



5. The combination, with a local circuit having a pair of terminals separated by a spark-gap, of a controlling-circuit; an electric bridge in said controlling-circuit; and a galvanometer in the bridge-circuit and controlling the passage of a disruptive discharge between said terminals of the local circuit.

6. The combination, with a local circuit having a pair of terminals separated by a spark-gap, of a controlling-circuit; an electric bridge in said controlling-circuit; a galvanometer in the bridge-circuit; and a spark-forming device controlled by said galvanometer and in position for producing a disruptive discharge between said terminals of the local circuit on the balancing of the resistances of the bridge-circuit.

7. The combination, with a local circuit having a pair of terminals separated by a spark-gap, of a controlling-circuit; a line-circuit; a transformer the primary winding of which is included in said line-circuit and the secondary of which is included in said local circuit; and a controlling device governed by said controlling-circuit and supported for movement relative to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said terminals of the local circuit.

8. The combination, with a high-tension local circuit having a pair of terminals separated by a spark-gap, of a translating device in said local circuit; a controlling-circuit; and a controlling device governed by said controlling-circuit and supported for movement relative to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said terminals of the local circuit.

9. A spark-relay having a pair of local-circuit terminals separated by a spark-gap and also having a local-circuit controller associated with and movable relatively to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said local-circuit terminals.

10. A spark-relay having a pair of local-circuit terminals separated by insulating material and also by a spark-gap, said relay also having a local-circuit controller associated with and movable relatively to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said local-circuit terminals.

11. A spark-relay having a pair of local-circuit terminals separated by a sheet of insulating material and also by a spark-gap, said relay also having a local-circuit controller associated with and movable relatively to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said local-circuit terminals.

12. A spark-relay having a pair of local-circuit terminals separated by a sheet of mica and also by a spark-gap, said relay also having a local-circuit controller associated with and movable relatively to said terminals for varying the resistance of said spark-gap and producing a disruptive discharge between said local-circuit terminals.

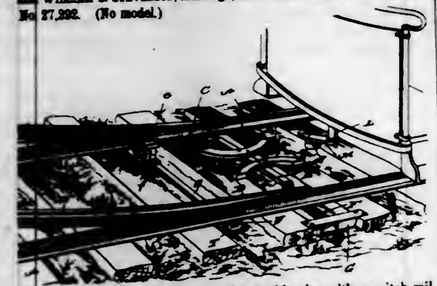
13. A spark-relay having a pair of local-circuit terminals separated by a spark-gap and also having a movable forked local-circuit controller for producing a disruptive discharge between said local-circuit terminals.

14. A spark-relay having a pair of local-circuit terminals separated by a spark-gap and also having a movable substantially U-shaped local-circuit controller for producing a disruptive discharge between said local-circuit terminals.

15. A spark-relay having a pair of local-circuit terminals separated by a spark-gap and also having a movable contact-arm the end of which is bent upon itself to form an integral U-shaped local-circuit controller for producing a disruptive discharge between said local-circuit terminals.

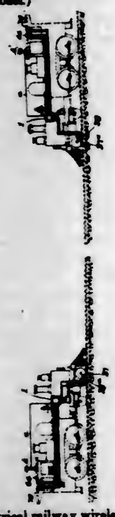
16. A spark-relay having a pair of local-circuit terminals separated by a spark-gap and also embodying a galvanometer having a local-circuit controller movable in unison with the galvanometer-needle and operative for producing a disruptive discharge between said local-circuit terminals.

677,827. SWITCH-OPERATING DEVICE. DAVID H. WEATHERS and WILLIAM S. STEVENSON, Marengo, Ind. Filed Aug. 13, 1900. Serial No. 27,292. (No model.)



Claim.—In a switch mechanism, the combination with a switch-rail and a stub-rail carried thereby, of a vertically-movable and rotatable stem carried by the car, a crank-arm carried by the lower end of said stem and provided with a friction-roller, an operating-handle for rotating said stem, and means for locking said stem in position with the crank-arm extending either to the right or left thereof, substantially as described.

677,828. WIRELESS ELECTRIC RAILWAY SIGNALING SYSTEM. LOUIS C. WERNER, Broadbrook, Conn. Filed Dec. 30, 1899. Serial No. 742,086. (No model.)



Claim.—1. In an electrical railway wireless signaling system, a train apparatus provided with a signaling mechanism arranged to be included in a wireless circuit, and having an aerial conductor or terminal for Hertzian waves, said signaling mechanism also having a circuit including a track rail or rails, substantially as described.

2. In an electrical railway wireless signaling system, a signaling mechanism arranged to be included in the wireless circuit, said mechanism having an aerial conductor or terminal for Hertzian waves, and a circuit including a track rail or rails, and a separate track-circuit-closing device associated with said mechanism, substantially as set forth.

3. In an electrical wireless signaling system, a train apparatus provided with signal transmitting and receiving mechanisms arranged to be included in a wireless circuit, each having an aerial conductor for Hertzian waves included in the circuits thereof, and means for automatically cutting the transmitting and receiving mechanisms in and out of action.

4. In an electrical railway wireless signaling system, a train apparatus provided with signal transmitting and receiving mechanisms arranged to be included in a wireless circuit each having an aerial conductor for Hertzian waves, and means for automatically cutting the transmitting and receiving mechanisms alternately in and out of action.

5. In an electrical railway wireless signaling system, a train apparatus provided with signal transmitting and receiving mechanisms arranged to be included in a wireless circuit each having an aerial conductor for Hertzian waves, and means for continuously opening and closing the transmitting and receiving circuits alternately, substantially as described.

6. In an electrical railway wireless signaling system, a train apparatus provided with transmitting and receiving mechanisms arranged to be included in a wireless circuit each having an aerial conductor for Hertzian waves, and a continuously-operating signal-controller having means for alternately cutting the transmitting and receiving mechanisms in and out of action.

7. In an electrical railway signaling system, a train apparatus provided with transmitting and receiving mechanisms each having an aerial conductor, and a continuously-operating signal-controller having means for alternately cutting the transmitting and receiving instruments in and out of action, and also for changing the character of transmitted impulses.

8. In an electrical railway signaling system, a train apparatus provided with transmitting and receiving mechanisms each having an aerial conductor, a continuously-operating signal-controller having means for alternately cutting the separate mechanisms in and out of action, and a circuit-changing device associated with the controller for automatically changing the character of the transmitted impulses.

9. In an electrical railway wireless signaling system, the signal-transmitting mechanism arranged to be included in a wireless circuit and having an aerial conductor for Hertzian waves, and means for automatically changing the signaling character of the electrical impulse transmitted by said mechanism, substantially as described.

10. In an electrical railway signaling system, a train apparatus provided with signal transmitting and receiving mechanisms each having an aerial conductor, a continuously-operating signal-controller having means for alternately cutting the transmitting and receiving mechanisms in and out of action, and an automatically-adjusting circuit-changing switch cooperating with the signal-controller to change the character of the transmitted impulses.

11. In an electrical railway signaling system, a train apparatus provided with signal transmitting and receiving mechanisms each having an aerial conductor, a continuously-operating signal-controller having means for automatically and alternately opening and closing the transmitting and receiving circuits, and an automatically-adjusted switch included in the primary circuit of the transmitting mechanism and coöperating with the signal-controller to change the character of the transmitted impulses.

12. In an electrical railway signaling system, a train apparatus provided with signaling transmitting and receiving mechanisms which have an aerial conductor, a continuously-operating signal-controller interposed in the primary and secondary circuits of the transmitting mechanisms, and also in the circuit of the receiving mechanism, an automatically-adjusted switch coöperating with the signal-controller to change the character of the transmitted impulses, and the switch-adjusting mechanism, including track-contacts and brushes coöperating therewith.

13. In an electrical railway signaling system, a train apparatus provided with signaling transmitting and receiving mechanisms, each having an aerial conductor, a continuously-operating signal-controller included in the primary and secondary circuits of the transmitting mechanism and also in the circuit of the receiving mechanism, a circuit-changing switch included in the primary circuit of the transmitting mechanism and coöperating with the signal-controller, a switch-adjusting mechanism including magnets for the movable switch member, track-relays associated with said magnets, track-contact brushes in the circuit of said relays, and track-contacts having circuit-wire connections with the track-rails.

14. In an electrical railway signaling system, a train apparatus provided with the transmitting and receiving mechanisms each having an aerial conductor, a continuously-operating signal-controlling drum provided with a plurality of contact projections, contact-brushes included in the secondary circuit of the transmitting mechanism and in the circuit of the receiving mechanism to respectively engage with different contact projections of the drum, a common return-wire adapted to be included in the circuit with either of said brushes and also with the track-rail, a pair of contact-brushes adapted to be respectively engaged by the other contact projections of the drum to provide for transmitting different impulses, and an automatically-adjusted circuit-changing switch including a pair of spaced plates respectively connected with the contact-brushes for transmitting signals, and a switch-lever playing between and against the plates and included in the primary circuit of the transmitting mechanism.

15. In an electrical railway signaliug system, a track apparatus provided with signal transmitting and receiving mechanisms each having an aerial conductor, a continuously-operating signal-controller having means for alternately cutting the transmitting and receiving mechanisms in and out of action, a circuit-changing switch included in the primary circuit of the transmitting mechanism, and essentially comprising a pair of spaced contact-plates and a swinging switch-lever adapted to play between and against said plates, separate switch-adjusting magnets arranged to oscillate the lever in opposite directions, spring-retracted locking-armatures controlled by said adjusting-magnets and having locking members adapted to engage with the ends of the switch-lever, a normally closed local operating-circuit for each of the said adjusting mechanisms, said operating-circuits including normally closed circuit-closers, track-relays including the movable members of said circuit-closers, the track-contact brushes wired with said relays and the track-contacts having wire connections with the relays, substantially as described.

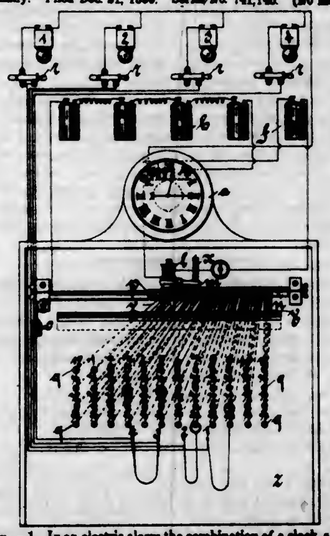
16. In an electrical railway signaling system, the combination with the signaling mechanism and the track-contact brushes, of the track-contacts each consisting of a bell-crank lever provided with an upstanding sectional contact-arm having insulation between the sections thereof, and an adjusting-spring having a connection with one arm of said lever, substantially as described.

17. In an electrical railway signaling system, a track apparatus provided with signal transmitting and receiving mechanisms each having an aerial conductor, means for automatically cutting the transmitting and receiving mechanisms in and out of action, a suitably-operated record-tape, a pair of recording instruments each having an armature provided with a marking-point adapted to operate against the record-tape, a normally closed operating-circuit including the magnet of each relay, and also including a normally closed circuit-closer, and operating-magnets included in the secondary circuit of the transmitting mechanism and also in the circuit of the receiving mechanism, said operating-magnets respectively coöperating with the movable members of said normally closed circuit-closers.

18. In an electrical railway signaling system, a track apparatus provided with signaling transmitting and receiving mechanisms each having an aerial conductor, means for automatically cutting the transmitting and receiving mechanisms in and out of action, a suitably-operated record-tape, a pair of recording instruments each having an armature provided with a marking-point adapted to operate against the record-tape, a normally closed operating-circuit including the magnet of each relay, and also including a normally closed circuit-closer, operating-magnets included in the secondary circuit of the transmitting mechanism and also in the circuit of the receiving mechanism, said operating-magnets respectively coöperating with the movable members of said normally closed circuit-closers, and local alarm-circuits respectively for transmitted and received signals, each alarm-circuit including a normally open circuit-closer, the movable member of which is formed by the armature of one of the relays.

19. In an electrical railway signaling system, a train apparatus provided with signal transmitting and receiving mechanisms each having an aerial conductor, separate recording instruments for transmitted and received signals, separate alarms for transmitted and received signals, and means for automatically actuating the separate recording instruments and alarms respectively for the circuits of the transmitting and receiving mechanisms.

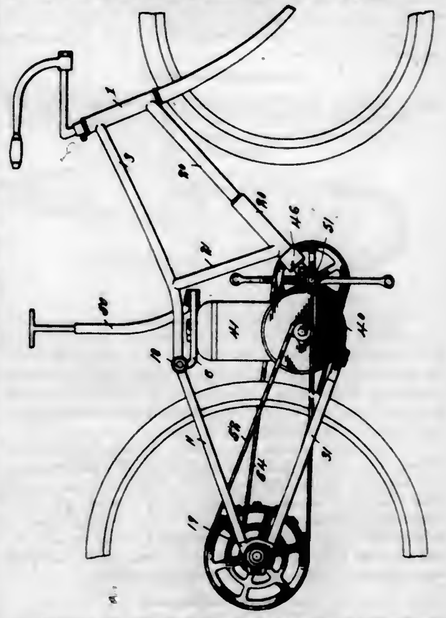
677,829. ELECTRIC ALARM. MAX WERCHER and PAUL WOLLENHAUPT, Cologne, Germany, assignors to Walter Rübel, Duisburg, Germany. Filed Dec. 21, 1899. Serial No. 741,160. (No model.)



Claim.—1. In an electric alarm the combination of a clock, a toothed wheel fixed upon the axle of the minute-hand of this clock, a contact-lever, situated above the toothed wheel, an electromagnet *l*, an armature *m*, a toothed bar *n*, a weight *o* for moving this bar, electric wires *y*, fixed to the toothed bar, a contact-post *p*, pins *q*, provided with time-marks and metallic rings fixed to the wires coming from the different rooms, as and for the purpose set forth.

2. In an electric alarm the combination of a clock, a toothed wheel fixed upon the axle of the minute-hand of this clock, a contact-lever, situated above the toothed wheel, an electromagnet *l*, an armature *m*, a toothed bar *n*, a weight *o* for moving this bar, electric wires *y*, fixed to the toothed bar, a contact-post *p*, pins *q*, provided with time-marks, metallic rings fixed to the wires coming from the different rooms, and an interrupter consisting of an angle-lever and a contact-plate.

677,830. BICYCLE-FRAME. EDWARD Y. WHITE, San Antonio, Tex. Filed Nov. 15, 1900. Serial No. 36,641. (No model.)



Claim.—1. In a bicycle-frame, the combination of a front and rear frame hinged together above, the lower rear bars connected to the hub-supports, a flexible tie-piece connecting said bars and extending forward and serving as a support for the base of a motor, a piston-rod connected to said tie-piece and extending into the lower front bar of the frame, and a spring surrounding said piston-rod within said frame-bar, all substantially as described.

2. In a bicycle-frame, the combination of the front post having two top bars and a single lower bar extending downward, a brace connecting said bars near the rear ends, a hinge connecting the front section described to the top bars of the rear section, which bars are connected to the support of the rear wheel, lower side bars extending forward from said wheel-support and an elastic connection from said lower section to the lower part of the front frame-section, substantially as described.

3. In a bicycle-frame, the combination of the front frame-section and the rear frame-section, hinged together at the top and elastically connected at the bottom, and a motor-engine forming a connecting brace member between the bars of the rear section, substantially as described.

4. A bicycle-frame consisting essentially of a front section and a rear section, one of said sections consisting essentially of top and bottom bars and a substantially vertical bar forming a triangle, the other section consisting essentially of the top and bottom bars and a substantially vertical engine forming a triangle, the frame-sections being hinged together at the top and elastically connected at their lower part, substantially as described.

5. In a bicycle-frame, the front section having two bars or tubes connected to the front post, a cross-tube having pins extending into said bars or tubes, the rear top bars having loops at the sides of said cross-tube, and a bolt uniting said sections and serving as a pintle to the hinge, all combined substantially as described.

6. In a bicycle-frame, the combination of the front and rear sections hinged together at top and elastically connected at the bottom, the motor-engine connected to the frame and forming a brace between the top and

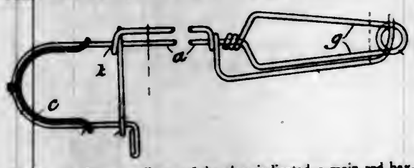
bottom frame-sections, and the seat-post connected to the engine-support so as to move therewith, all combined substantially as described.

7. In a bicycle-frame, the combination of the top and bottom bars of the rear frame-section and a strap forming a continuation of the bottom bars, the motor-engine secured to said strap and to the upper portion of the frame, and the front frame-section elastically connected to the lower part of the rear frame-section and hinged to the upper part of the same, substantially as described.

8. In a bicycle-frame, the front and rear sections hinged together at the top and elastically connected at the bottom, and the motor-engine and driving-pedals supported near the front of the lower rear frame-section, so as to yield with said frame-section, substantially as described.

9. In a bicycle-frame, the combination with the lower bars of the rear frame-section, of the double tie-piece connected to said bars, a piston-rod connected to said piece and extending forward into the lower tube of the front section, a spring acting on said piston-rod to hold it forward, and a flexible connection between the upper portion of the frame-sections, substantially as described.

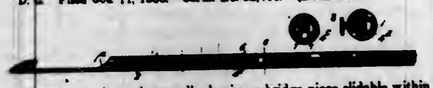
677,831. LEG-ROPE ATTACHMENT FOR SECURING COWS FOR MILKING OR THE LIKE. ALBERT E. WHITING, Hexham, Victoria. Filed Nov. 3, 1900. Serial No. 35,269. (No model.)



Claim.—1. In an appliance of the class indicated, a main rod having at one end a hook and at the other a handle and a ring on said handle, in combination with a movable or locking rod pivotally connected to the main rod between the handle and the hook, also at one end pivotally connected to the ring on the said handle, and having its other extremity bent transversely, and then downward, forming a catch completely closing the said hook all substantially as set forth.

2. In an appliance of the class indicated, a main rod, having a handle and a hook, in combination with a pad on said hook and attached to said main rod, a locking-rod pivoted at two points on the main rod, said pivots being out of alinement with each other, the extremity of the locking-rod adapted to close the said hook, the locking-rod being adapted to be moved by manipulation at the said handle into the open position, the unalined pivots thereby distorting the parts, whereupon the locking-rod has a tendency to spring closed, substantially as set forth.

677,832. CROCHET-NEEDLE. JOHN J. WICKHAM, Washington, D. C. Filed Oct. 11, 1900. Serial No. 32,766. (No model.)



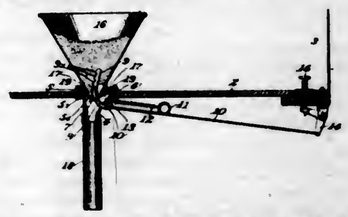
Claim.—1. A crochet-needle, having a bridge-piece slidable within the handle part thereof, automatically movable to its inner or normal position, and a finger member for forcing it forward to close over the barbed end of the needle, and a detent with which the said finger engages for holding the bridge-piece to its closed position, as specified.

2. As a new article, a crochet-needle, having a bridge-piece slidable within the handle part thereof, means for normally holding it to its inner or inoperative position, said bridge-piece having a finger-engaging portion projected through the side of the needle, whereby it can be moved out to close over the barbed end of the needle, substantially as shown and described.

3. The combination with the needle 1, having a central bore, a bridge member slidable in the said bore, having its outer end tapered in a plane with the tapered end of the needle, a spring held within the bore for normally holding the bridge member to its inner position, said bridge member having a finger-tripped detent for holding it to its outer or closed position, as specified.

4. The combination with the needle having a longitudinal bore, opening through the taper end thereof, and a horizontal slot merging with the rear end of the bore, said slot having an interlocking portion 3^a; of the bridge member, said bridge member comprising a bolt-like end 4^a, and a reduced shank 4^c, said shank having a shoulder member 4^d, the tension-spring 6, the stop-pin 7, and the finger-piece 8, secured to the end of the said shank, said finger-piece sliding in a horizontal slot, and adapted to engage the interlocking portion 3^a, thereof, all being arranged substantially as shown and for the purposes described.

677,833. DEVICE FOR APPLYING SAND TO RAILWAY-RAILS. EMIL P. DE WITT, Lansingburg, N. Y. Filed Dec. 30, 1899. Serial No. 742,110. (No model.)



Claim.—1. In a device of the class specified, the combination, with a sand box or hopper, of a discharge-chute having a perforated flanged portion resting upon the floor of the vehicle; a swinging valve-plate having pintles located in recesses in the flanged portion of said discharge-chute; means for securing said valve-plate in position, and thereby covering and protecting the pintles; and a toothed disintegrator connected to and operable with said valve-plate.

2. In a device of the class specified, the combination, with a supply-hopper, of a discharge-chute; an intermediate chute having a wall with a sharp edge; a swinging valve-plate normally operating against said intermediate chute, said valve-plate carrying a disintegrating device; and means for actuating the valve-plate.

3. In a device of the class specified, the combination, with a supply-hopper, of a discharge-chute; an intermediate chute having a wall with a sharp edge; a valve normally bearing against said intermediate chute, said valve carrying a toothed disintegrator; and means for actuating the valve.

4. In a device of the class specified, the combination, with a supply-hopper having perforated flanges, of an intermediate chute and a discharge-chute each having perforated flanges; bolts passing through the alined perforations in the flanges of said hopper and chutes and serving to secure them in position; a pivoted valve-plate normally in contact with the walls of the exit-opening of the intermediate chute; a disintegrating or stirring device carried by said valve-plate; and means for actuating said valve-plate.

5. In a device of the class specified, the combination, with a supply-hopper and with intermediate and discharge chutes, of a swinging valve held in place by the flanges of the intermediate chutes; a curved and toothed disintegrator carried by said valve; a stem projecting from said valve; a rod connected to the stem; means for actuating said rod; and a spring for closing the valve.

6. In a device of the class specified, the combination, with a supply-hopper having a flanged base, of a discharge-hopper having a flanged upper portion and provided with recesses; a swinging valve-plate having pintles mounted in said recesses and held therein and protected by the flanged base of the supply-hopper; a disintegrating device carried by said valve-plate; a pull-rod connected with the stem of said disintegrating device; and means for actuating the pull-rod.

7. In a device of the class specified, the combination, with a supply-hopper having a flanged base, of a discharge-chute having a flanged upper portion provided with recesses; a swinging valve-plate having pintles located in said recesses and held therein by the flanges of the supply-hopper; a curved and toothed disintegrator having a stem and carried by said valve-plate; a pull-rod for actuating said disintegrator; and a chute intermediate the discharge and supply hoppers, said chute having a sharp edge coöperating with the valve-plate, substantially as and for the purpose specified.

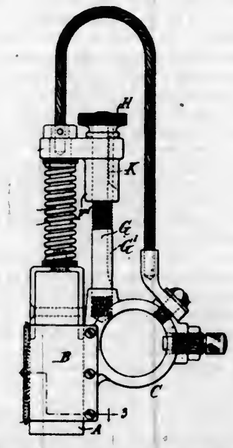
677,834. BRUSH-HOLDER. JAMES J. WOOD, Fort Wayne, Ind. Filed Nov. 22, 1900. Serial No. 37,361. (No model.)

Claim.—1. In a brush-holder, a socket comprising, in combination, a flat plate at one side forming a portion of the bounding-wall of said socket, and a sheet-metal plate bent to form the remaining portion of said bounding-wall and attached to said flat plate.

2. In a brush-holder, a socket comprising, in combination, a flat plate forming the back of said socket, and a sheet-metal plate bent to form the front and sides thereof and attached to said flat plate.

3. In a brush-holder, a socket comprising, in combination, a flat plate B' forming the back of said socket and having an extension C adapted for attachment to the supporting-stud, and a sheet-metal plate bent to form the front B^2 and sides B^3 of said socket and attached to said flat plate.

4. In a brush-holder, the combination of an extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, and a guide-rod for said slide, said slide being engaged non-rotatively with said guide-rod.



5. In a brush-holder, the combination of an extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, and a guide-rod for said slide, said guide-rod having a groove G' and said slide having a key K working in said groove and preventing rotation of the slide on the guide-rod.

6. In a brush-holder, the combination of a socket for the brush, a spring pressing upon said brush, and means for adjusting the pressure of said spring comprising a screw and nut, the movable member of said adjusting means having means for holding it in place comprising a projection and corresponding recess formed the one in said movable member and the other in the part against which it acts, whereby the force of the spring is utilized to press said projection and recess into engagement to form a stop for said movable member.

7. In a brush-holder, the combination of an extension-rod, a spring on said extension-rod and pressing upon the brush, and means for adjusting the pressure of said spring comprising a screw and nut, the movable member of said adjusting means having means for holding it in place comprising a projection and corresponding recess formed the one in said movable member and the other in the part against which it acts, whereby the force of the spring is utilized to press said projection and recess into engagement to form a stop for said movable member.

8. In a brush-holder, the combination of an extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, a guide-rod for said slide, a nut on said guide-rod adapted to move said slide to adjust the pressure of said spring, and a projection and corresponding recess on the adjacent faces of said slide and nut to form a stop for said nut.

9. In a brush-holder, the combination of an extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, a guide-rod for said slide, a nut on said guide-rod adapted to move said slide to adjust the pressure of said spring, and a projection *k* on the top of said slide engaging a groove *h* in the under side of said nut to form a stop therefor.

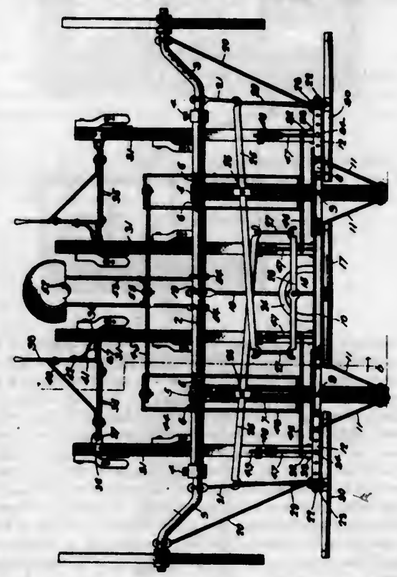
10. In a brush-holder, the combination of an extension-rod, a spring on said extension-rod and pressing upon the brush, a slide on said extension-rod adapted to be moved to adjust the pressure of said spring, a guide-rod for said slide, said guide-rod having a groove G' and said slide having a key K and a projection *k* above the slide, and a nut on said guide-rod adapted to move said slide to adjust the pressure of said spring and having a groove *h* in its under side to engage the projection *k*.

677,835. FORMATION OF COLORED FABRICS. PAUL B. WORTHINGTON, New York, N. Y. Filed July 27, 1900. Serial No. 25,014. (No specimens.)

Claim.—The herein-described method of producing colored fabrics, which consists in giving a firm support or backing to part of the fabric only and leaving the remainder of the fabric relatively unsupported or unbacked, covering a part of the fabric so as to leave only a section thereof exposed, and then applying color to the exposed section of the fabric by friction, to cause the absorption of more color on the backed portion of the exposed section than on the unbacked portion thereof, to produce a variegated effect.



677,836. CULTIVATOR. JOHN M. WRIGHT, David City, Nebr. Filed Dec. 5, 1900. Serial No. 38,778. (No model.)



Claim.—1. The combination of an axle, longitudinally-disposed levers fulcrumed thereon, at points distant from the center thereof, a cross-bar connecting the rear portions of said levers, plow-beams having their front ends flexibly connected to fixed points, whereby the rear ends of the said plow-beams may be raised and lowered, connections between said plow-beams and said levers, and a seat-supporting bar having its front end connected to the said axle, said bar being connected to said cross-bar, substantially as described.

2. The combination of a seat-supporting lever, a support therefor, a plow-beam flexibly connected to a fixed point, a link depending from said lever, and a vertically-adjustable loop-bar on said plow-beam, to which said link is connected, substantially as described.

3. The combination of a seat-supporting lever, a support therefor, a plow-beam flexibly connected to a fixed point, a link depending from said lever, a loop-bar pivotally connected to the plow-beam and engaged by said link, and means to adjust said loop-bar, substantially as described.

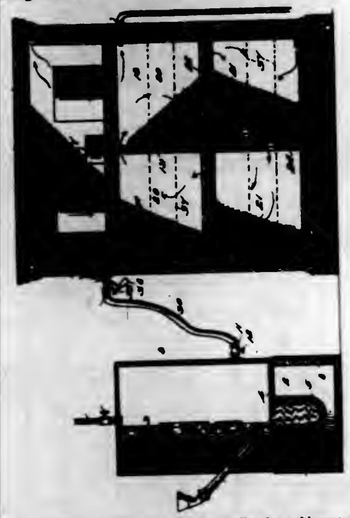
4. In a cultivator, the combination of an axle, draft poles or tongues attached thereto, standards depending from said tongues, plow-beams flexibly connected to said standards, levers supported on said axle, at points remote from the center thereof, a cross-bar connecting said levers, in rear of said axle, connections between said levers and the plow-beams, and a seat-supporting bar connected to and extending rearward from the center of the axle, said seat-supporting bar being connected to said cross-bar, whereby the weight of the driver is utilized in raising the rear ends of the beams, and whereby the central portion of the axle is relieved of strain, substantially as described.

5. In a cultivator, the combination of a supporting-frame, plow-beams

having their front ends flexibly connected to said frame, an arch-bar having hinged connections at its ends to the said beams, and a handle carried by and attached to said arch-bar, substantially as described.

6. The combination of the hinge-plates 36 adapted to be bolted to plow-beams, the arch-bar having its ends pivotally connected to said hinge-plates, the handle having one end connected to one side of the arch-bar and a brace-bar connecting the said handle to said arch-bar, substantially as described.

677,837. **REFRIGERATOR.** JOHN S. WRIGHTSOUR, Oil City, Pa. Filed Aug. 21, 1900. Serial No. 27,582. (No model.)



Claim.—1. The combination with the walls of a refrigerator; of a transversely-extending partition therein forming an upper and a lower chamber, insulating material within said partition and within the walls of the upper chamber, air-passages within the walls of the lower chamber, a horizontally-extending partition within the lower chamber forming upper and lower compartments, said partitions having air-passages therein and apertures out of alinement with each other, whereby air may circulate from one to the other of the compartments, a partition within the lower compartment having an air-passage therein and apertures out of alinement with each other, a partition in the upper compartment having an air-passage therewith, a pipe extending from a point adjacent to the top of the upper chamber to the bottom of the lower compartment, an air-inlet in the upper chamber, and an outlet adjacent to the top of the upper compartment.

2. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas or air with an unusual quantity thereof; of a refrigerator; an air-inlet thereto; a tube detachably secured within the inlet; a tubular connection between the outlet of the air-container and said tube; an outlet from the detachable tube; and a lamp secured adjacent to the outlet.

3. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas or air with an unusual quantity thereof; of a refrigerator; an air-inlet thereto; a tube detachably secured within the inlet; a tubular connection between the outlet of the air-container and said tube; an outlet from the detachable tube; a lamp secured adjacent thereto; a closure for the air-inlet to the refrigerator; and an outlet from said refrigerator.

4. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas or air with an unusual quantity thereof; of a refrigerator, a partition therein forming an upper and a lower chamber, hollow partitions within the lower chamber forming upper and lower compartments, flues or passages within the partitions of the compartments, a flue extending from the upper chamber to one of the lower compartments, an air-inlet to the upper chamber communicating with the outlet of the air-container, and an outlet from one of the upper compartments of the lower chamber.

5. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas or air with an unusual quantity thereof; of a refrigerator, a partition therein forming an upper and lower chamber, vertical and transverse partitions within the lower chamber forming communicating compartments, a pipe extending from the upper chamber to a point within one of the lower compartments, receptacles within the upper chamber and adapted to receive water or similar liquid, an air-inlet to said chamber communicating with the outlet of the air-container, and an outlet from one of the upper compartments of the lower chamber.

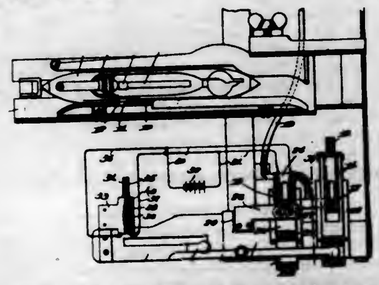
6. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas or air with an unusual quantity thereof; of a refrigerator, an insulating-partition therein forming an upper and a lower chamber, insulating material within the walls of the upper chamber, partitions within the lower chamber forming upper and lower communicating compartments, a pipe extending from the upper chamber to one of the lower compartments, receptacles within the upper chamber adapted to receive water or similar liquid, an air-inlet pipe detachably secured within an aperture within a wall of the upper chamber and communicating with the outlet of the air-container, a slide adapted to close said aperture when the pipe is removed, and an outlet from one of the upper compartments of the lower chamber.

7. The combination with a liquid-air container comprising two chambers divided by a hermetic partition, a cup supported by the partition and projecting into the lower sealed chamber, and an outlet from the container; of a refrigerator having an upper and lower chamber therein, receptacles within the upper chamber adapted to receive water or similar liquids, an inlet to said chamber communicating with the outlet of the container, a flue for conducting air from the upper to the lower chambers of the refrigerator, an outlet from the lower chamber, and means for indicating the quality of the air discharged into the refrigerator.

8. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas, or air with an unusual quantity thereof; of a refrigerator having an upper and a lower chamber therein, receptacles within the upper chamber adapted to receive water or similar liquids, a liquid-air receptacle within said chamber, a flue connecting the upper and lower chambers, an inlet-pipe to the upper chamber connected to said outlet of the container, a perforated stem to said pipe, a burner located in close proximity to said stem, and an outlet from the refrigerator.

9. The combination with a liquid-air container having an outlet for the discharge of cold nitrogen gas, or air containing an unusual quantity thereof; of a refrigerator, a partition therein forming an upper and lower chamber, partitions within the lower chamber forming communicating compartments, a flue connecting the upper chamber with one of the lower compartments, an outlet from the upper compartment, receptacles within the upper chamber adapted to receive water or similar liquid, a liquid-air receptacle within said chamber, an inlet-pipe within an aperture in the wall of said chamber at a point adjacent to the floor thereof, a slide adapted to close said aperture when the pipe is removed from position, a perforated stem to the pipe, a burner suspended from the pipe adjacent to the stem, and a flexible connection of a heat-insulating character between said pipe and the outlet of the container.

677,838. **FILLING-REPLENISHING MECHANISM FOR LOOMS.** HORACE W. WYMAN, Worcester, Mass. Filed Mar. 5, 1901. Serial No. 49,955. (No model.)



Claim.—1. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a normally-energized electromagnet, a shuttle adapted to contain a supply of filling, and means operative upon exhaustion of the filling in the shuttle to a predetermined extent to deënergize the electromagnet and thereby effect the actuation of the filling-replenishing mechanism.

2. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit containing a normally-energized electromagnet, a shuttle adapted to contain a supply of filling, and means operative upon exhaustion of the filling in the shuttle to a predetermined extent to weaken the current in said circuit sufficiently to deënergize the electromagnet and thereby effect the actuation of the filling-replenishing mechanism.

3. In a loom, filling-replenishing mechanism, means to determine

the time of its operation, including an electric circuit and a controller governed thereby, a shuttle adapted to contain a supply of filling, and means operative upon exhaustion of the filling in the shuttle to a predetermined extent to decrease the current in the circuit and thereby render the controller operative to effect the actuation of the filling-replenishing mechanism.

4. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, a shuttle adapted to contain a supply of filling, and means operative upon exhaustion of the filling in the shuttle to a predetermined extent to vary the current in said closed circuit and thereby effect the actuation of the filling-replenishing mechanism.

5. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, a shuttle adapted to contain a supply of filling, and means operative upon exhaustion of the filling in the shuttle to a predetermined extent to decrease the current in said closed circuit and thereby effect the actuation of the filling-replenishing mechanism.

6. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, and a normally open shunt of less resistance in electrical connection therewith, a shuttle adapted to contain a supply of filling, and means operative upon exhaustion of the filling in the shuttle to a predetermined extent to close the shunt and deflect current from the closed circuit, to thereby render the latter operative to effect the actuation of the filling-supplying mechanism.

7. In a loom, a closed electric circuit containing a normally-energized electromagnet, a shunt in electrical connection with said circuit and of less resistance, and a filling-carrier having a circuit-closer adapted to engage the shunt-terminals when said closer is exposed to contact therewith, to reduce the current in the closed circuit and deënergize the electromagnet.

8. In a loom, a closed electric circuit containing an electromagnet, a shuttle adapted to contain a supply of filling, and means to short-circuit the said electromagnet upon exhaustion of the filling in the shuttle to a predetermined extent.

9. In a loom, a closed electric circuit containing a normally active electromagnetic controller, a shuttle adapted to contain a supply of filling, and means, operative upon exhaustion of the filling in the shuttle to a predetermined extent, to short-circuit said controller and thereby render the same inactive.

10. In a loom, filling-replenishing mechanism, a shuttle having a filling-carrier provided with a shunt-closer, a closed electric circuit, and an electrically-connected shunt of less resistance, the terminals of the shunt being independent of the shuttle, contact of the shunt-closer with said terminals upon exhaustion of the filling in the shuttle to a predetermined extent shunting a portion of the current from the closed circuit to effect the actuation of the filling-replenishing mechanism.

11. In a loom, filling-replenishing mechanism, a shuttle having a filling-carrier provided with a shunt-closer, a closed electric circuit, a normally-energized electromagnet included therein, a shunt of less resistance than, and in electrical connection with, said circuit, and having its terminals adapted to contact with the shunt-closer upon predetermined exhaustion of the filling in the shuttle, to short-circuit and deënergize the electromagnet, and means operative upon such deënergizing of the latter to effect the actuation of the filling-replenishing mechanism.

12. In a loom, provided with filling-replenishing mechanism, means to determine the time of operation of said mechanism, including a closed electric circuit containing an energized electromagnet, a lay and means to move it, a shuttle provided with a filling-carrier having a contact member, two terminals located side by side and longitudinally movable, in shunt connection with said closed circuit, and means to maintain the terminals in position to engage the filling on the filling-carrier as the lay advances, exposure of the contact by exhaustion of the filling, to engage the terminals, short-circuiting the electromagnet and therethrough effecting the actuation of the filling-replenishing mechanism.

13. In a loom, filling-replenishing mechanism, means to determine the time of operation thereof, including a closed electric circuit containing a normally quiescent controller, a shuttle adapted to contain a supply of filling, and means, operative upon predetermined exhaustion of the filling in the shuttle, to short-circuit said controller and thereby render it active, to effect the actuation of the filling-replenishing mechanism.

14. In a loom, a shuttle having a filling-carrier provided with a contact member normally covered by filling, a bipart feeler to intermittingly engage the filling in the shuttle, a closed electric circuit, and means to electrically connect the parts of the feeler in shunt with the said circuit, exposure of the contact member to engage the bipart feeler, by exhaustion of the filling in the shuttle, diverting a portion of the current through the shunt, and mechanism operated by or through such diversion of the current to effect a change of filling.

15. In a loom, mechanism to effect a change of filling, means to determine the time of operation thereof, including an electrically-governed controller, a shuttle adapted to contain a supply of filling, and means, operative upon predetermined exhaustion of the filling in the shuttle, to short-circuit said controller and thereby effect the actuation of said filling-changing mechanism.

677,839. **ANCHOR.** JOHN N. YOUNG, Alameda, Cal. Filed Feb 16, 1901. Serial No. 47,591. (No model.)

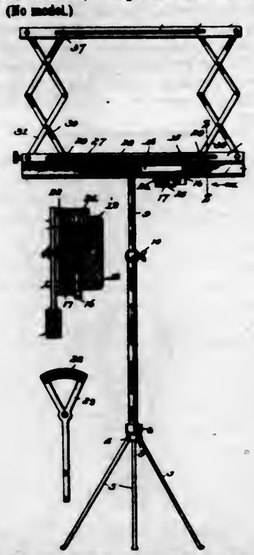


Claim.—1. In an anchor, the combination of a shank pointed at its lower end, a rim or disk of a diameter less than one-half the length of the shank near its upper end, and means for securing the cable to the upper end of the shank; substantially as described.

2. In an anchor, the combination of a shank pointed at its lower end and provided near its lower end with ribs or flukes extending along a portion of its length, a rim or disk of a diameter less than one-half the length of the shank near its upper end, and means for securing the cable to the upper end of the shank; substantially as described.

3. In an anchor, the combination of a shank pointed at its lower end, a rim or disk of a diameter less than one-half the length of the shank at the upper end of the shank, a recess in the upper face of the rim or disk and means for attaching the cable secured within the recess and adapted to lie within the recess when not in use; substantially as described.

677,840. **COMBINED MUSIC-STAND AND MUSIC-LEAF TURNER.** OTTO C. ERICK, Chicago, Ill. Filed Oct. 24, 1900. Serial No. 34,190. (No model.)



Claim.—1. The combination with a standard; of a base secured thereto, a supporting-strip secured to the base and having slots therein, spring-strips extending from the base and adapted to be bent upon themselves, a fastener secured to the free end of each strip and adapted to extend through the slots in the said supporting-strip, a bell-crank lever one arm of which is normally in the path of the strips and adapted to retain the same in position, and means for releasing strips one at a time from engagement with the lever, comprising a shaft on which the bell-crank lever is mounted; a gear-wheel on said shaft; a lever arranged parallel to said shaft; a rack on said lever meshing with said gear-wheel; and a retracting-spring for the shaft.

2. The combination with a standard; of a base secured thereto, spring-strips extending from the base and adapted to be bent upon themselves, a block detachably secured to the base, a shaft extending through the said block and provided at one of its ends with a bell-crank lever, the arms thereof lying in parallel planes and one of said arms adapted to lie in the path of the strips, a coil-spring within the said block inclosing the shaft, a gear secured to the shaft, a lever pivoted to the block, a rack

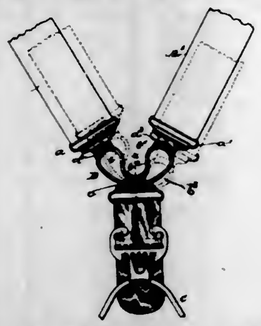
thereto engaging the gear, and a stop for limiting the movement of the rack-lever.

3. The combination with a standard; of a base thereto, a supporting-strip secured to the base and having slots therein, spring-strips extending from the base below the supporting-strip and adapted to be bent upon themselves, clips to the strips adapted to extend through the slots in the supporting-strip, means for holding said strips in bent position and for releasing the same one at a time, a longitudinally-extending slot in the supporting-strip, a lazy-tongs one arm of which is pivoted to said strip, a pin upon the remaining arm slidably mounted within the longitudinally-extending slot, a strip hinged to one of the arms at the opposite end of the tongs and having a longitudinally-extending slot therein, a pin upon the remaining arm of said end of the tongs slidably mounted within said slot, and means for adjusting the arms of the tongs from and toward each other.

4. The combination with a standard; of a base thereon, a supporting-strip secured to the base and having slots in the bottom thereof, spring-strips secured to the base below the supporting-strip and adapted to be bent upon themselves, means for holding said strips in such position and for releasing them one at a time, clips to the spring-strips adapted to extend through the slots in the supporting-strip, a longitudinally-extending slot within the supporting-strip, pins slidably mounted therein, a screw engaging the sliding pins and threaded in opposite directions from the center, lazy-tongs each of which is hinged to a sliding block and the supporting-strip, a slotted strip pivoted to one of the arms at the opposite end of each tongs, and a pin to the remaining arm at said ends slidably mounted within the slot in the strip.

5. The combination with a tubular standard; of a reduced end thereto, a sleeve inclosing said end, legs pivoted thereto, ends to the legs adapted to bear upon the reduced portion of the standard, a sliding sleeve upon the standard adapted to inclose said ends and prevent movement of the legs, a rod adjustably secured within the tubular standard, a squared end to the rod, a bracket detachably secured thereto, a base secured to the bracket, spring-strips extending from the base and adapted to be bent upon themselves, means for holding the strips in bent position and for releasing the same one at a time, fasteners upon the strips, a supporting-strip secured to the base and having slots therein adapted to receive the fasteners, lazy-tongs pivoted at opposite ends to the base and to a horizontally-extending strip respectively, and means for extending and retracting the tongs.

677,841. **SUSPENDERS.** ALFRED M. ZIEGLER, Boston, Mass. Filed July 9, 1900. Serial No. 22,866. (No model.)



Claim.—1. In suspenders, shoulder-straps, a back end and a rigid loop connecting said shoulder-straps and back end, said rigid loop comprising two end arcs to which the shoulder-straps are connected, and a central arc between the two end arcs, and a sliding connection between the said central arc and the back end, the curve and disposition of parts being such that the lever-arms of the end arcs with respect to the back end remain substantially the same throughout different positions of the loop.

2. In suspenders, shoulder-straps, a back end and a rigid loop connecting said shoulder-straps and back end, said rigid loop comprising two end arcs to which the shoulder-straps are connected, a central arc between the two end arcs, and a brace joining the two end arcs, and a sliding connection between the said central arc and the back end, the curve and disposition of parts being such that the lever-arms of the end arcs on either side of the back end remain substantially equal throughout different positions of the loop.

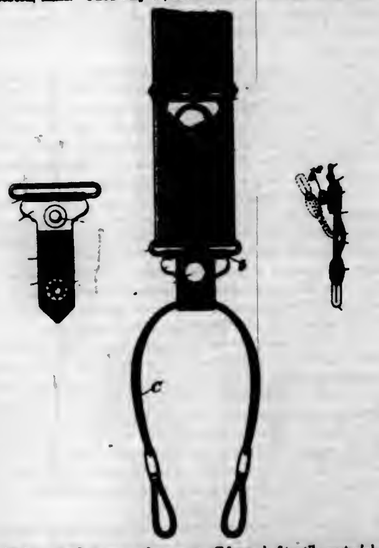
3. A suspender comprising in its construction shoulder-straps provided with hooks, and a back piece provided with an eye, and a rigid loop slidably connecting the hooks with the eye, said loop having two end arcs in engagement with the hooks and a central arc in sliding connection with the eye, the said central arc being curved and disposed with relation to the end arcs to maintain the lever-arms of the end arcs on opposite sides of the back piece substantially equal throughout different positions of the loop whereby the loop may readily adjust itself under slight varying strains on the shoulder-straps.

4. In suspenders, shoulder-straps, a back end and a rigid loop connecting said shoulder-straps and back end, said loop having at its end arcs which are loosely connected to the ends of the shoulder-straps, and in its central portion a curved back forming approximately a semicircle, the back end having an eye suspended on said semicircular curve, said eye having a broad bearing-surface which is curved to fit the said semicircular curve whereby unequal shoulder motion causes the loop to slide through the eye and swing bodily in an arc of a circle the center of which is the center of the semicircular arc.

5. In suspenders, shoulder-straps, a back end and a rigid loop uniting the shoulder-straps and back end, said loop presenting at each end two similar upwardly-curved portions, means for loosely connecting the same to the shoulder-straps, and a central downwardly-curved portion forming a semicircle upon which the eye on the back piece is supported, said eye having a broad bearing-surface and being fitted to a semicircular curved portion, the construction being such that unequal shoulder motion causes the loop to swing bodily through the eye on the back end in the arc of a circle whose center is the center of the semicircle.

6. In suspenders, shoulder-straps, a back end and a rigid loop, said loop having at its ends upwardly-curved arcs which are loosely connected to the ends of the shoulder-straps, and in its central portion a downwardly-curved arc forming approximately a semicircle the center of which is below the upper portions of the end arcs, the back end having an eye suspended on said semicircular portion and provided with a broad bearing-surface, said bearing-surface being curved to fit the semicircular portion of the loop, whereby unequal shoulder motions cause the loop to swing bodily in an arc whose center is the center of the semicircular portion.

677,842. **CAST-OFF FOR SUSPENDERS.** ALFRED M. ZIEGLER, Boston, Mass. Filed July 11, 1900. Serial No. 23,562. (No model.)



Claim.—1. In a suspender, a cast-off formed of textile material combined with an end piece embraced thereby, said cast-off having the surface thereof which engages the end piece filled with a smoothing or surfacing compound, whereby the wear between the parts is reduced.

2. In a suspender, a textile cast-off combined with a fibrous-covered end piece embraced thereby, one of said parts having the interstices between the fibers on the engaging surface thereof filled with a wax-like smoothing or surfacing compound, whereby the wear between said parts is reduced.

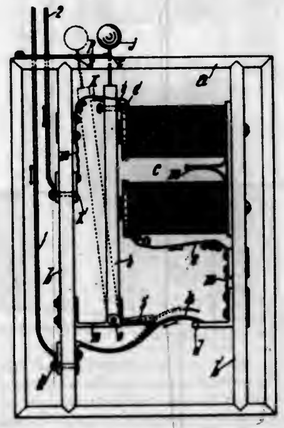
3. In a suspender, a cast-off composed of a woven webbing combined with a fibrous-covered end piece embraced thereby, said cast-off having the fibers on the surface thereof that is engaged by the end piece filled with a wax-like surfacing compound, such as paraffin, whereby the wear between said parts is reduced.

4. In a suspender, a cast-off composed of two plies of thickness of textile material, the surface of the inner ply being filled or saturated with a wax-like surfacing compound.

5. In a suspender, a cast-off composed of two plies of woven webbing superimposed one on the other, and fastening means to hold the cast-off in operative position, combined with a fibrous-covered end piece embraced by said cast-off, one of said parts having the surface of its engaging portion filled with a surfacing compound.

6. As an article of manufacture, a suspender of the kind described, containing a textile cast-off adapted to be bent upwardly to form a loop, and provided with means for detachably securing the ends of said cast-off together when in loop form, combined with an end piece embraced by said loop, said cast-off having a surfacing material incorporated into the body of the fabric at the point of engagement between the same and the end piece, whereby the life of the fabric is lengthened and ease of movement is increased.

677,843. **AUTOMATIC ELECTRIC CUT-OUT.** FREDERICK H. ROGERS, San Jacinto, Cal., assignor of one-half to Thomas T. Porteous, same place. Filed Aug. 14, 1900. Serial No. 26,897. (No model.)

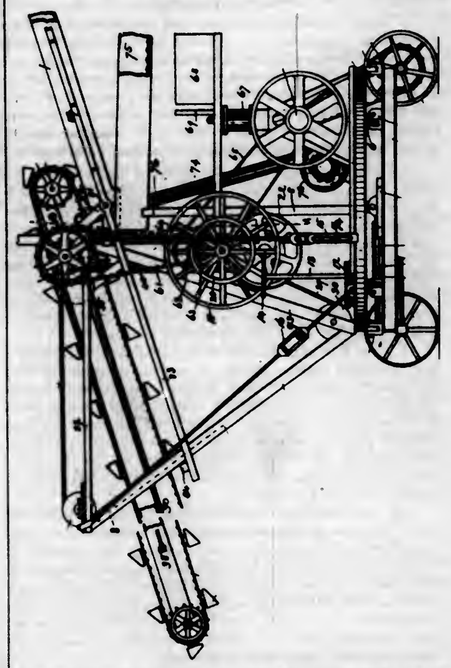


Claim.—1. An automatic electric cut-out comprising an electromagnet; a contact-point connected with one terminal of the coil of said magnet; the other terminal of said coil being connected with one side of the service-wire; a spring connected with the other side of the service-wire and arranged to be sprung into contact with said contact-point and to normally stand free from said contact-point; a pivoted armature for said magnet, arranged to engage the spring to hold the spring in contact with its contact-point, and normally held away from the magnet by said spring; and an insulated handle for moving the armature independently of the spring.

2. An automatic electric cut-out comprising an electromagnet; a contact-point connected with one terminal of the coil of said magnet; the other terminal of said coil being connected with one side of the service-wire; a spring connected with the other side of the service-wire and arranged to be sprung into contact with said contact-point and to normally stand free from said contact-point; a pivoted armature provided with a handle and having an arm projecting at right angles from the side of the main body of the armature which is presented toward the magnet, and arranged to engage the spring to throw it into contact with its contact-point when the armature is held by said magnet, and to be thrown by said spring to normally hold the armature away from said magnet, substantially as set forth.

3. In an electric cut-out the combination of an electromagnet; a contact-point connected with one terminal of the coil of said magnet; the other terminal of said coil being connected with one side of the service-wire; a spring connected with the other side of the service-wire and arranged to be sprung into contact with said contact-point and to normally stand free from said contact-point; a pivoted armature for said magnet, arranged to hold the spring in contact with its contact-point, and normally held away from the magnet by said spring; and a spring-operated catch to hold the armature within the effective field of the magnet and in position to close the circuit and being at sufficient distance from the magnet to allow the armature to be withdrawn from the catch to release the catch when the magnet is energized; the tendency of said spring being to withdraw the catch from the path of the armature when the armature is withdrawn from the catch.

677,844. **EXCAVATING AND GOLD-SAVING APPARATUS.** JOSEF C. DEN GRAADEN, San Francisco, Cal. Filed July 2, 1900. Serial No. 22,572. (No model.)



Claim.—1. In an excavating and gold-saving device, the combination of a truck, a turn-table revolubly mounted thereon, a sluice-box stationarily supported upon the truck, an excavator mounted upon the turn-table, said excavator comprising traveling buckets and a support therefor, and a chute also mounted on the turn-table, the buckets at the upper end of the excavator discharging into said chute and said chute discharging into said sluice-box, said support and chute vibrating parallel with each other about horizontal axes, substantially as described.

2. In an excavating and gold-saving device, the combination of a suitable base, a turn-table revolubly mounted thereon, a sluice-box stationarily supported upon the base, an excavator mounted upon the turn-table, said excavator comprising traveling buckets and a support therefor, and a chute also mounted on the turn-table, the buckets at the upper end of the excavator discharging into said chute and said chute discharging into said sluice-box, said support and chute vibrating parallel with each other about horizontal axes, substantially as described.

3. In an excavating and gold-saving device, the combination of a truck, a turn-table revolubly mounted thereon, an excavating device on said turn-table comprising traveling buckets and an inclined beam supporting said buckets, means for moving the beam in the direction of its length, a chute extending parallel with the beam below the upper portion thereof and a sluice-box into which said chute discharges, substantially as described.

4. In an excavating and gold-saving device, the combination of a suitable base, an excavating device comprising traveling buckets and an inclined beam supporting said buckets, means for moving the beam in the direction of its length, a chute extending parallel with the beam below the upper portion thereof and a sluice-box into which said chute discharges, substantially as described.

5. In an excavating and gold-saving device, the combination of a suitable base, a standard thereon, a roller on the upper end of said standard, a beam pivotally mounted on said rollers and freely rollable thereon, wheels carried at the opposite ends of said beam independently of said roller, a chain around said wheels, excavating-buckets carried by said chain, means for operating said chain, means for tilting the beam on the roller, and means for moving the beam longitudinally on the roller, substantially as described.

6. In an excavating and gold-saving device, the combination of a suitable base, a standard thereon, a pivot on the upper end of the standard, a beam vibrating on said pivot, said beam being also freely reciprocatable on said pivot, wheels carried at the opposite ends of said beam

at a fixed distance from each other, a chain around said wheels, excavating-buckets carried by said chain, means for operating said chain, means for tilting the beam on its pivot, and means for moving the beam longitudinally on its pivot, substantially as described.

7. In an excavating and gold-saving device, the combination of a suitable base, a standard thereon, a pivot on the upper end of the standard, a beam vibrating on said pivot, said beam being also freely reciprocatable on said pivot, wheels carried at the opposite ends of said beam in its vibratory and reciprocatory movement on said pivots, a chain around said wheels, excavating-buckets carried by said chain, means for operating said chain, means for tilting the beam on its pivot, and means for moving the beam longitudinally on its pivot, substantially as described.

8. In an excavating and gold-saving device, the combination of a suitable base, a standard thereon, a pivot on the upper end of the standard, a beam vibrating on said pivot, said beam being also freely reciprocatable on said pivot, idle wheels carried by said beam at its opposite ends at a fixed distance from each other in its vibratory and reciprocatory movement on said pivot, a chain around said wheels, a working wheel mounted coaxially with the pivot and operating the chain, excavating-buckets carried by said chain, means for rotating said working wheel, means for tilting the beam on its pivot, and means for moving the beam longitudinally on its pivot, substantially as described.

9. In an excavating and gold-saving device, the combination of a truck, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, two hand-wheels pivotally mounted on the standard having drums rotated by said shafts and cables around said drums operatively connected with the support, one to longitudinally reciprocate and the other to vertically vibrate the same, and a sluice-box for receiving the material excavated, substantially as described.

10. In an excavating and gold-saving device, the combination of a suitable base, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, two hand-wheels pivotally mounted on the standard having drums rotated by said shafts and cables around said drums operatively connected with the support, one to longitudinally reciprocate and the other to vertically vibrate the same, and a sluice-box for receiving the material excavated, substantially as described.

11. In an excavating device, the combination of a truck, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, two hand-wheels pivotally mounted on the standard having drums rotated by said shafts and a cable around said drums operatively connected with the support, one to longitudinally reciprocate and the other to vertically vibrate the same, substantially as described.

12. In an excavating device, the combination of a suitable base, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, two hand-wheels pivotally mounted on the standard having drums rotated by said shafts and a cable around said drums operatively connected with the support, one to longitudinally reciprocate and the other to vertically vibrate the same, substantially as described.

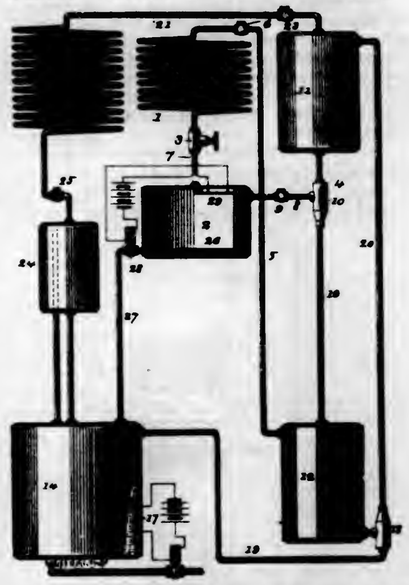
13. In an excavating and gold-saving device, the combination of a truck, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, an operative connection therefrom to the support, one to vibrate the support vertically and the other to reciprocate it longitudinally, and a sluice-box receiving the material excavated, substantially as described.

14. In an excavating and gold-saving device, the combination of a suitable base, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, and operative connections therefrom to the support, one to vibrate the support vertically and the other to reciprocate it longitudinally, and a sluice-box receiving the material excavated, substantially as described.

15. In an excavating device, the combination of a truck, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, and operative connections therefrom to the support, one to vibrate the support vertically and the other to reciprocate it longitudinally, substantially as described.

16. In an excavating device, the combination of a suitable base, a standard supported thereby, an excavator comprising traveling buckets and a support for the same, the latter being vertically vibratable and longitudinally reciprocatable with reference to the standard, coaxial shafts, and operative connections therefrom to the support, one to vibrate the support vertically and the other to reciprocate it longitudinally, substantially as described.

677,845. REFRIGERATION SYSTEM. CLYDE J. COLEMAN, Chicago, Ill., assignor, by mesne assignments, to Clarence W. Coleman, same place. Filed Jan. 12, 1900. Serial No. 1,199. (No model.)



Claim.—1. In a refrigeration system of the class herein described, and in which the admission of the expanding fluid to the cooling-chamber is substantially uniform and continuous, the combination with the storage-chamber and the cooling-chamber, of means for admitting thermal agency to the cooling-chamber without interruption in the admission of the cooling fluid to such chamber, substantially as set forth.

2. In a refrigeration system of the class herein described, and in which the admission of the expanding fluid to the cooling-chamber is substantially uniform and continuous, the combination with the storage-chamber and the cooling-chamber, of means for admitting thermal agency to the cooling-chamber without interruption in the admission of the cooling fluid to such chamber, and means connected with the cooling-chamber for automatically controlling the admission of such thermal agency, substantially as set forth.

3. In a refrigeration system in which the cooling effect operates continuously, the combination with the storage-chamber and the cooling-chamber, of means for admitting thermal agency to the cooling-chamber, the same comprising a heating-coil arranged in the lower portion of the cooling-chamber, substantially as set forth.

4. In a refrigeration system in which the cooling effect operates continuously, the combination with the storage-chamber and the cooling-chamber, of means for admitting thermal agency to the cooling-chamber the same comprising a heating-coil arranged in the lower portion of the cooling-chamber, and means connected to the cooling-chamber for automatically controlling the admission of such thermal agency, substantially as set forth.

5. In a refrigeration system of the class herein described and in which the admission of the expanding fluid to the cooling-chamber is substantially uniform and continuous, the combination with the storage-chamber and the cooling-chamber, of an injector arranged intermediate of said chambers, means for admitting a thermal agency to the cooling-chamber, and means for automatically controlling the admission of such thermal agency, substantially as set forth.

6. In a refrigeration system of the class herein described and in which the admission of the expanding fluid to the cooling-chamber is substantially uniform and continuous, the combination with the storage-chamber and the cooling-chamber, of an injector arranged intermediate of said chambers, means for admitting a thermal agency to the cooling-chamber, and means connected with the cooling-chamber for automatically controlling the admission of such thermal agency, substantially as set forth.

7. In a refrigeration system of the class herein described and in which the admission of the expanding fluid to the cooling-chamber is substantially uniform and continuous, the combination with the storage-chamber and the cooling-chamber, of an injector arranged intermediate of said chambers, means for admitting a thermal agency to the cooling-chamber, the same comprising a heating-coil arranged in the lower portion of the cooling-chamber, and means for automatically controlling the admission of such thermal agency, substantially as set forth.

8. In a refrigeration system of the class herein described and in which the admission of the expanding fluid to the cooling-chamber is substantially uniform and continuous, the combination with the storage-chamber and the cooling-chamber, of an injector arranged intermediate of said chambers, means for admitting a thermal agency to the cooling-chamber the same comprising a heating-coil arranged in the lower portion of the cooling-chamber, and means connected with the cooling-chamber for automatically controlling the admission of such thermal agency, substantially as set forth.

REISSUES.

11,917. PROCESS OF DUPLICATING PHONOGRAMS. GEORGE H. STEVENS, Toledo, Ohio. Filed Oct. 11, 1900. Serial No. 32,738. Original No. 650,431, dated May 29, 1900.



Claim.—1. The improvement in the process of forming a duplicate cylindrical phonogram of plastic material from an electrotype-matrix, which consists in introducing into the plastic cylinder an expansible backing of solid material, and then expanding said last-mentioned cylinder.

2. The improvement in the process of forming a duplicate cylindrical phonogram of plastic material from an electrotype-matrix, which consists in introducing into the plastic cylinder an expansible backing of solid material, then excluding moisture from the matrix and its contents, and then subjecting the backing of solid material to internal hydrostatic pressure.

3. The method or process of duplicating cylindrical phonograms which consists in forming a seamless electrotype matrix or mold from the phonogram to be duplicated, then introducing into said matrix a flexible blank cylinder of hard, tough material having a solid backing separable therefrom, then excluding moisture from the face of the matrix, the blank and its backing, and then applying hydrostatic pressure to the interior of the blank and its backing, substantially as described.

4. The method or process of duplicating cylindrical phonograms which consists in forming a seamless electrotype matrix or mold from the phonogram to be duplicated, then introducing into said matrix a hollow, blank cylinder having a separable solid backing, and then applying hydrostatic pressure to the interior of said backing, substantially as described.

5. The method or process of duplicating cylindrical phonograms which consists in forming an electrotype seamless matrix from the phonogram to be duplicated, then introducing into said matrix a blank of hard, tough, flexible substance having a separable solid backing, then applying hydrostatic pressure to the interior of the blank and its backing, and then separating the matrix, the phonogram thus produced, and its backing, substantially as described.

6. The method or process of duplicating cylindrical phonograms which consists, first, in forming an electrotype, seamless matrix or mold from the phonogram to be duplicated; second, introducing into said matrix a thin flexible blank cylinder having a suitable backing of solid material; third, excluding moisture from the face of the matrix and the blank; fourth, applying hydrostatic pressure to the interior of the blank and its backing, and, fifth, separating the matrix, the phonogram thus formed and its backing, substantially as described.

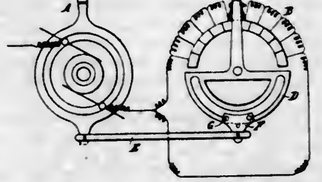
7. The method or process of duplicating a cylindrical phonogram which consists in forming a hollow cylindrical matrix or mold having the reverse record upon its interior surface, introducing into said matrix a hollow blank cylinder of a substance that may be molded by hydraulic pressure, excluding the access of water to the contiguous surfaces of said matrix and said blank, while permitting the access of the water to the interior of the inner cylinder, placing said matrix and blank into the chamber of a hydraulic gun, and increasing the hydraulic pressure in said chamber, and finally separating the newly-impressed record-cylinder from the matrix, substantially as described.

8. The method or process of duplicating a cylindrical phonogram which consists in forming a hollow cylindrical matrix or mold having the reverse record upon its interior surface, introducing into said matrix a hollow, blank cylinder of a material that may be molded by hydraulic pressure inclosing the walls of said matrix and blank in a flexible annular envelop impervious to water, concentric with said cylinders, placing said matrix and blank so inclosed into the chamber of a hydraulic gun, and increasing the pressure in said chamber, and finally separating the newly-impressed record-cylinder from the matrix, substantially as described.

9. The method or process of duplicating a cylindrical phonogram which consists in forming a cylindrical matrix or mold having the reverse record upon its interior surface, introducing into said matrix a blank cylinder of a material that may be molded by hydraulic pressure, passing a thin, flexible tube impervious to the fluid used, through said cylinders and doubling it back over the ends thereof until the ends of said tube overlap, placing said matrix and blank so inclosed into the chamber of a hydraulic gun, and increasing the pressure in said chamber, substantially as described.

10. The method or process of duplicating a cylindrical phonogram which consists in forming a cylindrical matrix or mold having the reverse record upon its interior surface, introducing into said matrix a blank cylinder of a material that may be molded by hydraulic pressure, passing a thin rubber tube through said cylinder and doubling it back over the ends thereof until the ends of said rubber tube overlap, placing said matrix and blank so inclosed into the chamber of a hydraulic gun and increasing the pressure in said chamber, substantially as described.

11,918. ELECTRIC-MOTOR REGULATOR. WALTER H. KNIGHT, New York, N. Y., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed June 7, 1901. Serial No. 63,667. Original No. 428,169, dated May 20, 1890.



Claim.—1. In an electric-motor controller of the type in which separate levers are employed for regulating and reversing, the combination, with said levers, of a lock or stop and an engaging flange arranged to lock the reverser except in a predetermined position of the regulator.

2. In an electric-motor controller of the type in which separate levers are employed for regulating and reversing, the combination, with the regulating-shaft, of a flange thereon, and a controlling connection from the reverser bearing on the said flange and freeing the reverser only when the flange is in a position corresponding to that at which substantially no current is passing through the motor.

3. In an electric-motor controller of the type in which separate levers are employed for regulating and reversing, the combination, with said levers, of a lock or stop and an engaging flange, said lock or stop being operated by the reversing device and acting to lock the regulator against movement except when the reversing device is in a predetermined position.

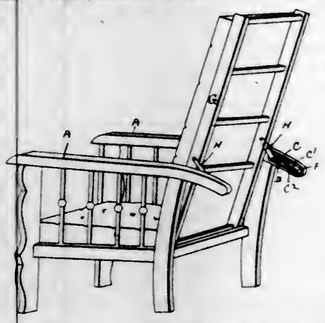
4. In an electric-motor controller of the type in which separate levers are employed for regulating and reversing, the combination, with said levers, of a lock or stop and an engaging flange, said lock or stop being arranged to lock the reversing device, except when substantially no current is passing through the motor and to lock the regulator when the reversing device is at a neutral position.

5. The combination, with an electric motor on a constant-potential circuit, of a reversing-lever therefor, a regulating-lever, a flanged segment on the regulating-lever, a pivoted block having stops engaging with the flange of the segment, and a connection therefrom to the reversing-lever, substantially as described.

6. In an electric-motor controller of the type in which separate levers are employed for regulating and reversing, the combination, with a

flange on the regulator-shaft, of an intermediate movable piece controlling the reversing-lever and controlled by said flange.

11,919. ADJUSTABLE SUPPORT FOR CHAIR-BACKS. JOSEPH LOFTUS, New Haven, Conn. Filed Apr. 15, 1901. Serial No. 56,004. Original No. 668,331, dated Feb. 19, 1901.



Claim.—1. The herein-described support comprising a chamber, a rack of less area than the area of the said chamber and pivotally mounted therein near one end so as to leave a space around it, substantially as described.

2. The herein-described support, comprising a chamber, a rack of less area than the area of the said chamber and pivotally mounted therein near one end and so as to leave a space around it, the outer end of said rack pointed and normally resting upon the bottom of the chamber, substantially as described.

3. The combination with a frame and a swinging back, of a chamber carried by one of these parts and a finger carried by the other part, said finger extending into said chamber, and a rack of less area than the area of the chamber and pivotally mounted therein near one end, and adapted to be engaged by the said finger whereby the finger may be held by the rack or allowed to pass beneath it, substantially as described.

4. The combination with a framework comprising a fixed and a hinged member, of a finger pivotally connected with said hinged member, and a support attached to said fixed member, said support consisting of a fixed track and a tongue pivoted at its forward end above the forward end of said fixed track with its free end normally resting against said fixed track, said pivoted tongue having a pointed free end and notches on its upper side, substantially as described.

5. The combination in an adjustable support, as described, of a flange C^2, a tongue D pivoted at its forward end above said flange and having notches F in its upper side and having a rear pointed end F normally resting against said flange, and a pivoted finger adapted to engage said notches, substantially as described.

11,920. DENTAL ENGINE. OSCAR H. PIEPER and ALPHONSE F. PIEPER, Rochester, N. Y. Filed Oct. 17, 1896. Serial No. 608,814. Original No. 562,742, dated June 23, 1896.

Claim.—1. In a dental apparatus, the combination of an implement-operating motor having an axis, a frame in which the axis is adjustably supported, a counterweighted cable on which the frame is suspended so as to be vertically adjustable, and means for holding the motor in any position to which it may be adjusted about its axis, substantially as described.

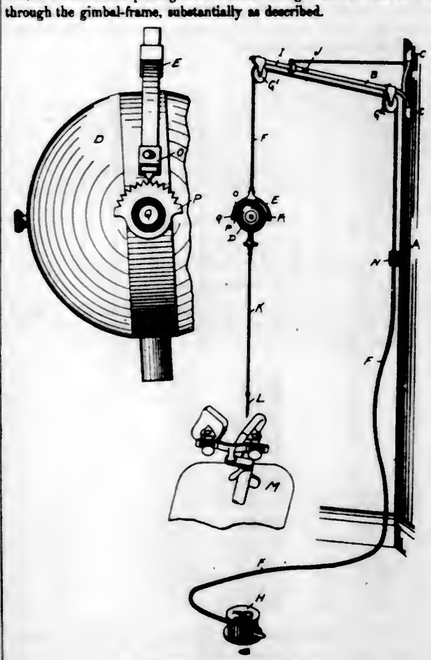
2. In a dental apparatus, the combination of the motor, the gimbal-frame in which it is supported, the suspending rope or cable attached to the gimbal-frame, the movable bracket having pulleys for the said rope or cable, a counterweight on the rope, substantially as described.

3. In a dental apparatus, a suspended motor, a gimbal-frame holding the same, to permit it to be adjustable about its own axis, and a latch or detent to hold the motor in the various positions to which it may be adjusted together with means for engaging the latch or detent, substantially as described.

4. In a dental apparatus, the combination of an implement-operating motor having a horizontal axis, a gimbal-frame supporting it, a rope or cable attached to the said frame, a notched sector on the motor, and a sliding detent on the frame that engages the sector, substantially as described.

5. In a dental apparatus, the combination with the implement-operating electric motor having a horizontal axis, the gimbal-frame in which said motor is pivoted on its axis, and a single, vertically-extending suspending-cable attached to the center of the frame, substantially as described.

6. In a dental apparatus, the combination with the implement-operating electric motor, having the horizontal trunnions or axes, the gimbal frame or yoke E in which said axes are pivoted, and the suspending-cable attached centrally to the frame, and containing the electric conductors, said conductors passing to the motor through the axes thereof and through the gimbal-frame, substantially as described.



DESIGNS.

34,701. BADGE OR SIMILAR ARTICLE. WILLIAM L. PANKOFF, New Haven, Conn. Filed May 15, 1901. Serial No. 60,410. Term of patent 3½ years.



Claim.—The design for a badge or similar article, as herein shown and described.

34,702. BADGE. LOUIS SICKLES, Philadelphia, Pa. Filed May 11, 1901. Serial No. 59,873. Term of patent 7 years.



Claim.—The design for a badge, substantially as herein shown and described.

84,708. FRAME FOR BROOCHES OR PENDANTS. JOHN HENRY THEBERATH, Vallsburg, N. J., assignor to Bippart, Griscom & Osborn, Newark, N. J. Filed Apr. 26, 1901. Serial No. 57,507. Term of patent 3½ years.



Claim.—The design for a frame for a brooch or pendant, substantially as shown and described.

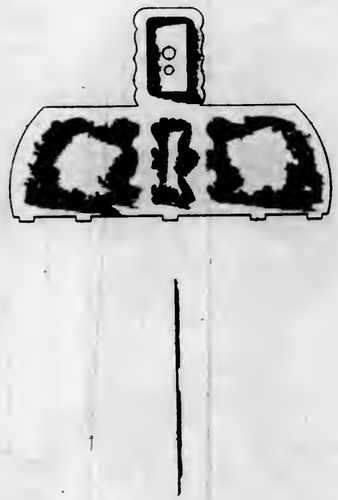
84,704. WITHDRAWN.

84,705. CANE OR UMBRELLA RING. DAVID ROSS, Lancaster, Pa. Filed June 5, 1901. Serial No. 63,318. Term of patent 7 years.



Claim.—The design for a cane or umbrella ring, substantially as shown and described.

84,706. BLANK FOR SCALE FRAMES OR BOXES. WILLIAM H. PELOUBE, Chicago, Ill. Filed Nov. 30, 1900. Serial No. 38,276. Term of patent 14 years.



Claim.—The design for a blank for a scale frame or box substantially as herein shown and described.

84,707. CASE FOR COIN-CONTROLLED WEIGHING-MACHINES. EDGAR H. COOK, Brooklyn, N. Y. Filed June 6, 1901. Serial No. 63,476. Term of patent 14 years.



Claim.—The design for a case for a coin-controlled weighing-machine, substantially as shown and described.

84,708. NASAL CUP. WILLIAM JAMES EVANS, New York, N. Y., assignor to McKesson & Robbins, same place. Filed May 23, 1901. Serial No. 63,282. Term of patent 14 years.



Claim.—The design for a nasal cup, substantially as shown and described.

84,709. SHAVING-CUP. JAMES V. REED, Yonkers, N. Y. Filed Feb. 2, 1901. Serial No. 45,787. Term of patent 14 years.



Claim.—The design for a shaving-cup as herein shown and described.

34,710. CUP. ANDREW C. BOSSELMAN, New York, N. Y. Filed May 31, 1901. Serial No. 62,670. Term of patent 3½ years.



Claim.—The design for a cup, as herein shown and described.

34,711. PLATE. GEORGE R. WEST, Wilkinsburg, Pa. Filed June 1, 1901. Serial No. 62,813. Term of patent 3½ years.



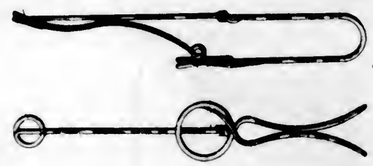
Claim.—The design for a plate, as herein shown and described.

34,712. BOTTLE. HOWARD C. HEISS, Pittsburg, Pa. Filed Apr. 10, 1901. Serial No. 55,256. Term of patent 14 years.



Claim.—The design for a bottle, as herein shown and described.

34,713. CLOTHES-PIN. OSCAR H. GREENE, Redbluff, Cal. Filed June 3, 1901. Serial No. 63,041. Term of patent 14 years.



Claim.—The design for a clothes-pin, as herein shown and described.

34,714. WINDOW-SHADE FIXTURE. CHARLES F. BARNETT, Allegheny, Pa. Filed Apr. 26, 1901. Serial No. 57,636. Term of patent 14 years.



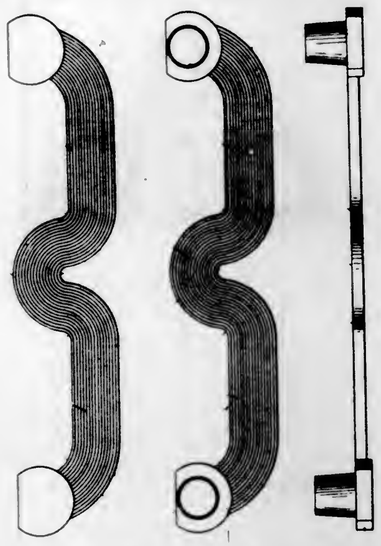
Claim.—The design for a window-shade fixture, substantially as herein shown and described.

34,715. BARBED FENCE-WIRE. DATUS C. SMITH, New York, N. Y. Filed May 15, 1901. Serial No. 60,403. Term of patent 14 years.



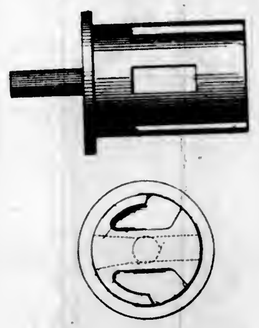
Claim.—The design for a barbed fence-wire, substantially as herein shown and described.

34,716. RAIL-BOND. AXEL H. ENGLUND, Philadelphia, Pa. Filed Mar. 23, 1901. Serial No. 52,656. Term of patent 14 years.



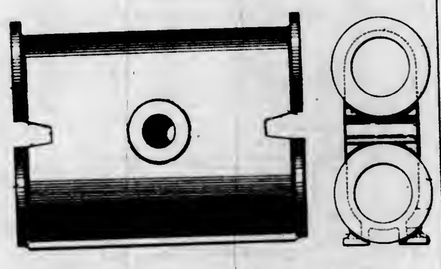
Claim.—The design for a rail-bond, substantially as herein shown and described.

34,717. VALVE FOR GOVERNORS. LYMAN O. GOODWIN, North Andover, Mass., assignor to himself and George L. Wright, same place. Filed Feb. 7, 1901. Serial No. 46,443. Term of patent 14 years.



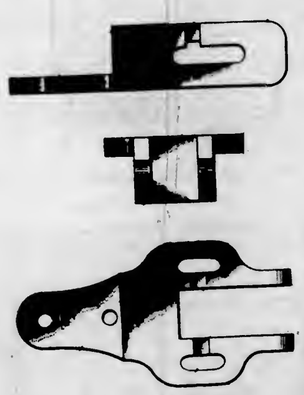
Claim.—The design for a valve for governors as herein shown and described.

34,718. CYLINDER FOR GOVERNORS. LYMAN O. GOODWIN, North Andover, Mass., assignor to himself and George L. Wright, same place. Filed Feb. 7, 1901. Serial No. 46,444. Term of patent 14 years.



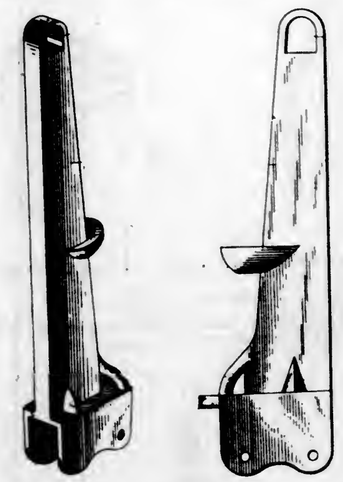
Claim.—The design for a cylinder for governors as herein shown and described.

34,719. THILL-COUPLING PLATE. JAMES L. KESL and JOHN GARTHE, Northport, Mich. Filed Apr. 19, 1901. Serial No. 56,067. Term of patent 3½ years.



Claim.—The design for a thill-coupling plate herein shown and described.

34,720. WAGON-STAKE. GEORGE PAUL, Hudson, Wis. Filed Apr. 11, 1901. Serial No. 55,496. Term of patent 14 years.



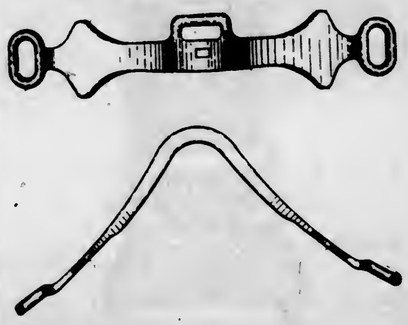
Claim.—The design for a wagon-stake, as herein shown and described.

34,721. METAL BEAM. NATHAN H. DAVIS, Philadelphia, Pa. Filed May 13, 1901. Serial No. 60,128. Term of patent 14 years.



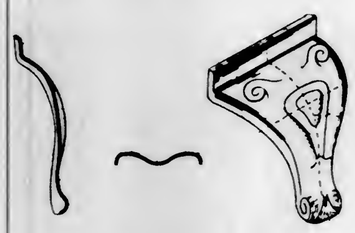
Claim.—The design for a metal beam as herein shown and described.

34,722. SADDLETREE. RICHARD G. DAVIS, Lawrence, Mass. Filed May 23, 1901. Serial No. 61,462. Term of patent 14 years.



Claim.—The design for a saddletree, as herein shown and described.

84,723. GAS-STOVE LEG. HARRY PRESCOTT SIMPSON, Pittsburg, Pa. Filed Feb. 20, 1901. Serial No. 48,199. Term of patent 7 years.



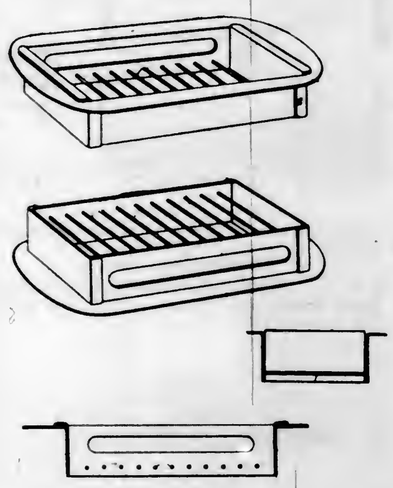
Claim.—The design for a gas-stove leg, substantially as shown and described.

84,724. STOVE. GEORGE THOMPSON, Vincennes, Ind. Filed May 7, 1900. Serial No. 560,635. Term of patent 7 years.



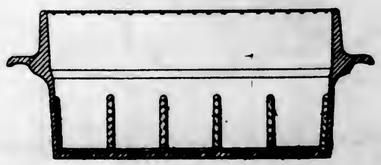
Claim.—The design for a stove, substantially as shown and described.

84,725. BROILER. FRED M. HARRINGTON, Woodsport, N. Y. Filed Mar. 5, 1901. Serial No. 49,973. Term of patent 7 years.

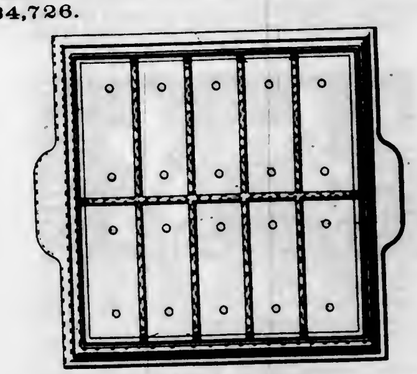


Claim.—The design for a broiler as herein shown and described.

84,726. CHEESE-MOLD. NICHOLAS SIMON, Neenah, Wis. Filed May 27, 1901. Serial No. 62,170. Term of patent 14 years.

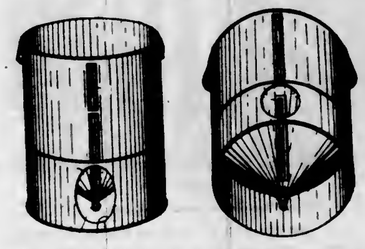


84,726.



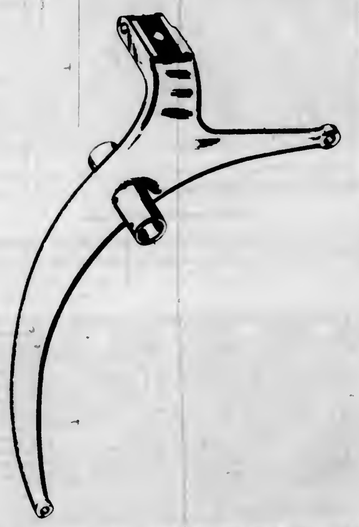
Claim.—The design for a cheese-mold as herein shown and described.

84,727. CREAM-SEPARATOR. PERRY C. SMITH, Indianapolis, Ind. Filed May 16, 1901. Serial No. 60,618. Term of patent 7 years.



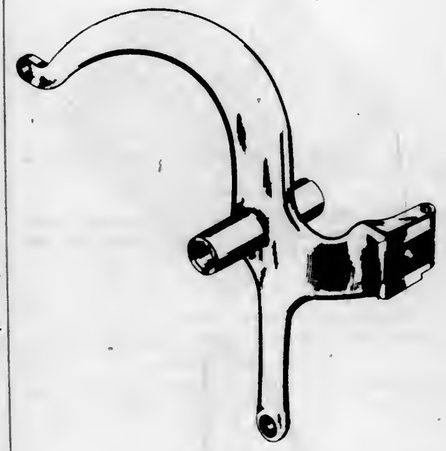
Claim.—The design for a cream-separator, substantially as herein shown and described.

84,728. SEWING-MACHINE NEEDLE-LEVER. RUSSEL G. WOODWARD, Waukegan, Ill., assignor to Union Special Sewing Machine Co., Chicago, Ill. Filed June 6, 1901. Serial No. 62,465. Term of patent 14 years.



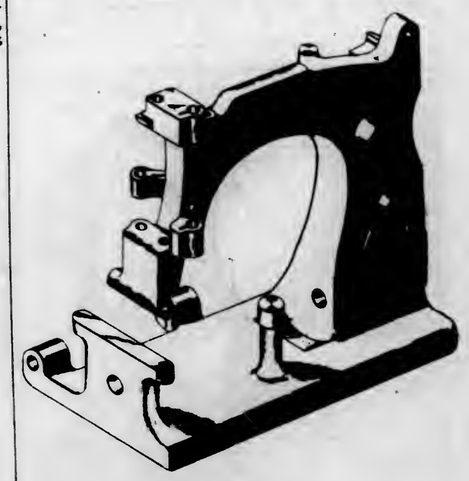
Claim.—The design for a sewing-machine needle-lever; substantially as shown and described.

84,729. SEWING-MACHINE NEEDLE-LEVER. RUSSEL G. WOODWARD, Waukegan, Ill., assignor to Union Special Sewing Machine Co., Chicago, Ill. Filed June 4, 1901. Serial No. 63,170. Term of patent 14 years.



Claim.—The design for a sewing-machine needle-lever; substantially as shown and described.

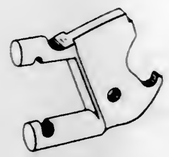
84,730. SEWING-MACHINE FRAME. RUSSEL G. WOODWARD, Waukegan, Ill., assignor to Union Special Sewing Machine Co., Chicago, Ill. Filed June 6, 1901. Serial No. 63,466. Term of patent 14 years.



Claim.—The design for a sewing-machine frame; substantially as shown and described.

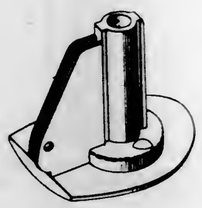
84,731. HIGH MEMBER FOR LASTS. JONATHAN T. BROWN, Marblehead, Mass., assignor to Oliver A. Miller, Brockton, Mass. Filed May 20, 1901. Serial No. 62,490. Term of patent 14 years.

34,731.



Claim.—The design for a hinge member for lasts, substantially as shown and described.

34,732. HINGE MEMBER FOR LASTS. JONATHAN T. BROWN, Marblehead, Mass., assignor to Oliver A. Miller, Brockton, Mass. Filed May 31, 1901. Serial No. 62,673. Term of patent 14 years.



Claim.—The design for a hinge member for lasts, substantially as shown and described.

34,733. BOOT OR SHOE. CHARLES F. MAGUIRE, Haverhill, Mass. Filed May 20, 1901. Serial No. 61,199. Term of patent 7 years.



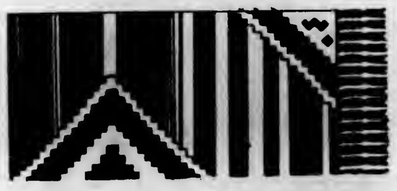
Claim.—The design for a boot substantially as herein shown and described.

34,734. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,470. Term of patent 7 years.



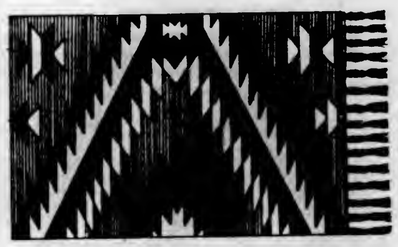
Claim.—The design for a woven fabric, substantially as described and as shown in the accompanying drawing.

34,735. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,471. Term of patent 7 years.



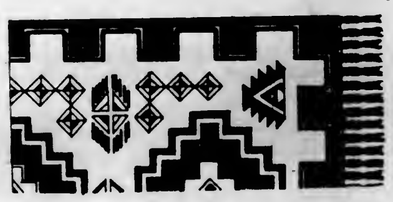
Claim.—The design for a woven fabric, substantially as described and as shown in the accompanying drawing.

34,736. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,472. Term of patent 7 years.



Claim.—The design for a woven fabric, substantially as described and as shown in the accompanying drawing.

34,737. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,473. Term of patent 7 years.



Claim.—The design for a woven fabric, substantially as described and as shown in the accompanying drawing.

34,738. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,474. Term of patent 7 years.



Claim.—The design for a woven fabric, substantially as described and as shown in the accompanying drawing.

34,739. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,475. Term of patent 7 years.



Claim.—The design for a woven fabric, substantially as described and as shown in the accompanying drawing.

34,740. RUG. ADOLPH PETSOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place, copartners trading as John Bromley & Sons. Filed June 6, 1901. Serial No. 63,810. Term of patent 3½ years.



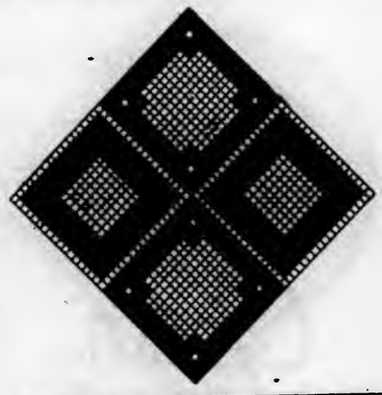
Claim.—The design for a rug; substantially as shown and described.

34,741. RUG. ADOLPH PETSOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place, copartners trading as John Bromley & Sons. Filed June 6, 1901. Serial No. 63,811. Term of patent 3½ years.



Claim.—The design for a rug, substantially as shown and described.

34,742. TILING. ALFRED PLANT, Keyport, N. J. Filed May 18, 1901. Serial No. 60,947. Term of patent 7 years.



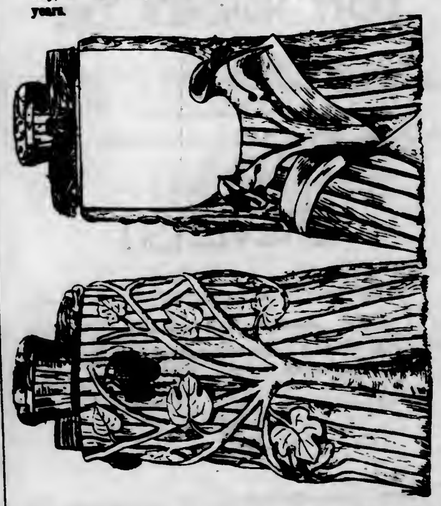
Claim.—The design for tiling, substantially as herein shown and described.

34,743. TOMBSTONE OR MONUMENT. HENRY C. HODGE, Farmer City, Ill. Filed May 10, 1900. Serial No. 16,257. Term of patent 7 years.



Claim.—The design for a tombstone or monument herein shown and described.

34,744. TOMBSTONE OR MONUMENT. HENRY C. HODGE, Farmer City, Ill. Filed May 23, 1901. Serial No. 61,635. Term of patent 7 years.



Claim.—The design for a monument or tombstone shown and described.

TRADE-MARKS

REGISTERED JULY 2, 1901.

36,661. OPTICAL APPARATUS AND DEVICES. LOUIS B. HILBORN, Newark, N. J. Filed June 5, 1901.

Optistry

Essential feature.—The word "OPTISTRY." Used since December, 1900.

36,662. DETACHABLE CHAIN-LINKS. KING & HAMILTON CO., Ottawa, Ill. Filed May 17, 1901.

5

Essential feature.—The numeral "5." Used since May 31, 1900.

36,663. VEGETABLE-IVORY TROUSERS-BUTTONS. NEWELL BROS. MANUFACTURING COMPANY, Springfield, Mass., New York, N. Y.; and Chicago, Ill. Filed June 6, 1901.

EIGHT HUNDRED TWO

Essential feature.—The words "EIGHT HUNDRED TWO." Used since October, 1892.

36,664. CERTAIN NAMED WEARING-APPAREL. LOUIS BAER, New York, N. Y. Filed June 4, 1901.

UREVERSIT

Essential feature.—The word "URERVERSIT." Used since May 28, 1901.

36,665. CERTAIN NAMED WEARING-APPAREL. B. LOWENSTEIN & BROS., Memphis, Tenn. Filed Apr. 20, 1901.



Essential feature.—The representation of a platform-scale. Used since January 1, 1900.

36,666. CERTAIN NAMED FABRICS. GRINNELL WILLIS, New York, N. Y. Filed Apr. 18, 1901.



Essential feature.—The representation of a river scene with an Indian paddling a canoe. Used since July 1, 1890.

36,667. CERTAIN NAMED FABRICS. GRINNELL WILLIS, New York, N. Y. Filed Apr. 18, 1901.



Essential feature.—The representation of a diamond-shaped figure having at the center a heraldic device composed of a shield divided horizontally into two panels, the lower one of which panels bears on a red field a series of white diagonal bars bordered with black lines and the upper one of which panels bears the representation of a ship, the shield being surmounted by heraldic ermine on a bar. Used since July 1, 1890.

36,668. CERTAIN NAMED TOILET PREPARATIONS AND SOAPS. GEORGE CRABBE STEVENS, New York, N. Y. Filed Apr. 23, 1901.

ZODIPHRENT

Essential feature.—The word "ZODIPHRENT." Used since February, 1901.

36,669. PROPRIETARY MEDICINE. IRA L. BROWNING, Rich, W. Va. Filed June 3, 1901.

36,669.

C.Q.R.

Essential feature.—The letters "C. Q. R." Used since 1891.

36,670. PROPRIETARY MEDICINES. THE LIQUID OZONE CO., Chicago, Ill. Filed June 5, 1901.

LIQUOZONE

Essential feature.—The word "LIQUOZONE." Used since May 4, 1901.

36,671. COUGH REMEDIES. JEREMIAH S. DORSEY, Columbia, Mo. Filed May 1, 1901.



Essential feature.—The representation of a landscape together with a cannon, an elephant, and broken bottles. Used since 1879.

36,672. LIQUID ANESTHETIC. HECTOR J. BELL, St. Paul, Minn. Filed May 23, 1901.

SUP-RE-NOL

Essential feature.—The hyphenated word "SUP-RE-NOL." Used since December 1, 1900.

36,673. EYE-SALVES. HOWARD BROS., Buffalo, N. Y. Filed May 7, 1900.



Essential feature.—A plurality of circles, with the representation of an eye inclosed within the inner circle. Used since January 1, 1847.

36,674. TONIC. CLIFFORD CHEMICAL CO., Milwaukee, Wis. Filed May 14, 1901.

DE-NO-VO

Essential feature.—The hyphenated word "DE-NO-VO." Used since May 3, 1901.

36,675. LAGER-BEER, ALE, AND PORTER. HUDSON COUNTY CONSUMERS BREWING CO., West Hoboken, N. J. Filed May 10, 1901.



Essential feature.—Four leaves and a stem representing the conventional four-leaved clover within a narrow circle circumscribed by a wider circle and again circumscribed by a narrow circle. Used since September 1, 1900.

36,676. JAVA AND MOCHA COFFEE. WINSLOW, RAND & WATSON, Boston, Mass. Filed May 20, 1901.

HIGH LIFE

Essential feature.—The words "HIGH LIFE." Used since March 1, 1888.

36,677. COFFEE COMPOUND. JOHN CARNRICK, New York, N. Y. Filed June 5, 1901.

CAFFATINE

Essential feature.—The word "CAFFATINE." Used since June 1, 1901.

36,678. "A" SUGAR. THE AMERICAN SUGAR REFINING COMPANY, New York, N. Y. Filed June 5, 1901.

TRIUMPH

Essential feature.—The word "TRIUMPH." Used since June 1, 1900.

36,679. BUTTER. THE D. R. WOOD BUTTER CO., Elgin, Ill. Filed June 6, 1901.



Essential feature.—The letters "L" and "C" arranged in the form of a monogram. Used since January 1, 1899.

36,680. CERTAIN NAMED FOOD PRODUCTS. THE MATTIE MITCHELL CO., Cleveland, Ohio. Filed Sept. 1, 1900.



Essential feature.—A long narrow field with a central enlargement and projecting crotch. Used since 1885.

36,681. CANNED GOODS. STONE-ORDEAN-WELLS CO., Duluth, Minn. Filed May 17, 1901.



Essential feature.—The representation of the moon in the last quarter surrounding the face of an Indian in profile and an uplifted right hand and forearm and a tomahawk. Used since March 6, 1901.

36,682. CANNED GOODS. STONE-ORDEAN-WELLS CO., Duluth, Minn. Filed May 17, 1901.

Nokomis

Essential feature.—The word "NOKOMIS." Used since March 6, 1901.

36,683. COMPRESSED FOODS. THE AMERICAN COMPRESSED FOOD CO., Passaic, N. J. Filed Feb. 19, 1900.



Essential feature.—The representation of an eagle. Used since February, 1899.

36,684. COMPRESSED FOODS. THE AMERICAN COMPRESSED FOOD CO., Passaic, N. J. Filed Feb. 19, 1900.



Essential feature.—The representation of an eagle. Used since November 1, 1898.

36,685. CASTERS. HENRY H. BINGHAM, St. Louis, Mo. Filed Apr. 16, 1901.

36,685.

YULIKEM

Essential feature.—The word "YULIKEM." Used since March 10, 1901.

36,686. CERTAIN NAMED FIRE-KINDLERS. THOMAS D. BAUMER, Reading, Pa. Filed May 21, 1901.



Essential feature.—A cube with flaming top. Used since January, 1901.

36,687. CERTAIN NAMED COOPERAGE. JAMES H. HAMLIN & SON, Portland, Me. Filed June 3, 1901.



Essential feature.—The representation of a hand. Used since January, 1896.

36,688. COASTER-BRAKES. HENRY C. BERLAND, Reading, Pa. Filed Jan. 7, 1901.

Wyoma

Essential feature.—The word "WYOMA." Used since November, 1899.

36,689. RUSTIC FURNITURE. THE OLD HICKORY CHAIR CO., Martinsville, Ind. Filed May 18, 1901.

OLD HICKORY.



Essential feature.—The words "OLD HICKORY" and a bust portrait of Andrew Jackson. Used since June, 1880.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED JULY 2, 1901.

8,499.—*Title:* "THE KEYSTONE." (For Cigars.) JOHN M. DOWNS, Philadelphia, Pa. Filed June 11, 1901.

8,500.—*Title:* "SHAKESPEARE RYE." (For Whisky.) LEOPOLD BLUM, Brooklyn, N. Y. Filed June 5, 1901.

8,501.—*Title:* "KENTUCKY BELLE." (For Whisky.) WILSON P. STRADER, Lexington, Ky. Filed June 5, 1901.

8,502.—*Title:* "LITHIA-MALT." (For Malt Extracts.) ALBERT LIEBER, Indianapolis, Ind. Filed May 31, 1901.

8,503.—*Title:* "STRYX TONIC." (For a Hair-Tonic.) W. D. S. Co., Burton, Ohio. Filed June 11, 1901.

8,504.—*Title:* "EUCALEMO." (For a Toilet Preparation.) CHARLES W. LEFFINGWELL, Jr., Whittier, Cal. Filed June 10, 1901.

8,505.—*Title:* "HOOD'S FOOT FRIEND." (For a Powder.) HOOD CHEMICAL CO., Sparta, Ill. Filed June 6, 1901.

8,506.—*Title:* "E. B. F. HAYTH'S GREAT EGYPTIAN SALVE." (For Salves.) E. B. F. HAYTH, Milwaukee, Wis. Filed June 7, 1901.

7,507.—*Title:* "LIFE-SAVING CHOLERA CURE." (For a Medicine.) LOUISE V. FISCHER, Minneapolis, Minn. Filed June 6, 1901.

8,508.—*Title:* "THE PENNY COBBLER." (For a Leather-Dressing.) GEORGE M. PORT, Boston, Mass. Filed June 10, 1901.

8,509.—*Title:* "GOLD BAND SHOE POLISH." (For Shoe-Polish.) PHIL MCLAUGHLIN, Weymouth, Mass. Filed June 3, 1901.

8,510.—*Title:* "PRIMOS." (For Meats.) ALFRED VON COTZHAUSEN, Milwaukee, Wis. Filed June 10, 1901.

8,511.—*Title:* "EMPRESS KITCHEN SET." (For Kitchen-Cutlery.) BRIDGETON KNIFE CO., Bridgeton, R. I. Filed June 10, 1901.

8,512.—*Title:* "WHITE HOUSE KITCHEN SET." (For Kitchen-Cutlery.) BRIDGETON KNIFE CO., Bridgeton, R. I. Filed June 10, 1901.

PRINTS

REGISTERED JULY 2, 1901.

364.—*Title:* "LA FRANCE SHOE." (For Shoes.) WILLIAMS, CLARK & CO., Lynn, Mass. Filed June 8, 1901.

365.—*Title:* "CHANUT GANTERIE PARISIENNE." (For Gloves.) J. M. CHANUT & CO., New York, N. Y. Filed June 5, 1901.

366.—*Title:* "THE SINGER SEAM." (For Sewing-Machines.) THE SINGER MANUFACTURING CO., New York, N. Y. Filed May 24, 1901.

367.—*Title:* "BLOWIN HIS BAZOO." (For Harvesting Machinery.) MCCORMICK HARVESTING MACHINE COMPANY, Chicago, Ill. Filed June 8, 1901.

368.—*Title:* "MILLER." (For Paper-Hangers' Trestles.) HARRY M. LAY, Chicago, Ill. Filed June 3, 1901.

REVISION OF CLASSIFICATION.

Revision of Classification.

(ORDER No. 1,413.)

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE,
Washington, D. C., June 20, 1901.

The following changes in classification are hereby directed:

A new subclass is established in Division II, class 100, Presses:

Baling—
65. Traction-operated.

In Division V, class 11, Bookbinding, subclass 1, Albums, is abolished, the patents forming that class being placed in new class 40, Card, Picture, and Sign Exhibiting, to be established.

In Division XXXII, class 215, Bottles and Jars, subclass 7, Bottle-labels, is abolished, the patents forming that subclass being placed in subclass 4, Checks, labels, and tags, bottle, in new class 40, Card, Picture, and Sign Exhibiting, to be established.

In Division XXXV, class 40, Advertising, is abolished, and class 40, Card, Picture, and Sign Exhibiting, is established, with the following subclasses and definitions:

CLASS 40.—CARD, PICTURE, AND SIGN EXHIBITING.

107. Calendars—
122. Card-pockets.
109. Charactered-slide,
110. Character-markers,
117. Double reel and web,
118. Endless,
119. Hinged leaves,
108. Pencil attachments,
123. Printing arrangement,
111. Rotatable—
112. Clutch take-up,
113. Disk,
114. Single-axis—
115. Disk,
116. Single reel and web,
120. Stands,
121. Tear-off tablets.
124. Card-racks.
28. Changeable exhibitors—
29. Aerostatic,
41. Axle-operated—
42. Double reel and web,
43. Endless,
44. Rotatable,
106. Couplings,
60. Door-operated,
86. Double reel and web—
87. Clutch take-up—
88. Reversible-clutch,
95. Intergeared reels,
93. Reversing-gears—
94. Clutch take-up,
89. Spring-rewind—
91. Clutch let-off—
92. Obstacle-trip,
90. Clutch take-up,
52. Electrically-controlled—
53. Electromotor-operated,
54. Magneto-clutch let-off,
55. Magneto-clutch take-up,
56. Obstacle-controlled circuit-closers—
57. Electromotor-operated,
58. Magneto-clutch let-off,
59. Magneto-clutch take-up,
96. Endless—
99. Clutch take-up,
97. Hinged leaves,
98. Radial leaves,
37. Fluid-operated—
38. Double reel and web,
39. Rotatable—
40. Illuminated,
100. Folding web and reel—
101. Clutch take-up,
102. Hinged leaves—
103. Leaf-releasers,
104. Leaf-turners,
61. Inscription-covers—
62. Sliding,
63. Interchangeable plates—
64. Sliding,
Changeable exhibitors—
30. Motor-operated—
31. Double reel and web,
32. Endless,
33. Rotatable—
34. Disk,
35. Hinged leaves,
36. Shifters,
45. Obstacle-operated—
46. Double reel and web—
47. Clutch take-up,
48. Endless,
49. Rotatable,
50. Shifters,
51. Pendulum-operated,
67. Pivoted plates,
68. Rotatable—
69. Clutch take-up,
70. Disk—
71. Clutch take-up,
72. Hinged leaves—
73. Clutch take-up,
77. Illuminated,
76. Multiple-drum controllers,
74. Radially-movable leaves—
75. Clutch take-up,
78. Shifters—
79. Reciprocating,
80. Revolving,
81. Revolving pack-case,
82. Single reel and web—
83. Reel-cabinets—
84. Revolving,
85. Spring-rewind,
65. Sliding plates—
66. Bolt-operated,
105. Train-order holders.
2. Checks, labels, and tags—
3. Animal-markers,
4. Bottle,
5. Changeable-reading—
6. Baggage-checks,
7. Display-box labels,
8. Door-knob and drawer-pull,
20. Fasteners—
21. Band,
22. Barbed,
23. Clasp,
24. Pin-loop,
26. Spring-hook,
25. Spur,
9. Hat,
10. Holders—
11. Clip,
12. Cornice,
13. Hinged-clamp,
14. Hinged-clamp and spur,
15. Lock,
16. Slide,
17. Slide and detent—
18. Limited-movement,
19. Tubular,
27. Reinforced.
1. Exhibitors.
152. Picture-frames—
156. Card or picture retainers,
153. Cord or wire,
157. Cover-retainers,
154. Embossed, molded, rolled, or stamped,
155. Extensible, folding, or knockdown,
158. Mats, mounts, and backs—
159. Pocketed,
160. Relief-picture.
146. Picture stands and supports—
148. Frames,
147. Illuminators,
149. Single-blank—
150. Braces,
151. Wire.
125. Signs—
127. Aerostatic,
Signs—
126. Dummies,
136. Embossed, molded, rolled, or stamped,
128. Hanging,
130. Illuminated—
131. Lamp attachments,
132. Lamp-boxes—
133. Perforated-face,
134. Luminous-paint,
140. Interchangeable letters—
142. Fasteners—
143. Prong,
144. String,
141. Glass,
135. Multiple-layer,
129. Portable,
145. Post attachments,
137. Variable-reading,
138. Vibratory—
139. Motor-operated.

CLASS 40.—CARD, PICTURE, AND SIGN EXHIBITING.

DEFINITIONS.

Class.

This class includes patents for displaying information by means of printed or painted cards, calendars, pictures, labels, tags, or signs. Picture-frames and stands for supporting pictures are also included. Albums are included in subclasses Changeable exhibitors, hinged leaves; Changeable exhibitors, pivoted plates, and in Picture-frames, mats, mounts, and backs, pocketed. Such station-indicators as change the reading matter displayed are included under the several subclasses of Changeable exhibitors.

This class does not (except in Checks, labels, and tags, changeable-reading, and in Calendars) include such devices as select or point out one or more of several inscriptions, characters, or legends by means of a movable pointer. Such are found in class 116, SIGNALS, Indicators. Nor does it include devices for displaying articles of merchandise.

Subclasses.

1. EXHIBITORS. Miscellaneous devices for continuously or temporarily displaying cards, pictures, maps, and signs which are not properly classifiable in any of the following subclasses.

2. CHECKS, LABELS, AND TAGS. Checks, labels, and tags of a miscellaneous character designed to be attached to merchandise for the purpose of conveying some definite information concerning such merchandise.

3. CHECKS, LABELS, AND TAGS, ANIMAL-MARKERS. Identification devices designed to be attached to animals.

4. CHECKS, LABELS, AND TAGS, BOTTLE. Labels and tags specially designed and constructed for use in connection with bottles and which are not capable of general use in connection with other articles of merchandise.

5. CHECKS, LABELS, AND TAGS, CHANGEABLE-READING. Devices designed for attachment to articles of merchandise, in which one or more of several legends are exposed for display for such time as desired and afterward changed at will or in which one or more of several legends which are constantly displayed may be indicated as the ones disclosing the particular information to be imparted.
(Note.—To complete a search in this subclass, an examination should be made in class 116, SIGNALS, Indicators.)

6. CHECKS, LABELS, AND TAGS, CHANGEABLE-READING, BAGGAGE-CHECKS. Devices for temporary attachment to baggage for identification purposes or to designate the destination of the baggage, or for both purposes.

7. CHECKS, LABELS, AND TAGS, DISPLAY-BOX LABELS. Labels or tags which are permanently attached to display-boxes. They are usually attached to project from the inside of the box and are capable of being folded down out of the way of the lid of the box when it is closed.
(Note.—To complete the search in this subclass, an examination should be made in class 217, WOODEN RECEPTACLES, Closures, Hinged, Supports.)

8. CHECKS, LABELS, AND TAGS, DOOR-KNOB AND DRAWER-PULL. Door-knobs, drawer-pulls, and analogous devices specially designed for holding and exposing a card or label.

9. CHECKS, LABELS, AND TAGS, HAT. Labels and tags specially designed to be attached to hats to disclose the ownership thereof and which are not suitable for other uses.
(Note.—To complete a search in this subclass, an examination should be made in class 2, APPAREL, Head-Coverings, Hats.)

10. CHECKS, LABELS, AND TAGS, HOLDERS. Receptacles of miscellaneous construction for holding for display purposes checks, labels, and tags to protect them from loss or destruction while in ordinary use.

11. CHECKS, LABELS, AND TAGS, HOLDERS, CLIP. Card or label holders in which the card or label is supported in one or more slits in the upper end of the fastener. The fastener may be secured to the article by a similar slit in its lower end or by any other approved device.

12. CHECKS, LABELS, AND TAGS, HOLDERS, CORNICE. Racks designed for use in the interior of cars and omnibusses or in the room of a building at or near the junction of the roof or ceiling and the sides thereof for supporting and displaying advertising-cards.

13. CHECKS, LABELS, AND TAGS, HOLDERS, HINGED-CLAMP. Card or label holders provided with a hinged frame, a portion of which extends across or against the face of the inclosed card or label to prevent its accidental displacement.

14. CHECKS, LABELS, AND TAGS, HOLDERS, HINGED-CLAMP AND SPUR. Card and label holders comprising a hinged frame, a portion of which extends across or against the face of the inclosed card or label and is provided with one or more spurs or projections to impale the card or label and prevent it from being displaced.

15. CHECKS, LABELS, AND TAGS, HOLDERS, LOCK. Holders for checks or labels which comprise a lock for securing the check or label from displacement until released by the insertion of a proper key.

16. CHECKS, LABELS, AND TAGS, HOLDERS, SLIDE. Open-ended card or label holding display racks or pockets, the construction being such that the card or label is inserted edgewise into the rack or pocket.

17. CHECKS, LABELS, AND TAGS, HOLDERS, SLIDE AND DETENT. Tags and holders for cards or labels provided with a slideway to receive the card or label and a projection or detent to prevent the card or label from accidental slipping out of the slideway.

18. CHECKS, LABELS, AND TAGS, HOLDERS, SLIDE AND DETENT, LIMITED-MOVEMENT. Cards or tags secured within pockets or retainers, so that they may be partly withdrawn therefrom for inspection, but which cannot be entirely withdrawn therefrom, being checked in their movement by a peculiar retaining device.

19. CHECKS, LABELS, AND TAGS, HOLDERS, TUBULAR. Tubular receptacles of any cross-section designed and constructed for containing and preserving identification cards, checks, or labels. These receptacles may be provided with an attaching device for securing the holder to an article.

20. CHECKS, LABELS, AND TAGS, FASTENERS. Miscellaneous devices designed for connecting and securing tags to articles.

21. CHECKS, LABELS, AND TAGS, FASTENERS, BAND. Tags provided with a fastener for securing them to articles, which fastener consists of a band adapted to be secured at its ends around a portion of the article. This subclass also includes devices peculiarly adapted for the attachment of a tag to a band which is secured around the article.

22. CHECKS, LABELS, AND TAGS, FASTENERS, BARBED. Tags in which the fastening device is provided with an enlarged head or barb for preventing the accidental removal of the fastening device from the article to which it is affixed.

23. CHECKS, LABELS, AND TAGS, FASTENERS, CLASP. Tags provided with fastening devices for securing them to articles by means of arms or branches which merely embrace or inclose the article or a portion thereof.
(Note.—To complete a search in this subclass, an examination should be made in this class, subclass 11, Checks, labels, and tags, holders, clip.)

24. CHECKS, LABELS, AND TAGS, FASTENERS, PIN-LOOP. Tags comprising fasteners formed of strips of wire or sheet metal adapted to be looped through or otherwise attached to the tag and having one or both ends of the strip free and pointed to penetrate the goods to which the tags are to be attached. The fastener may be twisted about the goods to prevent accidental displacement.

25. CHECKS, LABELS, AND TAGS, FASTENERS, SPUR. Tags provided with one or more separate integral pointed projections or spurs which are adapted to penetrate or pierce the article to which it is to be affixed. The spurs may be rigid and stiff, or flexible, so that they may be twisted or bent to prevent accidental withdrawal of the fastener.
(Note.—To complete a search in this subclass, an examination should be made in this class, subclass 11, Checks, labels, and tags, holders, clip.)

26. CHECKS, LABELS, AND TAGS, FASTENERS, SPRING-HOOK. Tags provided with snap-hook or buttonhole fastening devices and formed in whole or in part of resilient material.

27. CHECKS, LABELS, AND TAGS, REINFORCED. Labels and tags which are strengthened by miscellaneous reinforcing devices to prevent tearing or mutilation.
(Note.—Search should be made in class 156, CURTAINS, SHADES, AND SCREENS, Shades, Sticks.)

28. CHANGEABLE EXHIBITORS. Miscellaneous devices for changeably exhibiting cards, pictures, and signs, involving features of construction which do not permit of their being more specifically classified in any of the following subclasses under this title.
(Note.—Devices comprising a charactered board and a movable pointer for selecting a particular character for observation are classified in class 116, SIGNALS, Indicators.)

29. CHANGEABLE EXHIBITORS, AEROSTATIC. Display devices of a changeable character which are supported from a balloon, kite, or other aerostat.

30. CHANGEABLE EXHIBITORS, MOTOR-OPERATED. Changeable display devices which comprise a motor for effecting changes or causing different characters to appear for observation.

31. CHANGEABLE EXHIBITORS, MOTOR-OPERATED, DOUBLE REEL AND WEB. Changeable display devices comprising a charactered web or chain of charactered plates having its ends connected with rollers and a controlling-motor for operating the rollers and web to cause the characters to be successively displayed for observation.

32. CHANGEABLE EXHIBITORS, MOTOR-OPERATED, ENDLESS. Changeable display devices comprising a charactered endless web or endless chain of charactered plates which is controlled in its movements by a suitable motor to cause the characters to be successively displayed for observation.

33. CHANGEABLE EXHIBITORS, MOTOR-OPERATED, ROTATABLE. Changeable display devices comprising rotating charactered parts, as plates, prisms, cylinders, etc., which are controlled in their rotation by means of a suitable motor, so that the characters may be successively displayed for observation.

34. CHANGEABLE EXHIBITORS, MOTOR-OPERATED, ROTATABLE, DISK. Changeable display devices comprising one or more rotating charactered disks which are controlled in their movements by means of a suitable motor to successively display the characters thereon. The disk may or may not be rotated back of an aperture or sight-opening in a suitable face-plate.

35. CHANGEABLE EXHIBITORS, MOTOR-OPERATED, ROTATABLE, HINGED LEAVES. Changeable display devices comprising a rotatable support to which charactered plates or leaves are flexibly connected, so that they may be successively displayed as the support is rotated by means of a suitable motor.

36. CHANGEABLE EXHIBITORS, MOTOR-OPERATED, SHIFTERS. Changeable display devices comprising a series of charactered plates or cards and motor-controlled mechanism for successively displaying the plates or cards for observation.
(Note.—For similar feeding mechanism a search should be made in class 211, STORE FURNITURE, Serving Apparatus, and also in class 194, CHECK-CONTROLLED APPARATUS.)

37. CHANGEABLE EXHIBITORS, FLUID-OPERATED. Changeable display exhibiting devices of miscellaneous character which are changed or operated by pressure of a fluid, such as air, gas, steam, or water.

38. CHANGEABLE EXHIBITORS, FLUID-OPERATED, DOUBLE REEL AND WEB. Changeable display devices comprising a charactered web having its ends connected with rollers which are controlled by pressure of a fluid, as air, gas, steam, or water, to cause the characters to successively appear to the observer.

39. CHANGEABLE EXHIBITORS, FLUID-OPERATED, ROTATABLE. Changeable display exhibiting devices which are caused to rotate by pressure of a fluid, as air, gas, steam, or water.

40. CHANGEABLE EXHIBITORS, FLUID-OPERATED, ROTATABLE, ILLUMINATED. Changeable display devices comprising an illuminated charactered cylinder or other suitable inscription or picture bearing body which is made to rotate by pressure of a fluid, as air, gas, steam, or water.
(Note.—To complete a search for this subclass, search class 67, LAMPS AND GAS-FITTINGS, Lights, Decorative, and Lights, Signal.)

41. CHANGEABLE EXHIBITORS, AXLE-OPERATED. Display devices of a miscellaneous changeable character which are operated by motion imparted from the rotation of a vehicle axle or wheel.

42. CHANGEABLE EXHIBITORS, AXLE-OPERATED, DOUBLE REEL AND WEB. Changeable display devices comprising a charactered web which is secured at its ends to rollers, so as to be wound from one roller upon the other by means of gearing connected with the revolving axle or wheel of a vehicle, whereby the characters upon the web are successively displayed for observation.

43. CHANGEABLE EXHIBITORS, AXLE-OPERATED, ENDLESS. Display devices comprising an endless charactered web which is actuated from the revolving axle or wheel of a vehicle to successively display the characters to an observer.

44. CHANGEABLE EXHIBITORS, AXLE-OPERATED, ROTATABLE. Axle-operated display devices which comprise one or more rotating charactered drums, cylinders, prisms, etc., which successively display the characters carried thereby as they are rotated.

45. CHANGEABLE EXHIBITORS, OBSTACLE-OPERATED. Changeable display devices of a miscellaneous character or devices for operating changeable display devices comprising mechanism which is actuated or started in motion by coming in contact with a suitable obstruction placed so as to be engaged by such mechanism, as the vehicle upon which it is carried moves past the obstruction.

46. CHANGEABLE EXHIBITORS, OBSTACLE-OPERATED, DOUBLE REEL AND WEB. Changeable display devices comprising a charactered web connected at its ends with two rollers, so that it is wound upon one roller as it is unwound from the other to successively display the different characters to an observer, the rollers being rotated by mechanism arranged to engage with suitable obstacles so placed as to be struck as the vehicle which supports the display device passes such obstacle.

47. CHANGEABLE EXHIBITORS, OBSTACLE-OPERATED, DOUBLE REEL AND WEB, CLUTCH TAKE-UP. Changeable display devices comprising an obstacle-operated double reel and charactered web, when the reels and web are connected with the operating mechanism by means of take-up clutch devices.

48. CHANGEABLE EXHIBITORS, OBSTACLE-OPERATED, ENDLESS. Changeable display devices comprising an endless charactered web or a chain of charactered plates supported upon rollers which are actuated by mechanism adapted to be set into motion as it comes into contact with a suitable obstacle placed in or near the track of the vehicle which supports the display device.

49. CHANGEABLE EXHIBITORS, OBSTACLE-OPERATED, ROTATABLE. Changeable display devices comprising a rotating charactered cylinder or prism and an operating mechanism therefor adapted to come into engagement with a suitably-placed obstacle and be set into motion by such engagement, whereby the characters are successively presented for observation.

50. CHANGEABLE EXHIBITORS, OBSTACLE-OPERATED, SHIFTERS. Changeable display devices comprising a plurality of charactered cards or plates and controlling mechanism by which they are adapted to be shifted or changed from one position to another, so that they may be successively displayed for observation, the shifting mechanism being started in motion by engagement with suitable obstacles located in the path of the vehicle which supports the display device.

51. CHANGEABLE EXHIBITORS, PENDULUM-OPERATED. Changeable display devices comprising a pendulum or swinging weight connected by ratchet or clutch mechanism with a roller, so that as the pendulum is vibrated the roller is rotated to change the characters of a suitable exhibiting device actuated by such roller.
(Note.—To complete a search in this subclass, an examination should be made in this class, subclass 139, Signs, vibratory, motor-operated.)

52. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED. Electrically-controlled mechanism for changeably exhibiting cards, pictures, or signs, the source of the electricity being immaterial.

53. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, ELECTROMOTOR-OPERATED. Changeable exhibitors for displaying cards, pictures, and signs which comprise an electromotor for producing the desired changes and an electric controlling mechanism for starting or stopping the electromotor or for connecting and disconnecting the change-producing mechanism with the motor.

54. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, MAGNETO-CLUTCH LET-OFF. Changeable exhibitors for displaying cards, pictures, and signs comprising a motor for producing the desired changes and an electrically-controlled magnet-armature so connected with a clutch as to release the motor or to disconnect the motor and change-producing mechanism at will.

55. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, MAGNETO-CLUTCH TAKE-UP. Changeable exhibitors for displaying cards, pictures, and signs comprising an electromagnet and an armature, the latter provided or connected with a ratchet-pawl to engage with and operate a ratchet-wheel of the changeable exhibitor when an electric current is passed through the electromagnet.

56. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, OBSTACLE-CONTROLLED CIRCUIT-CLOSERS. Electric-circuit-controlling mechanisms for changeable display devices carried by cars and vehicles comprising a projecting lever or arm carried by the car or vehicle, adapted to come into contact with suitable obstacles situated in or near the course of the car or vehicle, the movement of the lever or arm caused by such obstruction being such as to close and open the circuit of an electric current to operate the changeable exhibitor.

57. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, OBSTACLE-CONTROLLED CIRCUIT-CLOSERS, ELECTROMOTOR-OPERATED. Changeable exhibiting devices for displaying cards, pictures, and signs in cars or vehicles and which comprise an electromotor for effecting the desired changes and a suitable circuit-controlling mechanism, which is in turn controlled by obstacles placed in or adjacent to the path of the car or vehicle to engage with and move a lever or arm to complete or break an electric circuit which operates the electromotor.

58. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, OBSTACLE-CONTROLLED CIRCUIT-CLOSERS, MAGNETO-CLUTCH LET-OFF. Changeable exhibitors for displaying cards, pictures, and signs in cars and vehicles. The mechanism for effecting the change of display comprises an obstacle-controlled electric-circuit closing and breaking device, an electromagnet and its armature provided with a ratchet in engagement with a ratchet-wheel forming a part of the changeable exhibiting device. An arm or lever projected from the car is adapted to be engaged by obstacles placed in or adjacent to the path of the car or vehicle, and when so engaged the arm or lever will be moved to complete or break an electric circuit. When the circuit is completed or broken, the electromagnet will attract or release the armature and the pawl carried thereby will be moved to release the ratchet-wheel of the changeable exhibitor and permit the display to be changed.

59. CHANGEABLE EXHIBITORS, ELECTRICALLY-CONTROLLED, OBSTACLE-CONTROLLED CIRCUIT-CLOSERS, MAGNETO-CLUTCH TAKE-UP. Changeable exhibitors for displaying cards, pictures, and signs in cars and vehicles. The mechanism for effecting the change of display comprises an obstacle-controlled electric-circuit closing and breaking device, an electromagnet and its armature provided with a ratchet in engagement with a ratchet-wheel forming part of the changeable exhibiting device. An arm or lever projected from the car is adapted to be engaged by obstacles placed in or adjacent to the path of the car or vehicle, and when so engaged the arm or lever will be moved to complete or break an electric circuit. When the circuit is completed or broken, the electromagnet will attract or release the armature and the pawl carried thereby will be moved to positively actuate the ratchet-wheel of the changeable exhibitor and cause the display to be changed.

60. CHANGEABLE EXHIBITORS, DOOR-OPERATED. Mechanism for swinging a sign to attract attention or for operating a changeable display device by the swinging of a door or gate.

61. CHANGEABLE EXHIBITORS, INSCRIPTION-COVERS. Devices for changeably exhibiting characters or inscriptions comprising a movable cover for temporarily shutting one or more of the characters or inscriptions from observation and leaving nothing exposed except what is to be observed.
(Note.—To complete a search in this subclass, an examination should be made in class 116, SIGNALS, Indicators.)

62. CHANGEABLE EXHIBITORS, INSCRIPTION-COVERS, SLIDING. Devices for changeably exhibiting characters or inscriptions comprising a sliding shutter by means of which one or more of the characters or inscriptions may be obscured from view and only such as are to be observed are exposed.
(Note.—To complete a search in this subclass, an examination should be made in class 116, SIGNALS, Indicators, Sliding.)

63. CHANGEABLE EXHIBITORS, INTERCHANGEABLE PLATES. Display devices, exclusive of educational appliances and signs comprising interchangeable letters, consisting of a frame provided with recesses within which charactered plates may be shifted or changed at will.
(Note.—To complete a search in this subclass, an examination should be made in this class, subclass 140, Signs, interchangeable letters, and the subclasses thereunder; also, in class 35, EDUCATIONAL APPLIANCES.)

64. CHANGEABLE EXHIBITORS, INTERCHANGEABLE PLATES, SLIDING. Display devices comprising a frame provided with slide grooves or rods within or upon which are temporarily secured detached charactered plates or slides. The construction is such that the charactered plates may be changed at will.
(Note.—This subclass does not include signs formed with interchangeable letters. Such are found in this class under the subtitle of SIGNS, Interchangeable letters.)

65. CHANGEABLE EXHIBITORS, SLIDING PLATES. Display-boards provided with sliding charactered plates which may be projected from the back of the board at will so that the characters may be observed either beyond the edges of the board or through an aperture therein.

66. CHANGEABLE EXHIBITORS, SLIDING PLATES, BOLT-OPERATED. Door-signs in which the inscriptions are changed by the operations of bolting and unbolting the door.
(Note.—To complete the search, an examination should be made in this class, subclass 60, Changeable exhibitors, door-operated.)

67. CHANGEABLE EXHIBITORS, PIVOTED PLATES. Display devices provided with several boards or frames pivoted thereon to turn edgewise, carrying inscriptions or pictures, so that one or more of the plates or frames may be thrown out for observation.

68. CHANGEABLE EXHIBITORS, ROTATABLE. Display devices provided with charactered drums, cylinders, prisms, or boards which may be revolved at will to successively present the inscriptions or pictures thereon for observation.
(Note.—Search should be made in this class, subclass 37, Changeable exhibitors, fluid-operated,)

69. CHANGEABLE EXHIBITORS, ROTATABLE, CLUTCH TAKE-UP. Rotatable changeable display exhibiting devices which are provided with a clutch take-up mechanism for operating the rotating part with a step-by-step motion.

70. CHANGEABLE EXHIBITORS, ROTATABLE, DISK. Display devices comprising charactered disks which may be rotated at will to successively bring different inscriptions or pictures to view.
(Note.—To complete a search in this subclass, an examination should be made in class 116, SIGNALS, subclasses Indicators, office, and Indicators, rotary; also, in this class, subclass 111, Calendars, rotatable.)

71. CHANGEABLE EXHIBITORS, ROTATABLE, DISK, CLUTCH TAKE-UP. Rotatable disk changeable display exhibiting devices which are provided with a clutch take-up mechanism for operating the rotating part with a step-by-step motion.

72. CHANGEABLE EXHIBITORS, ROTATABLE, HINGED LEAVES. Changeable display devices comprising a rotatable support to which charactered plates are pivoted in such manner that the characters upon the plates may be successively displayed as the support is rotated.
(Note.—To complete a search in this subclass, an examination should be made in this class, subclass 49, Changeable exhibitors, obstacle-operated, rotatable.)

73. CHANGEABLE EXHIBITORS, ROTATABLE, HINGED LEAVES, CLUTCH TAKE-UP. Changeable display devices comprising a rotatable support to which charactered plates are pivoted in such manner that the characters upon the plates may be successively displayed as the support is caused to rotate by means of a clutch take-up mechanism.

74. CHANGEABLE EXHIBITORS, ROTATABLE, RADIALLY-MOVABLE LEAVES. Changeable display devices comprising a rotatable support in which charactered plates are mounted so as to be successively slid in a radial direction from the rotatable support to display the characters thereon.

75. CHANGEABLE EXHIBITORS, ROTATABLE, RADIALLY-MOVABLE LEAVES, CLUTCH TAKE-UP. Changeable display devices comprising a rotatable support in which charactered plates are mounted so as to be slid in a radial direction from the rotatable support to display the characters thereon, the rotation of the support being controlled by a clutch take-up mechanism.

76. CHANGEABLE EXHIBITORS, ROTATABLE, MULTIPLE-DRUM CONTROLLERS. Changeable display devices comprising a plurality of rotatable charactered parts which are controlled in their rotation by a master mechanism to change the relative arrangements of the characters displayed from the rotatable parts. This subclass includes train-annunciators wherein the master mechanism controls the extent of rotation of each rotatable part, so that some may be rotated farther than others to bring the proper characters thereon into view.

77. CHANGEABLE EXHIBITORS, ROTATABLE, ILLUMINATED. Changeable display devices comprising an illuminated and charactered part which may be rotated to successively display the characters thereon.

78. CHANGEABLE EXHIBITORS, SHIFTERS. Exhibiting devices comprising a plurality of independent charactered cards or plates with mechanism for successively displaying them. The cards or plates may be caused to successively appear at the front of a pack, slide along one after the other back of a sight-opening, or to be successively pushed forward, displayed, and then retracted.

79. CHANGEABLE EXHIBITORS, SHIFTERS, RECIPROCATING. Changeable display devices comprising charactered cards or plates and a reciprocating carrying mechanism to slide or shift the cards from one position to another, so that they may be successively displayed for observation.

80. CHANGEABLE EXHIBITORS, SHIFTERS, REVOLVING. Changeable display devices comprising a revolving trunnioned box provided with sight-apertures through which inclosed charactered cards or plates may be observed. The construction of the box is such that the cards are shifted in position by the rotation thereof to successively display the characters.

81. CHANGEABLE EXHIBITORS, SHIFTERS, REVOLVING PACK-CASE. Changeable display devices comprising a plurality of independent charactered cards or plates which are carried in a two-celled case in such manner that the rotation of the case shifts the cards or plates one at a time from one cell to the other, the case being provided with sight-apertures, through which the cards or plates may be successively observed.

82. CHANGEABLE EXHIBITORS, SINGLE REEL AND WEB. Changeable display devices comprising a charactered web having one end connected to a roller, about which it is adapted to be wound more or less to expose different characters for observation.
(Note.—This subclass does not include patents for displaying samples of articles of merchandise.)
(Note.—To complete a search in this subclass, an examination should be made in class 211, STORE FURNITURE, Display-Racks, Roll, and in class 156, CURTAINS, SHADES, AND SCREENS.)

83. CHANGEABLE EXHIBITORS, SINGLE REEL AND WEB, REEL-CABINETS. Changeable display devices comprising a plurality of charactered-web-bearing rollers which are compactly mounted in a protecting-frame of such construction as to permit the webs to be unrolled from the rollers and depend therefrom for observation.
(Note.—To complete a search in this subclass, an examination should be made in class 211, STORE FURNITURE, Display-Racks, Roll.)

84. CHANGEABLE EXHIBITORS, SINGLE REEL AND WEB, REEL-CABINETS, REVOLVING. Changeable display devices comprising a plurality of charactered-web-bearing rollers which are compactly mounted in a revolving frame which is of such construction as to permit the webs to be unrolled from the rollers and depend therefrom for observation.
(Note.—To complete a search in this subclass, an examination should be made in class 211, STORE FURNITURE, Display-Racks, Roll.)

85. CHANGEABLE EXHIBITORS, SINGLE REEL AND WEB, SPRING-REWIND. Changeable display devices comprising a charactered web having one end connected to and wound upon a spring-controlled roller, from which it is adapted to be unwound more or less to expose different characters for observation.
(Note.—To complete a search in this subclass, an examination should be made in class 211, STORE FURNITURE, Display, Racks, Roll, and in class 156, CURTAINS, SHADES, AND SCREENS.)

86. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB. Changeable display devices comprising a charactered web having its ends connected with rollers in such manner as to be wound upon one roller as it is unwound from the other and to thereby successively display the characters thereon for observation.

87. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, CLUTCH TAKE-UP. Changeable display devices comprising a roller-operating take-up clutch to operate a charactered web carried by two rollers to which it is secured at its ends, whereby upon the rotation of the rollers the web is rolled from one roller upon the other to successively display the characters thereon.

88. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, CLUTCH TAKE-UP, REVERSIBLE-CLUTCH. Changeable display devices comprising a roller-operating take-up clutch which may be reversed to operate, in either direction, the rollers to which the ends of a charactered web are secured, so that the direction of movement of the web may be reversed when it is completely unwound from one of the rollers.

89. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, SPRING-REWIND. Changeable display devices comprising a charactered web having its ends connected to rollers, so that it may be wound from one roller upon the other. One of the rollers is so connected with a spring that it is wound closer as the web is unwound from the roller and tends to keep the web stretched taut between the rollers and to wind the web upon the spring-controlled roller when permitted to do so.

90. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, SPRING-REWIND, CLUTCH TAKE-UP. Changeable display devices comprising a charactered web having its ends secured to two rollers, one of which is so connected with a coiled spring as to tend to wind the web thereon. The roller which is not provided with a spring is positively rotated to wind the web thereupon against the tension of the spring-controlled roller by means of a clutch take-up device.

91. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, SPRING REWIND, CLUTCH LET-OFF. Changeable display devices comprising a charactered web having its ends secured to two rollers, one of which is actuated to turn in one direction by means of a coiled spring, the movement of the spring-actuated roller being controlled by an escapement or let-off clutch.

92. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, SPRING-REWIND, CLUTCH LET-OFF, OBSTACLE-TRIP. Changeable display devices comprising a charactered web having its ends secured to two rollers, one of which is actuated to turn in one direction by means of a coiled spring, the movement of the spring-actuated roller being controlled by an escapement or let-off clutch, which is in turn set in motion by means of a tripping device so placed as to come in contact with a designed obstacle.

93. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, REVERSING-GEARS. Changeable display devices comprising a charactered web having its ends connected with two rollers which are operated in opposite directions by means of gear-shifting devices.
(Note.—To complete the search in this subclass, an examination should be made in this class, subclass 91, Changeable exhibitors, double reel and web, spring-rewind, clutch let-off.)

94. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, REVERSING-GEARS, CLUTCH TAKE-UP. Changeable display devices comprising a charactered web having its ends connected to rollers which are controlled in their movements by reversing-gears and clutch take-up devices.

95. CHANGEABLE EXHIBITORS, DOUBLE REEL AND WEB, INTERGEARED REELS. Changeable display devices comprising a charactered web which has its ends connected to rollers, so as to be wound from one roller upon the other. In this subclass the rollers are caused to turn with the same velocity by means of intermeshing gears or equivalent connecting mechanism.
(Note.—To complete a search in this subclass, an examination should be made in subclasses 87, Changeable exhibitors, double reel and web, clutch take-up; 88, Changeable exhibitors, double reel and web, clutch take-up, reversible-clutch, and 42, Changeable exhibitors, axle-operated, double reel and web, in this class.)

96. CHANGEABLE EXHIBITORS, ENDLESS. Changeable display devices comprising an endless charactered web or an endless chain of charactered plates or cards so supported that it may successively display the characters to an observer.
(Note.—To complete a search in this subclass, an examination should be made in this class, subclasses 118, Calendars, endless; 48, Changeable exhibitors, axle-operated, endless; 37, Changeable exhibitors, fluid-operated; 33, Changeable exhibitors, motor-operated, endless, and 48, Changeable exhibitors, obstacle-operated, endless.)

97. CHANGEABLE EXHIBITORS, ENDLESS, HINGED LEAVES. Changeable display devices comprising a web having flexibly secured thereto depending charactered leaves which are successively displayed to the observer as the carrying-web is caused to move along.

98. CHANGEABLE EXHIBITORS, ENDLESS, RADIAL LEAVES. Changeable display exhibiting devices comprising an endless web or chain of links or plates from which project rigid charactered plates or picture-holders which project at right angles from the web, so that as the web is moved along the charactered plates or pictures are successively displayed for observation.

99. CHANGEABLE EXHIBITORS, ENDLESS, CLUTCH TAKE-UP. Changeable display devices comprising a charactered web or a chain of charactered plates supported by one or more rollers which are caused to rotate by means of a clutch take-up device.
(Note.—Search in this class, subclasses 28, Changeable exhibitors, and 48, Changeable exhibitors, obstacle-operated, endless.)

100. CHANGEABLE EXHIBITORS, FOLDING WEB AND REEL. Changeable display devices comprising a chain of charactered plates which are adapted to be folded back and forth to occupy a small space and to be unfolded and successively displayed for observation by the rotation of a polygonal or sprocket roller which engages with the plates.

101. CHANGEABLE EXHIBITORS, FOLDING WEB AND REEL, CLUTCH TAKE-UP. Changeable display devices comprising a chain of charactered plates which are adapted to be unfolded and successively displayed by means of a clutch-operated polygonal or sprocket roller which engages with the plates comprising the chain.

102. CHANGEABLE EXHIBITORS, HINGED LEAVES. Changeable display devices comprising hinged charactered leaves or frames connected to form an album or a structure somewhat like a book, so that the characters may be successively displayed as the leaves or frames are turned on their hinges.
(Note.—Search also in class 211, STORE FURNITURE, Display-Racks, and the several subclasses thereunder.)

103. CHANGEABLE EXHIBITORS, HINGED LEAVES, LEAF-RELEASERS. Changeable display devices comprising hinged charactered leaves or frames connected to form a structure somewhat like a book standing upon its back, with a releasable detent device for holding the leaves in a vertical position until it is desired to release a leaf or frame to allow it to be turned down by gravity to display the characters thereon.
(Note.—To complete a search in this subclass, an examination should be made in class 84, MUSIC, Leaf-Turners, Spring and Gravity.)

104. CHANGEABLE EXHIBITORS, HINGED LEAVES, LEAF-TURNERS. Changeable display devices comprising hinged charactered leaves or frames connected to form book-like structures and provided with mechanism to engage and turn the leaves to successively display the characters thereon for observation.
(Note.—To complete a search in this subclass, an examination should be made in class 84, MUSIC, Leaf-Turners.)

105. CHANGEABLE EXHIBITORS, TRAIN-ORDER HOLDERS. Changeable display devices comprising supports for temporarily holding and displaying despatches and messages for railway-trainmen.

106. CHANGEABLE EXHIBITORS, COUPLINGS. Mechanism for connecting two display devices together when they are placed in different cars and are to be operated simultaneously.

107. CALENDARS. Miscellaneous devices for disclosing the relation of the days and months in a given year or series of years. In some instances they disclose additional astronomical data. Calendars also comprise devices for calling attention to memoranda or appointments to be noted on particular days of the month.
(Note.—Calendars may be found in class 58, HOROLOGY, and in class 120, STATIONERY, Combination Devices.)

108. CALENDARS, PENCIL ATTACHMENTS. Calendar attachments specially designed for use in connection with pencils or penholders in which the claims embody some improvement or change in the construction of the calendar *per se* and do not include changes in the pencil *per se* except such as are necessary in order to adapt the new calendar thereto.

109. CALENDARS, CHARACTERED-SLIDE. Calendars embodying a charactered plate or sliding part which slides back of one or more openings in a suitable support to disclose a number of characters therethrough or which slides upon the face of a charactered support to shift certain of the characters on the sliding part opposite certain other characters upon the support to bring into proper relation the names of the days of the week and the corresponding numbers of the days of the month for any desired month.

110. CALENDARS, CHARACTER-MARKERS. Calendars comprising a charactered plate and a movable pointer or marker which may be placed at will opposite any particular character to attract attention thereto.
(Note.—To complete the search, see also class 116, SIGNALS, Indicators, and class 235, REGISTERS.)

111. CALENDARS, ROTATABLE. Calendars comprising charactered rollers mounted to rotate in a suitable frame, so as to present different characters as the rollers are rotated.

112. CALENDARS, ROTATABLE, CLUTCH TAKE-UP. Calendars comprising one or more rotatable charactered parts placed back of openings in the face of a suitable support, so that the characters may be observed through such openings, and suitable clutch mechanism whereby such charactered parts may be rotated.

113. CALENDARS, ROTATABLE, DISK. Calendars comprising charactered disks mounted upon the back of a suitable support, so that the characters upon the faces of the disks may appear through sight-openings in the support. This subclass includes calendars comprising overlapping eccentric disks which when rotated show different combinations of figures to make different numbers; also, a single rotating charactered disk mounted upon a charactered support, so that by rotating the disk a different combination of characters can be effected.

114. CALENDARS, ROTATABLE, SINGLE-AXIS. Calendars comprising a plurality of charactered drums, cylinders, or prisms arranged to be rotated upon a single axis, so as to arrange a plurality of combinations of calendar characters suitable for different periods of time.
(Note.—To complete a search in this subclass, an examination should be made in subclass 108, Calendars, pencil attachments, in this class.)

115. CALENDARS, ROTATABLE, SINGLE-AXIS, DISK. Calendars comprising several charactered disks of different sizes mounted concentrically to turn upon a single axis. The disks may be upon the face of a suitable support and present rings of characters, or they may be upon the rear of the support and the characters exposed through suitable sight-openings.

116. CALENDARS, SINGLE REEL AND WEB. Calendars comprising a charactered web and a suitable roller to which the web may be attached and about which the web may be wound. The roller may be carried in bearings in a suitable support.
(Note.—Single reel and web calendars may also be found in this class, subclass 108, Calendars, pencil attachments.)

117. CALENDARS, DOUBLE REEL AND WEB. Calendars comprising a charactered web having its ends connected to rollers, the web being adapted to be wound upon one of the rollers as it is unwound from the other.

118. CALENDARS, ENDLESS. Calendars comprising one or more endless webs bearing the numbers of the days of the month, the numbers of the years, the names of days of the week, or the names of the months of the year and capable of being shifted to properly designate the dates of any particular week or month.

119. CALENDARS, HINGED LEAVES. Calendars comprising a plurality of charactered leaves flexibly connected together, as in a book, so that the leaves may be turned over to expose the characters upon the succeeding leaves.
(Note.—To complete a search in this subclass, an examination should be made in subclass 120, Calendars, stands, in this class.)

120. CALENDARS, STANDS. Stands or frames for supporting block, pad, or tablet calendar leaves of such construction as to permit the front leaves to be successively removed or turned back to display the face of the following leaf.

121. CALENDARS, TEAR-OFF TABLETS. Calendars comprising a block, pad, or tablet of charactered leaves so constructed as to permit the leaves to be successively removed as the dates designated thereon have expired.
(Note.—To complete a search in this subclass, an examination should be made in subclass 123, Calendars, printing arrangement, in this class.)

122. CALENDARS, CARD-POCKETS. Calendars comprising a pack of calendar-cards held in a suitable open-faced envelop, receptacle, or frame, so that the front card may be removed and inserted at the rear of the pack to expose the following card to view.
(Note.—To complete a search in this subclass, a search should be made in subclass 10, Checks, tables, and tags, holders, in this class.)

123. CALENDARS, PRINTING ARRANGEMENT. Calendar patents in which the invention lies in the characters themselves or in the specific arrangement of the printed characters.
(Note.—To complete a search in this subclass, an examination should be made in the following subclasses: 109, Calendars, charactered-slide; 113, Calendars, rotatable, disk, and 115, Calendars, rotatable, single-axis, disk, in this class.)

124. CARD-RACKS. Wire racks or supports of notched metal or wood, usually adapted to be hung upon a wall or other vertical surface to support and display business or picture cards.

125. SIGNS. This subclass comprises inscribed boards, cards, plates, or objects whereby definite information may be conveyed to the observer.
(Note.—Imitation articles which are used for sign purposes are also included in the subclass 126, Signs, dummies, in this class.)

126. SIGNS, DUMMIES. Imitation articles or figures used for display purposes to indicate some trade, business, or profession or the sale of some article of commerce.

127. SIGNS, AEROSTATIC. Display devices of an unchangeable character which are supported from a balloon, kite, or other aerostat.

128. SIGNS, HANGING. Fixed or swinging signs which depend from an overhead support.

129. SIGNS, PORTABLE. Signs to be displayed while being carried about from place to place by a person, animal, or vehicle.
(Note.—To complete the search, an examination should be made in class 67, LAMPS AND GAS-FITTINGS, Torches.)

130. SIGNS, ILLUMINATED. Signs in which the characters or legends are made more apparent by means of a special illuminating device.
(Note.—To complete a search, an examination should be made in class 67, LAMPS AND GAS-FITTINGS, Lights, Signals, and also in class 176, ELECTRIC LIGHTING, Systems, Display.)

131. SIGNS, ILLUMINATED, LAMP ATTACHMENTS. Signs designed to be secured to a lamp-post or lamp, so that the sign shall be illuminated by the light from the lamp.
(Note.—This subclass includes such signs as are commonly known as "street-lamps.")

132. SIGNS, ILLUMINATED, LAMP-BOXES. Lamp-boxes having one or more of their sides provided with a sign through which the light from the inclosed lamp passes.

133. SIGNS, ILLUMINATED, LAMP-BOXES, PERFORATED-FACE. Signs comprising lamp-inclosing boxes of wood, metal, or other opaque material having perforations therein outlining legends or characters, which perforations are usually filled or covered with transparent or translucent material.

134. SIGNS, ILLUMINATED, LUMINOUS-PAINT. Signs in which the characters are outlined or made conspicuous by luminous paint.

135. SIGNS, MULTIPLE-LAYER. Signs formed of superimposed layers of differently-colored materials, not simply painted boards.
(Note.—To complete the search in this subclass, an examination should be made in subclasses 125, Signs, and 130, Signs, illuminated, in this class.)

136. SIGNS, EMBOSSED, MOLDED, ROLLED, OR STAMPED. Signs formed of material which is given the desired configuration by means of embossing, molding, rolling, or stamping processes.
(Note.—To complete a search in this subclass, an examination should be made in subclass 154, Picture-frames, embossed, molded, rolled, or stamped, in this class.)

137. SIGNS, VARIABLE-READING. Signs which have some of the characters placed upon parts projecting angularly from the body thereof, the effect of which is to cause the reading to change as the position of the observer is changed.

138. SIGNS, VIBRATORY. Signs which in whole or in part vibrate, and thus attract attention thereto.

139. SIGNS, VIBRATORY, MOTOR-OPERATED. Signs which in whole or in part vibrate to attract attention, the vibration being effected by some mechanical motor.

140. SIGNS, INTERCHANGEABLE LETTERS. Signs comprising letters of a miscellaneous character constructed to be arranged together upon a suitable support to form the design or legend. This subclass includes such letters as are not hereinafter classified and also fastening devices for such letters.

141. SIGNS, INTERCHANGEABLE LETTERS, GLASS. Signs comprising interchangeable letters the principal ingredient of which is glass.

142. SIGNS, INTERCHANGEABLE LETTERS, FASTENERS. Interchangeable signs comprising miscellaneous fastening devices for securing the sign-letters in position upon a suitable support to form the legend or design.

143. SIGNS, INTERCHANGEABLE LETTERS, FASTENERS, PRONG. Signs and separate letters for signs in which a prong or spur projection is used as the means for securing the letter to the background or support.

144. SIGNS, INTERCHANGEABLE LETTERS, FASTENERS, STRING. Signs and separate letters for signs in which the letters are threaded or strung along a string, wire, or band which passes through the letters or through one or more projections formed upon the letters.

145. SIGNS, POST ATTACHMENTS. Signs which are particularly adapted to be secured to and supported by a post. This subclass also includes devices which are specially constructed for securing signs to posts.
(Note.—To complete a search in this subclass, subclass 131, Signs, illuminated, lamp attachments, in this class should be examined.)

146. PICTURE STANDS AND SUPPORTS. Portable stands or props for supporting cards, maps, or pictures in an upright position for display purposes. The front of the support may itself constitute the card or picture back, or there may be separate holding devices for securing a card or picture upon the support.
(Note.—Such supporting-stands as are designed for supporting articles of merchandise other than cards, maps, or pictures are classified in class 211, STORE FURNITURE, Display-Cards, or in class 211, STORE FURNITURE, Display-Stands.)

147. PICTURE STANDS AND SUPPORTS, ILLUMINATORS. Picture-supports comprising reflecting-surfaces whereby the picture is illuminated; also, stands which hold the picture so that light may be transmitted through the picture to illuminate it.

148. PICTURE STANDS AND SUPPORTS, FRAMES. Picture-supports in which the front or picture-supporting portion comprises a picture-frame, and the brace is frequently a bail, which serves also as a suspension-loop when it is desired to hang the picture.

149. PICTURE STANDS AND SUPPORTS, SINGLE-BLANK. Picture-supports in which the entire article (the supporting card or board and the brace at the rear) is cut in the form of a single blank and bent to the desired shape.

150. PICTURE STANDS AND SUPPORTS, SINGLE-BLANK, BRACES. Picture supports and braces cut in the form of a single blank and bent to proper form to constitute both the brace and the part to be secured to the picture or to the card which supports the picture.

151. PICTURE STANDS AND SUPPORTS, WIRE. Picture-supports constructed entirely of wire or metal strips bent to proper form to engage the picture and support it in upright position for observation.

152. PICTURE-FRAMES. Structures for partially inclosing and displaying cards, pictures, or signs to preserve them in shape and permit of their observation. In some instances these frames are mere stiffening devices secured to the edges of the article to be displayed. In others they are built-up structures, which inclose the article at the back and edges.
(Note.—This subclass does not include those structures where the structure of the card, picture, or sign is an essential element of the combination claimed, such combinations being classified in class 41, FINE ARTS, Pictures.)
(Note.—Search should be made in this class, subclasses 148, Picture stands and supports, frames; 159, Picture-frames, mats, mounts, and backs, pocketed; also, class 120, STATIONERY, subclass 82, Paperweights.)

153. PICTURE-FRAMES, CORD OR WIRE. Frames comprising strips of cord or wire secured along or near the edges of cards or pictures to form an ornamental border therefor and which in some instances may furnish a means for hanging the card or picture.

154. PICTURE-FRAMES, EMBOSSED, MOLDED, ROLLED, OR STAMPED. Frames made of material which is shaped by being cast in molds, embossed, rolled, or stamped with the desired pattern.

155. PICTURE-FRAMES, EXTENSIBLE, FOLDING, OR KNOCKDOWN. Frames made adjustable to inclose different-sized cards or pictures or made capable of being dismantled and folded to occupy a small space for storage or transportation.

156. PICTURE-FRAMES, CARD OR PICTURE RETAINERS. Devices for securing cards or pictures in place within their frames. They comprise clamps, buttons, beading-strips, springs, etc., secured to the frame so as to bear against the card or picture.

157. PICTURE-FRAMES, COVER-RETAINERS. Devices for securing gauze, netting, or other protecting material over picture-frames and pictures.
(Note.—To complete a search in this subclass, an examination should be made in subclass 155, Picture-frames, extensible, folding, or knockdown, in this class.)

158. PICTURE-FRAMES, MATS, MOUNTS, AND BACKS. Firm and stiff paper or thin boards for supporting and strengthening pictures to prevent them from being easily bent and, in some instances, for forming an ornamental border around the edges of the pictures.

159. PICTURE-FRAMES, MATS, MOUNTS, AND BACKS, POCKETED. Mats, mounts, and backs provided with recesses or pockets within which the picture is partially inclosed.

160. PICTURE-FRAMES, RELIEF-PICTURE. Frames for pictures having raised surfaces and for game pieces, as stuffed and mounted skins of birds, fishes, or other animals, and mounted heads or horns of animals.
(Note.—To complete the search, an examination should be made in class 35, EDUCATIONAL APPLIANCES, Miscellaneous.)

F. I. ALLEN,
Commissioner.

Patents No. 677,846 to 678,355.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Designs	26—No. 34,745 to No. 34,770,	inclusive.
Trade-Marks	40—No. 36,690 to No. 36,729,	inclusive.
Labels	19—No. 8,513 to No. 8,531,	inclusive.
Prints	9—No. 360 to No. 370,	inclusive.
Reissues	1—No. 11,981.	
Total issue	598	

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Alaska Territory			Nevada		
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Arizona Territory			New Jersey	33	1
Arkansas	2		New Mexico Territ'y		
California	14		New York	82	12
Colorado	5		North Carolina	2	
Connecticut	17		North Dakota	2	1
Delaware			Ohio	26	2
District of Columbia	3		Oklahoma Territ'y		
Florida	5		Oregon	1	
Georgia	3		Pennsylvania	48	8
Idaho			Rhode Island	3	1
Illinois	44	5	South Carolina	1	
Indian Territory		1	South Dakota		1
Indiana	13		Tennessee	3	3
Iowa	13	1	Texas	7	2
Kansas	2		Utah		
Kentucky	7		Vermont		
Louisiana	1		Virginia	6	1
Maine	9		Washington	4	
Maryland	4	1	West Virginia	2	1
Massachusetts	50	4	Wisconsin	10	1
Michigan	15	3	Wyoming		
Minnesota	8	4	U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	16	2			
Montana	4		Total to citizens of the United States	490	56
Nebraska	1	2			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Japan		
Austria-Hungary	8		Mexico		
Barbadoes			Netherlands	1	
Belgium			New South Wales		
Brazil			New Zealand		
British Guiana			Norway		
Canada	9	1	Peru		
Cape Colony			Roumania	1	
China			Russia		
Colombia			San Salvador		
Cuba			Scotland		1
Denmark			South Australia		
Egypt			Spain		
England	10	1	Sweden		
Finland			Switzerland	1	1
France	8		Turkey in Asia		
Germany	17		Victoria		
India		1	Western Australia		
Island of Jersey	1		Total to citizens of foreign countries	46	5
Italy					
Haiti					

History of Patent Office.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 28, 1901.

All persons interested in the publication, as contemplated, of a complete history of the United States Patent Office, who have in their possession illustrations, documents, printed articles, or valuable information bearing upon the subject are cordially invited to communicate with this Office concerning the same. Such communications should state clearly the nature of the material and should be addressed to the Chief Clerk, United States Patent Office, and marked "History of Patent Office."

Material loaned to this Office for the desired purpose will be handled with care and will be returned, if desired.

By direction of the Commissioner.

E. V. SHEPARD,
Chief Clerk.

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 8, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 2, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Under one month.			
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128	XXIX. Wood-Working Machines, Carpentry, Cooperage and Roofing, etc.	May 15	June 22	157
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	May 15	May 15	501
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	May 13	May 29	234
218	XVII. Printing, Type-Writing Machines, and Linotyping.	May 11	June 4	307
248	XVIII. Steam-Engineering, etc	May 9	May 29	272
105	XL. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	May 6	May 22	286
102	XIX. Stoves and Furnaces	May 6	May 10	422
	Total number of applications awaiting action			7,627

Applications Under Examination—Continued.

Under one month.			
*Designs	June 27	June 25	35
†Trade-Marks	June 25	July 1	35
‡Labels and Prints	July 2	July 2	----

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Order in Relation to Drawings and Blue-Prints.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

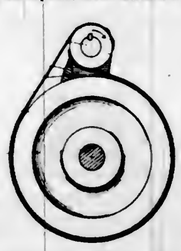
Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

PATENTS

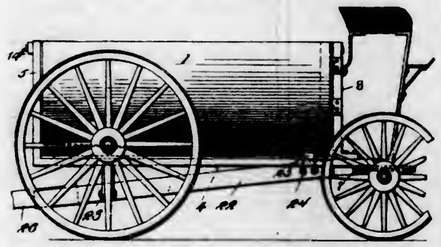
GRANTED JULY 9, 1901.

677,846. BRAKE FOR VEHICLES. WALTER H. ADAMS, Sound Beach, Conn. Filed Sept. 13, 1900. Serial No. 29,917. (No model.)



Claim.—In a vehicle-brake, the combination of the axle, the circular braking-surface which revolves in harmony with the vehicle-wheels, the hanger secured as against displacement, the rock-shaft journaled in close proximity to the braking-surface, the circular head secured to said shaft, the continuous sheet-metal band passed freely around the periphery of the braking-surface and having one of its ends passed between said head and surface while the other end is passed over the top of said head, both said ends being wrapped around said head in the same direction and secured thereto and thereby constituting the sole means of supporting said band, and a crank-lever secured to the rock-shaft, substantially as set forth.

677,847. DUMPING-VEHICLE. FREDERICK I. E. AKERS, Chicago, Ill. Filed Sept. 22, 1900. Serial No. 30,759. (No model.)



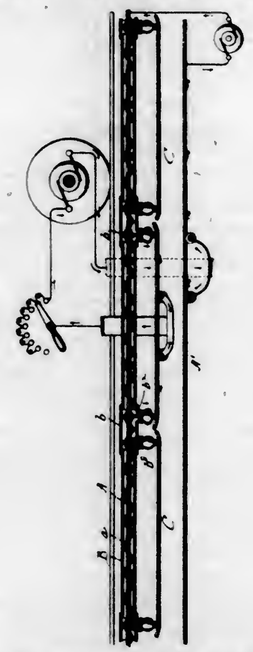
Claim.—1. In a dumping-vehicle the combination of two body parts divided from each other longitudinally at the bottom and one of which parts is movable and one of which parts has an oblique edge lapping with the edge of the other where the two parts are divided from each other, substantially as set forth.

2. In a dumping-vehicle the combination of a body having a movable section divided from the balance of the body longitudinally at the bottom and means for closing the space between the end walls of the body portions when said movable section moves away from the balance of the body, substantially as set forth.

3. In a dumping-vehicle the combination of a body having a movable section divided from the balance of the body longitudinally at the bottom, the sides of said body being sloped transversely toward their division-line at the bottom, means for pivotally supporting said movable section, a flange having an oblique edge projecting from the lower edge of said movable section and lapping with the balance of the body and a chute arranged under the intersection of the two portions of the body, substantially as set forth.

4. In a dumping-vehicle the combination of two body portions divided from each other longitudinally at the bottom and one of which body portions is movable on the arc of a circle and one of which body portions is provided with an oblique flange lapping with the other body portion and having its upper face struck on an arc from the center around which said movable portion moves, substantially as set forth.

677,848. ELECTRIC RAILWAY. FRANK M. ASHLEY, New York, N. Y. Filed Sept. 13, 1899. Serial No. 730,234. (No model.)



Claim.—1. In an electric railway a main conductor insulated by a cord or rope wound around it, the spirals of which are arranged at a long pitch to leave bare portions of the conductor between them, in combination with a tube through which the insulated conductor passes, and contact devices passing through the tube to make contact with the bared portions of the conductor, substantially as described.

2. In an electric railway a main conductor insulated by a cord or rope wound around it, the spirals of which are arranged at a long pitch to leave bare portions of the conductor between them, in combination with a tube through which the insulated conductor passes, said tube being made in sections connected together by couplings provided with openings, a sectional conductor arranged along the side of said tube and carrying plungers passing through the openings in said couplings and adapted to be brought into contact with the bare portions of the main conductor, substantially as described.

3. The combination of a tubular coupling *b* provided with a boss *b'*, an insulated lining therefor, a plunger passing through the insulated lining and adapted to reciprocate therein, and a flexible diaphragm or bulb secured to the exterior of said boss and to the plunger permitting the latter to reciprocate while excluding the moisture, substantially as described.

4. In an electric railway a collecting device carried by the car, consisting of a rigid arm carrying a rigidly-mounted contact-roller and a flexibly-mounted contact-roller, for the purpose set forth.

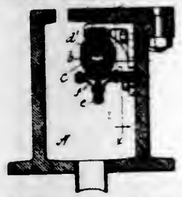
5. In an electric railway, the combination of a movable sectional

conductor and a fixed continuous conductor forming opposite sides of the circuit, and a collecting device carried by the car, one part of which carries contacts rigidly mounted thereon and adapted to make contact with the sectional conductor and another part of which carries contacts flexibly mounted thereon and adapted to make contact with the fixed conductor of the circuit.

6. In an electric-railway conduit a cover-plate supported at a crossing by means of a bracket secured to the upper part of the converging side of the walls of the conduit.

7. In an electric railway, the combination of two converging conduits, a bracket secured to the converging side walls thereof and extending toward the apex of the angle of the turnout and having a switch-tongue divided at its extremity, substantially as described.

677,849. ELECTRIC RAILWAY. FRANK M. ASHLEY, New York, N. Y. Filed Sept. 13, 1899. Serial No. 730,285. (No model.)



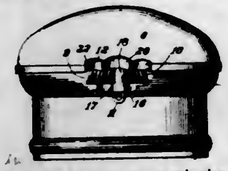
Claim.—1. In an electric railway, the combination of a main conductor, an insulating-sheathing formed in two longitudinal strips between which the conductor is clamped, a tubular metallic casing for said sheathing made in two parts bolted around the sheathing, a working conductor passing between the abutting surfaces of the sheathing and tube, and adapted to move therein and a device carried by the car for moving said working conductor into contact with the main conductor.

2. In an electric railway, the combination of a main conductor, an insulating-sheathing embracing the same, but leaving a portion of its surface bare, a metallic sheathing embracing the insulating-sheathing, a working conductor passing through and adapted to move in the metallic and insulating sheathings, and flexible sealing-strips connecting the outer portion of said working conductor with the metallic sheathing, substantially as described.

3. In an electric railway, the combination of a main conductor, an insulating-sheathing therefor and a metallic sheathing embracing the insulating-sheathing and having integrally-formed brackets by means of which the structure is supported.

4. In a conduit electric railway, the combination of the conduit and its cover, a conductor inside thereof, brackets secured to the sides of the conduit and supporting both the conductor and the cover of the conduit, substantially as described.

677,850. TOP FOR RECEPTACLES. ALFRED L. BARON and JAMES F. HAFFEY, Tiffin, Ohio; said Haffey assignor to said Baron. Filed Apr. 2, 1900. Serial No. 11,234. (No model.)



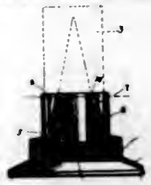
Claim.—1. In a receptacle-top, the combination with a fixed part, comprising a rim, of a lid and means for uniting the lid to the fixed part, consisting of a pair of springs united by a loop, the loop and the terminals of the springs being fastened to the fixed part and lid respectively, recesses in the rim for the accommodation of the springs, and a tongue upon the rim separating the springs.

2. In a receptacle-top, the combination with a fixed part, comprising a rim provided with recesses and oppositely-disposed lugs, of a lid and means for uniting the lid to the fixed part consisting of a pair of spiral springs mounted upon said lugs respectively, within the recesses in the rim, a tongue separating the springs, and means for operatively uniting the springs to the lid and fixed part respectively, substantially as set forth.

3. In a receptacle-top the combination with a fixed part, including a rim, of a lid provided with a tailpiece, and a spiral spring operatively uniting the lid and the fixed part, said spiral spring being secured to the rim and lid, respectively, and located underneath the lid and in front of the tailpiece in such a manner as to permit the front part of the tailpiece to extend lower than the top of the spring, and so form a close union of the parts.

4. In a receptacle-top, the combination with a fixed part, comprising a rim provided with recesses, oppositely-projecting lugs, a slit-defined strip, and a tongue thereon, of a pair of spiral springs united by a loop and provided with lateral terminals, said springs being secured upon the respective lugs upon opposite sides of the tongue, and their loops confined within the slit that defines the strip, and a lid operatively secured to the terminals of the springs, for the purpose specified.

677,851. BRUSH FOR PASTE-TUBES. THOMAS C. BOOTH, New Brunswick, N. J. Filed Sept. 28, 1900. Serial No. 31,407. (No model.)

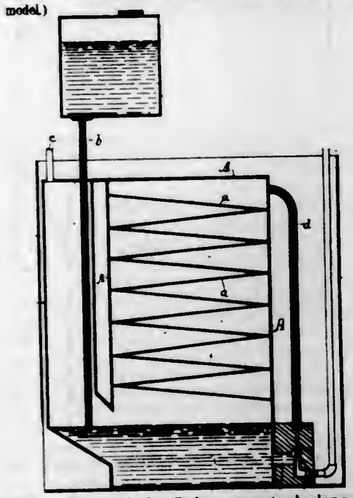


Claim.—1. A collapsible tube, having a discharge-opening, outer and inner tubes surrounding the opening and forming a brush-socket, longitudinal ribs upon the inner wall of the socket and dividing the same into pockets, and bunches of bristles within the respective pockets, the outer tube being crimped longitudinally between the ribs and into the respective pockets, whereby the bunches of bristles are independently clamped to the tube.

2. A collapsible tube, having a discharge-opening, outer and inner concentric tubes surrounding the opening and forming a brush-socket, longitudinal ribs upon the inner side of the outer tube and dividing the socket into pockets, and bunches of bristles within the respective pockets, the outer tube being crimped longitudinally between the ribs and into the respective pockets, whereby the bunches of bristles are independently clamped to the tube.

3. A collapsible tube, having a discharge-opening in one end thereof, a pair of inner and outer concentric tubes surrounding the opening and forming an annular brush-socket, longitudinal ribs upon the opposite inner sides of the socket and arranged in alternation and dividing the socket into a plurality of pockets, and bunches of bristles within the respective pockets, the outer tube being crimped longitudinally between the ribs thereof and into the respective pockets, whereby the bunches of bristles are independently clamped to the tube.

677,852. CARBURETER. HERBERT O. BROWN and JOHN R. DONNELLY, Fairfield, Me. Filed Sept. 13, 1900. Serial No. 29,907. (No model.)

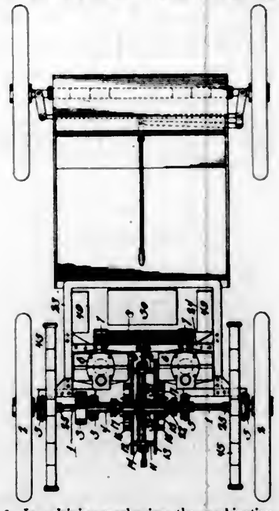


Claim.—The herein-described gas-generator having a generating-chamber, a gasolene-supply tank above said generating-chamber, a vertical supply-pipe leading from said supply-tank and terminating near the lower portion of said generating-chamber, a series of perforated diaphragms in said generating-chamber, an air-pipe and an atomizer connecting therewith and with the lower portion of the generating-chamber, an outer pipe for discharging carbureted air from said generating-chamber, and a pipe leading from said atomizer to a point in the generating-chamber above said diaphragms.

677,853. MANUFACTURE OF ARTIFICIAL STONE. PROSPER CARRIÉ, New York, N. Y. Filed Oct. 23, 1900. Serial No. 34,056. (No specimens.)

Claim.—An artificial-stone composition consisting in the combination of dry sand, slaked lime, plaster-of-paris and powdered alum with yellow ocher, red ocher and lampblack in the proportions substantially as set forth.

677,854. MOTOR-VEHICLE. FERDINAND R. CANDA, New York, N. Y., and LOUIS B. SMYSER, Elizabeth, N. J.; said Smyser assignor to said Canda. Filed May 1, 1900. Serial No. 15,062. (No model.)



Claim.—1. In a driving mechanism, the combination, with a shaft, two oppositely-arranged friction-disks mounted thereon and movable longitudinally and rotatively with respect thereto, power-transmitting devices for connecting one or the other of the disks to said shaft at will, and means for operating said power-transmitting devices, of a friction-wheel interposed between, and adapted to coact with, said friction-disks, a shaft upon which said wheel is mounted in driving connection, said wheel being arranged to be moved in and out along the shaft, means for so moving said wheel, and automatic take-up devices operating independently of the operation of the power-transmitting devices of the friction-disks, for pressing said disks against said friction-wheel.

2. In a driving mechanism, the combination, with a shaft, two oppositely-arranged friction-disks mounted thereon and movable longitudinally and rotatively with respect thereto, and band-clutches for connecting one or the other of the disks to said shaft at will, of a friction-wheel interposed between, and adapted to coact with, said friction-disks, a shaft upon which said wheel is mounted in driving connection, said wheel being arranged to be moved in and out along said shaft, means for so moving said wheel and automatic take-up devices operating independently of the operation of the clutches, for pressing the friction-disks against said friction-wheel.

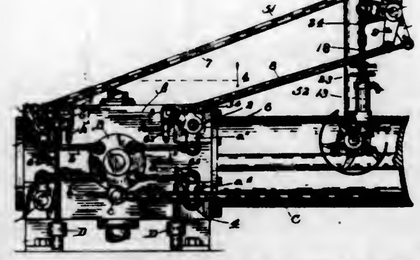
3. In a driving mechanism, the combination, with a shaft, two oppositely-arranged friction-disks mounted thereon and movable longitudinally and rotatively with respect thereto, friction-rings carried by said disks, wheels carried by said shaft, means for pressing said rings against said wheels at will, thereby placing either of said disks, at will, in driving connection with said shaft, and follower-springs, carried by said wheel and tending to press said disks toward each other, of a friction-wheel interposed between, and adapted to coact with, said friction-disks, a shaft upon which said wheel is mounted in driving connection, said wheel being arranged to be moved in and out along said shaft, and means for so moving said wheel.

4. In a driving mechanism, the combination, with two oppositely-arranged friction-disks, a shaft adapted to be driven therefrom, and means for connecting one or the other of the disks to said shaft at will, of a friction-wheel interposed between, and adapted to coact with, said friction-disks, a shaft upon which said wheel is mounted in driving connection, said wheel being arranged to be moved in and out along said shaft, a similar wheel mounted upon the opposite side of the axis of rotation of said friction-disks, and arranged to be moved in and out in accordance with the movement of said friction-wheel, and means for so moving said wheels in conjunction.

5. In a driving mechanism, the combination, with two oppositely-arranged friction-disks, a shaft adapted to be driven therefrom, and means for connecting one or the other of the disks to said shaft at will, of a friction-wheel interposed between, and adapted to coact with, said friction-disks, a shaft upon which said wheel is mounted in driving connection, said wheel being arranged to be moved in and out along said shaft, a similar wheel mounted upon the opposite side of the shaft on which the friction-disks are mounted, and likewise arranged to be moved in and out, a pinion mounted between the friction-disks, rack-bars intermeshing with said pinion and engaging the said wheels and arranged to move the same longitudinally, and means for rotating the pinion.

6. In a driving mechanism, the combination, with a shaft, two oppositely-arranged friction-disks thereon, clutches for connecting either of said disks to said shaft at will, and a friction-wheel interposed between, and adapted to coact with, said friction-disks, of a supporting-bar arranged parallel with said shaft, shifting-arms for operating said clutches, mounted on said bar, and means for moving said arms along the bar.

677,855. ENGINE-GOVERNOR. EMORY M. CARR, Newcastle, Ind. Filed Nov. 23, 1900. Serial No. 37,465. (No model.)



Claim.—1. The combination, in a pumping system, of a pumping-engine provided with a hook mechanism for controlling the valves whereby a variable cut-off is produced, a cylinder communicating with the discharge-pipes of the pumping system, a piston therein adapted to be operated in one direction by said pressure, a spring adapted to operate said piston in the other direction against the pressure, a T-shaped rocking lever with one arm of which said piston is connected, rods running from the other arms of said lever to cams by which the hooks of the cut-off mechanism are controlled, and said hooks, said several parts being arranged and operating substantially as set forth.

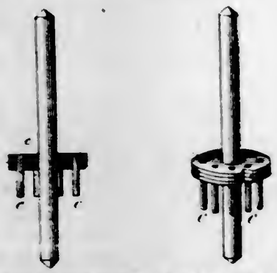
2. The combination, in a pumping system, of an engine provided with hook mechanism for controlling the cut-off, an ordinary speed-governor for actuating said hooks, and a pressure-governor operated from the pressure in the discharge-pipes of the pumping system for also operating said hooks; said pressure-governor embodying a cylinder connected to the discharge-pipes of the system, a piston therein adapted to be operated in one direction by the pressure, a spring adapted to operate said piston in the opposite direction against the pressure, a T-shaped lever mounted to rock on a shaft, one arm whereof is connected to the piston-rod of said cylinder, and rods connected to the other arms of said lever and to the cams for operating the hooks of the cut-off mechanism of the engines, all substantially as shown and described.

677,856. LANTERN-PINION. PERCIVAL L. CLARK, Bristol, Conn., assignor to Emma F. Clark, same place. Filed June 4, 1900. Serial No. 18,962. (No model.)

Claim.—1. A lantern-pinion comprising a collet formed of a plurality of disks having registering apertures for the leaves, substantially as described.

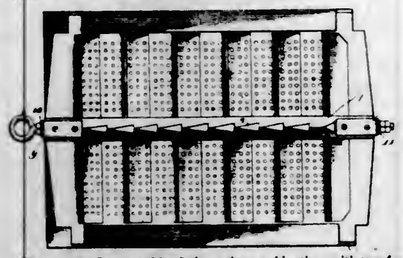
2. A lantern-pinion comprising a collet formed of a plurality of disks having registering apertures for the leaves of substantially the diameter

of the leaves, and the leaves fitted in said apertures, substantially as described.



3. A lantern-pinion comprising a collet formed of a plurality of disks having the apertures for the leaves and each disk provided with a centering-point to enable them to be assembled with the apertures for the leaves in alinement, substantially as described.

677,857. GRAIN-SIEVE. HENRY K. CLEMENT, Laporte, Ind. Filed Sept. 1, 1900. Serial No. 28,839. (No model.)



Claim.—1. In a combined sieve, the combination, with two frames, each of which is provided with a central bar, the one within the main frame being perforated longitudinally, of a screw-threaded plate at each end of the main frame, a substantially U-shaped clamp secured to the ends of the bar on the movable frame, the central portion of which is perforated and registers with the perforation on the main frame and the free end extends to the opposite side of the main frame, a screw-threaded bolt through said perforation and said plates, each end of which is provided with a stop for engaging with the clamp, and one end is provided with a handle, substantially as described.

2. In a combined sieve, the combination, with two frames, each of which is provided with a central bar and one of them is provided with strengthening-ribs upon its edges, the ribs and bar upon the movable frame being triangular in cross-section and the bar being provided with inclined notches at its upper edge, each of the frames being provided with transversely-arranged perforated strips, and means for adjustably moving one frame upon the other and holding it in its adjusted position, substantially as described.

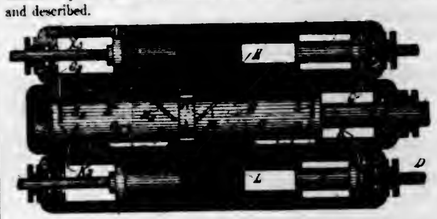
3. In a combined sieve, the combination, with a main frame, the ends of which are inclined or beveled, of perforated strips, an auxiliary frame provided with transversely-perforated strips, there being one more strip on the auxiliary frame than there are strips on the main frame, and one edge of each of said strips being provided with an inclined blade, and means for moving said auxiliary frame upon the main frame, substantially as described.

677,858. VALVE-ACTUATING MECHANISM. WILLIAM H. COLLIER, Jackson, Tenn. Filed Apr. 9, 1900. Serial No. 12,267. (No model.)

Claim.—1. A steam-actuated valve-gear comprising a hollow cylindrical controlling-valve with spiral and annular openings, admission and exhaust valve and actuating-pistons, controlled by said hollow controlling-valve, substantially as shown and described.

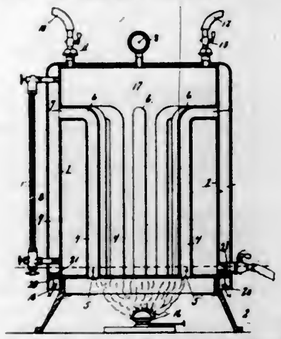
2. A steam-actuated valve-gear comprising a hollow cylindrical controlling-valve with spiral and annular openings, admission and exhaust valve actuating-pistons controlled by said valve, valve having fixed valve-rod passing through rocker-arm and connected to shaft-eccentric by means of ball-joint, said rocker-arm being connected to and vibrated by governor, substantially as shown and described.

3. A steam-actuated valve-gear comprising a hollow cylindrical controlling-valve with spiral and annular openings, actuating-pistons connected to and operating engine admission and exhaust valves, a valve-stem fixed to controlling-valve passing through rocker-arm and connected to eccentric by means of ball-joint and interposed rod, substantially as shown and described.



4. A steam-actuated valve-gear comprising a hollow cylindrical controlling-valve with spiral and annular openings, said valve having fixed valve-rod, admission and exhaust valve actuating-pistons, said pistons having differential areas, a rocker-arm attached to and vibrated by governor, said rocker-arm having fixed key engaging prolonged keyway in valve-rod and an interposed rod with ball-joint connecting said valve-rod to eccentric having fixed throw, substantially as shown and described.

677,859. WATER-HEATER AND PIPE-CLEANING APPARATUS. THOMAS E. COOK and GEORGE J. STREBE, Detroit, Mich. Filed Sept. 14, 1900. Serial No. 29,999. (No model.)



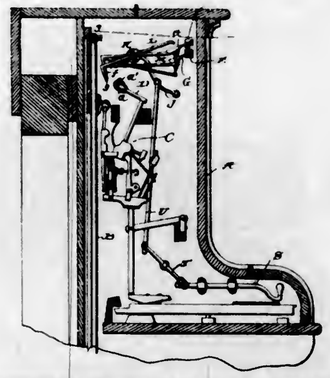
Claim.—1. In a water-heater and pipe-cleaning apparatus, the combination of the water-receptacle, a series of flues passing upwardly through the bottom of said receptacle and discharging through the side wall thereof, a hood embracing said receptacle and spaced therefrom forming an annular air-space between the receptacle and hood opening at its lower end, induct water-pipe and an induct pressure-pipe communicating with the interior of said receptacle, an educt-pipe leading from said receptacle and a burner or heater located below the bottom thereof.

2. The combination of a water-receptacle, having a series of vertical flues passing upwardly through the bottom thereof and provided with right-angled bends which direct the upper ends of the flues through the side wall of the receptacle, a hood forming an air-space into which said flues discharge, said air-space being closed at the top and normally open at the bottom and communicating directly with the exterior air, means for regulating the bottom opening of said air-space, a heater communicating with the lower end of said flues, water induct and educt pipes and an exterior pressure-pipe communicating with the interior of said receptacle.

677,860. PIANO ATTACHMENT. JOHN H. DEUTSCH, Dallas, Tex., assignor of one-half to MAX BUSCH, same place. Filed Oct. 25, 1900. Serial No. 34,319. (No model.)

Claim.—1. The combination with a piano; of an attachment comprising devices, independent of the piano-strings, calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings when struck, and strikers for said devices, arranged to be engaged and actuated by the hammers of the piano-action incident to the movement of the hammers toward the strings.

2. The combination with a piano; of an attachment comprising devices, independent of the piano-strings, calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings when struck, and levers, for striking said devices, arranged to be engaged and actuated by the hammers of the piano-action; incident to the movement of the hammers toward the strings; the said levers being adjustable whereby they may be moved into and out of the paths of the hammers comprised in the piano-action.



3. The combination with a piano; of an attachment comprising devices supported in the piano-case, and calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings when struck, a support arranged in the piano-case, and spring-pressed levers for striking said devices; the said levers being fulcrumed at an intermediate point of their length on the support, and having metallic tips at their forward ends arranged to engage said devices, and depending branches at their rear ends adapted to be engaged by the hammers of the piano-action, substantially as specified.

4. The combination with a piano, the hammers comprised in the action of which are provided with projections on their upper sides; of an attachment comprising devices supported in the piano-case, and calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings when struck, a support arranged in the piano-case, and spring-pressed levers for striking said devices; the said levers being fulcrumed at an intermediate point of their length on the support and having metallic tips at one end to strike the said devices, and depending branches at their opposite ends provided with leather tips adapted to be engaged by the projections on the hammers of the piano-action.

5. The combination with a piano; of an attachment comprising devices supported in the piano-case, independent of the piano-strings, and calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings when struck, and levers for striking the said devices; the said levers being provided with dampers, and being adapted to be engaged and actuated by the hammers of the piano-action, incident to the movement of the hammers toward the strings.

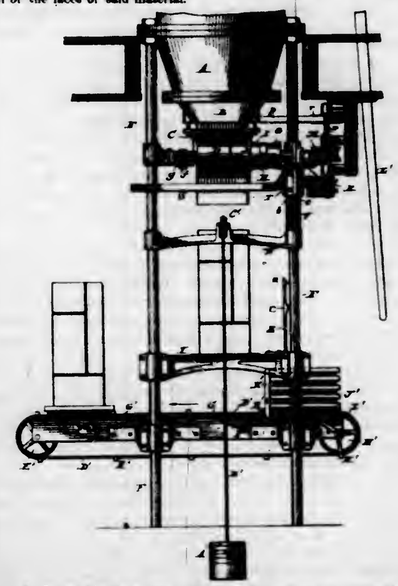
6. The combination with a piano; of an attachment comprising devices supported in the piano-case, and calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings, when struck, a swinging support arranged in the piano-case, spring-pressed levers for striking said devices; the said levers being fulcrumed on the support, and adapted to be engaged and actuated by the hammers of the piano-action, and suitable means through the medium of which the support is moved to carry the levers into and out of the paths of the hammers.

7. The combination with a piano, of an attachment comprising devices, independent of the piano-strings, calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings when struck, strikers, for said devices, adapted to be engaged and actuated by the hammers of the piano-action, incident to the movement of said hammers toward the strings, and a movable support for the strikers whereby the same may be placed in the paths of the hammers or out of the paths thereof, as desired.

8. The combination with a piano; of an attachment comprising bars arranged one above the other and adjacent to and parallel with the front panel of the piano-case, devices connected to said bars, and calculated, when struck, to afford sounds different in quality from those afforded by the piano-strings, a movable support, levers connected to said support and fulcrumed on the piano-case, means connected to one of said levers for adjusting the support, and spring-pressed levers fulcrumed at an intermediate point of their length on the movable support, and having metallic tips at their forward ends, and depending branches at their rear ends, the latter being adapted to be engaged by the hammers of the piano-action, substantially as and for the purpose set forth.

677,861. MACHINE FOR THE MANUFACTURE OF HOLLOW TERRA-COTTA AND CLAY WARE. EDWARD G. DURANT, Pasadena, Cal. Filed Aug. 1, 1900. Serial No. 725,790. (No model.)

Claim.—1. In combination with a clay-working machine; a vertically-disposed forming-die; and a separate and independent finishing-die located in a plane below the forming-die, and arranged to receive the material being operated upon directly from the forming-die and to act upon all of the faces of said material.



2. In combination with a clay-working machine; a vertically-disposed forming-die; and a separate and independent finishing-die having an outwardly-flaring upper edge, said finishing-die being located in a plane below the forming-die and adapted and arranged to receive the material being operated upon directly from the forming-die without the intervention of any intermediate support.

3. In combination with a clay-working machine, a vertically-disposed forming-die; a separate and independent finishing-die located in a plane below the same; and means for applying coloring-matter or the like to the various outer surfaces of the material being acted upon at a point intermediate the two dies.

4. In combination with a machine for working clay, a forming-die; a finishing-die adapted to receive the material directly from said forming-die without the intervention of any intermediate support, said finishing-die being arranged to act upon all the faces of the material; and an ornamenting-roll working in conjunction with the finishing-die.

5. In combination with a machine for working clay, a forming-die; a finishing-die adapted to act on all the faces of the material and to receive the material directly from the forming-die without the intervention of an intermediate support; means for introducing glaze or the like intermediate said die to one or all of the faces of the material being operated upon; and an ornamenting-roll working in conjunction with the finishing-die.

6. In combination with a machine for working clay, a vertically-disposed forming-die; a finishing-die suspended therefrom; and an ornamenting-roll working in conjunction with the finishing-die.

7. In combination with a machine for working clay, a forming-die; a finishing-die; an ornamenting-roll adapted to work in conjunction with the finishing-die; and means for imparting motion to the roll, substantially as described, whereby the roll is caused to travel at a speed equal to that of the descending tile.

8. In a tile-machine, the combination of a forming-die; a finishing-die working in conjunction therewith, and an embossing-roll working in conjunction with the finishing-die; a comb adapted to bear upon the tile intermediate said dies; and means for introducing glaze or the like upon the surface acted upon by the comb.

9. In combination with a machine for working clay, a forming-die; a finishing-die; an ornamenting-roll adapted to work in conjunction with the finishing-die and to come into contact with and receive motion from the descending tile; and means independent of the tile for imparting motion to the roll, substantially as described, whereby the roll is caused to travel at a speed equal to that of the descending tile.

10. In a tile-machine, the combination of a die; an impression-roll working in conjunction therewith; punches; and connections intermedi-

ate said punches and the impression-roll for throwing said punches into operation.

11. In a tile-machine, the combination of a die; an impression-roll working in conjunction therewith; a punching mechanism; means for imparting motion to said punching mechanism; and devices independent of the impression-roll and the means for driving the punching mechanism, serving to throw the punch-operating means into and out of operative relation.

12. In a tile-machine, the combination of a die; an impression-roll working in conjunction therewith; punching-dies adapted to form perforations in the tile as it leaves the die; a severing device for cutting off the tile into determinate lengths; and connections between said parts for bringing them into operation at predetermined intervals.

13. In a tile-machine, the combination of a die; an impression-roll working in conjunction therewith; a severing device for the tile; and means controlled by the operation of the roll for swinging the severing device across the path of travel of the tile, and also in a direction in line with the travel of the tile.

14. In a tile-machine, the combination of a die; an impression-roll working in conjunction therewith; punching mechanism adapted to punch the tile as it descends from the die; a severing device for the finished tile, said device being movable across the path of travel of the tile and also downwardly in line therewith; and means for imparting motion to the impression-roll, the punches, and the severing mechanism, substantially as described.

15. In a tile-machine, the combination of a forming-die; a table or carrier movable toward and from said die; means for normally holding said table up toward said die; an endless belt mounted in the framework below the table; a series of boards held at one end of the belt; and means carried by said belt for withdrawing the boards one at a time and placing them in position on the carrier.

16. In a tile machine, the combination of a forming-die; a pair of punching-levers located at one side of said die, said levers being pivoted and arranged so that they may close against the tile and also move downwardly therewith, substantially as described.

17. In combination with a clay-working machine, a die for forming hollow tile; a separate and independent finishing-die adapted to act upon the exterior faces of the tile; an ornamenting-roll working in conjunction with said finishing-die; and means for applying glaze or the like to all the faces of the tile at a point intermediate the dies.

18. In a machine for forming hollow terra-cotta ware, the combination of a die adapted to form a continuous length of hollow tile; a die for finishing the outer surfaces of said tile; an ornamenting-roll working in conjunction with said finishing-die; and means for introducing glaze or the like to the tile intermediate the dies.

677,862. COIL FOR ELECTROMAGNETS AND INSULATING MATERIAL THEREFOR. ELMER P. DWYER, Lynn, Mass. Filed May 14, 1900. Serial No. 16,602. (No model.)



Claim.—1. A coil for an electromagnet, having, in combination, one or more layers of grooved insulating material and a conductor laid in said grooves and held in position thereby, substantially as described.

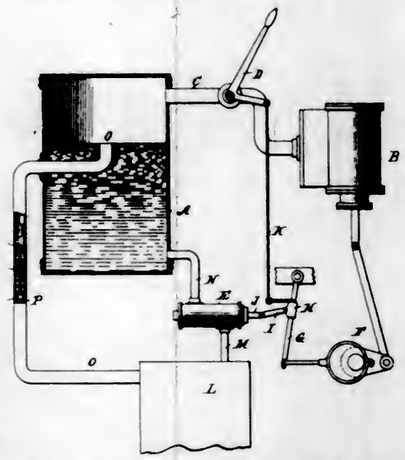
2. A coil for an electromagnet, having, in combination, superimposed sheets of grooved flexible insulating material, provided with marginal surfaces free from said grooves, means for securing the sheets together at their margins, and a conductor positioned in the grooves, substantially as described.

3. A coil for an electromagnet, having, in combination, a coiled conductor and an insulating material provided with a ventilating-groove intersecting the convolutions of the conductor, substantially as described.

4. An article of manufacture, consisting of a flexible sheet of insulating material, provided upon its surface with a series of parallel wire-receiving grooves and a groove or grooves intersecting said grooves, substantially as described.

5. A coil for an electromagnet, having, in combination, superimposed sheets of flexible insulating material, each sheet being provided with a series of parallel grooves, the end of one groove registering with the end of the next adjacent groove at the abutting edges of the sheet to form a continuous groove and a conductor laid in said grooves and held in position thereby, substantially as described.

677,863. BOILER-FEED APPARATUS. WILLIAM E. GIBBS, Fanwood, N. J. Filed June 19, 1900. Serial No. 20,800. (No model.)



Claim.—1. In a boiler-feed apparatus in combination with mechanism adapted to automatically maintain the supply of boiler feed-water in excess of the demand upon the boiler, an overflow at the water-level in the boiler and a steam-trap in said overflow for the automatic discharge of any surplusage of said feed-water, substantially as set forth.

2. In a boiler-feed apparatus the combination of a boiler, an engine, a boiler-feed-water pump, means for controlling the supply of steam from the boiler to the engine and means, operated by said controlling means for controlling the feed-water supply automatically in substantially fixed proportion to the steam-supply, and means for the automatic discharge of water in excess of that required to maintain the desired level, substantially as set forth.

3. In a boiler-feed apparatus the combination of a boiler, an engine, a boiler-feed-water pump, means for controlling the supply of steam from the boiler to the engine, an overflow at the normal water-level in the boiler, and means operated by said controlling means for the supply of feed-water in slight excess of the exhaust of steam from the boiler, and means for controlling the overflow of excess water from the boiler, substantially as set forth.

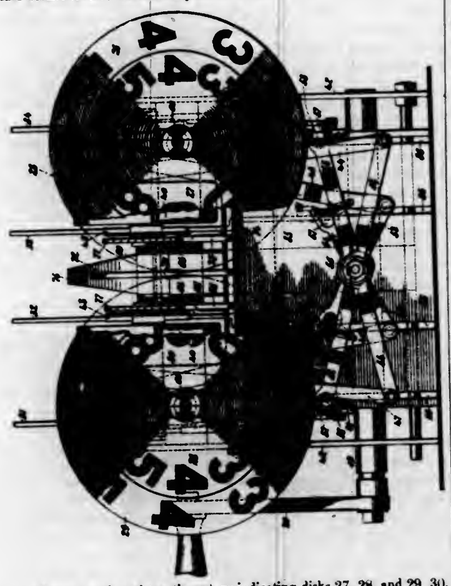
4. In a boiler-feed apparatus the combination of a boiler, an engine, a boiler-feed-water pump, means for controlling the supply of steam from the boiler to the engine, an overflow at the normal water-level in the boiler, means controlled by excess water in the boiler for regulating said overflow, and means operated by the steam-supply-controlling means for maintaining the feed-water supply in excess of the steam-supply, substantially as set forth.

5. In a boiler-feed apparatus the combination of a boiler, a feed-water pump, an operating device therefor, a throttle-lever controlling the engine steam-supply and connected to and adapted to simultaneously control said operating device so as to supply feed-water in substantially fixed proportion to the exhaust of the steam from the boiler, an overflow-pipe in the boiler and a steam-trap controlling said overflow, substantially as set forth.

6. In a boiler-feed apparatus the combination of a boiler, a feed-water tank, a feed-water pump of variable delivery, an overflow-pipe leading from the water-level of the boiler to said feed-water tank and a steam-trap in said overflow-pipe, substantially as set forth.

677,864. CASH-REGISTER. HARVEY GILES, South Boundbrook, and JOHN G FLEMING, New Boundbrook, N. J., assignors to the Ideal Cash Register Company, New Boundbrook, N. J. Filed Sept. 18, 1900. Serial No. 30,408. (No model.)

Claim.—1. In a cash-register, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive in the line of a circle along the outer portions of its face, and said disks 27, 30, being respectively smaller in diameter than and disposed within the circle of the disks 28, 29, combined with the units-of-cents and tens-of-cents hand setting-levers 21 in line with the units-of-dollars and tens-of-dollars indicating-disks 29, 30, intermediate connecting mechanism between said levers and the units-of-cents and tens-of-cents disks 27, 28, for rotating the latter from the said levers, the units-of-dollars and tens-of-dollars hand setting-levers 21 in line with the units-of-cents and tens-of-cents indicating-disks 27, 28, and intermediate connecting mechanism between said dollars-levers 21 and said disks 29, 30, for rotating the latter from the said dollars-levers; substantially as set forth.



2. In a cash-register, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive in the line of a circle along the outer portions of its face, and said disks 27, 30, being respectively smaller in diameter than and disposed within the circle of the disks 28, 29, combined with the hand setting-levers, the pinion-wheels connected with the said disks, means intermediate said hand-levers and said pinion-wheels for rotating the said wheels and their said disks from said hand-levers, the inclosing casing having the window-opening for the indication, and means for elevating said disks, after they have been rotated by said hand-levers, to said window-opening to expose the indication; substantially as set forth.

3. In a cash-register, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive in the line of a circle along the outer portions of its face, and said disks 27, 30, being respectively smaller in diameter than and disposed within the circle of the disks 28, 29, combined with the hand setting-levers, the pinion-wheels connected with the said disks, means intermediate said hand-levers and said pinion-wheels for rotating the said wheels and their said disks from said hand-levers, the inclosing casing having the window-opening for the indication, means for elevating said disks, after they have been rotated by said hand-levers, to said window-opening to expose the indication, means for supporting said disks in their thus-elevated position, and means connected with said hand-levers for withdrawing said supporting means from said disks on the movement of any one of said setting-levers so as to allow said disks to descend; substantially as set forth.

4. In a cash-register, the rotary indicating cylinders or drums 23, 24, and 25, 26, bearing upon their periphery the numerals from "0" to "9" inclusive, and the rotary indicating-disks 27, 28, and 29, 30, bearing numerals from "0" to "9" inclusive, the said disks 27, 28, being for units of cents and tens of cents and disposed in line with and at right angles to the units-of-dollars and tens-of-dollars cylinders or drums 25, 26, and the said disks 29, 30, being for units of dollars and tens of dollars and disposed in line with and at right angles to the units-of-cents and tens-of-cents cylinders or drums 23, 24, combined with the hand setting-levers 21, the pinion-wheels connected with said cylinders or drums and said disks, the rack-bars in mesh with said pinions for rotating the same and said cylinders or drums and disks, and means connecting said hand-levers with said rack-bars in pairs, whereby on the movement of any one of said hand setting-levers 21, two of said rack-bars will be moved to rotate one cylinder or drum and one disk; substantially as set forth.

5. In a cash-register, the rotary indicating cylinders or drums 23, 24, and 25, 26, bearing upon their periphery the numerals from "0" to "9" inclusive, and the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive, the said disks 27, 28, being for units of cents and tens of cents and disposed in line with and at right angles to the units-of-dollars and tens-of-dollars cylinders or drums 25, 26, and the said disks 29, 30, being for units of dollars and tens of dollars and disposed in line with and at right angles to the units-of-cents and tens-of-cents cylinders or drums 23, 24, combined with the hand setting-levers 21, the pinion-wheels connected with said cylinders or drums and said disks, the rack-bars in mesh with said pinion-wheels for rotating the same and said cylinders or drums and disks, the series of lever-arms 52, 53, 54 and 55 disposed at the rear portion of the machine below the said indicating devices, means respectively connecting the said hand-levers with one end of said levers 52, 53, 54 and 55, means connecting the rack-bars for said cylinders or drums with said hand-levers, and means respectively connecting the rack-bars for said indicating-disks with the other end of said levers 52, 53, 54 and 55, whereby upon the movement of any one of said hand-levers 21, two rack-bars will be moved, one for rotating one of the cylinders or drums and the other for rotating one of the said disks; substantially as set forth.

7. In a cash-register, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive in line of a circle along the outer portions of its face, and said disks 27 and 30 being smaller in diameter than and disposed within the circle of the disks 28, 29, combined with the rotary indicating cylinders or drums 23, 24 and 25, 26, each bearing numerals from "0" to "9" inclusive on its periphery, the series of hand setting-levers 21, and means intermediate said levers and said cylinders or drums and said disks, whereby on the movement of any one of said levers one of the said cylinders or drums and one of said disks will be rotated; substantially as set forth.

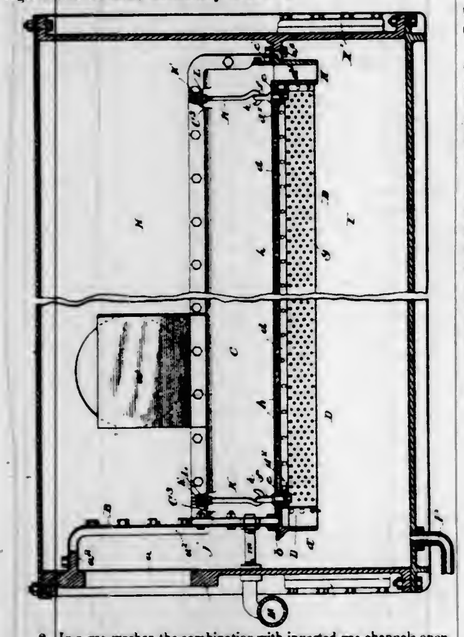
8. In a cash-register, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive, and the rotary indicating cylinders or drums 23, 24, and 25, 26, each bearing numerals from "0" to "9" inclusive, combined with the hand setting-levers 21 and means intermediate said levers and said cylinders or drums and disks, whereby on the movement of any one of said levers one of said cylinders or drums and one of said disks will be correspondingly rotated so as to indicate at the front and rear sides of the register simultaneously, with the numerals in position to be read from left to right; substantially as set forth.

9. In a cash-register, the casing having the front and rear window-openings, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive, the rotary cylinders or drums each bearing numerals from "0" to "9" inclusive on its periphery, and the vertically-movable frame supporting said cylinders or drums and said disks, combined with the hand setting-levers 21, means intermediate the same and said cylinders or drums and disks for rotating the latter from said hand-levers, the operating crank-handle 20, the driving-shaft 19 receiving said handle, and means intermediate said shaft and the frame supporting the indicating devices for elevating said indicating devices to said window-openings on the movement of said crank-handle; substantially as set forth.

10. In a cash-register, the casing having the front and rear window-openings, the rotary indicating-disks 27, 28, and 29, 30, each bearing numerals from "0" to "9" inclusive, the rotary cylinders or drums each bearing numerals from "0" to "9" inclusive on its periphery, and the vertically-movable frame supporting said cylinders or drums and said disks, combined with the hand setting-levers 21, means intermediate the same and said cylinders or drums and disks for rotating the latter from said hand-levers, the operating crank-handle 20, the driving-shaft 19 receiving said handle, means intermediate said shaft and the frame supporting the indicating devices for elevating said indicating devices to said window-openings on the movement of said crank-handle; the dog for supporting the said indicating devices in their elevated position, and means for releasing said supporting-dog from said indicating devices on the movement of any one of said setting-levers 21; substantially as set forth.

677,865. GAS-WASHER. OLAF H. GULBIN, Fort Wayne, Ind. Filed Sept. 20, 1900. Serial No. 30,565. (No model.)

Claim.—1. In a gas-washer, the combination with inverted gas-channels of perforated detachable extension-plates, extending into the washing liquor and clamping devices for holding them against the lower edges of said channels, substantially as described.



2. In a gas-washer, the combination with inverted gas-channels open at the bottom, of a detachable frame carrying two perforated downwardly-extending plates, and clamping devices for holding said frame against the lower edges of two adjacent channels, substantially as described.

3. In a gas-washer, the combination with a series of inverted gas-channels open at the bottom, of detachable frames having perforated downwardly-extending plates and detachable clamping devices supported on the channels for holding said frames against the lower edges of the channels, substantially as described.

4. In a gas-washer, the combination with a series of inverted gas-channels open at the bottom, of detachable frames having perforated extension-plates and a perforated top plate between the channels and means for suspending and holding said frames against the lower edges of the channels, substantially as described.

5. In a gas-washer, the combination with a series of inverted gas-channels open at the bottom, of a detachable arched perforated plate and means for holding said plate against the lower edges of adjacent channels, substantially as described.

6. In a gas-washer, the combination with a series of inverted gas-channels open at the bottom, of a detachable frame having perforated extension-plates and cross-bars, of a supporting bar or bars above said frames and clamping-hangers engaging with said bars and also with the frame for holding it against the lower edges of adjacent channels, substantially as described.

7. In a gas-washer, the combination with inverted gas-channels open at the bottom in the washing liquor, of perforated plates extending longitudinally between the lower edges of adjacent channels and liquor-supply pipes discharging above said perforated plates, substantially as described.

8. In a gas-washer, the combination with inverted gas-channels open at the bottom, of frames, each having lateral, inclined perforated plates, a perforated top plate and closed end plates, said frames being placed with their upper longitudinal edges against the lower longitudinal edges of adjacent gas-channels, substantially as described.

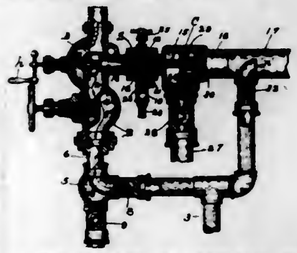
9. In a gas-washer, the combination with a series of inverted gas-channels open at the bottom, of detachable, removable frames having perforated extension-plates and a perforated crown-plate, supporting-bars resting on the tops of the channels and having screw-threaded openings, clamping-hangers screw-threaded and engaging with said supporting-bars and also engaging at their lower ends with said frames for clamping them against the lower edges of the gas-channels, substantially as described.

10. In a gas-washer, the combination with a series of inverted gas-channels open at the bottom, of extension perforated plates and perforated crown-plates between the channels, a liquor-supply pipe opening above one end of said crown-plate and a discharge-opening for liquor at the opposite end of said plate, whereby the washing liquor is caused to travel along the top of the plate and the gas to pass through the same, substantially as described.

11. In a gas-washer, the combination with a pair of inverted gas-channels open at the bottom, in the washing liquor, of a perforated plate supported between adjacent channels, a liquor-feed pipe, opening between the channels, at one end, above said perforated plate and a liquor-discharge pipe at the opposite end of said plate, whereby the fresh liquor is caused to flow over said plate and gas to pass in streams through the same, substantially as described.

12. The combination with the gas-washing box having a gas-inlet and deflecting apron at one side or end, of inverted gas-channels connecting at one end with said apron, perforated plates extending longitudinally between the lower edges of adjacent channels, liquor-supply pipes opening above said plates at one end, discharge-passages at the opposite ends communicating with the liquor-compartment below the plates, and a liquor-outlet pipe connecting with the box below the plates at the same end where the liquor is admitted above the plates whereby the liquor is caused to circulate through the box both above and below the perforated plates, substantially as described.

677,866. APPARATUS FOR RETURNING EXHAUST-STEAM TO STEAM-BOILERS. WILLIAM T. HARRIS, Louisville, Ky. Filed Nov. 30, 1900. Serial No. 38,241. (No model.)



Claim.—1. The combination, with a steam-boiler and a steam-engine, of an apparatus for returning the exhaust-steam from said engine to said boiler, consisting of an injector one portion whereof is connected to said steam-boiler at a point above the water-line, and another portion whereof is connected to said steam-boiler at a point below the water-line therein and also connected to a cold-water supply, said injector being provided with a vacuum-chamber into which the exhaust-steam from the engine is discharged by means of a suitable pipe, said pipe, an exhaust-vacuum nozzle connected with said chamber, and means for establishing a circulation through the injector, whereby the water and exhaust-steam are driven back into the boiler thereby.

2. The combination, in an injector, of the main shell or body containing a live-steam chamber and a water-chamber, suitable connections with the boiler whereby the steam and the water are admitted to said chambers respectively, an injector-nozzle communicating with said steam-chamber and positioned to discharge into a combining-tube which communicates with said water-chamber, said combining-tube having radial perforations therein, a vacuum-chamber surrounding the shell containing said combining-tube at the point where it contains said radial perforations, a valve in said shell, an overflow-chamber communicating with said vacuum-chamber and having a suitable exhausting-nozzle therein, and a small pipe leading from said nozzle to the live-steam chamber and containing a valve, whereby when said valve is opened and the other valves of the apparatus are in proper position water will be drawn up into said vacuum-chamber by the force created by the steam passing through said pipe and nozzle, substantially as set forth.

3. The combination, in an injector, of the main shell or body containing chambers for water and steam, an injector-nozzle leading out of the steam-chamber therein, a suitable valve therefor, a combining-tube leading out of the water-chamber therein and arranged to receive the discharge from said injector-nozzle, a delivery-nozzle forming a prolongation of said combining-tube and passing through an exhaust-vacuum chamber, a check-valve surrounding said delivery-nozzle and closing the orifice leading from said exhaust-vacuum chamber toward the delivery-point against backflow, an exhaust-vacuum nozzle leading from the space containing the check-valve, a pipe surrounding the mouth of the same and leading thence back to the boiler, and a pipe leading from the engine to said exhaust-vacuum chamber and adapted to conduct the exhaust-steam thereto.

4. The combination, with a steam-boiler and a steam-engine, of an injector containing a steam-chamber, a water-chamber, and a vacuum-chamber, said steam-chamber being connected with the steam-boiler at a point above the water-line, said water-chamber being connected with the steam-boiler at a point below the water-line, and said vacuum-chamber being connected with the exhaust-pipe of the steam-engine, a combining-tube arranged in said structure and leading from the water-chamber through the vacuum-chamber, and an injector-nozzle arranged in line with said combining-tube and leading from the live-steam chamber, said several pipes and passages being provided with suitable valves, whereby the exhaust-steam is delivered into and mingled with the water and driven back into the boiler under the force of the discharge in said injector-nozzle.

5. The combination, with a steam-boiler and a steam-engine, of an injector adapted to return the exhaust-steam and its products to the boiler, said injector containing a live-steam chamber, a water-chamber, and a vacuum-chamber, said live-steam chamber being connected to the boiler above the water-line, said vacuum-chamber being connected to the steam-engine and adapted to receive the exhaust therefrom through a suitable pipe, and said water-chamber being connected both to the steam-boiler below the water-line and also to a source of cold-water supply, the hot-water supply terminating in a curved nozzle, 10, around which the cold water passes on its way to the cold-water chamber said injector being also provided with a combining-tube and delivery-nozzle extending from the water-chamber through the vacuum-chamber, an exhaust-vacuum nozzle surrounding the delivery-nozzle and leading from the vacuum-chamber into which the exhaust-steam is conveyed, a pipe adapted to receive the discharge from said exhaust-vacuum nozzle and which leads thence back to the boiler, and an injector-nozzle leading from the live-steam chamber and arranged to discharge into said combining-tube, substantially as set forth.

6. The combination, in an injector, of a main body containing a water-chamber and leading from said live-steam chamber, a combining-tube in line therewith having radial perforations and leading through a surrounding shell and through a vacuum-chamber, with the latter of which the exhaust-steam pipe from the engine is connected, a priming vacuum-chamber surrounding said shell, a valve-seat in said shell, a loosely-mounted valve thereon, and a teaser composed of a small pipe, valve, and nozzle, leading from the live-steam chamber, whereby water is drawn through radial perforations in said combining-tube into said priming vacuum-chamber and the injector thus primed.

7. The combination, with a steam-boiler and a steam-engine, of an injector whereby the exhaust-steam and its products are conveyed back to the boiler from the engine, a connection between said injector and said boiler at a point above the water-line, a second connection between said injector and said boiler at a point below the water-line whereby hot water is conveyed to said boiler through said injector, said connection being provided with a branch coupled to the return-pipe leading from said injector back to the boiler at a point beyond the nozzle thereof whereby a portion of said hot water is adapted to pass through the injector and a part by way of said branch pipe into said return-pipe beyond or ahead of said injector, substantially as set forth.

8. The combination, with a steam-boiler and a steam-engine, of an injector whereby the exhaust-steam and its products are conveyed back to the boiler from the engine, a connection between said injector and said boiler at a point above the water-line, a second connection between said injector and said boiler at a point below the water-line whereby hot water is conveyed to said boiler through said injector, said connection being provided with a branch coupled to the return-pipe leading from said injector back to the boiler at a point beyond the nozzle thereof said branch being coupled to said pipe by means of a coupling containing a curved nozzle, *n*, whereby a portion of said hot water may be discharged into said return-pipe and unite with the contents thereof without retarding the flow therein, substantially as set forth.

677,867. VEHICLE-TIRE. JOHN W. HAWKINS, Cuyahoga Falls, Ohio. Filed Dec. 20, 1900. Serial No. 40,505. (No model.)



Claim.—1. The means for attaching a yielding tire to a wheel, consisting in an annular rim attached to the felly and having flanges adapted to form an annular channel, an annular ridge extending into said channel and a band having its sides in engagement with the base of the tire and having its central part adapted to engage the annular ridge of the rim and to drive outwardly the sides of the band clenching the base of the tire to the flanges of the rim when pressure is applied to the outer surface of the tire, substantially as shown and described.

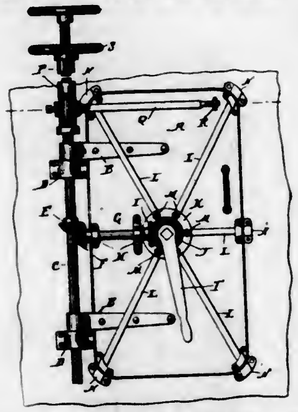
2. In a vehicle-tire, the combination of a rim having flanges adapted to form an annular channel and having an annular ridge extending into said channel, an elastic tire adapted to be inserted in said rim and provided at its base with an annular channel, a band having sides in engagement with the sides of the channel of the tire and having its central part adapted to engage the annular ridge in the rim and to drive outwardly the sides of the band clenching the base of the tire to the flanges of the rim when pressure is applied to the outer surface of the tire, substantially as and for the purposes shown and described.

3. In a vehicle-tire, the combination of a rim having flanges adapted to form an annular channel contracted toward its mouth and having an annular ridge extending into said channel, an elastic tire adapted to be inserted in said rim and provided at its base with an annular channel, means for securing said tire in said rim, consisting of a band having sides in engagement with the sides of the channel of the tire and having its intermediate part adapted to engage the annular ridge in the rim and to drive outwardly the sides of the band clenching the base of the tire to the flange of the rim, when pressure is applied to the outer surface of the tire, substantially as shown and described.

4. In a vehicle-wheel, the combination of a rim attached to the felly and having flanges forming a channel contracted toward its peripheral portion, and having an annular ridge extending into said channel, a yielding tire adapted to be mounted in said rim and provided at its base with a channel, means for securing the tire in the rim consisting of a band having rolled sides in engagement with recesses in the sides of the channel of the tire and having its intermediate part adapted to engage the ridge in the rim and when subjected to pressure to drive outwardly the sides of the band clenching the base of the tire to the flanges of the rim substantially as shown and for the purposes described.

5. In a vehicle-tire, in combination, a felly, a rim attached to the felly and having side flanges forming an annular channel contracted toward its mouth and having an annular ridge extending into said channel, a supporting-rib interposed between the felly and said annular ridge, a rubber tire mounted in said rim and provided at its base with an annular channel, means for securing said tire in said rim consisting of a band having its sides in engagement with the sides of the channel of the tire and having its central part adapted to engage the annular ridge in the rim and when subjected to pressure to drive outwardly the sides of the band clenching the base of the tire in the flanges of the rim, substantially as shown and for the purposes described.

677,868. SHIP'S DOOR. JOHN A. KESSLER, Philadelphia, Pa. Filed July 26, 1900. Serial No. 24,956. (No model.)



Claim.—1. In combination with a ship's door, a central disk K, adapted to be rotated, a series of bolts pivoted to said disk to be operated by the turning of the latter, a bevel-gear carried by the disk, a pinion meshing with said gear, a short shaft on which said pinion is secured, a second bevel-pinion E, meshing with the last-named pinion, a shaft on which the pinion E, is secured, an arm for operating the door and means for oscillating the arm, as and for the purpose described.

2. In combination with a door of the character described, a train of gears arranged to operate the bolt-disk for retracting or shooting the bolts, a vertical shaft journaled coincident with the hinging of the door, a gear carried by the vertical shaft meshing with said train of gears, means at-

tached to the upper end of the shaft for operating the same, a hollow shaft journaled around the vertical shaft, an arm carried by the hollow shaft and connected with the door for swinging the latter upon its hinges, means attached to the upper end of the hollow shaft for operating the same, as specified.

677,869. UNIVERSAL JOINT. GEORGE B. KIESLER, Hartford, Conn., assignor of one-half to Joseph A. Bennett, same place. Filed Nov 15, 1900. Serial No. 36,543. (No model.)



Claim.—1. A universal joint comprising two shaft-sections, two oppositely-located arms on each of the sections, a loose block located between the ends of said arms, balls interposed between said arms and said block and supported partly in each, whereby said balls may serve as movable bearings for said shaft-sections, and together with said block as interlocking means therefor, substantially as described.

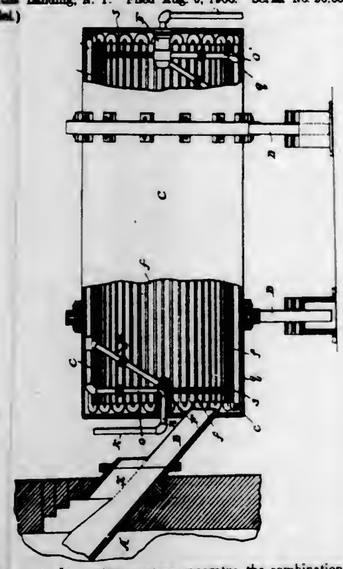
2. A universal joint comprising two shaft-sections, two oppositely-located arms on each of said sections, a screw in the end of each arm, the axis of which screws are at right angles to the axis of the shaft-sections, a ball-recess in the end of said screws, a ball-receiving block located between the said arms, ball-recesses in said block opposite the ends of said screws, and balls lying partly in the recesses in said screws and partly in those in said block, substantially as described.

3. A universal joint comprising two shaft-sections, two oppositely-located arms on each of said sections, a ball-receiving block located between the arms of the latter and having ball-recesses therein, balls in said recesses, and means in said arms for holding said balls in the recesses in the block, in the same plane whereby said balls may serve as pivotal points for the latter, and as interlocking means between said shaft-sections, substantially as described.

4. A ball-bearing connection between parts of shafting or similar structural elements comprising two ball-engaging arms on each of said shaft parts, a ball-engaging block intermediate of said arms, and a bearing-ball intermediate of each of said arms and the adjoining side of said block, substantially as described.

5. A ball-bearing connection between parts of shafting or similar structural elements, comprising two ball-engaging arms on each of said shaft parts, a ball-engaging block intermediate of said arms, and a bearing-ball intermediate of each of said arms and the adjoining side of said block, and means for adjusting the contact pressure of said ball-engaging parts theregainst, substantially as described.

677,870. ROTARY COOLING APPARATUS. JAMES W. KITTRELL, Smiths Landing, N. Y. Filed Aug. 6, 1900. Serial No. 26,054. (No model.)



Claim.—1. In a rotary cooling apparatus, the combination of a rotary shell, means to deliver the material to be cooled thereto, said shell being provided with channels arranged within it adjacent to its walls and movable with the shell when the latter is rotated, protective strips for said channels extending longitudinally of the shell and means for supplying a cooling fluid to and discharging it from said channels, substantially as set forth.

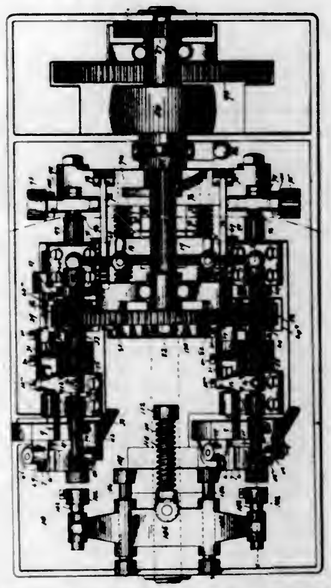
2. The combination with the rotating shell, of a series of pipes constituting conducting-channels arranged within the shell adjacent to the walls thereof and movable with the shell during its rotation, and protective strips arranged longitudinally of said shell, substantially as set forth.

3. The combination with the rotating shell, of a series of pipes constituting conducting-channels arranged within the shell adjacent to the walls thereof, protective strips arranged longitudinally of said shell, and bolts connecting said strips to the shell, substantially as set forth.

4. The combination with the rotating shell, of a series of pipes constituting conducting-channels arranged within the shell adjacent to the walls thereof, bearing-rings on the walls to support the pipes, and protective strips arranged longitudinally of said shell, substantially as set forth.

5. The combination with the rotating shell, of a series of pipes constituting conducting-channels arranged within the shell adjacent to the walls thereof, bearing-rings on the walls to support the pipes, protective strips arranged longitudinally of said shell, and bolts connecting said strips to the shell, substantially as set forth.

677,871. SCREW-MACHINE. JOSEPH P. LAVIGNE, New Haven, Conn., assignor to Wesley S. Block, New York, N. Y. Filed July 19 1900. Serial No. 24,231. (No model.)



Claim.—1. A screw-machine having a rotatable combined blank-carrier and back-rest consisting of a cylinder formed in its periphery with a plurality of laterally or radially open blank-chambers, and provided at its inner end with a flange through which the said chambers extend, and by means of which the blanks are held in place by their heads and necks while their shanks are being exposed through the laterally open portions of the said chambers for being cut.

2. In a screw-machine, the combination with a horizontally-arranged cylindrical rotatable combined blank-carrier and back-rest formed in its periphery with a series of laterally or radially opening blank-chambers, of an upright carrying the said part, and means for positively feeding blanks into the said chambers in one direction, and positively ejecting the finished screws from the said chambers in the opposite direction.

3. In a screw-machine, the combination with a cylindrical rotatable combined blank-carrier and back-rest, formed at its inner end with an integral flange and provided with a series of blank-chambers extending through the said flange by means of which the blanks are held in place by their heads and necks, and opening laterally or radially outward through the periphery of the body of the blank-rest for the exposure of the shanks of the blanks to a cutting instrumentality.

4. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating the blank and interrupting its rotation for the presentation of new surfaces to the cutter, whereby a plurality of threads are formed upon the blank.

5. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating the blank and interrupting its rotation without disconnection therefrom for shifting its surfaces with respect to the thread-cutter, whereby a plurality of threads are formed upon the blank.

6. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating the blank and interrupting its rotation for the shifting of its surfaces with respect to the thread-cutter, whereby a plurality of threads are formed upon the blank, the said instrumentalities including a longitudinally-movable screw-driver shaft and a clutch mechanism for temporarily releasing the same and hence stopping the blank, after which the shaft is again started in rotation for the rotation of the blank.

7. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating the blank and interrupting its rotation for shifting its surfaces with respect to the thread-cutter, whereby a plurality of threads are formed upon the blank, the said instrumentalities including a longitudinally-movable screw-driver shaft, a sleeve rotating the shaft and constituting a bearing therefor, an annular gear-wheel mounted upon the sleeve for sliding movement thereupon, means for coupling the gear with the sleeve in different relations thereto, and hence to the shaft, and means for automatically shifting the sleeve.

8. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating a blank and interrupting its rotation for shifting its surfaces with respect to the thread-cutter, whereby a plurality of threads are formed upon the blank, the said instrumentalities including a longitudinally-movable screw-driver shaft, a sleeve rotating the shaft and constituting a bearing therefor, an annular gear-wheel mounted upon the sleeve for sliding movement thereupon, means for coupling the gear with the sleeve in different relations thereto, a cradle receiving the annular gear, and means for automatically moving the cradle back and forth for shifting the gear to couple it with the sleeve in different relations thereto.

9. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating the blank and interrupting its rotation for shifting its surfaces with respect to the thread-cutter, whereby a plurality of threads are formed upon the blank, the said instrumentalities including a longitudinally-movable screw-driver shaft, a sleeve rotating the shaft, and constituting a bearing therefor, an annular gear-wheel mounted upon the sleeve and provided upon its opposite faces with clutch-pins, located diagonally opposite each other, clutch-pins connected with the sleeve and located directly opposite each other, and means for moving the gear to engage its clutch-pins with those of the sleeve.

10. In a screw-machine, the combination with means for supporting and cutting a screw-blank, of instrumentalities for rotating the blank and interrupting its rotation for shifting its surfaces with respect to the thread-cutter, whereby a plurality of threads are formed upon the blank, the said instrumentalities including a longitudinally-movable screw-driver shaft, means connected with the said shaft for rotating it and for interrupting its rotation, a rocking frame connected with the rear end of the screw-driver shaft for moving the same longitudinally, and means for rocking the frame.

11. In a screw-machine, the combination with a combined carrier and back-rest, of a thread-cutter, a longitudinally-movable screw-driver shaft, and means for rotating the said shaft and interrupting its rotation for shifting the surfaces of the blank with respect to the cutter, whereby a plurality of threads are formed upon the blank, the said means including a longitudinally-movable annular gear-wheel, a cradle in which the same is mounted, a cradle-cam for actuating the cradle, a ratchet-wheel for actuating the cam, a pawl for actuating the ratchet-wheel, and means for moving the pawl back and forth.

12. In a screw-machine, the combination with a cylindrical combined blank-carrier and back-rest formed with laterally or radially open peripheral blank-chambers, mechanism for actuating the same in step-by-step rotation, means for rotating the blanks in the said chambers, a thread-cutter for threading the laterally-exposed portions of the blanks, and a pointing-cutter located adjacent to the outer end of the said combined blank-carrier and back-rest, and moving in a line parallel with the axis thereof for pointing the projecting ends of the blanks.

13. In a screw-machine, the combination with a horizontally-arranged cylindrical combined blank-carrier and back-rest having a series of blank-chambers each opening laterally outward through the periphery of its body portion, of means for feeding the blanks into the said chambers in one direction, and means for positively ejecting the finished screws from the said chambers in the opposite direction.

14. In a screw-machine, the combination with a combined blank-carrier and back-rest, of means for feeding screw-blanks thereinto in one direction, and for ejecting the finished screws therefrom in the opposite direction, and means for connecting the said feeding and ejecting instrumentalities, whereby they are caused to operate simultaneously in the opposite directions.

15. In a screw-machine, the combination with a thread-cutter, of means for supporting a screw-blank, instrumentalities for rotating the blank and interrupting its rotation for the presentation of new surfaces to the cutter, a cutter-rod for carrying the said cutter, means for moving the said rod longitudinally to move the cutter lengthwise with respect to the screw-blank, a cam provided with a series of cam-surfaces arranged in groups of corresponding cam-surfaces, and means for transmitting the action of the said cam-surfaces to the cutter-rod and cutter, whereby corresponding chips are removed from different portions of a screw-blank as the same is intermittently rotated.

16. In a screw-machine, the combination with a thread-cutter, of means for supporting a screw-blank, instrumentalities for rotating the blank and interrupting its rotation for the presentation of new surfaces to the cutter, a cutter-rod for carrying the said cutter, means for moving the said rod longitudinally to move the cutter lengthwise with respect to the screw-blank, a cam for oscillating the cutters, provided with a series of cam-surfaces arranged in pairs of corresponding cam-surfaces the pairs of which are shaped to progressively increase the oscillation of the cutter and hence the depth of the threads cut thereby, and means for transmitting the action of the said cam-surfaces to the cutter-rod and cutter.

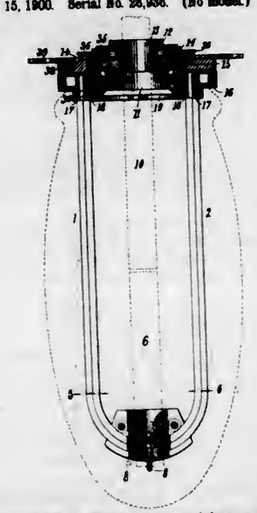
17. In a double screw-machine, the combination with two sets of blank-feeding, blank-rotating, thread-cutting and finished-screw-ejecting instrumentalities, of a rocking head connecting the blank-rotating instrumentalities for moving them longitudinally, means for rocking the said head, means for rotating the said blank-rotating instrumentalities and for interrupting their rotation, including two annular gear-wheels, means for driving the said gear-wheels, two cradles for shifting the said gear-wheels, a cradle-cam for operating the said cradles simultaneously, and means for driving the said cam.

677,872. CLUTCH. BRADFORD H. LOCKE, Denver, Colo. Filed Nov. 20, 1900. Serial No. 37,094. (No model.)



Claim.—A slipping clutch comprising a driver, a cylindrical driven part and a coiled spring secured to the driver and normally engaging said driven part frictionally and coiled in a direction to be released from frictional engagement with the driven part when the driven part is held from rotation, substantially as shown and described.

677,878. ELECTRIC-ARC LAMP. PHILIP LOEB, Orange, N. J., assignor to Manhattan General Construction Company, of New York. Filed Aug. 15, 1900. Serial No. 26,936. (No model.)



Claim.—1. An inclosed arc-lamp, containing a gas-check with one or more passages for air and gases, and provided with means for creating a draft or circulation at the mouth of the said passage or passages.

2. A gas-check for inclosed arc-lamps, having one or more passages for the air and the gases of combustion, the said passage or passages being clogged or obstructed by lugs or projections.

3. A gas-check for inclosed arc-lamps, containing one or more channels or passages for the air and the gases of combustion, and provided with an inner chamber which surrounds the upper carbon so as to leave an annular space or chamber within the gas-check proper, the said inner chamber being provided with openings leading to the annular chamber.

4. A gas-check for inclosed arc-lamps, containing one or more channels or passages for the air and the gases of combustion, and provided with an inner chamber which surrounds the upper carbon so as to leave an annular space or chamber within the gas-check proper, the said inner chamber being provided with openings leading to the annular chamber, such openings being near the mouth of the gas-check passage or passages.

5. A gas-check for inclosed arc-lamps, containing one or more channels or passages for the air and the gases of combustion, and provided with an inner chamber which surrounds the upper carbon so as to leave an annular space or chamber within the gas-check proper, the said inner chamber being provided with openings leading to the annular chamber, such openings being near the metallic side rods of the lamp.

6. A gas-check for inclosed arc-lamps, containing one or more channels or passages for the air and the gases of combustion, and provided with an inner chamber which surrounds the carbon so as to leave an annular space or chamber within the gas-check proper, the said inner chamber being provided with openings leading to the annular chamber, such openings being near the mouth of the gas-check passage or passages, and also being near the heat-conducting side rods of the lamp.

7. An inclosed arc-lamp having heat-conducting side rods, and a gas-check with one or more passages for the air and the gases of combustion, the mouth of the said passage or passages being located near the side rods.

8. In an inclosed arc-lamp, a lower lamp-frame comprising a gas-check and a holder for the lower carbon, in combination with a main or upper lamp-frame to which the lower lamp-frame is detachably secured.

9. In an inclosed arc-lamp, a lower lamp structure provided with a gas-check and a locking device secured to the gas-check, in combination with a main or upper lamp-frame to which the lower frame can be detachably secured.

10. In an inclosing arc-lamp, a lower lamp-frame provided with a gas-check, an upper lamp-frame, and a bayonet-joint connecting the two frames.

11. In an arc-lamp, a support for the lower carbon consisting of a stirrup adapted to form the base or bottom on which the lower end of the carbon rests.

12. In an arc-lamp, a support for the lower carbon consisting of a swinging stirrup adapted to be moved into position under the lower end of the carbon.

13. In an arc-lamp, a support for the lower carbon consisting of a swinging stirrup adapted to be moved into position under the lower end of the carbon and a set-screw adapted to lock the said stirrup in place and also to bear against the lower carbon.

14. In an arc-lamp, a lower lamp-frame consisting of a bent rod of angular metal having its curved ends severed and united by clamps to the holder for the lower carbon.

15. In an arc-lamp a lower lamp-frame consisting of bent metal having its curved ends severed and clamped together by the holder for the lower carbon.

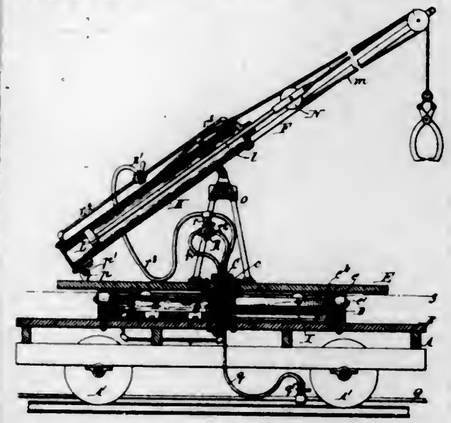
16. In an arc-lamp, a lower lamp-frame consisting of bent metallic rod having its ends severed and clamped together by plates on opposite sides of the severed ends, the said plates constituting a portion of the holder for the lower carbon and being provided with a set-screw for holding the carbon in place.

17. In an arc-lamp, a lower lamp-frame consisting of a bent rod of angular metal severed at its bent portion, the severed ends being connected by opposite sides thereof and the plates forming the bearing for a swinging stirrup serving to support the lower end of the lower carbon.

677,874. HOISTING-CRANE. JAMES MACBETH, Buffalo, N. Y. Filed July 23, 1900. Serial No. 24,485. (No model.)

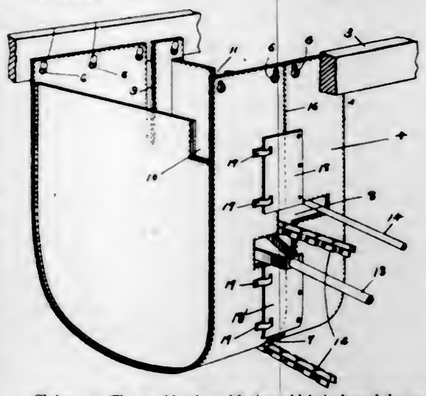
Claim.—1. The combination of a car, a rotatable platform supported thereon, a boom-support fixed to said platform, an inclined boom supported intermediately of its extremities upon said support, the lower end of said boom secured to said platform, a fluid-pressure cylinder secured to said car and provided with a piston operatively connected with said platform whereby the latter may be rotated thereby, and means for supplying pressure to said cylinder.

2. The combination of a car, a track, a rotatable platform supported thereon, a boom-support, an inclined boom supported intermediately of its extremities upon said support, the lower end of said boom secured to said platform, a fluid-pressure cylinder secured to said car and a piston operatively connected with said platform whereby the latter may be rotated thereby, a fixed pressure-supply pipe arranged along the track, and a flexible supply-pipe connecting said cylinder and fixed supply-pipe and disconnectible from the latter.



3. The combination with a fixed platform provided with a vertical arbor and with a circular track concentric with said arbor, of a rotatable platform having a central journal which turns on said arbor, a gear-wheel secured to said journal, rollers interposed between said platform and said circular track, an actuating-cylinder secured tangentially to said lower platform within said track, a piston arranged in said cylinder, a gear-rack connected with said piston and meshing with said gear-wheel, and a boom and hoisting mechanism mounted on said rotatable platform, substantially as set forth.

677,875. ENGINE-PROTECTOR FOR MOTOR-VEHICLES. GEO. A. MACKER, Westboro, Mass., assignor to the Locomobile Company of America, New York, N. Y. Filed May 2, 1900. Serial No. 15,191. (No model.)



Claim.—1. The combination with the vehicle-body and the engine partially exposed below said body, of a sheath or protector removably positioned and inclosing the exposed part of said engine, said sheath having an aperture for the passage of a part or parts adjacent to the exposed part of the engine, and a cleft extending from said aperture to the margin of the sheath to permit the latter to be positioned or removed.

2. The combination with the vehicle-body and the engine partially exposed below said body, of a sheath or protector removably positioned, and inclosing the exposed part of said engine, said sheath having an aperture for the passage of a part or parts adjacent to the exposed part of the engine, a cleft extending from said aperture to the margin of the sheath to permit the latter to be positioned or removed, and a flap covering said cleft.

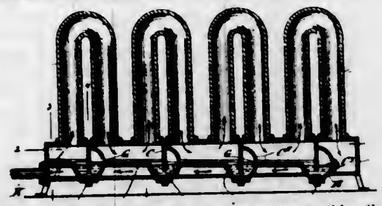
3. The combination with the vehicle-body and the engine partially exposed below said body, of a sheath or protector removably positioned and inclosing the exposed part of said engine, said sheath having two apertures for the passage of parts adjacent to the exposed part of the engine, a cleft extending between said apertures, and a flap covering said cleft.

4. The combination with the vehicle-body and the engine partially exposed below said body, of a removable sheath or protector composed of a flexible material such as leather and covering the exposed part of the engine, said sheath having an aperture for the passage of a part or parts adjacent to the engine, and a relatively narrow cleft extending from said aperture to the margin of the sheath to permit the latter to be positioned or removed, the sides of said cleft being separated by flexure during such positioning or removal.

5. The combination with the vehicle-body and the engine partially exposed below said body, of a removable sheath or protector composed of a flexible material, such as leather, and covering the exposed part of the engine, said sheath having an aperture for the passage of a part or parts adjacent to the engine, a relatively narrow cleft extending from said aperture to the margin of the sheath to permit the latter to be positioned or removed, the sides of said cleft being separated by flexure during such positioning or removal, and fastening means connecting the sides of the cleft.

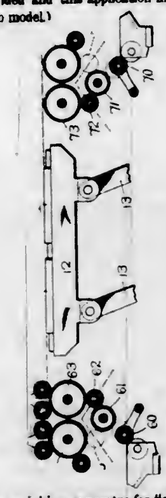
6. The combination with the vehicle-body having sills 3 3, and the engine carried by said body and partially exposed below the same, of a cup-shaped sheath or protector supported by said sills independently of the engine, and fastening devices removably securing said sheath to the sills.

677,876. RADIATOR. TIMOTHY S. MARTIN, Butte, Mont. Filed June 11, 1900. Serial No. 19,883. (No model.)



Claim.—A radiator comprising a casing having a partition dividing it into two compartments, an inlet-pipe and an outlet-pipe leading respectively into said compartments at one end of the casing, one of said pipes being adjustable toward and from the other, a channel connecting the compartments at the other end of the casing, and radiator-pipes connected with one of said compartments.

677,877. INKING APPARATUS FOR PRINTING-PRESSES. FRANCIS MEISEL, Boston, Mass., assignor to the Kidder Press Company, of West Virginia. Original application filed Apr. 16, 1900, Serial No. 13,041. Divided and this application filed Aug. 28, 1900. Serial No. 28,277. (No model.)



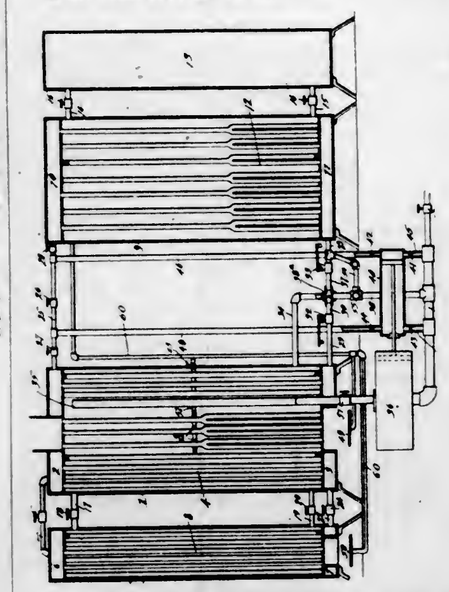
Claim.—1. In an inking apparatus for flat-bed printing-presses, the combination of ink-fountains at opposite ends of the press-bed, a pair of ink-drums located in proximity to each of said ink-fountains, two sets of form-rollers, and distributing connections for carrying ink from each ink-fountaid to one or both of the ink-drums located in proximity thereto, whereby the forms may be inked with one or two colors as desired, substantially as described.

2. In an inking apparatus for flat-bed printing-presses, the combination of ink-fountains located at opposite ends of the press-bed, a pair of ink-drums located in proximity to each ink-fountain, two sets of form-rollers, and distributing connections, comprising removable distributing-rolls arranged so that each ink-fountain may supply ink to one or both of its ink-drums, whereby the forms may be inked with one or two colors as desired, substantially as described.

3. In an inking apparatus for flat-bed printing-presses, the combination of an ink-fountain, a pair of ink-drums located in proximity to each ink-fountain, two sets of form-rollers, and distributing connections for carrying ink from the ink-fountain to one or both of the ink-drums, comprising a ductor-roller, an inking-roller supplied therefrom, and two distributing-rollers for transferring ink from said inking-roller to said ink-drums, one of said distributing-rollers being removable so that ink may be supplied from the fountain to but one of its ink-drums when desired, substantially as described.

4. In an inking apparatus for flat-bed printing-presses, the combination of ink-fountains located at opposite ends of the press, a pair of ink-drums located in proximity to each ink-fountain, two sets of form-rollers, and distributing connections coöperating with each ink-drum, and comprising a ductor-roller, an inking-roller supplied therefrom, distributing-rollers for transferring ink from the inking-roller to the ink-drums, one of said distributing-rollers being removable so that each fountain may supply ink to one or both of its ink-drums as desired, substantially as described.

677,878. STEAM AND GAS GENERATING APPARATUS. JOHN C. MERRILL, Westphalia, Kans. Filed Apr. 24, 1900. Renewed Dec. 13, 1900. Serial No. 39,768. (No model.)



Claim.—1. In a steam-power and gas generating apparatus, the combination with a steam-boiler and gas-generating tank, each provided with communicating steam-chambers, of an engine and means to supply said steam-chambers with exhaust-steam and compress the same therein, substantially as described.

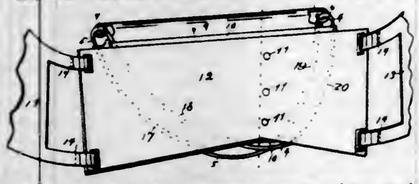
2. In a steam-power and gas generating apparatus, the combination with a steam-boiler and gas-generating tank, each provided with communicating steam-chambers, of an engine and means to supply said steam-chambers with exhaust-steam and compress the same therein, and means to return the exhaust-steam to the boiler, substantially as described.

3. In a steam-power and gas generating apparatus, the combination with a steam-boiler and gas-generating tank, each provided with communicating steam-chambers, of an engine to supply said steam-chambers with exhaust-steam and means to cause said exhaust-steam to circulate through said steam-chambers, steam-boiler and gas-generator, for the purpose set forth, substantially as described.

4. A steam-boiler having communicating steam-chambers, in combination with an engine and means to supply said chambers with exhaust-steam and compress the same therein, substantially as described.

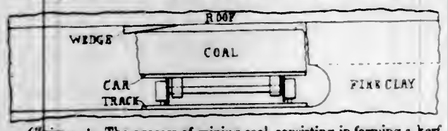
5. A steam-boiler having a chamber for exhaust-steam, and means to supply said chamber with exhaust-steam and compress the same therein, substantially as described.

677,879. HERNIAL TRUSS. WILLIAM A. MIDDAUGH, Kalamazoo, Mich. Filed May 19, 1900. Serial No. 17,301. (No model.)



Claim.—A hernial truss, comprising a frame formed from an elastic metal ring bent upon itself into something like a hair-pin shape, in side view, and forming a front and back member of the frame, one side of each of said members forming curves which are more oblique and longer than the curves represented by the opposite side of the members; a flexible covering on the back member; a rigid plate on the front member; an elastic metal plate, curved in edge view, and attached between its two ends to the rigid plate at a place one side of the longitudinal center of both of said plates, the elastic metal plate being wider at its ends than it is at its place of attachment by being cut away on its lower edge obliquely each way from said place of attachment, laterally and downwardly to its lower corners; and an attaching-belt fastened to the ends of the elastic metal plate, substantially as set forth.

677,880. PROCESS OF MINING COAL. EDMUND C. MORGAN, Chicago, Ill. Filed June 14, 1899. Serial No. 720,463. (No model.)

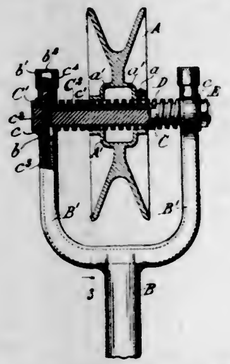


Claim.—1. The process of mining coal, consisting in forming a kerf under the coal, running a movable platform or car into said kerf, loosening the coal and letting it down directly into said movable platform or car.

2. The process of mining coal, consisting in forming a kerf under the coal, laying a track in said kerf, running a movable platform or car into said kerf, on said track, loosening the coal and letting it down directly into said movable platform or car.

3. The process of mining coal, consisting in blocking out in the coal-vein, a sufficient amount of coal to fill a car, by forming horizontal and vertical kerfs, then running a movable platform or car under said blocked-out coal, loosening it and letting it down directly into said movable platform or car.

677,881. TROLLEY. THOMAS L. MCELROY, Brooklyn, N. Y., assignor of two-thirds to Frederick A. Thomas, New York, and Theodore Hoegger, New Brighton, N. Y. Filed Oct. 5, 1900. Serial No. 32,107. (No model.)



Claim.—1. In a trolley, the combination of a hollow fork adapted to carry a supply of lubricant, a shaft fixed non-rotatively in said fork, a wheel mounted to rotate on said shaft, said shaft having a groove at its upper surface and having a passage at its end and a wick lying in said groove, passing through said passage and having its end inserted into the oil in said hollow fork.

2. In a trolley, the combination of an oil-reservoir, a shaft C having a groove c' in its surface, a passage c^2 at its end communicating with said groove, and a wick C^2 lying in said groove and extending through said passage into said oil-reservoir.

3. In a trolley the combination of a hollow fork, a shaft in said fork, and a wheel on said shaft, said wheel having a hollow hub A' with perforations a' near its outermost portion.

4. In a trolley, the combination of a shaft, a spring surrounding said shaft, and a wheel at approximately the middle portion of said spring, said spring bearing at its outer ends against the forks of the trolley, whereby said wheel is held yieldingly in a middle position and is maintained in electrical connection with the fork under all conditions.

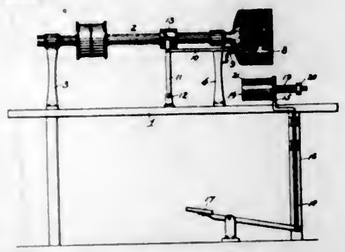
5. In a trolley, the combination of a shaft, a spring surrounding said shaft, and a wheel at approximately the middle portion of said spring, and a hood M extended over said spring, said spring bearing at its outer ends against the forks of the trolley, whereby said wheel is held yieldingly in a middle position and is maintained in electrical connection with the fork under all conditions.

6. In a trolley, the combination of a shaft, a spring surrounding said shaft, a wheel at approximately the middle portion of said spring, and a hood M connected to said fork and making sliding contact with said wheel, said spring bearing at its outer ends against the forks of the trolley, whereby said wheel is held yieldingly in a middle position and is maintained in electrical connection with the fork under all conditions.

7. In a trolley the combination of a non-rotative shaft, a spring surrounding said shaft and adapted to rotate thereon, and a wheel attached to said spring at approximately its middle portion, said spring bearing at its ends against the forks of the trolley, whereby said wheel is held yieldingly in a middle position and is maintained in electrical connection with the fork under all conditions.

8. In a trolley the combination of a non-rotative shaft, a bushing of lubricating composition thereon, a spring surrounding said bushing so as to rotate thereon, and a wheel fixed to said spring at about its middle point, said spring bearing at its ends on the inside of the fork, whereby said wheel is held yieldingly in a middle position and maintained in electrical contact with said fork.

677,882. MACHINE FOR TREATING HAT-BODIES. JOHN H. NEAVE, Rainow, England. Filed June 11, 1900. Serial No. 19,918. (No model.)



Claim.—1. In a machine of the type described the combination with a rotary friction-drum and a relatively-fixed cutting apparatus adjacent thereto, of a support for the hat-body movable to and from the drum and cutting apparatus, and means for operating said support to present the hat-body simultaneously in active relation to the drum and cutter.

2. In a machine of the type described the combination of a rotary friction device, a cutter adjacent to the rotary device and fixed in relation to the same, and a support for the hat-body, said support and friction device being movable one to and from the other and so arranged that when brought together the hat-body will be subjected simultaneously to the action of the drum and cutter.

3. In a machine of the type described, the combination with the rotary drum, of a cutter sustained adjacent thereto in fixed relation to the drum, and a movable rest adapted to support the body under treatment and carry the same simultaneously in contact with the drum and cutter.

4. In a machine of the type described the combination with a rotary friction device and a relatively-fixed cutting apparatus adjacent thereto, of a support for the hat-body movable to and from the friction device and cutting apparatus, and a smoothing device movable with and carried by the support in position to act on the hat-body just before the body is acted on by the cutter, when the support is moved to carry the body in active relation to the cutter.

5. In a machine of the type described, the combination with the rotary drum, of a cutter sustained adjacent thereto, a rest comprising a roller adapted to give support to the body under treatment and present it to the cutter, and a smoothing-roller sustained adjacent to the rest in such position that the body acted on will pass between the smoothing-roller and rest just previous to being acted on by the cutter.

677,883. PROCESS OF MAKING METAL WASHERS. FRED A. NEIDER, Augusta, Ky. Filed Oct. 27, 1900. Serial No. 34,563. (No model.)



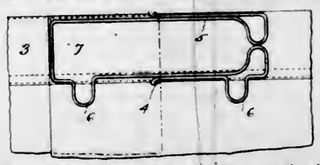
Claim.—The process herein described of forming washers which consists in feeding a rod forward between clamping-jaws a length sufficient to form a washer, clamping the rod between the jaws in that position, swaging a head of the size and thickness desired for the washer upon the end of the rod, unclamping the jaws, and then punching a hole through the head in alinement with the rod to complete the washer pushing the rod back and leaving the portion punched out integral with the rod to form part of the next washer.

677,884. DOOR-INDICATOR. JOHN Z. NEWMAN, Pennington Gap, Va., assignor of one-fourth to Samuel P. Jaynes, same place. Filed Sept. 1, 1900. Serial No. 28,783. (No model.)



Claim.—In an office-indicator, the combination, with a casing having an opening formed therein, of a plurality of intermediately-pivoted plates having their outer ends projecting from the casing, and containing adjacent to their opposite ends information to be displayed before said opening, and a crank-shaft extending to the exterior of the casing and adapted to be turned beneath any one of said plates to hold the same raised with the information displayed, substantially as described.

677,885. WAISTBAND-FASTENER. EDGAR M. PALMER, Hartford, Conn. Filed Aug. 3, 1900. Serial No. 25,751. (No model.)



Claim.—1. A waistband-fastener formed from metal and consisting of a part having an oblong attaching-shank and a single hook-bar, the said bar extending transversely from edge to edge near the middle but out of the plane of the oblong shank so that the shank extends quite a little distance in front of and back of the transverse hook-bar, and a part having an attaching-shank with one end bent out of the plane of the shank so that it will engage with the transverse hook-bar near the middle of the other part, substantially as specified.

2. A waistband-fastener bent from wire and consisting of a part having a transverse hook-bar and an oblong frame-like attaching-shank that extends some distance in front of and back of the transverse hook-bar and has tongues extending downwardly from its lower edge, and a part having a frame-like attaching-shank with one end bent out of the plane of the shank so that it will engage with the transverse hook-bar of the other part, substantially as specified.

677,886. LOOPER FOR SEWING-MACHINES. HUBERT P. RICHARDS, New Britain, Conn., assignor to J. Kvarts Tracy, Plainfield, N. J. Filed Apr. 15, 1898. Serial No. 677,729. (No model.)

Claim.—1. A stitch-making mechanism embodying a rotary looper having one or more circumferentially-disposed loop-takers or hooks, and having for each of said hooks a combined loop retaining and releasing device located adjacent to the periphery of said looper and coöperating with such hooks to retain each successive loop in the same predetermined position on said hook during the rotary movement of the looper and during the drawing out of such loop, and to effect the release and thereby permit the slackening of the successive loops from such position on said hook at the same predetermined definite point in the orbit thereof.



2. In a sewing-machine, the combination, with needle mechanism including a needle, of complemental looper mechanism operable in proper timing with the needle mechanism and including a rotary looper having a loop-taker or hook disposed to engage the successive loops of the needle-thread and carry the same around said looper, and means independent of, but coöperative with, the loop-taker or hook for holding each successive loop in the same predetermined position on said hook and in a drawing-out position during the movement of the looper through a predetermined arc, and until said looper and needle arrive at predetermined relative positions, and for suddenly releasing, and thereby terminating the further drawing out of, said loop immediately upon the arrival of said hook and needle at said positions.

3. In a stitch-making mechanism, the combination of a needle; a rotary looper disposed in coöperative relation with the needle and having a peripheral loop-taker or hook, and also having a loop retaining and releasing flange disposed at one side of said hook and separated therefrom by a needle-receiving groove, said flange operating to retain each successive loop in the same predetermined position on said hook during the drawing out of each loop and having a quick-let-off point disposed in such position relatively to the loop-carrying portion of said hook as to permit and thereby effect a release of the loop from said portion at a predetermined definite point in the orbital movement of said hook; and means for actuating the needle and looper in proper timing.

4. In a sewing-machine having a reciprocatory needle and a needle-actuator, the combination of complemental looper mechanism embodying a rotary looper having in the periphery thereof one or more loop-receiving openings or recesses one wall of each recess of which terminates in a loop-taker or hook having at the base thereof a loop-carrying portion, said looper also having formed integral therewith one or more parti-circular flanges corresponding in number with said openings and disposed at one side, and in the rear, of said hook or hooks, respectively, and each flange terminating at the forward end thereof in a quick-let-off point disposed in such relation to the carrying portion of the hook that up to a certain point in the orbital movement of the hook said let-off point will be located slightly in the rear of one portion of the loop, and will at a predetermined point in said orbit come into alinement with said loop and permit and thereby effect a sudden release of said loop from the carrying portion of said hook; and means for rotating the looper in proper timing with the reciprocatory movement of the needle.

5. A stitch-making mechanism including a rotary looper rotatable continuously in one direction and having one or more loop-takers or hooks each of which has at the forward end thereof a loop-engaging portion extending from the face of said hook to engage and temporarily hold the bight of the loop near the extreme point of the hook and prevent its passage toward the base of the hook during the rotary movement of the looper, and each of which also has a loop-carrying portion at the base of such hook for carrying the loop during another part of the rotary movement of the looper.

6. A stitch-making mechanism including a rotary looper having one or more loop-takers, each of which has a loop-engaging portion at the forward end and a loop-carrying portion at the base thereof, and which loop-engaging portion is adapted during the rotation of the looper to engage and temporarily hold the bight of the loop near the extreme point of the loop-taker, said looper also having one or more combined loop retaining and releasing devices one for each of said loop-takers and coöperative with said loop-taker or loop-takers for effecting the release and slackening of the successive loops at a predetermined definite point in the orbit of said loop-taker.

7. A stitch-making mechanism including a rotary looper having one or more loop-takers or hooks each of which has a loop-engaging portion at the forward end thereof and a loop-carrying portion at the base thereof and which loop-engaging portion is adapted during the rotation of the looper to engage and temporarily hold the bight of the loop near the extreme point of the hook, said looper also having one or more combined loop retaining and releasing flanges one for each of said loop-takers and disposed at one side of said hook or hooks and having a quick-let-off point disposed in such position relatively to the loop-carrying portion of the hook as to effect a release of the loop from said loop-carrying portion at a predetermined definite point in the orbital movement of said hook.

8. A looper having a plurality of successively-located loop-takers, and a plurality of successively-located combined loop retaining and releasing devices, one for each of said loop-takers, and each coöperating with its loop-taker to effect the release and slackening of successive loops on said loop-taker at the same predetermined definite point in the orbit thereof and on the termination of the drawing out of such loop.

9. A looper having one or more loop-takers, and one or more loop retaining and releasing devices, one for each of said loop-takers, and each coöperating with its loop-taker to effect the release and slackening of successive loops from said loop-taker at the same predetermined definite point in the orbit thereof and on the termination of the drawing out of such loop.

10. A looper having one or more loop-receiving recesses each terminating in a loop-taker, and one or more combined loop retaining and releasing flanges, one for each of said loop-takers, each integral with, and disposed at one side of, said looper and coöperative with its loop-taker to prevent during the drawing out of a loop the passage of said loop down the wall of said recess, and to permit and thereby effect the release and slackening of successive loops on said loop-taker at a predetermined point in the orbit thereof and on the termination of the drawing out of such loop.

11. A looper having one or more loop-takers or hooks, the beak of each of which has on its under side at its forward end an abruptly-presented wall facing toward the point of the loop-taker and forming a loop-engaging portion, said beak also having at its base a loop-carrying portion, said loop-engaging portion being adapted during the movement of the looper to engage and temporarily hold the bight of a loop near the starting-point of such beak and prevent its passage toward the base thereof.

12. A looper having one or more loop-takers each of which has a loop-engaging portion at its forward end and a loop-carrying portion at the base thereof, and which loop-engaging portion is adapted during the movement of the looper to engage and temporarily hold the bight of the loop near the extreme point of the loop-taker, said looper also having one or more combined loop retaining and releasing devices one for each of said loop-takers and coöperative with said loop-taker or loop-takers for effecting the release and slackening of the successive loops at a predetermined definite point in the orbit of said loop-taker.

13. A looper having one or more loop-takers each of which has a loop-engaging portion at its forward end and a loop-carrying portion at the base thereof, and which loop-engaging portion is adapted during the movement of the looper to engage and temporarily hold the bight of the loop near the extreme point of the loop-taker, said looper also having one or more combined loop retaining and releasing flanges one for each of said loop-takers disposed at one side of, and cooperative with, said loop-taker and having a quick-let-off point disposed in such position relatively to the loop-carrying portion of said loop-taker as to effect a release of the loop from said loop-carrying portion at a predetermined definite point in the orbital movement of said loop-taker.

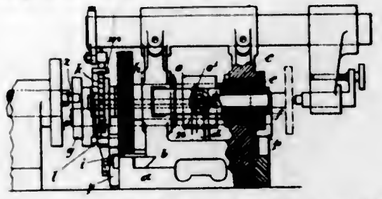
14. A looper having one or more peripheral loop-receiving recesses each provided with an inclined wall terminating in a loop-taker or hook and having intermediate such inclined wall and said hook a loop-carrying recess, said looper also having a loop retaining and releasing flange located at one side of said loop-taker and provided with a quick-let-off point disposed adjacent to the loop-carrying recess of said loop-taker and having a cut-away portion below said point, thereby to permit the loop when it has passed such let-off point, in the rotary movement of the looper, to be drawn down the inclined wall of said recess.

15. A looper having a peripheral loop-receiving recess terminating in a loop-taking hook, said hook having means at its free end for temporarily holding the bight of a loop near the extreme point thereof and having means at its base for carrying the loop during a predetermined period, and also having means disposed in position and effective to retain the bight of the loop at said base during a predetermined period and to quickly and effectively permit the release of said loop from said loop-carrying portion, thereby to permit the bight of the loop to be drawn into said loop-receiving recess.

677,887. APPARATUS FOR THE MANUFACTURE OF CUTTERS. OTTO SCHAERER, Zurich, Switzerland. Filed July 17, 1900. Serial No. 23,877. (No model.)

Claim.—1. In combination a supporting-plate, a sliding table, a spindle carrying the work carried by said table, a fixed cutter, an oscillating arm with means for operating the same, a shaft oscillated by said arm, means for reciprocating the table toward and from the cutter operated by said shaft, and means for rotating the work-spindle step by step, said rotary movement taking place simultaneously with the approach of the table to the cutter.

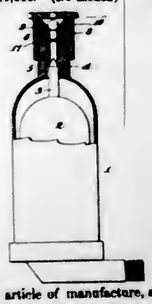
2. In combination a guide-plate, a table slidably mounted thereon, bearings carried by the table, a shaft journaled in the same, a gear carried by said shaft, a sliding rack meshing therewith, bearings carried by the guide-plate, a second shaft journaled therein, an adjustable connection between the same and the table for reciprocating the latter as the second shaft oscillates, means for oscillating the same, a gear carried thereby meshing with said rack whereby the movement of said gear is communicated to the gear on the first-mentioned shaft, a cutter, a work-spindle journaled in the first-mentioned shaft and means interposed between said shaft and spindle for feeding the latter step by step as said shaft oscillates in one direction said rotation of the spindle taking place simultaneously with the movement of the table toward the work.



3. In combination a guide-plate, a table slidably mounted thereon, bearings carried thereby, a shaft journaled therein, a second shaft with means for oscillating the same journaled in bearings carried by the guide-plate, means interposed between the shaft and table for reciprocating the latter, means for oscillating the first shaft interposed between the same and the second shaft, a work-carrying spindle journaled in the first shaft, a fixed cutter, means interposed between the first shaft and spindle for feeding the latter step by step, the advance of the table toward the cutter taking place simultaneously with the feeding movement of the spindle, and means for shifting the first shaft axially during the feeding movement of the spindle.

4. In combination a guide-plate, a table slidably mounted thereon, bearings carried thereby, a shaft journaled therein, a second shaft with means for oscillating the same journaled in bearings carried by the guide-plate, means interposed between the shaft and table for reciprocating the latter, means for oscillating the first shaft interposed between the same and the second shaft, a work-carrying spindle journaled in the first shaft, a fixed cutter, means interposed between the first shaft and spindle for feeding the latter step by step, the advance of the table toward the knife taking place simultaneously with the feeding movement of the spindle and means adapted to be thrown out of operation for shifting the first shaft axially during the feeding movement of the spindle either to the right or left.

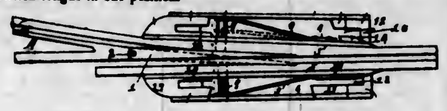
677,888. VACUUM-VALVE. WILLIAM H. SMAY, Newburgh, N. Y., assignor to Judson A. Goodrich, New York, N. Y. Filed June 4, 1900. Serial No. 19,000. (No model.)



Claim.—As a new article of manufacture, a vacuum-valve adapted to be attached to an automatic air-valve of a steam-radiator and comprising an internally-screw-threaded cap, a plug screwed into said cap and having a tapered valve-seat, and a valve engaging said seat and located between the plug and the top of the cap, substantially as set forth.

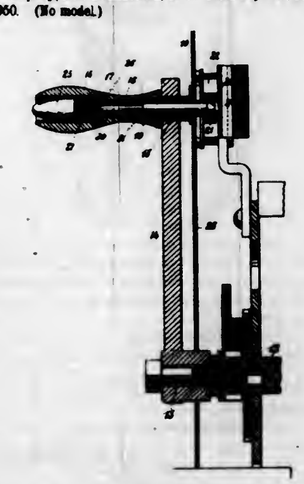
677,889. STREET-RAILWAY SWITCH. JOHN SHERERMAN, Dayton, Ohio. Filed Nov. 3, 1900. Serial No. 35,316. (No model.)

Claim.—1. In a switch-shifting mechanism, the combination with a casing secured on each side of a switch-tongue, each of said casings having an opening in its inner wall and a longitudinal slot in the top thereof with tapering walls at the ingress and egress of said slot, of a resilient bar secured at one end to the inner wall of each casing and projecting across said slot from the inner to the outer walls of the casing, a laterally-movable pin secured to said bar and movable in and out of the opening in the inner wall of said casings to move the switch tongue in two positions, and means for operating said resilient bar to move the switch-tongue in one position.



2. A switch-shifting mechanism comprising a casing secured on each side of a switch-tongue, each of said casings having an opening in its inner wall and a longitudinal slot in the top thereof with tapering walls at the ingress and egress of said slot, a resilient bar secured at one end to the inner wall of each casing and projecting across said slot from the inner to the outer walls of each casing, a laterally-movable pin secured to said bar and movable in and out of the opening in the inner wall of said casings to move the switch-tongue in two positions, an operating-lever having a projecting portion 11 which is adapted to enter the longitudinal slot in the casings and to engage the resilient bar to move the pin in contact with the switch-tongue, the said projecting portion riding on tapering walls at each end of the slot, substantially as shown and described.

677,890. CASH-REGISTER. ELMER B. SMITH, Boundbrook, N. J., and HAROLD JARVIS, Buffalo, N. Y., assignors to the Ideal Cash Register Company, New Boundbrook, N. J. Filed Sept. 24, 1900. Serial No. 30,950. (No model.)



Claim.—1. In a cash-register, the driving-shaft and the exposed operating crank or lever connected with the said shaft and having a handle, combined with the lock-bolt within the register and accessible by means of a key from the exterior side of the register, and the latch-rod within said handle and adapted when pressed inward through the side of the register to engage said lock-bolt, for the purpose of locking said lever against operation until said bolt is manually freed from said rod; substantially as set forth.

2. In a cash-register, the driving-shaft, and the exposed operating crank or lever connected with the said shaft and having a handle, combined with the spring lock-bolt within the register and accessible by means of a key from the exterior side of the register, the register-casing having an opening in its side, and the latch-rod within said handle and adapted when pressed inward through the said opening in said casing to move against said spring lock-bolt and be automatically engaged thereby, for the purpose of locking said lever against operation until said bolt is manually freed from said rod; substantially as set forth.

3. In a cash-register, the driving-shaft, the exposed operating crank or lever connected with the said shaft and having a handle, the register-casing having an opening in its side, the latch-rod within said handle and adapted to be pressed through said opening in the side of the said casing, and the spring within said handle and adapted to exert its force to maintain said rod clear of said opening, the inner end of said rod having a recess, combined with the lock-bolt within the register and adapted to engage the said recess at the inner end of said rod when the latter is pressed inward, said lock-bolt being accessible by means of a key from the exterior side of the register; substantially as set forth.

4. In a cash-register, the driving-shaft, the exposed operating crank or lever connected with the said shaft and having a handle, the register-casing having an opening in its side, the latch-rod within said handle and adapted to be pressed through said opening in the side of said casing, and the spring within said handle and adapted to exert its force to maintain said rod clear of said opening, the inner end of said rod having the recess and beveled head, combined with the spring lock-bolt within the register and having the beveled edge in the line of said opening to be engaged by the beveled head on said rod when the latter is pressed inward to secure the engagement of said recess and said bolt, said lock-bolt being accessible by means of a key from the exterior side of the register; substantially as set forth.

5. In a cash-register, the driving-shaft, the exposed operating crank or lever connected with the said shaft and having a handle, the register-casing having an opening in its side, the latch-rod within said handle and adapted to be pressed through said opening in the side of said casing, and the spring within said handle and adapted to exert its force to maintain said rod clear of said opening, the inner end of said rod having the annular recess and head, combined with the lock-bolt within the register and adapted to engage the said recess when said rod is pressed inward, said lock-bolt being accessible by means of a key from the exterior side of the register; substantially as set forth.

6. In a cash-register, the driving-shaft, the exposed operating crank or lever connected with the said shaft and having the handle, the register-casing having an opening in its side, the latch-rod within said handle and adapted to be pressed through said opening in the side of said casing, and the spring within said handle and adapted to exert its force to maintain said rod clear of said opening, said handle having the tubular chambers 16, 17, and said rod having at its inner end the locking or engaging recess 20 and at its outer end the head 25 adapted to be pressed into said chamber 17, which contains said spring, combined with the lock-bolt within the register and adapted to engage the said recess 20 when said rod is pressed inward, said lock-bolt being accessible by means of a key from the exterior side of the register; substantially as set forth.

7. In a cash-register, the driving-shaft, the exposed operating crank or lever connected with said shaft and having a handle, the register-casing having an opening in its side, and the latch-rod extending within and being normally greater in length than said handle and adapted to be pressed through said opening in the side of said casing, and the spring within said handle for pressing said rod outward, the inner end of said rod having the recess 20 and head 24, combined with the lock-bolt within the register and adapted to be contacted with by said head 24 and to engage the said recess 20 when said rod is pressed inward, said lock-bolt being accessible by means of a key from the exterior side of the register; substantially as set forth.

677,891. CONTROLLING APPARATUS FOR ELEVATORS. EUGENE R. CARKHOFF, East Orange, N. J., assignor to the Otis Elevator Company, same place. Filed Oct. 6, 1900. Serial No. 32,150. (No model.)

Claim.—1. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, and means for operating them from some moving part of the apparatus, the switches being arranged to break the circuits before the car reaches the desired station, substantially as described.

2. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, and means for operating them from some moving part of the apparatus, the switches comprising two contacts and arms, one for closing the contacts as the car ascends and the other as the car descends, substantially as described.

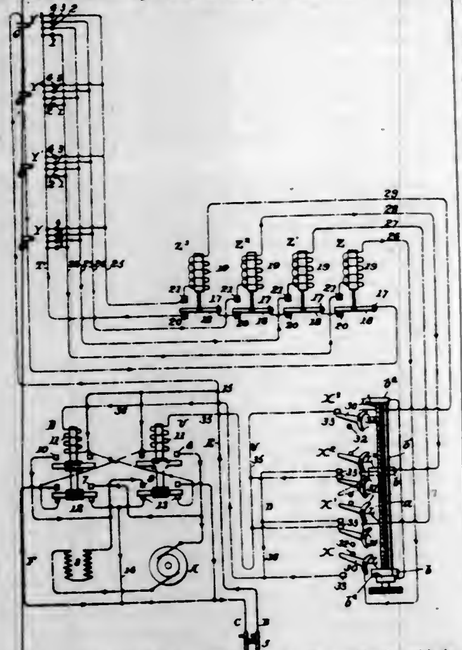
3. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, and automatic circuit-controlling switches controlling the circuits to the station limit-switches, substantially as described.

4. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, and automatic controlling-switches, comprising a solenoid, two contacts and a contact-piece, substantially as described.

5. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, automatic controlling-switches connected to the station limit-switches, and a circuit for each controlling-switch including one or more push-buttons, whereby when a push-button is operated, all the push-buttons are cut out of a circuit while the circuit is maintained through the automatic controlling-switch, the station limit-switch and relay, substantially as described.

6. In a controlling apparatus for elevators, the combination with the motor of relays controlling the operation of said motor, station limit-switches, automatic controlling-switches, a series of push-buttons, a common conductor from the push-buttons to the automatic controlling-switches,

and an individual conductor from the push-buttons from each station to an automatic controlling-switch, substantially as described.



7. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, a series of automatic controlling-switches connected to the station limit-switches, each switch having two contacts, a series of push-buttons, a common conductor from the push-buttons normally including one contact of each controlling-switch, and an individual conductor from the push-buttons of each station including a contact of a controlling-switch, substantially as described.

8. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, a series of automatic controlling-switches, each having two contacts, a series of push-buttons, a common conductor from the push-buttons normally including a contact of each controlling-switch in series, and an individual conductor from the push-buttons of each station to a contact of a controlling-switch, substantially as described.

9. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, a series of automatic controlling-switches each having two contacts and a contact-bar, and means for controlling the contacts, a series of push-buttons, a common conductor from the push-buttons including one of the contacts of each controlling-switch, and an individual conductor from the push-buttons of each station to a contact of a controlling-switch and including the means for controlling the contacts, substantially as described.

10. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, a series of automatic controlling-switches, each comprising two contacts, a contact-bar and a solenoid, a series of push-buttons, a common conductor from the push-buttons to the automatic controlling-switches, and an individual conductor from the push-button of each station to a contact of the controlling-switches, and including the coils of the solenoid of said switch, substantially as described.

11. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, automatic controlling-switches, a series of push-buttons for each station, a series of push-buttons on the car, a common conductor between all the push-buttons and the automatic controlling-switches, and individual conductors between each push-button and a controlling-switch, substantially as described.

12. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, automatic controlling-switches, a series of push-buttons for each station, a series of push-buttons on the car, a common conductor between all the push-buttons and the controlling-switches, individual conductors from each push-button to a controlling-switch, and a switch in the car for cutting out the push-buttons for the stations, substantially as described.

13. In a controlling apparatus for elevators, the combination with the motor, of relays controlling the operation of said motor, station limit-switches, automatic controlling-switches, a series of push-buttons for the stations, a series of push-buttons in the car, a common conductor between the push-buttons and the controlling-switches, individual conductors for each push-button to a controlling-switch, a switch in the car for cutting out the push-buttons at the stations, and a stop-switch in the car, substantially as described.

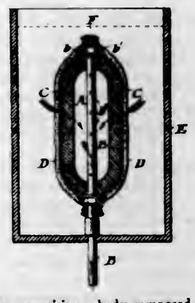
677,892. MEASURE FOR PAPER BAGS. JOHN W. JINNETTE, Chicago, Ill. Filed Oct. 11, 1900. Serial No. 32,675. (No model.)



Claim.—1. The combination with a bottomless measure, substantially as described, of a pair of bails of longer radius than the mouth of the measure pivoted to it near its upper end, and adapted as they turn outwardly and downwardly to hold open the mouth of a bag in which said measure is inserted.

2. The combination with a bottomless measure, substantially as described, of a pair of double ears near its upper end, provided with central, outwardly-projecting shoulders, a pair of bails pivoted to said ears near the shoulders, and adapted to hold open the mouth of a bag in which the measure is inserted.

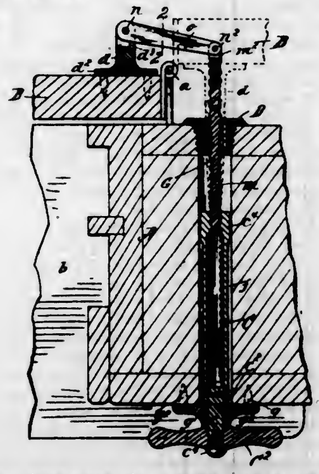
677,893. FILTER. JEAN A. MAIGNEN, Philadelphia, Pa. Filed Apr. 26, 1898. Serial No. 678,851. (No model.)



Claim.—A filter comprising a body composed of material having a filtering capacity; a covering for said body of asbestos cloth or analogous material; a filtrate-outlet communicating with said filtering-body, and an outer covering of fibrous or powdered filtering media, substantially as set forth.

677,894. SHUTTER-WORKER. JAMES HORTON, Springfield, Mass. Filed Dec. 12, 1899. Serial No. 740,069. (No model.)

Claim.—1. In a shutter-worker, the combination with the window-casing having the hole *f* therethrough, and provided at the inner end of said hole with the bushing *g*, and at the outer end thereof with the screw-bushing D having the central hole and the wing-slots *j j* therethrough, of the shutter hinged to the window-casing and provided with the lug *d* secured thereto and extended beyond its face and constructed with the slot d^3, the sleeve-nut C located in the outer portion of the said hole *f*, and having the shoulder c^2 and the necked-down portion *c* in bearing for rotation through and extended beyond said bushing *g* and provided with the handle *c*, a shaft G having the quick-thread engaged by said sleeve-nut, the outer end of which is slotted and the flat link-bar *o* having its extremities hinged to the slotted ends of said screw-shaft G and lug *d*, substantially as described.



2. In a shutter-worker, the combination with the window-casing having the hole *f* horizontally therethrough, and the shutter hinged to the exterior of the window-casing, and provided with the post or lug *d*, the location of which is as far from the hinging-point of the shutter as said hinging-point is distant from said hole *f*, the long sleeve-nut C, means for rotating it, and means for preventing its endwise movement, the screw-shaft engaged by, and adapted to be drawn into, and expelled from, the sleeve-nut, and the link *o* connected pivotally with both the outer end of the screw-shaft and with said lug *d*, and all adapted as the device is operated to swing the shutter from its closed to its open position for the screw-shaft and the link to enter said hole *f*, substantially as described.

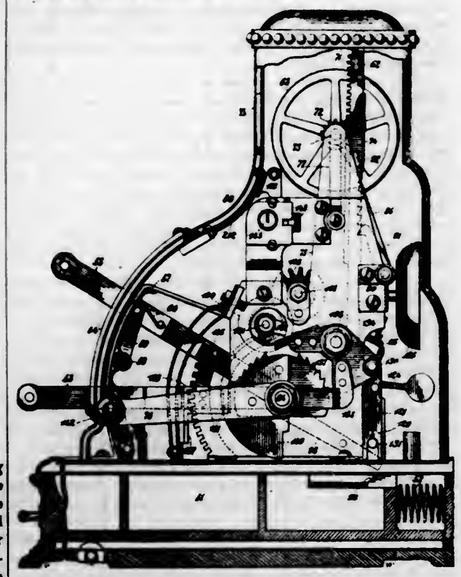
677,895. KEYLESS TOY BANK. HENRY A. SKINNER, Worcester, Mass., assignor to the HUNTEX COMPANY, same place. Filed July 6, 1900. Serial No. 22,722. (No model.)



Claim.—A box, having a hinged cover and a pivoted small door, in combination with a concealed, pivoted, spring-latch adapted to engage with said cover and door to hold both closed and locked, and which may be unlocked by first springing the cover to one side so as to operate said spring-latch to release the door and allow it to be swung out, and the cover then released to permit its being opened by pressing edgewise in a downward direction against the lower, outer end of the spring-latch, substantially as set forth.

677,896. CASH-REGISTER. ELMER S. SMITH, Boundbrook, and HARVEY GILES, South Boundbrook, N. J., assignors to the Ideal Cash Register Company, New Boundbrook, N. J. Filed Oct. 3, 1900. Serial No. 31,860. (No model.)

Claim.—1. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their positions controlled thereby, the registering-wheels, the gear connected therewith, the indicating cylinders or drums having the pinion-wheels connected therewith, and the rack-bars connected with said actuating hand-levers and in engagement with the gear-wheels on said indicating cylinders or drums, combined with means for bringing said registering-wheel gears into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank or handle for thereafter moving said segments to rotate said registering-wheels and return said segments to their normal position, means operable from said crank-handle to elevate the said indicating cylinders or drums to their exposure position, and means for thereafter returning said registering-wheels and their gear to their normal position free of said segments, leaving said indicating cylinders or drums in their upper or exposure position, substantially as set forth.



2. In a cash-register, the actuating hand-levers the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the indicating cylinders or drums, the gear-wheels connected therewith, the rack-bars connected with said actuating hand-levers and in mesh with said gear-wheels for operating the latter and the indicating cylinders or drums with each movement of said actuating hand-levers, the shaft supporting said indicating cylinders or drums, and vertically-movable means for supporting said shaft, combined with the register-casing having the window-opening, the exposed crank-handle and means operable from said crank-handle for elevating the said indicating cylinders or drums to expose the indication through said window-opening, substantially as set forth.

3. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, registering means, the indicating cylinders or drums, the gear-wheels connected therewith, the rack-bars connected with said actuating hand-levers and in engagement with the said gear-wheels for operating the said indicating cylinders or drums upon the movement of said actuating hand-levers, the shaft for said indicating cylinders or drums, and vertically-movable means for supporting said shaft, combined with the exposed crank-handle for effecting registration after said actuating hand-levers shall have been moved, means operable from said crank-handle for elevating said indicating cylinders or drums to their exposure position upon the movement of said exposed crank-handle to effect registration, and means for supporting said indicating cylinders or drums in their exposure position upon the return of said crank-handle to its normal position; substantially as set forth.

4. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, registering means, the indicating cylinders or drums, the gear-wheels connected therewith, the rack-bars connected with said actuating hand-levers and in engagement with said gear-wheels for rotating said cylinders or drums upon the movement of said hand-levers, the shaft supporting said cylinders or drums, and vertically-movable means for supporting said cylinders or drums, combined with the exposed crank-handle for effecting registrations, means operable from said crank-handle for elevating said indicating cylinders or drums to their exposure position when said crank-handle is moved to effect registration, means for supporting said cylinders or drums in their exposure

position upon the return of said crank-handle to its normal position, and means operable by the movement of any of said actuating hand-levers for relieving said support from the said indicating cylinders or drums so that the latter may thereupon return to their lower normal position; substantially as set forth.

5. In a cash-register having the window-openings to expose the indications, the rotary indicating cylinders or drums, the actuating hand-levers, means intermediate said hand-levers and said indicating cylinders or drums for rotating the latter from said hand-levers, and a vertically-movable support for said indicating cylinders or drums, combined with registering means, the exposed operating crank-handle for effecting registration, and means operable from said crank-handle for moving said indicating cylinders or drums, after their rotation, to their exposure position; substantially as set forth.

3. In a cash-register, the rotary indicating cylinders or drums, the actuating hand-levers, means intermediate said levers and said indicating cylinders or drums for rotating the latter from said levers when said indicating cylinders or drums are in their concealed position, and vertically-movable means for supporting said indicating cylinders or drums, combined with registering means, the exposed operating crank-handle for effecting registration, means operable from said crank-handle for elevating said indicating cylinders or drums, after their rotation, to their exposure position, and means for supporting said indicating cylinders or drums in their exposure position after said crank-handle has been returned to its normal position; substantially as set forth.

7. In a cash-register, the rotary indicating cylinders or drums, the actuating hand-levers, means intermediate said hand-levers and said indicating cylinders or drums for operating the latter from said hand-levers, and a movable support for said indicating cylinders or drums, combined with registering means, the exposed operating crank-handle for effecting registration, means operable from said crank-handle for moving said indicating cylinders or drums to their exposure position when said crank-handle is moved to effect registration, means for supporting said indicating cylinders or drums in their exposure position after said crank-handle is returned to its normal position, and means operable from any of said actuating hand-levers for releasing the support from said indicating cylinders or drums so that the latter may upon any subsequent movement of any of said hand-levers return to their concealed position; substantially as set forth.

8. In a cash-register, the actuating hand-levers, the rotary vertically-movable indicating cylinders or drums, the gear-wheels connected therewith, the rack-bars connected with said actuating hand-levers and in engagement with said gear-wheels for rotating said cylinders or drums, auxiliary bars 92 carried by said rack-bars, and the connected pawls 91 adapted to engage said auxiliary bars, combined with registering means, the exposed operating crank-handle for effecting registration, and means operable from said crank-handle for moving to their exposure position the said indicating cylinders or drums, after the rotation of the latter, and means connected with said pawls for supporting said indicating cylinders or drums in their exposure position after said operating crank-handle has been returned to its normal position, the said supporting means being adapted to be relieved from said indicating cylinders or drums so that the latter may retire to their concealed position by the movement of said auxiliary bars against said pawls; substantially as set forth.

9. In a cash-register, the rotary and vertically-movable indicating cylinders or drums, the gear-wheels connected therewith, the actuating hand-levers, the rack-bars connected with said hand-levers and in engagement with said gear-wheels for rotating said indicating cylinders or drums, the toothed auxiliary bars 92 carried by the said rack-bars, the rock-shaft 90 having the pawls 91 to engage said toothed bars 92, the dog 86 rigid on said shaft 90 with said pawls 91, and a spring whose tension is exerted to pull said pawls 91 and dog 86 in a direction toward said toothed bars 92, combined with registering means, the exposed operating crank-handle for effecting registration, and means operable from said crank-handle for moving said indicating cylinders or drums to their exposure position when said crank-handle is moved to effect registration, the said dog 86 being adapted to support said indicating cylinders or drums in their exposure position after the return of said crank-handle to its normal position, and said auxiliary bars 92 and pawls 91 being adapted when thereafter any of said actuating hand-levers are moved to release said dog 86 so that said indicating cylinders or drums may return to their concealed position; substantially as set forth.

10. In a cash-register, the actuating hand-levers, the rotary indicating cylinders or drums, the gear-wheels connected therewith, the rack-bars connected with said actuating hand-levers and in engagement with said gear-wheels for rotating said indicating cylinders or drums from said hand-levers, the shaft upon which said indicating cylinders or drums are mounted, and the vertically-movable bar 80 connected with said shaft, combined with registering means, the driving-shaft 64, the exposed crank-handle on the end thereof, the lever 84 on said driving-shaft and adapted to engage the lower end of said vertically-movable bar 80 for elevating the latter and said indicating cylinders or drums when said crank-handle is moved to effect registration, and means for supporting the indicating cylinders or drums in their exposure position upon the return of said exposed crank-handle and said lever 84 to their normal position; substantially as set forth.

11. In a cash-register, the actuating hand-levers, the indicating cylinders or drums, the gear-wheels thereon and the rack-bars connected with said hand-levers and in engagement with said gear-wheels for rotating said indicating cylinders or drums from said hand-levers, combined with the vertically-movable bar 80 connected with the shaft of said indicating cylinders or drums, means for guiding said bar 80 and said shaft in their vertical movements, the driving-shaft 64, registering means, the exposed crank-handle on the end thereof, the lever 84 on said driving-shaft for engaging the lower end of said bar 80 and elevating the same with the indicating cylinders or drums when said crank-handle is moved to effect registration, the spring-dog 86 for engaging said bar 80 when the latter is in its elevated position, and means operable from any of said actuating hand-levers for releasing the said dog from the said bar 80 to permit of the movement of said indicating cylinders or drums to their concealed position; substantially as set forth.

12. In a cash-register, the actuating hand-levers, the indicating cylinders or drums, the gear-wheels connected therewith, and the rack-bars connected with said actuating hand-levers and in engagement with said gear-wheels for rotating said indicating cylinders or drums and the said hand-levers, combined with the vertically-movable bar 80 connected with the shaft of said indicating cylinders or drums, means for guiding said bar 80 and said shaft during their vertical movement, the inclined plate 88 at the upper end of said bar 80, the rock-shaft 90 in rear of said bar 80 and carrying the dog 86 and pawls 91, a spring drawing said pawls and dog in a direction toward said bar 80, the toothed bars 92 carried by said rack-bars for engagement with said pawls 91, registering means, the driving-shaft 64, the exposed crank handle thereon for effecting registration, and the lever-arm 84 on said driving-shaft for engagement with the lower end of said vertically-movable bar 80 to elevate the latter and said indicating cylinders or drums when said driving-shaft is operated by said crank-handle to effect registration, said dog 86 when the bar 80 is in its upper position being adapted to engage and support the same, and said inclined plate 88 being adapted to engage said dog 86 when the indicating cylinders or drums are in their lower position so as to keep the pawls 91 from contact with the said toothed bars 92 during the rotation of said indicating cylinders or drums under the action of said hand-levers; substantially as set forth.

13. In a cash-register, the actuating hand-levers, the front plate having a series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the stop-arms also operable from said crank-handle for arresting said segments when they reach their normal position and adapted thereafter to move from said segments, and means operable from the registering-wheels to effect, independently of said segments, the carrying from one registering-wheel to another while said gearing is in engagement with said segments; substantially as set forth.

14. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gear to rotate said registering-wheels and return said segments to their normal position, the stop-arms 153 connected with the rock-shaft 152 and normally below the zero position of said segments, means operable from said crank-handle for elevating said stop-arms 153 into a position to arrest said segments on their return motion to their normal position, means for thereafter returning said stop-arms to their normal position below said segments, and means independent of said segments for effecting the carrying from one registering-wheel to another while said gearing is in engagement with said segments; substantially as set forth.

15. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the series of levers 160 having the pawls 164 in engagement with said gear-wheels, springs connected with said levers and adapted when not restrained to move said pawls against said gear-wheels preparatory to rotating the registering-wheels, as in the operation of carrying from one registering-wheel to another, means holding said levers 160 and their springs in restraint, except when carrying is to be performed, means for driving said pawls against said gear-wheels to rotate the registering-wheels to perform the carrying, and means connected with the registering-wheels for releasing said levers 160 at each rotation of the registering-wheels to enable said levers 160 with the pawls carried thereby to effect the rotation in series of the registering-wheels; substantially as set forth.

16. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the series of levers 160 having the pawls 164 in engagement with the said gear-wheels, the springs 166 connected with said levers 160, movable means engaging said levers 160 for holding the latter stationary in opposition to the force of said springs 166, means connected with the registering-wheels for releasing said levers 160 at each rotation of the registering-wheels for enabling the springs 166 to set said pawls 164 and said levers 160 into operative position for performing the carrying, and means for driving said pawls against said gear-wheels to thereby rotate said registering-wheels; substantially as set forth.

17. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the series of pivoted levers 160 having pawls 164 in engagement with the said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 in engagement with the said levers 160 for normally restraining them in opposition to the force of the said springs 166, means connected with the registering-wheels for rotating said sleeves 159 to release said levers 160, and means for thereafter driving said pawls 164 against said gear-wheels to rotate said registering-wheels and effect the carrying; substantially as set forth.

18. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gearing connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the series of pivoted levers 160 having pawls 164 in engagement with the said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 in engagement with the said levers 160 for normally restraining them in opposition to the force of said springs 166, means connected with the registering-wheels for releasing said levers 160 at each rotation of the registering-wheels for enabling the springs 166 to set said pawls 164 and said levers 160 into operative position for performing the carrying, and means for driving said pawls against said gear-wheels to thereby rotate said registering-wheels; substantially as set forth.

19. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gearing connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the series of pivoted levers 160 having pawls 164 in engagement with said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 having at one end the shoulder to engage the shoulder 167 on said levers 160 for restraining the latter in opposition to the springs 166 and having at their other end the shoulder 170, means connected with the registering-wheels for engaging said shoulders 170 upon each rotation of the registering-wheels to move said rotary sleeves from their engagement with said shoulder on said levers 160 and thereby permit the springs 166 to actuate said levers 160, and means for then driving said pawls against said gear-wheels to rotate the registering-wheels and perform the carrying; substantially as set forth.

20. In a cash-register, the actuating hand-levers, the front plate having a series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank or handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the series of pivoted levers 160 having the shoulders 167 and also having the pawls 164 in engagement with said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 having at one end the shoulder to engage the shoulder 167 on said levers 160 for restraining the latter in opposition to the springs 166 and having at their other end the shoulder 170, means connected with the registering-wheels for engaging said shoulders 170 upon each rotation of the registering-wheels to move said rotary sleeves from their engagement with said shoulder on said levers 160 and thereby permit the springs 166 to actuate said levers 160, and means for then driving said pawls against said gear-wheels to rotate the registering-wheels and perform the carrying; substantially as set forth.

21. In a cash-register, the actuating hand-levers, the front plate having the series of slots along which said levers may be moved in accordance with the values to be indicated, the movable segments substantially independent of but adapted to automatically follow said levers and to have their position controlled thereby, the registering-wheels, and the gear connected therewith, combined with means for bringing said gearing into engagement with said segments after the latter have reached their predetermined operative position, the exposed crank-handle for thereafter moving said segments against said gearing to rotate said registering-wheels and return said segments to their normal position, the driving-shaft to which said crank-handle is connected and which is provided with pins 151, the series of levers 160 having the shoulders 167 and carrying the pawls 164 in engagement with said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 having at one end the shoulder 169 for engagement with the shoulder 167 of said levers 160 for restraining the latter in opposition to the force of said springs 166 and having at their other end the shoulder 170, means connected with said registering-wheels for engaging on each rotation of the latter the said shoulder 170 and moving said rotary sleeves to release said levers 160 for permitting the carrying from one registering-wheel to another, means for actuating said pawls to perform the carrying and the levers 161 below said sleeves 159 and having the arms 171 in line with the lower surface of said shoulders 170, the said arms 171 during the return motion of said crank-handle being adapted on the elevation of said levers 161 by means of said pins 151 to engage the lower surface of said shoulders 170 and restore said sleeves 159 to their normal position in engagement with the said levers 160, for again restraining the latter in opposition to the force of said springs 166, substantially as set forth.

22. In a cash-register, the registering-wheels, the gear-wheels connected therewith, and gearing for rotating said gear-wheels to effect the rotation of said registering-wheels, combined with the levers 160 having the shoulders 167 and carrying the pawls 164 in engagement with said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 having at one end the shoulder 169 to engage the shoulder 167 on said levers 160 and thereby hold said levers 160 in an inactive condition in opposition to the force of said springs 166, means connected with the registering-wheels for moving, on each rotation of said registering-wheels, the said rotary sleeves for releasing the shoulder 169 from the said shoulder 167 and permitting said springs 166 to move the levers 160 preparatory to carrying being performed, and means for then driving said pawls against said gear-wheels to rotate the registering-wheels so in carrying from one wheel to another in series; substantially as set forth

23. In a cash-register, the registering wheels, the gear-wheels connected therewith, and the gearing in mesh with said gear-wheels for rotating said registering-wheels, combined with the series of levers 160 carrying the pawls 164 in engagement with said gear-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 having at one end the shoulder 169 to engage said levers 160 and hold the latter in restraint in opposition to the force of said springs 166, and having at their other end the shoulder 170, means connected with the registering-wheels for engaging, at each rotation of the latter, the said shoulder 170 for moving said sleeves to release said levers 160, thereby to permit the carrying from one registering-wheel to another the driving-shaft, and means operable from the said driving-shaft of the register for then moving said pawls to perform the carrying; substantially as set forth.

24. In a cash-register, the registering-wheels, the gear-wheels connected therewith, and the gearing in mesh with said gear-wheels for rotating said registering-wheels, combined with the pivoted levers 160 carrying the pawls 164 for engagement with said gear-wheels to rotate said registering-wheels, the springs 166 connected with said levers 160, the rotary sleeves 159 having at one end the shoulder to engage and hold in restraint said levers 160, and having at the other end a shoulder 170, means connected with the registering-wheels for engaging, at each rotation of the latter, the said shoulder 170 for moving said sleeves to release said levers 160, the driving-shaft, and means connected with the said driving-shaft of the register for thereafter moving said pawls to perform the carrying and for engaging said sleeves to restore them to their normal position in engagement with and for restraining said levers 160; substantially as set forth.

25. In a cash-register, the registering-wheels, the gear-wheels connected therewith, and gearing for rotating said gear-wheels to operate said registering-wheels, combined with the series of levers 160 having the pawls 164 for engaging said gear-wheels to rotate said registering-wheels a distance equal to one space thereof, the rotary sleeves 159 having at one end the shoulder 169 to engage and hold in restraint said levers 160, and having at their other end the shoulder 170, means connected with the registering-wheels to contact, at each rotation of the latter, with said shoulder 170 for moving said sleeves to release said shoulder 169 from the said levers 160, so that the latter may effect the carrying, means for then driving said pawls against said gear-wheels to perform the carrying, the pivoted levers 161 below said sleeves 159 and having the arms 171, the driving-shaft, and means connected with the said driving-shaft of the register for moving said arms 171 against the said sleeves 159 to restore the latter to their normal position in engagement with said levers 160 for again holding the latter in restraint; substantially as set forth.

26. In a cash-register, the registering-wheels, the gear-wheels connected therewith, and gearing for engaging said gear-wheels to rotate said registering-wheels, combined with the series of levers 160 having the pawls 164 to engage said gear-wheels for effecting the carrying from one registering-wheel to another, the springs connected with said levers 160, shoulders for engaging said levers 160 to hold the latter in restraint in opposition to the force of said springs, means connected with the registering-wheels for removing said shoulders from said levers 160 at each rotation of said registering-wheels, the setting back shaft 108 having the series of gear-wheels 109 thereon, the gear-wheels 105 connected with said registering-wheels, and dog-arms 193 to engage said levers 160 during the rotation of said gear-wheels 109 and 105 to restore said registering-wheels to their zero position, the said dog-arms 193 acting to restrain the levers 160 against movement during such setting-back operation; substantially as set forth.

27. In a cash-register, the registering-wheels, the gear-wheels 104 connected therewith, gearing for engaging said gear-wheels to operate said registering-wheels, the driving-shaft from which said gearing is operated, and the exposed crank-handle for operating said shaft, combined with the series of pivoted levers 160 carrying the pawls 164 for engaging said gear-wheels 104 to rotate said registering-wheels in the operation of carrying from one registering-wheel to another, the springs 166 connected with said levers 160, the shoulders for holding said levers 160 in restraint in opposition to the force of said springs 166, means carried by said registering-wheels for releasing, at each rotation of the registering-wheels, the said shoulders from the said levers 160, the setting-back shaft 108 carrying the gear-wheels 109, the gear-wheels 105 connected with the said registering-wheels and in mesh with said gear-wheels 109, and the rock-shaft 192 having dog-arms 193 to engage and hold in restraint the levers 160 during the operation of the said setting-back shaft 108, and also having the lever-arm 194 operable from said driving-shaft for moving said dog-arms 193 to restrain said levers 160 when said crank-handle is moved to its normal position; substantially as set forth.

28. In a cash-register, the tens-of-dollars registering-wheel, the totalizing-wheels 173 and 174, the gear-wheels connected therewith, and the pivotally-mounted plates 176 having the arms 177 and 178 encompassing the lower portions of said gear-wheels, and also having the teeth 179 to engage the teeth of said gear-wheels, and also having the lips 181, combined with the arms 157 carried by the tens-of-dollars registering-wheel and the first totalizing-wheel to engage the lips 181 of the plates 176 to move the latter and cause the teeth 179 thereof to engage the teeth of the said gear-wheels for rotating said totalizing-wheels, in carrying to the first totalizing-wheel and from that wheel to the second totalizing-wheel, means for elevating said gear-wheels from said plates 176 after the latter have been moved by the arms 157, and the springs for then restoring the said plates 176 to their normal position; substantially as set forth.

29. In a cash-register, the registering and totalizing wheels, gearing for operating the same, and means for carrying from one to the other of the said wheels, combined with a piece of fabric, and means operable from the last totalizing-wheel to make an impression on said piece of fabric when said wheel has reached the limit of a predetermined extent of its rotation; substantially as set forth.

30. In a cash-register, the registering and totalizing wheels, gearing for operating the same, and means for effecting the carrying from one of said wheels to the other in series, combined with the prong connected with the last totalizing-wheel, and a piece of fabric to be acted on by said prong when the last totalizing-wheel has reached the limit of a predetermined extent of its position; substantially as set forth.

31. In a cash-register, the registering and totalizing wheels, the shaft therefor, gearing for operating said wheels, means for effecting the carrying from one of said wheels to the other in series, and means for moving said wheels from an upper inoperative position to a lower operative position, combined with a piece of fabric located above the last totalizing-wheel, and means connected with said totalizing-wheel for making an impression on said fabric when said wheel has reached the limit of a predetermined extent of its motion and is moved to its upper inoperative position; substantially as set forth.

32. In a cash-register, the registering and totalizing wheels, the shaft therefor, gearing for operating said wheels, means for effecting the carrying from one of said wheels to the other in series, and means for moving said wheels from an upper inoperative position to a lower operative position, combined with the prong secured to the last totalizing-wheel, and the piece of fabric above said totalizing-wheel and in position to be punctured by said prong when said registering and totalizing wheels are moved to their said inoperative position and have reached the limit of a predetermined extent of their motion; substantially as set forth.

33. In a cash-register, the registering and totalizing wheels, the shaft therefor, gearing for operating said wheels, means for effecting the carrying from one of said wheels to the other in series, and means for moving said wheels from an upper inoperative position to a lower operative position, combined with the prong secured to the final totalizing-wheel, and the strip of paper 195 to be punctured by said prong when the registering and totalizing wheels are moved to their upper inoperative position and have reached the limit of a predetermined extent of their rotation, said strip of paper being applied over the usual aperture in the customary guard-frame 112 above the registering and totalizing wheels; substantially as set forth.

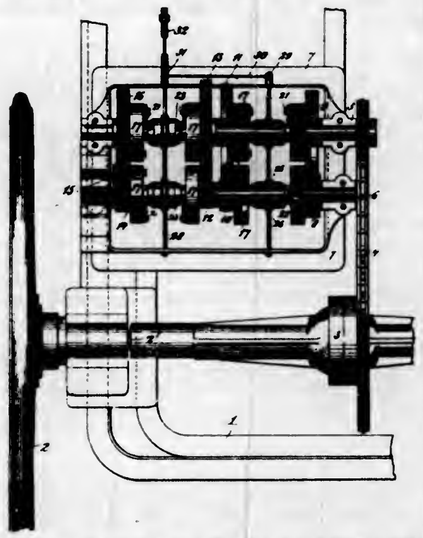
34. In a cash-register, the registering and totalizing wheels, the shaft therefor, gearing for operating said wheels, means for effecting the carrying from one of said wheels to the other in series, and means for moving said wheels from an upper inoperative position to a lower operative position, combined with the prong 196 secured upon the last totalizing-wheel, the strip of paper 195 to be punctured by said prong when the registering and totalizing wheels are moved to their upper inoperative position and have reached the limit of a predetermined extent of their motion, and the plate 197 having the aperture 200 over which said strip 195 is applied, said strip 195 being folded around the lip 199 of said plate 197 and over the aperture 200 therein, and said strip having at one end adhesive substance 201, whereby it may be secured upon said lip; substantially as set forth.

35. In a cash-register, the registering and totalizing wheels, the gearing for operating said wheels, the driving-shaft for operating said gearing, the exposed crank-handle on the end of said shaft, and the casing inclosing the register mechanism and having an aperture in its side through which the hub of said crank-handle extends to reach said driving-shaft, combined with means within said casing for locking said hub of said crank-handle upon said shaft, and means operable from said crank handle for relieving said hub from said locking means when said crank-handle is not in its normal position, thereby to permit the removal of said crank-handle from said shaft; substantially as set forth.

36. In a cash-register, the registering and totalizing wheels, the gearing for operating said wheels, the driving-shaft for operating said gearing, the exposed crank-handle on the end of said shaft, and the casing inclosing the register mechanism and having an aperture in its side through which the hub of said crank-handle extends to reach said driving-shaft, combined with a pivoted plate 138 within the register-casing for engaging said hub and locking said crank-handle upon said shaft, and means operable from said crank-handle for moving said plate 138 from said hub when said crank-handle is moved from its normal position; substantially as set forth.

677,897. DRIVING MECHANISM FOR MOTOR-VEHICLES.

LOUIS R. SNYDER, Elizabeth, N. J., assignor to Ferdinand E. Canda, New York, N. Y. Filed Sept. 8, 1898. Serial No. 690,529. (No model.)



Claim.—1. In a driving mechanism for motor-vehicles, the combination, with driving and driven shafts, and gears for transmitting power from one shaft to the other, of coacting friction-rings for corresponding gears on each of said shafts, one of each pair of rings being flexible, and one of each pair of rings being secured to a gear and the other to a support keyed to the shaft on which said gear is mounted, a pivoted operating-lever for each of said rings, for loosening and tightening the same with respect to its coacting ring, a sliding cone on each of said shafts, adapted when moved along its shaft to operate said lever, a rock-shaft, a shifting-lever for each of said cones secured to said rock-shaft, whereby by moving the rock-shaft both cones may be moved, and the friction-rings operated, simultaneously, and means for communicating motion from the driven shaft to wheels of the vehicle, substantially as described.

2. In a driving mechanism for motor-vehicles, the combination, with driving and driven shafts, and gears for transmitting power from one shaft to the other, of coacting friction-rings, one of which is split and is flexible, one of said rings being secured to a gear on one of said shafts and the other to a support keyed to that shaft, the split ring being secured to its support by a pin located at a point substantially opposite the place at which the ring is split, and being split partly at its point of support to increase its flexibility, a pivoted operating-lever for loosening and tightening said flexible ring with respect to its coacting ring, and means for operating said lever, substantially as described.

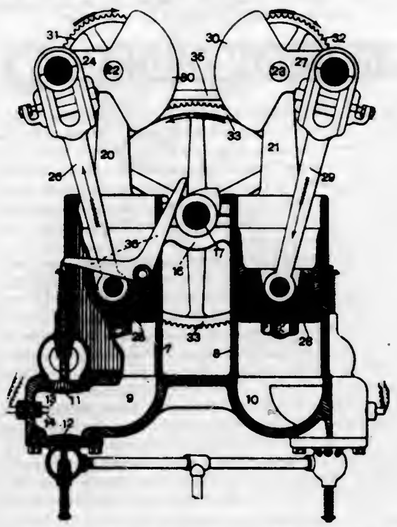
3. In a driving mechanism for motor-vehicles, the combination, with driving and driven shafts, and gears for transmitting power from one shaft to the other, of coacting friction-rings, one of which is split and is flexible, one of said rings being secured to a gear on one of the shafts and the other to a support keyed to that shaft, a lever having a cam located between the ends of said split ring and adapted to expand the ring, when rotated, or to permit the ring to contract, according to the direction of rotation of said cam, and a sliding cone on the shaft, adapted when moved along the shaft to operate said lever, substantially as described.

4. In a motor-vehicle, the combination, with a motor, of mechanism for transmitting motion therefrom to the vehicle, including a band friction-clutch the band of which is split, said band being secured to its support by a pin located at a point distant from that at which the band is split, and being split partly at its point of support to increase its flexibility, and means for throwing the same into and out of operation at will, substantially as described.

677,898. INTERNAL-COMBUSTION ENGINE.

OSCAR SHELL, Chicago, Ill., assignor of one-half to Alexander E. Keith, same place. Filed July 23, 1900. Serial No. 25,178. (No model.)

Claim.—1. An internal-combustion engine comprising a plurality of cylinders, a reciprocatory piston in each cylinder, a crank-shaft and crank for each cylinder and means for connecting the pistons thereto, a common power-transmitting and speed-reducing shaft having a cog-wheel connected therewith, a cog-wheel connected with each crank-shaft, and in engagement with the cog-wheel of the second-named shaft, the relative proportion of the gearing between the second-named shaft and the crank-shafts being such that the speed of the second-named shaft is a multiple of the speed of the crank-shafts.



2. An internal-combustion engine comprising a plurality of cylinders, a reciprocatory piston in each cylinder, a crank-shaft and crank for each cylinder and means for connecting the pistons thereto, a common power-transmitting and speed-reducing shaft having a cog-wheel connected therewith, a cog-wheel connected with each crank-shaft and in engagement with the cog-wheel of the second-named shaft, the relative proportion of the gearing between the second-named shaft and the crank-shafts being as two is to one.

3. An internal-combustion engine comprising a plurality of cylinders, a reciprocatory piston in each cylinder, a crank-shaft and crank for each cylinder and means for connecting the pistons thereto, a common power-transmitting and speed-reducing shaft having a cog-wheel connected therewith, a cog-wheel connected with each crank-shaft and in engagement with the cog-wheel connected with the second-named shaft, the speed of the second-named shaft a multiple of the speed of the crank-shafts, eduction-valves guarding orifices leading out of each of said cylinders, and means connected with said second-named shaft for operating said valves.

4. An internal-combustion engine consisting of several cylinders, reciprocatory piston and crank type of engines, a common power-transmitting and speed-reducing shaft for all the engines, a cog-wheel connected with said shaft, and a cog-wheel connected with each of said engines and in engagement with the first-named cog-wheel, the relative proportion of the cog-wheel connected with said shaft, to the cog-wheels connected with the engines—as two is to one, and means connected with said shaft for operating the controlling mechanism of the engines.

5. An internal-combustion engine comprising a plurality of cylinders, a reciprocatory piston in each cylinder, a crank-shaft and crank for each cylinder and means for connecting the pistons thereto, a common power-transmitting and speed-reducing shaft having a cog-wheel connected therewith, balances opposite the cranks for neutralizing the overbalance of the reciprocating parts, a cog-wheel connected with each crank-shaft and in engagement with the cog-wheel connected with the second-named shaft, the cog-wheels and cranks so disposed, relatively, that the cranks arrive at substantially opposite positions in their revolutions at the same time, for the purpose stated.

6. In an internal-combustion engine comprising several cylinders, reciprocatory piston and crank engines, the cylinders disposed in pairs, a common power-transmitting and speed-reducing shaft for each pair, a cog-wheel connected with each engine and a cog-wheel connected with the said shaft with which the engine cog-wheels engage, the said shaft revolubly mounted between the lines of the axes of each pair of cylinders.

7. In an internal-combustion engine comprising several cylinders, reciprocatory pistons and crank engines, the cylinders disposed in pairs, cross connections joining each pair of cylinders, a common power-transmitting and speed-reducing shaft mounted on said cross connections between the lines of the axes of the cylinders, a cog-wheel connected with each engine and a cog-wheel connected with the said shaft with which the engine cog-wheels engage.

677,899. HYDROCARBON-BURNER. JOHN C. SPEIRS, Worcester, Mass., assignor to the Locomobile Company of America, New York, N. Y. Filed Feb. 24, 1900. Serial No. 6,401. (No model.)



Claim.—1. In a hydrocarbon-burner, a casing constituting a mixing-chamber, a series of tubes traversing said casing and attached to the upper wall thereof, said tubes acting as air-flues, a series of raised annular beads or ridges surrounding the upper ends of the tubes and formed by bending the metal of the upper wall of the casing, the spaces inclosed by said ridges constituting flaring or widened orifices for the air-flues, and an annular series of perforations in each bead for the escape of the contents of the mixing-chamber.

2. In a hydrocarbon-burner, a casing constituting a mixing-chamber and having an extensive top sheet or plate formed of malleable metal and pierced by numerous holes in which are affixed the upper ends of a series of air flues or tubes, said plate having formed in it a series of raised annular corrugations or beads surrounding the respective holes and constituting flaring or widened orifices for the air-flues, the said corrugations being formed by forcible bending or flexure of the malleable metal, and each having an annular series of perforations for the escape of gas.

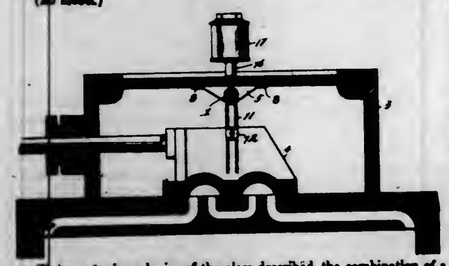
3. A hydrocarbon-burner provided with numerous individual burners and having an extensive top sheet or plate common to the individual burners and provided with air-flue openings, said sheet being composed of malleable metal and having a bend or flexure surrounding each air-flue opening, and an annular series of perforations formed in the bend or flexure and surrounding the air-flue opening, for the escape of combustible.

677,900. BOTTLE-STOPPER. ARNOLD STERN, New York, N. Y., assignor, by direct and mesne assignments, to the Annulo Stopper Company, of New Jersey. Filed Dec. 15, 1900. Serial No. 40,090. (No model.)



Claim.—A bottle-stopper consisting of a disk bent downwardly and outwardly, upwardly and inwardly, to form a continuous surrounding annular elastic flange, the edge of which is extended inward over, or toward the center of, the disk, the whole being made slightly larger in diameter than the aperture designed to be closed thereby.

677,901. AUTOMATIC LUBRICATOR FOR SLIDE-VALVES. JOHN W. STEWART, Tyrone, Pa. Filed Sept. 12, 1900. Serial No. 29,832. (No model.)



Claim.—1. In a device of the class described, the combination of a lubricant-holder, a valve-casing designed to be located within a steam-chest and provided with oil inlet and discharge openings and having a relief-port, the oil-inlet opening communicating with the lubricant-holder, and a valve mounted within the valve-casing and adapted to uncover the openings and the relief-port of the valve-casing successively, whereby the oil-inlet opening is relieved of steam-pressure, substantially as and for the purpose described.

2. In a device of the class described, the combination of a valve-casing designed to be located within a steam-chest and provided with oil inlet and discharge openings and having a relief-port, and a valve arranged to successively uncover the openings and the relief-port of the valve-casing, whereby the oil-inlet is relieved of steam-pressure, substantially as and for the purpose described.

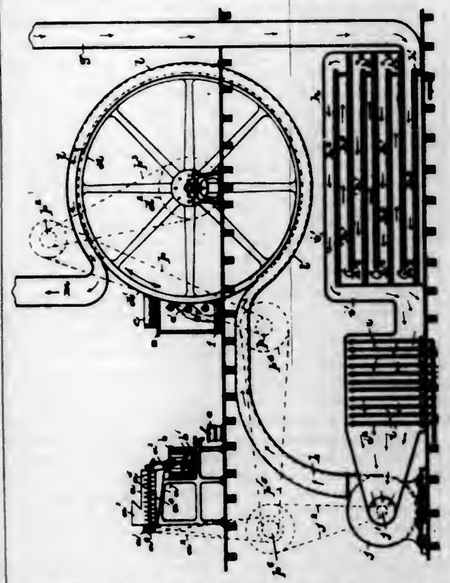
3. In a device of the class described, the combination of a valve-casing designed to be mounted within a steam-chest and provided with oil inlet and discharge openings and having a relief-port, a valve arranged within the valve-casing, and means for connecting the valve with a slide-valve, substantially as described.

4. In a device of the class described, the combination of a lubricant-holder, a valve-casing designed to be mounted within a steam-chest and communicating with the lubricant-holder, an oscillatory valve mounted within the valve-casing, and an oscillating member fixed to the oscillatory valve and designed to be connected with a slide-valve, substantially as described.

5. In a device of the class described, the combination of a valve-casing designed to be located within a steam-chest, a tubular oscillatory valve provided with a depending fork, and a roller or wheel designed to be mounted on a slide-valve and receiving the fork, substantially as described.

6. In a device of the class described, the combination of a valve-casing designed to be mounted within a steam-chest and having oil inlet and discharge openings and provided with a relief-port communicating with the atmosphere, a valve arranged to successively uncover the openings and the port, and a porous plug adapted to permit the escape of steam and to prevent foreign matter from entering the valve, substantially as described.

677,902. APPARATUS FOR DESICCATING EGGS. WILLIAM O. STODDARD, Jr., Madison, N. J., assignor to the Pure Food Company, of New Jersey. Filed Nov. 8, 1899. Serial No. 736,346. (No model.)



Claim.—1. In a plant for the desiccation of eggs or other substances, the combination, with a drum or wheel and means for revolving the same, of a coating-tray constructed with one side open and in contact with the surface of said drum or wheel, a wind-box inclosing a portion of the drying-surface of said drum or wheel, having an outlet and an inlet, a blower connected with said air-inlet to said wind-box, a heater over which air is drawn by said blower and forced into said wind-box, and means arranged beneath said coating-tray and in contact with the drying-surface of said drum or wheel, for removing the dried and desiccated material, substantially as and for the purposes set forth.

2. In a plant for the desiccation of eggs or other substances, the combination, with a drum or wheel and means for revolving the same, of a

coating-tray constructed with one side open and in contact with the surface of said drum or wheel, a wind-box inclosing a portion of the drying-surface of said drum or wheel, having an outlet and an inlet, a blower connected with said air-inlet to said wind-box, a heater over which air is drawn by said blower and forced into said wind-box, and a scraping device arranged beneath said coating-tray and in contact with the drying-surface of said drum or wheel, for removing the dried and desiccated material, substantially as and for the purposes set forth.

3. In a plant for the desiccation of eggs or other substances, the combination, with a drum or wheel, and means for revolving the same, of a coating-tray constructed with one side open and in contact with the surface of said drum or wheel, a wind-box inclosing a portion of the drying-surface of said drum or wheel, having an outlet and an inlet, a blower connected with said air-inlet to said wind-box, an air drier and purifier, a heater, a means of communication between said air drier and purifier, heater and blower for drawing air into said drier and purifier and through said heater, and forcing it into said wind-box, and means arranged beneath said coating-tray and in contact with the drying-surface of said drum or wheel, for removing the dried and desiccated material, substantially as and for the purposes set forth.

4. In a plant for the desiccation of eggs or other substances, the combination, with a drum or wheel, and means for revolving the same, of a coating-tray constructed with one side open and in contact with the surface of said drum or wheel, a wind-box inclosing a portion of the drying-surface of said drum or wheel, having an outlet and an inlet, a blower connected with said air-inlet to said wind-box, an air drier and purifier, a heater, a means of communication between said air drier and purifier, heater and blower for drawing air into said drier and purifier and through said heater, and forcing it into said wind-box, and a scraping device arranged beneath said coating-tray and in contact with the drying-surface of said drum or wheel, for removing the dried and desiccated material, substantially as and for the purposes set forth.

5. In a plant for the desiccation of eggs or other substances, the combination, with a drum or wheel, means for revolving the same, and means for coating said drum with the material to be desiccated, of a wind-box inclosing a portion of said drum or wheel, a blower connected with said wind-box, an air drier and purifier, and a means of communication between said drier and purifier and said blower for drawing air through said drier and purifier and forcing it into said wind-box, substantially as and for the purposes set forth.

6. In a plant for the desiccation of eggs or other substances, the combination, with a drum or wheel, means for revolving the same, and means for coating said drum with the material to be desiccated, of a wind-box inclosing a portion of said drum or wheel, a blower connected with said wind-box, an air drier and purifier, a heater, a means of communication between said drier and purifier, heater and blower for drawing air through the same, and forcing it into said wind-box, substantially as and for the purposes set forth.

677,903. CASH-CARRIER. MOSES C. SWEREY, New Haven, Conn. Filed Oct. 22, 1900. Serial No. 33,843. (No model.)



Claim.—1. In a carrier of the class referred to, in combination, a wheeled carriage, a parcel-receptacle suspended from said carriage, and means for connecting the receptacle and carriage whereby the former may be freely moved longitudinally relatively to the latter, in order that articles may be readily placed in and removed from said receptacle.

2. In combination, a carriage consisting of wheeled frames connected by a rod as set forth, a collar mounted to slide on said rod, and a receptacle suspended from the said collar.

3. In combination, a carriage consisting of wheeled frames connected by a rod as set forth, a two-part separable collar mounted to slide on said rod, and a receptacle suspended from the said collar.

4. In combination, a carriage consisting of wheeled frames connected by a rod, as set forth, a collar mounted to slide on said rod, a parcel-receptacle, and means for suspending the said receptacle consisting of a bail that is hinged to the collar and to the sides of the receptacle, substantially as set forth.

5. In combination, a carriage consisting of wheeled frames connected by a rod, a collar mounted to slide on said rod, a receptacle of basket form suspended at one end from the said collar, and means for detachably supporting the other end of the said basket.

6. In combination, a wheeled carriage including a rod *d*, a collar mounted to slide on said rod, a receptacle suspended at one end from said collar, and means consisting of a wire extending from the free end of the basket, and a coacting helical bracket secured to the said wheeled carriage, for supporting the said free end of the basket in its elevated position.

677,904. SPECTACLE-CASE. MORTIMER A. TREKEHOUSE, Rochester, N. Y., assignor to E. Kirstein Sons Company, same place. Filed Jan. 9, 1900. Serial No. 876. (No model.)



Claim.—1. In a case for eyeglasses, &c., the combination with the two members hinged together, of the spring-arm pivoted to one member on a center substantially parallel with that of the hinge and guided and confined to slide upon the other in a direction transversely of the hinge-pivot, the said pivotal connection of the spring being movable across the hinge-pivot.

2. In a case for eyeglasses, &c., the combination with the two members hinged together, of a spring-arm loosely pivoted to one member on a center substantially parallel with that of the hinge and at a point removed from the hinge, and guided to move longitudinally upon the other member transversely of the hinge, the pivotal connection of the arm being moved across the hinge-pivot as the members are opened and closed.

3. The combination with the two members hinged together, of a spring-arm extending at right angles to the axis of the hinge and connected to one member, and the guide on the other member also extending at right angles to the axis of the hinge and in which the spring-arm operates longitudinally, as the members are opened and closed.

4. The combination with the two members hinged together, of a spring-arm extending transversely of the hinge-pivot, the loose hinged connection between the arm and one of the members, and the guide on the other member embracing the arm and through which the latter is permitted to slide longitudinally.

5. In an eyeglass or spectacle case, the combination with two hinged members, of the guide on one of the said members, the spring-arm sliding in the guide transversely of the hinge and loosely pivoted to the other member near the hinge on a center parallel with that of the hinge, whereby the end of the spring will be carried over the hinge-center, when the members of the case are opened or closed, and its spring action exerted to hold them in either position.

6. In an eyeglass or spectacle case the combination with a member or receptacle having the bottom and a second member or cover hinged thereto, of the spring-arms arranged at the ends of the case and extending at right angles to and across the axis of the hinge when the case is open said arms being pivoted to one member at points removed from the hinge and guided to move longitudinally upon the other member as the case is opened and closed.

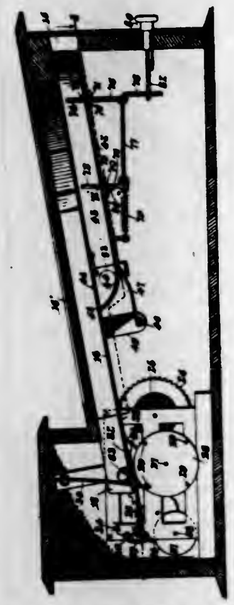
7. In an eyeglass-case, the combination with the two members hinged together at one edge, of a spring-arm having a laterally-extended end, a clip embracing said end and secured to one of the members, and a guide on the other member in which the spring-arm is longitudinally movable.

677,905. GAME APPARATUS FOR TRADING PURPOSES. WILLIAM TRIBBLE, Alton, Ill. Filed Mar. 3, 1900. Serial No. 7,342. (No model.)

Claim.—1. In an apparatus of the class described, the combination with the movable object, of a playing-field having means for the passage of the object to a position beneath the same, a single mechanism for projecting the object across the field, and comprising means for being automatically released and successively set in action by the weight of the object as long as the latter remains upon the field, and separate means for returning the object to the projecting mechanism from its position beneath the field.

2. An apparatus of the class described, comprising a playing-field provided with openings, a movable object adapted to traverse the field, and of a size permitting it to pass through any of the openings therein, a single mechanism controlling an impelling member, which forcibly projects the object across the field, said mechanism being releasable by the weight of the object, and means for returning the movable object to the projecting mechanism subsequent to the passage of the object through one of said openings.

3. An apparatus of the class described comprising a playing-field provided with openings, a movable object adapted to traverse said field and of a size permitting it to pass through any of said openings to a position beneath the field, a single motor mechanism including an impelling member normally at rest, said mechanism being releasable solely through the medium of the weight of the object, and means for mechanically returning the movable object to the playing-field from its position beneath the latter.



4. In an apparatus of the class described, the combination with the movable object, of a playing-field having means for the passage of the object to a position beneath the same, a single motor mechanism controllable solely by the weight of the object, and including means for forcibly impelling the object across the field, said impelling means being automatically released and set in action through the medium of the object on each return of the latter into operative relation to the mechanism, and means for returning the movable object to the projecting mechanism from its position beneath the field.

5. In an apparatus of the class described, the combination with the movable object, of a playing-field having means for the passage of the object to a position beneath the same, a single motor mechanism including an impelling member, a clutch device controllable solely by the weight of the object, and means for normally restraining the motor mechanism in an inactive position through said clutch device, and separate means for returning the movable object to the projecting mechanism from its position beneath the field.

6. In an apparatus of the class described, the combination with the playing-field and the movable object, of a motor mechanism comprising an impelling member, a clutch device, and a tiltable table controlling the clutch device and actuated by the movable object to release the clutch device, and means for returning the movable object to the playing-field, substantially as set forth.

7. In an apparatus of the class described, the combination with the playing-field and the movable object, of a motor mechanism comprising a clutch, a trip-table associated with the clutch and disposed in the path of the movable object, an impelling member operatively related to the table, and means, actuated by the motor mechanism, for setting the said impelling member into action to provide for the projection of the movable object across the playing-field, substantially as set forth.

8. In an apparatus of the class described, the combination with the movable object, of a playing-field having means for the passage of the object to a position beneath the same, a normally inactive motor mechanism including an impelling member, means, controllable solely by the weight of the movable object, for setting the motor mechanism into action, and causing the alternate releasing and setting of the said impelling member to provide for the projection of the movable object across the field, and separate means for returning the object to the motor mechanism from its position beneath the field.

9. In an apparatus of the class described, the combination with the playing-field and the movable object, of a motor mechanism including an impelling member, means for setting and releasing the said impelling member, and a trip-table adapted to be actuated by the movable object and provided with a depressed portion to receive said object.

10. In an apparatus of the class described, the combination with the playing-field and the movable object, of a motor mechanism including an impelling member, a clutch device to hold the motor mechanism normally inactive, a trip-table controlling the clutch device and adapted to be actuated by the movable object, and a studded wheel arranged in active relation to the impelling member and adapted to alternately set and release the same when the motor mechanism is in action.

11. In an apparatus of the class described, the combination of an inclined playing-field, provided therein with openings, and having at its lower end a chute, a movable object, an impelling member disposed for operation in said chute, a single motor mechanism comprising means for alternately releasing and setting the impelling member, means, actuated by the weight of the movable object, for setting the motor mechanism into action and separate means for returning the object to the playing-field after passage through one of the openings therein.

12. In an apparatus of the class described, an inclined playing-field provided with upwardly-divergent walls, inwardly curved at the upper end of the field to provide a centrally-located, downwardly-projecting crest, and mechanism for projecting a movable object across the field, substantially as set forth.

13. An apparatus of the class described comprising an inclined playing-field, provided with a series of pockets or openings and with studs projecting from said field in the intervals between the pockets, and mechanism substantially such as described for forcibly impelling a movable object across the field, as set forth.

14. An apparatus of the class described comprising a playing-field, having a series of openings, and a return trap-door which is normally closed flush with the surface of the field, a movable object, mechanism for impelling said object across the field, and comprising means for being automatically and continuously set in action by the object as long as the latter remains upon the field, and an object-returning device disposed to intercept the object and in operative relation to the trap-door, substantially as set forth.

15. In an apparatus of the class described, the combination of a playing-field having openings therein and also provided with a trap-door, a movable object, mechanism for automatically and continuously projecting the object across the field as long as the latter remains in play thereon, a lifting-arm disposed in the path of said object and arranged to actuate the trap-door, and means for operating said lifting-arm, substantially as set forth.

16. In an apparatus of the class described, the combination of the playing-field provided with a series of openings, a door normally flush with the field, and a floor below said field and having means for directing a movable object beneath the said door, means for lifting the object through said door, and means for impelling the object across the field, as set forth.

17. In an apparatus of the class described, the combination of a playing-field having openings therein and also provided with a trap-door, a rock-shaft below the field, a lifting-arm movable with said shaft and disposed in operative relation to the door and in the path of a movable object, a rod connected to said shaft, and means for operating said rod, as set forth.

18. An apparatus of the class described comprising a playing-field having a series of openings or pockets, detaining-fingers in operative relation to certain of said openings or pockets, means for throwing the said fingers out of position, and an impelling mechanism for a movable object, as set forth.

19. An apparatus of the class described comprising a playing-field having a series of openings or pockets, and a floor below said openings or pockets, retaining devices opposite to certain of the openings or pockets, mechanism for impelling a movable object across the field, and means operable independently of the impelling mechanism for moving the retaining devices out of operative relation to the openings or pockets, whereby the said object may be allowed to drop upon the floor subsequent to its entrance to any one of the series of openings or pockets, as set forth.

20. An apparatus of the class described comprising a playing-field having a series of pockets, rock-shafts below the field and provided with upstanding fingers disposed opposite to certain of the pockets, a link connecting said rock-shafts, a pull-rod for operating the shafts, and means for impelling an object across the field, as set forth.

677,906. PROCESS OF MANUFACTURING ALKALI SILICATES. FRANK P. VAN DENBURGH, Buffalo, N. Y. Filed Aug. 3, 1900. Serial No. 25,821. (No specimens.)

Claim.—1. The herein-described process of manufacturing alkali-metal silicates, which consists in subjecting a substance containing an alkali-metal base, and a silicious substance in the presence of oxygen, to heat and electrolysis, to fuse the mass and drive off the acidulous elements or oxids, and combine the base and silica to form an alkali-metal silicate, substantially as set forth.

2. The herein-described process, of manufacturing alkali-metal silicates, which consists in subjecting an alkali-metal chlorid and a silicious substance to heat sufficient to fuse the same, and to electrolysis to drive off the chlorin and permit the combination of the alkali-metal base with the fused silica in the presence of oxygen, substantially as set forth.

3. The herein-described process of manufacturing alkali-metal silicates, which consists in subjecting an alkali-metal chlorid and a silicious substance, in the proportion of approximately three parts of chlorid to one of the silicious substance, to heat and electrolysis in the presence of oxygen, substantially as set forth.

4. The herein-described process of manufacturing alkali-metal silicates, which consists in subjecting sodium chlorid and a smaller proportion of potassium chlorid, and a substance containing silica, to heat and electrolysis in the presence of oxygen, the potassium chlorid serving to lower the fusing-point of the bath, and also to facilitate the electrolysis, substantially as set forth.

5. The herein-described process of manufacturing alkali-metal silicates containing a high proportion of oxygen, which consists in subjecting a substance containing an alkali-metal base, and a silicious substance to heat and to electrolysis, ample to fuse the materials and drive off the acidulous constituents, such operations taking place in an atmosphere containing an excess of oxygen, substantially as set forth.

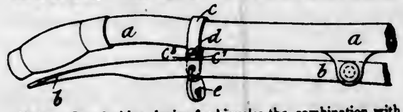
6. The herein-described process of manufacturing orthosilicate of sodium, which consists in subjecting sodium chlorid and silica to heat and electrolysis in the presence of oxygen, whereby these are fused and the following expressed reaction takes place:

$$4NaCl+SiO_2+O_2=SiO_4Na_4+2Cl_2,$$

substantially as set forth.

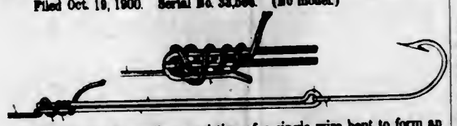
7. The herein-described process which consists in subjecting to heat and electrolysis in the presence of oxygen an alkali-metal chlorid, and a silicious substance to form an alkali-metal silicate, and then treating the silicate so formed to produce a caustic alkali, substantially as set forth.

677,907. BICYCLE-LOCK. THOMAS P. VANDELEUR, Clarence Road, Island of Jersey. Filed Aug. 13, 1900. Serial No. 26,782. (No model.)



Claim.—In a locking device for bicycles the combination with the handle-bar *a* and brake-handle *b*, of a clamp or ring *c* fixed to the handle-bar and formed with arms or extensions c', c', and a padlock *e* the bow or bar of which is passed through a hole b' formed in the handle *b* and through a hole c^2 formed in the arm c' so as to lock the brake-handle to the handle-bar and hold the brake hard against the wheel, substantially as described.

677,908. COUPLING. FREDERICK A. WEGNER, Detroit, Mich. Filed Oct. 19, 1900. Serial No. 33,566. (No model.)

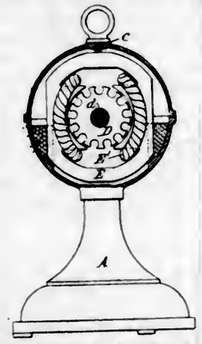


Claim.—1. A coupling consisting of a single wire bent to form an eye and have two straight stretches extend from the eye, one stretch being recurved to form a hook that extends for the most part toward said eye and has its bow lapped by a terminal of the other stretch, the aforesaid eye being for engagement with a hook, eye or bend of some device other than the coupling, and the hook end of said coupling for connection with a line coiled and knotted thereon.

2. A coupling consisting of a single wire bent to form an eye and have two straight stretches extend from the eye, one stretch being recurved to form a hook that extends for the most part toward said eye at a right angle to the plane of same and has its bow lapped by a terminal of the other stretch, the aforesaid eye being for engagement with a hook, eye or bend of some device other than the coupling and the hook end of said coupling for connection with a line coiled and knotted thereon.

677,909. CONSTRUCTION OF ELECTRIC MOTORS. JAMES J. WOOD, Fort Wayne, Ind. Filed Apr. 23, 1900. Serial No. 13,897. (No model.)

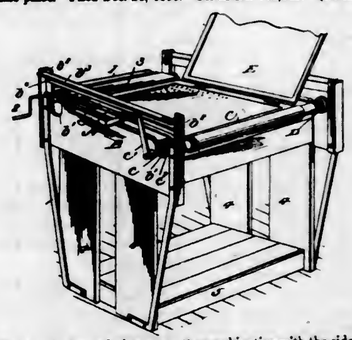
Claim.—1. The combination with a motor-casing, of a field-magnet frame, said casing being composed of a plurality of separable members and the entire field-magnet frame being fixed in one of said casing members by a support of material hardened between said frame and said casing member.



2. The combination with a motor-casing, of a field-magnet frame, said casing surrounding and completely inclosing the motor and being composed of a plurality of members, and the entire field-magnet frame being fixed in one of said casing members by a support of material hardened between said frame and said casing member.

3. The combination with a motor-casing, of a field-magnet frame, said casing being composed of two separable shells surrounding and completely inclosing the motor, and the entire field-magnet frame being fixed in one of said shells by a support of material hardened between said frame and said shell.

677,910. HAND CYLINDER PRINTING-PRESS. LESLIE R. WOODRUFF, San Miguel, Cal., assignor to Messenger Press Company, same place. Filed Dec. 20, 1899. Serial No. 741,043. (No model.)



Claim.—1. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, vertically-adjustable impression-rails arranged above the impression-cylinder, so that a variable pressure may be applied to said cylinder to vary the printing impression, and a pair of cables secured to each end of said cylinder, the other ends of each pair of cables being secured to opposite ends of the track, whereby the travel of the cylinder in one direction will cause one set of cables to wind up on the ends of the cylinder and the other set to unwind, and when the cylinder travels in the opposite direction reverse operation of the cables will take place.

2. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of said cylinder, the other ends of each pair of cables being secured to opposite ends of the track, means for moving the cylinder to and fro over the cylinder-bed, and recesses at each end of the track to receive said cylinder, as set forth.

3. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair of cables being secured at the respective ends of the tracks, the impression-rails, means for moving the cylinder over the bed, and recesses at each end of the track to receive said cylinder as set forth.

4. In a printing-press, the combination of the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair

being secured at the respective ends of the track, vertically-adjustable means arranged above the impression-cylinder, so that pressure may be applied to said cylinder to regulate the printing impression, and rails for moving the cylinder to and fro over the bed.

5. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at the respective ends of the track, vertically-adjustable rails for regulating the impression, means for moving the cylinder over the bed, and recesses at each end of the track to receive said cylinder, as set forth.

6. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at the respective ends of the track, impression-rails above the track, means for vertically adjusting the rails to vary the pressure of the cylinder, and recesses at each end of the track to receive the cylinder, as set forth.

7. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at opposite ends of the track, means for moving the cylinder over the bed, and recesses formed in the sides of the frame, at opposite ends of the track and below the same, to receive the cylinder, as set forth.

8. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder arranged to travel on the track, a pair of cables secured to each end of the cylinder, the other ends of each pair being secured at opposite ends of the track, impression-rails provided with impression-screws, so constructed with grooves and lugs that the rails may be readily adjusted so as to accommodate the thickness of the galley and to vary the impression.

9. In a printing-press, the combination with the sides thereof forming tracks, of an impression-cylinder, a pair of cables secured to each end of the cylinder and to the press-frame at opposite ends of the track, means for moving the cylinder over the track, impression-rails provided with impression-screws, hand-wheels provided with means for engaging depressions of varying depth in said impression-rails, and coiled springs for normally holding the impression-rails and hand-wheels up against the heads of the impression-screws, as specified.

10. In a printing-press, the combination with the sides thereof forming a track, of an impression-cylinder, a pair of cables secured to each end of the cylinder and to the press-frame at opposite ends of the track, means for moving the cylinder over the track, impression-rails, means for regulating the pressure of the impression-rails to vary the pressure of the cylinder, and independent means to raise and lower said rails to accommodate the thickness of the galley.

11. In a printing-press, the combination with the frame thereof having recesses at one end, and a movable impression-cylinder adapted to enter said recesses, of a hinged ink-apron provided with means operated by the impression-cylinder, whereby the ink-apron is caused to rise so as to permit the said cylinder to enter said recesses.

12. In a printing-press, the combination with a movable impression-cylinder and recesses in one end of the frame, of a pivoted ink-apron carrying an arm, whereby the ink-apron is caused to rise and fall by the impression-cylinder.

677,911. GARMENT-SUPPORTER. GEORGE E. ADAMS, New Britain, Conn. Filed May 23, 1901. Serial No. 61,643. (No model.)



Claim.—1. In a garment-supporter, the combination with the loop having the opening therein larger at one end than at the other and a webbing to which it is attached, of a clamping member carried by said webbing and having oppositely-disposed elastic friction-disks with a passage between them for the reception of the edges of the loop and fabric carried thereby, and a collar of relatively small diameter interposed between the central portion of said disks for holding them in position; substantially as described.

2. In a garment-supporter, a clamping member for coöperation with a loop having an opening larger at one end than at the other, consisting of a base, a headed post secured to said base, two elastic disks mounted on the post and a sleeve surrounding the post between the disks and operating to grip the central portions of the disks; substantially as described.

3. In a clamping member for garment-supporters such as described, the combination with the base, the oppositely-arranged elastic disks the sleeve having outwardly-flanged ends interposed between the disks and the headed post passing through the disks and sleeve and connected with the base, whereby the central portions of the disks are gripped to hold them in position on the post; substantially as described.

677,912. EYEGLASSES. JACOB ALEXANDER, New York, N. Y. Filed Apr. 6, 1901. Serial No. 54,633. (No model.)



Claim.—1. The combination of the post and the clamping-jaws in part therewith, the spring and guard seated between the jaws, the fixed stem projecting through openings of the spring and guard, and the nut threaded upon the outer end of the stem, the jaws having means to lock the nut in operative position.

2. The combination of the post and the clamping-jaws in part therewith, the spring and guard seated between the jaws, the fixed stem projecting through openings of the spring and guard, and the nut threaded upon the outer end of the stem and bearing directly against one of the clamped members, the jaws having means to lock the nut in operative position.

3. The combination of the post and the clamping-jaws in part therewith, the spring and guard seated between the jaws, the axially-disposed stem equaling the length of the jaws, said stem being fixed to the post and projecting through openings of the spring and guard and the removable square nut threaded upon the outer end of the stem, the jaws having means to lock the nut in operative position.

4. The combination of the post and the clamping-jaws in part therewith, the spring and guard seated between the jaws, the axially-disposed stem equaling the length of the jaws, said stem being integral with the post and projecting through openings of the spring and guard and the removable square nut threaded upon the outer end of the stem and lying wholly within the recess between the jaws, said jaws having means to lock the nut in operative position.

677,913. NON-REFILLABLE BOTTLE. MARTIN G. ALLEN, Decorah, Iowa. Filed May 8, 1901. Serial No. 59,196. (No model.)

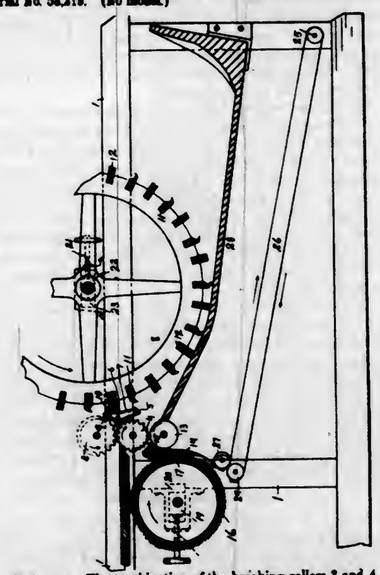


Claim.—1. In combination with a bottle provided with an exteriorly-threaded neck, a sleeve secured thereto, a separate neck secured to said sleeve, said neck having ports formed therein, a cylindrical casing secured to said separate neck, flat valves on said cylindrical casing, a piston-head secured in said casing, a tube connected to said head, said tube having perforations formed therein, substantially as described.

2. In combination with the exteriorly-threaded neck of a bottle, and a collar secured thereto, said collar being provided with an annular inwardly-inclined upper face, an interiorly-threaded separate neck mounted on said collar, said neck being provided with ports, a cylindrical casing connected to said neck, a series of flat valves thereon, a seat at the lower end of said casing, a piston-head connected to a tube mounted in said casing, said tube being provided with ports, substantially as described.

3. In combination with the exteriorly-threaded neck of a bottle, a collar exteriorly and interiorly threaded mounted thereon, said collar being provided with an inwardly-inclined upper face, an exteriorly-threaded separate neck secured to said collar, said neck having ports formed therein, a cylindrical casing connected to said neck, flat valves in said casing, an annular seat at the bottom of said casing, a piston-head slidably mounted in said casing, a tube open at one end connected to said piston-head, said tube having orifices formed therein near its upper end, substantially as described.

677,914. FIBER-SEPARATING MACHINE. SAMUEL R. ALLISON, New Orleans, La.; C. A. Derrestein administrator of said Samuel R. Allison, deceased. Filed May 27, 1897. Renewed Apr. 30, 1901. Serial No. 58,319. (No model.)



Claim.—1. The combination of the breaking-rollers 3 and 4, wheel 8 carrying wood-separating devices, the working beds 9 and 10, a part 14 provided with beds 15 and 17, the roller 13 coöperating with roller 4 to carry the fiber to bed 15 and a brush 16 coöperating with the bed 17, substantially as described.

2. The combination of stalk-breaking rollers, devices for scutching and brushing the broken stalks, supplementary devices for brushing the opposite side of the fibrous part of said stalks, and intermediate means comprising one of the breaking-rollers and a coöperating roller 13 for transporting the fiber from the scutching and brushing devices to the supplementary brushing devices, substantially as described.

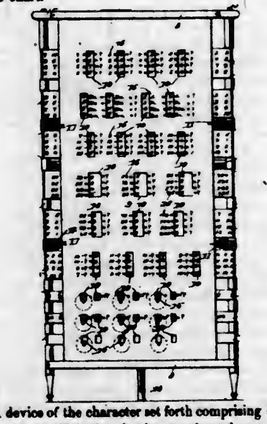
3. The combination of the breaking-rollers 3 and 4 with each other, and beds 9 and 15, the roller 3 coöperating with the bed 9 and the roller 4 with the bed 15, the wheel 8 provided with scutching-bars and brushes, the bed 10, the rotary brush 16, and the bed 17, said wheel-carried brushes 12 and rotary brush acting upon opposite sides of the fiber, substantially as described.

677,915. EDUCATIONAL CHART. RICHARD R. ANDERSON, Albion, Iowa. Filed Oct. 20, 1900. Serial No. 33,758. (No model.)

Claim.—1. A device of the class set forth comprising a supporting-frame, a plurality of continuous belts movable transversely of the frame and bearing on the side portions of the latter, said belts having numbers, characters or the like at intervals thereon, a chart consisting of a continuous web of suitable material removably clamped at its upper and lower ends to the upper and lower ends of the frame and arranged in front of said belts, the chart having transversely-alined series of slots with characters or numbers and signs adjacent the edges thereof to conjunctively aline with the corresponding devices on the belts, means for removably fastening the sides of the chart to the sides of the frame, and longitudinally-extending strips on the back of the chart having loops at intervals through which the belts have movement.

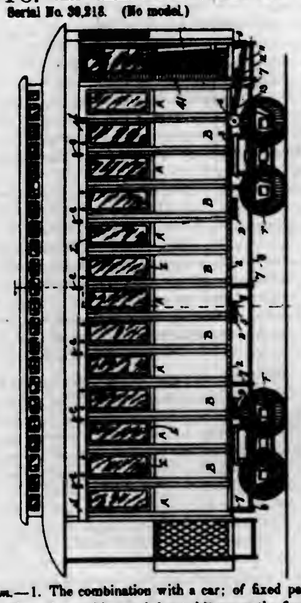
2. A device of the character set forth, comprising supporting devices, a series of belts movable over said supporting devices and having characters, numbers, or the like, arranged thereon, a chart in front of said belts having openings therein for exposing portions of the latter, and rotatable disks attached to the chart and operating between the latter and portions of the belts.

3. A device of the character set forth comprising supporting devices connected by upper and lower cross-pieces, belts shiftably mounted on said devices and having numbers thereon, fastenings also attached to said devices, a chart in front of the belts having lines of openings therein for exposing the numbers on the belts and also provided with numbers, measure indications and signs, stretching devices attached to the side edges of the chart and adjustably attachable to said fastenings, and clamping-strips secured to the cross-pieces and holding the upper and lower ends of the chart.



4. A device of the character set forth comprising supporting devices, shiftable belts on said devices having numbers thereon, a flexible chart in front of the belts and having lines of openings therein arranged in pairs, one opening of each pair exposing the numbers on the belts, and disks rotatably secured to the back of the chart between the belts and the latter and having numbers thereon exposable through the remaining opening of each of said pairs of openings.

677,916. CAR. HARRY ANDERSON, Omaha, Nebr. Filed Dec. 8, 1900. Serial No. 39,218. (No model.)



Claim.—1. The combination with a car; of fixed panels arranged at the sides thereof, movable panels located between the fixed panels, and means upon the car whereby the movable panels may be moved outward from between the fixed panels and slid longitudinally.

2. The combination with a car; of fixed panels at the sides thereof, movable panels located between the fixed panels, strips connecting the movable panels, and means for moving said strips laterally and longitudinally.

3. The combination with a car; of fixed panels at the sides thereof, movable panels adapted to lie between the fixed panels, strips connecting the lower ends of the movable panels, a rack at one end of each of said strips, a shaft, gears thereon meshing with the racks, and means for revolving the gears whereby longitudinal movement is imparted to the strips of the sliding panels.

4. The combination with a car; of fixed panels at the sides thereof, movable panels adapted to lie between the fixed panels, longitudinally-extending strips connecting the lower ends of the movable panels, racks at the ends of the strips, a shaft, gears thereon meshing with the racks, a crank-shaft, and means connecting said crank-shaft and the shaft of the gears, whereby motion may be imparted from one shaft to the other, and the strips and the panels secured thereto moved longitudinally.

5. The combination with a car; of fixed panels secured to the sides thereof, movable panels arranged therebetween, longitudinally-extending strips connecting the lower ends of the movable panels and having grooves in their lower faces, rollers mounted within the grooves, a lever, and means operated by said lever for imparting lateral movement to the rollers, and thereby sliding the strips and panels from or toward each other.

6. The combination with a car; of fixed panels secured to the sides thereof, movable panels arranged therebetween, longitudinally-extending strips connecting the lower ends of the movable panels and having grooves in their lower faces, rollers mounted within the grooves, slides connected to the rollers and mounted upon the bottom of the car, a lever, and means operated by said lever for drawing the slides from or toward each other.

7. The combination with a car; of panels secured to the sides thereof, movable panels arranged therebetween, longitudinally-extending strips connecting the lower ends thereof and having grooves in their lower faces, rollers mounted within the grooves, slides mounted upon the bottom of the car and connected to the rollers, disks journaled upon the car, links connecting the slides and disks, a lever, and means for imparting motion to the disks from the lever, whereby the rollers may be moved from or toward each other, carrying the movable panels therewith.

8. The combination with a car; of fixed panels secured to the sides thereof, movable panels adapted to lie therebetween, longitudinally-extending strips connecting the lower ends of said panels and having grooves in their lower faces, rollers mounted within the grooves, slides upon the bottom of the car connected to the rollers, disks mounted upon the car between the slides, links connecting the disks and slides, a lever fulcrumed upon the car, and a link connection between said lever and disks, whereby lateral movement may be imparted to the slides and their rollers in opposite directions.

9. The combination with a car having fixed panels at the sides thereof; of movable panels adapted to lie therebetween, longitudinally-extending strips connecting the lower ends of the movable panels, strips connecting the upper ends thereof, a rack having recesses in its lower edge adapted to receive the upper strips of the movable panels, a gear engaging said rack, a shaft to the gear, rollers engaging the lower strips of the panels, a lever, and means operated by said lever whereby lateral movement is imparted to the rollers and to the racks in opposite directions respectively and in unison.

10. The combination with a car having fixed panels secured to the sides thereof; of movable panels adapted to lie therebetween, strips connecting the lower ends of the movable panels and having grooves in their lower faces, rollers mounted within the grooves, slides upon the bottom of the car connected to the rollers, strips connecting the upper ends of the movable panels, racks slidably mounted within the sides of the car and having recesses in their lower edges adapted to receive the upper strips of the panels, gears meshing with the racks, and means for imparting motion to the gears and slides whereby the panels upon the sides of the car may be moved from or toward each other in unison.

11. The combination with a car having panels secured to the sides thereof; of movable panels adapted to lie therebetween, strips connecting the lower ends of the movable panels and having grooves in their lower faces, rollers journaled within the grooves, slides mounted upon the bottom of the car and connected to said rollers, strips connecting the upper ends of the movable panels, racks engaging said strips and slidably mounted within the sides of the car, longitudinally-extending shafts within the car, gears thereon meshing with the racks, cranks upon the shafts, a disk, links connecting the disk and cranks, a disk upon the bottom of the car, a link connection between said disk and the rollers upon opposite sides of the car, a lever, and means operated by said lever whereby the disks may be turned in unison, thereby moving the panels upon opposite sides of the car from or toward each other in unison.

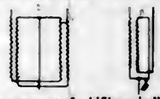
12. The combination with a car having panels secured to the sides thereof; of movable panels adapted to lie therebetween, strips connecting the lower ends of the movable panels and having grooves in their lower faces, rollers mounted within the grooves, slides mounted upon the bottom of the car and connected to said rollers, racks at the ends of the strips, an extensible shaft journaled upon the bottom of the car, gears thereon meshing with the racks, means for imparting lateral movement to the slides and their rollers in opposite directions in unison, and means for revolving the shaft whereby longitudinal movement may be imparted to the movable panels.

13. The combination with a car having panels secured to the sides thereof; of movable panels adapted to lie therebetween, strips connecting the lower ends of the movable panels and having grooves in their lower faces, rollers mounted within the grooves, slides mounted upon the bottom of the car and connected to the rollers, a rack at one end of each of the strips, an extensible shaft journaled upon the car, gears thereon meshing with the racks, strips connecting the upper ends of the movable panels, sliding racks engaging the strips, shafts journaled within the car, gears thereon meshing with the racks, means for imparting lateral movement to the rollers and racks in opposite directions respectively and in unison, and means for revolving the extensible shaft, thereby imparting a longitudinal movement to the movable panels.

14. The combination with a car having panels secured to the sides thereof; of movable panels adapted to lie therebetween, strips connecting the lower ends of the movable panels, means for imparting lateral movement to said strips in opposite directions, strips connecting the upper ends of the movable panels, sliding racks engaging said strips, shafts journaled within the car, gears thereon engaging the racks, cranks to the shafts, a disk journaled within the car, links connecting the disk to the cranks of the shafts, a disk journaled beneath the car, a rod connecting said disks, a lever, and a link connection between said lever and the lower disk, whereby lateral motion in opposite directions may be imparted to the upper strips of the panels.

15. The combination with a car having panels secured to the sides thereof; of movable panels adapted to lie therebetween, strips connecting the lower ends of the movable panels and having grooves in the lower faces thereof, rollers mounted within the grooves, slides upon the car connected to said rollers, disks journaled upon the car and between the slides, links connecting said slides and disks, a rack at one end of each of the strips of the movable panels, an extensible shaft journaled upon the car, gears thereon meshing with the racks, collars upon the sections of the extensible shaft, said shaft being revolvable therein, and means for moving the gears and rollers from or toward each other in unison.

677,917. ARRANGEMENT OF NON-INDUCTIVE WINDINGS. ENGELBERT ARNOLD, OLE S. BRAGSTAD, and JENS L. LA COUR, Carlsruhe, Germany. Filed Jan. 26, 1901. Serial No. 44,852. (No model.)



Claim.—An arrangement of a bifilar winding for generators, motors, transformers, and choking-coils of an *x*-phase system for lessening the self-induction of an alternating current which is superposed on such *x*-phase system, which arrangement is distinguishable herein that through two wires or coils wound side by side the superposed current flows in opposite directions and the main currents flow with such a displacement of phases as is determined by the angle of displacement of the two phases of the *x*-phase system to which the two wires or coils belong.

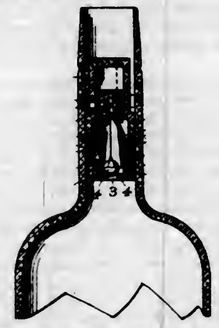
677,918. PACKAGE FOR HOLDING LIQUIDS. JACOB F. ABBENHEIMER, Cincinnati, Ohio. Filed Sept. 18, 1899. Serial No. 761,689. (No model.)



Claim.—1. In a package for holding liquids, the combination of several compressed-pulp sections to form the periphery of the barrel, each of said sections being single and of one piece, the thickness of the sections being the thickness of the package, in combination with compressed-pulp heads, and in combination with hoops to force said sections together so that their edges abut and impinge against each other to make a tight joint without any intermediate locking parts between said sections, substantially as set forth.

2. In a package for holding liquids, the combination of several compressed stave-sections to form the periphery of the barrel, the edges of said stave-sections meeting and lying in juxtaposition, said staves being concave on each inner side of the croze and toward the center being thickened, in combination with compressed heads, all held together by hoops, as and for the purposes set forth.

677,919. NON-REFILLABLE BOTTLE. AVEDIS D. AVEDISIAN, Boston, Mass. Filed Mar. 5, 1901. Serial No. 49,851. (No model.)



Claim.—1. A bottle having a valve-seat block secured within the lower portion of its neck and provided with a valve-seat, a conical valve divided centrally and vertically and resting on said seat each half of said valve provided with exterior lugs at diametrically opposite points, the integral cylinder resting on said block and having an annular ledge immediately beyond said lugs, said cylinder being closed at its top and provided with lateral openings in its upper portion, guard-lugs projecting externally from said cylinder immediately above said openings, and the recessed plug within said cylinder and capable of moving freely, substantially as set forth.

2. In a bottle, the combination of the neck having the valve-seat block open at its bottom and secured within the lower portion of said neck and provided with a rounded seat and having lugs projecting laterally from the walls of the opening in the bottom, the conical valve-sections rounded at their lower extremities and fitting within said seat, and provided with diametrically opposite lugs immediately above the seat portions proper, the ball inclosed by said sections, the integral cylinder secured within the neck of the bottle and inclosing the valve-sections and provided with a ledge immediately beyond the valve-lugs, said cylinder also having lateral openings in its upper portion, and the recessed plug within the upper end of said cylinder and capable of moving freely therein, substantially as set forth.

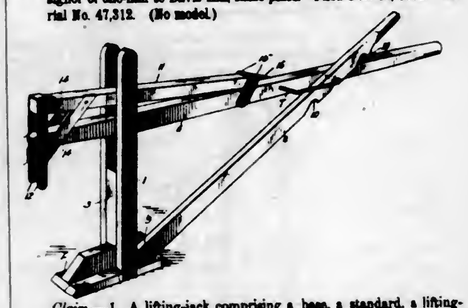
3. A bottle having a valve-seat block and an integral cylinder secured within its neck, said cylinder being closed at the top and having openings in its sides and provided with a ledge immediately above said block, a sectional conical valve resting on said seat-block and capable of a rocking movement and provided with exterior diametrically opposite lugs, and the recessed plug within the upper portion of said cylinder and capable of a free movement therein, substantially as set forth.

4. In a bottle, the combination of the open valve-seat block and the integral cylinder secured within the neck of the bottle, said cylinder being closed at the top and having lateral guarded openings near the upper end and provided with a ledge at the lower end, the sectional conical valve resting by gravity on said seat-block and provided with exterior lugs which are diametrically opposite and which extend immediately below said ledge, and the ball inclosed by said valve-sections, substantially as set forth.

5. In a bottle, the valve-seat block and the integral cylinder secured within the neck of the bottle, said block having an opening in its bottom and provided with a rounded seat, while the cylinder is closed at the top and has lateral openings near its upper end and is provided with a ledge at the lower end, and the sectional conical valve resting on said seat and provided with exterior lugs immediately below said ledge, substantially as set forth.

6. In a bottle, the combination of the seat-block secured within the neck of the bottle and having an opening in its bottom and provided with an annular rounded seat, the integral cylinder closed at the top and having its lower end secured within the neck of the bottle immediately above said block, the bottom of said cylinder having an interior ledge while the upper portion has a diameter less than the inside diameter of the bottle-neck and is provided with lateral openings, and the vertically-divided conical valve inclosed by said cylinder and having its lower portion seated snugly within said seat and provided with exterior lugs which extend immediately below said ledge from the middle portion of each valve-section, substantially as set forth.

677,920. LIFTING-JACK. JAMES M. RABBITT, Carthage, Mo., assignor of one-half to Davis Hill, same place. Filed Feb. 14, 1901. Serial No. 47,312. (No model.)



Claim.—1. A lifting-jack comprising a base, a standard, a lifting-lever, a bracket or support arranged longitudinally of the lifting-lever and detachably interlocked at its outer end with the lever, the inner end of the support being movably connected with the lever to enable the said outer end to be disengaged from the lever, and means for holding the support against movement independently of the lever, substantially as described.

2. A lifting-jack comprising a standard, a lever fulcrumed thereon, an axle-supporting bracket extending longitudinally of the lever and interlocked at its outer end with the lever, a link arranged at the inner end of the bracket and pivoted to the same and to the lever and adapted to permit the bracket to move outward and inward, and means for holding the bracket against movement, substantially as described.

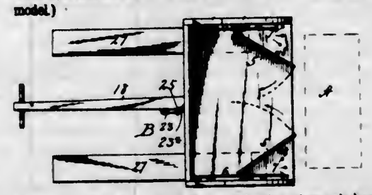
3. A lifting-jack comprising a standard, a lever fulcrumed thereon, a support extending longitudinally of the lever and provided at its outer end with a depending portion having means for detachably engaging the lever to hold the support at different elevations, and means for holding the support against movement, substantially as and for the purpose described.

4. A lifting-jack comprising a standard, a lever fulcrumed thereon, a support extending longitudinally of the standard and provided at its outer end with a depending portion, said depending portion being provided at intervals with means for engaging the lever, whereby the support is held at different elevations, said support being adapted to be moved inward and outward, and means for holding the support against movement, substantially as described.

5. A lifting-jack comprising a standard, a lever fulcrumed thereon, a support composed of a longitudinal bar located above the lever, and legs depending from the outer end of the bar and provided at intervals with connecting devices for engaging the lever, a link connecting the bar with the lever and adapted to permit the support to move inward and outward, and a locking device for holding the support against outward movement, substantially as described.

6. A lifting-jack comprising a standard, a lever, a support composed of a longitudinal bar located above the lever, the legs extending downward from the outer end of the bar and transverse pins or rungs connecting the legs, links connecting the bar and the lever, a pivoted latch mounted on the bar, and a keeper mounted on the lever and engaged by the latch, substantially as described.

677,921. GRAVE-DIGGER'S DUMP-CART. ALEXANDER T. BARBEE, Henderson, N. C. Filed Mar. 14, 1901. Serial No. 51,071. (No model.)

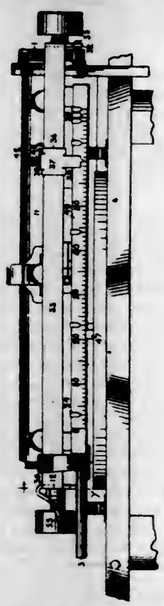


Claim.—1. In a dump-cart, the combination of an axle having traction-wheels thereon, a box pivotally mounted on said axle, a tongue pivotally connected to said axle, a lever fulcrumed on said tongue, a link pivoted at one end to said box and at its other end to said lever, and a hook attached to said box and arranged to engage the handle of said lever; substantially as described.

2. In a cart of the class described, the combination of a box open at the back, of two wings hinged at one end to the sides of the box, and pins fitting holes in the bottom of said box and positioned to hold said wings, substantially as described.

3. In a cart of the class described, the combination with a box open at the back and mounted to dump, of hinged wings adjustably connected to the sides of said box, and means for holding said wings in any position.

677,922. **TYPE-WRITING MACHINE.** WALTER J. BARRON, Brooklyn, N. Y., assignor to the Densmore Typewriter Co., Syracuse N. Y. Filed May 12, 1900. Serial No. 3,222. (No model.)



Claim.—1. In a type-writing machine, the combination of a power-driven paper-carriage, escapement devices therefor, and a bail pivotally mounted by its arms upon said carriage connected to said escapement devices, said bail comprising a part which unites said arms and is arranged in front of the platen and extends the entire length thereof, a column-stop on said part which unites said arms, and a coacting stop mounted on the frame.

2. In a type-writing machine, the combination with a platen-frame and a platen journaled therein, of a bail whose arms are pivoted upon said platen-journals, said bail comprising a bar arranged in front of said platen-frame and extending parallel with said platen, and at least one of said side arms being operatively connected to release said carriage to permit its rapid movement.

3. In a type-writing machine, the combination with a carriage and escapement mechanism therefor, of a release-key comprising a U-shaped frame having side arms pivoted at the ends of the carriage, and a long bar arranged at the front of the carriage and extending longitudinally thereof for substantially the entire length of said carriage, a stop on said bar, and a coacting stop arranged upon the framing, one of said stops being adjustable in a line parallel with the carriage travel, and the stop on the framing being out of the normal path of the stop on said bar.

4. In a type-writing machine, the combination with a carriage and escapement devices therefor, of a release-key arranged upon the forward part of said carriage and extending longitudinally thereof, a stop adjustable along said release-key, and a relatively-fixed stop, the latter being out of the normal path of the release-key stop, the construction and arrangement being such that upon the operation of said release-key to release the carriage from the control of its escapement devices, the said release-key stop is projected to a position in which it may engage said relatively-fixed stop to arrest the carriage at a position corresponding to the adjustment of said release-key stop.

5. In a type-writing machine, the combination with a carriage and escapement devices therefor, of a release-key arranged upon the front part of said carriage and extending longitudinally thereof, a rack provided upon said release-key, a stop adjustable along said release-key and provided with means for engaging said rack, and a relatively-fixed coacting stop arranged out of the normal path of said adjustable stop, the construction and arrangement being such that upon depression of said release-key to effect the release of the carriage, said adjustable stop is projected to a position to engage said relatively-fixed stop to cause the arrest of the carriage at a point determined by the adjustment of said adjustable stop.

6. In a type-writing machine, the combination with a carriage and escapement devices therefor, of a bail pivoted by its arms upon said carriage and operatively connected to said escapement devices so as to release the carriage from their control, said bail comprising a key arranged forwardly of said escapement devices and extending for substantially the entire length of the carriage, a stop adjustable along said key, and a coacting relatively-fixed stop arranged out of the normal path of said adjustable stop and constructed to arrest the latter, together with the carriage, upon the carriage being released by the operation of said release-key.

7. In a type-writing machine, the combination with a carriage and escapement devices therefor, of a bail pivoted upon the carriage for releasing the latter from the control of said escapement devices, said bail comprising a key arranged forwardly of the carriage and extending for substantially the entire length thereof, a rack provided upon said key, an adjustable stop upon said key provided with means for engaging said rack, and a relatively-fixed stop arranged out of the normal path of said adjustable stop and constructed to arrest the latter, together with the carriage, upon the release of the carriage by said release-key.

8. In a type-writing machine, the combination with a carriage and escapement mechanism therefor, of a depressible release-key connected to disengage said carriage from the control of said escapement mechanism, said depressible key extending for substantially the whole length of said carriage and parallel therewith and upon the forward portion thereof, a stop adjustable along said depressible key, and a relatively-fixed stop arranged below the normal path of said adjustable stop.

9. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a depressible release-key arranged upon the forward part of said carriage and extending for substantially the entire length thereof, a rack upon said release-key, a stop adjustable along said release-key and provided with means for engaging said rack, and a relatively-fixed stop constructed to coact with said adjustable stop but arranged out of the normal path of the latter.

10. In a type-writing machine, the combination with a carriage, an escapement mechanism therefor, a scale mounted upon said carriage, and a relatively-fixed index, of a release-key arranged upon the carriage parallel with said scale and extending for the entire length thereof, and a column-stop adjustable along said release-key and provided with an index for coöperation with said scale, whereby said column-stop may be adjusted so as to arrest the carriage at the desired position after release-ment.

11. In a type-writing machine, the combination with a carriage and escapement devices therefor, of a scale arranged upon the front of said carriage, a relatively-fixed index constructed to coöperate with said scale and also to serve as a stop, and a column-stop adjustable along said scale and constructed to be projected at will into a position to engage said index or fixed stop.

12. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a release-key mounted upon said carriage and extending for substantially the entire length thereof, a rack provided upon said release-key, a stop adjustable along said key but normally disengaged from said rack, and means for engaging said stop at will to said rack.

13. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a release-key mounted thereon and extending for substantially the entire length thereof, a rack provided upon said release-key, a stop adjustable along said key but normally disengaged from said rack, means for engaging said stop at will to said rack and simultaneously operating said release-key, and a relatively-fixed stop for coaction with said adjustable stop.

14. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a release-bar extending parallel with the carriage and provided with a rack, a slide adjustable along said bar, a key-piece mounted upon said slide, a dog operatively connected to said key-piece but normally disengaged from said rack, whereby said slide may be moved freely over said bar and said key-piece may be operated to engage said slide with said rack at any desired point, whereupon said bar may be operated to release the carriage from the control of its spacing mechanism, and a relatively-fixed stop constructed to engage with said adjustable stop to arrest the carriage.

15. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a longitudinally-extending release-bar, a slide thereon, a vertical stem mounted on said slide and provided with a key, a dog attached to said vertical stem, a spring for holding said dog out of engagement with said rack, and a relatively-fixed stop.

16. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a key or finger-piece, as 42, adjustable along said carriage, and means controlled by said key or finger-piece for releasing said carriage at any point and for arresting said carriage at a point determined by the adjustment of said key or finger-piece.

17. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a device mounted upon the front of the carriage and movable in one direction for predetermining the position at which the carriage shall be arrested, and movable in another direction for subsequently effecting the release of the carriage.

18. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a device which normally is free to be moved in either direction parallel with the travel of the carriage, for predetermining at what point the carriage shall be arrested, and which is movable in another direction for subsequently releasing the carriage from the control of said escapement mechanism.

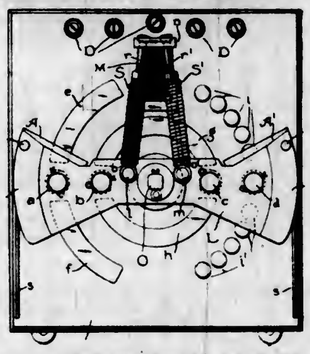
19. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a device which is mounted on said carriage and normally movable freely in either direction parallel with said carriage, to predetermine the position at which the carriage shall be arrested, and which may be moved in a crosswise direction for temporarily locking it in its adjusted position and simultaneously releasing said carriage from the control of its escapement devices.

20. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a bail pivotally mounted by its arms upon said carriage and connected to said escapement mechanism so as to release the carriage from the control thereof, said bail comprising a bar or key extending parallel with the carriage and for substantially the entire length thereof, a stop adjustable along said bar or key, a relatively-fixed stop arranged below the normal path of said adjustable stop, and a spring upon said carriage for keeping the said key or bar in a raised position.

21. In a type-writing machine and in a column-stop mechanism, the combination with a carriage, its escapement mechanism and a depressible release-key mechanism provided with an adjustable stop, of a scale provided with one or more adjustable indices adapted to facilitate the adjustment of the stop on the release-key, and a relatively-fixed stop for coöperating with said adjustable stop.

22. In a type-writing machine, the combination with a carriage, an escapement mechanism therefor, and a scale arranged upon the front of said carriage, of a series of indexes adjustable along said scale, a release-key arranged above said scale and parallel therewith, and a carriage-stop adjustable along said release-key and provided with an index for coöperation with said series of indexes to determine the position to which said stops shall be adjusted.

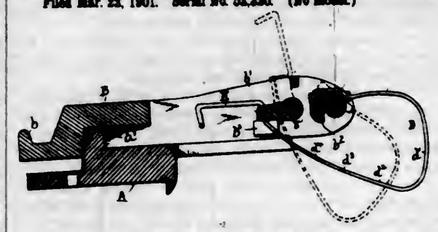
677,923. **ELECTRIC SWITCH.** NORMAN C. RAMSEY, Boston, Mass., assignor to the General Electric Company, of New York. Filed Apr. 23, 1900. Serial No. 14,661. (No model.)



Claim.—1. In combination, a pivoted switch member and a plurality of spring devices for returning said member to its "off" position from either direction, each of said devices being so mounted that it is inoperative in one direction of movement of the switch member, and each comprising two members normally maintained in engagement by a spring connection.

2. In combination, a pivoted switch-lever, blocks rotatably mounted on either side of the pivot of said lever, a plurality of fixed supports, rods having at their upper ends enlarged portions normally engaging said supports and having their lower ends normally in engagement with said blocks, and springs, each fastened at one end to one of said blocks and at the other end to a point on one of said rods.

677,924. **WEFT-FORK.** ROBERT BATHGE, Fall River, Mass. Filed Mar. 23, 1901. Serial No. 53,230. (No model.)



Claim.—1. A weft-fork having its hook pivoted separately from its tines, said tines being extended backward to engage with said hook.

2. In a weft-fork, the combination with a pivoted hook, of separately-pivoted tines extended backward to a point beneath and in close proximity to said hook whereby a slight movement of said tines will lift said hook.

3. In a weft-fork, the combination with a pivoted hook, of separately-pivoted tines extended backward and united into a tail arranged to lift said hook.

4. In a weft-fork, two or more parallel tines extending forward, downward and backward, and united into a tail in combination with a pivoted block carrying a hook and located just above the end of said tail so as to be lifted thereby.

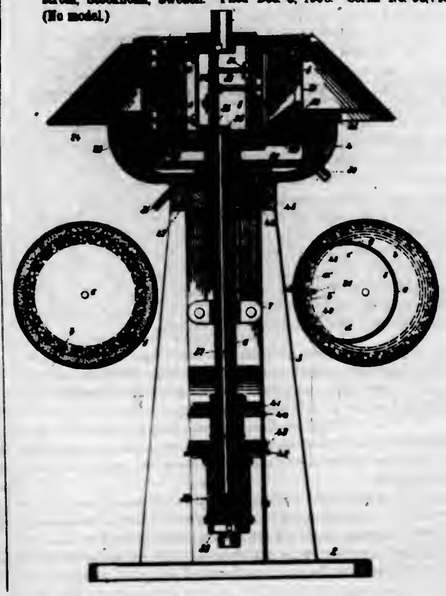
5. The combination with the stand having flanges, of the slide fitting between said flanges and having a finger and side plates, a hook and tines separately pivoted between said plates, cross-bars serving as stops for the hook and tines, and a lug to support the hook.

677,925. **BARBED BAND-FENCE.** CHARLES C. BENSON, San Diego, Cal. Filed Sept. 24, 1900. Serial No. 30,931. (No model.)



Claim.—A fence-panel comprising parallel bands and flat metallic binders riveted to the bands on opposite sides thereof and having integral horizontally-projecting barbs.

677,926. **CENTRIFUGAL MACHINE.** JOHN J. BERRIGAN, Orange, N. J., assignor to Francis J. Arend, New York, N. Y., and John Bernstrom, Stockholm, Sweden. Filed Dec. 5, 1900. Serial No. 38,740. (No model.)



Claim.—1. In a centrifugal machine, a receptacle for the combined constituents to be separated constructed to rotate on an axis everywhere eccentrically placed within the perimeter of said receptacle.

2. In a centrifugal machine, a cylindrical receptacle for the combined constituents to be separated constructed to rotate on an axis eccentrically placed within the perimeter of said receptacle.

3. In a centrifugal machine, a receptacle for combined constituents to be separated constructed to rotate on an axis eccentrically placed within the perimeter of said receptacle, and means for conveying the solid constituent deposited centrifugally on a portion of the interior of said receptacle from its place of deposit to another portion of said interior.

4. In a centrifugal machine, a receptacle for combined constituents to be separated constructed to rotate on an axis eccentrically placed within the perimeter of said receptacle, and means for conveying the solid constituent deposited centrifugally on a portion of the interior of said receptacle from its place of deposit to an escape-opening in the wall of said receptacle.

5. In a centrifugal machine, a receptacle for combined constituents to be separated constructed to rotate on an axis eccentrically placed within the perimeter of said receptacle, and means for conveying the solid constituent deposited centrifugally on a portion of the interior of said receptacle from its place of deposit to another portion radially nearer to said axis of rotation.

6. In a centrifugal machine, a receptacle for combined constituents to be separated constructed to rotate on an axis eccentrically placed within the perimeter of said receptacle, and means for conveying the solid constituent deposited centrifugally on a portion of the interior of said receptacle from its place of deposit to an escape-opening located radially nearer than said place of deposit to said axis of rotation.

7. In a centrifugal machine, a receptacle for combined solid and liquid constituents to be separated rotary on an axis eccentrically placed within the perimeter of said receptacle; the said receptacle being provided with escape-openings for said liquid and said solid located respectively on opposite sides of said axis.

8. In a centrifugal machine, a receptacle for combined solid and liquid constituents to be separated rotary on an axis eccentrically placed within the perimeter of said receptacle; the said receptacle being provided with escape-openings for said liquid and said solid located respectively on opposite sides of said axis and having the liquid-escape opening at the maximum distance from said axis.

9. In a centrifugal machine, a rotary receptacle for combined solid and fluid material having a solid peripherical wall and eccentrically placed with reference to its own axis of rotation, and having an outlet in said wall respectively for the solid and fluid components when separated; the outlet for the fluid component being located farther from said axis than the outlet for the solid component.

10. In a centrifugal machine, a receptacle for combined constituents to be separated constructed to rotate on an eccentric axis passing through it, and an external vessel adapted to hold a liquid for balancing said receptacle with reference to said axis.

11. In a centrifugal machine, a receptacle for the combined constituents to be separated constructed to rotate on an eccentric axis passing through it and an external vessel communicating therewith and adapted to hold a liquid for automatically balancing said receptacle with reference to said axis.

12. In a centrifugal machine, a receptacle for the combined materials to be separated constructed to rotate on an eccentric axis passing through it and a rotary vessel concentric with said axis and surrounding said receptacle; whereby a crescent-shaped chamber is formed between the wall of said vessel and said receptacle adapted to hold a balancing body of liquid.

13. In a centrifugal machine, a receptacle for the combined materials to be separated constructed to rotate on an eccentric axis passing through it, a rotary vessel concentric with said axis and surrounding said receptacle whereby a crescent-shaped chamber is formed, between the wall of said vessel and said receptacle, adapted to hold a balancing body of liquid; an opening being formed in the wall of said receptacle to allow said liquid to enter or be displaced from said receptacle.

14. In a centrifugal machine, two vessels disposed one within the other and having a common axis of rotation passing through said vessels; the inner vessel being eccentric to and the outer vessel concentric with said axis in a plane at right angles to said axis.

15. In a centrifugal machine, a vessel rotary on a vertical axis, a receptacle for combined solid and liquid constituents to be separated fixed therein, and an escape-conduit extending between the peripherical walls of said vessels.

16. In a centrifugal machine, a vessel rotary on a vertical axis, a receptacle for the combined solid and liquid constituents to be separated eccentrically disposed and fixed therein, and an escape-conduit extending radially from a point on the peripherical wall of the receptacle nearest to the axis of rotation to the peripherical wall of said outer vessel.

17. In a centrifugal machine, a rotary vessel and a receptacle for the combined solid and liquid to be separated eccentrically disposed therein, the said rotary vessel and receptacle being provided with openings in their peripheral walls for the escape of the separated solid, the opening in the wall of said receptacle being of greater area than the opening in the wall of said vessel, and a conduit connecting said openings, substantially as described.

18. In a centrifugal machine, a rotary vessel a receptacle for the material to be treated eccentrically disposed therein and communicating therewith a scraper and means for causing said scraper to traverse the inner perimeter of said receptacle in a direction opposite to that of the rotation of said vessel, substantially as described.

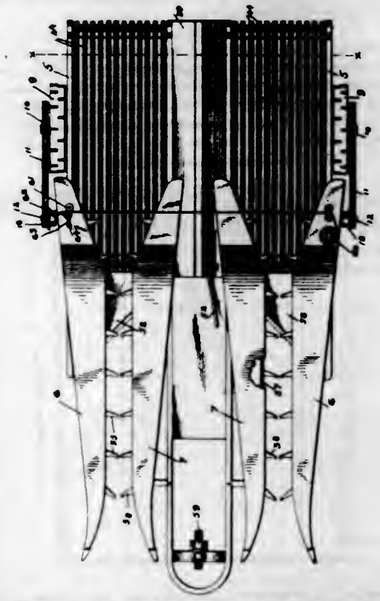
19. In a centrifugal machine, a rotary vessel, a receptacle for the material to be treated eccentrically disposed therein and communicating therewith, a scraper, and means for causing said scraper to traverse the inner perimeter of said receptacle in a direction opposite to that of the rotation of said vessel and at a less speed, substantially as described.

20. In a centrifugal machine, a rotary vessel, and within said vessel a receptacle of less cross-sectional area than said vessel for the combined solid and liquid to be separated, the said receptacle being disposed with its peripherical wall tangent to the inner perimeter of said vessel and provided with escape-opening for the fluid through the bottom, substantially as described.

21. The combination in a centrifugal machine of the rotary vessel 5, receptacle 8 eccentrically disposed therein, cover 10, inlet-conduit 13 in said cover and directing-conduit 16 supported on said cover; the said conduit 16 operating to direct the material entering through conduit 13 against the inner perimeter of receptacle 8, substantially as described.

22. The combination in a centrifugal machine of the rotary vessel 5, receptacle 8 eccentrically disposed therein, cylinder 32 pivoted in said receptacle 8 and carrying scrapers 34 and means for independently rotating said cylinders, substantially as described.

677,927. **CORN-HARVESTER.** DAVID BEHM, Campchase, Ohio. Filed Oct. 3, 1900. Serial No. 31,847. (No model.)

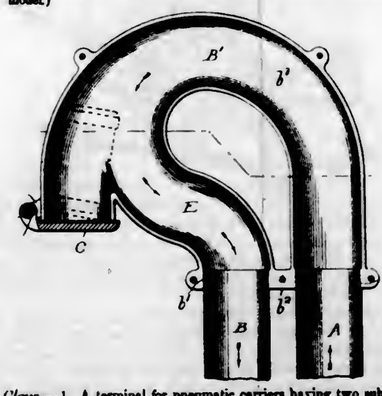


Claim.—1. In a corn-harvester, the combination with a horizontal frame, of endless carriers arranged to travel over said horizontal frame on opposite sides of the center of the width thereof, said carriers being arranged on horizontal shafts, a flaring or inverted-V-shaped partition arranged longitudinally on said frame between said carriers, a cutting device for each of said carriers and mechanism arranged between the carriers for driving the latter either at a fast or slow rate of speed, substantially as specified.

2. In a corn-harvesting machine, the combination with the framework, ground-wheels and a central frame-partition 39, of a stalk and shock carrying apron on each side of said partition, each of said aprons being formed of a plurality of parallel horizontal chains running over adjacently-journaled sprocket-wheels, a stalk-cutting device in front of each of said aprons and gear connections between said ground-wheels and sprocket-wheels whereby a traveling motion is imparted to the chains forming said aprons, substantially as specified.

3. In a corn-harvesting machine, the combination with a framework, a central partition, transverse shafts 40 and 41 journaled in said framework as described, sprocket-wheels 42 and 43 carried thereon, ground-wheels, a stalk and shock carrying apron on each side of said partition composed of endless chain belts running over said sprocket-wheels 42 and 43 and a cutting device in front of each of said carrying-aprons, of a journaled transverse shaft 13, connections whereby rotary motion is imparted to said shaft 13 from the ground-wheels and connections between said shaft 13 and the shaft 40 whereby either a slow or rapid motion may be imparted to the latter from the shaft 13, substantially as specified.

677,928. **TERMINAL FOR PNEUMATIC CARRIERS.** HARRY BUTNER, Berwyn, Ill. Filed Feb. 25, 1901. Serial No. 48,645. (No model.)

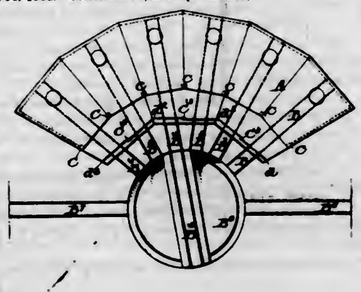


Claim.—1. A terminal for pneumatic carriers having two substantially parallel adjacent pipe-sockets, an upwardly-convex discharge-passage, connecting with one of said pipes at one end, and provided with a discharge-valve at the other and a suction-passage in the form of a reverse curve substantially tangent to the discharge-passage at one end, and in line with the other pipe at the other end; substantially as described.

2. In an upward-discharge terminal, the combination with adjacent sockets for the discharge-pipe and suction-pipe respectively, of suitable walls forming an upwardly-convex semicircular discharge-passage, a valve at the discharge end of said passage pivoted to the walls thereof upon the convex side, and a suitable connection for the suction-pipe: substantially as described.

3. An upward-discharge terminal comprising suitable sockets for the discharge and suction pipes respectively, walls providing an upwardly-convex, substantially semicircular discharge-passage connected at one end to the discharge-pipe, a suction-passage connected with the discharge-passage near its discharge end and also with the suction-pipe, said suction-passage being in the form of a reverse curve approximately tangent at one end to the discharge-passage and in line at the other end with the suction-pipe and a valve covering the discharge end of the discharge-passage pivoted to the walls thereof upon the convex side of said discharge-passage; substantially as described.

677,929. **ROUNDHOUSE.** EUGENE F. BRADY, Altoona, Pa. Filed Apr. 30, 1901. Serial No. 58,126. (No model.)



Claim.—1. A locomotive-roundhouse having radially-arranged tracks, and doorways through which successive pairs of such tracks extend, in combination with double overhead-trolley tracks D' D² extending over each such doorway and pair of tracks and a pair of suspended doors F and F' having trolleys resting on said tracks, one each adapted to close one half the doorway so that the doorway may be entirely closed or either half thereof opened by shifting the doors on the tracks.

2. A locomotive-roundhouse having radially-arranged tracks, and doorways through which successive pairs of such tracks extend, in combination with double overhead-trolley tracks D' D² extending over each such doorway and pair of tracks, a pair of suspended doors F and F' having trolleys resting on said tracks one each adapted to close one half the doorway so that the doorway may be entirely closed or either half thereof opened by shifting the doors on the tracks, and a stationary guideway E secured between the tracks at the bottom of the doorway for holding the bottoms of the doors together and in place.

3. A locomotive-roundhouse having radially-arranged tracks and a series of columns C forming the front wall of the roundhouse proper and between which the tracks issue, in combination with brackets C' C² extending out from the columns C, and supporting an extension-roof C³, overhead-trolley tracks D' D² supported on the brackets and arranged in pairs to extend over successive pairs of railway-tracks and suspended doors F F' supported on trolleys from the tracks D' D² and adapted to extend over either or both of the pair of railway-tracks lying beneath each pair of trolley-tracks.

677,930. **TUBE-EXPANDER.** CHARLES V. BURTON, London, England. Filed Dec. 4, 1900. Serial No. 38,693. (No model.)



Claim.—1. In an apparatus for expanding hollow bodies the combination with a bolster-piece having an aperture therethrough a headed mandrel, the shank of which works through said aperture, a deformable bushing, located between the mandrel-head and bolster, and means for moving the mandrel and bolster relatively to each other to deform the bushing; as and for the purpose set forth.

2. In an apparatus for expanding hollow bodies and in combination a bolster-piece having a central aperture; a headed mandrel, the shank of which passes through said aperture; a deformable bushing placed between the mandrel-head and the bolster; a body to which the mandrel is attached; a slider to which the bolster-piece is attached, and means to alter the relative position of the body and the slider and deform the bushing substantially as specified.

3. In an apparatus for expanding hollow bodies and in combination a bolster-piece having a central aperture; a headed mandrel, the shank of which passes through said aperture; a deformable bushing placed between the mandrel-head and the bolster; a body to which the bolster-piece is attached; a slider to which the bolster is attached, and means to alter the relative position of the body and the slider and deform the bushing substantially as specified.

4. In an apparatus for expanding hollow bodies and in combination a bolster-piece having a central aperture; a headed mandrel, the shank of which passes through said aperture; a deformable bushing placed between the mandrel-head and the bolster; a cylinder to which the mandrel is attached; a piston within the said cylinder and having studs extending beyond the cylinder-body, to which studs the bolster-piece is attached; and a valve-chest for admitting pressure fluid into and exhausting the same out of the cylinder substantially as specified.

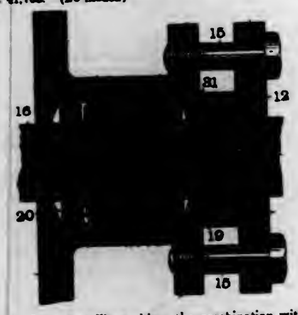
5. In an apparatus such as described a mandrel having a beveled or curved shoulder between the shank and the head in combination with a bolster-piece provided with a central opening through which the shank of the mandrel works and formed with a shoulder for coöperating with the shoulder of the mandrel substantially as specified.

6. In an apparatus such as described, the combination with a bolster-piece provided with a central opening, a mandrel having a shank working through said bolster piece, the walls of the opening in the bolster-piece being tapered whereby the mandrel will have a working fit at but one point within the bolster; substantially as described.

7. In an apparatus such as described, the combination with a fluid-pressure cylinder, of the headed mandrel, the shank of which is secured to the cylinder-head, a plunger working in said cylinder, the rods carried by said plunger passing through openings in the cylinder-head, the

bolster secured to said rods, and mechanism for controlling the admission and exhaust of pressure to said cylinder; substantially as described.

677,931. METALLIC PACKING. EDWARD BADER, St. Louis, Mo., assignor of one-half to Meyer Bauman, same place. Filed Jan. 2, 1901. Serial No. 41,763. (No model.)



Claim.—1. In a metallic packing, the combination with a casing, of a plurality of expansible packing-rings contained in said casing, a cover adapted to enter said casing and means for locking said cover to said casing so as to allow longitudinal movement between said cover and casing.

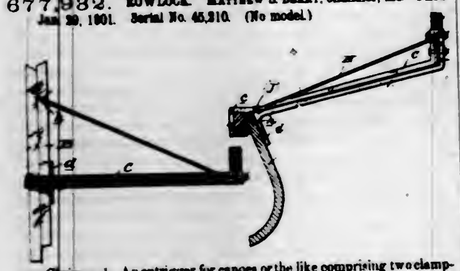
2. In a metallic packing, the combination with a casing, of a plurality of expansible rings within said casing, a cover adapted to enter said casing, a groove in the periphery of said cover, and pins in said casing adapted to engage said groove.

3. In a metallic packing, the combination with a casing, of a plurality of expansible rings within said casing, a cover adapted to enter said casing, springs carried by said cover and adapted to act on said packing-rings, and means for locking said cover in said casing so as to allow longitudinal movement between said cover and casing.

4. In a metallic packing, the combination with a pair of expansible packing-rings provided with flanges, of one or more expansible packing-rings situated between said first-named packing-rings and extending flush with said flanges, and an expansible ring surrounding said first-named rings and provided with a groove to receive said flanges and the outer edges of the interposed rings.

5. In a metallic packing, the combination with a casing, of a pair of collars beveled on their opposing faces, a plurality of expansible packing-rings arranged between said collars, means for applying pressure to said collars, and means for non-rotatably securing one of said collars to said casing.

677,932. ROWLOCK. MATTHEW S. BERRY, Chandler, Me. Filed Jan. 29, 1901. Serial No. 45,210. (No model.)



Claim.—1. An outrigger for canoes or the like comprising two clamping members connected at their outer ends and their inner ends adapted to embrace the upper portion of the side of a canoe or the like, and firmly grip the same to securely hold the outrigger, substantially as described.

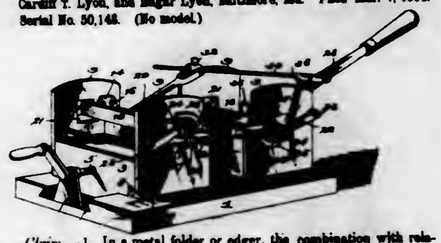
2. An outrigger for canoes or the like comprising two members connected at their outer ends and their inner ends adapted to embrace the upper portion of the side rail of a canoe or the like, means for clamping the inner ends of the members onto the canoe or the like, and a brace from the outer end of the outrigger to the canoe or the like, substantially as described.

3. An outrigger for canoes or the like comprising two clamping members, one having a bent portion adapted to engage the top rail of a canoe or the like, the other member having a bearing portion adapted to engage the outer face of the side of the canoe or the like, said members having engaging parts adapted to hold the same in clamped position and a brace secured to the outer end of said outrigger and to the canoe or the like, substantially as described.

4. An outrigger for canoes or the like comprising a member having at its inner end a bent portion adapted to embrace the top rail of a canoe or the like, a second member substantially parallel with and beneath the other member having at its inner end a bearing portion adapted to bear upon the outer face of the said side of the canoe or the like, a rowlock-socket secured between the outer ends of the said members and a brace secured at its outer end to the outer end of the outrigger and at its inner end to the canoe or the like, substantially as described.

5. An outrigger for canoes or the like comprising two clamping members adapted to embrace the upper portion of the side of a canoe or the like, one of said members having portions embracing the other member for holding the same in fixed position, substantially as described.

677,988. MACHINE FOR FOLDING OR EDGING METAL SHEETS. JACOB A. BRIGHT and WILLIAM D. DEPRIEST, Mount Sidney, Va., assignors, by direct and mesne assignments, to William L. Lyon, Cardiff T. Lyon, and Edgar Lyon, Baltimore, Md. Filed Mar. 7, 1901. Serial No. 50,148. (No model.)



Claim.—1. In a metal folder or edger, the combination with relatively adjustable blocks or heads, of means for adjusting said blocks relatively to each other, folding or edging devices on the respective heads or blocks, operating mechanism for one of said edging devices, and an adjustable operative connection therefrom to the other edging device, whereby they operate simultaneously.

2. In a metal folder or edger, the combination with relatively adjustable blocks or heads, of means for adjusting said blocks relatively to each other, folding or edging devices on the respective heads or blocks, operating mechanism for one of said edging devices, an arm on one of said edging devices, a swiveled coupling on said arm, and a rod connected to the other edging device and adjustably secured to said swiveled coupling.

3. In a metal folder or edger, the combination with relatively adjustable blocks or heads, of means for adjusting said blocks relatively to each other, a plate on the blocks for the folding thereagainst of the edges of the metal blank, an adjustable gage on one of said blocks for determining the width of the fold or lip turned, and a gage for determining the position of the blocks in relation to each other.

4. In a metal folder or edger, the combination with a plate for the folding thereagainst of the edge of the metal blank, of means for folding the edge of the blank against the plate, and a gage for the blank, operatively connected to the folding means and adapted to automatically move out of the way of said folding mechanism when the latter operates.

5. In a metal folder or edger, the combination with separated plates for the folding thereagainst of the edges of the metal blank, of folders or edgers for the respective plates, an operating-handle for one of the edgers, an operative connection between said handle and the other edger, and a gage for the blank which is connected to the operative connection last named and adapted to automatically move out of the way of the edger when the latter operates.

6. In a metal folder or edger, the combination with separated plates for the folding thereagainst of the edges of the metal blank, of folders or edgers for the respective plates, an operating-handle for one of the edgers, an operative connection between said handle and the other edger, a guide on the handle, a gage-rod extending loosely therethrough and adapted to gage the blank, a rod pivoted to the operative connection last named, and an adjustable coupling connecting the gage-rod and rod last named.

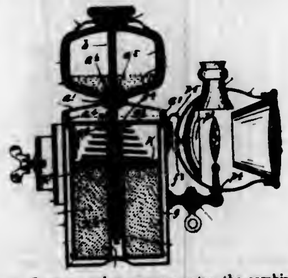
7. In a metal folder or edger, the combination with a supporting-plate for the blank, of an adjustable gage-plate movable toward and away from the supporting-plate and positioned on the opposite side of the blank from the supporting-plate to hold the blank in position.

8. In a metal folder or edger, folding or edging mechanism comprising a folder, pivoted supporting-links to which said folder is pivoted, a cam, and a wiper on the folder which travels against the cam, whereby the folder is made to travel in a fixed path.

9. In a metal folder or edger, folding or edging mechanism comprising a folder, pivoted supporting-links to which said folder is pivoted, a cam, a wiper on the folder which travels against the cam, a gudgeon for holding the wiper against the cam, and a stop for limiting the play of the folder.

10. In a metal folder or edger, the combination with plates, of oppositely-operating edging or folding mechanisms for forming the lips against said plates, comprising folders, pivoted supporting-links to which said folders are pivoted, oppositely-disposed cams for the respective folders, oppositely-arranged wipers on the respective folders which travel against the cams therefor, gudgeons for holding the wipers on their cams, stops for limiting the play of the folders, and an operative connection between the folders, whereby they are made to operate simultaneously in opposite directions.

677,934. ACETYLENE-GAS-GENERATING LAMP. LEROY S. BUFFINGTON, Minneapolis, Minn., assignor to Buffington Light Company, of New Jersey. Filed June 28, 1897. Serial No. 642,561. (No model.)



Claim.—1. In an acetylene-gas generator, the combination with a chamber for carbid calcium, of a yielding, movable part, which confines the carbid and residue in a compact body, which yields on the expansion of the carbid due to its decomposition, and means for supplying a regulated quantity of water to the carbid.

2. As a new article of manufacture, an expansible charge-holder adapted to be preloaded with carbid and to be handled as a cartridge for charging a lamp or other generator, substantially as described.

3. In a generator adapted to generate gas from a liquid and a solid gas-producing substance, a chamber to contain the solid and a liquid-reservoir, a body of absorbent material adapted to be saturated with the liquid gas-producing substance, and having direct and extended contact with the solid gas-producing substance, and a controllable liquid-inlet for supplying a regulated quantity of liquid to said absorbent material, whereby the said absorbent serves to limit and distribute said liquid to said solid, substantially as described.

4. A charge-holder for acetylene-gas lamps, or other generators, containing carbid and having an absorbent material in direct contact with the carbid and across the line of the water-feed thereto, substantially as described.

5. An expansible charge-holder, for acetylene-lamps or other generators, containing carbid and an absorbent material in direct contact with the carbid, and across the line of the water-feed thereto, substantially as described.

6. In an acetylene-gas generator, the combination with a chamber for the carbid, of a movable part and a spring which coöperates to hold the carbid and residue in a compact mass, under yielding pressure, and to permit the same to expand, under the increase of bulk, when the carbid slakes, and means for affording a regulated supply of water to the carbid, substantially as described.

7. In an acetylene-gas lamp or other generator, the combination with a movable part and a spring coöperating to hold the carbid and its residue in a compact mass, within the generating-chamber, under a yielding pressure, of a body of absorbent material in direct contact with the carbid and across the water-inlet, and means for affording a regulated supply of water to said absorbent material, substantially as described.

8. In a generator adapted to generate gas from a liquid and a solid gas-producing substance, a chamber to contain the solid and a liquid-reservoir, a body of absorbent material adapted to be saturated with the liquid gas-producing substance, with the same disposed in the form of a tube extending through or substantially through the body of carbid, for affording direct and extended contact therewith, and a controllable inlet for supplying a regulated quantity of liquid to said absorbent material, substantially as and for the purposes set forth.

9. In a generator of the class described, the combination with a carbid-holder having a movable part adapted to pass water and subject to the pressure from the expanded products of composition, of a sponge or other body of compressible absorbent material confined and subject to compression under the expansion of said products, when the parts are in working position, substantially as described.

10. In a lamp or other acetylene-gas generator, a fount or generating-chamber containing carbid or similar matter, a perforated water-feeding tube traversing said chamber, and a spring-controlled cap or follower surrounding said tube and adapted to compress or compact the carbid in said chamber, yet yielding in the expansion of said carbid due to its decomposition, substantially as and for the purposes set forth.

677,935. CARBID-CARTRIDGE FOR ACETYLENE-GAS GENERATORS. LEROY S. BUFFINGTON, Minneapolis, Minn., assignor to the Buffington Light Co., of West Virginia. Filed Sept. 10, 1897. Serial No. 651,158. (No model.)



Claim.—1. As a new article of manufacture, a charge-holder for acetylene-gas lamps or other generators, composed of a pair of telescoping cups containing carbid and adapted to be handled as a cartridge, substantially as described.

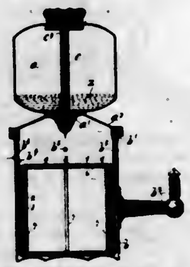
2. As a new article of manufacture, a charge-holder for acetylene-gas lamps or other generators, composed of a pair of telescoping cups containing carbid, which cups are hermetically sealed and afford an air and moisture-proof cartridge for storage and shipment, and serve as an expansible charge-holder when placed in a generator, substantially as described.

3. As a new article of manufacture, a charge-holder for acetylene-gas lamps or other generators, composed of a pair of telescoping cups containing carbid, one member of which cups is provided with a water-feed tube adapted to extend into the carbid, substantially as described.

4. As a new article of manufacture, a charge-holder for acetylene-gas lamps or other generators, composed of a pair of telescoping cups containing carbid, one member of which cups is provided with a perforated water-feed tube extending into the carbid and surrounded by absorbent material, which charge-holder is adapted to be hermetically sealed and afford an air and water proof cartridge, for use substantially as described.

5. As a new article of manufacture, a charge-holder for acetylene-gas lamps or other generators, composed of a pair of telescoping cups containing carbid, a water-feed tube extending from one of said cups into the body of the carbid and provided with a wick of absorbent material, through which the water must be fed to the carbid, which charge-holder is adapted to be hermetically sealed and afford an air and water proof cartridge, for use substantially as described.

677,936. EXPANSIBLE CARBID-CARTRIDGE FOR ACETYLENE-GAS GENERATORS. LEROY S. BUFFINGTON, Minneapolis, Minn., assignor to the Buffington Light Co., of West Virginia. Filed Sept. 10, 1897. Serial No. 651,159. (No model.)



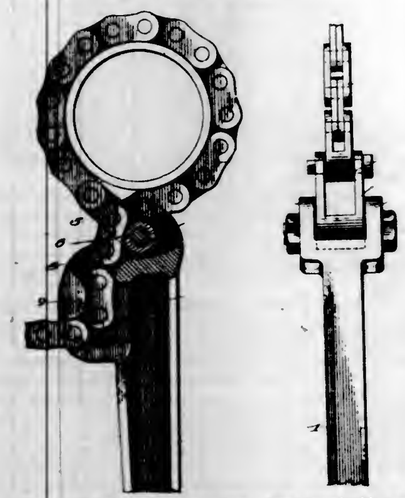
Claim.—1. A carbid-cartridge comprising a body of broken or pulverized carbid, a core consisting of a plate or plates of absorbent material within the mass of the carbid and dividing it into smaller bodies, and an absorbent plate in position to receive the water and transmit it to the core plate or plates, when the cartridge is placed in a generating-chamber, the whole being put up within an inclosing case or shell and rendered impervious to moisture until brought into use.

2. A charge-holder, for use in an acetylene lamp or other generator, composed of an expansible shell and a body of broken or pulverized carbid, and a series of plates of absorbent material within the mass of the carbid, and subdividing the same into smaller bodies, with said absorbent material disposed across the water-feed inlet, which charge-holder is adapted to be hermetically sealed, and affords an air and water proof cartridge, for use substantially as described.

3. As a new article of manufacture, a charge-holder for use in an acetylene-gas lamp or other generator, composed of a pair of telescoping

cups containing carbid and a body of absorbent material disposed within the carbid in the form of a series of plates, which subdivide the mass of carbid into smaller bodies, with the absorbent material in direct contact with the carbid and across the water-inlet thereto, which charge-holder is adapted to be hermetically sealed and to afford an air and water proof cartridge, for use substantially as described.

677,937. **WRENCH.** WILLIAM H. BURR, Philadelphia, Pa. Filed May 4, 1901. Serial No. 59,437. (No model.)



Claim.—A chain wrench comprising a lever formed with parallel ears at one end, a yoke consisting of a tubular head and parallel arms, said head being located between said ears, a bolt extending through said ears and the tubular head, a chain, one end of which is removably connected to the free ends of said yoke, and the other end of which is adapted to pass between the parallel arms of the yoke and to be removably connected to the handle, substantially as set forth.

677,938. **GAME-BOARD.** EDGAR F. CARSON, South Bend, Ind. Filed Jan. 28, 1901. Serial No. 44,990. (No model.)



Claim.—1. A game-board having sector-shaped pocket-openings in its respective corners, the curved side of each opening being beveled, and sector-shaped stopper-plates adapted to fit said openings, substantially as described.

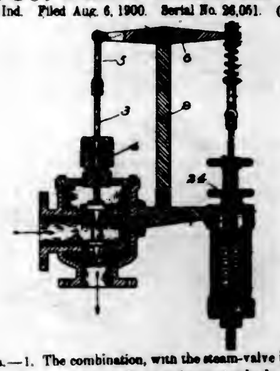
2. In a game-board having corner-pockets, the combination of side rails having longitudinal grooves in their inner faces, cushion-strips secured to the side rails above said grooves, a pocket-opening at the junction of two of the side rails, and a detachable stopper-plate, beveled on its upper straight edges adjacent to said side rails; the lower straight edges of the stopper-plate being supported by the lower shoulders formed by two of the aforesaid grooves, substantially as described.

677,939. **GAME-BOARD.** EDGAR F. CARSON, South Bend, Ind. Filed Jan. 28, 1901. Serial No. 44,991. (No model.)



Claim.—In a game-board provided with corner-pockets, a detachable corner-strip comprising a strip of rectangular sectional shape, a beveled cushion-strip covered with soft material and secured to said rectangular strip, and a strip of elastic material in contact with said beveled strip, opposite said rectangular strip, and within said covering of soft material; substantially as described.

677,940. **STEAM-PUMP GOVERNOR.** EMORY M. CARR, Newcastle, Ind. Filed Aug. 6, 1900. Serial No. 26,051. (No model.)



Claim.—1. The combination, with the steam-valve in the pipe leading to a steam-pump, of the body or casing, a standard or support thereon, a beam or lever pivoted on said standard at a point between its ends, a connection between one of its ends and the stem of said valve, a cylinder on the opposite side of said standard connected with the mains of the pumping system, a piston therein, an adjustably-mounted disk above said piston, a spring interposed between them, a piston-rod running from said piston to the outside, and a connection between the end of said rod and the end of said pivoted beam opposite the end connected to the valve-stem, substantially as set forth.

2. The combination, of the steam-valve casing, the valve therein, its stem leading to the outside, a cylinder connected to the mains of the pumping system, a frame connecting said cylinder to said casing, a standard on said frame, a beam pivoted on said standard, a connection between the valve-stem and one end of said beam, a piston in said cylinder, a spring arranged to act on said piston oppositely to the pressure of the water in the main, means for adjusting the tension of said spring, means for locking it in adjusted position, a rod running from said piston to the outside, and an elastic connection between said rod and the other end of said pivoted beam, substantially as set forth.

3. The combination, in a steam-pump governor, of the valve, the valve-stem, a walking-beam, a link connecting said valve-stem to one end of said walking-beam, a cylinder connected to the water-main, a piston in said cylinder, a spring in said cylinder acting oppositely to the force of the water from the main, a link connecting the piston-rod to the other end of the walking-beam, said link passing through a perforation in said walking-beam provided with a nut on the upper end and a loosely-mounted washer below, and a shoulder below said washer with a spring interposed between said washer and said shoulder, substantially as and for the purposes set forth.

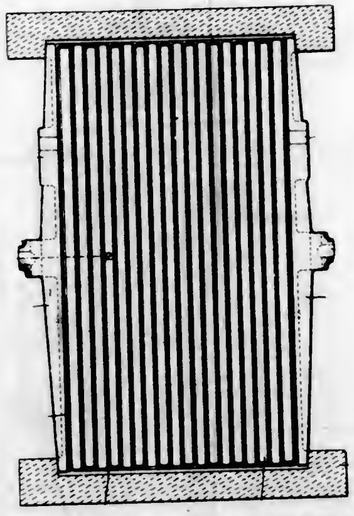
4. The combination, in a steam-pump governor, with the valve in the steam-pipe leading to said pump, of a cylinder connected with the water-main and rigidly supported from the body of said valve, a piston in said cylinder, a walking-beam mounted on a rigid support also carried from the body of the valve, connections from said valve and said piston to the opposite ends of said walking-beam, a tubular screw in the head of said cylinder through which the piston-rod passes, a loosely-mounted disk on the lower end of said tubular screw, balls interposed between said disk and said screw whereby a ball-bearing is formed, and a spring interposed between said piston and said disk.

677,941. **RHEOSTAT.** FRANK R. CASE, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 29, 1897. Serial No. 660,023. (No model.)

Claim.—1. The combination with a resistance-ribbon wound longitudinally in a zigzag manner, of heat conducting and radiating bars between the turns of the ribbon, and two separate incombustible insulating-supports provided with slots for the reception of the plate formed by the ribbon and radiating-bars.

2. The combination with a resistance-ribbon wound longitudinally in a zigzag manner, of heat conducting and radiating bars between the turns of the ribbon, and separate supports of fire-brick which are provided with grooves for the reception of the plate formed by the ribbon and radiating-bars.

3. The combination with a resistance-ribbon wound longitudinally in a zigzag manner, of a heat conducting and radiating bar between the adjacent turns of the ribbon, strips of insulation separating the bars from the ribbon, and two separate incombustible insulating-supports provided with slots for the reception of the plate formed by the ribbon and radiating-bars.



4. The combination with a resistance-ribbon wound longitudinally in a zigzag manner, of heat conducting and radiating bars between the turns of the ribbon, strips of insulation between the ribbon and said bars, and fire-brick clamps provided with grooves for the reception of the plate formed by the ribbon, the radiating-bars, and the strips of insulation.

5. In a rheostat-plate, the combination of a resistance-conductor wound back and forth on itself, heat-radiating bars between adjacent turns of the conductor, an insulating medium between the conductor and the bars, and non-combustible clamps adapted to slip over the end of the resistance-plate and hold the parts in place.

6. In a rheostat, the combination of a resistance-conductor wound back and forth on itself, radiating-bars, an insulating medium between the conductor and the bars, and heavy metallic end plates secured to the ends of the conductor, serving as terminals and also to hold the parts of the rheostat together.

7. In a rheostat, the combination of a resistance-conductor wound back and forth on itself, a radiating-bar between the turns of the conductor, an insulating medium between the bars and the conductor, heavy end plates acting as terminals and also to hold the resistance-conductor and bars in place, and an insulating-support provided with a groove or slot for the reception of the rheostat-plate.

8. In a rheostat, the combination of a plurality of resistance-plates composed of resistance-conductors, radiating-bars having a large cross-section, insulating material between the bars and the conductor, a radiating-space between the resistance-plates, and a non-combustible clamp which forms a common support for the plates.

9. In a rheostat, the combination of a plurality of resistance-plates, each composed of a resistance-conductor and radiating-bars alternating with each other, clamps made of incombustible insultating material which are common to the resistance-plates, radiating-spaces between the plates, and an iron frame for securing the insulating-clamps in place.

10. The combination with a resistance-ribbon wound longitudinally in a zigzag manner, of heat conducting and radiating bars between the turns of the ribbon, metallic end plates which hold the ribbon and bars together, and fire-brick clamps provided with slots for the reception of the sides of the plate formed by the ribbon, the radiating-bars and the end plates.

11. In a rheostat, the combination of a plurality of resistance-plates, each composed of a number of turns of resistance-conductor, with heat-radiating bars between each turn, insulating-supports for the plates, and a holder or support comprising a cast-metal box having end plates which are secured together by side bars.

12. In a rheostat, the combination of a plurality of resistance-plates separated from each other by air-spaces, each plate comprising a plurality of turns of resistance-conductor, with a heat-radiating bar between the turns, non-combustible insulating-clamps for the plates, holders or supports provided with sockets in which the clamps are located, and side bars, for securing the parts together.

13. In a rheostat, the combination of a German-silver resistance-conductor wound back and forth on itself, with heat-radiating bars made of iron on account of their heat-absorbing properties, located between the conductor-turns.

14. A metallic frame for resistance-plates, which comprises two heavy end plates connected by side bars and open on all sides for ventilation, sockets for the reception of the resistance-plates, and detachable retaining-bars for closing the sockets.

15. The combination with a metallic frame open for air-circulation and provided with sockets, of incombustible insulating-clamps fitting the sockets, resistance-plates held in position by said clamps, and detachable bars for retaining said clamps in the sockets.

16. A plurality of plates, each of which is composed of a resistance-ribbon, interposed conducting and radiating bars and heavy metallic end plates, in combination with fireproof insulating-clamps for holding the plates separated from each other, and a metallic frame for holding the clamps in position.

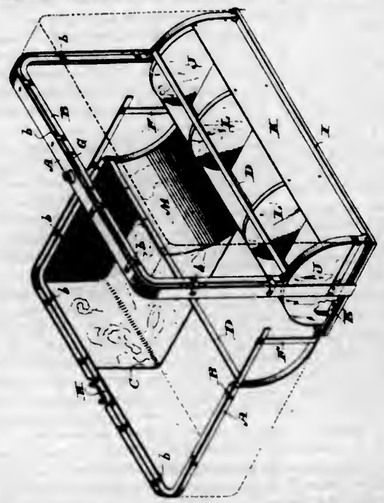
17. A metallic frame for resistance-plates, which comprises end plates and side bars, with sockets for the resistance-plates, and detachable retaining-bars for closing the sockets.

18. A plurality of resistance-plates, each of which is composed of a resistance-ribbon wound longitudinally in a zigzag manner, and interposed conducting and radiating bars; in combination with an incombustible frame which holds the plates separated from each other to provide radiating-spaces.

19. A plurality of resistance-plates, each of which is composed of a resistance-ribbon wound longitudinally in a zigzag manner, and interposed conducting and radiating bars; in combination with fire-brick clamps provided with grooves for the reception of the plates and adapted to separate them by radiating-spaces.

20. A plurality of resistance-plates, each of which is composed of a resistance-ribbon wound longitudinally in a zigzag manner, and interposed conducting and radiating bars; in combination with fire-brick clamps formed with slots for the reception of the plates, said plates being held separated from each other to provide radiating-spaces, and a metallic frame for holding the fire-brick clamps in position.

677,942. **TRAVELING-BAG.** ATHELSTAN H. CHRISTIE, Milwaukee, Wis. Filed Apr 25, 1901. Serial No. 57,405. (No model.)



Claim.—1. A traveling-bag frame the bow-flanges of which have outwardly-bent hinge-terminals, and braces connecting the bends.

2. A traveling-bag frame the bow-flanges of which are outwardly bent, and transverse bottom bars to the extremities of which are hinged the terminals of said flanges.

3. A traveling-bag frame the bow-flanges of which have outwardly-bent hinge-terminals, and braces connecting the bends of the flanges with the bows.

4. A traveling-bag frame the bow-flanges of which are outwardly bent, transverse bottom bars hinged at their extremities to terminals of said flanges, and braces connecting the bends.

5. A traveling-bag frame, the bow-flanges of which are outwardly bent, transverse bottom bars hinged at their extremities to terminals of said flanges, braces connecting the bends, and other braces connecting said bends with the bows.

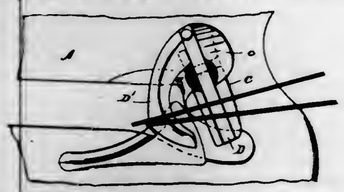
6. A traveling-bag frame comprising a rectangular bottom piece, bow-flanges having outwardly-bent terminals in hinge connection with the bottom piece, end pieces on said bottom piece having contour matching the bends of the bow-terminals, and walls connecting the end pieces.

7. A traveling-bag frame comprising a rectangular bottom piece, bow-flanges having outwardly-bent terminals in hinge connection with the bottom piece, end pieces on said bottom piece having contour matching the bends of the bow-terminals, walls connecting the end pieces, and means dividing the tray formed by the aforesaid bottom piece, end pieces and walls into compartments.

8. A traveling-bag frame comprising a bottom tray, bow-flanges having outwardly-bent terminals in hinge connection with the tray, the contour of the bends matching that of the tray ends; and tray-cover sections in connection with said bends.

9. A traveling-bag frame comprising a bottom tray, bow-flanges having outwardly-bent terminals in hinge connection with the tray, the contour of the bends matching that of the tray ends; braces connecting said bends, and tray-cover sections in connection with the braces and aforesaid bends.

677,943. GRAIN-BINDER. CHARLES COLAHAN, Chicago, Ill. Filed Mar. 15, 1901. Serial No. 51,344. (No model.)



Claim.—1. The combination of the knotter of the Appleby type and its cord-supporting outsetting finger *D'* formed integral with the pivoted jaw D to raise the cord substantially as shown and described.

2. The combination with the cord-knotter, which in its normal position stops with its jaws pointing outwardly, of a breastplate having the open binder-arm slot extending to a point beyond the knotter, the knotter being provided with a cord-supporting finger formed integral with its vibrating jaw, which finger moves on a plane parallel with the plane of movement of the knotter-jaw, and supports the cord in the initial revolution of the bill, rising with the opening of the movable jaw to pass over the strands as they enter between the jaws to be grasped and pulled through the loop substantially as shown and described.

3. The combination with the tying-bill, which in its normal position stands with its jaws pointing outwardly, as the knot is stripped therefrom, of the open angularly-slotted breastplate provided with a depression on its upper surface only to momentarily arrest the cord while the jaw opens to seize the outer ends of the strand, the under side of the breastplate being in the line of the direction of the outgoing bundle, the said notch being located at the reëntrant angle of the slot, thereby admitting the free discharge of the bundle substantially as shown and described.

4. In combination with the knotter revolving over the breastplate, the jaws of which open to receive the outer ends of the strands of cord when treading in an outward direction, of the open angularly-slotted breastplate provided with a depression in the reëntrant angle of the outwardly-curved slot on its upper surface only to receive therein the strand of cord that is around the outer side of the bundle beneath the breastplate, and prevent its escape as the jaw continues to revolve and opens to grasp the outer ends of the strand of cord that is drawn through the loop to complete the knot substantially as shown and described.

5. In combination, as hereinbefore set forth, with the knotter, of the breastplate, A, having the cord-guide B and its notch *b* upon one side of the open slot, and the depression *a* upon the upper surface, on the opposite side, formed integral therewith substantially as shown and described.

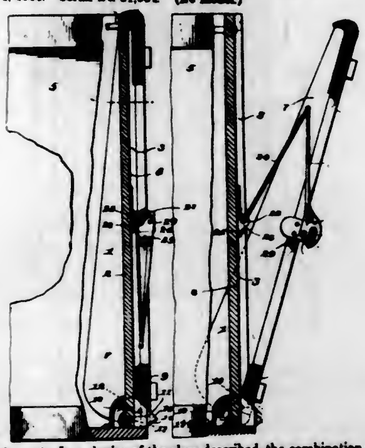
677,944. PEN. JOSEPH H. COLEMAN, Boardstown, Ill. Filed June 28, 1900. Serial No. 21,912. (No model.)

Claim.—In combination with a pen-holder, a sleeve freely slidable thereon and held in working position by gravitative action and having a longitudinal slot and an integral extension in line with one side to form a guard which tapers to a blunt point, and a pin let into a side of the holder and projecting into the slot of the sleeve to guide and limit it in its longitudinal movements and to prevent its displacement, substantially as described.

677,944.



677,945. END-GATE. FRED I. COLLER, Iowa Falls, Iowa. Filed Oct. 1, 1900. Serial No. 31,684. (No model.)



Claim.—1. In a device of the class described, the combination with a wagon-body, and an end-gate, of a catch consisting of a pair of hooks spaced apart, one of the hooks being provided with a projection, and a pair of links pivotally connected at their adjacent ends, one of the links having a head for engaging the said hooks, and the other link being pivoted to the end-gate and provided with a hook arranged to engage the projection of the catch, substantially as described.

2. In a device of the class described, the combination of a central catch designed to be mounted on a wagon-body and provided with a pair of hooks and having a lateral projection adjacent to one of the hooks, and a pair of links, one of the links being provided with a T-shaped head for engaging the hooks and the other link being provided with a recess forming a hook arranged to engage the projection of the central catch, substantially as described.

3. In a device of the class described, the combination with a wagon-body, and an end-gate provided with a rigid hook, of the pivoted catch provided at its pivot with a rounded portion or bearing to receive the hook and having a lug arranged to be swung into and out of engagement with the hook when the catch is turned on its pivot, substantially as and for the purpose described.

4. In a device of the class described, the combination with a wagon-body, of an end-gate provided at its top with means for hinging it to a wagon-body and having a projection at its bottom, and the fixed keeper open at the top and provided with an inclined edge forming a guide and extending downward from the top of the keeper and adapted, when the bottom of the end-gate is swung against the body, to direct the projection into the keeper, substantially as described.

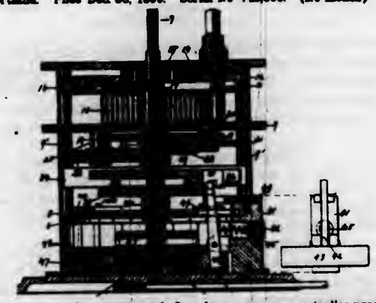
5. In a device of the class described, the combination with a wagon-body, and an end-gate having means for hinging it to the top of the wagon-body and provided at its bottom with a projection, of a keeper provided with an inclined upper edge to form a guide, and consisting of a plate angularly bent between its front and rear edges to form a transverse wall, substantially as and for the purpose described.

6. In a device of the class described, the combination with a wagon-body, and a main gate, of a standard mounted on the wagon-body and provided at its bottom with an opening, and having a stop, a guard arranged at the inner face of the standard adjacent to the opening thereof, a keeper mounted on the standard at the front thereof, and a hook secured to the end-gate and adapted to engage the stop and provided with a stud for engaging the keeper, substantially as described.

7. In a device of the class described, the combination with a wagon-

body and an end-gate, of a hook located at a point between the top and bottom of the end-gate, and a pair of links pivoted together at their adjacent ends, one of the links being detachably connected with the said hook and provided with a lug, and the other link being pivotally connected with the end-gate and having a hook for engaging the said lug, substantially as described.

677,946. AUTOMATIC FIRE-ALARM SYSTEM. HARVEY CORTLAND and JOHN T. HUBER, Pittsburg, Pa.; said HUBER assignor to said Cortland. Filed Dec. 30, 1899. Serial No. 742,080. (No model.)



Claim.—1. In an automatic fire-alarm system a controller provided with a plurality of brushes and movable contact-plates so arranged as to connect the wiring of the system in series, when in one position, and means whereby the contact-plates are moved automatically to a second position thus connecting the wiring in multiple.

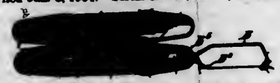
2. In an automatic fire-alarm system a controller provided with a plurality of brushes and movable contact-plates so arranged as to connect the wiring of the system in series when in one position, and means whereby the contact-plates are moved automatically to a second position, thus connecting the wiring in multiple, an annunciator connected therewith by means of said plurality of brushes and contact-plates, so arranged that the annunciator is normally out of circuit and when the switch is moved to its second position the annunciator is operatively connected.

3. In an automatic fire-alarm system an annular insulating-ring, a plurality of brushes secured thereto, a disk having a plurality of insulated contact-plates thereon, a lever pivotally secured at one end and extending centrally of the disk, a stud upon the disk and a slot in the lever in which the stud moves, a spring-actuated train of gearing having a roller to contact with the lever to move the disk.

4. In an automatic fire-alarm system an annular insulating-ring, a plurality of brushes secured thereon, a disk having a plurality of insulated contact-plates thereon adapted to contact with the brushes, an electro-magnetically-operated stop-lever, a finger fastened to said disk and adapted to pass in the rear of said lever when the disk is moved, and means for moving the disk, and a stop for engagement with the lever.

5. In an automatic fire-alarm system a controller, a spring-actuated train of gearing, a speed-governor mounted upon the shaft thereof having depending projections, a stop-lever and means for urging the lever into engagement with one or the other of the projections.

677,947. DENTAL-FLOSS HOLDER. JAMES W. COWAN, Geneseo, N. Y. Filed Jan. 5, 1901. Serial No. 42,220. (No model.)

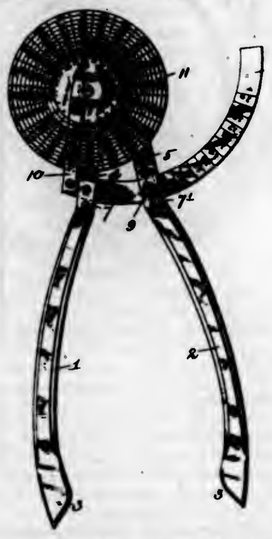


Claim.—1. In a dental appliance, the combination with a case or holder of a cop of dental floss mounted therein, said cop unwinding from the center outward, means for detachably retaining said cop in fixed position in the casing, and a frame provided with means for maintaining stretched lengths of floss thereon, said frame being constructed to be contained within the holder when the appliance is not in use.

2. In a dental appliance, the combination with a casing, of a hollow closed receptacle mounted therein, said receptacle being adapted to contain an antiseptic, means for detachably retaining said receptacle in fixed position in the casing, a cop of dental floss contained in the receptacle, said cop being adapted to unwind from the center through the end of the receptacle, and a frame connected to the casing at one end.

3. In a dental appliance, the combination with a casing, of a hollow closed receptacle mounted therein, said receptacle being adapted to contain an antiseptic, means for detachably retaining said receptacle in fixed position in the casing, a cop of dental floss contained in the receptacle, said cop being adapted to unwind from the center through a tension-orifice in the end of the receptacle, a frame connected to the casing on which lengths of floss are adapted to be stretched when unwound from the cop, said frame being constructed to be contained within the casing when the appliance is not in use.

677,948. DEVICE FOR MEASURING LOGS. LAURENCE P. COWART, Redding, Tex. Filed Mar. 18, 1901. Serial No. 51,702. (No model.)



Claim.—1. A log-measuring device, consisting of a pair of calipers, having a measuring-segment, divided into numbered divisions; a thumb-screw adapted to set the feet of said calipers; a plate secured to the upper part of one of the legs; the rear face of said plate divided into numbered divisions from "32" to "48," representing the number of length feet in a log; an arm divided into numbered divisions from "10" to "30," representing the length feet in a log, and having one end secured to one end of the measuring-segment, and the other end to the upper end of one of the legs of the calipers; a disk divided into radial and circular spaces on its front and rear faces and journaled between the arm and upper part of one of the legs; said radial and circular spaces being filled with figures adapted to assist in determining the number of lumber feet in a log, said legs, segment, plate, arm and disk together with the figures thereon, constituting a device for measuring and ascertaining the number of lumber feet in a log, substantially as shown and described and for the purposes set forth.

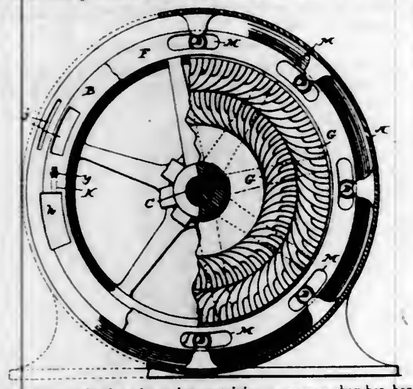
2. A log-measuring device, consisting of a pair of calipers; a measuring-segment 8; a thumb-screw 9, for holding the feet 3, in position; a plate 12, secured to the upper part of one of the legs, and bearing lines and figures on its rear face; an arm 10, one end secured to the upper part of one of the legs, the other end to one end of the measuring-segment, and bearing lines and figures on its front face; a disk journaled between said arm and upper part of one of the legs, and bearing on its front and rear faces, radial and circular lines and figures adapted to assist in determining the number of lumber feet in a log; said calipers, measuring-segment, plate, arm, disk, lines and figures arranged to measure and ascertain the number of lumber feet in a log, substantially as shown and described and for the purposes set forth.

677,949. ROTARY EXPLOSIVE-ENGINE. WILLIAM B. CUTHBERTSON, New Brighton, Pa. Filed June 6, 1900. Serial No. 19,310. (No model.)

Claim.—1. The combination of a casing containing an annular pressure-chamber, a turbine motor arranged within said pressure-chamber, to receive the gases therefrom and to be thereby propelled, a series of barrels arranged adjacent to the periphery of the pressure-chamber, means for supplying charges of explosive mixture to and igniting the same successively in said barrels, and means for discharging the barrels successively into the pressure-chamber, substantially as described.

2. The combination of a casing containing a pressure-chamber, barrels, means for putting them into and out of communication with said chamber, means for supplying an explosive mixture to and igniting the same in the barrels and for conducting the gases from successive dis-

charges to and storing them in said chamber, and a motor arranged within and communicating with said chamber, substantially as set forth.

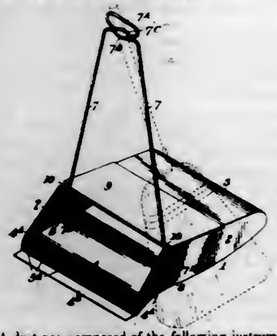


3. The combination of a casing containing a pressure-chamber, barrels, means for putting them successively into and out of communication with said chamber, means for supplying an explosive mixture to and igniting the same in the barrels successively, and for conducting them to and storing them in said chamber, and a turbine motor arranged within and communicating with said chamber, substantially as set forth.

4. The combination of a motor, a casing containing a pressure-chamber communicating with the said motor, a series of barrels arranged in said casing, a rotative disk constituting the breech of said barrels and provided with inlet and outlet channels, inlet and outlet ports in the casing adjacent to each barrel, a disk F rotating in front of the barrels and provided with openings, means for rotating the disks and means for igniting charges in the barrels, substantially as set forth.

5. The combination of the casing A containing a pressure-chamber, a turbine motor communicating with said chamber, a series of barrels open at the ends and arranged in said chamber, a central shaft carrying the rotative member of the turbine, two disks B, F, rotating opposite the ends of the barrels, channels in the disk B and ports in the casing A adjacent to the barrels, means for rotating the disks B and F, and an igniting means, and means for successively igniting the charges in the barrels, substantially as set forth.

677,950. DUST-PAN. CHARLES W. CUTTER, Denver, Colo. Filed July 28, 1900. Serial No. 25,169. (No model.)



Claim.—A dust-pan composed of the following instrumentalities: a bottom portion having an entrance-lip and tapered narrower from said lip to its opposite end, a convex-curved portion adjacent to said lip, a depending leg at the edge of its rear end provided with a sharp edge, side portions projecting upward from the side edges of said tapering bottom portion and extending from the rear end of said bottom portion to its lip portion, and having said bottom portion and said sides provided with an open space adjacent to said entrance-lip and positioned at and adjacent to said convex-curved portion, a top cover portion secured to said side portions and the rear end of said pan, and extending from said rear end to within a short distance of the lip of said bottom portion, and arranged to form a dust-holding chamber, with its entrance adjacent said lip, a suitable handle provided with two opposite end portions, each of which is pivoted to the opposite side portions of said dust-pan, a loose cover or lid pivoted at one edge to points near the said end portions of said handle, and arranged to rest loosely on the top of said top portion of said dust-chamber, and arranged and adapted, when said handle is swung down against the said lip portion of said pan, to move down between said side portions and close the entrance to said dust-chamber, substantially as described.

677,951. NECKTIE-HOLDER. PALMER M. CADY, San Francisco, Cal., assignor of one-half to Charles J. Kaighin, same place. Filed Mar. 11, 1901. Serial No. 50,581. (No model.)



Claim.—1. A necktie fastener or holder, consisting of two hinged members, each having a straight portion adapted to be secured to the tie, adjacent portions of these members bent outwardly and backwardly and again outwardly and forwardly to form jaws, the ends of these jaws having oppositely-disposed slots, and means whereby the jaws may be actuated.

2. A necktie-holder consisting of two members, each member having a slot in one end, slots in the sides of said members, the portions of the members having the terminal slots, bent on the line of the lateral slots and at right angles to the plane of the straight portion to form jaws, and means by which the members are hinged together.

3. A necktie-holder, consisting of two hinged members, each of said members comprising a straight or lever portion, a portion bent at right angles to the plane of said straight portion to form a jaw provided with a notch, notches in the meeting edges of these jaws, a spring secured to the under side of one of said straight portions and adapted to bear against the other member whereby the jaws are normally kept closed.

4. A necktie-holder, consisting of two hinged members each having a lever portion, and each having a second portion bent backwardly and thence outwardly from said lever portion, and adapted to form a jaw, a spring whereby these jaws are held in a normally closed condition, and transverse straps upon the outer side of said lever portions.

677,952. EDUCATIONAL APPLIANCE. WILLIAM H. CARTWRIGHT, Blakeley, Minn. Filed Jan. 29, 1901. Serial No. 45,220. (No model.)



Claim.—1. An educational appliance comprising a board having a single straight groove adjacent to one side edge thereof, a block gravitatingly mounted in said groove and carrying a single character on one face, movable means for positively holding the block at different elevations, a strip adjacent to said block having characters thereon and an answer-strip to coact with said block and the characters on the strip adjacent to block.

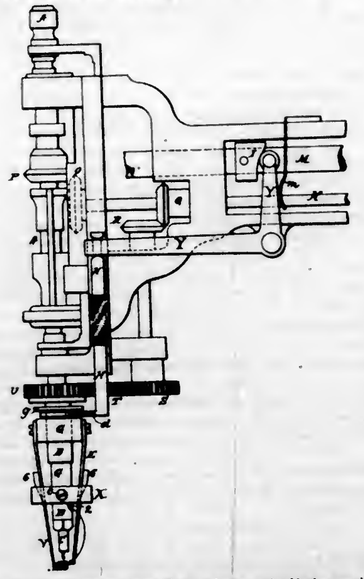
2. An educational appliance comprising a vertical board having a single straight groove adjacent to one side edge and extending full length thereof, a block gravitatingly mounted in said groove and carrying a single character on one face, movable means for positively holding the block at different elevations and causing the same to have a step-by-step operation, a character-strip adjacent to said groove the latter being removable and reversible, and a removable and reversible answer-strip located adjacent to the side edge of the board opposite that adjacent to which the groove is formed.

3. An educational appliance comprising a body or board having a groove, a series of retractable stops projecting through the grooved portion of the board, a block carrying a number and removably mounted in said groove to engage the stops, a product-strip for the block, and an intermediate numeral-strip.

4. An educational appliance comprising a body or board, a block slidably mounted in said board, a plurality of movable stop devices to engage the block, and strips having numerals thereon, the block having a number thereon to coact with those of the strips.

5. An educational appliance comprising a body or board, a plurality of spring-arms having terminal angular stops projecting through a portion of the body or board, pins for individually operating said arms, a block carrying a number removably mounted in the said board and having a slidable movement under control of the said stops, a numeral-strip adjacent to the said block, and a product-strip to coact with said block and numeral-strip.

677,953. ATTACHMENT FOR EMBROIDERING-MACHINES. EMILE CORNELY and ROBERT CORNELY, Paris, France. Filed Dec. 5, 1900. Serial No. 38,813. (No model.)



Claim.—1. In combination with a sewing or embroidering machine, a plaiting or folding attachment for ribbon-braid or the like consisting of a plurality of blades each adapted to engage the ribbon-braid or the like and means for actuating said blades to cause the same to pass or overlap each other in the line of movement of the sewing-needle thereby forming the ribbon-braid or the like into folds between the blades.

2. In combination with a sewing or embroidering machine, a plaiting or folding attachment for ribbon-braid or the like consisting of a plurality of blades each adapted to engage the ribbon-braid or the like and means for actuating said blades to cause the same to pass or overlap each other in the line of movement of the sewing-needle and form the ribbon-braid or the like into folds beneath the sewing-needle said folds being stitched together upon the downward movement of the needle.

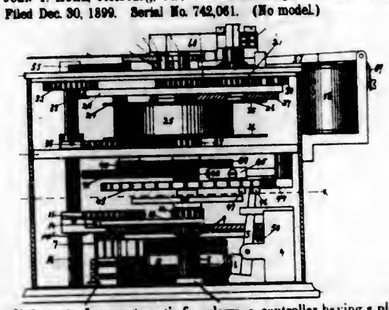
3. In combination with a sewing or embroidering machine, a plaiting or folding attachment for ribbon-braid or the like consisting of a plurality of blades depending from the head of the machine and each adapted to engage the ribbon-braid or the like at its lower end, and means for moving said blades toward each other at their lower ends causing said ends to pass or overlap thereby forming the ribbon-braid or the like into folds.

4. In combination with a sewing or embroidering machine, a plaiting or folding attachment for ribbon-braid or the like consisting of a plurality of blades depending from the head of the machine and each adapted to engage the ribbon-braid or the like at its lower end, means for reciprocating the blades vertically, and means for moving said blades toward each other at their lower ends causing said ends to pass or overlap thereby forming the ribbon-braid or the like into folds.

5. In combination, a sewing or embroidering machine, a plaiting or folding attachment for ribbon-braid or the like consisting of a plurality of normally-separated spring-blades each adapted to engage the ribbon-braid or the like and means for moving said blades toward each other at one end against their tension to cause the same to pass or overlap each other thereby forming the ribbon-braid or the like into folds between the same.

6. In combination, a universal-feed sewing or embroidering machine, a plaiting or folding attachment for ribbon-braid or the like consisting of a plurality of blades each adapted to engage the ribbon-braid or the like and means for actuating said blades to cause the same to pass or overlap each other thereby forming the ribbon-braid or the like into folds between the blades, and means for operating said blades in accordance with the universal feed of the machine.

677,954. AUTOMATIC FIRE-ALARM. HARVEY CORTLAND and JOHN T. HUME, Pittsburg, Pa.; said Hume assignor to said Cortland. Filed Dec. 30, 1899. Serial No. 742,061. (No model.)

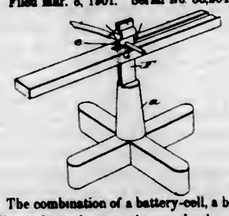


Claim.—1. In an automatic fire-alarm, a controller having a plurality of brushes, contact-plates normally in contact with the brushes, an arm revolubly pivoted to travel in the path of the brushes and means for actuating this arm to urge the brushes out of contact.

2. In an automatic fire-alarm, a shaft having mounted thereon a plurality of segmental gears, a pointer actuated by one of the segmental gears, an arm actuated by another of the segmental gears, the shaft being revolved by the remaining segmental gear, a switch-plate having insulated contacts thereon and a peripheral notch therein, fixed brushes engaging said contacts and a finger upon the shaft, adapted to engage said notch and thereby move said plate.

3. In an automatic fire-alarm, a combined controller and indicator, the controller having a plurality of brushes, contact-plates normally in contact with the brushes, an arm adapted to revolve in the path of the brushes and means for actuating the said arm to force the brushes out of contact, of a shaft having a plurality of segmental gears and finger mounted thereon, a pointer actuated by one of the said gears, another of the gears adapted to actuate said arm, a second shaft being revolved by the remaining gear and a switch-plate upon the shaft suppporting said contact-plates and having a peripherical notch adapted to be engaged by said finger, substantially as shown and described.

677,955. GALVANIC BATTERY. LEVI G. CUNNINGHAM, Shellrock, Iowa. Filed Mar. 8, 1901. Serial No. 50,284. (No model.)



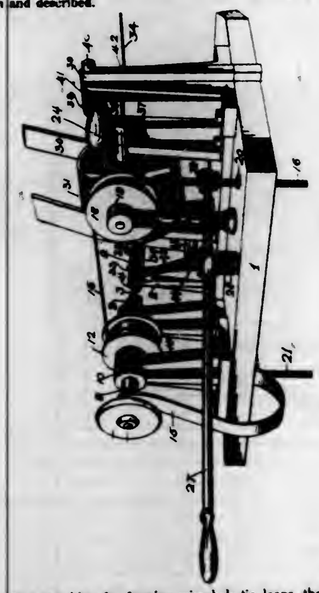
Claim.—1. The combination of a battery-cell, a bridge thereon having a vertically-disposed opening, an element having a stem extending upwardly through the opening of the bridge, and provided with a vertically-elongated aperture contracted toward its upper end, and a conductor extending through the aperture in the element stem and resting on the bridge.

2. The combination of a battery-cell, a bifurcated bridge thereon, an element having a stem resting in the bifurcation of the bridge and provided with an aperture, and an enlargement arranged above said aperture, and a conductor extending through the aperture in the element stem, and resting on the bridge.

677,956. MACHINE FOR MAKING WIRE BALE-TIE LOOPS. ROWLAND J. DARNELL, Memphis, Tenn. Filed Feb. 4, 1901. Serial No. 45,955. (No model.)

Claim.—1. In a machine for forming wire bale-tie loops, the combination with an axially-fixed mandrel as an eye or loop center, a rotatable spindle mounted axially in line therewith, means of moving said spin-

dle a predetermined amount, means on the end thereof to engage a wire to wrap same around said mandrel to form an eye, and means of guiding the end of said wire while the loop is being formed, of means of wrapping the wire upon itself after the said eye has been formed, substantially as shown and described.



2. In a machine for forming wire bale-tie loops, the combination with an axially-fixed mandrel as an eye or loop center, a rotatable spindle mounted axially in line therewith, means of moving said spindle axially, means of rotating said spindle a predetermined amount, and means on the end thereof to engage a wire to wrap same around said mandrel to form an eye, of a continuously-rotating spindle to wrap the wire upon itself after the said eye has been formed and means of retracting the wrapping-spindle automatically when the wrapping is complete, substantially as shown and described.

3. In a machine for forming wire bale-tie loops, the combination with an axially-fixed mandrel as an eye or loop center, a rotatable spindle mounted axially in line therewith, means of moving said spindle axially, means of rotating said spindle a predetermined amount, and means on the end thereof to engage a wire to wrap same around said mandrel to form an eye, of means of guiding the end of said wire while the loop is being formed, and means of retracting said mandrel to release said loop when it is completed, substantially as shown and described.

4. In a machine for forming wire bale-tie loops, the combination with an axially-fixed mandrel as an eye or loop center, a rotatable spindle mounted axially in line therewith, means of moving said spindle a predetermined amount, means on the end thereof to engage a wire to wrap same around said mandrel to form an eye, a guide pivoted to the mandrel-frame, and means of throwing same forward to guide the end of said wire while the loop is being formed, substantially as shown and described.

5. In a machine for forming wire bale-tie loops, the combination with an axially-fixed mandrel as an eye or loop center, a rotatable spindle mounted axially in line therewith, means of moving said spindle a predetermined amount, means on the end thereof to engage a wire to wrap same around said mandrel to form an eye, a pivoted guide, a cam and means of moving same forward and retracting same, to throw the said guide out of and into action to guide the end of said wire while the loop is being formed, substantially as shown and described.

6. In a machine for forming wire bale-tie loops, the combination with means of forming an eye near one end of a wire, of a continuously-rotating wrapping-spindle concentric with said wire to catch the free end and wrap it around the body of said wire, to complete the loop, substantially as shown and described.

7. In a machine for forming wire bale-tie loops, the combination with means of forming an eye, near one end of a wire, of a continuously-rotating spindle, a catch on said spindle to catch the free end and wrap it around the body of said wire, to complete the loop, substantially as shown and described.

8. In a machine for forming wire bale-tie loops, the combination with means of forming an eye near one end of a wire, of a continuously-rotating wrapping-spindle concentric with said wire, a catch on said spindle to catch the free end and wrap it around the body of said wire, to complete the loop, and means of releasing said loop when completed, substantially as shown and described.

9. In a machine for forming wire bale-tie loops, the combination with an axially-fixed mandrel as an eye or loop center, a rotatable spindle mounted axially in line therewith, means of moving said spindle axially, means of rotating said spindle a predetermined amount, means on the end thereof to engage a wire to wrap same around said mandrel to form an eye, and means of guiding the end of said wire while the loop is being formed, of a continuously-rotating wrapping-spindle, means of moving said spindle forward to engage the wire and complete the tie, and means of automatically withdrawing said wrapping-spindle when the tie is complete, and means of retracting said mandrel to release said loop, substantially as shown and described.

10. In a machine for forming wire bale-tie loops, the combination with means of forming an eye near one end of a wire, of a rotating wrapping-spindle concentric with said wire, means of moving said spindle longitudinally, a catch on said spindle to catch the free end of said wire and wrap it around the body of same to complete the loop, means of causing the wrapping-spindle to follow the wrapped wire and of automatically releasing itself at the completion of said wrap, and means of releasing said loop when completed, substantially as shown and described.

11. In a machine for forming wire bale-tie loops, the combination with a mandrel as an eye-center, and a spindle, with a notch in the end of same to engage a wire and form same into a loop around said mandrel, and means of rotating said mandrel a predetermined amount, of a continuously-rotating spindle to wrap the end of the wire around the body of same and complete the loop, substantially as shown and described.

12. In a machine for forming wire bale-tie loops, the combination with a mandrel as an eye-center, and a spindle, for forming a wire into an eye around said mandrel, of a continuously-rotating spindle, to wrap the end of the wire around the body of same and complete the loop, means of clamping and holding the wire during the entire operation, and means of releasing the loop from said mandrel, and said clamp, when the operation has been completed, substantially as shown and described.

13. The combination with a mandrel and a looping-spindle axially in line therewith, of a continuously-rotating wrapping-spindle at right angles thereto axially movable, and means of moving said spindle axially to engage the free end of the wire, substantially as shown and described.

14. The combination with a mandrel and a looping-spindle axially in line therewith, of a hollow wrapping-spindle at right angles thereto to permit a wire being fed through said hollow spindle, substantially as shown and described.

15. The combination with a mandrel and a looping-spindle axially in line therewith, of a hollow wrapping-spindle at right angles thereto, and a wire-clamp, substantially as shown and described.

16. The combination with a mandrel and a looping-spindle axially in line therewith, of a hollow wrapping-spindle at right angles thereto, and a wire-clamp located in line with the center of said hollow spindle, substantially as shown and described.

17. The combination with a mandrel and means of retracting and replacing same, a looping-spindle axially in line therewith, means of moving said looping-spindle forward, and rotating same a predetermined amount, and of rerotating and retracting same, of a rotating hollow wrapping-spindle concentric with the line of wire-supply, all substantially as and for the purposes set forth.

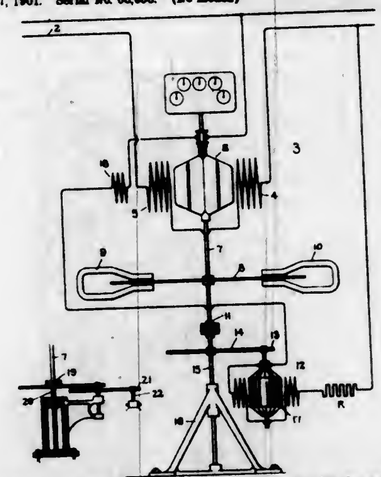
18. The combination with a mandrel and means of retracting and replacing same, a looping-spindle axially in line therewith, means of moving said looping-spindle forward, means of rotating same a predetermined amount and of rerotating and retracting same, of a rotating hollow wrapping-spindle concentric with the line of wire-supply and a wire-clamp, all substantially as and for the purposes set forth.

19. The combination with a mandrel and means of retracting and replacing same, a looping-spindle axially in line therewith, means of moving said looping-spindle forward, means of rotating same a predetermined amount, and of rerotating and retracting same, and a wire-guide to direct the wire during the looping operation, of a rotating hollow wrapping-spindle concentric with the line of wire-supply, all substantially as and for the purposes set forth.

20. The combination with a mandrel and means of retracting and replacing same, a looping-spindle axially in line therewith, means of moving said looping-spindle forward, of rotating same a predetermined amount and of rerotating and retracting same, of a rotating hollow wrapping-spindle concentric with the line of wire-supply, means of bringing said wrapping-spindle forward, and a wire-clamp, all substantially as and for the purposes set forth.

21. The combination with a mandrel and means of retracting and replacing same, a looping-spindle axially in line therewith, means of moving said looping-spindle forward, of rotating same a predetermined amount, and of rerotating and retracting same, and means of moving said guide forward and backward automatically, of a rotating hollow wrapping-spindle concentric with the line of wire-supply, all substantially as and for the purposes set forth.

677,957. ELECTRIC METER. ALBERT G. DAVIS, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 17, 1901. Serial No. 60,656. (No model.)



Claim.—1. The combination of a shaft, a step-bearing for supporting said shaft, and means for rotating said bearing.

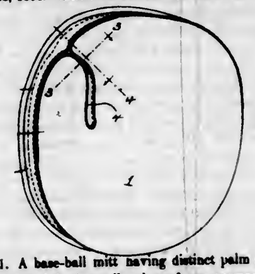
2. The combination of a shaft, a supporting-bearing for said shaft, and means for rotating said bearing.

3. The combination of a shaft, a bearing for supporting said shaft, and electrically-operated means for rotating said bearing.

4. The combination of a shaft, a bearing for supporting the shaft, and an electric motor for rotating said bearing.

5. The combination with a rotating member of an electric meter, of a bearing for carrying said member, and means controlled by current passing through the meter for rotating said bearing.

677,958. BASE-BALL MITT. CHARLES H. DEAN, Brockton, Mass., assignor to the Stall and Dean Manufacturing Company, same place. Filed Oct. 20, 1900. Serial No. 33,734. (No model.)



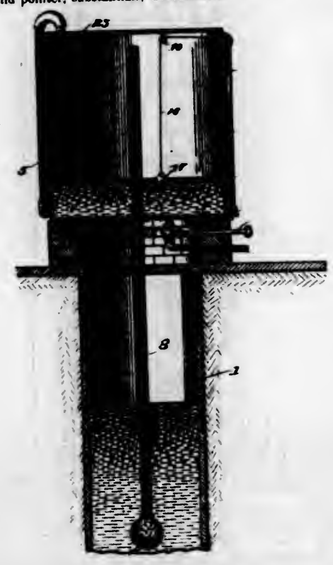
Claim.—1. A base-ball mitt having distinct palm and thumb portions separated by a cleft the walls whereof are permanently united to each other in direct and close contact from one end to the other of the cleft.

2. A base-ball mitt having distinct palm and thumb portions separated by a cleft the walls whereof are made by a strip doubled and forming part of the edge closure of the interior space of the mitt, and an edge strip entirely surrounding the mitt and extending across and connecting the palm and thumb portions across their ends, said edge strip being permanently sewed in place and forming the remainder of the edge closure of the interior space.

3. A base-ball mitt having distinct palm and thumb portions separated by a cleft the walls whereof are permanently united to each other in close contact from one end to the other of the cleft, and a connecting-piece uniting said portions across their ends.

677,959. WATER-TANK. AQUILA DESCHAMBAULT, Marshall, Minn. Filed Jan. 24, 1901. Serial No. 44,630. (No model.)

Claim.—In a water-elevating apparatus, the combination of a source of water-supply, a tank, a pipe extending upwardly from the water-supply and into the tank to near the top of the tank, an exhaust-pump, a direct pipe connection between the tank and pump for exhausting air from said tank, a valve for closing said pipe connection when the water in the tank reaches its maximum height, a combined air-inlet and gage tube on the exterior of the tank, said tube being in communication at its upper end with the tank and provided with an air-cock at its lower end, a counter-weight-pointer movable in said tube, passages being formed between the pointer and tube for the inlet of air, a float on the interior of the tank, and a flexible connection movable over suitable pulleys and suspending said float and pointer, substantially as described.



677,960. AUTOMATIC JOURNAL-PROTECTING DEVICE. JOHN C. DOUGHERTY, Longvalley, Pa. Filed Apr. 3, 1901. Serial No. 54,208. (No model.)

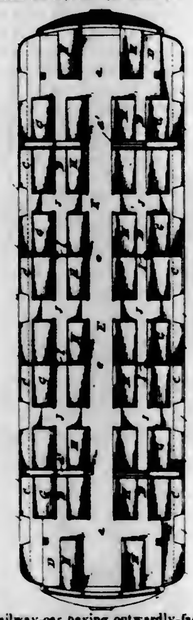


Claim.—1. The herein-described oil-cup having branch oil-passages converging into a single passage at the base of the cup and a fusible plug closing the lower end of the single passage.

2. The herein-described oil-cup having branch oil-passages converging into a single passage at the base of the cup, the lower face of the cup being formed with a concave groove for the purpose set forth, a wick in one of the branch passages, and a fusible plug closing the lower end of the single passage.

3. An oil-cup comprising an enlarged oil-containing receptacle having a reduced opening in its base, a tube inserted in said reduced opening and extended into the enlarged chamber, and a branch tube leading from the former tube into said enlarged chamber, a wick in one of the tubes above their junction and a fusible plug closing the lower end of the former tube.

677,961. RAILWAY-CAR. GEORGE W. DOUGLAS, San Francisco, Cal., assignor to Market Street Railway Company, same place. Filed Apr. 22, 1901. Serial No. 56,844. (No model.)



Claim.—1. A railway-car having outwardly-facing seats arranged in parallel rows running lengthwise of the car, said rows being arranged in tiers and corresponding on each side of the longitudinal center of the car.

2. A railway-car having outwardly-facing seats arranged in parallel rows running lengthwise of the car, said rows being arranged in tiers and corresponding on each side of the longitudinal center of the car, and a central aisle or passage extending lengthwise of the car, between the uppermost rows of said corresponding tiers.

3. A railway-car having outwardly-facing seats arranged in parallel rows running lengthwise of the car, said rows being arranged in tiers and corresponding on each side of the longitudinal center of the car, a central aisle or passage extending lengthwise of the car, between the uppermost rows of said corresponding tiers, and stepped cross-aisles, traversing the tiers of seat rows, from the side steps of the car, to the central aisle or passage.

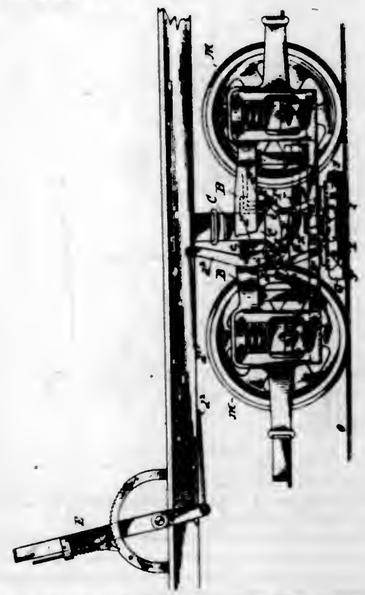
4. A railway-car having outwardly-facing seats arranged in parallel rows running lengthwise of the car, said rows being arranged in tiers and corresponding on each side of the longitudinal center of the car, a central aisle or passage extending lengthwise of the car, between the uppermost rows of said corresponding tiers, transverse partitions dividing the seat rows on each side of the central aisle or passage into compartments, and stepped cross-aisles, traversing the tiers of seat rows in each compartment, from the side steps of the car to the central aisle or passage.

5. A railway-car having outwardly-facing seats arranged in parallel rows running lengthwise of the car, said rows being arranged in tiers and corresponding on each side of the longitudinal center of the car, a central aisle or passage extending lengthwise of the car, between the uppermost rows of said corresponding tiers, transverse partitions dividing the seat rows on each side of the central aisle or passage into compartments, stepped cross-aisles, traversing the tiers of seat rowl in each compartment, from the side steps of the car to the central aisle or passage, means for closing in the front of the lower seat rows, and gates for the step-entrances of the cross-aisles.

677,962. TRACK-BRAKE FOR RAILWAY-CARS. GEORGE W. DOUGLAS, San Francisco, Cal., assignor to Market Street Railway Company, same place. Filed Apr. 22, 1901. Serial No. 56,845. (No model.)

Claim.—1. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, the rock-shaft having a lever-arm and suitable connections therefrom to an operating-lever, transverse irons carried by the upper portion of the truck-frame, boxes bolted to and depressed below said irons, and in which the rock and counter rock shafts are mounted, knee-levers connected with and depending from said shafts, and brake-shoes carried by the lower extremities of said knee-levers.

2. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, mounted in the upper portion of the truck-frame, the rock-shaft having a lever-arm and suitable connections therefrom to an operating-lever, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse fixed bar carried by the lower portion of the truck-frame, and means, having said fixed bar as a base, for guiding and holding the brake-shoes true in their movement.



3. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, mounted in the upper portion of the truck-frame, the rock-shaft having a lever-arm and suitable connections therefrom to an operating-lever, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse fixed bar carried by the lower portion of the truck-frame, and fixed guides carried by said bar, and lying one on each side of each brake-shoe, for preventing said shoes from getting out of true sidewise.

4. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, mounted in the upper portion of the truck-frame, the rock-shaft having a lever-arm and suitable connections therefrom to an operating-lever, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse fixed bar carried by the lower portion of the truck-frame, and fixed guides on the brake-shoes in front of and behind said fixed bar, for preventing said shoes from getting out of true endwise.

5. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, mounted in the upper portion of the truck-frame, the rock-shaft having a lever-arm and suitable connections therefrom to an operating-lever, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse fixed bar carried by the lower portion of the truck-frame, and means, having said fixed bar as a base, for guiding and holding the brake-shoes true in their movement, consisting of fixed guides carried by said bar and lying, one on each side of each brake-shoe, and fixed guides carried by the brake-shoes in front of and behind said fixed bar.

6. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, the rock-shaft having a lever-arm and suitable connections therefrom, an operating-lever, transverse irons carried by the upper portion of the truck-frame, boxes bolted to and depressed below said irons, and in which the rock and counter rock shafts are mounted, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse fixed bar carried by the lower portion of the truck-frame and means, having said fixed bar as a base, for guiding and holding the brake-shoes true in their movement.

7. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, the rock-shaft having a lever-arm and suitable connections therefrom to an operating-lever, transverse irons carried by the upper portion of the truck-frame, boxes bolted to and depressed below said irons, and in which the rock and counter rock shafts are mounted, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse fixed bar carried by the lower portion of the truck-frame, fixed guides carried by said bar and lying one on each side of each brake-shoe, and fixed guides on the shoes in front of and behind said bar, whereby the shoes are guided and held true in their movement.

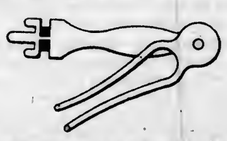
8. A track-brake for railway-cars consisting of transverse rock and counter rock shafts, the rock-shaft having oppositely-extending lever-arms one of said arms having a suitable connection to a lever at one end of the car, and the other having a suitable connection with a lever at the other end of the car, a truss-frame forming part of the truck and consisting of horizontal bars in different planes with inclined bars rising from the upper bars, transverse irons carried by the upper extremities of the inclined bars, boxes secured to said irons and carrying the rock and counter rock shafts, knee-levers connected with and depending from said shafts, brake-shoes carried by the lower extremities of said knee-levers, a transverse bar fixed to the lower bars of the truss-frame, and means having said fixed transverse bar for a base, for guiding and holding the brake-shoes true in their movement.

677,963. COIN-OPERATED MACHINE. RICHARD T. DURHAM, Richmond, Va. Filed Apr. 2, 1901. Serial No. 54,004. (No model.)



Claim.—The hereinbefore-described coin-operated machine, comprising in combination, a casing having a sight-opening in its front end, an indicating-point, a coin-receiving slot in its top, and a spring-actuated pusher in its side, a casting adapted to be made fast to the bottom of the casing, said casting having laterally-extending brackets and a coin-chute integrally joined therewith, said chute having opposing openings in its two edges, the one adjacent the body of the casing being in a plane below that of the other, a clock mechanism mounted upon the casting, a dial cooperatively joined with the clock mechanism and turned thereby, said dial having a part thereof alined with the sight-opening in the casing, and having an annular ratchet-flange on its rear face, a pawl adapted to normally engage the said rack-surface, said pawl being pivotally mounted on the clock-mechanism case, and provided with a pendent arm having a detent adapted to project through the lowermost one of the slots in the coin-chute, and form a rest for the coin, a barrel secured to the side of the casing, and having side flanges lapping the adjacent edge of the coin-chute, said barrel being projected into the slot in the said chute edge, and a spring-returned pusher held in the barrel, all being arranged substantially as shown and for the purposes described.

677,964. COMBINATION-TOOL. FRANK H. EBOSTROM, Cambridge Springs, Pa. Filed Sept. 28, 1900. Serial No. 31,443. (No model.)



Claim.—The combination, with a scraper having at one end lateral notches and beveled edges at the bottoms of the said notches, of a spanner pivoted to the other end portion of the scraper and comprising two spring-arms provided with projections which engage with the said notches when sprung over the said beveled edges so as to straddle them, substantially as set forth.

677,965. OILING ATTACHMENT FOR TROMBONES. FRANK ENSIN, Clare, Iowa. Filed Feb. 11, 1901. Serial No. 46,911. (No model.)

Claim.—1. In a trombone, the combination with the slide and the tubes with which it is engaged, of a lubricating device disposed between the sides of the slide and connected with the interior of both sides of the slide to supply a lubricant thereto.



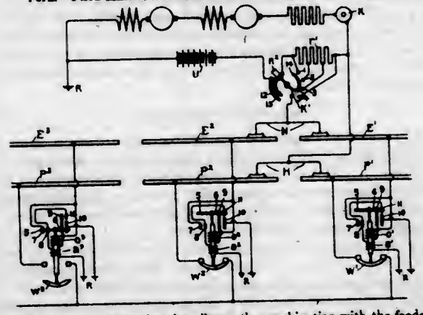
2. In a trombone, the combination with the slide, and the tubes with which it is engaged, of a lubricating device carried by the slide and constructed and arranged to supply a lubricant to the tubes with which the slide is engaged.

3. In a trombone, the combination with the slide and a hollow brace therefor, said slide having openings therein communicating with the interior of the brace, of adjustable closures for the openings, said brace having an opening for the introduction of a lubricant.

4. In a trombone, the combination with the slide of a tubular brace having communication with the slide and adapted to receive a lubricant, closures for governing the communication between the brace and slide, a rotatable spindle, and connections between the closures and spindle for operating the closures, said brace having a filling-opening.

5. In a trombone, the combination with the slide of a tubular brace connecting the sides thereof, said slide having openings leading to the interior of the brace, a frame within the brace, closures for the openings having stems slidably engaged with the frame, a spindle in the frame having fingers with which the stems are engaged to operate them to lift the closures from the openings, helical springs disposed upon the stems between the closures and frame to hold the closures yieldably in operative positions, and means for rotating the spindle.

677,966. SURFACE-CONTACT RAILWAY. PHILIP FARNSWORTH, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Mar. 5, 1901. Serial No. 49,681. (No model.)



Claim.—1. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches for connecting the feeder

with the conductor-sections, the magnet-coils being connected to the return in shunt to the car-motors through a suitable collecting device, means for reducing the ampere-turns in the magnet-coils after they have actuated their switches, an auxiliary source of current on the car, which is adapted to be connected with the switch-coils, a resistance on the car which is adapted to form a portion of said shunt-circuit, the collecting device being connected to a point between said auxiliary source and said resistance, and means for rendering said resistance inoperative in the circuit of the collecting device

2. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches, the magnet-coils being subdivided, the subdivided portions being connected to the return in shunt to the car-motors by a suitable collecting device and normally connected in parallel with respect to each other; means for connecting the subdivided portions in series when they have actuated their switches, an auxiliary source of current on the car which is adapted to be connected with the switch-coils through the collecting device, a resistance on the car which is adapted to form a portion of said shunt-circuit, the collecting device being connected to a point between said auxiliary source and said resistance, and means for rendering the said resistance inoperative with respect to the circuit through the collecting device.

3. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches, the magnet-coils being subdivided, the subdivided portions being connected to the return in shunt to the car-motors by a suitable collecting device and normally connected in parallel with respect to each other, means for connecting the subdivided portions in series when they have actuated their switches, an auxiliary source of current on the car, which is adapted to be connected with the switch-coils through the collecting device, a resistance on the car which is adapted to form a portion of said shunt-circuit, the switch-coils being connected through the collecting device to a point between said auxiliary source and said resistance, and a switch for short-circuiting said resistance with respect to the circuit through the collecting device.

4. An electromagnet, the energizing-circuit of which is divided, in combination with a switching device controlled by the energizing-circuit, which normally connects the divided portions of said circuit in parallel, cuts out one divided portion when the magnet is energized, and then connects both portions in series with each other.

5. The combination with an electrically-propelled car, of an auxiliary source of current carried thereby, a resistance connected in shunt to the motor-circuit, a collecting device, and a switch which connects the collecting device directly between the auxiliary source and the resistance, and then gradually cuts the resistance out of the circuit through the collecting device, then leaving the resistance in series with the auxiliary source.

6. The combination with an electrically-propelled car, of an auxiliary source of current carried thereby, a resistance connected in shunt to the motor-circuit, a collecting device, and a switch which connects the collecting device directly between the auxiliary source and the resistance, then gradually cuts the resistance out of the circuit through the collecting device, leaving the resistance in series with the auxiliary source, and finally cuts the auxiliary source out of circuit.

7. In a sectional-conductor railway, the combination with an auxiliary source of current carried by the car, a resistance in shunt to the return around the car-motors, a collecting device carried by the car and connected between the auxiliary source and the resistance, and means for changing the connection of the collecting device from the point between the resistance and auxiliary source to a direct connection with the motor-circuit.

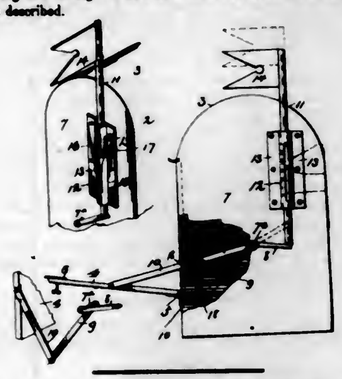
8. The combination with an electrically-propelled car, of an auxiliary source of current, a resistance connected in shunt to the motor-circuit, a collecting device normally connected in shunt to the motor-circuit, and a switch which connects the auxiliary source directly to the collecting device, and connects the collecting device through the resistance to the motor-circuit, and gradually cuts the resistance out of the circuit through the collecting device, without cutting the resistance out of circuit with the auxiliary source.

677,967. RURAL MAIL-BOX. WILLIAM R. PENNYBACKER, Beloit, Kans. Filed Apr. 23, 1901. Serial No. 57,087. (No model.)

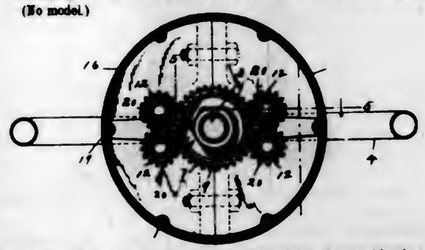
Claim.—1. In a device of the class described, the combination of a housing cut by two intersecting slots, a staff mounted to slide in said housing and provided with a lug engaging said slots, and means for raising said staff and holding it against displacement.

2. In a device of the class described, the combination with a box having a hinged door, of a slidingly-mounted staff, a shaft journaled in said box and bearing an outer and an inner arm, said outer arm being located to engage the said staff, and a link-bar pivoted at one end to said inner arm and at its other end to said door, substantially as described.

3. In a device of the class described, the combination with a box having a swinging door, of a housing mounted on said box and having two intersecting slots therein, a staff bearing a lug slidingly mounted in said housing with the said lug engaging said slots, and means operated by opening and closing of said door to raise and hold said staff, substantially as described.



677,968. COMPENSATING GEAR FOR VEHICLES. CHARLES T. FLETCHER, Worcester, Mass., assignor to the Locomobile Company of America, New York, N. Y. Filed June 14, 1900. Serial No. 20,234. (No model.)



Claim.—1. In a compensating gear for vehicles, the combination of the two driving-wheel axles, gears on the adjacent ends of said axles, intermediate gearing connecting the axle-gears, a frame journaling said intermediate gearing and having a power-transmitting periphery, said frame being divided radially into a plurality of separable segments separable by a movement transverse with respect to the axles, and means for securing said segments together.

2. In a compensating gear for vehicles, the combination of the two driving-wheel axles, gears on the adjacent ends of said axles, intermediate gearing connecting the axle-gears, a frame journaling said intermediate gearing and made in the form of a casing having two bearings on the respective axles, outside of the said axle-gears, and having a power-transmitting periphery, said frame being made up of a plurality of separable segments, each having a portion of each of said bearings, and means for separably securing said segments together.

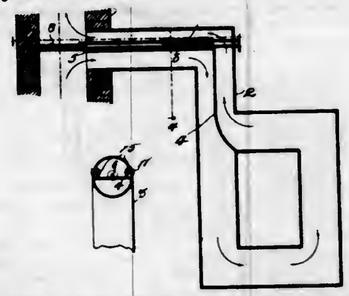
3. In a compensating gear for vehicles, the combination of the two driving-wheel axles, gears on the adjacent ends of said axles, intermediate gearing connecting the axle-gears, a frame journaling said intermediate gearing and divided radially into a plurality of segments separable by a movement transverse with respect to the axles, a toothed power-transmitting wheel made in the form of a continuous ring embracing said frame and means for separably securing said ring to the frame.

4. In a compensating gear for vehicles, the combination of the two driving-wheel axles, spur-gears on the adjacent ends of said axles, a frame having a power-transmitting periphery and made in the form of a casing inclosing the axle-gears, and a train of intermediate spur-gears connecting said axle-gears and journaled on said casing, the bearings for said intermediate gears being cylindrical tubes expanded at both ends into the sides of the casing.

677,969. HEATING DEVICE. JACKSON W. PORTER, Jacksonville Fla. Filed Feb. 18, 1901. Serial No. 47,820. (No model.)

Claim.—1. A heating device of the character described, having an inlet, and an outlet, a slidable damper for the inlet, a foldable damper member hinged to the body of the damper, and externally-accessible means for manipulating the body of the damper and for folding the foldable member thereof.

2. A heating device of the character described, having an inlet, and an outlet, both of which are constructed for connection with a chimney, a slidable damper for the inlet and constructed to be projected externally of the inlet and into a chimney, opposite foldable damper members hinged to respective edges of the body of the damper, an externally-accessible means for sliding the damper in opposite directions and for folding and unfolding the foldable members.



3. A heating device of the character described, having an inlet, and an outlet, both of which are constructed for connection with a chimney-flue, a slidable damper mounted to slide within the device and to be projected externally thereof into a chimney-flue between the inlet and the outlet, a push-rod connected to the damper and projected slidably outward through a wall of the device, opposite foldable damper members hinged to respective side edges of the damper-body and constructed to close the chimney-flue, and rotatable rods connected to the respective foldable damper members, and projected externally of the device for folding and unfolding the foldable members.

4. A heating device of the character described, comprising a drum, having an inlet, and an outlet, which are constructed for connection with a chimney-flue, a slidable damper mounted within the device, located between the inlet and outlet, and constructed to be projected externally and into the chimney-flue, opposite foldable damper members hinged to respective side edges of the damper-body, and constructed to fold inwardly in opposite directions upon the damper-body and within the width thereof, and externally-accessible means for sliding the damper in opposite directions and for folding and unfolding the hinged damper members.

5. A heating device of the character described comprising a closed drum, having a branch pipe in connection with the interior thereof, constructed for connection with a chimney-flue, and provided with an intermediate longitudinal partition dividing the pipe into a lower inlet-passage, and an upper outlet-passage, and a damper slidably mounted upon the partition for movement in opposite directions longitudinally upon the same, normally located entirely within the pipe, and constructed to be projected outwardly through the outer open end of the pipe and form a continuation of the partition to close a chimney-flue.

6. A heating device of the character described, having a branch pipe, which is open at its outer end, and also provided with an intermediate longitudinal partition dividing the pipe into an inlet-passage, and an outlet-passage, and a slidable damper mounted within the pipe and upon the partition, said damper being located entirely within the pipe when not in use and projected at the open end thereof when in use to direct the heat into the inlet-passage, externally-accessible means for sliding the damper, opposite foldable damper members hinged to respective side edges of the body and foldable inwardly in opposite directions upon the body and within the width thereof, and rotatable rods connected to the respective foldable members and projected externally of the device for manipulation of said members.

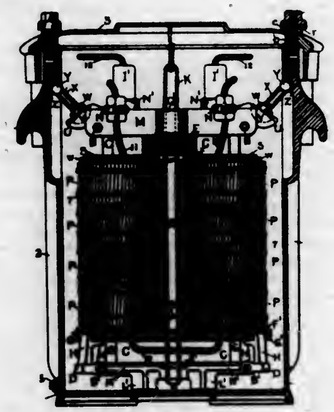
677,970. TRANSFORMER. JOHN J. FRANK, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Mar. 26, 1901. Serial No. 52,757. (No model.)

Claim.—1. In a transformer structure, the combination with the core and windings, of a bottom support therefor which is adapted to rest on the bottom of the transformer-casing, and a mechanical connection extending upwardly from said support, which connection sustains the weight of the parts when the transformer is moved by means of said connection into or out of the casing.

2. In a transformer structure, the combination with the core and windings, of a bottom support therefor which is adapted to rest on the bottom of the transformer-casing, and a sling extending under said support, which sling sustains the weight of the parts when the transformer is moved by means of the sling into or out of the casing.

3. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ and are adapted to rest on the bottom of the transformer-casing.

4. In a transformer structure, the combination with the core and windings thereon, of a support for the windings, and clamping members on which said support rests, which members clamp the support to prevent its lateral movement and are adapted to rest on the bottom of the transformer-casing.



5. In a transformer structure, the combination with the laminated core and windings thereon, of clamping members which grip the core laminæ and windings and are adapted to rest on the bottom of the transformer-casing and to engage the sides thereof.

6. In a transformer structure, the combination with the laminated core and windings thereon, of clamping members which grip the core laminæ and windings, are adapted to rest on the bottom of the transformer-casing, and are provided with lateral lugs which engage the sides of the casing to prevent lateral movement.

7. In a transformer structure, the combination with the core and windings thereon, of a support for the windings, and clamping members which rest on the bottom of the transformer-casing and are provided with legs which grip said winding-support.

8. In a transformer structure, the combination with the core and windings, of a support for the windings, and clamping members provided with diagonally-disposed legs which grip the winding-support to prevent its movement in any lateral direction.

9. In a transformer structure, the combination with the laminated core and windings thereon, of a support for the windings, clamping members which grip the core laminæ and are adapted to rest on the bottom of the transformer-casing, and legs on said members which grip said winding-support.

10. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ and are adapted to rest on the bottom of the transformer-casing, and bolts for drawing said parts together.

11. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ and are adapted to rest on the bottom of the transformer-casing, and mechanical connections extending upwardly from said members, which connections sustain the weight of the parts when the transformer is moved into or out of the casing.

12. In a transformer structure, the combination with the laminated core and windings thereon, of a bottom support therefor which is adapted to rest on the bottom of the transformer-casing and is provided with holes, and a sling which passes through said holes and sustains the weight of the parts when the structure is moved in or out of the casing.

13. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ to prevent spreading, and bolts which draw said parts together.

14. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ, and grooved lugs on said members for the reception of wedges between the legs and the transformer-casing.

15. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ, and holders on said members for the reception of insulating-bushings for the leads from the windings.

16. In a transformer structure, the combination with the laminated core, of clamping members which grip the core laminæ, and holders formed integral with said members for the reception of insulating-bushings for the leads.

17. In a transformer structure, the combination with the laminated

core, of clamping members which grip the core laminæ, bushing-holders, and insulating-bushings leaded in said holders.

18. In a transformer structure, the combination with the laminated core, of clamping members which grip the core, holders having inner annular lugs, and insulating-bushings leaded in said holders.

19. In a transformer structure, the combination with a laminated core, of a bottom support therefor which is adapted to rest on the bottom of the transformer-casing, clamping members which grip the core laminæ and are provided with slots, and a sling extending under said bottom support and through the slots in said clamping members.

20. In a transformer structure, the combination with the laminated core, of a bottom support therefor which is adapted to rest on the bottom of the transformer-casing, clamping members which grip the core laminæ and are provided with slots and a sling extending through said bottom support and leaded in the slots in said clamping members.

21. In a transformer, the combination with the laminated core, of a casing therefor, clamping members which grip the core laminæ, and bolts engaging said members and a cored portion of the casing, to force the core downwardly in the casing to prevent longitudinal movement.

22. In a transformer, the combination with the laminated core, of a casing therefor, clamping members which grip the core laminæ, and bolts engaging said members and a cored portion of the casing at points above said members, to press the core downwardly in the casing.

23. In a transformer, the combination with the laminated core, of clamping members which grip the core laminæ and are formed with sockets, and a device which engages in said sockets and in cored portions in the casing, to force the core downwardly in the casing.

24. In a transformer, the combination with the laminated core, of clamping members which grip the core laminæ, each member being formed with parts of sockets, and devices which engage said sockets and cored portions of the casing, to force the core downwardly in the casing.

25. In a transformer, the combination with the laminated core, of clamping members which grip the core laminæ and are formed with curved sockets, curved washers which engage the sockets, bolts which engage cored portions of the casing, and nuts on the bolts which engage said washers.

26. In a transformer, the combination with the laminated core, of clamping members which grip the core laminæ, windings mounted on the core, and blocks between the windings and said clamping members, to secure the windings in position.

27. In a transformer structure, the combination with the laminated core and windings thereon, of a casing therefor, and clamping members which hold the core and windings in position, and are provided with legs which rest on the bottom of the transformer-casing, to permit a free circulation of the cooling fluid in the casing.

28. In a transformer structure, the combination with the laminated core and windings thereon, of a casing therefor, a bottom support for the core and windings which holds them in position, legs on said support, which are adapted to rest on the bottom of the casing, and a sling passing beneath said support between said legs, which sling supports the weight of the parts when they are moved by the sling into or out of the casing.

29. In a transformer, the combination with the core and windings, of a tapered casing therefor, a bottom support for said core and windings, which is adapted to rest on the bottom of the casing, and lugs on said support, which fit in the lower part of the casing, which is of smaller diameter, to prevent lateral movement.

30. The combination with a transformer-casing, of a cover therefor having bolt-holes with rims around the holes, bolts extending through the holes to secure the cover to the casing, and nuts having closed ends, which engage said bolts, said parts being constructed and arranged to prevent the entrance of moisture to the inside of the casing.

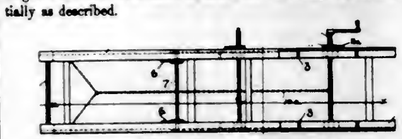
31. In a transformer, the combination with the core and windings, of a two-part clamp for securing the parts so as to cover only small surfaces of said parts, and bolts for drawing the parts of said clamp together.

32. In a transformer, the combination with the core and windings, of a bottom support for the windings, which rests on the core, and clamping members which grip said support and core, and are adapted to rest on the bottom of the transformer-casing.

33. The combination with a transformer-casing, of a cover therefor having bolt-holes with rims around the holes, bolts extending through the holes to secure the cover to the casing, and petticoated nuts having closed ends, which engage said bolts, said parts being constructed and arranged to prevent the entrance of moisture to the inside of the casing.

677,971. DUMPING DEVICE FOR WAGONS. HENRY FOX, Bay City, Mich. Filed Feb. 20, 1900. Renewed Jan. 24, 1901. Serial No. 44,543. (No model.)

Claim.—1. In combination with a dumping device of the kind described, a rotatable shaft secured to the frame near its forward end; a flexible cord one end of which is secured to said shaft and the other end secured to the rear end of the box; a second shaft rotatably mounted near the rear end of the wagon-frame; a flexible cord secured at one end to the second shaft and leading direct to the front end of the box to which the other end of the cord is attached, the intermediate portion of this cord being suspended freely between the shaft and the front end of the wagon-box when the latter is in its lowered or dumped position, substantially as described.



2. In combination with a dumping device of the kind described, a rotatable shaft secured near the forward end of the frame; a flexible cord, one end of which is secured to said shaft and the other end to the rear end of the box; a second shaft rotatably mounted near the rear end of the frame; a flexible cord secured at one end to the second shaft and at the other end to the front end of the box; together with wheels secured to the rear end of the box; all arranged as and for the purposes set forth.

677,972. MUSIC-PORTFOLIO. ARTHUR C. GARDNER, Brockton, Mass. Filed Jan. 12, 1901. Serial No. 42,977. (No model.)



Claim.—1. In a music-sheet portfolio, the combination of two leaves flexibly connected together, one of said leaves provided along its lower inner face with a pocket for containing and holding sheets of music, said pocket opening toward the top edge of the leaf, a sheet-supporting band secured to said leaf and extending across the inner face thereof above the pocket-opening, and a sheet-supporting band extending across the outer face of the leaf near the top edge thereof, said last-named sheet-supporting band being adapted to be passed over and against the face of the opposite leaf for the purpose of supporting a sheet of music there and at the same time hold the leaves of the portfolio closed face to face to protect the contained sheets of music, substantially as described.

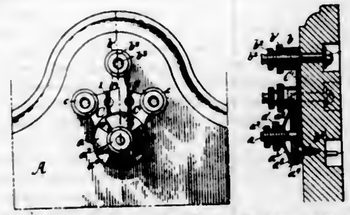
2. In a music-sheet portfolio, the combination of two leaves flexibly connected together, one of said leaves provided along its inner lower face with a pocket for containing and holding sheets of music, said pocket opening toward the top edge of the leaf, and an endless band passing through perforations formed in the leaf and extending across the inner and outer faces of said leaf near its top edge above the pocket-opening, whereby it is adapted to support a sheet of music to be played either against the inner face or outer face of the leaf and also to be passed over against the outer face of the opposite leaf and thus serve to hold the portfolio-leaves closed face to face and support a sheet of music exposed on the outer face of the portfolio, substantially as described.

3. In a music-sheet portfolio, the combination of two leaves flexibly connected together and provided along their inner lower faces with pockets for containing and holding sheets of music, said pockets opening toward the top edges of the leaves, one of said leaves provided with an endless band passing through perforations therein and extending across the inner and outer faces of said leaf near its top edge, whereby it is adapted to support a sheet of music to be played either against the inner or outer face of the leaf and also to be passed over against the outer face of the opposite leaf and thus serve to hold the portfolio-leaves closed face to face and support a sheet of music exposed on the outer face of the portfolio, substantially as described.

4. In a music-sheet portfolio, the combination of two leaves flexibly connected together and provided along their lower faces with pockets for containing and holding sheets of music, said pockets opening toward the top edges of the leaves, one of said leaves provided with a sheet-supporting band extending across its inner face and a sheet-supporting band extending across its outer face near the top edge of the leaf, said outer sheet-supporting band being adapted to be passed over and against the face of the opposite leaf for the purpose of supporting a sheet of music there and at the same time hold the leaves of the portfolio closed face to face to protect the contained sheets of music, substantially as described.

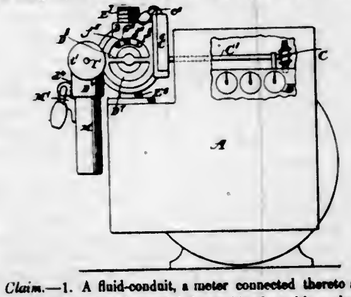
677,973. LIGHTNING-ARRESTER. WILLIAM D. GEAREY, Philadelphia, Pa. Filed Mar. 7, 1901. Serial No. 50,257. (No model.)

Claim.—1. In a lightning-arrester of the class described, a central metallic strip and two parallel strips in close proximity thereto lying substantially in the same plane, a metal post uprising from one end of the central strip, a carbon block carried by said post and in electrical connection therewith, and overlying portions of the three strips, and a perforated mica disk between the carbon block and the strips, substantially as described.



2. In a lightning-arrester of the class described three strips of metal lying substantially parallel to each other and in the same plane, and separated by an air-gap, a screw-threaded metal post uprising from the central strip near one end thereof, a sheet of mica having perforations carried by said post and overlying a portion of each strip, a carbon block also carried by said post and overlying said mica sheet, a spring-washer overlying the carbon block, and a nut engaging the threads upon the post and adapted to maintain the parts in fixed relative position, substantially as described.

677,974. PREPAYMENT FLUID-METER. WILLIAM R. GIBBS, Fanwood, N. J., assignor to Alexander C. Humphreys and Arthur G. Glasgow, New York, N. Y., (trading under firm name of Humphreys & Glasgow.) Filed Sept. 13, 1900. Serial No. 29,857. (No model.)



Claim.—1. A fluid-conduit, a meter connected thereto and means for opening and closing the conduit in combination with mechanism actuated by the meter, tending to actuate said means to close the conduit, a slotted stop-motion wheel, as F^3, having concave segmental facets between its slots arranged to act upon the means controlling the flow of fluid to open it, a manually-operated coacting drum, as I, adapted to fit in the concave facets of wheel F^3 said drum being recessed on one side to clear said wheel and slotted to receive and hold a coin of proper size in position to form a tooth on the drum adapted to engage in a slot of and actuate the wheel F^3, and a coin-receiver arranged to receive the coin from drum I after it has actuated the wheel F^3.

2. A fluid-conduit, a meter connected thereto and means for opening and closing the conduit in combination with mechanism actuated by the meter tending to actuate said means to close the conduit, a slotted stop-motion wheel, as F^3, having concave segmental facets between its slots arranged to act upon the means controlling the flow of fluid to open it, a manually-operated coacting drum, as I, adapted to fit in the concave facets of wheel F^3 said drum being recessed on one side to clear said wheel and slotted to receive and hold a coin of proper size in position to form a tooth on the drum adapted to engage in a slot of and actuate the wheel F^3, said slot having a prolongation of smaller size to eject coins of improper size, means for preventing the rotation of drum I in a reversed direction and a coin-receiver arranged to receive the coin from drum I after it has actuated the wheel F^3.

3. A fluid-conduit, a meter connected thereto and means for opening and closing the conduit, in combination with mechanism actuated by the meter tending to actuate said means to close the conduit, a slotted stop-motion wheel, as F^3, having concave segmental facets between its slots arranged to act upon the means controlling the flow of fluid to open it, a manually-operated coacting drum, as I, adapted to fit in the concave facets of wheel F^3 said drum being recessed on one side to clear said wheel and slotted to receive and hold a coin of proper size in position to form a tooth on the drum adapted to engage in a slot of and actuate the wheel F^3, said slot having a prolongation of smaller size to eject coins of improper size, means for preventing the rotation of drum I in a reversed direction, a stop device arranged to prevent forward rotation of the drum, means for moving said stop out of operative position actuated by a coin in the slot of the drum, a coin-receiver arranged to receive the coin from the drum after it has actuated the stop-wheel, and a fixed stop, as L^3, arranged to engage the coin and prevent the rotation of drum I in case the coin is not dropped into the receptacle.

4. A fluid-conduit, a meter connected thereto and means for opening and closing the conduit in combination with mechanism actuated by the meter tending to actuate said means to close the conduit, a slotted stop-motion wheel, as F^3, having concave segmental facets between its slots arranged to act upon the means controlling the flow of fluid to open it, a manually-operated coacting drum, as I, adapted to fit in the concave facets of wheel F^3 said drum being recessed on one side to clear said wheel and slotted to receive and hold a coin of proper size in position to form a tooth on the drum adapted to engage in a slot of and actuate the wheel F^3, said slot having a prolongation of smaller size to eject coins of improper size, means for preventing the rotation of drum I in a reversed direction, a stop device arranged to prevent forward rotation of the drum, means for moving said stop out of operative position actuated by a coin in the slot of the drum and a coin-receiver arranged to receive the coin from the drum after it has actuated the stop-wheel.

5. A fluid-conduit, a meter connected thereto and means for opening and closing the conduit in combination with mechanism actuated by the meter tending to actuate said means to close the conduit, a slotted stop-motion wheel, as F^3, having concave segmental facets between its slots arranged to act upon the means controlling the flow of fluid to open it, a manually-operated coacting drum, as I, adapted to fit in the concave facets of wheel F^3 said drum being recessed on one side to clear said wheel and slotted to receive and hold a coin of proper size in position to form a tooth on the drum adapted to engage in a slot of and actuate the wheel F^3, said slot having a prolongation of smaller size to eject coins of improper size, means for preventing the rotation of drum I in a reversed direction, a stop device arranged to prevent forward rotation of the drum, means for moving said stop out of operative position actuated by a coin in the slot of the drum, a coin-receiver arranged to receive the coin from the drum after it has actuated the stop-wheel, and a fixed stop, as L^3, arranged to engage the coin and prevent the rotation of drum I in case the coin is not dropped into the receptacle.

6. In a prepayment-meter, the combination with a stop-motion wheel, as F^3, arranged to open the fluid-conduit, of a manually-operated drum I having a circumferential groove I^2 and oblique transverse coin-slot I^1 adapted to hold a coin of proper size with its edge projecting into groove I^2 in position to engage the notches in the stop-motion wheel and having a narrower prolongation whereby it rejects a coin of improper size, a ratchet-stop for preventing motion of the drum in a reverse direction, a coin-receiver arranged to receive the coin from the drum after it has actuated the stop-wheel and a fixed stop extending into groove I^2 and acting to engage the coin and prevent rotation of the drum in case the coin is carried over the receiver.

7. In a prepayment-meter, the combination with a stop-motion wheel, as F^3, arranged to open the fluid-conduit, of a manually-operated drum I having a circumferential groove I^2 and oblique transverse coin-slot I^1 adapted to hold a coin of proper size with its edge projecting into groove I^2 in position to engage the notches in the stop-motion wheel and having a narrower prolongation whereby it rejects a coin of improper size, a stop-perforation I^5 extending from the groove I^2 to the slot I^1, a pin J J' spring-supported in perforation I^5 with its ends flush with the bottom of the groove and side of the slot and free to move into the slot, a spring-pawl having its end pressed against the bottom of groove I^2 and adapted to engage perforation I^5, a ratchet-stop for preventing motion of the drum in a reverse direction and a coin-receiver arranged to receive the coin after it has actuated the stop-wheel.

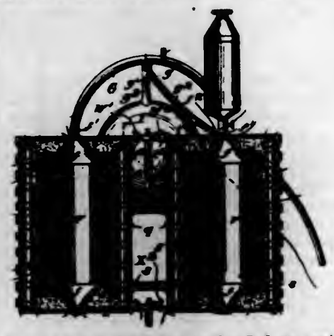
8. In a prepayment-meter, the combination of the rotatable plug-cock casing F having a stop-motion wheel F^3 secured to it, said wheel having symmetrically-disposed slots formed in its rim and concave segmental facets formed between said slots with a drum I adapted to fit in the concave facets of wheel F^3 and having a recessed portion adapted to clear said wheel and having a coin-slot arranged to retain a coin of proper size in position to engage and actuate the stop-motion wheel when the drum is rotated and a meter-actuated plug-cock G working in the casing F as described.

677,975. DENTAL APPARATUS. JAMES M. GILBERT, Dallas, Tex. Filed Dec. 27, 1900. Serial No. 41,204. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a source of air and water supply, receptacles for receiving air and water therefrom, conductors connected with the receptacles, and electric heaters inclosing said receptacles, substantially as set forth.

2. In an apparatus of the character described, the combination of a source of air and water supply including air and water-receptacles, elec-

tric heaters inclosing said receptacles and means for conducting an electric current to either one or both heaters at will, substantially as set forth.

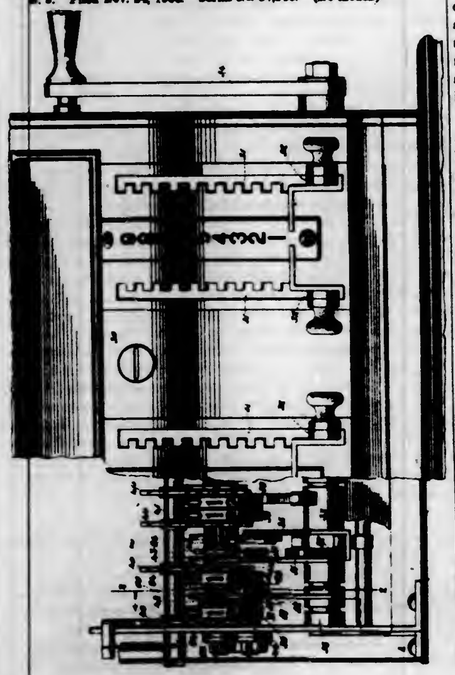


3. In an apparatus of the character described, the combination of air and water receptacles, electric heaters inclosing said receptacles, a water-reservoir in communication with the water-receptacle, a union-pipe connecting both receptacles, a source of air-supply, an air receiver connected thereto, and valve-controlled connections for controlling the passage of air to the two receptacles and the air-receiver, substantially as set forth.

4. In an apparatus of the character described, the combination of a pair of electrical heaters, water and air supplying means connected thereto, and having receptacles inclosed by said heaters, conductors also connected to the heaters, and intercommunicating electrical connections between the heaters, substantially as set forth.

5. In an apparatus of the character described, the combination of a source of air and water supply, air and water receptacles connected therein, means for controlling the flow of air and water to the receptacles, electric heaters inclosing said receptacles and having exteriorly-projecting contacts, and intercommunicating electrical connections between the heaters and including switches for conducting an electric current to either one or both heaters at will, substantially as set forth.

677,976. CASH-REGISTER. HARVEY GILES, South Boundbrook, N. J., assignor to the Ideal Cash Register Company, New Boundbrook, N. J. Filed Nov. 24, 1900. Serial No. 37,580. (No model.)



Claim.—1. In a cash-register, the registering-wheels, and mechanism to be operated by the rotation of one of said wheels for carrying to the next wheel, combined with means operable by the final registering-wheel when said wheel shall have reached the predetermined limit of its movement for acting upon said carrying mechanism to render the same inoperative for carrying; substantially as and for the purposes set forth.

2. In a cash-register, the registering-wheels, and mechanism to be operated by the rotation of one of said wheels for carrying to the next wheel, combined with rotary means connected with the final registering-wheel and set with relation to the numerals thereon for acting on the said carrying mechanism to render the same inoperative with respect to said final wheel when the latter shall have reached the predetermined limit of its rotation; substantially as and for the purposes set forth.

3. In a cash-register, the registering-wheels, and mechanism intermediate and operable from the several wheels for carrying from one of said wheels to the next higher wheel in series, combined with rotatory means connected with the final registering-wheel and set with relation to the numerals thereon for acting on the carrying mechanism directly leading to said final wheel for rendering said mechanism inoperative with respect to said final wheel only when said final wheel shall have reached the predetermined limit of its rotation, whereby said final wheel is thereafter left stationary without interfering with the rotation of the other registering-wheels; substantially as and for the purposes set forth.

4. In a cash-register, the registering-wheels, the pinions connected therewith, and the movable shaft 36 upon which said wheels and their pinions are mounted, combined with the carrying-plate 52 having the fingers 55 to engage the teeth of the pinion connected with the final registering-wheel when said shaft is moved to its position to permit registration, means connected with the preceding registering-wheel to then move said plate, when said preceding wheel has performed its rotation, to effect the rotation of and carrying to said final wheel, and means connected with and set with relation to the numerals on the final registering-wheel for engaging said plate 52 and moving the same into an inoperative position when said final wheel shall have reached the predetermined limit of its rotation and said shaft is moved to its position to permit registration; substantially as set forth.

5. In a cash-register, the registering-wheels, the pinions connected therewith, and the movable shaft 36 upon which said wheels and their pinions are mounted, combined with the carrying-plate 52 having the fingers 55 to engage the teeth of the pinion connected with the final registering-wheel when said shaft is moved to its position to permit registration, means connected with the preceding registering-wheel to then move said plate, when said preceding wheel has performed its rotation, to effect the rotation of and carrying to said final wheel, the arm 94 carried by said final wheel and set with relation to the numerals thereon, and the lip 58 on said plate 52 to be engaged by said arm 44 on the movement of said shaft to its position to permit registration and the arrival of said final wheel at the predetermined limit of its rotation, whereby said plate is then moved to an inoperative position and said final wheel is saved from rotation; substantially as set forth.

6. In a cash-register, the registering-wheels, the pinion connected with the final registering-wheel, and the movable shaft upon which said wheels are mounted, combined with the carrying-plate 52 having the lips 57 and 58 and also the fingers 55 to engage the teeth of the said pinion-wheel when said shaft is moved to its position to permit registration, an arm connected to the preceding registering-wheel to then engage said lip 57 and move said plate, when said preceding registering-wheel has performed its rotation, to effect the rotation of and carrying to said final wheel, and the arm 94 connected with said final wheel and set with relation to the numerals thereon to engage said lip 58 on the movement of said shaft to its position to permit registration and the arrival of said final wheel at the predetermined limit of its rotation, whereby said plate is then moved into an inoperative position and said final wheel is saved from rotation; substantially as and for the purposes set forth.

7. In a cash-register, the registering-wheels, the pinion connected with the final registering-wheel, the movable registering-wheel shaft 36 carrying said wheels, the arms 37 connected with said shaft, and the rock-shaft 38 to which said arms are 37 secured, combined with the carrying-plate 52 having the fingers 55 to engage the teeth of said pinion-wheel when said shaft 36 is moved to its position to permit registration, the spring 56 connected with said plate 52 and tending to normally move said plate to the position in which said fingers may engage said pinion-wheel when said shaft 36 is moved to its position to permit registration, an arm connected with the registering-wheel preceding the final registering-wheel to engage said plate 52, during the operation of registering, and cause the same to move its said fingers 55 against said pinion-wheel to effect the carrying from the said preceding registering-wheel to said final wheel, and an arm connected with and set with relation to the numerals of said final registering-wheel to engage said plate 52 and move the same into an inoperative position upon the arrival of said final wheel at the predetermined limit of its rotation and at each movement of said shaft 36 to its position to permit registration, whereby said plate 52 is, when the final registering-wheel has reached the predetermined limit of its movement, prevented from acting on said final wheel; substantially as set forth.

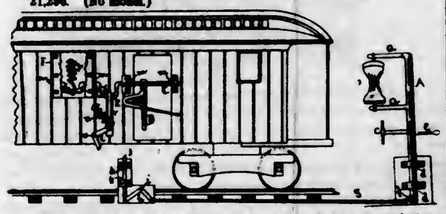
8. In a cash-register, the registering-wheels, the pinion connected with the final registering-wheel, the movable shaft 36 upon which said wheels are mounted, the arms 37 carrying said shaft, and the rock-shaft 38 upon which said arms 37 are secured, combined with the carrying-plate 52 having the lips 57 and 58 and also the fingers 55 to engage the teeth of the said pinion-wheel when said shaft 36 is moved to its position to permit registration, the spring 56 connected with said plate 52 and tending normally to draw said plate to a position in which its fingers 55 may engage the teeth of said pinion-wheel when said shaft 36 is moved to its position to permit registration, an arm connected to the preceding registering-wheel to then engage said lip 57 and move said plate, when said preceding registering-wheel has performed its rotation, to effect, through said fingers and pinion-wheel, the rotation of and carrying to said final wheel, and the arm 94 connected with said final wheel and set with relation to the numerals thereon to engage said lip 58 on the movement of said shaft to its position to permit registration, and the arrival of said final wheel at the predetermined limit of its rotation, whereby said plate is then moved into an inoperative position and said final wheel is saved from rotation; substantially as set forth.

677,977. CUTTER-BAR FOR HARVESTERS OR MOWERS. ISAAC N. GRAHAM, WILLIAM C. CRAIG, and GEORGE W. SHINAULT, Deerfield, Va. Filed Apr. 11, 1901. Serial No. 55,257. (No model.)



Claim.—A cutter-bar comprising upper and lower plates and provided with a longitudinal slot or chamber opening through one end thereof and having a groove at the rear, knives or blades independent of each other and fitted in said slot or chamber and provided with flanges slidably engaging the grooves therein, and a key inserted transversely within the slot or passage to retain the knives in position and having a spring-actuated detent and a socket in the bar to engage said detent, substantially as described.

677,978. MACHINE FOR TRANSFERRING MAIL-BAGS. EUGENE T. GRAMBERY, New York, N. Y. Filed June 23, 1900. Serial No. 21,296. (No model.)



Claim.—1. In a machine for transferring mail-bags to and from moving trains, an arm D for holding a mail-bag to be delivered, attached to a rod C which turns in bearings on the side of the car, a spring so connected as to tend to turn said rod and to throw said arm out into position to deliver the mail-bag and a device consisting of a catch on the end of a sliding rod attached to a pivoted elbow, so disposed that said catch holds the rod C in a position with arm D inside the car, said device adapted to be operated in connection with ground mechanism whereby rod C is released and, turning, arm D is thrown out into position to deliver the mail-bag, substantially as set forth and described.

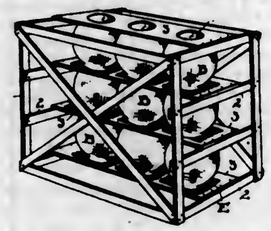
2. In a machine for transferring mail-bags to and from moving trains, a fork B for grasping a mail-bag from a post by the wayside, attached to a rod C which turns in bearings on the side of the car, a spring so connected as to tend to turn said rod and throw said fork out into position to grasp the mail-bag and a device consisting of a catch on the end of a sliding rod attached to a pivoted elbow, so disposed that said catch holds the rod C in a position with fork B flat against the side of the car, said device adapted to be operated in connection with ground mechanism, whereby rod C is released and turning, fork B is thrown out into position to grasp the mail-bag from the post at the wayside, all substantially as set forth and described.

3. In a machine for transferring mail-bags to and from moving trains, an arm D for holding a mail-bag to be delivered and a fork B for grasping the mail-bag from a post by the wayside attached to a rod C which turns in bearings on the side of the car, a spring so connected as to tend to turn said rod and throw said arm for holding the mail-bag out into position to deliver the mail-bag and at the same time throw said fork B out into position for grasping a mail-bag from the post by the wayside, and a device consisting of a catch on the end of a sliding rod attached to a pivoted elbow, so disposed that said catch holds the rod C in a position with arm D inside the car and fork B flat against the side of the car, said device adapted to be operated in connection with ground mechanism, whereby rod C is released and turning, arm D is thrown out into position to deliver the mail-bag and at the same time fork B is thrown out into position to grasp a mail-bag from the post by the wayside, all substantially as set forth and described.

4. In a machine for transferring mail-bags to and from moving trains, a rotating post A connected by a short arm and long shaft or double chain with a pivoted elbow, to one end of which elbow is attached a rod *j* which slides up and down in bearings as the post is turned to work in conjunction with a device attached to the car, all substantially as set forth and described.

5. In a machine for transferring mail-bags to and from moving trains, a rotating post A connected by a short arm and long shaft or double chain with a pivoted elbow, to one end of which elbow is attached a sliding rod which, when post A is turned, is adapted to engage with trip mechanism on the passing car consisting of a pivoted elbow and sliding rod on the end of which is a catch, whereby said catch is withdrawn, allowing device on the car for catching and delivering mail-bags to operate automatically, all substantially as set forth and described.

677,979. SHIPPING-CRATE FOR GLOBES. JOHN H. HAHN, Cleveland, Ohio. Filed Mar. 5, 1901. Serial No. 49,788. (No model.)



Claim.—1. A shipping-crate for substantially spherical glass globes consisting of a rigid frame provided with fixed cross-pieces 2 at its ends and at successive elevations in sets from bottom to top of the crate, a globe-supporting board removably fixed at its ends to each set of said cross-pieces and having a circular hole about which the globe is seated, a flexible cushion overspreading said hole, and a set of cleats fastened down upon the edges of said cushion about said hole, substantially as described.

2. In shipping-crates for glass globes, a crate having globe-supporting boards provided with a hole for each globe corresponding in size substantially to the inner diameter of the neck of the globe and the holes in the successive boards being over one another in a perpendicular line, a flexible cover overspreading each hole and a set of removable cleats for confining the globes fixed upon said covering and arranged about said holes, said boards removably secured to the crate at their ends and the successive boards arranged apart less than the depth of the globes to be carried, whereby the tops of the globes are brought within the holes of the boards next above them, substantially as described.

677,980. MAXIMUM-CURRENT INDICATOR. CARYL D. HASKINS, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Jan. 29, 1901. Serial No. 45,126. (No model.)

Claim.—1. A maximum-current indicator comprising a plurality of fusible filaments arranged in multiple.

2. A maximum-current indicator comprising a plurality of fusible filaments of different melting-points connected in multiple.

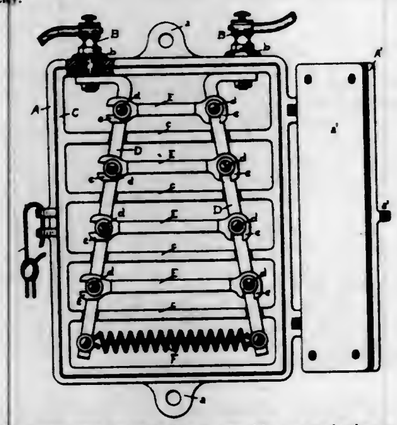
3. A maximum-current indicator comprising a plurality of fusible filaments of different melting-points, and a conductor having a comparatively higher resistance but good carrying capacity, all connected in multiple.

4. A maximum-current indicator comprising two metal bars, and a plurality of fusible filaments each connected to both of said bars.

5. A maximum-current indicator comprising two metal bars, and a plurality of fusible filaments of different melting-points, each connected with both of said bars.

6. A maximum-current indicator comprising a case having an insulating-lining and divided into compartments, and a fusible filament in each compartment, all connected in multiple.

7. A maximum-current indicator comprising a case having an insulating-lining and divided into compartments, a conductor common to all said compartments, and a fusible filament in each compartment connected with said conductor, said conductor being for a portion of its length, of comparatively higher resistance than the fuses, but of good carrying capacity.



8. A maximum-current indicator comprising a case having an insulating-lining and divided into compartments by insulating portions having notches in their upper edges, metal bars lying in said notches, and a fusible filament in each compartment connected with said bars.

9. The combination with a case having a lid provided with an insulating-lining, of an insulating-lining for the box containing partitions, conducting-bars intersecting said compartments, binding-posts in the wall of the case connecting with said bars, and a plurality of fusible filaments of different melting-points connected with said bars and separated by said partitions.

677,981. COMBINED SASH LIFT AND LOCK. CHARLES H. HAWKINSON, Chicago, Ill. Filed Mar. 26, 1901. Serial No. 52,795. (No model.)



Claim.—1. In a combined sash lift and lock, a plate attached to the sash, a latch pivoted to the plate and adapted to engage a socket in the sill, a lifting-lever adapted to disengage the latch in the act of lifting the sash, and a screw to lock the latch to prevent its disengagement from the socket.

2. In a sash-lock, a plate attached to the sash, a latch pivoted to the plate and adapted to yieldingly engage a socket in the sill and a screw adapted to engage the latch and prevent its disengagement from the socket.

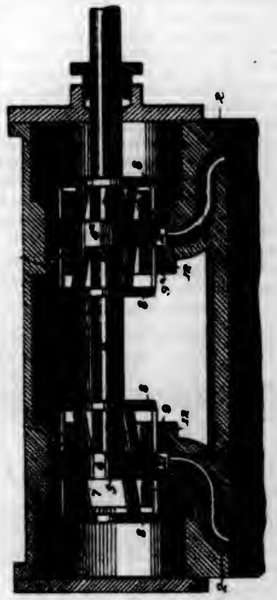
677,982. PISTON-VALVE. JOHN T. HEFFERNAN, Seattle, Wash. Filed Jan. 18, 1901. Serial No. 43,775. (No model.)

Claim.—1. The combination with a steam chest and valve, of a bushing provided with grooves having rings arranged in the grooves, and passages connecting the grooves with the exhaust-chamber of the steam-chest, substantially as described.

2. The combination with a steam chest and valve, of a bushing provided with a steam-port and grooves arranged on either side of the steam-port, packing-rings arranged in the grooves, a passage in the bushing communicating with the exhaust-port, and openings from the passage to the grooves, substantially as described.

3. The combination with a steam-chest, of a bushing having grooves in its inner face, packing-rings arranged in the grooves, a valve provided with bridges extending therefrom, and a ring supporting the outer ends of the bridges, substantially as described.

4. The combination with a steam-chest, of a bushing having a steam-port and recesses on either side, packing-rings arranged in the recesses, a passage communicating with the said recesses and with the exhaust-port, and a valve having bridges extending on either side thereof, the bridges being connected to a ring at their outer ends, substantially as described.



677,988. PNEUMATIC TIRE FOR BICYCLES. EDWIN HERBERT, Toronto, Canada. Filed Dec. 17, 1900. Serial No. 40,199. (No model.)



Claim.—1. In a pneumatic tire, a grooved rim, in combination with an outer cover; two divided flat steel bands, one of which is secured to each edge of the outer cover; means for fastening together the said bands one over the other; hooks engaging the ends of one of the bands and passing out through the rim; and nuts threaded on the stems of the said hooks and engaging the rim, substantially as and for the purpose specified.

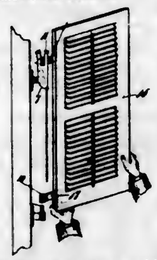
2. In a pneumatic tire, a grooved rim, in combination with an outer cover; two divided flat steel bands, one of which is secured to each edge of the outer cover; means for fastening together the said bands one over the other; hooks engaging the ends of both of the bands and passing out through the rim; and nuts threaded on the stems of the said hooks and engaging the rim, substantially as and for the purpose specified.

3. In a pneumatic tire, a grooved rim, in combination with an outer cover; two divided flat steel bands, one of which is secured to each edge of the outer cover; means for hooking together the said bands one over the other; bent hooks engaging the ends of both of the bands; pins against which the backs of the said hooks may lie; and nuts threaded on the stems of the said hooks and engaging the rim, substantially as and for the purpose specified.

4. In a pneumatic tire, a grooved rim, in combination with an outer cover; two divided flat steel bands, one of which is secured to each edge of the outer cover; studs and slots for fastening together the said bands one over the other; hooks engaging the ends of one of the bands and passing out through the rim; and nuts threaded on the stems of the said hooks and engaging the rim, substantially as and for the purpose specified.

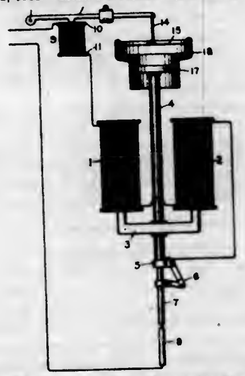
677,984. HINGE. JOHN G. HERBST, Port Chester, N. Y. Filed Feb. 26, 1901. Serial No. 48,966. (No model.)

Claim.—1. A device for use in hanging window-shutters and doors comprising a sleeve open at one side and at both ends, said sleeve being provided at one end with projecting arms separated by corresponding spaces, substantially as shown and described.



2. A device of the class described, comprising a sleeve open at one side and at both ends and beveled at one end, the end opposite the beveled end being provided with three projecting arms separated by corresponding spaces, the ends of said arms being curved outwardly, substantially as shown and described.

677,985. ELECTRIC-ARC LAMP. DANIEL HIGHAM, Winthrop Highlands, Mass., assignor to General Electric Company, of New York. Filed Apr. 22, 1901. Serial No. 56,522. (No model.)



Claim.—1. In an electric-arc lamp, the combination of feeding mechanism, a body of elastic fluid adapted to be compressed in response to movement of said feeding mechanism, and a current-varying device responsive to variations of pressure of said elastic fluid.

2. In an electric-arc lamp, the combination of feeding mechanism, a dash-pot, a diaphragm adapted to be flexed by variation of pressure in said dash-pot, and a current-varying device operatively related to said diaphragm.

3. In an electric lamp, the combination of feeding mechanism, a variable resistance in circuit with the lamp, and an elastic connection between the feeding mechanism and the variable resistance.

4. In an electric lamp, the combination of feeding mechanism, a dash-pot operatively connected to said mechanism, a flexible diaphragm forming a wall of said dash-pot, a variable resistance, and operative connections between said diaphragm and said resistance.

5. In an electric-arc lamp, the combination of feeding mechanism, a body of elastic fluid adapted to be compressed in response to movement of said feeding mechanism, a variable resistance, and means for varying said resistance through the instrumentality of said fluid.

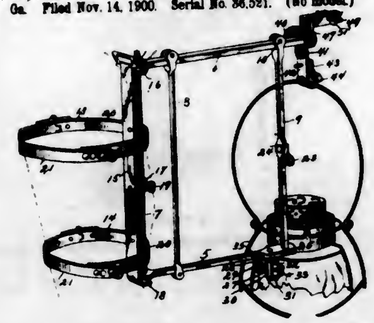
677,986. PROCESS OF MAKING ACCUMULATOR-ELECTRODES. HEINRICH F. HOSEL, Berlin, Germany, assignor to Accumulatoren and Electricitäts-Werke Actiengesellschaft, vorm. W. A. Bosse & Co., same place. Filed Jan. 14, 1901. Serial No. 43,198. (No specimens.)



Claim.—1. Process for making accumulator-electrodes consisting in the covering of a lead structure, which has a center wall and ribs projecting therefrom, with a thin surface-coating and then passing it between rolls, which roll the ribs thin one against the other substantially as shown and described.

2. Process for making accumulator-electrodes consisting in the covering of a lead plate, having a center wall and obliquely-projecting ribs with a thin surface-coating and then passing it through rolls, whereby the ribs mutually roll one another out in the direction of their length substantially as shown and described.

677,987. LANTERN-CARRIER. SHEDRICK HOLMES, Brunswick, Ga. Filed Nov. 14, 1900. Serial No. 36,521. (No model.)



Claim.—1. A lantern-holder comprising a frame including upper and lower beams and connecting-uprights, attaching-loops slidably connected with one of the uprights, and hooks carried by the frame for engagement with a lantern.

2. A lantern-holder comprising a frame, attaching-loops slidably connected with the frame, and hooks carried by the frame for engagement with a lantern.

3. A lantern-holder comprising a frame, attaching-loops slidably and pivotally connected with the frame, means for holding the loops at different points of their slidable and pivotal movements, and hooks upon the frame for engagement with a lantern.

4. A lantern-holder comprising a frame including upper and lower beams and connecting-uprights, a plate slidably and pivotally connected with one of the uprights, means for holding said plate at different points of its movements, loops upon the plate and hooks carried by the frame for engagement with a lantern.

5. A lantern-holder comprising a frame, a U-shaped plate connected to the frame, one end of the plate being bent to form a hook, a clamping-jaw adjustably connected with the opposite end of the U-shaped plate for coöperation therewith to effect a clamping action, a second hook pivoted upon the frame, a second clamp pivoted upon the frame above the said clamp and hooks, and a third clamp removably engaged with the frame above the last-named clamp.

6. A lantern-holder comprising a frame having attaching means and provided with a socket, a plate having a stem removably engaged with the socket, the outer end of the plate being bifurcated and the resulting arms having recesses in one face, and a second bifurcated plate disposed against the recessed side of the first plate and having a clamping-screw for adjusting it with respect to the first plate.

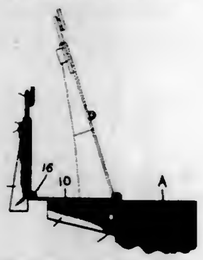
7. A lantern-holder comprising an adjustable yoke, a loop hinged to one end of the yoke, a rest-plate at the opposite end of the yoke, a hook suspended from the plate, and a flexible connection attached at one end to the plate and adapted for adjustable connection of its opposite end with the plate.

8. A lantern-holder comprising a yoke having a loop at one end, a rest-plate at the opposite end of the loop, a double-ended hook pivoted to the plate at a point nearer one hook than the other, and a flexible connection attached at one end to the plate and adapted for adjustable connection of its opposite end with the hooks interchangeably.

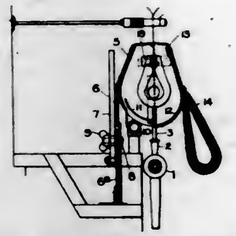
677,988. THREAD-GUIDE SUPPORT FOR SPINNING OR TWISTING MACHINES. LEWIS T. HOUGHTON, Worcester, Mass. Filed Dec. 10, 1900. Serial No. 39,578. (No model.)

Claim.—1. In a support for a thread-guide of a spinning or twisting machine, the combination of a sheet-metal strip or finger-head board, and a finger-head having top and side flanges stamped from a single piece of sheet metal, and having integral sections at its rear edge bent or turned to form a socket for receiving the hinge-pin which connects the finger-head to the finger-head board, the side flanges of the finger-head forming stops for holding the finger-head substantially horizontal when the same is in its turned-down position, substantially as described.

2. In a support for a thread-guide of a spinning or twisting machine, the combination of a sheet-metal strip or finger-head board, and a sheet-metal finger-head having the top and side flanges stamped from a single piece of sheet metal, and having integral sections at its rear edge bent and rolled up to form a socket for receiving the hinge-pin which connects the finger-head to the finger-head board, and constructed so that the side flanges extend back beyond the hinge-pin socket so as to form stops for supporting the finger-head, substantially as described.



677,989. APPARATUS FOR PRODUCING VACUUMS. JOHN W. HOWELL and WILLIAM R. BURROWS, Newark, N. J., assignors to the General Electric Company, of New York. Filed Apr. 5, 1900. Serial No. 11,627. (No model.)



Claim.—1. Means for producing high vacua, comprising an exhausting-pump, a sectional chamber inclosing a group of vessels to be exhausted with an intervening space, said chamber being separable on a plane parallel to the group of lamps, and a source of heat at the bottom of the chamber for filling the space with hot gases.

2. Means for producing high vacua, comprising an exhausting-pump, a sectional inclosure around the vessel to be exhausted, a gas-burner beneath the inclosure, and means for separating the sections of the inclosure to admit insertion or withdrawal of the vessel.

3. Means for exhausting incandescent lamps, comprising an exhausting-pump, a group of lamps placed in a line, and a sectional heater inclosing the lamps, the sections of the heater being separable on a plane parallel to the line of lamps, one section being removable from the lamps to permit easy manipulation.

4. Means for exhausting incandescent lamps, comprising an exhausting-pump, a sectional heater to inclose a group of lamps, open at the bottom, a gas-burner communicating with the opening, and means for separating the sections to admit insertion or withdrawal of the lamps.

5. Means for producing high vacua, comprising a pump, a support for the vessel to be exhausted, and a heater surrounding the latter, consisting of two parts, one mounted on an adjustable support, and the other removable to permit insertion and withdrawal of the vessel.

6. A heater for incandescent lamps, comprising a sectional sheet-metal chamber, the removable section having a heat-insulated handle, said chamber being open at the bottom, a gas-burner beneath the opening, and a deflector to distribute the hot gases.

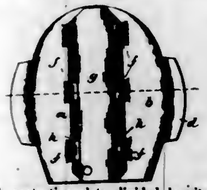
7. Means for producing high vacua, comprising pumping apparatus and a vapor-trap between said apparatus and the lamps or other vessels to be exhausted, consisting of two tubes, one within the other, separably connected, the inner tube being open at the top and containing a drying agent.

8. Means for producing high vacua, comprising pumping apparatus and a trap between said apparatus and a group of lamps to be exhausted, consisting of two tubes, one within the other, separably connected, the outer tube connecting with the several lamps, and the inner tube being provided with openings on its upper side located between the lamp connections.

9. Means for exhausting incandescent lamps, comprising two pumps, a vapor-trap between said pumps and the lamps, comprising two tubes separably connected, one within the other, the outer one connecting with the lamps and the inner containing a drying agent, and connections between the preliminary and final pumps at or near the bottom and top of the outer tube respectively.

10. Means for producing vacua, comprising two pumps, one for preliminary exhaustion and the other for final exhaustion, a moisture-trap in the path of exhaustion, and a trap for solid refuse in the path to the preliminary pump.

677,990. PROTECTING-PLATE FOR HORSE'S HOOFS. GUSTAV ISRAEL, Chicago, Ill. Filed Dec. 17, 1900. Serial No. 40,168. (No model.)



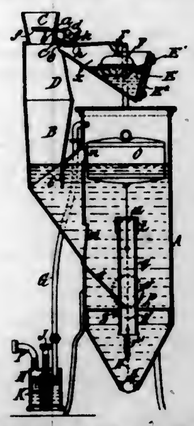
Claim.—1. A protecting-plate divided longitudinally and hinged together, provided with downwardly and inwardly turned lugs on each part to form a saddle, wings on each lateral edge for insertion between the horseshoe and hoof, and a key adapted to slide in the saddle or ways and lock the same in position, substantially as described.

2. A protecting-plate divided longitudinally, each part being provided with downturned lugs to form a saddle, and a key adapted to be passed between each lugs to prevent buckling of the plate and lock it in position, substantially as described.

3. A protecting-plate divided longitudinally and hinged together, each part provided with lugs parallel with the lugs on the other part to form a saddle or way and with wings on each lateral edge for insertion between the horseshoe and the hoof, and a key provided with downturned prongs adapted to be passed between the lugs to prevent the buckling or folding action of the plate and lock it in position, substantially as described.

677,991. ACETYLENE-GAS GENERATOR. EUGÈNE A. JAVAL, Neuilly, France. Filed Apr. 18, 1900. Serial No. 13,207. (No model.)

Brief.—The carbid charge enters the generator through the chute B at C, tripping the latch *a* and emptying the water in the tank E after it. The empty tank returns by gravity to its normal position and is filled by the float-valve *r*. The rise of the float O, caused by the entrance of the water, contracts the spring *r'*, and the valve S is suddenly withdrawn from its seat. This causes the sludge to be evacuated through the valve S, and the water is thereby restored to its normal level and the valve to its seat.



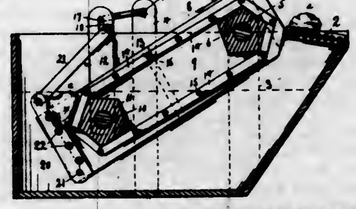
Claim.—1. An acetylene-generating apparatus comprising, in combination, a generator, means for admitting successive charges of carbid, a tank for containing a measured quantity of water, a movable member operated by the introduction of a charge of carbid, a connection between said movable member and said water-tank whereby the introduction of a charge of carbid tips said tank to empty the same into said generator, a grill in said generator on which the carbid rests during generation of the gas, a conical bottom in said generator below said grill into which the residue falls, a valve closing said conical bottom, a float in said generator, a connection between said float and said valve and a compression-spring interposed in said connection whereby the introduction of water into said generator lifts said float first to compress said spring, then to suddenly open said valve a considerable distance, so as to rapidly eject the residue in the conical bottom.

2. An acetylene-generator comprising in combination, a generator, means for admitting successive charges of carbid, a tank for containing a measured quantity of water, a movable member operated by the introduction of a charge of carbid, and a connection between said movable member and said water-tank whereby the introduction of a charge of carbid tips said tank to empty the same into said generator.

3. The combination in an acetylene-generator, of a grill in said generator on which the carbid rests during generation of the gas, said generator having a conical bottom below said grill into which the residue falls, a valve closing said conical bottom, a float in said generator, a connection between said float and said valve, and a compression-spring interposed in said connection whereby the introduction of water into said generator lifts said float first to compress said spring, then to suddenly open said valve a considerable distance, so as to rapidly eject the residue in the conical bottom.

4. An acetylene-generating apparatus comprising, in combination, a generator, means for admitting successive charges of carbid, a tank for containing a measured quantity of water, means operated by the introduction of a charge of carbid for emptying said tank into said generator, a valve closing the bottom of the generator, and means operated by the introduction of said charge of carbid and water for automatically opening said valve to eject the residue.

677,992. APPARATUS FOR BLUESTONING SEED. ANDREW J. JOHNSON, Arbuckle, Cal. Filed Apr. 22, 1901. Serial No. 56,264. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a tank, an endless traveling conveyer, means to raise and lower one end thereof and means coacting with said endless traveling conveyer to rotate a submerged article in said tank, substantially as described.

2. In an apparatus of the class described, the combination of a tank, an endless traveling conveyer, means to raise and lower one end thereof, and a retaining and engaging element, the latter coacting with said endless traveling conveyer to rotate a bag of grain when said conveyer is lowered and to cause said bag of grain to be engaged by said conveyer when the latter is raised, substantially as described.

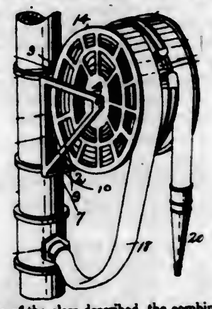
3. In an apparatus of the class described, the combination of a tank, an endless traveling conveyer therein, a pivoted retaining and engaging element mounted in the frame of said conveyer in rear of the endless traveling element thereof, a revolvable element, connections between the latter and said conveyer to raise and lower the latter, and connections between said revolvable element and said pivoted retaining and engaging element, to move the latter toward the rear of said endless traveling element as the latter is raised, substantially as described.

4. In an apparatus of the class described, the combination of a tank, a draining-frame at one end thereof, an endless traveling conveyer having one end pivotally mounted in said tank, whereby the rear end of said conveyer may be raised and lowered in the tank, a retaining and engaging element mounted in the frame of said conveyer, means to actuate the endless traveling element of the latter and means to raise and lower the rear end of said conveyer, substantially as described.

677,993. HOSE-REEL. WALKER JOHN, Niagara Falls, N. Y. Filed Apr. 4, 1901. Serial No. 54,906. (No model.)

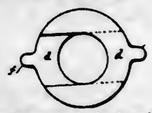
Claim.—1. In a device of the class described, the combination with a frame provided with brackets, of a spool provided with heads and mounted to turn in said brackets, and a partition extending transversely said spool and provided with a notch adapted to engage a loop in a hose, substantially as described.

2. In a device of the class described, the combination with a reel provided with a spool having a transverse notched partition, of a hose attached to a hydrant and doubled in the center to form a loop and wound from the center toward the ends with the said loop engaging the notch in said notched partition, substantially as described.



3. In a device of the class described, the combination with a frame mounted to turn on a vertical axis, of a spool provided with heads and mounted in said frame to revolve on a horizontal axis, of a partition extending transversely said spool and provided with a transverse notch adapted to engage a loop in a hose, substantially as described.

677,994. DEVICE FOR PLUMBING SPINNING-SPINDLES. HAROLD KELLY, Biddeford, Me., assignor of one-half to Edward H. Lang, Jr., Portland, Me. Filed Nov. 23, 1900. Serial No. 37,430. (No model.)



Claim.—1. In a plumbing device for spindles, the combination with a spindle-case having a projecting shoulder thereon and a supporting-rail, of bifurcated wedges, said wedges being placed one upon another and interposed between said rail and said shoulder and adapted to rotate around said case, substantially as and for the purposes set forth.

2. In a plumbing device for spindles, the combination with a spindle-case having a projecting shoulder thereon and a supporting-rail, of wedges having bifurcations adapted to receive the shank of the spindle-case, said wedges being placed one upon another and interposed between said rail and said shoulder and adapted to rotate around said case, together with means for rotating said wedges, substantially as and for the purposes set forth.

677,995. PENCIL-HOLDER ATTACHMENT FOR DIVIDERS. CARL KLAUI, New Haven, Conn. Filed Sept. 29, 1900. Serial No. 31,558. (No model.)



Claim.—1. The combination with dividers or similar tools, of a separately-formed pencil-holder attachment consisting of a single piece of sheet metal bent back on itself to embrace a leg of the divider in its bent position; of a braking-shoe pivoted within said holder, and means for swinging said braking-shoe on its pivot to engage said leg, substantially as described.

2. In a pencil-holder attachment for dividers and similar tools, the combination with a holder formed of a single piece of sheet metal bent back on itself; of a braking-shoe pivoted within said holder; and a rotatable pin having an eccentric surface adapted to bear on said shoe to swing the same on its pivot, upon the rotation of said pin, substantially as described.

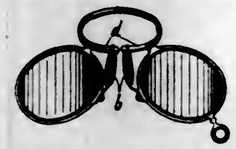
3. In a pencil-holder attachment for dividers and similar tools, the combination with a holder formed of a single piece of sheet metal bent back on itself, the outer ends of which are adapted to grasp the pencil; of a braking-shoe pivoted within said holder; and mechanism for simultaneously swinging said braking-shoe on its pivot and compressing said free ends of said holder, substantially as described.

4. In a pencil-holder attachment for dividers and similar tools, the combination with a holder formed of a single piece of sheet metal bent back on itself, to embrace one leg of the divider within said bent portion,

and with its free ends adapted to grasp the pencil; of a rotatable pin extending transversely through said holder for compressing said free ends of said holder upon its rotation in either direction, substantially as described.

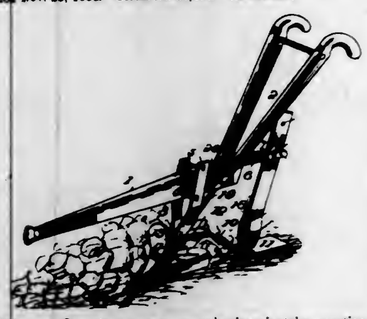
5. A pencil-holder attachment for dividers or similar tools, consisting of a single piece of sheet metal, bent back on itself to embrace one leg of the divider within its bent portion, and with its end adapted to grasp the pencil between them, and a pin having an eccentric portion within the holder for locking the said leg within said holder upon its rotation in either direction, substantially as described.

677,996. **EYEGLASSES.** GEORG KLEINERT, Dresden, Germany. Filed Jan. 22, 1901. Serial No. 44,259. (No model.)



Claim.—In combination, lens-frames, spindles supported therefrom, nose-pads having a plurality of bearing-faces and loosely mounted on said spindles so that they may be rotatably adjusted thereon, and means engaging the pads to hold them in adjusted position, substantially as described.

677,997. **PLOW.** WILLIAM H KOTHMANN, Fieldcreek, Tex. Filed Nov. 23, 1900. Serial No. 37,494. (No model.)



Claim.—1. In a plow, a gage-runner having pivotal connection with the stock, and a brace pivoted to said gage-runner, an iron secured to the rear portion of the beam and composed of a sheet-metal blank doubled upon itself and having the rear portion of the fold cut away to provide a space for the reception of the upper end portion of the aforesaid brace, and means for adjustably connecting said brace with the iron, as and for the purpose set forth.

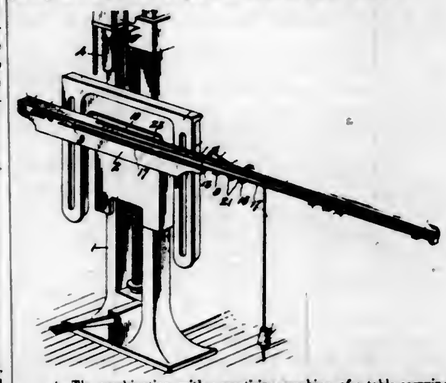
2. A gage-runner for plows and the like composed of a strip or blank of sheet metal having its front portion composed of spaced arms formed by slitting the said blank longitudinally for a short distance from its end and giving a quarter-twist to the parts bordering upon the said slit, substantially as set forth.

677,998. **GAGING AND FACE-MARKING ATTACHMENT FOR MORTISING-MACHINES.** EMIL LEICHT, Winona, Minn. Filed July 18, 1900. Serial No. 34,040. (No model.)

Claim.—1. The combination with a mortising-machine, of a table provided with a longitudinal guideway, a guide below said guideway, slides mounted on said guide and movable in said guideway, and stops carried by said slides, each stop consisting of a spring-actuated bolt vertically movable in its slide and projecting upwardly therefrom and vertically with respect to the table, substantially as set forth.

2. The combination, with a mortising-machine, of a table having a longitudinal guideway, a rod or rods mounted below said guideways, one or more slides mounted on said rods and carrying-stops adjustable lengthwise of the table in said guideway, each stop comprising a spring-actuated pin or bolt extending vertically above the table, substantially as described.

3. The combination, with a mortising-machine, of a table comprising a horizontal plate provided with front and rear flanges and bridge-pieces connecting said flanges at intervals, a series of rods mounted in the bridge-pieces, one between each two adjacent bridge-pieces, one or more slides mounted on each rod and having a head projecting into said slot or guideway, and a spring-pressed pin or bolt mounted in said head and projecting vertically above the guideway, substantially as described.



4. The combination, with a mortising-machine, of a table carrying a series of stops, comprising vertically-extending spring-actuated bolts and having guard-flanges arranged upon opposite sides of an intermediate space, an automatic face-marking device adapted to mark the face of the stile exposed at such space, and means for automatically operating said marker upon the movement of the table, substantially as described.

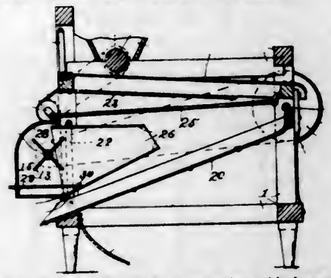
5. In a gaging appliance adapted to be applied to the tables of mortising-machines, a face-marker, and means for automatically operating said marker upon the movement of the table, substantially as described.

6. In a gaging appliance for the tables of mortising-machines, an automatic face-marking attachment comprising a movable arm adapted to carry a marking device to mark the face of the stile, and means operating on said arm for bringing the marking device into contact with the stile and restoring it to a normal position upon the movement of the table, substantially as described.

7. In a gaging appliance for attachment to the tables of mortising-machines, a face-marking attachment comprising a swinging arm carrying a marking device, an operating-rod therefor, and means whereby the rod is moved in one direction as the table is lifted to operate the swinging arm, and moved in the reverse direction when the table is lowered to retract the swinging arm, substantially as described.

8. In a gaging device for attachment to the tables of mortising-machines, a face-marking attachment comprising a pivoted arm carrying at one end a marking device, a rod connected to the other end of the arm, and a weight mounted on said rod, substantially as described.

677,999. **FLAX-CLEANER.** THOMAS F. LOWERY, Bowdon, N. D. Filed Oct. 19, 1900. Serial No. 33,605. (No model.)

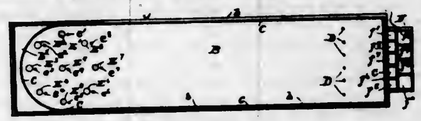


Claim.—In a flax-cleaner, the combination, with the top and bottom screens independently pivoted, one at the receiving end, and the other at the discharge end, a pan carried by the top screen and terminating short of the latter and discharging on the bottom screen, of the bars provided with flexible portions having one end fixed to the screen-frame and the other end connecting the screens together opposite their pivoted ends, substantially as and for the purpose set forth.

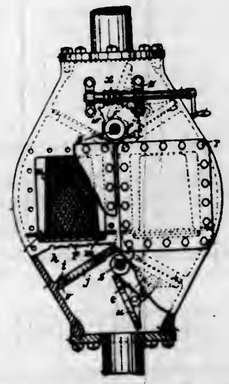
678,000. **PIGEONHOLE-TABLE.** CHARLES LEFSKY, Chicago, Ill. Filed May 26, 1900. Serial No. 18,064. (No model.)

Claim.—A game apparatus comprising an oblong level table or board, having a clear space for the greater part of its length from one

end, and carved at the opposite end thereof, a peripheral rail around the curved end of the table and along the sides to the first-named end, such table provided with a central hole and with additional holes concentric therewith, at the curved end and such holes provided, respectively, with marks to designate them, balls to be moved on the table and through the holes, obstructing-pins in front of the respective holes, a plurality of runways below the table respectively corresponding with the holes in the table and communicating therewith, the runways for the holes adjacent to the curved end of the table extending around and under the runways for the remaining holes, and all of such runways terminating in pockets at the forward end of the table, with the pockets of the lower runways forward of the pockets of the upper runways, and such pockets respectively provided with marks corresponding with the marks of the holes communicating with the runways thereof; substantially as described.



678,001. **COMBINED STRAINER AND VALVE.** GRANT U. MERRILL, Paterson, N. J. Filed Mar. 11, 1901. Serial No. 50,590. (No model.)



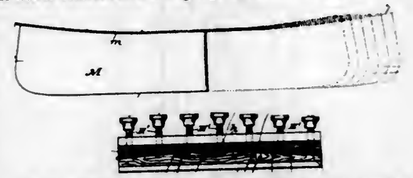
Claim.—1. The combination of a casing having a plurality of passage-ways each having a port at each end, strainers arranged in said passage-ways, valves controlling the ports of said passage-ways, and removable heads at the ends of said casing, said heads having openings affording communication with the interior of said casing, substantially as described.

2. The combination of a casing having substantially parallel passage-ways, each passage-way having a port at each end, a strainer removably arranged in each passage-way, said casing having openings in the side thereof affording access to the strainers, closures for said openings, valves fulcrumed in said casing, the one at one end and the other at the other end of said passage-ways and adapted to close the one or the other of the adjacent ports, and means for operating said valves, said casing having inlet and outlet openings, substantially as described.

3. The combination of a casing having substantially parallel passage-ways, guides arranged in each passage-way, each passage-way having a port at each end, a strainer movable in the guides of each passage-way, said casing having closed openings in the sides thereof opposite said strainers, valves fulcrumed in said casing, the one at one end and the other at the other end of said passage-ways and adapted to close the one or the other of the adjacent ports, and means for operating said valves, said casing having inlet and outlet openings, substantially as described.

678,002. **COLLAR-TRIMMING MACHINE.** HENRY C. MILLER, Waterford, N. Y. Filed Dec. 13, 1900. Serial No. 39,738. (No model.)

Claim.—1. In a collar-trimming machine, the combination with a cutting-bed, a trimming-knife having a cutting edge on a line of contour corresponding with that on which each half portion of the head edge of the collar-top is to be trimmed, and having its said edge of length shorter than the collar to be trimmed, and a reciprocating slide carrying said trimming-knife and guiding it in its delivery of said cutting edge on the said cutting-bed, of a table adjoining said bed and coacting with said cutting-bed for supporting the collar-top to be trimmed, a gage adapted to receive against it the finished end edges, respectively of the two half portions of the collar-top while they are folded longitudinally on each other, and two adjustable gages adapted to control the distance the lines of contour of the finished top edge of the folded collar-top are to be from the line of contour of the cutting edge of said knife, as set forth.



2. In a collar-trimming machine the combination with a cutting-bed, a vertically-adjustable table supporting said bed, mechanism for raising and lowering said table and stationary standard-clamping devices I I connected with a suitable stationary piece of the machine and provided with clamping-heads which hold the upper surface of the ends of said bed when the latter is moved thereto, by said mechanism raising and lowering the table-supporting bed, of a collar-supporting table having its upper surface on a plane with the cutting-surface of the cutting-bed and adjustable in a horizontal direction in relation to the latter, a gaging device secured to said table and projected to a point to adapt it to receive the abutment of the two finished ends of a collar-top when its two half portions are each doubled flat on the other, on said cutting-bed, two width-gaging devices mounted on said collar-supporting table and adapted to receive the abutment of the top edges of the half portions of the collar-top at the same time the two end edges of the same abut the said end-gaging device, a blade having a cutting edge of form corresponding with that of the line of trim each half portion of the collar-top is to receive at its hand edge, and of length shorter than the length of said edge, and mechanism adapted to move at pleasure, the said blade to and from the surface of said cutting-bed, as and for the purposes set forth.

3. In a collar-trimming machine, the combination with a slide, a cutting-bed, a cutting-blade of length shorter than the length of the edge of a collar-top to be trimmed and suitably connected to said slide, of a vertically-adjustable table, supporting said cutting-bed, means for raising and lowering said table in relation to the cutting edge of said blade, an adjustable table adjoining the front edge of said cutting-bed, and gages mounted on the last-mentioned adjustable table and adapted to be adjusted separately and independently in relation to the line at which the cutting edge of said blade may touch the said cutting-bed, as set forth.

4. In a collar-trimming machine, the combination with a cutting-blade of thin flexible steel, of a blade-shaping body-piece having one side plain and the opposite side of contour of form in correspondence with the form of line of trimmed edge to be produced, a case which comprises a horizontal top portion, a vertical flange connected with the same and adapted to support the said blade-shaping body-piece from its plain side, and a second vertical flange and clamping-screws working through said second flange and adapted to be screwed tight against the said blade and loosened therefrom at pleasure, as set forth.

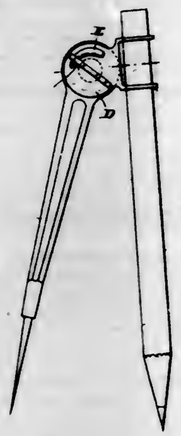
5. In a collar-trimming machine, the combination with stationary ears connected with a fixed base-piece, bolster-clamping devices which are supported from said ears with their lower sides at a standard distance from the upper surface of said ears, a material-supporting table having its upper surface on a line on a plane with the plane of the said lower sides of said bolster-clamping devices, a cutting-bed adapted to be clamped from the upper surface of the outer end portions thereof, an adjustable table which supports said cutting-bed and is adapted to carry and hold said bed with its upper surfaces on a plane with that of said material-supporting table, as set forth.

6. In a collar-trimming machine the combination with a cutting-bed adapted to be moved laterally in either direction, a material-supporting table having its material-supporting surface on a line on a plane with the cutting-surface of said cutting-bed, a bracket holding said table with its supporting-surface on a plane with that of the upper surface of said cutting-bed, and provided with a horizontal guiding device and adapted to allow said table to be moved horizontally in either direction in relation to said cutting-bed, and means for securing said bed from being accidentally moved, when adjusted, as set forth.

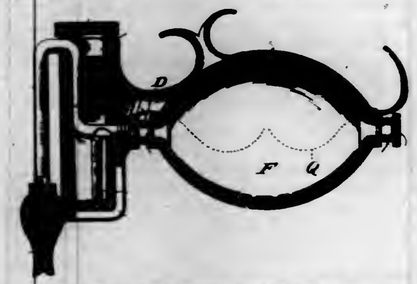
678,008. **LOCKING DEVICE FOR COMPASSES, &c.** LEOPOLD MYERS, Birmingham, England. Filed Mar. 7, 1900. Serial No. 7,690. (No model.)

Claim.—In combination in a compass, the limb A, brackets C, C, having disk parts D secured thereto, one of the said parts having an inclined protuberance on the outer side of the disk part and a key passing

through all of the said parts and bearing upon the protuberance, substantially as described.

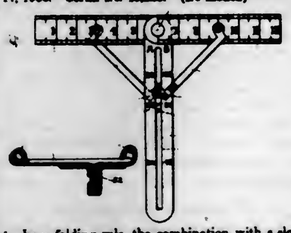


678,004. FOUNTAIN-COMB. SAMUEL L. MYERS, Texarkana, Ark. Filed Aug. 18, 1900. Serial No. 27,253. (No model.)



Claim.—A device of the character described comprising a receptacle provided with a filling-opening, a removable cap closing said opening, a pipe positioned in said receptacle and projecting at its ends through the front and rear walls thereof and having a branch pipe extending downwardly in the receptacle, a handle secured to the rear side of the receptacle, a bulb secured beneath said handle and communicating at its outlet end with the projecting end of the pipe and having an inlet at its opposite end, valves controlling said inlet and outlet, a tubular head positioned upon the front side of the receptacle and communicating with the other end of the pipe, and a plurality of teeth depending from said head and having passages extending therethrough and communicating with the head, substantially as described.

678,005. FOLDING RULE. WILLIAM M. MYERS, St. Joseph, Mo. Filed Dec. 17, 1900. Serial No. 40,235. (No model.)



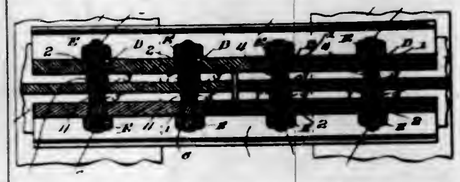
Claim.—1. In a folding rule, the combination with a slotted body, of two rules pivotally attached thereto, arranged to be synchronously rotated upon said pivotal attachment by two pivotally-attached connecting-rods located upon opposite sides of said rules and the other ends of said connecting-rods being pivotally attached to the block upon opposite sides of the body portion and arranged to be driven by a pivotally-attached block carrying a line or pointer along the slot in said slotted body, said line or pointer arranged to be secured in register with any desired line of two suitably-arranged scales upon said slotted body, said rods being offset at their ends and pivots in said offsets, as shown and described.

2. In a folding rule, the combination with a slotted body, of a block arranged to travel in the slot of said body and to be secured to said body at any desired point along said slot and to drive two pivotally-attached connecting-rods located upon opposite sides of said rules and arranged to rotate two pivotally-attached rules upon a pivot in said slotted body and pivotally connected to the sliding block upon opposite sides of the body portion, said rules being provided with suitably-arranged scales and said rods being offset at their ends, and pivots in said offsets, as shown and described.

3. In a folding rule, the combination with two rules, of an extension-arm and with pencil-holding means at the two terminals of said arm said arm being adapted to slide upon said rules the said rules being arranged to be synchronously rotated upon a pivot in a slotted body having suitably-arranged scales and to be driven in said rotation by two pivotally-attached connecting-rods located upon opposite sides of said rules and offset at their ends a block to which the opposite ends of said rods are pivotally connected upon opposite sides of the body portion, said block being provided with a line or pointer arranged to be carried by said block along the slot in said slotted body and a threaded center point carried by said block, as set forth.

4. In a folding rule an extension-arm having integrally-bent terminals to receive pencils or the like, and between said terminals formed with an integral slide portion extending at right angles to the body of the arm, substantially as and for the purpose specified.

678,006. RAILROAD-RAIL JOINT. RICHARD J. MCCARTY, Kansas City, Mo. Filed Mar. 21, 1901. Serial No. 52,226. (No model.)



Claim.—1. A rail-joint comprising abutting rail ends and opposed splice-bars resting upon the ties and supporting the rails, and bridging the joint between the rails and each rigidly bolted at one of its ends to one rail end and having its other end overlapping and slidingly connected to the abutting rail end.

2. In a rail-joint the combination of the abutting rails, the opposed supporting splice-bars bridging the joint between said rails and the bolts passing through said splice-bars and rails: said bolts having tightly-fitting ends passing through the rail-webs and one end of each splice-bar rigidly and immovably connecting said end of each splice-bar to a rail end, and having loosely-fitting ends passing through and slidingly or movably securing the other end of each splice-bar to the abutting rail which it overlaps.

3. In a rail-joint, the combination of abutting rails, opposed supporting splice-bars bridging the joint between said rails, and bolts in the respective rails having shoulders engaging the rail-webs, bolt ends projecting in one direction from said shoulders, passing through and tightly fitting openings in said rail-webs and passing through and tightly fitting openings in an adjacent end of the splice-bar, and rigidly or immovably securing it to the rail, and bolt ends projecting in the other direction from said shoulders passing through and loosely fitting openings in the projecting and overlapping ends of the rigidly-attached splice-bars, thereby slidingly connecting each of the latter to the abutting rail.

4. In a rail-joint, the combination of the abutting rails, the opposed splice-bars bridging the joint between said rails and bolts securing the respective ends of each splice-bar to the abutting rails, the one movably and the other immovably, the movably-connected end of one splice-bar being opposed to the immovably-connected end of the other splice-bar; said bolts being formed each with an intermediate shoulder engaging the rail-web, and with tightly and loosely fitting ends, projecting in opposite directions from said shoulder and provided with nuts for the purpose set forth.

5. In combination with abutting rails and opposed bridging splice-bars, bolts, each extending through the rails and having its end fitting respectively, tightly and loosely in openings in the splice-bars and secured by nuts on both said ends, and an intermediate shoulder engaging the rail-web in opposition to the nut on the tightly-fitting end and having its loosely-fitting end flattened to secure it against turning.

678,007. TUB-FOOT FASTENER. WILLIAM C. MCKINNEY and JOHN F. WHITEHEAD, New Brighton, Pa., assignors to the Standard Sanitary Manufacturing Company, Pittsburg, Pa. Filed Nov. 16, 1900. Serial No. 36,745. (No model.)



Claim.—1. The combination with a tub having a seat on the bottom thereof, of a bolt engaging said seat and projecting downwardly therefrom, a tub-foot having a tongue through which said bolt passes, said tongue increasing in thickness at its outer end, and a nut engaging said bolt.

2. The combination with a tub, of a tub-foot, a tongue on said tub-foot, the upper face of said tongue engaging said tub, the upper face of said tongue being inclined, means for securing said tub-foot to said tub, and means for adjusting said tongue to regulate the height of said bub.

3. The combination with a tub, of a tub-foot, a tongue on said tub-foot, said tongue having an inclined upper face, lugs on the bottom of said tub forming a seat for a bolt, the upper face of said tongue engaging said lugs and conforming thereto, and a downwardly-projecting bolt for securing said tub-foot to said tub.

4. The combination with a tub, of a tub-foot, a tongue on said tub-foot, said tongue having an inclined upper face, lugs on the bottom of said tub forming a seat for a bolt, the upper face of said tongue engaging said lugs and conforming thereto, a downwardly-extending bolt for securing said tub-foot to said tub, and stops on said lugs to prevent lateral movement of said tongue.

678,008. DRAIN-BOARD. WILLIAM C. MCKINNEY, New Brighton, Pa., assignor to the Standard Sanitary Manufacturing Company, Pittsburg, Pa. Filed Nov. 16, 1900. Serial No. 36,787. (No model.)



Claim.—1. A drain-board for sinks having a curved portion adapted to fit over the end of the roll-rim of the sink, and a curved extension adapted to fit over the front roll-rim of said sink.

2. A drain-board for sinks comprising a wooden body portion and a metallic attachment at one end thereof having a curved portion adapted to fit over the end of the roll-rim of the sink, and said attachment having a curved extension adapted to fit over the front roll-rim of said sink.

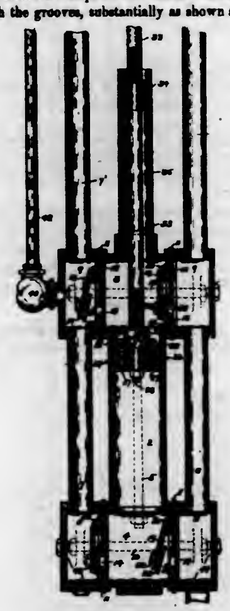
3. A drain-board for sinks comprising a wooden body portion having a groove formed along one end thereof, a metallic attachment having a rib adapted to enter said groove the upper face of said attachment being flush with said body portion, screws through said body portion and entering said rib, and said attachment having a curved portion adapted to fit over the roll-rim of said sink.

678,009. PUMP. WILLIAM S. MCLEOD, Kingsville, Canada. Filed Oct. 9, 1900. Serial No. 32,696. (No model.)

Claim.—1. The combination of a vertically-apertured plunger, a vertically-movable and revolubie valve coöperating therewith, and a vertical guide for the valve formed with spiral grooves on its guiding-face, whereby water coursing through the said grooves causes the valve to rotate, substantially as shown and described.

2. An improvement in pumps, comprising a vertically-apertured plunger, a plunger-stem spirally grooved immediately above the plunger, and a valve-disk movable vertically on said grooved portion of the stem and adapted to be rotated thereon by the action of the water passing through the grooves, substantially as shown and described.

3. An improvement in pumps, comprising a vertically-apertured plunger, a stem, said plunger consisting of two glass disks and two packing-cups secured on the stem, the stem immediately above the plunger being grooved spirally, and a glass valve-disk movable vertically on said spirally-grooved stem and adapted to be rotated thereon by upward flow of water through the grooves, substantially as shown and described.

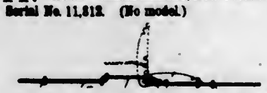


678,010. PLASTERING COMPOSITION. HENRY C. MCMILLIN, Clarksburg, W. Va., assignor of one-half to Patrick F. McDonnell, same place. Filed Mar. 26, 1901. Serial No. 52,759. (No specimens.)

Claim.—1. A composition of matter for use as a plaster consisting of calcined plaster, domestic cement, sand, sulfate of zinc, grape-sugar, hair, and water, substantially in the proportions specified.

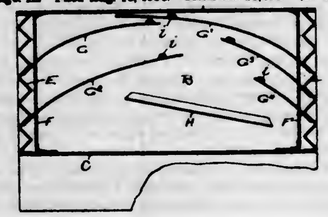
2. A composition of matter for use as a plaster, consisting of the following ingredients by weight: calcined plaster, sixty (60) pounds, domestic cement, forty (40) pounds, sharp clean sand, two hundred and fifty (250) pounds, sulfate of zinc, two (2) ounces, grape-sugar, eight (8) ounces, hair, eight (8) ounces, and water, one hundred and sixty (160) pounds.

678,011. HOOP. ARON MALTBY, New York, N. Y. Filed Apr. 6, 1900. Serial No. 11,812. (No model.)



Claim.—A hoop for knockdown barrels and the like provided with loops at its ends, an intermediate sliding link engaged with one of said end loops, a locking-lever pivotally secured to a loop and provided with one or more notches for engaging the link at the opposite end, and means for locking the said locking-lever in its engaged position to hold the hoop tightly drawn, substantially as set forth.

678,012. SCENIC STRUCTURE. HARDESTY G. MARATTA, Chicago, Ill. Filed Aug. 10, 1900. Serial No. 26,460. (No model.)



Claim.—1. In a scenic structure having a background, a ground and a proscenium or frame, wings having curved surfaces and arranged at an angle to the proscenium.

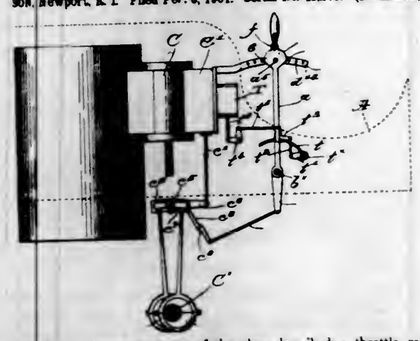
2. In a scenic structure having a background, a ground and a proscenium or frame, the wings having curved surfaces, said curved surfaces being placed at varying angles to the background, the angles for the wings increasing in the wings nearer the proscenium, substantially as specified.

3. A collapsible or foldable scenic structure having a background, a proscenium or frame and wings having curved surfaces and adapted to assume an angle to the proscenium or frame when the structure is unfolded.

4. A collapsible or foldable scenic structure having a background, a ground, a proscenium or frame and bellows sides connecting the proscenium or frame and background, and wings having curved surfaces and attached to the bellows sides.

5. A collapsible or foldable scenic structure having a background, a ground hinged thereto, a proscenium or frame, bellows sides connecting the proscenium and background, wings having curved surfaces and attached to the bellows sides and means for holding the structure in unfolded or extended position.

678,013. CONTROLLING MEANS FOR MOTORS. KARL P. MASON, Newport, R. I. Filed Feb. 6, 1901. Serial No. 46,279. (No model.)



Claim.—1. In an apparatus of the class described, a throttle, reversing mechanism, including a link, a manually-operated compound controller therefor comprising two pivotally-connected members, one being supported wholly by the other, said members having a movement in unison and also a relative movement, in the same path, a single handpiece for the said controller, and operating connections between the latter and the reversing mechanism, bodily movement of the controller from neutral position operating one of the said devices, and subsequent relative movement of the members of the controller in the same path, and on their pivotal connection operating the other of said devices.

2. In apparatus of the class described, a throttle, reversing mechanism, including a link, a manually-operated compound controller the members whereof are movable simultaneously or relatively to each other, connections between the reversing mechanism and controller, operated by bodily movement of the latter, to regulate the position of the link, and independent connections between the throttle and the controller, operative by relative movement of the members of the latter at any point in its bodily path of movement.

3. In apparatus of the class described, a throttle, reversing mechanism, including a link, a compound controller having a bodily-swinging movement, to actuate the reversing mechanism and set the link at the desired point for forward or backward movement, said controller comprising two pivotally-connected members, a manually-operated lock to prevent relative movement of said members, and connections between one of said members and the throttle, operated by relative movement of the members in the plane of movement of the controller as a whole.

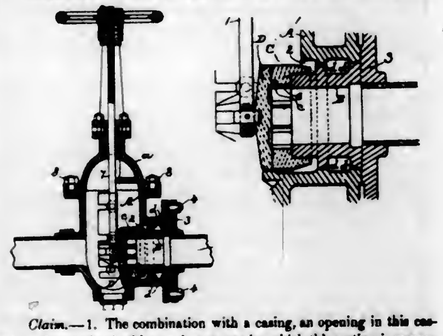
4. In apparatus of the class described, power regulating and reversing mechanisms, a compound controller therefor comprising a swinging support and a handpiece pivotally mounted directly upon and wholly sustained by said support, to rock in the same path, a manually-operated lock to prevent relative movement of said members, and independent connections between said mechanisms and said members of the controller, movement of the support operating one mechanism, and rocking movement of the handpiece upon the swinging support when unlocked operating the other mechanism.

5. A reversing-lever, a handpiece pivotally mounted thereon and movable relatively to said lever, means carried by the lever to limit the throw of the handpiece, means to maintain the lever at different points in its path until positively moved, a manually-controlled lock to prevent movement of the handpiece relatively to the lever, and power regulating and reversing mechanisms operated respectively by relative movement of the handpiece and movement therewith in unison with the lever.

6. A swinging lever, reversing mechanism operated by movement thereof, a handpiece pivotally mounted on the lever to rock in the plane of movement thereof and having a cam, a link in engagement with the cam and movable longitudinally of the lever when the handpiece is rocked on its fulcrum, a rock-shaft provided with a segmental arm concentric with the fulcrum of the lever and having a sliding connection with the link, whereby longitudinal movement of the latter will rock the arm and rock-shaft, power-regulating means operated thereby, and a manually-governed lock to connect the handpiece and lever, to move them in unison.

7. In apparatus of the class described, two independent mechanisms, a manually-operated compound controller therefor the members of which have a movement in unison and also a relative movement in the same plane, and operating connections between said mechanisms and the controller, whereby such different movements of the controller are made effective to independently operate said mechanisms.

678,014. REMOVABLE VALVE-SEAT. ELIJAH H. MERRILL, San Francisco, Cal. Filed Nov. 24, 1900. Serial No. 37,606. (No model.)



Claim.—1. The combination with a casing, an opening in this casing, a pipe-section in this opening, means by which this section is removably secured to the casing, a ring fitting the inner end of this section, and having a flange portion of greater thickness than the pipe-section, said flange adapted to extend over the edge of the pipe-section and forming a valve-seat, means by which this ring may be removed from the pipe-section and a valve engaging said valve-seat.

2. The combination with a casing, a pipe-section entering the same and means whereby the pipe-section is detachably secured to the casing, a valve, a ring detachably fitted to the end of the pipe-section and having a flanged face portion of greater diameter than the pipe-section, adapted to extend over the edge of the pipe-section and form a valve-seat and extended bearing, said ring having interior grooves which may be engaged by a tool to detach the ring, and said casing having an opening of sufficient size to admit the pipe-section and its ring.

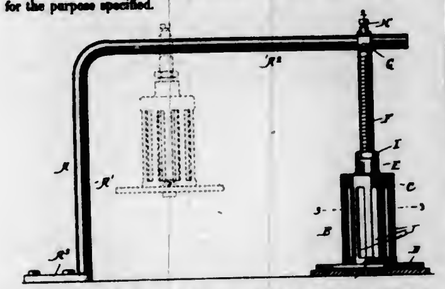
678,015. VEHICLE. JAMES H. MOSINGER, Columbus, Ohio. Filed Feb. 14, 1901. Serial No. 47,282. (No model.)



Claim.—In a vehicle, the combination with an open piano-box buggy-body, of a separately-formed top and top frame comprising connected top-frame standards and a forward cross frame-piece 14 and means for adjustably uniting said top with said body, substantially as specified.

678,016. PROTECTOR FOR WOODWORKING-MACHINES. JAS. M. MOWATT and ALEXANDER MOWATT, Springfield, Ohio. Filed Jan. 2, 1901. Serial No. 41,758. (No model.)

Claim.—1. A protector for woodworking machinery consisting of a bell-shaped portion having a protecting-ring secured to its lower edge, a standard having a horizontal member extending directly over the cutters of the machine, a screw-rod adapted to slide along the horizontal member of the standard, the bell-shaped portion and ring adapted to be suspended by and adjustable upon said screw-rod, means located upon the horizontal member of the standard for stopping and centering the movable members of the protector directly over the cutters, substantially as described and for the purpose specified.



2. In combination with an apparatus of the character described, a standard secured to the bed-plate of the machine and having a horizontal member extending directly over the cutters of the machine, a screw-rod suspended from said horizontal member along which said screw-rod is adapted to be adjusted, means for centering and clamping said screw-rod in place upon the horizontal member, a shield threaded upon said screw-rod so as to be suspended by and adjusted vertically thereupon, consisting of a bell-shaped portion and a removable protecting-ring secured to the lower end of the bell, openings formed through the bell-shaped portion and the ring, and a lock-nut also threaded upon the screw-rod F for the purpose of clamping the shield in place, substantially as described and for the purpose specified.

3. In combination with an apparatus of the character described, a standard secured to the bed-plate of the machine having a horizontal member A^2 extending directly over the cutters of the machine, a screw-rod F suspended from said horizontal member A^2 by means of the eye G formed with said screw-rod through which the horizontal member A^2 protrudes, a pin *a* formed upon the horizontal member A^2 adapted to register with and enter a cavity in the eye G for the purpose of stopping and centering the screw-rod directly over the cutters, a set-screw adapted to clamp the eye G in place upon the horizontal member A^2, a shield B consisting of the bell-shaped portion C adapted to be threaded upon the screw-rod F, and a flat ring D removably secured to the lower end of the bell-shaped portion C, openings J formed through the walls of the bell-shaped portion C, openings K formed through that portion of the ring which lies outside of the bell-shaped portion C, and a lock-nut threaded upon the screw-rod F and adapted to be bound against the bell-shaped portion C for the purpose of clamping the same in place, substantially as described and for the purpose specified.

678,017. MOLD FOR SHAPING ICE. HARRY A. MACGLYNNEY, Hammond, Ind., and WILLIAM F. SIMS, Chicago, Ill. Filed July 27, 1900. Serial No. 24,973. (No model.)



Claim.—1. A mold for shaping ice, comprising two separable parts having recessed mold-faces and engaging edges and means for heating said edges.

2. A mold for shaping ice, comprising two parts having recessed mold-faces, and means for heating said parts, and connections between said parts for opening and closing the mold.

3. A mold for shaping ice, comprising two parts, either or each of said parts having a hollow chamber adjacent to the mold-face, and means within said chamber for heating said mold-face.

4. A mold for shaping ice, comprising two parts having engaging edges, either or each of said parts having a hollow chamber adjacent to said edges, and means within said chamber for heating said edges.

5. A mold for shaping ice, comprising two parts, either or each of said parts having a hollow chamber adjacent to the mold-face, and means for circulating hot water through said chamber.

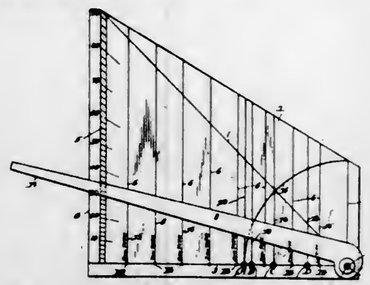
6. A mold for shaping ice, comprising two parts, either or each of said parts having a hollow chamber adjacent to the mold-face, a hot-water-feed pipe in said chamber discharging against the wall adjacent to said mold-face, and an efflux-pipe from said chamber.

7. A mold for shaping ice, comprising two parts having engaging edges, either or each of said parts having a hollow chamber adjacent to the mold-face and said edges, a hot-water-feed pipe in said chamber discharging against the walls adjacent to said edges, and an efflux-pipe leading from said chambers.

8. A mold for shaping ice, comprising two parts each having a die-face detachably secured therein, and means for heating the die-face.

9. A mold for shaping ice, comprising a frame, a part mold secured to said frame, a part mold having movable connections with said frame whereby said mold may be closed, and means for heating one or both of said part molds.

678,018. METAL-WORKER'S PROTRACTOR-PATTERN. JAMES M. MCFARLAND, Los Angeles, Cal. Filed Feb. 2, 1901. Serial No. 45,774. (No model.)



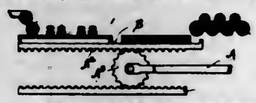
Claim.—1. A device of the class set forth having a lower straight edge and a base-line above the latter and parallel therewith, a degree-scale extending along one end edge, an arc divided into an arbitrary number of equal parts from the division-points of which perpendiculars are drawn to said base-line, a line tangent to the said arc and parallel to the said perpendiculars and also intersecting the base-line, lines parallel to the perpendiculars and intersecting the base-line to designate different sizes of pipes, and a blade or strip having a lower straight edge to aline with the marks of the degree-scale and provided with a pivoting device, the central portion of the latter being used as the center to describe the said arc.

2. A device of the class described having a lower straight edge and a base-line above the latter and parallel therewith, a degree-scale extending along one end edge, an arc divided into an arbitrary number of equal parts from the division-points of which perpendiculars are drawn to said base-line, a line tangent to said arc and parallel to the perpendiculars and also intersecting the base-line, lines parallel to the perpendiculars and intersecting the base-line to designate different sizes of pipes, the points on the base-line where the said tangent and perpendiculars intersect therewith being distinguished by particular marks and the lines designating the sizes of pipes being supplied with means indicating the successive sizes which increase regularly from the end of the body on which the arc is located toward the degree-scale, and a blade or strip movable over the body and formed with a lower straight edge to aline with the marks of the degree-scale and also having an end projection which is pivoted to the body, the pivoting device for said blade or strip having a center cavity which forms the center for said arc and with which said straight edge of the blade or strip is in direct alinement.

678,019. INK-DISTRIBUTER. JOSEPH S. MCKINLEY, Cincinnati, Ohio, assignor of one-half to Edward Joos, George W. Handman, and William Wehrman, same place. Filed Nov. 30, 1900. Serial No. 38,243. (No model.)

Claim.—1. In a device of the class described, in combination with an inking-roll, a spreading-roll journaled above the same, means for rotating said spreading-roll, mechanism adapted to reciprocate said spreading-roll and to yield vertically to inequalities without being disconnected,

and means for positively reversing the lateral travel of the spreading-roll at the initial ends of the platen travel, substantially as specified.



2. In a device of the class described, the combination of a traveling bed, an inking-roll driven thereby, a spreading-roll journaled above said inking-roll, means for rotating said spreading-roll, mechanism for laterally reciprocating said spreading-roll, and means at each end of the spreading-roll for automatically connecting and disconnecting said mechanism whereby the travel of the spreading-roll is reversed simultaneously with the initial reverse travel of the bed, substantially as specified.

3. In a device of the class described, the combination with a traveling bed, of an inking-roll driven thereby, a spreading-roll journaled above the inking-roll, means for positively rotating said roll, vertically-yielding mechanism for laterally reciprocating said spreading-roll, and means for automatically connecting and disconnecting said mechanism whereby the travel of the spreading-roll is reversed simultaneously with the initial reverse travel of the bed, substantially as specified.

4. In a device of the class described, the combination with a traveling bed of an inking-roll driven thereby, a spreading-roll journaled above the inking-roll, means for positively rotating said spreading-roll, mechanism actuated by the spreading-roll for reciprocating said roll laterally, the said mechanism being adapted to yield vertically, and means for automatically connecting and disconnecting said mechanism at the ends of the lateral movements of the spreading-roll, whereby the travel of the spreading-roll is reversed simultaneously with the initial reverse travel of the bed, substantially as specified.

5. In a device of the class described, the combination with a traveling bed of an inking-roll driven thereby, a spreading-roll journaled above said roll, means for rotating said spreading-roll positively, a worm-driver on the frame, a worm formed on the spreading-roll, and means formed on each end of said worm adapted to be engaged by the worm-driver causing the roll to revolve without lateral movement whenever it reaches the end of its travel before the end of the bed travel and to automatically reëngage at the end of the bed travel, substantially as specified.

6. In a lithographing-press, in combination with the inking-rolls, a journal attached to the side frame, a vertically-yielding yoke-driver attached to the side frame, a floating spreading-roll, one end of which engages said journal, a worm-shaft formed on said roll adapted to rest upon said yoke worm-driver, and means for positively rotating the said spreading-roll, substantially as specified.

7. In a lithographing-press, in combination with the inking-rolls, a journal attached to the side frame, a spring-controlled worm-driver attached to the side frame, a spreading-roll supported in said journal and adapted to yield vertically, a worm-shaft formed on said spreading-roll resting upon the said worm-driver and adapted to be operated thereby, and means for rotating the said gear positively whereby the spreading-roll is laterally reciprocated and free to rise from its journal-supports and drop back into engagement with the gear and worm connections, substantially as specified.

8. In a lithographing-press, in combination with the inking-rolls, a journal-bracket attached to the side frame, a spreading-roll, one end of which rests in the said journal, means for reciprocating the said spreading-roll, the said means being adapted to yield vertically without disconnecting, a rack secured to the journal-bed, a gear journaled on said bracket engaging said rack, and a gear feathered and splined on the spreading-roll shaft engaging the first-named gear, substantially as specified.

9. In a lithographing-press, in combination with the inking-rolls, a floating spreading-roll journaled above the inking-rolls, a worm at one end of the spreading-roll shaft, a spring-controlled worm-driver supported on the side frame upon which the worm of the spreading-roll shaft yieldingly rests, and means for rotating said spreading-roll, substantially as specified.

10. In a lithographing-press, in combination with the inking-rolls, a journal-bracket attached to the side frame, a spring-controlled yoke worm-driver swiveled to the side frame, a spreading-roll, the ends of which engage the said journal-bracket and worm-driver, the said roll being free to rise vertically, a worm on the spreading-roll engaging the worm-driver, a rack on the traveling bed, a gear journaled on the journal-bracket engaging said rack, and a gear feathered and splined on the spreading-roll shaft, and engaging the first-named gear, whereby the said spreading-roll is positively rotated and reciprocated laterally, but is free to rise from its journals and drop back into engagement with said gear and rack connections, substantially as specified.

11. In a device of the class described, the combination with a traveling bed of an inking-roll driven thereby, a spreading-roll journaled above the inking-roll, means for positively rotating said spreading-roll, a worm-driver on the machine-frame, a worm on the spreading-roll, and a cam at each end of the worm adapted to insure the reciprocation of the spreading-roll at the ends of the bed travel, substantially as specified.

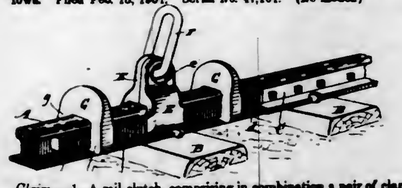
12. In a device of the class described, the combination with a bed of an inking-roll driven thereby, a spreading-roll journaled above the inking-roll, means for positively rotating the spreading-roll, a worm on the spreading-roll, a spring-controlled worm-driver adapted to have vertically-yielding engagement and disengagement with said worm, substantially as specified.

13. In a device of the class described, the combination with a traveling bed, of an inking-roll driven thereby, a spreading-roll journaled above the inking-roll, means for positively rotating the spreading-roll, a worm on the spreading-roll, a spring-controlled worm-driver swiveled on the machine-frame and adapted to have yielding engagement and disengagement with said spreading-roll, substantially as specified.

14. In a device of the class described, the combination of a traveling bed, an inking-roll driven thereby, a spreading-roll journaled above said inking-roll, means for rotating said spreading-roll positively, a worm on the end of said spreading-roll, a spring-controlled worm-driver mounted on the machine-frame adapted to have vertically-yielding engagement and disengagement with said worm, and a cam formed at each end of the worm adapted to arrest the lateral travel of the spreading-roll at intermediate points of the bed travel, and to automatically reëngage said reciprocating mechanism at the ends of the bed travel, substantially as specified.

15 In a device of the class described, in combination with an inking-roll, a spreading-roll, a worm-driver, a worm on the spreading-roll, a cam at the end of the worm-threads having an inclined shoulder adapted to engage the worm-driver when the roll is traveling toward said end, and an abrupt shoulder adapted to engage the driver when the roll is rotated in the opposite direction to throw the worm-driver and worm-threads into reëngagement for the reverse travel of the roll, substantially as specified.

678,020. RAIL-CLUTCH. JOHN H. MCPARTLAND, Burlington, Iowa. Filed Feb. 13, 1901. Serial No. 47,101. (No model.)



Claim.—1. A rail-clutch, comprising in combination a pair of clamping-arms having their lower portions adapted to lie in the hollow of the rail on opposite sides thereof, and a pair of clasps adapted to embrace the rail and the clamping-arms over the top thereof and longitudinally slidable thereover, and serving to lock said clamping arms to the rail, substantially as described.

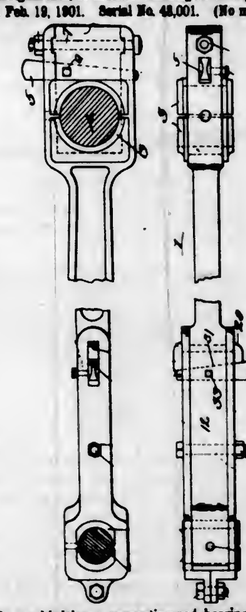
2. A rail-clutch, comprising in combination a pair of oppositely-disposed clamping-arms, each of which has a lower horizontal member adapted to fit in the hollow of the rail and a vertical shank rising therefrom and extending up over the top of the rail, of a pair of clasps adapted to embrace the rail and the horizontal members of the clamping-arms over the top thereof and longitudinally slidable thereover, and serving to lock said clamping-arms to the rail, substantially as described.

3. In a rail-clutch, the combination with a pair of bars adapted to fit in the hollow of a rail on opposite sides thereof, of a pair of shanks formed integral with and rising from said bars intermediate their respective ends, and at their upper ends meeting above the rail, and a pair of inverted-U-shaped clasps adapted to overlie the rail and the said bars and longitudinally slidable thereover and serving to lock said clamping-arms to the rail, substantially as described.

4. In a rail-clutch, the combination with a pair of bars adapted to fit in the hollow of a rail on opposite sides thereof, of a pair of eyelated shanks formed integral with and rising from said bars and at their upper ends meeting over the rail, a ring secured through the registering eyes of said shanks, and a pair of inverted-U-shaped clasps adapted to embrace the rail and the said bars and lock the latter to the rail, substantially as described.

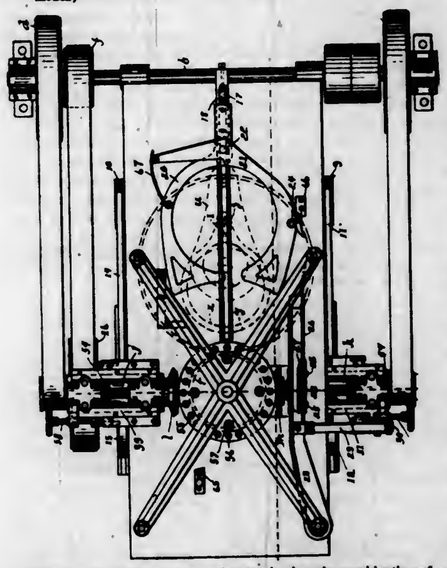
5. In a rail-clutch, the combination with a pair of bars adapted to fit in the hollow of a rail on opposite sides thereof, of a pair of eyelated shanks formed integral with and rising from said bars and at their upper ends meeting over the rail, a ring secured through the registering eyes of said shanks, and a pair of inverted-U-shaped clasps adapted to embrace the rail and the said bars, the said clasps having a pair of inwardly-extending lips formed on their lower ends which engage the under sides of said bars and force the latter into snug engagement with the under surface of the ball of the rail, substantially as described.

678,021. CONNECTING-ROD FOR ENGINES. LEMON G. HEELY, FRANK KOSLEY, and CHARLES J. MAGOMBER, St. Marys, Ohio, assignors, by mesne assignments, to Muncie Gas Engine & Supply Co., Muncie, Ind. Filed Feb. 19, 1901. Serial No. 48,001. (No model.)



Claim.—In combination, a connecting-rod, bearings mounted in one end thereof, a pair of straps having flanged ends for retaining the bearings to the end of the rod, means for connecting said flanged ends of the straps together, means extending through said straps and rod for slidably connecting the former to the latter, and means extending through said straps and rod for adjusting the former, causing thereby the adjustment of the bearings.

678,022. HEAD-CUTTING MACHINE. WILLIAM B. NICHOLS, Winchendon, Mass. Filed Aug. 16, 1900. Serial No. 27,080. (No model.)



Claim.—1. In a rotary clamping mechanism the combination of a supporting-frame; a pair of coöperating clamps rotatably mounted in said frame; the upper one of said clamps being provided with teeth and formed with bolt-holes; a plate suspended from said upper clamp by bolts which are slidable in said bolt-holes; said plate being apertured for the passage of said teeth; said bolts; and mechanism for moving the lower clamp toward the upper and for rotating the clamps.

2. In a head-cutting machine, the combination of a clamping mechanism; a slide connected to said clamping mechanism by a lug on one engaging a cam-slot in the other, the reciprocations of said slide throwing the clamping mechanism into and out of engagement; means operatively connecting said slide with a driving mechanism which reciprocates said slide; and said driving mechanism connected to said connecting means by a lug on one engaging an elongated slot in the other, thereby permitting said clamping mechanism to rest while the lug traverses said elongated slot.

3. In a head-cutting machine, the combination of a clamping mechanism; a slide connected to said clamping mechanism by a lug on one engaging a cam-slot in the other; a cutting mechanism; a slide connected to said cutting mechanism by a lug on one engaging a cam-slot in the other; means operatively connecting said slides with a rock-shaft; said rock-shaft; and a driving mechanism which oscillates said rock-shaft to clamp the stock and throw the cutting mechanism into contact therewith.

4. In a mechanism for moving an arm of the carrier-frame out of the way of the cutter, the combination of a cutter-carriage; mechanism for reciprocating said cutter-carriage; a carrier-frame having a movable arm; a lever which engages said movable arm; and mechanism operatively connecting said lever and said cutter-carriage.

5. In a mechanism for moving an arm of the carrier-frame out of the way of the cutter, the combination of a cutter-carriage; mechanism for reciprocating said cutter-carriage; a lever reciprocated by said cutter-carriage; a carrier-frame having a movable arm; a lever which engages a stud on the arm of the carrier-frame; and a link connecting said levers.

6. In a mechanism for pressing the pieces of barrel-head together, the combination of a lever; a strap on said lever; a carrier-frame, one arm of which is movable and engages said strap; and mechanism for moving said carrier-frame to feed the pieces of barrel-head and to engage said arm and said strap.

7. The combination of a driving mechanism; a carrier-frame reciprocated by said driving mechanism and connected thereto by a lug on one engaging a slot in the other; coöperating clamps one of which is raised to clamp the stock and to free the carrier-frame of the barrel-head at the end of its feeding movement; mechanism for raising said clamp; a cutting mechanism; mechanism for throwing said cutting mechanism into contact with the stock when it is clamped; and a screw-and-nut adjusting mechanism for adjusting said carrier-frame to synchronize the end of its feeding movement and the movement of said clamp and cutting mechanism.

8. In a head-cutting machine, a mechanism for moving the cutter into and out of contact with the stock comprising a driving mechanism; an eccentric; an eccentric-strap; mechanism operatively connecting said eccentric-strap with coacting slides; said coacting slides, a lug on one engaging a cam-slot in the other, one of said slides being connected with said eccentric-strap, and the other carrying a cutter; and said cutter.

9. In a head-cutting machine, a mechanism for moving the cutter into contact with the stock and holding the cutter in contact with the stock, said mechanism being made up of the combination of a carriage upon which the cutter is mounted; mechanism for reciprocating said cutter-carriage; a reciprocating member which connects said mechanism with a driving mechanism; said member and said mechanism for reciprocating the cutter-carriage being connected by a lug on one engaging in an elongated slot in the other, thereby permitting the cutter to dwell in contact with the stock while the lug traverses the slot; and said driving mechanism.

10. In a head-cutting machine, a mechanism for moving the cutter into contact with the stock and holding the cutter in contact with the stock during the rotation of the stock comprising a driving mechanism; an eccentric; an eccentric-strap formed with an elongated slot; a rack formed with a lug which engages said slot; mechanism connecting said rack with coacting slides, a lug on one of said slides engaging a cam-slot in the other; and a cutter mounted on one of said slides.

11. In a head-cutting machine, a mechanism for clamping and rotating the stock comprising coacting slides, a lug on one engaging a slot in the other; reciprocating mechanism operatively connected with one of said slides; a lever connected to the other of said slides; a clamp-shaft rotatably mounted in said lever; a rotary mechanism into and out of engagement with which said clamp-shaft is thrown by the reciprocation of said slides; and coöperating clamps.

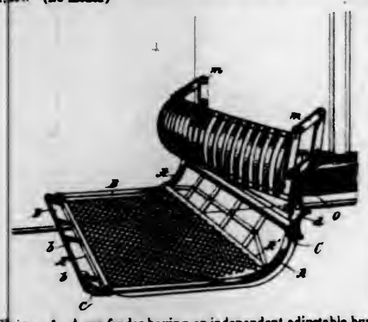
12. In a head-cutting machine, a mechanism for clamping and rotating the stock comprising a driving mechanism; an intermittently-reciprocating member connected to said driving mechanism by a lug on one engaging an elongated slot in the other; coacting slides, one connected with said intermittently-reciprocating member and the other with a lever; said coacting slides being connected by a lug on one engaging a slot in

the other; a clamp-shaft rotatably mounted in said lever; a rotary mechanism into and out of engagement with which said clamp-shaft is thrown by the reciprocations of said slides; and coöperating clamps.

13. A head-cutting machine made up of a supporting-frame; a driving mechanism; a feeding mechanism comprising a carrier-frame; a link connected to said carrier-frame by a lug on one engaging an elongated slot in the other, thereby permitting said carrier-frame to dwell at the ends of its stroke; and mechanism for reciprocating said link; an intermittently-reciprocating member driven by said driving mechanism; a clamp-shaft carriage; a clamping-shaft rotatably mounted in said carriage; coacting clamps; mechanism operatively connecting said clamp-shaft carriage with said intermittently-reciprocating member by which said clamp-shaft is made to clamp and rotate the stock; a rotary member into and out of engagement with which the clamp-shaft is thrown by the reciprocations of said clamp-shaft carriage; a cutter-carriage; a cutter mounted on said carriage; and mechanism operatively connecting said cutter-carriage with said intermittently-reciprocating member by which said cutter is made to contact with the stock when it is clamped and rotated.

14. A head-cutting machine made up of a driving mechanism; a feeding mechanism; mechanism for adjusting said feeding mechanism to place the center of the head in the axis of the clamp-shaft when the clamping mechanism is thrown into operation; an automatic rotary clamping mechanism; mechanism for throwing the cutters into contact with the stock when it is clamped and rotated; and said cutters.

678,023. **STREET-CAR FENDER.** CHARLES NICHOLSON, Brooklyn, N. Y. Filed Apr 3, 1900. Renewed May 22, 1901. Serial No. 61,467. (No model.)



Claim.—1. A car-fender having an independent adjustable bumper-cushion, scoop-hangers with slot for holding the scoop, connecting braces, cams and shafts and automatic locking-catches, the scoop arranged to fit in hanger-slots and regulated by the action of the cams, operated by the regulating-lever.

2. In combination with the car, the bumper-cushion F provided with the joints or arms *m*, *m* and the seat *n*, for the bumper-cushion, substantially as described and set forth.

3. In combination with the car, the scoop-hangers *a*, *a*, having the socket G, the connecting cam-rod *e*, provided at each end with the cams *d*, *d* substantially as described and set forth.

4. In combination with the car, the foot-tripper *h*, the regulating-lever ratchet E, provided with teeth *f*, the spring *g*, the cam-shaft *e* and arms *s*, pivoted to the lever-ratchet E, the cams *d*, *d* and hangers *a*, *a* having the socket G, substantially as described and set forth.

5. In combination with the car, the fender-frame A, A and A', A' the hangers *a*, *a*, the cam-shaft *e*, and cams *d*, *d*, the inside locking catches or cams K, substantially as described and set forth.

6. In combination with the car the fender or scoop having frame A, A and A', A', the hangers *a*, *a*, provided with socket G, the brace-rod C to fit in the socket G, the regulating-lever ratchet E provided with teeth *f*, the spring *g*, the cam-shaft *e*, and arm *s* pivoted to the lever-ratchet E and secured to the cam-shaft *e* and cams *d*, *d*, the foot-tripper *h*, substantially as described and set forth.

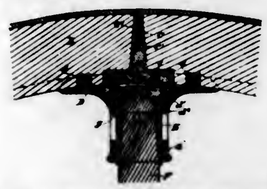
7. In combination with the car, the adjustable bumper-cushion F, provided with the pivotal joints *m*, *m* at each end, the lower one being made with a slot *o*, to allow the base of the bumper-cushion to fall back and rest upon the seat *n*, substantially as and for the purposes set forth.

678,024. **BARREL-COVER HANGER.** EDWARD R. NORRIS, Jacksonville, Fla. Filed Aug. 9, 1900. Serial No. 26,432. (No model.)

Claim.—In a device of the class described, the combination with a barrel-cover, of a combined hanger and clamp consisting of a concavo-convex disk arranged eccentrically on the inner or lower face of the barrel-cover and presenting a convex inner face to the same, arranged at an angle thereto and forming a tapering barrel-receiving space between it and the cover, whereby a barrel may be positively clamped between the disk and the cover to prevent the latter from being displaced from the barrel should the latter be tilted, and a fastening device extending centrally from the said disk at the convex face thereof, and embedded in the cover, substantially as described.



678,025. **VEHICLE-WHEEL.** GERRIT V. ORTON, Monterey, Cal., assignor of one-twentieth to David Jacks, same place. Filed Mar 29, 1901. Serial No. 53,379. (No model.)



Claim.—1. In a vehicle-wheel the combination with a rim and a tire, of a wedge-shaped key between the meeting ends of adjacent fellies and having an extended base portion let into mortises in the under surfaces of said fellies whereby the rim may be expanded.

2. In a vehicle-wheel, the combination of a tire having a peripheral channel upon its inner side, a rim having a peripheral projection adapted to fit said channel, and means including a wedge-shaped key between adjacent fellies and having an extended base portion let into mortises in said fellies whereby the rim may be held firmly against the tire.

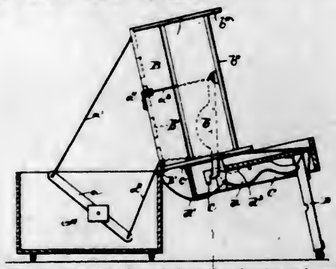
3. In a vehicle-wheel, the combination of a tire having its inner surface concaved, a rim having the outer faces of its sections convexed to fit the concavity of the tire, and means including a wedge-shaped key between adjacent fellies and having an extended base portion let into mortises in said fellies whereby the ends of these sections are moved in relation to each other to expand the rim.

4. The combination in a vehicle-wheel with the tire and fellies thereof, of caps fitting over the ends of the spokes, guides for said caps, and nuts upon said caps adapted to bear against the guides whereby the wheel may be tightened.

5. The combination in a vehicle-wheel with the tire and rim thereof of a cap fitting the end of each of the spokes and bearing against the rim, a plate or guide upon the rim through which the cap passes, and a nut upon the cap having a bevel edge impinging upon a similar bevel upon the guide.

6. In a vehicle-wheel the combination of a tire having a peripheral channel on its inner side, a rim with its sections convexed to fit the concavity of the tire, plates between these sections, means by which the alinement of the sections is maintained, saddles upon the sections, caps or ferrules upon the ends of the spokes, said saddles adapted to receive the ferrules, and split nuts upon the ferrules having a lower outwardly-beveled face impinging upon an inwardly-beveled shoulder on the saddles.

678,026. **COMBINATION SOFA-BED AND WARDROBE-COUCH.** EDGAR F. PALMER and ORION G. HARDIN, Louisville, Ky. Filed Dec. 7, 1899. Serial No. 739,482. (No model.)



Claim.—1. A combined wardrobe-bed and sofa-couch, embodying a box-like base, a seat having chambered sofa-arms at its ends, said seat being pivotally attached at the lower end of its rear side to the rear side of said base, a back hinged at the lower end of its front side to said seat, pivoted legs carried by said back, horizontal levers contained and pivoted within the chambers in the sofa-arms and having hook ends extending rearwardly from said chambers, catches carried by said back to be engaged by said hook ends and thereby cause said seat and back to swing together around the pivotal connection of the seat with the base, and means actuable to disengage said hook ends from said catches to thereby permit said back to swing upon its hinges relatively to said seat, substantially as described.

2. A combined wardrobe-bed and sofa-couch, embodying a box-like base, a seat pivotally attached thereto at one side, a back pivotally attached to said seat, a hook and a catch coacting to hold the seat and back together, said back having chambered ends, legs pivoted at their upper ends in said chambers and swinging therefrom into a perpendicular position when the back is lowered, pivoted levers carried by said back and arranged wholly in said chambers and engaging the pivoted ends of said legs when the latter are perpendicular, and means for detaching said levers from the legs.

3. A combined wardrobe-bed and sofa-couch, embodying a box-like base, a seat pivotally attached thereto at one side and having its ends constructed to provide closed chambers, a back pivotally attached to said seat and having chambered ends, a hook and a catch in contiguous chambers, for holding the seat and back together, legs pivoted at their upper ends in the chambers of the back and adapted to swing therefrom into perpendicular position when the back is lowered, pivoted levers in the chambers of said back for holding the legs in perpendicular position, means for detaching said hook from the catch, and means for detaching said levers from the legs.

4. A combined wardrobe-bed and sofa-couch, embodying a box-like base, a seat pivotally attached thereto at one side, a back pivotally attached to said seat, a hook and a catch coacting to hold said seat and back together, legs pivoted at their upper ends to said back and having laterally-projecting beveled heads, a pair of connected pivoted levers for each leg, having ends adapted to engage the heads of the latter, and means for disengaging said ends from said heads.

5. A combined wardrobe-bed and sofa-couch, embodying a box-like base, a seat pivotally attached thereto at one side, a back pivotally attached to said seat, a hook and a catch coacting to hold the seat and back together, legs pivoted to said back, levers eccentrically pivoted in said base, means connecting the longer arms of said levers with said seat, and means connecting the shorter arms of said levers with said legs.

6. A combined wardrobe-bed and sofa-couch, embodying a box-like base, a seat pivotally attached thereto at one side and having chambered ends, a back pivotally attached to said seat and having chambered ends, a lever pivoted between its ends in each of the chambers in the ends of said seat and having its rear end projected therefrom and of hook form, a catch in the chamber of said back to be engaged by said hook end, means attached to the front ends of said levers for disengaging the rear ends thereof from said catches, legs pivoted at their upper ends in chambers of said back and adapted to swing from said chambers into perpendicular position with respect to said back, and means for holding said legs in perpendicular position when the back is lowered and for swinging the same into said chambers while the back is being elevated.

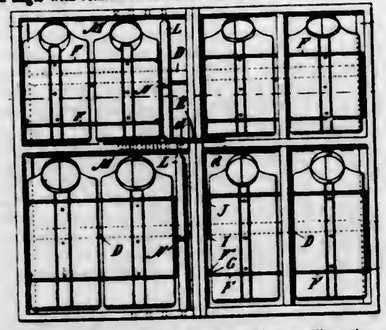
7. A combination sofa-bed, wardrobe and couch, having a box-base, a seat hinged thereto, a back hinged to the rear of the seat, and legs hinged to said back, combined with levers, pivoted in said base and each connected at one end with the seat and at its other end with a leg, weighted levers mounted in the seat, catches secured to the back in position to be engaged by said weighted levers, levers arranged to engage the legs, connections between said levers and base, and means connecting the weighted levers together and operated to disengage the same from said catches, substantially as described and for the purposes set forth.

678,027. **SHIRT OR SHIRT-WAIST CASE.** LOUIS W. PENDCORD, St. Joseph, Mo. Filed Jan. 19, 1901. Serial No. 43,994. (No model.)

Claim.—1. In a shirt-case, a cord doubled upon itself, the doubled portions being passed through guides upon the inner face of one wall of the tray with the portion between said guides held parallel with the said wall, one end of the said cord being detachably fastened to the inner face of the opposite wall of the tray and the other end also secured to the inner face of said wall independent of the first-mentioned end, substantially as specified.

2. In a shirt-case, an open tray, a fastener on the inner face of one wall thereof, a cord having one end detachably connected with the inner face of said wall, and its other end passed through a guide on the inner face of said wall and detachably engaged with said fastener, and guides on the opposite wall of the tray, upon the inner face of the same, one of said guides being open, the said cord being doubled upon itself and the doubled portion loosely guided through said guides whereby the cord is confined entirely within the confines of the inner walls of the tray, as set forth.

3. In a shirt-case, the combination with two hinged trays, of a yielding plate pivotally connected with the partition of one of said trays and having provisions for engagement with means on the adjacent partition of the other tray for holding the same either in their full open position or at an angle with relation to each other, as set forth.

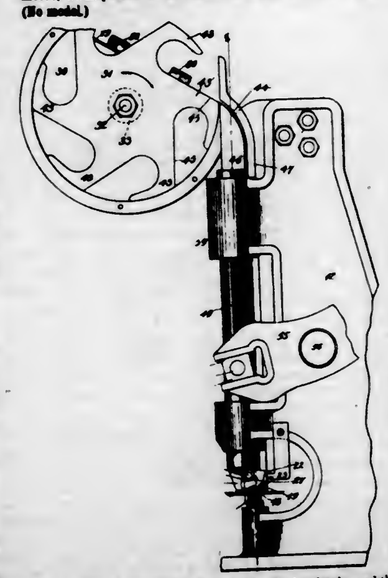


4. In a shirt-case, the combination with two adjacently-arranged trays having partitions, of a plate pivoted to one tray and having a thumb-piece at its free end, and coöperating studs and perforations for holding the trays in their open position, as set forth.

5. In a shirt-case, the combination with two adjacently-arranged trays, of a spring-plate pivotally connected to a wall of one tray and having a hinge portion and means for holding the trays at their full open position or at an angle with relation to each other, as set forth.

6. A shirt-case, provided with a shirt-retaining device disposed entirely within the confines of the inner walls of the case and extended substantially parallel with two sides thereof, and disconnected therefrom, one end of said device being attached to the inner wall of one end of the case and the other end detachably connected to the inner wall of said end, the portion which extends parallel with the opposite end being loosely held by means upon the inner face of said end and said retaining device rendered adjustable throughout its entire length, substantially as shown and described.

678,028. **ROCKING SEPARATOR AND STOP FOR LACING-HOOK-SETTING MACHINES.** JOHN PIERCE, Milton, Mass., assignor of two-thirds to Joseph H. Chadbourne, Watertown, and Walter B. Moore, Swampscott, Mass. Filed Mar. 9, 1901. Serial No. 50,423. (No model.)



Claim.—1. In a machine for attaching lacing-hooks and the like to sheet material, an anvil, a plunger, mechanism for imparting a reciprocatory motion to said plunger, a raceway bearing a fixed relation thereto, a separator and a stop, said separator and stop carried by said plunger

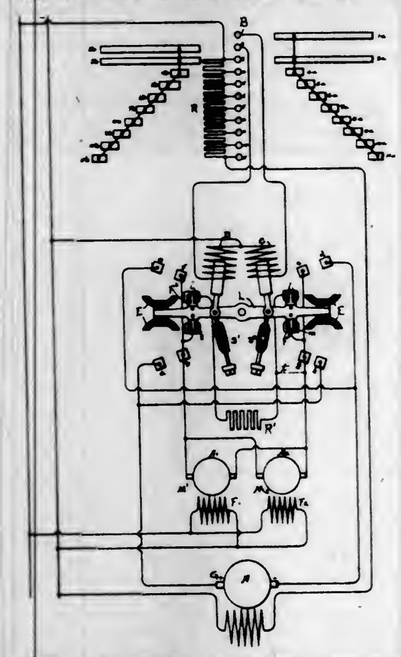
and located upon opposite sides of a plane extending through the center of the anvil and intersecting the path of the hooks on the raceway as they approach the anvil, and mechanism for imparting a rocking motion to said separator and stop.

2. In a machine for attaching lacing-hooks and the like to sheet material, an anvil, a plunger, mechanism for imparting a reciprocatory motion to said plunger, a raceway bearing a fixed relation thereto, a rocker-shaft carried by said plunger, a stop and a separator fast to said rocker-shaft at opposite sides of a plane extending through the center of the anvil and intersecting the path of the hooks on the raceway as they approach the anvil, and mechanism to impart a rocking motion to said rocker-shaft.

3. In a machine for attaching lacing-hooks and the like to sheet material, an anvil, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, a rocker-shaft carried by said plunger, a stop and a separator fast to said rocker-shaft and located on opposite sides of a plane extending through the center of the anvil and intersecting the path of the hooks on the raceway as they approach the anvil, and a projection fast to said rock-shaft arranged to engage a stationary stop and imparting a rocking motion to said rocker-shaft.

4. In a machine for attaching lacing-hooks and the like to sheet material, an anvil, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, a rocker-shaft carried by said plunger, a separator-plate and a stop-plate fast to said rocker-shaft located upon opposite sides of a plane extending through the center of the anvil and intersecting the path of the hooks on the raceway as they approach the anvil, and a depression in the periphery of each of said plates, said depressions so arranged that when one of them is in line with the lacing-hooks on said raceway, the other is out of line with said lacing-hooks, and mechanism to impart a rocking motion to said rocker-shaft.

678,029. **SYSTEM OF MOTOR CONTROL.** WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 29, 1900. Serial No. 10,562. (No model.)



Claim.—1. In combination, a source of supply, a motor or motors, normally open switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches normally closed and arranged to short-circuit the motor-armature through a suitable resistance, and electromagnetic means for closing the normally open switches and opening the short-circuiting switch or switches.

2. In combination, a source of supply, a motor or motors, normally open switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches normally closed and arranged to short-circuit the motor-armature through a suitable resistance, electromagnetic means for closing the normally open switches and opening the short-circuiting switch or switches, and means located at a distant point for controlling the operation of said electromagnetic means.

3. In combination, a source of supply, a motor or motors, normally open switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches normally closed and arranged to short-circuit the motor-armature through a suitable resistance, electromagnetic operating means for closing the normally open switches and opening the short-circuiting switch or switches, and means located at a distant point for controlling said operating means and for controlling the potential of said source of supply.

4. In combination, a source of supply, a motor or motors, circuit-changing switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches connected to short-circuit the motor-armature through a suitable resistance, means for maintaining the circuit-changing switches normally open and the short-circuiting switch or switches normally closed, and electromagnetic means for closing the circuit-changing switches and opening the short-circuiting switch or switches.

5. In combination, a source of supply, a motor or motors, circuit-changing switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches connected to short-circuit the motor-armature through a suitable resistance, means for maintaining the circuit-changing switches normally open and the short-circuiting switch or switches normally closed, electromagnetic means for closing the circuit-changing switches and opening the short-circuiting switch or switches, and means located at a distant point for controlling the operation of said electromagnetic means.

6. In combination, a source of supply, a motor or motors, circuit-changing switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches connected to short-circuit the motor-armature through a suitable resistance, a lever carrying the movable members of all of said switches, means tending to maintain said lever in such a position that the short-circuiting switch or switches will be closed and the circuit-changing switches opened, and means for operating said lever to close the circuit-changing switches.

7. In combination, a source of supply, a motor or motors, circuit-changing switches, between said source and said motor, arranged to supply current to the motor-armature in either direction, a switch or switches connected to short-circuit the motor-armature through a suitable resistance, a lever carrying the movable members of all of said switches, means tending to maintain said lever in such a position that the short-circuiting switch or switches will be closed and the circuit-changing switches opened, electromagnetic means for operating said lever, and a switch for controlling the operation of said electromagnetic means.

678,030. **ELECTRICAL CONDUCTOR.** EDWARD D. PRIEST, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 20, 1901. Serial No. 60,987. (No model.)



Claim.—1. An electrical conductor consisting of a strip of metal split lengthwise, adjacent portions of the resulting strips being transposed.

2. A conductor consisting of a strip of metal split lengthwise, and superposed offsets formed at intervals in the length of each component strip.

3. A conductor consisting of strips of metal placed side by side and at intervals transposed in position so that each strip passes from side to side of the resulting conductor.

4. A conductor consisting of flat strips of metal placed side by side and at intervals in their length transposed from side to side of the resulting conductor.

5. A conductor consisting of flat strips of metal placed side by side and at intervals in their length transposed from side to side of the resulting conductor, and insulating material interposed between said strips.

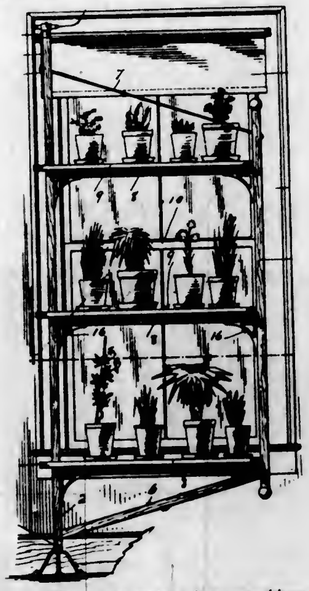
6. The combination of flat crossed conductors placed side by side, the crossing portions being made of the same cross-section as at other points in the conductors.

7. The combination of flat crossed conductors placed side by side, the said conductors being of substantially uniform cross-section.

8. The combination of crossed conductors placed side by side, the cross-section of the combined conductors and of each individual conductor being uniform throughout.

9. The combination of crossed conductors placed side by side, the crossing portion of each conductor being of reduced thickness but increased width.

678,031. **FLOWER-STAND.** FRED L. PEACH, Dalton, Mass. Filed Mar. 29, 1901. Serial No. 53,453. (No model.)



Claim.—1. A flower-stand having a frame comprising a main post having two opposite flat sides, and an outer border-post, several shelf-supporting bars extending between said two posts and secured by their ends to the latter, a brace extending between the lower ends of said posts, and a tie-rod extending between the upper ends thereof, a series of shelves laid on said bars in one end of each which shelves is a longitudinal slot which incloses said main post, thereby retaining the shelves in longitudinal positions on said bars, a stand pivotally supporting the lower end of said main post, and a bracket pivotally supporting the upper end thereof opposite a window-casing or like place, substantially as described.

2. A flower-stand having a frame comprising a main post having two opposite flat sides, an outer border-post, several shelf-supporting bars extending between said two posts, brackets under each end of said bars secured to the latter and to said posts, a brace extending between the lower ends of said posts, and a tie-rod extending between the upper ends thereof, a series of shelves laid on said bars in one end of each of which shelves is a longitudinal slot which incloses said main post, the opposite ends of said shelves lying against the inner side of said outer post, thereby retaining said shelves in longitudinal positions on said bars, a stand pivotally supporting the lower end of said main post, and a bracket pivotally supporting the upper end thereof opposite a window-casing or like place, substantially as described.

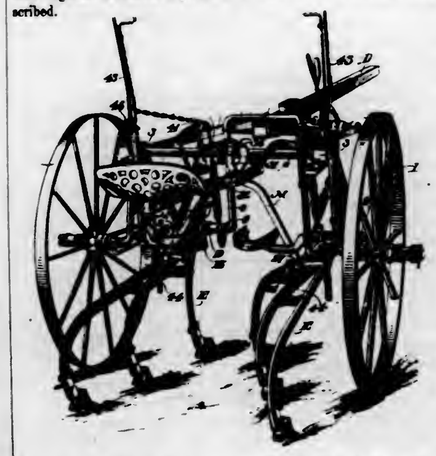
3. A flower-stand having a frame comprising a main post having two opposite flat sides, an outer border-post, several shelf-supporting bars extending between said two posts, brackets under each end of said bars secured to the latter and to said posts, a brace extending between the lower ends of said posts, and a tie-rod extending between the upper ends thereof, a series of shelves supported on said bars and there retained without other fastenings than the engagement of the extremities thereof with said main and outer border-posts, a stand pivotally supporting the lower end of said main post, and a bracket pivotally supporting the upper end thereof opposite a window-frame or like place, substantially as described.

678,032. **DOUBLE CULTIVATOR.** STALEY D. POOLE, Moline, Ill. Filed Apr. 6, 1901. Serial No. 54,735. (No model.)

Claim.—1. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising overlapping arms or members, and devices rigidly securing said arms together and adapted to release the same by pressure of the hand, substantially as described.

2. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members movably joined together, and devices rigidly securing said arms together and adapted to release the same by pressure of the hand, substantially as described.

3. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members, and spring-actuated locking devices for rigidly securing said arms together in different positions of adjustment, substantially as described.



4. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members movably joined together, and hand-operated spring-actuated locking devices for rigidly securing said arms in different positions of adjustment, substantially as described.

5. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members reversely curved at near their upper or inner ends, and overlapping each other and movably joined together, and hand-operated spring-actuated locking devices for rigidly securing said arms together in different positions of adjustment, substantially as described.

6. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members movably joined together, one of said arms having notches, and the other provided with means for engaging said notches, substantially as described.

7. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms movably joined together, one of said arms having notches, and the other arm provided with a spring-actuated locking device for engaging said notches, substantially as described.

8. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members in movable connection with said rigs and being themselves movably joined together, one of said arms having notches, and the other having means for engaging said notches, substantially as described.

9. In a double-row cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms movably joined together, one of said arms having notches, and the other arm provided with a spring-actuated device engaging said notches and having an operating hand-lever, substantially as described.

10. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members reversely curved at near their upper or inner ends and movably joined together, one of said arms having notches in the upper edge thereof, and the other arm provided with a spring-actuated locking-lever engaging said notches, substantially as described.

11. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two arms movably joined together, one of said arms provided with notches, and the other with a locking device for engaging and disengaging the notches, said device comprising a bracket secured to the arm, a hand-lever pivotally supported on the bracket, and a spring seated upon said bracket and bearing against the under side of said hand-lever, substantially as described.

12. In a double cultivator, the combination with the cultivator-rigs, of a connecting-brace between the rigs comprising two curved arms or members crossing each other and movably joined together, one of said arms being bent or turned to bring the lower end thereof into substantially the same plane with the other arm, and a hand-operated locking-lever on one arm engaging suitable means on the other arm, substantially as described.

13. In a double cultivator, the combination with the cultivator-rigs, of means for moving or adjusting the same laterally, a connecting-brace between the rigs comprising two overlapping arms movably joined together, and devices rigidly securing said arms together and adapted to release the same by pressure of the hand, substantially as described.

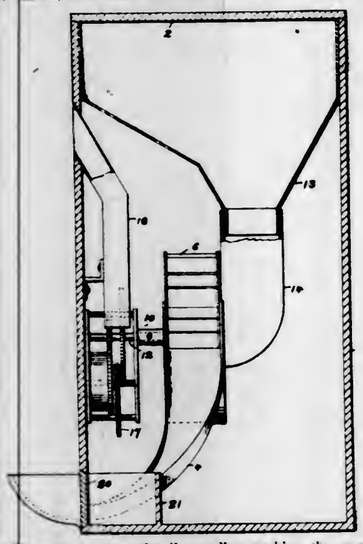
14. In a cultivator, the combination with the cultivator rigs or devices, of means for raising and lowering the same comprising a suitable connecting rope or chain, and a laterally-adjustable guide or pulley for said chain, substantially as described.

15. In a cultivator, the combination with the cultivator rigs or devices, and means for laterally adjusting the same, of means for raising and lowering said rigs or devices comprising a suitable connecting rope or chain, and a laterally-adjustable guide or pulley therefor, substantially as described.

16. In a cultivator, the combination with the cultivator rigs or devices, of means for raising and lowering the same comprising a suitable connecting rope or chain, a horizontally-disposed rod or shaft, and a guide or pulley movable in either direction on said shaft, and means for setting the same at different positions thereon, substantially as described.

17. In a cultivator, the combination with the cultivator rig or devices, of means for raising and lowering the same comprising a suitable connecting rope or chain, a rod or shaft having transverse openings, a guide or pulley laterally movable on said rod or shaft, and pins or other fastenings inserted in said openings for holding said guide in different positions, substantially as described.

678,033. AUTOMATIC VENDING-MACHINE. EDWIN A. REEVES, New Haven, Conn. Filed Feb. 12, 1901. Serial No. 47,064. (No model.)



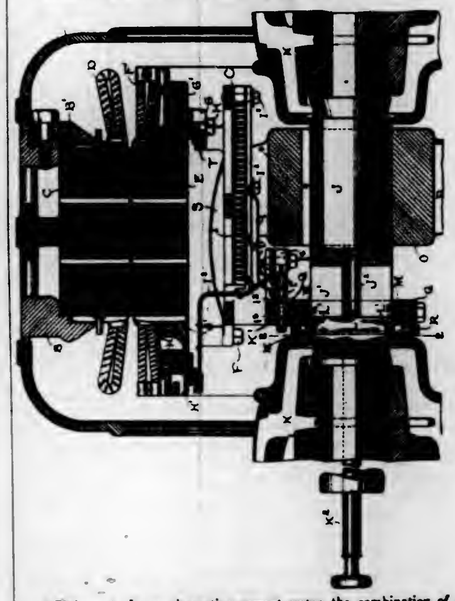
Claim.—1. In a merchandise-vending machine, the combination with a vertical receiving-trough; of a drum having pockets open at their inner and outer ends, operative within said trough; a feed-chute terminating opposite an opening in said drum between the inner ends of said pockets; a delivery-chute leading from said trough to the exterior of the case; and means for intermittently rotating said drum so as to bring the said pockets successively in line with the said delivery-chute.

2. In a merchandise-vending machine, the combination with a vertical receiving-trough; of a drum having pockets open at their inner and outer ends, operative within said trough; a hopper adapted to receive a supply of merchandise; a feed-chute leading from said hopper and terminating opposite an opening in the side of said drum between the inner ends of said pockets; a delivery-chute leading from the said trough to the exterior of the case; and means for intermittently rotating said drum so as to bring the said pockets successively in line with the said delivery-chute.

3. In a merchandise-vending machine, the combination with a vertical receiving-trough; of a drum operative therein and having a plurality of paddles between the sides thereof forming compartments therebetween, which compartments are open at both ends, one of the sides of said drum having an opening therethrough between the inner ends of said paddles; a feed-chute terminating opposite the said opening, whereby merchandise is conveyed into said trough and fills the lower compartments of said drum; a delivery-chute leading from said trough; and means for intermittently rotating said drum, whereby the paddles are successively brought into line with said delivery-chute, and forming an extension thereof.

4. In a merchandise-vending machine, the combination with the case 1; of a receiving-trough; a drum 6 operative therein; mechanism for intermittently rotating said drum; a hopper 13 within said case; a feed-chute 14 leading from said hopper to said trough; and a delivery-chute 4 leading from the said trough to the said case, all constructed and operating substantially as described.

678,034. INDUCTION-MOTOR. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 23, 1898. Serial No. 697,234. (No model.)

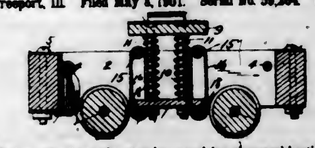


Claim.—1. In an alternating-current motor, the combination of a hollow revolving member, a supporting-frame secured to the interior of the revolving member, a resistance carried by said frame, arms projecting from said frame, contact-blocks carried by said arms and electrical connections between said contact-blocks and resistance.

2. In an alternating-current motor, the combination of a hollow revolving member, a plurality of supporting-frames independently secured to the interior of the revolving member, resistances carried by said supporting-frames, contact-blocks also carried by said supporting-frames and located out of the planes of said resistances, and contact-brushes carried by a device sliding on the shaft of the motor and engaging said contact-blocks.

3. In an alternating-current motor, the combination of a hollow revolving member, a plurality of supporting-frames secured to the interior of said member, resistance-grids mounted on said frames, arms projecting from said frames toward the shaft on which said member is mounted, contacts carried by said arms and electrically connected to said grids, and brushes for said contacts slidingly mounted on the shaft.

678,085. TRUCK FOR MOVING BUILDINGS. JOHN RODENHIZER, Freeport, Ill. Filed May 8, 1901. Serial No. 59,264. (No model.)

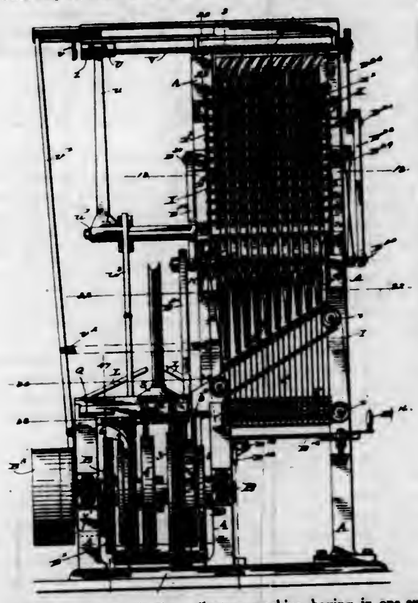


Claim.—1. A moving-truck comprising the combination, of a frame, broad wheels flanged on both sides mounted intermediate the sides of said frame or shafts journaled therein, bars extending across said frame, hangers depending from said bars, a base-block supported on said hangers, springs mounted on said base and a platform resting on said springs, substantially as described.

2. In a moving-truck, the combination with a rectangular frame mounted on wheels, of bars extending transversely said frame, hangers depending from said bars, a base supported by said hangers, a platform, bolts connecting said base and said platform and springs mounted on said bolts and bearing on said platform and said base, substantially as described.

3. The combination with four trucks, provided with platforms, of two bars pivoted to said platforms and uniting them transversely in pairs, guides pivoted to said bars, and stringers fitting said guides and connected to said trucks by chains, substantially as described.

678,036. LINOTYPE-MACHINE. JOHN R. ROGERS, Brooklyn, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed July 31, 1900. Serial No. 25,403. (No model.)



Claim.—1. A matrix for a linotype-machine, having in one end suspending-shoulders and also having in opposite ends central complementary notches or openings to coöperate with the distributing devices.

2. A matrix for a linotype-machine, consisting of a flat plate having its vertical edge recessed and provided with the matrix proper, its upper end provided with inwardly-projecting lips or shoulders, and its upper and lower ends provided with recesses to coöperate with distributing devices.

3. A font of matrices for a linotype-machine, each provided with inwardly-extending lips at the upper end and with notches or recesses at the upper and lower ends, said font comprising a series of groups, those of one group differing from those of another group as to the distance between the lips, and those of each group differing from others of the same group bearing different characters as to the form of the end notches.

4. A font of matrices for a linotype-machine, consisting of a series of groups, those of each group having suspending-lips differing from those of the other groups, and those of each one of the groups differing from each other as to notches coöperating with the distributer, whereby the font may be first separated into groups and the matrices in each group separated according to the characters borne by them.

5. A matrix for a linotype-machine, provided with suspending lips or shoulders at its upper end and having its two opposite edges beveled for engagement with feed devices, substantially as described.

6. In a linotype-machine, a primary distributer by which the matrices are divided into groups, each including several characters, and the groups delivered at different points, in combination with a series of secondary distributers diverging from the main distributer and arranged to separate the matrices of the respective groups and deliver them individually at different points according to the characters borne by them, whereby the distribution of a large number of characters is rendered possible by mechanism of limited width.

7. In a linotype-machine, the combination of a straight line-distributer, adapted to receive all the matrices and separate them into groups, and a series of secondary downwardly-inclined distributers at right angles to the first distributer to which the matrices are delivered by the first distributer, said secondary distributers adapted to separate the matrices and deliver them individually at different points.

8. In a linotype-machine, a distributer-rail, longitudinally-toothed and adapted to separate the matrices into groups, in combination with a series of secondary parallel distributers, arranged in angular relation to the distributer-rail to receive the respective groups and each having a series of openings adapted to separate the matrices bearing different characters from each other.

9. In a linotype-machine, the combination of a longitudinally-toothed distributer-bar and means for advancing the matrices in suspension along said bar to the points of release, and a series of secondary inclined distributers over which the matrices descend by gravity, said secondary distributers provided with openings of varying form to separate matrices bearing different characters.

10. In a distributing mechanism, a feed mechanism for matrices, comprising two screws having their threads reduced at one end, in combination with means for presenting a line of matrices endwise toward the screws in position to be engaged by the reduced threads, whereby the screws are adapted to separate the matrices one at a time from the line and feed them forward out of contact with each other.

11. In a linotype-machine, the combination of a distributer-rail, feed-screws lying parallel with the rail and having the threads at their receiving ends reduced, substantially as described, and means for presenting a line of matrices toward the screws in the direction of their axes, whereby the screws are adapted to separate the matrices and feed them along the distributer-bar.

12. In a linotype-machine, the combination of a distributer-bar, means for separating a line of matrices adjacent to the end of said bar and at suitable height to engage the same, means for urging said matrices toward the bar, and feed-screws having their threads reduced at the receiving end to engage the matrices, separate them and advance them along the bar.

13. In a linotype-machine, in combination with a distributer, means for advancing a line of matrices toward the same, feed-screws having their threads reduced toward the receiving end, and intermittingly-acting stops to arrest the advance of the matrices toward the screws, whereby the screws are prevented from engaging a second matrix until the preceding one is advanced away from the line.

14. In a linotype-machine, in combination with a distributer, the feed-screws having the threads reduced at the receiving end, and matrices having their edges beveled to facilitate the engagement of the screws.

15. In a linotype-machine, the distributer-bar, the feed-screws having reduced threads, the vibrating stops to detain the advancing matrices, and eccentrics on the screws to actuate said stops.

16. In combination with the distributer, the feed-screws and the vibrating stops, eccentrics to move the stops in one direction, and a spring or springs to move them in the opposite direction.

17. In a linotype-machine, a longitudinally-toothed distributer-bar, along which the matrices are advanced to different points of release, in combination with secondary distributers, and an intermediate guide adapted to receive the matrices from the first distributer and give them a quarter-turn before delivery to the secondary distributer.

18. In a linotype-machine, the combination of two distributers adapted to carry the matrices in planes at right angles to each other, and intermediate means to receive the matrices from the first distributer, give them a quarter-turn and deliver them to the secondary distributer.

19. In a linotype-machine, a distributer consisting of an inclined plate, over which the matrices may descend by gravity, said plate provided at different points in its length with openings equal to their extreme dimensions, but differing in form and adapted to sustain each matrix until it arrives at the appropriate opening.

20. In a linotype-machine, an inclined distributer-plate provided with a succession of openings differing in form, in combination with means for delivering the matrices over said plate, and means for urging the matrices through the corresponding openings when they are reached.

21. In a linotype or kindred machine, an inclined distributer-plate provided with a row of variant openings, over which the matrices descend by gravity, in combination with a series of pressure-rolls overlying said openings.

22. In a linotype-machine, an inclined distributer-plate provided with a row of variant openings, in combination with pressure devices overlying said openings, and means for imparting a rotary motion to said pressure devices.

23. In a linotype-machine, a distributer-plate provided with a row of variant openings, one below another, in combination with overlying pressure devices and means for moving the pressure devices in a down-

ward direction adjacent to the openings, whereby the passage of the matrices from one opening to another is facilitated.

24. In combination with the magazine having a series of openings therethrough for the passage of the matrices, the series of overlying yielding rollers and means for imparting rotary motion thereto.

25. In a linotype-machine, the combination of a distributer-plate having a series of variant openings for the passage of matrices therethrough, and the adjacent magazine-rails adapted to engage and sustain the matrices.

26. In a linotype-machine, an inclined distributer-plate with variant openings for the passage of the matrices therethrough, in combination with inclined supports below said magazine to receive and sustain the matrices, and escapement devices for delivering the matrices, one at a time, from the respective supports.

27. In combination with a distributer-plate having variant openings for the passage of the matrices therethrough, the inclined magazine-rails adapted to engage the upper ends of the matrices, and escapement devices sustained by the lower ends of the magazine-rails.

28. In a linotype-machine, the distributer consisting of a series of duplicate plates, each provided with a series of variant openings.

29. In a linotype-machine, a distributer containing a series of rows of openings, those of one row being the same as those of another, but the several openings in each row differing in form.

30. In a linotype-machine, the distributer consisting of a series of plates, each provided with variant openings, and the overlying strips or bars to guide the matrices in their passage over said plates.

31. In combination with a magazine having a series of openings therein, an adjacent frame provided with pressure devices and mounted to be swung away from the distributer at will, whereby access to the entire distributer is afforded.

32. A magazine for a linotype-machine, consisting of a series of parallel inclined rails, fixed in position, their upper ends exposed to receive the matrices and their lower ends sustaining escapement devices to deliver the matrices one at a time.

33. In a linotype-machine, a series of inclined magazine-rails arranged in a vertical tier, one over another, means for releasing the matrices therefrom, that they may fall by gravity, and an underlying inclined conductor arranged to receive the falling matrices, sustain them on their sides and guide them to a given point.

34. In a linotype-machine, the series of magazine-rails arranged one above another in a series of vertical rows, in combination with means for discharging the matrices, one at a time, from the lower ends of said rails, and conductors underlying the rails to receive the matrices and guide them downward, and a transverse conductor whereby the matrices falling from the first-named conductors are carried laterally to a common assembling-point.

35. In combination with the magazine-rails, fixed in position, the series of underlying conductors, hinged to be swung away from the magazine at will, whereby access may be had to the entire magazine and the escapements.

36. In a linotype-machine, the combination of an inclined distributer-plate provided with a series of openings, a transverse supporting-bar thereunder, a magazine-rail attached to said bar with its upper end in position to receive and sustain the matrices passing through the distributer-openings, and means for retaining the matrices on the bar and delivering them therefrom at will.

37. In combination with an inclined magazine-rail adapted to hold matrices in suspension, matrices having horizontal upper ends, and a horizontal rock-shaft having a longitudinal groove or shoulder to receive the upper end of the foremost matrix and hold the same from turning as it is delivered from the rail.

38. In combination with a magazine-rail to hold matrices in suspension, the horizontal grooved rock-shaft to deliver the matrices and hold them from turning on the rail, its pinion, the sector-wheel to operate the pinion, and finger-key connections to said sector.

39. In combination with the inclined magazine-rail, the horizontal rocking escapement, its pinion, the sector-pinion, the spring tending to move the sector in one direction, and the finger-key and connection therefrom to move the sector in the opposite direction.

40. The inclined magazine-rail, sustained on its upper side, in combination with the rocking escapement, its operating-sector, and the support for the last-named parts, attached to and sustained by the magazine-rail.

41. In a linotype-machine, the combination of a magazine arranged to hold the matrices in planes at right angles to those in which they are used, an assembling mechanism, and intermediate devices for giving the matrices a quarter-turn between the magazine and the assembler, whereby the matrices are presented in proper position for assemblage and use.

42. In a linotype-machine, an upper distributer, means for giving the matrices a quarter-turn after leaving said distributer, a secondary distributer, a secondary magazine to receive the matrices after they have been turned, and means for giving the matrices another quarter-turn after leaving the magazine, whereby they are faced in the proper direction for use.

43. The combination of a series of magazine-rails, adapted to hold the matrices in suspension, escapement devices for releasing said matrices, guides directing the matrices downward in parallel lines, the series of twisted tubes *g* arranged to receive the matrices, and the underlying carrier-belt arranged to receive the matrices from said tubes.

44. In a linotype-machine, in combination with the assembler to receive the matrices, the adjacent yielding rolls, and the carrier-belt to deliver the matrices to the rolls.

45. In combination with the assembler to receive and sustain the matrices, the grooved roller at its receiving end, and the transfer mechanism provided with a finger seated in the grooved roll for the purpose of advancing the line of matrices.

46. In combination with the melting-pot and the mold, the matrix-line support sustained by and movable vertically on a reciprocating carrier, substantially as described, whereby the matrices may be moved to and from the mold and moved vertically to effect the alinement against the mold.

47. In combination with a coöperating mold, a forwardly and backwardly moving frame m^4, a line-holder M, movable vertically on said frame, and means for effecting the vertical movement of the holder and the to-and-fro motion of the frame.

48. In a linotype-machine, the combination of the mold and projections or shoulders at its end to limit the elongation of the matrix-line, a matrix-line carrier or support movable to and from the mold, and means for inserting the composed line of matrices endwise into the carrier, whereby the presentation of the matrix-line to and its support in front of the mold are effected.

49. In a linotype-machine, a composed line of matrices and wedge spacers therein, in combination with a mold having forward projections at its ends to limit the elongation of the matrix-line, a line-support movable to and from the mold, and means for advancing the spacers through the line while in front of the mold.

50. In a linotype-machine and in combination with a coöperating mold, a channeled line-carrier movable to and from the mold, a stationary assembler or line-support J, wherein the line of matrices is primarily sustained, and means for transferring the line of matrices from the assembler to the movable support when the two are in alinement.

51. In a linotype-machine and in combination with a coöperating mold, a stationary assembler or support J for the composed line of matrices, a line-support M, movable transversely past said assembler, a stationary receiving-channel O, out of line with the assembler, and means for tranferring the composed line, first from the assembler into the support, and thereafter from the support into the receiving-channel.

52. In a linotype-machine and in combination with an elevator for the matrix-line, a mold, a relatively movable line-carrier M for presenting the matrices to the mold, a receiving-channel O in position to guide the matrices into engagement with the elevator, and means for transferring the matrices from the support M into the receiving-channel and into engagement with the elevator.

53. In a linotype-machine, the combination of the fixed support or assembler J for the matrix-line, the melting-pot, the longitudinally-reciprocating mold, the matrix-support M, movable to and from the mold, the vertically-movable elevator U, the fixed guide O, means for transferring the line of matrices from the assembler J into the holder M, and means for thereafter transferring the line from the support M into the channel O and into engagement with the elevator.

54. In combination with the elevator adapted to engage and lift the line of matrices, a supporting-channel O, and a finger *o* to retain the spacers when the matrices are lifted away.

55. In a linotype-machine and in combination with means for temporarily sustaining a composed line of matrices and spacers, an elevator adapted to lift the matrices, and a stationary finger adapted to pass through and retain the spacers.

56. In combination with a fixed support or channel O for the composed line of matrices and spacers, the finger *o* to retain the spacers, the elevator to lift the matrices, and means for delivering the composed line endwise into the channel O, substantially as described.

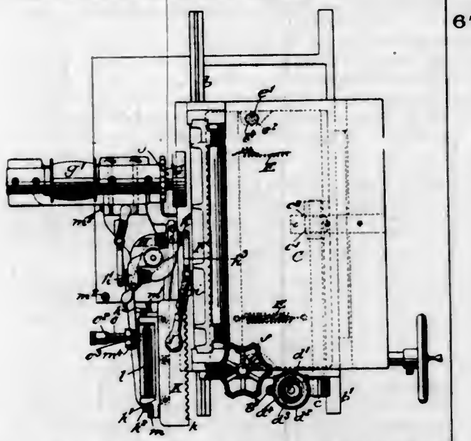
57. In a linotype-machine, the combination of the elevator U for the matrix-line, a distributer-bar having one end formed and arranged to receive the line of matrices directly from the elevator, and its remaining portion toothed to effect distribution of the matrices, a pusher or carrier to advance the matrices from the elevator along the untoothed portion of the bar, and feed-screws lying adjacent to the bar and having the threads reduced at the receiving ends, that they may separate the matrices singly from the line and feed them along the toothed portion of the bar.

58. In a linotype-machine, the combination of the following elements: the inclined magazine-rails, escapements connected with finger-keys for delivering the matrices singly from the distributer-rails, the series of inclined conductors to guide the matrices downward, a transverse carrier and devices to assemble the matrices in line, a melting-pot, a mold, means for presenting the composed line of matrices and spaces to the mold, an elevator for the matrix-line, means for transferring the matrix thereto, the primary distributer-bar and means for delivering the matrices to and along the same, and the secondary distributer arranged to deliver the matrices to the magazine-rails.

59. In a linotype-machine and in combination with the stationary pot, the mold-carrying slide, its support mounted on a horizontal axis, and means for swinging said support to and from the pot.

60. In a linotype-machine and in combination with a stationary melting-pot, a horizontally-reciprocating mold-carrier, a support for said carrier, mounted to swing forward and backward on a horizontal axis, a mold having holders or projections at its ends to sustain the ends of the matrix-line, and a matrix holder or carrier, mounted to move to and from the mold.

678,087. BEVELING-MACHINE. VERNON ROYLE, Paterson, N. J. Filed Apr. 12, 1900. Serial No. 12,690. (No model.)



Claim.—1. The combination with means for holding the plate to be operated upon in position and a cutter for operating upon the plate, of a gage for indicating the line of cut and a substantially upright rocking support for the gage, substantially as set forth.

2. The combination with means for holding the plate to be operated upon in position and a cutter for operating upon the plate, of a gage for indicating the line of cut, the said gage being mounted in rocking adjustment in a rocking support, substantially as set forth.

3. The combination with the gage and its substantially upright, rocking support, the gage being mounted in rocking adjustment on its support, of a spring for holding the gage normally above the face of the plate, substantially as set forth.

4. The combination with the gage and its substantially upright rocking support, of means for adjusting the gage to varying lines of cut and a spring for holding the gage-support normally in engagement with said adjusting means, substantially as set forth.

5. The combination with the gage and means for setting it to the line of cut, of a micrometer adjusting device for setting the gage at different distances beyond the line of cut, substantially as set forth.

6. The combination with the gage and its support, of means for setting the gage at different lines of cut, a micrometer adjusting device for adjusting the gage different distances beyond the line of cut and means for moving the micrometer adjusting device bodily to adjust its zero-point to the zero-line or line of cut, substantially as set forth.

7. The combination with a suitable plate-support, of a movable arm for holding the graver-tool the said arm being provided with a thumb-piece for operating it and a removable handle for exerting pressure upon the graver-tool independently of the thumb-piece, substantially as set forth.

8. In a lining-beveler, the combination with the table for supporting a plate in position to be operated upon, of a micrometer adjustment for the table comprising a worm, a sector in engagement with the worm, a shaft mounted to rotate with the sector, a pinion on the shaft and a rack-bar fixed to the table in position to engage the said pinion, substantially as set forth.

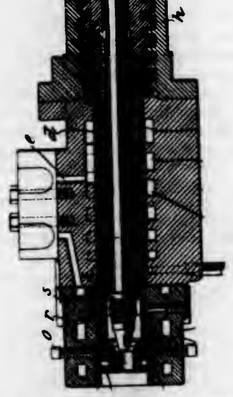
9. In a lining-beveler the combination with the table, the worm-shaft and means for transmitting motion from the worm-shaft to the table, of a graduated disk on the worm-shaft and means for clamping the said disk in different rotary adjustments on the shaft, substantially as set forth.

10. In a lining-beveler the combination with the table, the worm-shaft, means for transmitting motion from the worm-shaft to the table, of an index-finger secured to the worm-shaft support, a graduated disk mounted on the worm-shaft and means for clamping the said disk in different rotary adjustments on the worm-shaft relatively to the index-finger, substantially as set forth.

11. In a lining-beveler the combination with the table for holding the plate in position to be operated upon, of a cutter for operating upon the plate, and a micrometer adjusting device for operating the table and plate thereon, a gage and a micrometer adjustment for the gage, substantially as set forth.

12. In a lining-beveler the combination with the table for supporting the plate to be operated upon, a cutter, and means for adjusting the table and plate thereon toward and away from the cutter, of a gage and a removable bracket forming a support for the gage, substantially as set forth.

678,088. INSULATING-MACHINE. VERNON ROYLE, Paterson, N. J. Filed Mar. 15, 1901. Serial No. 51,346. (No model.)



Claim.—1. The combination with the stock-worm, core-bridge and their supports, of packing at the joint between the stock-worm and core-bridge and means for adjusting the packing from the rear end of the stock-worm, substantially as set forth.

2. The combination with the stock-worm, core-bridge and their supports, of packing at the joint between the stock-worm and core-bridge, a tail-screw at the rear of the stock-worm and means for communicating the action of the tail-screw to the packing for adjusting it, substantially as set forth.

3. The combination with the stock-worm, core-bridge and their supports, of packing at the joint between the stock-worm and core-bridge, a tube engaged with the packing and extending along the interior of the stock-worm and means for exerting pressure upon the tube to adjust the said packing, substantially as set forth.

4. The combination with the stock-worm, core-bridge and their supports, of packing between the stock-worm and core-bridge, a tube provided with a thickened head in engagement with the packing and means for exerting pressure upon the tube to adjust the packing, substantially as set forth.

5. The combination with the stock-worm, core-bridge and their supports, of packing at the joint between the stock-worm and core-bridge, a central tube provided with an annular collar intermediate of the packing and core-bridge, a tube having a bearing against the packing and means for exerting pressure upon the tube to force the packing toward the said collar on the central tube, substantially as set forth.

6. The combination with the stock-worm, core-bridge and their supports, of a jointed central tube extending along the interior of the stock-worm, substantially as set forth.

7. The combination with the stock-worm, core-bridge and their supports, of a central tube extending along within the stock-worm and composed of detachable sections, substantially as set forth.

8. The combination with the stock-worm, core-bridge and their supports and a central tube extending along the interior of the stock-worm, the said central tube being composed of sections having a screw-threaded engagement with each other, substantially as set forth.

9. The combination with the stock-worm, core-bridge and their supports, of a central tube extending along the interior of the stock-worm, the said tube being composed of sections having a screw-threaded engagement, the screw-thread being arranged to cause one of the sections to unscrew from the other section when rotated in the direction in which the stock-worm is rotated to force the material around the core, substantially as set forth.

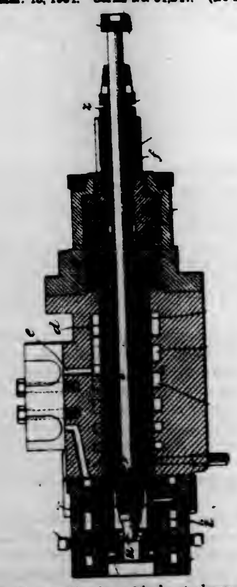
10. The combination with the stock-worm, core-bridge and their supports, of a central tube composed of detachable sections, the section in proximity to the core-bridge being provided with an annular collar in proximity to the core-bridge and packing in proximity to said collar and means for holding the packing in position, substantially as set forth.

11. The combination with the stock-worm, core-bridge and their supports, of a sectional central tube extending along the interior of the stock-worm, the section of said tube in proximity to the core-bridge being provided with a collar formed integral with the body of the tube, a packing in proximity to said collar and means for holding the packing in position, substantially as set forth.

12. The combination with the stock-worm, core-bridge and their supports, of a central tube extending along the interior of the stock-worm, packing engaged with the said central tube, an intermediate tube between the central tube and interior of the stock-worm for engaging the packing and means for adjusting the intermediate tube toward and away from the packing, substantially as set forth.

13. The combination with the stock-worm, of a cylinder within which the stock-worm operates, a tubular bearing for the stock-worm within the cylinder, a series of annular chambers intermediate of said bearing and the cylinder and extending the entire length of the stock-worm, the said annular chambers being constructed to gradually diminish in area from the rear toward the forward end of the stock-worm, a passage for the entrance of the cooling medium leading from the exterior of the cylinder to the chamber at the rear end of the stock-worm and a discharge-passage at the opposite end of the worm, substantially as set forth.

678,039. INSULATING-MACHINE. VERNON ROYLE, Paterson, N. J. Filed Mar. 15, 1901. Serial No. 51,947. (No model.)



Claim.—1. The combination with the stock-worm and its support, of a core-bridge and its support, the said core-bridge being provided with a hub extension projecting within the forward end of the stock-worm and means for packing the joint between the stock-worm and core-bridge, substantially as set forth.

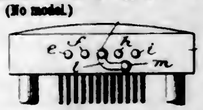
2. The combination with the stock-worm, core-bridge and their supports, of a central tube having a screw-threaded engagement with the core-bridge, the said screw-threaded connection between the central tube and core-bridge being such that the said central tube will unscrew when rotated in the direction in which the stock-worm rotates to force the stock forward, substantially as set forth.

3. The combination with the stock-worm and its support, of a core-bridge and its support, the hub of the core-bridge being provided with a right-hand screw-thread within its end adjacent to the stock-worm, a central tube having a screw-threaded engagement with said right-hand screw-thread and means for packing the joint between the stock-worm and core-bridge, substantially as set forth.

4. The combination with the stock-worm, core-bridge and their supports, the core-bridge being provided with a right-hand screw-thread in its hub adjacent to the stock-worm, of a rotary part extending within the stock-worm and engaged with the said right-hand screw-thread for detecting the escape of the insulating compound through the joint between the stock-worm and core-bridge, substantially as set forth.

5. The combination with the stock-worm, and its support, of a core-bridge and its support, the core-bridge being provided with a shouldered hub extension projecting within the stock-worm, a packing engaged with the shouldered projection, a central tube engaged with said projection, a tube intermediate of the stock-worm and central tube and engaged with the packing and means for exerting pressure upon said intermediate tube to adjust the packing, substantially as set forth.

678,040. MACHINE FOR PUNCHING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Original application filed Nov. 12, 1900, Serial No. 736,835. Divided and application filed Dec. 4, 1900, Serial No. 38,624. Again divided and this application filed Apr. 8, 1901. Serial No. 54,786. (No model.)



Claim.—The combination with the punch-head and the punch-controlling keys projecting from the opposite sides of the head, of a thumb-piece extending laterally from one of the keys to bring the said key under convenient control of the thumb when engaging adjacent keys, substantially as set forth.

678,041. STADIA-ROD. GEORGE L. SANDERSON, Antenfort, Pa. Filed Mar. 26, 1901. Serial No. 52,683. (No model.)



Claim.—1. In a stadia-rod having two adjustable portions, one of said portions having a graduated outer face, two targets both facing in the same direction disposed in front of said face and supported respectively by said rods, substantially as described.

2. In a stadia-rod, a fixed portion and a movable portion adapted to slide on said fixed portion, the said movable portion being provided with a graduated scale on its outer face, a target secured on said movable portion, and a target secured on said fixed portion, said last-named target being disposed in front of said graduated scale, and provided with an opening exposing said scale, substantially as described.

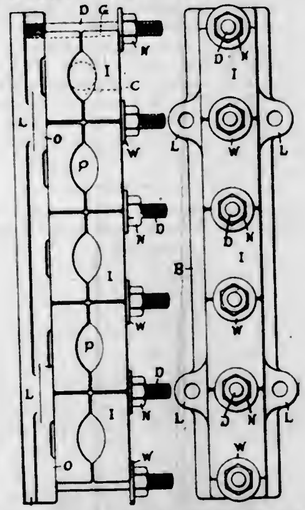
3. The combination in a stadia-rod of two rods constructed to slide one upon the other longitudinally, one of said rods being provided with graduations on its outer face, means for holding said rods in juxtaposition, a target supported on said graduated face, a second target disposed on said graduated face and having an opening exposing said face, and means for supporting said second target on said non-graduated rod, substantially as described.

4. The combination in a stadia-rod of the rods A, B constructed to slide one upon the other longitudinally, said rod A being provided with graduations and numerals on its outer face, means for holding said rod in juxtaposition, a target H supported upon the graduated face of rod A and a target N supported upon said rod B and in front of the graduated face of rod A, and having an opening exposing said face, substantially as described.

5. The combination in a stadia-rod of the rods A, B provided respectively with the groove C and tenon D, a graduated scale on the outer surface of rod A, target H supported on said rod A, strap M on rod B and target N carried by said strap; said target N being disposed in front of said scale and having an opening through which said scale is exposed.

6. The combination in a stadia-rod of the rods A, B, said rod A having a graduated scale on its outer face, means for holding said rods in juxtaposition, means for causing rod A to slide on rod B, a target H supported on rod A and a target N supported on rod B; said target N being disposed in front of said scale and provided with an opening through which said scale is exposed, substantially as described.

678,042. RACK-INSULATOR. HOWARD B. SARGENT, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 1, 1901. Serial No. 58,265. (No model.)

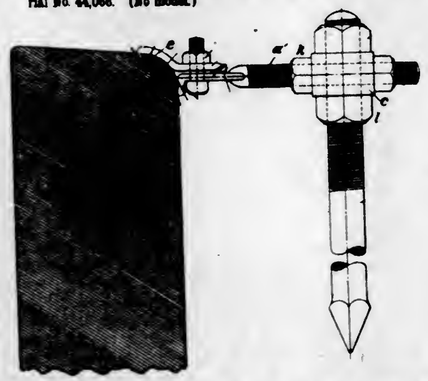


Claim.—1. In a rack-insulator, the combination with a base, of a plurality of pairs of insulating-clamps, the clamps of each pair being formed with adjacent grooves forming an opening for the reception of the conductor, each pair of clamps being also formed with lateral grooves, so that adjacent pairs of clamps form openings between them, and independent bolts which are located in said openings and removably engage in the base, whereby each bolt secures two pairs of insulating-clamps in position.

2. In a rack-insulator, the combination with a base, of a plurality of pairs of insulating-clamps, the clamps of each pair being formed with adjacent grooves, said grooves being wider at their centers in the direction of clamping than at other portions in the same direction, whereby conductors of different sizes can be clamped therein, each pair of clamps being formed also with lateral grooves, so that adjacent pairs of clamps form openings between them, and rods extending from the base through such openings, by which the clamps are held in position.

3. In a rack-insulator, the combination with a metal base, of a plurality of pairs of insulating-clamps, each pair being formed with adjacent grooves, which are wider in the direction of clamping than at their centers and gradually decrease in width on opposite sides of the centers, so that conductors of different sizes can be clamped therein, each pair of clamps being formed also with lateral grooves, so that adjacent pairs of clamps form openings, rods threaded on both ends and extending through said openings to engage in threaded portions of the metal base, and nuts on the other ends of the rods, whereby each nut secures two pairs of clamps in position.

678,048. PORTABLE CLAMP. JAMES A. SCOTT, Boston, RALPH L. WARREN, Newton, and HORACE W. ASH, Cambridge, Mass., assignors to Warren Brothers Company, Boston, Mass. Filed Jan. 21, 1901. Serial No. 44,066. (No model.)



Claim.—1. A portable device for holding and gaging a guard for concrete curbs, steps or other similar concrete work, comprising a standard or post, a horizontal clamp arm or shank mounted upon the standard or post to be vertically adjustable thereon and also to be horizontally movable with respect to it, and a guard-holding clamp at the end of said horizontal clamp arm or shank.

2. In a device for holding a guard for a concrete curb, steps or other similar concrete work during its construction, consisting of posts or standards set away from the front line of the curb, step or other concrete work to be constructed, an arm extending horizontally from each of said posts toward the line of said curb, step or work, and a guard-holding clamp at the end of said arm for holding the guard during the construction of the curb, step or other work, and which device is removable from the front of said step, curb or other work to permit it to be immediately finished, before it is set, by troweling.

3. A device for holding a guard for a concrete curb, step or other work during its construction, having a post or standard, a horizontal shank vertically movable upon the post and also horizontally movable with respect thereto and a clamp carried by said arm, the clamp having a horizontal face g^3, and vertical face i by means of which it may be set to the line of the guard before the guard is placed in the clamp.

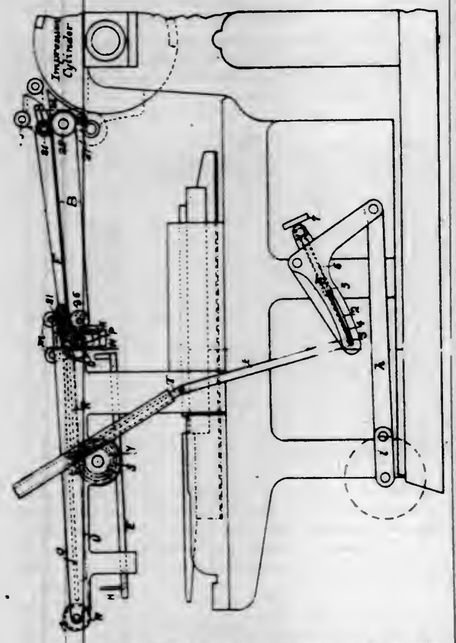
4. In a device for holding a guard for a concrete curb, step or other work, a clamp for holding the guard during the construction of the curb, step or other work having a lower member provided with a rest for the guard and a removable upper member having a seat and hook for the guard, and means for clamping the two members together whereby the lower member may continue to act as a support for the guard after the concrete of the curb or step has been combined with it but before the final finishing of its upper surface and adjustable supporting means whereby said device is upheld and may be adjusted both vertically and horizontally.

5. In a device of the character specified, the combination of the post having the threaded section d, a collar or head mounted upon the post to be movable thereon and having an extension at one side provided with a horizontal hole, nuts for adjusting the clamp upon the post and locking it in any desired position, a threaded shank extending through the horizontal hole in the collar or head, nuts for locking it in an adjusted position to the collar or head and a guard-holding clamp at the outer end of said horizontal shank.

6. In a device of the character specified, the adjustable shank a having at its outer end the integral member of a clamp provided with a face i and a rest g^3 and also with a removable section of a clamp having the face b^3, the hook b^3, the foot b' and a bolt or nut for locking the two clamp members together, the upper clamp member extending beyond the free end of the lower clamp member, as and for the purposes set forth.

7. The combination in a device of the character specified of a standard or post, a horizontal shank or arm mounted thereon to be vertically adjustable in relation thereto and also to be horizontally adjustable with respect to it and further to be movable upon a horizontal plane with regard to it, and a guard-clamp carried by said horizontal arm or shank.

678,044. SHEET-DELIVERY APPARATUS. WALTER SCOTT, Plainfield, N. J. Filed May 19, 1897. Serial No. 637,173. (No model.)



Claim.—1. In a sheet-delivery for printing-presses, the combination of a delivery-board, a roller, a discontinuous sheet-supporter connected at its ends to said roller and the framework of the machine, a ligament connected to said roller and the framework of the machine said roller being rotated by said support and said ligament, and mechanism for moving said roller bodily to and fro over the said board, substantially as described.

2. In a sheet-delivery for printing-presses, the combination of the delivery-board, a hollow roller, a discontinuous sheet-supporter connected at its ends to said roller and to the frame of the machine, a ligament connected to said roller and to the frame, said roller being rotated by said ligament and said supporter, a shaft within said hollow roller, pinions N on said shaft, fixed racks O with which said pinions mesh, and means for rotating the shaft, substantially as described.

3. In a sheet-delivery for printing-presses, the combination of the delivery-board, a roller moving to and fro above and over the board, the discontinuous sheet-supporter fast at its ends to the said roller and the frame of the machine, and a roller-operating ligament fast at one end to said roller and connected at its other end to the frame of the machine, substantially as described.

4. In a sheet-delivery for printing-presses, the combination of a delivery-board, the hollow roller D, the supported to-and-fro-movable shaft M loose within said roller D, the large and small pinions N, P, on said shaft, the fixed and movable racks O and R meshing respectively with said pinions N and P and mechanism for reciprocating rack R, with a discontinuous sheet-supporter connected to the roller D and the framework, and a ligament connected to said roller D and the framework, substantially as described.

5. In a sheet-delivery for printing-presses, the combination of an extensible collapsible sheet-support, mechanism including a reciprocating rack T, for operating said support a connecting-rod pivoted to said rack, and a lever provided with a curved slot in which the other end of the rod is pivoted and adjustable the said slot being curved on a radius equal to the length of the rod, substantially as described.

6. In a sheet-delivery, the combination of a flexible sheet-supporter fast at one end to a fixed part of the machine, a to-and-fro-movable roller to which the other end of said supporter is fast, mechanism for moving said roller to and fro and rotating it while so doing, guides carried by the stationary framework of the machine and overlying said supporter to retain the sheets thereon, said supporter moving to and fro under said guides, and a delivery onto which the sheets fall as said supporter is rolled up from under them, substantially as described.

7. In a sheet-delivery for printing-presses, the combination of the delivery-board, a roller moving to and fro above and over the board, the discontinuous sheet-supporter connected at its ends to said roller and to the frame of the machine, guides overlying the supporter for retaining sheets thereon, and a ligament connected at its ends to said roller and to the frame for operating the roller substantially as described.

8. In a sheet-delivery, the combination of a to-and-fro-movable roller, a sheet-supporter connected to said roller and the framework, a roller W journaled on the framework, a spring connecting the roller W with the frame, and a ligament for connecting the roller W with the movable roller aforesaid, substantially as described.

9. The combination of a delivery-board stops for the sheets adjustable toward and from a delivery-roller, and a to-and-fro-moving delivery-roller the length of whose to-and-fro motion from the initial point is adjustable substantially as described.

10. The combination of an impression-cylinder the carrying-tapes B, guides and rollers above the tapes an extensible collapsible sheet-support means for varying the throw or to-and-fro motion of the support guide-rods above the support and adjustable stops for the sheets on the delivery-table.

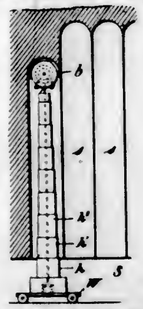
11. The combination of an impression-cylinder a reciprocating collapsible sheet-support means for rendering the support's motion adjustable as to its length from the receiving-point, and adjustable stops for regulating the distance the sheet travels substantially as described.

12. The combination of an impression-cylinder a reciprocating delivery adjustable as to the length of its stroke from the initial point, adjustable end stops for the sheets and side guides for the sheets adjustable in two directions substantially as described.

13. In a sheet-delivery, the combination of an impression-cylinder, a reciprocatory delivery-roller, and driving mechanism for said roller including a rack, a lever provided with a curved slot extending along said lever, and a rod adjustably connected with said slotted lever and also connected with said rack, and the radius of the curve of said slot being equal in length to said rod, substantially as described.

14. In a sheet-delivery the combination of the reciprocating delivery member and driving mechanism therefor including a lever provided with a curved slot the rod provided with the stud 3 for engagement with said slot the screw-threaded rod 4 pivotally connected with said stud the nut 5 on said rod 4 the swiveled tubular rod 6 carrying said nut and a hand-wheel 7 on said rod 6 whereby the distance of travel of the said delivery-member may be regulated while the machine is in motion.

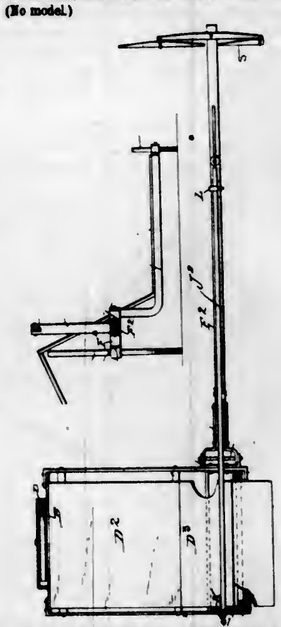
678,045. MINING-MACHINE. WILHELM SELTNER, Schlan, Austria-Hungary. Filed Oct. 15, 1900. Serial No. 33,168. (No model.)



Claim.—1. A mining-machine comprising a movable platform, a telescoping cylinder, a telescoping rotatable pole or rod, carried by the telescoping cylinder, a cutter-head carried by the pole or rod and geared thereto, means for rotating the telescoping cylinder for projecting and retracting the pole or rod with the cutter-head, and means for rotating the pole or rod to operate the cutter-head.

2. A mining-machine comprising a movable platform, a telescoping cylinder, a telescoping rotatable pole or rod, carried by the telescoping cylinder, a cutter-head carried by the pole or rod and geared thereto, a telescoping protecting-casing carried by the telescoping cylinder, means for rotating the telescoping cylinder for projecting and retracting the pole or rod with the cutter-head and casing, and means for rotating the pole or rod to operate the cutter-head.

678,046. ADJUSTABLE CARRIAGE FOR GRAIN-HARVESTERS. CHARLES W. SHELDEN, Clearfield, Iowa. Filed Jan. 12, 1901. Serial No. 42,979. (No model.)



Claim.—1. A carriage-frame for harvesters composed of two mating parallel side bars, having right-angled extensions projected vertically at one end of each bar and a plurality of cross-bars fixed to the side bars, a traction driver-wheel mounted on the elevated end portion of the frame, a traction-wheel of smaller diameter mounted at the other and lower end of the frame and a hinge-iron fixed to the elevated end portion of the rear side bar for hinging a pole thereto and a hinged pole, arranged and combined to operate in the manner set forth for the purposes stated.

2. An adjustable carriage for harvesters comprising a frame composed of parallel side bars having right-angled extensions projected vertically at one end and a plurality of cross-bars fixed to the side bars, a traction driver-wheel fixed to an axle and the axle rotatably mounted on the elevated end cross-bars and a traction-wheel of smaller diameter mounted at the other end of the frame, a platform fixed on top of the frame, a hinge-iron fixed to the elevated end of the rear side bar, a pole pivotally connected with the fixed hinge-iron, a post fixed on the central portion of the pole, a rack fixed on the rear end portion of the pole, an evener pivoted to the rear end of the pole, a lever fulcrumed to the fixed post on the pole and extended to the front of the carriage-frame to be adjustably connected with the fixed rack and a rod pivotally connected with the front end of the lever and the front side bar of the carriage-frame, arranged and combined to operate in the manner set forth.

678,047. INDUCTION-COIL. HARRY SHOEMAKER, Philadelphia, Pa., assignor to Gustave P. Gehring, same place. Filed Apr. 16, 1901. Serial No. 56,159. (No model.)

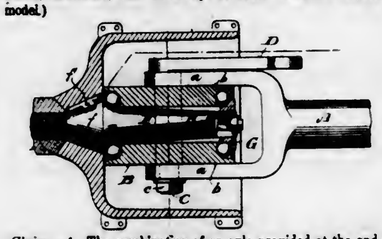


Claim.—1. An induction-coil, comprising a central non-conducting core or spool, a series of metal disks fitting upon said spool and provided with air-gaps between their ends, cup-shaped metal disks surrounding said spool upon either end of the disks and having an air-gap between their edges, and a secondary and a primary coil mounted upon the disks in the space between them in the bent ends of the cup-shaped disks.

2. An induction-coil, comprising a non-conducting spool, a series of disks provided with an air gap, and a series of cup-shaped disks provided with an air-gap surrounding said spool, and primary and secondary coils surrounding the series of disks.

3. An induction-coil consisting of a non-conducting base, a series of thin metal disks, having an air-gap between their ends, sheets of paper fitting between the disks, a series of cup-shaped disks upon the base on each side of the other disks and primary and secondary windings surrounding the disks in the casing formed by the cup-shaped portion of the other disks.

678,048. WHEEL-BEARING FOR VEHICLES. CHARLES S. SMITH, Milwaukee, Wis. Filed Sept. 16, 1899. Serial No. 730,683. (No model.)



Claim.—1. The combination of an axle provided at the end with a box which has ball-bearings, a spindle adapted to turn in said box and provided with opposing ball-bearings one of which is detachable and adjustable, and a hollow wheel-hub open at its inner end to receive said box, spindle and ball-bearings and centrally attached at its outer end to the outer end of said spindle, substantially as and for the purposes set forth.

2. The combination of an axle forked at the end, a box pivoted in the forked end of said axle and provided with ball-bearings, a spindle loosely fitted in said box and provided with ball-bearings opposing the ball-bearings of said box, one of the ball-bearings on said spindle being detachable and adjustable, and a hollow wheel-hub open at its inner end to receive the end of the axle and the box pivoted therein and centrally attached at its outer end to the outer end of said spindle, substantially as and for the purposes set forth.

3. The combination of a forked axle having horizontally-disposed bearing-faces on the inner sides of the fork-arms, a box pivoted to said fork-arms in a line at right angles to said bearing-faces and in advance of the axis of the box and formed on the top and bottom with plane parallel bearing-faces snugly fitting against the opposing bearing-faces on said fork-arms, a hollow wheel-hub open at its inner end to receive said box, and a spindle centrally attached at its outer end to the outer end of said hub and extending axially inward therefrom into said box, in which it is rotatably held by balls and ball-bearings, substantially as and for the purposes set forth.

4. The combination of a forked axle, a box pivoted between the fork-arms of said axle, a spindle fitted to turn in said box and provided at its outer end with a cone-shaped bearing, and a hollow hub open at its inner end to receive the end of the axle with the box pivoted therein, and formed at its outer end with a central conical seat in which the conical bearing of said spindle is fitted and secured, substantially as and for the purposes set forth.

5. The combination of a forked axle, a box pivoted between the fork-arms of said axle, a spindle fitted to turn in said box and formed at its outer end with a conical bearing and a reduced screw-threaded extension beyond said bearing, a hollow wheel hub open at its inner end to receive the forked end of the axle with the box pivoted therein and formed in its outer end with outwardly and inwardly diverging central conical seats, the conical bearing on said spindle fitting into the inner conical seat in said wheel-hub, and a nut fitted on the screw-threaded end of said spindle and having a conical face fitting into the outer conical seat in said wheel-hub, substantially as and for the purposes set forth.

6. The combination of a forked axle, a box pivoted at one side of its axis between the fork-arms of said axle by a pin passing vertically through said box and the fork-arms, a hollow wheel-hub open at its inner end to receive the forked end of the axle with the box pivoted therein and provided with an axial spindle attached centrally to its outer end and adapted to turn in said box, and a steering-arm attached to one end of said pivot-pin and extending therefrom on the outer side of the adjacent fork-arm of the axle through the inner open end of said hub, substantially as and for the purposes set forth.

7. The combination of an axle provided at the end with a box, a spindle fitted to turn in said box and provided at its outer end with a cone-shaped bearing, and a hollow hub open at its inner end to receive said box and formed at its outer end with a central conical seat in which the conical bearing of said spindle is fitted and secured, substantially as and for the purposes set forth.

8. The combination of an axle provided at the end with a box, a hollow wheel-hub open at its inner end to receive said box and formed centrally in its outer end with inwardly and outwardly diverging conical

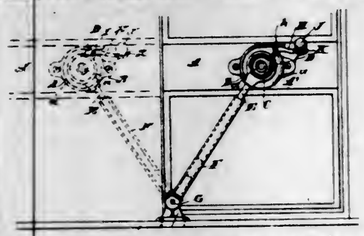
seats, a spindle fitted to turn in said box and formed at its outer end with a conical bearing which is fitted and secured in the inner seat of said hub and with a screw-threaded extension beyond said bearing, and a nut threaded on said extension and having a conical face fitted in the outer seat in said hub, substantially as and for the purposes set forth.

678,049. OVERALLS. ROBERT J. SMITH, Ottawa, Canada. Filed Sept. 29, 1900. Serial No. 31,574. (No model.)



Claim.—As a new article of manufacture, a pair of overalls comprising a waist portion having a slit therein, one edge of the slit being adapted to overlie the other in combination with shoulder-straps, one member thereof being secured to one edge of the slit and having a looped portion forming a guide for the other member which is secured to the opposite edge of the slit whereby the secured member is held in a position overlying said first-mentioned edge of the slit to retain the same in place, substantially as described.

678,050. LOCK FOR ELEVATOR-GATES. WILLIAM C. SMITH, Cleveland, Ohio. Filed May 25, 1900. Serial No. 17,935. (No model.)

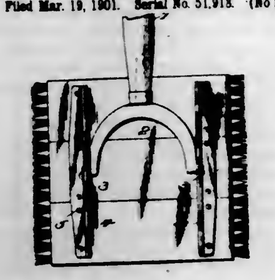


Claim.—1. In a safety-lock for an elevator-door a face-plate, mounted upon the elevator, a disk pivotally secured thereto, an extensible connection between said disk and floor pivotally attached to the floor, and means for retaining the gate where placed consisting of a gravity-operated pawl pivoted upon the face-plate and adapted to engage the periphery of the disk, substantially as described.

2. In a safety-lock for an elevator-gate the combination with a disk provided with ratchet-teeth on its periphery, and pivotally attached to a face-plate upon the gate of an extensible connection comprising an arm and sleeve pivoted to a standard upon the floor, and means for retaining the gate where placed consisting of a gravity-operated pawl upon the face-plate adapted to engage said teeth, substantially as described.

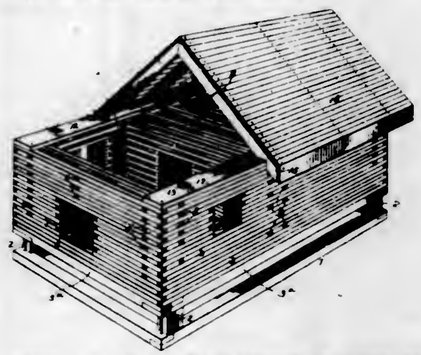
3. The combination with a gate and floor in front thereof, of a plate upon the gate, a gravity-dog pivoted on said plate, a disk pivoted on said plate provided with ratchet-teeth arranged to be engaged by said dog, and an extensible device connecting the disk and floor, constructed and arranged to rotate the disk as the gate moves to right or left, and having pivotal connection with the floor, substantially as described.

678,051. SCRUBBING-BRUSH. JOSEPH B. SCHWEIGER, Beaverdam, Wis. Filed Mar. 19, 1901. Serial No. 51,913. (No model.)



Claim.—A brush comprising a plurality of sections or small brushes arranged in series, independent coupling-bars connecting the brushes or sections and comprising horizontal and vertical flanges decreasing in height and width, respectively, toward their extremities, the vertical flanges having transversely-alining openings intermediate of their ends, and a handle having a fork at its attaching end provided with outwardly-extending journals obtaining bearings in the said coupling-bars, substantially as specified.

678,052. BUILDING. LIBERACUS T. SLYE, Upper Sandusky, Ohio. Filed Dec. 6, 1900. Serial No. 38,907. (No model.)



Claim.—1. A wall for a building comprising two partitions, each composed of a series of horizontal timbers, and a series of horizontal transverse timbers interposed between the timbers of the respective partitions and securing said partitions together.

2. A building comprising side walls, each composed of parallel partitions and interlocked at their meeting ends.

3. A building comprising side walls composed of parallel partitions interlocked at their meeting ends and the parallel partitions connected by transverse blocks or timbers.

4. A building comprising outside walls each of which is composed of two parallel partitions made up of longitudinal timbers interlocking with the timbers of the wall at an angle thereto and transverse blocks interposed at their ends between the longitudinal timbers and securing the partitions together.

5. A building comprising outside walls each of which is composed of two partitions made up of longitudinal timbers interlocking with the timbers of the wall at an angle thereto, transverse blocks or timbers interposed at their ends between the longitudinal timbers and securing the partitions together, boards above and below the walls, rods passed through said boards and between the partitions and nuts on said rods for securing all of said parts together.

6. A building comprising outside walls, each of which is composed of two parallel partitions made of longitudinal timbers interlocking with the timbers of the wall at an angle thereto, transverse blocks interposed at their ends between the longitudinal timbers, and partitions between said side walls dividing the building into rooms and composed of a series of longitudinal timbers interlocked at their ends with the inner partition of the outside walls.

7. A building comprising a frame adapted to be buried in the ground, uprights on the frame, a base secured on said uprights, side walls on said base, rods securing the side walls and base together and a roof secured on the side walls.

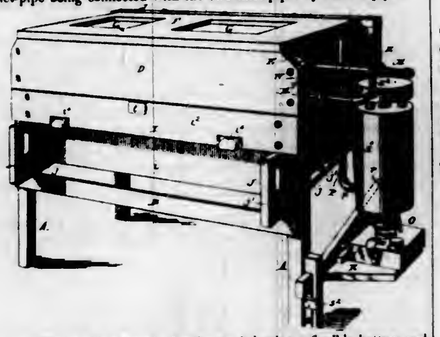
678,053. INCUBATOR. ALBA A. SKINNER, Greene, N. Y. Filed Sept. 28, 1900. Serial No. 31,401. (No model.)

Claim.—1. An incubator provided with a tray for supporting the eggs, and a hermetically-sealed tank containing a heating medium below atmospheric pressure and provided with a flexible bottom in direct contact with the eggs.

2. An incubator provided with a tray for supporting the eggs, and a hermetically-sealed tank containing a heating medium and provided with a straight horizontal flexible bottom in direct contact with the eggs.

3. An incubator provided with a tray for supporting the eggs, a tank containing water and provided with a filling-orifice closed by a cover, and a draw-off cock, a flexible bottom for the tank, and pipes arranged within the tank through which a heating medium circulates without increasing the pressure in the tank.

4. An incubator provided with a tank, having a flexible bottom, and circulating-pipes for the heating medium within the tank, two of said pipes being inlet-pipes and conveying the heating medium along the opposite sides of the tank, one of said pipes being centrally arranged between the inlet-pipes and adapted to discharge the heating medium, said outlet-pipe being connected with the two inlet-pipes by branch pipes.



5. The combination of a heating-tank having a flexible bottom and a thermometer, the bulb of which is arranged in contact with the flexible bottom of the tank.

6. The combination of a heating-tank having a flexible bottom, a thermometer projecting from the outside into the hatching-chamber, and a spring for pressing the bulb of the thermometer against the flexible bottom of the tank.

7. The combination of a heating-tank, a casing within the tank, a thermostat within said casing, heating mechanism and connections between the thermostat and the heating mechanism.

8. The combination of a heating-tank, a casing arranged within the tank, a thermostat within the casing, devices at one end of the casing for adjusting the thermostat, a heater, and connections between the heater and the thermostat.

9. The combination of a heating-tank, a casing within the tank open at opposite ends, a thermostat removable endwise from the casing, devices outside the casing for adjusting the thermostat, a heater, and connections between the thermostat and the heater.

10. The combination of a thermostat having a vibrating rod, a slotted plate through which the rod projects, devices for adjusting the plate, a heater, and connections between the thermostat-rod and the heater.

11. The combination of a thermostat having a vibrating rod, a rock-shaft, a heater, an arm on the rock-shaft connected with the heater, and connections between the rock-shaft and the thermostat-rod.

12. The combination of a drawer for supporting an egg-tray, the slides on which the drawer rests, and devices for lowering the slides and withdrawing them, to permit the lowering and withdrawal of the drawer with the tray.

13. The combination of an egg-tray, a drawer on which the tray rests, the slides having straight upper surfaces on which the drawer is supported, and inclined slots, and rollers supported on the main frame projecting into the slots.

14. The combination with a tray for supporting the eggs, of a ventilating-chamber below the tray having an exit-opening in the bottom, and a tube having its lower end on approximately the same level as the exit-opening open to the atmosphere and extending to near the top of the ventilating chamber and terminating below the tray, for admitting fresh air at normal temperature.

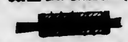
15. The combination of an egg-tray, a drawer on which the tray is supported, slides on which the drawer rests and which have inclined slots, rollers supported on the main frame extending through the slots, and a stop on the drawer engaging the main frame to prevent the opening of the drawer until it is lowered.

16. The combination of a heating-tank having a flexible bottom, an egg-tray below the tank which holds the eggs in contact with the flexible bottom, a drawer on which the egg-tray is supported, the slides on which the drawer rests and which have inclined slots, and rollers on the main frame projecting through the slots.

17. The combination with a tray for supporting the eggs, of a ventilating-chamber below the tray having an exit-opening in each corner at the bottom, and tubes arranged in the central portion of the tray, open at the bottom to the atmosphere, for admitting fresh air at normal temperature and extending upwardly to near the top of the ventilating-chamber and terminating below the tray.

18. The combination of a tray for supporting the eggs, a heater arranged above the tray, a ventilating-chamber below the tray having an exit-opening in the bottom, and a tube for admitting fresh air at normal temperature, extending up to near the top of the ventilating-chamber and terminating below the tray.

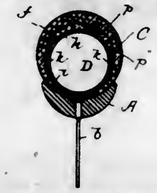
678,054. POLISHING-WHEEL. HENRY SNYDER, New York, N. Y. Filed Feb. 14, 1901. Serial No. 47,221. (No model.)



Claim.—1. A polishing-brush comprising a central body portion composed of separate side disks, and a central disk corrugated radially and on the opposite sides of which the brush material is placed, and means for connecting said disks, substantially as shown and described.

2. A polishing-brush comprising a central body portion composed of separate side disks, and a central disk corrugated radially and on the opposite sides of which the brush material is placed, said brush material being extended entirely through the body portion of the wheel and projected at the opposite sides thereof, said disks being connected substantially as shown and described.

678,055. VEHICLE-TIRE. GEORGE W. SOUTHWICK, Franklin, Mass. Filed May 23, 1901. Serial No. 61,532. (No model.)



Claim.—1. In a vehicle-tire a rubber outer casing; an air-chamber therein comprising a hollow ring of wood formed of two members semicircular in cross-section and secured together circumferentially.

2. In a tire of the class described a rigid air-chamber, D, formed of two annular members, *h*, *i*, kerfed laterally in their outer faces.

3. In a tire of the class described a rigid air-chamber, D, formed of two annular members, *h*, *i*, kerfed laterally in their outer faces and having their edges chamfered substantially as and for the purpose specified.

4. The felly; the rubber casing, C; the wooden annular tube, D, within said casing and drawn into the felly-groove; and the elastic padding between said tube and casing all being combined and arranged to operate substantially as described.

678,056. TOOTH-POWDER BOX. CHARLES H. STADLIPGER, Buffalo, N. Y. Filed Mar. 23, 1901. Serial No. 53,810. (No model.)



Claim.—1. A powder-box containing a sliding delivery-trough which extends through one of its ends and which is located on one side of the center thereof, the outer wall of the trough being arranged parallel with and in close proximity to the wall of the box, and its opposite wall being separated from the opposing wall of the box, whereby when the level of the box contents falls below the top of the trough, the latter can be filled only by rotating the box, substantially as set forth.

2. A powder-box containing a sliding delivery-trough extending through one of its ends and located on one side of its center, the outer wall of the trough being arranged parallel with and in close proximity to the wall of the box, and its opposite wall and its top and bottom being separated from the wall of the box, substantially as set forth.

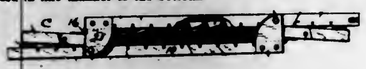
3. A powder-box having an internal, sliding delivery-trough which extends through one of the heads thereof, and a skimmer arranged within the box, near said head, and extending into the open side of the delivery-trough, substantially as set forth.

4. A powder-box having an internal, sliding delivery-trough which extends through an opening in one of the heads of the box, and a guide-collar arranged around the edge of said opening and extending into the box a short distance beyond the adjacent box-head and provided at its rear end with a skimming-lip which extends into the open side of the delivery-trough, substantially as set forth.

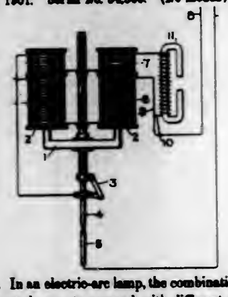
678,057. COLLAPSIBLE SHIPPING-CRATE. JACOB S. STEINBERG and GEORGE VAN HARBORG, Cincinnati, Ohio. Filed Apr. 15, 1901. Serial No. 56,222. (No model.)

Claim.—In a collapsible crate, the combination of a top and bottom side, two end sides, hinges whereby all four sides are connected, and intervenient members 17 to close the space at the sides of the structure so

formed by the hingedly-connected sides, said members each consisting of two sections adapted to telescope, one within the other, one section of all these members being hingedly connected to the top and the other being connected in like manner to the bottom.



678,058. ELECTRIC-ARC LAMP. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Apr. 6, 1901. Serial No. 54,869. (No model.)



Claim.—1. In an electric-arc lamp, the combination of differentially-acting coils connected so as to respond with different degrees of promptness to variation of current in the arc, and arc-regulating mechanism operatively related to said coils.

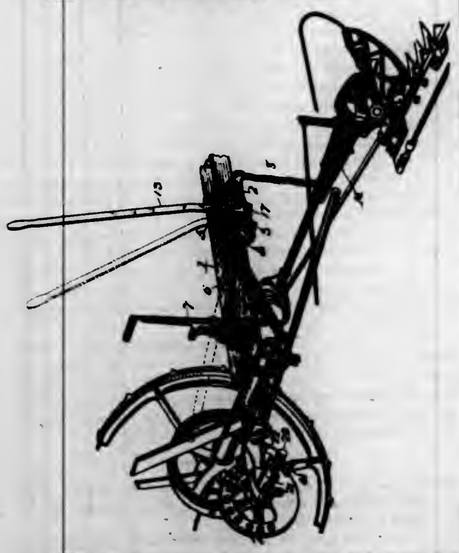
2. In an electric-arc lamp, the combination of branch circuits of different time constants, coils connected respectively in said branch circuits, and arc-regulating mechanism operatively related to said coils.

3. In an electric-arc lamp the combination of arc-regulating mechanism operated on by differentially-acting coils, and branch circuits of different time constants into which said coils are respectively connected.

4. In an electric-arc lamp, the combination of branch circuits of different time constants, said branch circuits including a main coil or winding in one of said branches and a differential coil in another branch, and arc-regulating mechanism operatively related to said coils.

5. In an electric-arc lamp, the combination of branch circuits a main coil or winding in one of said branches, a differential coil and an inductance-coil in another branch circuit, and arc-regulating mechanism operatively related to said coils.

678,059. MOWING-MACHINE. JOHN F. STEWARD, Chicago, Ill. Filed Feb. 2, 1899. Serial No. 704,259. (No model.)



Claim.—1. In a mower, the combination of an endwise-moving shaft, a lever pivoted at right angles thereon for rocking the same, a spring reacting between the lever and the shaft and holding said lever normally locked in engagement with a fixed stop or shoulder, and an angular footpiece projecting parallel with the shaft from an arm of the lever and extending on the other side of its pivot from said stop, whereby a single movement unlocks the lever and shifts its position.

2. In a mower, the combination of the counter-shaft 20, its bearing 21, the stop-shoulders 26, 27, the pin 29 projecting from the shaft and the cam-groove 28 in which said pin works, the lever 22 pivoted transversely on said shaft and provided with the catch 25 on one side of its pivot, the arm 40, and the footpiece 41 extending from the arm on the other side of the lever's pivot, and the spring 24 reacting between the shaft and the lever and holding the catch normally engaged with either of the stops or shoulders on the bearing 21.

678,060. LOCK. MAURICE SWITZER, New York, N. Y., assignor of one-half to Edward Brunhoff, Hamilton, Ohio. Filed Feb. 4, 1901. Serial No. 45,916. (No model.)



Claim.—1. In a lock of the character set forth, a face-plate adapted to be secured to one of the members to be locked and provided with a projecting bolt; a plate hinged to the lower end thereof and having its upper end adapted to engage the opposite member to be locked; and means carried by the locking-plate for engaging the bolt and locking the faces of said plates together, substantially as specified.

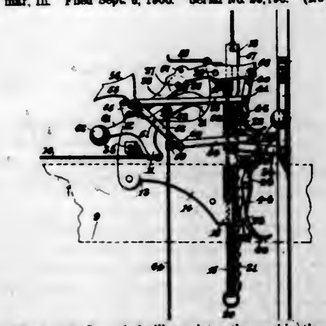
2. In a lock of the character described, a face-plate adapted to be attached to one of the members to be locked; a bolt projecting therefrom; a locking-plate hinged thereto and with its free end adapted to engage the opposite member to be locked; a recess through the locking-plate for the passage of the bolt; and a series of notched tumblers adapted to engage beneath the head of the bolt, substantially as specified.

3. In a lock of the character described, two plates hinged together at one end and adapted to be locked together at the opposite end; a bolt projecting from one of said plates; and a series of notched tumblers adapted to engage beneath the head of said bolt, the outer one of said tumblers forming a cap to inclose the bolt-head and inner tumblers, substantially as specified.

4. In a lock of the character described, a bolt having a head and a reduced neck; a tumbler having a notch in its periphery; a cap-shaped tumbler seating over and inclosing said inner tumbler and having a counterpart notch adapted to register with the notch on the inner tumbler and permit the passage of the bolt-head; and pins on the respective tumblers for setting the inner tumbler, substantially as specified.

5. In a lock of the character described, a metallic band adapted to encircle the article to be locked; a face-plate provided with a bolt and adapted to be secured to said strap, a screw adapted to simultaneously secure the face-plate in position, and to lock the ends of the band together; a locking-plate hinged to the face-plate at one end and provided at the opposite end with a spur adapted to engage the opposite member to be locked; and means for locking the two plates together, substantially as specified.

678,061. WINDMILL-REGULATOR. HERBERT K. TABLER, Colmar, Ill. Filed Sept. 6, 1900. Serial No. 29,196. (No model.)



Claim.—1. In a windmill-regulator, the combination with the pump-rod and windmill connection, of means for transmitting motion from the pump-rod to the said connection, and for imparting a definite and uniform throw to the windmill connection irrespective of the extent of throw of the pump-rod.

2. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the windmill, of means for transmitting motion from the pump-rod to the draw-bar and imparting a definite and uniform amount of movement to the draw-bar irrespective of the extent of movement of the pump-rod.

3. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected to the windmill connection, of means for transmitting motion from the pump-rod to the draw-bar, and means for imparting a predetermined and uniform movement to the draw-bar irrespective of the extent of throw of the pump-rod.

4. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the windmill, of means including cam for transmitting motion from the pump-rod to the draw-bar, and imparting a definite and uniform throw to the draw-bar irrespective of the amount of throw of the pump-rod.

5. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the mill, of cam-operating connections for transmitting motion from the pump-rod to the draw-bar, and imparting a definite and uniform throw to the draw-bar irrespective of the length of throw of the pump-rod.

6. In a windmill-regulator, the combination with the pump-rod and windmill connection, of adjustable means including a pivoted cam for transmitting motion from the pump-rod to the said connection.

7. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the windmill, of adjustable means for transmitting motion from the pump-rod to the draw-bar, and for imparting a definite and uniform amount of movement to the draw-bar irrespective of the extent of movement to the pump-rod.

8. In a windmill-regulator, the combination with a pump-rod, a draw-bar connected to the windmill connection, of adjustable means for transmitting motion from the pump-rod to the draw-bar, and for imparting a predetermined and uniform movement to the draw-bar irrespective of the extent of throw of the pump-rod.

9. In a windmill-regulator, the combination with a pump-rod and a draw-bar connected with the windmill, of adjustable means, including a cam, for transmitting motion from the pump-rod to the draw-bar, and for imparting a definite and uniform throw to the draw-bar irrespective of the amount of throw of the pump-rod.

10. In a windmill-regulator, the combination with a pump-rod, a draw-bar connected with the windmill, of an adjustable cam-operating connection for transmitting motion from the pump-rod to the draw-bar, and for imparting a definite and uniform throw to the draw-bar irrespective of the length of the throw of the pump-rod.

11. In a windmill-regulator, the combination with a pump-rod, and a draw-bar connected with the windmill, of means for transmitting motion from the pump-rod to the draw-bar, said means comprising, in part, a pivoted cam, and a lever, one end of the lever being connected with the pump-rod and the other end adjustably connected with the cam.

12. In a windmill-regulator, the combination with a pump-rod and a draw-bar connected with the windmill, of means for transmitting motion from the pump-rod to the draw-bar, said means including a pivoted cam, and a lever, one end of which is pivoted to the pump-rod and the other end portion provided with a series of orifices to be engaged by a pin to couple it with the cam.

13. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the mill, of means for transmitting motion from the pump-rod to the draw-bar, comprising trip-pawls which operatively engage the draw-bar.

14. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the mill, of means for transmitting motion from the pump-rod to the draw-bar, comprising knuckle-jointed pawls which operatively engage the draw-bar and assist in tripping the operating mechanism.

15. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the mill, of lever connections for transmitting motion from the pump-rod to the draw-bar, trip-pawls operating in connection with the draw-bar, a shipping-lever connected with said pawls and adapted to be partially operated thereby, and float-controlled means for throwing the shipping-lever.

16. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the windmill, of a cam, a cam-operating lever connected with the pump-rod, a cam-operated lever and a pawl connected with said lever and adapted to coöperate with the draw-bar.

17. In a windmill-regulator, the combination with the pump-rod and the draw-bar connected with the windmill, of a cam-operated lever, a pawl carried thereby and coöperating with the draw-bar, a roller mounted on the cam-operated lever, a cam operating upon said roller, and a cam-operating lever connected with the pump rod.

18. In a windmill-regulator, the combination with the pump-rod, and a draw-bar connected with the windmill, of operating mechanism for transmitting motion from the pump-rod to the draw-bar, said mechanism including operating and holding pawls, a weighted shipping-lever connected with said pawls for simultaneously moving the same into and out of engagement with the draw-bar, and a weighted carrier for the holding-pawl adapted in conjunction with the weighted shipping-lever to hold the pawls out of engagement with the draw-bar.

19. In a windmill-regulator, the combination with the pump-rod and a draw-bar connected with the windmill, of operating mechanism for transmitting motion from the pump-rod to the draw-bar, comprising operating and holding pawls, a shipping-lever having a link connection with both pawls, and a float-controlled trip-lever coöperating with the shipping-lever.

678,062. MAGAZINE-HAMMER. GROVE S. TARBELL, Lockport, Ill. Filed Feb. 23, 1901. Serial No. 48,209. (No model.)



Claim.—1. In a magazine-hammer, a hollow handle providing a magazine and having a feed-slot, a plug removably fitting the bore of the handle and having a seat to retain the nails or tacks.

2. In a magazine-hammer, a hollow handle providing a magazine and having a feed-slot, and a seat adjustable within the bore of the handle.

3. In a magazine-hammer, a hollow handle providing a magazine and having a feed-slot, and a magnetized seat adjustable within the bore of the magazine.

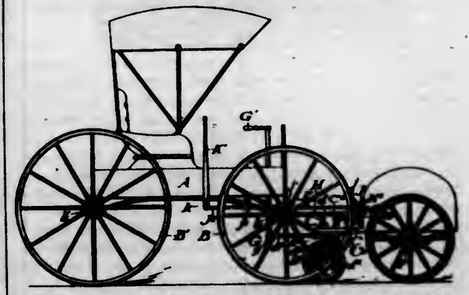
4. In a magazine-hammer in combination, a cylindrical handle providing a magazine and having a longitudinal feed-slot and bayonet-slots, a plug adapted to the bore of the handle and having pins to engage the bayonet-slots and a magnetized seat.

5. In a magazine-hammer in combination, a cylindrical handle providing a magazine and having a longitudinal feed-slot and oppositely-disposed bayonet-slots, a recessed plug adapted to the bore of the handle and having elongated slots adapted to register with the bayonet-slots, a seat pivoted in the recess of the plug, pins on the seat projecting through the slots of the plug, and means to force the pins within the bayonet-slots of the handle.

6. In a magazine-hammer in combination, a cylindrical handle providing a magazine and having a longitudinal feed-slot and oppositely-disposed bayonet-slots, a recessed plug removably fitted within the bore of the handle and having elongated slots to register with the bayonet-slots, an anvil on the plug, jaws pivoted on the anvil to register with the feed-slot, a seat pivoted in the plug, pins on the seat projecting through the elongated slots and means to force the pins within the bayonet-slots.

7. In a magazine-hammer, a hollow handle providing a magazine and having a feed-slot, a recessed plug adapted to the magazine having a channel adapted to register with said slot, and a seat adjustable within the recess of the head.

678,063. MOTOR-VEHICLE. RUSSELL THAYER, Philadelphia, Pa. Filed Feb. 9, 1901. Serial No. 46,608. (No model.)



Claim.—1. The combination of a vehicle-body; a rear axle, a front axle pivotally connected with said body; wheels for said axles respectively; a motor-driven carriage; a rearwardly-projecting trail connected with said motor-carriage; a steering axle and wheel carried by said trail and pivoted to turn in a horizontal plane; a draw-bar; means for attach-

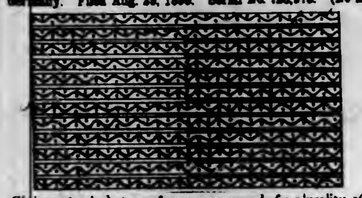
ing said draw-bar to the front axle of the vehicle; a pivotal connection between said draw-bar and said motor-carriage; a controlling member for said steering-axle; and a controlling member for the motor mechanism; said controlling members respectively being operable from the carriage-body, substantially as described.

2. The combination of a vehicle-body; a rear axle; a front axle pivotally connected with said body; wheels for said axles respectively; a motor-driven carriage; a steering axle and wheel for said motor-carriage; a pivotal connection between said motor-carriage and said steering-axle whereby said axle is permitted to rotate in a horizontal plane independently of said motor-carriage; a controlling member operable from the vehicle body for shifting said steering-axle in a horizontal plane; a draw-bar; means for attaching said draw-bar to the front axle of the vehicle; a pivotal connection between said draw-bar and said motor-carriage whereby said bar is permitted to turn relatively to said carriage in a horizontal plane, said pivotal connection of the draw-bar being independent of the pivotal connection for the steering-wheel; and a controlling member operative upon the motor mechanism and operable from the vehicle-body, substantially as described.

3. The combination of a vehicle-body; a rear axle; a front axle pivotally connected with said body; wheels for said axles respectively; a motor-driven carriage; a trail projecting rearwardly from said motor-carriage and comprising two exterior converging arms and an intermediate arm; a vertical bearing mounted at the rear end of the trail; a vertical pivot-stem rotatably mounted in said bearing; a steering-axle connected at its central portion with said stem; a pair of steering-wheels carried by said axle; a controlling member operable from the vehicle-body and connected with said stem, whereby said steering-axle may be turned in a horizontal plane; a draw-bar; means for attaching said draw-bar to the front axle of the vehicle; a pivotal connection, such as a fifth-wheel, between said draw-bar and said motor-carriage; and a controlling member operable from the vehicle-body and operative upon the motor mechanism, substantially as set forth.

4. The combination of a vehicle-body; a rear axle; a front axle pivotally connected with said body; wheels for said axles respectively; a motor-driven carriage; a trail projecting rearwardly from said motor-carriage; a vertical bearing mounted at the rear end of the trail; a hollow vertical pivot-stem rotatably mounted in said bearing, the cavity of said stem being of angular cross-section; a steering-axle; a pair of steering-wheels; a vertical stem connected with the central portion of said steering-axle and having a cross-section conforming to that of the cavity of the pivot-stem; a transverse supporting-bar mounted upon said pivot-stem; springs interposed between said supporting-bar and said steering-axle; a controlling member operable from the vehicle-body, whereby said pivot-stem may be turned upon a vertical axis; a draw-bar; means for attaching said draw-bar to the front axle of the vehicle; a pivotal connection, such as a fifth-wheel, between said draw-bar and said motor-carriage; and a controlling member operable from the vehicle-body and operative upon the motor mechanism, substantially as described.

678,064. **BULLET-PROOF SUBSTANCE.** HERMANN THEIS, Ohligs, Germany. Filed Aug. 29, 1900. Serial No. 728,973. (No model.)

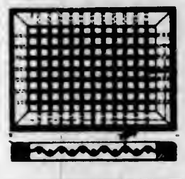


Claim.—1. A shot-proof armor composed of a plurality of materials offering different degrees of resistance to the penetration of a projectile, adjoining on lines substantially parallel to the direction of the shot or lying perpendicular to the surface of impingement and jointly forming said surface, whereby the projectile, by simultaneous impingement upon a plurality of layers having different degrees of penetration resistance, is retarded and laterally deflected, and disintegration thereof caused to result from the penetration, so that the momentum is substantially neutralized and the divided particles are retained in the mass.

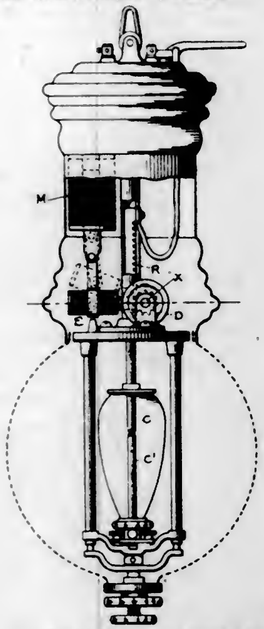
2. A shot-proof armor made up of metallic and woven materials adjoining in planes substantially parallel to the direction of the shot to be withstood, and of dimensions sufficiently reduced to cause a plurality of layers to be impinged simultaneously by the shot, for the purpose herein set forth.

678,065. **MANUFACTURE OF PRINTING-SURFACES.** THOMAS C. THOMPSON and WILLIAM H. J. WINN, Manchester, England. Filed Feb. 21, 1901. Serial No. 48,278. (No model.)

Claim.—The manufacture or production of flat printing-surfaces of the class described, which consists in coating the pattern with sulfurized caoutchouc and vulcanizing it in position, placing the removed vulcanized matrix face upward, arranging thereon a frame containing internal supports, effectively wetting the face of the matrix, and casting the printing-surface within the frame so that the supports are included therein, substantially as set forth.



678,066. **ELECTRIC-ARC LAMP.** ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Dec. 26, 1899. Serial No. 741,543. (No model.)



Claim.—1. A clutch for an arc-lamp having a magnetizable clutch member controlling the movable carbon, means controlled by the arc for varying the magnetization of said member to vary the clutch-grip, and thereby to regulate the feed, and an independent lifting-magnet to strike the arc.

2. A clutch for an arc-lamp having its engaging clutch-faces in uniform relation, a feed-regulating circuit varying in current strength under arc fluctuations, means for generating a field of force between the clutch-faces governed by the current to vary the clutch-grip and thereby regulate the feed, and an independent lifting-magnet.

3. A clutch for an arc-lamp having engaging faces of magnetic material in constant gripping relation and forming an open magnetic circuit for rapid magnetization and demagnetization, connections for establishing a magnetic field when the arc is struck, a demagnetizing-circuit controlled by the arc length and an independent lifting-magnet for striking the arc.

4. A clutch for an arc-lamp having engaging faces of magnetic material in constant gripping relation and forming an open magnetic circuit for rapid magnetization and demagnetization, an electromagnetic winding for effecting feed of the movable carbon-containing coils in shunt and series relation to the arc and an independent lifting-magnet for striking the arc.

5. A clutch for an arc-lamp comprising an electromagnet containing a coil in series with the arc, mechanically engaging an armature movable with the carbon when feeding, a demagnetizing-circuit for said magnet controlled by the arc at a determinate length to permit feed without arc rupture, and an independent lifting-magnet for striking the arc.

6. An arc-lamp having a rack-feed, an armature geared to the rack, a feed-regulating magnet to which the armature presents a continuous face and by whose field of force it is attracted, said magnet containing a winding demagnetized when the arc attains a determinate length and an independent lifting-magnet for striking the arc.

7. An arc-lamp having a rack-feed, an armature having an unbroken face geared to the rack, a feed-regulating magnet engaging the armature forming a quick-acting magnet, a magnetizing-circuit for said magnet controlled by the arc length to reduce the force of engagement as the arc lengthens and an independent sluggish lifting-magnet for striking the arc.

8. An arc-lamp having a rack-feed, an armature geared to the rack, a feed-regulating coil establishing a magnetic field between the armature and a pole engaging the same, said armature and pole forming a quick-acting magnetic system, connections for demagnetizing the coil when the arc attains a determinate length and an independent sluggish arc-striking magnet.

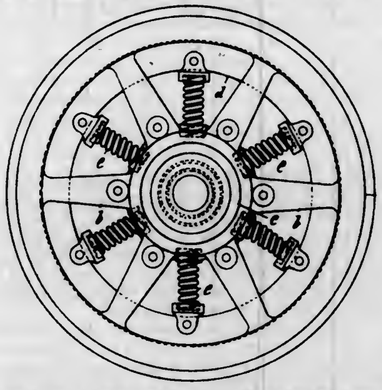
9. An arc-lamp comprising a sluggish arc-striking magnet, and an independent feed-regulating magnet having its pole in frictional engagement with a movable armature connected to the movable carbon, said feed-regulating magnet forming a quick-acting magnetic system, and a demagnetizing-coil on the magnet destroying its field when the arc attains a determinate length.

10. An arc-lamp having a rack-feed, a disk-armature geared to the rack, a lifting-magnet for the rack, an independent quick-acting electromagnet having a pole-piece engaging the armature, and a demagnetizing-coil for the magnet controlled by the arc.

11. An arc-lamp having a rack-feed, a disk-armature geared to the rack, a crank on an arbor of the gearing, a lifting-magnet connected thereto, an independent quick-acting electromagnet having a pole-piece engaging the disk armature, and coils therefor in shunt and series relation to the arc.

12. An arc-lamp having a sluggish lifting-coil and a magnetic clutch, comprising an independent quick-acting magnet, an iron armature movable with the carbon engaged by the magnet, and a demagnetizing-coil for the latter magnet controlled by the arc.

678,067. **WHEEL FOR VEHICLES.** GUSTAV TOBLER, Berlin, Germany. Filed Mar. 23, 1901. Serial No. 52,562. (No model.)

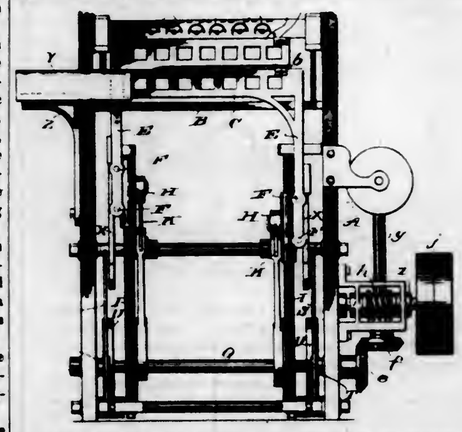


Claim.—1. A wheel comprising a rigid body having a groove or channel in the rim thereof and a rigid tread or flange yieldingly guided in said channel, substantially as described.

2. A wheel comprising a rigid hub and rim, a channel opening through said rim, a rigid supplemental rim or tread guided in said channel and springs interposed between said supplemental rim and the hub, substantially as described.

678,068. **SIGNATURE-FEEDER FOR BOOK-SEWING MACHINES.** WENTWORTH G. TREVETT, Chicago, Ill., assignor, by direct and mesne assignments, to Trevette Machine Company, same place. Original application filed Mar. 5, 1900. Serial No. 7,314. Divided and this application filed Aug. 20, 1900. Serial No. 27,445. (No model.)

Claim.—1. A signature-feeder for book-sewing, stapling and like machines comprising a feed-arm, a post carrying said feed-arm, and means for non-rotatively moving said arm and its supporting-post in an orbit from a point of rest first transversely and then upwardly to a second point of rest then downwardly, transversely and again upwardly to the first point of rest, said second transverse movement being in a plane below the line of said first transverse movement and for causing a momentary pause of said arm at the first point of rest to receive a signature and again at the second point of rest to hold the same during the operation of the signature-fastening devices, substantially as described.



2. A signature-feeder for book-sewing, stapling and like machines, comprising a stationary saddle affording a temporary rest for the signatures, a rigidly-mounted feed-arm and means for imparting a vertical and horizontal orbital travel to said arm and for causing said arm to momentarily and successively pause in line horizontally with said saddle and adjacent to the signature-fastening devices, substantially as described.

3. A signature-feeder for book-sewing, stapling and like machines comprising a plurality of oppositely-disposed supporting-posts, each of said supporting-posts being provided with a feed-arm supported at one end by each post the free ends of said arms extending toward each other and means for causing said feed-arms to travel in the same orbit, substantially as described.

4. A signature-feeder for book-sewing, stapling and like machines, comprising a stationary saddle for temporarily supporting the signatures, a rigidly-mounted feed-arm and means for moving said arm horizontally and vertically but simultaneously and successively, so that said arm will be caused to bodily traverse an irregular orbit, said actuating means being adapted to cause a momentary pause of the arm in line with the saddle and horizontally adjacent to the signature-fastening devices, substantially as described.

5. A signature-feeder for book-sewing, stapling and like machines, comprising a stationary saddle for temporarily supporting the signatures, a feed-arm, longitudinally-movable guide-rods supporting the same, vertically-movable bearings for said guide-rods, and a system of cams and levers for operating said rods and bearings so as to impart an irregular orbital travel to said arm and for causing said arm to momentarily pause in line with the saddle and adjacent to the signature-fastening devices, substantially as described.

6. A signature-feeder for book-sewing, stapling and like machines, comprising a plurality of independently-mounted feed-arms, each feed-arm being carried upon an independent support, and means for causing said arms to travel in the same orbit and for causing the same to successively and momentarily pause to receive a signature and to hold the same adjacent to the signature-fastening devices, substantially as described.

7. A signature-feeder for book-sewing, stapling and like machines comprising a plurality of independently-supported and independently-actuated feed-arms and means for causing said arms to successively travel from a signature-receiving point to a point adjacent to the signature-fastening devices and then back to the signature-receiving point, substantially as described.

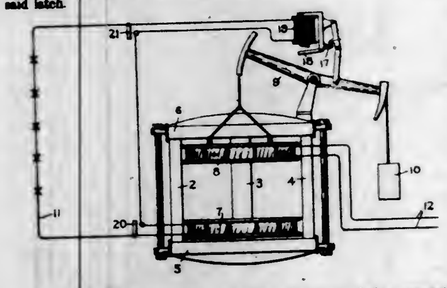
678,069. **STARTING DEVICE FOR CONSTANT-CURRENT APPARATUS.** CHARLES H. VAN SLYCK, New York, N. Y., assignor to General Electric Company, of New York. Filed May 9, 1901. Serial No. 59,280. (No model.)

Claim.—1. The combination with a constant-current-regulating device having a movable member, of an electromagnetically-controlled locking device for said member.

2. The combination with a constant-current-regulating device provided with a movable member, of a locking device for securing said member in one of its extreme positions of movement.

3. The combination with a constant-current transformer having relatively movable members, of an electromagnetically-controlled locking device for one of said members.

4. The combination with a constant-current-regulating apparatus, having a movable member, of a latch for locking said member in one of its extreme positions of movement, and magnetic means for controlling said latch.



5. The combination with a constant-current-regulating apparatus having a movable member, of a locking device for said member, and means controlled by current flowing in said regulating apparatus for actuating said locking device.

6. The combination of a constant-current transformer having a movable member, a locking device for said member, a magnet in operative relation to said locking device, and means for causing current from the secondary of said transformer to pass through the winding of said magnet.

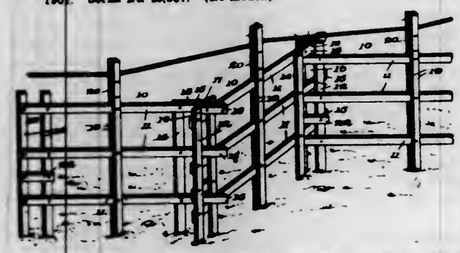
7. The combination of a constant-current transformer, means for locking the parts in a position corresponding to no load, and means controllable at will for unlocking said parts.

678,070. **BIACETATE OF ANTHRAPURPURIN AND PROCESS OF MAKING SAME.** HERMANN VIETH, Ludwigshafen, Germany, assignor to Knoll & Company, same place. Filed Dec. 8, 1900. Serial No. 38,118. (Specimens.)

Claim.—1. The process for the production of biacetate of anthrapurpurin consisting in treating anthrapurpurin with calculated quantities of acetylating reagents adapted to produce biacetate of anthrapurpurin, substantially as herein described.

2. The biacetate of anthrapurpurin herein described, acting as a purgative; being a crystalline yellowish powder having a fusing-point of 175° to 178° centigrade, insoluble in water and dilute acids, nearly insoluble in alcohol, soluble in chloroform or hot acetic acid, capable of gradual decomposition by means of caustics and carbonated alkalies.

678,071. **FENCE.** JAMES G. HUNT, Tribune, Ky. Filed Feb. 9, 1901. Serial No. 46,687. (No model.)



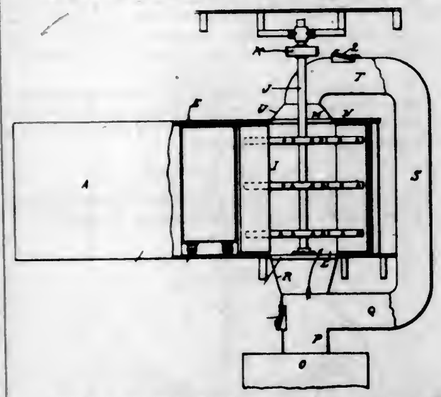
Claim.—1. In a fence, the combination with a panel provided at one end with a guideway, of another panel having a plurality of projecting bars arranged to engage in the guideway of the first-mentioned panel, one of said bars being provided on its opposite faces with shoulders arranged to be brought into line with the edges of said guideway to prevent the withdrawal of the bar, the side faces of the projecting portions of the other bars being smooth and freely slidable in the guideway to permit of the panels assuming an upright angle to each other.

2. In a fence, a plurality of panels, each comprising horizontal bars, connected at one end by spaced standards forming a guideway and having the ends of said bars projecting at the opposite end, the projecting portion of the upper bar being provided on its opposite faces with cleats forming shoulders, the side faces of the projecting portions of the remaining bars being smooth, said projecting ends of one panel being adapted to engage in the guideway of another with the shoulders of the upper bar in line with the edges thereof whereby the panels are held against disconnection and the remaining bars being freely slidable through the guideways to permit of the vertical adjustment of said panels.

3. In a fence, a plurality of panels, each comprising bars connected at one end by spaced standards forming a guideway, a horizontal stop-arm arranged across the guideway intermediate the bars, the ends of said bars projecting from the end of the panel opposite to the guideway, the projecting portion of the upper bar being provided on its opposite faces with cleats forming shoulders, the side faces of the projecting portions of the remaining bars being smooth; said projecting ends of the bars of one panel being adapted to engage in the guideway of another, with the shoulders of the upper bar in line with the edges thereof and with the lower arranged beneath the stop arm and freely slidable to permit of the vertical adjustment of the panels.

4. In a fence, a plurality of panels, each comprising horizontal bars connected at one end by spaced standards forming a guideway, a horizontal stop-arm arranged across the guideway intermediate the bars, the ends of said bars projecting from the end of the panel opposite to the guideway, and an intermediate upwardly-extending standard having a notch in its upper end which is arranged longitudinally of the panel, said projecting ends of the bars of one panel being adapted to engage in the guideway of another, the upper projecting bar having opposite shoulders in line with the edges of the guideway and the end of the lower bar being arranged beneath the guide-arm, and a wire connecting the intermediate standards and seated in the upper notches thereof.

678,072. **DRIER.** ELIAS P. LAWRENCE and EDWARD M. LAWRENCE, Lubec, Me. Filed Oct. 22, 1900. Serial No. 33,808. (No model.)



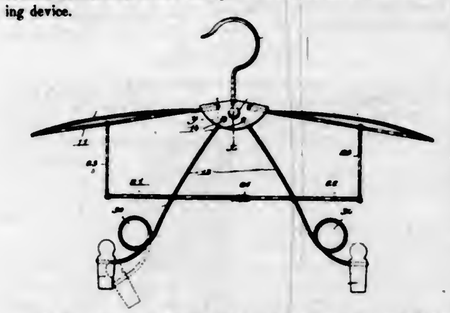
Claim.—1. In a drier, in combination, a drying-chamber, one end thereof opening into a vertical cylinder, said cylinder having openings at the top and bottom thereof, a source of hot-air supply, means for conducting said hot air from its source into the cylinder both at the top and bottom, means for forcing said air into the drying-chamber, said drying-chamber being provided with separate openings for the admission and withdrawal of articles to be dried and means for regulating the temperature of the air on its way from the source to the cylinder.

2. In a drier, in combination, a drying-chamber one end thereof opening into a vertical cylinder having openings in the top and bottom, a source of hot-air supply, means for conducting the hot air into the bottom of said cylinder through openings therein, means for conducting hot air down into the top of said cylinder, said last-named conductor extending upwardly from said hot-air supply and outside of the cylinder, a reversible fan mounted in said cylinder for forcing the hot air into the drying-chamber, the drying-chamber being provided with separate openings for the admission and withdrawl of articles to be dried and means in the conductor at its top and bottom for regulating the temperature of the air on its way from its source to the cylinder.

3. In a drier, in combination, a drying-chamber, one end thereof opening into a vertical cylinder, said cylinder having openings in the top and bottom thereof, a source of hot-air supply, means for conducting said hot air from its source into the cylinder both at the top and bottom, means for forcing said current into the drying-chamber, said drying-chamber being provided with separate openings for the admission and withdrawl of articles to be dried and means for regulating the temperature of the air on its way to the cylinder, said hot-air conductor being provided with funnel-shaped openings at the top and bottom for the more direct guidance of the hot air into the cylinder.

678,073. **GARMENT-HANGER.** FREDERICK M. GREGG, Manchester, N. H. Filed Feb. 21, 1901. Serial No. 48,267. (No model.)

Claim.—1. In a garment-hanger, a head, a pair of wings pivotally connected thereto and adapted to support a coat or like garment, trousers or skirt supporting devices depending from the head, and pivoted connections between each of said wings and said trousers or skirt supporting device.



2. In a garment-hanger, a head, a pair of wings pivoted thereto and extending therefrom on opposite sides thereof, a pair of garment-supporting arms depending from said head, and pivotally-connected links uniting each arm with the adjacent wing.

3. In a garment-hanger, a head, a pair of wings pivotally connected thereto on opposite sides thereof, a pair of garment-supporting arms also pivoted to said head and depending therefrom, said arms having means to support a garment, and pivoted connections between said arms and wings, whereby the hanger may be folded when not in use.

4. In a garment-hanger, a head, a pair of garment-supporting arms pivotally connected thereto, a pair of toggle-levers pivoted to said arms intermediate their ends, a pair of wings pivoted to said head, and links connecting said wings and toggle-levers.

5. In a garment-hanger, a head, a pair of wings pivoted thereto on opposite sides thereof, a pair of garment-supporting arms also pivoted to said head, the pivot-points of said arms with said head being below the pivot-points of said wings with said head, a pair of toggle-levers pivoted together, and pivotally connected to the garment-supporting arms intermediate their ends, each of said toggle-levers extending outward beyond its pivotal point with the garment-supporting arm, links connecting said wings and extended ends of the toggle-levers, and means to lock the toggle-levers in alinement, the construction being such that when the locking means is released the arms and wings of the garment-hanger may be folded together.

6. In a garment-hanger, a head, a supporting-hook swiveled thereto, a pair of wings pivoted to the head, and when in operative position extending in opposite directions, a pair of garment-supporting arms also pivoted to the said head, and said arms and wings being flexibly connected together, whereby the device may be folded when not in use, and means to hold the said arms and wings extended.

7. In a garment-hanger, a head, a supporting-hook having a ball-and-socket connection therewith, a pair of wings pivoted to said head, garment-supporting arms also pivoted to said head, said arms and wings being flexibly connected together, and means to hold said arms and wings in their operative position, the construction being such that when not in use the arms and wings of the hanger may be folded together.

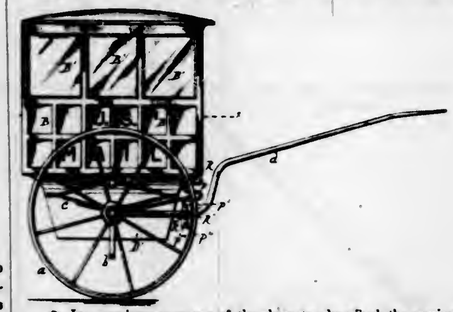
8. In a garment-hanger, a head of substantially inverted-U shape in cross-section, the side walls thereof each having a concave rest, a supporting-hook having a shank extending through an aperture in the top of said head, the end of said shank terminating in a substantially spherical enlargement which is inclosed by said seats, combined with a pair of garment-supporting arms pivotally connected to said head, and means to hold said arms extended.

9. In a garment-hanger, a head, a pair of yielding arms pivotally connected thereto, said arms having at their lower ends spring-clamps, toggle-levers connecting said arms intermediate their ends, and means to maintain said arms in their operative position.

10. In a garment-hanger, a head, a supporting-hook swiveled thereto, a pair of wings pivotally connected to said head on opposite sides thereof, a pair of garment-supporting arms also pivoted to said head, the lower ends of said arms being flexible and having attached thereto spring-clamps, toggle-levers pivoted to said arms intermediate their ends, said levers extending beyond the arms, and links connecting the wings with the extended ends of the toggle-levers, and means to maintain said toggle-levers in alinement, the construction being such that when the toggle-levers are buckled the arms and wings may be folded together.

678,074. **MAIL-CARRIER'S WAGON.** GEORGE A. TOWN, Framingham, Mass. Filed May 6, 1901. Serial No. 58,892. (No model.)

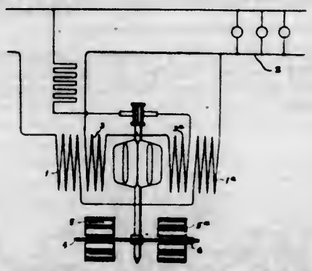
Claim.—1. In a carriage or wagon of the character described, the carriage-body comprising the front wall A, side walls B, and rear wall E; and the dropped bottom comprising the floor D and sides D′ D″ connecting said floor with the four walls aforesaid, the rear connecting side being provided with the vertical passage or opening H, and the bottom being formed with the recess or opening H′ extending forward from the rear edge and connecting with said passage H, substantially as set forth.



2. In a carriage or wagon of the character described, the carriage-body comprising the front wall A, side walls B, and rear wall E; the dropped bottom comprising the floor D and sides D′ D″ connecting said floor with the four walls aforesaid, the rear connecting side being provided with the vertical passage or opening H, and the bottom being formed with the recess or opening H′ extending forward from the rear edge and connecting with said passage H; and doors as F hang in the rear wall of the carriage-body directly over the passage H, whereby a continuous opening is provided for admission into the wagon when the doors are opened by means of the door space and passage, substantially as described.

3. In a carriage or wagon of the character described, the closed body comprising the front, side and rear walls A, B and E glazed at their upper portions, and top or roof C; the dropped bottom D connected by the flaring sides D′ D″ with the body, said bottom and its rear flaring side being formed with the recess and passage H′, H; the swinging seat K removably secured to one of the side walls of the body directly over the axle; and books I secured to the inner surface of one of the walls for letter bags or pouches, substantially as set forth.

678,075. **PREVENTING CREEPING IN RECORDING-WATTMETERS.** FRANK G. VAUGHEN, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Mar. 1, 1901. Serial No. 49,419. (No model.)



Claim.—1. A meter-motor provided with a removable retarding device for periodically arresting the creeping of the motor.

2. A meter-motor provided with an adjustable and detachable magnetic retarding device to compensate for creeping.

3. A meter-motor provided with a magnetic damper having a detachable clip of magnetic material in operative relation to the damper-magnets.

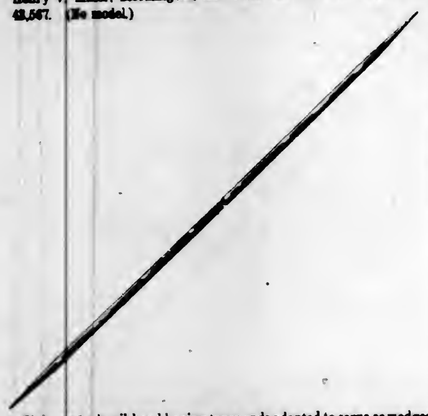
4. A meter-motor provided with a magnetic damper having a detachable and adjustable clip of magnetic material in operative relation to the damper-magnets.

5. A meter-motor provided with a damper-disk revolving in a magnetic field and provided with a removable piece of iron adjustable with relation to the field.

6. A detachable retarding device for the damper-disk of a meter-motor, comprising a clip of magnetic material adapted to be secured to the edge of the disk.

7. A detachable spring-clip for the damper-disk of a meter-motor, comprising a piece of magnetic material adapted to be secured to the edge of the disk at different distances from its center.

678,076. RAIL-BOND. HARRY C. WADE, Aurora, Ill., assignor of three-fourths to J. D. Price and Alexander C. Miller, same place, and Henry V. Miller, Bloomington, Ill. Filed Jan. 17, 1901. Serial No. 43,567. (No model.)



Claim.—1. A rail bond having taper ends adapted to serve as wedges when said ends are bent back upon the adjacent portions of the body of the bond, substantially as described.

2. A rail-bond having a taper end formed integrally with the body of the bond and adapted to serve as a wedge when said end is bent back upon the body of the bond, substantially as described.

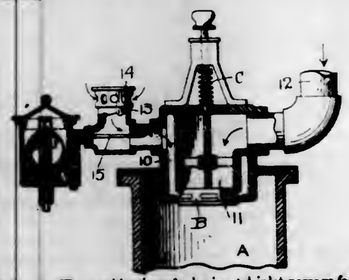
3. A rail-bond comprising a body portion and taper ends formed integrally therewith and bent back upon adjacent portions of the body, said taper ends serving as wedges, substantially as and for the purpose set forth.

4. A rail-bond having a body portion and a taper end formed integrally with said body portion and hollowed to fit upon said body portion when bent back, said taper end serving as a wedge, substantially as and for the purpose set forth.

5. A rail-bond comprising a body portion and concavo-convex taper ends formed integrally therewith, said ends being bent back upon the body portion and affording wedges, substantially as and for the purpose set forth.

6. The combination with a rail provided with a perforation, of a rail-bond having a body portion and a taper end formed integrally therewith and bent back upon the body portion, the head thus formed being driven into said perforation, and the extremity of said taper end being bent to prevent withdrawal, substantially as and for the purpose set forth.

678,077. FUEL-SUPPLY CONTROLLER FOR HYDROCARBON-ENGINES. GEORGE R. WEBB, Worcester, Mass., assignor of one-half to John J. Adams, same place. Filed Feb. 4, 1901. Serial No. 45,836. (No model.)

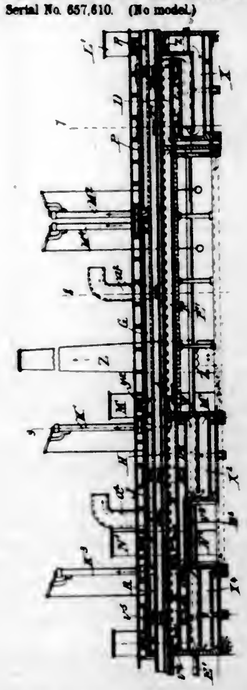


Claim.—1. The combination of a horizontal inlet-passage for an explosive-engine, and means for carbureting the air passing therethrough, comprising a small pipe arranged horizontally in said passage, and having a gooseneck or turned-up portion at its inner end for keeping said carbureting-pipe full of gasolene or other fuel, substantially as described.

2. The combination of the cylinder of an explosive-engine, a horizontal air-supplying passage therefor, means for carbureting the air in said passage, comprising a small horizontally-arranged pipe therein having a gooseneck or turned-up portion at its inner end for keeping said carbureting-pipe full of gasolene or other fuel, a fuel-reservoir, connections for supplying fuel to said fuel-reservoir, and means for keeping the fuel at a constant level therein, substantially as described.

3. The combination of the cylinder of an explosive-engine, a horizontal air-supplying passage therefor, means for carbureting the air in said passage, comprising a small pipe arranged horizontally therein, having a gooseneck or turned-up inner end, and a check-valve controlling the inlet to said pipe, the parts being arranged, so that a small supply of fuel will be trapped or maintained in the horizontal pipe, substantially as described.

678,078. APPARATUS FOR DESULFURIZING ORES OR OTHER SUBSTANCES. JOHN P. WETHERILL, South Bethlehem, Pa. Filed Nov. 6, 1897. Serial No. 657,610. (No model.)



Claim.—1. The method of roasting by furnace heat a progressively moving or advancing charge of ore containing sulfur, which consists in exceeding therefrom the products of combustion of the heating-furnace, admitting air at an initial portion of the ore and partially oxidizing the sulfur thereby, maintaining the roasting temperature along an advanced portion of the charge by the combustion of the sulfur, withdrawing the sulfur fumes at said advanced portion so as to prevent them from passing on over the remainder of the ore, and finally admitting additional quantities of air to oxidize the sulfur in portions of the charge still further advanced.

2. A roasting-chamber, provided with means for progressively advancing and stirring the furnace charge, said roasting-chamber having a series or succession of external heating-chambers along its length, each of said heating-chambers having its individual source of heat-supply, the central portion of the roasting-chamber being provided with an offtake-flue for sulfur fumes, and the heating-chambers both in rear of and beyond the central portion being connected with air-preheating stoves whose air-flues discharge into the roasting-chamber.

3. A roasting-chamber, provided with means for progressively advancing and stirring the furnace charge, said roasting-chamber having external heating-chambers, and being provided at substantially its central portion with an offtake-flue for sulfur fumes, and hot-air-inlet flues opening into the roasting-chamber both in rear of and beyond its central portion.

4. A roasting-chamber, provided along its length with a series of successive but independent external heating-chambers, each having its individual source of heat-supply, in combination with air-preheating stoves connected with the initial and final members of the series, and air-supply flues leading from the stoves into the interior of the roasting-chamber.

5. A roasting-chamber, provided along its length with a series of successive but independent external heating-chambers, each having its individual source of heat-supply, in combination with air-preheating stoves connected with the initial and final members of the series, and an offtake-flue for sulfur fumes leading from an intermediate portion of the roasting-chamber.

6. A roasting-chamber, provided along its length with a series of successive but independent external heating-chambers, each having its individual source of heat-supply, in combination with air-preheating stoves connected with the initial and final members of the series, an offtake-flue for sulfur fumes leading from an intermediate portion of the roasting-chamber, and air-supply flues leading from the stoves into the initial and final portions of the roasting-chamber.

7. A roasting-chamber, provided with a series of external heating-chambers along its bottom, and a series of auxiliary heating-chambers along its top, said auxiliary chambers having independent draft-controlling valves.

8. A roasting-chamber, provided with a floor consisting of a series of transverse arches spaced apart, the intervals between the arches being spanned by flooring-tiles.

9. A roasting-chamber, provided with a floor consisting of a series of transverse arches spaced apart, the intervals between the arches being spanned by flooring-tiles rabbeted and resting upon shoulders of the arches so that the upper surfaces of the tiles and arches shall be flush with each other.

10. A roasting-chamber, having a source of heat-supply, and provided with a floor consisting of a series of transverse arches, the intervals between the arches being spanned by flooring-tiles resting upon shoulders of the arches so as to form a smooth floor for the roasting-chamber.

11. A roasting-chamber, provided with a vaulted roof, and an upper external heating-chamber having a vaulted roof, the latter roof having its central keystone continued down to form a longitudinal partition in the heating-chamber, and being stepped in a body of sand or the like.

678,079. FLUE FOR STILLS. THOMAS A. WILLIAMS, Java, Ala. Filed Mar. 7, 1901. Serial No. 51,177. (No model.)

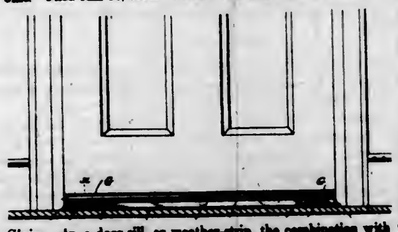


Claim.—1. As an article of manufacture, a flue for stills made in a single casting, consisting of a front plate, a curved casing formed upon the back of the plate provided with a curved flue and a seat upon the top of the casing to be engaged by the leg of the still.

2. The combination with a wall of masonry provided with a rectangular opening, of a removable flue for stills adapted to be inserted and held in said opening, comprising, a rectangular plate provided with an opening, a curved lower wall and two sides formed upon the back of the plate and surrounding the opening, and a seat upon the top of the sides to be engaged by the leg of a still.

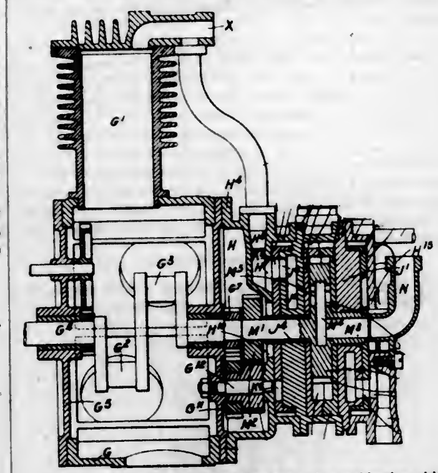
3. A removable flue for stills made in a single casting, and comprising, a plate provided with a rectangular opening, a curved lower wall and two side walls upon the back of the plate and surrounding a flue which leads from the opening, and a seat upon the top of the sides to be engaged by a leg of the still.

678,080. CARPET OR DOOR STRIP. SAMUEL W. WILT, Alvada, Ohio. Filed Jan. 10, 1901. Serial No. 42,778. (No model.)



Claim.—1. In a door-sill, or weather-strip, the combination with the casing, having a longitudinal central recess therein, and plates, with flat body portions secured to the bottom of the recess, at opposite ends thereof, the inner ends of the plates, being bent at right angles thereto, the outer ends of the plates abutting against the end walls of the casing, and the bowed springs, interposed between the end walls of the casing, and the right-angled portion of the plates, of the roller having free and unobstructed ends loosely mounted in the recess and resting on the body portions of the springs, whereby the free ends of said springs are capable of having endwise movement on the bodies of said plates, and to and from the angles thereof, and said end walls when said roller is depressed, or retracted, and the top plates, secured on opposite sides of the roller, substantially as described.

678,081. MULTICYLINDER-MOTOR. ZEBULON WIRT, Monticello, Ind. Filed Jan. 19, 1900. Serial No. 2,046. (No model.)



Claim.—1. In a multiple-cylinder motor, the combination with the stationary valve-casing containing an inlet-port and the ports of feed and exhaust passages communicating with all of the cylinders, of a valve between the said inlet and said feed and exhaust ports, said valve being rotatory and governing the feed and exhaust of all of the cylinders, and a combined reversing and throttle disk between the said inlet and said feed and exhaust ports, said disk being rotatable on its axis to control the direction of the motor and to stop the motor by cutting off the supply of motor fluid to the valve.

2. In a multiple-cylinder motor, the combination with the stationary valve-casing containing an inlet-port and the ports of feed and exhaust passages communicating with all of the cylinders, of a valve governing the feed and exhaust of all the cylinders, and a combined reversing and throttle disk rotatable on its axis to control the direction of the motor in two of its positions and in a third position to stop the motor by cutting off the supply of motor fluid to the valve.

3. In a multiple-cylinder motor, the combination with a stationary valve-casing containing an inlet-port and the ports of feed and exhaust passages communicating with all of the cylinders, of a valve movable to govern the feed and exhaust of all of the cylinders, a cut-out disk movable to successively cut the cylinders in and cut them out, and a combined reversing and throttle disk movable to control the direction of the motor and to stop the motor.

4. In a multiple-cylinder motor, the combination with the stationary valve-casing containing an inlet-port and the ports of feed and exhaust passages communicating with all said cylinders, of a valve and a cut-out disk between the said inlet and said feed and exhaust ports, said valve being rotatory and governing the feed and exhaust of all the cylinders and said cut-out disk being rotatable on its axis to adjust it to successively cut the cylinders in and cut them out, substantially as described.

5. In a multiple-cylinder motor, the combination with the stationary valve-casing containing an inlet-port and the ports of feed and exhaust passages communicating with all said cylinders, of a valve, a reversing-disk and a cut-out disk, between the said inlet and said feed and exhaust ports, said valve being rotatory and governing the feed and exhaust of all the cylinders, said reversing-disk being rotatable on its axis to adjust it in two positions to control the direction of running of the motor, and said cut-out disk being rotatable on its axis to adjust it to successively cut the cylinders in and cut them out, substantially as described.

6. In a multicylinder-motor, the combination of a rotating valve-disk, ports in said valve-disk, a valve-seat having ports for each cylinder

arranged to receive the motive fluid from two positions on its face and with two exhaust-ports for each cylinder on said face, and a reversing-disk placed between the valve-disk and the valve-seat, supply and exhaust ports for each cylinder in said reversing-disk, and means for partially rotating said reversing-disk to adjust its ports relative to the ports of the valve-seat face to control the direction of running of the motor, substantially as described.

7. In a multicylinder-motor, the combination of a stationary valve-seat disk, a chamber for each cylinder in said disk, a plurality of ports for each chamber on one face of the said disk, a port for each chamber on the other face of the disk, a rotating valve-disk, ports in said rotating valve-disk, a reversing-disk placed between said valve-seat disk and the rotating valve, adjustable relatively to the valve-seat disk and ports in the reversing-disk for connecting the ports of the rotating valve-disk with ports of the valve-seat disk, substantially as and for the purpose specified.

8. In a multicylinder-motor, the combination of a stationary valve-seat disk, a chamber for each cylinder in said disk, a plurality of ports for each chamber on one face of the said disk, a port for each chamber on the other face of the disk, a rotating valve-disk, ports in said rotating valve-disk, a reversing-disk, placed between said valve-seat disk and the rotating valve, adjustable relatively to the valve-seat disk, and ports in the reversing-disk for connecting the ports of the rotating valve-disk with ports of the valve-seat disk, a valve-case wall, ports in said wall, conduits leading from said ports to the cylinders, a cut-out disk arranged between the said wall and the valve-seat disk, ports in said cut-out disk and means for adjusting the said cut-out disk, substantially as and for the purpose specified.

678,082. **PULP-STRAINER.** GEORGE S. WITHAM, Madison, Me. Filed Apr. 24, 1901. Serial No. 57,248. (No model.)



Claim.—1. The combination of a vat provided with a screen-supporting frame, screen-plates arranged on the frame, the locking-bars mounted on the screen-supporting frame, the movable clamping-bars interposed between the locking-bars, arranged transversely across the vat and engaging the edges of the screen-plates, and means for holding the clamping-bars in position.

2. The combination of a vat provided with a screen-supporting frame, screen-plates arranged thereon, locking-bars extending transversely across the vat with which the edges of the screen-plates engage, vertically-movable clamping-bars arranged transversely across the vat, and engaging the edges of the screen-plates, pressure-bars operating on the clamping-bars, and means for operating the pressure-bars.

3. The combination of a vat provided with a screen-supporting frame, a series of screen-plates supported thereon, a series of locking-bars with which the edges of the plates engage, and a series of clamping-bars arranged alternately with the stationary locking-bars and movable in a direction at right angles to the plane of the plates.

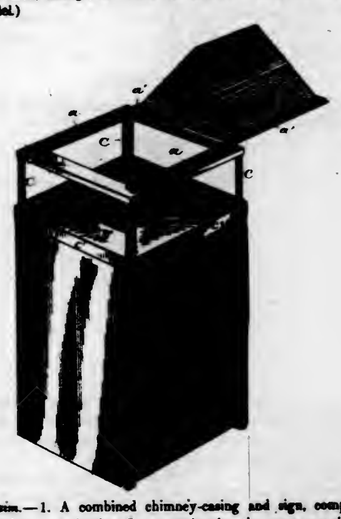
4. The combination of a vat, a screen-supporting frame therein, a series of screen-plates mounted thereon, a series of beveled locking-bars engaging the edges of the screen-plates, a series of vertically-movable beveled clamping-bars engaging the screen-plates, and means for holding the clamping-bars in position.

5. The combination of a vat, a screen-supporting frame therein, a series of screen-plates mounted thereon, the locking-bars engaging the screen-plates, the vertically-movable clamping-bars also engaging the screen-plates, the pressure-bars and cam-levers operating upon the pressure-bars.

6. The combination of a vat, a screen-supporting frame therein, a series of transversely-arranged screen-plates mounted on the frame, the locking-bars engaging the screen-plates, the movable clamping-bars also engaging the screen-plates, and extending transversely across the vat, the pressure-bars engaging the opposite ends of the locking-bars, and the clamping-levers operating upon the pressure-bars.

7. The combination of a vat, a screen-supporting frame therein, a series of screen-plates mounted on the frame, locking-bars engaging the screen-plates, clamping-bars engaging the screen-plates and extending transversely across the vat, the pressure-bars, the wearing-blocks thereon engaging the opposite ends of the clamping-bars, and having inclined upper surfaces, and clamping-levers having beveled or inclined surfaces engaging the upper surfaces of the wearing-blocks.

678,083. **COMBINED CHIMNEY-CASING AND SIGN.** AUGUSTUS M. WITTS, Chicago, Ill. Filed Dec. 31, 1900. Serial No. 41,619. (No model.)



Claim.—1. A combined chimney-casing and sign, comprising a body portion, a cap having flanges embracing the upper margin of said casing and the upper margin of the inner wall of the chimney, and a cap-piece for the chimney-passage supported at some distance above the last-named member, substantially as described.

2. A combined chimney-casing and sign, comprising a body portion having two of its sides provided with vertically-disposed grooves and two of its sides provided with heads fitting said grooves said sides being removable, substantially as and for the purpose described.

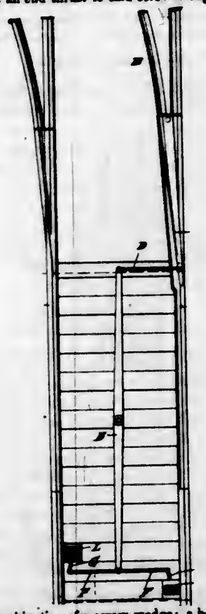
3. A combined chimney-casing and sign, comprising a body portion fitting over the chimney, an annular cap having flanges embracing the upper margin of said body portion and the inner margin of the chimney-top, a chair supported on said last-named member, and a top for the chimney-discharge removably connected with said chair, substantially as described.

678,084. **RAILWAY-SWITCH MECHANISM.** ANDREW C. WOLFE, Freeport, Pa., assignor of one-third to Joseph M. Hewitt, Allegheny, Pa. Filed Feb. 27, 1900. Serial No. 6,634. (No model.)

Claim.—1. The combination of a screw-wedge; a bearing for the same; a railway-switch; connections between said screw-wedge and said railway-switch and means carried by a car for moving said screw-wedge.

2. The combination of a screw-wedge; a bearing for the same; a railway-switch; connections between said screw-wedge and said railway-switch and means carried by said car for imparting an end thrust to said screw-wedge.

3. The combination of a screw-wedge having threads of such inclination that the application of power on the screw-wedge will move the same; a bearing for said screw-wedge; a railway-switch; connection between said railway-switch and said screw-wedge and means carried by the car to impart an end thrust to said screw-wedge.

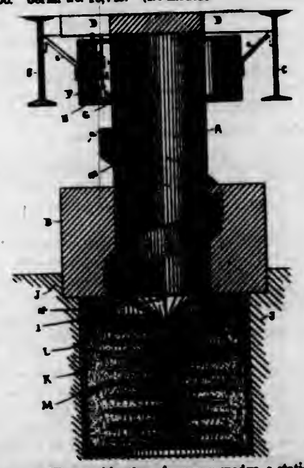


4. The combination of a screw-wedge; a bearing for said wedge; a cap moving upon said bearing and in contact with the end of the said screw-wedge; a railway-switch, connection between said screw-wedge and said railway-switch and means carried by the car to push against the cap for the bearing.

5. The combination of a screw-wedge; a bearing for said wedge; a dirt-shield inclosing said bearing; a cap for said dirt-shield; said cap being in contact with the end of said screw-wedge; a railway-switch; a connection between said screw-wedge and said switch and means carried upon the car to impart a push to said cap.

6. The combination of a railway-switch; a system of levers leading from said switch to two screw-wedges oppositely located; bearings for said screw-wedges and means carried by the car simultaneously depressing one screw-wedge and raising the other screw-wedge.

678,085. **SCREW-WEDGE.** ANDREW C. WOLFE, Freeport, Pa., assignor of one-third to Joseph M. Hewitt, Allegheny, Pa. Filed Mar. 30, 1900. Serial No. 10,749. (No model.)



Claim.—1. The combination of a screw-wedge, a stationary power-box threaded to conform with the thread of said screw-wedge, means for supplying pressure to said screw-wedge, a piston-head supporting said screw-wedge, a cylinder containing liquid in which said piston-head moves and a valve-controlled discharge from said cylinder.

2. The combination of the screw-wedge A, a turn-table supported upon the end thereof; the stationary power-box B; a piston-head supporting said screw-wedge A; a cylinder containing liquid in which said piston-head moves and a valve-controlled discharge from said cylinder.

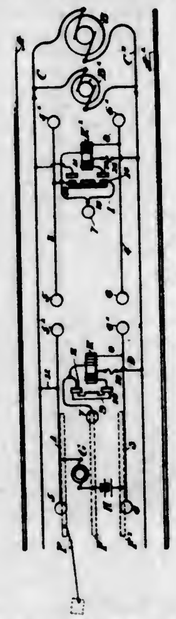
3. The combination of the screw-wedge A, a turn-table supported upon the end thereof; the stationary power-box B; a piston-head supporting said screw-wedge A; a cylinder containing liquid in which said piston-head moves; a valve-controlled discharge from said cylinder and means for returning said piston-head to its original position.

4. The combination of the screw-wedge A, a turn-table supported upon the end thereof; the stationary power-box B; a piston-head supporting said screw-wedge A; a cylinder containing liquid in which said piston-head moves; and a valve-controlled passage through said piston-head and through said screw-wedge.

5. The combination of the screw-wedge A, a turn-table supported upon the end thereof; the stationary power-box B; a piston-head supporting said screw-wedge A; a cylinder containing liquid in which said piston-head moves; a valve-controlled passage through said piston-head and through said screw-wedge and a reservoir carried by the turn-table with which said passage communicates.

6. In a screw-wedge, a stationary member, a rotatable member, means for rotating said member, a reservoir, a cylinder below said members, a piston-head in said cylinder, the end of said rotatable member resting on said piston-head and means for controlling the flow of liquid between said cylinder and said reservoir, whereby the speed of said rotatable member is governed.

678,086. **ELECTRIC-RAILWAY SYSTEM.** GRANVILLE T. WOODS, New York, N. Y., assignor to the Electro-Magnetic Traction Company, Washington, D. C. Filed July 24, 1899. Serial No. 727,045. (No model.)



Claim.—1. In an electric railway, the combination with the source of power, of a series of working contacts or conductors extending along the line of way and connected together in pairs, circuit connections from the source of power through a car-motor to each pair of contacts, a normally open electromagnetic switch located in and controlling the flow of current through each of said connections, and a source of current carried on the car for initially closing said switch, as and for the purpose set forth.

2. In an electric railway, the combination with the source of power, of two series of working contacts of conductors extending along the line of way and having the contacts in each connected together in pairs, and a normally open circuit-switch for controlling the flow of current to a pair in each series of contacts, substantially as set forth.

3. In an electric railway, the combination of a series of working contacts joined together in pairs along the line of way, a connection from each pair to the source of power, a second series of individual contacts one for each of said pairs, a normally open switch in a connection extending from each individual contact to the source of power, and means on the cars for closing circuit between the individual contacts and the pairs of contacts, substantially as set forth.

4. In an electric railway, the combination of two series of pairs of contacts extending along the road, a series of individual contacts one for each pair in one of said series, a normally open electromagnetic switch in a connection from each individual contact to a pair of contacts corresponding thereto in the first series and to the source of power, a connection from each pair of contacts in the second series to the source of power, three separate contact-makers carried by a car for engagement with said several series of contacts, a source of current connected between the contact-maker for the individual contacts and that for the first series of pairs of contacts, and the car-motor located between the contact-maker for the individual contacts and that for the second series of pairs of contacts, as and for the purpose set forth.

5. In an electric-railway system, the combination with the series of working contacts or conductors upon the line of way and electromagnetic switches for controlling the current thereto, of three contact-makers carried on a car and arranged to engage with the working contacts, connections from one of these to each of the others, the car-motor in one of these connections, and a motor-generator in the other, as and for the purpose set forth.

6. In an electric-railway system, substantially as described, the combination with the electromagnetic switches having their coils in the branches of the feeding-circuit and their contacts also in said circuit, of means carried on the car for varying the current through said coils and thereby determining the pressure between said contacts.

7. In an electric-railway system, substantially as described, the combination with the electromagnetic switches having their coils in the branches of the feeding-circuit and their contacts also in said circuit, of a switch in the field-circuit of the car-motor for varying the resistance in said circuit and thereby regulating the speed of the motor and the pressure between the switch-contacts, as and for the purpose set forth.

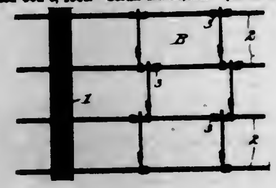
8. In an electric-railway system, substantially as described, the combination with two series of working contacts or conductors extending along the road and connected respectively with the feeding and return circuits from the source of current, of normally open electromagnetic switches controlling the flow of current through said conductors, a fuse in the circuit through the magnet of each switch, contact-makers carried by the cars for engagement with said conductors, the car-motor connected between two of said contact-makers, and a third contact-maker in circuit with that of the motor which engages with the return-circuit conductor and adapted to engage with the feeding-circuit conductors thereby forming a short circuit between the working conductors, as and for the purpose set forth.

9. The combination with the normally dead surface contacts or conductors, of switches for connecting them to the power-current as a car moves over the road, an auxiliary contact-maker carried by the car, and means controlled by an abnormal current flowing over the same for interrupting the power-current flowing to a surface conductor when the auxiliary contact-maker finds such conductor still alive.

10. The combination, substantially as described, with the normally dead surface conductors, of automatic switches controlling the flow of current thereto, suitable automatic cut-outs in the circuit to said conductors, and an auxiliary contact-maker carried by the car and directly connected to the return-circuit, as and for the purpose set forth.

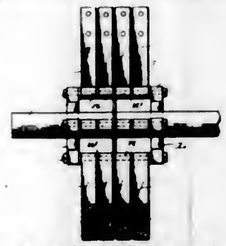
11. In an electric-railway system, substantially as described, the combination with the normally dead working contacts or conductors on the surface of the road, of electromagnetic switches controlling the flow of current thereto, a fuse in the circuit of the magnet of each switch, and means upon the cars for causing said fuses to blow and thereby deënergize any switch-magnet that failed to release the switch as soon as the car-motor ceased to take current from the working conductor, controlled by that switch for the purpose set forth.

678,087. STAY-WIRE FOR FENCES. SCOTT W. YARLOT, Hoy, Ohio. Filed Oct. 6, 1900. Serial No. 32,236. (No model.)



Claim.—In a stay-wire for fences, the combination with the strands, of stays each comprising a piece of wire twisted on a strand, then curved to form a guard, and again twisted on the strand and looped over the next succeeding strand, the guard of one wire standing at an opposite angle to that immediately below, as and for the purpose described.

678,088. COTTON-SEED HULLING AND REDUCING MACHINE. CORNELIUS YOUNG, Selma, Ala. Filed Mar. 20, 1900. Serial No. 9,445. (No model.)



Claim.—1. In a machine of the character described, the combination of the chamber having the rotary beaters, the screen-bottom, an upper portion of greater width than said bottom, and longitudinal removable ledges between said upper portion and bottom, substantially as specified.

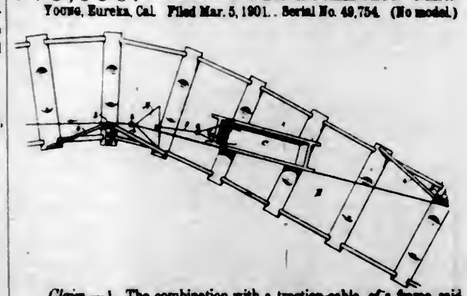
2. In a machine of the character described, the combination with the chamber having an inlet-opening in its end wall, the rotary shaft in said chamber, the separated radial pins or supports upon said shaft, the pivot-rods engaging said pins or supports, the pivotal beaters upon said rods, and an annular combined washer and brace having perforations therein for the passage of said rods, and having its inner peripheral surface separated from said shaft, substantially as specified.

678,089. ROLLER-BEARING AND LUBRICATOR. FRANCIS H. YOUNG, Hoboken, N. J. Filed Sept. 4, 1900. Serial No. 28,878. (No model.)



Claim.—The combination with an axle having a journal provided with a circular head at its outer end, and an annular shoulder at its inner end, of a box or casing through the rear wall of which the journal passes, a floating frame mounted in the lower portion of the box and a cylinder carried by said floating frame and adapted to revolve in contact with said journal, and which is of the same length, and a bearing-frame mounted in the top of the box or casing and provided with two rollers of greater diameter than the journal and of the same length, the construction and arrangement being such that the said rollers operate between the head of said journal and the annular shoulder at the inner end thereof and fit between the same, substantially as shown and described.

678,090. APPLIANCE FOR LOGGING-RAILWAYS. NELSON YOUNG, Eureka, Cal. Filed Mar. 5, 1901. Serial No. 49,754. (No model.)



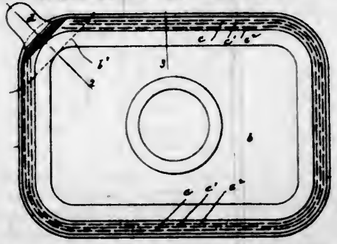
Claim.—1. The combination with a traction-cable, of a frame, said frame having inclined sides and means in the central line of the frame for the attachment of a cable, and an extended base at right angles to the line of travel, which base serves for the attachment of a following load and rests upon the surface over which the cable travels whereby the latter is prevented from twisting.

2. The combination with a traction-cable, of a triangular plate, said plate attached to the cable at one apex, the base of the triangle adapted to rest upon the ground at right angles to the line of travel.

3. The combination with a traction-cable of a frame having a point of attachment with the cable, said frame having a base at right angles to the line of travel, and means of attachment central of this base for a sled.

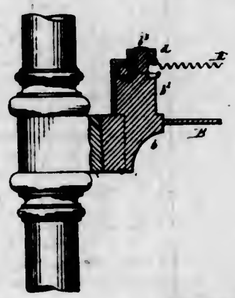
4. In a logging-railway, the combination with a road-bed and a surface-traveling traction-cable, of a triangular plate secured at one apex to the cable, the base of said plate adapted to rest upon the ground at right angles to the line of travel, means central of this base whereby a sled may be attached, and guides disposed at the inner sides of the curves in the road-bed whereby the center of the base of the plate is made always to travel central of the road-bed.

678,091. SHEET-METAL CAN. MAX ARB, New York, N. Y. Filed Dec. 28, 1900. Serial No. 41,307. (No model.)



Claim.—A sheet-metal can having a head provided with a number of concentric weakened lines formed of spaced and staggered indentations, combined with a tongue extending across the outermost weakened line, substantially as specified.

678,092. METALLIC BEDSTEAD. EDWARD C. BAYNES, Buffalo, N. Y., assignor, by mesne assignments, to the Empire Metallic Bedstead Company, same place. Filed Dec. 29, 1900. Serial No. 41,514. (No model.)



Claim.—1. The combination with side bedstead-rails, of a transverse supporting bedstead-rail secured to said side rails and provided on its inner side with integral fastening-lips, of a cleat which is arranged on the inner side of said rail and embraced by said lips, and a flexible mattress having its end portion confined between said cleat and said rail, substantially as set forth.

2. The combination with side bedstead-rails, of a transverse supporting bedstead-rail constructed of angle-iron and having its upper horizontal flange provided on its under side with depending lips punched from the metal of the flange, of a cleat secured in the angle of said rail by said lips, and a flexible mattress having its end bent around said cleat and confined between the cleat and the opposing flanges of said rail, substantially as set forth.

3. In a metallic bedstead, the combination of a side rail having an end head provided with a projecting screw-stem, an end rail provided with lips punched from the metal thereof and providing openings therein, said screw-stem projecting through one of said openings in the end rail, a flexible mattress secured to said end rail by said lips, and a clamping-nut applied to said screw-stem for securing the end and side rails together, substantially as set forth.

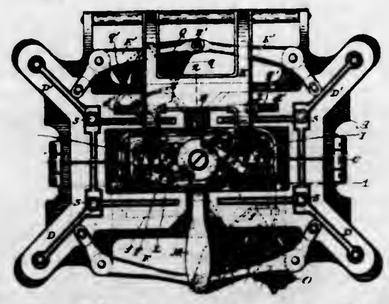
678,093. UNIVERSAL JOINT. FRANK E. BOCOBELSKI, Springfield, Mass. Filed Mar. 23, 1901. Serial No. 52,527. (No model.)



Claim.—1. In combination, the two bifurcated shafts, the intermediate block pierced by shaft-bearings at right angles to each other, the partial pivot-shafts, and the pivot-shaft arranged between the two partial pivot-shafts, all substantially as described and for the purposes set forth.

2. In combination, the two bifurcated shafts, the intermediate block pierced by shaft-bearings, the pivot-shaft, and the partial pivot-shafts pierced, one or both, by an oil-duct, all substantially as described and for the purposes set forth.

678,094. FOLDING-MACHINE FOR COLLAR-BLANKS, &c. EUGENE H. BROWN, Troy, N. Y. Filed Sept. 10, 1900. Serial No. 29,612. (No model.)



Claim.—1. In a folding-machine, the combination with a base-plate, of a templet, a sectional side-folder, combined side and end folders movable alternately with said side-folder, pivoted arms adapted to move said folders, and a lever provided with a cam, having a bearing-surface controlling the arms which move the side-folder, while the arms controlling the side and end folders are idle, and a cam having a bearing-surface adapted to control the arms which move the side and end folders, while the opposite arms are idle, substantially as shown and described.

2. In a folding-machine, the combination with a base-plate, of a templet, a sectional side-folder, side and end folders movable alternately with said side-folder, a lever provided on its rear end with a cam adapted to operate said side and end folders and on its forward end with a cam and a trip-arm projecting at one end beyond the bearing edge of said cam, and pivoted arms connecting said lever and sliding brackets controlling said folders, substantially as shown and described.

3. In a folding-machine, the combination with a base-plate, of a templet, side-folders adjustable in sections, and combined side and end folders having a sliding engagement with said side-folders whereby an inward movement of such combined end and side folders will produce a longitudinal movement of the sections of the opposite side-folder, toward each other, substantially as shown and described.

4. In a folding-machine, the combination with a base-plate, of a templet, a sectional side-folder engaging with opposite end-folders, sliding brackets secured to said side and end folders, a lever provided with cams, and pivoted arms connecting said cams and brackets, substantially as shown and described.

5. In a folding-machine, the combination with a base-plate, of a templet combined end and side folders, a sectional side-folder movable in a direct transverse line by means of engagement with arms of the end-folders, diagonally-movable brackets, a sliding connection between said brackets and folder, whereby a diagonal movement of said brackets produces a direct transverse movement of the sections of said side-folder, substantially as shown and described.

6. In a folding-machine, the combination with a base-plate, of a templet, side and end folders, a side-folder in sections each section having a direct transverse movement by means of sliding connections with the adjacent side and end folder, and means for operating the same, substantially as shown and described.

7. In a folding-machine, the combination with a base-plate, of a templet, a sectional side-folder provided with a recess at its outer ends, side and end folders provided with arms extending adjacent to and forming one side of said recess, and means for operating said side-folder in advance of said side and end folders, substantially as shown and described.

8. In a folding-machine, the combination with a base-plate, of a templet, folder-brackets movable inwardly on said base-plate, a side-folder in sections carried by said brackets, said sections being movable toward and from each other independently of said brackets, substantially as shown and described.

9. In a folding-machine, the combination with a base-plate, of a templet, folder-brackets movable in diagonal lines inwardly of said base-plate, a side-folder in sections carried by said brackets said sections being movable toward and from each other independently of said brackets, substantially as shown and described.

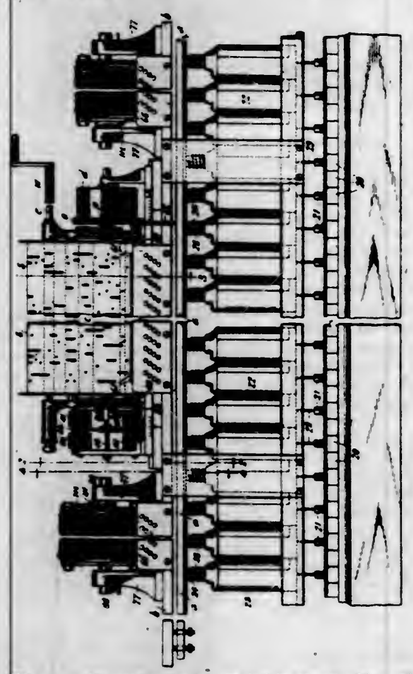
10. In a folding-machine, the combination with a base-plate, of a templet, folder-brackets movable inwardly on said base-plate, a sectional side-folder carried by said brackets, and an adjusting-block arranged between the sections of said side-folder, substantially as shown and described.

11. In a folding-machine, the combination with a base-plate, of a templet, folder-brackets movable inwardly of said base-plate, a side-folder in sections carried by said bracket, combined side and end folders engaging the sections of said side-folder and adapted to move said sections toward and from each other independently of said brackets, substantially as shown and described.

12. In a folding-machine, the combination with a base-plate, of a templet, a side-folder in sections, said sections being movable transversely of said base-plate and toward and from each other, combined side and end folders engaging said sections and movable diagonally on said base-plate, and means for operating said folders, substantially as shown and described.

678,095. ELECTRICALLY-OPERATED MUSICAL INSTRUMENT.

HARRY S. BROWN, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,193. (No model.)



Claim.—1. The combination in a musical instrument with a series of independently-vibrated strings of a suitable hammer for each string; a magnet for each hammer, an electric circuit for each magnet, having two or more branches, a separate adjustable resistance in each branch, a separate manually-operated switch for adjusting the resistance in each branch, and an automatic circuit-closer for each branch.

2. The combination in a musical instrument having a series of independent keys or notes, of a series of operating-electromagnets, one for each such key, an electric circuit for each magnet, having two or more branches, a separate adjustable or variable resistance in each branch, a manually-operated and independent switch for each resistance in said two or more branches, and an automatic circuit-closer for each branch.

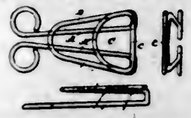
3. The combination in a musical instrument having a series of independently-vibrated strings, of a suitable hammer for each string, an electromagnet for each hammer, an electric circuit having two or more branches for each magnet, means for manually varying the resistance of either branch independently of the other branch and an automatic circuit-closer for each branch.

4. The combination in a musical instrument having a series of independently-vibratory strings of a series of electromagnets, one for each string, an electric circuit for each magnet in two or more parts or branches, means for automatically making and breaking circuit in either part or branch and means for manually changing the current strength in either part or branch independently.

5. The combination in a musical instrument having a series of independently-vibratory strings of a series of electromagnets, one for each string, an electric circuit for each magnet in two or more parts or branches, an automatic circuit-closer in each part or branch consisting of a trailing contact, a rotating drum or cylinder and a non-conducting strip perforated with a series of holes arranged in two separate lines, and a manually-operated resistance-changing device for each part or branch circuit whereby the strength of current may be changed in one part or branch with respect to the other part or branch at the will of the operator.

678,096. HOOK.

TILLIE J. BROWNING, Philadelphia, Pa. Filed Mar. 5, 1901. Serial No. 49,827. (No model.)



Claim.—1. As a new article of manufacture, a hook for garments consisting of a continuous wire forming two longitudinally-extending shank portions, a longitudinally-extending bill and a transversely-extending loop, one end of the loop merging into the front of one of the shank portions, the other end of the loop merging into one side of the front of the bill, and the other side of the bill merging into the other shank portion, substantially as described.

2. As a new article of manufacture, a hook for garments in which the wire forming one of the shanks is, at the front part of the hook, bent transversely toward the other shank, thence transversely back toward the first-named shank, and thence backwardly, while the wire forming the other shank is, at the front part of the hook, bent backwardly, the said backward bends forming the bill of the hook, substantially as described.

3. As a new article of manufacture, a hook for garments consisting of a continuous wire forming two longitudinally-extending and substantially parallel shank portions, a longitudinally-extending bill overlying the shank portions and a loop at the front part of the hook, that part of the wire forming the loop lying in substantially one horizontal plane, one end of the loop merging into the front part of one of the shank portions, the other end of the loop merging into one side of the front part of the bill and the other side of the front part of the bill merging into the front part of the other shank portion, substantially as described.

4. As a new article of manufacture, a hook for garments consisting of two longitudinally-extending and substantially parallel shank portions, a longitudinally-extending bill overlying the shank portions, and a transversely-extending loop in which the wire forming one of the shank portions is, at the front part of the hook, bent successively toward and from the other shank portion to form the loop, and thence backwardly, while the wire forming the other shank portion is, at the front part of the hook, bent backwardly, the said backward bends forming the bill of the hook, substantially as described.

5. As a new article of manufacture, a hook for garments, having two longitudinally-extending shanks substantially equidistant from an imaginary line bisecting the hook longitudinally, in which the wire forming one of the shanks is, at the front part of the hook, bent transversely toward the other shank and thence bent transversely back toward the first-named shank, said transverse bends intersecting each other and forming a loop bridging the space between the front of the two shanks, substantially as described.

6. As a new article of manufacture, a hook for garments in which the wire forming one of the shanks is, at the front part of the hook, bent transversely toward the other shank and thence bent transversely back toward the first-named shank, and thence backwardly to form one side of the bill of the hook, said transverse bends intersecting each other at or close to the front of the shank and bill, substantially as described.

7. As a new article of manufacture, a hook for garments in which the wire forming one of the shanks is, at the front part of the hook, bent transversely toward the other shank and thence bent transversely back toward the first-named shank, and thence backwardly to form one side of the bill of the hook, said transverse bends intersecting each other at or close to the front of the shank and bill, while the wire forming the other shank is, at the front of the hook, bent backwardly to form the other side of the bill of the hook, substantially as described.

8. As a new article of manufacture, a hook for garments having two longitudinally-extending and substantially parallel shanks, non-contiguous and substantially equidistant from an imaginary line bisecting the hook longitudinally, in which the wire forming one of the shanks is, at the front part of the hook, bent successively upwardly, backwardly, transversely toward the first-named shank, thus forming a loop having a transversely-extending thread-engaging member located at the front of the hook, the said successive upward and backward bends merging into and forming a continuation of the front of the first-named shank, substantially as described.

9. As a new article of manufacture, a hook for garments, in which the wire forming one of the shanks is, at the front part of the hook, bent successively upwardly, backwardly, transversely toward the other shank, forwardly, and transversely toward the first-named shank, thus forming a loop having bends which intersect at a point substantially at the top of the upward bend, substantially as described.

10. As a new article of manufacture, a hook for garments in which the wire forming one of the shanks is, at the front part of the hook, bent successively upwardly, backwardly, transversely toward the other shank, forwardly, and transversely toward the first-named shank, and thence backwardly to form one side of the bill, while the wire forming the other shank is, at the front part of the hook, bent upwardly and backwardly to form the other side of the bill, substantially as described.

11. As a new article of manufacture, a hook for garments in which the wire forming one of the shanks is, at the front part of the hook, bent successively upwardly, backwardly, transversely toward the other shank, forwardly, and transversely toward the first-named shank, thus forming a loop having bends which intersect at a point substantially at the top of the upward bend, the said wire being bent, beyond the point of intersection, backwardly to form one side of the bill, while the wire forming the other shank is, at the front part of the hook, bent upwardly and backwardly to form the other side of the bill, substantially as described.

12. As a new article of manufacture, a hook for garments, in which the wire forming one of the shanks is, at the front part of the hook, bent successively upwardly, backwardly, transversely toward the other shank, forwardly, and transversely toward the first-named shank, thus forming a loop having bends which intersect at a point substantially at the top of the upward bend, the last bend of the loop being above the first bend of the loop, substantially as described.

13. As a new article of manufacture, a hook for garments, in which the wire forming one of the shanks is, at the front part of the hook, bent successively upwardly, backwardly, transversely toward the other shank, forwardly, and transversely toward the first-named shank, thus forming a loop having bends which intersect at a point substantially at the top of the upward bend, the last bend of the loop being above the first bend of the loop, the said wire being bent, beyond the point of intersection, backwardly to form one side of the bill, while the wire forming the other shank is, at the front part of the hook, bent upwardly and backwardly to form the other side of the bill, substantially as described.

14. As a new article of manufacture, a hook for garments having two shanks substantially equidistant from an imaginary line bisecting the hook longitudinally, in which the wire forming one of the shanks is, at the front part of the hook, bent successively toward and from the other shank to form a loop, the last bend of the loop being above the first bend of the loop at one of the front corners of the hook and the loop bridging the space between the two shanks, substantially as described.

15. As a new article of manufacture, a hook for garments consisting of two longitudinally-extending shanks, a bill consisting of two longitudinally-extending sides overlying the shanks and a loop at the front of the hook that bridges the space between the shanks and between the sides of the bill, in which the wire forming one of the shanks is, at the front part of the hook, bent successively toward and from the other shank to form the loop, and thence backwardly, the last bend of the loop being above the first bend of the loop, while the wire forming the other shank is, at the front part of the hook, bent backwardly, the said backward bends forming the bill of the hook, substantially as described.

16. As a new article of manufacture, a hook for garments, having two shanks substantially equidistant from an imaginary line bisecting the hook longitudinally in which the wire forming one of the shanks is, at the front part of the hook, bent transversely toward the other shank and thence bent transversely back toward the first-named shank, said transverse bends intersecting each other and forming a loop, the last bend of the loop being above the first bend of the loop and the loop bridging the space between the shanks, substantially as described.

17. As a new article of manufacture, a hook for garments in which the wire forming one of the shanks is, at the front part of the hook, bent transversely toward the other shank and thence bent transversely back toward the first-named shank, and thence backwardly to form one side of the bill of the hook, said transverse bends intersecting each other and forming a loop, the last bend of the loop being above the first bend of the loop, while the wire forming the other shank is, at the front part of the hook, bent backwardly to form the other side of the bill of the hook, substantially as described.

18. As a new article of manufacture, a hook for garments consisting of two longitudinally-extending shank portions forming the two sides of the hook, a longitudinally-extending bill and a transversely-extending loop, said loop being formed by portions of the wire extending in a substantially horizontal direction located between the wires forming the two shank portions and the two sides of the bill, said loop being integral with the shank forming one side of the hook and disconnected from the shank forming the other side of the hook, substantially as described.

678,097. HOOK.

TILLIE J. BROWNING, Philadelphia, Pa. Filed Apr. 23, 1901. Serial No. 57,045. (No model.)



Claim.—1. A hook for garments in which the wire forming each shank portion is bent successively upwardly, backwardly and forwardly, the ends of the forward bends being joined by an integral transversely-extending thread-engaging member, substantially as described.

2. A hook for garments, in which the wire forming each shank portion is bent successively upwardly, backwardly and forwardly, the ends of the forward bends being joined by an integral transversely-extending thread-engaging member, said member being at the front of the hook substantially above the line of the shanks and forming a cross-bar around which the securing-thread may be stitched, substantially as described.

3. A hook for garments, in which the wire forming each shank portion is bent successively upwardly, backwardly and forwardly, the ends of the forward bends being joined by an integral transversely-extending thread-engaging member, said member overlying the front of the backwardly-extending bends, substantially as described.

4. A hook for garments comprising two shank portions, a bill, and a cross-bar, each side of the bill being formed by a double thickness of wire, one wire of each side of the bill being formed by an extension from one of the shank portions, the other wires being joined by an integral transversely-extending thread-engaging member at the front of the hook.

5. A hook for garments comprising two shank portions, a bill, and a cross-bar, each side of the bill being formed by a double thickness of wire, two of the wires on opposite sides of the bill being joined by an integral transversely-extending thread-engaging member at the front of the hook.

6. A hook for garments comprising two shank portions, a bill, and a cross-bar, each side of the bill being formed by a double thickness of wire, one wire of each side of the bill being formed by an extension from one of the shank portions, and the other wires of the bill being formed by extensions from the first-named wires respectively, and being joined by an integral transversely-extending thread-engaging member at the front of the hook.

7. A hook for garments in which the wire forming each shank portion is bent successively upwardly, backwardly, and forwardly, the ends of the forward bends being joined by an integral transversely-extending thread-engaging member, the forward and backward bends lying substantially side by side.

8. A hook for garments in which the wire forming each shank portion is bent successively upwardly, backwardly and forwardly, the ends of the forward bends being joined by an integral transversely-extending thread-engaging member, the forward and backward bends lying substantially side by side, and the transversely-extending thread-engaging member overlying the front of the backward bends.

9. A hook for garments comprising two shank portions, a bill and cross-bar, each side of the bill being formed by a double thickness of wire, the shank portions and the cross-bar being integrally connected with the bill at the front or eye-engaging end of the hook.

10. A hook for garments comprising two shank portions, a bill and cross-bar, each side of the bill being formed by a double thickness of wire, one wire of each side of the bill being integrally connected with one of the shank portions at the front or eye-engaging end of the hook and the other wires of the bill being formed by extensions from the first-named wires, respectively, and the cross-bar being located at the front or eye-engaging end of the hook.

678,098. NECKTIE-FASTENER.

BENJAMIN L. BOHMERT, Minneapolis, Minn. Filed Feb. 14, 1901. Serial No. 47,903. (No model.)

Claim.—1. As a new article of manufacture, a fastener for "four-in-hand" ties comprising a member having a part to engage the lower edge of the collar, a part to engage the shank of the collar-button to pre-

vent lateral movement of the tie, yielding means to engage the button and prevent downward movement of said member, and means to engage the tie, substantially as described.



2. As a new article of manufacture, a fastener for securing a "four-in-hand tie" on a straight collar comprising a member having a part to pass between the ends of the collar and the shirt-band and a forked part to straddle the collar-button from beneath outside the collar, yielding means to engage the button to hold said member thereon, and a fastening device provided on said member to engage the tie.

3. As a new article of manufacture, a necktie-fastener comprising a member having a part to pass under the lower edge of the collar between its ends and the shirt-band, and a forked portion to straddle the collar-button on the outside of the collar, an elastic loop or belt provided on the lower portion of said member and adapted to be slipped over the end of the button to hold the fastener in engagement therewith, and means to engage the tie.

4. A necktie-fastener, comprising a plate 5 having a loop 8 to receive the lower edge of a collar and a lip 7 to pass up between the ends of the collar and the shirt-band, a slot 9 provided in the upper end of said plate to receive the shank of the collar-button, a safety-pin carried by said plate near its lower end, and an elastic loop or band provided on the shank of said pin, substantially as described.

5. A necktie-fastener, comprising a plate 5 having a U-shaped loop 8 formed therein to receive the lower edge of a collar, and a lip 7 to pass up between the ends of the collar and shirt-band, the upper end 6 of said plate being adapted to extend up outside the collar and having a slot 9 to receive the shank of the collar-button, a safety-pin hinged near the lower end of said plate, and a yielding loop or band carried by said pin and adapted to be slipped over the end of the collar-button, for the purpose specified.

6. As a new article of manufacture, a fastener for "four-in-hand" ties, comprising a hook member to engage the lower edge of the collar, a yielding loop member to pass over the head of the collar-button and hold said hook member in place against the edge of the collar, means for preventing lateral movement of said hook member and a pin device to pass through the back of the tie, substantially as described.

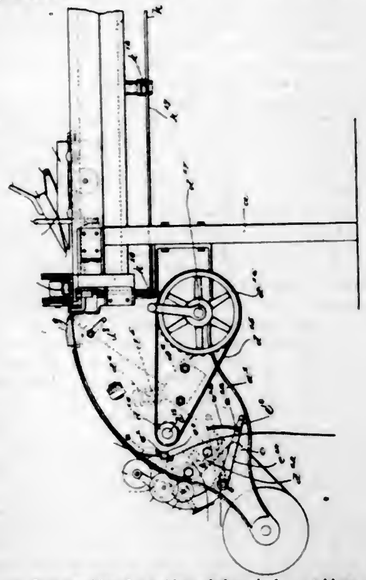
7. As a new article of manufacture, a necktie-fastener, comprising a hook member adapted to engage the lower edge of the collar, a safety-pin pivoted on said hook member transversely thereof, and an elastic loop provided on the shank of said pin and adapted to be slipped over the collar-button head and hold said hook member against the edge of the collar, for the purpose specified.

678,099. CLOTH CUTTING AND FOLDING MACHINE. CALVIN N. COLPITTS, Boston, Mass., assignor to American Shade Machine Company, same place and Portland, Me. Filed Aug. 3, 1900. Serial No. 25,792. (No model.)

Claim.—1 In a machine for making window-shades, a table or support to receive the material to be creased and trimmed, opposite arms, each carrying disk cutters for simultaneously trimming the opposite edges of the material, said arms also carrying friction-rolls normally pressed in driving engagement with the fabric and with said cutting-disks for positively rotating the latter, means for adjusting said arms toward and from said table, means for creasing and folding the longitudinal edges of the material, and means for creasing transversely the hem end of the material.

2. In a machine for making window-shades, a table or support to receive the material to be creased and trimmed, opposite arms each carrying disk cutters for simultaneously trimming the opposite edges of the material, said arms also carrying friction-rolls normally pressed in driving engagement with the fabric and with said cutting-disks for positively rotating the latter, and means for adjusting said arms toward and from said table, said arms also being respectively provided with creasing devices mounted thereon beyond said cutting-disks, said creasing devices being nearer each other than said cutting-disks, and coöperating creasing devices mounted on said table to operate beneath the shade material.

3. In a machine for making window-shades, a table or support to receive the material to be creased and trimmed, opposite arms each carrying disk cutters for simultaneously trimming the opposite edges of the material, said arms also carrying friction-rolls normally pressed in driving engagement with the fabric and with said cutting-disks for positively rotating the latter, and means for adjusting said arms toward and from said table, said arms being also respectively provided with creasing devices mounted thereon beyond said cutting-disks, said creasing devices being nearer each other than said cutting-disks, and coöperating creasing devices mounted on said table to operate beneath the shade material, and means for adjusting said under creasing device outward or inward relatively to the table.



4. In a machine for making window-shades, a table or support to receive the material to be creased and trimmed, opposite arms each carrying disk cutters for simultaneously trimming the opposite edges of the material, said arms also carrying means driving the cutters in a direction opposed to the travel of the fabric, and means for adjusting said arms toward and from said table, said table being laterally extensible, and means for maintaining the opposite side edges thereof in true parallelism, said means comprising a transverse guide-track extending between the sides of the machine and a guide-wheel mounted on the movable part of said table and traveling on said track, and a screw-rod mounted in the frame of the machine and having threaded engagement with the movable part of the table.

5. In a machine for making window-shades, a table for supporting the shade material to be trimmed and creased at its opposite edges, trimming devices and creasing devices for simultaneously operating on the opposite edges of the material, a pulling-carriage having means for gripping the material, tracks therefor extending longitudinally of said table at the forward end thereof, a transverse cutter and creaser at the end of said table between the same and said pulling-carriage, and means for operating said transverse cutter and creaser to cut off and crease lengths of the shade material.

6. In a machine for making window-shades, a table for supporting the shade material to be trimmed and creased at its opposite edges, trimming devices and creasing devices for operating on the opposite edges of the material, a receiving-table in longitudinal alinement with said first-mentioned table, a pulling-carriage mounted to travel on said tracks and adapted to engage the end of the shade material and pull the same longitudinally over said table, creasing-tracks between said two tables, and creasing and transverse-cutting devices movable transversely of the shade material on said creasing-tracks, and means for operating the same.

7. In a machine for making window-shades, a table for supporting the shade material to be trimmed and creased at its opposite edges, trimming devices and creasing devices for simultaneously operating on the opposite edges of the material, a receiving-table in longitudinal alinement with said first-mentioned table, a pulling-carriage mounted to travel on said tracks and adapted to engage the end of the shade material from one side thereof to the other for pulling the same evenly and uniformly at all points, creasing-tracks between said two tables, a creasing and transverse-cutting device for traveling on said creasing-tracks and means for operating the same, said first-mentioned table having at its edges means to intarn the cut edges of the material about the edges of said table, and means coöperating with said table to intarn the cut edges of the shade material.

8. In a machine for making window-shades, a table for supporting the shade material to be trimmed and creased at its opposite edges, trimming devices and creasing devices for operating on the opposite edges of the material, transverse-creasing tracks, a carriage traveling on said tracks, and provided with creasing devices coöperating with said tracks for providing in said material creases for the bottom hem of the window-shade, said carriage also having cutting mechanism for severing the material parallel to said creases.

9. In a machine for making window-shades, a table for supporting the shade material to be trimmed and creased at its opposite edges, trimming devices and creasing devices for simultaneously operating on the opposite edges of the material, transverse-creasing tracks at the front end of said table, a carriage traveling on said tracks, said carriage being provided with creasing-wheels coöperating with said tracks for providing in said material creases for the bottom hem of the window-shade, said carriage also having cutting mechanism for severing the material parallel to said creases, said carriage having guide-flanges for picking up and directing the shade material to said cutting mechanism as the latter is directed across the machine.

10. In a machine for making window-shades, a table for supporting the shade material to be trimmed and creased at its opposite edges, trimming devices and creasing devices for simultaneously operating on the opposite edges of the material, transverse-creasing tracks at the front end of said table, a carriage traveling on said tracks, said carriage being provided with creasing-wheels coöperating with said tracks for providing in said material creases for the bottom hem of the window-shade, said carriage also having cutting mechanism for severing the material parallel to said creases, and yielding means normally lifting said carriage toward said track but yielding to permit varying thicknesses of material to be creased between said creasing wheels and tracks.

11. In a machine for making window-shades, a table for receiving the shade material, creasing and trimming mechanism for longitudinally creasing and trimming the material as it passes along said table, mechanism at the end of said table for transversely creasing and severing said previously longitudinally creased and trimmed material, and a receiving-table occupying a plane below the same for receiving in succession a stack of creased and severed shades.

12. In a machine for making window-shades, a table for receiving the shade material, creasing and trimming mechanism for longitudinally creasing and trimming the material as it passes along said table, mechanism at the end of said table for transversely creasing and severing said previously longitudinally creased and trimmed material, a pulling-carriage, guide-tracks therefor extending longitudinally of said table, said pulling-carriage having separable jaws extending transversely of the machine and normally held in biting engagement with each other for retaining the shade material as the latter is being pulled along thereby, and tripping means for automatically opening said jaws to engage the adjacent end of the shade material as said jaws reach the proper position at said transverse creasing and severing mechanism.

13. In a machine for making shades, means to sustain the shade material, feeding means to engage and draw said material over said sustaining means, means to trim longitudinally the shade material at its opposite edges, means to crease said material parallel with its cut edges, a carriage having means to crease and cut said material transversely to define the hem-lines and the end of the shade, and means to move said carriage that the creasing and cutting means mounted thereon may act while the material is held by said feeding means.

14. In a machine for making window-shades, feeding means to grasp and move the shade material in the direction of its length, a disk cutter, means to rotate the same in a direction opposite the travel of the shade material through the machine, said cutter trimming the edge of the shade material, and means for creasing the edge of the material as thus trimmed.

15. In a machine for making window-shades, a table or support for the material, means to draw the same in the direction of its length over said table or support, a disk cutter, and means actuated by the moving material to rotate the disk cutter in a direction opposite the travel of the shade material through the machine and means for creasing the longitudinal edges of the material, and means for transversely creasing the material for a hem.

16. In a machine of the class described, parallel raised tracks to sustain the shade material which is to be creased transversely, a carriage having creasing-wheels, and a presser-roll, said roll acting in advance of the creasing-wheels to form slack in the shade material that the creasing-wheels may act to crease the material without straining or cutting the same.

17. In a machine of the class described, parallel tracks to sustain the material to be creased transversely, combined with a carriage having at each end a pair of creasing-wheels, and a presser-roll, whereby said creasing-wheels may act in either direction of movement of the carriage.

18. A machine for making shades, comprising in its construction means to trim longitudinally the shade material at its opposite edges, means forming part of the machine to simultaneously crease said material parallel with its cut edges, and means forming part of the machine to crease said material transversely to define the hem-lines.

19. In a machine for making shades, means to trim longitudinally the opposite edges of the shade material, means forming part of the machine to simultaneously crease said material parallel with its cut edges, and means forming part of the machine to crease and cut said material transversely to define the hem for the end of the shade.

20. In a machine for making shades, means to trim longitudinally the shade material at its opposite edges, means forming part of the machine to simultaneously crease said material parallel with its cut edges, means forming part of the machine to form a plurality of parallel creases transverse to the material, and means to sever the material transversely parallel to its transverse creases, said creases defining the width of the hem for the bottom of the shade.

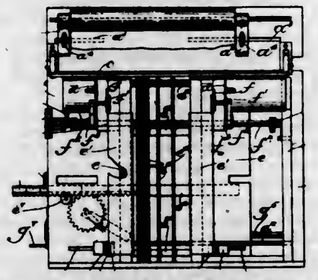
21. In a machine for making window-shades, means to support the shade material, means to trim the edges of said material, means to crease the material parallel with its cut edges, means to turn the cut edges of the material over upon the body of the shade material, means to cut the material transversely into certain lengths and to crease the material transversely to provide for making the bottom hem of the shade.

22. In a machine for making window-shades, means to support the shade material, feeding means to engage the end of the material and to draw it over said support for a distance corresponding with the length of the curtain desired, creasing, trimming and turning means operating to trim, crease and turn the edges of the material, and means to crease and cut the material transversely, the transverse creases defining the hem at the lower end of the shade.

23. In a machine of the class described, a support for the shade material, devices to overturn the opposite edges of the shade material upon the body thereof, and means to move said turning devices oppositely away from the edges of the support for the introduction of the shade material preparatory to turning the edges of the material.

24. In a machine of the class described, a support for the shade material, devices to overturn the opposite edges of the shade material upon the body thereof, means to move said turning devices oppositely away from the edges of the support for the introduction of the shade material preparatory to turning the edges of the material, and means to move the turning devices toward the support for the shade material that said devices may cause the shade material to embrace the edges of the support.

678,100. CLOTH CUTTING AND FOLDING MACHINE. CALVIN N. COLPITTS, Boston, Mass., assignor to American Shade Machine Company, same place and Portland, Me. Filed Aug. 4, 1899. Renewed Feb. 6, 1901. Serial No. 46,247. (No model.)



Claim.—1. In an apparatus for cutting and creasing window-shades a support, a roll for cloth or paper mounted upon said support, a table or rest for the cloth as it is being formed into shades, said table having ledges projecting at its edges and being laterally adjustable or extensible to accommodate shades of varying widths, cutters mounted beyond the opposite edges of said table for simultaneously cutting the opposite longitudinal edges of the cloth, longitudinal creasing devices mounted in line with the edges of said projecting ledges, means for moving said cutters and creasing devices toward and from each other according to the adjustment of the table, and means for coöperating with said ledges for folding the edges of the cloth thus creased, substantially as described.

2. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, a table or rest for the cloth as it is being formed into shades, said table having ledges projecting at its edges and being laterally adjustable or extensible to accommodate shades of varying widths, cutters mounted beyond the opposite edges of said table for simultaneously cutting the opposite longitudinal edges of the cloth, longitudinal creasing devices mounted in line with the edges of said projecting ledges, means for moving said cutters and creasing devices toward and from each other according to the adjustment

of the table, and means for cooperating with said ledges for folding the edges of the cloth thus creased, said table and its ledges being slightly curved for giving the edges of the cloth beyond the creasing devices a natural tendency to fold under as the cloth is pulled along the edges, substantially as described.

8. In an apparatus for cutting and creasing window-shades, a table or rest over which said cloth may be pulled, opposite cutting devices mounted beyond the longitudinal edges of said table the distance which it is intended to fold over the edges of the cloth to form the edges of the shade, opposite pairs of creasing devices in alinement with the edges of said table, said creasing devices each comprising an upper grooved wheel and an under sharp-edged wheel fitting into the groove of the upper wheel, and means for moving one edge of said table and one of said cutting and creasing devices toward or away from the rest of the table and the other of said cutting and creasing devices to enable the apparatus to form shades of varying widths, substantially as described.

4. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, sets of cutting and creasing devices located beyond the roll, one for each side of the shade, a block carrying one cutting device and one creasing device, and means for operating said block, substantially as described.

5. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, sets of cutting and creasing devices located beyond the roll, a block carrying one cutting device and one creasing device, a rack connected to said block, and a pinion meshing with the rack and provided with an operating device, substantially as described.

6. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, sets of cutting and creasing devices located beyond the roll, a block carrying one cutting device and one creasing device, a rack connected to said block, a pinion meshing with the rack and provided with an operating device, a gage on the rack, and a pointer cooperating with the gage and secured to said support, substantially as described.

7. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, and two cutters located to cut the opposite edges of paper unwound from said roll, two pairs of creasing devices located beyond and between the cutters and each consisting of a pair of superimposed rolls, and a pair of ledges located in the spaces between the rolls and serving as guides respectively for the creased-over portions of the cloth or paper, substantially as described.

8. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, and two cutters located to cut the opposite edges of paper unwound from said roll, two pairs of creasing devices located beyond and between the cutters and each consisting of a pair of superimposed rolls and a pair of ledges located in the spaces between the rolls and serving as guides respectively for the creased-over portions of the cloth or paper and means between said ledges for retaining the cloth or paper between the creased or turned over edges, substantially as described.

9. In an apparatus for cutting and creasing window-shades, a support, a roll for cloth or paper mounted upon said support, two cutters located to cut the opposite edges of cloth or paper unwound from said roll, two pairs of creasing devices located beyond and between the cutters and each consisting of a pair of superimposed rolls and a pair of ledges located in the spaces between the rolls and serving as guides respectively for the creased-over portions of the cloth or paper, means between said ledges for retaining the cloth or paper between the creased or turned over edges, and a tension device in position to act against the cloth or paper between the roll and cutting devices, substantially as described.

10. In an apparatus for cutting and creasing window-shades, means for supporting and delivering the paper or cloth to be cut, two cutters located to cut the opposite edges of the paper or cloth, two pairs of creasing devices located beyond and between the cutters, means holding one of the members of each pair yieldingly toward the other member, and means for normally separating the members of said pairs, substantially as described.

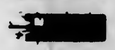
11. In an apparatus for cutting and creasing window-shades, means for supporting and delivering the paper or cloth to be cut, two cutters located to cut the opposite edges of the paper or cloth, means for creasing the paper or cloth, a folding-ledge, and folding-fingers arranged to fold the paper or cloth over said folding-ledges, and means for simultaneously moving said folding-fingers toward and from said ledges, substantially as described.

12. In a machine for making window-shades, a table or support to sustain the material, a plurality of arms, each carrying a disk cutter to trim the opposite edges of the material, means to rotate said cutters to cause them to trim the material, and means to crease the material parallel to its said edges.

13. In a machine for making window-shades, means to support the shade material, means to regulate the width of said support to adapt it to the width of the shade to be made, means to trim and crease the opposite edges of the shade material, means to adjust the distance apart of the cutting and creasing means to thereby adapt said cutting and creasing means to the width of the material-support.

14. In a machine for making window-shades, means to support the shade material, means to regulate the width of said support to adapt it to the width of the shade to be made, means to trim and crease the opposite edges of the shade material, means to adjust the distance apart of the cutting and creasing means to thereby adapt said cutting and creasing means to the width of the material, and means to turn over the cut edges of the material upon the body of the material.

678,101. PACKAGE OF DENTAL FLOSS. JAMES W. COWAN, Geneseo, N. Y. Filed May 18, 1901. Serial No. 60,798. (No model.)



Claim.—1. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a casing in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and means for closing the mouth of the casing, the floss being unwound from the casing through one of its ends, substantially as described.

2. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a casing of impermeable material in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and means for closing the mouth of the casing, the floss being unwound from the casing through one of its ends, substantially as described.

3. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a casing in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and a perforated stopper for closing the mouth of the casing, the floss being unwound through said stopper, substantially as described.

4. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a casing of impermeable material in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and a perforated stopper for closing the mouth of the casing, the floss being unwound through said stopper, substantially as described.

5. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a casing in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and a perforated stopper for closing the mouth of the casing, said stopper having a slit extending from the edge of the same into the perforation, whereby the thread of floss may be passed from the side of the stopper into the perforation and be unwound from the casing through the perforation, substantially as described.

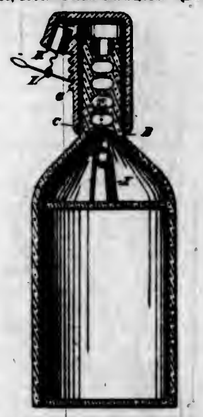
6. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a casing of impermeable material in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and a perforated stopper for closing the mouth of the casing, said stopper having a slit extending from the edge of the same into the perforation, whereby the thread of floss may be passed from the side of the stopper into the perforation and be unwound from the casing through the perforation, substantially as described.

7. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a metallic casing in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and a perforated stopper through which the floss is unwound from the casing, said casing having means for holding the stopper in position, substantially as described.

8. A package of dental floss comprising a cop of floss wound so as to unwind from the center outward, a metallic casing in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, and a perforated stopper through which the floss is unwound from the casing, said casing having flexible retaining-points for holding the stopper in position, substantially as described.

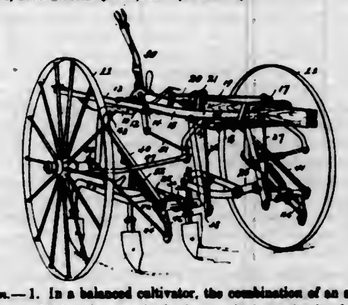
9. A package of dental floss comprising a cop of floss so wound as to unwind from the center outward, a metallic casing in which the cop fits snugly, said casing having a mouth of a size to permit the cop to be inserted therein after it is wound, a perforated stopper having a slit extending from the side thereof to the perforation, whereby the floss may be passed through the slit into the perforation, and the floss be unwound from the cop through the stopper, said casing being provided with flexible retaining-points for holding the stopper in position, substantially as described.

678,102. NON-REFILLABLE BOTTLE. HENRY CRAMER, Chicago, Ill. Filed July 13, 1900. Serial No. 24,022. (No model.)



Claim.—A non-refillable bottle comprising a body portion, a transverse partition near the upper end of the body portion, a curved tubular part communicating with a perforation at one side of the transverse portion, a neck portion provided in its interior with a sinuous passage, and upon its exterior with spring-catches, a mantle consisting of a tubular portion having recesses upon its interior engaging with the spring-catches, said mantle being closed at the top, and being provided at one side with an outwardly-directed outlet.

678,108. CULTIVATOR. FRANK H. DAVIS, La Crosse, Wis. Filed June 8, 1900. Serial No. 19,540. (No model.)



Claim.—1. In a balanced cultivator, the combination of an arched wheel-axle provided with ground-wheels, a main frame having pivotal connection with the arched portion of said axle and provided with an operator's seat in rear of said pivotal connection, a transversely-arranged crank-shaft mounted in journals in the main frame at a point in front of the connection of the latter with the arched portion of the axle, a rigid crank-arm upon each end of said crank-shaft, rigid operating-links connecting the free ends of said crank-arms with the wheel-axle at the respective sides of the arched portion thereof, an operating-lever pivotally mounted upon the main frame in rear of said crank-shaft, a rigid operating-rod connected with said operating-lever, and extending thence to one of the arms of the crank-shaft, and means for locking said operating-lever in various positions of adjustment, substantially as described.

2. In a cultivator, the combination with the wheel-frame, of a shovel-beam frame supported from the wheel-frame at a point in front of the wheel-axle by a connection which permits lateral movement of the shovel-beam frame, relatively to the wheel-frame at such point of support, and a shifting-lever pivoted on the wheel-frame and directly connected to the shovel-beam frame, whereby the latter frame may be shifted bodily laterally to occupy different parallel positions, substantially as described.

3. In a cultivator, the combination, with a wheel-frame and shovel-beams, of an arched bar connecting the forward ends of said shovel-beams and swinging links whereby the arched bar is suspended from the wheel-frame, and a lever pivoted on the wheel-frame and connected to the arched bar, substantially as described.

4. In a cultivator, the combination, with a wheel-frame and shovel-beams, of an arch-bar connecting the forward ends of the shovel-beams, swinging supports for said arch-bar connected to the wheel-frame in front of the wheel-axle, pivoted braces extending from the shifting frame to the wheel-frame, and a shifting-lever connected directly to the arch-bar whereby the arch-bar may be shifted laterally independently of the wheel-frame, substantially as described.

5. In a cultivator, the combination, with a wheel-frame having a rocking crank-axle, shovel-beams connected at their forward ends by a shiftable frame, a shifting-lever connected to said frame and braces extending from said shovel-beam frame to the main frame and adapted to hold the shovel-beam frame in position while permitting the crank-axle to be rocked, substantially as described.

6. In a cultivator, the combination, with a wheel-frame and shovel-beams, of an arch-bar connecting the forward ends of the shovel-beams, swinging supports for the arch-bar, a shifting-lever directly connected to said arch-bar, and a pivoted tongue to which the shifting-lever is also connected, substantially as described.

7. In a cultivator, the combination, with a wheel-frame and shovel-beams, of a laterally-shiftable shovel-beam frame, a shifting-lever directly connected to said shovel-beam frame, a pivoted tongue and a link affording a removable connection between said tongue and the shifting-lever, substantially as described.

8. In a cultivator, the combination, with a wheel-frame and shovel-beams, of a laterally-shiftable shovel-beam frame, a shifting-lever directly connected to said shovel-beam frame, whereby it may be shifted independently of the wheel-frame, and a pivoted tongue also connected to the shifting-lever, and means for locking the tongue and thereby the shifting-lever and shiftable frame, substantially as described.

9. In a cultivator, the combination, with a wheel-frame and shovel-beams, of an arched bar connecting the forward ends of said beams, swinging links for suspending said arched bar from the wheel-frame, a pivoted tongue and a shifting-lever directly connected to the arched bar and a link connecting said shifting-lever to the tongue, substantially as described.

10. In a wheel-cultivator, the combination, with a wheel-frame having a rocking crank-axle, shovel-beams connected at their forward ends and means for laterally shifting said shovel-beams bodily, braces connecting the forward ends of the shovel-beams with the wheel-frame independently of the crank-axle, connections between the crank-axle and the front ends of the shovel-beams, and means for rocking the crank-axle and thereby automatically raising the shovel-beam, substantially as described.

11. In a wheel-cultivator, the combination, with a wheel-frame and its rocking crank-axle, a rock-shaft journaled to the main frame, rigid rods connecting the ends of said rocking shaft with the cranks of the axle, shovel-beams swinging upon a horizontal axis and links pivotally connected to the axle and to the shovel-beam eccentrically to their pivots, and means for rocking the crank-axle, whereby the shovel-beams are automatically lifted and the frame is balanced, substantially as described.

12. In a cultivator, the combination, with a wheel-frame and shovel-beams, of a laterally-shiftable shovel-beam frame, a shifting-lever connected to said shovel-beam frame, a pivoted tongue, a link whereby said tongue may be also detachably connected to the shifting-lever, and means for locking the tongue rigidly to the wheel-frame to permit the shovel-beam frame to swing laterally independently of the tongue, substantially as described.

13. In a cultivator, the combination, with a wheel-frame and shovel-beams, of a shovel-beam frame connecting the forward ends of the shovel-beams, and suspended from the wheel-frame, a shifting-lever directly connected to the shovel-beam frame, and a pivoted tongue also connected to the shifting-lever, and means for locking the tongue rigidly and thereby the shifting-lever and shiftable frame, substantially as described.

14. In a cultivator, the combination, with a wheel-frame and shovel-beams, of an arched bar connecting the forward ends of the shovel-beams, and capable of being swung laterally, braces extending from the arched bar to the wheel-frame and springs connected to said braces and eccentrically to the journal-bearings of the shovel-beams, substantially as described.

15. In a cultivator, the combination, with a wheel-frame and shovel-beams, of a shovel-beam frame mounted upon the main frame so as to be shifted laterally thereof, means for shifting said frame laterally and for locking said frame against lateral movement, said shovel-beams being normally rigidly attached to their frame, and means for converting said attachment to a pivotal connection, substantially as described.

16. In a wheel-cultivator, the combination, with a wheel-frame having a rocking crank-axle, shovel-beams, an arched bar having journals upon which the shovel-beams are mounted, swinging links for suspending the arched bar from the wheel-frame, a shifting-lever pivoted upon the main frame and connected directly to the arched bar, a pivoted tongue, and a link connecting the tongue and the shifting-lever, braces extending from the arched bar to the wheel-frame and rods having a sliding connection with the crank-axle and connected to the shovel-beams eccentrically to their pivots, substantially as described.

678,104. STOCK TROUGH OR TANK. JOSEPH F. GLIDDEN, DeKalb, Ill. Filed Nov. 15, 1900. Serial No. 36,618. (No model.)



Claim.—1. The combination with the trough-body and the cement head-blocks, of wires connecting opposite sides of the trough-body and embedded in said cement head-blocks.

2. The combination with the trough-body and the cement head-blocks, of wires connecting opposite sides of the trough-body and embedded in said cement head-blocks and tie-bolts extending transversely of the trough.

3. The combination with the trough-body and the cement head-blocks, of wires connecting opposite sides of the trough-body and embedded in said cement head-blocks, a rectangular binding-frame around the upper edge of the trough-body, and a series of tie-bolts extending transversely through the trough-body and binding-frame, the end tie-bolts being embedded in said cement head-blocks.

678,105. DAM. JOSEPH F. GLIDDEN, DeKalb, Ill. Filed Nov. 15, 1900. Serial No. 36,619. (No model.)



Claim.—1. A dam construction comprising a body or bed of short wire laid with the wires parallel with the stream, combined with a backing or abutment of masonry directly behind said wire bed, substantially as described.

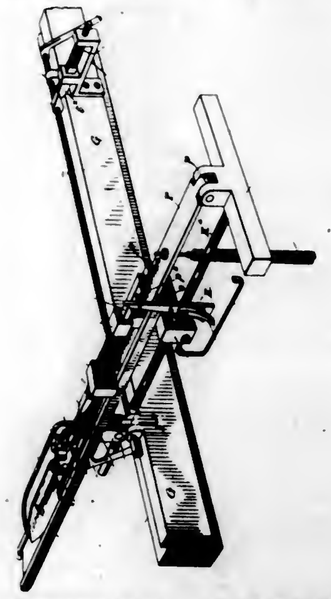
2. A dam construction comprising a body or bed formed of a number of bundles of short wire piled closely together, said bundles lying parallel with the stream, combined with a backing or abutment of masonry directly behind said wire bed, and a covering of earth or cement or other suitable material imposed on said wire bed, substantially as described.

3. A dam construction comprising a body or bed formed of a number of bundles of short wire piled closely together, said bundles lying parallel with the stream, combined with a backing or abutment of masonry directly behind said wire bed, and a covering of earth or cement or other suitable material imposed on said wire bed, the pressure-resisting face of the dam having a gradual slope from the top of the masonry to the base of the dam, substantially as described.

678,106. LOOM. JACQUES HOEL, West Hoboken, N. J. Filed July 3, 1900. Serial No. 23,490. (No model.)

Claim.—1. The combination with a vibrating lay-frame, of a reciprocating needle-carrier carried thereby, a needle-carrier-actuating arm operatively connected with the needle-carrier and capable of rocking to reciprocate the needle-carrier transversely and also to follow the to-and-fro movement of the lay-frame, a rotating driving-disk, a rocking slotted arm vibrating in a plane parallel with the disk, a sliding or loose pin-connection between the disk and slotted arm and an elongated sliding operative connection between the slotted arm and the needle-carrier-actuating arm.

2. The combination of the rotating disk or actuating device, an arm vibrated thereby, a rock-shaft upon which the arm is mounted, a vibrating needle-carrier-actuating arm rocking on an axis carried by the rock-shaft and at right angles thereto, a vibrating lay-frame, the reciprocating needle-carrier carried thereby, an extensible or sliding operative connection between the two rocking arms and an operative connection between the needle-carrier and its actuating-arm.



3. The combination of the lay-frame and needle-carrier, of the needle-carrier-actuating arm having motion about an axis parallel with the axis of the lay-frame, and also about an axis at right angles thereto, a driven vibrating arm rocking about an axis at right angles to that of the lay-frame, a finger or blade projecting therefrom and rolls mounted on the needle-carrier-actuating arm and between which said blade works.

4. The combination of the vibrating lay-frame, a reciprocating needle-carrier mounted thereon, means for reciprocating it during the vibration of the lay-frame, the shuttle-carrier mounted upon and moving with the lay-frame and having a transverse passage therein for the reception of the needle in its advanced position, a hook moving with the lay-frame, means for actuating it when the needle is in its advanced position to engage the weft-thread loop before it is passed over the shuttle, the floating selvage-shuttle mounted in the shuttle-carrier, and means for retracting the hook or disengaging it from the weft-thread loop when the needle has receded from said groove and the weft-thread loop has been carried over or around the shuttle.

5. The combination of the vibrating lay-frame, a reciprocating needle-carrier mounted thereon, means for reciprocating it during the vibration of the lay-frame, the shuttle-carrier mounted upon and moving with the lay-frame and having a transverse passage therein for the reception of the needle in its advanced position, a hook moving with the lay-frame, means for actuating it when the needle is in its advanced position to engage the weft-thread loop before it is passed over the shuttle, the floating selvage-shuttle mounted in the shuttle-carrier, means for retracting the hook or disengaging it from the weft-thread loop when the needle has receded from said groove and the weft-thread loop has been carried over or around the shuttle, and means for preventing the shuttle from following the movement of the shuttle-carrier.

6. The combination of the vibrating lay-frame, a reciprocating needle-carrier mounted thereon, means for reciprocating it during the vibration of the lay-frame, the shuttle-carrier having a transverse groove therein for the reception of the needle in its advanced position, a hook, means for actuating it when the needle is in its advanced position to engage the weft-thread loop, the floating shuttle containing the selvage-thread, means for retracting the hook or disengaging it from the weft-thread loop when the needle has receded from said groove and the weft-thread loop has passed over or around the shuttle, a toothed or star wheel arranged in rear of the shuttle to receive the weft-loop upon a tooth thereof as it leaves the shuttle, and means for rotating the wheel to release the weft-loop so that it may be drawn upon the selvage-thread by the retreating needle.

7. The combination with the vibrating lay-frame, the reciprocating needle-carrier and needle, of the transversely-grooved shuttle-carrier, the shuttle therein, the intermittently-operated hook, the plate lying in or on the shuttle-carrier in rear of the shuttle, the toothed or star wheel carried thereby, means for intermittently operating it, a pivotal connection between said plate and the main frame and a pivotal connection between the lay-frame and the shuttle-carrier.

8. The combination of a vibrating lay-frame, a reciprocating needle carried thereby, the transversely-grooved shuttle-carrier connected to and vibrating with the lay-frame, an intermittently-actuated hook to engage the weft-thread loop while the needle is in its advanced position in said groove and to hold it as the needle retreats, and a floating selvage-thread shuttle, mounted in said carrier, over which the weft-loop is passed as the lay-frame advances, and means for preventing the shuttle from following the movement of the shuttle-carrier.

9. The combination of the vibrating lay-frame, the reciprocating needle carried thereby, a transversely-grooved shuttle-carrier carried by the lay-frame, an intermittently-operated hook to engage the weft-thread while the needle is in its advanced position in said groove, a plate lying in or on the shuttle-carrier in the rear of the shuttle and pivotally connected to a fixed part of the frame, and means carried by said plate for preventing the endwise travel of the shuttle as the carrier vibrates with the lay-frame.

10. The combination of the vibrating lay-frame, the reciprocating needle carried thereby, a transversely-grooved shuttle-carrier carried by the lay-frame, an intermittently-operated hook to engage the weft-thread while the needle is in its advanced position in said groove, a plate lying in or on the shuttle-carrier in the rear of the shuttle and pivotally connected to a fixed part of the frame, means carried by said plate for preventing the endwise travel of the shuttle as the carrier vibrates with the lay-frame, and devices carried by said plate for delivering, at the proper time, the weft-loop after it has passed over the shuttle.

11. In a needle-loom the combination of the reciprocating needle, an intermittently-operated hook to take the weft-loop from the needle, the floating selvage-thread shuttle over which the loop is then passed, the star or toothed wheel arranged in rear of the shuttle and a tooth of which receives the weft-loop when it leaves the shuttle and means for intermittently operating the wheel to release the weft-loop.

12. The combination of the vibrating lay-frame, the reciprocating needle-carrier traveling in a way or guide on said frame, the hook, its rock-shaft turning in bearings on said frame, means for partially actuating the rock-shaft when the needle-carrier has reached its advanced position, devices for completing the actuation or movement of the rock-shaft and holding it in position, and means for subsequently restoring the hook to its normal or initial position.

13. The combination of a vibrating lay-frame, the reciprocating needle and needle-carrier carried thereby, a hook coöperating with the needle to take the weft-thread therefrom, a rock-shaft on which the hook is mounted having bearings on the lay-frame, a projection on the rock-shaft a coöperating projection on the needle-carrier, a wedge-shaped wiper on the rock-shaft and a coöperating yielding wedge-shaped rod or block, and a stop on the frame against which the hook strikes and by which the hook is restored to its normal or initial position to release the weft-loop at the required time.

14. The combination of a vibrating lay-frame, a needle-carrier reciprocating in a guide or way thereon, a driven vibrating needle-carrier-actuating arm mounted to follow the vibration of the lay-frame, a loose connection between the needle-carrier and vibrating arm by which the arm is carried with the lay-frame in its vibrations and an independent actuating connection jointed at one end to said arm and at the other end to the needle-carrier whereby the needle-carrier is reciprocated as the arm vibrates about an axis transverse to that of the lay-frame.

15. The combination of the vibrating lay-frame, a needle-carrier reciprocating thereon, a needle-carrier-actuating arm mounted to follow the movement of the lay-frame and to vibrate to reciprocate the needle-carrier, and operative connection between said arm and the needle-carrier, a hook coöperating with the needle, its rock-shaft mounted on the lay-frame, the shuttle-carrier mounted on and moving with the lay-frame, the floating shuttle lying in the carrier, means for preventing the shuttle from following the movement of the carrier and means whereby the hook is intermittently actuated to coöperate with the needle and shuttle.

16. The combination of the vibrating lay-frame, a needle-carrier reciprocating thereon, a needle-carrier-actuating arm mounted to follow the movement of the lay-frame and to vibrate to reciprocate the needle-carrier, an operative connection between said arm and the needle-carrier, a hook coöperating with the needle, its rock-shaft mounted on the lay-frame, the shuttle-carrier mounted on and moving with the lay-frame, the floating shuttle lying in the carrier, means for preventing the shuttle from following the movement of the carrier, means whereby the hook is intermittently actuated to coöperate with the needle and shuttle, and means for delivering the weft-loop at the proper time, after it has been passed over the shuttle by the forward movement of the lay-frame.

17. In a needle-loom the combination of a weft-thread needle, means for reciprocating it transversely and moving it laterally to and fro within the shed, a shuttle-carrier following the to-and-fro movement of the needle, a hook traveling with the shuttle-carrier, means for operating the hook to take the weft-loop from the needle when the needle has been reciprocated through the shed into its advanced position and hold it as the needle retreats, a floating shuttle mounted in the carrier and held in a normal fixed position over and around which the weft-loop is passed as the hook advances, and means for disengaging the hook from the loop after the loop has passed over the shuttle.

18. In a needle-loom the combination of a weft-thread needle, means for reciprocating it endwise transversely to the warps and moving it laterally to and fro within the shed longitudinally of the warps, a shuttle-carrier following the lateral to-and-fro movement of the needle, a hook traveling with the shuttle-carrier, means for operating the hook to take the weft-loop from the needle when the needle has been reciprocated through the shed into its advanced position and hold it as the needle retreats, a floating shuttle mounted in the carrier and held in a normal fixed position over and around which the weft-loop is passed as the hook advances, means for disengaging the hook from the loop after the loop has passed over the shuttle, and means for releasing or delivering the loop at the proper time as the needle retreats.

19. In a needle-loom the combination of a weft-thread needle, means for reciprocating it endwise transversely to the warps and moving it laterally to and fro within the shed longitudinally of the warps, a hook following the lateral to-and-fro movement of the needle, means for operating the hook to take the weft-loop therefrom when the needle has been reciprocated through the shed into its advanced position and hold it as the needle retreats, a floating shuttle held in a normal fixed position over and around which the weft-loop is passed as the hook advances, and means for disengaging the hook from the loop after the loop has passed over the shuttle.

20. In a needle-loom the combination of a weft-thread needle, means for reciprocating it endwise transversely to the warps and moving it laterally to and fro within the shed longitudinally of the warps, a hook following the lateral to-and-fro movement of the needle, means for operating the hook to take the weft-loop therefrom when the needle has been reciprocated through the shed into its advanced position and hold it as the needle retreats, a floating shuttle held in a normal fixed position over and around which the weft-loop is passed as the hook advances, means for disengaging the hook from the loop after the loop has passed over the shuttle, the loop-receiving device which receives and holds the loop after it has passed around the shuttle, and means for operating said device to discharge the loop at the proper time as the needle retreats.

21. In a needle-loom, the combination of the reciprocating needle formed between its ends with an enlarged loop or opening, and a tension device mounted in the opening.

22. In a needle-loom, the combination of the reciprocating needle formed between its ends with an enlarged loop or opening having apertures through its opposite walls for the passage of the weft-thread, and a tension device mounted in the opening and consisting of the opposed resilient members having eyes for the passage of the thread and a slotted piece bridging the opening and in the slot of which the free ends of said members are guided, substantially as set forth.

678,107. FASTENER FOR SHOE-LACES. JAMES B. HOOPER, Melrose, Mass. Filed Mar. 26, 1901. Serial No. 53,923. (No model.)



Claim.—1. A fastener for shoe-laces and the like, comprising a flat resilient metallic body adapted to rest at one end directly upon the shoe-upper or analogous article, and having at its free end a locking-prong projecting from its under side and adapted to enter an ordinary lacing-eyelet and clamp or wedge therein the lace or string passed therethrough, and means independent of the said eyelet for securing the end of the body directly to the shoe-upper or analogous article.

2. A fastener for shoe-laces and the like, comprising a flat resilient

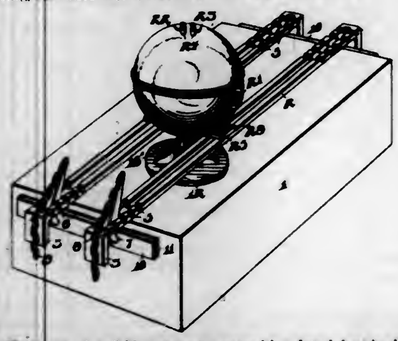
metallic body adapted to rest at one end directly upon the shoe-upper or analogous article, and having at its free end a locking-prong projecting from its under side and adapted to enter an ordinary lacing-eyelet and clamp or wedge therein the lace or string passed therethrough, and means independent of the said eyelet for securing the end of the body directly to the shoe-upper or analogous article, said means comprising prongs integral with the said metallic body and adapted to enter and be clenched in the fabric to which the fastener is applied.

678,108. UNLOADING DEVICE. FRANK P. JOHNSON, Waltham, Mass. Filed Apr. 18, 1899. Serial No. 713,581. (No model.)



Claim.—The combination with a vessel A; of a removable bottomless shaft C adapted to rest on the flooring of said vessel, so that the cargo may be placed about it, and provided with openings E in its sides and gates for said openings, said shaft being adapted to be removed when the cargo is broken out above said openings, substantially as described.

678,109. POLISHING-MACHINE. WILLIAM A. LINDSEY, Wilkinsburg, Pa. Filed Aug. 9, 1900. Serial No. 26,536. (No model.)



Claim.—1. A polishing apparatus, comprising slotted bars having angled ends and provided with notches on either side of said slotted portions adjacent to the angled ends thereof, a polisher held to and guided by said bars, combined with adjustable clamping means held in said notches and designed to hold said bars to a block of stone to be polished, as set forth.

2. The combination with the motor-shaft, and the polishing-disk pivotally connected thereto, of the slotted bars from which the polishing-disk is adjustably suspended, and means carried by said bars for securing the same rigidly to a block of stone or the like, substantially as described.

3. In a polishing apparatus, slotted parallel bars having angled ends, notches in the edges of said bars, adjacent to their angled ends, a cross-piece having sliding bolts passing through same, and designed to slide in said slotted bars, a rotatable polisher held by said cross-piece, clamping-levers having pins which are fulcrumed in the notches of said bars, and means for holding said levers in clamping relation against a stone to be polished, as set forth.

4. In a polishing apparatus, the combination with the slotted parallel notched bars having angled ends, the polisher held to and guided by said bars, the lugs on the outer faces of said angled ends, the clamping-levers with curved ends, the pins on the opposite sides of said levers designed to be fulcrumed in the notches of said slotted bars, chains secured to the straight ends of the levers, and adjustably engaged by said lugs, as set forth.

678,110. DEVICE FOR MAKING CIGARETTES. HENRY H. SPALDING, New York, N. Y., assignor of one-half to George B. Reddell, same place. Filed Mar. 29, 1901. Serial No. 53,625. (No model.)

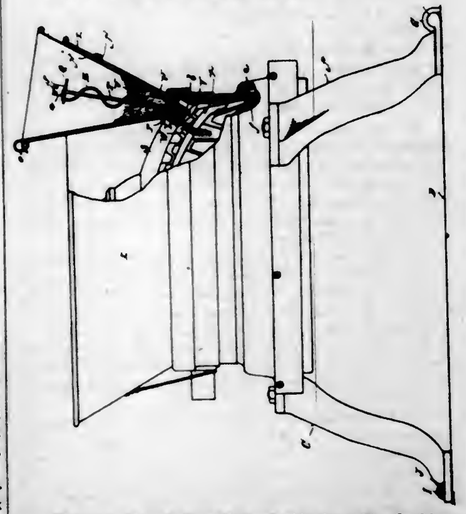
Claim.—1. The combination with a shell composed of two longitudinal semicylindric wings united by a longitudinal internal hinge, one of which said wings has at one end a head with an opening therein, of a rod passed through the opening in the head and a piston on the said rod arranged to traverse the length of the shell, whereby a practically unbroken cylindric contour is secured to the shell when closed, as described.



2. The combination with a shell composed of two longitudinal semicylindric wings one of which has at one end a head having an opening therein and a longitudinal hinge uniting said wings at adjacent edges thereof and forming a longitudinal rib within the shell, of a rod passed through the opening in the head and a piston on the inner end of the rod and having a notch or recess into which the rib extends during the movement of the piston within the shell, as described.

3. The combination with a shell composed of two longitudinal semicylindric wings united by an internal longitudinal hinge, one of which said wings has at one end a head with an opening therein, and one of which said wings has a longitudinal rabbet at its free edge to act as a stop to limit the lap of the other thereon, the longitudinal hinge providing a longitudinal rib within the shell, of a rod passed through the opening in the head and a piston fast on the inner end of the rod and notched to receive the rib as the piston traverses the length of the shell, as described.

678,111. GRINDING-MILL. DAVID L. ASHLAFFENDER, Springfield, Ohio, assignor to the Foos Manufacturing Company, same place. Filed Feb. 12, 1900. Serial No. 4,980. (No model.)



Claim.—1. In a grinding-mill, the combination, with a fixed base, of a rotatable primary hopper adapted to receive grain therein, an auxiliary hopper mounted within said primary hopper and secured thereto so as to rotate therewith, and an agitating device mounted in said auxiliary hopper and engaging with the fixed portion of the mill so as to be actuated thereby, substantially as described.

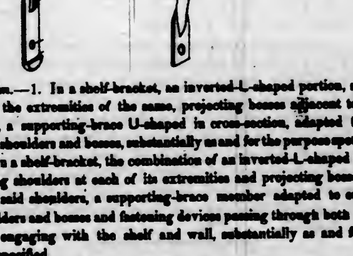
2. In a grinding-mill, the combination with a primary hopper adapted to be operated, of an auxiliary hopper mounted therein and secured thereto, said auxiliary hopper having a feed-opening and a slotted opening therein, an agitator-shaft mounted in said hopper, a spring connected at one end with said agitator-rod and extending through said slotted opening, a fixed device carried by the mill in the path of said pin, whereby the agitator-shaft is partially rotated in one direction and in the opposite direction by said spring, all substantially as shown and described.

3. In a grinding-mill, the combination with a primary hopper adapted to be rotated, of an auxiliary hopper mounted within said primary hopper and secured thereto, said auxiliary hopper having a slotted opening and a grain-discharge opening therein, a slide for closing more or less of said grain-discharge opening, a bearing mounted within said auxiliary hopper, an agitator-shaft mounted in said bearing, agitator-spindles carried by said shaft, a spring connected with said shaft at one end and to one of said bearings at its other end and adjustable in said bearing, a pin projecting from said agitator-shaft through said slotted opening and adapted to come in contact with a fixed part of the machine, a breaker-arm carried by said primary hopper in such a manner as to form an acute angle between the rear portion of said breaker-arm and the walls of said primary hopper, such auxiliary hopper extending within said angle, all substantially as shown and described.

4. In a grinding-mill, the combination with a base, of a pair of supporting-legs hinged thereto in line with each other, and one or more legs secured thereto by means of staples and wedges, all substantially as shown and described.

5. In a grinding-mill, the combination with a suitable base, of supporting-legs adapted to rest on the corners of said base, two of said legs having a hole therein and a curved flange extending therefrom, a pair of staples adapted to fit over the respective flanges and having one leg extending through said holes, said staples being driven into said base and said flanges filling the staples so as to hold the mill firmly upon its base, yet permitting such mill to be turned over on its side, another staple projecting through the third leg from the base, and a wedge for passing through said staple on top of the foot of said leg, whereby the leg is rigidly secured to the base, all substantially as shown and described.

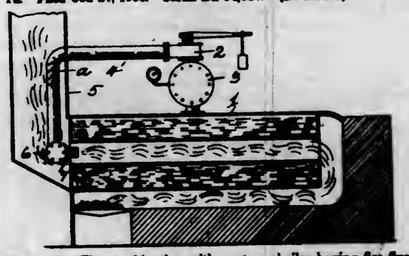
678,112. BRACKET. WILLIAM C. CALLENDER, Piqua, Ohio. Filed Feb. 19, 1900. Serial No. 5,804. (No model.)



Claim.—1. In a shelf-bracket, an inverted-L-shaped portion, shoulders near the extremities of the same, projecting bosses adjacent to said shoulders, a supporting-brace U-shaped in cross-section, adapted to engage said shoulders and bosses, substantially as and for the purposes specified.

2. In a shelf-bracket, the combination of an inverted-L-shaped member having shoulders at each of its extremities and projecting bosses adjacent to said shoulders, a supporting-brace member adapted to engage said shoulders and bosses and fastening devices passing through both members and engaging with the shelf and wall, substantially as and for the purpose specified.

678,113. DRAFT-REGULATOR. JOHN G. EVERSON, Pittsburg, Pa. Filed Oct. 27, 1900. Serial No. 34,617. (No model.)

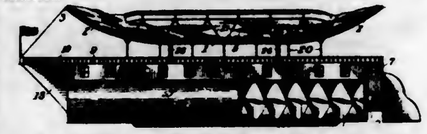


Claim.—1. The combination with a steam-boiler having fire-flues and a safety-valve of a pipe connected at one end with the opening controlled by said valve and provided with branch pipes at the other located with reference to the fire-flues of the boiler so as to discharge steam into the outlet ends of said fire-flues, and means for lessening or decreasing the pressure of the steam in advance of its discharge into the fire-flues of the boiler, substantially as described.

2. The combination with a steam-boiler having fire-flues and a safety-valve of a pipe connected at one end with the opening controlled by said valve and having branch pipes located so as to discharge steam into the outlet ends of the fire-flues of said boiler, the said pipe being provided with one or more perforations at a point between the safety-valve and said branch pipes, substantially as described.

678,114. AERIAL VESSEL. ERNEST M. FARR, Washington, D. C. Filed Feb. 19, 1900. Serial No. 5,826. (No model.)

Claim.—1. In aerial vessels, the combination with a collapsible balloon, of an aeroplane forming one of the balloon-walls, substantially as described.



2. An aerial vessel comprising a collapsible balloon having a stiff wall forming, when the balloon is collapsed, an aeroplane, substantially as described.

3. In aerial vessels, the combination with an aeroplane, of a horizontally-elongated collapsible balloon attached throughout its length thereto and having one of its walls formed by the aeroplane, substantially as described

4. In aerial vessels, the combination with an aeroplane, of a horizontally-elongated collapsible balloon attached throughout its length and width to the upper side thereof, the aeroplane constituting one of the balloon-walls, substantially as described.

5. The combination with an aeroplane having a flat body portion with an upturned forward portion, of a collapsible balloon attached thereto and adapted to fold below the horizontal plane of the forward edge of the aeroplane, the aeroplane forming the bottom wall of the balloon, substantially as described.

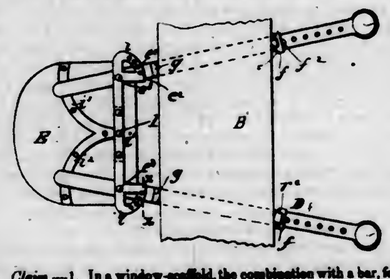
6. The combination with an aeroplane consisting of a flat body with upwardly-deflected front and rear end portions, of a collapsible balloon arranged to fold below the plane of the front and rear edges of the upwardly-deflected portions of the aeroplane, the aeroplane forming the bottom wall of the balloon, substantially as described.

7. The combination with an aeroplane consisting of a flat body with upwardly-deflected front and rear end portions, of a collapsible balloon connected therewith and adapted to be housed below the plane of the edges of the upwardly-deflected end portions, and reefing means for securing the balloon when partially or wholly collapsed, the aeroplane forming one of the balloon-walls, substantially as described.

8. The combination with a collapsible balloon having flexible sides, of an aeroplane of stiff material forming the bottom wall of the balloon, a stiff top or upper wall for the balloon, and reefing-ropes associated with said top wall for drawing the top wall toward the bottom wall, substantially as described.

9. A collapsible balloon comprising a stiff lower wall forming an aeroplane, a stiff top wall, and flexible sides connecting the top and bottom walls, substantially as described.

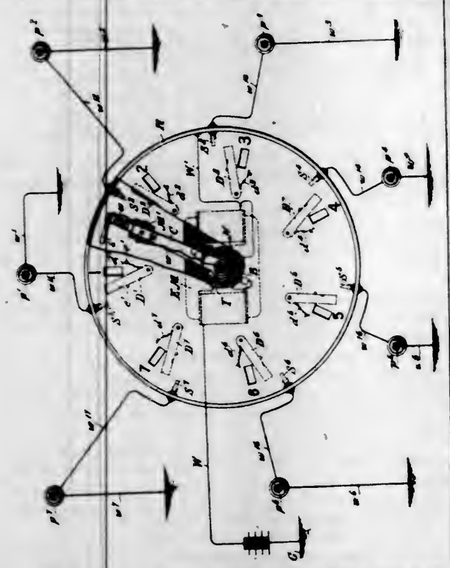
678,115. WINDOW-SCAFFOLD. ROBERT GUENTHER, Jersey City, N. J. Filed Oct. 8, 1900. Serial No. 32,349. (No model.)



Claim.—1. In a window-scaffold, the combination with a bar, formed in two circular segments, integral with each other; two cross-bars, arranged one above the other, and attached to the ends of the segments of said segmental bar, segmental bearings upon the ends of said cross-bars, and all said three bars arranged and adapted to form a supporting-frame; of horizontal bars, pivotally attached to said frame, arranged to be adjustable in said segmental bearings, and to support said frame; braces holding said horizontal bars in position; and a seat surmounting said frame; all substantially as and for the purpose set forth.

2. In a window-scaffold, the combination with horizontal supporting-bars; and braces holding said bars in position; of double joints, comprising the ears c', to which said braces are pivotally attached, the heads c^2, and the pins c^3, by which, in connection with the said ears, the said supporting-bars are pivotally attached to said braces, and said braces and said supporting-bars, so adapted and arranged, and so connected by said joints, that they will swing in planes at right angles to each other; all substantially as and for the purpose set forth.

678,116. ELECTRICAL ANNUNCIATOR. CHARLES J. KIETHER, New York, N. Y. Filed Apr. 2, 1898. Serial No. 676,162. (No model.)



Claim.—1. An electrical annunciator provided with a series of annunciator-drops, in combination with a movable electromagnet having circuit connections so arranged as to adapt it to actuate any one of said drops; conductors running to outlying circuit-closing devices adapted each to close the circuit through the said electromagnet in such manner as to actuate the proper drop, substantially as described.

2. An electrical annunciator provided with a series of annunciator-drops and a movable electromagnet having means for moving it into close proximity to said drops in sequence, together with circuit-closing devices and a series of outlying conductors, including push-buttons or similar circuit-closing devices, adapted to close the circuit through said electromagnet, in such manner as to actuate the proper drop, substantially as described.

3. An electrical annunciator provided with a series of annunciator-drops held normally out of view, a single electromagnet, an arm adapted to carry said electromagnet, propelling mechanism adapted to cause said arm to pass into close proximity to said drops in sequence and bring them into view; a movable circuit-closing spring or device carried by said arm and operatively connected with said electromagnet, in combination with a series of outlying conductors and push-buttons at outlying stations, said outlying conductors being electrically connected to electrical contacts located in the path of the movable circuit-closing device, whereby said annunciator-drops are actuated or brought into view by the electromagnet on closing the circuits at the outlying stations, substantially as described.

4. In an electrical annunciator a series of annunciator-drops held normally out of view, in combination with a series of electrical conductors running from the annunciator to outlying stations with circuit-closing devices located at said stations; an electromagnet carried by an arm driven by propelling mechanism and adapted to move in close proximity to said annunciator-drops, said arm being provided with a movable circuit-closing device electrically connected with the electomagnet and an electrical generator and adapted to contact successively with electrical contacts located in its path, which contacts are connected in turn with the outlying conductors, all of said parts acting substantially as and for the purpose set forth.

5. An electrical annunciator provided with a series of annunciator-drops, a single electromagnet carried by an arm and adapted to actuate any one of said drops, said arm being driven by propelling mechanism and said electromagnet being electrically connected with a battery or electrical generator and a movable circuit-closing device, in combination with a series of electrical contacts located in the path of said movable circuit-closing device; a series of outlying conductors electrically connected with said contacts—push-buttons or circuit-closing devices included in said outlying conductors—together with an alarm mechanism operatively connected with the mechanism which drives the arm, substantially as described.

6. An electrical annunciator provided with a series of annunciator-drops, a single electromagnet adapted to control the movements of said drops; a spring or weight impelled motive device for moving said electromagnet into close proximity to said drops, in combination with restoring mechanism for restoring said drops to their normal positions and simultaneously rewinding the motive device.

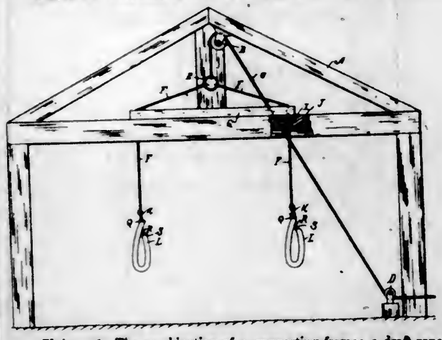
7. In an electrical annunciator a series of annunciator-drops held normally out of view; a rotary arm carrying an electromagnet in combination with means for rotating the same; a series of circuits running to independent rooms and circuit-closing devices in the rooms, the annunciator-drops being provided with means for holding them in their exposed positions after the arm has passed and until released; the electromagnet having circuit connections for causing the drops to be placed in their exposed positions, the arrangement being such that when the arm is once released by the closure of any room-circuit it makes one or more complete rotations without being stopped, substantially as described.

8. In an electrical annunciator a series of annunciator-drops radially arranged; a rotary arm operatively connected with driving mechanism and normally held from rotation by a stop; in combination with an electromagnet carried by the arm and provided with circuit connections and means for releasing it; together with a series of outlying circuits running to individual rooms and circuit-closing devices located therein; the arrangement being such that on closing any circuit-closing device the arm will be released and started on its journey and the drop corresponding to that circuit exposed to view until released, while the arm will complete its rotation and be again checked by the stop, substantially as described.

9. In an electrical annunciator a series of annunciator-drops normally held out of view; a rotary arm operatively connected with driving mechanism; an electromagnet carried by said arm; a series of outlying circuits running to individual rooms and including circuit-closing devices, as push-buttons, the electromagnet being provided with circuit connections and means for holding the arm in check until released, the arrangement being such that any number of annunciator-drops may be exposed on a single rotation of the arm, dependent upon the number of push-buttons actuated during the time of such rotation and leave them exposed until released, substantially as described.

10. In an electrical annunciator a series of annunciator-drops normally held out of view; a series of outlying circuits running to individual rooms and including circuit-closing devices, as push-buttons; a rotary arm operatively connected with driving mechanism and carrying a controlling-electromagnet provided with circuit connections and means for holding it normally in check, the arrangement being such that on closing the circuit in any room the arm will be released and started on its journey and the corresponding drop moved into position and left exposed to view after the arm has passed; together with an alarm actuated during the time that the arm is moving, all of said parts acting substantially as and for the purpose described.

678,117. LIFTING DEVICE FOR ANIMALS. BENNO KOCH, Hebron, N. D. Filed July 5, 1900. Serial No. 22,477. (No model.)

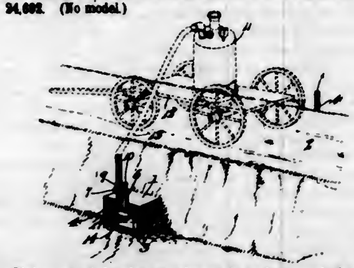


Claim.—1. The combination of a supporting-frame; a draft-rope; four suspensory-ropes connected therewith; and a, collar secured to the lower end of each suspensory-rope; said collars being adapted to be engaged around the legs of an animal.

2. In an animal-lifting device, a leg-engaging collar comprising an inclosing cover; a filling of sawdust or equivalent material; a chain secured in the rear portion of said collar and adapted to secure the ends thereof together and furnish means for attachment to the suspensory devices, substantially as herein set forth.

3. The combination with a supporting stationary frame; a draft-rope, extending over suitable pulleys in the upper portion of the frame; a movable spreader-frame connected with the draft-rope; four suspensory-ropes depending from the spreader-frame; a collar secured to the lower end of each suspensory-rope, and adapted to engage around a leg of the animal; and guides on said stationary frame adapted to prevent the spreader-frame and ropes from revolving.

678,118. HEATING ATTACHMENT FOR CULVERTS, &c. HERMAN O. KREUSCHER, Aurorahville, Wis. Filed July 24, 1900. Serial No. 24,602. (No model.)



Claim.—1. A heating attachment for culverts and the like, comprising a movable heating-pipe adapted to be arranged within the structure, supports arranged at the end portions of the structure to loosely receive the end portions of the pipe, and releasable holding means associated with said support, substantially as set forth.

2. A heating attachment for culverts and the like, comprising a vertically-movable heating-pipe adapted to be arranged longitudinally within the structure, supports arranged at the end portions of the structure to loosely receive the end portions of the pipe, and releasable holding means associated with said support to permit of its gravitation within the structure, substantially as set forth.

3. A heating attachment for culverts and the like comprising a heating device adapted to extend longitudinally within the structure, and means for loosely supporting and guiding said heating device to permit of its gravitation within said structure.

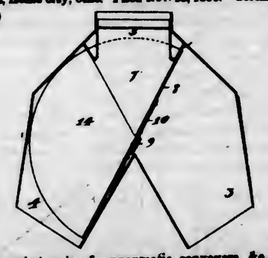
4. A heating attachment for culverts and the like comprising a heating-pipe adapted to be arranged within the structure, and supporting means for said heating-pipe permitting it to have a transverse movement within the culvert or similar structure, substantially as set forth.

5. A heating attachment for culverts or the like comprising a heating-pipe extending longitudinally through the structure and provided with upturned end arms, and supporting means for the pipe for holding the same in an adjusted position and also permitting it to gravitate within the structure, substantially as set forth.

6. A heating attachment for culverts and the like, comprising a heater adapted to be arranged longitudinally within the structure, and means for detachably supporting the heater in the upper portion of said structure, whereby it may be released from said support to permit its resting upon frozen matter accumulated within the structure and gravitate as said matter is melted.

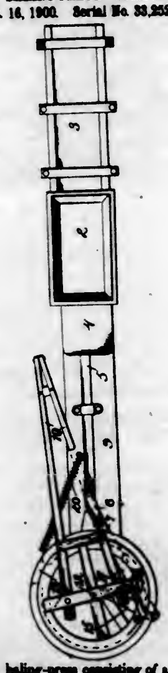
7. A heating attachment for culverts and the like comprising a heating-pipe extending longitudinally through the structure and provided with upturned end arms having removable closures, supporting-brackets secured to the structure and having guide members loosely receiving the said pipe-arms, and collars adjustably arranged upon said pipe-arms above the supporting-brackets and provided with set-screws to clamp the same to the arms, substantially as set forth.

678,119. SWITCH-VALVE FOR PNEUMATIC CONVEYERS. THOMAS LEE, Nemo City, Ohio. Filed Nov. 13, 1899. Serial No. 736,773. (No model.)



Claim.—A switch-valve for pneumatic conveyers, &c., comprising a casing having an inlet and diverging outlet-passages, a collar mounted in the inlet and having two of its sides turned upward to form stop-flanges and its remaining two sides extended downward to form guard-plates, and a valve proper pivoted at its middle at the junction of the outlet-passages, adapted to contact at its ends with the stop-flanges, and provided with semicircular side plates which fit between the guard-plates and the casing, substantially as described.

678,120. BALING-PRESS. MATTHEW E LEMENBERRY, Gibson, Tenn. Filed Oct. 16, 1900. Serial No. 33,252. (No model.)



Claim.—1. A baling-press consisting of a baling-chamber and a reciprocating plunger and plunger-rod, a drum connected with said chamber, an arm pivoted in said drum concentrically therewith, a dog pivoted to the said arm, an arm pivoted in said drum eccentrically therewith, a cross-arm connecting said arms together, the rear end of the plunger-rod being connected to the eccentrically-pivoted arm, a power-arm adapted to engage and operate the dog, said drum having openings for the reception of the dog and plunger-rod or its connections and a means for operating the power-arm.

2. A baling-press consisting of a baling-chamber and a reciprocating plunger and plunger-rod, a drum connected with said chamber, an arm pivoted in said drum concentrically therewith, a dog pivoted on said arm, said arm being connected with the plunger-rod, a power-arm adapted to engage and operate said dog, said drum having openings for the reception of the dog and the plunger-rod or its connections and a means for operating the power-arm.

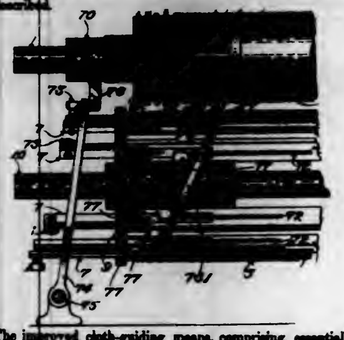
678,121. AUTOMATIC CLOTH-GUIDING DEVICE. WILLARD I. LEWIS, Walpole, Mass. Filed Oct. 3, 1900. Serial No. 32,343. (No model.)

Claim.—1. The improved cloth-guiding means, comprising, essentially, a detector-roll, contrived to ascertain mechanically the position of the selvage of the cloth, a traveling series of selvage bars or blocks, and automatic devices under operative control of the said detector-roll whereby the said selvage bars or blocks are caused to move transversely with relation to the width of the cloth, engage with the selvage of the latter, and draw said selvage out to the predetermined path, substantially as described.

2. The improved cloth-guiding means, comprising, essentially, a detector-roll having a set of cloth-operated movable detector-pins, a traveling series of selvage bars or blocks, and automatic devices whereby under the operative control of said detector-pins the said selvage bars or blocks are caused to engage with the selvage of the cloth and draw it out to the predetermined path, substantially as described.

3. The improved cloth-guiding means, comprising, essentially, the detector-roll with its cloth-operated movable detector-pins, the sliding part 70 with its cam-face coacting with the said pins, the series of selvage bars or blocks, the springs connected with the said selvage bars or

blocks, and the means connected with the said sliding part 70, substantially as described.



4. The improved cloth-guiding means, comprising, essentially, the detector-roll with its cloth-operated movable detector-pins, the sliding part 70 with its cam-face coacting with the said pins, the series of spring-actuated selvage bars or blocks, and controlling devices whereby the inward movement of the said selvage bars or blocks is determined in accordance with the position of said part 70 and the same are positively moved outward to a fixed extent, substantially as described.

678,122. TRACTION-MOTOR. LOWELL M. MAYHAM and ARTHUR R. UPHAM, Boston, Mass. Filed Nov. 23, 1899. Serial No. 738,047. (No model.)



Claim.—1. The combination with a four-wheeled vehicle having its front wheels mounted on a centrally-swiveled axle, of a traction-motor mounted upon its individual supporting and driving wheels, couplings uniting said traction-motor and said axle, and reins connected with said traction-motor for guiding and controlling the same, substantially as set forth.

2. The combination of the vehicle, the traction-motor comprising a pair of wheels on a single shaft and motive power therefor, an inflexible coupling attached to said vehicle and pivoted to said traction-motor midway between its wheels, and a pair of reins connected with said traction-motor at opposite sides of said pivotal point, substantially as set forth.

3. The combination of a vehicle, the traction-motor, an inflexible coupling attached to said vehicle and pivoted to said traction-motor, antifriction devices carried by said traction-motor, and a pair of reins each fastened to said inflexible coupling and passing through said antifriction devices back to the vehicle, substantially as set forth.

4. The combination with the traction-motor and the laterally-inflexible coupling pivoted thereto, of the antifriction-pulleys carried by said traction-motor, and the reins fastened to said coupling and passing about said pulleys back to the vehicle, substantially as set forth.

5. The combination of the vehicle, the traction-motor, the laterally-inflexible coupling uniting the same, the reins adapted when either is pulled to guide the traction-motor to each side, and a brake adapted to be actuated when both of said reins are pulled but not when either alone is pulled, substantially as set forth.

6. The combination of the traction-motor, the inflexible coupling pivoted thereto, the reins adapted when either is pulled to guide the traction-motor to each side, and controlling devices adapted to be actuated when both of said reins are pulled but not when one alone is acted upon, substantially as set forth.

7. The combination with a vehicle and steering-wheels therefor, of a pair of reins adapted for the guidance of said wheels, and a locking device for holding said steering-wheels, said locking device being adapted to be automatically unlocked by said reins, substantially as set forth.

8. The combination with the vehicle and steering-wheels therefor, of a pair of reins adapted for the guidance of said wheels, a locking device for each of said reins, and releasing devices adapted to be actuated by said reins and to release said reins from said locking devices, substantially as set forth.

9. The combination of the traction-motor, the inflexible coupling pivoted thereto, the pair of reins fastened to said coupling and passing therefrom into engagement with said traction-motor, locking devices for locking said reins, and means automatically operated by said reins for releasing the latter from said locking devices, substantially as set forth.

10. The combination of the traction-motor, the inflexible coupling pivoted thereto, the pair of reins fastened to said coupling, antifriction devices engaging said reins, a locking device for each of said reins, and releasing devices adapted to be actuated by each of said reins for releasing the other rein from its locking device, substantially as set forth.

11. The combination of the traction-motor, a laterally-inflexible coupling pivoted to said traction-motor, a pair of reins attached to said coupling, locking devices carried by said traction-motor and receiving said reins, pivoted levers loosely receiving said reins, and connections between said levers and locking devices, substantially as set forth.

12. The combination of the traction-motor, the inflexible coupling pivoted thereto, a pair of reins attached to said coupling, locking devices carried by said traction-motor and receiving said reins, the pivoted levers having the pulleys at their free ends for receiving said reins, and a connection between the lever of each rein and the locking device of the other rein, substantially as set forth.

13. The combination of the traction-motor, the coupling pivoted thereto, the reins attached to said coupling, antifriction devices carried by said traction-motor and receiving said reins, clamping-cams adapted for locking said reins to said traction-motor, and means automatically operated by said reins for releasing them from said clamping-cams, substantially as set forth.

14. The combination of the traction-motor, the coupling pivoted thereto, the reins attached to said coupling, locking devices carried by said traction-motor and receiving said reins, means for automatically unlocking said locking devices when either of said reins is pulled, and a brake connected with said unlocking means and adapted to be set when both of said reins are pulled but not when one alone is pulled, substantially as set forth.

15. The combination of the traction-motor, the coupling pivoted thereto, the pair of reins adapted for the guidance of said traction-motor, the bar terminally connected with said reins, and the controlling devices loosely connected with the median point of said bar, whereby said controlling devices are affected when both of said reins are pulled but not when one alone is acted upon, substantially as set forth.

16. The combination of the traction-motor, the coupling pivoted thereto, the pair of reins attached to said coupling, antifriction devices carried by said traction-motor and receiving said reins, a bar terminally connected with said antifriction devices, and controlling devices loosely connected with the median point of said bar, substantially as set forth.

17. The combination of the traction-motor, the coupling pivoted thereto, the pair of reins attached to said coupling, locking devices carried by said traction-motor and receiving said reins, the pivoted levers loosely receiving said reins and adapted to unlock said locking devices, the bar terminally connected with said levers, and the brake-arm connected to the median point of said bar, substantially as set forth.

18. The combination of the traction-motor, the laterally-inflexible coupling, the pair of reins attached to said coupling, antifriction devices carried by said traction-motor and receiving said reins, the brake-arm adapted to be operated when both of said reins are pulled but not when one alone is pulled, an electric circuit, and means whereby the setting of said brake opens the circuit, substantially as set forth.

19. The combination of the vehicle, the traction-motor, and the single pair of thills attached to said vehicle and pivotally united at their front ends to the rear of said traction-motor, said pivotal connection being sufficiently prolonged vertically to prevent said traction-motor from rocking upon its supporting-wheels, substantially as set forth.

20. In a traction-motor, the combination of the switchboard, the switch-arm pivoted thereon, the two cords connected with said arm, and adapted to shift the same, a means for partially resisting the movements of said switch-arm from one contact to another, and an increased resistance from the point of "dead" contact and the reversing-contact, substantially as set forth.

21. In a traction-motor, the combination of the switchboard, the switch-arm pivoted thereon, the two cords connected with said arm, the undulatory plate resiliently coacting with said arm and having the higher rise at one end, and the electric circuit having contacts on said switchboard, substantially as set forth.

678,123. ATTACHMENT FOR STOVES. WILLIAM P. McCOBB, Boston, Mass., assignor to Frank W. McCobb, same place. Filed May 26, 1900. Serial No. 18,094. (No model.)

Claim.—1. The combination with a stove-cover having an opening in it and provided with an upwardly-extended flange or lip, of a pipe-section secured to said flange or lip, and a substantially horizontal pipe provided at one end with a depending leg inserted into said pipe-section and having its end contracted to permit it to be inserted into the flange on the cover, and at its opposite end with a hood provided above its edge with a gutter, substantially as and for the purpose specified.



2. The combination with a stove-cover having an opening in it and provided with an upwardly-extended flange or lip, of a pipe-section secured to said flange or lip, and a substantially horizontal pipe provided at one end with a depending leg inserted into said pipe-section, and at its opposite end with a hood, and a counterbalance for the hood attached to the said cover at one side of the opening therein, substantially as described.

678,124. MOLD-FACING. MARSHALL R. OWEN, Granite City, Ill. Filed Oct. 16, 1899. Serial No. 733,901. (No specimens.)

Claim.—1. The herein-described mold-facing comprising sixteen parts by volume of black sand, four parts of white sand, two parts of fire-clay, and one part of sal-ammoniac, the last-mentioned ingredient being dissolved in water to form a solution of a chlorid employed for moistening other ingredients, said solution of a chlorid being capable of evolving chlorin when in contact with molten metal; substantially as described.

2. A material for molding purposes, comprising a mixture of suitable sand and clay, to which is added a chlorid in solution, capable of evolving chlorin when molten metal is brought into contact with the facing material in substantially the proportions of five and one-half barrels of the mixture to one-quarter of a barrel of chlorid in the solution, substantially as described.

3. The herein-described facing material for the purpose described, comprising a mixture in substantially the following proportions to wit: of black sand four barrels, white sand one barrel, fire-clay one-half barrel, and a solution of one-quarter barrel of a chlorid capable of evolving chlorin in contact with the molten metal when the latter is brought into contact with said facing material, substantially as described.

678,125. SHELF-SUPPORT. LEONARD PAHLS, Minneapolis, Minn. Filed Jan. 26, 1900. Serial No. 3,087. (No model.)



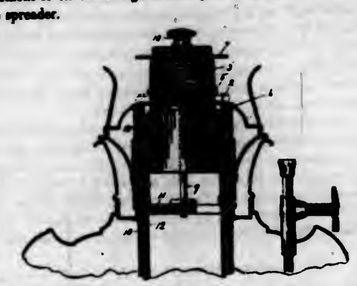
Claim.—1. A shelf-support, comprising a sheet-metal plate having oppositely-turned ends forming integral lips or flanges, one of said lips being provided with a rib in its surface and adapted to enter a saw-slit in the wall of the case and the other lip adapted to project under the end of the shelf and support it and the weight thereon, substantially as described.

2. As a new article of manufacture, a shelf-support, comprising a single strip or plate of sheet metal having its ends oppositely turned substantially at right angles to its middle portion, one of said ends being adapted to enter a saw-slit in the end wall of the case and having a rough-ened surface to prevent said end from accidentally slipping out of said slit and the opposite end being adapted to project under the end of the shelf and support it and the weight thereon, substantially as described.

3. As a new article of manufacture, a shelf-support, comprising sheet-metal plates having their ends oppositely turned substantially at right angles to their middle portions, the upper ends being adapted to enter saw slits or cuts in the end wall of the case and the lower ends being adapted to project under the end of a shelf to support it and the weight thereon, a bar connecting said lower ends beneath the end of the shelf and said bar and said plates being substantially in the same horizontal plane with said shelf, substantially as described.

678,126. COMBINED WICK-STOP AND FLAME-EXTINGUISHER. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg Co., same place. Filed Oct. 24, 1900. Serial No. 34,133. (No model.)

Claim.—1. A thimble-like flame-spreader encircled by a loose, vertically-movable ring, the vertical movement of which is limited by the engagement of its inner edge with steps located upon the outer surface of the spreader.



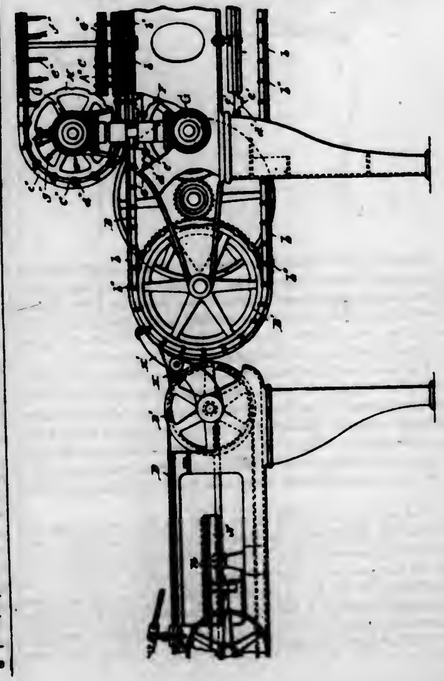
2. A thimble-like flame-spreader encircled by a loose vertically-movable ring, the vertical movement of which is limited by stop-fingers formed in its inner edge to engage with steps located upon the exterior surface of the spreader.

3. A thimble-like flame-spreader encircled by a loose vertically-movable ring having its inner edge shaped to form draft-spaces and one or more stop-fingers, and limited in its vertical movement upon the spreader by the engagement of its said finger or fingers with steps located upon the exterior surface of the body of the spreader.

4. The combination with a thimble-like flame-spreader, provided upon its outer surface with an annular bead and with an annular shoulder separated from each other, of a flat annulus or ring encircling the said spreader at a point between the said bead and shoulder, and free to move up and down between them.

5. In a central-draft lamp, the combination with the inner and outer tubes thereof, of a thimble-like flame-spreader set within the upper end of the inner tube, a binding-rod rigidly connected with the lamp and projecting upward through the said spreader, means applied to the projecting upper end of the rod for holding the spreader firmly in place, and a combined wick-stop and flame-extinguisher loosely movable, within predetermined limits, vertically upon the flame-spreader, and acting as a wick-stop and as a flame-extinguisher.

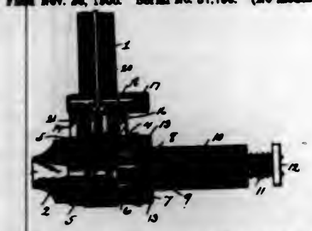
678,127. MACHINE FOR REDUCING FOOD MATERIAL TO FORM AND DISTRIBUTING SAME. HENRY D. PERRY, Worcester, Mass. Filed Nov. 20, 1900. Serial No. 37,163. (No model.)



Claim.—1. The combination with reducing mechanism, and panning mechanism, of upper and lower traveling knife-belts, a belt-trough shaping the material from the reducing mechanism in elongated or ribbon form, and carrying the same between the knife-belts whereby it is subdivided, and a bridge-slide or transfer device whereby the subdivisions or sections of the material are taken from the trough-belt, and placed upon the belt of the panning mechanism, substantially as specified.

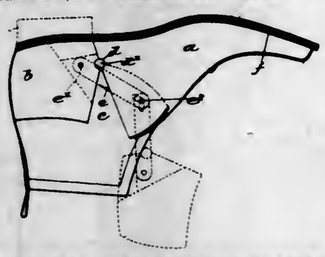
2. The combination with upper and lower traveling knife-belts, and with panning mechanism running at the same rate of speed as said knife-belts, of a sectional belt-trough, adapted to carry the material deposited thereon in elongated or ribbon-like form, and passing between the knife-belts at the same rate of speed, and a bridge-slide or transfer device whereby the sub-divisions or sections of the material are taken from the trough-belt and placed upon the belt of the panning mechanism, substantially as specified.

678,128. RATCHET-DRILL. JOHN PETTERSON, Mingo Junction, Ohio. Filed Nov. 26, 1900. Serial No. 37,758. (No model.)



Claim.—The herein-described ratchet-drill, consisting of the handle, 1, the socket portion 2 loosely mounted thereon, the two ratchet-wheels 4, and 5, one on either side of the handle, the pawls 14, and 16 for engaging the said ratchet-wheels, the threaded shank 8, having a ratchet 13, the pawl 17, mounted upon the pin 18, the said pin being provided with a short lever 19 backed by a suitable spring, the rod 20 arranged within the handle for operating the lever, and a means for confining the said rod in position, all arranged and combined for service substantially as and for the purpose described.

678,129. LAST. JOSEPH H. PERT, Brockton, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, of New Jersey. Filed Jan. 3, 1899. Serial No. 699,353. (Model.)



Claim.—1. A two-part transversely-divided last, one part having a groove, and the other a projection taking a seat loosely in said groove, said two parts having an open space between them at one side of said coöperating groove and projection, permitting the heel part to turn on the fore part for shortening the last leaving the heel part free to be pulled away from its bearing on the fore part, substantially as described.

2. A two-part transversely-divided last, one part having a groove, and the other a projection taking a seat loosely in said groove, said two parts having an open space between them at one side of said coöperating groove and projection permitting the heel part to turn on the fore part for shortening the last, leaving the heel part free to be removed from the fore part, and a connection between said fore part and heel part to prevent one from being detached wholly from the other, substantially as described.

3. A divided last capable of use in the manufacture of shoes, the heel part being divided transversely from the fore part, and having a portion removed to constitute an open space *c* or V-shaped gap between said parts, the heel part being capable of turning or swinging on the fore part for shortening the last, and a connecting device between said heel part and fore part of a length to permit the heel part to be wholly withdrawn from the shoe without disturbing the fore part, substantially as described.

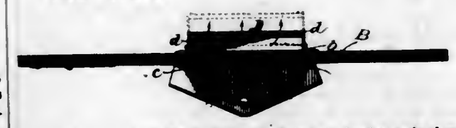
4. A divided last consisting of a heel part divided transversely from the fore part, a connecting device between said heel part and fore part of a length to permit the heel part to be wholly withdrawn from the shoe without disturbing the fore part, and a spring between said connecting device and last, substantially as described.

5. A divided last, comprising a heel part and a fore part, a connecting device between said parts of a length to permit the heel part to be withdrawn from the shoe without disturbing the fore part, and means for removably locking the heel part and the fore part together when in operative extended position, substantially as described.

6. A divided last, comprising a heel part and a fore part, a connecting device between said parts of a length to permit the heel to be withdrawn from the shoe without disturbing the fore part, an open space *c* between said parts when in extended position, means for removably locking the heel part and fore part together when in extended position, and means for automatically unlocking said parts by the collapsing or shortening movement of the last, substantially as described.

7. A divided last, comprising a heel part and a fore part, an open space between them for permitting collapsing or shortening of the last, means for removably locking the heel part and the fore part together when in operative extended position, and means for automatically unlocking said parts by the collapsing or shortening movement of the last, substantially as described.

678,130. VENTILATION OF VEHICLES, BUILDINGS, &c. CHAS. L. PULLMAN, Pequanoc, N. J., assignor to the Pullman Automatic Ventilator Company, Washington, D. C. Filed July 19, 1900. Serial No. 24,213. (No model.)



Claim.—1. A ventilating device consisting of a hood or casing bent outward to act as a deflector, bridging an aperture to the space to be ventilated, and having its rear end overlapping the rear end of said aperture, leaving an opening, the aperture being, in operation, closed against passage of air from the front of the hood or casing and open to passage of air at the rear, substantially as and for the purpose described.

2. A ventilating device consisting of a hood or casing bent outward to act as a deflector, bridging an aperture to the space to be ventilated, and having its rear end overlapping the rear end of said aperture, leaving an opening, and means for closing the aperture against passage of air from the front, substantially as and for the purpose described.

3. A ventilating device comprising a support provided with an aperture, an outward-projecting hood or casing forming a front, rising impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overlapping, that is, overhanging, the rear end of said aperture, leaving an opening, the aperture in the support being, in operation, shut off from passage of air from the front and open to passage of air at the rear, substantially as described.

4. A ventilating device comprising a support provided with an aperture, an outward-projecting hood or casing forming a front, rising impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overlapping, that is, overhanging, the rear end of said aperture, leaving an opening, and means for closing the aperture against passage of air from the front and open to passage of air from the rear, substantially as described.

5. A ventilating device comprising a support provided with an aperture, an outward-projecting hood or casing forming a front, rising and impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overhanging the rear end of said aperture, and means for closing an entrance to the aperture against impinged or impinging air in the direction of impact and opening an entrance to air in a direction opposite to or different from that of the air impingement, as and for the purpose described.

6. A ventilating device comprising a support provided with an aperture, an outward-projecting hood or casing forming a front, rising and impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overhanging the rear end of said aperture, and a valve for closing an entrance to the aperture against impinging or impinged air in the direction of impact, and to open an entrance to air in a direction opposite to or different from that of the air impingement, as and for the purpose described.

7. A ventilating device comprising a support provided with an aperture, an outward-projecting hood or casing forming a front, rising and impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overhanging the rear end of said aperture, and a valve movable automatically to close an entrance to the aperture against impinging or impinged air in the direction of impact, and to open an entrance to air in a direction opposite to or different from that of the air impingement, as and for the purpose described.

8. In a device of the character specified, the combination with a back plate provided with an aperture, an outward-projecting hood or casing forming a front, rising and impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overhanging the rear end of said aperture, and a valve adapted to move to cut off access of air to the aperture from that end of the hood or casing against which air impinges and opening passage at the opposite end, whereby air will be caused to enter the device in a direction opposite to or different from that of the air impingement, as and for the purpose described.

9. In a device of the character specified, the combination with a back plate provided with an aperture, of an outward-projecting, open-ended casing forming a front, rising and impact portion or surface and a rearward-receding portion or surface, the hood or casing bridging the aperture and having the end of its rearward-receding portion overhanging the rear end of said aperture, leaving an opening in the hood or casing for entrance of air, and a valve pivoted centrally of the length of the casing and adapted to be moved to cut off access of air to the aperture from that end of the casing mouthing toward the direction in which the current of air comes, whereby air will be caused to enter the device in the direction opposite to that in which such current moves, substantially as described.

10. A ventilator comprising a back plate provided with an aperture, an outward-projecting hood or casing carried by the back plate and bridging the aperture, the hood comprising a front, rising and impact portion or surface and a rearward-receding portion or surface overhanging the rear end of said aperture, leaving an opening in the hood or casing for entrance of air, a valve arranged within the casing and of a length also to bridge the orifice and movable to cut off access of air to the aperture from the end of the casing mouthing in the direction of impact and to open it at the opposite end, and means for adjusting the back plate to various lengths, substantially as described.

11. A ventilator comprising a back plate provided with an aperture, an outward-projecting, open-ended casing carried by the back plate, the hood comprising a front, rising and impact portion or surface and a rearward-receding portion or surface, and extending beyond the end walls of the aperture, the end of the rearward-receding portion overhanging the rear end of said aperture, leaving an opening in the hood or casing for entrance of air, a curved valve arranged within the casing, and means for effecting a close juncture between the ends of the valve and the back plate, substantially as described.

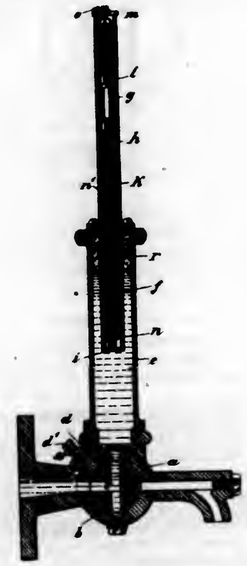
12. A ventilator comprising a back plate provided with an aperture, an open-ended, hipped casing carried by the back plate and extending beyond the end walls of the aperture, and a curved valve pivoted within the casing, operating to shut off access of air to the aperture from the end of the casing in the direction of impact, substantially as described.

13. A ventilator comprising a back plate provided with an aperture, an open-ended, hipped casing carried by the back plate and extending beyond the end walls of the aperture, and a curved valve arranged within and of less length than the casing, operating to shut off access of air to the aperture from the end of the casing in the direction of impact, substantially as described.

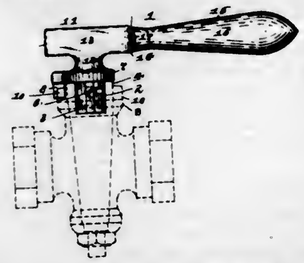
678,131. ALARM APPARATUS FOR INDICATING LOW LEVEL OF WATER IN BOILERS. PETER H. GANNELAARD, Cappeln, Germany. Filed May 9, 1900. Serial No. 16,080. (No model.)

Claim.—1. In an electric low-water alarm apparatus for steam-boilers, the combination of a try-cock *a*, having a plug *b*, formed with a T-shaped three-way port *c*; the vertical water-tube *e* communicating at bottom with the top of the try-cock, the two-part metal casing *f*, *g*, tightly connected together and projecting downward into the water-tube *e*; a mercury-tube *h* having contact-wires *l* and *n* projecting within its respective ends and extending beyond the same, and suitable electrical connections *m*, *i*, *n'*, *o* to adapt the apparatus to close the circuit with a suitable source of electricity and alarm apparatus, by the expansion of mercury in the thermometer-tube, substantially as described.

2. The combination of the three-way cock *a* having vertical and horizontal outlets, a subsidiary passage *d*, and a plug *b* with T-shaped ports *c*; the vertical water-tube *e* communicating at bottom with the passage *d* and with the vertical outlet of the cock, the closed tubular casing *f*, *g*, the lower part of which projects downward within the water-tube *e*; the thermometer-tube *h* inclosed in the casing *f*, *g*, and conducting-wires *l* and *n* projecting within the thermometer-tube in position to be placed in electric connection through the mercury in the thermometer by the expansion of said mercury, and suitable conductors connected with the external ends of the wires *l* and *n*, substantially as and for the purposes set forth.



678,132. HANDLE FOR STOP AND WASTE COCKS. FRANK R. JOHNSON, Greensburg, Pa., assignor to John T. Kelly, Brooklyn, N. Y., and George M. Jones, Pittsburg, Pa. Filed Apr. 9, 1901. Serial No. 54,974. (No model.)



Claim.—1. A handle for cocks, valves, &c., having a handle portion thereon, another handle portion formed as part of the first handle portion, and notches formed between said handle portions to permit the severing of the same and form a complete first handle portion.

2. A handle for cocks, valves, &c., having a T-shaped portion thereon, a gripping portion formed as part of said T-shaped portion, and notches formed between said T-shaped portion and gripping portion to permit the severing of the same and form a complete T-shaped portion.

3. A handle for cocks, valves, &c., having a T-shaped portion thereon, a gripping portion connected to the end and formed as part of the cross-piece on said T-shaped portion, and notches between the end of said cross-piece and the gripping portion to permit the severing of the gripping portion and form a complete T-shaped handle.

678,133. ELECTRODE FOR SECONDARY OR STORAGE BATTERIES. JACOB MYERS, Hoorn, Netherlands. Filed Feb. 25, 1901. Serial No. 48,751. (No model.)

Claim.—1. A positive electrode for secondary batteries comprising a metallic strip shaped to form a succession of cells open on each side and alternately open at one end, the open end of each cell being connected by a narrow strip of conducting material, substantially as described.

2. A positive electrode for secondary batteries comprising a metal-

lic strip shaped to form a succession of cells open on each side and alternately open at one end, the open end of each cell being connected by a narrow strip of conducting material and one of the walls of each cell having an aperture formed therein, substantially as described.



3. An electrode for secondary batteries comprising a metallic strip shaped to form a succession of cells open on each side and alternately open at one end, the open end of each cell being connected by a narrow strip of conducting material, the walls separating the cells being provided with registering apertures and connected together by narrow strips of conducting material arranged about said apertures, substantially as described.

4. An electrode for secondary batteries, comprising a metallic strip shaped to form a succession of wedge-shaped cells each open on the sides and at its smaller end, the open end of each cell being connected by a narrow strip of conducting material, the cells being so disposed that their open ends alternate, substantially as described.

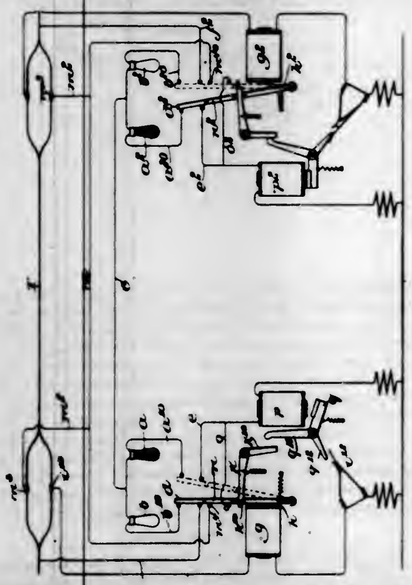
678,184. BALE OF FIBROUS MATERIAL. CHARLES B. PARKER, Orange, N. J. Original application filed Apr. 3, 1901, Serial No. 54,120. Divided and this application filed May 9, 1901. Serial No. 59,202. (No model.)



Claim.—1. A bale of fibrous material composed of nested, self-binding layers, substantially as described.

2. A bale of fibrous material composed of nested, self-binding layers, the layers at each end being tapering in form, substantially as described.

678,185. ELECTRIC SIGNAL. JOHN J. ROONEY, Newton, Mass. Filed July 31, 1900. Serial No. 25,280. (No model.)



Claim.—1. In a block-signaling system, a signaling-circuit containing signals at each end of the block, said circuit being normally broken; a single circuit-controller therefor initially operated by an electromagnet to set all of the signals in said circuit; means for momentarily energizing said electromagnet; a locking device to maintain the circuit closed after said magnet is deenergized; and a device operated by the car in passing out of the block to unlock said locking device and thereby open the said circuit, as set forth.

2. The combination with two normally open circuits, one at each end of the block, and a signal-setting electromagnet in each of said circuits; of a second circuit extending from one end of the block to the other and having a normally open trolley connection and a normally open ground connection; two signal-restoring electromagnets adapted to be energized by current in said circuit; means operating in response to the action of each signal-setting electromagnet to close the ground connection through the signal-restoring electromagnet corresponding to said signal-setting electromagnet; and a mechanically-operated circuit-closer for said trolley connection, substantially as described.

3. In a block-signaling system, the combination with means for setting the signals; of a signal-restoring device operating in response to current in an independent circuit extending from one end of the block to the other; said circuit; a switch in said circuit adapted to be momentarily closed by a car; a second switch in said circuit; and means for closing said second switch in response to the signal-setting means.

4. In a block-signaling system, the combination with the main circuit; of a signaling-circuit having connections at both ends of the block with the two conductors of the main circuit respectively; switches controlling said connections to determine the signals which are to be set; a signal-setting circuit at each end of the block provided with an electromagnet or equivalent device for operating the switch at that end of the block; a signal-restoring electromagnet at each end of the block; a circuit for said signal-restoring electromagnets extending from one end of the block to the other; a switch in said circuit at each end of the block; means for closing said switch in response to the operation of the signal-setting electromagnet at the end of the block where said switch is located; and a properly-located mechanically-operated switch in the signal-restoring circuit, the switch first named constituting a determining device, and the switch last named constituting the operating device.

5. The combination with the signal-setting devices; of a signal-restoring device at each end of the block; an independent signal-restoring circuit for said signal-restoring devices having connections with the main conductors; two normally open switches in said signal-restoring circuit, one at each end of the block; means operating in response to the action of the signal-setting device at either end of the block to close the switch in the signal-restoring circuit at the same end of the block; and means for sending an impulse of current through the signal-restoring circuit, substantially as described.

6. In a block-signaling system, a signal-setting circuit containing an electromagnet; a mechanically-operated switch in said circuit adapted to be momentarily closed when the car enters the block; an armature for said electromagnet provided with a mechanical locking device to retain it in the position to which it is moved when attracted; a signaling-circuit independent of said signal-setting circuit; means for closing said signaling-circuit in response to the attraction of said armature; an independent signal-restoring circuit having a normally open break; means for closing said break during the time that said armature is in the position to which it is moved when attracted; and a normally open mechanically-operated switch in said signal-restoring circuit adapted to be momentarily closed by the car, substantially as described.

7. In a block-signaling system, the combination with a signaling-circuit normally connected at both ends with one conductor of the main circuit; of means located at each end of the block for breaking the connection with said main conductor and making connection with the other main conductor whereby the signaling-circuit is completed; means located at each end of the block for preventing the operation of the connecting means aforesaid; and a device for operating said preventing means which depends for its operation upon the connecting means at the opposite end of the block.

8. The combination with a signal-setting circuit at each end of the block; of an electromagnet and its armature in each of said signal-setting circuits; a circuit containing signals and having trolley-wire and ground connections at each end, and switches controlled by the armatures of the electromagnets in the signal-setting circuits, the circuit containing the signals being completed only when one of said armatures is in its normal position, and the other in its abnormal position; a signal-restoring electromagnet at each end of the block; means for connecting said signal-restoring magnet in series with the signaling-circuit, said means depending upon the movement of the armature of the signal-setting magnet to its normal position; an independent signal-restoring circuit; and means for connecting said signal-restoring electromagnet in series with said restoring-circuit in response to the movement of said armature to its abnormal position; and a mechanically-operated switch for closing said signal-restoring circuit at another point, substantially as described.

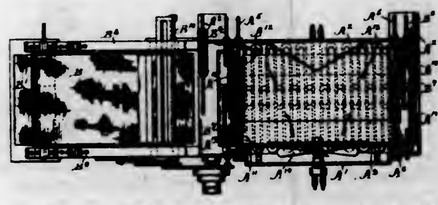
9. In a block-signaling system, the combination with a signal-setting circuit at each end of the block; of a signaling-circuit having a switch adapted to be closed when the corresponding signal-setting circuit is closed, said signaling-circuit extending to the other end of the block; an electromagnet normally included in said signaling-circuit at the said other end of the block; and means operating in response to the energization of said electromagnet for preventing the closure of the signaling-circuit at the end of the block where said magnet is located, as set forth.

10. The combination with a signal-setting electromagnet; of a circuit containing the said magnet; a signal-restoring electromagnet; a circuit for said signal-restoring electromagnet; a circuit-breaker in the signal-setting electromagnet circuit; means for operating said circuit-breaker in response to the energization of the signal-restoring magnet at the same end of the block; and means operating in response to the setting of the signals at the opposite end of the block for energizing said signal-restoring magnet and maintaining it energized until the signals are restored, as set forth.

11. The combination with the signal-setting circuit containing the circuit-breaker i^{12}; of the electromagnet p; the signaling-circuit c normally closed through said electromagnet p; means located at the opposite end of the block for closing said signaling-circuit to set the signals and energize the magnet p; and the armature q provided with means for breaking the circuit at i^{12} when attracted, substantially as described.

12. In a block-signaling system, a signaling-circuit extending from one end of the block to the other and having at each end two contact-points; a contact-point at each end of the block connected with one of the main conductors; a second contact-point at each end of the block connected with the other main conductor, and an electromagnet 1 in circuit between said second contact-point and said other main conductor; a switch at each end of the block normally standing in a position to connect the signaling-circuit with one of the main conductors through the said electromagnet 1 by bridging the contacts aforesaid; a signal-setting circuit having a circuit-closer operated by the car, and an electromagnet 2 and its armature for moving the said switch to disconnect the signaling device from the conductor through the electromagnet 1 and to connect it with the other main conductor; a signal-restoring circuit adapted to be connected with one of the main conductors by means of a mechanically-operated switch operated by a car; a contact-piece at each end of said signal-restoring circuit; a conductor belonging to the signal-restoring circuit and leading through the electromagnet 1 to the other main conductor and provided with a contact-piece; a switch movable with the switch aforesaid to bridge said contact-pieces and thereby connect the signal-restoring circuit with one conductor of the main circuit through said electromagnet 1, the said electromagnet 1 thus being included in the signaling-circuit or the signal-restoring circuit according to the position of said switch; an armature for said electromagnet 1; a mechanical locking device for the armature of the electromagnet 2; a circuit-breaker in the circuit of electromagnet 2; and means operated by the armature of electromagnet 1 for operating said locking device or said circuit-breaker in accordance with the position of said armature.

678,186. CLOTH-DRYING MACHINE. CHARLES W. RUSSELL, Providence, R. I. Filed Apr. 7, 1900. Serial No. 11,945. (No model.)



Claim.—1. A cloth-drier having a central chamber, a fan on one side of the chamber, an air-passage around the margin of the opposite side of the chamber, steam-coils disposed around the central chamber, and means for carrying the cloth around the steam-coils, as described.

2. A cloth-drier having two sides, means supported on the sides for carrying the cloth around the drier and between the sides, a central chamber open at one side and the walls of which form with the cloth an annular space, and steam-coils disposed in the annular space between the walls of the central chamber and the cloth, as described.

3. A cloth-drier having two sides, means for carrying the cloth around the drier, a central chamber the walls of which form with the cloth an annular space, steam-coils in the annular space, a fan-blower in one side of the central chamber, and openings on the margin of the opposite sides of the central chamber communicating with the annular space, whereby the heat is concentrated in the annular space and the air brought in contact with the cloth, as described.

4. In a cloth-drier, in combination, a fixed and an adjustable side adapted to adjust the drier to the width of the cloth, a cloth-carrier, a telescopic central chamber connected with the opposite sides, a fan-blower in the fixed side of the telescopic central chamber, a pyramidical deflector opposite the fan-blower, and two sets of steam-coils, one connected with each of the sides, whereby the parts adjust themselves automatically when the drier is adjusted to the width of the cloth, as described.

5. In a cloth-drier, the combination with the side A' rigidly secured to the supporting-sills, of the side A^2, the carriages A^3 A^3 the ways A^4, the shafts A^5 A^5, and means for simultaneously operating the shafts A^5 A^5, whereby the width of the drier may be adjusted to the width of the cloth, as described.

6. In a cloth-drier having a central chamber, steam-coils outside of the central chamber and cloth-carrying chains extending around and outside of the steam-coils, of an extension of the chain, and adjustable guides for the chain, whereby the cloth to be dried may be stretched, as described.

7. In a cloth-drying machine, the combination of the following instrumentalities: two vertical sides, cloth-carriers supported on the sides near the margin, a central chamber the walls of which form with the cloth an annular space, steam-coils in the annular space, a fan on one side of the inner chamber, a pyramidical deflector on the other side of the chamber, openings connecting the space within the central chamber with the annular space, and a cloth-stretching device, whereby the cloth is dried by passing around the central chamber and outside of the steam-coils, as described.

8. In combination in a cloth-drier, the two vertical sides of the drier, means for adjusting the sides to the width of the cloth, two cloth-carriers, supports for the cloth-carriers, a central telescopic chamber, steam-coils extending from each side, each beyond the other, and one outside of the other, a fan-blower on one side of the central telescopic chamber, and mechanism for actuating the cloth-carriers; whereby the cloth is carried around the margin of the machine and a greater length of cloth exposed in less space, as described.

678,187. LAST. HENRY F. SCOTT, Brockton, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, of New Jersey. Filed May 24, 1897. Serial No. 637,869. (No model.)



Claim.—1. A last including a fore part, and a heel part movable relatively to the said fore part, and a vertically-placed connection presenting plates located, respectively, in said fore part and heel part, and a jointed link connection between said plates compelling the bottoms of the fore part and heel part to be in the same or parallel planes solely when the heel part is in its extreme positions of movement, substantially as described.

2. A last consisting of a fore part, and a heel part, and a vertically operative connection presenting plates located in said fore part and heel part, and two links uniting said plates, substantially as described.

3. A last consisting of a fore part, and heel part, and a vertically-placed connection presenting plates located in said fore part and heel part, and two links uniting said plates, said links being slotted, substantially as described.

4. In a two-part last, a fore part, and a heel part separated by lines of cut at a, a', a^3, leaving shoulders 3, 4, combined with a vertically-placed connection composed of longitudinal plates, one of said plates being placed in the heel part and the other in the fore part, and means permitting bodily movement of the heel part relatively to the fore part and maintaining their bottoms in or parallel to the same plane, when the heel part is in the extreme positions of its movement, substantially as described.

5. A last including a fore part, a separate heel part, and a connection presenting a plurality of links between the said fore part and heel part, and adapted to be moved in a plane substantially at right angles to the bottom of the last, said connection including means permitting said links to have a longitudinal movement relatively to certain of their pivots substantially as described.

6. A divided last having a link connection between the heel part and fore part of the last, said link connection being provided with a pivot at each end located in said respective parts, the pivot in the heel part being lower than the pivot in the fore part when the last is in its extended position, and means for permitting the fore part to be moved directly into its collapsed position without first lengthening the last, substantially as described.

7. A last having a fore part, a separate heel part, and a connection

between said fore part and heel part, said connection including a link pivoted at its ends in said fore part and heel part respectively, and means for permitting said link to have a longitudinal movement relatively to one of its pivots, substantially as described.

8. A last having a fore part, a separate heel part, and a connection between said fore part and heel part, said connection including a link pivoted at its ends in said fore part and heel part respectively, said link being longitudinally slotted at one of its said pivots, substantially as described.

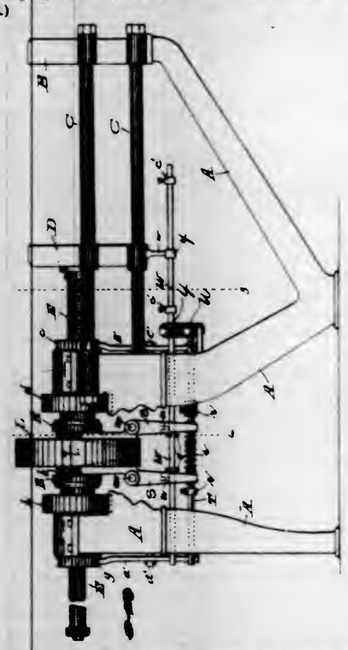
9. A last divided transversely to permit it to shorten or collapse and provided with recesses in the adjacent faces thereof, a plurality of connecting-links located in said recesses one above the other, the ends of the links being pivotally mounted in the heel and fore parts respectively, and means for permitting the fore part to be moved directly into its collapsed position without first lengthening the last, substantially as described.

10. A last transversely divided into a toe-section and a heel-section with a link pivoted to and permanently connecting the sections, said link holding the sections firmly together when in their extended position and constructed to allow the sections to slide on each other to shorten the last, substantially as described.

11. A last transversely divided into a toe-section and a heel-section, and a link pivoted to and permanently connecting the sections, said link being slotted at one of its connections so that the sections may slide on one another to shorten the last, substantially as described.

12. A last including a fore part, a separate heel part, and a connection comprising a link between the said fore part and heel part adapted to be moved in a plane substantially at right angles to the bottom of the last, said connection including means permitting said link to have a longitudinal movement relatively to one of its pivots.

678,188. TYING AND BUNDLING MACHINE. CHARLES SEYBOLD, Dayton, Ohio. Filed June 21, 1900. Serial No. 21,056. (No model.)



Claim.—1. In a tying and bundling machine the combination, with the follower-plate and screw for operating same, of a pair of sleeves, within which the driving-screw is mounted, one sleeve screw-threaded and the other keyed to the screw-shaft to allow same to slide, a single driving-pulley and a pair of clutches acting between the driving-pulley and the two sleeves, whereby either may be coupled to the driving-pulley to drive the screw, with means for locking the one sleeve when the other is in operation, substantially as shown and described.

2. In a tying and bundling machine, the combination, with the follower-plate and screw for operating same, of a pair of sleeves within which the driving-screw is mounted, one sleeve screw-threaded and the other keyed to the screw-shaft to allow same to slide, a single driving-pulley mounted between the flanges on the sleeves, and friction-clutches between the driving-pulley and the sleeves, whereby either may be coupled to the driving-pulley, ratchet-wheels on the sleeves with dogs to engage same, and mechanism intermediate the clutches and dogs whereby the actuation of either clutch will bring into operation one of the dogs to lock the disconnected sleeve, substantially as shown and described.

3. In a tying and bundling machine, the combination, with the follower-plate and screw for operating same, of a pair of sleeves within which the driving-screw is mounted, one sleeve screw-threaded and the other keyed to the screw-shaft to allow same to slide, a single driving-pulley mounted between the flanges on the sleeves, and friction-clutches between the driving-pulley and the sleeves, whereby either may be coupled to the driving-pulley, ratchet-wheels on the sleeves with dogs to engage same, operating-lever for actuating the friction-clutches, with rod coupled to said operating-lever normally holding said dogs out of engagement and notches in the rod to operate alternately as the friction-clutches are shifted, substantially as shown and described.

678,139. COMPOSITE BRAKE-SHOE. FRANK R. SPEAR, Chicago, Ill. Filed Oct. 29, 1900. Serial No. 34,747. (No specimens.)



Claim.—1. A composition for brake-shoes having as an essential ingredient coal-tar or coal-tar pitch, finely-divided particles of metal and a fibrous substance, substantially as described.

2. A composition for brake-shoes composed essentially of comminuted iron, asbestos and coal-tar, substantially as described.

678,140. PICK-KEY FOR ZITHERS. JOHN C. ST. JOHN, Boston, Mass., assignor of one-third to Charles A. Richardson, same place. Filed Aug. 13, 1900. Serial No. 27,253. (No model.)



Claim.—1. A pick-key for musical instruments, comprising a pick in the form of a substantially rigid tongue, an actuator for depressing and raising said pick, the latter projecting transversely to the length of the actuator, a guide for said actuator, and means for shifting said pick axially of the actuator out of the path of said string in the upward movement of the pick.

2. A pick-key for musical instruments, comprising a pick in the form of a substantially rigid tongue, an actuator for depressing and raising said pick, a tubular guide within which said actuator moves, and a cam-surface cut in said tubular guide, through which the pick projects laterally, for shifting said pick out of the path of said string in the upward movement of the pick.

3. A pick-key for musical instruments, comprising a pick-actuator, composed of two parts placed end to end, a pick mounted between said parts and capable of swinging movement, said actuator serving to move said pick up and down, and means for swinging said pick to one side and back again during its up-and-down movement.

4. A pick-key for musical instruments, comprising an actuator made in the form of two post-like members placed end to end, a pick pivotally mounted between the contiguous ends thereof, a spring normally holding said actuator in raised position and maintaining said pick frictionally in place, and a cam coöperating with said pick as moved by said actuator in swinging the pick to one side and back again during the actuation of the pick.

5. A pick-key for musical instruments, comprising a pick, an actuator therefor, and a cam-surface to be engaged by said pick, said actuator carrying said pick down and up, said pick in its downward movement first picking a string and then coming into contact with said cam-surface, and being deflected thereby, the upper end of said cam-surface being steep for preventing noise due to the engagement therewith of said pick.

6. A pick-key for musical instruments, comprising a pick, an actuator therefor, and a cam-surface for moving said pick out of and into operative position as it is actuated by the actuator, said pick being movable freely in its picking operation without sliding contact, and engaging said cam-surface after it has picked a string.

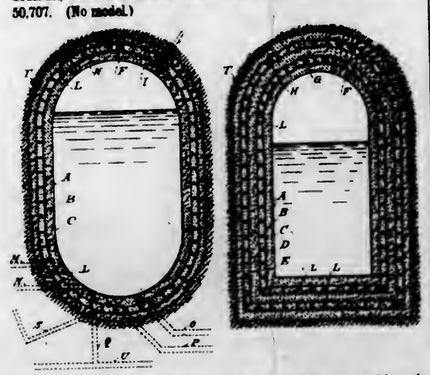
7. A pick-key for musical instruments, comprising an actuator, a pick carried thereby, a guide for said actuator, a cam-opening in said guide, said pick projecting through said opening and being capable of swinging movement relatively to said guide, being swung by engagement with the cam-surface of said opening, said guide having an ear, and a depending part carried by said actuator and moving in said ear to prevent rotation of the actuator, and containing a projecting stop adapted to engage with said ear, and limit the movement of the actuator and pick.

8. A pick-key for musical instruments, comprising an actuator, a pick carried thereby, a cam-surface for swinging said pick laterally and back again, an arm moving with said actuator, a stop extending transversely of said arm and carried thereby for limiting the movement of said actuator, a damper in the form of a resilient tube mounted transversely of the strings beneath said arm and actuated thereby simultaneously with said pick.

9. In a musical instrument, a keyboard, playing-strings mounted in position, a pick-key mounted adjacent a string to pick the same, a damper extending transversely of and beneath said strings, said damper consisting of a resilient tube, and means operated by said key for depressing said damper and thereby removing it from damping engagement with the string being picked.

10. In a musical instrument, a keyboard, playing-strings mounted in position thereon, a resilient tubular damper extending normally in contact with said strings transversely thereof, and means for actuating said damper.

678,141. STORAGE OF MECHANICAL ENERGY. CHARLES STEINER, Sault Ste. Marie, Mich. Filed Mar. 11, 1901. Serial No. 50,707. (No model.)

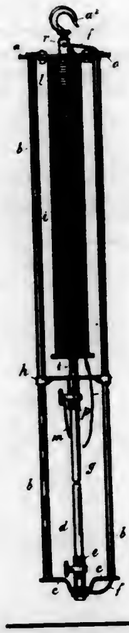


Claim.—In a hydraulic power-accumulator with air-cushion, the chamber of which is to be built under ground, within a solid bank of natural rock, the construction of the walls of said chamber, relying for strength against interior pressure not on the tensile resistance of the steel and masonry in said wall, but on the compressive strength of the natural rock alone and such wall to consist of a number of thin, metallic mantles, a number of layers of concrete and pressure-water, alternatingly filling interspaces between said mantles in the manner described and for the purpose set forth.

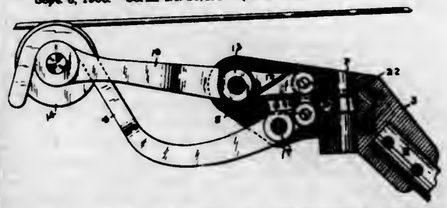
678,142. ELECTRIC-ARC LAMP. WILLIAM E. SYNOM, Rhiwderin, England, assignor to Nettlefolds, Limited, Birmingham, England. Filed Feb. 15, 1901. Serial No. 47,508. (No model.)

Claim.—In an electric-arc lamp, an upper plate carrying a solenoid and shunt-coil, tubular rods depending from said plate, a lower plate connected to the lower ends of said rods, a cross-arm having its ends bifurcated and straddling said rods, a soft-iron rod electrically connected with the shunt-coil its lower end being threaded and extending centrally through said cross-arm, a second carbon-holder, having a threaded shank, a washer carried by the lower plate to receive said shank and of insulating material, a conductor passing entirely through one of said tubular rods and connected with said threaded shank, and a nut on the latter.

678,142.



678,143. TROLLEY. FRED R. TABNEY, Indianapolis, Ind. Filed Sept. 8, 1900. Serial No. 29,432. (No model.)



Claim.—1. The combination with a trolley-pole, of a vertically-movable trolley-carrying arm, a vertically-movable guarding-fork, means for supporting them, and a connection between said arm and guarding-fork whereby one while vertically moving will vertically move the other at a different speed.

2. The combination with a trolley-pole, of a support, a trolley-carrying arm and guarding-fork both fulcrumed to said support away from their ends, the fulcrum of said guarding-fork being farther from its end than the fulcrum of the arm is from the end of the arm, means for moving one of said members vertically, and a bar pivotally connecting the ends thereof.

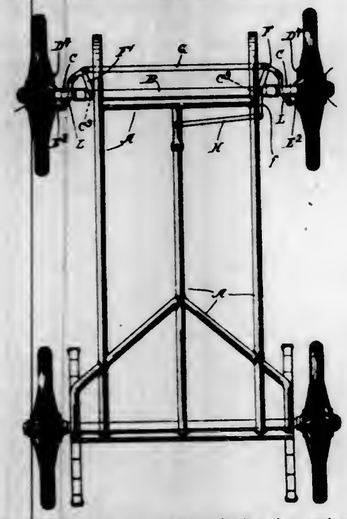
3. The combination with a trolley-pole, of a support, a trolley-carrying arm fulcrumed to said support away from its end, said arm having a hub at its fulcrum, a spring coiled about said hub with one end secured in the support and the other end of the spring acting on the arm to elevate the outer end thereof, a guarding-fork with its prongs normally resting on each side of the trolley, said fork being fulcrumed to said support at a point nearer its end than the fulcrum of said arm is to the end of the arm, and a bar pivotally connecting the ends of said arm and guarding-fork.

4. The combination with a trolley-pole, of a casting secured to the upper end thereof with its end horizontally recessed, a vertical pivot-pin mounted in said casting and extending through said recess, said pin having at one point oppositely-flattened sides, a trolley-carrying arm, a support, two vertical sides between which said trolley-arm is secured, and a flat spring that surrounds the flattened portion of the pivot-pin with its free ends pressing against the sides of said support.

5. The combination with a trolley-pole, of a horizontally-movable casting or extension pivoted thereto, a vertically-movable trolley-carrying arm mounted on said casting or extension, a vertically-movable guarding-fork also mounted on said casting or extension, and a connection between

said trolley-carrying arm and guarding-fork whereby one while vertically moving will freely move the other at a different speed.

678,144. CARRIAGE-STEERING MECHANISM. ROBERT W. THOMPSON, Chicago, Ill., assignor to Thomas B. Jeffery, same place. Filed Sept. 17, 1900. Serial No. 30,230. (No model.)



Claim.—1. In a carriage-steering mechanism, the combination of a wheel having its hub provided with an annular recess extending in from one side to the plane of tread, the wheel-bearing element, consisting of a spindle having a rigid extension reaching into such annular recess, and the wheel-carrying arm which protrudes into the recess and is pivoted to the spindle extension at a vertical line through the axis in the plane of tread; the wheel-bearing element having a horizontal lever-arm; a lever having its fulcrum rigid with the wheel-carrying arm, and a link connecting said lever to the lever-arm of the wheel-bearing element; and suitable means for operating the first-mentioned lever at will.

2. In a carriage-steering mechanism, the combination of a wheel having its hub provided with an annular recess extending in from one side to the plane of tread, the wheel-bearing element having a central recess by which it is adapted to enter the annular recess and receive the central portion of the hub; a wheel-carrying arm extending into the recess outside the wheel-bearing element, and pivoted to the latter at a vertical line through the axis in the plane of tread; said wheel-bearing element having a horizontally-projecting lever-arm; a lever having its fulcrum rigid with the wheel-carrying arm; a link connecting said lever to the horizontal lever-arm of the wheel-bearing element, and means for operating said lever at will.

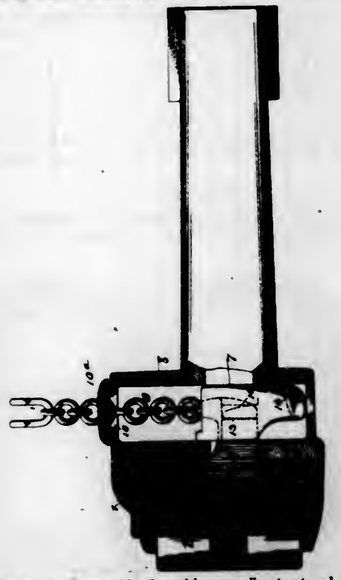
3. In a carriage-steering mechanism, a wheel having its hub provided with an annular recess extending in from one side to the plane of tread; the bearing-spindle, having a rigid extension reaching into such annular recess; a wheel-carrying arm having a terminal fork which protrudes into the recess, striding the spindle and its extension endwise, and having its fork-arms pivoted to the extension respectively above and below the spindle, in a vertical line with the axis in the plane of tread, the spindle having a horizontally-projecting arm; a lever having a vertical fulcrum, rigid with the wheel-carrying arm; a link connecting said lever with the spindle lever-arm, such link extending between the fork-arms, and means for operating the vertically-fulcrumed lever at will.

4. In a carriage-steering mechanism, the combination of oppositely-projecting wheel-carrying arms; wheel-bearing elements vertically pivoted to said wheel-carrying arms respectively and axially recessed from the outer ends; wheels having their hubs provided with annular recesses at the inner side extending in to the plane of tread, leaving the central rigid portion adapted to enter respectively the axial recesses in their respective wheel-bearing elements; said wheel-bearing elements having each a horizontally-extending lever-arm at the inner end; levers fulcrumed on the wheel-bearing frame; links connecting them respectively to the lever-arms of the wheel-bearing elements, and a link connecting said levers with each other from side to side of the vehicle.

5. In a carriage-steering mechanism, the combination of a wheel-carrying frame having rigid outwardly-extending wheel-carrying arms; bearing-spindles for the wheels which have rigid extensions springing from their inner ends and returning toward the outer ends; wheels having their hubs provided each with an annular recess at the inner side extending to the plane of tread and adapted to receive the rigid extensions of the spindles when the wheels are suitably mounted on the spindles respectively, said rigid wheel-bearing arms being extended into such recesses respectively, and pivoted to the spindle extensions respectively, each at a vertical line through the axis in the plane of tread; the spindles having horizontally-projecting lever-arms toward the inner end; levers having fulcrums rigid with the wheel-carrying frame; links connecting said levers respectively with the spindle lever-arms; a link connecting the two levers with each other, and means for operating one of said levers at will.

6. In a carriage-steering mechanism having the hub annularly recessed, and the wheel-bearing element extending in such recess and the wheel-carrying arm pivoted to the wheel-bearing element within the recess, the pivots integral with the wheel-bearing element, projecting radially therefrom, the wheel-carrying arm being forked and having pivot-bearings in the ends of the forks, such bearings being formed by recesses in the ends of the fork-arms adapted to receive the pivots, and blocks to close the recesses beyond the pivots, and bolts which secure the same in the recesses.

678,145. COUPLING. JAMES TIMES, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed Mar. 22, 1901. Serial No. 52,353. (No model.)



Claim.—1. The combination with a coupling-head and a knuckle pivotally supported therein, of a compact block inclosed within said head and constructed to lock the knuckle, throw it open and also to be set in position to permit the knuckle to be opened.

2. The combination with a coupling-head and a knuckle pivotally supported therein, of an inclined tail on the knuckle, a compact locking-block inclosed permanently and completely within the head, a lip on said block to engage the tail and force the knuckle open, and said block adapted to be supported on the tail without projecting beyond the head to permit the opening of the knuckle by a pull thereon.

3. The combination with a coupling-head and a knuckle pivotally supported therein, of a tail on the knuckle and having an inclined face, a compact locking-block inclosed within the head and normally in the path of the tail of the knuckle to lock the knuckle against movement, a lip on the block to engage the inclined face of the tail and force the knuckle open when the block is raised to its highest point and a shoulder on the block to rest on the tail and ride thereon and permit the knuckle to be opened by a pull thereon.

4. The combination with a coupling-head and a knuckle pivotally supported therein, of an inclined tail on the knuckle, a tongue on the forward end of the tail, a compact locking-block inclosed and operating within the head and normally in the path of the tail and having a groove therein to receive the tongue, a lip on the lower end of the block disposed beneath the inclined tail and adapted to force the knuckle open when the block is raised, and a shoulder at the lower end of the grooved locking portion of the block adapted to rest and ride on top of the tail of the knuckle when the block is raised half way and permit the opening of the knuckle by a pull thereon.

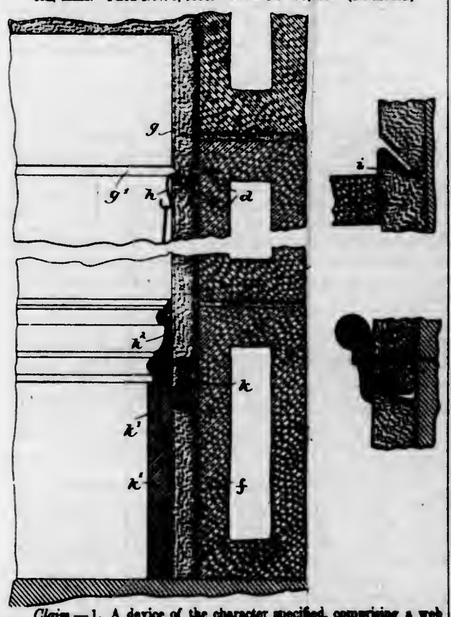
5. In a coupling, the combination with a coupling-head, a knuckle pivotally supported therein and an inclined curved tail on the inner end of the knuckle, of a top-heavy locking-block located and operating wholly within the head, a lip on the lower end of the block to engage the lower face of the tail of the knuckle and force the latter open when the block is raised, and a shoulder midway between the ends of the block adapted to rest on the knuckle-tail when the block is raised slightly to permit the knuckle to be opened by a pull thereon, and when the block is so disposed, set at an incline.

6. In a coupling, the combination with a coupling-head, a knuckle pivotally supported therein and an inclined curved tail on the inner end of the knuckle, of a compact locking-block located and operating wholly within the head and normally in the path of the knuckle-tail, a lip on the block to engage the tail and throw the knuckle open, a chain secured to the block and projecting up through an opening in the top of the coupling to one side of the center of the block, and a cap or closure on the chain adapted to close the opening in the coupling when the knuckle is locked.

7. The combination with a coupling-head and a pivoted knuckle having a tail, of a compact block inclosed wholly within the head and constructed to lock the knuckle, unlock the knuckle and simultaneously open it or to unlock the knuckle without opening it and means for operating said block without moving any portion of it beyond the wall of the coupling-head.

8. The combination with a coupling-head having a chamber therein, and a pivoted knuckle having a tail provided with an inclined face, of a locking compact block confined permanently and wholly within said chamber and constructed to lock the knuckle, to unlock and open the knuckle by engagement with the inclined face of the tail and to unlock the knuckle without opening it and a flexible device entering said chamber and attached to the block for operating it within said chamber.

678,146. GROUND FOR PLASTERERS. FRANK L. UNION, Boston, Mass. Filed Nov. 6, 1899. Serial No. 735,908. (No model.)



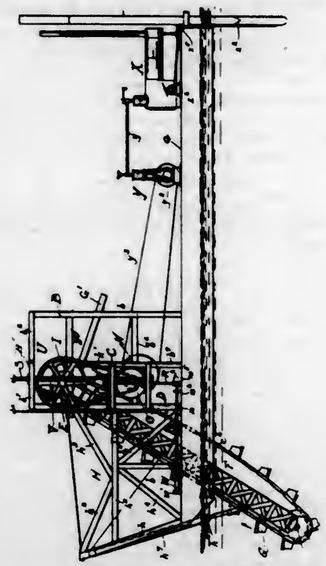
Claim.—1. A device of the character specified, comprising a web having a straight front continuous edge and having a flat base integral with its other edge and extending in two directions therefrom, both of the base extensions being in the same plane, whereby they are adapted to be secured upon a flat wall.

2. A device of the character specified comprising two flat straight base portions adapted to be secured upon a flat wall, and web portions integral therewith and projecting forward therefrom and having a front edge straight and continuous.

3. A device of the character specified, comprising a web transversely curved from edge to edge to form a concaved trough-shaped rib and having its outer edge rounded and formed straight and continuous, and a uniformly flat base integral with said web and adapted to be secured upon a flat wall.

4. A device of the character specified consisting of a metallic strip folded transversely along a longitudinal line to form a web with a rounded and straight continuous outer edge, said web being transversely curved from edge to edge to form a concaved trough-shaped rib, said strip being bent along lines parallel to said longitudinal line to form uniformly flat base portions, said base portions extending in opposite directions and in one plane adapted to lie flat against and to be secured upon a flat wall.

678,147. MINING-DREDGE. WILLIAM T. UREK, Kansas City, Mo. Filed July 13, 1900. Serial No. 23,534. (No model.)



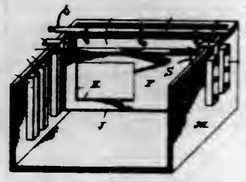
Claim.—1. A dredge-boat, and alternating cable winding and unwinding drums thereon, and separate cables having their free ends extending in opposite directions and laterally from the forward end of said dredge-boat, and connected with suitable, fixed points, separate vertically-movable boat-anchoring spuds or spars connected with the rear end of said dredge-boat and adapted to be lowered in position alternately, a main power-shaft, and an engine and its driving-shaft, power-conveying devices connected with the driving-shaft of said engine and the main power-shaft, a separate, horizontal shaft upon said boat, actuated by the main power-shaft and a vertical power-transmitting shaft connected with and actuating the drums carrying said cables, and suitable friction-gearing connecting said horizontal and said vertical power-transmitting shafts.

2. A dredge-boat and alternating cable winding and unwinding drums thereon, and separate power-shafts carrying said drums, and sprocket-wheels on said shafts, and a sprocket-chain extending over said sprocket-wheels, cables upon said drums, having their free ends extending laterally from the forward end of said boat and connected with separate fixed points, a main power-shaft journaled upon said boat, a horizontal shaft upon said boat and an engine and its driving-shaft, and power-conveying devices connected with the driving-shaft of said engine and said horizontal shaft, and also with said horizontal shaft and said main power-shaft, a vertical power-shaft connected with one of the drum-carrying shafts and friction-gear connecting the said horizontal and vertical power-transmitting shafts, and means substantially as described for changing the speed of said gear.

678,148. PROCESS OF PLATING WOOD DOORS. WILLIAM A. WARNER, Bridgeport, Conn. Filed Sept. 28, 1900. Serial No. 31,375. (No specimens.)

Claim.—1. The herein-described process of metal-plating wood doors which consists in first filling the same, then covering the edges with thin

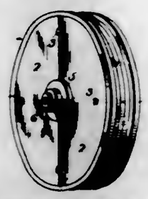
metal strips, next covering said door with a thin layer of conducting material, and finally subjecting the whole to an electroplating-bath whereby an electrodeposit is formed over said conducting-layer.



2. The process of plating wood doors or similar articles, which consists first in filling said door, second in applying to the edges thereof thin metal strips, third, insulating the face of said strips, fourth applying a coating of metallic bronze-powder to the face of the door, and finally in electrically depositing a metal coating on the faces of said door.

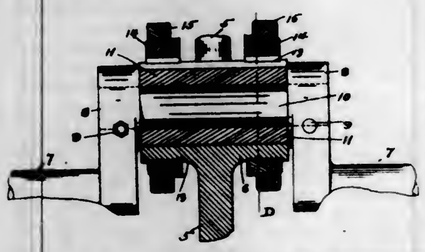
3. The herein-described process of metal-plating wood doors which consists in first filling the same, next covering the edges with thin metallic strips, third in covering the faces of the door up to the edge of said metal strips with metallic bronze-powder, and finally in electrically depositing a metal coating on said door.

678,149. VEHICLE-WHEEL. EDMUND J. WATKINS, Cambria, Mich. Filed Dec. 14, 1899. Renewed Dec. 20, 1900. Serial No. 40,586. (No model.)



Claim.—A wheel composed of a series of layers, each layer composed of two parts arranged to break joint with its adjacent layer, the grain of the alternate layers throughout the entire number of layers being at right angles to each other, hub-sections composed of semicircular parts arranged to break joint with each other and arranged on the outer sides of the two outermost layers, metallic bands shrunk around the said outermost layers, and a sand band or box extending through said layer and hub-sections, substantially as and for the purpose set forth.

678,150. MULTIPLE-CYLINDER PISTON-ROD CONNECTION. FREDERICK L. WHITE, Boston, Mass. Filed Oct. 8, 1900. Serial No. 32,468. (No model.)

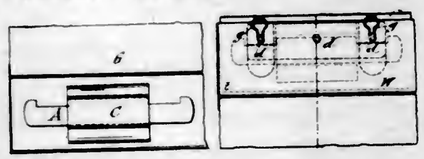


Claim.—1. In a device of the character described, the combination with a plurality of cylinders; of fixed plates between which the said cylinders are pivotally mounted; piston-heads operative within said cylinders; piston-rods rigidly connected with said piston-heads; a shaft rotatably mounted in said frames and having a single crank; and means, as compressible rings surrounding the crank end of said piston-rods; and non-compressible rings surrounding said compressible rings for revolubly securing said piston-rods to said crank.

2. In a device of the character described, the combination with a plurality of cylinders arranged about a common center; of fixed plates between which the said cylinders are pivotally mounted; a shaft rotatably mounted in said frames, the axis of which is coincident with the said common center; a piston-head operative within each of said cylinders; a piston-rod rigidly connected with each of said piston-heads at one end and revolubly secured at the opposite end to the crank upon said shaft by means of compressible and non-compressible rings in such a manner as to permit the piston-rods to adjust themselves in a direct line with the thrust during the travel of said crank in a rotary path about the center of said shaft.

3. In a device of the character described, the combination with the frames 17; of the cylinders 1 pivotally mounted therebetween upon the trunnions 2; of the crank-shaft 7, having the crank 10 thereon; of the piston-heads 3 operative within the cylinders 1; piston-rods 5 fixed to the said piston-heads 3 at one end and having the segmental bearing-piece 6 at the opposite end; compressible collars 14 surrounding said segmental ends; and non-compressible collars 15 surrounding the said compressible collars.

678,151. SKIRT-SUPPORTER. KATHARINE E. ACKERSBERG, New York, N. Y. Filed Mar. 6, 1901. Serial No. 50,065. (No model.)



Claim.—1. A skirt-supporter, consisting of a suspension member adapted to be applied to the waist, and a skirt member, composed of a bar, hooks at the inner side of the bar, headed studs at the outer side of the same, and tapes secured to said bar and overlapping the top of the same, and provided at their outer ends with means for engaging said studs, substantially as set forth.

2. A skirt-supporter, consisting of a suspension member adapted to be applied to the waist, and provided with recessed ends, and a skirt member composed of a bar, hooks at the inner side of said bar adapted to engage the recesses of the suspension member, headed studs at the outer side of said bar, and tapes secured to said bar and overlapping the top of the same, and provided at their outer end with eyes for engaging said studs, substantially as set forth.

3. A skirt-supporter, consisting of a suspension member having recessed ends, a fabric sleeve applied to the middle, non-recessed portion of said member, and a skirt member composed of a bar, flat hooks at the inner side of the same, headed studs at the outer side, and means for attaching said studs to the waistband of the skirt, substantially as set forth.

4. A skirt-supporter, consisting of a suspension member adapted to be applied to the waist, a skirt member composed of a bar, hooks at the inner side of said bar adapted to engage the suspension member, headed studs at the outer side of said bar, tapes secured to said bar and overlapping the top of the same, and provided at their outer ends with means for engaging the said studs, and eyes adapted to be attached to the overlapping end of the skirt-band, and to engage said studs, substantially as set forth.

678,152. MACHINE FOR MAKING BOX-TRAYS. CHARLES B. ANDREWS, Lebanon, Pa., assignor to the Diamond Match Company, Chicago, Ill. Filed Aug. 11, 1900. Serial No. 26,615. (No model.)

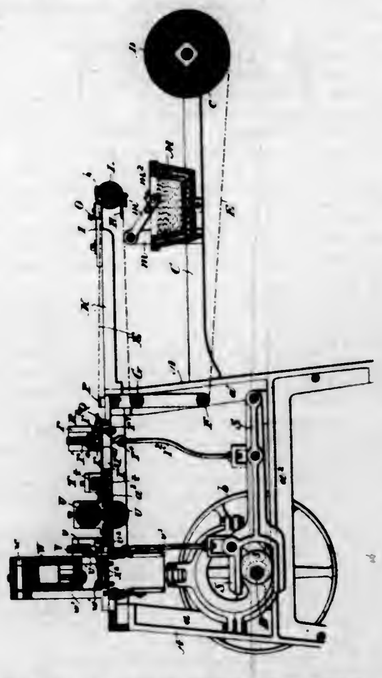
Claim.—1. In a machine for making box-trays, the combination of means for applying adhesive material in spots to a portion only of a blank, and means for spreading such adhesive material into independent stripes of uniform thickness over a portion only of the paper, substantially as and for the purpose described.

2. In a machine for making box-trays, the combination of means for applying adhesive material in spots to a portion only of a blank, and stationary means for spreading such adhesive material into independent stripes of uniform thickness over a portion only of the paper, substantially as and for the purpose described.

3. In a machine for making box-trays, the combination of means for applying adhesive material in spots to a portion only of a blank, and a scraper arranged to bear upon the strip for the purpose of spreading such adhesive material into independent stripes of uniform thickness over a portion only of the paper, substantially as and for the purpose described.

4. In a machine for making box-trays, a folding mechanism comprising a plunger, a flap-turning arm pivoted in the plane of a face of the plunger, the pivot thereof being near and parallel to the plane of another face of the plunger, and means for swinging such arm toward the plunger in a direction opposite to the operative movement of the plunger, substantially as and for the purpose described.

5. In a machine for making box-trays, a folding mechanism comprising a support for a tray-blank, a plunger about which the blank is adapted to be folded, a flap-turning arm pivoted to swing in the plane of a face of the plunger, the pivot of such arm being parallel to another face of the plunger, such arm being normally below the plane of said support for the blank, and means for swinging the flap-turning arm toward the plunger in a direction opposite to the operative movement of the plunger, substantially as and for the purpose described.



6. In a machine for making box-trays, a folding mechanism comprising a support for a tray-blank, such support having an opening therein, a plunger that is adapted to enter said opening, shafts journaled in said support on opposite sides of the opening, flap-turning arms on such shafts and perpendicular thereto, said arms being normally below the blank-supporting surface, and fingers on said shafts and projecting into the path of the plunger, whereby the flap-turning arms are turned upward and toward the plunger as the latter descends, substantially as and for the purpose described.

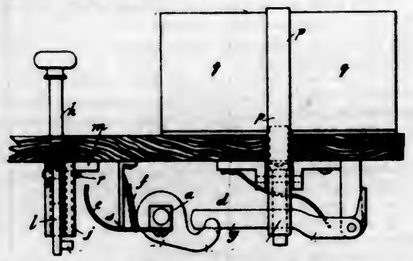
7. In a machine for making box-trays, a folding mechanism consisting of the combination of a reciprocating plunger, a tube into which the trays are forced by the plunger, a pair of rock-shafts at the upper end of said tube, fingers on said rock-shafts adapted to be operated by the plunger, flap-turning arms on the ends of said rock-shafts, such arms projecting into the path of the lower face of the plunger, and means for turning up the sides and ends of the tray, substantially as and for the purpose described.

8. In a machine for making box-trays, a folding mechanism, comprising a reciprocating plunger, a tube into which the trays are forced by the plunger, a pair of plates having edges that are in substantially the same plane as two opposite, inner walls of the tube, but above said tube, a pair of rock-shafts beneath said plates, such rock-shafts having fingers that normally project into the path of the lower face of the plunger, and having folding-arms whose adjacent faces are substantially in line with the two of the inner walls of said tube, and means for turning up the ends of the trays, substantially as and for the purpose described.

678,153. COIN-FREED MECHANISM FOR GOODS-DELIVERY MACHINES. ALICE M. ARGLES, Wimbledon, England. Filed Oct. 9, 1900. Serial No. 32,519. (No model.)

Claim.—1. In a coin-freed apparatus for goods-delivery machines, an operating-rod, means for actuating said rod, and a gravity-pawl sliding upon said rod for operating successively a series of separate goods-delivery devices, substantially as described.

2. In a coin-freed apparatus for goods-delivery machines, a spring-actuated operating-rod, a spring-actuated means for operating said rod, and means sliding downwardly upon said rod for operating successively a series of separate goods-delivery devices.



3. In a coin-freed apparatus for goods-delivery machines, a spring-actuated operating-rod, spring-actuated means for operating said rod, and a gravity-pawl loosely mounted on said rod for actuating successively a series of separate goods-delivery devices.

4. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl for operating successively a series of separate goods-delivery devices, a spring-actuated means for supporting and operating said pawl, and a push-rod for operating said spring-actuated means.

5. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl adapted to operate successively a series of separate goods-delivery devices, a spring-actuated rod for supporting and operating said pawl, and a push-rod for actuating said spring-actuated rod.

6. In a coin-freed apparatus for goods-delivery machines, an operating-rod, a gravity-pawl carried thereby and provided with a lug, means for actuating said rod causing thereby the operation of the pawl, and means connected to said rod for returning the same to its normal position.

7. In a coin-freed apparatus for goods-delivery machines, a locking-lever released by the coin, an operating-rod, a gravity-pawl carried thereby, means for actuating said rod causing the operation of the pawl when the said lever is released, and means connected to said rod for returning the same to its normal position.

8. In a coin-freed apparatus for goods-delivery machines, a locking-lever released by the coin, a spring-actuated operating-rod, a gravity-pawl carried thereby, and a spring-actuated means for operating said rod when said lever is released, and means connected to said rod for returning the same to its normal position.

9. In a coin-freed apparatus for goods-delivery machines, a locking-lever released by the coin, an operating-rod, a gravity-pawl carried thereby and adapted to actuate successively a series of separate goods-delivery devices, a spring-actuated means for operating said rod when said lever is released, and means for returning said rod to its normal position.

10. In a coin-freed apparatus for goods-delivery machines, a locking-lever released by the coin, an operating-rod, a gravity-pawl carried thereby and provided with a lug, a push-rod for actuating said rod when the lever is released, means for returning said push-rod to its normal position, and means for returning said operating-rod to its normal position.

11. In a coin-freed apparatus for goods-delivery machines, an operating-rod, a pawl traveling thereon and adapted to operate at different points of its travel a separate goods-delivery device, means for operating said rod, and a push-rod for operating said means.

12. In a coin-freed apparatus for goods-delivery machines, an operating-rod, a pawl traveling thereon and adapted to operate at different points of its travel a separate goods-delivery device, a spring-actuated means for operating said rod, and a spring-actuated push-rod for operating said means.

13. In a coin-freed apparatus for goods-delivery machines, an operating-rod, a pawl traveling thereon and adapted to operate at different points of its travel a separate delivery device, means for operating said rod, a push-rod for operating said means, and a locking means released by a coin to permit of the operation of said push-rod.

14. In a coin-freed apparatus for goods-delivery machines, a traveling pawl for operating at different points of its travel a separate goods-delivery machine, an operating-rod for said pawl, operating means for said rod, and a locking-lever released by a coin to permit of the operation of said means.

15. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl adapted to operate at different points of its travel a separate goods-delivery device, and a spring-actuated operating means therefor.

16. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl adapted to operate at different points of its travel a separate goods-delivery device, operating means therefor, and a locking mechanism released by a coin to permit of the operation of said operating means.

17. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl adapted to operate separate goods-delivery devices, and means for partially rotating said pawl at different points of its travel to cause the operation of the separate goods-delivery devices.

18. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl adapted to operate separate goods-delivery devices, a rod for supporting and partially rotating said pawl at different points of its travel, and means for operating said rod.

19. In a coin-freed apparatus for goods-delivery machines, a gravity-pawl traveling in a vertical direction and adapted to operate separate goods-delivery devices, a rod for supporting and partially rotating said traveling pawl at different points of its travel, and means for operating said rod.

20. In a coin-freed apparatus for goods-delivery machines, a vertically-movable and partially-rotating gravity-pawl adapted to operate separate goods-delivery devices, a rod for supporting and partially rotating said traveling pawl at different points of its travel, means for operating said rod, and a locking mechanism released by a coin to permit of the operation of said means.

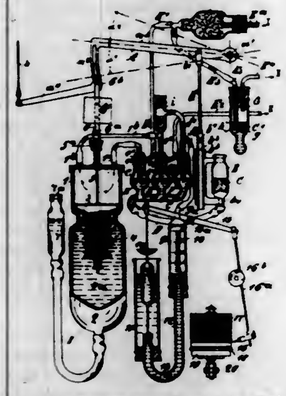
21. In a coin-freed apparatus for goods-delivery machines, a downwardly-moving and partially-rotating gravity-pawl for operating at different points of its travel a separate goods-delivery device, and means for partially rotating said pawl at different points of its travel.

22. In a coin-freed apparatus for goods-delivery machines, a downwardly-moving and partially-rotating pawl for operating at different points of its travel a separate goods-delivery device, supporting means for the said pawl, means for operating said supporting means for causing the partial rotation of said pawl, and a locking mechanism released by a coin to permit of the operation of said operating means.

23. In a coin-freed apparatus for goods-delivery machines, a gravity-operated means for actuating successively a series of separate goods-delivery devices, a support for operating said gravity means, and means for operating said support.

24. In a freed apparatus for goods-delivery machines, a gravity-operated means for actuating successively a series of separate goods-delivery devices, a spring-actuated support for operating said gravity means, and a spring-actuated means for operating said support.

678,154. GAS-ANALYSIS APPARATUS. MAX ARNDT, Aix-la-Chapelle, Germany. Filed Dec. 6, 1899. Serial No. 739,436. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a gas-chamber, of means for conducting gas into the same from a source of supply, a gas-cut-off device interposed between the source of supply and the gas-chamber and an indicating and a coöperating float-actuated recording device both operated by a variation of pressure caused by the action of the chemical on the gas in said chamber, substantially as described and shown.

2. In an apparatus of the class described, the combination with a gas-chamber, of a receptacle for a chemical forming part thereof, means for conducting gas into the chamber from a source of supply, a gas-cut-off device interposed between the source of supply and said chamber, an indicating and float-actuated recording device operated by variation in pressure caused by the action of a chemical on the gas in said chamber, substantially as described and shown.

3. In an apparatus of the class described, the combination with a gas-chamber, a receptacle for a chemical forming part thereof, of a valve interposed between the chamber and receptacle, means for conducting gas into the chamber from a source of supply, a valve interposed between the source of supply and said chamber and connected therewith, an indicating and float-actuated recording device both operated by variation of pressure in the chamber due to the action of the chemical on the gas, substantially as described and shown.

4. In an apparatus of the class described, the combination with the gas-absorption chamber, its interconnected cut-off and outlet-valves; of a lever, a slotted portion thereon, a device for conveying chemical to the absorption-chamber and slidably connected to the slotted portion of said lever, a liquid-reservoir also connected to said lever and with all of said valves, whereby on moving said lever the valves will be successively sealed in the order named and then the device for conveying chemical moved, substantially as and for the purpose set forth.

5. In an apparatus of the class described, the combination with a gas-chamber, and a source of gas-supply, of a valve interposed between said chamber and supply, an indicating device, a valve-controlled gas-outlet from said chamber connected with said indicating device and a float-operated recording device, substantially as described and shown.

6. In an apparatus of the class described, the combination with a gas-chamber, of a source of gas-supply, a valve interposed between said supply and gas-chamber, a gas-outlet connected with two valves, means for successively closing said valves, a liquid-level-indicating device connected to one of said valves and a float-operated recording device operated by variation of liquid-level in the indicator, substantially as described and shown.

7. In an apparatus of the class described, the combination with a gas-chamber, of a source of gas-supply, a valve interposed therein, a gas-outlet from said chamber a valve interposed therein and a third valve connected with the gas-outlet, a liquid-level-operated indicator connected with the last-mentioned valve and through it with the gas-outlet, and a float-operated recording mechanism controlled by the level of the liquid in the indicator, substantially as described and shown.

8. In an apparatus of the class described, the combination with a gas-chamber, of devices for introducing a chemical therein, mechanism for operating the same, a gas-supply pipe, a cut-off valve therein, a liquid-sealed relief-valve between said valve and source of supply and means for closing said valve, operated by the chemical-introducing mechanism, substantially as described and shown.

9. In an apparatus of the class described, the combination with a gas-chamber, of a receptacle for chemicals below said chamber, a valve separating the two, devices for lifting chemical from the receptacle into the gas-chamber, a gas-supply pipe, a cut-off valve therein, an outlet-pipe from said chamber, a valve therein and third valve connected with the latter valve and the outlet-pipe, and means for successively closing all the valves, substantially as described and shown.

10. In an apparatus of the class described, a gas-chamber, of a receptacle below the same and forming part thereof a valve separating the two, devices connected to said valve and organized to lift and expose in the chamber a large surface of chemical to the gas, a lifting-lever connected to said valve, a gas-supply pipe, a cut-off valve therein, an exit-pipe from said chamber a valve therein, and a third valve vented to the atmosphere, connected to the outlet-pipe, means for closing all the valves in the order named and a liquid-level-indicating device connected to the third valve, substantially as described and shown.

11. In an apparatus of the class described, the combination with a gas-chamber, a gas-supply pipe, a liquid-sealed relief-valve in said pipe and a cut-off valve in the supply-pipe between the relief-valve and gas-chamber sealed by a liquid of greater density than the liquid sealing the by-pass, substantially as described and shown.

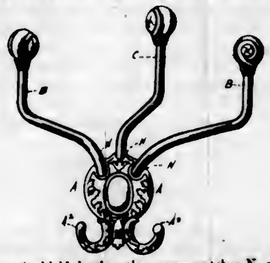
12. In an apparatus of the class described, the combination with the gas-absorption chamber, of a U-tube connected at one leg therewith, a liquid in the bend of said tube, a lever organized to operate a stylus, a float in the other leg of said tube connected to said lever and a drum revoluble past said stylus, substantially as described and shown.

13. In an apparatus of the class described, the combination with the gas-absorption chamber, of a U-tube having one leg connected therewith, a valve between said tube and chamber organized to vent both to the atmosphere and a float in the other leg of said tube organized to operate a recording-stylus, substantially as described and shown.

14. In an apparatus of the class described, the combination with a gas-absorption chamber and a supply-pipe of a liquid-sealed cut-off valve in said pipe, an outlet-pipe, a liquid-sealed outlet-valve therein, a third valve interposed between the outlet-valve and chamber, a U-tube containing a liquid connected with said third valve, all of the valves organized to be closed in the order named and the last-mentioned valve organized to vent both chamber and tube to the atmosphere, substantially as described and shown.

15. In an apparatus of the class described, the combination with a gas-absorption chamber and a supply-pipe, of a liquid-sealed cut-off valve in said pipe, an outlet-pipe, a liquid-sealed outlet-valve therein, a third valve connected to the outlet-pipe, a strainer interposed between this valve and outlet-pipe, a U-tube connected at one leg to the third valve, a pipe for feeding sealing liquid common to all of the valves said valves organized to close in the order named, substantially as described and shown.

678,155. GARMENT-HOOK. ALEXANDER BAILEY, Cincinnati, Ohio, assignor to the National Brass Manufacturing Company, same place. Filed May 6, 1901. Serial No. 58,894. (No model.)



Claim.—1. A shield having the upper notches N, and the triple arms, a central bolt, at the back of the shield, located between the two side arms, and the central arm adapted to engage the central bolt and lie between the side arms, substantially as and for the purposes specified.

2. A shield having the upper notches N, and the triple arms, the two outer arms being united at their lower ends forming a loop, and the central bolt, located between the two outer arms, and the central arm adapted to engage the central bolt, and lie between the outer arms, substantially as and for the purposes specified.

3. A shield having the triple arms, and a notch for the middle arm, the rear of the shield provided with a channel, the two side arms adapted to be received therein, a bolt of the shield between the side arms and the lower part of the middle arm engaging the bolt between the side arms, substantially as and for the purposes specified.

4. A shield having the triple arms, and a notch for the middle arm, the side arms united at the bottom and forming a loop, the shield having a channel into which the loop is received, the middle arm extending down between the two arms, a bolt at the back of the shield to connect the shield to the partition, substantially as and for the purposes specified.

5. A shield, and the triple arms, the shield having a notch for the middle arm, and channels for the side arms, a bolt between the side arms, the lower end of the middle arm being located between the side arms, substantially as and for the purposes specified.

6. A shield, the triple arms, the shield having a notch for the middle arm, and provided with the recesses or channels for the side arms, a bolt between the side arms, the lower end of the middle arm being adapted to be received on the bolt, and between the side arms, substantially as and for the purposes specified.

7. In a triple hook, the combination of the recessed shield notched, and channeled, having stud and bolt projecting therefrom, and the side arms looped and adapted to fit the channel, and embrace the stud, and fit notches of the shield, the middle arm entering a notch in the shield, and having a perforated end received on the bolt and resting on the stud between the side arms, substantially as and for the purposes specified.

678,156. LAUNDRY-TAG. WILLIAM J. BAKER, Newport, Ky. Filed Apr. 11, 1901. Serial No. 56,353. (No model.)

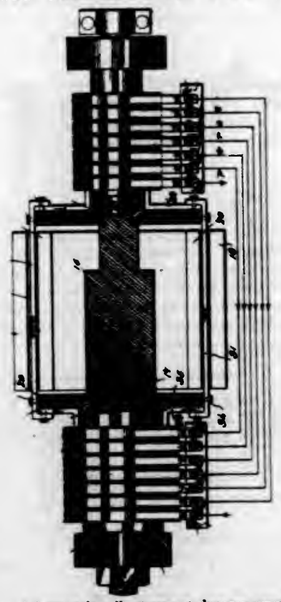


Claim.—1. A laundry-tag, consisting of a sheet-metal body, bendable upon itself, one end of which has garment-engaging prongs, a flexible marking-strip, bent transversely over the other end, said body having means for holding the marking-strip end interlocked therewith and from sidewise movement, as set forth.

2. A laundry-tag, consisting of a sheet-metal body bendable upon itself, one end of said body having prongs projected inwardly in a transverse direction, and a piece of marking-tape, adapted to be bent transversely over the opposite end of the body part, with its ends opposing each other, said body part having members near its edges, opposing each other, and adapted to interlock with the tape ends and hold them from spreading in a longitudinal direction, as set forth.

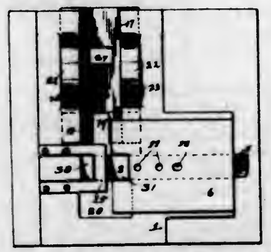
3. A laundry-tag, comprising a metal body, having a portion, adapted to bend upon itself to grip a garment, a marking-tape bendable in a transverse direction over one end of the metal body, said body having means for holding the tape interlocked therewith, substantially as shown and for the purposes specified.

678,157. DYNAMO-ELECTRIC MACHINE. BJARNI BJARNASON, Seattle, Wash. Filed Dec. 3, 1900. Serial No. 39,207. (No model.)



Claim.—A low-tension direct-current dynamo comprising a field-magnet including an outer member having spaced arms and a connecting-web, the ends of the arms being directed toward each other and having windings, an inner member including cylindrical end portions and central radiating poles provided with windings and axially alined with the interned ends of the outer member, the inner member being mounted at one end in the web of the outer member, sleeves mounted rotatably upon the cylindrical end portions of the inner member and having radial flanges at their inner ends, conductor-bars disposed upon the peripheries of the flanges and having attaching-screws passed therethrough and into the flanges, said bars being disposed between the interned ends of the outer member and the poles of the inner member, and collector-rings upon the sleeves and with which the bars are connected, respectively.

678,158. DIE. FRANK P. CADY, Cleveland, Ohio, assignor to Daniel W. Aylworth, South Haven, Mich. Filed Jan. 13, 1900. Serial No. 1,292. (No model.)

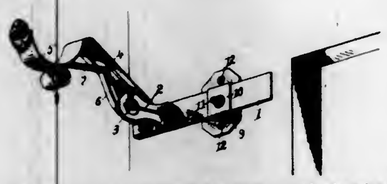


Claim.—1. In dies for the purpose specified, the combination with a lower die-bar, provided with two transverse rectangular depressions at different levels, and vertical perforations, of a vertically-reciprocating die-head, a male die adapted to engage the female die, a cutter and vertically-placed punches secured to said head and guides to receive the blank in line with said dies, cutter and punches, substantially as described.

2. In dies for the purpose set forth the combination with a stationary die-bar provided with transverse rectangular recesses and vertical per-

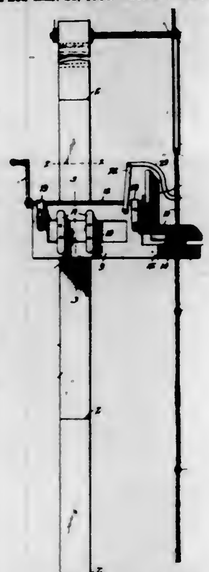
forations of corresponding vertically-reciprocating male die, cutter and punches, guides to retain the blank metal, and means for stripping the male die and for removing the finished clamp, substantially as described.

678,159. ADJUSTABLE WINDOW-SHADE AND LACE-CURTAIN FIXTURE. ORIN H. CARSON, Decatur, Ill. Filed Jan 23, 1901. Serial No. 44,334. (No model.)



Claim.—In a shade and curtain fixture the combination of a supporting-bracket, a bar longitudinally slidable in the bracket and adapted to sustain a shade-roller, a pole-sustaining strip connected with an end of the bar, extended outward and upward therefrom and hooked at its extended end, and a brace-bar connected with the slidable bar at the connection of the pole-sustaining strip therewith, extended obliquely upward and outward to the oblique extension of the pole-sustaining strip and thence outward to the hook of the pole-sustaining strip where it forms a rod-supporting ring.

678,160. WIRE-FENCE MACHINE. WILLIAM M. CREW, near Petersburg, Ind., assignor of one-half to Joseph L. Robinson, Petersburg, Ind. Filed Mar. 26, 1901. Serial No. 52,991. (No model.)



Claim.—1. A wire-fence machine, comprising a standard having a rack, a tubular or box-like bracket slidably mounted upon the standard and in adjustable interlocked engagement with the rack, a frame carried by the bracket and slidable transversely of the standard, and twister mechanism carried by the frame.

2. A wire-fence machine, comprising a standard, a bracket adjustable longitudinally thereon, a frame slidable transversely of the standard and carried by the bracket, one end of the frame having a longitudinal bifurcation, the inner end of which terminates in an enlarged circular perforation, a substantially horizontal beveled twister-gear, having a journal that is rotatably mounted in the perforation, there being a radial slot in the gear and extended into the journal thereof, a rotatable shaft mounted upon the frame, a beveled gear upon one end of the shaft and in mesh with the twister-gear, and a crank-handle at the opposite end of the shaft.

3. A wire-fence machine, comprising a standard, a bracket, which is adjustable longitudinally upon the standard, and has an intermediate outwardly-directed rib extended transversely of the standard, a frame having a longitudinal slot slidably receiving the projected rib and of greater length than the same, one or more cleats or projections secured to the rib and overlapping the slotted edges of the frame, and twister mechanism carried by the frame.

4. In a wire-fence machine, the combination with a support, of a rotatable radially-slotted twister beveled gear, operating mechanism having a beveled gear in mesh with the twister, a supporting-arm carried by the support and projected beyond the peripheral edge of the beveled gear, and a guard-arm pivotally connected to the outer end of the former arm, and having its free extremity provided with a fork, the pivotal arm being normally extended across the adjacent peripheral edge of the beveled gear with the fork in alinement with the inner end portion of the slot in the twister.

5. A wire-fence machine, comprising a standard, having ratchet-shoulders formed upon the front face thereof, a tubular bracket slidably embracing the standard, and having a spring frictionally engaging the back of the standard to draw the lower edge of the bracket into engagement with the respective shoulders of the standard, and twister mechanism carried by the bracket.

6. A wire-fence machine, comprising a standard, a lateral arm at the upper end thereof, and having a wire-clamp, a bracket adjustable longitudinally upon the standard, a frame carried by the bracket and adjustable transversely of the standard in the direction of the lateral arm, and twister mechanism mounted upon the frame, and having a twister element alined with the wire-clamp upon the lateral arm.

7. A wire-fence machine, having a lateral arm provided with an outer terminal notch for the reception of a stay or picket, and a pivotal hook projected beyond the outer end of the arm, and having a lateral projection to engage the opposite side of the picket.

678,161. ANIMAL-SHEARS. BAINBRIDGE P. CLARK, Chotesu, Mont. Filed Apr. 17, 1900. Serial No. 13,179. (No model.)



Claim.—1. In animal-shears the combination of a combined pivot and tension bolt and a vibrating lever pivoted thereon, and having an arm extending from the point removed from its pivot and provided with a sleeve or collar closely surrounding the pivot-bolt, and means for applying pressure to said collar, substantially as described.

2. In animal-shears the combination with the cutters, and a pivot-bolt, of a vibrating lever carrying one of said cutters, an arm extending from the cutter-engaging end of said lever and having a collar or sleeve fitting about the pivot-bolt, and means for applying pressure to said collar or sleeve in the direction of its axis, substantially as described.

3. In animal-shears, the combination with the cutters, a vibrating lever carrying one of said cutters, a pivot-bolt therefor, an arm having a collar or sleeve thereon surrounding said pivot-bolt and its outer end engaging the cutter-carrying end of the vibrating lever, and means for applying pressure to said collar lengthwise the bolt, substantially as described.

4. In animal-shears the combination with the cutters, a vibrating lever carrying one of said cutters, a pivot-bolt therefor, an arm having a collar or sleeve thereon surrounding said pivot-bolt and its outer end engaging the cutter-carrying end of the vibrating lever, a spring acting upon said collar and thereby to apply pressure upon the vibrating lever, and means for regulating the tension of said spring, substantially as described.

5. Animal-shears, comprising a casing having a comb secured thereto, a vibrating lever, a detachable cutter carried by said lever, a combined tension and pivot bolt screwing into the casing, an arm having a collar or sleeve at one end surrounding said bolt and its other end engaging the vibrating lever to hold the cutter-down, a casing-cap beneath the head of the said bolt and engaging the sleeve upon said arm, and a spring between the bolt-head and said cap, substantially as described.

678,162. PACKAGE-ROLL FOR HOLDING AND APPLYING METALLIC LEAF. WALTER H. COE, Providence, R. I. Filed Feb. 28, 1899. Serial No. 707,195. (No model.)

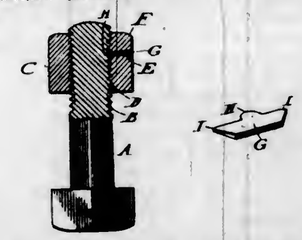


Claim.—1. A package-roll of metallic leaf, consisting of a wound supporting-strip powdered at one of its sides to prevent adherence of the metallic leaf thereto, and non-adhesive at its edge, on the opposite side, and a film of metallic leaf wound therewith, the said film being attached to the non-adhesive edge of the supporting-strip, by the mechanically-turned condition of the adjoining edges of the strip and film.

2. A package-roll of metallic leaf, consisting of a wound supporting-strip, and a film of metallic leaf wound therewith, the said film being mechanically attached to the supporting-strip at its edge, by the outwardly-turned condition of the adjoining edges of the strip and film.

3. A package-roll of metallic leaf, consisting of a wound supporting-strip, having a prepared adhesive surface which does not extend to the edge of the strip, and a film of metallic leaf wound therewith, the said film being attached to the non-adhesive edge of the supporting-strip, by the mechanically-turned condition of the adjoining edges of the strip and film.

678,163. NUT-LOCK. SILAS COOK, Ashland, Ky., assignor of one-fourth to H. M. Ware, Huntington, W. Va. Filed May 18, 1901. Serial No. 60,957. (No model.)



Claim.—1. The combination with a bolt, of a nut having a slot or cut in the body of the same, crosswise thereof, and substantially parallel with the threads of the bolt; and a wedge having an edge adapted when seated within the slot of the nut to engage the bolt and hold the nut in a fixed position relative to the bolt.

2. The combination with a threaded bolt, of a threaded nut having a slot; and a wedge cut away at the ends, as at I I, and provided with a sharp tongue; substantially as and for the purpose set forth.

3. The combination with a threaded bolt, of a threaded nut having a slot or cut, E; and a wedge G; the portion, F of the nut being adapted upon the insertion of the wedge in the slot to bend outwardly and displace the threads of the nut relative to the threads of the bolt, and the edge of the wedge adapted to engage the bolt.

678,164. PROCESS OF DECORATING PLAITED FABRICS. VICTOR CRÉPET and CAMMIR J. DUBOULIN, Lyons, France. Filed Nov. 27, 1900. Serial No. 37,864. (Specimens.)



Claim.—The herein-described process of decorating fabrics which consists in plaiting the same with a paper layer to lie between the folds, the edges of the plaits being left exposed, fixing said plaits and applying color thereto, allowing the color to dry before separating the fabric from the paper, and finally removing the fabric, substantially as described.

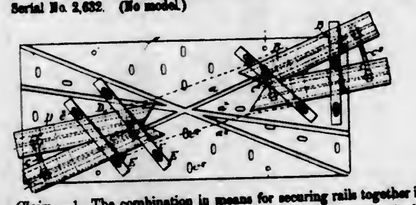
678,165. LAUNDERING-IRON HEATER. HERMANN CRUDGER, Roanoke, Va., assignor of one-half to Marcellus H. Moorman, Jr., and Ed. Purcell, Jr., same place. Filed Nov. 6, 1900. Serial No. 35,623. (No model.)



Claim.—1. A laundering-iron heater, comprising a marginal base, and an open-ended pyramidal drum hinged to and supported upon the upper edge of the base, said drum comprising inner and outer shells, and a heat-non-conducting filling between the shells, the sides of the outer shell and the filling having corresponding openings to expose the inner shell for engagement by an iron, and iron-supporting ledges or flanges projecting laterally outward at the bottom edges of the respective openings in the outer shell.

2. A laundering-iron heater, comprising a marginal base, and an open-ended pyramidal drum removably supported upon the upper edge of the base, and formed by an inner shell, an outer shell that is bent from a single blank of sheet metal, having portions cut out of each side of the shell to form openings therein, and said cut-out portions being bent laterally outward into iron-supporting ledges or flanges at the bottom edges of the respective openings, and a heat-non-conducting filling between the shells and having openings formed therein corresponding to the openings in the outer shell to expose portions of the inner shell.

678,166. CASTING-CLAMP FOR TRACK STRUCTURES. ARTHUR R. DAVENPORT, Jr., Philadelphia, Pa., assignor to William Wharton, Jr., & Company, Incorporated, same place. Filed Jan. 24, 1900. Serial No. 2,632. (No model.)



Claim.—1. The combination in means for securing rails together in the process of forming rail structures, of a base-plate having a longitudinal guide the parts of which are in alinement, and blocks engaging with said guide and shaped to engage with the rails clamped thereto and to hold the same in alinement with the blocks, substantially as described.

2. The combination of a base-plate having a groove the parts of which are in alinement therein, blocks, each block having a tongue adapted to the groove, and having a rib on its upper face adapted to the groove in a rail-section, and a clamp for holding the said section to the blocks, substantially as described.

3. The combination in means for securing rails together, in the process of forming rail structures, of a base-plate having a guide the parts of which are in alinement, two sets of blocks, one set fitted to the guide and the other set adapted to rest upon the surface of the base-plate, and means for securing the rails to the base-plate, substantially as described.

4. The combination of a base-plate having a groove in its upper surface, two sets of blocks, one set of blocks having tongues on their under side adapted to grooves in the base-plate, the other set of blocks being smooth on the under side, each block having a rib adapted to the groove in the rail-sections, and means for clamping the rail-sections to the block and to the base-plate, substantially as described.

5. The combination of a base-plate having two or more grooves at an angle to each other, each of which grooves has its parts in alinement, two or more sets of blocks having tongues adapted to the grooves, ribs on the upper face of each block adapted to the grooves in the rail-sections, with means for securing the rail-sections to the blocks and to the base, substantially as described.

678,167. MEANS FOR CONTROLLING ELECTRIC MOTORS. ALBERT G. DAVIS and WILLIAM B. POTTER, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed May 22, 1899. Serial No. 717,863. (No model.)

Claim.—1. The combination of a vehicle, a fluid-compressor thereon, a driving motor or motors geared to wheels of said vehicle, and a motor connected to said fluid-compressor and arranged in circuit with said driving motor or motors.

2. The combination of two independently-rotatable electric motors connected in series, an energy-storing device operated by one of the motors, and means for varying the amount of effective field-winding of one of said motors.

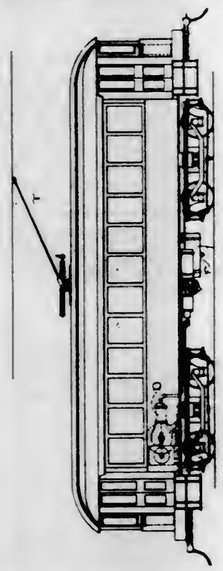
3. The combination of a motor to be regulated, a regulating-motor, an air-compressor driven by the regulating-motor, and means for varying at will the speed of said regulating-motor.

4. The combination of a motor to be regulated, a regulating-motor, an air-compressor driven by the regulating-motor, and means for varying at will the strength of field of said regulating-motor.

5. The combination of a translating device to be regulated, a regulating-motor in series therewith, means for storing the energy of said motor in the form of fluid-pressure and means for varying at will the rate at which the energy is stored.

6. The combination of a translating device to be regulated, a regulating-motor in series therewith, means for storing the energy of said motor

in a form recoverable at will, and means for varying at will the rate at which the energy is stored.



7. The combination of a translating device to be regulated, a regulating-motor in series therewith, means for storing the energy of said motor in a form recoverable at will, and means for varying the amount of effective field-winding of said motor.

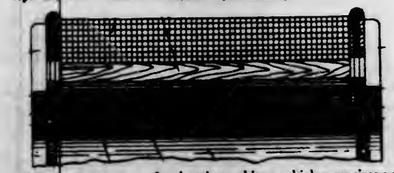
8. The combination of a translating device to be regulated, a regulating-motor, an air-compressor driven by the motor, and means for varying the amount of effective field-winding of said motor.

9. The combination of a translating device to be regulated, a counter-electromotive-force device, an air-compressor driven by energy derived from the counter-electromotive-force device, and means for varying at will the counter electromotive force of said device.

10. The combination of motors, a load for one of the motors such that the resistance to rotation of the motor is greatest when starting, and a load for another of said motors such that the resistance to rotation of the last-mentioned motor is least when starting and increases automatically to a predetermined maximum.

11. The combination of a plurality of motors connected in circuit with each other, a load for one of the motors such that its resistance to rotation is greatest when starting, and a load for another of said motors such that the resistance to rotation of the last-mentioned motor is least when starting and increases automatically to a constant value.

678,168. MAGNET-COIL. HERMANN F. T. REBER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 22, 1901. Serial No. 56,325. (No model.)



Claim.—1. A magnet for electric machines, which comprises a spool, coils wound thereon, spacing-strips interposed between different coils to form ventilating-spaces, independent insulating-collars adjacent the ends of the coils, said collars being formed with one or more annular series of lateral openings registering with the ventilating-spaces, said spacing-strips abutting against the portions of the collars between the successive lateral openings, and rings on the ends of the spool, said rings being provided with radial arms each of which arms extends adjacent to its collar between two successive lateral openings, and hence in alinement with a spacing-strip.

2. A magnet for electric machines, which comprises a spool, independent insulating-collars loosely mounted thereon, spacing-strips separating the collars, coils wound between the collars and having ventilating-spaces formed by said strips, and rings on the ends of the spool which hold the collars against the ends of the spacing-strips, said collars and rings being constructed and arranged to permit free access of outside air to the ventilating-spaces.

3. A magnet for electric machines, which comprises a spool, coils wound thereon so that different portions are separated by ventilating-spaces, independent insulating-collars mounted on the spool adjacent the ends of the coils, said collars being provided with annular series of lateral openings corresponding and registering with the ventilating-spaces, and rings on the ends of the spool, which are provided with radial arms, each arm extending adjacent to its collar between two successive lateral openings.

4. A magnet for electric machines, which comprises a spool, independent insulating-collars loosely mounted thereon, rings on the ends of the spool, and coils wound on the spool between the collars in such manner that ventilating-spaces are formed, said collars and ring being constructed and arranged to permit free access of air to the ventilating-spaces.

5. A magnet for electric machines, which comprises a spool, coils wound thereon so that different portions are separated by ventilating-spaces, independent insulating-collars mounted on the spool adjacent the ends of the coils, said collars being provided with annular series of lateral openings corresponding and registering with the ventilating-spaces, and rings on the ends of the spool which are constructed and arranged to permit free access of outside air to the ventilating-spaces.

6. A magnet for electric machines, which comprises a spool, coils wound thereon, spacing-strips extending longitudinally of the spool and interposed between portions of the coils to form ventilating-spaces, and independent rings secured to the ends of the spool, said rings being provided with radial arms which retain the coils in position on the spool and share coincident radial space with the spacing-strips, whereby the entire ventilating-spaces between said strips are open to the outside air.

7. A magnet for electric machines, which comprises a spool, coils wound thereon so that different portions are separated by ventilating-spaces, and independent rings secured to the ends of the spool, said rings being provided with radial arms which retain the coils in position on the spool and permit free access of outside air to the ventilating-spaces.

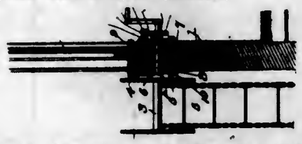
8. In a magnet for electric machines, the combination with a spool, of coils wound thereon so that ventilating-spaces are formed between different portions thereof, the ends of the spool being extended radially, and rings secured to the extended ends of the spools, each ring being formed with radial arms which secure the coils in position and are separated from each other to permit free access of the outer air to the ventilating-spaces.

9. In a magnet-coil for electric machines, the combination with a spool, of coils wound thereon so that ventilating-spaces are formed between different portions thereof, the ends of the spools being extended radially, annular ribs on the outside of the spool adjacent to the radially-extended ends, and rings secured between the ribbed and radially-extended portions of the spool, each ring being formed with radially-extending arms which hold the coils in place and are separated from each other to permit free access of the outer air to the ventilating-spaces.

10. In a magnet for electric machines, the combination with a sheet-metal spool having radially-extending end portions, of rings secured to said portions and provided with radial arms, insulation around the spool, coils wound around the insulation, and spacing-strips extending from the coils longitudinally in alinement with the arms, whereby ventilating-spaces are formed through the coils and rings.

11. In a field-magnet for electric machines, the combination with a spool, of rings mounted on the ends of the spool and provided with radial arms, three independent insulating-collars loosely mounted on the ring and formed with one or more annular series of perforations, a series coil comprising a copper strap wound on said spool, a wire shunt-coil wound on said spool, and spacing-strips extending between the solid portions of the collars to form ventilating-spaces.

678,169. FIRE-ESCAPE. DAVID FIRTH, Kimberly, Canada. Filed Dec. 5, 1900. Serial No. 38,807. (No model.)



Claim.—In a fire-escape, the combination with a support, as for instance the wall of a building, of a pair of bearing-plates in contact with the opposite sides of the wall, tie-bolts piercing the wall and connecting said plates adjacent to the opposite ends thereof, a drum provided with a flexible ladder and having a reduced spindle portion passed through and journaled directly in the plates intermediate of the tie-bolts, chain-guards extending from the drum at opposite sides of the ladder, a ratchet-wheel secured upon the spindle in contact with the inner plate and constituting means for preventing endwise movement of the spindle, a pawl mounted upon the inner end of one of the tie-bolts to engage the ratchet-wheel, and a crank upon the inner end of the spindle to effect the winding of the ladder upon the drum.

678,170. EAR-COVERER. WILLIAM J. GARDNER, Brooklyn, N. Y. Filed Oct. 26, 1900. Serial No. 34,456. (No model.)



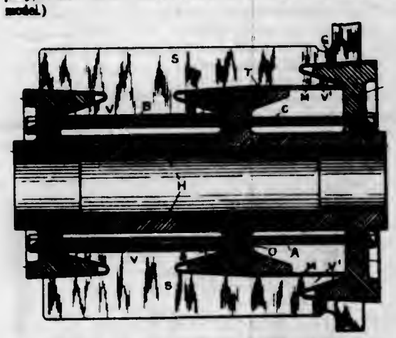
Claim.—1. A device of the class described comprising a spring-supporting frame including spaced arms having loops at their free ends, and cups engaged with the loops and held thereby against displacement therefrom when moved away from each other, said cups being adapted for displacement from the loops when moved toward each other.

2. A device of the class described comprising a supporting-frame including spaced arms provided with loops, cups disposed in the loops and movable toward each other from engagement with the loops, and means carried by the cups for holding them against movement from the loops when moved away from each other, the frame being adapted to hold the cups in operative positions.

3. A device of the class described comprising a supporting-frame including spaced arms provided with loops, and cups having peripheral flanges, said cups being removably disposed in their respective loops with their flanges resting against the inner sides of the loops, the frame being adapted to hold the cups yieldably against outward displacement.

4. A device of the class described comprising a spring-supporting frame including spaced arms having loops at their free ends, and a cup engaged with each loop removably, each of said cups having a peripheral flange resting against the inner side of its loop to prevent outward movement of the cups through their loops, and the outer ends of the cups being closed.

678,171. COMMUTATOR FOR ELECTRIC MACHINES. HENRY GUEBENBÖKER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 27, 1901. Serial No. 57,671. (No model.)



Claim.—1. In a commutator, the combination with the support and segments, of a clamping-ring which is stationary with respect to the support, two adjustable clamping-rings, and means for adjusting both of said rings toward the stationary ring from the outer end of the support.

2. In a commutator, the combination with the support and segments, of a clamping-ring which is stationary with respect to the support, two adjustable clamping-rings, and means for adjusting each of said rings independently with respect to the stationary ring from the outer end of the support.

3. In a commutator, the combination with the support and segments, of a clamping-ring intermediate the ends of the support and stationary with respect thereto, two clamping-rings adjustably mounted on the support on opposite sides of the stationary ring, means for adjusting one of said rings toward the stationary ring from the outer end of the support, and means for adjusting the other ring toward the stationary ring from the same end of the support.

4. In a commutator, the combination with the support and segments, of a clamping-ring intermediate the ends of the support and stationary with respect thereto, two clamping-rings adjustably mounted on the support on opposite sides of the stationary ring, and means operative from the outer end of the support for adjusting both clamping-rings toward the intermediate stationary ring.

5. In a commutator, the combination with a support provided with a stationary beveled clamping-ring intermediate its ends, of segments, each of which has three beveled edges, the central one of which is engaged by the stationary ring, two beveled clamping-rings adjustably mounted on the support on opposite sides of the stationary ring, to engage the corresponding beveled edges of the segments, and means operative at the outer end of the support for adjusting both adjustable rings toward the stationary ring.

6. In a commutator, the combination with a support provided with a stationary clamping-ring intermediate its ends, of segments, two clamping-rings adjustably mounted on the support on opposite sides of the stationary ring, bolts connecting the two adjustable rings, and bolts connecting an adjustable ring with the stationary ring.

7. In a commutator, the combination with a support provided with a stationary clamping-ring intermediate its ends, of two clamping-rings adjustably mounted on the support on opposite sides of the stationary ring, bolts connecting the two adjustable rings, and bolts connecting one adjustable ring with the stationary ring, said bolts being located alternately around the axis of the commutator.

8. In a commutator, the combination with a support provided intermediate its ends with a continuous annular beveled clamping-ring having a broad outer surface, of two beveled clamping-rings adjustably mounted on the support on opposite sides of the stationary ring, and correspondingly-beveled commutator-segments, the broad outer surface of the stationary ring serving to support the intermediate portions of said segments.

9. In a commutator, the combination with a support provided with a stationary clamping-ring, of a plurality of clamping-rings adjustably mounted on the support, and means operative at the outer end of the commutator for adjusting all said adjustable rings toward the stationary ring.

10. In a commutator, the combination with a support provided with a stationary clamping-ring, of a plurality of clamping-rings adjustably mounted on the support, and adjusting-bolts which pass freely through a ring other than the one which they are designed to adjust.

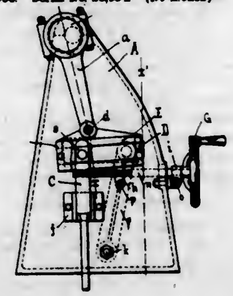
11. In a commutator, the combination with the support and segments, of rings on the support for clamping the ends of the segments, and a continuous annular ring formed integral with the support for holding the intermediate portions of the segments rigidly in place.

12. In a commutator, the combination with the support and beveled segments, of rings for clamping the ends of the segments, and a continuous annular beveled ring intermediate said rings, which engages with the beveled segments to prevent their intermediate portions from bulging outwardly.

13. In a commutator, the combination with the support and segments, of a ring integral with the support and intermediate its ends, which ring is interlocked with said segments to prevent the latter from bulging outwardly.

14. In a commutator, the combination with the support and segments, of clamping-rings for the ends of the segments, means for preventing bulging of the intermediate portions of segments, and means for adjusting the clamping-rings with respect to said means.

678,172. ADJUSTABLE STROKE MECHANISM. BENJAMIN W. GREIT, Philadelphia, Pa., assignor to Frederick A. Richlé, same place. Filed Sept. 4, 1900. Serial No. 28,994. (No model.)

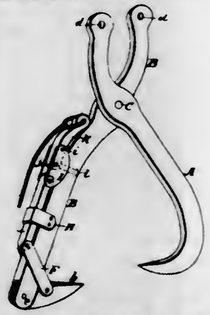


Claim.—1. The combination of vibratory driving and driven members, and a pivotally-mounted box pivotally connected with the driving member and consisting of side pieces between which said driven member is pivotally mounted and is longitudinally movable.

2. The combination of vibratory driving and driven members, a pivotally-mounted box pivotally connected with the driving member and consisting of side pieces, and blocks mounted to slide longitudinally upon said side pieces, said driven member being situated between said side pieces and pivotally connected with said blocks.

3. The combination of vibratory driving and driven members, a box pivotally connected with said driving member, said driven member being pivotally connected with and longitudinally slidable upon said box, a lever upon which said box is pivotally mounted, a pivoted nut upon said lever, and a longitudinally-immovable screw-shaft engaging said nut.

678,173. **GRAPPLE.** JUDSON E. HAGERMAN, Marinette, Wis., assignor of one-half to Frederick C. Burte, same place. Filed May 7, 1901. Serial No. 59,113. (No model.)

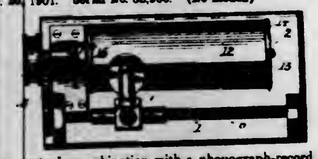


Claim.—1. A grapple consisting of two arms hinged together, the first arm having its pointed lower end bent toward the second arm, said second arm having a pointed finger hinged to its lower portion, a lock-lever with pivotal connection to said arm, and connecting-bars uniting the pointed finger to said lock-lever substantially as described.

2. In a grapple the combination of two arms hinged together, the first arm having its pointed lower end bent toward the second arm, said second arm having a finger hinged to the lower portion of said arm, a lock-lever with pivotal connection to said arm, a sliding bar mounted on said arm, said sliding bar having pivotal connection to the lock-lever and hinged finger substantially as described.

3. In a grapple the combination of two arms hinged together, the first arm having its pointed lower end bent toward the second arm, said second arm having a finger hinged to its lower portion, a lock-lever with pivotal connection to said arm, a sliding bar mounted on said arm, said sliding bar having pivotal connection to the lock-lever and hinged finger, said sliding bar being loosely connected to said arm substantially as described.

678,174. **PHONOGRAPH.** JOHN R. HARR, Baltimore, Md. Filed Mar. 26, 1901. Serial No. 52,908. (No model.)

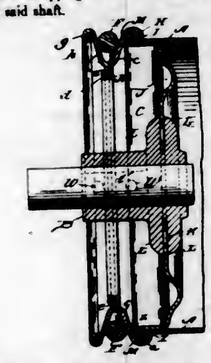


Claim.—1. In combination with a phonograph-record, and a shaft to which it is secured, a casing for the said record adapted to be held stationary while the record is in rotation, the said casing being provided with a slot through which the style may pass to contact with the surface of the record, substantially as specified.

2. In combination with a phonograph-record and its core, an enveloping casing having a style-slot, which casing is loosely supported from the said core, and adapted to be held stationary when the core and its record are rotated, substantially as, and for the purpose specified.

678,175. **DRIVING-ROLLER.** JAMES HASLAM, Bolton, England. Filed Oct. 23, 1900. Serial No. 33,964. (No model.)

Claim.—1. A roller A having the metallic circular end C provided with the circular indent J and the curved edge or periphery I, the strengthening-ring H within said curved edge and against which abuts the end or edge of said roller, said circular end C having holes K, a cast-iron boss B having flanges overlapping the end C, a shaft E, and set-screws to secure the boss to said shaft.



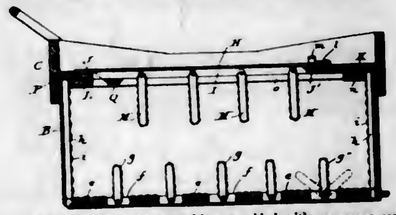
2. A metallic roller A having attached thereto, a metallic circular end C provided with a circular indent J and the curved edge or periphery I, the strengthening-ring H within said curved edge and against which the end of said roller A abuts, the band or rope pulley M made in halves circumferentially one half being provided with the bent end *a* to overlap the curved edge or periphery I the other half of said pulley having a curved edge, a strengthening-wire inside said last-mentioned curved edge, and said circular end C having holes K, and a boss B having flanges L to overlap said circular end.

678,176. **BAG-FASTENING.** KATE G. HERRING, Bridgewater, Va. Filed Apr. 9, 1901. Serial No. 55,056. (No model.)



Claim.—In combination with an open-mouthed bag, a fastening device consisting of a piece of soft or annealed wire having a flat lateral trend intermediate of its ends, and secured to the body of the bag, near its open mouth and parallel therewith, by a patch covering the coil or crimp, and secured in position by a suitable adhesive substance, substantially as and for the purpose set forth.

678,177. **WASHING-MACHINE.** HARVEY HEVENOR, Salamanca, N. Y. Filed Nov. 21, 1900. Serial No. 37,254. (No model.)



Claim.—1. A washing-machine provided with an upper series of pivoted pendent rubbers, a bottom rubber composed of a series of fixed sections, a series of pivoted rubbers interposed between the fixed sections, and means for connecting the free ends of said pivoted rubbers whereby they are all caused to move in the same direction.

2. A washing-machine provided with an upper series of pivoted pendent rubbers, a bottom rubber composed of a series of fixed or stationary sections having corrugated faces, and a series of rubbers interposed between said sections.

3. A washing-machine having an upper series of pivoted pendent rubbers and a lower series of pivoted rubbers, and end rubbers composed of rods or bars arranged so as to permit the passage of water between them.

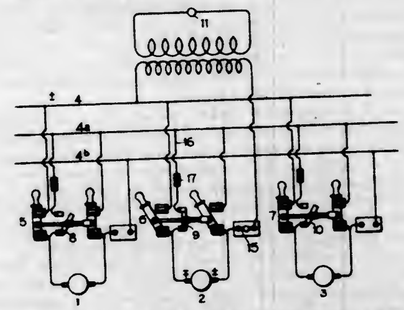
4. In a washing-machine, the combination of a tank, side pieces secured lengthwise at the top of said tank, and formed with inclined notches, a cover for the tank provided with pendent rubbers adapted to fit said cover to form a continuous washboard, when the end of said cover is inserted in said notches.

5. In a washing-machine, the combination of a tank formed with corrugated inner surfaces, and a cover having a series of pendent rubbers pivoted at one end to the cover and having their other ends free to swing back and forth.

6. In a washing-machine, the combination of a tank, a frame surrounding the upper part of said tank, a stand, rockers arranged on said stand, springs connecting the rockers and stand, pins connecting the frame and rockers, and a stop secured to said stand and adapted to engage said frame to prevent the tank oscillating.

7. In a washing-machine the combination of a tank, removable end rubbers for said tank, a cross-piece at one end of said tank having a beveled or inclined edge, a cover having a cross-piece at one end adapted to fit said beveled edge, a cross-piece at the other end of said cover, and a cleat secured to said last-named cross-piece to lock one of said end rubbers in place.

678,178. **SYNCHRONIZING ALTERNATING-CURRENT MACHINES.** EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed July 28, 1899. Serial No. 725,345. (No model.)



Claim.—1. Means for synchronizing alternating-current dynamo-electric machines, comprising a phase-indicator, means for connecting it in series relation to the machines being coupled, a switch for closing the circuit between the machines when in step, and a circuit-breaker controlled by the same agency as the switch for simultaneously opening the circuit of the phase-indicator.

2. Means for coupling alternating-current dynamo-electric machines in parallel, comprising a phase-indicator, means for coupling it in circuit with two machines to be connected, and a circuit-breaker operated simultaneously with the switch which throws the machine on the distributing-terminals, said circuit-breaker being adapted to open the indicator-circuit.

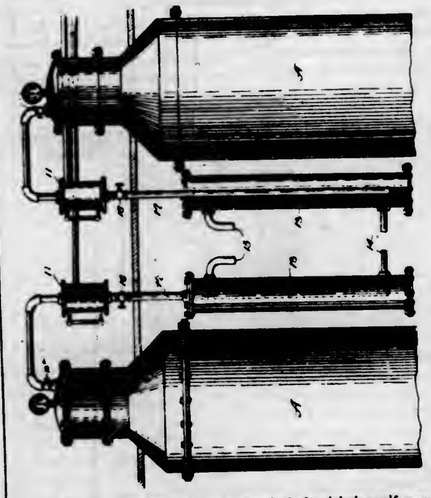
3. Means for coupling alternating-current machines in parallel relation, comprising a phase-indicator in series relation to the two machines being coupled, a switch for connecting each machine with like or unlike terminals to the terminals of the distribution-circuit when in closed or open position respectively, and means for closing a circuit through the phase-indicator in the open position of the switch operated by the same controlling-handle.

4. Means for coupling alternating-current machines in parallel relation to an alternating-current distribution-circuit, comprising a switch for connecting one of the several machines in parallel relation to distributing-terminals in its closed position, auxiliary contacts controlled by said switch in its open position, a transformer having its primary circuit governed by said contacts, means for connecting the machines in series relation when said contacts are closed, and a high-resistance incandescent lamp in the secondary circuit of the transformer.

5. Means for coupling a plurality of alternating-current machines in parallel relation to an alternating-current distribution-circuit, comprising a controlling-switch governed by a single handle, two sets of switch-contacts, one controlling connection with the distribution-circuit, the other with a phase-indicator in series relation to two machines, the contacts being governed by the alternate positions of the switch, and an auxiliary circuit-breaker in the phase-indicator circuit.

6. Means for connecting alternating-current machines in parallel comprising a transformer having in its secondary circuit a phase-indicator, switch mechanism for coupling two machines to be synchronized in series relation on its primary or in parallel relation to a distribution-circuit, and an operating-handle for shifting the switch mechanism.

678,179. **PROCESS OF RECOVERING SULFUROUS ACID.** NELSON C. HODGKINS, Augusta, Me., assignor of one-half to Lewis H. Sanford, same place. Filed Apr. 23, 1900. Serial No. 13,959. (No specimens.)

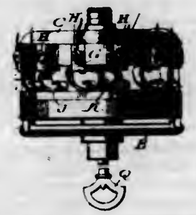


Claim.—1. The herein-described method of reclaiming sulfurous acid and gas blown off from a digester during the cooking process, consisting in reducing the temperature and pressure of the liquor initially vented and collecting the same, and separating the gas from the liquor of the lower grades subsequently blown off by reducing the pressure and lowering the temperature thereof.

2. The herein-described method of reclaiming sulfurous acid and gas blown off from a digester during the cooking process, consisting in reducing the temperature and pressure of the liquor initially vented and collecting the same, separating the gas from the vented liquor of the lower grades subsequently blown off, by reducing the pressure and lowering the temperature thereof, and conveying said reclaimed gas to the body of the liquor previously reclaimed.

3. In the digestion of wood-pulp by the sulfite process, the herein-described method consisting in relieving the digester of excessive pressure by partially venting the same of the digestive liquor therein contained, from time to time, collecting and reclaiming the pure digestive liquor initially vented and reclaiming the sulfurous-acid gas from the impure digestive liquor subsequently vented, by separating said gas from said impure digestive liquor.

678,180. **SWITCH FOR ELECTRIC LIGHTS.** HERMAN HORN, Philadelphia, Pa., assignor to the Horn & Brannen Manufacturing Company, of Pennsylvania. Filed Oct. 11, 1900. Serial No. 32,671. (No model.)



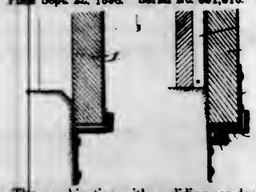
Claim.—1. In an electric switch, a rotatable head provided with a contact-plate and a ratchet thereon, and having a partly-exposed surface, said ratchet being a continuity of said plate, both ratchet and plate partly occupying portions of the face of said head.

2. An electric switch consisting of a stationary head having a main contact-finger and auxiliary fingers thereon, said main and auxiliary fingers being in different circles, and a rotatable head having a contact-plate

and a segmental ratchet forming a continuity of said plate, both plate and ratchet partly occupying the same face of said head, leaving the remaining portion of said face exposed, whereby said main contact-finger may engage said ratchet and the auxiliary contact-pieces successively engage with said plate, and both the main contact and auxiliary fingers may engage with the exposed face of said head.

3. A switch for electric lights, consisting of a rotatable head of non-conducting material, having its upper face partly exposed and partly occupied by conducting material, the latter being composed of a contact-plate and a segmental ratchet continuities of each other and both on said face and a stationary head having on its under face, main and auxiliary fingers, which may be successively brought into contact with said conducting material for turning on a corresponding number of lights and all fingers brought into contact with said exposed face, thus extinguishing all of the lights.

678,181. **FREIGHT-CAR DOOR.** WILLIAM E. HOYT, Ravenswood, W. Va. Filed Sept. 22, 1896. Serial No. 606,616. (No model.)



Claim.—The combination with a sliding car-door suspended at its upper edge, and a wedge secured to the rear lower corner of the door and located below the door and between the planes of the front and rear surfaces thereof, of yielding sheet-metal keepers secured to the car at the opposite lower corners of the door-opening and having inclined flanges adapted to yieldingly engage the car-door and cam respectively, the cam-engaging keeper being extended to form a door-guiding flange which yieldingly engages the door, and a resilient weather-strip on the car between which and the adjacent keeper, the rear edge of the door when closed is yieldingly held, substantially as described.

678,182. **TOOTH OR DENTAL CLAMP.** JAMES W. IVORY, Philadelphia, Pa. Filed Aug. 3, 1900. Serial No. 25,825. (No model.)



Claim.—1. A tooth-clamp having jaws, carriers on the same, a tightening device for said jaws, and a post which is separate from said tightening device and freely fitted in openings in said carriers and adapted to oscillate in the motions of either jaw.

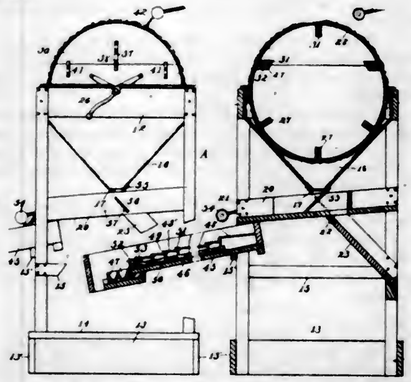
2. In a tooth-clamp of the order described, a pair of jaws, slotted shanks carrying the same, the slots of one shank being in series, a tightening device on said shanks for closing said jaws and a post which is independent of said device and connected with said shanks and freely occupying the slots therein, said post being also provided with a neck, whereby it may be seated in either of the slots of the respective shank.

3. In a tooth-clamp of the character stated, a pair of jaws, a supplemental jaw interposed between the same, a tightening device for said jaws and an oscillating post which is mounted on the shanks of said jaws separate from said device.

4. In a tooth-clamp, a pair of jaws and means for tightening the same, in combination with a supplemental jaw which is interposed between the members of the former and adapted to coact with the same in the holding action on a tooth without materially interfering with the motion of the gum shifting jaw and with an oscillating post which is mounted on the shanks of said jaws separate from said tightening means.

678,183. **AMALGAMATING APPARATUS.** ALBERT H. JOCELYN, Brooklyn, N. Y.: Albert H. Jocelyn executor of said Albert H. Jocelyn, deceased. Filed Oct. 30, 1897. Serial No. 656,930. (No model.)

Claim.—1. The herein-described apparatus comprising framework; an inclined, shiftable trough carried thereby and having a pair of discharge-mouths and shiftable to deflect the material discharged thereinto in opposite directions; a removable hopper carried by said framework and having a discharge-mouth at the lower end thereof opening above said shiftable trough intermediate the discharge-mouths thereof; a rotary drum supported by said framework for rotation in said hopper, and comprising a pair of end walls, a series of radially-extending apertured cross-bars connecting said end walls, a shiftable cover and a differential-mesh screen periphery, said mesh being larger at the exterior than at the interior; and a water-discharge conduit disposed above said drum and in position to discharge into the drum during the rotation thereof, substantially as described.



2. In an amalgamating apparatus, the combination of framework; a rotary drum carried thereby and having a screen periphery; a primary shiftable trough disposed below said drum; a plurality of amalgamating-troughs disposed side by side and in position to have said primary trough discharge thereinto; and a shiftable device carried by said primary trough for cutting off one or more of said amalgamating-troughs during the operation of the remainder of said troughs.

3. In an amalgamating apparatus, the combination of framework; a rotary drum carried thereby and having a screen periphery; a shiftable trough having a pair of discharge-mouths for receiving material from said drum and for deflecting such material successively in opposite directions; a plurality of amalgamating-troughs disposed side by side adjacent to one of said discharge-mouths; and means carried by said shiftable trough for cutting off material from one or more of the amalgamating-troughs during the operation of the remainder of said amalgamating-troughs.

4. In an amalgamating apparatus, the combination, with framework, of a rotary drum having a differential-mesh screen periphery with the larger mesh located on the exterior, and also having a plurality of interiorly-located radially-extending bars, each provided with one or more openings, and a shiftable device located below said drum for deflecting the material received therefrom in different directions.

678,184. **THILL-COUPLING.** JAMES R. JOHNSON, Perry, N. Y. Filed Feb. 2, 1901. Serial No. 45,755. (No model.)



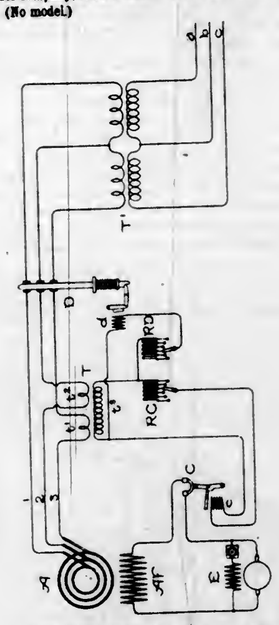
Claim.—1. In a thill-coupling, the combination with the axle-clip, of a stationary member having the limbs of the clip projected therethrough, a movable member pivotally supported on one of the limbs of the axle-clip, said members being provided with registering keyhole-slots immediate their ends, a resilient cushion between the members and abutting the thill-iron, and a securing-bolt through the keyhole-slots formed with radial lugs adapted to hold the cushion against the thill-iron.

2. A thill-coupling comprising relatively-pivoted oppositely-lying members adapted to receive a thill-eye between them, a compressible block arranged to engage the thill-eye and provided with a retaining-loop, and a securing-bolt provided with a keeper lug and with means coöperating with the compressible block, said bolt passing through the retaining-loop on the compressible block.

3. A thill-coupling comprising relatively-pivoted oppositely-lying members adapted to receive a thill-eye between them, a compressible block provided with a retaining-loop, a securing-bolt provided with a keeper-lug and with compression-lugs, and an eye-plate embracing the retaining-loop and interposed between the compressible block and compression-lugs.

4. In a thill-coupling, the combination with the axle-clip, of a stationary member having the limbs of the clip projected therethrough, a movable member pivotally supported on one of the limbs of the clip, said members being provided with registering keyhole-slots, a thill-iron mounted between the front ends of said members, a resilient cushion between the members and abutting the thill-iron and provided with a loop in its rear end, and a securing-bolt having a depending weighted arm and projected through the keyhole-slots and the loop on the cushion and formed with a lag on its end to engage the surface of the movable member and having lugs to engage the rear end of the cushion, substantially as described and for the purpose set forth.

678,185. **PROTECTING GENERATORS IN TRANSMISSION PLANTS.** THOMAS J. JOHNSTON, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 18, 1899. Serial No. 705,961. (No model.)



Claim.—1. In a polyphase system, the combination of a series transformer having primary coils in more than one of the lines, and a common secondary for the coils, with a circuit-controlling device in the exciting-circuit of the generator, operated by the current in the secondary of the series transformer.

2. In a three-phase system, the combination of a series transformer having primary coils in two of the lines, with a common secondary, and a circuit-breaker supplied with current from the secondary and arranged to open the exciting-circuit of the generator when the current reaches a determined value.

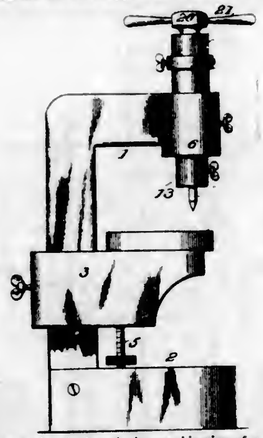
3. The combination with a series transformer in an alternating-current system, of a circuit-breaker in the main line, and another circuit-breaker in the exciter-circuit, the two connected in multiple to the secondary of the transformer.

4. In a polyphase system, the combination of a plurality of transformers connected with different mains, a secondary circuit supplied by the several transformers, and a circuit-breaker governing potential of the system, controlled by the secondary circuit.

5. In a polyphase system, the combination of a series transformer having a single secondary and a plurality of primary coils in series in different lines of the system, with a circuit-breaker for opening all of the lines, having its tripping-coil in series with the secondary of the transformer and an adjustable resistance, and a second circuit-breaker in the generator exciter-circuit, having its tripping-coil connected in series with the same secondary and in multiple with the tripping-coil of the other circuit-breaker, and a second adjustable resistance in series with the coil.

678,186. **WATCHMAKER'S TOOL.** OTTAVIO LAMAGNNA, Bridgeport, Conn. Filed Apr. 3, 1901. Serial No. 54,900. (No model.)

Claim.—1. In a watchmaker's tool, the combination with the tool, of a supporting-arm provided with pressure-applying mechanism for actuating the tool, a foot attached to the arm, a support having adjustable connection with the arm, adjusting means between said support and foot, and a plate constituting a base or bed for the work and having adjustable connection with the aforesaid support, substantially as set forth.



2. In a watchmaker's tool, the combination of a sleeve having an inner flange, a tool-holder mounted for reciprocation with said sleeve, a press-screw for actuating said tool-holder and having an outer shoulder to engage with the lower side of the aforementioned inner flange, and a head secured to the projecting portion of the press-screw and adapted to engage with the opposite side of the aforesaid flange for coöperation therewith and with the shoulder of the press-screw to prevent longitudinal movement of the said press-screw, substantially as set forth.

3. In a watchmaker's tool, the combination of a sleeve having an inner flange, a longitudinally-bored tool-holder mounted for reciprocation within the said sleeve, a press-screw mounted within the tool-holder and having screw-thread connection therewith and longitudinally bored to admit of the passage of a tool therethrough, said tool-holder having its upper portion reduced to form a shoulder for engagement with the inner flange of the sleeve, and a head secured to the projecting portion of the press-screw and adapted to engage with the outer side of the aforementioned inner flange, substantially as set forth.

4. In combination, a supporting-arm having an opening, a sleeve adjustable in said opening having the inner flange, a tool-holder mounted for reciprocation in said sleeve, a press-screw for actuating the tool-holder and located therein and having its upper portion reduced and forming a shoulder to engage with the inner side of the aforementioned flange of the sleeve, a head fitted to the projecting end of the press-screw and adapted to engage with the outer side of the said inner flange, and handles fitted to said head and serving to secure it to the press-screw, substantially as set forth.

5. In combination, a longitudinally-slotted sleeve, a tool-holder mounted for reciprocation therein, means for operating said tool-holder, and a set collar having adjustable connection with the sleeve and provided with a stop for limiting the downward movement of the tool-holder, substantially as set forth.

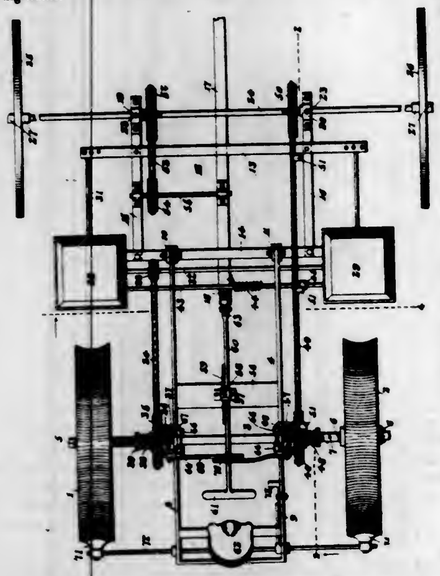
6. In combination, a longitudinally-slotted sleeve, a tool-holder mounted in said sleeve, having an offstanding part entering the slot of the sleeve to prevent rotation of the tool-holder, actuating means for the tool-holder, and a set collar adapted to be adjustably connected with the said sleeve and having an inner extension entering the slot thereof and adapted to engage the offstanding portion of the tool-holder and limit the downward movement of the latter, substantially as set forth.

678,187. **CHECK-ROW PLANTER.** CHARLES C. LEARY, Belmore, Ohio. Filed Dec. 21, 1900. Serial No. 40,655. (No model.)

Claim.—1. In a planter, the combination with the frame, wheels and driving-shaft, of a hinged runner-frame, a marker-shaft at the front end thereof, rotary markers on said shaft having check-blocks, seedboxes at the rear end of the runner-frame, feed mechanism and dropper mechanism, a feed-shaft and a dropper-shaft, both located at the rear end of the runner-frame, a feed-sprocket and a dropper-sprocket on the driving-shaft, a sprocket-chain between the feed-sprocket and feed-shaft, a second sprocket-chain between the dropper-sprocket and marker-shaft, spaced trips carried by the last-named chain, and a trip-arm on the dropper-shaft for actuation by said trips.

2. In a planter, the combination with a frame, carrying-wheels and driving-shaft, of a planting-frame connected to the main frame, seedboxes carried by the planting-frame, feed mechanism and dropper mechanism

in cooperative relation with the feed-boxes, means for operating the feed and dropper mechanisms, and means for throwing said mechanisms into or out of gear and for simultaneously depressing or elevating the planting-frame.



3. In a planter, the combination with a frame, carrying-wheels, and a driving-shaft, of a pair of seedboxes, feed mechanism and dropper mechanism, each comprising a shaft independently geared to the driving-shaft, a foot-lever carried by the frame of the machine, means operated by said foot-lever for simultaneously connecting or disconnecting the feed and dropper-shafts to and from the driving-shaft, and a marker-shaft located in advance of the dropper-shaft and geared to the dropper-shaft and driving-shaft respectively.

4. In a planter, the combination with a frame, carrying-wheels and driving-shaft, of markers, seedboxes, feed mechanism and dropper mechanism, of a feed-sprocket mounted on the driving-shaft and geared to the feed mechanism, a dropper-sprocket likewise mounted upon the driving-shaft and operatively related with the dropper mechanism, cluteh devices connecting each of the sprockets with the shaft, oscillatory shifters disposed to urge said sprockets laterally to disconnect them from the driving-shaft, and a foot-lever independent of but disposed for the simultaneous actuation of said shifters.

5. In a planter, the combination with a frame, carrying-wheels, a driving-shaft, a marker-shaft and markers, of a pair of seedboxes, dropper-tubes depending from said boxes, valves located in said tubes, a dropper-shaft disposed across the frame, valve-levers carried by said shaft and operatively related to the valves, a trip-arm extending from the dropper-shaft, and a chain geared to the driving-shaft and marker-shaft, and having a series of spaced trips movable in a path obstructed by the trip-arm, whereby the dropper-shaft is vibrated at predetermined intervals to effect the opening of the valves.

6. In a planter, the combination with a frame, carrying-wheels and driving-shaft, of a planting-frame hingedly connected to the main frame, a marker-shaft disposed at the front end of the planting-frame, marker-wheels carried by said shaft and provided with check-blocks, seedboxes carried by the planting-frame, dropper mechanism controlling the deposit of seeds into the furrows, said dropper mechanism comprehending a trip-arm controlling the operation thereof, sprocket-wheels carried by the driving and marker shafts, a sprocket-chain passed around said wheels, and a series of trips carried by said chain and movable in a path obstructed by the trip-arm of the dropper mechanism.

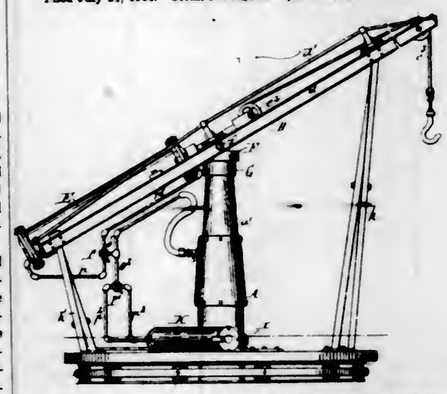
7. In a planter, the combination with a frame, carrying-wheels and driving-shaft, of a planter-frame pivoted to the main frame, a vertically-yielding transversely-disposed marker-shaft disposed at the front end of the planter-frame, marker-wheels carried by said shaft and provided with check-blocks, a pair of seedboxes mounted at the rear end of the planter-frame, dropper-tubes and runners disposed below said seedboxes, valves located in the dropper-tubes, a dropper-shaft disposed between the seedboxes and operatively related with said valves, a trip-arm extending from the dropper-shaft, sprocket-wheels carried by the main shaft and marker-shaft, respectively, a sprocket-chain passed over said wheels and provided with a series of spaced trips disposed for the actuation of the trip-arm, a shifter disposed to effect the lateral movement of the dropper-sprocket, and a foot-lever disposed to simultaneously actuate said shifter and elevate the planter-frame.

8. In a planter, the combination with a main frame, carrying-wheels and driving-shaft, of a planting-frame hinged to the main frame, wheels supporting the front end of said planting-frame, a draft-pole connected to the planting-frame and extended below the main frame, a foot-lever mounted upon the main frame, a loose connection intermediate of said foot-lever and draft-pole, and a spring interposed between said elements and designed to yieldingly sustain them in normally-separated positions.

9. In a planter, the combination with a main or wheel frame, an axle and carrying-wheels, of seedboxes, feed mechanism and dropper mechanism, separate gearing intermediate of each of said mechanisms and the axle, a pair of oscillatory shifters disposed to control the operative relation of the axle with the dropper and feeding mechanisms, respectively, and means for operating said shifters simultaneously.

10. In a planter, the combination with a main or wheel frame, an axle and carrying-wheels, of a planting or runner frame hinged to the main frame, marker-wheels supporting the runner-frame, seedboxes carried by said frame, feed and dropper sprockets mounted on the axle, feed mechanism and dropping mechanism geared to said sprockets, a pair of oscillatory shifters disposed to shift the sprockets laterally and to effect their operative disconnection from the axle, and a foot-lever arranged to raise and lower the runners and to operate the shifters.

678,188. HOISTING-CRANE. JAMES MACBETH, Buffalo, N. Y. Filed July 21, 1900. Serial No. 24,410. (No model.)

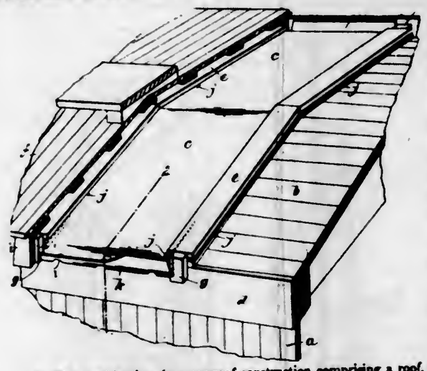


Claim.—1. The combination of a rotatable platform; a fluid-pressure cylinder and piston arranged with reference to said platform in a manner such as to produce the rotation of the latter upon the movement of the piston in its cylinder; a stationary boom-support coöperating with said cylinder and piston to produce such rotation; an inclined boom supported intermediately of its extremities upon said support and having a rotatable movement thereon; means for securing said boom in a position stationary relative to said platform, whereby said platform and boom will have a corresponding movement; and means for supplying pressure to the cylinder.

2. The combination of a rotatable platform; a stationary boom-support; a fluid-pressure cylinder and piston coöperating therewith, said cylinder and piston being arranged with reference to said platform in a manner such as to produce the rotation of the latter upon the movement of the piston in its cylinder; means for supplying pressure to the cylinder; and an inclined boom supported intermediately of its extremities upon said support, said boom having a positive connection with the platform to cause a simultaneous rotary movement therewith, said boom being held against a longitudinal movement.

678,189. CAR-ROOF CONSTRUCTION. LEWIS C. MARSHALL, East Walpole, Mass. Filed Dec. 24, 1900. Serial No. 40,998. (No model.)

Claim.—1. The combination in a car-roof construction comprising a roof, a subroof, and a facia-board supported on the car and at a distance therefrom along the edge of the roof, of strips of roofing material applied to the subroof, and having their ends turned back upon the body of the strip to form a trough, the latter being located between the facia-board and the side of the car, substantially as described.

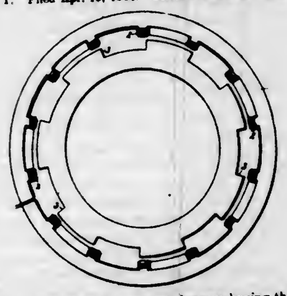


2. The combination, in a car-roof construction comprising a roof, a subroof, and a facia-board supported on the car and at a distance therefrom along the edge of the roof, of strips of roofing material applied to the subroof and having their ends turned back upon the body of the strip to form a trough, the outer edge of which will abut against the under side of the roof, and one or more perforations in the bottom of said trough, substantially as described.

3. The combination in a car-roof construction comprising a subroof and an outer roof above the latter whereby a passage is left between said roofs from side to side of the car, of strips of roofing material located in said passage for covering said subroof, and having their ends bent to form a trough located below the plane of the subroof, together with a facia-board secured to the outside of the car at some distance therefrom, and between which and the side of the car said trough is located, substantially as described.

678,190. WITHDRAWN.

678,191. ALTERNATING-CURRENT DYNAMO. DANIEL M. MOORE, Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Filed Apr. 13, 1901. Serial No. 55,653. (No model.)



Claim.—1. An alternating-current dynamo having the spaces between polar projections in one of its elements widened to exceed the length of the pole-faces in the direction of revolution of the machine as and for the purpose described.

2. An alternating-current dynamo comprising fixed and rotary members as described, one carrying the generator-coils and exciter-coils adapted to excite the poles thereof so that they will be alternately north and south, and the other having polar projections adapted to bridge the spaces between the former said projections being proportioned with relation to one another and to the space between poles in the manner described so as to produce a series of pulses graphically represented as of peaked form.

3. In an alternating-current dynamo, the combination of fixed and rotary members as described, one carrying the generator-coils and exciter-coils adapted to excite the poles thereof so that they will be alternately north and south, and the other having polar projections adapted to bridge the spaces between the former said projections being proportioned with relation to one another and to the space between poles in the manner described so as to produce a series of pulses graphically represented as of peaked form.

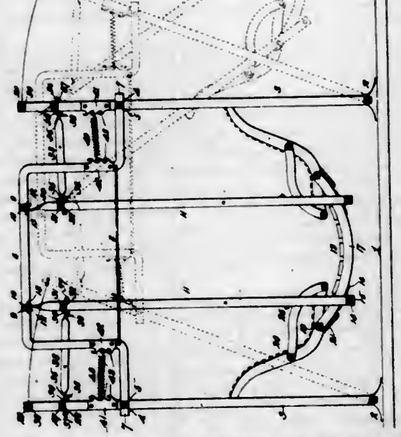
4. In a dynamo-electric machine the combination substantially as described of a field-magnet provided with polar teeth the spaces between which exceed the length of the pole-faces in the direction of rotation, generating-coils wound on said polar projections and a rotatable element having polar projections adapted to bridge the spaces between the teeth bearing the generating-coils in the manner described so as to keep the total magnetic flux of the machine constant while varying the flux in the individual generating-coils.

5. In an alternating-current dynamo a field-magnet consisting as described of an annulus having a recess at one side and provided with an exciting-coil within said recess in combination with a laminated ring adapted to be rotated in the space between the poles of said annulus, said ring having polar projections adapted to bridge the spaces between poles of the annulus and the spaces between the poles of the latter being widened to exceed the length of the pole-faces in their direction of revolution of the machine, as and for the purpose described.

6. In an alternating-current dynamo, the combination with a field-magnet consisting of an annulus having a recess in one face, of a toothed annulus of laminated iron secured to the edge of a disk or spider and rotated by any suitable power in the space between the edges of the annulus constituting the field-magnet, said toothed annulus having polar projections adapted to bridge the spaces between poles of the annulus and the spaces between the poles of the latter being widened to exceed the length of the pole-faces in the direction of revolution of the machine.

7. In an alternating-current dynamo the combination with an annulus having a recess in one side, of an exciting-coil located in said recess, a toothed laminated ring secured to one polar edge of the annulus and a rotatable toothed ring adapted to rotate in the space between the two edges of the annulus provided with the exciting-coil, said toothed ring having polar projections adapted to bridge the spaces between the poles of the laminated ring secured to one polar edge of the annulus and the spaces between the polar projections of the latter laminated ring being widened to exceed the length of the pole-faces in the direction of revolution of the machine.

678,192. LAWN-SWING. OLOF R. OLSON, Kansas City, Mo., assignor of one-half to John W. Olson, same place. Filed Oct. 4, 1900. Serial No. 31,970. (No model.)



Claim.—1. In a lawn-swing, the combination of pivoted standards arranged in pairs, a frame pivotally connecting said standards, swing-bars suspended from said frame, and pivotally linked to the contiguous pair of said standards above the point of connection with the latter of said frame, and provided with a seat, substantially as described.

2. In a lawn-swing, the combination of pivoted standards arranged in pairs, a frame pivotally connecting said standards, and a double set of swing-bars suspended from said frame so as to swing together, and provided with a seat, and pivotally linked to one or both pairs of standards above the point or points of connection of the latter with said frame, substantially as described.

3. In a lawn-swing, the combination of pivoted standards arranged transversely in pairs, a frame pivotally connecting said pairs of standards below their upper ends, a double set of swing-bars suspended from said

frame above the point of connection of the latter with the standards and provided with a seat, and connected so as to swing together, a link pivotally connecting one of said sets with the contiguous standards above the point of connection therewith of said frame, and a retractile spring connecting said standards and said frame above their point of connection, substantially as described.

4. In a lawn-swing, the combination of pivoted standards, rods connecting the same transversely in pairs, frames pivotally connecting the standards longitudinally in pairs, cross-rods connecting said frames above the point of connection of the latter with the standards, a link connecting contiguous cross-rods of said frames with the cross-rod of the contiguous pair of standards, and swing-bars suspended from the said cross-rod of the frames and provided with a seat, substantially as described.

5. In a lawn-swing, the combination of pivotally-supported corner-standards, a frame pivotally mounted on and connecting said standards, swing-bars pivotally suspended from said frame and provided with a seat, and a link pivotally connecting the adjacent standards with the swing-bars below the pivotal point of the latter, substantially as described.

6. In a lawn-swing, the combination of pivotally-supported corner-standards, a frame pivotally mounted on and connecting said standards, swing-bars pivotally suspended from said frame and provided with a seat, a link pivotally connecting the adjacent standards with the swing-bars below the pivotal point of the latter, and retractile springs connecting the standards and the frame supported thereby, substantially as described.

7. In a lawn-swing, the combination of suitably-pivoted standards, a frame pivotally connecting said standards, swing-bars pivotally suspended from said frame and provided with a seat, a link pivotally connecting the adjacent standards with the swing-bars below the pivotal point of connection of the latter and the frame, plates secured to the frame and the standards and provided with vertical series of hooks, and springs engaging at their opposite ends, hooks of the plates secured to the frame and hooks of the plates secured to the standards, substantially as described.

8. In a lawn-swing, the combination of pivotally-supported corner-standards, a frame pivotally mounted on and connecting said standards, swing-bars pivotally suspended from said frame and provided with a seat, and a detachable link pivotally connecting the swing-bars with the adjacent standards, substantially as described.

9. In a lawn-swing, the combination of corner-standards pivotally supported, a cross-rod connecting the laterally opposite standards in pairs, frames pivotally connecting the longitudinally opposite standards in pairs, swing-bars pivotally suspended from said frames and provided with a seat, cross-rods connecting said swing-bars, and links connecting the cross-rods of the standards with the adjacent cross-rods of the swing-bars, substantially as described.

10. In a lawn-swing, the combination of corner-standards pivotally supported, a cross-rod connecting the laterally opposite standards in pairs, frames pivotally connecting the longitudinally opposite standards in pairs, swing-bars pivotally suspended from said frames and provided with a seat, cross-rods connecting said swing-bars, links connecting the standards with the swing-bars, and embodying caps to engage the cross-rods, and pivoted plates to underlie the cross-rods, and means for accelerating the initial movement of the swing in each direction, substantially as described.

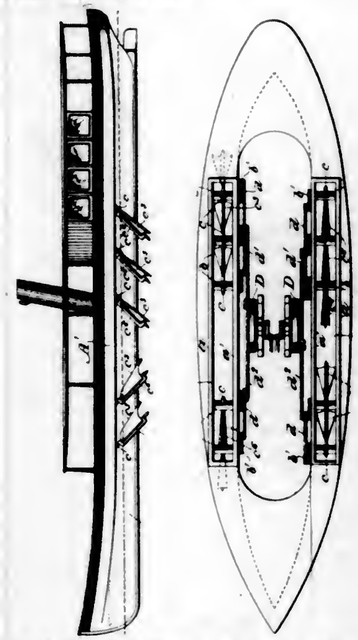
11. In a lawn-swing, the combination of swing-bars pivotally suspended, a platform at their lower ends, an oscillatory seat mounted upon the platform, cross-bars secured to the platform, a rod connecting the same, an arm secured to the seat and slidingly engaging said rod, and springs interposed between said arm and said cross-bars, for the purpose set forth.

12. In a lawn-swing, the combination of suitable pivoted standards, a frame pivotally connecting the longitudinally-alined sets of standards, swing-bars pivoted or hinged to said frame above the plane of the pivotal connection of the latter with said standards, and provided with a seat, and a link pivotally connecting said standards and said swing-bars between the planes represented by the pivotal connection of the swing-bars with the frame and the pivotal connection of the frame with the standards, substantially as described.

13. In a lawn-swing, the combination of suitable pivoted standards, a frame pivotally connecting the longitudinally-alined sets of standards, swing-bars pivoted or hinged to said frame above the plane of the pivotal connection of the latter with said standards, and provided with a seat, a link pivotally connecting said standards and said swing-bars between the planes represented by the pivotal connection of the swing-bars with the frame and the pivotal connection of the frame with the standards, and springs connecting said frame and standards to assist in effecting the return of the seat from each limit of movement, substantially as described.

678,193. **PROPELLING MECHANISM FOR VESSELS.** MARTIN A. PETERSON, Sioux City, Iowa. Filed Apr. 30, 1901. Serial No. 58,211. (No model.)

Claim.—1. In combination with a vessel, having longitudinal boxes with slotted bottoms, of rock-shafts journaled in said boxes, feathering-paddles adjustably attached to the rock-shafts, and means for oscillating said rock-shafts, substantially as shown.



2. In combination with a vessel having longitudinal boxes, rock-shafts journaled in said boxes, of feathering-paddles carried by rods which are adjustably attached to the rock-shafts, cranks on the ends of the rock-shafts, rods connecting several rock-shafts together, and means for oscillating each series of rock-shafts and paddles attached thereto on the same side of the vessel in opposite directions, substantially as shown.

3. A feathering-paddle for propelling vessels consisting of a central rod, diverging side bars connected to the rod by a rule-hinge joint, plates attached to the diverging bars and to the central rod by being coiled about the same, a V-shaped guard carried by the central rod in advance of said rod and the paddles which are attached thereto, substantially as shown.

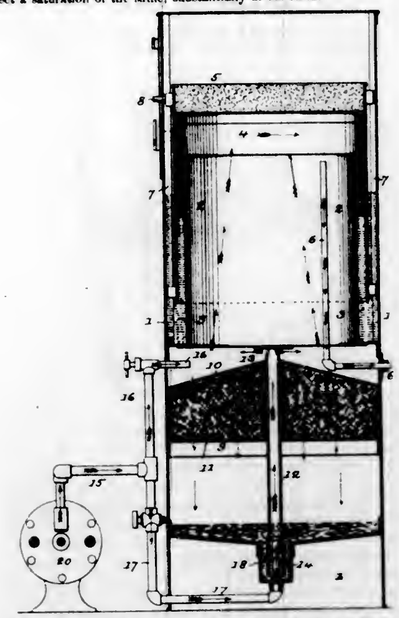
678,194. **CARBURETER.** CHARLES K. PICKLES, St. Louis, Mo., assignor to Robert G. Speer, same place. Filed Apr. 18, 1901. Serial No. 56,360. (No model.)

Claim.—1. An automatic gas apparatus having a gas-holder, an air-pressure supply and a carbureting-chamber provided with a carbureted-air exit, in combination with a fibrous filling arranged in the carbureting-chamber, a hydrocarbon-supply chamber arranged beneath such fibrous filling, a pipe extending from the lower portion of the hydrocarbon-chamber to a point above the fibrous filling, and an air-jet nozzle discharging into the lower end of said pipe, and adapted to lift the hydrocarbon to effect a saturation of the fibrous filling, substantially as set forth.

2. An automatic gas apparatus having a gas-holder, an air-pressure supply and a carbureting-chamber provided with a carbureted-air exit, in combination with a fibrous filling arranged in the carbureting-chamber, a hydrocarbon-supply chamber arranged beneath said fibrous filling and provided with a central well, a pipe extending from said well to a point above the filling, and an air-jet nozzle discharging into the lower end of said pipe and adapted to lift the hydrocarbon to effect a saturation of the fibrous filling substantially as set forth.

3. An automatic gas apparatus having a gas-holder, an air-pressure supply, and a carbureting-chamber provided with a carbureted-air exit, in combination with a fibrous filling arranged in the carbureting-chamber, a hydrocarbon-supply chamber arranged beneath such fibrous filling, a pipe extending from the lower portion of the hydrocarbon-chamber to a point above the fibrous filling, and an air-jet nozzle discharging into the lower end of said pipe and adapted to lift the hydrocarbon to effect a saturation of the fibrous filling, the air-pressure supply having valved branches connected one above the filling and the other with the jet-nozzle, substantially as set forth.

4. An automatic gas apparatus having a gas-holder, an air-pressure supply, and a carbureting-chamber provided with a carbureted-air exit, in combination with a fibrous filling arranged in the carbureting-chamber, a hydrocarbon-supply chamber arranged beneath such fibrous filling, a pipe extending from the lower portion of the hydrocarbon-chamber to a point above the fibrous filling, a spreader-plate arranged above the open upper end of said pipe, and an air-jet nozzle discharging into the lower end of said pipe and adapted to lift the hydrocarbon above the filling to effect a saturation of the same, substantially as set forth.



5. An automatic gas apparatus having a gas-holder, an air-pressure supply, and a carbureting-chamber provided with a carbureted-air exit, in combination with a pair of separated perforated partitions arranged in the carbureting-chamber, a fibrous filling arranged between said partitions, a hydrocarbon-supply chamber arranged beneath such fibrous filling, a pipe extending from the lower portion of the hydrocarbon-chamber to a point above the fibrous filling, and an air-jet nozzle discharging into the lower end of said pipe and adapted to lift the hydrocarbon to effect a saturation of the fibrous filling, substantially as set forth.

6. An automatic gas apparatus having a gas-holder, an air-pressure supply, and a carbureting-chamber provided with a carbureted-air exit, in combination with a pair of separated perforated partitions, the upper one of which has a cone form, arranged in the carbureting-chamber, a fibrous filling arranged between said partitions, a hydrocarbon-supply chamber arranged beneath such fibrous filling, a pipe extending from the lower portion of the hydrocarbon-chamber to a point above the fibrous filling, and an air-jet nozzle discharging into the lower end of said pipe and adapted to lift the hydrocarbon to effect a saturation of the fibrous filling, substantially as set forth.

678,195. **THIRD-RAIL INSULATOR.** WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 16, 1901. Serial No. 43,477. (No model.)

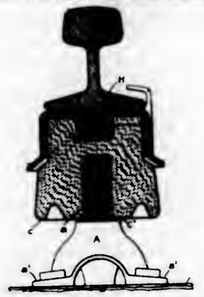
Claim.—1. In an insulator, a body of insulating material, a metal cap on said body, and an intervening layer of alloy which expands on cooling.

2. In an insulator, a body of insulating material, a metal cap on said body, and an intervening layer of type-metal adhering to the cap and body.

3. In an insulator, a body of insulating material provided with a cavity in the top, a metal cap having a hole registering with said cavity, a layer of adhering metal between said cap and body, and a mass of cement in said cavity.

4. In an insulator, a body of insulating material provided with a cavity in its upper end, a metal cap having a tubular pin entering said cavity, a layer of adhering metal between said cap and pin and the body, and a mass of cement filling said pin.

5. The method of attaching a cap to the body of an insulator, which consists in forcing molten metal between them and letting it cool.

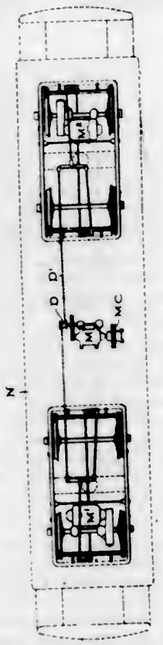


6. The method of attaching a cap to an insulating-body provided with a cavity, which consists in filling said cavity with molten metal, and then forcing it out of said cavity between said cap and body.

7. The method of attaching a cap to the body of an insulator, which consists in providing said body with a cavity in the upper end, and the cap with a depending tubular pin to enter said cavity, filling said pin with molten metal and then forcing said metal down under the end of the pin, up through the cavity and in between the cap and the body.

8. The method of attaching a cap to the body of an insulator, which consists in providing said body with a cavity in the upper end, and the cap with a depending tubular pin to enter said cavity, filling said pin with molten metal, and then forcing said metal down under the end of the pin, up through the cavity and in between the cap and the body, and finally filling the pin with cement or the like.

678,196. **ELECTRIC CONTROL SYSTEM.** WILLIAM B. POTTER and FRANK E. CASE, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed Sept. 17, 1898. Serial No. 691,161. (No model.)



Claim.—1. The combination of a rotary electric motor acting upon the ordinary brake-rigging of a car or moving load, means for varying the torque of said motor, a magnetic clutch for stopping the rotation of the motor and holding it at any desired position, and means for releasing the clutch when current is admitted to the motor.

2. The combination of a braking-motor with a magnetic clutch, means

for actuating the clutch, means for controlling the torque of said motor, and a device actuated by the motor-controller for releasing the clutch when current is admitted to the braking-motor.

3. A controlling device having a brake-switch, a switch for controlling a magnetic clutch, means for locking the clutch-switch until the brake-switch is turned on, and means actuated by the operation of the brake-switch for automatically releasing the clutch.

4. The combination of a braking-motor, a magnetic clutch, means for controlling said motor, a switch for closing the circuit of the clutch, a device for locking said switch when closed, and means actuated by the motor-controlling means for unlocking said switch.

5. In combination, a switch for controlling a braking-motor, a clutch-controlling switch, means tending to maintain said clutch-controlling switch normally open, a device for locking said switch when closed, and means actuated by the movement of the motor-controlling switch for unlocking said clutch-controlling switch.

6. In combination, a switch for controlling a braking-motor, a clutch-controlling switch, interlocking means so arranged that the clutch-controlling switch cannot be thrown unless the motor-controlling switch is in an operative position, a locking device for holding said clutch-controlling switch when thrown, and means actuated by the movement of the motor-controlling switch for unlocking said clutch-controlling switch.

7. The combination of power-switch, reversing-switch and brake-switch, with a switch for controlling a magnetic clutch, interlocking devices preventing the simultaneous movement of more than one of the first three switches, and a device preventing the movement of the magnetic clutch-switch until the brake-switch has been operated.

8. The combination of a reversing-switch, a brake-switch, and a switch for operating a magnetic clutch, means for operating the switches independently, interlocking mechanism between the reversing-switch and the brake-switch, and mechanism permitting the movement of the clutch-switch only after the brake-switch has left the "off" position.

9. The combination of a reversing-switch, a brake-switch, and a switch for operating a magnetic clutch, all mounted upon a single shaft; means for operating the switches independently, interlocking mechanism between the reversing-switch and the brake-switch, and mechanism permitting the movement of the clutch-switch only after the brake-switch has left the "off" position.

10. In a controller for electric circuits, a set of fixed contacts, two sets of contacts movable with respect to each other and also with respect to said fixed contacts, and means for limiting the relative movement of said two sets of contacts.

11. In a controller for electric circuits, a set of fixed contacts, two sets of contacts movable with respect to each other and also with respect to said fixed contacts, the sets of movable contacts being so arranged that on moving the controller in one direction a resistance is decreased without opening the circuit, while on moving it in the opposite direction the circuit is opened before the resistance is increased.

12. The combination with a brake of a switch arranged by one movement to gradually apply force to the brake, and by another movement to reduce the force applied and, momentarily, to allow the brake to be released to quickly adjust itself to the new force acting.

13. The combination with a brake of an electric motor for applying the brake and a switch arranged by one movement to gradually apply force to the brake, and by another movement to reduce the force applied and, momentarily, to allow the brake to be released to quickly adjust itself to the new force acting.

14. The combination with a pair of constant-potential mains, of a storage battery with a resistance in series therewith connected across said mains, a switch for applying the current from the battery to a useful purpose, and contacts upon the switch adjusted to decrease the effective magnitude of the resistance when the switch is closed.

15. The combination with an electric vehicle, of a storage battery in series with a resistance connected to the source of supply of said vehicle, an electromagnetically-controlled device for varying the motor-circuits of the vehicle, a switch for controlling the electromagnetically-controlled device, and contacts on the switch arranged to decrease the effective magnitude of the resistance in series with the storage battery when the switch is closed.

16. The combination of an electric motor, means for varying the torque of said motor, a clutch for said motor, a switch for operating said clutch, and connections so arranged that movement of the switch to operate the clutch open-circuits the motor.

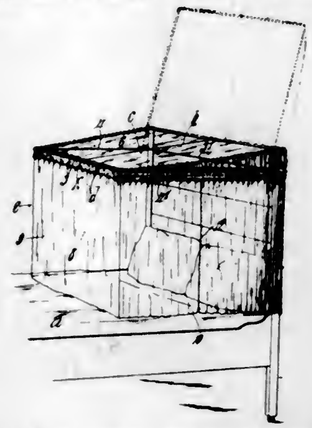
17. The combination with an electric motor, of a controller for the motor, a magnetic clutch for the motor, a switch for operating the magnetic clutch, connections so adjusted that the movement of the switch to vary the clutch open-circuits the motor, and an interlock arranged to open-circuit the clutch when the motor-controller is actuated.

18. In a switch, the combination of a plurality of sets of moving contacts, with means for shifting one of the sets so that the two sets are in different relations in the opening and closing of the switch.

19. In a cylindrical switch, the combination of two sets of moving contacts, with means for bringing the contacts into line as the switch moves in one direction, and for changing their relation so that they are out of line as the switch moves in the other direction.

20. In a switch, the combination of two sets of moving contacts, means for bringing the two sets of contacts in a line as the switch moves in one direction, and for bringing one set in line with the intervals between those of the other set as the switch moves in the other direction.

678,197. BED-AWNING OR MOSQUITO-BAR. LEVI PRICE, Los Angeles, Cal. Filed Jan. 4, 1901. Serial No. 42,130. (No model.)

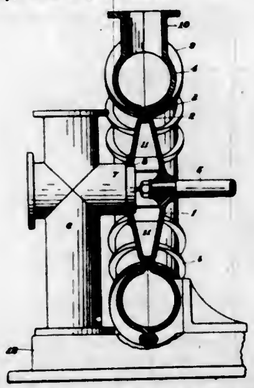


Claim.—1. The combination with a bed; of a support at the head of the bed and extending above the level of the bed; a bracket-arm fastened to the support and projecting over one side of the bed and furnished on its inner side with two lugs at different points along the length of said arm; another bracket-arm fastened to the other side of the support and projecting over the other edge of the bed and furnished on its inner face with two lugs corresponding in position and arrangement to the lugs of the other bracket-arm; a frame comprising end bars and side bars, fitted between the bracket-arms and lying above the lugs which are farthest from the support and beneath the lugs which are nearest said support; a pivot pivoting one of said side bars to its bracket-arm between the lugs thereof; a pivot coaxial with the first-named pivot and pivoting the other side bar to its bracket-arm between the lugs thereof; a canopy comprising a top member extending over the frame and the top of the support, and four depending walls extending down from the edges of said top member and around the frame and surrounding the support; the walls in front of the support resting upon the top of the bed; one of the side walls being furnished with an opening, substantially as and for the purpose set forth.

2. The combination with a bed; of a support at the head of the bed and extending above the level of the bed; a bracket-arm fastened to the support and projecting over one side of the bed and furnished on its inner side with two lugs at different points along the length of said arm; another bracket-arm fastened to the other side of the support and projecting over the other edge of the bed and furnished on its inner face with two lugs corresponding in position and arrangement to the lugs of the other bracket-arm; a frame comprising side bars and end bars fitted between the bracket-arms, and lying above the lugs which are farthest from the support and beneath the lugs which are nearest said support; a pivot pivoting one of said side bars to its bracket-arm between the lugs thereof; a pivot coaxial with the first-named pivot pivoting the other side bar to its bracket-arm between the lugs thereof; a canopy comprising a top member extending over the frame and the top of the support, and four depending walls extending down from said top member and surrounding the support and resting upon the top of the bed; one of said walls being furnished with an opening; a cord fastened to the outer end bar of the frame at the middle thereof and extending over the top of the support through a pulley at the middle of the support and thence to the side of the support; and means for fastening said cord; substantially as and for the purpose set forth.

678,198. CENTRIFUGAL PUMP. JOHN RICHARDS, San Francisco, Cal. Filed Sept. 4, 1900. Serial No. 28,907. (No model.)

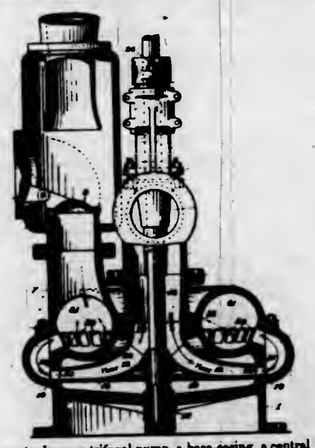
Claim.—1. In a centrifugal pump, an annular discharge-chamber, an uninclosed rotary disk impeller mounted concentrically therein, divergent vanes within said impeller forming between them passages expanding toward the periphery in the plane of rotation, said vanes terminating a short distance within the periphery of the impeller to form an annular continuous discharge-way at the margin thereof, and a continuous annular throatway on the surrounding discharge-chamber coöperating with said discharge-way, substantially as specified.



2. In a centrifugal pump, an annular discharge-chamber having a compressed throatway 3, in combination with an uninclosed rotary disk impeller mounted concentrically within said annulus, compressed at its margin to form a discharge-way 2, adjacent to and coöperating with said throatway, and provided with interior divergent vanes forming expanding passages between them, said vanes terminating a short distance within the periphery of the impeller to give continuity to the annular discharge-way and provide for a smooth delivery, substantially as specified.

3. In a centrifugal pump, an annular discharge-chamber having a compressed throatway, an uninclosed disk impeller mounted concentrically therein, compressed at its margin to form a discharge-way adjacent to and coöperating with said throatway, interior divergent vanes in said impeller forming expanding passages between them, and terminating short of the compressed margin to form a continuous discharge-way, substantially as specified.

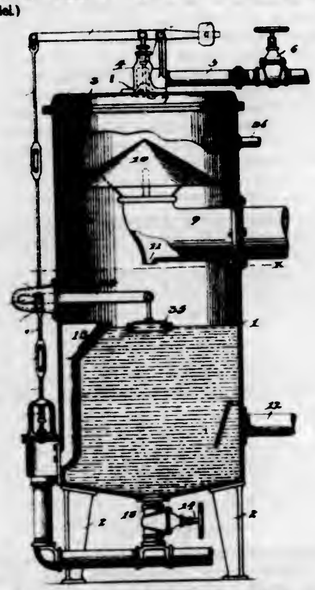
678,199. CENTRIFUGAL PUMP. JOHN RICHARDS, San Francisco, Cal. Filed Feb. 21, 1901. Serial No. 48,357. (No model.)



Claim.—1. In a centrifugal pump, a base-casing, a central impeller-shaft stepped into and within said casing, a rotary incased impeller on said shaft, in said casing, a central inlet-way to said rotary impeller, an annular discharge-chamber surrounding said inlet-way, outside of said casing, but within the diametral limits thereof, a curved annular discharge passage-way surrounding both casing and discharge-chamber, forming a circumferential communication between the discharge-aperture of the impeller and the said discharge-chamber, and a removable annular diffusion-ring having forwardly-inclined passages separated by wedge-shaped vanes or partitions, inserted between the discharge-aperture of the impeller and said curved discharge passage-way, substantially as specified.

2. In a centrifugal pump, a base-casing, a central impeller-shaft stepped into and within said casing, a rotary incased impeller on said shaft, in said casing, a central inlet-way to said rotary impeller, an annular discharge-chamber surrounding said inlet-way, outside of said casing, but within the diametral limits thereof, a curved annular discharge passage-way surrounding both casing and discharge-chamber, forming a circumferential communication between the discharge-aperture of the impeller and the said discharge-chamber, and a peripheral outlet to the said discharge-chamber, on which is mounted an air vessel, containing a removable check-valve, substantially as specified.

678,200. FEED-WATER HEATER. GEORGE W. SCOTT and JOHN A. STROM, Pullman, Ill. Filed Dec. 17, 1900. Serial No. 40,154. (No model.)



Claim.—1. In a feed-water heater, the combination with a water-receptacle, of a water-inlet pipe connected with the upper part of said receptacle, a steam-inlet pipe entering said receptacle below said water-inlet, said steam-pipe having an upwardly-turned open end and a drip-discharge opening formed in its under side, and a cone-shaped hood or cowl secured over the open upper end of the steam-admission pipe adapted to spread the incoming steam by contact with its under side and to dissipate and spread the incoming water by contact with its upper surface, thereby bringing the steam and water into broader and more intimate contact, substantially as described.

2. In a feed-water heater, a suitable water-receptacle and means for supplying water thereto, in combination with a steam-admission pipe entering said receptacle and having an upwardly-turned open end for the discharge of steam and an aperture or nozzle formed through its lower wall below said open upper end for the purpose of discharging any water of condensation that may collect in the steam-pipe, substantially as described.

3. In a feed-water heater, the combination with a water-receptacle and a water-inlet pipe connected thereto, of a cone-shaped or outwardly-flaring water-inlet valve controlling the admission of water to said receptacle, whereby the incoming water is given the form of a divergent annular spray, a counterweight connected to said valve and tending to close the same, and a float also connected to said valve and acting to maintain the valve open by its gravitation effect against the closing tend-

ency of the counterweight, whereby the valve, float and counterweight all cooperate to control the amount of water admitted and the degree of fineness with which the particles of incoming water are broken up and separated, substantially as described.

4. In a device of the character described, the combination with a water-receptacle of a water-inlet valve, an overflow-valve, a counterweight normally tending to close the water-inlet valve, a spring normally tending to close the overflow-valve, connections intermediate said valves, and a single float connected to said valve connections and operating to permit the actuation of said valves successively, whereby when either valve is being actuated the other is at rest, substantially as described.

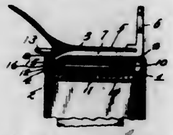
5. In a device of the character described, the combination with a water-receptacle of a water-inlet valve and means for closing the same, an overflow-valve and means for closing the same, connecting mechanism intermediate said valves, and a single float connected to said valve-connecting mechanism and normally operating on its rising movement to first permit the closing of the water-inlet valve and subsequently to open the overflow-valve, and on its downward movement to first permit the closing of the overflow-valve and subsequently to open the water-inlet valve, substantially as described.

6. In a feed-water heater, the combination with a water-receptacle and a water-inlet valve therefor, of a lever pivoted adjacent said valve to one arm of which the stem of the valve is connected, an adjustable counterweight carried on the other arm, a spring-controlled overflow-valve, a shaft journaled in the side of the receptacle intermediate said valves and having a pair of crank-arms, a longitudinally-adjustable slotted connection between one of said crank-arms and one end of said valve-operating lever, a similar connection between the other crank-arm and the stem of the overflow-valve, an arm rigidly secured at one end on said shaft, and extending into the receptacle, and a float pendent from the opposite free end of said arm, the rising of said float permitting the closing of the inlet-valve and subsequently positively opening the overflow-valve, and the falling of the float permitting the closing of the overflow-valve and subsequently positively opening the inlet-valve, substantially as described.

678,201. **COMPOUND FOR PROTECTING TIMBER.** CHRISTIAN SCHALLENBERGER, Seattle, Wash. Filed Apr. 10, 1901. Serial No. 55,245. (No specimens.)

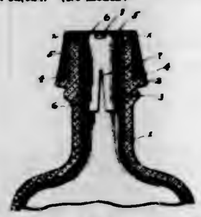
Claim.—A compound formed by the intimate association while hot, of crude asphaltum, bituminous rock, coal-tar, pitch, pine-pitch, rosin, brimstone, concentrated lye, creosote, and gypsum, substantially in the proportions named.

678,202. **HARNESS-SADDLE.** JOSEPH J. SCHORP and GEORGE SELLINGER, St. Louis, Mo. Filed Feb. 4, 1901. Serial No. 45,948. (No model.)



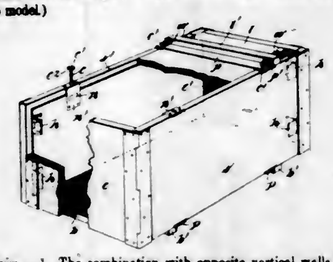
Claim.—In a pneumatic harness-saddle, the member 3 having a projection 4 and the grooves 5 formed in its under side, the plate 11 having its forward end attached to the member 3 by means of rivets, a pneumatic pad between the said members 3 and 11, a checkrein-hook 6 having projections 7 within the groove 5 and passing through an opening in the projection 4, and means for retaining the rear end of the plate 11 in position by means of the projection 7, substantially as specified.

678,203. **BOTTLE.** CHARLES P. SEARLES and DANIEL J. MINTON, Columbus, Ohio; said Searles assignor to said Minton. Filed Mar. 23, 1901. Serial No. 52,621. (No model.)



Claim.—In a bottle, the combination with the bottle-neck 1 having an external shoulder 2 and internal recess 3, of a destructible washer 4 surrounding said bottle-neck and a cap loosely embracing the upper portion of the bottle-neck and bearing upon said washer, said cap having a central tubular extension having outer side lugs adapted to be sprung into engagement with said internal recess 3 and an opening or openings 8 between the upper end portion of said tubular extension and the cap-body, substantially as specified.

678,204. **FOLDING CHEST OR BOX.** ADOLPHUS SILBIGER, Vienna, Austria-Hungary. Filed May 15, 1899. Serial No. 716,879. (No model.)



Claim.—1. The combination with opposite vertical walls of a box having bolt-nuts secured therein at suitable points; of a lid having cleats secured thereto, metal angle-plates secured respectively to said cleats and lid and having bolt-holes in register with the threaded bore of the nuts in opposite walls of the box, and holes p' through the vertical members of said plates and through their cleats proximate to said bolt-holes, and fastening-bolts having perforated heads for securing the lid to the box and for sealing the same thereto, substantially as set forth.

2. In a collapsible box having its vertical walls hinged together to fold as described, and bolt-nuts secured in opposite walls near the upper and lower edges thereof; the combination with a lid and bottom fitting into the vertical walls, cleats on said lid and bottom, metal angle-plates secured thereto and to their respective cleats, the latter and angle-plates extending over opposite vertical walls, the horizontal member of said angle-plates provided with a bole at each end in register with one in the opposite vertical walls and with the threaded bore of the nuts therein, and fastening-bolts cooperating with the nuts to fasten the lid and bottom to said vertical walls, substantially as set forth.

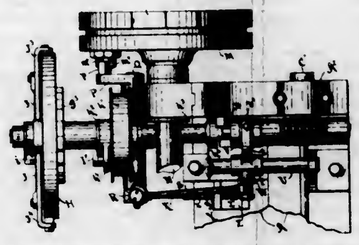
3. In a collapsible box having its vertical walls hinged together to fold as described, and bolt-nuts secured in opposite walls near the upper and lower edges thereof; a lid and bottom fitting into said vertical walls, cleats on said lid and bottom, metal angle-plates secured thereto and to their respective cleats, the latter and angle-plates extending over opposite vertical walls, the horizontal member of said angle-plates provided with a bolt-hole at each end in register with one in the opposite vertical walls and with the threaded bore of the nuts therein, and with two holes in the vertical member in register with corresponding transverse holes in the cleats proximate to the aforesaid bolt-holes in the horizontal member, and fastening-bolts provided with polygonal perforated heads cooperating with the nuts to fasten the lid and bottom to said vertical walls, substantially as set forth.

4. In a foldable box, the combination with the end and side walls, the latter provided with recesses and a covering-plate therefor flush with the inner face of said side walls, said plates carrying a nut; of the lid and bottom, each provided with transverse cleats l', and angle-plates p secured to said lid and bottom and to their cleats l', said plates lapping over the side walls and having a hole in register with one in said side walls and the threaded bore of the aforesaid nut, substantially as set forth.

5. In a foldable box, the combination with end and side walls, the latter provided with external vertical cleats d having a through-passage, and with internal recesses, a covering-plate for the latter flush with the inner face of said recesses and carrying a nut; of the lid and bottom having transverse cleats l' in line with and lapping over the aforesaid vertical cleats and having holes in register with the passages in cleats d, locking-bolts passing through said cleats and carrying suitable tightening-nuts, and angle-plates secured to the lid and bottom, and their cleats l', said plates lapping over the side walls and having a hole in register with one in said side walls in line with the threaded bore of the aforesaid nut, and locking-bolts passing through said holes and screwing into the said nuts, substantially as described.

678,205. **MACHINE FOR MANUFACTURING SCREWS.** LEROY TABOR, Elmira, N. Y. Filed Apr. 1, 1901. Serial No. 53,818. (No model.)

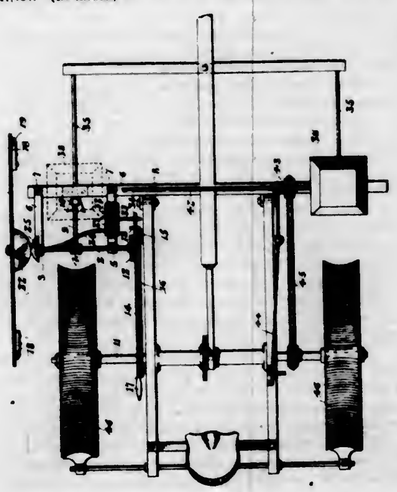
Claim.—1. The combination, with a turret-actuating sleeve, a drive-shaft operatively connected with said sleeve and the variable-feed mechanism therefor comprising a pulley carrying an eccentric loosely mounted upon said shaft and an oscillating shaft actuated by said eccentric and operatively connected with said drive-shaft by means of an adjustable ratchet mechanism for varying the speed of the drive-shaft, of an automatic clutch and shifting device timed to connect the loose pulley directly with the drive-shaft during the periods when the turret-actuating sleeve is retiring and rotating the turret.



2. The combination, with a turret-actuating sleeve, a drive-shaft operatively connected with said sleeve and the forward-feed mechanism therefor, said feed mechanism comprising a loose pulley mounted upon said drive-shaft and connecting mechanism between said pulley and shaft whereby a reduced speed is imparted from the pulley to the shaft, of an automatic clutch and shifting device, one member of said clutch being attached to the loose pulley and the other member being carried by a clutch-sleeve mounted upon said shaft, a slide connected with said clutch-sleeve to impart longitudinal motion thereto, a connecting-bar running from said slide to an arm projecting from a rock-shaft, and means for automatically actuating said rock-shaft at the proper periods to throw said clutch-sleeve by means of said slide into and out of engagement with said pulley.

3. The combination, with a turret-actuating sleeve, a drive-shaft operatively connected with said sleeve, a loose pulley mounted upon said shaft, and connecting mechanism between said pulley and shaft whereby a reduced speed is imparted from the pulley to the shaft, of an automatic clutch and shifting device comprising a sleeve attached to said pulley and bearing a clutch-tooth at its free end, a clutch-sleeve mounted upon said shaft and provided with a tooth to engage that of said sleeve, a slide connected with said clutch-sleeve to impart longitudinal motion thereto, a connecting-bar running from said slide to an arm secured to a rock-shaft, a second arm projecting from said rock-shaft and having a wedge-shaped point at its free end, a spring-pressed latch-bar having a corresponding wedge-point in engagement therewith, and means for automatically actuating the rock-shaft at the proper periods to throw the point of said second arm above or below the point of the latch bar, as and for the purpose set forth.

678,206. **WIRELESS CHECK-ROW CORN-PLANTER.** ALBERT L. VAN HOOSER, Martinsville, Mo. Filed Dec. 31, 1900. Serial No. 41,737. (No model.)



Claim.—1. A rotary marker comprising a shaft, a marker-rim thereon, and a marker-setting lever journaled on said shaft and provided with means for coupling the lever to the said shaft and uncoupling the same therefrom.

2. A rotary marker comprising a shaft, a marker-rim fast thereon, a setting-wheel fixed on said shaft, and a setting-lever on said shaft and provided with means for connecting the lever with the setting-wheel and disconnecting it therefrom.

3. A rotary marker comprising a shaft, a marker-rim fast thereon, a setting-wheel fast on said shaft, and a thumb-latch lever provided with means adapted to engage directly with the setting-wheel, but normally disconnected therefrom.

4. The combination with a traction marker-rim and means for setting the same, a boot, and seed-dropping devices coacting with the boot, of cam projections fast on the rim at one side thereof, a trip-lever actuated by said projections and adapted to swing transversely of the machine, and operating connections between the lever and the lower seed-dropping devices.

5. The combination with a traction marker-rim, a boot, and seed-dropping devices coacting with the boot, of a trip-lever operatively associated with the rim and mounted to swing transversely of the machine-frame, a cross-head on said lever, and a plurality of operating connections interposed between said cross-head and the lower seed-dropping devices.

6. The combination with a traction marker-rim, a boot, and seed-dropping devices coacting with the boot, of a trip-lever actuated directly by the marker rim, connections between said lever and the lower seed-dropping devices, and means in the path of said lever for limiting the vibratory movements thereof.

7. The combination with a traction marker-rim, a boot, and seed-dropping devices coacting with the boot, of a trip-lever actuated directly by the marker-rim, connections between one end of said lever and the lower seed-dropping devices, and means for yieldingly holding the opposite end of said lever in engagement with the marker-rim.

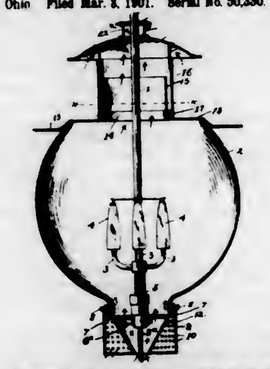
8. The combination with a traction marker-rim, a boot, and seed-dropping devices coacting with the boot, of a trip-lever actuated directly by the marker-rim, connections between one end of said lever and the lower seed-dropping devices, and a spring acting directly on said lever for holding the opposite end thereof in engagement with the marker-arm.

9. The combination with a traction marker-rim, and seed-dropping devices, of a trip-lever actuated by the marker-rim, connections between said lever and the seed-dropping devices, a lever extension, a stationary shaft upon which the lever and its extension are fulcrumed, and means associated with the lever and its extension for limiting the movements of the lever in opposite directions.

10. The combination with a traction marker-rim, and seed-dropping devices, of a trip-lever actuated by said rim, connections between the lever and the lower seed-dropping devices, a lateral extension on said lever, and a cage embracing the lever and its extension for limiting the movements of the lever in opposite directions.

11. The combination with a traction marker-rim, and seed-dropping devices, of cam projections on the rim, a trip-lever provided with a rim-engaging runner adapted to cooperate with said cam projections, and connections between the lever and the lower seed-dropping devices.

678,207. **GAS-LAMP AND VENTILATOR.** WILBER S. WANDELL, Hebron, Ohio. Filed Mar. 8, 1901. Serial No. 50,330. (No model.)



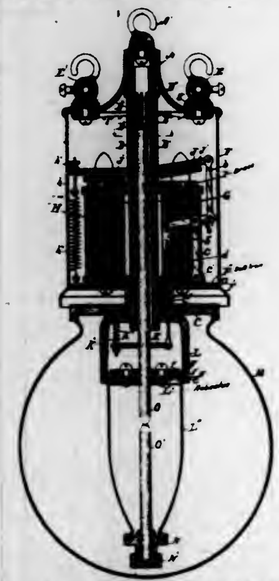
Claim.—1. In a lamp, the combination with a gas-supply pipe, gas-burners supported therefrom and a globe surrounding said burners, of a plate 13 surmounting said globe, separated external and internal casings rising from an opening in said plate, the former having openings in its

lower portion, a hood 20 supported above and from the external casing and a shield 23 supported above a central opening in and from the hood substantially as specified.

2. In a lamp, the combination with a gas-supply pipe, burners supported therefrom, a valve-casing and valve-stem depending from said burners, and an open-work bracket connected with said valve-casing, of a globe surrounding said burners and seated in said bracket, and a detachable perforated cup depending from said bracket, substantially as specified.

3. In a lamp, the combination with a gas-supply pipe, burners supported therefrom, a valve-casing depending from said burners and an open-work bracket connected with said valve-casing, of a globe surrounding said burners and seated in said bracket, a perforated ventilator-cup depending from the bracket and having a central bottom opening and an air-deflector rising from about said opening, substantially as specified.

678,208. **INCLOSED-ARC LAMP.** CHARLES H. WAY, Lansing, Mich. Filed June 16, 1900. Serial No. 20,604. (No model.)



Claim.—1. In an arc-lamp, the combination of a top plate A; the bottom plate C; electrical connections on the top plate; a vertical carbon tube; a sleeve or tube surrounding the carbon-tube and connecting the top and bottom plates together; disks resting on a central plate, one of which is of soft iron; electromagnets resting on said soft-iron plate; a brass plate or yoke I resting on the tops of said electromagnets; a sleeve B' on the tube B; and a screw-threaded ring B'' to clamp the same down upon the plate or yoke I to hold the parts securely in position; a rocker-frame pivoted at *n* on the plate or yoke I; a spring throwing the rocker-frame normally downward upon the shunt-coils; a ring-clutch; connections therefor to the rocker-frame; a carbon within the carbon-tube; a holder therefor with suitably-expanded fingers or feathers to contact with the interior of said tube; a cup-shaped portion under the plate C to incase the ring-clutch; a cap for the bottom of said cup suitably perforated for the passage of the upper carbon; a lower-carbon holder N; rods R, R, connected thereto and extending upwardly through the plate C; springs R', R', to force the said rods normally upward to draw the carbon-holder upwardly against the lower end of the globe; a detachable cap N' for the lower end of the lower-carbon holder; and a globe held between the lower-carbon holder and cap; asbestos packing for the joints, all coacting substantially as described for the purpose specified.

2. In an arc-lamp, the combination of a top plate A; the bottom plate C; electrical connections on the top plate; a vertical carbon-tube; a sleeve or tube surrounding the carbon-tube and connecting the top and bottom plates together; disks resting on a central plate, one of which is of soft iron; electromagnets resting on said soft-iron plate; a brass plate or yoke I resting on the tops of said electromagnets; a sleeve B' on the tube B; and a screw-threaded ring B'' to clamp the same down upon the plate or yoke I to hold the parts securely in position; a rocker-frame pivoted at *n* on the plate or yoke I; a spring throwing the rocker-frame normally downward upon the shunt-coils; a ring-clutch; connections therefor to the rocker-frame; a carbon within the carbon-tube; a holder therefor with suitably-expanded fingers or feathers to contact with the interior of said tube; a cup-shaped portion under the plate C to incase the ring-clutch; a cap for the bottom of said cup suitably perforated for the passage of the upper carbon; a lower-carbon holder N; rods R, R, connected thereto and extending upwardly through the plate C; springs R', R', to force the said rods normally upward to draw the carbon-holder upwardly against the lower end of the globe; a detachable cap N' for the lower end of the lower-carbon holder; and a globe held between the lower-carbon holder and cap; asbestos packing for the joints, all coacting substantially as described for the purpose specified.

3. In an arc-lamp, the combination of a top plate A; the bottom plate C; electrical connections on the top plate; a vertical carbon-tube; a sleeve or tube surrounding the carbon-tube and connecting the top and bottom plates together; disks resting on a central plate, one of which is of soft iron; electromagnets resting on said soft-iron plate; a brass plate or yoke I resting on the tops of said electromagnets; a sleeve B' on the tube B; and a screw-threaded ring B'' to clamp the same down upon the plate or yoke I to hold the parts securely in position; a rocker-frame pivoted at *n* on the plate or yoke I; a spring throwing the rocker-frame normally downward upon the shunt-coils; a ring-clutch; connections therefor to the rocker-frame; a carbon within the carbon-tube; a holder therefor with suitably-expanded fingers or feathers to contact with the interior of said tube; a cup-shaped portion under the plate C to incase the ring-clutch; a cap for the bottom of said cup suitably perforated for the passage of the upper carbon; a lower-carbon holder N; rods R, R, connected thereto and extending upwardly through the plate C; springs R', R', to force the said rods normally upward to draw the carbon-holder upwardly against the lower end of the globe; a detachable cap N' for the lower end of the lower-carbon holder; and a globe held between the lower-carbon holder and cap, all coacting substantially as described for the purpose specified.

4. In an arc-lamp, the combination of a top plate A; the bottom plate C; electrical connections on the top plate; a vertical carbon-tube; a sleeve or tube surrounding the carbon-tube and connecting the top and bottom plates together; disks resting on a central plate, one of which is of soft iron; electromagnets resting on said soft-iron plate; a brass plate or yoke I resting on the tops of said electromagnets; a sleeve B' on the tube B; and a screw-threaded ring B'' to clamp the same down upon the plate or yoke I to hold the parts securely in position; a rocker-frame pivoted at *n* on the plate or yoke I; a spring throwing the rocker-frame normally downward upon the shunt-coils; a ring-clutch; connections therefor to the rocker-frame; a carbon within the carbon-tube; a holder therefor with suitably-expanded fingers or feathers to contact with the interior of said tube; a cup-shaped portion under the plate C to incase the ring-clutch; a cap for the bottom of said cup suitably perforated for the passage of the upper carbon; a lower-carbon holder N; rods R, R, connected thereto and extending upwardly through the plate C; springs R', R', to force the said rods normally upward to draw the carbon-holder upwardly against the lower end of the globe; a detachable cap N' for the lower end of the lower-carbon holder; and a globe held between the lower-carbon holder and cap, all coacting substantially as described for the purpose specified.

5. In an arc-lamp, the combination of a suitable framework; a ring-clutch mechanism for controlling the feed; a vertical carbon-tube in the lamp; a holder for the carbon consisting of concentric tubes, the inner one of which is adapted to grasp the carbon and the outer one of which is expanded to contact with the inside of the tube; a lower-carbon holder; a spring connection therefor to hold it normally upward; a globe to be clamped between the lower-carbon holder and a portion of the lamp above; a detachable cap on the lower-carbon holder whereby the carbons can be renewed by merely removing the said detachable cap; and asbestos packings between the parts, coacting for the purpose specified.

6. In an arc-lamp, the combination, with a suitable framework, of a clutch mechanism for controlling the feed; a vertical carbon-tube within the lamp; an upper holder for the carbon adapted to fit and feed in said tube; a lower-carbon holder with a perforation in line with the carbon-tube; a cap for the bottom of the lower-carbon holder, so that the same can be opened for the insertion of the carbons, and whereby the carbons can be renewed by merely removing the said detachable cap, for the purpose specified.

7. In an arc-lamp the combination of the feed mechanism; a plate below the same; an inverted cup secured to the under side of the plate; a clutch-ring within the cup; a cap below said clutch-ring fitting into the cup, consisting of layers of metal and asbestos; and a globe-holder for clamping the globe against the said cap, for the purpose specified.

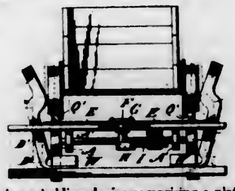
8. In an arc-lamp, the combination of a carbon-tube; a holder within the carbon-tube consisting of an inner tube D' adapted to clasp the carbon; an outer tube with fingers D'' adapted to press against the interior of the carbon-tube, and shorter in length than the tube D'; and a suitable stop to engage the inner tube at the end of its downward movement, for the purpose specified.

9. In an arc-lamp, the combination of a carbon-tube; a holder within the carbon-tube consisting of an inner tube D' adapted to clasp the carbon; an outer tube with fingers D'' adapted to press against the interior of the carbon-tube, for the purpose specified.

10. In an arc-lamp the combination of a top plate A; a bottom plate C; a carbon-tube; a sleeve or tube surrounding the same and screw-threaded to connect the plates together; a soft-iron plate; electromagnets resting on said plate; a yoke resting on said magnets to couple the same together; a sleeve or tube B' surrounding the connecting-tube and a screw-threaded collar B'' to force the same down and clamp the yoke in position, for the purpose specified.

11. In an arc-lamp, the combination of the carbon-holders; the magnets G and the shunt-magnet H; the rocker-frame J with armatures J' J'' thereon; a spring *h''* to tip the rocker-frame toward the shunt-magnet H; a lever *b'*; a link *b* connecting the same to the rocker-frame; a link connecting the opposite end of said lever to the clutch-ring K; a spring K'' holding said clutch-ring normally downward; and suitable electric connections through said coils and carbon-holders for the purpose specified.

678,209. **AUTOMATIC CAR-HOLDING DEVICE.** WILLIAM A WILSON, Murphysboro, Ill. Filed Dec. 22, 1900. Serial No. 40,819. (No model.)



Claim.—1. A car-holding device comprising a platform, a pivoted keeper thereon having a shoe adapted to engage a car-wheel, means for holding a wheel of said car and shifting said keeper from the wheel held thereby, and means operated by a wheel-contact beyond the keeper for restoring said keeper to its initial position; substantially as specified.

2. A car-holding device comprising a platform, a pivoted keeper thereon having a shoe adapted to engage a car-wheel, means for holding a wheel of said car and shifting said keeper, means for restoring said keeper to its initial position, and means for normally moving said holding means toward said wheel; substantially as specified.

3. A car-holding device comprising a platform, a pivoted keeper thereon having a shoe adapted to engage a car-wheel, means for holding a wheel of said car and shifting said keeper, means for restoring said keeper to its initial position, and a pivoted chock adapted to engage a car-wheel in connection with said keeper; substantially as specified.

4. A car-holding device comprising a platform provided with a track thereon, a holding-dog pivotally mounted on said platform below said track and adapted to swing inward to embrace a wheel of a car, and means to automatically throw said dog in contact with said car-wheel in the movement of the platform, and a keeper having a portion in the path of said dog to shift said keeper from engagement with a wheel in the movement of the dog toward another wheel; substantially as specified.

5. A car-holding device comprising a platform provided with a track thereon, a holding-dog pivotally mounted on said platform and adapted to engage a wheel of a car, means to normally hold said dog in contact with said car-wheel, and a pivoted keeper adapted to engage a car-wheel and provided with a lever adapted to be engaged by said dog to shift the keeper from said wheel; substantially as specified.

6. A car-holding device comprising a platform provided with a track thereon, a holding-dog pivotally mounted on said platform and adapted to engage a wheel of a car, means to normally hold said dog in contact with said car-wheel, a pivoted keeper adapted to engage a car-wheel and provided with a lever adapted to be engaged by said dog to shift the keeper from said wheel, and means independent from said platform for restoring said keeper to its initial position; substantially as specified.

7. In a car-holding device the combination with a platform provided with a track, of a pivotally-mounted chock adapted to engage a car-wheel, means for restoring said chock to its initial position when depressed, and a keeper adapted to engage the wheel engaged by said chock at the opposite side thereof; substantially as specified.

8. In a car-holding device the combination with a platform provided with tracks, of oppositely-located keepers adapted to travel in a horizontal plane toward and from each other and having upwardly-extending shoes disposed in the path of said tracks, levers at the opposite ends of said keepers, a pivoted shaft provided with crank-arms, links extended from said arms to said levers, a crank upon the lower portion of said shaft and an operating-rod extending from said crank toward the edge of said platform; substantially as specified.

9. In a car-holding device the combination with a platform provided with tracks, of oppositely-disposed keepers having shoes disposed in the path of said tracks, levers at the opposite ends of said keepers, a pivoted shaft provided with crank-arms, links extended from said arms to said levers, a crank upon the lower portion of said shaft, an operating-rod extending from said crank toward the edge of said platform, means for engaging said levers to shift said shoes from the tracks, and means for engaging said rod to restore said shoes to their initial position; substantially as specified.

10. In a car-holding device, the combination with a platform provided with wheel-holding devices, of a track-cam located upon a fixed support and provided with a crank-arm, a push-pin normally retracted under tension, and means carried by said platform whereby said pin is adapted to shift said holding devices; substantially as specified.

11. In a car-holding device, the combination with a platform having tracks thereon, of a pivoted holding-dog adapted to embrace a car-wheel, a curved arm at a lower portion of said dog provided with a restoring-weight, a pivoted keeper provided at one end with a shoe and at its opposite end with a lever adapted to be engaged by said dog in its movement, a pivoted chock located adjacent to said keeper and provided with a restoring-weight, and means for restoring the said keeper when shifted by said dog; substantially as specified.

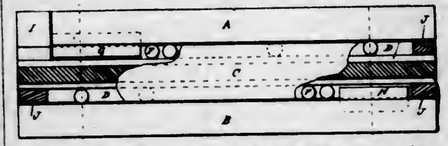
678,210. **PROCESS OF TREATING COMPLEX ORES.** JAMES W. WORSEY, St. Helen's, England, assignor of two-thirds to Joseph Henry Lancashire, Streatham, England. Filed Sept. 17, 1900. Serial No. 30,349. (No specimens.)



Claim.—1. Process for the treatment of complex sulfid ores comprising first the reduction of the combined sulfur below fifteen per cent. by calcination, secondly finely powdering the calcined ore, thirdly adding sodium nitrate, fourthly boiling the mixed ore and nitrate in dilute sulfuric acid, fifthly roasting the semisolid mass in a closed furnace, sixthly dissolving out zinc copper and other soluble salts from the said mass by weak sodium-sulfate solution, seventhly removing any copper from the solution, eighthly precipitating the zinc and other metals from the solution and ninthly separating the zinc.

2. Process for the production of zinc oxid from complex sulfid ores, comprising partial removal of the sulfur by calcination of the ore, mechanical disintegration of the ore, addition of sodium nitrate to the ore, formation of zinc sulfate by boiling the ore with dilute sulfuric acid, roasting the product in a closed furnace, lixiviation of the roasted product with weak sodium-sulfate solution, removal of copper where present from the sodium-sulfate solution, precipitation of the zinc from the said solution by means of lime and sublimation of the zinc in an oxidizing atmosphere.

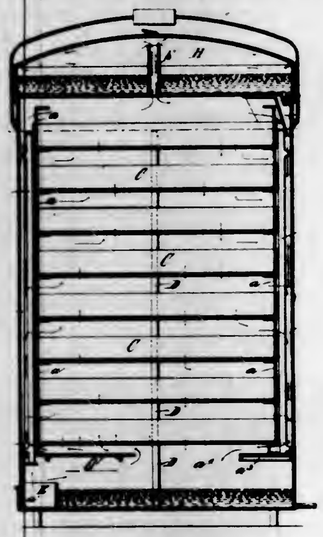
678,211. **ANTIFRICTION DRAWER-SLIDE.** BENJAMIN F. ALLEN, Portland, Me. Filed Jan. 11, 1901. Serial No. 42,851. (No model.)



Claim.—In an antifriction drawer-slide, in combination, a casing, a drawer, overhanging tracks attached to the side of said drawer, said tracks being provided with downwardly-extending stops in their lower edges and at the rear of the drawer, rigid runs attached to the side of the casing and provided with upwardly-extending stops H on their upper edges and at the outer end thereof, extension-slides provided with grooves in both their upper and lower edges, said grooves being substantially circular in cross-section, substantially rectangular slots contiguous with said grooves, said slots opening into said circular grooves, antifriction devices moving in said grooves in both the top and bottom edges of the extension-slides, a portion of the periphery of said antifriction devices resting in the slots and upwardly-extending arms on the rear of the extension-

slides to prevent the same from being pulled out too far and when pulled out from tipping downwardly.

678,212. **FUMIGATING APPARATUS.** GILBERT E. ALPHIN, Mount Olive, N. C. Filed Apr. 11, 1901. Serial No. 55,310. (No model.)



Claim.—1. A fumigating apparatus comprising a suitable receptacle having a bottom compartment for reception of a fume-emitting chemical, one or more holders arranged therein for the article to be treated, and a water-holder arranged upon and closing the top of said receptacle, and having a pipe projecting upward from the bottom, for conducting fumes above the surface of the water, and a water-discharge opening in said bottom, as shown and described.

2. A fumigating apparatus comprising a suitable receptacle, having a bottom compartment for a fume-emitting chemical, a lateral draft-opening, horizontal holders for the article to be treated, said holders being spaced from the side of the receptacle to allow access of fumes, and a superposed water-holder, having fume-admitting pipe and water-discharge arranged substantially as shown and described.

3. A fumigating apparatus comprising a suitable receptacle, having a bottom compartment for a fume-emitting chemical, a lateral draft-opening, horizontal holders for the article to be treated, said holders being provided with perforated bottoms for passage of fumes, and a water-holder superposed on the receptacle, and having a fume-admission pipe and water-discharge, as shown and described.

4. A fumigating apparatus comprising a suitable receptacle, having a bottom compartment for a fume-emitting chemical, a lateral draft-opening, horizontal holders for the article to be treated, said holders being provided with perforated bottoms for passage of fumes, and a water-holder superposed on the receptacle, and having a fume-admission pipe, and a water-discharge opening located adjacent to the side of the receptacle, as shown and described.

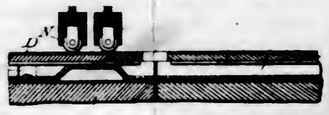
5. A fumigating apparatus comprising a receptacle having at the bottom a compartment for a fume-emitting chemical, an adjacent draft-opening and a water-discharge opening, and a funnel-like attachment serving as a water-receiver and guide arranged at the top and provided with a discharge-opening, a water-holder arranged on said receptacle and provided with a fume-emitting pipe and a water-discharge opening whose diameter is the same or less than that of the said attachment, and one or more holders for the article to be treated, substantially as shown and described.

6. A fumigating apparatus comprising a suitable receptacle, having a bottom compartment for a fume-emitting chemical, a lateral draft-opening, horizontal holders for the article to be treated, said holders being provided with perforated bottoms for passage of fumes, and a water-holder superposed on the receptacle, and having a fume-admission pipe and a water-discharge opening located adjacent to the side of the receptacle, a shelf located horizontally above the bottom of the receptacle and attached to the side thereof, and a lateral water-discharge below said shelf, substantially as shown and described

7. A fumigating apparatus comprising a receptacle having a bottom chemical-compartment, and a series of pans or trays arranged therein and superposed, each having arms projecting upward and arranged to support the pan above and hold it duly spaced from the one below, and also serving as handles for use in inserting and removing the pans, as shown and described.

8. In a fumigating apparatus comprising the receptacle having a series of vertical rods arranged interiorly and spaced from the wall thereof, and a series of removable pans or trays adapted to be set and held between said rods, as shown and described.

678,213. **ELECTRIC RAILWAY.** JOHN M. ABCK, Philadelphia, Pa. Filed Apr. 24, 1901. Serial No. 57,239. (No model.)



Claim.—1. In an electric railway, a closed conduit composed of non-conducting material and having longitudinal grooves therein, a main electric feeder, and a flexible magnetic conductor electrically connected to said main electric feeder.

2. In an electric-railway system, a closed conduit, a main electric feeder therein, a flexible magnetic conductor therein, flexible connections between said main feeder and flexible conductor, a sectional conductor within said conduit, situated over said flexible magnetic conductor, a sectional contact-rail exterior to said conduit, and electrical connections between the corresponding sections of said sectional conductor and contact-rail.

3. In an electric railway, a closed conduit, composed of non-conducting material and having a plurality of longitudinal grooves therein, a main electric feeder, a flexible magnetic conductor electrically connected to said main electric feeder, means situated on the car to raise the said flexible magnetic conductor in contact with the sectional conductor within said conduit, a sectional contact-rail exterior to said conduit and electrical connections between the corresponding sections of said sectional conductor and contact-rail.

4. In an electric railway, a conduit, a plurality of longitudinal grooves therein, a main feeder located in one of said grooves, a hollow flexible conductor in the other of said grooves, an electrical connection between said feeder and conductor, and means for conveying electricity from said conductor to the desired point.

5. In an electric railway, a conduit, a plurality of longitudinal grooves therein, a main feeder located in one of said grooves, a flexible conductor in the other of said grooves, an electric connection between said feeder and conductor, and means for conveying electricity from said conductor to the desired point.

6. In an electric railway, a conduit having a plurality of grooves therein, a main feeder located in one of said grooves, insulation for said main feeder, a flexible magnetic conductor in the other of said grooves, an electrical connection between said feeder and conductor, and means for actuating the latter.

7. In an electric railway, a conduit having a plurality of grooves therein, a main feeder located in one of said grooves, insulation for said main feeder, a flexible magnetic conductor in the other of said grooves, a coiled spring forming an electrical connection between said feeder and conductor, and means for actuating the latter.

678,214. **CASTING-CLAMP FOR TRACK STRUCTURES.** VICTOR ANGERER and ALBERT R. CLINE, Philadelphia, Pa., assignors to William Wharton, Jr., & Company, Incorporated, same place. Filed Feb. 9, 1900. Serial No. 4,632. (No model.)

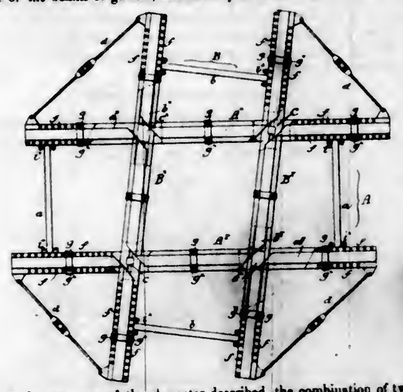
Claim.—1. In apparatus of the character described, the combination of two pairs of beams or girders, one pair crossing the other and mounted thereon, means for connecting said beams together, and means for securing the rail-sections upon the beams, substantially as described.

2. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair crossing the other, and means for connecting said beams together so as to permit of angular adjustment of one pair in respect to the other, substantially as described.

3. In apparatus of the character described, the combination of two pairs of rail supporting beams or girders, one pair crossing the other, and means for connecting said beams together, the beams of each pair being adjustable with respect to each other, substantially as described.

4. In apparatus of the character described, the combination of two pairs of beams or girders, one pair arranged at an angle to the other, means for connecting the beams together, and blocks on the beams or

girders for supporting the rail-sections above and parallel with the upper surface of the beams or girders, substantially as described.



5. In apparatus of the character described, the combination of two pairs of beams or girders, one pair mounted upon the other, with means for connecting said beams together so as to permit of angular adjustment of one pair in respect to the other, and means for securing the rail-sections to the beams, substantially as described.

6. In apparatus of the character described, the combination of two pairs of beams or girders, one pair mounted upon, and extending at an angle to the other, means for supporting the rails upon the upper pair, and tie-braces securing the members of each section together, said tie-braces being detachable for the purpose set forth.

7. In apparatus of the character described, the combination of two pairs of beams or girders, one pair mounted upon, and extending at an angle to the other, a longitudinal groove in each beam or girder, blocks mounted thereon, said blocks having tongues entering the grooves and means for securing the rail-sections upon the blocks, substantially as described.

8. The combination of a support for rail-sections during the process of uniting said sections, by casting, said support having a longitudinal groove therein, blocks, tongues thereon entering the grooves, the said blocks having ribs on their upper faces entering the grooves in the rail-sections to be secured together, bolts shaped to engage the supports, and a cross-bar, said cross-bar and bolts holding the rail-sections in position during the process of casting, substantially as described.

9. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted crosswise upon the other, with pivotal connections between the beams of the upper pair and the beams of the lower pair, said pivotal connections being located at points where the beams cross, substantially as described.

10. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted crosswise upon the other, with pivotal connection between the beams of the upper pair and the beams of the lower pair, said pivotal connections being located at points where the beams cross, and locking connections between the beams at the other crossing points of the same, substantially as described.

11. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted crosswise upon the other, said beams being recessed at the crossing points whereby the upper surfaces of both pairs of beams will be in the same horizontal plane, substantially as described.

12. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted upon, and extending at an angle to the other, with tie-rods for connecting the projecting ends of the beams of one pair to the projecting ends of the beams of the other pair, so as to lock the beams together and form a rigid structure, substantially as described.

13. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted upon, and extending at an angle to the other, with adjustable tie-rods for connecting the projecting ends of the beams of one pair to the projecting ends of the beams of the other pair, so as to lock the beams together and form a rigid structure, substantially as described.

14. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted upon, and extending at an angle to the other, with tie-rods for connecting the projecting ends of the beams of one pair to the projecting ends of the beams of the other pair, so as to lock the beams together and form a rigid structure, and transverse braces for connecting together the beams of each pair, substantially as described.

15. The combination of a structure A having two members A', A^2, tie-braces a securing the two members together, a structure B having two members B', B^2, and a tie-brace b, said structure B crossing the structure A, bolts securing the two structures together at diametrically opposite corners, the structures being slotted at the other corners, and bolts fitted to the slots, substantially as and for the purpose set forth.

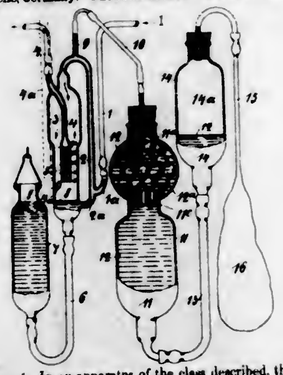
16. In apparatus of the character described, the combination of two pairs of rail-supporting beams or girders, one pair mounted upon the other, with pivotal connections between the beams of the upper pair and the beams of the lower pair, a series of notches in the sides of each beam of each pair, bolts shaped to engage the notches, and cross-bars to which the bolts are fitted, said cross-bars and bolts holding the rail-sections in position during the process of casting, substantially as described.

17. In apparatus of the character described, the combination of a beam to which one or more rail-sections can be secured, said beam having a slot and a series of sockets communicating with one side of the slot, headed bolts shaped to fit the sockets, while the heads of the bolts rest in the slot, and clamp-plates with which the bolts engage and by which the rail-sections are secured to the beam, substantially as described.

18. In apparatus of the character described, the combination of two beams, a tie-brace extending from one beam to the other, said tie-brace being flanged, a series of holes in the side of each beam, and bolts mounted in the holes and arranged to secure the tie-braces in their different positions of adjustment, substantially as described.

19. In apparatus of the character described, the combination of two beams, tie-braces extending from one beam to the other, a series of clamp-plates for clamping the rail-sections to each beam, each beam having a groove in each side, a series of holes in the beams, and a series of sockets or slots, headed securing-bolts mounted in the sockets and engaging the clamp-plates, the heads of said bolts resting in the groove, and bolts extending through the holes in the beams and attaching the tie-braces to the beams, substantially as described.

678,215. **APPARATUS FOR GAS ANALYSIS.** MAX ARNDT, Aix-la-Chapelle, Germany. Filed Jan. 3, 1900. Serial No. 285. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a measuring-chamber, inlet and by-pass tubes, means for liquid-sealing said tubes in the order named; of an absorption-chamber connected with the measuring-chamber, means for conducting gas thereto and for varying the height of liquid chemical therein, substantially as set forth.

2. In an apparatus of the class described, the combination with a measuring-chamber, inlet and by-pass pipes connected to the measuring-chamber at different levels, and means for closing both pipes, of a vessel containing chemical, an absorption-chamber connected with the latter and the measuring-chamber, a device for forcing chemical from the vessel to the absorption-chamber and means for transferring the contents of the measuring-chamber to the absorption-chamber and vice versa, substantially as described and shown.

3. In an apparatus of the class described, the combination with a measuring-chamber, a tube connecting the top and bottom of said chamber, an inlet and an outlet tube at different levels in combination with an absorption-chamber, and a receptacle for chemical forming part of the latter, means for forcing chemical from the receptacle to the absorption-chamber, devices in the absorption-chamber for exposing a large surface of chemical to the gas, and means for closing the inlet and outlet tubes in the measuring-chamber and forcing gas into the absorption-chamber and vice versa, substantially as described and shown.

4. In an apparatus of the class described, the combination with a measuring-chamber, a tube connecting the top and bottom of said chamber, an inlet-tube connected to the latter tube and a by-pass tube from

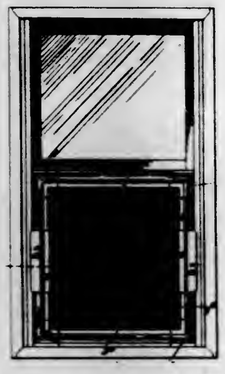
said chamber above the level of the inlet-tube, means for sealing the inlet and outlet tubes with a sealing liquid and for expelling gas from said chamber, of an absorption-chamber connected to the gas-chamber, a receptacle for chemical forming part thereof, a gas-holder connected to said absorption-chamber, and means for recording variation of volume in said chamber, substantially as described and shown.

5. In an apparatus of the class described, the combination with a measuring-chamber its inlet and by-pass pipes and means for liquid-sealing the same and emptying the chamber; of an absorption vessel connected with the measuring-chamber, a gas-holder for said vessel organized to be automatically cut off therefrom, a gasometer connected with said absorption vessel and a lever-operated recording-style connected to said gasometer, substantially as described and shown.

6. In an apparatus of the class described, the combination with a measuring-chamber, of an absorption-chamber connected therewith, a receptacle for chemical forming part thereof a gas-holder connected to the absorption-chamber and organized to be sealed therefrom by the chemical therein, a gasometer connected with said chamber, a weighted lever connected to the gasometer, a stylus operated by the lever and a recording-strip periodically moved past said stylus, substantially as described and shown.

7. In an apparatus of the class described, the combination with a measuring-chamber and a vessel containing a sealing liquid having a flexible tubular connection therewith, of an absorption-chamber connected with the measuring-chamber, means in said chamber for exposing a large surface of chemical to said gas, a vessel containing chemical connected to the bottom of said chamber by a flexible tube, a gas-holder and a gasometer connected to said chamber the former arranged to be sealed by the chemical from said chamber, a two-armed lever, weights adjustable on one arm thereof and the other arm connected to the gasometer, a stylus moved vertically by said lever and organized to trace a record on a periodically-movable strip during the stationary intervals of said strip, substantially as described and shown.

678,216. **WINDOW-SCREEN.** WILLIAM J. BAKER, Newport, Ky. Filed Aug. 31, 1900. Serial No. 28,694. (No model.)

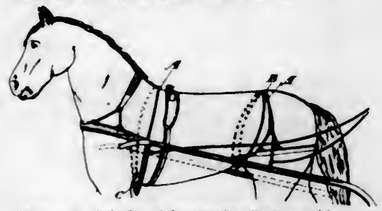


Claim.—1. In a metallic window-frame, a spring-metal frame-section, having a flat base and parallel sides, the upper ends of which are bent inwardly toward each other, one of said ends overlapping the other, said ends extending over the opposing clamping-faces of the parallel side portions of the frame, all being arranged substantially as shown, whereby to bring the body of the screen in a plane outside of the frame to prevent the water trickling down into the frame-section, as set forth.

2. The combination with the rod or stiffener member, and the screen-wire; of a frame-section formed of a single strip of sheet metal having a flat base and parallel sides, said base and sides forming a casing to receive the rod, said sides being closed in against each other at a point above the rod, then curved outward and then projected upward, to form opposing clamping-surfaces to receive the end of the screen-wire, the upper end of one side section having a socket and the other an inturned clamping-flange to engage the wire and project with the wire into the socket of the other clamping portion, whereby to press the screen-surface in a plane outside of the said other clamping portion, substantially as shown and for the purposes described.

3. In a metallic window-screen of the character described, the combination with the frame-section 3, having a straight base and parallel sides, which terminate in opposing clamping surfaces open at the outer ends to receive the wire, one of the said surfaces having a clamping-flange 3^x, adapted to be bent over the wire opening and over the end of the other clamping-surface; of the combined slide and guide, having a flange projected parallel with the other face of the frame, a spring carried on the guide-slide, said slide having a base formed with an inturned flange, said flange projecting in the open end of the wire-clamping surfaces and held from pulling out by the clamp member 3^x, that projects over its inturned flange, as shown and described.

678,217. **ATTACHMENT FOR THE CURE OF BALKING AND KICKING HORSES.** CHARLES A. BARCLAY, Brougham, Canada. Filed Nov. 30, 1900. Serial No. 38,154. (No model.)



Claim.—1. A device of the class described comprising a rope forming a loop adapted to encircle the body of a horse, one end of said rope being secured to a fixed part, a ring also secured to said fixed part through which the rope is passed to form said loop, a guide-ring also secured to a fixed part, the free end of the rope being passed through said guide and being adapted to be pulled upon to contract said loop, substantially as described.

2. A horse balking and kicking controlling device comprising a rope having one end connected to the shaft or trace, a ring secured to said rope, a loop formed by passing the free end of the rope through said ring, a second ring secured to the opposite shaft or trace forming a guide for the free end of the rope, said end being designed to be pulled upon, substantially as described.

3. A horse balking and kicking controlling device comprising a rope, a strap connecting one end of said rope to the shaft or trace, a ring secured to said strap, said rope being formed into a loop by passing the free end of the same through said ring, said free end being designed to be pulled so as to contract the loop and a guiding device secured to the other shaft for the portion of the rope which is designed to be pulled as and for the purpose described.

4. The combination with the boldfast-strap secured at one end to the shaft and the double ring connected with the other end of such strap, of a rope having one end connected to the ring to which the strap is connected, such rope being designed to extend in the form of a loop around the body of the horse and passing through the opposite end of the double ring and a fixed guide through which the free end of the rope is passed as and for the purpose specified.

5. The combination with the boldfast-strap secured at one end to the shaft and the double ring connected with the other end of such strap, of a rope having one end connected to the ring to which the strap is connected, such rope being designed to extend in the form of a loop around the body of the horse and passing through the opposite end of the double ring and a friction-roller on the double ring and a guiding-ring also provided with a friction-roller and secured to the other shaft and designed to form a guiding means for the end of the rope to which the power is applied as and for the purpose specified.

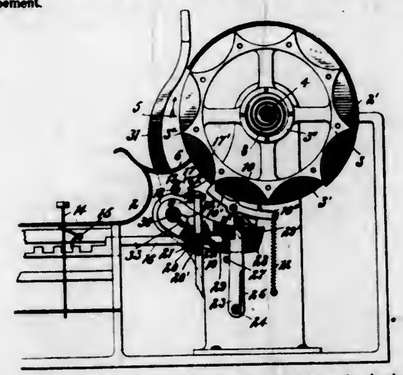
678,218. **MECHANICAL CASHIER.** CHARLES F. BARRETT, Chicago, Ill., assignor to Charles Fairchild, New York, N. Y. Filed Feb. 27, 1901. Serial No. 49,165. (No model.)

Claim.—1. In a mechanical cashier the combination with a casing having an opening, of a rotary cash-receptacle adapted to receive and deliver cash through said opening, and adapted to discharge cash within the casing, said cash-receptacle being exposed at said opening so as to be engaged and operated by the operator's hand.

2. In a mechanical cashier, the combination with a casing having a charging and delivery opening and an internal discharge-opening, of a cash-receptacle adapted to be rotated within said casing, indefinitely in one direction, and having pockets brought in such rotation, in cooperative relation with said charging and delivery opening and with said internal discharge-opening, said cash-receptacle being adapted to be operated directly by the operator's hand, through said charging and delivery opening.

3. In a mechanical cashier, a plurality of independently-movable denominational receptacles mounted on a common shaft and each adapted to be directly engaged and moved by the operator's hand to render inaccessible the cash deposited in the receptacle, means tending to return each receptacle to deliver cash, a detent for preventing return movement of the receptacle and means for releasing such detent.

4. In a mechanical cashier, a casing having a charging and delivery opening, a rotary receptacle adapted to be engaged by the operator's hand through said opening to render inaccessible the cash deposited in the receptacle, means tending to return the receptacle, an escapement controlling such return in a step-by-step manner, and means for controlling such escapement.



5. In a mechanical cashier, the combination with a casing having a charging and delivery opening, of a movable cash-receptacle adapted to be charged through said opening and to deliver cash through said opening and means tending to move the receptacle to deliver cash, of an escapement controlling the delivery movement of said receptacle in a step-by-step manner and controlling means for said escapement.

6. In a mechanical cashier, the combination with a rotary cash-receptacle rotatable indefinitely in one direction and a spring for turning same to deliver cash, of a connection between said spring and the cash-receptacle adapted to allow slip of one part relatively to the other, an escapement mechanism controlling the delivery movement of said receptacle in a step-by-step manner, and means for controlling said escapement mechanism.

7. In a mechanical cashier, the combination with a rotary cash-receptacle, and a device tending to turn same to deliver cash but connected thereto by a frictional connection, of a detent means for said cash-receptacle.

8. In a mechanical cashier, the combination with a rotary cash-receptacle and a spring tending to turn same to deliver cash but connected thereto by a frictional connection, of a detent means for said cash-receptacle consisting of an escapement mechanism and controlling means therefor.

9. In a mechanical cashier, the combination with the casing having a charging and delivery opening and an internal discharge-opening, of a rotary cash-receptacle adapted to rotate within the casing and located with its face exposed at the charging-opening and adapted to be directly engaged and operated by the operator's hand through said opening, and escapement means controlling the movement of the receptacle in one direction, the receptacle being freely rotatable indefinitely in the other direction.

10. In a mechanical cashier, the combination with the casing having an opening, of a rotary cash-receptacle exposed at the said opening and adapted to be turned in one direction by direct engagement of the operator's hand, and an escapement-controlling, step-by-step, movement in the other direction on operation of the escapement by means other than the cash-receptacle and locking the receptacle against such movement in the other direction except upon such operation of the escapement, and operating means for so operating the escapement.

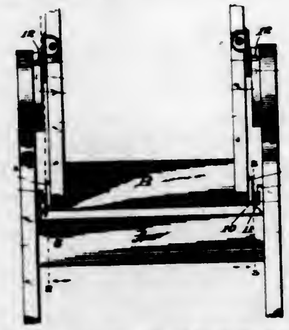
11. The combination with the rotary cash-receptacle and cash-delivery-operating means for causing delivery of cash from said receptacle, of selector means governing the operation of such operating means and means operated by the cash-receptacle in its receiving movement to control the selector means, substantially as and for the purpose set forth.

12. The combination with the rotary cash-receptacle, adapted to be moved in one direction by the operator's hand to render the deposited cash inaccessible, and means for returning the receptacle to deliver the cash, of a selector means governing the operation of the returning means and means operated by the cash-receptacle to control the selector means, substantially as and for the purpose set forth.

13. The combination with the rotary cash-receptacle, adapted to be moved in one direction by the operator's hand, and a spring for moving it in the reverse direction, of an escapement engaging with the cash-receptacle to control its movement in said reverse direction step by step and means for controlling said escapement, consisting of an operating device and means adapted to be interposed between such operating device and escapement.

14. In a mechanical cashier, the combination with the casing having a charging and delivery opening and an internal discharge-opening, of a cash-receptacle moving in proximity to said openings and adapted to present the money to said openings in such position that it will fall from said receptacle and be delivered through said openings by gravity.

678,219. **FURNITURE.** GEORGE A. BOWEN, Medina, N. Y., assignor to S. A. Cook & Company, same place. Filed Nov. 1, 1900. Serial No. 35,141. (No model.)



Claim.—1. The combination with a swinging part or member of an article of furniture, or the like, of separable hinge connections therefor, comprising a closed socket and a pin adapted to enter the socket axially and turn therein, and another pin, axial in line with the first-named pin and of reduced diameter in one direction, and a socket in which the last said pin is adapted to turn, the socket being provided with an opening of a size to permit the pin to pass laterally into the said socket, when its least diameter is presented thereto, and when the swinging member of the article is moved into an unusual position, substantially as set forth.

2. The combination with a swinging part or member of an article of furniture, or the like, of the-hinge connections therefor, comprising a pin 6 and a closed socket or recess 4 in which the pin is adapted to be seated and turned, and of a shape to permit the pin to enter the socket freely in an axial direction, and another pin 8 arranged in axial line with the said pin 6, the pin 8 being reduced in diameter in one direction, and a socket 7 in which the pin 8 is adapted to be seated and to turn, the said socket being provided upon one side with an opening 10 through which the reduced portion of the pin 8 may pass laterally, substantially as set forth.

3. A hinge connection for furniture, and the like, comprising a socket and pin adapted to turn therein combined with one part of a swinging member of the article, a pin and a socket in which the pin turns combined with another part of the said swinging member, the last said socket having an opening through which the pin may pass, and a flange or shelf arranged in proximity to the opening to the last-mentioned socket and extending laterally beyond any overhanging portion or wall of the socket or of the entrance into the socket, and upon which shelf the pin may rest before entering the opening to the socket, substantially as set forth.

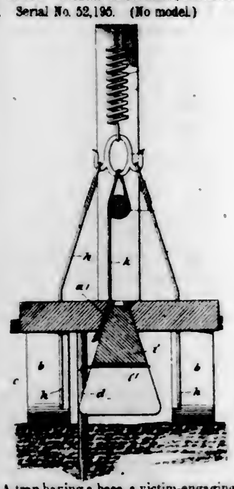
4. A detachable hinge connection for furniture and the like, comprising, in combination with a swinging member of the article to which it is applied, a pin or trunnion 8 of reduced diameter in one direction, a socket in which the said pin or trunnion rests and turns formed with an opening through which the pin may pass when moved into a certain determined position, and a flange or shelf 11, arranged opposite to the said opening to the socket, and substantially flush with the bottom thereof, whereby the pin may easily slide through the opening, and from the shelf to the socket, and vice versa, when the pin is moved into proper position, substantially as set forth.

5. The combination with the frame of an article of furniture, a swinging member thereof, and hinging parts uniting them, of a ratchet and pawl engaging with the said relatively movable parts for holding the swinging member in different positions, the said ratchet comprising an attaching-plate, a rack with which the pawl engages, and a circumferential flange surrounding the rack and spaced therefrom, whereby a way is formed entirely around the rack in which way the pawl is arranged to move, the said flange being slotted at one point to permit the separation of the pawl, substantially as set forth.

6. The combination with the frame of an article of furniture, a swinging member thereof, and hinging parts uniting them, of a swinging pawl having a laterally-projecting pin and a ratchet with which the pin engages, these parts being arranged to hold the swinging member in different positions, and the ratchet being inclined downward and comprising

an attaching-plate, a rack with which the pin of the pawl engages, and a circumferential flange surrounding the rack and spaced therefrom and arranged to inclose a way in which the pin of the pawl moves, the flange being slotted on its upper side at 12 to permit the passage of the pin of the pawl into the way of the ratchet, substantially as set forth.

678,220. TRAP. WILLIAM A. BRUNKER, Farmersburg, Ind. Filed Mar. 21, 1901. Serial No. 52,196. (No model.)



Claim.—1. A trap having a base, a victim-engaging device, a spring in connection with the victim-engaging device, a winding device, a cord connected with the winding device and engaged with the spring to hold it under tension, and a victim-started trip device for holding the cord in engagement with the spring.

2. A trap having a base, a scaffold therein, a spring sustained on the scaffold, a victim-engaging device connected with the spring, a winding device, a cord connected therewith and engaged with the spring, and a victim-started trip device engaging the cord to hold it in active adjustment.

3. A trap having a base, a scaffold thereon, a spring sustained on the scaffold, a windlass on the scaffold, a cord connected to the windlass and engaging the spring, a victim-started plug fitted removably in the base and holding the string in engagement with the spring to keep the latter under tension, and a victim-engaging device connected with the spring.

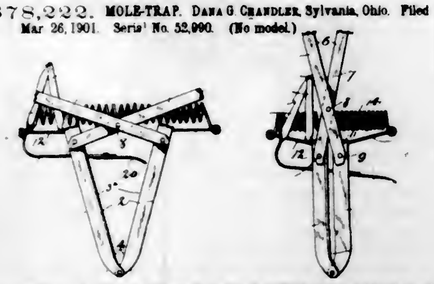
678,221. PICTURE-FRAME SUPPORT. PATRICK C. CAREW, Gloucester, Mass. Filed Feb. 25, 1901. Serial No. 48,825. (No model.)



Claim.—1. The combination with a picture-frame, provided with a securing-wire, of means for supporting the same at any desired angle, comprising a main body portion, a flange extending from the lower edge of said frame, and a rack-bar secured to the main body portion with a space between it and said main body portion for the passage of the securing-wire, and notches formed in said rack-bar and opening into said space, said notches being adapted to receive said wire, and thereby support said frame at any desired angle, substantially as described.

2. A picture-frame support, comprising a main body portion, a flange secured to its lower end for supporting the lower edge of a picture-frame, a rack secured to said main body portion, a series of downwardly-projecting hooks carried by said rack, and means secured to said frame adapted to engage any of said hooks, whereby the angle of said frame may be altered in degree, substantially as described.

678,222. MOLE-TRAP. DANA G. CHANDLER, Sylvania, Ohio. Filed Mar. 26, 1901. Serial No. 52,990. (No model.)



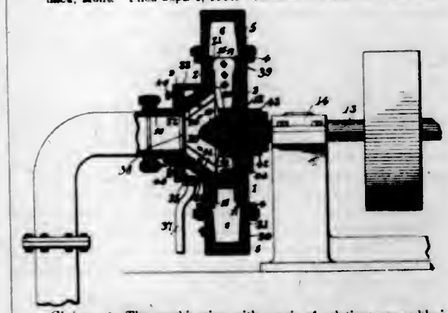
Claim.—1. In a device of the class described, the combination, of a first pair of U-shaped frames having the ends of their arms hinged together to form jaws, a second pair of U-shaped frames having their arms hinged together in pairs intermediate their ends and their ends pivoted to said first pair of frames, a spring mounted to actuate said jaws, and means for setting and releasing the jaws.

2. In a device of the class described, the combination, of a first pair of U-shaped frames having their arms hinged together to form jaws, a spring mounted to hold said jaws against opening, a second pair of U-shaped frames having their arms hinged together and pivotally connected to the said arms of the said first pair of U-shaped frames; an arm mounted on the cross-bar of one of the frames of said first pair, and a trigger pivoted to said arm and bearing a notch adapted to engage the cross-bar on one of the frames of said second pair, substantially as described.

3. In a trap, the combination of pivoted radial jaws, a spring mounted to actuate said jaws, and a trigger constructed to be displaced, to spring the trap, by an animal passing between it and the pivoted points of said jaws, substantially as described.

4. In a trap, the combination with a pair of U-shaped frames, the arms of which are pivoted together at their extremes to form jaws, a spring mounted to actuate said jaws, and a trigger constructed to be displaced to spring the trap by an animal passing between it and the pivoted points of said jaws, substantially as described.

678,223. CENTRIFUGAL PUMP. ROBERT W. CHRISTIAN, Bannack, Mont. Filed Sept. 6, 1900. Serial No. 29,218. (No model.)



Claim.—1. The combination with a pair of relatively movable interfitting members defining an intermediate packing-chamber open at both ends and wholly unobstructed, of means for supplying a fluid under pressure to the packing-chamber at a point intermediate of its ends to compel the fluid to circulate within the chamber and to escape into the casing and suction-head respectively from the opposite ends of said chamber.

2. In a pump, the combination with a casing, of a runner rotatable therein and having an annular bearing-surface opposed to but wholly out of contact with the casing to define an intermediate packing-chamber opening into the suction-head and casing at the inner and outer edges of the annular bearing-surface, and means for supplying fluid under pressure to the packing-chamber to compel said fluid to flow between the bearing-faces and to escape into the suction-head and casing from the opposite ends of the chamber.

3. In a pump, the combination with a casing, and a suction-head extending therefrom, of a rotary runner mounted within the casing and provided with a throat extended into the suction-head, and means for directing a circulation of fluid over the exterior surface of the throat and the adjacent surface of the runner and into the suction-head and casing around the outer edges of said surfaces whereby a single source of water-supply suffices to cause an inflow of water within both the head and casing.

4. In a pump, the combination with a casing, a rotary runner therein provided with a laterally-extending throat, a hollow gland member receiving therein the throat of the runner, and means for supplying fluid under pressure to the interval between the throat and gland member to induce a circulation between the opposed surfaces of said elements and into the casing between the gland member and the opposed edge of the throat.

5. In a pump, the combination with a casing and a rotary runner therein provided with a laterally-extending throat, of an adjustable hollow gland member mounted within the casing, said gland member encircling the throat and having one wall opposed to the end thereof, and means for supplying fluid under pressure to the packing-chamber defined between the throat and gland member to compel the circulation of said fluid within the chamber and its passage into the casing around the end of the throat.

6. In a pump, the combination with a casing provided with a suction-head, of a rotary runner within the casing provided with a trunco-conical throat, an adjustable gland located within the suction-head, said gland encircling the throat and formed with an annular water-chamber in communication with the packing-chamber defined between the opposed faces of the throat and gland, and means for supplying fluid under pressure to the annular chamber of the gland.

7. In a pump, the combination with a casing having a suction-head extended therefrom, of a gland member located within the suction-head and comprising an annular follower, and an annular inclined gland-flange provided with openings, means for supplying water to the interior of the suction-head outside of the gland-flange, and means for adjusting the follower.

8. In a centrifugal pump, the combination with a circular casing and a concentric suction-head extending therefrom, of a gland member within the suction-head comprising an annular follower, and an apertured gland-flange extending from the face of the follower, a rotary runner within the casing provided with a laterally-extending annular throat encircled by the gland-flange and having its end opposed to the face of the follower, and means for introducing fluid under pressure to the packing-chamber defined between the follower and gland-flange to compel said fluid to flow into the casing through the opening defined between the end of the throat and the opposed face of the follower.

9. In a centrifugal pump, the combination with a casing and a concentric suction-head extending laterally from one side thereof, of a gland member within the suction-head comprising a follower and an inclined annular gland-flange extending from the face of the follower at a point intermediate of the edges of the latter and provided with a series of openings, means located upon the exterior of the suction-head for adjusting the follower, a supply-pipe piercing the wall of the suction-head for supplying water under pressure to the interior of said head at the outside of the gland-flange, and a rotary runner within the casing provided with a trunco-conical throat extending into the gland member and having its end edge opposed to the face of the follower.

10. A runner for centrifugal pumps comprising side walls, one of which is provided with a throat, vanes cut away opposite the throat, and removable wear-plates secured to the vanes and having wear-points located opposite the throat and extended bevond the cut-away portions of the vanes.

11. A runner for centrifugal pumps provided with side walls one of which is provided with a throat, radial vanes having portions of their edges disposed across the throat and cut away, and detachable wear-plates completely covering the working surfaces of the vanes and provided with thickened wear-points extended into the cut-away portions of the vanes.

12. A runner for centrifugal pumps comprising side walls, a throat extended laterally from one of said side walls, a series of vanes, detachable lining-plates secured upon the interior faces of the runner-walls and throat, and wear-plates detachably carried by the vanes and retained by the plates upon the interior faces of the runner.

13. A runner for centrifugal pumps comprising side walls and vanes, wear-plates mounted upon the vanes, and lining-plates mounted upon the inner faces of the runner-walls and having their edges in contact with the wear-plates to assist in the retention of the latter and with the rear face of the next adjacent vane.

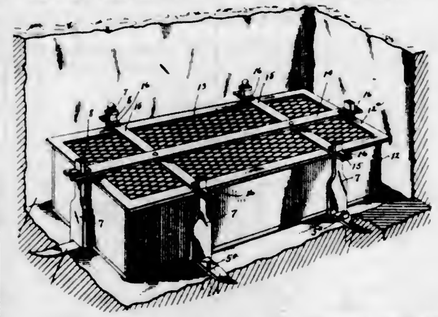
14. In a pump, the combination with a casing, and a rotary runner therein provided with a laterally-extending throat, of a gland member encircling the throat and having one wall opposed to the end thereof, and means for supplying fluid under pressure to the packing-chamber and gland member to compel the circulation of said fluid within the chamber, and its passage into the casing around the end of the throat.

15. In a pump, the combination with a casing provided with a suction-head, of a rotary runner within the casing provided with a trunco-conical throat, a gland located within the suction-head, and encircling the throat, and means for supplying fluid under pressure to the interior of the gland.

16. In a pump, the combination with a casing having a suction-head extended therefrom, of an apertured gland member located within the suction-head and having an annular follower, means for supplying water to the interior of the suction-head outside of the gland member, and means for adjusting the follower.

17. In a centrifugal pump, the combination with a casing and a concentric suction-head extending laterally from one side thereof, of a gland member within the suction-head comprising a follower and an inclined annular gland-flange extending from the face of the follower at a point intermediate of the edges of the latter and provided with a series of openings, means for supplying water under pressure to the interior of said head at the outside of the gland-flange, and a rotary runner within the casing provided with a trunco-conical throat extending into the gland member and having its end edge opposed to the face of the follower.

678,224. BURIAL-CASE PROTECTOR. HUGH D. CLARK, Columbus, Ohio. Filed Dec. 19, 1900. Serial No. 40,386. (No model.)



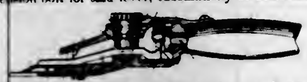
Claim.—1. In a burial-case protector, the combination with a bottom frame comprising a central bar formed of hinged sections and similarly-formed cross-bars, said bars being when horizontal of greater length than the length and width of the grave in which they are intended for use, of vertical standards 7 rising from said bottom frame adjacent to the sides of a burial-case, bars extending across the upper side of the case and locked in connection with said standards, substantially as specified.

2. In a burial-case protector the combination with a bottom frame comprising longitudinal and transverse bars adapted to have their ends inserted in the walls of a grave, of hollow locking-standards rising from said bottom-frame bars, each of said standards having a fixed forwardly-projecting tooth 10 and an internal spring-strip 9, a lock-bar 17 adapted to be inserted within each of said standards, said lock-bar having its inner portion toothed and adapted to have said toothed portion held in engagement with the tooth 10 by said spring-strip, an upper frame comprising a longitudinal and cross bars 14 and 15 having openings to receive the upper ends of said lock-standards, transverse openings through the heads of said lock-standards and keys adapted to be inserted in said standard-openings, said keys being provided with openings to receive the upper ends of said lock-bars, substantially as specified.

678,225. ANIMAL-SHEARS. RAINBRIDGE P. CLARK, Choteau, Mont. Filed Nov. 6, 1899. Serial No. 735,927. (No model.)

Claim.—1. An animal-shear comprising a case having a comb secured thereto, a lever pivoted to vibrate in the case, a cap or cover having guiding engagement with the casing permitting vertical movement and preventing side movement thereon, a cutter carried by the lever and cooperating with the comb, and a single bolt passing through the cap and le-

ver into the casing and securing all the parts together and acting as a pivot and tension bolt for said lever, substantially as described.



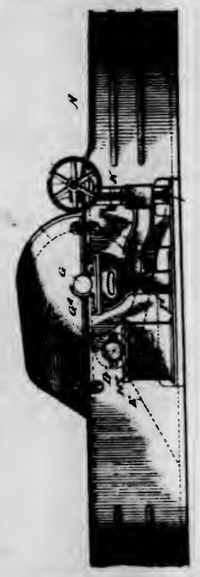
2. An animal-shear comprising a casing having a comb secured thereto, a lever pivoted to vibrate in the casing, a cutter carried by the lever and coöperating with the comb, a cap covering the lever and having vertically-slidable engagement with the casing, a single bolt adapted to secure all said parts together and to also act as a pivot and tension bolt for said lever and a spring interposed between the bolt head and cap and adapted to hold the cutter and comb in contact, substantially as described.

3. An animal-shear comprising a casing having a comb secured thereto, a lever pivoted in the casing, a detachable cutter carried by said lever and coöperating with the comb a cap or cover having guiding engagement with the casing and permitting vertical movement thereon, but preventing side movement, said casing yieldingly bearing upon said lever to hold the two cutting members in contact, a combined pivot, tension and securing bolt for said cap and lever, and a spring between bolt and cap, substantially as described.

4. In an animal-shear the combination with a casing, a comb carried thereby, a vibrating lever, a cutter carried by said lever and a cap or cover for said casing, of a combined tension and retaining bolt for said parts removably screwing into the casing whereby upon the removal of said bolt the parts of the device are freed and may be disengaged from each other, substantially as described.

5. An animal-shear comprising a casing having a cutting member thereon, a removable cap, and a lever within the casing carrying a coöperating cutting member, a combined pivot and tension bolt passing through cap and lever, said cap and lever having engaging bosses surrounding the pivot-pin, the cap being exteriorly recessed about the pin, and a spring in said recess beneath the bolt-head, and holding the cap and lever down with a yielding pressure.

678,226. **BEATING-ENGINE.** EDWARD CONLEY, New York, N. Y.; James Conley administrator of said Edward Conley, deceased. Filed Nov. 2, 1900. Serial No. 35,241. (No model.)



Claim.—1. A beating-engine having a revoluble beating-drum with peripheral knives, and a revoluble bed-roll having peripheral knives and rotating at a peripheral speed lower than that of the beating-drum, the peripheral knives on the drum being set parallel one to the other and obliquely to the periphery of the drum, and the knives on the bed-roll being set parallel one to the other and obliquely to the periphery of the roll at an angle less than the angle at which the knives on the beating-drum are set, as set forth.

2. A beating-engine having a revoluble beating-drum with peripheral knives, and a revolvble bed-roll having peripheral knives and rotating at a peripheral speed lower than that of the beating-drum, the knives on the beating-drum and the knives on the bed-roll converging, and the knives on the beating-drum being set parallel one to the other and obliquely on the periphery of the drum, and the knives on the bed-roll being set parallel to one another and obliquely to the periphery of the bed-roll at an angle less than the angle at which the knives on the beating-drum are set, as set forth.

3. A beating-engine having a beating-drum, bell-crank levers in the upright arms of which the beating-drum is journaled, nuts yieldingly mounted in the horizontal arms of said bell-crank levers, screw-rods screwing in said nuts, and means under the control of the operator for simultaneously turning said screw-rods, as set forth.

4. A beating-engine having a beating-drum, bell-crank levers in the upright arms of which the beating-drum is journaled, nuts yieldingly mounted in the horizontal arms of said bell-crank levers, screw-rods screwing in said nuts, and means under the control of the operator for simultaneously turning said screw-rods, said means comprising a transverse shaft having worms, and worm-wheels secured on the said screw-rods and in mesh with said worms, as set forth.

5. A beating-engine, comprising a tub, a revoluble bed-roll, a beating-drum, bell-crank levers in the upright arms of which the beating-drum is journaled, nuts yieldingly held on the horizontal arms of the bell-crank levers, and screw-rods under the control of the operator and engaging said nuts, as set forth.

678,227. **BED-ROLL.** EDWARD CONLEY, New York, N. Y.; James Conley administrator of said Edward Conley, deceased. Filed Nov. 2, 1900. Serial No. 35,242. (No model.)



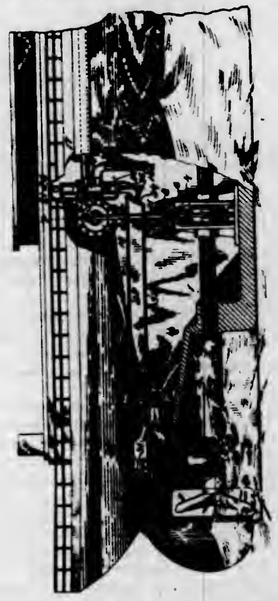
Claim.—1. A bed-roll, comprising a central plug, a plurality of spaced rings secured on the plug, sundry of the rings having longitudinally-extending hooks and the remaining rings having longitudinal grooves in alinement with the hooks, knives set in said grooves and having bayonet-slots for engagement with said hooks, and a head on said plug and having longitudinal grooves for receiving the ends of said knives, as set forth.

2. A bed-roll, comprising a central plug, a plurality of spaced rings secured on the plug, sundry of the rings having longitudinally-exteeding hooks and the remaining rings having longitudinal grooves in alinement with the hooks, knives set in said grooves and having bayonet-slots for engagement with said hooks, a head on said plug and having longitudinal grooves for receiving the ends of said knives, and rings on said heads and engaging slots in the ends of the knives, as set forth.

3. A bed-roll, comprising a central plug, provided with reduced ends, a plurality of spaced rings secured on the plug, sundry of the rings having longitudinally-extending hooks and the remaining rings having longitudinal grooves in alinement with the hooks, knives set in said grooves and having bayonet-slots for engagement with said hooks, the said knives resting with their inner edges on the peripheral surface of the plug, filling-strips between adjacent knives, and heads secured on the reduced ends of the plug and having longitudinal grooves for receiving the ends of the knives, as set forth.

4. A bed-roll, comprising a central plug, a plurality of spaced rings secured on the plug, sundry of the rings having longitudinally-extending hooks and the remaining rings having longitudinal grooves in alinement with the hooks, knives having bayonet-slots for engagement with said hooks, said knives also having cut-out portions, the upper walls of which engage the said longitudinal grooves, heads on said plug and formed on their peripheral surface with grooves for receiving the ends of said knives, and rings encircling the outer portion of the heads and engaging corresponding slots in the ends of the knives, as set forth.

678,228. **PROPELLER-GOVERNOR.** FRANK S. CORMIER, Moncton, Canada. Filed Nov. 16, 1900. Serial No. 36,722. (No model.)



Claim.—1. A governor for a propeller-shaft, comprising a brake-shoe adapted for engaging with the shaft, a cylinder, a piston for operating in said cylinder, a valve for controlling a motive-agent supply to the cylinder, a connection between the piston and the brake-shoe, and a float for controlling the movements of the valve, substantially as specified.

2. A governor for a propeller-shaft, comprising a brake-wheel mounted on the shaft, brake-shoes for engaging with said brake-wheel, levers on which the brake-shoes are mounted, a T-lever having connection with said brake-levers, a cylinder, a piston operating in the cylinder and having connection with said T-lever, a spring for moving the piston in one direction, a motive-agent-supply pipe leading into the cylinder, an exhaust leading from the cylinder, a valve controlling said supply and exhaust, and a float for operating said valve, substantially as specified.

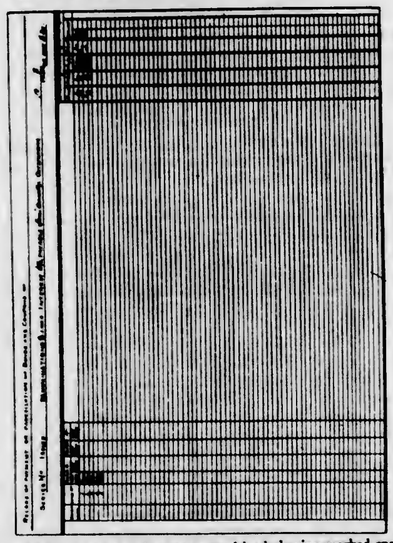
3. A governor for a propeller-shaft, comprising a brake-wheel mounted on the shaft, brake-shoes for engaging with said brake-wheel, a cylinder, a piston operating in said cylinder and having operative connection with the brake-shoes, a motive-agent-supply pipe leading into said cylinder, an exhaust leading from said cylinder, a valve for controlling the supply and exhaust, a float-casing arranged at the stern of the vessel, a T-lever having connection with said float, a T-lever having connection with the stem of the valve, and connections between the opposite arms of said T-levers, substantially as specified.

4. A governor for a propeller-shaft, comprising brake-shoes, a cylinder, a piston operating in said cylinder and having operative connection with the brake-shoes, a motive-agent-supply pipe leading into the cylinder, an exhaust-pipe leading from the cylinder, a piston-valve for controlling said inlet and exhaust, a spring for moving the piston in one direction, a float-casing supported at the stern of the vessel and having a port in its lower portion, a float operating in said casing, a T-lever with which the stem of said float connects, a T-lever with which the stem of the valve connects, guides for the float, and rod connections between said two T-levers, substantially as specified.

5. A governor for a propeller-shaft, comprising brake-shoes adapted for braking connection with the shaft, a cylinder, a piston operating in said cylinder and having connections with the brake-shoes, a motive-agent-supply pipe leading into said cylinder, an exhaust-pipe leading from said cylinder, a valve-casing, a valve operating in said casing for controlling the inlet and exhaust, the said valve having an oil-passage, a valve for controlling said passage, an oil-cup on the valve-casing, and a float for controlling the movements of the inlet and exhaust controlling valve, substantially as specified.

6. A governor for a ship's propeller, comprising a steam-actuated brake mechanism for the propeller-shaft, a float-casing attached to the vessel, and a float in said casing operating to control the movements of the brake, substantially as specified.

678,229. **RECORD.** JOHN W. CUTRER, Clarksdale, Miss. Filed Mar. 14, 1901. Serial No. 51,155. (No model.)



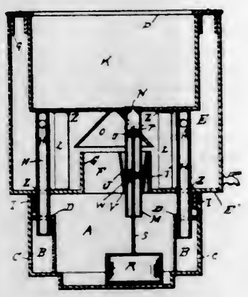
Claim.—A bond and coupon record-book, having marked spaces at the top of its pages for matter descriptive of the bonds such as the name of the maker, the series, date of issuance, denomination, rate of interest, and coupon value, the pages being ruled with horizontal lines crossing the page and with vertical lines separating the pages into vertical columns, the first two columns at the left being headed "Bond when paid" and "Bond No." respectively, the intermediate columns being arranged in groups, each group being headed by the word "Coupons" and a space for date, and each column of each group being headed "When paid," and the five columns at the right of the page being arranged in a group with the heading "Number and amount of outstanding past due coupons" and the separate columns of the group being headed respectively "No. out," "No. paid," "When paid," "Bal. out" and "Total out," the first two and intermediate columns being adapted to receive entries showing on each horizontal line the date of payment of each coupon of a particular bond if paid, and the columns at the right being adapted to receive entries relating to the whole group of bonds, summarizing the information shown as to individual bonds in the other columns; substantially as described.

678,230. **WATER-STILL.** GUY W. DAVIS, Portland, Me. Filed Dec. 19, 1900. Serial No. 40,380. (No model.)

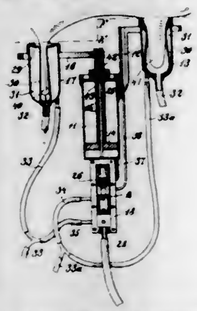
Claim.—1. In a combined water-still and aerating device, a generator, a collecting-tank having a central opening therein surrounded by a vertical partition, a water-reservoir, and a series of supporting-posts interposed between the collecting-tank and water-reservoir, the ends of some of said posts being secured to the under side of the water-reservoir and resting loosely on the bottom of the collecting-tank and the others being hollow and secured to the bottom of the collecting-tank, the upper ends loosely supporting the reservoir and the lower ends terminating in the hot-air chamber.

2. In a combined water-still and aerating device, a generator, a col-

lecting-tank and water-reservoir superimposed, said collecting-tank having a central opening into the generator, said opening being surrounded by a vertical partition and provided with a cone-shaped guideway secured to the inside of said partition, a pipe secured to the bottom of said reservoir and having a valve-seat with a valve opening into said reservoir and adapted to extend downwardly through said cone-shaped guideway into the generator and a float-valve adapted to open and close said valve-opening.



678,231. PNEUMATIC OR HYDRAULIC MILKING APPARATUS. CLEMENS VON BECHTOLSHEIM, Munich, Germany. Filed June 17, 1899. Serial No. 720,979. (No model.)



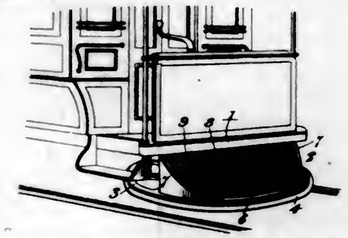
Claim.—1. In a milking-machine the combination of milking-organs operated by a variable actuating medium, means for vertically reciprocating said milking-organs, an actuating-medium conduit communicating with the milking-organs and reciprocating means, and automatic distributing-valves changing the actuating medium in the conduit into a variable medium in the milking-organs and the reciprocating means respectively.

2. In a milking-machine the combination of milking-organs, and a vertically-reciprocating means therefor, each controlled by a variable actuating medium, conduits 33, 35, and 33ª, 34 through which the actuating medium is communicated to the respective milking-organs, conduits 36, 37 through which the actuating medium is communicated to opposite sides of the reciprocating means, a conduit 28 through which the influence of said actuating medium is communicated to the machine, a slide for controlling communication between said conduit 28 and the conduits 36, 37 of the milking-organ, and a slide for controlling communication between said conduit and ports of the reciprocating means, the slide of the milking-organ being actuated by the reciprocating means and constructed to open both milking-organ ports as the reciprocating means reaches either limit of its movement and the slide for the ports of the reciprocating means being actuated by the slide of the milking-organ and moved to reverse communication with the reciprocating means, while both the milking-organ ports are yet open, whereby all the milking-organs retain their grip during the reversal of the reciprocating movement, and the machine is prevented from falling away at the time of such reversal.

678,232. FENDER. CARL P. EKMAN, Marshalltown, Iowa. Filed Dec. 24, 1900. Serial No. 40,965. (No model.)

Claim.—1. In a safety appliance for cars, the combination with a stationary fender designed for attachment to the car structure, of a subjacent guard-wheel supported by the fender for free rotation, and having its periphery projecting slightly in advance of the fender and following the curvature thereof.

2. In a safety appliance for cars, the combination with a curved fender comprising a frame having means of attachment to the car structure, and a shaft supported by said frame, substantially at the axis of the curved edge of the fender, of a guard-wheel mounted upon said shaft in subjacent relation to the fender, and having its peripbery projected slightly therebeyond.



3. In a safety appliance for cars, the combination with a fender composed of a back plate having means of attachment to the car structure, a substantially semicircular guard-rail extending from said plate, and a basket or receptacle supported by the frame, of a shaft supported by said plate substantially at the axis of the guard-rail of the fender, and a rotatable guard-wheel carried by said shaft in subjacent relation to the fender and having its periphery projected slightly beyond the guard-rail thereof.

4. In a safety appliance for cars, the combination with a fender comprising a frame composed of a back plate having means of attachment to the car structure, a substantially semicircular guard-rail extending forwardly from the plate and having the middle portion of its upper edge disposed in a plane below the upper edge of said plate, a series of radially-disposed braces extending from the plate and connected to the guard-rail, a concave netting secured within the frame and designed under certain conditions to be supported by the radial braces, a lug extending from the back plate of the fender at the axis of the guard-rail thereof, a shaft retained by said lug, and a guard-wheel mounted for free rotation upon the lower end of said shaft in subjacent relation to the fender and having a cushioned periphery disposed slightly beyond and concentric with the guard-rail.

5. In combination with the fender composed of a guard-rail, a back plate and a basket or receptacle, the rotatable guard-wheel arranged below the fender and projecting in advance of the guard-rail the axis of said wheel being disposed at the longitudinal center of the fender.

6. In a safety appliance for cars, the combination with a fender composed of a back plate, and a substantially semicircular guard-rail extending from said plate, of a shaft supported by said plate substantially at the axis of the guard-rail of the fender, and a rotatable guard-wheel carried by said shaft in subjacent relation to the fender, and having its periphery projected slightly beyond the guard-rail thereof.

7. In a safety appliance for cars, the combination with a fender comprising a frame composed of a back plate having means of attachment to the car structure, a substantially semicircular guard-rail extending forwardly from the plate and having the middle portion of its upper edge disposed in a plane below the upper edge of said plate, a series of braces extending from the plate and connected to the guard-rail, a lug extending from the back plate of the fender at the axis of the guard-rail thereof, a shaft retained by said lug, and a guard-wheel mounted for free rotation upon the lower end of said shaft in subjacent relation to the fender and having its periphery disposed slightly beyond and concentric with the guard-rail.

8. In combination with the fender composed of a guard-rail, a back plate, and a basket or receptacle, the rotatable guard-wheel arranged below the fender, having its periphery following the curvature of the guard-rail and projecting slightly in advance of the same.

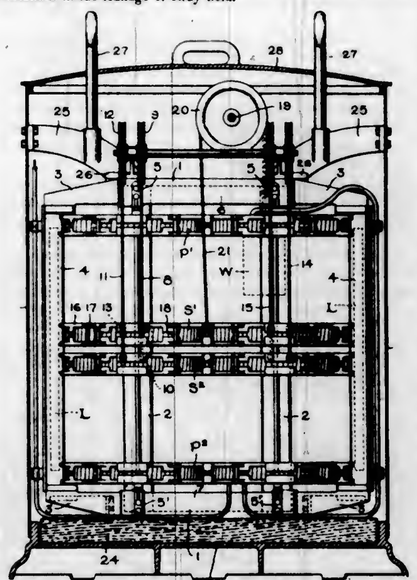
9. The combination with a fender comprising a frame having a semicircular guard-rail, of a subjacent rotatable guard-wheel supported by the fender-frame and having its periphery following the curvature of the guard-rail and projecting slightly in advance of the same.

678,233. FLUX-SCREEN FOR TRANSFORMERS. AUGUSTINE R. EVERETT, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Mar. 4, 1899. Serial No. 707,722. (No model.)

Claim.—1. The combination with an electromagnetic apparatus which in normal operation gives rise to a leakage or stray field of varying intensity, of a casing inclosing said apparatus, and a flux screen or shield interposed between the apparatus and its inclosing casing.

2. The combination with an electromagnetic apparatus which in normal operation gives rise to a stray field of varying intensity, of a casing inclosing said apparatus, and a flux screen or shield of laminated magnetic material interposed between the apparatus and the inclosing casing.

3. The combination with an electromagnetic apparatus which in normal operation gives rise to a leakage or stray field, of a flux screen or shield of laminated magnetic material interposed in the path of the leakage or stray field with the plane of the lamine arranged at right angles to the direction of the currents which tend to be set up in said flux-screen by variations in the leakage or stray field.



4. The combination of a transformer having fixed and movable coils embracing a core of magnetic material, and a flux-screen of laminated magnetic material maintained in fixed relation to said core and arranged to intercept the stray field of the transformer.

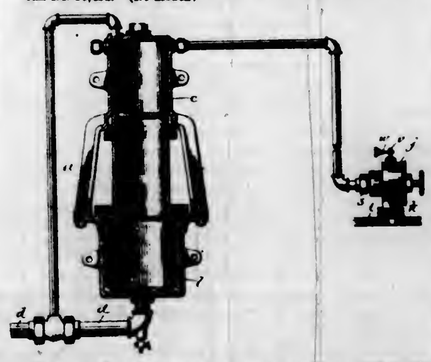
5. The combination with a transformer having fixed and movable coils, of a flux-screen consisting of a body of laminated magnetic material arranged in a plane at right angles to the plane of the coils.

6. The combination of a transformer, a casing therefor and a body of magnetic material interposed between the transformer and casing to as to intercept the leakage field of the transformer.

7. The combination of a transformer, a casing therefor and a body of laminated magnetic material interposed between the transformer and its casing so as to intercept the leakage field of the transformer.

8. The combination of a transformer having fixed and movable coils embracing a core of magnetic material and a flux-screen of laminated material arranged to intercept the stray field of the transformer.

678,234. AUTOMATIC LUBRICATOR. JAMES FARLEY, Waukesha, Wis., and JAMES MEEHAN, Chicago, Ill. Filed Dec. 3, 1900. Serial No. 38,432. (No model.)



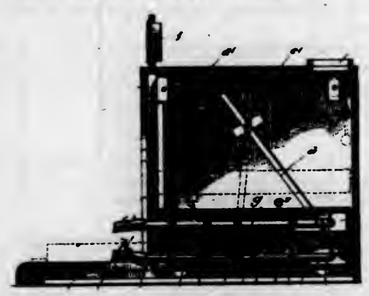
Claim.—1. In an apparatus of the class described, a valve-casing provided with a needle-valve adjustably mounted therein, a differential piston mounted therein provided with an oil-channel extending therethrough forming a valve-seat at one end and in line with the needle-valve arranged to be operated upon by steam on one side to open the valve and oil under pressure on the other side to close the same, substantially as described.

2. In an apparatus of the class described, an automatic lubricating-valve comprising a casing having a threaded portion by which it may be secured to a valve-chest and a valve-chamber therein, a needle-valve screw-threaded into one head of the valve-casing, a differential piston having its larger piston in the valve-chamber mounted in line with the needle-valve and provided with an axial oil-channel extending therethrough forming the valve-seat at one end arranged to be seated in the needle-valve, a perforated diaphragm arranged in contact with the smaller end of the differential piston, a cap secured to the valve-casing and provided with an oil-channel in line with the perforation in the diaphragm, the casing having a passage leading therefrom at the rear of the larger differential piston to admit steam to the steam-chamber of the valve-casing and permit oil to pass out therethrough, substantially as described.

3. In an apparatus of the class described, an automatic lubricating-valve comprising a casing having a threaded portion by which it may be secured to a valve-chest and a valve-chamber therein, a needle-valve screw-threaded into the head of the valve-casing, a differential piston having its larger piston in the valve-chamber mounted in line with the needle-valve and provided with an axial oil-channel extending therethrough forming the valve-seat at one end arranged to be seated on the needle-valve, a perforated diaphragm arranged in contact with the smaller end of the differential piston, a cap secured to the valve-casing and provided with an oil-channel in line with the perforation in the diaphragm, the casing having a passage leading therefrom at the rear of the larger differential piston to admit steam to the valve-chamber of the valve-casing and permit oil to pass out therethrough, and cam mechanism by which the differential piston may be operated at any time, substantially as described.

4. In an apparatus of the class described, an automatic lubricating-valve comprising a casing having a threaded portion by which it may be secured to a valve-chest and a valve-chamber therein, a needle-valve screw-threaded into the head of the valve-casing, a differential piston having its larger piston in the steam chamber mounted in line with the needle-valve and provided with an axial outlet-channel extending therethrough and forming a valve-seat at one end arranged to be seated on the needle-valve, a perforated diaphragm arranged in contact with the smaller end of the differential piston, a cap secured to the valve-casing and provided with an oil-channel in line with the perforation in the diaphragm, the casing having a passage leading therefrom at the rear of the larger differential piston to admit steam to the valve-chamber of the valve-casing and permit oil to pass out therethrough, and a flattened pin extending through the valve-casing to contact the differential piston and operate the same, substantially as described.

678,285. BROILER. JOHN FERRAGIOLI, New York, N. Y. Filed Dec. 13, 1900. Serial No. 39,643. (No model.)

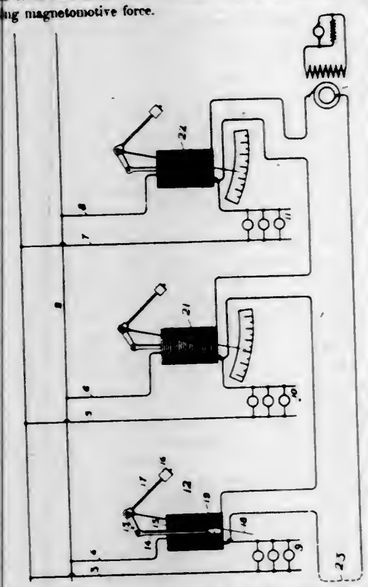


Claim.—1. A broiler, having two broiler-irons, burner-cases respectively carrying the same, a casing in which the burner-cases are mounted, the lower burner-case being arranged to slide on the bottom of the casing, a lever engaged by the lower burner-case and thrown by the movement thereof, and a connection between the lever and the upper burner-case, for the purpose specified.

2. A broiler, having a frame or casing, two broiler-irons mounted therein, and devices for carrying said irons, one iron being movable toward and from the other and the other iron being mounted to slide in a plane transverse to the line of movement of the first-named iron.

678,286. ELECTRIC MEASURING INSTRUMENT. WALTER C. PEEL, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Apr. 4, 1901. Serial No. 54,262. (No model.)

Claim.—1. In an electric measuring instrument, the combination of relatively movable members, and means for simultaneously impressing upon one of the members a unidirectional magnetomotive force and an alternating magnetomotive force.



2. In an electric measuring instrument, the combination of a coil or winding, a member of magnetic material within the influence of said coil or winding, an additional or auxiliary coil or winding, means for supplying direct current to one of said coils or windings, and means for supplying alternating current to the other coil or winding.

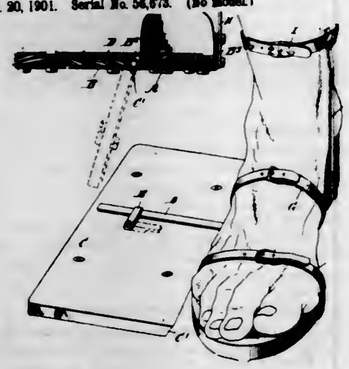
3. In an electric measuring instrument, the combination of a coil for carrying direct current, an iron core, and means independent of said coil for impressing upon said core an alternating magnetomotive force.

4. In an electric measuring instrument, the combination of a movable member, and means for simultaneously impressing upon said movable member a unidirectional magnetomotive force and an alternating magnetomotive force.

5. In an electrical measuring instrument, the combination of a direct-current actuating-coil, a movable member, and means separate from said member for impressing an alternating magnetomotive force on said movable member.

6. In an electric measuring instrument, the combination of a direct-current actuating-coil, a movable member containing iron within the influence of said coil, an additional or auxiliary coil in operative relation to said movable member, and separate sources of current connected respectively to said coil.

678,237. **SWIMMING-SHOE.** THOMAS J. A. FREEMAN, Jersey City, N. J., assignor to Caroline M. Campbell, New York, N. Y. Filed Apr. 20, 1901. Serial No. 56,673. (No model.)

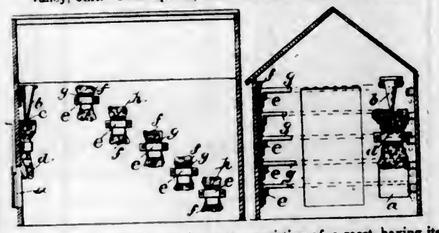


Claim.—1. A swimming-shoe, comprising a foot-plate having a heel-cap, a wing hinged at one side of said foot-plate, a stop rigid on said foot-plate and extending over said wing, to limit the upward-swinging movement thereof, straps on the foot-plate, for engaging the user's foot, a post rising from the heel portion of the foot-plate at one side thereof, and an ankle-strap on said post for engaging the ankle of the user's foot, as set forth.

2. A swimming-shoe, comprising a foot-plate having a heel-cap, a wing hinged at one side of said foot-plate, a stop rigid on said foot-plate and extending over said wing, to limit the upward-swinging movement thereof, straps on the foot-plate, for engaging the user's foot, a post rising from the heel portion of the foot-plate at one side thereof, an ankle-strap on said post for engaging the ankle of the user's foot, and a catch on the wing, for engaging said stop and locking the wing in place in horizontal alinement with said foot-plate, as set forth.

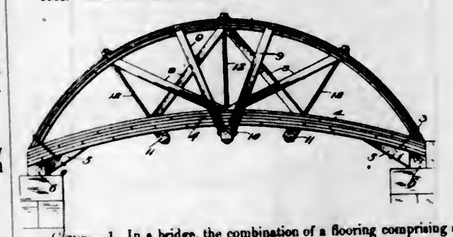
3. A swimming-shoe, comprising a foot-plate having a heel-cap, a wing hinged at one side of said foot-plate, a stop rigid on said foot-plate and extending over said wing, to limit the upward-swinging movement thereof, straps on the foot-plate, for engaging the user's foot, a post rising from the heel portion of the foot-plate at one side thereof, and an ankle-strap on said post for engaging the ankle of the user's foot, said post being secured to an upturned end of the rear hinge, as set forth.

678,238. **CHICKEN-COOP.** GEORGE W. FUNDERBURGH, Spring-valley, Ohio. Filed Apr. 16, 1901. Serial No. 56,126. (No model.)



Claim.—An attachment for coops consisting of a roost having its ends bent down at right angles, said roost having on its upper surface a porous material adapted to absorb and hold a disinfectant, stationary holders attached to opposite walls of the coop and adapted to receive the turned-down ends of the roost, porous material attached to the walls of the coop and extending behind the stationary holders and adapted to absorb and hold a disinfectant coming in contact with the porous material on the roost.

678,239. **TRUSS-BRIDGE.** THOMAS G. GILFILLAN, Union, Oreg., assignor of one-half to Samuel A. Pursel, same place. Filed Mar. 7, 1901. Serial No. 50,168. (No model.)



Claim.—1. In a bridge, the combination of a flooring comprising a lower course formed of layers of boards or planks arranged to overlap or break joint in two directions, both longitudinally and transversely of the bridge, chords mounted thereon, an upper flooring course consisting of boards laid transversely between the chords, arches, and suitable connections between the parts, substantially as set forth.

2. In a bridge, a bowed flooring, wedge-shaped blocks mounted thereon at the end of the bridge, and a supplemental flooring laid on said blocks, substantially as set forth.

678,240. **COMBINED MOP HEAD AND WRINGER.** WILLIAM R. GILLETTE, Chicago, Ill. Filed Feb. 27, 1901. Serial No. 49,127. (No model.)

Claim.—1. A device of the class described comprising a handle provided with means for connecting it to a mop-cloth, a rotary shaft provided with means for connecting it to the mop-cloth, bearing-blocks receiving the shaft, and links connected with the bearing-blocks and with the handle and provided with means for engaging one of such parts to lock the shaft against longitudinal movement, substantially as described.



2. A device of the class described comprising a handle, a loop connected with the handle and provided with a shank extending laterally beyond the plane of the handle, a longitudinally-movable shaft provided with means for connecting it to a mop-cloth, bearing-blocks receiving the shaft, and links connecting the bearing-blocks and the handle and provided with means for engaging one of such parts to hold the shaft against longitudinal movement, substantially as and for the purpose described.

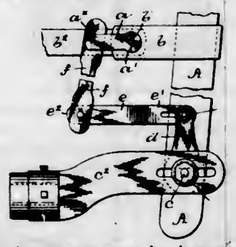
3. A device of the class described comprising a handle provided with means for connecting it to a mop-cloth, bearing-blocks, a shaft journaled in the bearing-blocks and provided with means for connecting it to a mop-cloth, and the resilient links connecting the handle and the bearing-blocks and interlocked with the said blocks, substantially as described.

4. A device of the class described comprising a handle provided with means for connecting it to a mop-cloth, bearing-blocks provided at the ends with grooves, a shaft journaled in the bearing-blocks, and the resilient links connecting the handle and the bearing-blocks and arranged to engage the grooves automatically, substantially as and for the purpose described.

5. A device of the class described comprising a handle, bearing-blocks provided at their ends with lugs and having grooves at opposite sides of the lugs, the links connected with the handle and with the bearing-blocks and arranged to engage the lug and the grooves, and a shaft mounted on the bearing-blocks, substantially as described.

6. A device of the class described comprising a handle, bearing-blocks provided at their ends with sockets and having lugs adjacent to the sockets, said bearing-blocks being also provided with grooves, the oblong links having resilient sides and connected with the handle, the terminals of the sides of the links being bent inward and fitting in the said sockets and the sides of the links being adapted to spring into the said grooves, and a shaft journaled on and carried by the bearing-blocks, substantially as described.

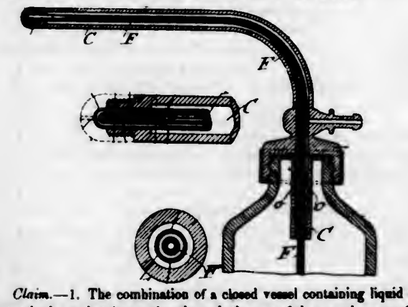
678,241. **PICKER MECHANISM FOR LOOMS.** THOMAS GILSON, Providence, R. I. Filed Oct. 3, 1900. Serial No. 31,836. (No model.)



Claim.—1. A sweep-strap support for a loom, consisting of a bracket *d* supported on the pivot of the picker-stick, a link *e* adjustably supported on the bracket *d*, a connecting-rod *f* pivoted to the link *e* and to the arm *a*, and the arm *a* secured to the sweep-strap *b* and provided with the stud a^2 and projecting ribs *a' a'*, whereby the position of the sweep-strap may be varied without altering the adjustment of the picker-stick, as described.

2. In a sweep-strap support, a sweep-strap, an arm supported by the sweep-strap having a hole for the insertion of the sweep-strap bolt, projecting ribs on the arm extending radially from the hole, a stud formed on the arm, a connecting-rod pivotally supported on the arm by the stud, and a link secured to the connecting-rod at one end and adjustably supported on a bracket at the opposite end; whereby the position of the sweep-strap may be varied and the sweep-strap supported without altering the adjustment of the picker-stick, as described.

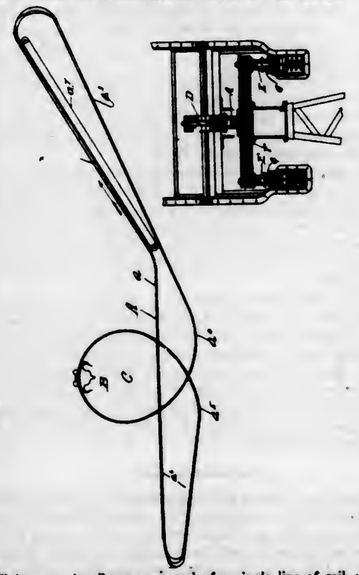
678,242. **ATOMIZER.** HERMANN GOLTERMANN, East Orange, N. J. Filed Jan. 10, 1901. Serial No. 42,776. (No model.)



Claim.—1. The combination of a closed vessel containing liquid to be atomized, an air-tube passing through the cap of the vessel, means for supplying air under pressure to said vessel and air-tube, a suction-tube located in the air tube and having a contracted outer end, and a sheet-metal cap applied to said end and forming an annular space between the same and the cap, the air-tube having its outer end contracted into contact with said cap, and said cap being provided with a small discharge-perforation in line with the bore of the suction-tube, and with perforations connecting the annular space between the air and suction tubes with that within the cap, substantially as set forth.

2. The combination of a closed vessel containing liquid to be atomized, an air-tube passing through the cap of the vessel, means for supplying air under pressure to said vessel and air-tube, a suction-tube located in the air-tube and having a contracted outer end and a collar between the same and the body of the tube, a sheet-metal cap applied to said collar and forming an annular space between the outer end of the suction-tube and said sheet-metal cap, the air-tube having its outer end contracted into contact with said cap, and said cap being provided with a small discharge-perforation in line with the bore of the suction-tube, and with perforations connecting the annular space between the air and suction tubes with that within the sheet-metal cap, and an exterior cap screwed over the outer end of the air-tube and sheet-metal cap and retaining the latter on said collar, said exterior cap being provided with a discharge-perforation in line with the discharge-perforation of the sheet-metal cap, substantially as set forth.

678,243. **AMUSEMENT-RAILWAY.** EDWARD A. GREEN, Brooklyn, N. Y., assignor to American Construction Company, New York, N. Y. Filed Mar. 6, 1901. Serial No. 50,079. (No model.)



Claim.—1. A railway composed of a single line of rail, suitably supported, and arranged throughout its length in the several inclinations and curves, and in the specific order as named herein, to wit—an upward

incline, a downward incline, a vertical loop, and an upward incline extending from said loop and continuing into the first-named upward incline.

2. In an amusement-railway adapted to be traversed by a car under the forces of gravitation and momentum, a continuous traction-rail arranged in form of a vertical loop, said rail being set at a downward inclination leading to the loop, thence comprising a vertical loop of substantially ellipsoidal form, and leaving said loop in an upwardly-inclined extension.

3. A traction-rail arranged as a vertical loop in substantially ellipsoidal form, the first or upward half of the loop being arranged in a curve composed of the arcs of successively-decreasing radii, and the latter, or downward half of the loop, being symmetrical with the first half, in reverse order.

4. In a gravity-railway, the combination of a track arranged at a point of its course as a vertical loop in substantially ellipsoidal form, the lowest points of said track being located at opposite sides of a vertical plane through the center of the loop, substantially at right angles to the track.

5. A railway composed of a track suitably supported, and arranged throughout its length in the several inclinations and curves, and in the specific order as named herein, to wit: an upward incline, a downward incline, a vertical loop and an upward incline extending from said loop and continuing into the first-named upward incline.

6. In a gravity-railway, a vertically-disposed loop of variable radii, and inclined tracks leading to and from said loop.

7. In a gravity-railway, a vertically-disposed loop and inclines leading to said loop, the lowest point of said inclines being at one side of a vertical plane through the center of the loop and at substantially right angles to the track.

8. In a gravity-railway, a vertically-disposed loop and inclines leading to said loop, the lowest point of said inclines being on a plane lower than any portion of the track within the loop.

9. In a gravity-railway, a vertically-disposed loop and inclines leading to and from said loop, the lowest point of the inclines leading from the loop being on a plane lower than any portion of the track within the loop.

10. In a gravity-railway, a vertically-disposed loop and inclines leading to and from said loop, the lowest points of said inclines being on a plane lower than any portion of the track within the loop.

11. In a gravity-railway, a vertically-disposed loop, inclines leading to and from said loop, the lowest points of said inclines being on a plane lower than any portion of the track within the loop, and upwardly-inclined curved sections leading from said lowermost points respectively into said loop.

12. In a gravity-railway, a continuous track arranged at a point of its course as a vertical loop and as inclines leading to said loop, the lowest point of said inclines being on one side of a vertical plane through the center of the loop and at right angles to the track, a car adapted to traverse said track, and safety appliances whereby said car is retained on said track throughout the entire course.

13. In a gravity-railway, a vertically-disposed loop comprising a series of arcs of successively-decreasing radii through the first half thereof, said arcs respectively passing through a definite number of degrees whereby centrifugal force and gravity act in conjunction through the first quadrant and in opposition through the second.

14. In a gravity-railway, comprising a continuous track including in its extent and in the order named, an upward incline, a downward incline, an ellipsoidal vertical loop, an upwardly-inclined curved section leading from said downward section into said loop, an upward incline and a downwardly-inclined curved section leading from said loop into said last-mentioned upward incline, said incline leading into said first-mentioned upward incline.

15. A gravity-railway, comprising a continuous track including in its extent and in the order named, an upward incline, a downward incline, an ellipsoidal vertical loop, an upwardly-inclined curved section leading from said downward incline into said loop, an upward incline, a downwardly-inclined curved section leading from said loop into said last-mentioned upward incline, said incline leading into said first-mentioned upward incline, a carriage adapted to traverse said track, means whereby said carriage is retained thereon and means for hauling said carriage up said first-mentioned incline.

678,244. DOLL-FACE. RUDOLPH GRUBE and ALBERT BRÜCKNER, Jersey City, N. J. Filed Jan. 15, 1901. Serial No. 43,336. (No model.)

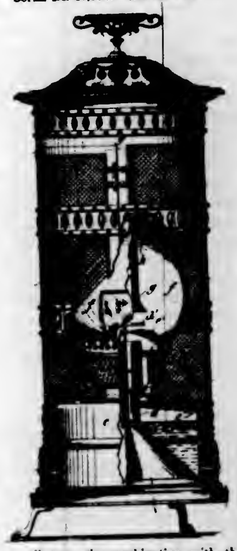
Claim.—1. The combination, with a doll-face composed of a layer of paper and a layer of textile fabric suitably printed and molded into shape, of a dummy-head for said face, said head being of rounded form and adapted to fit into the face and contact therewith at the front and sides of the same, substantially as set forth.

2. The combination, with a doll-face composed of a layer of paper and a layer of textile fabric suitably printed and molded into shape, of a dummy composed of a body and a head, said head being of rounded form and adapted to fit into the face and contact therewith at the front and sides of the same, and said face being provided with a neck and chest extension extending downwardly upon the body of the dummy, substantially as set forth.



3. The combination, with a doll-face composed of a layer of paper and a layer of textile fabric suitably printed and molded into shape, of a dummy composed of a body and a head, said head being of rounded form and adapted to fit into the face and contact therewith at the front and sides of the same, and said face being provided with a neck and chest extension extending downwardly upon the body, and a hood applied to said head and covering that part of the same not covered by said doll-face, said hood also extending downwardly upon the body of the dummy, and a retaining-cord secured to said hood and passing around the dummy and said doll-face at the neck of the same, substantially as set forth.

678,245. OIL-STOVE. JULIO GUIMARAES, Berlin, Germany. Filed Feb. 16, 1901. Serial No. 47,550. (No model.)

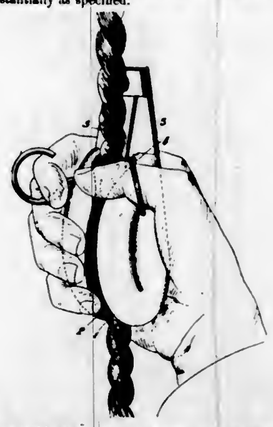


Claim.—In an oil-stove, the combination, with the outer casing, of an oil-reservoir in the said casing, a draft-tube extending upwardly through the oil-reservoir having an enlarged lower end, a flame-deflector supported above said draft-tube, a burner-body supported on the oil-reservoir and provided with perforations, a gallery supported on the burner-body, a cap supported on the gallery between the burner-body and the flame-deflector, a globe supported on the gallery, said gallery having perforations for admitting air into the globe above the cap, a chimney, and a ring secured to said chimney and resting upon the globe, the lower end of the chimney being located above the said flame-deflector and cap, and said ring being provided with perforations for admitting air into the top of the globe, substantially as set forth.

678,246. ROPE-GRIP. HOWELL HANSEL, New York, N. Y. Filed Dec. 29, 1900. Serial No. 41,485. (No model.)

Claim.—1. A rope or cable gripping device, comprising two jaws pivotally connected together and each provided with a longitudinal channel or groove on its inner surface, rings on the jaws for receiving a person's fingers, and a spring for moving the jaws apart, substantially as specified.

2. A rope or cable gripping device, comprising two jaws provided on their inner surfaces with longitudinal channels, said channels increasing in depth and width from one end to the other, tangs extended from the jaws and pivotally connected together, and a spring for pressing the jaws apart, substantially as specified.



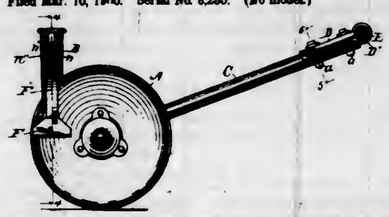
3. A rope or cable grip, comprising two jaws pivotally connected together, and rings on said jaws through which a person's fingers may pass, substantially as specified.

4. A rope or cable grip, comprising two jaws, longitudinally channeled at their inner surfaces, the said channels being provided with ribs, tangs extended from the jaws and pivotally connected together, a spring for pressing the jaws apart, and rings on said jaws near the upper ends, substantially as specified.

678,247. COMBINATION-TOOL. ALPHONSO K. HARPER, Fairfield, Iowa. Filed Sept. 29, 1900. Serial No. 31,547. (No model.)

Claim.—A tool of the class described comprising a casting to receive a handle, a casting journaled to the lower end of said handle-casting and provided with a series of teeth and a plate slotted to receive a tack secured to the under side of said last-named casting forward of said teeth and immediately under the handle, whereby the tack may be driven by rocking the handle forward.

678,248. DISK GRAIN-DRILL. WILL F. HOYT, Dowagiac, Mich. Filed Mar. 10, 1900. Serial No. 8,235. (No model.)



Claim.—1. In a disk grain-drill, the combination of the disk A; a bracket B having combined with it a boot; a draw-bar C formed of a piece of pipe; and a bracket D at the forward end divided into arms D', D'' adapted to receive a pivotal connection on the frame of the grain-drill, coacting for the purpose specified.

2. In a disk grain-drill, the combination of the disk; a bracket therefor; a draw-bar formed of a piece of pipe connected to said bracket; and a bracket at the forward end of said pipe to form a suitable pivotal connection with the frame of the machine, coacting as specified.

3. In a disk grain-drill, the combination of the disk; a bracket with a bearing for said disk; a draw-bar consisting of a piece of pipe; a bracket at the forward end of said draw-bar containing slotted holes; bolts extending through said slotted holes and the draw-bar connecting the same adjustably together, so that the angle of the disk can be varied to and from the perpendicular, for the purpose specified.

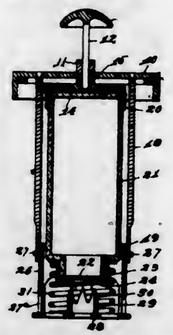
4. In a disk grain-drill, the combination of the disk; a draw-bar, connecting therewith; a bracket for said draw-bar; and slotted connections for the draw-bar whereby the angle of the disk can be adjusted to and from the perpendicular, for the purpose specified.

5. In a disk grain-drill, the combination of the revolving disk; suitable connection from the same to the frame of the machine; and means for adjusting the connection to vary the angle of the disk to and from the perpendicular, for the purpose specified.

6. In a disk grain-drill, the combination of a concavo-convex disk; a boot on the convex side of the same having a curved seat on the side thereof; a scraper having a curved spring-shank conformed to the curved seat whereby the scraper can be adjusted to vary its tension on the disk, for the purpose specified.

7. In a disk grain-drill, the combination of a disk; a bracket therefor; a draw-bar extending forwardly from the said bracket to a pivotal connection on the frame of the machine; a means for adjusting the disk to and from the perpendicular, to vary the action of the same, substantially as described.

678,249. FIRE-EXTINGUISHER. GEORGE C. HUTCHINGS, St. Louis, Mo. Filed Mar. 12, 1901. Serial No. 50,877. (No model.)



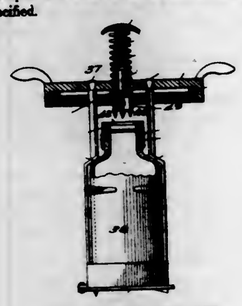
Claim.—1. In a fire-extinguisher, a receptacle, a cap closing said receptacle, a vertically-apertured non-corrodible bearing located in the center of said cap, the push-rod 12 operating through said bearing, the plate 14 carried by the lower end of said rod, the compressible packing-ring 15 passing around said rod and located between the plate and the non-corrodible bearing, the screw-threaded flange 20 carried by said plate, an inverted sealed acid-bottle seated in said flange, and an expansive coil-spring for normally retaining the acid-bottle in an elevated position and causing the packing-ring to be compressed between the plate and the non-corrodible bearing, substantially as specified.

2. In a fire-extinguisher, a receptacle, a cap closing said receptacle, a vertically-apertured non-corrodible bearing located in the center of said cap, the push-rod 12 operating through said bearing, the plate 14 carried by the lower end of said rod, the compressible packing-ring 15 passing around said rod and located between the plate and the non-corrodible bearing, the screw-threaded flange 20 carried by said plate, an inverted sealed acid-bottle seated in said flange, the arms 18 depending from the under side of the cap, a cage removably carried by the lower ends of said arms, the hollow cylindrical lug 29 projecting upwardly from the center of the bottom of the cage, the teeth 30 formed in the upper edge of said lug, and an expansive coil-spring 31 interposed between the bottom of said cage and the shoulder of the inverted acid-bottle, substantially as specified.

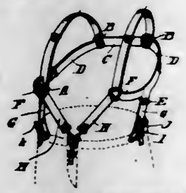
678,250. FIRE-EXTINGUISHER. GEORGE C. HUTCHINGS, St. Louis, Mo. Filed Mar. 12, 1901. Serial No. 50,878. (No model.)

Claim.—In a fire-extinguisher, a tank, a cap closing said tank, arms rigid with and depending from said cap to the interior of the tank, a ring formed integral with the lower ends of said arms, a hinged plate arranged to close said ring, retaining-arms formed integral with said arms, an acid-bottle held between the depending arms above the hinged plate, a cap having an aperture in its center screwed to the top of said bottle, a disk

of mica closing the mouth of said bottle, a rubber packing-ring arranged between said disk of mica and the screw-cap, a hard-rubber bushing located in the center of the tank-cap, a spring-actuated rod arranged to slide vertically through said bushing, a circular head formed integral with the lower end of said rod, which head is of such a size as to pass through the aperture in the screw-cap of the bottle, a continuous row of V-shaped cutting-teeth formed integral with the lower edge of said head, and a packing-ring located upon said head around the vertically-moving rod, substantially as specified.



678,251. SUSPENDERS. JOHN W. HAFER, Harrisburg, Pa. Filed Apr. 16, 1901. Serial No. 56,119. (No model.)



Claim.—1. In suspenders the combination of the strap portions arranged to encircle the arms, the back connecting-strap between such arm-encircling portions, supporting-straps arranged between the arm-encircling parts and the sides of the trousers directly under the arms, and other supporting-straps arranged between the arm-encircling parts and the front central portion of the trousers, substantially as set forth.

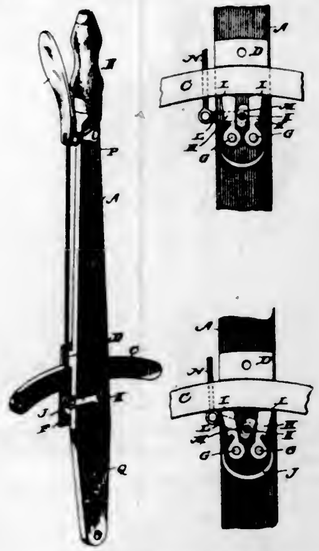
2. In suspenders the combination of the front straps arranged to pass over the shoulders, the cross strap or piece C at the back connecting the front straps, the back straps D arranged to be brought from the back to under the arms, the connecting strap or piece F uniting the lower portions of the back straps D and the front strap, the supporting-straps G united with the trousers at the sides, and the downwardly and forwardly extending connecting-pieces H extending from the lower ends of the front straps to the front of the trousers where they are united, substantially as set forth.

3. The combination with suspenders having supporting ends provided with hooks, of the attachments arranged to be secured to the trousers for connections with the suspenders and consisting of straps, tape or braid adapted to be united with the trousers by sewing and provided with the extended ends *k*, and rings secured thereto and adapted to be engaged by the hooks of the trousers and arranged in front of the ends *k* of the straps, substantially as set forth.

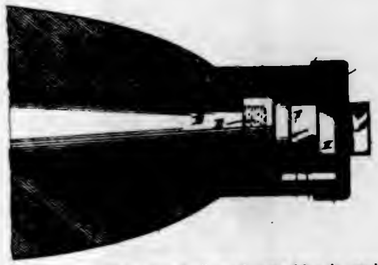
678,252. HAND-LEVER. PETER F. HANDLEY, Jacksonville, Ill. Filed Feb. 16, 1901. Serial No. 47,672. (No model.)

Claim.—1. The combination with a segmental friction-arm, of a lever pivotally mounted at its inner end, clamping members pivoted to said lever and adapted to engage said friction-arm, a bow-spring holding said members normally in engagement with said arm, a rock-shaft extending between said members, a cam upon said shaft, a crank-arm carried by said shaft, a thumb-lever pivoted to said lever at its outer end, and a rod pivotally connecting said thumb-lever and crank-arm, substantially as described.

2. The combination with a segmental friction-arm, of a lever pivotally mounted at its inner end, clamping-dogs pivoted to said lever at their inner ends and engaging the inner side of the friction-arm at their outer ends and formed near their pivotal points with notches, a substantially U-shaped spring having its ends seated in said notches and holding said dogs normally in engagement with the arm, a shaft mounted between said dogs and carrying a cam-block extending transversely thereof and adapted to separate the dogs and cause the same to disengage the friction-arm, a crank-arm upon said shaft, a thumb-lever pivoted at the outer end of the lever, and an operative connection between said thumb-lever and said crank-arm, substantially as described.



678,253. DUST-CAP AND OIL-GUARD FOR VEHICLE-AXLES. WILLIAM F. HAYDEN, State Center, Iowa. Filed Apr. 6, 1901. Serial No. 54,698. (No model.)



Claim.—1. A dust-cap and oil-guard, comprising in combination with an axle, nut, hub, hub-band and boxing in said hub, a cap, having its inner end angled and detachably held over said nut, and against the end of the hub, and the flange at the outer end of the cap telescoping over the hub-band, as set forth.

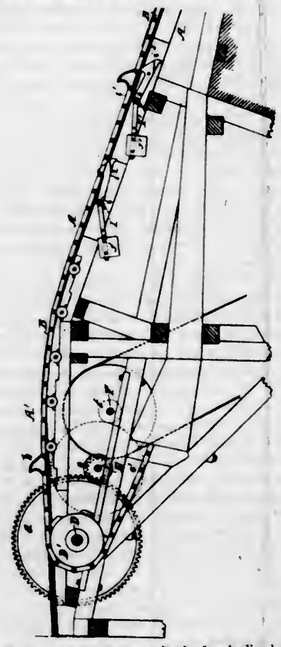
2. A dust-cap and oil-guard, comprising in combination with an axle, nut, hub, hub-band and boxing, a cap having an angled flange at its inner end, threaded apertures opposite each other in the wall of the body portion of said cap, set-screws mounted in said apertures and having their inner ends engaging the opposite faces of said nut, the flange on the outer end of the cap telescoping over said band, and an integral nut on the outer end of said cap, whereby the axle-nut may be fastened to the axle, as set forth.

678,254. CAR HAUL. FREDERIC V. HETHEL, Philadelphia, Pa., assignor to the Link Belt Engineering Company, same place. Filed May 6, 1901. Serial No. 58,972. (No model.)

Claim.—1. The combination in a car-haul, of the inclined plane, the tracks, the uphaul-chain for carrying the cars up the incline, a head-wheel for driving said chain, with a pawl situated below the head-wheel and arranged to engage the chain, substantially as described.

2. The combination of an inclined plane, tracks thereon, an uphaul-chain, a driving head-wheel around which the chain passes, two pawls below the head-wheel, one pawl being so set in respect to the other that while the end of one pawl is in engagement with the chain the end of the other pawl is out of engagement therewith, substantially as described.

3. The combination in a car-haul, of the inclined plane, tracks thereon, an uphaul-chain made of a series of links and having hooks engaging the cars to be hauled, a head-wheel around which the chain passes and by which the chain is driven, two pawls on the inclined portion of the structure some distance from the head-wheel, each pawl having a hooked arm and a weighted arm, the pawls being so set in respect to the chain that one pawl will be in engagement with the chain while the other pawl will be free thereof, substantially as described.



4. The combination in a car-haul, of an inclined plane, tracks thereon, a chain, a head-wheel for driving said chain, two pawls, one having a single arm engaging the chain, the other having a double arm engaging the chain, the two pawls being so set in respect to the chain that when one is in engagement the other is free, substantially as described.

678,255. PROCESS OF REGENERATING ACCUMULATOR-ELECTRODES. JOSEF HOFMANN, Berlin, Germany. Filed Mar. 28, 1901. Serial No. 53,339. (No specimens.)

Claim.—1. The herein-described process of regenerating the lead-peroxid electrode of an accumulator-battery, said process consisting in subjecting such electrode to the action of a solution of free hypochlorous acid, substantially as set forth.

2. The herein-described process of regenerating the lead-peroxid electrode of an accumulator-battery, said process consisting in removing the electrode from the battery and subjecting the electrode outside the battery to the action of a solution of free hypochlorous acid, substantially as set forth.

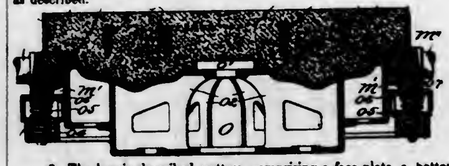
3. The herein-described process of regenerating the lead-peroxid electrode of an accumulator-battery, said process consisting in removing the electrode from the battery and subjecting the electrode outside the battery to the action of a solution of free hypochlorous acid, and then rinsing the electrode in water, substantially as set forth.

4. The herein-described process of regenerating the lead-peroxid electrode of an accumulator-battery, said process consisting in adding acid to a solution of calcium hypochlorite, outside the battery and subjecting the electrode to the action of the hypochlorous acid set free in that solution, substantially as set forth.

678,256. COPE-PATTERN. JOSEPH G. JOHNSTON, Detroit, Mich., assignor to the American Car & Foundry Company, St. Louis, Mo. Filed Dec. 13, 1900. Serial No. 39,691. (No model.)

Claim.—1. The combination with a pattern provided with pockets at points around its periphery, of springs arranged in said pockets for supporting a chill-ring, caps for the springs, and bolts passing through the caps and the bottom walls of the pockets, substantially as described.

2. The combination with a circular pattern, of recessed lugs extending laterally beyond the periphery of said pattern, said lugs being arranged on the bottom portion of the pattern, springs arranged in the recesses of said lugs for supporting a chill-ring, and stops on the pattern for engaging the chill-ring when the springs are compressed, substantially as described.



3. The herein-described pattern comprising a face-plate, a bottom wall, ribs connecting said face-plate and bottom wall, recessed lugs extending laterally from the pattern, and springs arranged in the recesses in said lugs; substantially as described.

4. The herein-described pattern whose body portion comprises a face-plate, side walls and bottom wall, interiorly-arranged strengthening-ribs, laterally-projecting recessed lugs which extend beyond the periphery of the body portion of the pattern, and springs in the recesses in said lugs for supporting the chill-ring: substantially as described.

678,257. KNOCKDOWN BARREL. ROBERT H. KERR, West Salem, Ohio. Filed Jan. 22, 1901. Serial No. 44,315. (No model.)



Claim.—1. In a knockdown shipping-case, a series of staves, staples applied to the staves intermediate of their edges, links connecting the staves and looped around the legs of the staples and extending across the spaces or joints between the staves, and a hook applied to the staple of an end stave and adapted to engage with the staple of the other end stave to hold the staves when set up and admit of their ready separation, substantially as described.

2. In a barrel, a hoop having portions bent to provide eyes, and hook-and-eye fastenings looped into the said eyes and adapted to coöperate with fastenings applied to the barrel to secure the hoop in place, substantially as described.

3. In combination with a barrel, a hoop composed of pivoted sections having eyes, and fastenings of the hook-and-eye type looped into the said eyes and adapted to coöperate with the fastenings applied to the body of the barrel to retain them in place, substantially as set forth.

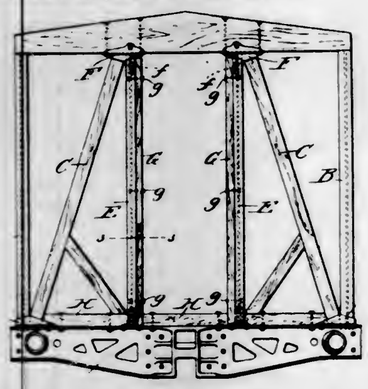
678,258. END BRACING FOR BOX-CARS. GEORGE I. KING, Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Filed Apr. 18, 1901. Serial No. 56,426. (No model.)

Claim.—1. The combination with a metallic end sill, of metallic end posts riveted thereto, castings riveted to the upper ends of said end posts, and a wooden end plate to which said castings are secured; substantially as described.

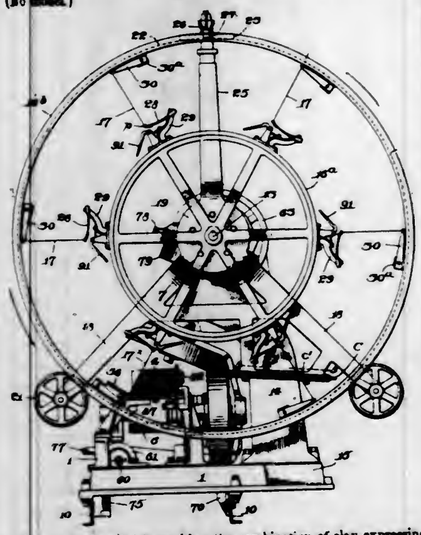
2. The combination with metallic end posts, of castings riveted to the upper end thereof, said castings affording seats for the wooden diagonals in the end framing; substantially as described.

3. The combination with a metallic end post, of a casting having a depending web which is riveted to said end post, said casting having a vertical flange, and a horizontal flange for receiving the end plate, and bolts passing through said flanges for securing the casting to the end plate; substantially as described.

4. The combination with a metallic end sill, of metallic end posts riveted thereto, castings riveted to the upper ends of said end posts for affording seats for the diagonals in the end framing, an end plate to which said castings are secured, and wooden furring-strips secured in the channels of the metallic end posts; substantially as described.



678,259. BRICK-MACHINE. HOWARD K. KING, Philadelphia, and CYRUS CHAMBERS, Jr., Overbrook, Pa., assignors to Chambers Brothers Company, Philadelphia, Pa. Filed June 15, 1899. Serial No. 720,692. (No model.)



Claim.—1. In a brick-machine, the combination of clay-expressing mechanism, a suitable support for the bar of clay expressed from the die of the machine, the cut-off wires and a suitable carrier to which said wires are secured, and means for imparting motion to said carrier to cause said wires to enter a corner of one side of said bar and to pass out from a different side of the bar through the corner thereof diagonal to the first-mentioned corner, substantially as and for the purpose set forth.

2. In a brick-machine, the combination of the horizontal plates having the narrow slit between their adjacent ends, the latter vertical plates having the slit between their adjacent ends, the cut-off wires, and a suitable carrier to which the same are secured, together with means for imparting suitable motion to said carrier, whereby said wires are caused to enter the upper corner of the bar of clay supported by said plates, and to pass out through the lower corner of said bar diagonally to said upper corner, substantially as set forth.

3. In a machine of the kind recited, the combination of clay-expressing mechanism, a suitable support for the bar of clay expressed from the die of the machine; the wheel having the cut-off wires; means for imparting a rotary motion to said wheel; the horizontal plates, having the passage-way for the wires between them; and the vertical plates adapted to support the said bar laterally; the said plates being relatively arranged as shown, whereby the cut-off wires are adapted to enter the upper corner of the bar of clay and to pass out through the lower corner of said bar diagonal to said upper corner, substantially as and for the purpose set forth.

4. In a machine of the kind recited, the combination of clay-expressing mechanism, the propulsion-belt adapted to receive the bar of clay expressed from the die of the machine, the wheel having the radial cut-off wires, mechanism whereby a rotary motion is imparted to said wheel through the motion of the said belt, the axis of rotation of said wheel being in a plane above and beyond that of said belt, whereby the bar of clay carried forward upon said belt will be severed diagonally with relation to opposite upper and lower corners of said bar, for the purpose set forth.

5. In a machine of the kind recited, the combination of clay-expressing mechanism, the propulsion-belt adapted to receive the bar of clay expressed from the die of the machine, the wheel having the cut-off wires and its axis of rotation being in a plane above, and in a vertical plane beyond said propulsion-belt, the rotatable shaft upon which said wheel is mounted, the gear upon said shaft, the gear upon the forward pulley of the propulsion-belt, and the intermediate gears whereby the motion imparted to said belt effects a rotary motion of the cut-off wheel, substantially as and for the purpose set forth.

6. In a machine of the kind recited, the combination of clay-expressing mechanism, the propulsion-belt adapted to receive the bar of clay expressed from the die of the machine, the wheel having the radial cut-off wires and its axis of rotation being in a plane above, and in a vertical plane beyond said propulsion-belt, the rotatable shaft upon which said wheel is mounted, means for adjusting the angle of said shaft and wheel with relation to said belt, the mechanism whereby the motion imparted to said belt effects a rotary motion of the cut-off wheel, the pulley on said shaft, the positively-driven pulley and the friction helping-belt passing over said pulleys, substantially as and for the purpose set forth.

7. In a machine of the kind recited, the combination of clay-expressing mechanism, the propulsion-belt adapted to receive the bar of clay expressed from the die of the machine, the wheel having the radial cut-off wires and its axis of rotation being in a plane above, and in a vertical plane beyond said propulsion-belt, the rotatable shaft upon which said wheel is mounted and the mechanism whereby motion imparted to said belt effects a rotary motion of the said wheel, the pulley on said shaft, the positively-driven pulley, the idler-pulley, and the friction helping-belt passing over said pulleys; and means for adjusting the position of said idler whereby the tension of the friction-belt may be varied, substantially as and for the purpose set forth.

8. In a machine of the kind recited, the combination of clay-expressing mechanism, the propulsion-belt, a suitable support for the bar of clay, the wheel having the radial cut-off wires, the rotatable shaft upon which said wheel is mounted, connections between said belt and shaft for driving the latter, the turret on which the said shaft is journaled, the support for said turret, and means for effecting rotative adjustments of said turret on its said support whereby the angle of the said wheel with relation to the bar of clay may be adjusted, substantially as and for the purpose set forth.

9. In a machine of the class recited, the combination of the propulsion-belt, the wheel having the radial cut-off wires, the shaft upon which said wheel is mounted, the gear on the shaft of the forward pulley of the propulsion-belt, the oblique shaft, the gear thereon engaging the gear on said shaft of the propulsion-belt pulley, the gear on the cut-off-wheel shaft, with which the last-mentioned gear is engaged, and the turret to which the cut-off-wheel shaft is journaled, said turret being adapted to be rotated on its support in a plane at right angles to said oblique shaft, and means for securing said turret in the position to which it may be rotatably adjusted, substantially as and for the purpose set forth.

10. In a machine of the kind recited, the combination of the rotatable shaft, the wheel fixed to said shaft and composed of the central hub portion, the annulus having the circumferential groove and the radial cut-off wires connected thereto, means for supporting the annulus, consisting of the fixed arms, and the wheels journaled thereto and engaging said groove in the annulus, together with means for maintaining the latter in the upright position upon its said supports, substantially as described.

11. In a machine of the kind recited, the combination with the wheel composed of the central hub portion, the annulus and the radial cut-off wires connected thereto, of means for sustaining the annulus and maintaining the same in the upright position, said means consisting of the fixed arms, the wheels journaled thereto and engaging a circumferential groove of the annulus, and the vertical arm carrying the roller, adapted to support the annulus on one side, and the finger adapted to support said annulus on the opposite side, substantially as described.

12. In a cut-off wheel of a machine of the class recited, the combination with the central hub portion, and the annulus, of the wire-holding springs attached to the said hub portion and annulus respectively, the former of which springs tends to maintain the wire taut and the other spring is adapted to yield laterally, substantially as and for the purpose set forth.

13. In a cut-off wheel of a machine of the class recited, the combination of the spring tending to maintain the wire taut, and the compressing-lever pivotally connected to said wheel, substantially as shown and for the purpose specified.

14. In a machine of the kind recited, the combination of clay-expressing mechanism, the propulsion-belt, or the like, for receiving and guiding the bar of clay, the rotary wheel having the spring-controlled radial cut-off wires, means for adjusting said wheel to occupy a plane oblique to the sides and oblique to the top and bottom of said bar, the horizontal plates upon which the said bar is adapted to slide having the slit between their adjacent ends, substantially as and for the purpose set forth.

15. In a machine of the kind recited, the combination of the wheel having the radial cut-off wires, the horizontal plates having the slit between their adjacent ends, the lateral vertical plates with the slit between their adjacent ends, the swinging arms to which said vertical plates are attached, the pivots of said arms being in a vertical plane inwardly beyond the plane of the latter plates as shown, the spring tending to maintain said plates in the closed position, and a stop for determining and limiting the inward position of the plates, substantially as and for the purpose set forth.

16. In a machine of the kind recited, the combination of the wheel having the radial cut-off wires, the horizontal plates, between adjacent ends of which the cut-off wires are adapted to pass, the vertical lateral plates having the slot between them for the passage of said wires, the respective swinging arms to which said vertical plates are attached, the stop for limiting the inward position of said plates, the projections on said arms respectively, and the piece, 49, together with the bow-spring, one end of which bears against said projection and the other end against said piece, substantially as and for the purpose set forth.

17. In a machine of the kind recited, the combination of the vertical lateral plates, having the passage-way for the cut-off wires between their adjacent ends, the respective swinging arms to which said plates are attached, a stop for limiting the inward position of said plates, the projections on said arms respectively, the pieces, 49, the bow-springs engaging said projections and pieces, respectively, and means for adjusting said pieces with relation to said projections whereby the tension of said springs may be varied.

18. In a machine of the kind recited, the combination of the plates, 36, and 37, plates, 42, and plate, 40, substantially as and for the purpose set forth.

19. In a machine of the kind recited, the combination of the plates 36 and 37, the plates, 42, the swinging arms to which the latter plates are attached, the brackets to which said arms are pivoted, the stop for determining and limiting the inward position of said plates, 42, the springs tending to maintain the latter in the closed position and means for adjusting said brackets and adjuncts, whereby the position of the plates, 42, may be adjusted, substantially as and for the purpose set forth.

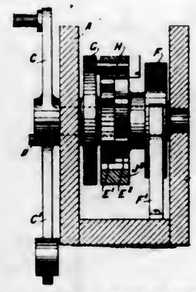
20. In a machine of the kind recited, the combination of the horizontal plates, 36 and 37, the vertical plates, 42, the propulsion-belt, its pulleys, the propulsion-belt frame, means for maintaining said belt in a definite position upon said pulleys and means for lateral adjustment of said frame, whereby the proper position of the bar of clay with relation to said several plates is insured, substantially as and for the purpose set forth.

21. In a machine of the kind recited, the combination of the horizontal plates, 36 and 37, the vertical plates, 42, the propulsion-belt having the buttons thereon, its pulleys having peripheral grooves in which said buttons are adapted to travel, the propulsion-belt frame, and means for sidewise adjustment of said frame, substantially as and for the purpose set forth.

22. In a machine of the kind recited, the combination of the plates, 36 and 37, the off bearing-belt pulley, its shaft, the yoke or frame in which said shaft is journaled, and means for effecting adjustments of said frame, whereby the said pulley may be brought into proper position vertically with relation to said plates, substantially as specified.

678,260. RATCHET-OPERATED ELECTRIC SWITCH. WILLIAM KINGSLAND, London, England. Filed Jan. 16, 1901. Serial No. 43,445. (No model.)

Claim.—1. In electrical switches having step-by-step motions, the combination with a spindle, an operating-lever fixed on the spindle, an intermittent wheel loose on the spindle, two sets of ratchet-teeth formed on the periphery of the said wheel, the sets of teeth sloping in opposite directions and being in separate parallel planes, and an electrical switch, the movable rotary member of which is carried by the intermittent wheel; of a ring suspended from a crank-pin upon the spindle and encircling the intermittent wheel, oppositely-engaging detents projecting in different planes from the inner circumference of the ring, so calculated that one detent can operate upon one set of teeth, and the other detent upon the other set of teeth of the intermittent wheel, to partly rotate same and the switch therewith, according to the direction in which the spindle is rocked, substantially as set forth.



2. In electrical switches having step-by-step motions, the combination with a spindle, an operating-lever fixed to the spindle, a balance-weight to normally maintain the lever in a vertical position, stationary framework and bearings to carry the spindle, and stops mounted on the framework to limit the angular motion of the operating-lever in either direction, an intermittent wheel loose on the spindle, two sets of ratchet-teeth formed on the wheel, sloping in opposite directions, and being in separate parallel planes, and an electrical switch the movable member of which is carried by the intermittent wheel; of a crank fixed on the spindle, and a crank-pin extending from the crank, a ring freely suspended from the crank-pin and encircling the intermittent wheel, two oppositely-engaging detents in the interior of the ring adapted to engage one or other of the sets of teeth, and to thereby rotate the intermittent wheel according to that direction in which the operating-lever and spindle are rocked, whereby the movable member of the switch is moved through the required angular distance relatively to the stationary member of the switch, substantially as set forth.

3. In electrical switches having step-by-step motions, the combination with a cylindrical switch-drum, a suitable number of conducting-plates upon its cylindrical surface, and insulating-spaces dividing the said plates, electric conducting-brushes carried by the framework and bearing frictionally upon the surface of the switch-cylinder, a spindle carried in bearings in the framework upon which spindle the switch-cylinder is loosely mounted, an intermittent wheel fixed to the switch-cylinder, and two sets of ratchet-teeth on the periphery of the said wheel, sloping in opposite directions, and located in separate parallel planes; of an operating-lever fixed to the spindle by which the spindle is rocked in either direction required, a crank-disk also fixed on the spindle, a crank-pin carried by the said disk, and a ring suspended from the crank-pin and encircling the intermittent wheel, and oppositely-engaging detents projecting in different planes from the inner circumference of the ring to operate upon one or other of the sets of ratchet-teeth of the intermittent wheel, according to the direction in which the spindle is rocked, the ring being brought into engagement with the teeth by gravity, and whereby the movable member of the switch is moved through the required angular distance substantially as set forth.

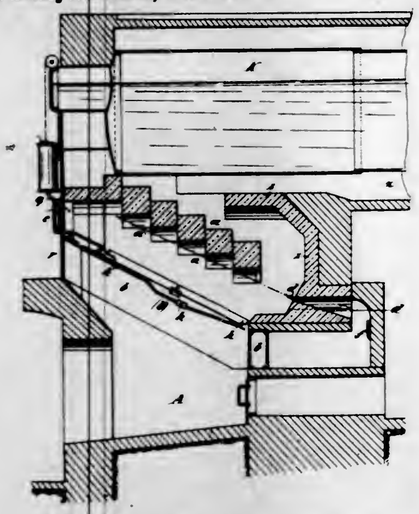
678,261. SMOKE-CONSUMING FURNACE AND APPARATUS IN CONNECTION THEREWITH. AUGUST KREPPEL, Vienna, Austria-Hungary. Filed Dec. 24, 1897. Serial No. 663,356. (No model.)

Claim.—1. In a smoke-consuming furnace, the combination with the fire-chamber having a sloping arch, of air-conduits arranged below the fire-chamber and leading to the rear thereof, and a single tapering slot, located only in the fire-bridge approximately in line with said arch, said slot communicating with the air-conduits for discharging secondary air into the fire-chamber, substantially as set forth.

2. In a smoke-consuming furnace, the combination of the fire-chamber having a sloping arch and, at the rear, a tapering broad and narrow slot, arranged approximately in line with the under side of the arch, and means for conducting a supply of air through said slot to the fire-chamber, along and in intimate contact with the under side of the arch, substantially as set forth.

3. In a smoke-consuming furnace, the combination of the fire-door having an arm extending therefrom, a water-pipe provided with a cock, suitable means for connecting the latter with said arm or yoke, a conduit for supplying air to the fire-chamber, a valve or damper controlling the passage through the conduit, an operating-cord or flexible connection, a pulley over which the same runs, and a movable receptacle suspended by said cord, over said pulley, and whereby it is connected with said

valve or damper, and into which receptacle the said water-pipe discharges for lowering it, substantially as set forth.



678,262. PROCESS OF PRODUCING RELIEF-PICTURES. ALOIS LEBRASSER, Galatz, Roumania. Filed Oct. 1, 1900. Serial No. 31,653. (No specimens.)

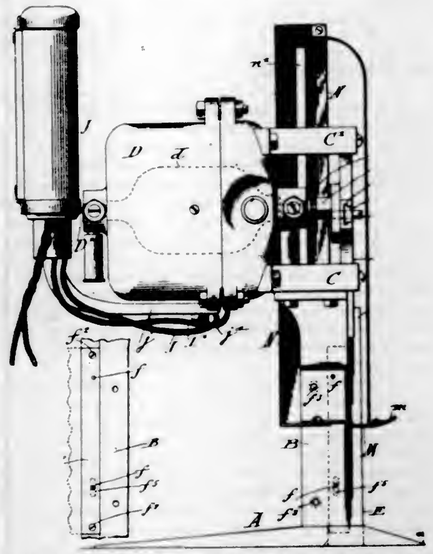


Claim.—The improved process of producing relief-pictures and the like, which consists in first securing a copy of the picture upon a suitable flexible material, cutting out therefrom the parts to be in projection on the relief, and securing the detached parts upon a common base, securing a second copy of the picture upon a flexible material, cutting out therefrom smaller parts to be still farther in projection on the final relief, and securing these detached parts upon the corresponding points of the firstly-detached part secured upon the common base, &c., until the desired fullness is reached; placing upon the matrix-relief thus obtained, the ordinary flat picture face outward, and placing upon the latter, the successively cut-out copies of the picture, so that the several points thereof will correspond with each other; finally submitting all these superposed parts to the action of glazing or pressing rollers, substantially as set forth.

678,263. ELECTRIC CLOTH-CUTTING MACHINE. ROBERT R. LEVE, New York, N. Y. Filed Feb. 8, 1901. Serial No. 46,518. (No model.)

Claim.—1. In an electric cloth-cutting machine, the combination of a movable supporting-frame, a cutting device mounted thereon, an electric motor connected with the cutting device, a stationary handle, and a movable part or member carried by the handle provided with a connector normally out of contact with the electric connection through which the operating-current flows, thereby arresting the motion of the cutting device, but capable of completing the electric circuit by the pressure of the hand of the operator, thereby putting the cutting device in motion, the said connection being automatically broken when the pressure of the hand is removed, thereby stopping the motion of the cutting device, substantially as set forth.

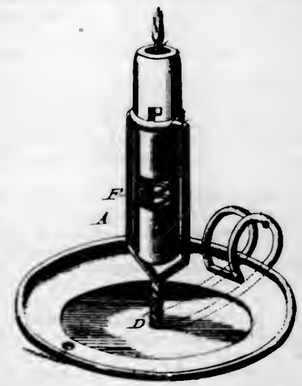
2. In an electric cloth-cutting machine, the combination of a base-plate adapted to move under the layers of cloth, a standard provided with a guide, a frame supported by the standard, a motor in the frame, and a reciprocating cutting-blade suitably connected at its upper end with the motor and received in said guide, said base-plate having a slot, receiving the free lower end of the cutting-blade, and said cutting-blade having a motion no greater than the thickness of the plate, so that the said end of the cutting-blade does not rise above the base-plate, substantially as set forth.



3. In an electric cloth-cutting machine, the combination of a base-plate adapted to move under the layers of cloth, a standard mounted on the base-plate, removable guide-plates spaced at a suitable distance apart and secured to the standard, one of said plates being fixed against the standard in a rabbet-groove thereof, while the other is fixed directly against the side of the standard, a single reciprocating cutting-blade guided in the space between said removable guide-plates, and an electric motor connected with said cutting-blade, substantially as set forth.

4. In an electric cloth-cutting machine, the combination of a movable supporting-frame, an electric motor, a crank-pin on the shaft of the motor, a reciprocating carrier guided in the frame and provided with a transverse guideway, a slide guided in the guideway and provided with a hole for receiving said crank-pin, and a cutting-blade attached to said carrier in a plane with the crank-pin so as to receive the direct thrust and pull of said crank-pin, substantially as set forth.

678,264. CANDLESTICK. JESSE O. LIPPINCOTT and GLENN MEREDITH, Philadelphia, Pa. Filed Mar. 13, 1901. Serial No. 50,908. (No model.)

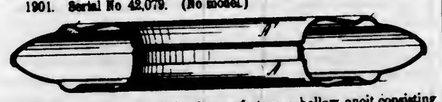


Claim.—1. In a candlestick, a base, handles attached thereto formed of wire, having the ends projecting through said base and extending upwardly forming standards, deflected portions on said standards and a candle-socket having openings therein which engage with said deflected portions.

2. In a candlestick, a base, handles attached thereto formed of wire which projects through said base and is twisted and then separated, forming standards, deflected portions thereon and a candle-socket adapted to engage with said deflected portions which act as journals therefor.

3. In a candlestick, a base, handles attached thereto, a standard connected with said handle and extending through said base, deflected portions thereon and a candle-socket adapted to engage with said deflected portions which serve as journals therefor.

678,265. QUOIT. ABBOT A. LOW, Brooklyn, N. Y. Filed Jan. 4, 1901. Serial No. 42,079. (No model.)



Claim.—1. As an article of manufacture, a hollow quoit consisting of two corrugated concavo-convex metallic plates having their concave surfaces opposed to each other, and having their inner and outer edges united to form a continuous closed annular shell, substantially in the manner and for the purpose set forth.

2. As an article of manufacture, a hollow quoit consisting of two concavo-convex metallic plates formed with coinciding corrugations, said corrugated plates having their concave surfaces opposed to each other, and being united at their inner and outer edges to form a continuous closed annular shell, for the purpose and substantially in the manner set forth.

3. As an article of manufacture, a hollow quoit consisting of two concavo-convex metallic plates having their concave surfaces opposed to each other, and formed with overlapping inner and outer edges which are secured together to form a continuous closed annular shell, substantially in the manner and for the purpose set forth.

4. As an article of manufacture a quoit consisting of the two concavo-convex metallic plates A, A', with their concave surfaces opposed to each other, and having their overlapping edges united to form a continuous closed shell, said metallic plates A, A', being formed with coinciding corrugations *a*, *a'*, for the purpose and substantially in the manner described.

678,266. SPINNING-RING. FRANK M. MARCY, Worcester, Mass. Filed Mar. 11, 1901. Serial No. 50,577. (No model.)



Claim.—As an article of manufacture, a spinning-ring for spinning or twisting frames, comprising a cylindrical body portion having a groove in its inner face, and a split wire ring having beveled ends arranged to be forced out of line with each other when the ring is compressed, so that said ring may be sprung into place in the groove and form a substantially continuous track, substantially as described.

678,267. HOOK AND EYE. WALKER A. MAXWELL, Marianna, Fla. Filed Jan. 21, 1901. Serial No. 44,190. (No model.)



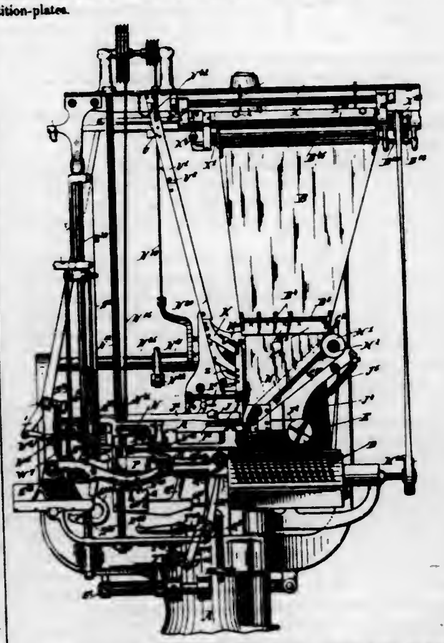
Claim.—1. A garment-hook comprising a single piece of resilient wire sharpened at one end, and formed with a coil, then bent forward and formed into a loop and bill, then bent rearward and extended through the coil terminating in a hook adapted to engage the sharpened end of the wire.

2. A hook and eye comprising a hook member formed of a single piece of resilient wire sharpened at one end and formed with a coil, then bent forward and formed into a loop and bill, then bent rearward and extended through the coil, and terminating in a hook; and an eye member formed of a single piece of wire sharpened at one end and bent to form a coil and an end loop, and terminating at its opposite end in a hook.

678,268. LINOTYPE-MACHINE. OTTMAR MERGENTHALER, Baltimore, Md., assignor, by mesne assignments, to the Mergenthaler Linotype Company, New York, N. Y. Filed May 17, 1898. Serial No. 680,964. (No model.)

Claim.—1. The combination with the matrix-magazine and a pair of slotted plates arranged along and adjacent to the upper end of the magazine, of the partition-plates forming the magazine-mouths, said partition-plates having portions which pass through the slotted plates, and a rod passing through openings in the partition-plates between the slotted plates.

2. The combination with the matrix-magazine and a pair of slotted plates arranged along and adjacent to the upper end of the magazine, of the partition-plates forming the magazine-mouths, said partition-plates passing through the slotted plates, a rod passing through holes in the partition between the slotted plates, and a fixed bar arranged over said partition-plates.



3. The combination with the magazine, of partition-plates forming the mouths of the magazine, means for securely holding said partition-plates at one side of the magazine and a fixed toothed bar at the other side of the magazine, said partition-plates resting upon said bar and having room for limited movement between the teeth thereof.

4. The combination with the magazine and the partition-plates forming the mouths of the magazine, of means for holding said plates at one side of the magazine, and a pair of toothed bars at the other side of the magazine, one of said bars being fixed and the other movable and the partition-plates being engaged by the teeth of said bars whereby the said partition-plates are normally held in position over the magazine-partitions.

5. The entrance-plate supported upon the frame of the machine and capable of a lateral movement thereon, combined with a spring attached to said frame and to said entrance-plate, and an adjusting-screw, so that a constant and accurate adjustment of the magazine and assembling-channels may be secured.

6. The combination with the entrance-plate mounted on the frame of the machine and capable of a lateral movement thereon, and the guide for the escapement-rods attached to said entrance-plate, with a spring connected to the entrance-plate and to the machine-frame, and with an adjusting-screw, so that a constant and accurate adjustment may be secured between the magazine and assembling-channels and between the escapement-rods and the finger-key mechanism.

7. The matrix carrying and delivering belt combined with pulleys for carrying said belt, which pulleys are suitably actuated, and the lower two pulleys of the series being so located as to incline the lower portion of the belt at such an angle as to insure the delivery of the matrix in the proper position, together with a spring or yielding piece, said piece and belt being so arranged that the matrix passes between them to further insure the delivery of the matrix in the proper position.

8. In combination, the traveling belt, a pulley at the upper end of said belt, means embracing a hand-clutch for actuating said pulley, and two pulleys at the lower end of said belt so located as to angularly incline its lower end.

9. In a linotype-machine, an assembling-belt passing around a series of pulleys, one of which is suitably actuated to move the belt, an assembling star-wheel, and gearing between one of said pulleys and the star-wheel, said gearing including a friction clutch or coupling adapted to slip when the star-wheel is obstructed, for the purpose set forth.

10. In a linotype-machine, the space-band box or magazine comprising a pivoted cover adapted to be swung back to expose the upper ends of the space-bands, a stop against which said cover rests when closed, and suitable shoulders or projections on the cover arranged to prevent more than one space-band from being ejected at a time.

11. In a linotype-machine, a space-band box or magazine comprising guides upon which the space-bands rest, a pivoted cover having a depending rib adapted to lie within the openings in the upper ends of the space-bands, spring-pawls and connections for raising one space-band at a time out of the box, and a stop carried by the cover and arranged to prevent more than one space-band at a time being discharged.

12. The guide or way for conducting the space-bands from the distributing-box to the space-band magazine provided with a pivoted entrance-plate.

13. In a linotype-machine, the combination with the assembling-box and the elevator, of a guide extending between said box and elevator, and the yielding resistant adapted to slide on said guide in advance of an assembled matrix-line during its passage from the assembling-box to and into the elevator.

14. In a linotype-machine, the combination with the assembling-box and the elevator, of the guide extending from said box to said elevator, a yielding resistance traveling with said guide, means for drawing said resistant constantly in the direction of the assembling-box, said resistant being adapted to travel with the assembled line to the elevator, and means for lowering the elevator with the assembled line whereby the resistant is freed and permitted to return to operate upon a new line in the assembling-box.

15. In a linotype-machine, the combination of the assembling-box and the yielding resistant therein, of a pawl or stop movable into the path of said resistant to limit the movement thereof and adjustable lengthwise of said path for different lengths of lines.

16. In a linotype-machine, the combination of the assembling-box, and the yielding resistant movable in said box in advance of the line of matrices, with a pawl or stop for said resistant, said pawl or stop being capable of a lateral movement into and out of the path of the resistant.

17. In a linotype-machine, the combination with the assembling-box and the yielding resistant movable therein in advance of a line of matrices, of a rock-shaft, a pawl or arm on said shaft adapted to swing into and out of the path of said resistant, a spring normally tending to hold said pawl in said path, and a bevel on said pawl whereby the resistant in its reverse movement rocks the pawl out of its path.

18. The combination of the assembling-box and yielding resistant, with a spring-actuated pawl normally held in position so as to act upon the resistant and to determine the length of the line and capable of being swung so as to release the resistant and the assembled line, said pawl being provided with a bevel so as to permit the return of the resistant to its normal position.

19. In a linotype-machine, the combination with the elevator, and means for temporarily holding the elevator in position to receive a line of matrices, of a mold, means for moving the elevator from the receiving position to the mold, a cam-shaft normally idle, and a starting device for the cam-shaft adapted to be operated by the elevator as it moves from the receiving to the casting position

20. In a linotype-machine, the combination of a normally idle cam-shaft, a starting-clutch, a starting-lever, an elevator having a part adapted to operate said lever, means for holding the elevator temporarily in position to receive a line of matrices, and means for releasing the elevator, said elevator being arranged to sink by its own weight from the receiving to the casting position and adapted to automatically operate the starting lever as it approaches the latter position.

21. The combination of the assembling-box and the elevator, with an adjustable stop upon which the elevator normally rests so as to be directly in line with the assembling-box.

22. The combination of the assembling-box and the elevator, with the movable stop and with adjusting means between the elevator and the stop so that the elevator may be maintained in accurate alinement with the assembling-box.

23. The elevator provided with the retaining-pawl for holding the assembled line of matrices in position and means for adjusting the pawl relatively to the elevator to adapt the elevator to different lengths of line.

24. The elevator adapted to move vertically and provided with adjustable means adapted to act upon the starting mechanism to start the cam-shaft.

25. In a linotype-machine, the combination of the main frame, the cam-shaft journaled in the rear portion thereof, the vise-cap arranged in the front part of the machine, and the bolts connecting said vise-cap with the rear portion of the frame, said vise-cap being adapted to sustain the elevator during the casting operation.

26. In a linotype-machine, the combination with the main frame having rear standards in which the cam-shaft and cam-levers are mounted, the arch-shaped vise-cap in front of the machine, bolts connecting said vise-cap with the rear standards, the elevator, the mold, and the melting-pot, said vise-cap being adapted to sustain the elevator while the mold and melting-pot are coöperating with the line of matrices during the casting operation.

27. The combination of the movable jaw, a screw-threaded rod at the rear end thereof, and a spring, tending through suitable connections to turn said screw-threaded rod to lock the movable jaw in position, said spring movement being under the control of the justifying mechanism, with further means for giving said movable jaw an inward and yielding motion to close the mold for short lines and for returning it to its outward position

28. In a linotype-machine, the mold-carrier mounted upon a shaft capable of both rotary and longitudinal motion, and means for intermittingly imparting rotary and longitudinal motion to the shaft, combined with an arm or bushing mounted on said shaft and pins on the frame of the machine adapted to be engaged by said arm or bushing so as to firmly hold and lock the mold in its operative positions.

29. The combination of the mold-carrier, the shaft on which said carrier is mounted, a gear also mounted on said shaft, means for imparting to said gear intermittent rotary motion, an arm or bushing also mounted on said shaft, and means for imparting an intermittent longitudinal motion to said shaft, with pins mounted upon the frame and with which the arm or bushing is adapted to engage so as to firmly lock the mold in its various operative positions.

30. In a linotype-machine, the ejector, combined with its supporting-frame, said frame being supported upon the mold-shaft and sliding upon rods of the main frame.

31. In a linotype-machine, in combination with the mold and with the ejector, of suitable means for imparting to the ejector, first a partial ejecting movement, and finally a complete ejecting movement.

32. The combination with the pot, of the mold, the mold-shaft, and of the ejecting mechanism partially supported on said mold-shaft, the said parts being so placed above the pot as to permit of easy access to the ejector-blade.

33. In combination with the mold and ejector mechanism, of the means for trimming the base of the slug while it is still in the mold, of further means for trimming one of the forward edges of the slug while it is partially ejected from the mold, and of means for trimming the other front edge of the slug after it has been completely ejected from the mold.

34. In a linotype-machine, the combination with the mold, of a knife constructed and operated to trim one of the side faces of the slug while the latter is supported in and protruding from the mold.

35. In a linotype-machine, the combination with the movable mold, means for casting a slug therein, and means for ejecting the slug therefrom, of means for moving the mold from the casting to the ejecting position, a stationary knife adapted to trim the forward edge of the slug during said movement, a traveling knife arranged to trim one of the side faces of the slug as it is partly ejected from the mold, a stationary knife arranged to trim the other side face of the slug, and means for moving the slug past said knife after it is ejected from the mold.

36. In a linotype-machine, the combination of a mold and a trimming-knife arranged to move lengthwise of the mold and trim the side face of the slug while the latter is supported in and protruding from the mold.

37. In combination with the mold, of a knife impinging thereon, and of suitable operating mechanism for actuating said knife so as to trim one of the forward edges of the slug when partially ejected from the mold.

38. The knife box or block provided with spring-pressed surfaces for maintaining the slug in position and with a knife for trimming one of the forward edges of the slug, combined with suitable means for forcing the slug lengthwise through the knife box or block and past the trimming-knife.

39. The knife box or block, provided with a pressure-surface adapted to receive and hold the slug when it is ejected from the mold, in combination with a trimming-knife adapted to trim one of the forward edges of the slug, further pressure devices designed to firmly hold the slug in the box or block while it is being trimmed and means for moving the slug lengthwise through said knife-box.

40. The knife box or block, provided with pressure-surfaces and with a knife for trimming one edge of the slug, together with adjusting means for varying the knife box or block so that it may be adapted to slugs of different thicknesses.

41. In combination with the mold, and with ejecting mechanism, of a knife adapted to trim one edge of the slug when partially ejected from the mold, and a slug-shifter connected to said knife and adapted to force said slug through the knife-block for trimming the other edge of the slug, together with suitable actuating means for said knife and slug-shifter.

42. In combination with the elevator, and with a shifter for moving the assembled line from the elevator to the distributing mechanism and with a suitably-actuated arm for moving said shifter, of a pawl connected to the said shifter-arm and coöperating with a stud at the lower part of the frame, so that the shifter may be locked in inoperative position to permit the return of the elevator with the assembled line.

43. The main frame of the machine provided with a support, and keyboard, assembling and distributing mechanisms independently adjustable on said support.

44. The main frame of the machine provided with a vertical pillar or column adapted to receive collars on the keyboard, assembling, and distributing mechanisms, so as to permit of the independent adjustment of said mechanisms thereon.

45. The main driving mechanism embracing a clutch, combined with suitable moving means therefor, and means whereby the actuation of the cam-shaft is initiated by the descent of the elevator.

46. The main driving mechanism embracing a clutch, and suitable mechanism connected thereto whereby the descent of the elevator initiates the actuation of the cam-shaft, combined with means connected to the cam-shaft whereby the clutch is disengaged after the required cycle of operations has been completed.

47. The main driving mechanism embracing a clutch for the actuation of the cam-shaft, combined with suitable means actuated by the descent of the elevator for initiating the operation of the cam-shaft, including a hand mechanism whereby the operation of the cam-shaft may be stopped and started at will.

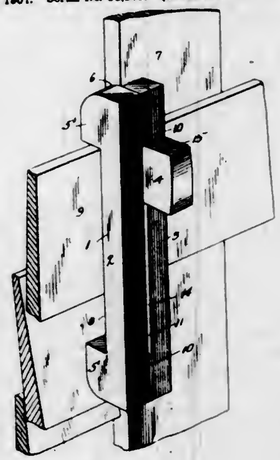
48. The main driving mechanism embracing a clutch connected to the cam-shaft, which clutch is normally held out of engagement by starting means acted upon by a device carried by the cam-shaft, combined with suitable means whereby the descent of the elevator disengages the starting means from the device carried by the cam-shaft and permits the actuation of the cam-shaft until said starting means are again engaged by the said device.

49. The main driving mechanism, embracing a clutch connected to the cam-shaft, which clutch is normally held out of engagement by starting means acted upon by a device carried by the cam-shaft, and suitable means whereby the descent of the elevator disengages the starting means from the device carried by the cam-shaft and permits the actuation of the cam-shaft until said starting means are again engaged by the said device, combined with a hand-operated device to permit the stopping and starting of the cam-shaft at will during its cycle of operations.

50. In a linotype-machine, a device adapted to drive all of the justifying-wedges simultaneously, in combination with a cam having an irregular contour adapted to advance the wedge-driving device with a jogging movement, for the purpose set forth.

51. In a linotype-machine, the combination with the justifying-lever, and a device connected thereto adapted to drive all of the justifying-wedges simultaneously, of a spring for operating said lever to drive the wedges, and a cam for controlling the movement of said lever, said cam having an irregular face to impart a jogging or intermittent movement to said lever, for the purpose set forth.

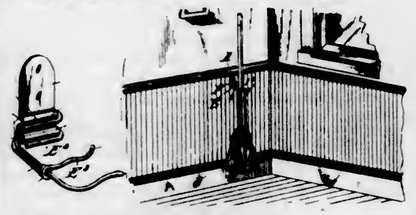
678,269. **SIDING-MARKER.** JOHN B. MOSS, Morris, Ill. Filed May 1, 1901. Serial No. 58,373. (No model.)



Claim.—1. A device of the class described comprising a body composed of the bar 2, provided with arms and the bar 3 having a longitudinal recess forming an opening, said bar 3 being also provided with a reduced portion or rib, a slide arranged in the said opening and provided with a groove receiving the rib and permitting the slide to have an inward and outward movement, and a blade mounted on the slide and adapted to be carried into and out of the body by the movement of the slide, substantially as described.

2. A device of the class described comprising a body having an opening, a slide mounted in the opening and capable of a limited inward and outward movement, and a corrugated blade mounted on the slide and forming a series of segmental cutting portions, substantially as described.

678,270. **BROOM-HOLDER.** DANIEL H. MOWEN, Myersville, Md. Filed Apr. 26, 1901. Serial No. 57,586. (No model.)



Claim.—1. The herein-described broom-holder consisting of the carrier-plate provided with the bearings arranged one above the other, the clamping-bar provided at its outer end with the clamping-arm and at its inner end with a shaft journaled in the lower bearing of the carrier-plate, said bar being provided with a guide-opening for the other clamping-bar, and the second clamping-bar slidable in said opening, provided at its outer end with an arm coöperating with that of the other bar and provided at its inner end with the shaft journaled in the upper bearing of the carrier-plate and having a returned portion extending across the face of the carrier and adapted to form a stop, substantially as set forth.

2. A broom-holder comprising two clamping-bars slidable one upon the other and provided at their outer ends with arms to clamp on opposite sides of the handle and pivotally supported at their inner ends, substantially as set forth.

3. A broom-holder comprising two clamping-sections slidable one upon the other and pivotally supported on different centers whereby as they are rocked upon their pivots they will be caused to approach and recede at their outer ends substantially as set forth.

4. A broom-holder comprising a clamp consisting of two members slidable relatively to each other and arranged to bind the broom-handle when the gravity thereof is exerted upon the said clamp, substantially as set forth.

5. A broom-holder comprising a carrier-plate, and clamping-sections having clamping-arms at their outer ends, slidable upon each other and having their inner ends pivoted to the carrier-plate one above the other, substantially as set forth.

6. A broom-holder consisting of the carrier-plate having bearings one above the other and the clamp composed of members provided at their inner ends with shafts journaled in the bearings of the carrier-plate, one of the members having a twisted portion forming a loop through which the other member may slide substantially as set forth.

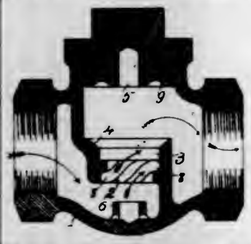
7. The combination in a broom-holder of the carrier, and the clamp composed of members pivoted at their inner ends to the carrier-plate and slidable one along the other, one of the members being provided adjacent to its pivot with a returned portion arranged to abut the plate and operate as a stop substantially as set forth.

678,271. **CHECK-VALVE.** PHILIP MUELLER, Decatur, Ill., assignor to H. Mueller Manufacturing Co., Incorporated, same place. Filed Feb. 20, 1901. Serial No. 48,079. (No model.)

Claim.—1. In a check-valve, the combination of a valve-body having a bore the internal surface of which is grooved obliquely, a valve-stem in the bore and wings on the stem beyond the discharge side of the bore, whereby the stem is rotated by whirling motion developed in the fluid by the oblique passages and imparted to the wings, substantially as described.

2. In a check-valve, the combination of a valve-body having a bore crosswise of its axis, such bore being grooved obliquely in its internal surface, a valve-stem extended through the bore and having both rotary and longitudinal motion therein, a valve on the stem beyond the discharge side of the bore, wings on the under side of the valve to receive rotary motion from the fluid passing through the oblique grooves, and

wings on the upper side of the valve to act as stirrers, substantially as described.



3. In a check-valve, the combination of a valve-body, a vertical valve stem rotatable by the passage of fluid through the body and longitudinally movable, such stem being longitudinally fluted at its lower end, and a tubular recess for the lower end of the stem having side openings, whereby sediment may be forced through the side openings of the recess when the stem rotates, substantially as described.

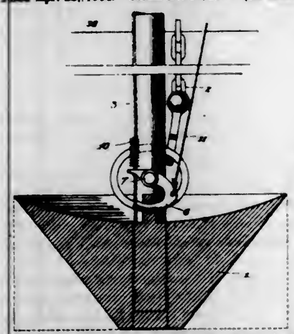
678,272. **DIVIDER AND BAG-FILLER FOR POWDERS.** LUDWIG KNEMAYER, Merseburg, Germany. Filed May 25, 1900. Serial No. 17,940. (No model.)



Claim.—1. In a device of the character set forth, the combination with a receiving-case, adapted to contain pulverulent ware, suitable studs on the side walls of said case, a socket-divider snugly fitting into said case, and having a plurality of equally-sized sockets adapted to receive paper bags, a second case having hinged walls and adapted to be inverted over the receiving-case, means for holding the hinged walls together and means for temporarily securing the cases and divider together, of a suitable frame, vertical slots in said frame, bearings adapted to receive the studs of said receiving-case and to slide in said slots, springs attached to the frame and the bearings and pressing the latter upwardly, a treadle pivoted to the frame and suitable connections between the bearings and the treadle, substantially as and for the purpose set forth.

2. In a device of the character set forth, the combination with a receiving-case adapted to contain pulverulent ware, suitable studs on the side walls of said case, a socket-divider snugly fitting into said case, and having a plurality of equally-sized sockets adapted to receive paper bags, a second case having hinged walls and adapted to be inverted over the receiving-case, means for holding the hinged walls together and means for temporarily securing the cases and divider together, of a suitable frame, vertical slots in said frame, bearings adapted to receive the studs of said receiving-case and to slide in said slots, springs attached to the frame and the bearings and pressing the latter upwardly, a treadle pivoted to the frame and suitable connections between the movable bearings and the treadle, a vertically-movable platform guided on the frame and adapted to be brought under the bottom of the lower case, and means for raising and lowering said platform, substantially as and for the purpose set forth.

678,273. **MOORING DEVICE.** EMERSON R. NEWELL, New York, N. Y. Filed Apr. 25, 1901. Serial No. 57,423. (No model.)



Claim.—1. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device outside of said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

2. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device carried on the outside of said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

3. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a pivoted hook carried by said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said pivoted hook and thereby releasing said pipe.

4. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device outside of said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and a flexible connection adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

5. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and said pipe and adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

6. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device outside of said pipe and above said anchor and adapted to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

7. In combination with a mooring device including an anchor of a conical shape and having a hole therethrough, a detachable pipe through which a fluid may be forced, a locking device carried by said pipe to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and a flexible connection adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

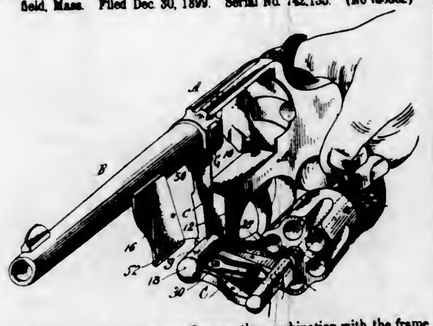
8. An anchor having a conical shape and provided with an open hole through the same from the larger to the smaller end, which hole is adapted to receive a jet-pipe, in combination with a flexible mooring-cable connected therewith, and means for detachably holding the jet-pipe in place.

9. In combination with a mooring device including a conical-shaped anchor having a hole therethrough forming a long bearing, a detachable pipe through which a fluid may be forced, said pipe being located in and supported by said long bearing, whereby a stream of fluid may be directed through said hole and out of the smaller end of said anchor to stir up the bottom beneath said anchor and cause said anchor to sink down in said bottom.

10. In combination with a mooring device including an anchor having a hole therethrough, a detachable pipe through which a fluid may be forced, a pivoted locking device outside of said pipe and adapted to secure said pipe to a part of said mooring device and hold said pipe in position whereby a stream of fluid may be caused to pass through said hole in said anchor to stir up the bottom underneath the anchor, and means also outside of said pipe and adapted to extend above the surface of the water for tripping said locking device and thereby releasing said pipe.

11. In combination with a mooring device including an anchor and a flexible mooring-cable attached thereto, a detachable pipe through which a fluid may be forced, a locking device adapted to hold said pipe in position with relation to said anchor so that a stream of fluid passed through said pipe will be directed below said anchor to stir up the bottom underneath the anchor and allow the same to settle down in the bottom, said locking device being located outside of said pipe and operative from the surface of the water to free said pipe from said anchor and allow of the removal of the same when said anchor has been sunk to the desired depth in the bottom.

678,274. **REVOLVING FIREARM.** GEORGE A. OWEN, Springfield, Mass. Filed Dec. 30, 1899. Serial No. 742,135. (No model.)



Claim.—1. In a revolving firearm, the combination with the frame of the arm, provided with a cam-surface, and the yoke movable relative to the frame as described, and carrying the cylinder and an ejector, of a pivotally-mounted ejector-actuating device, bodily movable in unison with the yoke, and also independently movable by its impingement against said cam-surface for projecting the ejector, and means for returning the ejector-actuating device to its normal position.

2. In a revolving firearm, the combination with the frame, having the cam-groove *g*, and the yoke carrying the cylinder which is provided with the ejector, of a lever intermediately pivoted to a part of the yoke and adapted to be moved bodily in unison therewith, having one member thereof engaging the ejector, and having the other member thereof in impingement against the surface of the cam-groove, and so arranged that as the lever is bodily moved when the yoke is swung, it will also have the additional swinging and ejector-operating movement, for the purpose set forth.

3. In a revolving firearm, the frame, having the apertare 10, and the cam-groove *g*, the yoke, with the cylinder and ejector, mounted to swing on said frame, the said yoke having pivoted thereon the two-armed lever F, one member being provided with a yielding pawl, and the other extending to engage within said cam-groove, substantially as and for the purposes set forth.

4. In a revolving firearm, of the character described, the frame having the cylinder-carrying yoke mounted for a swinging movement thereon, and the yoke-carried cylinder provided with an ejector, and spring-retracted ejector-rod, forwardly extending, a lever F pivotally mounted on the yoke in advance of the forward end of the ejector-stem and having a yielding pawl in engagement with said ejector-stem and a cam with which the lever, as it swings in unison with the yoke, engages, so that as the yoke is outwardly and downwardly swung, the lever will rearwardly force the ejector-stem and be finally moved out of engagement therewith, leaving the said stem then free to be rearwardly returned to its original position, the yielding pawl end of the said lever permitting said lever to be returned to resume its engagement at the forward end of the ejector-stem, substantially as described.

5. The combination with the frame, of the firearm, having the cylinder-carrying yoke mounted for a swinging movement thereon, and provided with a part in which is a groove, a portion of which is substantially coincident with the plane of swinging movement of the yoke, while another portion thereof is decidedly angular to such plane of movement, the ejector, and a lever pivotally mounted on the yoke having one member adapted to engage and to operate the ejector, and having its other member in impingement in said groove, and all arranged whereby the ejector-actuating swinging movement of the said lever transpires after the yoke has been swung clear of the frame, substantially as described.

6. In a revolving firearm, the combination with the frame of the arm having a part thereof constructed with the cam-surface, and the yoke mounted to swing on the frame as described, and carrying the cylinder and an ejector, of a pivotally-mounted ejector-actuating lever, bodily movable in unison with the yoke, and also independently movable by its impingement, as it moves, on said cam-surface, for projecting the ejector, and a cam-surface in contact with which the lever is brought after it has projected the ejector for displacing the engaging part of the lever from the ejector.

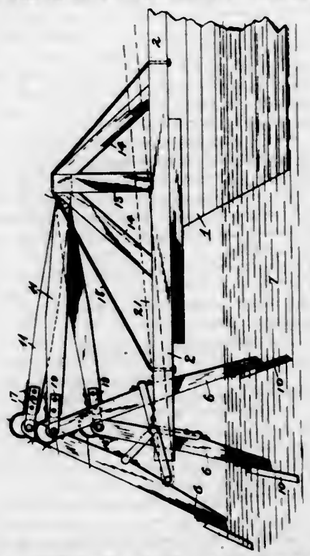
7. In a revolving firearm, the combination with the frame of the arm having a part thereof constructed with the cam-surface, and the yoke mounted to swing on the frame as described, constructed with a cam-surface 43 and carrying the cylinder and an ejector, of a pivotally-mounted ejector-actuating lever bodily movable in unison with the yoke, and also independently movable by reason of its impingement on said first-named cam-surface, and having a spring-distended and yielding ejector-engaging member or pawl, and all so arranged that after the lever has projected the ejector it will by contact on said cam 43, insure the contraction of the said lever for its disengagement with the ejector.

8. In a revolving firearm, in combination, the frame having the fixed round extension provided with the cam-groove *g*, the yoke hung thereon for a sidewise swinging movement which has the recess 15 and the tubular ejector-support 23, the passage therein extending longitudinally into communication with said recess, the cylinder and the ejector having its stem playing through the tubular cylinder-support and extending into said recess, the lever F having the long arm thereof formed by the two members 33 and 34, the latter of which is telescopically engaged about the other, and is adapted by its extremity to engage the ejector-operating stem, and having the distending-spring, substantially as described.

9. In a revolving firearm, in combination, the frame having the fixed round extension provided with the cam-groove *g*, the yoke hung thereon for a sidewise swinging movement having the recess 15, with the cam-surface 43 therein, and provided with the tubular ejector-support 23, the passage therein extending longitudinally into communication with said recess, the cylinder and the ejector having its stem playing through the tubular cylinder-support and extending into said recess, the lever F having the long arm thereof formed by the two members 33 and 34, the latter of which is telescopically engaged about the other, and is adapted by its extremity to engage the ejector-operating stem, and having the nose 41 and the distending-spring, and the covering-plate 16 for said recessed yoke, substantially as described.

10. In a revolving firearm, the combination with the yoke mounted for the sidewise swinging movement on the frame of the arm, and having the cylinder, rotatably mounted thereon, which is provided with the concentric end hub 36 having the annular groove 27, of the stud or pin rotatably supported by, and projecting beyond the face of the yoke adjacent said grooved-hub-provided part of the cylinder, and having the rigid angular member engaged in said groove, and adapted on the turning of the stud to be disengaged therefrom, to permit the removal of the cylinder.

678,275. **PROPELLER.** WILLIAM B. PINKERTON, Cottonplant, Ark. Filed Dec. 31, 1900. Serial No. 41,682. (No model.)



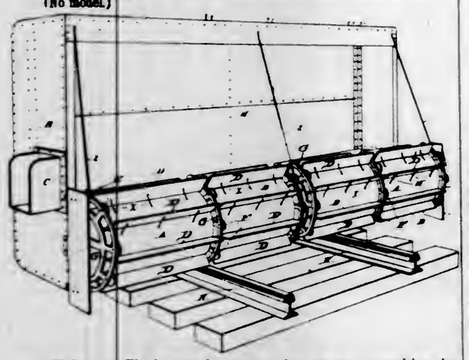
Claim.—The herein-described propeller comprising a driving-shaft having a plurality of crank-sections; a plurality of arms coöperating with said crank-sections adapted to be operated by the rotation of said shaft; a series of levers pivotally connected to the upper ends of said arms, a cup-shaped blade attached to the opposite end of each of said arms, and a spring so mounted in position at the point of pivotal union of said lever and arm whereby the lower end of the arm will be normally extended rearwardly; the spring being designed to facilitate the movement of the blade carried by the arm through the water, all combined substantially as specified and for the purpose set forth.

678,276. SWITCH-OPERATING MECHANISM. HARVEY E. POOLE, Columbus, Ohio. Filed Feb. 14, 1901. Serial No. 47,285. (No model.)



Claim.—In a switch-operating mechanism, the combination with railway-track rails, a pivoted switch-tongue and a depending tongue-pin 4, of a shaft journaled beneath the trackway, inner and outer sets of arms on said shaft, cam-heads on said arms each having a curved edge portion and a lever extending from said shaft and adapted to contact with a projection from a car-platform, substantially as specified.

678,277. MACHINE FOR REMOVING SNOW AND ICE. CHAS. POORE, Western Springs, Ill. Filed Sept. 6, 1900. Serial No. 29,147. (No model.)



Claim.—1. The improved snow and ice remover comprising the frame or body having transporting-wheels at its ends, the snow-receptacle open at the front and having a hollow back and bottom, a series of incandescent electric lamps located therein, the rotary snow and ice removing drums located in front of said receptacle, electric motors arranged at the rear of the frame, means for connecting said drums and motors and electric conductors forming part of an electric circuit which includes the said lamps and motors, as shown and described.

2. The snow and ice cutting and removing drums, comprising an axis, a suitable body, a series of cutters projecting radially, and a series of intervening radial blades or wings, all arranged as shown and described.

3. The snow and ice removing drum comprising an axis, the cylindrical body, the spiders arranged to project radially, a series of rotary disks journaled thereon, and a series of radial blades or wings, all arranged as shown and described.

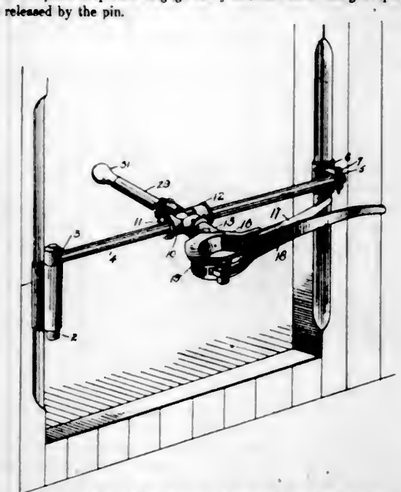
4. The combination with the wheeled frame having an open-front receptacle located therein, of the rotary snow and ice removing drum located in front of said frame, and having radial cutters and intervening blades, substantially as shown and described.

678,278. MAIL-BAG CATCHER. EDSON POTTER, Greensburg, Ind. Filed Feb. 26, 1901. Serial No. 48,905. (No model.)

Claim.—1. In a device of the character described, the combination with a supporting-rod; of a tine suspended from and adapted to swing upon, said rod, a second tine hinged to the first-mentioned tine, a catch for locking the tines in closed position, and means operated by the supporting-rod, for automatically releasing said catch.

2. In a device of the character described, the combination with a supporting-rod; of a yoke suspended from, and adapted to swing upon, said rod, a tine extending from the yoke, a plate hinged to the yoke and adapted to swing thereinto, a tine extending from the plate, a catch upon the plate adapted to engage the yoke and lock the tines in closed position, and means operated by the supporting-rod, for releasing the catch from the yoke.

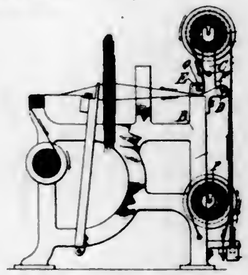
3. In a device of the character described, the combination with a supporting-rod having an eccentric thereon; of a sleeve revoluble upon the rod and inclosing the eccentric, a stem revoluble within the sleeve, a pin slidably mounted within the stem and adapted to be operated by the eccentric, a yoke to the stem, a plate hinged to the yoke and adapted to swing thereinto, tines extending from the plate and yoke, and a catch upon the plate adapted to engage the yoke, said catch being adapted to be released by the pin.



4. In a device of the character described, the combination with a supporting-rod, of an eccentric thereon, a sleeve revoluble upon the rod and inclosing the eccentric, a stem revoluble within the sleeve, tines extending therefrom, a yoke slidably mounted within the sleeve and adapted to engage the stem, shoulders to the yoke, means for holding the shoulders normally in contact with the eccentric, said eccentric being adapted to automatically release the yoke from the stem of the tines.

5. In a device of the character described, the combination with a supporting-rod having an intermediate eccentric and an oppositely-arranged eccentric at each side thereof; of a sleeve revoluble upon the supporting-rod and inclosing the eccentrics, a tubular stem swiveled within the sleeve, a yoke secured thereto and having a shoulder formed therewith, a plate hinged to the yoke, a spring-strip secured thereto and adapted to automatically engage the shoulder, tines extending from the yoke and plate, a pin slidably mounted within the stem and adapted to be operated by the intermediate eccentric and to release the spring-strip from the shoulder, and guides for said pin.

678,279. LOOM. GEORGE R. RACK, Philadelphia, Pa., assignor of one-half to John P. Wood, same place. Filed Nov. 13, 1900. Serial No. 36,326. (No model.)



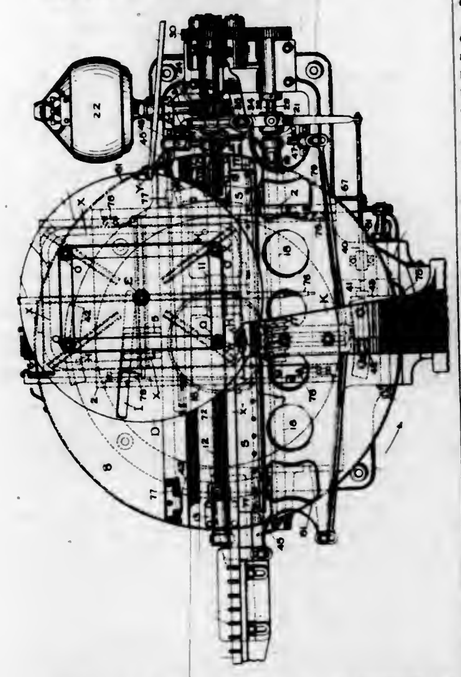
Claim.—1. In a loom, a warp-beam, a bracket secured to the frame of said loom, a warp-beam carried thereby, journals on said bracket, and rollers carried in said journals whereby the said bracket, rollers and warp-beam, can be removed from said loom, said rollers being adapted to receive the yarn or thread, one from one beam and the other from the other warp-beam.

2. In a loom, a warp-beam, a tension-bar, a strap suitably connected therewith and with said beam, a second warp-beam, a suitable lever connected with said tension-bar, and a strap suitably connected with said lever and with said second warp-beam.

3. In a loom, a warp-beam, a tension-bar, a friction-band connected therewith and serving to govern the tension of said warp-beam, a second warp-beam, a weighted lever connected with said tension-bar, and a friction-band attached to said lever and serving to govern the tension of the second warp-beam.

4. In a loom, a lower warp-beam, a tension-bar suitably connected with said lower warp-beam to control the tension thereof, a bracket secured to the frame of said loom, an upper warp-beam carried thereby, a weighted lever connected with said tension-bar and with said upper warp-beam to control the tension thereof and rollers carried by said bracket which are adapted to receive the yarn or thread, one from the lower warp-beam and the other from the upper warp-beam.

678,280. COIL-FORMING APPARATUS. JOHN RIDDELL, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Jan. 19, 1901. Serial No. 43,904. (No model.)



Claim.—1. In an edgewise-winding machine, the combination with a former, of a reciprocable member on which the former is mounted, a rotatable member on which the reciprocable member is mounted, whereby the latter is revolved, and means for automatically reciprocating one and rotating the other member alternately.

2. In combination, a former, a plurality of reciprocable members, means for revolving said parts, and means for automatically reciprocating said members intermittently.

3. In combination, a former, a reciprocable member on which the former is mounted, a second reciprocable member on which said reciprocable member is mounted, a rotatable member on which said second reciprocable member is mounted, means for automatically actuating the reciprocable members successively, and means for automatically actuating the rotatable member intermediately.

4. In combination, a former, an upper platform, a lower platform, a rotatable table, means for automatically reciprocating the platforms successively, and means for automatically actuating the table intermediately.

5. In combination, a rotatable table, a platform which slides over the table, a former which is mounted on the platform, and means for automatically rotating the table and reciprocating the platform alternately.

6. The combination with a former, of an upper platform, a lower platform, a table, and means for automatically moving the platforms successively, and intermediately rotating the table.

7. The combination with a former, of a plurality of reciprocable members, and means for automatically revolving and moving longitudinally each member successively.

8. In combination, a former, and a plurality of reciprocable and revolvable members, and means for automatically actuating said members alternately.

9. The combination with a former, of a rotatable member, a member mounted thereon and reciprocable thereover, a second member mounted on and reciprocable over said member, and means for automatically actuating said members in succession.

10. The combination with a former, of an upper platform, a driving-worm therefor having a clutch member on each end, a lower platform, a driving-worm therefor having a clutch member on each end, a power clutch member which coöperates with said upper and lower platform clutch members, a rotatable member having a driving clutch member, and a power clutch member which coöperates with said table clutch member.

11. The combination with a former, of means for automatically reciprocating and revolving it.

12. The combination with a former, of means for moving it longitudinally over different distances, and means for intermediately revolving it.

13. The combination with a former, of means for moving it longitudinally to draw in fresh portions of a metallic strip to be bent edgewise, a stationary member for holding the strip against the edge of the former, means for revolving the former away from the stationary member, and means carried with the former for thereafter holding the strip against the edge of the former.

14. The combination with a former, about which a metallic strip is to be bent edgewise, of a pressure-disk provided with a slot for the passage of the bent strip.

15. The combination with a former, of means for moving it longitudinally to draw in fresh portions of a metallic strip to be bent edgewise, a stationary member for holding the strip against the edge of the former, spring-catches carried with the former which are depressed beneath the stationary member, and means for revolving the former to bend the strip, said catches serving to hold the strip against the edge of the former after the latter has revolved away from said stationary member.

16. The combination with a former, of a former-base extending laterally beyond the edge of the former, a stationary member which holds the metallic strip to be bent, against the edge of the former, and a slotted pressure plate or disk which holds the strip against the former-base between the edges of the former and the stationary member.

17. The combination with a former, of a slotted pressure-plate, and a coil-support carried by said plate.

18. The combination with a former, of a stationary member for holding the strip against the edge thereof, and means for adjusting said member to the width of the strip.

19. In combination, a former, means for reciprocating and revolving it, and a pressure-plate mounted on the former and held from rotative movement only.

20. In combination, a former, means for moving it longitudinally to draw in fresh portions of the strip, a former-base, a stationary member for holding the strip against the edge of the former, a slotted pressure plate or disk for holding the strip against the former-base, means for revolving the former to bend the strip, and spring-catches mounted on the former-base, which hold the strip against the edge of the former until the strip passes through the slot in the pressure-plate.

21. In an edgewise-winding machine, the combination with a former, of a table, a platform mounted to slide across the table, power connections for the table and platform, and dogs on the table and devices on the platform for automatically controlling the power connections.

22. In an edgewise-winding machine, the combination with a former, of a rotatable table, a reciprocable platform mounted thereon, power connections, and means carried by the table and platform for controlling the power connections.

23. In an edgewise-winding machine, the combination with a former, of a rotatable table, a reciprocable platform mounted thereon, power connections, means carried by the table and platform for controlling the power connections, and means for checking the movements of the table and platform after the power connections are cut off.

24. The combination with a former, of a rotatable table, a reciprocable platform mounted thereon, power clutch members for the table and platform respectively, and a mechanical connection between said power clutch members, which connection is pivoted between the said clutch members so that both cannot operate the table and platform simultaneously.

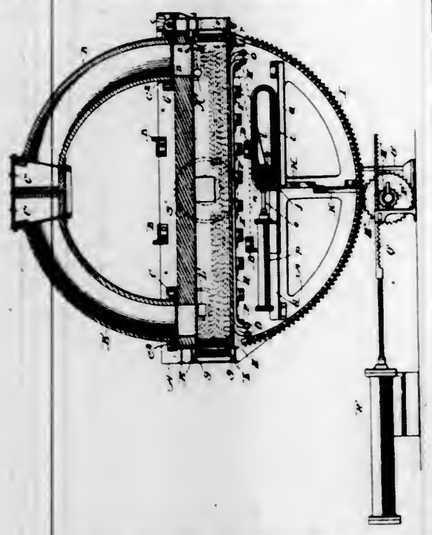
25. The combination with a former, of a pressure-disk, and an adjustable pressure device which bears on the disk.

26. In combination, a former-base, a former mounted thereon, a slotted pressure-disk mounted on the former, a coil-support mounted on the disk, means for holding the disk from rotation, and means for reciprocating and revolving all the parts.

678,281. PUDDLING-MACHINE. JAMES P. ROE, Pottstown, Pa. Filed Oct. 18, 1900. Serial No. 33,486. (No model.)

Claim.—1. In a machine for puddling and balling or massing iron, the combination of a hearth having an opening at one end for the discharge of the iron in a mass, a door for said opening, means for movably supporting said hearth, means for oscillating said hearth, means for feed-

ing heated gases to the hearth, and suitable chimneys or stacks carried at each end of the hearth for the escape of the products of combustion.



2. In a machine for puddling and balling or massing iron, the combination of a hearth, means for movably supporting the hearth, means for imparting a rocking motion to the hearth, means for delivering products of combustion to the hearth, and means for conveying away from the hearth said products of combustion, said delivering and conveying means being located one at the middle and the other at the ends of the hearth.

3. A machine for puddling and balling or massing iron, comprising a hearth having its bottom and the lower parts of its sides composed of water-pipes, and oxid of iron superposed on and adhering to said pipes, means for rocking said hearth, and means for delivering heated gases to said hearth, whereby all parts of the hearth are exposed to the heated gases and the bottom and sides rebuilt from the oxid of iron contained in the bath.

4. A machine for puddling iron, comprising a trough, extending the full length of the machine, the bottom thereof consisting of a hollow metallic foundation and oxid of iron resting thereon, means for causing a circulation of water through said metallic foundation, means whereby one end of said trough is alternately raised and lowered below the level of the other end, and means for delivering the products of combustion to said trough, whereby the bath is caused to shift from end to end of the trough and thus expose said trough to the heating gases.

5. A machine for puddling and balling or massing iron, comprising a hearth, means for feeding heated gases to said hearth, chimneys or stacks mounted on said hearth at each end thereof and converging above the same, and means for rocking said hearth.

6. A machine for puddling iron, comprising a trough, means for rocking said trough, a chimney or stack at each end of said trough, a damper for each chimney or stack, means whereby the dampers are opened and closed alternately, and means for delivering the products of combustion to the trough located between said chimneys or stacks.

7. A machine for puddling and balling or massing iron, comprising a trough, means for alternately raising and lowering the opposite ends of said trough, a chimney or stack at each end of said trough, dampers for said chimneys or stacks, and means for automatically opening one of said dampers and closing the other at each oscillation of the trough.

8. A machine for puddling and balling or massing iron, comprising a trough having a chimney or stack mounted on each end thereof, means for feeding heated gases to said trough from each side thereof, and means for rocking said trough.

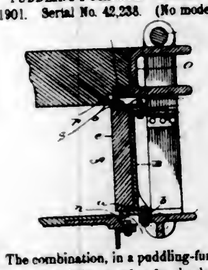
9. A machine for puddling and balling or massing iron, comprising a trough having a chimney or stack mounted thereon at each end, means for feeding the heating agent to said trough between the ends thereof, and means for rocking said trough.

10. A machine for puddling and balling or massing iron, comprising a trough having a chimney for the escape of the products of combustion at each end, means for feeding heated gases to said trough, and means for alternately tilting the ends of the trough, whereby the bath is caused to gravitate from end to end of the trough.

11. In a machine for puddling and balling or massing iron, the combination of a furnace comprising a trough or hearth extending the full length of the machine, a roof over said trough or hearth, means for movably supporting said furnace, means for imparting a rocking motion thereto transverse the longitudinal axis of the furnace, and means for delivering hot products of combustion uniformly to all parts of the interior of the furnace

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678,282. PUDDLING-FURNACE. JAMES P. ROE, Pottstown, Pa. Filed Jan. 5, 1901. Serial No. 42,238. (No model.)



Claim.—1. The combination, in a puddling-furnace, of a door-frame having a convex seat around the opening for the door, and a door having a similar convex seat around its inner face to abut against the convex seat on the frame, whereby a rounded surface is presented to the liquid cinder and the latter thus prevented from adhering to the door-frame and door upon chilling.

2. The combination, in a puddling-furnace, of a door-frame comprising side jambs formed in sections arranged one above the other, an upper cross-girder, a lower cross-piece, a door comprising a series of castings to hold the lining arranged side by side, cross-girders to which said castings are secured, and a lining of refractory material.

3. The combination, in a puddling-furnace, of a door-frame comprising an upper cross-girder having a flange formed with a convex seat, a lower cross piece or plate having a convex seat, and side jambs having convex seats, and a door having a convex seat extending around the same and arranged to abut against the door-frame convex seats when the door is closed.

4. The combination, in a puddling-furnace, of a door-frame comprising side jambs composed of a series of sections each having a convex seat at its edge, an upper cross-girder having a flange formed with a convex seat and said flange being slotted at intervals, a bottom cross-piece composed of a series of plates each of which is formed with a convex seat, and a door having a convex seat surrounding the same to engage the convex seats on the frame.

5. The hereinbefore-described door for puddling-furnaces, comprising a series of castings each of which having a top and bottom flange on one side thereof, a recess on the opposite side having inclined side walls, refractory material for said recess, a joint-plate for securing said material in place, and suitable cross-girders arranged for connection with said castings to hold the same together.

6. The combination, in a puddling-furnace, of a door-frame comprising an upper girder having a convex seat, a pipe arranged in proximity to said seat, a lower girder or cross-piece composed of separate plates each having a convex seat formed thereon, side jambs having convex seats, and a door having a convex seat around its inner face arranged to engage the convex seats of the frame.

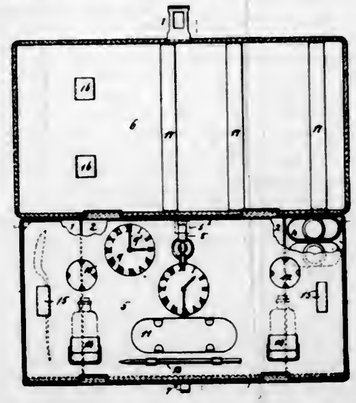
7. The combination, in a puddling-furnace, of a door-frame having a convex seat surrounding the opening for the door, a door having a surrounding convex seat arranged to abut against the convex seat on the frame, and means for pivotally supporting the door in position.

678,283. PROCESS OF MAKING ODORLESS FISH-POWDER. JULIUS SCHÄFER, Bonn, Germany. Filed June 11, 1900. Serial No. 19,878. (No specimens.)

Claim.—The herein-described process of making odorless and tasteless fish-powder, consisting in steaming fresh fish in their own moisture, then cooling and drying the mass and during the drying operation subjecting the mass to boiling vapors to destroy bacteria, then freeing the mass thus prepared, from fat, glue and mineral matter by treating it with alcohol containing acid, and finally boiling, drying and grinding the mass.

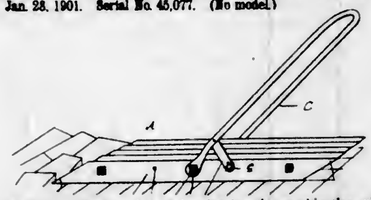
678,284. MEDICINE-CHEST. JAKOB SCHAFFER, New York, N. Y. Filed Jan. 17, 1901. Serial No. 43,657. (No model.)

Claim.—1. In a medicine-chest, a case having a plurality of compartments, an inner lid hinged at one edge inside the case at one side thereof, an outer lid hinged to said case at the opposite side thereof and having a loop or staple, a staple on the case to be engaged by said loop or staple when the outer lid is down, and a hook on the free edge of the inner lid to be engaged by said staple when the outer lid is raised to thereby maintain both lids at an angle to each other.



2. In a medicine-chest, a case having a plurality of compartments, an inner lid hinged at one edge inside the case at one side thereof, an outer lid hinged to said case at the opposite side thereof, and having a loop or staple, a staple on the case to be engaged by said loop or staple when the outer lid is down, a hook on the free edge of the inner lid to be engaged by said staple when the outer lid is raised to thereby maintain both lids at an angle to each other, and erasive tablets and time-indicating means on one of the lids.

678,285. ICE-CUTTER. JOHN SCHWEIKART, Detroit, Mich. Filed Jan. 28, 1901. Serial No. 45,077. (No model.)



Claim.—1. In a tool for trimming ice, the combination with the tool-body comprising a series of spaced and connected bars having cutting-points formed thereon at one end of the body, and a handle having a pivotal connection adapted to permit limited play with said body.

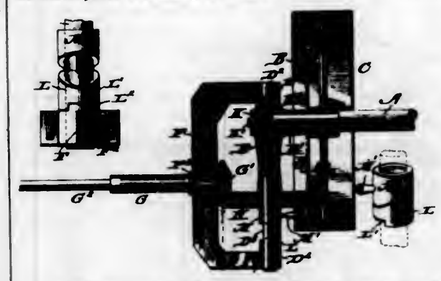
2. In a tool for trimming ice, the combination of the tool-body comprising a series of thin parallelly-arranged bars spaced from and connected to each other, the opposite ends of each bar being beveled to form cutting-points thereon, and a handle pivotally connected to the body, substantially as described.

3. In a tool for trimming ice, the combination of the tool-body comprising a series of parallel bars spaced from each other and apertured in proximity to their ends, spacing-thimbles intermediate the bars and registering with the apertures therein, securing-bolts extending through said bars and thimbles, a handle pivotally connected to the body, pins detachably connected to the body to one side of the handle-pivots, and slotted links carried by the handle and engaging the pins, substantially as described.

678,286. COGGED GEARING. AMBROSE M. SEARLE, Geneseo, Ill. Filed Oct. 6, 1899. Serial No. 732,811. (No model.)

Claim.—1. The combination substantially as described of the main shaft and gear, the hanging boxing having a bearing therefor and provided with the pivot-stud and with the journal in line with such stud, the connecting-gear on said journal, means for adjusting said connecting-gear and the brace-frame provided with bearings for the hanging boxing and for the tumbler-shaft; and the tumbler-shaft and its pinion substantially as set forth.

2. The combination substantially as herein described of the main shaft and gear, the hanging boxing, the arm thereof provided with a bearing for said shaft, a pivot-stud and a journal extension at right angles to said arm and in alinement with each other, the brace-frame provided with a bearing for the pivot-stud and an open boxing for the journal extension, the connecting-gear, the means for adjusting said gear and the tumbling-rod and its pinion substantially as set forth.



3. The combination of the hanging boxing, the pivot-stud and journal thereof, the gear-wheel on said journal, a brace-frame having bearings for the pivot-stud and for the journal, such brace being arranged to swing in a lateral direction upon the axis of said gear-wheel and having a bearing for the tumbling-rod substantially as set forth.

4. The combination of a hanging boxing and a pivot-stud and an opposite alined journal thereof, the brace-frame having bearings for said stud and journal and provided with a bearing for the tumbling-rod, the tumbling-rod, the pinion thereof, and a gear on the hanging boxing arranged to mesh with the said pinion substantially as set forth.

5. The combination substantially as described of the drive-gear, the tumbling-rod pinion, the connecting-gear movable into and out of mesh with said gear and pinion, and the cam-collar and coöperating devices for setting the connecting-gear into such mesh substantially as set forth.

6. The combination substantially as described of the hanging-boxing journal, a gear movable longitudinally thereon, the collar arranged at one edge to move said gear and having a cam in its opposite edge such collar fitting upon the journal of the hanging boxing, the tube also fitting on said journal and having at one end a cam for engagement by that of the collar and provided at its other edge with a slot, and a frame provided with a lug or projection entering each slot substantially as set forth.

7. The combination of the main shaft, a tumbling-rod for transmitting power from the main shaft, gears on said shaft and rod, connecting-gearing between said shafts, a hanging boxing supporting the connecting-gearing, and a swinging frame supporting the tumbling-rod, substantially as set forth.

8. The combination of the shaft A having socket K² the hanging boxing thereon, the cap K turning with the shaft and having lug K³ entering the socket K², and the screw K', substantially as set forth.

678,287. GLASS-MOLD-OPERATING MACHINE. FRANK A. SHUNK, Streator, Ill. Filed Mar. 30, 1901. Serial No. 53,619. (No model.)

Claim.—1. In a machine of the kind described, a mold made in two hinged sections having radially-projecting handle-arms, yokes fixed upon the arms, and vertical stems playing in said yokes and mounted upon radially-swinging arms to open and close the mold as described.

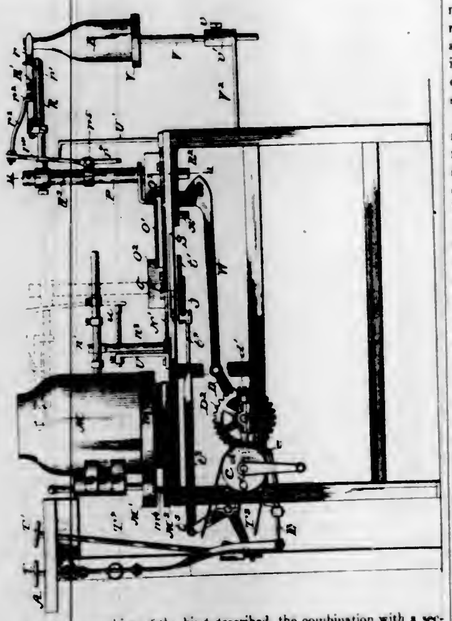
2. In a machine of the kind described the combination with the mold-section hinged as described of a base-plate having on its upper side an elevated seat for the molded object, a supporting-table, and an adjustable plate interposed between the table-surface and the base-plate of the mold, and having tapped in the same vertical supporting and adjusting screws to raise or lower said adjustable plate to suit the height of the object being molded substantially as described.

3. In a machine of the kind described, a mold having hinged sections, an imperforate base-plate having a raised projection on its upper side forming the bottom of the mold, and a subjacent supporting-plate for the base-plate, said supporting-plate and base-plate being formed with an oblong interesting projection and recess to prevent accidental displacement when in action and yet permit ready detachability substantially as described.

4. In a machine of the kind described, the combination with a mold made in two hinged sections; of an imperforate base-plate having on its surface a raised projection forming the bottom of the mold, a subjacent supporting-plate for the base-plate, said supporting-plate and base-plate being formed with an interesting projection and recess, a table-surface for the supporting-plate, and set-screws adjustably connecting the table-surface to the supporting-plate substantially as and for the purpose described.

5. In a machine of the kind described, the combination with a sectional mold and a support located at a distance for receiving the molded article; of a rotary adjustable and rectilinearly-traveling arm with pincers arranged to vibrate between the mold and said support and to take the

object from the mold and transfer it to the support substantially as described.



6. In a machine of the kind described, the combination with a sectional mold having opening yokes, and a support located at a distance for receiving the molded article; of oscillating arms entering the yokes for opening and closing the mold-sections, and a rotary-adjustable and rectilinearly-traveling arm with pincers arranged to vibrate between the mold and the said support and to take the object and transfer it to the said support substantially as described.

7. In a machine of the kind described the means for opening the mold consisting of two horizontally-projecting yoke-arms, a table-surface, horizontally-oscillating arms above the table with vertical ends entering said yokes, tappets attached to the axes of said arms below the table, and a reciprocating cross-head with pins acting upon said tappets substantially as described.

8. In a machine of the kind described, the combination with the sectional mold each hinged section of which has a radially-projecting arm and yoke; of automatic means for opening both sections of the mold and closing one section consisting of swinging crank-arms with stems entering the yokes, tappet-arms attached to the lower ends of the axis of the swinging arms, and a reciprocating cross-head acting upon the tappet-arms, and supplemental means for finally closing the other section of the mold said supplemental means being independent of the automatic means and under the control of the workman, substantially as described.

9. In a machine of the kind described, the combination of a slotted table, a mold made in hinged sections with projecting yokes, two horizontally-oscillating arms bearing vertical stems entering the yokes, two tappets connected to said arms and arranged below the table, a reciprocating cross-head with pins acting upon the tappets, a rock-shaft with crank-arms and pitmen connecting with said tappets, one of said tappets being made double-acting and having a slotted connection with its pitman, and means for operating said rock-shaft at will to make the final closure of the mold as described.

10. In a machine of the kind described, the means for reversing and stopping in alinement the lifting and carrying arm, comprising a slotted table having on one side of the slot a rack with a straight guide at each end of it, a reciprocating cross-head arranged in said slot and bearing a vertical post having a segment-gear engaging with the rack, and flat bearings engaging with the straight guides at the ends of the rack, substantially as described.

11. In a machine of the kind described, the combination with a reciprocating cross-head carrying a post with means for rotating it through a half a revolution; of a horizontal lifting and carrying arm bearing two spring-jaws forming pincers, having swelled portions, a loop embracing these jaws, a vertical lever attached to this loop and fulcrumed on the post, and two stationary abutments arranged at the ends of the travel of the cross-head and arranged to contact with the lever on different sides of its fulcrum to close and open the pincer-jaws substantially as described.

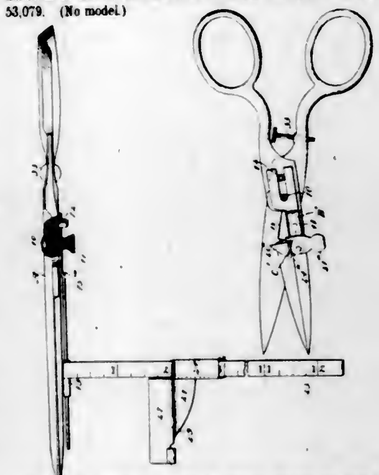
12. In a machine of the kind described, the combination with the mold, and a reciprocating and rotary turning hollow post; of a vertical rod sliding in said hollow post and having a horizontal carrying-arm, a sliding cross-head carrying said post and rod, and means for reciprocating the cross-head and lifting the rod and its carrying-arm at the moment of seizing the object to be removed from the mold substantially as described.

13. In a machine of the kind described, the combination with the mold and a reciprocating and rotary turning hollow post; of a vertical rod sliding in said hollow post and having a horizontal carrying-arm, a sliding cross-head carrying said post and rod, a pitman jointed to said cross-head and having a cam-head arranged to lift the said rod, and driving mechanism for the pitman substantially as described.

14. In a machine of the kind described, the combination with the mold, the receiving-stand, and automatic mechanism for transferring the object from the mold to the receiving-stand; of an automatic driving-gear arranged to be set into action by the workman and consisting of a constantly-rotating driving-gear with a laterally-projecting pin, a driven gear-wheel arranged in the same plane with the driving-gear and having a blank space in its circle of teeth, a spring-actuated clutch-arm jointed to the driven gear and extending to the pin of the other gear, and a lever and treadle mechanism for throwing the clutch-arm into range of engagement of the pin to give the start to the driven gear and bring about the meshing of its teeth with those of the driving-gear substantially as described.

15. In a machine of the kind described, the combination with a table having a sectional mold and automatic means for opening the mold and transferring the molded object, and closing one half of the mold, means for independently closing the other half of the mold, an elevated platform bearing two treadles, one of them connecting with the automatic mechanism for starting its action, and the other connecting with the means for finally closing the mold at the will of the operator substantially as described.

678,288. **BUTTONHOLE AND RUFFLING GAGE FOR SHEARS.** EMMA L. N. STEER, New York, N. Y. Filed Mar. 27, 1901. Serial No. 53,079. (No model.)



Claim.—1. A pair of shears or scissors having its pivot-pin projecting at one end, a guide-arm arranged at the outer side of one of the blades and having a bifurcated rear end through which the projecting end of the pivot-pin passes, the said guide-arm being free at its opposite end, means for detachably securing the guide-arm in position, and a gage movably mounted upon the guide-arm, substantially as described.

2. A pair of shears or scissors having a guide-arm attached at one end to the outer side of one of the shear-blades by the pivot-pin of said blades, and free at its opposite end, a gage movably mounted upon the guide-arm, a sliding sleeve on said gage and having an upwardly-extending point, and a locking device carried by the sleeve and engaging the gage to hold the sleeve in its adjusted position, substantially as set forth.

3. A pair of shears or scissors adapted for cutting buttonholes, a guide-arm detachably attached to the outer side of one of the blades, the said guide-arm having a bifurcated rear end engaging the pivot of the shear or scissor blades, a gage mounted upon the guide-arm, a gage-point movable upon said gage, and a pivoted locking device for the said point, for the purpose set forth.

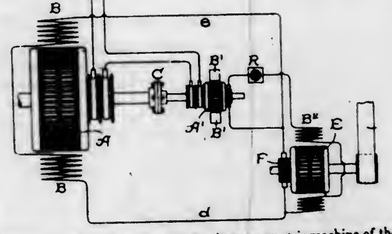
4. The combination, with a pair of shears or scissors adapted for cutting buttonholes, of a guide-arm carried by one of the shear or scissor blades at the outer side thereof, the said gage consisting of upper and lower members adapted to receive material between them and give the said material an upper and a lower support, a sleeve mounted to slide upon the said gage, an upwardly-extended point carried by the gage, a table connected with the sleeve and extending forwardly therefrom parallel with the blade to which the said guide-arm is applied, and means for locking the said sleeve in position, as described.

5. The combination, with a pair of scissors or shears adapted for cutting buttonholes, of a guide-arm having a bifurcated rear end, a pivot-pin passed between the members of the said bifurcated rear end, a nut carried by said pivot-pin, engaging with the said bifurcated member of the said guide-arm, the opposite end of the guide-arm being free, a gage comprising an upper and a lower member, the lower member of the gage being inovably connected with the said guide-arm, a sleeve mounted to slide on the said gage, a point extending upward from the inner end of the said sleeve, a locking device carried by the outer end of the said sleeve and adapted for engagement with the said gage, and a guide-table attached to the sleeve, mounted on the gage, which guide-table is parallel with the guide-arm and extends forwardly from the gage-bar at an angle thereto, as and for the purpose specified.

6. The combination with a pair of shears or scissors, of a guide-arm carried by one of the shear or scissor blades at the outer side thereof, a gage movably connected with said guide-arm, a sleeve mounted to slide upon the said gage, an upwardly-extended point carried by the gage, a table connected with the sleeve and extending forwardly therefrom parallel with the blade to which the guide-arm is applied, and means for locking the said sleeve in position, as described.

7. The combination with a pair of shears or scissors, of a guide-arm having a bifurcated rear end, a pivot-pin for the shear or scissor blades and extending between the members of the said bifuracted end, a nut carried by said pivot-pin and engaging with the bifurcated member of the guide-arm, a stop extending between the bifurcated members to prevent the guide-arm from turning, and a gage movably connected with the guide-arm, substantially as described.

678,289. **COMPOUNDING ALTERNATOR.** CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 10, 1898. Serial No. 666,229. (No model.)



Claim.—1. The combination with a dynamo-electric machine of the alternating-current type, of means for furnishing thereto a normal field excitation, and an auxiliary exciter acting to modify the field excitation of said dynamo-electric machine in accordance with changes in the volume and in the phase relation of the current in the main circuit.

2. In combination, a dynamo, a main exciter for the dynamo, an auxiliary exciter supplying current to the field-magnets of the main excited, and operative connections between the armature of the dynamo and that of the auxiliary exciter by which an alternating current derived from the main machine passes through the armature of the auxiliary exciter, and acts to change the excitation of the main machine in accordance with changes in volume and in the phase relation of the currents in the main circuit, substantially as described.

3. In combination, a dynamo, a main exciter, an auxiliary exciter controlling the fields of the main exciter, and having field-magnets excited by its own armature reaction and operative connections by which an alternating current derived from the main dynamo is passed through the auxiliary exciter, substantially as described.

4. In combination, an alternating-current dynamo having a main exciter, an auxiliary exciter controlling the fields of the main exciter, the auxiliary exciter having an unwound field-magnet, and a connection by which alternating current derived from the main dynamo is passed through the armature of the auxiliary exciter, the auxiliary exciter and the main dynamo being driven in synchronism, substantially as described.

5. A dynamo-electric machine having a field-winding in series with two sources of direct current one of which is synchronously actuated with respect to said machine and the other independently actuated.

6. A dynamo-electric machine having a field-winding in series with the armatures of two exciters one of which is synchronously actuated with respect to said machine and the other independently actuated, the connections between said exciters being such as to bring their respective electromotive forces into opposition to each other.

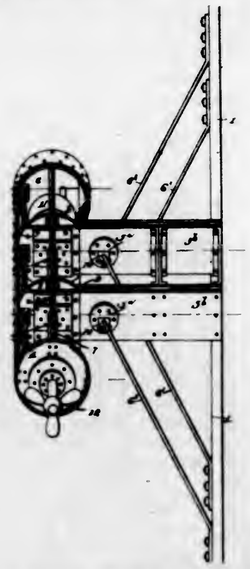
7. A dynamo-electric machine, a plurality of operatively-connected exciters therefor, and means for exciting the field of one of said exciters solely by armature reaction due to alternating current flowing in leads connected thereto.

8. A dynamo-electric machine having an exciter the field of which is excited solely by armature reaction due to currents derived from said dynamo-electric machine.

9. A dynamo-electric machine having a synchronously-actuated exciter the field of which is excited solely by armature reaction due to alternating current flowing through leads connected to said exciter.

10. A dynamo-electric machine having its field excited by the cooperative action of a plurality of sources of direct current, one of which is synchronously actuated with respect to said machine, and another independently actuated.

678,290. **PROPELLING MECHANISM FOR VESSELS.** ALBERT J. TAPLIN, Vancouver, Canada. Filed Oct. 22, 1900. Serial No. 33,869. (No model.)



Claim.—1. A vessel's hull provided with lateral fore-and-aft swells or extensions which are tapered or inclined forward and upward and whose wide rear portion terminates abruptly, the same being vertical or at a right angle to the adjacent portion of the hull, said swells being adapted for reception of casings containing a propeller-shaft, substantially as shown and described.

2. The combination with a vessel's hull having lateral openings and fore-and-aft swells which are open at the abrupt rear end of the casing, and a propeller-shaft arranged longitudinally in the latter, said casing being adapted for insertion in the said swells and provided with side openings coinciding with the openings in the hull, as specified.

3. A vessel's hull having lateral fore-and-aft swells which taper forward and upward, and terminate abruptly at the wide rear portion, cylinders or casings adapted to be placed and secured horizontally in said swells and their rear ends coinciding with those of the swells, propeller-shafts carrying screws and arranged axially in said casings, and having eccentric wrist-pins for application of power in a lateral direction, as shown and described.

4. A vessel's hull having lateral swells extending fore and aft, beams arranged athwartships and extending at the side of the hull for supporting said swells, and braces arranged diagonally below the swells, substantially as shown and described.

5. The combination, with lateral swells extending fore and aft on a vessel's hull and terminating abruptly at the rear, of beams arranged athwartships and extending laterally into said swells, and bearings for propeller-shafts, secured to the outer ends of said beams, and the shafts arranged in such bearings and carrying screws, as shown and described.

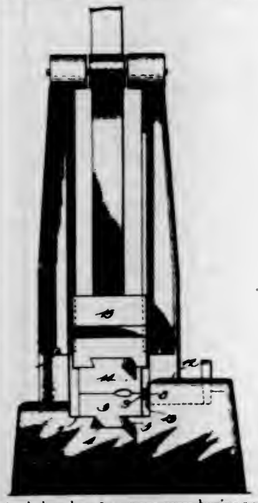
6. The combination, with a vessel's hull having lateral fore-and-aft swells, of athwartships beams projecting laterally into said swells, a casing containing propeller-shaft bearings and secured to said beams, braces extending diagonally to said beams and eye-bars connecting said braces with the latter, as shown and described.

7. The combination, with a vessel's hull having lateral fore-and-aft swells which are open at the rear, casings arranged in said swells and having fixed transverse partitions provided with openings, a propeller-shaft carrying a screw and having its bearings in said partitions, collars on said shaft, and plates abutting said collars, for receiving end thrust, substantially as shown and described.

8. The combination, with a vessel's hull having lateral fore-and-aft swells which are open at the rear, casings arranged in said swells and having fixed transverse partitions provided with openings, a propeller-shaft carrying a screw and extending through said partitions, antifriction-rollers arranged around the shaft, plates secured to the partitions and having bolts that serve as journals for the rollers, substantially as shown and described.

9. The combination, with a vessel's hull having lateral fore-and-aft swells which are open at the rear, casings arranged in said swells and having fixed transverse partitions provided with openings, a propeller-shaft carrying a screw and extending through the partitions, collars fixed on the shaft, antifriction-rollers arranged around and working in contact with the collars, and plates bolted to the partitions and abutting the collars and having journals for the said rollers, substantially as shown and described.

678,291. **FORGING-PRESS.** ELMER P. ALEXANDER, Youngstown, Pa. Filed Feb. 16, 1901. Serial No. 47,641. (No model.)



Claim.—1. A drop-base for a forge-press having a seat for the lower die-block and a seat for the header-arm, the latter being contained within the said seat, whereby the stress occasioned by the thrust of the header-arm is borne by an integral portion of the drop-base at the outer end of the said header-arm, substantially as described.

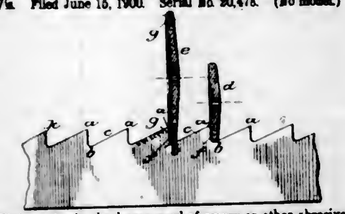
2. A drop-base for a forge-press, having a seat for the lower die-block, a seat for the header-arm and a seat for the base of the guide-standard proximate to the seat for the lower die-block, substantially as described.

3. In a forge-press, a drop-base having a seat for the lower die-block, a seat for the header-arm, and a seat for the lower end or base of the guide-standard, disposed opposite the head of the die, in combination with the said standard and the header-arm, said standard having an opening through which said header-arm extends, for the purpose set forth, substantially as described.

4. A drop-base for a forge-press, having an integral enlargement at one end, the said enlargement being provided with a seat for the header-arm and extending beyond the outer end of said header-arm, for the purpose set forth, substantially as described.

5. In a forge-press, the combination of a drop-base having a seat for the header-arm and a seat for the lower die-block, the header-arm in said header-arm seat and a spring bearing against the inner end of the said header-arm, for the purpose set forth, substantially as described.

678,292. **EMERY-WHEEL.** ROBERT H. CHURCHILL, Marinette, Wis. Filed June 15, 1900. Serial No. 20,478. (No model.)



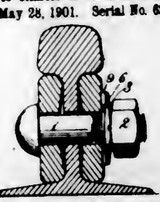
Claim.—1. A wheel composed of emery or other abrasive material having an edge grinding and side grinding face, the sides of any diametral cross-section of which are parallel from the hub to the side grinding-face, and have a slight and constant inclination to the axis of the wheel, the side grinding-face being perpendicular to the axis whereby the increasing thickness of the edge grinding-face as it wears toward the hub will be reduced by the wear on the side grinding-face.

2. A wheel composed of emery or other abrasive material having an edge grinding and a side grinding face perpendicular to the axis, the wheel inside the latter face being slightly concave and at a constant inclination to the axis, the thickness of the wheel being constant from hub to the side grinding-face, whereby both grinding-faces remain constant while the edge grinding and side grinding are proportional to the respective grinding-faces.

3. A concave emery-wheel of uniform thickness, having a side grinding face and an edge grinding-face, perpendicular to the axis, the sides of the wheel having a constant inclination to the axis, each grinding-face being proportioned to the work required of it, whereby the convex side will compensate the loss in thickness due to side grinding and the concave side will obviate any shoulder being formed by side grinding.

4. An emery-wheel for sharpening saw-teeth provided with a rounded edge and a concave or concavo-convex body, the walls of which are parallel or nearly so, whereby as the concave side and edge wear away, the points of the saw-teeth may always pass the side of the wheel while the edge is deepening the gullet, all substantially as shown and described.

678,293. **NUT-LOCK.** CORNELIUS S. CLARK, Norfolk, Va., assignor of three-eighths to Charles M. Barnett, same place. Filed June 14, 1900. Renewed May 28, 1901. Serial No. 62,296. (No model.)



Claim.—1. A nut-lock, comprising a nut and a cooperating washer fitted over and carried by said nut, with means for locking these parts one to the other, whereby they may be rotated together, said washer being provided on one face with oppositely-disposed bearing portions and upon its other face with oppositely-disposed engaging portions, the latter being arranged at right angles to the bearing portions.

2. A nut-lock, comprising a nut and a yieldable washer fitted over an extension on one end of said nut, means intermediate the nut and washer for locking these parts one to the other to cause them to rotate together, said washer being provided at one face with oppositely-disposed bearing portions, and upon its opposite face with oppositely-disposed engaging projections.

3. A nut-lock, comprising a nut and a washer looked thereto, said nut being provided with a tubular projection constituting its bearing-face, and the washer fitted over said projection and provided on its inner face with oppositely-disposed bearing portions which lie adjacent to the inner face of the bolt, and on its outer face with oppositely-disposed engaging portions, the latter being arranged at right angles to the bearing portions.

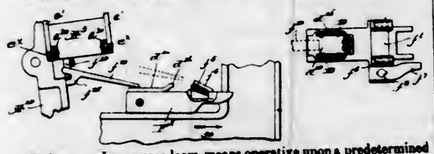
4. A nut-lock, comprising a nut and a cooperating yieldable washer, said nut being provided on its inner end with a projection constituting its bearing-face and on which the washer is fitted, the said parts being provided with interlocking portions to hold them against independent rota-

tion, and said washer having oppositely-disposed bearing projections on one face, and oppositely-disposed engaging projections on its opposite face, the latter being arranged at right angles to the bearing projections.

5. A nut-lock, comprising a nut and a cooperating yieldable washer, said nut being provided on its inner face with a tubular projection constituting its bearing end and with oppositely-arranged depressed portions, the washer fitting over and locked to the projection on the nut whereby these parts may be moved together, and provided on one face with oppositely-disposed bearing portions and on its other face with oppositely-disposed engaging projections, the latter being arranged directly opposite to the depressed portions of the nut when the parts are in position upon a bolt.

6. A nut-lock, comprising a nut and a cooperating yieldable washer carried thereby, with means for locking these parts one to the other to cause them to rotate together, said washer being provided with oppositely-disposed thickened portions constituting bearing-faces on one side thereof, and toothed projections upon the opposite side of the washer arranged at right angles to the said bearing-faces, substantially as described.

678,294. **LOOM.** WILLIAM F. DRAPER and CHARLES F. ROPER, Hopedale, Mass., assignors to Draper Company, same place and Portland, Me. Filed Mar. 20, 1901. Serial No. 52,039. (No model.)



Claim.—1. In a power-loom, means operative upon a predetermined decrease in the running speed thereof to automatically stop the loom.

2. In a power-loom, stopping means therefor, and a speed-governor for said means, operative upon decrease of the running speed of the loom to a predetermined rate to automatically effect the actuating of the stopping means.

3. In a power-loom, stopping means, including a shipper, a speed-governor, and devices actuated thereby upon a predetermined decrease of the running speed of the loom to release the shipper and stop the loom.

4. In a power-loom, brake mechanism, and means operative upon a predetermined decrease in the running speed of the loom to render the brake mechanism operative.

5. In a power-loom, a driving-shaft, fast and loose pulleys thereon, a brake to cooperate with the fast pulley, a shipper, and means operative upon a predetermined decrease in the speed of the driving-shaft to move the shipper into stopping position, and to set the brake.

6. In a power-loom, a member to control the starting and stopping of the loom, normally inoperative brake mechanism, and means operative upon a decrease in the running speed of the loom to a predetermined rate to move the controlling member into stopping position and to render the brake mechanism operative.

7. A loom, having in combination, picking mechanism, means which by or through its inertia stops the shuttle in a substantially definite place in the shuttle-box while the running speed of the loom is above a predetermined rate, and means operative at substantially such rate of speed to automatically stop the loom, whereby stoppage of the loom with the shuttle in the shed is prevented and the use of protector mechanism obviated.

8. A loom having, in combination, a picker, a movable check arranged to take up the momentum imparted by the shuttle to the picker and to stop the shuttle correctly boxed, while the speed of the loom exceeds a predetermined rate, mechanism to automatically provide the shuttle with fresh filling when correctly boxed, means to determine the time of operation of said mechanism, and means operative upon decrease in the speed of the loom to substantially the predetermined rate to automatically stop the loom, whereby protector mechanism and shuttle-feeling means are obviated.

9. In a loom, a shuttle, stopping means, shuttle-checking means, comprising a momentum-absorbing member the effective weight of which is at least equal to that of the shuttle, and an impact member interposed between said momentum-absorbing member and the shuttle, the momentum of the latter being transferred to the momentum-absorbing member by or through the impact member, leaving the shuttle at rest correctly boxed, and means operative to automatically stop the loom upon a decrease in the speed thereof to a rate below which the proper operation of the picking mechanism will be prevented.

10. In a power-loom, the lay, stopping means, including a shipper, and releasing means for the latter, including a member carried by the lay, and a normally inoperative member with which the member on the lay coöperates upon a decrease in the running speed of the loom to a predetermined rate.

11. In a power-loom, the lay, the shipper, and releasing means therefor, including a dog pivotally mounted on the lay, a frog, and a deflector to engage and deflect the tip of the dog at each beat of the lay and prevent its engagement with the frog while the speed of the loom is maintained above a predetermined rate.

12. In a power-loom, the lay, a dog pivotally mounted thereon, stopping means, a frog to control the operation thereof, and a deflector near the frog and in the path of the dog, the latter jumping from the deflector over the frog at each beat of the lay until the speed of the loom decreases to a predetermined rate, whereupon the dog will engage the frog and therethrough operate the stopping means.

13. In a power-loom, stopping means, and a hit-and-miss controller therefor, said controller being maintained inoperative to effect the actuation of the stopping means while the speed of the loom exceeds a predetermined rate.

14. In a power-loom, mechanism to provide fresh supplies of filling, means to effect the operation thereof upon failure of the filling or exhaustion thereof in the shuttle to a predetermined extent, the lay having a shuttle-box, a shuttle to receive a supply of filling when definitely positioned in the shuttle-box, picking mechanism, means which by or through its inertia stops the shuttle in the shuttle-box in such definite position, and means operative upon decrease of the running speed of the loom to a predetermined rate to automatically stop it.

15. In a loom, a shipper, the lay having a shuttle-box, a shuttle-picking mechanism therefor, means which by or through its inertia stops the shuttle accurately positioned in the shuttle-box, mechanism to replenish the filling when the latter fails, or is exhausted to a predetermined extent in the shuttle, said mechanism being operative only when the shuttle is accurately positioned in the shuttle-box, brake mechanism for the loom, and means operative upon a predetermined decrease in the running speed of the loom to release the shipper and to render the brake mechanism operative.

16. In a loom, a shipper, means controlled by an abnormal condition of the filling to release the shipper, and means operative upon a predetermined decrease in the running speed of the loom to release the shipper, to stop the loom.

17 In a loom, a shipper, means controlled by an abnormal condition of the filling to release the shipper, means operative upon a predetermined decrease in the running speed of the loom to release the shipper, to stop the loom, and normally inoperative brake mechanism rendered operative upon actuation of either of said means to release the shipper.

18. A loom having, in combination, means operative upon a predetermined decrease in the running speed thereof to automatically stop the loom, a shuttle-box, a picker, and a momentum shuttle-check coöperating therewith to stop the shuttle at a substantially definite place in the shuttle-box while the loom is running at the proper speed, the effective weight of the check being at least equal to that of the shuttle.

19. A loom, having in combination, means operative upon a predetermined decrease in the running speed thereof to automatically stop the loom, a shuttle-box, a picker, a momentum shuttle-check which stops the shuttle at a substantially definite place in the shuttle-box while the loom is running at proper speed, the effective weight of the check being at least equal to that of the shuttle, and means to control the check.

20. A loom having, in combination, a movable weighted check adapted to take up the momentum and be moved into abnormal position by impact of the shuttle on the picker, thereby stopping the shuttle at a substantially definite place, the effective weight of the check being at least equal to that of the shuttle, means to limit such movement of the check, and means operative to automatically stop the loom upon a decrease in the running speed thereof to a predetermined rate.

21. A loom having, in combination, a picker, a weighted swinging momentum-check mounted beyond the picker and normally adjacent thereto, the blow of the shuttle on the picker being transmitted thereby to the check, swinging the latter and stopping the shuttle in a substantially definite place, and means operative upon a predetermined decrease in the running speed of the loom to automatically stop the same.

22. A loom, having in combination, a shuttle, means to actuate it, a momentum-check which stops the shuttle in a substantially definite place, the effective weight of said check being at least equal to that of the shuttle, and means operative upon a predetermined decrease in the running speed thereof to automatically stop the loom.

23. In a power-loom, brake mechanism, means operative upon a predetermined decrease in the running speed of the loom to render the brake mechanism operative to quickly stop the loom, a shuttle, means to actuate it, and a momentum-check which stops the shuttle in a substantially definite place, the effective weight of the check being at least equal to that of the shuttle.

24. A loom provided with mechanism to automatically replenish the filling when the shuttle is in a definite position, a picker, a movable check

normally adapted to rest adjacent the back thereof, the effective weight of the check being at least equal to that of the shuttle, and means to control the check when moved, the momentum of the shuttle being transmitted through the picker to the check, so that the check moves while the shuttle is brought to rest in position to receive a supply of filling, combined with means operative upon a predetermined decrease in the running speed of the loom to automatically stop the same.

25. A loom, having in combination, the lay, a picker, a check pivotally mounted on the lay beyond and adjacent the picker, the effective weight of said check being at least equal to that of the shuttle, the pivot of the check being located eccentric to its center of gravity to cause its return automatically to normal position, means to limit the movement of said check due to impact of the shuttle upon the picker, the shuttle stopping at a substantially definite place as a result of the impact, and means operative upon a predetermined decrease in the running speed of the loom to automatically stop the same.

26. A loom, having in combination a lay, a shuttle, a check which is moved away from its normal position by the impact of the incoming shuttle and which returns automatically to said position after the lay has passed the front center, and means operative upon a predetermined decrease in the running speed of the loom to automatically stop the same.

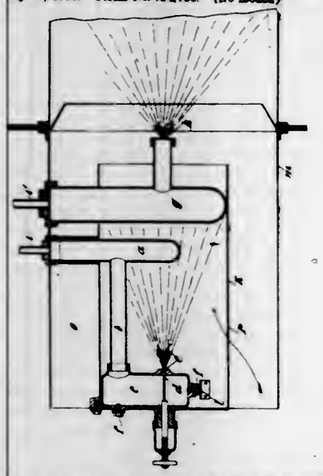
27. A power-loom having, in combination, a lay, a shuttle, a check which is moved away from its normal position by the impact of the incoming shuttle, and which returns automatically to said position after the lay has passed the front position, stopping means for the loom, brake mechanism and a speed-governor operative upon decrease of the running speed of the loom to a predetermined rate to automatically effect the actuation of the stopping means and brake mechanism.

28. In a loom, the combination of shuttle-checking mechanism with means operative upon a predetermined decrease in the running speed to automatically stop the loom.

29. In a loom, the combination of shuttle-checking mechanism, brake mechanism, and means operative upon a predetermined decrease in the running speed to automatically stop the loom.

30. In a loom, the combination of means to stop the shuttle at a definite place in the shuttle-box, brake mechanism, a shipper, and means, operative upon a predetermined decrease in the speed of the driving-shaft of the loom, to move the shipper into stopping position and to set the brake.

678,295. **VAPOR-BURNER.** LUDWIG DÜRR, Bremen, Germany. Filed July 22, 1899. Serial No. 724,780. (No model.)

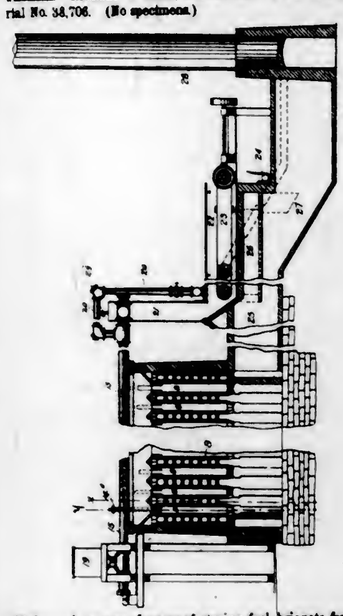


Claim.—1. A vapor-burner composed of two independent vaporizers, of which the front vaporizer projects beyond the rear vaporizer, combined with a vaporizing-burner connected to one of the vaporizers and adapted to heat both of the vaporizers, and a heating-burner connected to the other vaporizer, substantially as specified.

2. A vapor-burner composed of two independent vaporizers, of which the front vaporizer is in an upright position, combined with a vaporizing-burner connected to the rear vaporizer and adapted to heat both of the vaporizers, and a heating-burner connected to the front vaporizer at a distance from its bottom to prevent any coke from being carried to said burner, substantially as specified.

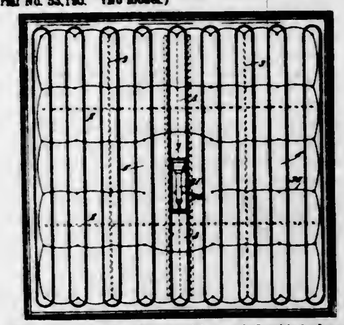
3. A vapor-burner composed of a pair of independent vaporizers, a rear vaporizing-burner connected to one of the vaporizers and adapted to heat both of said vaporizers, a front heating-burner connected to the other vaporizer at a distance from its bottom, a chamber that incloses the vaporizers, a surrounding casing, and dampers at the rear of said chamber, substantially as specified.

678,296. **PROCESS OF THE MANUFACTURE OF BRIQUET MATERIAL.** RICHARD C. HILLS, Denver, Colo. Filed Dec. 4, 1900. Serial No. 38,706. (No specimens.)



Claim.—A process for manufacturing fuel briquets from coal, anthracite, coke, lignite or the cinder from the distillation of lignitic coals which may be used in the process, consisting of the distillation of coal or lignite, passing the tarry distillate immediately from the coal into and through the moving material intended to be manufactured into briquets, then heating this material to expel objectionable volatile products, and finally pressing it into blocks or briquets.

678,297. **LIFE-RAFT.** JOHN V. JANIN, Seattle, Wash., assignor of one-half to Constant Claeys, same place. Filed Mar. 23, 1901. Serial No. 53,195. (No model.)



Claim.—1. A life-raft, comprising an inflatable body portion, pockets arranged on the opposite sides of said body portion, cork or similar material in said pockets, and inflating-pumps on opposite sides of the raft the said pumps being mounted to swing relatively to the raft, substantially as specified.

2. A life-raft, comprising an inflatable body portion, a pump casing or receiver attached to the body portion, and a pump mounted to swing into and out of said receiver, substantially as specified.

3. A life-raft, comprising an inflatable body portion, pump casings or receivers arranged on opposite sides thereof, pumps mounted to swing into and out of said receivers, and means operated by the inward swinging motion of the pumps for closing the inlets to the body portion, substantially as specified.

4. A life-raft, comprising an inflatable body portion, cork floats secured to opposite sides thereof, tubes communicating with the interior of the body portion, cylinder T-heads on said tubes and having openings at the top for the entrance of an inflating medium, and pumps mounted to swing on said T-heads and into casings adapted to receive them, substantially as specified.

5. A life-raft, comprising an inflatable body portion divided into compartments communicating one with another, pump casings or receivers located on opposite sides of the body portion, pumps mounted to swing into and out of said casings, means for securing the pumps in either one of their adjusted positions, yokes in the casings or receivers upon which the pumps may rest, and screw-blocks attached to said yokes and normally closing the outlet-openings of the body portion, substantially as specified.

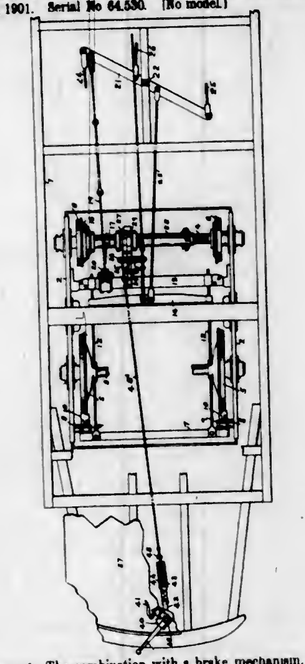
6. A life-raft, comprising an inflatable body portion, parallel pockets arranged on said body portion at opposite sides and spaced apart, cork fillings for said pockets, and an inflating-pump mounted to swing relatively to the body portion, substantially as specified.

7. A life-raft, comprising an inflatable body portion, and parallel pockets arranged on said body portion, the said pockets being cylindrical and having web portions attached to said body portion, substantially as specified.

8. A life-raft, comprising a body portion, a central pocket therefor for containing cork, and longitudinally-arranged brace-plates in said pocket, said plates being inclined on the upper edge from the inner end outward, substantially as specified.

9. The combination with a life-raft, of a tube communicating with the interior of the raft, the said tube being provided with ports, and a pump mounted to swing on the tube and having ports adapted to register with the first-named ports, substantially as specified.

678,298. **BRAKE MECHANISM.** JOHN D. KELLEY, New York, N. Y., assignor of one-half to Charles B. Martin, same place. Filed June 14, 1901. Serial No. 64,530. (No model.)



Claim.—1. The combination with a brake mechanism, of a brake-controller, and connecting means between the brake mechanism and the brake-controller, said means including a yielding connection the parts of which are maintained under tension, the construction being such that a taut line of connections is formed between the brake-controller and the brake mechanism, substantially as described.

2. The combination with a brake mechanism, of a friction mechanism for throwing the brake mechanism into operation, a brake-controller, and connecting means between the controller and the friction mechanism, said means including a yielding connection the parts of which are maintained under tension, the construction being such that a taut line of connections is formed between the brake-controller and the brake mechanism, substantially as described.

3. The combination with a vehicle, of a brake mechanism therefor, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, and means whereby the brake-controller throws the friction mechanism into operation, said means including a yielding connection the parts of which are maintained under tension, the construction being such that a taut line of connections is formed between the brake-controller and the brake mechanism, substantially as described.

4. The combination with a brake mechanism, of a brake-controller, connecting means between the controller and the brake mechanism, and a device capacitated to permit a limited yielding movement located in said connecting means, substantially as described.

5. The combination with a brake mechanism, of a friction mechanism for throwing the brake mechanism into operation, a brake-controller, connecting means between the controller and the friction mechanism, and a device capacitated to permit a limited yielding movement located in said connecting means, substantially as described.

6. The combination with a vehicle, of a brake mechanism therefor, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, means whereby the brake-controller throws the friction mechanism into operation, and a device capacitated to permit a limited yielding movement located in said connecting means, substantially as described.

7. The combination with a brake mechanism, of a brake-controller, and connecting means between the brake mechanism and the brake-controller, said means including a yielding connection, the parts of which are maintained under tension and which are capacitated to have a limited yielding movement, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

8. The combination with a brake mechanism, of a friction mechanism for throwing the brake mechanism into action, a brake-controller, and connecting means between the brake-controller and the friction mechanism, said connecting means including a yielding connection, the parts of which are maintained under tension and which are capacitated to have a limited yielding movement, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

9. The combination with a vehicle, of a brake mechanism therefor, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, and connecting means between the brake-controller and the friction mechanism, said connecting means including a yielding connection the parts of which are maintained under tension and which are capacitated to have a limited yielding movement, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

10. The combination with a brake mechanism, of a brake-controller, and connecting means between the controller and the brake mechanism, said means including a spring connection, the spring being maintained under tension, and the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

11. The combination with a brake mechanism, of a friction mechanism for throwing the brake mechanism into operation, a brake-controller, and connecting means between the controller and the friction mechanism, said means including a spring connection, the spring being maintained under tension, and the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

12. The combination with a vehicle, of a brake mechanism therefor, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, and means whereby the brake-controller throws the friction mechanism into operation, said means including a spring connection, the spring being maintained under tension, and the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

13. The combination with a brake mechanism, of a brake-controller, connecting means between the controller and the brake mechanism, a connection including a spring maintained under tension located in said connecting means, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechan-

ism, and means for adjusting the tension of the spring, substantially as described.

14. The combination with a brake mechanism, of a friction mechanism for throwing the brake mechanism into operation, a brake-controller, connecting means between the controller and the friction mechanism, a connection including a spring maintained under tension located in said connecting means, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, and means for adjusting the tension of the spring, substantially as described.

15. The combination with a vehicle, of a brake mechanism therefor, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, means whereby the brake-controller throws the friction mechanism into operation, a connection including a spring maintained under tension located in said connecting means, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, and means for adjusting the tension of the spring, substantially as described.

16. The combination with a vehicle, of a brake mechanism, a friction mechanism for operating the brake mechanism, said mechanism being actuated from one of the wheels of the vehicle, a brake-controller, connections between the controller and the friction mechanism, said connections including two members movable with relation to each other, and a spring maintained under tension for controlling the movement of the members, substantially as described.

17. The combination with a vehicle, of a brake mechanism, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, connections between the controller and the friction mechanism, said connections including two members movable with relation to each other, means for limiting the movement of the members toward each other, and a spring for controlling the movement of the members, substantially as described.

18. The combination with a vehicle, of a brake mechanism, a friction mechanism actuated from one of the wheels of the vehicle for operating the brake mechanism, a brake-controller, connections between the controller and the friction mechanism, said connections including two members movable with relation to each other, means for limiting the movement of the members toward each other, and a spring maintained under tension for controlling the movement of the members, substantially as described.

19. The combination with a vehicle, of a sleeve loosely mounted on one of the axles thereof, a friction-surface carried by the sleeve, connections between the sleeve and the brake mechanism, means for moving the sleeve so as to force the friction-surface against one of the wheels, a brake-controller, connecting means between the brake-controller and the means for moving the sleeve, said means including a spring maintained under tension, and the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

20. The combination with a vehicle, of a sleeve loosely mounted on one of the axles thereof, a friction-surface carried by the sleeve, connections between the sleeve and the brake mechanism, means for moving the sleeve so as to force the friction-surface against one of the wheels, a brake-controller, connecting means between the brake-controller and the means for moving the sleeve, said means including two members which are movable with respect to each other, and a spring maintained under tension for controlling the movement, the construction being such that a taut line of connections is formed between the brake-controller and the brake-applying mechanism, substantially as described.

21. The combination with a vehicle, of a sleeve loosely mounted on one of the axles thereof, a friction-surface carried by the sleeve, connections between the sleeve and the brake mechanism, means for moving the sleeve so as to force the friction-surface against one of the wheels, a brake-controller, connecting means between the brake-controller and the means for moving the sleeve, said means including two members which are movable with respect to each other, a spring for controlling the movement, and means independent of the spring for limiting the movement, substantially as described.

22. The combination with a vehicle, of a sleeve loosely mounted on one of the axles thereof, a friction-surface carried by the sleeve, connections between the sleeve and the brake mechanism, means for moving the sleeve so as to force the friction-surface against one of the wheels, a brake-controller, connecting means between the brake-controller and the means for moving the sleeve, and means including two members which are movable with respect to each other, a spring maintained under tension for controlling the movement, and means independent of the spring for limiting the movement, substantially as described.

23. The combination with a brake mechanism, of a brake-controller, a stirrup-block, a cross-head sliding thereon, and a spring maintained under tension for controlling the movement of the cross-head, said block and cross-head being located in a taut line of connections between the controller and the brake mechanism, substantially as described.

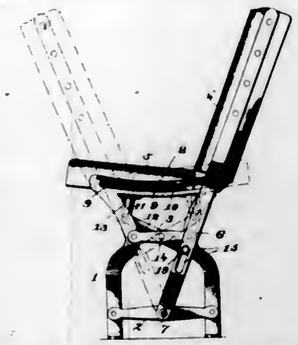
24. In a brake mechanism, the combination with a brake-controller, of a friction mechanism, a stirrup-block, a cross-head sliding thereon, means for limiting the movement of the cross-head, a spring maintained under tension for controlling the movement of the cross-head, means whereby the block and cross-head are connected to the controller and the friction mechanism, a brake mechanism, and means whereby the friction mechanism actuates the brake mechanism, substantially as described.

25. In a brake mechanism, the combination with a brake-controller, of a friction mechanism, a stirrup-block, a cross-head sliding thereon, a spring for controlling the movement of the cross-head, stops for limiting this movement, means whereby the block and cross-head are connected to the controller and the friction mechanism, a brake mechanism, and means whereby the friction mechanism actuates the brake mechanism, substantially as described.

26. As a new article of manufacture, a yielding connection for brake mechanisms, consisting of a stirrup-block having shoulders thereon, a cross-head having guiding-flanges which take over the sides of the block, said cross-head being arranged to slide in the block and its movement being limited by the shoulders, a stem connected to the cross-head and sliding through an opening in the block, a spring surrounding the stem, and means for adjusting the spring, substantially as described.

27. The combination with a vehicle, of a brake mechanism, a sleeve mounted on one of the axles of the vehicle, a friction-plate carried by the sleeve and arranged to be forced against one of the wheels of the vehicle, actuating connections between the sleeve and the brake mechanism, means for moving the sleeve so as to force its friction-plate against the wheel and thereby rotate the sleeve, a brake-controller, a stirrup-block, a cross-head sliding in said block, stops for limiting the movement of the cross-head, a stem connected to the cross-head and working through an opening in the block, a spring surrounding the stem, and means for connecting the block and stem to the brake-controller and the means for moving the sleeve, substantially as described.

678,299. CAR-SEAT. FRANK G. KOEHLER, St. Louis, Mo., assignor, by mesne assignments, to the Hale and Kilburn Manufacturing Company, Philadelphia, Pa. Filed July 29, 1898. Serial No. 687,171. (No model.)

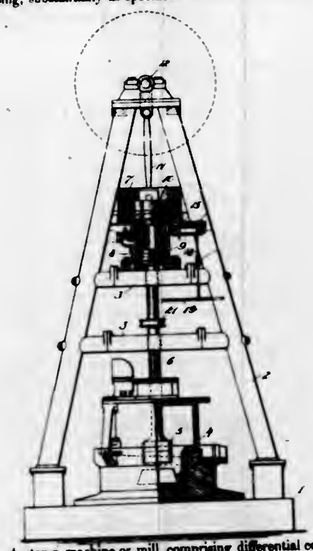


Claim.—1. In a car-seat, the combination of end frames, a back having arms pivotally connected to the end frames, a cushion having projections fitting in slots in said frames, brackets secured to said cushion, levers having pivotal connection with said frames, and slot-and-pin connections between said levers and said brackets and between the levers and said arms, substantially as set forth.

2. In a car-seat, the combination of end frames having lower cross-bars 2 and upper cross-bars 3 and having slots 10 in their upper ends, a back having arms 6 pivoted to the cross-bars 2, a cushion having projections 9 fitting in the slots 10, brackets 11 secured to the cushion and levers 12 pivoted to the cross-bars 3 and which have slot-and-pin connections with said brackets and with said arms, substantially as set forth.

678,300. STAMP-MACHINE. CHARLES H. KRAUSE, Southlake Linden, Mich. Filed Oct. 22, 1900. Serial No. 33,894. (No model.)

Claim.—1. In a stamp machine or mill, two differential cylinders arranged one above the other, a piston operating in the smaller cylinder, a stamping device carried by said piston, a valve for controlling the exhaust from the smaller cylinder, a piston in the larger cylinder and unconnected with the smaller piston, means for operating the piston in the larger cylinder, a valve-casing communicating with both the cylinders, an inlet-controlling valve in said casing, a lever with which said valve connects, a tappet carried by the stem of the smaller piston for engaging with said lever to open the valve, and an air-pressure-actuated valve also in said casing, substantially as specified.



2. A stamp machine or mill, comprising differential communicating cylinders one above the other, a piston operating in the smaller cylinder, a stamping device carried by said piston, a pressure-actuated valve controlling the exhaust from said lower cylinder, a piston in the larger cylinder, means for operating said piston in the larger cylinder, a valve-casing communicating with the cylinders, an inlet-controlling valve in said casing actuated by a movement of the lower piston, and an air-pressure-actuated valve also in said casing, substantially as specified.

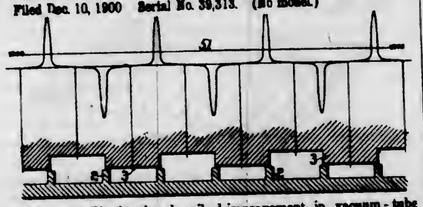
678,301. EMERY-STEEL. GEORGE F. LUCAS, New York, N. Y. Filed Mar. 25, 1901. Serial No. 52,692. (No model.)



Claim.—1. As a new article of manufacture, an emery-steel having yielding cushions arranged to prevent the steel from coming in contact with a plain or substantially flat surface, one of said cushions being extended from the end of the steel and having a taper corresponding to that of the said steel, substantially as specified.

2. An emery-steel, comprising a body, a handle and a reinforcing-rod extending through the body to the handle and out beyond the outer end of the body, a cushion secured upon the outer end of the reinforcing-rod, which cushion forms a continuation of the body, being in engagement with the rear end thereof, and a second cushion located exteriorly on the handle and extending beyond the outer face of the handle, for the purpose set forth.

678,302. VACUUM-TUBE LIGHTING. DANIEL M. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed Dec. 10, 1900. Serial No. 39,313. (No model.)



Claim.—1. The herein-described improvement in vacuum-tube lighting which consists in exciting the tubes to luminosity by alternating electromotive forces which graphically represented show a wave of peaked form as and for the purpose described.

2. The herein-described improvement in exciting vacuum-tubes to luminosity by alternating electromotive forces whose waves graphically represented have their maximum rate of change at or near the middle of the interval between the zero-points, as and for the purpose described.

3. The herein-described improvement in vacuum-tube lighting which consists in exciting the lamps to luminosity by alternating electromotive forces of comparatively low voltage and frequency as and for the purpose described.

4. The herein-described improvement in vacuum-tube lighting which consists in exciting the tubes to luminosity by a uniform succession, or series of waves or pulses of electromotive force of uniform value and which graphically represented are of peaked form, as and for the purpose described.

5. The herein-described improvement in vacuum-tube lighting which consists in exciting the tubes or lamps to luminosity by waves or pulses of electromotive force derived from a dynamo-machine properly constructed to generate waves or pulses each of which has a high maximum and a low mean electromotive force as and for the purpose described.

6. The herein-described improvement in vacuum-tube lighting which consists in exciting the lamps to luminosity by a succession of waves or pulses of electromotive force each of which is of low mean but of high maximum value.

7. The herein-described improvement in exciting lamps, substantially such as described, to luminosity, consisting in impressing upon said lamps waves or pulses of electromotive force derived from a dynamo-machine properly constructed to give to each wave or pulse a high maximum and low mean electromotive force as and for the purpose described.

8. The herein-described improvement in vacuum-tube lighting, consisting in exciting the lamps to luminosity by a rapidly-recurring succession of waves or pulses of electromotive force derived from a dynamo-machine properly constructed to reduce the time during which the higher electromotive force shall exist in each interval from zero to zero of the succession of pulses generated.

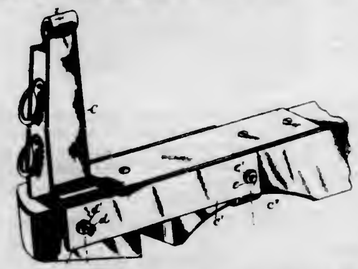
9. The herein-described improvement in vacuum-tube lighting, consisting in exciting the lamps to luminosity by a succession of waves or pulses of impressed electromotive force of comparatively low frequency, whereby the life of the lamps may be increased without substantially decreasing their degree of illumination.

10. The herein-described improvement in vacuum-tube lighting, which consists in exciting the lamps to luminosity by impressing upon them alternating electromotive forces of comparatively low frequency, thereby increasing the life of the lamps without substantially decreasing their degree of illumination.

11. The herein-described improvement in vacuum-tube lighting, consisting in exciting the lamps to luminosity by alternating electromotive forces derived from a dynamo-electric machine properly constructed as herein described, to have a low or diminished self-induction, whereby the striations of the tubes may be eliminated or reduced.

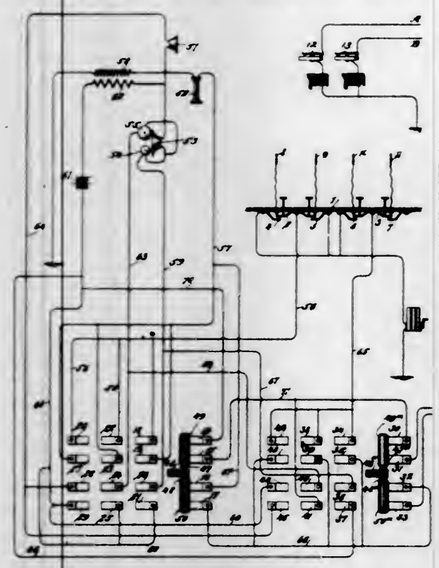
12. The herein-described improvement in vacuum-tube lighting which consists in exciting the lamps to luminosity by a series of uniform waves of alternating electromotive force each wave of which has a high maximum of electromotive force and a low mean electromotive force as and for the purpose described.

678,303. WAGON-STANDARD. ALFRED PAGE, Georgetown, S. C. Filed May 1, 1901. Serial No. 58,357. (No model.)



Claim.—The combination of a plate secured to the top of the bolster, a standard formed of metal bent upon itself and provided with depending portions flanking the bolster, integral inward extensions of said portions, an integral continuous loop at the end of the extensions engaging the under side of the bolster, and a brace portion secured between the standard members and having a lower squared portion contacting with the plate.

678,304. TELEPHONE-CIRCUIT. WILLIAM E. PEMBLETON, Wittenberg, Wis. Filed June 27, 1900. Serial No. 21,770. (No model.)



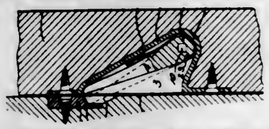
Claim.—1. In a telephone-circuit, a transmitter in the circuit at the central office, and a plurality of alarm-sounding devices of different tone or pitch, and arranged in the circuit adjacent to the said transmitter, substantially as specified.

2. In a telephone-circuit, a transmitter in the circuit at the central office, two bells of different pitch arranged adjacent to the transmitter and in the circuit, and a switch operating to close the circuit through the bells one after the other, substantially as specified.

3. In a telephone-circuit, a transmitter in the circuit at the central office, bells of different pitch arranged adjacent to the said transmitter, the said bells being arranged in different circuits adapted for connection with the main telephone-line, and a switch mechanism operated in two directions to successively close the bell-circuits during both backward and forward movements of the switch, substantially as specified.

4. In a telephone-circuit, an alarm-transmitter arranged at central in the circuit, an operator's transmitter, and bells of different pitch arranged forward of the alarm-transmitter, and means for successively closing the circuit through said bells, substantially as specified.

678,305. LOCK. THOMAS RICHARDS, Chicago, Ill., assignor of nine-twentieths to David Richards, same place. Filed Mar. 9, 1901. Serial No. 50,434. (No model.)



Claim.—1. In a lock, the combination of a casing, open at the front, having its bottom and rear wall each slanting forward and upward and joined in a curve to form a pocket at the lower rear part of the casing, a dog fitting in said casing, having its lower end of opposite contour to said pocket and resting loosely therein, and a key whereby said dog may be operated from the outside of the casing.

2. The combination of a window-frame; a sash vertically slidable therein; a lock let into the side of the sash, open toward the abutting part of the frame, having its bottom and rear wall each slanting forward and upward and joined in a curve to form a pocket at the lower rear part of the casing; a dog fitting in said casing having its lower end of opposite contour to said pocket and resting loosely therein; a key entering one side of said casing, fitting an angular hole in the lower part of said dog and adapted to turn said dog back into said casing; a lug on the shank of said key; and an escutcheon adapted to engage said lug and prevent the loss or removal of said key.

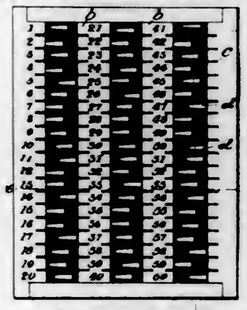
678,306. COMPOUND LENS. GEORGE N. SAEGMULLER, Washington, D. C. Filed Feb. 28, 1901. Serial No. 49,321. (No model.)



Claim.—1. A lens comprising four individual members, the outer biconvex members having differing refractive indices and the inner plano-concave members having relatively differing refractive indices which are less than those of the outer members; substantially as specified.

2. A compound lens comprising four individual members, the outer member having the greatest relative refractive index, the inner member having a lesser refractive index than the outer member, the intermediate member adjacent to the outer member refracting outwardly from its axis and having a refractive index less than said outer member, and the remaining intermediate member refracting outwardly from its axis and having a refractive index less than the adjacent intermediate member and less than that of the inner member; substantially as specified.

678,307. JURY-LIST-STAMPING APPARATUS. WILLIAM M. THOMAS, Griffin, Ga. Filed Aug. 7, 1900. Serial No. 26,176. (No model.)



Claim.—1. A jury-list-stamping apparatus, comprising a cabinet provided with numbered seats and stamp-blocks located in said numbered seats, and a panel-block provided with slots for the reception of said stamp-blocks, substantially as described.

2. In a device of the character described, a cabinet provided with numbered seats and stamp-blocks with tapering sides located in said numbered seats, and a panel-block provided with tapering slots for the reception of said stamp-blocks, substantially as described.

3. In a device of the character described, a cabinet provided with numbered seats and stamp-blocks with tapering sides located in said numbered seats, said stamp-blocks being provided with rubber-stamp face-mountings, and a panel-block provided with tapering slots for the reception of said stamp-blocks, substantially as described.

4. In a device of the character described, a cabinet provided with numbered seats and stamp-blocks with tapering sides and rubber-stamp face-mountings located in said numbered seats, and a panel-block provided with tapering slots for the reception of said stamp-blocks, said tapering slots being provided with elastic strips seated in the bottom of said tapering slots and mounted on the face of the panel-block between said tapering slots, substantially as described.

678,308. BROILING-OVEN. ELLEN E. TOBIN, Portland, Me. Filed Apr. 20, 1901. Serial No. 56,740. (No model.)

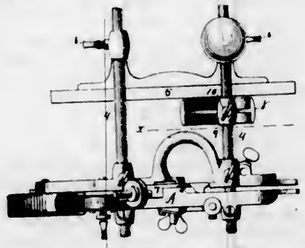


Claim.—1. A broiler, comprising in combination with a pan having horizontally-disposed rods therein, the jaws hinged together and provided with handles and adjustable means for holding said handles together, the walls of the pan being notched to receive said handles, as set forth.

2. In combination with the broiler comprising two jaws hinged together, and having slotted handles, a slotted plate held over said handles, and designed to hold the latter in adjusted positions, and means for holding said plate in place, as set forth.

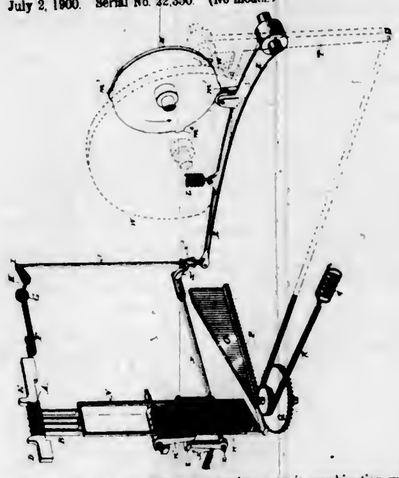
3. In combination with the jaws of a broiler hinged together and provided with slotted handles, a plate having a plurality of slots, designed to engage over said handles, and a link with cross-heads adapted to engage said slots, and retain said plate, as set forth.

678,309. FENCE-SUPPORT FOR CARPENTERS' PLOWS, &c. JUSTUS A. TRAUT, New Britain, Conn., assignor to Stanley Rule & Level Company, same place. Filed Mar. 6, 1901. Serial No. 50,015. (No model.)



Claim.—The herein-described fence-support for carpenters' tools of the class employing fence-rods and a fence, the said support consisting of a cam-shaped device having a socketed hub fitted to one of the fence-rods, substantially as described.

678,310. LINOTYPE-MACHINE. FRANK A. VINTON, Baltimore, Md., assignor to the Mergenthaler Linotype Co., of New York. Filed July 2, 1900. Serial No. 22,350. (No model.)



Claim.—1. In a justifying mechanism and in combination with a composed line of solid metal dies and solid metal spacers thicker at one end than at the other, mechanism for advancing the spacers with gentle pressure through the line until the latter slightly exceeds the predetermined length, and thereafter compressing the line endwise to said length.

2. In a justifying mechanism and in combination with a composed line of matrices and incompressible wedge spacers, means for advancing the spacers gently through the line until the latter exceeds the desired length, and means acting thereafter to compress the line to the final length.

3. In a justifying mechanism, a combination of abutments to limit the length of the line, means for presenting a composed line of matrices and solid wedge spacers between the abutments, means for permitting the primary separation of the abutments to an extent slightly greater than the length of the required line, means for gently advancing the spacers through the line while the abutments are thus separated, and means for thereafter effecting the compression of the line to the final length.

4. In a justifying mechanism, the combination of matrices and incompressible wedge spacers with the two jaws or abutments, mechanism for advancing and releasing one of said jaws, a justifying-slide, spring connections to advance said slide against the spacers, and means to prevent the advance of the slide until the jaw is closed to approximately its final position.

5. In a linotype-machine the combination of a series of incompressible matrices, a series of incompressible wedge spacers having continuous as distinguished from stepped surfaces, two matrix-confining jaws, one movable to and from the other, means for advancing and releasing the movable jaw, a spring-actuated justifier-slide to advance the spacers through the matrix-line, and mechanically-controlled dogs to arrest the advance of the slide, when the movable jaw is released, whereby the spacers are adjusted by a single action to positions required for justification of the line.

6. In a justifying mechanism, in combination with means for sustaining the composed line of matrices and wedge spacers, a justifier-slide arranged to act against the series of spacers and mounted to move laterally with the spacers as they are carried sidewise by the elongation of the line.

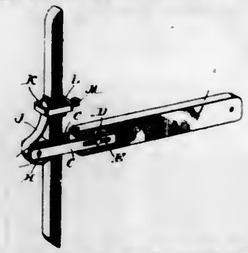
7. In a linotype-machine, the elevator or line-support C, having a lip or rib *c* to hold down the space members, said lip inclined from the horizontal on its under side in the direction of the length of the line, substantially as described.

8. A linotype-machine having an elevator provided with a top wall, beveled longitudinally of the line of matrices.

9. A linotype-machine having an elevator provided with a top wall, having portions at different points of its length located at different distances from the line of matrices.

10. In a linotype-machine for the use of incompressible matrices and incompressible wedge spacers, the combination of the opposing jaws D and E, the cam M having three elevated surfaces, intermediate jaw-operating devices through which the cam effects the three retractions of the jaw, the justifier-slide N and means for urging the same upward to advance the spacers through the line, and locking devices to arrest the advance of the slide when the jaw is retracted beyond the limits of the matrix-line.

678,311. LUG STRAP AND HOLDER. DANIEL O. CONNERS, Salem, Mass. Filed Oct. 30, 1900. Serial No. 34,918. (No model.)



Claim.—1. In a loom, the combination with the picker and lug sticks, of plates secured to the opposite sides of the lug-stick and projecting from one end, a block connecting the outer ends of said plates, a picker-stick moving in the space between said block and the end of the lug-stick, and a flexible strap passing around said block and carried by the picker-stick, substantially as described.

2. In a loom, the combination with the lug and picker sticks, of plates secured to opposite sides of the lug-stick and projecting beyond one end thereof and receiving the picker-stick therebetween, a block of leather or similar material connecting the outer ends of said plates, and a flexible strap passing around said block and secured to the picker-stick, substantially as described.

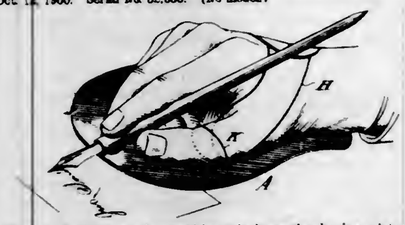
678,312. ELECTRIC CONVEYER. JOHN G. GILMER, St. Petersburg, Fla. Filed Nov. 10, 1900. Serial No. 36,121. (No model.)



Claim.—1. The combination with a motor for electric conveyers provided on both its upper and lower sides with antifriction-rollers arranged in pairs; of a car or carrier coupled to said motor; carrying-wheels; and guard-wheels.

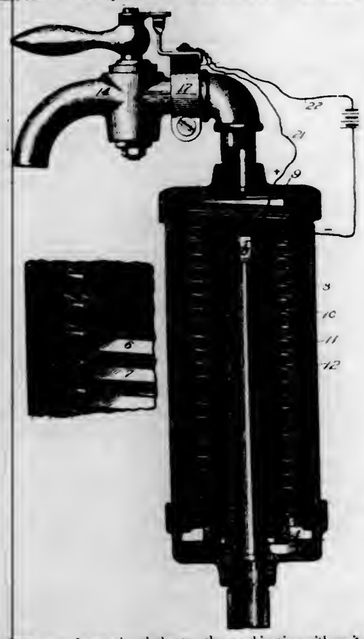
2. A conduit for electric conveyers, of rectangular form, comprising two flanged sections; a grooved guide-rail secured centrally to the inner surface of the upper section; a conductor supported within the groove of said guide-rail; a grooved guide-rail secured centrally to the bottom of the conduit; a conductor within the groove of said guide-rail; and parallel rails on the bottom of the conduit adjacent to the sides thereof.

678,313. **BLOTTER.** ROBERT J. GILLHAM, Kissimmee, Fla. Filed Oct. 12, 1900. Serial No. 32,855. (No model.)



Claim.—A blotting-pad, comprising a body portion having a laterally-projecting wing A' near its middle, an elastic cord passed through apertures at the end of said wing, and a releasing-cord held in perforations near the center of the pad, said cords designed to be passed over the thumb in opposite directions, whereby said wing may be held over the outer edge of the hand, and its end over the back of the hand, the forward end of the pad forming a rest for the palm and three fingers of the hand, as set forth.

678,314. **ELECTRICAL WATER-HEATER.** HARRY M. HILL, St. Louis, Mo. Filed July 2, 1900. Serial No. 22,339. (No model.)



Claim.—1. In an electric heater, the combination with an inclosing shell, of heads arranged at each end thereof, inlet and discharge pipes connected to said heads, and electrodes arranged within the casing, a space being provided between said electrodes for the passage of the water; substantially as described.

2. In an electric heater, the combination with an inclosing shell; of heads arranged thereon, inlet and discharge pipes connected to said heads, and electrodes mounted in the opposite heads respectively, one of said electrodes being in the from of a hollow cylinder, and the other of said electrodes being in the form of a core fitting within said cylinder and providing a space between its periphery and the inner wall of said cylinder for the passage of liquid; substantially as described.

3. In an electric heater, the combination with an inclosing shell, of heads arranged thereon, and concentric electrodes suitably spaced apart and arranged within said shell, whereby the water to be heated passes vertically along the inner and outer faces of one of said electrodes; substantially as described.

4. In an electric heater, the combination with a suitable casing, of a cylindrical electrode, and an electrode in the form of a core introduced within the cylindrical electrode so as to form a space for the passage of water between said electrode; the inclosed electrode being wholly submerged in the liquid being heated; substantially as described.

5. In an electric heater, the combination with an inclosing shell, of a base-casting carrying a spider-frame, an electrode supported by said frame, an inlet-pipe connected to said base-casting, a cap arranged upon the upper end of the inclosing shell, and a discharge-pipe connected to said cap; substantially as described.

6. In an electric heater, the combination with two electrodes arranged in juxtaposition to each other, one of said electrodes being in the form of a hollow cylinder, and the other of said electrodes being in the form of a core arranged within the hollow cylindrical electrode, and means on the contiguous faces of said electrodes for causing the liquid passing between them to travel other than a straight path; substantially as described.

7. In an electric heater, the combination with two electrodes arranged in juxtaposition to each other, so as to provide a space for the passage of liquid between them, and recesses or pockets formed in the contiguous faces of said electrodes for developing eddies in the passing liquid for arresting foreign matter; substantially as described.

8. An electric heater having electrodes arranged in juxtaposition to each other for providing a space for the passage of liquid between them, the contiguous faces of said electrodes being grooved to form a zigzag path for the liquid; substantially as described.

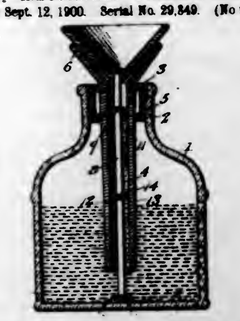
9. In an electric heater, the combination with two concentrically-arranged electrodes, and means on the contiguous faces of said electrodes for imparting a circular motion to the passing liquid; substantially as described.

10. In an electric heater, the combination with two concentrically-arranged electrodes, the contiguous faces thereof being formed with spiral grooves, said grooves being staggered to provide a circular zigzag path for the passing liquid; substantially as described.

11. In an electric heater, the combination with an inclosing casing, of concentrically-arranged electrodes therein, the contiguous faces of said electrodes being provided with means for imparting a circular motion to the liquid passing between them, and chambers for collecting the foreign matter precipitated; substantially as described

12. In an electric heater, the combination with an inclosing shell, of a base-casting provided with a spider-frame having a conical upper face, an electrode 10^a spaced from said inclosing shell to provide a passage for the water, said electrode being mounted upon said spider-frame, an inlet-pipe leading into said base-casting, a cap-piece arranged upon the upper end of the inclosing shell, a hollow electrode in the form of a core 5^a suspended from said cap-piece within the first-mentioned electrode, and a discharge-pipe leading from the upper end of the hollow core electrode; substantially as described.

678,315. **INK-FOUNTAIN.** ELBRIDGE G. HOLDEN, San Antonio, Tex. Filed Sept. 12, 1900. Serial No. 29,849. (No model.)



Claim.—1. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a device, movable within the tube, and comprising means for supplying the well with ink from the reservoir, and also for sealing the reservoir from the outer air when the well is both supplied and empty.

2. In an ink-fountain, the combination with the reservoir, of an ink-supply device having an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a piston arranged to work within said tube and having separate piston-heads alternately fitting within the tube to seal the reservoir from the outer air when the well is respectively supplied and empty, substantially as set forth.

3. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a combined air-supply and ink-controlling piston working within said tube, substantially as set forth.

4. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into said reservoir, an exterior dip-well in communication with said tube, and a combined air-supply and ink-controlling piston working within the tube and having an ink-check device comprising means for checking a rapid flow of ink from the reservoir into said tube, substantially as set forth.

5. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a reciprocatory piston having spaced piston-heads, and an ink-check device intermediate of said heads comprising means for checking a rapid flow of ink from the reservoir into said tube.

6. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir and having at its upper end a dip well or funnel, and a reciprocatory piston having a pair of spaced piston-heads arranged to alternately move into and out of the supply-tube, and a check-valve carried by the piston-stem between the separate piston-heads, substantially as set forth.

7. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir and having an exterior dip well or funnel, and a reciprocatory piston comprising a stem, a pair of spaced piston-heads carried by the stem and tightly fitting within said ink-supply tube, and a check-valve disk also fitted on said stem between the piston-heads and having an ink-circulating port therein, substantially as set forth.

8. In an ink-fountain, the combination with the reservoir, of an ink-supply tube exteoding into the reservoir and having at its upper end a dip well or funnel, and a combined air-supply and ink-controlling piston working within said tube and carrying a combined cap and handle conforming in shape to the dip well or funnel, and adapted to fit therein when the piston is lowered, substantially as set forth.

678,316. **UMBRELLA-HANDLE.** JOHN KELSEY, Detroit, Mich. Filed Dec. 1, 1899. Serial No. 738,817. (No model.)



Claim.—A handle for umbrellas, &c., comprising a body composed of a hardened plastic compound having a bore formed in one end thereof, a metal core embedded within the body having one end extending centrally within the handle-bore, and a wooden plug fitting within said bore around the projecting core end and having its outer end bored to receive the umbrella-stick.

678,317. **CUSHION-TIRE.** WEBBER G. KENDALL, Providence, R. I. Filed Nov. 3, 1900. Serial No. 35,627. (No model.)



Claim.—1. A cushion-tire comprising a fabric formed into a convolute, each convolution thereof being spaced from the next adjacent convolution.

2. A cushion-tire comprising a fabric formed into a convolute, each convolution thereof being spaced from the next adjacent convolution, and means for spacing said convolutions each from the others, forming air-chambers.

3. A cushion-tire comprising a fabric formed into a convolute, each convolution thereof being spaced from the next adjacent convolution, each convolution being formed with spacing means, whereby air-chambers are formed between the convolutions.

4. A cushion-tire comprising a fabric formed into a convolute, each convolution thereof being spaced from the next adjacent convolution, and means for spacing apart said convolutions to form air-chambers, said spacing means being positively secured to each of the layers spaced thereby.

5. In the construction of cushing-tires, a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, whereby when said sheet or blank is curled or rolled the convolutions will be separately supported by said supports.

6. A cushion-tire, composed of a series of convolutions separated by raised supports, said convolutions extending the length of the tire.

7. A cushion-tire, constructed from a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, said sheet or blank curled or rolled into convolute form, whereby each convolution will be separated from the next adjacent one and supported by said raised supports.

8. A cushion-tire, constructed from a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, said sheet or blank curled or rolled into convolute form, whereby each convolution will be separated from the next adjacent one and supported by said raised supports, and a covering for said convolute form.

9. A cushion-tire constructed from a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, united or intersecting each other, said sheet or blank curled or rolled into convolute form, whereby each convolution will be separately supported by said raised supports.

10. A cushion-tire constructed from a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, united or intersecting each other, said sheet or blank curled or rolled into convolute form, whereby each convolution is separately supported by said raised supports, and a covering for said convolute form.

11. A cushion-tire constructed from a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, said sheet or blank curled or rolled into convolute form, whereby each convolution is separately supported by said raised supports and a covering integral with the sheet or blank.

12. A cushion-tire constructed from a sheet or blank of rubber having one of its surfaces provided or formed with raised supports, united or intersecting each other, said sheet or blank curled or rolled into convolute form, whereby each convolution is separately supported by said raised supports, and a covering integral with the sheet or blank.

13. A cushion-tire, constructed from a sheet or blank of rubber having one side provided with raised supports and the other with a backing of canvas, said sheet or blank curled or rolled into convolute form, whereby each convolution will be separated from the next-adjacent one, and supported by said raised supports.

14. A cushion-tire, constructed from a sheet or blank of rubber having one side provided with raised supports and the other with a backing of canvas, said sheet or blank formed into a cylinder and then curled or rolled into a convolute, and a covering integral with said sheet or blank.

15. The method of forming a cushion-tire comprising the following steps: first, giving to the fabric the form of a cylinder; second, convolving the cylinder, and, third, spacing the convolutions of the convolute.

16. The method of forming a cushion-tire comprising the following steps: first, giving to the fabric the form of a cylinder; second, convolving the cylinder; third, spacing the convolutions of the cylinder, and, fourth, treating the surface of the convolute that the spacing means may adhere to the surface of the convolutions.

17. The method of forming a cushion-tire comprising the following steps: first, cutting from the fabric a blank of the required size and form; second, forming the blank into a cylinder; third, convolving the cylinder, and, fourth, spacing the convolutions.

18. The method of forming a cushion-tire comprising the following steps: first, cutting from the fabric a blank of the required size and form; second, forming the blank into a cylinder; third, convolving the cylinder; fourth, spacing the convolutions, and, fifth, treating the surface of the convolute that the spacing means may adhere to the surface of the convolutions.

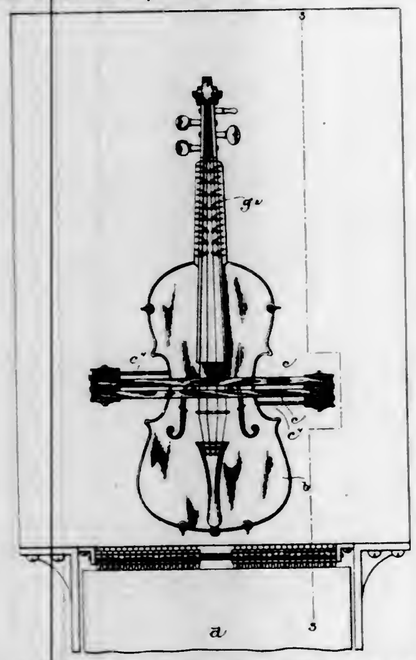
19. The method of making a cushion-tire from a fabric provided with raised surfaces, as spacing means, comprising the following steps: first, forming the fabric into a cylinder, and, second, convolving the cylinder.

20. The method of making a cushion-tire from a fabric provided with raised surfaces as spacing means, comprising the following steps: first, forming the fabric into a cylinder; second, convolving the cylinder, and, third, treating the surface of the convolute that the spacing means may adhere to the surface of the convolutions.

678,318. **AUTOMATICALLY-OPERATED STRINGED MUSICAL INSTRUMENT.** DANA K. MARSHALL, Manchester, N. H., assignor to Charles F. Brown, Reading, Mass. Filed Oct. 18, 1897. Serial No. 655,585. (No model.)

Claim.—1. An apparatus of the character specified, comprising a

lever, a progressively-moving actuator mechanically controlling said lever, a belt-bow and means for driving it, and connections between said bow and lever whereby the angular position or plane of movement of the bow is varied with the position of the lever.



2. An apparatus of the character specified, comprising two levers, a progressively-moving actuator mechanically controlling said levers, a belt-bow and means for driving it, and separate bow-moving connections between the levers and the bow, one lever being connected with the bow near one end of its operating portion, while the other lever is connected with the bow near the other end of its operating portion.

3. An apparatus of the character specified, comprising a lever having a projection, a progressively-moving actuator against which the projection bears, a belt-bow extending across the strings of a musical instrument, a movable arm engaged with a portion of the bow for deflecting that portion, and connections between said arm and lever.

4. An apparatus of the character specified, comprising a lever, a progressively-moving actuator mechanically controlling said lever, a belt-bow and means for driving it, means for adjusting the angle of the plane of movement of the operative portion of the bow, and a self-adjusting or elastic connection between the adjusting device and lever.

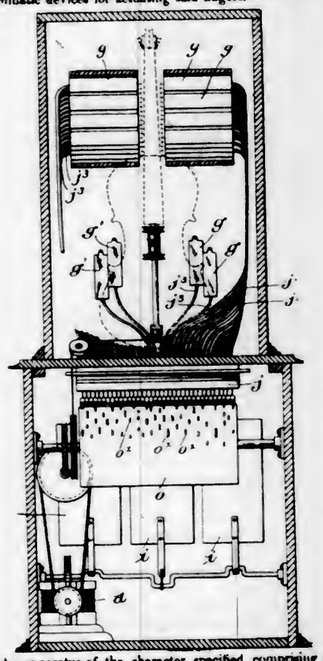
5. In an apparatus of the character specified, an actuating-band composed of a series of flexibly-connected slats or strips having pins or projections each comprising a penetrating shank and an acting portion offset therefrom.

6. An apparatus of the character specified, comprising a stringed musical instrument, two independent finger-guiding strips or sections detachably secured to opposite sides of the neck of the instrument, finger-bearing rods movable in said strips and having their outer ends bent inwardly over the strings, and means for reciprocating said rods.

678,319. AUTOMATICALLY-OPERATED STRINGED MUSICAL INSTRUMENT. DANA K. MARSHALL, Manchester, N. H., assignor to Charles F. Brown, Reading, Mass. Filed Mar. 5, 1898. Serial No. 672,689. (No model.)

Claim.—1. An apparatus of the character specified, comprising strings, a belt-bow extending across and adjacent to a plurality of strings, means for driving the same, and automatically-operated pneumatic devices for varying the inclination of the path of travel of the bow to apply it to and remove it from one or more of the strings.

2. An apparatus of the character specified, comprising strings, a belt-bow extending across and adjacent to a plurality of strings, means for driving the same, automatic means for varying the inclination of the path of travel of the bow to apply it to and remove it from one or more of the strings, a series of string-shortening fingers, and automatically-operated pneumatic devices for actuating said fingers.



3. An apparatus of the character specified, comprising two oppositely-inclined belt-bows crossing each other, means for driving said bows, and pneumatic devices for varying the position and angle of said bows.

4. An apparatus of the character specified, comprising a lever, a progressively-moving actuator mechanically controlling said lever, a wind-chest having two compartments, a valve controlling a passage between said compartments, a second valve controlling an outlet from one of said compartments, the said valves being positively connected together and operated by the lever in such manner as to close one while opening the other, a string-operating device a bellows for controlling the same, connected with the compartment having the outlet, and wind-producing means connected with the other compartment.

5. An apparatus of the character specified, comprising a belt-bow, means for driving it, and automatic means for varying the angular position or plane of movement of the bow to apply it to and remove it from a string or strings of a musical instrument.

6. An apparatus of the character specified, comprising two oppositely-inclined belt-bows crossing each other, means for driving said bows, and means for varying the position and angle of said bows.

7. An apparatus of the character specified comprising an inclined belt-bow, movable in a plane across a plurality of strings, means for driving it, and means for varying the inclination of the bow to adapt it to a string or to a plurality of strings.

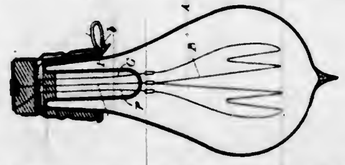
8. An apparatus of the character specified comprising two supporting-standards, pulleys mounted thereon, a belt-bow extending across the strings of a musical instrument and supported by said pulleys, oscillatory arms engaged with parts of said bows for deflecting said parts, and means for moving said arms to vary the position of the belts.

9. An apparatus of the character specified comprising two supporting-standards, pulleys mounted thereon, a belt-bow supported by said polleys, oscillatory arms each having two pulleys arranged at opposite sides of one of the stretches of the bow, and means for moving said arms to vary the position of the portion of the belt with which they are engaged.

10. An apparatus of the character specified, comprising a base or support having means for securing a stringed instrument, standards at opposite sides of the instrument, belt-bows supported by said standards and extending across the strings of the instrument, and means for adjusting the angle and position of said bows.

678,320. INCANDESCENT ELECTRIC LAMP. ANDREW H. MILLER, Chesaning, Mich., assignor of one-half to Lester P. Burrows, same place. Filed Oct. 1, 1900. Serial No. 31,707. (No model.)

Claim.—1. In an incandescent lamp, the combination with the terminal contacts for electric connection with the external circuit and a filament connected between said contacts, of a switch upon the external surface of the lamp and free of the lamp-socket controlling the path of the current through said filament whereby the intensity of the light may be altered.

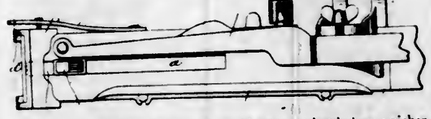


2. In an incandescent lamp, the combination with the terminal contacts for electric connection with the external circuit, of a filament connected between said contacts, an intermediate connection with said filament extending free of the lamp-socket and a switch for connecting said intermediate connection with one of said terminal contacts whereby a shunt is formed through a portion of said filament.

3. In an incandescent lamp, the combination with the terminal contacts for connecting with the external circuit, of a filament, a switch for changing the path of the current through said filament between said terminal contacts, a string for operating said switch and a ring at the end of said string for engaging with the depending point of the lamp-bulb, to hold said switch in one position.

4. In an incandescent lamp, the combination with the filament, the metallic cap for the bulb connected to one of the terminals thereof and a central contact connected with the other terminal, of an intermediate connection with said filament, a terminal contact therefor projecting from between said cap and bulb free of the lamp-socket and insulated from the former and a wire loop adapted to bridge between said metallic cap and intermediate terminal contact or to be moved to break connection therebetween.

678,321. SHUTTLE-CHECKING MEANS FOR LOOMS. CHARLES F. ROPER, Hopedale, Mass., assignor to Draper Company, same place and Portland, Me. Filed May 9, 1900. Serial No. 16,062. (No model.)



Claim.—1. A loom having, in combination, a shuttle-box, a picker, and a momentum shuttle-check cooperating therewith to stop the shuttle at a substantially definite place in the shuttle-box, the effective weight of said check being at least equal to that of the shuttle.

2. A loom having, in combination, a picker, and a movable check arranged to take up the momentum imparted by the shuttle to the picker and to stop the shuttle at a substantially definite place in the shuttle-box, the effective weight of said check being at least equal to that of the shuttle.

3. A loom having, in combination, a shuttle-box, a picker, a momentum shuttle-check which stops the shuttle at a substantially definite place in the shuttle-box, the effective weight of said check being at least equal to that of the shuttle, and means to control the check.

4. A loom having, in combination, picking mechanism and means which by or through its momentum stops the shuttle in a substantially definite place.

5. A loom having, in combination, a movable weighted check adapted to take up the momentum and be moved into abnormal position by impact of the shuttle on the picker thereby stopping the shuttle at a substantially definite place, the effective weight of said check being at least equal to that of the shuttle, and means to limit such movement.

6. A loom having, in combination, a picker and a weighted swinging momentum-check mounted beyond the picker and normally adjacent thereto, the blow of the shuttle on the picker being transmitted thereby to the check swinging said check and stopping the shuttle in a substantially definite place, the effective weight of said check being at least equal to that of the shuttle.

7. Shuttle-checking means for looms, comprising a momentum member the effective weight of which is at least equal to that of the shuttle, and an impact member interposed between said momentum member and the shuttle, the momentum of the shuttle being transferred to the momentum member by or through the impact member, leaving the shuttle at rest in a substantially definite place.

8. A loom having, in combination, a shuttle, means to actuate it, and a momentum-check which stops said shuttle in a substantially definite place, the effective weight of said check being at least equal to that of the shuttle.

9. A loom having, in combination, a picker, a movable check normally adapted to rest adjacent the back thereof, the effective weight of which is at least equal to that of the shuttle, and means to control the check when moved, the momentum of the shuttle being transmitted through the picker to the check so that the check moves while the shuttle is brought to rest in a substantially definite place.

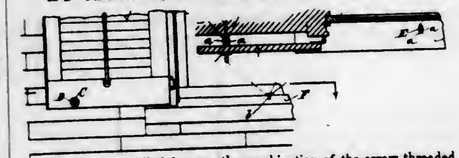
10. A loom having, in combination, the lay, a picker, a weighted momentum member pivotally mounted on the lay beyond the picker, the effective weight of said momentum member being at least equal to that of the shuttle, and means to govern the movement of said momentum member due to impact of the shuttle upon the picker, the shuttle stopping at a substantially definite place as the result of such impact.

11. A loom having, in combination, the lay, a picker, a check pivotally mounted on the lay beyond and adjacent the picker, the effective weight of said check being at least equal to that of the shuttle, the pivot of the check being located eccentric to its center of gravity to cause its return automatically to normal position, and means to limit the movement of said check due to impact of the shuttle upon the picker, the shuttle stopping at a substantially definite place as the result of the impact.

12. A loom having, in combination, a lay, a shuttle, and a check which is moved away from its normal position by the impact of the incoming shuttle and which returns automatically to said position after the lay has passed the front center.

13. A loom having, in combination, a lay, a shuttle, and a momentum-check, the effective weight of which is at least equal to that of the shuttle, said check moving away from its normal position under the impact of the incoming shuttle, and returning automatically to said position after the lay has passed the front center.

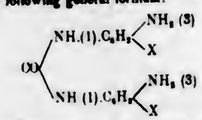
678,322. BLIND-FASTENER. CHARLES E. TEFFT, Pawtucket, R. I. Filed Nov. 30, 1900. Serial No. 38,257. (No model.)



Claim.—In a blind-fastener the combination of the screw-threaded bolt provided with the engaging knobs, with the keepers provided with the spring clasping-jaws adapted for the engagement of the knobs, substantially as described.

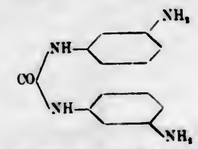
678,328. ORANGE DISAZO DYE AND PROCESS OF MAKING SAME. MORITZ ULRICH and KARL HEIDENREICH, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Feb. 6, 1901. Serial No. 46,810. (No specimens.)

Claim.—1. The process for producing new disazo dyestuffs, which process consists in first tetrazotizing the meta-diamidodiphenyl-urea compounds having the following general formula:



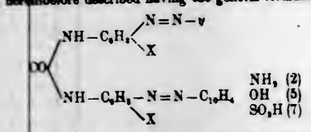
X meaning in this formula a hydrogen atom which can be substituted by a methylic group and then combining the resulting tetrazo compounds with the herein-defined azo dyestuff components, substantially as hereinbefore described.

2. The process for producing a new disazo dyestuff, which process consists in first tetrazotizing the meta-diamidodiphenyl-urea having the formula:



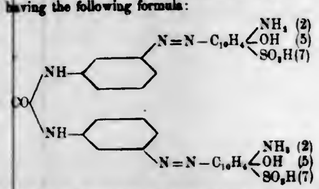
and then combining the resulting tetrazo compound with two molecules of beta,-amido-alpha,-naphthol-beta,-sulfonic acid, substantially as hereinbefore described.

3. The herein-described new disazo dyestuffs which are alkaline salts of acids hereinbefore described having the general formula:



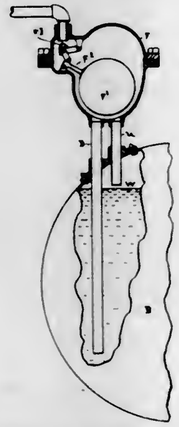
and which are from red to reddish-brown powders soluble in water with a yellowish-red color, dyeing unmordanted cotton from orange to yellowish-red shades, which, when on fiber, can be further diazotized and coupled with beta-naphthol, bordeaux shades of considerable value being thus obtained which are fast to washing, substantially as hereinbefore described.

4. The herein-described new disazo dyestuff being an alkaline salt of an acid having the following formula:



which in the form of the sodium salt is a reddish-brown powder, readily soluble in water and in ammonia with a yellowish-red color, scarcely soluble in alcohol with an orange color, being dissolved by concentrated sulfuric acid of 66° Baumé with a yellowish-red color, a brown precipitate being obtained by the addition of ice to this solution; dyeing unmordanted cotton orange shades which shades can be further diazotized and developed on the fiber by means of betanaphthol pure bordeaux shades being thus obtained which are fast to washing, substantially as hereinbefore described.

678,824. **FEEDER FOR STEAM-BOILERS.** ADDISON G. WATERHOUSE, Springfield township, Pa. Filed Feb. 26, 1901. Serial No. 49,019. (No model.)



Claim.—The combination of a steam-boiler and a steam feed-water pump, or injector, adapted for being worked by steam from the boiler, with a steam-pipe leading from the boiler, at the level at which the water is to be maintained in the boiler, up to a float-box, located above the level of the water in the boiler; the float-box being provided with a second or siphon pipe, extending into the boiler to a level below its water-surface; the steam-pipe being continued or extended from the float-box to the steam-pump or injector; the float-box being provided with a valve actuated by a float, adapted for closing the steam pipe or passage leading from the float-box; when the float is raised by the buoyancy of water in the box; and opening the valve to admit the free passage of steam, when the water is siphoned from the box, substantially as, and for the purposes set forth.

678,825. **VARIABLE MEASURE.** THOMAS R. WHITE, Chicago, Ill. Filed Feb. 26, 1901. Serial No. 48,901. (No model.)

Claim.—1. A measure, comprising a body having a series of openings through its wall, a bottom movable into any one of said openings and having a finger-piece at its outer edge, and arms mounted to swing on the body to hold the bottom in its adjusted position, substantially as specified.

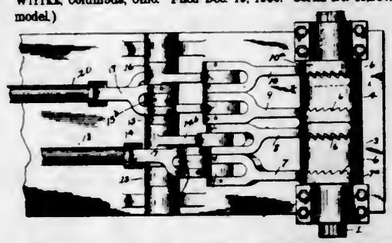


2. A measure, comprising a body having a series of openings through its wall, a bottom movable through any one of said openings, and segmental stops for the openings, substantially as specified.

3. A measure comprising a body having a series of openings through its wall, a bottom movable through any one of said openings, and stops for the openings, consisting of segmental plates having lugs at the ends for engaging against the outer surface of the body, substantially as specified.

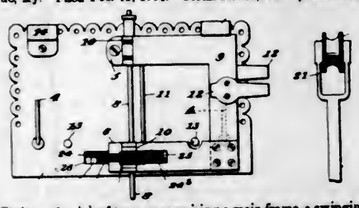
4. A measure, comprising a body having a series of slots through its wall, the said slots extending one-half the circumference of the body, a bottom movable through any one of said slots, segmental stop-plates for the slots, the said stop-plates having lugs at their ends for engaging against the outer surface of the body and having finger-pieces, and devices on the body for holding the bottom and stops in place, substantially as specified.

678,826. **MECHANISM FOR CONVERTING MOTION.** CARL WITTKE, Columbus, Ohio. Filed Dec. 19, 1900. Serial No. 40,387. (No model.)



Claim.—In a mechanism for converting reciprocating to rotary motion, the combination with a shaft 1, clutch-sections keyed to slide thereon and having toothed ends, of a shaft 11, two pairs of bell-crank levers fulcrumed thereon, two pairs of driving-arms having toothed ring terminations loose on said shaft 1, yoke-like heads 17 and 19, rods 18 and 20 extending therefrom, a jointed connection between one arm of each bell-crank and one of the driving-arms and a jointed connection between the remaining arms of said bell-cranks and said yokes, substantially as specified.

678,827. **SHEET-MUSIC HOLDER AND TURNER.** JOHN A. ASHBY, Blueash, Ohio, assignor to himself and James A. Ashby, Bellevue, Ky. Filed Feb. 15, 1901. Serial No. 47,524. (No model.)



Claim.—1. A leaf-turner comprising a main frame, a swinging frame in pivotal relation thereto, two pedal-levers, an arm on the main frame in line with the pivot-point of the swinging frame and formed with an opening in its forward part and flexible connections between the pedal-levers and the swinging frame and arranged to pass in opposite directions through the opening in the forward part of said arm on the main frame, substantially as set forth.

2. A leaf-turner comprising a main frame, a swinging frame in pivotal relation thereto, pedal-levers, rods connected to the pedal-levers and provided with pulleys, connections extended in opposite directions from the swinging frame and under the pulleys of the respective rods and clamps for securing the ends of said connections, substantially as set forth.

3. A leaf-turner comprising a main frame having bracket-arms one of which is grooved in its forward part, swinging frames, a pivot-rod for

holding the swinging frames to the bracket-arms, pedal-levers, rods extended up from said levers and carrying pulleys, two sheaves in front of each of said pulleys, one of the sheaves being inclined, inclined rollers on the main frame, cords each secured at its central part to one of the swinging frames and having its end portions arranged to pass in opposite directions over the grooved forward part of the bracket-arm on the main frame and over the pulley at said frame and also over the sheaves in front of one of the pedal-rods, and under the pulley on said rod, and clamps for holding the extremities of said cords, substantially as set forth.

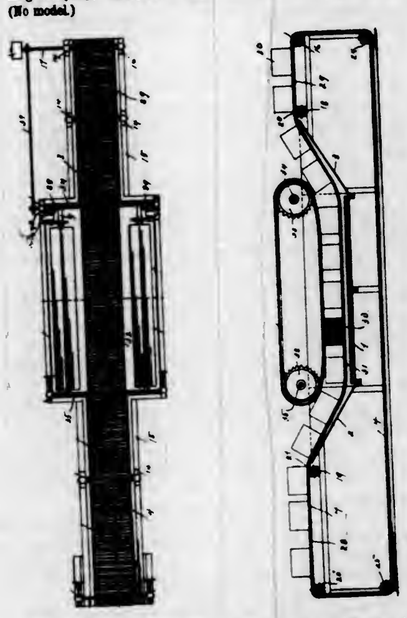
4. A leaf-turner comprising a main frame, a swinging frame in pivotal relation thereto, a flexible part fixedly held at one end and having connection with the swinging frame, a pedal-lever and a rod connected with the pedal-lever and having loose engagement with the flexible part intermediate its connection with the swinging frame and its fixed end and arranged to flex the same and operate the swinging frame when the pedal-lever is operated, substantially as set forth.

5. A leaf-turner comprising a main frame, a swinging frame in pivotal relation thereto, a flexible part having connection with the swinging frame, means for adjustably holding the flexible part at one point in its length, a pedal-lever and a rod connected with the pedal-lever and having engagement with the flexible part and arranged to flex the same and operate the swinging frame when the pedal-lever is actuated, substantially as set forth.

6. A leaf-turner comprising a main frame, a swinging frame in pivotal relation thereto, a flexible connection having attachment to the swinging frame and the main frame, a pedal-lever, a rod connected to the pedal-lever and a pulley carried by said rod and having engagement with the flexible connection and arranged to flex the same and operate the swinging frame when the pedal-lever is actuated, substantially as set forth.

7. A leaf-turner comprising a main frame, a swinging frame in pivotal relation thereto and provided with a pin, a flexible connection having its central portion knotted about said pin and having its end portions extended in opposite directions and provided with securing means, and means to flex the end portions of said connection to actuate said swinging frame, substantially as set forth.

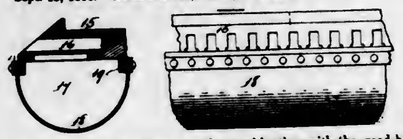
678,828. **WASHING AND SCALDING APPARATUS FOR FRUIT.** JAMES R. BANCROFT, Toledo, Ohio, assignor to the International Canning Company, same place. Filed Nov. 7, 1900. Serial No. 35,731. (No model.)



Claim.—1. In a washing and scalding apparatus, a tank provided with heating apparatus, slanting inlet portions at opposite ends of the tank, rectangular pockets at the sides of the tank, agitators mounted to rotate in said pockets, a carrier-belt mounted to pass through and under the tank, said belt being adapted to convey foraminous receptacles through the heated and agitated body of water, and means to support and revolve said belt and agitators as described.

2. In a washing and scalding apparatus, a frame, a tank supported thereon provided with heating apparatus, slanting inlets secured to the tank of a width to form rectangular pockets in the tank upon both sides of the inlets, upon the frame a carrier-belt mounted and passing through and under the tank, arbors journaled over and across the tank having pulleys mounted thereto, a belt mounted upon the pulleys vertically over the carrier-belt and at a height to receive foraminous receptacles between the carrier and the upper belt, agitators journaled in the sides of the pockets to throw the water centrally to the tank, and means to transmit motion to the carrier-belt, submerging-belt and agitators.

678,829. **REED-ORGAN.** ROBERT J. BENNETT, Chicago, Ill. Filed Sept. 13, 1900. Serial No. 562,395. (No model.)



Claim.—1. In a reed-organ, the combination with the reed-board and reed-cells of a metallic resonator located beneath the said reed-board and reed-cells and having communication with the latter, the resonator being semicircular in cross-section and of a width approximately equal to that of the reed-board and connected or secured to the reed-board along its upper longitudinal edges.

2. In a reed-organ, the combination with the wind-trunks or chimneys leading to the bellows of resonators connected therewith, stop-controlled valves at each end of the resonator opening directly into the wind-trunks and means for operating said valves simultaneously by one stop consisting of a rock-shaft and connections between said shaft and the valves together with connections operated by the stop.

3. In a reed-organ, the combination with the wind-trunks or chimneys located on each side of the instrument and leading to the bellows, of resonators connected therewith, stop-controlled valves also located on each side of the instrument, a rock-shaft and connections with the valves, a stop, a push-rod for opening one of the valves, and operating connections between the push-rod and the stop whereby when one valve is pushed open the other valve is simultaneously pulled open.

678,830. **HALOGEN ALBUMEN AND PROCESS OF MAKING SAME.** FERDINAND BLUM, Frankfort-on-the-Main, Germany, assignor to Pharmaceutisches Institut Ludwig Wilhelm Gans, same place. Filed Apr. 12, 1900. Serial No. 677,343. (No specimens.)

Claim.—1. The process of producing halogen albumens containing an increased percentage of organic halogen which consists in halogenizing an albuminous substance in a continuous manner and neutralizing the intermediate hydrogen halides formed in the halogenization.

2. The process of producing halogen albumens containing an increased percentage of organic halogen which consists in halogenizing an albuminous substance in a continuous manner with nascent halide and neutralizing the intermediate hydrogen halides formed in the halogenization by decomposing the same as they are formed, by passing an electric current through the mass to effect the halogenization and neutralization.

3. A halogen-albumen body consisting of slightly-yellow amorphous powder containing about ten per cent. of water, the said body being freely soluble in water, less soluble in dilute spirit, insoluble in strong alcohol, ether, benzene and the like, and when in aqueous solution precipitated in flocculs by acids which flocculs are difficultly soluble in cold water, insoluble in dilute salt solution and conglobate if heated.

4. As a new article of manufacture, an undecomposed fluorin-albumen body.

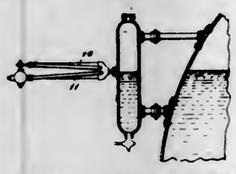
678,831. **COLLAR-FASTENER.** CHARLES A. BROTHERS, Richmond, Va. Filed Dec. 31, 1900. Serial No. 41,063. (No model.)



Claim.—1. The herein-described securing device for horse-collars or the like comprising an anchoring-plate 3 secured to one end of the collar and having upwardly-extending staples 5; a plate 6 hinged to the opposite end of the collar and provided with apertures adapted to receive said staples and also having a spring-tongue 15, and a strap adapted to extend through the staples as they protrude through said apertures whereby the free end of the strap will rest above said spring, thus insuring that the staples will be locked against withdrawal until the strap is removed, all substantially as specified and for the purpose set forth.

2. The herein-described securing device for collars comprising the plate 6 convex upon its upper surface and provided with a plurality of apertures and also with a spring 15; suitable means to connect said plate to one end of the collar; an anchoring-plate 3 connected to the opposite end of the collar and having permanently connected thereto the staples 5; a flexible member 11 adapted to engage said staples, and an anti wear-plate 12 connected to said flexible member and having upturned ends 14 connected to the flexible member and adapted to afford a seat for the staples whereby they will not contact directly with said flexible member when in its operative position, all substantially as specified and for the purpose set forth.

678,332. THERMOSTAT FOR OPERATING VALVES. JOSEPH W. ERRMAN, Brooklyn, N. Y., assignor of five-eighths to Wilbur F. Steele, New York, N. Y. Filed Feb. 1, 1901. Serial No. 45,652. (No model.)



Claim.—1. A thermostat having a pair of parallel expansion-tubes and a valve attached to one tube and operated by the other tube, each tube having a non-expansible link hinged centrally to the head of the tube and the lower end of each link disposed out of the line of stress of said expansion tube or tubes.

2. A thermostat having a pair of parallel expansion-tubes joined to a common base, having a valve on the upper end of one tube and means for operating said valve on the other tube, a pair of links secured centrally in line at the upper end of each tube and attached at their lower ends to the base of the tubes at points to one side of the axial line of each tube.

3. A thermostat having a pair of parallel expansible tubes joined to a common base which supplies steam and water to said tubes, a valve on the upper end of one tube and an arm on the other tube, and means for operating said tube and a pair of non-expansible links each joining the head on each tube centrally in line of each tube, the lower ends of said tube being joined to each pipe so that the line of stress during expansion will deflect the upper ends of the pipes in opposite directions, as set forth.

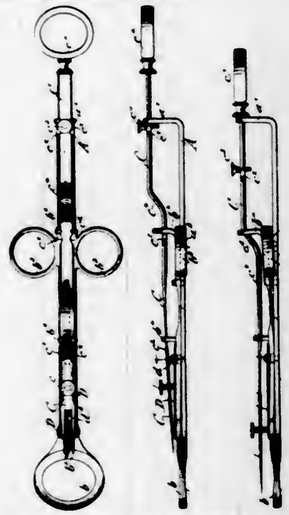
4. A thermostat having a pair of slightly-separated parallel expansion-tubes secured to a common base provided with a single inlet, one of said tubes having at its upper end a valve with direct connections with the boiler through said tube and a stem which projects over the other tube, the other tube having at its upper end an arm and a nut, which engages with the valve-stem, said tubes having non-expansible links attached thereto at opposite ends, but out of alinement with the axis of said tube, as set forth.

5. A thermostat comprising two parallel expansible tubes, so secured to a common base which is connected with the steam and water spaces of a boiler, a valve on one of said tubes, and means for operating said valve connected with the other tube, a non-expansible link secured to the upper end of each tube in its axial line, and the lower end thereof secured to the common base to one side of the axis of said tube, one of said tubes serving as a steam or water conduit for the valve when the valve is open, as set forth.

6. A thermostat comprising a pair of slightly-separated parallel expansible tubes, secured to a common base which is provided with a tubular connection to the boiler, one of said tubes having thereon a valve in the line of a supply-steam and a threaded stem projecting over the upper end of the other tube, said latter tube having an arm provided with a nut to engage with the threaded stem, the head of each expansion-tube having attached thereto a non-expansible link in the axis of the tube, and the lower end of each link secured to the base at one side of the axial line of said tube, as set forth.

7. A thermostat comprising a pair of parallel expansible tubes secured to a common base and having communication with a boiler, the opposite ends of said tubes having attached thereto a valve and means for operating the same, each tube having a pair of non-expansible links secured at their upper ends centrally to the head, and at their lower ends to the common base out of alinement with the axis of the tube, as set forth.

678,333. TONSILOTOME. GEORGE ERMOLD, Elizabeth, N. J., assignor to the George Ermold Company, New York, N. Y. Filed Dec. 20, 1900. Serial No. 40,484. (No model.)



Claim.—1. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member, means for locking said members together, a fork guided on said members, and a detachable member secured at one end to the stationary member and arranged longitudinally of the same, and having at its opposite end an inclined lug located to guide the fork during its advance, substantially as set forth.

2. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member, means for locking said members together, a fork guided on said members and provided with an adjusting-screw, and a detachable member having an inclined lug located to contact with said adjusting-screw during the advance of the fork, substantially as set forth.

3. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member, a fork guided on said member, and a locking member detachably secured at one end to said stationary member and arranged longitudinally of the same, and having at its opposite end an inclined lug engaging the stationary cutting member and located to guide the fork during its advance, substantially as set forth.

4. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member, a fork guided on said members, and a locking member having an inclined lug engaging the stationary cutting member and a lug engaging said stationary member, said inclined lug being located to guide the fork during its advance, substantially as set forth.

5. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member, a stud on the stationary member, and a locking member engaging said stud and provided at its forward end with a lug engaging the stationary cutting member, substantially as set forth.

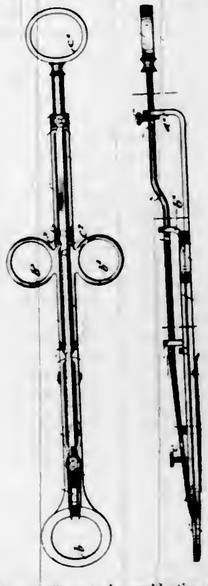
6. In a tonsilotome, the combination of a stationary cutting member having a recess, a movable cutting member, a stud on the stationary member, and a locking member engaging said stud and provided with a lug seated in said recess, substantially as set forth.

7. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member, a fork guided on said members and having an adjusting-screw, a locking member provided with an inclined lug located in the path of said screw, and means for maintaining said lug against movement, substantially as set forth.

8. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member having a slot, a headed stud on the stationary member projecting through said slot, a locking member detachably engaging said stud above the movable member, and having an inclined lug located in the slot of the same, and a fork guided on said cutting members and provided with an adjusting-screw movable into contact with said lug when the fork is advanced, substantially as set forth.

9. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member having a slot, a headed stud on the stationary member projecting through said slot, a slotted locking member engaging said stud and detachable therefrom when moved at an angle to the cutting members, an inclined lug on said locking member, and a fork guided on said cutting members and provided with an adjusting-screw located in said slot of the locking member and movable into contact with the inclined lug when the fork is advanced, substantially as set forth.

678,334. TONSILOTOME. GEORGE ERMOLD, Elizabeth, N. J., assignor to the George Ermold Company, New York, N. Y. Filed Aug. 22, 1900. Renewed May 24, 1901. Serial No. 61,817. (No model.)



Claim.—1. In a tonsilotome, the combination of a stationary member, a movable member thereon, cutters at the ends of said members, an inclined lug on the stationary member adjacent to the cutter of the same, a fork movable on said members, and an adjusting-screw carried by said fork, the parts being so located as to cause the riding of said screw upon the inclined lug when the fork is operated, substantially as set forth.

2. In a tonsilotome, the combination of a stationary member, a movable member thereon, cutters at the ends of said members, an inclined lug on the stationary member adjacent to the cutter of the same and provided with a flattened upper part, a fork movable on said members, and an adjusting-screw so carried by said fork as to ride upon the inclined lug when the fork is operated, substantially as set forth.

3. In a tonsilotome, the combination of a stationary cutting member provided with an opening, a movable cutting member provided with a slot registering therewith, and a locking device comprising a spring-plate and a stud having heads at right angles thereto and adapted to pass through said opening and slot, substantially as set forth.

4. In a tonsilotome, the combination of a stationary cutting member, a movable cutting member having a recessed bent-up rear end, and a fork movable longitudinally of said members and having a bent portion adapted to engage the recessed bent end of the movable member, substantially as set forth.

5. In a tonsilotome, the combination of a stationary cutting member, a stop-pin thereon, a movable cutting member engaging said stop-pin, and provided with a recessed rear end, and a fork movable on said members and having a bent portion movable into engagement with the rear end of the movable member and adapted to lift the same out of engagement with said stop-pin, substantially as set forth.

678,335. FIREPROOF FLOOR CONSTRUCTION. MARCUS L. FREEMAN and CLARENCE E. DOBBIN, New York, N. Y., assignors to Freeman-Dobbin Fireproofing Company, same place. Filed Aug. 22, 1900. Serial No. 27,725. (No model.)

Claim.—1. The combination with the construction-beams having lateral flanges, of a frame between such beams having an upper arched member, a lower horizontal member and means for locking it on said flanges, said frame being composed of a single continuous bar bent to form said members, the ends of said bar being united together, as set forth.



2. The combination with construction-beams having lateral flanges at or near their bottoms, of a frame between such beams having an upper member, a lower horizontal member, and engaging portions for locking on said beam-flanges, said engaging portions having vertical flanges depending beneath the beam-flange, said frame being composed of a narrow bar or bars bent or twisted to form said members and engaging portions, and said horizontal member being united to said flanges, as set forth.

3. The combination with construction-beams having lateral flanges at or near their bottoms, of a frame between such beams having an upper arched member, a lower horizontal member and engaging portions for locking on said beam-flanges, said frame being composed of a single continuous flat bar set on edge to form said arched and horizontal members and twisted at right angles to form said engaging portions, substantially as set forth.

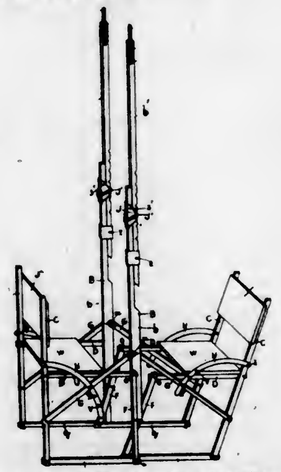
4. The combination with construction-beams having lateral flanges at or near their bottoms, of a frame between such beams having a horizontal member forming furring for a ceiling, such member being composed of a flat bar set on edge and twisted and bent at its ends to form upper and lower portions for engaging the upper and lower surfaces of the beam-flanges, the latter fitting in spaces between said upper and lower portions, as set forth.

5. The combination with construction-beams having lateral flanges at or near their bottoms, of frames between said beams composed each of a single continuous bar having an upper member and engaging portions for locking on said beam-flanges, and slabs above said frames forming supports for the material composing the arch, substantially as set forth.

6. The combination with construction-beams, having lateral flanges at or near their bottoms, of frames between said beams composed each of a single continuous bar having an arched member and engaging portions for locking on said beam-flanges, longitudinal strips resting on said frames, and slabs on said strips forming supports for the material composing the arch, substantially as set forth.

7. The combination with construction-beams having lateral flanges at or near their bottoms, of frames between said beams composed each of a single continuous bar having an arched member, a horisontal member and engaging portions for locking on said beam-flanges, longitudinal strips resting on said frames, and slabs on said strips forming supports for the material composing the arch, substantially as set forth.

678,336. SWING. JEAN B. GAGNON, Montreal, Canada, assignor of one-half to Arthur Paquette, same place. Filed Mar. 22, 1900. Serial No. 9,786. (No model.)



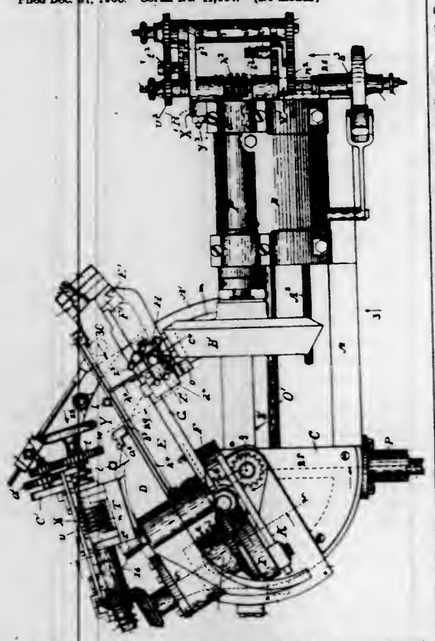
Claim.—1. In combination in a swing, a supporting-rod, a front leg pivoted intermediate of its length to the end of said rod, the back, side bars pivotally connecting the lower end of the back and leg, and the

upper end of the leg and the intermediate part of the back, a brace extending from the back to the rod, and a second brace extending between the back and the first brace.

2. In combination in a swing, a supporting-rod, a front leg pivoted intermediate of its length to the end of said rod, a back, side bars pivotally connecting the lower end of the back and leg, and the upper end of the leg and the intermediate part of the back, a brace extending from the back between the upper and lower side bars to the rod, and a second brace pivoted to the back above the upper brace having an adjustable connection to the first brace.

3. In combination in a swing, a supporting-rod, a front leg pivoted intermediate of its length to the end of said rod, a back, side bars pivotally connecting the lower end of the back and leg, and the upper end of the leg and the intermediate part of the back, a brace pivoted to the back intermediate of the side braces having a detachable connection to the supporting-rod, and a second brace pivoted to the back having a detachable and adjustable connection with the first brace, substantially as described.

678,337. GEAR-PLANER. WILLIAM GLEASON and JAMES E. GLEASON, Rochester N. Y., assignors to Gleason Tool Company, same place. Filed Dec. 31, 1900. Serial No. 41,667. (No model.)



Claim.—1. A machine for planing gears, having a turret and a tool-carrying arm held by the turret, in combination with a feed-shaft held by the turret and adapted to move therewith, a worm on the feed-shaft, a toothed segment independent of the turret to engage the worm, and means to rotate the feed-shaft alternately in opposite directions, and at different rates of speed, whereby the tool-carrying arm is swung slowly forward and rapidly back, substantially as shown and described.

2. A gear-planer having a frame, a revolving turret supported by the frame, a tool-carrying arm held by the turret, a toothed segment supported by the frame, a feed-shaft on the turret, a worm on the feed-shaft to engage the toothed segment, the turret being adapted to move either with or independent of the segment, and means for revolving the feed-shaft alternately in opposite directions and for shifting the segment, substantially as shown and described.

3. A gear-planer having feed mechanism comprising a shaft and worm thereon, a slidable and a coacting non-slidable clutch member at either end of the shaft, one slidable clutch member being adapted to turn the shaft, gearing connecting said non-slidable member at one end of the shaft with the slidable member at the other end of the shaft, a toothed segment to engage said worm, and means to shift said slidable clutch member and to rotate said gearing, substantially as shown and described.

4. A gear-planer having feed mechanism comprising a feed-shaft and a parallel counter-shaft adapted to turn in the same or in opposite directions, a worm on the feed-shaft, a slidable and a coacting non-slidable clutch member at either end of the feed-shaft, one slidable member being adapted to turn the shaft, a train of gears connecting the slidable member at one end of the feed-shaft with said counter-shaft, gears connecting the non-slidable member at the opposite end of the feed-shaft with the counter-shaft, a fixed toothed segment to engage said worm, and means to shift said slidable clutch members and to rotate the gears and the counter-shaft whereby the feed-shaft may have its directions of motion reversed, substantially as and for the purpose set forth.

5. In a device for planing gear-teeth, feed mechanism comprising a feed-shaft and a parallel counter-shaft, a worm on the feed-shaft, a slidable and a coacting non-slidable clutch member at either end of the feed-shaft, one slidable member being adapted to turn the shaft, a series of alternated changeable gears connecting the slidable member at one end of the feed-shaft with the counter-shaft, gears connecting the counter-shaft with the non-slidable member at the opposite end of the feed-shaft, a toothed segment to engage said worm, and means for shifting the slidable clutch members, and to rotate the gears and the counter-shaft, substantially as shown and described.

6. A device for planing the teeth of gears, having a frame, and feed mechanism movable as a unit, comprising a shaft and worm thereon, a shiftable and a coacting non-shiftable clutch member at either end of the shaft, one shiftable member being adapted to turn the shaft, gearing connecting said non-shiftable member at one end of the shaft with the shiftable member at the other end of the shaft, a quadrant or body secured to the frame, holding a toothed segment for engaging said worm, a bar to control said shiftable clutch members, a lever to engage the bar, and shifters for the lever secured to the quadrant, with means to rotate said gearing, substantially as shown and described.

7. A gear-planer having feed mechanism comprising a feed-shaft and a parallel counter-shaft, a worm on the feed-shaft, a slidable and a coacting non-slidable clutch member at either end of the feed-shaft, the slidable member at one end of the shaft being adapted to both turn upon the shaft and to control or drive the latter, gearing connecting the slidable member at one end of the feed-shaft with the counter-shaft, gears connecting the non-slidable member at the opposite end of the feed-shaft with the counter-shaft, a toothed segment to engage the worm, and means for shifting the slidable clutch members and to turn the gears, substantially as shown and described.

8. A gear-planer having feed mechanism comprising a feed-shaft, a driving clutch member free to turn on the feed-shaft, a coacting driven clutch member adapted to slide on the feed-shaft and to turn thereon, and to turn the feed-shaft at intervals, with means for turning said driving clutch member, substantially as shown and described.

9. A gear-planer having feed mechanism comprising a feed-shaft, a driving clutch member free to turn on the feed-shaft, a coacting driven clutch member adapted to turn without effective action through a prearranged distance on the feed-shaft, and to engage with and drive the latter, and means for turning said driving clutch member, substantially as shown and described.

10. A gear-planer having feed mechanism comprising a feed-shaft, a driving clutch member free to turn on the feed-shaft, a coacting driven clutch member adapted to turn idly through a prearranged distance or period on the feed-shaft and to engage with and drive the latter, with means for holding said driven clutch member at the beginning of said period of inaction, whereby the feed-shaft may temporarily remain at rest, with means for turning said driving clutch member, substantially as and for the purpose specified.

11. A gear-planer having feed mechanism comprising a feed-shaft, a driving clutch member adapted to turn on the feed-shaft, a coacting driven clutch member adapted to turn on the feed-shaft, a finger projecting from the feed-shaft to be engaged by said driven clutch member whereby the feed-shaft is turned, and means for turning said driven clutch member, substantially as shown and described.

12. A gear-planer having feed mechanism comprising a feed-shaft, a driving clutch member adapted to turn on the feed-shaft, a coacting driven clutch member adapted to turn on the feed-shaft, a pivotal finger projecting radially from the axis of the feed-shaft and adapted to turn between stops, in position to be engaged by said driven clutch member, and means for operating said driving clutch member, substantially as shown and described.

13. A gear-planer having feed mechanism comprising a feed-shaft, a driving clutch member adapted to turn on the feed-shaft, a coacting driven clutch member adapted to turn on the feed-shaft, and formed with a longitudinal extension, a pivotal finger projecting from the feed-shaft in position to be engaged on either side by said extension of the driven clutch member as the latter is turned one way or the other, said finger being adapted to turn laterally between stops or limits to permit the driven clutch member to be turned one way or the other upon the shaft through a single complete revolution, with means for turning said driving clutch member and the driven clutch member, substantially as shown and described.

14. A gear-planer comprising a crank-shaft and a feed-shaft connected by engaging gears, a driving clutch member rigid with the gear on the feed-shaft and free to turn on the latter, a driven clutch member adapted to turn on the feed-shaft and be engaged by the driving clutch member and to engage the feed-shaft at intervals, said driven clutch member being adapted to turn on the feed-shaft while the crank-shaft makes a revolution, and to engage and turn the feed-shaft, and means for turning the crank-shaft, substantially as and for the purpose specified.

15. A gear-planer having feed mechanism comprising a feed-shaft and a coacting counter-shaft and gears connecting said shafts, a worm on the feed-shaft and a toothed segment to engage the worm, a driving clutch member adapted to turn on the feed-shaft, a coacting driven clutch member adapted to turn on the feed-shaft and to engage with and turn the latter, a connector for the driven clutch member and the counter-shaft, and means for turning said driving clutch member, substantially as shown and described.

16. A gear-planer having feed mechanism comprising a feed-shaft and a coacting counter-shaft and gears connecting said shafts, a worm on the feed-shaft and a toothed segment to engage the worm, a driving clutch member and a coacting driven clutch member both adapted to turn on the feed-shaft, said driven member being adapted to engage with and turn the feed-shaft, a connector for the counter-shaft and the driven clutch member, acting to turn the latter in a direction contrary to that in which the driving clutch member turns it, and means for turning the driving clutch member, substantially as shown and described.

17. A gear-planer having feed mechanism comprising a feed-shaft and a coacting counter-shaft, and engaging gears on the respective shafts, a worm on the feed-shaft, and a toothed segment to engage the worm, the gear on the counter-shaft being held by a yielding pressure whereby it may turn on the shaft, and means for turning said shafts and connecting-gears, substantially as and for the purpose specified.

18. A gear-planer comprising a crank-shaft and gear thereon, a feed-shaft, a driving clutch member adapted to turn on the feed-shaft, a coacting driven clutch member on the feed-shaft and adapted to turn the latter, a counter-shaft provided with a gear, gears rigid with said driving clutch member to engage respectively said gear on the counter-shaft and said gear on the crank-shaft, and means for turning the latter, substantially as shown and described.

19. A gear-planer having a frame, a pivotal tool-carrying arm supported by the frame, a body or quadrant upon the frame, provided with a form movable in ways in said quadrant, the tool-carrying arm having an extended part, a roller carried by a stud extending horizontally from said extended part to bear upon said form, a roller on the under side of said arm, a yielding track or platform for the roller supported by said quadrant, and means for moving the tool-carrying arm alternately forward and back, substantially as shown and described.

20. A gear-planer having a frame, a pivotal tool-carrying arm supported by the frame, a body or quadrant upon the frame, provided with a form, the tool-carrying arm having an extended part to bear upon said form, a roller on said arm, a sleeve projecting vertically through the quadrant, a platform supported by said sleeve and adapted to move vertically, a weighted lever engaging the toothed stem of said platform to control said platform, and means for giving the tool-carrying arm horizontal motions, substantially as shown and set forth.

21. A gear-planer having a head-block, a bracket held pivotally to the head-block, and a wheel carried by the head-block, a worm-shaft with worm to engage said wheel, a slotted loop or rest on the head-block, and a stud on the bracket occupying the loop, and an adjusting-screw threaded in the loop to engage said stud, with means for actuating the worm-shaft, substantially as shown and set forth.

22. A gear-planer comprising a worm-wheel, a worm-shaft and worm thereon to engage the wheel, a counter-shaft and gearing connecting it with the worm-shaft, a stop-gear on the counter-shaft, provided with projecting lugs on opposite sides of the counter-shaft, facing each other, a stop-bolt adapted to engage either of said lugs, the space between the working faces of the lugs traversed by the stop-bolt being half a circle in extent plus the thickness of the coacting part of the stop-bolt, and means for turning the counter-shaft, substantially as and for the purpose specified.

23. A gear-planer having a worm-wheel, a worm-shaft and worm thereon to engage the wheel, a counter-shaft, a stop-gear on the counter-shaft provided with opposing projections, a stop-bolt adapted to engage said projections, a clutch member rigid with the counter-shaft, a companion clutch member loose on the counter-shaft, a gear on said loose clutch member connected by gearing with the worm-shaft, with means for turning said counter-shaft, substantially as set forth.

24. A gear-planer having a worm index-wheel, a worm-shaft and worm thereon to engage said wheel, a counter-shaft, a stop-gear on the counter-shaft and means to control it, a clutch member rigid with said worm-shaft, a clutch member rigid with the counter-shaft, a loose companion clutch member for each of said rigid clutch members, a gear forming part of a train on each of said loose clutch members, and an intermediate gear in said train, substantially as and for the purpose specified.

25. In a gear-planer a tool-post having a swivel-holder adapted to turn on a horizontal axis in said post, a tool-carrying box held by said swivel-holder, and having pivotal motion therein on a vertical axis, and means for turning said tool-carrying box, substantially as shown and described.

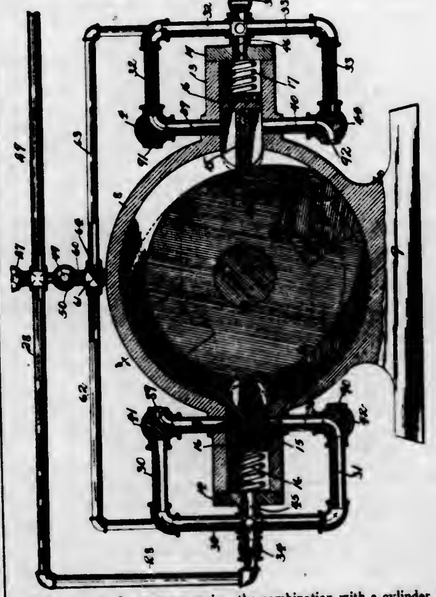
26. A gear-planer having a head-block, a bracket held pivotally to the head-block, and a wheel carried by the head-block, a worm-shaft with worm, and a driving-shaft on the bracket, and gearing connecting the driving-shaft and the worm-shaft, a belt-pulley on the driving-shaft, a belt on the pulley, and means for controlling the tension of the belt, substantially as and for the purpose set forth.

27. A gear-planer having indexing mechanism comprising a worm-wheel, and a worm-shaft having a worm to engage said wheel, a driving-shaft, a counter index-shaft, and a series of gears connecting said counter-shaft with the worm-shaft, a stop-gear on the counter-shaft, and reversible gearing for connecting the driving-shaft with said stop-gear, a stop-bolt or plunger for controlling the stop-gear, and means for actuating the stop-bolt or plunger, and for giving the driving-shaft a yielding motion, substantially as and for the purpose specified.

28. A gear-planer having indexing mechanism comprising a worm-wheel, and a worm-shaft having a worm to engage said wheel, a driving-shaft, a counter index-shaft, and a series of gears connecting said counter-shaft with the worm-shaft, and other gears for connecting the counter-shaft and the driving-shaft, whereby the worm is rotated, and means for turning the worm through short distances independent of the counter-shaft and for actuating the driving-shaft, substantially as and for the purpose specified.

29. A gear-planer having a frame, a turret and a head-block on the frame, a worm-wheel carried by the head-block, a worm-shaft and worm thereon to engage the wheel, a driving-shaft and a counter-shaft, gearing connecting said counter-shaft with the worm-shaft, a stop-gear on the counter-shaft, and gearing connecting the driving-shaft with said stop-gear, a stop-bolt for the stop-gear, a trip-shaft, a member connecting the trip-shaft with the stop-bolt, and a trip-arm carried by the turret to actuate the trip-shaft, substantially as set forth.

678,338. ROTARY ENGINE. JOHN S. HARGER, Chicago, Ill., assignor of one-fifth to Sara Steenberg, same place. Filed July 27, 1900. Serial No. 25,020. (No model.)



Claim.—1. In a rotary engine, the combination with a cylinder, a piston rotatably mounted therein, and an abutment-box opening into said cylinder, of an abutment slidingly mounted in said abutment-box and moving steam-tight therein, and composed of a back plate, two side plates, and a central web connecting said side plates midway of their diameter forming an abutment T-shaped in cross-section, substantially as described.

2. In a rotary engine, the combination with a cylinder, a piston rotatably mounted therein, and an abutment-box opening into said cylinder, of an abutment slidingly mounted in said abutment-box and moving steam-tight therein, and composed of a back plate, two side plates, and a central web connecting said side plates midway of their diameter, said abutment being open to the passage of steam throughout its length, above and below said central web, the front edge of said web being flush with the front ends of said side plates and adapted to bear automatically against said piston as it rotates, substantially as described.

3. In a rotary engine, the combination with a cylinder, a piston rotatably mounted therein, and an abutment-box opening into said cylinder, of an abutment slidingly mounted in said abutment-box and moving steam-tight therein, and composed of a back plate, two side plates, and a central web connecting said side plates midway of their diameter, forming on each side of the central web a four-sided chamber open at the top and one end, the front edge of said web being flush with the front ends of said side plates and adapted to bear automatically against said piston as it rotates, steam pipes opening into said abutment-box above and below said central web, and valves for controlling the passage of the steam through said pipes as said piston rotates, substantially as described.

4. In a rotary engine, the combination with a cylinder, a piston rotatably mounted therein, an abutment-box opening into said cylinder, steam-pipes opening into said abutment box, a valve for controlling the passage of steam through said pipes as said piston rotates, and cut-off mechanism, of an abutment mounted in said abutment-box and having passages constantly open to the passage of steam between said pipes and said cylinder, substantially as described.

5. In a rotary engine, an abutment composed of two parts, 15^a and 15^b, the part 15^a consisting of a side plate 93, a web 95 extending outward from said side plate, and a back plate 94, and provided with a slot between said web and said back plate, the part 15^b consisting of a side plate 96, two parallel webs 98 99 extending outward from said side plate and adapted to slidingly receive the web 95 between them, and a back plate adapted to enter the slot between the web 95 and the back plate 94, the whole being adjustably secured together, substantially as described.

6. In a rotary engine, an abutment composed of two parts, 15^a and 15^b, the part 15^a consisting of a side plate 93, a web 95 extending outward from said side plate, and a back plate 94, and provided with a slot between said web and said back plate, the part 15^b consisting of a side plate 96, webs 98 99 extending outward from said side plate and adapted to slidingly receive the web 95 between them, and a back plate adapted to enter the slot between the web 95 and the back plate 94, the whole being adjustably secured together, and having a groove adapted to receive packing between said back plates, substantially as described.

7. In a rotary engine, the combination with a cylinder having heads secured thereto so as to form a circumferential depressed groove at each end of said cylinder, of a piston rotatably mounted in said cylinder and having its ends flush with the ends of said cylinder, circular plates secured to said piston concentric with said cylinder, and forming on each side of said piston a flange adapted to rotate in said groove and bear steam-tight against the ends of said cylinder, and a packing interposed between the periphery of said plates and the internal periphery of said circumferential grooves, substantially as described.

8. In a rotary engine, the combination with a cylinder, a piston rotatably mounted in said cylinder, an abutment-box opening from said cylinder, and a sliding abutment moving steam-tight in said abutment-box and adapted to bear continuously against said piston as the same rotates, of steam-pipes leading into said abutment-box above and below the said abutment, a valve controlling said steam-pipes, mechanism connected with said rotary piston and said valve and adapted to automatically open said valve as soon as the bearing-surface of said piston has passed the abutment and to close the said valve before a rotation of the piston is completed, a throttle-valve controlling said steam-pipes, an auxiliary pipe for live steam opening into said steam-pipes, an auxiliary valve controlling said auxiliary pipe, and mechanism connecting said throttle-valve and said auxiliary valve and adapted to temporarily open said auxiliary valve when the throttle-valve is opened, substantially as described.

9. In a rotary engine, the combination with a cylinder provided with two abutment-boxes opening into said cylinder opposite each other, a piston rotatably mounted in said cylinder, and a spring-seated abutment slidingly mounted in each of said abutment-boxes, moving steam-tight therein, and composed of a back plate, two side plates, and a central web connecting said side plates and bearing at its front edge against said piston as it rotates, of steam-pipes leading into said abutment-boxes above and below said abutments, valves controlling said steam-pipes, mechanism connected with said rotary piston and said steam-pipes and adapted to automatically open said valves alternately as soon as the bearing-surface of said piston has passed said abutments and to close the same before a half-rotation of the piston is completed, a throttle-valve controlling said steam-pipes, auxiliary live-steam pipes opening into said first-named steam-pipes, an auxiliary valve controlling said auxiliary pipes, and mechanism connecting said throttle-valve and said auxiliary valve and adapted to temporarily open said auxiliary valve when the throttle-valve is opened, substantially as described.

10. In a rotary engine, the combination with a cylinder provided with two abutment-boxes opening into said cylinder opposite each other, a piston rotatably mounted in said cylinder, and a spring-seated abutment slidingly mounted in each of said abutment-boxes, moving steam-tight therein, and composed of a back plate, two side plates, and a central web connecting said side plates and bearing at its front edge against said piston as it rotates, of steam-pipes leading into said abutment-boxes above and below said abutments, valves controlling said steam-pipes, mechanism connected with said rotary piston and said steam-pipes and adapted to automatically open said valves alternately as soon as the bearing-surface of said piston has passed said abutments and to close the same before a half-rotation of the piston is completed, a throttle-valve controlling said steam-pipes, auxiliary live-steam pipes opening into said first-named steam-pipes, an auxiliary valve controlling said auxiliary pipes, mechanism connecting said throttle-valve and said auxiliary valve and adapted to temporarily open said auxiliary valve when the throttle-valve is opened, substantially as described.

678,339. **DOOR CHECK AND CLOSER.** RICHARD C. HILLS and ABRAHAM M. SOUTHARD, Denver, Colo., assignors of one-third to Harry A. Gross, Walsenburg, Colo. Filed Aug. 29, 1900. Serial No. 28,452. (No model.)



Claim.—1. In a door-check, the combination with a liquid-containing chamber, of a spindle journaled therein and provided with an eccentric, a cylinder mounted to oscillate in the chamber, and a plunger provided with a ring engaged by the spindle-eccentric which fits therein and operates the plunger as the spindle is turned, the plunger having a valve-controlled port allowing the liquid to enter the cylinder freely as the plunger is withdrawn, the cylinder-chamber being provided with an outlet for the escape of the liquid, the size of the outlet being such as to cause the liquid to resist the normal movement of the plunger, whereby the travel of the latter is regulated and controlled.

2. The combination of a spring-restored spindle and a liquid-containing chamber through which the spindle passes and in which it is movable, of a cylinder mounted to oscillate in said chamber, a piston or plunger arranged to reciprocate in said cylinder, and an eccentric mounted on the spindle and fitting in a ring in the piston which is operated thereby, the piston being provided with a valve-controlled port allowing the liquid to enter the cylinder as the piston is withdrawn, but preventing the escape of the liquid therethrough as the piston moves inwardly, the cylinder being provided with an outlet-port through which the liquid must be forced by the inwardly-moving piston, the size of the said port being such as to cause the liquid to retard the piston's normal inward movement.

3. The combination with a casing having a liquid-containing chamber, and a spindle journaled therein, of a cylinder mounted to oscillate in the liquid-chamber and provided with an outlet, means for regulating the passage of liquid through said outlet, a piston arranged to enter the cylinder and provided with a valve-controlled inlet-port, the spindle being provided with an eccentric, and the piston with a ring in which the eccentric fits, whereby as the spindle rotates the piston is reciprocated.

4. The combination of a casing having a liquid-containing chamber provided with a lug having a threaded opening, a cylinder located in said chamber and provided with a lug having an opening registering with the opening of the casing-lug, the cylinder having an outlet-port communicating with said opening, a screw inserted in the threaded opening of the casing-lug, and having a plain portion projecting into the opening of the cylinder-lug, forming the pivot upon which the cylinder oscillates, and also being arranged to control the passage of the liquid through the cylinder-port, a piston arranged to reciprocate in the cylinder and having a valve-controlled port, the piston being also provided with a ring and a spindle journaled in the casing and provided with an eccentric fitting in the ring of the piston for operating the latter.

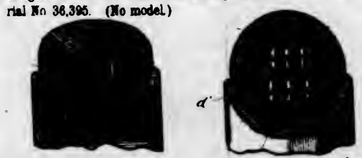
5. The combination with a casing, a partition dividing the inclosed space into a spring and a liquid chamber, and a spring-restored spindle journaled in the casing, of a piston located in the liquid-chamber and provided with a valve-controlled port, a cylinder mounted to oscillate in the liquid-chamber and provided with a relatively small outlet-port, and an eccentric mounted on the spindle and fitting a ring formed in the piston for operating the latter.

6. The combination with a casing, a spindle journaled therein and a spring having one extremity attached to the casing, of a cap having notches in its outer edge, the other extremity of the spring being connected with said cap, a lever-arm connected with the spindle and provided with a lug or projection adapted to enter a notch of the cap, and a dog detachably mounted on the casing and adapted to engage a notch of the cap, whereby the cap and lever-arm are locked against movement, and the door positively locked in a predetermined position.

7. In a combined door check, closer and stop, the combination with a casing fast on the door and containing two distinct chambers, one of which contains liquid, a cap having notches in its outer edge and normally movable on the casing, a spring located in one of the casing-chambers, one of its extremities being connected with the casing and the other with the cap, a spindle journaled in the casing, a lever-arm connected to move with the spindle and having a projection engaging a notch in the cap, and a rod connecting the lever-arm with the stationary part adjacent the door, of a dog detachably mounted on the casing and adapted to engage a notch of the cap, and means located in the liquid-chamber for checking the closing action of the door.

8. In a door check and closer, the combination with the operating mechanism and an arm connected therewith, of a rod connecting the arm with a suitable support, said rod being provided with a spriug-coil for the purpose set forth.

678,340. **CUSHION-TIRE.** JOSEPH HOLLAND, Providence, R. I., assignor to Webber G. Kendall, same place. Filed Nov. 13, 1900. Serial No. 36,395. (No model.)



Claim.—1. A cushion-tire comprising two or more sections of tire-forming material, the adjacent peripheries of the sections being adapted to interlock with each other, by having the periphery of one section provided with an angular-shape channel and the periphery of the other section provided with a correspondingly-shaped tongue or rib, and a non-elastic band interposed between the interlocking parts.

2. A cushion-tire comprising a base-section having a channeled outer periphery, a tread-section having a tongue or rib on its inner periphery, an intermediate section having a tongue or rib adapted to fit the channel in the base-section and a channel to receive the tongue or rib of the tread-section, and non-elastic bands interposed between the base and intermediate sections and between the tread and intermediate sections, whereby the several sections are firmly secured to the wheel.

3. A cushion-tire comprising three interlocking sections of tire-forming material, one or more of said sections being provided with cushion-chambers, and non-elastic bands interposed between the sections, whereby they are firmly secured to the wheel.

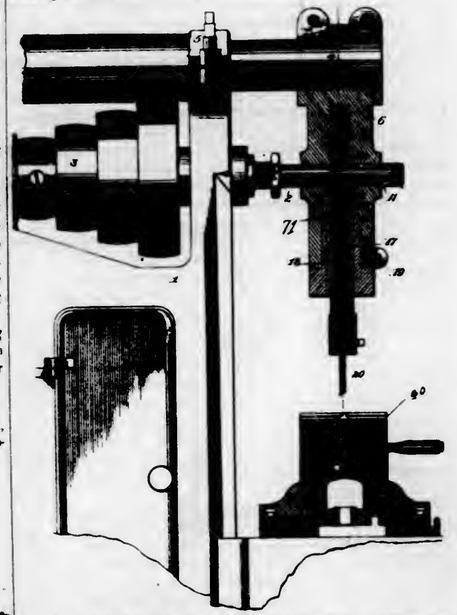
4. A cushion-tire comprising a base-section, a non-elastic means for securing the section to the rim of a wheel, an intermediate section interlocked with the base-section, a tread-section interlocked with the intermediate section, and non-elastic means for securing the intermediate section to the base-section, substantially as specified.

5. A cushion-tire comprising three sections of tire-forming material, the base-section being provided with an outer peripheral channel, non-elastic securing means situated in said channel and securing the said base-section onto the wheel, an intermediate section having a tongue or rib adapted to fit the channel in the base-section and having an outer peripheral channel, non-elastic means situated in said channel and securing the intermediate section to the base-section, and a tread-section having a tongue or rib adapted to fit the channel in the intermediate section, substantially as specified.

678,341. **ATTACHMENT FOR MILLING-MACHINES.** VICTOR HOLMBERG, Rochester, N. Y., assignor of one-half to Joseph A. Wolford, same place. Filed Oct. 9, 1900. Serial No. 32,493. (No model.)

Claim.—1. An attachment for milling-machines embodying the frame adapted to be attached to the overhanging arm of the machine having the shaft-bearing therein, the guides and the vertically-extending bearing, in combination with the reciprocating cross-head operating in the guides, the cam operating therein and the reciprocating tool-stock arranged in the bearing in the frame.

2. An attachment for milling-machines embodying the frame adapted to be attached to the overhanging arm of the machine, having the shaft-bearing therein and the vertically-extending bearing, in combination with the reciprocating cross-head, the bearing-block therein, the cam operating in the block and adapted to be attached to a rotary shaft, and the reciprocating tool-stock adjustable upon the cross-head.



3. An attachment for milling-machines embodying the frame having means for attachment to the overhanging arm of the machine, the cross-head guided to move vertically on the frame and means for operating it, of a tool-stock connected to the cross-head, and an adjustable guide for the tool-stock.

4. In an attachment for milling-machines, the combination with the frame having the split upper end, the aperture beneath it, a second aperture below the former and a vertically-extending guide, of a cross-head, and a tool-stock carried thereby and operating in the guide.

5. In an attachment for milling-machines, the combination with a frame having the aperture at the upper end, the aperture extending parallel therewith, and a guide extending at right angles to the apertures, of the reciprocating cross-head, and a tool-stock carried thereby and operating in the guide.

6. In a milling-machine, the combination with the overhanging arm, the work-support and a horizontal rotary shaft extending over the latter, of the detachable frame attached to the arm having the intermediate aperture and the vertically-extending guide, the cross-head, and the tool-stock connected to the head and operating in the guide.

7. An attachment for milling-machines consisting of a frame having means for attachment to the machine, a reciprocating head operating in the frame, a tool-stock carried by the head and rotarily adjustable thereon and a guide in which the tool-stock operates rotarily adjustable upon the frame.

8. An attachment for milling-machines consisting of a frame having means for attachment to the machine, a reciprocatory head operating in the frame, a tool-stock swiveled to the head and a guide in which the tool-stock operates rotarily adjustable in the frame around said stock.

9. The combination with a frame, a reciprocating head operating therein and a tool-stock swiveled to the head, of a tabular guide on the frame having the irregular interior with which the stock engages and means for securing the guide rigidly to the frame.

10. The combination with a frame, a reciprocating head operating therein and a tool-stock swiveled thereon having the irregular exterior and a tool in the stock having the offset operating end, of the guide in which the stock slides rotatable in the frame and means for securing the guide rigidly in position.

678,342. **BELT-TIGHTENER.** WILLIAM H. JOHNSON, Carthage, Mo., assignor to W. W. Calhoon, J. A. Mitchell, J. F. Harrison, and C. A. Blair, same place. Filed Jan. 2, 1901. Serial No. 41,844. (No model.)

Claim.—A belt-tightener, comprising opposite members having belt-

clamps, a ratchet-bar carried by one member and overlapping the other member, an operating-lever having a forked end which straddles the ratchet-bar, a pivot-pin connecting the forked end of the lever with said other member and projecting at opposite ends beyond the lever, a ratchet-dog located between the fork members of the lever, a pivot-pin connecting the dog to the lever and projected at opposite sides of the latter, a loop-shaped spring straddling the dog and having its opposite sides coiled upon the projecting ends of the last-named pivot-pin, one end of the spring being extended and connected to the lever, an oppositely-projecting substantially U-shaped dog straddling the ratchet-bar and having its opposite ends mounted upon the projected ends of the pivot-pin which connects the lever to said other member, and a spring having its intermediate portion connected to one end of the latter pivot-pin, one end of the spring being connected to the U-shaped dog, and the opposite end connected to the adjacent projecting end of the second-mentioned pivot-pin.



678,343. GAS-CHECK FOR INCLOSED-ARC LAMPS. PHILIP LUER, Orange, N. J., assignor to Manhattan General Construction Company, New York, N. Y. Filed Sept. 15, 1900. Serial No. 30,105. (No model.)

Claim.—1. A gas-check for inclosed-arc lamps containing substantially uniform reverse or reëntrant chambers for the circulation of the gases, the said chambers being obstructed at selected points by lugs.

2. A gas-check for inclosed-arc lamps comprising a ring of metal containing suitable channels for the gases, a hub of insulating heat-resisting material supported within the said ring so as to form an annular chamber outside the hub, the lower portion of the hub being formed into a chamber around the upper carbon, and one or more channels or passages leading from the inner chamber to the annular chamber.

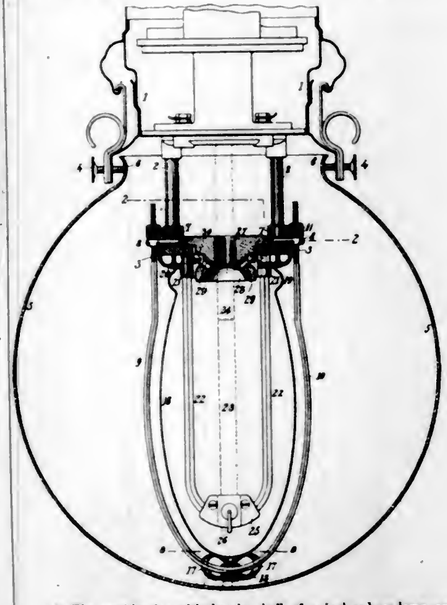
3. In an inclosed-arc lamp, a pair of side rods outside the inclosing bulb of the lamp, a trim-plate constituting the lower part of the upper lamp structure, the said trim-plate being perforated, in combination with spring-cotters connecting the side rods to the trim-plate.

4. In an inclosed-arc lamp, a pair of carbons, a transparent bulb surrounding the same, a gas-check at the top of the said bulb, a trim-plate constituting the lower part of the upper lamp structure, a pair of side rods outside the bulb, a pair of spring-cotters connecting the side rods to the trim-plate and nuts for adjusting the position of the side rods.

5. The combination with the side rods of an inclosed-arc lamp, of a trim-plate for supporting the said side rods and a pair of spring-cotters connecting the side rods to the trim-plate, the said spring-cotters being provided with eyes through which the side rods freely pass.

6. An elastic support for the glass bulb of an inclosed-arc lamp, consisting of a number of springs bent over, as shown, and pressing against the lower end of the bulb.

7. An elastic support for the glass bulb of an inclosed-arc lamp consisting of a star-shaped piece of elastic material bent over under the lower end of the bulb, and pressing upon the same at a point intermediate between the ends of the spring-arms and the points where they join the main body of the metal.



8. The combination with the glass bulb of an inclosed-arc lamp, and a shoulder against which the open end of the said bulb rests, of an elastic support applied to the close end of the bulb, the said elastic support consisting of a group of radial fingers bent over toward each other and pressing against the bulb at points other than the terminals of the fingers.

9. The combination with the trim-plate of an inclosed-arc lamp, and the gas-check therefor, of a cam-lock connection between the parts named.

10. The combination with the trim-plate of an inclosed-arc lamp, of a detachable lower lamp structure connected with the gas-check.

11. The combination with the trim-plate of an inclosed-arc lamp, of a lower lamp structure connected to a suitable gas-check and means for detachably securing the gas-check to the trim-plate.

12. The combination, in an inclosed-arc lamp, of a gas-check, a support for the lower carbon joined to the gas-check, a trim-plate and means for detachably securing the gas-check to the trim-plate.

13. In an inclosed-arc lamp, a suitable gas-check and a lower-carbon support permanently secured thereto.

14. In an inclosed-arc lamp, a suitable gas-check, a support for the lower carbon permanently attached thereto, a trim-plate and a cam-lock connection between the gas-check and the trim-plate.

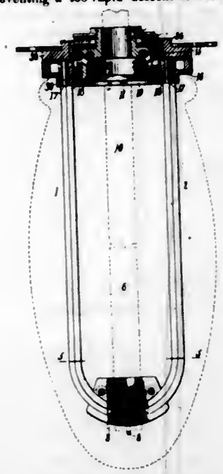
678,344. METHOD OF OPERATING ELECTRIC-ARC LAMPS. PHILIP LUER, Orange, N. J., assignor to the Manhattan General Construction Company, of New York. Filed Dec. 26, 1900. Serial No. 41,015. (No model.)

Claim.—1. The hereinbefore-described method of operating inclosed-arc lamps, which consists in creating in the upper portion of the inclosed area a local circulation of air and gases, whereby a too-rapid descent of the atmospheric oxygen to the point of combustion is prevented.

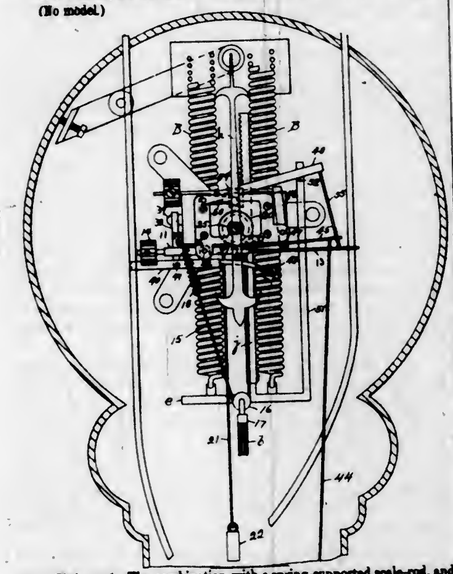
2. The hereinbefore-described method of operating an inclosed-arc lamp, which consists in locally heating the incoming air in the presence of the gases of combustion at a point in the inclosed area which is above the arc and thereby causing a local circulation of the air and gases and preventing the too-rapid descent of the oxygen to the burning arc.

3. The hereinbefore-described method of operating an inclosed-arc lamp, which consists in confining the gases of combustion around and below the arc, creating a local circulation of the air and gases above the arc within the inclosed area, and utilizing the greater specific gravity of the inert gases of combustion for preventing a too-rapid descent of the gases from the top of the inclosed area.

4. The hereinbefore-described method of operating an inclosed-arc lamp, which consists in confining the inert gases of combustion around and below the arc, locally heating the air and gases at the top of and within the inclosed area, and utilizing the greater specific gravity of the inert gases for preventing a too-rapid descent of the gases from above the arc.



678,845. WEIGHING, LIFTING, AND GRIP MACHINE. GEORGE G. S. MERRY, Boston, Mass. Filed Apr. 30, 1900. Serial No. 14,882. (No model.)



Claim.—1. The combination, with a spring-supported scale-rod, and a toothed rack rigidly secured to it; of a toothed pinion gearing into the said rack, and a stop for the pointer actuated by the said pinion; a revoluble pointer, actuating mechanism for revolving the said pointer independent of the said pinion, said actuating mechanism being operatively connected with the scale-rod, and a coin-operated locking device which temporarily prevents the pointer from being moved forward after the pointer-actuating mechanism has been actuated by the scale-rod, substantially as set forth.

2. The combination, with a spring-supported scale-rod, and a toothed rack rigidly secured to it; of a toothed pinion gearing into the said rack, and a stop for the pointer actuated by the said pinion; a revoluble pointer, a sleeve and intermediate driving mechanism for revolving the pointer, a cord wound on the said sleeve and provided with a spring for revolving the sleeve and pointer independent of the said pinion, a connection between the said cord and scale-rod whereby the spring is stretched when the scale-rod descends, and a coin-operated locking device which temporarily prevents the pointer from being moved forward by the said spring after the scale-rod has stretched it, substantially as set forth.

3. The combination, with a spring-supported scale-rod, and a toothed rack rigidly secured to it; of two independently-revoluble shafts E and E', a pinion secured on shaft E and gearing into the said rack, a stop for the pointer actuated by the shaft E, a pointer secured on the shaft E', actuating mechanism for revolving the shaft E' operatively connected with the said scale-rod, and a coin-operated locking device which temporarily prevents the shaft E' from being revolved by its said actuating mechanism after the said actuating mechanism has been operated by the scale-rod, substantially as set forth.

4. The combination, with a spring-supported scale-rod, and a laterally-movable toothed rack coupled to the said rod; of two toothed pinions for the said rack to engage with, a revoluble pointer, intermediate driving devices connecting the said pinions with the said pointer independently, and coin-controlled mechanism for moving the said rack laterally, substantially as set forth.

5. The combination, with a spring-supported scale-rod, and a laterally-movable toothed rack coupled to the said rod; of two toothed pinions for the said rack to engage with, a revoluble pointer, intermediate driving devices connecting the said pinions with the said pointer independently, a spring for moving the rack laterally in one direction, means for moving the rack in the reverse direction, and coin-actuated mechanism for controlling the lateral movements of the said rack, substantially as set forth.

6. The combination, with a spring-supported scale-rod, and a laterally-movable toothed rack coupled to the said rod; of two toothed pinions *i* and *o* for the said rack to engage with, coin-controlled mechanism for moving the rack out of gear with pinion *i* into gear with pinion *o*, and a pivoted cam which permits the rack to move downward in gear with pinion *o* and which automatically moves the rack backward into gear with pinion *i* when the said rack is moved upward, substantially as set forth.

7. The combination, with a spring-supported scale-rod, and a toothed rack coupled to the said rod; of two shafts E and E', a toothed pinion secured on shaft E and gearing into the rack, a stop carried by the shaft E, a sleeve journaled on shaft E and provided with means for revolving shaft E' until arrested by the said stop, means for revolving the said sleeve actuated by the said scale-rod; a pointer, a toothed ratchet-wheel, and a disk provided with a tooth, all secured on shaft E'; a coin-operated lever normally engaging with the said tooth and preventing the pointer from moving forward, and a coin-controlled locking device provided with a pawl which engages with the said ratchet-wheel after the coin-operated lever has been operated to free the pointer, substantially as set forth.

8. The combination, with a revolvable pointer, of two separate actuating mechanisms for moving the pointer forward, two receiving-chutes for coins and a single delivery-chute common to the two said chutes, two coin-operated levers connected with the two receiving-chutes and controlling the respective actuating mechanisms, a single coin-operated lever connected with the said delivery-chute and operated subsequently to each of the said two levers, and a locking device for the pointer operatively connected with the said single lever, substantially as set forth.

9. The combination, with a coin-chute, and two coin-operated levers arranged one above the other; of springs connected to the chute between the said two levers and operating to retard the descent of a coin from one lever to the other, substantially as set forth.

10. The combination, with a revolvable pointer, and a toothed ratchet-wheel which revolves with it; of a locking-lever 48 provided with a pawl for engaging with the said ratchet-wheel, two separate actuating mechanisms for moving the pointer forward, two coin-operated levers 11 and 40 controlling the respective mechanisms, a single coin-operated lever 63 operated by a coin falling from either lever 11 or 40, a catch 46 operated by the lever 63 and normally holding up the lever 48, means for preventing the pointer from moving forward controlled by the lever 11, and an arm 55 projecting from the locking-lever 48 and operating the lever 11 when the lever 63 is operated by a coin falling from the lever 40 without the lever 11 having been first operated, substantially as set forth.

678,346. COMPOSITION OF MATTER FOR FIRE-KINDLERS. CASPAR W. METTLER and ADOLF METTLER, Hartford, Conn., assignors to Joseph Dart and Fred W. Dart, same place, and Frederick C. Rockwell, West Hartford, Conn. Filed Mar. 17, 1900. Serial No. 9,024. (No specimens.)

Claim.—1. A composition of matter for a fire-kindler, consisting of wood, petroleum-tar, starch, molasses, coke and soft coal.

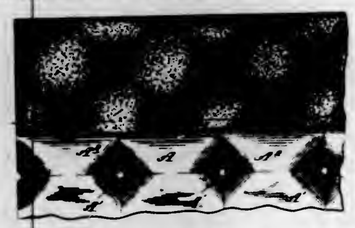
2. A composition of matter for a fire-kindler, consisting of comminuted wood, petroleum-tar, starch, molasses, comminuted coke, and powdered soft coal.

3. A composition of matter for a fire-kindler consisting of wood, petroleum-tar, coke and a binder therefor comprising starch, molasses and soft coal.

4. A composition of matter for a fire-kindler consisting of com-

minuted wood, petroleum-tar, comminuted coke, a primary binder therefor comprising starch and molasses, and a secondary binder consisting of powdered soft coal combining with the said starch.

678,847. TUFTED FABRIC. ALBERT F. MROCK, Chicago, Ill. Filed Oct. 29, 1900. Serial No. 34,739. (No model.)



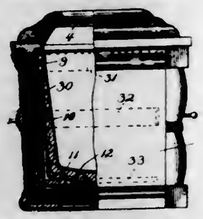
Claim.—1. In a tufted fabric, in combination, a rigid backing-sheet having depressions at suitable intervals in its face; a facing material; and means for drawing said facing material into the depressions of the backing-sheet.

2. In a tufted fabric, in combination, a rigid backing-sheet having depressions at suitable intervals in its face; a facing material; and means for securing the facing material to the backing-sheet, and for drawing said facing material into the depressions of said backing-sheet.

3. In a tufted fabric, in combination, a rigid backing-sheet having depressions at regular intervals in its face, with openings through the backing-sheet in said depressions; a filling material; a facing material; and a thread for securing the facing material to the backing-sheet, and for drawing said facing material into the depressions of said backing-sheet.

4. In upholstery, the combination of a form composed of a rigid sheet of material having tufts and tuft-pits; a cover adapted to the outline of the form; and means to secure the two together at the tuft-pits.

678,848. BURIAL-CASKET. CHARLES R. NICHOLS, Washington, D. C., assignor of one-half to Nicholas A. Kestler, same place. Filed May 6, 1901. Serial No. 58,759. (No model.)



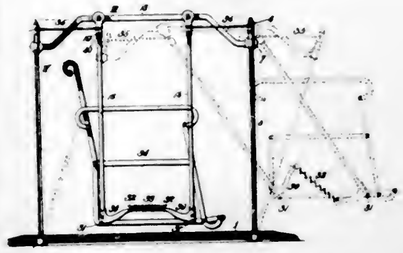
Claim.—1. A burial-casket formed of a series of layers, each layer being treated with a waxy antiseptic, through the medium of which the layers are held together, a number of the layers being corrugated resulting in air-spaces between the layers adjacent the said corrugated layers.

2. A burial-casket formed of a series of layers, each layer being treated with a waxy antiseptic, through the medium of which the layers are held together, a number of the layers being corrugated, a portion of said corrugated layers being arranged with their corrugations at an angle to those of the remaining corrugated layers.

3. A burial-casket formed of a series of layers, each layer being treated with a waxy antiseptic, through the medium of which the layers are held together, a number of the layers being corrugated, a portion of the corrugated layers being arranged with their corrugations at an angle to those of the remaining corrugated layers, and an absorbent suspended within the casket, between layers of fabric, the absorbent containing a dry antiseptic, soluble in the moisture arising from the corpse during evaporation, which, when in solution, will kill disease germs within the casket.

4. A burial-casket formed of a series of layers of pasteboard, each layer being treated with a waxy antiseptic, through the medium of which the layers are held together, a number of the layers being corrugated, a portion of said corrugated layers being arranged with their corrugations at an angle to those of the remaining corrugated layers, a layer of wood sulfite upon the layers of pasteboard and a layer of fabric upon the layer of wood sulfite, said layers of wood sulfite and fabric being also coated with the waxy antiseptic, through the medium of which they are held in position.

678,849. LAWN OR HOUSE SWING. OLOF R. OLSON, Kansas City, Mo., assignor of one-half to John W. Olson, same place. Filed Jan 19, 1901. Serial No. 43,910. (No model.)



Claim.—1. A lawn or house swing, comprising standards pivoted at their lower ends, frames pivotally connecting said standards longitudinally in pairs, swing-bars pivotally suspended from said frames, a seat carried by said swing-bars, and one or more links pivotally connecting the swing-bars and standards between the planes of the points of connection of the frames with the standards and swing-bars; said link or links having a shoulder or shoulders 36 to bear against the swing-bars to provide a space between the latter and the body portion of the link or links, substantially as described.

2. A lawn or house swing, comprising standards pivoted at their lower ends, frames pivotally connecting said standards longitudinally in pairs, swing-bars pivotally suspended from said frames, a seat carried by said swing-bars, and one or more links pivotally connecting the swing-bars and standards between the planes of the points of connection of the frames with the standards and the swing-bars, said link or links having angle-arms to engage the standards and swing-bars and provided with shoulders 36, to bear against said standards and swing-bars and provide a space between the same and the body portion of the links, substantially as described.

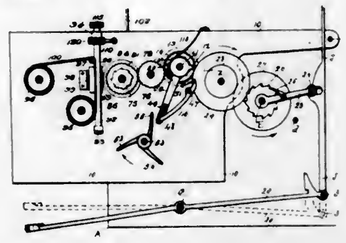
3. A lawn or house swing, comprising standards pivoted at their lower ends, frames pivotally connecting said standards longitudinally in pairs, swing-bars pivotally suspended from said frames, a seat carried by said swing-bars, and one or more links pivotally connecting the swing-bars and standards between the planes of the points of connection of the frames with the standards and the swing-bars, said link or links having angle-arms embodying threaded stems projecting inwardly through the standards and swing-bars, and shoulders to bear against the outer sides of said parts, and nuts engaging the threaded portions of said stems, and bearing against the inner sides of the standards and swing-bars, substantially as described.

4. A lawn or house swing, comprising standards pivotally supported at their lower ends, and each provided at its upper end with a hinge-disk, a companion hinge-disk secured to the first-named disk, one of said disks having a circular boss and a rib concentrically surrounding the same, and the other a circular hole to receive the boss and a circular groove to receive the rib, longitudinal frames secured rigidly at the ends to the last-named disks, swing-bars pivotally connected to said frames and the standards, links pivotally connecting the standards and swing-bars between the planes of the points of connection of the frames with the standards and swing-bars, and a seat carried by said swing-bars, substantially as described.

5. A lawn or house swing, comprising standards pivotally supported at their lower ends, longitudinal frames pivotally connecting said standards, swing-bars pivoted to said frames above the point of connection of the latter and the standards, a link or links establishing a pivotal connection between the standards and the swing-bars between the planes of connection of the frames with the standards and the swing-bars, arms or levers projecting from the swing-bars, a retractile spring connecting said arms, and a seat carried by the swing-bars.

6. A lawn or house swing, comprising pivoted standards, frames pivotally connecting said standards longitudinally in pairs, a plurality of swing-bars pivotally depending from each frame, the pivotal connection being above that of the frames with the standards, arms or levers projecting from the swing-bars toward the longitudinally-alined swing-bar, retractile springs hooked to the adjacent ends of said arms, cross-rods connecting the transversely-alined swing-bars in pairs, a seat mounted on said rods, and arranged to maintain its horizontal position irrespective of the position assumed by the swing-bars, and links pivotally connecting the standards and the swing-bars between the plane of the connection of the frames with the standards and swing-bars, substantially as described.

678,850. AUTOMATIC REGISTER OR RECORDER. STEPHEN H. POCOCK, Hamilton, Canada, assignor of one hundred and fifty-one two-hundredths to Alexander George Russell, James W. Millard, and Sanford Dennis Biggar, same place. Filed Sept. 14, 1900. Serial No. 30,010. (No model.)



Claim.—1. In an automatic register or recorder, provided with pivoted keys, the combination with the said keys of a frame; a longitudinal shaft carried by the said frame; a gear-wheel journaled on the said shaft; means for rotating the said gear-wheel by the depression of a key; a units section-shaft U, carried by the frame parallel to the aforesaid shaft, a gear-wheel 8 thereon meshing with the aforesaid gear-wheel; a shaft O, carried by the frame parallel to the shaft U; a gear-wheel T, thereon meshing with the gear-wheel 8; a shaft Z, carried by the frame parallel to the shaft O; meshing gear-wheels W and Y journaled on the shafts O and Z; a gear-wheel 5, journaled on the shaft Z and connected to the gear-wheel Y; a numeral-disk shaft 9 carried by the frame parallel to the shaft Z; a gear-wheel 7 journaled thereon and meshing with the gear-wheel 5; and a numeral-disk 8 connected to the said gear-wheel, substantially as and for the purpose specified.

2. In an automatic register or recorder provided with pivoted keys the combination with the said keys of a frame; a numeral-disk shaft 9; a numeral-disk journaled on the said shaft; means for rotating the said numeral-disk by the depression of a key; a cam attached to the said disk; a transferring-lever journaled on the said shaft in proximity to the said cam; a contact-lever independently fulcrumed and having one end normally in the path of the said cam and the other pivotally and adjustably connected to the transferring-lever; a pawl carried by the transferring-lever; a tens-disk journaled on the shaft 9; a ratchet-wheel connected with the said tens-disk and engaged by the said pawl; and means directly actuated by the keys for returning the transferring-lever to its normal position after it has been thrown forward by the action of the cam on the contact-lever, substantially as and for the purpose specified.

3. In an automatic register or recorder, provided with pivoted keys the combination with the said keys of a frame; a numeral-disk shaft 9; a numeral-disk journaled on the said shaft; means for rotating the said numeral-disk by the depression of a key; a cam attached to the said disk; a transferring-lever journaled on the said shaft in proximity to the said cam; a contact-lever independently fulcrumed and having one end normally in the path of the said cam and the other pivotally and adjustably connected to the transferring-lever; a tens-disk journaled on the shaft 9; a ratchet-wheel connected with the said tens-disk and engaged by the said pawl; a shaft journaled in the frame adjacent to the lower end of the transferring-lever; a wing on the said shaft adapted to engage the said lever and means for rotating the said shaft by the movement of a key when riding after being depressed, substantially as and for the purpose specified.

4. In an automatic register or recorder provided with pivoted keys the combination with the said keys of a frame; a numeral-disk shaft 9; a numeral-disk journaled on the said shaft; means for rotating the said numeral-disk by the depression of a key; a cam attached to the said disk; a transferring-lever journaled on the said shaft in proximity to the said cam; a contact-lever independently fulcrumed and having one end normally in the path of the said cam and the other suitably connected to the lower end of the transferring-lever; a pawl carried by the transferring-lever; a tens-disk journaled on the shaft 9; a ratchet-wheel connected with the said tens-disk and engaged by the said pawl; and means directly actuated by the key for returning the transferring-lever to its normal position after it has been thrown forward by the action of the cam on the contact-lever; independent means for operating the said tens-disk by the depression of suitable keys; and a pawl connected to a standard of the machine and engaging the aforesaid ratchet-wheel, substantially as and for the purpose specified.

5. In an automatic register or recorder provided with pivoted keys the combination of a frame, a shaft carried by the said frame, numeral-disks journaled on the said shaft; means for operating said disks to register cash totals; a printing-disk shaft journaled parallel to the numeral-disk shaft and movable toward and away from it; printing numeral-disks journaled on the said shaft; gearing adapted for normally connecting each numeral-disk with its corresponding numeral-printing disk; means for receiving an impression from the said numeral-printing disks; and independent hand-operated mechanism for moving the said printing-disk shaft away from the numeral-disks to produce the said impression, substantially as and for the purpose specified.

6. In an automatic register or recorder provided with pivoted keys the combination of a frame, a shaft carried by the said frame, numeral-disks journaled on the said shaft; means for operating said disks to register cash totals; a printing-disk shaft journaled parallel to the numeral-disk shaft and movable toward and away from it; printing numeral-disks journaled on the said shaft; gearing adapted for normally connecting each numeral-disk with its corresponding numeral-printing disk; an impression-pad suitably supported; means for drawing the paper over the pad; an inking tape or ribbon suitably held in proximity to the paper, and independent hand-operated mechanism for moving the said printing-disk shaft to make an impression against the ribbon and on the said paper, substantially as and for the purpose specified.

7. In an automatic register or recorder provided with pivoted keys, the combination of a frame, suitably slotted; a printing-disk shaft; bearing-boxes for the said shaft carried in the slots of the frame; numeral-printing disks carried by the said shaft; numeral-disks journaled suitably in the machine; means for recording cash totals on the said numeral-disks; gearing connecting the numeral-disks with the numeral-printing disks; a hand-lever pivoted on the frame of the machine and adapted to engage the bearings of the printing-disk shaft to bring it forward for printing purposes; tension-springs adapted to retract the said shaft; and means for receiving the impression of the said printing-disks, substantially as and for the purpose specified.

8. In an automatic register or recorder provided with pivoted keys, the combination of a frame; suitably slotted; a printing-disk shaft; bearing-boxes for the said shaft carried in the slots of the frame; numeral-printing disks carried by the said frame; numeral-disks journaled suitably in the machine; means for registering cash totals on the said numeral-disks; gearing connecting the numeral-disks with the numeral-printing disks; a hand-lever pivoted on the frame of the machine and adapted to engage the bearings of the printing-disk shaft to bring it forward for printing purposes; tension-springs adapted to retract the said shaft; an impression-pad suitably supported; means for drawing the paper over the pad; and an inking tape or ribbon suitably held in proximity to the paper, substantially as and for the purpose specified.

9. In an automatic register or recorder, the combination with a plurality of numeral-disks suitably journaled and provided with means whereby they may be caused to register cash totals of a corresponding number of numeral-printing disks movable away from the numeral-disks but normally geared to the said numeral-disks to revolve therewith; means for recording impressions from the said numeral-printing disks; and means for moving the said numeral-printing disks into contact with the means for recording impressions when desired, substantially as and for the purpose specified.

10. In an automatic register or recorder, a plurality of numeral-disks suitably journaled; means for revolving said disks by the action of the keys; means for transferring from a lower disk to a higher when the lower disk has completed a revolution in combination with a corresponding number of numeral-printing disks movable away from the numeral-disks but normally geared to the said numeral-disks; means for recording impressions from the said numeral-printing disks; and means for moving the said numeral-printing disks into contact with the means for recording impressions when desired, substantially as and for the purpose specified.

11. In an automatic register or recorder, the combination of a main frame; a suitably-journaled section-frame provided with a lifting-bar; one or more pivoted keys; lifting-rods connected to the said keys and adapted to engage the said lifting-bar to rock the section-frame, a ratchet-wheel carried on the same journal as the section-frame; a pawl on the section-frame engaging the said ratchet-wheel; a gear-wheel connected to the said ratchet-wheel; a numeral-disk shaft suitably carried by the frame of the machine; a numeral-disk journaled on the said shaft; a gear-wheel secured to the said disk; intermediate gearing between the said gear-wheel and the section-frame gear-wheel; a second numeral-disk journaled on the numeral-disk shaft; a ratchet-wheel secured to the said numeral-disk; a transferring-lever suitably journaled; a pawl on the said lever adapted to engage the said ratchet-wheel; means controlled by the said first-mentioned numeral-disk, for swinging the said transferring-lever in one direction at a set time; means operated by the rising of a key to swing the said transferring-lever in the reverse direction and thus turn the ratchet-wheel; and a retaining-pawl carried on a stationary part and engaging the said ratchet-wheel, substantially as and for the purpose specified.

12. In an automatic register or recorder, the combination of a main frame; a suitably-journaled section-frame provided with a lifting-bar; one

or more pivoted keys; lifting-rods connected to the said keys and adapted to engage the said lifting-bar to rock the section-frame; a ratchet-wheel carried on the same journal as the section-frame; a pawl on the section-frame engaging the said ratchet-wheel; a gear-wheel connected to the said ratchet-wheel; a numeral-disk shaft suitably carried by the frame of the machine; a numeral-disk journaled on the said shaft; a gear-wheel secured to the said disk and intermediate gearing between the said gear-wheel and the section-frame gear-wheel, a second numeral-disk on the numeral-disk shaft; means for transferring from the first disk to the second when the first disk has completed a revolution; a gear-wheel connected to the second numeral-disk; a second section-frame provided with a lifting-bar; one or more pivoted keys; lifting-rods connected to the said keys and adapted to engage the said lifting-bar to rock the section-frame; a ratchet-wheel carried on the same journal as the section-frame; a pawl on the section-frame engaging the said ratchet-wheel; a gear-wheel connected to the said ratchet-wheel; and gearing connecting the said gear-wheel with the gear-wheel of the second numeral-disk, substantially as and for the purpose specified.

13. In an automatic register or recorder, the combination with a register, of independent transferring mechanisms for transferring the totals thereon, each consisting of a lever movable idly in one direction from its normal position and adapted to positively engage and turn the register of higher value when moved in the opposite direction toward the normal position of said lever, a device for automatically shifting said lever idly from its normal position when the lower register has made up its total, a rotary shaft having wings extending out therefrom in different directions which are adapted, in succession, to engage with and move the levers back to normal position and thereby cause them to positively engage the registers of higher value and make the transfers of totals, sales-indicating keys, and mechanism interposed between said keys and the rotary shaft whereby the latter is directly operated by the movement of said keys.

14. In an automatic register or recorder, the combination with independent registering devices, of mechanism adapted for transferring the total of one register to the register of next higher order which consists of a lever movable idly in one direction, a ratchet-wheel on the register of higher order, a pawl on the lever adapted to engage said ratchet-wheel when the lever is moved toward normal position, a pivoted contact-lever having an adjustable connection with the aforesaid lever, a cam on the register of lower order adapted to engage and move said contact-lever and thereby shift the first-named lever idly, when the said register has made up its total, operating-keys, and mechanism directly operated by the movement of said keys which is adapted to move the lever toward normal position and thereby cause the transfer to be made.

15. In an automatic register or recorder, the combination with a register and means for transferring the totals thereon, operating-keys, mechanism for shifting said transferring mechanism, a shaft operatively connected with said shifting mechanism, a ratchet-wheel on said shaft, operating-keys, a coupler directly operated from the keys, a lever connected to the coupler, and a pawl on the lever for engaging the ratchet-wheel.

16. In an automatic register or recorder, the combination with a register, of transferring mechanism for transferring the totals thereon, a shaft having wings for actuating the respective transferring mechanisms, a second shaft, operatively connected with said shaft, a ratchet-wheel on the second shaft, operating-keys, a coupler directly operated by the keys, and a pawl operated by the coupler for actuating the ratchet-wheel.

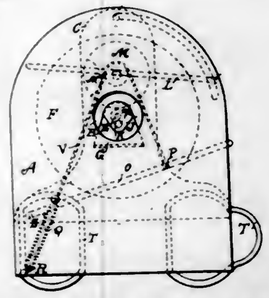
17. In an automatic register or recorder, the combination with rotary numeral-disks, of numeral-printing disks movable away from the numeral-disks but normally geared to the said numeral-disks to revolve therewith, means for keeping said printing-disks normally geared to the numeral-disks, a roll for the paper on which the impression is to be taken which is provided with a ratchet-wheel, a pivoted hand-lever adapted to shift the printing-disks to disengage them from the numeral-disks and to make the impression, a ratchet-rod connected to the lever and adapted to engage the ratchet-wheel to turn the paper-roll and means for holding the ratchet-rod in engagement with the ratchet-wheel.

678,351. OPTICAL TOY. GEORGE ROYLE, West Kensington, and WILLIAM R. WYNER, Kensington, England; said Royle assignor of one-half of his right to Elias Bernard Koopman, London, England. Filed Oct. 19, 1900. Serial No. 33,613. (No model.)

Claim.—1. In an optical toy, the combination of a frame inclined at an angle to its base and a spindle having a fly-wheel and cranked end on which a disk may be mounted, the crank-pin protruding through the front of the frame, with a friction-pulley to bear on the spindle and means for turning the pulley.

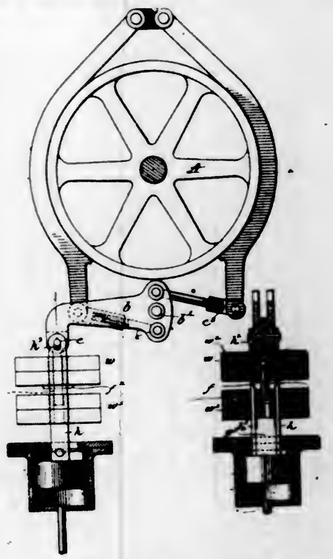
2. In an optical toy, the combination of a frame and a spindle having a fly-wheel and cranked end on which a disk may be fitted, with a pulley to frictionally bear on the spindle to impart motion to the latter, said pulley having a cut-out portion, as and for the purpose described.

3. In an optical toy, the combination of a frame inclined at an angle to the base, and a spindle carrying a fly-wheel and a cranked end, the crank-pin protruding through the front of the frame, with a pulley, a hinged spindle on which it is mounted and means for bringing the pulley to bear upon the spindle at the same time that it is turned, substantially as described.



4. In an optical toy, the combination of a frame and a spindle, having a fly-wheel and a cranked end with a hinged attachment carrying a pulley, an operating-lever O and a lever 2 connecting the operating-lever with the pulley, substantially as described.

678,352. ELEVATOR-BRAKE. ALONZO B. SEE, Brooklyn, N. Y., assignor of one-half to Walter L. Tyler, New York, N. Y. Filed Apr. 15, 1901. Serial No. 55,824. (No model.)



Claim.—1. In a friction-brake, the combination of a plurality of weights, and means whereby they may be successively applied to increase the friction of the brake in the application thereof.

2. In a friction-brake, the combination of a pivoted lever connected with the brake-shoes, a plurality of weights adapted to be suspended from said lever for the purpose of applying the brake, and means whereby said weights will be successively thrown onto the lever, substantially as described.

3. In a friction-brake, the combination of a lever connected with the brake-shoes, a piston, two weights adapted to act successively upon the lever to apply the brake, and means whereby the piston will remove the weights from the lever, substantially as described.

4. In a friction-brake, the combination of a lever connected with the brake-shoes, a plurality of weights adapted to be successively applied to said lever, and means whereby the weights may be substantially simultaneously released from said lever.

678,353. INDUCTANCE-COIL. HARRY SHOEMAKER, Philadelphia, Pa., assignor to Gustave P. Gehring and Marie V. Gehring, same place. Filed Feb. 8, 1901. Serial No. 46,583. (No model.)

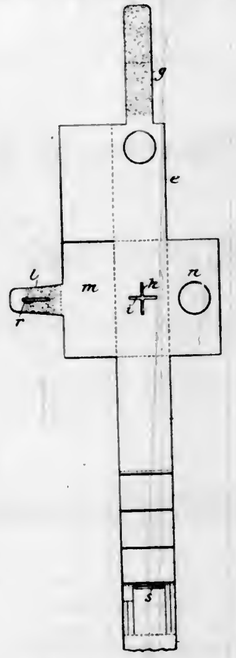


Claim.—1. An inductance-coil, comprising a central non-conducting core or spool, a series of metal disks fitting upon said spool and provided with gaps between their ends, cup-shaped metal disks surrounding said spool upon either end of the disks and having an air-gap between their edges, and a winding mounted upon the disks in the space between them and the bent ends of the cup-shaped disks.

2. An inductance-coil, comprising a non-conducting spool, provided with a core to allow the spool to surround the wire or cable, a series of disks provided with an air-gap and a series of cup-shaped disks provided with an air-gap surrounding said spool, and a coil surrounding the series of disks.

3. An inductance-coil, comprising a non-conducting base, a series of thin metal disks having an air-gap between their ends, thin sheets of insulating material fitting between the disks, a series of cup-shaped disks upon the base on each side of the other disks and a winding surrounding the disks in the casing formed by the cup-shaped portion of the other disks.

678,354. RAILWAY-TICKET, &c. LOWNDES G. SMITH, Columbus, Tex., assignor of one-half to Frederick S. Decker, New Orleans, La. Filed Mar. 22, 1901. Serial No. 52,356. (No model.)



Claim.—1. A safety-ticket formed from a single blank, comprising a wrapper or envelop, having overlying flaps, coupons integral therewith and folded within said flaps, additional coupons projecting from said wrapper, and means to seal said wrapper and thereby inclose said folded coupons in said wrapper.

2. A safety-ticket formed from a single blank, comprising a wrapper or envelop, coupons integral therewith and folded therein, additional coupons projecting from said wrapper, and a gummed tongue adapted to seal the folded envelop and thereby to inclose the folded coupons in said wrapper.

3. A safety-ticket formed from a single blank, comprising a wrapper or envelop, coupons integral therewith and folded therein, additional coupons projecting from said wrapper, and gummed tongues adapted to be folded over and secured to the back of said wrapper and thereby seal the folded coupons in said wrapper.

4. A safety-ticket formed from a single blank, comprising a wrapper or envelop, coupons integral therewith and folded therein, additional coupons projecting from said wrapper, and gummed tongues engaging slots in the back of said wrapper and bent backward after insertion through the slots, and secured to the inner surface of the wrapper.

5. A safety-ticket formed from a single blank, comprising a wrapper or envelop, coupons integral therewith and folded therein, additional coupons projecting from said wrapper, and interlocking gummed tongues engaging cross-slots in the back of said wrapper and bent backward after insertion through the slots, and secured to the inner surface of the wrapper.

6. A safety-ticket formed from a single blank, comprising a wrapper or envelop, coupons integral therewith and folded therein, additional coupons projecting from said wrapper, and a gummed tongue passing through a slot in said projecting coupons and secured to the back of the wrapper.

7. A safety-ticket formed from a single blank, comprising a wrapper or envelop, coupons integral therewith and folded therein, additional coupons projecting from said wrapper, a gummed tongue passing through a slot in said projecting coupon and secured to the back of the wrapper, and a second gummed tongue secured to the back of the wrapper, said gummed tongues constituting an interlocking seal for the wrapper.

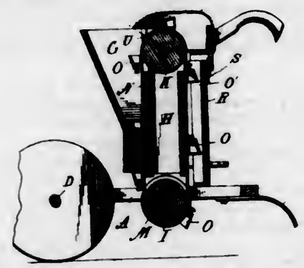
8. A blank for a safety-ticket, comprising a central portion, lateral outlying flaps, a sealing-tongue on one of said flaps, a longitudinal flap, a sealing-tongue thereon, a foldable series of coupons provided with a transverse slot for the passage of the second-mentioned sealing-tongue.

9. A blank for a safety-ticket, comprising a central portion, lateral outlying flaps, a slotted sealing-tongue on one of said flaps, a longitudinal flap, a sealing-tongue thereon, a foldable series of coupons provided with a transverse slot, said central portion having crossed slots to be engaged by said sealing-tongues.

10. A blank for a safety-envelop, comprising a central portion, lateral outlying flaps, a sealing-tongue on one of said flaps, a longitudinal flap, a sealing-tongue thereon, and a second longitudinal flap opposite the first longitudinal flap and provided with a transverse slot for the passage of the second-mentioned sealing-tongue, said central portion being provided with receiving-slots for the sealing-tongues.

11. A blank for a safety-envelop, comprising a central portion, lateral outlying flaps, a slotted sealing-tongue on one of said flaps, a longitudinal flap, a sealing-tongue thereon, and a second longitudinal flap opposite the first longitudinal flap and provided with a transverse slot, said central portion having crossed slots to be engaged by said sealing-tongues.

678,355. COTTON-SEED PLANTER. GORDON WINTER McBEAN, Ga., assignor of one-half to B. G. Winter, same place. Filed May 9, 1901. Serial No. 59,489. (No model.)

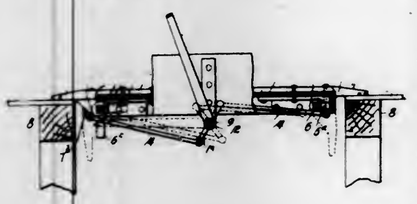


Claim.—1. A seed-planter comprising in combination with the frame the seed-hopper, an endless carrier, a netting over said carrier, a casing for the carrier, a trough closed on three sides and hinged to the outer marginal edge of said netting, guide-pieces between which the upper end of said trough is confined, bracket-arms between which the free end of the trough swings, and a latch for holding said trough between said brackets, as set forth.

2. In combination with the seed-hopper the carrier and casing therefor, the front wall of the hopper being slotted, said carrier designed to travel in said slot, the cups secured to the carrier, the bottom of each cup being adjustable, and a screw for raising and lowering each bottom, and a hinged trough forming one wall of the casing whereby the seed is directed into a furrow as it falls from the cups, as set forth.

REISSUES.

11,921. SAFETY CAGE-CHAIR. MATTHIAS W. JELINEK, Blackhawk, Colo. Filed Apr. 6, 1901. Serial No. 54,606. Original No. 667,780, dated Feb. 12, 1901.



Claim.—1. In a safety-cage-chair construction, the combination with a cage, of dogs pivotally mounted thereon and arranged to be thrown to a position to form chairs adapted to engage the wall-plates at the various levels, the floor of the cage being provided with rails with which the dogs are in line, whereby the cars from a tunnel or drift are guided by the dogs to the rails of the cage.

2. In a safety-cage-chair construction, the combination with a cage, of dogs movably mounted thereon and arranged to support a cage at the various drifts or levels, the said dogs when in the cage-supporting position, lying in the plane of the cage-floor and the bottom of the drift or tunnel, said dogs forming guides to facilitate the running of the car from the drift to its position on the cage.

3. In a safety-cage-chair construction, the combination with a cage, of dogs movably mounted thereon and arranged to support a car at the various drifts or levels, the said dogs when in the cage-supporting position, lying in the plane of the cage-floor and the bottom of the drift or tunnel, the free extremities of the dogs being turned outwardly to facilitate the moving of the car from the drift to its position on the cage.

4. In a safety-cage-chair construction the combination with a cage, of dogs pivotally mounted thereon and arranged to be thrown to a position to form chairs adapted to engage a surface at each of the various levels, the said surface lying substantially in the same plane with the floor of the cage when the latter is at rest.

5. In a safety-cage-chair construction, the combination with a cage, of dogs movably mounted thereon and arranged to support a cage at the various drifts or levels, the said dogs when in the cage-supporting position, engaging a surface substantially in the plane of the cage-floor, each dog being provided with a shoulder which abuts against the cage-floor to form a stop and lock the dog in the cage-supporting position.

6. The combination with a mining-cage, of dogs pivotally connected therewith below the floor of the cage and arranged to support the cage at the various drifts or levels, the body of the dog projecting above the plane of the pivot and resting on a surface substantially in the plane of the cage-floor, each dog having a shoulder which abuts against the edge of the cage-floor, whereby the dog is locked in the cage-supporting position.

7. A chair-dog having an opening in its rear extremity to receive a pivot-support, a shoulder projecting above said opening, a cage-supporting extension projecting forward of and in the plane of the shoulder, and a depending apertured projection for operating purposes.

8. The combination, with a cage, of dogs movably connected therewith below the plane of the upper surface of the bottom of the cage, the bottom of the cage being slotted to allow the upper portion of the dogs to pass through, the said dogs being adapted to project beyond the body of the cage and rest on a support, each dog being provided with a stop adapted to engage the bottom of the cage and lock the dog against further movement when the cage is at rest, the dogs being arranged to swing inwardly into the shaft to allow the cage to move up and down without obstruction, substantially as described.

9. The combination of a cage, of chair-dogs movably mounted thereon below the upper surface of the bottom of the cage which is slotted to allow the upper part of the dogs to pass through, the arrangement being such that the dogs are adapted to support the cage when resting on a supporting-surface and adapted to swing inwardly to allow the cage to move up and down in the shaft without obstruction, substantially as described.

10. In a safety-cage chair construction, the combination with a cage, of dogs movably mounted thereon and arranged to support a cage at the various drifts or levels, the said dogs when in the cage-supporting position lying in the plane of the cage-floor and the bottom of the drift or tunnel, substantially as described.

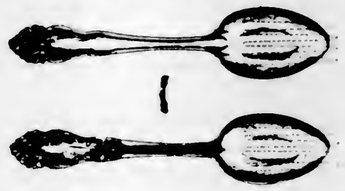
DESIGNS.

34,745. BADGE. WILLIAM B. SHERMAN, Providence, R. I. Filed June 10, 1901. Serial No. 64,054. Term of patent 3½ years.



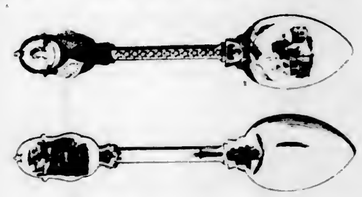
Claim.—The design for a badge, as herein shown and described.

34,746. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. CHARLES A. BENNETT, Taunton, Mass., assignor to the Reed and Barton Corporation, same place and New York, N. Y. Filed June 10, 1901. Serial No. 64,043. Term of patent 14 years.



Claim.—The design for the handle of a spoon, fork, or similar article, substantially as shown and described.

34,747. SPOON. CHARLES H. WEISGERBER, Philadelphia, Pa. Filed May 31, 1901. Serial No. 62,876. Term of patent 14 years.



Claim.—The design for a spoon, as herein shown and described.

34,748. RAZOR-CASE. HENRY M. TOWER, Spencer, Mass., assignor to Smith & Hemenway Company, New York, N. Y. Filed Apr. 17, 1901. Serial No. 56,327. Term of patent 7 years.



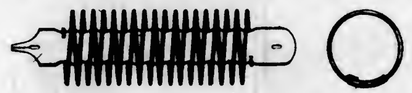
Claim.—The design for a razor-case as herein shown and described.

34,749. PIPE. ARTHUR Q. WALSH, New York, N. Y. Filed May 1, 1901. Serial No. 58,400. Term of patent 3½ years.



Claim.—The design for a pipe herein shown and described.

34,750. PEN-RACK. JAMES ADAIR, Edgeworth, Pa. Filed Feb. 13, 1901. Serial No. 47,188. Term of patent 14 years.



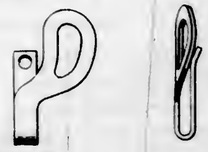
Claim.—The design for a pen-rack as herein shown and described.

34,751. EYEGLASS-BRIDGE. WILLIAM H. ELY, Middletown, Conn. Filed Apr. 17, 1901. Serial No. 56,323. Term of patent 14 years.



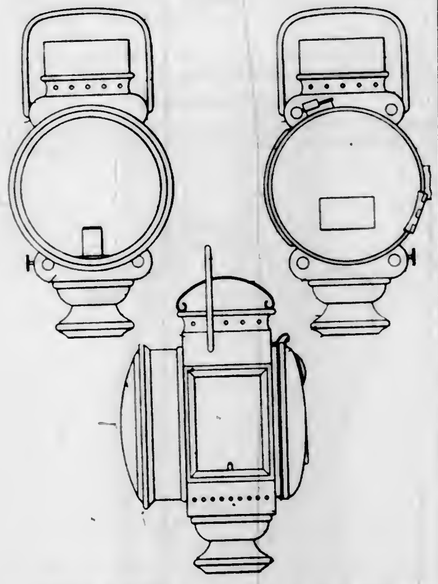
Claim.—The design for an eyeglass-bridge herein shown and described.

34,752. NOSEPIECE FOR SPECTACLES OR EYEGLASSES. IVAN FOX, Lansdowne, Pa. Filed Apr. 15, 1901. Serial No. 56,094. Term of patent 14 years.



Claim.—The design for a nose-piece for spectacles and eye-glasses, as herein shown and described.

34,753. VEHICLE-LAMP. WILLIAM GRAY, Amesbury, Mass. Filed June 11, 1901. Serial No. 64,179. Term of patent 3½ years.



Claim.—The design for a vehicle-lamp, as herein shown and described.

34,754. CASE FOR COIN-CONTROLLED MECHANISM. NELSON M. WATSON, Detroit, Mich., assignor to Fred Wardell, same place. Filed June 8, 1901. Serial No. 63,807. Term of patent 3½ years.



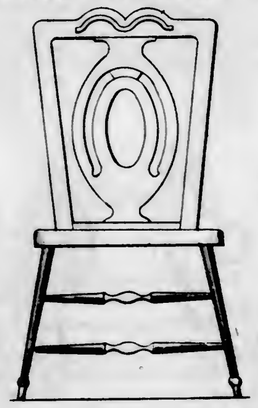
Claim.—The design for a case for coin-controlled mechanism, substantially as herein shown and described.

34,755. BASE FOR BEER-COOLERS. ELISABETH GROSS, Philadelphia, Pa. Filed Apr. 13, 1901. Serial No. 55,702. Term of patent 14 years.



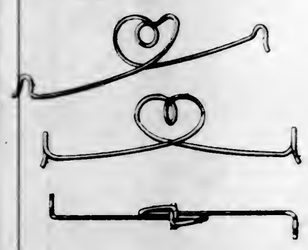
Claim.—The design for the base of a beer-cooler as herein shown and described.

34,756. CHAIR. HERBERT A. KISSEY, Chicago, Ill. Filed May 27, 1901. Serial No. 62,169. Term of patent 7 years.



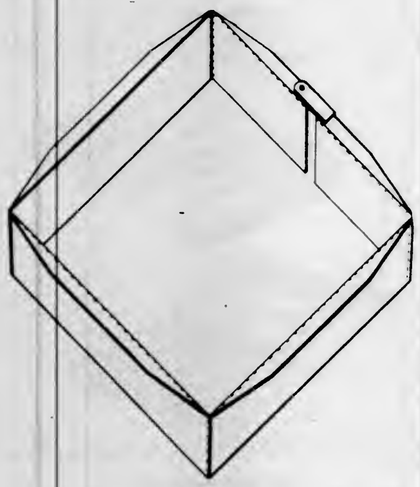
Claim.—The design for a chair, as herein shown and described.

34,757. CLOTHES-PIN. EDGAR L. DRYDEN, College Springs, Iowa. Filed May 9, 1901. Serial No. 59,541. Term of patent 7 years.



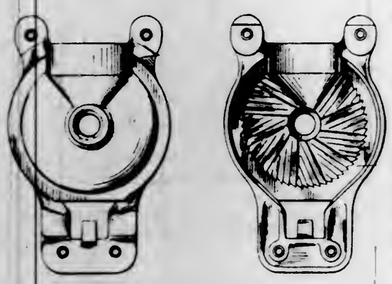
Claim.—The design for a clothes-pin, as herein shown and described.

34,758. CLOTH-HOLDER FOR CHEESE-MOLDS. NICHOLAS SIMON, Neenah, Wis. Filed May 27, 1901. Serial No. 62,171. Term of patent 14 years.

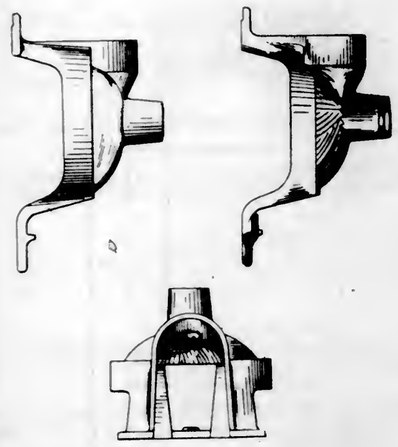


Claim.—The design for the cloth-holder for a cheese-mold as herein shown and described.

34,759. COFFEE-MILL SHELL. ADELBERT E. BRONSON, Jr., Cleveland, Ohio, assignor to the Bronson-Walton Company, same place. Filed June 10, 1901. Serial No. 64,050. Term of patent 14 years.



34,759.



Claim.—The design for a coffee-mill shell, substantially as herein shown and described.

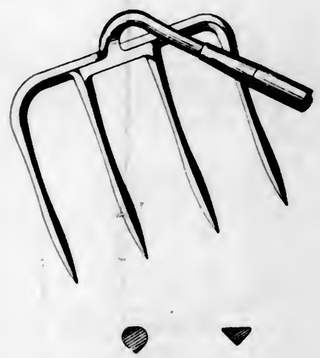
34,760. WITHDRAWN.

34,761. FRAME FOR KNIFE-SHARPENERS OR GLASS-CUTTERS. FRANK G. REYBOLDS, Chicago, Ill. Filed May 20, 1901. Serial No. 61,198. Term of patent 7 years.



Claim.—The design for the frame of a knife-sharpener and glass-cutter, substantially as herein shown and described.

34,762 POTATO-HOOK. MAHIR A. HALL, North Hartford, N. Y. Filed May 23, 1901. Serial No. 61,619. Term of patent 14 years.



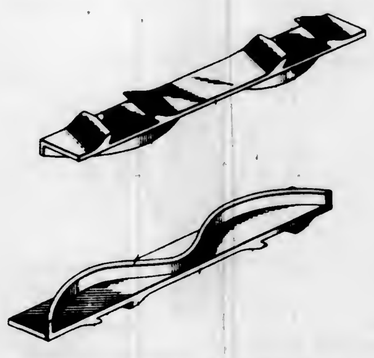
Claim.—The design for a potato-hook substantially as herein shown and described.

34,763. STATIONARY PLATE FOR STATIC MACHINES. JAMES M. G. BEARD, Fruita, Colo. Filed June 4, 1901. Serial No. 63,163. Term of patent 14 years.



Claim.—The design for a stationary plate for static machines, as herein shown and described.

34,764. RAILROAD-TIE. RUDOLPH C. LUKENS, Academy, Pa. Filed May 9, 1901. Serial No. 59,537. Term of patent 14 years.

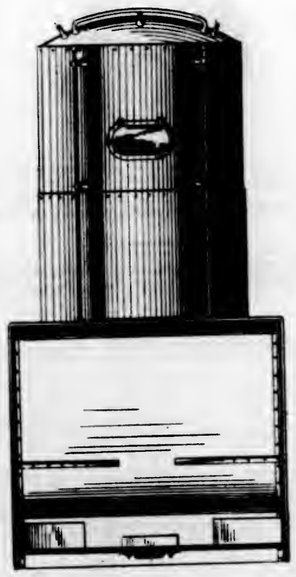


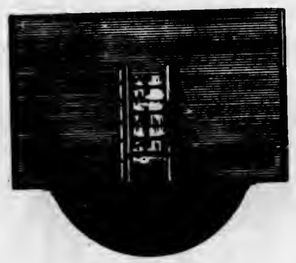
Claim.—The design for a railroad-tie, as herein shown and described.

34,765. LOCOMOTIVE-TENDER BODY OR SIMILAR ARTICLE. CORNELIUS VANDERBILT, New York, N. Y. Filed May 31, 1901. Serial No. 62,677. Term of patent 14 years.



34,765.







Claim.—The design for a locomotive-tender body or similar article, substantially as herein shown and described.

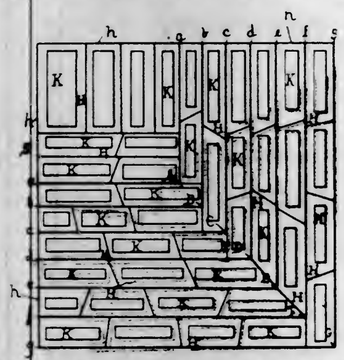
34,766. RIDING-SADDLE. ALVIS F. CROOM, Dallas, Tex. Filed Apr. 26, 1901. Serial No. 57,635. Term of patent 7 years.

34,766.



Claim.—The design for a riding-saddle substantially as herein shown and described.

34,767. PUZZLE-BOARD. ROBERT C. MCCALEB, Waterloo, Iowa. Filed Mar. 25, 1901. Serial No. 52,870. Term of patent 3½ years.



Claim.—A design for a puzzle-board as described and shown in the drawing.

34,768. WAIST-LENGTHENER. ELLA K. PILLING, Philadelphia, Pa. Filed June 4, 1901. Serial No. 62,102. Term of patent 7 years.



Claim.—The design for a waist-lengthener, as shown and herein described.

34,769. BELT. LOUIS SANDERS, Brooklyn, N. Y. Filed May 7, 1901. Serial No. 59,189. Term of patent 3½ years.



Claim.—The design for the belt herein shown and described.

34,770. STOCKING OR SIMILAR ARTICLE. THOMAS WEST, Plymouth, Pa. Filed May 6, 1901. Serial No. 59,063. Term of patent 3½ years.



Claim.—The design for a stocking or similar article, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JULY 9, 1901.

36,690. BRACELETS. WHITING AND DAVIS, Wrentham, Mass. Filed May 31, 1901.

ALICE NIELSEN

Essential feature.—The words "ALICE NIELSEN." Used since December, 1900.

36,691. COMBS. GILLUM & RUDY, Philadelphia, Pa. Filed June 11, 1901.

WW

Essential feature.—The letters "W W." Used since May 11, 1901.

36,692. NECKTIES. LOUIS AUERBACH, New York, N. Y. Filed Apr. 22, 1901.

THE TWAIN

Essential feature.—The words "THE TWAIN." Used since February 1, 1901.

36,693. SHOES. FELIX EMILE MESTROT, Galveston, Tex. Filed June 10, 1901.

Belle of the Surf

Essential feature.—The words "BELLE OF THE SURF." Used since May 5, 1901.

36,694. SHOES. FELIX EMILE MESTROT, Galveston, Tex. Filed June 10, 1901.

LITTLE TOUGH

Essential feature.—The words "LITTLE TOUGH." Used since March 15, 1898.

36,695. BOOTS AND SHOES. V. K. AND A. H. JONES COMPANY, Lynn, Mass. Filed June 11, 1901.

Melba

Essential feature.—The word "MELBA." Used since January, 1898.

36,696. BOOTS, SHOES, AND LEATHER. FRANK G. JONES SHOE Co., Memphis, Tenn. Filed May 6, 1901.

FATHER'S FRIEND

Essential feature.—The words "FATHER'S FRIEND." Used since August 1, 1900.

36,697. BOOTS, SHOES, AND LEATHER. FRANK G. JONES SHOE Co., Memphis, Tenn. Filed May 6, 1901.

Essential feature.—The pictorial representation of a fish. Used since July 1, 1899.

36,698. SHOES, BOOTS, AND SLIPPERS. NATIONAL SHOE Co., INC., Boston, Mass. Filed June 6, 1901.



Essential feature.—A representation of Uncle Sam and the words "UNCLE SAM." Used since February 15, 1901.

36,699. WATERPROOF COATS. B. KUPPENHEIMER & Co., Chicago, Ill. Filed May 17, 1901.



Essential feature.—The representation of a waterfall. Used since May 6, 1901.

36,700. COTTON GOODS. COVENTRY COMPANY, Providence, R. I. Filed Nov. 19, 1900.



Essential feature.—A pictorial representation of an orchid. Used since January, 1894.

36,701. COTTON GOODS. TATA & CO., Bombay, India, and New York, N. Y. Filed June 12, 1901.



Essential feature.—The representation of a horseman carrying a bow and riding away from a tiger shown as wounded by an arrow. Used since May 9, 1901.

36,702. ARTICLES MANUFACTURED FROM WOOD-PULP. CHARLES W. ZAREMBA, Riverside, Ill. Filed May 2, 1901.

JONO TLAN

Essential feature.—The word "JONOTLAN." Used since July, 1900.

36,703. CERTAIN NAMED PAPER. FORT ORANGE PAPER COMPANY, Castleton, N. Y. Filed Apr. 24, 1901.



"BUCKSKIN"

Essential feature.—The word "BUCKSKIN" and the representation of a buck. Used since March 29, 1900.

36,704. METAL DOLL-HEADS. A. VERCHER & Co., New York, N. Y. Filed Apr. 22, 1901.

MINERVA

Essential feature.—The word "MINERVA." Used since February 1, 1894.

36,705. HOUSEHOLD OR INDOOR GAMES. EUGENE R. GRAVES, Black River, N. Y. Filed May 28, 1901.

SHEEP AND GOATS

Essential feature.—The words "SHEEP AND GOATS." Used since March 15, 1901.

36,706. TOILET AND SHAVING SOAP. JOHN ALEXANDER MORINGER, Kansas City, Mo. Filed June 1, 1901.

Oowana 206

Essential feature.—The word "OOWANA" and the characters 206. Used since April 6, 1901.

36,707. TOILET SOAP, PERFUMES, TOILET WATER, COSMETICS, AND FACE-POWDER. MÜLHENS & KROPFF, New York, N. Y. Filed June 6, 1901.

LA BARONESSE

Essential feature.—The words "LA BARONESSE." Used since August, 1899.

36,708. TOILET SOAP, PERFUMES, TOILET WATER, COSMETICS, AND FACE-POWDER. MÜLHENS & KROPFF, New York, N. Y. Filed June 6, 1901.



Essential feature.—A picture of the Cologne Cathedral. Used since November, 1895.

36,709. INSECTICIDES. HENRY W. DOUGHTEN, Moorestown, N. J. Filed June 6, 1901.



Essential feature.—The representation of a horseshoe. Used since December 1, 1900.

36,710. SUSPENSORIES. J. ELLWOOD LEE Co., Conshohocken, Pa. Filed May 23, 1901.

J. P.

Essential feature.—The letters "J. P." Used since 1869.

36,711. GRANULAR EFFERVESCING SALTS. WILLIAM OHL, Peoria, Ill. Filed Apr. 3, 1901.

PHOSPHO-FIZZ

Essential feature.—The compound word "PHOSPHO-FIZZ." Used since March 23, 1901.

36,712. DIGESTIVE TABLETS. THE LAXAKOLA COMPANY, New York, N. Y. Filed May 24, 1901.

PEPSIKOLA

Essential feature.—The word "PEPSIKOLA." Used since April 1, 1901.

36,713. CERTAIN NAMED MEDICINE. ROBERT H. M. JOHNSON, London, England. Filed Dec. 22, 1900.

THERAPION

Essential feature.—The word "THERAPION." Used since June 5, 1860.

36,714. CERTAIN NAMED MEDICINES. Moon's MAGNETIC MEDICINE Co., Chattanooga, Tenn. Filed May 31, 1901.



Essential feature.—A pictorial representation of a crescent and a balloon. Used since April 27, 1901.

36,715. CERTAIN NAMED MEDICAL COMPOUND. BEYHOLF PROM, Milton, N. D. Filed June 7, 1901.

DENTRIL.

Essential feature.—The words "DEN TRIL." Used since December 1, 1899.

36,716. CERTAIN NAMED INTERNAL AND EXTERNAL REMEDIES. WM. BROWN, Sutton, Canada. Filed May 23, 1901.



Essential feature.—A monogram composed of the letters "B" and "D." Used since November 23, 1900.

36,717. INTERNAL HEADACHE REMEDIES IN TABLET FORM. THE NEURALGYLINE COMPANY, Sistersville, W. Va. Filed Nov. 9, 1900.

NEURALGYLINE

Essential feature.—The word "NEURALGYLINE." Used since October 1, 1899.

36,718. MEDICINE FOR CERTAIN NAMED DISEASES. RAFFAELLO AMBROSI, Baltimore, Md. Filed June 6, 1901.



Essential feature.—A monogram of the letters "R" and "A." Used since May 15, 1901.

36,719. BRANDY, WHISKY, WINE, AND GIN. FRANCIS E. FREY, Lovettsville, Va. Filed May 16, 1901.

GEORGIA WATERMELLON

Essential feature.—The words "GEORGIA WATERMELON." Used since November 15, 1900.

36,720. CERTAIN NAMED FOOD SUBSTANCES AND INGREDIENTS AND CEREAL BEVERAGES. ROBERT GRAHAM, Pitlair, county of Fife, Scotland. Filed May 21, 1901.

VEDA

Essential feature.—The word "VEDA." Used since October, 1900.

36,721. BREAKFAST-FOOD. THE HYGIENIC FOOD CO., St. Joseph, Mich. Filed June 5, 1901.

CERO-CRISP

Essential feature.—The compound word "CERO-CRISP." Used since March 1, 1901.

36,722. EVAPORATED APPLES. ELBERT & GARDNER, New York, N. Y. Filed June 11, 1901.

BELLE OF OSWEGO

Essential feature.—The words "BELLE OF OSWEGO." Used since May 1, 1900.

36,723. CATSUP. DODSON-BRAUN MFG. CO., St. Louis, Mo. Filed May 23, 1901.



Essential feature.—A representation of Mephistopheles in connection with the word "FAUST." Used since March, 1898.

36,724. BRUSHES. WIENS BRUSH CO., Milwaukee, Wis. Filed Apr. 10, 1901.



Essential feature.—The pictorial representation of a brush and of a broken handle, the latter vertically disposed and resting on the top of the brush to form the similitude of an inverted letter T. Used since May 1, 1900.

36,725. GLASS LAMP-CHIMNEYS, GLASS REFLECTORS, AND GLASS LANTERN-GLOBES. GILL BROTHERS AND COMPANY, Steubenville, Ohio. Filed June 7, 1901.

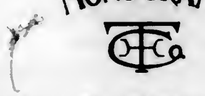
36,726.



Essential feature.—The representation of an Indian. Used since May 22, 1901.

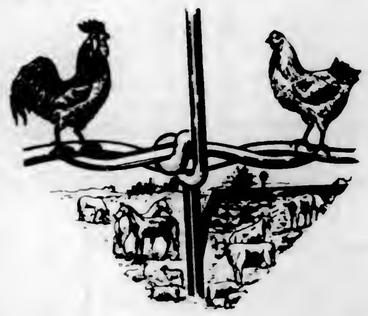
36,726. CERTAIN NAMED HARDWARE. TURNER HARDWARE CO., Muskogee, Creek Nation, Ind. Ter. Filed May 6, 1901.

MONOGRAM



Essential feature.—The word "MONOGRAM" and the letters "T. H. Co." in monogram form. Used since June 1, 1899.

36,727. WIRE FENCING. UNION FENCE CO., DeKalb, Ill. Filed Apr. 25, 1901.



Essential feature.—The pictorial representation of a lock or joint between crossing strands of wire in association with the representation of a pair of fowls perched upon the horizontal strands of the wire and showing below fields divided by wire-fencing and containing horses, sheep, cattle, and swine. Used since September 1, 1896.

36,728. CERTAIN NAMED FORGINGS. THE MIDVALE STEEL CO., Philadelphia, Pa. Filed Apr. 13, 1901



Essential feature.—The representation of a car-axle placed across the center and on top of a tire. Used since March 1, 1881.

36,729. REMEDY FOR CERTAIN NAMED DISEASES. F. HOFFMANN-LA ROCHE & CO., Basle, Switzerland, and Grenzach, Germany. Filed May 31, 1901.

SIROLIN

Essential feature.—The word "SIROLIN." Used since May 1, 1898.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED JULY 9, 1901.

8,513.—*Title:* "FIRST PRESIDENT." (For Cigars.) JOHN DUNHAM, Minneapolis, Minn. Filed October 26, 1900.

8,514.—*Title:* "YE ANCIENT ORDER OF WHYNOT." (For Cigars.) H. L. KIRSTEIN & Co., Cincinnati, Ohio. Filed June 14, 1901.

8,515.—*Title:* "DUQUESNE BEER." (For Lager-Beer.) DUQUESNE BREWING Co., Pittsburg, Pa. Filed June 13, 1901.

8,516.—*Title:* "DUQUESNE EXPORT BEER." (For Lager-Beer.) DUQUESNE BREWING Co., Pittsburg, Pa. Filed June 13, 1901.

8,517.—*Title:* "DUQUESNE BEER." (For Lager-Beer.) DUQUESNE BREWING Co., Pittsburg, Pa. Filed June 13, 1901.

8,518.—*Title:* "BONANZA JAPAN TEA." (For Tea.) H. H. MEHLHOP, Dubuque, Iowa. Filed June 17, 1901.

8,519.—*Title:* "SWISS MILK COCOA." (For Cocoa.) CROFT & ALLEN Co., Philadelphia, Pa. Filed June 18, 1901.

8,520.—*Title:* "ANTELOPE STATE SUGAR CORN." (For Canned Goods.) MARTIN & NURRE, Blair, Nebr. Filed June 17, 1901.

8,521.—*Title:* "MISSOURI RIVER BRAND SUGAR CORN." (For Canned Goods.) MARTIN & NURRE, Blair, Nebr. Filed June 17, 1901.

8,522.—*Title:* "THE EARL GULICK ANTISEPTIC TOOTH POWDER." (For Tooth-Powder.) JOHN G. GULICK, Brooklyn, N. Y. Filed June 18, 1901.

8,523.—*Title:* "THYMOZONE DANDRUFF CURE AND HAIR FOOD." (For a Dandruff-Cure and Hair-Food.) THE DRAKE HAWLEY Co., Howard, S. D. Filed June 14, 1901.

8,524.—*Title:* "WHAT AILS YOUR EYES." (For Eye-Water.) HOWARD BROS., Buffalo, N. Y. Filed June 17, 1901.

8,525.—*Title:* "CORSON'S RED CROSS CAPSULES." (For Capsules.) G. C. TAGGART, Philadelphia, Pa. Filed June 15, 1901.

8,526.—*Title:* "PRESIDENT'S RESTORATIVE TABLETS." (For a Medicine.) THE PRESIDENT'S COMPANY, Chicago, Ill. Filed June 13, 1901.

8,527.—*Title:* "DR. KANE'S FOREST ROOT COUGH REMEDY." (For a Medicine.) GEORGE PHIPPS, St. Paul, Minn. Filed June 17, 1901.

8,528.—*Title:* "KNAPO-CURO." (For a Medicine.) GEORGE PHIPPS, St. Paul, Minn. Filed June 17, 1901.

8,529.—*Title:* "FOREST ROOT EXTRACT." (For a Medicine.) GEORGE PHIPPS, St. Paul, Minn. Filed June 17, 1901.

8,530.—*Title:* "DR. BOSTON'S MAGIC TABLETS FOR HEADACHE." (For a Medicine.) LOUIS P. A. DORION, Haverhill, Mass. Filed June 11, 1901.

8,531.—*Title:* "SASHBELT TROUSERS." (For Trousers.) ELIAS GOODMAN, New York, N. Y. Filed June 13, 1901.

PRINTS

REGISTERED JULY 9, 1901.

369.—*Title:* "SWEET-WHITNEY MUSIC-METHOD." (For Musical Merchandise.) CORA H. SWEET and L. GERTRUDE WHITNEY, Grand Rapids, Mich. Filed June 6, 1901.

370.—*Title:* "THE PARIS SKIRT CO." (For Dress-Skirts.) THE PARIS SKIRT Co., New York, N. Y. Filed June 17, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE EVANS & SHEPARD.

Decided May 25, 1901.

1. TRADE-MARK—"PAIN-EASE"—DESCRIPTIVE.
   The word "Pain-Ease" applied to a medicine refused registration on the ground that it is descriptive and advertising in character and is not a lawful trade-mark.
2. SAME—DESCRIPTIVE WORDS—CHANGE IN THE ORDER OF WAITING.
   Held that any manufacturer has the right to say that his medicine eases pain, and a mere reversal of the usual order in which the words are written does not give them such an arbitrary character as to make them registrable as a trade-mark.

APPEAL on motion.

TRADE-MARK FOR MEDICAL COMPOUNDS.

Application for registration filed February 23, 1901, No. 62,770.

Mr. Henry N. Copp for the applicants.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Pain-Ease" as a trade-mark for certain medical compounds on the ground that it is descriptive and advertising in character and is not a lawful trade-mark.

A consideration of the case and the authorities cited shows that the Examiner's action was proper and in accordance with the recent decisions of the Office. The mark would undoubtedly convey the impression to purchasers that a person suffering pain would be relieved by the use of the medicine, and therefore, although it is not descriptive of the composition of the medicine, it is descriptive of a valuable quality or characteristic of it. It was apparently adopted for advertising purposes and not as a mere indication of origin or ownership, and it would be so understood by purchasers generally. Any manufacturer has the right to say that his medicine eases pain, and a mere reversal of the usual order in which the words are written does not give them such an arbitrary character as to make them registrable as a trade-mark. (*Ex parte Hance Bros. & White*, 87 O. G., 698.)

The Supreme Court said in *Columbia Mill Company* v. *Alcorn*, (65 O. G., 1916:)

That if the device, mark, or symbol was adopted or placed upon the article for the purpose of identifying its class, grade, style, or quality, or for any purpose other than a reference to or indication of its ownership, it cannot be sustained as a valid trade-mark.

Under this statement and similar rulings by the courts in other cases this Office refuses to register marks of the character here presented.

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE PEEK.

Decided May 24, 1901.

1. TRADE-MARK—"WAUKEASY" FOR CORN-CURE—NOT DESCRIPTIVE.
   Held that the word "Waukeasy" as applied to a corn-cure is perhaps suggestive, but is not descriptive of the composition or qualities of the article or the direct result produced by its use, and is therefore registrable as a trade-mark.
2. SAME—MARKS INDICATING ORIGIN OR OWNERSHIP—SUGGESTIVE MARKS.
   Where the primary object, purpose, and effect of a mark are to indicate origin or ownership of the goods, *Held* that the fact that it remotely suggests some advantage which may be derived from the use of the goods should not prevent its registration.

APPEAL on motion.

TRADE-MARK FOR CORN-CURES.

Application of Walter K. Peek for registration filed February 6, 1901, No. 62,628.

Mr. F. W. Smith, Jr., for the appellant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Waukeasy" as a trade-mark for corn-cures.

This mark is undoubtedly a combination and misspelling of the words "walk" and "easy." The appellant does not admit this, but it would beyond question be so recognized by the public in general. It is well settled that the mere misspelling of words which are not themselves registrable does not make them registrable, and therefore in determining the question whether the mark in this case is registrable it may be considered as if it consisted of the words "walk" and "easy." If those words themselves are not registrable, they are no more so when misspelled. (*Ex parte Henderson*, 85 O. G., 453.)

The Examiner holds that the mark is a "descriptive and advertising term, indicative of a quality or characteristic of the medicine," in that it conveys the idea that by using it a person may walk easily. The appellant contends, on the other hand, that even if the mark conveys the idea that

by the use of the corn-cure walking is made easy it is not descriptive of the composition or quality of the article and is registrable. He maintains that it cannot properly be held to be descriptive merely because it suggests a remote result which may be brought about by its use and cites in support of his contention the decision of the court in *O'Rourke* v. *Central City Soap Company*, (35 O. G., 875,) wherein the word "Anti-washboard" was sustained as a trade-mark for soap.

This view is believed to be correct. The word "Wankeasy" is perhaps suggestive, but it is not descriptive of the composition or qualities of the article or the direct result produced by its use. The result or condition suggested by the word is so remote from the article to which it is applied that it cannot be held to be one of those descriptive terms which any person has the right to use in describing similar articles and which therefore cannot be exclusively appropriated by one person. The mark would be recognized by purchasers as being arbitrary and fanciful.

The primary object, purpose, and effect of the mark are to indicate origin or ownership of the goods, and the fact that it remotely suggests some advantage which may be derived from the use of the goods should not prevent its registration.

The decision of the Examiner of Trade-Marks is reversed.

EX PARTE ALBERT.

Decided June 10, 1901.

1. REQUIREMENT FOR DIVISION—CURSORY EXAMINATION.

In requiring division the citation of such references and other information as will enable the applicant to divide intelligently is not intended to involve an extended search into the art, but merely such cursory examination as will enable the Examiner to cite such references as he is aware of at that time.

2. SAME—SAME—PRESUMPTION THAT THE EXAMINER KNOWS OF NO REFERENCES.

Where in requiring division the Examiner without citing any references has given his reason for regarding the invention classifiable in his division as unpatentable and has not refused to cite references, *Held* that it is to be presumed that he knows of no references. A petition that he be required to cite them should be denied.

ON petition.

PROCESS FOR PRODUCING PULLEYS FROM COMPRESSIBLE MATERIAL.

Application of Friedrich Albert filed September 29, 1900, No. 31,573.

Mr. B. Singer for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition that the Examiner be instructed to inform applicant of such matters adverse to the patentability of his application as may be within his cursory knowledge before the requirement of division be insisted upon.

It is well settled that where the independence of the invention is clear division should be made before any action upon the merits. (Rule 42.) Under the circular of the Commissioner dated April 14, 1898, (83 O. G., 301,) the Examiners are directed when making a requirement of division to furnish such references and other information as will enable the applicant to divide intelligently. The giving of this information is not an action on the merits of the case.

It appears from the record that the Examiner has informed the applicant that the process claim is, in his opinion, not patentable, and he has given his reasons for this opinion. The "cursory examination" referred to consists in such an examination as will enable the Examiner to cite such references as he is aware of at that time. It does not mean that an extended search into the art shall be made. The Examiner has not cited any references in addition to the reasons given by him as to why in his opinion the claim of the invention classifiable in his division is not patentable. Neither has he refused to cite references which might show that the process claim is not patentable. On the other hand, he has clearly stated his reasons why in his opinion the claim is not patentable. The failure by him to cite references is indicative of the fact that he was not then aware of any applicable to the invention claimed. This is a common practice and well understood in the treatment of claims. When a claim is not referred to in an Examiner's letter, it is presumed that there is no reason at that time of which the Examiner is aware which would bar the allowance of the claim.

I find no error in the Examiner's action.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MIEHLE v. READ.

Decided April 2, 1901.

1. INTERFERENCE—BURDEN OF PROOF—PATENT ISSUED DURING PENDENCY OF OPPONENT'S APPLICATION.

Where Read was the first to file his application, and while it was pending Miehle's application went to patent, *Held* that Read is the senior applicant and entitled to all of the advantages which his earlier application gives him.

2. SAME—DILIGENCE—DECISION BELOW AFFIRMED.

Where it is shown that Miehle had a conception of the invention in June, but did nothing in regard to it until after Read entered the field and filed his application in the following December, *Held* that Miehle did not exercise diligence and that the decision of the Commissioner of Patents in favor of Read should be affirmed.

3. SAME—SAME—FILING APPLICATION FOR PATENT.

Where the only excuse given for delay is that the party was engaged in other things which required his attention and it appears that he might at any time have had an application for a patent filed by devoting two hours to a conference with his attorney, *Held* that he was lacking in diligence.

4. SAME—SAME—DILIGENCE IN PROSECUTING CASE IN OFFICE.

Where it was contended that a party was not diligent in the prosecution of his application in the Office, *Held* that this has no bearing on the question of priority, since his rights became fixed by the filing of his application, and they could not be lost and become vested in others by mere delay on his part in their prosecution.

5. RIGHT TO MAKE CLAIMS—CHANGING INVENTION BY AMENDMENT TO APPLICATION.

Held that it is doubtful if Read is intitled to make the claims, since he appears to have so changed his claims as to cover an invention which he did not contemplate until after he saw Miehle's patent. (*Bechman* v. *Wood*, 89 O. G., 2492.)

Messrs. Elliott & Hopkins for the appellant.

Messrs. Philipp, Sawyer, Rice & Kennedy for the appellee.

MORRIS, *J.:*

This is an appeal from the decision of the Commissioner of Patents in an interference case.

As stated in the appellant's specification, the invention here in controversy—

> relates to that class of mechanical movements employed for transforming a rotary movement into rectilinear or reciprocating movement—

with special reference to the use of such motion in the beds of printing-presses. The object of the invention is—

> to convert the rotary movement of a driving-shaft into rectilinear or reciprocating movement in the type-bed or part to be reciprocated, and in doing so to carry the bed back and forth throughout the greater part of its travel with a uniform movement and as the bed approaches the limit of its traverse in either direction to decrease the motion gradually until it is absolutely arrested, and then start the bed on its return movement and increase as gradually the motion from a point of rest to the full maximum speed.

The claims in issue are nine in number, not greatly different from each other, and all of the same general character; and they are as follows:

1. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater part of its movement, of a bodily-revolving lever also rotating on an independent axis in the opposite direction of its bodily travel, and means in connection with said part to be reciprocated for engagement with said lever.

2. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a bodily-revolving lever also rotating on an independent axis in the opposite direction of its bodily travel, and means at each end of said part to be reciprocated for engagement with said lever.

3. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a bodily-revoluble lever rotatable on an independent axis and comprising a toothed portion forming a pinion, a second toothed portion engaging with said pinion and causing the same to rotate, and means in connection with said part to be reciprocated for engaging with said lever.

4. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a bodily-revoluble lever rotatable on an independent axis and comprising a pinion, a non-rotative toothed portion engaging with said pinion and causing the latter to rotate, and means in connection with said part to be reciprocated for engagement with said lever.

5. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a bodily-revoluble lever, rotatable on an independent axis and comprising a pinion, an internal gear surrounding said pinion and meshing therewith, whereby said lever is rotated in the opposite direction of its bodily travel, and means in connection with said part to be reciprocated for engagement with said lever.

6. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a bodily-revoluble lever rotatable on an independent axis and comprising a pinion, an internal non-rotative gear surrounding said pinion and causing said lever to rotate, and means in connection with said part to be reciprocated for engagement with said lever.

7. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a rotating member, a lever pivoted eccentrically to be carried by said member, a non-rotative gear, said lever comprising a pinion engaging with said gear and causing the rotation of said lever, and means in connection with said part to be reciprocated adapted to engage said lever.

8. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a rotating member, a shaft secured eccentrically to and supported by said rotating member and a pinion and an actuating member mounted on said shaft and constituting a lever, a non-rotative gear engaging with said pinion, and means carried by said part to be reciprocated for engaging with said actuating-gear.

9. The combination with the part to be reciprocated and means for reciprocating said part throughout the greater portion of its movement, of a bodily-revolving lever also rotating on an independent axis in the opposite direction of its bodily travel, an abutment in connection with said part to be reciprocated for engagement with said lever, and means for holding said lever in engagement with said abutment.

These nine claims are taken *verbatim* from a patent issued to the appellant Miehle on May 25, 1897, on an application filed by him on September 3, 1896, and comprise nine of the twenty-one claims therein contained.

The appellee Read had filed his application on December 7, 1895, nearly nine months before that of Miehle reached the Patent Office; but for some reason it was delayed in the Office, and Miehle's application was permitted to go to a patent before being put in interference with it. Notwithstanding, therefore, that Miehle has a patent, Read was the senior applicant, and entitled to all the advantages which his earlier application gives him. Read's specification included twelve claims, six of which were subsequently canceled. All these claims, besides other features differentiating them from the claims now in controversy, contemplated the use of a crank-pin as the thing to be reciprocated in the mechanism. Afterward, on September 15, 1897, upward of three months after the issue of the patent to Miehle, Read copied and added to his own specification and claims nine out of the twenty-one claims of that patent, which constitute the issue in this case, for the purpose of procuring the present interference, which was accordingly declared. Thereupon the parties filed their preliminary statements.

Read in his statement says that he conceived the invention on or about September 15, 1895, made drawings of it and disclosed it to others about the same time, made no model of it, but caused a working printing-press embodying the invention to be commenced about October 10, 1895, completed during the month of November of 1895, and to be operated on or about December 2, 1895, and at various later dates. The invention was not put into commercial use. As already stated, he filed his application on December 7, 1895.

Miehle in his preliminary statement says that he conceived the invention in or about the month of April, 1895; that in the same month and during the following summer he made drawings of it and explained it to others; that in or about the month of May, 1896, he made a model of it, which he explained to others; but that he had not reduced his invention to practice otherwise than by the filing of his application, (September 3, 1896.)

When the cause came to a hearing after testimony taken, all three of the tribunals of the Patent Office concurred unanimously in holding that Miehle had shown by the evidence a conception of the invention by him as early as June, 1895; that he was therefore the first to conceive the invention, since Read claimed no earlier day than September 15, 1895, for the date of his conception; but that, as Miehle admitted that he had never reduced the invention to practice before the filing of his application, and as Read was the first to file his application, the latter was entitled to be regarded as the first to reduce to practice, and therefore as entitled to judgment of priority of invention, unless it appeared that, at the time of the filing of Read's application, Miehle was in the exercise of due diligence in the prosecution of his invention. They all found that Miehle was not diligent; and conse-

quently they all awarded judgment of priority of invention in favor of Read.

From the decision of the Commissioner to this effect Miehle has now appealed to this court.

Assuming that the device of Miehle and the device of Read are the same in effect and in contemplation of the patent law, and that there is here interference in fact, we have no doubt that the decision of the Commissioner is entirely correct. Due allowance is made to Miehle of priority of conception. It is considered, and we do not understand that it is contested by the appellee, that Miehle had a conception of the invention at least as early as June of 1895, which is upward of three months earlier than the date claimed by Read for his own conception of it. But it does not appear that Miehle did anything whatever after that and before Read entered the field, conceived the invention, reduced it to practice, and filed his application in the Patent Office. Read was prompt and diligent enough in these steps; but there is an effort on the part of the appellant to show that he was not diligent in the prosecution of his application in the Office, and that he permitted it to lag unduly. It is not apparent, however, that this want of diligence, if such there was on the part of Read, has any bearing on the present controversy. His rights, whatever they were, became fixed by the filing of his application; and they could not be lost and become vested in others by mere delay on his part in their prosecution.

But that there was delay on Miehle's part, which under the circumstances amounted to a want of due diligence, is quite apparent. After his disclosure of the invention in June of 1895, the record does not show that he took any steps whatever to reduce it to practice, either actual or constructive, until after the appellee had done everything that was required to perfect his title to the invention. The only excuse sought to be given for the delay is that he was engaged in other things which required his attention. But it appears that the requirement of due diligence in this case would have been subserved by a conference of less than two hours with his attorney. This was all the attention that appears to have been subsequently given to the matter before the filing of his application; and assuredly this amount of attention could have been given without difficulty, if it was desired to prosecute the matter earnestly, within the time between June and December of 1895. Miehle was not unacquainted with the requirements of the patent law in this regard, for he had taken out other patents; and he had not the excuse that he was attempting to perfect his invention, or that he was without means to prosecute it.

We fully concur with the tribunals of the Patent Office in the conclusion reached by them in this regard.

But it is proper for us to say that we are not satisfied that the appellee Read is entitled to make the claims here in issue, in view of the decision of this court in the case of *Bechman* v. *Wood*, (89 O. G., 2462; 15 D. C. App., 484.) The several devices of the parties, as outlined in their original claims and specifications, do not seem to us to be the same. An essential feature of Read's device is the use of a crank-pin; while Miehle's device is conspicuous by the absence of any crank-pin or any need of one. It is true that, when Read sought to amend his application by taking Miehle's claims for the purpose of this interference, he expressly disclaimed the necessity of a crank-pin as an integral part of his device; but, all the same, it appears everywhere through the original specification, and the disclaimer is merely for the purpose of broadening the claims and taking in a form of the device of which he does not seem to have been aware before he saw the Miehle patent. We do not think that the two devices are one and the same in contemplation of law, or that they are mechanical equivalents of each other, merely because they both effect the same purpose of a reciprocating mechanical movement. We are not sure that either party is entitled to the broad claims of the present issue in view of the circumstances of the case. We do not desire to be understood as expressing any opinion on the subject. At the same time we do not desire to be understood as concurring in the opinion of the Patent Office that the original claims of the appellee Read are substantially the same as the claims of the present issue. But, as Miehle, although the junior applicant, has a patent for the devices in issue, it seems to be no more than just that Read should be placed on a position of equality with him, whereby they may both be better enabled to test in some appropriate proceeding the question of actual interference between themselves, if they so desire.

The decision of the Commissioner of Patents awarding judgment of priority of invention to the appellee Read is affirmed.

The clerk of the court will certify this opinion and the proceedings in this court to the Commissioner of Patents according to law.

Patents No. 678,356 to 678,850.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 3. TUESDAY, JULY 16, 1901. Price—$5 per year.

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Trade-Marks	50	No. 36,730 to No. 36,779, inclusive.
Labels	12	No. 8,532 to No. 8,543, inclusive.
Prints	4	No. 371 to No. 374, inclusive.
Reissues	None.	
Total issue	599	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alaska Territory			Nevada		
Alabama	3	1	New Hampshire	2	
Arizona Territory	1		New Jersey	32	2
Arkansas	2		New Mexico Territ'y	1	
California	12	3	New York	83	16
Colorado	6		North Carolina	2	2
Connecticut	17	1	North Dakota		1
Delaware			Ohio	22	4
District of Columbia	5		Oklahoma Territ'y	2	1
Florida	1		Oregon		
Georgia			Pennsylvania	52	8
Idaho			Rhode Island	8	3
Illinois	43	2	South Carolina		1
Indian Territory			South Dakota	2	
Indiana	9		Tennessee	8	
Iowa	11		Texas	6	
Kansas	7	1	Utah	2	
Kentucky	3	1	Vermont	4	1
Louisiana	2		Virginia	3	
Maine	1		Washington	1	
Maryland	3		West Virginia	1	
Massachusetts	31	5	Wisconsin	10	1
Michigan	21	1	Wyoming	1	
Minnesota	16	1	U. S. Army		
Mississippi	3		U. S. Navy	1	
Missouri	16	1			
Montana			Total to citizens of the United States	471	57
Nebraska	5				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Japan		
Austria-Hungary	7	1	Mexico		
Barbadoes			Netherlands		
Belgium			New South Wales	1	
Brazil			New Zealand	1	
British Guiana			Norway	1	
Canada	7	2	Queensland	1	
Cape Colony			Roumania		
China			Russia		
Colombia			San Salvador		
Cuba			Scotland		
Denmark			South Australia		
Egypt			Spain		
England	15	3	Sweden	1	
Finland			Switzerland		
France	6	1	Turkey in Asia		
Germany	21	1	Victoria		
India		1	Western Australia		
Island of Jersey					
Italy	1		Total to citizens of foreign countries	62	9
Haiti					

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 9, 1901.

SIR: I am directed by the Secretary of the Interior to advise you that Department Order of March 27, 1899, disbarring H. J. Milbourn, of Eaton Rapids, Michigan, from practice before the Department and its Bureaus, has this day been rescinded.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

History of Patent Office.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 28, 1901.

All persons interested in the publication, as contemplated, of a complete history of the United States Patent Office, who have in their possession illustrations, documents, printed articles, or valuable information bearing upon the subject are cordially invited to communicate with this Office concerning the same. Such communications should state clearly the nature of the material and should be addressed to the Chief Clerk, United States Patent Office, and marked "History of Patent Office."

Material loaned to this Office for the desired purpose will be handled with care and will be returned, if desired.

By direction of the Commissioner.

E. V. SHEPARD,
Chief Clerk.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 9, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	July 5	July 5	35
106	II. Farm Stock, Products, etc.	June 21	June 26	136
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	June 21	June 25	137
253	X. Carriages and Wagons	June 17	June 21	71
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 11	June 25	166
240	VII. Velocipedes, Games, and Toys.	June 11	June 24	200
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	June 10	June 25	162
255	XII. Mechanical Engineering, Store-Service, etc.	June 10	June 25	196
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 10	June 24	134
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	June 10	June 20	259
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	June 10	June 20	180
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 10	June 19	140
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 10	June 14	190
93	XXI. Textiles, etc	June 10	May 31	224
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	June 10	May 31	272
	Between one and two months.			
196	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	June 8	June 24	169
307	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 8	June 19	250
250	VIII. Furniture, Beds, Store Furniture, etc.	June 8	June 12	408
246	I. Tillage and Fences	June 5	June 20	168
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 3	June 19	135
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 3	June 13	158
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	June 2	June 21	289
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	June 1	June 12	181
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	May 31	June 20	155
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 31	June 17	182
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	May 31	June 4	321
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	May 27	June 3	239
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	May 25	June 13	198
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	May 22	June 17	249
281	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	May 21	June 14	256
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 20	June 25	164
213	XVII. Printing, Type-Writing Machines, and Linotyping.	May 20	June 7	297
248	XVIII. Steam-Engineering, etc	May 20	May 31	287
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	May 15	May 22	501
102	XIX. Stoves and Furnaces	May 11	May 17	111
	Between two and three months.			
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	May 6	May 22	311
	Total number of applications awaiting action			7,781

Applications Under Examination—Continued.

Under one month.			
*Designs	June 28	July 3	76
†Trade-Marks	June 25	July 6	33
‡Labels and Prints	July 9	July 8	2

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 5, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Renewal of Forfeited Applications.

Attention is called to section 4,897, Revised Statutes, relating to the renewal of allowed applications forfeited through failure to pay the final fee within six months from the date of allowance. The law requires the petition for renewal to be signed by the *inventor, discoverer*, or *assignee* and that the same be filed in this Office within two years after the allowance of the original application. If the inventor be dead, the petition must be signed by the administrator or executor; if insane, by the guardian, conservator, or legal representative. *It will not be accepted if signed by the attorney.* (Form 12, page 64, Rules of Practice, should be used.)

Drawings.

RULES TO BE OBSERVED IN PREPARING AND FORWARDING DRAWINGS TO THE UNITED STATES PATENT OFFICE.

Where drawings are to be filed in connection with an application for Letters Patent in the United States Patent Office, each sheet, before it can be accepted by the Office as a part of the application, must be signed in the name of the inventor at the lower right-hand corner, either by him or by an attorney whose written authorization from the applicant is filed in connection with the application. This signature must also be attested by two witnesses, each of whom should sign the drawing at the lower left-hand corner of the sheet. The signatures should never be written on a line parallel with the longer edges of the sheet, one of the shorter edges being always regarded, for the purpose of locating the signatures, as the lower edge of the sheet. The signatures must all be within the margin-lines of the sheet and below the lines of the drawing. The title of the invention should be written with pencil on the back of each sheet of drawings.

When there are filed on the same day two or more applications by the same inventor, each of the documents and drawings belonging to the same application should have placed thereon the same letter or number, which should be different from the letter or number placed upon those of any other of the applications.

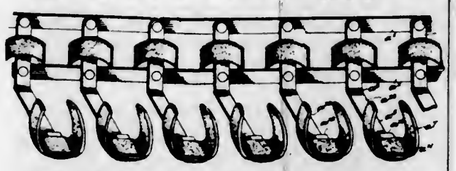
It is desirable that all parts of the complete application, including the drawings, be deposited in the Office at the same time. Should, however, the other parts of the application be filed before the drawings are sent, the latter when forwarded should be accompanied by a letter stating the number of sheets inclosed, and that the drawings are to be filed with the other parts of the application, giving the date at which such other parts were filed in the Office, the name of the inventor, and title of the invention. If the application has received a serial number, that should also be given, and it should be indorsed with pencil on the back of each sheet of drawings. The letter should also state, if such be the case, that the new drawings are to be substituted for those previously filed.

Drawings should be rolled—never folded—for transmission, and should be incased in a substantial mailing-tube.

PATENTS

GRANTED JULY 16, 1901.

678,356. SAMPLE-DISPLAY RACK. JAMES W. CARVER, Auburn, Me., assignor to the Boston Display Rack Company, of New Hampshire. Filed Feb. 12, 1900. Serial No. 4,887. (No model.)



Claim.—1. A folding packing-rack for shoes, having, in combination, a frame, and a series of shoe-holders pivoted to said frame, said shoe-holders comprising a vertical portion provided with a back part sheet-metal clip and a horizontal portion provided with a heel-holding recess, the clips and recesses being arranged to engage and hold a series of shoes, substantially as described.

2. A folding packing-rack, having, in combination, a frame, a series of article-holders pivoted to said frame, having means respectively for grasping and holding a series of articles, and an independent rigid connecting device for connecting together the series of article-holders to compel them to move in unison, substantially as described.

3. A folding packing-rack for shoes, having, in combination, a frame, a series of shoe-holders having means, respectively, for grasping and holding a series of shoes, said holders being pivoted to the frame and constructed to turn down to hold the shoes in position for packing and to turn up to display the same, and a rigid connecting device for connecting together the series of shoe-holders to compel them to move in unison, substantially as described.

4. A folding packing-rack for shoes, comprising parallel bars, shoe-holders, comprising a horizontal portion and a vertical portion, pivoted to said bars, a spring-clip supported on the horizontal portion to embrace the shank of the shoe and a clip mounted on the vertical portion to embrace the counter of the shoe, substantially as described.

5. A folding packing-rack for shoes, comprising parallel bars, shoe-holders pivotally supported on said bars, said holders comprising a vertical portion and a horizontal portion, spring-clips carried at the ends of the horizontal portions to embrace the shank of the shoe, and said horizontal portions having a recess to receive the heel of the shoe, substantially as described.

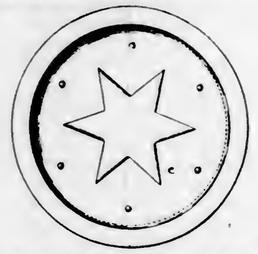
6. A folding packing-rack, comprising a support consisting of parallel, relatively movable bars and article-holders, each holder being pivotally secured to each of said bars and having means for grasping and holding a series of articles, substantially as described.

7. A folding packing-rack for shoes, having, in combination, a frame, a series of shoe-holders having devices, respectively, for grasping and holding the back parts and the shanks of a series of shoes, said holders being pivoted to the frame and constructed to turn down to hold the shoes in position for packing and to turn up to display the same, and a rigid connecting device for connecting together the series of shoe-holders to compel them to move in unison, substantially as described.

8. A folding packing-rack for shoes, having, in combination, a frame, a series of shoe-holders, having clips, respectively, for engaging the back parts, and recesses for holding the heels of a series of shoes, the said holders being pivoted to the frame and constructed to turn down to hold the shoes in position for packing and to turn up to display the same, substantially as described.

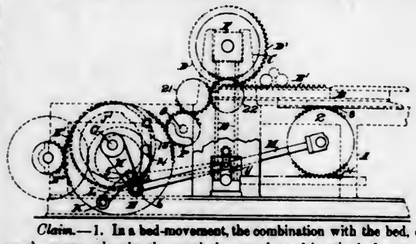
678,357. SEAT FOR COBBLERS' CHAIRS. WILLIAM M. CAVANAUGH, New York, N.Y. Filed Sept. 17, 1900. Serial No. 30,215. (No model.)

Claim.—1. As a new article of manufacture, a self-contained seat for cobblers' chairs, consisting of the stiff flat ring *d*, the scooped or dished bottom layer *a* secured to the under side of the rim, the dished or scooped top layer *b* arranged substantially parallel with the layer *a* and secured to the top of the rim, and a padding material between said layers and within the rim, substantially as set forth.



2. As a new article of manufacture, a seat for cobblers' chairs, consisting of a stiff rim, top and bottom layers secured to said rim, and a padding material between said layers, the seat as a whole being scooped or dished and such dished portion extending beyond the inner edge of the rim, substantially as set forth.

678,358. BED-MOTION. LUTHER C. CROWELL, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place, (partners as R. Hoe and Company.) Filed July 15, 1896. Serial No. 599,003. (No model.)



Claim.—1. In a bed-movement, the combination with the bed, of a crank, means whereby the crank is caused to drive the bed, a second crank having its center offset from that of the first crank, means for driving the second crank, and means for connecting the two cranks, said means being connected to the first-named crank between its center and the point at which the bed-driving means is connected, substantially as described.

2. In a bed-movement, the combination with the bed, of a crank, means whereby the crank is caused to drive the bed, a second crank having its center located outside the vertical and horizontal planes which pass through the center of rotation of the first-named crank, means for driving the second crank, and means for connecting the two cranks, the said means being connected to the first-named crank at a point between its center and the point at which the bed-driving means is connected, substantially as described.

3. In a bed-movement, the combination with the bed, of a crank, means whereby the crank is caused to drive the bed, a second crank having its center of rotation lying in a vertical plane which is nearer the center of the bed than the vertical plane passing through the center of rotation of the first-named crank and in a horizontal plane which is non-coincident with the horizontal plane passing through the center of the first-named crank, means for driving the second crank, and means for connecting the two cranks, the said means being connected to the first-

named crank at a point between its center and the point at which the bed-driving mechanism is connected, substantially as described.

4. In a bed-movement, the combination with a crank, of connections including a connecting-rod between it and the bed, a second crank having its center of rotation lying in vertical and horizontal planes which are non-coincident with those passing through the center of rotation of the first-named crank, a link connection between the two cranks, said link connection being joined to the first-named crank at a point between its center and the point of junction between it and the connecting-rod, and means for driving the second crank, substantially as described.

5. In a bed-movement, the combination with a reciprocating bed, of a gear-wheel located beneath the bed, a shaft passing through the bearing of the said gear-wheel and eccentric to its center, a crank-stud on the gear-wheel, a crank-arm on the shaft, connections including a connecting-rod between the crank-arm and the bed, the link between the stud and the crank being joined to the crank between its center of rotation and the point where the link connection leading to the bed is joined thereto, substantially as described.

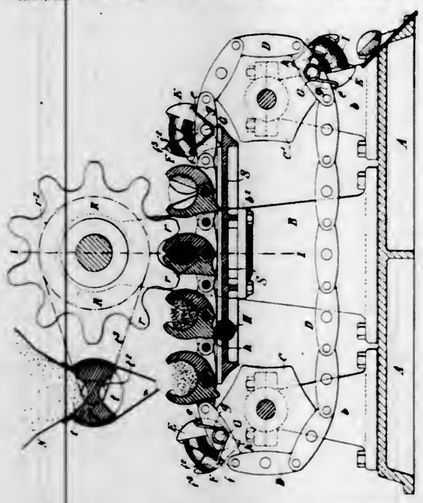
6. The combination with a bed, of a crank mechanism for driving it including two connected cranks whose centers of revolution are eccentric to each other both vertically and horizontally, and means for supporting and driving the two cranks, said means being located at one side of the bed, substantially as described.

7. The combination with a bed, of a crank, a stationary bearing upon which the crank is mounted, a shaft passing through the bearing at a point eccentric both vertically and horizontally to the center of revolution of the crank, a second crank mounted on the shaft, connecting means from the second crank to the bed, means connecting the two cranks, and means for revolving the first-named crank, substantially as described.

8. The combination with a bed, of a crank, a bearing therefor, a shaft passing through said bearing at a point eccentric both vertically and horizontally to the center of revolution of the crank, a crank on said shaft, means for connecting the two cranks, means for connecting the second crank to the bed, means for revolving the first crank, and raising and lowering mechanism including a suitable operating-cam, said cam being mounted on the shaft of the crank, substantially as described.

9. The combination with a bed, of a crank mechanism for operating it including two connected cranks, one being mounted upon the stationary bearing and the other upon a shaft passing through said bearing, and raising and lowering mechanism including an operating-cam, said cam being mounted on said shaft, substantially as described.

678,359. **BRIQUETING-MACHINE.** JOHN T. DAVIS, San Francisco, Cal. Filed Aug. 31, 1897. Serial No. 650,191. (No model.)



Claim.—1. In a machine for forming briquets, a mold, formed of pivotally-united parts, provided with means for opening and closing the same and with guards adapted to confine the material to be molded until the closing of the mold, substantially as herein set forth.

2. In a machine for forming briquets, a mold, formed of pivotally-united parts, provided with means for opening and closing the same and with guards adapted to confine the material to be molded until the closing of the mold and provided with means for opening and closing the guard, substantially as herein set forth.

3. In a machine for forming briquets, a mold, formed of pivotally-united parts, provided with means for opening and closing the same and with guards adapted to confine the material to be molded until the closing of the mold, one of which guards is pivotally attached to the mold and provided with means for closing the guard and with a laterally-extending arm adapted to be depressed for opening the guard, substantially as herein set forth.

4. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, provided with means for opening the same, one of said parts being provided with a downwardly-projecting cam or lug, said mold being also provided with guards adapted to confine the material to be molded until the closing of the mold, one of which guards is pivotally attached to the mold and provided with means for closing the guard and with a laterally-extending arm adapted to be depressed for opening the guard, of means for conveying said mold, a roller adapted to engage with said cam or lug thereon for the purpose of closing the mold, and a roller adapted to engage with said laterally-extending arm of the guard for the purpose of opening the same, substantially as herein set forth.

5. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, provided with means for opening the same, one of said parts being provided with a downwardly-projecting cam or lug, said mold being also provided with guards adapted to confine the material to be molded until the closing of the mold, one of which guards is pivotally attached to the mold and provided with means for closing the guard and with a laterally-extending arm adapted to be depressed for opening the guard, of endless chains or belts, passing over supporting and operating rollers or drums, for conveying said mold, a roller adapted to engage with said cam or lug thereon for the purpose of closing the mold, and a roller adapted to engage with said laterally-extending arm of the guard for the purpose of opening the same, substantially as herein set forth.

6. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, said mold being provided with means for opening and closing the same, and being also provided with guards adapted to confine the material to be molded until the closing of the mold, of means for compressing said mold and for conveying same to and from the compressing device, substantially as herein set forth.

7. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, of means for opening and closing said mold, means for opening and closing said guards, means for compressing said mold, and means for conveying said mold to and from the compressing device, substantially as herein set forth.

8. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, of a gear-wheel or roller adapted to compress said mold, means for conveying said mold to and from said wheel or roller, a bed-plate beneath said mold adapted to resist the downward pressure of said wheel or roller, and means for opening and closing said guards, substantially as herein set forth.

9. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, of a gear-wheel or roller adapted to compress said mold, means for conveying said mold to and from said wheel or roller, a bed-plate beneath said mold adapted to resist the downward pressure of said wheel or roller, means for opening and closing said mold, and means for opening and closing said guards, substantially as herein set forth.

10. In a machine for forming briquets, the combination with a mold, formed of pivotally-united parts, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, of a gear-wheel or roller adapted to compress said mold, means for conveying said mold to and from said wheel or roller, a bed-plate beneath said mold adapted to resist the downward pressure of said wheel or roller, means for opening and closing said mold, means for opening and closing said guards, and means for feeding to the mold the material to be molded, substantially as herein set forth.

11. A machine for forming briquets, comprising one or more series of molds, each mold formed of pivotally-united parts, one of which is provided with a downwardly-projecting cam or lug, each of said molds being provided with a spring adapted to open the same, and with guards adapted to confine the material to be molded until the closing of the mold, one of said guards being pivotally attached to said mold, and being provided with a spring adapted to close the guard and a laterally-extending arm adapted to be depressed for opening the same; endless chains or belts for conveying said molds; rollers or drums for supporting and operating said chains or belts; a roller adapted to engage with the said cams or lugs of the molds; a roller adapted to engage with the laterally-extending arms of the guards; a compressing gear-wheel or roller; a bed-plate beneath the same adapted to support the molds against the downward pressure of the compressing-wheel; and a base or foundation and supports for the moving parts of the machine, substantially as herein set forth.

12. A machine for forming briquets, comprising one or more series of molds, each mold formed of pivotally-united parts, one of which is provided with a downwardly-projecting cam or lug, each of said molds being provided with a spring adapted to open the same, and with guards adapted to confine the material to be molded until the closing of the mold, one of said guards being pivotally attached to said mold, and being provided with a spring adapted to close the guard and a laterally-extending arm adapted to be depressed for opening the same; endless chains or belts for conveying said molds; rollers or drums for supporting and operating said chains or belts; a roller adapted to engage with the said cams or lugs of the molds; a roller adapted to engage with the laterally-extending arms of the guards; a compressing gear-wheel or roller; a bed-plate beneath the same adapted to support the molds against the downward pressure of the compressing-wheel; means for feeding to the molds the material to be molded; and a base or foundation and supports for the moving parts of the machine, substantially as herein set forth.

13. In a machine for forming briquets, a mold formed of two parts, each of which is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, the said molds being provided with guards adapted to confine the material to be treated until the closing of the mold, substantially as herein set forth.

14. In a machine for forming briquets, a mold formed of two parts, each of which is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, the said molds being provided with guards adapted to confine the material to be treated until the closing of the mold, one of said guards being pivotally attached to the mold and being provided with means for closing the guard and being also provided with a laterally-extending arm adapted to be depressed to open the guard, substantially as herein set forth.

15. In a machine for forming briquets, the combination with a mold formed of two parts, each of which is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, said guards being provided with means for opening and closing the guards, of means for compressing the said mold, substantially as herein set forth.

16. In a machine for forming briquets, the combination with a mold formed of two parts, each of which is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, one of said guards being pivotally attached to said mold and being provided with a spring adapted to close the guard and a laterally-extending arm adapted to be depressed to open said guard, of means for compressing the said mold, substantially as herein set forth.

17. In a machine for forming briquets, the combination with a mold formed of two parts, each of which is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, said guards being provided with means for opening and closing the guards, of means for compressing the said mold, and means for conveying the same to and from the compressing device, substantially as herein set forth.

18. In a machine for forming briquets, the combination with a mold formed of two parts, each of which is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, said mold being provided with guards adapted to confine the material to be molded until the closing of the mold, one of said guards being pivotally attached to said mold and being provided with a spring adapted to close the guard and a laterally-extending arm adapted to be depressed to open said guard, of means for compressing the said mold, and means for conveying the same to and from the compressing device, substantially as herein set forth.

19. A machine for forming briquets, comprising one or more series of molds, each mold formed of two parts each of which parts is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, said molds being provided with guards adapted to confine the material to be molded until the closing of the mold, one of said guards being pivotally attached to the mold and being provided with a spring adapted to close the guard and being also provided with a laterally-extending arm adapted to be depressed to open the guard; endless chains formed of the links to which the said molds are attached, for conveying said molds; rollers or drums for supporting and operating said chains; a roller adapted to engage with the laterally-extending arm of the guards; a compressing gear-wheel or roller; a bed-plate beneath the same adapted to support the molds against the downward pressure of the compressing-wheel, and a base or foundation and supports for the moving parts of the machine, substantially as herein set forth.

20. A machine for forming briquets, comprising one or more series of molds, each mold formed of two parts each of which parts is rigidly attached to the end of a chain-link, the said parts with their attached chain-links being pivotally united, said molds being provided with guards adapted to confine the material to be molded until the closing of the mold, one of said guards being pivotally attached to the mold and being provided with a spring adapted to close the guard and being also provided with a laterally-extending arm adapted to be depressed to open the guard; endless chains, formed of the links to which the said molds are attached, for conveying said molds; rollers or drums for supporting and operating said chains; a roller adapted to engage with the laterally-extending arm of the guards; a compressing gear-wheel or roller; a bed-plate beneath the same adapted to support the molds against the downward pressure of the compressing-wheel; means for feeding to the molds the material to be molded; and a base or foundation and supports for the moving parts of the machine, substantially as herein set forth.

678,360. **EXPLOSIVE.** EDWARD DICKSON, Swanton, Vt., assignor to the Robin Hood Powder Company, same place. Filed Oct. 18, 1900. Serial No. 33,503. (No specimens.)

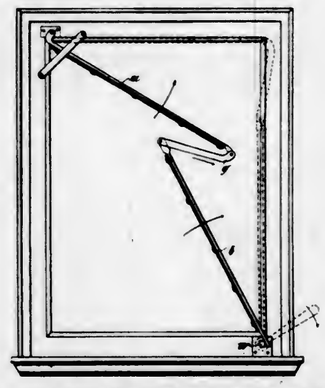
Claim.—1. An explosive powder, comprising ammonium picrate, barium nitrate, ferrocyanid of potassium, and potassium picrate.

2. An explosive powder consisting of ammonium picrate, 33.5 per cent., potassium picrate, 15.5 per cent., barium nitrate, 39.5 per cent., flour, 10.75 per cent., lampblack, .25 per cent., and ferrocyanid of potassium, .50 per cent., substantially as specified.

3. An explosive powder comprising ammonium picrate, barium nitrate, ferrocyanid of potassium, and potassium picrate; the said powder being reduced to a granular state and then coated with petroleum, previously subjected to the action of nitric acid, sulfuric acid and ammonia, substantially as specified.

4. An explosive powder consisting of ammonium picrate, 33.5 per cent., potassium picrate, 15.5 per cent., barium nitrate, 39.5 per cent., flour, 10.75 per cent., lampblack, .25 per cent., and ferrocyanid of potassium, .50 per cent.; the said powder being reduced to a granular state, and then coated with petroleum, previously subjected to the action of nitric acid, sulfuric acid and ammonia, substantially as specified.

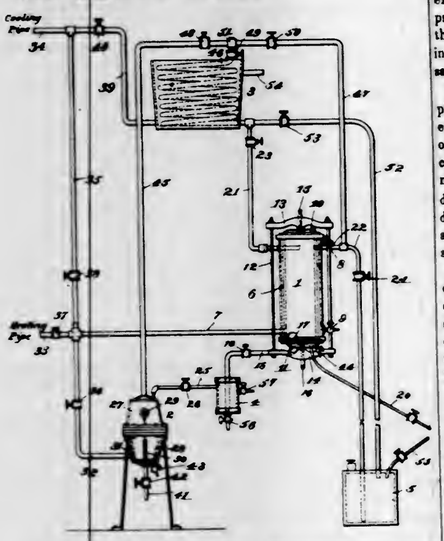
678,361. **DEVICE FOR CLEANING SHOW-WINDOWS.** GUSTAV A. PLANNIGER, Leipsic-Plagwitz, Germany. Filed Aug. 22, 1900. Serial No. 27,713. (No model.)



Claim.—In a device for cleaning and wiping windows, the combination of two bars for the support of the wiping or cleaning medium and pivotally attached to points diagonally opposite each other, of a crank-shaft of suitable length at the extremity of one of the said supporting-

bars, the inner extremities of the said bars being pivoted to a connecting-link, substantially as described.

678,362. PROCESS OF EXTRACTING NICOTIN. HENRY FROHLICH, Richmond, Va., assignor to Pascal Davie, same place. Filed Oct. 2, 1900. Serial No. 31,796. (No specimens.)



Claim.—The herein-described process for extracting nicotin from tobacco, which consists in subjecting dried comminuted tobacco contained in a closed receiver to the action of a vaporized hydrocarbon, and then subjecting the vaporized hydrocarbon while in contact with the tobacco to the action of a cooling agent and thereby liquefying the hydrocarbon, the liquefied hydrocarbon and the nicotin passing off together, and then separating the nicotin from the hydrocarbon by vaporization, substantially as described.

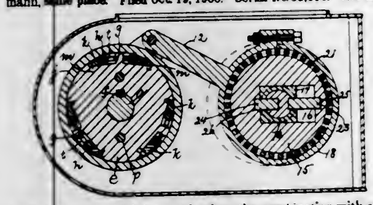
678,363. TELEGRAPH AND CABLE CODE. ADOLPHUS W. GREELY, Washington, D. C. Filed Aug. 1, 1900. Serial No. 25,577. (No model.)

Claim.—1. In a telegraph and cable code, a code-word consisting of letters made up of successive signals of opposite polarity; substantially as described.

2. In a telegraph and cable code, a series of code-words each having the same number of letters and each consisting of letters made up of successive signals of opposite polarity; substantially as described.

3. In a telegraph and cable code, an even code-number system, in which the even units from zero to eight are represented respectively by a vowel and the tens from ten to ninety are represented by consonants made up of successive signals of opposite sign; substantially as described.

678,364. DRIVING MECHANISM. EDWARD HEYMANN and FRANK W. HEYMANN, Jamaica Plain, Mass., assignors to Emma Heymann, same place. Filed Oct. 19, 1900. Serial No. 33,636. (No model.)



Claim.—1. In a driving mechanism, the combination with a driven shaft, a plurality of clutches mounted thereon, a hollow driving-shaft, a plurality of eccentric disks mounted on the said driving-shaft and provided with slots extended to one side of the center of said disks, means for connecting said disks with the clutches on the driven shaft, a rod movable in said hollow driving-shaft and provided with inclined keyways coöperating with each of said disks, and wedges for each of said disks extended through the hollow shaft into the said keyways and having their outer ends in engagement with the end walls of the slots in said disks, substantially as described.

2. In a driving mechanism, the combination with a hollow driving-shaft, a disk mounted thereon to rotate therewith and provided with a slot extended to one side of the center of said disk, a rod in said hollow shaft provided with inclined keyways or slots, and wedges extended through the hollow shaft into said keyways or slots, and having their outer ends in engagement with said disk, of a driven shaft, and means to connect said disk with said driven shaft, substantially as described.

3. In a driving mechanism, the combination with a driven shaft, a plurality of disks fast thereon and provided with peripheral recesses, rollers in said recesses, movable rings or bands encircling said disks and coöperating with said rollers, cam bars or rods extended through the recesses in the said disks and coöperating with said rollers, and means to move said bars or rods, of a driving-shaft having a plurality of eccentric disks connected to the movable rings on the driven shaft and set on the driving-shaft so as to produce a substantially constant torque on the driven shaft, and means to move said eccentric disks radially on the driving-shaft while it is in motion, substantially as described.

4. In a driving mechanism, the combination with a driven shaft, a disk thereon having a plurality of peripheral recesses, rollers in said recesses, a movable band or ring encircling said disk and coöperating with said rollers, axially-movable cam bars or rods extended through said recesses and oppositely arranged, and means to move said bars or rods in the direction of the axis of said shaft to disengage the rollers from the said band or ring, substantially as described.

5. In a driving mechanism, the combination with a driven shaft, a plurality of disks fast thereon and provided with oppositely-arranged peripheral recesses, rollers in said recesses, movable rings or bands encircling said disks and coöperating with said rollers, cam bars or rods extended through the recesses in the said disks and oppositely arranged, and means to move said bars or rods, of a driving-shaft having a plurality of eccentric disks set at substantially one hundred and twenty degrees apart and connected to the movable rings on the driven shaft, and means to move said eccentric disks radially on the driving-shaft while it is in motion, substantially as described.

678,365. CENTERING-SUPPORT. GEORGE H. KUEHNER, New York, N. Y., assignor to the New Jersey Wire Cloth Company, Trenton, N. J. Filed Aug. 21, 1900. Serial No. 27,541. (No model.)



Claim.—1. The combination with beams or the like and a centering, of metal hangers extending over the tops of the beams and forming loops inclosing a temporary part of the construction below the beams by which temporary part the centering is supported, said hangers being adapted to be cut to release the temporary part for the removal of the centering, substantially as described.

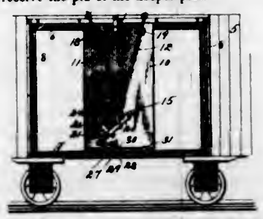
2. The combination with beams or the like, of temporary bars C extending below the beams and transversely thereto, metal hangers B extending over the tops of the beams and about the bars C to support the latter and centering carried by said bars, substantially as described.

3. The combination with beams or the like, of bars C extending below the beams, metal hangers extending over the beams and having their lower ends inclosing the bars C and twisted together to support the bars, and centering carried by said bars, substantially as described.

4. The combination with beams or the like, of temporary bars C extending below the beams, wire hangers B extending over the tops of the beams and about the bars C to support the latter and centering carried by said bars, substantially as described.

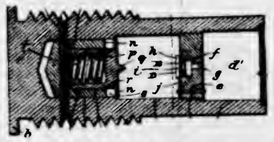
678,366. SLIDING DOOR. SAMUEL W. LETSON, CHARLES G. W. TALEN, and ROBERT E. L. REYNOLDS, New Orleans, La. Filed Nov. 13, 1900. Serial No. 36,193. (No model.)

Claim.—1. The combination with upper and lower sills, of a track-rail carried by and projecting from the upper sill, a keeper-plate mounted upon the lower sill and projecting forwardly and upwardly therefrom, said plate having a pin engaged therewith and with the lower sill, a door, hangers formed integral and mounted slidably upon the door, said hangers having engagement with the rail, a lever pivoted to the door and connected with the hangers for raising and lowering the door, and means for holding the lever against movement, said door having notches in its lower edge to receive the pin of the keeper-plate



2. The combination with a car having a rail, of a door, a rod bent upon itself to form diverging arms, the ends of the rod being bent into hook shape and engaged over the rail, slidable connections between the rod and the door, a lever fulcrumed to the door and pivoted to the rod, a segmental plate spaced from the door, a rod passed through the lever and having an end bent to engage under the segmental plate to hold the lever in proper relation thereto, means for engagement with the segmental plate to hold the lever against movement, and a latch-pin below the door, said door having notches in its lower edge to receive the pin.

678,367. FUSE FOR EXPLOSIVE PROJECTILES. MICHAEL A. LYNCH and HARRY WILSON, Washington, D. C. Filed Aug. 16, 1900. Serial No. 27,105. (No model.)



Claim.—1. In a fuse for explosive projectiles, a stock, a primer, a hammer in the stock, and means for normally holding the hammer against movement in the stock; said hammer having spring-actuated means engaging the stock and adapted to permit the hammer to be driven rearwardly in the stock by its inertia when the gun is fired and the hammer is released from the means for holding it against movement in the stock, and also adapted to hold the hammer against casual movement toward the primer, subsequent to its said rearward movement.

2. In a fuse for explosive projectiles, a primer, a holder therefor, having a recess, and a bendable primer-guard pivotally connected to the primer-holder so as to adapt it to swing laterally, and having a portion normally engaging the recess of the primer-holder and adapted to be disengaged therefrom by the bending of the guard when the projectile is fired from a gun.

3. In a fuse for explosive projectiles, a primer, a holder therefor having a recess, means for igniting the primer, and a bendable primer-guard pivotally connected to the primer-holder whereby it is adapted to swing laterally, and having a portion normally engaging the recess of the primer-holder and adapted to be disengaged therefrom by the bending of the guard when the projectile is fired from a gun.

4. In a fuse for explosive projectiles, a stock, a primer, a hammer arranged in the stock and having a firing-plunger and a spring tending to move said plunger toward the primer, and means coöperating with said plunger and the stock for holding the hammer against creeping in the stock.

5. In a fuse for explosive projectiles, the combination of a stock, a primer, and an igniting-hammer for the primer arranged and adapted to move in the stock, and comprising a body, a spring-backed firing-plunger carried thereby, and means operated by the pressure of the spring against the firing-plunger whereby said firing-plunger is normally held against movement with respect to the body.

6. In a fuse for explosive projectiles, a stock, a primer-igniting hammer arranged in the stock, and comprising a body, a spring-backed firing-plunger carried thereby, and means coöperating with the firing-plunger and stock for holding the body against creeping in the stock, and the firing-plunger against casual movement with respect to the body.

7. In a fuse for explosive projectiles, a stock, having a bore, and a hammer arranged in the stock and having a spring-backed firing-plunger, and means operated by said firing-plunger and normally engaging the walls of the bore in the stock for normally holding the firing-plunger against movement with respect to the body, and for normally holding the hammer as a whole against casual movement with respect to the stock.

8. In a fuse for explosive projectiles, a stock, a hammer therein comprising a body, and a spring-actuated firing-plunger carried thereby, and means operated by the firing-plunger and engaging the stock for normally holding the firing-plunger against movement with respect to the body, and means for permitting the release of the firing-plunger from the body incident to movement of the hammer.

9. In a fuse for explosive projectiles, a stock, a hammer comprising a body and a spring-actuated firing-plunger carried thereby, and means on the hammer engaging the stock, whereby the firing-plunger is held against movement with respect to the body, and the hammer is held against creeping forward in the stock, and means in the stock whereby the firing-plunger is released from the body incident to movement of the hammer, substantially as specified.

10. In a fuse for explosive projectiles, a stock, a hammer comprising a body and a spring-actuated firing-plunger carried thereby, means detachably connecting the hammer to the stock, and means on the hammer in engagement with the stock for normally holding the hammer against casual creeping forward in the stock, and the firing-plunger against movement with respect to the body and means in the stock whereby the firing-plunger is released from the body incident to the movement of the hammer.

11. In a fuse for explosive projectiles, a stock, a hammer comprising a body or casing and a spring-actuated firing-plunger carried thereby, a shearing-pin engaging the body or casing and the stock, and means on the hammer coöperating with the stock for normally holding the hammer against casual creeping forward, and the firing-plunger against movement with respect to the body or casing and means for automatically effecting the release of said firing-plunger, substantially as specified.

12. In a fuse for explosive projectiles, a stock having a bore and a counterbore, an igniter-hammer comprising a body corresponding in diameter to the bore of the stock and having a recess in one end and radial apertures communicating with said recess, a spring-backed firing-plunger arranged in the recess of the body, and having a beveled portion, and sear devices arranged in the apertures of the body, and normally engaging the walls of the bore in the stock, and having inner beveled ends normally held in engagement with the beveled portion of the firing-plunger by the said walls of the bore of the stock.

13. In a fuse for explosive projectiles, a stock having a bore and a play-space for a sear device in advance of the same, an igniter-hammer comprising a body arranged in the bore of the stock, a spring-actuated firing-plunger carried by the body and having a bevel, and a sear device carried by the body and normally engaging the walls of the bore and having a bevel normally engaging that of the firing-plunger whereby the hammer is held against creeping, and casual release of the plunger from the body is prevented.

14. In a fuse for explosive projectiles, the combination of a stock having a play-space for a sear device, and an igniting-hammer comprising a body, a spring-pressed firing-plunger carried thereby, and a sear device carried by the body, and interposed between and normally engaging the firing-plunger and the stock, to hold the hammer against creeping and the firing-plunger against casual release.

15. In a fuse for explosive projectiles, the combination of a stock having a play-space for a sear device, a wall therein having a recess in one side, a primer arranged in said recess, a bendable primer-guard pivotally connected to the wall and having a portion normally resting in the recess thereof, an igniter-hammer comprising a body, and a spring-pressed firing-plunger carried thereby, means for normally holding the hammer against creeping in the stock, and means operated by the firing-plunger and engaging the stock for holding the hammer against creeping and the plunger against casual release from the body, substantially as specified.

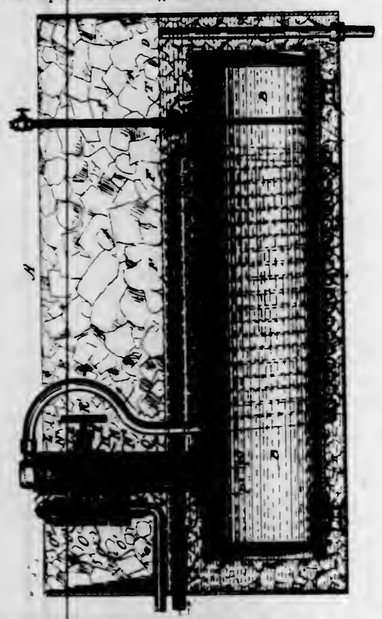
16. In a fuse for explosive projectiles, a stock having a bore and a play-space for a sear-pin in advance of the same, a hammer comprising a body arranged in the bore of the stock, a spring-actuated firing-plunger carried by the body and having a circumferential groove of angular form in cross-section, and a sear-pin carried by the body and normally engaging the walls of the bore in the stock and having a conical portion normally seated in the groove of the firing-plunger, substantially as specified.

17. In a fuse for explosive projectiles, a stock having a bore and a play-space for a sear-pin in advance of the same, a hammer comprising a body arranged in the bore of the stock, a spring-actuated firing-plunger carried by the body and having a conical forward end, and a sear-pin carried by the body and normally engaging the walls of the bore in the stock and having a surface conforming to and normally engaging the conical end of the firing-plunger.

18. In a fuse for explosive projectiles, a stock having a bore and a counterbore in advance of the same, a primer-igniting hammer comprising a body arranged in the bore of the stock, a spring-pressed firing-plunger carried by the body, a sear device carried by the body and normally engaging the wall of the bore in the stock, and coacting means on the firing-plunger and the sear device whereby the latter is pressed against the wall of the bore by the spring behind the firing-plunger.

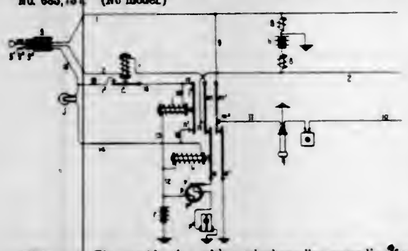
678,368. CARBONATING APPARATUS. EDWARD E. MURPHY, Revere, Mass., assignor to New Era Carbonator Company, Charlestown, W. Va. Filed Sept. 8, 1900. Serial No. 29,357. (No model.)

Claim.—1. In a carbonating apparatus, a reservoir for storing the carbonated liquid, a mixing-chamber in communication with said reservoir, a gas-inlet pipe for supplying gas to said mixing-chamber, a liquid-inlet pipe for supplying liquid under pressure to said mixing-chamber and coiled around said reservoir, a cooling-tank within which said reservoir and liquid-supply pipe are located, a waste-pipe communicating with the liquid in said cooling-tank and having an opening located above the reservoir and liquid-supply pipe whereby said liquid-supply pipe and reservoir are constantly submerged in the liquid in said tank, and a discharge-pipe for the liquid communicating with said reservoir.



2. In a carbonating apparatus, a reservoir for storing the carbonated liquid, a mixing-chamber in communication with said reservoir, a gas-inlet pipe for supplying gas to said mixing-chamber, a liquid-inlet pipe for supplying liquid under pressure to said mixing-chamber, a cooling-tank within which said reservoir and said liquid-supply pipe are located, a waste-pipe communicating with the liquid in said cooling-tank and having an opening located above the reservoir whereby said reservoir is constantly submerged in the liquid in said tank, and a discharge-pipe for the liquid communicating with said reservoir.

678,869. CALLING APPLIANCE FOR TELEPHONE-SWITCHBOARDS. FRANK R. MCBERTY, Downers Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed June 17, 1898. Serial No. 683,737. (No model.)



Claim.—1. The combination with a telephone-line extending from a substation to a central office, and a switch at the substation of the line for determining the flow of current therein, a magnet responsive to current in the line, a source of calling-current and means for applying the same to the line, an electromagnetic switch controlled through the agency of the switch at the substation, for disconnecting the source of calling-current from the line, a supervisory signal adapted to be controlled by the first-mentioned magnet, circuit connections rendering the signal unresponsive to said magnet, and means controlled by said electromagnetic switch for changing said circuit connections and bringing the supervisory signal under the control of said magnet, substantially as set forth.

2. The combination with a telephone-line extending from a substation to a central office, and a switch at the substation, actuated in the use of the telephone, for determining the flow of current in the line, a source of calling-current and means for applying the same to the line, a source of direct current, an electromagnetic switch adapted to disconnect the said source of calling-current and connect the source of direct current, a relay responsive to current in the line, and a local circuit controlled by said relay including said electromagnetic switch, whereby said electromagnetic switch is operated when the substation-telephone is brought into use, as set forth.

3. The combination with a telephone-line extending from a substation to a central office, a switch at the substation, actuated in the use of the telephone, for controlling the circuit of the line, means at the central office for making connection with the line, a source of current, a relay responsive to the flow of current in the line, a source of calling-current and an electromagnetic switch adapted to connect said source of calling-current with the line, a local circuit closed in making connection with the line to operate said electromagnetic switch, a second electromagnetic switch adapted to disconnect the calling-current from the line, a local circuit controlled by said relay for operating said last-mentioned switch, a supervisory signal adapted to be controlled by said relay, circuit connections normally rendering said signal unresponsive to the relay, and means, controlled by the last-mentioned switch, for bringing said supervisory signal under the control of the relay, substantially as described.

4. The combination with a telephone-line, a line-signal therefor in normal circuit connection with the line, spring-jacks for making connection with the line, and a cut-off relay for severing the normal circuit to the signal in a portion of a local circuit terminating in contact-pieces of said spring-jacks adapted to register with contact-pieces of a plug inserted in a jack, a source of calling-current, an electromagnetic switch for applying said source of calling-current to the plug-circuit, said electromagnetic switch being in a conductor terminating in said local contact-piece of the plug, and suitable means for disconnecting the source of calling-current; whereby the calling-current is applied and the line-signals are disconnected from the line when the plug is inserted in a spring-jack of the line, as described.

5. The combination with a telephone-line having normal connections with a line-signal, means for making connection with the line comprising spring-jacks of the line and a plug and plug-circuit, a cut-off relay for severing the normal earth connections of the line and a local contact including the said cut-off relay comprising a conductor associated with the line including the magnet of the relay and a part terminating in a local contact-piece of the plug, a supervisory signal-lamp in the conductor terminating in said local contact-piece of the plug, a source of calling-current, an electromagnetic switch for applying the source of current to the telephone-line, circuit connections of the magnet of said switch with the local circuit adapted to prevent the lighting of the lamp, a supervisory relay for controlling the lamp, means for eliminating the magnet of the electromagnetic switch from the local circuit of the lamp, as described; whereby the signal-lamp is rendered ineffective during the transmission of calling-current by the electromagnetic switch in its circuit.

6. The combination with a telephone-line, a switch at the station for changing the resistance of the line in the use of the telephone, a supervisory signal associated with the line, a relay responsive to current in the line controlling said signal, a source of calling-current and a switch for applying the said source of current to the line to call, circuit connections of the signal adapted to render it inert, and switch-contacts associated with the said appliance for connecting calling-current with the line controlling the circuit connections, whereby the signal-lamp is rendered ineffective during the transmission of a call, as described.

7. The combination with a telephone-line and a switch for changing the resistance of the line in response to a call, a source of calling-current and means for applying it to the line, a supervisory signal normally responsive to currents in the line, an electromagnetic switch adapted to disconnect the source of calling-current from the line, said switch being responsive to change of current in the line produced in the use of the telephone, circuit connections of the supervisory signal adapted to interrupt the control of said signal by currents in the line, and an appliance associated with the said electromagnetic switch controlling the circuit connections, whereby the signal is rendered ineffective during the sending of a call but is automatically rendered effective when the call receives response, as described.

8. The combination with a telephone-line, a supervisory relay in the line responsive to currents therein determined in the use of the telephone, a supervisory lamp-signal normally controlled thereby in a local circuit closed in making connection with the line, a source of calling-current and an electromagnetic switch adapted to apply said calling-current to the line, the magnet of said switch being of high resistance and being located in series with the lamp-signal, an electromagnet responsive to current in the line and a switch controlled thereby adapted to shunt the electromagnet of said electromagnetic switch, as described.

9. The combination with a telephone-line having a switch at its substation for determining the flow of current in the line in the use of the telephone, a relay responsive to currents in the line, a local circuit associated with the line divided at one point into parallel branches, completed in switch-contacts closed in making connection with the line, a source of calling-current, an electromagnetic switch adapted to apply said source of calling-current to the line, said switch having its electromagnet in one branch of the said local circuit, a second electromagnetic switch adapted to break the connections of the said source of calling-current with the line, said switch being in the other of the parallel branches, said second-mentioned branch being controlled by the relay responsive to currents in the line, as described.

10. The combination with a telephone-line and a switch at the station thereof for determining the flow of current in the line in the use of the telephone, of a local circuit associated with the line in a switchboard, and switch-contacts closed together in the act of making connection with the line to complete the said circuit, said circuit being divided into parallel branches, of a source of calling-current, an electromagnetic switch adapted to apply the said source of current to the line, the magnet of said switch being in one of said branches, a second electromagnetic switch adapted to break the connection of said source of current with the line, said electromagnetic switch being in the other of said branches, a supervisory signal in the first-mentioned branch, a relay responsive to currents in the line having its switch-contacts in the second-mentioned branch, and a switch actuated by the magnet in said second-mentioned branch adapted to shunt the magnet of the switch in said first-mentioned branch, as described.

11. The combination with a telephone-line and a switch at the station thereof for determining the flow of current in the line in the use of the telephone, of a local circuit associated with the line in a switchboard, and switch-contacts closed together in the act of making connection with the line to complete the said circuit, said circuit being divided into parallel branches, of a source of calling-current, an electromagnetic switch adapted to apply the said source of current to the line, the magnet of said switch being in one of said branches, a second electromagnetic switch adapted to break the connection of said source of current with the line, said electromagnetic switch being in the other of said branches, a supervisory signal in the first-mentioned branch, a relay responsive to currents in the line having its switch-contacts in the second-mentioned branch, and a switch actuated by the magnet in said second-mentioned branch adapted to bring the magnet in said second-mentioned branch into parallel with a magnet in said first-mentioned branch, the magnet in said second-mentioned branch being of low resistance, substantially as described.

12. The combination with a telephone-line extending from a substation to a central office, and a switch at the substation, actuated in the use of the telephone, for changing the resistance of the line-circuit, of a source of calling-current and means for breaking the telephone-line circuit and connecting said source of calling-current with the end leading to the substation, a magnet in the line-circuit traversed by calling-current, said magnet being responsive to increased current in the circuit, a switch operated by said magnet for disconnecting said source of calling-current and simultaneously completing the telephone-line circuit, a source of steady current, and a continuously-rotating commutator adapted to complete the circuit of said source of calling-current intermittently and to substitute therefor said source of steady current in the intermissions, whereby a source of current is always included in circuit with said magnet to excite the same when the called party responds, substantially as described.

13. The combination with a telephone-line having normal connections between its line conductors, a cut-off relay controlling the said normal connections, spring-jacks of the line and a local circuit terminating in local contact-pieces of the jacks including the magnet of said cut-off relay, a plug and plug-circuit for making connection with the line, and a conductor adapted to coöperate with the said local conductor associated with the line terminating in a contact-piece of the plug adapted to register with a contact-piece of the spring-jack in which the plug is inserted, said local circuit associated with the plug being divided into parallel branches; a relay in the plug-circuit responsive to currents in the line determined in the use of the telephone, said relay controlling one of said branches, and a supervisory lamp-signal in the other branch; a source of calling-current, an electromagnetic switch for connecting the terminals of said source of current with the plug-circuit, the electromagnet of said switch being included in the branch of the local circuit with the signal-lamp; an electromagnetic switch adapted to break the connection of said source of calling-current with the line, the electromagnet of said switch being included in the branch of the local circuit controlled by the supervisory relay, and local circuit connections controlled by said second-mentioned electromagnetic switch adapted to bring the magnet thereof into shunt of the magnet of said first-mentioned switch, said magnet being of low resistance, substantially as described.

14. In combination with a plug and plug-circuit a pair of switch-springs connected with the different conductors of the plug-circuit, a resting-anvil for one of said springs forming the terminal of an operator's telephone for testing, switch-springs adapted to be thrust against the said springs to make contact with them and to raise one of the springs from the said contact-anvil, an electromagnet controlling said second-mentioned pair of springs, said magnet being in a local circuit closed in the use of the plug as described; whereby calling-current is applied and the plug-circuit of the operator's telephone is disconnected in using the plug, as described.

15. In a calling appliance for a plug-circuit the combination of two pairs of springs adapted to form electrical contact with each other, one of said pairs of springs being connected with the plug-circuit and the other with the terminals of a source of calling-current, of two electromagnets, one acting upon the terminal springs of said source of current to thrust them against the other springs, and the other magnet adapted to act on said springs connected with the plug-circuit to raise them from the other springs, and means for exciting the magnet for applying the calling-current and the magnet for disconnecting the calling-current successively, as described

16. The combination in a calling appliance for association with the plug-circuit, of three springs normally out of contact with each other, two of said springs forming normally-separated terminals of a plug in the plug-circuit, and the other spring forming the terminal of a source of calling-current, two magnets, one adapted to thrust said calling-spring against one of said plug-circuit springs, and the other magnet adapted to thrust one of said plug-circuit springs against the other, raising the latter from the calling-springs, and means for exciting the said magnets successively in the order of their description.

17. The combination in a calling appliance for association with the plug-circuit, of a pair of switch-springs connected with the terminal plug, a switch-spring beneath one of these connected with the plug-circuit but disconnected from the terminal plug, a pair of switch-springs forming the terminals of a source of calling-current, an electromagnet adapted to thrust said calling-springs into contact with said springs connected with the plug-circuit, of an electromagnet adapted to thrust the springs connected with the like conductors of the plug circuit into contact with each other, and simultaneously to raise the springs connected with the plug-circuit from the calling-springs, and means for exciting the magnets successively in the order described.

18. In a calling appliance, the combination with switch-springs m and n forming terminals of a break in one side of a plug-circuit, a switch-spring m' connected with the other side of the plug-circuit, calling-springs o and o', switch-spring n' and contact l^8 therefor, a normal resting-anvil m^2 for the spring m', of the magnet k for thrusting springs o and o' into contact with springs n and m', a magnet l for throwing spring n into contact with spring m, raising springs m and m' from springs o and o' and closing contacts l^8 n', means for exciting the magnets successively, and a local circuit controlled in contacts l^8 n' including the magnet l, as described.

19. The combination with a magnet and pole-pieces thereof projecting toward each other, and an armature lying between the magnet and the pole-pieces, of the switch-springs n and m adapted to be raised and pressed into contact when the armature is attracted, and a resting-contact for the spring m, as described.

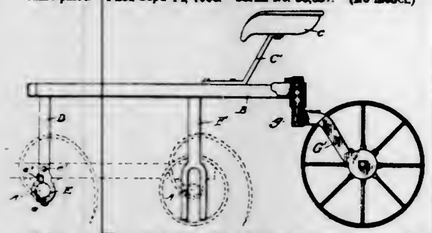
20. The combination with a plug and the plug-circuit thereof, of a testing appliance in normal connection with the plug-circuit, a source of calling-current, an electromagnetic switch adapted to break the connection of said testing appliance and to make connection of said source of calling-current with the plug-circuit, and local circuit connections of the said switch made operative in using the plug to excite the switch, an electromagnet adapted to break the circuit of the source of calling-current, and means controlled from the called station for operating said last-mentioned magnet, as described.

21. The combination with a trunk-line and the terminal plug thereof, a subscriber's line and a spring-jack therefor, of an operator's telephone connected with the trunk-line, a source of calling-current, an electromagnetic switch adapted to break the circuit of the telephone and apply the source of calling-current to the line, and circuits made operative in registering contacts of the plug and jack to excite the magnet of said switch, an electromagnetic switch adapted to break the circuit of the source of calling-current, and means actuated by increased current in the line for operating said switch, as described.

22. The combination with a telephone-line and means for changing the resistance of the line in the use of the telephone, a spring-jack for the line, a plug and plug-circuit for making connection with the spring-jack, a source of current and an electromagnetic switch for connecting the source of current with the plug-circuit, and circuit connections for exciting the actuating-magnet of said switch closed in registering contacts of the plug and spring-jack, an electromagnet in the path of current in the line, and a shunt of the actuating-magnet of said electromagnetic switch controlled

by said last-mentioned magnet; whereby the source of calling-current is applied to the line when connection is made with the line, but is disconnected therefrom in the use of the telephone, as described.

678,370. **RIDING ATTACHMENT FOR HARROWS.** GEORGE W. REAM, Canton, Ohio, assignor to the Bucher and Gibbs Plow Company, same place. Filed Sept. 14, 1900. Serial No. 30,051. (No model.)



Claim.—1. The combination with a harrow, of a seat, a supporting-bar therefor, a caster-wheel supporting one end of the bar, a pivotal connection between the opposite end and the harrow and steadying means located between said pivotal connection and the caster-wheel, substantially as described.

2. The combination with a harrow, of a seat, a supporting-bar therefor, a caster-wheel supporting one end of the bar, a pivotal connection between the opposite end and the harrow an arm depending from said bar intermediately thereof having a vertically-sliding connection with said harrow, substantially as described.

3. The combination with a harrow-frame, of a seat, a supporting-bar therefor, a caster-wheel carried at one end of the bar, arms depending from the opposite end thereof pivotally connected to the harrow-frame, and arms depending from said bar intermediate of its ends, said arms having sliding connection with said frame, substantially as described.

4. The combination with a harrow-frame comprising a series of cross-bars, of a seat, a supporting-bar therefor, a caster-wheel carried by said bar, arms depending from said bar pivotally connected at their lower ends to one of the cross-bars of said frame and arms carried by said seat-bar having slotted ends guided on one of the cross-bars of the frame to the rear of the first-mentioned cross-bar, substantially as described.

5. The combination with a harrow-frame comprising a series of cross-bars, of a seat, a seat-supporting bar, a caster-wheel carried thereby, a yoke intermediately secured to said bar having an arm depending on each side thereof pivotally connected to said frame, a second yoke secured to said seat-supporting bar having arms depending on each side of the latter with slotted ends, said ends engaging one of the cross-bars of the harrow-frame, substantially as described.

6. The combination with a harrow-frame, of a seat, a seat-bar, a caster-wheel, a yoke depending from said bar, steadying means and a device at each end of said yoke for pivotally connecting the same to the harrow-frame, said devices comprising two members pivotally connected together having recesses in their opposing faces to receive one of the cross-bars of the frame, the free ends of said members being bolted to the ends of the yoke, substantially as described.

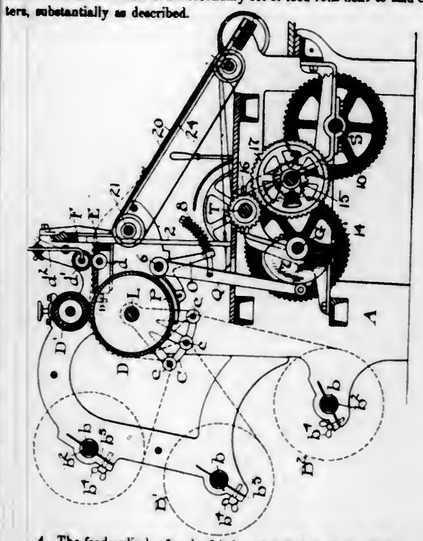
7. The combination with a harrow-frame, of a seat, a seat-bar, a caster-wheel, a yoke depending from said bar, steadying means and a device at each end of said yoke for pivotally connecting the same to the harrow-frame, said devices comprising two members pivotally connected together, said members being duplicates of each other, the upper ends thereof being bolted to the ends of the yokes, each of said members carrying lugs adapted to bear against the edges of the ends of the yokes, substantially as described.

678,371. **MACHINE FOR CUTTING ROLLS OF WOVEN FABRIC.** HORACE G. BENDER, Akron, Ohio. Filed May 26, 1900. Serial No. 18,136. (No model.)

Claim.—1. In a fabric-cutting machine, a series of fabric-rolls arranged each to carry a separate roll of fabric and a pair of cutter-blades in front thereof, a pair of tension-rolls to draw the fabric forward and an equalizing device associated with the tension-rolls, substantially as described.

2. The feed-rolls and a plurality of fabric-rolls having separate shafts a free swinging equalizer for the fabric having a separate rod for each line of fabric and suspended beneath the feed-rolls, substantially as described.

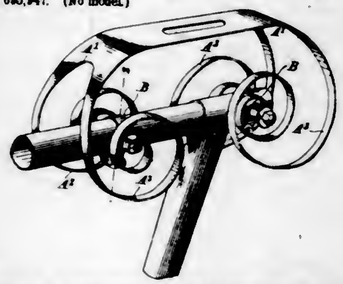
3. The feed mechanism for the fabric comprising a feed-cylinder over which the fabric is drawn, clutch mechanism to turn said cylinder in one direction, a sector and gear to operate said mechanism in reverse directions and a brake for said cylinder, in combination with a series of fabric-carrying rolls arranged about said feed-cylinder, a set of cutters for the fabric from all said rolls and a secondary set of feed-rolls next to said cutters, substantially as described.



4. The feed-cylinder for the fabric and a shaft with which it rotates, a clutch on said shaft to rotate it in one direction intermittently, a gear loose on said shaft and connected with said clutch mechanism, a sector to operate said gear successively in opposite directions, and a brake for said cylinder, in combination with a fabric-roll, a set of cutters for the fabric and combined tension and feed rolls next to said cutters independent of said feed-cylinder, substantially as described.

5. The feed-cylinder and the brake comprising a crank-lever and shoe, a pivoted lever loosely connected with said crank-lever to loosen or tighten the brake-shoe on the cylinder, and a cam for actuating the free end of said pivoted lever, in combination with the fabric-rolls arranged about said cylinder, a set of cutter-blades and tension and feed rolls next to said blades, substantially as described.

678,372. **SPRING FOR VELOCIPEDE-SADDLES.** ALBERT F. BLAGDON-RICHARDS, Swansea, England. Filed Nov. 9, 1898. Serial No. 695,947. (No model.)



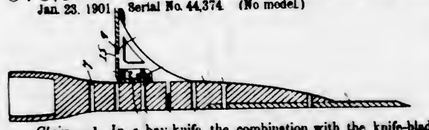
Claim.—1. A saddle-spring comprising a horizontal portion and four volute coils springing therefrom, two in front and two in the rear, said volute coils extending downwardly from and substantially longitudinally of the horizontal portion and being separated transversely sufficiently to permit the passage of a saddle-stalk longitudinally between the volute coils, and each volute coil remaining separate and distinct from the others all along its course save at its junction with the horizontal portion.

2. A saddle-spring comprising a horizontal portion and four volute coils springing therefrom, two in front and two in the rear, said volute coils extending downwardly from and substantially longitudinally of the horizontal portion and being separated transversely sufficiently to permit the passage of a saddle-stalk longitudinally between the volute coils and each volute coil remaining separate and distinct from the others all along its course save at its junction with the horizontal portion, in combination with a saddle-stalk having a portion extending longitudinally of and between the volute coils as set forth.

3. A saddle-spring comprising a horizontal portion and four separate and distinct volute portions, two at each end, said volute portions extending downwardly from and substantially longitudinally of the horizontal portion and being separated transversely, in combination with a saddle-stalk, having a portion extending longitudinally of and between the volute portions, and transverse horizontal projections connecting the inner ends of the volute portions with the longitudinally-extending portion of the stalk.

4. A saddle-spring comprising a horizontal portion, and four volute portions extended downwardly therefrom and being separated to adapt them to embrace a saddle-stalk as described, in combination with a saddle-stalk having a horizontal longitudinally-extending portion arranged between and embraced by the volute portions as set forth, two longitudinal horizontal rods connecting the inner terminals of the two volute portions on each side and means for connecting the said horizontal rods with the horizontal portion of the saddle-stalk.

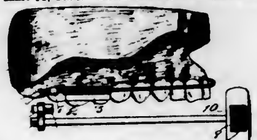
678,373. **HAY-KNIFE.** CHRIST BLASER, Berwick, Kans. Filed Jan. 23, 1901. Serial No. 44,374. (No model.)



Claim.—1. In a hay-knife, the combination with the knife-blade and shank, of an adjustable step having a top and side, said side being provided with a bolt-hole, a bracket and a bar, substantially as described.

2. In a hay-knife, the combination of the shank provided with a series of bolt-holes, an adjustable step, having a top and side, said side being provided with a bolt-hole, a bracket being offset inwardly, and a bar, substantially as described.

678,374. **ORTHODONTIA WRENCH.** GEORGE E. BROWN, Chicago, Ill. Filed Mar. 11, 1901. Serial No. 50,706. (No model.)



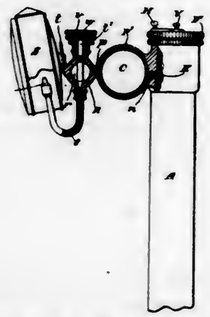
Claim.—1. An orthodontia wrench comprising a stem having an operating-head on one end and a pinion fixed to the opposite end, a rod extending completely through the stem and having a holder with a slot therethrough to fit over and expose the head of the stem, a support firmly held on the end of the rod adjacent to the end of the stem carrying the pinion, and a socket device rotatably mounted in the support and having a pinion in engagement with the pinion on the stem.

2. An orthodontia wrench, comprising a rotatable tubular stem having a head on one end and a pinion fixed on the opposite end, a rod extending through the stem and connected to a holder over the head of the stem, said holder having a slot therein through which said head is exposed, a support firmly held on the end of the rod adjacent to the end of the stem carrying the pinion, and a socket device rotatably mounted in the support and having a pinion in engagement with that of the stem, said socket device having a front socket portion and a reduced opening leading from the latter through the said device.

3. An orthodontia wrench, comprising a rotatable tubular stem having a head on one end, a rod extending through said stem and connected to a holder at one end embracing the head and through which the latter is exposed, the holder being extended in diametrical relation to the head, a support on the rod opposite that carrying the holder and provided with a socket device, the latter being clearly open at the front, and means on the rod and in said support for rotating said socket.

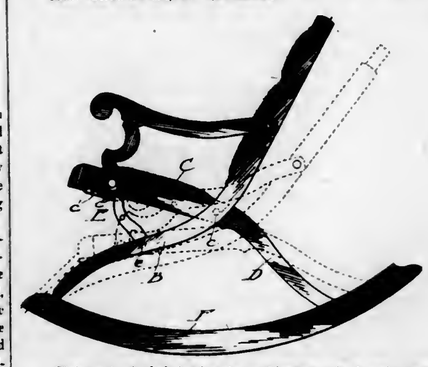
678,375. **ACETYLENE-GAS GENERATOR.** ARTHUR M. CAREY, Middlesbrough, England. Filed Dec. 26, 1899. Serial No. 741,625. (No model.)

Claim.—1. In an improved acetylene-gas generator and burner for cycles the combination of a perforated cartridge M, for containing carbid of calcium P, and a perforated tube N passing through the said cartridge, the said cartridge being inclosed within a perforated tube E, having a central diaphragm J for forming a water-chamber charged through an apertnre T in a plug F closing the upper end of the tube E, the said diaphragm having a central water-passage *c k* governed by a rod G passing upward through F and controlled by a handle H, the water-passage being the means by which water is admitted to the carbid P, the gas as generated thereby passing out of M into E, and from E into an outer tube A concealed within the steering-tube of the cycle, the said tube A communicating with and carrying the handle-bars C C acting as reservoirs for the gas substantially as herein set forth and shown by the drawings.



2. The combination with hollow handle-bars of a cycle, and the steering-tube, of a case A fitting within the steering-tube and a gas-passage providing communication between the interior of the case A and that of the handle-bars, a tube E arranged within the case A and being of such diameter as to leave a space between it and the case, a plug rotatably mounted in the upper end of the tube, a perforated diaphragm dividing the tube into two chambers, means controlled by the rotation of the plug to govern communication between the two chambers of the tube, that portion of the tube forming the wall of the lower chamber being perforated to provide communication with the interior of the case A, a burner supported from the handle-bars and valved communication between the burner and the interior of the handle-bars.

678,376. **CHAIR.** CARL A. CARLSON, Chicago, Ill. Filed Oct. 25, 1899. Serial No. 734,749. (No model.)



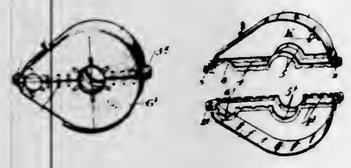
Claim.—1. A chair having, in combination, a back and a seat, the side bars of which cross each other and are continued downward and forward and downward and rearward to form the front and rear legs respectively, means whereby said side bars may be adjusted and thereby adjust the back and seat relatively to each other, means for holding them to their adjusted positions, rockers having slots near their front and rear ends and pivot-pins carried by the legs and occupying said slots, one pair of slots being provided at intervals with downward extensions for receiving the corresponding pivot-pins of the legs whereby the four legs may be simultaneously adjusted either forward or backward on the rockers, substantially as set forth.

2. A chair having, in combination, a back and a seat, the side bars of which are continued downward and forward and downward and rearward to form the front and rear legs respectively, means whereby said side bars may be adjusted and thereby adjust the back and seat relatively to each other, means for holding them in their adjusted positions, rockers having slots near their front and rear ends, pivots carried by the front legs and adjustable forward and backward in the front slots, and pivots carried by the rear legs and occupying the rear slots, whereby the front and rear legs may be adjusted relatively to each other or the four legs simultaneously adjusted forward or backward on the rockers, the rear slots being open whereby the pivots of the rear legs may be lifted out and the legs allowed to rest upon the floor, substantially as set forth.

3. A chair having, in combination, a back and seat, the side bars of which are continued downward and forward and downward and rearward to form the front and rear legs respectively, adjustable props interposed between the front legs and seat, rockers, means for pivotally connecting the front legs and rockers, means for detachably connecting the rear legs and rockers whereby the rear legs may be supported by the rockers or detached therefrom and permitted to bear upon the floor, substantially as set forth.

4. A chair having, in combination, a back and seat, the side bars of which are continued downward and forward and downward and rearward to form the front and rear legs respectively, adjustable props interposed between the front legs and seat, rockers having near their forward ends longitudinal slots G having downward extensions *g*, pivot-pins carried by the front legs and occupying said slots, and pins carried by the rear legs, the rockers being provided near their rear ends with slots J in which said pins fit, said slots being open to permit the removal of said pins, substantially as set forth.

678,377. **MOTOR GEAR-CASE FOR ELECTRIC CARS.** WILLIAM Coy, Toronto, Canada, assignor to John Maitland Smith and Alexander Maitland Smith, same place. Filed Dec. 5, 1900. Serial No. 38,737. (No model.)



Claim.—1. The combination with the axle and gear-wheel secured thereto and the motor and gear-pinion meshing with the aforesaid gear-wheel, of a gear-casing provided with a resilient lower band and a flexible covering or envelop for the casing designed to form the sides of the casing and provided with holes for the passage of the axle and motor-shaft as and for the purpose specified.

2. The combination with the axle and gear-wheel secured thereto and the motor and gear-pinion meshing with the aforesaid gear-wheel, of a gear-casing provided with a resilient upper band and a flexible covering or envelop for the casing designed to form the sides of the casing and provided with holes for the passage of the axle and motor-shaft as and for the purpose specified.

3. The combination with the axle and gear-wheel secured thereto and the motor and gear-pinion meshing with the aforesaid gear-wheel, of a gear-casing formed in two parts and consisting of upper and lower resilient bands and connecting-bars for maintaining them in an arc-shaped form and means for connecting the two portions together and a suitable flexible covering for the two parts as and for the purpose specified.

4. The combination with the axle and gear-wheel secured thereto and the motor and gear-pinion meshing with the aforesaid gear-wheel, of a gear-casing formed in two parts and consisting of upper and lower resilient bands and connecting-bars provided with arc-shaped portions to admit of the passage of the axle and shaft and designed to maintain the bands in an arc-shaped form and means for connecting the two portions together and a suitable flexible covering for the two parts as and for the purpose specified.

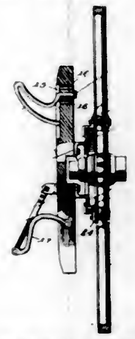
5. A gear-casing comprising the substantially arc-shaped upper and lower resilient bands, the end lugs connected to same, the connecting-bars for each band, the bolts securing the end lugs together and a flexible covering for same as and for the purpose specified.

6. A gear-casing comprising the substantially arc-shaped upper and lower resilient bands, the end lugs connected to same, the connecting-bars for each band, the bolts securing the end lugs together and a flexible covering for each portion extending down to the edge of the connecting-bars and provided with hooks designed to hook over the bars as and for the purpose specified.

7. A gear-casing comprising a resilient peripheral band, means for holding such band normally rigid and a flexible covering suitably secured to the band and designed to close the side faces of the casing and provided with openings for the passage of the rotating axle or shaft as and for the purpose specified.

8. A gear-casing comprising a resilient peripheral band, means for holding such band normally rigid and a flexible covering suitably secured to the band and designed to close the side faces of the casing and provided with openings for the passage of the rotating axle or shaft and a suitable protecting arc-shaped piece designed to fit at the bottom of the band as and for the purpose specified.

678,378. **WIRE-FENCE REEL.** WILLIAM P. CROSWHITE, Clark, Mo. Filed June 3, 1899. Renewed Dec. 1, 1900. Serial No. 38,328. (No model.)

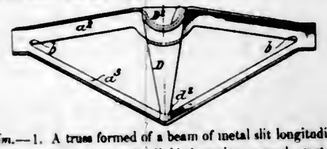


Claim.—1. In a wire-fence reel, the combination of a crossed arm provided with series of radially-arranged perforations and radial grooves and double-ended curved arms having an end of each passed through a perforation of said series and removably secured, the other end of each arm resting in one of the radial grooves, substantially as described.

2. In a wire-fence reel, the combination of crossed arms, an ogee-curved arm pivoted on each side of one of said arms, a link pivoted to the free end of the ogee arms and provided with a series of perforations in its opposite end, an angular lug or bracket secured to the bar, said a bolt for securing the link and lug together, substantially as described.

3. In a wire-fence reel, the combination with a flat ring having a peripheral flange at right angles thereto and radial outwardly-projecting lugs, a second flat ring having a peripheral flange fitting within the flange of the first-named ring, wire-holding devices carried by the second ring angular clamp-lugs lying on the radial lugs of the first ring and overlapping the two peripheral flanges, eyebolts passing outward through the radial lugs and clamp lugs, a board or ring adapted to be secured inside a wheel, hook-bolts engaging the eyebolts and passing through the board or ring, and securing-nuts, substantially as described.

678,379. **TRUSS.** NATHAN H. DAVIS, Philadelphia, Pa. Filed Aug. 11, 1900. Serial No. 26,617. (No model.)



Claim.—1. A truss formed of a beam of metal slit longitudinally intermediate its ends and having its divided portions spread apart and one said portion so corrugated or crimped as to in effect shorten it relatively to the other, said divided and spread portions being held in relative position by a strut.

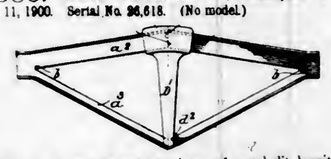
2. A truss formed of an I-beam of metal slit longitudinally intermediate its ends and having its divided portions spread apart and one said portion so corrugated or crimped as to in effect shorten it relatively to the other, said divided and spread portions being held in relative position by a strut.

3. A truss formed of a beam of metal slit longitudinally intermediate its ends and having its divided portions spread apart and one said portion so corrugated or crimped as to in effect shorten it relatively to the other, in combination with a metal head secured to and inclosing the said corrugated or crimped portion and a strut interposed between the spread portions of the bar.

4. A truss formed of a beam of metal slit longitudinally intermediate its ends and having its divided portions spread apart and one said portion so corrugated or crimped as to in effect shorten it relatively to the other, in combination with a metal head secured to and inclosing the said corrugated or crimped portion and a strut interposed between the spread portions of the bar and extending from the metal head to the opposite spread portion.

5. A truss formed of a beam of metal slit longitudinally intermediate its ends and having its divided portions spread apart and one said portion so corrugated or crimped as to in effect shorten it relatively to the other, in combination with an integral cast-metal head inclosing the said corrugated or crimped portion and a strut interposed between the spread portions of the bar.

678,380. **TRUSS.** NATHAN H. DAVIS, Philadelphia, Pa. Filed Aug. 11, 1900. Serial No. 26,618. (No model.)



Claim.—1. A truss formed of a beam of metal slit longitudinally intermediate its ends and having a section of one of its divided portions cut away said divided portions being spread apart and the ends of the severed one brought closer together, in combination with a head inclosing and securing the ends of the divided portion together and a strut interposed between the spread portions.

2. A truss formed of a beam of metal slit longitudinally intermediate its ends and having a section of one of its divided portions cut away said divided portions being spread apart and the ends of the severed one brought closer together, in combination with a head inclosing and securing the ends of the divided portion together and a strut extending from said head to the other spread member of the truss.

3. A truss formed of a beam of metal slit longitudinally intermediate its ends and having a section of one of its divided portions cut away said divided portions being spread apart and the ends of the severed one brought closer together, in combination with an integral cast-metal head inclosing and securing the ends of the divided portion together and a strut interposed between the spread portions.

4. A truss formed of an I-beam of metal slit longitudinally intermediate its ends and having a section of one of its divided portions cut away said divided portions being spread apart and the ends of the severed one brought closer together, in combination with a head inclosing and securing the ends of the divided portion together and a strut interposed between the spread portions.

678,381. **FLONG FOR STEREOMOLDS.** THOMAS J. C. DREWETT, London, England. Filed Mar. 13, 1901. Serial No. 51,021. (No model.)

Claim.—1. The manufacture of flong for stereomolds in single-sheet form by coating sheets of bibulous unsized or blotting paper on each side with a semiliquid mixture of dextrine or gum-arabic and alom, drying the same, further treating or coating the same on each side with a paste-like preparation of rye-flour Russian glue gilders' whiting borax starch and black treacle, and drying the same, as set forth.

2. Flong for stereomolds made in single-sheet form of bibulous unsized or blotting paper coated on each side firstly with a semiliquid mixture of dextrine or gum-arabic and alom and secondly with a paste-like preparation of rye-flour Russian glue gilders' whiting borax starch and black treacle, as set forth.

678,382. **STOP-WATCH.** EUGENE DUPUIS, New York, N. Y. Filed Aug. 6, 1898. Serial No. 687,937. (No model.)



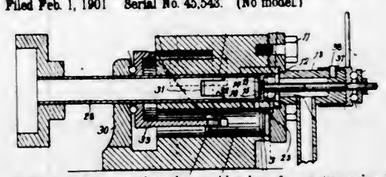
Claim.—In a split-seconds watch, the combination with a seconds-wheel and a tubular arbor on the same, of a split-seconds arbor passed through the tubular arbor on the seconds-wheel, a heart-cam fixed on one end of said split-seconds arbor below the seconds-wheel, a spring-pressed lever pivoted on the seconds-wheel and bearing with its free end on the heart-cam on the split-seconds arbor, a seconds-hand on that end of the tubular arbor, opposite the one carrying the seconds-wheel and a hand on that end of the split-seconds arbor opposite the one carrying the heart-cam, the split-seconds hand being above the seconds-hand, substantially as herein shown and described.

678,383. **PROCESS OF METAL ORNAMENTATION.** FERDINAND EPPLER, Berlin, Germany. Filed June 25, 1900. Serial No. 21,409. (No specimens.)



Claim.—Process for the manufacture of inlaid metal-work in a ground plate of any form or description, consisting in forming grooves in the said ground plate, inserting wires into the small grooves and pieces of wire-cloth into the larger grooves fastening said wires, wire-cloth or the like to the ground plate by drawing the same through existing perforations or by forcing them into the grooves and finally filling the grooves with a metallic deposit by electrolytic action, substantially as described.

678,384. **ENGINE.** CHARLES E. FELGENHAUER, Racine, Wis. Filed Feb. 1, 1901. Serial No. 45,543. (No model.)



Claim.—1. In an engine, the combination of an outer casing having a central chamber or bore and also provided with a chamber surrounding said central chamber or bore, a piston-chamber in communication with said surrounding chamber or bore, a valve within the bore of the casing, said valve provided with an inlet-opening and with an outlet-opening, said inlet-opening adapted, when the valve is actuated, to be brought into register with the port leading to the piston-chamber, and the outlet-opening being in register with an exhaust-passage, and adapted, in the actuation of the valve, to be brought into register with the piston-chamber, means for feeding to the valve, a piston in the piston-chamber, and adapted to be actuated in one direction when the actuating agent is admitted into the piston-chamber, a main shaft forming a continuation of the valve, said shaft and valve being rotatable together, and a cam within the chamber surrounding the central bore or chamber of the casing and mounted on the main shaft the inner end thereof extending into the piston-chamber in position to be acted upon by the inner end of the piston so as to cause the rotation of the cam and the shaft, when the piston is moved inwardly, said cam also in its rotation causing the piston to move outwardly, and thereby exhaust the actuating agent in advance thereof.

2. In an engine, the combination of an outer casing having a central chamber or bore, and also provided with a chamber surrounding said central chamber or bore, a piston-chamber in communication with said surrounding chamber or bore, a longitudinally-movable valve within the bore of the casing, said valve provided with a plurality of sets of inlet and outlet openings, one of said inlet-openings adapted, when the valve is actuated, to be brought into register with a port leading to the piston-chamber, and one of said outlet-openings being in register with an exhaust-passage, and adapted to be brought into register with the piston-chamber when the valve is actuated, means for feeding steam to the valve, a piston in the piston-chamber, and adapted to be actuated in one direction when the actuating agent is admitted into the piston-chamber, a main shaft to which the valve is connected so as to rotate therewith, a cam within the chamber surrounding the central bore or chamber of the casing and mounted on the main shaft, the inner end thereof extending into the piston-chamber in position to be acted upon by the inner end of the piston so as to cause the rotation of the cam and the shaft, when the piston is moved inwardly, said cam also in its rotation causing the piston to move outwardly and thereby exhaust the actuating agent in advance thereof, and means for moving the valve longitudinally so as to bring either one or the other of the set of inlet and outlet openings thereof into working position.

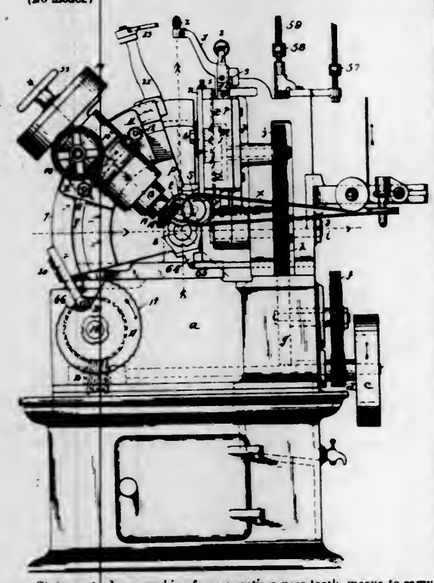
3. In an engine, the combination of an outer casing having a chamber or bore, a longitudinally-movable valve within the bore of the casing, said valve provided with a plurality of sets of inlet and outlet openings, a valve-rod extending from the valve, a tube extending from the casing and into which tube the valve-rod extends, said tube having a pin projecting therefrom, a cap on the end of the tube, said cap provided with an oblique slot which the pin engages, means for turning the cap, and a connection between the cap and the valve-rod to cause said valve-rod and its valve to move longitudinally, when the cap is turned in either direction, the movement of the valve longitudinally bringing either one or the other of the sets of inlet and outlet openings thereof into working position.

4. In an engine, the combination of an outer casing having a chamber or bore, and also provided with a piston-chamber, a longitudinally-movable valve within the bore of the casing, said valve provided with a plurality of sets of inlet and outlet openings, one of said inlet-openings adapted, when the valve is actuated, to be brought into register with a port leading to the piston-chamber, and one of said outlet-openings being in register with an exhaust-passage, and adapted to be brought into register with the piston-chamber, a valve-rod extending from the valve, a tube extending from the casing, and into which tube the valve-rod projects, said tube having a pin extending therefrom, a cap on the end of the tube, said cap provided with an oblique slot which the pin engages, means for turning the cap, a connection between the cap and the valve-rod to cause said valve-rod and its valve to move longitudinally when the cap is turned in either direction, the movement of the valve longitudi-

nally bringing either one or the other of the sets of inlet and outlet openings thereof into working position, means for feeding steam to the valve, a piston in the piston-chamber and adapted to be actuated in one direction when the actuating agent is admitted into the piston-chamber, a main shaft to which the valve is connected so as to rotate therewith, and a cam mounted on said main shaft, the inner end thereof being acted upon by the inner end of the piston so as to cause the rotation of the cam and the shaft, when the piston is moved inwardly, said cam also in its rotation causing the piston to move outwardly and thereby exhaust the actuating agent in advance thereof.

5. In an engine, the combination of an outer casing having a central chamber or bore and also provided with a chamber surrounding said central chamber or bore, a plurality of piston-chambers in communication with said surrounding chamber or bore, a valve within the bore of the casing, said valve provided with an inlet-opening and with an outlet-opening, said inlet-opening adapted, when the valve is actuated, to be brought into successive registration with ports leading to the piston-chambers, and the outlet-opening being in register with an exhaust-passage, and adapted in the actuation of the valve, to be brought into successive registration with the piston-chambers, means for feeding steam to the valve, pistons in the piston-chambers, and adapted to be actuated in one direction when the actuating agent is admitted into the piston-chambers, a main shaft forming a continuation of the valve, said shaft and valve being rotatable together, and a cam within the chamber surrounding the central chamber or bore and mounted on said main shaft, the inner end thereof extending into the piston-chambers in position to be acted upon by the inner ends of the pistons so as to cause the rotation of the cam and the shaft, when the pistons are moved inwardly, said cam also in its rotation causing the pistons to move outwardly and thereby exhaust the actuating agent in advance thereof.

678,385. MACHINE FOR GENERATING GEAR-TEETH. FRANK E. FERRIS, Detroit, Mich., assignor to the Leland & Faulconer Manufacturing Company, same place. Filed Mar. 21, 1900. Serial No. 9,537. (No model.)



Claim.—1. In a machine for generating gear-teeth, means to carry a gear to be generated, and two rotatable cutters arranged at an angle to an intermediate plane passing through the cone center of the gear, whereby said cutters will cut at their adjacent peripheral edges or corners, means to reciprocate said cutters in operation to shape both sides of a gear-tooth simultaneously, and a former to guide the movement of the cutters to give the desired contour of the tooth.

2. In a machine for generating gear-teeth, an oscillatory quadrant, means to carry a gear to be generated carried upon said quadrant, and rotatable cutters arranged to act simultaneously upon the two opposite faces of a tooth to be generated at an angle to an intermediate plane passing through the cone center of the gear, whereby said cutters will cut at their adjacent peripheral edges or corners, means to reciprocate said cutters in operation, and a former carried by said quadrant to guide the movement of the cutters to give the desired contour to the tooth.

3. In a machine for generating gear-teeth, means to carry a gear to be generated, rotatable cutters reciprocatory in operation arranged to act simultaneously upon the two faces of a given tooth to be generated, means to spread the centers of said cutters apart while in operation, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

4. In a machine for generating gear-teeth, means to carry a gear to be generated, and two rotatable milling-cutters arranged to act simultaneously upon the two faces of a given tooth to be generated, means to give a reciprocatory movement to said cutters in operation upon said faces, and means to guide the movement of the cutters to give the desired outline to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

5. In a machine for generating gear-teeth, means to carry a gear to be generated, two rotatable cutters acting simultaneously upon opposite faces of a tooth to be generated, means to cause the cutters to reciprocate while in operation along the faces of the tooth to be generated, means to spread said cutters apart the one from the other, and a former to guide the movement of the cutters to give the desired outline to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear, whereby said cutters will cut at their adjacent peripheral edges or corners.

6. In a machine for generating gear-teeth, means to carry a gear to be generated, rotatable cutters reciprocatory in operation arranged to act simultaneously upon the opposite faces of a given tooth of the gear, a former to guide the movement of the cutters to give the desired outline to the tooth, and means to advance the gear between the cutters.

7. In a machine for generating gear-teeth, means to carry a gear, cutters reciprocatory in operation arranged to act simultaneously upon the two faces of a given tooth of the gear, a former, and means to advance the former to separate said cutters, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

8. In a machine for generating gear-teeth, means to carry a gear to be generated, and two rotatable cutters reciprocatory in operation arranged to act simultaneously upon the two faces of a given tooth of the gear, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners, and a former to guide the movement of the cutters to give the desired contour to the tooth.

9. In a machine for generating gear-teeth, means to carry a gear to be generated, two rotatable cutters reciprocatory in operation to shape both sides of a tooth simultaneously, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners, and a former to guide the movement of the cutters to give the desired outline to the tooth, and means to index said gear.

10. In a machine for generating gear-teeth, means to carry a gear to be generated, rotatable cutters reciprocatory in operation to shape both sides of a tooth of a gear simultaneously, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear, whereby said cutters will cut at their adjacent peripheral edges or corners, a former to guide the movement of the cutters to give the desired outline to the tooth, and means to give a step-by-step movement to said gear.

11. In a machine for generating gear-teeth, means to carry a gear to be generated, two reciprocatory rams, a cutter-head provided with a rotatable cutter reciprocatory in operation carried by each of said rams, whereby the cutters may act simultaneously upon opposite sides of a given gear-tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners, and a former to guide the movement of the cutters to give the desired contour to the tooth.

12. In a machine for generating gear-tooth, means to carry a gear to be generated, two reciprocatory rams, rotatable cutters reciprocatory in operation carried by said rams, means to separate said rams in the operation of the cutters, and means to restore said rams to normal position, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear, whereby said cutters will cut at their adjacent peripheral edges or corners.

13. In a machine for generating gear-teeth, means to carry a gear to be generated, two reciprocatory rams, means to oscillate said rams, a cutter-head provided with a rotatable cutter reciprocatory in operation carried by each of said rams, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners, and a former to guide the movement of the cutters to give the desired contour to the tooth.

14. In a machine for generating gear-teeth, means to carry a gear to be generated, two reciprocatory rams, an oscillatory ram-guide to carry each of said rams, a rotatable cutter reciprocatory in operation carried by each of said rams, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear, whereby said cutters will cut at their adjacent peripheral edges or corners, and means to guide the movement of the cutters to give the desired contour to the tooth.

15. In a machine for generating gear-teeth, means to carry a gear to be generated, driving mechanism provided with a shaft, oscillatory ram-guides mounted upon said shaft, a reciprocatory ram carried by each of said guides, and a cutter reciprocatory in operation carried by each of said rams, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

16. In a machine for generating gear-teeth, means to carry a gear to be generated, two reciprocatory rams, a rotatable cutter-head provided with a cutter reciprocatory in operation carried by each of said rams, means to drive said cutters, and a former to guide the movement of the cutters to give the desired contour to the tooth.

17. In a machine for generating gear-teeth, means to carry a gear to be generated, two reciprocatory rams, a rotatable cutter-head provided with a cutter reciprocatory in operation carried by each of said rams, a shaft carried by each of said rams to drive the corresponding cutter, and a former to guide the movement of the cutters to give the desired contour to the tooth.

18. In a machine for generating gear-teeth, means to carry a gear to be generated, a shaft, ram-guides having an oscillatory engagement upon said shaft, reciprocatory rams engaged in said ram-guides, means to reciprocate said rams, rotatable cutters reciprocatory in operation carried by said rams, and a former to guide the movement of the cutters to give the desired contour to the tooth.

19. In a machine for generating gear-teeth, means to carry a gear to be generated, two rams each provided with a rotatable cutter reciprocatory in operation, rotatable cams to reciprocate said rams, and means to move said rams the one from the other, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

20. In a machine for generating gear-teeth, means to carry a gear to be generated, two oscillatory rams each provided with a rotatable cutter reciprocatory in operation, means to limit the oscillation of said rams, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

21. In a machine for generating gear-teeth, means to carry a gear to be generated, rotatable cutters reciprocatory in operation arranged to act simultaneously upon the two faces of a given gear-tooth, means to oscillate said cutters, means to limit the oscillation of said cutters, and a former to geide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

22. In a machine for generating gear-teeth, means to carry a gear to be generated, two reciprocatory rams each provided with a cutter-head, a shaft in each of said cutter-heads provided with a rotatable cutter reciprocatory in operation, and a former to guide the movement of the cutters to give the desired contour to the tooth, said heads each provided with an additional rotatable shaft to drive the corresponding cutter.

23. In a machine for generating gear-teeth, means to carry a gear to be generated, rotatable cutters arranged to act simultaneously upon the opposite faces of a given gear-tooth to be generated, means to oscillate said cutters in operation in opposite directions, and means to advance the gear to the work, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

24. In a machine for generating gear-teeth, means to carry a gear to be generated, two oscillatory ram-guides, a ram provided with a cutter reciprocatory in operation carried by each of said guides, an arm provided with a roller carried by each of said guides, a former, means to advance the former between said rollers, and means to restore said guides to normal position, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

25. In a machine for generating gear-teeth, means to carry a gear to be generated, a case or bed provided with guideways, two ram-guides oscillatory in said guideways, and a ram provided with a rotatable cutter reciprocatory in operation carried by each of said ram-guides, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

26. In a machine for generating gear-teeth, means to carry a gear to be generated, a case or bed provided with guideways, two ram-guides reciprocatory in said guideways, a ram provided with a rotatable cutter reciprocatory in operation carried by each of said ram-guides, means to limit the inward movement of said ram-guides, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

27. In a machine for generating gear-teeth, means to carry a gear to be generated, two oscillatory ram-guides, rams vertically adjustable in said guides, a rotatable cutter reciprocatory in operation carried by each of said guides, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

28. In a machine for generating gear-teeth, means to carry a gear to be generated, two oscillatory ram-guides, a reciprocatory ram provided with a cutter reciprocatory in operation carried by each of said guides, and a former, means to advance the former to separate said guides, the plane between the ram-guides in closed position centrally intersecting the former, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

29. In a machine for generating gear-teeth, an oscillatory quadrant and its shaft, means carried by said quadrant to carry a gear to be generated, oscillatory ram-guides, rotatable cutters reciprocatory in operation carried by said ram-guides arranged to act simultaneously upon the two faces of a given gear-tooth, a former to guide the movement of the cutters to give the desired contour to the tooth, and adjustable devices to carry the gear toward and from the intersection of the quadrant-shaft and the axis of the ram-guides.

30. In a machine for generating gear-teeth, an oscillatory quadrant, means carried by said quadrant to carry a gear to be generated, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

31. In a machine for generating gear-teeth, a support provided with a guideway, a quadrant having an oscillatory movement in said guideway, means engaged with said quadrant to carry a gear to be generated, means to actuate the quadrant, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

32. In a machine for generating gear-teeth, an oscillatory quadrant, a bracket adjustably engaged with said quadrant, a sleeve in said bracket, a spindle to carry a gear to be generated located in said sleeve, means to give a step-by-step rotary movement to the gear-spindle, means to move the gear-spindle longitudinally, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

33. In a machine for generating gear-teeth, an oscillatory quadrant, a bracket adjustably engaged with said quadrant, a sleeve in said bracket, a spindle to carry a gear to be generated located in said sleeve, means to give a rotary step-by-step movement to the gear-spindle, means to move the gear-spindle longitudinally, a micrometer stop-screw carried by said bracket to limit the inward movement of the spindle, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

34. In a machine for generating gear-teeth, an oscillatory quadrant, mechanism engaged with said quadrant to carry a gear to be generated, cutters reciprocatory in operation to act simultaneously upon the two faces of a given gear-tooth, and means to separate said cutters carried by said quadrant, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

35. In a machine for generating gear-teeth, an oscillatory quadrant, means engaged with said quadrant to carry a gear to be generated, rotatable cutters reciprocatory in operation to act simultaneously upon oppo-

site faces of a given gear-tooth, means to carry the gear away from the cutters, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

36. In a machine for generating gear-teeth, an oscillatory quadrant, means connected therewith to carry a gear to be generated, two rotatable cutters reciprocatory in operation to generate the teeth upon said gear, means to adjust the oscillation of the quadrant to adjust the depth of the cut of the gears, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

37. In a machine for generating gear-teeth, an oscillatory quadrant, means engaged with said quadrant to carry a gear to be generated, an arm adjustably engaged with the quadrant, means acting upon said arm to actuate the quadrant, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

38. In a machine for generating gear-teeth, a support or bed, an oscillatory quadrant fulcrumed upon said bed, a bracket adjustable upon said quadrant, means connected with said bracket to carry a gear to be generated, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said support or bed provided with a guideway for said quadrant.

39. In a machine for generating gear-teeth, the combination with a support or bed, a driving-shaft, a worm upon said shaft, an oscillatory quadrant, mechanism driven by said worm to drive said quadrant, rotatable cutters reciprocatory in operation to act simultaneously upon opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

40. In a machine for generating gear-teeth, the combination with a support or bed, of an oscillatory quadrant, a bracket adjustable upon said quadrant, a longitudinally-movable sleeve in said bracket, a rotatable spindle within said sleeve to carry a gear to be generated, index mechanism carried by said sleeve, rotatable cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

41. In a machine for generating gear-teeth, the combination with a support or bed, of cutters reciprocatory in operation, a quadrant, a bracket adjustable upon the quadrant, a longitudinally-movable sleeve in said bracket, a spindle within said sleeve, means to give to said spindle a step-by-step rotation, a hub upon said sleeve, an arm engaged upon said hub provided with a segment-gear, a rack-bar meshing with said segment-gear, a guide for said quadrant, a bracket adjustable upon said quadrant-guide, and a roller carried by said bracket, said rack-bar having an inclined face at its outer end adjacent to said roller.

42. In a machine for generating gear-teeth, the combination with a support or bed, of cutters reciprocatory in operatioo, an oscillatory quadrant, a bracket adjustable upon said quadrant, a longitudinally-movable sleeve engaged in said bracket, a rotatable spindle in said sleeve, an arm 26 engaged upon said sleeve provided with a segmental gear, a rack-bar meshing with said segmental gear, means to actuate said rack-bar, an index-plate engaged with said spindle, an arm 37 connected with said sleeve and carrying a plunger to engage the index-plate, a cam carried by the arm 26 to actuate the plunger, and means to retract said plunger.

43. In a machine for generating gear-teeth, the combination with a support or bed, of cutters reciprocatory in operation, an oscillatory quadrant, a bracket adjustable upon said quadrant, a longitudinally-movable sleeve engaged in said bracket, a rotatable spindle in said sleeve, an arm 26 engaged upon said sleeve provided with a segmental gear, a rack-bar meshing with said segmental gear, means to actuate said rack-bar, an index-plate engaged with said spindle, an arm 37 connected with said sleeve and carrying a plunger to engage the index-plate, a cam carried by the arm 26 to actuate the plunger, means to retract said plunger, and a pawl carried by the arm 26 to rotate the index-plate.

44. In a machine for generating gear-teeth, the combination with a support or bed, of rotatable cutters reciprocatory in operation, an oscillatory quadrant, a bracket adjustable upon said quadrant, a longitudinally-movable sleeve in said bracket, a rotatable spindle in said sleeve, said sleeve provided with rack-teeth, a gear meshing with the rack-teeth, a hand-wheel to actuate said gear, and a former to guide the movement of the cutters to give the desired contour to the tooth.

45. In a machine for generating teeth, the combination with a support or bed, of cutters reciprocatory in operation, an oscillatory quadrant and a bracket adjustable upon said quadrant, a longitudinally-movable sleeve in said bracket, a rotatable spindle in said sleeve, said bracket provided with an arm 49, an arm 37 carried by said sleeve, an index-plate carried by the spindle, a plunger carried by the arm 37, and means engaging the arm 49 with the arm 37 to prevent the sleeve from rotating in the bracket.

46. In a machine for generating gear-teeth, the combination with a support, of rotatable cutters reciprocatory in operation, a former to guide the movement of the cutters to give the desired contour to the tooth, an oscillatory quadrant, a bracket adjustable upon said quadrant, a longitudinally-movable sleeve in said bracket, a rotatable spindle in said sleeve to carry a gear to be generated, means to effect the longitudinal movement of said sleeve, and means to lock the sleeve in a given position of adjustment.

47. In a machine for generating gear-teeth, a support or bed provided with a shaft, oscillatory ram-guides engaged upon said shaft, an oscillatory quadrant upon said support or bed, a gear-spindle to carry a gear to be generated engaged upon said quadrant, and means to actuate said spindle, cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, the axis of the shaft upon which the ram-guides swing, and the axis of the gear-spindle lying in the same plane, said plane being parallel to the face of the quadrant, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

48. In a machine for generating gear-teeth, the combination with a support or bed, of oscillatory ram-guides, a shaft carrying said guides, an oscillatory quadrant fulcrumed upon said support or bed, cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, the axis of the quadrant-shaft being perpendicular to a plane parallel to the face of the quadrant and in the same horizontal plane as the axis of the shaft on which the ram-guides oscillate, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

49. In a machine for generating gear-teeth, the combination with a support or bed, of oscillatory ram-guides, a shaft upon which said guides oscillate, an oscillatory quadrant, a shaft upon said bed upon which said quadrant oscillates, a spindle to carry a gear to be generated upon said quadrant, cutters reciprocatory in operation to act simultaneously on opposite faces of a gear-tooth, the axis of the gear-spindle intersecting the axis of the quadrant-shaft, and the axis of the shaft upon which the ram-guides oscillate intersecting the axis of the quadrant-shaft, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

50. In a machine for generating gear-teeth, means to carry a gear to be generated, rotatable cutters arranged to act upon both faces of a given tooth to be generated, means to reciprocate said cutters in operation, means to advance the gear to the cutters in operation, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

51. In a machine for generating gear-teeth, means to carry a gear to be generated, ram-guides, reciprocatory rams carried by said guides, a cutter-head provided with a rotatable cutter carried by each of said rams, means to oscillate said ram-guides, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

52. In a machine for generating gear-teeth, an oscillatory quadrant, means carried by the quadrant to carry a gear to be generated, an oscillatory ram-guide, a reciprocatory ram in said guide, a rotatable cutter carried by said guide, and a former to actuate the ram-guide to guide the movement of the cutter to give the desired contour to the surface of the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

53. In a machine for generating gear-teeth, means to generate a gear to be generated, an oscillatory ram-guide, a reciprocatory ram in said guide, a rotatable cutter carried by said ram, means to move said ram in one direction in the operation of the cutter, means to restore said ram to normal position and to guide the movement of the cutter to give the desired contour to the surface of the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

54. In a machine for generating gear teeth, an oscillatory quadrant, means carried by said quadrant to carry a gear to be generated, an oscillatory ram-guide, a reciprocatory ram carried by said quadrant, a rotatable cutter carried by said ram, means to guide the movement of the cutter to give the desired contour to the surface of the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

55. In a machine for generating gear-teeth, an oscillatory quadrant, means carried by said quadrant to carry a gear to be generated, driving mechanism provided with a shaft, an oscillatory ram-guide mounted upon said shaft, a reciprocatory ram carried by said guide, a rotatable cutter carried by said ram, and means to guide the movement of the cutter to give the desired contour to the surface of the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

56. In a machine for generating gear-teeth, an oscillatory quadrant, means carried by said quadrant to carry a gear to be generated, an oscillatory and reciprocatory ram, a cutter-head carried by said ram provided with a rotatable cutter reciprocatory in operation, a shaft carried by the cutter-head to drive said cutter, and a former to guide the movement of the cutter to give the desired contour to the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

57. In a machine for generating gear-teeth, means to carry a gear to be generated, reciprocatory rams provided with rotatable cutters, a rotatable cam to reciprocate said rams, means to oscillate said rams, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

58. In a machine for generating gear-teeth, means to carry a gear to be generated, oscillatory ram-guides, reciprocatory rams provided with rotatable cutters carried by said guides, an arm provided with a roller carried by each of said guides, a former to guide the movement of the cutter to give the desired contour to the surface of the tooth, means to advance the former between said rollers, and means to restore said guides to normal position, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

59. In a machine for generating gear-teeth, means to carry a gear to be generated, a case or bed provided with a guideway, ram-guides oscillatory in said guideway, reciprocatory rams, a rotatable cutter carried by each of said ram-guides, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

60. In a machine for generating gear-teeth, means to carry a gear to be generated, oscillatory ram-guides, reciprocatory rams adjustable in said guides, a rotatable cutter carried by each of said rams, and a former to guide the movement of the cutters to give the desired contour to the tooth, said cutters arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutters will cut at their adjacent peripheral edges or corners.

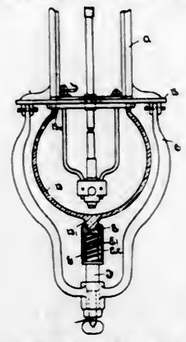
61. In a machine for generating gear-teeth, an oscillatory quadrant, mechanism engaged with said quadrant to carry a gear to be generated, a rotatable cutter to act upon one face of a given gear-tooth, and means carried by said quadrant to oscillate said cutter in one direction, and to guide the movement of the cutter to give the desired contour to the surface of the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

62. In a machine for generating gear-teeth, an oscillatory quadrant, means engaged with said quadrant to carry a gear to be generated, a rotatable cutter to act upon a given gear-tooth, means to carry a gear away from the cutter, and a former to guide the movement of the cutter to give the desired contour to the tooth, said cutter arranged at an angle to an intermediate plane passing through the cone center of the gear whereby said cutter will cut at its adjacent peripheral edge or corner.

63. In a machine for generating gear-teeth, an oscillatory quadrant, means connected with said quadrant to carry a gear to be generated, a rotatable cutter reciprocatory in operation arranged to act upon the adjacent face of a given tooth of the gear, a former to guide the movement of the cutter to give the desired outline to the adjacent face of the tooth, and means to advance the quadrant to carry the gear to the cutter.

64. In a machine for generating gear-teeth, an oscillatory automatically-retracting quadrant, means connected with said quadrant to carry a gear to be generated, a rotatable cutter reciprocatory in operation arranged to act upon the adjacent face of a given tooth of the gear, a former to guide the movement of the cutter to give the desired outline to the adjacent face of the tooth, and means to advance the quadrant to carry the gear to the cutter.

678,386. ELECTRIC-ARC LAMP. WILLIAM H. FITZHUGH, Bay City, Mich. Filed May 11, 1901. Serial No. 59,720. (No model.)



Claim.—1. In combination with an arc-lamp; a horizontal flange suspended from the lamp-casing; a depending U-frame pivoted at its upper ends to the under side of said flange; a globe having a single opening at its top and a central projection at its bottom; an adjusting-screw through the lower part of the U-frame; a vertical spindle resting on the upper end of said screw and slidably mounted in the lower part of the frame; a second spindle above the first spindle; a compressible spring secured to the lower spindle and yieldingly supporting the upper spindle, substantially as set forth.

2. In combination with an arc-lamp; a horizontal flange suspended from the lamp-casing; a depending U-frame pivoted at its upper ends to the under side of said flange; a globe having a single opening at its top and a central projection at its bottom; an adjusting-screw through the lower part of the U-frame; a vertical spindle resting on the upper end of said screw and slidably mounted in the lower part of the frame; a second spindle above said first spindle; together with a compressible spring secured to the lower spindle and yieldingly supporting the upper spindle.

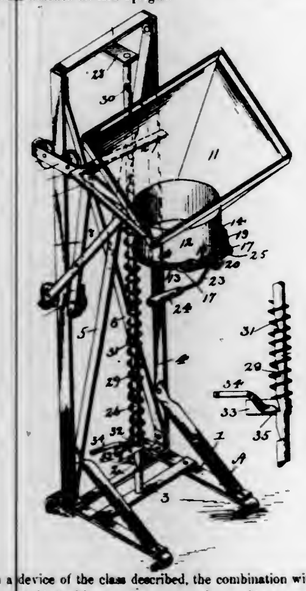
3. In combination with an arc-lamp; a horizontal flange suspended from the lamp-casing; a depending U-frame pivoted at its upper ends to the under side of said flange; a globe having a single opening at its top and a central projection at its bottom; an adjusting-screw through the lower part of the U-frame; a vertical spindle resting on the upper end of said screw and slidably mounted in the lower part of the frame, said spindle being cupped at its upper end; a second spindle above said first spindle, having a recess in its upper end to receive the projection of the globe; together with a compressible spring secured to the lower spindle and yieldingly supporting the upper spindle, substantially as described and for the purpose set forth.

4. In combination with an arc-lamp; a horizontal flange suspended from the lamp-casing; a depending U-frame pivoted at its upper ends to the under side of said flange; a globe having a single opening at its top and a central projection at its bottom; an adjusting-screw through the lower part of the U-frame; a vertical spindle resting on the upper end of said screw and slidably mounted in the lower part of the frame, said spindle being cupped at its upper end; a second spindle above said first spindle, having a recess in its upper end to receive the projection of the globe and having a projection on its lower end above the cupped end of the first spindle; together with a compressible spring secured to the lower spindle and yieldingly supporting the upper spindle, substantially as described and for the purpose set forth.

678,387. GRAIN-SACK HOLDER. FREDERICK W. FLAKKER, Wheaton, Minn., assignor of one-half to John B Prandergast, same place. Filed Mar. 9, 1901. Serial No. 50,490. (No model.)

Claim.—1. In a device of the class described, the combination with a frame having two uprights, of a carriage bearing a hopper and constructed to run on said uprights, means for clamping a sack on said hopper, an upright bar mounted in the base of said frame and having a series of notches, an expansible spiral spring surrounding said upright and secured at its lower end thereto and bearing at its upper end against said

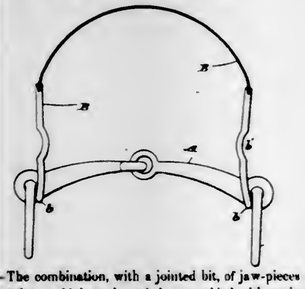
carriage, and a catch mounted on said carriage and positioned to engage any of the said notches on said upright.



2. In a device of the class described, the combination with a frame of a hopper provided with a carriage mounted on guides, an upright supported on said frame and having notches, a spiral spring surrounding said upright, and bearing against the said carriage, and a clamp mounted to slide on said upright, said clamp being attached to said spring and constructed to engage the notches in said upright to retain it in any position, substantially as described.

3. In a device of the class described, the combination, of a hopper having a spout provided with a rim, a tongue hinged to said spout, curved arms secured to said tongue and positioned to embrace said spout above said rim, a spiral spring surrounding the free end of one of said arms and secured at one end thereto, a link-bar bearing a book which engages the other end of said spring, and a catch attached to said link-bar, and constructed to engage the free end of the other of said arms, substantially as described.

678,388. **BRIDLE.** PETER H. FLYNN, New York, N. Y. Filed Sept. 23, 1899. Serial No. 731,466. (No model.)



Claim.—The combination, with a jointed bit, of jaw-pieces slidable upon the bit-sections, said jaw-pieces being provided with projections to bear upon the sides of a horse's jaw and having their inner ends outwardly curved at an acute angle to the normal position of the bit-sections and adapted, when said bit-sections are drawn rearwardly, to assume a position at right angles thereto to bring said projections squarely into contact with the jaw, and a resilient nose-band connecting the outer ends of the jaw-pieces, substantially as set forth.

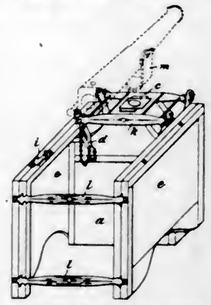
678,389. **ACETYLENE-GAS GENERATOR.** FRED FREDERICK, Omaha, Nebr. Filed Apr. 30, 1901. Serial No. 56,720. (No model.)

Claim.—1. A portable gas-generator and burner, comprising a case, a carbid-holder arranged within the case, a compressible water-holder supported above the carbid-holder and communicating therewith through the medium of a valve-controlled tube or pipe, the valve-stem projecting above the case and connected with the valve, the presser-block arranged upon the compressible water-holder, and the springs attached to said block for the purpose of pressing it downward, and the gas-delivery tube and burner, arranged as set forth.



2. In a device of the kind described, the combination with a case, of a carbid-holder located therein, a compressible water-holder arranged above the carbid-holder, the cup in which the water-holder is supported, the tube or pipe connecting said cup and carbid-holder, the valve located in the tube or pipe, the valve-stem projecting above the case and connected with the valve by means of a series of link-joints, the presser-block arranged upon the compressible water-holder, the springs attached to the presser-block and exerting constant pressure thereon, and the delivery-tube extending from the carbid-holder and carrying a burner at its outer end, substantially as set forth.

678,390. **COMBINED CASE AND MOUNT OR CARRIAGE FOR GUNS.** EUGEN VON FREYTTÁDTLER, Budapest, Austria-Hungary. Filed Dec. 20, 1900. Serial No. 40,524. (No model.)



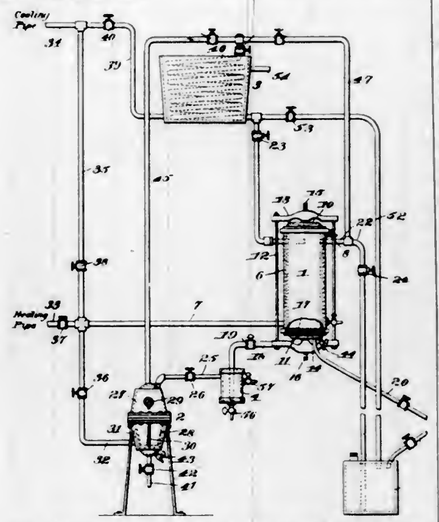
Claim.—1. A gun case or receptacle adapted to be converted into a gun-mount, which consists of an open box-like base part and two half-box cheeks having a cavity in one side, devices for connecting the parts together so as to form a closed case or box adapted to contain the gun and means for otherwise connecting said parts to form a rigid gun-mount, substantially as described.

2. A gun case or receptacle adapted to be converted into a gun-mount, which consists of an open box-like base part having a gun-supporting block, a stiffening-plate provided with an opening adapted to fit over the block, means for securing the plate, side or cheek pieces and means for attaching the same to the base part.

3. The combination of the box-like base part carrying the gun-supporting block and the two cheek or side pieces hollow on one side, means for securing the hollow sides together to form a cover for the gun and means for securing the connected parts to said base for transportation purposes.

678,391. **APPARATUS FOR EXTRACTING NICOTIN.** HENRY FROEHLING, Richmond, Va., assignor to Pascal Davie, same place. Filed Sept. 28, 1900. Serial No. 31,422. (No model.)

Claim.—1. An apparatus for extracting oil, nicotin or alkaloids from vegetable substances, comprising a cylinder, a still connected therewith, and a supply-tank adapted to introduce extracting agents in a liquid state into the top of the cylinder, means for leading the volatilized agents from the still to the said cylinder, and means for continuously condensing the volatilized agents after they enter the cylinder and while in contact with the material in the cylinder, the structure being such that a continuous circulation of gases or fluids may be effected through the said cylinder, substantially as described.



2. An apparatus for extracting oil, nicotin and alkaloids from vegetable materials, comprising a cylinder, removable covers for closing the ends of said cylinder, a closed water trap for receiving the liquids from the cylinder, a still connected with the water-trap for receiving the gases or oils from said water-trap, and means for applying a low temperature to the walls of the cylinder for continuously condensing the entering volatilized agent after it has been in contact with the contents of the cylinder a while and so that it will engage the said contents in a liquid state before passing from the cylinder, and means for applying heat afterward to the walls of the cylinder to drive off all of the volatile extracting agent before removing the residuum, and similar means for heating or cooling the said still as may be desired, substantially as described.

3. An apparatus for extracting nicotin and oil from tobacco or similar substances, comprising an extracting-receptacle, a still connected with the said receptacle so as to receive substances passing therefrom, a pipe leading from the said still to the extracting-cylinder through which the volatilized extracting agent may flow, a cooling-jacket applied to the extracting-receptacle and a supply-tank for delivering quantities of the extracting agent to the extracting-cylinder as the case may require, substantially as described.

4. In an apparatus for extracting nicotin and oil from tobacco and other substances, the combination of an extracting-receptacle, a still connected with the said receptacle so as to receive liquids therefrom, a trap interposed between the still and the receptacle for separating water and alkaline substances from said liquid, a pipe leading from the still to the extracting-cylinder through which the volatilized extracting agent may flow, and means for condensing the volatilized agent in the said receptacle, substantially as described.

5. An apparatus for extracting nicotin and alkaloids from tobacco or other similar substances, comprising an extracting-receptacle, a still for receiving the alkaloids and associated products from the said receptacle, a trap interposed between the receptacle and still for preventing the passage of any alkaline liquids with the said products into the said still, a pipe for leading the extracting agent in a volatilized form back to the extracting-receptacle, means for applying a cooling agent to the receptacle for condensing the volatilized extracting agent therein, a condenser also connected with the receptacle for assisting in the condensing operation, any vapor which may pass to the same from the receptacle being condensed therein and returned to the receptacle in a liquid form and a supply-tank for furnishing the extracting-receptacle with the extracting agent as occasion may require, substantially as described.

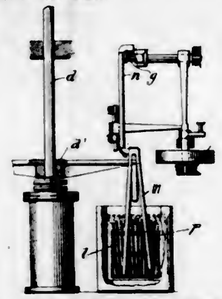
6. An apparatus for extracting nicotin or alkaloids from tobacco or other similar substances, comprising an extracting-receptacle, a still for receiving liquids passing from the said receptacle, a trap interposed between the still and receptacle for removing water and alkaline substances from the said liquids, a pipe for returning the extracting agent from the still to the receptacle in a volatilized condition, means for applying a cooling agent to the receptacle for facilitating the condensing of the vaporized agent which has been returned to the extracting-receptacle, a supply-tank for delivering the required extracting agent to the receptacle, a condenser through which the extracting agent may be passed from the still and reduced to a liquefied condition on its way back to the supply-tank when the charge of material in the receptacle has been relieved of all of its nicotin, and means for heating the exhausted contents of the receptacle for driving off any remaining fumes of the extracting agent into the condenser before the receptacle is emptied and prepared for a new charge, substantially as described.

7. An apparatus for extracting nicotin from tobacco, comprising a receptacle for receiving a charge of the tobacco to be treated, a supply-tank for delivering an extracting agent to the receptacle as may be needed, a pipe leading from the receptacle to the bottom of a water-trap, a water-trap surrounding the end of said pipe for receiving liquids which drain from the receptacle, an outlet-pipe leading from the upper part of the tank to a still, whereby the nicotin and lighter oils will be permitted to flow into the still, while water and alkaline materials with which the tobacco was prepared for the operation, will be detained in the tank, means for drawing the water and alkaline substances from the tank at a level lower than the outlet to the still, a still for receiving the nicotin and associated products, a pipe for returning the extracting agent in a volatilized condition from the still to the receptacle, means for heating the still for producing this volatilized condition of the extracting agent, and a cooling-jacket surrounding the extracting-receptacle for facilitating the condensation of the extracting agent after it has been returned to said receptacle, substantially as described.

8. An apparatus for extracting nicotin from tobacco or liquids from vegetable substances, comprising a cylinder having double walls forming a jacket around the same, covers for closing the ends of the cylinder, means for holding the said covers in position comprising a frame or yoke surrounding the cylinder, adjusting-screws mounted in said frame and engaging the covers, whereby they may be clamped to the ends of the cylinder, a still connected to the cylinder, and a supply-tank for holding extracting agents, and means for delivering the extracting agents to the cylinder in a liquid state, and means for passing the extracting agents from the still into the cylinder in a volatilized condition, and means for applying a cooling and a heating agent to the contents of the cylinder by introducing the same into the jacket surrounding the cylinder, substantially as described.

9. An apparatus for extracting nicotin from tobacco or alkaloids from vegetable materials, comprising a receptacle for receiving the material, means for applying a cooling and a heating agent to the walls of the receptacle externally thereof, a water-trap connected with the receptacle, a pipe leading from the receptacle into the water-trap and extending to a point in close proximity to the bottom of the trap, whereby the liquids passing from the receptacle will be introduced into the water-trap at a point considerably below its outlet, a pipe leading from the water-trap at a point near its upper end to a suitable still, a still for receiving oils and extracting agents from the water-trap, the said still comprising upper and lower shells or casings secured together at their meeting edges, a jacket surrounding the lower shell for receiving heating or cooling agents, means for delivering extracting agents to the receptacle in a liquid state, and means for delivering extracting agents to the receptacle from the still in a volatilized condition, substantially as described.

678,392. **MACHINE FOR PICKLING AND WASHING SHEET METAL.** OTTO GAUBE, Oberlahnstein, Germany. Filed June 25, 1900. Serial No. 21,410. (No model.)



Claim.—1. A pickling and washing machine for sheet metal comprising a plurality of baskets, suspending devices secured to each of said baskets, revolving arms constructed to engage the suspending devices and carry said baskets to predetermined positions, rocking levers to receive

the baskets from said arms, and means for rocking said levers and thereby giving the baskets a dipping motion, substantially as described.

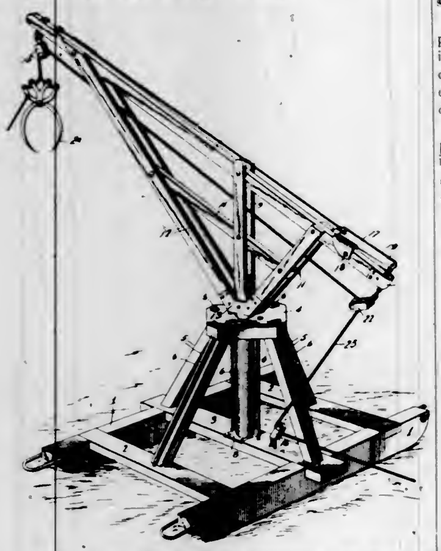
2. A pickling-machine for sheet-metal, comprising baskets, suspending devices secured to each basket, revolving arms constructed to engage said suspending devices, rocking levers and means whereby the baskets are received from said arms by the levers and the baskets given a dipping motion, the parts being constructed and arranged so that the sheets counterbalance one another in one of the motions of the baskets, substantially as described.

3. In a new pickling and washing machine the combination of a plurality of baskets, suspending devices secured to each thereof, revolving arms adapted to engage said suspending devices and carry said baskets to predetermined positions, levers adapted to receive said baskets by engaging with their suspending devices and give to the said baskets a dipping motion, troughs arranged below said levers and adapted to contain the several liquids employed and means for giving the said arms and levers their respective motions, substantially as described.

4. In a new and useful pickling and washing machine the combination of a plurality of sets of levers adapted to receive a rocking motion each adapted to rock in an opposite direction from the other, gudgeons secured on each lever basket, hook-shaped suspending devices secured to each of said baskets and adapted to engage said gudgeons, pickling and water troughs arranged respectively below said levers, and revolving arms adapted to engage said suspending devices and carry said baskets to predetermined positions, substantially as described.

5. A new pickling and washing machine for metal sheets having in combination with a driving-wheel, a pitman, an elbow-lever, levers engaging said elbow-levers and adapted to receive a rocking motion therefrom, gudgeons mounted on said levers, baskets, suspending devices fastened to each of the latter, blocks secured to each of said suspending devices and adapted to engage said gudgeons, and revolving arms adapted to engage baskets, substantially as described.

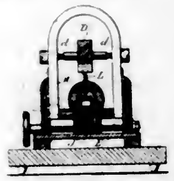
678,393. HAY-DERRICK. JAMES GEERY, Lancaster, Mo. Filed Nov. 30, 1900. Serial No. 38,208. (No model.)



Claim.—1. In a hay-derrick the combination of the derrick-arm the block suspended from the outer end thereof, a truss-lever on the inner end of said derrick-arm, a truss-rod connecting said truss-lever to the said derrick-arm at or near the outer end of the latter, a block suspended from the said truss-lever and an elevating-rope passing over said blocks, for the purpose set forth, substantially as described.

2. In a hay-derrick the combination of the derrick-arm, the block suspended from the outer end thereof, a truss-lever on the inner portion of the said derrick-arm above the same and having the arm 19 projecting beyond the inner end of the derrick-arm, a block supported by said arm 19 and a truss-rod connecting the inner end of said truss-lever to the said derrick-arm at a point at or near the outer end of the latter, substantially as described.

678,394. TELEGRAPHIC INSTRUMENT. JOHN J. GHEGAN, Newark, N. J., assignor to J. H. Bunnell & Company, of New York. Filed Feb. 26, 1900. Serial No. 6,517. (No model.)



Claim.—1. In a sounder, the combination of a base-plate, an electromagnet rigidly connected thereto in a vertical position, a pivoted armature-lever, an armature carried thereby, a movable carriage in which the armature-lever is pivoted, vertical guides rigidly connected to the base-plate at each side of the armature-lever carriage, means for holding the armature-lever carriage in sliding engagement with said guides and means for raising and lowering the armature-lever carriage on said guides, substantially as shown and described.

2. In a telegraphic instrument the combination of an armature, a pivoted armature-lever, an electromagnet, a movable carriage for the bearings of the armature-lever, an adjustable cam for moving said carriage and means for actuating said cam, substantially as shown and described.

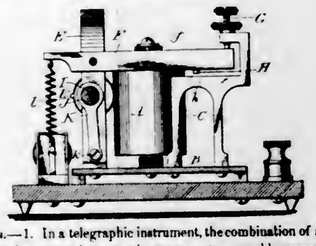
3. In a telegraphic instrument the combination of an armature, a pivoted armature-lever, an electromagnet, a movable carriage for the bearings of the armature-lever, a cam-surface and a coöperating element working thereon and means for relatively actuating said surface and element to vary the position of said carriage, substantially as shown and described.

4. In a telegraphic instrument the combination of an armature, a pivoted armature-lever, an electromagnet, a movable carriage for the bearings of the armature-lever, a cam and a coöperating element working thereon and an adjusting-screw for relatively actuating said cam and element to vary the position of said carriage, substantially as shown and described.

5. In a telegraphic instrument the combination of an armature, a pivoted armature-lever, an electromagnet, a movable carriage for the bearings of the armature-lever, an adjustable block carrying a cam-surface coacting with said support and means for adjusting said block to vary the distance between the armature and magnet, substantially as shown and described.

6. In a telegraphic instrument the combination of an armature, a pivoted armature-lever, an electromagnet, a movable carriage for the bearings of the armature-lever, an adjustable block provided with an inclined slot, a projection on said carriage engaging said slot and an adjusting-screw for actuating said block, substantially as shown and described.

678,395. TELEGRAPHIC INSTRUMENT. JOHN J. GHEGAN, Newark, N. J., assignor to J. H. Bunnell & Company, of New York. Filed Apr. 16, 1900. Serial No. 13,089. (No model.)



Claim.—1. In a telegraphic instrument, the combination of an armature, a pivoted armature-lever, an electromagnet, a movable support for the armature-lever, a fixed support for the armature-lever support, a connection between said supports and an eccentric for actuating said connection to vary the position of the armature.

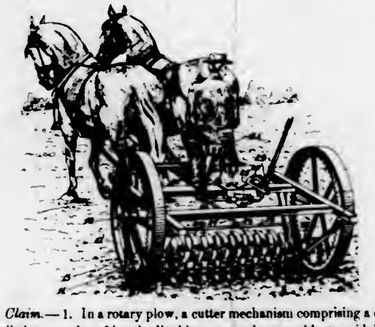
2. In a telegraphic instrument, the combination of an armature, a pivoted armature-lever, an electromagnet, a movable support for the armature-lever, a fixed support for the armature-lever support, a shaft carried by one of said supports, an eccentric on said shaft, a connection between said eccentric and the other support and means for actuating said eccentric to vary the position of the armature.

3. In a telegraphic instrument, the combination of an armature, a pivoted armature-lever, an electromagnet, a movable support for the armature-lever, a fixed support for the armature-lever support, an eccentric supported or carried by said fixed support, a connection between said eccentric and the movable support and means for actuating said eccentric to vary the position of the armature-lever.

4. In a telegraphic instrument, the combination of an armature, a pivoted armature-lever, an electromagnet, a movable support for the armature-lever, a fixed support for the armature-lever support, a shaft carried by said fixed support, an eccentric on said shaft, a link connection between the eccentric and the armature-lever support and means for actuating said eccentric to vary the position of the armature-lever.

5. In a telegraphic instrument of the character described, the combination with the magnets and armature, of a pivoted armature-lever, a movable support therefor, means, comprising a rotatable head or disk, for moving said support through its path of movement upon one-half revolution of said head or disk in either direction, and an indicator movable with said head or disk for denoting the position of the armature-support.

678,396. ROTARY PLOW. SAMUEL HAMPTON, Rapid City, Canada, assignor of one-half to Robert A. Nelles, same place. Filed Sept. 29, 1900. Serial No. 31,484. (No model.)

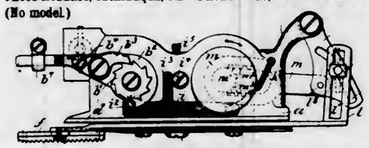


Claim.—1. In a rotary plow, a cutter mechanism comprising a drum or cylinder, a series of longitudinal bars secured removably to said drum, and a plurality of series of blades secured to said bars with the blades of each bar staggered relatively to the blades on adjacent bars, each blade having an angular heel embracing its bar and secured removably thereto, substantially as described.

2. In a rotary plow, a revoluble cutter mechanism comprising a drum, a series of bars secured longitudinally on said drum and removable individually therefrom, and a plurality of series of blades, each series of blades secured to one bar for removal therewith from the drum and with each individual blade provided with an angular heel embracing and removably secured to one of said bars, substantially as described.

3. In a rotary plow, a revoluble cutter mechanism compriaing a drum, a series of bars thereon, and a plurality of series of blades attached to the bars, each blade being curved longitudinally and formed at its heel with an offstanding shank which embraces said bar and is fastened removably thereto, substantially as described.

678,397. BUTTONHOLE ATTACHMENT FOR SEWING-MACHINES. WILLIAM H. HARGRAVES and JOHN S. HEILIG, Allentown, and JACOB ROBERTS, Catasauqua, Pa. Filed Feb. 16, 1900. Serial No. 5,405. (No model.)



Claim.—1. In a sewing-machine attachment the combination with a cloth-clamp plate, of means for imparting to said plate a vibratory movement, said means comprising a cam, a ratchet-wheel to actuate said cam, a lever having a grooved pawl thereon, a screw having engagement with said lever, a washer between the screw-head and lever, and a spring clamped at one end between said screw-head and washer, and its other end resting in the groove of the pawl to hold it in engagement with said ratchet-wheel, substantially as described.

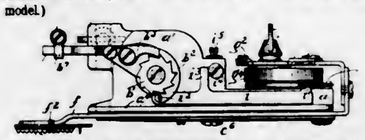
2. In a sewing-machine attachment, the combination with a cloth-clamp plate, of means for imparting to said plate a vibratory movement, said means comprising a ratchet-actuating lever, a link having two eyes, whose axes are at right angles to each other, the said link adapted to be secured to the needle-bar of the machine through one of said eyes, the other eye serving as a support for the ratchet-actuating lever, said lever resting loosely in said eye and adapted to move lengthwise or slide therein when the needle-bar is reciprocated, substantially as described.

3. In a sewing-machine attachment the combination with a slotted cloth-clamp plate, of means to impart to said plate a vibratory movement, comprising a cam, a lever engaging said cam, a cross-head on said lever, bearing-shoes conforming on their inner sides to said head and grooved on their outer sides to engage the walls of the slot of said plate, and means to impart to said plate a longitudinal movement comprising a shaft, a clutch device connected to said shaft, a slide-bar resting loosely on a flange of the attachment and adapted to intermittently engage said clutch device to rotate said shaft, a slotted arm connected to said plate, a slide-block secured in said slot, a slotted lever pivoted to the frame of the attachment and actuated by said shaft, and a stud passing through an opening in said block and connecting said lever and arm, substantially as described.

4. In a sewing-machine attachment, the combination with a slotted cloth-clamp plate, of means to impart to said plate a vibratory movement comprising a shaft and means to rotate the same from the needle-bar of the machine, a cam secured to said shaft, a lever engaging said cam, means to impart to said plate a longitudinal movement comprising a shaft, a clutch device connected to said shaft, a slide-bar resting loosely on a flange of the attachment and adapted to intermittently engage said clutch device to rotate said shaft, a cam on said shaft to shift the cloth-clamp plate to bring the work into proper position for sewing, and a flat spring fitting into slots cut into the body of the attachment and bearing frictionally against the side of said cams, to prevent their reverse movement, substantially as described.

5. In a sewing-machine attachment the combination with a cloth-clamp plate, a shaft, mechanism actuated by said shaft for imparting to said plate a longitudinal feed movement, a clutch device for imparting an intermittent rotary movement to said shaft, a slide-bar for actuating said clutch device, said slide-bar resting loosely on a flange of the attachment and having an upwardly-extending arm, an adjustable stop for said slide-bar consisting of a screw seated in the arm of the attachment and having an eccentric-head which contacts with said upwardly-extending arm, substantially as described.

678,398. TACKING ATTACHMENT FOR SEWING-MACHINES. WILLIAM H. HARGRAVES and JOHN S. HEILIG, Allentown, and JACOB ROBERTS, Catasauqua, Pa. Filed Feb. 16, 1900. Serial No. 5,406. (No model.)



Claim.—1. In a sewing-machine attachment the combination with the cloth-clamp plate, of a lever, means to connect said lever with the needle-bar of the machine, a slide-bar actuated by said lever, a clutch device engaged and operated by said slide-bar, said slide-bar resting loosely on a flange along the side of the frame of the attachment, and means actuated by said clutch device for imparting to the cloth-clamp an intermittent progressive feed movement lengthwise of the attachment, substantially as described.

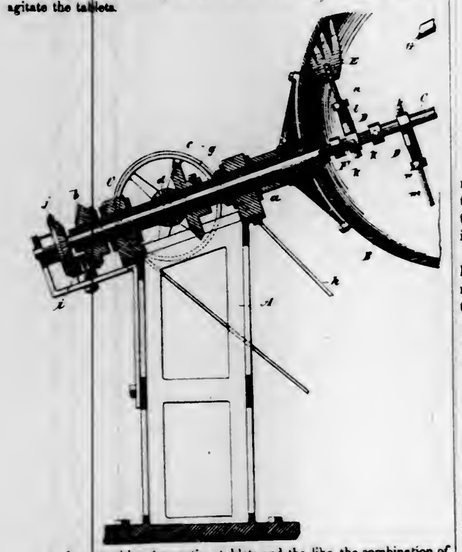
2. In a sewing-machine attachment, the combination with the cloth-clamp plate, of a shaft carrying a cam, a ratchet-wheel fixed to the cam-shaft, a pawl and pawl-lever for actuating said ratchet-wheel, mechanism intermediate said cam and plate for imparting to the latter a vibratory movement, a slide-bar actuated by said pawl-lever, a clutch device engaged and operated by said slide-bar, said slide-bar resting loosely on a flange along the side of the frame of the attachment, and means actuated by said clutch device for imparting to the cloth-clamp an intermittent progressive feed movement lengthwise of the attachment, substantially as described.

3. In a sewing-machine attachment the combination with the cloth-clamp plate having a slotted cross-head extending transversely to said plate, of means for imparting to said plate a vibratory movement, comprising a lever having means for connecting it to the needle-bar of the machine, a slide-bar resting loosely on a flange along the side of the frame of the attachment actuated by said lever, a clutch device comprising a disk and a lever, the latter being in engagement with said slide-bar, and a block clamped to said disk and engaging the walls of said slot, substantially as described.

678,399. MACHINE FOR COATING TABLETS. BENJAMIN F. HAYS, New York, N. Y., assignor to Horatio W. Fraser, same place. Filed Oct. 1, 1900. Serial No. 31,600. (No model.)

Claim.—1. In a machine for coating tablets and the like, the combination of an open tablet-containing hopper and a stirring device rotat-

ing therein, means for rotating said stirring device, said stirring device comprising resilient stirring-blades which are adapted to contact with and agitate the tablets.



2. In a machine for coating tablets and the like, the combination of an open rotating tablet-containing hopper, means for rotating said hopper, a stirring device rotating in said hopper, means for rotating said stirring device, said stirring device comprising resilient stirring-blades which are adapted to contact with and agitate the tablets.

3. In a machine for coating tablets and the like, the combination of an open tablet-containing hopper, a stirring device rotating therein, means for rotating said stirring device, said stirring device comprising resilient blades which are adapted to contact with and agitate the tablets and means for conveying an air-blast to the interior of said hopper.

4. In a machine for coating tablets and the like, the combination of a tablet-containing hopper, a stirring device rotating therein, said stirring device comprising a plurality of stirring-blades each of which has a plurality of resilient fingers.

5. In a machine for coating tablets and the like, the combination of a rotating curvilinear tablet-containing hopper, means for rotating said hopper, a stirring device rotating in the hopper, said stirring device comprising a plurality of adjustable stirring-blades each of which has a plurality of resilient fingers that are adapted to contact with the walls of the hopper and means for rotating said stirring device.

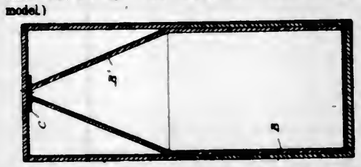
6. In a machine for coating tablets and the like, the combination of an open tablet-containing hopper and a stirring device rotating therein, said stirring device comprising a plurality of resilient stirring-blades each of which is pivoted to a rotating support so as to vibrate independently thereof.

7. In a machine for coating tablets and the like, the combination of a rotating curvilinear tablet-containing hopper, a hollow hopper-shaft and means connected thereto for rotating said hopper, a stirrer-shaft extending through said hollow shaft and into the hopper, means for rotating said stirrer-shaft, stirrer-arms contained within said hopper and adjustably secured to the stirrer-shaft and resilient blades secured to the stirrer-arms.

8. In a machine for coating tablets and the like, the combination of a rotating curvilinear tablet-containing hopper, a hollow hopper-shaft and means connected thereto for rotating said hopper in one direction, a stirrer-shaft extending through said hollow shaft and into said hopper, means for rotating the stirrer-shaft in an opposite direction from that in which the hollow shaft is rotated, stirrer-arms contained within the hopper and adjustably secured to the stirrer-shaft and resilient blades adjustably and removably secured to the stirrer-arms.

9. In a machine for coating tablets and the like, the combination of a rotating curvilinear tablet-containing hopper, means for conveying an air-blast thereto, a hollow hopper-shaft and means connected thereto for rotating said hopper, a stirrer-shaft extending through said hollow shaft and into said hopper, means for rotating said stirrer-shaft, stirrer-arms contained within the hopper and adjustably secured to the stirrer-shaft and resilient blades secured to the stirrer-arms, each of said blades comprising a plurality of resilient fingers that are adapted to contact with and agitate the tablets.

678,400. DISTRIBUTING-BOX FOR POWDERS. JOHAN A. HOLM, Christiania, Norway. Filed Mar. 6, 1901. Serial No. 50,218. (No model.)

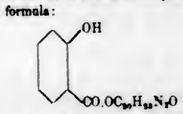


Claim.—1. A distribution-box for powder, consisting of an inner receptacle having an open bottom and a tapering perforated end, and a two-part outer receptacle, one part embracing and closing the bottom of the inner receptacle and the other part fitting over and closing the tapering perforated end of the inner receptacle, substantially as described.

2. A distribution-box for powder, consisting of an inner receptacle having an open bottom and a tapering perforated end, of a two-part outer receptacle one part embracing and closing the bottom of the inner receptacle and having a washer interposed between the bottom of the two parts and the other part fitting over and closing the tapering perforated end of the inner receptacle and having a washer arranged to abut against the tapering perforated end, substantially as described.

678,401. SALICYLIC ETHER OF QUININ. FRITZ HOFMANN, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Apr. 30, 1901. Serial No. 58,187. (Specimens.)

Claim.—The herein-described new salicylic ether of quinin having most probably the formula:



being a tasteless white crystalline powder melting at 138° centigrade, which is very readily soluble in chloroform, readily soluble in hot alcohol and in benzene and soluble with difficulty in ether and in cold alcohol, the alcoholic solution being colored reddish brown by a ferric-chlorid solution, substantially as hereinbefore described.

678,402. SKATE. ALBERT P. JOHNS, Toronto, Canada, assignor of one-half to Frederic Eldon Dixon, same place. Filed Mar. 18, 1899. Renewed May 6, 1901. Serial No. 58,998. (No model.)

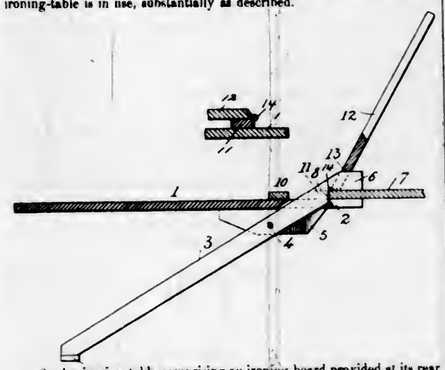


Claim.—1. A skate formed of two parts integrally connected together, each part provided with a blade portion and having the metal near each end bent outwardly and upwardly from said blade portion and terminating in flanges for supporting the heel and toe and the metal between said heel and toe portions bent over into a closed tubular form, thereby strengthening the skate and excluding moisture therefrom, substantially as and for the purpose specified.

2. A skate formed of two parts integrally connected together, each part provided with a blade portion and having the metal near each end thereof bent outwardly and upwardly from said blade portion and terminating in flanges for supporting the heel and toe, and the metal between said heel and toe portions bent over into closed tubular form, substantially up to the level of the aforesaid flanges, whereby the skate is greatly strengthened and moisture excluded, substantially as described.

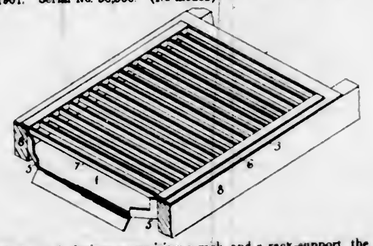
678,403. IRONING-TABLE. GEORGE H. KROUGH, Detroit, Minn., assignor of one-half to John H. Sutherland, same place. Filed Apr. 13, 1901. Serial No. 55,715. (No model.)

Claim.—1. An ironing-table comprising an ironing-board provided at its rear end with an opening, a leg pivotally connected with the ironing-board and arranged to extend through the opening, and a bosom-board hingedly connected with the ironing-board at a point below the upper end of the leg and arranged to swing upward against the same and be supported in an upright position by the upper end of the leg when the ironing-table is in use, substantially as described.



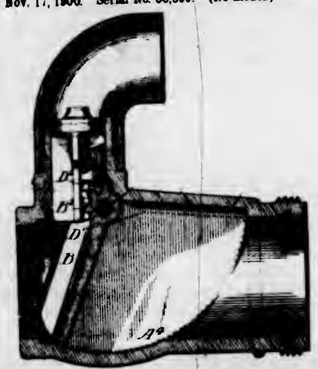
2. An ironing-table comprising an ironing-board provided at its rear end with a longitudinal slot, the leg pivotally connected with the ironing-board at the bottom thereof and arranged to extend through the slot and provided at its lower end with a block, the cleat 10 extending entirely across the board, the cleats 11, located at opposite sides of the slot, and the slotted bosom-board hinged to the cleats 11 and arranged to be supported in an upright position by the leg, substantially as described.

678,404. DRAINER. JOHN KLINE, Beloit, Wis. Filed Mar. 9, 1901. Serial No. 50,500. (No model.)



Claim.—A drainer comprising a rack and a rack-support, the support having an inclined bottom, supporting-flanges and a downwardly-extending lip, and the rack having side angle-bars, and bars connecting the vertical portion of the angle-bars, the horizontal portions of the angle-bars adapted to rest upon the flanges of the rack-support.

678,405. RELIEF-VALVE. MAURICE D. LARKIN, Dayton, Ohio. Filed Nov. 17, 1900. Serial No. 36,899. (No model.)



Claim.—1. A relief-valve comprising a casing, a relief-port therein, a piston in said port, a stem from said piston having at opposite points rack-teeth and a longitudinally-extending guide-rib engaging the casing, and a flap-valve pivoted in the casing and provided with teeth to engage those upon said stem, substantially as specified.

2. A relief-valve comprising a casing, a cylindrical relief-port having an open end, a piston adapted to travel within and beyond the end of said port, a stem from said piston provided with a guide-rib and rack-teeth thereon, and a flap-valve pivoted within the casing and provided with means to engage the teeth upon said stem, substantially as specified.

3. A relief-valve comprising a casing, a cylindrical relief-port having an open end and guide-fingers extended beyond the body portion thereof, a piston in said port adapted to travel over said fingers, a stem from said piston provided with rack-teeth, and a flap-valve pivoted within the casing and provided with means to engage said teeth, substantially as specified.

4. A relief-valve comprising a casing provided with a seat in its wall, a relief-port for said casing, a piston in said port, a flap-valve curved to fit said seat, and means for connecting said valve and piston, substantially as specified.

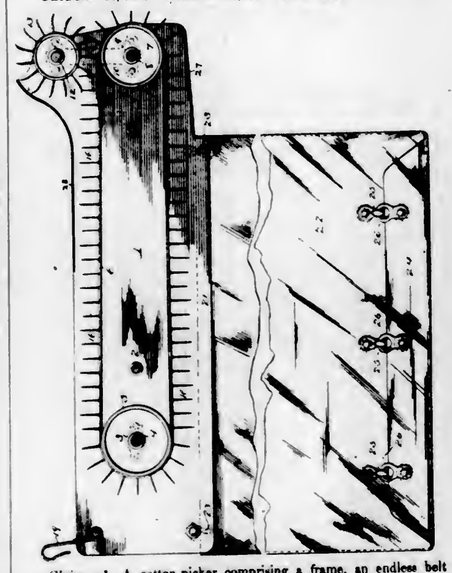
5. A relief-valve comprising a casing, a relief-port therein, a piston in said port, a stem from said piston having upon one face a longitudinal guide-rib and upon the opposite face a series of rack-teeth, and a valve within the casing adapted to mesh with said teeth and operate said stem, substantially as specified.

6. A relief-valve comprising a casing, a cylindrical relief-port having spaced guide-fingers extended beyond its open end, a piston in said port adapted to traverse said fingers, a valve within said casing, and means connecting said valve and piston for simultaneous movement, substantially as specified.

7. A relief-valve comprising a casing having a valve seat or pocket and an enlarged path or way therein, a flap-valve curved in cross-section and pivoted within the casing to travel in said path and to lie within said seat, a relief-port from the casing, and means controlled by said valve for opening and closing said port, substantially as specified.

8. A relief-valve comprising a casing provided with a curved seat in its wall and a curved path, a flap-valve pivoted in said casing and having a curved body to conform to said seat and a curved end to conform to said path, and means for operating said valve; substantially as specified.

678,406. COTTON-PICKER. GEORGE LEDER, Demopolis, Ala. Filed Feb. 12, 1901. Serial No. 47,068. (No model.)



Claim.—1. A cotton-picker comprising a frame, an endless belt mounted longitudinally therein and having several series of fingers, means for supporting a bag under the major portion of said belt, a pulley mounted at the inlet end of the frame and having fingers arranged to intermesh with the fingers on the belt and means for operating said belt and pulley simultaneously in opposite directions.

2. A cotton-picker comprising a frame, a pulley in the outer end of said frame, a pulley in the frame near its inner end, a belt passing over said pulleys, several series of fingers projecting from said belt, the major

portion of the bottom of the frame being open and provided with means for supporting a bag, a pulley mounted at the outer end of the frame, curved fingers projecting from said last-mentioned pulley and intermeshing with the fingers on the belt, means for driving the belt and gearing between one of the belt-pulleys and the pulley having the curved fingers.

3. In a cotton-picker, the combination with an elongated frame, an endless belt mounted longitudinally therein, fingers on the belt and means under the belt for supporting a bag, of a pulley near the outer end of the belt, curved fingers on said pulley to coöperate with the fingers on the belt, and operating means for the belt and pulley, said means constructed and adapted to drive said pulley at a slower rate of speed than that of the belt and to drive said pulley and belt in opposite directions.

4. In a cotton-picker, the combination with a frame, of an endless belt mounted therein and several series of fingers secured to said belt, the central finger of each series being of greater length than the other fingers of the series, substantially as and for the purpose set forth.

5. In a cotton-picker, the combination with a frame, of an endless belt therein and several series of fingers projecting from said belt, the fingers of each series being of varying lengths from the central finger to the lateral fingers.

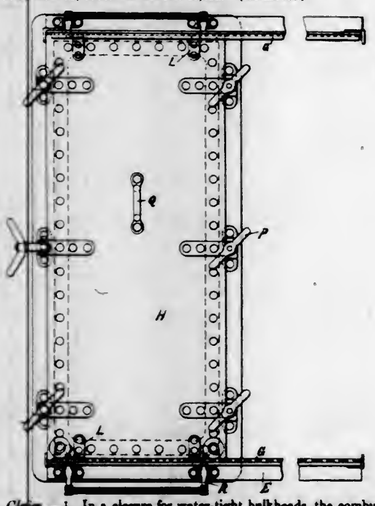
6. In a cotton-picker, the combination with a frame, an endless belt mounted therein, and fingers projecting from said belt, of a pulley mounted at the outer end of the frame in proximity to the belt, and several sets of curved fingers projecting from said pulley, the lateral fingers of each set being of greater length than the central fingers.

7. In a cotton-picker, the combination with a frame, of an endless belt therein, a pulley mounted at the outer end of the frame in proximity to the belt, several series of fingers projecting from the belt, the central fingers having greater length than the lateral fingers, and several sets of curved fingers projecting from the pulley, the lateral curved fingers having greater length than the central curved fingers.

8. A portable cotton-picker comprising a frame, an endless belt mounted therein, fingers projecting from said belt, a pulley provided with fingers intermeshing with the fingers on the belt at the outer end of the frame, means for supporting a bag under the belt, a hook at the inner end of the frame to engage the belt of the operator, and straps attached to the forward portion of the frame for supporting the device on the body of the operator.

9. In a cotton-picker, the combination with two pulleys, a belt thereon and means for turning one of said pulleys, of several diagonally-disposed series of teeth secured on said belt, the central tooth of each series being longer than the others, a pulley revolubly supported above the forward belt-pulley and teeth on said pulley to move between the teeth on the belt.

678,407. **BULKHEAD-DOOR.** HAROLD LEE, East Orange, N. J. Filed Dec. 18, 1900. Serial No. 40,232. (No model.)



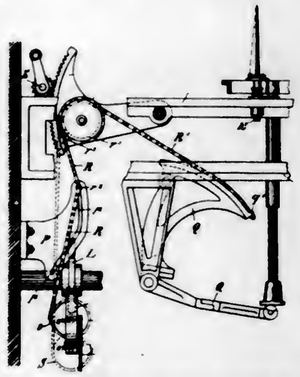
Claim.—1. In a closure for water-tight bulkheads, the combination of a bulkhead having a seat, a door having a packing-ring, and means independent of any operating mechanism to prevent sliding contact between the seat and the packing-ring, substantially as described.

2. In a closure for water-tight bulkheads, the combination of a bulkhead having a seat, a door having a packing-ring, and means whereby the door in the first motion of opening and the last motion of closing is made to move directly away from and toward the bulkhead, and means independent of any operating means to prevent motion toward or from the bulkhead, save when the door is in the closing position, substantially as described.

3. In a closure for water-tight bulkheads, the combination of a bulkhead having a seat, a sliding door having a packing-ring, and means for holding the packing-ring out of contact with the seat until the door is in a closing position, and means independent of any operating means for preventing motion of the door toward the bulkhead when in any other position, substantially as described

4. In a closure for water-tight bulkheads, the combination of a bulkhead having a seat, a sliding door having a packing-ring, and a grooved rail in which said door slides, lugs on said door engaging the grooves in the rail, said rail being cut out on the side next the bulkhead only at points opposite the positions of the lugs when the packing-ring is opposite the seat on the bulkhead, substantially as described.

678,408. **RING-SPINNING MACHINE.** WILHELM LEBOWEILER, Wangen, Algau, Germany. Filed Mar. 6, 1897. Serial No. 626,257. (No model.)



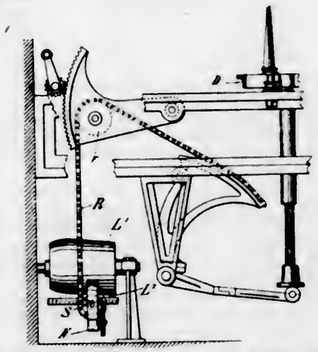
Claim.—1. In a ring-spinning machine, the combination with a ring-rail, of means tending to reciprocate the ring-frame through a cycle of movements comprising a relatively slow motion in one direction, a relatively quick motion in the opposite direction, and intermediate these two motions, a quick motion in the first direction and then in the second direction, for a relatively short distance, means tending to shift in one direction, first relatively quickly, then relatively slowly, and then again relatively quicker, the terminals of the movement of the ring-frame, mechanism for operating said shifting means after each cycle of movements of the ring-frame, and means modifying the tendencies of the above-mentioned reciprocating and shifting means whereby the ring-frame receives a resulting movement from all the said means inversely proportional to the diameter of that part of the cop being wound.

2. In a ring-spinning machine, the combination with a ring-frame, a cam, and a lever operated by the cam, of a chain-winding roller, and an operating-gear therefor mounted on said lever, said chain-winding roller having a nose, a chain connected to said nose and arranged to transmit the movement of the lever to the ring-frame, a stud connected to the chain, and a fixed guide device provided with an angle-shaped slot into which said stud projects.

3. In a ring-spinning machine, the combination with a ring-frame, a bell-crank lever having one arm arranged to lift the ring-frame, a doffing-motion device, and a pair of chain-wheels mounted thereon, one of said chain-wheels having a nose, of a cam, a lever operated by the cam, a chain-winding roller, and an operating-gear therefor mounted on the said lever, said chain-winding roller having a nose, a chain connecting one of the chain-wheels on the doffing-motion device to one arm of the bell-crank lever, a second chain connecting that chain-wheel on the doffing-motion device which has the nose, to the chain-winding roller on the lever, a stud secured to the latter chain, and a fixed guide device provided with an angle-shaped slot into which said stud projects.

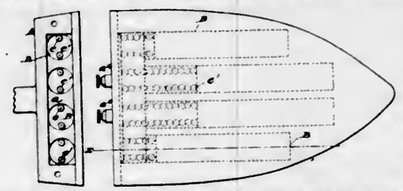
678,409. **RING-SPINNING MACHINE.** WILHELM LEBOWEILER, Wangen, Algau, Germany. Filed May 31, 1898. Serial No. 682,189. (No model.)

Claim.—1. In a ring-spinning machine, the combination with a ring-frame, of a rotary cam-drum having its periphery at one end of relatively small eccentricity this eccentricity first increasing and then decreasing toward the other end of the drum, means actuated by the cam-drum for transmitting a reciprocating motion to the ring-frame according to the profile of the cam-drum, mechanism for shifting the said means and the cam-drum with relation to each other in the direction of the axis of the cam-drum, whereby a varying reciprocation of the ring-rail frame is produced, and means for shifting the terminal points of said reciprocations of the ring-frame, whereby a movement of the ring-frame is produced which is inversely proportional at each moment to that part of the cop being wound.



2. In a ring-frame, the combination with a lever, a chain-winding gear carried by said lever, a ring-frame, and a chain connecting the ring-frame and the chain-winding gear, of a rotary cam-drum having its periphery at one end of relatively small eccentricity, this eccentricity first increasing and then decreasing toward the other end of the drum, means intermediate the cam-drum and lever for transmitting a reciprocating motion to the lever, according to the profile of the drum, and mechanism for producing a relative movement between the said means and the drum in the direction of the axis of said drum, whereby a reciprocating movement of the ring-frame is produced, the speed of said movement being at all times inversely proportional to the diameter of that part of the cop at that time being wound.

678,410. **ELECTRICALLY-HEATED TOOL.** HARRY W. LEONARD, East Orange, N. J. Filed Apr. 24, 1896. Serial No. 588,878. (No model.)



Claim.—1. In an apparatus wherein electric energy is converted into heat, the combination of a cast-iron body or support, and several separable resistances carried thereby and arranged so that they lie in close proximity to the cast-iron body or support practically throughout their length, whereby a large portion of the heat energy developed in said resistances under operative conditions will be rapidly transmitted to said cast-iron body or support.

2. In an apparatus wherein electric energy is converted into heat, the combination of a cast-iron body or support, and several separable resistances mounted on separate supports carried by said cast-iron body or support and arranged so that the resistances lie in close proximity to the cast-iron body or support practically throughout their length, whereby a large portion of the heat energy developed in said resistances under operative conditions will be rapidly transmitted to said cast-iron body or support.

3. In an apparatus wherein electric energy is converted into heat, the combination of a cast-iron body or support provided with a series of cylindrical holes, and a series of separate conductors wound upon cylindrical cores made of steatite adapted to be inserted into the cylindrical holes, whereby the conductors will lie in close proximity to the cast-iron body or support practically throughout their length, and whereby a large portion of the heat energy developed in said conductors under operative conditions will be rapidly transmitted to said cast-iron body or support.

4. In an apparatus wherein electric energy is converted into heat, the combination of a cast-iron body or support provided with a series of cylindrical holes, and a series of separate conductors wound upon cylindrical cores adapted to be inserted into the cylindrical holes, whereby the conductors will lie in close proximity to the cast-iron body or support practically throughout their length, and whereby a large portion of the heat energy developed in said conductors under operative conditions will be rapidly transmitted to said cast-iron body or support, circuit-terminals carried by the cast-iron body or support, and insulated conductors connecting said terminals with the separate conductors on the cores.

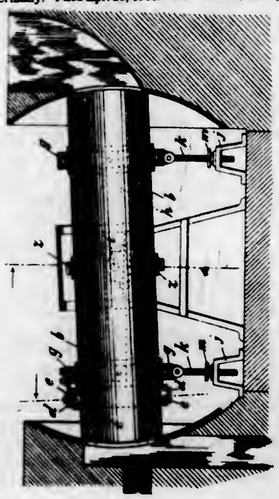
6. A flat-iron having a series of cylindrical holes, and cores having heating-conductors wound thereon and adapted to be inserted in said holes, and whereby the heating-conductors are held in close proximity to the surrounding metal of the flat-iron practically throughout their length, and whereby a large portion of the heat energy developed in said conductors under operative conditions will be rapidly transmitted to the surrounding metal.

7. A flat-iron having a series of cylindrical holes, and cores of insulating material having heating-conductors wound thereon and adapted to be inserted in said holes, and whereby the heating-conductors are held in close proximity to the surrounding metal of the flat-iron practically throughout their length, and whereby a large portion of the heat energy developed in said conductors under operative conditions will be rapidly transmitted to the surrounding metal, and a layer of insulation between the cores carrying the conductors and the surrounding metal of the flat-iron.

8. A flat-iron having a series of cylindrical holes, cores having heating-conductors wound thereon and adapted to be inserted in said holes, and whereby the heating-conductors are held in close proximity to the surrounding metal of the flat-iron practically throughout their length, and whereby a large portion of the heat energy developed in said conductors under operative conditions will be rapidly transmitted to the surrounding metal, a plate for covering the opening at one end of the iron through which the cores are inserted in the cylindrical holes, circuit-terminals carried by said plate and to which the heating-conductors are connected, and binding-posts on said plate for the external circuit connections, substantially as set forth.

9. A flat-iron cast in one piece and having a series of cylindrical holes formed therein, and cores having heating-conductors wound thereon and adapted to be inserted in said holes, and whereby the heating-conductors are held in close proximity to the surrounding metal of the flat-iron practically throughout their length, and whereby a large portion of the heat energy developed in said conductors under operative conditions will be rapidly transmitted to the surrounding metal.

678,411. **REVOLVING ADJUSTABLE KILN.** WILHELM LESSING, Gesecke, Germany. Filed Apr. 23, 1900. Serial No. 14,035. (No model.)



Claim.—1. A new and improved revolving adjustable kiln having a porous fireproof lining and means in connection with said lining for forcing back into the said kiln its internal heat together with ribs for materially reducing the friction developed between said lining and the burning mass, substantially as in the manner and for the purpose set forth and described.

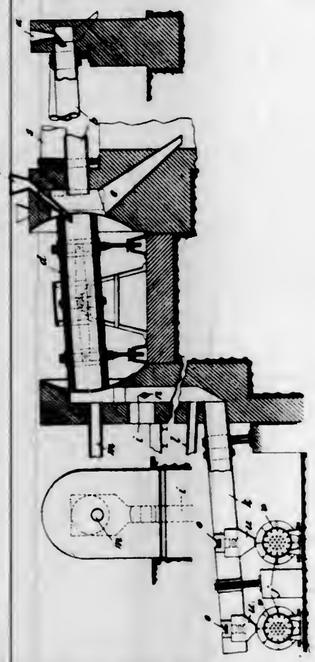
2. A new revolving adjustable kiln having a porous fireproof lining with means for forcing fresh air therethrough and provided on its inner surface with a plurality of grooves and curved ribs substantially as described.

3. A new revolving adjustable kiln having a porous fireproof lining provided with air-channels and cross-borings in connection therewith, receiving air from without which under pressure is forced through said lining into said kiln, and ribs formed on the inner surface of said lining in which said channels and cross-borings are formed, substantially as described.

4. A new revolving adjustable kiln having a cylindrical body portion, means for revolving the same, a porous fireproof lining therein provided with air-channels and cross-borings in connection therewith, an air-tight elastic grooved ring surrounding said body and covering the outer ends of said borings, substantially as described.

5. A new kiln having a cylindrical body, means for adjusting and revolving the same and a porous fireproof lining within said body provided with air-channels in connection with cross-borings, a grooved split elastic metallic ring surrounding said kiln-body and covering the outer ends of said borings, and ribs formed on the inner surface of said lining, substantially as described.

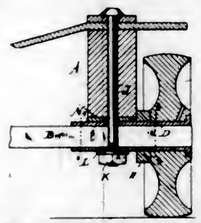
678,412. **PROCESS OF BURNING CEMENT, GYPSUM, &c.** WILHELM LEMING, Gesecke, Germany. Filed Apr. 23, 1900. Serial No. 14,036. (No specimens.)



Claim.—1. The herein-described process for burning cements, gypsum, &c., which consists in grinding the raw material and heating this product to a white heat, dropping it downwardly against a column of flame, and then utilizing it in its intensely-heated condition for generating steam to be used for the treatment of further material, substantially as and in the manner specified.

2. The process for burning cements, gypsum, &c., which consists in warming and drying broken raw material, then grinding and heating and slowly dropping against a column of fire, then cooling and utilizing the resulting heat for generating steam and for the preliminary warming of the material, substantially as set forth.

678,418. **MOUNTING WHEELS ON VEHICLES.** JAMES LEYLAND, Rutherford, N. J. Filed Jan. 21, 1901. Serial No. 44,099. (No model.)

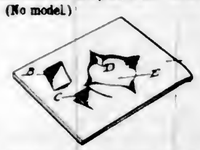


Claim.—1. In a vehicle, the combination with an axle of a bolt for holding the axle in place on the vehicle-frame, a sleeve on the end of the axle and provided with a flange at its outer end, a wheel mounted on said sleeve, the said flange resting against the outer end of the hub, the above-mentioned bolt passing through said sleeve substantially as herein shown and described.

2. In a vehicle, the combination with an axle, rectangular in cross-section, of a sleeve having a bore to receive the end of said axle and having its outer surface turned cylindrically, a flange being formed on the outer end of the sleeve, a wheel mounted on the sleeve, the said flange resting against the outer end of the hub, and a bolt passing through said sleeve and axle substantially as herein shown and described.

3. In a vehicle, the combination with an axle, rectangular in cross-section, of a sleeve having a bore shaped to receive the end part of the axle and having its outer surface shaped cylindrically, said sleeve having a flange at its outer end, a wheel mounted on said sleeve, the said flange resting against the outer end of the hub, a washer-ring mounted on said sleeve at the inner side of the wheel and a bolt passing through said sleeve into the axle, substantially as herein shown and described.

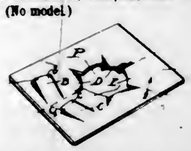
678,414. **NUT-LOCK.** WILLIAM B. MALLORY, JOHN G. DEADERICK, and JOSEPH L. ULLATHORNE, Memphis, Tenn. Filed Aug. 6, 1900. Serial No. 26,089. (No model.)



Claim.—1. A nut-lock comprising an integral washer of spring metal having a plurality of tongues struck up therefrom in close proximity to each other, said tongues having broad ends, a part of which extend a considerable distance beyond the sweep of the nut, whereby the tongues are adapted to be depressed by a single instrument for removing the nut, said washer also having a plurality of depressed spring-points arranged about the hole in the washer and formed by making cuts outward from the hole and curving downwardly the corners thus formed on both sides of the cuts, so as to prevent the turning of the washer in either direction, substantially as described.

2. A nut-lock comprising an integral washer of suitable material, having a nut-engaging means formed thereon and a plurality of depressed spring-points formed by cutting outward from the bolt-hole and turning down the corners thus formed, so that all of said corners on both sides of the cuts will engage the surface adjacent to the washer and prevent the said washer from turning in either direction, substantially as described.

678,415. **NUT-LOCK.** WILLIAM B. MALLORY, JOSEPH L. ULLATHORNE, and JOHN G. DEADERICK, Memphis, Tenn. Filed Oct. 23, 1900. Serial No. 34,048. (No model.)



Claim.—1. A nut-lock comprising a washer provided with nut-engaging means, tongues upon said washer for preventing its turning, formed by cutting outwardly from the bolt-hole and depressing the tongues thus formed, the corners of each tongue being further curved downwardly to shoulder the washer against movement in either direction, substantially as described.

2. A nut-lock comprising a washer having nut-locking means, a spring center formed by cutting outward from the bolt-hole and depressing alternate tongues thus formed, the corners of the said tongues being arched downwardly to form biting-points adapted to hold the washer against movement in either direction, substantially as described.

3. A washer nut-lock formed with nut-locking tongues on one side, and washer-holding means on the other side comprising arched tongues bent to one side of the said washer, having biting-points adapted to shoulder the washer against movement in either direction, substantially as described.

4. A washer nut-lock, formed with arched holding spring-tongues bent outwardly around the bolt-hole of the washer, and having broad nut-locking tongues adapted to extend sufficiently far beyond the sweep of the nut to be capable of depression by an implement, while the nut is unscrewed by a suitable wrench, substantially as described.

678,416. **BARREL-CARRIER.** JOHN METCALFE and THOMAS BELL, Roscoe, Pa. Filed Feb. 27, 1901. Serial No. 49,131. (No model.)

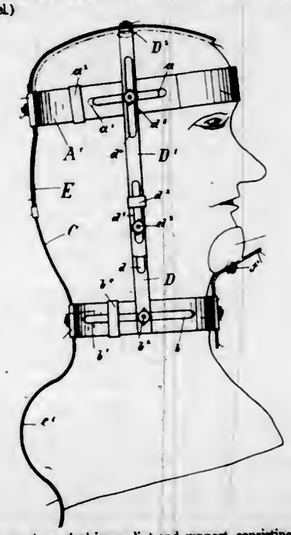


Claim.—1. A barrel-carrier comprising a base-plate formed with elongated slots; arms slidably supported on said base-plate; bolts connecting the arms and base-plate; a shaft extending through the base-plate; an oscillating disk mounted on said shaft and formed with cam-slots through which the bolts project; and means for locking said disk at different positions.

2. A barrel-carrier comprising a base-plate formed with elongated slots, arms slidably supported on said base-plate, bolts connecting the arms and base-plate, a shaft extending through the base-plate, an oscillating disk mounted on said shaft and formed with cam-slots through which the bolts project, and means for locking said disk at different positions, comprising ratchet-teeth on the under surface of the oscillating disk, and a pawl arranged below said disk.

3. A barrel-carrier comprising a base-plate formed with elongated slots; arms slidably supported in said base-plate; bolts for connecting the arms and base-plate; a shaft extending centrally through the base-plate and formed with an annular head and a projecting ear; a link secured to said ear; an oscillating disk mounted on said annular head and formed with cam-slots and ratchet-teeth, and a fixed disk arranged below the oscillating disk; and a pawl secured to said fixed disk to engage the ratchet-teeth.

678,417. **SURGICAL JAW-SPLINT AND SUPPORT.** WILLIAM G. E. MULLER, Paterson, N. J. Filed May 18, 1901. Serial No. 60,962. (No model.)

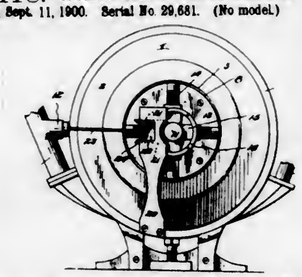


Claim.—1. A surgical jaw-splint and support, consisting of a series of overlapping strips or bands, provided with longitudinal slots and guide-clips, adapted to be adjusted to the size and shape of the patient's head and neck, and to be arranged as shown and described, in combination with a chin-splint, and flat-headed bolts, provided with a square portion, adapted to enter said slots to prevent the screw from turning, and nuts for securing the parts together where desired, substantially as set forth.

2. A surgical jaw-splint and support, consisting of a series of overlapping strips or bands, provided with longitudinal slots and guide-clips, adapted to be adjusted to the size and shape of the patient's head and neck, and to be arranged as shown and described, in combination with a chin-splint, flat-headed bolts, provided with a square portion, adapted to enter said slots to prevent the screw from turning, nuts for securing the parts together where desired, and a lining of felt or other suitable material on the binding portions of the device, substantially as set forth.

3. A surgical jaw-splint and support, consisting of a series of overlapping strips or bands, provided with longitudinal slots and guide-clips, adapted to be adjusted to the size and shape of the patient's head and neck, and to be arranged as shown and described, to pass around the neck and head of the patient, and from the collar-band up the sides of the head and over the top thereof, and from the top down the back of the patient to a point below the shoulder-blades, where it may be secured by bandages passing around the body, substantially as set forth.

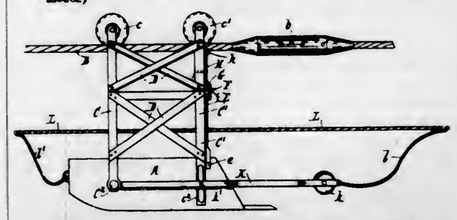
678,418. **SPEED-GOVERNOR.** JAMES C. MURPHY, Canton, Wis. Filed Sept. 11, 1900. Serial No. 29,681. (No model.)



Claim.—1. In a speed-governor for rotary engines, the combination with a cylinder having a valved supply-pipe, and a piston, of a disk carried by the piston and provided with rotary slots, guide-rods in said slots, blocks carrying segmental guides and slidably mounted on the rods, springs acting to force the blocks inwardly, a guide upon the cylinder, a cross-head slidably mounted in said guide and provided with wings in which said segmental guides on the blocks are adapted to move, and a connecting-rod between the cross-head and valve in the supply-pipe, substantially as set forth.

2. In a speed-governor for rotary engines, the combination with a cylinder having a valved supply-pipe, and a piston, of a disk carried by the piston and provided with radial slots, guide-rods in said slots, blocks carrying segmental guides and slidably mounted on the rods, springs acting to force the blocks inwardly, means for adjusting the tension of said springs, a guide upon the cylinders, a cross-head provided with guide-fingers and slidably mounted in said guide and also provided with wings to engage said segmental guides on the blocks, and a connecting-rod between the cross-head and valve in the supply-pipe, substantially as set forth.

678,419. **APPARATUS FOR EXCAVATING, DREDGING, TRANSPORTING, AND ELEVATING EARTH, &c.** EWEN MCGREGOR, Mangonobo, New Zealand. Filed Jan. 16, 1901. Serial No. 43,447. (No model.)



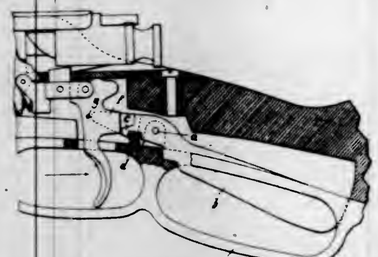
Claim.—1. In apparatus for excavating or dredging earth and similar operations, a scoop to the top frame of which are pivoted two right-angled arms that extend down each side of the scoop and engage with catches thereon, the other ends of the arms being connected to links that are pivoted to a cross-bar with an upwardly-extending arm, such arm being provided on its top end with a grove, as herein specified.

2. In apparatus for excavating or dredging earth and similar operations, the combination with a scoop, of a frame to which said scoop is pivoted, running-wheels journaled in said frame, pivoted catches for holding the scoop level, and tripping mechanism for said catches located slightly below said wheels.

3. In apparatus for excavating or dredging earth and similar operations, a scoop, that is suspended from a carrying-rope and which is kept in a level position by means of catches upon right-angled lever-arms pivoted to the top frame of the scoop, and that is provided with forwardly-extending arms, such scoop being connected to an endless hauling-rope by means of short connections secured to the front and back of the scoop and the hauling-rope as specified.

4. In apparatus for excavating or dredging earth and similar operations, a scoop, that is suspended from a carrying-rope and which is kept in a level position by means of catches upon right-angled lever-arms pivoted to the top frame of the scoop, and that is provided with forwardly-extending arms, such scoop being connected to an endless hauling-rope by means of short connections secured to the front and back of the scoop and the hauling-rope, in combination with an enlargement-piece secured to the carrying-rope, as herein set forth.

678,420. **SAFETY LOCKING DEVICE FOR FIREARMS.** FRANZ NEUBER, Vienna-Neustadt, and JOSEPH TAMBOUR and CARL COLBERT, Vienna, Austria-Hungary. Filed May 18, 1900. Serial No. 17,111. (No model.)



Claim.—1. The combination of a pivoted lever, a cross-piece on the forward end thereof, a trigger disposed to be engaged by said cross-piece to prevent both lateral and longitudinal displacement of the same, means movable with the trigger to engage the cross-piece at a predetermined time, and means for retaining said lever in a predetermined position, as set forth.

2. A new and useful safety locking device for firearm-triggers having a pivoted lever a cross-piece on the forward end of the same a trigger adapted to be engaged by said cross-piece in a manner for preventing lateral as well as longitudinal displacement of the same a pin on said trigger adapted to engage said cross-piece at a predetermined time and springs for retaining the said lever in a predetermined position substantially as described.

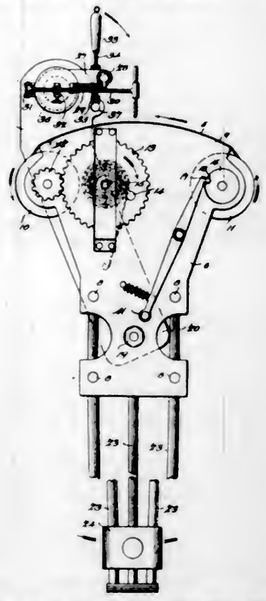
678,421. **STEAM-ENGINE INDICATOR.** ERIC NORDEN, Wilmington, N. C. Filed Apr. 27, 1901. Serial No. 57,820. (No model.)

Claim.—1. A device of the class described comprising a pendulum having a slidable block for operative connection with the piston of an engine to be charted and having a platen, and a card consisting of a continuous strip disposed for movement across the platen and having means for giving intermittent motion thereto.

2. A device of the class described comprising a pendulum having a slidable block adapted for connection with the piston of an engine to be charted to oscillate the piston, said pendulum having an arcuate platen concentric with the center of oscillation of the pendulum, and means constructed and arranged to hold a card against the platen and to give intermittent movement thereto across the platen.

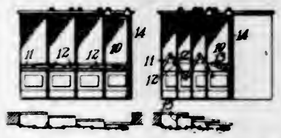
3. A device of the class described comprising a pendulum adapted for connection with the piston of an engine to oscillate the pendulum, a platen upon the pendulum, winding-drums at opposite sides of the platen and adapted to wind a ribbon from one to the other, means connected with one of the drums for rotating it when the other drum is permitted to rotate and for holding the ribbon taut, and permissive means for holding the other drum normally against rotation.

4. A device of the class described comprising an oscillatory arcuate platen, a winding-drum at each end of the platen, a strip passed over the platen and engaged with the winding-drums to be wound from one to the other over the platen, a spring-drum connected with one of the winding-drums for rotating it, and a manual latch mechanism for holding the other drum normally against rotation, whereby the strip will be held under tension and may be given intermittent motion



5. A device of the class described comprising a pendulum having a slide thereon for connection with the cross-head of an engine, a hanger having a stud with which the pendulum is pivotally engaged, said pendulum having an arcuate upper end forming a platen, a continuous card passed over the platen, winding-drums with which the card is engaged to be wound from one to the other, means for giving intermittent motion to the card, and a stylus in operative relation to the card.

678,422. **LOCK FOR ELEVATOR-DOORS.** NIELS POULSON, Brooklyn, N. Y. Filed Aug. 28, 1899. Serial No. 728,063. (No model.)



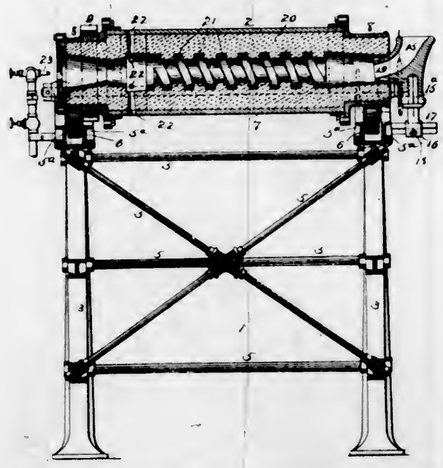
Claim.—1. The combination with a sliding door or panel of a link pivoted thereto, a link pivoted to the door post or jamb and to the other link, and a latch pivoted also to the door and adapted to engage the free end of the first link, the pivots of the several links being in a straight line when the door is closed, thereby causing the chain of links to constitute a lock for the door and a stop for it in closing.

2. The combination with one or more sliding doors or panels, of links pivoted together and to the door-post and the door or doors at their middle in a manner such that these pivots will be in a straight line when the doors are closed, and a latch engaging the free end of one of the links, and which on being tripped will move the links and throw the pivots out of alinement and permit the doors to be opened.

3. In an elevator-door, the combination with one or more sliding doors or panels, of links pivoted together and to the door-post and the door or doors in a manner such that their pivots will be in a straight line when the doors are closed, a latch pivoted to the front edges of the door or doors, and a vertical tripping-rod extending along said edge and engaging with said latch whereby it may be tripped and the chain of links thrown out of alinement and the door unlocked, substantially as set forth.

4. A door consisting of two or more adjacent sliding sections in combination with series of links extending across the sections and pivoted at their ends to one another and at their middles to the sections, and a link pivoted to the last of said links and to the door-jamb, the pivots of said links being in line with each other when the door is closed, for the purpose set forth.

678,423. **FURNACE.** WALTER S. ROCKWELL, New York, N. Y. Filed Nov. 6, 1900. Serial No. 35,692. (No model.)



Claim.—1. The combination of a revoluble furnace having an opening therethrough from end to end, means for feeding blanks into one end of said furnace, and means for projecting heat into the other end of the furnace, said furnace provided therein with a spiral runway for blanks, having its discharge end spaced from the end of the furnace into which heat is projected, and means at the discharge end of the runway for permitting the escape of heated blanks therefrom.

2. The combination of a revoluble furnace provided interiorly with an unobstructed spiral runway and provided with radial discharge-ports removed inwardly from one end of the furnace and communicating with the runway so as to receive blanks therefrom means for feeding blanks into the other end of the furnace and means for projecting heat into the end of the furnace nearest the discharge-ports.

3. The combination of a revoluble furnace having a working chamber and means for projecting heat directly into one end thereof, said working chamber having an unobstructed spiral groove or runway communicating with lateral discharge-ports for blanks at a point removed inwardly from the end of said chamber into which the heat is projected.

4. In a furnace, the combination with a supporting-frame, rollers on said frame, a furnace revolubly supported on the rollers, and means for revolving the furnace, of a fire-clay lining in the furnace having a spiral groove therein for the passage of blanks, a funnel connected to the frame, a spout on the funnel projecting into one end of the furnace to direct the blanks into the groove means for adjusting the funnel to regulate the draft through the furnace and means at the other end of the furnace for directing a flame therein.

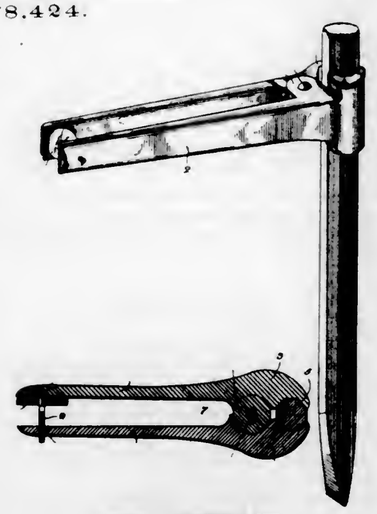
5. In a furnace, the combination with a rotary cylinder, of means for directing a flame into one end of the cylinder, and an adjustable device for feeding blanks to the other end of the furnace, said adjustable device also constituting means for regulating the draft through the furnace.

6. The combination with a revoluble furnace open at its inlet end, of a feeding device projecting into said open end of the furnace, and means for adjusting said feeding device relatively to the open inlet end of the furnace for regulating the draft through the furnace.

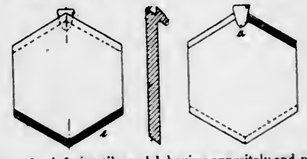
678,424. **TOOL-HOLDER.** MARBRY C. RODENBERGER, East St. Louis, Ill. Filed Apr. 28, 1900. Serial No. 14,752. (No model.)

Claim.—A chisel-holder comprising a pair of handle members lying side by side, and having an intermediate pivotal connection, and complementary jaws carried transversely at corresponding ends of the handle members, the inner faces of the jaws having complementary concaved seats extending for the entire lengths of the jaws and forming an approximate annulus when the jaws are closed, the outer terminal of each seat approximating the outer side of the outer terminal of the jaw, and an adjusting device for the handle members.

678,424.



678,425. **FACING-TILE.** HEINRICH ROSENBUSCH, Munich, Germany. Filed Apr. 25, 1901. Serial No. 57,488. (No model.)

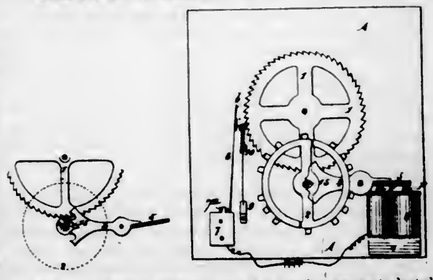


Claim.—1. A facing tile or slab having oppositely and parallel beveled upper and lower edges and provided with a suspending-hook at its upper edge, and a nose or stop extending above the said upper edge, the outer surface of the nose and the upper beveled edge forming an acute angle with the rear face of the tile or slab.

2. A facing slab or tile having upper and lower oppositely and parallel beveled edges and provided with a suspending-hook, and a stop or nose at its upper edge, the front of said nose being in line with the rear surface of the tile and forming an acute angle with the upper beveled edge, while the lower beveled edge also forms an acute angle with the rear face of the tile or slab.

3. A facing slab or tile having a lower beveled edge of triangular shape which forms an acute angle with the rear face and an upper triangular beveled edge inclined in an opposite direction, in combination with a suspending hook and a nose extending from the apex of the upper beveled edge, the outer face of said nose forming an acute angle with the upper beveled edge.

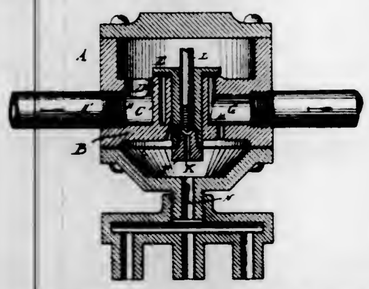
678,426. **ELECTRIC CLOCK.** EMILIO ROSI, Arquata-Scrivia, and GIUSEPPE VACOTTI, Serravalle-Scrivia, Italy. Filed Dec. 19, 1898. Serial No. 699,787. (No model.)



Claim.—An electric timepiece comprising an electromagnet adapted to be connected to one pole of a battery, of an escapement-wheel, a balance-wheel, a spring-tooth carried by the balance-wheel spindle and com-

municating movement to the escapement-wheel, a pin on the balance-wheel, a pivoted lever having a soft-iron armature at one end adapted to be attracted by the electromagnet, and having a cut-away part at the opposite end adapted to be engaged by the pin on the balance-wheel, a plate A, an insulated plate thereon, a spring 8 adapted to be connected to the other pole of the battery, carried by the latter plate, and a spring-pawl engaging the teeth of the escapement-wheel and adapted to make contact with the spring 8 when said spring is pressed outwardly by the escapement-wheel each time the latter receives an impulse, and means for varying the distance between the spring-pawl and the spring 8.

678,427. AUTOMATIC CONTROLLING-VALVE. HARRY M. SALTER, New York, N. Y., assignor to Ludwig & Co., same place. Filed Dec. 20, 1900. Serial No. 40,485. (No model.)



Claim.—1. The combination with a valve-casing, having a partition provided with a hole and with a hub, in which hub a chamber open at one end is formed, which chamber is in communication with the exterior of the casing, of a valve for closing said chamber, a diaphragm secured in the casing below the partition and connected with the stem of the valve, a duct being provided for establishing communication between the space above and below the diaphragm and a tube connected with the space between the diaphragm and the bottom of the casing, substantially as herein shown and described.

2. The combination with a valve-casing having a partition provided with a hole and with a hub, in which a chamber, open at one end is formed, which chamber is in communication with the exterior of the casing, of a valve for closing said chamber, a diaphragm secured in the casing below the partition, and connected with the stem of the valve, said valve-stem being provided with a duct establishing communication between the space above and below the diaphragm and a tube connected with the space between the diaphragm and the bottom of the casing, substantially as herein shown and described.

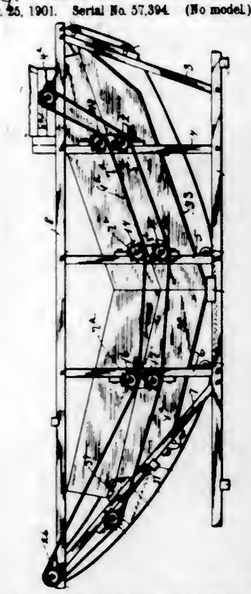
3. The combination with a valve-casing having a partition provided with a hole and with a hub, in which a chamber, open at one end is formed, which chamber is in communication with the exterior of the casing, of a valve for closing said chamber, a diaphragm secured in the casing below the partition, and connected with the stem of the valve, said valve-stem being provided with a duct establishing communication between the space above and below the diaphragm, means for adjusting the size of this duct and a tube connected with the space between the diaphragm and the bottom of the casing, substantially as herein shown and described.

4. The combination with a valve-casing, of a valve in the same, a diaphragm larger than the valve, in said casing, connected with the stem of the valve, means for producing the same fluid-pressure on the under side of the valve and on both sides of the diaphragm and means for reducing at times, the pressure on the under side of the diaphragm, substantially as herein shown and described.

5. The combination with a valve-casing, having a chamber formed therein, of a valve for closing said chamber, a diaphragm held in said casing and connected with the stem of the valve and means for producing the same fluid-pressure in the casing, against the under side of the valve and on both sides of the diaphragm and means for reducing at times the pressure on the under side of the diaphragm, substantially as herein shown and described.

6. The combination with a valve-casing having a chamber formed therein and a partition in said casing on which partition said chamber is formed, of a valve for closing said chamber, a diaphragm held in said casing below the partition and connected with the stem of the valve, and means for producing the same fluid-pressure in the chamber and on both faces of the diaphragm and means for reducing at times, the pressure on the under side of the diaphragm, substantially as herein shown and described.

678,428. CIDER-PRESS. ADOLPH K. SCHAAF, Smithville, Ohio. Filed Apr. 25, 1901. Serial No. 57,394. (No model.)



Claim.—The combination of a suitable frame, a shaft having mounted thereon a grinding-cylinder properly journaled, presser-rolls mounted upon shafts and properly journaled, an endless canvas, the members thereof located between pressure-rolls, a series of striking-bars connected to springs at the free ends of said springs and the opposite ends of said springs held in fixed position, a cylinder provided with teeth or bars upon its periphery and arranged spirally thereon and in operative relation to the striking-bars, said bars being located between the members of the endless canvas, substantially as and for the purpose specified.

678,429. TURRET. SAM SCHINBURG, New York, N. Y. Filed Oct. 25, 1900. Serial No. 34,391. (No model.)

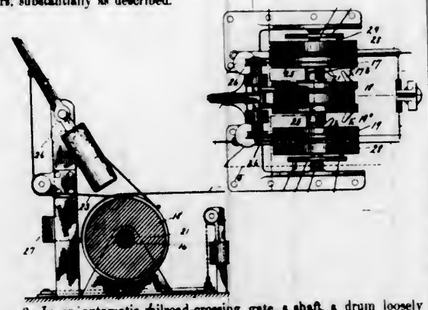


Claim.—The combination with a turret having a front face tapered toward its center and an opening in the center thereof, of a gun within the opening, a collar clamped thereto, and forming bearings for the trunnions of the gun, and tapered edges to the collar adapted to engage the walls of the opening.

678,430. DEVICE FOR AUTOMATICALLY CLOSING OR OPENING RAILWAY-GATES. HEINRICH SIEGMANN, Grossenwieder, Germany. Filed July 14, 1900. Serial No. 23,596. (No model.)

Claim.—1. In an automatic railroad-crossing gate, adapted to be successively closed, retained closed and opened by a train passing from either direction, the combination of a gate, closing and opening mechanism in connection therewith, vertically-movable tread-bars located in the road-bed on each side of said gate, guides for each of said tread-bars, means for retaining said tread-bars in an upper position, a lever connected with each of said tread-bars, wires connecting said levers and said mechanism, a pin on each of said tread-bars, pawls adapted to engage said pins, and wires connecting said pawls and said mechanism, substantially as described.

2. In an automatic railroad-crossing gate, the combination of a vertically-swinging gate, a shaft, a drum on said shaft, rollers loosely mounted on said shaft on each side of said drum, means for coupling either of the rollers to said drum, wires or cords wound on said drum and connected with said gate, a guide engaging said drum, disks fixed on said shaft on the outside of each of said rollers, a pin on each of said disks adapted to enter a groove, one of which is formed in the outer face of each of said rollers, a projection on the outer face of each of said disks, levers engaged by said projections, vertically-movable tread-bars, locking-pawls connected with said tread-bars, wires, chains or cords connecting said bars and rollers, and other chains, wires or cords connecting said pawls and said levers, substantially as described.



3. In an automatic railroad-crossing gate, a shaft, a drum loosely mounted thereon, a pivoted gate connected with said drum, a guide engaging the same, loose rollers on said shaft, means for coupling either roller with the drum, and means whereby a rotating roller moves the other laterally, disks rigidly connected to the shaft and means for the engagement of each by the adjacent roller when said roller is moved laterally and means actuated by passing trains for operating said rollers and gates, substantially as described.

4. In an automatic railroad-crossing gate, the combination of a shaft, a sleeve thereon, having a lateral movement, a drum rotatable on said sleeve, a gate connected with said drum, so as to be opened or closed thereby, laterally-movable rollers mounted on said shaft on each side of said drum, a clutch-coupling between the drum and each roller, disks rigid on said shaft, each having a pin engageable with one of said rollers and also having a pin or pins on its outer face to engage levers adjacent said disks, means for rotating said rollers, and locking devices for said roller-rotating means having wire or cord connections with said disk-operating-levers, substantially as described.

5. In an automatic railway-gate-operating mechanism, the combination of a tread-bar with a locking device therefor, a rotatable drum having a stationary guide, and means connected with said tread-bar and with said drum for rotating the latter; said means including a roller freely mounted on the shaft and adapted to engage said drum, a connection between said tread-bar and roller, and a chain connecting said drum with said gate.

6. In an automatic railway-gate-operating mechanism, a pivoted weighted gate, tread-bars on opposite sides thereof, locking devices for said tread-bars, a shaft with two rollers freely mounted thereon, a drum having a stationary guide mounted on a sleeve on said shaft intermediate said rollers, and means for its engagement with either of them, mechanism connected with each of said tread-bars for operating one of said rollers and thereby rotating said drum, a chain connecting said drum with said gate and means connected with said shaft and with said locking devices for releasing the latter, said parts being combined substantially as described.

7. In an automatic railway-gate-operating mechanism, a gate, tread-bars on opposite sides thereof, locking devices for said tread-bars, a shaft with loosely-mounted rollers thereon, a rotatable drum operated by engagement with either of said rollers, means connected with said rollers and tread-bars for operating the former, means connected with said drum and gate for operating the latter, a sleeve on the shaft of the rollers furnishing a bearing for said drum and adapted to be moved longitudinally on said shaft by the contact therewith of the hub of a roller so as to longitudinally move the other roller on the said shaft, disks rigidly connected to said shaft having projections on their outer faces and adapted to be engaged by said rollers when so moved so as to rotate therewith, and levers connected with said tread-bar-locking devices and actuated by contact with said projections for releasing said locking devices, said parts being combined substantially as described.

8. In an automatic railway-gate-operating mechanism, a gate, tread-bars with locking devices, a rotatable shaft with loose rollers thereon, a rotatable drum adapted to be rotated by engagement with either of said rollers, means connected with said tread-bars for operating the rollers, means connecting said drum and gate for operating the latter, a sleeve on said shaft furnishing a bearing for said drum, means for moving said sleeve longitudinally on said shaft independently of said drum through the rotation of either one of said rollers and thereby longitudinally moving the other roller on said shaft, disks rigidly connected with said shaft and provided with means for engagement by said rollers so as to rotate therewith, levers connected with said tread-bar-locking devices, projections on said disks for striking said levers and releasing said locking devices, and devices for returning said rollers to their normal positions, said parts being combined substantially as described.

9. A railway-gate, in combination with movable tread-bars having locking devices, levers operated by the movement of said tread-bars, a shaft with loose rollers thereon, said rollers having a chain connection with said levers, a rotatable drum having a connection with said gate and adapted to be operated by engagement with either of said rollers, a releasing device for said locking devices connected with said rollers and with said shaft, and separate restoring devices for said rollers, drum, and gate.

10. A railway-gate, tread-bars with locking devices therefor, a shaft with rollers freely mounted thereon, a rotatable drum operated by engagement with either of said rollers, a sleeve mounted on said shaft and furnishing a bearing for said drum, said sleeve having longitudinal movement on said shaft independent of said drum, a stationary guide therefor, projecting cam-hubs upon said rollers engaging with said sleeve so as longitudinally to move the same on said shaft or to be moved thereby, disks rigidly secured to said shaft and having pins to engage said rollers, and releasing means for said locking devices operated by rotation of said shaft, said parts being combined substantially as described.

11. A weighted pivoted gate, movable tread-bars with returning mechanism, locking devices for said tread-bars, a shaft with two rollers freely mounted thereon, means connecting said tread-bars and rollers for rotating the latter, a sleeve freely mounted on said shaft and having cam ends in engagement with hubs on said rollers so as to be moved longitudinally by the rotation of either of said rollers, and to move the opposite one, a drum freely mounted on said sleeve and having a stationary guide, disks rigidly secured to said shaft and provided with means for locking them to said rollers, levers connected with the locking devices of the tread-bars and engaged by projections on said disks for releasing the same, and separate means for automatically returning said rollers and drums to their normal positions, said parts being combined substantially as described.

12. In an automatic railway-gate, the combination of a gate with a drum in connection therewith, a shaft on which said drum is loosely mounted, a guide keeping said drum from lateral movement, rollers loosely mounted on said shaft, and capable of lateral movement thereon, a disk fixed to the shaft on the outside of each of said rollers and engaged by it at the limit of its lateral movement, track devices actuated by a passing train for operating said rollers, and locking devices for said track devices operated by said disks, substantially as described.

678,431. BRUSH. WILLIAM H. BAIRD, Burlington, Iowa. Filed Aug. 14, 1900. Serial No. 26,857. (No model.)



Claim.—1. A brush comprehending a frame-loop having inturned flanges, a bristle-plate carrying bristles and having its edges supported by an inturned flange, the edges of said frame-loop above the bristle-plate being inturned, a backing-plate and a wire bead retained against the backing-plate by one of said inturned flanges.

2. A brush comprising a frame-loop having an inturned flange, a bristle-plate resting upon said flange, a backing-plate disposed behind the bristle-plate, the upper edge of the frame-loop being rolled to form a hollow bead opposed to the backing-plate.

3. A brush comprising a frame-loop having its edges inturned, a bristle-plate and a backing-plate retained by said inturned edges of the frame-loop, and a filler of insoluble cement and asbestos between said plates.

4. A brush comprising a frame-loop having its opposite edges inturned, a bristle-plate, a backing-plate and an intermediate insoluble and non-conductive plastic filler all retained between the inturned edges of the frame-loop, and a wire bead located behind the backing-plate and retained within the opposed inturned edge of the frame-loop.

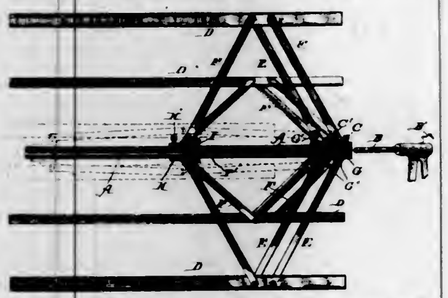
5. A brush comprising a frame-loop and handle, the opposite edges of said frame-loop being inturned, a bristle-plate and a backing-plate disposed between the inturned edges of the frame-loop, said backing-plate being extended into the handle, a filler between the bristle-plate and backing-plate, and a wire bead located within the inturned edge of the frame-loop which is opposed to the backing-plate.

6. A brush comprising a handle and a frame-loop, the edges of which latter are inturned, a bristle-plate and a backing-plate having their edges clamped between the inturned edges of the frame-loop, a wire bead re-

tained by one of the inturned edges of the loop, said bead and backing-plate being extended into the handle.

7. A brush comprising a frame struck from a single sheet of metal and comprising a hollow handle and a frame-loop having its edges inturned, a bristle-plate and a backing-plate clamped between the inturned edges of the frame-loop, said backing-plate being extended into the hollow handle, a wire bead inclosed by one of the inturned edges of the frame-loop and likewise extended into the handle, a plastic filler intermediate of the bristle-plate and backing-plate, bristles retained in the bristle-plate, and a casting of cement connecting and binding the bristles at the back side of the bristle-plate.

678,432. HARVESTER-REEL. EDWARD O. BECKMAN, Piper City, Ill. Filed Aug. 13, 1900. Serial No. 26,718. (No model.)



Claim.—1. A harvester-reel comprising the shaft, the fans or blades, the parallel connecting-bars between the shaft and blades and forming therewith a parallel-ruler-like construction, the adjusting-bars pivoted at their outer ends to the blades and extending thence toward the shaft in a direction inclined oppositely to that of the connecting-bars, and a slide on the shaft to which the inner ends of the adjusting-bars are pivoted, substantially as set forth.

2. In a harvester-reel, the combination of a shaft, the fans or blades, the connecting-bars pivoted to said blades and extending between the same and the shaft, the adjusting-bars pivoted at their outer ends to the blades, a slide on the shaft to which the inner ends of said adjusting-bars are pivoted, and a gage-stop for engagement by said slide, the said stop being arranged on the shaft between the slide and the connecting-bars in position to stop the slide when the latter is set to expand the reel, substantially as set forth.

3. In a harvester-reel, the combination of a shaft provided at a point between its ends with a series of transverse perforations and with a stop-pin fitted thereto, the tubular bracket fitted on one end of the shaft, pairs of parallel connecting-bars pivoted at their inner ends to such bracket, the fans or blades to which the outer ends of the connecting-bars are pivoted, the adjusting-bars pivoted at their outer ends to the fans or blades, and the slides on the shaft to which the inner ends of the adjusting-bars are pivoted, the said slides being movable toward and from the stop-pin on the shaft, substantially as set forth.

4. In a harvester-reel, the combination of the tubular shaft fitted at one end for application to a revolving shaft of a harvester, the tubular bracket on said end of the shaft, a set-screw for securing such tubular bracket to the hollow shaft and the latter to the shaft of the harvester, the connecting-bars parallel with each other and pivoted at their inner ends to the tubular bracket, the fans or blades to which the outer ends of the connecting-bars are pivoted, the adjusting-bars pivoted at their outer ends to the fans or blades, and the slide to which the inner ends of the adjusting-bars are pivoted, substantially as set forth.

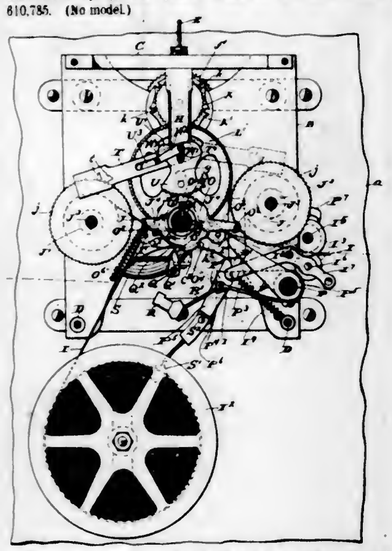
5. A harvester-reel comprising the shaft, the fans or blades, the parallel connecting-bars pivoted at their outer ends to the blades, the tubular bracket to which the inner ends of the connecting-bars are pivoted, the adjusting-bars pivoted at their outer ends to the blades, a slide on the shaft to which the inner ends of the adjusting-bars are pivoted, and set-screws by which said slide and the tubular bracket may be secured to the shaft, substantially as set forth.

6. A harvester-reel comprising the shaft, the blades, the connecting-bars between the shaft and blades and pivotally connected at their opposite ends to such parts and the adjusting-bars pivoted at their outer ends to the blades and extending thence toward the shaft in a direction inclined oppositely to that of the connecting-bars, the adjusting-bars and connecting-bars being pivoted to the blades relatively near together, and the bars and shaft forming an outwardly-converging triangle in the expanded adjustment of the reel substantially as shown and described.

7. A harvester-reel comprising the shaft, the blades, and the parallel connecting-bars between the shaft and blades and forming therewith a parallel-ruler-like construction, the slide and the adjusting-bars extending between the blades and slide, substantially as set forth.

8. A harvester-reel comprising the shaft, the blades, the parallel connecting-bars between the shaft and blades and forming therewith a parallel-ruler-like construction, and adjusting mechanism operating directly upon the blades and adapted to expand and contract the blades uniformly substantially as set forth.

678,433. EMPLOYEE'S TIME-RECORDER. EDWARD O. HEENE, Cleveland, Ohio, assignor, by mesne assignments, to the Empire Time Recorder Company, same place. Filed Oct. 31, 1896. Serial No. 610,785. (No model.)



Claim.—1. In a time-recording machine, the combination of the horizontally-arranged shaft F; a continuously-rotating gear loosely mounted upon said shaft, said gear being provided with a lug or projecting member f^2; a weighted arm F^3 fixed to said shaft; a disk F^4 loosely mounted upon said shaft and having a lug or shoulder f^4, and provided upon or at its periphery with a pin or projecting member F^5; a minute-recording wheel having a horizontal axis; a gear operatively connected with the minute-wheel and meshing with the first-mentioned gear; an hour-recording wheel having its axis coincident with the minute-wheel; a notched wheel operatively connected adjacent to and having its axis coincident with the hour-wheel and provided upon its periphery with notches or recesses G^2 arranged at equal intervals, all arranged and operating substantially as shown, for the purpose specified.

2. In a time-recording machine, the combination of a horizontally-arranged shaft F; a suitably-operated rotating member F' loosely mounted upon said shaft and provided with the lug or projecting member f^2; an hour-wheel-operating disk or member F^4 loose upon said shaft and provided with a lug or shoulder f^4; a weighted arm F^3 fixed upon said shaft, and means for controlling the time at which the aforesaid weighted arm commences to drop during each rotation of the weight-bearing arm, substantially as and for the purpose set forth.

3. In a time-recording machine, the combination with an upright shaft E supported by frame C and rotated continuously when operated and provided with a bevel-gear E' and the arm or member e' below said gear; the horizontal shaft F; a bevel-gear F' loosely mounted upon said last-mentioned shaft and meshing with the first-mentioned gear; a lug or member f^2 rigid with and projecting laterally from said loosely-mounted gear; a weighted arm F^3 fixed upon said horizontal shaft; a collar F^7 fixed upon the horizontal shaft below the gear upon the upright shaft, and provided with an outwardly-projecting arm or member f^7, and an hour wheel-actuating disk or member F^4 loosely mounted upon the horizontal shaft and provided with the lug or shoulder f^4, all arranged and operating substantially as shown, for the purpose specified.

4. In a time-recording machine, the combination with the suitably-rotated hour-recording wheel, a minute-wheel and a revolving pin or member g^4 operatively connected with the hour-wheel; of a suitably-supported notched wheel K provided at its periphery and at equal intervals

with notches or recesses arranged to be engaged successively by the aforesaid revolving pin or member, and a day-recording wheel suitably intergeared with said notched wheel and operatively connected with both the hour and minute wheels, substantially as and for the purpose set forth.

5. A time-recording machine, having a suitably-actuated minute-recording wheel, a suitably-operated hour-recording wheel, and a day-recording wheel, all arranged adjacent to each other, and constructed and arranged to print upon one and the same printing-line, a notched wheel adjacent to the hour-wheel, a disk adjacent to the notched wheel, and mechanism for transmitting motion from the hour-wheel to the day-wheel, substantially as and for the purpose set forth.

6. In a time-recording machine, the combination of the forward plate A provided with a keybole; a rear plate B; frame C connecting together and bracing apart said plates at the top; means connecting together and bracing apart said plates at the bottom; an upright post H near the rear side of the forward plate and secured at its upper end to the aforesaid frame; a forwardly and rearwardly extending and horizontally-arranged rod or pin g supported from said post and rear plate; suitably-operated recording-wheels loosely mounted upon said pin or rod and arranged to print upon one and the same line; an operating-key comprising, in addition to a cylinder or barrel having a flattened or beveled surface, a shaft capable of oscillation within said barrel or cylinder and provided with means for operating certain mechanism of the machine; a box formed upon the lower end of the aforesaid post and arranged to receive and afford bearing for the barrel or cylinder of the key, and furthermore so arranged that the type upon said cylinder or barrel shall be brought upon the printing-line upon the introduction of the key and a lug or member formed upon the rear side of said post in position to be engaged by the aforesaid beveled or flattened surface of the key upon the latter's introduction, substantially as and for the purpose set forth.

7. In a time-recording machine, the combination with the shaft P, a suitably-operated shaft-arm P^2 rigidly secured to said shaft and tiltable in an upright plane; means for preventing upward movement of said arm in the arm's normal position, of a striking platen or hammer suitably pivoted to the free end of the shaft-arm; and means for limiting the downward movement of the hammer or platen independently of the shaft-arm, said platen or hammer being capable of tilting upwardly independently of the shaft-arm, substantially as and for the purpose set forth.

8. In a time-recording machine, the combination of the two plates A and B arranged a suitable distance apart; the suitably-operated horizontally-arranged shaft P supported from said plates and provided centrally between said plates with the inwardly-extending hammer-bearing arm P^3 rigidly secured to said shaft, and provided, at the forward side of the rear plate, with an inwardly-extending arm P^{3a}; a projection formed upon the forward side of said rear plate and having its under side engaged by the last-mentioned shaft-arm in the shaft's normal position, and a spring acting to retain the shaft in its normal position, substantially as set forth.

9. In a time-recording machine, the combination of the shaft-arm P^3 tiltable in an upright plane; the bell-sounding hammer horizontally pivoted to the free end of said arm and capable of tilting upwardly independently of the arm; means for preventing the tilting of the bell-hammer downwardly independently of the arm; means for preventing an upward tilting of said arm in the latter's normal position, and a spring acting to retain the arm in its normal position, substantially as and for the purpose set forth.

10. In a time-recording machine, the combination of the bell; the bell-sounding hammer suitably arranged below the bell and free to tilt upwardly; a suitably-operated vertically-tilting shaft-arm P^5 bearing the bell-hammer and provided with a shoulder P^6 suitably arranged to prevent downward tilting of the hammer independently of the shaft-arm, means for preventing upward tilting of the shaft-arm when the latter is in its normal position, and a spring acting to retain the shaft-arm in its normal position, substantially as and for the purpose set forth.

11. In a time-recording machine, the combination with a suitably-supported shaft having an arm that bears the striking platen or hammer and provided with another arm; of a key-actuated oscillating collar or member provided with an arm arranged to actuate the shaft's last-mentioned arm and thereby oscillate the shaft in the direction required to cause the hammer or platen to deliver its blow, and means acting to retain the shaft and its members in their normal position, substantially as set forth.

12. The combination of the horizontally-arranged shaft P having rigidly secured thereto an inwardly-extending arm which carries the striking platen or hammer, and provided with another and inwardly-extending arm forwardly of the hammer-bearing arm; of a key-actuated oscillating collar or member provided with an arm normally overhanging the outer end of the forward arm of said shaft P, a spring acting to retain said shaft and arms in their normal position, and means for preventing the oscillation of said members by said spring beyond their normal position, substantially as and for the purpose set forth.

13. The combination with the horizontally-arranged shaft P having an inwardly-extending arm that bears the striking platen or hammer, and provided with another and inwardly-extending arm forwardly of the hammer-bearing arm, and the key-actuated oscillating collar or member O having an arm O^2 that overhangs the free end of the shaft's forward arm, and having the notched segment O^4; of the pivoted latch Q, and the spring Q^2, all arranged and operating substantially as shown, and for the purpose specified.

14. In a time-recording machine, the combination with the forward plate A provided with an opening for the introduction of the operating-key; a rear plate B, and a horizontally-arranged shaft P supported from said plates and provided with the hammer-bearing arm and another arm arranged forwardly of the hammer-bearing arm; of a key-actuated collar or member arranged in line with the keyhole and provided with a slot or hole for receiving the operating tongue or arm of the key, and provided, furthermore, with an arm overhanging, in its normal position, the free end of the forward shaft-arm, substantially as shown, for the purpose specified.

15. In a time-recording machine, the combination with the forward plate or wall A provided with an opening for the introduction of the operating-key; a striking platen or hammer, and mechanism operatively connected with said platen or hammer; of the key-actuated collar or member arranged in line with the keyhole and provided with a slot or hole arranged to receive the operating tongue or arm of the key, and provided, furthermore, with an arm arranged to be brought into engagement with and actuate the aforesaid mechanism upon turning the collar in the required direction, means for limiting the oscillation of the key-actuated member, and means acting to retain the key-actuated member in its normal position, substantially as and for the purpose set forth.

16. In a time-recording machine, the combination with the forward plate or wall A provided with an opening for the introduction of the operating-key; a striking platen or hammer, and mechanism operatively connected with said platen or hammer; of the key-actuated collar or member at the rear of the aforesaid plate or wall and provided with a slot or hole arranged to receive the operating tongue or arm of the key, and provided, furthermore, with an arm overhanging and arranged to actuate the aforesaid mechanism upon turning the collar in the required direction; a lug or member A^3 rigid with and projecting rearwardly from the aforesaid plate or wall; and the two shoulders formed upon the key-actuated collar a suitable distance apart, and arranged to engage opposite sides, respectively, of said lug or projection, and a spring acting to retain the collar in its normal position, all arranged substantially as shown, for the purpose specified.

17. In a time-recording machine, the combination with the two rollers for feeding the record-receiving strip, said rollers being intergeared with each other and arranged horizontally, the one above the other; of a suitably-operated oscillating shaft arranged horizontally below the feed-rollers and provided with an inwardly-extending arm P^8, and a suitably-arranged pawl and ratchet-wheel for actuating the rollers intermittently, said ratchet-wheel being operatively connected with one of the rollers, said pawl being horizontally pivoted to the aforesaid shaft-arm, substantially as shown and described.

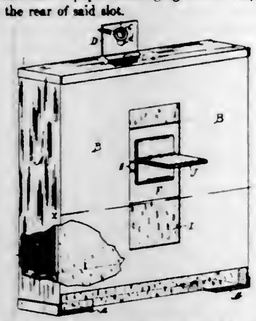
18. In a time-recording machine, the combination with the forward plate A; the rear plate B, and two horizontally-arranged ribbon-winding drums suitably supported from and between said plates; of two ratchet-wheels operatively connected with the different drums, respectively, and arranged in suitable proximity to the rear side of the forward plate; a longitudinally-slotted bar arranged at the rear side of the forward plate and having two pawls for operatively engaging the different ratchet-wheels, respectively, and capable of being swung from out of operative connection with one of the ratchet-wheels into operative connection with the other ratchet-wheel; means for actuating said bar in the direction required to feed the ratchet-wheel operatively connected therewith; a pointer or indicator arranged on the front face of the forward plate adjacent to the pawl-bearing bar; a short shaft journaled in said plate and operatively connected with the indicator or pointer, and said shaft, at the rear side of said plate, being provided with an arm that at its outer end, is provided with a member engaging the slot in the pawl-bearing bar, substantially as shown, for the purpose specified.

19. In a time-recording machine, the combination of a ribbon-winding drum, a suitably-supported toothed sector or mutilated gear, a ratchet-wheel operatively connected with said drum, a pawl engaging said wheel and operatively connected with the aforesaid gear or sector, and another and key-actuated mutilated gear or toothed sector meshing with the first-mentioned gear or sector, substantially as and for the purpose set forth.

678,434. TOILET-PAPER CABINET. HUGO LOEWENBACH, Milwaukee, Wis. Filed June 20, 1899. Serial No. 721,190. (No model.)

Claim.—1. A toilet-paper cabinet, comprising an inclosing cabinet or case, provided with a discharge-opening; a yielding front wall or cover,

provided with a slot; and a paper-discharging device suspended by an elastic support in the rear of said slot.



2. A toilet-paper cabinet, comprising an inclosing cabinet or case, provided with a discharge-opening and having a slot in the front wall or cover; and a paper-discharging device provided with a folding handle and suspended by flexible connection in the rear of said slot, and adapted to be moved inwardly and downwardly under pressure applied through said slot.

3. A toilet-paper cabinet, comprising an inclosing cabinet or case, provided with a discharge-opening, and having a yielding front wall or cover provided with a slot therein; and a paper-discharging device suspended in the rear of said slot by flexible connections and adapted to move inwardly and downwardly from the front wall.

4. A toilet-paper cabinet, comprising an inclosing cabinet or case, provided with a discharge-opening, and having a yielding front wall or cover provided with a slot therein; and a paper-discharging device suspended in the rear of said slot by flexible connections and adapted to move inwardly and downwardly from the front wall; and a folding handle secured to said paper-discharging device, and adapted to project through said slot.

5. A toilet-paper cabinet, comprising an inclosing cabinet or case, provided with a discharge-opening and having a yielding front wall or cover, and a paper-discharging device suspended by flexible connections within the cabinet, and adapted to move inwardly and toward the discharge-opening, in combination with a toilet-paper package secured to the rear wall of said cabinet.

678,435. SKIASCOPE-OPTOMETER. OTTO NEUSTÄTTER, Munich, Germany, assignor to Emil Neustätter, same place. Filed May 12, 1898. Serial No. 680,509. (No model.)



Claim.—1. In an instrument of the character described, the combination of a rod provided with a handle, with independent cylindrical rotatable sockets fitted on the rod and provided with radiating arms terminated by frames adapted to hold the glasses, rods pivoted at the lower part of said rod and secured at their upper ends.

2. In an instrument of the character described, the combination of a rod provided with a handle, independent, cylindrical, rotatable sockets arranged on said rod and provided with radial arms arranged in series, glass-holding frames secured to said arms, means for preventing the independent rotation of the radial arms in a single series, a graduated segment secured to said rod, and one or more hands moving over the face of said segment and pivoted to the rod, substantially as described.

3. In an instrument of the character described, the combination of a rod provided with a suitable handle, independent, cylindrical rotatable sockets arranged on said rod and provided with radial arms having glass-holding frames, series of glasses rotatably mounted in said frames and means for rotating the glasses in a single series, substantially as set forth.

678,436. STORAGE BATTERY. DAVID P. PERRY, Chicago, Ill. Filed May 7, 1900. Serial No. 15,522. (No model.)

Claim.—1. A battery having an element consisting of a series of disk or plate like members arranged side by side, a conductor extending transversely through said members and secured thereto, active material between each pair of members, and absorbent material between the members of each pair, substantially as described.

2. In a storage battery, the combination with an inner element consisting of electroconductive plates or members and active material in contact with said plates, of an outer element inclosing the inner element, and a sheath of non-conducting material surrounding the lower end of the inner element, substantially as described.



3. In a storage battery, the combination with a battery element comprising disk-like members arranged in groups, porous non-conducting material interposed between and next to the disk-like members of each group, the said groups being separated, and active material provided between the groups, of a second battery element inclosing the first aforesaid battery element comprising members in the form of rings divided into groups, porous non-conducting material interposed between and next to the said members of each group, the said groups being separated, and active material provided between the groups, substantially as described.

4. In a storage battery, the combination with a battery element comprising disk-like members arranged in groups, porous non-conducting material interposed between and arranged next to the disk-like members of each group, the said groups being separated, and active material provided between the groups, of a second battery element inclosing the first aforesaid battery element comprising members in the form of rings divided into groups, porous non-conducting material interposed between and arranged next to the said members of each group, the said groups being separated, active material provided between the groups, and openings or passages provided through the elements of the battery for conveying electrolyte, substantially as described.

5. In a storage battery, the combination with a battery element comprising disk-like plate portions arranged in groups, porous non-conducting material interposed between the disk-like plate portions of each group, the said groups being separated, and active material provided between the groups, of a second battery element inclosing the first aforesaid battery element comprising plate portions in the form of rings divided into groups, porous non-conducting material interposed between the said plate portions of each group, the said groups being separated, active material provided between the groups, and tubes of electroconductive material for the said elements, forming binding and terminal tubes, serving to convey the electrolyte, substantially as described.

6. In a storage battery, the combination with a battery element comprising disk-like plate portions arranged in groups, porous non-conducting material interposed between the disk-like plate portions of each group, the said groups being separated, and active material provided between the groups, of a second battery element inclosing the first aforesaid battery element comprising plate portions in the form of rings divided into groups, porous non-conducting material interposed between the said plate portions of each group, the said groups being separated, active material provided between the groups, and a sheath of non-conductive material surrounding the lower end of the inner element, serving to form a receptacle for loosened active material, whereby short-circuiting of the battery elements is prevented, substantially as described.

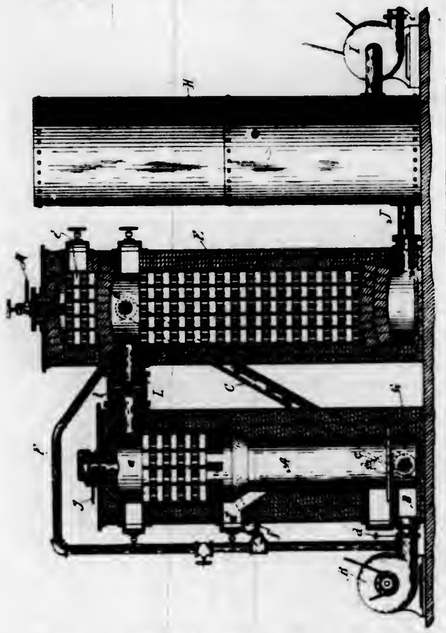
7. In a storage battery, the combination with a battery element comprising disk-like plate portions arranged in groups, porous non-conducting material interposed between the disk-like plate portions of each group, the said groups being separated, and active material provided between the groups, of a second battery element inclosing the first aforesaid battery element comprising plate portions in the form of rings divided into groups, porous non-conducting material interposed between the said plate portions of each group, the said groups being separated, active material provided between the groups, and openings extending through the plates and active material of the battery elements for conveying electrolyte, substantially as described.

8. In a storage battery, the combination with a battery element comprising disk-like plate portions arranged in groups, porous non-conducting material interposed between the disk-like plate portions of each group, the said groups being separated, and active material provided between the groups, of a second battery element inclosing the first aforesaid battery element comprising plate portions in the form of rings divided into groups, porous non-conducting material interposed between the said plate portions of each group, the said groups being separated, active material provided between the groups, and rigid layers *m*, *n*, dividing the battery elements into sections and serving to make the same rigid, substantially as described.

9. In a storage battery, the combination with superposed battery-plates, of active material interposed between the same, and a hollow binding-tube of electroconductive material serving to join the battery-plates and serving to convey electrolyte from part to part of the battery, substantially as described.

10. In a storage battery, the combination with superposed plates, of active material interposed between the same, and a hollow binding-tube of electroconductive material serving to join the battery-plates and serving to convey electrolyte from part to part of the battery, the said hollow tube also constituting a terminal of the battery elements, substantially as described.

678,437. APPARATUS FOR THE MANUFACTURE OF GAS. HENRY C. REW, Chicago, Ill. Filed June 6, 1895. Serial No. 551,908. (No model.)



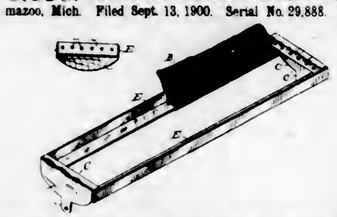
Claim.—1. In combination a generating-chamber, means for forcing air into said generator to produce combustion, means for admitting steam to be decomposed, a superheater situated immediately above the generator and provided with a steam-inlet, a second superheater, a valved flue whereby the tops of the superheaters may communicate, a valved flue whereby the base of the generator and the top of the second superheater may communicate, an air-inlet between the generator and the first superheater, an air-inlet above the second superheater, and means for charging air into the second superheater, substantially as described.

2. In combination the generating-chamber A having the blower B and air-inlet D and steam-inlet G, the superheater *a* situated immediately above the generator, a steam-inlet *g* for superheater *a*, the superheating-chamber E, the valved flue C communicating with the base of the generator, the valved flue I, communicating with superheater *a* immediately above the generator and both communicating with the upper part of the superheater E, the air-inlets F, *f*, the oil-inlet M and exhauster, I, substantially as described.

3. In combination the generating-chamber A having the blower B and air-inlet D and steam-inlets G and *g*, the superheater *a* situated immediately above the generator, a steam-inlet *g* for superheater *a*, the superheating-chamber E, the valved flue C communicating with the base of the generator, the valved flue I, communicating with superheater *a* immediately above the generator and both communicating with the upper part of the superheater E, the air-inlet F, *f*, the oil-inlet M, the condenser H and exhauster I, whereby the fuel may be raised to incandescence and the primary products of combustion burned in the superheater and drawn downwardly through the superheater and condenser and exhauster, and discharged, and whereby the steam may be passed either upward or downward through the chamber A and enriched with oil-vapors in a superheating-chamber and then drawn through condenser, and exhauster and discharged, substantially as described.

4. The superheating-chamber E, the generating-chamber A having the blower B, air-inlet D, steam-inlets G and *g* with the superheating-chamber *a* and air-inlet *f*, the valved flues C and I, the superheating-chamber being provided with the air-inlet F, chamber *e* and oil-vaporizing chamber *e'* filled with brickwork, oil-inlet M, and the outlet J' for gas and products in combination with condenser H, exhauster I having outlet *i*, whereby fuel may be raised to incandescence with an air-blast, and a portion of the primary products burned to heat the steam-superheating chamber *a* and unburned products subsequently burned to heat the superheating and oil-vaporizing chambers *e'* and E, and whereby the final burned products may be drawn through the brickwork and condenser and exhauster, and discharged, and whereby also steam may be decomposed by being passed either upwardly or downwardly through the incandescent fuel and the resulting water-gas enriched with oil-vapors and drawn through the heated brickwork, condenser and exhauster, and discharged, substantially as described.

678,438. TEMPORARY BINDER. BENJAMIN W. SCHMID, Kalamazoo, Mich. Filed Sept. 13, 1900. Serial No. 29,888. (No model.)



Claim.—1. In a temporary binder, the combination of the back-block D; the angle side pieces E, E, the end pieces C, C, with a portion C'' turned inwardly and perforated at *a* and ears C''' thereon to fold onto the back portion to secure the parts together; a hinge B of fabric embracing the side pieces E and joining the same to suitable covers A at each side; a back-finishing strip B'; and retaining-rods *a'* for insertion into the perforations *a* to retain a magazine or pamphlet in place.

2. In a temporary binder the combination of a suitable back-block; end plates C folded upon themselves at C' and perforated at *a*; angled side strips E connecting said end pieces together; covers hinged to said side strips; and retaining-rods *a'* for insertion into the perforated end pieces coacting as described.

3. In a temporary binder; the combination of a back-block; a rigid frame of angled side pieces connected together by end pieces, said end pieces having suitable openings or perforations, secured to said back-block; a suitable flexible material embracing said side pieces and connected to suitable covers to form hinges therefor, and retaining-pieces inserted in the openings in said end pieces, coacting as described.

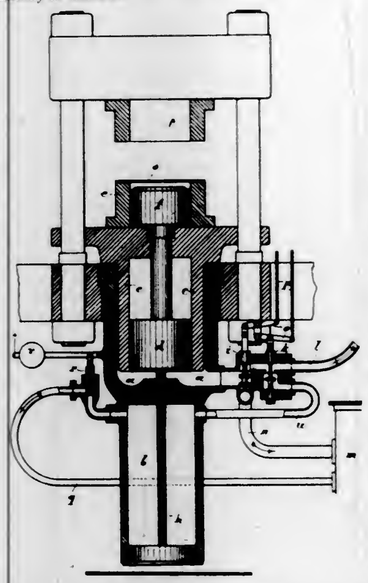
678,439. DRAWING-PRESS. LOUIS SCHULER, Göppingen, Germany. Filed Nov. 30, 1900. Serial No. 38,167. (No model.)

Claim.—1. In combination in a drawing-press with the die, a stamp-head, a piston connected with the stamp-head, a cylinder for said piston, a braking or retarding piston of larger surface area than that of the drawing-piston, a cylinder for said braking-piston, a connection between the pistons, and conduits leading to the cylinders with means whereby greater pressure may be exerted upon the drawing-piston than upon the braking-piston when the stamp-head has arrived at the die, substantially as described.

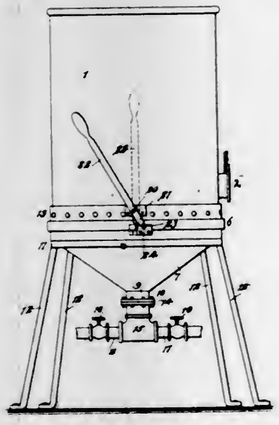
2. In combination, the die, the stamping-head, a piston connected with the stamping-head, a cylinder for said piston, a second piston in said cylinder in which the drawing-piston is adapted to move, a braking-piston, a cylinder therefor, the combined area of the two pistons in the drawing-cylinder being greater than that of the braking-piston and the surface area of the braking-piston being greater than that of the drawing-piston alone, the said second piston and drawing-piston being arranged to move together toward the die when equal pressures are in the two cylinders and the drawing-piston advancing alone when pressure is exerted thereon in excess of the pressure in the braking-cylinder and means for conveying pressures to the cylinders, substantially as described.

3. In combination, the die, a holder for the material a piston carrying said holder, a stamping-head arranged within the holder, a drawing-piston connected therewith and movable in the holder-piston, a braking-

piston connected with the drawing-piston, a cylinder for the braking-piston, the surface area of the holder and drawing pistons being greater than that of the braking-piston, and that of the braking-piston being greater than that of the drawing-piston alone and conduits leading to the cylinders, substantially as described.



678,440. SUGAR-MELTER. MYRON A. SMITH, New York, N. Y., assignor to International Machine Co., same place. Filed Mar. 13, 1900. Serial No. 8,437. (No model.)

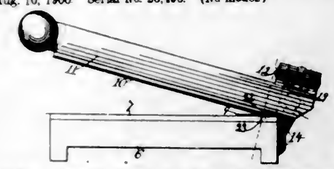


Claim.—1. In a device of the character herein specified, a vessel the bottom whereof is provided with perforations, a chamber therebeneath the top whereof is provided with corresponding perforations, means for changing the relative positions of said perforations by partially rotating the vessel 1, and means for supplying air or steam or both to the chamber beneath the said vessel, the whole combined and arranged to operate substantially as shown and described.

2. In a device of the character herein specified, a vessel provided with a perforated bottom, in combination with a chamber therebeneath having a top correspondingly perforated, means for changing the relative position of said perforations by partially rotating the vessel 1, and for supplying a manipulating-blast, substantially as shown and described.

3. A sugar melting and cooling device in which are comprised a vessel or tank provided with a perforated bottom, a chamber therebeneath the top whereof is perforated, means for supplying a manipulating-blast to said chamber, and means for partially rotating the vessel or tank above said chamber, substantially as and for the uses and purpose shown and described.

678,441. SHEARS. PERLEY E. STEVENS, St. Paul, Minn. Filed Aug. 10, 1900. Serial No. 26,498. (No model.)

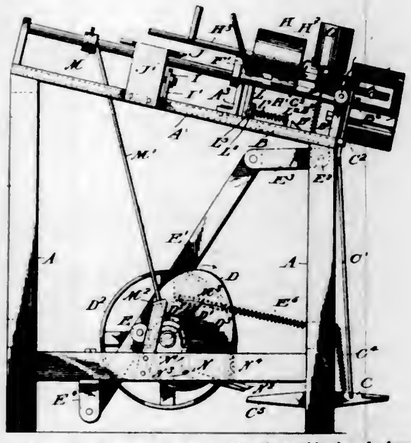


Claim.—1. Shears having one of the blades hung to swing to and from the cutting-plane in a direction nearly perpendicular to the said plane at the cutting-line, while at work.

2. Shears having one blade hung to operate in facial contact with the other blade; one of the said blades adapted to swing to and from the face of the other blade while at work.

3. Shears having a blade hinged substantially parallel with its own cutting edge to swing to and from the cutting-plane; the hinge being located at that side of the said plane at which pressure of the blade upon the work tends to force the said blade into facial contact with the fixed blade, substantially as described.

678,442. SOLDERING-MACHINE FOR CAN-SEAMS. JOHN A. STEWARD, East Clarendon, Vt. Filed Nov. 8, 1900. Serial No. 35,845. (No model.)



Claim.—1. In a can-soldering machine, the combination of a frame, a traveling table thereon, a form carried by said table, a holding-knife adapted to bear upon said form, an acid-applying device and a soldering device successively supported in the path of travel of said form, and means for elevating said knife from said form; substantially as specified.

2. In a can-soldering machine, the combination of a frame, a traveling table thereon, a form carried by said table, a holding-knife adapted to bear upon said form, an acid-applying device and a soldering device successively supported in the path of travel of said form, means for elevating said knife from said form when stationary, and means for automatically elevating said knife during the travel of the table and form; substantially as specified.

3. In a can-soldering machine, the combination of a frame, a traveling table thereon, a form carried by said table, a holding-knife adapted to bear upon said form, a lever extending from said knife and provided with a projection, a lifting-rod fixed to said frame and provided with an aperture into which said projection extends when the table is at one extreme of its movement, and means for reciprocating said lifting-rod; substantially as specified..

4. In a can-soldering machine, the combination of a frame, a traveling table thereon, a form carried by said table, a holding-knife adapted to bear upon said form, a lever extending from said knife and provided with a projection, a lifting-rod fixed to said frame and provided with an aperture into which said projection extends when the table is at one extreme of its movement, means for reciprocating said lifting-rod, and a fixed track-cam carried by the frame and adapted to engage the free end of the knife-lever during the travel of the same with the table; substantially as specified.

5. In a can-soldering machine, the combination of a frame, a table traveling thereon, means to reciprocate said table, a form carried by said table, an acid-brush and soldering-iron above said form, and means for automatically raising said brush and iron from said form; substantially as specified.

6. In a can-soldering machine, the combination of a frame, a table traveling thereon, means to reciprocate said table, a form carried by said table, an acid-brush and soldering-iron disposed above said form, means for automatically raising said brush and iron from said form, a knife adapted to rest upon said form, means for raising said knife when the form is at rest; substantially as specified.

7. In a can-soldering machine, the combination of a frame, a table traveling thereon, means to reciprocate said table, a form carried by said table, an acid-brush and soldering-iron disposed above said form, means for automatically raising said brush and iron from said form, a knife adapted to rest upon said form, means for raising said knife when the form is at rest, a solder-feeding device, and means carried by the table for actuating the same; substantially as specified.

8. In a can-soldering machine, the combination of a frame, a table traveling thereon, means to reciprocate said table, a form carried by said table, an acid-brush and soldering-iron disposed above said form, means for automatically raising said brush and iron from said form, a knife adapted to rest upon said form, means for raising said knife when the form is at rest, a solder-feeding device, means carried by the table for actuating the same, and means for automatically elevating said knife in the travel of the table; substantially as specified.

9. In a can-soldering machine, the combination of a frame, a table traveling thereon, means to reciprocate said table, a form carried by said table, an acid-brush and soldering-iron disposed above said form, means for automatically raising said brush and iron from said form, an iron adapted to rest upon said form, means for raising said knife when the form is at rest, a solder-feeding device, means carried by the table for actuating the same, means for automatically elevating said knife in the travel of the table, and means for stripping a can from said form in the continued movement thereof; substantially as specified.

10. In a can-soldering machine, the combination of a frame, a table traveling thereon, means to reciprocate said table, a form carried by said table, an acid-brush and soldering-iron disposed above said form, means for automatically raising said brush and iron from said form, a knife adapted to rest upon said form, means for raising said knife when the form is at rest, a solder-feeding device, means carried by the table for actuating the same, means for automatically elevating said knife in the travel of the table, means for stripping a can from said form in the continued movement thereof, a driving-shaft, a feeding-cam thereon for moving said table, and an elevating-cam upon said shaft for raising said brush and iron; substantially as specified.

11. In a can-soldering machine, the combination with a frame, of a traveling table thereon, a can-holding form supported upon said table, a soldering-iron, a rock-shaft upon said frame, a sleeve carried by an arm from said rock-shaft and provided with a solder-clutching device, a lever extending from said rock-shaft into the path of said table, and means carried by said table for oscillating said lever; substantially as specified.

12. In a can-soldering machine, the combination of a frame, a traveling table thereon, a can-holding form supported upon said table, a soldering-iron, a rock-shaft supported upon said frame, a sleeve carried by an arm from said rock-shaft and provided with a solder-clutching device, a lever extending from said rock-shaft, a latch upon said lever and extending into the path of said table, and a lug carried by said table having an inclined face adapted to lift said latch in the return movement of the table; substantially as specified.

13. In a can-soldering machine, a solder-feeding device comprising a fixed sleeve having a solder-holding pawl, a movable oscillating sleeve provided with a solder-holding pawl, a rock-shaft having an arm adapted to carry said movable sleeve, a lever at the lower end of said rock-shaft, a latch pivoted to said lever and projecting into the path of a movable member in order to oscillate the lever, and means for restoring said lever to its initial position; substantially as specified.

14. In a can-soldering machine, the combination of a frame, a table thereon, a holding-knife supported from said table, a lever extending beyond the pivot of the knife-holding means, a projecting lug from said lever, a slotted lifting-bar mounted to reciprocate at the front of said frame, and a pivoted treadle adapted to operate said bar to bring the slot therein into alinement with the lug upon the knife-lever; substantially as specified.

15. In a can-soldering machine, the combination of a frame, a table thereon, a holding-knife supported from said table, a lever extending beyond the pivot of the knife-holding means, a projecting lug from said lever, a slotted lifting-bar mounted to reciprocate at the front of said frame, a pivoted treadle adapted to operate said bar to bring the slot therein into alinement with the lug upon the knife-lever, a roll upon the free end of said lever, and a fixed track-cam carried by the frame and adapted to depress said roll in the travel of said knife-lever; substantially as specified.

16. In a can-soldering machine, the combination with a frame, of a traveling table thereon, an acid-brush and soldering-iron mounted above said table, means for elevating the same from said table, a driving-shaft having loosely mounted thereon a cam for feeding the table and a cam for lifting the brush and iron, an automatic clutch for connecting said cam to said driving-shaft, a pivoted clutch-finger adapted to render said clutch inoperative, and a treadle having a projection adapted to operate said finger; substantially as specified.

17. In a can-soldering machine, the combination with a frame, of a traveling table thereon, an acid-brush and soldering-iron mounted above said table, means for elevating the same from said table, a driving-shaft having loosely mounted thereon a cam for feeding the table and a cam for lifting the brush and iron, an automatic clutch for connecting said cam to said driving-shaft, a pivoted clutch-finger adapted to render said clutch inoperative, a treadle having a projection adapted to operate said finger, a pivoted pawl mounted upon the lever of said finger to permit a return movement of the treadle projection without affecting the clutch; substantially as specified.

18. In a can-soldering machine, the combination with a frame, of a movable table thereon provided with a form, an acid-brush and soldering-iron movably supported above said form, a holding-knife adapted to engage said form, means controlled by the operator for raising said knife from said form, an automatic device for moving said table when said knife returns to the surface of the form, a solder-feed, means carried by the table to automatically actuate said feed, an automatic knife-raising device adapted to raise the knife, and automatically-controlled means for elevating the brush and iron above the form; substantially as specified.

19. In a can-soldering machine, the combination of a frame, a traveling table mounted thereon, a lever adapted to actuate said table, a rock-shaft extending longitudinally of said table, an acid-applying device and soldering-iron supported from said rock-shaft, a crank-arm extending from said shaft, a raising-rod extending downward from said arm, a driving-shaft carried by said frame, a feeding-cam upon said shaft adapted to engage said table-lever, and an elevating-cam carried by said shaft and adapted to reciprocate said elevating-rod; substantially as specified.

20. In a can-soldering machine, the combination of a frame, a traveling table mounted thereon, a lever adapted to actuate said table, a rock-shaft extending longitudinally of said table, an acid-applying device and soldering-iron supported from said rock-shaft, a crank-arm extending from said shaft, a raising-rod extending downward from said arm, a driving-shaft carried by said frame and provided with a fixed collar, a feeding-cam upon said shaft adapted to engage said table-lever, an elevating-cam carried by said shaft and adapted to reciprocate said elevating-rod, a spring-actuated clutch-pin carried by the hub of said cams and adapted to engage said collar, a clutch-finger adapted to withdraw said pin from said collar, a lever adapted to oscillate said clutch-finger, a pivoted pawl upon said lever, means for normally throwing said finger into the path of said clutch-pin, and a treadle having a projection adapted to engage and oscillate the clutch-finger in the downward movement of the actuating projection; substantially as specified.

21. In a can-soldering machine, the combination of a frame, a traveling table thereon, a lever adapted to actuate said table, a rock-shaft extending longitudinally of said table, an acid-applying device and soldering-iron supported from said rock-shaft, a crank-arm extending from said shaft, a raising-rod extending downward from said arm, a driving-shaft carried by said frame, a feeding-cam upon said shaft adapted to engage said table-lever, an elevating-cam carried by said shaft and adapted to reciprocate said elevating-rod, a fixed collar upon said shaft, a spring-actuated clutch-pin carried by the hub of said cams and adapted to engage said collar, a clutch-finger adapted to withdraw said pin from said collar, a lever adapted to oscillate said clutch-pin, a pivoted pawl upon said lever, means for normally throwing said finger into the path of said clutch-pin, a treadle having a projection to engage and oscillate the clutch-finger in the downward movement of the actuating projection, a knife pivotally mounted above said table, a lever extending from said knife and provided with a projecting pin or lug, a lifting-bar slidably mounted upon said frame and provided with a slot adapted to receive said pin or lug, and a connecting-rod extending from said bar to the treadle for operating the clutch mechanism; substantially as specified.

22. In a can-soldering machine, the combination of a traveling table and form thereon having grooves or ways in its opposite sides, and stripping-fingers mounted for vertical and horizontal adjustment upon said frame at opposite sides of the table and adapted to traverse said grooves or ways to remove a can from the form; substantially as specified.

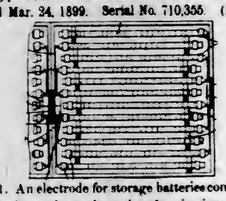
23. In a can-soldering machine, the combination with a frame, of a movable table provided with a form, means for reciprocating said table, means for clamping a can-joint in engagement with said form, means for automatically lowering into contacting position an acid-applying device

and a soldering-iron, means for automatically feeding a stick of solder to said iron in the movement of the carriage, means for automatically releasing said can-holding device in the continued movement of the carriage, and means for engaging and stripping from the form a soldered can: substantially as specified.

24. In a can-soldering machine, the combination with a frame, of a movable table provided with a form, means for reciprocating said table, means for clamping a can-joint in engagement with said form, means for automatically lowering into contacting position an acid-applying device and a soldering-iron, means for automatically feeding a stick of solder to said iron in the movement of the carriage, means for automatically releasing said can-holding device in the continued movement of the carriage, means for engaging and stripping from the form a soldered can, means for elevating said acid-applying device and soldering-iron, and means for releasing the several actuating devices from their driving-shaft after the completion of the single soldering operation; substantially as specified.

25. In a can-soldering machine, a frame provided with a centrally-disposed traveling table, a form thereon, a holding-knife adapted to engage said form and provided with an extended lever beyond its pivot, a rock-shaft extending parallel with the path of said table, a bracket supported upon said rock-shaft, an acid receptacle and applying device supported from said bracket, a soldering-iron supported from said bracket, a solder-feed device at one side of said iron and having an operating-lever extending into the path of said table, stripping-fingers at opposite sides of said table adapted to engage a can upon said form, a horizontally-disposed track-cam adapted to engage the lever of said holding-knife and depress the same to elevate the knife from the form, and means for actuating said rock-shaft: substantially as specified.

678,443. STORAGE BATTERY. WILLIAM J. STILL, Toronto, Canada. Filed Mar. 24, 1899. Serial No. 710,355. (No model.)



Claim.—1. An electrode for storage batteries comprising a U-shaped plate having a body portion and a series of projections extending from opposite edges thereof, and at right angles thereto, forming a pair of parallel combs, said projections constituting supports for the active material and interposed therebetween, substantially as and for the purpose specified.

2. An electrode for storage batteries comprising a U-shaped plate having a body portion and a series of comb-like fingers projecting therefrom, at opposite sides thereof and at right angles thereto, said fingers being twisted so as to lie at right angles to the plane of said body portion and constituting a pair of parallel supports for the active material interposed therebetween, substantially as and for the purpose specified.

3. In a storage battery, a series of U-shaped electrodes fitting one within the other and each comprising a plate having a body portion and a series of comb-like fingers or projections at opposite edges thereof and extending at right angles to the body portion and a terminal on each of said body portions suitably connected together, said comb-like fingers constituting supports for the active material interposed therebetween, substantially as and for the purpose specified.

4. In a storage battery, a series of U-shaped electrodes fitting one within the other and each comprising a plate having a body portion, comb-like fingers or projections at opposite edges thereof and at right angles to the body portion, terminals at the top of said body portion of each plate suitably connected together and a lip at the bottom of the body portion of the outer plate, which spans and embraces the bottoms of the adjacent plates connected thereto, the comb-like fingers on each plate constituting supports for the active material interposed therebetween, substantially as and for the purpose specified.

5. An electrode for storage batteries comprising a U-shaped plate having a body portion and a series of comb-like fingers projecting therefrom at opposite edges thereof and at right angles thereto, said fingers constituting a pair of parallel supports for the active material interposed therebetween, and elastic bands embracing said comb-like fingers, substantially as and for the purpose specified.

6. An electrode for storage batteries comprising a U-shaped plate having a body portion and a series of comb-like fingers projecting therefrom at opposite edges thereof and at right angles thereto, said fingers constituting a pair of parallel supports for the active material interposed therebetween and a slotted insulating-bar fitted to embrace the free ends of each series of comb-like fingers, substantially as and for the purpose specified.

7. An electrode for storage batteries comprising a U-shaped plate having a body portion and a series of comb-like fingers projecting therefrom at opposite edges thereof and at right angles thereto, said fingers constituting a pair of parallel supports for the active material interposed therebetween, elastic insulating-bands embracing said comb-like fingers and a slotted insulating-bar fitted to embrace the free ends of each series of comb-like fingers, substantially as and for the purpose specified.

8. An electrode for storage batteries comprising a plate having a body portion and a series of comb-like fingers projecting therefrom at opposite edges thereof and at right angles thereto, said fingers constituting supports for the active material interposed therebetween, a slotted insulating-bar fitted to embrace the free ends of each series of comb-like fingers and the bottom insulating-bar forming a support for the fingers and provided with a bent end next the body portion of the plate, as and for the purpose specified.

9. An electrode for storage batteries comprising a plate having a body portion and a series of comb-like fingers projecting therefrom at opposite edges thereof and at right angles thereto, said fingers constituting supports for the active material interposed therebetween, elastic insulating-bands embracing said comb-like fingers, a slotted insulating-bar fitted to embrace the free ends of each series of comb-like fingers and the bottom insulating-bar forming a support for the fingers and provided with a bent end next the body portion of the plate, as and for the purpose specified.

10. In a storage battery, the combination of a series of electrodes each comprising two series of comb-like fingers joined in pairs by connecting-plates at right angles thereto, each pair being placed between a wider pair of like polarity and the connecting-plates being electrically connected together, as and for the purpose specified.

11. In a storage battery, the combination of a series of electrodes each comprising a series of comb-like fingers joined in pairs and constituting supports for the active material interposed therebetween, and each pair being placed between a wider pair of like polarity and insulating slotted bars embracing the free ends of each series of fingers, substantially as and for the purpose specified.

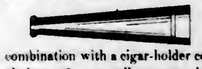
12. In a storage battery, the combination of a series of electrodes each comprising a series of comb-like fingers joined in pairs and constituting supports for the active material interposed therebetween, a bottom insulating-bar forming a support for the fingers and provided with a bent end next the connected ends of the series of fingers, an insulating slotted bar embracing the free ends of each series of fingers and the bottom bar, substantially as and for the purpose specified.

13. In a storage battery, the combination of a series of electrodes each comprising a series of comb-like fingers joined in pairs and constituting supports for the active material interposed therebetween, a bottom insulating-bar forming a support for the fingers and provided with a bent end next the connected ends of the series of fingers, elastic insulating-bands embracing each series of fingers and the bottom bar at each end thereof and an insulating slotted bar embracing the free end of each series of fingers and the bottom bar, substantially as and for the purpose specified.

14. In a storage battery, the combination of two series of electrodes each comprising plates having a series of comb-like fingers or projections at opposite edges thereof and at right angles thereto, said fingers being twisted so as to lie in planes at right angles to that of the plate, the series of comb-like projections in each set of electrodes being arranged in staggered relation with those of the other set, substantially as and for the purpose specified.

15. In a storage battery, the combination of two series of electrodes each comprising plates having a series of comb-like fingers or projections at opposite edges thereof and at right angles thereto, said fingers being twisted so as to lie in planes at right angles to that of the plate, the series of comb-like projections in each set of electrodes being arranged in staggered relation with those of the other set, and insulating slotted bars embracing the free end of each series of fingers, substantially as and for the purpose specified.

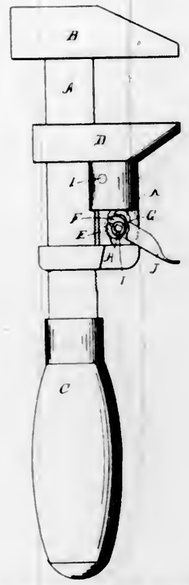
678,444. CIGAR-HOLDER. ROLLAND THOMPSON, New York, N. Y. Filed July 16, 1900. Serial No. 23,812. (No model.)



Claim.—The combination with a cigar-holder consisting of a tapering tube and a mouthpiece, of a centrally-apertured disk adapted to be placed on the end of a cigar independent of the holder and be inserted within the said tube, substantially as set forth.

678,445. WRENCH. JACOB E. VAN NOTE, Kansas City, Kans., assignor of one-half to Frank I. Moore and Oscar L. Chase, Kansas City, Mo. Filed Mar. 24, 1900. Serial No. 10,007. (No model.)

Claim.—1. In a wrench, the combination with the shank, of a slidable jaw mounted thereon, a clamping-plate, a pin rotatably mounted in the jaw, means for forcing the clamping-plate into or out of engagement with the shank when the pin is rotated, a lever for rotating the pin and means for engaging the lever with the slidable jaw for locking the lever when the clamping-plate has been forced into the open position, substantially as described.



2. In a wrench, the combination with the shank, of a slidable jaw mounted thereon, a clamping-plate, an eccentric rotatably mounted in the jaw and engaging the clamping-plate so as to force the same into or out of engagement with the shank when the eccentric is rotated, a lever for rotating the eccentric, and means for engaging the lever with the slidable jaw for locking the lever against movement when the clamping-plate is out of engagement with the shank, substantially as described.

3. In a wrench, the combination with the shank, of a slidable jaw mounted thereon, a clamping-plate, a lever pivoted to the sliding jaw and provided with a cam-shaped projection for engaging with and locking the lever to the said jaw, and means for engaging the clamping-plate with the shank, when the lever is moved in the proper direction, substantially as described.

4. In a wrench, the combination with the shank, of a slidable jaw mounted thereon, a clamping-plate, an eccentric rotatably mounted in the said jaw, a lever secured to the said eccentric and provided with a cam-shaped projection for engaging and locking the lever to the jaw, and means for engaging the clamping-plate with the shank when the eccentric is rotated by the lever, substantially as described.

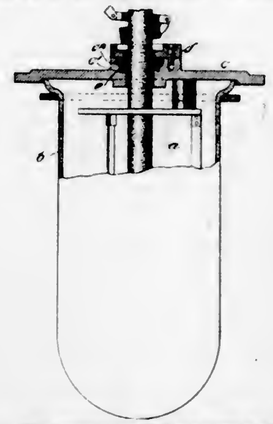
5. In a wrench, the combination with the shank, of a slidable jaw mounted thereon, a clamping-plate, a lever provided with a bifurcated end embracing the sides of the jaw, the bifurcations being provided each with a cam-shaped portion for engaging the jaw, and means for engaging the clamping-plate with the shank when the lever is moved in the proper direction, substantially as described.

6. In a wrench, the combination with the shank, of a slidable jaw mounted thereon, a clamping-plate, an eccentric rotatably mounted in the said jaw, a lever provided with a bifurcated end embracing the sides of the jaw and secured to the eccentric, the bifurcations each being provided with a cam-shaped projection for engaging the jaw, and means for engaging the clamping-plate with the shank when the eccentric is rotated by moving the lever in the proper direction, substantially as described.

7. In a wrench, the combination with the shank, of a sliding jaw mounted thereon, a clamping-plate, a pin rotatably mounted in the jaw, an eccentric carried thereby and engaging the clamping-plate, and a lever embracing the sides of the jaw and secured to the said pin, the lever being provided with a cam-shaped projection for engaging with and locking the lever to the jaw when the lever is moved to the proper position, substantially as described.

8. In a wrench, the combination with the shank of a sliding jaw mounted thereon, a lever provided with a cam-shaped projection for engaging with and locking the lever to the said jaw when the lever is moved to the proper position, and means for securing the jaw in any desired position on the shank when the lever is properly operated, substantially as described.

678,446. INCLOSED-ELECTRIC-ARC LAMP. ERNEST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Apr. 30, 1900. Serial No. 14,801. (No model.)



Claim.—1. The combination with the arc-chamber of an inclosed-arc lamp, of a plate *c* forming a portion of the wall of said chamber, having a hole through which the carbon is fed into the arc-chamber, said plate having an annular funnel-shaped seat c^2 around said hole, and an annular washer or packing-ring *e* comprising a number of separate segments adapted to slide, independently of one another, upon the sloping surface of the funnel-shaped seat, said packing-ring thus being adapted to fit closely about the carbon and to accommodate itself to carbons of varying sizes, substantially as set forth.

2. In a gas-check for inclosed-arc lamps, the combination with a plate *c* having a hole through which the carbon is passed into the arc-chamber, said plate being provided with an annular funnel-shaped seat c^2 around said hole, an annular washer or packing-ring comprising a number of separate segments resting in said seat, the individual segments being adapted to slide, independently of one another, upon the sloping surface of the seat, to fit closely about the carbon stick, and means for maintaining the packing-ring in place upon its seat, substantially as described.

678,447. COPYING-BATH. MARTIN O. WHELAN, Detroit, Mich. Filed July 23, 1900. Serial No. 24,484. (No model.)



Claim.—1. A damping-pad for blotter-baths, consisting of a porous block having metal-bound sides and ends, a reservoir embedded centrally within the block, a multiple of tube-supports within said block connecting the reservoir with the metallic sides and ends, and tubes upon the supports communicating with the reservoir and extending therefrom to different parts of the block, substantially as and for the purpose described.

2. A blotter-bath, comprising a pan, a metallic-bound absorbent-composition block of a length less than the pan, having a flat top surface and placed in the pan, a reservoir embedded within said block, and means for gradually feeding the contents of said reservoir to the block, a metal cover for the pan, having a heavy absorbent filling that has a smooth surface, and is adapted to overlie the absorbent in the pan, and the cover and absorbent therein, adapted to stand on end in the vacant end of the pan.

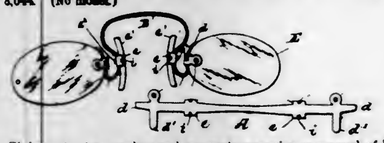
3. A damping-pad for blotter-baths, consisting of a porous block, having metal-bound sides and ends, a reservoir embedded centrally within the block, a multiple of V-shaped troughs within said block connecting the reservoir with the metallic sides and ends, and feeders within said

troughs communicating with the reservoir and extending therefrom to different parts of the block, substantially as and for the purpose described.

4. A blotter-bath, comprising a pan, a metallic-bound absorbent-composition block having a flat top surface and removably laid in the pan, a reservoir embedded in said block, means for gradually feeding the contents of said reservoir to the block, a cover fitted to the pan and an absorbent composition having a flat surface combined with the cover for the purpose described.

5. A moistening-pad for blotter-baths composed of a rectangular metallic frame, connecting-rods uniting the opposite sides of the frame, a reservoir supported thereon centrally of the frame, an absorbent composition having a smooth surface surrounding said reservoir and contained within the frame, and means for slowly feeding the contents of the reservoir to the composition as required.

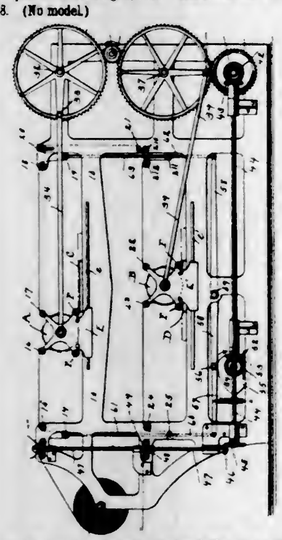
678,448. **MOUNTING FOR RIMLESS SPECTACLES OR EYE-GLASSES.** GEORGE L. WILLIAMS, Chicago, Ill., assignor to Monroe Optical Company, Rochester, N. Y. Filed Mar. 9, 1900. Serial No. 8,044. (No model.)



Claim.—1. An eyeglass and spectacle mounting composed of lens-embracing straps and strap guide-bars formed integrally, said guide-bars being rectangular in cross-section and extending at right angles to the plane of the lenses, and separate lens-straps having an opening therein fitting said guide-bars, whereby said straps are non-rotatably mounted on said guide-bars, as set forth.

2. An eyeglass and spectacle mounting composed of the strap A having notched nose-guard holders, prongs *d*, lens-embracing straps and guide-bars all integrally formed, separate lens-embracing straps non-rotatably mounted on said guide-bars, and means for securing said straps to lenses, as set forth.

678,449. **PRINTING-MACHINE.** HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, same place. Filed Aug. 2, 1893. Renewed Dec. 6, 1900. Serial No. 38,958. (No model.)



Claim.—1. The combination in a web-printing press of two printing-couples, each comprising an impression-cylinder and a form-bed, means for operating said couples so that one couple will be in impression while the other couple is out of impression, guides for leading the web around said impression-cylinders, and a web-manipulating mechanism arranged to shift the web through one printing-couple at a time, substantially as described.

2. The combination in a web-printing press of two printing-couples, each comprising an impression-cylinder and a form-bed, means for moving one of the parts of each couple so that one couple will be in impression while the other couple is out of impression, guides for leading a web around said cylinders, and a web-manipulating mechanism arranged to shift the web around one couple at a time, substantially as described.

3. In a web-printing press, the combination of two printing-couples comprising impression-cylinders and flat beds, means for operating said couples so that the members of one couple will be in impression while the members of the other couple are not in impression, and web-shifting devices adapted to shift the web independently around each impression-cylinder when the same is out of impression, substantially as described.

4. The combination in a web-printing press of two printing-couples comprising impression-cylinders and flat beds, means for operating said couples so that the members of one couple will be in impression while the members of the other couple are not in impression, web-shifting devices adapted to shift the web independently around each impression-cylinder while the same is out of impression, and constantly-operating web feeding and delivering mechanism, substantially as described.

5. The combination in a web-printing press of two printing-couples each comprising an impression-cylinder and a flat bed, means for operating said couples so that the members of one couple will be in impression while the members of the other couple are not in impression, and a web-manipulating device arranged in the path of the web between the two impression-cylinders whereby the web can be independently shifted around each impression-cylinder while the same is out of impression, substantially as described.

6. The combination in a web-printing press of two printing-couples, each comprising an impression-cylinder and a flat bed, means for operating said couples so that the members of one couple will be in impression while the members of the other couple are not in impression, and a web-manipulating mechanism comprising a feeding-in device, a feeding-out device and an intermediate device arranged in the path of the web between the two impression-cylinders, the parts being so arranged that the web will be independently shifted around each impression-cylinder while the same is out of impression, substantially as described.

7. The combination in a web-printing press of two printing-couples, each comprising an impression-cylinder and a flat bed, means for operating said couples so that the members of one couple will be in impression while the members of the other couple are not in impression, and a web-manipulating mechanism comprising constantly-running feeding-in and feeding-out rollers, a feeding-in and a feeding-out looper, and an intermediate looping device arranged in the path of the web between the two impression-cylinders, said devices being so arranged that the web will be independently shifted around each impression-cylinder while the same is out of impression, substantially as described.

8. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, a crank mechanism for reciprocating each impression-cylinder, the two crank mechanisms being set quartering, and suitable web-shifting devices, substantially as described.

9. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, means for moving these impression-cylinders, so arranged that one cylinder will be in impression substantially while the other is out of impression, and web-shifting devices adapted to shift the web around each impression-cylinder when the same is out of impression, substantially as described.

10. The combination of a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, the cylinders being alternately in impression, web-shifting devices for intermittently paying the web into, and drawing the web out of the press, and a web-manipulating device arranged in the path of the web between the two impression-cylinders, whereby the web can be properly shifted around each cylinder while the same is out of impression, substantially as described.

11. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, the cylinders being so arranged as to be alternately in impression, a feeding-in device, a feeding-out device, and an intermediate feeding device of double capacity arranged in the path of the web between the two impression-cylinders, the whole so arranged that the web will be shifted around each impression-cylinder while the same is out of impression, substantially as described.

12. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, said impression-cylinders being arranged so as to be alternately in impression, continuously-running feeding-in rollers, and continuously-running delivery-rollers, a feeding-in and feeding-out device as looping-rollers operating in unison, and an intermediate device arranged in the path of the web between the two impression-cylinders, acting in opposition to the feeding-in and feeding-out devices, and adapted to handle the web fed in by both the continuously-running feeding-in rollers, and the feeding-in device, substantially as described.

13. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, said cylinders being arranged so as to be alternately in impression, continuously-running feeding-in and feeding-out rollers, a feeding-in and feeding-out looper acting in unison, and two intermediate loopers arranged in the path of the web between the two impression-cylinders, acting in unison, but jointly in opposition to the action of the feeding-in and delivering devices, substantially as described.

14. The combination in a web-printing press of two form-beds, two impression-cylinders continuously-running feeding-in and feeding-out rollers, looping feeding-in and delivery rollers acting in unison, an intermediate looping device arranged in the path of the web between the two impression-cylinders, acting in opposition to the feeding-in and feeding-out looping-rollers, the feeding-in and feeding-out looping-rollers and the intermediate looping devices being connected to the opposite ends of pivoted arms, and means as cams, for operating these arms, substantially as described.

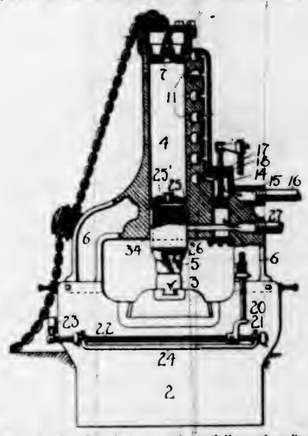
15. The combination in a web-printing press of two form-beds arranged one directly over the other, a traveling impression-cylinder coacting with each form-bed, a separate driving mechanism for each impression-cylinder arranged so that the impression-cylinders will be alternately in impression, and suitable web-manipulating devices adapted to feed the web around each cylinder while the same is out of impression, substantially as described.

16. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, the impression-cylinders being alternately out of impression, continuously-running feeding-in and feeding-out rollers, feeding-in and feeding-out looping-rollers acting in unison, an intermediate looping device arranged in the path of the web between the two impression-cylinders, consisting of two similarly-arranged looping-rollers, these two intermediate looping-rollers acting in unison, but in opposition to the feeding-in and feeding-out looping-rollers, substantially as described.

17. The combination in a web-printing press of two form-beds, traveling impression-cylinders coacting therewith, a separate crank mechanism for reciprocating each impression-cylinder, said crank mechanisms revolving in the same direction, but set quartering so that the cylinders will be alternately in impression, and suitable web-manipulating devices for properly handling and shifting the web, substantially as described.

18. The combination in a web-printing press of two form-beds arranged one over the other, an impression-cylinder for each bed, two crank mechanisms arranged one over the other and set quartering so that the impression-cylinders will be alternately in impression, continuously-running feeding-in and feeding-out rollers, connected feeding-in and feeding-out looping-rollers acting in unison, and intermediate looping-rollers arranged in the path of the web between the impression-cylinders, acting in unison, but jointly oppositely to the feeding-in and feeding-out looping-rollers, substantially as described.

678,450. **PNEUMATIC HAMMER.** MELVIN A. YEAKLEY, Cleveland, Ohio. Filed Oct. 12, 1900. Serial No. 32,836. (No model.)



Claim.—1. In a drop-hammer substantially as described, the hammer and the chamber therefor, a series of passages connecting said chamber at different elevations with a fluid-passage for the hammer-operating medium, and valves to open and close said passages and fluid-passage, substantially as described.

2. The hammer frame and chamber and the sliding hammer therein, a series of passages open to said chamber at different elevations, valves for said passages, a single passage for the fluid operating media leading to said passages, and a separate valve for said single passage, substantially as described.

3. In a drop-hammer, the sliding hammer and the chamber therefor, means to raise the hammer by exhausting the air within said chamber above the hammer, and an adjustable head within said chamber to limit the upward movement of said hammer, substantially as described.

4. The hammer-frame and the chamber therein, a sliding hammer within said chamber, a series of passages at different elevations opening into said chamber, valves for said passages, and an adjustable head above said hammer and within said chamber, having means to adjust said head in relation to said passages, substantially as described.

5. In a drop-hammer substantially as described, the hammer-chamber having passages at different elevations, in combination with a hammer having a valved passage in line and open to one of said passages when the hammer is in raised position, substantially as described.

6. A drop-hammer having a hammer-chamber and an adjustable head in said chamber above the hammer, a series of passages open to said chamber at different elevations, separate valves for each passage, a separate valve-chamber open to said valved passages and having a double piston-valve therein, and mechanism to actuate said valve to open and close the opening to said valved passages, substantially as described.

7. The hammer and hammer-chamber, in combination with a valve-chamber having passages leading to said hammer-chamber, the vacuum and pressure supply passages leading to said valve-chamber, and a reciprocating valve within said valve-chamber operated by the pressure to open the vacuum-passages to the hammer-chamber, substantially as described.

8. In a pneumatic drop-hammer, a hammer-chamber and a hammer therein having the hammer-chamber closed above said hammer, and a passage and valve therefor leading from the atmosphere to said hammer-chamber for dropping the hammer, in combination with a valved vacuum-passage from said hammer-chamber, substantially as described.

9. In a pneumatic hammer, the hammer-chamber and hammer therein, a valve-chamber adapted to be opened to the atmosphere and a valve therein, a combined air-supply and vacuum-passage connecting said hammer-chamber and valve-chamber, and an exclusive vacuum-passage open to said valve-chamber and means to control the movement of said valve to open and close said passage and thereby actuate and control the hammer, substantially as described.

10. In pneumatic hammers, a hammer-chamber and hammer, a piston-chamber and piston-valve therein to control the movement of said hammer and an air-passage connecting said hammer-chamber and piston-chamber and open to both chambers and adapted to be closed by said hammer and cause the atmospheric pressure to act directly upon said piston and raise the same, substantially as described.

11. In pneumatic hammers, the sliding hammer and the chamber therefor having a closed top and open bottom, and a valved passage open to the inside near the top and leading to the extreme top inside of said chamber, said passage being located to open under hammer to the atmosphere under hammer when the hammer is raised too near the limit of its upward movement to let in air in the top of said chamber to cushion said hammer, substantially as described.

12. In pneumatic hammers, the sliding hammer and chamber therefor closed at its top, a valved passage open to the inside of said chamber near the top thereof and leading to the extreme top of the inside of said chamber at its outlet, said passage being opened to the atmosphere by the upward movement of the hammer near the end of its upstroke for cushioning the hammer, substantially as described.

13. In pneumatic hammers, the sliding hammer and chamber therefor closed at its top and open at its bottom, an air-passage from the closed end of said chamber, and an opening from said passage to the outside atmosphere, a valve in said passage adapted to be operated to close the atmosphere from said chamber and open the vacuum to said chamber, for raising the hammer and to close the vacuum from said chamber and open the atmosphere to the same for dropping the hammer, substantially as described.

14. In pneumatic hammers, the sliding hammer and chamber therefor closed at the top and open at its bottom, an air-passage from near the top of said chamber and an opening to said passage to the outside atmosphere, a valve in said passage to control the vacuum and outside atmosphere to and from said hammer-chamber to actuate the hammer, in combination with a valve-operating air-passage leading to the lower end of said hammer-chamber and open to said valve, whereby when the said hammer is dropped it covers said valve-operating passage and causes a pressure to accommodate and move the valve upward, substantially as described.

15. In drop-hammers, the hammer-chamber closed at its top and open at its bottom and a combined hammer and valve in said chamber, a joint vacuum and air-supply passage leading into said chamber over the hammer and a valve at the entrance to said passage arranged to determine whether vacuum or air-supply shall be open to the said chamber, substantially as described.

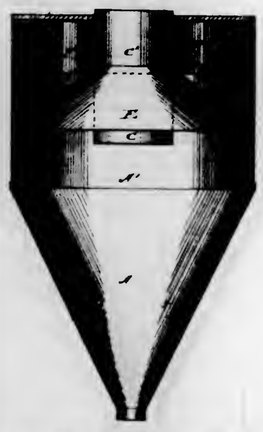
16. In a drop-hammer, a hammer and a hammer-chamber, a passage opening into said chamber having a vacuum-outlet and a fresh-air inlet open thereto, and a valve mechanism located at the junction of said outlet and inlet and adapted to close one and open the other alternately, substantially as described.

17. In drop-hammers, the hammer-chamber and the hammer therein, an adjustable head in the top of said chamber and means to raise and lower said head, substantially as described.

18. The hammer-chamber and hammer therein, and an air-passage leading to said chamber, in combination with a valve mechanism controlling said passage and a pneumatic-pressure passage open to said valve mechanism, whereby the said mechanism is raised and the position of the valves changed by direct pneumatic pressure, substantially as described.

19. The hammer and hammer-chamber and an air-passage thereto, in combination with a valve-chamber having a pressure-passage, a vacuum-passage and an open-air passage entering the same, and valve mechanism in said chamber exposed to the pressure-passage for actuation and adapted to control the vacuum and open-air passages, substantially as described.

678,451. DUST-COLLECTOR. WILLIAM E. ALLINGTON, East Saginaw, Mich., assignor to the Allington & Curtis Manufacturing Company, same place. Filed Jan. 18, 1897. Serial No. 619,557. (No model.)



Claim.—In a dust-collector, the combination with a separating-chamber of diminishing diameter toward its lower end and having a dust-exit at said lower end, of a tubular guard extending centrally through the upper end of said chamber and constituting the purified-air exit, a receiving-chamber arranged adjacent to and surrounding the upper end of said tubular guard, said receiving-chamber being located at the point of maximum diameter of, and being of much smaller diameter and capacity than, the separating-chamber, and having an unobstructed interior and being open at its bottom, a tangential inlet-spout for delivering the dust-laden air-current into said receiving-chamber, and a cone secured to and surrounding the lower end of said tubular guard below the open bottom of said receiving-chamber, and having its periphery extending closely adjacent the wall of the separating-chamber so as to leave a narrow annular passage therebetween, whereby the dust-laden air-current is uniformly and directly delivered in an unobstructed flow from said receiving-chamber through the central portion of the enlarged upper part of the separating-chamber to the cone, and is deflected by said cone toward the periphery of the casing, substantially as described.

678,452. TOOTH-REGULATOR. EDWARD H. ANGLE, St. Louis, Mo. Filed Jan. 21, 1901. Serial No. 43,964. (No model.)

Claim.—1. In a tooth-regulating device, the combination with a resistance member, of a delivery member, and a traction-bar carried by said resistance member and bearing against said delivery member so as to impart movement thereto in one direction, said traction-bar being at the same time free to move out of engagement with said delivery member by longitudinal movement in the other direction.



2. In a tooth-regulating device, the combination with a resistance member, of a delivery member, a traction-bar carried by said resistance member and bearing against said delivery member so as to impart movement thereto in one direction, said traction-bar being at the same time free to move out of engagement with said delivery member by longitudinal movement in the other direction, and means for preventing lateral movement between said delivery member and traction-bar while they are in engagement.

3. In a tooth-regulating device, the combination with a resistance member, of a delivery member, and a traction-bar carried by said resistance member and bearing against said delivery member and having a pivotal connection therewith, said traction-bar being at the same time free to move out of engagement with said delivery member by its longitudinal movement in one direction.

4. In a tooth-regulating device, the combination with a traction-bar, of a delivery member adapted to be fastened to the tooth to be moved, a segmental groove formed in one of said parts, a projection carried by the other of said parts and adapted to engage with said groove, and a resistance member carrying said traction-bar.

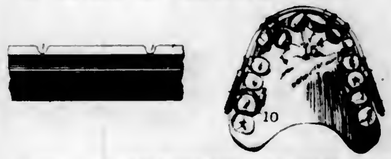
5. The combination with the resistance member and traction-bar, of a cylindrical lug projecting from said traction-bar, a delivery member adapted to be fastened to the tooth to be moved and to engage the end of said lug, a grooved segmental flange upon said delivery member, and a flange upon said lug for cooperating with said groove to hold said lug in contact with said delivery member.

6. In a tooth-regulating device, the combination with a resistance member, of a traction-bar carried thereby, a laterally-projecting lug carried by said traction-bar, a delivery member bearing against the end of said lug and engaging therewith, and means for disengaging said lug from said delivery member by the longitudinal movement of said traction-bar.

7. In a tooth-regulating device, a traction-bar, a delivery member, a laterally-projecting lug carried by one of said parts, a connecting device carried by the other of said parts and bearing against the end of said lug, means for disengaging the said traction-bar and delivery member by the longitudinal movement of said traction-bar, and a resistance member carrying said traction-bar.

8. In a tooth regulating device, the combination with a resistance member, of a traction-bar carried thereby, a laterally-projecting lug carried by said traction-bar, a flange on said lug, a delivery member bearing against the end of said lug to prevent lateral movement between said member and traction-bar, and a segmental groove in said delivery member engaging with said flange.

678,453. TOOTH-REGULATOR. EDWARD H. ANGLE, St. Louis, Mo. Filed Jan. 21, 1901. Serial No. 43,965. (No model.)



Claim.—1. As a new article of manufacture, a resilient arch adapted to be fastened to the anchor-teeth, and having upon its exterior surface a longitudinal rib adapted to receive notches for holding the tooth-attaching ligatures in position upon said arch.

2. In a tooth-regulating appliance, a resilient arch adapted to be fastened at its ends to the anchor-teeth, and having upon its exterior surface a projecting longitudinal rib having notches for cooperating with the tooth-attaching ligatures for holding said ligatures in position upon said arch.

678,454. BREAD. CHRISTIAN C ANSTAETT, Elgin, Ill. Filed Apr. 13, 1899. Renewed Nov. 23, 1900. Serial No. 37,459. (No specimens.)

Claim.—1. As a new article of manufacture, the bread made of corn-flour, wheat-flour, water, salt and yeast in the manner and in substantially the proportions specified, to wit: one and one-half pounds corn-flour; five pounds wheat-flour; three and one-half quarts of water; and two ounces each of salt and yeast.

2. As a new article of manufacture, the bread made of corn-flour, wheat-flour, water, salt, yeast, lard, and malt, in the manner and in substantially the proportions specified, to wit: one and one-half pounds corn-flour; five pounds wheat-flour; three and one-half quarts of water; and two ounces each of salt, yeast, lard, and malt extract.

678,455. PROCESS OF MAKING BREAD. CHRISTIAN C. ANSTAETT, Elgin, Ill. Filed Nov. 23, 1900. Serial No. 37,460. (No specimens.)

Claim.—1. The process of making bread which consists in treating the materials in substantially the proportions specified in the following manner: (*a*) scalding and thoroughly mixing one and one-half pounds of corn-flour with three quarts of boiling water; (*b*) adding two ounces each of yeast and salt dissolved in a pint of warm water, together with five pounds of wheat-flour; (*c*) thoroughly working and kneading the mixture; (*d*) allowing it to rise; (*e*) putting it in pans; and (*f*) baking it, all substantially as described.

2. The process of making bread which consists in treating the materials in substantially the proportions specified in the following manner: (*a*) scalding and thoroughly mixing one and one-half pounds of corn-flour with three quarts of boiling water; (*b*) adding two ounces each of yeast and salt dissolved in a pint of warm water, together with two ounces each of lard and extract of malt, and five pounds of wheat-flour; (*c*) thoroughly working and kneading the mixture; (*d*) allowing it to rise; (*e*) putting it in pans; and (*f*) baking it, all substantially as described.

678,456. EGG-BEATER. WILLIAM G. BROWNE, Kingston, N. Y. Filed Oct. 12, 1900. Serial No. 32,856. (No model.)



Claim.—A beater, comprising a pair of rotating bows mounted eccentrically with relation to each other to rotate one within the other, each of said bows being formed upon opposite sides with integral open-work beating-flanges projecting inwardly from diagonally opposite edges thereof and adapted to divide the material under treatment into a plurality of minute streams, said flanges being of crescent shape with their concaved edges inwardly disposed, and arranged at right angles to the sides of the bows and parallel with relation to each other and thereby forming upon each side or half of each bow right-angular beating-surfaces cooperating to form gathering-pockets and adapted to serve the combined purposes of a whipper and divider, substantially as set forth.

678,457. PROCESS OF TREATING ORES. FRANKLIN R. CARPENTER, Denver, Colo. Filed Mar. 13, 1901. Serial No. 51,007. (No specimens.)

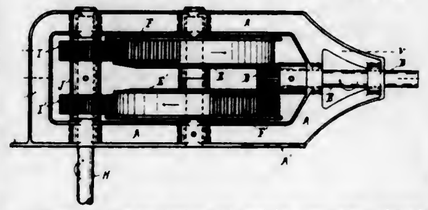
Claim.—The improved method of fluxing aluminous ores carrying gold and silver, which consists of the following steps: first, mixing with the ores a sufficient quantity of flux, containing magnesia, to form a slag, which will have the percentages of its main constituents within the following limits: silica, thirty-two per cent. to forty-three per cent.; lime fifteen per cent. to twenty-five per cent.; magnesia, five per cent. to fifteen per cent.; alumina, five per cent. to fifteen per cent., with other bases up to one hundred per cent.; second, applying heat to the mixture substantially in the manner described.

678,458. KNOB. OWEN DALEY, Lyons, Iowa, assignor to the United States Steel Lock Company, same place. Filed June 30, 1900. Serial No. 22,170. (No model.)

Claim.—A knob consisting of a sheet-metal shell having tongues, and a shank cast about and surrounding the tongues of the shell, and having a wing or boss cast on the interior of the shell.



678,459. MECHANICAL MOVEMENT. CONRAD DIETZ, Cincinnati, Ohio. Filed Mar. 15, 1901. Serial No. 51,277. (No model.)

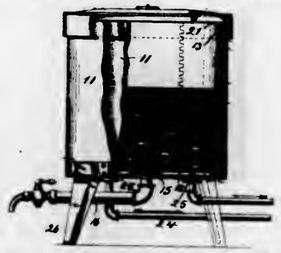


Claim.—1. In combination with a driving-gear; gears adapted to be driven therefrom in opposite directions; segmental gears carried by said driven gears; a driven shaft and gears carried thereby adapted to be alternately engaged by the respective segmental gears to drive the driven shaft alternately in opposite directions.

2. In combination with a housing having a central opening; a driving-shaft journaled therein, a driving-wheel mounted at any point thereon; a driving-gear also mounted thereon; a shaft spanning the central opening in the housing; two gears loosely mounted thereon; and adapted to be driven from the driving-gear in opposite directions; segmental gears carried by said driven gears; a driven shaft journaled in the housing on opposite sides of the central opening; gears rigidly mounted on the driven shaft and adapted to be alternately engaged and driven by the segmental gears, substantially as specified.

3. In combination with a housing having a central opening; a driving-shaft journaled in said housing; a driving-wheel mounted thereon; a beveled driving-gear; a shaft spanning the central opening in the housing, beveled gears loosely mounted thereon and adapted to be driven from the driving-gear in opposite directions; segmental gears formed integral with said beveled driven gears; a driven shaft journaled in the housing, gears mounted thereon and adapted to be alternately engaged and driven by the segmental gears, substantially as specified.

678,460. JACKETED VESSEL. HENRY W. DRESSLER, Cincinnati, Ohio. Filed Apr 8, 1901. Serial No. 54,804. (No model.)



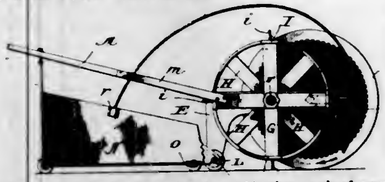
Claim.—1. A vessel constructed with a surrounding jacket, both formed of wrought sheet-iron, a ring interposed between vessel and jacket at their upper edges, closing thereat the space between them, which ring is shrunk on and around the vessel and a ring shrunk on the jacket around the upper part thereof.

2. A vessel constructed with a surrounding jacket, both formed of wrought sheet-iron, a ring interposed between vessel and jacket at their upper edges, closing thereat the space between them, which ring is shrunk on and around the vessel, a ring shrunk on the jacket around the upper part thereof and a washer interposed between the bottoms and providing with the added thickness of these latter sufficient metal to receive a tap-hole.

3. A vessel constructed with a surrounding jacket, both formed of

wrought sheet-iron, a ring interposed between vessel and jacket at their upper edges, closing thereat the space between them, which ring is shrunk on and around the vessel, a ring shrunk on the jacket around the upper part thereof, and projecting above the upper edge of the jacket so as to form a recess thereat for the lid.

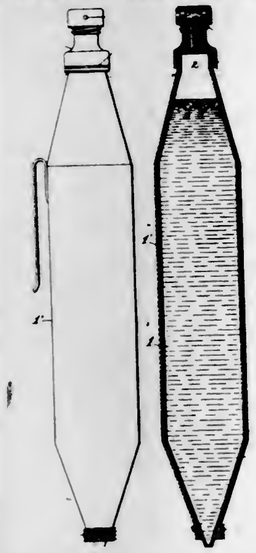
678,461. LAWN-RAKE. WILLIAM H. EGAN, Galesburg, Ill. Filed Jan. 17, 1901. Serial No. 43,621. (No model.)



Claim.—1. A lawn-rake having, in combination, a pair of ground-wheels, a frame comprising a pair of side plates, and a rod having offset ends, said plates having non-circular openings and said rod having non-circular portions occupying said openings and having also, beyond said non-circular portions, extended portions upon which the ground-wheels are journaled, a rotary rake having a shaft journaled in said side plates, a pinion carried by said shaft, and an internal gear carried by the ground-wheels and meshing with the pinion, substantially as set forth.

2. A lawn-rake having, in combination, a pair of ground-wheels, a frame supported thereby and comprising a pair of L-shaped side plates and a rod connecting them, a rotary rake journaled in the horizontal arms of the side plates, a pinion carried by the rake, an internal gear carried by the ground-wheel and meshing with the pinion, a ground-roller journaled in the depending portions of the L-shaped side plates, a receptacle having its forward portion connected to the depending portions of the side plates, means for supporting the rear portion of the receptacle, and a propelling-pole, substantially as set forth.

678,462. COAGULANT-FEEDER. HARRY ETHERIDGE, McKeesport, Pa. Filed Jan. 28, 1901. Serial No. 45,000. (No model.)



Claim.—1. A device for automatically discharging, or feeding liquids in a measurable, or uniform quantity, comprising a liquid-confining reservoir having an air-inlet opening and a discharge-orifice separate from said inlet opening, said air-inlet being provided with a body of sufficient porosity as will permit air to enter said reservoir in such quantity that when the air-pressure therein becomes approximately equal to that surrounding said reservoir a minute quantity of the liquid will be discharged therefrom and then momentarily cease discharging until the approximate equality of air-pressure is again established.

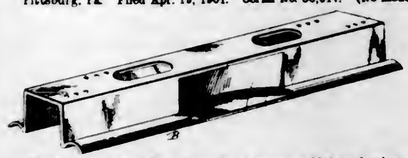
2. A device for automatically discharging, or feeding liquids in a measurable, or uniform quantity, comprising a liquid-confining reservoir having an air-inlet opening and a discharge orifice separate from said inlet-opening, said air-inlet being provided with a body of sufficient porosity as will permit air to enter said reservoir in such quantity that when the air-pressure therein becomes approximately equal to that surrounding said reservoir a minute quantity of the liquid will be discharged therefrom and then momentarily cease discharging until the approximate equality of air-pressure is again established, and a means of arresting, or straining dust from the air previous to passing through said porous body.

3. A device for automatically discharging, or feeding liquids in a measurable, or uniform quantity, comprising a liquid-confining reservoir having an air-inlet opening and a discharge-orifice separate from said inlet-opening, said air-inlet being provided with a body of sufficient porosity as will permit air to enter said reservoir in such quantity that when the air-pressure therein becomes approximately equal to that surrounding said reservoir a minute quantity of the liquid will be discharged therefrom and then momentarily cease discharging until the approximate equality of air-pressure is again established, a means of arresting, or straining dust from the air previous to passing through said porous body, and a covering of non-conducting material for said reservoir whereby the vacuum-space therein is kept at approximately normal temperature to cause a regularity in the discharge of liquid.

4. A device for automatically discharging, or feeding liquids in a measurable, or uniform quantity, comprising a liquid-confining reservoir having an air-inlet opening and a discharge-orifice separate from said inlet-opening, said air-inlet being provided with a body of sufficient porosity as will permit air to enter said reservoir in such quantity that when the air-pressure therein becomes approximately equal to that surrounding said reservoir a minute quantity of the liquid will be discharged therefrom and then momentarily cease discharging until the approximate equality of air-pressure is again established, a means of increasing, or diminishing the supply of air to pass through said porous body, and a means of arresting, or straining dust from the air previous to passing through said porous body.

5. A device for automatically discharging, or feeding liquids in a measurable, or uniform quantity, comprising a liquid-confining reservoir having an air-inlet opening and a discharge-orifice separate from said inlet-opening, said air-inlet being provided with a body of sufficient porosity as will permit air to enter said reservoir in such quantity that when the air-pressure therein becomes approximately equal to that surrounding said reservoir a minute quantity of the liquid will be discharged therefrom and then momentarily cease discharging until the approximate equality of air-pressure is again established, a means of increasing or diminishing the supply of air to pass through said porous body, a means of arresting or straining dust from the air previous to passing through said porous body, and a covering of non-conducting material for said reservoir whereby the vacuum-space therein is kept at an approximately normal temperature to cause a regularity in the discharge of liquid.

678,463. METALLIC RAILWAY-TIE. JOHN C. FITZELHORN, Pittsburg, Pa. Filed Apr. 19, 1901. Serial No. 56,617. (No model.)



Claim.—1. A metallic railway-tie of inverted-U form having outwardly-extending base-flanges and having in its sides above the flanges depressions forming pockets for the reception of ballast.

2. A metallic railway-tie of inverted-U form having outwardly-extending base-flanges concave on their under side and having in its sides above the flanges depressions forming pockets for the reception of ballast.

3. A metallic railway-tie of inverted-U form having outwardly-extending base-flanges, and having in its sides above the flanges depressions forming pockets for the reception of ballast, and provided in its top with a series of bolt-holes permitting adjustment of the rails.

678,464. METALLIC RAILROAD-TIE. JACOB S. FLEGAL, St. Paul, Minn., assignor of one-fourth to John Simandl, same place. Filed Sept. 21, 1900. Serial No. 30,691. (No model.)



Claim.—The combination with a railroad-tie formed of sheet metal and having longitudinal corrugations and horizontal, notched side flanges formed of the edges of the sheet at a level with the top of the tie, of a rail-chair having down and inwardly curved hooks adapted to grasp over the notched edges of the flanges when the tie is sprung together and then released between said hooks; said rail-chair having at its upper side two diagonally-disposed hooks, adapted to engage and hold the flanges of the rail to the chair as long as the chair is in its normal position on the tie, and to release the rail-flanges when the chair is turned in the horizontal plane away from its normal position, substantially as and for the purpose set forth.

678,465. COMBINED CHEST, SETTEE, AND BED. JAMES M. GLENN, Cincinnati, Ohio. Filed Nov. 28, 1900. Serial No. 38,049. (No model.)



Claim.—1. As a new article of manufacture, a combined chest, settee and bed, comprising an elongated chest, a back hinged thereto at the upper rear edge of the chest-seat, as at *e*, and capable of being folded down upon the seat of the chest and away therefrom and in the same plane therewith, and rear supports for the back hinged at their upper ends to the upper part of the back and hinged together at their meeting ends at a point below and in rear of the hinging-points of the seat and back, and detachably hinged at their lower ends, as at *i*, to the lower part of the chest, whereby when the back is raised toggle-joints for supporting the seat-back in proper upright position are provided, and whereby when said toggle-joints are broken the supports form legs for holding the back in a horizontal plane with the seat, and whereby when the hinged joints at *i* are detached the back may be folded down upon the seat, substantially as described.

2. As a new article of manufacture, a combined chest, settee and bed, comprising an elongated chest, a back hinged thereto at the upper rear edge of the seat-chest, as at *e*, and capable of being folded down upon the seat of the chest and away therefrom and in the same plane therewith, rear supports for the back hinged at their upper ends to the upper part of the back and hinged together at their meeting ends at a point below and in rear of the hinging-points of the seat and back, and detachably hinged at their lower ends, as at *i*, to the lower part of the chest, whereby when the back is raised toggle-joints for supporting the seat-back in proper upright position are provided, and whereby when said toggle-joints are broken the supports form legs for holding the back in a horizontal plane with the seat, and whereby when the hinged joints at *i* are detached the back may be folded down upon the seat, and side arms hinged to each other and to the back and seat respectively in such manner that when the back is let down to form a bed said side arms are lowered to or below the level of the surface of said bed, substantially as described.

3. The combination of the chest A, the back B hinged to one edge thereof, the rear supporting-arms *f g* hinged together at a point below and in rear of the hinging-points of the chest and back and at their outer ends to the chest and back respectively, the lower hinged joints being detachable, the side arms *k l* hinged together and to the chest and back respectively at their outer ends, and the brace-arms *p* hinged to the chest and having bearing contact to form struts in the angles of the arms *k l*, substantially as described.

678,466. FOUNTAIN-PEN. BYRON B. GOLDSMITH, New York, N. Y. Filed Jan. 31, 1901. Serial No. 45,454. (No model.)



Claim.—1. A fountain-pen feed-plug having a longitudinal groove extending to the surface of the plug and a pen-receiving slot crossing the groove and dividing it into an ink-duct and an air-duct respectively, substantially as described.

2. A fountain-pen feed-plug having a groove of gradual-increasing depth from its rear end to a point near its front end, substantially as described.

3. A fountain-pen feed-plug comprising a body portion and a nose, a longitudinal groove extending to the surface of the plug and along the body portion and to the tip of the nose, and a pen-receiving slot in the body portion crossing the groove, substantially as described.

4. A feed-plug divided by a pen-receiving slot, and having an ink-channel communicating with the pen-nibs in that portion of the plug lying on one side of the slot and having the portion of the plug on the other side of the slot formed with a channel extending to the surface of the plug, substantially as described.

5. A fountain-pen feed-plug having a longitudinal groove extending to the surface of the plug and a pen-receiving slot crossing and dividing the groove and thereafter coalescing with its bottom, substantially as described.

6. A fountain-pen feed-plug having a longitudinal groove with parallel walls which extend to and flare outwardly at the surface of the plug and a pen-receiving slot crossing and dividing the groove into an ink-duct and an air-duct respectively, substantially as described.

7. A fountain-pen feed-plug having a longitudinal groove extending to the surface of the plug, a pen-receiving slot crossing and dividing the groove and a nose having a reduced portion to give it flexibility, substantially as described.

8. A fountain-pen feed-plug, having a longitudinal groove, extending to the surface of the plug, the groove having an inclined bottom and a pen-receiving slot crossing and dividing the groove and thereafter coalescing with the bottom, substantially as described.

678,467. SUBMARINE TELESCOPE. ASAL GROOMES, Detroit, Mich. Filed Mar. 19, 1901. Serial No. 51,845. (No model.)



Claim.—1. In combination with a submarine telescope comprising a series of adjustable sections, guides on the exterior surfaces of the respective sections, a bracket secured to the exterior of the lowermost section, an electric light secured in said bracket, and a flexible foldable conductor passing from said light through the guides on the respective sections and adapted to establish communication between the light and a suitable source of supply, substantially as described

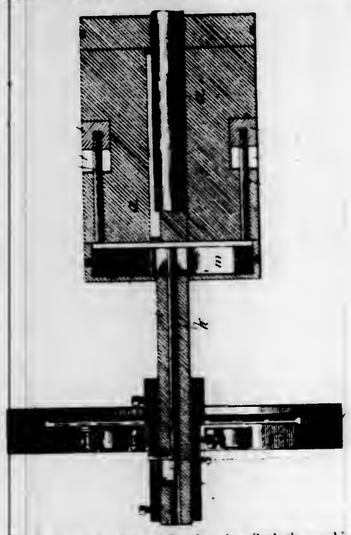
2. In combination with a submarine telescope, a bracket secured to the lower end thereof, and illuminating means pivotally supported in said bracket, substantially as described.

3. In combination with a submarine telescope comprising a series of adjustable sections, guides on the exterior surface of the respective sections, a bracket secured to the exterior of the uppermost section, a winding-drum in said bracket, a second bracket secured to the exterior of the lowermost section, a lamp supported by said second bracket, a cord fastened to a part of said second bracket and extending upward to the winding-drum adapted to collapse the sections when wound, and a flexible foldable conductor passing from said lamp through the guides on the respective sections and adapted to establish communication between the lamp and a suitable source of supply, substantially as described.

678,468. METHOD OF EXTERMINATING JOHNSON GRASS. CLAY HARPOLD, Cleburne, Tex. Filed July 16, 1900. Serial No. 23,832. (No specimens.)

Claim.—The method of exterminating Johnson grass, which consists in first breaking the soil infested with the grass during the winter after the first killing frost and before the grass begins to grow in the spring; second, pulverizing the soil thus broken to stimulate the growth of grass by the admission of light, air and moisture; third, allowing the grass to grow undisturbed to a considerable height for a comparatively long period; fourth, breaking the soil and turning under the grass, fifth, allowing an interval for the grass thus turned under to heat and decay; sixth, pulverizing the soil as deep as broken; seventh, cultivating the soil as deep as mellow at frequent periods, and at suitable intervals apart to allow the grass to grow and to destroy these growths, thus finally exhausting the vitality of the roots and causing their decay.

678,469. GOVERNOR FOR STEAM-ENGINES. FRANK A. HEADSON, Lafayette, Ind., assignor of one-half to Leo Pottlitzer, Herman Pottlitzer, Max Pottlitzer, and Julius Pottlitzer, same place. Filed May 23, 1900. Serial No. 18,221. (No model.)

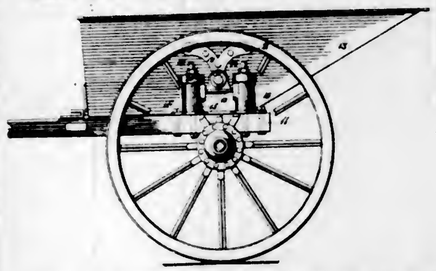


Claim.—1. In mechanisms of the class described, the combination of a rotatable piston, valves for "cutting" off the steam-pressure at the desired point in the stroke or rotation of the piston, a main shaft, a fly-wheel governor mounted on the main shaft and rotatable therewith composed of a fly-wheel, weighted lever mechanism pivotally secured thereto, a hub portion rotatably mounted adjacent to the fly-wheel, and a valve-rod extending through the main shaft to the rotary hub and connected with the hub and the cut-off valves for operating such cut-off valves when the weighted lever mechanism is operated, substantially as described.

2. In mechanism of the class described, the combination of a rotatable piston provided with a steam pocket or pockets, means substantially the valves described for varying the size of the steam-pockets, a main shaft to which the rotatable piston is secured, a valve-stem for operating the cut-off valves, a fly-wheel mounted upon the shaft, weighted lever mechanism as described secured to the fly-wheel and adapted to be operated as described, a rotatable hub freely mounted upon the main shaft so as to have independent rotations and means connecting the rotatable hub with the valve-stem whereby the valve is moved during the rotation of the hub to operate the pocket-varying mechanism, substantially as described.

3. In mechanisms of the class described, the combination of a rotatable piston provided with steam pockets or chambers, valves mounted therein for varying the size of the steam-pockets thereby regulating the cut-off of the steam-pressure, a main shaft upon which the rotatable piston is mounted, a valve-stem connected with the cut-off valves extending axially through the main shaft, a fly-wheel secured to the main shaft so as to rotate therewith, a cam-hub freely mounted upon the main shaft, weighted lever mechanisms pivotally connected with the fly-wheel and rotatable cam-hub to operate the same during their centrifugal and centripetal motions as described, a pin or similar element connecting the valve-stem and the cam portions of the cam-hub and extending out through an elongated groove in the main shaft whereby the cut-off valves are operated, substantially as described.

678,470. DUMPING-WAGON. THOMAS HILL, Jersey City, N. J. Filed Dec. 6, 1900. Serial No. 38,854. (No model.)



Claim.—1. In combination with the running-gear and vehicle-body, the latter having the side trunnions 14, the pedestal structure secured to the side frame and comprising the cylindrical pedestal members 16, the base-plate 15 integral with said pedestal members 16, the springs 17 within said pedestal members, the longitudinal bar 18 having its ends within said pedestal member 16 and upon said springs 17, and also having intermediate said pedestal members 16 the bearing-aperture 19 for the side trunnion 14, the caps 20 upon the upper ends of the said pedestal members 16, and the rods 21 extending through said caps 20, the ends of said bar 18, said springs 17 and said side frames; substantially as set forth.

2. In a vehicle, the running-gear and body 13, the latter having the side trunnions 14, combined with the pedestal structure secured to the side frames and adapted to receive said trunnions, said pedestal structure comprising the cylindrical pedestal members 16, 16, having at their facing sides the vertical elongated guiding-slots 23, the springs within said pedestal members 16, caps closing the upper ends of said pedestal members 16, and the longitudinal bar 18 having the bearing-aperture 19 for the trunnion 14 and having its end portions extended through said vertical slots 23 and bearing upon the said springs, the ends of said bar 18 within the pedestal members 16 being greater in width than said slots 23 and affording guiding-surfaces for said bar; substantially as set forth.

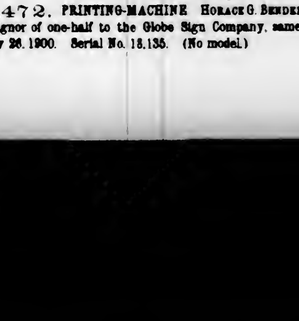
3. In a vehicle, the running-gear and body, the latter having the side trunnions 14, combined with the pedestal structure secured to the side frames and adapted to receive said trunnions, said pedestal structure comprising the cylindrical pedestal members 16, 16, having the vertical elongated slots 23 on their facing sides, the springs 17 within said pedestal members, the caps 20 upon the upper ends of said pedestal members, the longitudinal bar 18 having the bearing-aperture 19 for the trunnion 14, and extending through said slots 23, to bear upon said springs 17, and the rods 21 extending downward through said caps, the ends of the said longitudinal bar 18, said springs 17 and said side frames, the rods 21 serving to aid in holding the pedestal structure upon the side frames and to guide said bar 18; substantially as set forth.

4. In a vehicle, the running-gear and body, the latter having the side trunnions 14, combined with the pedestal structure secured to the side frames and adapted to receive said trunnions, said pedestal structure comprising the pedestal members 16, 16, having the elongated slots 23 in their facing sides, the springs 17, within said pedestal members 16, the longitudinal bar 18 passing within said slots 23 and having the bearing-aperture 19 to receive said trunnion 14, and also having its end portions within the pedestal members 16 to bear upon said springs 17 and possessing the hubs 26 to enter the upper ends of said springs and the guiding-flanges 27 to guide against the inner walls of said pedestal members 16, and removable caps upon the upper ends of said pedestal members 16 to close the upper ends of said slots 23 and the upper ends of said pedestal members; substantially as set forth.

5. In a vehicle, the running-gear and body, the latter having the side trunnions 14, combined with the pedestal structure secured to the side frames and adapted to receive the said trunnions, said pedestal structure comprising the pedestal members 16, 16, having the elongated slots 23 at their facing sides, the springs 17 within said pedestal members, the longitudinal bar 18 having the bearing-aperture 19 to receive the trunnion 14 and being confined within said slots 23, and also having its end portions within the pedestal members 16 and upon the springs 17, the caps 20 closing the upper ends of said slots 23 and the upper ends of said pedestal members 16 and provided with the concentric flanges 29, 29, to receive between them the upper edges of said pedestal members, and the rods 21 passing through said caps 20, and guiding the ends of said bar 18; substantially as set forth.

6. In a vehicle, the running-gear and body, the latter having the side trunnions 14, combined with the pedestal structure adapted to receive said trunnions, said pedestal structure comprising the base-plate 15 adapted to receive the securing-bolts 22, the pedestal members 16, 16, having the slots 23 in their facing sides and being integral with said base-plate 15, the springs 17 within said pedestal members 16, the longitudinal bar 18 in one integral piece and having its enlarged end portions confined within said pedestal members 16 and upon said springs 17 and having intermediate said pedestal members 16 the bearing-aperture 19 for the trunnion 14, caps closing the upper ends of said pedestal members 16 and said slots 23, and the rods 21 extending downward through said caps, the ends of the said bar 18, said springs 17 and said side frames; substantially as set forth.

678,471. MACHINE FOR APPLYING GLUE TO WOODEN BOX-RIMS. ALBERT ANNETT, East Jeffrey, N. H., assignor to Annett Manufacturing Company, of New Hampshire. Filed Mar. 1, 1901. Serial No. 49,524. (No model.)



Claim.—1. A machine of the character described comprising a table-top, a receptacle for glue fast to the under side of said table-top, a hole in said table-top above said receptacle, a reciprocatory disk, and mechanism for imparting a reciprocating motion to said disk, carrying the same alternately into said receptacle and above said table-top.

2. In a machine of the character described, a receptacle for glue, a vertical standard in the interior thereof fast thereto and extending from the bottom of said receptacle to a point above the glue contained in said receptacle, a sleeve encircling said standard, a disk fast to the exterior of said sleeve, and mechanism for imparting a reciprocating motion to said sleeve.

3. In a machine of the character described, a receptacle for glue, a vertical standard in the interior thereof fast thereto and extending from the bottom of said receptacle to a point above the glue contained in said receptacle, a vertical reciprocatory rod, a hole extending longitudinally through said standard and forming a guide for said reciprocatory rod, and mechanism for imparting a reciprocating motion to said rod.

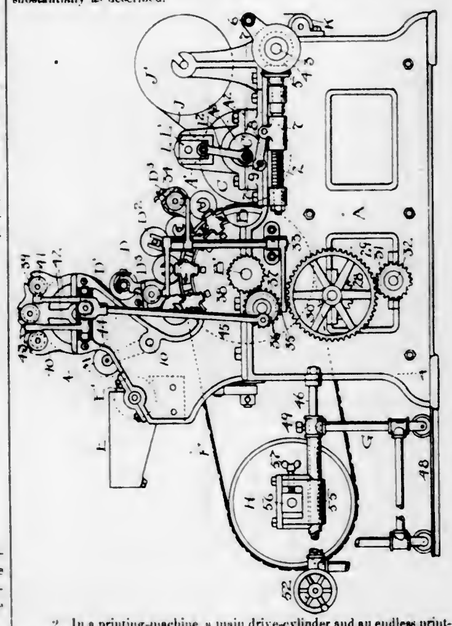
4. In a machine of the character described, a receptacle for glue, a vertical standard in the interior thereof fast thereto and extending from the bottom of said receptacle to a point above the glue contained in said receptacle, a vertical reciprocatory rod, a cylindrical sleeve fast to the upper end of said rod and encircling said standard, a hole extending longitudinally through said standard and forming a guide for said reciprocatory rod, and mechanism for imparting a reciprocating motion to said rod.

5. In a machine of the character described, a receptacle for glue, a vertical standard in the interior thereof fast thereto and extending from the bottom of said receptacle to a point above the glue contained in said receptacle, a vertical reciprocatory rod, a cylindrical sleeve fast to the upper end of said rod and encircling said standard, a disk fast to the exterior of said sleeve, a hole extending longitudinally through said standard and forming a guide for said reciprocatory rod, and mechanism for imparting a reciprocating motion to said rod.

6. In a machine of the character described, a receptacle for glue, a vertical standard in the interior thereof fast thereto and extending from the bottom of said receptacle to a point above the glue contained in said receptacle, a vertical reciprocatory rod, a cylindrical sleeve fast to the upper end of said rod and encircling said standard, a disk and a felt sleeve 20 fast to said cylindrical sleeve, a hole extending longitudinally through said standard and forming a guide for said reciprocatory rod, and mechanism for imparting a reciprocating motion to said rod.

678,472. PRINTING-MACHINE. HORACE G. BENDER, Akron, Ohio, assignor of one-half to the Globe Sign Company, same place. Filed May 26, 1900. Serial No. 18,135. (No model.)

Claim.—1. In a printing-machine, a main printing-cylinder and an impression-cylinder opposite thereto, a printing-belt for said cylinders, a tension feed-roller for the impression-cylinder, and means to adjust said impression-cylinder to the face of the belt and printing-cylinder and having a connection with said tension-roller operatively adjustable therewith, substantially as described.



2. In a printing-machine, a main drive-cylinder and an endless printing-belt thereon, an impression-cylinder and a tension feed-roller therefor, an eccentric bearing at each side of said impression-cylinder, and means to operate said eccentric bearings simultaneously to adjust the impression-cylinder to said drive-cylinder, substantially as described.

3. In a printing-machine the printing and impression cylinders and the printing-belt therefor, eccentric bearings for said impression-cylinder, and screw-shafts geared to work together having traveling boxes connected to said bearings for the adjustment of said impression-cylinder to said printing-cylinder, substantially as described.

4. In a printing-machine, the printing and impression cylinders and the printing-belt therefor, eccentric bearings for the impression-cylinder, screw-shafts having traveling boxes connected to said bearings to rotate the same, means to operate said shafts together, and a tension feed-roller having a link connection with the shaft of said impression-cylinder, substantially as described.

5. In a printing-machine, the combination of the main drive and printing cylinder, the idler-roller and an endless printing-belt stretched over said cylinder and roller, a fixed frame and a movable frame supporting said roller and slidably mounted on said fixed frame, and having rolling supports at its bottom, and means to adjust said movable frame and roller to said tighten belt, substantially as described.

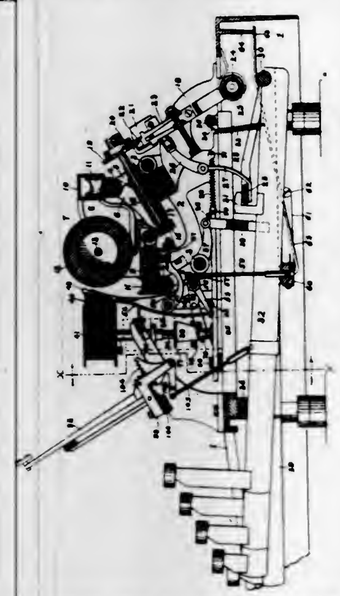
6. The main frame and the printing mechanism supported thereon, guide-rods and tracks extending to the rear of said frame, a movable frame for said rods and tracks, a drive-cylinder on the main frame and an idler-roller on said movable frame, an endless printing-belt stretched between said cylinder and roller, and means to adjust said roller back and forth on said movable frame, substantially as described.

7. The main frame and the printing mechanism supported thereon, a movable frame at the rear of said main frame, and guides therefor, a drive-cylinder on said main frame and an idler-roller on the movable frame and an endless belt carried by said cylinder and roller, bearing-supports for said roller slidably mounted on said movable frame, means to operate said supports back or forth, and independent shifting bearings in said supports constructed to aline the roller and belt, substantially as described.

678,473. TYPE-WRITING MACHINE. BYRON A. BROOKS, Brooklyn, N. Y., assignor to the Union Typewriter Company, Jersey City, N. J. Filed Jan. 28, 1899. Serial No. 703,843. (No model.)

Claim.—1. In a type-writing machine, the combination of a car-

riage, a cam controlled by the carriage, a ribbon-spool shaft, and spool-shaft-rotating mechanism arranged wholly between said cam and said ribbon-spool shaft and connecting the two together, whereby the shaft and the intervening connecting mechanism alone effect a rotative movement of the shaft.



2. In a type-writing machine, the combination of ribbon-spool shafts, a carriage, a cam on said carriage, a mechanism for and rotating each of said shafts and connected with said cam, and adjustable means for disengaging and engaging said mechanisms and shafts in alternation whereby the ribbon may be wound upon either spool at will.

3. In a type-writing machine, the combination of a platen-carriage, a rock shaft operated by a longitudinal movement of the carriage, ribbon-spools, an inking-ribbon mounted thereon and connections between said spools and said rock-shaft for operating the spools to feed the ribbon longitudinally without axial movement of the spools.

4. In a type-writing machine, the combination of a carriage provided with a cam, an arm or lever working against said cam, a rock-shaft connected to said arm and to the ribbon-spools, and means connecting said shaft with the spools whereby a rotary movement only is imparted to the latter by the longitudinal motion of the platen-carriage in one direction in order to feed the ribbon longitudinally.

5. In a type-writing machine, the combination of a platen-carriage, a cam thereon, a rock-shaft provided with an arm, a spring for pressing said arm against the cam, whereby the rock-shaft is rotated in one direction by the cam-surface and in the other by the spring, and a ribbon-spool shaft connected by shaft-rotating mechanism to said rock shaft, said shaft-rotating mechanism being arranged wholly between said spool-shaft and said rock-shaft, whereby a rotary movement is communicated to said spool-shaft.

6. In a type-writing machine, the combination of a platen, a carriage, a pair of ribbon-spools mounted in front of the platen upon upright shafts, means arranged between the spools for moving a portion of the ribbon widthwise to cover and uncover the printing-point, a cam mounted upon the carriage and extending longitudinally thereof, a rock-shaft extending transversely of the machine and having an arm, a spring for retaining said arm against said cam, and means for enabling said rock-shaft to impart only a rotary movement to said spool-shafts.

7. In a type-writing machine, the combination of an inking-ribbon, ribbon-spools, ribbon-spool shafts, a platen-carriage, an oblique bar connected and moving with said carriage, means for rotating one of said ribbon-spool shafts without moving the latter endwise and connections between said means and said oblique bar, the whole being arranged to rotate the shaft during the forward motion of the carriage only, substantially as described.

8. In a type-writing machine, the combination of an inking-ribbon, ribbon-spools, ribbon-spool shafts, independent to-and-fro movable racks connected with and for rotating said shafts each in one direction only, and disconnectible therefrom, a platen-carriage, an oblique bar on said carriage, and connections between said bar and said shaft-operating racks for controlling the same, whereby the ribbon is moved longitudinally only as the carriage moves in one direction.

9. In a type-writing machine, the combination of an inking-ribbon, ribbon-spools, ribbon-spool shafts, a platen-carriage, an oblique bar on said carriage, a rock-shaft connected with said bar to be moved thereby, two similar mechanisms for rotating said spool-shafts and connected with said rock-shaft and each having a disconnectible part, with means for disengaging said oblique bar from said shafts in alternation and said mechanisms being adapted to rotate their shafts each in but one direction, the whole being arranged to rotate a ribbon-spool shaft only as the carriage moves forward.

10. In a type-writing machine, the combination of a ribbon-spool shaft, a pinion, a clutch, an endwise-movable rack engaging said pinion, a rock-shaft connected with said rack to move the same endwise, an arm on said rock-shaft, a carriage and an oblique bar on and moving with said carriage and operating said rock-shaft arm.

11. In a type-writing machine, the combination of a ribbon-spool, a shaft carrying the spool, a pinion, a clutch connecting the shaft and pinion, a reciprocatory rack engaging said pinion, a carriage, a cam-bar on the carriage, and connections intermediate the cam-bar and the rack for moving the latter endwise.

12. In a type-writing machine, the combination of a ribbon-spool shaft, a pinion, a clutch connecting the shaft and pinion, an endwise-movable rack engaging said pinion, a spring for moving the rack endwise in one direction, a carriage, a bar on said carriage having one edge or face inclined or oblique to the direction of motion of the carriage, a rocker-arm connected with the rack to move the same and to be moved thereby under the action of said spring and bearing against the said inclined or oblique edge of said bar under the action of the spring for moving the rack, whereby the rack is moved in one direction by the operation of said bar and in the other direction by the said spring, substantially as described.

13. In a type-writing machine, the combination of a ribbon-spool shaft, a pinion, a clutch for connecting said shaft and said pinion, a reciprocatory rack engaging said pinion, a carriage, a cam-bar on said carriage, a rock-shaft provided with two arms one of which is operated by said cam-bar and means for connecting the other arm with said rack for moving the rack endwise, substantially as described.

14. In a type-writing machine, the combination of a ribbon-spool shaft, a pinion, a clutch for connecting the shaft and pinion, an endwise-movable rack engaging said pinion, a spring for moving the rack endwise in one direction, a carriage, a bar on said carriage having one edge or face oblique to the line of travel of the carriage, a rock-shaft having an arm bearing against said oblique face or edge, and a second arm on said shaft connected with the rack-bar to move the same against the force of said spring and to be moved by said spring and rack, whereby the first-named arm is held in contact with the oblique or cam face of said bar on the carriage.

15. In a type-writing machine, the combination of two ribbon-spool shafts, two pinions, clutches for connecting said pinions and said shafts, means for holding said clutches out of operative position one at a time, reciprocatory racks engaging said pinions, a carriage, a cam-bar on said carriage, and connections intermediate the cam-bar and the racks for moving the latter endwise, substantially as described.

16. In a type-writing machine, the combination of two ribbon-spool shafts, a pinion for each shaft, a clutch for connecting each pinion with its shaft, means for holding said clutches out of action one at a time, a reciprocatory rack for and engaging each of said pinions, springs for moving said bars endwise in one direction, a carriage, a bar on said carriage having one face or edge oblique to the direction of motion of said carriage, an arm for coaction with said oblique face of said bar, and connections intermediate said arm and said rack-bars for moving the rack-bars endwise against the force of said springs and moved by said bars and springs to bring said arm against said oblique face of the carriage-bar.

17. In a type-writing machine, the combination of ribbon-spool shafts, a pinion for each shaft, a clutch for connecting each pinion with its shaft, means for holding said clutches alternately out of operation, an endwise-movable rack for and engaging each pinion, springs for moving said racks endwise in one direction, a carriage, a bar on the carriage having a face oblique to the direction of the motion of the carriage, a rock-shaft, an arm on said shaft adapted to engage with said oblique face, and other arms on said shaft connected with said rack-bars for moving them against the force of said springs and moved by said springs and racks to hold the first-named arm against said oblique bar.

18. In a type-writing machine, the combination of ribbon-spool shafts, oscillatory pinions for operating said shafts, means for oscillating said pinions, clutches for connecting said pinions with their respective shafts, a flanged sleeve on and movable endwise only of each shaft and carrying each one member of the corresponding clutch, oppositely-acting cams for engaging said flanges to move the sleeves endwise of the shafts, and means for simultaneously operating said cams in the same direction whereby one clutch is engaged and the other clutch is disengaged and the direction of the ribbon travel is reversed.

19. In a type-writing machine, the combination of a platen, a carriage, a pair of ribbon-spools mounted in front of the platen upon upright shafts, means arranged between the spools for moving a portion of the ribbon widthwise to cover and uncover the printing-point, a cam mounted upon the carriage and extending longitudinally thereof, a rock-shaft extending transversely of the machine and having an arm engaged by said cam, pinions upon said spool-shafts, means for enabling said rock-shaft to oscillate said pinions, and means for operatively connecting said pinions with their respective shafts in alternation.

20. In a type-writing machine, the combination of ribbon-spool shafts, driving mechanism for operating said shafts, said driving mechanism including clutches having members rotatable with and movable longitudinally of said shafts for engaging and disengaging the clutches, flanges connected with said clutch members on the shafts, oppositely-acting cams constructed to directly engage said flanges, and means for simultaneously operating said cams to disegage one and reëngage the other of said clutches whereby the direction of travel of the ribbon is reversed, substantially as described.

21. In a type-writing machine, the combination of ribbon-spool shafts, clutch members rotated with and movable lengthwise of said shaft, oscillatory pinions provided with clutch members for engaging the aforesaid clutch members on said shafts, means for driving said pinions, a rock-shaft, and connections between said rock-shaft and said spool-shaft clutch members for moving the said members alternately into engagement with the pinion clutch members, substantially as described.

22. In a type-writing machine, the combination of ribbon-spool shafts 65 provided with longitudinal grooves 74, sleeves 75 on said shafts and each having a pin 76 engaging the corresponding groove 74, flanges 77; clutch members 78, pinions 72, clutch members 73 connected with said pinions, movable rack-bars engaging said pinions, means for reciprocating said rack-bars with the carriage, reverse-cams 80, arms 81 connected with said cams, rock-shaft 57, arms 83 on said shaft and connected with arms 81 to rock the same, and a thumb wheel or button on said shaft 57 for operating the same.

23. In a type-writing machine, the combination of a platen, an obliquely-shifting carriage therefor, ribbon-spools on the main frame, and a ribbon-guide attached to the shifting-carriage mechanism whereby the guide and ribbon are shifted obliquely when the platen is shifted.

24. In a type-writing machine, the combination of an obliquely-shifting platen-carriage, a ribbon-vibrator, and means by which said vibrator is shifted obliquely when the platen is shifted.

25. In a type-writing machine, the combination of a platen, an obliquely-shifting platen-carriage, a ribbon-vibrator, and a guide for said vibrator attached to the carriage-shifting mechanism whereby the vibrator is shifted obliquely with the platen.

26. In a type-writing machine, the combination of a platen, an obliquely-shifting carriage therefor, type-bars arranged to strike on the platen in view of the operator, a ribbon mounted on spools, a ribbon-vibrator through which said ribbon passes, and means for vibrating the same to expose the printing-point, part of said vibrating means being attached to or mounted upon the carriage-shifting mechanism, whereby the ribbon-vibrator is moved obliquely with the shifting platen.

27. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, an inking-ribbon normally at the front side of said platen and below the printing-point, a ribbon-vibrator and means for turning said vibrator and moving the same upward and backward to carry the ribbon over the printing-point and for returning the ribbon and vibrator to normal position.

28. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, an inking-ribbon normally extending along in front of the platen and below the printing-point, a ribbon-vibrator and a curved guide for said vibrator whereby the vibrator slides and turns as it is moved toward and from the printing-point.

29. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, an inking-ribbon extending along in front of the platen and below the printing-point, a ribbon-vibrator, and a pivotally-mounted curved guide for said vibrator, whereby the vibrator slides and turns as it is moved toward and from the printing-point and the guide yields readily to permit the vibrator to be close to the platen at the moment of impact of the type.

30. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, an inking-ribbon normally extending along in front of the platen and below the printing-point, a ribbon-vibrator, a curved guide for said vibrator, a lever connected to the vibrator, a universal bar, and connections between said lever and said bar.

31. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, an inking-ribbon normally extending along in front of the platen, a ribbon-vibrator, a pivotally-mounted curved guide for said vibrator, a lever, a universal bar, and rods connecting the lever with the vibrator and the bar.

32. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, ribbon-spools in front of the platen and on the framework, an inking-ribbon passing horizontally from one to the other of said spools and below the printing-point, a ribbon-vibrator adjacent the printing-point, and a curved guide along which the vibrator is moved and by which it is caused to turn as the vibrator carries the ribbon over and from the printing-point.

33. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, ribbon-spools at the front of and adjacent the platen and having vertical axes, an inking-ribbon passing from one to the other of said spools, a ribbon-vibrator normally on the same level as the spools, means for operating the vibrator, and means for causing said vibrator to turn independently of said operating means as it is moved upward and rearward and back again from normal position to carry the ribbon over and from the printing-point.

34. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, ribbon-spools at the front of and adjacent the platen and having vertical axes, an inking-ribbon passing from one to the other of said spools and a ribbon-vibrator normally on the same level as said spools, a curved guide for said vibrator, and means for connecting the vibrator with the guide whereby the vibrator is given a turning movement as it is moved along said guide to carry the ribbon over and from the printing-point.

35. In a type-writing machine, the combination of axially-motionless ribbon-spools, a carriage, a cam controlled by said carriage, and mechanism connecting said cam to said ribbon-spools and constructed to rotate the latter.

36. In a type-writing machine, the combination of ribbon-spools, shafts therefor, a carriage, a cam controlled by said carriage, and mechanism controlled by said cam for rotating said spool-shafts without imparting endwise movement to the latter.

37. In a type-writing machine, the combination of a pair of ribbon-spools, a pair of vertical shafts upon which said spools are mounted, a platen-carriage arranged in rear of said spools, a cam controlled by said carriage, and means controlled by said cam for rotating said spools.

38. In a type-writing machine, the combination of a pair of ribbon-spools, a platen arranged in rear thereof, a series of key-controlled type-bars constructed and arranged to strike the platen upon the upper front side thereof, a power-driven carriage for said platen, means for shifting said carriage obliquely, means for controlling the letter-space movements of said carriage in either of its shifted positions, and means controlled by said shifting carriage for rotating said ribbon-spools.

39. In a type-writing machine, the combination of a platen, a carriage, a cam mounted upon the carriage and extending longitudinally thereof, a rock-shaft having an arm engaging said cam, a pair of racks operated by said rock-shaft, a pair of vertical ribbon-spool shafts having pinions engaging said racks, and means for effecting a disconnection between said racks and said shafts in alternation.

40. In a type-writing machine, the combination of a pair of ribbon-spools having vertical axes, ribbon-winding mechanism, a platen arranged in rear of the spools, a carriage for said platen, a series of key-controlled type-bars arranged forwardly of the platen and constructed to strike the platen upon its upper front side, so that the face of the type when printing lies in an oblique plane, and means supported upon the frame of the machine and arranged between the spools for automatically lifting a portion of the ribbon upwardly and presenting said portion to the type so that said portion lies in a plane which is oblique to said spool-axes and substantially parallel with the face of the type when printing, and then automatically returning said portion to a normal position so as to expose the printing-point.

41. In a type-writing machine, the combination of a pair of ribbon-spools having vertical axes, ribbon-winding mechanism, a platen arranged in rear of the spools, a carriage for said platen, means for shifting said carriage and platen obliquely, a series of key-controlled type-bars arranged forwardly of the platen and constructed to strike the platen upon its upper front side, so that the face of the type when printing lies in an oblique plane, and means supported upon the frame of the machine and arranged between the spools for automatically lifting a portion of the ribbon upwardly and presenting said portion to the type, so that said portion lies in a plane which is oblique to said spool-axes and substantially parallel with the face of the type when printing, and so that said portion covers the printing-point at either of the shift positions of said platen and carriage, and then automatically returning said portion to a normal position so as to expose the printing-point.

42. In a type-writing machine, the combination of a platen, an obliquely-shifting carriage therefor, an obliquely-shifting frame engaging said

carriage, a guide mounted upon said frame and shifting therewith, and a ribbon-vibrator mounted upon the framework of the machine and working in said guide.

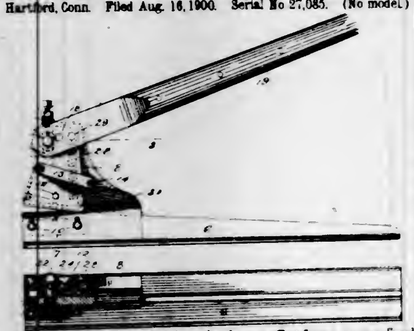
43. In a type-writing machine, the combination of a platen, an obliquely-shifting platen-carriage, a guide arranged in front of the platen, means for shifting said guide obliquely when the platen is shifted, and a ribbon-vibrator mounted upon the framework of the machine and working in said guide.

44. In a type-writing machine, the combination of a platen, an obliquely-shifting platen-carriage, a slotted guide connected to a part of the carriage-shifting mechanism and extending up in front of the platen, and a ribbon-vibrator mounted upon the framework of the machine and working in the slots in said guide.

45. In a type-writing machine, the combination of a platen, an obliquely-shifting carriage therefor, type-bars arranged to strike on the platen in view of the operator, spools arranged in front of the platen, a ribbon-vibrator arranged between the spools and mounted upon the framework of the machine, and a curved guide connected to a portion of the carriage-shifting mechanism and engaging said ribbon-vibrator.

46. In a type-writing machine, the combination of type mechanism, a platen having the printing-point at its upper front side, a carriage, an obliquely-shifting carriage-rail arranged below the platen, a guide attached at its lower end to said rail and extending upwardly in front of the platen in proximity to the printing-point and having a curved slot, a ribbon-vibrator having means for engaging said slot and pivoted at its lower end upon an arm 55 pivotally mounted upon the framework of the machine, and means controlled by the keys for vibrating said arm.

678,474. METAL-CUTTING SHEARS. GEORGE J. CAPEWELL, Hartford, Conn. Filed Aug. 16, 1900. Serial No. 27,085. (No model.)



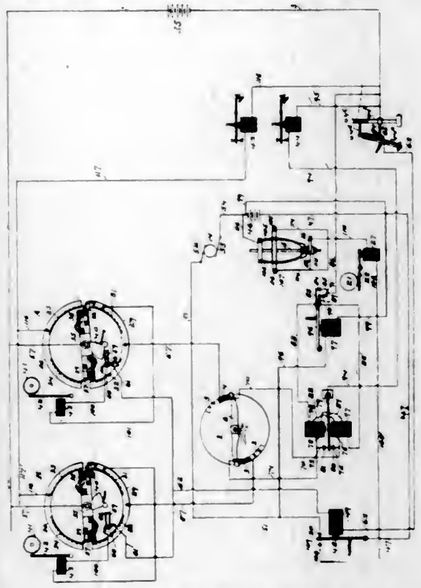
Claim.—1. Metal-cutting shears having an offset frame, an arm fixed to and projecting from one part of the frame, an arm pivoted to and projecting from the other part of the frame in substantially the same direction as the fixed arm, a blade fixed to one side of the part of the offset frame from which the fixed arm projects, a blade movably held to the other side of the part of the offset frame from which the pivoted arm projects, and a stud connecting the pivoted arm and the movable blade, substantially as specified.

2. Metal-cutting shears having an offset frame, an arm fixed to and projecting from one part of the frame, an arm pivoted to and projecting from the other part of the frame in substantially the same direction as the fixed arm, a blade fixed to one side of the part of the offset frame from which the fixed arm projects, a blade movably held to the other side of the part of the offset frame from which the pivoted arm projects, a stud connecting the pivoted arm and the movable blade, and a spring thrusting between the frame and the movable blade and normally holding the movable blade away from the fixed blade, substantially as specified.

3. Metal-cutting shears having an offset frame, an arm fixed to and projecting from one part of the frame, an arm pivoted to and projecting from the other part of the frame in substantially the same direction as the fixed arm, a blade fixed to one side of the part of the offset frame from which the fixed arm projects, a blade movably held on the face of the part of the offset frame from which the pivoted arm projects, a bar fastened to the face of the frame and loosely retaining the movable blade in position, and a stud connecting the pivoted arm and the movable blade, substantially as specified.

4. Metal-cutting shears having an offset frame, a blade fixed to one side of the offset frame, a blade movably held to the other side of the offset frame, a pivot adjustably connected with the frame, means for clamping the pivot in position, means for holding the clamped pivot against movement and a lever mounted upon the pivot and loosely connected with the movable blade, substantially as specified.

678,475. ELECTRIC SIGNALING SYSTEM. HENRY G. CARLETON, New York, N. Y., assignor to the Carleton Electric Company, same place. Filed Sept. 29, 1900. Serial No. 31,469. (No model.)



Claim.—1. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments each having a starting mechanism, of a receiver, a selector, circuit connections controlled by the selector whereby each of the signaling instruments may be independently connected with the receiver and whereby the selector operates the starting mechanism of each instrument, and means for preventing the receiver from being connected to more than one instrument at a time, substantially as described.

2. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments each having a starting mechanism, of a selector, circuit connections between each of the instruments and the selector, a receiver, means for establishing circuit connections between the receiver and the selector, whereby the selector may establish circuit connections between any signaling instrument and the receiver and may operate the starting mechanism of each instrument, and means for preventing the selector from establishing a connection with more than one signaling instrument at a time, substantially as described.

3. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector, circuit connections between each of the instruments and the selector, a receiver, means for establishing circuit connections between the receiver and the selector, whereby the selector establishes circuit connections between any signaling instrument and the receiver, and means controlled by the receiver for preventing the selector from establishing a connection with more than one signaling instrument at a time, substantially as described.

4. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments each having a starting mechanism, of a selector, a receiver, suitable circuit connections whereby the selector is enabled to throw each of the signaling instruments into circuit with the receiver and operate the starting mechanism of each instrument, suitable devices for throwing the selector into operation, a circuit including said devices and adapted to be rendered operative by each of the signaling instruments, and means for rendering said circuit inoperative during the time when the receiver is receiving a signal from any signaling instrument, substantially as described.

5. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector, a receiver, suitable circuit connections whereby the selector is enabled to throw each of the signaling instruments into circuit with the receiver, suitable devices for throwing the selector into operation, a circuit including said devices and adapted to be rendered operative by each of the signaling instruments, and means controlled by the receiver for rendering said circuit inoperative during the time when the receiver is receiving a signal from any signaling instrument, substantially as described.

6. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments each having a starting mechanism, of a selector, a receiver, suitable circuit connections whereby the selector is enabled to establish a circuit between each of the signaling instruments and the receiver and operate the starting mechanism of each instrument, a motor-circuit for the selector, a controlling-circuit for the motor-circuit, said controlling-circuit being adapted to be rendered operative by any of the signaling instruments, and means for rendering said controlling-circuit inoperative when the receiver is receiving a signal from any of the signaling instruments, substantially as described.

7. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector, a receiver, suitable circuit connections whereby the selector is enabled to establish a circuit between each of the signaling instruments and the receiver, a motor-circuit for the selector, a controlling-circuit for the motor-circuit, said controlling-circuit being adapted to be rendered operative by any of the signaling instruments, and means controlled by the receiver for rendering said controlling-circuit inoperative when the receiver is receiving a signal from any of the signaling instruments, substantially as described.

8. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments each embodying a starting mechanism, of a receiver, a selector, suitable connections controlled by the selector, whereby the selector is enabled to throw the receiver into circuit with each of the signaling instruments, suitable circuit connections whereby the selector operates the starting mechanism of the signaling instruments, operating devices for the selector, a circuit including said operating devices which is adapted to be rendered operative by each of the signaling instruments, and means whereby said circuit is rendered inoperative when the selector has thrown any of the signaling instruments into circuit with the receiver and the receiver is receiving a signal therefrom, substantially as described.

9. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments each embodying a starting mechanism, of a receiver, a selector, suitable connections controlled by the selector, whereby the selector is enabled to throw the receiver into circuit with each of the signaling instruments, suitable circuit connections whereby the selector operates the starting mechanism of the signaling instruments, operating devices for the selector, a circuit including said operating devices which is adapted to be rendered operative by each of the signaling instruments, and means controlled by the receiver whereby said circuit is rendered inoperative when the selector has thrown any of the signaling instruments into circuit with the receiver and the receiver is receiving a signal therefrom, substantially as described.

10. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each including a starting mechanism, of a receiver, a selector, suitable circuit connections whereby the selector is enabled to throw any of the signaling instruments into circuit with the receiver, a motor-circuit controlling the action of the selector, a controlling-circuit for the motor-circuit, said circuit being adapted to be rendered operative by each of the signaling instruments, suitable circuit connections whereby the selector is enabled to throw the starting mechanism of each instrument into operation, and means whereby the controlling-circuit for the motor-circuit is rendered inoperative whenever the selector has established a circuit connection between any signaling instrument and the receiver and the receiver is receiving a signal therefrom, substantially as described.

11. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each including a starting mechanism, of a receiver, a selector, suitable circuit connections whereby the selector is enabled to throw any of the signaling instruments into circuit with the receiver, a motor-circuit controlling the action of the selector, a controlling-circuit for the motor-circuit, said circuit being adapted to be rendered operative by each of the signaling instruments, suitable circuit connections whereby the selector is enabled to throw the starting mechanism of each instrument into operation, and means controlled by the receiver whereby the controlling-circuit for the motor-circuit is rendered inoperative whenever the selector has established a circuit connection between any signaling instrument and the receiver and the receiver is receiving a signal therefrom, substantially as described.

12. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each of which includes a starting mechanism, of a receiver, a selector, and suitable circuit connections whereby the selector may throw any signaling instrument into circuit with the receiver and operate the starting mechanism of the instrument so connected, substantially as described.

13. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a receiver, a selector, suitable circuit connections whereby the selector is enabled to throw each of the signaling instruments into circuit with the receiver, means for preventing the receiver from being connected to more than one instrument at a time, a motor for driving the selector, a stopping mechanism which acts upon the selector independently of the motor, and means for operating said stopping mechanism, substantially as described.

14. The combination with a plurality of signaling instruments, of a receiver, a selector having a plurality of stationary contacts and a plurality of movable contacts, and suitable circuit connections whereby each movable contact may establish a circuit between the signaling instrument and the receiver, substantially as described.

15. The combination with a plurality of signaling instruments, of a receiver, a selector having a plurality of stationary contacts and a plurality of rotating contacts, and suitable circuit connections whereby each movable contact may establish a circuit between the signaling instruments and the receiver, substantially as described.

16. The combination with a plurality of signaling instruments, of a selector embodying a movable arm carrying a brush and a plurality of contacts with which said brush coöperates, said contacts being in circuit with the signaling instruments, a motor for driving the selector-arm, and a stopping mechanism for the arm, said stopping mechanism operating upon the arm independently of the motor, substantially as described.

17. The combination with a plurality of signaling instruments, of a selector embodying a movable arm carrying a brush and a plurality of contacts with which said brush coöperates, said contacts being in circuit with the signaling instruments, a motor for driving the selector-arm, a friction connection between the motor and the arm, and a brake mechanism whereby the movement of the arm may be stopped and the motor permitted to run, substantially as described.

18. The combination with a selector embodying a movable arm carrying a brush and a plurality of contacts with which said brush coöperates, a motor for driving the selector-arm, a friction connection between the motor and the arm, electrically-operated brake mechanism whereby the movement of the arm may be stopped and the motor permitted to run, a suitable circuit for said brake mechanism, devices controlled by the movement of the motor for placing said circuit in operative condition, and circuit-controlling devices, substantially as described.

19. The combination with a selector embodying a movable arm carrying a brush, and a plurality of contacts with which said brush coöperates, a motor for driving the selector-arm, a friction connection between the motor and the arm, an electrically-operated brake mechanism whereby the movement of the arm may be stopped and the motor permitted to run, a suitable circuit for said brake mechanism, an arm on the motor-shaft thrown into operative position by the movement of the shaft and when in said position adapted to place the brake-circuit in operative condition, and circuit-closing devices, substantially as described.

20. The combination with a selector embodying a movable arm carrying a brush, and a plurality of contacts with which said brush coöperates, an electric motor for driving the arm, a suitable circuit for energizing the motor, a friction connection between the motor and the arm, an electric brake mechanism for stopping the movement of the arm, a circuit for said brake mechanism, and a single circuit-controlling device operating to render the motor-circuit operative and the brake-circuit inoperative and vice versa, substantially as described.

21. The combination with a selector embodying a movable arm carrying a brush, and a plurality of contacts with which said brush coöperates, an electric motor for driving the arm, a suitable circuit for energizing the motor, a friction connection between the motor and the arm, an electric brake mechanism for stopping the movement of the arm, a circuit for said brake mechanism, devices controlled by the movement of the motor for placing said circuit in operative condition, and a single circuit-controlling device operating to render the motor-circuit operative and the brake-circuit inoperative and vice versa, substantially as described.

22. The combination with a selector embodying a movable arm carrying a brush and a plurality of contacts with which said brush coöperates, of an electric motor for driving the arm, a friction-clutch between the motor and the arm, a suitable circuit for energizing the motor, an electric brake mechanism for stopping the movement of the arm, an arm on the motor-shaft, a stop against which the arm is thrown by the rotation of the shaft, a circuit for the brake mechanism including the arm and stop, and suitable circuit-closing devices for rendering the motor-circuit operative and the brake-circuit inoperative and vice versa, substantially as described.

23. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector embodying a series of terminals and two rotating brushes, circuit connections between the terminals and the signaling instruments, circuit connections leading from each brush, a receiver, a multiple-circuit controller, and circuit connections between the multiple-circuit controller and the receiver whereby the controller is enabled to establish a connection between either brush and the receiver, substantially as described.

24. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector embodying a series of terminals and two rotating brushes, circuit connections between the terminals and the signaling instruments, circuit connections leading from

each brush, a receiver, a multiple-circuit controller, circuit connections between the multiple-circuit controller and the receiver whereby the controller is enabled to establish a connection between either brush and the receiver, and means for preventing a circuit from being established between the receiver and one brush whenever the selector has operated to establish a connection between the receiver and the other brush, substantially as described.

25. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector embodying a series of terminals and two rotating brushes, circuit connections between the terminals and the signaling instruments, a polarized relay, circuit connections leading from one of the brushes to one set of coils of the relay, circuit connections leading from the other brush to the other set of coils of the relay, energizing-circuit connections leading from the relay-coils, said connections including a suitable source of electrical energy with which the signaling instruments are in circuit, a receiver, circuit connections between a magnet of the receiver and the armature of the relay, and a pair of contacts coöperating with the relay-armature, one of said contacts being in circuit with one set of connections from the selector to the relay-coils and the other contact being in circuit with the other set of connections from the selector to the relay-coils, the coils being so wound and the armature so polarized as to shunt the coils which cause the movement of the armature, substantially as described.

26. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a main line to which said instruments are connected, a selector comprising a series of terminals and two two rotating brushes, circuit connections between the terminals and the signaling instruments, a polarized relay, circuit connections between one of the brushes of the selector and one set of coils of the relay, circuit connection between the other brush and the other set of coils and the relay, a branch from the main-line return forming an energizing-circuit for the relay-coils, a receiver, a branch from the main-line return including a magnet of the receiver and leading to the relay-armature, a pair of contacts with which the relay-armature coöperates, one of said contacts being in circuit with one set of connections from the selector to the relay-coils and the other contact being in circuit with the other set of connections from the selector to the relay-coils, the coils being so wound and the armature so polarized that the movement of the armature shunts the coils which cause the movement of the armature, substantially as described.

27. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, of a selector embodying a series of terminals and two rotating brushes, circuit connections between the terminals and the signaling instruments, a polarized relay, circuit connections leading from one of the brushes to one set of coils of the relay, circuit connections leading from the other brush to the other set of coils of the relay, energizing-circuit connections leading from the relay-coils, said connections including a suitable source of electrical energy with which the signaling instruments are in circuit, a receiver, circuit connections between a magnet of the receiver and the armature of the relay, a pair of contacts coöperating with the relay-armature, one of said contacts being in circuit with one set of connections from the selector to the relay-coils and the other contact being in circuit with the other set of connections from the selector to the relay-coils, the coils being so wound and the armature so polarized that the movement of the armature shunts the coils which cause the movement of the armature, and means for rendering inoperative the energizing-circuit connections for the relay-coils after the armature has been moved to establish a connection between the selector and the receiver-magnet, substantially as described.

28. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each embodying an electrically-controlled starting mechanism, of a main line to which said signaling instruments are connected, a circuit for each starting mechanism, devices in each signaling instrument whereby its starting mechanism is thrown into the main line, a selector embodying a series of terminals and two rotating brushes, circuit connections between the terminals of the selector and the signaling instruments, a polarized relay, circuit connections between one of the brushes and one set of coils of the relay, circuit connections between the other brush and the other set of coils of the relay, a branch from the main-line return, said branch being suitably connected to the relay-coils so as to form an energizing-circuit therefor, a receiver, a branch from the main-line return including one of the receiver-magnets and the relay-armature, a pair of contacts, one being in circuit with the connections from one brush to one set of relay-coils and the other being in circuit with the connections from the other brush to the other set of relay-coils, the coils being so wound and the armature so polarized that the movement of the armature shunts the coils which cause the movement of the armature, and means for rendering inoperative the energizing branch leading to the relay-coils after the armature has been moved to establish a connection between the selector and the receiving-magnet, substantially as described.

29. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each embodying an electrically-controlled starting mechanism, of a main line to which said signaling instruments are connected, a circuit for each starting mechanism, devices in each signaling instrument whereby its starting mechanism is thrown into the main line, a selector embodying a series of terminals and two rotating brushes, connections between the terminals and the signaling instruments, a motor-circuit, an electrical controlling device for said circuit, a circuit for said electrical controlling device including a branch from the main-line return and branches to each of the signaling instruments, a multiple-circuit controller, circuit connections between each brush of the selector and the circuit-controller, a branch from the main line leading to said controller, a controller for said branch, electrical actuating devices for said controller located in a branch, a receiver, and a branch from the main-line return including a receiver-magnet and leading to the circuit-controller, substantially as described.

30. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each embodying an electrically-controlled starting mechanism, of a main line to which said signaling instruments are connected, a circuit for each starting mechanism, devices in each signaling instrument whereby its starting mechanism is thrown into the main line, a selector embodying a series of terminals and two rotating brushes, connections between the terminals and the signaling instruments, a motor-circuit, an electrical controlling device for said circuit, a circuit for said electrical controlling device including a branch from the main-line return and branches to each of the signaling instruments, a multiple-circuit controller, circuit connections between each brush of the selector and the circuit-controller, a branch from the main line leading to said controller, a controller for said branch, electrical actuating devices for said controller located in a branch, a receiver, a branch from the main-line return including a receiver-magnet and leading to the multiple-circuit controller, and means operated from the receiver-magnet for rendering the motor-controlling circuit inoperative during the time when the receiver is receiving a signal from any signaling instrument, substantially as described.

31. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each embodying an electrically-controlled starting mechanism, of a main line to which said signaling instruments are connected, a circuit for each starting mechanism, devices in each signaling instrument whereby its starting mechanism is thrown into the main line, a selector embodying a series of terminals and two rotating brushes, connections between the terminals and the signaling instruments, a motor-circuit, an electrical controlling device for said circuit, a circuit for said electrical controlling device including a branch from the main-line return and branches to each of the signaling instruments, a polarized relay, circuit connections between one brush of the selector and one set of coils of the relay and between the other brush and the other set of coils of the relay, a branch from the main-line return, an electrically-operating controller for said branch, the operating devices for which are included in a branch from the motor-circuit, a receiver, a branch from the main-line return including the receiver and leading to the armature of the polarized relay, a pair of contacts with which the armature of the relay coöperates, one of said contacts being in circuit with the connections leading from the selector to one set of relay-coils and the other contact being in circuit with the connections leading from the selector to the other set of relay-coils, the coils being so wound and the armature so polarized that the movement of the armature shunts the coils which cause the movement of the armature, and means for rendering inoperative the controlling-circuit for the motor-circuit during the time when the receiver is connected to any signaling instrument and is receiving a signal therefrom, substantially as described.

32. In an electrically-controlled signaling system, the combination with a plurality of signaling instruments, each embodying an electrically-controlled starting mechanism, of a main line to which said signaling instruments are connected, a circuit for each starting mechanism, devices in each signaling instrument whereby its starting mechanism is thrown into the main line, a selector embodying a series of terminals and two rotating brushes, connections between the terminals and the signaling instruments, a motor-circuit, an electrical controlling device for said circuit, a circuit for said electrical controlling device including a branch from the main-line return and branches to each of the signaling instruments, a polarized relay, circuit connections between one brush of the selector and one set of coils of the relay and between the other brush and the other set of coils of the relay, a branch from the main-line return, an electrically-operated controller for said branch, the operating devices for which are included in a branch from the motor-circuit, a receiver, a branch from the main-line return, including the receiver and leading to the armature of the polarized relay, a pair of contacts with which the armature of the relay coöperates, one of said contacts being in circuit with the connections leading from the selector to one set of relay-coils and the other contact being in circuit with the connections leading from the selector to the other set of relay-coils, the coils being so wound and the armature so polarized that the movement of the armature shunts the coils which cause the movement of the armature, and means controlled by the receiver for rendering inoperative the controlling-circuit for the motor-circuit during the time when the receiver is connected to any signaling instrument and is receiving a signal therefrom, substantially as described.

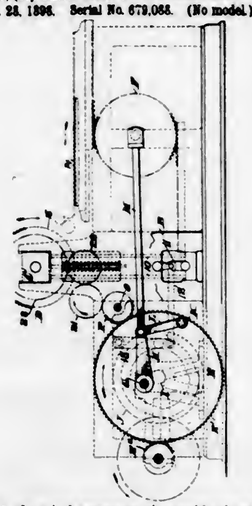
33. In a signaling system, the combination with a plurality of signaling instruments, of a selector, a stopping mechanism therefor, a motor-circuit for controlling the operation of the selector, a controlling-circuit for the motor-circuit which is rendered operative and inoperative by each signaling instrument, a multiple-circuit controller, an energizing circuit therefor having branches which lead to the selector, a controller for the energizing-circuit, a receiver, a circuit including the signaling instruments, the selector, and a receiver-magnet, said circuit being controlled by the multiple-circuit controller, a starting-magnet for each signaling instrument, the circuit for each magnet being controlled by the selector, means whereby the operation of the signaling instrument renders the controlling-circuit for the motor-circuit inoperative, means thrown into action when the controlling-circuit for the motor-circuit is rendered inoperative for rendering inoperative the energizing-circuit of the multiple-circuit controller and applying the stopping mechanism to the selector, and means controlled by the receiver for rendering the motor-controlling circuit inoperative during the time when the receiver is receiving a signal from any signaling instrument, substantially as described.

34. In a signaling system, the combination with a receiver employing a plurality of magnets, of a plurality of signaling instruments, each having a plurality of sets of circuit-closing devices, each set of devices being adapted to send a series of impulses over the line, a circuit including one of the magnets of the receiver and one set of circuit-closing devices, a selector, a motor-circuit for controlling the action of the selector, a stopping mechanism for the selector, a multiple-circuit controller, an energizing-circuit therefor having branches which include the circuit-controller and which lead to the selector, a controller for this circuit, a circuit controlled by the multiple-circuit controller and including another magnet of the receiver, a controlling-magnet for the motor-circuit, a starting-magnet, the circuit for which is under the control of the selector, means whereby the signaling instruments render operative and inoperative the controlling-circuit for the motor-circuit, means whereby when the motor-circuit is rendered inoperative the stopping mechanism for the selector is actuated and the energizing-circuit for the multiple-circuit controller is rendered inoperative, and means controlled by the receiver for maintaining the controlling-circuit for the motor-circuit in inoperative condition during the time when the receiver is receiving a signal, substantially as described.

35. In a signaling system, the combination with a plurality of signaling instruments, of a sunflower selector having two movable contacts, a stopping mechanism for the selector, a motor-circuit for controlling the operation of the selector, a controlling-circuit for the motor-circuit which is rendered operative and inoperative by each signaling instrument, a polarized relay forming a multiple-circuit controller, an actuating-circuit for the polarized relay having two branches which include the coils of the relay-magnet and each of which leads to one of the movable contacts, a controller for both branches of the energizing-circuit, a receiver, a circuit leading from the receiver and adapted to be electrically connected by the polarized relay to either branch of the actuating-circuit, a starting-magnet for each signaling instrument, the circuit for each magnet being controlled by the selector, means whereby the starting of the signaling instrument renders the controlling-circuit for the motor-circuit inoperative, means thrown into action when the controlling-circuit for the motor-circuit is rendered inoperative for rendering the actuating-circuit of the polarized relay-magnet inoperative, and applying the stopping mechanism to the selector, and means controlled by the receiver for rendering the controlling-circuit inoperative during the time when the receiver is receiving a signal from any signaling instrument, substantially as described.

36. In a signaling system, the combination with a receiver employing a plurality of magnets, of a plurality of signaling instruments, each having a plurality of sets of circuit-closing devices, each set of devices being adapted to send a series of impulses over the line, a circuit including one of the magnets of the receiver and one set of signaling-instrument circuit-closing devices, a sunflower selector having two movable contacts, connections between the stationary contacts of the selector and another set of signaling-instrument circuit-closing devices, a motor-circuit for controlling the action of the selector, a stopping mechanism for the selector, a polarized differentially-wound relay-magnet forming a multiple-circuit controller, an energizing-circuit having two branches, each of which includes the relay-magnets and one of said branches leading to one of the movable contacts of the selector, and the other leading to the other movable contact of the selector, a controller for this circuit, said controller being actuated by means included in a branch of the motor-circuit, a circuit leading from the polarized relay to a receiver-magnet and adapted to be connected by the relay to either branch of the energizing-circuit, a controlling-circuit for the motor-circuit, a starting-magnet for each signaling instrument, the circuit for which is under the control of the selector, means whereby the signaling instruments render operative and inoperative the controlling-circuit for the motor-circuit, a circuit including the actuating devices of the stopping mechanism, said circuit being controlled from the controlling-circuit for the motor-circuit, and the arrangement being such that the stopping mechanism is thrown into operation when the motor-circuit is broken, and means controlled by the receiver for maintaining the controlling-circuit for the motor-circuit in inoperative condition during the time when the receiver is receiving a signal from any signaling instrument, substantially as described.

678,476. BED-MOTION FOR BED-AND-CYLINDER PRINTING-MACHINES. LUTHER C. CROWELL, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place, (copartners under the firm-name of R. Hoe and Company.) Filed Apr. 23, 1896. Serial No. 589,068. (No model.)



Claim.—1. In a bed-movement, the combination with a bed having a rack, of a railroad-gear in mesh with the rack and operating to drive the bed, a loosely-mounted crank, a connecting-rod directly connected to the axle of the gear and to the loosely-mounted crank, a second crank having its center offset from the first crank, means for driving the second crank, and connections between the two cranks, substantially as described.

2. In a bed-movement, the combination with the bed, of a loosely-mounted crank and connections therefrom to the bed, a second crank having its center located outside the vertical and horizontal planes which pass through the center of rotation of the loosely-mounted crank, means for driving the second crank, and connections between the two cranks, substantially as described.

3. In a bed-movement, the combination with a bed having a rack, of a railroad-gear in mesh with the rack and operating to drive the bed, a loosely-mounted crank, a connecting-rod directly connected to the axle of the gear and to the loosely-mounted crank, a second crank having its center located outside the vertical and horizontal planes which pass through the center of rotation of the loosely-mounted crank, means for driving the second crank, and connections between the two cranks, substantially as described.

4. In a bed-movement, the combination with the bed, of a loosely-mounted crank, and connections therefrom to the bed, a second crank having its center lying in a vertical plane which is nearer the center of the bed than the vertical plane passing through the center of rotation of the loosely-mounted crank, and in a horizontal plane which is non-coincident with the horizontal plane passing through the center of the loosely-mounted crank, means for driving the second crank, and connections between the two cranks, substantially as described.

5. In a bed-movement, the combination with a bed having a rack, of a railroad-gear in mesh with the rack and operating to drive the bed, a loosely-mounted crank, a connecting-rod directly connected to the axle of the gear and to the loosely-mounted crank, a second crank having its center lying in a vertical plane which is nearer the center of the bed than the vertical plane passing through the center of rotation of the

loosely-mounted crank, and in a horizontal plane which is non-coincident with the horizontal plane passing through the center of the loosely-mounted crank, means for driving the second crank, and connections between the two cranks, substantially as described.

6. In a bed-movement, the combination with a loosely-mounted crank, of a connecting-rod between it and the bed, a second crank having its center of rotation lying in vertical and horizontal planes which are non-coincident with those passing through the center of rotation of the loosely-mounted crank, a link connection between the two cranks, and means for driving the second crank, substantially as described.

7. In a bed-movement, the combination with a bed having a rack, of a railroad-gear in mesh with the rack and operating to drive the bed a loosely-mounted crank, a connecting-rod directly connected to the axle of the gear and to the loosely-mounted crank, a second crank having its center of rotation lying in vertical and horizontal planes which are non-coincident with those passing through the center of rotation of the loosely-mounted crank, a link connection between the two cranks, and means for driving the second crank, substantially as described.

8. In a bed-movement, the combination with the shaft I having a crank-wheel E thereon, of the shaft G having a loosely-mounted crank H thereon, the centers of the two shafts being offset from each other in two directions, a crank-stud K on the crank-wheel E, a link L connecting the loosely-mounted crank and the crank-stud, a connecting-rod M connected to the link L and the loosely-mounted crank, a bed having a rack, a railroad-gear to the axle of which the link L is directly connected, and suitable driving mechanism for the crank-wheel E, substantially as described.

9. In a bed-movement, the combination with the shaft I having a crank-wheel E thereon, of the shaft G having a loosely-mounted crank H thereon, the centers of the two shafts being offset from each other in two directions, a crank-stud K on the crank-wheel E, a link L connecting the loosely-mounted crank and the crank-stud, a connecting-rod M connected to the link L and the loosely-mounted crank, a railroad-gear operated by the connecting-rod M to reciprocate the bed, and suitable driving mechanism for the crank-wheel E, substantially as described.

678,477. **BUTTON OR STUD.** DANIEL D. DAWLEY, Providence, R. I., assignor to Payton & Kelley Co., same place. Filed May 4, 1901. Serial No. 58,729. (No model.)

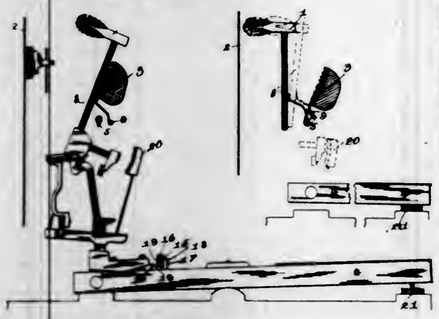


Claim.—1. A button or stud comprising a head, a post having an angularly-bent portion forming a guideway, a semitubular shoe adapted to slide within the guideway, and a spring seated in the guideway for bearing against a sliding shoe, substantially as described.

2. A button or stud comprising a head, a post, a guideway having a rounded upper surface and a flat or plane lower surface, a semitubular shoe mounted to slide in the guideway, a spring seated in the guideway and bearing against the shoe, and indentations in the metal of the guideway for holding the spring in place, substantially as described.

3. In a stud or button, a button-head, a post, a tubular guideway extending at right angles from the post, and a semitubular shoe mounted to slide in the guideway, said shoe having its ends rounded and closed, substantially as described.

678,478. **PIANO.** LAMARTINE M. FRENCH, Chicago, Ill., assignor of one-fourth to Henry H. Northrop, same place. Filed Sept. 14, 1900. Serial No. 29,966. (No model.)



Claim.—1. The combination of the hammers, strings and keys of a piano with mechanism for vibrating the hammers against the strings thrown into action by the ordinary full depression of the keys, and thrown out of action again by a further depression of the keys, whereby a crescendo diminuendo sostenuto effect is secured by simply varying the pressure on the keys, substantially as set forth.

2. In a piano, the combination of the strings, the hammers, and the ordinary keys acting in conjunction with said hammers producing percussion-blows; a tongue attached to each hammer; and a rotary vibrator adjacent to said tongues, acting thereon to vibrate the hammers when the keys are depressed after having made the ordinary percussion-blow, substantially as set forth.

3. The combination of the hammers, strings and keys of a piano with a movable hammer-rest rail and a vibrator located below and carried by said rail to vibrate the hammers when the keys are depressed, substantially as set forth.

4. The combination of the hammers, strings and keys of a piano, with a movable hammer-rest rail, a rotary vibrator for vibrating the hammers against the strings, mounted on and located below said rail and movable therewith, and a tilting rail provided with projections to engage the keys and lock them in a depressed position, substantially as set forth.

5. In a piano, the combination of the hammers, strings, and keys; a vibrator to vibrate the hammers against the strings; and a movable hammer-rest rail acting on the hammers to gradually throw the hammers out of the sphere of action of the vibrator as the rail is moved fully forward, and by a movement in the reverse direction to again bring the hammers into operative relation with the vibrator.

6. The combination of the hammers, strings, and keys of a piano with a movable hammer-rest rail, and a vibrator for the hammers carried by the rail.

7. The combination of the hammers, strings, and keys of a piano, with a movable hammer-rest rail; a vibrator carried by said rail; and spring-tongues extending out from the hammers into operative relation with the vibrator.

8. The combination of the hammers, strings, and keys of a piano, with a movable hammer-rest rail; a vibrator carried by said rail; and means carried by the hammers extending out into operative relation with the vibrator.

9. The combination of the hammers, strings, and keys of a piano, with spring-tongues attached to the hammers; and a vibrator adjacent to said tongues, acting thereon to vibrate the hammers when the keys are depressed.

10. The combination of the hammers and strings of a piano, with a vibrator; tongues carried by the hammers; and keys for actuating the hammers, which when depressed to the normal extent will move the tongues into contact with the vibrator, and when depressed below the normal degree will move the tongues out of operative position, substantially as described.

11. The combination of the hammers, strings, and keys of a piano, with a movable hammer-rest rail; a rotatable cam-shaft suspended from said rest-rail; means for imparting motion to said shaft; means for moving said rail toward the strings; and a series of tongues extending out from the hammer-shanks and normally out of contact with the cam-shaft.

12. In a piano, the combination of the strings and hammers; jacks for operating said hammers; keys for operating the jacks and throwing the hammers against the strings; back-checks maintaining said hammers, while the keys are depressed, in a position between the strings and their normally-released position; and a vibrator acting on the hammers while in said position.

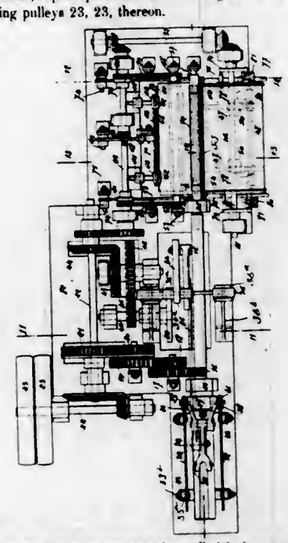
13. In a piano, the combination of the strings and hammers; a hammer-rest rail; jacks for operating said hammers; keys for operating the jacks and throwing the hammers against the strings; back-checks maintaining the hammers in a position between the strings and the hammer-rest rail while the key is depressed; and a vibrator acting on the hammers while in said position.

14. In a piano, the combination of the strings and hammers; a vibrator; keys for the hammers for causing the ordinary percussion-blow thereof; and means connected to the hammers acting in conjunction with the vibrator, said means being normally out of action with the vibrator but brought into operative relation therewith upon a partial return of the hammer after its percussion-stroke.

15. In a piano, the combination of the strings and hammers; a vibrator; keys for actuating the hammers to give the ordinary percussion-blow; and means carried by the hammers brought into action with the vibrator upon the depression of a key in making the percussion-blow.

678,479. **MACHINE FOR MAKING PAPER TUBES.** CHARLES FREBOT, Rheims, France. Filed June 8, 1900. Serial No. 19,594. (No model.)

Claim.—1. In a machine for manufacturing cylindrical tubes of paper, cardboard or pasteboard, the combination of an oscillating table 46, cams 49, 50, a hollow cylindrical mandrel 14 with a slit on a generating-line, a shaft 15, a pinion 16 at one end several teeth of which run through its whole length, a series of gearings 17, 18, 19, 20, 21 of which 20, 21 are intermittent, a principal shaft 22, a driving-shaft 24, and fixed and loose running pulleys 23, 23, thereon.



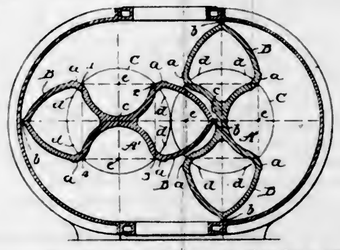
2. In a machine for manufacturing cylindrical paper tubes, the combination of a shaft 15, a head 27, rollers 31, 31 therefor, horizontal guides for the rollers, stationary supports 33, 33 on which the guides are mounted, a series of articulated connecting-rods 28, 28, 29, 35, 34, and means suitably moving rod 34 on its pivot.

3. In a machine for manufacturing cylindrical paper tubes, the combination of a mandrel, a pinion-shaft 15 in line with and connected with the mandrel, an articulated connecting-rod 34 having a slot or groove 37 with a circular part *a b c*, a pin which travels in said groove, a disk 39, shaft 40 therefor, an intermittent gearing 41, 42, and a gearing 43, 44.

4. In a machine for manufacturing cylindrical paper tubes, the combination of a mandrel, means for operating it, a brush 56, a shaft 57 therefor, the mandrel parallel to said shaft, a curved pallet 61, bars supporting the pallet, a stay 63, guides 64, the stationary bearings 65, a cranked and articulated lever 68, a roller 67, a cam 66 mounted on shaft 53, a receptacle 70 for glue placed underneath the brush and the said curved pallet, a horizontal friction-bar 71 acting on the periphery of the said brush, a pressure-bar 72 mounted on two articulated supports 73, 73, cams 60, 60, and shaft 53 on which the cams are mounted.

5. In a machine for manufacturing cylindrical paper tubes, the combination of a table 76, supports 77, guides 78, cams 79, 79, articulated levers 80, 81, and springs therefor.

678,480. **IMPELLER FOR ROTARY BLOWERS.** THOMAS W. GREEN, Philadelphia, Pa., assignor to the Wilbraham Baker Blower Company, same place. Filed July 17, 1900. Serial No. 23,473. (No model.)



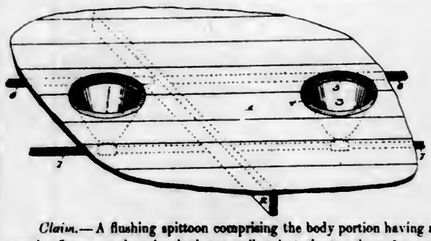
Claim.—1. In a rotary blower, the combination of two coacting impeller-blades, each having oppositely-arranged locking parts and a lock intermediate said locking parts, all so constructed and arranged as to shape and length, that both sets of said oppositely-arranged locking parts may be out of engagement at the same time but that during such disengagement an engagement of the two impeller-blades will be maintained between said oppositely-arranged locking parts by the intermediate lock, after one set of the oppositely-arranged locking parts has been released and before the other set becomes engaged.

2. In a rotary blower, the combination of two coacting impeller-blades having waist portions and provided with oppositely-arranged locking parts, which may be out of engagement at the same time, and locking parts on the ends of each impeller-blade, said locking parts being all so constructed and arranged as to shape and length, that a lock is maintained between the two impeller-blades by the engagement of the locking part on the end of one impeller-blade and the waist portion of the opposite impeller-blade during the time that the other locking parts of the blades are disengaged.

3. In a rotary blower, the combination of two coacting impeller-blades having waist portions, and provided with oppositely-disposed locking parts, and locking parts on the ends of each impeller-blade, said locking parts being so constructed and arranged, as to shape and length, that a lock will be maintained by the locking part on the end of one impeller-blade and the waist of the opposite impeller-blade, when the oppositely-disposed locking parts are out of locking position.

4. A rotary blower having each of the impellers provided with four segmental extensions *a*, said segmental extensions being formed to the arc of a circle having a radius equal to one-fourth of the length of the side of the greatest square that can be inscribed in a circle C, corresponding to the pitch-line of the gear-wheels, whereby the extensions on the opposite impellers operate together to form locks, and are capable of simultaneous disengagement, and the waist or middle portion of each impeller being finished to the arc of a circle that is struck from the point *e*, on the middle of the side of the inscribed square 1, 2, 3, 4, and has a radius equal to the distance from the point *e*, to the nearest points on one of the segmental extensions *a*, whereby the segmental waist-lines *c c*, coöperate with the extensions *b b*, to form a lock or cut-off during the interval when the segmental extensions *a a*, are not coöperating, substantially as shown and described.

678,481. **FLUSHING CUSPIDOR.** HARRY G. GRUBBS, Allegheny, Pa. Filed Sept. 18, 1900. Serial No. 30,381. (No model.)



Claim.—A flushing spittoon comprising the body portion having an annular flange overhanging its inner wall and at the top thereof, a supply-pipe, a union mounted thereon, a hollow nipple secured to and communicating with said union, a hollow annular perforated ring supported by said nipple within the spittoon and adjacent to said flange with a slight space intervening between said ring and the inner wall of the spittoon, and the waste-pipe with which the lower portion of the spittoon is connected, as set forth.

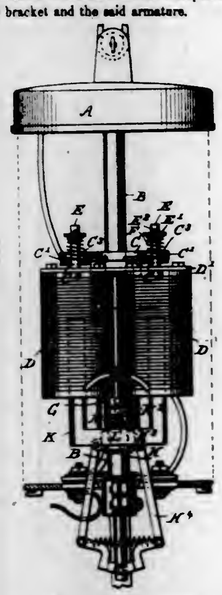
678,482. **ELECTRIC-ARC LAMP.** JOSEF H. HALLBERG, New York, N. Y., assignor to General Incandescent Arc Light Company, same place. Filed Nov. 13, 1900. Serial No. 36,321. (No model.)

Claim.—1. In an arc-lamp, in combination with the supporting-tube, a bracket, a pair of magnets, a resilient support for the magnets carried by the bracket, a vertically-movable sleeve inclosing the supporting-tube, a dash-pot carried by the sleeve, an armature, and a resilient device interposed between the armature and the sleeve.

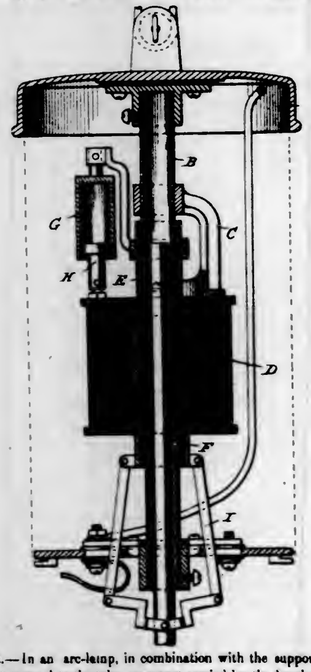
2. In an arc-lamp, in combination with the supporting-tube, a bracket provided with projecting arms, a resilient support for the magnets carried on one of the arms, a resilient retarding device for the dash-pot carried on the other arm, a vertically-movable sleeve inclosing the supporting-tube, a dash-pot carried by the sleeve, an armature, and a resilient device interposed between the armature and the sleeve.

3. In an arc-lamp, in combination with the supporting-tube, a bracket provided with projecting arms, a pair of magnets carried on one side of the bracket, an adjustable retarding device for the dash-pot carried on the opposite side of the bracket, a vertically-moving sleeve, a bracket with projecting arms carried on said sleeve, a dash-pot connected to one of said

arms, an armature, and a resilient device interposed between the opposite arm of said bracket and the said armature.

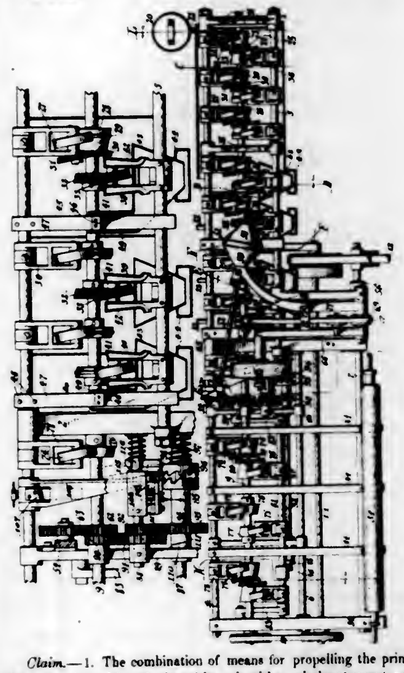


678,483. ELECTRIC-ARC LAMP. JOSEPH H. HALLBERG, New York, N. Y., assignor to General Incandescent Arc Light Company, same place. Filed Nov. 13, 1900. Serial No. 36,323. (No model.)



Claim.—In an arc-lamp, in combination with the supporting-tube B, a bracket secured to the tube, a magnet carried by the bracket, a movable sleeve located within the magnet and connected at its upper end to a dash-pot, a dash-pot piston pivotally mounted on the top of the magnet, a second sleeve or armature surrounding the supporting-tube, and a clutch mechanism connected to the second sleeve.

678,484. MACHINE FOR CLEANING PRINTERS' ROLLERS. FREDERICK HART, Poughkeepsie, N. Y., assignor to Samuel Crump Machine Company, same place. Filed Feb. 25, 1901. Serial No. 48,851. (No model.)



Claim.—1. The combination of means for propelling the printer's roller to be cleaned lengthwise of its axis with a spiral movement, means for applying a cleaning liquid to the roller, and a stationary wiper past which the roller is propelled and which impinges against the same and removes the liquid and other material from its surface, substantially as set forth.

2. The combination of rollers which support the printer's roller to be cleaned and propel the same lengthwise of its axis with a spiral movement, means for applying a cleaning liquid to the roller, and a stationary wiper arranged on one side of the path of the roller and impinging against the surface thereof as it is propelled past the wiper, substantially as set forth.

3. The combination of a cleaning device, and oblique feed-rollers which support the roller to be cleaned and propel the same past said device with a spiral movement, substantially as set forth.

4. The combination of a cleaning device, oblique feed-rollers which support the roller to be cleaned and propel the same past said device with a spiral movement, and means for applying a cleaning liquid to the roller, substantially as set forth.

5. The combination of a cleaning device, oblique feed-rollers which support the roller to be cleaned and propel the same past said device, a receptacle for the cleaning liquid arranged below said feed-rollers, and means for elevating the liquid from the receptacle to the roller to be cleaned, substantially as set forth.

6. The combination of a cleaning device, feed-rollers which support the roller to be cleaned and propel the same past said device, a receptacle for the cleaning liquid arranged below said rollers and means for elevating the liquid from the receptacle to the feed-rollers, substantially as set forth.

7. The combination of an open-topped receptacle for the cleaning liquid, oblique feed-rollers arranged above said receptacle, means for elevating the liquid to said feed-rollers, and a cleaning device past which the roller to be cleaned is propelled by the feed-rollers after the liquid has been applied to said roller, substantially as set forth.

8. The combination of a liquid-receptacle composed of a lower portion and an open-topped upper portion connected by a contracted throat, driving-rollers which dip into the liquid in the upper portion of the receptacle, feed-rollers which run in contact with said driving-rollers, and a cleaning device, substantially as set forth.

9. The combination of an open-topped liquid-receptacle, driving-rollers which dip into the liquid in the same and which have their faces constructed with a raised portion, feed-rollers which run in contact with the raised portion of the driving-rollers, and a cleaning device, substantially as set forth.

10. The combination of a receptacle for the cleaning liquid, a roller feed mechanism arranged above the same, receiving the liquid therefrom and applying it to the roller to be cleaned, and a cleaning device past which the roller is moved after the liquid has been applied to the same, substantially as set forth.

11. The combination of a receptacle for the cleaning liquid, a roller feed mechanism arranged above the same, receiving the liquid therefrom and applying it to the roller to be cleaned, a cleaning device past which the roller is moved after the liquid has been applied to the same, and means for collecting the liquid which is removed by the cleaning device and discharging it outside said receptacle, substantially as set forth.

12. The combination of a receptacle for the cleaning liquid, a roller feed mechanism arranged above the same, receiving the liquid therefrom and applying it to the roller to be cleaned, successive cleaning devices arranged in rear of the receptacle, and individual collecting devices whereby the different grades of liquid removed by different cleaning devices are separately collected, substantially as set forth.

13. The combination of a cleaning device, a receptacle for the cleaning liquid, a shaft arranged lengthwise over said receptacle and provided with rollers which dip into the liquid in the same, feed-rollers arranged above said dipping rollers and running in contact therewith, and a conductor which receives the liquid removed by the cleaning device and prevents the same from returning to said receptacle, substantially as set forth.

14. The combination of a cleaning device, a receptacle for the cleaning liquid, a shaft arranged lengthwise over said receptacle and provided with tapering rollers which dip into the liquid in the same, and oblique feed-rollers for the roller to be cleaned running in contact with said dipping rollers, substantially as set forth.

15. The combination of a cleaning device, oblique-toothed feed-rollers for supporting and propelling the roller to be cleaned, and means for supplying a cleaning liquid to the roller, substantially as set forth.

16. The combination of a cleaning device, a pressure device arranged above said device and holding the roller to be cleaned against the same, and means for propelling the roller with a spiral movement past the cleaning device, substantially as set forth.

17. The combination of a cleaning device, a pressure-roller arranged above the same, means for rotating the pressure-roller, and means for propelling the roller to be cleaned with a spiral movement past the cleaning device, substantially as set forth.

18. The combination of a cleaning device, a vertically-movable pressure-roller arranged above the same, and means for propelling the roller to be cleaned with a spiral movement past the cleaning device, substantially as set forth.

19. The combination of a cleaning device, a pressure-roller arranged above the same, a vertically-movable shaft on which said roller is mounted, means for rotating said shaft, and means for propelling the roller to be cleaned with a spiral movement past the cleaning device, substantially as set forth.

20. The combination of a cleaning device, a pressure-roller arranged above the same, a vertically-movable shaft to which said roller is secured, means for rotating said shaft, guide-cones arranged on the front and rear sides of said pressure-roller, and means for propelling the roller to be cleaned with a spiral movement past the cleaning device, substantially as set forth.

21. The combination of a cleaning device, oblique feed-rollers for propelling the roller to be cleaned with a spiral movement past said device, and a pressure-roller arranged obliquely above the same, substantially as set forth.

22. The combination of oblique feed-rollers for propelling the roller to be cleaned with a spiral movement in the direction of its axis, and a stationary cleaning device arranged in line with the face of one of said feed-rollers, substantially as set forth.

23. The combination of a cleaning device, oblique feed-rollers, a pressure-roller arranged above said device, an oblique shaft carrying said pressure-roller at its front end, a vertically-movable support in which the front portion of said shaft is journaled, and a driving mechanism applied to the rear portion of said shaft, substantially as set forth.

24. The combination of means for propelling the printer's roller to be cleaned lengthwise of its axis with a spiral movement, means for applying a cleaning liquid to the roller, and a stationary yielding wiper arranged on one side of the path of the roller and having a wiping edge which impinges against the surface of the roller as the latter is propelled past the wiper, substantially as set forth.

25. The combination of a roller feed mechanism, means for applying a cleaning liquid to the roller, and a stationary yielding wiper having a wiping edge which bears against the roller and having outside of its wiping edge a conductor for collecting the liquid from the edge and discharging such liquid, substantially as set forth.

26. The combination of a roller feed mechanism, means for applying a cleaning liquid to the roller, and a stationary wiper composed of an elastic bar supported at both ends and provided between its ends with an upwardly-projecting wiping-blade, substantially as set forth.

27. The combination of a cleaning device, a feed mechanism for propelling the roller to be cleaned with a spiral movement past the same, means for applying a cleaning liquid, and a buff-wheel which operates upon the roller to be cleaned in rear of said cleaning device, substantially as set forth.

28. The combination of a cleaning device, a pressure device arranged above the same, a feed mechanism for propelling the roller to be cleaned with a spiral movement past the cleaning device, means for applying a cleaning liquid, and a buff device which operates upon the roller to be cleaned in rear of said cleaning device, substantially as set forth.

29. The combination of a cleaning device, a vertically-movable pressure device arranged above the same, a buff device arranged in rear of the cleaning device and capable of vertical movement with the pressure device, a feed mechanism for propelling the roller to be cleaned with a spiral movement past the cleaning device, and means for applying a cleaning liquid, substantially as set forth.

30. The combination of a cleaning device, a feed mechanism for propelling the roller to be cleaned with a spiral movement past the same, means for applying a cleaning liquid, a pressure-roller arranged above the cleaning device and mounted on a vertically-movable support, and a buff-wheel supported on the support of the said pressure-roller and capable of vertical movement therewith, substantially as set forth.

31. The combination of a cleaning device, a feed mechanism for propelling the roller to be cleaned with a spiral movement past the same, means for applying a cleaning liquid, a pressure-roller arranged above the cleaning device and mounted on a vertically-movable support, a buff-wheel arranged in rear of said cleaning device, and an adjusting device whereby the buff-wheel is supported on the support of the said pressure-roller, substantially as set forth.

32. The combination of a receptacle for the cleaning liquid, a roller feed mechanism arranged above the receptacle, receiving the liquid therefrom and applying it to the roller to be cleaned, a cleaning device, a pressure-roller arranged above the same, and a buff-wheel arranged in rear of said cleaning device, substantially as set forth.

33. The combination of means for propelling the roller to be cleaned lengthwise of its axis with a spiral movement, means for applying a cleaning liquid, a stationary wiper past which the roller is propelled, and a receiving device arranged in rear of the wiper and provided with an automatic mechanism for discharging the cleaned roller, substantially as set forth.

34. The combination of a cleaning device, a feed mechanism which propels the roller to be cleaned lengthwise past the same, means for applying a cleaning liquid, receiving and dumping rollers arranged in rear of the cleaning device, and means for automatically operating the dumping-rollers, thereby discharging the cleaned roller, substantially as set forth.

35. The combination of a cleaning device, a feed mechanism which propels the roller to be cleaned lengthwise past the same, means for applying a cleaning liquid, receiving and dumping rollers arranged in rear of the cleaning device, a dumping-shaft, means for raising and lowering the dumping-rollers from said shaft, a clutch for driving said shaft, and automatic mechanism whereby the clutch is thrown into gear after a cleaned roller has been received and out of gear when such roller has been discharged, substantially as set forth.

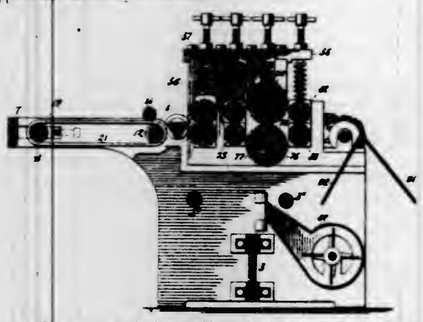
36. The combination of a cleaning device, a feed mechanism which propels the roller to be cleaned lengthwise past the same, means for applying a cleaning liquid, receiving-rollers, dumping-rollers hung to a vertically-movable bar, a dumping-shaft provided with a crank, a link connecting said crank with said bar, a clutch for driving said shaft, and automatic mechanism whereby the clutch is thrown into gear after a cleaned roller has been received and out of gear when such roller has been discharged, substantially as set forth.

678,485. TOBACCO-STRIPPING MACHINE. JOSEPH C. HAVENS, Trenton, N. J., assignor to Underwood Stemming Machine Company, of New Jersey. Filed Mar. 2, 1901. Serial No. 50,291. (No model.)

Claim.—1. In a tobacco-stripping machine, a feeding device for the leaves, a device for stripping the same, a support for said leaves interposed between said devices and polygonal in cross-section and means for rotating said support whereby the sides thereof are successively brought uppermost, substantially as described.

2. In a tobacco-stripping machine, a feeding device for the leaves, a device for stripping the same, a device for drawing in the leaves to said stripping device, a support for said leaves interposed between said feed-

ing and drawing-in devices and polygonal in cross-section, and means for rotating said support whereby the sides thereof are successively brought uppermost, substantially as described.



3. In a tobacco-stripping machine, a feeding device for the leaves, a stripping device and a support for the leaves interposed between said devices; the said support being constructed and arranged to receive the stripped portions of leaves from said stripping device and intermittently to discharge said stripped portions, substantially as described.

4. In a tobacco-stripping machine, a stripping device and a support constructed to receive stripped portions of the leaves from said stripping device, and means for intermittently turning said support on its axis to effect the discharge of said stripped portions therefrom, substantially as described.

5. In a tobacco-stripping machine, a feeding device for the leaves, a device for stripping the same operating to discharge the stripped portions of the leaves in opposite direction to that of the feed, and means for receiving and discharging said stripped portions interposed between said feeding and stripping devices, substantially as described.

6. In a tobacco-stripping machine, a feeding device for the leaves, a stripping device, a drawing-in device and a support for the leaves interposed between said feeding and drawing-in devices; the said support being constructed and arranged to guide the incoming leaves from feeding device to drawing-in device and to receive and discharge the stripped portions from the stripping device, substantially as described.

7. In a tobacco-stripping machine, a feeding device for the leaves, a stripping device and a support for the leaves interposed between said devices; the aforesaid parts being constructed and arranged so that the said feeding device delivers leaves to be treated and the said stripping device delivers stripped portions of leaves upon said support, substantially as described.

8. In a tobacco-stripping machine, a feeding device for the leaves, a stripping device, a support for the leaves interposed between said devices and receiving the stripped leaves from said stripping device, and means for preventing the leaves delivered upon said support from the feeding device engaging with the stripped portions delivered to said support by the stripping device, substantially as described.

9. In a tobacco-stripping machine, a constantly-moving stripping device and a constantly-moving drawing-in device for the leaves and means for moving the said devices alternately into position to be operative upon said leaves, substantially as described.

10. In a tobacco-stripping machine, a pair of coacting stripping-rolls and a pair of coacting drawing-in-bars; the said bars respectively revolving around the peripheries of said rolls, substantially as described.

11. In a tobacco-stripping machine, a pair of coacting stripping-rolls and a pair of coacting drawing-in bars; the said bars respectively revolving around the peripheries of said rolls and in the opposite direction to that of the revolution of said rolls, substantially as described.

12. In a tobacco-stripping machine, a pair of coacting stripping-rolls, and a pair of coacting drawing-in bars; the said bars respectively revolving around the peripheries of said rolls, and means for separating said rolls to permit the passage of said bars between them, substantially as described.

13. In a tobacco-stripping machine, a pair of coacting stripping-rolls, a pair of adjacent drawing-rolls, and means for intermittently separating said stripping-rolls to permit of the passage of the leaves to be stripped to said drawing-rolls, substantially as described.

14. In a tobacco-stripping machine, a pair of coacting stripping-rolls, means for intermittently separating said rolls, a pair of coacting drawing-in bars respectively revolving around said rolls and in opposite direction thereto and a pair of drawing-rolls; the aforesaid parts being constructed and arranged so that a leaf or leaves being grasped between said drawing-in bars is thereby carried between said stripping-rolls to said drawing-rolls, substantially as described.

15. The combination in a tobacco-stripping machine of the shaft 27, means for intermittently partially rotating said shaft and polygonal block 39 on said shaft, substantially as described.

16. The combination in a tobacco-stripping machine of the shaft 27, means for intermittently partially rotating said shaft, friction-brake 15, 15ª controlling said shaft and polygonal block 39 on said shaft, substantially as described.

17. The combination in a tobacco-stripping machine of the rotary shaft 27, disks 28, 29 thereon, rolls 30, 31, 32 journaled in said disks, pinions 35, 36, 37 on said rolls, triangular block 39 on said shaft, sleeves 40 on shaft 27 provided with pinions 41, 42, means for rotating said disk engaging with pinion 42, and transmitting gearing between pinion 41 and pinions 35, 36, 37, substantially as described.

18. The combination in a tobacco-stripping machine with the rotary shafts 58 and 59 and stripping-rolls 60 and 61 thereon, of sleeves 64 and 67 respectively disposed at each extremity of each of said shafts, means for rotating said sleeves, cams 64 and 68 and gears 66 and 69 on said sleeves, and means for rotating said sleeves independently of said shafts; the cams and gears on the sleeves of one shaft contacting and engaging with the cams and gears on the sleeves of the other shaft, whereby said stripping-rolls are intermittently separated and motion continuously transmitted from the sleeves of one shaft to the sleeves of the other, substantially as described.

19. The combination in a tobacco-stripping machine of the rotary shafts 58 and 59 and stripping-rolls 60 and 61 thereon, of sleeves 64 and 67 respectively disposed at each extremity of each of said shafts, means for rotating said sleeves, an outwardly-convex bar supported at its ends by said sleeves, cams 64 and 68, gears 66 and 69 on said sleeves, and means for rotating said sleeves independently of said shafts; the cams and gears on the sleeves of one shaft contacting and engaging with the cams and gears on the sleeves of the other shaft; whereby said bars are caused to revolve around said stripping-rolls, said stripping-rolls are intermittently separated to admit of passage of said bars between them and motion is continuously transmitted from the sleeves of one shaft to the sleeves of the other shaft, substantially as described.

20. The combination in a tobacco-stripping machine, of a feeding device for the leaves, a support for said leaves, rotary drawing-in bars, a pair of stripping-rolls means for intermittently separating said stripping-rolls and a pair of drawing-rolls; the aforesaid parts being constructed and arranged and operating so that the leaves continuously fed upon said support and seized by said drawing-in bars are carried between the separated stripping-rolls to said drawing-rolls, and thereafter said stripping-rolls closing together act upon said leaves held by said drawing-rolls to strip the same, substantially as described.

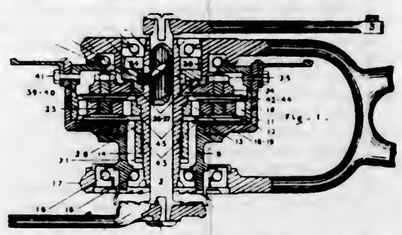
21. The combination in a tobacco-stripping machine, of a feeding device for the leaves, an intermittently partially rotating polygonal support for said leaves, rotary drawing-in bars, a pair of stripping-rolls rotating in reverse direction to that of said drawing-in bars, means for intermittently separating said stripping-rolls and a pair of drawing-rolls; the aforesaid parts being constructed and arranged and operating so that the leaves continuously fed upon said support and seized by said drawing-in bars are carried between the separated stripping-rolls to said drawing-rolls, and thereafter said stripping-rolls closing together act upon said leaves held by said drawing-rolls to strip the same and to deliver the stripped portions upon said polygonal support by the partial rotation of which support said stripped portions are discharged, substantially as described.

22. The combination in a tobacco-stripping machine, of a feeding device for the leaves, a support for said leaves, rotary drawing-in bars, a pair of stripping-rolls, means for intermittently separating said stripping-rolls, a pair of drawing-rolls, brush-rolls and a second pair of drawing-rolls; the aforesaid parts being constructed and arranged and operating so that the leaves continuously fed upon said support and seized by said drawing-in bars are carried between the separated stripping-rolls, and thereafter said stripping-rolls closing together act upon said leaves held by said drawing-rolls to strip the same, and thereafter the stems of said leaves are passed through said brush-rolls to said second drawing-rolls and further stripped, substantially as described.

678,486. REVERSIBLE DRIVING-GEAR. REUBEN M. HEAD, Allegheny, Pa. Filed Apr. 17, 1900. Serial No. 13,256. (No model.)

Claim.—1. In changeable-speed mechanism, the combination, with the pedal-cranks, of a crank-axle, a sleeve carrying the main sprocket or bevel gear wheel, a pedal-crank clutch member, a clutch member on the sleeve, and means actuated by the pedal-cranks for shifting the axle to bring said clutch members into engagement, substantially as set forth.

2. In changeable-speed mechanism, the combination, with the pedal-cranks, of a crank-axle, a hollow shaft surrounding the crank-axle and having a gear-wheel affixed thereto, a sleeve carrying the main sprocket or bevel gear wheel, intermediate pinion-wheels, a spanner, or carrier, clutch members, and means actuated by the crank-axle for bringing said clutch members into engagement, substantially as set forth.



3. In changeable-speed mechanism, the combination, with the pedal-cranks, of a crank-axle, a hollow shaft surrounding the crank-axle, means on the crank-axle engaging with the hollow shaft, a main driving sprocket or bevel gear wheel, and intermediate mechanism for changing the gear, said mechanism actuated by the crank-axle and caused by a forward or a backward pressure applied to the pedal-cranks, substantially as set forth.

4. In changeable-speed mechanism, the combination, with the pedal-cranks, of a crank-axle, a pin on the axle, a hollow shaft provided with an inclined slot, said pin extending into the slot and caused to move laterally in one direction when the movement of the cranks is forward and in the opposite direction when the movement of the cranks is reversed, thereby moving the crank-axle longitudinally relatively to the hollow shaft, a main driving sprocket or bevel gear wheel, and intermediate mechanism connecting the hollow shaft and the main driving sprocket or bevel gear wheel, substantially as set forth.

5. In changeable-speed mechanism, the combination, with the pedal-cranks, of a crank-axle, a hollow shaft surrounding the crank-axle and provided with a slot, a pin or lug extending from the crank-axle into the slot, a sleeve carrying the main driving-wheel and having an internal gear connected therewith, a spur-gear rigidly secured to the hollow shaft and wheels intermediate the internal gear and spur-gear, a crank-clutch member adapted to engage with a clutch member on said sleeve, a locking-clutch member, and a carrier, or spanner provided with a clutch member to engage with the locking-clutch member, said pairs of clutches alternately operated by a forward-and-backward movement of the pedal-cranks, substantially as set forth.

6. In changeable-speed mechanism, the combination with the pedal-cranks, of a crank-axle, a hollow shaft surrounding the crank-axle, means connecting the hollow shaft and the crank-axle, two pairs of clutches, means whereby one pair of clutches is brought into engagement by a forward pressure applied to the pedal-cranks and the other pair by a backward or reverse pressure applied to the pedal-cranks, a main driving sprocket or bevel gear wheel, and intermediate mechanism connecting the hollow shaft and the main driving sprocket or bevel gear wheel, substantially as set forth.

678,487. AIR-COMPRESSOR. EBENEZER HILL, South Norwalk, Conn. Filed Apr. 19, 1901. Serial No. 56,584. (No model.)

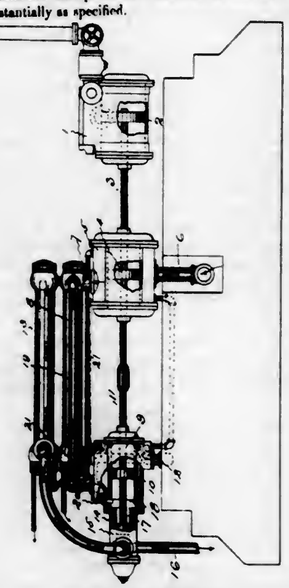
Claim.—1. An air-compressor having a cylinder with a single-acting piston, a cooler, a duct connected with the chamber on the active side of the piston and extending through the cooler, and a duct connecting the chamber on the inactive side of the piston with the cooler-duct before it passes through the cooler, substantially as specified.

2. An air-compressor having cylinders with two single-acting pistons so arranged that the chambers on the inactive sides of the pistons communicate with each other, a cooler, a duct connected with the chamber on the active side of one of the pistons and extending through the cooler, and a duct connecting the communicating chambers on the inactive sides of the pistons with the cooler-duct before it passes through the cooler, substantially as specified.

3. An air-compressor having a plural number of cylinders with pistons, coolers, ducts connected with the chambers on the active sides of the pistons and extending through the coolers, and a duct connecting the chambers on the inactive sides of the pistons with a cooler-duct before it passes through a cooler, substantially as specified.

4. An air-compressor having cylinders with a double-acting and two single-acting pistons, a cooler, a duct connecting the chambers on the active sides of the single-acting pistons and extending through the cooler, and a duct leading from the chamber on the inactive sides of the single-acting pistons to the cooler-duct before it passes through the cooler, substantially as specified.

5. An air-compressor having cylinders with a double-acting and two single-acting pistons, a cooler, a duct connecting the chambers on the active sides of the first piston with the chamber on the active side of the second piston and extending through the cooler, a duct connecting the chamber on the active side of the second piston with the chamber on the active side of the third piston, and a duct leading from the chamber between the second and third pistons to a cooler-duct before it passes through a cooler, substantially as specified.



678,488. METHOD OF TEMPERING MOLDING-SAND. GEORGE K. HOOPER, Dedham, Mass. Filed Apr. 12, 1901. Serial No. 55,591. (No specimens.)

Claim.—The method of tempering molding-sand, which consists of maintaining a moisture-charged atmosphere in an inclosed space, manipulating the sand in the said atmosphere, thereby imparting to the sand a uniform initial degree of moisture, and subsequently completing the moistening by adding to the sand a quantity of water in bulk, the said quantity being proportionately determined with reference to the atmospheric moisture of preparation.

678,489. CULTIVATOR. THOMAS J. HUBBELL, Watsonville, Cal., assignor to Drusilla Hubbell and William H. Ames, same place. Filed Apr. 17, 1901. Serial No. 56,187. (No model.)



Claim.—1. The combination in a cultivator of a central longitudinal beam, tooth-bars having their meeting ends pivoted together, and their front and rear ends connected with the main beam, means by which one of said connected ends may be moved upon the main beam to expand or contract the width of the cultivator, and means for locking the parts when adjusted.

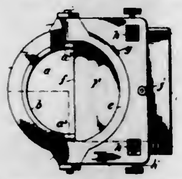
2. The combination in a cultivator of a main draft-beam a fixed transverse bar at the front, and a bar slidable at the rear, tooth-bars having their meeting ends pivoted together, the front bars pivoted to the fixed transverse bar and the rear bars to the slidable rear bar, means by which the slidable bar is moved to increase or diminish the transverse spread of the tooth-bars.

3. The combination in a cultivator of a main draft-beam a fixed transverse bar at the front, a slidable transverse bar at the rear, tooth-bars having their meeting angles pivoted together, the front bars pivoted to the front of the draft-bar and the rear bars to the slidable transverse bar, a lever-handle fulcrumed upon the draft-bar, links connecting said lever with the rear slide whereby the latter may be moved forward or back to expand or contract the spread of the tooth-bars.

4. The combination in a cultivator of a main beam, tooth-bars having their front ends pivoted thereto and their rear ends pivoted to similar tooth-bars, a slide movable upon the beam with which the rear ends of the second pair of tooth-bars are connected, a lever adjustably fulcrumed to the beam, links connecting the lever with the sliding bar and a locking-hook hinged to said bar adapted to engage holes in the beam.

5. The combination in a cultivator of a main beam, tooth-bars pivoted to and diverging from the front end of the beam, other tooth-bars pivoted to the first pair having their rear ends pivoted to a slide movable upon the main beam, a lever adjustably fulcrumed upon the main beam, links connecting said lever with the slide, a latch by which the slide is locked to the main beam at any desired adjustment, a rod connected therewith and slidable upon the handle whereby the latch may be released and the position of the tooth-bars changed.

678,490. PHOTOGRAPHIC-CAMERA ATTACHMENT. CARL F. HUG, U. S. Navy. Filed Apr. 5, 1901. Serial No. 54,565. (No model.)



Claim.—1. In a multiplying attachment for cameras, the combination of a pivoted wing and an adjustable slide carried by the wing.

2. In a multiplying attachment for cameras the combination of a frame adapted to be secured to the lens-tube, a wing pivoted to the frame to swing from side to side, and an adjustable slide carried by the wing.

3. In a multiplying attachment for cameras the combination of a frame adapted to be adjustably secured to the lens-tube, a wing pivoted centrally to the frame, and an adjustable slide carried by the wing.

4. In a multiplying attachment for cameras the combination of a frame adapted to be secured to the lens-tube, a slotted wing pivoted to the frame to swing from side to side, a slide movable in the slot of the wing, and means for moving the slide.

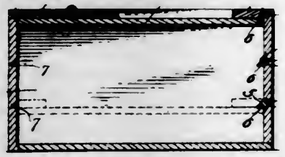
5. In a multiplying attachment for cameras the combination of a frame adapted to be secured to the lens-tube, a slotted wing pivoted to the frame to swing from side to side, a slide movable in the slot, rack-and-pinion means for moving the slide, and a set-screw for maintaining the adjustment of the slide.

6. In a multiplying attachment for cameras, the combination of a pivoted wing and an adjustable slide carried by the wing, said slide having serrations along its field-dividing edge.

7. In a multiplying attachment for cameras, the combination of a pivoted wing and an adjustable slide carried by the wing, said slide having a serrated opening.

8. In a multiplying attachment for cameras, the combination of a movable slide, and an auxiliary slide movably attached to the aforesaid slide and providing an adjustable field-dividing opening.

678,491. BOX. GEORGE HURD, Albert Lea, Minn. Filed Mar. 18, 1901. Serial No. 51,717. (No model.)

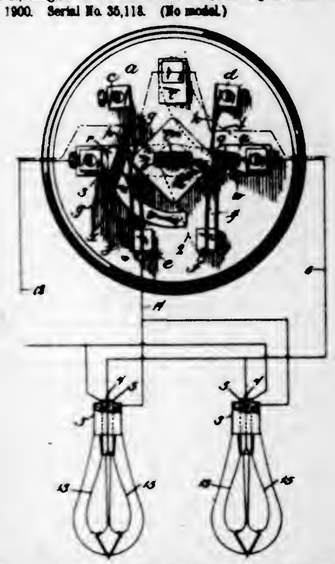


Claim.—1. A box having two of its opposing walls, the one formed with horizontally-extending cleats having beveled upper corners, and the other formed with recesses, in combination with a cover, one end provided with a groove corresponding to the cleats, and the other end provided with a fastening device to engage said recesses, substantially as described.

2. A box having one of its walls formed with horizontally-extending cleats arranged in vertical order and having beveled upper corners, in combination with a cover having one end provided with a groove corresponding to, and adapted to receive, one of said cleats, and means carried by the opposite end of said cover for locking that end of the cover to the box, substantially as described.

3. The combination with a box and its cover, the length of the cover corresponding to the distance between the inner surfaces of the end walls of the box, said walls being, one provided with a vertical row of recesses and the other with a vertical row of cleats beveled on their upper faces, said cover being provided with a strip at one end beveled at its outer edge to correspond to the bevel of the cleats aforesaid and to provide a groove to receive said cleats, and a fastening device secured to the opposite end of said cover to engage said recesses, substantially as set forth.

678,492. ELECTRIC SWITCH. CHARLES A. HUSSEY, New York, N. Y., assignor to William P. Pinckard, Birmingham, Ala. Filed Nov 1, 1900. Serial No. 35,118. (No model.)



Claim.—1. In an electric switch, the combination, with circuit-changing devices for connecting a plurality of circuits singly, in series or in multiple with a line-circuit, of separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices.

2. In an electric switch, the combination, with circuit-changing devices for connecting a plurality of circuits singly, in series or in multiple with a line-circuit, of separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices, adapted to break the circuit at the quick-break contact prior to loss of contact in the circuit-varying portion of the switch.

3. In an electric switch, the combination, with circuit-changing devices for connecting a plurality of circuits singly, in series or in multiple with a line-circuit, of separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices, adapted to close the circuit at the quick-break contact after contact has been made in the circuit-varying portion of the switch, and to break the circuit at the quick-break contact prior to loss of contact in the circuit-varying portion of the switch.

4. In an electric switch, the combination, with circuit-changing devices for connecting a plurality of circuits singly, in series or in multiple with a line-circuit, of separate circuit making and breaking contact-pieces in circuit with the circuit-varying devices in closed-circuit positions of the parts, and means for operating said separate circuit making and breaking contact-pieces conjointly with the circuit-varying devices, adapted to close the circuit through said separate circuit making and breaking contact-pieces after contact is complete in the circuit-varying portion of the switch.

5. In an electric switch, the combination, with circuit-changing devices for connecting a plurality of circuits singly, in series or in multiple with a line-circuit, of two sets of quick-break contact-pieces, each set separate from the other set and from the circuit-changing devices, and located each between one of the line-terminals of the switch and said circuit-changing devices, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices.

6. In an electric switch, the combination, with circuit-changing devices for varying the relative arrangement of a plurality of circuits with respect to a line-circuit, of separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and means for operating said quick-break contact-pieces conjointly with the circuit-varying contact-pieces.

7. In an electric switch, the combination, with circuit-changing devices for varying the relative arrangement of a plurality of circuits with respect to a line-circuit, of separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices, adapted to break the circuit at the quick-break contact prior to loss of contact in the circuit-varying portion of the switch.

8. In an electric switch, the combination, with circuit-changing devices for varying the relative arrangement of a plurality of circuits with respect to a line-circuit, of separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices, adapted to close the circuit at the quick-break contact after contact has been made in the circuit-varying portion of the switch, and to break the circuit at the quick-break contact prior to loss of contact in the circuit-varying portion of the switch.

9. In an electric switch, the combination, with circuit-changing devices for varying the relative arrangement of a plurality of circuits with respect to a line-circuit, of separate circuit making and breaking contact-pieces in circuit with the circuit-varying devices in closed-circuit positions of the parts, and means for operating said separate circuit making and breaking contact-pieces conjointly with the circuit-varying devices, adapted to close the circuit through said separate circuit making and breaking contact-pieces after contact is complete in the circuit-varying portion of the switch.

10. In an electric switch, the combination, with circuit-changing devices for varying the relative arrangement of a plurality of circuits with respect to a line-circuit, of two sets of quick-break contact-pieces, each set separate from the other set and from the circuit-changing devices, and located each between one of the line-terminals of the switch and said circuit-changing devices, and means for operating said quick-break contact-pieces conjointly with the circuit-varying devices.

11. The combination, with a plurality of electric incandescent-lamp filaments, of a switch having circuit-changing devices connected to said filaments and adapted, when operated, to vary the relative arrangement of said filaments with respect to a line-circuit, having also separate quick-break contact-pieces in circuit with the said circuit-changing devices in closed-circuit positions of the parts, and having also means for operating said quick-break contact-pieces conjointly with the circuit-varying devices.

12. The combination, with a plurality of incandescent-lamp filaments, of a switch having circuit-changing devices connected to said filaments and adapted, when operated, to vary the connection of said filaments with respect to a line-circuit, having also separate quick-break contact-pieces in circuit with the said circuit-changing devices in closed-circuit positions of the parts, and having also means for operating said quick-break contact-pieces conjointly with the circuit-varying devices, adapted to close the circuit at the quick-break contact after contact has been made in the circuit-varying portion of the switch, and to break the circuit at the quick-break contact prior to loss of contact in the circuit-varying portion of the switch.

13. The combination, with two incandescent-lamp filaments, of a switch having circuit-changing devices for connecting said filaments singly, in series or in multiple with a line-circuit, having also separate quick-break contact-pieces in circuit with the circuit-changing devices in closed-circuit positions of the parts, and having also means for operating said quick-break contact-pieces conjointly with the circuit-varying devices.

14. The combination, with two incandescent-lamp filaments, of a switch having circuit-changing devices for connecting said filaments singly, in series or in multiple with a line-circuit, having also two sets of quick-break contact-pieces, each set separate from the other set and from the circuit-changing devices, and located each between one of the line-terminals of the switch and said circuit-changing devices, and having also means for operating said quick-break contact-pieces conjointly with the circuit-varying devices.

15. In an electric switch, the combination, with circuit-varying contact-pieces, and a revoluble member for operating the same, of line-terminals, contact-brushes adapted to make contact therewith and connected to said circuit-varying contact-pieces, and means, operated by said revoluble member, for bringing said brushes into contact with said line-terminals at intervals.

16. In an electric switch, the combination, with contact-pieces adapted to coact with a revoluble contact-piece, a revoluble contact-piece, and line-terminals, of contact-brushes adapted to make contact with said line-terminals and controlling the circuit through said revoluble and fixed contact-pieces, and a cam carried by said revoluble contact-piece, adapted to press said brushes against the line-terminals when the revoluble contact-piece is in contact with one of the stationary contact-pieces with which it coacts.

17. In an electric switch, the combination, with contact-pieces adapted to coact with a revoluble contact-piece, a revoluble contact-piece, and line-terminals, of spring contact-brushes adapted to make contact with said line-terminals and controlling the circuit through said revoluble and stationary contact-pieces, and a cam carried by said revoluble contact-piece, but having a loose connection therewith, and adapted to press said brushes against the line-terminals when the revoluble contact-piece is in contact with one of the stationary contact-pieces with which it coacts.

18. In an electric switch, the combination, with circuit-varying contact-pieces, and a revoluble member for operating the same, of stationary contact-pieces and spring-brushes adapted to contact therewith, and together forming circuit-controlling devices controlling the circuit through said circuit-varying contact-pieces, and means, operated by said revoluble member, for closing contact between said brushes and their corresponding contact-pieces when contact is closed in the circuit-varying portion of the switch.

19. In an electric switch, the combination, with circuit-varying contact-pieces, and a revoluble member for operating the same, of stationary contact-pieces and spring-brushes adapted to coact therewith, and together forming circuit-controlling devices controlling the circuit through said circuit-varying contact-pieces, and a cam on said revoluble member, for closing contact between said brushes and their corresponding contact-pieces when contact is closed in the circuit-varying portion of the switch, said cam having a loose connection with the said revoluble member, so that, under the pressure of the spring-brushes, the cam may move independently of the revoluble member, producing a snap break.

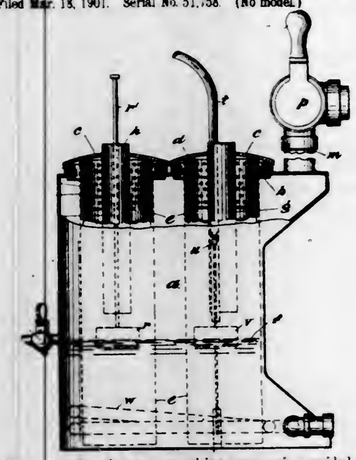
20. In an electric switch, the combination, with circuit-varying mechanism comprising three stationary contact-pieces, two of which are electrically connected, a contact-finger adapted to make contact with said contact-pieces successively, and revolubly mounted, a brush adapted to make contact with the third of said stationary contact-pieces at intervals, and means, operated in conjunction with the contact-finger, for bringing said brush into contact with its corresponding contact-piece when said finger is in contact with one of said connected contact-pieces, of means for rotating said contact-finger, coacting spring-brushes and stationary contact-pieces together forming two circuit-controlling devices one of which controls the circuit through the brush of said circuit-varying contact mechanism and the other of which controls the circuit through said revoluble contact-finger, and a cam rotating in conjunction with said finger and adapted to operate said brushes.

21. In an electric switch, the combination, with circuit-varying contact mechanism containing three contact-pieces located substantially at three corners of a square, one of the contact-pieces having an extension reaching substantially to the fourth corner of the square, and a pivoted contact-finger adapted to make contact with said contact-pieces successively, of separate quick-break contact-pieces controlling the circuit through said circuit-varying contact mechanism, and means for operating said quick-break contact-pieces and the contact-finger in conjunction, arranged to complete a circuit through the quick-break contact when said finger is in contact with its contact-pieces, and to break said circuit at the quick-break contact-pieces when the finger is moved to a position intermediate between two of its contact-pieces.

22. In an electric switch, the combination, with circuit-varying contact mechanism containing three contact-pieces located substantially at three corners of a square, one of the contact-pieces having an extension reaching substantially to the fourth corner of the square, and a pivoted contact-finger adapted to make contact with said contact-pieces successively, of two stationary contact-pieces and two spring-brushes adapted to coact therewith and forming, with said coacting contact-pieces, quick-break circuit-controlling devices controlling the circuit through said circuit-varying mechanism, a four-sided cam located between said brushes for operating the same, and means for rotating the cam and contact-fingers in conjunction.

23. In an electric switch, the combination, with two stationary contact-pieces, and two spring-brushes adapted to coact therewith and forming therewith quick-break circuit-controlling devices, reinforcing-springs for said brushes, a key-shaft, a cam thereon but having a loose connection therewith, for operating said brushes, and circuit-varying contact mechanism likewise operated by said key-shaft, the circuit of said circuit-varying contact mechanism being controlled by said quick-break circuit-controlling devices.

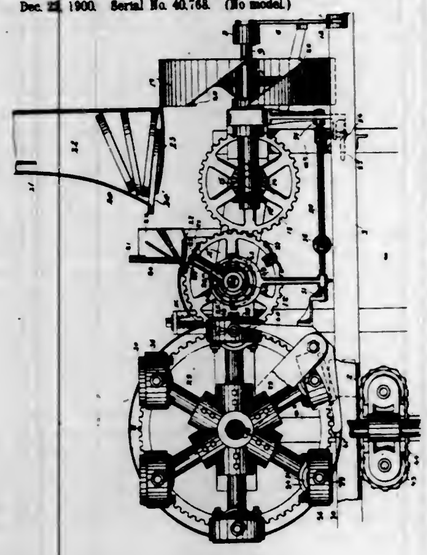
678,493. CARBURETER. RALPH JACKSON, Altringham, England. Filed Mar. 18, 1901. Serial No. 51,758. (No model.)



Claim.—1. A carbureter comprising a reservoir provided with an aperture in its top, a cap removable for closing said aperture having a central opening, a perforated cylinder secured to the cap and projecting into the reservoir, a wick surrounding the perforated cylinder and extending into the reservoir to a point below the liquid-level, a tube within the cylinder secured in the opening in the cap projecting into the reservoir and terminating at its lower end in the perforated cylinder above the liquid-level in the reservoir and at its upper end outside of the cap, a wire-gauze top on said tube, and a vapor-delivery pipe leading from the top of the reservoir to the point of consumption of the vapor, all combined and operating substantially as and for the purposes set forth.

2. A carbureter comprising a reservoir, carbureting devices therein, a T-shaped vapor-delivery pipe, the stem of which leads from the reservoir, its head being provided with a port opening into the atmosphere in the same transverse plane with the opening to its stem, and a hollow cylindrical valve longitudinally fitted in the said head of the pipe having one end open and provided with a port in the same transverse plane as the air-port and the opening to the stem, the valve-port being adapted to register with either the air-port, or the opening to the stem of the T-pipe, or both simultaneously, substantially as and for the purposes set forth.

678,494. CAN-HEADING MACHINE. WILLIAM T. JONES, San Francisco, Cal., assignor of one-half to Henry Doyle, same place. Filed Dec. 22, 1900. Serial No. 40,768. (No model.)



Claim.—1. The combination, in a can-heading machine, of a horizontal endless carrier upon which the cans are carried through the machine, means by which the passage of cans on the carrier is timed and regulated, a vertically-revolving header disposed in a vertical plane above the carrier and provided with radial arms carrying pivotally-mounted dies adapted to engage and fit over the flanges of the can-heads, means for delivering can-heads to said dies, and means by which the heads are deposited by the dies upon the cans.

2. The combination, in a can-heading machine, of a horizontally-traveling can-carrier, a vertically-revolving can-header said header having radial arms and pivotally-mounted dies carried thereby around its periphery adapted to receive can-heads, can-head-feeding devices, and means whereby the heads are placed upon the cans in the revolution of the header and the horizontal travel of the can-carrier.

3. The combination of a horizontal can-carrier, means by which the admission and timing of the cans thereon are regulated, a vertically-revolving carrier upon which the heads are received, a vertically-revolving can-header disposed above the can-carrier and including radial arms and pivoted dies carried thereby and into which the heads are received from the head-carrier, and means by which the heads are deposited by the dies upon the can, as the dies, and the cans upon the carrier, approach each other.

4. The combination of a horizontal can-carrier, means by which the admission and timing of the cans thereon are regulated, a vertically-revolving can-head carrier, a vertically-revolving can-header above the can-carrier with radial arms having pivotally-mounted dies or holders at their outer ends, and means by which the can-header automatically deposits the heads upon the cans as the latter and the dies approach each other.

5. The combination in a can-heading machine, of a horizontal can-carrier means by which the entry of the cans thereon is regulated and timed in relation to the entry of can-heads into the machine, a vertically-revolving can-head carrier, a vertically-revolving can-header having radial arms, can-head-receiving dies carried by the outer ends thereof, said can-head carrier and can-header being in a vertical plane above the can-carrier and operating so in unison with the travel of the cans upon their carrier that a can passing beneath the can-header will receive a head from one of the dies thereof, and means by which the head is crimped upon the can.

6. The combination in an automatic can-heading machine, of an endless carrier, means by which the entry of cans thereon is governed, a revolving spacing and timing guide including a wheel with oblique passages through it whereby the travel of the cans on the carrier is regulated, a can-head feeder into which the heads are received, and means by which the flanges of the heads are prevented from overlapping, a revolving carrier including radial arms and disks at the outer ends thereof by which the heads are taken singly from the feeder and delivered into holders or dies upon a vertically-revolving header, and means by which the can-heads are placed and crimped upon the cans.

7. In a can-heading machine, the combination with a horizontal endless conveyer and a guide-trough in which the conveyer runs, of a lever pivoted so that one arm extends into the trough to interrupt the passage of the cans, a weight-arm by which this projecting arm is normally made to extend into the trough, a third arm intermittently engaging with the driving mechanism whereby the movement of this lever is operated in relation to the running of the rest of the machine.

8. In a can-heading machine, a horizontal endless carrier, guides by which cans upon this carrier are prevented from lateral displacement, a lever-arm by which cans are intermittently admitted upon the carrier, a wheel revolving in a plane transverse to the line of the carrier, and having oblique slots in its rim through which the cans on the carrier intermittently pass, and means by which the heads are automatically inserted upon the cans.

9. In a can-heading machine a horizontal endless carrier, means by which the entry and travel of the cans on this carrier are regulated relatively with the running of the rest of the machine, a can-head feeder having a curved bottom, an inwardly-curved rear wall, an opening between this wall and the bottom through which the edge of the can-head may project and be engaged by a revolving carrier, taken thence and delivered into holders or dies upon a revolving header, and by these dies placed and crimped upon the cans.

10. The combination in a can-heading machine of a horizontal endless carrier, means by which the entry and travel of the cans on this carrier are regulated relatively with the running of the rest of the machine, a can-head feeder from which the heads are taken singly by a revolving carrier, said carrier consisting of radial arms having disks upon their outer ends adapted to engage and fit within the flanges of the can-heads, and means by which the heads are placed upon the cans.

11. In a can-heading machine, a revolving header consisting of radial arms having holders or dies pivotally secured at their outer ends, and into which can-heads are received, said header revolving above and in a plane vertical with an endless carrier upon which latter the cans are conveyed, and upon which cans the heads are placed in the revolution of the header.

12. In a can-heading machine, a revoluble can-head holder consisting of radial arms and dies pivotally carried at the outer portions thereof said dies including an outer funnel-shaped portion, a pressure-plate, expansible disks intermediate of this funnel portion and pressure-plate, means by which the parts are held together, and means by which the disks are equally and simultaneously opened and contracted.

13. In a can-heading machine, a can-head holder or die, consisting of an outer funnel-shaped portion, a pressure-plate, expansible disks or chucks intermediate of these parts, the lower one of these chucks having the edge of its opening inclined inwardly and upwardly to permit the ready entry of the can-head by pressure, the upper chuck having the edge of its opening inclined downwardly and inwardly by which the flange of the head is crimped upon the can, and means by which the chucks are equally and simultaneously opened and contracted.

14. In a can-heading machine, the combination with a can-body support of a pivotally-mounted die or holder having two expansible disks, means for inserting a can-head therein, and means by which the head is placed upon the can-body, the upper of said disks adapted to move inwardly and impinge equally and simultaneously upon all sides of the head as pressure is brought upon said head and body whereby the head is crimped upon the body.

15. In a can-heading machine, a can-head holder and crimper including an inclosing cap, pivotally mounted; expansible disks within the cap; and means by which the disks are held together and allowed to slide radially upon each other; said cap having its inner walls beveled or cam-shaped and adapted to engage and contract the disks.

16. In a can-heading machine, a revoluble can-header having hollow caps disposed around its periphery and pivotally mounted; expansible disks within the cap and provided with radial slots; guide-pins by which the disks are held in position; and means for expanding the disks; said caps having their inner side walls beveled or tapered and adapted to engage the edges of the disks whereby said disks are contracted.

17. In a can-heading machine, a can-head holder or die consisting of a funnel-shaped portion, a pressure-plate, chucks interposed therebetween, the outer edges of these chucks inclined outwardly and upwardly, the lower of said chucks having the edge of its opening inclined upwardly and inwardly, the upper chuck having the edge of its opening inclined downwardly and inwardly, a ring or cap slidable upon the edges of the die, and means by which the cap is held in position on the die, a ledge upon the inner wall of the cap by which the outer inclined edges of the chucks are engaged and the latter caused to contract, and means by which the chucks are automatically opened or spread.

18. In a can-heading machine, the combination with a horizontal endless carrier upon which the cans are conveyed, of a revolving header placed vertically above and in line with the carrier, said header having radial arms carrying dies or holders pivotally secured at their outer ends, said dies having expansible chucks into which the can-heads are received, a cap slidable upon each of the dies, and means by which the cap is held in position on the die, rollers upon the cap engaging cams in the revolution of the header, by which means the cap is lifted, the lower chuck contracted and the can-head held within the die, means by which the die and the head are forced over and upon the end of a can upon the carrier, and means by which the cap is further lifted and the second chuck contracted and the head crimped.

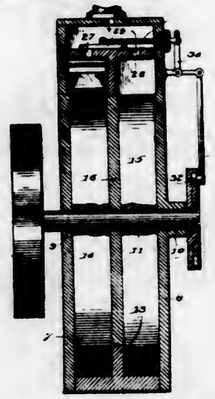
19. The combination in a can-heading machine with an endless carrier upon which the cans are conveyed, of a secondary endless carrier parallel with the first and upon which the first carrier runs, and for which latter the secondary carrier forms a resilient bed.

20. The combination in a can-heading machine with an endless conveyer upon which the cans are carried, and a revolving carrier upon which the can-heads are received and thence delivered into a header device by which they are inserted upon the cans, of a means by which the revolution of this carrier may be stopped and the feeding of the can-heads delayed in case a can fails to enter the endless carrier properly, which means consists of a bell-crank lever having an arm projecting into the trough through which the endless conveyer runs, and which arm is adapted to engage the passing cans, and connections of this bell-crank lever with a clutch mechanism upon the shaft of the revolving carrier whereby the latter is thrown in and out of engagement automatically.

21. The combination in a can-heading machine of a horizontal endless carrier, a guide-trough in which this carrier runs, a stop-lever actuated intermittently by which the entry of cans on the carrier is regulated, a revolving guide consisting of a wheel having transverse and oblique slots in its rim through which the cans upon the belt intermittently pass, a can-head feeder into which the can-heads are received and prevented from overlapping one another, a revolving carrier having radial arms adapted to withdraw the heads from the feeder and place them singly in dies or holders pivotally secured upon a revolving header, means by which this revolving carrier can be stopped in case a can should fail to come properly upon the endless carrier, said dies consisting of a funnel portion, a pressure-piece, expandible disks or chucks intermediate thereof, a cap slidable upon the edges of each of the dies and means by which it is held in position, said cap adapted to contact the chucks when lifted toward the center of the header and to open the chucks when moved outwardly, rollers upon these caps, cams by which these rollers are engaged and by which the said inward movement of the caps is effected, and a secondary endless carrier beneath the can-carrier, and upon which this latter carrier is resiliently supported as the cans pass beneath the header and receive their heads, and means by which the mechanism above the endless carrier may be raised or brought nearer to said carrier in order to accommodate cans of varying heights.

22. The combination in an automatic can-heading machine of a carrier for the cans, means for regulating the entry and passage of cans thereon, means for delivering can-heads into holders or dies upon a revolving header, and by which the heads are placed upon the cans, and a lifting-screw by which the frame carrying the regulating, feeding and heading mechanism is adjustable vertically above the carrier according to the heights of cans, and guides by which this frame is held from lateral or longitudinal displacement.

678,495. ROTARY ENGINE. JONATHAN KEITH, Cookville, Tex. Filed Mar. 8, 1901. Serial No. 50,356. (No model.)



Claim.—1. A rotary engine comprising a cylinder having a central inwardly-directed flange and a steam-chest communicating with the compartments at opposite sides of the partition, a piston disposed in the cylinder and including spaced disks lying in the separate compartments and projecting beyond the inner periphery of the flange and an intermediate disk in close contact with the inner periphery of the flange, the first-named disks having heads disposed in staggered relation, and a pivoted abutment in each compartment in operative relation to the disks therein.

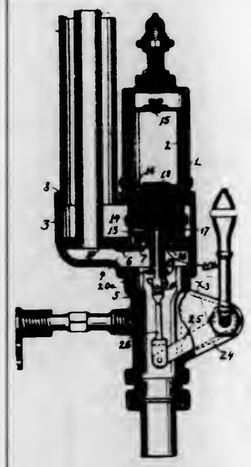
2. A rotary engine comprising a cylinder having a central inwardly-directed flange and a steam-chest communicating with the compartments at opposite sides thereof, a piston disposed in the cylinder and comprising a central disk in close contact with the inner periphery of the flange and outer disks lying with their outer portions between the flange and the ends of the cylinder, said last-named disks having heads disposed in staggered relation, a pivoted abutment in each compartment in operative relation to the disk therein, a valve in the steam-chest for directing steam to the compartments alternately, and connections between the piston and valve for operating the latter.

678,496. VALVE FOR WATER-CLOSETS. DAVID T. KENNEY, North Plainfield, N. J., assignor to Sylvanus L. Schoonmaker, Plainfield, N. J. Filed Apr. 7, 1900. Serial No. 11,927. (No model.)

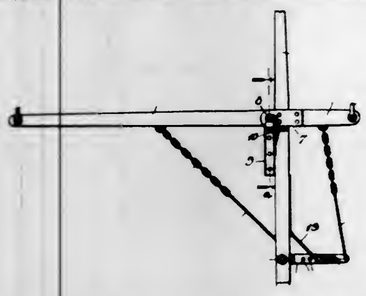
Claim.—1. A valve-body casting, having a transverse partition forming flushing and overflow-discharge chambers therein, and having a flushing-inlet orifice and a valve-cap orifice in its one end, the transverse partition having a discharge-inlet orifice therein opening directly into the overflow-discharge chamber and being smaller than and registering with the flushing-inlet orifice, the partition also having a valve-opening therein, substantially as described.

2. The combination of a chambered bracket with openings of identical construction in the two sides and each provided with a thrust-seat, an extension-bearing and a cap-bearing, each of which may be fitted to

either opening in the chambered bracket, a handle-shank, which is fitted to the extension-bearing, an extension-piece to the handle-shank, which is fitted to the cap-bearing, and a collar which is fitted to engage either of the thrust-seats, substantially as described.



678,497. DRAFT-EQUALIZER. MICHAEL J. KILLEEN, Sauk Center, Minn. Filed Dec. 13, 1900. Serial No. 39,747. (No model.)

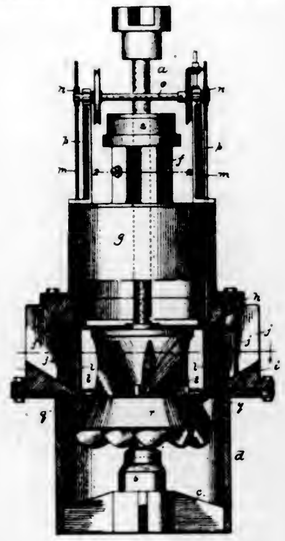


Claim.—In a draft-equalizer, the combination with a support, having front and rear lateral brackets at opposite sides thereof, a long draw-bar projecting laterally from the support in the direction of the front bracket, a short draw-bar projecting in the opposite direction, a common fulcrum connecting the inner ends of both bars to the front bracket, an equalizing-lever fulcrumed at the inner side of its middle to the rear bracket, and opposite flexible connections between the outer end of the lever and the intermediate portion of the short bar, and the inner end of the lever and the intermediate portion of the long bar, respectively.

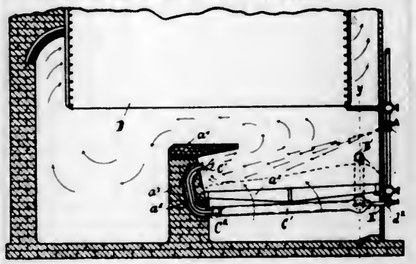
678,498. TURBINE WATER-WHEEL. EDWARD L. KRAFT and HORACE E. BASEHORE, York, Pa. Filed Nov. 19, 1900. Serial No. 37,008. (No model.)

Claim.—1. In a turbine water-wheel, a shaft carrying a runner, a guide-ring adapted to direct the water into the wheel, said ring being provided with an internal annular flange, as *q*, extending around the runner and having its upper face inclining inward and downward and forming an uninterrupted continuation of the bottom face of the water-passage of the guide-ring, and a cylindrical gate and means for operating it, the lower edge of said gate being beveled inward and downward and adapted to fit against the upper inclined face of said flange, for the purposes set forth.

2. A turbine runner, composed of a shaft, a hub thereon, a rim, and a series of blades or buckets connecting the hub to the rim and each blade being attached at its upper inner edge *v* to the hub and to the inner face of the rim at its outer edge *w*, this outer edge extending rearward and downward and the lower portion *v'* of the inner edge of the blade extending downward from the hub to a point below the lower extremity of the outer edge *w* and then upward and rearward and outward until it meets said lower extremity of edge *w* thereby forming a tapering rearward-extending prolongation adjacent to the rim, for the purpose set forth.



678,499. FURNACE. FREDERICK J. KUHLMANN, Cincinnati, Ohio. Filed May 6, 1901. Serial No. 58,907. (No model.)



Claim.—1. In a furnace the combination of a channel leading from a point above the fire in the front part of the furnace down beneath the grate-bars, a pipe into which said channel leads running rearwardly beneath the grate-bars to the bridge-wall, a second pipe adjacent to the bridge-wall coupled to said pipe, reduced pipes leading from said pipe up above the fire and directed back over the fire, a steam-pipe to convey steam from the boilers, and an injector connecting the steam-pipe and the pipe leading from the channel rearwardly, substantially as shown and described.

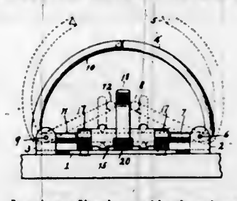
2. In a furnace the combination of a bridge-wall having a roof projecting forward over the fire, a pipe leading from a point above the fire in the front part of the furnace to a point beneath the grate-bars, a second pipe coupled to said pipe beneath the grate-bars running rearwardly to the bridge-wall and bent to run adjacent to the bridge-wall, contracted pipes connected to said second pipe running up through said bridge-wall and out over the fire beneath the roof thereof, a steam-pipe leading from the boiler, and injectors connecting the steam-pipe and said second pipe, substantially as shown and described.

3. In a furnace the combination of a channel leading from a point above the fire in the front part of the furnace down beneath the grate-bars, a pipe into which said channel leads running rearwardly beneath the grate-bars to the bridge-wall, a second pipe adjacent to the bridge-wall coupled to said pipe, reduced pipes leading from said pipe up above the fire and directed back over the fire, a steam-pipe to convey steam from the boilers, an injector connecting the steam-pipe and the pipe leading from the channel rearwardly, and jets directed from the front wall of the furnace over the fire above said channel and connected to the steam-pipe, substantially as shown and described.

678,500. METHOD OR PROCESS OF TREATING LIME. AUGUST H. LAUHAN, Allegheny, Pa. Filed Aug. 1, 1900. Serial No. 25,578. (No specimens.)

Claim.—The herein-described method or process of treating lime which consists in adding to burnt lime just sufficient water to convert the same into a dry hydrate, the mixture being constantly agitated and thoroughly commingled and air excluded and pressure maintained during the conversion of the burnt lime into a dry hydrate of lime.

678,501. LETTER-FILE. BENJAMIN LAWRENCE, New York, N. Y.; Louisa Lawrence administratrix of said Benjamin Lawrence, deceased. Filed June 1, 1899. Serial No. 718,947. (No model.)



Claim.—1. In a letter-file, the combination of receiving and transfer wires arranged in the same vertical plane and which when closed abut end to end and form together a continuous arch of substantially semicircular form and the pivots of the wires being arranged at the opposite ends of the arch, and means intermediate and connecting the separately-pivoted wires for opening and closing the wires and opening or closing them simultaneously.

2. In a letter-file, the combination of receiving and transfer wires mounted on separate parallel pivots and connected to swing together toward and away from each other in the closing and opening movements of the file, the said receiving and transfer wires being arranged in the same vertical plane and when closed abutting end to end and forming together a continuous arch of substantially semicircular form, and the said pivots being arranged at the opposite ends of the arch.

3. In a letter-file, the combination of separately-pivoted receiving and transfer wires having arms extending inwardly from their pivots, and a pivoted actuating device connected to both of said arms and adapted to vibrate the wires simultaneously in the opening and closing actions of the file.

4. In a letter-file, the combination of separately-pivoted receiving and transfer wires arranged in the same vertical plane and which when closed abut end to end and form together a continuous arch of substantially semicircular form, and a pivotally-mounted spring-pressed actuating device connected thereto between the pivots of the wires for opening and closing said wires together.

5. In a letter-file, the combination of pivotally-mounted receiving and transfer wires, and a pivotally-mounted spring-pressed actuating device adapted to vibrate said wires simultaneously, in the opening and closing movements of the file, and having two bearing-faces to be acted upon by its spring so as to hold the wires in either the open or the closed position.

6. In a letter-file, the combination of separately-pivoted receiving and transfer wires, an actuating device connected thereto so as to swing the same simultaneously, and the two downwardly-acting finger-pieces 18 and 19 attached to said actuating device to move the same in the proper directions to open and to close said wires.

7. In a letter-file, the combination of curved receiving and transfer wires arranged in the same plane and to meet end to end and having radial horizontal arms extending toward each other, a pivot for each wire arranged at about the junction of the wire and its arm, and a pivotally-mounted actuator connected to both said arms.

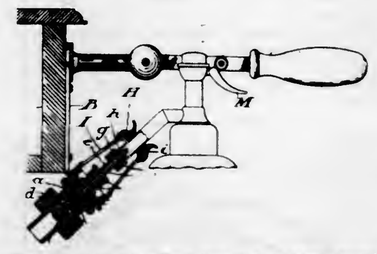
8. In a letter-file, the combination of separately-pivoted curved receiving and transfer wires arranged in the same plane and to meet end to end and having radial horizontal arms extending toward each other from the pivots of the wires, and a pivotally-mounted actuator having two forks connected to said radial arms.

9. In a letter-file, the combination of a pair of parallel, curved pivotally-mounted receiving wires, a pair of parallel curved separately-pivoted transfer-wires, the free ends of said pairs of wires being adapted to abut centrally of the file, a pair of radial arms 7, 7, extending horizontally inwardly from the pivots of the receiving-wires and connected together by a cross-bar 8, a pair of radial arms 11, 11, extending horizontally inwardly from the pivots of the transfer-wires and connected together by a cross-bar 12, and an actuating device connected to act on one of the arms 7 of one receiving-wire and one of the arms 11 of one transfer-wire.

10. In a letter-file, the combination of a receiving-wire frame comprising two parallel curved wires, two radial inwardly-extended arms, and a cross-bar; the said frame being pivoted to a suitable base at about the junction of the lower end of the curved wires and the outer ends of the radial arms, and a transfer-wire frame comprising a pair of wires, a pair of radial inwardly-extending arms, and a cross-bar, and the said frame being pivoted to the said base at about the junction of the lower ends of the transfer-wires and the outer ends of the radial arms.

11. In a letter-file, the combination of a receiving-wire frame comprising two parallel curved wires, two radial inwardly-extending arms, and a cross-bar; the said frame being pivoted to a suitable base at about the junction of the lower end of the curved wires and the outer ends of the radial arms, a transfer-wire frame comprising a pair of wires, a pair of radial inwardly-extended arms and a cross-bar; and the said frame being pivoted to the said base at about the junction of the lower ends of the transfer-wires and the outer ends of the radial arms, and means for connecting said frames together so that they may be vibrated simultaneously in the opening and closing movements of the file.

678,502. SIPHON-FILLER. ROBERT LOWE, Toronto, Canada, assignor to John James McLaughlin, same place. Filed Nov. 16, 1900. Serial No. 36,786. (No model.)



Claim.—1. In a siphon-filler a head; a valve therein adapted to be opened by pressure of a siphon-nozzle in combination with a lever suitably fulcrumed in proximity to the head and adapted to engage the siphon to open its valve and to cause it to press on and open the filler-valve, and a support for said head and lever, the point of engagement between the lever and the siphon being between the pivot of the lever and its outer end, substantially as and for the purpose specified.

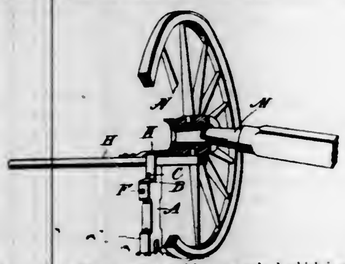
2. In a siphon-filler a head, and a valve therein adapted to be opened by pressure of a siphon-nozzle; in combination with a frame secured to or forming a part of the head; a lever fulcrumed thereon and having a portion located between its pivot and its outer end adapted to engage the siphon to open its valve and to cause it to press on and open the filler-valve, substantially as and for the purpose specified.

3. In a siphon-filler a head; a valve therein adapted to be opened by pressure of a siphon-nozzle in combination with a lever suitably fulcrumed in proximity to the head; and a cross-bar on the said lever between its pivot and its outer end adapted to engage the valve-lever of the siphon to open the siphon-valve and to cause the siphon-nozzle to press on and open the filler-valve, substantially as and for the purpose specified.

4. In a siphon-filler a head; a valve therein normally held closed by a spring, and adapted to be opened by pressure; a hollow spindle for the said valve adapted to convey liquid when the valve is opened; a cup on the end of the said spindle; packing therein to engage the end of the siphon-nozzle; and a guard or guide ring suitably supported about the end of the valve-spindle in combination with a bifurcated lever suitably fulcrumed in proximity to the head; and a cross-bar on the said lever between its pivot and its outer end adapted to engage the valve-lever of the siphon to open the siphon-valve and to cause the siphon-nozzle to press on packing in the said cup and open the filler-valve, substantially as and for the purpose specified.

5. In a siphon-filler a hollow head formed with an internal shoulder; a hollow plug screwed therein; and a ring of packing forming a valve-seat and held between the lower end of the plug and the said shoulder; in combination with a valve-spindle passing through the said plug and provided with a passage-way extending through it from its upper end and a lateral communicating passage-way leading out just at or above the valve-seat; a stuffing-box at the upper end of the plug; a valve formed on the spindle below the said seat and adapted to coact therewith; a perforated disk or spider located in the head and adapted to guide the lower part of the valve-spindle; and a coil-spring bearing on the said spider and the valve, standards detachably mounted on said head and a shield supported on the standards beyond the upper end of the spindle, substantially as and for the purpose specified.

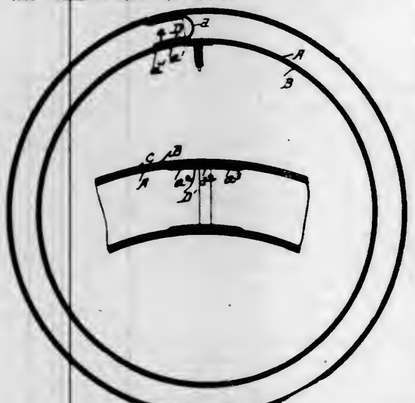
678,503. LIFTING-JACK. BENJAMIN MARRIOTT, Plain City, Utah. Filed May 9, 1901. Serial No. 59,473. (No model.)



Claim.—1. A lifting-jack comprising a standard which is stepped, a strap secured at one end to the upright wall of said stepped portion, pins on the opposite edges of said standard, one above and the other below the step, a lifting-lever adapted to be fulcrumed over the top or step of said standard and held thereto by said strap, as set forth.

2. A lifting-jack comprising a standard which is stepped, a perforated strap secured to the upright wall of the stepped portion, pins on the opposite edges of the standard designed to be engaged by said strap, a lifting-lever held by said strap on the top of stepped portion of the standard, the end of the lever being notched, and a bracket-arm fastened to the side thereof and designed to engage the hub-band of a vehicle-wheel, as set forth.

678,504. PNEUMATIC TIRE. JOSEPH G. MOONY, Erie, Pa., assignor to Lake Shore Rubber Company, same place. Filed Feb. 16, 1901. Serial No. 47,673. (No model.)



Claim.—1. In a pneumatic tire, the combination of an inner air-tube; a sleeve of non-vulcanizing and adhesive material joining the ends of said tube; and an outer sleeve.

2. In a pneumatic tire, the combination of an inner air-tube; a sleeve of non-vulcanizing and adhesive material joining the ends of said tube; and an outer cover vulcanized and forming a complete annulus over said tube.

3. In a pneumatic tire, the combination of an inner air-tube; a sleeve of non-vulcanizing adhesive material joining the ends of said tube; and an outer cover to which the body of the tube is secured by vulcanization.

4. In a pneumatic tire, the combination of an inner air-tube; a sleeve of non-vulcanizing adhesive material joining the ends of said tube, the body of said tube being vulcanized prior to the formation of the tire; and an outer cover.

5. In a pneumatic tire, the combination of an inner air-tube; a sleeve of non-vulcanizing adhesive material joining the ends of said tube, the body of said tube being vulcanized prior to the formation of the tire; and an outer cover vulcanized and forming a complete annulus over said tube.

6. In a pneumatic tire, the combination of an inner air-tube; a sleeve of non-vulcanizing adhesive material joining the ends of said tube, the body of said tube being vulcanized prior to the formation of the tire; and an outer cover vulcanized and forming a complete annulus over the tube, the body of said tube being secured to the said cover by vulcanization.

7. In a pneumatic tire, the combination of an inner air-tube having one of its ends, *a*, lapped and within its other end, *a'*; a sleeve of non-vulcanizing adhesive material joining the ends of said tube, said sleeve extending through and between the lapped portion of the ends of the tube; and an outer cover.

8. In a pneumatic tire, the combination of an inner air-tube having one of its ends, *a*, lapped by and within its other end, *a'*; and a sleeve of non-vulcanizing adhesive material joining the ends of said tube, said sleeve extending through and between the lapped portion of the tube, and having a portion, *d'*, beyond the end, *a'*.

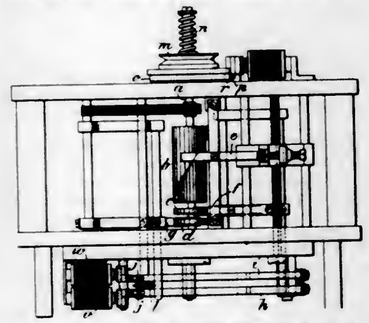
9. In a pneumatic tire, the combination of an inner air-tube having one of its ends, *a*, lapped by and within its other end, *a'*; a sleeve of non-vulcanizing adhesive material joining the ends of said tube, said sleeve extending through and between the lapped portion of the ends of the tube; an outer cover; and the thimble portion, *d*, extending from the end of the sleeve.

10. In a pneumatic tire, the combination of an inner air-tube, the end, *a*, of said tube being placed within and lapping by the end, *a'*, of said tube; a sleeve, D, of non-vulcanizing adhesive material arranged between the lapped ends of the air-tube; and an outer cover vulcanized over said tube.

11. In a pneumatic tire, the combination of an inner air-tube, the end, *a*, of said tube being placed within and lapping by the end, *a'*, of said tube, said air-tube being preferably vulcanized before the formation of the tire; a sleeve, D, of non-vulcanizing material arranged between the lapped ends of the air-tube; and an outer cover vulcanized over said tube.

12. A process of making a pneumatic tire, which consists of forming an inner air-tube, having its ends joined with a non-vulcanizing material, building over it a cover and vulcanizing the cover on the air-tube, said air-tube being inflated during the process of vulcanization.

678,505. TELEGRAPHIC TRANSMITTING, RECEIVING, AND TRANSLATING ARRANGEMENT. ALEXANDER MUIRHEAD, Shortlands, England. Filed Sept. 5, 1900. Serial No. 29,088. (No model.)



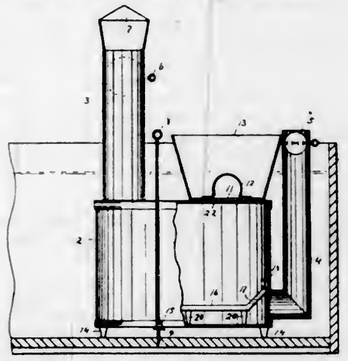
Claim.—1. An automatic telegraph-transmitter comprising, in combination, a main driving-shaft, a friction-drive mounted thereon, an electromagnetically-actuated pawl governing the movements of the main driving-shaft, contact-levers, electromagnetically-actuated pawls governing the movements of the contact-levers, and means serving, at will, to retain all the said pawls out of engagement.

2. The combination, at an intermediate cable-station, of a receiver, a local-battery circuit completed through such receiver and through one of two contacts upon or against which such receiver moves, two relays located in said local-battery circuit and through one or other of which the said battery-circuit is completed, an automatic transmitter comprising a frictionally-driven main shaft, contact-making levers, and electromagnetically-actuated pawls governing the movements of the main shaft and the contact-making levers respectively, the electromagnets being included in a local-battery circuit with the said relay-tongues, and a retransmitting-line battery connected through the contact-making levers of the automatic transmitter.

3. The combination, at an intermediate cable-station, of a receiver, a local-battery circuit completed through such receiver and through one of two contacts upon or against which such receiver moves, two relays located in said local-battery circuit and through one or other of which the said battery-circuit is completed, an automatic transmitter comprising a frictionally-driven main shaft, contact-making levers and electromagnetically-actuated pawls governing the movements of the main shaft and the contact-making levers respectively, the electromagnets being included in a local-battery circuit with the said relay-tongues, a retransmitting-line battery connected through the contact-making levers of the automatic transmitter, and means to change the polarity of the last-mentioned battery during the period of each elementary signal.

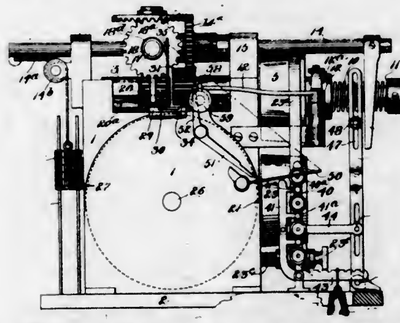
4. The combination, at an intermediate cable-station, of a receiver, a local-battery circuit completed through such receiver and through one of two contacts upon or against which such receiver moves, two relays located in said local-battery circuit and through one or other of which the said battery-circuit is completed, an automatic transmitter comprising a frictionally-driven main shaft, contact-making levers, and electromagnetically-actuated pawls governing the movements of the main shaft and the contact-making levers respectively, the electromagnets being included in a local-battery circuit with the said relay-tongues, a retransmitting-line battery connected through the contact-making levers of the automatic transmitter, and a connection from the outgoing circuit back through the receiving apparatus so as to curb or govern the return movements of the latter.

678,506. TANK-HEATER. CHARLES E. MYERS, Huntertown, Ind. Filed Apr. 12, 1900. Serial No. 12,522. (No model.)



Claim.—In a tank-heater, a submerged combustion-chamber; a smoke-stack protruding therefrom; a funnel protruding from and opening into the top of said chamber; a removable lid closing the top of said chamber at the bottom of said funnel; a grate supported near the bottom of said chamber and consisting of two equal parts pivoted together at points diametrically opposite; a vent-pipe leading downward and into the lower rear part of said chamber; said grate being formed with an inclined apron closing over the inlet of said vent-pipe, substantially as and for the purpose specified.

678,507. WINDING-MACHINE. JOHN O. MCKEAN, Westfield, Mass., assignor to the Foster Machine Company, same place. Filed Aug. 17, 1900. Serial No. 27,118. (No model.)



Claim.—1. In a winding-machine, a guide-rod 14 adapted to guide and sustain a carriage: that carriage; a stud 17 supported thereby; a rotatable spindle journaled on the stud and adapted to receive a shell for the thread to be wound; a second rod, 20ª, adapted to support the carriage against rotation about the axis of the guide-rod; a stationary raceway; a thread-guide adapted to reciprocate in the raceway in contact with the surface of the wound mass in a fixed line perpendicular to the line of travel of the spindle; means to reciprocate the thread-guide; means to rotate the spindle; and means to press the spindle normally toward the thread-guide, the spindle being movable away therefrom by the increase of the wound mass.

2. In a machine for winding thread or yarn, a thread-guide adapted to reciprocate in a stationary raceway; means to reciprocate said thread-guide; a hub 16 having its axis perpendicular to the line of travel of the thread-guide mounted and adapted to travel on a guide-rod 14 in a direction perpendicular to its own axis and perpendicular to the line of travel of the thread-guide; that guide-rod; a rotatable spindle 18 projecting laterally from and supported by the hub, the spindle being adapted to receive a shell for receiving the thread to be wound; means to rotate the spindle; and means to press the spindle constantly toward the thread-guide, the spindle being movable away therefrom by increase of the wound mass.

3. In a winding-machine, a main shaft; a driving-wheel mounted on that shaft; a driven wheel engaging that driving-wheel, the driven wheel being mounted on a carriage and moving with that carriage; that carriage; a second driven wheel engaging the driven wheel aforementioned in a plane at a right angle to the plane of the driven wheel, and driven thereby; and a third driven wheel fast to the spindle and engaging the second driven wheel aforementioned and driven thereby.

4. In a winding-machine, a main shaft; a spur-gear mounted upon that shaft; a carriage sliding on bearings in the frame of the machine; a spur-gear mounted on the carriage and in mesh with the spur-gear before mentioned; a crown-gear mounted upon the carriage and in mesh with the spur-gear mounted on the carriage aforementioned; a spur-gear mounted on a stud projecting from the carriage and fast to a spindle and in mesh with the crown-gear, all organized, as described, so that the motion of the main shaft is transmitted to the spindle while the carriage moves on its bearings.

5. In a winding-machine, a thread-guide adapted to reciprocate in a stationary raceway; that raceway; a cam mounted with its axis parallel to the raceway, and having a groove with which the thread-guide engages, to actuate the thread-guide; a main shaft mounted at a right angle to the axis of the cam; a spur-gear mounted on that shaft; a second spur-gear in engagement with the first-mentioned spur-gear and mounted on a carriage; that carriage, moving parallel to the main shaft; a crown-gear, mounted on the carriage and engaging the second-mentioned spur-gear and rotating in a plane at right angles to the plane of rotation of the second-mentioned spur-gear; a third spur-gear fast to the spindle and engaging the crown-gear and rotating in a plane at right angles to the plane of rotation of the crown-gear; a spindle and means to press the carriage constantly toward the thread-guide, all organized and arranged to cause the spindle to be rotated with its surface in the plane of movement of the thread-guide, the carriage being movable away from the thread-guide by the mass of thread being wound as it increases in diameter on the spindle.

6. In a winding-machine, a thread-guide adapted to reciprocate in a stationary raceway; that raceway; a cam mounted with its axis parallel to the raceway, and having a groove with which the thread-guide engages, to actuate the thread-guide; a main shaft mounted at a right angle to the axis of the cam; a driving-wheel mounted upon that shaft; a second wheel in engagement with the driving-wheel and mounted upon a carriage; that carriage, moving parallel to the main shaft; a third wheel mounted upon the carriage and engaging the second wheel and rotating in a plane at right angles to the plane of rotation of the second wheel; a fourth wheel fast to the spindle and engaging the third wheel and rotating in the plane at right angles to the plane of rotation of the third wheel; a spindle; all organized and arranged to cause the spindle to be rotated with its surface in the plane of movement of the thread-guide, substantially as described.

7. In a winding-machine, a thread guide, adapted to reciprocate in a stationary raceway; that raceway; a cam mounted with its axis parallel to the raceway; and having a groove with which the thread-guide engages, to actuate the thread-guide; a main shaft mounted at a right angle to the axis of the cam; a driving-wheel mounted upon that shaft; a second wheel in engagement with the driving-wheel and mounted upon a carriage; that carriage, moving parallelto the main shaft and carrying a spindle; that spindle; a connection between the second wheel and the spindle; all organized and arranged to cause the spindle to be rotated with its surface in the plane of movement of the thread-guide, substantially as described.

8. In a winding-machine, a carriage made up of a guide-rod, mounted in bearings on the frame of the machine; a body portion 16 mounted on the guide-rod and moving thereon, and in engagement with a second rod, 20ª; that rod 20ª; an adjustable sleeve, 16ª, adjustably mounted on the body 16, and having a projecting stud to carry a spindle; and suitable bearings on the carriage to carry a train of gearing, to connect the spindle and the main shaft.

678,508. UNDERGROUND CONDUIT. JOHN T. MCROY, Chicago, Ill. Filed Dec. 19, 1900. Serial No. 40,398. (No model.)

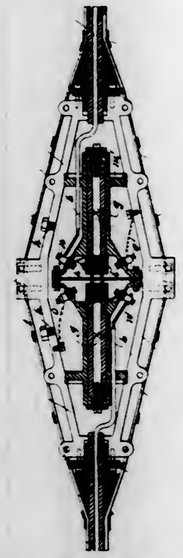
Claim.—1. In a multiple-duct conduit, the combination with a section provided with a plurality of ducts, of two smaller sections having their adjacent faces beveled to permit said sections to be placed at an angle to the plane of the first section, and the ducts in said sections to register with the ducts in the larger section, substantially as described.



2. A multiple-duct conduit, consisting of a plurality of sections arranged so that the openings through said sections will register, and divided into two branches, the sections of said branches having their adjacent faces beveled to permit said sections to be placed at an angle to the plane of the first section, and the openings through said sections to register with the openings through the larger sections, substantially as described.

3. A multiple duct consisting of a plurality of sections arranged so that the openings through said sections will register, and divided into branches, one of said branches communicating with a manhole, and the sections of said branches having their adjacent faces beveled to permit said sections to be placed at an angle to the plane of the first section, and the openings through said sections to register with the openings through the larger sections, substantially as described.

678,509. **LONG-DISTANCE RELAY MAGNETIC TELEPHONE.** JACQUES NEBEL and JEAN F. GOUIN, Brest, France. Filed Apr. 14, 1900. Serial No. 12,789. (No model.)

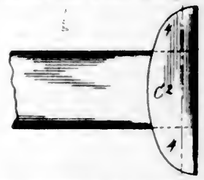


Claim.—1. In a long-distance-telephone relay, the combination of a hermetically-closed inner non-magnetic casing, energizing-magnets and diaphragm inclosed thereby, earth-terminals on said casing to which the bobbins of the magnets are connected, a hermetically-closed outer casing inclosing said inner casing, conductors extending from said terminals to said outer casing, and a chamber separating said casings and adapted to receive a filling or packing of insulating material, as paraffin.

2. The combination of the inner hermetically-closed casing, the diaphragm and magnets therein, the outer hermetically-closed double-cone-shaped casing, electrical connections extending from said magnets to the outer casing, and a divided cable the conductors of which enter the opposite ends of the outer casing and are connected to the magnets inclosed in the inner casing, and the armor of which is carried over the outer casing and secured to the cones thereof.

678,510. **PNEUMATIC TIRE AND INNER TUBE THEREFOR.** CHARLES G. PAGE, Oakpark, Ill. Filed June 7, 1901. Serial No. 63,602. (No model.)

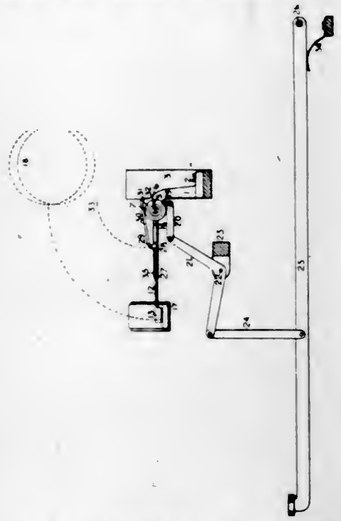
Claim.—1. Closing the end of an inner tube for pneumatic tires by folding a piece of rubber fabric upon the end portion of the tube, the fabric being wider than the tube so as to form two flaps embracing the tube and projecting laterally therefrom; uniting the projecting end portions of such flaps to form lateral webs or flanges; and folding such flanges over upon the tube and securing them in such folded condition.



2. An inner tube for pneumatic tires having an end cap-closure comprising rubber fabric folded upon the end of the tube so as to form flaps which are secured on opposite sides of the tube, the fabric being of a width to permit such flaps to project laterally from the tube, and such projecting flap portions being united to form webs or flanges which are folded over upon the tube and secured in place.

3. An inner tube for pneumatic tires having a construction of end closure comprising a cap which is united with the tube by cementation, or vulcanization, or both, and which involves in its structure a piece of rubber fabric folded to form two opposite flaps which have their end portions united to form webs; the portions of such flaps between the webs being secured upon the end portion of the tube.

678,511. **TYPE-WRITING MACHINE.** JOHN R. PATERSON, Chicago, Ill., assignor to the Union Typewriter Company, Jersey City, N. J. Filed Feb. 6, 1900. Serial No. 4,178. (No model.)



Claim.—1. In a type-writing machine, the combination with a hub, of a radial arm thereon, a bore formed radially in said arm, a spindle one of whose ends is inserted in said bore and the other of whose ends carries a type, a circumferential groove formed near the inner end of said spindle, a pin secured in said arm and engaging said groove, means for swinging said hub, arm and spindle about a common axis, and means for turning said spindle independently in said bore.

2. In a type-writing machine, the combination of a hub, a radial arm thereon, a bore formed radially in said arm, a type-carrying spindle inserted in said bore, a circumferential groove formed near the inner end of said spindle, and a pin, passing transversely through said arm so that the sides of said pin engage said circumferential groove, means for swinging said hub, arm and spindle about a common axis, and means for turning said spindle independently in said bore.

3. In a type-writing machine, the combination with a type-carrying spindle, of a support therefor, said spindle being constructed both to turn independently in said support and to swing together with said support, a sleeve arranged upon said spindle, means for causing relative endwise movement between said sleeve and said spindle, means controlled by said sleeve for causing said spindle to turn independently of said support, and means for preventing endwise movement of said spindle in said support.

4. In a type-writing machine, the combination with a type-carrying spindle, of a support in which said spindle may turn independently and by which said spindle may be swung, a sleeve arranged upon said spindle, means for producing relative endwise movement between said sleeve and said spindle, a cam-slot formed in said sleeve, a pin or projection fixed upon said spindle and engaging said cam-slot, and means for preventing endwise movement of said spindle in said support.

5. In a type-writing machine, the combination of a platen, a type-carrying spindle, a pivotal support therefor and by which the spindle is swung to and from the platen, means for preventing endwise movement of said spindle while permitting it to rotate within said support, a pin on said spindle, a sleeve encircling said spindle and having a cam-slot to engage said pin, whereby the spindle is rotated, and means for moving said sleeve back and forth during the swinging movements of the spindle to and from the platen.

6. In a type-writing machine, the combination with a type-carrying spindle and a swinging support therefor, of a sleeve arranged upon said spindle, a link connected at one end of said sleeve and constructed to cause relative endwise movements between said sleeve and said spindle, and means for enabling said sleeve to cause a rotary movement of said spindle in its bearing.

7. In a type-writing machine, the combination of a type-carrying spindle provided with a swinging support, a sleeve arranged upon said spindle, a link pivoted at one end to said sleeve and at the other end to a fixed part of the machine and constructed to cause said sleeve to move endwise along said type-carrying spindle, and means for enabling said sleeve to cause a rotary movement of said spindle.

8. In a type-writing machine, the combination of a type-carrying spindle, a swinging support therefor, a sleeve arranged upon said spindle, a cam-slot formed in said sleeve, a pin or projection provided upon said spindle and engaging said cam-slot, and a link pivoted at one end to said sleeve and at the other end to a fixed portion of the machine.

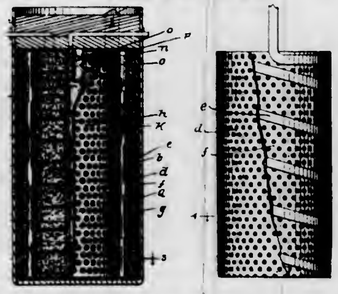
9. In a type-writing machine, the combination of a hub, a bracket upon which said hub is pivoted, an arm thereon, a bore formed radially in said arm, a spindle one of whose ends has a bearing in said bore and the other of whose ends carries a type, a sleeve arranged on said spindle, a cam-slot formed in said sleeve, a pin or projection provided upon said spindle and engaging said cam-slot, and a link pivoted at one end to said sleeve and at the other end to said bracket eccentrically of the axis of said hub.

10. In a type-writing machine, the combination with a hub, of a type-carrying spindle, a bearing arranged upon said hub for said spindle, a sleeve arranged upon said spindle and provided with a cam-slot, a pin or projection fixed upon said spindle and engaging said cam-slot, an ear formed upon said sleeve, and a link pivoted at one end to said ear and at the other end to a fixed part of the machine eccentrically of the axis of said hub.

11. In a type-writing machine, the combination of a type, a spindle, a bearing, means for swinging said bearing, a sleeve, a cam, and a link attached at one end to a fixed part of the machine.

12. In a type-writing machine, the combination of a type, a spindle, a bearing, a hub secured to said bearing, means for swinging said hub, bearing, spindle and type, a sleeve, a cam, and a link attached at one end to a fixed part of the machine.

678,512. **STORAGE BATTERY.** DAVID P. PERRY, Chicago, Ill. Filed May 7, 1900. Serial No. 15,823. (No model.)



Claim.—1. A storage battery having one of its elements composed of a metal conductor, active material, and fluid-conducting material dividing the active material into layers and serving to convey electrolyte between the layers of active material, said conductor being tubular and inclosing the active material, substantially as described.

2. A storage battery having one of its elements composed of a perforated metal conductor, active material and fluid-conducting material dividing the active material into layers and serving to convey electrolyte between the layers of active material, said conductor being tubular and inclosing the active material, the said active material filling the perforations, except where the fluid-conducting material is located, substantially as described.

3. A storage battery having one of its elements composed of a metal conductor, active material and fluid-conducting material dividing the active material into layers and serving to convey electrolyte between the layers of active material, said conductor being tubular and inclosing the active material, and the terminal passing centrally through the battery element, substantially as described.

4. A storage battery having one of its elements composed of a metal conductor, active material and fluid-conducting material dividing the active material into layers and serving to convey electrolyte between the layers of active material, said conductor being tubular and inclosing the active material, and the tubular terminal passing centrally through the battery element, substantially as described.

5. A storage battery having one of its elements composed of a metal conductor, active material and fluid-conducting material dividing the active material into layers and serving to convey electrolyte between the layers of active material, said conductor being tubular and inclosing the active material, and perforated ribs of metal inclosed by the tubular conductor, substantially as described.

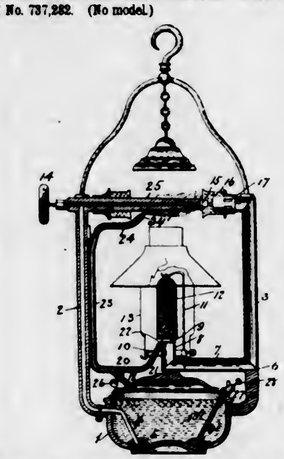
6. A storage battery having one of its elements composed of a tubular conductor, active material carried by the conductor, a terminal conductor helically arranged about the said tubular conductor, embedded within the active material and engaging the tubular conductor at different points in its length, substantially as described.

7. A storage battery having one of its elements composed of a tubular conductor, active material, and a terminal conductor helically arranged about the said tubular conductor and engaging the tubular conductor at different points in its length, substantially as described.

8. A storage battery having one of its elements composed of a perforated tubular conductor, active material, and a terminal conductor helically arranged about the said perforated tubular conductor and engaging the perforated tubular conductor at different points in its length, substantially as described.

9. A storage battery having one of its elements composed of a perforated tubular conductor, active material, and a terminal conductor helically arranged about the said perforated tubular conductor and engaging the perforated tubular conductor at different points in its length, and an additional perforated cylindrical conductor inclosing the aforesaid tubular conductor and the terminal conductor, the active material being confined between the said conductors, substantially as described.

678,513. **GAS-LAMP.** ALCORN RECTOR, Hot Springs, Ark., assignor to William Somerville, St. Louis, Mo. Filed Nov. 17, 1899. Serial No. 737,282. (No model.)



Claim.—1. In an incandescent vapor-burning lamp, having a reservoir, a vaporizer, and a mixing-tube, the combination of a branched pipe

extending from the upper part of the reservoir above the surface of the hydrocarbon therein, one branch terminating adjacent the vaporizer, the other branch terminating under the mantle, substantially as shown and described and for the purpose set forth.

2. An incandescent vapor-burning lamp, consisting of a reservoir, having a supporting-pipe 2, and a supporting-arm 6; a supply-pipe 4 within the supporting-pipe; a vaporizer 25; a mixing-tube 3, supported on said supporting-arm 6; a burner 9, on the end of said mixing-tube 3, and a branched pipe 20, extending from the upper part of the reservoir, above the surface of the hydrocarbon therein, one branch terminating adjacent the vaporizer, the other terminating under the mantle, substantially as shown and described and for the purposes set forth.

3. An incandescent vapor-burning lamp, consisting of a reservoir 1, having a supporting-pipe 2, extending upwardly from one end of the reservoir; a supporting-arm 6, extending upwardly from the other end of the reservoir; a supply-pipe 4, within the supporting-pipe, and passing to the bottom of the reservoir; a vaporizer 25, connected with the upper end of the supporting-pipe 2; a supporting-arm 6, extending upwardly, a short distance from the other end of the reservoir; a mixing-tube 3, resting on said supporting-arm; a burner 9, on the lower end of said mixing-tube; an air-regulator 17, on the upper end of said mixing-tube; a branch pipe 20, extending from the upper part of the reservoir, above the surface of the hydrocarbon therein, one branch terminating adjacent to the vaporizer, the other terminating under the mantle; a filler-plug 27, in the top of the reservoir; an air-valve 28, in said plug; a pipe 18' connected with said air-valve, and passing down in and to the bottom of the reservoir; and a wire net 9', surrounding the lower end of the last-mentioned pipe, substantially as shown and described and for the purposes set forth.

678,514. VEGETABLE, FRUIT, OR OTHER SLICE AND METHOD OF MAKING SAME. EUGENE S. REGNIER, Galesburg, Ill., assignor of one-half to Louisa M. Richards, same place. Filed Oct. 11, 1900. Serial No. 32,714. (No model.)



Claim.—1. The method of making perforated vegetable or other slices which consists in cutting in the opposite sides of the slice intersecting corrugations, the corrugations in one side being disposed at an angle to the corrugations in the other, substantially as described.

2. The method of making perforated vegetable or other slices which consists in successively subjecting the vegetable to the action of a corrugated cutter and partially rotating the vegetable about an axis perpendicular to the general plane of said cutter after each cutting operation, whereby successive slices are produced, said slices having in their opposite sides intersecting corrugations disposed at an angle to each other, substantially as described.

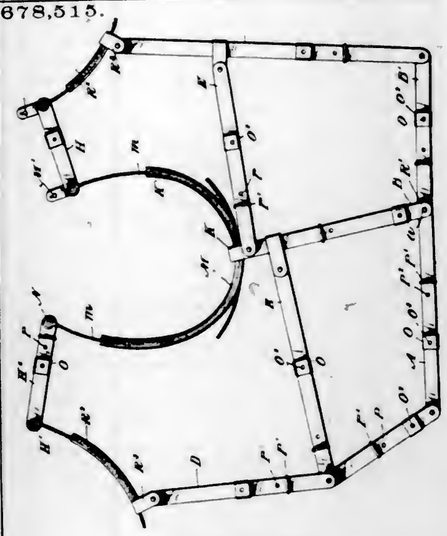
3. The method of making corrugated vegetable or other slices which consists in first subjecting the vegetable to the action of a corrugated cutter, whereby the face of the vegetable is corrugated, then partially rotating the vegetable about an axis perpendicular to the general plane of its corrugated face and then again subjecting the vegetable to the action of the cutter and thereby producing a slice having in its opposite sides intersecting corrugations resulting in perforations, substantially as described.

4. As a new product, a vegetable or fruit slice having corrugations or flutes in the opposite faces thereof extending at an angle to each other, said corrugations intersecting each other, so as to form perforations in the slices, substantially as described.

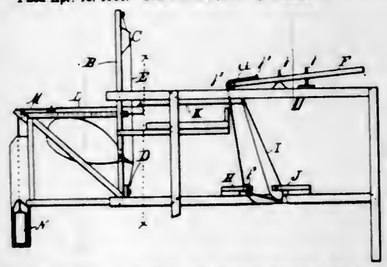
678,515. GARMENT-FITTER. DORA REICHER, Salt Lake City, Utah, assignor of one-fourth to Abbie H. Cowley, same place. Filed Mar. 14, 1900. Serial No. 8,657. (No model.)

Claim.—A dress-fitter, consisting of the adjustable waist, bust and back straps pivoted together as described, the adjustable under-arm straps and adjustable connections between the latter and said bust and back straps, the loops having pivotal connection with the upper ends of the bust and back straps, combined with the curved open-ended tubes mounted in said loops, the adjustable shoulder-straps, the curved neck and arm rods, and coiled wire about said rods, the latter having pivotal connection with the outer ends of said shoulder-straps, and passing through said tubes, the lugs at the outer ends of one pair of shoulder-straps and the eyes formed in the projecting flat ends of the rods at the ends of the other pair of shoulder-straps, whereby as said eyes are brought into engagement with the lugs, the two curved neck-rods are brought together, forming substantially a semicircle, as set forth.

678,515.

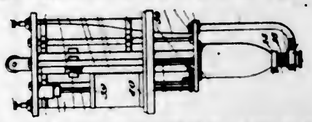


678,516. PIANO-VIOLIN. GEORGE RIDER, Rensselaer, N. Y. Filed Apr. 13, 1901. Serial No. 55,731. (No model.)



Claim.—In a piano-violin, the combination with the key-lever, of the cord G working on pulleys f^4 f^5, the lever I, the cord K, weighted cord M, the bow L and the wire string or strings arranged vertically at right angles to the bow, all substantially as shown and described, for the purpose set forth.

678,517. ELECTRIC-ARC LAMP. WILLIAM P. RITTER, Cincinnati, Ohio. Filed Mar. 21, 1901. Serial No. 52,181. (No model.)



Claim.—1. In a lamp, the combination of a frame having guides, a part adapted to carry an electrode and held for movement between the guides and a brush having its central portion secured to said part and having its arms extended at angles and arranged for sliding contact upon opposite sides of one of said guides to insure electrical connection of said electrode, substantially as set forth.

2. In a lamp, the combination of upper and lower frame-plates, tubes held in the upper frame-plate and having their lower ends rested on the lower frame-plate, plugs in the lower ends of the tubes, crimps in the tubes and holding said plugs in place, screws passed through the lower frame-plate and engaged with said plugs, the tubes being parallel and forming guides and a part adapted to carry an electrode and held for movement between said guides, substantially as set forth.

3. In a lamp, the combination of a frame having guides, a slide having arms grooved for engagement with the guides, brushes carried by the slide for engagement with the guides, a clip adapted to carry an electrode, and a screw passed centrally through the clip and having threaded engagement with the slide to hold the clip for pivotal movement on the slide, substantially as set forth.

4. In a lamp, the combination of a frame formed of three frame-plates, a dash-pot held on the upper frame-plate, the central frame-plate being formed with an opening, means for supporting an electrode, a solenoid comprising a coil wound on a tube, said tube having threaded engagement in the opening of the central frame-plate, a hollow core in said tube, a stem passed through the hollow of the core and having adjustable engagement therewith, the upper part of the stem having a piston working in said dash-pot and the lower end of the stem depending below the central frame-plate and a clutch member actuated from said stem and arranged for engagement with the electrode, substantially as set forth.

5. In a lamp, the combination of a frame, a solenoid, an annular clutch member loosely mounted and arranged to receive an electrode passed through its central opening, a stem actuated from the solenoid, a part having threaded connection with said stem and having engagement under one side of the clutch member for tilting the same and means for guiding the said part when moved, substantially as set forth.

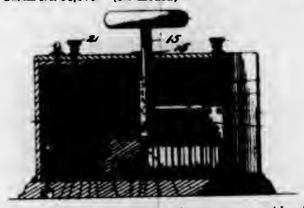
6. In a lamp, the combination of a frame, a solenoid, an annular clutch member loosely mounted and arranged to receive an electrode passed through its central opening, a stem actuated from the solenoid and having a threaded lower end, a pin on the frame, and a disk-like part guided at its central portion on said pin and having at one side engagement with the threaded lower end of the stem, its other side having engagement under the clutch member for tilting the same, substantially as set forth.

7. In a lamp, the combination of a frame, an arm extended down from the frame, a sleeve carried by the arm and adapted to receive an electrode and also adapted for endwise movement, means for holding the electrode adjustably in said sleeve and a spring arranged for engagement with said sleeve for pressing the same elastically upward, substantially as set forth.

8. In a lamp, the combination of a frame, an arm extended down from the frame, a sleeve carried by the frame for endwise movement, and formed with an annular flange at its upper part, the sleeve being adapted to receive an electrode, means for holding the electrode adjustably in said sleeve, a washer loose on the sleeve and rested on the arm, and a spring coiled on the sleeve between said washer and the upper flange of the sleeve and arranged for pressing the sleeve elastically upward, substantially as set forth.

9. In a lamp, the combination of frame-plates spaced apart, rods having reduced and screw-threaded end portions passed through one of the plates and screwed into another of said plates, and nuts held on the threaded reduced ends of the rods for engagement under the first-named plate, substantially as set forth.

678,518. VARIABLE-PRESSURE ELECTRIC-CURRENT TRANSFORMER. CONRAD J. RITZER, Schenectady, N. Y. Filed Mar. 11, 1901. Serial No. 50,670. (No model.)



Claim.—In an electric-current transformer, the combination of an annular laminated core, a spiral primary winding insulated from the core, an outer secondary winding consisting of an exposed continuous spirally-wound strip of conducting material insulated from said primary winding and having the outer faces of its spiral coils or convolutions forming spaced contact-se faces, a wedge-shaped ventilated block fitting within the opening of the core, primary and secondary terminals and connections, a primary switch for controlling the supply of the current, an insulated bushing fitted in the block and having the primary connection connected thereto, a shaft having a socket, and a stem projecting through said bushing and rotatably mounted therein, a handle having a stem detachably fitted in said socket, a bracket-arm connected to the shaft and extending laterally therefrom, and a contact carried by said arm and adapted to be moved over the said contact-faces of the secondary winding, substantially as described.

678,519. GARDEN TOOL. GRANT W. ROBINSON, Lodi, Wis. Filed Mar. 19 1901. Serial No 51,963. (No model.)

Claim.—1. A garden implement comprising a socket-piece having a stem, plates fixed to the stem and projecting one beyond the other, tooth-bars pivoted to the ends of the plates, teeth passed upwardly through the rear bar at each side of the stem and having their upper ends bent forwardly and then upwardly and pivotally engaged with the forward bar at the same side of the stem, and having their lower ends curved forwardly, and means for holding the bars at different angles to the stem.

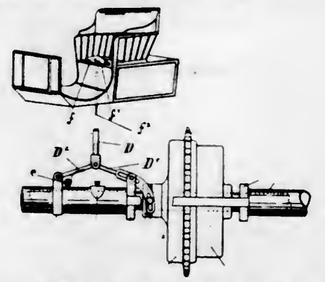


2. A garden implement comprising a stem, tooth-bars pivotally connected with the stem and projecting at opposite sides thereof, the bars at each side of the stem being adapted to lie parallel, teeth pivotally connected with the rear bars at the opposite sides of the stem and having extensions pivotally connected with the corresponding forward bars to hold the bars at each side parallel, and means for holding each pair of bars at different angles to the stem.

3. A garden implement comprising a stem having plates attached thereto transversely thereof, a pair of tooth-bars pivoted to the ends of the plates at each side of the stem, teeth passed upwardly through the rear bar of each pair and having its upper portion bent forwardly and pivotally engaged with the forward bar of the same pair, the lower ends of the teeth being bent in parallel planes, a plate pivoted to a bar of each pair and slidably connected with the stem, and means for holding the plates against sliding movement to hold the bars against pivotal adjustment.

4. A device of the class described comprising a stem, a pair of tooth-bars pivoted at each side of the stem, teeth pivotally connected with one bar of each pair having extensions pivotally connected with the opposite bar of the same pair to hold the bars parallel, and means for holding each pair of bars at different angles to the stem.

678,520. AUTOMOBILE. LOUIS C. SAVALE, Paterson, N. J. Filed May 29, 1901. Serial No. 62,328. (No model.)

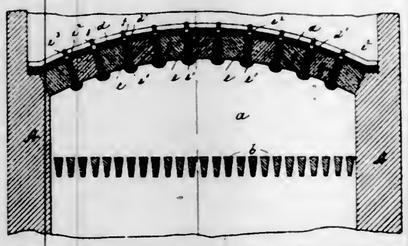


Claim.—1. The combination with the rear axle, of a compensating-gear covering, provided with jaw-clutches, a sprocket adapted to rotate, and movable horizontally on said rear axle, and provided with jaws adapted to engage said jaw-clutches, substantially as set forth.

2. The combination with the rear axle, of a compensating-gear covering, provided with jaw-clutches, a sprocket adapted to rotate, and movable horizontally on said rear axle, and provided with jaws adapted to engage said jaw-clutches, an annular recess in the hub of said sprocket, a ring mounted loosely in said recess, a lever having a bifurcated end provided with elongated openings, guide-pins passed through said openings and secured to said loose ring, another lever having one end pivotally secured to the auto-frame, the inner ends of both levers pivotally secured in the bifurcated lower end of a vertical rod, said vertical rod passing up to the seat of the vehicle, and a spring adapted to press the inner ends of said levers, and the rod, in which they are pivotally connected, upward to raise the lid in the seat of the vehicle, and withdraw the sprocket from engagement with said jaw-clutches, substantially as set forth.

3. In an automobile, the rear axle, and compensating gear-wheels, in combination with a sprocket-wheel rotatable on said axle, and constructed so as to grip or release the compensating gear mechanism, said sprocket being movable horizontally on said axle, means for rotating said sprocket, and means for moving the same horizontally on said axle, either into, or out of, engagement with said system of compensating gear-wheels, substantially as set forth.

678,521. ARCH FOR FIRE-CHAMBERS. FREDERICK W. SCHMITZ, New York, N. Y. Filed Apr. 15, 1901. Serial No. 55,855. (No model.)



Claim.—1. An arch for fire-chambers composed of a curved perforated plate, a series of beams having pins that project through said plate, means for removably securing said pins to the plates, and blocks fitted between the beams, substantially as specified.

2. An arch for fire-chambers composed of a curved and grooved plate, T-beams fitted within the grooves, means for removably fastening the beams to the plate, and blocks fitted between the beams, substantially as specified.

3. An arch for fire-chambers composed of a curved and grooved plate perforated above each groove, beams adapted to engage the grooves and having projections that pass through the perforations in the plate, fasteners engaging the projections, and blocks fitted between the beams, substantially as specified.

678,522. ELECTRICALLY-HEATED COOKING UTENSIL. MICHAEL SHIPS, Meriden, Conn., assignor to Manning, Bowman & Company, of Connecticut. Filed Dec. 3, 1900. Serial No. 39,137. (No model.)



Claim.—1. An electrically-heated cooking utensil comprising a receptacle portion having an annular depending flange, a heater portion comprising a top plate and means to heat the same, a supporting-frame therefor, and an annular jacket carried by said frame and projecting upwardly and around said flange.

2. An electrically-heated cooking utensil comprising a receptacle portion having an annular depending flange, a heater portion comprising a top plate and means to heat the same, a supporting-frame therefor, and an annular jacket carried by said frame and projecting upwardly and around said flange, said heater and flange being provided with means for detachably securing the receptacle portion to the heater portion.

678,523. GARMENT-SUPPORTER. JOHN H. SIMPSON, Providence, R. I., assignor to Thomas E. Bennett, William S. Bennett, and Arthur B. Bennett, same place, (copartners trading as T. E. Bennett & Company.) Filed May 1, 1901. Serial No. 58,379. (No model.)

Claim.—1. The improved garment-supporter herein described, consisting of a plate having a tubular transverse bend, a rearwardly-extending portion, projecting from said plate and provided with a slot on the lower edge thereof, and a belt-hook projecting from said plate on the front thereof and parallel therewith, in combination with a safety-pin loosely mounted in said tubular transverse bend, substantially as shown.



2. The improved garment-supporter herein described, consisting of a plate having a rearwardly-extending portion projecting therefrom and provided with a slot on the lower edge thereof, a belt-hook projecting from said plate on the front thereof and parallel therewith and means adapted to fasten said plate to a garment, substantially as specified.

3. The improved garment-supporter herein described, consisting of a plate having the tubular transverse bend a', the rearwardly-extending convex portion b provided with the opening e and the annular flange f, arranged to leave the semicircular aperture b', the U-shaped strip g', belt-hook c and the safety-pin loosely mounted in said tubular bend a', substantially as set forth.

4. In a garment-supporter adapted to fasten together a dress skirt, waist and belt, the combination of a plate having a rearwardly-extending convex portion provided with an opening on its lower edge, an annular flange all in one piece and a belt-hook in a separate piece, means to fasten it to said annular flange, together with devices adapted to secure said supporter to the waist and skirt, substantially as shown.

5. In a garment-supporter adapted to fasten together a dress skirt, waist and belt, the combination of a plate having a rearwardly-extending convex portion provided with means to attach it to the waist, a belt-hook detachably connected with said plate, together with fastening means to attach said plate to the skirt, substantially as specified.

678,524. BEARING-SPINDLE FOR VEHICLE-AXLES. JOHN A. SMITH, Kingston, Ark., assignor of one-fourth to Joel H. Bunch, same place. Filed Jan. 3, 1901. Serial No. 42,013. (No model.)



Claim.—1. A bearing-spindle, having one or more rotatably-adjustable bearing rings or bands, each ring having a plurality of openings, and a detachable fastening carried by the spindle and arranged for adjustable engagements with corresponding openings in the ring.

2. A bearing-spindle, having one or more rotatably-adjustable bearing rings or bands, each ring having a plurality of edge notches, and a detachable fastening carried by the spindle, and having a laterally-extending head adjustably received within the notches, one end of the head being projected laterally outward beyond the adjacent notched edge of the ring.

3. The combination with an outwardly-tapered bearing-spindle, of a rotatably-adjustable bearing ring or band having an outer notched edge, and a detachable fastening carried by the spindle and arranged for adjustable engagement with the notches in the outer edge of the ring or band.

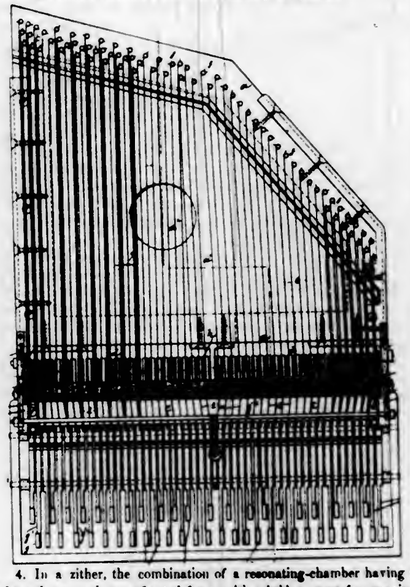
4. As a new article of manufacture, a bearing ring or band, having its inner margin constructed to snugly embrace a bearing-spindle and for rotatable adjustment thereon, the outer margin being constructed to form a bearing-surface for a rotatable hub, and one marginal edge of the ring or band having notches formed therein and constructed for the detachable reception of a spindle-engaging fastening.

678,525. ZITHER. HENRY STREINBOCK, New York, N. Y. Filed Apr. 25, 1901. Serial No. 57,361. (No model.)

Claim.—1. In a zither, the combination of a resonating-chamber with a bridge placed at a distance therefrom, strings spanning the opening between bridge and resonating-chamber, and hammers adapted to oscillate within said opening and to engage the lower sides of the strings, substantially as specified.

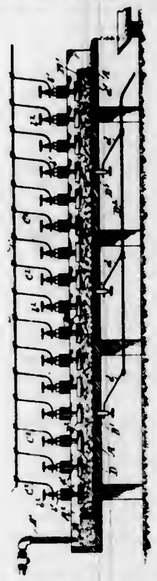
2. In a zither, the combination of a resonating-chamber with a bridge, arms for securing the bridge to the resonating-chamber at a distance therefrom, strings spanning the opening between the bridge and resonating-chamber, and hammers extending beneath the bridge and adapted to oscillate within said opening, substantially as specified.

3. In a zither, the combination of a resonating-chamber with a bridge, arms for securing the bridge to the resonating-chamber at a distance therefrom, strings spanning the opening between the bridge and resonating-chamber, key-levers having cam-shaped ends, and hammers having cam-shaped ends and adapted to oscillate within the opening between the resonating-chamber and the bridge, substantially as specified.



4. In a zither, the combination of a resonating-chamber having a perforated top and a perforated front, with a bridge, arms for securing the bridge to the resonating-chamber at a distance therefrom, strings spanning the opening between the bridge and resonating-chamber, and with hammers and a damper that are adapted to oscillate within said opening and to engage the lower sides of the strings, substantially as specified.

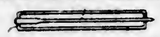
678,526. APPARATUS FOR THE RECOVERY OF GOLD FROM CYANID SOLUTIONS. CHARLES P. STEWART, Oakland, Cal. Filed Oct. 15, 1900. Serial No. 33,089. (No model.)



Claim.—1. An apparatus for recovering precious metals from flowing cyanid solutions, comprising in combination a relatively long substantially horizontal trough, means for supplying the solution at one end thereof, a partition near the receiving end of the trough for distributing the solution, a retaining-partition at the discharge end of the trough adapted to retain the solution in the trough to the desired height, a body of quicksilver in the bottom of the trough between said partitions, a series of anodes supported above said body of quicksilver, in the path of the flowing solution, and suitable electric connections with said anodes and said quicksilver substantially as described.

2. An apparatus for recovering precious metals from flowing cyanid solutions, comprising in combination a relatively long substantially horizontal trough, means for supplying the solution at one end thereof, a partition near the receiving end of the trough for distributing the solution, a retaining-partition at the discharge end of the trough adapted to retain the solution in the trough to the desired height, a body of quicksilver in the bottom of the trough between said partitions, a series of transverse anode-supports extending substantially from partition to partition, a series of anodes adjustably mounted in said supports and extending down into the path of the flowing solution, and suitable electric connections, substantially as described.

678,527. HAIR-FASTENER. ANDREAS STOCKINGER, Vienna, Austria-Hungary. Filed Jan. 12, 1901. Serial No. 42,952. (No model.)



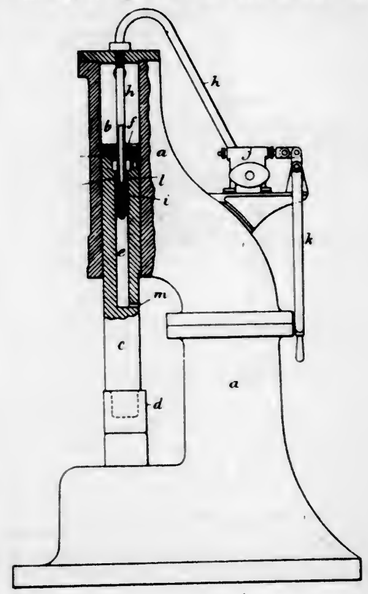
Claim.—1. A hair-fastener consisting of an elongated loop-shaped frame and a prong or needle having a sliding connection with one end and adapted to overlap the other end of said frame, substantially as described.

2. A hair-fastener comprising an oblong curved frame and a correspondingly-curved prong, the one end of which is provided with an oblong eye, said eye being adapted to receive the one end of the said frame, the parts being arranged and working substantially as and for the purpose set forth.

3. In a hair-fastener the combination of an oblong curved frame, a curved prong having at one end an oblong eye and pivoting about the one end of the said frame, and flanges upon the said frame end, one on either side of the said eyed-prong end, substantially as and for the purpose described.

4. In a hair-fastener the combination of an oblong curved frame, a curved prong having at one end an oblong eye consisting of a narrow passage and an enlargement at either end of this passage, said prong being adapted to pivot about the one end of the frame, substantially as set forth.

678,528. POWER-HAMMER. FREDERICK W. TANNETT-WALKER, Leeds, England. Filed Jan. 16, 1901. Serial No. 43,527. (No model.)



Claim.—1. The combination of a tup, a cylinder carried by the tup, a fixed piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the cylinder above the piston, and an air-cushion resisting the rise of the tup.

2. The combination of a tup, a cylinder carried by the tup, a fixed piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the cylinder above the piston, an air-cushion resisting the rise of the tup, and an air-compressor feeding the air-cushion.

3. The combination of a tup, a cylinder carried by the tup, a fixed piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the cylinder above the piston, a second cylinder carried by the tup, a fixed piston fitting this cylinder, and means for admitting air to this cylinder.

4. The combination of a tup, a cylinder carried by the tup, a fixed hollow piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the interior of the hollow piston-rod, and an air-cushion resisting the rise of the tup.

5. The combination of a tup, a cylinder carried by the tup, a fixed hollow piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the interior of the hollow piston-rod, a second cylinder carried by the tup, a fixed piston fitting this cylinder, and means for admitting air to this cylinder.

6. The combination of a tup, a cylinder carried by the tup, a fixed piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the cylinder above the piston, a second cylinder carried by the tup, a fixed hollow piston fitting this cylinder, and means for admitting air to the interior of this piston.

7. The combination of a tup, a cylinder carried by the tup, a fixed hollow piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the interior of the hollow piston-rod, a second cylinder carried by the tup, a fixed hollow piston fitting this cylinder, and means for admitting air to the interior of this piston.

8. In a hydraulic hammer, an air-cylinder carried by the tup, a fixed hollow piston fitting this cylinder, a valve at the bottom of the hollow piston, and means for admitting air to the interior of the hollow piston.

9. In a hydraulic hammer, an air-cylinder carried by the tup, a fixed piston fitting this cylinder, means for admitting air to the cylinder, and an elastic buffer at the bottom of the cylinder.

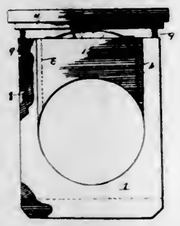
10. In a hydraulic hammer, an air-cylinder carried by the tup, a fixed piston fitting the cylinder, and an air vessel in communication with the cylinder.

11. In a hydraulic hammer, an air-cylinder carried by the tup, a fixed piston fitting the cylinder, and an air-compressor in communication with the cylinder.

12. In a hydraulic hammer, an air-cylinder carried by the top, a fixed piston fitting the cylinder, an air vessel in communication with the cylinder, and an air-compressor in communication with the cylinder.

13. The combination of a hammer, a cylinder carried by the hammer, a fixed piston-rod, a piston on the rod and working in the cylinder, means for admitting fluid into the cylinder above the piston, an air-inlet at the top of the cylinder, and a non-return valve admitting air to the cylinder, but preventing its exhaust therefrom during the upward movement of the cylinder.

678,529. DUST-GUARD. JAMES TIMES, Columbus, Ohio. Filed Dec. 29, 1900. Serial No. 41,530. (No model.)



Claim.—1. A dust-guard comprising a bar, a tongue thereon to enter and entirely close the dust-guard pocket in a journal-box, a lower member, springs connected to the inner face of said bar and to the lower member for drawing the latter upward, an upper member and a spring between the under face of the bar and upper member for pressing the latter downward.

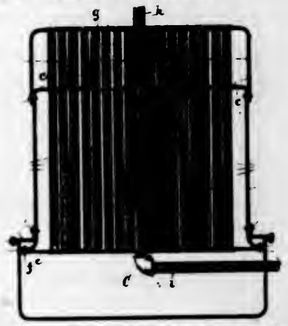
2. A dust-guard comprising a bar, a tongue thereon to enter and entirely close the dust-guard pocket in a journal-box, a lower member having upright parallel arms, an upper member mounted between the arms and having sliding connection therewith, springs connected to the arms of the lower member and to the under face of the bar and a spring disposed between the upper member and the under face of the bar.

3. The combination with an axle, and a journal-box having a pocket therein, of a dust-guard adapted to be inserted into said pocket, said dust-guard comprising a bar to enter and close the open upper end of the pocket, a lower member, springs within the pocket connected to said lower member and to the bar, an upper member and a spring located within the pocket and disposed between said upper member and the bar.

4. In a dust-guard, the combination with a journal-box and an axle, of a lower member adapted to be disposed against the lower face of the axle, upright parallel arms on said lower member, an upper member mounted between said arms and having sliding connection therewith, a horizontal bar spaced from the upper ends of the arms and adapted to close the dust-guard opening in the box, springs connected to the arms and to the under face of the bar and holding the latter down on the box, and a spring in the pocket between the bar and upper member for pressing the latter down onto the axle.

5. The combination in a dust-guard, of two members, the upper member mounted to slide in the lower member, a bar spaced from the upper ends of the two members, the lower member having vertical grooves in its outer edges, springs disposed in said grooves and secured to the walls thereof, the upper ends of said springs connected with said bar, and a spring disposed between the upper member and said bar.

678,530. STEAM-BOILER. JOHN J. TOWKIN, Oswego, N. Y. Filed Nov. 12, 1900. Serial No. 36,172. (No model.)



Claim.—1. A steam-boiler composed of upright shells superposed one upon the other and united by telescopic joint, the bottom and top of the boiler consisting of flue-sheets, a coinciding flue-sheet extending across the interior of the boiler at the water-level thereof and provided with steam-passages, and flues extending through said three flue-sheets and fastened to the bottom and top flue-sheets as set forth.

2. A steam-boiler composed of an upright water-chamber having its top and bottom plates perforated, said top plate being provided with steam-passages, a steam-chamber joined telescopic to the exterior of the upper portion of the water-chamber and having its top plate perforated, and flues extending through the perforations of said three plates as set forth.

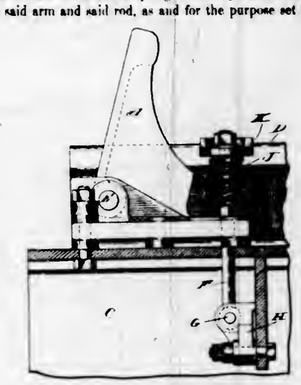
3. A steam-boiler composed of upright shells superposed one upon the other and joined telescopic, a flue-sheet extending across the bottom of the lower shell, a coinciding flue-sheet extending across the top of the upper shell, and a similar flue-sheet extending across the two shells at the junction thereof, and provided with steam-passages, and flues extending through said three flue-sheets as set forth.

4. A steam-boiler composed of upright shells superposed one upon the other, the lower shell extending near the water-line of the boiler and flanged at its base and formed at its top with a flue-sheet provided with steam-passages, a flue-sheet fastened to the flanged base of said shell, the upper shell joined telescopic to the lower shell and formed with a flue-sheet at its top, and flues extending through said three flue-sheets as set forth and shown.

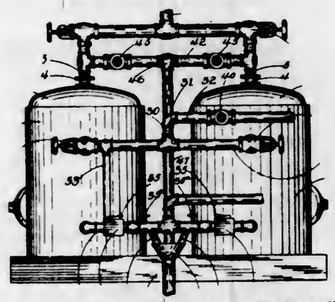
678,531. SPRING CHOCK OR BUFFER. OTTO ALBERT, Muskegon, Mich., assignor to Shaw Electric Crane Company, same place. Filed Mar. 6, 1901. Serial No. 50,074. (No model.)

Claim.—1. In a spring stop or buffer, a block or casting in the form of a bell-crank lever pivotally mounted at the angle thereof, one of the arms of said lever being arranged to project into the path of the moving part to be arrested to form a stop therefor, a rod arranged to engage the other arm of said lever, and a spring carried by said rod for yieldingly opposing the rocking movement of said lever in one direction, as and for the purpose set forth.

2. The combination of a supporting girder or beam, a track-rail mounted thereon, a block or casting in the form of a bell-crank lever pivotally mounted at the angle thereof adjacent to the end of said rail, one arm of said lever arranged to project into the path of the moving part to be arrested to form a stop therefor, a rod arranged to engage the other arm of said lever, and a spring carried by said rod and interposed between said arm and said rod, as and for the purpose set forth.



678,532. FILTER. FRANK E. BACHMAN, Buffalo, N. Y. Filed Oct. 31, 1900. Serial No. 34,985. (No model.)



Claim.—1. A filtering-tank having a granular filtering medium and an inlet and outlet, concentric circular perforated clean-out pipes arranged in the granular filtering medium and near the top surface thereof, and a perforated filter-plate between the clean-out pipes and the outlet having a plurality of detachable strainer-plates.

2. A filtering-tank having a granular filtering medium and an inlet and outlet, concentric circular perforated clean-out pipes arranged in the granular filtering medium and near the top thereof, a filter-plate between the clean-out pipes and the outlet having a plurality of elongated slots and a plurality of strainer-plates corresponding in number to the slots and each arranged upon one of said slots and each having a series of narrow openings extending transversely to the slot, as set forth.

3. A filtering-tank having a granular filtering medium and an inlet and outlet, concentric circular perforated clean-out pipes arranged in the granular filtering medium and near the top thereof, a filter-plate between the clean-out pipes and the outlet having a plurality of elongated slots and a plurality of strainer-plates corresponding in number to the slots, and each detachably arranged upon one of said slots, and each having a series of narrow parallel openings extending transversely to the slot, said slots widening from the top downward, as set forth.

4. In combination, two filters, an inlet-pipe connected to the top of each filter and having connection with a source of water-supply, an upper valved connection between said inlets, a waste-outlet, a pipe leading from the valve connection to said waste-outlet, an intermediate pipe having its ends extending through the sides of the filters, concentric circular clean-out pipes within the filters connected to the intermediate pipe, an outlet-pipe connected to the lower portion of each filter, a lower valved connection between the outer ends of said outlets, two horizontal pipes each extending from a point between the ends of one of the outlets and having their inner ends emptying into the waste-outlet and short pipes connecting said horizontal pipes to the lower valved connection, as set forth.

5. A filter-tank having a filter-plate provided with slots and a series of strainer-plates having a plurality of narrow openings and each strainer-plate arranged above one of the slots in the filter-plate with its openings crossing said slot.

6. In an apparatus for purifying water, a filter-tank having a filter-plate provided with slots and a series of strainer-plates having a plurality of narrow parallel openings and each strainer-plate arranged above one of the slots in the filter-plate with its openings extending transversely to the slot.

7. A filter having two concentric perforated cleaning-pipes, a straight perforated pipe extending across the inner concentric pipe and a straight perforated pipe crossing both of the concentric circular pipes and the first-mentioned straight pipe.

8. A filter having a cleaning device composed of two circular concentrically-arranged pipes provided with perforations, and straight perforated cross-pipes connecting said circular pipes and arranged at angles to each other.

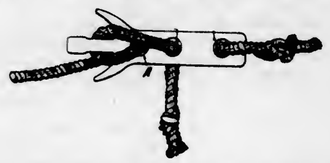
9. In combination, two filters, an inlet-pipe connected to each filter and having connection to a source of water-supply, an upper valved connection between said inlets, a waste-outlet, a pipe leading from the upper valved connection to said waste-outlet, an intermediate pipe having its ends extending through the sides of the filters, concentric circular clean-out pipes within the filters connected to the intermediate pipe, an outlet-pipe connected to the lower portion of each filter, a lower connection between the outer ends of said outlets, check-valves in said connection operated automatically by back pressure of water, two horizontal pipes each extending from a point between the ends of one of the outlets and having their inner ends emptying into the waste-outlets and short pipes connecting said horizontal pipes to the lower connection, as set forth.

10. In combination, two filters, an inlet-pipe connected to each filter and having connection with a source of water-supply, pipes connecting said filters, and a check-valve in one of said pipes operated automatically by water-pressure to prevent dangerous pressure in the filters, substantially as set forth.

11. In combination, two filters, an inlet-pipe connected to each filter and having connection with a source of water-supply, a plurality of pipes connecting said filters, shut-off cocks in said pipes, and check-valves in one of said pipes closed automatically by exterior pressure and opened automatically by interior pressure of water, substantially as set forth.

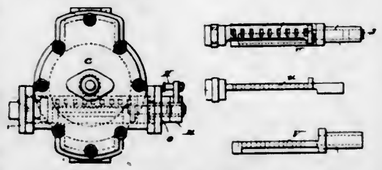
12. A filter-tank having a perforated filter-plate and a series of strainer-plates having a plurality of narrow openings; each strainer-plate being arranged above one of the perforations in the filter-plate with its narrow openings crossing said perforations.

678,533. ROPE-FASTENER. SAMUEL S. BANCKER, New York, N. Y. Filed Apr. 30, 1901. Serial No. 58,203. (No model.)



Claim.—An improved rope-fastener consisting of a single piece containing three holes for the passage of a rope, a pin around which to fasten such rope and the horns or shoulders to keep the rope in position around the pin.

678,534. VALVE FOR FLUID COMPRESSORS AND ENGINES. CHARLES A. BENNETT, Dover, N. J. Filed July 15, 1898. Serial No. 686,076. (No model.)



Claim.—1. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve constructed and arranged to serve the purposes of admission and discharge for said port; an actuating-piston connected to said valve; and means for moving said valve mechanically for one of said purposes and by fluid-pressure for the other purpose.

2. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve constructed and arranged to serve the purposes of admission and discharge for said port; an actuating-piston connected to said valve; means for mechanically operating said valve for one of said purposes; and means for operating said valve-piston by fluid-pressure for the other purpose.

3. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve constructed and arranged to serve the purposes of admission and discharge for said port; an actuating-piston connected to said valve; means for mechanically operating said valve for one of said purposes; and a pipe or conduit leading from said cylinder to the valve-chamber for operating the valve-piston by fluid-pressure for the other purpose.

4. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve constructed and arranged to serve the purposes of admission and discharge for said port, and adapted to be both oscillated and reciprocated; means for operating said valve mechanically for one of said purposes; and means for operating said valve by fluid-pressure for the other purpose.

5. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve constructed and arranged to serve the purposes of admission and discharge for said port or passage; an actuating-piston connected to said valve; means for oscillating said valve for one of said purposes; and means for operating said valve-piston by fluid-pressure for the other purpose.

6. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve composed of two parts each provided with ports for regulating both admission and discharge through said cylinder-port; means for mechanically operating said valve; and means for operating one part of said valve by fluid-pressure.

7. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve composed of two parts, for regulating both admission and discharge through said port; means for mechanically operating said valve; an actuating-piston connected to one part; and means for operating said actuating-piston by fluid-pressure.

8. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve composed of two parts, for regulating both admission and discharge through said port; means for mechanically operating said valve; an actuating-piston connected to one part of the valve; and a pipe or conduit leading from said cylinder to the valve-chamber for operating said actuating-piston by fluid-pressure.

9. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve composed of two parts, each provided with ports for regulating both admission and discharge through said cylinder-port; means for oscillating said valve; and means for operating one of the parts of said valve by fluid-pressure.

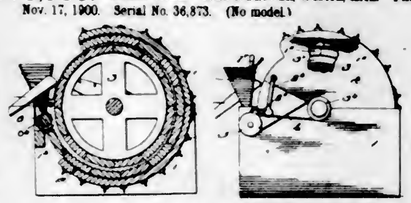
10. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid; a piston operating in said cylinder; a valve composed of two parts for regulating both admission and discharge through said port; means for oscillating said valve; an actuating-piston connected to one of the parts of the valve; and means for operating said actuating-piston by fluid-pressure.

678,535. HOE. AUSTEN BIGG, Toowoomba, Queensland. Filed Feb. 2, 1901. Serial No. 45,742. (No model.)



Claim.—An improved hoe consisting of a concave steel plate having a straight cutting edge on one side and a partly-straight and partly-curved cutting edge on the opposite side, a bent handle-socket secured to the plate at one end and so bent that the handle attached thereto is at right angles to the cutting edges of the hoe.

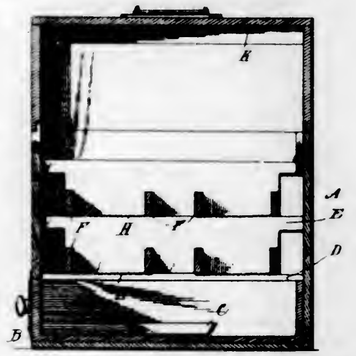
678,536. GRAIN-MILL. JOHN J. BROWER, Weston, Mich. Filed Nov. 17, 1900. Serial No. 36,873. (No model.)



Claim.—1. In a machine of the character described, the combination of a grinding-cylinder, a bottom grinding-concave, a feed-roll, a feed-chute, and a discharge-chute, said bottom concave extending from below said feed-roll, and around back over the top of said cylinder, and said discharge-chute having its receiving edge the full width of said feed-roll but having an inclined side wall leaving space for said feed-chute, substantially as and for the purpose set forth.

2. In a machine of the character described, the combination of a grinding-cylinder, a feed-roll, a bottom grinding-concave extending from below said feed-roll and around back over the top of said cylinder, a feed-chute, a discharge-chute with its receiving edge the full width of said feed-roll but having an inclined side wall leaving space for the feed-chute, a device for controlling the grinding action of said bottom concave, and mechanism for regulating the feeding of the material to said bottom concave, substantially as set forth.

678,537. APPARATUS FOR PRESERVING FRUIT. JOHN D. BUTLER, Dunn, N. C., assignor of one-half to Ernest F. Young, same place. Filed Mar. 23, 1901. Serial No. 52,614. (No model.)



Claim.—An apparatus for preserving fruit, comprising a casing, a drawer mounted thereon, a fuming-tray carried in said drawer, cleats D secured to the opposite inner walls of said casing, a series of superimposed trays supported by said cleats, each tray having longitudinal sides with projecting handles E', the partitions F with spaces intervening between their upper margins and the upper edges of the longitudinal sides of the trays, an open space intervening between the inner of said partitions, and netting bottoms between each outer and inner partition, as set forth.

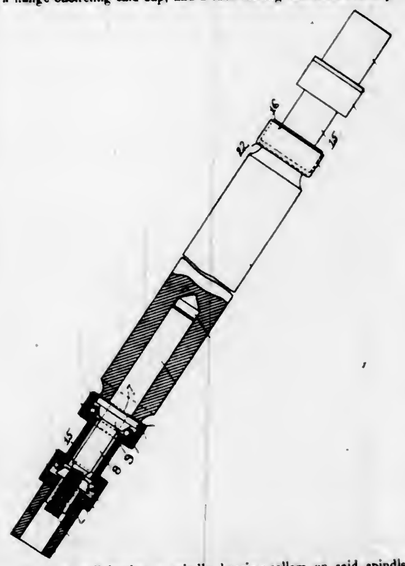
678,538. TOP ROLL. LEON W. CAMPBELL, Woonsocket, R. I., assignor of one-half to Malcolm Campbell, Boston, Mass. Filed Nov. 17, 1899. Serial No. 737,269. (No model.)

Claim.—1. A top roll having a spindle, bearing-collars on said spindle, a sleeve having cups at its ends, antifriction devices placed between said collars and said cups, and a dust-cap secured to rotate with the roll and closing the end of one of the cups and having a flange encircling said cup.

2. A top roll having a spindle projecting from the end thereof, bearing-collars on said spindle, a sleeve having ball-cups, balls between the collars and cups, and a dust-cap clamped between one of the collars and the end of the roll and rotating with said roll, said cap having a flange encircling the ball-cup adjacent the last-mentioned collar.

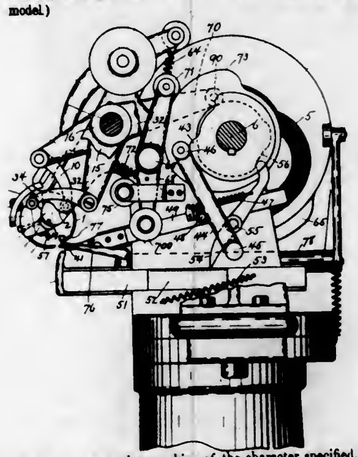
3. A top roll having a spindle, a bearing-collar threaded on said spindle, the collar having an elongated hub, a sleeve having a ball-cup adjacent said collar, and a tube having a threaded engagement with said cup, and closely encircling the said hub to exclude dust.

4. A top roll having a spindle, bearing-collars on said spindle, a sleeve having ball-cups, balls between said cups and said collars, a dust-cap secured to rotate with the roll and closing one of the cups and having a flange encircling said cup, and a tube closing the other ball-cup.



5. A top roll having a spindle, bearing-collars on said spindle, a sleeve having ball-cups, balls between said cups and said collars, a dust-cap secured to rotate with the roll and closing one of the cups and having a flange encircling said cup, a tube closing the other ball-cup, and provisions whereby the collars may be adjusted by an implement inserted through said tube.

678,539. AWL MECHANISM FOR SHOE-SEWING MACHINES. ROSWELL CARLETON, Boston, Mass., assignor to Charles F. Brown, trustee, Reading, Mass. Filed Mar. 5, 1901. Serial No. 49,919. (No model.)

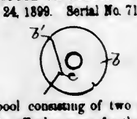


Claim.—1. A sewing-machine of the character specified, comprising a curved work-penetrating device, a carrier therefor on which the penetrating device has a loose wabbling movement, and means for preventing the wabbling movement of the penetrating device during the latter portion of its forward movement to guide the device in a predetermined path, the said device being free during the first or work-finding portion of its forward movement to move laterally in either direction from the said path.

2. A sewing-machine of the character specified, comprising a work-penetrating device, a carrier therefor having a pivoted section to which the said device is attached, said section having a projection at one side of its pivot, and a guide-arm having a slot which engages said projection and prevents the pivoted section from turning during a part of the forward movement of the penetrating device.

3. A sewing-machine of the character specified, comprising a work-penetrating device, a carrier therefor having a pivoted section to which the penetrating device is attached, said section having a projection at one side of its pivot, and a guide-arm having a slot which engages said projection and prevents the pivoted section from turning during a part of the forward movement of the penetrating device, said arm having yielding guides adapted to yieldingly guide the said projection while the penetrating device is free to wabble.

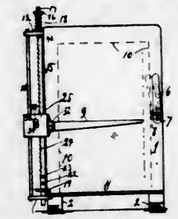
678,540. SPOOL OR BOBBIN. HENRY E. CHASE, Cambridge, Mass. Filed May 24, 1899. Serial No. 718,111. (No model.)



Claim.—1. A spool consisting of two disks outwardly bulged at their central portions to afford a space for thread or floss between them, and each having outwardly-curved peripheral edges, an eyelet uniting said disks, one of said disks having a thread-holding notch in the outwardly-curved edge and a thread-cutter.

2. A spool consisting of two disks, each disk having its central portion and peripheral edges bulged outwardly, means to unite the disks centrally thereof, one of said disks having a thread-cutting lip turned outwardly from its side and integral therewith, and a thread-holding notch in the outwardly-curved edge of said disk.

678,541. COPY-HOLDER. DANIEL S. COFFEY, St. Paul, Minn. Filed Jan. 14, 1901. Serial No. 43,296. (No model.)



Claim.—1. A copy-holder having a bed-plate with an angularly forwardly projecting flange at its lower end for supporting the copy, and at one of its side edges a pivoted flexible arm or keeper adapted to be swung sidewise upon the margin of the copy, and means for preventing it from swinging upon the writing, or the copy from moving with the writing in under the keeper.

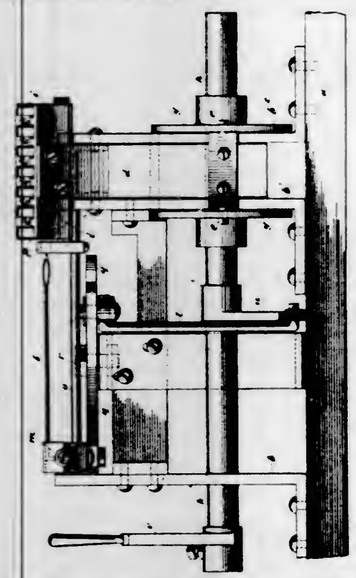
2. A copy-holder comprising in combination, a bed-plate and means for holding a copy thereon, a marker or line-indicator consisting of an up-and-down slidable bead or block and means for guiding and moving said block, a normally horizontal arm having one end provided with a cylindrical bead pivoted to and spring-pressed against the block, and flattened at the side facing the block when the arm rests upon the copy or is in its working position.

3. In a copy-holder, the combination with a suitable copy-support, a vertically-slidable friction-held line-indicator, and a spring-pressed pawl carried by the indicator, of a vertically-disposed, upwardly spring-held operating-rack having along one side notches adapted to engage the pawl and move the indicator downward step by step, and near its lower end, adjacent a portion of the framework serving as a key-stop, three holes or indentures, a key having a spring-catch securable to the operating-rack and adapted to be pressed downward against the adjacent part of the framework, a stop for the key projecting from the framework, said key being readily securable at any of the three holes or indentures by means of the spring-catch, said indentures or holes and the notches of the rack being so spaced that the moving of the key one step upward on the racks causes one more tooth or notch of the rack to move downward, and said downward motion of the rack, one notch being in distance equal to one line of single or close spacing of ordinary type-writing, or other writing produced upon similar spacing.

4. In a copy-holder, the combination with a copy-supporting body-plate, a guide-rod and an operating-rack extending parallel with one edge of the plate, a slidable block friction-held on the guide-rod, and having a slotted aperture and a spring-pressed pawl pivoted at its rear side and provided with an arm or finger-catch projecting forward through the ap-

erture, a line-indicator carried by said block; said rack having its teeth directed toward the end of the pawl to engage the same, and said pawl swinging in a plane coincident with the plane of the body-plate, so that the finger-catch or lifter of the pawl and the sliding block is within easy sight and reach of the operator, substantially as set forth.

678,542. **SEWING-MACHINE FOR GATHERING THE MOUTHS OF TUBULAR STRUCTURES.** SAMUEL COHN, New York, N. Y., assignor of one-half to August Caplan, same place. Filed June 8, 1900. Serial No. 19,548. (No model.)



Claim.—1. In a special sewing-machine the combination of a member *k* provided with teeth or corrugations on opposite sides thereof, movable carriers having teeth or corrugations adapted to mesh with the teeth or corrugations of the member *k*, means for simultaneously meshing the teeth or corrugations of any individual carrier with the member *k*, and needle mechanism for effecting the sewing.

2. In a special sewing-machine, the combination of slotted means for maintaining a fabric in a waved or undulated condition and a sewing-needle running in the slot having an eye whose walls are resilient and adapted to be bent by contact with the slot during the passage of the needle through the said slotted means in order to firmly grasp the thread by the walls of the needle-eye.

3. In a special sewing-machine, the combination of a toothed member having teeth on opposite sides thereof, a plurality of movable carriers each provided with a series of teeth adapted to coöperate with the toothed member on opposite sides thereof and to be moved simultaneously, means for moving the carriers and means for passing a needle into the work operated by the carrier-moving means.

4. In a machine for providing an open-mouth fabric structure with a shirring-string at a single operation, the combination of a toothed member *k* having corrugations or teeth on opposite sides thereof, a carrier one on each side thereof having a series of slotted teeth or corrugations coöperating with the teeth or corrugations of the toothed member and means for moving the said carriers, whereby the teeth of the carriers are simultaneously meshed with the teeth of the toothed member and a sewing means for passing a shirring-thread through the work.

5. In a special sewing-machine, the combination of a toothed member having teeth on opposite sides thereof, oppositely-placed toothed jaws, cam mechanism for simultaneously moving the oppositely-placed toothed jaws to mesh them with the toothed member, direct-acting lever mechanism and needle mechanism driven thereby, and a connection between the lever mechanism and the means for moving the jaws.

6. In a special sewing-machine, the combination of a toothed member having teeth on opposite sides thereof, pivoted toothed jaws adapted to mesh therewith, a slotted cam-plate for swinging the pivoted jaws, needle mechanism and means for directly driving the needle mechanism.

7. In a machine for inserting shirring-strings in tubular fabric structures, the combination of a toothed member *k* having corrugations or teeth on opposite sides thereof, a pair of pivoted jaws provided with teeth or corrugations adapted to engage with the teeth or corrugations of the toothed member, a needle mechanism and means whereby the teeth of the carriers are simultaneously meshed with the teeth of the toothed member, comprising a shaft provided with cam means for swinging the pivoted jaws and with means for operating the needle mechanism.

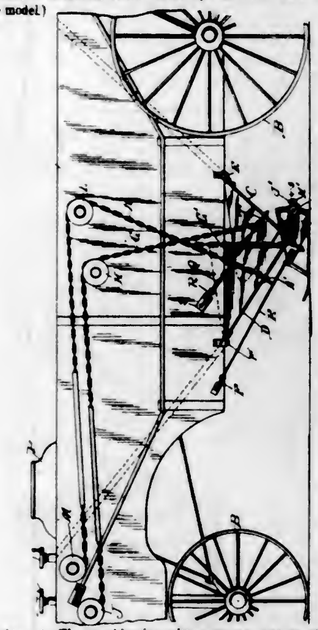
8. In a machine for inserting shirring-strings in tubular fabric structures, the combination of a toothed member *k* having corrugations or teeth on opposite sides thereof, a pair of pivoted jaws provided with teeth or corrugations adapted to engage with the teeth or corrugations of the toothed member, a needle mechanism and a shaft, a slotted cam-plate carried by the shaft for operating a jaw and a connection between the shaft and the needle mechanism.

9. In a sewing-machine, the combination of a toothed member *k* having teeth on opposite sides thereof, a pair of corrugated fabric gathering or crimping jaws with actuating means therefor whereby the fabric may be crimped or gathered at a single operation, needle mechanism, and means whereby the teeth of the carriers are simultaneously meshed with the teeth of the toothed member, comprising a rock-shaft serving as a common operating means for the jaws and the needle mechanism.

10. In a sewing-machine, the combination of a toothed member *k* having teeth or corrugations on opposite sides thereof, a pair of toothed or corrugated fabric gathering or crimping jaws with actuating means to simultaneously mesh the teeth or corrugations of an individual jaw with the toothed member whereby the fabric may be crimped or gathered at a single operation and a needle mechanism.

11. In a machine for gathering the open mouth of a tubular or like structure, the combination of a slotted folder *k*, a plurality of movable toothed or corrugated carriers meshing therewith on different sides thereof and means for simultaneously meshing the teeth of any individual carrier with the folder.

678,543. **COMBINED DUMPER AND SPREADER.** GEORGE P. CONNER, Port Huron, Mich. Filed Apr. 1, 1901. Serial No. 53,965. (No model.)



Claim.—1. The combination with a wagon, cart or other vehicle body, of a dumping-hopper comprising sections independently hinged or pivoted, and a spreader also supported by said body and arranged adjacent to the delivery-opening of said hopper for evenly distributing the material dumped by such hopper, as and for the purpose set forth.

2. In an apparatus of the class described, a wagon or cart bed or body, a dumper comprising sections or portions independently pivoted to such wagon-body, and means for independently raising and lowering said sections or portions to open or close the same and to regulate the opening therebetween, and a spreading device arranged adjacent to the delivery-opening of said dumper to receive the material therefrom, and operating to evenly spread and distribute the same, as and for the purpose set forth.

3. In an apparatus of the class described, a wagon-body, a dumping-hopper comprising movable sections and means for relatively moving said sections to open or close the space therebetween and for regulating such space, and a spreading device carried by the wagon-body and arranged adjacent to the delivery-opening of said hopper to receive the material dumped therefrom, and operating to evenly spread and distribute the same, as and for the purpose set forth.

4. In an apparatus of the class described, a wagon-body, a dumper comprising relatively moving sections and means for moving said sections to open or close the space therebetween, and a spreader supported by the wagon-body and operating over the surface of the ground adjacent to the opening between such sections, as and for the purpose set forth.

5. In an apparatus of the class described, a wagon-body, a dumping-hopper comprising sections or portions independently pivoted to such body, means for independently swinging such sections about their pivotal connections, and a spreader carried by the wagon-body and arranged adjacent to the delivery-opening of said hopper to receive the material delivered therefrom, and operating to evenly distribute and spread the same, all combined and arranged as and for the purpose set forth.

6. In an apparatus of the class described, a wagon-body, a dumper carried thereby, and a spreader connected to said wagon-body and operating over the surface of the ground at a point adjacent to the delivery-opening of said dumper, as and for the purpose set forth.

7. In an apparatus of the class described, a wagon-body, dumper-sections independently connected thereto, means for relatively moving said sections, a spreader arranged beneath the point of delivery of said dumper and including an inclined transversely-extending bar for evenly spreading and distributing the material discharged from said dumper, as and for the purpose set forth.

8. In an apparatus of the class described, a wagon-body, a dumper and means for controlling the discharge of material from said dumper, of a spreader suspended from the wagon-body adjacent to the discharge-opening of said dumper and including pivotally-mounted links and a transverse bar carried by said links, as and for the purpose set forth.

9. In an apparatus of the class described, a wagon-body, a dumper carried thereby, a spreader arranged beneath the point of delivery from said dumper and including side flanges and a connecting-bottom, said bottom being downwardly and rearwardly inclined with respect to the line of travel of the machine, rearwardly-extending links pivotally connected to said flanges, and a transverse bar supported by said links, as and for the purpose set forth.

10. In an apparatus of the class described, a wagon-body, a dumping-hopper carried thereby, a spreader arranged beneath the point of delivery from said hopper and including side flanges and a connecting base portion, a transverse spreader-bar and means for adjustably supporting said spreader-bar upon said flanges, as and for the purpose set forth.

11. In an apparatus of the class described, a wagon-body, a dumping-hopper carried thereby, a spreader arranged beneath said dumping-hopper at the point of delivery therefrom, a drag-bar connecting said spreader to said wagon-body, and a spreader-bar adjustably carried by said spreader, as and for the purpose set forth.

12. In an apparatus of the class described, a wagon-body, a dumping-hopper including a movable section or portion supported upon said wagon-body, means for raising and lowering said section or portion to close or open said hopper, a spreader operating beneath the point of delivery from said hopper, and connections between said spreader and said movable section whereby when the latter is raised to close the hopper said spreader is also raised, as and for the purpose set forth.

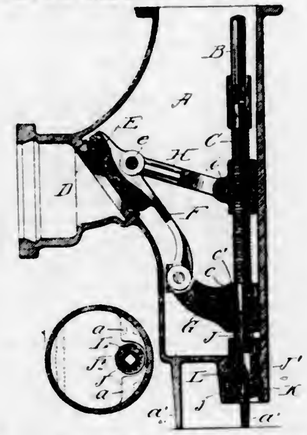
13. In an apparatus of the class described, a wagon-body, a dumping-hopper comprising independently-pivoted sections or portions, operating-gearing, independent connections between such gearing and said independently-movable sections whereby said sections may be relatively moved to open or close said hopper, a spreader arranged beneath the point of delivery from said hopper, a spreader-bar carried by said spreader, and means whereby when said sections are relatively moved to close said hopper said spreader is also raised out of contact with the ground, as and for the purpose set forth.

678,544. **ELECTRIC-LIGHT-WIRE MOLDING.** FRANK H. CORDUAN, Brooklyn, N. Y., assignor to John B. Peck, same place. Filed Dec. 29, 1899. Renewed June 6, 1901. Serial No. 63,421. (No model.)



Claim.—An electric-light-wire molding provided with longitudinal grooves for receiving the wires and a recess in the wood between the grooves, which recess has a bottom curved in the direction of the length of the molding, the recess gradually increasing in depth from its ends toward the center and a button pivoted to the bottom of the recess at the center of the same, substantially as herein shown and described.

678,545. **FIRE-HYDRANT.** WILLIAM W. COREY, St. Louis, Mo. Filed Jan. 7, 1901. Serial No. 42,374. (No model.)



Claim.—1. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a valve coöperating with said seat, a rigid arm extending from said valve and pivoted at its outer end in the plane of the valve-seat, whereby the axis of rotation of said valve is on the same plane as the valve-seat, and means for moving said valve to and from its seat, substantially as described.

2. In a fire-hydrant, the combination with a stand-pipe having a branch for connection with a water-main, of an obliquely-arranged valve-seat in the branch of said stand-pipe, the opening in said valve-seat being of less diameter than the interior diameter of the stand-pipe branch, so as to contract the available opening for the flow of water at this point, the connection of the branch to the stand-pipe being such as to enable the obliquely-arranged valve-seat, in conjunction with the connection between the branch and stand pipes, to direct the water upwardly through the stand-pipe, a valve coöperating with said valve-seat, and mechanism in the stand-pipe for positively moving said valve to and from its seat, substantially as described.

3. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a pivoted valve coöperating with said seat, a threaded valve-operating rod, a bracket in which the lower end of said valve-operating rod is received, said bracket affording a pivotal support for the valve, the axis of rotation of said valve being on the plane of the valve-seat, a nut on the valve-operating rod, and a link connecting the nut and pivoted valve; substantially as described.

4. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a pivoted valve coöperating with said seat, a threaded valve-operating rod, a bracket in which the lower end of the valve-operating rod is received, and to which the valve is pivoted, a nut on said rod, and a link pivoted to the nut and to the valve, the pivotal point of the link to the valve being located at about the center of the valve proper; substantially as described.

5. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a valve provided with an extension F, a bracket G in which said extension is pivoted, a threaded rod whose lower end passes through said bracket, means on the lower end of said rod for engaging the bracket and holding the same in a proper position relative to the rod, a nut on said rod, and a link pivotally connected to said nut and to said valve; substantially as described.

6. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a valve having a yielding face coöperating with said seat, a stationary bracket in which said valve is pivoted, a valve-operating rod, a nut on said rod, a link pivoted to said nut and to said valve, and means for arresting the upward movement of the nut when the link approaches a position of dead-center; substantially as described.

7. In a hydrant, the combination with a stand-pipe provided with lugs *a* extending from the back wall thereof, a bracket G arranged on said lugs, the forward end of said bracket engaging the front wall of the stand-pipe, a valve-operating rod whose lower end is seated in the bracket,

a nut on the valve-operating rod, a valve pivotally mounted in said bracket, and a link pivotally connected to said nut and to said valve; substantially as described.

8. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a valve, a valve-operating rod, a winged nut mounted upon said rod and bearing against the back wall of the stand-pipe, a link pivotally connecting said nut and said valve, and a bracket arranged at the lower end of the valve-operating rod, said bracket bearing against the front and rear walls of the stand-pipe and providing at its front end a pivotal support for the valve; substantially as described.

9. In a hydrant, the combination with a stand-pipe provided with a valve-seat, of a valve, an extension from said valve which is mounted upon a fixed pivot-point, a valve-operating rod having a threaded portion at its lower end, a nut on said threaded portion, a link pivotally connected to said nut and to said valve, and a drip-valve arranged on, and operated by, the valve-operating rod; substantially as described.

10. The combination with a stand-pipe provided with a valve-seat arranged at an angle, of a valve-operating rod, a bracket arranged on the lower end of said rod, means in the lower end of the stand-pipe for cooperating with said bracket and supporting it firmly in position, a valve pivoted in said bracket, the pivotal point of said valve, when the bracket is in position in the stand-pipe, being on the plane of the valve-seat, and means operated by the valve-operating rod and connected to said pivoted valve for moving the latter to and from the seat in the stand-pipe, said rod, bracket, pivoted valve, and its operating mechanism, being connected together so as to permit of their insertion and removal through the top of the stand-pipe; substantially as described.

11. The combination with a threaded valve-operating rod provided with a non-circular portion at its lower end, of a bracket G through which said non-circular portion passes, the bore of said bracket being threaded, a valve pivoted in said bracket, a nut on the valve-operating rod, a link pivotally connected to said nut and said valve, and a drip-valve whose stem receives the non-circular portion of the valve-operating rod and is threaded into the bore of the bracket, whereby all of said parts may be inserted and removed through the top of a stand-pipe; substantially as described.

12. In a hydrant, the combination with a stand-pipe, provided with a valve-seat, of a valve cooperating with said valve-seat, a valve-operating rod having a threaded portion at its lower end, a link pivotally connecting said nut and valve, the inner end of said link being bifurcated to straddle the nut and enable the placing of the connecting-pin close to the threaded opening of the nut; substantially as described.

13. In a hydrant, the combination with a stand-pipe, of a valve-operating rod provided with a non-circular shank, a drip-valve stem mounted upon said shank and threaded into a stationary nut, and an open-ended cylinder having bores of different diameters with which the drip-valve cooperates; substantially as described.

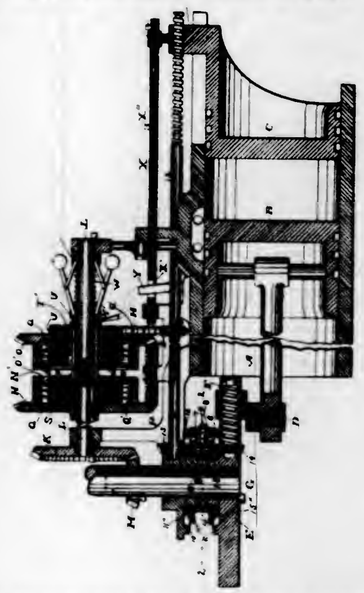
14. In a hydrant, the combination with a stand-pipe, of a valve-operating rod having a non-circular shank at its lower end, a stationary nut through which said shank passes, a drip-valve stem, a cup-shaped drip-valve mounted upon the stem below said spider-head, and an open-ended cylinder having bores of different diameters for cooperating with said drip-valve; substantially as described.

15. In a hydrant, the combination with a stand-pipe having a boss in its bottom wall, of an open-ended cylinder arranged in said boss and having a bore of different diameters, a valve-operating rod having a non-circular shank c, a stationary nut through which said shank passes, a drip-valve stem J, a spider-head J' for guiding said head in its movement, and a cup-shaped drip-valve K mounted upon the lower end of said stem, and adapted, in one position, to fit snugly in the reduced bore of the open-ended cylinder, and in another position to be located in the enlarged bore of said open-ended cylinder whereby, in said latter position, a space is provided around said drip-valve for the passage of water; substantially as described.

16. In a hydrant, the combination with a stand-pipe, of a seat-ring arranged at one side thereof, said seat-ring being inclined so as to direct the water upwardly through the stand-pipe, a valve cooperating with the seat in the ring, and means for moving said valve to and from its seat, said valve, when in its full open position, being located out of the path of the main current of flowing water which is directed upwardly by the seat-ring; substantially as described.

678,546. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. EDGAR N. CORSON, Los Angeles, Cal., assignor of one-half to Asa G. Corson, same place. Filed Mar. 5, 1901. Serial No. 49,960. (No model.)

Claim.—1. In an explosive-engine the herein-described means to move the head of the explosive-chamber as the varying conditions of the load require, comprising the movable cylinder-head C, having upwardly-projecting portion C', with a threaded opening thereio to receive the threaded end of the shaft 12, threaded at one end and having bevel-gear 13 on the other end adapted to engage and mesh with gear on the main shaft, substantially as shown; a shaft X longitudinally movable in the frame, an end projecting through the socket C'' engaging pins X'' and X''' on said shaft; a pivoted lever Y projecting through a slot in the shaft X, having upwardly-projecting bifurcations Y' adapted to engage an annular groove in the sleeve U on the governor-spindle, and means, substantially as shown, to throw the governor into or out of operative connection with the movable cylinder-head, substantially as shown and described.



2. The herein-described means to vary the stroke of an explosive-engine comprising a crank-wheel fixed on the main shaft; a radial slot in said wheel; a screw-threaded stud revolubly mounted in said slot, adapted to enter and engage the threaded opening in a wrist-pin, the said pin, on said radial stud, adapted to move radially along the face of said crank-wheel; and a pitman pivotally secured to said wrist-pin.

3. A ball-governor, such as shown, in combination with means to operatively connect the same with, and vary the stroke of the piston of an explosive-engine, comprising a sprocket-chain carried by a sprocket on the spindle of the governor, and operatively connected therewith; a shaft carrying a sprocket adapted to engage the sprocket-chain, and having at one end a bevel-gear, adapted to mesh with and engage a gear-wheel encircling the main shaft; a circular collar on the main shaft revoluble thereon; an axle revolubly affixed thereto and projecting radially therefrom, idler bevel-gears carried by said axle, the outer idler adapted to mesh with and between two circular rows of cogs, one row of the cogs on the inner face of the crank-wheel and the other row of cogs on the face of the frame, and arranged to mesh with the idler bevel-wheel as it travels around the main shaft; an inner idler bevel-gear on said radial axle, adapted to mesh on one side with the gear on the shaft carrying the sprocket, and on the other side (directly opposite to the gear on the sprocket-carrying shaft) with a bevel-gear on the radial threaded stud, whereby the operation of the governor will cause the wrist-pin to move along the face of the crank-wheel and vary the stroke of the piston.

4. The combination, substantially as shown, of the means to vary the stroke of the piston, comprising a crank-wheel fixed on the main shaft; a radial slot in said wheel; a screw-threaded stud revolubly mounted in said slot, adapted to enter and engage the threaded opening in a wrist-pin, the said pin, on said radial stud, adapted to move radially along the face of said crank-wheel; and a pitman pivotally secured to said wrist-pin, with means to regulate the capacity of the explosion-chamber, comprising the ball-governor and its connecting mechanism, viz: the friction engaging drums S fixed on the spindle of the ball-governor in combination with the ribbon-springs Q encircling the same; a circular friction-disk fixed on the spindle and adapted, upon the movement longitudinally of the spindle, to frictionally engage the springs and lock them frictionally on the drum, substantially as herein shown and described.

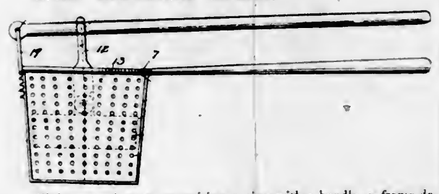
678,547. FOUNTAIN-PEN. SETH S. CROCKER, Bridgewater, Mass. Filed May 31, 1901. Serial No. 62,494. (No model.)



Claim.—1. A fountain-pen consisting of a pen-section having a feed and pen therein, a barrel having an air-tight connection with said section, a compressible rubber sack which is arranged in said barrel and has an air-tight connection with the inner end of said pen-section, said barrel, section, and sack forming an air-tight chamber which surrounds said sack, and said barrel being provided with an aperture in its end opposite the pen-section; whereby air may be forced through said aperture into said air-tight chamber and thus compress the sack, so that when the air-pressure is allowed to escape the sack may expand and suck in the ink.

2. A fountain-pen consisting of a pen-section having a feed and pen therein, a barrel having an air-tight connection with said section, a compressible rubber sack which is arranged in said barrel and has an air-tight connection with the inner end of said pen-section, said barrel, section, and sack forming an air-tight chamber which surrounds said sack, and said barrel being provided with an aperture in its end opposite the pen-section, and a cap on the end of the barrel which incloses said aperture, said cap being also provided with an aperture at its closed end, whereby air may be forced into said closed chamber and thus compress the sack, so that when the air-pressure is allowed to escape the sack may expand and suck in the ink.

678,548. PRESS. HAYDEN DAWSEY, Merom, Ind. Filed Nov. 13, 1900. Serial No. 36,402. (No model.)



Claim.—1. A press comprising a ring with a handle, a frame depending from said ring provided with a rack, a colander or strainer carried on said frame, a lever having a longitudinally-adjustable plunger-rod thereon carrying a plunger, said plunger-rod adapted to be adjusted and fixed at different points on said lever, and means for connecting said lever with said rack, substantially as shown and described.

2. A press comprising a depending frame with a ring at the top, a handle at the rear, and a rack at the front thereof, a colander or strainer carried by said ring, a detachable lever carrying a link which engages said rack, and a plunger having a plunger-rod provided with a slot through which said detachable lever is adapted to pass, and means for securing said plunger-rod to said lever, substantially as shown and described.

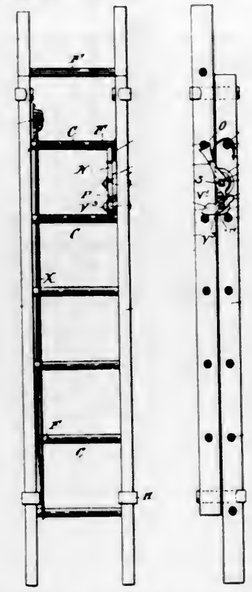
678,549. EXTENSION-LADDER. WALTER N. DERBY, Etna, N. H. Filed Apr. 17, 1901. Serial No. 56,336. (No model.)

Claim.—1. An extension-ladder comprising a slidable section, a stationary section provided with a pivoted locking-lever having a recess at one end adapted to engage the rungs of the slidable section, and a toe at the opposite end, a tripping-dog engaging said toe, the tripping-dog being operated by the slidable section and said locking-lever operated by the tripping-dog, substantially as described.

2. An extension-ladder comprising a lower or main section provided with a stop-pin, a pivoted locking-lever having a recess at one end and a projection at the opposite end, a shoulder to abut against the stop-pin, and a tripping-dog engaging said projection, an upper slidable section having rungs which engage the recess in the end of the locking-lever and lock the upper sliding section to the lower section, and also engage the tripping-dog to release said sliding section, substantially as described.

3. An extension-ladder comprising a stationary section provided with a pivoted locking-lever having a recess at one end, and a projection at the opposite end, a spring bearing on said lever, a tripping-dog having a notch at one end with which said projection engages and the opposite end beveled, and a slidable section adapted to engage the beveled end of the tripping-dog and the recess of the locking-lever, substantially as described.

4. An extension-ladder comprising a slidable section, a stationary section provided with a stop-pin, a spring-pressed pivoted locking-lever having a recess at one end to engage the rungs of the slidable section, a projection at the opposite end, and a stop-shoulder on the edge to abut against said stop-pin, a spring, and a tripping-dog with a rounded head at one end adapted to engage said projection, and its opposite end beveled and adapted to be engaged by the rungs of the slidable section, substantially as described.



5. An extension-ladder comprising an upper slidable section, a lower section provided with a plate having a stop-pin, and hollow posts, one of said posts seated in a recess in the side of the section and the other post having a spring-pressed locking-lever thereon provided with a shoulder to engage the stop-pin, and a tripping-dog for operating said locking-lever adapted to be operated by the rungs of the slidable section, substantially as described.

6. An extension-ladder comprising an upper slidable section, a lower section provided with a spring-pressed locking-lever, and a weighted tripping-dog one end beveled and adapted to be engaged by the rungs of the slidable section when the same is slid downward, the opposite end engaging the said locking-lever, the lower edge rounded and adapted to be engaged by the rungs of the slidable section when the same is slid onward, substantially as described.

7. An extension-ladder comprising an upper slidable section, a lower section having plates with hollow posts extending from the front and rear thereof, the rear posts seated in recesses in the side of the lower section, one of said plates provided with a spring-pressed lever pivoted on its front post and having a shoulder, a stop-pin, with which said shoulder engages, and a tripping-dog pivoted on the front post of the other plate adapted to be operated by the rungs of the slidable section and move the locking-lever onward, substantially as described.

678,550. ACETYLENE-GAS BURNER. EDWIN N. DICKERSON, New York, N. Y. Filed Jan. 22, 1897. Serial No. 620,214. (No model.)

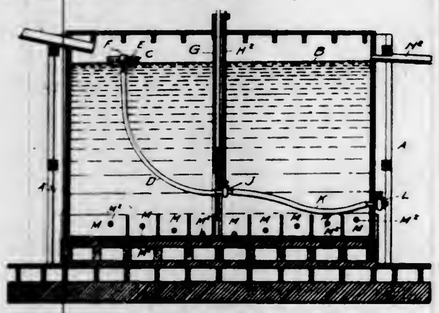


Claim.—A burner for acetylene gas having a central cylindrical orifice located in the bottom of an opening substantially hemispherical in shape and having a slight elevation in the bottom of the opening through which elevation passes the orifice, substantially as described.

678,551. ORE SIZER AND CLASSIFIER. JOSEPH O. DIMMICK, Denver, Colo., assignor to the Dimmick Concentrating Company, same place. Filed July 9, 1900. Serial No. 23,035. (No model.)

Claim.—1. In combination with an ore-classifier, a skimming-disk adapted to float, and comprising a concave bottom, a central exit therein connected to a flexible valved conduit, said disk being provided with a perpendicular rim provided with perforations at intervals in its circumference; a table supported by legs over the central exit, adapted to receive

a weight or weights whereby the depth of submergence of the skimmer may be governed, substantially as described.



2. In combination with an ore-classifier comprising a tank divided into chambers by a partition, a gate in said partition, a flexible conduit passing through said gate and one of the end walls of the classifier, and connected at its other end to a skimmer in the first chamber, said skimmer comprising a bottom, perforated rim, and a table supported by legs over the central exit and adapted to receive weights to regulate the submergence of said skimmer, substantially as described.

3. In an ore-classifier, the combination with a skimming device, adapted to float, comprising a bottom having an outlet-opening therein, and an upwardly-projecting rim surrounding the bottom, and having inlet perforations therethrough, of means for adjusting the weight of said skimming device whereby its submergence may be governed, and the position of said inlet perforations relative to the water-line so adjusted that the desired volume of liquid may be drawn off through the skimming device, substantially as described.

4. In an ore-classifier the combination with a tank having outlets, of a floating skimming device, means for adjusting the weight of said skimming device, a conduit leading from said device to the exterior of the tank, whereby the heavier particles of ore pass through the said outlets in the tank, while the slimes which accumulate on the surface of the water are drawn off through the conduit leading from the skimming device, the volume of such slimes drawn off being determined by the degree of submergence of the skimming device, substantially as described

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678,552. **TYPE-WRITING MACHINE.** LOUIS P. DIBB, Ilion, N. Y., assignor to Wyckoff, Seamans & Benedict, same place. Filed Nov. 14, 1899. Serial No. 736,220. (No model.)

Claim.—1. In a type-writing machine, the combination with a platen-frame adapted to swing up to exhibit the writing, and with a suitable scale, as 30, arranged in proximity to the platen, of a companion scale, as 54, having graduations in line with those of scale 30, and adapted to be brought into view when the platen-frame is swung up, and a suitable rotatory index-wheel arranged upon the machine-frame and adapted to coöperate with the last-mentioned scale, whereby the platen-frame may while swung up be positioned accurately at any desired point in its travel.

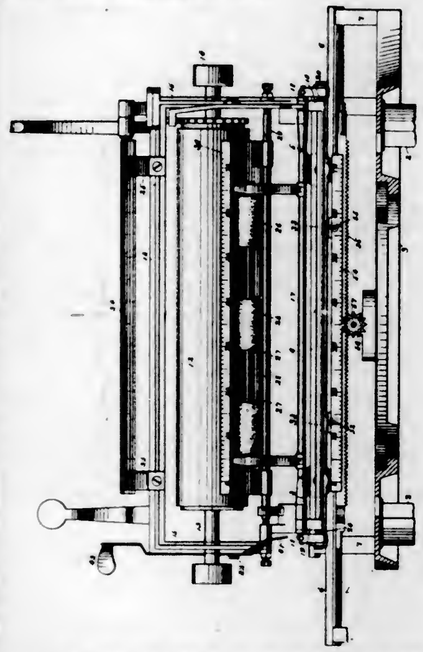
2. In a type-writing machine, the combination of a carriage having a scale, a scale extending longitudinally of the carriage and corresponding with the first-mentioned scale, and a wheel arranged in proximity to the scale and having suitable points or graduations thereon adapted to coöperate with the scale to position the carriage, and means for rotating said wheel during the letter-space movements of the carriage.

3. In a type-writing machine, the combination with a carriage, of a rack fixed thereon and provided with suitable letter-space graduations, a pinion arranged in mesh with said rack, an index-wheel secured to said pinion, and a scale secured to the carriage in proximity to said index-wheel.

4. In a type-writing machine, the combination with a carriage, of a rack secured thereon, a scale secured to the rack, a pinion arranged upon the frame of the machine in mesh with said rack, and a star-wheel secured to the pinion in proximity to said scale, whereby the points upon said star-wheel coöperate with said scale to indicate the position of the carriage.

5. In a type-writing machine, the combination of a carriage, a rack thereon, a scale arranged upon said rack, a pinion arranged upon the frame of the machine in mesh with said rack, an escapement-wheel of the letter-space mechanism connected to said pinion, and a pointed index-wheel secured upon the pinion in proximity to said scale.

6. In a type-writing machine, the combination with a carriage, a platen-frame mounted thereon so that it may be swung up to exhibit the writing, and a rack secured upon said carriage, of a scale arranged upon the rack, a pinion arranged in mesh with said rack and connected to an escapement-wheel, and a star-wheel secured to said pinion and adapted to coöperate with said scale, whereby the carriage may be accurately positioned while the platen-frame is swung up.



7. In a type-writing machine, the combination with a carriage, a platen-frame thereon adapted to be swung up to exhibit the writing, a scale, as 24, upon the front of said platen-frame, an index as 23 upon the machine adapted to coöperate with said scale, and a scale as 30 arranged in proximity to the platen so as to be brought into view when the platen is swung up, of a scale as 54 arranged upon the carriage and also adapted to be brought into view when the carriage is swung up, a rack arranged upon the carriage, a pinion as 36 arranged in mesh with said rack, an escapement-wheel connected to said pinion, and a star-wheel secured to turn with said pinion in proximity to said scale 54.

8. In a type-writing machine, the combination of a series of type-bars arranged in a circle, a platen-frame adapted to travel over said types, an escapement-wheel of the letter-spacing mechanism arranged in rear of the types, a shaft for said escapement-wheel extending forwardly to a point over a portion of said type-bars, a pinion carried upon the forward end of said shaft, a rack connected to the platen-frame and arranged in mesh with said pinion, a scale arranged upon said rack, and an index carried by said pinion.

9. In a type-writing machine, the combination of a series of type-bars arranged in a circle, a platen-frame adapted to travel over said types, an escapement-wheel of the letter-spacing mechanism arranged in rear of the types, a shaft for said escapement-wheel extending forwardly to a point over some of said type-bars, a pinion carried upon the forward end of said shaft, a rack connected to the platen-frame and arranged in mesh with said pinion, a scale arranged upon said rack, and an index-wheel fixed upon said pinion.

10. In a type-writing machine, the combination with a platen-frame constructed to be swung up to exhibit the writing and with a scale arranged in proximity to the platen and swinging therewith, of a second scale constructed to travel with the carriage and extending longitudinally thereof and adapted to be brought into view when the platen-frame is swung up, and a rotatory toothed wheel arranged upon the machine-frame and constructed to coöperate with the last-mentioned scale for indicating the position of the carriage.

11. In a type-writing machine, the combination with a carriage, of a rack arranged thereon, a pinion arranged in mesh with said rack and connected to carriage-escapement devices, the axis of said pinion being disposed in the same vertical plane as the printing-center of the machine, a scale so arranged upon said rack that at the completion of any letter-spacing movement the corresponding graduation upon said scale lies in the same vertical plane as the axis of said pinion, and an index for said scale arranged to register with a graduation thereon in said vertical plane.

678,553. **ACETYLENE-GAS BURNER.** EDWARD J. DOLAN, Philadelphia, Pa. Filed Nov. 4, 1899. Renewed Dec. 28, 1900. Serial No. 41,094. (No model.)



Claim.—1. An acetylene-gas burner, in which a slotted skeleton flame-seating portion is provided, which slot is in a plane coincident with the impinging surface of two oppositely-disposed jets of gas.

2. An acetylene-gas burner and tip therefor, a slotted skeleton flame-seating portion over the latter, oppositely-disposed and inclined tapering apertures opening through the upper surface of the tip, as set forth.

3. An acetylene-gas burner and tip therefor, a slotted skeleton flame-seating portion over the latter, oppositely-disposed and inclined apertures in the tip, said apertures being in a plane at right angles to the slotted flame-seating portion, as set forth.

4. In combination with the burner, the tip having inclined and oppositely-disposed apertures formed therein, which open through the flat upper surface of the tip, the beveled flame-seating portion over the tip, and semicircular in outline and slotted longitudinally, a suitable space intervening between the bridge of said seating portion and the upper surface of the tip, as set forth.

678,554. **PUMP CONNECTION.** ROBERT M. DYER, Chicago, Ill., assignor to Aermotor Company, same place. Filed Sept. 2, 1899. Serial No. 729,282. (No model.)



Claim.—1. The combination with a pump-rod, of a pump-handle and a mill-rod, means for connecting said pump-rod to said pump-handle, and for releasing said mill-rod, and vice versa, and an operating-handle separate from and independent of the pump-handle for actuating said connecting means and carried on said pump-handle and adapted not to partake of the motion of the mill-rod, substantially as described.

2. The combination with a pump-rod, of a pump-handle and a mill-rod, means for connecting said pump-rod to said handle and for releasing said mill-rod, and vice versa, and an operating-handle separate from and independent of the pump-handle for actuating said connecting means and adapted to be maintained in a stationary position while the pump-rod is connected with the mill-rod, substantially as described.

3. The combination with a pump-rod, of a pump-handle and a mill-rod, means for connecting the said pump-rod to said pump-handle and for releasing said mill-rod, and vice versa, and an operating rod or handle parallel to the pump-rod carried upon the pump-handle and guided by the mill-rod and rotating about its longitudinal axis and adapted to actuate said connecting means, substantially as described.

4. The combination with a pump-rod, of a pump-handle and a mill-rod, a pair of pins, one adapted to be inserted to connect the pump-rod and the handle and the other adapted to be inserted to connect the pump-rod and the mill-rod, a rocking rod extending substantially parallel to said pump-rod, a pair of cams carried thereon, and mechanism between each of said cams and the respective pins whereby the rocking rod in one position inserts the pin which connects the pump-rod with the pump-handle and in another position inserts the pin which connects the pump-rod with the mill-rod, substantially as described.

5. The combination with a pump-rod, of a pump-handle, the operating-rod of a windmill, a pair of locking-pins one for locking the pump-rod to the pump-handle and the other for locking the pump-rod to the reciprocating rod, a yieldingly-pressed rod or lever for each of said locking-pins for moving the same into the locking position, a cam for each of said locking-pins for moving the same out of the operative position, and a single operating-handle in addition to the elements above enumerated connected with both of said cams whereby one of the locking-pins may be inserted while the other is withdrawn, substantially as described.

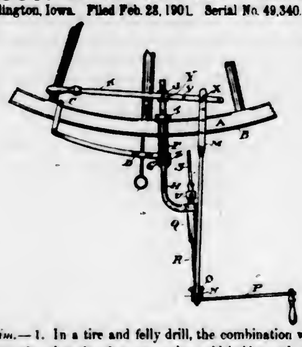
6. The combination with a pump-rod, of a pump-handle and the reciprocating rod of a windmill, a pair of locking-pins for connecting the pump-handle and the reciprocating rod respectively to the pump-rod, a yieldingly-pressed lever provided in connection with each locking-pin for moving the same into the locking position, a pair of cams one engaging each of said spring-pressed levers for withdrawing the locking-pins, and a single operating rod or part upon which said cams are mounted to rotate therewith while partaking of a relative movement along the axis of the rod, substantially as described.

7. The combination with the pump-rod *a* of the pump-handle *b* and the reciprocating rod *c*, the sleeves b' c' and the locking-pins b^2 c^2, the yieldingly-pressed levers b^3 c^3 for inserting the locking-pins, the cams *d* and *f* placed at an angle for withdrawing the locking-pins, and the operating-rod *e* for rotating the cams, substantially as described.

8. The combination with a pump-rod, of a pump-handle and a mill-rod adapted to be separately connected with said pump-rod, a pin for connecting said pump-rod with said pump-handle, a second pin for connecting said pump-rod to said mill-rod, a pair of cams for controlling said pins and an operating rod or handle rotating about its longitudinal axis and adapted to actuate said cams to connect the pump-rod with the pump-handle and release the mill-rod, and vice versa, substantially as described.

9. The combination with a pump-rod, of a pump-handle and a mill-rod adapted to be separately connected with said pump-rod, a pin for connecting said pump-rod with said pump-handle, a pin for connecting said pump-rod with said mill-rod, a pair of cams for controlling said pins, and an operating rod or handle rotating about its longitudinal axis and carried upon said pump-handle and adapted to move relatively to said mill-rod and adapted in one position to connect said pump-rod with the pump-handle and in another position to connect said pump-rod with the mill-rod, substantially as described.

678,555. **TIRE AND FELLY DRILL.** FRIEDRICH W. FÖRSTER, Burlington, Iowa. Filed Feb. 28, 1901. Serial No. 49,340. (No model.)



Claim.—1. In a tire and felly drill, the combination with a boring-tool holder, of a clamping-frame carrying said holder and constructed to be secured to and carried by said tire and felly, means carried by the frame for moving the tool-holder longitudinally and means also carried by said frame for revolving the tool-holder.

2. In a tire and felly drill, the combination with a boring-tool holder, of a frame carrying said tool-holder and provided with means for clamping the frame to the tire and felly and centering the boring-tool, and means carried by said frame for operating the tool-holder.

3. In a tire and felly drill, the combination with a boring-tool, of means for centering the same on a wheel-tire, a lever for moving the tool longitudinally and a crank for turning it.

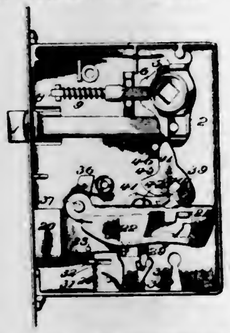
4. In a tire and felly drill, the combination with a sleeve and means for rigidly holding the same on a wheel, of a rod adjustably secured in said sleeve, a boring-tool revolubly supported by the outer end of the rod, a lever fulcrumed between its ends at the inner end of said rod, and a link connecting one end of said lever and the boring-tool to move the latter forward and backward when the free end of the lever is moved.

5. In a tire and felly drill, the combination with a rod and means for rigidly securing the same on a wheel, of a bearing carried by the bent outer end of the rod, a shaft in said bearing, a boring-tool carried by the inner end of said shaft, a crank secured to the outer end of the shaft, a lever fulcrumed between its ends to the inner end of the rod, and a link adjustably connected at one end to one end of the lever and at its other end to the outer end of the shaft.

8. In a tire and felly drill, the combination with a rod and means for rigidly securing the same to and supporting it on the tire and felly of a wheel, of a bearing carried by the bent outer end of the rod, a shaft revolubly and longitudinally removable in said bearing, collars on said shaft to limit its movement, a boring-tool on the inner end of the shaft, a crank on its outer end and means for moving said shaft longitudinally in its bearing.

7. In a tire and felly drill, the combination with a sleeve and means for boring a hole supported thereby, of depending lugs at each end of said sleeve one of which to be disposed against the inner face of a wheel-felly, the other made with an elongated slot, a bar, a bolt adjustably securing one end of the same in said slot, the other end of said bar bent to form a hook to engage the inner face of a wheel-felly, and a set-screw in said bar to engage the wheel-tire and clamp the wheel between the inner lug on the sleeve, and the hook on the bar, on one side and the screw on the other.

678,356. LOCK. GEORGE FROEBA, New Britain, Conn. Filed Nov. 20, 1900. Serial No. 37,145. (No model.)



Claim.—1. In a lock, and in combination with the latch and operating mechanism therefor comprising a knob-spindle and hubs, the knob-spindle comprising independently-operated sections, a stop adapted to interlock with one of the hubs to prevent its operation by a knob and section of the knob-spindle, and means mounted coaxially with the knob-spindle for operating the said stop to throw it into and out of engagement with the operating-hub, and adapted to be operated when the door is closed, substantially as set forth.

2. In a lock, and in combination with the latch, and operating mechanism therefor comprising hubs and a sectional knob-spindle, one of the hubs having a notched extension, a spring-actuated stop adapted to secure one of the hubs against movement by entering the notch of its extension, and actuating means for the said stop to throw it into and out of interlocking connection with the notched extension of the aforementioned hub and mounted upon the knob-spindle, substantially as specified.

3. In a lock, and in combination with the latch and latch-operating mechanism, comprising a sectional knob-spindle and hubs, a stop for securing one of the said hubs against movement, an actuator for said stop in coaxial alinement with the hubs and located within the case, a complementary actuator exterior to the lock and in coaxial alinement with the hubs and inner actuator and adapted to be operated to throw the aforementioned stop into and out of interlocking engagement with the hub, and means between the inner and outer actuators to effect a simultaneous movement thereof, substantially as specified.

4. In a lock, and in combination with the latch and actuating mechanism comprising a sectional knob-spindle and hubs, a spring-actuated stop to interlock with one of the said hubs, and an actuator consisting of a rotatably-mounted part having a cam formed at its highest and lowest points with depressions constituting seats for the stop to properly position the actuator with reference to the stop and prevent casual displacement thereof in either of its extreme positions, substantially as set forth.

5. In a lock, and in combination with the latch and operating mechanism therefor comprising a sectional knob-spindle and hubs, a stop adapted to interlock with one of the said hubs, inner and outer complementary actuators for the said stop, the inner actuator having interlocking parts, and pins applied to the outer actuator and adapted to connect the said complementary parts, substantially as set forth.

6. In combination, a latch, actuating mechanism therefor comprising a sectional knob-spindle and hubs, a stop to interlock with one of said hubs, inner and outer complementary actuators for the said stop, and pins adjustably connected with the outer actuator and adapted to interlock with the inner actuator, as and for the purpose set forth.

7. In combination, a latch and actuating mechanism therefor comprising a sectional knob-spindle and hubs, a stop adapted to interlock with one of the said hubs, a collar coaxially mounted with the hubs having its inner end flanged and formed into a cam and depressed at its highest and lowest points, and a second collar rotatably mounted upon the knob-spindle and having interlocking connection with the inner collar to compel simultaneous rotation of the two collars, substantially as set forth.

8. In a lock, the combination with the latch, actuating mechanism therefor, a stop to secure the latch against operation by means of one of the knobs and the lock-bolt, a plate movable with the lock-bolt and bearing a tumbler, a bar having a stump coöperating with the said tumbler and adapted to be released therefrom and to be moved by means of the key, and means for transmitting movement from the said bar to the latch-operating mechanism to withdraw a latch independently of the knob-spindle, substantially as set forth.

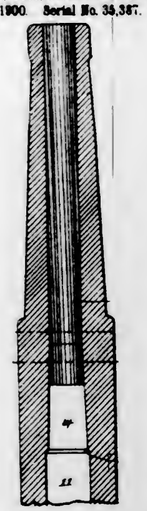
9. In a lock, and in combination with the lock-bolt, the latch, latch-operating mechanism, and a stop for securing the latch against operation by means of the outer knob, a plate movably mounted, a tumbler applied to said plate and movable therewith, a bar mounted to slide and to oscillate and having a stump engaged by the tumbler of the movable plate, and means for transmitting movement from the said bar to the latch-operating mechanism, substantially as specified.

10. In a lock, and in combination with the lock-bolt, the latch, operating mechanism therefor, and a stop for securing the latch against actuation by means of one of the knobs, a movably-mounted plate, coöperating means between the said plate and lock-bolt to effect a shifting of the plate, a tumbler applied to the movable plate, a bar mounted to oscillate and to slide and having a stump coöperating with the tumbler applied to the movable plate, and means for transmitting movement from the said bar to the latch-operating mechanism, substantially as specified.

11. In a lock, and in combination with the lock-bolt, the latch, operating mechanism therefor, and a stop for securing the latch against operation by means of one of the knobs, a plate movably mounted, coöperating means between the lock-bolt and plate to effect a shifting of the latter with the said bolt, a tumbler applied to the movable plate, a bar mounted to oscillate and to slide and having a stump engaged by the tumbler of the movable plate and formed with a lateral extension, and a rocker formed with a pair of arms, one of the arms in engagement with the latch-operating mechanism and the other arm adapted to be engaged by the aforementioned bar and extension thereof, the opposing portions of the rocker and bar being correspondingly curved, substantially as set forth.

12. In a lock, and in combination with the lock-bolt, the latch, latch-operating mechanism and stop for securing the latch against operation by means of one of the knobs, a key-operated mechanism shiftable toward and from the keyhole by means of the lock-bolt, and an intermediate device for transmitting motion from the said key-operated mechanism to the latch-operating mechanism, and a single spring applied to the latch-operating mechanism for returning the key-operated and latch mechanisms to a normal position, substantially as set forth.

678,357. GUN. EMIL GATHMANN, Washington, D. C. Original application filed Mar. 10, 1899, Serial No. 708,279. Divided and this application filed Nov. 3, 1900. Serial No. 35,387. (No model.)



Claim.—1. In a gun, the combination of a charge-chamber, a main bore of substantially less diameter than the charge-chamber and a projectile-chamber intervening between the charge-chamber and main bore, of forwardly-tapered form.

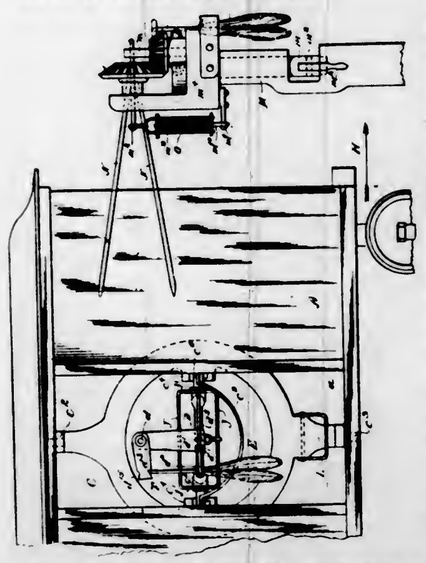
2. In a gun, the combination of a charge-chamber, a main bore of substantially less diameter than the charge-chamber, and a projectile-chamber between the charge-chamber and main bore, having uniformly-tapered sides which merge into the main bore at the forward end of said chamber.

3. In a gun, the combination of a charge-chamber, a main bore of substantially less diameter than the charge-chamber and provided with rifling, and a projectile-chamber between the charge-chamber and main bore having a gradually-diminishing diameter from its rear end forwardly and merging into the main bore at its forward end.

4. In a gun, the combination of a charge-chamber, a main bore of substantially less diameter than the charge-chamber, and provided with rifling, a projectile-chamber between the charge-chamber and the main bore, of gradually-diminishing diameter from its rear end forwardly and merging into the main bore at its forward end, and a relatively abrupt position-slope between the charge-chamber and projectile-chamber, substantially as described.

5. In a gun, the combination of a charge-chamber, a main bore of substantially less diameter than the charge-chamber and a projectile-chamber between the charge-chamber and main bore, of uniformly-decreasing diameter from its rear end forwardly and merging into the main bore at its forward end, said main bore being provided with rifling continued back into the forward portion of said projectile-chamber until it vanishes in the tapered sides of the latter, substantially as described.

678,558. APPARATUS FOR AUTOMATICALLY RECEIVING AND DELIVERING MAIL-BAGS. SIDNEY J. GRAHAM, Oakland, Ky. Filed July 23, 1900. Serial No. 24,525. (No model.)



Claim.—1. In an apparatus for automatically receiving and delivering mail-bags, a frame mounted in a car, a second frame yieldingly mounted on the first-named frame, means on the yieldingly-mounted frame for holding mail-bags, means for moving the first-named frame to a car-door with the yieldingly-mounted frame extending beyond the car, a frame rotatably mounted adjacent to the track on which the car is moved, a mail-bag frame yieldingly mounted on the rotatably-mounted frame and guides on the rotatably-mounted frame, with which guides the end of the yieldingly-mounted frame in the car engages as the car passes such rotatably-mounted frame: substantially as described.

2. In an apparatus for automatically receiving and delivering mail-bags, a frame rotatably mounted in a car, an additional frame on the rotatably-mounted frame, springs interposed between the frames, means on the additional frame for holding a mail-bag, and means on such additional frame for receiving a mail-bag, means for adjusting the additional frame on the rotatable frame, a post adjacent to the track on which the car is moved, an adjustable frame on the post, an additional frame on such adjustable frame, a spring interposed between such additional frame and the adjustable frame on which it is mounted, means on the additional frame for holding a mail-bag and means on such additional frame for receiving a mail-bag; substantially as described.

3. In an apparatus for automatically receiving and delivering mail-bags, a frame rotatably mounted in a car, a second frame on the rotatable frame, springs interposed between the frames, whereby the second-named frame is yieldingly mounted, means on the yieldingly-mounted frame for holding a mail-bag, and means on such frame for receiving a mail-bag, means for moving the yieldingly-mounted frame on the rotatable frame, a frame rotatably mounted adjacent to the track on which the car is moved, an additional frame on the one adjacent to the track, and springs interposed between such additional frame and the frame on which it is mounted, means on the additional frame for holding a mail-bag and means on such additional frame for receiving a mail-bag: substantially as described.

4. In an apparatus for automatically receiving and delivering mail-bags, a frame pivotally mounted between the doors of the car, a second frame in such pivotally-mounted frame, means for moving the second-named frame in a plane at right angles to the plane in which the pivots of the first-named frame are placed, an additional frame yieldingly mounted on the second-named frame, a mail-bag holder on the yieldingly-mounted frame, a mail-receiving hook on the yieldingly-mounted frame, means outside the car for receiving a mail-bag from the holder and means outside the car for placing a mail-bag on the receiving-hook: substantially as described.

5. In an apparatus for automatically receiving and delivering mail-bags, a frame pivotally mounted between the doors of a car, a second frame in such pivotally-mounted frame, means for moving the second-named frame in a plane at right angles to the plane in which the pivots of the first-named frame are placed, an additional frame yieldingly mounted on the second-named frame, a mail-bag holder on the yieldingly-mounted frame, a mail-bag-receiving hook on the yieldingly-mounted frame means for locking the receiving-hook in a substantially horizontal plane, and means for automatically releasing such lock and turning the receiving-hook into a vertical plane on the deposit of a mail-bag on such receiving-hook, means outside of the car for receiving a mail-bag from the holder and means outside of the car for placing a mail-bag on the receiving-hook: substantially as described.

6. In an apparatus for automatically receiving and delivering mail-bags, a frame rotatably mounted in a car between the doors of the car, means for locking the frame to prevent rotation thereof, a second frame on the rotatable frame, racks and cogs with a handle thereto between the frames, an additional frame on the second-named frame, springs interposed between the second-named and the additional frame, means on the additional frame for holding a mail-bag and means on such additional frame for receiving a mail-bag, a frame rotatably mounted adjacent to the tracks on which the car is moved, an additional frame on the one adjacent to the tracks, and springs interposed between such additional frame and the frame on which it is mounted, means on the additional frame for holding a mail-bag and means on such additional frame for receiving a mail-bag: substantially as described.

7. In an apparatus for receiving and delivering mail-bags, a frame pivotally mounted in a car between the doors thereof, an additional frame, a frame yieldingly mounted in the additional frame on such pivotally-mounted frame, a rotatably and longitudinally movable shaft in the yieldingly-mounted frame, a mail-bag-receiving hook on one end of the shaft, a spring connected to the shaft and to the frame in which the shaft is placed, such spring yieldingly holding the shaft with the receiving-hook thereon in a vertical plane, means for fastening the shaft with the receiving-hook in a substantially horizontal plane, and a connection between the shaft and the yielding frame whereby when the shaft is moved in a horizontal plane from its normal position the fastening of the shaft is loosened and the shaft automatically turned by the spring so that the receiving-hook thereon is in a vertical plane; substantially as described.

8. In an apparatus for receiving and delivering mail-bags from a moving car, a frame pivotally mounted in the car, an additional frame, a frame yieldingly mounted in the additional frame, on such pivotally-mounted frame, a rotatably and longitudinally movable shaft in the yieldingly-mounted frame, a mail-bag-receiving hook on one end of such shaft, a spring connected to the shaft and to the frame in which the shaft is mounted, such spring yieldingly holding the shaft with the hook thereon in a vertical plane, a bar secured on the shaft, projections on the frame with which projections the bar on the shaft engages when the receiving-hook is in a substantially horizontal plane and the shaft is in its normal position and a connection attached at more than one point on one end thereof to the yieldingly-mounted frame and at the other end thereof connected to the shaft, whereby when the shaft is moved a given distance in the horizontal plane from its normal position a longitudinal movement is given thereto by such connection and the bar is loosened from the engagement

with the projections on the yieldingly-mounted frame: substantially as described.

9. In an apparatus for receiving and delivering mail-bags, a frame yieldingly mounted in the car, a rotatably and longitudinally movable shaft in the yieldingly-mounted frame, a mail-bag-receiving hook on one end of the shaft, a spring connection between the shaft and the frame in which it is placed, such spring yieldingly holding the shaft so that the receiving-hook thereon is in a vertical plane, means for fastening the shaft so that the receiving-hook is in a substantially horizontal plane, a connection attached at more than one point on one end thereof to the yieldingly-mounted frame and at the other end thereof connected to the shaft to move such shaft longitudinally when it is moved in the horizontal plane, and an additional shaft in the yieldingly-mounted frame, with which additional shaft the spring is also connected, and a projection on such additional shaft, constituting with the receiving-hook a mail-bag holder; substantially as described.

10. In an apparatus for receiving and delivering mail-bags, a frame yieldingly mounted in the car from which a mail-bag is to be delivered and into which a mail-bag is to be received while the car is in motion, a rotatably and longitudinally movable shaft in the yieldingly-mounted frame, a mail-bag-receiving hook on one end of the shaft and a crank on the other end thereof, an additional shaft rotatably mounted on the yieldingly-mounted frame, a projection on one end of the last-named shaft to engage with the mail-bag to be delivered from the car and a crank on the other end of such shaft, a spring connection between the shafts, such spring yieldingly holding the shaft with the receiving-hook thereon in position so that the hook is in a vertical plane, means for fastening the shaft with the receiving-hook thereon in a substantially horizontal plane, a connection attached at more than one place on one end thereof to the yieldingly-mounted frame and at the other end thereof connected to the rotatable and longitudinally movable shaft provided with the receiving-hook, to move such shaft longitudinally when it is moved in a horizontal plane; substantially as described.

11. In a mail-bag receiving and delivering apparatus, a post placed adjacent to a railway-track, an adjustable head rotatably mounted on the post, means for fastening the rotatably-mounted head in a determined position, a horizontally-mounted rotatable shaft in the head, a beveled gear on the shaft, guides attached to the shaft, with which guides a corresponding part in the portion of the apparatus which is in a car engages in the operation of such apparatus, a beveled gear on such rotatably-mounted head and turning therewith such gear intermeshing with the beveled gear on the horizontally-mounted shaft, a frame on the adjustable head with springs interposed between the frame and the head whereby the last-named frame is yieldingly mounted on the head, a mail-bag-receiving hook rotatably mounted in a horizontal plane in such yieldingly-mounted frame, and a spring attached to the hook and the frame in which it is mounted; substantially as described.

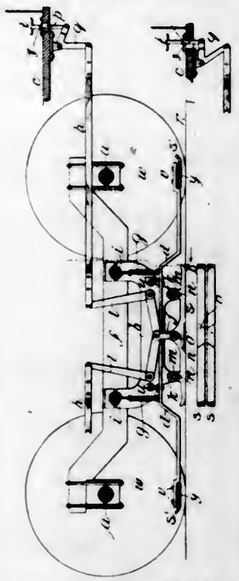
12. In a mail-bag receiving and delivering apparatus, a post placed adjacent to the track, the upper end of such post adjustable relative to the lower end thereof, a head rotatably mounted on the adjustable member of the post, means for fastening the adjustable member of the post to the remaining member thereof in a determined position, and means for yieldingly holding the rotatably-mounted head in a determined position, a horizontally-mounted rotatable shaft in the head, a beveled gear on the shaft, guides attached to the shaft and beveled gear, with which guides a corresponding part in the portion of the apparatus which is placed in a car engages in the operation of the apparatus, a beveled gear on the head turning therewith, such gear intermeshing with the beveled gear on the horizontally-mounted shaft, a frame on the head, with springs interposed between the frame and the head, whereby such frame is yieldingly mounted, a mail-bag-receiving hook rotatably mounted in such yieldingly-mounted frame, and a spring g^3 connecting the hook and the frame in which it is mounted to yieldingly hold the hook in a vertical plane, an arm on such head extending underneath the receiving-hook, a ring removably interposed between the arm and the receiving-hook; substantially as described.

13. In a mail-bag receiving and delivering apparatus, a post placed adjacent to the railroad-track, a head rotatably mounted on the post, means for yieldingly holding the head in a determined position, a frame yieldingly attached to the head, a mail-bag-receiving hook rotatably mounted in the yieldingly-mounted head, such hook arranged to be turned to point toward a car approaching in either direction on the track, a spring yieldingly holding the receiving-book in a vertical plane; substantially as described.

14. In a mail-bag receiving and delivering apparatus, a post placed adjacent to a railroad-track a head rotatably mounted on the post, means for yieldingly holding the head in a determined position, a sleeve on the head, an arm pivotally attached to the sleeve to move in a vertical plane, a mail-bag-receiving hook rotatably mounted in the arm, a spring yieldingly holding such hook down on the top of a ring thereunder, a ring, an additional arm on the sleeve, and an additional pivotally-mounted hook on the additional arm, and means for maintaining such additional hook in a horizontal plane when the ring is between it and the first-named hook; substantially as described.

15. In a mail-bag receiving and delivering apparatus, a post placed adjacent to the railroad-track, a head rotatably mounted on the post, means for yieldingly holding the head in a determined position, a beveled gear on the head, a sleeve on the head, springs connecting the head and the sleeve, an arm attached to the sleeve by a pivot to move in a vertical plane, and a mail-bag-receiving hook rotatably attached to the pivoted arm, an additional projecting arm on the sleeve and an additional hook rotatably mounted in such additional arm, means for retaining the last-named hook in a horizontal plane when a ring is between the hooks, a horizontally-mounted rotatable shaft on the head, a beveled gear on the horizontal shaft intermeshing with the first-named beveled gear, guides on the horizontal shaft and beveled gear, a crank on the horizontal shaft, and a spring connected to the crank and to the rotatable head: substantially as described.

678,559. CURRENT-COLLECTOR OR TROLLEY FOR ELECTRIC RAILWAYS. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to McElroy-Grunow Electric Railway System, same place. Filed Apr. 22 1901. Serial No. 56,994. (No model.)



Claim.—1. A compound current-collector or shoe for an electric railway consisting of two or more parts located in alinement with each other; in combination with means for varying the working contacting surface of said shoe at will, substantially as described.

2. A compound current-collector or shoe for an electric railway consisting of two or more parts located in alinement with each other, one part of said compound shoe being adapted to rest normally upon the current-collecting surface or contacting conductor and the other part thereof being normally held away from said surface or conductor; in combination with means for forcing it into contact therewith, substantially as described.

3. A compound current-collector or shoe for an electric railway consisting of a sliding shoe adapted to rest normally upon the current-collecting surface or contacting conductor; in combination with one or more additional current-collecting shoes located in alinement therewith and held normally out of contact with the current-collecting surface or contacting conductor; together with means for placing all of said shoes in contact with the current-collecting surface or conductor, substantially as described.

4. A compound current-collector for an electric railway embracing two or more shoes located in alinement with each other; in combination with means for placing any or all of said shoes in contact with the current-collecting surface or contacting conductor; together with means for holding all of said current-collecting shoes out of contact with said surface or conductor, substantially as described.

5. A compound current-collector for an electric railway embracing a single shoe and a pair of additional shoes located one on each side of the first-named shoe and in alinement therewith; in combination with means for causing the central shoe to rest in contact with the contacting conductor and additional means for causing the other pair of shoes to rest also in contact therewith, the arrangement being such that all of said shoes may be lifted out of contact with the conductor, substantially as described.

6. A current-collector for a sectional third-rail system of electric railways embracing a compound shoe composed of two or more parts so constructed and arranged that the contacting length of the shoe may be varied so as to bridge the spaces between the sectional third rails at angular crossings with other tracks, substantially as described.

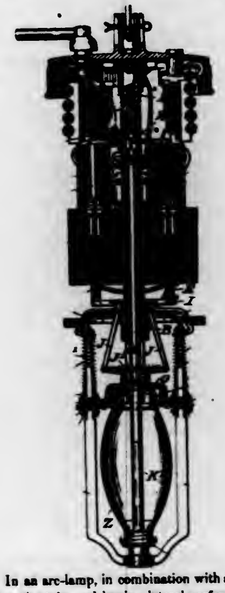
7. A current-collector for a system of electric railways embracing a single central shoe and a pair of shoes located on opposite sides thereof and in alinement therewith; in combination with means for causing the first-named shoe to rest normally in contact with the contacting conductor and additional means for causing the second pair of shoes to rest also in contact therewith; together with means for holding and locking all of said shoes out of operative contact with the conductor, substantially as described.

8. A current-collector or shoe provided with means intermediate its ends for effecting the removal of any obstruction which may pass between it and the third rail or contacting conductor, substantially as described.

9. A current-collector or shoe provided with a notch at a point intermediate its ends, said notch being so constructed as to eject or remove any obstruction which may pass between it and the third rail or contacting conductor, substantially as described.

10. A current-collector or shoe provided with a double inclined notch intermediate its ends adapted to eject or remove any obstruction which may pass between the shoe and the third rail or contacting conductor, no matter in which direction the shoe may be moving, substantially as described.

678,560. ELECTRIC-ARC LAMP. JOSEF H. HALLBERG, New York, N. Y., assignor to General Incandescent Arc Light Company, same place. Filed Nov. 13, 1900. Serial No. 36,322. (No model.)

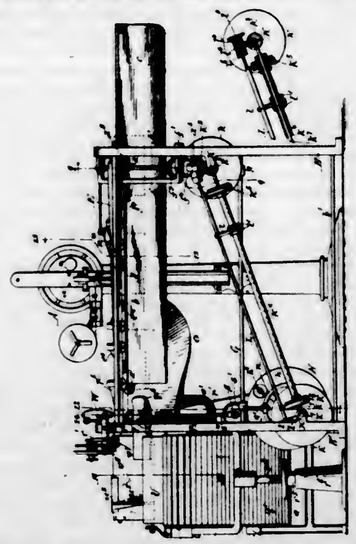


Claim.—1. In an arc-lamp, in combination with a supporting-tube, a casting secured to the tube and having lateral perforated arms, a frame for supporting the lower carbon, provided with jointed side arms, and resilient means for normally holding the jointed portions of the frame within the cavity of the arms of the casting.

2. In an arc-lamp, in combination with a supporting-tube, an annular plate secured to the tube, pairs of magnets having their armatures in line and adapted for simultaneous movement, a plate connecting the armatures at the top, a dash-pot connected to the plate, a plate connecting the armatures at the bottom, and a clutch mechanism connected to the last-named plate.

3. In an arc-lamp, in combination with the bottom plate of that portion of the lamp carrying the actuating mechanism, a bracket depending therefrom, carrying a hollow casting provided with lateral arms, a gas-cap mounted in the casting, an arc-inclosing globe, a frame for supporting the arc-inclosing globe, provided with jointed side arms adapted for vertical movement in the arms of the casting, and means for exerting a constant upward pressure upon the supporting-frame, whereby the jointed side arms of the frame are brought within the cavity of the arms of the casting and the frame locked in position, and the top of the arc-inclosing globe into contact with bottom of gas-cap.

678,561. MACHINE FOR STAPLING, FOLDING, AND STACKING PAMPHLETS. FREDERICK HART, Poughkeepsie, N. Y. Filed May 21, 1898. Serial No. 681,277. (No model.)



Claim.—1. The combination with a wire stitching or stapling mechanism provided with a stitching-table and with an unobstructed path in which the blanks move along said table, of a frictional feed mechanism composed of two continuously-moving frictional feed devices arranged on opposite sides of said path and operating on opposite sides of the blanks, whereby the blanks are fed to the stitching mechanism solely by said feed mechanism and the feed mechanism continues its movement independent of the blanks while the latter are grasped by the stitching mechanism and the blanks are fed forward by the frictional contact with the feed mechanism the instant the stitching mechanism releases the blanks, substantially as set forth.

2. The combination with a stitching-table and a wire stitching or stapling mechanism, of a continuously-moving frictional feed mechanism which is arranged along said table and whereby the blank is presented to the stitching or stapling mechanism and permitted to be operated upon and held by the stitching or stapling mechanism while the feed mechanism continues its movement independent of the blank, and means whereby the speed of the feed mechanism can be changed for increasing or reducing the distance between the stitches, substantially as set forth.

3. The combination with a stitching-table and a wire stitching or stapling mechanism, of a continuously-moving frictional feed mechanism whereby the blanks are presented to the stitching or stapling mechanism, and a variable-speed gear whereby said feed mechanism is moved slowly while a staple or stitch is put into a blank and fast in the intervals between the stitches, substantially as set forth.

4. The combination with the stitching-table, and the lower feed-belt, of an upper feed-belt having its receiving-roller mounted on the upper end of a shaft which is movable at its upper end toward and from the lower belt, and means whereby said shaft is driven near its lower end, substantially as set forth.

5. The combination with the stitching-table and the lower feed-belt, its receiving-roller and shaft, of an upper feed-belt its receiving-roller mounted on the upper end of a shaft which is movable at its upper end toward and from the lower belt, and gears connecting said shafts near their lower ends, substantially as set forth.

6. The combination with the stitching-table and the lower feed-belt, of an upper feed-belt, its receiving-roller mounted upon the upper end of a shaft which is movable at its upper end toward and from the lower belt

and driven near its lower end, a rock-arm for moving said shaft toward and from the lower belt, a rod connected with the upper end of said shaft, and a yielding connecting device whereby said rod is connected with said rock-arm, substantially as set forth.

7. The combination with the stitching or stapling mechanism, the lower feed-belt and the upper feed-belt, of a gage having a yielding top or end, and mechanism whereby the receiving end of the upper feed-belt and the gage are moved up when the stitching or stapling mechanism is in its operative position and down when the stitching or stapling mechanism is in its inoperative position, substantially as set forth.

8. The combination with the stitching or stapling mechanism and the stitching-table having one of its sides extended in a straight line beyond the other side, of a folding-guide for closing the blanks arranged with its receiving end in rear of the short side of the table and turning toward and under the long side of the table, substantially as set forth.

9 The combination with the stitching or stapling mechanism and the stitching-table having a short rear side which extends to the receiving side of the stitching mechanism and a long front side which extends in a straight line beyond the discharge side of the stitching mechanism, of a curved folding-guide arranged with its receiving end adjacent to the discharge side of the stitching mechanism in line with the short rear side of the table and turning forwardly underneath the long front side of the table and extending lengthwise beyond the same, whereby the front flap of the blank is moved rearwardly at the same angle and the rear flap of the blank is closed against the front blank after leaving the table, substantially as set forth.

10. The combination with a traveling platform on which the blanks are stacked, of a movable feed-chute from which the blanks are delivered to the platform, and mechanism whereby said chute is slowly moved over the platform for delivering each blank slightly in rear of the next preceding blank, substantially as set forth.

11. The combination with a traveling platform on which the blanks are stacked, of a movable feed-chute from which the blanks are delivered to the platform, mechanism whereby said chute is slowly moved over the platform for delivering each blank slightly in rear of the next preceding blank, and an automatic return mechanism whereby the chute is returned to its starting-point, when a predetermined number of blanks have been delivered, thereby starting the next batch of blanks at a considerable distance from the last blank of the preceding batch, substantially as set forth.

12. The combination with a traveling stacking-platform, of a feed-chute composed of a front plate which is movably mounted on guides on the platform and a swinging rear plate pivoted at its upper end to a stationary support and connected at its lower end with the front plate, substantially as set forth.

13. The combination with a traveling stacking-platform, of a feed-chute movably mounted above the platform, a cam whereby said chute is moved over the platform, and mechanism by which said cam is moved and which is automatically controlled by the blanks passing to the chute and platform, substantially as set forth.

14. The combination with a traveling stacking-platform, of a feed-chute movably mounted above the platform, a cam whereby said chute is moved forward and allowed to be returned to its starting-point, a ratchet mechanism whereby said cam is rotated, and a finger which is moved by the blanks and which operates said ratchet mechanism, substantially as set forth.

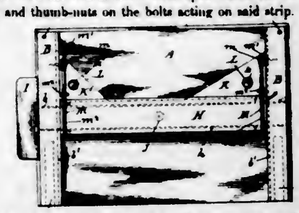
15. The combination with the stacking-platform and its driving-shaft provided with a gear-wheel, of an actuating-shaft geared with said wheel at one end and carrying at its opposite movable end a friction-pulley, a friction driving-wheel toward and from which said friction-pulley can be moved, a shifting-rod whereby said shaft and pulley are moved toward and from said driving-wheel, and a roller connected with said shifting-rod adapted to be shifted by each blank in passing to the platform, thereby throwing the friction-pulley into gear with the friction-wheel and moving the platform, substantially as set forth.

16. The combination with a stitching or stapling mechanism and table, of a folding guide whereby the stapled blanks are closed, a stacking-platform, and a movable chute whereby the blanks are delivered to the platform, substantially as set forth.

17. The combination with a stitching or stapling mechanism, and table, of a folding guide whereby the stapled blanks are closed, a stacking-platform, a movable chute whereby the blanks are delivered to the platform, and automatic return mechanism whereby the chute is returned to its starting-point when a predetermined number of blanks have been delivered, substantially as set forth.

678,562. DRAWING-BOARD. OLCOTT HASKELL, San Rafael, Cal. Filed Apr. 18, 1901. Serial No. 56,102. (No model.)

Claim.—1. A drawing-board having a spring-controlled clamping-strip adapted to hold the drawing-paper, said strip having a lip forming a stop for the upper edge of the inserted paper whereby said paper is registered square with the board, screw-bolts upon which said strip is fitted and guided, and thumb-nuts on the bolts acting on said strip.



2. A drawing-board having along the upper edge of its face, a spring-controlled clamping-strip adapted to hold the drawing-paper, said strip having a lip projecting downwardly over the upper edge of the board and forming a stop for the upper edge of the inserted paper whereby said paper is registered square with the board, screw-bolts upon which said strip is fitted and guided, and thumb-nuts on the bolts acting on said strip.

3. A drawing-board having on its back a channeled strip forming with said board a sheath for the reception of the leg or blade of the T-square and a frictional projection within said sheath, to hold said leg or blade.

4. A drawing-board having on its back a channeled springy strip forming with said board a sheath for the reception of the leg or blade of the T-square and a frictional projection extending from said strip into the sheath to hold said leg or blade.

5. A drawing-board having on its back at each end a stiffening-cleat, provided with a transverse opening parallel with the plane of the board, and a strip secured to the back of the board between said cleats and having on its under face a channel in line with the cleat-openings, and forming with said board a sheath, to receive the leg or blade of the T-square entered through the cleat-openings.

6. A drawing-board having on its back at each end a stiffening-cleat, provided with a transverse opening parallel with the plane of the board, and a strip secured to the back of the board between said cleats and having a channel in line with the cleat-openings, said strip forming with said board a sheath, to receive the leg or blade of the T-square entered through the cleat-openings, and a frictional projection within said sheath, to hold said leg or blade.

7. A drawing-board having on its back at each end a stiffening-cleat, provided with a transverse opening parallel with the plane of the board, and a springy strip secured to the back of the board between said cleats and having a channel in line with the cleat-openings, and forming with said board a sheath, to receive the leg or blade of the T-square entered through the cleat-openings, and a frictional projection extending from said strip into the sheath to hold said leg or blade.

8. A drawing-board having on its back stiffening-cleats at each end, with grooved or undercut inner edges, a strip on the back of said board extending between said cleats and having a grooved or undercut edge, and frictional projections in the back of the board adapted to engage the holes in the drawing-triangles and with the undercut edges of the cleats and strip which engage the edges of the triangles, forming a means for holding and carrying said triangles.

9. A drawing-board having on its back stiffening-cleats at each end with grooved or undercut inner edges and transverse openings parallel with the plane of the board, a channel-strip on the back of the board between the cleats and forming with said board a sheath for the leg or blade of the T-square entered through the cleat-openings, said channeled strip having a grooved or undercut edge, a frictional projection in said sheath to hold the leg or blade of the T-square, and frictional projections in the back of the board adapted to engage the holes in the drawing-triangles and with the undercut edges of the cleats and strip which engage the edges of the triangles, forming a means for holding and carrying said triangles.

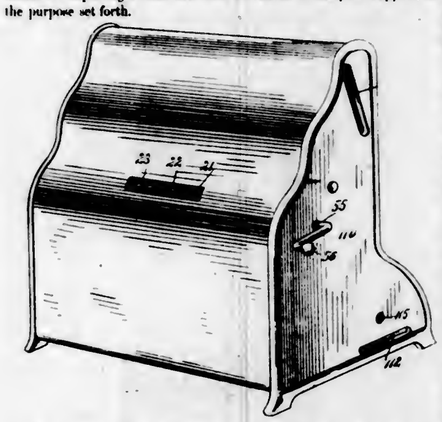
10. A drawing-board having hinged to its back a pair of legs, screw-threaded, and fitted with nuts, to adjustably limit their insertion in sockets, whereby the slope of the board may be regulated.

11. A drawing-board having hinged to its back a pair of legs, screw-threaded and fitted with nuts, to adjustably limit their insertion in sockets, whereby the slope of the board may be regulated, said legs having washers at their hinged joints adapted to hold them to the position in which they are placed.

12. A drawing-board having stiffening-cleats on its back at each end, said cleats having holes or sockets in their lower ends adapted to fit over fixed pins, to hold the board when not in use.

678,568. COIN-REGISTERING BANK. JAMES F. HEALY, Florence, Mass. Filed Apr. 20, 1900. Serial No. 13,641. (No model.)

Claim.—1. In a coin-registering bank of the character described, the combination with a rotatable registering or dial wheel having a ratchet-wheel in operating connection therewith, of a pawl in normal disengagement with said ratchet-wheel, a movable support on which said pawl is mounted for a swinging movement relatively thereto and a bodily thrust movement in unison therewith, a guide for conveying a coin to a position to throw the pawl into engagement with said ratchet-wheel, and means for imparting a back-and-forth movement to the pawl-support, for the purpose set forth.



2. In a coin-registering bank of the character described, the combination with a rotatable registering or dial wheel having a ratchet-wheel in operating connection therewith, of a movable support mounted for a backward-and-forward movement, a pawl mounted on said support to swing relatively thereto to engage and disengage said ratchet-wheel and having a horizontal arm or extension, a guide for conveying a coin down onto said pawl extension, means for imparting a bodily forward movement to the pawl-support and pawl for operating the ratchet-wheel and dial-wheel, for withdrawing the pawl extension from its position of support under the coin, leaving the latter free to fall through an unobstructed space which is thereunder for its passage therethrough, substantially as described.

3. In a coin sorting and registering bank, the combination with a series of registering dial-wheels, having ratchet-wheels in operating connection therewith, of a series of pawls respectively adjacent said ratchets, a common carrier for the several pawls, a runway for coins and guides into which they automatically enter, and which convey them to automatically operate the pawls for engaging the registering-wheels for such coins and means for imparting a reciprocatory movement to said pawl-carrier, for the purpose set forth.

4. In a coin-registering machine, in combination, two registering or dial wheels for coins of different denominations, as for cents and dimes, one having a ratchet-wheel in operating connection therewith and the other having two ratchet-wheels in operating connection therewith, a coin-controlled pawl for the first ratchet-wheel and a coin-controlled pawl adapted to engage the pawls for the other two ratchet-wheels, means for imparting bodily thrust movements to said pawls, and suitable coin-guides leading to said pawls, for the purpose set forth.

5. The combination with the cents dial-wheel 21, and two ratchet-wheels 33 and 38 both having driving connections with said wheel 21 for different extents of movements thereof, of the two pawls 34 and 34^b automatically coin-controlled to engage, and adapted to normally disengage said pawls and means for imparting to said pawls bodily a thrust movement in unison.

6. In combination, the dial-wheel 21 having thereon the toothed wheel 24 meshing with which is the toothed wheel 31 having the ten-tooth ratchet, the pawl 34, a movable support therefor on which it rocks, a coin-guide leading to a part of said pawl and means for imparting a movement to the pawl-support.

7. In combination, the dial-wheel 21, having thereon the ten-toothed wheel 24 having wide spaces between the teeth, the wheel 31 of the same diameter and twice the number of the same-sized teeth, and having the ten-tooth ratchet-wheel 33, the movable pawl-support 36, the pawl 34 mounted to rock thereon, a coin-guide to guide a coin against a part of said pawl and means for moving the pawl-support.

8. In a coin-registering bank, in combination, dial-wheel 21 having thereon the ten-tooth pinion 25, the spur-wheel 37 having the five series of teeth separated by open spaces, and having the ratchet-wheel 38 thereon, the movable pawl-support, the pawl 34^b, the guide for conveying nickels to the pawl, means for imparting the movement to the pawl-support.

9. In a coin-registering bank, for registration of cents and nickels, in combination, dial-wheel 21 having on one end toothed wheel 24, and on its other pinion 25, toothed wheel 31 meshing wheel 24 and provided with ten-toothed ratchet-wheel 33, wheel 37 having the five series of teeth separated by open spaces and having the ratchet-wheel 38, the movable pawl-support, the pawls 34 and 34^b, guideways for leading pennies and nickels to position to cause said pawls to engage the said ratchets, and means for imparting a bodily thrust movement to the pawl-support and pawls thereon, substantially as and for the purpose set forth.

10. In a registering-bank for coins, in combination, different wheels of higher and lower denominations, as for dimes and cents, adjacently-located ratchet-wheels having through gearing which is interposed driving connection with both dial-wheels for rotating them in different extents upon a given rotational movement of the ratchet-wheels, a single pawl mounted on a movable support and having an independent movement thereon, imparted thereto by a coin, of engagement and disengagement with both ratchet-wheels, and a guideway for conveying a coin upon a part or extension of the said pawl.

11. In a registering-bank for coins, in combination, the dimes-wheel 22 having thereon the gear-wheel 27 and the pinions 28 and 29, of the toothed wheel 39, with the ratchet-wheel 40 and the toothed wheel 42 with the ratchet-wheel 43 and the toothed wheel 44 with the ratchet-wheel 45, the pawls 34^c, 34^d, and 34^e, coacting with the respective ratchets, a movable support common to all of the pawls and on which they have individually rocking movements, means for guiding coins against portions of the respective pawls and means for imparting a bodily movement to the pawl-support and pawls mounted thereon, substantially as and for the purposes set forth.

12. In a coin-registering bank, in combination with dial-wheel 23 having gear-wheel 30 thereon, toothed wheel 46 in mesh therewith having ratchet-wheel 47, pawl 34^f, movable support therefor, and means for moving said support and a guideway for leading a coin to a position against a portion of said pawl, substantially as described.

13. In a coin-registering bank, in combination with a registering-wheel, and a ratchet-wheel in driving connection with the registering-wheel, a shaft mounted on a support therefor capable of a bodily swinging movement, a pawl having a rocking support in said shaft, and having a member thereof normally disengaged bot in proximity to the ratchet-wheel and having an oppositely-extended portion or finger, substantially as described.

14. In a coin-registering bank, in combination, the shaft 36, the pivotally-mounted members 48, 48, between which said shaft is supported, the levers 53, 53; coacting with said members 48, the cam or cams 54 and means for rotating them, the series of pawls; as 34, having rocking supports on said shaft 36 and having the rearwardly-extended fingers, as 35, several ratchet-wheels with which the pawls respectively engage, registering or dial wheels with which the ratchet-wheels have driving connections, and coin-guides leading to the respective pawl extensions or fingers, all substantially as and for the purposes set forth.

15. In a coin-registering bank, in combination, the shaft 36, the pivotally-mounted members 48, 48, between which said shaft is supported, the levers 53, 53, coacting with said members 48, the cam or cams 54 and means for rotating them, and the spring 52 exerting a retracting movement against each member 48, the series of pawls, as 34, having rocking supports on said shaft 36 and having the rearwardly-extended fingers, as 35, several ratchet-wheels with which the pawls respectively engage, registering or dial wheels with which the ratchet-wheels have driving connections, and coin-guides leading to the respective pawl extensions or fingers, all substantially as and for the purposes set forth.

16. The combination with the units or cents wheel and the tens-wheel having thereon the spur-gears 24 and 26, a shaft parallel with the axis of said wheels having thereon a ten-toothed wheel engaging said spur-gear 24 and having rotatable means in unison therewith, a single-toothed part engaging the toothed wheel 26 of the tens-wheels, a ratchet-wheel in driving connection with the units-wheel, a movable support on which it is mounted, a coin-controlled pawl, a guideway for conveying the coin to control the pawl, and means for imparting a reciprocatory movement to the movable pawl-support, substantially as and for the purposes set forth.

17. In a registering-bank for coins in combination, a series of pawls corresponding to and to be controlled by coins of various denominations, a movable support or carrier on which they are mounted for individual movements and also all bodily movable in unison therewith, a series of ratchet-wheels operated by the pawls, a series of registering-wheels with which the ratchet-wheels have driving connections, and means for moving the pawl-support, for the purpose set forth.

18. In a registering-bank for coins, in combination, a series of pawls corresponding to and to be controlled by coins of various denominations, a movable support or carrier on which they are mounted for individual

movements and also all bodily movable in unison therewith, a series of ratchet-wheels operated by the pawls, a series of registering-wheels with which the ratchet-wheels have driving connections, mechanism for transferring the maximum of one registration-wheel to a registering-wheel of higher denomination, and means for moving the pawl-support, for the purpose set forth.

19. In a coin-registering bank, in combination, several dial-wheels, loose on a shaft, several ratchet-wheels, loose on a second shaft, in driving connection with said dial-wheels, pawls loosely mounted on a bodily-movable shaft 36 having individual swining movements thereon, and bodily movements in unison therewith, means for bodily moving the shaft 36, the curved and bent plate 66 having the apertures 68 the margins of which have restraining engagements with the several ratchet-wheels, and having the apertures 69 which serve both as guides for the thrust movements of the pawls and to keep them in their proper positions of separation.

20. In a coin-registering bank, in combination, the series of ratchet-wheels and shaft 32 on which they are loosely mounted, the series of pawls 34 and the bodily-movable shaft 36 on which they are loosely mounted, and means for moving same and the pawls thereon, the curved and bent plate 66 having the apertures 68, engaging on opposite sides of the ratchet-provided wheels, and having as integral parts thereof the tongues 67 for spring-detents for the ratchet-wheels, and having the apertures 69 separating and guiding the pawls, substantially as described and shown.

21. In a coin-registering bank or like apparatus, a runway for coins having at its inside a wall rising thereabove which has the series of varying-sized apertures through which the coins may respectively topple as they roll, and chutes adjacent said apertures, operating-pawls to which the chutes respectively lead, a support on which they are movably carried bodily in unison and on which they are individually rocked by the coins which come thereagainst, means for moving the pawl-support, ratcheted wheels, operated by the pawls and registering-wheels with which the ratcheted wheels have rotating engagements.

22. In a coin-registering bank, in combination, a registering-wheel, a normally disengaged pawl or driver to insure rotation of the registering-wheel, a guide for leading a coin to engagement with the pawl or driver for setting it, in driving connection with the register-wheel, and means for inparting a thrust motion to the driver.

23. In a cash-registering bank, the inclosing case having the coin-withdrawal slot, the internally-located plate 113 for covering and closing said slot, the swinging arm 114—to which said plate is pivotally attached—having a key-receiving socket coincident with its center of swinging movement, as shown.

24. In a coin-registering bank in combination the shaft or rod 36, the pivotally-mounted levers 48, 48 between which the rod is mounted and having the arm 48ª, the rotary cam 54, the thrust-pawls 34, 34, mounted on and bodily movable with said rod, ratchet-wheels adapted to be engaged by the pawls, registering-wheels with which the ratchet-wheels are in driving connection, and coin-guides for leading the coins to the respective pawls.

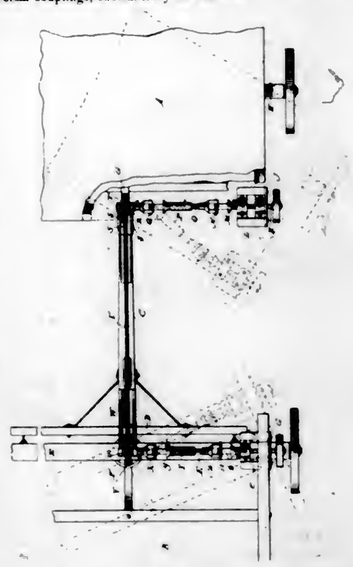
25. In a coin-registering bank, in combination, a rotatable registering-wheel, a part in engagement therewith, and movable to rotate same, a pawl or driver normally disengaged from said register-wheel-engaging part, means for guiding a coin whereby the presence thereof in the machine causes the engagement of the pawl or driver with the part which is in connection with the register wheel, and means for imparting a propulsive movement to the driver.

26. In a coin-registering bank, in combination, a series of registering-wheels, normally-disengaged pawls or drivers for insuring rotational movements of the registering-wheels, devices whereby the presence of given coins in the bank will set the pawls or drivers in driving connection with the register-wheels, and means in common to all the drivers for imparting thrust motions thereto.

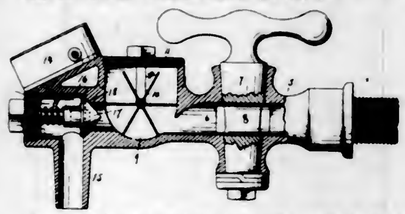
678,564. THRESHING-MACHINE ATTACHMENT. WILLIAM R. HENDRY, Paullina, Iowa. Filed Apr. 19, 1901. Serial No. 56,554. (No model.)

Claim.—1. The combination of the separator, the stacker, a pole or tongue connecting the separator and the stacker, a driving-pulley at the side of the separator, a pulley arranged over the front end of the tongue, a jointed shaft connecting the driving-pulley with the pulley arranged over the front end of the tongue, another pulley arranged over the king-bolt of the stacker, a belt connecting the last-mentioned pulley with the pulley over the front end of the tongue, a pulley at the side of the stacker, and a jointed shaft connecting the pulley arranged over the king-bolt with the pulley at the side of the stacker.

2. The combination of the separator, the stacker, a pole connecting them, a pulley arranged over each end of the pole, a belt connecting these pulleys, pulleys at the side of the stacker and separator, and shafts connecting the polleys at the sides of the separator and stacker with the pulleys arranged over the tongue, said shafts having sliding portions and universal couplings, substantially as described:



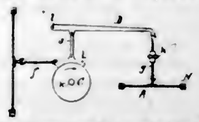
678,565. MEASURING-FAUCET. JOHN H. HERBST, Elmira, N. Y. Filed Mar. 16, 1901. Serial No. 51,506. (No model.)



Claim.—1. A measuring-faucet comprising a casing having a cut-off valve for regulating the flow of liquid therethrough, a paddle-wheel disposed beyond the valve for actuation by liquid passing through the casing, a discharge-spout, and a check-valve disposed at the upper end of the spout and having means for closing it when the flow through the casing is cut off.

2. A measuring-faucet comprising a casing having a cut-off valve for regulating the flow through the casing, a measuring paddle-wheel disposed for actuation by liquid flowing through the casing beyond the valve, a spout depending from the casing, a valve-seat in the casing terminating at the rear wall of the spout, a check-valve disposed for engagement with the seat, and means for holding the check-valve yieldably in its seat when the flow through the casing is cut off.

678,566. PHONIC APPARATUS. DANIEL HIGHAM, Winthrop Highlands, Mass. Filed Apr. 25, 1901. Serial No. 57,454. (No model.)

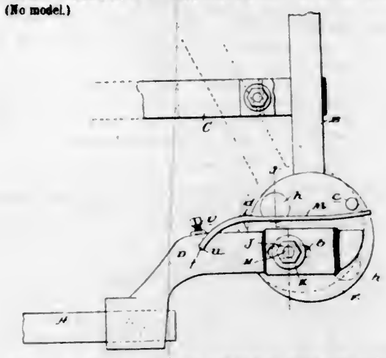


Claim.—1. In an apparatus for reproducing, with increased power, a vibrating energy corresponding to sound-waves, the combination of a lever means, effective of increased mechanical force, with a primary vibrating means actuating said lever means, a frictional means controlled by said primary means through said lever means, and a secondary vibrating means actuated by said frictional means, substantially as and for the purpose described.

2. In an apparatus for reproducing, with increased power, a vibrating energy corresponding to sound-waves, the combination of lever means and frictional means compounded, with primary vibrating means actuating said compounded means, and secondary vibrating means actuated by said compounded means, substantially as and for the purpose described

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678,567. PICKER-STAFF ROCKER AND CHECK. ADOLOR HOGUE, Woonsocket, R. I. Filed Jan. 24, 1901. Serial No. 44,582. (No model.)



Claim.—1. The combination of a bracket or rocker-arm, a picker-staff, a rocker carrying the staff and fulcrumed eccentrically on the bracket or rocker-arm at one side thereof; said rocker having a lateral projection on its side adjacent to the bracket or rocker-arm, and the check or cushioning spring connected at one end to the bracket or rocker-arm and having the free portion arranged to be engaged by the lateral projection of the rocker.

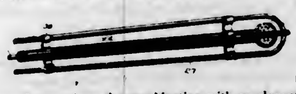
2. The combination of a bracket or rocker-arm, a fulcrum projecting laterally therefrom, a picker-staff, a picker-rocker comprising a member mounted eccentrically on said fulcrum and provided with a lateral projection, a staff-carrying member connected to the fulcrumed member, and means for adjustably fixing the staff-carrying member and the staff with respect to the other member to position the staff in the lay, and a check or cushioning spring connected to the bracket or rocker-arm and arranged to be engaged by the lateral projection of the rocker.

3. The combination of a bracket or rocker-arm, a picker-staff, a picker-staff rocker comprising a member fulcrumed on the bracket or rocker-arm, and having serrations on its inner face, a staff-carrying member also having serrations on its inner face to engage those of the fulcrumed member, and transverse bolts arranged off the center and extending through slots in one member, and transverse bolts arranged off the center and extending through slots in one member, and connected to the other member.

4. The combination of a bracket or rocker-arm, provided with a slot, a rocker having a transverse circular aperture, a picker-staff carried by the rocker, a bushing arranged in the circular aperture of the rocker and having an angular portion disposed in the slot of the bracket or rocker-arm, and a bolt extending through the bushing and bracket, and connecting the rocker the bushing and bracket, substantially as specified.

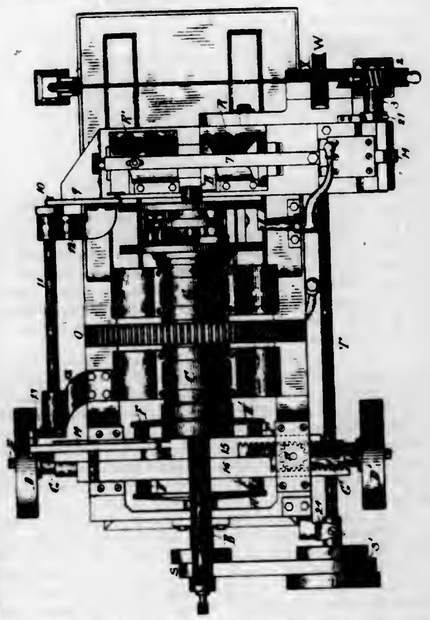
5. The combination of a bracket or rocker-arm, a picker-staff, a rocker comprising a member eccentrically fulcrumed on the bracket or rocker-arm, a second member, a channel-iron straddling the picker-staff, a central bolt extending through and connecting the channel-iron, the picker-staff and said second member, and bolts arranged off the center and connected to one member and extending through slots in the other member, and a check-spring connected to the rocker-arm and arranged to be engaged by a lateral projection on the rocker.

678,568. SYRINGE. RICHARD J. HUGHES, Dedham, Wis. Filed Dec. 7, 1899. Serial No. 739,553. (No model.)



Claim.—In a syringe the combination with an elongated imperforate tubular feeder having a rear open end and a front spherical head perforated completely over its entire surface, a pair of U-shaped spreaders arranged in planes at right angles to each other and having their bowed ends crossed in advance of the said spherical head of the feeder, the legs of each spreader being parallel to each other, and two spiders having central sleeves and four radial arms with terminal sleeves, the central sleeves of the spiders being fixed on opposite extremities of the feeder and the sleeves at the terminals of the arms fitted on the legs of the spreaders whereby the feeder is held in central position within the spreaders.

678,569. CUTTING-OFF MECHANISM. RUFUS H. HURLBUT, Sudbury, Mass. Filed Nov. 22, 1900. Serial No. 37,352. (No model.)



Claim.—1. In a machine of the character described, a revoluble mandrel, a tool-carriage adapted to slide at right angles to the axial line of said mandrel, a rack connecting therewith, a pinion meshing into said rack, mechanism for driving said pinion and thereby feeding said tool-carriage toward the axial line of the mandrel, in combination with means for disengaging said driving mechanism from said pinion and mechanism whereby said pinion when disengaged will be automatically turned on its axis in a reversed direction thereby bringing the tool-carriage away from the axial line of the mandrel substantially as described.

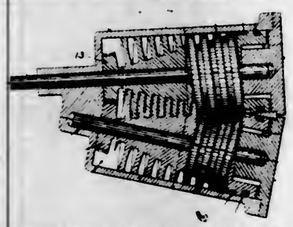
2. In a machine of the character described, in combination with a revoluble mandrel, two tool-carriages adapted to move at right angles to the axial line of said mandrel, racks attached to each of said carriages, an intermediate pinion meshing with both racks, and mechanism for operating said pinion, consisting of a shaft carrying said pinion, another shaft parallel with said pinion-shaft and driven from the mandrel-driving mechanism, a third shaft at right angles to the two shafts mentioned and connected to each by worm-gearing, arranged and to operate substantially as herein set forth.

3. In a machine of the character described the following mechanism for communicating the motion of the tool-carriers to the speed-varying mechanism, viz: a rocker-shaft, two arms rigidly attached to the same at or near the opposite ends thereof, connecting-bars pivotally attached to said arms, one of said bars being attached to the tool-carriage and the other to one of the sliding frames which carries one of the friction-wheels, whereby the motion of the tool-carriage toward the axial line of the mandrel operates to move the friction-wheels toward the center of the disk thus accelerating the movement of the mandrel substantially as shown and described.

678,570. MOTOR. WILLIAM A. JONES, West Brighton, N. Y. Filed Oct. 22, 1900. Serial No. 33,862. (No model.)

Claim.—1. In a rotary motor or compressor, a casing having suitable inlet and exhaust ports for an elastic fluid and having two cylindrical chambers intersecting each other laterally and longitudinally, in combination with a right-hand screw in one of said chambers, and a left-hand

screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, the sides of said thread being so formed that the thread of one screw will intermesh with that of the other screw and closely engage the same throughout the entire distance of the overlap and also closely engage the bottom of the space between the threads, thereby forming an effective seal between the isolated spaces of each screw.



2. In a rotary motor or compressor, a casing having two cylindrical chambers intersecting each other laterally and longitudinally, in combination with a right-hand screw in one of said chambers, a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, a valve chamber on said casing having a series of inlet-ports communicating with the isolated spaces of the screws and an exhaust-port, and a valve for controlling said ports, substantially as set forth.

3. In a rotary motor or compressor, a casing having suitable inlet and exhaust ports for an elastic fluid and having two intersecting cylindrical chambers in combination with a right-hand screw in one of said chambers, and a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, the thread of one screw intermeshing with that of the other and extending to said conical surface and each having its side walls concaved, for the purpose set forth.

4. In a rotary motor or compressor, a casing having suitable inlet and exhaust ports for an elastic fluid and having two intersecting cylindrical chambers in combination with a right hand screw in one of said chambers, and a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, each screw intermeshing with the other and having an annular space about it at the inlet-ports, from which the space between the threads of the screw has its beginning.

5. In a rotary motor or compressor, a casing having suitable inlet and exhaust ports for an elastic fluid and having two intersecting cylindrical chambers in combination with a right-hand screw in one of said chambers, and a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, each screw intermeshing with the other and having a space between the casing and the end thereof opposite the exhaust-port which communicates with the space at the exhaust-port end of the motor, as and for the purpose set forth.

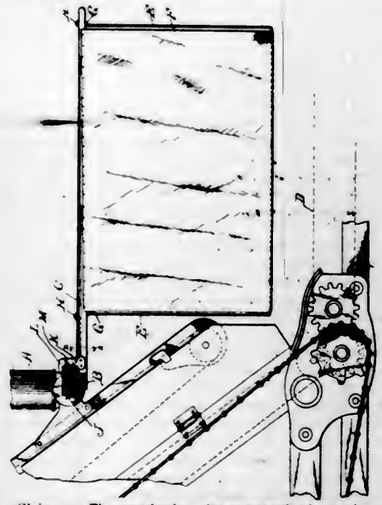
6. In a rotary motor or compressor a casing having suitable inlet and exhaust ports for an elastic fluid and having two intersecting cylindrical chambers, in combination with a right-hand screw in one of said chambers, and a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, the thread of one screw intermeshing with that of the other and the thread of one screw and the interspace of the other gradually increasing in width from one end of the screw to the other, for the purpose set forth.

7. In a rotary motor or compressor a casing having suitable inlet and exhaust ports for an elastic fluid and having two intersecting cylindrical chambers, in combination with a right-hand screw in one of said chambers, and a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, the screws intermeshing and the sides of the threads of each screw being a surface such as would be generated by the helix forming the corner of the intermeshing thread of the other screw, so that as the screws revolve there is a line of contact between the sides of the thread of each screw and the corresponding helical corner of its engaging screw, thus forming a seal between the isolated spaces of each screw.

8. In a rotary motor or compressor, a casing having two intersecting cylindrical chambers in combination with a right-hand screw in one of said chambers, a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, a valve-chamber on said casing having a series of ports communicating with the spaces between the threads and at the ends of the screws and a valve in said chamber for controlling said ports and providing for the admission and discharge of the elastic fluid to effect an advance or reverse movement of the screws.

9. In a rotary motor or compressor, a casing having suitable inlet and exhaust ports for an elastic fluid and having two intersecting cylindrical chambers in combination with a right-hand screw in one of said chambers, and a left-hand screw in the other one of said chambers, each of said screws having a cylindrical perimeter fitting the side walls of its chamber and having the bottom of the space between the convolutions of its thread on the surface of a cone, each of said spaces beginning at a point between the ends of its respective screw and terminating at one end thereof, and the screws intermeshing one with the other.

678,571. WIND-BREAK FOR HARVESTING-MACHINES. MAURICE KANE, Austin, Ill. Filed Apr. 16, 1900. Serial No. 12,977. (No model.)



Claim.—1. The combination with a supporting-beam of a grain-binder, of an arm having an angle-plate and a hooked plate adapted to respectively engage the rear lower edge and the front upper edge of said supporting-beam, whereby said arm is detachably supported by said beam and is adapted to be shifted bodily parallel to itself along said beam, and a wind-break carried by said arm, as and for the purpose set forth.

2. The combination with a supporting-beam, of an arm having an angle-plate at the inner end thereof adapted to engage the rear lower edge of said beam, a plate connected to said arm having wings or flanges to engage the front edge of said beam and a hooked end engaging over the upper end of said beam, and a wind-break carried by said arm, as and for the purpose set forth.

3. The combination with a supporting-beam, of an arm having engaging projections, said projections being spaced a distance apart sufficient to permit the supporting-beam to be received laterally therebetween, and means on one of said projections whereby said arm when tilted laterally may be placed on, removed from, or adjusted bodily along said beam, and held in applied and adjusted position by gravity, with one of said projections engaging said beam at the front surface thereof and the other at the rear, and diagonally opposite therefrom, as and for the purpose set forth.

4. The combination with a stationary supporting-beam, of an arm having suitable raised engaging projections, said projections being spaced a distance apart sufficient to permit the supporting-beam to be received laterally therebetween means formed on one of said projections and holding the arm with one of its projections engaging said beam at the front surface thereof and the other of said projections engaging said beam at the rear and diagonally opposite therefrom when said arm is in horizontal position to form a support therefor, whereby said arm when tilted laterally may be disengaged from or applied to said beam or adjusted by hand therealong, as and for the purpose set forth.

678,572. REAR-HUB COASTER AND BRAKE. EDWARD F. KELLEY, South Norwalk, Conn. Filed Oct. 5, 1900. Serial No. 32,159. (No model.)



Claim.—1. A device of the character described comprising a hub, flanged inner and outer rings carried thereby, pawls carried by said inner ring and having lugs lying in holes in the flange of the inner ring to prevent relative displacement of the pawls, and a driven wheel and a non-rotating intermediate ring lying between the flanges, said driven wheel being mounted rotatably on the inner ring and having recesses with abrupt faces and inclines engaged by the pawls and in its outer face inclined grooves, and said intermediate ring having in its inner face a ball-race, and balls in said ball-race and grooves, the pawls acting to drive the hub when the driven wheel turns forward and the balls riding up the inclines when the driven wheel is moved backward and forcing the intermediate ring and the driven wheel laterally against the flanges upon the inner and outer rings and stopping the rotation of the hub.

2. A device of the character described comprising a hub, flanged inner and outer rings carried thereby, pawls carried by said inner ring and having lugs lying in holes in the flange of the inner ring to prevent relative displacement of the pawls, and a driven wheel and a non-rotating intermediate ring lying between the flanges, said driven wheel being mounted rotatably on the inner ring and having recesses with abrupt faces and inclines engaged by the pawls and in its outer face sockets and inclined grooves and said intermediate ring having in its inner face a ball-race, and balls between said ring and the driven wheel, the pawls acting to drive the hub when the driven wheel turns forward, the balls remaining in the sockets and likewise when the bicycle is moved backward and is coasting and said balls riding up the inclines when the driven wheel is moved backward relatively to the hub whereby the intermediate ring and the driven wheel are forced laterally against the flanges and the rotation of the hub is stopped.

3. A rear-hub coaster and brake comprising a hub, flanged inner and outer rings carried thereby, pawls carried by said inner ring and having lugs lying in holes in the flange of the inner ring to prevent relative displacement of the pawls, a driven wheel and a non-rotating intermediate ring lying between the flanges, said driven wheel being mounted rotatably on the inner ring and having recesses with abrupt faces and inclines engaged by the pawls, and in its outer face sockets and inclined grooves and said intermediate ring having in its face a ball-race, balls between said intermediate ring and the driven wheel and an equalizing-ring lying between said ring and wheel and having holes which receive the balls, said equalizing-ring acting to cause the balls to drop into the sockets and to ride up the inclines in unison, the pawls acting to drive the hub normally and moving backward over the inclines in coasting.

4. A rear-hub coaster and brake comprising a hub, flanged inner and outer rings carried thereby, pawls carried by said inner ring and having lugs lying in holes in the flange of the inner ring to prevent relative displacement of the pawls, and a driven wheel and a non-rotatable intermediate ring lying between the flanges, said driven wheel being mounted rotatably on the inner ring and having recesses with abrupt faces and inclines engaged by the pawls, said inclines being provided with soft plugs to receive the pawls, and in its outer face having inclined grooves, and said intermediate ring having in its face a ball-race, and balls between said intermediate ring and driven wheel, substantially as described, for the purpose specified.

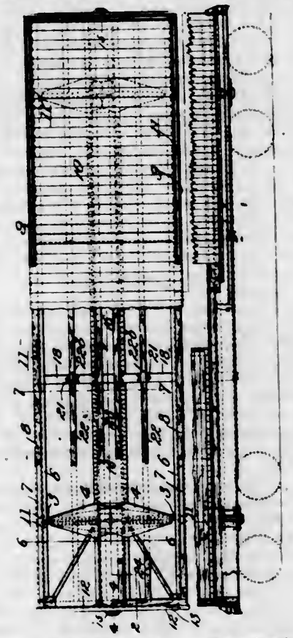
5. A rear-hub coaster and brake comprising a hub, flanged inner and outer rings carried thereby, a driven wheel and a non-rotating intermediate ring lying between the flanges, said driven wheel being mounted rotatably on the inner ring and said parts having a pawl-and-recess connection, the driven wheel having in its outer face inclined grooves formed with sockets at the deeper ends thereof, each of said sockets having its bottom slightly below the plane of the bottom of the inclined groove and the intermediate ring having in its inner face a ball-race, balls between said ring and wheel and friction-rings lying between the driven wheel and intermediate ring and the flanges respectively, whereby rotation of the hub is stopped when the driven wheel and intermediate ring are moved away from each other by movement of the balls up the inclines.

6. In a rear-hub coaster and brake the combination with rotatable inner and outer rings, of a driven wheel mounted to turn on one of said rings and having a suitable connection therewith and in its inner face inclined grooves formed with sockets at the deeper ends thereof, each of said sockets having its bottom slightly below the plane of the bottom of the inclined groove, a non-rotating intermediate ring having in its inner face a ball-race and balls between said driven wheel and intermediate ring, whereby rotation of the rings is stopped when backward movement of the driven wheel causes the balls to ride up the inclines and force the driven wheel and intermediate ring against the inner and outer rings respectively.

7. In a rear-hub coaster and brake the combination with rotatable inner and outer rings, of a driven wheel mounted to turn on one of said rings and having a suitable connection therewith and in its inner face inclined grooves formed with sockets at the deeper ends thereof, each of said sockets having its bottom slightly below the plane of the bottom of the inclined groove, a non-rotating intermediate ring having in its inner face a ball-race, balls between said driven wheel and intermediate ring and an equalizing-ring also lying between said parts and having holes which receive the balls, substantially as shown, for the purpose specified.

8. In a rear-hub coaster and brake, the combination with rotatable inner and outer rings, of a driven wheel mounted to turn on one of said rings and having a suitable connection therewith and in its inner face sockets and inclined grooves the grooves leading to said sockets, each of said sockets having in its bottom slightly below the plane of the bottom of the inclined groove, a non-rotating intermediate ring having in its inner face a ball-race, balls between said driven wheel and intermediate ring and friction-rings between the driven wheel and intermediate ring and the inner and outer rings respectively.

678,573. UNDERFRAMING FOR BOX-CARS. GEORGE I. KING, Detroit, Mich., assignor to the American Car & Foundry Company, St. Louis, Mo. Filed Jan. 23, 1901. Serial No. 44,426. (No model.)



Claim.—1. In an underframing for cars, the combination with body-bolsters and the center sill, of a side sill attached to the ends of the body-bolsters, a truss-frame intermediate the body-bolsters for supporting the side sill from the center sill, said truss-frame comprising a tension member in the form of a flat plate or bar, and a compression member in the form of a commercially-rolled bar; substantially as described.

2. In an underframing for cars, the combination with the body-bolsters, of a center sill extending from bolster to bolster, said center sill being capable of carrying the entire weight of the car and its contained load, a side sill attached to the ends of the bolsters, and a truss-frame supported by the center sill intermediate the bolsters, said truss-frame sup-

porting the side sill at its extremity and comprising a flat plate tension member attached to the under side of the side sill and the top of the center sill, and a commercially-rolled compression member attached to the under side of the side and center sills; substantially as described.

3. In an underframing for cars, the combination with body-bolsters, of side sill members attached to the ends of said bolsters, a center sill, and truss-frames of the character described for supporting said side sills intermediate the bolsters, substantially as described.

4. In an underframing for cars, the combination with body-bolsters, of side sill members attached to the ends thereof center sills supported by said bolsters, truss-frames for supporting the side sill members intermediate the bolsters, and intermediate sills which are likewise supported by said truss-frames intermediate the bolsters, substantially as described.

5. In an underframing for cars, the combination with the center and side sills, of a metallic end sill projecting thereabove, and a wooden nailing-strip abutting against the upwardly-projecting edge of the metallic end sill; substantially as described.

6. In an underframing for cars, the combination with draft and side sills, of a metallic end sill whose upper edge projects above the same, and a wooden nailing-strip supported by the side and draft sills and abutting against the upwardly-projecting edge of the end sill, said wooden nailing-strip extending above said end sill to form a nailing-base for the end wall of the car; substantially as described.

7. In an underframing for cars, the combination with the bolsters, of a side sill member, an angle secured to said side sill member below its lower edge, and a wooden sill supported by said angle and resting against the upper edge of the side sill member; substantially as described.

8. In an underframing for cars, the combination with a side sill member in the form of a channel 6, an angle 7 riveted to said channel at a point below the upper edge thereof, a wooden sill 8 supported by said angle and resting against the upper edge of the channel, and means for securing said sill 8 in position; substantially as described.

9. In an underframing for cars, the combination with body-bolsters, of a center sill and side sills attached to said bolsters, a plate 18 attached to the upper edge of the center sill and to the lower edge of the side sill, and a plate 19 attached to the lower edge of the center sill and to the plate 18 at a point intermediate the center and side sills, said plate 19 extending only to the plate 18, substantially as described.

10. In an underframing for cars, the combination with the body-bolsters, of center and side sills attached to said bolsters, a plate 18 having its ends attached to the lower faces of the side sills, the middle portion of said plate extending up over the center sill, plates 19 riveted to the lower portion of the center sill and to the plates 18 at points between the center and side sills, and a tie-bar 20 extending from side sill to side sill, said tie-bar passing under the center sill; substantially as described.

11. In an underframing for cars, the combination with the bolsters, of center and side sills attached to said bolsters, and truss-frames for supporting the side sills at points intermediate the bolsters, said truss-frames comprising a plate 18, plates 19, a channel 20, and tie-plates 22*; substantially as described.

12. In an underframing for cars, the combination with the center and side sills, of a plate 18 extending from the upper edge of the center sill to the lower edge of the side sill and riveted to each, a saddle carried by said plate for affording a seat for an intermediate sill, and a plate 19 riveted to the lower edge of the center sill and to the plate 18 at a point approximately beneath the saddle; substantially as described.

13. In an underframing for cars, the combination with a center sill, of a side sill, an intermediate sill, and a compound truss-frame lying in a transverse plane for supporting said side and intermediate sills; substantially as described.

14. In an underframing for cars, the combination with the body-bolsters, of the box-girder center sill supported thereby, channel side sills attached to the ends of the body-bolsters, plates 18 riveted to the bottom flanges of the side sills and extending over the box-girder center sill, a bar 20 riveted to the bottom flanges of the channel side sills and extending under the box-girder center sill, plates 19 riveted to the lower edges of the box-girder center sill and to the plate 18 at points intermediate the center and side sills, saddles carried by the plate 18 approximately over the points of attachment of the plates 19 thereto, all of said parts being made of suitable metal, and wooden intermediate sills supported by said saddles; substantially as described.

15. The combination with a channel forming the main member of an end sill whose lower edge is notched or recessed to receive the shank of a coupler, of a casting riveted to said channel for strengthening the same around the notched portion, said casting accommodating the bottom flanges of the channel on each side of the notch and projecting forwardly to serve as a buffer; substantially as described.

16. The combination with a channel-bar forming the main member of an end sill which is notched in its lower edge to accommodate the shank of the draw-bar, a casting riveted to said channel and provided with webs for strengthening the same, said casting having a notch or recess to accommodate the shank of the draw-bar, and a carry-arm removably secured to said casting, substantially as described.

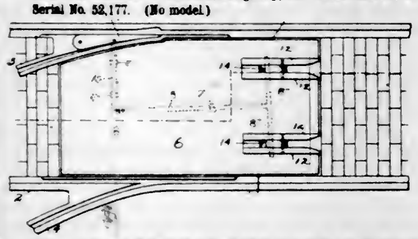
17. The combination with a center sill, of wooden sill 22 and plates 18 and 19 forming a truss-frame for supporting the sill 22, the vertical axis of the sill 22 meeting the line of intersection of the plates 18 and 19, substantially as described.

18. In a car, the combination with body-bolsters, of a center sill supported thereby, and transversely-arranged truss-frames on the center sill intermediate the body-bolsters for supporting the sides of the car; substantially as described.

19. In a car, the combination with body-bolsters, of a center sill supported thereby, and laterally-extending truss-frames on each side of the center sill, said truss-frames being in approximately the same transverse plane, for supporting the sides of the car; substantially as described.

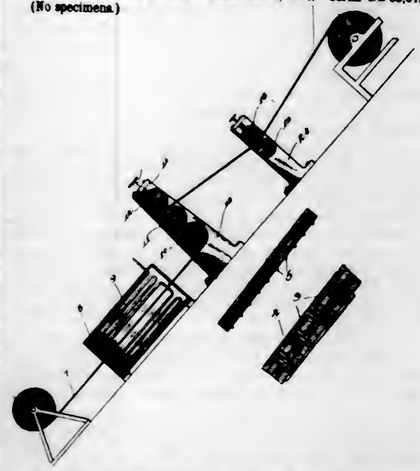
20. In a car, the combination with body-bolsters, of a center sill supported thereby, and truss members secured to the upper and lower edges of the center sill and extending laterally in converging lines for supporting the sides of the car; substantially as described.

678,574. **SWITCH-OPERATING MECHANISM.** JAMES R. KLIPPELT and HOWARD W. JEFFERS, Allegheny, Pa. Filed Mar. 21, 1901. Serial No. 52,177. (No model.)



Claim.—A switch-throwing mechanism comprising in combination with the platform of a car, the spring-actuated pressure-wheels carried thereby, a box with removable lid, said box being embedded between the track-rails, pins mounted in apertures in said lid, the angle trip-cams pivoted on said pins, the horizontally-mounted T-lever, and vertically-disposed pin on which the latter is pivoted, a switch-point and link connection between same and said lever, the free ends of said trip-cams adapted to contact with the right-angled ends of said T-lever on either side of the shank portion of the lever, and the guide-strips along the marginal edges of the apertures in said lid, as set forth.

678,575. **PROCESS OF MANUFACTURING BELTING.** CLARENCE P. LANDRETH, Quincy, Mass. Filed Nov. 1, 1900. Serial No. 35,072. (No specimens.)



Claim.—1. The improved process of manufacturing canvas belting which consists in saturating the belt with some suitable compound, such as oil, heating the same, and rubbing or ironing the surface thereof while it is still hot.

2. The improved process of manufacturing canvas belting which consists in folding strips of canvas longitudinally to form a belt of the required width and thickness, saturating the same with a compound such as oil, stretching the belt lengthwise and drying it, and subsequently bringing some of the composition in the body of the belt to the surface, and smoothing the surface of the belt by ironing it.

3. That improvement in the manufacture of canvas belting made from a strip of canvas folded longitudinally and stitched, which belt has been saturated with a suitable compound and dried, which process consists in subsequently heating the belt to thereby soften and expand the composition with which the belt is saturated and bring a portion thereof to the surface, and smoothing the driving-surface thereof by rubbing or ironing.

4. The improved process of manufacturing canvas belting which consists in saturating the belt in a compound, drying the same and subsequently heating the belt to soften the compound and render the same less adhesive, a portion thereof coming to the surface of the belt, and while the belt is still hot rubbing and smoothing the surface thereof and stretching the same.

5. That improvement in the manufacture of canvas belting made from strips of canvas folded longitudinally and stitched, and which has been saturated with a suitable compound, compressed, and stretched lengthwise, which improvement consists in subsequently heating the belt, and pressing the same and embedding the stitches on the face thereof in the body of the fabric while the belt is still hot.

6. That improvement in the manufacture of canvas belting made from strips of canvas folded longitudinally and stitched, which belt has been saturated with a suitable compound, compressed, and stretched lengthwise, which improvement consists in subsequently heating the belt, pressing the same and embedding the stitches on the face thereof in the body of the fabric, and stretching the belt while still hot.

7. The process of treating canvas belt, which is made from strips of canvas folded longitudinally and stitched and which has been previously saturated in a suitable compound, which process consists in heating the belt thus treated to thereby bring the compound to the surface of the fabric, embedding the stitches on the driving-face of the belt in the body of the fabric, and forcing the stitches on the opposite side thereof beyond the surface, to thus make room for the embedded stitches and ironing the driving-face, while the belt is still hot, to secure a smooth driving-surface.

8. The process of treating canvas belt, which is made from strips of canvas folded longitudinally and stitched and which has been previously saturated in a suitable compound, which process consists in heating the belt thus treated to thereby bring the compound to the surface of the fabric, embedding the stitches on the driving-face of the belt in the body of the fabric, and forcing the stitches on the opposite side thereof beyond the surface, to thus make room for the embedded stitches, and ironing the driving-face, to secure a smooth driving-surface, and then stretching the belt while the belt is still hot.

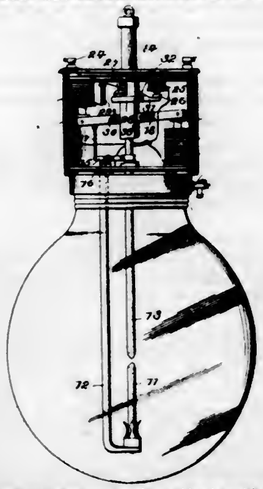
9. The process of treating canvas belt which is made from strips of canvas folded longitudinally and stitched, and which has been saturated in a suitable compound and dried, which consists of softening the compound, embedding the stitches on one face of the belt in the body of the fabric, and forcing the stitches on the opposite face thereof beyond the surface to thus make room for the embedded stitches.

10. The process of treating canvas belting which is made from strips of canvas folded longitudinally and stitched, and which has been saturated in a suitable compound which consists in pressing the driving-face of the belt and embedding the stitches thereon in the body of the fabric, and forcing the stitches on the opposite face of the belt beyond the surface thereof to thus make room for the embedded stitches, whereby a smooth driving-face is produced.

678,576. **ELECTRIC-ARC LAMP.** GEORGE M. LANE, Newark, N. J. Filed Nov. 14, 1900. Serial No. 36,522. (No model.)

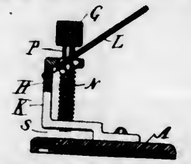
Claim.—1. In an electric-arc lamp, and in combination with the electrodes, feeding mechanism therefor, and a magnet-controlled vibrating lever for actuating the feeding mechanism, a cut-out magnet, a fixed contact, a lever bearing an armature to coöperate with the cut-out magnet, and an arm pivoted to the said lever carrying the armature of the cut-out magnet and movable with the said lever in one direction and adapted to have independent movement thereof in the opposite direction when influenced by the aforementioned vibrating lever to cut the lamp out of circuit, substantially as set forth.

2. In an electric-arc lamp, and in combination with the electrodes, feeding mechanism therefor, and a magnet-controlled vibrating lever for actuating the feeding mechanism, a cut-out magnet, a cut-out lever bearing an armature and coöperating with the said cut-out magnet, an arm pivoted to the cut-out lever and free to have movement in one direction, coöperating stops between the pivoted arm and the cut-out lever to cause the two to move together in the opposite direction, and a fixed contact in the path of the said pivoted arm, the parts being combined to cut the lamp out of circuit under abnormal conditions, substantially as specified.



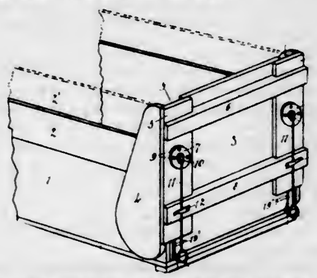
3. In an electric-arc lamp, and in combination with the vacuum-inclosure for the electrodes, a tube constituting a valve-body, and having a lateral tubular extension in communication with the bore thereof; a safety-valve applied to the outer end of said tube to relieve the vacuum-inclosure of abnormal internal pressure, and a second valve fitted to the said lateral extension and adapted to coöperate with the vacuum-creating means, substantially as set forth.

678,577. **PERFORATING DEVICE.** WILLIAM LUKES, Newark, N. J., assignor to Tower Manufacturing and Novelty Company, New York, N. Y. Filed Apr. 24, 1901. Serial No. 57,132. (No model.)



Claim.—The combination, in a perforating device, of the frame-like structure, the cross-head G, composed of the main body and the journals J J, the lever L, provided with the open bearings B B, and the punches P P, and springs N N, all constructed and attached to a base substantially as and for the purpose described in the specification and shown in the drawings.

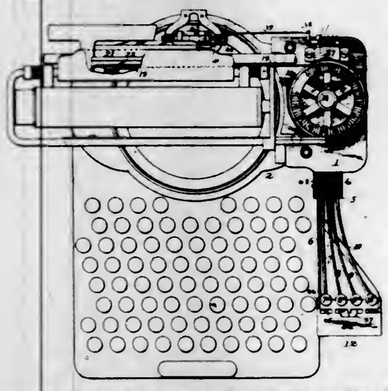
678,578. **SCOOP-BOARD.** FRANK A. MATSON, Omaha, Nebr. Filed Mar. 22, 1900. Serial No. 9,737. (No model.)



Claim.—The combination with a wagon-body provided with the usual cleats to form suitable grooves, of two counterpart bars working within said grooves, a plate secured to each of said bars, said plates above being provided with slots, and below with incisions extending from one edge, forming suitable seatings, a perforated ear intermediate of said slot

and seating, said bars, plates and ears forming suitable keepers, bolts passing through said slots so that said plates are adjustably secured to the wagon-box, of a scoop-board, openings within said scoop-board through which said perforated ears project, projecting pins secured to the lower end of said end-gate upon opposite sides, said pins being so positioned that they work into said lower seating-forming incisions, and locking-bars detachably secured to said perforated ears, and being adapted to work through said end-gate openings, as and for the purpose set forth.

678,579. **TABULATING ATTACHMENT FOR TYPE-WRITERS.** WILLIAM J. MAUK, Troy, Ala., assignor, by mesne assignments, to the Oliver Typewriter Company, Chicago, Ill. Filed June 27, 1899. Serial No. 722,055. (No model.)



Claim.—1. In a tabulating mechanism for type-writing machines, the combination of a base-plate, a series of operating-levers pivoted thereto, means for attaching the plate to a type-writing machine, a stop mechanism carried by the plate, and adapted to contain a number of stops, a ratchet-trip moved by one of the operating-levers and a brake mechanism adapted to retard the movement of the stop mechanism operated by the same lever, substantially as described..

2. In a tabulating mechanism for type-writing machines, the combination with the carriage, of a rotatable member operatively connected with the carriage and having a stop adapted to be shifted into one of several positions to insure the carriage stopping at a predetermined point, ratchet-tripping mechanism for releasing the carriage, and a lever having a part adapted to be projected into the line of movement of the stop on said rotatable member, substantially as described.

3. In a tabulating mechanism for type-writing machines, the combination of a base-plate, means for attaching the plate to the type-writing machine, a stop mechanism adapted to contain a number of stops, a brake mechanism, and a ratchet-tripping mechanism mounted on said plate, and a lever pivoted to the plate and adapted to operate the stop, the brake and the ratchet-tripping mechanisms, substantially as described.

4. In an attachment for type-writing machines, the combination of a base-plate, a rotatable disk mounted thereon, a spring for rotating the disk in one direction, a chain, a cord or other means for turning the disk in opposite direction, and a brake device for regulating the speed of the disk while being revolved by the chain or cord.

5. The combination of a base-plate, a rotatable disk mounted thereon and provided with a scale, a spring for rotating the disk in one direction, a chain, cord or other means for turning the disk in opposite direction, movable stop-bars adapted to be applied to the disk, means for projecting one or more slides into the path of the bars, and a brake device for regulating the speed of the disk while being rotated by the chain or cord.

6. The combination of a base-plate, a rotatable disk mounted thereon and having a scale, means for rotating the disk in one direction, movable stop-bars adapted to be applied to the disk to arrest its rotation, a brake device for retarding the rotation of the disk, spring or similar means for turning the disk in opposite direction, a series of slides adapted to be projected into the path of the bars, a series of finger-operating levers for projecting the slides, and a belt or band having indicating-numbers carried by one of the levers.

7. A base-plate carrying a rotatable stop-disk, adapted to contain a number of stops, a ratchet-disconnecting mechanism, a brake device, and a series of slides adapted to coöperate with the stops of the stop-disk, in combination with a series of levers, each lever being arranged to project one of the slides into coöperation with the stop-disk.

8. In a tabulating mechanism for type-writing machines, the combination with the carriage, of a rotatable member operatively connected with the carriage and having a stop, ratchet-disconnecting mechanism including a releasing-lever having a part adapted to be projected into the line of movement of the stop on said rotatable member, and independently-operating levers each operating to project a part into the line of movement of the stop member upon the release of the ratchet-disconnecting mechanism by its lever, substantially as described.

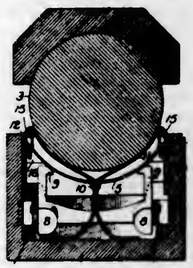
9. A base-plate carrying a rotatable stop-disk, a ratchet-disconnecting mechanism, a brake device and a series of slides, in combination with a series of levers each lever being connected with one slide for projecting it into coöperation with the stop-disk, one of said levers carrying a finger-plate containing indicating-numbers for itself and the other levers, said lever being also arranged to operate the ratchet-disconnecting mechanism and the brake device.

10. A lever for operating a recording or indicating mechanism having in combination with a finger-plate secured thereto, a belt or band adapted to be moved around the finger-plate, two or more rows of numbers on said band, a cover-plate hinged or otherwise secured to the finger-plate, and having perforations formed therethrough for exposing certain of the numbers on the band.

11. A lever having a finger-plate, a belt or band adapted to be moved around said finger-plate, two or more rows of numbers on said band, a cover-plate having a series of perforations through which certain numbers in one of the rows of numbers on the band may be seen and another perforation through which one number only in one of the other rows is visible, in combination with a series of levers having finger-keys resting normally above the finger-plate and each key being in close relation to one of the perforations of the series of perforations.

12. In an attachment for type-writing machines, the combination of a base-plate, a rotatable disk mounted thereon, a spring for rotating the disk in one directions, a chain, cord or other means for turning the disk in opposite directions, a brake device for regulating the speed of the disk while being revolved by the chain or cord, a lever for operating the brake device, and means for limiting the movement of said lever to vary the pressure of the brake device.

678,580. **SELF-LUBRICATING JOURNAL-BOX.** GEORGE NEUBER, Easton, Pa., assignor of one-half to Frederick Orf, same place. Filed Mar. 26, 1901. Serial No. 52,882. (No model.)



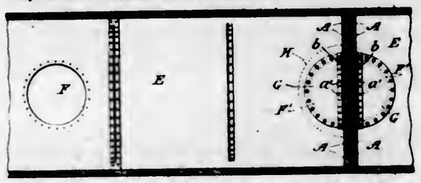
Claim.—1. In a self-lubricating journal-box, the combination with a lubricant-containing chamber, and a journal, of a slotted wick-carrying frame and levers acting loosely against said frame to lift the same sufficiently to cause the wicking to remain in constant lubricating contact with the journal.

2. The combination with a journal, and the lubricant-containing chamber below it, of a wick-carrying frame having a concave upper face with a central slot and lateral longitudinal ridges, wicks or fibrous sheets passing through the central slot and over the lateral ridges, and weighted levers beneath the frame for exerting a lifting effect thereon.

3. The combination with a journal, and a lubricant-containing chamber below it, of a wick-carrying frame through which the wicks pass from the lubricant, said wicks lying in contact with the face of the journal, and pivoted levers having weights at one end and having their opposite ends in loose bearing contact with the under side of the wick-carrying frame for the purpose of lifting the frame so as to keep the wicks in constant lubricating contact with the journal, as set forth.

4. The combination with a journal, and a lubricant-containing chamber below it, of a wick-carrying frame having a concave upper face provided with a central slot and longitudinal lateral ridges, wicks passing from the lubricant up through the central slot and into contact with the journal, and pivoted levers having weights at one end and having their other ends in contact with the under portion of the concave so as to lift the frame and cause the wicks to exert a lubricating contact upon the journal, substantially as described.

678,581. **SUBTERRANEAN OR SUBAQUEOUS DAM OR FOUNDATION CONSTRUCTION.** JOHN F. O'ROURKE, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,276. (No model.)



Claim.—1. A plurality of caissons having registering openings in adjacent walls of less area than the interior cross-section of the caisson and removable means for closing the openings; substantially as described

2. A plurality of caissons having removable and registering doors or wall-sections in adjacent walls, and having their adjacent walls secured together close to said removable doors or wall-sections.

3. A plurality of caissons having each a roof and having removable and registering doors or wall-sections in their adjacent walls below the roof-line.

4. A plurality of caissons having timber walls, and having registering openings in adjacent walls of less area than the interior cross-section of the caisson near the bottom, and other registering openings in adjacent walls above the first-named openings, and removable means for closing the registering openings; substantially as described.

5. A plurality of caissons having each a roof and having removable and registering doors or wall-sections in adjacent walls below the roof-line, each roof having a central opening with a removable cover, and having at the end near the adjacent caisson an opening with a removable cover.

6. A plurality of caissons having registering openings in adjacent walls of less area than the interior cross-sectional area of the caisson and a body of concrete or other material filling said caissons and extending from one to the other through said registering openings.

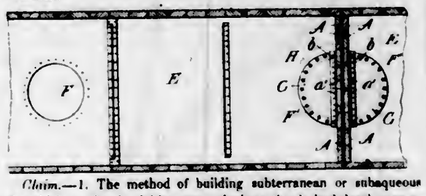
7. A plurality of timber caissons each having a roof and having removable and registering plates in adjoining walls below the roof-line and having removable and registering timber sections extending across the roof-line.

8. The combination with a caisson formed of vertical timbers and horizontal beams and having its uppermost horizontal beam set below the upper ends of the timbers of a coffer-dam formed of vertical timbers and horizontal beams and having its lowermost horizontal beam extended below the lower ends of the vertical timbers, whereby a male and female joint is formed between said caisson and coffer-dam.

9. A plurality of caissons having beveled ends with registered openings in the abutting ends of less area than the area of said ends and a body of concrete or other material filling said caissons and extending from one to the other through said registering openings whereby the completed wall is self-supporting against external pressure.

10. A subaqueous or subterranean foundation comprising a series of sectional dams united by a continuous filling of concrete to form a continuous dam about the space to be covered and a filling of concrete or other material within such dam forming a solid foundation.

678,582. **METHOD OF CONSTRUCTING SUBTERRANEAN OR SUBAQUEOUS DAMS OR FOUNDATIONS.** JOHN F. O'ROURKE, New York, N. Y. Original application filed Apr. 11, 1901, Serial No. 55,276. Divided and this application filed June 3, 1901. Serial No. 62,989. (No model.)



Claim.—1. The method of building subterranean or subaqueous walls, which consists in sinking successively to the desired depth, a number of caissons abutting one against another, filling each caisson in succession with concrete or other material, leaving a space or well in such caisson adjacent to the next caisson, making an opening through the abutting walls from each caisson into the space or well left in the previously-filled caisson, and filling such space or well from the next succeeding caisson and such succeeding caisson in like manner: substantially as described.

2. The method of building foundations for piers in water or water-bearing strata, which consists in sinking to the desired depth about the space to be covered by the pier a number of caissons, filling each caisson with concrete or other material to form a dam, and making the dam continuous from each caisson to the next, and filling in with concrete or other material the space inclosed by such continuous dam; substantially as described.

3. The method of building subterranean or subaqueous walls, which consists in sinking successively to the desired depth, a number of caissons abutting one against another, filling each caisson in succession with concrete or other material, leaving a space or well in such caisson adjacent to the next caisson, securing the abutting walls of adjacent caissons together, making an opening through the abutting walls from each caisson into the space or well left in the previously-filled caisson and filling such space or well from the next succeeding caisson, and each succeeding caisson in like manner; substantially as described.

4. The method of building foundations for piers in water or water-bearing strata, which consists in sinking to the desired depth about the space to be covered by the pier, a number of caissons, filling each caisson with concrete or other material to form a dam, and making the dam continuous from each caisson to the next, removing the inner walls of the caissons after the concrete or other material with which they are filled has become solid and filling in with concrete or other material the space inclosed by such continuous dam; substantially as described.

678,583. **PLIERS.** WILLARD A. OSLEY, Wethersfield, Conn. Filed Jan. 29, 1900. Serial No. 3,118. (No model.)



Claim.—1. In combination, in a wire-working tool, comprising a pair of pivoted members including cutting-jaws and handles, a transverse opening located between the pivoted members, and twisting-blocks removably secured to the pivoted members and provided with a grooved working face adapted to coöperate with the transverse opening, said grooved working face being angularly disposed to and extending across the axis of the transverse opening.

2. In combination, in a wire-working tool, including pivoted gripping-jaws and cutters, a transverse opening located between and formed in the jaws, twisting-blocks removably attached to the gripping-jaws and provided with a grooved working face adapted to coöperate with the transverse opening in the jaws, said grooved working face being arranged at an angle across the axis of the transverse opening, and handles for operating the several parts.

3. In combination, in a device of the class specified, a pair of pivoted jaws provided with handles, a transverse opening located between and formed in the jaws, a recess formed in operative relation to the transverse opening and adapted to serve as a guide for the stock operated upon, and means for positively confining the work within the recess.

678,584. **APPARATUS FOR RACKING BEER.** DAVID O. PAIGE, Detroit, Mich. Filed Jan. 28, 1898. Serial No. 668,296. (No model.)

Claim.—1. In a racker, the combination with the main frame, of a fluid-actuated frame slidably mounted on the main frame, a filling-head carried by the movable frame, a filling and bung-driving tube slidably mounted on the movable frame, fluid-pressure means for moving the tube, and separate fluid-pressure means coöperating with the aforesaid fluid-pressure means against the tube to drive the bung.

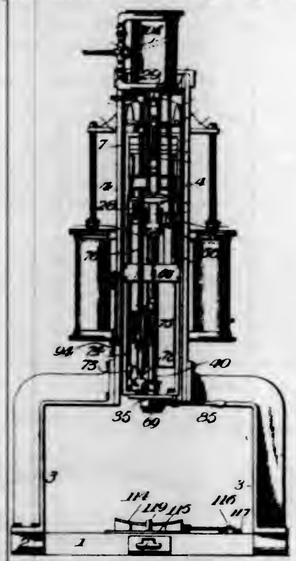
2. In a racker, the combination with the main frame, of a frame slidably mounted on the main frame, means for moving the slidable frame, a filling and bung-driving-tube movable on the slidable frame, means operating against the tube to drive the bung, and means independent of the frame-moving means for locking said frame during the bung-driving operation.

3. In a racker, a fluid-actuated vertically-movable filling and bung-driving tube, and means coöperating with the fluid-pressure means against the tube to drive the bung, said means being adjustable to regulate the extent to which the bung is driven.

4. In a racker, a filling and bung-driving tube, fluid-pressure means for moving the tube relative to the package and to drive the bung, and separate fluid-pressure means operating against the tube to augment the pressure simultaneously exerted by the first-named means to drive the bung.

5. In a racker, the combination with the main frame, of a frame slidably mounted on the main frame, fluid-pressure means for moving the slidable frame, a filling and bung-driving tube movable on the slidable frame, fluid-pressure means operating against the tube to drive the bung,

and means independent of the frame-moving means for locking without lost motion the slidable frame during the bung-driving operation.



6. In a racker, the combination with the main frame, of a movable frame, a bung-driver, and a plurality of locking devices arranged in different planes on the movable frame to engage shoulders on the main frame during the bung-driving operation.

7. In a racker, the combination with the main frame carrying rack-bars, of a movable frame, a bung-driver, and a plurality of locking-dogs on the movable frame the points of the dogs being arranged in different planes to engage the rack-bars without lost motion.

8. In a racker, the combination with the main frame having guides, of rack-bars adjacent to said guides, a frame movable in said guides, a bung-driver, and a plurality of sets of locking-dogs carried by the movable frame, the dogs of each set being arranged in different planes to engage the rack-bars without lost motion.

9. In a racker, the combination with the main frame carrying rack-bars, of a frame slidably movable on the main frame, a bung-driver, locking-dogs on the movable frame normally disengaged from the rack-bars, and means for releasing the dogs to engage the rack-bars and for thereafter operating against the bung-driver.

10. In a racker, the combination with the main frame carrying rack-bars, of a frame slidably movable on the main frame, a bung-driver, spring-pressed locking-dogs on the movable frame, a head operating against the bung-driver, and means for actuating the head and for restraining and releasing the dogs.

11. In a racker, the combination with the main frame carrying rack-bars, of a frame slidably movable on the main frame, a bung-driver, spring-pressed dogs on the movable frame, a head operating against the bung-driver, an arm between the bung-driver and a power device, and means operatively connected with the arm, to restrain the dogs previous to the bung-driving operation, and to release the dogs and permit engagement thereof with the rack-bars during such bung-driving operation.

12. In a racker, the combination with the main frame carrying rack-bars, of a frame movable on the main frame, a bung-driver, spring-pressed dogs on the movable frame having arms, a head operating against the bung-driver, an adjustable arm connecting the head with a fluid-actuated piston, a bell-crank lever connected to the power-lever, and a trip-lever adapted to be moved by the bell-crank lever to engage the dog-arms and restrain the dogs.

13. In a racker, the combination with a filling-head, of a filling-tube slidable through the head, a vertically-moving plug-valve at the lower end of the tube, a valve-stem extending through and beyond the upper end of the tube, and bell-crank levers connected at one end to the projecting end of the stem, and carrying at their other end rollers which are confined in cam-grooves.

14. In a racker, a filling-head having a filling-chamber, a pipe connecting the chamber with the back-pressure tank, a valve in the pipe, and a rod connected with the valve and extending into the path of a movable part of the apparatus to be moved thereby for controlling said valve.

15. In a racker, the combination of a filling-head, means for moving said head, a filling-tube, means for moving said tube, and a catch operating to temporarily check the downward movement of the tube for the purpose set forth.

16. In a racker, the combination of a vertically-movable filling-head, a vertically-movable filling-tube, a catch operating to temporarily check the downward movement of the filling-tube, and a stop to limit the downward movement of said tube.

678,585. **DUST-BEATER.** HENRY C. PRESTON and OTHNIEL PRESTON, Hornellsville, N. Y. Filed Mar. 13, 1901. Serial No. 50,956. (No model.)



Claim.—1. A carpet whip or beater having its handle provided with a slot extending therethrough from side to side and whose inner end is at an angle to its main portion, a ferrule and the wire, or whip, proper, provided with an inner angular terminal engaging the corresponding terminal of said slot, substantially as set forth.

2. A carpet whip or beater having its handle provided with a slot, whose inner end is at an angle to its main or body portion and outer end beveled or flared outward, and its wire or whip, proper, provided with inner angular terminals, adapted to engage the angle of said slot, and a ferrule, substantially as set forth.

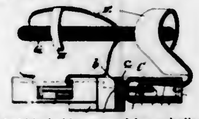
678,586. **DUST-BEATER.** HENRY C. PRESTON and OTHNIEL PRESTON, Hornellsville, N. Y. Filed Mar. 13, 1901. Serial No. 50,956. (No model.)



Claim.—1. A carpet-beater comprising a handle provided with a ferrule, a rigid core in loop form, a correspondingly-shaped coiled or helical wire surrounding the said core and loosely embracing the same, said coiled or helical wire having uncoiled end portions or terminals extending alongside of the corresponding portions or terminals of said core both the terminals of said core and wire being secured in said handle, substantially as set forth.

2. A carpet beater or whip, comprising a handle; a ferrule upon said handle, a serially-coiled or helical wire, and a core upon which are arranged the coils or helices of said wire, said wire and core having their terminals secured to said handle, substantially as set forth.

678,587. **BOBBIN-HOLDER.** JOHN ROSEY, Woonsocket, R. I., assignor of one-half to John C. Rae, same place. Filed Apr. 18, 1901. Serial No. 56,436. (No model.)



Claim.—1. A bobbin-holder comprising a hollow body closed at its top and bottom, and having openings in its side, and spring-pressed holding-jaws having portions extending into the body through the openings in the side thereof, and loosely connected to said body inside the same.

2. A bobbin-holder comprising a hollow body closed at its top and bottom and having openings in its side, and also having an interior disk, holding-jaws having portions extending into the body through the openings in the side thereof and loosely connected to the interior disk, and an annular coiled spring encircling the holding-jaws.

3. A bobbin-holder, comprising a body or main portion, holding-jaws connected thereto, an annular coiled spring encircling the jaws, and guards on the jaws resting over the spring and adapted to prevent casual removal thereof.

4. A bobbin-holder comprising a body or main portion, holding-jaws connected thereto and having guard strips or tongues depending from their upper edges, and an annular coiled spring encircling the jaws and arranged within the guard strips or tongues thereof.

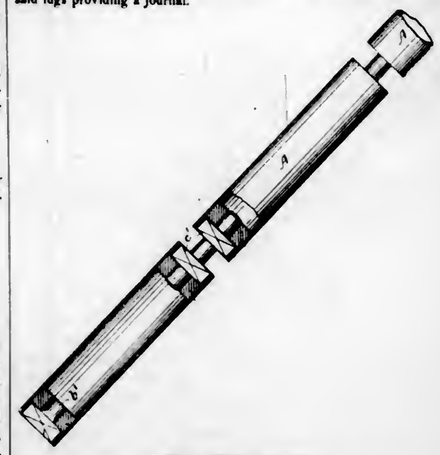
5. In a bobbin-holder, the combination with the body comprising a bushing, and the annular, apertured disk and the annular casing-sections surrounding and secured on the bushing; said casing-sections having lapped flanges and registered apertures therein; of the holding-jaws having inwardly-directed arms extending through the apertures of the lapped flanges of the casing-sections and terminating at their inner ends in hooks or lugs arranged in the apertures of the disk, and means for pressing said holding-jaws inwardly.

6. In a bobbin-holder, the combination with the body comprising a bushing having a reduced portion, the annular casing-sections having flanges at their inner edges surrounding the reduced portion of the bushing and also having lapped flanges at their outer edges and openings therein, the annular disk surrounding the reduced portion of the bushing between the inner flanges of the casing-sections, and having slots or apertures, and means for securing said casing-sections and disk on the reduced portion of the bushing; of the holding-jaws having inwardly-directed arms extending through the openings in the lapped flanges of the casing-sections and terminating at their inner ends in hooks or lugs arranged in the apertures or slots of the disk, and means for pressing said jaws inwardly.

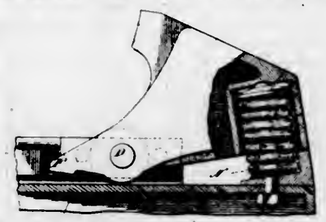
7. In a bobbin-holder, the combination with the body comprising a bushing having a reduced portion, the annular casing-sections having flanges at their inner edges surrounding the reduced portion of the bushing and also having lapped flanges at their outer edges and openings therein, the annular disk surrounding the reduced portion of the bushing between the inner flanges of the casing-sections, and having apertures or slots, and means for securing said casing-sections and disk on the reduced portion of the bushing; of the holding-jaws having the depending strips or tongues, and also having inwardly-directed arms extending through the openings in the lapped flanges of the casing-sections and terminating at their inner ends in hooks or lugs arranged in the apertures or slots of the disk, and an annular coiled spring encircling the jaws and arranged within the strips or tongues thereof.

678,588. **COUPLING FOR DRAWING-ROLLERS.** GEORGE A. RYDER, Bolton, England, and ARTHUR PARKINSON, Paisley, Scotland. Filed Aug. 29, 1900. Serial No. 28,462. (No model.)

Claim.—The combination with hollow metal doubling-frame rollers, of a block fitted in the end of each thereof having a central cylindrical opening through the same and rectangular recesses therein and further combined with a coupling-piece comprising a cylindrical spindle, the end thereof being adapted to fit within the cylindrical opening in the blocks, and rectangular lugs spaced a distance apart on said spindle adapted to fit within the recesses in the blocks, the portion of the spindle between said lugs providing a journal.



678,589. **SPRING CHOCK OR BUFFER.** HARRY SAWYER and OTTO ALBERT, Muskegon, Mich., assignors to Shaw Electric Crane Company, same place. Filed Mar. 6, 1901. Serial No. 50,075. (No model.)



Claim.—1. In a spring stop or buffer, the combination with a track-rail, a block or casting pivotally mounted at one end upon a pivot arranged in stationary relation to said rail and a spring arranged to yieldingly oppose the rocking movement of said block or casting about its pivot, as and for the purpose set forth.

2. In a spring stop or buffer, the combination with a block or casting pivotally mounted at one end and provided with a chamber at the opposite end, and a compression-spring arranged to be received in said chamber for yieldingly opposing the rocking movement of said block or casting in one direction, as and for the purpose set forth.

3. In a spring stop or buffer, the combination with a track-rail, a block or casting pivotally connected at one end directly to said rail, and a spring arranged to yieldingly oppose the swinging movement of the opposite end of said block or casting in one direction, and a limiting-stop for limiting the movement of said block or casting under the influence of said spring, as and for the purpose set forth.

4. In a spring stop or buffer, the combination with a supporting girder or beam, a track-rail mounted thereon, a block or casting pivotally connected directly to said rail at one end, and a spring interposed between said girder or beam and the opposite end of said block or casting, as and for the purpose set forth.

5. The combination with a supporting girder or beam and a track-rail, of a block or casting pivotally connected directly to the end of said rail and provided with an extension beyond the pivotal support thereof to form a limiting-stop therefor, and a spring interposed between said girder or beam and said block or casting, as and for the purpose set forth.

6. The combination with a supporting girder or beam, a track-rail mounted thereon, a block or casting pivotally mounted at one end the point of pivotal support of said casting being in stationary relation with respect to the rail, a coiled spring arranged to oppose the rocking movement of said block or casting in one direction, and means for accommodating said spring to the direction of rocking of said block or casting, as and for the purpose set forth.

7. The combination with a supporting beam or girder, a track-rail, a block or casting pivotally mounted adjacent to the end of said rail, a spring for opposing the swinging movement of said block or casting in one direction, a wedge-block interposed between one end of said spring

and said girder or beam, and a swivel-cap interposed between the opposite end of said spring and said block or casting, as and for the purpose set forth.

8. The combination with a supporting beam or girder, a track-rail, a block or casting arranged to straddle said rail and pivotally connected thereto and provided with chambers at the free end thereof; and springs arranged to be received within said chambers and respectively interposed between said block or casting and supporting beam or girder, as and for the purpose set forth

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678,590. SKIRT-SUPPORTER. JAMES T. SHOUP, Detroit, Mich., assignor to Mattie R. Shoup and Patrick W. Mattimore, same place. Filed May 4, 1901. Serial No. 58,679. (No model.)



Claim.—1. In garment-fasteners, the double-pronged hook in combination with the plate B and the frame B', substantially as described.

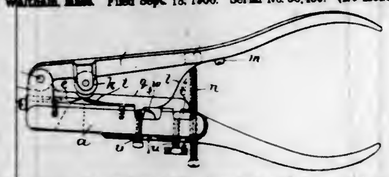
2. In garment-fasteners, the double-pronged hook provided with the holding-bar *a* and the plate and holding-frame, substantially as described.

3. In garment-fasteners, the double-pronged hook, the plate and the holding-frame in pairs and means for engaging the opposing parts, substantially as described.

4. A skirt-supporter consisting of a pair of devices, consisting of a hook and a frame arranged to engage the hook from the bottom and a similar hook and a frame arranged to engage the hook from the top, substantially as described.

5. The combination of the hook A having depending points, the plate B and frame B', the hook A' having upstanding points and corresponding plate and frame, and means for engaging the two parts of the device, substantially as described.

678,591. TOOL FOR SHAVING LACING-STRIPS. PAUL SIMON, Waltham, Mass. Filed Sept. 13, 1900. Serial No. 30,409. (No model.)



Claim.—1. An appliance of the character specified, comprising two levers each formed as a handle at one end and hinged to the other lever at the opposite end, one lever having a shaving-knife and the other a gage-roll, an adjustable stop member carried by one of the levers and a complemental stop member carried by the other lever, for varying the space between the knife and the gage-roll.

2. An appliance of the character specified, comprising a bed-lever having a shaving-knife, a fixed edge-gage at one end of the knife, an adjustable edge-gage movable toward and from the fixed edge-gage, means for securing the adjustable gage in any position to which it may be adjusted, and a top lever hinged to the bed-lever and having a gage-roll.

3. An appliance of the character specified, comprising a bed-lever having a shaving-knife, a fixed edge-gage at one end of the shaving-knife, a slitting-knife adjustably secured to the bed and movable toward and from the edge-gage, and means for positively securing the slitting-knife in any position to which it may be adjusted.

4. An appliance of the character specified, comprising a bed-lever having a shaving-knife, a fixed edge-gage at one end of the shaving-knife, a transverse recess formed in the upper face of the lever, a socket at one end of said recess, a stud adapted to be rotated and moved endwise in said recess and socket, a slitting-knife affixed to said stud, and means for securing the stud and slitting-knife in any position to which they may be adjusted.

5. An appliance of the character specified, comprising a bed-lever having at one end ears or lugs projecting from its upper surface and separated by a strip-outlet passage, a shaving-knife bearing on the bed-lever between said ears, its edges bearing on the ears, means for adjusting the knife longitudinally to compensate for wear, and a top lever hinged to the ears of the bed-lever and provided with a gage-roll.

6. An appliance of the character specified, comprising a bed-lever having a skiving-knife, and a top lever hinged to the bed-lever and having a gage-roll located over the cutting edge of the knife, and a spring-presser supported by the top lever and adapted to bear yieldingly on a strip supported by the bed-lever.

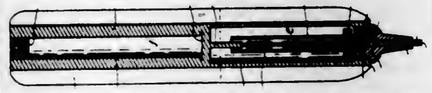
678,592. NECKTIE-HOLDER. FRED H. TOWNE, Sisseton, S. D. Filed Mar. 21, 1901. Serial No. 53,190. (No model.)



Claim.—1. In a necktie-holder, the combination of a separable button, and an elliptical ring having an inwardly-deflected eye secured to the head of the shank member of the button, substantially as described.

2. In a necktie-holder, the combination of a separable button consisting of a socket member and a shank member, the latter having a head formed with a countersunk rear face, and a holder comprising an elliptical ring or band formed in its rear wall with an inwardly-deflected eye for the passage of the shank and reception of the free end of the socket of the button, said eye being fitted in and secured to the countersunk rear face of the head, substantially as described.

678,593. SAFETY-SHOT DEVICE. ALBERT R. TRIPP, Castleton, Ind. Filed Nov. 19, 1900. Serial No. 36,491. (No model.)



Claim.—1. A safety-shot device including a vessel having a chamber therein, an anvil in the chamber, a cap-holder in the chamber, a cap on the holder, a ram for exploding the cap, and a removable point-piece projecting from one end of the vessel and engaging the ram.

2. A safety-shot device including a substantially hollow vessel, an anvil rigidly supported within the vessel, a guiding-sheath movable over the anvil and engaging the same, a cap-holder in the sheath, and a ram entering the sheath and extending to the exterior of the vessel whereby a cap on the holder may be exploded against the anvil within the sheath.

3. A safety-shot device including a vessel having a chamber therein, a removable point-piece at one end of the vessel having an aperture communicating with the chamber, an anvil in the chamber, a cap-holder in the chamber, and a ram extending from the chamber through the aperture in the point-piece and supported therein.

4. A safety-shot device including a hollow vessel, a removable point-piece, a bridge within the vessel, a stud projecting from the bridge, a ram supported frictionally by the point-piece, a percussion-cap supported by the ram, and a guiding-sheath extending over the cap and portions of the stud and the ram.

5. A safety-shot device including a vessel or shell having a chamber therein, a bridge in the chamber, an anvil in the chamber, a cap-holder in the chamber, a guiding-sheath for the cap-holder, a point-piece removably attached to one end of the vessel, a ram extending from the guiding-sheath through the point-piece, and a packing for the ram.

6. In a device of the character described, the combination with the hollow vessel having the external wings, of the internal bridge, the anvil supported by the bridge, the removable point-piece, the primary ram extending through the point-piece, the packing in the point-piece retaining the ram slidingly, the cap supported by the ram, the guiding-sheath extending over portions of the anvil and the ram, the secondary ram situate between the primary ram and the anvil within the sheath, the caps retained by the ends of the secondary ram, and a charge of explosive material situate about the caps, substantially as set forth.

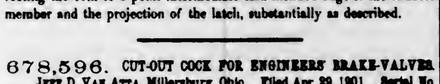
7. In a device of the character described, the combination of a vessel or shell having exterior guide-wings, a removable point-piece, an internal anvil, a cap-holder, a cap on the holder, and a removable ram extending through the removable point-piece to the cap, substantially as set forth.

8. In a device of the character described, the combination of a shell having a chamber therein, exterior guide-wings attached to the vessel, a bridge extending across the chamber, an anvil attached to the bridge, a cap-holder, a point-piece, a ram engaged by the point-piece and extending to the cap-holder, a cap on the holder, and a charge of explosive material situate about the cap, substantially as set forth.

9. In a device of the character described, the combination with the hollow vessel having the external wings, of the internal bridge, the anvil supported by the bridge, the removable point-piece, the ram extending through the point-piece, the packing in the point-piece retaining the ram slidingly, the cap supported by the ram, the guiding-sheath extending over portions of the anvil and the ram, and a charge of explosive material situate about the cap, substantially as set forth.

10. In a device of the character described, the combination of the vessel having the chamber extending therethrough, the bridge in the chamber, the anvil, the guiding-sheath, the ram having a cap-holder at one end thereof, the cap on the cap-holder, the removable point-piece having the packing-box at the inner end thereof, the packing in said box, the packing-nut in said box, and an explosive charge, situate about said cap within said sheath, substantially as set forth.

678,594. CASE FOR TOOTH-BRUSHES. JOHN W. TULLY, Kansas City, Mo. Filed Feb. 27, 1901. Serial No. 49,092. (No model.)



Claim.—1. A tooth-brush receptacle comprising a casing cut away at one end, and a spring-clasp projecting from the casing in alinement with the opening formed by the cut-away portion thereof, substantially as described.

2. A tooth-brush receptacle comprising a casing having a cut-away portion at one end adapted to receive the handle of the brush, a cover for the casing, and a sheet-metal spring-clasp secured to the casing and projecting therefrom in alinement with the cut-away portion thereof, and adapted to grasp the handle of the brush, substantially as and for the purpose described.

678,595. COIN-CONTROLLED BOX. JOHN W. TULLY, Kansas City, Mo. Filed Apr. 1, 1901. Serial No. 53,805. (No model.)



Claim.—1. In combination with a casing of the character described, of a door hinged to one wall thereof, and a coin-controlled latch for locking said door comprising a spring-pressed bolt, a laterally-projecting stud or projection *e'* on the bolt, a slidable plate E, a handpiece for operating said plate, and means for directing a coin to a point intermediate the rear end of the plate and the lateral projection on the bolt, substantially as described.

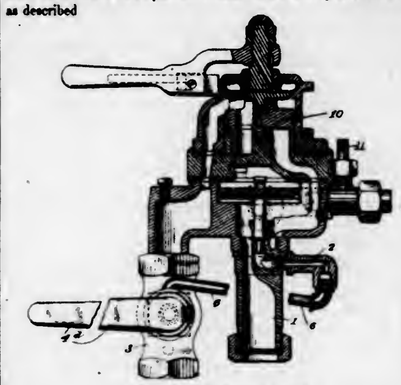
2. In combination with a casing of the character described, of a door hinged to one wall thereof, and a coin-controlled latch for locking said door comprising a bolt, a laterally-projecting stud or projection on the bolt, a spring for normally ejecting the bolt, means adapted to contact with the stud or projection to limit the movement of the bolt, a slidable plate, a laterally-projecting stud on said plate passing through slots in the bolt and in the door and outward to constitute a handhold and means for directing the coin to a point intermediate the rear end of the plate and the lateral projection on the bolt, substantially as and for the purpose described.

3. In combination with a casing of the character described, of a bolt, means for normally forcing the bolt outwardly, and means for retracting the bolt, comprising a slidable member F having an inclined edge *y*, a projection or handhold projecting from said slidable member through a slot in the bolt and without the casing, a projection on the latch arranged in opposition to the inclined edge of the slidable member, and means for directing the coin to a point intermediate said inclined edge of the slidable member and the projection of the latch, substantially as described.

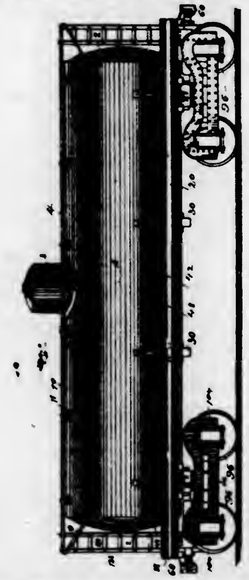
678,596. CUT-OUT COCK FOR ENGINEERS' BRAKE-VALVES. JEFF D. VAN ATTA, Millersburg, Ohio. Filed Apr. 29, 1901. Serial No. 57,981. (No model.)

Claim.—1. In an engineer's brake-valve, the combination with the inlet from the main reservoir thereto, of a cut-out cock adapted to open and close said inlet, ports 4^a and $4'$ in said cock, a pipe connecting the train-pipe exhaust of said engineer's brake-valve with said ports, the former port to discharge the exhaust into the atmosphere when the main-reservoir inlet is open and the latter to establish communication of the aforesaid exhaust with the upper side of the rotary member of the engineer's brake-valve when said inlet is closed, substantially as described.

2. In an engineer's brake-valve, the combination with the main-reservoir inlet and train-pipe exhaust thereof, of a cock adapted to simultaneously cut off communication of the main reservoir with the engineer's brake-valve and close the train-pipe exhaust, and when operated to simultaneously establish communication between the main reservoir and engineer's brake-valve and open the exhaust to the atmosphere, substantially as described



678,597. RAILWAY-CAR. CORNELIUS VANDERBILT, New York, N. Y. Filed Dec. 11, 1899. Serial No. 739,935. (No model.)



Claim.—1. The combination in a tank-car, of a circular tank, a truck, a curved body-bolster serving to receive and support the tank upon the truck, a curved cradle extending between the tank and bolster, longitudinal side sills secured against the ends of the bolster, and means for transversely tying the side sills in addition to the bolster, substantially as described.

2. The combination in a tank-car, of a transversely-disposed bolster having a top recess to fit the curve of the tank, the longitudinal sills secured to the ends of the bolster, additional means for tying the sills together transversely, and a curved metallic plate interposed between the bolster and the tank, the bolster, plate and sills directly supporting the tank, substantially as described.

3. In a car, the combination with the circular tank, of a transversely-disposed concentric body-bolster receiving the tank in the concavity thereof, longitudinally-disposed sills secured at the ends of the body-bolster, a car-truck having a bolster provided with a center bearing, and side bearings extending between the ends of the body-bolster and truck-bolster outside of the truck-gage and within the lateral limits of the tank, substantially as described.

4. In a car, the combination with a circular tank, of a transversely-disposed concentric body-bolster receiving the tank in the concavity there-

of, longitudinally-disposed sills secured at the ends of the body-bolster, a car-truck having a body-bolster provided with a center bearing, and side bearings extending between the ends of the body-bolster and truck-bolster, and within the lateral limits of the tank.

5. In a car, the combination with the frame having cross-bolsters, of a metallic sheet extending between the bolsters longitudinally laterally curved to form a cradle or liner, and a car or tank detachably secured to and primarily supported upon said liner, substantially as described.

6. In a car, the combination of a car-body or tank, and a frame comprising side sills, a sheet secured to each of said sills and having laterally-curved and outwardly-extending portions coextensive with the tank longitudinally and on which said tank rests, a bolster having a concentric recess or concavity forming part of the support for the tank, and end sills extending between the side sills, the side sills being secured to the said bolster and said sheet, substantially as described.

7. In a car, the combination of a car-body or tank, a laterally-curved metallic sheet forming a cradle continuous with the tank and on which said tank rests, a concentrically-disposed bolster forming part of said cradle, a frame comprising side sills secured to said bolster and cradle, and end sills extending between the side sills, substantially as described.

8. In a railway-car, the combination with the frame having side sills, end sills and body-bolsters, of intermediate bolsters supported by said side sills, a laterally-curved metallic sheet or liner extending longitudinally between and supported by said body-bolsters and intermediate bolsters, said a car-body or tank supported by said curved liner, substantially as described.

9. In a railway-car, the combination with a car-body or tank, of a laterally-curved metallic sheet or liner substantially continuous with and supporting said car-body or tank, trucks and truck-bolsters, body-bolsters, mounted on said truck-bolsters, substantially concentric with said liner, side sills secured to said body-bolsters, bolsters secured to said sills intermediate of said body-bolsters, the said body-bolsters and intermediate bolsters supporting and forming part of said liner, substantially as described.

10. In a railway-car, the combination with a car-body or tank, of a metallic sheet or liner substantially continuous with and supporting said car-body or tank, the said sheet or liner being laterally curved to conform to the curve of the tank or car-body, concentrically-disposed body-bolsters supporting said liner, and trucks having bolsters provided with center and side bearings extending between said body-bolsters and truck-bolsters, substantially as described.

11. In a railway-car, the combination with a car-body or tank, of body-bolsters supporting said car-body or tank, radially-disposed side sills secured to the ends of said bolsters, and end sills extending between the side sills, substantially as described.

12. In a car, the combination of a car-body or tank, a body-frame comprising bolsters concentrically disposed relative to the tank, and radially-disposed side sills secured to the ends of the bolster and to the end sills, the car-body or tank being supported by said bolster, substantially as described.

13. In a car, the combination with a frame comprising centrally-depressed bolsters and radially-disposed side sills secured at their sides to the ends of said bolsters, of a circular car-body supported in said depressions between the sills, substantially as described.

14. In a car-body, the combination of a car or tank, with the curved body-bolsters, the radially-disposed side sills at the ends of the bolsters, and the end sills extending between the side sills, substantially as described.

15. In a tank-car, the combination with the tank of circular outline, bolsters likewise configured, the tank being seated in the concavity of said bolsters and longitudinal sills secured to the bolsters and to the tank, said sills being radially disposed, substantially as described.

16. In a tank-car, the combination with a frame comprising the radially-disposed side sills, the curved bolsters extending between the side sills, and secured at their ends thereto, and a tank of circular outline secured to the sills and to the bolster, substantially as described.

17. In a car-body, the combination with the inwardly-inclined side sills, the lateral end sills, the curved body-bolsters secured at their ends to the side sills and depending below the plane of the end sills, and a tank of circular outline seated in the curve of the said bolsters, substantially as described.

18. In a car, the combination with the frame comprising body-bolsters, side sills connecting the ends of the bolsters, a liner secured to the sills and bolsters, a tank, and means for securing the tank and liner together outside of said sills, substantially as described.

19. In a car, the combination with the car-body, of body-bolsters separably secured to said car-body, and radially-disposed side sills attached to the ends of the bolsters to maintain the latter in transverse parallelism, substantially as described.

20. In a car, the combination with the car-body, of a body-frame comprising body-bolsters separably secured to said car-body, radially-disposed side sills attached to the ends of said bolsters to maintain the latter in transverse parallelism, and end sills connecting the ends of said side sills, substantially as described.

21. In a tank-car, the combination with a body-bolster of segmental configuration, of a tank resting within the concavity of said bolster and secured thereto, and a frame comprising radially-disposed side sills secured to the ends of said bolster and to said tank, substantially as described.

22. In a tank-car, the combination with the body-bolsters of segmental configuration, of a tank resting within the concavity of said bolsters and secured thereto, a frame comprising radially-disposed side sills secured to the ends of said bolsters and to said tank, and end sills between the ends of said side sills, substantially as described.

23. In a tank-car, the combination with the trucks, of laterally-curved body-bolsters of segmental configuration, mounted on said trucks, a tank resting within the concavity of said bolsters and secured thereto, a frame comprising intermediate curved bolsters of segmental configuration secured to the tank, and radially-disposed side sills secured to the ends of the main and intermediate bolsters and connected with the tank, substantially as described.

24. In a tank-car, a frame comprising end sills and radially-disposed side sills, body-bolsters extending between the said side sills adjacent their ends and depending below the plane of said sills, and a tank resting upon said bolsters on a plane lower than said sills, said tank being secured to the bolster and connected with said side sills, substantially as described.

25. In a car, the combination with the bolsters, the side sills and liner connected with said sills, of the tank, and means for detachably connecting the tank and liner together outside of said sills, substantially as described.

26. In a car, the combination with the circular car-body or tank, of a laterally-curved metallic sheet or liner substantially continuous with, and secured to said car-body or tank, body-bolsters mounted on trucks and supporting said liner, and means for preventing lateral displacement of the tank, substantially as described.

27. In a car, the combination with the segmental bolsters, the side sills attached to the ends of the bolsters, the circular liner secured to the bolster and sills and extending beyond the latter, a tank seated within the curve of the liner, and means connecting the extended sides of the liner with the tank, substantially as described.

28. In a car, the bolster and liner secured thereto, the tank, brackets, secured to the liner and tank, in line with each other, and an adjustable connection between said brackets.

29. In a car, the bolster and liner affixed thereto, the tank having a series of peripheral grooves alining with the affixing means, and further means for securing the liner and tank together.

30. In a car, the combination with the frame having cross-bolsters, of a liner extending longitudinally between and transversely beyond said bolsters, a car-body or tank supported upon said liner, angular brackets provided on said liner extension, and means for securing said car-body or tank to said angular brackets, substantially as described.

31. In a car, the combination with the frame having cross-bolsters, of a liner extending longitudinally between and transversely beyond said bolsters, a car-body or tank supported on said liner, angular brackets provided on said liner extension, angular brackets provided on the sides of the said car-body or tank, and intermediate means for securing said angular brackets together, substantially as described.

32. In a car, the combination with a frame having cross-bolsters, of a liner extending longitudinally between and transversely beyond said bolsters, a car-body or tank supported upon said liner, angular brackets provided on said liner extension, and means for detachably securing said car-body or tank to said angular brackets, substantially as described.

33. In a car, the combination with a frame having cross-bolsters, of a liner extending longitudinally between and transversely beyond said bolsters, a car-body or tank supported by said liner, angular brackets provided on said liner extension, angular brackets provided on the sides of said car-body or tank and intermediate means for detachably securing said angular brackets together, substantially as described.

34. In a car, the body-frame having cross-bolsters provided with inclined ends and lateral wings, and laterally-projecting intervening longitudinal flanges, downwardly-curved, inclined side sills secured to said ends and wings, and a car-body or tank secured to said flanges, substantially as described.

35. In a car, the body-frame having cross-bolsters provided with laterally-projecting longitudinal and downwardly-curved flanges, of a curved sheet-metal liner extending longitudinally between said bolsters secured to said flanges, and a car-body or tank secured to said liner, substantially as described.

36. In a car, the body-frame having cross-bolsters provided with laterally-projecting longitudinal and downwardly-curved flanges, inclined sills secured to the ends of said bolsters, a curved liner secured to said flanges, and a curved car-body or tank secured to said liner, substantially as described.

37. In a car, the body having cross-bolsters provided with the curved flanges 24, the curved liner 20 secured to said flanges, the tank seated on the liner, and a connection from the liner to the tank outside of the bolster, substantially as described.

38. The body-bolster, the tank, the I-beams secured to the bolster ends with their upper flanges in a recess in the bolster ends and level with the top of the bolster, a liner secured to the top of the bolster and the beam-flanges and extending beyond the same, and a connection between the liner extensions and the tank, the latter resting on the liner.

39. In a car, the body-frame having cross-bolsters provided with radially-disposed and laterally-projecting wings, the side sills secured to said wings, substantially as described.

40. In a car, the body-frame having cross-bolsters provided with radially-disposed and laterally-projecting wings, and radially-disposed side sills having inwardly-presented depressions in which said wings are secured, substantially as described.

41. In a car, the body-frame having cross-bolsters provided with upwardly-extending and radially-disposed ends and radially-disposed side sills secured to the said ends, substantially as described.

42. In a car, the body-frame having cross-bolsters provided with upwardly-extending and radially-disposed ends and radially-disposed side sills secured to said ends, and a car-body supported on said bolsters and side sills, substantially as described.

43. In a car, the body-frame having cross-bolsters of segmental conformation, provided with upwardly-extending and radially-disposed ends, radially-disposed side sills secured to said ends, and a circular tank located within the depression of said bolsters, substantially as described.

44. In a car, the body-frame having cross-bolsters, provided with upwardly-extending and radially-disposed ends, and radially-disposed side sills having inwardly-presented depressions in which said ends are secured, substantially as described.

45. In a car, the body-bolster having upwardly-extending and radially-disposed ends, and laterally-extending and radially-disposed wings, and radially-disposed side sills secured to said ends and wings, substantially as described.

46. In a car, the body-bolster having upwardly-extending and radially-disposed ends, and laterally-extending and radially-disposed wings, and radially-disposed side sills, having inwardly-presented depressions in which said ends and wings are secured, substantially as described.

47. The combination with the side sills, of channeled end sills, the abutment block and means for securing said block and end sills together located in said channel.

48. The combination with the end sills, having the longitudinal webs 39, and upright connecting-webs 38, of the interposed and pendent abutment-block having the flanges 57 secured to the webs 39.

49. The combination with the end sills having upright and opposed webs 38, of the interposed and pendent abutment-block, having the depression 56 and walls 58, the latter being secured to the webs 38.

50. A cross-sill U-shaped in lateral cross-section, having the webs 39 40 horizontally disposed, an upright connecting-web 38, and ends 41 41ª inclined between the upper and lower webs 39 40.

51. In a car-frame, the radially-disposed I-beam side sills, combined with the cross-sills of channel form having end pieces secured to the I-beams.

52. The cross-sills 29, comprising the horizontal webs 39 40, upright web 38, and inclined end pieces 41 41ª combined with the inclined I-beams, the web 35 of which is secured to said end pieces.

53. The combination with the spaced cross-sills, the side sills, the flanged abutment-block, and a plating resting on the cross-sills, the said plating being apertured to receive the abutment-block, the flanges of which rest on the plating, and securing means passing through the flanges, plating, and cross-sill web.

54. A car having a frame and an end platform, a tank on the frame between the platform's ends, a running-board on top of the tank having a ledge projecting over the platform, and a stair leading from the platform to said ledge.

55. The combination with the tank and its superposed running-board, of the channel-shaped filling-pieces having their upper and lower webs horizontal, a connecting-web upright, the upper web being flat and secured to the running-board, the lower web being curved, and secured to the tank.

56. A tank for a car having a header or end, a superposed running-board having a ledge extending over the header, and the bracket having a horizontal arm secured to said ledge, an arm secured to said header, and an inclined arm extending between the former two.

678,598. DINNER-PAIL. WILLIAM P. WALKER, Macon, Mo. Filed Apr. 11, 1901. Serial No. 55,386. (No model.)

Claim.—1. In a dinner-pail compartments comprising an annular wall and bottom plate, a depending annular flange of greater diameter than the surrounding wall, secured to the bottom of the compartments, an outwardly-extending bead formed in said surrounding wall, an incline formed in said wall above the outwardly-extending bead in combination with parallel lugs secured in pairs diametrically opposite to each other to the surrounding wall of the compartment, and a spring-bail pivoted to a depending bottom flange adapted to be sprung between said parallel lugs, whereby the bail is locked in a vertical position.



2. In a dinner-pail the combination of a series of superimposed compartments, each compartment comprising a surrounding wall and bottom plate, a depending annular flange of greater diameter than the surrounding wall secured to the bottom of each compartment, an outwardly-extending bead formed in the wall of the compartment, a slight incline formed in the surrounding wall above the outwardly-extending bead and lugs secured in pairs to the side walls and diametrically opposite each other in combination with a spring-bail pivoted to the depending flange of the lowermost compartment adapted to be sprung between the opposite pair of lugs on the respective compartments.

678,599. CAR-LOADING APPARATUS. ANDREW WALLACE, Jr., South Chicago, Ill. Filed Mar. 18, 1901. Serial No. 51,666. (No model.)

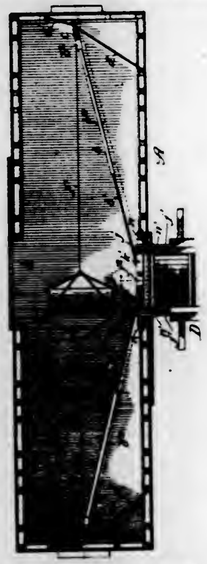
Claim.—1. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a shovel connected to the cable, of a boom-support, and a boom fastened at its inner end to said support to extend thence toward an end of the car and provided at its outer end with means for removably fastening it in the car and with a sheave over which said cable passes, whereby the stress of moving the shovel on said cable shall be exerted lengthwise of the boom against said support at its inner end, substantially as described.

2. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a shovel connected to the cable, of booms formed of telescopically-adjustable sections and carrying sheaves at their outer ends over which said cable passes, and adapted to be extended in the car from its opposite ends toward its transverse center and to be removably fastened in the car, each at its opposite ends, substantially as described.

3. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a shovel connected to the cable, of booms carrying at their outer ends sheaves, over which said cable passes, and stakes for fastening the booms at said ends to the car-body, said booms being adapted to be extended in the car from its opposite ends toward its transverse center, and a support in the car near said center for the inner ends of the booms.

4. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a shovel connected to the cable, of booms provided at their outer ends with heads carrying guide-sheaves for the cable and stakes for fastening the booms at said ends to the car-body, said

booms being adapted to be extended in the car from its opposite ends toward its transverse center, stop-heads on the inner ends of the booms, and a support in the car near said center for said booms at their said stop-heads.



5. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a support therefor, and a shovel connected to the cable, of booms carrying at their outer ends guide-sheaves for the cable and adapted to be extended in the car from its opposite ends towards its transverse center and to be fastened at said outer ends in the car, and a frame adjustably supported on said support for the cable-driving mechanism to be moved back and forth relative to the side opening in the car and forming a support for the inner ends of said booms.

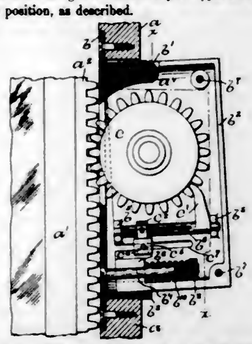
6. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a support therefor, and a shovel connected to the cable, of booms carrying at their outer ends guide-sheaves for the cable and stakes for fastening the booms at said ends to the car-body, said booms being adapted to be extended in the car from its opposite ends toward its transverse center, stop-heads on the inner ends of the booms, and a frame adjustably supported on said support for the cable-driving mechanism to be moved back and forth relative to the side opening in the car and carrying supports for the inner ends of the booms at said stop-heads.

7. In a car-loading apparatus, the combination with the cable, cable-driving mechanism and a supporting-frame therefor and a shovel connected to the cable, of booms carrying at their outer ends guide-sheaves for the cable and stakes for fastening the booms at said ends to the car-body, said booms being adapted to be extended in the car from its opposite ends toward its transverse center, stop-heads on the inner ends of the booms, and a supplemental frame slidingly supported on said frame supporting the driving mechanism to adapt it to be protruded into and retracted from the side opening in the car, and eyes on the forward member of said supplemental frame to sustain the inner ends of the booms at said stop-heads.

678,600. **SASH-BALANCE.** JAMES H. WALLACE and ARTHUR G. HILTON, Providence, R. I., assignors to the International Burglar Proof Sash Balance and Lock Company, Incorporated, same place. Filed June 7, 1900. Serial No. 19,406. (No model.)

Claim.—1. In combination with the window-sash rack, the gear engaging with the rack, and the casing inclosing the gear, of a rock-shaft longitudinally grooved, a detent on the rock-shaft adapted to engage with the gear to lock the same, an arm connected with the rock-shaft and free to slide on the same, a member pivotally connected with the arm on the rock-shaft and adapted to receive the actuating-rod, and a slot in the side of the casing on a line with the actuating-rod, whereby the actuating-rod may be located at any desired place on the window-casing, as described.

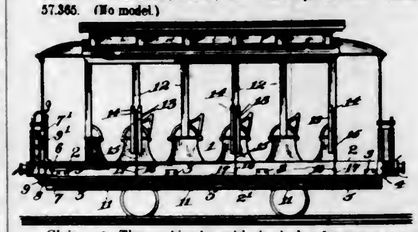
2. In a window-sash-controlling device of the nature described, the combination with the gear, of a detent connected with a rock-shaft, a slot in the casing inclosing the mechanism and actuating mechanism connected with the rock-shaft by a longitudinal groove-and-spline engagement, whereby the lock-actuating mechanism may be adjusted on the rock-shaft to any desired position, as described.



3. In a window-sash-controlling mechanism of the nature described, the combination with the rack on the window-sash, the face-plate on the window-frame, and the gear, of a casing forming the support of and inclosing the mechanism, a pivotal connection of one end of the casing with the face plate, a spring-actuated yielding connection of the other end of the casing with the face-plate, a slot in the side of the casing, and a locking device, consisting of a rock-shaft, a detent on the rock-shaft adapted to engage with the gear, an arm connected with the rock-shaft by a groove-and-spline connection, and means for operating the arm, whereby the gear and the casing may follow the changed or changing positions of the rack and the arm slide on the rock-shaft without affecting the mechanism for operating the locking devices, as described.

4. In a sash-balance, the combination with the gear c and the inclosing casing b, of the slot c^7 in the casing b^2, the actuating-rod c^8 in screw-thread engagement with the member c^5, the member c^4, the arm c^3 pivotally connected with the member c^4, the screw c^6 in the arm c^3, the rock-shaft b^3 having a longitudinal groove with which the screw c^6 in the arm c^3 engages, and a detent connected with the rock-shaft and adapted to engage with the gear to lock the same. as described.

678,601. **FOOTBOARD AND GUARD-RAIL FOR STREET-CARS.** FRANK W. WARMRICH, Boerne, Tex. Filed Apr. 26, 1901. Serial No. 57,365. (No model.)

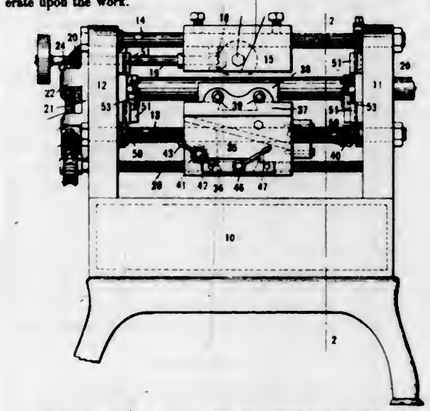


Claim.—1. The combination with the body of an open car, of a footboard hinged or pivoted to the side of the car, a rock-shaft mounted upon the under side of the car, chains connecting between the footboard and rock-shaft, pivoted guard-rails upon the sides of the car and adapted to be projected to close the side passage-ways, connections between said rails and the rock-shaft, and means for operating the rock-shaft to simultaneously close the footboard and guard-rails, substantially as described.

2. The combination with the body of an open car, of a footboard hinged to the side of the car, a rock-shaft mounted in bearings on the under side of the car, chains connecting the ends of the footboard with the ends of the rock-shaft and passed through suitable guides on the car, guard-rails hinged to the side of the car and adapted to be moved upwardly or vertically to a horizontal position to close the side passage-way of the car and to automatically drop down to a vertical position, links connected to the guard-rail, rods connected to the links, chains connecting between the rods and rock-shaft, and means for oscillating said shaft to wind the chains thereupon to simultaneously close up the footboard and guard-rails, substantially as described.

678,602. **KEYWAY-CUTTER.** CHAUNCEY R. WATSON, Jr., and CLARENCE M. HORWOOD, Indianapolis, Ind., assignors of one-fifth to Chauncey R. Watson, Sr., same place. Filed Mar. 30, 1901. Serial No. 53,588. (No model.)

Claim.—1. A machine of the class described, consisting of a suitable frame having guides thereon, a work-holder mounted on said guides, means for shifting said work-holder on the guides, supports for receiving and supporting the ends of the work projecting beyond the work-holder, means for adjusting said supports toward and from the plane of movement of the work-holder, and a cutter-holder mounted in position to operate upon the work.



2. A machine of the class decribed, consisting of a pair of heads, two sets of tie-rods connecting said heads, a cutter-holder mounted upon one set of said tie-rods, a work-holder mounted upon the other set of tie-rods, and means for moving one of said holders with relation to the other.

3. In a machine of the class described, the combination with a pair of heads, of a work-holder mounted upon suitable guides between said heads, means for moving said work-holder, adjustable supports carried by each of said heads to aline with the work-holder, and a cutter-holder mounted between said heads in position to coöperate with the work-holder.

4. In a machine of the class described, the combination with a pair of heads, of a work-holder mounted upon suitable guides therebetween, means for shifting said work-holder along the guides, a pair of work-supporting rollers 53 mounted upon each head, means for shifting each pair of rollers upon its head, and a cutter-holder mounted in position to coöperate with the work-holder.

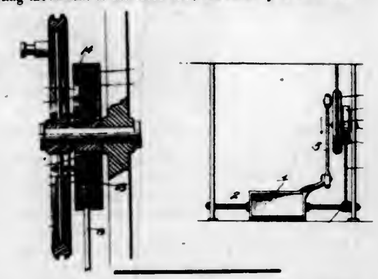
5. In a machine of the class described, the combination with a pair of heads, of two sets of tie-rods connecting said heads, a cutter-holder mounted upon one set of said tie-rods, a work-holder mounted upon the other set of tie-rods and movable thereon, means for moving said work-holder between the heads, a pair of work-supporting rollers 53 mounted upon each head, and means for adjusting each pair of rollers upon its head so as to aline with the work-holder.

6. In a machine of the class described, the combination with a pair of heads, of two sets of tie-rods connecting said heads, a cutter-holder mounted upon one set of tie-rods, a work-holding body mounted upon the other set of tie-rods, means for shifting said body upon said tie-rods between the heads, a vise mounted upon said body, means for adjusting said vise toward and from the cutter-holder, and work-supporting means adjustably mounted upon each of said heads in position to aline with said vise.

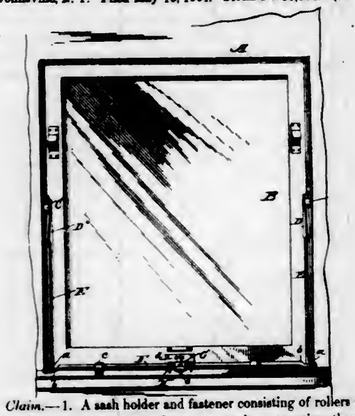
7. In a machine of the class described, the combination with a pair of heads, of two sets of tie-rods connecting said heads, a cutter-holder mounted upon one set of tie-rods, a work-holding body mounted upon the other set of tie-rods, means for shifting said body upon said tie-rods between the heads, a vise mounted upon said body, means for adjusting said vise toward and from the cutter-holder, a pair of work-supporting rollers mounted upon each head, and means for adjusting each pair of rollers so as to aline with the vise.

678,603. **DEVICE FOR OVERCOMING DEAD-CENTERS.** STEPHEN R. WICKERSHAM, Phœnix, Ariz. Filed Feb. 28, 1901. Serial No. 49,320. (No model.)

Claim.—In a sewing-machine, the combination with a pedal and pedal-shaft, of the connecting-rod connected thereto, a stud or shaft mounted upon the frame of the machine, a belt-wheel mounted upon said stud or shaft and having a crank-pin connected to said connecting-rod, a casing having a hub or sleeve rigidly connected to the stud or shaft, a disk mounted loosely within the casing and grooved or recessed upon its opposite sides, the wall of one of the recessed sides being provided with ratchet-teeth, a second disk arranged within the latter-named recess and rigidly connected with the belt-wheel to rotate therewith, pawls upon the rotating disk to engage the ratchet-teeth of the loose disk, said pawls having counterbalancing extensions, pins upon the rotating disk coacting with said extensions to limit the retracting movement of the pawls, a spiral spring arranged within the other recessed face of the loose disk and connected at one end thereto and at the other end to the casing to return the loose disk to its normal position, a cord connected with the loose disk and working through a slot in the casing, and an auxiliary pedal mounted upon the pedal-shaft and connected to said cord for imparting movement to the loose disk, substantially as described.



678,604. **SASH HOLDER AND FASTENER.** OTIS WILLIAMS, St. Johnsville, N. Y. Filed May 10, 1901. Serial No. 59,584. (No model.)



Claim.—1. A sash holder and fastener consisting of rollers upon the window-frame, wedges adapted to operate in connection therewith, a spring-actuated rod upon the sill of the frame for operating the wedges, and a latch upon the rod adapted to engage a keeper on the sash, substantially as and for the purpose set forth.

2. A sash holder and fastener consisting of rollers upon the window-frame, wedges adapted to operate in connection therewith, a spring-actuated rod upon the sill of the frame for operating the wedges, and crank connections between the rod and wedges, substantially as and for the purpose described.

3. A sash holder and fastener consisting of rollers upon the window-frame, wedges adapted to operate in connection with the rollers, said wedges having arms curved at their lower ends, a spring-actuated rod upon the sill of the frame having crank ends engaging with the curved ends of the arms, and a lever-latch for operating the rod and also engaging a suitable keeper on the window-sash, substantially as and for the purpose specified.

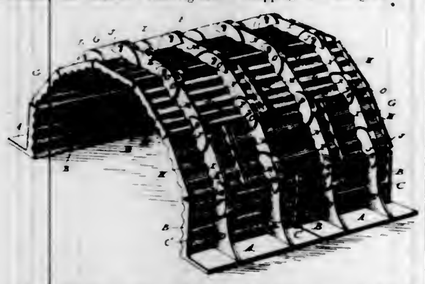
678,605. **CULVERT.** CLARENCE WOLCOTT and PATRICK MAGUIRE, Bloomington, Ill. Filed Mar. 28, 1901. Serial No. 53,284. (No model.)

Claim.—1. A culvert constructed of reversible sections having one or more integral overlapping flanges; and means for connecting the ends of said flanges.

2. A culvert comprising a body portion made up of a series of metallic plates, the plates breaking joint with each other throughout the structure; and integrally-formed overlapping means extending out beyond the body of the plates upon opposite sides thereof for locking said plates together.

3. A culvert comprising suitable base or foundation members; a series of plates forming the body portion of the culvert, said foundation members and plates breaking joint throughout; integrally-formed overlapping

devices carried by the parts for connecting said plates and the foundation members; and means for securing said overlapping devices together.



4. A culvert comprising suitable foundation members; a body portion consisting of a series of reversible plates, said plates breaking joint throughout the series and also with the foundation members; and integral overlapping means for connecting said plates and the foundation members together.

5. A culvert comprising a series of base plates or members; a series of sections forming the body portion thereof, said sections breaking joint throughout the structure; and ribs formed upon said members, extending over and interlocking with the ribs on the adjacent members.

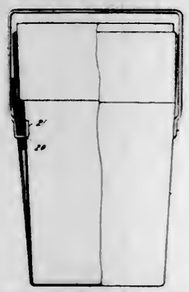
6. A culvert comprising foundation plates or members having ribs integrally formed thereon which extend up above the upper edges thereof; a series of body members; ribs or flanges integrally formed upon said members, the ends of said ribs or flanges extending out beyond the edges of the members; and means for locking the ends of said ribs together when the parts are in position.

7. A culvert comprising foundation members, each member being provided with a rib D, the end of which extends upwardly beyond the upright member of said foundation and is bifurcated; and a second rib E, the end of which extends upwardly above the edge of said upright member; a series of plates L having ribs M and N thereon, the upper end of rib M being bifurcated, and the lower end of rib N likewise bifurcated, substantially as described; and a series of short plates G having a single rib formed thereon, the upper end of which is bifurcated, the plates being arranged to break joint throughout the structure, substantially as described.

8. A culvert comprising suitable foundation members provided with upwardly-extending arms; a series of plates forming the body portion of the culvert, said plates being formed with ribs the ends of which extend out beyond the edges of the plates, each extending end being provided with a triangular opening therein; and locking keys or members extending through said openings and securing the parts in position, substantially as described.

9. A culvert comprising a series of base plates or members; a series of sections forming the body portion thereof, said sections breaking joint throughout the structure in a direction transverse to the axis of the arch; integrally-formed members extending out from opposite sides of the plates and sections and overlapping the longitudinal joints in the structure; and means for securing said overlapping members together.

678,806. **PAPER VESSEL.** HENRY L. R. WOLF, Dayton, Ohio, assignor to the Aull Bros. Paper & Box Co., same place. Filed Feb. 28, 1901. Serial No. 49,193. (No model.)

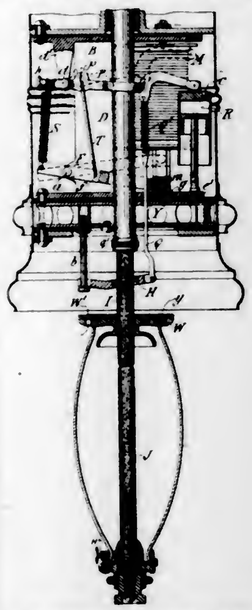


Claim.—1. The combination, with a folded paper vessel having side flaps with exposed edges, of a bail or handle, the ends whereof pass through the side walls of the vessel to form pivots, the ends being bent up against the inside of the vessel, those portions of the bail adjacent to the pivots being brought into parallelism to closely embrace the walls of the vessel, and the remaining parts of the side portions of the bail beginning below the rim of the vessel being bent or deflected outwardly so as to be free from contact with the vessel, substantially as described.

2. The combination, with a folded paper vessel of increasing width toward the top and provided with side flaps having exposed edges, of a bail or handle, the ends whereof pass through the side walls of the vessel to form pivots, the ends being bent up against the inside of the vessel, those portions of the bail adjacent to the pivots being brought into parallelism to closely embrace the walls of the vessel, and the remaining parts of the side portions of the bail beginning below the rim of the vessel being bent or deflected outwardly so as to be free from contact with the vessel, substantially as described.

3. The combination, with a folded paper vessel having side flaps with exposed edges, of a bail or handle, the ends whereof pass through the side walls of the vessel to form pivots, the ends being bent up against the inside of the vessel, those portions of the bail adjacent to the pivots being brought into parallelism to closely embrace the walls of the vessel, those parts of the outer side portions of the bail from the pivots toward the handle portion which are thus brought into contact with the outer side walls of the vessel being of less length than the distance from the pivots to the exposed edges of the side flaps, and the remaining parts of the side portions of the bail beginning below the rim of the vessel being bent or deflected outwardly so as to be free from contact with the vessel, substantially as described.

678,607. **ELECTRIC-ARC LAMP.** JAMES J. WOOD, Fort Wayne, Ind. Filed Dec. 14, 1900. Serial No. 39,888. (No model.)



Claim.—1. The combination of a magnet, its armature or movable member, a separating device for drawing the arc, a retarder for restraining the separating action thereof, and means for connecting said armature and separating device, comprising a yielding member and a relatively unyielding member, the former adapted upon the attraction of said armature to transmit a stress to said device tending to move it in the separating direction, and the latter adapted upon the retraction of said armature to transmit a movement to said device in the contrary direction.

2. The combination of a control-magnet, its armature or movable member, a feeding device for separating and feeding the carbons, a retarder for restraining the separating action of said feeding device, and means for connecting said armature and feeding device comprising a yielding member and a relatively unyielding member, the former adapted upon the attraction of said armature to transmit a separating stress to said feeding device, and the latter adapted upon the retraction of said armature to transmit a feeding movement to said feeding device.

3. The combination of a magnet, its armature or movable member, a separating device for drawing the arc, a retarder for restraining the separating action thereof, and means for connecting said armature and separating device, comprising a yielding member and a movable stop, the former under an initial stress, and the latter arranged to receive the reaction of said stress, the former adapted to transmit a stress upon the attraction of the armature, and the latter to transmit a movement in the opposite direction upon the retraction of the armature.

4. The combination of a control-magnet, its armature or movable member, a feeding device for separating and feeding the carbons, a retarder for restraining the separating action of said feeding device, and means for connecting said armature and feeding device comprising a yielding member and a movable stop, the former under an initial stress, and the latter arranged to receive the reaction of said stress, the former adapted upon the attraction of said armature to transmit to said feeding device a separating stress in excess of its initial stress, and the latter adapted upon the retraction of said armature to transmit a feeding movement to said feeding device.

5. The combination of a control-magnet, its armature, an armature-lever, a feeding device for the carbon, a retarder for restraining the separating action thereof, a lever intermediate of said armature-lever and feeding device, and means for connecting said levers comprising a spring and a movable stop, the latter serving to resist the stress of the spring, whereby the spring may be put under an initial tension, the spring arranged upon the attraction of the armature to transmit its stress to said intermediate lever to impart a separating movement, and the movable stop adapted upon the retraction of the armature to impart a feeding movement.

6. The combination of a magnet, an armature-lever, a feeding device, an intermediate lever connected to said feeding device, and means for connecting said armature-lever and intermediate lever comprising a spring connecting said levers on one side of their fulcrums, and a relatively unyielding member connecting them on the opposite side of their fulcrums, said latter member having an engagement in one direction only so as to constitute a movable stop acting in opposition to said spring.

7. The combination of a magnet, its armature, an armature-lever F, a lever P, a link T pivoted to one of said levers and engaging a slot in the other, a spring S connecting said levers in opposition to said link, and a feeding device connected to said lever P.

8. The combination of a magnet, an armature-lever engaging the armature thereof beneath said magnet, a feeding device beneath said armature-lever, an intermediate lever above said armature-lever connected to said feeding device on the one hand and to said armature-lever on the other, the latter connection comprising a spring and a movable stop, the latter serving to resist the stress of the spring, whereby the spring may be put under an initial tension, and a dash-pot connected to said feeding device.

9. The combination of a magnet, its armature-lever, a feeding device, an intermediate lever connected to said feeding device, a connection between said intermediate lever and armature-lever, and means for adjusting the point of attachment of said connection to one of said levers so as to vary the leverage.

10. The combination of a magnet, its armature-lever, a feeding device, an intermediate lever connected to said feeding device, and a connection between said intermediate lever and armature-lever comprising a spring, and means for adjusting the leverage of said spring by displacing its point of connection with one of said levers toward or from the fulcrum of such lever.

11. In an arc-lamp, the combination of a magnet, its armature-lever, a feeding device, an intermediate lever, and a connection between said levers comprising a spring, and means for varying the leverage at which said spring acts consisting of an adjusting device for moving the point of attachment of said spring with the lever toward or from the fulcrum of the lever.

12. In an arc-lamp, the combination of a magnet, its armature-lever, a feeding device, an intermediate lever, and a connection between said levers comprising a spring, and means for varying the leverage at which said spring acts by varying its point of connection to the lever in direction toward or from the fulcrum thereof, and substantially perpendicular to the direction of stress of the spring, whereby the initial stress of the spring is not varied by such adjustment.

13. In an arc-lamp, the combination with a lever P having a screw-threaded arm *i*, of an adjusting-nut *h* screwing on said arm, and a spring S engaging said nut.

14. In an arc-lamp, the combination with a lever P and a spring S acting against said lever, of means for varying the leverage at which said spring acts, consisting of an adjusting-screw engaging said lever and adjustable thereon in direction toward or from its fulcrum, said screw having a circumferential groove, and said spring having a loop entering said groove.

15. The combination of a feeding-clutch and a removable bushing attached thereto having an inner gripping edge for engaging the movable electrode, and formed externally with a flange of greater width seated in the clutch.

16. The combination of a feeding-clutch having a circular recess, and an adjustable annular gripping edge seated therein for engagement with the movable electrode.

17. The combination of a feeding-clutch and a bushing therefor movable within said clutch to different positions.

18. The combination of a feeding-clutch having a set-screw *r*, with a removable bushing H' having a circumferential groove adapted to be engaged by said screw.

19. In an arc-lamp, the combination with a trolley for engaging the carbon and its guiding-tube, of brushes for conducting the current between said trolley and tube attached to one part and arranged to press edgewise and to slide frictionally against the other.

20. In an arc-lamp, the combination with a trolley for engaging the carbon and its guiding-tube, of brushes for conducting the current between said trolley and tube consisting of metal springs attached to said trolley and bearing at their free ends against said tube, and bent to present at their free ends an edge contact with said tube.

21. In an arc-lamp, the combination with a trolley for engaging the carbon and its guiding-tube, of brushes for conducting the current between said trolley and tube consisting of metal springs attached to said trolley and bearing at their free ends against said tube, their free ends being bent into channel form to present both edges thereof in contact with said tube.

22. In an arc-lamp, the combination with a trolley for engaging the carbon and its guiding-tube, said trolley formed with longitudinal grooves, and conducting-brushes consisting of springs fastened in said grooves at one end and bearing outwardly against said tube at their other ends, and bent to make edge contact with said tube at their free ends.

23. In an arc-lamp, a trolley for engaging the carbon having three longitudinal grooves, and conducting-brushes in said grooves consisting of springs fastened at one end and pressing outwardly at their opposite or free ends, and bent at said free ends to present edge contact with the guiding-tube in which said trolley moves.

24. In an arc-lamp, the combination with a trolley for engaging the carbon and the guiding-tube of said trolley, the upper end of said tube and the upper end of said trolley being provided reciprocally with centering means adapted to center said trolley when pressed up within said tube.

25. In an arc-lamp, the combination with a trolley for engaging the carbon and the guiding-tube of said trolley, the upper end of said trolley being provided with a conical recess, and the upper end of said tube being closed by a plug having a conical projection for engaging said recess and centering the trolley.

26. In an arc-lamp, a trolley for engaging the carbon having a carbon-holder consisting of a socket divided into segments by longitudinal and transverse slits, whereby said segments are adapted to yield in either direction.

27. In an arc-lamp, a trolley for engaging the carbon, the carbon-holder L consisting of a socket divided into segments by vertical slits *k* and horizontal slits *l*, to the effect set forth.

28. In an arc-lamp, a globe-holder consisting of a plurality of studs adapted to engage the neck of the globe, and springs engaging said studs and arranged to press them inwardly.

29. In an arc-lamp, a globe-holder consisting of a plurality of studs adapted to engage the neck of the globe, springs arranged to press them inwardly, and means for adjusting the tension of said springs.

30. In an arc-lamp, a globe-holder consisting of a plurality of studs adapted to engage the neck of the globe, each stud movable independently of the others, and springs engaging the respective studs pressing them independently toward the center.

31. In an arc-lamp, a globe-holder consisting of a plurality of screw-threaded studs adapted to engage the neck of the globe, and leaf-springs for pressing said studs inwardly each spring fixed at one end and having at its other a screw-threaded engagement with its stud, whereby the studs may be independently adjusted in their respective springs to vary their tension.

32. In an arc-lamp, a globe-holder comprising a flanged base *u*, leaf-springs *w w* each fixed at one end to said base, and studs *v v* carried on the free ends of said springs, pressed inwardly thereby projecting inwardly through the flange of said base, and adapted to engage the neck of the globe.

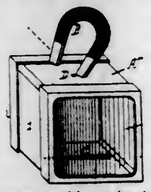
33. A globe-holder for an arc-lamp, comprising a globe-seat, a spring extending peripherally with relation thereto, and an adjustable clamp on the free end of the spring.

34. A globe-holder for an arc-lamp, comprising a globe-seat, a plurality of peripherally-extending springs mounted thereon, fixed at one end, and having adjustable clamps on their free ends.

35. In an inclosed-arc lamp, a gas-cap consisting of a plate W grooved on its upper side to form a circuitous vent-passage, combined with a top

plate W for closing said passage, the one plate being formed with a flange and the other fitting tightly within said flange and united thereto by being forced thereinto.

678,608. **MAGNETIC PUZZLE.** JOHN L. WOOLF, New York, N. Y. Filed May 31, 1901. Serial No. 62,489. (No model.)



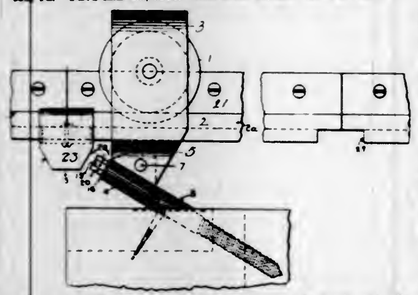
Claim.—1. A puzzle comprising a closed box of non-magnetic material, transparent, so as to optically expose its interior, and provided with an aperture, and a needle-shaped armature resting loosely within the box, adapted to be withdrawn therefrom through said aperture by means of a magnet; substantially as described.

2. A puzzle comprising a closed box of non-magnetic material and of rectangular shape, having one side transparent so as to optically expose its interior and having another side provided with an aperture and a needle-shaped armature resting loosely within the box, adapted to be withdrawn therefrom through the said aperture by means of a magnet; substantially as described.

3. A puzzle comprising a closed box of non-magnetic material, having a transparent portion and an apertured portion and constructed to form a storage receptacle for a magnet, and a needle-shaped armature resting loosely within the box, adapted to be withdrawn therefrom, through its apertures by means of said magnet; substantially as described.

4. A puzzle comprising a box of non-magnetic material, constructed in three separable sections, one collapsible and forming a box-trunk section, and the other sections forming covers, the said box having a transparent portion and an apertured portion and containing a needle-shaped armature adapted to be withdrawn therefrom through its aperture by means of a magnet; substantially as described.

678,609. **SLIDING-DOOR HANGER.** EDSON G. WORDEN, Scranton, Pa. Filed Mar. 29, 1900. Serial No. 10,612. (No model.)

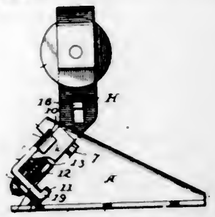


Claim.—1. The combination with the door and the track, of a roller mounted upon the track and a depending support carried by said roller, a sleeve secured to the support obliquely to the track, and a screw journaled, near its headed end, in said sleeve and having its threaded end extending obliquely into the top of the door, the point of said screw being inclosed by the woodwork of the door and not accessible from its adjacent vertical edge.

2. The combination with the door, and the track having a recess in its under side, of a roller mounted upon the track, a depending support carried by said roller, and a guard attached to the support and extending beneath the track, said guard being adapted to extend into the recess when the door is raised, substantially as described.

678,610. **DOOR-HANGER.** EDSON G. WORDEN, Scranton, Pa. Filed Dec. 24, 1900. Serial No. 40,873. (No model.)

Claim.—1. In a door-hanger the combination with a supporting-strap having an inclined hook portion at its lower end and a supporting-piece having an inclined face forming a guide for one inclined edge of said strap, and upwardly-inclined notches above and below said face, of a removable clamp having its opposite ends fitting into said notches, the upper portion of said clamp forming a guide for the opposite inclined edge of the strap, and the lower portion extending across the end of the strap, and means for adjusting said strap longitudinally between said guideways, for the purpose set forth.



2. In a door-hanger the combination with a supporting-strap having an inclined hook portion at its lower end and a supporting-piece having an inclined face forming a guide for one inclined edge of the strap, and upwardly-inclined notches above and below said face, of a removable clamp having its opposite ends fitting into said notches, the upper portion of said clamp forming a guide for the opposite inclined edge of the strap, and the lower portion extending across the end of the strap, means for adjusting said strap longitudinally between said guideways, and means for locking the clamp in place within the notches.

3. In a door-hanger of the character described, the combination with a door, of a supporting-piece A, adapted to be secured to the top thereof and having at one of its ends the upwardly-inclined notches 10 and 11 and the inclined guide-face 12 for the purpose set forth.

4. In a door-hanger the combination with a supporting-strap having an inclined hook portion at its lower end and a supporting-piece having an inclined face forming a guide for one inclined edge of said strap, and upwardly-inclined notches above and below said face, of a removable clamp having its opposite ends fitting into said notches, the upper portion of said clamp forming a guide for the opposite inclined edge of the strap and the lower portion extending across the end of the strap, an adjusting-screw extending through an opening in the clamp and into a threaded opening in the lower end of the hook, and means for locking said clamp in place within the notches.

5. In a door-hanger the combination with a supporting-strap having an inclined hook portion at its lower end, of a support having at one end an inclined face forming a guide for one edge of the hook and upwardly-inclined notches above and below said face, of a removable clamp having its opposite ends fitting into said notches, the upper portion of said clamp extending parallel with the hook and forming a guide therefor, and having laterally-extending flanges adapted to extend around the sides of the hook, the lower portion of the clamp extending across the end of the hook, an adjusting-screw extending through an opening in the clamp and into a threaded opening in the lower end of the hook, and means for locking said clamp in place within the notches.

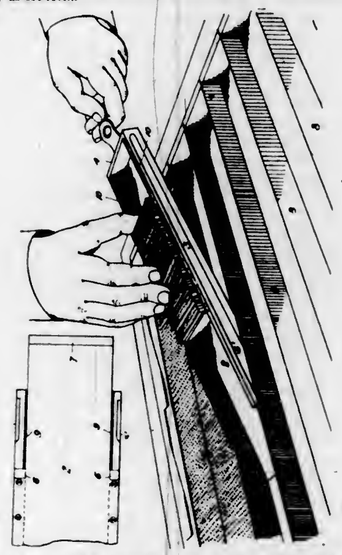
6. In a door-hanger the combination with a supporting-strap having an inclined hook at its lower end and a supporting-piece having at one end an inclined face forming a guide for one edge of the hook and upwardly-inclined notches above and below said face, of a removable clamp having its opposite ends fitting into said notches, the upper portion of said clamp extending parallel with the hook and forming a guide therefor and the lower portion extending across the end of the hook, an adjusting-screw extending through an opening in the clamp and into a threaded opening in the lower end of the hook, and a latch pivoted to the clamp and adapted to fit between the lower portion of the clamp and the support to lock the clamp in position within the notches.

7. In a door-hanger the combination with a supporting-strap having an inclined hook at its lower end and a supporting-piece having at one end an inclined face forming a guide for one edge of the hook, a shoulder above said guide, and upwardly-inclined notches above and below said guide, of a removable clamp having its opposite ends fitting into said notches, the upper portion of said clamp extending parallel with the hook and forming a guide therefor, and the lower portion extending across the end of the hook, and an adjusting-screw extending through an opening in the clamp and into a threaded opening in the lower end of the hook, the inner end of the screw abutting against said shoulder, and means for locking said clamp in position within the notches.

678,611. **PRINTER'S GALLEY.** HERBERT CLARK, Knoxville, Pa. Filed Nov. 1, 1900. Serial No. 35,132. (No model.)

Claim.—1. A galley consisting of an open-ended box having parallel sides and an extended bottom adapted to fit upon and between the column-rules of a type-form, substantially as set forth.

2. A galley consisting of an open-ended box having parallel sides, an extended bottom, and side extensions having under-sloping edges, substantially as set forth.



3. A galley consisting of an open-ended box having parallel sides, an extended bottom, and side extensions having under-sloping edges with recessed grooves, substantially as set forth.

4. A galley consisting of an open-ended box having parallel sides provided with bearing extensions and gage-graduations, and an extended bottom, substantially as set forth.

5. A galley consisting of an open-ended box having parallel sides provided with bearing extensions and gage-graduations and an extended bottom, with an adjustable gage adapted to be set on the sides, substantially as set forth.

6. A galley consisting of parallel sides and one end, a bottom secured to the sides and end projecting beyond the sides, the sides being tapered upwardly from the bottom, provided underneath with longitudinal grooves, having graduations on their upper edge, and an adjustable gage adapted to be set on the sides, substantially as set forth.

7. A printer's galley consisting of sides adapted to conform to the column-rules and an extended bottom secured to the sides, fitting between the column-rules and adapted to bear upon the bottom of the form, substantially as set forth.

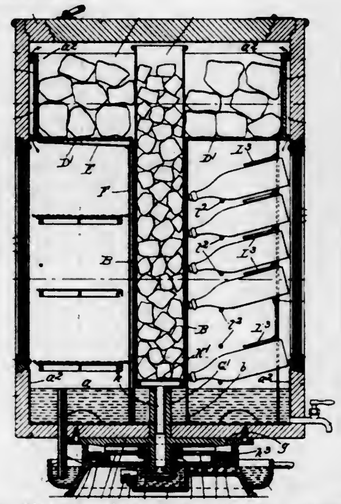
678,612. **REFRIGERATOR.** PAUL J. DAEHLER, Chicago, Ill. Filed Aug. 3, 1900. Serial No. 26,759. (No model.)

Claim.—1. A refrigerator, consisting of a revoluble cabinet comprising ice and storage chambers, and a receptacle for water of liquefaction, and a fixed base on which such cabinet is supported and revolved; the base having a water-pocket encompassing the axis, and the cabinet having an overflow drain-pipe from the water-receptacle having its receiving-mouth elevated above the bottom of the receptacle and its discharge-mouth overhanging the water-pocket in the base throughout the revolution of said cabinet.

2. A refrigerator, consisting of a revoluble cabinet comprising ice and storage chambers, and a receptacle for water of liquefaction, an overflow-pipe from such receptacle whose overflow-point determines the water-level thereof; a fixed base on which the revoluble cabinet is supported, said base having a water-pocket encompassing the axis and having an overflow drain-pipe by which the water-level is maintained in such pocket; the overflow-pipe from the water-receptacle in the cabinet having its discharge-mouth protruded down into said water-pocket, below the water-level thereof.

3. A refrigerator, consisting of a revoluble cabinet comprising ice and storage chambers, and a receptacle for water of liquefaction; a fixed base, on which the revoluble cabinet is supported, having a central water-pocket and an overflow drain-pipe from the water-receptacle of the revoluble cabinet having its receiving-mouth elevated above the bottom of said receptacle and extending out through the bottom of said cabinet, at the center thereof, and discharging into the central water-pocket of the base.

4. A refrigerator, consisting of a revoluble cabinet comprising ice and storage chambers, and a receptacle for water of liquefaction, and having a central stem extending from the bottom downward; and a fixed base having a central aperture which receives the stem of the cabinet and which centers the cabinet on the base; a water-pocket on the base under such central aperture, the central stem of the cabinet being tubular, whereby it serves to conduct the drainage from the cabinet into said central water-pocket of the base.



5. A refrigerator, consisting of a revoluble cabinet, comprising ice and storage chambers and a receptacle for water of liquefaction derived from the ice, and a receptacle for a freezing mixture separate from the ice-chamber; a fixed base on which said cabinet is supported; and an overflow drain-pipe leading from the water-receptacle; the cabinet having a hollow stem by which it is centered in the base, said base having a water-pocket under the hollow stem, and under the end of said overflow drain-pipe the freezing-mixture receptacle, having a drain-pipe which discharges into said hollow stem.

6. A refrigerator, consisting of a revoluble cabinet, comprising ice and storage chambers and a receptacle for water of liquefaction; a fixed base upon which said cabinet is supported, the cabinet having a hollow central stem by which it is centered on said base; antifriction devices and tracks for the same on the bottom of the cabinet and on the fixed base respectively concentric about said hollow stem; said stem extending up into the cabinet and opening therein above the bottom of the water-receptacle and constituting an overflow drain-pipe for the water-receptacle; whereby the water is carried out through the center of the base.

7. In a refrigerator, in combination with the revoluble cabinet having a hollow central stem constituting a drain-pipe, a fixed base on which said revoluble cabinet is centered by said stem, said base having a water-pocket underneath the stem, said water-pocket having a lateral aperture provided with a removable plug, and a retaining-pin inserted through the lower end of the tubular stem, below the bearing of the latter in the fixed base, to retain the parts in connection to permit the insertion of the retaining-pin.

8. A refrigerator, consisting of a fixed base and a horizontally-revoluble cabinet supported and centered on such base, and comprising a central ice-receptacle, and storage-chamber surrounding such central receptacle; and a receptacle for water of liquefaction at the lower part, the fixed base having a water-pocket encompassing the axis, and the revoluble structure having an overflow drain-pipe whose discharge-mouth extends into such water-pocket, below the water-level thereof.

9. A refrigerator, consisting of a fixed base and a horizontally-revoluble cabinet supported and centered on such base, comprising a central ice-receptacle, storage-chambers completely encompassing the ice-receptacle, and a receptacle for the water of liquefaction at the lower part, extending underneath the storage chambers, the base having a water-pocket with an overflow maintaining a water-level, the revoluble cabinet having an overflow drain pipe which overhangs and intrudes into said water-pocket to a point below the water-level of such pocket.

10. A refrigerator, comprising a revoluble cabinet, having a central ice-receptacle and storage-chambers separated by vertical partitions trending from the central receptacle outward; and a receptacle for water of

liquefaction extending underneath the storage-chambers, and provided with a trapped overflow; the vertical partitions between the chambers being extended below the water-level of such water-receptacle; whereby the several chambers are water-sealed from each other at the bottom.

11. A refrigerator, consisting of a fixed base and a horizontally-revoluble cabinet supported and centered on such base, comprising a central ice-receptacle, storage-chambers separated by vertical partitions and together encompassing such central receptacle, and a receptacle for water of liquefaction extending under the storage-chambers, the partitions between such chambers extending below the water-line of such water-receptacle; whereby such chambers are water-sealed from each other at the lower end; the base having a water-pocket encompassing the axis, and the revoluble cabinet having an overflow drain-pipe whose discharge end overhangs such water-pocket throughout the entire revolution of such revoluble cabinet.

12. A refrigerator, consisting of a fixed base and a horizontally-revoluble cabinet supported and centered on such base, comprising a central ice-receptacle, vertically-partitioned storage-chambers encompassing such receptacle, an additional ice-receptacle extending above the storage-chamber; and a receptacle for the water of liquefaction, extending underneath the storage-chambers and provided with an overflow drain-pipe by which the water-level is maintained, the partitions between the storage-chambers being extended below such water-level; the base having a water-pocket into which the drain-pipe discharges.

13. A refrigerator, comprising a central ice-receptacle; vertically-partitioned storage-chambers encompassing such receptacle; a receptacle for water of liquefaction extending underneath the storage-chambers; an upper ice-chamber extending above the storage-chambers, the ice-rack or reticulated bottom of said upper ice-chamber constituting the top or upper boundary of the storage-chambers; and a removable drip-pan interposed between the upper ice-chamber and a storage-chamber located underneath the same to divert the water of liquefaction past such storage-chamber on its way to the water-receptacle.

14. A refrigerator, comprising a central ice-receptacle having its inclosing walls perforated or reticulated; vertically-partitioned storage-chambers encompassing such receptacle; a receptacle for water of liquefaction, extending underneath the storage-chambers; an upper ice-chamber extending above the storage-chambers, the ice-rack or reticulated bottom of said upper ice-chamber constituting the ceiling or upper boundary of the storage-chambers; a removable imperforate shield interposed between the partition-walls bounding the storage-chambers near the perforated or reticulated wall of the central ice-chamber, forming a vertical passage between said reticulated wall and said shield from the top to the bottom of such storage-chambers; and a removable drip-pan interposed between the upper ice-chamber and said storage-chambers to divert the water of liquefaction into said vertical passage formed by such shield.

15. A refrigerator, comprising a central ice-receptacle; a plurality of storage-chambers in a group, encompassing the central receptacle; a receptacle for water of liquefaction underneath all the storage-chambers; an upper ice-chamber above the storage-chambers, the ice-rack or reticulated bottom of such upper ice-chamber constituting the top of the storage-chambers and permitting the free passage of cold air and water of liquefaction from the ice downward into such storage-chambers; the outer wall of such upper ice-chamber having air-flues extending in it from the storage-chambers to the upper part of said upper ice-chamber.

16. A refrigerator, comprising a central ice-receptacle having reticulated walls; storage-chambers separated by vertical partitions, and together encompassing such central ice-receptacle; a receptacle for water of liquefaction extending underneath the several storage-chambers; an upper ice-chamber extending above the storage-chambers; the ice-support thereof being a rack or screen which separates the ice-chamber from the storage-chambers below it, permitting the water of liquefaction to pass from said ice-chamber above the storage-chambers to the water-receptacle below the same, outside said central ice-receptacle; and a removable, imperforate-bottomed shell adapted to contain a freezing mixture and to be inserted within said reticulated central ice-receptacle and when thus inserted to extend up within the upper ice-chamber; whereby the freezing mixture is separated from the clear ice and from the water of liquefaction derived from such ice.

17. A refrigerator, comprising a central ice-receptacle, vertically-partitioned storage-chambers encompassing said receptacle, a receptacle for the water of liquefaction underneath such storage-chambers, an upper ice-chamber above the storage-chambers, an imperforate receptacle for a freezing mixture, adapted to be inserted within such central ice-receptacle and constitute a lining for the same, and having extending from the bottom a drainage-duct; the receptacle for water of liquefaction having at the center an upstanding hollow boss through which the drainage-ducts of said imperforate receptacle may extend; and an independent overflow drain-duct leading from the water-receptacle.

18. A refrigerator, comprising a central ice-receptacle; storage-chambers surrounding such receptacle; a receptacle for water of liquefaction extending under the ice-receptacle and the storage-chambers; a central hollow boss protruding upward from the bottom of such water-receptacle at the lower end of such central ice-receptacle; a trapped overflow drain-duct leading from said water-receptacle down through the bottom thereof, having its overflow-point substantially at the level of the top of said boss; and a receptacle for freezing mixture adapted to be inserted at will into and removed from said central ice-receptacle, and having a drain-duct leading from its bottom, adapted to extend down into the hollow boss; and a base having a water-pocket into which both said drain-ducts extend, whereby they are trapped at the lower end in the water of liquefaction, delivered therethrough.

19. A refrigerator, comprising a central ice-receptacle; storage-chambers surrounding such central receptacle; a receptacle for water of liquefaction underneath the storage-chambers; an upper ice-chamber above the storage-chambers, one of said chambers being provided with bottle-rack and open above freely into the upper ice-chamber; whereby the water of liquefaction in said upper chamber falls directly onto the bottles in its way to the lower water-receptacle.

20. A refrigerator, comprising a central ice-receptacle; storage-chambers surrounding such central receptacle; a receptacle for water of liquefaction underneath the storage-chambers; an upper ice-chamber above the storage-chambers, one of the latter having a vertical outer false front, apertures to constitute a bottle-rack whose apertures are occupied by bottles inserted thereinto endwise toward the central receptacle; said chamber being open freely to the ice-chamber above the same; whereby the bottles are exposed to the drip-water from the ice, and are protected by the false front from exterior air when the outer door is opened.

21. In a refrigerator, a storage-chamber for bottles, which has an independent door for access and a false front back of such door having apertures for bottles to be inserted endwise and occupy such apertures, in combination with an ice-chamber above such bottle-chamber, arranged with apertured floor or ice-rack to permit the free drip of the water of liquefaction through the bottle-chamber, and a receptacle for the water of liquefaction at the bottom of the latter, provided with a trap for overflow.

22. A refrigerator, comprising a central ice-receptacle; storage-chambers surrounding such central receptacle; a receptacle for water of liquefaction underneath the storage-chambers; an upper ice-chamber above the storage-chambers, one of said chambers being provided with a false front constituting a bottle-rack, the apertures whereof are adapted to be occupied and substantially closed by the bottles inserted therein; and trap-doors or valves extended on the inside of such false front at the upper sides of the apertures respectively, adapted to be swung aside or upward by insertion of the bottles into the apertures, and to drop and close the apertures when the bottles are withdrawn.

23. A refrigerator, comprising a central ice-receptacle; storage-chambers surrounding such central receptacle, separated from each other by vertical partitions; a receptacle for water of liquefaction extending underneath said chambers, having an overflow drain-pipe by which a water-level is maintained, the vertical partitions between the chambers extending into said water-receptacle to a point below the water-level thereof, whereby said water-chambers are water-sealed from each other at the bottom; an upper ice-receptacle above the storage-chambers, one of the latter having free communication at the top with the upper ice-receptacle, having a vertical outer false front apertured to constitute a bottle-rack, the apertures being adapted to be occupied and substantially closed by the bottles inserted endwise thereinto.

24. In a refrigerator, in combination with a storage chamber and an ice-receptacle above the same, with which the storage-chamber has free communication at the top, a bottle-cooler, consisting of an open-top vessel adapted to occupy the chamber, such cooler having an overflow drain-duct opening through the wall thereof near the top, and having its intake-mouth near the bottom of said cooler; whereby the water is withdrawn from the bottom part of said cooler, and the water-level is maintained near the top.

25. In a refrigerator having a storage-chamber and an ice-receptacle above the same, adapted to deliver water of liquefaction down into such storage-chamber, an open-top bottle-cooler having an overflow-duct comprising two telescoping members, the upper member being fixed with respect to the vessel and discharging outward near the top of the latter, and the lower member being adapted to be telescoped onto the upper, to vary the level of the lower end or intake-mouth; whereby the overflow or excess water is delivered from said receptacle through the discharge near the top, and is taken from a point in the height of said vessel variable at will by telescoping said members.

26. A refrigerator, comprising a revoluble cabinet having a central ice-receptacle and storage-chambers separated by radial vertical partitions and together completely encompassing such central receptacle; each separate storage-chamber having an independent door for access at the side remote from the central ice-receptacle.

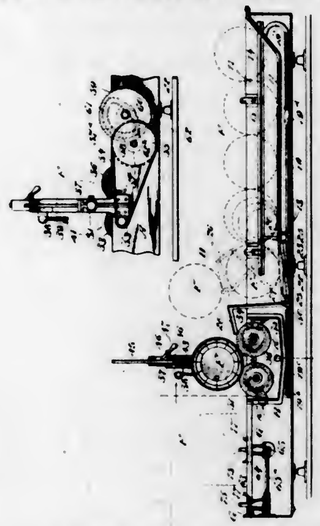
27. In a refrigerator, a cooling-chamber and a plurality of storage-chambers cooled thereby; one of said storage-chambers having within it a case constituting a false wall or lining for the same exposed directly to the cold air from the cooling-chamber, such case having no air communication with the other chambers of the refrigerator, means closing it against exterior access, and means affording it direct exterior ventilation when thus closed.

28. In a refrigerator, a cooling-chamber and a plurality of storage-chambers cooled thereby; one of said storage-chambers having within it a case constituting a false wall or lining for such chamber, such chamber having a door at one side, the case being open at that side and having its edges abutting against the inner surface of the door, whereby when the door is closed it completely closes the gate, the door having ventilating-apertures for such case.

29. In a refrigerator, a cooling-chamber and a storage-chamber underneath the same and adapted to be cooled thereby by the descent of the cooling element from the cooling-chamber; a case within the storage-chamber constituting a false wall or lining for the top, bottom and several sides of such chamber; a deflector above such case, between the same and the cooling-chamber, to deflect the cooling element to the sides of the case, whereby the top is insulated from said element; and ventilating-passages leading from said case to the exterior air.

30. In a refrigerator, in combination with an upper ice-chamber and a storage-chamber below the same in position to receive the drip from the ice, a case, constituting a false lining for the storage-chamber and completely inclosed therefrom without communication with the storage or ice chamber, said case having an exterior door and ventilation-passages from its upper part leading to the exterior air without communication with other storage-chambers; the top of said case being provided with an insulated covering, and a deflector above said case to deflect the drip-water from the top of the case, causing it to be discharged down outside of the same.

678,613. BARREL-WASHING MACHINE. CHARLES J. DOBLER, New York, N. Y. Filed Oct. 8, 1900. Serial No. 32,417. (No model.)



Claim.—1. In a barrel-washing machine, a scrubbing device, an inclined track, movable stops for holding a barrel on the track, a transferring device between the tracks and scrubbing device, and means controlled by the transferring device for moving the stops out of the path of the barrel to permit it to pass onto the said transferring device, as set forth.

2. In a barrel-washing machine, a scrubbing device, an inclined track, movable stops at the rear ends of the track, a transferring device between the track and scrubbing device, means for raising and lowering the transferring device, and means whereby when the transferring device is lowered the stops will be moved out of the path of the barrel to allow it to pass onto the transferring device, as specified.

3. In a barrel-washing machine, a scrubbing device, an inclined track, pivoted and spring-pressed stops at the rear end of the track, a transferring-table between the track and scrubbing device, and adapted to engage the stops to swing them laterally, and means for raising and lowering the table, as set forth.

4. In a barrel-washing machine, a tank containing a chamber, an inclined track in the tank, movable stops at the inner end of the track, supporting-wheels mounted in the chamber of the tank, brushes for engaging the barrel carried by the supporting-wheels, a transferring-table between the track and supporting-wheels, and adapted to engage the said stops to move them out of the path of a barrel, and means for raising and lowering the said table, substantially as described.

5. In a barrel-washing machine, a body in the form of a tank, tracks carried by said body, adapted to receive the barrels or kegs to be soaked and partially filled with water, said tracks having a downward inclination at their forward ends, movable stops at the rear portion of the tracks, a table adapted to receive a barrel or keg said table being adapted to engage the stops to move them out of the path of a barrel on the tracks, means for raising and lowering said table, a chamber connected with said tank and located therein, supporting-wheels mounted to revolve within the said chamber and arranged to sustain a barrel or keg, a supporting device located above the said chamber, and adjustable brushes having a swivel connection with their supports, the brushes being arranged to engage with the side and head portions of a barrel or keg carried by the said supporting-wheels, as set forth.

6. In a barrel-washing machine, a body in the form of a tank, tracks carried by said body, adapted to receive the barrels or kegs to be soaked and partially filled with water, said tracks having a downward inclination at their forward ends, movable stops at the rear portion of the tracks, a table adapted to operate the said stops and to receive a barrel or keg, means for raising and lowering said table, a chamber connected with said tank and located therein, supporting-wheels mounted to revolve in the said chamber and arranged to sustain a barrel or keg, a supporting device located above the said chamber, adjustable brushes having a swivel connection with their supports, the brushes being arranged to engage with the side and head portions of a barrel or keg carried by the said supporting-wheels, and a water-delivery pipe located above the said chamber, and having extensions directed to the end portions of said chamber at a point above the supporting-wheels, as set forth.

7. In a barrel-washing machine, tracks for the barrels having inclined sections, supporting-rollers for a barrel, brushes for engaging the barrel, a transferring-table arranged between the tracks and supporting-rollers, and means controlled from the shaft of one set of supporting-rollers, for raising and lowering the table, substantially as described.

8. In a machine for washing barrels or kegs, a tank, parallel shafts located within said tank, two supporting-wheels eccentrically mounted on one of the shafts, and a third supporting-wheel located upon the opposing shaft, the single wheel being opposite the space between the pair of wheels, as set forth.

9. In a machine for washing barrels or kegs, a tank, parallel shafts journaled in said tank, supporting-wheels eccentrically mounted upon one of said shafts, a single supporting-wheel concentrically mounted upon the opposing shaft, the single wheel being opposite the space between the pair of wheels, a frame connected with the tank, and side and top brushes adjustably mounted in the said frame, the said brushes having a swivel connection with their supports, and means for limiting the movement of the brushes in one direction, as set forth.

10. In a machine for washing barrels or kegs, a tank, parallel shafts journaled in said tank, two supporting-wheels eccentrically mounted upon one of said shafts, a single wheel concentrically mounted upon the opposing shaft, the single supporting-wheel being opposite the space between the pair of wheels, a frame connected with the tank, side and top brushes adjustably mounted in said frame, the brushes having a swivel connection with their supports, means for limiting the movement of the brushes in one direction, and a pipe connected with a source of water-supply, supported by said frame and located adjacent to the upper brush, said pipe being provided with downwardly-extending nozzles having their delivery ends facing each other, for the purpose set forth.

11. In a barrel or keg washing machine, supports for the barrel or keg, and brushes adapted for engagement with the exterior of a barrel or keg, yieldingly-mounted supports for the said brushes, and a universal connection between the brushes and their supports, as set forth.

12. In a barrel or keg washing machine, a tank having an inlet and an outlet, supporting-wheels triangularly arranged within the said tank, the wheels at the base of the triangular arrangement being eccentrically mounted and the wheel at the apex of said triangular arrangement concentrically mounted, means for driving said shafts, a frame located above the said tank, side and top brushes located within the said frame, the side brushes being spring-controlled in a horizontal direction and all of the said brushes having a swivel connection with their supports, an adjusting device for the upper brush, and stops located at the swivel connection between the brushes and their supports, which stops serve to limit the movement of the brushes in certain directions, as described.

13. In a barrel or keg washing machine, the combination, with a tank having a chamber formed therein, provided with a reversible inlet and an outlet, a circulating-pipe located within the tank and provided

with an injector adapted for connection with a source of steam-supply, and tracks located in the forward portion of the said tank, adapted to receive the barrels or kegs which are to be filled and soaked, the said tracks being inclined at their forward ends, of adjustable guides for the barrels or kegs, a scrubbing and cleaning mechanism located at the rear of the said tracks and guides, a table located between the scrubbing and cleaning mechanism and the tracks and guides, lazy-tongs connected with said table, and means for raising and lowering said lazy-tongs, as set forth.

14. In a barrel or keg washing machine, the combination, with a tank having a chamber formed therein, provided with a reversible inlet and an outlet, a circulating-pipe located within the tank, provided with an injector adapted for connection with a source of steam-supply, and tracks located at the forward portion of said tank, adapted to receive the barrels or kegs which are to be filled and soaked, the said tracks being inclined at their forward ends, a scrubbing and cleaning mechanism located at the rear of said tracks and guides, a table located between the scrubbing and cleaning mechanism and the tracks and guides, lazy-tongs, connected with said table, means for raising and lowering the said lazy-tongs, guides located at the rear of the lazy-tongs, having upper inclined sections which extend to the cleaning and scrubbing mechanism, and supports for kegs or barrels located at the rear of the cleaning and scrubbing mechanism, for the purpose set forth.

15. In a machine for cleaning barrels or kegs, a tank, tracks located within the tank adapted to receive the barrels or kegs, the forward ends of which tracks are inclined, stops mounted to turn at the rear ends of the tracks, a washing and scrubbing mechanism, and an elevator comprising a table and lazy-tongs located between the rear ends of the track and the washing and scrubbing mechanism, a trip connection between the elevator and the said stops, and means for raising and lowering the elevator, as described.

16. In a machine for cleaning barrels or kegs, a tank, tracks located within the said tank, adapted to receive the barrels or kegs, the forward ends of which tracks are inclined, stops mounted to turn at the rear ends of the said tracks, a washing and scrubbing mechanism, an elevator comprising a table and lazy-tongs located between the rear ends of the tracks and the washing and scrubbing mechanism, a trip connection between the elevator and the said stops, means for raising and lowering said elevator, guides adapted for engagement with the head portions of the barrels or kegs located on the said tracks, devices for moving the said guides parallel to or from each other, and a circulating pipe having an injector connection with a source of steam-supply, which circulating-pipe is located within the tank, for the purpose set forth.

17. The combination, with a barrel-support, and brushes for engaging the barrel, of parallel shafts, and two supporting-wheels eccentrically secured on one of the shafts, and a third supporting-wheel concentrically secured on the opposing shaft, the single wheel being opposite the space between the two wheels, as described.

18. In machines for cleaning barrels or kegs, or other articles, supporting-wheels for the kegs or barrels, arranged in triangular order, for the purpose set forth.

19. In a machine for cleaning barrels or kegs, or other articles, parallel shafts, supporting-wheels mounted on the said shafts, and a driving mechanism for one shaft, the wheel on the opposing shaft being driven by frictional contact with the object supported, for the purpose set forth.

20. In a machine for cleaning barrels or kegs, or other articles, parallel shafts, a pair of supporting-wheels secured to one of said shafts, a single supporting-wheel secured to the opposite shaft, and located opposite the space between the pair of wheels, and driving mechanism for the shaft carrying the pair of wheels, the single supporting-wheel being revolved by frictional contact with the object supported.

21. In a machine for cleaning barrels or kegs, or other articles, a receptacle, shafts mounted to revolve in the said receptacle, a pair of supporting-wheels eccentrically secured to one of the said shafts, and a single wheel concentrically secured to the opposing shaft, the single wheel being opposite the space between the pair of wheels, and means for driving the eccentrically-mounted wheels, the concentrically-mounted wheel being driven by frictional contact with the object supported, as set forth.

22. A supporting-wheel for barrels or kegs, or other articles, which wheel consists of a sectional body and means for connecting the sections, the peripheral portions of the sections of the body having grooves therein, which grooves when the sections are brought together, form a dovetail peripheral channel, and a tire having a rib adapted to enter the said channel in the body and be held to the said body by the fastening devices of the sections of the body, substantially as described.

23. In a machine for cleaning barrels, the combination with a tank, and tracks arranged therein, of guides in the tank, and means for adjusting the guides, as and for the purpose set forth.

24. In a machine for cleaning barrels, the combination with a tank, and tracks arranged therein, of guides arranged in the tank, links pivotally connecting the guides with the sides of the tank and provided with handles, and means for locking the handles in position, substantially as described.

25. In a machine for cleaning barrels, the combination with hollow tracks, of angular stops having one member loosely and yieldingly held in the said tracks, substantially as described.

26. In a machine for cleaning barrels, the combination with hollow tracks, of angular stops each having one member projecting into the hollow tracks, and a spring secured to the said member and tracks, substantially as described.

27. In a barrel-cleaning machine, the combination with hollow tracks, and an elevating-table adjacent to one end of the tracks, of angular stops each having one member loosely and yieldingly mounted in the tracks and provided on its other member with a projection adapted to be engaged by the elevating-table, substantially as described.

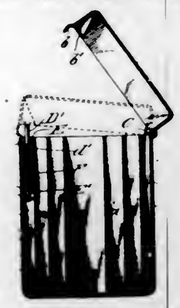
28. In a machine for cleaning barrels, a brush, a rod with which the brush is connected by a universal coupling, and a casing within which the rod is yieldingly held, substantially as described.

29. In a machine for cleaning barrels, a brush, a rod to which the brush is connected by a universal coupling, a casing, and a spring coiled around the rod in the casing and having one end secured to the rod and the other to the casing, substantially as described.

30. In a barrel-cleaning machine, a yieldingly-supported rod, a weighted brush connected to the rod by a universal joint, and stops for bringing the movement of the brush in one direction, substantially as described.

31. In a machine for cleaning barrels, a sprinkler adapted to support and enter a barrel, said sprinkler comprising a conical inner casing connected with a water-supply and having an outlet-opening in one side at the top, an intermediate casing mounted to turn on the inner casing and extending above the same, said intermediate casing being provided with two openings, one above and the other below the top of the inner casing and with a nipple at its upper end, and an outer casing mounted on the intermediate casing to turn therewith, said outer casing being provided in one side with a chamber registering with the openings of the intermediate casing and with arms at its upper end, substantially as described.

678,614. CIGAR-CUTTER. EUGENE J. EPSTEIN, St. Louis, Mo. Filed Sept. 24, 1900. Serial No. 30,891. (No model.)

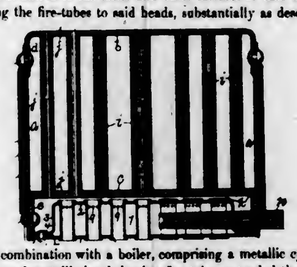


Claim.—1. In a combined pocket case and cigar-cutter, the combination with a receptacle having a cutting-perforation, of a hinged cover on said receptacle, a slidable knife arranged in said receptacle and in juxtaposition to said perforation, an extension on said knife, guide-plates for said extension, and a spring cooperating with said knife, whereby the cover in its closing movement will engage the extension carried by the knife and force the same past the cutting-perforation; substantially as described.

2. In a combined pocket case and cigar-cutter, the combination with a receptacle having a cutting-perforation formed in one of its walls, and a discharge or exhaust opening, of a cover hinged to said receptacle, a slidable knife arranged in juxtaposition to the cutting-perforation, an extension on said knife, and a spring engaging said extension for forcing the knife into an operating position when the cover of the receptacle is open, the free end of said hinged cover cooperating with the knife extension upon the closing movement of the cover, whereby the knife will effect a cut; substantially as described.

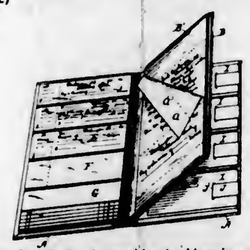
678,615. BOILER. PETER FORD, Somerville, Mass. Filed Nov. 27, 1899. Serial No. 738,322. (No model.)

Claim.—1. The combination with a boiler provided with fire-tubes extended through its opposite head and with one or more metallic coils wound upon its cylinder or body portion, of a layer or coating of non-corrodible metal united to the inner and outer surfaces of said boiler and firmly securing the fire-tubes to said heads, substantially as described.



2. The combination with a boiler, comprising a metallic cylinder or body portion, and metallic heads having fire-tubes extended through and secured to them, of a layer or coating of non-corrodible metal such as described, united to the inner side of the said body portion and heads and finally securing the fire-tubes to said heads, substantially as described.

678,616. DEVICE FOR TEACHING BOOKKEEPING. EUGENE GREGORY, Battlecreek, Mich. Filed Feb. 6, 1900. Serial No. 4,174. (No model.)



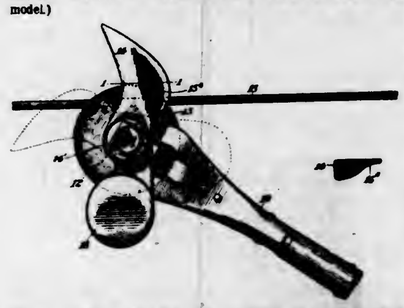
Claim.—1. In a device for teaching bookkeeping, the combination of the cover A with a flexible back having stub-books secured to one side and envelops secured to the opposite side; a leaf B of stiff material having a web of paper wrapped thereon, containing the matter representing the incoming paper, coacting for the purpose specified.

2. In a device for teaching bookkeeping, the combination of a suitable cover; an intermediate leaf secured therein; a continuous strip or web of paper upon which are printed the incoming papers named, wrapped around said leaf; and suitable envelops secured within the cover for filing the papers in order as they are accumulated, for the purpose specified.

3. In a device for teaching bookkeeping, the combination of a suitable cover; an intermediate leaf secured therein; a continuous strip or web of paper upon which are printed the incoming papers wrapped around said leaf, as specified.

4. In a bookkeeping device, the combination with a folding cover of a holder formed with the central portion N having a tongue J on its outer end, a flap N′ and an upper flap containing a slot J′ to receive the said tongue J to close the outer end of said holder secured to one side of said cover with its inner end toward the back thereof, whereby said inner end will be closed when said cover is folded, as specified.

678,617. GUIDING DEVICE FOR TROLLEYS. ANTHONY J. GRIFFIN, New York, N. Y. Filed Nov. 6, 1900. Serial No. 35,649. (No model.)



Claim.—1. The combination, with a support, of a contact-wheel, and independently-mounted movable guides extending outwardly beyond the sides of said wheel, each of said guides having a recess or concavity adjacent to its upper free edge and also having a weighted end for normally causing it to assume a vertical position, whereby the guides when brought to horizontal positions by contact with an obstruction will pass over without engaging the ribs or projections of said obstruction.

2. The combination, with a carrier, of a contact-wheel, and a pair of disconnected guides loosely mounted upon the axis of said wheel, each of said guides having an outwardly-flaring end and a recess or concavity adjacent to its upper free edge, whereby the guides when brought to horizontal positions by contact with a switch or crossing-plate will pass over without engaging the guiding-ribs of said plate.

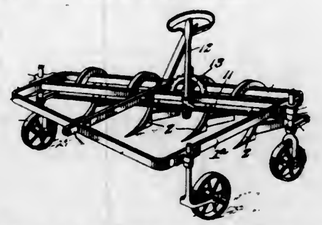
3. The combination, with a carrier, of a contact-wheel; a bolt upon which said wheel is mounted; and a pair of guides independently mounted for free swinging movement on said bolt adjacent to the sides of the wheel, each of said guides having an outwardly-flaring portion at one end, a recess adjacent to its upper free edge, and a weight at the other end.

4. The combination, with a carrier, of a contact-wheel; a bolt upon which said wheel is mounted for rotation; a guide loosely mounted upon said bolt at one side of said wheel, said guide having an outwardly-flaring end, a recess adjacent to its upper free edge, a shoulder projecting over the flange of the wheel, and a weighted extremity; and a second guide located upon said bolt on the other side of said wheel and of the same construction as the first-named guide.

5. The combination, with a carrier, of a contact-wheel, and a pair of arms journaled for free swinging movement adjacent to the sides of said wheel, each of said arms having guiding ends with concave sides, which, when the guides are horizontal, will pass over without engaging ribs or projections on a switch or crossing-plate.

6. The combination, with a carrier, of a contact-wheel supported for rotation thereon, and a pair of guiding arms or levers mounted for free swinging movement upon the carrier at each side of said wheel, each of said arms or levers having a flaring forward end recessed or concaved on its outer side adjacent to its upper free edge and a weighted lower end.

678,618. PLOW. WILLIAM K. HOBSON, Santa Maria, Cal. Filed July 21, 1900. Serial No. 24,439. (No model.)



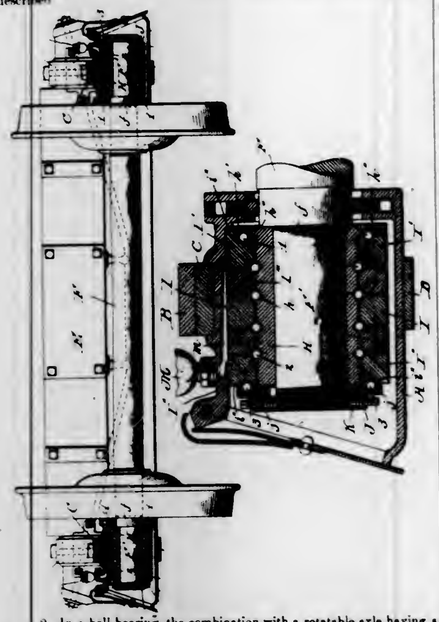
Claim.—1. In a wheel-plow, the combination with a frame comprising a pair of parallel side bars one of which is longer than the other, a transverse bar connected to the forward ends of said side bars and lying perpendicularly thereto, and a transverse bar connected to the rear ends of said side bars and lying in angular relation to the latter, of a series of plows arranged upon the rear transverse bar, each successive plow, commencing at one end of said rear bar, being in advance of the next adjacent plow, a caster-wheel mounted upon said frame, carrying-wheels also mounted upon the frame, and means for positioning the carrying-wheels at various angles to the line of draft for guiding the caster-wheel during the working of the plow.

2. In a wheel-plow, the combination with a frame comprising a pair of parallel side bars one of which is longer than the other, a transverse bar connected to the forward ends of said side bars and lying perpendicularly thereto, and a transverse bar connected to the rear ends of said side bars and lying in angular relation to the latter, of a series of plows arranged upon the rear transverse bar, each successive plow, commencing at one end of said rear bar, being in advance of the next adjacent plow, a caster-wheel mounted upon said frame, carrying-wheels also mounted upon the frame, a transversely-arranged rod connected to the carrying-wheels for positioning the latter in unison at various angles to the line of draft, whereby the caster-wheel is guided during the working of the plow, and a lever connected to said rod for operating the latter.

678,619. BALL-BEARING. ANDREW F. HOWE and ELMO C. OWEN, Granite City, Ill. Filed July 14, 1900. Serial No. 23,665. (No model.)

Claim.—1. In a ball-bearing, the combination with a rotatable axle having a journal portion at its end by which a shoulder is formed, said journal portion having a flat face, of a sleeve arranged on said journal portion and abutting against said shoulder, said sleeve being provided with

a flat face cooperating with the flat face of the journal portion for preventing independent rotation of the parts, an annular flange on the inner end of the sleeve provided with a concentric groove, grooves in the periphery of the sleeve, a plurality of rings strung on said sleeve and provided with recesses which register with the grooves of the sleeve, the innermost ring having a concentric groove alining with the groove in the sleeve-flange, balls arranged in the races so formed, and a journal-box cooperating with the rings for preventing rotation thereof, substantially as described.



2. In a ball-bearing, the combination with a rotatable axle having a journal portion forming a shoulder, said journal portion having a flat face, of a sleeve provided with a flat face cooperating with the flat face of the journal to prevent independent rotation of the parts, a flange arranged on the inner end of the sleeve, said flange and the periphery of the body portion of the sleeve being provided with grooves for receiving balls, rings arranged on said sleeve and provided with recesses registering with the grooves in the sleeve, the end rings having grooves in their outer faces, the groove of the innermost ring registering with the groove in the sleeve-flange, a collar arranged on the end of the journal portion of the axle and having a groove registering with the groove in the outer face of the outermost ring, balls arranged in the races so formed, and a journal-box cooperating with the rings, substantially as described.

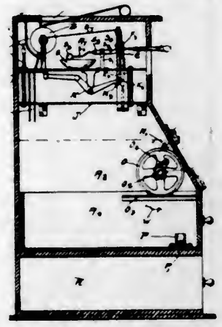
3. In a ball-bearing, the combination with a rotatable axle having a collared journal, of a sleeve arranged on the journal portion of said axle, said sleeve being composed of three members, two of said members being semicylindrical in shape and arranged to fit directly upon the journal portion of the axle, the third member being a hollow cylinder inclosing the two members first mentioned, grooves formed in the periphery of said third member, a plurality of rings loosely arranged on said sleeve and having recesses, balls arranged in the races so formed, and a journal-box receiving the rings and preventing rotation thereof, substantially as described.

4. In a ball-bearing, the combination with a rotatable axle having a collared journal, of a sleeve arranged on the journal portion of said axle, said sleeve being composed of three members, two of which are semicylindrical in shape and fitted directly upon the journal between the collar and the shoulder of the journal, the third member being in the form of a hollow cylinder designed to slip over the collar and embrace the semicylindrical members, means for locking said sleeve firmly in position upon the journal, a flange at the inner end of said sleeve, grooves in said flange and in the periphery of said sleeve, rings having grooves registering with the first-mentioned grooves, balls in said grooves, a nut K cooperating with the outermost ring, and balls interposed between said nut and the outermost ring, substantially as described.

5. In a ball bearing, the combination with a rotatable axle having a collared journal, of a sleeve arranged on the journal portion of said axle, said sleeve being composed of three members, two of said members being semicylindrical in shape and arranged to fit upon the journal portion of the axle, the inner ends of said semicylindrical members being provided with outwardly-disposed flanges, the third member being a hollow cylinder inclosing the two members first mentioned and abutting against the flanges at the inner end thereof, an outwardly-disposed flange on said inclosing member, grooves formed in the periphery of said third member, a plurality of rings loosely arranged on said third member and having recesses, balls in the races so formed, a nut K for holding the rings in position, and a journal-box receiving the rings and preventing rotation thereof, substantially as described.

6. In a ball-bearing for car-truck axles, the combination with a rotatable axle having journals at each end, of a sleeve arranged on the journal portions of said axle, said sleeves abutting at their inner ends against the shoulder formed by the journal portion, outwardly-projecting flanges at the inner ends of the sleeves, means for locking said sleeves against rotation on said journal portions of the axle, said sleeves being provided with peripheral grooves, a plurality of rings having recesses which register with said grooves, balls in the races so formed, nuts mounted on the ends of the journal portions of the axle for holding said rings in position, and journal-boxes for inclosing and cooperating with said rings, substantially as described.

678,620. CASH-RECEPTACLE. CHARLES HUTCHINSON, Green Island, N. Y. Filed Feb. 21, 1900. Serial No. 6,005. (No model.)



Claim.—1. The combination in a cash-receptacle of a single plunger consisting of a projecting lever-arm secured to a vertical downward-extending plunging-rod; with a swiveled coin receiving and transmitting drum operated by said plunging-rod substantially as and for the purposes described.

2. The combination in a cash-receptacle of a single plunger having a suspended locking-tongue attached, a swiveled coin or tablet receiving and transmitting drum operated by said plunger, a trap-door operated by a weight acting in conjunction with the plunger substantially as and for the purposes described.

3. The combination in a cash-receptacle of a swiveled coin or tablet receiving and transmitting drum with a single plunger, a loosely-suspended locking-tongue attached to said plunger cooperating with means for locking the receptacle, substantially as and for the purposes described.

4. The combination in a cash-receptacle of a swiveled drum, a single plunger operating said swiveled drum, a sliding trap-door, a lever moving on a fixed pivot having a weight attached, said weight resting on means secured to the plunger and having connection with the trap-door substantially as and for the purposes described.

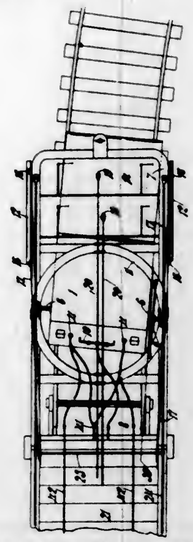
5. The combination in a cash-receptacle of a swiveling coin-receiving drum, a sliding trap-door controlling a passage operated by a single manipulating-arm, a projecting lever-arm secured to a vertical downward-extending plunging-rod constituting said single manipulating-arm; with a cash-receiving drawer having a register attached operated by means attached intermediate the receptacle-frame and the drawer substantially as described.

6. The combination in a cash-receptacle comprising an upper and a lower compartment of a swiveled drum, a single plunger operating said drum, a trap-door operated by a weighted lever secured in the upper compartment, a coin or tablet depositing drawer having an indicator and intermediate means attached indicating the opening of said drawer and a change-drawer substantially as illustrated and described.

7. In a cash-receptacle, a single manipulating-arm, consisting of a projecting lever-arm secured to a vertical downward-extending plunging-rod operating said receptacle, a swiveling drum controlling a passage, and a sliding trap-door, both operated by said plunging-rod, a series of inscribed and blank tablets adapted to cooperate with the said receptacle substantially as and for the purposes described.

8. In a cash-receptacle, locking means operated by a single manipulating-arm controlling a passage, a register controlling a coin and tablet receiving drawer substantially as described; a series of blank and inscribed tablets adapted to be passed through the said passage substantially as and for the purposes described.

678,621. RAILWAY-ROAD FURNACE. SAMUEL B. HYNES and WILLIAM N BENT, Los Angeles, Cal. Filed Mar. 14, 1900. Serial No. 8,682. (No model.)



Claim.—1. A railway-road furnace comprising a truck; a downwardly-directed refractory reverberatory nozzle mounted aslant upon said truck and provided with a downwardly-slanting tapering passage which terminates at its lower end in a slot-shaped outlet; and a hydrocarbon-burner located at the larger end of such passage to fill the passage with a body of flame.

2. A railway-road furnace comprising a truck; a frame mounted on and extending beyond said truck; a tapering refractory reverberatory nozzle mounted aslant on said frame and furnished at its lower end with a narrow slot-shape outlet; a hydrocarbon-burner located at the larger end of said nozzle to fill the same with a body of flame; and a flame-fender extending beyond the nozzle-outlet.

3. A railway-road furnace comprising a truck; a frame mounted on said truck; a refractory reverberatory nozzle pivotally mounted aslant on said frame and furnished at its lower end with a slot-shape outlet; means for adjusting the slant of the nozzle; and a hydrocarbon-burner arranged to discharge flame into the inlet end of the nozzle.

4. A railway-road furnace comprising a truck; a frame mounted on said truck; a turn-table carried by said frame; a refractory reverberatory nozzle pivotally mounted on said turn-table; means for adjusting the inclination of said nozzle; and a hydrocarbon-burner arranged to discharge flame into the inlet end of such nozzle.

5. The combination of a truck; a frame carried by said truck; a refractory reverberatory nozzle pivotally mounted on the frame and furnished at its discharge end with a narrow slot-shape outlet; a hydrocarbon-burner arranged to discharge a body of flame into the nozzle; and a fender extending beyond the outlet of the nozzle.

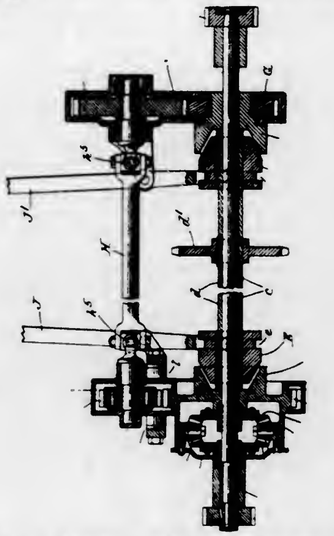
6. The combination of a truck; a frame mounted on the truck; a refractory reverberatory nozzle pivotally mounted on the frame and furnished at its discharge end with a narrow slot-shape outlet; a hydrocarbon-burner arranged to discharge a body of flame into the inlet end of the nozzle; means for adjusting the nozzle at different inclinations; a fender extending beyond the outlet of the nozzle; and means for adjusting said fender.

7. A railway-road furnace comprising a truck; a frame carried by said truck; a turn-table on the frame; a refractory reverberatory nozzle pivoted to the turn-table on a horizontal axis; means for adjusting said nozzle at different inclinations; a fender extending beyond the nozzle; means for raising and lowering the fender; and a hydrocarbon-burner to discharge flame into the inlet end of said nozzle.

8. In a railway-road furnace, the combination of a truck-carried frame; a refractory reverberatory nozzle mounted on such frame and furnished at its discharge end with a narrow slot-shape outlet; flame-fenders respectively at the sides of the nozzle-outlet; a flame-fender between the side fenders and above the plane of the nozzle-outlet; and means for adjusting the flame-fenders independently of each other.

9. In a railway-road furnace, the combination of a truck-carried frame; a refractory reverberatory nozzle mounted on such frame; flame-fender sections at the sides respectively of the outlet of said nozzle; a top flame-fender section between the side fenders and above the plane of the nozzle-outlet; crank-levers carried by the frame; connections connecting the opposite ends of the top fender with the crank-levers, respectively; operating-rods, one for each of said levers for operating the levers respectively; and means for raising and lowering the side fenders respectively.

678,622. MOTOR-VEHICLE DRIVING MECHANISM. THOMAS B. JEFFERY and ROBERT W. THOMPSON, Chicago, Ill.; said Thompson assignor to said Jeffery. Filed Oct. 27, 1900. Serial No. 34,544. (No model.)



Claim.—1. In a motor-vehicle driving mechanism, a traction-wheel-driving shaft; a motor-driven element loose thereon; means for operatively connecting at will said element and shaft; a speed-changing train, having its first wheel loose and its last wheel fast on the shaft; and a counter-shaft having intermediate wheels of the train; means for operatively connecting at will the motor-driven element with said first wheel; and a clutch comprised in the train and on the counter-shaft, which communicates motion in one direction only.

2. In a motor-vehicle driving mechanism, in combination with a traction-wheel-driving shaft and a motor-driven element loose thereon, a compensating-gear train comprising a fast and a loose gear and intermediate pinions, and a pinion-carrying element loose on the shaft, and means for operatively connecting said pinion-carrying element at will with the motor-driven element; said pinion-carrying element being a gear-wheel; and a speed-reducing train having its first wheel loose on the shaft, said train extending to and comprising the said pinion-carrying gear-wheel; and means for operatively connecting said first wheel of the speed-reducing train with the motor-driven element.

3. In a motor-vehicle driving mechanism, in combination with a traction-wheel-driving shaft and a motor-driven element loose thereon, a compensating-gear train comprising a fast and a loose gear and intermediate pinions, and a pinion-carrying element loose on the shaft; means for operatively connecting said pinion-carrying element at will with the motor-driven element, said pinion-carrying element being a gear-wheel; a speed-reducing train having its first wheel loose on the shaft, said train extending to and comprising said pinion-carrying gear-wheel and containing a clutch driving in one direction only for operatively connecting the first wheel of said speed-reducing train with the motor-driven element.

4. In a motor-vehicle driving mechanism, a motor-driven element,

the traction-wheel-driving element, two differently-speeded trains arranged to connect said elements; means for engaging them respectively at will with the motor-driven element, and a reversing device in the slower-speed train.

5. In a motor-vehicle driving mechanism, a traction-wheel-driving shaft; a motor-driven element loose on the shaft; two wheels, one fast and the other loose on the shaft, beyond the opposite ends of the motor-driven element; a train which connects said two wheels; means for engaging said two wheels respectively with the motor-driven element; and a flexible counter-shaft having intermediate wheels of the train.

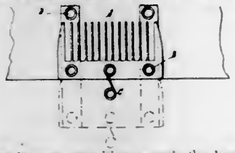
6. In a motor-vehicle driving mechanism, a traction-wheel-driving shaft; a motor-driven element loose on the shaft; two wheels, one fast and the other loose on the shaft, beyond the opposite ends of the motor-driven element; a train which connects said two wheels; means for engaging said two wheels respectively with the sleeve; and a universal-jointed counter-shaft having intermediate wheels of the train.

7. In a motor-vehicle driving mechanism, a traction-wheel-driving shaft; a motor-driven element loose on the shaft; two wheels, one fast and one loose on the shaft; means for engaging the motor-driven element at will with said fast and loose wheels respectively; a train which connects said wheels; a pivoted bearing carrying two intermeshing wheels of said train which are arranged to intermesh with the next wheel of the train, one at one position and the other at another position of the pivoted frame; and means for oscillating the pivoted frame from one position to the other at will.

8. In a motor-vehicle driving mechanism, a traction-wheel-driving shaft; a motor-driven sleeve loose on the shaft; two wheels on the shaft, one fast and the other loose; means for engaging the motor-driving wheel at will with the fast or loose wheel; a train which connects said wheels; a counter-shaft having intermediate wheels of the train; pivoted bearings for one end of the counter-shaft, said bearings carrying two intermeshing wheels of the train, arranged to intermesh with the next wheel of the train, one at one position and the other at another position of the pivoted frame; and means for oscillating the pivoted frame at will from one position to the other; said counter-shaft having universal joints to permit such oscillation.

9. In a motor-vehicle driving mechanism, a traction-wheel-driving shaft; a motor-driven sleeve loose on the shaft; a compensating-gear train comprising a gear fast on the shaft, a gear loose on the shaft, an intermediate pinion and a pinion-carrying element loose on the shaft, all located at one end of the sleeve; a gear loose on the shaft at the other end of the sleeve; a gear-train connecting the last-mentioned wheel with the pinion-carrying element, and means for engaging the motor-driven sleeve with either said last-mentioned wheel or said pinion-carrying element at will.

678,623. **HAT-FASTENER.** MARTHA L. LINCOLN, Providence, R. I. Filed Feb. 26, 1898. Serial No. 671,758. (No model.)



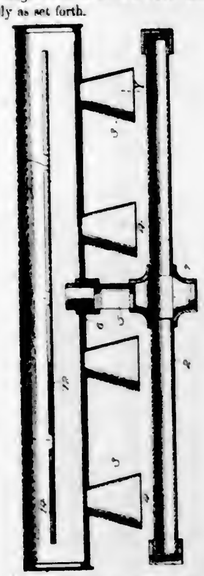
Claim.—A hat-fastener comprising a comb, the back of which is provided with three perforations one at each end and one in the middle, an outwardly-extending handle at the middle perforation and an inwardly-extending elastic band at each end perforation, and an eyelet through each perforation and through the handle and the bands respectively, the free end of each band being perforated and provided with an eyelet.

678,624. **GAS-BURNER.** JOHN C. MCKALLIP, Athens, Ohio. Filed Nov. 5, 1900. Serial No. 35,516. (No model.)

Claim.—1. A burner for consuming gas consisting of a flame-tube having a side perforate portion, a distributing-tube paralleling the flame-tube and provided at intervals in its length with groups of minute openings for the escape of gas, and mixing-chambers secured to the flame-tube and located opposite the respective groups of openings of the distributing-tube, substantially as set forth.

2. In a burner of the character described, a flame-tube having a perforate side portion, a distributing-tube provided at intervals in its length with groups of minute openings for the escape of gas, mixing-chambers carried by the flame-tube and located opposite the respective groups of openings of the distributing-tube, and a coupling adjustably connecting the flame-tube and distributing-tube and providing for adjustment of the mixing-chambers toward and from the said distributing-tube, substantially as specified.

3. In a burner of the character described, a flame-tube provided at one side with an outlet and having a series of gas-inlets at intervals in the length of its lowermost portion, and a spreader located within the flame-tube intermediate of the outlet and gas-inlets and having a space at its ends and passages between its ends about midway of adjacent gas-inlets, substantially as set forth.



4. In a burner of the character described, a flame-tube having an outlet at one side and a series of gas-inlets at intervals in the length of its lowermost portion, a spreader located within the flame-tube and terminating short of the closed ends of said flame-tube and having notches at intervals in its edge to provide escapes between adjacent gas-inlets, substantially as specified.

5. In a burner of the character described, a flame-tube having a longitudinal opening in a side and having the edge portions of the tube bordering upon the opening rebent, and a perforate strip adapted to close the opening in the side of the flame-tube and having its longitudinal edges recurved to interlock with the bent edges of the flame-tube, substantially as set forth.

6. The herein-described burner comprising a distributing-tube having groups of minute openings at intervals in its length and composed of corresponding tubes and a connecting cross-T, a flame-tube having a longitudinal perforate side portion, a coupling adjustably connecting the flame-tube with the distributing-tube, a series of mixing-chambers of frusto-conical form attached to the flame-tube and located opposite the respective groups of openings of the distributing-tube, and a spreader arranged about medially of the flame-tube and having passages around its ends and at points between its ends midway of adjacent mixing-chambers, substantially as specified.

678,625. **PNEUMATIC PANNING OR DISTRIBUTING MACHINE.** HENRY D. PERKY, Worcester, Mass. Filed Sept. 29, 1900. Serial No. 31,554. (No model.)

Claim.—1. A pneumatic panning or distributive depositing-machine, consisting of an endless belt having open sections provided with perforated or wire-cloth bearings, and adapted to operate in connection with a transversely-moving receiver, and an exhaust-chamber having valved openings, substantially as specified.

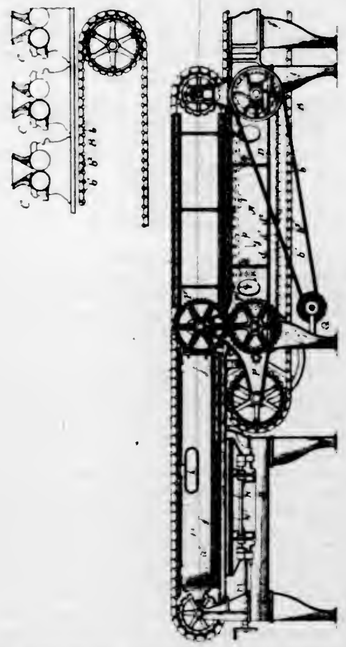
2. In a pneumatic panning or distributive depositing-machine, an endless belt having open sections provided with perforated or wire-cloth bearings, substantially as specified.

3. An endless chain or belt having open sections provided with divider-blades, and perforated or wire-cloth bearings, substantially as specified.

4. In a pneumatic panning or distributive depositing-machine, the combination with an exhaust-chamber, and its valved openings, of an endless belt of open links, and perforated or wire-cloth bearings attached to the bottoms of said links, substantially as specified.

5. In a pneumatic panning or distributive depositing-machine, the combination with an endless feeding-carrier, and chain cutters or dividers

operating in conjunction therewith, of an exhaust-chamber having valved openings, an endless belt of suction-links, and devices for operating the parts, substantially as specified.



6. The combination with an exhaust-chamber, its openings and valves, an open-link suction-belt, an endless feeding-belt and transverse endless pan-carriers, of devices for giving reciprocating motion to said valves, and intermittent motion to said pan-carriers, substantially as specified.

7. The combination with a pneumatic chamber, its openings and valves, the open-link suction-belt, and the transverse receiver, of the endless feeding-belt, the series of valve-operating cams and devices, the cam-shaft and eccentric and the ratchet-and-pawl devices in connection with said eccentric, for giving intermittent motion to said receiver, substantially as specified.

8. The combination with a pneumatic exhaust-chamber, and an endless feeding belt or carrier, of a suction-belt operating in connection with said exhaust-chamber, valve devices for cutting off the exhaust, a transverse receiver and mechanism for giving intermittent motion to said receiver, and alternate intermittent cut-off motion to said valve devices, substantially as specified.

9. The combination with a pneumatic exhaust, its valves, and a continuous feed-belt of an endless suction-belt operating in connection with said exhaust, valves and feed, and a transversely-moving receiver, substantially as specified.

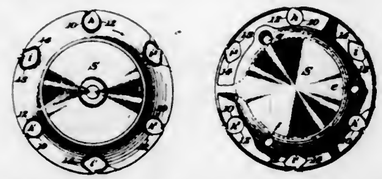
678,626. **SAFETY-PIN.** THOMAS W. FITTS, Gainesville, Fla. Filed Sept. 14, 1899. Serial No. 730,426. (No model.)



Claim.—A toilet-pin comprehending a pair of frames comprising, respectively, backs, end pieces, pins and keepers, and means as described for throwing the pins toward each other, the pins projecting in the same direction, substantially as set forth.

678,627. **LOOPER FOR SEWING-MACHINES.** FRANCIS H. RICHARDS, Hartford, Conn. Filed Apr. 15, 1898. Serial No. 677,731. (No model.)

Claim.—1. A looper having a plurality of sets of loop-takers all of which are operative in the same direction and are so disposed that certain loop-takers of one set are located between certain loop-takers of another set.



2. A looper having independent sets of loop-takers all operative in the same direction and each of which has an independent loop-receiving opening contiguous thereto, each opening of one set of loop-takers being of greater dimensions than the dimensions of each opening of the other set of loop-takers.

3. A looper having independent sets of loop-takers all operative in the same direction, and the loop-takers of one set alternating with those of the other set, and all said loop-takers being so constructed and disposed that the distance between the loop-carrying portions of successive loop-takers of one set will be greater than that between corresponding portions of successive loop-takers of the other set.

4. A looper having a plurality of loop-takers all operative in the same direction and each of which has an independent loop-receiving opening contiguous thereto, the loop-receiving opening of one loop-taker being of greater dimensions than that of the loop-receiving opening of another loop-taker.

5. A looper having two independent sets of loop-takers all operative in the same direction, each of which loop-takers has a loop-receiving opening contiguous thereto, the loop-receiving openings of one set of loop-takers being of greater dimensions than the loop-receiving openings of the other set of loop-takers.

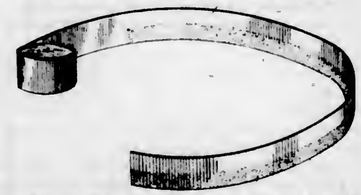
6. A looper having a plurality of loop-takers all of which are operative in the same direction and are so disposed that certain loop-takers of one set are located between certain loop-takers of another set, each of said loop-takers having an independent loop-receiving opening contiguous thereto, each opening of one set of loop-takers being of greater dimensions in the direction of movement of the looper than that of each opening of the other set of loop-takers.

7. A looper having two independent sets of loop-takers, each set comprising three loop-takers, and all the loop-takers being operative in the same direction, the loop-takers of one set alternating with those of the other set, and said loop-takers being so disposed that the distance between the loop-carrying portions of successive loop-takers of one set is greater than that between corresponding portions of successive loop-takers of the other set.

8. A looper having loop-takers all operative in the same direction and each formed by the walls of a loop-receiving opening transversely located in said looper, each loop-taker embodying a loop-taking portion and a loop-delivering portion, and the recess between the loop-taking and the loop-delivering portions of one loop-taker being greater in the direction in which the looper is to be actuated than the recess between the loop-taking and loop-delivering portions of the next adjacent loop-taker.

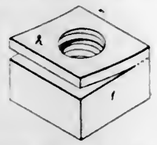
9. A discoidal looper adapted for continuous rotation in the same direction and equipped with sets of loop-takers all pointing and operative in the same direction, each loop-taker embodying a loop-taking portion and a loop-delivering portion, and the loop-taking portions of adjacent loop-takers of one set being a greater distance apart than the loop-taking portions of adjacent loop-takers of another set.

678,628. **CARTRIDGE-SHELL.** GEORGE P. SALISBURY, New Haven, Conn., assignor to the Western Cartridge Company, East Alton, Ill. Filed Nov. 3, 1900. Serial No. 35,338. (No model.)



Claim.—A base-wad comprising a tape, one end of which is treated with paraffin extending approximately one-half of the width of said tape, all other portions of the tape being untreated.

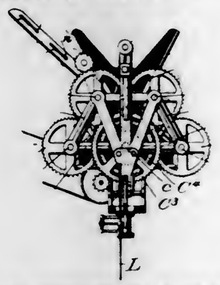
678,629. LOCK-NUT. CHARLES H. SMITH, Oregon, Ill., assignor of two-thirds to James C. Fesler, same place, and Charles Rystrom, Rockford, Ill. Filed Oct. 2, 1900. Serial No. 31,799. (No model.)



Claim.—1. A lock-nut comprising a nut proper having a separate lip of relatively thin spring material welded or otherwise secured along one edge only to one face of the nut and provided with a threaded opening coinciding with the opening in the nut, the free portion of said spring-lip acting normally to exert pressure in a direction lengthwise of the nut proper.

2. A lock-nut comprising a nut proper having a relatively thin lip secured along one edge thereof to one face of the nut and provided with a threaded opening coinciding with the opening in the nut, said spring-lip being formed of a separate plate of relatively thin spring metal welded to the nut proper, and having its free portion normally acting to exert pressure in a direction lengthwise of the opening in the nut.

678,630. COTTON-BALING PRESS. WILLIAM M. THOMAS, Chicago, Ill., assignor to Thomas Cotton Company, same place. Filed Oct. 25, 1900. Serial No. 34,306. (No model.)



Claim.—1. In a cotton-baling press, the combination with the stationary and movable bale-forming rollers, a guide-bar and gripping-block, one movable with respect to the other, connections between the movable part and said movable rollers and a frictional gripping device on said block for engaging said guide-bar, substantially as described.

2. In a cotton-baling press, the combination with the stationary and movable bale-forming rollers, a guide-bar and gripping-block one movable with respect to the other, connections between the movable part and the said movable rollers, a frictional gripping device on said block adapted to engage said bar, and means for automatically throwing said gripping device into and out of engagement with said bar, substantially as described.

3. In a cotton-baling press, the combination with the stationary and movable rollers, of a stationary guide-bar, a movable block on said bar, connections between said block and said movable rollers, an eccentric-cam mounted on said block in position to frictionally engage said bar, and means for throwing said cam into and out of engagement with said bar, substantially as described.

4. In a cotton-baling press, the combination with the stationary and movable rollers, of a guide-bar adjacent to each end of said movable rollers, a sliding block on each of said guide-bars, a frictional gripping device on each of said blocks for engaging said guide-bars, and an equalizing device for causing said movable rollers to move equally at their opposite ends, substantially as described.

5. In a cotton-baling press, the combination with the stationary and movable rollers, of a guide-bar adjacent to each end of said movable rollers, a sliding block on each of said guide-bars, a frictional gripping device on each of said blocks for engaging said guide-bars, an equalizing device (comprising a shaft extending across the machine and provided at each end with a pinion and a rack engaging said pinion) and connections between said racks and said movable rollers, substantially as described.

6. In a cotton-baling press, the combination with the stationary and movable rollers, of a guide-bar adjacent to each end of said movable rollers, a sliding block on each of said guide-bars, a frictional gripping device on each of said blocks for engaging said guide-bars, a rack secured to each of said blocks, an equalizing-shaft extending across the machine and pinions rigidly secured to said shaft and engaging said racks, substantially as described.

7. In a cotton-baling press, the combination with the stationary and movable rollers, of a resistance mechanism connected with the said movable rollers, revoluble heads connected with said movable rollers, and means for positively driving said heads, substantially as described.

678,631. SUSPENDER-BUCKLE. ALBERT A. ABRAMS, St. Louis, Mo. Filed Apr. 9, 1901. Serial No. 55,078. (No model.)



Claim.—1. A suspender-buckle comprising a body portion or plate, a web-securing frame secured thereto, said frame having its upper and lower members located in a plane rearward of the back face of the plate, and a locking-lever pivoted in front of said plate, the end of the brace being passed about said members, but disconnected from the body portion, substantially as set forth.

2. A suspender-buckle comprising a body portion or plate, a web-securing wire frame secured thereto, said frame having its upper and lower members located in a plane rearward of the back face of the plate, and a locking-lever pivoted in front of said plate, the end of the brace being passed about said members but disconnected from the body portion, substantially as set forth.

3. A suspender-buckle comprising a body portion or plate, lips at each end thereof, a wire frame located in the rear of the plate and having said lips clenched about the side or lateral members of said frame, and a locking-lever pivoted in front of the plate, the end of the brace being passed about the frame and secured thereto, but disconnected from the body portion, substantially as set forth.

4. A suspender-buckle comprising a body portion or plate, a lip at each end thereof, a frame located in the rear end of the plate and having its lateral or side members deflected rearwardly from the plate, and medially secured to the frame by the lips clenched about the same, ears located above the lips and projecting forwardly from the ends of the plate, and the locking-lever pivotally mounted between said ears, the end of the brace being passed about and secured to the frame, but disconnected from the body portion, substantially as set forth.

5. A suspender-buckle comprising a body portion or plate, a lip formed integrally therewith at each end thereof, a frame located in the rear of the plate and having said lips clenched about the side members of said frame, ears projecting from the plate forwardly, said ears being located contiguous to said lips, and a locking-lever pivoted in front of the plate between said ears, the end of the brace being passed about the top and bottom of the frame and secured thereto, but disconnected from the body portion, substantially as set forth.

678,632. TOLL APPARATUS FOR TELEPHONES. EDWARD P. BAIRD, Evanston, Ill., assignor to the Baird Manufacturing Company, Chicago, Ill. Filed July 2, 1900. Serial No. 22,248. (No model.)



Claim.—1. A toll apparatus for telephones comprising the combination with a case and a signal device, of a carrier pivotally sustained therein, a coin channel or guide in said carrier, a stop sustained by the carrier and located in said channel or guide and arranged to hold only a coin or token of acceptable size in position in said carrier to effect the actuation of said signal device when said carrier is shifted, said channel or guide being formed so as to permit a coin or token of less than acceptable size to pass therethrough, an exit leading to the outside of the case and means for directing the coins or tokens of less than acceptable size to said exit and whereby coins or tokens of less than said acceptable size will be returned to the depositor, and means whereby said carrier may be shifted.

2. A toll apparatus for telephones comprising the combination with a case, of a series of carriers movably mounted in said case, each of said carriers being provided with a coin channel or guide wherein a coin or token of acceptacle size will be held, and wherethrough a coin or token of less than acceptable size will pass, an exit, and a guide for directing the coins or tokens passing through all of said coin-channels, to said exit leading to the outside of the case, and whereby coins or tokens of less than acceptable size will be returned to the depositor, and means whereby said carriers may be shifted.

3. A toll apparatus for telephones comprising the combination with a case, of a coin channel or guide in said case, and an adjustable stop arranged in said channel or guide in position to retain only a coin or token of acceptable thickness and diameter in said channel or guide, and arranged to permit a coin or token of less than said size to pass through the channel or guide without being held therein.

4. A toll apparatus for telephones comprising the combination with a case and a signal device, comprising an actuating part therefor, of a movably-sustained carrier whereinto a deposited coin or token will fall, and whereby the coin or token will be shifted to shift said actuating part, means sustained by said carrier and whereby the coin will be held in said carrier said actuating part being yieldingly held in the path of movement of a coin or token held in said carrier, and shifted thereby, said carrier being movable in one direction to shift the coin or token to shift said actuating part, and to discharge the coin or token therefrom, and means whereby said carrier may be shifted.

5. A toll apparatus for telephones comprising the combination with a case, a sound-producing device and an actuating part therefor, of a pivotally-sustained carrier whereinto a deposited coin or token will pass, and whereby the coin or token will be shifted to shift said actuating part, said actuating part being yieldingly held in the path of movement of a coin held in the carrier and engaged thereby, and along and beyond which the coin will pass, said carrier being movable in one direction to shift the coin or token to shift said actuating part and to discharge the coin or token therefrom, and means whereby the carrier may be shifted.

6. A toll apparatus for telephones comprising the combination with a case, and a signal device comprising a yielding part, of a pivotally-sustained carrier, whereinto a coin or token will be deposited, and whereby the coin or token will be shifted to shift said yielding part, said yielding part being held in the path of movement of a coin or token in said carrier and shifted thereby, the shift of said yielding part by said coin serving to actuate said signal device and means whereby said carrier may be shifted.

7. A toll apparatus for telephones comprising the combination with a case, and a signal device comprising a yielding part, of a pivotally-sustained carrier, whereinto a coin or token will be deposited, and whereby the coin or token will be shifted to shift said yielding part, said yielding part being held in the path of movement of a projecting edge of a coin or token in said carrier and shifted thereby, the shift of said yielding part by said coin serving to actuate said signal device and means whereby said carrier may be shifted.

8. A toll apparatus for telephones comprising the combination with a case and a signal device comprising an actuating part therefor, of a pivotally-sustained carrier whereinto a coin or token will be deposited, and whereby the coin or token will be shifted to shift said actuating part, said actuating part being yieldingly held in the path of movement of a coin or token held in said carrier and shifted thereby, said carrier having a movement in one direction to shift the coin or token to engage said actuating part to cause the actuation of said signal device and beyond engagement with said part to discharge the coin or token, whereby said actuating part will be first shifted and the coin or token discharged thereafter, during the movement of the carrier in one direction, and means whereby said carrier may be shifted.

9. A toll apparatus for telephones comprising the combination with a case and a signal device comprising an actuating part therefor, of a pivotally-sustained carrier whereinto a coin or token will be deposited, and whereby the coin or token will be shifted to shift said actuating part, said actuating part being yieldingly held in the path of movement of a projecting edge of a coin or token held in said carrier and shifted thereby, said carrier having a movement in one direction to shift the coin or token to engage said actuating part to cause the actuation of said signal device and beyond engagement with said part to discharge the coin or token, whereby said actuating part will be first shifted and the coin or token discharged thereafter, during the movement of the carrier in one direction, and means whereby said carrier may be shifted.

10. A toll apparatus for telephones comprising the combination with a case and a signal device comprising a pivoted striker-lever provided with a part whereby said lever is shifted, of a pivotally-sustained carrier whereinto a coin or token will be deposited, and whereby the coin or token will be shifted, said part being yieldingly held in the path of movement of a coin or token held in said carrier, and shifted thereby, said carrier having a movement necessary to engage said part to actuate said signal device and to discharge the coin or token therefrom, and means whereby said carrier may be shifted.

11. A toll apparatus for telephones comprising the combination with a case and a signal device comprising a pivoted striker-lever provided with a part whereby said lever is shifted, of a pivotally-sustained carrier whereinto a coin or token will be deposited, and whereby the coin or token will be shifted, said part being yieldingly held in the path of movement of a projecting edge of a coin or token held in said carrier, and shifted thereby, said carrier having a movement necessary to engage said part to actuate said signal device and to discharge the coin or token therefrom, and means whereby said carrier may be shifted.

12. A toll apparatus for telephones comprising an oscillating coin-receiving carrier, means for oscillating the carrier to the extent required to discharge the coin therefrom, a device for producing an audible signal, and a movable striker having a part extending into the path of movement of the coin or token so as to result in the shift of the striker directly by said coin or token during the movement of the carrier which discharges the coin or token from the carrier.

13. A toll apparatus for telephones comprising an oscillating coin-receiving carrier, means for oscillating the carrier to the extent required to discharge the coin therefrom, a device for producing an audible signal, and a movable striker having a part extending into the path of movement of the projecting edge of a coin or token so as to result in the shift of the striker directly by said coin or token during the movement of the carrier which discharges the coin or token from the carrier.

14. A toll-collecting machine comprising an oscillating coin-receiving carrier, means for oscillating the carrier to the extent required to discharge the coin therefrom, a gong or sound-yielding body, and a suitably-applied movable hammer having an arm extending into the sweep of the toll-representing coin or token so as to result in the operation of the hammer directly by the said coin or token during the toll-discharging oscillation of the carrier.

15. A toll-collecting machine comprising an oscillating carrier for receiving the toll-representing coin or token edgewise, which carrier has its rear and forward side walls slotted, as at 46, from the upper edges of the side walls downwardly; means for oscillating the carrier; a gong or sound-yielding body, and a suitably-applied tiltable hammer having an arm extending into the sweep of the slotted portions of the aforesaid walls of the carrier so that a coin or check within the carrier shall come into engagement with the said hammer-arm at the slots in the aforesaid walls of the carrier during the oscillation of the carrier into its toll-discharging position.

16. A toll apparatus for telephones comprising the combination with a case and a signal device, of a pivotally-sustained carrier whereinto a coin or token will be deposited and means therein whereby the deposited coin or token will be held with its upper portion exposed or projecting therefrom, said signal device comprising a part for causing its actuation located in the path of movement of said exposed or projecting upper portion, and arranged to be shifted thereby, when said carrier is shifted to actuate said signal device and discharge the coin or token.

17. In a toll apparatus for telephones the combination with a case, of a carrier pivotally mounted therein, a coin channel or guide in said carrier, said carrier having walls between which a coin or token will be held, a notch in the edges of said walls, a part for causing the operation of a signal located in the path of movement of a portion of a coin or token adjacent said notch and in said carrier, and a part whereby said carrier may be shifted.

18. In a toll apparatus for telephones, the combination with a case, of a carrier movably mounted therein, a coin channel or guide, in said carrier, said carrier having a top and bottom between which a coin will be held, a notch in said top and bottom, a part for causing the operation of a signal located normally in the path of movement of the portion of a coin adjacent said notch and in said carrier, and a part whereby said carrier may be manually shifted.

19. In a toll apparatus for telephones, the combination with a case, of a carrier movably mounted therein, a coin channel or guide in said carrier having sides, between which a coin will be held, a part for causing the operation of a signal located normally in the path of movement of the projecting edge of a coin or token in the carrier, and a part whereby said carrier may be manually shifted.

20. In a toll apparatus for telephones, the combination of a case, of a carrier pivotally mounted therein wherein a coin will be held and where-

by the coin will be shifted, said carrier being held normally in inclined position so a coin or token therein will rest upon the bottom of the carrier, of a stop projected into the carrier for engaging part of the edge of a coin and beneath which a coin of insufficient thickness will pass, a signal device actuated by a coin held in the carrier when said carrier is shifted and means whereby said carrier may be shifted.

21. In toll apparatus for telephones, the combination with a case, of a carrier pivotally mounted therein, a coin channel or guide formed in said carrier, said carrier having sides between which a coin or token will be held, and being held normally in an inclined position, a lever located normally in the path of movement of the projecting edge of a coin in the carrier, for causing the operation of a signal, and a part whereby said carrier may be manually shifted.

22. In a toll apparatus for telephones, the combination with a case, of a movable carrier comprising top and bottom plates, and sides between which a coin will be held, and a stop sustained by the carrier and for positioning the coin in said carrier, and a signal-operating part in the path of movement of a coin in said carrier, and a part whereby said carrier may be manually shifted to effect the shift of the coin.

23. In a toll apparatus for telephones, the combination with a case, of a shaft secured therein, a carrier pivotally sustained thereby and comprising top and bottom plates between which a coin or token is held, said plates being bent at an angle and having the said cross-shaft extended therethrough, a signal-operating part arranged to actuate a signal when the coin or token is in the carrier and in position to be engaged by a coin or token in said carrier, and a suitable part whereby said carrier may be manually shifted.

24. In toll apparatus for telephones, the combination with a case, of a carrier pivotally sustained therein, a part arranged to cause the operation of a signal when a coin or token has been placed in said carrier and when said carrier is shifted, a lever projected through a slot in the case for shifting said carrier, and wings on said lever or carrier for closing said slot in the case.

25. In a toll apparatus for telephones, the combination with a case, of a carrier pivotally sustained therein, a part arranged to cause the operation of a signal when a coin or token has been placed in said carrier and said carrier is shifted, a lever for shifting said carrier and a wing on said lever or carrier, a slot in said case for receiving a coin or token, said wing being arranged to obstruct said slot when the carrier is shifted from normal position.

26. In toll apparatus for telephones, the combination with a case, of a carrier pivotally sustained therein, a part arranged to cause the operation of a signal when a coin or token has been placed in said carrier and when said carrier is shifted, a lever projected through a slot in the case for shifting said carrier, a wing or wings on said lever or carrier for closing said slot in said case, and a slot in said case for receiving a coin, said wing being arranged also to close said receiving-slot when the carrier is shifted from normal position.

27. In toll apparatus for telephones, the combination with a case, of a carrier pivotally held therein, a part whereby said carrier may be shifted, a dog for preventing the retraction of said carrier, and a signal-operating part arranged to actuate a signal when a coin has been deposited in the carrier and said carrier is shifted.

28. In toll apparatus for telephones, the combination with a case, of a carrier pivotally mounted therein, a coin-channel in said carrier wherein a coin will be held, a part whereby said carrier may be manually shifted, a toothed dog in the path of movement of a coin in said carrier and a part for causing the operation of a signal.

29. In a toll apparatus for telephones, the combination with a case, of a carrier pivotally sustained therein, a lever for shifting said carrier, a dog for preventing the retraction of the lever when a coin has been deposited therein, said dog being provided with a series of teeth, and pivotally sustained in the case, and a signal device actuated by a coin in the carrier.

30. In a toll apparatus for telephones, the combination with a case, of a carrier movably held therein, a part whereby said carrier may be manually shifted, a coin channel or guide in said carrier, and a vibratory actuating part projecting into the path of movement of a coin in said carrier and a sound-producing body actuated by said part.

31. In toll apparatus for telephones, the combination with a case, of a carrier pivotally held therein, a part whereby said carrier may be manually shifted, a coin channel or guide in said carrier, a striker-lever sustained in manner which permits its vibration, said lever having a part projecting into the path of movement of a coin in said carrier, and a signal actuated by said lever.

32. In a toll apparatus for telephones, the combination with a case, of a series of carriers, a cross-shaft sustained in the case and whereby said carriers are pivotally sustained, means whereby said carriers may be shifted, and one or more signal mechanisms actuated by coins or tokens held in the carriers when said carriers are shifted.

33. In toll apparatus for telephones, the combination with a case, of a cross-shaft secured therein, a series of carriers separately pivoted upon said cross-shaft, each of said carriers being provided with a coin channel or guide wherein a coin will be held, and one or more signal devices comprising a part arranged to actuate a signal when a coin is within a carrier and a carrier is shifted.

34. In a toll apparatus for telephones, the combination with a case, of a series of carriers, a cross-shaft sustained in the case and whereby said carriers are pivotally sustained, means whereby said carriers may be shifted, one or more signal devices and a cross-rod whereby one or more of the actuating parts of said devices are sustained.

35. In a toll apparatus for telephones, the combination with a case, of a series of carriers, a cross-shaft sustained in said case and whereby said carriers are pivotally sustained, each of said carriers being arranged normally in position so as to retain a coin or token in position therein with the upper portion of the coin or token exposed or projecting upwardly, and a signal-actuating part for each of said carriers located in the path of said exposed or projecting portion and one or more signal devices actuated thereby.

36. In a toll apparatus for telephones, the combination with a case, and a carrier whereby a deposited coin will be shifted, of a signal device comprising a striker-lever for actuating a signal, a detent engaging said lever and for retaining said lever in shifted position, said lever being arranged to be shifted by a coin in said carrier, said detent being arranged to be shifted by the carrier to effect the release of said lever to actuate said signal device.

37. In toll apparatus for telephones, the combination with a case, of a carrier movably held therein and a signal device comprising a lever arranged to be shifted by a coin in said carrier, a detent for retaining said lever in shifted position, said detent being arranged to be shifted by said carrier, and a spring for shifting said lever to actuate a signal when said latch is shifted to release said lever.

678,633. TELEPHONE TOLL APPARATUS. EDWARD P. BAIRD, Evanston, Ill., assignor to Baird Manufacturing Company, Chicago, Ill. Filed Feb. 20, 1901. Serial No. 48,138. (No model.)



Claim.—1. A toll apparatus provided with a coin-controlled signal device, comprising a flexible strip having a part thereof securely held and having a yielding part projecting into the path of a movable part which first engages and bends said strip and then suddenly releases the free or yielding part of the strip to effect its vibration, said strip being formed so the resultant vibration of said strip caused by its sudden release, will inherently produce an audible signal.

2. In toll apparatus for telephones, the combination with a case, of a carrier movably held therein, a coin channel or guide in said carrier wherein a coin will be held, of a signal device formed of a flexible strip having one terminal securely held and a free terminal projecting into the path of a movable part which first engages and bends said strip and then suddenly releases the free terminal to effect its vibration, said strip being formed so the resultant vibration of said strip caused by its sudden release will inherently produce an audible signal.

3. In a toll apparatus for telephones, the combination with a case, a carrier movably sustained therein, and a coin channel or guide in said carrier wherein a coin will be held, of a signal device formed of a flexible strip having one terminal securely held, and a free terminal arranged to be engaged and bent by the edge of a coin in said carrier during the shift thereof, and then suddenly released to effect its vibration, said strip being formed so the resultant vibration of said strip caused by its release will inherently produce an audible signal.

4. In a toll-receiver for telephones, comprising the combination with a signal device, of a movably-sustained carrier for shifting a coin or token

to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, a stop in said channel or guide for positioning a coin to actuate said device when said carrier is shifted, and means whereby said carrier may be shifted.

5. In a toll-receiver for telephones, comprising the combination with a signal device, of a pivotally-sustained carrier for shifting a coin or token to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, a stop formed by indenting one of said walls, said stop serving to position a coin to actuate said device when said carrier is shifted, and means whereby said carrier may be shifted.

6. In a toll-receiver for telephones, comprising the combination with a signal device, of a carrier for shifting a coin or token to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, and bent to form flanges wherethrough a shaft is extended to form a pivotal support for said carrier, and a stop in said channel or guide for positioning a coin to actuate said signal device when said carrier is shifted, and means whereby said carrier may be shifted.

7. In a toll-receiver for telephones, comprising the combination with a signal device, of a carrier for shifting a coin to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, and bent to form a flange wherethrough a shaft is extended to form a pivotal support for said carrier, one of said flanges being extended to form a lever whereby said carrier may be shifted, and a stop for positioning a coin to actuate said signal device when said carrier is shifted.

8. In a toll-receiver for telephones, comprising the combination with a signal device, of a carrier for shifting a coin or token to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, and bent to form flanges wherethrough a shaft is extended to form a pivotal support for said carrier, and a stop in said channel or guide for positioning a coin to actuate said signal device when said carrier is shifted, said stop being formed by indenting one of said walls, and means whereby said carrier may be shifted.

9. In a toll-receiver for telephones, comprising the combination with a signal device, of a carrier for shifting a coin to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, and bent to form a flange wherethrough a shaft is extended to form a pivotal support for said carrier, one of said flanges being extended to form a lever whereby said carrier may be shifted, and a stop for positioning a coin to actuate said signal device when said carrier is shifted, said stop being formed by indenting one of said walls.

10. In a toll-receiver for telephones, comprising the combination with a signal device, of a carrier for shifting a coin or token to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, and bent to form flanges wherethrough a shaft is extended to form a pivotal support for said carrier, said sheet of metal being bent also to form a wing arranged to close the slot through which coins are inserted, and a stop in said channel or guide for positioning a coin to actuate said signal device when said carrier may be shifted.

11. In a toll-receiver for telephones, comprising the combination with a signal device, of a carrier for shifting a coin to actuate said device, said carrier being formed of a sheet of metal bent to form walls between which a coin channel or guide is formed, and bent to form a flange wherethrough a shaft is extended to form a pivotal support for said carrier, one of said flanges being extended to form a lever whereby said carrier may be shifted and wings for closing the lever-slot and receiving-slot, and a stop for positioning a coin to actuate said signal device when said carrier is shifted.

12. In a toll-receiver for telephones, the combination with a body for producing an audible signal and coin-controlled means for actuating said body to produce a signal, of a muffler for restricting the duration of the vibration of said body.

13. In a toll-receiver for telephones, the combination with a body for producing an audible signal, and mechanism for actuating said body to produce a signal, of a carrier for shifting a deposited coin, and a muffler for restricting the duration of the vibration of said body, said muffler being arranged to be shifted to and from said body during the shift of said carrier.

14. In a toll-receiver for telephones, the combination with a body for producing an audible signal, and mechanism for actuating said body, to produce a signal, of a carrier for shifting a deposited coin to cause the operation of said mechanism, and a muffler arranged to be shifted to and from said body by a part on said carrier, and during the shift of said carrier.

15. In a toll-receiver for telephones, the combination with a body for producing an audible signal, and mechanism for actuating said body to produce a signal, of a carrier for shifting a deposited coin to cause the operation of said mechanism, and a muffler normally engaging said body when said carrier is in normal position, and means for shifting said muffler to and from said body during the shift of said carrier.

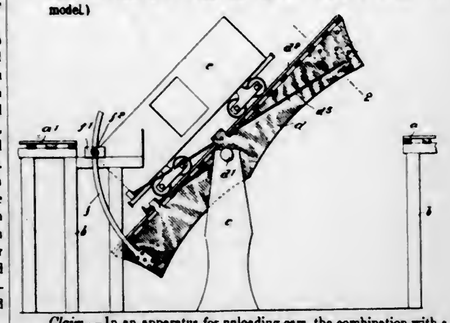
16. A toll-receiver for telephones, comprising the combination with a signal device, of a movable carrier for receiving and shifting a deposited coin or token to cause the actuation of the signal device, said carrier having a coin channel or guide therein wherein a coin will be held, and an ejector for positively removing the coin or token from the carrier.

17. A toll-receiver for telephones, comprising the combination with a signal device, of a movable carrier for receiving and shifting a deposited coin or token to cause the actuation of said signal device, said carrier having a coin channel or guide therein wherein a coin will be held, and an ejector for positively removing the coin or token from the carrier, said ejector being arranged normally and substantially out of the coin-channel to permit an inacceptable coin or token to pass through said channel or guide.

18. A toll-receiver for telephones, comprising the combination with a signal device, of a movable carrier for receiving and shifting a deposited coin or token to cause the actuation of said signal device, said carrier having a coin channel or guide therein wherein a coin will be held, and an ejector for positively removing the coin or token from the carrier, said ejector comprising an arm arranged to engage the coin when the signal device has been operated, and positively discharge the coin from the carrier.

19. A toll-receiver for telephones, comprising the combination with a signal device, of a pivotally-sustained carrier for receiving and shifting a deposited coin or token, said carrier having a coin channel or guide therein, wherein a coin or token will be held in position to cause the actuation of said signal device, and an ejector for positively removing the coin or token from the carrier, said ejector comprising an arm carried by and movable with the carrier.

678,634. APPARATUS FOR UNLOADING CARS. WATSON BATCHELOR, New York, N. Y. Filed Mar. 13, 1901. Serial No. 50,993. (No model.)



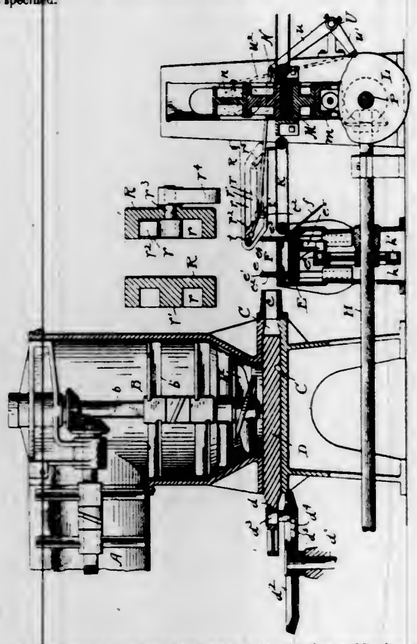
Claim.—In an apparatus for unloading cars, the combination with a stationary track, of a cradle, a support on which the cradle is pivotally mounted intermediate its ends, weight-blocks fastened between the beams of the cradle at one end thereof, a curved bar fastened to the opposite end of the cradle, a stationary guide in which said bar runs, and means for removably holding the bar rigid with the guide.

678,635. APPARATUS FOR MAKING RE-PRESSED BRICKS. JOHN M. BATTENFELD, Cleveland, Ohio, assignor of one-half to Harrison J. Uhl, same place. Filed Nov. 1, 1900. Serial No. 35,125. (No model.)

Claim.—1. In an apparatus for making re-pressed brick, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting said clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a conveyer-belt interposed between the cutting-off mechanism and the re-press table, a reciprocating feeding device for moving said bricks onto the re-press table and into the die therein, and guides for said feeding device which guide the same above the bricks when it is moving backward and down behind the bricks when it is moving forward, substantially as specified.

2. In an apparatus for making re-pressed bricks, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting the clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a conveyer-belt interposed between the cutting-off mechanism and the re-press table, a reciprocating feed-frame having two side bars, a cross-bar and a feed-block secured to said cross-bar, two fixed bracket-plates having recesses in their inner faces, horizontal ribs dividing each of said recesses into two horizontal channels, automatic switches at the ends of said ribs, and projec-

tions on the sides of the feed-frame entering said channels, substantially as specified.



3. In an apparatus for making re-pressed bricks, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting the clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a lower plunger movable vertically in said die, an upper plunger movable vertically into and out of said die, mechanism for moving said plungers, a conveyer-belt interposed between the cutting-off mechanism and the re-press table, a feeding device for pushing the bricks onto said re-press table and into the die therein, and connections between said feeding device and plunger-operating mechanism whereby the feeding device is reciprocated, and means whereby said feeding device is guided above the bricks when it is moving backward and down behind the bricks when it is moving forward, substantially as specified.

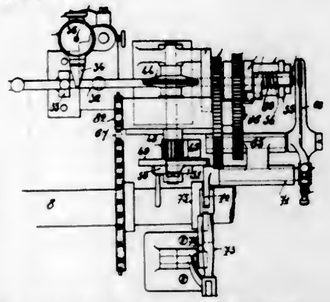
4. In an apparatus for making re-pressed bricks, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting the clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a vertically-movable lower plunger in said die, mechanism for moving said plunger up until its top surface is flush with the surface of the table, a feeding device for pushing the bricks onto the re-press table and into said die, and mechanism for lowering said lower plunger just before the brick is vertically over the same, and a vertically-movable upper plunger, substantially as specified.

678,636. **MACHINE FOR MAKING PASTED TUBES FOR CIGARETTES.** ANATOLE BENOÎT, JULIEN GUENIFFET, and JULES NICAULT, Paris, France. Filed Jan. 14, 1901. Serial No. 43,211. (No model.)

Claim.—1. A tube-forming machine, comprising a spindle, means for feeding a strip of paper lengthwise of said spindle and winding the paper around the spindle, and a tucker mounted to revolve around the axis of the spindle and also mounted to oscillate transversely of the spindle about an axis eccentric to the spindle's axis, and means for operating the tucker.

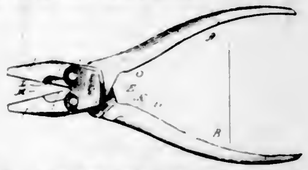
2. In a tube-forming machine, a tucking device serving to close one end of the paper tubes, provided with a suitably-notched blade capable of oscillating around a spindle or axis having a continuous rotary movement relatively to the tube, in combination with a cam also revolving, relatively to the tube, at a different speed, and serving to cause the said blade to oscillate, as hereinbefore described.

3. A machine for forming cigarette-wrappers into cylindrical shape, comprising a spindle, means for feeding a strip of paper lengthwise of said spindle and winding the paper around the spindle, a pasting device located adjacent to the farther or discharge end of the spindle, a tucker mounted to revolve around the axis of the spindle and also mounted to oscillate transversely of the spindle, about an axis eccentric to the spindle's axis, means for operating the tucker, and a device for cutting the paper at the tucked end.



4. In a tube-forming machine, a spindle adapted to form a support for the cylindrical casing or wrapper, a tucker mounted to revolve around the axis of the spindle and also mounted to oscillate transversely of the spindle, about an axis eccentric to the spindle's axis, means for operating the tucker, and a device for cutting the wrapper at the tucked end.

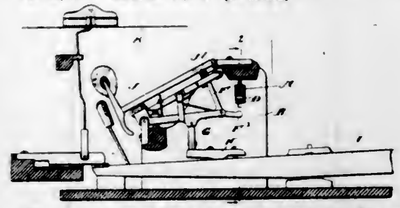
678,637. **NIPPERS, PLIERS, &c.** WILLIAM A. BERNARD, New Haven, Conn., assignor to the William Schollhorn Company, same place. Filed Dec. 26, 1900. Serial No. 41,031. (No model.)



Claim.—1. In nippers, pliers, and similar tools, the combination with cross-levers; of a link or links pivoted to each lever separately, and an engagement between said levers for communicating the rotary movement of each lever to the other, substantially as described.

2. In nippers, pliers, and similar tools, the combination with cross-levers, each lever forming a handle and jaw; of side plates or links pivoted to each lever separately; and a tongue-and-groove connection between said levers, substantially as described.

678,638. **PIANO-ACTION.** VITAL BEMIER, Brooklyn, N. Y. Filed Dec. 28, 1900. Serial No. 41,379. (No model.)

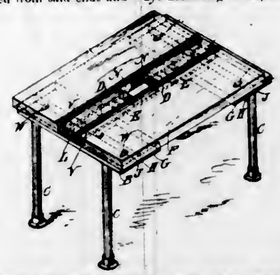


Claim.—1. A piano-action having jacks, a regulating-rail mounted to slide in bearings on the piano-frame and adapted to engage the heels of said jacks to control the escapement of the jacks to let the hammers off sooner or later, and a pedal-action connected with said regulating-rail to allow the player to move said regulating-rail at will, as set forth.

2. A piano-action having jacks, a regulating-rail mounted to slide in bearings on the piano-frame, buttons on the said regulating-rail and in alinement with the heels of the said jacks, and a pedal-action connected with the said regulating-rail to allow the player to move the said regulating-rail at will and bring the buttons in engagement with the heels of the jacks to control the escapement of the jacks to let the hammers off sooner or later, as set forth.

678,639. **WORK-BENCH.** GUSTAV A. BIELER, Philadelphia, Pa. Filed Dec. 4, 1900. Serial No. 38,635. (No model.)

Claim.—1. A work-bench made in sections, and consisting of ends having longitudinally-extending ways supported thereon and sides movable over and guided by the adjacent edges of said ends and adapted to be disconnected from said ends and ways according to requirements.



2. A work-bench, consisting of the ends suitably supported, ways having their extremities mounted on said ends, sides adapted to be moved toward and away from said ways, the latter being adapted to support a glue-pot and closing-pieces adapted to be supported between said ways.

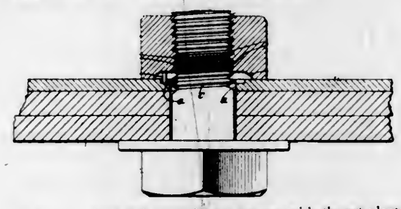
3. A work-bench consisting of ends suitably supported, ways having their extremities mounted on said ends, transverse strips for said ways, sides having cleats on the under side thereof adapted to engage the inner edges of said ends, closing-pieces for the outer portions of said ways and a glue-pot adapted to be held upon said ways and between the extremities of said closing-pieces.

4. A work-bench made in sections, ways therein, closing-strips adapted to move in said ways, and a glue-pot covering the adjacent ends of said strips and supported in said ways.

5. A work-bench made in sections, ways therein, closing-strips adapted to move in said ways, a glue-pot supported in said ways and flanges on either end of said glue-pot.

6. A work-bench made in sections the sides of which have raised walls, ways therein, closing-strips adapted to move in said ways, a glue-pot supported in said ways and flanges on either end of said glue-pot, which is formed with two compartments and pipes leading from one of said compartments.

678,640. **NUT-LOCK.** EDWARD R. CAMPBELL, East Ryegate, Vt. Filed May 23, 1901. Serial No. 61,543. (No model.)



Claim.—1. A nut-lock, comprising a nut, a pawl in the nut adapted to engage teeth on the thread of a bolt whereon the nut is screwed, and a second pawl in the nut, adapted to engage teeth on the material to be secured by the nut and bolt.

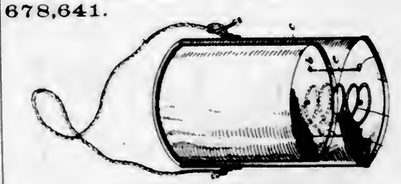
2. A nut-lock, comprising a nut having a pawl projected toward the thread on a bolt, a series of teeth on the thread of the bolt whereon the nut screws, said pawl having engagement with the teeth on the bolt-thread when the nut is screwed upon said thread, a plate having teeth around its opening, and a pawl on the nut adapted to engage said teeth when the nut is screwed upon the bolt-body and contacts with the plate.

3. A nut-lock, comprising a nut having a pawl projected toward the thread on a bolt, a series of teeth on the thread of the bolt whereon the nut screws, said pawl having engagement with the teeth on the bolt-thread when the nut is screwed upon said thread, a plate having a series of ratchet-teeth on the edge around the orifice in the plate, and two oppositely-projecting spring-pawls extended in a cavity in the nut toward said teeth on the plate, and engaging therewith when the nut bears upon said plate.

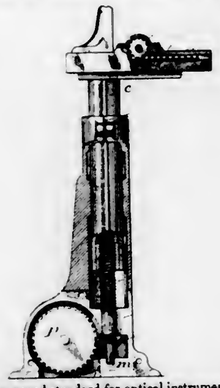
678,641. **FEED-BAG.** GEORGE A. CARLETON, Jr., Edgewater, N. J. Filed May 11, 1901. Serial No. 59,817. (No model.)

Claim.—A feed-bag, having a main bottom, a false bottom, a body portion formed of a flexible tube one end of which is turned inward within the other part of the tube and attached to the false bottom and the other end of the tube carrying the main bottom, and means acting between the two bottoms to raise the false bottom, for the purpose specified.

678,641.



678,642. **STANDARD FOR OPTICAL INSTRUMENTS.** JOHN R. CHAMBERS, Chicago, Ill. Filed Mar. 8, 1901. Serial No. 50,374. (No model.)



Claim.—An improved standard for optical instruments, consisting of a fixed vertical casing, an extension-column sliding vertically therein, a spline for preventing rotation of the extension-column, a vertical screw, stepped in said casing, working within said extension-column, a screw-threaded terminal to said extension-column, engaging said screw, a skew-pinion on said screw, a skew-gear mounted in the casing in the axial plane of said screw, engaging said skew-pinion, and means for operating the said skew-gear, to elevate and lower the extension-column, as specified.

678,643. **MARKING-TOOL.** MICHAEL P. CLARKE, Farmington, N. Mex. Filed Feb. 20, 1901. Serial No. 48,083. (No model.)



Claim.—1. A marking-tool, comprising a shank having a head at one end, the head having its end face beveled and terminating in a point, and a cutting-lip on the head extending from the point rearwardly along one side of the head, as set forth.

2. A marking-tool having a handled shank and a head thereon, the latter having its end face beveled forward and sidewise, and a cutting-lip on the head extending from the point rearwardly along one side of the head, as set forth.

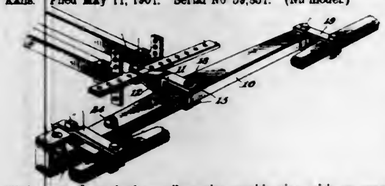
3. A marking-tool having a handled shank and a head thereon, the latter having its end face beveled forward and sidewise, and a cutting-lip on the head extending from the point rearwardly along one side of the head, said cutting-lip increasing in width from the point to its rear end, as set forth.

4. A marking-tool having a handled shank and a head thereon, the shank being approximately triangular in cross-section, and a head having its end face beveled forward, downward and sidewise, as set forth.

5. A marking-tool having a handled shank and a head thereon, the shank being approximately triangular in cross-section, a head having its end face beveled forward, downward and sidewise, and a cutting-lip on the head, extending from the point thereof rearwardly beyond one side of the shank, as set forth.

6. A marking-tool, comprising a shank, and a head at one end of the shank, the head having its end face beveled forward and sidewise to form a point, the said bevel forming an edge in alinement with and forming the termination of the flat front face of the shank, and extending from the point upwardly and rearwardly, as set forth.

678,644. DRAFT-EQUALIZER. GEORGE A. COUCHMAN, Garfield, Kans. Filed May 11, 1901. Serial No. 59,831. (No model.)

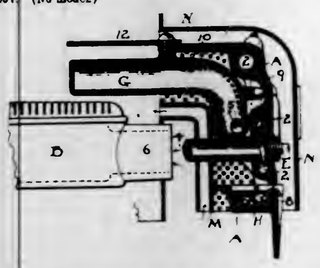


Claim.—1. In a draft-equalizer, the combination with an evener-beam, of a substantially U-shaped bracket, one arm of which is secured to the beam, the other arm being arranged longitudinally of and spaced from said beam, and means pivotally connected to the spaced arm and arranged to be attached to a whiffletree.

2. In a draft-equalizer, the combination with an evener-beam, of a substantially U-shaped bracket one arm of which is secured to the beam, the other arm being arranged longitudinally of and spaced from said beam, said latter arm being provided with a plurality of openings, a stirrup embracing the spaced arm and having spaced jaws arranged to embrace a whiffletree, and a pivot-bolt connecting the stirrup and spaced arm and passing through one of the openings in said arm.

3. In a draft-equalizer, the combination with an evener-beam pivoted intermediate its ends, of a bracket secured at its outer end to one end of the beam and having an arm spaced from and located longitudinally of the beam, said arm projecting inward toward the pivot of said beam, and means for securing a whiffletree to the arm of the bracket.

678,645. COMBINED HEATING AND IGNITING ATTACHMENT. CHARLES I. DANGLER, Cleveland, Ohio. Filed Jan. 4, 1901. Serial No. 42,097. (No model.)



Claim.—1. In a combined heating and igniting attachment adapted to be fixed at the side of a main-burner casing, the combination of a base provided with a vaporizing-channel, a heating and igniting burner comprising a portion arranged next to said base to heat the vaporizing-channel therein and another portion arranged to ignite the main burner, means for supplying vapor from said base to both the said burners, and means over the said heating and igniting burner to direct away the products of combustion arising therefrom, substantially as described.

2. As a new article of manufacture and sale, a combined heating and igniting attachment adapted to be supported at the side of a main-burner casing, comprising a generator-base having a vaporizing-channel, an initial heater and lighter at the bottom of said base and a perforated heating and lighting burner arranged to sustain a heating-flame next to the said channel and to ignite the main burner, a valve to supply fluid to said initial heater and lighter and vapor to said heating and igniting burner, and means outside of the main burner and its casing and over said heating and igniting burner to conduct away the products of combustion from the said heating and igniting burner, substantially as described.

3. In automobiles, a combined heating and igniting attachment adapted to be independently supported at one side of a main burner, said attachment comprising a generator-base with a vaporizing-duct and valved outlets, a hollow burner removably secured to said base and having a perforated portion next thereto to heat the same and a substantially horizontal perforated portion to ignite the main burner, a valved opening from said base into the said hollow burner, and a conduit for the products of combustion from over said attachment, substantially as described.

4. An attachment adapted to be removably secured to the side of a main burner-casing, comprising a generator-base having a vaporizing-channel and valved outlets, in combination with a hollow perforated substantially elbow-shaped burner having a vertical portion next to the wall of the said base and a substantially horizontal portion projecting outward to ignite the main burner, and means for directing the products of combustion laterally from over said elbow-shaped burner, substantially as described.

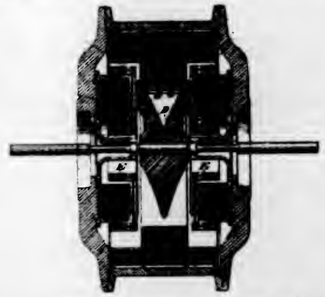
5. In hydrocarbon-burners, a combined heating and igniting attachment comprising a generator-base with a vaporizing-channel, a hollow burner having a perforated portion arranged in heating relation to said base and perforated extremity arranged to ignite the main burner, in combination with a main burner having a vapor-inlet, a valved outlet from the bottom of said base to said main-burner inlet, and means to direct the products of combustion from the hollow burner into the space over the main burner, said attachment being located at the side of the main burner, substantially as described.

6. The main burner and the casing therefor and a fuel-supply pipe across said burner, in combination with an attachment at the side of said main burner comprising a vapor-generator base and a combined heating and igniting burner having one portion arranged for igniting the main burner and in proximity to said fuel-supply pipe and the other portion arranged for heating said base, and a casing about said attachment in open relation at its top to the said main-burner casing, whereby the products of combustion in said attachment are discharged into the said main-burner casing, said heating and igniting burner being perforated for the escape of vapor and a valved opening from said base to said burner, substantially as described.

7. A stationary main burner and a boiler and casing about said parts, in combination with a combined heating and igniting attachment removably fixed at the outside of said main burner and comprising a generator-base, a perforated heating and igniting burner secured to said base and having one end projecting into igniting relation with said burner and the other end in heating relation to the said base, an initial heater and lighter, and a walled inclosure about said generator-base and burner and said initial heater and lighter and open at its top and side into the main-burner casing, substantially as described.

8. In a combined heating and igniting attachment adapted to be fixed at the side of a main-burner casing, the combination of a base provided with a vaporizing-channel, a heating and igniting burner comprising a portion arranged next to said base to heat the vaporizing-channel, and another portion arranged to ignite the main burner, means for supplying vapor from said base to both the burners, a casing for the base and the igniting burner and an initial heater and lighter beneath said base provided with an overflow-channel, said channel extending downward below said casing, substantially as described.

678,646. ROTOR FOR ALTERNATING-CURRENT GENERATORS. ERNST DANIELSON, Stockholm, Sweden. Filed Oct. 12, 1900. Serial No. 32,809. (No model.)



Claim.—1. A rotor for dynamo-electric machines in disk form and of increasing thickness from periphery toward the center, substantially as described.

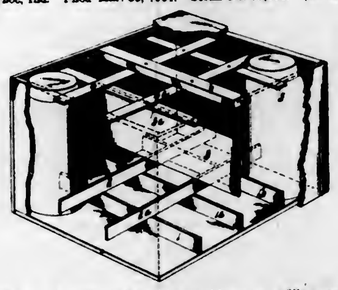
2. A rotor for dynamo-electric machines in disk form, and of increasing thickness of material from periphery toward the center, and partially split or divided in a plane at right angles to the axis of rotation, substantially as described.

3. A rotor for dynamo-electric machines in disk form and of increasing thickness of material from periphery toward the center and partially split or divided in a plane at right angles to the axis of rotation; the said split or divided portions being separated by a space V-shaped in cross-section, substantially as described.

4. In combination with a dynamo-electric machine a rotor in disk form and of increasing thickness of material from periphery toward the center and partially split or divided in a plane at right angles to the axis of rotation; the said split or divided portions having vertical faces respectively disposed so as to be moved during rotation of said disk in inductive proximity to the field-magnets of said dynamo, substantially as described.

5. The combination with a dynamo-rotor in disk form and of increasing thickness from periphery to center, of fixed bearings and a flexible or yielding shaft supported in said bearings and supporting said rotor, substantially as described.

678,647. FILLER FOR PACKING-CASES. RAPHAEL S. DOLING, Swayzee, Ind. Filed Mar. 30, 1901. Serial No. 53,598. (No model.)

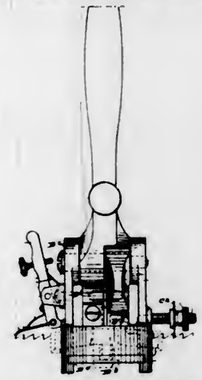


Claim.—1. In combination with a packing-case, a filler consisting of narrow strips laid across the case and resting on the bottom thereof, other strips laid across the first strips and resting thereon, a strip laid across the second row and reaching upward in close proximity to a binding-frame, a binding-frame made from thin flat strips crossed and secured together and arranged to rest flatwise between the necks and on the shoulders of the packed articles, a cross-strip secured to the frame on the upper side thereof and of a thickness to bear against the cover of the packing-case, substantially as described.

2. A filler for packing-cases, comprising in combination thin and narrow strips arranged to separate the packed articles at the bottom thereof, a frame arranged to engage over the shoulders of the packed articles, a thick strip arranged over the frame engaging against both the frame and the cover of the packing-case, and means interposed between the frame and the lower strips arranged to prevent the lower strips from escaping upward, substantially as described.

3. A filler for packing-cases, comprising in combination thin and narrow strips arranged to separate the packed articles at the bottom thereof, a frame of thin flat strips crossed and secured together adapted to be sprung forcibly into position between the jar-necks and over the shoulders of the jars, a thick strip arranged over the frame to engage against both the frame and the cover, and arranged to spring the frame slightly downward and a locking-strip interposed between the upper frame and the lower binding-strips and adapted to hold the binding-strips in place, substantially as described.

678,648. SAW-SET. CONRAD L. DRIEPER, San Francisco, Cal. Filed Jan. 22, 1901. Serial No. 44,303. (No model.)



Claim.—1. In a saw-set or the like, an open-bottom bed member having grooves in its inner side walls, bed-plates fitting in said grooves and having a throat left between their inner ends, and upsetting members carried by said bed-plates; substantially as described.

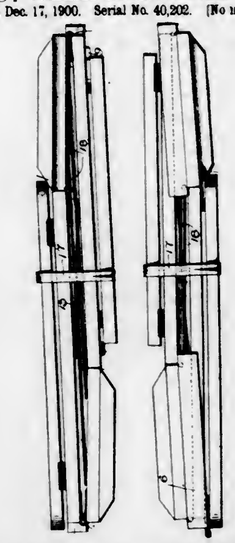
2. In a saw-set or the like, a pair of handles pivoted upon a fulcrum-pin, links upon said fulcrum-pin, a bed suspended by said links, plungers carried by said bed, and connection between said plungers and corresponding ends of said handles whereby said plungers are operated by the movement of said handles; substantially as described.

3. In a saw-set or the like, a bed, a plunger slidable thereon, said plunger having a recess near its outer end, an operating-lever engaging the outer end of said plunger, and a plate upon said lever engaging said recess; substantially as described.

4. In a saw-set or the like, a pair of handles, a fulcrum-pin upon which said handles are pivoted, links upon said pin, a bed suspended by said links, setting members carried by said bed and having operative connection with the ends of the handles, and spacing mechanism supported by one of said links; substantially as described.

5. In a saw-set or the like, a pair of handles, a fulcrum-pin upon which said handles are pivoted, links upon said pin, a bed suspended by said links, setting members carried by said bed and having operative connection with the ends of the handles, a lug upon one of said links, a lever pivoted to said lug, a pawl upon said lever below its pivot, and a set-screw extending through said lever above its pivot; substantially as described.

678,649. FOLDABLE EGG-CRATE. FRANK C. EDSON, Leroy, N. Y. Filed Dec. 17, 1900. Serial No. 40,202. (No model.)



Claim.—1. A foldable egg-crate comprising side and end walls hingedly connected at their meeting edges and adapted to be folded, the hinge connections being at the inner meeting edges, and a top and a bottom hingedly connected to the sides and each foldable in a direction to lie substantially parallel with and outside of the side to which it is connected, the lower edges of the sides being supported independently of the support afforded by the bottom.

2. A foldable egg-crate comprising side and end walls hingedly connected at their meeting edges and adapted to be folded, the hinge connections being at the inner meeting edges, a top and a bottom hingedly connected to the sides and each foldable in a direction to lie substantially parallel with and outside of the side to which it is connected, the lower edges of the sides being supported independently of the support afforded by the bottom; and a plate or division removably and hingedly connected to said sides, midway of the ends, said division being movable with the folding movement of the sides and ends.

3. A foldable egg-crate comprising side and end walls hingedly connected at their meeting edges and adapted to be folded, the height of the ends being greater than that of the sides, the top edges of the sides and ends being flush; strips carried by the ends adapted to support the lower edges of the sides; handle-strips carried by the ends and projecting above the top edges of the sides; a top hingedly connected to one of said sides and adapted to be secured in position between said handle-strips; and a bottom hingedly secured to the opposite side and movable to a position intermediate said bottom strips, said top and bottom each being foldable in a direction to lie substantially parallel with and outside of the side to which it is attached.

4. In an egg-crate foldable in the direction of its length, a false bottom carried by and foldable with said crate.

5. In a foldable egg-crate, a series of rods extending lengthwise of

the interior of the crate, and mounted to have movement with the crate when being folded, whereby said rods will serve as supports auxiliary to the cover.

6. A foldable egg-crate having sides and ends, and also having independent and non-connected devices intermediate the connections of said sides and ends and extending respectively laterally and longitudinally of the crate for holding the sides and ends in relative parallelism in folded position and otherwise.

7. A foldable egg-crate having sides and ends hingedly connected at their meeting edges, and having independent and non-connecting devices located intermediate the connections and extending in parallelism with, respectively, the sides and ends of the crate, said devices being foldable with the sides and ends and retaining the relative parallelism thereof during the folding movement.

8. In an egg-crate foldable in the direction of its length, a false top and a false bottom, each carried by and foldable with said crate.

9. In a foldable egg-crate, a false bottom carried by and foldable with said crate; and a false top, removably secured in said crate, said top having a corresponding movement with said bottom during the folding operation.

10. In a foldable egg-crate, a series of rods extending longitudinally of the crate above the bottom; and a series of rods located below the top of the crate and running parallel with the lower rods, said upper rods being removably secured within the crate, said rods being foldable with said crate.

678,650. **RULER.** JOHN EICHERT, Pittsburg, Pa. Filed Apr. 1, 1901. Serial No. 53,352. (No model.)



Claim.—1. In combination with a ruler, a rod supported from the upper face thereof, a sleeve slidably mounted on said rod, and a holder carried by said sleeve to receive a ruling-pen, said holder for the pen being rotatable independently of the slidable sleeve, substantially as described.

2. In combination with a ruler, a scaled rod supported from the upper face thereof, a sleeve slidably mounted on said rod, and a holder carried by said sleeve to receive a ruling-pen, said holder for the pen being rotatable independently of the slidable sleeve, substantially as described.

3. In combination with a ruler, a rod supported therefrom, a sleeve slidable upon said rod, a holder to receive a ruling-pen supported from said sleeve, and an arm carried by the sleeve to limit the movement of the ruling-pen and its holder in one direction.

4. In combination with a ruler, and a scaled rod carried thereby, of a sleeve slidably mounted on said rod, an arm carried by said sleeve for engagement with one edge of the ruler, and a holder for the ruling-pen rotatably supported on the sleeve.

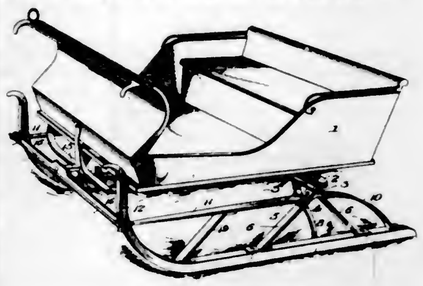
5. In combination with a ruler and a rod carried thereby, a holder for a ruling-pen slidable upon said rod, and means for engagement with the ruler to limit the movement of the ruling-pen holder in one direction, substantially as described.

6. In combination with a ruler and a scaled rod carried thereby, of a sleeve slidably mounted on said rod, a journal-sleeve secured transverse to said sleeve, a bolt in the said sleeve, a holder secured to one end of said bolt, a nut engaging the other end of said bolt, and a depending arm secured to the said sleeve and engaging one edge of the said ruler, substantially as described.

7. In combination with a scaled ruler, and a rod carried thereby, of a sleeve slidably mounted on said rod, a journal-sleeve secured transverse to said sleeve, a bolt in the said sleeve, a holder comprising a strip of metal bent upon itself, and forming depending ends, secured to one end of said sleeve, a thumb-screw for securing the said ends together, and an arm secured to the first-named sleeve and engaging one edge of the said ruler, substantially as described.

678,651. **CUTTER.** ANDREW M. ERICKSON, Barrett, Minn. Filed Apr. 22, 1901. Serial No. 56,991. (No model.)

Claim.—In a cutter, the combination with a body, of sets of ears depending therefrom, runners, a knee secured to each runner, a laterally-extending tube formed with each knee and journaled between one set of ears, a brace formed with the outer end of each tube and secured to its runner, a casting connected to the front of the body, a cross-brace pivoted to the casting and to the runners, and a rod to said brace.



678,652. **ROTARY ENGINE.** HENRY F. FARLEY, Kalona, Iowa, assignor of one-half to William Kelley, same place. Filed Jan. 29, 1901. Serial No. 45,254. (No model.)



Claim.—1. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a yielding piston-head, and a valved abutment in the cylinder and having a cam-surface for pressing the piston-head, the abutment being hollow, connected with the motive-agent supply, and arranged to open into the cylinder, as set forth.

2. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a yielding piston-head, an abutment in the cylinder and having a cam-surface for pressing the piston-head, the abutment being hollow, connected with the motive-agent supply, and arranged to open into the cylinder, and a valve controlling the opening of the abutment leading to the cylinder, as set forth.

3. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a yielding piston-head, an abutment in the cylinder and having a cam-surface for pressing the piston-head, the abutment being hollow, connected with the motive-agent supply, and arranged to open into the cylinder, a valve controlling the opening of the abutment leading to the cylinder, and means for manually adjusting said valve, to control the motive agent from the abutment to the cylinder, as set forth.

4. A rotary engine, comprising a cylinder, a piston mounted therein and having a plurality of yielding piston-heads, a plurality of abutments mounted to swing and each having a cam-surface for pressing the piston-heads, each abutment being hollow, connected with the motive-agent supply and opening into the cylinder, and a valve controlling the outlet of each abutment, as set forth.

5. A rotary engine, comprising a cylinder, a piston mounted therein and having a plurality of yielding piston-heads, a plurality of abutments mounted to swing and each having a cam-surface for pressing the piston-heads, each abutment being hollow, connected with the motive-agent supply and opening into the cylinder, valves for controlling the outlets of

the abutments, and supply-pipes for the said abutment and forming fulcrums for the abutments, as set forth.

6. A rotary engine, comprising a cylinder, a piston mounted therein and having a plurality of yielding piston-heads, a plurality of abutments mounted to swing and each having a cam-surface for pressing the piston-heads, each abutment being hollow, forming a supply-chest connected with the motive-agent supply and opening into the cylinder, and means under the control of the operator for simultaneously moving the abutments, to bring one into an active position while the other moves into an inactive position, as set forth.

7. A rotary engine, comprising a cylinder, a piston mounted therein and having a plurality of yielding piston-heads, a plurality of abutments mounted to swing and each having a cam-surface for pressing the piston-heads, each abutment being hollow, connected with the motive-agent supply and opening into the cylinder, and a valve under the control of the engineer for controlling the exhaust, the said exhaust-valve being mounted to turn and provided with an exhaust-port registering with a segmental groove in a cylinder-head, and an exhaust-pipe connected with the said cylinder-head groove, substantially as shown and described.

8. In a rotary engine, the combination with a cylinder having recesses in opposite sides, and a piston mounted in the cylinder and provided with yielding piston-heads, of hollow swinging abutments mounted in the recesses and connected with the motive-agent supply, each abutment being provided with an outlet in its free end, and with a stem leading out through the wall of its recess, an operating-lever, and links connecting the lever with the stems of the abutments, as set forth.

9. In a rotary engine, the combination with a cylinder having recesses in opposite sides, and a piston mounted in the cylinder and provided with yielding piston-heads, of hollow swinging abutments mounted in the recesses and connected with the motive-agent supply, each abutment being provided with an outlet in its free end, means for simultaneously moving the abutments one into active position while the other moves into inactive position, a slide-valve for the outlet of each abutment, and means for operating the said valve, as set forth.

10. In a rotary engine, the combination with a cylinder, and a piston mounted in the cylinder and having yielding piston-heads, of hollow swinging abutments mounted at opposite sides of the cylinder, each abutment being connected with the motive-agent supply opening into the cylinder, and provided with a projecting stem, means connected with the stems of the abutments for operating them, a slide-valve for controlling the opening of the abutment leading into the cylinder, and a lever mechanism for operating the said valve, as set forth.

11. In a rotary engine, the combination with a cylinder, a piston mounted in the cylinder and having yielding piston-heads and swinging abutments each provided with an outlet and with a projecting stem, of a slide-valve for controlling the outlet of the abutment, a lever pivotally mounted on the stem of each abutment, a link connecting one end of the lever with the stem of the slide-valve, an operating-lever, and a link connecting the operating-lever with the first-named lever, as set forth.

12. In a rotary engine, the combination with a cylinder having a recess in each side, and a piston mounted in the cylinder and provided with yielding piston-heads, of a perforated motive-agent-supply pipe in each recess, a hollow abutment mounted on each perforated pipe, and provided with an outlet at its free end, and means for simultaneously operating the said abutments to move one into active position and the other into inactive position, as set forth.

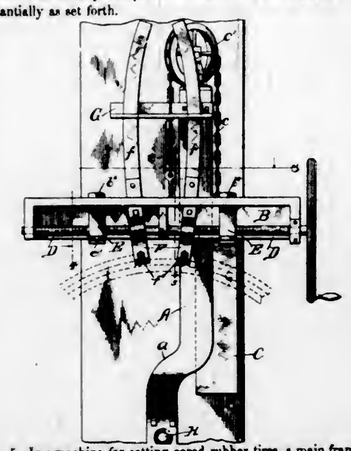
678,658. **MACHINE FOR SETTING RUBBER TIRES.** SAMUEL A. GARDE and HENRY J. DUCKGESCHEL, Chicago, Ill. Filed Feb. 1, 1901. Serial No. 45,559. (No model.)

Claim.—1. A machine for setting cored rubber tires having a wheel-support, a guide, a cross-piece adjustably mounted thereon, threaded clamps slidably attached to said cross-piece, a shaft with right and left handed screws journaled to said cross-piece and engaging the said clamps, and independently-mounted auxiliary clamps or vises, substantially as set forth.

2. A machine for setting cored rubber tires having a wheel-support, means for straining the cores, auxiliary clamps or vises for holding the cores while secured together, and means for varying the distance between the same and the wheel-support and means for automatically adjusting said auxiliary clamps to each other to correspond to the distance between the clamps and the said support, substantially as set forth.

3. A machine for setting cored rubber tires having a stationary wheel-support, means for straining the cores, auxiliary clamps or vises for holding the cores while secured together, means for varying the distance between the same and the wheel-support, and means for automatically keeping the ends of the jaws of the auxiliary clamps at right angles to the radii of the wheel passing centrally therethrough at a point of tangency, substantially as set forth.

4. A machine for setting cored rubber tires having a wheel-support, means for straining the cores, auxiliary clamps or vises, means for moving the same to a greater or less distance from the wheel-support, arms attached to the auxiliary clamps and a stationary guide engaging said arms, substantially as set forth.



5. In a machine for setting cored rubber tires, a main frame, a table slidably mounted thereon, a core-clamping device mounted on said table, means secured to said table for moving said clamping device to strain the core, and an auxiliary clamping device pivotally attached to said table and connected to the main frame so as to be automatically adjusted by the movement of the table, substantially as set forth.

6. In a machine for setting cored rubber tires, a main frame, a table slidably mounted thereon, a core-clamping device mounted on said table, means secured to said table for moving said clamping device to strain the core, and an auxiliary clamping device pivotally attached to said table and connected to the main shaft so as to be automatically adjusted by the movement of the table, substantially as set forth.

7. In a machine for setting cored rubber tires, a wheel-support, clamps to hold the core, means for moving the clamps to strain the said core, auxiliary clamps or vises to hold the core in position while the ends thereof are secured together, means for varying the relative distance of the wheel-support and the clamping devices, and means to automatically adjust the auxiliary clamps or vises according to the distance thereof from the wheel-support, substantially as set forth.

8. In a machine for setting cored rubber tires, a wheel-support, clamps to hold the core, means for moving the clamps to strain the said core, auxiliary clamps or vises to hold the core in position while the ends thereof are secured together, means for moving the auxiliary clamps to a greater or less distance from the wheel-support, arms attached to the auxiliary clamps, and stationary guides engaging the said arms, substantially as set forth.

9. In a rubber-tire-setting machine having a wheel-support, a guide and a cross-piece adjustably mounted thereon the combination of threaded clamps slidably mounted on said cross-piece, a shaft with right and left handed screws journaled to said cross-piece and engaging the said clamps, auxiliary clamps or vises independently mounted on said cross-piece, means for varying the relative distance of the wheel-support and the said cross-piece and means for automatically varying the relative positions of said clamps or vises to correspond to the distance thereof from the wheel-support, substantially as set forth.

10. In a rubber-tire-setting machine having a wheel-support, a vertical guide and a cross-piece adjustably mounted thereon the combination of threaded clamps slidably mounted on said cross-piece, a shaft with right and left handed screws journaled to said cross-piece and engaging the said clamps, auxiliary clamps or vises independently mounted on said cross-piece, means for varying the relative distance of the wheel-support and the said cross-piece, curved arms attached to said auxiliary clamps or vises, and a guide to engage the said arms, substantially as set forth.

678,654. **CLASP FOR HOSE-SUPPORTERS.** ELLA N. GAILLARD, Easton, Md. Filed Oct. 13, 1900. Serial No. 32,997. (No model.)

Claim.—1. The combination of a base-plate having a stud provided with an elastic head larger than the neck of the stud, and another plate having an opening for receiving the button with the fabric on it to be clasped, said opening having outwardly-expanding form, and adapted to contract the button in entering the opening, and permit the expansion of the surface of the button in the opening after entering it, said parts being hinged together.

2. A clasp comprising a button member having a yielding button over which the fabric is clamped, and a coöperating eye member provided with a transverse eye having a rounded inner edge, a flared outer end and a constricted portion intermediate of the flared end and rounded edge, whereby the fabric may be passed into the eye without injury and will be expanded with the button when the latter is forced beyond the constricted portion of the eye, and into the flared outer end thereof.

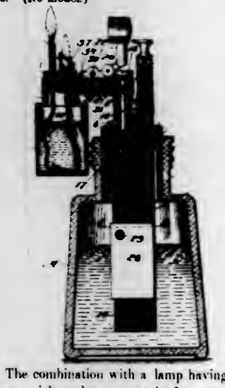


3. The combination with a base-plate having a stud provided with an elastic head larger than the neck of the stud, and another plate designed to clamp the intermediate fabric against the base-plate and having an opening for receiving the button with the fabric on it to be clamped, said opening having an outwardly-expanding form and adapted to contract the button on entering the opening, and to permit the expansion of the surface of the button in the opening after entering it.

4. A clasp comprising a button member having a contractile button supported by a shank or neck, and an eye member having an eye comprising a constricted portion of true cylindrical form and longitudinally coextensive with the shank or neck, and said eye being flared from said constricted portion, whereby the button in one position thereof will be located within the flared portion of the eye immediately beyond the constricted portion thereof.

5. A clasp of the character described having a yielding button upon which the fabric is clamped, and a coöperating eye member, the eye of which is formed by a laterally-disposed annular flange having an interior bevel at its outer edge to define an expanded portion of the eye within which the yielding button is designed to expand to its normal size for the purpose of clamping the fabric against the interior surface of the flange.

678,655. LAMP. CHARLES E. GERVAIS, New York, N. Y., assignor of one-half to William S. Jessup, same place. Filed Dec. 3, 1900. Serial No. 39,160. (No model.)



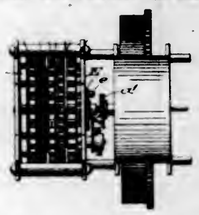
Claim.—1. The combination with a lamp having an illuminating-wick and a primary wick, and a receptacle for containing an exciting fluid, said receptacle being provided with stationary carbon elements and a sliding zinc element, of a head on the cap of the receptacle, said head comprising a base, a vertical member having a longitudinal bore terminating in a chamber, and a horizontal member to which the lamp is secured, a bolt passing through the bore of the head and cap of the receptacle and securing the head to said cap, the head of the bolt being in the chamber of the head, a resistance-coil extending over the primary wick of the lamp, a wire leading from the coil to the head of the bolt, and an operating-rod secured to the sliding zinc element and extending out through the cap of the receptacle and the said head, substantially as described.

2. A lamp having an illuminating-wick and a primary wick, a receptacle for containing an exciting fluid, the receptacle being provided with stationary carbon elements and with a sliding zinc element, a head on the cap of the receptacle and formed of a base having a projecting tube, a vertical member having a longitudinal bore terminating at its upper end in a chamber, and a horizontal member supporting the lamp, a bolt securing the head to the cap of the receptacle, said bolt having an enlargement or head arranged in the said chamber, a resistance-coil extending over the primary wick of the lamp, a wire leading from the coil and secured to the enlargement or head of the bolt, a rod connected with the sliding zinc element, said rod passing through the tube of the head and provided with a handle, and a spring surrounding the tube of the head and bearing against the base of said head and the handle of the rod, substantially as described.

3. A lamp having an illuminating-wick and a primary wick and provided with a tubular extension, a receptacle for containing an exciting fluid, the receptacle being provided with stationary carbon elements and with a sliding zinc element, a head on the cap of the receptacle and formed of a base having a projecting tube, a vertical member having a bore terminating at its upper end in a chamber, and a horizontal member in which the tubular extension of the lamp is secured, a bolt securing the head to the receptacle, said bolt having an enlargement arranged in the chamber of the vertical member, a resistance-coil extending over the primary wick, a wire leading from the coil through the extension of the lamp to the enlargement of the bolt and secured thereto by a binding-screw, a sliding rod secured to the sliding zinc element, said rod passing through the said tube and provided with a handle at its upper end, a spring surrounding the tube and bearing against the base of the head and the handle of the rod, an extinguishing-cap pivoted to the horizontal member of the head, a lever-arm secured to the pivot of the cap, and a link connecting the lever-arm to the sliding rod, substantially as described.

4. The combination with a lamp having a closure provided with bores through which wicks pass and with a lateral extension, of a receptacle for containing an exciting fluid provided with stationary carbon elements and with a sliding zinc element, a head secured to the top of the receptacle and having a horizontal slitted member in which the extension of the closure of the lamp is secured, a resistance-coil extending over one of the wicks of the lamp and in circuit connection with the battery elements, and a spring-pressed rod secured to the sliding zinc element, substantially as described.

678,656. TIME-STAMP. PETER G. GIROUD, Binghamton, N. Y., assignor to the International Time Recording Company, of New Jersey. Filed Apr. 22, 1901. Serial No. 56,868. (No model.)



Claim.—1. In a time-stamp, a rotary shaft, several series of time-indicating symbols mounted and arranged to bring the symbols of each series successively into printing position, connections between the said rotary shaft and different series of symbols whereby a series of symbols moves together with the shaft and another series under the control of the rotary movement of the shaft moves relatively to the shaft and means for rotating the shaft, substantially as set forth.

2. In a time-stamp, a rotary shaft, means for operating the shaft, a plurality of series of time-indicating symbols fixed to rotate with the shaft, another series of time-indicating symbols loosely mounted on the shaft and means for imparting a rotary movement thereto independent of the rotary movement of the shaft and still another series of time-indicating symbols mounted to rotate on the shaft and means under the control of the shaft for imparting a rotary movement to said last-named series of time-indicating symbols, substantially as set forth.

3. In combination, a rotary drive-shaft, two time-indicating wheels fixed to rotate with the drive-shaft, a third time-indicating wheel mounted to rotate on the drive-shaft intermediate of the aforesaid time-indicating wheels, a fourth time-indicating wheel loosely mounted on the drive-shaft and under the control of the said drive-shaft to be operated thereby and means for actuating the third aforesaid time-indicating wheel, substantially as set forth.

4. In combination, a rotary shaft, a sleeve or collar fixed on the shaft, a meridian-wheel abutting one end of the collar, an hour-wheel abutting the opposite end of the collar, the said wheels being fixed to rotate with the shaft, a minute-wheel loosely mounted on the sleeve or collar intermediate of the aforesaid wheels and means under the control of a time-train for actuating the minute-wheel and shaft, substantially as set forth.

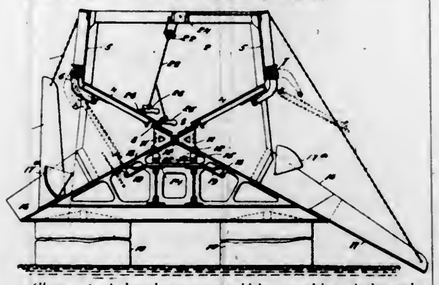
5. In combination, a rotary shaft, a meridian-wheel and an hour-wheel fixed to rotate with the shaft, a minute-wheel loosely mounted on the shaft intermediate of the aforesaid wheels, a gear-wheel fixed to rotate with the shaft, a day-wheel loosely mounted on the shaft, means under the control of the gear on the shaft for operating the said day-wheel and means under the control of a time-train for actuating the minute-wheel and shaft, substantially as set forth.

6. In combination, a rotary shaft, a meridian-wheel and an hour-wheel fixed to rotate with the shaft and a minute-wheel loosely mounted on the shaft intermediate of the meridian and hour wheels, a gear-wheel fixed to rotate with the shaft, a day-wheel loosely mounted on the shaft, a month-wheel loosely mounted on the shaft and under the control of the day-wheel, intermediate mechanism for placing the day-wheel under the control of the gear fixed on the shaft and means under the control of a time-train for actuating the minute-wheel and shaft, substantially as set forth.

7. In combination, printing-wheels denoting different subdivisions of time, a spring-actuated locking-lever for holding one of the wheels in its position, a pawl for advancing the said wheel, a rocking spring-actuated support for the said pawl, a projection on the pawl for engaging the foot of the locking-lever to permit the pawl to pass when the pawl moves in one direction and for releasing the locking-lever when the pawl moves in the opposite direction and means under the control of the other wheel for rocking the pawl-support, substantially as set forth.

8. In combination, several wheels for printing different subdivisions of time, a rock-shaft, locking-levers and rocking pawls for operating the said wheels at predetermined intervals, a rocking shaft forming a support for the several pawl-supports, one of said pawl-supports being fixed to said rocking shaft and other pawl-supports being loosely mounted on said shaft, a drive-shaft under the control of a time-train, a cam on said drive-shaft for rocking another of said pawl-supports and means in connection with one of the said printing-wheels for operating another of said pawl-supports, substantially as set forth.

678,657. DUMPING-SCOW. JOHN M. GOODWIN, New York, N. Y. Filed Jan. 21, 1901. Serial No. 44,092. (No model.)



Claim.—1. A dumping scow or vehicle, comprising a body portion divided into a series of compartments, side valves and center valves forming downwardly and inwardly inclined floors for the compartments, means for supporting the valves in their closed position, and means operating to release the valves of the several compartments successively, substantially as specified.

2. In a dumping scow or vehicle, a body mounted thereon and divided into compartments, swinging side valves and swinging center valves forming bottoms for the compartments, the inner edges of the side valves resting on the center valves when in closed position, struts connected to the center valves, a rod on which said struts are mounted to swing, rollers carried by said struts, detent-operating bars or rods extended through the body, and segmental detent-plates on said rods or bars with which the rollers are designed to engage, the detents underneath the several compartments varying in width, substantially as specified.

3. A dumping scow or vehicle, comprising a body portion, divided into compartments, side valves hinged at their upper edges to the side pieces of the body, center valves mounted to swing on a rod extended lengthwise of the body, means for holding the valves in their closed position, means for releasing the valves, and means for moving the valves to closed position, comprising chains adapted to become automatically disengaged from the valves when lifting-pressure is relieved, substantially as specified.

4. A dumping scow or vehicle, comprising a body portion, side valves mounted to swing on said body portion, center valves mounted to swing in said body portion, a hoisting-chain for the valves, and lifting-hooks connected to projections of said chains and adapted respectively to engage with links on the side and center valves, the said sections of the chain being of different lengths so that the side valves will be completely closed before the center valves are completely closed, substantially as specified.

5. In a dumping scow or vehicle, a body portion, swinging valves forming the bottom thereof, fixed chutes extended laterally from the body, and extension-chutes mounted to swing on the fixed chutes, substantially as specified.

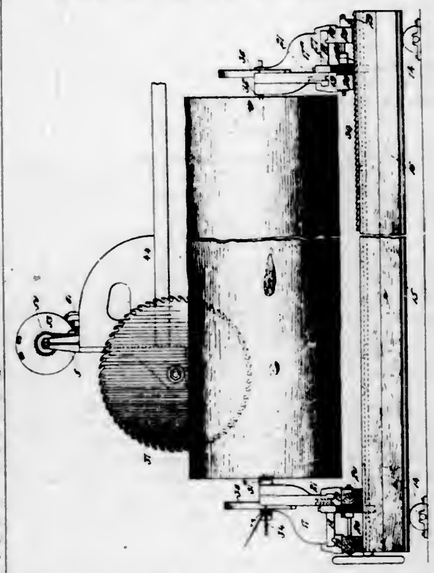
6. In a dumping scow or vehicle, a body portion, swinging side valves on said body portion, swinging center valves, fixed chutes extended laterally from the sides of the body, and auxiliary valves adapted to direct material into said fixed chutes or to direct material to discharge below the body portion, substantially as specified.

7. In a dumping scow or vehicle, a body portion, side valves mounted to swing on said body portion, center valves mounted to swing on said body portion, the said valves forming the bottom of the body when closed, chutes extended laterally from the body, auxiliary valves for directing material over the chutes or for directing material to discharge below body portion, and spring-yielding hinges supporting said auxiliary valves, the said hinges forming buffers for the side valves when swung open, substantially as specified.

8. In a dumping scow or vehicle, a body portion, valves forming the bottom of said body portion, chutes extended laterally from the body portion, and retarding devices in said chutes, substantially as specified.

9. In a dumping device, a body portion, center valves forming portions of the bottom thereof, triangular struts to which said valves are connected, the said struts having teeth at the outer ends, and lifting devices for engaging with the struts, substantially as specified.

678,658. SAWMILL. JAMES L. GRANT, Johnson City, Tenn. Filed Aug. 17, 1900. Serial No. 27,176. (No model.)

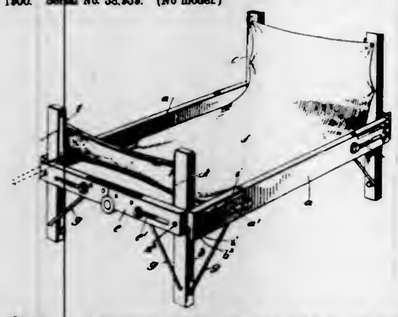


Claim.—1. A sawmill, having main head-blocks, means carried by the main head-blocks for holding a log to turn around its longitudinal axis, a saw juxtaposed to the main head-blocks and disposed radially of the center of said log-holding means, and head-block extensions carried on the main head-blocks and arranged alongside the saw in approximate parallelism to the plane thereof, for the purpose specified.

2. A sawmill, having main head-blocks, means carried by the main head-blocks for holding a log to turn around its longitudinal axis, a saw juxtaposed to the main head-blocks and arranged above the same, and head-block extensions carried on the main head-blocks and rising therefrom, the head-block extensions being arranged alongside of the saw, for the purpose specified.

3. In a sawmill, the combination with the framing, of a carriage, two head-blocks mounted on the carriage and adapted to carry the log, means for simultaneously adjusting the head-blocks transversely on the carriage, head-block extensions carried on the main head-blocks and rising therefrom, a slide mounted on the framing above the head-blocks, a saw supported on the slide, means forming a connection between the slide and framing to operate the former, and driving gearing mounted on the framing and serving to drive said means.

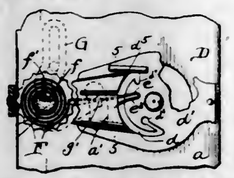
678,659. COT. ALBERT A. GREGG, Buffalo, Wyo. Filed Dec. 6, 1900. Serial No. 38,939. (No model.)



Claim.—1. A cot, comprising side rails, head and foot posts pivotally mounted on the side rails at points intermediate the ends of the posts, the posts extending upward beyond the side rails, slotted end or head and foot rails pivotally connected respectively with the head and foot posts, each end rail being made up of two pivotally-connected sections forming a toggle, and rigid braces pivoted to the head and foot posts, fitted slidably in the slots in the side and end rails.

2. A cot, comprising slotted side rails, head and foot posts mounted on the side rails at points intermediate the ends of the posts, the posts extending upward beyond the side rails, slotted end or head and foot rails pivotally connected respectively with the head and foot posts, each end rail being made up of two pivotally-connected sections forming a toggle, rigid braces pivoted to the head and foot posts and fitted slidably in the slots in the side and end rails, and means for removably holding the braces of the side rails in extended position.

678,660. SLACK-THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES. WILLIAM GROTHE, Cleveland, Ohio, assignor to the White Sewing Machine Company, same place. Filed Feb. 9, 1901. Serial No. 46,640. (No model.)



Claim.—1. In a sewing-machine, a slack-thread spring comprising a coil, whose inner end is bent backward, and an arm with a hook-shaped extremity and means for guiding the thread, combined with a disk having a central hole in which is a notch which receives the inner bent end of the coil, a stud which is secured to the end plate of the machine-arm and which passes through said disk and coil, a crowned spring-washer which embraces said stud outside of said coil, and means for applying the pressure to the outside of said spring, substantially as and for the purpose specified.

2. In a sewing-machine, a slack-thread spring-arm secured to the end of the machine-arm and having its tension downward and having at its extremity an eye for the thread, combined with a bell-crank lever whose vertical arm has an inclined slot and whose other arm has a finger which projects beneath said spring-arm, the presser-bar, and a pin which is secured thereto and enters said slot, substantially as and for the purpose specified.

3. In a sewing-machine, a tension-plate having a curved slot with backwardly-extended recesses at its ends, said plate on one side of said slot being in a plane in front of the tension part of the plate on the other side of said slot, combined with a slack-thread spring-arm secured to the machine-arm behind the forwardly-bent part of said plate and extending through said curved slot and over the tension part of said plate and having at its extremity an eye for the thread, substantially as and for the purpose specified.

4. In a sewing-machine, a tension-plate having a curved slot with backwardly-extended recesses at its ends, said plate on one side of said slot being in a plane in front of the tension part of the plate on the other side of said slot, combined with a rotatable disk located behind the forwardly-bent part of said plate, a slack-thread spring having a coil which is located between said disk and plate and having at its extremity an eye for the thread, and has its inner end secured to said disk, and having also a spring-arm which projects through said curved slot to a position outside of the tension part of said plate and having at its extremity an eye for the thread, and a spring-clamping device for holding said disk against rotation, substantially as and for the purpose specified.

5. In a sewing-machine, a tension-plate having a curved slot with backwardly-extended recesses at its ends, said plate on one side of said slot being in a plane in front of the tension part of the plate on the other side of said slot, combined with a slack-thread spring-arm having at its extremity an eye for the thread secured to the machine-arm behind the forwardly-bent part of said plate and extending through said curved slot and over the tension part of said plate, a rib on said plate above and in the path of the free end of said spring-arm, substantially as and for the purpose specified.

6. In a sewing-machine, a slack-thread spring-arm secured at one end to the end of the machine-arm and having a hook-shaped extremity, combined with a rib located above and in the path of said hook-shaped extremity and means for guiding the thread into the hook-shaped extremity of said spring-arm whereby said thread passing to said hook-shaped extremity passes over and in contact with said rib, substantially as and for the purpose specified.

678,661. PHOTOGRAPHIC-PRINTING FRAME. GEORGE W. HARTMAN, Kansas City, Kans. Filed Oct. 11, 1900. Serial No. 32,676. (No model.)



Claim.—1. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions and an inclosure or wall fixed to the outer and side edges of said back portions, a transparent or glass face-plate, and means for clamping said glass in the frame and the sections of the latter in alinement, with the said walls inclosing the side and edges of said glass, substantially as described.

2. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions and an inclosure or wall fixed to the outer and side edges of said back portions, spring-clamps pivoted to said sections, a transparent face-plate to be held in the frame and the sections of latter in alinement by said clamps with the said walls inclosing the side and end edges of the glass, and catches to secure the clamps in such relation, substantially as described.

3. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions and an inclosure or wall fixed to the outer and side edges of said back portions, a transparent face-plate to be inclosed by said inclosure or wall, and means to secure said parts in such relation with a yielding pressure, substantially as described.

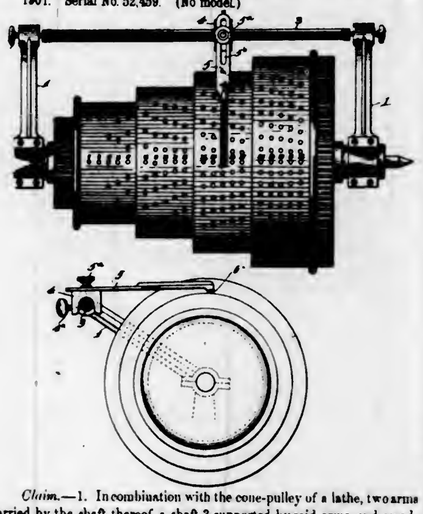
4. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions and an inclosure or wall fixed to the outer and side edges of said back portions, a transparent face-plate to be inclosed by said inclosure or wall, spring-clamps pivoted to said sections, and provided with cranks to press the transparent face-plate firmly into the frame, and catches to secure said clamps in such relation, substantially as described.

5. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions, an inclosure or wall fixed to the outer and side edges of said back portions and catches, a transparent face-plate to be inclosed by said inclosure or wall, clamps, comprising arms pivoted to the frame and spring-arms adapted to engage said catches and hold said parts in such relation, one of the arms of each clamp having a crank to press the transparent face-plate in and hold the sections of the frame in alinement, substantially as described.

6. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions, an inclosure or wall, and catches, a transparent face-plate to be inclosed by said inclosure or wall, clamps, comprising arms pivoted to the frame and spring-arms adapted to engage said catches and hold said parts in such relation, one of the arms of each clamp having a crank to press the transparent face-plate in and hold the sections of the frame in alinement, said crank being provided with a cushion to apply a yielding pressure on the plate, substantially as described.

7. A photographic-printing frame, comprising a plurality of sections hinged together and embodying back portions an inclosure or wall, and catches, a transparent face-plate to be inclosed by said inclosure or wall, clamps comprising arms pivoted to the frame and spring-arms adapted to engage said catches and provided with humps adjacent thereto, and hold said parts in such relation, one of the arms of each clamp having a crank to press the transparent face-plate in and hold the sections of the frame in alinement, said crank being provided with a cushion to apply a yielding pressure on the plate, substantially as described.

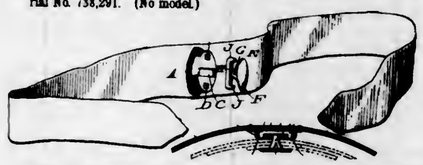
678,662. ATTACHMENT FOR LATHES. CHARLES HARZMEIER, St. Louis, and LOUIS BISCH, Jefferson Barracks, Mo. Filed Mar. 22, 1901. Serial No. 52,459. (No model.)



Claim.—1. In combination with the cone-pulley of a lathe, two arms carried by the shaft thereof, a shaft 3 supported by said arms, and an adjustable index-arm 5 carried by said shaft 3 and having a point 5^x, the surface of the cone-pulley having a series of suitably-spaced openings within which the said point 5^x is adapted to engage, substantially as specified.

2. In a lathe, a cone-pulley provided with a number of suitably-spaced openings, the combination therewith of two arms carried by the shaft of the cone-pulley, a shaft 3 carried by said arms, a clamp 4 mounted on said shaft, an adjustable index-arm 5 connected to said clamp and a point 5^x rigid with the outer end of said index-arm and adapted to engage in the openings in the cone-pulley.

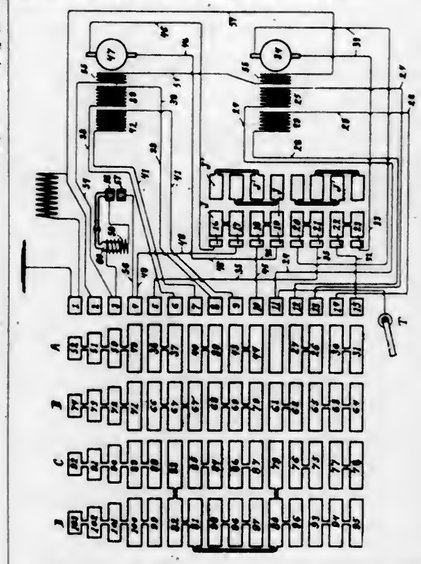
678,663. COLLAR-BUTTON AND NECKTIE-FASTENER. FREDERICK M. HASENPUR, Jr., Philadelphia, Pa. Filed Nov. 27, 1899. Serial No. 738,291. (No model.)



Claim.—A member consisting of a shank, a head, and a cross-bar with an inturned tongue, a member consisting of a cap having a circumferential rim, an open back and a face with main and auxiliary openings, and a loose guard-plate occupying the interior of the cap at the open back and adapted to be subjected to the pressure of the tie and to transmit the same to said tongue in its locking position and remove the tie from direct contact with said cross-bar, said parts being combined, forming an improved collar-button and necktie-fastener.

678,664. ELECTRIC-MOTOR CONTROLLER. DAVID J. HAUSS, Cincinnati, Ohio, assignor of one-half to John J. Cushing, same place. Filed Mar. 5, 1901. Serial No. 49,682. (No model.)

Claim.—1. In a controller for electric motors, a series of stationary contacts; connections leading therefrom to the motor; the field-coils, and the source of electricity; a blow-out coil; a circuit-breaker separate from the controller; a series of sliding contacts adapted to cut the motor into and out of circuit; and means for cutting the blow-out coil into the circuit before breaking the motor-circuit at the sliding contacts.



2. In a controller for electric motors, a series of stationary contacts; connections leading therefrom to the motor, the field-coils, and the source of electricity; a blow-out coil; a circuit-breaker separate from the controller; a series of sliding contacts adapted to cut the motor into and out of circuit; and means for cutting the blow-out coil and circuit-breaker into circuit before breaking the motor-circuit at the sliding contacts.

3. In a controller for electric motors, a series of stationary contacts, connections leading therefrom to the motor, the field-coils, and the source of electricity; a blow-out coil; a circuit-breaker separate from the controller; and a series of sliding contacts of different lengths adapted to connect and disconnect the motor, and in so doing to first cut out the current in its direct path and thereby force it through the blow-out coil and circuit-breaker to break the circuit before contact is broken at the sliding contacts.

4. In a controller for electric motors, a series of stationary contacts; electrical connections leading therefrom to the motors, the field-coils, and the source of electricity; a magnetic blow-out coil; a supplemental field-coil; an automatic circuit-breaker; and a series of sliding contacts of different lengths adapted to make and break the connections to the motor, and in breaking the connections to first cut out the current through the direct path and force it through the blow-out coil, the supplemental field-coil, and the circuit-breaker, substantially as specified.

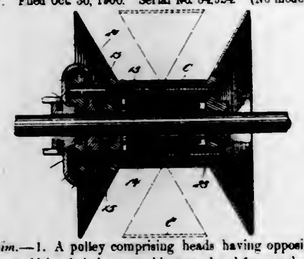
5. In a controller for electric motors, a series of stationary contacts; electrical connections therefrom to the motor, the field-coils, and the source of electricity; a magnetic blow-out coil; a supplemental field coil; a circuit-breaker; and a series of sliding contacts of different lengths adapted to make contact between the stationary contacts and to successively cut into the circuit the blow-out coil, the supplemental field-coil, and the circuit-breaker.

6. In combination with a series of electric motors, a series of stationary contacts; electrical connections leading therefrom to the motors, the field-coils, the reversing-switch, and the source of electricity; a magnetic blow-out coil; a series of supplemental field-coils; a circuit-breaker; and a series of sliding contacts of different lengths adapted to connect the motors up in series and parallel, and when breaking the circuit to successively cut into the circuit the blow-out coil, the supplemental field-coils, and the circuit-breaker, substantially as specified.

7. In combination with a series of electric motors, a series of stationary contacts; electrical connections leading therefrom to the motors, the field-coils, and the source of electricity; a magnetic blow-out coil; a series of supplemental field-coils; a circuit-breaker; and a series of sliding contacts adapted to connect the motors up in series and parallel, and when breaking the circuit to successively cut into the circuit the blow-out coil, the supplemental field-coils, and the circuit-breaker, substantially as specified.

8. In a controller for electric motors, a series of stationary contacts; a series of electrical connections leading therefrom to the motor; the field-coils, and the source of electricity; a series of sliding contacts adapted to successively connect up the stationary contacts to put the motor and field-coils in series and parallel; an arm traveling with said sliding contacts; a series of pawls; a cam; a dash-pot plunger adapted to act against said cam, and to force the pawls out of the path of the traveling arm to insure a step-by-step movement of the sliding contacts in one direction; substantially as specified.

678,665. **EXPANSIBLE PULLEY.** JOHN W. HILLAND, New York, N. Y. Filed Oct. 30, 1900. Serial No. 34,924. (No model.)



Claim.—1. A pulley comprising heads having oppositely-inclined inner faces, said heads being movable toward and from each other, means substantially as described for causing such movements, and a collapsible driving-face for the pulley engaging with the inclined inner faces of the heads and movable to enlarged diameter by the movement of the heads toward each other.

2. A pulley, comprising heads, movable toward and from each other, said heads having oppositely-inclined opposing faces, a right and left hand screw connection between the heads, friction-wheels carried by the screw having oppositely-inclined contact-surfaces of different diameter, a sliding member having contact-faces adapted for engagement with either one or the other of the contact-surfaces of the friction-wheels, and a collapsible driving-face for the pulley movable to enlarged diameter by the movement of the heads toward each other and movable to a smaller diameter by belt-pressure.

3. An expansible pulley, consisting of truncated heads capable of movement to and from each other, right and left hand threaded adjusting-screws passed through the said heads, means for turning the said screws to the right or to the left, which means constitutes a portion of the pulley, and a collapsible driving-face for the pulley, located between its heads and disconnected from said heads, as described.

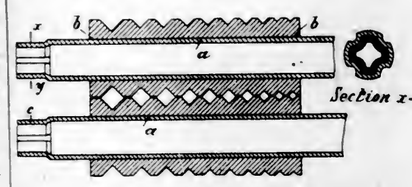
4. An expansible pulley, consisting of truncated heads adapted to be mounted on a shaft and to have sliding movement on the shaft, screws having right and left hand threads passed through the said heads, friction-pulleys secured on the said screws and provided with two independent exterior beveled faces, a disk adapted to slide upon the support for the pulley and to be loosely mounted on said support, which disk is provided with two contact-faces adapted for engagement with the respective beveled faces of the friction-wheels, and a collapsible driving-face for the pulley, located between the heads of the pulley and disconnected from said heads, for the purpose set forth.

5. In an expansible pulley, the combination, with a shaft, truncated heads mounted to slide and to turn therewith, the inner faces of the heads being inclined, a yoke secured to the said shaft, screws loosely passed through the yoke, which screws have right and left hand threads entering correspondingly-threaded recesses in the heads of the pulley, and friction-wheels secured upon the outer ends of the said screws, which friction-wheels have exterior beveled body-faces and reversely-beveled flange-faces, of a shifting device consisting of a disk loosely mounted on the shaft, having an inclined hub-section for engagement with the beveled body portions of said friction-wheels and a flange-section for engagement with the beveled flange-surfaces of said friction-wheels, and an expansible driving-face for the pulley, consisting of a bar-frame comprising a series of members at angles to each other and leaves pivoted at the end portions of said members, said driving-face of the pulley being located between the heads of the pulley yet disconnected from said heads, as specified.

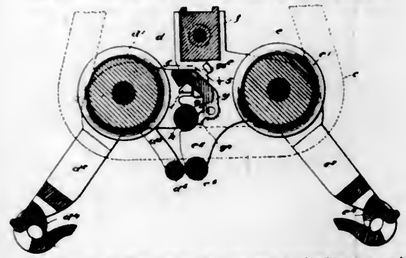
678,666. **ROLL FOR ROLLING-MILLS.** CASPAR HÜBER, Bruckhausen, Germany. Filed Apr. 2, 1900. Serial No. 11,201. (No model.)

Claim.—As a new article of manufacture, a roller for rolling-mills provided with a hollow steel core having a thin wall and upon which the body of the roller is welded, the ends of the core projecting beyond the body to form journals and having their extremities formed into irregular shape by pressure, as set forth.

678,666.



678,667. **CONVEYER MECHANISM.** SAMUEL M. JENKS, Madison, S. D. Filed Jan. 29, 1901. Serial No. 45,190. (No model.)



Claim.—1. In sling-pulleys for conveyer mechanism, the combination of two sections adapted to be engaged with the load, a latch mounted on one section and adapted to engage a part of the other section to hold the two together, and a member carried on the second section and engaging the latch to hold it in locked position.

2. In sling-pulleys for conveyer mechanism, the combination of two sections adapted to have connection with the load, one section being provided with a stud, a latch mounted on the other section and adapted to lock with the stud, and a roller carried by the first-named section and arranged to engage the latch to hold it in locked position and also acting to engage the haul-rope.

3. In sling-pulleys for conveyer mechanism, the combination of two sections provided with means for engaging the load, one section having a stud thereon, a latch pivotally mounted on the other section and provided with a toe, the latch serving to engage the stud, and a member carried by the first section and arranged to engage the toe of the latch to throw the latch into locked position.

4. In sling-pulleys for conveyer mechanism, the combination of two sections each provided with means for engaging the load, one of the sections having a double beveled stud thereon, a latch mounted on the other section and having a double beveled end arranged to lock with the stud in the manner specified, and a member carried on the first-named section and adapted to engage the latch to throw it into locked position.

5. In sling-pulleys for conveyer mechanism, the combination of two sections adapted to engage the load, locking devices for holding the sections engaged, sheaves mounted on the sections and serving to carry a rope for supporting the sling-pulleys, and guide-rollers carried on the lower parts of the sections and engaging the rope at points between the sheaves to hold the sections in the proper position for engagement and disengagement.

6. A carrier adapted to be used with the sling-pulleys of conveyer mechanism, said carrier having at each side a sheave serving to carry the parts of a looped haul-rope, and said sheaves lying with their axes transverse to the line of movement of the carrier.

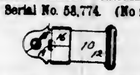
7. A carrier for conveyer mechanism, having at each side a sheave serving to carry the parts of a looped haul-rope, and guide-sheaves respectively arranged adjacent to the first-named sheaves and disposed edgewise thereto.

8. A haul-rope for conveyer mechanism, have its carrier-engaging end turned back on the standing part and fastened permanently thereto to form a loop or eye, all parts of which move with and as an active part of the haul-rope, for the purpose specified.

9. In a conveyer, the combination of a track, a carrier running thereon, a sling-pulley, and a haul-rope having one end turned back on the standing part and permanently fastened thereto to form a loop moving bodily with the haul-rope as an active part thereof, said loop having its two parts arranged to run on the carrier, and the bight of the loop being engaged with the sling-pulley.

10. In a conveyer, the combination of a track, a carrier running thereon, sling-pulleys, and a haul-rope having one end turned back on the standing part and permanently fastened thereto to form a loop moving bodily with the haul-rope as an active part thereof, the parallel parts of said loop being arranged to run on the carrier and the bight of said loop being engaged with the sling-pulley.

678,668. **GARMENT-CLASP.** SAMUEL KATZ, Des Moines, Iowa. Filed May 4, 1901. Serial No. 58,774. (No model.)



Claim.—1. The garment-clasp, comprising a clasp-body made of spring metal doubled upon itself to form an eye and having its arms of approximately equal length and width and extended from the eye in contiguity with each other, one of the spring-arms of the clasp-body being formed with an aperture near its extremity, a stud on the opposite spring-arm arranged for traversing said aperture, which stud is of conical form with a rounded apex, ears on and projecting laterally from the forward portions of the spring-arms, a clamp slidingly mounted on the spring-arms between the ears and the eye and arranged to compress said arms in a forward movement of the clamp, and a tongue formed on one of the spring-arms and extended toward the other arm, an aperture being provided in said other arm to receive the tongue when the arms are brought together.

2. The garment-clasp, comprising a clasp-body made of spring metal doubled upon itself to form an eye and having its arms of approximately equal length and width and extended from the eye in contiguity with each other, one of the spring-arms of the clasp-body being formed with an aperture near its extremity, a stud on the opposite spring-arm arranged for traversing said aperture, which stud is of conical form with a rounded apex, ears on and projecting laterally from the forward portions of the spring-arms, a clamp slidingly mounted on the spring-arms between the ears and the eye and arranged to compress said arms in a forward movement of the clamp, and a tongue formed on one of the spring-arms and extended toward the other arm, an aperture being provided in said other arm to receive the tongue when the arms are brought together, together with a loop made of wire and having parallel sides and rounded end portions, one of the parallel sides of the loop being confined pivotally in the eye of the clasp-body.

678,669. **ADVERTISING DEVICE.** CHARLES H. KEYSER, Chicago, Ill. Filed Jan. 5, 1901. Serial No. 42,219. (No model.)



Claim.—1. An advertising device comprising a hemispherical base provided on one side with a projecting integral arm and a display device secured on said base.

2. In a device of the class described, a hemispherical hollow base provided on opposite sides with oppositely-extending arms, a sign supported on said base and arms in upright position normally.

3. An oscillating advertising novelty comprising a sign in combination with a rounded base provided with an arm acting to limit the movement thereof, said base being constructed hollow and provided with apertures to permit the escape of water or dirt therefrom.

4. An advertising novelty comprising a sign movably supported upon a rounded base, arms on opposite sides of said base adapted to limit the movement thereof, said base being hollow and provided on its upper side with a channel continuous with channels in said arms adapted to receive the bottom of said sign and having apertures in the bottom adapted to permit the escape of moisture or refuse therethrough.

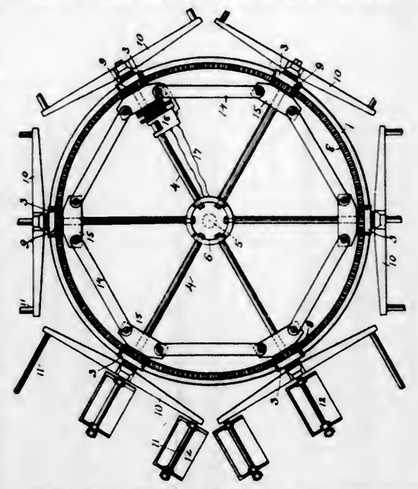
5. In a device of the class described, a base for signs comprising a hollow half-ball provided with arms on opposite sides thereof and channels to receive a sign-board or the like said arms being located above the lowermost point of said half-ball and normally supported out of contact with the support.

6. An advertising desk novelty comprising a hollow half-ball, channeled arms on opposite sides thereof, a card or the like therein, and a pincushion on one side of said card and a pen-wiper on the other side thereof, substantially as described.

7. In a device of the class described the combination with a half-ball provided on opposite sides with integral arms extending downwardly and laterally therefrom, of an advertising device comprising a device secured on said half-ball and adapted to be moved therewith.

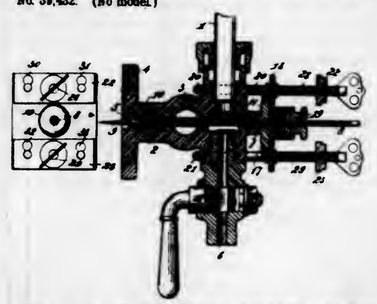
8. In a device of the class described, a half-ball adapted to be supported on its convex surface, opposite channeled arms thereon adapted to receive a plurality of cards or boards.

678,670. **RAILROAD FERRIS WHEEL.** PETER M. KLING, Elizabeth, N. J. Filed Mar 8, 1901. Serial No. 50,351. (No model.)



Claim.—The combination of the circular track, wheels traveling thereon, a bearing arranged centrally of the track, shafts supported by said wheels and bearing, a fixed gear-ring concentric with the track, a gear on each shaft engaging with said gear-ring, a circumferential connecting-frame connecting the shafts so that they revolve together around the center of the track, and a motive device supported on said frame and connected directly to one of the said shafts to rotate the attached wheel and cause the structure to revolve around the center aforesaid.

678,671. **CLEANING DEVICE FOR WATER-GAGES.** ANTON KRAPACEK, Kreutzberg, Austria-Hungary. Filed Dec. 10, 1900. Serial No. 39,432. (No model.)



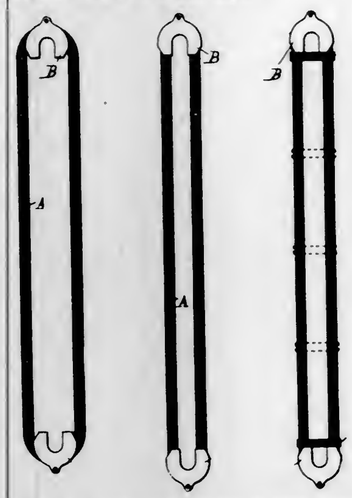
Claim.—1. In a device for cleaning water-gages, a tightening-ring, means for clamping the ring to a nozzle, and a wire passing through the tightening-ring, said wire having a pointed end, and a shoulder or enlargement back of the point, said shoulder being of a size to fit the bore in the nozzle, and larger than the bore in the tightening-ring, substantially as described.

2. A device for cleaning gage-nozzles, comprising an india-rubber tightening-ring secured to a plate by a metal ring, yokes passing through the plate and engaging a portion of the gage-cock, means for clamping the tightening-ring to the nozzle, and a pointed wire, having a shoulder back of the point, said shoulder being of a size to fit the bore of the nozzle and larger than the bore in the tightening-ring, substantially as described.

678,672. **MANUFACTURE OF WIRE LINKS FOR TENSION MEMBERS OF BRIDGES, &c.** GUSTAV LINDENTHAL, New York, N. Y. Original application filed June 23, 1897, Serial No. 642,673. Divided and this application filed Apr. 12, 1901. Serial No. 55,566. (No model.)

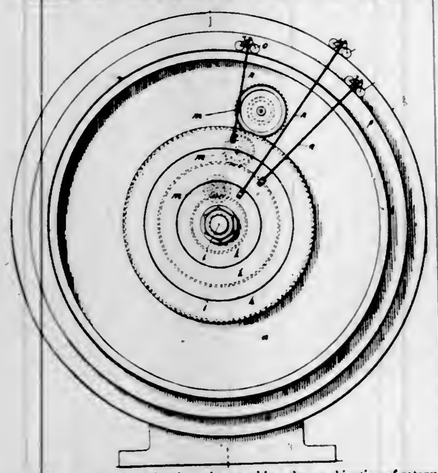
Claim.—1. A process of manufacture of wire links for tension members of bridges and similar structures consisting of the following steps: first, winding a circular coil of wire, binding the wires of the coil together

with temporary lashings and securing to the coil of shoes or bearing-saddles on two diametrically opposite points; second, shaping the link by flattening the coil between the points where the shoes or bearing-saddles are secured to it, and by compressing the strands of the coil upon the bearing-surfaces of the shoes or bearing-saddles; third, stretching the link under tension before finishing it to its exact length.



2. A process of manufacture of wire links for tension members of bridges and similar structures consisting of the following steps: first, winding the wire into a circular coil while stretching it only to such tension as may be necessary to keep the successive turns of the wire in position; second, binding the strands of the coil together with temporary lashes and securing to the coil of shoes or bearing-saddles on two diametrically opposite points; third, shaping the coil by driving apart the points where the shoes or bearing-saddles are secured thereto; fourth, compressing the strands of the coil upon the bearing-surfaces of the shoes or bearing-saddles; and, fifth, stretching the link under tension before finishing the link to its exact length.

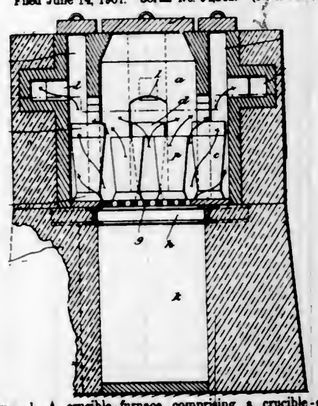
678,673. BICYCLE-RACING MACHINE. JOSEPH MATTHEWS, New Bedford, Mass. Filed Aug. 22, 1900. Serial No. 27,719. (No model.)



Claim.—1. In a bicycle-racing machine, the combination of rotary shafts respectively for transmitting the movement of a plurality of bicycles, a number of annuli mounted one within the other and independently turnable on and in each other, the annuli having gears formed thereon, pinions attached to the shafts and respectively meshed with the gears on the annuli, and indicating devices respectively in connection with the annuli.

2. In a bicycle-racing machine, the combination with means for indicating the speed of the bicycle, of a shaft for transmitting movement to said means, a friction-wheel attached to the shaft, and a sustaining device for holding the traction-wheel of the bicycle raised from the ground and in contact with the friction-wheel, the sustaining device having an adjuster for regulating the pressure of the traction-wheel against the friction-wheel, the adjuster comprising a screw, and a bracket adjustably held thereby so that upon the adjustment of the bracket the pressure of the one wheel against the other may be regulated.

678,674. CRUCIBLE-FURNACE. OTTO MICHAEL, Freiburg, Germany. Filed June 14, 1901. Serial No. 64,502. (No model.)

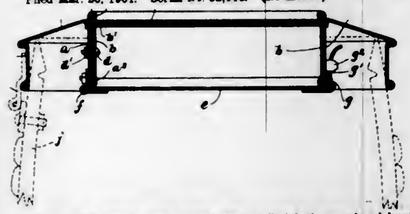


Claim.—1. A crucible-furnace comprising a crucible-chamber, niches in the walls of the chamber for the reception of crucibles to be preheated, channels leading from the outer walls of the niches, and means for heating the furnace.

2. A crucible-furnace comprising a crucible-chamber, niches in the walls of the chamber for the reception of crucibles to be preheated, channels leading from the outer walls of the niches, a main flue surrounding the chamber and common to all the channels, and means for heating the furnace.

3. A crucible-furnace comprising a crucible-chamber, means for heating the furnace having a grate, niches in the walls of the chamber for the reception of crucibles to be preheated, having floors on the same level as the grate and channels leading from the outer walls of the niches.

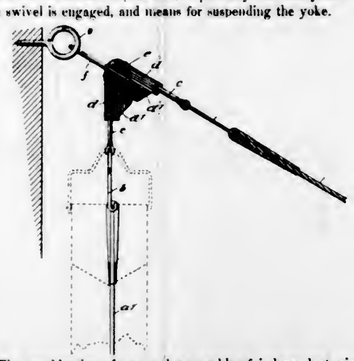
678,675. BARREL-COVER. JOSEPH F. MORIN, Lawrence, Mass. Filed Mar. 26, 1901. Serial No. 52,918. (No model.)



Claim.—A barrel-cover comprising a cylindrical outer band having an inwardly-projecting lip at its upper edge, a cylindrical inner band detachably secured to the outer band within the latter and having an inwardly-projecting lip at its upper edge, a circular pane of glass confined at its margin between the lips of the inner and outer bands, a circular bottom piece hinged to the lower edge of the outer band, fastening members secured respectively to the said bottom piece and the outer band, and a supporting-flange extending outwardly from the upper portion of the outer band to rest on the upper end of a barrel and extending downwardly to inclose said upper end.

678,676. RAZOR-STROP. WILLIAM G. MOSIER, Greenville, Miss. Filed Jan. 18, 1901. Serial No. 43,739. (No model.)

Claim.—1. The combination with a razor-strop of a bail engaged therewith, a swivel attached to the bail, a pivotally-mounted yoke with which the swivel is engaged, and means for suspending the yoke.



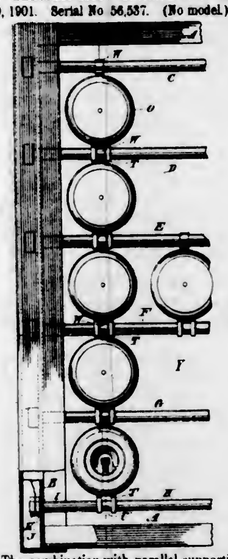
2. The combination of two yokes capable of independent pivotal movement toward and from each other, and devices attached to the yokes for respectively engaging the razor-strops.

3. The combination of two yokes capable of pivotal movement independently toward and from each other, means for supporting each yoke to turn bodily around a longitudinal axis, and devices engaged with the yokes and comprising each a swivel, said devices being adapted for engagement with a razor-strop.

4. The combination of devices each adapted to engage a razor-strop, and comprising a swivel, a yoke with which each swivel is connected, a box having trunnions on which the yokes are pivotally mounted, and a rod fitted loosely in the box.

5. The combination of two yokes fitted one within the other and capable of pivotal movement toward and from each other, the yokes being cut away at their free ends to permit the movement of the yokes closely together, and devices engaged with each yoke respectively for connecting razor-strops therewith.

678,677. ELECTRIC SIGN. THOMAS E. MURRAY, New York, N. Y. Filed Apr. 19, 1901. Serial No. 56,537. (No model.)



Claim.—1. The combination with parallel supporting-conductors of a lamp-holder having as one terminal a hook whereby it may be suspended from a given conductor, and as the other terminal a contact-piece adapted to bear against the adjacent conductor.

2. The combination with parallel supporting-conductors of a lamp-holder having as one terminal a spring-clip in hook form and as the other terminal a bifurcated spring-clip, the said clips being adapted to connect said lamp-holder to said parallel conductors.

3. The combination with parallel supporting-conductors of a plurality of lamp-holders having terminal clips adapted to engage with adjacent conductors; one of said clips being in hook form and the other bifurcated and having a recess adapted to receive the hook-clip of an adjacent holder.

4. The combination with parallel supporting-conductors of a lamp-holder adapted to enter between said conductors and having, on one side, a hooked terminal clip provided with a spring-arm arranged to be compressed by the introduction of said holder between said conductors, and on the other side a bifurcated terminal clip, the hook-clip being constructed to engage one of said conductors from the rear side outwardly, and the said bifurcated clip to receive the adjacent conductor.

5. The combination in an electric sign having parallel conductors and lamp-holders movably secured thereto, of a loose plate having openings forming a letter or other character, and means for connecting said plate to the said holders through said openings.

6. The combination in an electric sign having parallel conductors and lamp-holders movably secured thereto of a loose plate having a reflecting exterior surface, and openings forming a letter or other character, and means for connecting said plate to the said holders through said openings.

7. The combination in an electric sign having parallel conductors and lamp-sockets movably secured thereto of a loose plate having openings forming a letter or other character and means for connecting said plate to said sockets by the insertion of the lamps in place therein.

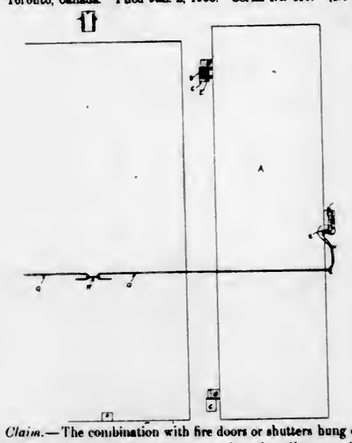
8. The combination in an electric sign with parallel conductors and glow-lamp holders detachably secured thereto of a loose plate having a plurality of openings and a plurality of glow-lamps fitting said holders and having bulbs of greater diameter than said openings—whereby when said plate is placed upon said holders it may be secured thereto and the holders so retained in definite position by the insertion of said lamps into said holders through the said openings.

9. In a lamp-holder for electric signs, the combination of the cylindrical socket O adapted to receive a lamp, insulating-block P thereon, contact-plate Q resting against said block and adapted to make contact with one of said lamp-terminals, bent contact-plate S, pin R and clip T carried by said pin, threaded sleeve M, contact-plate X, pin U connected thereto and clip W carried by said pin U.

10. In a support for an electric sign the combination of the metal frame having the U-bars B, parallel conductors C, D, &c., extending between said bars, and insulated therefrom, nuts J, K on the ends of said conductors, and circuit connections, substantially as set forth.

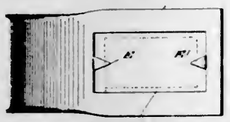
11. In a support for an electric sign the combination of the frame having the U-bars B, parallel conductors extending between said bars, circuit connections at the ends of said conductors and within the channels of said U-bars and a cover B' constructed to inclose said bars and connections.

678,678. AUTOMATIC FIRE-SHUTTER. ROBERT L. MCINTYRE, Toronto, Canada. Filed Jan. 2, 1900. Serial No. 409. (No model.)



Claim.—The combination with fire doors or shutters hung on spring closing-hinges, of eccentric catches arranged on the adjacent wall, springs tending to disengage said catches from the shutters, the catches being normally held in their locking position by wires connected together by a link which fuses at a dangerous temperature, whereby said catches release the shutters and they are closed by the action of the spring-hinges, substantially as described.

678,679. TREE-PROP BRACKET. ROBERT S. MCINTYRE, Riverside, Cal. Filed Feb. 18, 1901. Serial No. 47,768. (No model.)



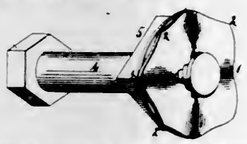
Claim.—1. A tree-prop bracket, comprising a hook having a flat bearing-surface and a shank, the latter having an aperture for the passage of a supporting-post, and two oppositely-arranged points on said shank and extending into the aperture, the said points being adapted to engage the post at opposite sides to form trunnions for the bracket, whereby the latter can swing relatively to the post, for the purpose set forth.

2. A bracket of flat metal, comprising a hook having a flat bearing-surface and a shank, having an aperture for the passage of a supporting-post, and two oppositely-located points on the shank and projecting into the aperture at each end thereof, the points being located at or near the longitudinal center of the shank, the upper point being bent upward and the lower downward at an angle to the shank, and the points being adapted to engage the post at opposite sides and form trunnions for the bracket, as set forth.

3. The combination with a supporting-post, of a bracket having a shank through which extends the post, single points integral with the shank one at each end of the aperture and extending inwardly toward each other, and a hook integrally formed on the end of the shank and having a wide bearing-surface adapted to support the branch of a tree, the said points engaging the post at opposite sides, whereby the bracket can swing relatively to the post to accommodate itself to the position of the branch, as set forth.

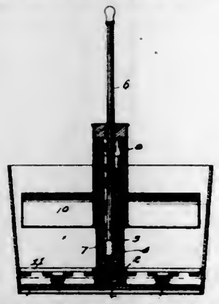
4. A tree-prop bracket, comprising a shank having an aperture for the passage of a supporting-post, single points integral with the shank one at each end of the aperture and extending inwardly, the said points being adapted to engage the post at opposite sides to form trunnions for the bracket, and a hook at the end of the shank and approximately of the same width as the shank, the said hook having a wide flat bearing-surface for the branch, as set forth.

678,680. NUT-LOCK. CHESTER HASH, Oregon, Ill. Filed Mar. 9, 1901. Serial No. 50,499. (No model.)



Claim.—A nut-lock comprising a disk of spring material having a central screw-threaded opening, and a series of radial corrugations.

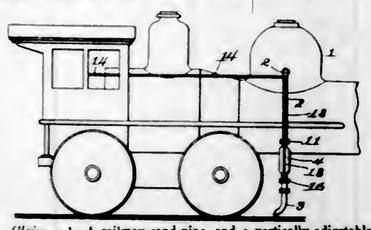
678,681. WASHING-MACHINE. SAMUEL A. NEWCOMER, St. Louis, Mo. Filed Feb. 18, 1901. Serial No. 47,771. (No model.)



Claim.—1. In a washing-machine, the combination of a supporting-plate, a vertical perforated cylinder carried thereby, a plunger operating in said cylinder, a handle connected to said plunger, a sleeve inclosing the cylinder and connected to the handle, and a series of inverted-V-shaped arms connected to said sleeve and operated thereby, substantially as specified.

2. In a washing-machine, the combination of a supporting-plate, a vertical perforated cylinder carried thereby, a plunger within the cylinder and adapted to be reciprocated therein, a handle connected to the plunger, a spring located within the cylinder below the plunger, a sleeve mounted around the cylinder and connected to the handle, a number of inverted-V-shaped arms connected to said sleeve and a spring-held grate-frame below the arms for supporting the articles to be washed, substantially as specified.

678,682. ADJUSTABLE SAND-PIPE. DIONYSIOUS E. OLIVER, Bovina, Miss., assignor of one-half to James I. Fox, same place. Filed Dec. 18, 1900. Serial No. 40,301. (No model.)



Claim.—1. A railway sand-pipe, and a vertically-adjustable chute free to be turned on the pipe to follow the rails, substantially as set forth.

2. The combination, with a sand-pipe, and a turnable sand-chute, of a coupling loosely connecting the pipes and the chute, and having the latter and the pipe telescope in the coupling.

3. The combination, with a sand-pipe, and a coupling, of the sand-chute loosely connected to the pipe by the coupling and having a curved discharge end depending from and turnable in the coupling, and the nuts within and at each end of the coupling.

4. The combination, with the sand-pipe, the chute, and the coupling loosely connecting the chute to the pipe, of the vertical lever fulcrumed to the pipe and connected to the chute, and the hand-lever attached to the vertical lever for operating it and turing the chute.

5. The combination of the sand-pipes having turnable chutes or ends connected together, and the levers for simultaneously turning the said chutes.

6. The combination, with a sand pipe and chute telescoping each other, of a coupling inclosing the telescoping portions and leaving the discharge end of the chutes depending from the coupling and free to be turned therein, and means for turning the chutes.

7. The combination, with the sand-pipe having a screw-threaded portion, a chute having a like portion surrounding the said pipe portion and a curved discharge end, of the coupling inclosing both of said portions and having a screw-head meshing with the pipe-screw, a lock-nut on the pipe within the coupling, a nut on the chute-screw and bearing on the inner lower end of the coupling to loosely hold the chute in a hole at said lower end, and means for turning the chute.

8. The combination, with the screw-threaded sand-pipe having a lock-nut, and the pipe-coupling vertically adjustable thereon, of the screw-threaded chute having a nut within the coupling and vertically adjustable therein, the chute being turnable in the coupling and having a curved discharge end, and means for turning the chute.

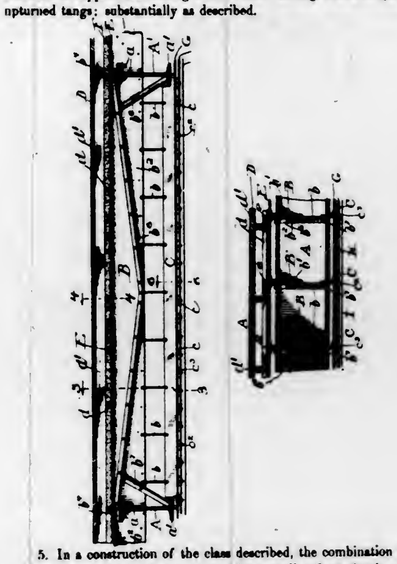
678,683. FLOOR AND CEILING CONSTRUCTION. TIMOTHY O'SHEA, Chicago, Ill. Filed Apr. 27, 1901. Serial No. 57,679. (No model.)

Claim.—1. In a construction of the class described, the combination with a series of I-beams, of a series of transversely-extending webs supported upon the I-beams and notched at their ends to receive the flanges thereof and a truss-frame comprising the V-shaped member, b^4, the ends of which rest upon the I-beams and the legs, b^5, b^6, resting upon the lower flanges of the I-beams; substantially as described.

2. In a construction of the class described, the combination with a series of I-beams, of a series of transversely-extending flanged webs supported thereon and notched at their ends to receive the upper flanges of the I-beams, the truss-frame, b^4, b^5, b^6, resting upon the flanges of the I-beams and adapted to stiffen the webs in a vertical plane and metal sheets, E, secured upon the tops of the webs for stiffening them laterally; substantially as described.

3. In a construction of the class described, the combination with a series of longitudinal stringers, of a series of transverse webs having downwardly-extending tangs, c^1, a metal ceiling supported on said webs and metal lathing secured and supported upon said tangs; substantially as described.

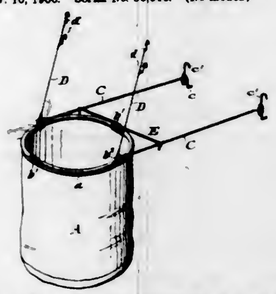
4. In a construction of the class described, the combination with a series of longitudinal stringers, of a series of transversely-extending webs having perforated depending tongues, and upturned tangs, a metal ceiling having perforations to receive said tongues, pins secured in said perforations to support said ceiling and a metal lathing secured upon said upturned tangs; substantially as described.



5. In a construction of the class described, the combination with a series of I-beams, of a series of transversely-extending flanged webs notched at their ends to receive the upper flanges of the I-beams and ceiling-supporting webs resting against the lower flanges of the I-beams and wires, *b*, connecting said webs to clamp them tightly upon the I-beam; substantially as described.

6. In a construction of the class described, the combination with a series of I-beams, of floor-supporting webs having the tongues, b^4, resting upon said I-beams, a truss-frame comprising a member extending from said tongues down to the middle lower edge of the web and the legs, b^5, b^6, resting upon the lower flanges of the I-beams and a ceiling-supporting web resting against the lower edges of the I-beams and suitably connected to the floor-supporting webs; substantially as described.

678,684. FEED-BAG. CHARLES E. POWELL, Philadelphia, Pa. Filed Nov. 10, 1900. Serial No. 36,016. (No model.)



Claim.—1. In a feed-bag, the combination with a cylindrical bag of flexible material; of an annular frame comprising hingedly-connected semicircular members secured to the mouth of the bag, and arranged to distend the latter; strut-rods respectively pivoted to said frame members and provided at their free extremities with means to engage the hames; flexible connectors respectively secured to said frame members, and provided at their free extremities with means adapted to engage the head-harness; and a brace-bar permanently secured to said frame, by pivotal connection with the hinge thereof, and provided at its extremities with means to detachably engage said strut-rods, substantially as set forth.

2. In a feed-bag, the combination with a bag of flexible material; of a frame secured at the mouth of said bag, comprising opposite counterpart members hingedly connected intermediate of the width of the bag; strut-rods respectively pivoted to the opposite members of said frame, and provided with means at their free extremities adapted to engage the harness; flexible connectors, respectively secured to the opposite members of said frame, and provided at their free extremities with means adapted to engage the harness; and a brace-bar permanently secured to said frame, by pivotal connection with the hinge thereof, and provided at its extremities with means to detachably engage said strut-rods, substantially as set forth.

3. In a feed-bag, the combination with a bag of flexible material; of a frame secured at the mouth of said bag, comprising opposite members hingedly connected intermediate of the width of the bag; strut-rods respectively pivoted to the opposite members of said frame and provided at their free extremities with means adapted to engage the harness; flexible connectors respectively secured to the opposite members of said frame, and provided at their free extremities with means adapted to engage the harness; and a brace-bar secured to said frame and arranged to detachably engage said strut-rods, substantially as set forth.

4. In a feed-bag, the combination with a bag of flexible material; of a frame secured at the mouth of said bag, comprising opposite members hingedly connected intermediate of the width of the bag, the axes of said hinges being parallel with the top of the bag; strut-rods independently pivoted to the opposite members of said frame and provided at their free extremities with means adapted to engage the harness; and flexible connectors independently secured to the opposite members of said frame and arranged to engage the harness, substantially as set forth.

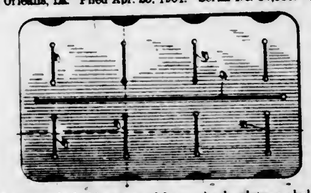
5. In a feed-bag, the combination with a bag of flexible material; of a frame secured at the mouth of said bag, comprising opposite members hingedly connected intermediate of the width of the bag; strut-rods respectively pivoted to the opposite members of said frame and provided at their free extremities with means adapted to engage the harness; flexible connectors respectively secured to the opposite members of said frame, and arranged to engage the harness; and means to adjustably vary the length of said connectors in engagement with the harness, substantially as set forth.

678,685. AUTOMATIC SWITCH-THROWER. JOHN R. RATHBONE, St. Louis, Mo. Filed Dec. 31, 1900. Serial No. 41,626. (No model.)



Claim.—The improved switch-thrower, consisting of a transverse rod 10 extending across the track and having its ends under the flanges of the fixed rails below the movable rails, there being a slot 12 in the flange of each of the fixed rails above the said rod, vertical pins 11 carried by the said rod and projecting through the slots and being connected to the movable rail, a pin 14 extending laterally from each end of the said rod 10, an operating-rod under the flange of each of the fixed rails and having vertical extensions provided with slots for the reception of the said pins 14, horizontal extensions rigid with the opposite ends of the said operating-rods, there being openings in the flanges of the rails above the said horizontal extensions, pins operating through said openings and having their lower ends resting upon the extensions and provided with beads or enlargements on their upper ends to prevent them from dropping through, the said pins being at a sufficient remove from the heads of the rails to permit the flanges of the car-wheels to pass along without coming into contact with the said pins, substantially as specified.

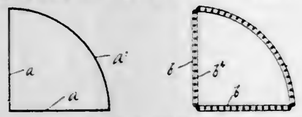
678,686. COIN HOLDER AND CARRIER. FRANK A. ROGERS, New Orleans, La. Filed Apr. 25, 1901. Serial No. 57,359. (No model.)



Claim.—A coin-holder comprising a back plate, a skeleton frame secured thereto and having division-strips, and a front plate secured to the opposite side of the skeleton frame from the back plate and forming therewith, and with the spaces between the division-strips of the skeleton frame,

a series of coin-receiving pockets, said front plate being provided with a longitudinal slot, observation-openings arranged in line with the pockets, and finger-recesses in its side edges, said front plate being secured to the main portion and division-strips of the skeleton frame at points between the observation-openings, leaving the spaces between the finger-recesses free for the insertion and removal of the coin, substantially as described.

678,687. DISPLAY-FIXTURE. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 24, 1901. Serial No. 44,551. (No model.)



Claim.—1. A knockdown display-fixture made up of a plurality of separable plates, and provided with means for detachably securing said plates in different adjustments, to form various configurations, substantially as described.

2. A display-fixture comprising at least one curved and two flat plates, and means for detachably securing the same together to form various configurations, substantially as described.

3. A display-fixture comprising a plurality of curved and flat plates and means for detachably securing the same together in different relative positions, to produce various configurations, substantially as described.

4. A display-fixture comprising one curved and two flat plates; and means for detachably securing said plates together, which curved plate is the arc of a circle whose radius is the width of said flat plates and which plates when put together form the quadrant of a cylinder, substantially as described.

5. A display-fixture comprising a plurality of plates having perforated margins, and means coöperating with said marginal perforations for detaching and uniting said plates, either at their margins or at their marginal and intermediate portions, whereby said plates may be detachably secured in different relative positions, substantially as described.

6. A display-fixture comprising a plurality of flat and curved plates, having perforated margins and spring-staples coöperating with said perforations to detachably unite the plates, substantially as described.

7. A knockdown wall display-fixture comprising a plurality of flat and curved plates formed of reticulate material, and means for detachably and adjustably uniting the edges of said plates whereby they may be secured in different adjustments, substantially as described.

8. A knockdown display-fixture, made up of a plurality of plates, at least one of which, is curved, and two of which, are flat, and means for detachably connecting certain of the plates to permit the same to be knocked down, substantially as described.

9. A knockdown display-fixture, comprising a plurality of flat and curved plates formed of reticulate material, and a device coöperating with the meshes of said plates to detachably unite the same at their edges, substantially as described.

678,688. DISPLAY-FIXTURE. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 24, 1901. Serial No. 44,552. (No model.)



Claim.—1. A knockdown wall display-fixture, comprising a plurality of curved plates connected by hinges at their adjacent edges, and adapted to be closely folded, substantially as described.

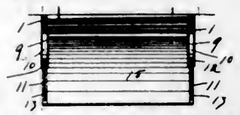
2. A knockdown wall display-fixture comprising a plurality of plates connected by hinges at their adjoining edges, and adapted to be secured in different relative positions, to produce various configurations.

3. A knockdown wall display-fixture having curved display plates or sections of approximately the same curves, adapted to closely fit when the fixture is knocked down, substantially as described.

4. A knockdown wall display-fixture, having curved display plates or sections adapted to closely fit when folded, which plates or sections are connected by hinges at their adjoining edges, substantially as described.

678,689. DISPLAY-FIXTURE. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 24, 1901. Serial No. 44,553. (No model.)

Claim.—1. A wall display-fixture having obliquely-spaced stops, certain of which are adjustable with respect to others, and a spring-plate adapted to be sprung between said stops and thereby held in curved form, substantially as described.



2. A wall display-fixture comprising a corner-block, vertically and horizontally adjustable slides or arms securable thereto, stops at the ends of said slides, and a plate detachably securable between the said stops, substantially as described.

3. A wall display-fixture comprising vertically and horizontally projecting stop-arms, certain of which are adjustable, and a spring-plate reacting against the outer portion of said stop-arms, the curve of which spring-plate may be varied by the adjustment of said movable stop arm or arms, substantially as described.

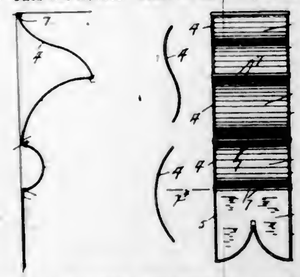
4. In a wall display-fixture, the combination with the corner-block 9, with seats 10, of the slides 11 provided at their outer ends with the stop-lugs 14 and adjustably mounted in said seats 10, and devices for locking said slides 11 to said block 9, substantially as described.

5. A wall display-fixture having telescopically extensible parts, substantially as described.

6. A wall display-fixture comprising a relatively-fixed upper and outer shell or section, and a telescopically-depending inner section, substantially as described.

7. A wall display-fixture comprising a relatively-fixed upper and outer shell or section provided with a plate cutting off the angle between the wall and the ceiling, and the depending wall-section telescoping into said fixed shell or section, and securable in different adjustments, substantially as described.

678,690. DISPLAY-FIXTURE. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 24, 1901. Serial No. 44,554. (No model.)



Claim.—1. A knockdown fixture comprising a plurality of flexible plates, and permanently-curved marginal strips, engageable with edges of said plates to hold the same curved, substantially as described.

2. A knockdown fixture comprising a plurality of flexible plates, and stiff marginal channel-strips of curved form, engageable with the edges of said plates to hold the same curved, and which curved plates are adapted to form various configurations substantially as described.

3. A knockdown display-fixture comprising a plurality of spring-plates connected by hinged joints, and stiff marginal channel-strips, certain of which are curved and are engageable with the edges of certain of said plates to hold the same curved, substantially as described.

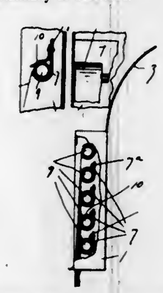
4. In a display-fixture, the combination with a plate and a show-card of approximately the same width, of channel-strips of spring material adapted to be sprung over the edges of said plates and board, to detachably hold the same together and to stiffen and determine the form of said parts, substantially as described.

5. A display-fixture comprising a flexible plate, a pair of marginal channel-strips engageable with the edges of said plate, and a binder having hooked ends detachably engageable over said channel-strips, substantially as described.

678,691. WALL DISPLAY-FIXTURE AND CURTAIN. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 24, 1901. Serial No. 44,555. (No model.)

Claim.—1. A wall display device comprising a plurality of interchangeably-supported curtains or sheets provided with overlapping ends which are variously cut and coöperate to produce different borders or designs, substantially as described.

2. The combination with a box or case securable to the wall and provided with a plurality of roll-holders, of a plurality of rolled curtains loosely mounted in said roll-holders and provided with lower end edges that coöperate to form different borders or designs, the said curtains being interchangeable, substantially as described.

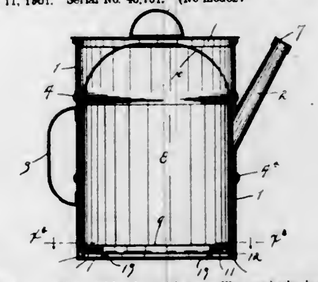


3. The combination with a box or case, securable to the wall and provided with a plurality of trough-like roll seats or holders having roll-engaging springs, of a plurality of rolled curtains interchangeably mounted in said trough-like holders, the lower edges of which curtains are so cut that they coöperate to form different borders or designs, substantially as described.

4. A display device, comprising a base-piece securable to the wall, a plate supported from said base-piece at its lower edge, with freedom for pivotal and vertical adjustments thereon, and a connection supporting the upper free edge of said plate from said base-piece, substantially as described.

5. The combination with a box-section 1 having the vertical series of perforations 5, of the plate 3 provided with fingers 4 for coöperation with said perforations 5, and the flexible connection 6 supporting the free upper edge of said plate from said box 1, substantially as described.

678,692. TEA OR COFFEE POT. HENRY G. ROTH, Minneapolis, Minn., assignor of one-half to Clark E. Wyman, same place. Filed Feb. 11, 1901. Serial No. 46,761. (No model.)



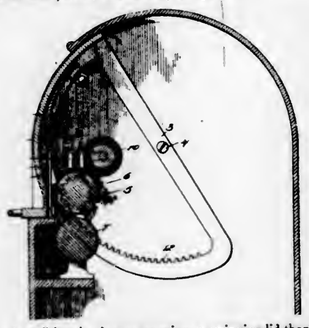
Claim.—1. The combination with a cup-like pot-body, having a lateral discharge opening or spout, of a cup-valve telescoping therewith, provided with a perforate bottom and serving as a valve to close said spout when in its operative position, and one or more gravity-actuated locks serving to hold said inner cup in an inoperative or elevated position, and themselves adapted to be thrown into inoperative positions when and only when the device is turned upside down, substantially as described.

2. The combination with the body 1 having the spout 2, and lock-channel 4, of the cup-valve 8, 9 telescoping into said body 1 and serving when in its operative or lowered position to close said spout, and the gravity-actuated lock-dogs pivoted to the bottom of said cup-valve, engageable with said lock-channel to hold said cup-valve in an inoperative position, which lock-dogs serve as supporting-feet when the said cup-valve is lowered, substantially as described.

3. The combination with the body or outer cup 1 having the spout 2 and lock channels or grooves 4 and 4^a, of the cup-valve 8, 9 with perforate bottom, and one or more gravity-actuated lock-dogs pivoted to the lower edge of said cup-valve, and coöperating with said lock-channel 4 and 4^a, substantially as described.

678,693. MAIL-BOX. WESLEY O. ROWE, Yonkers, N. Y., assignor of one-half to Margaret E. Rowe, same place. Filed Oct. 24, 1900. Serial No. 34,168. (No model.)

Claim.—1. A mail-box, having an opening, a swinging lid for the opening, arms on the ends of said lid through which the pivots pass, a canceling-roller in the box, a feed-roller in the box, a pinion on one of said rollers, and a curved rack extended from one of the arms and engaging with said pinion, substantially as specified.

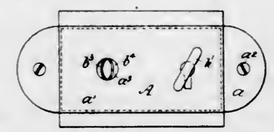


2. A mail-box having an opening, a swinging lid therefor, a canceling-roller arranged in the box, canceling devices on said roller, a feed-roller arranged below the canceling-roller, an inking-roller adapted for engagement with the canceling devices, pinions on the shaft of the canceling-roller, and racks moved by movements of the lid and engaging with said pinions, substantially as specified.

3. A mail-box having an opening, a segmental cover or lid for said opening, the said cover or lid having swinging connection with the box, segment-racks carried by the lid, a canceling-roller arranged within the box and having yielding bearings, canceling devices on said roller, pinions on the shaft of said roller for engaging with the racks, an inking-roller, and a feed-roller arranged below the canceling-roller, substantially as specified.

4. A mail-box having an opening, a swinging lid for the opening, a fixed shield-plate having a space below it through which mail-matter may be passed, a canceling-roller arranged within the box, the lower portion of said roller being substantially in line with said opening underneath the plate, canceling devices on said roller, a feed-roller, and means operated by a closing movement of the lid for operating said rollers, substantially as specified.

678,694. SAFE-KEEPING DEVICE FOR WEARING-APPAREL. WILHELM SCHALLER, Wiesbaden, Germany. Filed Oct. 1, 1900. Serial No. 31,623. (No model.)

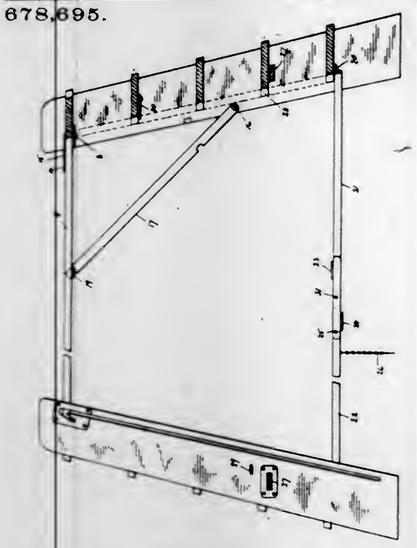


Claim.—A device for the purposes specified, comprising a housing, two clamping-cheeks, springs therefor, a key for operating said cheeks, a lever hinged to one of said cheeks and pivoted to said housing, a groove in said key, a plate on said lever adapted to enter said groove when the cheeks are closed and to withdraw from the groove when the cheeks are separated, in combination with a shouldered stud, substantially as and for for the purposes set forth.

678,695. LADDER. FREDRICK SCHOENHUT, Brooklyn, N. Y. Filed Dec. 26, 1900. Serial No. 41,028. (No model.)

Claim.—A device of the class described, comprising two separate ladders one of which is provided with a plate or board hinged to the top step thereof within the sides thereof and provided at its free end with lateral projections and the other part or ladder being provided with slots in the opposite sides thereof in which said projections move said slots being provided at their upper ends with downwardly and backwardly directed extensions, one of said parts or ladders being also provided with pivoted members at each side thereof which are adapted to be folded between the sides thereof and also to engage with said plate or board when said parts or ladders are extended and both of said parts or ladders being provided near the bottom with pivoted bars which are adapted to be folded upwardly between the sides thereof and to be lowered and adjustably connected in a horizontal position when the separate parts or ladders are extended, substantially as shown and described.

678,695.



678,696. LADY'S COLLAR. HENRY D. SCHUTTE, New York, N. Y. Filed Mar. 13, 1901. Serial No. 50,933. (No model.)



Claim.—1. A collar or collarette for the purpose described comprising a narrow band adapted to encircle the neck and formed with upwardly-projecting raised portions *c* at either side of the collar or collarette by means whereof a neck-ribbon surrounding the collar or collarette may be held in extended or elevated position at the side of the neck, fastening means connected with the said extensions or raised portions whereby to attach the neck-ribbon thereto and means upon the face of the said extensions or raised portions for engaging or retaining the fastening means, substantially as shown and described.

2. A collar or collarette provided with pockets which open upwardly, and removable attachments inserted thereinto and provided with downwardly and outwardly directed hook-shaped portions for holding a neck-ribbon in place, substantially as shown and described.

3. A collar or collarette provided at the sides with raised portions having pockets which open upwardly and ribbon-holding attachments adapted to be inserted into said pockets, substantially as shown and described.

4. A collar or collarette provided at the sides with raised portions having pockets which open upwardly and ribbon-holding attachments adapted to be inserted into said pockets, said attachments being composed of spring-wire having diverging arms and an outwardly and downwardly directed hook-shaped portion, substantially as shown and described.

5. A collar or collarette provided at the sides with raised portions having pockets which open upwardly and a detachable attachment composed of spring-wire bent centrally to form a downwardly and outwardly directed hook and diverging spring-arms adapted to be inserted into said pockets, said pockets being wider at the bottom than at the top, substantially as shown and described.

678,697. END SILL FOR CARS. ROBERT E. SCOTT, Fort Scott, Kans. Filed Mar. 9, 1901. Serial No. 50,466. (No model.)

Claim.—1. An end-sill housing, comprising a metal body ⊐-shaped in cross-section, having closed ends, integrally-formed post and brace receiving sockets, and having a series of transverse partitions, whereby to form pockets in its rear face, for the purposes specified.

2. A metal end-sill housing, having closed front top, bottom and end portions, a series of rearwardly integrally-formed partitions, a central horizontally-disposed strengthening-rib, and integral sockets to receive the brace and end posts, for the purposes described.

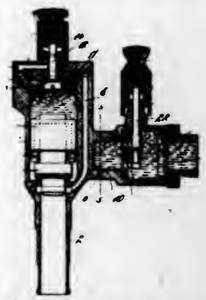
3. The combination with the sills A, of a housing 1, for the ends of the sills ⊐-shaped in cross-section and adapted to slide upon the outer end of the sills A, said housing being of a greater height than the said sills, and having a series of rearwardly-extending partitions, wedges detachably fitting between the upper end of the housing and the sills A, said wedges having shouldered offsets, and the decking-boards, and means for trussing and bolting the several parts together, all being arranged substantially as shown and for the purposes described.



4. An end sill, consisting of a ⊐-shaped body closed at the ends, said body having a series of rearwardly-extending division-plates, forwardly-projecting top and bottom flanges and post and brace receiving sockets, in the front face, for the purposes described.

5. The herein-described improvement in end sills for cars, comprising in combination with the sills A, having the sides and bottom of their front end reduced, and said end mortised in a longitudinal and horizontal direction, the housing 1, ⊐-shaped in cross-section, said housing having closed ends, rearwardly-extending partitions, extending flush with the rear edges of the end members, said housing being of a height greater than the sills A, said housing also having a horizontal strengthening-rib, forwardly-extending upper and lower flanges 1^4, post-receiving sockets on the front face, and the angle-strip, forming an integral part of the housing, the wedge-blocks C, and the decking-boards B, all being arranged substantially as shown and described.

678,698. AUTOMATIC BIB OR WATER-COCK. DANIEL H. STREEPER, Norristown, Pa. Filed Apr. 13, 1900. Serial No. 12,732. (No model.)



Claim.—1. A bib or cock, comprising a casing having a valve-seat in its lower portion, a valve adapted to engage on said seat, a valve-stem, a pressure-valve on said stem, a cap on the casing having a central opening, the said cap having a port leading from said central opening and communicating with a vent extended through the wall of the casing to a point below the valve-seat, a valve for controlling the opening through

the cap, a stem extended from said valve upward through the opening in the cap, a push-piece on said valve-stem, a sleeve in which a portion of said push-piece is movable, a spring engaging the inner end of the push-piece and against an annular flange in the sleeve, the packing below the flange and a bail having swinging connection with the sleeve and adapted to engage over the push-piece to hold the last-named valve in an open position, substantially as specified.

2. A bib or cock, comprising a casing, an outlet-controlling valve in said casing, a disk in the service-pipe communicating with the casing, the said disk having a port or ports, a gate-valve having ports adapted to register more or less with the ports through the disk, and means for adjusting said gate-valve, substantially as specified.

3. A bib or cock, comprising a casing, an outlet-controlling valve in said casing, a disk in the service-pipe which communicates with the interior of the casing, the said disk being provided with ports, a gate-valve adapted to slide on said disk and provided with ports to register with the ports through the disk, a stem extended upward from said gate-valve through a tubular lug on the service-pipe, a finger-piece on the outer end of said stem, and a sleeve surrounding the packing-cap lug and the stem for holding the gate-valve as adjusted, substantially as specified.

4. A bib or cock, comprising a casing, an outlet-controlling valve in said casing, a disk in the service-pipe which communicates with the interior of the casing, the said disk being provided with ports, a gate-valve adapted to slide on said disk and provided with ports to register with the ports through the disk, a stem extended upward from said gate-valve through a tubular lug on the service-pipe, a finger-piece on the outer end of said stem, a sleeve surrounding the packing-cap lug and the stem for holding the gate-valve as adjusted, and a screen in the service-pipe, substantially as specified.

5. A bib or cock, comprising a casing, a valve in said casing operated by water-pressure, a disk in the service-pipe and provided with ports, a gate-valve mounted to slide on the said disk and also provided with ports, a stem extended upward from the gate-valve through a tubular lug and packing-cap on the service-pipe, a sleeve engaging around said lug and having a screw-threaded engagement with the stem, and a finger-piece also having a screw-threaded engagement with the stem, substantially as specified.

6. A bib or cock, comprising a casing, a valve in the casing, a service-pipe connecting with the casing, a disk in said pipe and provided with ports, a gate-valve slidable on said disk and provided with ports, a stem extended upward from the gate-valve, a tubular lug through which the stem passes, the said lug consisting of two parts with a packing between them, and a sleeve surrounding the stem, and having screw-thread engagement with the stem, substantially as specified.

7. In a bib or cock, a casing, a valve in the casing, a service-pipe connecting with the casing, a controlling-valve in the pipe, a stem extended from the said valve, a tubular lug and packing-cap thereon through which the stem passes, and a sleeve surrounding the lug and having screw-thread engagement with the stem, the said sleeve having an opening adapted to register with a recess in the packing-cap and through which a tool may be inserted to adjust the cap, substantially as specified.

678,699. COMMUNION-SERVICE. JOHN G. THOMAS, Lima, Ohio. Filed Apr. 9, 1900. Serial No. 12,194. (No model.)



Claim.—1. In a communion-service, the combination of the tray having holding means for the cups, a base provided at one edge with a reëntrant curved seat to receive an edge of the tray, a tiltable filling device supported above the base and overhanging the said curved seat, and a retaining device for holding said tray in said seat and permitting the rotation thereof for filling purposes.

2. In a communion-service, the combination with a tray comprising a tray proper, and a supporting-plate carried thereby, said plate being provided with a series of openings for receiving a plurality of cups, of a device for filling said cups, said filling device comprising a pivoted trough-like receptacle, and a series of discharge-conduits carried thereby, and means for holding said filling device and the tray together.

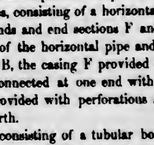
3. In a communion-service, the combination with cup-holding means, of a filler comprising a tiltable trough-like receptacle whose bottom is formed in its upper side with a plurality of open grooves constituting delivery-conduits for the liquid.

4. In a communion-service, the combination of cup-holding means, of a filler comprising a pivotal trough having its bottom formed with a plurality of delivery-conduits.

5. In a communion-service, the combination with cup-holding means, of a filler comprising a pivotal trough-like receptacle whose bottom is formed of a plurality of delivery-conduits, said conduits being grouped in sets of varying length.

6. In a communion-service, a filler for the cups thereof, comprising a trough-like receptacle, standards to which said receptacle is pivoted, delivery-conduits carried by said trough and each adapted to discharge into a separate cup, and means for limiting the movement of the receptacle.

678,700. SEALING-BUCKLE. AMBROSE F. THOMPSON, Hunter's Hill, New South Wales. Filed Dec. 4, 1900. Serial No. 38,686. (No model.)

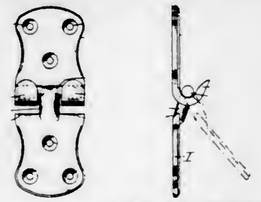


Claim.—1. A buckle, comprising a frame, a depressed portion forming a bed for wax, and a movable tongue lying in close proximity to the said bed when in the closed position and movable through the plane of the wax-bed in closing and opening, as and for the purpose specified.

2. In a sealed buckle the combination with a buckle consisting of a tongue and cross-bars, of a wax-bed consisting of a fixed and a hinged part substantially as described and as illustrated.

3. A buckle for use on mail-bags and for other purposes, comprising a buckle frame and tongue, and a bed for receiving a sealing substance, said bed including two parts, one movable relatively to the other, one of said parts having a catch member and the other a spring for engaging the catch member.

678,701. SEPARABLE HINGE. JOSEPH B. TUOR, St. Paul, Minn. Filed Apr. 9, 1900. Serial No. 12,113. (No model.)



Claim.—A separable hinge, consisting in combination with a window-frame and its sash, of a supporting-plate having a pair of arms curved upwardly from its lower end to form open bearing-seats, and a pintle-plate having a shank inclined outwardly from its upper end to render the plates in substantial alinement when in normal position, a cross-bar on the outer end of said shank, forming with the shank substantially a T the bar of which is adapted to rest in said seats, and beveled shoulders below said bar, adapted to coöperate with the bar to prevent normal displacement of the bar from the seats, also to allow the pintle and hanger plates to separate when one of said plates is inclined outwardly.

678,702. STEAM-SEPARATOR. JOHANNES C. VOGT, Philadelphia, Pa. Filed Jan. 15, 1901. Serial No. 43,393. (No model.)

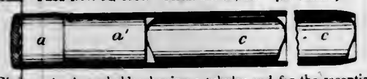
Claim.—1. A steam-separator adapted for application in a line of steam-conducting pipes, consisting of a horizontal cylindrical body-casing B, open at opposite ends and end sections F and H flanged for connection with the casings of the horizontal pipe and enlarged for connection with the body-casing B, the casing F provided with a drip-neck 23, and a separating-pipe C connected at one end with the casing F, closed at the other end and provided with perforations *x*, at the upper side, all substantially as set forth.

2. A separator consisting of a tubular body-section B open at the ends, and sections or casings F, H, each enlarged at one end for connection with the section B and contracted and flanged at the opposite end for connecting with a line of steam-pipe, a neck 23 on the section F, and a separator-pipe C perforated at the upper side and extending into the said neck of the section F, substantially as set forth.

678,702.



678,703. PENHOLDER. JAMES V. WASHBURNE, Waterbury, Conn. Filed Nov. 14, 1900. Serial No. 36,469. (No model.)



Claim.—1. A penholder having a tubular end for the reception of a pen and a longitudinally-extending and transversely-arranged gripping member therein bent in cross-section, substantially as specified.

2. A penholder having a tubular end for the reception of a pen, and a suitably-arranged inner member of a form which in cross-section approximates a letter S, substantially as described.

3. The combination in a penholder with the tubular end, of a longitudinally-arranged gripping member, a lug upon one edge for maintaining the position of the same in the tubular end and a projection upon the same edge at the outer end to prevent the pen being inserted upon the wrong side, substantially as specified.

4. A penholder having a tubular end for the reception of a pen and an inner longitudinally-extending resilient gripping member bent in cross-section and adapted to a lateral yielding action in gripping the pen between the same and the tubular end, substantially as described.

5. A penholder having a tubular end for the reception of a pen and a longitudinally-extending gripping member therein bent in cross-section and which member extends transversely of the tubular end and through the longitudinal axis thereof substantially dividing the space inclosed by the tubular end into equal parts, substantially as set forth.

6. In a penholder having a tubular end for the reception of a pen, a longitudinally-arranged inner device bent in cross-section and having a plane from its opposite parallel edges which virtually divides the said tubular end into equal parts, substantially as described.

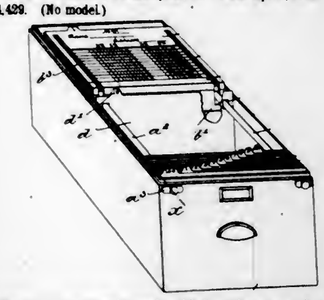
678,704. NON-RESEALABLE BOTTLE. FRANK M. WEIR, Monmouth, Ill., assignor of one-half to Eric G. Bowman, same place. Filed May 23, 1901. Serial No. 62,546. (No model.)



Claim.—1. A bottle, lugs extended outward from opposite sides of the neck of the bottle, one of said lugs being made thin at the portion connecting with the neck of the bottle, a cover, a rib on the top of said cover provided with a notch, and a bail having swinging engagement with said lugs and adapted to engage in said notch, substantially as specified.

2. In a bottle, lugs formed on the neck of the bottle at opposite sides thereof, one of said lugs being adapted to be broken from the neck, a cover, a rib extended across the top of said cover and curved from its central portion downward to its ends, the said rib being provided with a rectangular notch at the center, and a resilient-metal bail having swinging connection with the lugs and adapted to engage in said notch, substantially as specified.

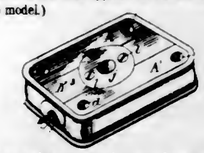
678,705. CARD RECORD AND INDEX. FRANK R. WELSH and ROBERT H. BREEDING, Philadelphia, Pa. Filed Apr. 5, 1901. Serial No. 54,429. (No model.)



Claim.—1. In a card record and index, a box or case having a closed bottom and an open top, rods arranged longitudinally in the box at or near its top and adjacent to the sides thereof and a card of substantially square or rectangular shape having a straight lower edge adapted when the card is in the box to rest upon and be supported by the closed bottom of the box, said card provided adjacent to each of its sides with a vertically-arranged rectangular slot traversed by a rod, said rods resting against the side edges of the slots to assist in the support of the card in vertical position in the box and to guide the card in its withdrawal through the top of said box.

2. In a card record and index, a box or case having a closed bottom and an open top, rods arranged longitudinally in the box at or near its top and adjacent to the sides thereof, and a card of substantially square or rectangular outline having a lower straight edge or base adapted to rest upon and be supported by the closed bottom of the box when the card is in said box, said card comprising a body and a base portion flexibly united together and provided at or near its sides with a vertically-arranged rectangular slot traversed by a rod and extending into both body and base portion of the card, said rods resting against the side edges of the slot to assist in the support of the card in vertical position within the box and to guide said card in its withdrawal through the top of said box.

678,706. ELECTRICAL MEASURING INSTRUMENT. EDWARD WESTON, Newark, N. J. Original application filed Dec. 18, 1899, Serial No. 740,843. Divided and this application filed June 3, 1901. Serial No. 62,833. (No model.)



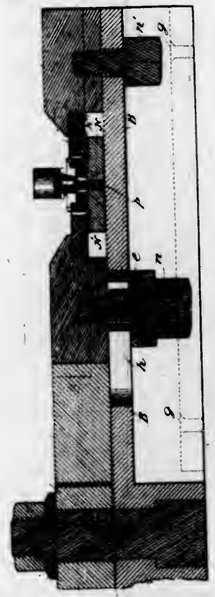
Claim.—1. As an article of manufacture a frame or spool and a coil wound thereon, said parts being supported by a detachable or removable core.

2. As an article of manufacture a frame or spool, a coil wound thereon and one or more pivot-pins secured thereto; together with a detachable or removable core supporting all of said parts.

678,707. ART OF MANUFACTURING MOVABLE COILS FOR USE IN CONNECTION WITH ELECTRICAL MEASURING INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Nov. 27, 1899. Serial No. 738,377. (No model.)

Claim.—1. The described method of manufacturing a symmetrical removable coil for an electrical measuring instrument, consisting in first forming a supporting frame or spool by subjecting a short tube of metal to pressure until the desired conformation and shape are obtained, then winding the coil thereon and finally securing the pivot-pins thereto in the axial line of the coil.

2. The described method of manufacturing a movable coil for an electrical measuring instrument, consisting in first forming a supporting frame or spool of a single piece of metal by subjecting the same to pressure until the desired conformation and shape are obtained, winding the coil thereon and then securing the pivot-pins thereto in the axial line of the coil and simultaneously adjusting the needle-supporting pivot in such manner that the point of the needle is located in the central plane of the coil, or in a plane at a definite angle thereto.



3. The described method of securing the pivot-pins to the movable coil for an electrical measuring instrument in the mathematical axial line thereof, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the pivot-pins to movable supports which have a fixed relation to the mathematical axis of the supported coil; coating the pivot-supporting plates with cement, moving the same into mechanical connection with the coil and its supporting frame or spool and allowing the parts as thus secured to so remain until the cement sets or hardens.

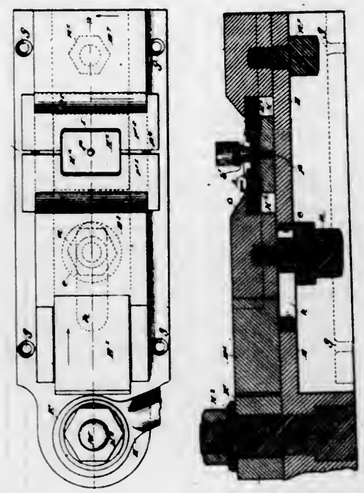
4. The described method of securing the needle-supporting pivot to the movable coil of an electrical measuring instrument and in such manner that the point of the needle shall lie in the central plane of the coil, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the needle-supporting pivot in a movable support which has a fixed relation to the mathematical axis of the supported coil; coating the pivot-supporting plate with a cement, rotating said pin until the rectangular faces thereof are in planes parallel with the central plane of the coil, and finally moving the plate into mechanical connection with the coil and allowing it thus to remain until the cement sets or hardens.

5. The described method of securing the pivot-pins to the movable coil for an electrical measuring instrument in the mathematical axial line thereof, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the pivot-pins to movable supports which have a fixed or definite relation to the mathematical axis of the supported coil, and finally moving the supported pivot-pins into mechanical contact with the coil and permanently securing them thereto.

6. The described method of securing the needle-supporting pivot to the movable coil of an electrical measuring instrument and in such manner that the point of the needle shall lie in the central plane of the coil, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the needle-supporting pivot-pin in a movable support which has a definite or fixed relation to the mathematical axis of the supported coil; rotating said pin until the rectangular faces thereof are in planes parallel with the central plane of the coil, then moving the same forward and connecting it to the coil.

7. The described method of securing the needle-supporting pivot to the movable coil of an electrical measuring instrument in such manner that the point of the needle shall have a definite or fixed relation to the axis of the coil, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the needle-supporting pivot to a movable support which has a definite or fixed relation to the mathematical axis of the supported coil, then rotating the pivot to a definite point and finally securing it permanently to the coil.

678,708. APPARATUS FOR CONSTRUCTING MOVABLE COILS OF ELECTRICAL MEASURING INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Dec. 18, 1899. Serial No. 740,843. (No model.)



Claim.—1. Means for forming or constructing the supporting frame or spool of a movable coil for an electrical measuring instrument, consisting of a separable forming-frame and a portable forming and supporting core, said frame and core being adapted, when subjected to pressure, to give to the coil-supporting frame or spool, when placed between them, the desired configuration or shape, substantially as described.

2. Means for forming or constructing the supporting frame or spool of a movable coil for an electrical measuring instrument, consisting of a separable forming-frame and a portable sectional forming and supporting core, said frame and core being adapted, when subjected to pressure, to give to the coil-supporting frame or spool, when placed between them, the desired configuration or shape, substantially as described.

3. Means for forming or constructing the supporting frame or spool of a movable coil for an electrical measuring instrument, consisting of a separable forming-frame and a portable sectional forming and supporting core, in combination with means for forcing the parts of the separable frame together and additional means for separating or spreading the parts of the sectional forming and supporting core, substantially as described.

4. Means for forming or constructing the supporting frame or spool of a movable coil for an electrical measuring instrument, consisting of a separable forming-frame, the inner lateral faces of which are of concave form; in combination with a portable sectional forming and supporting core, the outer lateral faces of which are of convex form, together with means for causing said frame and core to give to the coil-supporting frame, when placed between them, the desired configuration or shape and curvature, substantially as described.

5. A portable forming and supporting core for the supporting frame or spool of an electrical measuring instrument composed of three sectional parts, the exterior faces of the outer parts being of convex form, the central part being provided with means for separating or spreading the other parts, and additional means for supporting it and its supported coil in a lathe, substantially as described.

6. A portable forming and supporting core for the supporting frame or spool of an electrical measuring instrument composed of three sectional parts adapted to support the completed frame or spool, said core being provided with a hole or opening centrally located with relation to the supporting frame or spool and additional means for rigidly securing the core and its supported coil in a definite or fixed position, substantially as described.

7. Means for forming or constructing the supporting frame or spool of a movable coil for an electrical measuring instrument, consisting of a separable forming-frame and a removable sectional forming and support-

ing core adapted to be located between the parts of the forming-frame, in combination with means for holding and manipulating the separable frame and the inclosed forming and supporting core, the arrangement being such that a short section of metallic tube may be inserted between the separable frame and the forming and supporting core and subjected to pressure so as to give to the frame or spool the desired configuration or shape; together with means for turning down the lateral edges of the tube so as to constitute the flanges of the completed frame or spool, substantially as described.

8. Apparatus for securing the pivots to the movable coil of an electrical measuring instrument consisting of means for locking or securing the coil in a definite or fixed position with relation to a coil-supporting frame, in combination with pivot-supporting means for properly alining the pivots in the axial line of the coil, said pivot-supporting means having a fixed relation to the supporting-frame and its supported coil, substantially as described.

9. Means for properly alining the supporting-pivots of the movable coil of an electrical measuring instrument in such manner that they shall be secured thereto in the axial line thereof, consisting of a supporting-frame provided with means for adjustably supporting the coil with relation thereto; in combination with means for locking the coil in a fixed position, together with pivot-supporting means secured to the frame and detachably supporting the pivot-pins in alinement with each other and in the axis of the supported coil, substantially as described.

10. Means for properly alining the pivots of the movable coil of an electrical measuring instrument consisting of a coil-supporting core and a frame provided with means for supporting the core and the coil carried thereby in a definite relation thereto, together with means for locking said core in such relation; in combination with pivot-supporting rods located in alinement with the axis of the core and its sustained coil, said rods being provided with means for detachably supporting the pivots, substantially as described.

11. Means for properly alining the needle-supporting pivot of the movable coil of an electrical measuring instrument, and adjusting the angular relation of the supported needle, consisting of a coil-supporting core, a frame provided with adjustable means for supporting the core and means for locking the latter in a fixed relation to the frame; together with a pivot-supporting rod secured to the frame and in alinement with the axis of the coil; in combination with means for locating the lateral faces of the needle-supporting pivot in planes parallel with a plane passing through the center of the coil, or in planes having a definite angular relation thereto, substantially as described.

678,709. SEMICOMPOUND TELESCOPIC ENGINE. MARCY L. WHITFIELD, Memphis, Tenn., assignor to the Whitfield Company, same place. Filed Dec. 9, 1899. Serial No. 739,833. (No model.)

Claim.—1. In a double-acting high-pressure steam-engine, the combination with the power-cylinder and a differential piston; of means for automatically causing boiler-steam to act alternately on opposite faces of said piston, and means for automatically causing the steam acting on the smaller piston area to effect the instroke to also act together with boiler-steam on the greater piston area to effect the outstroke, for the purposes set forth.

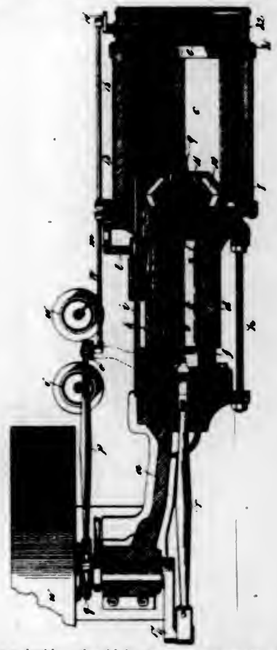
2. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a stationary abutment, and a piston-cylinder reciprocating in said stationary cylinder and on said abutment; of means operating automatically to admit boiler-steam to the piston-cylinder to effect the instroke and to the stationary cylinder to effect the outstroke, for the purposes set forth.

3. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a stationary abutment, and a piston-cylinder reciprocating in said stationary cylinder and on said abutment; of means for automatically admitting boiler-steam to the piston-cylinder to effect the instroke and to the stationary cylinder through said piston-cylinder to effect the outstroke, for the purposes set forth.

4. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a stationary abutment and a piston-cylinder reciprocating in said stationary cylinder and on said stationary abutment; of means operating automatically to admit boiler-steam through said abutment to the piston-cylinder to effect the instroke and to the stationary cylinder to effect the outstroke, for the purposes set forth.

5. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a stationary abutment and a piston-cylinder reciprocating in said stationary cylinder and on said abutment; of means operating automatically to admit boiler-steam through said abutment to the piston-cylinder to effect the instroke, and through said piston-cylinder to the stationary cylinder to effect the outstroke, for the purposes set forth.

6. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a stationary abutment and a piston-cylinder reciprocating in said stationary cylinder and on said abutment; of means operating automatically to admit boiler-steam to the piston-cylinder to effect the instroke, to exhaust the steam in said piston-cylinder into the stationary cylinder and simultaneously admit boiler-steam to the last-named cylinder to effect the outstroke, for the purpose set forth.



7. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a stationary abutment and a piston-cylinder reciprocating in said stationary cylinder and on said abutment; of means operating automatically to admit boiler-steam to the piston-cylinder to effect the instroke, to exhaust the steam in said piston-cylinder into the stationary cylinder and simultaneously admit boiler-steam to the last-named cylinder through the piston-cylinder to effect the outstroke, for the purposes set forth.

8. In a double-acting high-pressure steam-engine, the combination with a stationary cylinder, a bifurcated stationary abutment having a steam-passage through one of its legs and its head, and a piston-cylinder reciprocating in said stationary cylinder and on said abutment; of a valve-chest in direct communication with the inlet of the steam-passage in the abutment-leg, and two alternately-operating main valves in said chest, and means operating automatically to admit boiler-steam from the abutment to the piston and stationary cylinders alternately, for the purposes set forth.

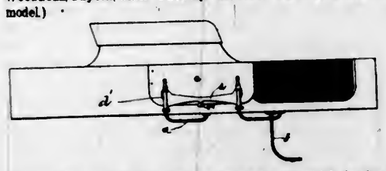
9. A semicompound engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said stationary cylinder, an exhaust-valve, means for admitting boiler-steam to both cylinders, valves controlling the admission of steam thereto, and means for operating said valves, for the purposes set forth.

10. A semicompound engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said stationary cylinder, an exhaust-valve, means for admitting boiler-steam to both cylinders, valves controlling the admission of steam thereto, and independently-timed appliances for operating said valves, for the purposes set forth.

11. A semicompound engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said stationary cylinder, an intermediate valve controlling ports in the head of the piston-cylinder an exhaust-valve for the stationary cylinder, means for admitting boiler-steam to said piston-cylinder to effect the instroke, and two valves controlling said admission, and independently-timed appliances for operating said admission-valves and the exhaust and intermediate valves to admit boiler-steam to the stationary cylinder to effect the outstroke, for the purposes set forth.

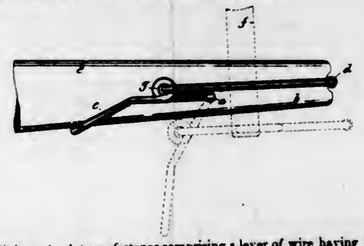
12. The combination with a stationary cylinder, a stationary abutment, and a piston-cylinder working on said abutment and in said stationary cylinder; of a valve controlling the flow of steam from the piston-cylinder to the stationary cylinder, the stem of said valve extending through the piston-head of the piston-cylinder toward the crank-shaft, for the purposes set forth.

678,710. HINGED DOOR FOR PIANO-BOX BUGGIES. MORRIS WOODHULL, Dayton, Ohio. Filed Apr. 25, 1901. Serial No. 57,390. (No model.)



Claim.—The combination with the box-bed of a vehicle having an opening in the side thereof, of a door for said opening having vertically-extending sockets on each side of its medial line, angularly-extending arms pivoted at one end to the under side of said bed and at the other journaled in said sockets and adapted to carry said door in its upright position, whereby said door may be opened and closed, by a side-stepping movement, without interfering with the adjacent wheel of the vehicle, substantially as specified.

678,711. TRACE-FASTENER. THOMAS ATCHASON, Newark, N. J. Filed Dec. 3, 1900. Serial No. 38,402. (No model.)

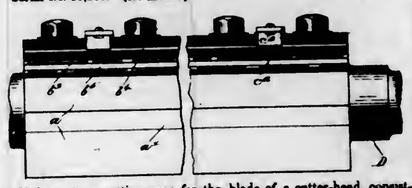


Claim.—1. A trace-fastener comprising a lever of wire having eyes in the sides thereof near to its base and with ends bent inwardly adapted to pivot in a bush extending through the whiffletree and adapted to fulcrum thereon, and a yoke made of wire having inwardly-bent ends adapted to pass through the eyes in said lever, and rectangular bent sides to admit of the trace passing through them; the said lever by its eccentric action being adapted to draw the said yoke against the end of the whiffletree, substantially as described.

2. In a trace-fastener the combination with a lever of wire having eyes in the sides thereof near its base and bent ends forming a fulcrum pivoted to a bush extending through the whiffletree, of a yoke of wire having inwardly-bent ends and rectangularly-bent sides adapted to hold the trace in place and to clasp the said yoke to the whiffletree by the eccentric action of said lever, substantially as described.

3. In a trace-fastener the lever *c* having eyes *g*, and ends bent inwardly pivoted in the bush *a* extending through the whiffletree, the yoke *b* connected with lever *c* at the eyes *g* and cushion *d* adapted to cooperate to clasp the trace *f* and hold it securely in place upon the whiffletree, substantially as described.

678,712. GAGE FOR SETTING CUTTER-HEAD BLADES. CHAS. W. H. BLOOD, Boston, and FRANK F. WOODS, Brookline, Mass., assignors to S. A. Woods Machine Company, Boston, Mass. Filed Dec. 10, 1900. Serial No. 39,255. (No model.)



Claim.—1. A setting-gage for the blade of a cutter-head, consisting of a carrier adapted to rest upon the blade to be set, and having a downturned end to engage the cutter-head at a fixed distance behind the lip thereof, an abutment on the carrier overhanging the lip at a predetermined distance therefrom, to act as a stop for the blade when the desired clearance thereof has been attained, means to connect the abutment and carrier, and a positioning-rib on one to enter a coöperating groove in the other.

2. A setting-gage for the blade of a cutter-head, consisting of a carrier adapted to be removably applied to the cutter-head in a predetermined position, and to extend transversely across the blade to be set when on its seat, an abutment having two opposite parallel faces, mounted on the carrier overhanging the lip of the cutter-head with the acting face at a distance therefrom equal to the desired clearance for the blade, the abutment serving as a stop when the blade is set up, and means passed through the carrier and into the abutment unequally distant from the two faces of the latter, to connect the abutment and carrier with one or the other face in position to coöperate with the blade to be set.

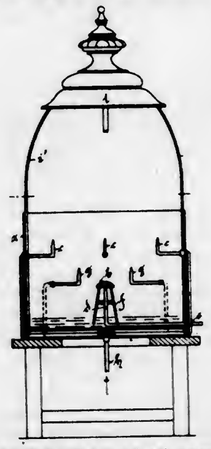
3. A blade-setting gage consisting of a carrier having a transverse rib on its under side at one end, a rectangular abutment having in its upper face intersecting grooves unequally distant from the two faces parallel to each groove, the rib on the carrier entering one or other groove to position the abutment, and means to connect the abutment and carrier.

678,713. CORSET-BUSK. VICTOR BOVY, New York, N. Y. Filed Mar. 21, 1901. Serial No. 52,139. (No model.)



Claim.—The combination of part A of a busk, having a stirrup *c* engaging a chain-link *a*, and having secured to its upper and inner end a shield *d* with a part B having a stirrup *c'*, chain-link *b* having slot *s*, rivets *m n* and *r*, as and for the purposes herein shown and described.

678,714. VAPORIZER. ANTON BULLING, Munich, Germany. Filed Jan. 19, 1901. Serial No. 43,863. (No model.)

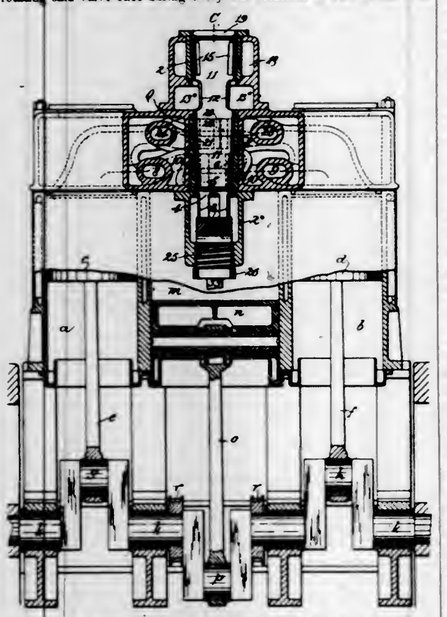


Claim.—The herein-described vaporizer for rooms, consisting of a chamber provided with a nozzle, means for feeding a liquid and compressed air to said nozzle to form a spray, and independent blast-pipes within the chamber adapted to subject the spray to the action of fresh bodies of expanding compressed air, as set forth and described.

678,715. COMPOUND EXPLOSION-ENGINE. EDWARD BUTLER, Gateshead, England. Filed Jan. 23, 1901. Serial No. 44,418. (No model.)

Claim.—1. In an explosion-engine, the combination with pistons, connecting-rods and a shaft having three cranks, of two four-cycle explosion-cylinders, each provided with a port and passages for admission of explosive mixture and emission of products of combustion and with a port and passages for admission of a clearing charge of air; an expansion-cylinder located between said explosion-cylinders; an inlet and outlet port and passage connecting same with a chamber surrounding the distributing-valve; a chamber with liners; a casing below same; a balanced rotary distributing-valve, located partly in said liners, partly in said sar-

rounding chamber, and partly in said casing, said valve being formed, as described, with three chambers, namely, a chamber having inlet-ports for explosive mixture and oppositely-arranged outlet-ports adapted to coincide at certain times with ports of the passages or chambers that supply explosive mixture to said two explosion-cylinders alternately, a second chamber provided with three sets of oppositely-arranged ports, one set adapted to coincide at certain times with the explosive-mixture ports of the explosion-cylinders, another set of ports always open to the before-mentioned surrounding chamber, and a third set of ports adapted to coincide at certain times with ports of a passage open to the atmosphere; and a third chamber open to the atmosphere and having oppositely-arranged ports adapted to coincide at certain times with ports of the passages or chambers for supplying clearing charges of air to the appropriate passages or chambers of said two explosion-cylinders alternately, and means for rotating said valve once during every four rotations of said crank-shaft.



2. In an explosion-engine, the combination with pistons, connecting-rods and a shaft having three cranks, of two four-cycle explosion-cylinders, each provided with a port and passages for admission of explosive mixture and emission of products of combustion and with a port and passages for admission of a clearing charge of air; an expansion-cylinder located between said explosion-cylinders; an inlet and outlet port and passage connecting same with a chamber surrounding the distributing-valve; a chamber with liners; a casing below same; a balanced rotary distributing-valve, located partly in said liners, partly in said surrounding chamber, and partly in said casing, said valve being formed, as described, with three chambers, namely, a chamber having two pocket-like upward extensions with inlet-ports for explosive mixture and with oppositely-arranged outlet-ports adapted to coincide at certain times with ports of the passages or chambers that supply explosive mixture to said two explosion-cylinders alternately, a second chamber provided with three sets of oppositely-arranged ports, one set adapted to coincide at certain times with the explosive-mixture ports of the explosion-cylinders, another set of ports always open to the before-mentioned surrounding chamber, and a third set of ports adapted to coincide at certain times with ports of a passage open to the atmosphere; and a third chamber open to the atmosphere and having two pocket-like downward extensions and oppositely-arranged ports adapted to coincide at certain times with ports of the passages or chambers for supplying clearing charges of air to the appropriate passages or chambers of said two explosion-cylinders alternately, means for rotating said valve once during every four rotations of said crank-shaft, and means for adjusting the valve endwise to compensate for wear and expansion all substantially as set forth.

3. The distributing-valve Q having chamber 4, 4*, with ports 3 and 5, chamber 11 with ports 10, 12, and 15 and chamber 19, 19* with ports 20, substantially as shown, for the purpose specified.

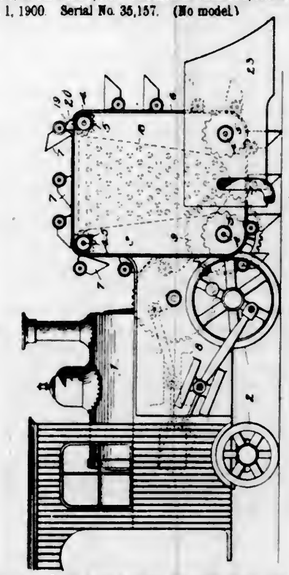
4. In an explosion-engine, the combination with pistons, connecting-rods and a shaft having three cranks, of two four-cycle explosion-cylinders, each provided with a port and passages for admission of explosive mixture and emission of products of combustion and with a port and passages for admission of a clearing charge of air; an expansion-cylinder located between said explosion-cylinders; an inlet and outlet port and passage connecting same with a chamber surrounding the distributing-valve; a chamber with liners; a casing below same; a balanced rotary distributing-valve, located partly in said liners, partly in said surrounding chamber, and partly in said casing, said valve being formed, as described, with three chambers, namely, a chamber having two pocket-like upward extensions with inlet-ports for explosive mixture and with oppositely-arranged outlet-ports adapted to coincide at certain times with ports of the passages or chambers that supply explosive mixture to said two explosion-cylinders alternately, a second chamber provided with three sets of oppositely-arranged ports, one set adapted to coincide at certain times with the explosive-mixture ports of the explosion-cylinders, another set of ports always open to the before-mentioned surrounding chamber, and a third set of ports adapted to coincide at certain times with ports of a passage open to the atmosphere; and a third chamber open to the atmosphere and having two pocket-like downward extensions and oppositely-arranged ports adapted to coincide at certain times with ports of the passages or chambers for supplying clearing charges of air to the appropriate passages or chambers of said two explosion-cylinders alternately, means for rotating said valve once during every four rotations of said crank-shaft and means comprising a screwed sleeve on which the valve rests, a fixed correspondingly-screwed collar, a handle for turning said sleeve within said collar, a pawl moving with said handle and sliding relatively thereto, and a fixed rack with which the pawl is caused to normally engage.

5. In an explosion-engine, the combination with pistons, connecting-rods and a shaft having three cranks, of two four-cycle explosion-cylinders, each provided with a port and passages for admission of explosive mixture and emission of products of combustion and with a port and passages for admission of a clearing charge of air; an expansion-cylinder located between said explosion-cylinders; an inlet and outlet port and passage connecting same with a chamber surrounding the distributing-valve; a chamber with liners; a casing below same; a balanced rotary distributing-valve, located partly in said liners, partly in said surrounding chamber, and partly in said casing, said valve being formed, as described, with three chambers, namely, a chamber having two pocket-like upward extensions with inlet-ports for explosive mixture and with oppositely-arranged outlet-ports adapted to coincide at certain times with ports of the passages or chambers that supply explosive mixture to said two explosion-cylinders alternately, a second chamber provided with three sets of oppositely-arranged ports, one set adapted to coincide at certain times with the explosive-mixture ports of the explosion-cylinders, another set of ports always open to the before-mentioned surrounding chamber, and a third set of ports adapted to coincide at certain times with ports of a passage open to the atmosphere; and a third chamber open to the atmosphere and having two pocket-like downward extensions and oppositely-arranged ports adapted to coincide at certain times with ports of the passages or chambers for supplying clearing charges of air to the appropriate passages or chambers of said two explosion-cylinders alternately, means for rotating said valve once during every four rotations of said crank-shaft, and means for adjusting the valve endwise to compensate for wear and expansion all substantially as set forth.

6. In an explosion-engine, the combination with pistons, connecting-rods and a shaft having three cranks, of two four-cycle explosion-cylinders, each provided with a port and passages for admission of explosive mixture and emission of products of combustion and with a port and passages for admission of a clearing charge of air; an expansion-cylinder located between said explosion-cylinders; an inlet and outlet port and passage connecting same with a chamber surrounding the distributing-valve; a chamber with liners; a casing below same; a balanced rotary distributing-valve, located partly in said liners, partly in said surrounding chamber, and partly in said casing, said valve being formed, as described, with three chambers, namely, a chamber having two pocket-like upward extensions with inlet-ports for explosive mixture and with oppositely-arranged outlet-ports adapted to coincide at certain times with ports of the passages or chambers that supply explosive mixture to said two explosion-cylinders alternately, a second chamber provided with three sets of oppositely-arranged ports, one set adapted to coincide at certain times with the explosive-mixture ports of the explosion-cylinders, another set of ports always open to the before-mentioned surrounding chamber, and a third set of ports adapted to coincide at certain times with ports of a passage open to the atmosphere; and a third chamber open to the atmosphere and having two pocket-like downward extensions and oppositely-arranged ports adapted to coincide at certain times with ports of the passages or chambers for supplying clearing charges of air to the appropriate passages or chambers of said two explosion-cylinders alternately, means for rotating said valve once during every four rotations of said crank-shaft and means comprising worm-wheel, worm, cross-shaft, chain-wheels on the cross-shaft, chains, and chain-wheels on the crank-shaft of the motor, for rotating said valve once during every four rotations of the said crank-shaft.

5. In an explosion-engine, the combination with pistons, connecting-rods and a shaft having three cranks, of two four-cycle explosion-cylinders, each provided with a port and passages for admission of explosive mixture and emission of products of combustion and with a port and passages for admission of a clearing charge of air; an expansion-cylinder located between said explosion-cylinders; an inlet and outlet port and passage connecting same with a chamber surrounding the distributing-valve; a chamber with liners; a casing below same; a balanced rotary distributing-valve, located partly in said liners, partly in said surrounding chamber, and partly in said casing, said valve being formed, as described, with three chambers, namely, a chamber having two pocket-like upward extensions with inlet-ports for explosive mixture and with oppositely-arranged outlet-ports adapted to coincide at certain times with ports of the passages or chambers that supply explosive mixture to said two explosion-cylinders alternately, a second chamber provided with three sets of oppositely-arranged ports, one set adapted to coincide at certain times with the explosive-mixture ports of the explosion-cylinders, another set of ports always open to the before-mentioned surrounding chamber, and a third set of ports adapted to coincide at certain times with ports of a passage open to the atmosphere; and a third chamber open to the atmosphere and having two pocket-like downward extensions and oppositely-arranged ports adapted to coincide at certain times with ports of the passages or chambers for supplying clearing charges of air to the appropriate passages or chambers of said two explosion-cylinders alternately, means for rotating said valve once during every four rotations of said crank-shaft and means comprising a screwed sleeve on which the valve rests, a fixed correspondingly-screwed collar, a handle for turning said sleeve within said collar, a pawl moving with said handle and sliding relatively thereto, and a fixed rack with which the pawl is caused to normally engage.

678,716. MECHANISM FOR REMOVING SNOW FROM RAILWAYS, HIGHWAYS, &c. PATRICK E. CARMODY, Ansonia, Conn. Filed Nov. 1, 1900. Serial No. 35,157. (No model.)



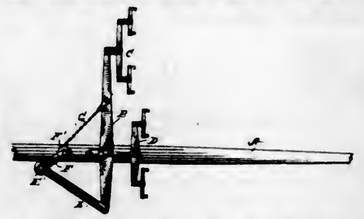
Claim.—1. In an apparatus for removing snow, the combination of two vertical frames, a snow-melting tank carried thereby, means for propelling the same over a snow-covered surface, a series of buckets, chains movable along the sides of the frames and to which the buckets are pivotally connected at their upper rearward angles, and rollers supported on studs projecting from the ends of the buckets and adapted to roll upon the lower and forward members of the frames and hold the buckets at right angles with the chains and means for dumping the contents of the buckets into said tank, substantially as described.

2. In an apparatus for removing snow, the combination of two vertical frames, a snow-melting tank carried thereby, means for propelling the same over a snow-covered surface, chains running over sprockets at the angles of said frames, buckets arranged at intervals along said chains and connected to the latter by pivotal bearings in rear of said buckets, and rollers supported on studs projecting from the ends of said buckets and having their peripheries in or nearly in a plane passing through the pivotal points and substantially at a right angle with the open tops of the buckets, and means for dumping the contents of buckets into said tank, substantially as described.

3. In a mechanism for removing snow, the combination of two vertical frames, a snow-melting tank carried by said frames, means for propelling the same over a snow-covered surface, sprockets arranged in the angles of said frames, chains running over said sprockets and along the sides of the frames, buckets arranged at intervals along said chains and between the frames, their ends having pivotal counection to said chains in rear of the buckets and at a single point in each, rollers mounted on studs projecting from the ends of the buckets and adapted to roll on the lower and forward members of said frames to hold the buckets at right angles thereto, and cams on the upper sides of the frames at, or near the upper forward angles, the forward faces of said cams being inclined and adapted to dump the contents of the buckets into said tank, substantially as described.

4. In a mechanism for removing snow, the combination of two vertical, rectangular frames, a snow-melting tank carried by said frames and provided with heating-pipes, means for propelling the same over a snow-covered surface, sprocket-wheels arranged within the four angles of said frames, chains running over said sprockets and alongside the sides of the frame, a series of buckets having their ends pivotally connected to said chains at a single point, rollers mounted on short studs projecting from the ends of said buckets, said rollers being adapted to bear upon the sides of the frame when the buckets are at right angles with the latter, and cams having inclined faces at or near the upper, forward angles of the frames and adapted to dump the contents of the buckets in said tank, said cams rising above the upper sides of the frames.

678,717. DRAFT-EQUALIZER. HENRY CARPENTER, Edmond, Okla. Filed May 13, 1901. Serial No. 59,960. (No model.)



Claim.—1. The combination of the tongue, the evener, a pusher-bar connected at its front end with one arm of the evener laterally to the tongue and provided at its rear end with a roller moving alongside the tongue, a link connected at one end with the rear end of the pusher and having a pulley at its swinging end, and a draft-line passed around said pulley substantially as set forth.

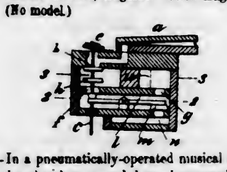
2. The improved equalizer herein described comprising the tongue, the evener pivoted thereto and having the long and the short arms, the doubletree connected with the long arm, the doubletree slidable along the tongue, the pusher-bar connected at one end to the short arm and extending thence rearwardly and inwardly and movable at its rear end alongside the tongue, a pulley connected with the rear end of the pusher-bar and a line passed around said pulley and connected at one end to the long evener-arm and at its other end to the slidable doubletree substantially as set forth.

3. A draft-equalizer comprising the tongue, the evener, and the pusher-bar connected at its front end with one arm of the evener laterally to the tongue and movable at its rear end along the tongue, draft devices movable along the tongue, and connections between the rear end of the pusher-bar and said draft devices, such connection with the draft devices being arranged over the tongue, substantially as set forth.

4. In a draft-equalizer, the combination of the tongue, the evener, the pusher-bar connected at its front end with one arm of the evener, a pulley connected with the rear end of the pusher-bar, a draft-line passed around said pulley, and the draft devices and evener connected with the opposite ends of said line, substantially as set forth.

5. A draft-equalizer, comprising the tongue, the pusher-bar having a lateral support at its front end, a roller carried by the rear of the pusher-bar and bearing against the tongue, and means for applying the draft to the pusher, substantially as set forth.

678,718. SOLO ATTACHMENT FOR MUSICAL INSTRUMENTS. THOMAS CARMON, London, England. Filed Aug. 2, 1900. Serial No. 25,675. (No model.)



Claim.—In a pneumatically-operated musical instrument, the combination with the chambers *n*, and ducts *l* arranged alternately in series and having communicating passages therebetween, of two air-pressure conduits, one of which communicates with one of said chambers and the other with all of said ducts, said conduits supplying air of different pressures, means whereby several of said chambers may be opened at the same time to their respective pneumatics, and valves for cutting off all but one of said opened chambers from one of said conduits and valves for establishing communication between the remaining opened chambers and the other conduit, substantially as described.

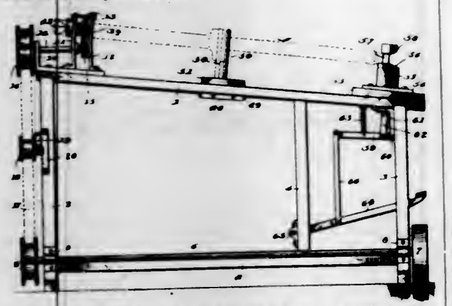
678,719. TIRE BOLTER AND CUTTER. JOHN K. CLARK, Janesville, Wis. Filed Apr. 4, 1901. Serial No. 54,355. (No model.)

Claim.—1. The combination of a revoluble head adapted to engage and rotate a nut on a bolt, means to arrest the rotation of said head and a cutter operative while said head is arrested to cut off the projecting end of the bolt, substantially as described.

2. The combination of a revoluble head having means to engage and rotate a nut on a bolt, a revoluble disk, a knife or cutter carried by said revoluble disk, a cam to operate said knife, said cam being carried by said revoluble head, and means to arrest the rotation of said head, substantially as described.

3. The combination of a revoluble disk, a gear to rotate the same, a

sliding cutter carried by said disk, a revoluble head having a cam to operate said cutter and adapted to engage and rotate a nut on a bolt, means to rotate said head with said disk and means to arrest the rotation of said head, substantially as described.

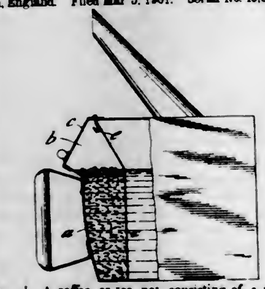


4. The combination of a revoluble disk having a tubular shaft, a gear fixed on said tubular shaft, a sliding cutter carried by said disk, a revoluble head incasing said disk, the shaft of the latter forming a bearing for said head, and said head being adapted to engage and rotate a nut on a bolt and having a cam to operate said cutter, an annulus fast with said head, a spring-pressed bolt carried by said annulus to engage said gear and thereby lock said head to said gear and rotate said head simultaneously with said disk and a fixed stop to engage said bolt when the latter is out of engagement with said gear and thereby arrest the rotation of said head, substantially as described.

5. In a machine of the class described, the combination of a revoluble disk having a tubular shaft, fixed bearings therefor, a gear fixed on said shaft, a sliding cutter carried by said disk, a revoluble head incasing said disk, the shaft of the latter forming a bearing for said head and said head being adapted to engage and rotate a nut on a bolt and having a cam to operate said cutter, an annulus fast with said head, a spring-pressed bolt carried by said annulus to engage said gear and thereby lock said head to said gear and rotate said gear simultaneously with said disk, a fixed stop to engage said bolt when the latter is out of engagement with said gear and thereby arrest the rotation of said head, and a spring-pressed movable spindle, for the purpose set forth, substantially as described.

6. A machine of the class described having a fixed mechanism for operating on the rim of a wheel, a laterally-shiftable spindle to support the wheel, and counteracting springs bearing on said spindle, to normally retain the same in one position and enable the spindle, together with the wheel, to be shifted to bring the rim of the wheel into operative relation to the fixed operating mechanism, substantially as described.

678,720. TEA OR COFFEE POT. DOUGLAS M. B. H. COCHRANE, London, England. Filed Mar 5, 1901. Serial No. 49,853. (No model.)

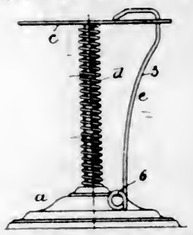


Claim.—1. A coffee or tea pot, consisting of a vessel adapted to stand upon its bottom or side and to contain a liquid, and a pervious compartment arranged at the top of the vessel and adapted to be clear of the liquid when the vessel stands upon its bottom.

2. A coffee or tea pot, consisting of a vessel adapted to stand on one side or its bottom, a pervious compartment arranged in said vessel and communicating with an inlet therefor in the side opposite the side on which the vessel stands and means for closing said inlet.

3. A coffee or tea pot, comprising a vessel adapted to stand on its side or bottom, a pervious compartment arranged in the top portion of the vessel, and means engaging one side of said vessel to permit of access to said compartment.

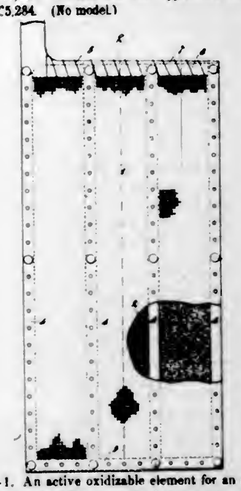
678,721. FILING-SPINDLE. ARNOT K. DEVOE, Boston, Mass. Filed Apr. 19, 1901. Serial No. 56,602. (No model.)



Claim.—1. A paper-file comprising a foot, a stop-arm projecting upwardly from the foot and bent at its upper portion to form a clamping-finger or stop, and a vertical telescopic standard supported by the foot and having an extending-spring, and a head at the upper end of the standard which is pressed yieldingly against said finger by the standard-extending spring, said standard serving to guide the head in its vertical movements.

2. A paper-file comprising a foot, a cylindrical vertical telescopic standard supported thereby and having a head at its upper end, a spring coiled about said standard and normally pressing said head upward, and a stop-arm projecting upwardly from the foot and through guides in the head whereby rotary movement of the head is prevented, said stop-arm having an upper portion extending over the head to coact therewith as a clamp.

678,722. REVERSIBLE GALVANIC BATTERY. THOMAS A. EDISON, Llewellyn Park, N. J. Original application filed Mar. 1, 1901, Serial No. 49,453. Divided and this application filed June 20, 1901. Serial No. 65,284. (No model.)



Claim.—1. An active oxidizable element for an alkaline reversible galvanic battery, comprising a conducting-support and electrolytically-active, finely-divided iron carried thereby and capable of being oxidized on discharging, substantially as set forth.

2. An active oxidizable element for a reversible galvanic battery, comprising a conducting-support and a mixture of flake-like inert conducting material and electrolytically-active, finely-divided iron carried thereby capable of being oxidized on discharging, substantially as set forth.

3. An active oxidizable element for a reversible galvanic battery, comprising a conducting-support and a mixture of flake-graphite and electrolytically-active, finely-divided iron carried thereby capable of being oxidized on discharging, substantially as set forth.

4. An active deoxidizable element for an alkaline reversible galvanic battery, comprising a conducting-support and finely-divided ferrous oxid carried thereby and capable of being deoxidized on charging, substantially as set forth.

5. An active deoxidizable element for a reversible galvanic battery, comprising a conducting-support and a mixture of flake-like inert conducting material and finely-divided ferrous oxid carried thereby capable of being deoxidized on charging, substantially as set forth.

6. An active deoxidizable element for a reversible galvanic battery, comprising a conducting-support and a mixture of flake-graphite and finely-divided ferrous oxid carried thereby capable of being deoxidized on charging, substantially as set forth.

7. An active deoxidizable element for an alkaline reversible galvanic battery, comprising a conducting-support and an oxid of iron carried thereby electrolytically reducible to the metallic state upon charging, substantially as set forth.

8. An active deoxidizable element for a reversible galvanic battery, comprising a conducting-support and a mixture of flake-like inert conducting material and an oxid of iron carried thereby electrolytically reducible to the metallic state upon charging, substantially as set forth.

9. An active deoxidizable element for a reversible galvanic battery, comprising a conducting-support and a mixture of flake-graphite and an oxid of iron carried thereby electrolytically reducible to the metallic state upon charging, substantially as set forth.

10. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of working, and two elements therein insoluble in such electrolyte, the oxidizable element having for its active material electrolytically-active, finely-divided iron, substantially as set forth.

11. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, and another conducting-support carrying an oxid of a specific magnetic metal other than iron and capable of furnishing oxygen for the oxidation of the iron on discharge, substantially as set forth.

12. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided oxid of iron when discharged, and another conducting-support carrying an oxid of a specific magnetic metal other than iron and capable of storing oxygen on charging, substantially as set forth.

13. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, another conducting-support carrying an oxid of a specific magnetic metal other than iron and capable of furnishing oxygen for the oxidation of the iron on discharge, and an inert conducting material intimately mixed with said oxid, substantially as set forth.

14. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, another conducting-support carrying an oxid of a specific magnetic metal other than iron and capable of furnishing oxygen for the oxidation of the iron on discharge, and flake-graphite intimately mixed with said oxid, substantially as set forth.

15. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, an inert conducting material intimately mixed with said finely-divided iron, another conducting-support carrying an oxid of a specific magnetic metal other than iron capable of furnishing oxygen for the oxidation of the iron on discharge, and an inert conducting material mixed with said oxid, substantially as set forth.

16. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, flake-graphite intimately mixed with said finely-divided iron, another conducting-support carrying an oxid of a specific magnetic metal other than iron capable of furnishing oxygen for the oxidation of the iron on discharge and flake-graphite mixed with said oxid, substantially as set forth.

17. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, and another conducting-support carrying oxid of nickel capable of furnishing oxygen for the oxidation of the iron on discharge, substantially as set forth.

18. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided oxid of iron when discharged, and another conducting-support carrying an oxid of nickel, substantially as set forth.

19. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, and another conducting-support carrying oxid of nickel having when charged electrolytically more oxygen than Ni_3O_4, substantially as set forth.

20. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, and another conducting-support carrying a hydrated oxid of nickel, substantially as set forth.

21. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, another conducting-support carrying oxid of nickel capable of furnishing oxygen for the oxidation of the iron on discharge, and flake-graphite intimately mixed with said oxid, substantially as set forth.

22. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided oxid of iron when discharged, another conducting-support carrying an oxid of nickel, and flake-graphite intimately mixed with said oxid, substantially as set forth.

23. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, another conducting-support carrying oxid of nickel having when charged electrolytically more oxygen than Ni_3O_4, and flake-graphite intimately mixed with said oxid, substantially as set forth.

24. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, another conducting-support carrying a hydrated oxid of nickel, and flake-graphite intimately mixed with said oxid, substantially as set forth.

25. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided iron when charged, another conducting-support comprising a receptacle having elastic walls, and an oxid of a specific magnetic metal other than iron carried within said receptacle and engaged by the walls thereof with an elastic pressure, said oxid being capable of furnishing oxygen for the oxidation of the iron on discharge, substantially as set forth.

26. In a reversible galvanic battery, an alkaline electrolyte, a conducting-support carrying finely-divided oxid of iron when discharged, another conducting-support comprising a receptacle having elastic walls, and an oxid of a specific magnetic metal other than iron carried within said receptacle and engaged by the walls with an elastic pressure and capable of storing oxygen on charging, substantially as set forth.

678,723. HAT-FASTENER. EDUARD ENDERS, Düsseldorf, Germany. Filed Apr. 29, 1901. Serial No. 57,972. (No model.)

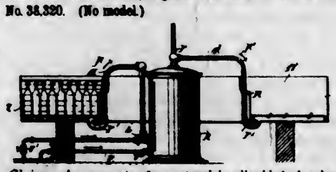


Claim.—1. In a hat-fastener, the combination with a coiled spring bent in accordance with the shape of the hat, of a flat twisted spring arranged within said coiled spring, integral fastening-hooks on the latter adapted to engage the hair of the user, means for rotatably attaching said coiled spring to the hat, and means for rotating said spring, substantially as set forth.

2. In a hat-fastener, the combination with a coiled spring bent in accordance with the shape of the hat, of a flat twisted spring arranged within said coiled spring, integral fastening-hooks on the latter adapted to engage the hair of the user, a plurality of sleeves loosely fitted over said coiled spring, suitably-shaped attaching-hooks on said sleeves and means for rotating said coiled spring, substantially as set forth.

3. In a hat-fastener, the combination with a coiled spring bent in accordance with the shape of the hat, of a flat twisted spring arranged within said coiled spring, integral fastening-hooks on the latter adapted to engage the hair of the user, a plurality of sleeves loosely fitted over said coiled spring, suitably-shaped attaching-hooks on said sleeves, a small gear-wheel on one end of the flat spring, a partially-toothed pinion on a rotary shaft and meshing with said gear-wheel, and an operating-knob, or equivalent, on said shaft, substantially as set forth.

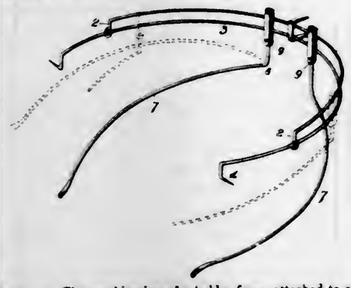
678,724. APPARATUS FOR PASTEURIZING LIQUIDS IN BOTTLES. LOUIS GABELOFF, Hagenau, Germany. Filed Dec. 1, 1900. Serial No. 38,320. (No model.)



Claim.—An apparatus for pasteurizing liquids in bottles or other receptacles, consisting of a series of cells adapted to receive the bottles or

receptacles, said cells being arranged in an endless chain and being connected successively by overflow-pipes provided with valves, in combination with a source of hot water, two pipes leading respectively to and from said source, means for maintaining a circulation of the water therethrough, and means whereby said pipes may be shifted to connect with any two of the series of cells, whereby the bottled material in the cells can be gradually raised in temperature and then gradually reduced in temperature, substantially as described.

678,725. HAT-FASTENER. CHARLES F. GAUEN, St. Louis, Mo. Filed Sept. 5, 1900. Serial No. 29,064. (No model.)



Claim.—1. The combination of a holder-frame attached to an article of headwear, a pair of independent spring-arms individually hinged to said frame so that they may be raised or lowered according to the position it is desired to cause them to embrace the head.

2. The combination of a holder-frame attached to an article of headwear, a pair of independent spring-arms and individual hinged connections between the frame and arms whereby the arms may be raised or lowered according to the position it is desired to cause them to embrace the head.

3. In a hat-holder, the combination of a pair of wires adapted to be secured within the article of headwear, slides arranged on said wires, and spring-arms hinged to said slides and adapted to embrace the head on opposite sides, substantially as described.

4. In a hat-holder, the combination of a pair of wires connected together and provided with prongs, a pair of slides arranged on said wires, and spring independent arms individually hinged to said slides, substantially as described.

5. In a hat-holder, the combination of the pair of wires connected together, a pair of slides movably mounted on said wires, and a pair of spring-arms hinged to said slides, substantially as described.

678,726. ARTIFICIAL STONE. FRITZ R. L. GEHRE, Bregenz, Austria-Hungary. Filed Apr. 5, 1900. Serial No. 11,760. (No specimens.)

Claim.—1. An artificial-stone composition comprising a chlorin salt, boracite, calc-spar, and a suitable filling material, substantially as described.

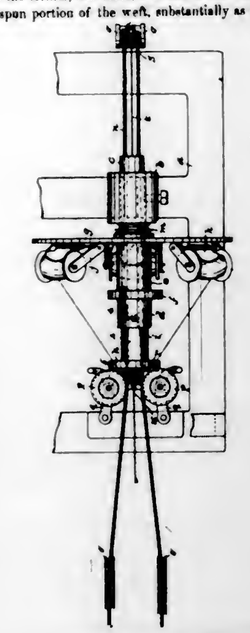
2. An artificial-stone composition, comprising a chlorin salt, boracite, calc-spar, and a filling of paper-pulp combined with a small quantity of a chlorin salt, substantially as described.

678,727. CHENILLE-MACHINE. FREDERICK H. GELDERMANN, Paterson, N. J. Filed June 3, 1901. Serial No. 63,007. (No model.)

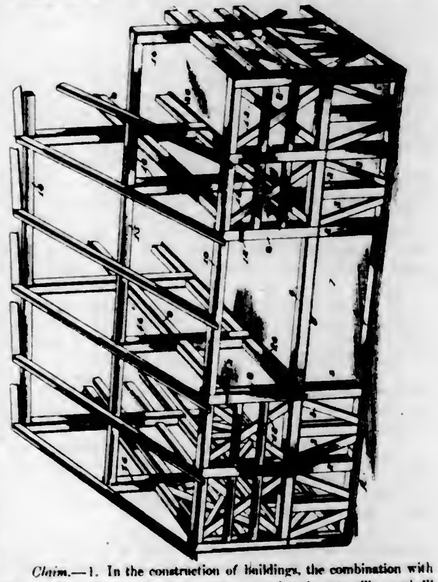
Claim.—1. In a chenille-machine, the combination, with a frame, of a pair of grooved devices mounted in said frame and movable the one toward the other, a former interposed between said devices and having grooves opposed to the grooves of said devices, a cord interposed between and engaged by each device and the former and received by said grooves, and means acting to draw said devices the one toward the other, the weft-thread being adapted to be spun around the former, the cords, and one of the warps previously to the twisting of the latter and the cutting of said weft-threads to form the pile, substantially as described.

2. In a chenille-machine, the combination, with a frame, of a pair of grooved rollers mounted in said frame and movable the one toward the other, a former interposed between said rollers and having grooves opposed to the grooves of said devices, a cord interposed between and engaged by each roller and the former and received by said grooves, and elastic means acting to draw said rollers the one toward the other, the weft-thread being adapted to be spun around said former, the cords, and one of the warps previously to the twisting of the latter and the cutting of said weft-threads to form the pile, substantially as described.

3. In a chenille-machine, the combination, with a frame, of a pair of grooved rollers mounted in said frame and movable the one toward the other, a former interposed between said rollers and having grooves opposed to the grooves of said devices, a cord interposed between and engaged by each roller and the former and received by said grooves, elastic means acting to draw said rollers the one toward the other, a weft-thread-carrying spindle revolubly mounted in said frame and adapted to spin the weft around the former, the cords, and one of the warps, and a knife for cutting the spun portion of the weft, substantially as described.



678,728. FRAMEWORK FOR BUILDINGS. WALTER R. GEORGE, Homer City, Pa. Filed Mar. 18, 1901. Serial No. 51,653. (No model.)



Claim.—1. In the construction of buildings, the combination with a lower sill, and a cap-sill, of supports connecting the two sills, a subsill on the cap-sill, posts mortised on the subsill an upper tie or wall plate supported by the posts, a purlin-plate, and a roof supported on said posts and purlin-plate.

2. In a framework, a lower sill, and a cap-sill supported above the lower sill, the cap-sill provided with a subsill thereon, an upper tie, posts extending between the upper tie and subsill, the posts mortised at each end to receive the tie and subsill, a purlin-plate, and a roof-frame built upon and supported by the upper tie and purlin-plate.

3. In a framework, a lower sill constructed of planks in such a manner as to give a laminated effect to the sill, a cap-sill supported a suitable distance above the lower sill, a subsill on the cap-sill, an upper tie which is in turn supported some distance above the cap-sill, and a roof-frame built upon and supported by the upper tie and purlin-plate.

4. In a framework, the combination with a lower sill, and a cap-sill supported some distance above the lower sill, of a subsill upon the cap-sill, the cap-sill and subsill being spliced at the corners of the building, posts mortised at their ends and fitting over the subsill, an upper tie supported in the mortised posts, purlin-plates, and a roof-frame supported on the upper ties and purlin-plates.

5. In a framework, the combination with a lower sill a cap-sill supported at some distance thereabove and a subsill on the cap-sill, of a series of hollow posts on the cap-sill, the posts composed of planks secured together at their edges, an upper tie supported upon the upper ends of the posts, purlin-plates and a roof-frame built upon and supported by the upper ties and purlin-plates.

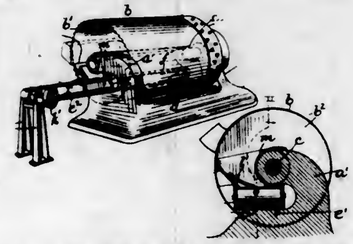
6. A framework comprising lower and upper sills, a series of posts supported on the upper sill, braces extending between the posts, cross-ties, a plurality of series of posts supported on the cross-ties, an upper tie supported by the first series of posts, girders supported on the posts extending from the cross-ties, purlin-plates supported on these latter posts, a roof-frame supported on the upper ties and purlin-plates, braces between the lower and upper sills, that portion between the two sills constituting the lower story, braces extending between the upper tie and upper sill, and planks for giving the framework a finished appearance.

7. In a framework for buildings the combination with a lower sill, of a cap-sill, posts and braces extending between the two sills for supporting the cap-sill, upper ties, posts between the cap-sill and the upper ties for supporting the latter, braces extending diagonally between the upper ties and cap-sill, and horizontal braces extending through the last-named posts for supporting the frame.

8. A framework for buildings comprising lower and upper sills, means for supporting and bracing the upper sill, upper ties, and means for supporting and bracing the ties, of cross-ties extending across the framework, posts supported on the cross-ties, girders supported by the posts and clamps on the girders, the clamps adapted to secure the girders rigidly to the means employed for supporting the upper ties.

9. The combination in a framework for buildings, of a hollow post comprising four strips secured together at their edges, a purlin-plate supported in these posts, the posts mortised to permit of a strong union between the purlin-plate and the posts.

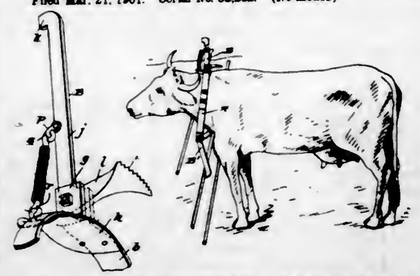
678,729. SAWING OR CUTTING MACHINE. RUDOLPH P. GERLACH, Cleveland, Ohio. Filed Sept. 10, 1900. Serial No. 29,484. (No model.)



Claim.—1. The combination, of a bed or stationary framework, a saw-forming shell serrated at its forward end, a shaft extending centrally and longitudinally of and through the saw, a head rigid with the rear end of the shell and fixed or operatively mounted upon the shaft, a standard or bracket affording bearing for the said shaft at the rear end of the saw and rigid with the base or framework, an endless belt or conveyer supported from the bed or framework and arranged within and longitudinally of the shell below the shaft, and another standard or bracket rigid with the bed or stationary framework and arranged at the right-hand side of the belt or conveyer and overhanging the said conveyer and having its free end affording bearing for the shaft at the forward end of the saw.

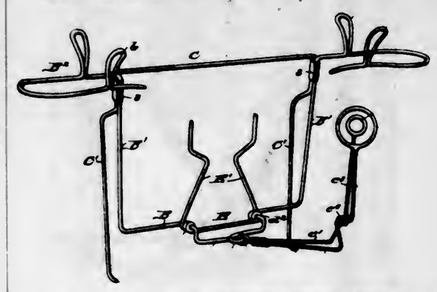
2. The combination, with a saw comprising a suitably-operated and suitably-supported rotary shell serrated at its forward end, and a suitably-supported stationary trough arranged within and extending longitudinally of the aforesaid shell, of a suitably-operated and suitably-supported endless belt or conveyer arranged within and longitudinally of the trough, and means for guiding the object or material that is to be made by the saw onto the aforesaid belt or conveyer.

678,730. ANIMAL-POKE. IVER GUNDERSON, Lac qui Parle, Minn. Filed Mar. 21, 1901. Serial No. 52,202. (No model.)



Claim.—An animal-poke comprising a yoke having the upper and lower U-shaped sections of concavo-convex form in cross-section, arranged with their convex sides inwardly, and detachably connected together, and also having the plate *h* connected to and extending forwardly from the upper section, the angular one-piece lever pivotally connected adjacent to the apex of its angle to upwardly-extending portions of the yoke and having an upwardly-extending fence-engaging arm and a rearwardly-extending arm terminating in a prod, a coiled spring, hooks connected to the plate of the yoke and the upwardly-extending arm of the lever, and having grooved shanks engaged by whirls of the spring, and the angular one-piece lever pivotally connected adjacent to the apex of its angle to depending portions of the yoke, and having the rearwardly-extending arm terminating in a prod, and the fence-engaging arm depending from the forward end of the rearwardly-extending arm whereby it is adapted to normally hold said rearwardly-extending arm away from the animal.

678,731. BOOK-HOLDER AND LEAF-TURNER. CLARK W. HADLOCK, Newton, Kans., assignor of one-half to Alfred H. Smolt, same place. Filed Sept. 25, 1900. Serial No. 31,018. (No model.)



Claim.—1. A book-holder comprising a generally rectangular wire frame having downwardly-projecting clamp-arms on the back side, holders for the side edges of the book projecting laterally from each side and two prongs rising from the bottom upwardly and adapted to be inserted between the book-covers and their leaves substantially as described.

2. A book-holder comprising a U-shaped wire section having its upper ends extended laterally and bent over to form holders to receive the side edges of the book, an inverted-U-shaped wire section rigidly connected to the first named and having its ends extended downwardly to embrace a board or support and another U-shaped wire piece having its ends extending from the bottom of main frame in upward direction substantially as described.

3. A book-holder made of wire and having its side members extended laterally and then bent over and having both in their upper and lower sections guide-loops extended upwardly and flared away from each other to form an entrance-throat for the sides of the book substantially as described.

4. The combination with a book-holder made of wire and having its middle lower portion bent outwardly in the form of a bail; of a U-shaped

wire piece coiled around the ends of the bail portion and having their projecting ends extended upwardly substantially as described.

5. The combination of a wire-frame book-holder having an offsetting bail at its lower side bent to form an eye, a U-shaped wire section wrapped around the ends of the bail and having its ends extended upwardly, and a leaf-turner clamp made in right-angular form of wire bent to form clasp-sections as described.

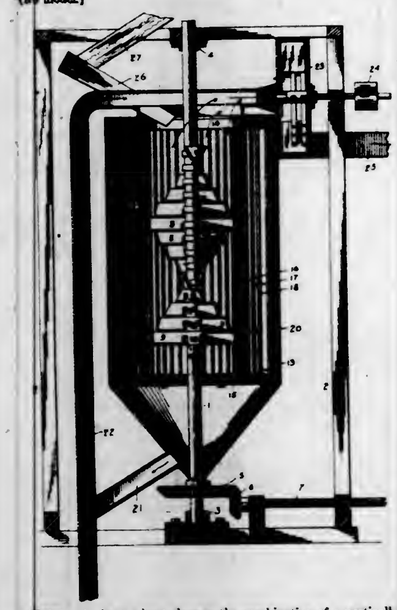
6. The combination with a wire book-holder having a loop or eye at its lower edge; of a leaf-turner made of one piece of wire bent to form an eye and coupled into the first-named eye, then having its branches extended divergently and bent twice at right angles, one section being wrapped around the other and then extended as spring-arms and provided with terminal loops substantially as described.

678,732. PROCESS OF PURIFYING BAUXITE. CHARLES M. HALL, Niagara Falls, N. Y. Filed Dec. 21, 1900. Serial No. 40,650. (No specimens.)

Claim.—1. The method herein described of removing silica from bauxite or other impure oxid of aluminium, which consists in fusing the same together with a metallic fluorid which is present in less proportion than the material to be treated, substantially as described.

2. The method herein described of purifying bauxite or other impure oxid of aluminium, which consists in fusing the same together with fluor-spar which is present in less proportion than the material to be treated; substantially as described.

678,733. MACHINE FOR CLEANING WHEAT. WILLIAM T. HAVARD, Hennessey, Okla. Filed Nov. 20, 1900. Serial No. 37,135. (No model.)



Claim.—1. In a wheat-cleaner, the combination of a vertically-disposed revoluble shaft having spirally-disposed beaters, the arms of which are inclined obliquely with relation to the said shaft, and a vertically-disposed cage surrounding the said beaters and having a multiple series of screen or beater rods, the said rods of the said series being disposed in lines which are radial with relation to the center of said shaft, substantially as described.

2. In a machine for cleaning wheat, the combination of a vertically-disposed revoluble shaft, beaters thereon, a cage surrounding the said shaft and in which said beaters operate centrifugally, said cage comprising the annular upper head, the circular bottom and the multiple series of concentrically-disposed screen or beater rods connecting said annular head and circular bottom, said screen or beater rods being disposed in lines which are radial with relation to the center of said shaft, the outer inclosing case in which the said cage is contained, a discharge-spout leading from the lower end of the said inclosing case, a flue with which said discharge-spout communicates and means to create an exhaust-current of air through the said flue, for the purpose set forth, substantially as described.

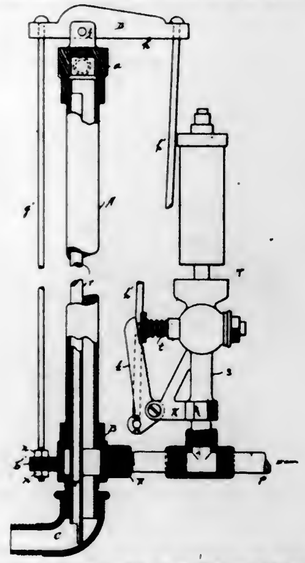
678,734. WOVEN FABRIC. ALFRED HEALD, Philadelphia, Pa. Filed Oct. 24, 1900. Serial No. 34,149. (No specimens.)



Claim.—1. A woven fabric in which sets of patterning warp-threads alternating with binding warp-threads are interwoven with pairs of heavy weft-threads alternating with binding weft-threads, one or other of the patterning warp-threads of each set forming loops on the upper face of the fabric, and the remaining thread or threads of the set occupying an intermediate position between the upper and lower weft-threads, the upper heavy weft-threads distending the pile-loops on the face of the fabric and the lower heavy weft-threads appearing at the back of the fabric, the upper binding weft-threads tying down and indenting the pile-loops between successive heavy weft-threads on the face of the fabric and the binding warp-threads aiding in the formation of the back of the fabric and tying said upper binding weft-threads to said back, substantially as specified.

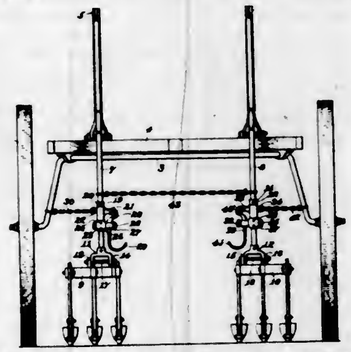
2. A woven fabric in which sets of patterning warp-threads alternating with binding warp-threads are interwoven with pairs of heavy weft-threads alternating with pairs of binding weft-threads, one or other of the patterning warp-threads of each set forming loops on the upper face of the fabric and the remaining thread or threads of the set occupying an intermediate position between the upper and lower weft-threads in some parts of the fabric, and all of the patterning warp-threads being embedded between the upper and lower weft-threads, in other portions of the fabric, the upper heavy weft-threads either distending the pile-loops of the upper face of the fabric in some portions of the same, or overlying the patterning warp-threads in other portions of the fabric, the lower heavy weft-threads appearing on the back of the fabric, the binding weft-threads tying down and indenting the pile-forming surface threads between successive upper heavy weft-threads, and the binding warp-threads aiding in the formation of the back of the fabric and tying said upper binding weft-threads to said back, substantially as specified.

678,735. LOW-WATER ALARM. CLARENCE B. HODGE, Detroit, Mich. Filed Sept. 19, 1900. Serial No. 30,473. (No model.)



Claim.—In a low-water alarm, in combination with a vertically-disposed stand-pipe, connections adapted to admit steam to the interior of the stand-pipe, a whistle, couplings connecting the whistle to the pipe near the bottom thereof, a valve controlling the passage of steam through the couplings, a lever arranged to actuate the valve, a link joining the lever and the top of the stand-pipe, and a loose rod located in the stand-pipe and adapted to break the seal of the water-column therein, substantially as described.

678,736. TREADLE-GUIDE FOR CULTIVATORS. SAMUEL F. HOGREN, Fort Madison, Iowa. Filed Feb. 27, 1901. Serial No. 49,084. (No model.)



Claim.—1. In a treadle-guide for cultivators, the combination of the hanging rods, plow-beams pivotally coupled to said rods, foot-levers pivotally supported upon the said rods, and devices connecting the said foot-levers and relatively fixed portions of the cultivator whereby the said rods and beams may be moved toward the sides, substantially as described.

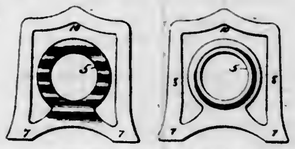
2. In a treadle-guide for cultivators, the combination of the hanging rods, plow-beams pivotally coupled to said rods, foot-levers pivotally supported upon the said rods, the said foot-levers having geared portions, geared segments having hubs pivotally supported upon the said rods, the said segments meshing with the geared portions of the said foot-levers, and devices connecting the hubs of the said segments and relatively fixed portions of the cultivator whereby the said rods and beams may be moved toward the sides, substantially as described.

3. In a treadle-guide for cultivators, the combination of the hanging rods, plow-beams pivotally connected to said rods, foot-levers pivotally supported upon the said rods, the said foot-levers having geared portions, geared segments having hubs pivotally supported by the said rods, the said segments meshing with the geared portions of the said foot-levers, arms projecting from the hubs of the said segments, and connections between the said arms and relatively fixed portions of the cultivator whereby the said rods may be moved toward the sides, substantially as described.

4. In a treadle-guide for cultivators, the combination of the hanging rods having lateral bends and vertical portions below the said bends, plow-beams pivotally joined to the lower ends of the said rods, foot-levers having hubs pivotally supported upon the said vertical portions of the rods below the bends, and connections between the said hubs and relatively fixed portions of the cultivator whereby the said hanging rods and plow-beams may be moved toward the sides, substantially as described.

5. In a treadle-guide for cultivators, the combination of a hanging rod having a lateral bend and vertical portion below the said bend, the L-shaped coupling 46 secured to the said vertical portion of the hanging rod below the bend, the rod 51 projecting from the coupling at right angles to the hanging rod, the connection 52 having the downwardly-extending sides and a tubular portion encircling the rod 51, and a plow-beam pivotally joined to the said connection 52, substantially as described.

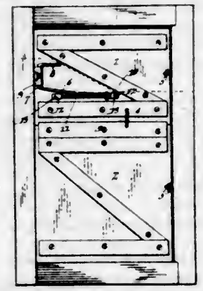
678,737. NUT-LOCK. JOHN H. HUFFREES, Janesville, Wis. Filed May 2, 1901. Serial No. 58,516. (No model.)



Claim.—1. A nut-lock comprising a bail and an integral washer inclosed within said bail, said washer having an inner corrugated or roughened biting-face.

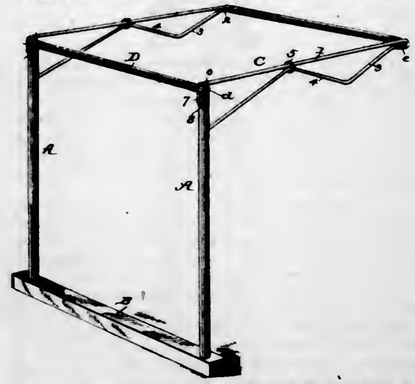
2. A nut-lock comprising a circular ring or washer having a roughened or corrugated face, an angular bail of malleable metal surrounding the washer and made integral with the washer at the lower end of the latter.

678,738. DOOR-MANIPULATOR. OMER F. INNELL, Blair, Wis., assignor of one-half to George L. Solberg, same place. Filed Jan. 26, 1901. Serial No. 44,893. (No model.)



Claim.—A door-manipulator comprising a substantially horizontal guide-rod constructed for application to a door and having opposite terminal attaching-brackets offset upon the same side of the rod, a bearing-bracket constructed for application to a door-frame and having a vertical bearing-opening, the top of the bracket being provided with a notch intersecting the bearing-opening and the outer side of the bracket, and a bowed rod having one end provided with a terminal eye adapted to slidably embrace the guide-rod, and the opposite end portion having a vertically-disposed spindle adapted to be slidably and rotatably mounted in the bearing-opening of the bracket, and a crank-handle carried by the upper end of the spindle and traveling across the top of the bracket, the notch in the latter being at one limit of the crank-handle and constructed to receive the same, the loose connection between the guide-rod and the bowed rod rendering the latter rod capable of being dropped thereon to seat the crank-handle in said notch and thereby lock the device.

678,739. CANOPY-FRAME. WASHINGTON T. JOHNSTON, Houston, Tex., assignor to Lottman Brothers Manufacturing Company, same place. Filed Jan. 29, 1901. Serial No. 45,188. (No model.)



Claim.—1. In a canopy-frame, a horizontal supporting-arm made of wire in a single piece, and formed of a straight upper section bent at the outer end into a loop or eye and then extended inwardly first down, and then up to the straight section and coupled thereto by a link, and then extended downwardly to connect with a post, the inner end of the upper section being also bent downwardly and its end turned forwardly to adapt it to enter a rear socket in the supporting-post substantially as described.

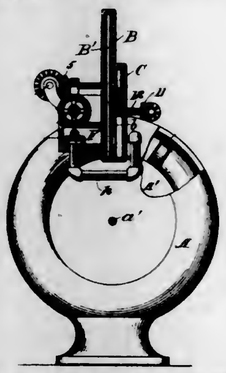
2. In a canopy-frame, the combination of a vertical post having a notch in its upper end and a socket both on its front and rear sides near the top, and a horizontal supporting-arm made of wire in a single piece formed of a straight upper section bent at the outer end into a loop or eye and then extended inwardly, first down and then up to the straight section and coupled thereto by a link, and then extended downwardly and entered into the front socket of the post, the inner end of the upper section being arranged in the notch at the top of the post and also bent

downwardly behind the post and then bent forwardly and entered into the socket in the rear of the post, substantially as and for the purpose described.

3. In a canopy-frame, the combination of a vertical post having a notch in its top and also a front and rear socket, a bracket-arm having two members one fitting in the front socket of the post and the other bent over the top of the post and lying in the notch, and bent down and entering the rear socket of the post, and a cross-bar arranged between the posts and having at each end a hook which embraces the top of the posts, the end of the hooks locking against the downwardly-bent member of the upper section of the bracket-arm substantially as and for the purpose described.

4. A canopy-frame comprising two posts, each having a notch in its upper end and a front and rear socket in its sides near the top, two horizontal bracket-arms made each of a single piece of wire bent on itself as described to form a double angle in its lower portion and a straight upper portion whose inner end is turned downwardly and forwardly and having the inner ends seated in the notches and sockets of the posts, a cross-bar connecting the posts at their upper ends, and another cross-bar connecting the outer ends of the arms substantially as and for the purpose described.

678,740. **ROTARY ENGINE.** MORRIS KELLER, David City, Nebr., assignor of one-half to Jeremiah Keller, same place. Filed Mar. 12, 1901. Serial No. 50,841. (No model.)



Claim.—1. A rotary engine having an annular piston-passage and a piston attached to a disk, in combination with a rotary abutment having an opening adjacent to its periphery which abutment is moved at a higher rate of speed than the piston, and a smaller rotary abutment or sector positioned adjacent to the first-mentioned abutment the latter turning at the same rate of speed as the piston, and means for admitting steam into the annular passage between the abutments and the piston, substantially as shown and for the purpose set forth.

2. A rotary engine having an annular piston-passage and a piston, in combination with a pair of revolving abutments which are in gear with the main shaft of the engine said abutments being adapted to intersect the piston-passage, and gearing for turning one of the abutments at a higher rate of speed than the other, for the purpose set forth.

3. A rotary engine having an annular piston-passage, a piston therein and abutments which are geared to move at different rates of speed for intersecting the piston-passage, in combination with a rotary controlling-valve which is movable to govern the admission of steam to the piston-passage, said valve having a portion which positively closes the port to the steam-passage which leads to the piston-passage when the piston is near the abutments and while it is passing the same, substantially as shown and for the purpose set forth.

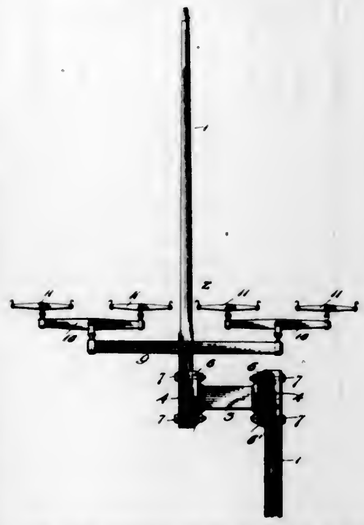
4. In combination with a rotary engine, a rotary expansion-valve geared to turn at the same rate of speed as the engine, said expansion-valve having cylindrical end portions and adjacent thereto curved portions or helices, and an intermediate portion between the helices with straight edges and means for moving the valve in its casing longitudinally to provide for the admission of steam to the piston-passage when the piston is turning in either direction and a positive cut-off when the piston is in close proximity to the abutments and while passing the same.

5. A cylindrical expansion-valve having at each end circular portions and between the ends inclined portions or helices and a part with straight edges which extends from the perimeter of one of the end portions to the perimeter of the other end portion, in combination with a casing, means for imparting a rotary movement to the valve, and means for shifting the valve longitudinally in its casing so that the same valve will operate when the engine is running in either direction.

6. A controlling-valve for the purpose set forth having near each of its ends curved portions which are tapered or inclined said portions being connected and mounted on a shaft within a casing having a port which is adapted to be covered by the parts of the valve, and means for moving the valve longitudinally over the port and rotating the same in either direction the means for rotating the valve being such that the valve will be turned in unison with the piston and a reversing-valve between the controlling-valve and the piston-passage substantially as shown.

7. In a rotary engine, the combination of a rotary controlling-valve, a reverse-valve, both valves being located within valve-chambers or steam-chests, a port between the steam-chests over which the controlling-valve turns and governs the supply of steam to the valve-chamber of the reversing-valve, an annular piston-passage, a piston therein a rotary abutment which intersects the piston-passage, and pipes leading from the reverse-valve chamber to the piston-passage, substantially as shown.

678,741. **DRAFT ATTACHMENT FOR BINDERS.** PETER KEMPKES, Garner, Iowa. Filed May 20, 1901. Serial No. 61,066. (No model.)



Claim.—The combination with the draft-pole for the purpose described, of a draft attachment, comprising an auxiliary pole equipped with a gang of singletrees and a laterally-disposed head-block having at one end two sets of flanges, one set for embracing the upper and lower sides of the auxiliary pole and the other set for embracing the upper and lower sides of the draft-pole, said flanges being provided with bolt-holes, and bolts passed through said holes and through the adjacent ends of the draft and auxiliary poles and provided with nuts, said head-block holding the draft and supplemental poles in parallel order, substantially as set forth.

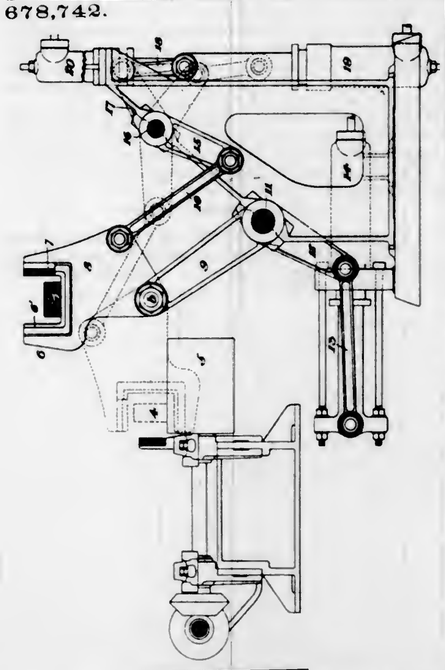
678,742. **METAL-TRANSFER DEVICE.** JULIAN KENNEDY, Pittsburg, Pa. Filed Nov. 2, 1900. Serial No. 35,215. (No model.)

Claim.—1. Metal-transfer mechanism comprising a metal-carrier arranged to be moved from one level to another, and supported from two pivotal points, and mechanism for swinging said carrier upon each of said pivots while the other pivot remains stationary, whereby the carrier may be moved to a different level with or without tilting, as desired; substantially as described.

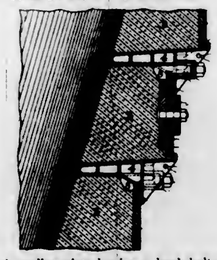
2. Metal-transfer mechanism comprising a carrier, parallel arms 9 and 10 connected therewith, a lever 15 connected with the arm 10, and motors connected respectively with said parts and arranged to swing either the arm 9 or the arm 15 without swinging the other of said arms; substantially as described.

3. Metal-transfer mechanism comprising a carrier, parallel arms 9 and 10 connected therewith, a lever 15 connected with the arm 10, shafts 11 and 16, and means for swinging either the arm 9 or the lever 15 without swinging the other of said members; substantially as described.

678,742.



678,743. **BOSH-PLATE.** JULIAN KENNEDY, Pittsburg, Pa. Filed Apr. 13, 1901. Serial No. 55,717. (No model.)



Claim.—1. A cooling-plate having a hook-bolt arranged to clamp the plate to a furnace-band; substantially as described.

2. A blast-furnace having an encircling band, a bosh-plate set in its wall, and a hook-bolt clamping the plate to the furnace-band; substantially as described.

3. A blast-furnace having a metal band surrounding its bosh, a cooling-plate set in its bosh-wall, and bolts extending through the plate and having inner hook portions engaging the inner face of the band, substantially as described.

4. A cooling-plate having a lateral flange arranged to fit against the outer face of a furnace-band, and a hook-bolt arranged to extend through the plate and engage the inner face of the band; substantially as described.

5. A blast-furnace having an encircling band with an inside splice-bar which is narrower than the band, a cooling-plate in the furnace-wall, and hook-bolts holding the plate and engaging the inner face of the band; substantially as described.

6. A furnace having an inclosing band, an outer splice-bar at its joint which is narrower than the band, and a cooling-plate having a lateral portion fitting against the outer face of the band at the joint; substantially as described.

7. A blast-furnace having an encircling band with inner and outer splice-bars at its joint, said bars being narrower than the band, a bosh-plate having a lateral portion fitting against the outer face of the band, and hook-bolts engaging the bosh-plate and the inner face of the band; substantially as described.

8. A blast-furnace having an encircling band, a cooling-plate in the furnace-wall, and a gripping mechanism arranged to clamp the plate to the furnace-band at any point in its length, said gripping mechanism having an adjustable member exterior to the band; substantially as described.

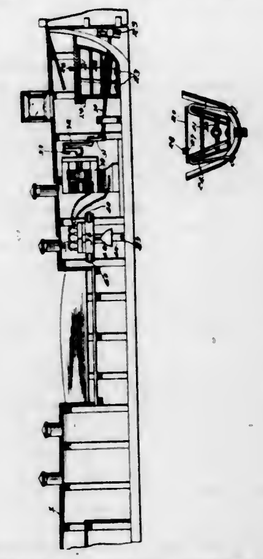
9. A blast-furnace having encircling bands, a bosh-plate inserted between the bands, and having lateral portions fitting against their outer faces, and hook-bolts removably clamping the plate to one of said bands; substantially as described.

678,744. **HUB-ATTACHING DEVICE.** JOSEPH R. KINLEY, Chicago, Ill. Filed Mar. 18, 1901. Serial No. 51,815. (No model.)



Claim.—In a hub-attaching device, the combination with an axle, a hub thereon, of a spring-arm having one end pivoted to the axle adjacent said hub and adapted to enter an annular recess therein, the opposite end of said arm having an elongated slot therein, a downwardly-projecting portion below said slot having a cam-surface, a bolt passing through the axle and having a nut thereon adjacent said slot, whereby the end of said bolt is adapted to engage the cam-surface and enter said elongated opening, substantially as described.

678,745. **BOAT.** CHARLES B. DE LAMARRE and NICOLO TALTAVULL, Biloxi, Miss. Filed Oct. 24, 1900. Serial No. 34,184. (No model.)



Claim.—1. A boat having a water-tank provided with a tube communicating with the exterior of the boat and arranged to discharge water therefrom, said tank being also provided with an inwardly-opening valve adapted to permit water to be forced into the tank by the pitching of the boat, substantially as described.

2. The combination of a boat, a water-tank arranged within the same, and provided with an inwardly-opening valve arranged to permit water to be forced into the tank by the pitching of the boat, and a pair of siphons arranged at the sides of the tank and composed of inner and outer legs, the outer legs communicating with the exterior of the boat, substantially as described.

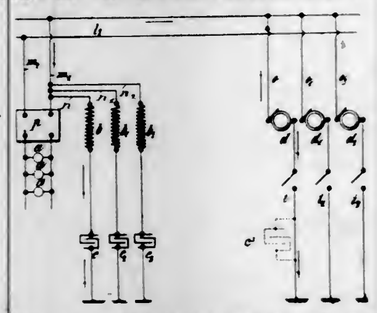
3. The combination of a boat, a tank arranged within the boat and having partitions and provided at its bottom with an inwardly-opening valve arranged to permit water to be forced into the tank by the pitching of the boat, and a pair of siphons arranged at opposite sides of the tank and having their legs at the inner and outer sides thereof, the outer legs being extended below the inner ones and communicating with the exterior of the boat, substantially as described.

4. The combination with a boat, of a tank having an inwardly-opening valve arranged at the bottom of the tank and adapted to permit wa-

ter to be forced through it by the movement of the boat, and a tube extending from the tank to the exterior of the boat and adapted to discharge water from the tank, substantially as and for the purpose described.

5. The combination with a boat, of a tank provided with horizontal partitions having openings to permit water to settle to the bottom of the tank, said tank being also provided at its bottom with an inwardly-opening valve adapted to permit water to be forced into the tank by the pitching of the boat, and the siphon-tubes arranged at the sides of the tank and having their inner legs extending from the bottom of the tank to the top of the same, substantially as described.

678,746. METHOD OF TELEGRAPHING, INDICATING TIME, OR ACTUATING MECHANISM ELECTRICALLY. CÉSAR R. LOUBERY, Paris, France. Filed July 9, 1900. Serial No. 22,990. (No model.)



Claim.—1. In an electric system the combination with a main supply-circuit and consumer's apparatus connected in the same, of an auxiliary circuit formed in part by a portion of the main supply-circuit, a generator and a circuit-interrupting device both in said auxiliary circuit at one end thereof, and an electromagnet and condenser in said auxiliary circuit at the other end thereof.

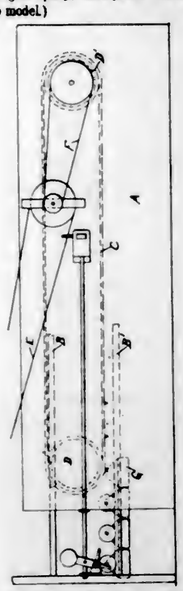
2. In an electric system, the combination with a main supply-circuit and consumer's apparatus connected in the same, of an auxiliary circuit formed in part by a portion of the main supply-circuit, an alternating-current generator and a circuit-interrupting device both in said auxiliary circuit at one end thereof, an electromagnet or solenoid, and a condenser, the coil of the electromagnet or solenoid and the condenser both being in said auxiliary circuit at the other end thereof, the self-inductance of the coil and capacity of the condenser being such that said coil and condenser are in electric resonance with regard to the frequency of the alternating current impressed upon the auxiliary circuit by the alternating generator.

3. In an electric system, the combination with a main supply-circuit and consumer's apparatus connected in the same, of a plurality of auxiliary circuits each formed in part by a portion of the main supply-circuit, an alternating-current generator and a circuit-interrupting device in each auxiliary circuit at one end thereof, the generators for the several circuits generating alternating currents of different frequencies, an electromagnet or solenoid and a condenser for each auxiliary circuit, the coil of the electromagnet or solenoid and the condenser being included in each auxiliary circuit at the other end thereof, the self-inductance of the coils and capacity of the condensers being different for the several auxiliary circuits but in electric resonance respectively with regard to the frequency of the alternating currents impressed upon the auxiliary circuits by their corresponding generators.

4. In an electric system, the combination with a main supply-circuit and consumer's apparatus connected in the same, of a plurality of alternating-current generators for generating alternating currents of different frequencies, a plurality of circuit-interrupters one corresponding to each generator, branch conductors leading from one of the conductors of the main supply-circuit to ground through said generators, and their circuit-interrupters respectively, a plurality of electromagnets or solenoids, a plurality of condensers corresponding to said electromagnets or solenoids respectively, and branch conductors leading from said main supply-conductor through the coils of said electromagnets or solenoids and their corresponding condensers, respectively, the self-inductance of the coils and capacity of the condensers being different for the several branches but in electric resonance respectively with regard to the frequency of the alternating currents generated by the alternating generators.

5. In an electric system, the combination with a main supply-circuit and consumer's apparatus connected in the same, of a plurality of auxiliary circuits associated with said main circuit and each formed in part by a portion of one of the conductors of the main circuit, an alternating-current generator and a circuit-interrupter in each auxiliary circuit at one end thereof, the alternating currents produced by the several generators being of different frequencies, an electromagnet or solenoid and a condenser for each auxiliary circuit, the coil of the electromagnet or solenoid and the condenser being included in each auxiliary circuit at the other end thereof, the self-inductance of the coils and capacity of the condensers being different for the several auxiliary circuits but in electric resonance respectively with regard to the frequency of the alternating currents produced by the alternating generators, a circuit-breaker actuated by one of the electromagnets or solenoids, and an electric circuit controlled by said circuit-breaker.

678,747. AUTOMATIC STOP FOR SUGAR-DRYING APPARATUS. FREDERIC MANOUDEAU, New York, N. Y., assignor to the American Sugar Refining Company, same place. Filed Jan. 4, 1901. Serial No. 42,142. (No model.)



Claim.—1. In a furnace for drying sugar or other bodies, the combination of the trackways, a moving carriage, means for moving the carriage, a pivoted arm in the path of movement of the carriage, a rod moved by said arm, and a belt-shifting device actuated by said rod.

2. In a furnace for drying sugar or other bodies, the combination of the bracket carrying a tubular bearing, shaft with depending arm, counterweight on opposite ends of shaft, rod connected to said counterweight, and bell-crank and belt-shifter connected to said rod.

3. In a furnace for drying sugar or other bodies, the combination of two pairs of parallel trackways, a moving carriage, means for moving the carriage, a pivoted arm in the path of movement of the carriage while on the lower trackway, a rod moved by said arm, and a belt-shifting device actuated by said rod.

4. In a furnace for drying sugar or other bodies, the combination with two horizontally-disposed trackways, one in the upper part of the furnace-chamber and one in the lower, a number of moving carriages, mechanism for moving said carriages, and a device in the path of movement of said carriages and at the exit of the furnace which, when actuated by one of said carriages, will stop the movement of all of said carriages through the furnace.

678,748. PROCESS OF FORMING PIECES OF RAW CEMENT. GUSTAV MÖLLER, Berlin, Germany. Filed Apr. 16, 1901. Serial No. 56,182. (No specimens.)

Claim.—1. The herein-described process for the manufacture of solid pieces of raw cement which consists in drying the plastic raw cement and successively bringing pieces of said dried cement into contact with newly-mixed plastic mass, thus surrounding said pieces with a new layer of the mass at each operation until the pieces have reached the desired size and are ready for the baking process.

2. The herein-described process for the manufacture of solid pieces of raw cement which consists in drying the plastic raw cement and successively bringing pieces of said dried cement into contact with newly-mixed plastic mass, thus surrounding said pieces with a new layer of the mass at each operation drying the pieces sufficiently after each operation to permit of sifting them, and finally submitting the pieces which have attained the required size to the baking process.

3. The improvement in the process, herein described, for the manufacture of solid pieces of raw cement, which consists in permitting dried pieces of the cement to pass successively through a series of drying-drums each of which contains a plastic mass of raw cement with which the pieces of cement are successively brought into contact until they are passed through the whole series of drying-drums and finally submitting the pieces which have attained the desired size to the baking process.

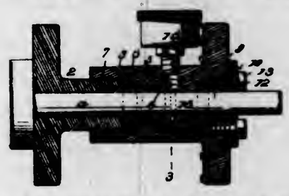
678,749. PROCESS OF MAKING MALTED FLOUR. JAMES R. MOORE and CHARLES S. BOYSTON, Burlington, Vt., assignors to the Malted Cereals Company, same place. Filed Oct. 9, 1900. Serial No. 32,551. (No specimens.)

Claim.—1. The process of making malted flour, which consists in mixing flour with a comparatively small percentage of malt-flour, moistening said mixture, heating and agitating the said mixture, adding additional flour to said mixture to form a dough, baking said dough, pulverizing said baked product, and mixing said pulverized product with a large percentage of a pulverized cereal.

2. The process of making malted flour, which consists in mixing flour with about one-fifth of its weight of pulverized malt, adding sufficient water to said mixture to form a thin paste, heating and agitating said moistened mixture, mixing therewith from time to time small quantities of flour until a stiff paste or dough is produced, baking said dough, pulverizing the product thus obtained and mixing said pulverized product with about six times its weight of a pulverized cereal.

3. The process of making malted flour, which consists in reducing wheat to flour, dividing said flour into two portions, mixing the second portion with about one-fifth of its weight of malted flour, adding sufficient water to said mixture to form a thin paste, heating and agitating said moistened mixture for several hours at a temperature varying from 140° to 160° Fahrenheit, stirring into said mixture from time to time small quantities of flour until a stiff paste or dough is produced, baking said dough, powdering the baked product thus produced, and mixing said powdered product with about six times its weight of flour.

678,750. PISTON-ROD PACKING. HENRY J. MORELAND, Pittsburg, Pa. Filed Jan. 18, 1901. Serial No. 43,767. (No model.)



Claim.—1. The combination with a hollow boss having a bore for the passage of a reciprocating rod, of a stuffing-box, packing therein, and means for locking said box in position, said box having a bore designed to receive said boss and hold said packing against the end of the latter, as set forth.

2. The combination with a cylinder-head having a hollow boss projecting therefrom, said boss having a bore for the passage of a reciprocating rod, of a stuffing-box carrying packing therein and designed to inclose said boss and hold said packing against the end thereof, and means for locking said box and holding it away from said head, as set forth.

3. The combination with a hollow boss having a bore for the passage of a reciprocating rod, of a stuffing-box having a central bore for such rod and a counterbore for said boss, packing within said counterbore, and means for locking said stuffing-box, as set forth.

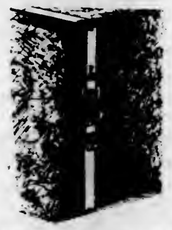
4. The combination with a cylinder-head having a hollow boss through the bore of which a reciprocating rod is designed to be passed, of a stuffing-box having a central bore for such rod and a counterbore for said boss, packing within said box designed to fit against the end of said boss, and notted rods projecting from said head for holding said stuffing-box, substantially as set forth.

5. The combination with a cylinder-head having a hollow boss projecting therefrom, of a stuffing-box having a bore and a counterbore in each end in one of which said boss is designed to fit, packing within said counterbores, a gland in the other counterbore, and means for locking said stuffing-box to said cylinder-head, substantially as set forth.

6. A stuffing-box having a bore for the passage of a reciprocating rod, and counterbores in its end, and a circular groove or channel intermediate said counterbores, packing within the latter, and a lubricating-cup opening into said groove or channel in combination with a hollow boss designed to fit in one of said counterbores, as set forth.

7. The combination with a cylinder-head having a hollow boss, of a stuffing-box having a counterbore designed to receive said boss, and an inner groove or channel, packing within said counterbore and on each side of said groove or channel, a lubricating-cup opening into the latter, and means for locking said stuffing-box to said cylinder-head, substantially as set forth.

678,751. BALE-BAND FASTENING. DENNIS MULLANE, Houston, Tex. Filed Apr. 9, 1901. Serial No. 55,019. (No model.)



Claim.—1. A fastening or tie of the class described, comprising a buckle member engaged at one end by one end of the band, and a detachable stirrup member arranged astride the buckle member and having a fulcrum connection therewith at the outer side thereof, said stirrup member having the side opposite its fulcrum receiving the other end of the band, and coöperating as a clamp with the inner face of the contiguous end of the buckle member.

2. A fastening or tie of the class described, comprising a buckle member having a fulcrum projection or lug at one side, and a stirrup member obliquely and loosely striding the buckle member and having one bar engaged with said projection or lug, and its opposite bar opposing the adjacent face of the buckle member at the side opposite the projection or lug.

3. A fastening or tie of the class described, comprising a buckle member having at one side an offstanding fulcrum projection or lug, and a separate detachable stirrup member essentially consisting of a rectangular frame adapted to be slipped over one end of the buckle member with one of its side bars loosely hooked upon said fulcrum projection or lug.

4. A fastening or tie of the class described, comprising a buckle member having at one end a clamp-lip, and at one side an offstanding fulcrum projection or lug, and a separate detachable stirrup member essentially consisting of a rectangular frame adapted to be slipped over the clamp-lip or clamping end of the buckle with one of its side bars loosely engaged with said fulcrum projection or lug.

678,752. AUTOMATIC MEANS FOR THROWING SWITCHES. HUGH P. MCARDLE, Bainbridge, Ohio. Filed Mar. 18, 1901. Serial No. 51,690. (No model.)

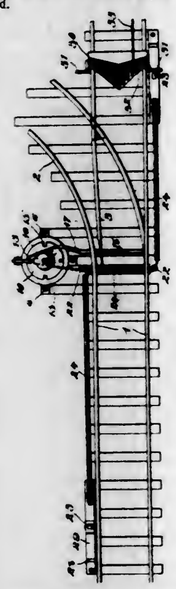
Claim.—1. Means for automatically closing an open switch, comprising a switch-stand, means for operating a switch from said stand, and means for controlling said switch-operating mechanism at a distance, comprising a lever, flexible connection between said switch-operating mechanism and said lever, a housing about said lever and a spring bearing upon the front side of said lever for maintaining it in a vertical position, substantially as described.

2. An automatically-closed switch, comprising a switch-stand provided with means for operating said switch, means leading to a lever at a distance from said switch-operating means, and means carried by a locomotive for operating said lever and thereby closing the switch, comprising a shaft transversely of said locomotive, cranks formed at the free ends thereof, and a crank intermediate the length thereof, whereby said shaft may be pivoted above the plane of contact with said lever or into such plane, substantially as described.

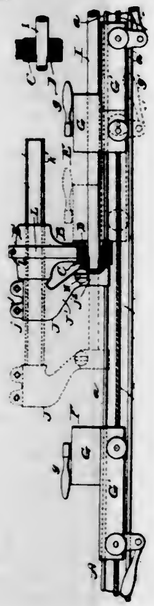
3. Means for automatically closing a switch, comprising a vertical shaft, means for supporting the same, a crank-arm at the lower end of said shaft, means connected to said crank-arm for moving said switch, a spring secured to said crank-arm, the construction being such that said spring will have a constant tendency to close said switch, means for locking said switch in an open condition, and means at a distance for releasing said locking means, whereby said switch will automatically close upon operating the distant releasing mechanism, substantially as described.

4. Means for automatically closing a switch, comprising a switch-stand having a central shaft, a housing about said shaft, means for operating a switch by the rotation of said shaft, means for imparting a constant

tendency to said shaft to rotate in the direction for closing said switch, a cap or cover for said housing, provided with notches in its periphery, an arm secured to said shaft, a second arm pivoted to said first-mentioned arm, a spring adapted to press outwardly against said second arm, means for locking said arm within one of the notches in said cap or cover against said spring-pressure, and means for releasing said second arm, the said releasing means being at a distance from said switch-stand, and adapted to be operated by being struck by an arm carried by a passing train, substantially as described.



678,753. MACHINE FOR DRAWING METAL. WILLIAM A. McCOOL, Beaverfalls, Pa., assignor, by mesne assignments, to Shelby Steel Tube Company, Cleveland, Ohio. Filed Jan. 20, 1899. Serial No. 702,909. (No model.)



Claim.—1. In a machine for drawing metal, the combination with the die, the die-holder and the drawing devices, of a movable guide for the forward end of the metallic article, arranged to lie immediately adjacent to the emerging face of the die, so as to receive the end of the article as soon as it emerges from the die, and a support for the guide arranged to direct its movements, and in which it is free to move, whereby it advances with the forward movement of the article, and serves to hold and guide the same, substantially as set forth.

2. In a metal-drawing machine, the combination with the die, the die-holder and means for propelling the metal articles through the die, of the movable holder supported independently of the propelling means and adapted to receive and supppprt the front end of the article being drawn, and adapted to be moved into and out of alinement with said article, and means for guiding said holder in the direction desired to be taken by the end of the tube, substantially as set forth.

3. In a machine for drawing metal articles, the combination with the die, the die-holder and the devices for propelling the article through the die, of the longitudinally-moving holder for said articles adapted to be rotated to and from the path of the articles being drawn and means for guiding said holder rectilinearly, substantially as set forth.

4. In a machine for drawing metal articles, the combination with the die, the die-holder and the means for propelling through the die the articles to be drawn, of the holder for the front ends of said articles successively, freely movable with and by the action of the drawing devices at the opposite side of the die and having a detachable receiver for receiving said front ends, substantially as set forth.

5. The combination with the draw-bench, and the die, of the holding device having the arm J, with an aperture or socket for the front end of the article being drawn, and the stem or guide K adapted to move forward with said article, substantially as set forth.

6. The combination with the draw-bench and the die, of the sliding stem or guide K and the rotating holder on the said stem or guide, substantially as set forth.

7. The combination with the draw-bench and the die, of the longitudinally-movable holder freely movable with and by the action of the drawing devices at the opposite side of the die and adapted to be positively held in a position in alinement with the article being drawn, and in a position out of such alinement, substantially as set forth.

8. In a machine for drawing metal the combination of a die, the freely-sliding holder arranged immediately adjacent to the face of the die from which the article emerges, and means at the other side of said die for forcing through it a tube or bar and sliding said holder by the end of such rod or bar, the latter being guided by said holder.

9. In a machine for drawing metal the combination of a die, a freely-sliding holder at one side of the same, guiding devices for said holder comprising fixed and movable parts the fixed part being connected with the die, and means at the other side of said die for forcing through it a tube or bar and operating said holder by the end pressure of such rod or bar, the latter being guided by said holder.

10. In a machine for drawing metal, the combination of a die, the drawing devices for engaging with and moving the article to be drawn, arranged upon opposite sides of the die, and a guide-holder for the forward end of the article, arranged between the die and the drawing devices on the emerging side of the die, and adapted to guide the forward end of the article as it moves from the die toward the last said drawing devices, substantially as set forth.

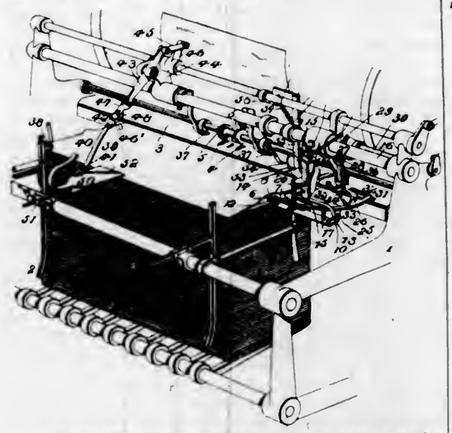
11. In a machine for drawing metal, the combination of a die, the drawing devices arranged to engage with and move the article, and situated upon opposite sides of the die, and a guide for the forward end of the article, situated between the die and the drawing devices on the emerging side of the die and arranged to guide the forward end of the article as it moves from the die toward the said drawing devices, the said guide and holder being movable into and out of the path of the article, substantially as set forth.

678,754. FEEDER FOR PRINTING-PRESSES. JOHN F. McNUTT, Warren, Ohio, assignor to the Harris Automatic Press Company, Niles, Ohio. Filed July 25, 1900. Serial No. 24,781. (No model.)

Claim.—1. A sack-feeder for printing-presses, comprising means for bodily engaging a sack and moving it laterally at one end, and means for bodily engaging the sack at a second point and moving it laterally at the other end after the first-mentioned means has performed its function, as set forth.

2. A sack-feeder for printing-presses, comprising means for entering the sack at one end and moving it laterally at such end, and means for engaging the sack at a second point and moving laterally the other end thereof.

3. A sack-feeder for printing-presses, comprising a feeder for bodily engaging and moving the sack laterally at one end, a second feeder for bodily engaging and moving laterally the other end of the sack, and means for operating said feeders, the second feeder being operated after the first-mentioned feeder has performed its function.



4. A sack-feeder for printing-presses, comprising means for opening a sack at one end, a feeder for entering and engaging such sack and moving it laterally at each end, and a second feeder for engaging the sack at a second point and moving laterally the other end thereof.

5. A sack-feeder for printing-presses, comprising a device for opening a sack at one end, a feeder for entering such end and engaging the inner portion of the sack, and a second feeder for engaging the outer portion of the sack near its other end.

6. A sack-feeder for printing-presses, comprising means for engaging a sack and moving it laterally at one end, means for engaging the sack at a second point and moving laterally the other end thereof, and a side-registering device designed to act on one end of the sack as it is being moved by said second-mentioned means.

7. A sack-feeder for printing-presses, comprising means for opening a sack at one end, a feeder for entering and engaging such sack and moving it laterally at such end, a second feeder for engaging the sack at a second point and moving laterally the other end thereof, and a side-registering device designed to move the sack longitudinally, substantially as set forth.

8. A sack-feeder for printing-presses, comprising a device for opening the sack at one end, a curved feeder designed to enter and engage said sack at one end, means for moving such feeder in an arc, means for throwing such feeder out of such arc as it approaches the limit of its movement, and a second feeder for engaging the sack at a second point and moving laterally the other end thereof, substantially as set forth.

9. A sack-feeder for printing-presses, comprising an arm having a downwardly-inclined end designed to enter one end of a sack, means for moving such arm longitudinally, a feeder axially mounted and designed to enter the sack after said arm, means for operating said feeder, means for throwing such feeder out of its normal position as it approaches the limit of its movement, a second feeder, and means for effecting the engagement of the latter with the sack after the first-mentioned feeder has moved one end of such sack, substantially as set forth.

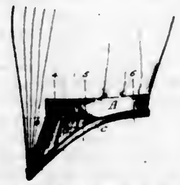
10. A sack-feeder for printing-presses, comprising an opener designed to separate the sides of a sack at one end thereof, a feeder, an arm to which the latter is pivoted, means for axially swinging said arm, a spring acting on said feeder, a rod secured to the latter, a stop with which such rod is designed to engage for turning said feeder on its pivot, and a second feeder for engaging with the sack at a second point, substantially as set forth.

11. The combination with the sack-opener, and the feeder for engaging and moving laterally one end of a sack, of a second feeder comprising an arm having a hooked end for engaging the outer edge of a sack, and means for operating said arm, substantially as set forth.

12. The combination with the sack-opener, and the feeder for engaging and moving laterally one end of a sack, of a second feeder comprising an arm having a hooked end for engaging the outer edge of a sack, a plate having an obliquely-extended ridge against which said hooked end is designed to travel, a lever, a universal joint between said arm and lever, and means for operating said lever, substantially as set forth.

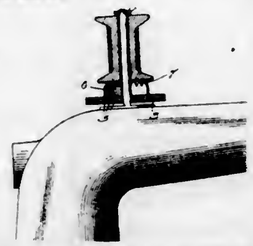
678,755. WAIST-LENGTHENER. FLORENCE L. NEWTON, Philadelphia, Pa. Filed Feb. 20, 1901. Serial No. 48,149. (No model.)

Claim.—1. The combination of a waist having a downwardly-extending, loose front portion, a waistband, a downwardly-extending, stiffened portion attached to said band, the said portion being constructed to conform to the edges of the waist and being attached thereto, substantially as described.



2. The combination of a waist having an open front, with a waistband, the ends thereof being secured together at the front and having two depending sections constructed to be united also at the front, the same being secured to the lower edge of the waist, substantially as described.

678,756. SPOOL-HOLDER FOR SEWING-MACHINES. EVERETT E. NORRIS, Randolph, Nebr., assignor of one-half to Fred. G. Hoffman and William R. Boughn, same place. Filed Nov. 12, 1900. Serial No. 36,248. (No model.)



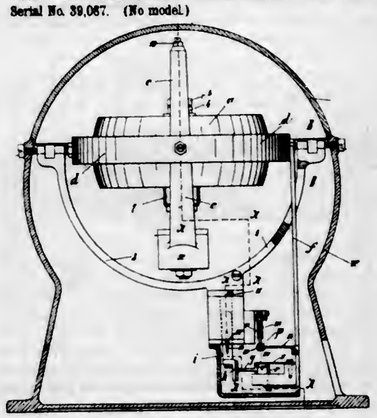
Claim.—1. A spool-holder for sewing-machines, comprising a disk; a tube rising centrally therefrom and closed at its upper end; and a ring projecting from the upper surface of the disk to support the spool.

2. A spool-holder for sewing-machines, comprising a disk having a central opening; a tube, the lower end of which extends through said opening, said tube being open at its lower end and closed at its upper end; and a ring projecting from the upper surface of the disk and formed with a toothed edge.

3. A spool-holder for sewing-machines, comprising a disk formed with a central opening and with a plurality of concentric circular grooves upon its upper face; a tube, the lower end of which extends through the disk, said tube being open at its lower end and closed at its upper end; and a toothed ring fitting one of the circular grooves.

4. A spool-holder for sewing-machines comprising a disk; a tube rising centrally therefrom closed at its upper end and externally screw-threaded; a ring projecting from the upper surface of the disk; and a thumb-nut adapted to engage the threads of the tube.

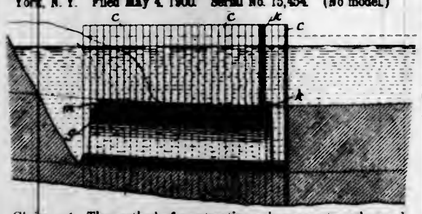
678,757. APPARATUS FOR AUTOMATICALLY FIRING SHIPS' GUNS. LUDWIG OBRY, Trieste, Austria-Hungary. Filed Dec. 7, 1900. Serial No. 39,067. (No model.)



Claim.—1. In an apparatus, such as described, for automatically firing ship-guns a device for obtaining a constant advance ignition time at various extents of rolling motion, i. e. for causing the advance ignition angle to increase and decrease with the extent of the rolling motion, consisting essentially of the horizontal ring of the cardanic suspension, an arm *f* keyed upon the axis thereof, a carrier fixed to the casing and oscillating past the said arm, a wedge-like abutment and a switch device operated by the said abutment, the said abutment or switch device being fixed whereby either is caused to move through the field of oscillation of the other at a constant velocity from the moment the elements oscillating against each other, will form together a certain angle, so that the size of the section of the abutment where the tongue and abutment meet will be larger or smaller according to the velocity of the oscillating elements, all substantially as and for the purpose set forth.

2. In a device, such as specified, for the purpose of starting and effecting the automatic descent of the wedge-like abutment or of the tongue at a constant velocity when the parts oscillating toward each other are at a certain angle apart from each other, the descending part, the core of a solenoid to which it is fixed, means for operating the circuit-breaker inserted into the solenoid-circuit when the parts oscillating toward each other are a certain angle apart, whereby at this moment the solenoid will be free from current and permit its core raised at the previous closing of the circuit to drop, and a controlling brake device, all substantially as and for the purpose set forth.

678,758. **TUNNEL CONSTRUCTION.** JOHN F. O'ROURKE, New York, N. Y. Filed May 4, 1900. Serial No. 15,454. (No model.)



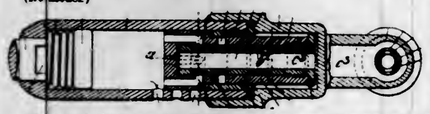
Claim.—1. The method of constructing subaqueous tunnels or subways which consists in forming the floor of the tunnel or subway, placing a mold about the same, placing a core-mold upon the floor, placing concrete through the water within the mold and around and over the core-mold, and finally removing the water, substantially as set forth.

2. The method of constructing subaqueous tunnels or subways which consists in forming the floor of the tunnel or subway, placing a cofferdam to form a mold about the same, erecting centers on the floor, forming a bulkhead over the end of the centers between the walls of the cofferdam, placing concrete around and over the centers and between the walls of sheet-piling and finally removing the water, substantially as set forth.

3. The method of constructing subaqueous tunnels or subways which consists in forming the floor of the tunnel or subway, placing a mold about the same, placing a core-mold upon the floor, placing concrete through the water within the mold and around and over the core-mold, removing the water and finally removing the core-mold and finishing the interior of the tunnel or subway, substantially as described.

4. A tunnel or subway structure comprising a floor, a mold around the same, removable centers erected on the floor, and concrete walls and roof placed around and over the centers and within the mold, substantially as shown and described.

678,759. **PORTABLE FLUID-PRESSURE HAMMER.** WALTER PATTON, Richmond, England. Filed Dec. 10, 1900. Serial No. 39,399. (No model.)



Claim.—1. In a portable fluid-pressure hammer, the combination with a casing constituting the working cylinder, of a reciprocating piston contained inside the casing, of a sliding tubular tappet-valve carried by the said piston and of projections situated within the cylinder and in the path of said valve for the latter to strike against as the piston performs its forward and rearward strokes, whereby the said valve is shifted in opposite directions to open and close the ports or passages and permit the motive fluid to reverse the movement of said piston at regular predetermined parts of the stroke, substantially as and for the purpose specified.

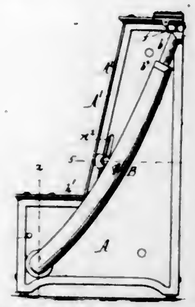
2. In a portable fluid-pressure hammer, the combination with the reciprocating piston, and the sliding valve carried thereby, of a cylindrical casing, constituting the working cylinder, formed of two detachable portions screwing one onto the other, of a fixed hollow handle connected with the rear portion of said casing by a hollow arm, of means for coupling said handle to the motive-fluid supply, of an adjustable rotary valve located in said handle at a point to permit the thumb of the hand grasping the handle to reach and actuate said valve for regulating the supply of motive fluid to the casing, substantially as described.

3. In a portable fluid-pressure hammer, the combination with the reciprocating piston, the sliding valve carried thereby and the means for holding the tool in alinement with the said piston; of a cylindrical casing constituting the working cylinder formed of a forward and a rear portion screwing one onto the other in a detachable manner, and of a removable ring in which the said piston reciprocates and which is held in place within said casing by pressure exerted thereon when the aforesaid two portions of the casing are screwed together, substantially as described.

4. In a portable fluid-pressure hammer, the combination with the reciprocating piston, and the sliding valve carried thereby, of a cylindrical casing constituting the working cylinder formed of a forward and a rear portion screwing one onto the other in a detachable manner, of a removable ring in which said piston reciprocates, and of a flange or flanges on said ring for the aforesaid detachable member of the casing to bear against when said members are screwed together substantially as described.

5. In a portable fluid-pressure hammer, the combination with a piston constituting the hammer proper and constructed in two diameters of which the greater is forward of the lesser, of a ring in which the said lesser portion of the piston slides, of a tube adapted to slide air-tight in the interior of said piston, and of a flange upon the rear end of said tube, having an external diameter greater than the internal diameter of said ring, said tube being of a length less than that of the piston, and said tube and said piston being provided with ports adapted to be opened and closed by the changes of position of the tube relatively to the piston, substantially as described.

678,760. **CIGAR CUTTER AND LIGHTER.** LOUIS P. PERSW, North Tonawanda, N. Y. Filed Jan. 30, 1900. Serial No. 3,271. (No model.)



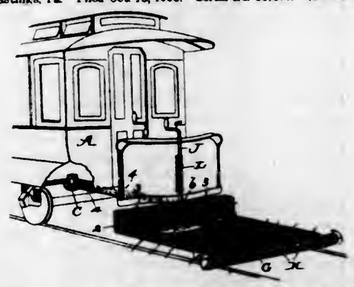
Claim.—1. In a cigar-lighter, the combination with a case having a display opening or window, of an igniting-circuit, a contact arranged on the case and forming one terminal of said circuit, a traveling advertisement-carrier arranged in said case and visible through said display-opening, a movable lighter-arm attached to the case and carrying a burner, a contact forming the other terminal of said igniting-circuit and arranged to trip over the first-named terminal, and a feed device for said traveling advertisement-carrier which is actuated by said lighter-arm, substantially as set forth.

2. In an advertising cigar-lighter, the combination with a case having a display opening or window, and a traveling advertising-belt arranged in said case behind said opening, of a rock-shaft journaled in the lower portion of said case, a swinging lighter-arm mounted on said shaft, an electric igniting-circuit having terminals mounted on said case and said lighter-arm, respectively, and arranged to make and break the circuit by the movement of said arm, means for automatically returning said arm to its normal position, a feed device for said advertising-belt which is actuated from said rock-shaft, a cutter-blade arranged to move past an opening in the case, and an actuating device operated by said rock-shaft and engaging with said cutter-blade, substantially as set forth.

3. In an advertising cigar-lighter, the combination with a case having a display opening or window, of an endless upright advertising-belt arranged in said case and journaled on guide-rollers arranged in the upper and lower portions of the case, a movable lighter-arm, intermediate feed mechanism whereby said belt is actuated from said arm, an electric

igniting-circuit having terminals arranged on the case and said lighter-arm, respectively, and a battery and an induction-coil included in said circuit and arranged in the space between the front and rear portions of the advertising-belt, substantially as set forth.

678,761. **CAR-FENDER.** LAWRENCE P. PLATT and FRANK WARGA, Hastings, Pa. Filed Oct. 18, 1900. Serial No. 33,477. (No model.)



Claim.—1. A car-fender having a truck-wheel shaft with bearing-wheels, and an inclined "live" roller in front of the same geared directly to the truck-wheel shaft and deriving motion therefrom, a table-surface on the fender, and a presser-bar on the car having a caster-wheel at its lower end bearing on said table substantially as and for the purpose described.

2. A car-fender having a table-surface and a rearwardly-projecting tongue, combined with and pivoted to the car about a vertical bolt, a presser-bar on the dashboard of the car bearing on said table-surface, said fender having a "live" roller in front and a truck-wheel shaft geared to and actuating said "live" roller as described.

3. The combination of a car having a vertical spring-seated shaft on its dashboard with cranks at its upper and lower end and a caster-roller below, and a car-fender connected to the car so as to swing and having a "live" roller at its front end and truck-wheels, shaft and gears for driving the "live" roller, and a table-surface on the fender adapted to receive the pressure of the caster-roller substantially as and for the purpose described.

678,762. **COLLAR-BUTTON.** JAMES E. POTTER, Providence, R. I., assignor to Barton A. Ballou and Frederick A. Ballou, same place. Filed Apr. 8, 1901. Serial No. 54,962. (No model.)



Claim.—1. The improved collar-button herein described, consisting of the combination of a shoe having a flaring hollow shank rectangular in cross-section, a disk, a lining-plate having a rectangular aperture, a rivet having a head between said disk and lining-plate and also having a shank rectangular in cross-section and made with parallel sides and passing through said aperture into the hollow button-shank and spread into contact with the inner flaring surfaces of said hollow shank, and a shell inclosing said disk, rivet-head, and lining-plate and rolled over the edges of the latter, substantially as set forth.

2. The improved collar-button herein described, consisting of the combination of a shoe having a flaring hollow shank rectangular in cross-section, a disk, a lining-plate having a rectangular aperture, a rivet having a head between said disk and lining-plate and also having a shank rectangular in cross-section made with a notched end and parallel sides and passing through said aperture into the hollow button-shank and spread into contact with the inner surfaces of said hollow shank, and a shell inclosing said disk, rivet-head and lining-plate and rolled over the edges of said lining-plate, substantially as specified.

678,763. **CHAIN MORTISING-MACHINE.** JOSEPH RAWLINSON, Garston, near Liverpool, England. Filed Apr. 30, 1901. Serial No. 56,790. (No model.)



Claim.—1. In a machine of the type described, in combination with a board or table on which the work is adapted to be placed, one or more stops or gages each consisting of a pin projecting slightly above the surface of the said table and attached at its lower end to the end of a straight spring, whose other end is attached to the under side of the table, whereby the spring tends to hold the pin in the said position, but so as to allow it to be depressed to a level with the surface of the table by a slight pressure.

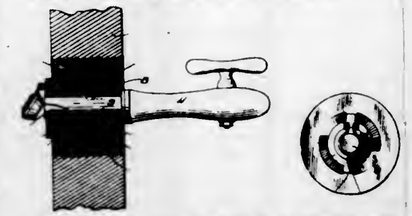
2. In a machine of the class described, in combination with a board or table on which the work is adapted to be placed, and having a longitudinal recess or groove in its under side, one or more stops or gages, each consisting of a pin projecting slightly above the surface of the said table and attached at its lower end to the end of a straight spring whose other end is secured to the under side of the said table within the said groove.

3. In a machine of the type described, a stop or gage for the work consisting of an L-shaped piece, one leg of which is in the form of a pin adapted to project slightly in the path of the work, and the other in the form of a straight spring, whose free end is provided with means for attaching it to the table.

4. In a machine of the type described, a stop or gage for the work consisting of an L-shaped piece, one leg of which is in the form of a pin adapted to project slightly in the path of the work, and the other in the form of a straight spring, whose free end is provided with one or more screw holes or eyes, whereby the stop may be quickly and easily attached to and detached from the work-table.

5. In a machine of the class described, the combination of a table or rest for the work having a longitudinal groove on the reverse side, and having one or more holes properly placed and spaced to provide a clearance for the tool, a series of holes appropriately spaced with relation to said first-mentioned hole or holes and adapted to receive stops, and a series of depressible stops in said stop-holes, so as to provide rests for the work distant from the clearance hole or holes in each case by the same length as the length from the end of the work to a required mortise.

678,764. **BUNG-TAP.** JULIUS C. F. REIMOLD, Metropolitan, N. Y. Filed Nov. 23, 1900. Serial No. 37,479. (No model.)



Claim.—The combination with a bushing provided on its inner end with an inwardly-projecting annular flange formed with diametrical openings and with seats or recesses arranged at right angles to said openings, the inner face of said flange being inclined from the openings to the seats or recesses, the outer end of said bushing having its bore enlarged to form a chamber and a shoulder, of a bung the inner end of which is provided with diametrical opposite lugs adapted to be inserted through said openings in the bushing and turned into engagement with the seats or recesses of the annular flange of the bushing, the outer end of said bung having its bore enlarged to form a chamber coinciding with the chamber aforementioned, and being further provided with an annular flange of greater diameter than the bore of the bung and corresponding to the diameter of the chamber formed in the bushing, an elastic packing placed in the coinciding chambers and confined between the shoulders formed thereby, a spring-actuated valve carried by the inner end of said bung and adapted to be opened by the insertion of a faucet through said bung, substantially as set forth.

678,765. **SHIRT-WAIST HOLDER AND SKIRT-SUPPORTER.** THOMAS DE Q. RICHARDSON, Philadelphia, Pa. Filed Jan. 21, 1901. Serial No. 43,978. (No model.)

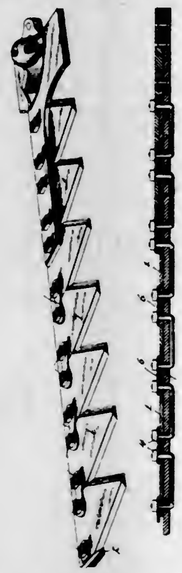


Claim.—1. A shirt-waist holder and a skirt-supporter consisting of a waist-belt proper which embodies a flexible unoccupied central rear portion to overlie the spine of the wearer, and which, in adjacency to the

opposite ends of said central unoccupied portion, is provided with a plurality of engaging plates, the lower longitudinal edges of which are provided with a series of inwardly-projecting teeth and the upper longitudinal edge portions of which are each provided with a series of outwardly-projecting teeth.

2. In combination with a waist-belt, having an unoccupied central rear portion, a plurality of engaging plates, the extreme lower longitudinal edges of which are provided with a series of relatively small inwardly-projecting teeth, the upper longitudinal edge portions of which are each provided with an outwardly-projecting flange having on the extreme edge of said portion a series of outwardly-projecting teeth, and the end portions of which embody transverse slots right angular to the longitudinal axis of the plate, said plates being located on opposite sides of said unoccupied central portion of said belt.

678,766. CUTTER-BAR FOR MOWERS OR REAPERS. EDWIN ROLLS, Belleville, Canada, assignor of one-half to John Nelson Pringle, same place. Filed Jan. 26, 1901. Serial No. 44,369. (No model.)



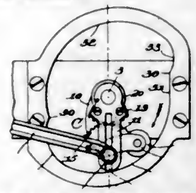
Claim.—1. In a device of the class described, the combination of a cutter-bar having similar upper and lower faces and provided with perforations, the reversible knives or cutters adapted to be arranged at either the upper or the lower face of the cutter-bar, and provided with perforations registering with the said perforations, the approximately U-shaped clips passing through the perforations of the cutter-bar and the knives or cutters and having threaded ends, and nuts arranged on the threaded ends, said nuts and clips being adapted to secure the knives or cutters in either position, substantially as described.

2. In a device of the class described, the combination of a cutter-bar having perforations, the knives or cutters provided with perforations registering with the said perforations, the approximately U-shaped clips supporting the knives or cutters and passing through the perforations and provided with nuts, and the tie-plates arranged at the sides of the knives or cutters at the outer faces thereof and bridging the spaces between the clips and provided with eyes or openings to receive the same, substantially as described.

678,767. MECHANICAL MOVEMENT. CHARLES F. KÖPER, Hopedale, Mass., assignor to Draper Company, same place and Portland, Me. Filed Mar. 20, 1901. Serial No. 52,060. (No model.)

Claim.—1. In a mechanical movement, a crank-shaft, a pitman, a differential crank-arm connecting said crank-shaft and pitman, said crank-arm comprising two members, and gears connecting the same, and means to give one of said members a variable differential movement with relation to the other during the rotation of the crank-shaft.

2. In a mechanical movement, a crank-shaft, a pitman, a differential crank-arm comprising two members, said crank-arm connecting the crank-shaft and pitman, and means to give one of said members of the crank-arm a variable differential movement with respect to the other during the rotation of the crank-shaft.



3. Means for converting rotary into reciprocating movement, said means comprising a rotating element, a differential crank-arm comprising two members connected to and having the same axis of rotation as said rotating element, means to give one of said members an accelerated differential movement with respect to the other member when the crank-arm is approaching or receding from its dead-center point, and means to connect the crank-arm with the reciprocating element.

4. Means for converting rotary into reciprocating movement, said means comprising a rotating element, a differential crank-arm connected to the rotating element, said crank-arm comprising two members rotating about a common axis, means to give one of said members an accelerated differential movement with respect to the other when the crank-arm is approaching or receding from its dead-center point, and a retarded differential movement during the remainder of the stroke, and connections between the crank-arm and the reciprocating element.

5. A mechanical movement comprising a shaft, a crank-arm connected thereto, said crank-arm comprising a member fast on the shaft, and a member loose thereon, gears connecting said members, and means to give said loose member a differential movement with respect to the fast member.

6. A mechanical movement comprising a shaft, a crank-arm connected thereto, said crank-arm comprising a member fast on the shaft, and a compensating member loose thereon, gear connections between said members, means to give said compensating member a varying differential movement with respect to the fast member, and connections between said compensating member and the reciprocating element.

7. A crank-motion for giving a uniform speed of reciprocation, comprising a shaft, a differential crank-arm thereon, said crank-arm comprising a member fast on said shaft, a compensating member loose thereon, means for connecting said members for relative movement, and means for giving to the compensating member a forward differential movement as the crank-arm approaches or recedes from the end of its stroke, and a backward differential movement during the central portion of its stroke.

8. Means for converting rotary motion into reciprocating motion, said means comprising a shaft, a differential crank-arm thereon, said crank-arm comprising a member fixed to the shaft, a compensating member loose upon the shaft, a gear pivotally mounted upon the fixed member and engaging the compensating member, said gear having an arm, and a cam surrounding the crank-arm and coöperating with the arm on the gear, whereby the compensating member is given a varying differential motion with respect to the fixed member.

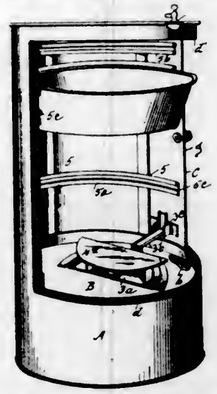
9. Means for converting rotary into reciprocating motion, comprising a shaft, a differential crank-arm thereon, said crank-arm comprising a member fixed to the shaft, and a compensating member loose thereon, a gear pivotally mounted upon the fixed member, a coöperating gear on the loose member, said pivotally-mounted gear having an arm, and a cam surrounding the crank-arm and coöperating with the arm on the gear, said cam being so shaped as to give to the compensating member a forward differential movement with respect to the fixed member as the crank-arm approaches or recedes from the end of its stroke, and backward differential movement during the intermediate portion of its stroke.

10. A mechanical movement comprising a rotating element, a differential crank-arm connected thereto and comprising two members, and a cam controlling the movements of one of said members relative to the other, whereby one of said members is given a differential movement with reference to the other.

11. In a mechanical movement, a rotating element, a differential crank-arm connected thereto, said crank-arm comprising two members mounted for relative movement, gears connecting said members, and means for giving one of said members a differential movement with respect to the other.

12. Means for converting rotary into reciprocating motion, said means comprising a rotating element, a differential crank-arm connected thereto, said crank-arm comprising two members, gears connecting said members, and means for operating said gears to give one of said members of the crank-arm a varying differential movement with respect to the other, and connections between said first-named member and the reciprocating element.

678,768. STEAM COOKING VESSEL. FRANK C. SHERMAN, Pontiac, Mich. Filed Jan. 23, 1901. Serial No. 44,438. (No model.)



Claim.—1. In a steam cooking utensil, the combination of a water-chamber, a cover therefor having an aperture through it, a valve adapted to be moved into a position to close said aperture and into a position such that it shall not close said aperture, a cooking-chamber above the water-chamber having an opening through its wall, a sliding door adapted to close said opening and form a portion of said wall, said door and valve being connected together so as to maintain the same relative position, all arranged so that the aperture through said cover shall be open when the door is closed, and closed when the door is open, substantially as described.

2. In a steam cooking utensil, the combination of a water-chamber, a cover therefor having an aperture through it, a valve adapted to be moved into a position to close said aperture and into a position such that it shall not close said aperture, a plate located above said valve and attached thereto, said plate extending beyond said valve so as to be above said aperture when the valve is open, a cooking-chamber above the water-chamber having an opening through its wall, a sliding door adapted to close said opening and form a portion of said wall, said door and valve being connected together so as to maintain the same relative position, all arranged so that the aperture through said cover shall be open when the door is closed and closed when the door is open, substantially as described.

3. In a steam cooking utensil, the combination of a water-chamber, a cover therefor having an aperture therethrough a valve adapted to be rotated into a position to close said aperture, and into a position such that it shall not close said aperture, a cylindrical cooking-chamber above the water-chamber having an opening through its cylindrical wall, a door adapted to close said opening and form a portion of said cylindrical wall, and to slide parallel to the rest of the cylindrical wall in opening, said valve and door being connected together so as to retain their relative positions, whereby the valve is closed by the opening of the door, and opened by the closing of the door, substantially as described.

4. In a steam cooking utensil, in combination with a cooking-chamber, a rack provided with curved supports having free terminals adapted to spring slightly to allow the insertion of a dish, substantially as described.

678,769. COMBINATION-LOCK. SAMUEL W. SHOUPE, Hagerstown, Md. Filed Nov. 23, 1900. Serial No. 37,507. (No model.)

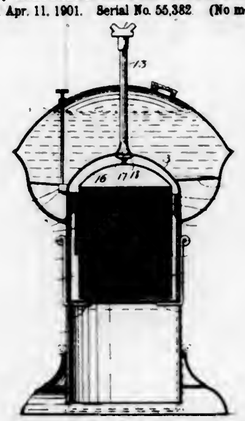


Claim.—1. In a lock of the kind described, the combination, with the plates A and B, of the spindle or post projecting from the plate A and slotted as described, the tumbler-disks arranged upon the said post or spindle and connected with the rings as set forth, said rings having their peripheries notched, and a spring located in the plate B and having its ends shaped to engage the notched rings, substantially as shown and described.

2. In a lock of the kind described, the combination, with the plates A and B, of the post or spindle attached to the plate A, the hasp or shackle pivotally connected to the plate B, the tumbler-disks arranged upon the post or spindle, the rings to which the disks are attached, said rings having their peripheries notched as described, and the spring seated in a groove cut in the top of the plate B and having its ends bent to engage the notched peripheries of the rings, substantially as and for the purpose described.

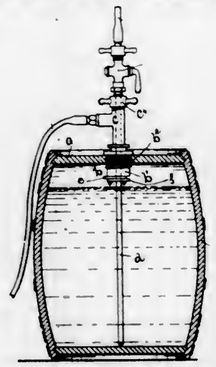
3. In a lock of the kind described, the combination, with the spindle and plates of the tumbler disks and rings, said rings having their peripheries notched, and the spring-pawls carried by the plate and adapted for engagement with the tumbler-rings, substantially as and for the purpose set forth.

678,770. ACETYLENE-GAS LAMP. ROBERT R. SLEWING, Lajunta, Colo. Filed Apr. 11, 1901. Serial No. 55,382. (No model.)



Claim.—In a device of the class described, the combination with a casing having bayonet-slots therein, a water-reservoir surmounting said casing and provided with an outlet-valve, a carbid-receptacle inclosed in said casing, a water-cup, and catches having thumb-pieces on their upper ends and toes on their lower ends, which toes are mounted to slide in said bayonet-slots and support said cup, substantially as described.

678,771. BEER-DRAWING APPARATUS. CHARLES APPELHANS, Norwich, Conn., assignor to James O'Connell, Hermine Appelhans, Harriet Appelhans, Valeska Appelhans, and John H. Barnes, same place. Filed Oct. 25, 1900. Serial No. 34,316. (No model.)

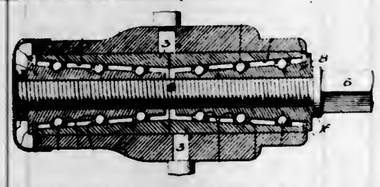


Claim.—In combination, in a bung, an outer shell, a revoluble bushing in said shell, bolts projecting from the end of said shell, a valve-disk formed with elongated slots c^4 c^4 that engage the said bolts whereby a floating movement of the valve-disk is obtainable as set forth, and means for swinging the said valve-disk on its supports.

678,772. BALL-BEARING. JOSEPH H. BRANDT, Norristown, Pa. Filed Nov. 5, 1900. Serial No. 35,505. (No model.)

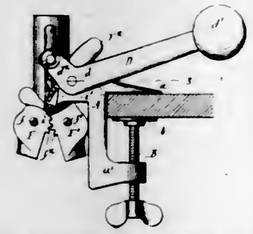
Claim.—1. In a ball-bearing, the combination with a vehicle wheel-hub, and axle, of twin sleeves fitted in the hub and having bores of uniform taper from end to end and contracting in diameter toward their inner

meeting ends, twin cones adjustably mounted upon the axle and having reversely-tapered outer surfaces concentric with the walls of the bores of the sleeves, and each provided with a plurality of V-shaped ball-races of different diameters, a series of balls in each race bearing against the sleeves, a ring-retainer for each series of balls, and means for fixing the adjustment of the cones, substantially as set forth.



2. In a ball-bearing, the combination with an axle, of an outer bearing member in rotatable relation with said axle, and comprising two concentric cone-surfaces, which oppositely converge toward the center of the bearing, two inner bearing members adjustably mounted in fixed relation with the axle, concentrically within and respectively opposed to said two cone-surfaces of the outer bearing, and each provided with a plurality of V-shaped ball-races of different diameters, a series of balls in each race, bearing against the conical face of the outer bearing member, opposed thereto, a ring-retainer for each series of balls, and means to effect the relative adjustment of said race-provided members, substantially as set forth.

678,773. CORK-EXTRACTOR. JAMES COOMBER, Chicago, Ill., assignor, by mesne assignments, of one-half to Andreas Krieg, Freeport, Ill. Filed May 19, 1900. Serial No. 17,222. (No model.)



Claim.—1. The combination with a casing, of a corkscrew, a carrier therefor, mechanism for shifting said carrier longitudinally in the casing, a nut wherethrough the corkscrew is extended, said nut having a longitudinal play in the casing, mechanism for alternately interlocking said carrier and nut to cause said carrier and nut to travel in unison longitudinally, and for securing said nut against longitudinal movement in the casing, said means independent of the mechanism for shifting the carrier for shifting said mechanism.

2. The combination with a casing, of a corkscrew, a carrier therefor, mechanism for shifting said carrier longitudinally in the casing, a nut wherethrough the corkscrew is extended, said nut having a longitudinal play in the casing, a latch for interlocking said carrier and said nut, said latch being carried by one of said longitudinally-movable parts and means independent of the mechanism for shifting the carrier, for vibrating said latch to interlock said parts.

3. The combination with a casing, of a corkscrew, a carrier therefor, mechanism for shifting said carrier longitudinally in the casing, a nut wherethrough said corkscrew is extended, said nut having a longitudinal play in the casing, a latch for interlocking said carrier and said nut and a part on the casing whereby the latch will be held against longitudinal movement, said latch being carried by one of said longitudinally-movable parts, and means for vibrating said latch, to alternately interlock said longitudinally-movable parts and to engage said parts on the casing to secure the nut against longitudinal movement, said means being independent of the mechanism for shifting the carrier, and arranged to cause said latch to interlock the carrier and nut when a bottle is being held beneath the casing.

4. The combination with a casing, of a corkscrew, a carrier therefor, mechanism for shifting said carrier longitudinally in the casing, a nut wherethrough said corkscrew is extended, said nut having a longitudinal play in the casing, a latch pivotally sustained on said nut for interlocking said carrier and said nut, a fixed part on said casing wherewith said latch can engage, to secure the nut against longitudinal movement and means independent of the mechanism for shifting the carrier for vibrating said latch to alternately interlock said carrier and nut, and secure the nut against longitudinal movement, said means being arranged to cause said latch to interlock the carrier and nut when a bottle is being held beneath the casing.

5. The combination with a casing, of a corkscrew, a carrier therefor, mechanism for shifting said carrier longitudinally in the casing, a nut wherethrough said corkscrew is extended, said nut having a longitudinal play in the casing, a latch pivotally sustained by one of said longitudinally-movable parts for interlocking said longitudinally-movable parts, a weighted arm on said latch for holding the latch normally in position to interlock said carrier and said nut, and a suitable part for shifting said latch to release said parts.

6. The combination with a casing, of a corkscrew, a carrier therefor, mechanism for shifting said carrier longitudinally in the casing, a nut wherethrough said corkscrew is extended, said nut having a longitudinal play in the casing, a latch pivotally sustained on said nut, for interlocking the carrier, and nut, means for holding said latch normally in position to interlock said carrier and said nut, a notch or lug in the casing wherewith said latch will engage when the nut is in normal position, to secure the nut against longitudinal movement in the casing when the latch is not in position to engage the carrier and means independent of the mechanism for shifting the carrier for vibrating said latch.

7. The combination with a casing, of a carrier mounted in manner free to slide therein, means for reciprocating said carrier, a corkscrew journaled in said carrier, a non-revoluble nut within said casing through which the corkscrew is extended, mechanism for holding the bottle, a latch for interlocking the carrier and nut when such parts are to be shifted to draw the cork, and a bottle-holder having a part extended to engage said latch and hold the latch in disengaged position.

8. The combination with a casing, of a carrier mounted in manner free to slide therein and having a lug or pin on one side thereof, means for reciprocating said carrier, a corkscrew journaled in said carrier, a nut within said casing and through which the corkscrew is extended, mechanism for holding the bottle, a latch carried by said nut and pivoted thereto, a slot in one side of said casing, a part on said casing forming a stop for the latch, said latch comprising a weighted arm engaged by the bottle-holder when in normal position, and a hook for engaging said lug or pin to interlock the carrier and nut.

9. The combination with a casing provided with a cylindrical socket, an operating-lever pivotally sustained in said casing, of a carrier mounted in manner free to slide in said socket, a pitman connecting said carrier and said operating-lever, a corkscrew journaled in said carrier, a nut through which the corkscrew is extended, a bottle-holder comprising jaws pivotally secured in said frame or casing, a latch pivoted to said nut, having a hook for engaging the carrier to interlock said nut and carrier and having an arm engaged by one of the jaws of the bottle-holder when in open position, and a slot formed in said casing, having a notch therein to receive and detain the latch.

10. The combination with a casing having a cylindrical socket, of an operating-lever pivotally sustained in said casing, a carrier, a pitman connecting said lever and carrier, said carrier having a lug or pin thereon, a corkscrew journaled in said carrier, a non-revoluble nut in said casing through which said corkscrew is extended, a slot and notch formed in said casing, a latch pivoted to said nut and having a hook for engaging said pin or lug on said carrier and having a weighted arm and a bottle-holder comprising a pair of jaws, one of said jaws being provided with a handle and one of said jaws being extended to engage said arm when the parts are in normal position.

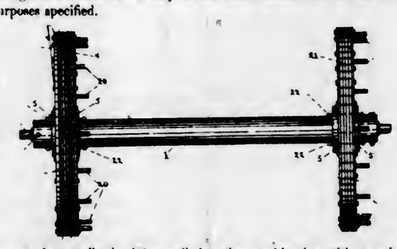
11. The combination with a casing, a corkscrew within said casing, means for operating said corkscrew, of a bottle-holder comprising a pair of jaws, each of which is pivotally secured by a fixed pivot to said casing, said jaws being formed to intermesh with each other for effecting their simultaneous and uniform shift, and a handle secured to one of said jaws for controlling the jaws.

12. The combination with a casing, a carrier within said casing, means for reciprocating said carrier, a corkscrew carried thereby, a nut through which said corkscrew is extended, of a bottle-holder comprising a pair of jaws pivoted at their sides to said casing, intermeshing teeth on said jaws and a handle extending backwardly from one of said jaws and serving to hold said jaws normally in open position.

678,774. BULL-WHEEL FOR OIL OR ARTESIAN WELLS. HIRAM W. EATON, Jr., and ANDREW BENDS, Bradford, Pa. Filed Mar. 4, 1898. Serial No. 672,505. (No model.)

Claim.—1. In a bull-wheel for well-rigs, the combination with a suitable shaft, of a non-metallic wheel-rim composed of cants or sections arranged in circles, the central circle of cants being of less width to form a groove for the reception of a metallic rim or felly, a metallic rim or felly embedded in and secured to said non-metallic rim, and means for connecting said metallic rim or felly to the shaft; substantially as and for the purposes specified.

2. In a bull-wheel for well-rigs, the combination with a suitable shaft, of a non-metallic wheel-rim provided with a groove in its periphery and comprised of cants or sections arranged in circles the inner circle of cants being of less width than the outer circles to form a groove for the reception of a metallic felly or rim, a metallic felly or rim embedded in said non-metallic rim and connected therewith, and means for securing the metallic rim or felly to the shaft, substantially as and for the purposes specified.



3. In a bull-wheel for well-rigs, the combination with a suitable shaft, of a non-metallic wheel-rim comprised of a series of cants or segments arranged in circles said rim having on its interior a groove or channel for the reception of a metallic felly or rim to which said non-metallic rim is attached, tubular spokes, plugs or pintles for connecting the spokes with the metallic rim, and threaded collars for supporting the cants or segments of the rim from the spokes, substantially as and for the purposes specified.

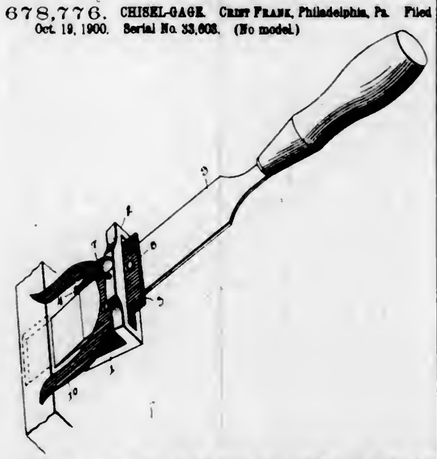
4. In a bull-wheel for well-rigs, the combination with a suitable shaft, of a bull-wheel having a non-metallic peripherally-grooved rim comprised of cants arranged in circles the central circle being of less width to afford a groove for the reception of a metallic rim, a metallic rim embedded in the non-metallic rim and secured thereto, a series of spokes for connecting the metallic rim to the shaft, and a dog for shifting the bull-rope, said dog being secured to the metallic and non-metallic rims, and to one of the spokes of the metallic rim; substantially as and for the purposes specified.

678,775. NUT-LOCK. GEORGE W. FORTIER, Grand Rapids, Mich. Filed Sept. 24, 1900. Serial No. 31,001. (No model.)



Claim.—In combination with a washer having a serrated surface, a nut having a slot formed in its lower surface and extending tangentially from near the center orifice of the nut to the side thereof, offsets struck from the nut in each side of the slot, a pawl having a notch in the edge engaging said offsets and forming a pivot-bearing for the pawl, and an actuating-spring above the pawl, substantially as and for the purpose set forth.

678,776. CHISEL-GAGE. CHRIST FRANK, Philadelphia, Pa. Filed Oct. 19, 1900. Serial No. 33,603. (No model.)

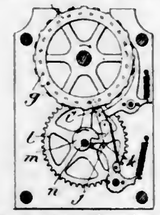


Claim.—1. An attachment for chisels comprising a base, the forward end of which is provided with a yielding abutment and the rear end is provided with a loop and a set-screw, a plate adapted to be positioned in said loop, the forward end of which is provided with legs and the rear end is provided with set-screws upon opposite sides of the loop, substantially as described.

2. An attachment for chisels comprising a base, the forward end of which is grooved transversely and the rear end is expanded laterally and provided with a loop, a flanged buffer-plate secured in the groove at the forward end of the base, a set-screw through the loop, and a clamping-plate between the loop and the base, provided with two set-screws in front of the base and one to the rear thereof, the forward end of said plate being provided with two diverging legs, substantially as described.

3. An attachment for chisels comprising a base, the front of which is provided with a buffer and the rear with a raised loop, a screw through the loop, a clamping-plate through the loop the forward portion of which is adapted to extend in front of the chisel-point, and adjusting-screws through the plate upon opposite sides of the loop, said adjusting-screws being of a greater length than the height of the loop whereby the plate is prevented from escaping from the loop, substantially as described.

678,777. TIME-RECORDER. PETER G. GIROUD, Binghamton, N. Y., assignor to the International Time Recording Company, of New Jersey. Filed Oct. 9, 1900. Serial No. 32,475. (No model.)

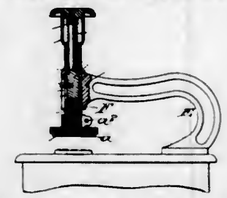


Claim.—1. The combination, with an hour-wheel and means for moving it step by step, of a minute-wheel and means for moving it continuously, the said minute-wheel being free to be temporarily shifted independently of its continuous movement, and the driving mechanism of the minute-wheel being under the control of the driving mechanism of the hour-wheel to be shifted by said hour-wheel-driving mechanism simultaneously with the step movement of the hour-wheel, substantially as set forth.

2. In combination, an hour-wheel, means for moving the hour-wheel step by step, a minute-wheel, a drive-wheel for imparting a continuous rotary movement to the minute-wheel, the said drive-wheel being mounted to rotate to a limited extent independently of its support, and a spring for holding the said drive-wheel normally at one extreme of its limited movement, the said drive-wheel being under the control of the hour-wheel-driving mechanism to be rocked independently of its support against the tension of said spring, substantially as set forth.

3. The combination with the hour-wheel and means for operating it step by step, of the minute-wheel, a drive-wheel for continuously rotating the minute-wheel, a supporting-shaft, a hub having a bearing for loosely mounting the drive-wheel thereon, means for fixing the hub to the shaft, a collar for holding the drive-wheel on the hub and limiting its rotary movement independent of its support and a spring attached to the collar and wheel for holding the wheel normally at one extreme of its said limited movement, the said drive-wheel being under the control of the hour-wheel-driving mechanism to be rocked relatively to its support, substantially as set forth.

678,778. PLUNGER FOR TIME-STAMPS. PETER G. GIROUD, Newark, N. J., assignor to the International Time Recording Company, of New Jersey. Filed Apr. 20, 1900. Serial No. 13,594. (No model.)



Claim.—The combination with a plunger-rod support and a support for the article to be operated upon, of a reciprocating plunger-rod, a retracting-spring intermediate of the plunger-rod and its support, an impression-platen carried by the rod and a cushion intermediate of the plunger-rod and impression-platen for permitting the plunger-rod to move rela-

tively to the platen, the limited downward stroke of the plunger-rod being materially greater than the distance between the normal position of the impression-platen and the article to be operated upon whereby the impression-platen is applied yieldingly to the article to be operated upon no matter how great the force of the downward stroke of the piston-rod may be, substantially as set forth.

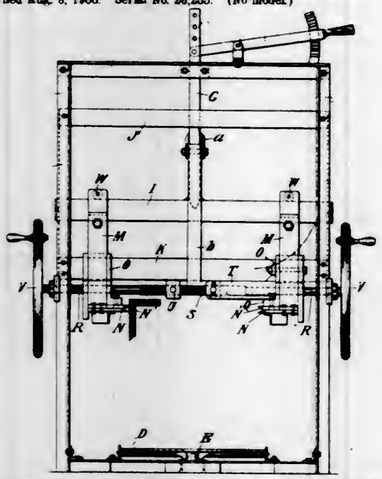
678,779. BALL-BEARING. JOHN A. GUINN, Baltimore, Md., assignor to Frederick Hooker, same place. Filed Sept. 5, 1900. Serial No. 29,030. (No model.)



Claim.—1. In a device of the character described, the combination of an outer bearing; an inner uniformly-cylindrical bearing formed with ball-races; rows of antifriction-balls in said races and supporting the outer bearing to rotate about the inner bearing; and a distinct or separate bushing tightly fitting with frictional engagement in the outer bearing between the rows of balls, and bearing against said balls and out of contact with said inner bearing, as set forth.

2. The combination of the outer and inner bearings; rows of antifriction-balls interposed between said bearings; a separate or distinct bushing fitting with frictional engagement in said outer bearing between the rows of balls and arranged to bear against said balls, said bushing being provided with a seat for a pin or screw; and a pin or screw working through the outer bearing into said seat, as set forth.

678,780. BOX-OPENER. CHARLES O. K. HALGREN, Bayonne, N. J. Filed Aug. 8, 1900. Serial No. 26,235. (No model.)



Claim.—1. The combination in a machine for removing covers from boxes of jaws, of mechanism for causing the jaws to engage the cover of the box at each end, and mechanism for moving said jaws upward, whereby the cover will be bodily removed, substantially as described.

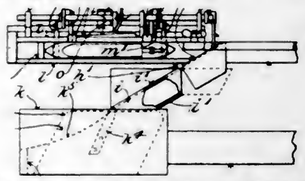
2. The combination in a machine for removing covers from boxes of jaws, of mechanism for moving said jaws horizontally to engage the cover of the box at each end, and mechanism for moving said jaws vertically, whereby the cover will be bodily removed, substantially as described.

3. In a machine for removing covers from boxes, the combination of a pair of jaws each made in two parts, one to bear against the box and one to engage the cover, means for adjusting them to the box, and means for giving that part of the jaw engaging the cover an independent upward movement, substantially as described.

4. In a machine for removing covers from boxes, the combination of two sets of jaws, each set being made in two parts, means for moving the same horizontally and vertically, and means for giving the upper parts of the jaws independent upward movement, substantially as described.

5. In a machine for removing covers from boxes, the combination of jaws, means for moving the same horizontally and vertically whereby they may be made to engage the cover and lift the same from the box, and means for adjusting the mechanism for boxes of different heights, substantially as described.

678,781. WEFT-REPLENISHING MECHANISM FOR LOOMS. HENRY I. HARRIMAN, New York, N.Y. Filed Oct. 8, 1900. Serial No. 32,351. (No model.)



Claim.—1. In a loom, in combination, the lay, a reserve-shuttle holder, means to cause a reserve shuttle to assume working position on the lay, a switch to divert the working shuttle from the shuttle-race on the lay, a receptacle for the discharged shuttle supported independent of the lay, and a passage-way confining the shuttle from the switch until it has passed into the receptacle.

2. In a loom, in combination, the lay, a switch movable into position to divert the working shuttle from the shuttle-race, a receptacle for the discharged shuttles, and a passage-way between the switch and receptacle lined with frictional material to retard the discharging-shuttle on its way to the receptacle.

3. In a loom, in combination, the lay, a switch movable into position to divert the working shuttle from the shuttle-race, and a receptacle to receive the diverted shuttle, provided with a stop to arrest the endwise movement of said shuttle, and with an inclined shelf to break the fall thereof.

4. In a loom, in combination, the lay, a switch movable into position to divert the working shuttle from the shuttle-race, and a receptacle to receive the diverted shuttle, provided with a stop to arrest the endwise movement of said shuttle, and with an inclined shelf having a yielding flap bridging the space between the same and a wall of the receptacle.

5. In a loom, in combination, the lay, a switch movable into position to divert the working shuttle from the shuttle-race, a receptacle to receive the diverted shuttle, provided with a stop to arrest the endwise movement of said shuttle, and with an inclined shelf to break the fall thereof, the said receptacle having the bottom thereof inclined as set forth to cause the shuttles to slide out of the way of a succeeding shuttle.

6. In a loom, in combination, the lay, a hopper for reserve shuttles, escapement devices for said shuttles, a switch movable into position to divert the working shuttle from the shuttle-race, the picker-stick, a press-back device for the picker-stick, and actuating devices for the operative parts.

7. In a loom, in combination, the lay, a hopper for reserve shuttles, escapement devices for said shuttles, a switch movable into position to divert the working shuttle from the shuttle-race, a picker-stick, a rocker to act on said picker-stick, and means to actuate said rocker to force back the picker-stick to clear the path of a reserve shuttle being fed into the shuttle-box.

8. In a loom, in combination, the lay, a hopper for reserve shuttles, escapement devices for said shuttles, a switch to divert the working shuttle from the shuttle-race, the picker-stick, the swell or binder, retracting means for said swell or binder, means to apply pressure to the swell or binder, a press-back device for the picker-stick, and means to operate said switch and escapement devices, to thereby occasion a change of shuttles, and to relieve said pressure and operate said press-back device, to clear the shuttle-box for the entrance of the newly-fed shuttle into the same.

9. In a loom, in combination, the lay, a hopper for reserve shuttles, escapement devices for said shuttles, a switch to divert the working shuttle from the shuttle-race, a lever operatively connected with said escapement devices and switch, a rotating cam, and means for effecting a relative shift of the said lever and cam to place the same in operative relations with each other, to thereby occasion a change of shuttles.

10. In a loom, in combination, the lay, a hopper for reserve shuttles, escapement devices for said shuttles, a switch to divert the working shuttle from the shuttle-race, the swell or binder, the protector-finger, means to retract the swell or binder, the picker-stick, a rocker acting in connection with the picker-stick and protector-finger, an operating-lever connected with said rocker and escapement devices and switch, a rotating cam, and means for effecting a relative shift of the said lever and cam to place the same in operative relation with each other, to thereby occasion a change of shuttles.

11. In a loom, in combination, a reserve-shuttle receptacle, a reserve-shuttle escapement, the lay, a switch to divert the working shuttle, a cam and means operated thereby to work the said escapement and switch, and weft-indicator devices in control of the action of the parts, substantially as described.

12. In a loom, in combination, a reserve-shuttle receptacle, a reserve-shuttle feed, the lay, a switch to divert the working shuttle, a rotary cam and means operated thereby to work the shuttle feed and switch, and weft-indicator devices in control of the action of the parts, substantially as described.

678,782. ELECTRODE FOR WATER-HEATERS. HARRY M. HILL, St. Louis, Mo. Filed Oct. 25, 1900. Serial No. 34,298. (No model.)



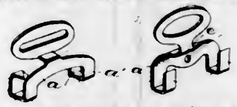
Claim.—1. The combination with an electrode, of a fabric covering therefor whose nap is embedded in the electrode to serve as a binder for said covering; substantially as described.

2. An electrode formed with grooves in its face, and a fabric covering which is pressed into said grooves; substantially as described.

3. The combination with a cylindrical electrode formed with a spiral groove, of a fabric covering which is pressed into said grooves, and a support for said covering arranged in said grooves; substantially as described.

4. The combination with an electrode formed with a spiral groove in its inner face, of a fabric covering which is shaped to the contour of said groove, and a V-shaped support for said covering, said support being arranged in said groove; substantially as described.

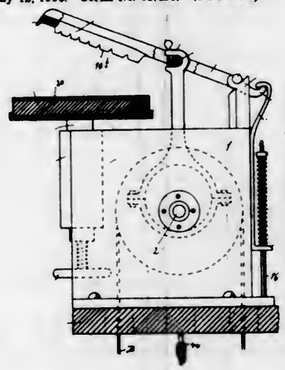
678,783. HIP-STRAP CONNECTOR. SCOTT H. HULL, Oskaloosa, Iowa. Filed Feb. 15, 1900. Serial No. 5,378. (No model.)



Claim.—1. A hip-strap connector for breeching-stays consisting of pairs of terminal arms connected at their lower ends, a longitudinal bridge-piece connecting two of the arms at their upper ends, an overhanging piece at the upper edge of the bridge-piece, and a loop at the inner edge of the overhanging piece and in a plane medially of the arms of the respective pairs of arms, substantially as set forth.

2. A hip-strap connector for breeching-stays consisting of pairs of terminal arms connected at their lower ends, two of the arms being free at their upper ends and the remaining two being lengthened and connected at their upper ends by a longitudinal bridge-piece centrally perforated, an overhanging piece at the upper edge of the bridge-piece, and a loop at the inner edge of said overhanging piece and in a plane medially of the arms of the respective pairs of arms, substantially as specified.

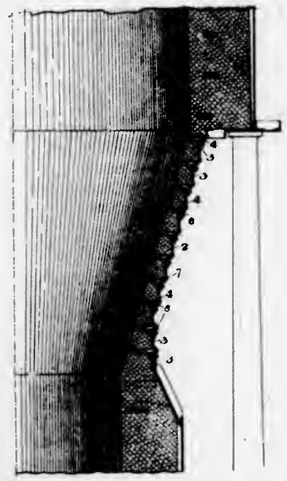
678,784. NECK-MARKING MACHINE. JAMES S. JOHNSTON, Utica, N. Y., assignor of one-half to Katherine Magner, same place. Filed May 12, 1900. Serial No. 16,436. (No model.)



Claim.—1. In a marking-machine of the character described, the combination of the die mounted on the end of a pivoted arm, a cam and connecting-rod for operating the die, an automatic stop-motion for the arm and a spring-supported work-table having a pad, substantially as set forth.

2. In a marking-machine of the character described, the combination of the removable die, the pivoted arm on which the die is mounted, the cam, the connecting-rod engaging the arm between its pivot and the die, and the spring-supported work-table, substantially as set forth.

678,785. BOSH-PLATE. JULIAN KENNEDY, Pittsburg, Pa. Filed Sept. 11, 1900. Serial No. 29,648. (No model.)



Claim.—1. A cooling-plate having mechanism for fastening it to the hand of a blast-furnace, said mechanism being arranged to fit against the outer portion of the band and allow removal of the cooling-plate and its securing mechanism, without disturbing said band; substantially as described.

2. A cooling-plate having lateral lugs or projections and means for bolting them to the furnace-band; substantially as described.

3. A bosh-plate having an upper projection arranged to fit against a furnace-band, and a lower portion having means for securing it to another furnace-band; substantially as described.

4. A blast-furnace having encircling bands and provided with a cooling-plate located between the lines of the bands and secured to them by mechanism arranged to allow removal without disturbing the bands; substantially as described.

5. A blast-furnace having its bosh provided with encircling bands arranged in step fashion, and bosh-plates having their outer portions secured to said bands, said plates being arranged for removal without disturbing the furnace-bands; substantially as described.

6. A blast-furnace having an encircling band, and a cooling-plate secured to the band by means exterior thereto; substantially as described.

7. A blast-furnace having its bosh provided with encircling bands, spacers extending vertically between them, and cooling-plates secured to the bands; substantially as described.

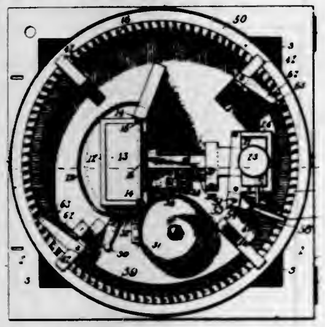
678,786. BALLOT-BOX. JOHN A. LINN, Pagosa Springs, Colo. Filed Oct. 27, 1900. Serial No. 34,656. (No model.)

Claim.—1. In a ballot-box, registering mechanism, comprising concentric open ratchet-rims, a ratchet-lever fulcrumed within the rims and coöperating constantly with one rim and intermittently with the adjacent rim, and means for operating said lever, substantially as described.

2. In a ballot-box, registering mechanism, comprising concentric open ratchet-rims, a ratchet-lever fulcrumed within the rims and coöperating constantly with one rim and intermittently with the adjacent rim, and a plunger operatively connected with said ratchet-lever, substantially as described.

3. In a ballot-box, registering mechanism, comprising concentric open ratchet-rims, a ratchet-lever fulcrumed within the rims and mounted to swing both horizontally and vertically and coöperating constantly with one rim and intermittently with the adjacent rim, and means for operating said lever, substantially as described.

4. In a ballot-box, registering mechanism, comprising concentric open ratchet-rims, a ratchet-lever fulcrumed within the rims and coöperating constantly with one rim and intermittently with the adjacent rim, means for operating said lever, and detents in engagement with each ratchet-rim, substantially as described.



5. In a ballot-box, registering mechanism comprising concentric open ratchet-rims, a transferring ratchet-lever fulcrumed within the rims and coöperating constantly with one rim and intermittently with the adjacent rim, and a plunger acting directly on said ratchet-lever for vibrating the latter, substantially as described.

6. In a ballot-box, registering mechanism comprising concentric open ratchet-rims, a transferring ratchet-lever coöperating constantly with one rim and intermittently with the adjacent rim and having an oblique web portion, and a plunger having a foot provided with means for engaging said web, substantially as and for the purpose specified.

7. In a ballot-box, registering mechanism comprising concentric open ratchet-rims, a ratchet-lever coöperating constantly with one rim and intermittently with the adjacent rim and having an oblique web portion, a plunger, and a plunger-foot having engaging devices which operate simultaneously on both sides of the web, substantially as and for the purpose specified.

8. In a ballot-box, registering mechanism comprising concentric open ratchet-rims, a transferring ratchet-lever coöperating constantly with one rim and intermittently with the adjacent rim and having an oblique web portion, a plunger, and a plunger-foot provided with rollers operating simultaneously on opposite sides of said web portion, substantially as and for the purpose specified.

9. In a ballot-box, registering mechanism comprising concentric open ratchet-rims, a transferring ratchet-lever coöperating constantly with one rim and intermittently with the adjacent rim, a rigid tooth on said lever for engaging one of the rims, a pivoted tooth or pawl on said lever for engaging the adjacent rim, and a plunger operatively connected with said ratchet-lever for vibrating the latter, substantially as described.

10. In a ballot-box, registering mechanism, comprising concentric open ratchet-rims, a ratchet-lever coöperating constantly with one rim and intermittently with the adjacent rim, a plunger operatively connected with said ratchet-lever, and a plunger-foot detachably mounted upon the plunger and forming an element of the operating connections, substantially as described.

11. In a ballot-box, the combination with registering mechanism, and a depressible spring-retracted plunger for operating the same, of a spring-opened shutter, a shutter-trip actuated by the downward movement of the plunger, and means associated with the plunger for closing the shutter, substantially as described.

12. In a ballot-box, the combination with registering mechanism, and a depressible spring-retracted plunger for operating the same, of a shutter for the ballot-receiving opening, and means associated with the plunger for opening the shutter by one movement of the plunger and closing it by the reverse movement, substantially as described.

13. In a ballot-box, the combination with registering mechanism, and a depressible spring-retracted plunger for operating the same, of a plunger-foot thereon, a shutter covering the ballot-receiving opening, and a shutter-closing lever associated with the plunger-foot and operated by the upward movement of the same, substantially as described.

14. In a ballot-box, the combination with registering mechanism, and a depressible spring-retracted plunger for operating the same, of a spring-opened shutter, a shutter-trip actuated by the downward movement of the plunger, and a shutter-closing lever operated by the return movement of the plunger, substantially as described.

15. In a ballot-box, the combination with registering mechanism and a plunger for operating the same, of a spring-opened shutter, a trip-arm thereon, a shutter-trip actuated by the plunger, and a shutter-closing lever fulcrumed at an intermediate point and having one end arranged to be operated upon by the plunger, the opposite end of said shutter-closing lever being formed to engage the trip-arm on the shutter, substantially as described

16. In a ballot-box, the combination with registering mechanism, an operating-plunger therefor, and a plunger-foot on the plunger, of a spring-opened shutter, a trip-arm thereon, a shutter-trip actuated by the plunger, and a shutter-closing lever, one end of which is in engagement with the plunger-foot and the opposite end in engagement with the trip-arm of the shutter, substantially as described.

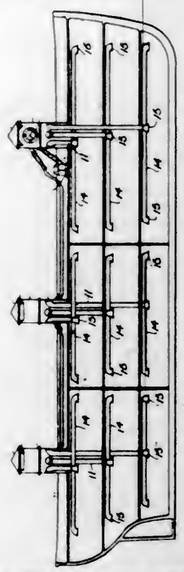
17. In a ballot-box, the combination with registering mechanism, and a shutter for the ballot-receiving opening, of a plunger for operating the registering mechanism and tripping the shutter, a hammer-arm carried by the shutter, a bell arranged in the path of the hammer-arm and a spring arranged to act on the hammer-arm and also on the shutter, substantially as described.

18. In a ballot-box, the combination with registering mechanism, and a pivoted shutter, of a plunger for operating the registering mechanism and shutter, a hammer-arm carried by the shutter, a bell arranged in the path of the hammer-arm, and a shutter-opening spring fast at one end and having its free end hooked and in engagement with the hammer-arm, substantially as described.

19. The combination with a ballot-box, of a hinged hollow top forming the housing for the registering and transferring mechanism, a cover or lid independently hinged to the housing, and a locking device for simultaneously securing the housing to the box and the cover to the housing, substantially as described.

20. The combination with a ballot-box, of a hinged hollow top forming the housing for the registering and transferring mechanism, a hinged lid therefor, a locking device for simultaneously securing both top and lid, and a detachable plunger for actuating the registering and transferring mechanism, said plunger forming the key for operating the locking device, substantially as described.

678,787. MARINE FIRE-INDICATING SYSTEM. FREDERICK W. MEYER, Jersey City, N. J. Filed Sept. 28, 1900. Serial No. 31,413. (No model.)



Claim.—1. In a marine fire-indicating system, a station, a tube leading from said station to the hold or bunker of the ship, and means to draw air through said tube from the said hold or bunker into the station, for the purpose set forth.

2. In a marine fire-indicating system, a station, tubes leading from said station to several holds or bunkers, and means to periodically draw air through said tubes from the several holds or bunkers, as and for the purpose set forth.

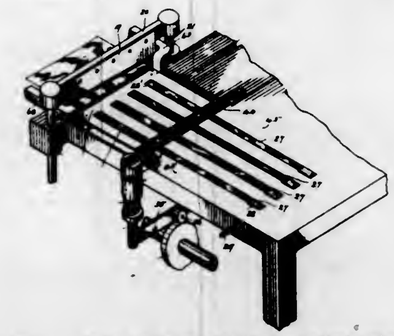
3. A marine fire-indicating system, comprising a station, a fan mounted in said station, and adapted to drive the air out of one end thereof, tubes entering the opposite end and terminating beneath said fan, said tubes extending oppositely to the several holds, or bunkers of the ship, transparent panels in the sides of said station, and means to operate said fan periodically, as and for the purpose set forth.

4. A marine fire-indicating system, comprising a station, a fan mounted in said station and adapted to drive the air out of one end thereof, tubes entering the opposite end and terminating beneath said fan, said tubes extending oppositely to the several holds, or bunkers of the ship and terminating in radial tubes, transparent panels in the sides of said station, and means to operate said fan periodically, as and for the purpose set forth.

5. A marine fire-indicating system, comprising a station, a fan mounted in said station and adapted to drive the air out at the top thereof, a motor adapted to operate said fan, means to periodically pass a current through said motor, tubes entering said station beneath said fan, transparent panels in said station whereby the ends of said tubes are exposed to view, said tubes extending from said station to the several holds or bunkers of the ship and terminating in radial tubes, as and for the purpose set forth.

6. In a marine fire-indicating system, a plurality of tubes leading to the several holds or bunkers, a fan adapted to draw air from said holds or bunkers through said tubes, a motor adapted to operate said fan, means to periodically pass a current of electricity through said motor, and means to call attention to said tubes when said fan is in operation, as and for the purpose set forth.

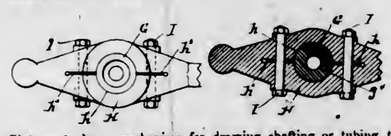
678,788. BAG-MACHINE. CLARENCE MILLHISER and CHARLES L. A. DOEPPE, Richmond, Va., assignors to the Millhiser Manufacturing Company, same place. Filed June 9, 1900. Serial No. 19,713 (No model.)



Claim.—1. Folding mechanism to fold a portion of fabric, and consisting of a narrow clamping-blade to clamp a portion of fabric about its middle to a table and having the two motions down and up, a spring arranged to cause the clamping-blade to descend and to bear with an elastic pressure upon the portion of fabric, a platen to lift and fold that part of the portion of fabric which lies upon it over the clamping-blade and onto that part which lies upon the table, means for operating the platen, and means for raising the clamp to unclamp the folded portion of fabric from the table.

2. Folding mechanism to fold a portion of fabric, and consisting of a narrow clamping-blade to clamp a portion of fabric about its middle to a table and having the two motions down and up, means for operating the clamp to clamp the portion of fabric to the table and to release the portion of fabric when folded from the table, a platen to lift and fold that part of the portion of fabric which lies upon it over the clamping-blade and onto that part which lies upon the table, and means for operating the platen.

678,789. DIE FOR METAL-DRAWING MACHINES. WILLIAM A. MCCOOL, Beaverfalls, Pa., assignor, by mesne assignments, to Shelby Steel Tube Company, Cleveland, Ohio. Filed Nov. 14, 1896. Serial No. 612,069. (No model.)



Claim.—1. In a mechanism for drawing shafting or tubing, the combination of a holder or carrier having a cylindrical socket or cavity, a reversible die having an exteriorly-cylindrical body adapted to fit the said cavity in the holder, and having two oppositely-flaring mouths, and supplemental means engaging with the holder for securing said die in position therein, substantially as set forth.

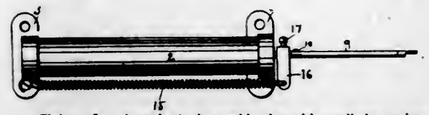
2. In a mechanism for drawing shafting or tubing, the combination with a die-holder having a cavity or socket, A', opening through opposite walls and slots, A^2, formed in its body on opposite sides of and communicating with said cavity, of a die adapted to fit within the socket or cavity in said holder, and supplemental devices for drawing the walls of said slots, A^2, closer together, substantially as set forth.

3. In a mechanism for drawing tubes or shafting, the combination of a die-holder having a cavity or socket, A', formed therein and having a slot formed in a wall of the cavity, an abutment, A^2, at one end of said cavity, of a die having a body conforming to the shape of the cavity in the holder and provided with two oppositely-flaring mouths, and supplemental means for compressing the separated portions of said slotted wall of the socket in the holder upon said die, substantially as set forth.

4. In a draw-bench, the combination of a die-holder supported to extend transversely of the bench and having a socket or passage formed therein and opening through the front and rear walls thereof, the side walls of said socket having one or more slots opening therethrough, as at A^2, a die adapted to be seated within said socket in the holder, and locking-bolts, I, extending through the holder and across the slots A^2, substantially as and for the purpose set forth.

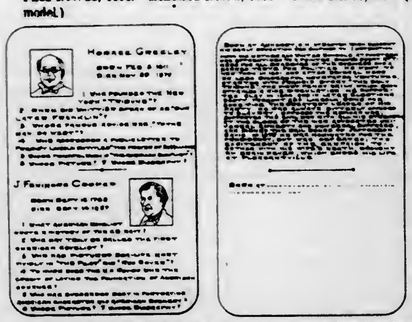
5. In a draw-bench, the combination of a die-holder arranged to extend transversely of the bench and having a socket or passage opening through the opposite end faces thereof, one end of said passage being partially closed by an abutment A^2, and the sides or walls of said socket having, at opposite points slots A^2 opening therethrough, and means for drawing the walls of the last said slots, A^2 together, whereby a die can be securely held within the holder, substantially as set forth.

678,790. DOOR-CHECK. GEORGE W. NUSBAUM and JESSE A. NEWCOMER, Dayton, Ohio. Filed June 11, 1900. Serial No. 19,859. (No model.)



Claim.—In a door-check, the combination with a cylinder, a piston-rod, an exterior spring 15, of an adjusting device movable on said piston-rod and adapted to operatively connect said spring to said rod, and means for securing said adjusting device in its adjusted position.

678,791. PLAYING-CARD. WILLIAM M. FORD, Chicago, Ill. Filed Nov. 25, 1898. Renewed Nov. 2, 1900. Serial No. 35,221. (No model.)

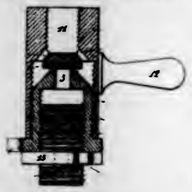


Claim.—A set of playing-cards comprising a plurality of cards each having on one surface the picture and name of a subject, and printed questions suggesting, but not naming the subject; and on the opposite surface a printed description, suggesting, but not naming said subject; each card in said set pertaining to a different subject; substantially as described.

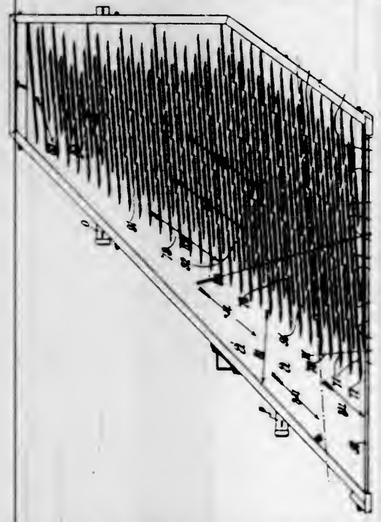
678,792. SHUT-OFF VALVE DEVICE FOR GAS PIPES AND NOZZLES. PAUL N. L. GIRARDVILLE, Paris, France. Filed Apr. 22, 1901. Serial No. 56,877. (No model.)

Claim.—A shut-off valve device for gas pipes, nozzles and the like consisting of the combination of a cylindrical cap having an externally-coned orifice, an inner screw-thread adapted to screw onto the external

thread of a gas-supply pipe or nozzle and an external screw-thread, a second cylindrical cap with internal screw-thread at its lower part adapted to screw onto the external thread of the first cap, an internally-threaded opening at its upper part the closed inner end of which has on its under side a recess filled with soft metal and constituting a valve closing the coned orifice of the first cap, and oblique passages on each side of said valve adapted to conduct the gas issuing from the said coned orifice when open, into the threaded opening at top for the supply of the burner substantially as described.



678,793. ORE-CONCENTRATOR. LUTHER LOOK, Los Angeles, Cal., assignor to the New Standard Concentrator Co., same place. Filed Aug. 14, 1900. Renewed June 22, 1901. Serial No. 65,692. (No model.)



Claim.—1. An ore-concentrator comprising a table having in its surface main channels which have a substantially common direction and channels communicating between the main channels; and means for shaking the table diagonally of the main channels.

2. An ore-concentrator comprising a table having in its surface parallel main channels and communicating channels connecting said parallel channels; and means for shaking the table diagonally of the main channels.

3. An ore-concentrator comprising a table having in its surface parallel main channels and oblique communicating channels connecting the parallel main channels; and means for shaking the table diagonally of the main channels.

4. An ore-concentrator comprising a table having a slanting surface furnished with main channels arranged at an angle to the slope of said surface; and communicating channels extending between the main channels; and means for shaking the table diagonally of the main channels.

5. An ore-concentrator comprising a table having a slanting surface furnished with main channels arranged at an angle to the slope of said surface; and communicating channels extending obliquely between the main channels; and means for shaking the table diagonally of the main channels.

6. An ore-concentrator comprising a table having a slanting surface furnished with main channels arranged at an angle to the slope of said surface, and communicating channels extending upward obliquely between the main channels; and means for shaking the table diagonally of the main channels.

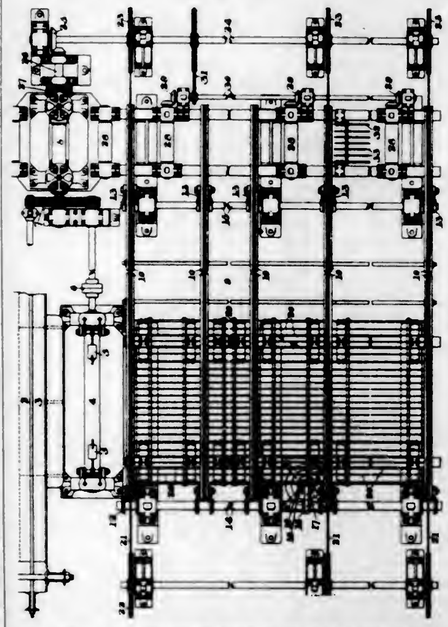
7. An ore-concentrator table having a slanting surface furnished with main channels arranged at an angle to the slope of said surface and extending obliquely down the table; communicating channels extending obliquely upward between the main channels; a discharge-way along the upper edge of the table; a pipe for feeding water at the upper edge of said way; and means for vibrating the table; the main channels at the side of the table opposite the discharge-way being deeper than the main channels at the discharge-way.

8. An ore-concentrator comprising a table furnished with riffles extending obliquely across the table and arranged coaxially in rows lengthwise of the riffles, with open spaces between the ends of the riffles, and being also arranged parallelly in rows extending obliquely from the feed end toward the discharge end of the table, with spaces between the sides of the riffles; and means for shaking the table diagonally of the riffles.

9. An ore-concentrator table furnished with short riffles arranged in rows coaxially of the riffles and also in parallel rows, and being of successively increasing heights from the percussion side of the table to the opposite side of the table and having spaces between the riffles, and a tapering, equalizing cleat at the discharge end of the table, substantially as set forth.

10. An ore-concentrating table furnished with riffles pointed at the ends and spaced apart in rows coaxially and parallelly; and means for shaking the table diagonally of the riffles.

678,794. SKELP-HANDLING APPARATUS. CAMILLE MERCADER, Braddock, and CLARENCE L. WILMOT, Pittsburg, Pa. Filed Oct. 6, 1900. Serial No. 32,231. (No model.)



Claim.—1. A skelp-heating furnace having an outlet-opening, scarfing-rolls at one side of the outlet, and a table extending transversely in front of the outlet and the scarfing-rolls, and having mechanism for carrying the skelp sidewise thereon; substantially as described.

2. A heating-furnace having an outlet-opening, feed-out rolls near the opening, supports in front of the feed-out rolls, a pair of scarfing-rolls at one side of the furnace-opening, and carriers arranged to move the skelp sidewise to a position in front of the scarfing-rolls; substantially as described.

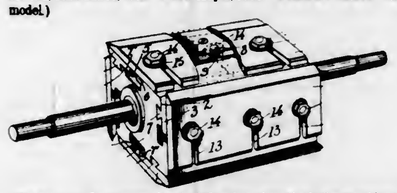
3. The combination with scarfing-rolls, of a feed-table extending thereto, a furnace at one side of the scarfing-rolls, a table extending transversely in front of the scarfing-rolls and furnace, and a vertically-movable carrier arranged to move the metal sidewise and take it to the feed-table; substantially as described.

4. A table having plate-supports at one end, vertically-movable carriers between the supports and extending longitudinally of the table, a feed-table at the other end of the supporting table or bed, and stops arranged to stop the metal in proper position on the feed-table; substantially as described.

5. A heating-furnace having an outlet-opening, scarfing-rolls at one side of the opening, a table extending in front of the outlet and scarfing-rolls, and having longitudinal rails or supports, and vertically-movable carriers arranged to slide the skelp sidewise along the supports; substantially as described.

6. A heating-furnace having an outlet-opening, rolls at one side thereof, a table extending transversely in front of the furnace-opening and rolls, mechanism for carrying the metal sidewise along said table, and mechanism for stopping metal at the proper place in front of the rolls; substantially as described.

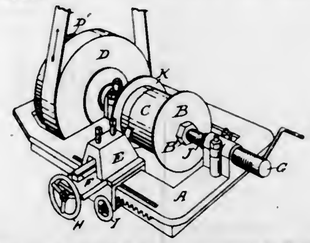
678,795. CUTTER-HEAD FOR PLANING-MACHINES. LAMBERT SPRINK, Milwaukee, Wis. Filed May 2, 1901. Serial No. 58,500. (No model.)



Claim.—1. In a cutter-head of the class described, the combination of a stock having longitudinal flanged grooves in its faces and grooved seats for the chip-breaker plates, chip-breaker plates having tongues to engage said grooves, means to secure said chip-breaker plates to said stock, cutter plates or knives bearing on the integral portions of the faces of said stock and on said chip-breaker plates, and headed bolts in the grooves of the faces of said stock and extending through adjusting-slots with which said cutter-plates are provided, said bolts securing said cutter-plates in position, substantially as described.

2. In a cutter-head of the class described, the combination of a stock having longitudinal grooves in its faces and formed with an integral overhanging flange 6 on one side of each groove, detachable chip-breaker plates adapted to be secured on said stock, the rear edges of said chip-breaker plates overhanging said grooves and forming flanges 7' opposite said flanges 6, cutter-plates having adjusting-slots and headed bolts having their heads secured in said grooves by said flanges 6, 7', the shanks of said bolts extending through said adjusting-slots in said cutter-plates, substantially as described.

678,796. TOOL FOR TURNING ZINC-SHAVINGS. FRANK L. STEARNS, Los Angeles, Cal. Filed Dec. 21, 1900. Serial No. 40,666. (No model.)

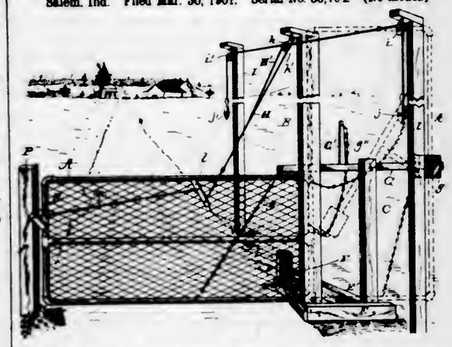


Claim.—1. In a lathe for turning zinc-shavings, the combination with the lathe of a cutting-tool, provided with a main shank for securing the tool in the lathe; an offset resilient portion projecting from the main shank at an angle, of substantially, fifty-seven degrees; and a hard-tempered cutting portion lying in a plane parallel with the main shank, having an edge rounded in main outline.

2. A lathe for turning zinc-shavings, adapted to rotate the mandrel carrying the work in the reverse direction, in combination with a cutting-tool having a shank for securing the tool in the lathe; an offset resilient portion projecting from the shank at an angle of fifty-seven degrees, or thereabout; and a highly-tempered portion, the termination of which forms the cutting edge; the cutting edge portion lying in a plane parallel with the shank, and having a rounded curve between the corners of the cutting edge.

3. As an article of manufacture, the herein-described cutting-tool F, for use in zinc-cutting lathes, comprising a shank; an offset portion projecting from the shank at an angle of fifty-seven degrees, and being resilient; and a cutting portion tempered to form a hard cutting edge; the cutting edge portion lying at an angle parallel with the shank, and being bellied out in the center between the corners of the edge.

678,797. GATE. OMAR STEVENS and MANFORD A. STEVENS, New Salem, Ind. Filed Mar. 30, 1901. Serial No. 53,704. (No model.)

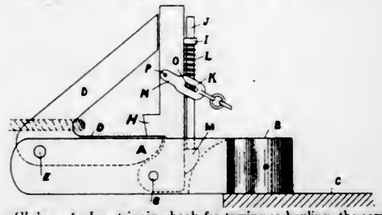


Claim.—1. A gate pivoted at one corner to swing in a vertical plane, a lever connected on one side of its pivot by a flexible connection with the lower side of the gate, and by a flexible connection from the end of the gate to the same arm of the lever, nearer the pivot, a weight on the other side of the pivot nearly balancing the gate, and a cord connected with the gate, pulleys over which the cord is passed and a hand-pull to which the cord is fastened, substantially as described and shown.

2. A gate pivoted to swing in a vertical plane about one of its corners, a separately-pivoted lever, a flexible connection between one end of the lever and the lower end of the gate, a lateral arm on the lever between the said flexible connection and the pivot, flexible connection of the outer end of the arm and the adjacent end of the gate, a weight on the end of the lever on the other side of the pivot from the end of the lever having the arm, and a cord fastened to the upper side of the gate, and passing over pulleys connected with hand-pulls on either side of the gate, substantially as described and shown.

3. A gate pivotally secured at one of its lower corners, a weighted and pivoted lever having double flexible connection with the lower side and end, respectively, of the gate, a notched post at the free end of the gate, a bar pivoted to the gate and adapted to drop by gravity into the notch in the post, a bar pivoted to the top of the gate and connected with the first-mentioned bar, cords connected with the second bar, pulleys over which the cords pass and hand-pulls terminating the cords, all substantially as described and shown.

678,798. TOW-HEAD. DREW STRETCH, Liverpool, England. Filed Feb. 2, 1901. Serial No. 45,776. (No model.)



Claim.—1. In a tripping-hook for towing or hauling, the combination of a bed-plate, an acute-angled bell-crank lever rounded in the inside of said acute angle and pivoted about its angle to said bed-plate, a post adapted to form with the acute-angled lever a closed loop, a catch adapted to engage the end of the lower arm of said bell-crank lever, and means for pulling back said catch to release said bell-crank lever and the hauling connection held therein, substantially as described.

2. In a tripping-hook for towing or hauling the combination of a bed-plate, an acute-angled bell-crank lever pivoted about its angle to said bed-plate, a post pivoted to said bed-plate, a catch formed in said post and adapted to engage the end of the lower arm of said bell-crank lever, and means for pulling back said post to release said bell-crank lever and the hauling connection held therein, substantially as described.

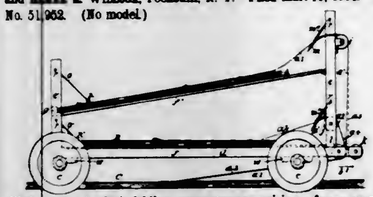
3. In a tripping-hook for towing or hauling, the combination of a bed-plate, an acute-angled bell-crank lever pivoted about its angle to said bed-plate, a post pivoted to said bed-plate, means for causing said post to normally stand vertically to said bed-plate, a catch on said post adapted to catch over an arm of said lever when the latter is forced past said catch, and means for pulling back said post to release the lever and hauling connection, substantially as described.

4. In a tripping-hook for towing or hauling, the combination of a bed-plate, an acute-angled bell-crank lever pivoted about its angle to said bed-plate, a post pivoted to said bed-plate, a catch on said post adapted to catch and hold said elbow-lever, a spring-foot mounted upon said post, an inclined surface in said bed-plate upon which the spring-foot bears, and means for simultaneously raising said spring-foot and drawing back said post to release the bell-crank lever, substantially as and for the purpose set forth.

5. In a tripping-hook for towing or hauling, the combination of a bed-plate, an acute-angled bell-crank lever pivoted about its angle to said bed-plate, a catch adapted to engage the end of the lower arm of said bell-crank lever, and means for pulling said catch to release the bell-crank lever and hauling connection, substantially as described.

6. In a tripping-hook for towing or hauling, the combination of a bed-plate A a bell-crank lever D pivoted at E to said bed-plate, a post F pivoted to said bed-plate, a catch H on said post adapted to normally lock the bell-crank lever in position to hold the rope, a spring-held pin J, a foot M on said pin, an inclined surface in said bed-plate upon which said foot bears, a link N, and means for pulling said link to raise said foot M, draw back said post F and release said bell-crank lever and hauling connection, substantially as described.

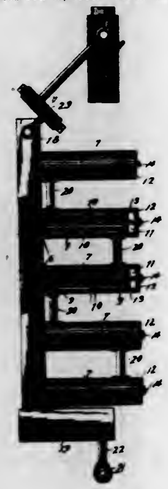
678,799. CLOTH-FOLDING APPARATUS. ELMER E. TERBUSH and ELMER R. WILLCOX, Peekskill, N. Y. Filed Mar. 19, 1901. Serial No. 51,952. (No model.)



Claims.—1. A cloth-folding apparatus comprising a frame on wheels adapted to travel on a track, platforms supported on said frame to receive bolts of cloth, each platform having contiguous to one of its ends an apron, a resistance-loop resting on said apron and a roller at the outer edge of said apron, a loop at the end of each of the platforms opposite the rollers, and a pair of rollers in the frame between which the webs of the cloth pass together to the table substantially as herein set forth.

2. In combination with a cloth-cutting table, a car adapted to travel on the table comprising a frame supporting a platform to hold bolts of cloth, a resistance-loop to rest on one end of said cloth, a resistance-loop and an apron at the opposite end of the platform between which the web of cloth passes, a roller at the outer edge of said apron and a pair of rollers in the frame whose bottom edges will deliver the cloth on the table free from contact with other parts of the car, substantially as herein set forth.

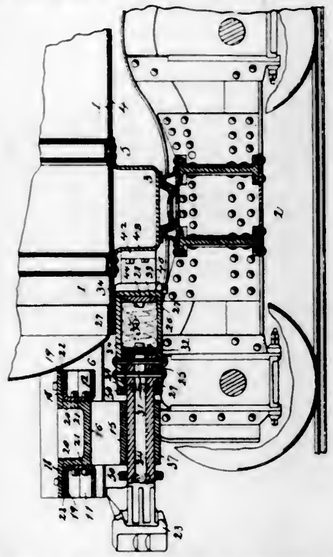
678,800. FEED-WATER HEATER. JOHN K. TOMLINSON, Pickaway, W. Va. Filed Oct. 18, 1900. Serial No. 33,496. (No model.)



Claim.—1. A feed-water heater comprising a trunk divided into compartments, drums having tubes therethrough and disposed for the tubes thereof to communicate with different compartments, removable caps at the outer ends of the drums to form domes connecting the tubes of their respective drums, a bolt passed longitudinally through each drum and its cap and having a nut for engagement with the cap for holding the latter in place, connections between the drums exterior to the tubes, a pump having its suction-pipe connected with the trunk and having its discharge-pipe connected with the lowermost drum, and a feed-pipe connected with the uppermost drum.

2. A feed-water heater comprising a trunk including compartments, a series of drums having pipes therethrough, said drums being disposed for certain of their pipes to communicate with one of the compartments and the remaining pipes to communicate with a second compartment, caps for the outer ends of the drums forming domes with which the tubes communicate, a bolt passed longitudinally through each drum and the cap thereof and having a nut for engagement with the cap to hold it in place, pipe connections between the alternate ends of the drums, a hot-well connected with the lower end of the trunk, a pump between the hot-well and the lower drum, a steam-exhaust pipe connected with the upper end of the trunk, and a water-supply pipe connected with the upper drum.

678,801. DRAFT-GEAR FOR RAILWAY ROLLING-STOCK. CORNELIUS VANDERBILT, New York, N. Y. Original application filed Dec. 11, 1899, Serial No. 739,935. Divided and this application filed Mar. 15, 1900. Serial No. 8,729. (No model.)



Claim.—1. The combination with the body-bolster, end sills and abutment-block, of the draw-bar secured to the bolster, and movably supported by the abutment-blocks, and stops in the draw-bar for engagement with the abutment-block in either direction of movement of the draw-bar.

2. In a railway-car, the combination with the body-bolster and frame, of a draft-rigging set to resist a predetermined pulling or pushing strain, consisting of an abutment-block having downwardly and laterally projecting webs, a draw-bar one end of which is supported beneath said laterally-projecting webs and between said depending webs, the other end of said draw-bar adapted to be detachably secured to said body-bolster, substantially as described.

3. In a railway-car draft-rigging, the combination with the body-bolster and frame, of a draw-bar secured to said body-bolster, an abutment-block, provided with a recessed upper portion, secured to the end sills of said frame and provided with downwardly-projecting side webs and lateral cross-webs, forming a transverse aperture for receiving the said draw-bar, a strap detachably secured to the said side webs for movably supporting the forward end of said draw-bar, and stops on the draw-bar for engagement with the abutment-block in either direction of movement of the draw-bar, substantially as described.

4. In a railway-car, the combination with the body-bolster, side sills and end sills, of an abutment-block provided with a laterally-extending flange and downwardly-projecting side webs, the said laterally-extending flange adapted to be secured to said end sills, a draw-bar movably supported at one end between said downwardly-projecting webs and detachably secured at its other end to said body-bolster, and means, secured to said draw-bar on either side of said abutment-block, engaging with said downwardly-projecting webs for transferring the pulling or pushing strain from said body-bolster to said abutment-block and end sills, when in excess of a predetermined limit, substantially as described.

5. In a railway-car, the combination with the body-bolster and side sills, of a pair of end sills at each end of the car tying said side sills, an abutment-block having a laterally-projecting flange secured to the top of said end sills, and downwardly-projecting side webs passing between the said end sills, and a draw-bar secured at one end to said body-bolster, and at its other end movably supported between the downwardly-projecting webs of the abutment-block, substantially as described.

6. In a railway-car, the combination with the body-bolster and side sills, of a pair of end sills tying the ends of said side sills, an apertured plate secured to the top of said end sills, an abutment-block, having a flanged top resting on and secured to said plate and end sills, provided with depending side webs adapted to pass through said apertured plate between said end sills, a draw-bar secured at one end to said body-bolster and movably supported at its other end between said depending webs, and means secured to said draw-bar adapted to engage with said abutment-block for transferring excessive strain from said body-bolster to the car-frame, substantially as described.

7. In a railway car, the combination with the body-bolster, side and end sills, of a draft-rigging set to resist a predetermined pulling or pushing strain consisting of an abutment-block secured to said end sills, a draw-iron secured to said body-bolster, a draw-bar movably supported at one end by said abutment-block and flexibly secured at its other end to said draw-iron, and means provided on said draw-bar for transferring the excessive strain from said body-bolster to said end sills, substantially as described.

8. The combination with the draw-bar, of the pendent abutment-block having a transverse aperture for receiving the draw-bar, a strap detachably secured to the abutment-block, and forming the base of said aperture, a draw-iron having outwardly-extending arms provided with grooves, plates detachably secured to the arms to close the grooves, cross spring plates or caps passing through the draw-bar and extending into the grooves, springs interposed between the latter plates, the detachable attachment of the strap and plates to the abutment-block and draw-iron, permitting the draw-bar the spring-plates and springs to be bodily and downwardly detached from their support.

9. The draw-iron having a lateral flange, and longitudinally disposed and grooved guide-arms laterally disconnected beyond the flange, and laterally-disconnected plates detachably secured to the under side of the arms to form separable guideways therein.

10. The draw-iron comprising the flange 41 having the outwardly-extending disconnected arms 44, the groove 45 formed in the arms, combined with the disconnected plates 46 detachably secured to the arms to complete the groove.

11. The abutment-block provided with the pendent webs 14 disconnected at the base, and the cross-web 15 forming a transverse aperture, combined with a draw-bar movable in said aperture, and a strap having the base 39, and the sides 38 detachably secured to the abutment-block and supporting the draw-bar therein.

12. A draw-bar having the collars secured thereto, said collars comprising the uprights 50 and lips 51.

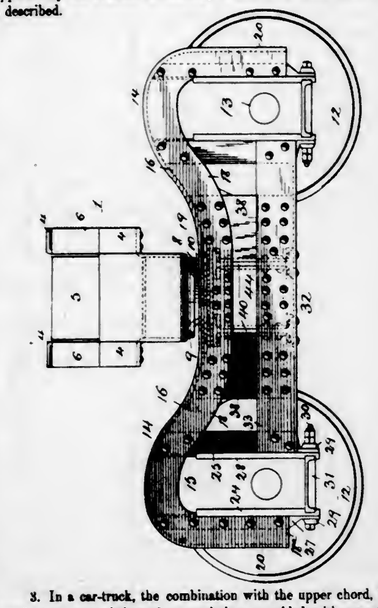
13. The draw-bar provided with sectional collars, comprising the uprights 50, angular lips 51, and lugs 52, and means passing through the lugs to secure the lugs and draw-bar, to secure the sections thereon.

14. A draw-bar, combined with a sectional collar, each section comprising a full-length upright, and a portional-length lip, both sections being secured in diametrical alinement to the draw-bar.

678,802. CAR-TRUCK. CORNELIUS VANDERBILT, New York, N. Y. Original application filed Dec. 11, 1899, Serial No. 739,935. Divided and this application filed Mar. 15, 1900. Serial No. 8,730. (No model.)

Claim.—1. In a car-truck, the combination with the upper chord, having a pendent arm, consisting of an angle-iron provided with a vertical side web and an inwardly-projecting horizontal upper web, of a face-plate substantially continuous with and secured to said pendent arm to form the outer arm of the axle-box jaws or pedestals, a lower chord, and a second upright face-plate extending between the upper and lower chords to form the inner arm of the axle-box jaws or pedestals, substantially as described.

2. In a car-truck, the combination with the upper chord, having a pendent arm, consisting of an angle-iron provided with a vertical side web and an inwardly-projecting horizontal upper web, of a face-plate substantially continuous with and secured to said pendent arm to form the outer arm of the axle-box jaws or pedestals, a lower chord provided with a vertical side web and an inwardly-projecting horizontal lower web or flange, a second upright face-plate extending between the upper and lower chords to form the inner arm of the axle-box jaws or pedestals, and cross-beams supported by and secured immediately to said inwardly-projecting web or flange of said lower chords, substantially as described.



3. In a car-truck, the combination with the upper chord, having a pendent arm, consisting of an angle-iron provided with a vertical side web and an inwardly-projecting horizontal upper web, of a face-plate secured to said pendent arm to form the outer arm of the axle-box jaws or pedestals, a lower chord provided with a vertical side web and an inwardly-projecting horizontal lower web or flange, a second upright face-plate extending between the upper and lower chords to form the inner arm of the axle-box jaws or pedestals, and cross-beams supported by and secured immediately to said inwardly-projecting web or flange of said lower chords, substantially as described.

4. In a car-truck, the combination with the upper chord, having a pendent arm, consisting of an angle-iron provided with a vertical side web and an inwardly-projecting horizontal upper web, of a face-plate substantially continuous with and secured to said pendent arm to form the outer arm of the axle-box jaws or pedestals, of a lower chord provided with a vertical side web and an inwardly-projecting horizontal lower web or flange, a second upright face-plate extending between the upper and lower chords to form the inner arm of the axle-box jaws or pedestals, spaced cross-beams supported by and secured immediately to the inwardly-projecting web of said lower chords, and compression-plates extending between the chords, provided with lateral flanges secured to the cross-beams, substantially as described.

5. In a car-truck, the combination with the side frames comprising the upper chord having a pendent arm, a face-plate provided with an inwardly-projecting transverse web secured to said pendent arm to form the outer arm of the axle-box jaws or pedestals, a lower chord, a second upright face-plate, having an inwardly-projecting transverse web, extending between the upper and lower chords to form the inner arm of the axle-box jaws or pedestals, and means for connecting the lower ends of the transverse webs of said face-plates, substantially as described.

6. In a car-truck, the combination with the side frames comprising the upper chord having a depressed central portion and a pendent arm, a face-plate provided with an inwardly-projecting transverse web secured to said pendent arm to form the outer arm of the axle-box jaws or pedestals, a lower chord provided with a vertical side web and an inwardly-projecting horizontal lower web or flange, a second upright face-plate, having an inwardly-projecting transverse web, extending between the upper and lower chords to form the inner arm of the axle-box jaws or pedestals, the inwardly-projecting flange of said lower chord being cut away to receive said second upright face-plate and means for connecting the lower ends of the transverse webs of said face-plates, substantially as described.

7. A metal bolster, U-shaped in lateral cross-section, and segmental longitudinally.

8. A metal bolster U-shaped in lateral cross-section, segmental longitudinally, and having closed and inclined ends.

9. A metal bolster U-shaped in lateral cross-section segmental longitudinally, having closed and inclined ends, and surmounting laterally-extending flanges.

10. A metal bolster U-shaped in lateral cross-section, segmental longitudinally, and having closed ends.

11. A metal bolster U-shaped in lateral cross-section, segmental longitudinally, and having upwardly-curved laterally-extending flanges.

12. A metal bolster U-shaped in lateral cross-section segmental longitudinally, and having inclined end pieces.

13. A metal bolster U-shaped in lateral cross-section, having inclined end pieces, and inclined laterally-projecting wings adjacent the end pieces.

14. A metal bolster U-shaped in lateral cross-section having inclined laterally-projecting wings.

15. A bolster having the segmental base-web 2, similarly-disposed side webs 3, and inwardly-inclined end pieces 5.

16. A bolster having a segmental base-web 2, similarly-disposed side webs 3, and outwardly-extending segmental flanges 4.

17. A bolster having a base-web 2, side webs 3, and wings 6 extending outwardly from the side webs.

18. A bolster having the base-web 2, side webs 3, and inwardly-inclined webs 6 extending outwardly from the side webs.

19. A bolster having a segmentally-disposed base 2, side webs 3, and the inclined wings 6 extending from the side webs.

20. A bolster having a segmentally-disposed base 2, side webs 3, inclined wings 6 extending from the side webs, and the intermediate and inclined end pieces 5 extending from the base-web.

21. A bolster having the segmentally-disposed base 2, side webs 3, the inclined wings 6 extending from the side webs, intermediate inclined end pieces 5 extending from the base-web, and the segmental flanges 4 extending from the side web.

22. A bolster having the base-web 2, side webs 3, and extensions 5 separated from the base-webs by slotting.

23. A bolster having the base and side webs 2 3, and wings 6 separated from the side webs by slotting.

24. A bolster having base and side webs 2, 3, flanges 4, and wings 6, and recesses formed at the upper angle of the flange and wings.

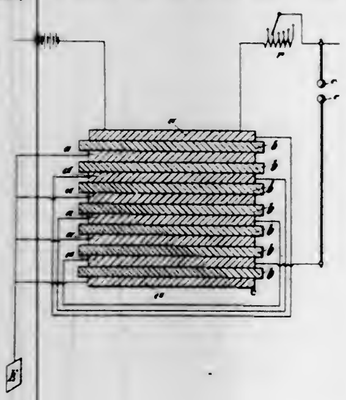
25. A longitudinally-curved body-bolster provided with a center bearing and pendent side bearings, substantially as described.

26. A longitudinally-curved body-bolster, U-shaped in lateral cross-section and provided with pendent side bearings, substantially as described.

27. A longitudinally-curved body-bolster, U-shaped in lateral cross-section, provided with center bearings and U-shaped pendent side bearings, substantially as described.

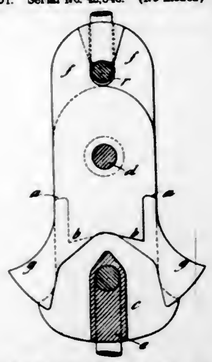
28. In a car-truck, the combination with the frame and a truck-bolster, of a body-bolster of segmental form, having ends elevated above the truck-bolster and a depressed intermediate portion, center bearings between said intermediate portion of the body-bolster and the truck-bolster, side bearings on the truck-bolster, and side bearings pendent, from the elevated ends of the body-bolster over the truck side bearings, substantially as described.

678,803. **DEVICE FOR THE PRODUCTION OF CONTINUOUS CURRENT IN REGULAR PULSATIONS.** EDMUND VAN HAANEN, Vienna, Austria-Hungary. Filed Jan. 19, 1901. Serial No. 43,927. (No model.)



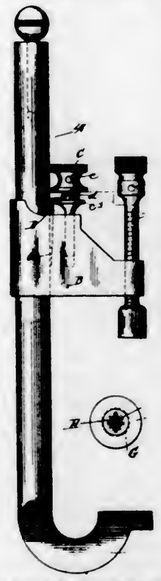
Claim.—A device for producing pulsations of a continuous current of which the maxima of tension produced in quick succession are higher than the tension of the current generated origionally, said device consisting of a condenser being in a shunt of the line-circuit, the latter being provided with an adjustable resistance, and the shunt-circuit being provided with a variable spark-producer.

678,804. **SELF-DETACHING HOOK FOR SHAFT-CAGES.** EDWARD G. WEDDELL, Tipton Green, England, assignor of two-thirds to John George Chamberlain and Ralph Player, Birmingham, England. Filed Jan. 11, 1901. Serial No. 42,846. (No model.)



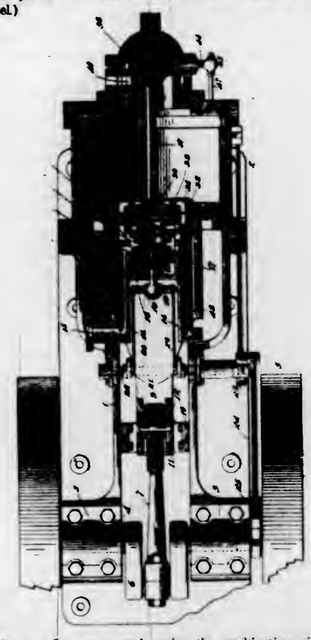
Claim.—In a safety-hook for shaft-cages, the combination with a catch-plate having a hole, of pivoted shear-blades on the safety-hook and provided with catch projections arranged to pass up through the catch-plate and open out above it, said shear-blades having other and lower catch projections arranged to pass through and open above said catch-plate later than the catch projections above and support the cage in case of an overwind; substantially as described.

678,805. **MACHINIST'S CLAMP.** PAUL A. WEYAND, Maywood, Ill. Filed Apr. 24, 1901. Serial No. 57,324. (No model.)



Claim.—The herein-described machinist's clamp consisting of a round bar, one end of which is flattened and curved to form the fixed jaw of said clamp, the other end being arranged to receive and hold a small lever-bar; a movable jaw having a cylindrical interior bearing to receive and slide longitudinally and to rotate on said bar, the said cylindrical bearing having a longitudinal taper keyway and provided with a taper key formed to be moved back and forth in said cylindrical bearing, and curved to fit the said bar, the said key having a lip constructed to be engaged in an annular groove in the head of a set-screw held and to be operated in the said movable jaw, and to lock and unlock said jaw in any position on the said bar, with thumb and fingers and small lever, and a clamp-screw held and extending through the point of said movable jaw, said screw being provided with a swivel-head and a head whereby said screw can be operated with thumb and fingers and small lever, substantially as described and for the purposes specified.

678,806. **COMPOUND PRESSURE-ENGINE.** MARCY L. WHITFIELD, Memphis, Tenn., assignor to the Whitfield Company, same place. Filed Apr. 15, 1899. Renewed Jan. 15, 1901. Serial No. 43,413. (No model.)



Claim.—1. In a compound engine, the combination with the high and low pressure cylinders, of means operating automatically under certain conditions and at a certain point of the stroke to establish direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change the operation of the engine from compound to semicompound, for the purpose set forth.

2. In a compound engine comprising a low-pressure cylinder, a piston-abutment and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; means operating automatically for establishing under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

3. In a compound engine comprising a low-pressure cylinder, a piston-abutment and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; means operating automatically for establishing at a certain point of the stroke of the high-pressure cylinder in starting, direct communication between the source of live-steam supply and the low-pressure cylinder through said high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

4. In a compound engine comprising a low-pressure cylinder, a piston-abutment and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; means operating automatically for establishing under certain conditions and at a certain point of the stroke during the normal operation of the engine, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change said operation from compound to semicompound, for the purpose set forth.

5. In a compound engine, the combination with the high and low pressure cylinders, a valve mechanism, and suitable steam passages and ports controlled thereby and operating to cause the engine to normally work compound; of means automatically changing the operation of the valve mechanism to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change said normal operation from compound to semicompound, for the purpose set forth.

6. In a compound engine comprising high and low pressure cylinders, a valve controlling the flow of live steam to the high-pressure cylinder, a valve controlling a passage or passages leading from said high-pressure cylinder into said low-pressure cylinder, and an exhaust-valve controlling the flow of steam from the low-pressure cylinder; a valve-gear operating the valves to cause the engine to normally work compound and means operating automatically for changing the operation of the valve-gear and valves so as to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

7. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; a valve-gear, and valves, controlling suitable passages and ports and operating to cause the engine to normally work compound, and means operating automatically for changing the operation of said valve-gear and valves to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

8. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively a valve controlling the flow of live steam to the high-pressure cylinder, a valve controlling a passage or passages leading from the high-pressure cylinder into the low-pressure cylinder, and an exhaust-valve for the latter cylinder; a valve-gear operating said valves to cause the engine to normally work compound, and means automatically changing the operation of said valve-gear and valves to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

9. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, a valve controlling the flow of live steam to the high-pressure cylinder, a valve controlling a passage or passages leading from the high-pressure cylinder into the low-pressure cylinder, and an exhaust-valve for the latter cylinder; a valve-gear operating said valves to cause the engine normally to work compound, and means operating automatically for changing the operation of said valve-gear and valves to establish, at a certain point of the stroke of the high-pressure cylinder in starting, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

10. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, a valve controlling the flow of live steam to the high-pressure cylinder, a valve controlling a passage or passages leading from the high-pressure cylinder into the low-pressure cylinder and an exhaust-valve for the latter cylinder; a valve-gear operating said valves to cause the engine normally to work compound, and means operating automatically for changing the operation of the valve-gear and valves to establish during the normal operation of the engine and at a certain point of the stroke of the high-pressure cylinder, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

11. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, respectively, a valve controlling the supply of live steam to the high-pressure cylinder, a valve controlling passages leading from the high-pressure cylinder into the low-pressure cylinder, and an exhaust-valve for the latter cylinder; in combination with a valve-gear operated from a moving element of the engine and actuating the valves to cause the engine to normally work compound, and means operating automatically for changing the operation of said valve-gear and

valves so as to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

12. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, a valve controlling the supply of live steam to the high-pressure cylinder, a valve controlling passages leading from the high-pressure cylinder into the low-pressure cylinder, and an exhaust-valve for the latter cylinder; a valve-gear operated from a moving element of the engine and actuating the valves to cause the engine to normally work compound, a governor influencing the operation of said valve-gear and valves so as to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder, to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

13. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; a valve controlling the supply of live steam to the high-pressure cylinder, a valve controlling a port or ports leading from said high-pressure cylinder into said low-pressure cylinder, an exhaust-valve for the latter cylinder, a valve-gear for operating said valves to cause the engine to normally work compound, and a governor influencing the valve-gear and valves so as to establish, a certain point of the stroke of the high-pressure cylinder in overcoming inertia or when the speed of the engine drops below a normal speed, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change said normal operation from compound to semicompound, for the purpose set forth.

14. In a compound engine comprising a power-shaft, a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder connected with said power-shaft and working on said abutment and in said low-pressure cylinder respectively; a valve controlling the supply of live steam to the high-pressure cylinder, a valve controlling ports leading from said high-pressure cylinder into the low-pressure cylinder, and an exhaust-valve for the latter cylinder; a valve-gear, an eccentric on the power-shaft operating said valve-gear to cause the engine to normally work compound, and a governor influencing the aforesaid eccentric to change, under certain conditions and a certain point of the stroke, the operation of the valve-gear and valves so as to establish direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change the normal operation of the engine from compound to semicompound, for the purpose set forth.

15. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, a valve in the head of the abutment controlling the supply of live steam to the high-pressure cylinder, a valve in the head of the latter cylinder controlling ports leading therefrom into the low-pressure cylinder, and an exhaust-valve in the head of said low-pressure cylinder controlling a passage or port leading therefrom; a valve-gear operating the aforesaid valves to cause the engine to normally work compound and means operating automatically for changing the operation of the valve-gear and valves to establish, under certain conditions and at a certain point of the stroke, direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder to change said normal operation of the engine from compound to semicompound, for the purpose set forth.

16. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, a distributing-valve in the head of said abutment controlling a supply of live steam to the high-pressure cylinder, an oscillating intermediate valve in the head of the latter cylinder controlling a port or ports leading therefrom into the low-pressure cylinder, a rocking exhaust-valve in the head of said low-pressure cylinder and means for oscillating the intermediate valve through the exhaust-valve; a rock-shaft, connections between the same and the distributing and exhaust valves and means for rocking said shaft, for the purposes set forth.

17. In a compound engine comprising a power-shaft, a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, a distributing-valve in the head of said abutment controlling the supply of live steam to the high-pressure cylinder, an oscillating intermediate valve in the head of the latter cylinder controlling a port or ports leading therefrom into the low-pressure cylinder, a rocking exhaust-valve in the head of said low-pressure cylinder and means for oscillating the intermediate valve through the exhaust-valve; a rock-shaft, connections between the same and the distributing and exhaust valves, an eccentric on the power-shaft connected with said rock-shaft and operating the valves to cause the engine to normally work compound, and a governor influencing the eccentric under certain conditions to change the amplitude of the rocking movements of the rock-shaft and therethrough the operation of the distributing-valve to establish direct communication between the source of live-steam supply and the low-pressure cylinder at a certain point of the stroke of the high-pressure cylinder to change the said normal operation of the engine from compound to semicompound, for the purposes set forth.

18. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, a cylindrical endwise-movable distributing-valve in the head of the abutment and controlling the supply of live steam to the high-pressure cylinder, a discoidal oscillating intermediate valve in the head of said high-pressure cylinder controlling a port or ports leading therefrom into the low-pressure cylinder, a cylindrical rocking exhaust-valve in the head of the low-pressure cylinder and means for oscillating the intermediate valve through the exhaust-valve; a rock-shaft and suitable connections between the same and the distributing and exhaust valves for imparting the described movements thereto, substantially as set forth.

19. In a compound engine comprising a power-shaft, a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, a cylindrical endwise-movable distributing-valve in the head of the abutment and controlling the supply of live steam to the high-pressure cylinder, a discoidal oscillating intermediate valve in the head of said high-pressure cylinder controlling a port or ports leading therefrom into the low-pressure cylinder, a cylindrical rocking exhaust-valve in the head of the low-pressure cylinder and means for oscillating the intermediate valve through the exhaust-valve; a rock-shaft, suitable connections between the same and the distributing and exhaust valves for imparting the described movements thereto, an eccentric on the power-shaft connected with said rock-shaft and actuating the same and the valves to cause the engine to normally work compound, and a governor influencing the eccentric under certain conditions to vary the amplitude of the rocking motion of the rock-shaft and change the operation of the distributing-valve so as to establish at a certain point of the stroke of the high-pressure cylinder direct communication between the source of live-steam supply and the low-pressure cylinder to change said normal operation of the engine from compound to semicompound, substantially as and for the purposes set forth.

20. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure cylinder working on said abutment and in said low-pressure cylinder respectively said abutment having formed therein a live-steam passage and two chambers one for the reception of the distributing-valve and the other serving as receiver, for the purpose set forth.

21. In a compound engine comprising a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively, said abutment having formed therein a live-steam-supply passage and two concentric chambers of different areas, the outer chamber of greatest area acting as a receiver and the inner chamber of least area for the reception of the steam-distributing valve, and means for draining the receiving-chamber, substantially as and for the purpose set forth.

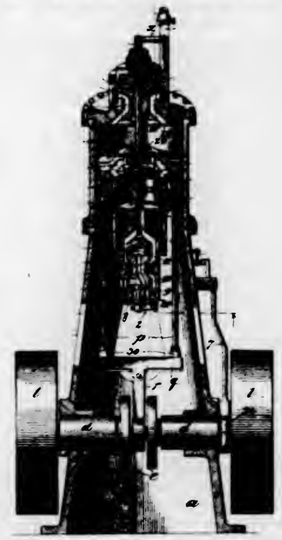
22. In a compound engine comprising a power-shaft, a low-pressure cylinder, a piston-abutment and a high-pressure piston-cylinder working on said abutment; a pair of guide-blocks in extension of the high-pressure cylinder, guides for guiding said blocks, a cross-head to which said guide-blocks are connected, and a driving-rod connecting the cross-head with a crank on the power-shaft, substantially as set forth.

23. In a compound engine comprising a power-shaft, a low-pressure cylinder, a piston-abutment, and a high-pressure piston-cylinder; guides carried by the low-pressure cylinder in extension thereof, a pair of guide-blocks carried by the high-pressure cylinder in extension thereof, a cross-head to which said guide-blocks are connected, and a driving-rod connecting said cross-head to a crank on the power-shaft, substantially as described.

24. In a compound steam-engine, a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, said high-pressure piston-cylinder extended for connection with the crank-shaft beyond the steam area determined by the packing on said abutment; a self-packing distributing-valve working in a suitable chamber and having its operating-stem located externally of said chamber for connection with the valve-operating device, an intermediate valve in the head of the high-pressure piston-cylinder, an exhaust-valve for the low-pressure cylinder and the valve-stem for said intermediate valve operated by said exhaust-valve located wholly within the steam area of the low-pressure cylinder, said exhaust-valve having its stem externally of said steam area, substantially as set forth and for the purpose of dispensing with stuffing-boxes and glands for said parts.

25. In a compound steam-engine, a low-pressure cylinder, a piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, said high-pressure piston-cylinder extended for connection with the crank-shaft beyond the steam area determined by the packing on said abutment; a self-packing distributing-valve working in a chamber and in the abutment, said valve having its operating-stem located externally of the valve-chamber and high-pressure piston-cylinder for connection with the valve-operating device, a semirotary expansion-valve in the head of the high-pressure piston-cylinder, a semirotary exhaust-valve for the low-pressure cylinder, and the valve-stem for the expansion-valve aplined to said exhaust-valve and located wholly within the steam area of the low-pressure cylinder, said exhaust-valve having its stem externally of said steam area, substantially as set forth and for the purpose of dispensing with stuffing-boxes and glands for said parts.

678,807. COMPOUND ENGINE. MARCY L. WHITFIELD, Memphis, Tenn., assignor to the Whitfield Company, same place. Filed July 5, 1899. Renewed Jan. 15, 1901. Serial No. 43,414. (No model.)



Claim.—1. In a compound telescopic vertical steam-engine, the combination with a low-pressure cylinder, a stationary piston-abutment, and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, an oscillating cylindrical main valve arranged in said abutment, a similar intermediate valve arranged in the head of the high-pressure piston-cylinder, a like exhaust-valve arranged in the head of the low-pressure cylinder, means for transmitting the movements of the exhaust-valve to the intermediate valve, suitable steam-passages controlled by said valves, and means for operating the main and exhaust valve from the power-shaft of the engine, for the purpose set forth.

2. In a compound telescopic vertical engine, the combination with a low-pressure cylinder, a stationary piston-abutment and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder; of cylindrical oscillating controlling-valves mounted on the abutment, and in the head of the high-pressure cylinder respectively, and a valve-gear, said valves and valve-gear constructed and operating to cause the engine under normal conditions to work as a compound engine, and as a semicompound engine in starting or under an increase of the load, for the purpose set forth.

3. In a compound telescopic vertical steam-engine, the combination with a low-pressure cylinder, a stationary piston-abutment, and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder; of cylindrical oscillating valves arranged in said abutment and in the head of said high-pressure piston-cylinder, respectively, said valves constructed and operating to permit live steam to flow into the high-pressure piston-cylinder and to then expand into the low-pressure cylinder, and means for equalizing the steam-pressure on opposite ends of the valve in the head of the high-pressure piston-cylinder, for the purpose set forth.

4. In a telescopic vertical compound steam-engine, the combination with a low-pressure cylinder, a stationary piston-abutment, and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder; of cylindrical oscillating valves arranged in said abutment and in the head of said high-pressure piston-cylinder, respectively, said valves constructed and operating to permit live steam to flow into the high-pressure piston-cylinder and to then expand into the low-pressure cylinder, and means for equalizing the steam-pressure on opposite ends of the valve in the aforesaid abutment, for the purpose set forth.

5. In a telescopic vertical compound steam-engine, the combination with a low-pressure cylinder, a stationary piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, and the power-shaft; of an equalizing-bar, a connection between said bar and the crank on said shaft, and connecting-rods connecting said equalizing-bar with the high-pressure piston-cylinder, for the purpose set forth.

6. In a telescopic vertical compound steam-engine, the combination with a low-pressure cylinder, a stationary piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, and a power-shaft; of an equalizing-bar, a connecting-rod pivotally connected with said bar and with the crank of the power-shaft, and connecting-rods adjustably connected with the equalizing-bar and connecting the latter with the high-pressure piston-cylinder, for the purpose set forth.

7. The combination with the high-pressure piston-cylinder *g* having wrist-pins *o* at diametrically opposite points, the two-part power-shaft *d d* having disks at the proximate ends of its parts, the equalizing-bar *q*, the connecting-rod *r* pivotally connected with said bar and with the crank of the crank-shaft, and connecting-rods *p* connected with the aforesaid wrist-pins *o* and equalizing-bar *q*, substantially as and for the purpose set forth.

8. In a compound telescopic vertical steam-engine, the combination with a low-pressure cylinder, a stationary piston-abutment, a high-pressure cylinder working on said abutment and in said low-pressure cylinder, cylindrical oscillating valves arranged respectively in the stationary abutment and the heads of the high-pressure cylinders, the valve in the stationary abutment provided with two sets of distributing-ports, and suitable steam-passages controlled by said valves; of the power-shaft, an eccentric thereon, a governor controlling said eccentric, and means for transmitting the necessary oscillating movements to the aforesaid valves through said eccentric, substantially as and for the purpose set forth.

9. In an engine of the type described, a high-pressure piston-cylinder, provided near its piston-head at diametrically opposite points with wrist-pins cast thereon for the connecting-rods through which said cylinder is connected with the power-shaft of the engine, as set forth.

10. In a telescopic vertical compound steam-engine comprising a low-pressure cylinder, a stationary piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, and driving-rods connected with the high-pressure piston-cylinder at points outside of the steam area confined by the packing; of oscillating self-packing main, intermediate and exhaust valves, located in chambers on the stationary piston-abutment, and in the heads of the high and low pressure cylinders respectively, means located wholly within the steam area of the low-pressure cylinder, for operating the intermediate valve from the exhaust-valve, and means located outside of the steam areas of the main and exhaust valves for operating the same, for the purpose set forth.

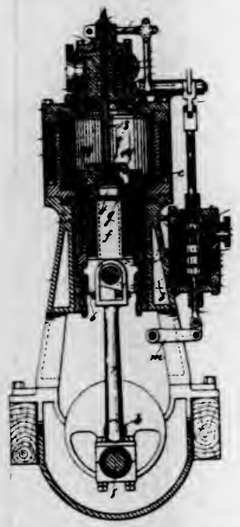
11. In a telescopic vertical compound steam-engine comprising a low-pressure cylinder, a stationary piston-abutment, a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, and driving-rods connected with the high-pressure piston-cylinder at points outside of the steam area confined by the packing; of oscillating self-packing main, intermediate and exhaust valves located in chambers in the stationary piston-abutment, and in the heads of the high and low pressure cylinders, respectively, means located wholly within the steam area of the low-pressure cylinder for operating the intermediate valve from the exhaust-valve, and an operating-rod, and connection between said rod and the main and exhaust valves, located outside of the steam area of said valves for the purpose set forth.

678,808. COMBINED COMPOUND AND SEMICOMPOUND ENGINE. MARCY L. WHITFIELD, Memphis, Tenn., assignor to the Whitfield Company, same place. Filed Dec. 11, 1899. Serial No. 740,001. (No model.)

Claim.—1. A steam-engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion in said stationary cylinder and on said abutment, a valve mechanism operating to admit live steam alternately to said piston and stationary cylinders and the crank-shaft connected with the piston-cylinder; in combination with means connected with the valve mechanism for changing the direction of rotation of the crank, for the purpose set forth.

2. A steam-engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion in said stationary cylinder and on said abutment, a valve mechanism operating to admit live steam to the piston-cylinder, and live steam together with steam from said piston-

cylinder to the stationary cylinder, alternately, and the crank-shaft connected with the piston-cylinder; in combination with means connected with the valve mechanism for changing the direction of rotation of the crank, for the purposes set forth.



3. A steam-engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion in said stationary cylinder and on said abutment, a valve mechanism and steam-distributing ports and passages controlled thereby, and operating to admit live steam to the piston-cylinder and through said piston-cylinder to the stationary cylinder alternately, and the crank-shaft connected with said piston-cylinder; in combination with a reversing mechanism connected with the valve mechanism for reversing the rotation of the crank, for the purposes set forth.

4. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary bifurcated abutment having a steam-supply passage in each of its legs and an outlet-port in its head, a piston-cylinder working on said abutment and in the stationary cylinder, a cross-head connected with said piston-cylinder and working between the legs of the abutment, a crank-shaft, and a connection between the cross-head and shaft, for the purpose set forth.

5. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment, means for causing the engine to work semicompound or compound and means for changing the direction of motion of the crank whether the engine works semicompound or compound, for the purposes set forth.

6. A combined compound and semicompound engine, comprising a stationary cylinder open at its outer end, a stationary bifurcated abutment arranged in the axial plane of said cylinder, a piston-cylinder upon at its outer end and having extensions therefrom, said piston-cylinder working on the abutment and in the stationary cylinder, a cross-head connected with the piston-cylinder extensions and having motion between the legs of the abutment, a crank-shaft and a connecting-rod connected with the crank on said shaft and with the aforesaid cross-head, for the purpose set forth.

7. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said cylinder, a crank-shaft, a connection between the crank of said shaft and the piston-cylinder, a main or distributing valve controlled by the movements of the crank-shaft, an exhaust-valve for the stationary cylinder, and an intermediate valve in the piston-head of the piston-cylinder, both said valves controlled by the movements of the distributing-valve, for the purposes set forth.

8. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said cylinder, a crank-shaft, a connection between the crank of said shaft and the piston-cylinder, a main or distributing valve controlled by the movements of the crank-shaft, an exhaust-valve for the stationary cylinder, an intermediate valve in piston-head of the piston-cylinder, both said valves controlled by the movements of the distributing-valve, and means for adjusting the last-named valve to cause the engine to work semicompound or compound, substantially as set forth.

9. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said cylinder, a crank-shaft, a connection between the crank of said shaft and the piston-cylinder, a main or distributing valve controlled by the movements of the crank-shaft, an exhaust-valve for the stationary cylinder, an intermediate valve in piston-head of the piston-cylinder, both said valves controlled by the movements of the distributing-valve, and means for adjusting the last-named valve to change the direction of motion of the crank, for the purpose set forth.

10. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary abutment, a piston-cylinder having motion on said abutment and in said stationary cylinder, a crank-shaft, a connection between the crank of said shaft and the piston-cylinder, a main or distributing valve controlled by the movements of the crank-shaft, an exhaust-valve for the stationary cylinder, an intermediate valve in piston-head of the piston-cylinder, both said valves controlled by the movements of the distributing-valve, means for adjusting the last-named valve to cause the engine to work semicompound or compound, and means for adjusting said valve to change the direction of motion of the crank whether the engine works semicompound or compound, substantially as set forth.

11. A steam-engine comprising a stationary cylinder, a stationary abutment, a piston-cylinder working in said stationary cylinder and on said abutment, a main automatically-operated distributing-valve located outside said cylinders, intermediate and exhaust valves located within the steam area of the cylinders, and connections between the distributing-valve and said exhaust and intermediate valves for controlling the movements of the last-named valves by the movements of the distributing valve, for the purposes set forth.

12. In a telescopic engine, the combination with the low and high pressure cylinders, of a stationary piston-abutment on which said high-pressure cylinder is mounted to reciprocate, said abutment bifurcated to form a way in which the cross-head can reciprocate and serving also to admit live steam to said high-pressure cylinder, for the purposes set forth.

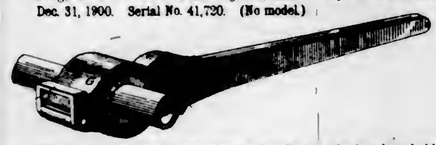
13. In a compound engine comprising a low-pressure cylinder, a stationary piston-abutment and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; a valve mechanism controlled by a moving element of the engine, said mechanism organized to establish direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder on the low-pressure stroke to change the operation of the engine from compound to semicompound, for the purpose set forth.

14. In a compound engine, the combination with the high and low pressure cylinders, of means for establishing at will direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder on the low-pressure stroke to change the operation of the engine from compound to semicompound, for the purpose set forth.

15. In a compound engine comprising a low-pressure cylinder, a stationary piston-abutment and a high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder respectively; a valve mechanism controlled by a moving element of the engine, said mechanism organized to establish direct communication between the source of live-steam supply and the low-pressure cylinder through the high-pressure cylinder on the low-pressure stroke to change the operation of the engine from compound to semicompound, and means for adjusting said mechanism to cause the engine to work compound or semicompound or vice versa at will.

16. A combined compound and semicompound engine, comprising a stationary cylinder, a stationary abutment and a piston-cylinder working on said abutment and in said stationary cylinder, automatically-operated means for changing the operation of the engine from compound to semicompound and vice versa, and means for reversing the rotation of the crank in either operation, for the purposes set forth.

678,809. PIPE-WRENCH. JOSEPH E. WILKINS, Wellsville, Ohio, assignor of one-half to S. M. Ferguson, East Liverpool, Ohio. Filed Dec. 31, 1900. Serial No. 41,720. (No model.)

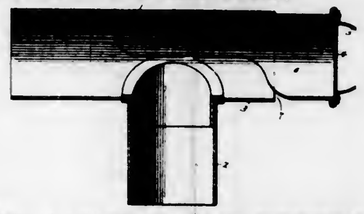


Claim.—1. A wrench comprising a handle, a swinging jaw hold thereto, a clevis formed on the free end of said jaw and a removable jaw having one end fitting loosely in said clevis and its other end engaged by the handle to close it, substantially as shown and described.

2. In a wrench, the combination of a handle having an enlarged head on one end thereof, one side of the head terminating in a lug, the opposite side terminating in a claw, a jaw pivoted at one end to the lug and having its opposite end formed with a yoke, a removable jaw held at one end in said yoke and having its opposite end bifurcated to straddle the claw, and adapted to be engaged thereby, substantially as shown and described.

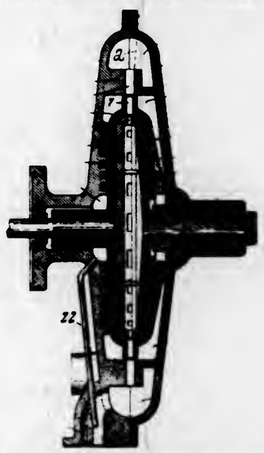
3. In a wrench, the combination of a handle provided with a claw, a jaw having ears at one end between which the handle is pivoted, and at its other end with a yoke, and a removable jaw having one end loosely fitting in the said yoke and provided at its other end with ears and between said ears with a cam-surface adapted to be engaged by the claw of the handle, as set forth.

678,810. STOVEPIPE-ELBOW. CHARLES WILLIAM, Potosi, Mo. Filed Dec. 3, 1900. Serial No. 38,502. (No model.)



Claim.—As a new article of manufacture, a stovepipe-elbow having its horizontal member projected in opposite directions beyond the vertical member and open at opposite ends, and an endwise-slidable and rotatable tubular damper and cleaning device mounted within the horizontal elbow member and projected across the inner open end of the vertical member to control the same, the outer end of the damper being closed, and provided with an external marginal flange for engagement with the adjacent end of the horizontal elbow member, and a handle upon the outer closed end of the damper, the inner end portion of the damper being cut away longitudinally to form an opening for registration with the open upper end of the vertical elbow member, and also to form opposite longitudinal scraping edges lying in frictional engagement with the interior of the elbow and terminated short of the outer closed end of the damper, the said closed end and the imperforate marginal portion of the damper forming a receptacle for the reception of the soot when the cleaning device is being removed from the elbow, and the device being rotatable when at its innermost limit.

678,811. STEAM-TURBINE. THOMAS J. OBENCHAIN, Louisville, Ky. Filed July 9, 1900. Serial No. 22,947. (No model.)



Claim.—1. In a steam turbine, the combination, substantially as set forth, of a stationary disk-like steam-chest within the rotary wheel provided with an inlet for steam and having at its periphery a circumferential series of inclined outlet-ports, a wheel inclosing the steam-chest and supported wholly from one side of the casing, and mounted for rotation concentric to said steam-chest and having in its periphery a circumferential series of buckets with their inner ends adapted to pass close to but free from the periphery of the steam-chest at the outlet-ports therein, the faces of said buckets being so disposed that steam jetting from the outlet-ports of the steam-chest will strike the bucket-surfaces at substantially right angles to the jets, and a casing inclosing said wheel and steam-chest and having an exhaust-outlet.

2. In a steam-turbine, the combination, substantially as set forth, of a stationary disk-like steam-chest within the rotary wheel provided with an inlet for steam and having at its periphery a circumferential series of inclined outlet-ports, a wheel inclosing the steam-chest and supported wholly from one side of the casing, and mounted for rotation concentric to said steam-chest and having in its periphery a circumferential series of buckets with their inner ends adapted to pass close to but free from the periphery of the steam-chest at the outlet-ports therein, the faces of said buckets being so disposed that steam jetting from the outlet-ports of the steam-chest will strike the bucket-surfaces at substantially right angles to the jets, and a casing inclosing said wheel and steam-chest and having an exhaust-outlet.

3. In a steam-turbine, the combination, substantially as set forth, of a stationary disk-like steam-chest within the rotary wheel provided with an inlet for steam and having at its periphery a circumferential series of inclined outlet-ports, a wheel inclosing the steam-chest and supported wholly from one side of the casing and mounted for rotation concentric to said steam-chest and having in its periphery a circumferential series of buckets with their inner ends adapted to pass close to but free from the periphery of the steam-chest at the outlet-ports therein, said wheel-buckets being so formed that the ports between them taper from their inner to their outer ends, and a casing inclosing said wheel and steam-chest and provided with an exhaust-outlet.

4. In a steam-turbine, the combination, substantially as set forth, of a stationary disk-like steam-chest within the rotary wheel provided at the center of one of its side walls with an inlet for steam and having in its periphery a circumferential series of inclined outlet-ports, a wheel mounted for rotation concentrically at one side of said steam-chest and having a wall near the other side of the steam-chest wholly supported by the wheel at one side of the casing, the two walls of the wheel joining at the periphery of the wheel around the steam-chest and being there provided with a circumferential series of buckets, and a casing inclosing said wheel and steam-chest and having an exhaust-outlet.

5. In a steam-turbine, the combination, substantially as set forth, of a stationary disk-like steam-chest within the rotary wheel provided at the center of one of its side walls with an inlet for steam and having in its periphery a circumferential series of inclined outlet-ports, a wheel mounted for rotation concentrically at one side of said steam-chest and having a wall near the other side of the steam-chest wholly supported by the wheel at one side of the casing, the two walls of the wheel joining at the periphery of the wheel around the steam-chest and being there provided with a circumferential series of buckets, a casing inclosing said wheel and steam-chest and having an exhaust-outlet, and a series of intermembering tongues and grooves disposed upon one face of the wheel and the contiguous face of the casing.

6. In a steam-turbine, the combination, substantially as set forth, of a disk-like steam-chest provided at the center of one of its side walls with an inlet for steam and having in its periphery a circumferential series of inclined outlet-ports, a wheel mounted for rotation concentrically at one side of said steam-chest and having a wall near the other side of the steam-chest, the two walls of the wheel joining at the periphery of the wheel around the steam-chest and being there provided with a circumferential series of buckets, a casing inclosing said wheel and steam-chest and having an exhaust-outlet, and intermembering tongues and grooves disposed concentrically upon one wall of said steam-chest and the inner surface of the contiguous wall of the wheel.

7. In a steam-turbine, the combination, substantially as set forth, of a disk-like casing provided with a central hub and with an exhaust-outlet, a wheel inclosing the steam-chest and supported wholly from one side of the casing, and mounted for rotation in said casing concentric to said hub and having at its periphery a circumferential series of buckets, a stationary disk-like steam-chest disposed concentrically within said wheel and having in its periphery a circumferential series of diagonal outlet-ports adapted to discharge against said buckets, and a hollow hub projecting from said steam-chest through said casing-hub and adapted to serve as a support for the steam-chest and as an inlet for steam.

8. In a steam-turbine, the combination, substantially as set forth, of a disk-like casing having an exhaust-outlet, a hollow wheel mounted for rotation therein and having in its periphery a circumferential series of buckets, a steam-chest disposed concentrically within the wheel and having a steam-inlet and being provided at its periphery with a circumferential series of inclined outlet-ports, a series of intermembering annular tongues and grooves upon a wall of the wheel and the contiguous wall of the casing, and a conduit leading from a space radially within the innermost ones of said tongues and grooves to the exhaust-outlet of the casing.

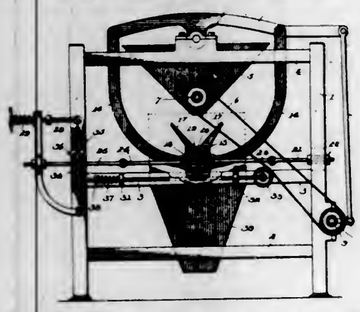
9. In a steam-turbine, the combination, substantially as set forth, of

a disk-like casing having an exhaust-outlet, a shaft projecting into said casing through one side thereof, a disk-like wheel inclosing the steam-chest and supported wholly from one side of the casing, and mounted upon said shaft within the casing and having at its periphery a circumferential series of buckets, a stationary disk-like steam-chest disposed concentrically within said wheel and having at its periphery a circumferential series of inclined outlet-ports, and a hollow hub projecting from said steam-chest through the wall of said casing opposite said shaft.

10. In a steam-turbine, the combination, substantially as set forth, of a disk-like casing having an exhaust-outlet, an annular partition disposed within said casing and provided through it with a circumferential series of ports, a hollow wheel inclosing the steam-chest and supported wholly from one side of the casing, and mounted for rotation concentrically within said casing with its periphery near but free of contact with the inner surface of said partition and having in its periphery a circumferential series of ports adapted to discharge diagonally against the buckets formed between said partition-ports, and a stationary disk-like steam-chest within the interior of said wheel.

11. In a steam-turbine, the combination, substantially as set forth, of a stationary disk-like steam-chest within the rotary wheel provided with an inlet for steam and having in its periphery a circumferential series of inclined outlet-ports, a wheel inclosing the steam-chest and supported wholly from one side of the casing, and mounted for rotation concentric to said steam-chest and having at its periphery a series of buckets adapted to be impinged upon by jets from said steam-chest ports, a casing inclosing said wheel and steam-chest and having an exhaust-outlet, and an annular partition disposed within said casing around said wheel and having a circumferential series of buckets adapted to be impinged upon by steam flowing from the ports formed between said wheel-buckets.

678,812. **GRAIN-GRINDER.** ARCH W. PATRICK, New Cambria, Kans. Filed Aug. 4, 1900. Serial No. 25,955. (No model.)

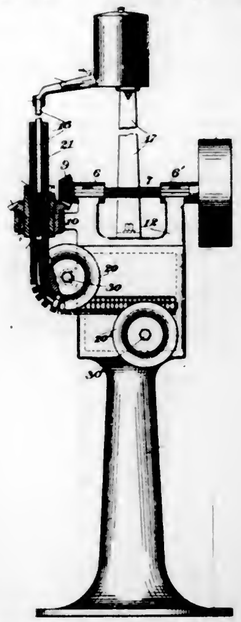


Claim.—1. The combination with a frame; of a beam journaled thereon; arms pivoted to the beam at opposite sides of its fulcrum and suspended therefrom; grinding-plates pivoted to the ends of the arms; a rod secured to the frame; a toggle-link connecting said rod with one of the grinding-plates; a rod slidably mounted within the frame; a toggle-link connecting said rod and the remaining plate, said plates being adapted to swing in a vertical plane, the joints between the rods and toggle-links serving as fulcrums therefor; a spring for holding the plates normally in contact with each other; and means for imparting a rocking motion to the beam.

2. The combination with a frame; of a beam journaled thereon; arms pivoted to the beam at opposite sides of its fulcrum; plate-holders; ears thereto; rods within said ears and engaging the free ends of the arms; grinding-plates secured to the holders; a rod secured to the frame; a toggle-link connection between said rod and one of the plate-holders; a bracket pivoted to the frame; a rod secured thereto; a toggle-link connection between the rod and the remaining plate-holder; a rod pivoted to the frame and adjustable within the bracket; a spring encircling said rod and bearing at opposite ends upon the bracket and the end of the rod respectively, thereby holding the grinding-plates normally in contact with each other; means for adjusting the tension of said spring; and means for imparting a rocking motion to the beam, thereby causing the plates to slide upon each other, the joints between the toggle-links and their rods serving as fulcrums for said plates.

678,813. **NUT-TAPPING MACHINE.** ADDISON H. RICES, Asbury Park, N. J. Filed Nov. 15, 1900. Serial No. 36,541. (No model.)

Claim.—1. In a nut-tapping machine, the combination, with a device in which the nut-blanks are received and a tap, the latter having a deflected shank, one of said parts being revoluble with relation to the other, of a roller-guide for directing the nuts along the shank of said tap.



2. In a nut-tapping machine, the combination, with a nut-blank driver of a tap passing through said driver and having a deflected shank, said nut-blank driver extending along the shank of the tap to and below the deflection of the same; and means for guiding the nuts along said shank.

3. In a nut-tapping machine, the combination, with a nut-blank driver, of a tap having a deflected shank; and means independent of the tap and nuts for positively feeding the nuts along said shank.

4. In a nut-tapping machine, the combination, with a nut-blank driver and a tap having a deflected shank, of a feeding device carried by the nut-blank driver; and a guide through which the nuts pass as they are discharged from the tap over said shank.

5. In a nut-tapping machine, the combination, with a nut-blank holder and a tap having a deflected shank, one of said parts being revoluble with relation to the other, of a device coöperating with said parts and serving to feed the nuts along said shank.

6. In a nut-tapping machine, the combination, with a tap having a deflected shank, of a nut-blank driver extending along said shank and having a feeding device for engaging the nuts.

7. In a nut-tapping machine, the combination, with a nut-blank driver, of a tap having a deflected shank, and rollers between which said shank passes.

8. In a nut-tapping machine, the combination, with a nut-blank driver having a helical surface at one end only, of a tap the shank of which extends through said driver; and a device for feeding nuts to said tap.

9. In a nut-tapping machine, the combination, with a nut-blank driver, of a tap having a reduced end and a deflected shank; a tube coöperating with said end; and means for supplying a lubricant to said tube.

10. In a nut-tapping machine, the combination, with a tap having a deflected shank, of a tube for supplying a lubricant to said tap and upon which tube the nut-blanks are strung; a nut-blank driver; and means for rotating said driver.

11. In a nut-tapping machine, the combination, with a tap having an extended shank, of a nut-blank driver for guiding and receiving the nut-blanks at both ends of said tap; and rollers for guiding the nuts as they pass along the shank of the tap.

12. In a nut-tapping machine, the combination, with a nut-blank driver having a long barrel, of a tap having a deflected shank and concentrically disposed in said barrel; and a roller-guide for sustaining said tap in position by the work being operated upon by the tap.

13. In a nut-tapping machine, the combination, with a tubular feed-rod upon which the blanks are strung, of means for supplying a lubricant to said rod; a tap having a deflected shank, the end of the tap being in line with the feed-rod; a nut-blank driver through which the tap is passed and having a barrel extending along a part of the deflected portion of the tap; and a guide for sustaining the tap in position by the work as it passes over said shank.

14. In a nut-tapping machine, the combination, with a tap having a vertical threading portion and a shank located at an angle to said threading portion, of a nut-blank driver; a tube on which the nut-blanks are strung, said tube being in alinement with the tap; means for supplying a lubricant to said tube; gearing for rotating the nut-blank driver; and rollers having channeled peripheries through which the shank of the tap passes, the nuts on said shank fitting in said peripheries and serving to centralize and support the tap.

15. In a nut-tapping machine, the combination, with a device in which the nut-blanks are received and guided, of a tap having a shank passing through said device; means for rotating one of said parts with relation to the other; and a roller having a channeled periphery for guiding the nuts as they pass along the shank of said tap.

16. In a nut-tapping machine, the combination, with a nut-blank driver, of a tap having a threaded stem reverse in pitch to that of its thread; a deflected shank having a threaded socket for receiving said stem; and means for supporting said shank.

17. In a nut-tapping machine, the combination, with a nut-blank driver of a tap located centrally therein, said tap having a threaded stem of reverse pitch to that of its thread; a deflected shank having a threaded socket to receive the stem of the tap; annd means for supporting said shank.

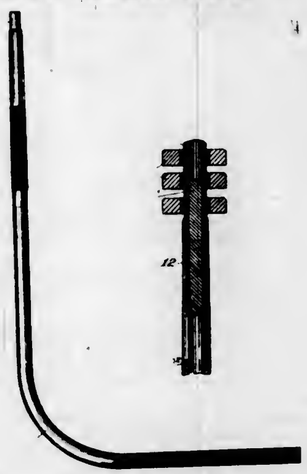
18. In a nut-tapping machine, the combination, with framework, of a nut-blank driver journaled in a bearing of said framework; gearing for rotating the nut-blank driver; a tap having a reduced upper end and a shank located at an angle to said end; a tube fitted upon the reduced end of the tap; a tank for containing a lubricant and in communication with said tube, and means for simultaneously supporting the shank of the tap and guiding the nuts along the same.

19. In a nut-tapping machine, the combination, with a nut-blank driver and with gearing for rotating the same, of a tap having a deflected shank; a pair of rollers between which said shank passes; a tube on which nut-blanks are strung to be fed by gravital action to the tap; and a tank having a spout provided with a bearing for the reception of the upper end of said tube.

20. In a nut-tapping machine, the combination, with a tap having an extended shank, of a nut-blank driver having a long barrel shaped interiorly to receive and guide the nut-blanks and to rotate them around the tap, said nut-blank driver also having a flanged lower end with an internal helical surface; and means for supporting the tap and centralizing it within the nut-blank driver.

21. In a nut-tapping machine, the combination, with a nut-blank driver having a long barrel flared at its upper end and provided with a spiral surface at its lower end, of a tap having a deflected shank; and rollers for supporting said shank.

678,814. **TAP.** ADDISON H. RICES, Asbury Park, N. J. Filed Nov. 15, 1900. Serial No. 36,542. (No model.)



Claim.—1. A tap having a shank located at an angle to the tap proper, said shank being adapted to receive the nuts delivered from the tap.

2. A tap having a straight portion on which the cutting-thread is formed and a shank located at an angle to said straight portion and receiving the nuts therefrom.

3. A tap having a straight portion provided with a reamer and with a cutting-thread, said tap having a deflected shank over which the nuts pass.

4. A tap having a reduced end, combined with a feed-rod upon which the nut-blanks are strung.

5. In a tap, the combination, with the tap proper having a stem provided with a thread of reverse inclination to the cutting-thread of the tap, of a deflected shank in which said stem is fitted.

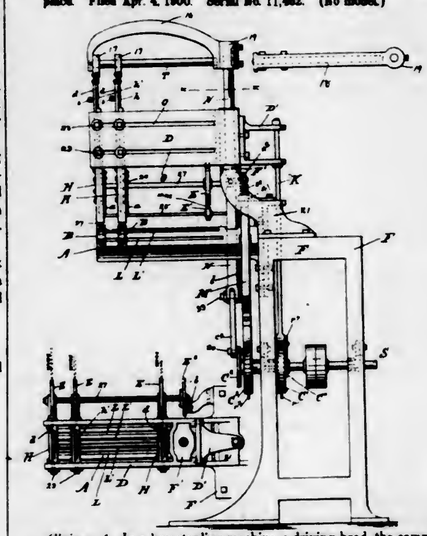
6. The combination, with a deflected shank having an interiorly-threaded socket, of a tap having a threaded stem of reverse pitch or inclination to that of its cutting-thread, said stem being inserted in said socket.

7. A tap having a threading portion and a deflected shank, said shank being detachably connected with the threading portion and adapted to receive the nuts.

8. A tap having a reaming-surface at one end provided with a reduced extremity for the reception of a feed-rod upon which nut-blanks are strung, a thread-forming portion, and a shank located at an angle to said thread-forming portion.

9. A tap having a reamer provided with a reduced end for the reception of a feed-rod, and a deflected shank having a curve intermediate its length.

678,815. **BOX-STAPLING MACHINE.** JOSEPH SCHMIDT, Jr., Chicago, Ill., assignor, by mesne assignments, to John L. Flannery, same place. Filed Apr. 4, 1900. Serial No. 11,462. (No model.)



Claim.—1. In a box-stapling machine, a driving-head, the companion former-bars, the driving-bar, means for actuating said driving-bar, the transverse bar, connecting the former-bars, and means for transmitting motion from the driving-bar to the former-bars, substantially as described.

2. In a box-stapling machine, the combination with a driving-bar, provided with a vertical elongated slot, of the companion former-bars, the transverse bar, connecting the former-bars and provided with a pin loosely engaging said slot, the movable arm, having one end pivoted to the driving-bar and provided with a shoulder loosely engaging said transverse bar, means for disengaging said arm at the proper time to arrest the down movement of the former-bars, means for returning said arm to its engaged position, and the operative connection with the driving-shaft, substantially as described.

3. In a box-stapling machine, the combination with a driving-head, of a driving-bar, mounted therein, the driving-arms, pivoted to the driving-bar, the companion former-bars, the operative connection, between the driving and former bars, a horizontal rod, a clip, movably connecting said rod and driving-bar, a bracket, provided at one end with a sleeve and supporting the respective ends of said rod, a vertical shaft on which the

sleeve end of said bracket is mounted, and the operative connection between said vertical shaft and the driving-shaft, substantially as described

4. In a box-stapling machine, the combination with a driving-head, of a driving-bar, mounted therein, the companion former-bars, a horizontal rod, a clip, connecting the driving-bar and rod, a bracket, provided at one end with a sleeve and supporting the respective ends of said rod, a vertical shaft on which the sleeve end of said bracket is mounted, a crank-wheel, the connecting-rod c^4, and the driving-shaft on which said crank-wheel is mounted, substantially as described.

5. In a box-stapling machine, the combination with a vertical shaft, N, of a guide-sleeve, loosely engaging said shaft, the companion head-supporting plates, a bracket, connecting the rear ends of said plates, the driving-head, movably mounted in said plates, and means for imparting an up-and-down movement thereto, substantially as described.

6. In a box-stapling machine, the combination with a vertical shaft N, of a guide-sleeve, loosely mounted thereon and supported in a stationary position, the companion plates, loosely engaging said sleeve at their rear ends, the bracket, connecting said plates, a connecting-rod, having its upper end engaging said bracket, an eccentric ring, to which the lower end of said rod is connected, the driving-shaft, the companion cam-wheels mounted thereon, and the rollers journaled in said eccentric ring and adapted to have an alternate intermittent contact with said cam-wheels, substantially as described.

7. In a box-stapling machine, the combination with a feed-shaft, of a feed-wheel, mounted thereon, a gripping-shaft, located below said feed-shaft, a gripping-wheel, mounted on the gripping-shaft in line with the feed-wheel and adapted to grip the wire in the operation of periodically feeding the same into the driving-heads, a bell-crank lever, loosely engaging the gripping-shaft, a spring for holding said gripping-shaft up to its working position, means for locking the same away from its working position, and the operative connections for transmitting an intermittent rotary movement to said feed-shaft.

8. In a box-stapling machine, the combination with the companion clencher-shafts, of the pinions, mounted thereon, the angle clencher-frame, the pinions mounted therein and engaging the pinions mounted on the clencher-shafts, the clencher-bars, having a reciprocating endwise movement, and the operative connection with the driving-shaft, substantially as described.

9. In a box-stapling machine, the combination with the work-bed, of the companion clencher-shafts, journaled therein, the pinions, mounted on said shafts, the clencher-frame mounted on the work-bed, the pinions, mounted in said frame and in position to be engaged by the pinions on the clencher-shafts, the clencher-bars, provided on the under side with a toothed surface engaged by the pinions in the clencher-frame in imparting a reciprocating endwise movement thereto, and the operative connection with the driving-shaft, substantially as described.

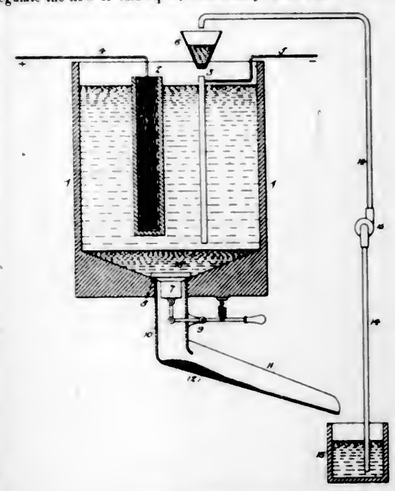
10. In a box-stapling machine, the combination with the work-bed, of the companion clencher-shafts, journaled therein the pinions mounted on said shafts, the clencher-frame, movably mounted on the work-bed, the pinions, mounted in said frame, the clencher-bars, a cam-wheel 40, mounted on the driving-shaft, an eccentric ring loosely surrounding said cam-wheel, the roller r^3, the double connecting rack-bar, and means for returning said rack-bar to its normal position, substantially as described.

678,816. **PROCESS OF RECOVERING ZINC.** ALBERT J. SHINN, Philadelphia, Pa., assignor to Herman J. Dercum, trustee, same place. Filed June 4, 1900. Serial No. 19,063. (No specimens.)

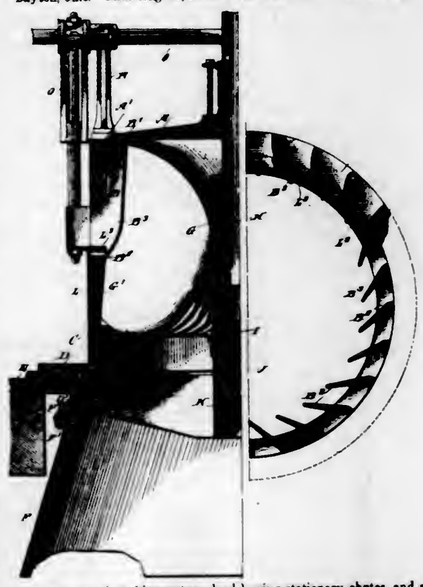
Claim.—1. The process herein described of recovering zinc from a solution of any of its compounds, said process consisting of electrolytically decomposing said solution, collecting the zinc thrown out as an amalgam upon a stream of mercury flowing over a metal plate, separating the thick or pasty amalgam from the surplus mercury and liquid amalgam during the operation of the process, and returning this liquid to be used repeatedly in the above process, substantially as described.

2. The process herein described of recovering zinc from a solution of any of its compounds, said process consisting of electrolytically decomposing said solution, collecting the zinc thrown out as an amalgam in a stream of mercury flowing over a metal plate, separating the thick or pasty amalgam from the surplus mercury and liquid amalgam by causing the mixture to flow over a surface which will retain the thick material and allow the mercury and more liquid amalgam to pass off, said mercury and liquid amalgam being returned to be used repeatedly in the above process, substantially as described.

3. The process herein described of recovering zinc from a solution of any of its compounds, said process consisting of electrolytically decomposing said solution, collecting the zinc thrown out as an amalgam in a stream of mercury flowing over a metal plate, separating the surplus mercury and more liquid amalgam from the thick or pasty amalgam, returning this liquid to a hopper or funnel from which it flows over the metal plate and accumulating enough thick amalgam in said hopper to regulate the flow of said liquid, substantially as described.



678,817. **TURBINE WATER-WHEEL.** WILLIAM W. TYLER, Dayton, Ohio. Filed Aug. 17, 1900. Serial No. 27,174. (No model.)



Claim.—1. A turbine water-wheel having stationary chutes, and a cylinder-gate provided with chutes auxiliary to the said stationary chutes, as set forth.

2. A turbine water-wheel having stationary chutes, a cylinder-gate, and chutes integral with the cylinder-gate and auxiliary to the said stationary chutes, as set forth.

3. A turbine water-wheel having stationary chutes, a cylinder-gate movable exteriorly over the said stationary chutes to close or open the same, an outwardly-extending flange on the upper end of the said cylinder-gate, and chutes on top of the said flange and auxiliary to the said stationary chutes, as set forth.

4. A turbine water-wheel having stationary chutes, a cylinder-gate movable exteriorly over the said stationary chutes to close or open the same, an outwardly-extending flange on the upper end of the said cylinder-gate, chutes on top of the said flange and auxiliary to the said stationary chutes, and wings extending inwardly from the upper end of the said cylinder-gate and in horizontal alinement therewith the said wings extending between the walls of the stationary chutes, as set forth.

5. In a turbine water-wheel, a casing, a revoluble wheel, and a cylindrical gate having at its upper end an annular outwardly-extending flange and inwardly-extending wings in horizontal alinement with the flange, the wheel contacting with the casing below the wings of the gate and forming a chamber below said wings, substantially as described.

6. In a turbine water-wheel, a chute-frame provided with stationary chutes, a revoluble wheel, a cylindrical gate exterior of the chute-frame and having at its upper end an outwardly-extending annular flange, and spaced wings extending inwardly in horizontal alinement with the flange and between the stationary chutes, the wheel contacting with the chute-frame below the wings of the gate and forming a chamber below said wings, substantially as described.

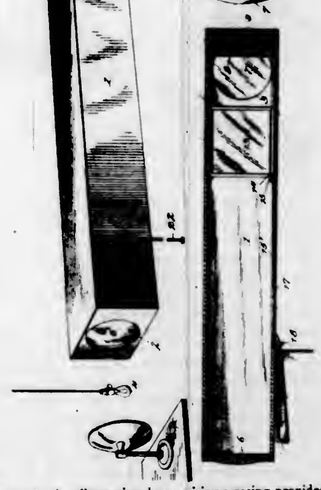
7. In a turbine water-wheel, a chute-frame having stationary chutes, a revoluble wheel, and a cylindrical gate exterior of the chute-frame and provided at its upper end with an outwardly-extending annular flange, having on its upper face chutes in alinement with the stationary chutes, and with spaced wings extending inwardly in horizontal alinement with the flange and between the stationary chutes, the wheel engaging the chute-frame below the wings of the gate forming a chamber therebelow, substantially as described.

8. A turbine water-wheel having a chute-frame with stationary chutes, and a cylinder-gate movable on the outside of the said chute-frame and having auxiliary chutes forming outward extensions of said stationary chutes, as set forth.

9. A turbine water-wheel having a chute-frame with stationary chutes, and a cylinder-gate movable on the outside of the said chute-frame and having auxiliary chutes forming outward extensions of said stationary chutes, and arranged in alinement therewith, as set forth.

10. A turbine water-wheel, comprising a bell-shaped runner, a stationary chute-frame having connecting-bars gradually increasing in width from the bottom to the top, and a movable cylinder-gate provided with auxiliary chutes having chute-bars forming extensions of the said connecting-bars, as set forth.

678,818. **RAILWAY-SIGNAL.** MILLARD F. WALKER, Flatonia, Tex. Filed Oct. 20, 1900. Serial No. 33,776. (No model.)



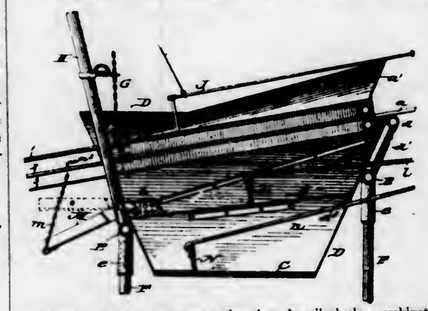
Claim.—1. A railway-signal comprising a casing provided at its inner end with an opening and having side openings at its outer end, a removable cap covering the outer end of the casing and provided with mirrors arranged to reflect light through the side openings, said mirrors being mounted on and carried by the said cap, colored slides adapted to cover and uncover the side openings, and means for operating the slide, substantially as described.

2. A railway-signal comprising a casing provided at its inner end with an opening and having side openings at its outer end, a removable cap or cover fitted on the outer end of the casing and provided with triangular supports located at its inner face, the mirrors arranged at an angle and secured to the triangular supports and carried by the removable cap or cover, and colored slides arranged to cover and uncover the side openings, substantially as described.

3. A railway-signal comprising a casing provided at its inner end with an opening and having side openings at its outer end, said casing being provided at opposite sides with ways, colored slides mounted in the ways and provided with a connecting cross-piece, a reciprocating rod extending from the cross-piece through the bottom of the casing, a spring engaging the rod to hold the slides in one position, operating mechanism connected with the rod and adapted to reciprocate the same to change the position of the slides, and mirrors arranged within the casing, substantially as described.

4. A railway-signal comprising a casing provided at its inner end with an opening and having side openings at its outer end, colored slides arranged to cover the side openings, a cross-piece connecting the slides, a reciprocating rod extending from the cross-piece, a spring for holding the slides in one position, and operating mechanism connected with and adapted to reciprocate the rods to change the position of the slides, substantially as described.

678,819. **ORE WASHER AND SEPARATOR.** CHARLES V. WATKINS, Vinegar's Landing, Wash., assignor of one-half to Henry P. Holden, Washington, D. C. Filed Aug. 27, 1900. Serial No. 28,151. (No model.)



Claim.—1. In apparatus of the class described, the combination with the hopper, its support-frame, and a post set on the latter, of a rake having a handle and a weighted rope attached to said rake and passing over a pulley on the post, as shown and described.

2. In apparatus of the class described, the combination with the supporting-frame and hopper, and the riddle fulcrumed as specified, and a hoisting-chain attached to its front portion, a screen arranged below the riddle, and a broad spout hinged at the end of the hopper and connected at its free end to the overhanging end of the riddle, as shown and described, whereby the spout and riddle may be raised and lowered together, as specified.

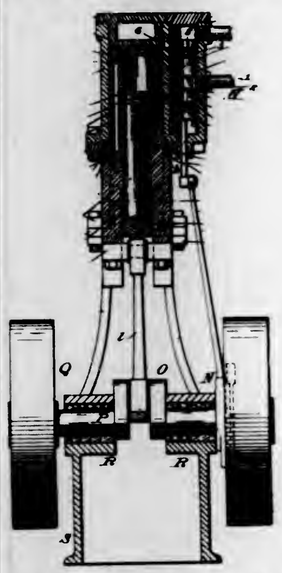
3. In an apparatus of the class described, the combination, with the hopper, and a spout M hinged in and projecting from the rear end of the same, of a screen arranged within the hopper and having a perforated bridge *b* consisting of a raised portion which extends over the hinged end of said spout and whose inner side is sloped, as shown and described.

4. In apparatus of the class described, the combination with a rectangular supporting-frame, having pins on the front bar, of the hopper, adapted to fit therein and having arms *d'* attached at its front end, and provided with sockets to receive said pins as shown and described, and inclined braces extending from the sides of said frame to the upper angle of the hopper whereby the hopper is held immovable but adapted for convenient detachment, as specified.

678,820. **COMPOUND PRESSURE-ENGINE.** MARCY L. WHITFIELD, Memphis, Tenn., assignor, by direct and mesne assignments, to the Whitfield Company, Lakeview, Miss. Filed Oct. 7, 1898. Serial No. 692,902. (No model.)

Claim.—1. In a compound engine, the combination of a main inclosing cylinder, a hollow piston mounted in said cylinder whereby the space between the piston and the cylinder head forms a low-pressure chamber, a relatively stationary plunger mounted within the piston whereby the space between the piston-head and plunger forms a high-pressure chamber, a port in the cylinder, an elongated pocket on the piston in perpetual communication with said port whereby steam may be admitted into or expanded from the high-pressure chamber during the movement of the piston, and a hollow cylindrical slide-valve having pockets therein ar-

ranged to be brought into coincidence with said port and with a port leading to the low-pressure chamber, substantially as set forth.



2. In a compound engine, the combination of a main inclosing cylinder, a hollow piston mounted in said cylinder whereby the space between the piston and the cylinder head forms a low-pressure chamber, a relatively stationary plunger mounted within the piston whereby the space between the piston-head and plunger forms a high-pressure chamber, a port in the cylinder, an elongated pocket on the piston in perpetual communication with said port whereby steam may be admitted into or expanded from the high-pressure chamber during the movement of the piston, and a hollow cylindrical slide-valve having pockets therein arranged to be brought into coincidence with said port and with a port leading to the low-pressure chamber, said slide-valve having a high-pressure pocket or recess 2 therein by which steam may be successively admitted to and cut off from the high-pressure chamber, substantially as set forth.

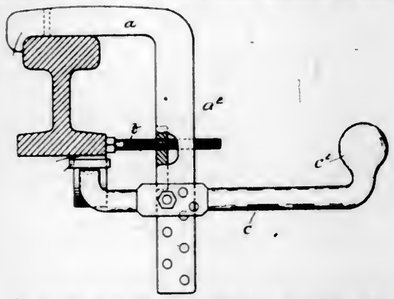
3. In a compound engine, the combination of a cylinder, a hollow piston mounted therein, a plunger working in said piston, a valve mechanism for admitting steam into the high-pressure chamber and for allowing steam to expand from the high-pressure chamber into the low-pressure chamber, extensions carried by the cylinder and to which said plunger is connected, and bifurcated arms on the piston working in and guided by said extensions, substantially as set forth.

4. In a compound engine, the combination of a cylinder, a hollow piston mounted therein, a plunger working in said piston, a valve mechanism for admitting steam into the high-pressure chamber and for allowing steam to expand from the high-pressure chamber into the low-pressure chamber, extensions carried by the cylinder and to which said plunger is connected, bifurcated arms on the piston working in and guided by said extensions, an engine-frame connected to said extensions, a shaft in said frame, and connections between the shaft and said bifurcated arms, substantially as set forth.

678,821. **DEVICE FOR APPLYING RAIL-BONDS TO RAILS.** MORRIS F. WHITTOW, Hingham, Mass., assignor to Chase-Shawmut Co., Boston, Mass. Filed Sept. 24, 1900. Serial No. 30,928. (No model.)

Claim.—1. In a device for applying rail-bonds to rails, the combination of a rail-engaging frame, a pair of arms pivotally connected thereto, having bond-receiving supports at their extremities, adapted to act conjunctively to hold a bond in position to be applied to the rail, automatic means for moving said arms and supports to press the bond against the rail with a constant pressure, and a limiting-stop on said frame for holding the frame with its arms and supports in position to apply the bond to the rail, substantially as described.

2. In a device for applying rail-bonds to rails, the combination of a rail-engaging frame, two independently-movable arms pivotally connected thereto, having at their extremities bond-receiving supports, adapted to act conjunctively to hold a bond in position to be applied to the rail, and a limiting-stop on said frame for holding the frame with its arms and supports in position to apply the bond to the rail, substantially as described.

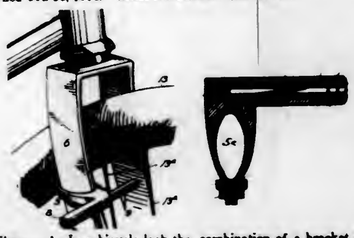


3. In a device for applying rail-bonds to rails, the combination of a rail-engaging frame, two independently-movable arms, pivotally connected thereto, having at their extremities bond-receiving supports, adapted to act conjunctively to hold a bond in position to be applied to the rail, automatic means for moving said arms and supports to press the bond against the rails with a constant pressure, and a limiting-stop on said frame for holding the frame with its arms and supports in position to apply the bond to the rail, substantially as described.

4. In a device for applying rail-bonds to rails the combination of a rail-engaging frame, a pair of arms pivotally connected thereto, having bond-receiving supports at their extremities, adapted to act conjunctively to hold a bond in position to be applied to the rail, and a limiting-stop on said frame for holding the frame with its arms and supports in position to apply the bond to the rail, substantially as described.

5. In a device for applying rail-bonds, a rail-engaging frame having hooked arms to engage the rail and having a depending portion provided with an adjustable limiting-stop, and movable bond-holding arms pivotally connected to said frame which engage and hold a rail-bond in position on the rails, substantially as described.

678,822. **BICYCLE-LOCK.** HARVEY M. WOOD, Denver, Colo. Filed Oct. 30, 1900. Serial No. 34,969. (No model.)



Claim.—1. In a bicycle-lock the combination of a bracket having an opening surrounded by an unbroken wall and arranged to be applied to a part of the frame of the machine adjacent a wheel thereof, means applied to the bracket for compressing its walls upon the part to which it is attached, to fasten it in place, a casing mounted on the bracket, and a plunger located within the casing and adapted to be projected between the spokes of the adjacent wheel of the machine.

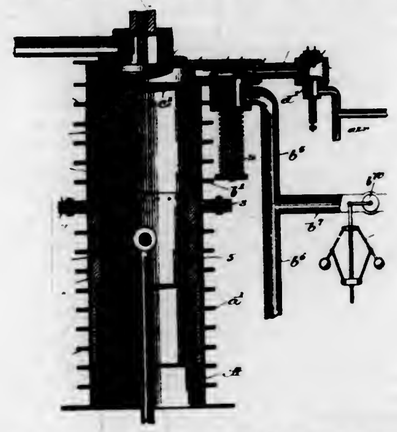
2. In a bicycle-lock the combination with a casing adapted to be attached to a bicycle or other suitable machine adjacent one of the wheels thereof, of a hollow plunger located in said casing and provided with a spring-trigger having a projection normally engaging an opening in the shell of the plunger which is arranged to be projected from the casing to pass between the spokes of the wheel, the casing being provided with a recess in which the projection of the spring-trigger passes when the plunger has reached the locking position, the plunger being provided with a cross-pin projecting from its shell and entering a groove formed in the casing.

3. In a bicycle-lock the combination with a casing adapted to be attached to a bicycle or other suitable machine adjacent one of the wheels thereof, of a hollow plunger located in said casing and provided with a spring-trigger having a projection normally engaging an opening in the shell of the plunger which is arranged to be projected from the casing to pass between the spokes of the wheel, the casing being provided with a recess in which the projection of the spring-trigger passes when the plunger has reached the locking position, the plunger being provided with a cross-pin projecting from its shell and entering a groove formed in the casing, and the trigger being provided with a bend adjacent its locking projection, which bend is adapted to be engaged by a key as the latter is turned whereby the trigger projection may be withdrawn from the recess of the casing.

4. A bicycle-lock provided with a bracket having an opening surrounded by an unbroken wall, said opening being adapted to fit a fork-arm of the bicycle adjacent the wheel, whereby the said bracket can only be removed by detaching the fork-arm from the axle of the wheel, and means applied to said bracket for compressing its walls upon the fork-arm to secure the lock in place.

5. A bicycle-lock provided with a bracket having an opening surrounded by an unbroken wall, said opening being adapted to fit a fork-arm of the bicycle adjacent the wheel, whereby the said bracket can only be removed by detaching the fork-arm from the axle of the wheel, said bracket being provided with a threaded projection adapted to receive a nut, and a washer beveled on its inner surface to engage the walls of the bracket to facilitate the compression of said walls as the nut is forced against the washer.

678,823. **GAS-ENGINE.** CLARENCE C. BRANWELL, Hyde Park, Mass. Filed Feb. 25, 1896. Serial No. 671,556. (No model.)



Claim.—1. In a gas-engine, a cylinder having a communicating combustion-chamber, independent inlets for the admission respectively of a uniform mixture, and a variable mixture, of air, and gas to said chamber, means to ignite the uniform mixture, and means to produce said mixtures.

2. In a gas-engine, a cylinder having a communicating combustion-chamber, an ignition-chamber, a passage continuously connecting said chambers, independent inlet-ports, to admit a uniform mixture of air and gas to the ignition chamber, and a variable mixture to the explosion-chamber, respectively, means to ignite the gas in the ignition-chamber, and means to produce the uniform and variable mixtures.

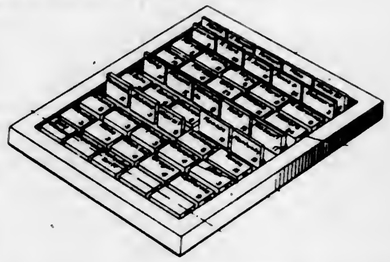
3. A gas-engine, the cylinder provided with an exhaust-valve and an inlet-valve, an ignition-chamber in continuous communication with the cylinder by an elongated passage of small cross-section, an auxiliary inlet-valve for said chamber, and means to fire the gas in said ignition-chamber.

4. A gas-engine cylinder, an ignition-chamber continuously communicating therewith by means of an elongated passage of small cross-section, and an inlet-valve and an igniting device contained in the ignition-chamber, the capacity of said passage being greater than the capacity of the ignition-chamber to prevent mixing of the contents of said chamber with the contents of the cylinder on the compression-stroke.

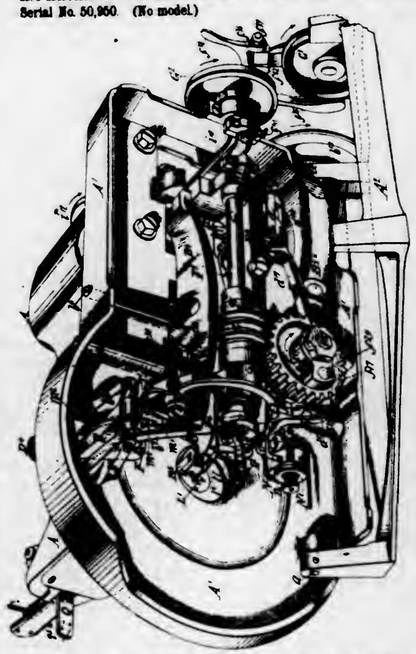
5. In a gas-engine, the cylinder, a combustion or explosion chamber communicating therewith, an ignition-chamber in continuous communication with the combustion-chamber, a main inlet-valve for the combustion-chamber, an auxiliary inlet-valve for the ignition-chamber, and gas-igniting means in said ignition-chamber.

678,824. **GAME APPARATUS.** FRANK E. CARNEY, Denver, Colo. Filed June 8, 1900. Serial No. 19,637. (No model.)

Claim.—In a game apparatus the combination of a rectangular, open frame, having a series of parallel wires stretched across the opening, the extremities of the wires being fast on the frame, comparatively thin rectangular pieces pivotally mounted on the wires which are passed through from end to end, the wires being sufficiently separated to allow the pieces to occupy a horizontal position, and also, to permit the opposite sides to be read when the pieces are turned to occupy a vertical or edgewise position, each piece having the name of a subdivision of a larger political division, and a number identified with the division, indicated on the upper portion of either side thereof, and arranged to be properly read when viewed from opposite sides, the number of pieces corresponding with the number of subdivisions of the larger political division.



678,825. **AUTOMATIC BUTTONHOLE CUTTING AND STITCHING MACHINE.** JOHN W. LUPKIN, Boston, Mass. Filed Mar. 13, 1901. Serial No. 50,960. (No model.)



Claim.—1. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism comprising a pair of upper needles; a turn-table carrying a work-clamp; a work-clamp; means for reciprocating the work-clamp between stitching and cutting positions; and means for turning the turn-table, during the stitching operation, at a rate of speed in excess of the speed at which the work-clamp is reciprocated; and means for giving the two upper needles a quickened thrust into and a quickened return from their fabric and buttonhole-slit penetrating position.

2. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a fabric-holding mechanism; the fabric-holding mechanism and the stitching mechanism being movable one in relation to the other, for the stitching of a buttonhole-slit; a shaft having a worm; a shaft having a worm-gear with which said worm meshes, said worm being eccentrically mounted on its shaft and provided with a projection which enters a lengthwise groove in a radial arm fixed on said shaft; said radial arm

having said lengthwise groove; and means which connect the said worm-gear with the fabric-holding mechanism.

3. In an automatic buttonhole cutting and stitching machine, the combination of a frame provided with a throat-plate; a cutting mechanism; a stitch-forming mechanism comprising a pair of upper needles; a work-clamp; feeding and spacing mechanism; an actuating mechanism for the said feeding and spacing mechanism, and devices to automatically control the effective speed of the stitching, feeding and spacing mechanism during the stitching of a buttonhole, and after the cutting mechanism is put into and removed from position with relation to the work-clamp, or between the times of operating the buttonhole-cutting mechanism for the cutting of two buttonholes in succession; and means for giving two upper needles of the said stitching mechanism a quickened thrust into and return from their fabric and buttonhole-slit penetrating position.

4. In an automatic buttonhole cutting and stitching machine, the combination of a cutting mechanism; a stitching mechanism comprising a pair of upper needles; and means for accelerating the speed of said needles during the time they are in the fabric and buttonhole-slit; with a turn-table and work-clamp carried thereby; means for operating the cutting mechanism; and means for continuously turning said turn-table at a varying speed, during the stitching operation, the lesser speed thereof being while said needles are in the fabric and the buttonhole-slit.

5. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a fabric-holding mechanism; the fabric-holding mechanism and the stitching mechanism being movable one in relation to the other, for the stitching of a buttonhole-slit; means for actuating the buttonhole-cutting mechanism; means for actuating the buttonhole-stitching mechanism; said stitching mechanism comprising a pair of upper needles and an under needle or looper; an interlacer having a lengthwise and oscillating movement in relation to said upper needles; and means which gives the interlacer its lengthwise and oscillating movements.

6. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; means for operating it; a buttonhole-stitching mechanism; means for operating it; a fabric-holding mechanism, said fabric-holding mechanism and stitching mechanism being movable one in relation to the other for the stitching of a buttonhole-slit; said stitching mechanism comprising a pair of upper needles; a needle-bar carrying said upper needles; a pair of lateral projections from the upper portion of the needle-bar, one projection being for one upper thread, and the other projection being for the other upper thread; the projection for the thread that passes through the fabric-penetrating needle being higher on the needle-bar than the other projection which supports the thread that passes through the buttonhole-slit-penetrating needle; a pair of thread-tension devices, one for each upper thread; and a stationary bracket having a pair of pivoted thread-pressing arms, one for each of said upper threads, the projection which supports the thread for the fabric-penetrating needle, in its upward movement engaging that thread before the projection which supports the thread for the slit-penetrating needle engages its thread, and thereby providing the fabric-penetrating needle with the excess length of thread which it requires, over that required by the slit-penetrating needle, for the formation of each stitch.

7. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism, comprising a coöperating cutter and anvil, each operated by levers journaled on the stationary part of a machine; said levers; a buttonhole-stitching mechanism comprising a belt-driven shaft and a pair of upper needles, one of which penetrates the work, and the other of which passes through the buttonhole-slit therein, said needles being carried by a needle-bar mounted on the stationary gooseneck of the machine; an under needle or looper; a turn-table and a movable work-clamp mounted thereon; a mechanism connecting the under cutter-lever with the turn-table to reciprocate it between cutting and stitching positions; means for turning the turn-table continuously during the stitching operation; means for giving the upper needles a quickened rate of movement into and out of their fabric and buttonhole-slit penetrating positions; means for reducing the speed of the turning movement of the turn-table at the times the upper needles are in their fabric and slit penetrating positions; a stitching-starting shaft; means for operatively connecting said shaft with the cutting mechanism and with the upper and under cutter-levers; means for connecting the under cutter-lever with said turn-table to reciprocate it between cutting and stitching positions; a loose-running pulley contiguous to a belt-driven pulley of the stitching mechanism; an automatic belt-shipper for moving a belt from said loose-running pulley upon the belt-driven pulley of the stitching mechanism; a gear loose on said stitching-starting shaft; means for coupling said gear to compel it to rotate with said stitching-starting shaft; a continuously-rotating prime mover for said gear on the stitching-starting shaft; a connector mounted on and operated by an eccentric on the stitching-starting shaft and engaging said belt-shipper to ship the belt from the loose to the driven pulley of the stitching-shaft, or while the cutter and anvil are moving away from their coöperating positions, and so stitch a portion of the buttonhole before the cutting mechanism reaches its position of rest; said connector for the stitching-starting shaft and for the belt-driven shaft of the stitching mechanism remaining in engagement with the belt-shipper throughout the stitching operation, whereby the stitching-starting shaft maintains the stitching mechanism in stitching position throughout the stitching operation; means for automatically moving said belt-shipper to ship the belt from the driven to the loose polley, said connector being disengaged from the belt-shipper at the completion of the stitching of a buttonhole; means carried by the stitching-starting shaft for automatically disengaging said connector from the belt-shipper; means for automatically clamping the work without starting the machine; means for starting the machine through a depression of the work-clamp lever; and means for automatically stopping the machine at the completion of each buttonhole; all combined and operating so that the speed at which the turn-table is turned during the stitching operation is variable but continuous.

8. In a buttonhole-stitching machine, the combination with buttonhole-cutting devices, a stitching mechanism, and starting devices for said stitching mechanism, of a common cutter-operating and stitching-starting shaft, means for rotating said shaft and for arresting its motion, and mechanism whereby when said shaft is started the cutting devices will first be operated to cut a buttonhole and the stitching mechanism will subsequently be set in motion and one or more complete stitches be formed after the buttonhole has been cut and before the complete rotation of said shaft is effected to return the cutting devices to their initial positions; whereby time is saved in stitching a buttonhole.

9. In a buttonhole-stitching machine, the combination with buttonhole cutting and stitching mechanisms, of a turn-table or clamp base-plate, work clamping and spreading devices carried by said turn-table or base-plate mechanism for reciprocating said turn-table between cutting and stitching positions, means for imparting traveling movements, lengthwise of the buttonholes, to said turn-table, means for imparting periodical turning movements to said turn-table, a clamping-lever by the depression of which the adjusted work is first clamped, without starting the machine, and a starting-lever arranged to be engaged by a device on or part of said clamping-lever when said last-named lever has been given a second or additional movement after the work has been clamped.

10. In an automatic buttonhole cutting and stitching machine, the combination of coöperating cutting and stitching mechanisms, with a work-clamp; a turn-table conveying the work-clamp; a feed-wheel having a recess in its under side; and a pivotally-mounted cutter-starting lever, the feed-wheel holding the cutter-starting lever in inoperative position during the stitching operation, means for actuating the feed-wheel; and means for enabling the feed-wheel to hold the cutter-starting lever in inoperative position.

11. In a buttonhole-stitching machine, the combination with a buttonhole-cutting mechanism and feeding devices to space the stitches, of work-holding means, a stitching mechanism comprising one or more needles above the work-support and a thread-carrying looper below the work-support, a horizontally-swinging lever also located beneath the work-support and provided with a thread-cutter arranged to sever the looper-thread, and automatic means for actuating said lever to cause it to cut the looper-thread at the completion of the stitching of each buttonhole.

12. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism and a work-clamp, the work-clamp and buttonhole-stitching mechanisms being movable one in relation to the other; said cutting mechanism comprising an under cutter-lever and an upper cutter-lever; a stitching-starting shaft having a triangular eccentric for operating the under cutter-lever, and having an eccentric for operating the upper cutter-lever, said levers being pivoted to the frame of the machine; and means for operating said stitching-starting shaft.

13. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a work-clamp, said clamp and stitching mechanism being movable one in relation to the other, for the stitching of a buttonhole; said cutting mechanism comprising an upper cutter-lever and an under cutter-lever, each of said levers being pivoted to the frame of the machine; a stitching-starting shaft; means for operating the upper and under cutter-levers from said shaft; a worm-gear on said shaft; and a continuously-rotated worm-shaft which operates said worm-gear; means for compelling said worm-gear to rotate with said shaft; said stitching mechanism comprising a power-driven shaft; and means for connecting the stitching-starting shaft with said stitching-shaft during the stitching operation.

14. In an automatic buttonhole cutting and stitching machine, the combination with a stitch-forming mechanism, of a turn-table or clamp base-plate provided with two pairs of clamping-jaws and a jaw-spreading mechanism comprising a spreading-lever, means for turning said turn-table or clamp base-plate during the stitching operation, a latch-pin frame projecting from the work-clamp, a rocking lever, and a latch-pin movably mounted in the upper end of said rocking lever and engaging with said latch-pin frame, said rocking lever having an incline in the path of said spreading-lever whereby the latter is moved to spread the clamping-jaws at the proper time.

15. In an automatic buttonhole cutting and stitching machine, the combination of a turn-table; a work-clamp movable thereon; a latch-pin frame rigid with the work-clamp and formed at its outer end with a slot to receive the latch-pin; a latch-pin; a swinging lever in which the latch-pin is mounted movably; said lever having a cross-groove through which the outer end of the latch-pin frame moves when disengaged from said latch-pin; a projection on the latch-pin; and a latch-pin-releasing lever with which said projection engages to disengage the latch-pin from the latch-pin frame.

16. In an automatic buttonhole cutting and stitching machine, the combination of buttonhole cutting and stitching instrumentalties organized and mounted in a frame, and comprising a stitching-starting shaft common to both the cutting and stitching instrumentalities, with a supporting-bracket for said frame, which is pivoted on said bracket; an automatically-actuated belt-shipper journaled on said bracket; a loose pulley journaled on said bracket; means for automatically swinging the belt-shipper into operating position with said loose pulley; said frame and thereby-supported instrumentalities comprising an understitching-shaft having a fixed pulley, the journals of said loose and fixed pulleys being normally in line, one with the other, and a connector carried and operated by said stitching-starting shaft, the connector automatically engaging said belt-shipper to move the belt from the loose to the fixed pulley, and to hold it there throughout the stitching operation.

17. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a turn-table; a work-clamp carried thereby; means for reciprocating the work-clamp between stitching and cutting positions on said turn-table; a feeding-pin through the work-clamp; a cam feed-wheel; a guideway for the feeding-pin, intermediate said turn-table and said cam-wheel; the cam feed-wheel being provided with peripheral teeth, and also with a groove which receives the feed-pin, said groove being provided with followers substantially as described; and means for rotating said feed cam-wheel at a variable speed in the making of each stitch.

18. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a work-clamp, the work-clamp and the buttonhole-stitching mechanism being movable, one in relation to the other, for effecting the stitching of a buttonhole; a tripping-lever pivoted to the frame of the machine, with its upper end projecting through the frame of the machine near the work-clamp, and its inner end in position to engage the cutter-starting lever; the cutter-starting lever having a cam-shaped end; a stitching-starting shaft having a driving-pin carrier fastened upon it; a loose gear on said shaft provided with recesses to receive the driving-pin; the cam-shaped end of the cutter-starting lever coöperating with said driving-pin, and means for operatively connecting the stitching-starting shaft with the cutting mechanism to actuate the same; said work-clamp having a lever provided with a pawl which is adapted to engage the upper end of said tripping-lever.

19. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism comprising an under cutter-lever; a buttonhole-stitching mechanism; a fabric-clamping mechanism, said clamping mechanism and stitching mechanism being movable one in relation to the other; a thread-cutter pivoted on the frame of the machine; and in the path of the under cutter-lever and engaged thereby to move it back out of cutting position; a tripping-lever pivoted on the bed of the machine and projecting into the path of the cutter to lock it in inoperative position.

20. In a buttonhole-stitching machine, the combination with a stitch-forming mechanism, of a buttonhole-cutting mechanism comprising an under cutter-lever, work holding and feeding devices, a stop-lever, as F^3, having a portion, as arm f^{31}, in position to be engaged at times by a portion, as f^{28}, of said under cutter-lever, and said under cutter-lever having a part or shoulder, as f^{29}, a stop-motion mechanism connected with said stop-lever, a transverse rocker-bar, as F^4, having a surface or portion, as f^{41}, arranged to be engaged at times by said part or shoulder f^{29} on said under cutter-lever, and said rocker-bar having a part, as lug f^{29x}, said work-feeding devices comprising a worm feed-gear, as f^{17}, having a part, as lug f^{29}, to be engaged at times by said lug f^{29x}, when the rotation of said worm feed-gear is to be suspended; whereby the said stop-lever may be moved to an inoperative position, at times, and subsequently be released to actuate the stop-motion mechanism.

21. In an automatic buttonhole cutting and stitching machine, the combination with buttonhole cutting, stitching and fabric-clamping mechanisms, and means for changing the relative positions of said stitching and fabric-clamping mechanisms, said buttonhole-stitching mechanism comprising a pair of upper needles and an under-thread-carrying looper, of an automatic under-thread cutter, and a movable thread-pull-off device which pulls off under thread in the making of the last buttonhole-stitch, in order to supply thread for the under needle when the under thread is cut, the said pull-off device being operated before the thread-cutter is operated, means for holding the pull-off device inoperative during the stitching of the buttonhole up to the completion of the last stitch, means for holding the cutter inoperative during the stitching of the buttonhole, means for actuating the under-thread cutter; and means for oscillating the under-thread pull-off device.

22. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; with a clamping mechanism, the buttonhole-stitching mechanism and the work-clamping mechanism being movable one in relation to the other for the stitching of the buttonhole-slit, a rocker-bar journaled on a stationary part of the machine; a three-armed stop-lever pivotally mounted in the machine; means for moving said stop-lever, one arm of the stop-lever being adapted to engage the rocker-bar; another arm of the stop-lever being in the path of the under cutter-lever, which is comprised in the buttonhole-cutting mechanism; and another arm of said stop-lever being in the path of a three-armed rocker-lever; a three-armed rocker-lever; a stitching-starting shaft which supports said three-armed rocker-lever, one arm of said three-armed rocker-lever coöperating with a shaft-connector; a shaft-connector mounted on said stitching-starting shaft; means connecting the stitching-starting shaft with the buttonhole-cutting mechanism; a belt-shipper engaged by said shaft-connector; an understitching-shaft for said stitching mechanism; said three-armed rocker-lever comprising an upwardly-extending arm; a thread-releasing lever pivotally mounted in the machine with its rear end in position for engagement with said upwardly-extending arm of the three-armed rocker-lever; a hook on said thread-releasing lever in the path of the upper cutter-lever comprised in said cutting mechanism.

23. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a work-clamping mechanism, the work-clamping mechanism and the buttonhole-stitching mechanism being movable one in relation to the other for the stitching of a buttonhole; an automatic thread-cutter; a tripping-lever pivoted on the bed of the machine with its upper end projecting through and above the bed of the machine, said work-clamp having a lever provided with a pawl which engages with the upper end of said tripping-lever when the work-clamp lever is lifted.

24. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a fabric-clamping mechanism, the buttonhole-stitching mechanism and the fabric-clamping mechanism being movable one in relation to the other for the stitching of a buttonhole; and the fabric-clamping members comprising a clamp-lever having a pawl; means for reciprocating the work-clamp between cutting and stitching positions; a tripper pivoted in the machine, with one end projecting up through the bed of the machine unto the path of said pawl; a cutter-starting lever engaged by said tripper; and mechanism for actuating the cutting mechanism; the said pawl being carried out of engagement with said tripper when the work-clamp is moved from stitching into cutting position.

25. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a fabric-holding mechanism; said stitching mechanism and holding mechanism being movable one in relation to the other; said stitching mechanism comprising a pair of upper needles; means for giving said upper needles a quickened thrust into and return from their fabric and slit penetrating positions; said stitching mechanism also comprising an understitching-shaft; an under needle or looper; a spreader in proximity to the under needle and in coöperative relation therewith; a link connection between the understitching-shaft and the looper, and spreader being provided with a cam-roll which enters a groove in a cam carried by said understitching-shaft.

26. In an automatic buttonhole cutting and stitching machine, the combination of a buttonhole-cutting mechanism; a buttonhole-stitching mechanism; a fabric-holding mechanism; means for continuously rotating the fabric-holding mechanism during the stitching operation; means for reducing the speed at which said holding mechanism travels at the time the upper needles are in their fabric and slit penetrating positions; said stitching mechanism comprising a pair of upper needles; an under needle; and a spreader; means for giving the upper needles a quickened thrust into and return from their fabric and slit penetrating positions; and means for accelerating the coöperating movements of the under needle and spreader at the time the upper needles are in their said fabric and slit penetrating positions.

678,826. CRATE. JOSEPH MATEY, Washington, D. C. Filed Apr. 25, 1901. Serial No. 57,439. (No model.)

Claim.—1. The herein-described metallic crate, substantially as described: having a grating composed of a series of transversely-disposed straps riveted at their ends to the sides of the crate and thereby staying and bracing the sides, and a series of longitudinally-disposed straps, riveted at their ends to the ends of the crate and thereby staying and bracing the ends, said straps being arranged vertically edgewise, but twisted flatwise at their points of intersection, and being also connected together at intersecting points, for the purpose and substantially as described.



2. The herein-described metallic crate having a depending rim or flange on its lower side to uphold its bottom, and having its sides and ends inclined so that its top is smaller than its bottom; and a grating therein composed of a series of intersecting metal straps connected at points of intersection and riveted at their ends to the ends and sides of the crate, substantially as described.

3. The herein-described metal crate, having its sides and ends inclined inwardly and its bottom inset and flanged and connected to the sides and ends to form a depending stiffening-rim on the lower side of the crate, a stiffening-band around the top edge of the crate over which the sides and ends are flanged, one crate being adapted to fit onto the top of another like crate to form a cover therefor, substantially as and for the purpose described.

4. The herein-described crate having its sides, ends, and bottom formed of sheet metal, the bottom being connected to the lower edges of the ends and sides by a downturned and upturned flange and by rivets, substantially as described; and a grating in said crate composed of intersecting metallic bars arranged vertically edgewise, but bent flatwise at their points of intersection and riveted together, substantially as specified.

5. The herein-described crate having its sides, ends and bottom formed of sheet metal, a depending rim or flange on its lower side to keep its bottom out of contact with the floor, and a strengthening or reinforcing band around the upper edge of the crate, the bottom rim of one crate being adapted to fit onto the top of a like crate; and a grating composed of intersecting metal straps having their ends riveted to the ends and sides of the crate, and riveted to each other at their points of intersection, all substantially as described.

6. A metallic crate having a depending stiffening-rim formed on its lower edges to uphold its bottom, a stiffening-band around its top edges, and fillers in its inner corners; and a grating in the crate composed of a series of longitudinal straps riveted at their ends to the ends of the crate, and a series of transverse straps riveted at their ends to the sides of the crate, said straps being united at their intersecting points and forming stays or braces between the sides and ends of the crate, substantially as described.

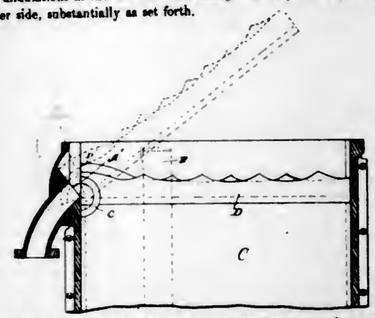
7. The herein-described metal crate having its bottom flanged and so connected to the sides and ends as to form a depending stiffening-rim on the lower side of the crate, a stiffening-band around the top edge of the crate over which the sides and ends are flanged, one crate being adapted to fit onto the top of another like crate to form a cover therefor, and fillers in the inner corners of the crate, the crate being galvanized after it is manufactured; and a grating in the crate composed of parallel transverse and longitudinal metal straps riveted at their ends to the ends or sides of the crate, and connected at their intersections, said straps bracing the body of the crate substantially as described.

678,827. WAD-FEEDING DEVICE. WILLIAM L. MORRIS, Cleveland, Ohio, assignor to the Austin Cartridge Company, same place. Filed Mar. 20, 1899. Renewed June 24, 1901. Serial No. 65,881. (No model.)

Claim.—1. In a wad-feeding device, the combination of a wad-receptacle, a wad-holder movable in an upward direction in said receptacle, and means for imparting angular movement in an upward direction to said holder, the latter provided with a trough-shaped wad-race the top edges of whose side walls are of undulate formation, substantially as set forth.

2. In a wad-feeding device, the combination with a wad-receptacle, of a wad-holder angularly movable therein, and provided with a trough-shaped wad-race the upper edges of whose side walls are of undulate formation, substantially as set forth.

3. In a wad-feeding device, the combination with a wad-receptacle, of an angularly-movable wad-holder in said receptacle provided with a wad-race having side walls whose upper edges are of undulate formation, the undulations of the one side alternating with respect to those of the other side, substantially as set forth.



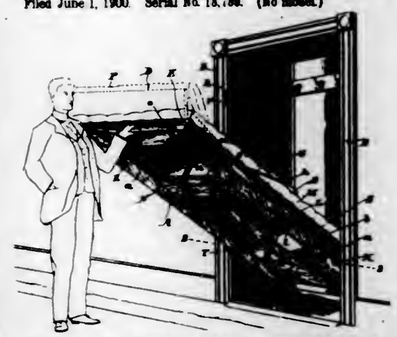
4. In a wad-feeding device, the combination of a wad-receptacle, a wad-holder in said receptacle, and means for imparting angular movement in an upward direction to said holder, the latter provided with a wad-race having two undulate sides, the undulations of one side alternating with those of the other, substantially as set forth.

5. In a wad-feeding device, the combination of a wad-receptacle, a wad-holder in said receptacle provided with a wad-race, means for discharging wads from said holder, and means for deflecting wads from said holder and overhanging said wad-race, substantially as set forth.

6. In a wad-feeding device, the combination of a wad-receptacle, a wad-holder in said receptacle provided with a wad-race, means for discharging wads from said holder, and means for deflecting wads laterally from said holder and overhanging the end of said wad-race, substantially as set forth.

7. In a wad-feeding device, the combination of a wad-receptacle, a wad-holder in said receptacle provided with a wad-race, means for discharging wads from said holder, and means for deflecting wads laterally from the end of said holder and overhanging the end of said wad-race, substantially as set forth.

678,828. DOOR-BEDSTEAD. HORATIO B. RUGGLES, Boston, Mass. Filed June 1, 1900. Serial No. 18,789. (No model.)



Claim.—1. In a closet-door bedstead, the combination with a door-frame of a door adapted to be used as a bed provided with two corner head-brackets, footboard, a movable head rest and support with rods pivoted to the inner side of door and middle outer sides of rest respectively, the brackets, footboard, and rest acting as supports for the spring and mattress, substantially as shown and for the purposes specified.

2. In a closet-door bedstead, in combination a closet-door frame with a closet-door provided with a pair of hinges on which the door swings horizontally, the lower hinge having a pivot extending into the door-frame, and an extensible pivot on the opposite side of door extending into the opposite door-frame, substantially as shown and described.

3. In a door-bedstead, in combination with the clip bolts or clamps *t* and *r* the leg N consisting of the tubings *n* and *m* connected by the elbow *p*, elbow *p* having attached thereto the felt *o*, tubing *m* having a right-angle bend and attached to the door by the clip bolts or clamps *t* and *r* and having fastened to its outer side the spiral spring *s* which works against the clip bolt or clamp *t*, substantially as shown and described.

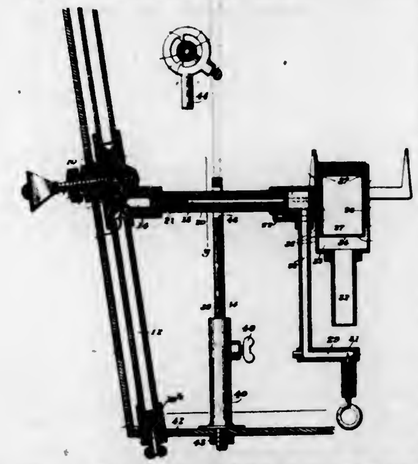
4. In a door-bedstead, the combination with a door adapted to be used as a bed-bottom of the hinges R and T and a pivot or trunnion J, the hinge T being attached to the lower part of one of the sides of the door, the pivot or trunnion being formed on one leaf of the hinge T and extending from the opposite side of door, all constructed, substantially as shown and described and for the purposes specified.

5. In a door-bedstead, the combination with a door adapted to be used as a bed-bottom of a hinge R comprising the two leaves one of which is provided with a socket and the other with a recess *u* and a slot *u'* communicating with the recess, a pintle *x* vertically movable in said recess to engage the socket, a spiral spring W to support said pintle and a knob V projecting through the slot, substantially as shown and described, and for the purposes specified.

6. In a door-bedstead, a door adapted to be used as a bed-bottom and provided with pivots J and C, the pivot C being provided with a rack and mounted in a recess in the door, a pinion K' engaging said rack and a knob K for operating the pinion, substantially as shown and for the purposes specified.

7. In a door-bedstead, a hinge composed of two leaves, and a pivot or trunnion formed on one leaf of the hinge and extending from its side, substantially as shown.

678,829. VAPOR-BURNER. HARPER F. SMITH, Philadelphia, Pa. Filed Oct. 27, 1900. Serial No. 34,595. (No model.)



Claim.—1. The combination of a discharge-pipe, a supply-pipe and a separator-chamber in axial line with the supply-pipe, a valve-casing connecting the same and having inlet and outlet ports and a lateral port connecting the two, said outlet-port discharging into the separator-chamber in axial line with said chamber and a port angularly disposed with relation to the outlet-port opening into the discharge-pipe, the arrangement of parts being such that the separator-chamber is below the level of the discharge-pipe.

2. The combination of a supply-pipe, a valve-casing therefor having substantially parallel inlet and outlet ports disposed angularly with relation to the bore of the supply-pipe with lateral port joining the same, a port disposed angularly with relation to the outlet-port, a pipe connected with said port, a separator-chamber into which said outlet-port and angularly-disposed port drain, a threaded stem projecting from the valve-casing, a valve-spindle passing through the stem, a packing carried by the stem around said spindle and nuts on the said stem to engage with a supporting-frame and hold said casing and said stem in position, and a valve-spindle passed through said stem and packing.

3. The combination of a supply-pipe leading to a burner, a device for preventing vibration of said burner consisting of a base suitably supported, a rod adjustably mounted in said base and means for securing the upper portion of said rod to said supply-pipe.

4. The combination with a lantern, of a burner, a supply-pipe leading thereto, a supporting device for said supply-pipe, consisting of a base attached to said lantern, a rod adjustable with respect to said base, the upper portion of said rod having an opening therethrough of greater diameter than said supply-pipe and fastening devices common to said rod and supply-pipe, whereby vibration of the latter and of the burner is prevented.

5. The combination of a supply-pipe, a valve-casing therefor having substantially parallel inlet and outlet ports disposed angularly with relation to the bore of the supply-pipe with lateral port joining the same, a port disposed angularly with relation to the outlet-port, a pipe connected with said port, a separator-chamber into which said outlet and angularly-disposed port drain, said casing having a laterally-projecting stem for the passage of a valve-spindle, and means for securing said stem in place, the supply-pipe and separator-chamber being in axial alinement and the separator-chamber being below the level of the discharge-pipe.

6. In a burner, a generator exterior thereto, a mixing-tube into which the gas from said generator discharges, an initial distributing-chamber, an annular trap located above said chamber, an expansion-chamber contained within said annular trap and ports discharging from the latter upon said generator.

7. A burner consisting of a mixing-tube, an initial distributing-chamber into which said mixing-tube discharges, an annular trap located above said distributing-chamber, an expansion-chamber contained within said trap, a generator located in proximity to said trap, a pipe leading from said generator and discharging into said mixing-tube, and hollow arms projecting laterally from said annular chamber and provided with ports adapted to discharge upon said generator.

8. A burner consisting of a mixing-tube, an initial distributing-chamber into which said mixing-tube discharges, an annular trap located above said distributing-chamber, an expansion-chamber retained within said trap, a generator located in proximity to said trap, a pipe leading from said generator and discharging into said mixing-tube, and hollow arms projecting from said annular trap and provided with ports adapted to discharge upon said generator, in combination with heat-radiators located at the sides of said generator.

9. In a burner, a generator, a mixing-tube into which the gas from said generator discharges, an initial distributing-chamber, an annular trap located above said chamber, an expansion-chamber contained within said annular trap and ports discharging from the latter upon said generator, in combination with heat-radiators located at the sides of said generator and having reignition-ports therethrough.

10. A burner consisting of a mixing-tube, an initial distributing-chamber into which said mixing-tube discharges, an annular trap located above said distributing-chamber, an expansion-chamber retained within said trap, a generator located in proximity to said trap, a pipe leading from said generator and discharging into said mixing-tube, and hollow arms projecting from said annular trap and provided with ports adapted to discharge upon said generator, in combination with heat-radiators located at the sides of said generator and provided with curved ends and reignition-ports therethrough.

11. The combination of a burner consisting of an outer wall, having an annular flange or lip near the upper portion thereof, an expansion-chamber formed by an annular wall provided with a laterally-extending flange depending from said lip, whereby an annular trap is formed, a distributer located at the lower portion of said expansion-chamber, an initial distributing-chamber located below said distributer, a generator located in proximity to said trap, a mixing-tube located below said distributing-chamber, a pipe leading from said generator to said mixing-tube and ports discharging from said trap upon said pipe leading from said generator.

12. The combination of a burner provided with a generator, said generator having heat-conductors projecting from the sides thereof and having downwardly-turned lips, and hollow arms located below said heat-conductors and on each side of said generator, said arms projecting from said burner and provided with ports adapted to discharge upon said generator.

13. The combination of a burner having a casing provided with an inwardly-projecting shoulder, of an annular wall provided with a lip adapted to be supported on said shoulder leaving a space between said wall and casing which forms an annular trap, a distributer supported on the lower portion of said annular wall above the bottom of the casing, and a mixing-tube penetrating said casing and a vaporizer discharging into said mixing-tube, said casing provided with ports adjacent said vaporizer.

14. The combination with a burner having a casing provided with an inwardly-extending shoulder, of an annular wall having a laterally-extending lip adapted to be supported on said shoulder and forming with said casing an annular trap into which a portion of the vapor is discharged and a distributer supported by said wall above the bottom of the casing and forming an expansion-chamber and initial distributing-chamber, and a mixing-tube discharging into the distributing-chamber.

15. A vapor-generator, a vapor-pipe leading from said generator and having a vapor discharging outlet, a burner comprising an outer casing, an annular wall held therein and forming with said casing, an annular trap, a mixing-tube discharging into the bottom of said casing, said casing having openings adjacent said vapor-pipe.

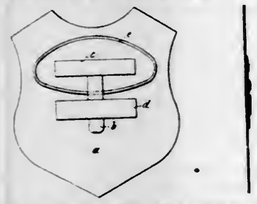
16. The combination of a vapor-generator, a vapor-pipe leading therefrom and having a vapor-outlet, a burner comprising an outer casing, an annular wall held therein and forming with said casing an annular trap, a mixing-tube discharging into the bottom of said casing, and hollow arms leading from said casing and provided with ports adjacent to said generator, said casing also having ports adjacent said vapor-pipe.

17. The combination of a vapor-generator, a pipe leading therefrom and having a vapor-discharge outlet, a burner comprising an outer casing with openings adjacent said pipe, and an annular wall held within said casing and forming, with said casing, an annular trap, a mixing-tube discharging into the bottom of said casing, hollow arms leading from said casing and provided with ports adjacent to said generator, and a distributer supported on the lower portion of said annular wall.

18. In a burner, a vapor-chamber located below the mixing-tube, a mixing and distributing chamber above said mixing-tube, a distributer directing and controlling the passage of the gas, arms with ports playing against the main generator and heat-conductors with reignition-ports therein located directly above said arm.

19. In a burner, a casing, a distributer and an annular wall, forming a distributing-chamber, an expansion-chamber and an annular trap, a mixing-tube in which the vapor and air commingle from which it is discharged into said distributing-chamber and rebounds into the mixing or distributing chamber where the gas is further mixed previous to its distribution to the expansion-chamber and the annular trap and its ports.

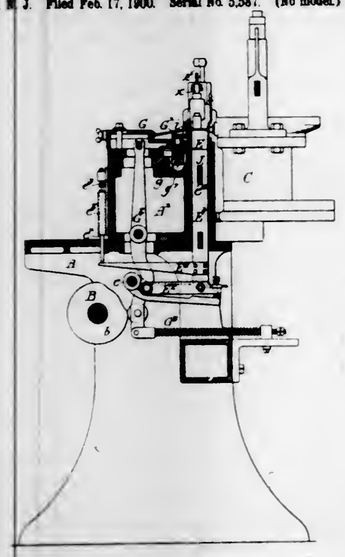
678,880. TAG FOR BOTTLES, &c. OTTO H. C. VOIGT, Lubeck, Germany. Filed May 9, 1901. Serial No. 59,521. (No model.)



Claim.—1. In combination with a ticket or label, of a tongue of suitable material, a strip for attaching one end of said tongue to said ticket, and a keeper-strip attached to the same face of the ticket at each of its ends, and adapted to have the free end of the tongue confined between said keeper and ticket, and a band detachably held between the tongue and ticket, all substantially as and for the purpose set forth.

2. As an improved article of manufacture the within-described sale-ticket provided with a tongue, a strip for attaching one end of said tongue to the ticket, and a retaining-keeper attached to the same face of the ticket at each of its ends, whereby the loose end of the tongue may be confined between said keeper and ticket, the whole adapted to be attached to a band, as and for the purpose set forth.

678,881. TYPE-CASTING MACHINE. GEORGE H. ZIEGLER, Philadelphia, Pa., assignor to the American Type Founders' Company, Newark, N. J. Filed Feb. 17, 1900. Serial No. 5,587. (No model.)



Claim.—1. The combination in a type-casting machine, of a mold, a body-piece, a slide carrying the body-piece, mechanism for operating the same, a piece projecting from the slide, a headed plunger supported independently of the body-piece-operating mechanism and constructed to be engaged by said projecting piece, a fixed head between which and the head of the plunger, a type or blank is placed, with means independent of the said projecting piece for regulating the position of the body-piece, substantially as described.

2. The combination in a type-casting machine, of a mold, a body-piece, a slide carrying the body-piece, mechanism for operating the same, a piece projecting from the slide, a headed plunger supported independently of the body-piece-operating mechanism, a fixed head between which and the head of the plunger, a type or blank is placed, an adjustable stop independent of the said plunger and of the projecting piece whereby the downward movement of the body-piece is limited, substantially as described.

3. The combination in a type-casting machine, of a mold, a body-piece adapted thereto and forming one side of the mold, a slide for the body-piece, a wedge adapted to adjust the body-piece, a nut for operating the wedge, a projecting arm on the slide, a plunger, and a projection on the frame between which and the plunger a type or blank is placed, the plunger in position to be actuated by the arm on the slide, substantially as described.

4. The combination in a type-casting machine, of a frame, a mold and two type-carrying plungers thereon, the plungers being constructed to receive type from the mold between them, a body-piece adapted to the mold, a spring back of one of the plungers, a latch adapted to engage with the said plunger, and a spring arranged to lift the latch, said spring being lighter than the spring of the plunger, substantially as described.

5. The combination in a type-casting machine, of a frame, a mold and two plungers supported thereon, a body-piece adapted to the mold, the said plungers being adapted to carry the type between them from the mold, a clamp operating in guides in the frame having a notched plate, and a channel having a nick-guide, the said clamp being constructed to force the type into the channel when it has been carried by the plungers to a point above the channel, the notch in said plate corresponding to the nick-guide, substantially as described.

6. The combination in a type-casting machine, of a mold, a plunger adapted to slide over the face of the mold, a plate secured to the front of the plunger, and a projection on said plate adapted to fit into one of the nicks of the type and hold it in position as it is moved forward by the plunger, substantially as described

7. The combination in a type-casting machine, of a mold, a plunger adapted to move over the face of the mold, a plate n secured to the front of the plunger, and an adjustable section n^2, secured to the plate and having a projection n^3 adapted to one of the nicks in the cast type, whereby the type is held in position as it is moved by the plunger, substantially as described.

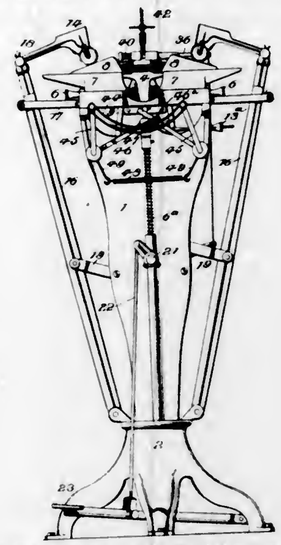
8. The combination in a type-casting machine, of a frame, a mold adapted to cast nicked type, a body-piece adapted to the mold, a plunger constructed to move over the face of the mold and having a projection in front fitting in one of the nicks in the type, a second plunger between which and the first plunger the type is held, said plunger and the mold being supported on the frame, a clamp operating in guides on the frame for holding the type down on the same as it is carried forward by the plungers, a channel, a projection in the channel corresponding to the nick in the type, the clamp being nicked so as to pass the projection on the end of the plunger and means for operating the clamp to force the type from between the plungers into the channel, substantially as described.

678,882. LABELING-MACHINE. PATRICK F. CASSIDY, Boston, Mass., assignor to Boston Bottle Wiring and Labeling Company, same place. Filed Mar. 14, 1901. Serial No. 51,067. (No model.)

Claim.—1. In a labeling-machine, a label bed or bopper, paste-transferring means designed to engage the labels at or near their center and movable to the ends thereof, means for actuating said transferring means, side gages movable laterally on the label bed or hopper as the paste-transferring means travel over the labels, and means for returning said side gages to their normal positions at the completion of the application of the paste to a label, as set forth.

2. In a labeling-machine, a label bed or hopper, two paste-applying devices designed to engage the labels on said bed at their centers and then movable in opposite directions over the labels to the ends thereof, means for effecting such movements of the devices, side gages movable laterally on the label-bed as said devices travel over the labels, and means for returning said side gages to their normal positions at the completion of the application of the paste to a label, as set forth.

3. In a labeling-machine, a label bed or hopper, two paste-transferrers movable toward each other and designed to engage the labels at or near their center and then movable in opposite directions to the ends of such labels, means for effecting the application of the paste during such latter movements, actuating means for the transferrers, side gages movable laterally on the label-bed as the paste-transferrers travel to the ends of the labels, and means for returning said side gages to their normal positions at the completion of such travel of the paste-transferrers, as set forth.



4. In a labeling-machine, a label bed or hopper, two paste-holders, paste-transferring rollers carried by the latter, means for moving said rollers toward and away from each other, means for holding the rollers out of contact with the labels during their forward movements, means for rotating the rollers on the return movement thereof while in contact with a label on said bed, side gages movable laterally on the label-bed during the return movement of the rollers, and means for returning said side gages to their normal positions at the end of the return movement of the rollers, as set forth.

5. In a labeling-machine, a label bed or hopper, two paste-holders, paste-transferring rollers carried by the latter, means for moving said rollers toward and away from each other, inclined ways over which said holders travel in their forward movements, means for rotating said rollers during their return movements, side gages movable laterally on the label-bed during the return movement of the rollers, and means for returning said side gages to their normal positions at the completion of such return movement of the rollers, as set forth.

6. In a labeling-machine, a label bed or hopper, two paste-holders, paste-transferring rollers carried by the latter, means for moving said rollers toward and away from each other, inclined ways over which said holders travel, a second set of inclined ways leading from the first-mentioned ways and terminating near the center of the label-bed, said ways being moved laterally by the holders on the return thereof, and means for rotating said rollers during such return movements, substantially as set forth.

7. The combination with the label bed or bopper and the side gages having inclined ways, of the paste-holders having wheels movable on said ways, paste-transferring rollers, mechanism connected to said holders for throwing them to the center of the bed, and means for returning said paste-holders horizontally over said bed, said side gages being moved by said holders on the return thereof, substantially as set forth.

8. The combination with the label bed or hopper, the side gages having limited lateral movements, means connected to said side gages for holding them in their normal positions, of the paste-holders having paste-transferring rollers, means for positioning said holders on the label-bed between said side gages, means for returning said holders and moving said side gages laterally, and means for rotating said rollers during such return of the holders, substantially as set forth.

9. The combination with the label bed or hopper, the side gages and means connected to the latter for holding them in their normal positions, said side gages having inclined ways, of the paste-holders having rollers and wheels for traveling on said ways, means for moving said holders into position on said bed between said gages, means for moving said holders outwardly horizontally over said bed, said side gages being thereby moved laterally, and means for rotating said rollers during the horizontal movement of the paste-holders, substantially as set forth.

10. The combination with the paste-holder having an opening in its bottom, of the transferrer-roller carried by the holder and extended into said opening, a toothed wheel carried by said roller, means for moving said holder in opposite directions, means for bodily elevating said paste-holder and roller during one of such movements, and a rack-bar with which said toothed wheel engages during the other of such movements, as set forth.

11. The combination with the front and rear plates formed with inclined ways, of the paste-holders, transferrer-rollers, shafts to which said rollers are secured, wheels loose on said shafts for traveling on said ways, toothed wheels fast on said shafts, rack-arms with which said toothed wheels are designed to engage, and means for actuating the paste-holders, substantially as set forth.

12. The combination with the label bed or hopper, of the side gages, pivoted arms secured to the latter, a spring-held wheel, links connecting said arms to said wheel whereby said side gages are normally drawn toward each other, adjusting means secured to one of said arms for controlling the position of said gages, paste-holders having transferrer-rollers, means for positioning said holders on said bed between said side gages, means for returning said paste-holders as against the resistance of the holding means of the side gages, and means for actuating said rollers during such return movements, substantially as set forth.

13. In a labeling-machine, the combination with the label-bed having inclined guideways extending from its sides toward its center, of the paste-holders having wheels for traveling on said guideways, the carrying-arms, means for detachably and pivotally securing each paste-holder at a point beyond one side thereof to one of said arms, and means for actuating said arms toward and away from each other, as set forth.

14. In a labeling-machine, the combination with the label-bed having inclined guideways extending from its sides toward its center, of the two paste-holders having each outwardly-projecting arms, cross-rods between said arms, wheels carried by said holders for traveling on said guideways, two carrying-arms having bearings in their upper ends for said rods, and yielding holders mounted on said arms for retaining said rods in said bearings, substantially as set forth.

15. The combination with the label-bed having a depressible section, and a spring-held rod secured to said section, paste holders and transferrers and actuating mechanism therefor comprising a shaft having an opening designed to coincide with said rod when the parts are at rest, substantially as set forth.

16. In a labeling-machine, an endless band or belt designed to partly encircle a bottle having a pasted label thereon, bearings for said band extending through the folds of said band forming bearings therefor, means for guiding and limiting the movement of said bearings, and a spring connection between the latter for normally holding said band extended, as set forth.

17. In a labeling-machine, an endless band or belt designed to partly encircle a bottle having a pasted label thereon, crank-shafts extended through the folds of said band forming bearings therefor, and a spring connection between said shafts for separating the bearings, substantially as set forth.

18. In a labeling-machine, a band or belt designed to partly encircle a bottle having a pasted label thereon, crank-shafts forming bearings for said band, guiding-arms secured to said crank-shafts, and a spring acting to force the bearings apart, substantially as set forth.

19. In a labeling-machine, means for embracing a bottle transversely thereof for affixing a pasted label thereto, having both regular and irregular contours conforming to regular and irregular surfaces of that portion of the bottle engaged by the embracing means, as set forth.

20. In a labeling-machine, means for embracing a bottle transversely thereof for affixing a pasted label thereto, comprising a band or belt and a removable pad carried thereby having an irregular contour conforming to irregular surfaces of that portion of the bottle engaged by the band or belt, as set forth.

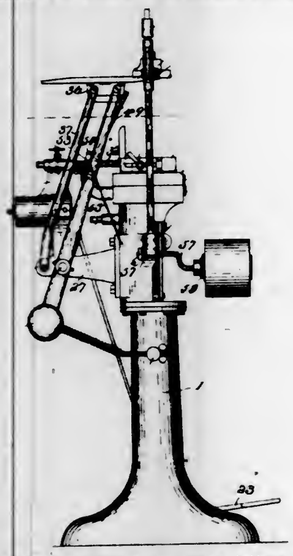
21. In a labeling-machine, means for embracing a bottle for affixing a pasted label thereto, comprising an endless band or belt, a pad within said belt having an irregular contour conforming to that of the bottle, and means for removably securing such pad, substantially as set forth.

22. The combination with the label-bed and the spring-held actuating-shaft, of a finger designed to be lowered against said bed, a spring-held shaft carrying said finger, an arm on said actuating-shaft, a connection between said arm and said spring-held shaft, and means carried by said actuating-shaft for moving said arm to raise said finger from the label-bed, as set forth.

678,883. BOTTLE-LABELING MACHINE. PATRICK F. CASSIDY, Boston, Mass., assignor, by direct and mesne assignments, to Boston Bottle Wiring and Labeling Company, same place. Filed Mar. 29, 1900. Renewed Apr. 29, 1901. Serial No. 58,051. (No model.)

Claim.—1. A label-affixing machine comprising a paste-holder, a

paste-transferrer, means for moving the former across the face of the latter as it approaches and also as it recedes from the label-bed, said transferrer engaging said paste-holder as the former moves toward the label-bed, and means acting on one of said parts to prevent such engagement when the direction of the movement of the transferrer is reversed.



2. A label-affixing machine comprising a paste-holder, a paste-transferrer, the former being moved on a curved line and the latter on a straight line intersecting the line of movement of the paste-holder, which latter is designed to engage with the paste-transferrer when the parts are moved in one direction only.

3. A label-affixing machine comprising a paste-holder, a vertically-movable paste-transferrer carried by said paste-holder, means for moving the latter over and into engagement with the lower face of the paste-transferrer on the forward stroke, and means for preventing such engagement on the return stroke, as set forth.

4. A label-affixing machine comprising a paste-holder, a vertically-movable paste-transferrer carried by said paste-holder, means for moving the latter over and into engagement with the lower face of the paste-transferrer on the forward stroke, and means carried by the paste-transferrer for raising it relatively to the paste-holder on the return stroke, as set forth.

5. A label-affixing machine comprising a paste-holder having a projecting roll, a vertically-movable paste-transferrer carried by said paste-holder, means for moving the latter over the lower face of the paste transferrer, said roll engaging said face, and means for raising the paste-transferrer relatively to the roll on the return stroke, as set forth.

6. A label-affixing machine comprising a paste-holder having a projecting roll, side rails carried by said holder, a vertically-movable paste-transferrer having rollers bearing on said rails, and means for moving the paste-holder over the lower face of the paste-transferrer, substantially as set forth.

7. A label-affixing machine comprising a paste-holder having a projecting roll, side rails carried by said holder, a vertically-movable paste-transferrer having rollers bearing on said rails, and inclined guideways for the axles of said rollers, and means for moving the paste-holder over the lower face of the paste-transferrer, substantially as set forth.

8. A label-affixing machine comprising a paste-holder, a roll mounted therein having a grooved periphery, a vertically-movable paste-transferrer carried by said paste-holder having a grooved face designed to engage with said roll on its downward movement, means for moving said paste-holder across said face of the transferrer and means for raising the transferrer relatively to the roll on the return stroke, substantially as set forth.

9. The combination with the shaft, and the arms carried thereby, of a paste-holder mounted between said arms and having a projecting roll, rails carried by said holder, means for operating said shaft, and a vertically-movable paste-transferrer having rollers bearing on said rails, the raising and lowering of said transferrer being effected by the movements of said paste-holder, substantially as set forth.

10. The combination with the shaft, and the arms carried thereby, of a paste-holder mounted between said arms and having a projecting roll, rails carried by said holder, means for operating said shaft, and a vertically-movable paste-transferrer having rollers bearing on said rails, and also having inclined guideways in which the rollers are free to move from end to end according to the direction of movement of the parts, substantially as set forth.

11. The combination with the shaft, the arms carried thereby, and means for holding said arms normally upright, of a paste-holder mounted between said arms, a vertically-movable paste-transferrer operated by the movements of said paste-holder, a treadle connected to said shaft, an air-piston and cylinder and a connection between said piston and said shaft, substantially as set forth.

12. The combination with the shaft, and the arms carried thereby weighted at their normally lower ends, of a paste-holder pivotally mounted between the upper ends of said arms, guide-arms also connected to the paste-holder, a vertically-movable paste-transferrer, upright rods therefor, said paste-transferrer being operated by the movements of said paste-holder, a bell-crank lever on said shaft, a treadle connected to one arm of said bell-crank lever, and a piston and its cylinder, one arm of said bell-crank lever being connected to said piston, substantially as set forth.

13. In a label-affixing machine, a bed or support for the labels composed of a central depressible member, and two stationary side members, the latter being arranged relatively to the former in such manner that labels resting on said depressible member will extend also onto said side members.

14. In a label-affixing machine, a bed or support for the labels composed of a central depressible member, two side members, and means for adjusting said side members laterally in relation to the central member to accommodate bottles of different sizes, substantially as set forth.

15. In a label-affixing machine, a label-bed having stationary side members and a central depressible member, all of said members having opposite interlocking fingers, substantially as set forth.

16. In a label-affixing machine, a label-bed having two laterally-adjustable side members formed with opposite fingers, and a central depressible member formed with side fingers interlocking with those of the side members, substantially as set forth.

17. In a label-affixing machine, a label-bed comprising two side plates, pawls carried by said plates, stationary rack-bars independent of said plates with which said pawls engage, said side plates having opposite fingers, and a central spring-held plate having fingers interlocking with those of the side plates, substantially as set forth.

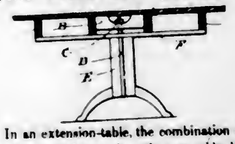
18. In a label-affixing machine, a label-bed, side gages, arms carrying the latter, and means for relatively adjusting said arms, substantially as set forth.

19. In a label-affixing machine, a label-bed, side gages having adjustable sections, pivoted arms carrying said side gages, a lever, links connecting said arms to said lever, a spring between said arms, and an adjusting rod and nut for relatively adjusting said gages, substantially as set forth.

20. A label-affixing machine having a label-bed, a paste-holder, arms carrying the latter, a paste-transferrer, a spring-impelled shaft having a crank-arm on one end designed to be engaged by one of said arms, and two arms on said shaft designed to extend across said label-bed when the transferrer is lowered and to be raised therefrom when said crank-arm is engaged by the said carrying-arm.

21. In a label-affixing machine, two spaced-apart circular brushes, two corresponding crank-shafts forming axles for and upon which said brushes are rotatably mounted, and means adjustably holding said crank-shafts in place, whereby the axle portions of such shafts may be moved toward or away from each other, substantially as set forth.

678,834. EXTENSION-TABLE. GEORGE A. DAVIS, Grand Rapids, Mich., assignor to Stow & Davis Furniture Company, same place. Filed Jan. 28, 1901. Serial No. 45,117. (No model.)



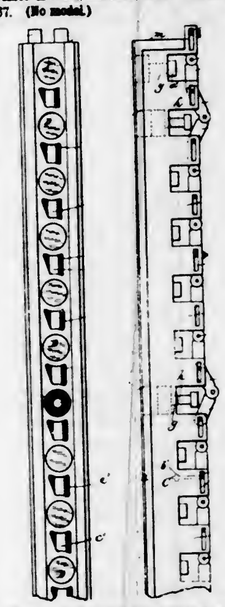
Claim.—1. In an extension-table, the combination of the separable top having bridge-blocks and cross-bar, the separable base attached to the top structure, the suspending-block attached to the bridge-blocks, and means for suspending the central portions of the supporting-base from and clamping the same to said suspending-block, substantially as described.

2. In an extension-table, the combination of the separable top having bridge-blocks and cross-bar, the separable base attached to said top structure, and a clamping-rod engaging at its lower end with the inner portion of the supporting-base and at its upper end with the top structure and adapted to suspend the one from the other and clamp the same firmly together, substantially as described.

3. In an extensible table, the combination of the top, a base therefor, and adjustable means connected with the top for suspending and clamping the base thereto.

4. In an extensible table, the combination of the top, a base therefor, a rod connected with the top and engaging the base, and means mounted on said rod for clamping the base to the top.

678,835. VOTING-MACHINE. WILLARD M. DELAVAN, Pittsfield, Mass., and WILSON L. FERN, Hartford, Conn. Filed May 10, 1901. Serial No. 59,667. (No model.)



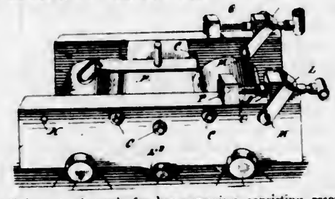
Claim.—1. The standard provided with open-front, rear-orificed cylinders and with apertures, in the face thereof, and formed into backwardly-projecting, lengthwise slotted brackets in pairs, with a pin-hole through one front face of each pair; all substantially as described, and for the purpose of containing and permitting the operation of a set of machine-voting press-keys.

2. The standard provided with open-front, rear-orificed cylinders and with apertures, in the face thereof, and formed into backwardly-projecting, lengthwise slotted brackets in pairs, with a pin-hole through one front face of each pair, in combination with the chain formed of recessed and shouldered links in pairs, and of double-shouldered, double-armed, side-slotted, front-orificed couplers pivotally connected to said links; the said standard and chain further combined with long pins adapted to traverse the slots of brackets and couplers, with short pins adapted to pivotally connect the couplers and links, and with tapering pins adapted to fit the pin-holes of the brackets and the front orifices of the couplers, and the said chain being adjustably supported by and between the brackets forming part of the standard; all substantially as hereinbefore described, for the purpose of containing and permitting the operation of machine-voting press-keys when arranged in sets in said standard.

3. The combination of a standard provided with open-front, rear-orificed cylinders and with apertures, in the face thereof, and formed into backwardly-projecting, lengthwise-slotted brackets in pairs, with a pin-hole through one front face of each pair; recessed and shouldered links in pairs; double-shouldered, double-armed, side-slotted front-orificed couplers pivotally connected to said links, and said links and couplers pivotally supported by and within said brackets; long pins traversing the slots of brackets and couplers; short pins connecting said links and couplers; tapering pins fitted to the pin-holes of said brackets and the front orifices of said couplers, and stemmed press-keys movably contained within the cylinders of the aforesaid standard, and projecting rearwardly through the orifices of said cylinders, and bearing against said pivotally-connected links and couplers; all substantially as hereinbefore described, for the purpose of permitting the depression and return of said press-keys in the operation of a voting-machine.

4. The combination in a voting-machine of a suitably-supported, outwardly-swinging and open-front case; an upright carriage within said case, having wheels at the four corners thereof and a series of horizontal bars fitted with beveled strikes; grooved tracks supported in the machine-case and fitting the wheels of said carriage; a throw-back spring attached to said machine-case and bearing against said carriage; a pull-bar pivotally attached to the right-hand end of said carriage; a lever pivotally attached to said pull-bar, and rigidly attached to the stem of an ordinary spring door-latch fitted to the right-hand end of the aforesaid machine-case and adapted to latch the same to its supports; a right or forward turning handle also rigidly attached to the said latch-stem; a series of vertical standards fitted to the open front of the aforesaid machine-case, and each having a series of rearwardly-projecting brackets in pairs, and a chain consisting of a series of alternating and pivoted links and couplers, pivotally supported by and between said brackets, and having a rearward bend by sections thereof; the whole substantially as herein described, for the purpose of restoring the bent sections of said chain to their normal vertical position within the series of brackets by the movement of the aforesaid carriage from left to right upon a turn of the handle fixed to the aforesaid latch-stem.

678,836. HOUSE-MOVING TRUCK. JOHN FIKE, Leipsic, Ohio. Filed Feb. 6, 1901. Serial No. 46,238. (No model.)



Claim.—1. A truck for house-moving, consisting essentially of a frame having parallel side bars, and rollers with frusto-conical spindles resting in corresponding bearings in said bars, so that the shifting of the rollers endwise in the frame will change the relation of the bearings to the frame, substantially as described.

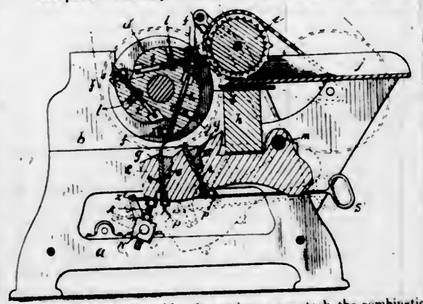
2. A truck for house-moving consisting essentially of two side bars and a cross-bar and means for holding the frame together, roller-bearings for three rollers in the lower face of the side bars, the bearings for the middle roll being at a lower horizontal plane than the bearings for the end rolls, and rollers of unequal size, the middle roll being smaller and resting against the lower bearings, substantially as described.

3. In a house-moving truck, a frame having side bars with holes at the corners, a clevis and bolt for application to either corner, and a cant-screw and nut held in place by the clevis, all combined substantially as described.

4. In a house-moving truck, the combination with the rectangular frame, of a cant-screw attached near one corner of the frame, and in position to bear against an abutment, to cant the truck.

5. The combination with a truck-frame of the character described, of a clevis, a bolt passing through a hole in the truck-frame by which the clevis is held in place, a nut held to the frame by said clevis, a jack-screw passing through said nut, and a cap on the jack-screw resting on the frame-bar, all substantially as described.

678,837. MACHINE FOR CUTTING PAPER-STOCK. CHARLES W. GRIFFIN, Riegelsville, N. J., assignor to Taylor, Stiles & Company, same place. Filed July 11, 1900. Serial No. 23,230. (No model.)



Claim.—1. In a machine for cutting paper-stock, the combination with a suitable supporting-frame, of a rotary cutter-head mounted there-

in, one or more blades mounted in the cutter-head, a bed pivotally mounted at one end upon the frame, cutting-blades secured in the bed, a rock-shaft journaled within the frame and below the said bed, means on the rock-shaft arranged to bear against and support the said bed, and means to rock the rock-shaft.

2. In a machine for cutting paper-stock, the combination with a suitable frame, of a rotary cutting-head mounted therein, one or more blades mounted on the cutter-head, a swinging bed pivotally mounted at one end upon the frame, cutting-blades secured within the bed, a rock-shaft journaled in the frame and below the free end of the bed, an adjustable bolt on the rock-shaft to bear against and support the free end of the bed, an arm on the rock-shaft and a lever secured to the arm to operate the rock-shaft.

3. In a machine for cutting paper-stock, the combination of a suitable frame, a rotary cutter-head mounted thereon, one or more cutters in the head, a bed adjustable to and from the cutter-head, blades in the adjustable bed, a stationary support *h* across the frame above the adjustable bed, and a cutter or blade mounted on the support, substantially as described.

4. The combination in a machine for cutting paper-stock of a suitable frame, a rotary cutting-head, having one or more blades mounted therein, a stationary adjustable bed having one or more blades mounted therein, threaded rods arranged to bear against the heels of the blades and wedges arranged to lock said blades in position when adjusted, substantially as shown.

5. The combination in a machine for cutting paper-stock, of a suitable frame, a rotary cutter-head mounted in the frame, three blades mounted in the cutter-head, and three stationary blades, arranged one adjacent to the point where the material is fed to the machine and the other two near to each other and remote from and below the point of feed, substantially as shown.

6. In combination with a rotating cutter-head mounted in a frame, in a machine for cutting paper-stock, a blade-carrying bed mounted in said frame, and rocking means for adjustably supporting said bed, said means being arranged to be moved out of the path of the bed whereby it will automatically move from its normal cutting position, substantially as shown.

678,838. GOVERNOR FOR BAND-CUTTERS AND FEEDERS. MINARD LAFEVER, Battlecreek, Mich. Filed July 17, 1900. Renewed June 12, 1901. Serial No. 64,341. (No model.)



Claim.—1. An automatic governor for band-cutters and feeders, consisting of a rotary part and a clutch-disk, the latter having an annulus thereon, a normally-contracted expansible split ring pivoted to said rotary part and lying within said annulus, a lever fulcrumed to said rotary part and connected with the free end of said ring, and a weight on said lever adapted to be thrown outwardly by centrifugal force to rock said lever and thereby expand said ring.

2. An automatic governor for band-cutters and feeders, consisting of a fixed driving-pulley and a loosely-mounted clutch-disk, both mounted upon a drive-shaft, an annulus secured to said clutch-disk, a normally expansible split ring lying within said annulus and having one end pivotally connected to said pulley, a lever connected to the opposite end of said ring and adapted to expand the same, a spring acting upon said lever to resist its outward movement and a weight carried by said lever, adapted to be thrown outwardly by centrifugal force to rock said lever and thereby expand said ring.

3. In a governor for band-cutters and feeders, the combination with a drive-pulley locked to a shaft of a clutch-disk having a fixed annulus, a normally-contracted expansible split ring lying within said annulus one end being pivotally connected to the drive-pulley, a lever having its fulcrum on said pulley and connected on one side of said fulcrum to the other end of said ring, and a weight on said lever on the other side of its fulcrum to operate said lever by centrifugal force and expand the split ring against said annulus, substantially as described.

4. In a governor for band-cutters and feeders the combination with a shaft of a drive-pulley locked thereon and a clutch-disk loose on the same, a normally-contracted expansible split ring having one end on a pivot-bolt carried by said pulley said ring lying in an annulus rigid on the clutch-disk, a lever fulcrumed to said pulley and having one end connected to the other end of the split ring, a weight on the other end of said lever, a spring connected to said lever and to a fixed lug on the pulley, and means for varying the tension of said spring, substantially as described.

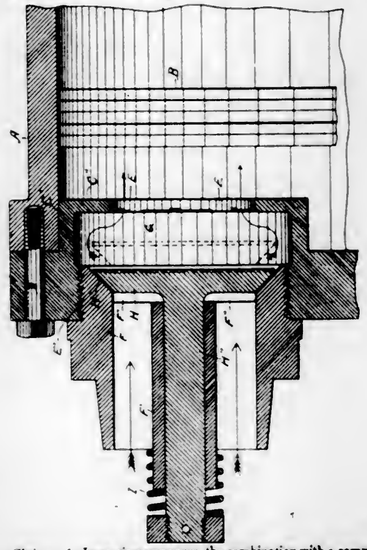
5. In a governor for band-cutters and feeders, the combination with a drive-pulley and clutch-disk, one locked and the other loose on the same shaft, of a normally-contracted expansible split ring lying in an annulus on the clutch-disk and having one end connected to the said pulley, a spring connected to the other end of said ring, and means for varying the tension of said spring, substantially as described.

6. An automatic governor for band-cutters and feeders, comprising a drive-pulley and a clutch-disk, the former locked and the latter loose upon the same shaft, a normally-contracted expansible split ring lying within an annulus rigid on the clutch-disk, one end of said ring being fixed on the drive-pulley and the other end free to move, and a weight connected with the free end of said split ring and operated by centrifugal force to expand the ring into contact with the annulus on the clutch-disk, substantially as described.

7. An automatic governor for band-cutters and feeders, comprising a drive-pulley and clutch-disk, the former locked and the latter loose upon the same shaft, a normally-contracted expansible split ring lying within an annulus rigid on the clutch-disk, one end of said ring being fixed on the drive-pulley and the other end free to move, a weight connected with the free end of said split ring and operated by centrifugal force to expand the ring into contact with the annulus on the clutch-disk, and a spring-actuated lever normally operating to contract said ring, substantially as described.

8. In an automatic governor for band-cutters and feeders, a fixed drive-pulley, a loose clutch-disk, an annulus fixed to said disk, a normally-contracted expansible split ring arranged within said annulus, means for pivotally connecting one end of said ring to said pulley, a weighted lever pivoted to said pulley and connected to the other end of said split ring, and an adjustable tension-spring suitably connected to said lever.

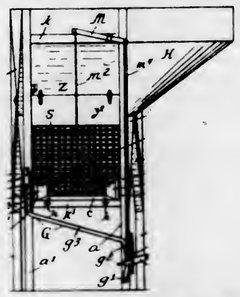
678,839. AIR-COMPRESSOR. CLARENCE B. LITTLE, Dayton, Ohio, assignor to the Brownell & Co., same place. Filed Apr. 27, 1901. Serial No. 57,760. (No model.)



Claim.—1. In an air-compressor, the combination with a compressor-cylinder, of a head secured thereto, the said head projecting into the cylinder and providing a chamber adapted to contain a valve and into which a valve is movable, an opening in said head forming a communication between the cylinder and said chamber, the diameter of such opening being essentially smaller than the diameter of the valve so that in the event of a breakage of said valve, it will not be permitted to enter the cylinder, a valve-casing mounted in said head, the said valve-casing and the valve forming the outer limit of the chamber, substantially as and for the purposes specified.

2. In an air-compressor, the combination with a compressor-cylinder, of a head secured thereto and having an auxiliary air-chamber in which the valve is confined, the said chamber being formed in that portion of the head which is projected into the cylinder, an opening forming a communication between the said air-chamber and the interior of the cylinder, the diameter of such opening being essentially less than the diameter of the valve, a valve-casing mounted in said head and forming the outer inclosure of the chamber, so that in the opening of the valve, the said valve is confined within said chamber, and whereby in the event of a breakage of said valve, the latter will be prevented from entering the compressor-cylinder, substantially as shown and described.

678,840. COAL SCREEN AND BAGGER. JULIUS P. LOWE, Boston, Mass., assignor, by direct and mesne assignments, to George R. Whipple, Ida R. Lowe, and Harry G. Buker, same place. Filed Jan. 23, 1901. Serial No. 44,402. (No model.)



Claim.—1. In an apparatus for screening and bagging coal, the combination of an inclined screen, a supporting-frame therefor, a delivery-chute hinged to said frame at the lower end of said screen, a treadle connected with said chute for upturning it on its hinges to stop the flow of the coal therethrough, and a locking device for holding said chute in its upturned position, substantially as described.

2. In an apparatus for screening and bagging coal, the combination of an inclined screen, a supporting-frame therefor, a delivery-chute hinged to said frame at the lower end of said screen, a treadle connected with said chute for raising it on its hinges to stop the flow of the coal therethrough, and a locking device for holding said chute in its upturned position having a hand-engaging lever in proximity to said chute for operating said locking device to release said chute, substantially as described.

3. In an apparatus for screening and bagging coal, the combination of an inclined screen, a supporting-frame therefor, a delivery-chute hinged to said frame at the lower end of said screen, a treadle connected with said chute for raising it on its hinges to stop the flow of the coal therethrough, and a locking device for holding said chute in its upturned position comprising a spring-actuated locking-lever adapted to engage said treadle having a hand-engaging portion for operating it to release said treadle, substantially as described.

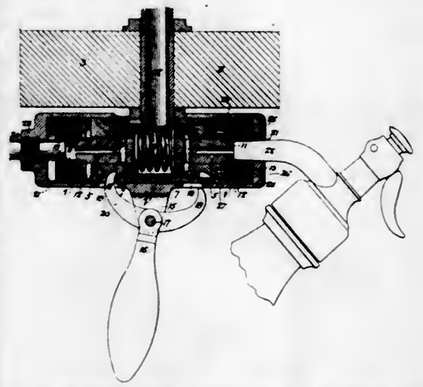
678,841. VALVE MECHANISM FOR SIPHON-VALVES OR DRAFT-TUBES. JOHN P. MACLEARN, Philadelphia, Pa., assignor to Robert M. Green & Sons, same place. Filed Dec. 31, 1900. Serial No. 41,633. (No model.)

Claim.—1. A structure of the character described comprising a valved member providing for the inlet and passage of liquid under pressure, means for operating the same, and means for preventing leakage of such liquid during its passage from said member to a closed receptacle comprising a compressible bushing surrounding the tube leading to said receptacle, and means for compressing the bushing said bushing being automatically compressed simultaneously with the operation of the valved member.

2. The combination in a structure of the character described, of a casing having an opening adapted to receive a siphon-nozzle or similar structure, a compressible bushing carried by said casing and surrounding the siphon-nozzle and means for compressing said bushing.

3. The combination in a structure of the character described, of a casing having an opening adapted to receive a siphon-nozzle or similar structure, a compressible bushing carried by said casing and surrounding the siphon-nozzle, a valve carried by said casing, and means for compressing the bushing and opening the valve at one operation.

4. The combination in a structure of the character described, of a casing having an opening adapted to receive a siphon-nozzle or similar structure, a compressible bushing carried by said casing and surrounding the siphon-nozzle, a valve carried by said casing in line with the siphon-nozzle, and means for compressing the bushing and opening the valve simultaneously.



5. The combination in a structure of the character described, of the casing, a tubular valve-chest therein, one of said members being movable with respect to the other, a valve carried by said valve-chest, a bushing interposed between the end of the casing and the valve, said bushing having an opening to receive a pipe or tube, and means for compressing said bushing.

6. The combination in a structure of the character described, of the casing, a tubular valve-chest therein, one of said members being movable with respect to the other, a valve carried by said valve-chest, a bushing interposed between the end of the casing and the valve, said bushing having an opening to receive a pipe or tube, and means for compressing said bushing around the pipe or tube, the extra force exerted by said bushing under compression serving to open the valve.

7. The combination in a structure of the character described, of the casing, a tubular valve-chest therein, one of said members being movable with respect to the other, a valve carried by the valve-chest, means for holding said valve to its seat, a bushing interposed between the end of the casing and the valve, said bushing adapted to receive a pipe or tube, and means for simultaneously opening the valve and compressing the bushing against a tube inserted therein.

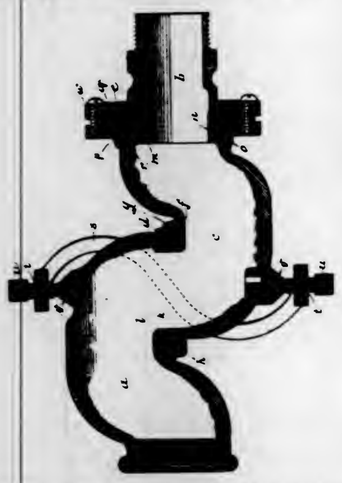
8. The combination in a structure of the character described, of the casing, a tubular valve-chest therein, one of said members being movable with respect to the other, a plurality of valves carried by said valve-chest, means for holding these valves to their seats, bushings interposed between the ends of the casings and the ends of the valves, said bushings adapted to receive pipes or tubes and means for moving said valves, the movement of the latter compressing one of said bushings so as to pack a tube inserted therein, substantially as described.

9. The combination in a structure of the character described, of the casing, a tubular valve-chest therein, one of said members being movable with respect to the other, a plurality of valves carried by said valve-chest, means for holding said valves to their seats, bushings interposed between the ends of the casing and the spindles of said valves, said bushings adapted to receive pipes or tubes, and means for moving the valve-chest or the casing whereby either one of said valves will be opened, such movement compressing one of said bushings so as to pack the tube and open the valve simultaneously.

10. The combination in a structure of the character described, of a casing, a valve-chest therein, one of said members being movable with respect to the other, a valve carried by said valve-chest, said valve having a hollow stem and passages communicating therewith, the end of said valve-stem being reduced, a plate fitting the reduced end of said stem, a bushing interposed between said plate and the end of the casing, said bushing having an opening in line with the hollow valve-stem and adapted to receive a pipe or tube, and a lever in operative engagement with the casing and the valve-chest whereby one of said members may be moved, such action compressing the bushing and opening the valve, substantially as described.

11. The combination in a structure of the character described, of the movable casing, a fixed valve-chest located therein, a valve carried by said valve-chest, a spring for holding said valve to its seat, a compressible bushing interposed between the valve and the end of the casing, and a handle pivoted to said casing and having a portion adapted to engage the valve-chest so that pressure on said handle will move the casing and compress the bushing, substantially as described.

678,842. **FLEXIBLE PIPE-JOINT.** THOMAS W. MORAN, Louisville, Ky., assignor to Moran Flexible Steam Joint Company, same place. Filed Apr. 6, 1901. Serial No. 54,689. (No model.)



Claim.—1. A hollow pivot pipe-joint for suction purposes, consisting of two sections engaging each other by annular grooved contact-faces, forming an annular bracing-gasket seat, the gasket seated therein, and the yoke having an outside pivotal connection with said sections, substantially as specified.

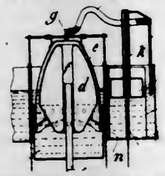
2. In a pipe-joint, the combination with the middle section having its grooved contact-faces at right angles to each other, of the end section having its grooved contact-face applied to one contact-face of the middle section to form an interiorly-braced gasket-seat, and the other end section having its grooved contact-face applied to the other contact-face of the middle section to form an interiorly-braced gasket-seat, the gaskets in such seats and the yoke connections, whereby the sections are pivoted together, substantially as specified.

3. In a pipe-joint, the two sections having the contact-faces provided with a gasket, and a detachable yoke connection embracing both said sections, substantially as specified.

4. In a pipe-joint, the two sections having the contacting-faces provided with a gasket-seat, a gasket in such seat spanning the joint between such sections, and the yoke, having cone outer pivotal connections with said sections, substantially as specified.

5. In a pipe-joint, the two pipe-sections, and the yoke connection for said sections, the opening of which receives said sections, and the pivot-screws carried by said yoke at opposite ends thereof, substantially as specified.

678,843. **CISTERN FOR WATER-CLOSETS.** PAUL SCHURIG, Berlin, Germany, assignor of one-half to Gustav Stein, same place. Filed Jan. 4, 1901. Serial No. 42,576. (No model.)



Claim.—1. In combination with a cistern for water-closets, a bell dipping into the water in the cistern, a float connected with the bell, means for depressing the bell to discharge the water from the cistern, a movable air-pipe dipping into the cistern-water, a connection between the said air-pipe and the bell whereby the said bell will be supplied with air from said air-pipe when the cistern-water falls below the end of the said air-pipe, a float connected with the air-pipe and a receptacle for containing water and having a small outlet which will cause the water-level in said receptacle to fall slowly as compared with the fall of water in the cistern, substantially as described.

2. In combination with a cistern for water-closets, a bell dipping into the water in the cistern, a float connected with the bell, means for depressing the bell to discharge the water from the cistern, a movable air-pipe dipping into the cistern-water, a connection between the said air-pipe and the bell whereby the said bell will be supplied with air from said air-pipe when the cistern-water falls below the end of the said air-pipe, a float connected with the air-pipe and a receptacle for containing water and having a small outlet which will cause the water-level in said receptacle to fall slowly as compared with the fall of water in the cistern, the said connection between the air-pipe and bell being a flexible one whereby the bell may fall at a greater speed than the air-pipe and the outlet from said receptacle leading into the cistern, substantially as described.

3. In combination with a cistern for water-closets an air-inlet pipe the lower end of which dips normally into the water of a cistern, a bell supported by a main float, pipe connection between that bell and pipe, a secondary float rigidly secured to the latter, a receptacle within the cistern having a small opening near the bottom, and adapted to guide the said secondary float, and means by which the latter may be depressed, substantially as described.

4. In combination with a cistern for water-closets an air-inlet pipe, the lower end of which dips normally into the water of a cistern, a bell supported by a main float, a space between the outer wall of the latter and the bell, a pipe secured to the upper end of the bell and connected with said air-inlet pipe, means for depressing the bell, a secondary float rigidly secured to said air-inlet pipe a receptacle within the system having a small opening near the bottom and adapted to guide the said secondary float and means by which the latter may be depressed, substantially as described.

678,844. **FRUIT OR VEGETABLE MASHER.** SPARROW A. SNOW, Arlington, and ARTHUR TAYLOR, Boston, Mass.; said Snow assignor to said Taylor. Filed Mar. 22, 1900. Serial No. 9,707. (No model.)



Claim.—In a fruit and vegetable masher, a skeleton frame, a removable bopper fitting therein, made open at bottom and provided with external stops resting on the frame-top, and an arched strainer detachably secured to and closing the bottom opening in said bopper, in combination with a plurality of mashing-blades formed integral and having an angular axial perforation, and with a removable driving-shaft fitting said perforation and having its bearings formed through said frame and bopper, such shaft thus serving to connect the frame, bopper and mashing-blades for use and to disconnect them for cleansing, substantially as set forth.

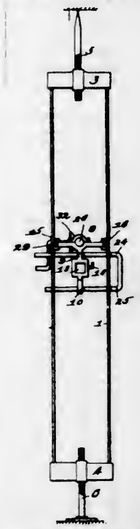
678,845. **DRILL.** ISAAC WANTLING, Peoria, Ill. Filed Feb. 4, 1901. Serial No. 45,960. (No model.)

Claim.—1. In a drilling-machine, the combination of the supporting-frame of uprights having apertures facing each other, the boxing of two hinged sections, the lower section having extended bodies at opposite angles, one of said extensions having an aperture 23, and a series of apertures 11, lying in an arc struck from the aperture 23, and means for locking said boxing between the uprights, which said means is caused to engage the apertures in the uprights and the apertures 23 and 11 of the boxing, substantially as shown and described.

2. In a drilling-machine, the combination with uprights 1 and 2 connected top and bottom by suitable castings and each provided with sets of perforations, of the boxing of two hinged sections together forming a feed-nut, the lower section having an extended body 9, with a transverse aperture 23 and the boxing supported in said frame by means of a pin or similar device arranged to be passed through corresponding apertures in the uprights and the aperture 23, in a detachable manner, substantially as described.

3. The support 8, having the depending portion 9, and flared or winged bottom 10, the depending portion 9, provided with aperture 23, and the winged portion with apertures 11, and a feed-nut 18, arranged on the upper face of the support in combination with suitable frame-support and means for detachably securing said support 8 in adjusted positions in said frame-support, substantially as described.

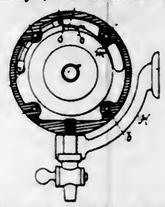
4. In a drilling machine, the combination of a supporting-frame, a combined feed-nut and support arranged in said frame, a yoke-pin for detachably securing said feed-nut in the frame, apertures arranged in said support in such a manner as to be engaged by the extensions of the pin and to engage corresponding apertures in the frame, a drill-rod engaging said nut and of suitable boxings of said support engaged by an adjustable carrying power mechanism for actuating said drill-rod, substantially as described.



5. In a drilling-machine, the combination with the uprights 1 and 2, suitably secured at their upper and lower ends, a series of apertures 7, in the sides of said uprights arranged oppositely to each other, of a feed-nut having a depending body portion and lateral extensions terminating in suitable boxings, the aperture 23, and the series of apertures 11, arranged in the depending portion of said nut, a yoke-pin having portions 24 and 25, engaging suitable apertures 7, in the uprights and apertures 23, and 11, of the nut, arranged for supporting said feed-nut horizontally or at desired angles, in the manner and for the purpose described.

6. In combination, the support 8, provided with a feed-nut 18, and rectangular boxings upon opposite sides thereof, a depending body of said support having transverse opening 23, and rectangular socket 13, said socket lying parallel with said nut, the flared or winged portion 10, of said support and the perforations 11, lying in an arc in said flared portion, a drill-rod engaging said nut carrying a suitable gear, of the adjustable and detachably-secured arm 29, carried by said boxings with a bearing for supporting a spindle carrying a gear intermeshing with the gear of the drill and handhold for actuating said spindle, all substantially as described and shown.

678,846. **DOMESTIC WATER-FILTER.** ROBERT T. WEAVER, New York, N. Y., assignor to the General Engineering Company, of New Jersey. Filed May 9, 1901. Serial No. 59,394. (No model.)



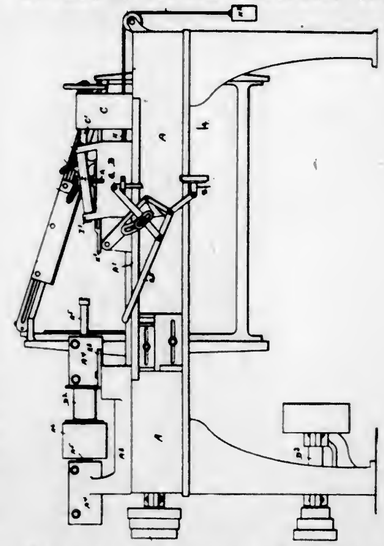
Claim.—1. In a filter, the combination of a casing, a cylindrical filtering-body mounted to be rotated therein, and a gravity scraper-frame hinged at one side of the stone, extending up over it, having one or more scraper edges bearing on the filtering-body, and disposed in the annular space between it and the casing.

2. In a filter, the combination of a casing, a cylindrical filtering-body mounted to be rotated therein, a segmental gravity scraper-frame hinged to the interior of the casing at one side of the body and extending up over and beyond its top, weighted at its free end and having one or more scraper edges bearing on the filtering-body.

3. In a filter, the combination of a casing, a cylindrical filtering-body mounted to be rotated therein, arms hinged to the interior of the casing at one side of the body and extending up over it, a weight hinged in the ends of the arms and extending down on the opposite side of the body, and a scraper on the under face of the weight adjacent its hinge connection.

4. In a filter, the combination of a casing, a cylindrical filtering-body mounted to rotate therein and a gravity scraper-frame comprising a section hinged to the casing at one side of and extending up over the stone, and a second section hinged to the free end of the first one and having one or more scraper edges bearing on the stone.

678,847. **WOOD-TURNING LATHE.** BAXTER D. WHITNEY and BYRON S. LOVELAND, Winchendon, Mass.; said Loveland assignor to said Whitney. Filed Oct. 26, 1896. Serial No. 609,643. (No model.)



Claim.—1. In a lathe, the combination with a lathe-bed provided with parallel ways for a tool-carriage, a tool-carriage moving on said ways, a rotating feed-screw in the bed of the lathe, an apron on said carriage extending downwardly between said ways, feed-nuts carried by said apron and engaging said feed-screw, and a shield-plate projecting over said feed-screw, substantially as described.

2. In a wood-turning lathe, the combination of a carriage, means for moving said carriage parallel with the axis of the rotating work, a cutting-knife having its edge arranged obliquely to the plane of rotation of the work and a frame supporting said knife, said frame being pivoted on said carriage with its axis of rotation at substantially right angles to the plane of the cutting edge of said knife, substantially as described.

3. In a wood-turning lathe, the combination of a bed having a track or ways, a carriage moving on said track, a tilted frame pivoted on said carriage having its axis inclined relatively to said track and a knife having its cutting edge in a plane at right angles to the axis of said tilted frame, substantially as described.

4. The combination of a lathe-bed having a track, a carriage, means for moving said carriage on said track, a swinging frame pivoted on said carriage, a knife supported by said swinging frame, a sliding cam-plate held in said carriage by which said swinging frame is raised, and a fixed stop arranged in the path of said cam-plate, whereby said cam-plate is moved against said frame to raise the knife from the work, substantially as described.

5. The combination with a lathe-bed having a track for a carriage, and a carriage moving on said track, means for rotating the work, of a vertically-sliding frame, comprising an oblique rail, a cutter-bar adjustably attached to said oblique rail carried by said frame, a finishing-knife attached to said cutter-bar, and an arm attached to said carriage and having a groove engaging said oblique rail, by which said frame is lowered as the carriage moves along said track, substantially as described.

6. In a wood-turning lathe, the combination with a vertically-sliding frame having an upper oblique rail, a finishing-knife supported by said upper rail, a carriage, means for imparting a feeding motion to said carriage, a die held on said carriage for supporting the work while being turned, and a connecting-arm between said upper oblique rail and said carriage, whereby the frame is moved to carry the finishing-knife against the work by a pulling strain, which is received by said die, substantially as described.

7. The combination with a vertically-sliding frame having an oblique rail L^2, a cutter-bar adjustably attached to said rail and having a transverse dovetailed groove in its central section and a bolt held by said rail and having a dovetailed head inclosed in said groove, and means for adjustably attaching said cutter-bar at its end to said rail, substantially as described.

8. The combination with a tool-carriage having transverse ways, of a pair of dies having carved faces, and arranged to slide in said ways, a right and left hand screw by which said dies are actuated and a knife carried by one of said dies.

678,848. BINOCULAR MICROSCOPE. JOSEPH KROELIX, Rochester, N. Y. Filed Aug. 28, 1900. Serial No. 28,290. (No model.)



Claim.—A binocular stereoscopic microscope provided with an object-support and two tubes each of which has an object-glass portion and an eyepiece portion at an angle thereto, the optical axes of the two object-glass portions intersecting upon the object-support and the distance between the two eyepieces corresponding to the distance between a man's eyes, a separate object-glass for each tube, and a mirror located in each tube at the junction of the two portions thereof upon the outer side of the tube and arranged to throw (by a single reflection) the rays of light coming from the object-glass, toward the eyepiece.

678,849. DUST-PAN. DAVID MITCHELL, New Haven, Conn., assignor of fifty-one one-hundredths to William Reeves and Edwin A. Reeves, same place. Filed Oct. 8, 1900. Serial No. 32,404. (No model.)



Claim.—1. In a dust-pan, the combination with a tray; of a handle secured thereto and means connected with said handle and movable therein for holding the dust-pan either in its flat or elevated position.

2. In a dust-pan, the combination with a tray; of a hollow handle fixed thereto; and a movable weight within the said handle, for maintaining the dust-pan in either its elevated or depressed position.

3. In a dust-pan, the combination with the tray 1 having feet 4 thereon; of a handle 5 closed at each end; and a gravity shiftable weight 7 within the said handle 5.

678,850. RUBBER HOSE. WILLIAM J. COURTNEY, New York, N. Y., assignor to Herman H. Westinghouse, Pittsburg, Pa. Filed Oct. 23, 1900. Serial No. 34,023. (No specimens.)



Claim.—1. A rubber hose having as one of its constituent parts located outside the inner tube a seamless braided fabric casing the threads of which are in close, intimate contact with each other and unseparated by intervening rubber whereby the hose is rendered practically non-elastic or non-stretchable both longitudinally and transversely.

2. A rubber hose having an inner tube, one or more longitudinally-laid reinforcing canvas layers surrounding said inner tube, a rubber tube surrounding said reinforcing layer or layers, and surrounding said last-named rubber tube a seamless braided fabric casing the threads of which are in close, intimate contact with each other and unseparated by intervening rubber whereby the hose is rendered practically non-elastic or non-stretchable both longitudinally and transversely.

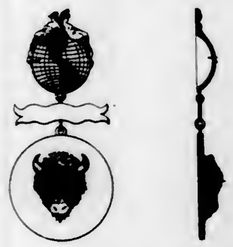
DESIGNS.

34,771. BADGE. LENA BENNETT, New York, N. Y. Filed June 18, 1901. Serial No. 65,067. Term of patent 3½ years.



Claim.—The design for a badge herein shown and described.

34,772. BADGE. WILLIAM R. RYAN, Washington, D. C. Filed June 18, 1901. Serial No. 65,068. Term of patent 3½ years.



Claim.—The design for a badge, substantially as shown and described.

34,773. RING. ARTHUR S. S. PENNELL, Philadelphia, Pa., assignor to John F. Simons and Thomas Maddock, same place, Frederic M. Simons, Swarthmore, Pa., and Edward S. Simons, Orange, N. J., (trading as Simons Bro. & Company.) Filed June 12, 1901. Serial No. 64,936. Term of patent 7 years.



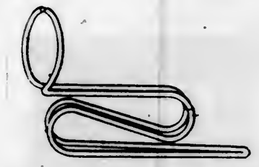
Claim.—The design for a ring substantially as described and shown in the accompanying drawings.

34,774. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. CHRIS SILBER, Meriden, Conn., assignor to International Silver Co., same place. Filed June 21, 1901. Serial No. 65,508. Term of patent 7 years.



Claim.—The design for a handle for spoons, forks and similar articles as herein shown and described.

34,775. HOLDER FOR FOUNTAIN-PENS. RICHARD WELLS COMBER, Egremont, England. Filed May 6, 1901. Serial No. 59,060. Term of patent 7 years.



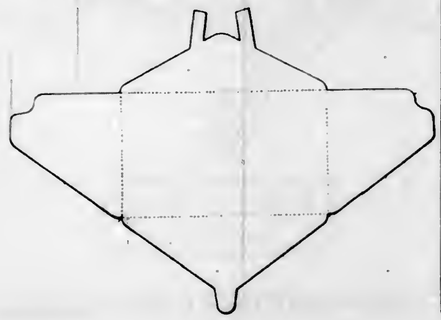
Claim.—The design for a holder for fountain-pens, substantially as shown and described.

34,776. RULER. RICHARD HEARD, Boston, Mass. Filed May 24, 1901. Serial No. 61,814. Term of patent 3½ years.



Claim.—The design for a ruler, as herein shown and described.

34,777. ENVELOP-BLANK. CHARLES E. WILLIAMS, Sheridan, Pa. Filed May 15, 1901. Serial No. 60,401. Term of patent 14 years.



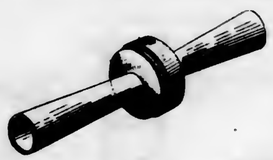
Claim.—The design for an envelop-blank, substantially as described.

34,778. PIPE. HENRY T. BAYNES, Buffalo, N. Y. Filed Mar. 20, 1901. Serial No. 52,104. Term of patent 3½ years.



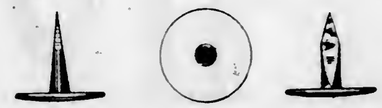
Claim.—The design for a pipe, substantially as herein shown and described.

34,779. INHALER. JOHN J. MCPHERSON, Montgomery, Ala. Filed Apr. 29, 1901. Serial No. 58,092. Term of patent 7 years.



Claim.—The design for an inhaler, as herein shown and described.

34,780. BUTTON-FASTENER. GEORGE J. CAPEWELL, Hartford, Conn. Filed Apr. 2, 1901. Serial No. 54,090. Term of patent 14 years.



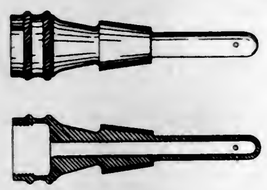
Claim.—The design for a button-fastener herein shown and described.

34,781. CUP. VICTOR FRIEMBERG, Atlantic City, N. J. Filed June 19, 1901. Serial No. 65,307. Term of patent 7 years.



Claim.—The design for a cup, as herein shown and described.

34,782. BOTTLE-FILLING NOZZLE. JOHN H. FOX, New York, N. Y. Filed Apr. 30, 1901. Serial No. 56,796. Term of patent 7 years.



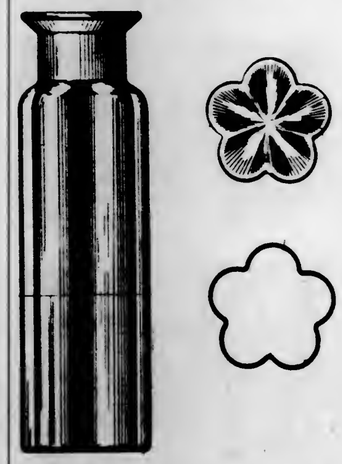
Claim.—The design for a bottle-filling nozzle as herein shown and described.

34,783. BOTTLE. JOHN SCHIRR, Anderson, Ind. Filed June 12, 1901. Serial No. 64,338. Term of patent 14 years.



Claim.—The design for a bottle as herein shown and described.

34,784. BOTTLE. FRANK MACMONNIES, New York, N. Y. Filed June 14, 1901. Serial No. 64,506. Term of patent 14 years.



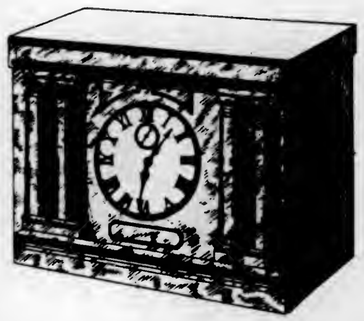
Claim.—The design for a bottle, substantially as herein shown and described.

34,785. BOX. GEORGE RENNINGER, Glenside, Pa., assignor to Philip Wunderle, Edgehill, Pa. Filed May 20, 1901. Serial No. 61,189. Term of patent 3½ years.



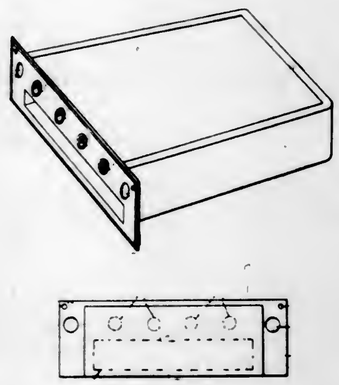
Claim.—The design for a box substantially as shown and described.

34,786. BOX. GEORGE RENNINGER, Glenside, Pa., assignor to Philip Wunderle, Edgehill, Pa. Filed May 20, 1901. Serial No. 61,190. Term of patent 3½ years.



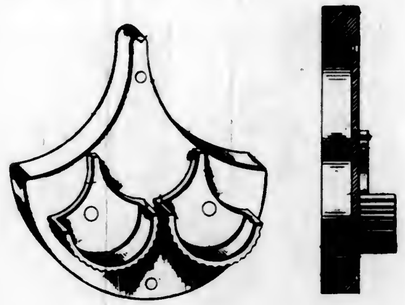
Claim.—The design for a box substantially as shown and described.

34,787. DESK-BOX. DAVID L. R. PETERSON, East Orange, N. J. Filed Apr. 15, 1901. Serial No. 56,014. Term of patent 7 years.



Claim.—The design for a desk-box as herein shown and described.

34,788. BROOM-HOLDER. JOHN F. MARTIN, Marshall, Mich., assignor of one-half to Wallace E. Marston, same place. Filed Apr. 8, 1901. Serial No. 54,954. Term of patent 14 years.



Claim.—The design for a broom-holder, as herein shown and described.

34,789. RADIATOR-CLEANING BRUSH. ESTELLE A. BOYDEN, Worcester, Mass. Filed Apr. 9, 1900. Serial No. 12,365. Term of patent 7 years.



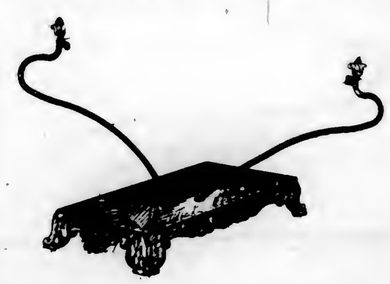
Claim.—The design for a radiator-cleaning brush, substantially as shown.

34,790. CURTAIN OR SHADE PULL. THOMAS C. RICHARDS, Winsted, Conn. Filed May 17, 1901. Serial No. 60,773. Term of patent 7 years.



Claim.—The design for a curtain or shade pull herein shown and described.

34,791. SUPPORT FOR HAMMOCKS. NATHAN SMITH, Elizabeth, N. J., assignor of one-half to John F. Kenah, same place. Filed June 4, 1901. Serial No. 63,167. Term of patent 7 years.



Claim.—The design for a support for hammocks, as herein shown and described.

34,792. METAL BAR. CLARENCE COLE, Troy, N. Y. Filed June 4, 1900. Serial No. 19,085. Term of patent 14 years.



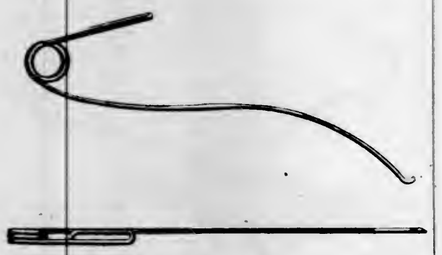
Claim.—The design for a metal bar herein shown and described.

34,793. GRAIN-GRINDER. EDGAR C. LITCHFIELD and HENRY L. LITCHFIELD, Webster City, Iowa. Filed May 13, 1901. Serial No. 60,125. Term of patent 14 years.



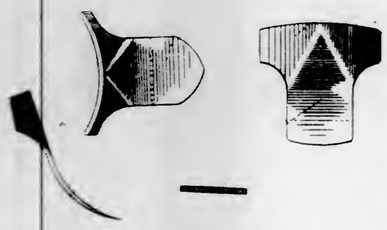
Claim.—The design for a grain-grinder, as herein shown and described.

34,794. SPRING FOR BINDER-DECKS. GEORGE STOEBER, O'Brien county, Iowa. Filed May 20, 1901. Serial No. 61,203. Term of patent 14 years.



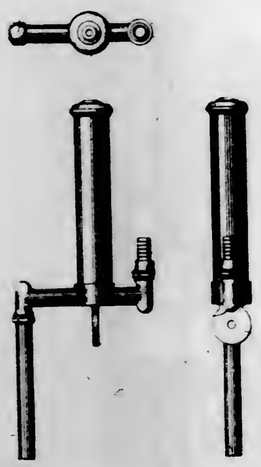
Claim.—The design for a spring for binder-decks, as herein shown and described.

34,795. PLOW-SHOVEL. CHARLES M. CARTER, Cuming City Precinct, Nebr., assignor of one-half to Alfred R. Carter, Havana, Cuba. Filed June 4, 1901. Serial No. 63,173. Term of patent 14 years.



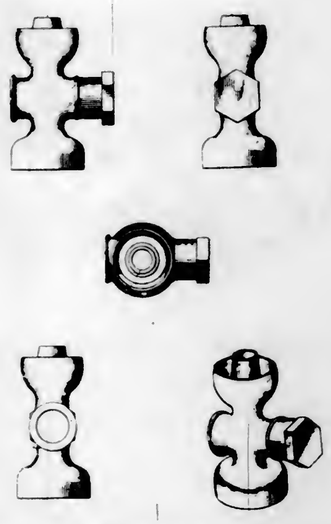
Claim.—The design for a plow-shovel, as herein shown and described

34,796. PUMP MEMBER. PHILIP GOULD, Philadelphia, Pa. Filed May 14, 1901. Serial No. 60,348. Term of patent 7 years.



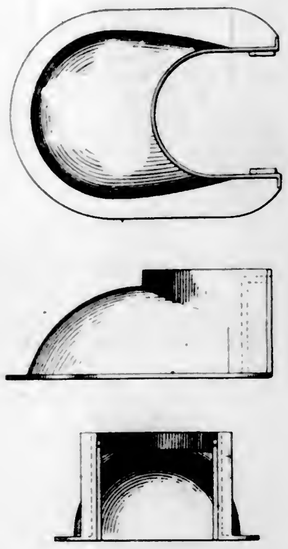
Claim.—The design for a pump member, substantially as herein shown and described.

34,797. BODY FOR STOP-COCKS. ROLAND MORRILL, Benton Harbor, Mich. Filed June 14, 1901. Serial No. 64,594. Term of patent 14 years.



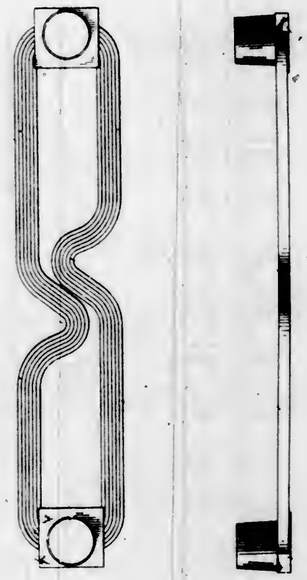
Claim.—The design for the body of a stop-cock substantially as herein shown and described.

34,798. CASING FOR CATCH-BASINS. JAMES BARWELL, Cleveland, Ohio, assignor of two-thirds to C. W. Hokes and George Counter, same place. Filed June 17, 1901. Serial No. 64,960. Term of patent 14 years.



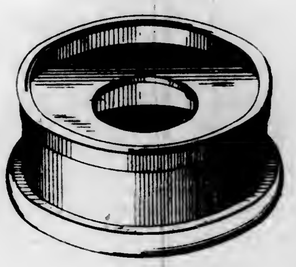
Claim.—The design for a catch-basin casing, substantially as shown and described.

34,799. RAIL-BOND. CHARLES J. MAYER, Philadelphia, Pa. Filed Nov. 15, 1899. Serial No. 737,134. Term of patent 14 years.



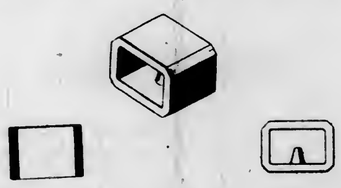
Claim.—The design for a rail-bond as herein shown and described.

34,800. CASING FOR ELECTRICAL METERS. EDWARD W. JEWELL, Chicago, Ill. Filed May 24, 1899. Serial No. 717,964. Term of patent 14 years.



Claim.—The design for the casing of an electrical meter, substantially as described.

34,801. SINGLE HARNESS-LOOP. NATHANIEL COLE, Ottawa, Ill. Filed Jan. 18, 1901. Serial No. 43,815. Term of patent 7 years.



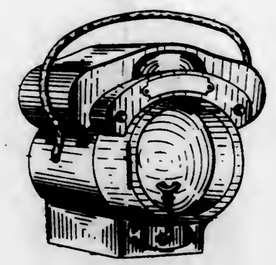
Claim.—The design for a single harness-loop, substantially as herein shown and described.

34,802. CARRIAGE TIRE AND RIM. WOODBURN LAGENUIR, New York, N. Y. Filed June 19, 1899. Serial No. 721,143. Term of patent 7 years.



Claim.—The design for a carriage tire and rim, substantially as herein shown and described.

34,803. CARRIAGE-LAMP. CHARLES BILLY, Paris, France. Filed Apr. 15, 1901. Serial No. 56,086. Term of patent 7 years.



Claim.—The design for a carriage-lamp herein shown and described.

34,804. MANTLE-HOLDER. RALPH COHEN, Bayonne, N. J. Filed June 3, 1901. Serial No. 63,812. Term of patent 7 years.



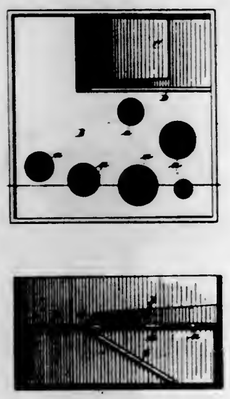
Claim.—The design for the mantle-holder herein shown and described.

34,805. CASE FOR JACK-IN-A-BOX OR SIMILAR ARTICLES. THEODORE L. POPP and CARL F. GEYER, Buffalo, N. Y., assignors to Charles Galeaski, same place, and William Margulis, Detroit, Mich. Filed June 21, 1901. Serial No. 65,512. Term of patent 3½ years.



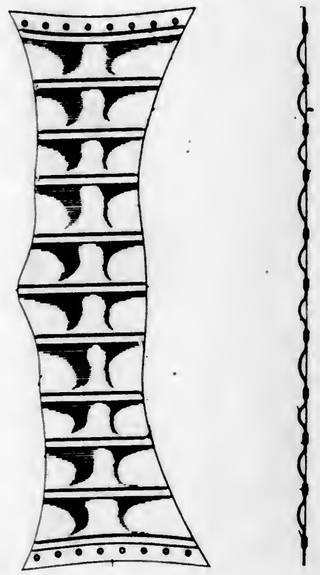
Claim.—The design for the case of a jack-in-a-box or similar article, substantially as herein shown and described.

34,806. PUZZLE-BOX. CATHERINE VIOLA WILBRAHAM, New York, N. Y. Filed May 24, 1901. Serial No. 61,315. Term of patent 3½ years.



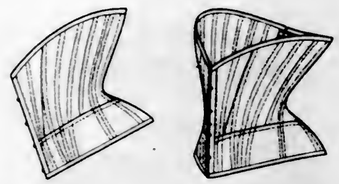
Claim.—The design for a puzzle-box, substantially as shown and described.

34,807. CORSET AND WAIST LENGTHENER. ELLA K. PILLING, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,481. Term of patent 7 years.



Claim.—The design for a corset and waist lengthener, as herein shown and described.

34,808. CORSET. JOHN M. VAN ORDEN, Newark, N. J. Filed Apr. 22, 1901. Serial No. 57,082. Term of patent 14 years.



Claim.—The design for a corset substantially as herein shown and described.

TRADE-MARKS

REGISTERED JULY 16, 1901.

36,730. BADGES. HARVEY & OTIS, Providence, R. I. Filed June 14, 1901.



Essential feature.—The representation of a bee and the capital letters "K. O. T. M." Used since June 1, 1901.

36,731. CHAINS, WATCHCASES, JEWELRY, AND METAL INGOTS. CHARLES H. STONE, New York, N. Y. Filed May 18, 1901.

L.M. & CO. Ltd

Essential feature.—The letters "L. M.," an ampersand, and the abbreviations "CO." and "LTD." Used since May 1, 1901.

36,732. PLAYING-CARDS. THE UNITED STATES PLAYING CARD CO., Cincinnati, Ohio. Filed June 6, 1901.



Essential feature.—The representation of interlocked rings or tires. Used since October 24, 1900.

36,733. COLLARS, CUFFS, AND SHIRT-FRONTS. (PLASTRONS.) F. PETER'S NACHFOLGER, a Firm, Vienna, Austria-Hungary. Filed June 3, 1901.



Essential feature.—A triangle with an inscribed ring crossed by small circles. Used since August 29, 1899.

36,734. OVERSHIRTS. S. LIEBOVITZ & SON, New York, N. Y. Filed June 24, 1901.



Essential feature.—Two spaced lines with a series of oblique lines between them. Used since January 21, 1901.

36,735. CORSETS. JOHN M. VAN ORDEN, Newark, N. J. Filed June 20, 1901.

LA GRECQUE

Essential feature.—The words "LA GRECQUE." Used since January 1, 1899.

36,736. CERTAIN NAMED WEARING-APPAREL. STERN & AB. KIRSCHBAUM & Co., New York, N. Y. Filed May 15, 1901.



Essential feature.—The representation of links of a chain. Used since April 9, 1901.

36,737. HOSIERY. SLEAR BROS., Sunbury, Pa. Filed June 13, 1901.

BROTHERHOOD

Essential feature.—The word "BROTHERHOOD." Used since March 14, 1901.

36,738. MEN'S AND WOMEN'S TURN AND WELT SHOES. FREDERICK IRVING DOW, Haverhill, Mass. Filed June 11, 1901.



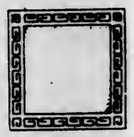
Essential feature.—The word "OUTERSITE" and the representation of an eclipse. Used since June 1, 1901.

36,739. CERTAIN NAMED FOOTWEAR. PARKER, HOLMES & Co., Boston, Mass. Filed Mar. 11, 1901.

Beauté

Essential feature.—The word "BEAUTÉ." Used since August 1, 1900.

36,740. COTTON GOODS. KOSUKE YOKOO, New York, N. Y. Filed May 23, 1901



Essential feature.—The representation of a decorated plate in the form of a breast-piece. Used since May 17, 1901.

36,741. COTTON GOODS. KOSUKE YOKOO, New York, N. Y. Filed May 23, 1901.



Essential feature.—The representation of a pair of riderless horses and the representation of a tree. Used since May 17, 1901.

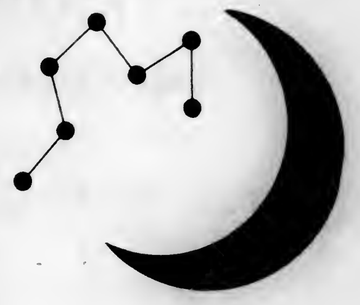
36,742. COTTON GOODS. KOSUKE YOKOO, New York, N. Y. Filed May 23, 1901.



Essential feature.—The representation of a pair of deer and a tree representation. Used since May 17, 1901.

36,743. COTTON GOODS. TATA & Co., Bombay, India, and New York, N. Y. Filed May 30, 1901.

36,748.



Essential feature.—The representation of a crescent and seven disks. Used since February 1, 1901.

36,744. CERTAIN NAMED MEDICAL COMPOUNDS AND TOILET PREPARATIONS. VICTOR BENEWALL, Worcester, Mass. Filed June 10, 1901.

CASSINETT

Essential feature.—The word "CASSINETT." Used since June, 1891.

36,745. HAIR-TONIC OR HAIR-RENEWER. SAMUEL ALLEN RICHMOND, San Francisco, Cal. Filed June 24, 1901.

PARASITINE

Essential feature.—The word "PARASITINE." Used since March 1, 1901.

36,746. PROPRIETARY MEDICINE. OKLAHOMA DRUG Co., Oklahoma City, Okla. Filed Apr. 6, 1901.

Quin-India

Essential feature.—The trade-name "QUIN-INDIA." Used since March 1, 1900.

36,747. TONIC. KNOLL & Co., Ludwigshafen, Germany. Filed June 19, 1901.

Triferrin

Essential feature.—The word "TRIFERRIN." Used since May 16, 1900.

36,748. TONIC. ANDREW MCNALLY, Chicago, Ill., and La Mirada, Cal. Filed June 14, 1901.

Kitro

Essential feature.—The word "KITRO." Used for about three years.

36,749. REMEDY FOR A CERTAIN NAMED DISEASE. VERUS PILE CURE COMPANY, Los Angeles, Cal. Filed Feb. 18, 1901.



Essential feature.—The word "VERUS." Used since October 3, 1898.

36,750. REMEDY FOR ASTHMA. ELLA M. BARTON, Poughkeepsie, N. Y. Filed June 11, 1901.



Essential feature.—The representation of a pan of fire and a seal. Used since April 2, 1901.

36,751. REMEDY FOR INDIGESTION. HARRY CLIFTON HILL, Buffalo, N. Y. Filed June 1, 1901.

P.I.C.

Essential feature.—The letters "P I C." Used since April 1, 1901

36,752. CERTAIN NAMED MEDICAL PREPARATION. THE GEER DRUG Co., Charleston, S. C. Filed May 16, 1901.

36,752.

Bromalgia

Essential feature.—The word "BROMALGIA." Used since July 1, 1900.

36,753. CERTAIN NAMED MEDICAL COMPOUNDS. BURR CHADWICK, Smethport and Bradford, Pa. Filed May 13, 1901.

Burr Chadwick M.D.

Essential feature.—The facsimile of the registrant's signature. Used since February, 1901.

36,754. INTERNAL REMEDY IN SOLID FORM. WILLIAM CHAS. ALPERS, New York, N. Y. Filed Apr. 18, 1901.

SODACOL

Essential feature.—The word "SODACOL." Used since April, 1900.

36,755. MEDICAL COMPOUNDS FOR INTERNAL USE. THE RESOR PHARMACAL Co., Worcester, Mass. Filed June 12, 1901.

REPOSIA

Essential feature.—The word "REPOSIA." Used since July 1, 1900.

36,756. RHEUMATISM AND KIDNEY CURE. JOHN W. TREFRY, Yarmouth, Canada. Filed June 7, 1901.



Essential feature.—The representation of a bunch or bouquet of flowers of clover, dandelion, and thistle, with their roots. Used since September 9, 1899.

36,757. DRUG FOR THE TREATMENT OF DRUNKENNESS AND DRUG HABIT. VINCENT NEWTON TURVEY, London, England. Filed June 24, 1901.

TACQUARU

Essential feature.—The word "TACQUARU." Used since July, 1900.

36,758. TOOTHPICKS. VICTOR FLORENTIN GABRIEL CHARAVEL, Paris, France. Filed Mar. 18, 1901.



Essential feature.—The representation of a peacock. Used since February 27, 1901.

36,759. MATCHES. THE PENNSYLVANIA MATCH CO., Bellefonte, Pa. Filed June 21, 1901.

SUNLIGHT.

Essential feature.—The word "SUNLIGHT." Used since March 3, 1900.

36,760. MATCHES. THE PENNSYLVANIA MATCH CO., Bellefonte, Pa. Filed June 21, 1901.

QUAKER.

Essential feature.—The word "QUAKER." Used since March 20, 1900.

36,761. PRESERVATIVES AND MEAT BINDERS AND FILLERS. HERMAN F. SHEVATHES, Fargo, N. D. Filed June 1, 1901.

Essential feature.—The word "FROSTINE." Used since May, 1893.

FROSTINE

Essential feature.—The word "FROSTINE." Used since May, 1893.

36,762. LAGER-BEER. DUQUESNE BREWING CO., Pittsburg, Pa. Filed June 13, 1901.



Essential feature.—The representation of a stone fort. Used since May 1, 1900.

36,763. ALE, WINE, STOUT, AND BEER. HARRY A. HUNTER, Minneapolis, Minn. Filed June 11, 1901.



Essential feature.—The representation of a whale floating upon a body of water and in the act of spouting. Used since June 1, 1901.

36,764. DRY FEED. FRIEDERS & WORKUM, Cincinnati, Ohio. Filed May 23, 1901.

Protegran

Essential feature.—The word "PROTEGRAN." Used since May 1, 1899.

36,765. SUGAR. THE CEREAL SUGAR CO., St. Louis, Mo. Filed June 24, 1901.



Essential feature.—The representation of a bunch of grapes associated with the representation of a section of sugar-cane. Used since May, 1901.

36,766. POWDERED STOVE-POLISH. THE UNITED STATES GRAPHITE COMPANY, Saginaw, Mich. Filed Mar. 5, 1901.



Essential feature.—The representation of a hand holding a box or package having perforations in its end. Used since February 23, 1901.

36,767. CERTAIN NAMED PRINTERS' SUPPLIES. BARNHART BROS. & SPINDLER, Chicago, Ill. Filed June 12, 1901.



Essential feature.—The representation of a circle containing an acute angle and a dot arranged between the sides of the angle. Used since January 1, 1881.

36,768. PRINTING AND LITHOGRAPHIC INKS. THE FOOTE & DAVIS MFG. CO., New York, N. Y. Filed June 12, 1901.

MONOGRAM

Essential feature.—The word "MONOGRAM." Used since October 1, 1900.

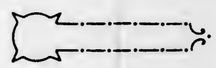
36,769. CERTAIN NAMED METAL WARE. ROGER WILLIAMS SILVER COMPANY, Providence, R. I. Filed June 14, 1901.

Essential feature.—The capital letters "R W" in monogram form. Used since June 1, 1901.

36,770. CERTAIN NAMED METAL WARE. ROGER WILLIAMS SILVER COMPANY, Providence, R. I. Filed June 14, 1901.

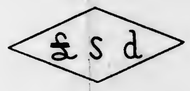
Essential feature.—The bust-portrait of a man in Puritan garb. Used since June 1, 1901.

36,771. STEEL. EDGAR ALLEN & CO., LTD., Sheffield, England. Filed Apr. 6, 1901.



Essential feature.—The representation of a spiked club. Used since December 18, 1885.

36,772. CERTAIN NAMED TOOLS AND DEVICES. EDGAR ALLEN & CO., LTD., Sheffield, England. Filed Apr. 6, 1901.



Essential feature.—The combination of the letters or signs "£. s. d." within a lozenge-stamped border. Used since 1879.

36,773. CUTLERY. S. HENRY & SON, New York, N. Y. Filed Mar. 11, 1901.

36,773.



Essential feature.—The word "IVY" or the representation of ivy. Used since December 15, 1900.

36,774. TALKING-MACHINES AND ACCESSORIES. ELDRIDGE R. JOHNSON, Camden, N. J. Filed June 15, 1901.

MONARCH

Essential feature.—The word "MONARCH." Used since January, 1901.

36,775. SEWING-MACHINES. MILLER, SLOSS & SCOTT, San Francisco, Cal., and New York, N. Y. Filed June 13, 1901.

STILETTO

Essential feature.—The word "STILETTO." Used since October 1, 1900.

36,776. ENAMELS, PAINTS, VARNISHES, AND STAINS. GENSTHÜRFER BROS., New York, N. Y. Filed June 21, 1901.

G

Essential feature.—The letter "G." Used since May 1, 1889.

36,777. CEMENT. WM. KRAUSE & SONS CEMENT CO., Philadelphia and Martins Creek, Pa. Filed May 2, 1901.



Essential feature.—The letter "K," having a bar-like field arranged across it and ribbon-like fields arranged in curved lines above and below the straight bar. Used since January, 1900.

36,778. PAPER SHOT-SHELLS. THE UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn., and New York, N. Y. Filed June 24, 1901.

MAJESTIC

Essential feature.—The word "MAJESTIC." Used since June 1, 1901.

36,779. CERTAIN NAMED PERFUMERY. THE GEORGE LOEHNE COMPANY, East Orange, N. J., and Toledo, Ohio. Filed June 1, 1901.

TRIUMPH

Essential feature.—The word "TRIUMPH." Used since May 1, 1900.

THE NORRIS PETERS CO. PHOTO-LITH WASHINGTON, D. C.

LABELS

REGISTERED JULY 16, 1901.

8,532.—*Title:* "SPEEDWAY CLUB." (For Whisky.) FRANK MCKERNAN, Philadelphia, Pa. Filed June 13, 1901.

8,533.—*Title:* "MEISCH." (For Wine.) THE MEDOC VINEYARD CO., Littleton, N. C. Filed June 21, 1901.

8,534.—*Title:* "SCUPPERNONG." (For Wine.) THE MEDOC VINEYARD CO., Littleton, N. C. Filed June 21, 1901.

8,535.—*Title:* "COMET 'SEC.'" (For Wines.) A. WERNER & CO., New York, N. Y. Filed June 21, 1901.

8,536.—*Title:* "EXPORT." (For Bottled Beer.) F. F. ROHN, Milwaukee, Wis. Filed June 24, 1901.

8,537.—*Title:* "ELK." (For Coffee.) THE DOLAN MERCANTILE CO., Atchison, Kans. Filed June 25, 1901.

8,538.—*Title:* "ST. NICHOLAS MOCHA AND JAVA." (For Coffee.) W. H. HARRISON & CO., Cincinnati, Ohio. Filed June 26, 1901.

8,539.—*Title:* "JENNY LIND." (For Cigars.) SAMUEL SAQUI, New York, N. Y. Filed June 12, 1901.

8,540.—*Title:* "PHOTO." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed June 25, 1901.

8,541.—*Title:* "PEPSINO." (For a Breath-Perfume.) THE PEPSINO CO., Covington, Ky. Filed June 12, 1901.

8,542.—*Title:* "SLATER'S AUSTRALIAN RHEUMATISM CURE." (For a Medicine.) ARTHUR SLATER, New Decatur, Ala. Filed June 3, 1901.

8,543.—*Title:* "CANADIAN HERBS." (For a Medicine.) HERRICE HEWITT ROCHE, Kingston, Canada. Filed June 21, 1901.

PRINTS

REGISTERED JULY 16, 1901.

371.—*Title:* "OFFICIAL FIRE INSURANCE RECORD WATCHMAN'S IMPROVED TIME DETECTOR." (For Watchmen's Improved Time-Detectors.) ROBERT KOPP, New York, N. Y. Filed June 24, 1901.

372.—*Title:* "THE NATIONS' CHOICE." (For Suspenders.) ATWOOD SUSPENDER CO., Swanton, Vt. Filed June 21, 1901.

373.—*Title:* "WILL DO WHAT NO OTHER SOAP CAN DO." (For Soap.) FORBES LITHOGRAPH MANUFACTURING COMPANY, Boston, Mass. Filed June 5, 1901.

374.—*Title:* "THE PAINT UNCLE SAM USES." (For Mixed Paints.) THE NATIONAL PAINT & VARNISH CO., Cleveland, Ohio. Filed June 19, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BRILL AND BRILL *v.* HUNTER.

Decided May 9, 1901.

1. BURDEN OF PROOF—RIGHT TO MAKE THE CLAIM—APPEAL.

Held that the question whether the invention in issue was disclosed in a prior application, of which the one in interference is claimed to be a division, raised by a motion to shift the burden of proof is an interlocutory matter which will be considered upon direct appeal. It does not directly involve the right to make the claim, although the conclusion which is reached may indirectly affect that question.

2. EXAMINERS-IN-CHIEF—EX PARTE DECISION NOT BINDING ON EXAMINER IN INTERFERENCE.

Where on an *ex parte* appeal the Examiners-in-Chief held that H.'s application was a proper division of a prior application and that amendments to the prior case disclosing the subject-matter of the later did not involve new matter, *Held* that the Examiner should not consider such decision as absolutely binding upon him without considering the merits of the question when raised *inter partes* on a motion.

3. BURDEN OF PROOF—DIVISIONAL APPLICATIONS—DISCLOSURE IN ORIGINAL CASE.

Where an application in interference is claimed to be a division or continuation of a previous application, but it appears that the subject-matter of the issue was not disclosed in the original case as filed, *Held* that the applicant is not entitled to the date of the original case as fixing the burden of proof.

4. SAME—SAME—SAME.

Where the issue is limited to two springs for each motor, one above and the other below, and each bearing upon the free end of the motor, and the original case, of which this is claimed to be a continuation, disclosed merely a single plate-spring for each motor and said that a coil or other form of spring could be substituted for it, *Held* that the original case did not disclose the invention in issue and that the applicant is not entitled to its date.

5. DISCLOSURE OF INVENTION—NEW MATTER—RIGHT TO MAKE CLAIM.

Held that the vague and general statement that a coil-spring could be substituted for the spring shown without specifying the arrangement does not furnish a basis for claiming a particular arrangement which can be made by the use of coil-springs when it appears that other arrangements could be made.

6. SAME—SAME—FIRST INVENTOR OF GENERIC INVENTION.

Where a party claims to be the first inventor of the generic invention, *Held* that this if true does not entitle him to claim specific forms not disclosed in his application.

APPEAL on motion.

ELECTRICALLY-PROPELLED VEHICLES.

Patent granted John A. and George M. Brill November 24, 1896, No. 571,825. Application of Rudolph M. Hunter filed November 15, 1898, No. 696,513.

Mr. Joseph L. Levy and *Messrs. Wilkinson and Fisher* for Brill and Brill.

Mr. Rudolph M. Hunter, pro se.

ALLEN, *Commissioner:*

This case comes up on appeal by Brill and Brill from the decision of the Primary Examiner denying their motion to shift the burden of proof in the above-entitled interference.

It appears that in the declaration of interference it was stated that Hunter's application here involved is a division of his application, No. 217,346, filed October 27, 1886, which resulted in Patent No. 638,966, and by reason of that statement Hunter was made the senior party. The Examiner of Interferences considering October 27, 1886, as Hunter's filing date awarded priority of invention to him on the record. Brill and Brill thereafter made a motion to dissolve and a motion to shift the burden of proof. The motion to dissolve was granted by the Primary Examiner and that matter is now on appeal to the Examiners-in-Chief. The motion to shift the burden of proof was denied, and it is from the decision on that question that the present appeal is taken.

Brill and Brill contend that Hunter's original application, No. 217,346, as filed did not disclose the invention now in controversy and that therefore Hunter is not entitled to its date as the date when he filed an application "clearly illustrating and describing the invention," as provided in Rule 116. They contend that the date of that application should not be considered in fixing the burden of proof under the rule and have filed an exhaustive brief in support of their contention.

In passing upon the motion the Examiner apparently did not go into the question whether or not Hunter's original application disclosed the invention and give his independent judgment on the matter, but he said:

> The Examiner is disposed to regard the decision of the Board in the Hunter case, on May 7, 1900, as settling the status of the present Hunter case as a divisional part of the earlier case.

The decision of the Board referred to was rendered on an *ex parte* appeal in Hunter's case, and upon that appeal the Examiner took the position that the present case was not a division and continuation of the prior case as to the matter now in issue. On the present motion he apparently regarded the decision of the Board as absolutely binding upon him; but in this he was in error, as fully set forth in *Painter* v. *Hall*, (80 O. G., 1124.)

The Board's decision was entitled to weight and respect, but was not binding upon him even if it be held to have covered the particular question now presented.

The Board of Examiners-in-Chief said in the decision referred to:

> The Examiner holds that additional matter has been inserted into the case which makes it different from the construction illustrated in the original application, this different construction lying in the fact that the statement in the original specification that a coiled or other form of spring could easily be adapted to this construction in place of the flat spring shown did not intimate that a series of four coiled springs such as are now shown in the application was an equivalent for the flat two-arm spring.
>
> We have already considered this question in appeal No. 20,850, decided January 6, 1898, and recorded in Vol. 61, MS. decisions of the Examiners-in-Chief, p. 571. In that decision we expressed our opinion that the construction of coiled springs now illustrated in the drawings did not constitute a departure from the invention as originally described. It does not follow that because every feature of the device shown in the second application does not appear in the original, it is not entitled for many purposes to be considered a "divisional" application or a continuation thereof to the extent that it is entitled to the date of the first application.

The decision referred to upon which this decision was based was rendered in case No. 217,346 on the question whether Hunter should be permitted in that case to introduce an illustration of the construction now in issue. The Examiners-in-Chief stated that they were in doubt whether they had jurisdiction to pass on the question, since no claim was made to the matter; but they announced it as their opinion that the illustration did not involve new matter. In his appeal in that case Hunter laid stress upon the fact that he did not claim the invention, saying:

> I am pointed at as if I were surreptitiously trying to take or steal Brill's invention. It is an absurd position for the Examiner to assume. I am not "claiming" the construction, but having referred to it in the specification it must be illustrated. I insist upon my right to illustrate it. That is all.

The first ruling in regard to the question now a issue was therefore obtained by Hunter when the matter was not of great importance, but was a mere question of illustration. His statement above quoted made at that time might naturally lead one to suppose that he did not intend to make claim to the matter which he sought to introduce. The surrounding circumstances are very different now, and the matter is of vital importance to the rights of Brill and Brill. In the light of the changed conditions it would be manifestly unjust to Brill and Brill to accept the *ex parte* ruling of the Examiners-in-Chief as conclusive without considering the merits of the question.

Hunter argues in his supplemental brief that the question whether or not his present application is a division and continuation of his prior case should not be considered upon this appeal, since it involves his right to make the claims, and therefore relates to the merits. This contention is not well founded, since his right to make the claims is not directly involved, but merely the question upon whom the burden of proof shall be placed. The question of shifting the burden of proof is under the well-settled practice of the Office a matter which will be reviewed by the Commissioner upon appeal, and the contention that the decision which is rendered may in an indirect way affect the question of a party's right to the claims is no good reason for departing from the settled practice. This contention might be made in nearly every case, since the question when a party first filed an application may be of importance in any case in determining whether he is entitled to a patent. It is not alone decisive of that question, however, and is therefore a proper matter to be considered upon an interlocutory appeal.

In his original application, No. 217,346, Hunter disclosed a plate-spring the end of which was attached to the motor, so as to normally retain the motor in one position, but to permit it to move in either direction a short distance by bending the spring in one direction or the other. In this way shock and jar were avoided in starting the motor whether the car was to move forward or backward. The only statement which could be or has been held to disclose the issue of the present interference was the statement that—

> a coil or other form of spring could easily be adapted to this construction in place of the flat plate-spring shown.

There was no description whatever how the coil-spring was to be arranged or how it was to be attached to the motor; but on the authority of that vague and general statement Hunter contends that the disclosure in that case furnishes a proper basis for the specific claims of the present interference. He argues that the present construction is the only one and the natural and obvious construction which would be made by a mechanic in carrying out the suggestion in his specification; but in this I cannot agree with him. The statement suggested the use of a coil-spring, and even if this be construed as meaning a separate spring for each motor, as in my opinion it should, it clearly does not indicate in any way that there were to be two springs for each motor, as set forth in the issue, or that those springs were to be arranged in the manner now shown and claimed. It would seem to be possible to use a single coil-spring for each motor to accomplish the result sought—for instance, one which would operate in one direction by tension and in the other direction by compression. Such a spring could be placed in the position of the arm J' shown in Hunter's drawing.

The counts of the present issue include, specifically, two springs for each motor, one above and the other below, and each bearing upon the free end of the motor. The second and third counts cover other specific features not disclosed in Hunter's original case, including a guide for the springs. None of the counts set forth specifically that the springs are coil-springs; but they are merely drawn to cover an arrangement of parts which seems to be novel. The use of a coil-spring was all that was suggested by Hunter, and I am clearly of the opinion that it cannot properly be considered a disclosure of the specific arrangement of parts now in issue.

Hunter claims in his brief to be the first inventor of the generic invention to which the present device relates and lays much stress upon that fact; but in so far as the present controversy is concerned that question is immaterial. The present issue does not cover the invention generically, but is limited to certain specific features which cannot be regarded as immaterial so long as they are included in the claims, and those features were not disclosed in Hunter's application, No. 217,346, as filed.

It is held that the mere suggestion of the use of a coil-spring in Hunter's original case cannot be considered as "clearly illustrating and describing the invention" now in controversy and that therefore he is not entitled to the date of that application in this proceeding under Rule 116.

The decision of the Primary Examiner is reversed and Brill and Brill's motion to shift the burden of proof is granted.

EX PARTE CROSS.

Decided May 16, 1901.

TRADE-MARK—GEOGRAPHICAL—"ST. JOHNSBURY."

A mark for crackers consisting of the representation of a cracker with the word "St. Johnsbury" printed thereon in dotted letters, *Held* essentially geographical and not registrable.

ON appeal.

TRADE-MARK FOR CRACKERS.

Application of George H. Cross for registration filed February 18, 1901, No. 62,714.

Messrs. Munn & Co. for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register as a trade-mark for crackers—

> the representation of a cracker in plan view and the word "St. Johnsbury" printed in dotted letters diametrically across the same in a straight line.

St. Johnsbury, Vt., is the place where the applicant for registration resides and where the crackers sold by him are manufactured, and therefore under well-settled law the word "St. Johnsbury" alone is not a valid trade-mark. Any person manufacturing crackers at that place would have the right to mark them "St. Johnsbury."

The appellant contends that the peculiarity in the lettering of the word and its position on the cracker or the representation of a cracker render his mark arbitrary and distinctive, and hence registrable. This contention is not sound, however, since this Office will take judicial notice of the fact that one of the well-known and ordinary ways of placing a mark on a cracker or similar article is by making depressions in its surface in the form of dots. In all such cases the thing which attracts the attention of purchasers is the mark or word which is produced and not the mere manner of its production. As above stated, others have the right to use the word "St. Johnsbury" upon crackers, and they have the right to print it in the well-known way disclosed by the appellant. The essential feature of such a mark is the word "St. Johnsbury," which is geographical and not registrable.

A mere picture of the cracker which the appellant makes is not registrable as a trade-mark.

The decision of the Examiner of Trade-marks is affirmed.

REECE v. FENWICK.

Decided May 27, 1901.

1. INTERFERENCE—RIGHT TO INSPECT APPLICATION—RULE 105.

Where a party relies upon a prior application, of which the one in interference is said to be a division, *Held* that the opposing party is entitled to see and obtain copies of the prior case unless the applicant takes advantage of Rule 105 and files certified copies of the parts relating to the invention in interference.

2. SAME—SAME—WITHHOLDING KNOWLEDGE FROM OPPONENT.

After the declaration of an interference each party has rights with respect to the other's application which he did not previously have and is not to be treated as a stranger without interest; but at the same time each is entitled to withhold from the other a knowledge of any part of his invention contained in the application which is not involved in or does not in any way relate to the subject-matter of the interference.

3. CONSTRUCTION OF RULE 105—DIVISIBLE INVENTION.

The words "part only of the invention" and "part or parts of the specification, claims, and drawings which cover the interfering matter" in Rule 105 mean everything contained in the original application except what may relate to a separate and independent invention, such as could be properly divided therefrom and sent to patent before the termination of the interference proceedings.

4. INTERFERENCE—COPIES OF PARTS IN INTERFERENCE.

Where a party furnishes certified copies of parts of his application and it appears that the disclosure therein is sufficient to enable his opponent to intelligently determine all of the questions which he is entitled to raise by motions, *Held* that the copy is sufficient and may be used in place of the original.

ON petition.

FOLDING-MACHINE.

Application of George Reece filed June 13, 1900, No. 20,125. Application of Albert D. Fenwick filed February 15, 1901, No. 47,440½.

Messrs. Crosby & Gregory for Reece.

Mr. George N. Goddard for Fenwick.

MOORE, *Assistant Commissioner:*

This is a petition by Reece, one of the parties to this interference—

> • • • that the Primary Examiner be instructed to permit said Reece and his attorneys to inspect, and if they so desire, obtain a full and complete copy of the application of said Fenwick, Serial No. 9,202, filed March 19, 1900, of which the application of said Fenwick in this interference (Serial No. 47,440½, filed February 15, 1901) is stated to be a division.

It appears that the application of Reece was found on examination to be allowable, and on January 30, 1901, he was informed of this fact by the Examiner, and, further, that there was a possible interference with another pending application.

On the same date Fenwick was informed, under Rule 96, that six of the claims found to be allowable to Reece could be made by him, and copies of said claims were duly furnished to Fenwick.

On February 15, 1901, Fenwick filed an application, Serial No. 47,440½, which was stated to be a division of his application No. 9,202, filed March 19, 1900. Said divisional application contains nineteen claims, six of said nineteen claims being the six claims made by Reece and suggested to Fenwick by the Examiner.

The interference was thereupon declared upon the six counts, Fenwick being informed at the same time, as is provided for in Rule 96, that his application No. 47,440½ would be held for revision and restriction after the termination of the interference. The record further shows that the Office has made at the request of Fenwick a true copy

of part of the original application No. 9,202 of said Fenwick, attached to which is the following certificate of the Examiner:

WASHINGTON, D. C., *April 10, 1901*,
ROOM 122, DIVISION 24.

I hereby certify that I have examined the papers herewith, this day submitted, and find that the same contain: (1) a true copy of the file-wrapper of Fenwick's original application, No. 9,202, filed March 19, 1900, and (2) true copies of Figures 1, 2, 4, and 9 of the drawings of said application, and (3) so much of the contents of said application, taken in connection with said file-wrapper and figures of drawing, as relate to the interference in question, viz: that numbered 21,026.

This copy is open to the inspection of the opposing party, Reece, and it is alleged by Fenwick and so held by the Examiner that in providing said copy he fully complied with the provisions of Rule 105, and the opposing party, Reece, is therefore not entitled to inspect or, if he so desires, obtain a full and complete copy of the parent application of said Fenwick.

In support of the petition it is contended by Reece that—

* * * Albert D. Fenwick has been held by the Examiner of Interferences in his letter of April 13, 1901, to be the senior party; that said Fenwick in his preliminary statement, executed the 20th day of March, 1901, and also in his amended preliminary statement, executed the 11th day of April, 1901, used the following language:

"That I am a party to the interference declared by the Commissioner of Patents February 27, 1901, between my application for Letters Patent, Serial No. 47,440½, filed February 15, 1901, said application being a division of application No. 9,202, filed March 19, 1900, and the application of George Reece for improvements in folding-machines;" * * * that the alleged divisional application does not purport to be a copy of the corresponding matter which is alleged to be in the parent application; and that it is possible that the burden of proof should be shifted, because Mr. Reece's application in the interference was filed prior to the Fenwick application which is actually in the interference.

Following the decisions of *in re Swihart* (90 O. G., 601) and *in re Gillespie*, (92 O. G., 2159,) it is clear that Reece would be entitled to inspect and obtain copies of Fenwick's parent application if Fenwick had not taken further steps after the filing of his divisional application, inasmuch as Fenwick does not rely upon the date of his divisional application, but relies upon that of his original application, by virtue of which he is made the senior party and has the benefit of the burden of proof and upon which he also relies for an award of priority. Without this privilege Reece would be powerless to judge whether or not the alleged divisional application is a true division or to judge as to any of the other important matters so well enumerated in the decision of *in re Swihart*, above cited. Neither could any of the motions be intelligently made by Reece, which he is entitled to make under the provisions of Rule 122.

Fenwick, however, did not rest with the filing of his divisional application, but caused to be filed a certified copy of so much of the original application as is involved in the interference in accordance, as alleged, with Rule 105. Fenwick in his brief states that he fully accepts the decisions cited above as wholly in accordance with the Rules of Practice and with the settled and established practice of the Patent Office.

In support of his contention in the present case he goes on to say:

But those decisions related wholly to the interpretation of Rule 106 and in no case had the applicant, who was opposing the inspection of his parent application by his opponent, availed himself of the express provisions of Rule 105. * * *

These cases decide that the mere filing of a divisional application under Rule 106 will not protect the party so dividing his case against the inspection of his parent application by his opponent.

The reason for this is very clear as there are only two ways in which the opponent can get the information to which he is entitled. One of these ways is to inspect the original application itself and the other is to inspect an accurate copy of those parts of the original application to which he is entitled to be informed. Now in all these cases referred to by Reece in his petition, the applicants had failed to file certified copies of the pertinent parts of the record in the original application as they might have done under Rule 105. Consequently the only way that the desired information could be gained by the opponent was by an inspection of the record of the original application and in each case the petitioner was for this reason allowed to inspect such application.

Rule 105 provides that—

when an application is involved in an interference in which a part only of the invention is included in the issue, the applicant may file certified copies of the part or parts of the specification, claims, and drawings which cover the interfering matter, and such copies may be used in the proceeding in place of the original application.

In the decision *Zwietusch* v. *Wittemann* (75 O. G., 183) Acting Commissioner Fisher in considering this question said:

It is contrary to the policy and practice of the Office to permit a stranger without interest to have access to the unpatented disclosures of another inventor.

With this proposition, broadly considered, I agree.

Rule 108 makes it clear, however, that "interfering parties" are not to be considered "strangers" in all respects after the filing and approval of their preliminary statements. Neither can the one be considered then to have no "interest" in the application of the other which is involved in the interference. Both parties have rights with respect to the other's application which they did not previously have. At the same time each of them is entitled to withhold from the other a knowledge of any part of their inventions contained in the application which is not involved in or does not in any way relate to the subject-matter of the interference. This is evidently the purpose of Rule 105.

This rule does not, however, contemplate the withholding by one party of any portion or portions of his original or parent application from the other as would preclude him from intelligently making any of the motions which he is entitled to make under the rules or from judging whether or not the divisional application directly involved is a proper division or is properly based upon the subject-matter as originally filed.

In Rule 105 the words "part only of the invention" and "part or parts of the specification, claims, and drawings which cover the interfering matter" mean everything contained in the original application except what may relate to a separate and independent invention, such as could be properly divided therefrom, if so desired, and be sent to patent before the termination of the interference proceedings.

I am of the opinion that the disclosure of the original application in the certified copies of the same which have been filed by Fenwick for use in the interference proceedings give to Reece all the information which he is entitled to have. From the disclosure made to him he is just as able to make the motions which he is entitled to make and to judge of the propriety of the divisional application as he would be if he were permitted to inspect the whole of the original application.

The petition is therefore denied.

Patents No. 678,851 to 679,284.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 4. TUESDAY, JULY 23, 1901. Price—$5 per year.

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Trade-Marks	37—No.	36,780 to No. 36,816, inclusive.
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Total issue	528	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alaska Territory			Nevada		
Alabama	2		New Hampshire		
Arizona Territory			New Jersey	22	1
Arkansas	1		New Mexico Territ'y	1	
California	15	2	New York	89	9
Colorado	6		North Carolina	1	1
Connecticut	11	4	North Dakota		
Delaware			Ohio	26	2
District of Columbia	3		Oklahoma Territ'y		
Florida	2		Oregon	1	
Georgia	1	1	Pennsylvania	49	3
Idaho	2		Rhode Island	3	1
Illinois	57		South Carolina		
Indian Territory			South Dakota	1	
Indiana	8		Tennessee	7	
Iowa	10	1	Texas	7	
Kansas	2	1	Utah	1	
Kentucky	1		Vermont	3	
Louisiana	3		Virginia	4	
Maine	2		Washington	7	1
Maryland	4	1	West Virginia		
Massachusetts	31	4	Wisconsin	5	
Michigan	15	1	Wyoming		
Minnesota	8	1	U. S. Army		
Mississippi	2	1	U. S. Navy		
Missouri	18				
Montana			Total to citizens of the United States	436	35
Nebraska	5				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		1
Australia			Japan		
Austria-Hungary	5		Mexico		
Barbadoes			Netherlands		
Belgium			New South Wales		
Brazil			New Zealand		
British Guiana			Norway		
Canada	7		Queensland		
Cape Colony			Roumania		
China		1	Russia		
Colombia			San Salvador		
Cuba	1		Scotland		1
Denmark			South Australia		
Egypt			Spain		
England	8	7	Sweden		
Finland			Switzerland	1	
France	5	1	Turkey in Asia		
Germany	18		Victoria		
India			Western Australia		
Island of Jersey					
Italy			Total to citizens of foreign countries	45	11
Haiti					

History of Patent Office.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 28, 1901.

All persons interested in the publication, as contemplated, of a complete history of the United States Patent Office, who have in their possession illustrations, documents, printed articles, or valuable information bearing upon the subject are cordially invited to communicate with this Office concerning the same. Such communications should state clearly the nature of the material and should be addressed to the Chief Clerk, United States Patent Office, and marked "History of Patent Office."

Material loaned to this Office for the desired purpose will be handled with care and will be returned, if desired.

By direction of the Commissioner.

E. V. SHEPARD,
Chief Clerk.

Renewal of Forfeited Cases.

Rule 175. When the patent has been withheld by reason of nonpayment of the final fee, any person, whether inventor or assignee, who has an interest in the invention for which such patent was ordered to issue may file a renewal of the application for the same invention; but such second application must be made within two years after the allowance of the original application. * * *

Rule 176. In such renewal the oath, petition, specification, drawing, and model of the original application may be used for the second application; but a new fee ($15.00) will be required. * * *

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 16, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	July 12	July 8	46
106	II. Farm Stock, Products, etc.	July 1	July 3	168
253	X. Carriages and Wagons	June 25	June 28	60
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 20	July 3	160
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 19	July 2	160
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 17	July 5	93
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	June 17	July 2	171
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153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	June 17	July 2	149
126	XXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	June 17	July 2	168
246	I. Tillage and Fences	June 17	June 26	169
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	June 17	June 22	135
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	June 17	June 21	247
93	XXI. Textiles, etc	June 17	June 6	211
	Between one and two months.			
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	June 15	July 5	237
240	VII. Velocipedes, Games, and Toys.	June 12	July 1	209
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	June 12	June 26	254
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 10	June 24	225
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 10	June 22	205
250	VIII. Furniture, Beds, Store Furniture, etc.	June 8	June 15	432
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 3	June 24	164
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 3	June 19	161
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 3	June 4	302
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261	XXVI. Weighing and Measuring Devices, Driers, and Drafting.	June 1	June 17	224
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143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	May 27	June 25	243
248	XVIII. Steam-Engineering, etc	May 27	June 1	201
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Applications Under Examination—Continued.

Under one month.			
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†Trade-Marks	July 8	July 12	30
‡Labels and Prints	July 16	July 16	....

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 3, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

Order in Relation to Drawings and Blue-Prints.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 966, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

PATENTS

GRANTED JULY 23, 1901.

678,851. APPARATUS FOR ELECTROLYSIS OF THE SALTS OF ALKALI METALS. HENRY S. ANDERSON, Springfield, Mass. Filed Nov. 28, 1899. Serial No. 738,593. (No model.)



Claim.—In an electrolytic apparatus a containing vessel having a porous lining, a mercury cathode resting upon such lining, vertically-arranged channels in the lining communicating with the vessel above the level of the mercury-cathode, an anode and means for keeping the mercury in motion by forcing it into and out of the vessel.

678,852. MINER'S LAMP. CHRISTOPHER L. AFFOR, Monongahela, Pa. Filed Mar. 23, 1901. Serial No. 52,553. (No model.)



Claim.—1. In a lamp of the character described, the combination of a body portion, having a wick-tube connected thereto, and a wire ring connected to the body of the lamp at the juncture of the tube and body, substantially as shown and described.

2. In a lamp of the character described, the combination of a body portion having an opening formed therein, of a wick-tube connected to the body and surrounding the said opening the base of said wick-tube being of a larger diameter than the diameter of the said opening, and a wire ring secured to the body portion adjacent the said opening, substantially as shown and described.

3. In a lamp of the character described, the combination of a body portion having a wick-tube connected thereto, an opening formed in the body communicating with the said tube the body portion within said tube being turned over upon a ring that surrounds the said opening, substantially as shown and described.

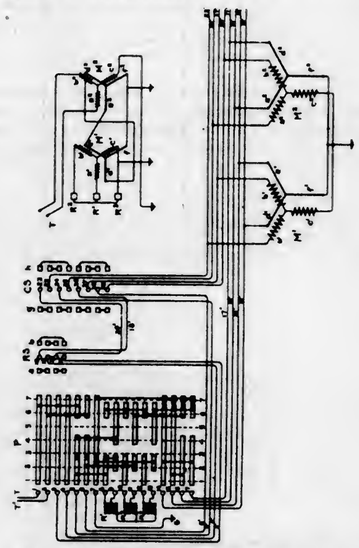
678,853. MOTOR-CONTROL SYSTEM. ALBERT H. ARMSTRONG, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Apr. 8, 1901. Serial No. 54,849. (No model.)

Claim.—1. In a control-circuit for a plurality of alternating-current induction-motors, means for connecting the motors in tandem with one or another of said motors as No. 1 in the tandem connection.

2. In a control-circuit for two alternating-current induction-motors, means for connecting the motors in tandem with either one of said motors as No. 1 in the tandem connection.

3. In combination, a plurality of induction-motors, circuit connections therefor, and controllers for the said motors having their contacts arranged to connect the motors in tandem with a different motor as No. 1 in the tandem connection when different contacts are in operative position.

4. In combination, a plurality of induction-motors, and a control system therefor comprising one or more controllers provided with contacts arranged to connect said motors in tandem with one or another of said motors as No. 1 in the tandem connection.



5. In a control system for a plurality of induction-motors, controller-contacts arranged to connect said motors in tandem with one or another of said motors as No. 1 in the tandem connection.

6. In a control system for a plurality of induction-motors, controller-contacts arranged to connect said motors in tandem with either one of two of said motors as No. 1 in the tandem connection.

7. In a control system for a plurality of alternating-current induction-motors, a controller having its contacts arranged to connect said motors in tandem with one or another of said motors as No. 1 in the tandem connection.

8. In combination, a plurality of induction-motors, and a control system therfor comprising a plurality of controllers adapted to connect said motors in tandem, said controllers being constructed and arranged to periodically transpose the relative positions of the motors in the tandem connection.

9. In combination in a control system for induction-motors, a plurality of controllers each provided with contacts for connecting said motors in tandem, certain contacts of one controller being reversely connected with respect to the corresponding contacts of the other controller so that the different controllers will operate to connect the motors in tandem with a different motor as No. 1 in the tandem connection.

10. In combination in a control system for induction-motors, a plurality of controllers each provided with contacts for connecting a winding of one of said motors to a source of supply and for short-circuiting the corresponding winding of another motor on itself, the contacts of the two controllers being reversely connected to the said windings so that when one controller is operated to connect the motors in tandem, one motor will be No. 1 in the tandem connection and when the other controller is operated another motor will be No. 1.

11. In an induction-motor controller having its contacts arranged to

connect a plurality of motors in tandem, an auxiliary switch for changing the relation of the motors in the tandem connection.

12. In an induction-motor controller having contacts arranged to connect a plurality of motors in tandem, auxiliary contacts for changing the relation of the motors in the tandem connection.

13. In an induction-motor controller having its contacts arranged to connect a plurality of motors in tandem, an auxiliary switch provided with sets of contacts, one of which sets operates to connect one of the motors as No. 1 in the tandem connection, and another of which operates to connect another motor as No. 1.

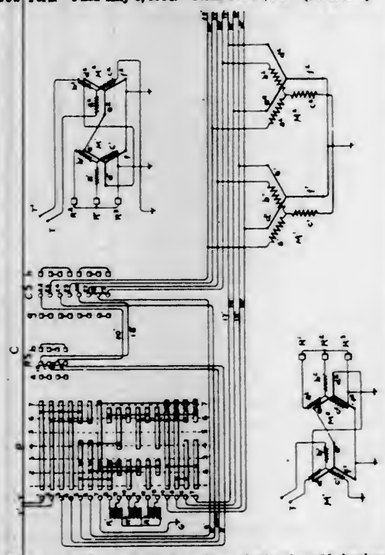
14. In an induction-motor controller having its contacts arranged to connect a plurality of motors in tandem, an auxiliary switch provided with contacts arranged to connect either one of two motors as motor No. 1 in the tandem connection.

15. In an induction-motor controller having contacts for connecting a plurality of motors in tandem, an auxiliary switch for changing the relation of the motors in the tandem connection, and means whereby the movement of the main controller-handle operates the auxiliary switch.

16. In an induction-motor controller having contacts for connecting a plurality of motors in tandem, an auxiliary switch for changing the relation of the motors in the tandem connection, and means operatively related to one of the main controlling-switches for actuating said auxiliary switch.

17. In an induction-motor controller having contacts for connecting a plurality of motors in tandem, an auxiliary switch for changing the relation of the motors in the tandem connection, means operatively related to one of the main controlling-switches for actuating said auxiliary switch, and means for maintaining said switch in the position into which it is thrown.

678,854. CONTROL OF INDUCTION-MOTORS. ALBERT H. ARMSTRONG, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 9, 1901. Serial No. 59,373. (No model.)



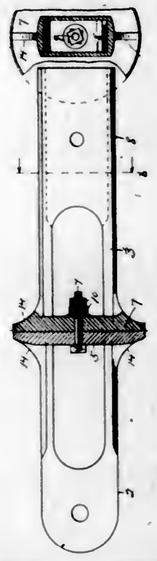
Claim.—1. The method of equalizing the heating of induction-motors operated in tandem, which consists in changing from time to time the relative positions of the motors in the tandem connections.

2. The method of equalizing the heating of induction-motors operated in tandem, which consists in transposing from time to time the connections of the inducing member of the first motor and of the induced member of the last motor in the tandem connection.

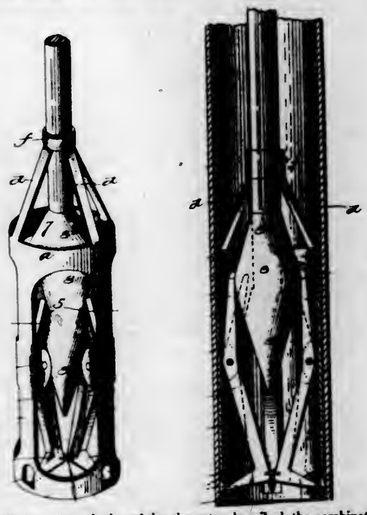
678,855. WAGON COUPLING-POLE. NEWTON M. ARNOLD, Helena, Mo. Filed Jan. 21, 1901. Serial No. 44,022. (No model.)

Claim.—1. A swivel-joint for coupling-poles, comprising a disk having a circular recess in one of its sides, a perforated lug having arms formed integral with said disk, a circular disk mounted in said recess, a bolt passing centrally through said disks, and a socket for one end of the coupling-pole, having arms formed integral with said circular disk, substantially as described.

2. A swivel-joint for coupling-poles, comprising a bifurcated lug for connection to the king-bolt, a disk or plate integral with the arms of said lug, an annular peripheral flange on the face of said plate opposite said arms, a circular disk or plate in contact with the aforesaid plate, within said flange, a central bolt passing through said plates, and a bifurcated socket having its arms formed integral with said last-named plate, substantially as described.

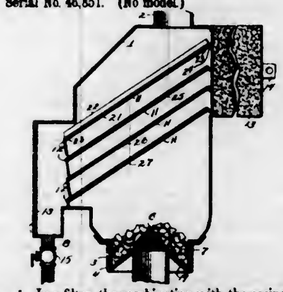


678,856. DEVICE FOR PERFORATING WELL TUBES OR CASINGS. ANDREW J. BELLAH, Visalia, Cal., assignor to Thomas R. Clark, Tulare county, Cal. Filed Feb. 21, 1901. Serial No. 48,362. (No model.)



Claim.—In a device of the character described, the combination of a body portion comprising upper and lower rings, strips connecting the upper and lower rings and formed with inwardly-projecting integral ears, said lower ring being provided with openings and said upper ring being connected by diagonal braces *d* to a collar *f*, angular bit-shanks pivoted between each set of ears and having their bits adapted to be projected through the openings in the lower ring, rollers journaled in the heel of the bit, and an expander consisting of an oppositely-tapering head and an operating-rod, said head when moved in one direction adapted to expand the bits to force them outwardly through the openings in the lower ring and when moved in the opposite direction adapted to retract or draw said bits inwardly through said openings in said ring and hold them in that position so that the points will be guided by said ring in the vertical movement of the body portion of said device, substantially as described.

678,857. FILTER. JOHN J. BETBOLD, Fresno, Cal. Filed Feb. 11, 1901. Serial No. 46,851. (No model.)



Claim.—1. In a filter, the combination with the casing having inlet and outlet apertures at its top and bottom and a waste-outlet at the bottom of one side, and a series of slides within the casing inclined downward toward the space above said waste-outlet, the slides being themselves filters of differing character; of a cap removably surrounding the outlet and having an outwardly-flaring bottom through whose center extends the exhaust-pipe, a conical sieve standing over the inner end of the exhaust, and filtering material surrounding the sieve within said cap, substantially as described.

2. In a filter, the combination with the casing having inlet and outlet at its upper and lower ends and openings in its front and back respectively high and low, doors for closing said openings, and packing for rendering the doors water-tight; of cleats on the inner sides of the casing inclined downward from points within the front door to points opposite but slightly remote from the rear door, stops across the casing at the lower ends of said cleats leaving a chamber just inside the rear door, an exhaust for dirty water at the bottom of this chamber, and slides removably insertible through the front door and supported by said cleats, each slide being itself a filter, as and for the purpose set forth.

3. In a filter, the combination with a casing having front and rear doors respectively high and low, an inlet at the top and outlet at the bottom of the casing, an exhaust for dirty water leading from a point just inside the rear door, and a faucet in said exhaust-pipe; of a series of filter-plates supported within the casing and inclined downward from just inside the front door to a point some distance inside the rear door, and a supplemental filtering device surrounding the inner end of the outlet for clear water, as and for the purpose set forth.

4. In a filter, the combination with a casing having inlet and outlet at its top and bottom, and a waste-outlet at one side of its bottom; of a series of filter-plates located within the casing between the inlet and outlet and inclined downward toward said waste, the uppermost plate being channeled in the direction of its length, as and for the purpose set forth.

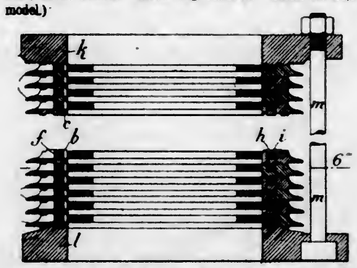
5. In a filter, the combination with a casing having inlet and outlet at its top and bottom, and a waste-outlet at one side of its bottom; of a series of filter-plates located within the casing between the inlet and outlet and inclined downward toward said waste, the uppermost plate being channeled in the direction of its length, the plate next beneath being provided with fine slots, and the plate next beneath that being provided with fine perforations, substantially as described.

6. In a filter, the combination with a casing having inlet and outlet, and an exhaust for the waste; of a series of inclined filter-plates of which the uppermost is composed of a series of troughs whose upright sides are slightly spaced from each other, the lowermost is a plate perforated with fine holes surrounded by depending burs, and other filter-plates interposed between these two, as and for the purpose set forth.

7. In a filter, the combination with the casing having inlet and outlet at its upper and lower ends and an opening in its front near the top thereof, and a door for closing said opening; of cleats within the casing inclined downward from points just inside the door, transverse stops at right angles to said cleats and each extending downward from the plane of a pair of cleats nearly to the plane of the pair beneath, said stops being spaced from the rear of the casing so as to leave a chamber between, a dirty-water exhaust for this chamber, and filtering-slides removably supported by said cleats, as and for the purpose set forth.

8. In a filter, the combination with the casing having inlet and outlet at its upper and lower ends and containing a lateral chamber having a dirty-water exhaust; of a series of stops extending transversely across the casing and forming one side of said chamber, and a series of filtering-slides inclined downward toward said chamber and each terminating at the upper edge of its stop and slightly remote from the lower edge of the stop above, as and for the purpose set forth.

678,858. OIL OR OTHER FILTER PRESS. PHILIBERT BONVILLAIN, Paris, France. Filed Aug. 11, 1900. Serial No. 26,546. (No model.)



Claim.—1. A filter-press comprising a series of rings and means for securing the same together, each ring being provided with a longitudinal groove and a filtering-wick in said groove, and also being provided with radial grooves adapted to permit the escape of the liquid to be filtered, substantially as herein set forth.

2. A filter-press comprising a series of rings and means for securing the same together, each ring being provided with a longitudinal groove and a filtering-wick provided with a metallic core in said groove, and also being provided with radial grooves adapted to permit the escape of the liquid to be filtered, substantially as herein set forth.

3. In a filter-press, a ring provided with means for fitting and securing the same to other rings in a series, and provided with a longitudinal groove, a filtering-wick in said groove, and a series of radial grooves adapted to permit the escape of the liquid to be filtered, substantially as herein set forth.

4. In a filter-press, a ring provided with means for fitting and securing the same to other rings in a series, and provided with a longitudinal groove, a filtering-wick provided with a metallic core, in said groove, and a series of radial grooves adapted to permit the escape of the liquid to be filtered, substantially as herein set forth.

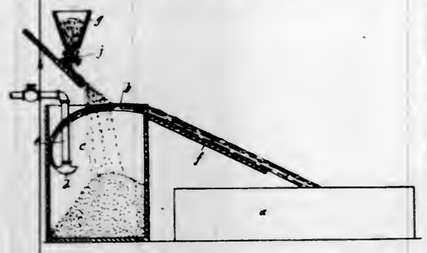
5. In a filter-press, the combination with filtering-wicks provided with metallic cores, of frames or holders therefor provided with means for slightly compressing the wicks, and with means for permitting the passage of the liquid to be filtered to, through, and from the said wicks, substantially as herein set forth.

678,859. PEDAL-ACTION FOR MUSICAL INSTRUMENTS. WILLIAM C. BOSENBURY, Richmond, Ind., assignor to the Starr Piano Company, same place. Filed Feb. 1, 1901. Serial No. 45,594. (No model.)



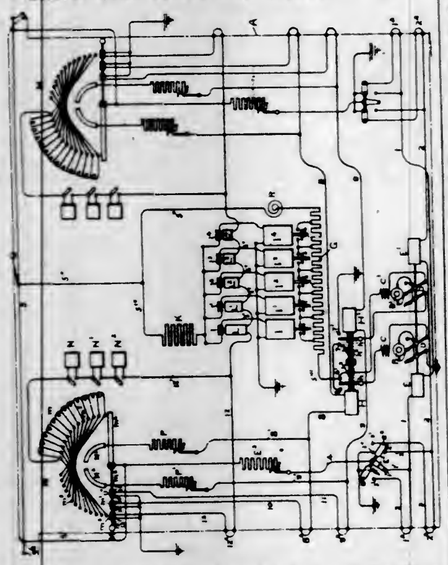
Claim.—In a pedal-action, the combination with a movable action-rod, of projections on opposite sides of the said rod, a spring made from a single piece of resilient rod having its intermediate portions shaped or bent loosely around the rod and engaging the respective projections thereon, theuce being bent into spring-coils to enhance its resiliency, and having free substantially parallel end portions, and a single fastener on a permanent support having a head which clamps both of the free ends of the spring-rod against said support.

678,860. APPARATUS FOR SEPARATING OR CONCENTRATING MINERALS OR ORES. HENRY P. H. BRUNELL, Buckingham, Canada. Filed Sept. 3, 1899. Serial No. 729,869. (No model.)



Claim.—In an apparatus for separating or concentrating minerals or ores, a vessel adapted to contain a body of still water, a water-supply pipe projecting into said tank below the water-level, said pipe being provided with a nozzle having a discharge directed toward a point of the end wall of the vessel intermediate the water-level and the level of the nozzle, whereby a thin stream of water will be projected against said wall and deflected thereby across the surface of the body of water in the vessel to a discharge at the opposite end of the vessel, and a hopper adapted to deliver the material to be separated to said stream, substantially as described.

678,861. SYSTEM OF MOTOR CONTROL. FRANK R. CARR, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Feb. 15, 1901. Serial No. 47,413. (No model.)



Claim.—1. In an electric-railway system, the combination with one or more electric motors, of a plurality of separately-actuated contacts for varying the motor speed, separate electromagnets for actuating said contacts, relay-coils responsive to different current strengths for energizing said electromagnets, and means for sending a current of varying strength through said relay-coils.

2. In an electric-railway system, the combination with one or more electric motors, of a plurality of separately-actuated contacts for varying the motor speed, separate electromagnets for actuating said contacts, high-resistance relay-coils responsive to different current strengths, for energizing said electromagnets, and means for sending a current of varying strength through said relay-coils.

3. In an electric-railway system, the combination with one or more electric motors, of a plurality of separately-actuated contacts for varying the motor speed, separate electromagnets for actuating said contacts, relay-coils connected in series and responsive to different current strengths, for energizing said electromagnets, and means for sending a current of varying strength through said relay-coils.

4. In an electric-railway system, the combination with one or more electric motors, of a plurality of separately-actuated contacts for varying the motor speed, separate electromagnets for actuating said contacts, relay-coils responsive to different current strengths, for energizing said electromagnets, and a rheostat for sending a current of varying strength through said relay-coils.

5. In an electric-railway system, the combination with one or more electric motors, of a plurality of separately-actuated contacts for varying the motor speed, separate electromagnets for actuating said contacts, relay-coils responsive to different current strengths for energizing said electromagnets, and a rheostat of exceedingly high resistance for varying the current flowing through said relay-coils.

6. In an electric-railway system, the combination with one or more electric motors, of a plurality of separately-actuated contacts for varying the motor speed, separate electromagnets for actuating said contacts, high-resistance relay-coils responsive to different current strengths for energizing said electromagnets, and a rheostat of high resistance for varying the current flowing through said relay-coils.

7. In an electric-railway system, the combination with one or more electric motors, of a controller comprising a plurality of electromagnetic switches, a series of high-resistance relays successively responsive to successively-increasing current strengths for controlling the actuating-circuits of said switches, and means for supplying current to said relays.

8. In an electric-railway system, a controller having a plurality of separately-actuated contacts, electromagnets for actuating said contacts, relay-coils, responsive to different current strengths, for controlling the operation of said electromagnets, and means for controlling the flow of current to said relay-coils.

9. In an electric-railway system, a controller having a plurality of separately-actuated contacts, actuating devices for said contacts, relay-coils, responsive to different current strengths, for controlling the operation of said actuating devices, and means for controlling the flow of current to said relay-coils.

10. In an electric-railway system, a controller having a plurality of separately-actuated contacts, actuating devices for said contacts, relay-coils, responsive to different current strengths, for controlling the operation of said actuating devices, a circuit to which all the relay-coils are connected, and means for regulating the current strength in said circuit.

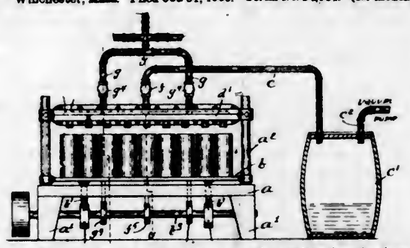
11. In a train system, one or more motor-cars, a controller, having a plurality of separately-actuated contacts mounted on each of said motor-cars, actuating means for said contacts, relays responsive to different current strengths for controlling the operation of said actuating means, a train-circuit to which all of said relays are connected, and a master-controller, located at any desired point on the train, for regulating the current strength in the train-circuit.

12. In a train system, one or more motor-cars, a controller, having a plurality of separately-actuated contacts, mounted on each of said motor-cars, actuating means for said contacts, relays responsive to different current strengths for controlling the operation of said actuating means, a train-circuit to which all of said relays are connected, a master-controller, located at any desired point on the train, for regulating the current strength in the train-circuit and resistances on each motor-car adapted to be cut into or out of the train-circuit in accordance with the number of motor-cars in the train.

13. In a train system, a motor-car provided with a plurality of separately-actuated resistance-controlling contacts, actuating means for said contacts, relays responsive to different current strengths for controlling the operation of said actuating means, a train-circuit to which all of said relays are connected, other contacts for controlling the circuit connections of the motors, electromagnets for actuating said contacts, and a separate train circuit or circuits to which the said electromagnets are connected.

14. In a train system, a motor-car provided with a plurality of separately-actuated resistance-controlling contacts, actuating means for said contacts, relays responsive to different current strengths for controlling the operation of said actuating means, a train-circuit to which all of said relays are connected, other contacts for controlling the circuit connections of the motors, relays for actuating said contacts, a separate train circuit or circuits to which said latter relays are connected, and adjustable resistances included in all of said train-circuits.

678,862. CAN-FILLING MACHINE. FRANCIS D. CLEVELAND, Winchester, Mass. Filed Oct. 31, 1900. Serial No. 34,981. (No model.)



Claim.—1. In a machine for filling cans, the combination of a chamber having a number of exits, means for supporting a number of cans and for moving them toward and from the exits of said chamber, an exhaust-pipe connected with said chamber containing a valve, a delivery-pipe also connected with said chamber containing a valve, cams for operating said valves, constructed and arranged to first operate the valve in the exhaust-pipe and then operate the valve in the delivery-pipe, substantially as described.

2. In a machine for filling cans, the combination of a chamber having a number of exits, means for supporting a number of cans and for moving them toward and from the exits of said chamber, an exhaust-pipe connected with said chamber containing a valve, a delivery-pipe connected with said chamber containing a valve, and cams for operating said valves, constructed and arranged to first operate the valve in the exhaust-pipe, then operate the valve in the delivery-pipe, and then again operate the valve in the exhaust-pipe, substantially as described.

3. In a machine for filling cans, the combination of a chamber having a number of exits, means for supporting a number of cans and for moving them toward and from the exits of said chamber, an exhaust-pipe connected with said chamber containing a valve, a delivery-pipe also connected with said chamber containing a valve, and automatic means for successively operating said valves, whereby air will be exhausted from the cans, the filling supplied, and then a quantity of material withdrawn, substantially as described.

4. In a machine for filling cans, the combination of a chamber having a number of exits, means for supporting a number of cans and for moving them toward and from said exits, an exhaust-pipe connected with said chamber containing a receptacle and also a valve, for clearing the chamber and for exhausting air from all the cans, a delivery-pipe also connected with said chamber containing a valve, for supplying all the cans with filling, and automatic means for successively operating said valves, substantially as described.

5. In a machine for filling cans, a chamber having a number of exits, a delivery-pipe connected to said chamber, pipes leading from said delivery-pipe to several sources of supply, each pipe containing a valve, a valve in said delivery-pipe and automatic means for operating it, a can-support located beneath said chamber and means for moving it, substantially as described.

6. In a machine for filling cans, a chamber having a number of exits, an exhaust-pipe connected to said chamber, a delivery-pipe also connected to said chamber, pipes leading from said delivery-pipe to several different sources of supply, each pipe containing a valve, a valve in said delivery-pipe, a valve in said exhaust-pipe, and automatic means for successively operating said valves, a can-support located beneath said chamber and means for moving it, substantially as described.

678,863. REFUSE-BURNER. ALBERT W. COX and DAVID M. LELAND, Chicago, Ill. Filed May 7, 1900. Serial No. 15,743. (No model.)



Claim.—In a refuse-burner, the combination of a casing polygonal in cross-section, and an elevated bottom having angles corresponding to those of the casing, the angular portions of the bottom, alternating those of the casing, whereby spaces are formed between the bottom and the casing; said angular portions being bent to form means to aid in the attachment of the bottom to the casing, substantially as set forth.

678,864. COIL-RETAINING DEVICE. JOHN T. H. DEMPSTER, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Mar. 28, 1901. Serial No. 53,192. (No model.)



Claim.—1. The combination with a dynamo-electric machine having coil-retaining slots, of composite slot-closing devices of magnetic and non-magnetic material.

2. The combination with a dynamo-electric machine having coil-retaining slots, of self-retaining slot-closing devices composed partly of magnetic material and partly of non-magnetic material.

3. As an article of manufacture, a slot-closing device consisting of a reinforced strip of non-magnetic material.

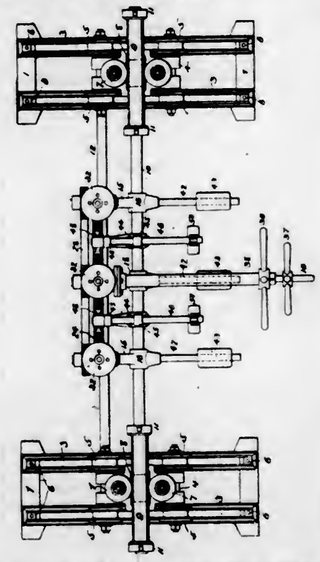
4. As an article of manufacture, a slot-wedge for dynamo-electric machines consisting of a strip of non-magnetic material reinforced with sheet metal.

5. As an article of manufacture, a slot-wedge for dynamo-electric machines consisting of a strip of non-magnetic material reinforced with sheet iron or steel.

6. A slot-closing device consisting of a strip of non-magnetic material having an edge or edges reinforced with sheet metal.

7. A slot-closing device consisting of a strip of non-magnetic material having an edge or edges reinforced with sheet-iron.

678,865. GRINDING-MACHINE. SAMUEL DIESCHER, Pittsburg, Pa., assignor to South Bend Iron Works, South Bend, Ind. Filed Jan. 19, 1901. Serial No. 43,917. (No model.)



Claim.—1. The combination of a support for an article to be ground, and means constructed and adapted to move said support backward and forward revolving and tilting the same and moving it sidewise while the work is in contact with a grinding wheel or device.

2. The combination of two supports for articles to be ground, means for moving one of said supports backward and forward, sidewise, and revolving and tilting the same while the work is in contact with a grinding device, and means for transmitting all of the movements of one of said supports to the other while the article carried thereby is in contact with a grinding device.

3. In a machine for supporting and manipulating articles to be ground, the combination with two supports or face-plates on which the

articles to be ground are to be secured, of means connected with one face-plate for moving it in all directions and revolving it while the work is in contact with a grinding device so as to present the entire surface of the work to the grinding device and means for transmitting all of the said movements of said last-mentioned face-plate to the other.

4. In a machine for supporting and manipulating articles to be ground, the combination with a shaft mounted to move longitudinally and laterally, of two frames secured on said shaft, face-plates revolubly and pivotally supported on said frames, and means so connecting said face-plates that all of the movements given to one will be simultaneously transmitted to the other.

5. In a machine for supporting and manipulating articles to be ground, the combination with a shaft mounted to move longitudinally and laterally, of frames secured on said shaft, face-plates revolubly and pivotally supported on the frames, racks and gears connecting said face-plates so as to transmit the movements of one face-plate to the other, and means for revolving and tilting one of said face-plates and for moving the shaft longitudinally and laterally.

6. In a machine for supporting and manipulating articles to be ground, the combination with a frame mounted to move backward and forward and sidewise in either direction while the work is in contact with a grinding device, of a shaft supported in bearings in the frame, a sleeve on said shaft, a face-plate revolubly supported on the upper side of the sleeve, means for turning said sleeve so as to tilt the face-plate, and a gear on the shaft meshing with a gear on the face-plate so as to turn the latter when the shaft is turned.

7. In a machine for supporting and manipulating articles to be ground, the combination with a frame mounted to move backward and forward and sidewise in either direction, of a shaft revolubly supported in bearings in the frame and carrying a gear, a sleeve on said shaft, a pintle or pin on the upper side of the sleeve, a face-plate revolubly mounted on said pintle and carrying a gear meshing with the first-mentioned gear, and means for turning said sleeve and shaft independent of each other.

8. In a machine for supporting and manipulating articles to be ground, the combination with two tracks spaced apart, of carriages mounted to move on said tracks, bearing-sleeves mounted to move longitudinally thereon on the carriages, a shaft revolubly secured at its ends in the respective sleeves, a face-plate or support carried by the shaft and means for revolving and tilting said face-plate.

9. In a machine for supporting and manipulating articles to be ground, the combination with two parallel tracks spaced apart, of carriages mounted to run on said tracks, a vertical roller and horizontal rollers revolubly mounted on each carriage, bearing-sleeves having angular exteriors, supported between and adapted to engage all of said rollers and move thereon, a shaft revolubly secured at its ends in said bearing-sleeves, a face-plate or support mounted on the shaft, and means for revolving and tilting said face-plate.

10. In a machine for supporting and manipulating articles to be ground, the combination with two trestles or framework spaced apart and supporting tracks parallel to each other, of carriages mounted to run on said tracks, bearing-sleeves supported on the carriages and adapted to be moved longitudinally, a shaft revolubly secured at its ends in said sleeves, a face-plate or support carried by the shaft, means for tilting and revolving said face-plate, another shaft revolubly supported at its ends in the respective trestles, levers on the ends of said arms and links connecting the levers and carriages to compel the simultaneous movement of both carriages.

11. In a machine for supporting and manipulating articles to be ground, the combination with a shaft supported to move longitudinally and laterally, of frames secured on said shaft and spaced apart, shafts revolubly supported in bearings in the frames, sleeves on said shafts having gear-segments on their lower sides, a rack mounted to slide in the frames, in mesh with all of said segments, face-plates revolubly supported on the upper side of said sleeves and carrying gear-segments, collars secured on the shafts and carrying gear-segments on their upper side meshing with the last-mentioned gear-segments, gear-segments on the lower sides of said collars, a rack mounted to slide in the frames and meshing with all of said last-mentioned segments on the lower side of the collars, and means for turning said last-mentioned shaft and sleeve independent of each other.

12. In a machine for supporting and manipulating articles to be ground, the combination with a shaft mounted to move longitudinally and laterally, frames secured on said shaft and a rack mounted to slide on said frames, of sleeves on the frames having gear-segments thereon meshing with said rack, face-plates revolubly supported on said sleeves, means for turning said face-plates and sleeves, a bracket secured on said first-mentioned shaft, a shaft revolubly supported in said bracket, a gear on said shaft meshing with the rack, and a weighted depending lever secured on said last-mentioned shaft to hold the rack in a position to maintain the face-plates horizontal.

13. In a machine for supporting and manipulating articles to be ground, the combination with a shaft mounted to move longitudinally and laterally, of frames secured on said shaft and together, face-plates on said frames, means for revolving and tilting said face-plates, and weighted rods or levers for counterbalancing the frames on the shaft.

678,866. **ROPE-CLAMP.** JEPTHAH P. DUVALL, Waverly, Iowa. Filed Dec. 24, 1900. Serial No. 40,958. (No model.)



Claim.—1. A rope-clamp comprising a pair of swinging mutually-coöperating members, having corresponding openings for the reception of a rope, the outer end wall of one member and the inner end wall of the other member forming rope-gripping elements, and a rope-holding device also connected to the coöperating members and mounted independently thereof.

2. A rope-clamp, comprising three mutually pivotally connected members, of which two of the members are constructed to coöperate and form a rope-grip, and the other member formed into a rope-holder.

3. A rope-clamp, comprising a bifurcated clamp member, a guard-loop member coöperating with and pivoted to the clamp member, and a rope-holder connected to and mounted independently of the former members.

4. A rope-clamp, comprising a clamp member, a guard member coöperating therewith, and a rope-holder, there being a mutual pivotal or hinged connection between all of the members, and each of the latter being independently movable upon the mutual pivotal connection.

5. A rope-clamp, comprising a clamp member, a guard member coöperating therewith, a rope-holder, all of these members having their inner ends provided with bearing-eyes, and a common pivot-pin inserted through the bearing-eyes and forming a mutual pivotal connection for the members, and each of the latter being independently movable upon the pivot-pin.

6. A rope-clamp, comprising a bifurcated clamp member, a loop-shaped guard member pivoted to and coöperating with the clamp member and having its intermediate portion laterally enlarged, whereby the outer free terminal portion of the loop is reduced, and a rope-holder connected to and mounted independently of the former two members.

7. A rope-clamp, comprising a substantially U-shaped clamp member, having its opposite sides provided with corresponding bearing-eyes, and its outer free terminal provided with opposite jaws forming a rope-seat, a substantially U-shaped guard, having its opposite sides provided with corresponding bearing-eyes, a common pivot-pin for all of the bearing-eyes, and a rope-holder mounted upon the pivot-pin.

8. A rope-clamp comprising clamp and holder members, which have a common pivotal or hinged connection, the holder member having a rope-receiving opening, and an intermediate cross-bar intersecting the opening and forming a cleat for binding against a rope.

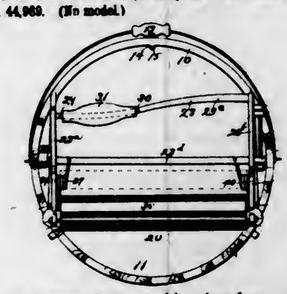
9. A rope-clamp, comprising pivotal coöperating clamp members, a rope-holder having a rope-receiving opening, and an intermediate cross-bar intersecting the opening, and a common pivot-pin forming a mutual pivotal or hinged connection for all of the members.

10. A rope-clamp, comprising a clamp member, which is of substantially U shape, having the terminals of its opposite sides provided with corresponding bearing-eyes, and opposite outwardly-directed jaws at the outer end of the member and forming a rope-seat, a substantially U-shaped guard member having corresponding eyes at the terminals of its opposite sides, a rope-holder in the form of a plate having opposite openings, and a bearing-eye at its inner end, and a transverse pivot-pin passing through all of the eyes and forming a mutual pivotal or hinged connection for the members.

11. The combination with a looped rope, of a clamp therefor, comprising three mutually pivotally connected members, of which the intermediate member has an outer bifurcation forming a rope-seat, one of the other members having an opening for the reception of the rope and coöperating with the intermediate member, the adjacent end of the rope being passed inwardly through the said other member and thence received in the seat of the intermediate member, and the third outer member having inner and outer openings, the adjacent end portion of the rope being passed inwardly through the inner opening and thence outwardly through the outer opening.

12. A rope-clamp comprising three members having a mutual pivotal or hinged connection, the intermediate member having an outer bifurcation forming a rope-seat, one of the outer members having a rope-receiving opening coöperating with the rope-seat of the intermediate member, and the other outer member forming a rope-holder and having inner and outer rope-receiving openings.

678,867. **MOP-WRINGER.** LYMAN H. EVANS, Des Moines, Iowa, assignor to W. M. Randleman, same place. Filed Jan. 28, 1901. Serial No. 44,969. (No model.)



Claim.—1. A mop-wringer comprising a base-frame, a roller mounted for rotation in said base-frame, a swinging frame hinged to the base-frame, a roller mounted for rotation and lateral vibration on the swinging frame, a handle on the swinging frame and means for latching the swinging frame to the base-frame.

2. The combination of a pail, a base-frame mounted thereon, a roller mounted for rotation in said base-frame, a swinging frame hinged to the base-frame, a roller mounted for rotation and lateral vibration on the swinging frame, a handle on the swinging frame, means for latching the swinging frame to the base-frame, and angle-irons fixed to the lower portion of said pail and arranged for engagement by the feet of the operator.

3. A mop-wringer comprising the base-ring, ears on said base-ring arranged for attachment to a support, ears on said base-ring parallel with each other and horizontally apertured, a roller mounted between the latter ears, screws traversing the latter ears and seated in the ends of the roller, a swinging frame hinged to the base-frame, a lug on the base-frame and formed with a notch in one edge, a lip on the swinging frame arranged to engage the notch of said lug, the longitudinally-slotted arms on the swinging frame, a roller mounted between said arms and normally parallel with the first roller, screws loosely traversing the slots of said arms and seated in the ends of the latter roller and torsional springs interposed between said latter screws and the swinging frame, whereby the latter roller is yieldingly held relative to the first roller.

4. The combination of a pail, the base-ring mounted thereon, ears on said base-ring arranged for attachment to the pail, ears on said base-ring parallel with each other and horizontally apertured, a roller mounted between the latter ears, screws traversing the latter ears and seated in the ends of the roller, a swinging frame hinged to the base-frame, a lug on the base-frame and formed with a notch in one edge, a lip on the swinging frame arranged to engage the notch of said lug, the longitudinally-slotted arms on the swinging frame, a roller mounted between said arms and normally parallel with the first roller, screws loosely traversing the slots of said arms and seated in the ends of the latter roller, torsional springs interposed between said latter screws and the swinging frame, whereby the latter roller is yieldingly held relative to the first roller, and angle-irons fixed to the lower portion of the pail and arranged for engagement by the feet of the operator.

5. A mop-wringer comprising a base-frame, a roller thereon, the swinging frame hinged to the base-frame and arranged to swing upwardly on the axis at right angles to the axis of said roller, a roller mounted on the swinging frame and normally parallel with and in opposition to the roller on the base-frame, yielding pressure devices controlling lateral vibration of the roller on the swinging frame and a latch whereby the swinging frame may be connected with the base-frame.

678,868. **UMBRELLA-RUNNER.** MICHAEL J. GLEASON, New York, N. Y., assignor to Alfred H. Bamberger, same place. Filed Apr. 2, 1901. Serial No. 54,006. (No model.)



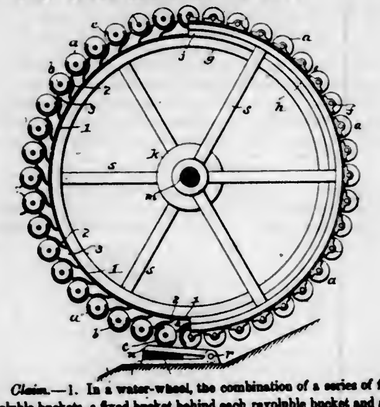
Claim.—1. An umbrella-runner comprising a tube provided with a catch-receiving slot which is narrow at its central portion and flares toward both ends.

2. An umbrella-runner comprising a tube provided with a catch-receiving slot which is narrow at its central portion and flared toward both ends, said runner being further provided with a flaring notch located at its end in alinement with said slot.

3. The combination of the umbrella-stick having a catch projecting through an aperture of the stick, and a runner having a slot the length of which is approximately equal to that of the projecting catch portion, said slot being narrow at its central portion, and flaring at both ends.

4. An umbrella-runner comprising a tube provided with a catch-receiving slot which is narrow at its central portion and flares toward both ends, and a sleeve mounted to slide lengthwise of the runner-tube and provided at its ends with interior cams or bevel surfaces to engage the catches.

678,869. **WATER-WHEEL.** GEORGE GOCHER, Johnstown, Pa. Filed Nov. 6, 1900. Serial No. 35,569. (No model.)



Claim.—1. In a water-wheel, the combination of a series of freely-revoluble buckets, a fixed bucket behind each revoluble bucket and adapted to discharge into the latter as the wheel turns and means for positively rotating each revoluble bucket when it reaches its lowest position to discharge its contents.

2. A water-wheel comprising framework, an annular series of fixed buckets and a series of freely-revoluble buckets disposed over the inlets of the fixed buckets so as to receive water from the latter as the wheel revolves.

3. A water-wheel comprising framework, an annular series of fixed buckets and an annular series of buckets mounted axially to revolve freely and alternating with the walls of the fixed buckets.

4. A water-wheel comprising framework, an annular series of fixed buckets, each having its walls disposed tangentially with relation to the wheel, and an annular series of buckets each mounted to rotate freely in advance of one wall of each fixed bucket.

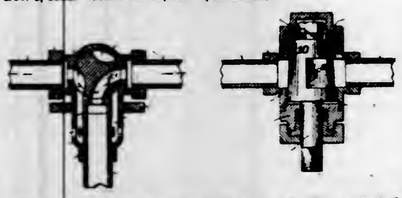
5. In a water-wheel, the combination of a frame, a series of fixed buckets, a series of movable buckets mounted in front of the fixed buckets so as to receive water therefrom as the wheel revolves, each of said movable buckets comprising end disks or rollers, shafts passing centrally through said disks or rollers and revolubly mounted on the frame so as to permit the movable buckets to rotate freely and completely, and trippers disposed in the paths of said end disks or rollers for rotating the latter and the movable buckets when they reach the lowest point of their movement.

6. In an overshot water-wheel, the combination with a cylinder, spokes connecting the cylinder and drive-shaft, rings on each end of said cylinder and partitions or plates secured on the cylinder between the rings

forming rigid buckets, of buckets pivotally supported in the entrance of the rigid buckets and a tripper for upsetting said last-mentioned buckets when they reach their lowest point.

7. In a water-wheel, the combination with a wheel, and a series of pivotally-supported buckets carried thereby, of a tripper adapted to upset said buckets, comprising a base, a bar hinged thereto and elastic material between said base and bar to press the latter against the buckets.

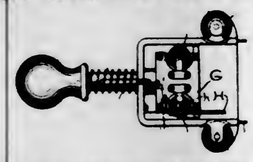
678,870. **FILTER.** ALBERT R. GREVER, Philadelphia, Pa. Filed Nov. 8, 1900. Serial No. 35,789. (No model.)



Claim.—1. The combination with the casing, the filtering-bed, the supply-pipe, the discharge-pipe, and the stand-pipe, of the valve connection for said pipes comprising a casing to which the supply and discharge pipes are connected, an extension on said casing to which the stand-pipe is connected, said extension being provided with a space having an exit to the filtering-bed, at a point between the latter and the top of the casing and a key seated in said valve-casing and provided with a series of ports arranged with relation to the said pipes and space, substantially as set forth.

2. The combination with the casing, the filtering-bed, the supply-pipe, the discharge-pipe, and the stand-pipe, of the valve connection for the said pipes, comprising a casing to which the supply and discharge pipes are connected, a laterally-perforated extension on said casing provided with an internal ring, a pipe-section extended into said extension and seated against said ring to afford within the extension an annular space, said section affording a connection for the stand-pipe, and a key seated in said valve-casing and provided with three ports arranged with relation to the said pipes and annular space, substantially as set forth.

678,871. **DEVICE FOR RECORDING METER READINGS.** CARYL D. HASKINS, Newton, Mass., assignor to the General Electric Company, of New York. Filed Feb. 11, 1899. Serial No. 705,345. (No model.)



Claim.—1. A device for taking readings of meter-dials, comprising a frame carrying a strip of paper, means for guiding the frame and bringing the paper against the dial readings, an inking-ribbon, and a movable platen for striking the ribbon and paper against the dial readings.

2. A device for taking readings of meter-dials, comprising a stamping-frame, a paper strip to receive a series of impressions, carried by the frame, means for feeding the paper after each impression, and means for guiding the same into alinement with the meter-dial.

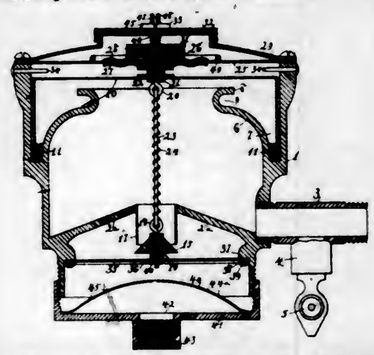
3. The combination with the cyclometer-dials of a meter, of a hand-stamp carrying a strip of paper, an inking device, and means operated by the action of the stamp for shifting the strip after each impression.

4. The combination with the cyclometer-dial face of a meter, of a hand-stamp, means for causing the stamp to register with the plate, a strip of paper, an inking device, and gearing operated by the action of the stamp such that in the interval between consecutive impressions the strip is moved sufficiently to prevent duplication or ambiguity of reading.

5. A hand-stamp for taking meter readings, comprising a carriage, reels carrying a strip of paper, a movable platen operated by pressure upon the handle of the stamp, and gearing between the handle and the strip such that after each operation the strip is moved sufficiently to prevent duplication of readings.

6. The combination with the cyclometer-dials of a meter, of a hand-stamp, means for causing it to register with the dial-plate, a strip of paper carried by the stamp and so disposed as to come in contact with the meter readings when the device is applied to the meter, an inking-ribbon and a movable stamping-platen to strike the paper and ribbon and take an imprint of the meter readings.

678,872. **PRESSURE-REGULATOR.** ROBERT R. HAWARD, Kansas City, Mo., assignor of one-half to Lewis F. McClure, same place. Filed Aug. 7, 1899. Serial No. 726,400. (No model.)



Claim.—1. In a gas-pressure regulator, having a liquid-sealed gas-chamber the combination with the bell forming said chamber of a port for admitting the gas into said chamber, a sleeve surrounding said port providing a thin-edged valve-seat, a valve for closing and regulating the flow of gas through said port, and a spring-controlled flexible valve-stem connecting said valve with the bell substantially as set forth.

2. In a gas-pressure regulator having a liquid-sealed gas-chamber, the combination with the bell forming said chamber of a valve for regulating the flow of gas into said chamber, a flexible valve-stem connecting said valve with said bell, and a spring arranged between the valve and the bell, substantially as and for the purpose set forth.

3. In a gas-pressure regulator having an internal liquid-containing seal-cup and an inlet-port, the combination with a bell or float arranged in said cup, and a valve connected with the bell for regulating the flow of gas through said port, of an imperforate diaphragm arranged above the bell, embracing the valve-stem and secured at its periphery upon the body of the regulator, substantially as set forth.

4. In a gas-pressure regulator having an internal liquid-containing seal-cup, and an inlet-port, the combination with a bell or float arranged in said cup, and a valve connected with the bell for regulating the flow of gas through said port, of a diaphragm arranged above the bell embracing the valve-stem and secured at its periphery upon the body of the regulator, opposing corrugated tension-plates embracing said diaphragm, and oppositely-disposed flanged nuts on the valve-stem bearing upon said plates for compressing the same to regulate the tension of the diaphragm; substantially as set forth.

5. In a gas-pressure regulator having an internal liquid-containing seal-cup, an inlet-port, the combination with a bell or float arranged in said cup, and a valve connected with said bell for regulating the flow of gas through said port, of a diaphragm arranged above said bell embracing the valve-stem, and secured at its periphery upon the body of the regulator, a weight arranged upon the diaphragm to automatically regulate the tension thereof, opposing corrugated tension-plates embracing said diaphragm, and oppositely-disposed flanged nuts on the valve-stem bearing upon said plates for compressing the same to take up any slack in the diaphragm and regulate the tension thereof; substantially as set forth.

6. In a gas-pressure regulator having an internal liquid-containing seal-chamber, and an inlet-port, the combination with a bell or float arranged in said cup, and a valve connected with said bell for regulating the flow of gas through said port; of an imperforate diaphragm arranged above said bell embracing the valve-stem and secured at its periphery upon the body of the regulator, a cap secured upon the head of the regulator, having a central opening, and a reversible slotted screw-plug in said opening providing an air-passage into the chamber above said diaphragm to permit the free action thereof substantially as set forth.

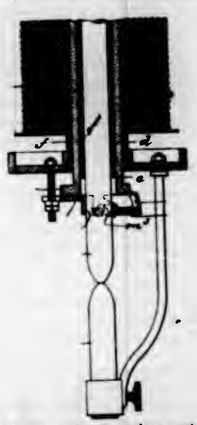
7. In a gas-pressure regulator a cap secured upon the head of the regulator and having a central opening, and a reversible slotted screw-plug in said opening, substantially as and for the purpose set forth.

8. In a gas-pressure regulator having a bell or float, and a diaphragm secured to the body of the regulator above the bell, a cap secured upon the head of the regulator having a central opening, and a reversible slotted screw-plug in said opening providing an air-passage into the chamber above the diaphragm.

9. In a gas-pressure regulator a reversible screw-plug consisting of the head 45, the solid screw-threaded portion 46 on one side of said head, and a slotted screw-threaded portion on the other side, said slot extending into said head substantially as set forth.

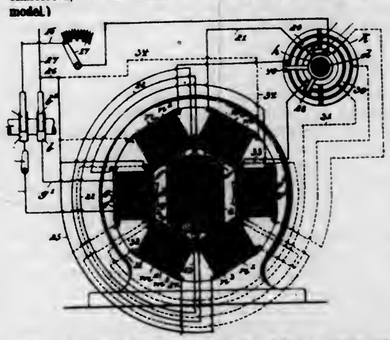
10. In a gas-pressure regulator having liquid-containing seal-chamber, and a port for admitting gas into the regulator, the combination with a bell or float arranged in said seal-chamber, an imperforate diaphragm arranged above said bell, embracing the valve-stem and secured at its periphery upon the body of the regulator, and a valve having a flexible spring-controlled valve-stem connected with said bell for regulating the flow of gas through said port: of a perforated diaphragm below said valve embracing the valve-stem and secured at its periphery upon the body of the regulator; substantially as set forth.

678,873. **ELECTRIC-ARC LAMP.** JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Nov. 14, 1900. Serial No. 36,437. (No model.)



Claim.—In an electric-arc lamp, a carbon, a solenoid-core surrounding the carbon, a solenoid-coil controlling said core and adapted to magnetize and to elevate the same, an arm carried by the under face of the core and immovable with respect to the same, said arm having a curved face or clamping-jaw resting against the carbon, a second arm pivoted at one end to the immovable arm and having a clamping-face at its pivoted end adapted to normally rest in the same plane as the curved face of the first arm and parallel to the lower end of the core, and an armature-piece formed on the free end of the second arm and adapted when the core is magnetized to be elevated toward said core to draw the clamping-face out of its normal position, substantially as and for the purposes described.

678,874. **ELECTRIC MOTOR.** JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Nov. 19, 1900. Serial No. 36,959. (No model.)



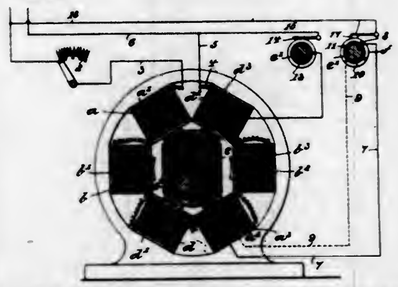
Claim.—1. In an electric motor, a series of field-magnets each divided into two sections or poles, each field-magnet section having two windings oppositely arranged and a commutator adapted to connect either winding or both windings with the main circuit, substantially as and for the purposes described.

2. In an electric motor, a field-magnet having its core wound with two oppositely-arranged windings, a main circuit and a contact-piece adapted to connect either or both of the windings with the main circuit, substantially as and for the purposes described.

3. In an electric motor, a simply-wound armature having its poles constant, a series of field-magnets surrounding the armature and each magnet having its poles separated and diametrically disposed, a double winding for each pole, said windings being oppositely disposed, and a commutator rotating with the armature and adapted to commutate the current supplied to the motor through either or both windings, substantially as and for the purposes described.

4. In an electric motor, a main circuit, a series of field-magnets, an armature surrounded by said field-magnets, a branch of the main circuit leading directly to the armature, a second branch of the main circuit leading to a commutator controlling the field-magnets, and means for making and breaking either branch circuit to bring the armature to rest, substantially as and for the purposes described.

678,875. **ELECTRIC MOTOR.** JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Nov. 19, 1900. Serial No. 36,960. (No model.)



Claim.—1. In an electric motor, a series of field-magnets each divided into two diametrically opposite sections of constant opposing polarities, an armature surrounded by the field-magnets and having two oppositely-arranged core-windings, and a commutator adapted to bring either or both windings of the armature into the main circuit to reverse or neutralize the two poles of the armature, substantially as and for the purposes described.

2. In an electric motor, a series of field-magnets, each divided into two diametrically opposite sections and each section oppositely wound to the complemental section to secure constant opposing polarities in the sections, an armature surrounded by the field-magnet sections and having two oppositely-arranged core-windings, a main circuit, a common return-wire connecting both windings with one branch of the main circuit, a commutator-ring arranged in two segments insulated from each other, a contact finger and block connected with the other branch of the main circuit, said block resting upon the segments and adapted to bridge the insulating portions thereof, a connection leading from one segment to one winding of the armature and another connection leading from the other segment to the other armature-winding, substantially as and for the purposes described.

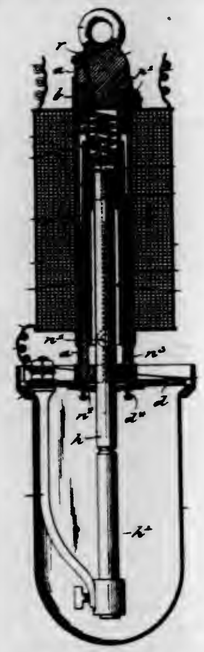
678,876. **ELECTRIC-ARC LAMP.** JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Jan. 28, 1901. Serial No. 44,997. (No model.)

Claim.—1. In an electric-arc lamp, a solenoid-coil, a tube uniting the coil to the other parts of the lamp, a tubular core divided its entire length into two semitubular sections, the walls of which taper upward, said sections being pivoted together near the base and provided with gripping-jaws arranged below the pivotal connection, said tubular core adapted to slide in the tube uniting the solenoid-coil to the other parts of the lamp, and two adjusting-screws adapted to be advanced in the tube and to impinge upon the under face of the base of the core-sections, at or near the periphery of said core, whereby the downward movement of the core in the tube may be limited and the upper ends of the sections forced away from the walls of the tube to release the lower gripping-jaws of the core, substantially as and for the purposes described.

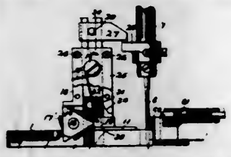
2. In an electric-arc lamp, a support for the upper carbon, comprising a thimble having a conical interior and a thimble divided or split into two sections and having a conical exterior, said split thimble adapted to receive the upper carbon and to be advanced in the other thimble to tightly clamp said carbon, substantially as and for the purposes described.

3. In an electric-arc lamp, a ring provided on its interior with two diametrically-arranged lugs and having a lower flange or ledge, a globe adapted to be supported on said ledge, and a plate having two rims, the upper faces of which are oppositely inclined, said lugs adapted to enter

the slots of said plate and to turn in said inclined rims to lock the ring and globe to said plate, substantially as and for the purposes described.



678,877. OVERSEAMING ATTACHMENT FOR SEWING-MACHINES. EDWARD B. HESS, Brooklyn, N. Y., assignor, by mesne assignments, to the Ross Attachment and Machine Company, of New York. Filed Apr. 23, 1900. Serial No. 14,734. (No model.)



Claim.—1. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate provided with a guideway, a sliding pusher in proximity to the needle and arranged in said guideway so that it may reciprocate horizontally in a direction crosswise of the travel of the fabric, a three-sided rotatory cam operatively connected to the needle-bar and directly engaging said pusher to reciprocate the same, and a spring for returning said pusher to normal position, said cam being vertically arranged and placed in line with and behind said pusher and rotating upon a horizontal axis.

2. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate provided with a guideway, a sliding spring-pressed pusher in proximity to the needle and arranged in said guideway so that it may reciprocate horizontally in a direction crosswise of the travel of the fabric, a rotatory cam controlled by the needle-bar and directly engaging said spring-pressed pusher to reciprocate the same, a series of teeth provided upon said cam, a pawl operated by the needle-bar and engaging said teeth to intermittently rotate the cam, and means for positively locking the cam against overthrow.

3. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate provided with a guideway, a spring-pressed sliding pusher in proximity to the needle and arranged in said guideway so that it may reciprocate horizontally in a direction crosswise of the travel of the fabric, a rotatory cam controlled by the needle-bar and directly engaging said spring-pressed pusher to reciprocate the same, a series of ratchet-teeth provided upon said cam, a pawl operated by the needle-bar and engaging said teeth to intermittently rotate the cam, and a fixed abutment constructed to coact with said pawl to positively lock the ratchet-teeth against overthrow

4. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate provided with a guideway, a spring-pressed sliding pusher in proximity to the needle and arranged in said guideway so that it may reciprocate horizontally in a direction crosswise of the travel of the fabric, a rotatory cam controlled by the needle-bar and directly engaging said spring-pressed pusher to reciprocate the same, a series of teeth provided upon said cam, a pawl operated by the needle-bar and engaging said teeth to intermittently rotate the cam, and a fixed abutment arranged in the path of a shoulder formed upon the pawl and constructed to engage therewith at the completion of the working stroke of the pawl to prevent vibration of the pawl and hence lock the ratchet-wheel and cam against overthrow.

5. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate provided with a guideway, a spring-pressed sliding pusher in proximity to the needle and arranged in said guideway so that it may reciprocate horizontally in a direction crosswise of the travel of the fabric, a rotatory cam controlled by the needle-bar and directly engaging said spring-pressed pusher, a series of ratchet-teeth provided upon said cam, a pawl reciprocated by the needle-bar, a fixed abutment arranged to guide the pawl into position for engaging said ratchet-teeth; and a second fixed abutment constructed to coact with said pawl to lock the ratchet-teeth against overthrow.

6. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate provided with a guideway, a sliding pusher in proximity to the needle and arranged in said guideway so that it may reciprocate horizontally in a direction crosswise of the travel of the fabric, a rotatory cam directly engaging said pusher, said cam being vertically arranged and placed in line with and behind said pusher, a ratchet-wheel arranged alongside of said cam and secured thereto, a pawl arranged in line with said ratchet-wheel, a vertical plunger to which said pawl is pivoted, and means upon said plunger for engaging the needle-bar.

7. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a vertically-sliding plunger arranged parallel with said needle-bar, means for enabling the needle-bar to engage said plunger, and a horizontally and laterally moving pusher operatively connected to said plunger and arranged in proximity to the needle.

8. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate, a bracket erected thereon, a vertically-sliding plunger guided in said bracket, means for enabling the needle-bar to engage said plunger, a rotatory device operated by said plunger, and a pusher operated by said rotatory device.

9. In a sewing-machine, the combination with a needle, and a reciprocatory needle-bar, of a base-plate, a bracket erected thereon, a vertically-sliding spring-returned plunger guided in said bracket, means for enabling the needle-bar to engage said plunger, a pawl pivoted to said plunger, a ratchet-wheel operated by said pawl, a cam secured to said ratchet-wheel, and a pusher operated by said cam.

10. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate, a bracket erected thereon, a vertical groove formed in said bracket, a sliding plunger working in said groove, a plate overlying said groove, a pawl pivoted to said plunger, a ratchet-wheel operated by said pawl, a cam connected to said ratchet-wheel, and a pusher engaged by said cam.

11. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a vertically-sliding plunger, a tappet adjustable on said plunger and arranged to be engaged by a projecting part of the needle-bar, and a device operated by said plunger and arranged in proximity to the needle and constructed to push the edge of the fabric transversely of its travel.

12. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a vertically-sliding plunger, means for enabling the needle-bar to engage said plunger, a locking pull-pawl carried by said plunger, a vertically-arranged ratchet-wheel having six teeth, a triangular cam connected to said ratchet-wheel, and a horizontally-guided pusher directly engaged by said cam and arranged in proximity to the needle.

13. An overseaming mechanism for sewing-machines, comprising a ratchet-wheel, a pawl operatively connected to the needle-bar, a triangular cam, an abutment for guiding said pawl into engagement with the ratchet-wheel, means for positively locking the ratchet-wheel against overthrow, and a pusher reciprocated by means of said ratchet-wheel and cam.

14. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate carrying a pusher arranged in proximity to and on one side of the needle, said pusher being operatively connected to the needle-bar and constructed to reciprocate in the base-plate horizontally and intermittently project therefrom to move the edges of the fabric in a direction crosswise of the direction of their feed, and a presser-foot movable and adjustable horizontally toward and away from the base-plate and from the edges of the fabric to accommodate different thicknesses of goods.

15. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a base-plate, a pusher carried thereby and arranged in proximity to the needle, said pusher being operatively connected to the needle-bar and constructed to reciprocate horizontally in a direction crosswise of the travel of the fabric, and said base-plate being adjustable toward and away from the needle to vary the length of the stitch, and a presser-foot adjustable toward and from the base-plate to accommodate different thicknesses of goods.

16. An overseaming mechanism for sewing-machines, comprising a base-plate, provided with a work-face, on one side of the needle, a pusher carried by said base-plate and arranged in proximity to the needle, said pusher being operatively connected to the needle-bar and constructed to project intermittently from the base-plate horizontally in a direction crosswise of the travel of the fabric, and a presser-foot carried by the presser-foot bar of the sewing-machine and movable and adjustable horizontally toward or away from the work-face of said base-plate.

17. In a sewing-machine, the combination with a needle and a reciprocatory needle-bar, of a horizontal base-plate, a slot cut vertically therein, a pusher arranged to slide horizontally in said slot and provided with a lip or flange which overhangs the upper edge of the slot, and a keeper fastened upon the upper face of the base-plate and overlapping said lip.

18. A mechanism for making a zigzag or overseaming stitch, comprising, in combination, a pusher for moving the edge of the goods transversely to the path of the travel thereof at a point in proximity to the needle, and a second pusher for moving said edge in the opposite direction, both of said pushers being vertically slotted for the needle at their adjoining ends.

19. A mechanism for making a zigzag or overseaming stitch, comprising, in combination, a pusher for moving the edge of the goods transversely to the path of the travel thereof at a point in proximity to the needle, a presser-foot, and a second pusher carried by said presser-foot.

20. A mechanism for making a zigzag or overseaming stitch, comprising, in combination, a pusher for moving the edge of the goods transversely to the path of the travel thereof at a point in proximity to the needle, a presser-foot, and a spring-pressed pusher carried by said presser-foot.

21. A mechanism for making a zigzag or overseaming stitch, comprising, in combination, a pusher for moving the edge of the goods transversely to the path of the travel thereof at a point in proximity to the needle, a presser-foot, and a spring-pressed sliding pusher carried by said presser-foot.

22. A mechanism for making a zigzag or overseaming stitch, comprising, in combination, a pusher for moving the edge of the goods transversely to the path of the travel thereof at a point in proximity to the needle, a presser-foot, a slot formed in the working face of said presser-foot, and a spring-pressed pusher working in said slot and flush with said working face.

23. A mechanism for making a zigzag or overseaming stitch, comprising, in combination, a pusher for moving the edge of the goods transversely to the path of the travel thereof at a point in proximity to the needle, a presser-foot, a slot formed in the working face of said presser-foot, a pusher working in said slot and flush with said working face and having a horizontal guide-stem, and a spring surrounding said guide-stem.

24. A mechanism for making zigzag or overseaming stitches, comprising, in combination, a vertically-movable plunger, a pawl, a ratchet-wheel, a cam, a pusher, a presser-foot, and a second returning-pusher.

25. A mechanism for making zigzag or overseaming stitches, comprising, in combination, a base-plate, a guide-bracket erected thereon, a vertically-movable plunger guided in said bracket, a pawl carried by said plunger, a cam operated by said pawl, a sliding spring-pressed plunger operated by means of said cam, a presser-foot adjustable toward or away from said base-plate, and a spring-pressed pusher carried by said presser-foot.

26. A mechanism for making zigzag or overseaming stitches, comprising, in combination, a base-plate, a guide-bracket erected thereon, a vertically-movable plunger guided in said bracket, a pawl carried by said plunger, a cam operated by said pawl, a sliding spring-pressed pusher operated by means of said cam, a presser-foot provided with means for attachment to the presser-foot bar of a sewing-machine and adjustable toward and away from said base-plate, and a spring-pressed sliding pusher carried by said presser-foot.

27. In a sewing-machine attachment, a base-plate provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base-plate and provided with a guideway, a slide-bar movable in the guideway of the standard, and adapted to be reciprocated by the needle-bar of a sewing-machine, and mechanism for conveying motion from said slide-bar to said pusher-bar to reciprocate the latter.

28. In a sewing-machine attachment, a base-plate provided with a horizontal guideway, a pusher-bar movable in said horizontal guideway, a standard mounted on said base-plate and provided with a vertical guideway, a slide-bar movable in said vertical guideway and adapted to be reciprocated by the needle-bar of a sewing-machine, a spring normally pressing said slide-bar downward, and mechanism for conveying motion from said slide-bar to said pusher-bar to reciprocate the latter.

29. In a sewing-machine attachment, a base-plate provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base-plate and provided with a guideway, a slide-bar movable in the guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging with said pusher-bar for reciprocating the same, and mechanism for conveying motion from said slide-bar to said cam for rotating the latter.

30. In a sewing-machine attachment, a base-plate provided with a horizontal guideway, a pusher-bar movable in said horizontal guideway, a standard mounted on said base-plate and provided with a vertical guideway, a slide-bar movable in said vertical guideway and adapted to be reciprocated by the needle-bar of a sewing-machine, a spring pressing said slide-bar downward, a cam engaging with said pusher-bar for reciprocating the latter, and mechanism for conveying motion from said slide-bar to said cam to rotate the latter.

31. In a sewing-machine attachment a base-plate provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base-plate and provided with a guideway, a slide-bar movable in the guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

32. In a sewing-machine, a presser-foot, in combination with an attachment having a base-plate provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base-plate and provided with a guideway, a slide-bar movable in the guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, and mechanism for conveying motion from said slide-bar to said pusher-bar to reciprocate the latter.

33. In a sewing-machine a presser-foot in combination with an attachment having a base-plate provided with a guideway a pusher-bar movable in said guideway, a standard mounted on said base-plate and provided with a guideway, a slide-bar movable in the guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging said pusher-bar for reciprocating the same, and mechanism for conveying motion from said slide-bar to said cam for rotating the latter.

34. In a sewing-machine a presser-foot in combination with an attachment having a base-plate provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base-plate and provided with a guideway, a slide-bar movable in the guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating the gear.

678,878. LOCATING GROUNDS ON ELECTRIC CIRCUITS. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 14, 1900. Serial No. 8,586. (No model.)

Claim.—1. In a system of electrical distribution, means for locating the position in the circuit of a ground comprising a generator having one pole grounded, connections in parallel between the other pole and the sides of the circuit, and means for determining the relative resistance of the two branches of the system to the point at which a ground may exist.

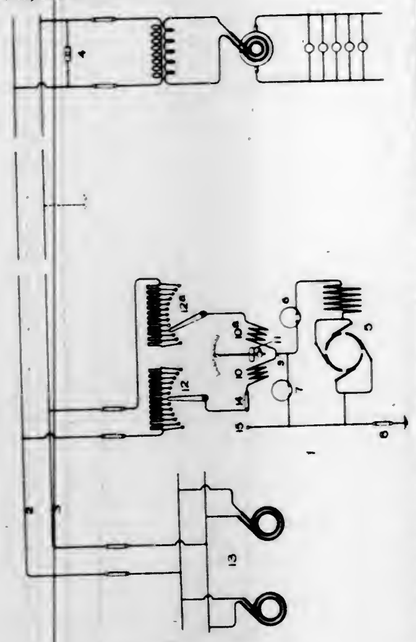
2. In a system of multiple-arc electrical distribution, means for completing a cross connection of the distributing-mains at a point distant from the distributing-station, and means for determining the relative resistance of the two branches of the distribution-circuit from the distributing-station to a point at which the leakage may occur.

3. In a system of electrical distribution, a grounded source of high potential at the distributing-station, means for grounding one pole, means for connecting the other pole in parallel relation to the distributing-mains, and means for determining the resistance of each branch circuit thus produced to any point in the system at which a ground may occur.

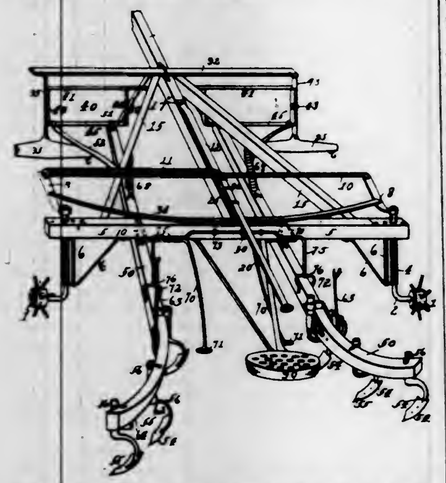
4. In a system of electrical distribution, a differential instrument located at a determinate point of the system, the two sides of which connect with the distributing-mains, means for imposing potential in parallel on said mains, and means for determining the relative resistance of the two branches to any point at which a ground may occur.

5. In a system of electrical distribution, a high-potential generator, located at a determinate point, one end of which is grounded, a differential instrument having its two controlling-coils in parallel relation to the other terminal of the generator, a variable resistance in series with each coil, and connections between the resistances and the distributing-mains.

678,878.



678,879. CULTIVATOR. DANIEL HILL, Graff, Iowa. Filed Aug. 28, 1900. Serial No. 28,334. (No model.)



Claim.—1. In a cultivator a frame, plow-beams attached to the frame, stays secured to the plow-beams and the frame, to prevent lateral movement of the beams, shovels pivoted in each beam, and a lever secured to each beam and the shovels for operating the shovels, whereby, the points of the shovels may be turned to throw the soil in various directions, without lateral movement of the plow-beams, as and for the purposes shown.

2. In a cultivator a frame, plow-beams attached to the frame and provided with stays to prevent lateral movement of the beams, shovels pivoted in the beams, a lever for operating the shovels without lateral deflection of the beams and a lever connected to the frame and beams for raising and lowering the plow-beams, as and for the purposes shown.

3. In a cultivator a frame, sustaining-wheels pivoted in the frame, and means for changing the direction of the wheels, in combination with plow-beams attached to the frame, shovels pivoted in the beams and means for rotating the shovels, whereby, the soil may be turned to and from the corn without lateral movement of the plow-beams, substantially as described and shown.

4. In a cultivator a frame, sustaining-wheels, means for changing the direction of the wheels, plow-beams secured to the frame, stays to prevent lateral movement of the beams shovels pivoted in the beams and means connected to each beam for operating the shovels, consisting of a clamp rigidly fastened to each shovel, a lever secured to each beam, and connections between said clamps and the lever, for the purposes shown.

5. In a cultivator a frame, sustaining-wheels pivoted in the frame, a lever for deflecting the line of the travel of the wheels, plow-beams secured to the frame and provided with stays to prevent lateral movement of the beams, shovels pivoted in each beam, a lever secured to each beam and connected with the shovels to determine the direction of the shovels, independent of the beams, as and for the purposes shown.

6. In a cultivator a frame, sustaining-wheels pivoted in the frame, means for deflecting the travel of the wheels, plow-beams attached to the frame and provided with stays to prevent lateral movement, shovels pivoted in the beams, means for operating all of the shovels of each beam simultaneously, means connected to each beam for operating each set of shovels independently and levers secured to the plow-beams and the frame for raising and lowering the beams, as and for the purposes shown.

7. In a cultivator a frame, sustaining-wheels pivoted in the frame, means for deflecting the line of travel of the wheels consisting of arms secured to the axles of the wheels, connections between the arms, a lever pivoted to the frame and connected with one of said arms, plow-beams attached to the frame and stayed to prevent lateral movement of the beams, shovels pivoted in the beams, and means attached to each beam for operating the shovels consisting of a clamp secured to each shovel, a lever secured to the beam and connections between said clamps and the lever, as and for the purposes shown.

8. In a cultivator a frame, sustaining-wheels pivoted in the frame, means for deflecting the line of travel of the wheels, consisting of an arm attached to the axle of each wheel, connections between said arms, a lever pivoted to the frame and connected with one of said arms, plow-beams attached to the frame and provided with stays to prevent lateral movement of the beams, shovels pivoted in each beam and an independent lever secured to each beam for operating the shovels, as and for the purposes shown.

9. In a cultivator a frame, plow-beams attached to the frame, stays to prevent lateral movement of the beams, shovels pivoted to the beams, means for operating the shovels without lateral movement of the beams, and means for holding up and locking the beams consisting of stirrups secured to the beams, a hook attached to the frame and engaging the stirrups and a lock secured to the frame and adapted to hold the hook in engagement with the stirrups, as and for the purposes shown.

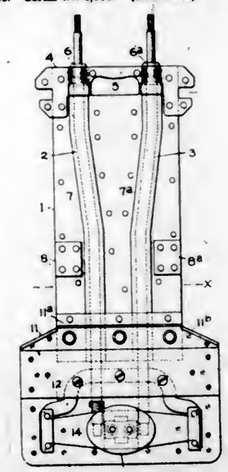
10. In a cultivator a frame, sustaining-wheels pivoted in the frame, means for deflecting the line of travel of the wheels, plow-beams suspended at their forward ends from the frame, stays connecting the frame and plow-beams, shovels pivoted in the beams, means for operating the shovels to turn the soil in various directions, without deflecting the line of the travel of the beams, a lever secured to each beam and the frame, and provided with a foot-rest for raising and lowering the beams, a hook attached to the frame and adapted to engage the plow-beam for holding up the beams, as and for the purposes shown.

11. In a cultivator a frame, sustaining-wheels, plow-beams secured at their forward ends to the frame, shovels attached to the beams, and a draft consisting of an evener pivoted to the top of the frame, hangers attached to the evener, said hangers also pivoted to the frame, and whiffletrees attached to the hangers, whereby the draft will be an upward, lifting and forward draft, as and for the purposes shown.

12. A cultivator consisting of a frame, sustaining-wheels pivoted in the frame, a lever for deflecting the line of the travel of the wheels, a seat attached to the frame, plow-beams attached to the frame, shovels pivoted in the beams, an independent lever secured to each beam for operating the shovels and a lever for raising and lowering the beam, as and for the purposes shown.

13. A cultivator consisting of a frame, sustaining-wheels, means for deflecting the line of the travel of the wheels, plow-beams attached to the frame, stays to prevent lateral movement of the beams, shovels pivoted in the beams, an independent lever attached to the beams and connected to the shovels, a lever secured to each beam and the frame and adapted to be operated by the foot of the driver for raising and lowering the beams, a hook secured to the frame for holding up the beams, and a lifting draft, substantially as described, all combined as and for the purposes shown.

678,880. CONDUIT-PLOW. JOSEPH HOFFMAN, Schenectady N. Y., assignor to the General Electric Company, of New York. Filed Mar. 12, 1900. Serial No. 8,353. (No model.)



Claim.—1. A conduit-plow provided with a shank composed of two metal plates stamped with offsets to form when assembled a housing for the conductors leading from the collector-shoes.

2. A conduit-plow provided with a shank composed of a plurality of sheet-metal stampings, providing when assembled a tubular housing for the collector cables or conductors, and a bushing of yielding material to embrace the cable at the top of the shank.

3. A shank for a conduit-plow which has channels for the reception of the leads, and sockets formed in its end, and is provided with soft-rubber bushings in said sockets which are adapted to grip the cable to prevent the abrasion of the latter and exclude moisture from the channels.

4. A conduit-plow having a shank formed of sheet-steel having a lateral offset which forms a shallow recess to receive a flat conductor.

5. A shank for a conduit-plow, which comprises two metal plates having lateral offsets, each plate being of uniform thickness throughout, and said plates being assembled so that the recesses face each other to form channels for the reception of the conducting-leads.

6. A shank for a conduit-plow, which comprises two metal plates having lateral offsets which form recesses on one side, each plate being of uniform thickness throughout, said plates being assembled so that the recesses face each other to form channels for the reception of the leads, and so that the remaining surfaces of the plates are in engagement.

7. A shank for a conduit-plow, which comprises two metal plates having lateral offsets which form recesses on one side, each plate being of uniform thickness throughout, said plates being assembled so that the recesses face each other to form channels for the reception of the leads, and so that the remaining surfaces of the plates are in engagement, and rivets which pass through the engaging portions which constitute the narrow part of the shank, to hold the plates together.

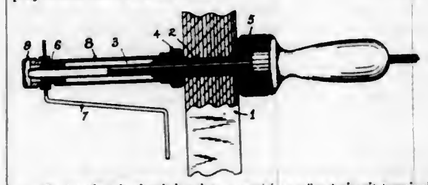
8. A shank for a conduit-plow, which comprises two sheet-steel plates having lateral offsets to form recesses on one side, each plate being of uniform thickness throughout, and said plates being assembled so that the recesses face each other to form channels for the reception of the conducting-leads.

9. A shank for a conduit-plow, which comprises two metal plates having lateral offsets which form recesses on one side, each plate being of uniform thickness throughout, said plates being assembled so that the recesses face each other to form channels for the leads, and so that the remaining surfaces of the plates are in engagement; and gearing-plates of suitable thickness which are secured directly to the opposite outside surfaces of the narrow part of the shank formed by the adjoining parts of the metal plates.

10. A shank for a conduit-plow, which comprises metal plates secured together to form interior channels for the reception of the leads, a casting secured to the said plates at one end and formed with sockets, and soft-rubber bushings in said sockets adapted to grip the leads.

678,881. CIRCUIT-BREAKER. CHARLES R. HOLMES, Lynn, Mass., assignor to General Electric Company, of New York. Filed Mar. 31, 1900. Serial No. 10,886. (No model.)

Claim.—1. An electric-circuit breaker comprising an elastically-seated contact mounted on a movable plug, a socket-contact adapted to frictionally engage the same and a sliding electric connection between a plug-contact and a flexible terminal.

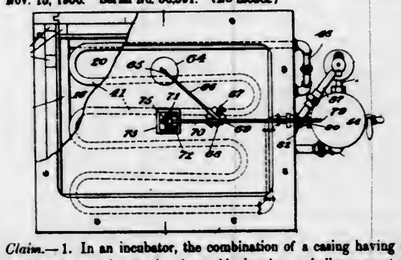


2. An electric-circuit breaker comprising a fixed circuit-terminal, a plug carrying a contact to close the circuit and form a friction-tight joint with the fixed terminal, and a spring connection between the handle of the plug and the movable terminal.

3. A plug-switch comprising a fixed terminal, a movable contact on the stem of the plug, a conducting-socket in the handle in which said stem is movably mounted, a coöperating terminal carried by the handle, and a spring between a fixed part of the handle and the stem.

4. A plug-switch comprising an insulated handle containing a metal socket forming one circuit-terminal, a metal circuit-closing stem movable in said socket and carrying an elastic contact engaging the socket, and a helical spring acting upon the stem to retract it into the socket.

678,882. INCUBATOR. GEORGE L. HORRALL, Olney, Ill. Filed Nov. 15, 1900. Serial No. 36,591. (No model.)



Claim.—1. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating said chamber, a boiler connected with said pipe and provided with a heater, a tank and means controlled by variations in the temperature of the hatching-chamber for diverting the liquid flowing from the boiler to the pipe into said tank, substantially as set forth.

2. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating said chamber, a boiler having a connection with said pipe, a tank adapted for communication with the connection between the boiler and said pipe, a valve controlling the flow of liquid from said connection to the tank and means controlled by variations in temperature in the hatching-chamber and arranged to actuate said valve, substantially as set forth.

3. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating the same, a boiler having a connection with said pipe and valve-controlled means actuated from variations in temperature in the hatching-chamber and arranged to divert the flow of liquid from the boiler away from said pipe, substantially as set forth.

4. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating the same, a boiler having a connection with said pipe, a valve-casing inserted in said connection, a tube connected with said valve-casing, a valve controlling the flow of liquid through said tube from the valve-casing and means actuated from variations in temperature in the hatching-chamber and arranged to actuate said valve, substantially as set forth.

5. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating the same, a boiler having a connection with said pipe, a valve-casing inserted in said connection, a tube open at its upper end and having its lower end connected with said valve-casing, a tank, a pipe connection leading from near the upper end of said tube into said tank, a valve controlling the flow of liquid through said tube from the valve-casing and means actuated from variations in temperature in the hatching-chamber and arranged to actuate said valve, substantially as set forth.

6. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating the same, a boiler having a connection with said pipe, a valve-casing inserted in said connection, a tube connected with said valve-casing and adapted to receive liquid diverted from said heating-pipe of the hatching-chamber, a valve controlling the flow of liq-

uid through said tube from the valve-casing, a thermostat in the hatching-chamber, and a lever actuated from said thermostat and having a connection with said valve, substantially as set forth.

7. In an incubator, the combination of a casing having a hatching-chamber and an air-chamber provided with an air-outlet, a pipe for heating said air-chamber, a boiler outside the casing for supplying said pipe, valves controlling the escape of air at the air-outlet and also controlling the flow of liquid from the boiler to the heating-pipe, respectively, a thermostat in the hatching-chamber and means for actuating both of said valves from said thermostat, substantially as set forth.

8. In an incubator, the combination of a casing having a hatching-chamber, means for heating said chamber, and trays removably held in the hatching-chamber and having walls which fit flush against each other and against the upper and lower walls of the hatching-chamber, the said walls of the trays being spaced away from an adjacent wall of the hatching-chamber to produce a dead-air space between the trays and said wall of the hatching-chamber to prevent transmission of heat from the interior of the trays, substantially as set forth.

9. In an incubator, the combination of a casing having a hatching-chamber and an air-chamber provided with an air-outlet, a pipe for heating said air-chamber, a boiler outside the casing for supplying said pipe, a valve controlling the escape of air at the air-outlet and a valve controlling the flow of liquid from the boiler to the heating-pipe, a thermostat in the hatching-chamber, a lever pivoted on the casing and having at one end connection with the thermostat, and connections between the other end of said lever and the respective valves, whereby both the valves are actuated from said thermostat, substantially as set forth.

10. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating said chamber, a boiler connected with the pipe and provided with a heater, and means, controlled by variations in the temperature of the hatching-chamber, for controlling the supply of liquid from the boiler to said pipe for heating the hatching-chamber, substantially as set forth.

11. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating said chamber, a tank, a boiler with which said pipe and tank are respectively connected, a heater for the boiler and means, controlled by variations in temperature in the hatching-chamber and arranged for controlling the connections between the boiler and the tank and heating-pipe, substantially as set forth.

12. In an incubator, the combination of a casing having a hatching-chamber, a pipe for heating said chamber, a boiler for supplying liquid to said pipe, a tank, means controlled by variations in temperature in the hatching-chamber and arranged for diverting the liquid flowing from the boiler into said tank and a connection extended from the tank to the lower part of the boiler, substantially as set forth.

678,883. KNITTING-MACHINE. WILL R. JOHNS, Rockford, Ill., assignor to the Excelsior Automatic Knitting Machine Company, Norristown, Pa. Filed Sept. 1, 1892. Serial No. 444,841. (No model.)

Claim.—1. The combination with two wheels and their supporting parts, of an oscillatory arm connected with one of said wheels, a transmitting device connecting said arm with the other wheel, and locking and releasing mechanism for said arm, substantially as described.

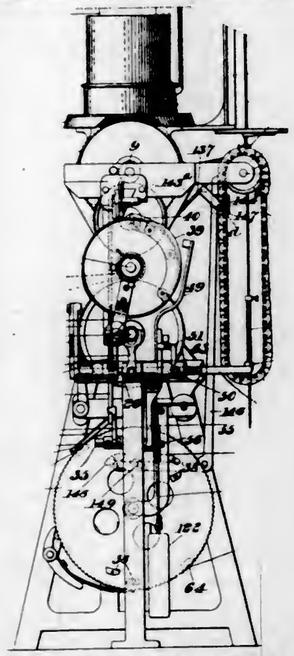
2. The combination with two wheels and their supporting parts, of an oscillatory arm connected with one of said wheels, a transmitting device connecting said arm with the other wheel, a pin or bolt adapted to lock the arm to the wheel, and mechanism for operating the pin or bolt in a manner to lock or release the said arm, substantially as described.

3. The combination with two wheels and their supporting parts, of an oscillatory arm connected with one of said wheels, a transmitting device connecting said arm with the other wheel, a pin or bolt adapted to lock the arm to the wheel, a rocking shaft connected with said pin or bolt, and means for oscillating said shaft so as to operate the pin or bolt, substantially as described.

4. The combination with two wheels, their supporting parts, and independent driving mechanism for said wheels, of an oscillatory arm connected with one of said wheels, a transmitting device connecting said arm with the other wheel, locking and releasing mechanism to lock said arm and release it from its wheel, and means for actuating said locking and releasing mechanism upon the operation of the driving mechanism, substantially as described.

5. The combination of a spur-wheel, its shaft, a pinion engaging said spur-wheel, a shaft for said pinion, and operating devices therefor, a gear loosely mounted on said latter shaft, and means for independently operating said gear, a spur-wheel engaging said gear, an oscillatory arm on said latter wheel, a transmitting device connecting said arm with the first-mentioned spur-wheel, and locking and releasing mechanism to lock said arm to and release it from its wheel, substantially as described.

6. The combination with two wheels, their supporting parts, and independent driving mechanism for said wheels, of transmitting devices connecting said wheels, locking and releasing mechanism to lock said transmitting devices to, and release them from one of said wheels, a pattern mechanism, and devices controlled thereby for operating the locking and releasing and the driving mechanisms, substantially as described.



7. A shaft, a pinion and a fast pulley on said shaft, a sleeve thereon, a pinion and a fast pulley on said sleeve, and shipping devices for transferring the driving-belt from one pulley to the other, in combination with two spur-wheels in gear with said pinions respectively, a transmitting device connecting said wheels, locking and releasing mechanism to lock said transmitting devices to and release them from one of said wheels, and means for operating said mechanism, substantially as described.

8. The combination of the driving-pulleys and shipper device, of a shaft connected with said device, a bar connected with said shaft, a movable piece connected with said bar, and cam devices for operating said piece at predetermined intervals in order to effect the action of the bar, substantially as described.

9. The combination of the driving-pulleys and a shipper device, of a shaft connected with said device, a bar connected with said shaft, a movable piece connected with said bar, and cam devices on the edges of the pulleys adapted to operate said piece at predetermined intervals in order to effect the action of the bar, substantially as described.

10. The combination of the driving-pulleys, a shipper device, and supporting means therefor, a sliding oscillatory piece disposed in proximity to the pulleys, a connection between said piece and the shipper-support, and means for operating said sliding piece, substantially as described.

11. The combination of the driving-pulleys, a shipper device and supporting means therefor, a bar, operative means between the bar and the shipper device, a sliding oscillatory piece connected with said bar, cam devices for actuating said piece, and a spring latch or hook adapted to lock said bar in an elevated position, substantially as described.

12. The combination of the driving-pulleys, a shipper device, a rocking shaft connected with said device, a bar operatively connected with said rocking shaft, and means for raising and lowering said bar at intervals, substantially as described.

13. The combination of the driving-pulleys, a shipper device, a rocking shaft connected therewith, a bar connected with said shaft, a movable piece connected with said bar, means for oscillating the same, to raise or lower said bar, and means for oscillating said bar to reciprocate the said piece, substantially as described.

14. The combination of the shaft, the fast driving and the loose pulley thereon, the sleeve on the shaft, and the fixed driving-pulley on said sleeve, a pinion on the shaft and a pinion on the sleeve, a rotatable cylinder, and operative connections between said pinions and the cylinder, the shipper device, means for operating the same to transfer the belt from one driving-pulley to the other, and independent means for operating the shipper device to transfer the belt onto the loose pulley, substantially as described.

15. The combination of the shaft, the fast driving and the loose pulley thereon, the sleeve on the shaft and the fixed driving-pulley on said sleeve, a pinion on the shaft and a pinion on the sleeve, a rotatable cylinder and operative connections between said pinions and the cylinder, the shipper device and means for operating the same to transfer the belt from one pulley to the other, together with means for automatically locking the sleeve-pulley when the belt is removed from the same, substantially as described.

16. The combination of the ratchet-wheel provided with a blank or space at a predetermined part of its periphery, and with a tooth laterally adjacent to said blank or space, a pawl adapted to rest upon the toothed periphery of the ratchet-wheel, and a supplemental pawl adapted to engage the said laterally-disposed tooth, together with means for vibrating said pawls and means for moving said supplemental pawl into and out of action with the tooth, at predetermined intervals, substantially as described.

17. The combination of the ratchet-wheel provided with a blank or space at a predetermined part of its periphery and with a tooth laterally adjacent to said blank or space, a pawl adapted to rest upon the toothed periphery of the ratchet-wheel, a supplemental pawl adapted to engage the said laterally-disposed tooth, means for vibrating said pawl, an outwardly-projecting arm connected with said supplemental pawl and a spring-supported rod sustaining said arm, substantially as described.

18. The combination of the ratchet-wheel provided with blanks or spaces at predetermined intervals on its periphery, and with teeth laterally adjacent to said blanks or spaces, a pawl adapted to rest upon the toothed periphery of the ratchet-wheel, a supplemental pawl adapted to engage said laterally-disposed teeth, means for vibrating said pawls, a spring-actuated rod supporting said arm, and two projecting arms on said rod, the upper one of which arms may be thrown out of active position, substantially as described.

19. The combination of the vertically-movable rod and its supporting parts, of a tilting arm pivoted thereto, means for maintaining said arm in a horizontal position and means to uphold the rod, together with pattern-actuating mechanism, and connections between the same and said rod, substantially as described.

20. The combination of the ratchet-wheel, the main and supplemental pawls, the vibratory arm with which they are connected, the crank-arm adapted to operate said former vibratory arm, and means for actuating said crank-arm, together with a movable rod and a connection between the same and the supplemental pawl, substantially as described.

21. The combination with a needle-bed and its needles, of mechanism adapted to throw said needles into and out of action at predetermined intervals, a bar connected with said mechanism, a dog device adapted to impel said bar, and means for operating said dog device, substantially as described.

22. The combination with a needle-bed and its needles, of a reciprocative needle-controlling mechanism, a bar connected with said mechanism and provided with two oppositely-pitched sets of ratchet-teeth, a vibratory dog device adapted to engage said teeth, and means for operating said dog device, substantially as described.

23. The combination with a needle-bed and its needles, of a two-part reciprocative needle-controlling mechanism, bars connected with the respective parts of said mechanism, ratchet-teeth on said bars, vibratory dog devices adapted to engage said teeth, and means for supporting and operating said dog devices, substantially as described.

24. The combination with the toothed bar, of the pivoted arm, the double-acting vibratory dog thereon, means for vibrating said dog, means for oscillating the arm, and means for raising and lowering the said arm at predetermined intervals, substantially as described.

25. The combination with the toothed bar, of a pivoted dog, a support therefor, an arm connected with said support, a bar having a cam connection with said arm, and means for reciprocating said bar when the driving mechanism is operated to effect the change from circular to reciprocatory work, together with said driving mechanism, substantially as described.

26. The combination with the toothed bars, of the oscillatory arm, the pivoted recessed dogs thereon, the block engaging the recesses of said dogs, the spring-actuated plungers, means for supporting said plungers and means for operating the same, substantially as described.

27. The combination with a needle-bed and its needles, of a reciprocative needle-controlling mechanism, a bar connected with said mechanism and provided with two oppositely-pitched sets of ratchet-teeth, a vibratory dog device, adapted to engage said teeth, and means for operating said dog device, together with means for locking said bar in its positions of adjustment, substantially as described.

28. The combination with the shaft, the cam thereon, and mechanism for operating said shaft, of the longitudinally-movable bar, the dog devices therefor, the oscillatory arm for said devices, and the movable member on said arm adapted to be thrown into and out of the path of the cam at intervals, and means for operating said member, substantially as described.

29. The combination with the longitudinally-movable bar, of a dog device, a support therefor, an arm connected with said support, a bar having a cam connection with said arm, means for reciprocating said bar, and means for locking the dog-support at intervals, substantially as described.

30. The combination with the needle-bed, its needles, the thread-carrier and its support, of a vertically-movable rod over which the thread passes on its way to the carrier, and means for moving said rod to exert a yielding pressure, together with means for retracting said rod from engagement with the thread, substantially as described.

31. The combination, with the needle-bed, its needles, the thread-carrier and its support, of a thread-guide, a tension-rod mounted in proximity thereto, and a spring acting upon said rod to maintain it yieldingly against the thread passing through said guide, together with means for retracting said rod from engagement with the thread, substantially as described.

32. The combination, with the needle-bed, its needles, the thread-carrier and its support, of a reciprocative tension device, a spring tending to maintain said device yieldingly against the thread, and means for gradually releasing said rod to permit the pressure thereof upon the thread to be gradually increased as the knitting proceeds, substantially as described.

33. The combination, with the needle-bed, its needles, the thread-carrier and its support, of a reciprocative tension device, a spring for maintaining said device yieldingly against the thread, and means for compressing and releasing said spring at predetermined intervals, substantially as described.

34. The combination, with the needle-bed, its needles, the thread-carrier and its support, of a tension device, a spring for maintaining said device yieldingly against the thread, a lever acting upon said rod, a pattern-chain coacting with said lever, and means for operating said chain, substantially as described.

35. The combination, with the needle-bed, its needles, the thread-carrier and its support, of a tension device, a pattern-chain, connections between the same and the tension device, a chain-wheel, ratchet-and-pawl mechanism for operating said wheel, a main pattern mechanism, and means controlled thereby for rendering the pawl active and idle at predetermined intervals, substantially as described.

36. The combination with the needle-bed, its needles, the thread-carrier and its support, of a thread-guide, a spring-controlled tension-rod in proximity thereto, a pattern-chain, connections between the same and the rod, the chain-wheel, its shaft, the ratchet-wheel, the pawl, the eccentric, and the shaft for the latter, substantially as described.

37. The combination with the needle-bed, its needles, the thread-carrier and its support, of a thread-guide, a spring-controlled tension-rod in proximity thereto, a pattern-chain, connections between the same and the rod, the chain-wheel, its shaft, the ratchet-wheel, the pawl, the eccentric and the shaft for the latter, together with means for throwing said pawl out of and into engagement with the ratchet-teeth, substantially as described.

38. The combination with the cam-carrier and the knitting-cams therein, of a pivoted cushion-arm disposed below one of the side cams, and having its free end adjacent to the needle-raising incline of the adjacent cam, and means for yieldingly supporting said arm, substantially as described.

39. The combination with the cam-carrier and the knitting-cams therein, of cushion-arms disposed below the side cams, studs projecting from said arms through the wall of the carrier, arms on the outer ends of these studs, and a spring connecting said latter arms, substantially as described.

40. The combination with the cylinder or support 81, of the section 84 vertically movable thereon, the cam-lever mounted on said cylinder or support, and provisions whereby said lever is connected with the section, substantially as described.

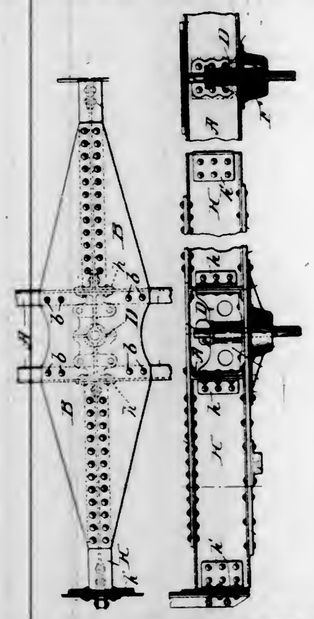
678,884. PROCESS OF PRODUCING BLUE SULFUR DYE. ADOLF KERTESS, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., same place. Filed July 15, 1899. Serial No. 723,990. (Specimens.)

Claim.—1. The process of producing blue dyes by treating with a mixture of air and steam at a temperature of over 100° centigrade, in the presence of an alkali, fiber previously dyed with the sulfur dyes obtained by treating primary substances with sulfur and sulfids, as and for the purpose hereinbefore set forth.

2. The process of producing blue dyes by treating with a mixture of air and steam, in the presence of an alkali, fiber previously dyed with

the sulfur dyes obtained by treating primary substances with sulfur and sulfids, as and for the purpose hereinbefore set forth.

678,885. **BOLSTER FOR RAILWAY-CARS.** GEORGE I. KING, Detroit, Mich., assignor to the American Car & Foundry Company, St. Louis, Mo. Filed Nov. 23, 1900. Serial No. 37,449. (No model.)



Claim.—1. In a bolster, the combination with top and bottom plates, of center sills, I-shaped web-plates arranged on each side thereof and rigidly secured thereto, said web-plates being of uniform depth throughout and coincident with that of the center sills to constitute continuous bearing-surfaces for the respective plates, and means for securing the plates in place, substantially as described.

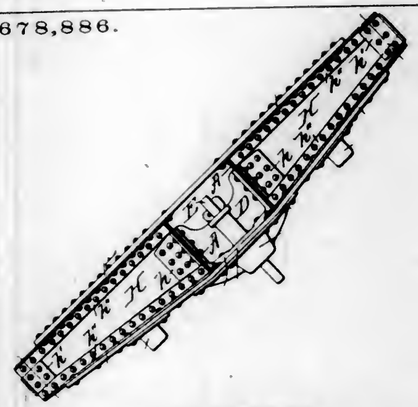
2. In a bolster, the combination with the center sills, of web-plates consisting of relatively short sections of commercially-rolled I-shaped beams arranged on each side thereof, the depth of the beams being uniform throughout and coincident with that of the center sills, a casting secured to the center sills intermediate of the inner ends of the web-plates, and means for securing the said plates to the center sills, substantially as described.

3. In a bolster, the combination with center sills, of I-shaped web-plates arranged on each side thereof, and secured thereto, said web-plates being of a depth coincident with the center sills to constitute continuous upper and lower surfaces, and top and bottom plates secured to the flanges of the web-plates and to the center sills respectively, said plates being widest at their points of connection with the center sills, substantially as described.

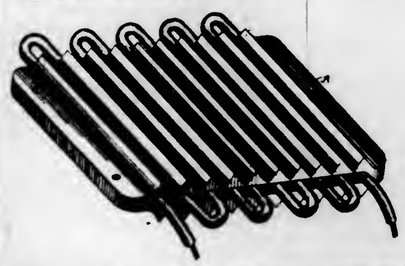
678,886. **BOLSTER FOR RAILWAY-CARS.** GEORGE I. KING, Detroit, Mich., assignor to the American Car & Foundry Company, St. Louis, Mo. Filed Nov. 23, 1900. Serial No. 37,450. (No model.)

Claim.—In a bolster, the combination with channel center sills having flanges projecting inwardly therefrom, and plain outer surfaces, top and bottom plates, web-plates extending outwardly from the plain sides of the center sills, said plates at their inner ends being of a depth coincident with that of the center sills, L-angles riveted along the top edge of the web-plates, said angles being regular throughout and occupying a horizontal plane in alinement with the upper surfaces of the center sills, means for securing the top plate to the flanges of the angles, correspopding L-angles riveted along the bottom edges of the plates and extending outwardly and upwardly, their inner ends being in alinement with the lower surfaces of the center sills, means for securing the bottom plates to the flanges of the lower angles, corner connection-plates intermediate of the ends of the respective angles for securing the web-plates in position, and center and side bearings on the bottom plate, substantially as described.

678,886.



678,887. **RESISTANCE DEVICE.** CARL W. LARSON, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 18, 1900. Serial No. 1,847. (No model.)



Claim.—1. An electric resistance, which comprises carbon rods provided with a thin sheath of incombustible heat-conducting and electric insulating material substantially as described, said rods being retained within a body of metal by a suitable plastic heat-conducting and electric insulating material.

2. An electric resistance, which comprises carbon rods provided with a thin sheath of mica, said rods being retained in a body of metal by a suitable plastic heat-conducting and electric insulating material.

3. An electric resistance, which comprises carbon rods provided at their ends with means for connecting them with the outside leads, a thin sheath of incombustible heat-conducting and electric insulating material surrounding said rods and connecting means, said parts being retained within a body of metal by a suitable plastic heat-conducting and electric insulating material.

4. An electric resistance, which comprises a metallic body provided with a plurality of perforations, a carbon rod in each perforation, copper caps on the ends of the rods, connecting-wires secured to the ends of said caps, a thin sheath of incombustible heat-conducting and electric insulating material which surrounds the rods and caps, and a plastic heat-conducting and electric insulating material which surrounds the sheath and retains the rods in the perforation of the casing.

5. An electric resistance comprising a metallic body provided with cavities, resistance-conductors in said cavities, and plastic material adapted to secure said conductors within said cavities by mechanically interlocking with said body.

6. An electric resistance comprising a metallic body having a large radiating-surface, said body being also provided with cavities, each of which has more than one diameter, carbon rods in said cavities, and a heat-conducting electric insulating cement filling the space between said conductors and said body.

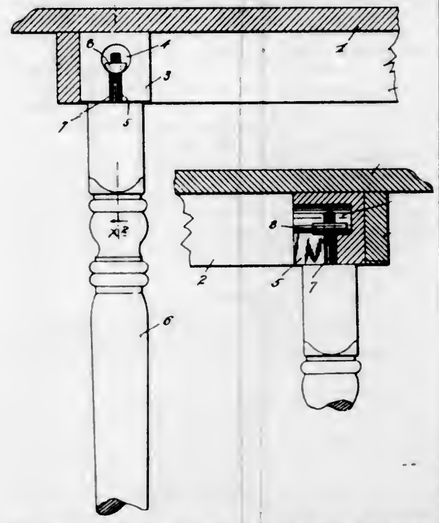
7. An electric resistance, which comprises carbon rods provided with a thin sheath of incombustible heat-conducting and electric insulating material substantially as described, copper caps on the ends of the rods, connecting-wires secured to the ends of said caps, said rods being retained within a body of metal by a suitable plastic heat-conducting and electric insulating material.

8. An electric resistance, comprising a metallic body provided with a plurality of perforations, a carbon rod in each perforation and having reduced ends, copper caps having holes fitting the reduced ends, the outer surfaces of the caps being flush with the surfaces of the rods, connecting-wires secured in the ends of the caps, a thin sheath of incombustible heat-conducting and electric insulating material which surrounds the rods and caps, and a plastic heat-conducting and electric insulating material which surrounds the sheath and retains the rods in the perforation of the casing.

9. A resistance device comprising carbon rods surrounded by a sheath of incombustible electric insulation which is in turn surrounded and secured within a support by means of a plastic material.

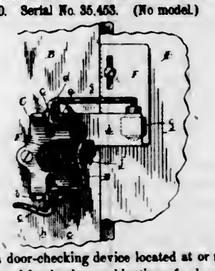
10. An electric resistance comprising a metal casing, resistance-conductors in the casing, a thin sheath of mica surrounding each conductor, and a material filling the spaces between the resistance-conductor and the casing, to insulate them from each other, convey heat from one to the other, hold the conductors secure within the casing, and exclude air from the conductors.

678,888. **DETACHABLE TABLE-LEG.** JOHN LUGER, Jr., North St. Paul, Minn. Filed Oct. 8, 1900. Serial No. 32,333. (No model.)



Claim.—The combination with a table-top, having a corner-block 3 formed with the horizontal recess or nut-seat 4 with contracted bolt-passage 5, said seat 4 opening directly at one side of the block, of the table-legs 6 having the screw-bolt 7 rigidly anchored to and projecting from its upper side, and the nut 8 on the said bolt 7, which nut and bolt are, respectively, insertible in said seat 4 and passage 5, by lateral movement of the parts, and which nut 8 is of such length that it cannot be turned within the said seat 4, substantially as described.

678,889. **DOOR-CHECK.** GEORGE W. MALLORY, Guilds, Canada. Filed Nov. 5, 1900. Serial No. 35,453. (No model.)



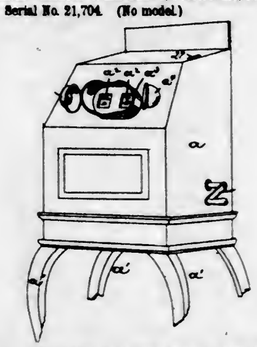
Claim.—1. In a door-checking device located at or near the meeting edges of the door and jamb, the combination of a bracket, a spring-actuated shaft journaled in the bracket, a presser-arm extending from said shaft, and a plate or lip for actuating the presser-arm upon the inward movement of the door, substantially as described.

2. In a door-checking device located at or near the meeting edges of the door and jamb, the combination of a bracket, a crank-shaft journaled in said bracket, a spring connected to the crank, a presser-arm extending from one end of the shaft, a finger from the other end, and a stop to limit the movement of the shaft in one direction, and a plate or lip in operative relation for actuating the presser-arm by the inward movement of the door, substantially as described.

3. In a door-checking device located at or near the meeting edges of the door and jamb, the combination of a bracket, a crank-shaft journaled in said bracket, a spring connected to the crank, a presser-arm extending from one end of the shaft, a finger from the other end, and stops to limit the movement of the shaft in either direction, and a lip or projection for operating the presser-arm upon the inward movement of the door, substantially as described

4. In a door-checking device located at or near the meeting edges of the door and jamb, the combination of the bracket having arms *a b*, a crank-shaft journaled in the ends of said arms, a spring E at one end connecting with the crank-shaft and connected at the other end to the bracket, of the curved presser-arm *f* at one end of the crank-shaft, the antifriction-roller *g* thereon, the arm *h* at the other end of the shaft, the stop *e* with which the arm *h* is adapted to engage, and the plate F with which the arm *f* is adapted to engage substantially as and for the purpose described.

678,890. **COMBINED TALKING AND PICTURE-EXHIBITING MACHINE.** HAROLD C. MATTHEWS, Pottersville, N. J. Filed June 27, 1900. Serial No. 21,704. (No model.)



Claim.—1. The combination with a graphophone having the speaker *c*, of a stay carried by said speaker and comprising an upwardly-extending rod turned or booked at its end, and a series of picture-cards pivoted at one edge and adapted to be held at the other edge in elevated position by said stay, substantially as set forth.

2. The combination of a graphophone or other talking-machine, a series of picture-cards hinged at one edge, a support on which said picture-cards may lie across the line of vision, means for tipping said cards up out of the line of vision, and a stay carried by the speaker of the graphophone and adapted at its upper end to engage the free edges of the cards and hold them in elevated position, substantially as set forth.

3. The combination of a graphophone or other talking-machine, having a traveling speaker, a series of picture-cards secured at one edge to a pivoted support, a weight normally holding said support elevated, a shaft with a spring thereon for actuating the graphophone and means for turning said shaft to wind up the spring, tripping means connecting said shaft and pivoted picture-support, and a stay carried by the graphophone-speaker and adapted to retain the picture-cards in elevated position independent of their support, substantially as set forth.

4. In a combined talking and picture-exhibiting machine, the combination of the pivoted picture-support having a projecting arm, a bell-crank lever engaging at one arm said projecting-arm of the picture-support, an actuating-spring and winding-shaft for the machine, and a disk or wheel geared to said shaft and adapted to trip the second arm of the bell-crank lever to operate the picture-support as the spring is wound up, substantially as set forth.

5. The combination with the weighted picture-support 19, having pivotal ends 191, 191, and the main shaft 30, of a rigid arm on one of said pivoted ends 191, a bell-crank lever 24, one arm of which engages with the said rigid arm, and a disk or wheel 50, geared to the main shaft and having a pin adapted to engage the second arm of the bell-crank lever for a portion of its revolution, and move the same, substantially as set forth.

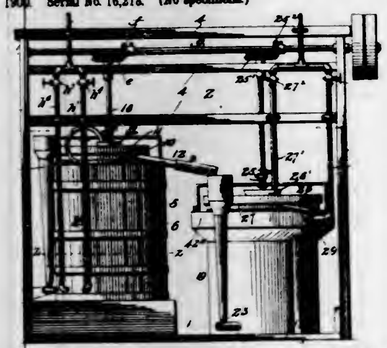
6. In a combined picture-exhibiting and talking machine, the combination of a graphophone receiving power through suitable gear-wheels, a series of picture-cards arranged upon a pivoted support, means for giving said support an angular movement, a rod eccentrically connected to said support, and a pawl at the other end of said rod adapted to engage the gear-wheels of the graphophone, substantially as set forth.

7. In a combined picture-exhibiting and talking machine, the com-

bination of a graphophone or the like, a series of picture-cards pivotally supported and adapted to swing like the leaves of a book, a holder for the free edges of said picture traveling with the speaker of the graphophone, a rotating screw-shaft for automatically returning said speaker to initial position, a brake or detent for the graphophone and connected to the series of picture-cards, and means for swinging said pictures through their angular range of movement, substantially as set forth.

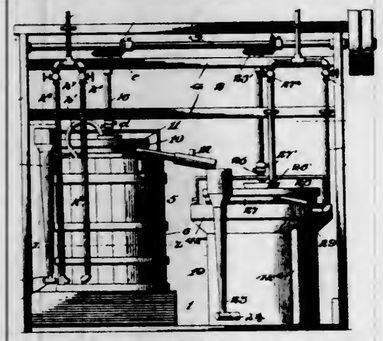
8. In a combined talking and picture-exhibiting machine, the combination of a speaker or sound-producer adapted to travel longitudinally of a record-cylinder, a series of superposed picture-cards hinged at their edges, and a stay carried by the said speaker or sound-producer and grasping the free edges of the picture-cards and normally holding them out of the line of vision, said free edges of the picture-cards being stepped or recessed at suitable points whereby they will be released when the stay moves to coincide with said points, and allowed to fall into view, substantially as set forth.

678,891. PROCESS OF STERILIZING LIQUIDS. JOHN C. MILLER, Canton, Ohio, assignor to Jacob H. Miller, same place. Filed May 10, 1900. Serial No. 16,218. (No specimens.)



Claim.—The process of sterilizing liquids which consists of the following steps: suddenly raising the temperature of the liquid uniformly to the required degree, subjecting it to the atmospheric air to liberate therefrom all gases and fumes, and suddenly, and continuously, without pause, reducing its temperature.

678,892. APPARATUS FOR STERILIZING LIQUIDS. JOHN C. MILLER, Canton, Ohio, assignor to Jacob H. Miller, same place. Filed May 16, 1900. Serial No. 16,854. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a sterilizer comprising a tub, two cylinders placed within the tub one within the other, one of said cylinders being provided with a feed-screw which works against the other cylinder, of a steam or hot-water pipe located within the tub exterior to the cylinders, and an injector located in the tub to eject the water therefrom and inject it into the innermost cylinder whereby a uniform temperature is maintained between the two cylinders, substantially as set forth.

2. In an apparatus of the character described, the combination with a sterilizer comprising a tub and two cylinders placed within the tub one within the other, one of said cylinders being provided with a feed-screw which works against the other cylinder, of a steam or hot-water pipe located within the tub exterior to the cylinders, and an ejector located in the tub to eject the water therefrom and inject it into the innermost cylinder whereby a uniform temperature is maintained between the two cylinders, substantially as set forth.

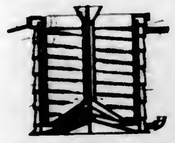
3. In an apparatus of the character described, the combination with a sterilizer comprising a tub and two cylinders placed within the tub one within the other, of a steam or hot-water discharge-pipe located in the bottom of the tub exterior to the cylinders, and an injector leading from the tub to the innermost cylinder, substantially as set forth.

4. In an apparatus of the character described, the combination with a sterilizer comprising a tub and two cylinders placed within the tub one within the other, of a steam or hot-water coil located in the bottom of the tub exterior to the cylinders, a vertical pipe extending downwardly and in close proximity to the bottom of the innermost cylinder, and an injector leading from the tub and adapted to discharge into the vertically-disposed pipe within the cylinder, substantially as set forth.

5. In an apparatus of the character described, the combination with a sterilizer comprising a tub and two cylinders placed within the tub one within the other, of an air-inlet pipe located in the bottom of the tub, and means for maintaining a continuous circulation of water between the tub and innermost cylinder, substantially as set forth.

6. The combination of a cooler comprising an inner and outer cylinder, the inner cylinder being provided with a feed-screw to engage the inner wall of the outer cylinder, the outer cylinder being provided with an external tortuous water-passage and with an upper trough which communicates with the space formed between the two cylinders, and the inner cylinder being provided with a lateral flange or guard extending over said trough, a second trough arranged around the outer cylinder and extending laterally beyond the first-named trough and adapted to receive the overflow from the inner cylinder, a water-pipe communicating with the inner cylinder and the tortuous passage of the outer cylinder, a pipe communicating with the lower end of the tortuous passage and the last-named trough, substantially as set forth.

678,893. APPARATUS FOR STERILIZING AND COOLING LIQUIDS. JOHN C. MILLER, Canton, Ohio, assignor to Jacob H. Miller, same place. Filed Dec 7, 1899. Serial No 739,469. (No model.)



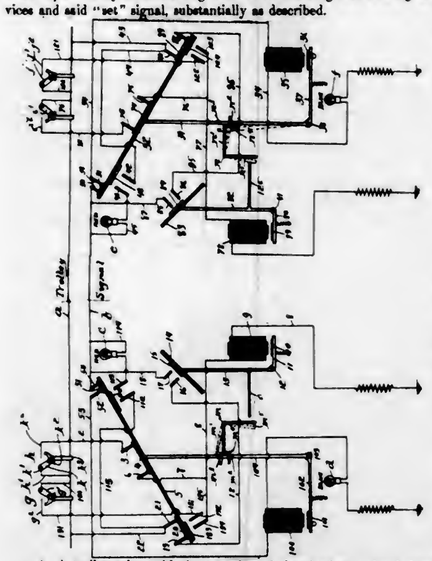
Claim.—In a device of the character described, the combination with the sterilizer, of a cooler consisting of a tub and an inner and an outer vessel located within said tub and communicating with the sterilizer, said tub consisting of a spiral strip having a continuous flange to form a spiral or winding chamber adjacent to the outer cylinder which is inclosed therein.

678,894. TROLLEY-SIGNAL. CHARLES H. MORSE, Cambridge, Mass. Filed Aug. 11, 1900. Serial No. 26,572. (No model.)

Claim.—1. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal, which when in one position holds the signal "set" and when in another position prevents operation of the signal, means at each end of said block, operated by the trolley, for "setting" the signal at the opposite or leaving end of the block and for operating the locking device to lock it "set," and for also operating the locking device at the entering end of the block to prevent the operation of the signal thereat, substantially as described.

2. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal, which when in one position holds the signal "set" and when in another position prevents operation of the signal, means at each end of said block, operated by the trolley, for "setting" the signal at the opposite or leaving end of the block and for operating the locking device to lock it "set," and for also operating the locking device at the entering end of the block to prevent the operation of the signal thereat, and means at each end of said block also operated by the trolley for restoring said "set" signal and also for restoring both locking devices, substantially as described.

3. A trolley-wire, a block or section of signal-wire, entering and leaving contacts at each end of said block operated by the trolley, a visual signal at each end of said block, a switch for each visual signal for connecting it in circuit with the trolley-wire, a locking device for each switch which when in one position holds the switch with the visual signal "set" and when in another position prevents operation of said switch, means operated by either entering contact for operating the switch at the opposite end of the block to "set" the visual signal at said remote end of the block and also for moving said switch into engagement with its locking device and for also moving the other locking device into position to prevent the operation of the switch at the entering end of the block, and means operated by either leaving contact for restoring both locking devices and said "set" signal, substantially as described.



4. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal which when in one position holds the signal "set" and which in another position prevents operation of the signal, an electromagnet at each end of the block for "setting" the signal and for locking it "set," means at each end of the block, operated by the trolley, for operating the electromagnet at the opposite or leaving end of the block to "set" and lock the signal and also operate the locking device at the entering end of the block to prevent the operation of the signal thereat, substantially as described.

5. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal which when in one position holds the signal "set" and when in another position prevents operation of the signal, an electromagnet at each end of the block for "setting" the signal and for locking it "set," means at each end of the block, operated by the trolley, for operating the electromagnet at the opposite or leaving end of the block to "set" and lock the signal and also operate the locking device at the entering end of the block to prevent the operation of the signal thereat, and means at each end of said block, also operated by the trolley, for restoring said "set" signal and also for restoring both locking devices, substantially as described.

6. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal which when in one position holds the signal "set" and when in another position prevents operation of the signal, an electromagnet at each end of the block for "setting" the signal and for locking it "set," a relay at each end of the block, the circuit of which is operated by the trolley, for connecting the circuit of the electromagnet at the opposite end of the block with the trolley-wire and for also operating the locking device at the entering end of the block to prevent the operation of the signal thereat, substantially as described.

7. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal which when in one position holds the signal "set" and when in another position prevents operation of the signal, an electromagnet at each end of the block for "setting" the signal and for locking it "set," a relay at each end of the block, entering and leaving contacts at each end of the block adapted to be operated by the trolley for operating the circuit of said relay, and means controlled by the armature of each relay for connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire and for operating the locking device at the entering end of the block to prevent the operation of the signal thereat, substantially as described.

8. A trolley-wire, a block or section of signal-wire normally disconnected from the trolley-wire, and having a normally closed ground branch at each end, a visual signal as *c*, *e* at each end of said block included in a normally open connecting-wire between the trolley-wire and signal-wire, an electromagnet at each end for connecting the visual signal at the corresponding end of the block in circuit with the trolley-wire, a relay at each end of the block, means for connecting its circuit with the trolley-wire, and means operated by the armature of each relay for closing a connection between the signal-wire and trolley-wire and thereby connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire, substantially as described.

9. A trolley-wire, a block or section of signal-wire normally disconnected from the trolley-wire, and having a normally closed ground branch at each end, a visual signal as *c*, *e* at each end of said block included in a normally open connecting-wire between the trolley-wire and signal-wire, an electromagnet at each end for connecting the visual signal at the corresponding end of the block in circuit with the trolley-wire, and for opening the ground branch, a relay at each end of the block, means for connecting its circuit with the trolley-wire, and means operated by the armature of each relay for closing a connection between the signal-wire and trolley-wire and thereby connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire, substantially as described.

10. A trolley-wire, a block or section of signal-wire normally disconnected from the trolley-wire, and having a normally closed ground branch at each end, a visual signal as *c*, *e* at each end of said block included in a normally open connecting-wire between the trolley-wire and signal-wire, a switch for closing said connecting-wire, an electromagnet at each end of the block for operating the switch at the corresponding end of the block to connect the visual signal in circuit with the trolley-wire, a relay at each end of the block, a switch operated by the armature of each relay for closing a connection between the signal-wire and trolley-wire and thereby connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire and circuit-operating devices for the circuits of said relays operated by the trolley, substantially as described.

11. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a switch for connecting it in circuit with the trolley-wire, a locking device for each switch, which when in one position holds the switch with the signal "set" and when in another position prevents operation of said switch, an electromagnet at each end of the block for operating the switch at the corresponding end of the block to connect the visual signal in circuit with the trolley-wire and for operating the locking device to lock said switch, a relay at each end of the block, a switch operated by the armature of each relay for connecting the electromagnet at the opposite or leaving end of the block in circuit with the trolley-wire through the signal-wire, and means also operated by the armature of each relay for operating the locking device at the entering end of the block, to prevent the operation of the switch thereat, substantially as described.

12. A trolley-wire, a block or section of signal-wire, two different visual signals at each end of the block, a locking device at each end of the block for one of said signals, which when in one position holds the signal "set" and when in another position prevents the operation of the signal, means at each end of the block, operated by the trolley, for "setting" one of the signals at the corresponding end of the block and for operating the locking device to prevent the operation of the other signal, and for "setting" one of the signals at the opposite end of the block and for operating the locking device to lock it "set," substantially as described.

13. A trolley-wire, a block or section of signal-wire, two different visual signals at each end of the block, a locking device at each end of the block for one of said signals, which when in one position holds the signal "set" and when in another position prevents the operation of the signal, means at each end of the block, operated by the trolley, for "setting" one of the signals at the corresponding end of the block and for operating the locking device to prevent the operation of the other signal, and for "setting" one of the signals at the opposite end of the block and for operating the locking device to lock it "set," and means at each end of the block, also operated by the trolley, for restoring said "set" signals and also for restoring both locking devices, substantially as described.

14. A trolley-wire, a block or section of signal-wire normally disconnected from the trolley-wire, and having a normally closed ground branch at each end including a visual signal, another visual signal at each end of said block included in a normally open connecting-wire between the trolley-wire and signal-wire, an electromagnet at each end of the block for closing said connecting-wire between the trolley-wire and signal-wire and thereby setting the visual signal at the corresponding end of the block and for opening a ground branch including the other visual signal, a relay at each end of the block, means for connecting its circuit with the trolley-wire, and means operated by the armature of each relay for closing a connection between the trolley-wire and signal-wire and thereby connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire, substantially as described.

15. A trolley-wire, a block or section of signal-wire normally disconnected from the trolley-wire, and having a normally closed ground branch at each end, a visual signal as *c*, *e* at each end of said block included in a normally open connecting-wire between the trolley-wire and signal-wire, an electromagnet at each end for connecting the visual signal at the corresponding end of the block in circuit with the trolley-wire, a relay at each end of the block, means for connecting its circuit with the trolley-wire, and means operated by the armature of each relay for closing a connection between the signal-wire and trolley-wire and thereby connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire, and means also operated by the armature of each relay for preventing the electromagnet at the corresponding end of the block from operating, substantially as described.

16. A trolley-wire, a block or section of signal-wire normally disconnected from the trolley-wire, and having a normally closed ground branch at each end including a visual signal another visual signal at each end of said block included in a normally open connecting-wire between the trolley-wire and signal-wire, an electromagnet at each end of the block for closing said connecting-wire between the trolley-wire and signal-wire and thereby setting a visual signal at the corresponding end of the block and for opening a ground branch including the other visual signal, a relay at each end of the block, means for connecting its circuit with the trolley-wire, and means operated by the armature of each relay for closing a connection between the trolley-wire and signal-wire and thereby connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire, and means also operated by the armature of each relay for preventing the electromagnet at the corresponding end of the block from operating, substantially as described.

17. A trolley-wire, a block or section of signal-wire, two different visual signals at each end of the block, a switch at each end of the block for connecting one of said signals in circuit with the trolley-wire, and another switch at each end of the block for disconnecting the other signal, a locking device for one of said switches at each end of the block, which when in one position holds the switch with the signal "set" and when in another position prevents operation of the switch, an electromagnet at each end of the block for operating the switches at the corresponding end of the block and operating the locking device to lock one of said switches with the signal "set," a relay at each end of the block, a switch operated by the armature of each relay for connecting the electromagnet at the opposite end of the block in circuit with the trolley-wire through the signal-wire, and means also operated by the armature of each relay for operating the locking device to prevent the operation of the switches at the corresponding end of the block, substantially as described.

18. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal which when in one position holds the signal "set" and when in another position prevents operation of the signal, means at each end of said block for "setting" the signal at the opposite or leaving end of the block and for operating the locking device to lock it "set" and for also operating the locking device at the entering end of the block to prevent the operation of the signal thereat, substantially as described.

19. A trolley-wire, a block or section of signal-wire, a visual signal at each end of said block, a locking device for each visual signal which when in one position holds the signal "set" and when in another position prevents operation of the signal, means at each end of said block for "setting" the signal at the opposite or leaving end of the block and for operating the locking device to lock it "set" and for also operating the locking device at the entering end of the block to prevent the operation of the signal thereat, and means at each end of said block for restoring said "set" signal and also for restoring both locking devices, substantially as described.

20. A trolley-wire, a block or section of signal-wire, two different visual signals at each end of the block, a locking device at each end of the block for one of said signals, which when in one position holds the signal "set" and when in another position prevents the operation of the signal, means at each end of the block for "setting" one of the signals at the corresponding end of the block and for operating the locking device to prevent the operation of the other signal, and for "setting" one of the signals at the opposite end of the block and for operating the locking device to lock it "set," substantially as described.

21. A trolley-wire, a block or section of signal-wire, two different visual signals at each end of the block, a locking device at each end of the block for one of said signals, which when in one position holds the signal "set" and when in another position prevents the operation of the signal, means at each end of the block for "setting" one of the signals at the corresponding end of the block and for operating the locking device to prevent the operation of the other signal, and for "setting" one of the signals at the opposite end of the block and for operating the locking device to lock it "set," and means at each end of the block for restoring said "set" signals and also for restoring both locking devices, substantially as described.

678,895. PACKAGE-FASTENER. JAMES F. MCEVOY, Dubuque, Iowa, assignor to the Haney-Campbell Company, same place. Filed Nov. 10, 1899. Serial No. 736,562. (No model.)



Claim.—1. In a fastener for packages, a staple secured to the package and provided with a series of holes, a lever pivoted in one of said holes and having a shoulder near its outer end, combined with a hasp fastened to the cover and which closes down over both the staple and the lever, and engages with the shoulder on the lever, substantially as shown.

2. A package-fastener consisting of a plate attached to a package, a staple, a lever adjustably pivoted to the staple, a strap secured to the cover, a hasp loosely attached to said strap and adapted to engage said lever by means of a shoulder formed on the lever, substantially as described.

678,896. THIMBLE. THOMAS M. MCINTOSH, Pontiac, Ill. Filed Apr. 1, 1901. Serial No. 53,873. (No model.)

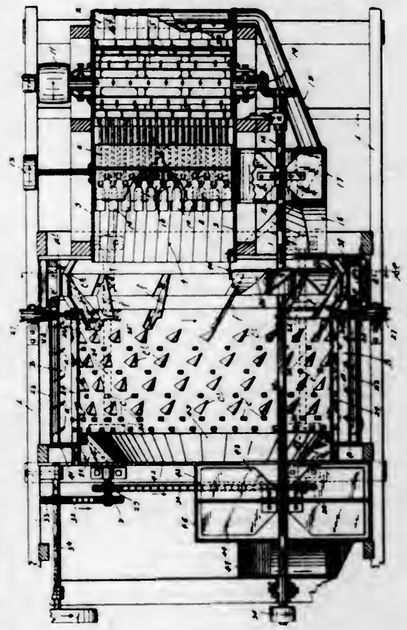


Claim.—1. As an improved article of manufacture, a thimble having a plurality of notches surrounding the closed end thereof, and a cutter exposed at regular intervals through said notches.

2. As an improved article of manufacture, a thimble having a plurality of notches surrounding the closed end thereof, and a tubular cutter fitted in the thimble and having its sharpened edge exposed at regular intervals through said notches.

3. As an improved article of manufacture, a thimble having a body with a plurality of notches forming prongs at the reduced end thereof and a cap over which said prongs are bent and secured, and a tubular cutter inserted in said body and having its sharpened edge exposed at intervals by said notches and intermediately shielded by said prongs.

678,897. THRESHER AND SEPARATOR. FRANK R. MCWALL, Minneapolis, Minn., assignor to Charles J. Gotshall, trustee, Bloomington, Ill. Filed Mar 2, 1900. Serial No. 7,072. (No model.)



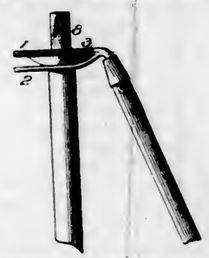
Claim.—1. In a combined thresher and separator, the combination with the stacker, of a rotary separating-drum, composed of the shells 23 and 24 spaced apart to afford the intermediate chamber B, the two-fan discharger, having one of its fans connected by draft-trunk with the rear end of said chamber B, for suction action thereon, and a blast-fan having its delivery-spout positioned to discharge into the head end of said chamber B, all for coöperation substantially as described.

2. In a combined thresher and separator, the combination with the thresher, of a rotary separating-drum receiving therefrom, a combined fan and propeller at the head end of the drum, with its blades positioned to work near the inner surface of the drum, and angular flights on the said drum for coöperation with the blades of said propeller, under the opposite rotary movements of said drum and propeller, for conjoint action on the stock delivered to the drum from the thresher, substantially as and for the purposes set forth.

3. The combination with the thresher, of the rotary separating-drum, the straw-discharger, the combined fan and propeller 39 and the flights *f* on the head end of the inner drum, for coöperation with said propeller 39, as described, with the inlet and outlet openings of the inner shell of the drum located out of line or eccentric to each other, all for coöperation substantially as described.

4. In a thresher, the combination with the threshing cylinder and concave, of a comb directly rearward of the concave within the thresher-casing, which comb is composed of a series of rearwardly-projecting arms 9, the alternative members of which are of unequal length, and a series of expanded fingers 10, secured to the rear ends of said bars and extending downward therefrom in position to lap with each other, for affording a complete deflecting-comb adapted to intercept the flying particles of grain and precipitate the same to the underlying grain-board, substantially as described.

678,898. BOBECHE-LIFTER. MARTIN O'CARROLL, Oskaloosa, Iowa. Filed Apr. 10, 1900. Renewed Jan. 5, 1901. Serial No. 42,242. (No model.)



Claim.—1. A bobèche-lifter comprising upper and lower prongs spaced apart a sufficient distance to receive between them the saucer of the bobèche, substantially as set forth.

2. A bobèche-lifter comprising upper and lower prongs disposed in parallel relation and spaced apart sufficiently far to receive between them the saucer of the bobèche, said prongs springing from a tang or shank common to each, substantially as specified.

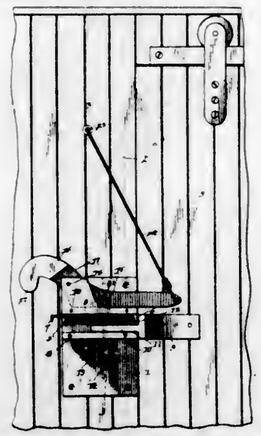
3. A bobèche-lifter comprising upper and lower prongs extending approximately in parallel relation and spaced apart sufficiently far to receive the saucer of the bobèche between them, the rear portion of the lower prong curving upwardly and the said prongs springing from a tang or shank common thereto, substantially as described.

678,899. LOCK. DAVID B. ORMENT, Gainesville, Tex., assignor of two-thirds to James M. Lindsay and George W. Lindsay, same place. Filed Jan. 8, 1901. Serial No. 42,542. (No model.)

Claim.—1. The combination with a keeper, of a bolt for engagment therewith, a bolt-locking pin for engagement with the bolt when in the keeper, an unlocking-lever for the pin, an oppositely-movable pin-supporting trip for holding the pin in its unlocked position and located in the path of the inward movement of the bolt to be tripped thereby in one direction, and a trip-resetting device carried by the lever and constructed to move the trip in the opposite direction by the pin-unlocking movement of the lever.

2. The combination with a keeper, a bolt, and a bolt-locking device for the bolt when in the keeper, of unlocking means for said device, a bolt-actuated trip for the support of the bolt-locking device in its unlocked position, and means for resetting the trip by the actuation of the unlocking means.

3. The combination with a keeper, a bolt, and a bolt-locking device for locking the bolt in the keeper, of a bolt-actuated oppositely-movable trip for the support of the said device in its unlocked position and located in the path of the inward movement of a portion of the bolt, an unlocking device for the bolt-locking device, and means for resetting the trip by the unlocking movement of the unlocking device, the bolt and the trip being in operative relation to force the former out of the keeper by the resetting movement of the latter.



4. The combination with a keeper, a bolt, and a bolt-locking device for the bolt when in the keeper and which is normally supported in its unlocked position, of means for automatically tripping the said device by the inward movement of the bolt, an unlocking device for the bolt-locking device, and means for resetting the tripping means and for forcing the bolt out of the keeper by the actuation of the unlocking device.

5. The combination with a keeper, a bolt, and a locking device for the bolt when in the keeper, of an unlocking device for the locking device, and means for automatically forcing the bolt out of the keeper by the actuation of the unlocking device.

6. In a lock, a keeper having a perforation, a slidable bolt having a perforation for alinement with that of the keeper, an endwise-movable bolt-locking pin constructed to enter alined perforations of the keeper and bolt, an oppositely-slidable pin-supporting bolt-actuated trip mounted upon the keeper, a pin-unlocking lever fulcrumed intermediate of its ends upon the keeper, the pin being connected thereto at one side of the fulcrum thereof, and a trip-resetting device carried by the opposite rear portion of the lever and constructed to strike the trip and reset the same by the unlocking movement of the lever.

7. In a lock, a keeper, a bolt, an oppositely-movable bolt-locking device for the bolt when in engagement with the keeper, an endwise-slidable supporting-trip for the bolt-lock and projected at opposite ends beyond the keeper, the front end of the trip being in the path of the inward movement of the bolt, a pivotal unlocking device for the bolt-lock, and a trip-resetting device carried by the unlocking device, the opposite rear end of the trip being in the path of the resetting device during the unlocking movement of the unlocking device.

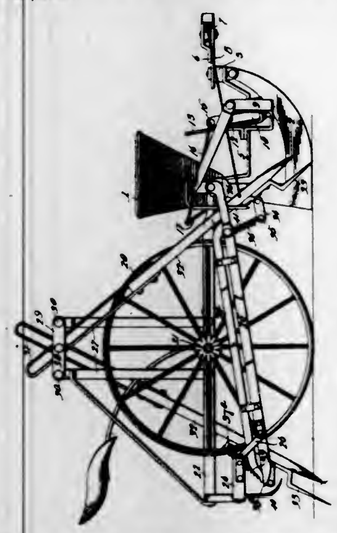
8. In a lock, an open-ended keeper having a top perforation, a slidable bolt to enter one end of the keeper, a lever fulcrumed intermediate of its ends upon the top of the keeper, a pendent locking-pin loosely hung from the forward portion of the lever and constructed to enter the top perforation of the keeper and interlock with the bolt, an endwise-slidable pin-supporting trip mounted within the keeper with its opposite ends alternately projected outwardly through the open ends thereof, and also provided with an intermediate perforation for alinement with that of the keeper and to receive the pin, and a trip-resetting lateral projection upon the rear end of the lever, the rear end of the trip when projected lying in the inward path of the resetting projection, and the opposite end of the trip when projected lying in the inward path of the bolt.

9. A seal-lock, comprising a keeper, having an entrance-opening, and transversely-alined perforations, a bolt to enter the entrance-opening and having a perforation to be alined between those of the keeper, a locking-pin to pass through the alined perforations and project at opposite ends beyond the keeper, an unlocking-lever fulcrumed upon the keeper and connected to the adjacent end of the locking-pin, the opposite projected end of the pin being capable of receiving a sealing device.

678,900. CORN-PLANTER. PETER A. PETERSON, Lake Mills, Iowa. Filed Mar. 12, 1901. Serial No. 50,874. (No model.)

Claim.—1. In a corn-planter, a suitable frame, feeding mechanism,

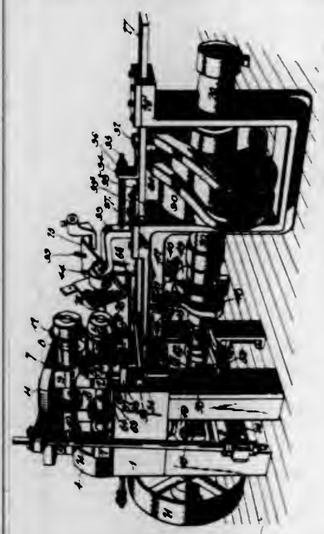
a cable for actuating the feeding mechanism, levers to which the cable is secured and means for causing the levers to move longitudinally and vertically of the planter.



2. In a corn-planter, a suitable frame, feeding mechanism carried thereon, a cable for operating the feeding mechanism, guides on each side over the frame, levers having pins riding over the guides, and arms at each end of the guides to limit the travel of the levers, substantially as described.

3. In a corn-planter, a suitable frame and feeding mechanism, a cable for actuating the feeding mechanism, levers to which the cable is secured, guides over which the levers travel and means for affording a yielding connection between the levers and guides.

678,901. **CAN-CUTTING MACHINE.** FRED W. PRAHL, Fairhaven, Wash. Filed May 8, 1901. Serial No. 59,313. (No model.)



Claim.—1. In a machine of the class described, the combination of a mandrel, a cutter and means to move the same to and from the mandrel, a feed-table, a stop, to aline a body with the mandrel and means to move said body on said mandrel, substantially as described.

2. In a machine of the class described, the combination of a mandrel, a cutter and means to move the same to and from the mandrel, a feed-table, a stop to aline a body with the mandrel, and a movable element having a head-plate and an ejector, for the purposes set forth, substantially as described.

3. In a machine of the class described, the combination of a revoluble mandrel, a movable element, a revoluble cutter, carried by said movable element to and from said mandrel, said cutter and mandrel having gears adapted to engage when said cutter is moved to said mandrel and communicate power from the latter to the former, a feed-table, a stop, to aline a body on said feed-table with said mandrel, and a movable element having a head to push said body onto said mandrel, substantially as described.

4. In a machine of the class described, the combination of a mandrel, a cutter to coact therewith, a feed-table, a movable stop to aline a body with said mandrel and clear said body, means to actuate said stop, means to push a body onto said mandrel, and means to actuate said body-pushing means, substantially as described.

5. In a machine of the class described, the combination of a continuously-revoluble mandrel, a rocking yoke, means to rock the same, a revoluble cutter carried by said rocking yoke and adapted to coact with said mandrel, and gears carried by said mandrel and cutter to transmit power from the former to the latter, when said cutter is in operative relation to said mandrel, substantially as described.

6. In a machine of the class described, the combination of a mandrel, a cutter to coact therewith, an inclined feed-table disposed transversely under the mandrel, a movable stop to alternately aline a body with said mandrel and clear said body, and a reciprocating element having a head-plate and ejector, movable therewith and coacting with said feed-table to push a body onto said mandrel to be cut and to eject said body after the same has been cut, from said mandrel, substantially as described.

7. In a machine of the class described, the combination of a mandrel, a cutter to coact therewith, an inclined feed-table disposed transversely under the mandrel, a movable stop to alternately aline a body with said mandrel and clear the said body, a reciprocating element having a head-plate and ejector movable therewith and coacting with said feed-table to push a body onto said mandrel to be cut and to eject said body after the same has been cut, and movable step-stops disposed one above another on said feed-plate, coacting with each other and with said feed-plate to feed a body by a step-by-step movement to a position in line with the mandrel, substantially as described.

8. In a machine of the class described, the combination of a mandrel, a cutter, an inclined feed-table disposed transversely with relation to the mandrel, a reciprocating element, an ejector carried thereby, and a head-plate, carried by and adjustable on said reciprocating element, said head-plate coacting with said feed-table, for the purpose set forth, substantially as described.

9. In a machine of the class described, the combination of a mandrel, a cutter, a feed-table, a reciprocating element having an ejector and a head-plate, the latter coacting with said feed-table for the purpose set forth, a spring-actuated slide, a stop-arm carried thereby, said stop-arm serving to alternately aline a body on the feed-table with the mandrel and to clear said body when the same is ejected from the mandrel, and connections between said reciprocating element and said slide, to move the latter in one direction against the tension of its actuating-spring, substantially as described.

10. In a machine of the class described, the combination of a mandrel, a cutter, a feed-table, a reciprocating element having an ejector and a head-plate the latter coacting with said feed-table, for the purpose set forth, a spring-actuated slide, a bar pivotally mounted thereon, a spring and cam coacting to move said bar on its pivot, a stop-arm carried by said bar, said stop-arm serving at the limits of its stroke to alternately aline a body on the feed-table with the mandrel and to clear said body when the same is ejected from the mandrel, and connections between said reciprocating element and said slide, to move the latter in one direction against the tension of its actuating-spring, and means to alternately lock and release said slide, substantially as described.

678,902. **ADVERTISING DEVICE FOR DOORS.** MARTIN J. QUIEN, Toronto, Canada, assignor to Adam Taylor, same place. Filed Mar. 6, 1901. Serial No. 50,058. (No model.)

Claim.—1. In an advertising device, an advertising-card normally situated against the door-panel and capable of moving clear of the edge of the door, in combination with a spring-actuated device connected with said card and arranged to swing it around clear of the edge of the door into the path of the person opening the door when the latter is opened, substantially as described.

2. In an advertising device, the combination with a card-holder of an arm connected to a rotatable sleeve suitably journaled on the door-stile, and means for rotating the sleeve in opposite directions so that when the door is closed one face of the card lies against the door-panel, and when the door is opened the card is swung around so as to clear the edge of the door, substantially as described.



3. In an advertising device, the combination with a door and door-jamb, of an arm yieldingly connected to a rotatable sleeve and carrying at its free end an advertising-card; the rotatable sleeve suitably journaled on the door; a lever fulcrumed near the door's edge and flexibly connected with the rotatable sleeve and adapted to engage with the door-jamb when the door is closed; and a coil-spring also flexibly connected with the rotatable sleeve, substantially as described.

4. In an advertising device the combination with the door-stile A and door-jamb C, of a card-holder B; an arm H yieldingly connected to a rotatable sleeve G; the rotatable sleeve C suitably journaled on brackets F; a lever of the first class K fulcrumed near the edge of the door; a coil-spring M provided with an arm N: the chain L attached to the arm N and encircling the sleeve C and also attached to one end of the lever K, substantially as described.

5. In an advertising device the combination with the brackets F of the rod *f* the sleeve G with stop *i* formed thereon, the collar I and card-holder, arm H secured thereto and the coil-spring J connecting the collar and sleeve, substantially as described.

6. In an advertising device the combination with the door-stile A and door-jamb C, of a card-holder B' and advertising-card D; the arm H; collar I with stop *i*; coil-spring J; base-plate E; brackets F; rod *f*; sleeve G; the lever K pivoted at *k* and provided with arm *k'* and hook-shaped end *k''*; the chain L; and coil-spring M provided with arm N, substantially as described.

678,903. **DOOR.** JOHN W. RAPP, New York, N. Y. Filed Feb. 19, 1901. Serial No. 47,931. (No model.)

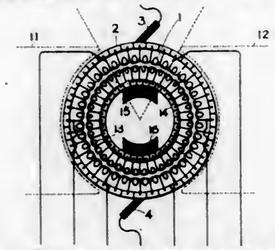


Claim.—1. The combination in a door, of a core or filler, a metal covering for the front and a metal covering for the back of said core or filler, and each of said coverings having a portion extending beyond an edge of the door and a filling-strip inserted between said extended portions and secured to said core.

2. The combination in a door, of a core or filler, a metal covering for the front and a metal covering for the back of said core or filler, and each of said coverings having a portion extending beyond an edge of the door, and a filling-strip inserted between said extended portions and secured to said core or filler, said filling-strip comprising a core and a metal covering.

3. The combination in a door, of a core or filler, a metal covering for the front, and a metal covering for the back of said core or filler, said coverings each having an edge portion extended beyond the adjacent edge of the core or filler, which edge portions are bent back upon themselves and still project beyond the edge of the core, and again bent and overlapped and secured to the core or filler, and a filling-strip fitted and secured between the bent and projecting portions.

678,904. **DYNAMO-ELECTRIC MACHINE.** EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 25, 1900. Serial No. 14,267. (No model.)



Claim.—1. The combination in a dynamo-electric machine, of two windings in fixed relation to each other, a commutator for each winding, and short-circuiting brushes for producing a local circuit in one of said windings.

2. The combination in a dynamo-electric machine, of two armature-windings, a commutator for one of said windings, and means for producing a progressive short circuit in the other winding so located as to improve the commutation of the first winding.

3. The combination in a dynamo-electric machine, of two armature-windings, and means for producing a progressive local circuit in one of said windings in inductive relation to coils undergoing commutation in the other winding.

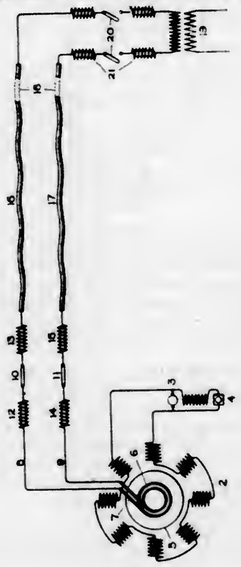
4. The combination in a dynamo-electric machine, of a main winding, a commutator for said winding, a secondary winding in fixed relation to the main winding, and means for producing a progressive short circuit in the secondary winding.

5. The combination in a dynamo-electric machine, of a commutator, a main winding connected to the commutator, a secondary winding in fixed relation to the main winding and means for producing a progressive short circuit in said secondary winding in induction relation to coils of said main winding undergoing commutation.

6. In a dynamo-electric machine, the combination of pole-pieces, an armature provided with two windings, and a short circuit in one of said windings spanning approximately the angle between the pole-tips.

7. In a dynamo-electric machine, the combination of pole-pieces, an armature provided with two windings, and a progressive short circuit in one of said windings spanning approximately the angle between the pole-tips.

678,905. **CONTROLLING HIGH-POTENTIAL CIRCUITS.** EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 24, 1900. Serial No. 17,782. (No model.)

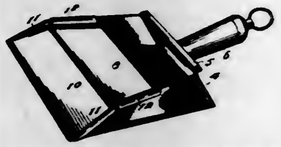


Claim.—1. The method of breaking an alternating-current circuit which consists in confining the break between inductance-coils and suppressing thereby the transmission of high-resonance potentials along said circuit.

2. The method of protecting an electric circuit from dangerously-high electromotive forces due to making or breaking the circuit which consists in causing the make or break to occur at a point or points in the line between inductance devices.

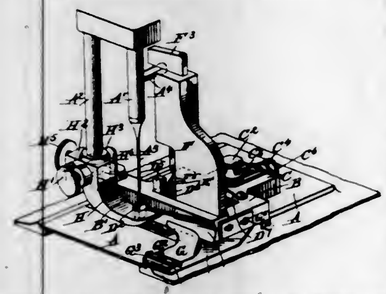
3. The method of making or breaking an electric circuit which consists in confining the electromotive forces due to making or breaking the circuit, to the vicinity of the point of make or break, whereby the transmission of high-resonance potentials along said circuit is prevented.

678,906. **DUST-PAN.** HERBERT W. ROGERS, Watertown, N. Y., assignor of one-half to Darwin R. Gotham, same place. Filed Mar. 29, 1901. Serial No. 53,454. (No model.)



Claim.—A dust-pan, formed by a bottom plate, having its opposite side edges bent upwardly into upstanding sides, the corresponding front end edges of which incline upwardly and inwardly from the front edge of the bottom, and the rear side of the bottom being bent upwardly into an upstanding back, the opposite ends of which are bent to embrace the end edges of the upstanding sides, a handle applied to the back, and a top plate fitted snugly between the sides of the pan and below the upper edges thereof, said edge portions rising above the plate and forming opposite flanges, the front edge of the latter being folded to embrace the front edge of the bottom, and the sides of the plate being bent to embrace the respective top edges of the sides of the pan, the top plate forming a transverse brace for the sides of the pan.

678,907. **SEWING-MACHINE ATTACHMENT FOR OVEREDGE STITCHING.** THOMAS H. ROSS and EDWIN DONALDSON, Brooklyn, N. Y., assignors to the Ross Attachment and Machine Company, New York, N. Y. Filed Oct. 2, 1900. Serial No. 31,771. (No model.)



Claim.—1. In a sewing-machine attachment, a base provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, means for limiting the movement of said slide-bar, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

2. In a sewing-machine attachment, a base provided with a horizontal guideway, a pusher-bar movable in said horizontal guideway, a standard mounted on said base provided with a vertical guideway, a slide-bar movable in said vertical guideway and adapted to be reciprocated by the needle-bar of a sewing-machine and provided with a vertical slot, a pin projecting from said standard and registering with said slot to limit the vertical movement of said slide-bar, a spring pressing said slide-bar downward, and mechanism for conveying motion from said slide-bar to said pusher-bar for reciprocating the latter.

3. In a sewing-machine attachment, a base provided with a horizontal guideway, a pusher-bar movable in said horizontal guideway, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, a standard mounted on said base provided with a vertical guideway, a slide-bar movable in said vertical guideway and adapted to be reciprocated by the needle-bar of a sewing-machine and having a vertical slot, a pin projecting from said standard into said slot for limiting the vertical movement of said slide-bar, a spring pressing said slide-bar downward, and a pawl carried by said slide-bar adapted to engage with said gear to rotate the same.

4. In a sewing-machine attachment, a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging directly with said pusher-bar for positively moving the same in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

5. In a sewing-machine attachment, a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, extensions carried by said pusher-bar, a cam mounted between said extensions and adapted to bear on one or the other for positively moving said pusher-bar in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

6. In a sewing-machine attachment, a pusher-bar movable back and forth, a cam engaging directly with said pusher-bar for positively moving the same in both directions, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar and adapted to engage with said gear to rotate the same.

7. In a sewing-machine attachment, a base provided with a recess, a screw-threaded rod placed in said recess and provided with a collar, at its inner end, a clamping-screw passing through said collar, a thumb-nut turned on said rod and having a journal, and a bearing carried by said base for said journal.

8. In a sewing-machine attachment, a base, a bearing carried by said base, a thumb-nut journaled in said bearing, a clamping-screw adapted to be turned into a work-plate, and a screw-threaded rod engaging with said clamping-screw and engaged by said thumb-nut.

9. In a sewing-machine attachment, a base provided with a recess, a plate hinged to said base and having a bearing, a thumb-nut journaled in said bearing, a screw-threaded rod placed within said recess having a collar at its inner end and engaged by said thumb-nut, and a clamping-screw passing through said collar.

10. In a sewing-machine attachment, a base, a plate attached to said base provided with a bearing and having a notch in its edge adjacent to said bearing, a thumb-nut journaled in said bearing and provided with notches in its periphery adapted to register with said notch in the plate when the thumb-nut is turned, a clamping-screw, and a screw-threaded rod connected with said clamping-screw and engaged by said thumb-nut.

11. In a sewing-machine attachment, the combination of a presser-foot having a transverse horizontal opening, the base of an attachment provided with a vertical opening, an angular rod having one of its members placed in the opening in the presser-foot and the other member inserted in the vertical opening in the base and adapted to be moved up and down therein, and means for securing said rod in the presser-foot.

12. In a sewing-machine attachment, a base, a guide consisting of two members hinged together and adjustably attached to said base, a pintle for the hinge connection between said members made fast to one of the same and having flat portions, and a spring carried by the other of said members and adapted to bear on the flat portions of said pintle.

13. In a sewing-machine attachment, a pusher-bar movable back and forth, a spring normally pressing said pusher-bar in one direction, a cam for moving said pusher-bar in both directions and against the action of said spring, and means for rotating said cam.

14. In a sewing-machine attachment, a pusher-bar movable back and forth, a spring normally pressing said pusher-bar in one direction, a cam engaging directly with said pusher-bar for positively moving the same in both directions and against the action of said spring, and means for rotating said cam.

15. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess for limiting the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam engaging with said pusher-bar for moving the same in both directions and against the action of said spring, and means for rotating said cam.

16. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a cam for moving said pusher-bar in both directions, and means for rotating said cam.

17. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam engaging with said pusher-bar for positively moving the same in both directions and against the action of said spring, and means for rotating said cam.

18. In a sewing-machine attachment, a pusher-bar movable back and forth, extensions carried by said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam mounted between said extensions for positively moving said pusher-bar in both directions and against the action of said spring, and means for rotating said cam.

19. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, extensions carried by said pusher-bar, a cam mounted between said extensions for positively moving said pusher-bar in both directions, and means for rotating said cam.

20. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher bar in one direction, extensions carried by said pusher-bar, a cam mounted between said extensions for positively moving said pusher-bar in both directions and against the action of said spring, and means for rotating said cam.

21. In a sewing-machine attachment, a pusher-bar movable back and forth, a spring normally pressing said pusher-bar in one direction, a cam for reciprocating said pusher-bar in both directions and against the action of said spring, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar and adapted to engage with said gear to rotate the same.

22. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a cam for reciprocating said pusher-bar in both directions, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar adapted to engage with said gear to rotate the same.

23. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, a cam for reciprocating said pusher-bar in both directions and against the action of said spring, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar adapted to engage with said gear to rotate the same.

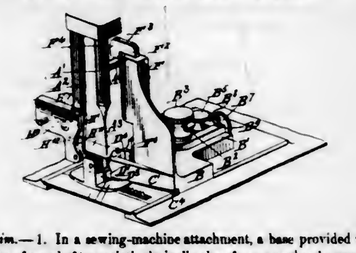
24. In a sewing-machine attachment, a pusher-bar movable back and forth and provided with a recess, a plate registering with said recess to limit the movement of said pusher-bar, a spring normally pressing said pusher-bar in one direction, extensions carried by said pusher-bar, a cam mounted between said extensions adapted to bear on one or the other for positively moving said pusher-bar in both directions and against the action of said spring, a gear for rotating said cam, a slide-bar adapted to be reciprocated by the needle-bar of a sewing-machine, and a pawl carried by said slide-bar and adapted to engage with said gear to rotate the same.

25. In a sewing-machine a presser-foot in combination with an attachment having a base provided with a guideway, a pusher-bar movable in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway of the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, means for limiting the movement of said slide-bar, a cam engaging with said pusher-bar to reciprocate the same, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

26. In a sewing-machine a presser-foot in combination with an attachment having a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, a cam engaging directly with said pusher-bar for positively moving the same in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

27. In a sewing-machine a presser-foot in combination with an attachment having a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a standard mounted on said base and provided with a guideway, a slide-bar movable in said guideway in the standard and adapted to be reciprocated by the needle-bar of a sewing-machine, extensions carried by said pusher-bar, a cam mounted between said extensions and adapted to bear on one or the other for positively moving said pusher-bar in both directions, a gear for rotating said cam, and a pawl carried by said slide-bar for rotating said gear.

678,908. **SEWING-MACHINE ATTACHMENT FOR OVEREDGE STITCHING.** THOMAS H. ROSS and EDWIN DONALDSON, Brooklyn, N. Y., assignors to the Ross Attachment and Machine Company, New York, N. Y. Filed Feb. 1, 1901. Serial No. 45,626. (No model.)



Claim.—1. In a sewing-machine attachment, a base provided with a work-face formed of two relatively-inclined surfaces, a pusher-bar mounted in said base and adapted to be projected through said work-face at the place of meeting of said surfaces, and means for reciprocating said pusher-bar.

2. In a sewing-machine attachment, a base provided with a work-face formed of two relatively-inclined surfaces and having grooves at the lower edges of said surfaces, a pusher-bar mounted in said base and adapted to be projected through said work-face at the meeting-place of said surfaces, and means for reciprocating said pusher-bar.

3. In a sewing-machine attachment, a base provided with a work-face formed of two relatively-inclined surfaces and having grooves at the lower edges of said surfaces, a pusher-bar mounted in said base and adapted to be projected through said work-face at the meeting-place of said surfaces and having a recess adapted to register with said grooves, and means for reciprocating said pusher-bar.

4. In a sewing-machine attachment, the combination of a presser-foot provided with means for attaching the same to a bar and having an opening through the same, the base of an attachment provided with a bearing, an eccentric sleeve journaled in said bearing, means for turning said sleeve, a rod having one end inserted in the opening in the presser-foot and the other end in said sleeve, and means for securing said rod in place.

5. In a sewing-machine attachment, the combination of a presser-foot provided with means for attaching it to a bar and having an opening through the same, the base of an attachment provided with a bearing, an eccentric sleeve journaled in said bearing, an arm carried by said sleeve for turning the same, a set-screw passing through said base and impinging on said sleeve for securing the latter in its adjustment, a rod having one end inserted in the opening in the presser-foot and the other end in said sleeve, and means for securing said rod in place.

6. In a sewing-machine attachment, a base provided with a guideway, a pusher-bar movable back and forth in said guideway, a shoe carried adjacent to said base and provided with a recess adapted to register with said pusher-bar when the latter is projected beyond said base, a casing provided with means for securing it to a bar, a bell-crank pivoted to said casing and at the end of one of its arms pivotally connected with said shoe, and a spring in said casing bearing on the free end of the other arm of said bell-crank.

7. In a sewing-machine attachment, a pusher-bar movable back and forth, extensions carried by said pusher-bar, a cam mounted between said extensions adapted to bear on one of said extensions, a spring secured to the other of said extensions and interposed between the latter and said cam, and means for rotating said cam.

8. In a sewing-machine attachment, a guide-block, a clamping-screw passing through said guide-block for securing the same to a work-plate, a base provided with a recess adapted to register with said guide-block, a rod connected with said guide-block, a thumb-nut journaled in said base and engaging with said rod, and a clamping-screw passing through said base and said guide-block for securing the same to the work-plate.

9. In a sewing-machine attachment, a movable pusher-bar, a cam engaging with said pusher-bar to reciprocate the same, a trundle-wheel for rotating said cam, a slide-bar, a pawl adapted to engage with said trundle-wheel pivoted to said slide-bar with its connected end bifurcated and registering with the slide-bar to limit the movement of said pawl, and means for reciprocating said slide-bar.

10. In a sewing-machine attachment a base provided with a work-face the surface of which on the feeding-in side of the attachment is inclined relatively to the direction of the feed of the goods and having a groove at the lower edge of said surface, a pusher-bar mounted in said base and adapted to be projected through said work-face near the termination of said inclined grooved surface, and means for reciprocating said pusher-bar, substantially as and for the purposes described.

11. In a sewing-machine attachment, a base provided with a work-

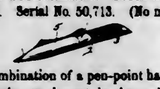
face, the surface of which on the feeding-in side of the attachment is inclined relatively to the direction of the feed of the goods and is provided with a groove, a pusher-bar mounted in said base, and adapted to be projected through said work-face near the termination of said grooved inclined surface and having a recess adapted to register with said groove and means for reciprocating said pusher-bar, substantially as and for the purposes described.

12. In a sewing-machine attachment a base provided with a work-face the surface of which in the feeding-in side of the attachment is inclined relatively to the direction of the feed of the goods, a guideway in said base, a pusher-bar movable in said guideway, a standard mounted on said base and provided with a guideway and a slide-bar movable in the guideway of the standard, and adapted to be reciprocated by the needle-bar and mechanism for conveying motion from said slide-bar to said pusher-bar to reciprocate the latter through said work-face near the termination of said inclined face thereof, substantially as and for the purposes described.

13. In a sewing-machine the combination of a stitching mechanism, a feeding mechanism, a presser-foot, and an attachment having a base provided with a work-face the surface of which in the feeding-in side of the attachment is inclined relatively to the direction of the feed of the goods, a guideway in said base, a pusher-bar movable in said guideway, a standard mounted on said base, and provided with a guideway, a slide-bar movable in the guideway of the standard, and adapted to be reciprocated by the needle-bar, and mechanism for conveying motion from said slide-bar to said pusher-bar to reciprocate the latter through said work-face near the termination of said inclined face thereof, substantially as and for the purposes described.

678,909. PEN ATTACHMENT. Below B. Smith, Pensacola, Fla.

Filed Mar. 11, 1901. Serial No. 50,713. (No model.)

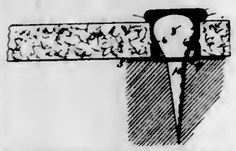


Claim.—1. The combination of a pen-point having an inwardly-bent yielding tongue, a fountain attachment having a bridge thereover at its inner rear extremity under which said tongue is adapted to slip, the said bridge also formed with an inwardly-bent tongue in its own structure and which is directed inwardly from the outer side thereof, and an ink-flow-controlling device held within the attachment.

2. The combination of a pen-point having an inwardly-bent yielding tongue, a fountain attachment having a bridge thereover at its inner rear extremity under which said tongue is adapted to be removably slipped, the said bridge also formed with an inwardly-bent tongue in its own structure and which is directed inwardly from the outer side thereof, and an ink-flow-controlling device held at the rear end between the fountain tongue and bridge and consisting of a plurality of bristles.

678,910. CARPET-FASTENER. George R. Somers, Oceanville, N. J., assignor of two-thirds to Norris R. Somers, Fred W. Somers, and Etta R. Somers, same place.

Filed May 7, 1901. Serial No. 59,135. (No model.)



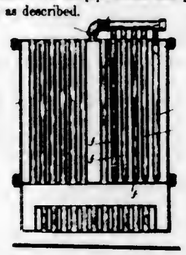
Claim.—The combination of a nail, provided with a point to enter the floor; a flange at the head of the nail to fit down against the upper face of the floor; a head substantially oval-shaped, immediately above the flange, and integral with the nail; a cap, consisting of a head, having an internal flange; a neck made of spring metal, and having at its upper end a flange adapted to be clipped into the head; knobs struck inwardly in the neck; ears extending from the lower end of the neck; said cap adapted to be secured in a carpet and to be buttoned over the head of the nail, substantially as shown and described and for the purposes set forth.

678,911. STEAM-GENERATING APPARATUS. Francis E. Stanley and Freelan O. Stanley, Newton, Mass.

Filed Jan. 30, 1900. Serial No. 3,324. (No model.)

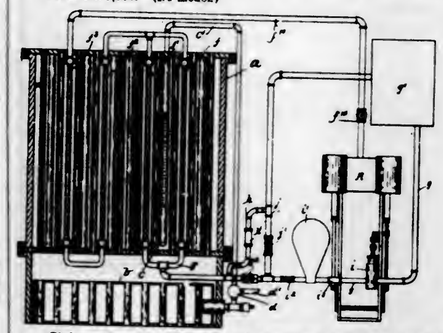
Claim.—1. The combination of a boiler, an engine, and means for conducting steam from the boiler to the engine having as a coöperative part of it a superheating device contained in the boiler, and consisting of one or more tubes projecting into the boiler, and a throttle-valve located between said boiler and superheating device, substantially as described.

2. The combination of a boiler, pipe *b* leading therefrom, throttle-valve, a superheating device comprising one or more U-shaped tubes projecting into the boiler and connected at their ends with pipes f', f^2, said pipe f' being connected with the pipe *b* and said pipe f^2 leading to the engine, substantially as described.



678,912. STEAM-GENERATING APPARATUS. Francis E. Stanley and Freelan O. Stanley, Newton, Mass.

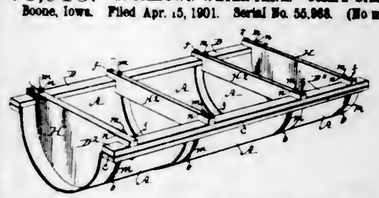
Filed Feb. 17, 1900. Serial No. 5,607. (No model.)



Claim.—In a steam-generator, the combination of a receiver containing a heating medium, means for heating the same, flashing-tubes contained in said receiver in contact with said heating medium, a supply-pipe connected with said flashing-tubes, a pump connected with said supply-pipe, means for operating it, a drum also connected with said supply-pipe into which the water is forced by said pump, a check-valve, a relief-valve and connections whereby the water is maintained in the drum at a constant predetermined pressure, and a regulating-valve in said supply-pipe for regulating the quantity of water delivered under pressure to said flashing-tubes, substantially as described.

678,913. KNOCKDOWN WATER-TANK. Joseph Stephenson, Boone, Iowa.

Filed Apr. 15, 1901. Serial No. 55,968. (No model.)



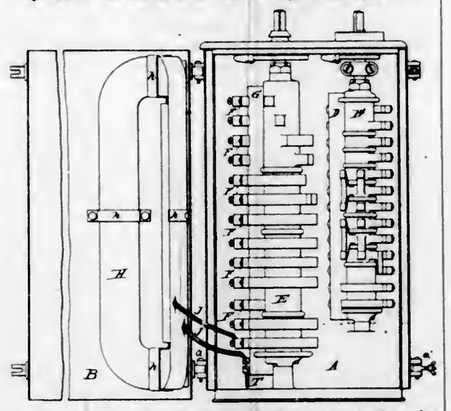
Claim.—1. In a water-tank, two metal plates bent into semicircular shape and provided with flanges extending horizontally from their top edges and grooves in their end portions, and said end portions placed in overlying position, straight bars clamped to the under sides and also top sides of said horizontal flanges and a semicircular rod placed in the groove of the under plate and means to clamp the rod to the overlying ends of the plates and to the overlying straight bars to produce a water-tight joint and a detachable connection between all the parts for the purposes stated.

2. A knockdown water-tank consisting of a frame composed of overlying straight bars at the parallel top edges, semicircular ends fitted to said bars, cross-bars fitted to said bars, overlying semicircular ends and overlying straight bars and screw-bolts and nuts for clamping the overlying parts together, metal plates bent into semicircular form and provided with horizontal flanges at their top edges to extend between the overlying straight bars of the frame and provided with grooves in their end portions and the grooves placed in coinciding positions and semicircular rods provided with screws on their ends placed in the grooves of the under

plates and the ends of the rods extended through coinciding perforations in the flanges of the plates in the overlying straight bars and the ends and cross-pieces of the frame and drawn tight by means of nuts, and a case fitted to the trough all arranged and combined to operate in the manner set forth for the purposes stated.

678,914. CONTROLLER FOR ELECTRIC MOTORS. Emmett W. Stull, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania.

Filed Jan. 14, 1901. Serial No. 43,160. (No model.)



Claim.—1. In a controller, the combination with a controller-casing having a movable portion, of a blow-out coil attached to and movable with said portion.

2. In a controller, the combination with a controller-casing having a movable or door portion, of a blow-out coil attached to and movable with said movable or door portion.

3. In a controller, the combination with a rotatable contact-carrying member, and a series of fixed contact-fingers for engagement therewith, of a casing in which said member is journaled having a removable or door portion, and a blow-out coil attached to and removable with said portion and surrounding or embracing a portion of said drum.

4. In a controller, the combination with a rotatable contact-carrying member, and a series of fixed contact-fingers for engagement therewith, of a casing in which said member is journaled having a removable or door portion, a blow-out coil secured to and movable with said portion, and flexible conductors connecting said coil with fixed terminals of the controller.

5. In a controller, the combination with a casing having a removable or door portion, of a contact-carrying drum, a series of contact-fingers for engagement with the contacts of the said drum, and a blow-out coil attached to the said removable or door portion, and surrounding or embracing a portion of the periphery of the drum, said fingers having their contact ends situated between the two limbs of said coil.

6. In a controller, the combination with a casing having a removable or door portion, of a closed blow-out coil secured to said door with its two vertical legs or branches in planes at right angles to each other.

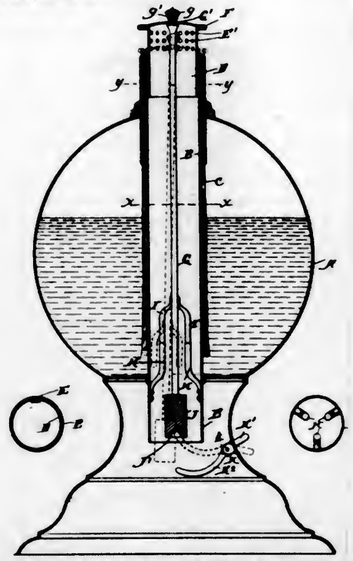
7. In a controller, the combination with a casing having a removable or door portion, of a blow-out coil secured to said portion and movable therewith, said portion also having thereon a pole-piece between the two legs of the coil.

678,915. AUTOMATIC EXTINGUISHER FOR LAMPS. Radu Tattu, Trenton, N. J.

Filed Sept. 8, 1900. Serial No. 29,446. (No model.)

Claim.—1. In an extinguishing device for lamps, of a flame-spreader adapted to reciprocate vertically in a wick-tube, and having a flange adapted to extinguish the flame, a pendulum depending from said flame-spreader, lugs secured upon the shank of the pendulum, lugs secured upon the interior of the wick-tube with which the first-named lugs are adapted to register and rest upon when the lamp is in an upright position, substantially as and for the purpose specified.

2. In combination with a lamp-extinguishing device, a flame-spreader adapted to reciprocate vertically in a wick-tube, means for preventing said flame-spreader from rotating upon its axis, a flange secured to said flame-spreader and adapted to extinguish the flame when said flame-spreader is caused to descend, a rod depending from the flame-spreader and adapted to swing freely within the wick-tube, means for preventing said rod from rotating upon its axis, downwardly-extending lugs secured to said rod, upwardly-extending lugs secured to the interior of the wick-tube with which the downwardly-extending lugs are adapted to register and rest upon when the lamp is in an upright position, a weight secured to the lower end of said rod, means operated from the exterior of the lamp for the purpose of returning the different parts of the mechanism to their normal position after the same have been displaced, substantially as and for the purpose specified.



3. In an extinguishing device for lamps, the combination of a flame-spreader adapted to reciprocate vertically in a wick-tube, a flange F secured to said flame-spreader, a spline E upon the wick-tube adapted to prevent the flame-spreader from rotating upon its axis, a rod G depending from the flame-spreader and adapted to swing freely within the wick-tube, a squared portion G' upon the rod G to prevent said rod from rotating upon its axis, a weight J secured to the lower end of said rod G, downwardly-extending lugs I secured upon the rod G, upwardly-extending lugs H secured upon the wick-tube on which the lugs I are adapted to rest when in their normal position, a lever K pivoted to the body of the lamp and adapted to be operated from the exterior thereof, a conical cavity J' formed in the bottom of the weight J into which the end of the lever K is adapted to enter for the purpose of centering and returning the mechanism to its normal position, substantially as and for the purpose specified.

678,916. ELECTRIC-ARC LAMP. Elihu Thomson, Swampscott, Mass., assignor to the General Electric Company, of New York.

Filed Dec. 26, 1899. Serial No. 741,540. (No model.)

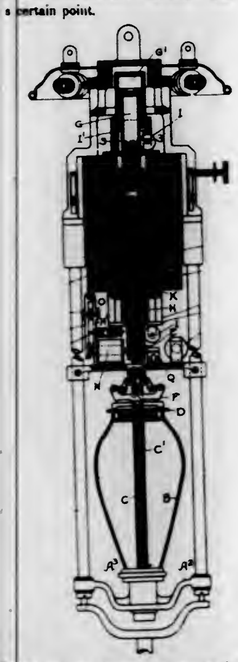
Claim.—1. In an electric-arc lamp, the combination of a movable tubular armature, shunt and series windings surrounding the armature, and a compensating winding also surrounding the armature, the coefficient of which differs from either the shunt or the series winding.

2. In an electric-arc lamp, the combination of upper and lower carbon electrodes, a shunt-winding, a series winding, and a compensating winding, which windings are concentrically disposed one over the other and surround the upper carbon; the compensating winding being arranged to form a shunt to the whole or a portion of the series winding, the last-mentioned windings having different coefficients.

3. In an electric-arc lamp, the combination of a carbon-tube, an armature surrounding the tube, a magnet-spool surrounding the tube and armature, a compensating winding mounted thereon, a series winding wound concentrically with respect to the first and connected in parallel relation thereto, and a third or compensating winding wound concentrically with respect to the other windings and acting on the armature and having a resistance and coefficient which differ from either of the windings.

4. In a constant-current-arc lamp, the combination of magnetic means for separating and feeding the carbons, a resistance path or circuit and means controlled by the current flowing in the main-line circuit for shunting a part of the main-line current through the resistance path or circuit and past the said magnetic means when the current on the line rises and for

decreasing the amount of the current so shunted when the main-line current falls below a certain point.



5. In an electric-arc lamp for constant-current circuits, the combination of a series coil for drawing the arc, a more or less imperfect shunt around the coil, and a magnetic means included in circuit with the series coil for varying this shunt in accordance with changes of current in the main-line circuit.

6. In an electric-arc lamp, the combination of an armature which controls the feeding of an electrode, a coil which acts directly on the armature and is subjected to changes in current strength, a second coil which is in series with the first and is always in active service when the lamp is in operation, and automatic means controlled by the second coil for maintaining the current constant in the first-mentioned coil.

7. In an arc-lamp, the combination of differential windings, a regulating-magnet in series with one of the windings, and means controlled by the magnet for shunting more or less of the current around the winding which is connected in series with the regulating-magnet.

8. In an electric-arc lamp, the combination of a series-wound actuating-coil, a more or less imperfect shunt for the coil comprising two pieces of carbon, an arm for moving one piece of carbon with respect to the other, and a magnet included in the main circuit for moving the arm.

9. In a constant-current arc-lamp, the combination of an actuating-coil in series with the arc, a more or less imperfect shunt around the coil, comprising carbon points, a spring for holding the points in contact, and a magnet included in the main circuit for assisting the spring in accordance with the current flowing in the arc-circuit.

10. In a carbon-holder and contact device, the combination of a split sleeve, a rod secured thereto, beveled disks loosely mounted thereon and arranged in pairs with the beveled faces oppositely disposed, and rows of balls located between the disks and supported thereby.

11. In a carbon-holder and contact device, the combination of means for holding the carbon, two or more beveled disks having projections or fingers formed integral therewith, and a row of balls located between the beveled disks and retained in place by the projections.

12. In an electric-arc lamp, the combination of a carbon-containing tube, a dash-pot, a support for one element of the dash-pot which is secured to the magnet, a second element being secured to, and movable with the carbon-containing tube, the two elements being capable of adjustment with respect to each other, roller-guides mounted in the support and engaging with the upper end of the tube, and roller-guides mounted in a second and stationary support for engaging the lower end of the tube.

13. In an electric-arc lamp, the combination of a magnet having iron spool-flanges, extensions on one of the flanges, a ring mounted on the flange, and roller-guides which are carried by the ring.

14. In a differential arc-lamp, the combination of a series winding, a shunt-winding, and a compensating winding which is active when the lamp is in operation and is permanently connected in shunt around the series winding and wound on the same spool with the shunt-winding.

15. In a differential arc-lamp, the combination of a series winding, a shunt-winding, a feeding mechanism acted upon differentially by both of the windings, a compensating winding connected in shunt around the series winding and wound on the same core as the shunt-winding, the shunt-winding and the compensating winding being wound in the same direction and therefore acting to assist each other.

678,917. **DAMPER-REGULATOR.** ELBERT G. TILDEN, Denver, Colo., assignor of one-half to Harry M. Williamson, same place. Filed Oct. 22, 1900. Serial No. 33,909. (No model.)



Claim.—1. In a damper-regulator, the combination, substantially as set forth, of a cylinder adapted to have one end in free communication with the steam-space of the boiler, a piston therein, a piston-rod connected with the piston and adapted to be connected with the damper, a helical spring surrounding said piston-rod and having one end anchored to said cylinder, and a device connecting the opposite end of said spring to said piston-rod and adjustable along said piston-rod.

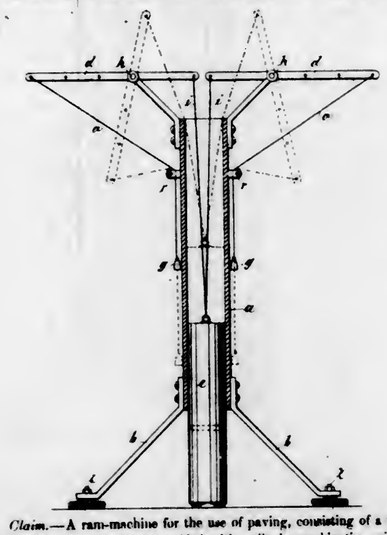
2. In a damper-regulator, the combination, substantially as set forth, of a cylinder adapted to have one end in free communication with the steam-space of the boiler, a piston therein, a cylinder-head, a piston-rod engaging said piston and projecting through said piston-head and having a threaded portion, a nut upon the threaded portion of the piston-rod, a helical spring having one end secured to said nut and the other end anchored to said cylinder-head, a jacket-tube secured to said cylinder-head around said spring, and a jacket-head upon said jacket-tube and serving as a guide for said piston-rod.

3. In a damper-regulator, the combination, substantially as set forth, of a cylinder adapted to have one end in free communication with the steam-space of the boiler, a removable lower cylinder-head, a piston removable through the lower end of the cylinder and having a socket in its top, a piston-rod having its foot seated in said socket and having its upper end adapted for connection with the damper, and a helical spring surrounding said piston-rod and having one end anchored to said cylinder and the other end adjustably connected with said piston rod.

4. In a damper-regulator, the combination, substantially as set forth, of a cylinder adapted to have one end in free communication with the steam-space of the boiler, a piston therein, an upper cylinder-head, an anchor-disk disposed within said upper cylinder-head, a jacket-tube screwed in said upper cylinder-head and clamping said anchor-disk therein, a piston-rod connected with said piston and projecting axially through said jacket-tube, and a helical spring disposed within said jacket-tube around said piston-rod and having one end adjustably connected with the piston-rod and the other end fixed to said anchor-disk.

5. In a damper-regulator, the combination, substantially as set forth, of a cylinder adapted to have one end in free communication with the steam-space of the boiler, a piston moving freely in said cylinder and having a peripheral groove, a fibrous ring disposed within said groove and having a width less than that of the groove and having an inner diameter greater than that of the bottom of the groove, a helical spring having connection with said piston and serving to urge the piston in a direction against the pressure of the steam thereon, means for adjusting the tension of said spring, and a connection from said piston to the damper, whereby movement of the piston against the tension of the spring will tend to close the damper.

678,918. **RAM-MACHINE FOR PAVING.** WILHELM TIMM, Berlin, Germany. Filed Jan. 7, 1901. Serial No. 42,419. (No model.)



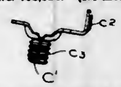
Claim.—A ram-machine for the use of paving, consisting of a tube supported by feet which are provided with rolls, in combination with a ram-block movable in this tube, and with double-armed levers on fast supports, each of these levers, being on its ifside end fastened by chain or rope to the ram-block, and on the outside ends provided with drawing ropes or chains for moving the lever said ropes or chains being guided over rolls and having handles on the ends thereof and by which drawing chains or ropes, when pulled downward, the ram-block will be lifted, and by the relax of those chains or ropes will be made to drop down, as described and represented.

678,919. **CLEANING AND POLISHING COMPOUND.** LOUIS G. TOMOOR, Branston, Ohio. Filed Apr. 16, 1900. Serial No. 12,990. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of neutral oil, naphtha and turpentine, substantially as described and for the purpose specified.

2. The herein-described composition of matter, consisting of neutral oil, naphtha, turpentine and mirbane-oil, in substantially the proportions specified for the purpose described.

678,920. **LAMP-SOCKET.** JULIUS C. TOURNIER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 9, 1899. Serial No. 708,326. (No model.)



Claim.—1. As a new article of manufacture, a center contact for a Thomson-Houston lamp-socket, composed of a strip of sheet metal each of the longitudinally adjacent portions of which intermediate the ends forms one side of the hollow screw, the resulting free ends of the strip serving as means for attachment.

2. A lamp-socket contact having a hollow screw-threaded support intermediate its ends, and means on each side of the support whereby the contact can be secured in place, the entire contact being composed of a single strip of sheet metal.

3. As a new article of manufacture, a sheet-metal contact for lamp-sockets, said contact having the projection C' intermediate its ends, which projection is composed of the two parts c', c' punched into a cylindrical stud and screw-threaded at c^2.

4. As a new article of manufacture, a center or stud contact for a Thomson-Houston lamp, composed of sheet metal having a projection C' intermediate the ends, and screw-threaded at c^2, the ends being provided with screw-holes for attaching the contact to the other parts of the socket.

5. A lamp-socket contact, which consists of a single metallic strip having a bent portion intermediate its ends the sides of which portion are curved, to form a hollow screw-support, and the free ends of the strip serving as a means for attaching the contact to the lamp-socket.

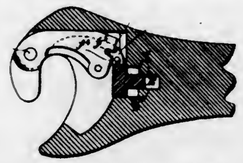
6. A lamp-socket contact, which consists of a single metallic strip bent intermediate its ends and curved to form a hollow screw-support having a covered end.

7. A lamp-socket contact, which consists of a metallic strip bent intermediate its ends to form a hollow screw-support, said support being perforated so that it can be attached to an insulating-base, and being provided with means for the attachment of the line-wire.

8. A lamp-socket contact, which consists of a metallic strip bent intermediate its ends to form a hollow screw-support, said contact having perforations in the portions extending from opposite sides of the screw.

9. The method of making a contact for lamp-sockets, which consists in bending toward each other and curving two longitudinally adjacent portions intermediate the ends of a suitably-prepared metallic strip, to form a cylindrical stud or projection adapted to be exteriorly screw-threaded, leaving the ends of the strip free to provide means for attachment.

678,921. **CAR-COUPLING.** JOHN E. WADE, Brooklyn, N. Y. Filed Mar. 29, 1899. Renewed Dec. 17, 1900. Serial No. 40,214. (No model.)



Claim.—1. A coupler comprising a draw-head, a swinging jaw pivoted therein, a lock-catch pivoted to said jaw, a movable locking-piece, and a transient body in the coupler-jaw to render said lock-catch operative.

2. In a coupler comprising a draw-head, a swinging jaw pivoted therein, and a lock-catch pivoted to said jaw, a locking-pawl, means whereby the continual engagement of a twin coupler therewith causes said catch and pawl to be interlocked; and means whereby the withdrawal of the twin coupler alone causes said pawl and catch to become automatically disengaged.

3. A pair of twin couplers each comprising a draw-head, a swinging jaw and a moving lock-piece; together with means when said couplers are interlocked, whereby the disengagement of the lock-piece of one coupler, to open it automatically, causes the other coupler to open likewise.

4. In a coupler, a draw-head a swinging jaw therein, coincident inclines upon the draw-head and jaw to raise and lower the latter as it turns, a catch-finger pivoted to said jaw, a gravity lock-piece, a shoulder to limit the forward movement of said lock-piece, and a rear, inclined bearing to crowd it against said shoulder; together with means as an engaged twin-coupling jaw, to hold the catch-finger in engagement with the lock-piece when the coupler is closed.

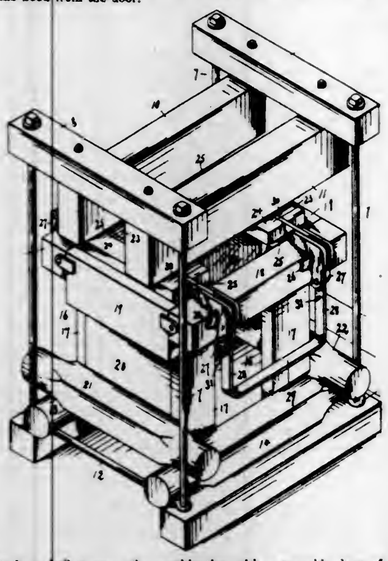
678,922. **ROOFING COMPOUND.** CHRISTOPHER W. WALKER, Johnsonburg, Pa. Filed Apr. 25, 1901. Serial No. 57,483. (No specimens.)

Claim.—A roofing compound, consisting of coal-tar or pitch, india-rubber, gum-guaiac rosin, terra-alba or white clay, and wood-ashes.

678,923. **SELF-LOCKING DOOR-CLAMP FOR COTTON-PRESSES.** JOHN A. WESTBROOK, Mason, Tex., assignor of one-third to Benjamin F. Gooch, same place. Filed Apr. 24, 1901. Serial No. 57,306. (No model.)

Claim.—1. In a baling-press, the combination with the movable doors, of latch-hooks disposed for pivotal movement into and out of engagement over the upper ends and against the outer faces of the doors, each of said hooks including spaced plates, and a lever pivoted between

the plates of each hook and disposed to engage the door as a fulcrum to raise the hook from the door.



2. In a baling-press, the combination with a movable door of a latch-hook disposed for pivotal movement into and out of engagement with the outer face of the door, a rear-plate upon the outer face of the door and over which the hook is adapted to engage, and a lever pivoted to the hook and disposed to engage the door to move the door to carry the plate from the hook and to move the hook pivotally from over the door.

3. A baling-press having oppositely-disposed movable doors, head-blocks disposed in pairs transversely of and above the doors, strap-irons disposed between the blocks of each pair, hook-plates pivoted against opposite faces of each end of each strap-iron and adapted for engagement over the adjacent doors, and levers pivoted between the free ends of the hook-plates and disposed to lie against the doors as fulcrums to disengage the hook-plates from the doors.

4. The combination with a baling-press comprising movable doors, head-blocks disposed transversely of and above the doors in spaced pairs, strap-irons disposed between the blocks of each pair, clips passed transversely of the strap-irons and engaged with the head-blocks, and hooks pivoted to the irons for engagement over the outer faces of the doors and levers pivoted to the free ends of the hooks and extending therebeyond to engage the doors as fulcrums to disengage the hooks from the doors.

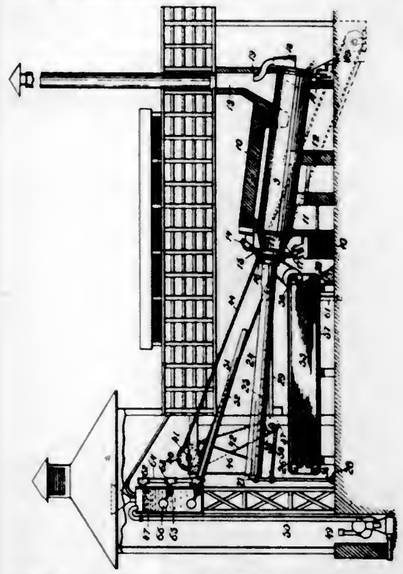
678,924. APPARATUS FOR TREATING AND UTILIZING SEWAGE. ROBERT J. G. WOOD, Leonia, N. J. Filed Feb. 16, 1901. Serial No. 47,003. (No model.)

Claim.—1. In a system for treating and utilizing sewage, a hopper for receiving the sewage and a drier for treating the solid matter, having in combination therewith a receptacle for receiving the treated product at the discharge end of the drier, a second receptacle alongside to receive absorbent material, and an elevator between said receptacles adapted to receive the products of either or both of said receptacles and elevate them to the hopper, as set forth.

2. In a system for treating and utilizing sewage, a hopper for receiving the sewage before it enters the drier, and a drier for treating the solid matter, in combination with a receptacle at the discharge end of the drier to receive the matter discharged from said drier, a second receptacle alongside for receiving absorbent material, and an elevator between said receptacles, to return said treated product and absorbent material to the hopper, both of said receptacles having adjustable gates adapted to discharge the contents on said elevator, as set forth.

3. In a system for treating and utilizing sewage a tank for receiving sewage having a perforated discharge-pipe, in combination with a reciprocating perforated hopper, and a revolving cylindrical drier, a liquid-receiving tank below the hopper, a traveling strainer passing over said tank, and a scraper for freeing the solid matter from the strainer, said strainer being connected by gearing mechanism with the revolving drier, as set forth.

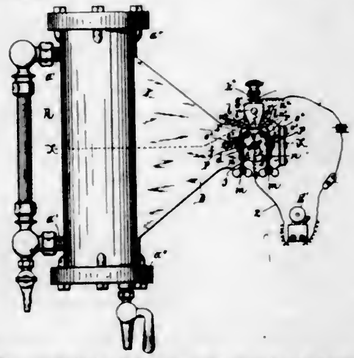
4. In a system for treating and utilizing sewage, a strainer comprising a set of horizontal rollers mounted on each end of a tank, an endless web of wire-cloth on said rollers adapted to pass over and around the tank, a web of straining material over said wire mesh, and a sprocket-chain on the ends of the rollers, engaging with sprocket-wheels secured to said rollers, the sides of the straining-web and wire mesh being attached to said sprocket-chains, as set forth



5. In a system for treating and utilizing sewage, the combination of a sewage supply-tank having a perforated discharge-pipe, a perforated bopper beneath said pipe, a revolving drier, a receptacle at the discharge end of the drier, a receptacle for discharging absorbent material, an elevator adapted to receive material from both receptacles and discharge same into the hopper, and a liquid-receiving tank below the hopper having a strainer, as herein set forth.

6. In a system for treating and utilizing sewage, a sewage-receiving tank having two or more discharge pipes, one above the other, a main duct from the lower discharge-orifice, and a vertical pipe connecting said main duct with the other discharge-openings, said lower discharge-orifice and one or more of the other orifices having a valve and a float operating same for opening the discharge-orifices as the surface of the water approaches said orifices, as set forth.

678,925. HIGH OR LOW WATER ALARM. CHARLES R. ZIMMERMANN, Syracuse, N. Y. Filed Aug. 1, 1900. Serial No. 25,510. (No model.)



Claim.—1. A high and low water alarm comprising a normally open electric circuit including a signal, a circuit-closer operating automatically to sound an alarm, means to operate said circuit-closer by hand to break the circuit, and a detent adapted to temporarily maintain the circuit-closer in its circuit-breaking position whereby the same shall again operate automatically to sound a second alarm substantially as described.

2. A high and low water alarm comprising a normally open electric circuit including a signal, a yielding circuit-closer operating automatically to sound an alarm, means to operate said circuit-closer by hand to break the circuit, and a yielding detent adapted to temporarily maintain the circuit-closer in its circuit-breaking position whereby the same shall again automatically operate to sound a second alarm substantially as described.

3. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, one terminal of the circuit actuated by the float, a circuit-closer on the other terminal, means to operate the circuit-closer by hand to break the circuit, and a detent temporarily maintaining the circuit-closer in its circuit-breaking position whereby two alarms shall be sounded substantially as described.

4. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory electric terminal actuated by said float, a pair of contact-pieces carried on said terminal, a yielding electric terminal, a circuit-closer on the latter terminal and disposed between said contact-pieces, and detents adapted to engage said circuit-closer for the purpose set forth.

5. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory electric terminal actuated by said float and provided with a pair of contact-pieces, a yielding electric terminal, a circuit-closer on the latter terminal and disposed between said contact-pieces, and a yielding detent secured to each contact-piece and adapted to engage the circuit-closer for the purpose set forth.

6. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory upright disk actuated by said float and constituting one of the electric terminals and provided with a pair of contact-pieces, and a vertically-yielding electric terminal formed with a circuit-closer disposed between said contact-pieces substantially as described.

7. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory upright disk actuated by said float and constituting one of the electric terminals and provided with a pair of contact-pieces, a vertically-yielding electric terminal formed with a circuit-closer disposed between said contact-pieces, and yielding insulating-detents pivoted to said contact-pieces and adapted to engage said circuit-closer for the purpose set forth.

8. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory disk constituting one of the electric terminals and actuated by said float, a pair of contact-pieces secured to said disk, a vertically-movable arm constituting the other electric terminal and formed with a circuit-closer disposed between said contact-pieces, a yielding insulating-detent carried on each of said contact-pieces and adapted to engage the circuit-closer to hold the same temporarily away from the contact-pieces, springs allowing said detents to yield and forcing the same to their normal positions, and stops limiting the movements of said detents substantially as described.

9. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory disk actuated by said float and constituting one of the electric terminals, a pair of contact-pieces secured to said disk and adjustable toward and from each other, a vertically-movable electric terminal, a circuit-closer on the latter terminal and disposed between said contact-pieces, and adjustable toward and from the aforesaid disk substantially as described.

10. In a high and low water alarm, the combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory disk actuated by the float and constituting one of the electric terminals, a pair of contact-pieces secured to said disk, a pivoted arm constituting the other electric terminal, a circuit-closer formed on said arm and disposed between said contact-pieces, and a detent secured movably on each contact-piece and adapted to engage the circuit-closer for the purpose set forth.

11. In a high and low water alarm, the combination with a water-column and a float therein, of an arm formed on and extending from the side of said water-column, a normally open electric circuit including a signal, an oscillatory disk pivoted to said arm and constituting one of the terminals of the circuit, mechanism imparting movement from the float to said disk, a pair of contact-pieces secured to said disk, a plate rigidly secured to said arm, and an arm pivoted to said plate and constituting the other electric terminal and formed with a circuit-closer disposed between said contact-pieces substantially as described.

12. A high and low water alarm comprising a normally open electric circuit including a signal, a suitably-pivoted upright disk constituting one of the terminals of the circuit and provided on its upper portion with two contact-pieces, a vertically-movable pivoted arm constituting the other electric terminal, a screw by which to adjust said arm vertically, and a coiled spring allowing said arm to yield for the purpose set forth.

13. The combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory disk constituting one of the electric terminals and provided with a pair of contact-pieces, the other electric terminal disposed between said contact-pieces, gearing actuating said disk, and an extensible connection between said float and gears substantially as described.

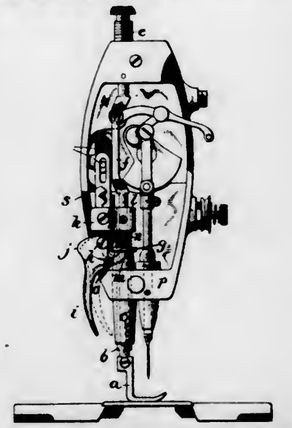
14. The combination with a water-column and a float therein, of a normally open electric circuit including a signal, a rock-shaft, a disk secured to said shaft and constituting one of the terminals of the circuit, mechanism transmitting motion from the float to said shaft, a pair of contact-pieces secured to said disk, and a circuit-closer disposed between said contact-pieces and connected to the other electric terminal substantially as described.

15. The combination with a water-column and a float therein, of a hollow arm extending from and communicating with the side of the water-column, a normally open electric circuit including a signal, a pair of rock-shafts journaled in the outer end of said hollow arm, a disk secured to one of said shafts outside of the hollow arm and constituting one of the electric terminals, a pair of contact-pieces secured to said disk, meshing gears secured to said rock-shafts within the hollow arm, an extensible connection between said gearing and the aforesaid float also within the hollow arm, a vertically-yielding arm pivoted on top of the hollow arm and constituting the other electric terminal and formed with a circuit-closer disposed between said contact-pieces, and insulating-detents pivoted to said contact-pieces for the purpose set forth.

16. The combination with a water-column and a float therein, of a normally open electric circuit including a signal, a hollow arm extending from and communicating with one side of said water-column, a pair of transverse rock-shafts journaled on the outer end of said arm, a disk secured to one of said shafts and constituting one of the terminals of the circuit, and provided with a pair of contact-pieces, meshing gears secured to said rock-shafts, a sleeve pivoted at one end to the aforesaid float, a sliding rod in said sleeve rigidly secured at its outer end to one of said gears, a guide-rod for said float, a yielding terminal supported on the hollow arm and formed with a circuit-closer disposed between said contact-pieces, and yielding detents pivoted to said contact-pieces adapted to engage said circuit-closer for the purpose set forth.

17. The combination with a water-column and a float therein, of a normally open electric circuit including a signal, an oscillatory electric terminal provided with a pair of contact-pieces, gearing actuating said terminal, an automatically-extensible connection between said gearing and the float, and the other electric terminal having a circuit-closer connected thereto and disposed between said contact-pieces substantially as described.

678,926. SEWING-MACHINE PRESSER-FOOT-LIFTING DEVICE. EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 10, 1901. Serial No. 42,746. (No model.)



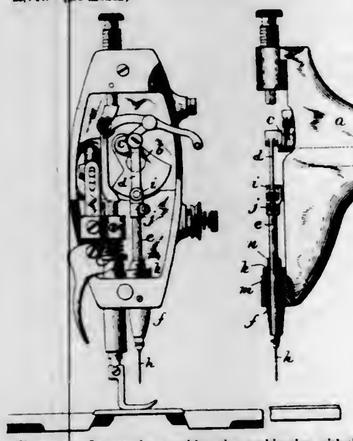
Claim.—1. In a sewing-machine, the combination with a presser-bar and presser-foot, of a tilting gripping or clutch device to engage said

presser-bar, a non-automatic operating device to engage said tilting clutch device, and a stop for limiting the movement of said operating device, so that the said presser-foot may be lifted to a limited extent only, for the purpose of releasing the work when the machine is running to enable the stitch-forming operation to continue without danger of skipping stitches.

2. In a sewing-machine, the combination with a presser-bar and presser-foot, of a tilting gripping plate or device to engage said presser-bar, a hand-lever having a finger or portion to engage said tilting gripping device, and a stop to limit the movement of said hand-lever so that the said presser-foot may be lifted only sufficient to release the work and not far enough to endanger skipping stitches.

3. In a sewing-machine, the combination with a short, hollow presser-bar provided with a presser-foot, of a steadying-sleeve encircling said bar, a pressure-spring inclosed in said hollow bar, a regulating-screw tapped in the top of the head of the machine, a rod engaged at its upper end by said screw and bearing at its lower end on said spring, and a lifter for raising said bar and foot.

678,927. **SEWING-MACHINE NEEDLE-BAR MECHANISM.** EDWARD R. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 10, 1901. Serial No. 42,747. (No model.)



Claim.—1. In a sewing-machine, the combination with the driving-shaft *b* provided with the crank *c*, of the needle-bar *e* provided at its top with the collar *j* having a single, upwardly-projecting ear or lug, and the pitman *d* connected to said crank and having a jointed connection with said ear or lug and which jointed connection is located centrally over the top of said needle-bar.

2. In a sewing-machine, the combination with a needle-bar and its operating mechanism, of a bearing-sleeve within which said needle-bar reciprocates and which is provided at its top with an oil-cup having one or more oil-ducts extending from said oil-cup to the upper part of the needle-bar bearing interior of said sleeve, said sleeve having also at its top a small boss surrounding said needle-bar and encircled by said oil-cup, said boss serving as a stripper to remove the surplus oil from the needle-bar and return it to the said oil-cup whence it flows, through said oil duct or ducts, to the said needle-bar bearing; whereby the oil is applied to the needle-bar near the upper part of its bearing and surplus oil is removed from the needle-bar to be used again.

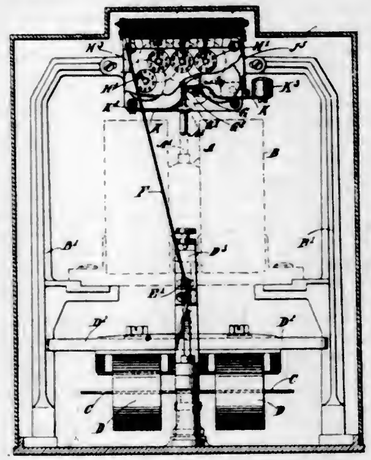
678,928. **GUIDE FOR CARPET-SEWING MACHINES.** EDWARD R. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 12, 1901. Serial No. 43,005. (Model.)



Claim.—1. A guide for carpet-sewing machines provided with a central dividing-plate or divider and with guiding means for directing a carpet-section to sewing position on each side of said central dividing-plate or divider, combined with forwardly-projecting, upwardly and outwardly inclined pile-controlling wings arranged on opposite sides of said central dividing-plate or divider, and extending in front of said guiding means.

2. A guide, for carpet-sewing machines, comprising an inverted guiding-trough *a*, the central dividing-plate or divider *b*, the outwardly-flaring guiding-wings *d* on opposite sides of said central plate or divider, and the forwardly-projecting and upwardly and outwardly inclined pile-controlling wings *e* extending in front of the said guiding-wings.

678,929. **ELECTRIC METER.** JOHN H. BARKER and JAMES A. RWINE, Cambridge, England. Filed Apr. 6, 1901. Serial No. 54,659. (No model.)



Claim.—1. In an electric meter the combination of integrating mechanism, an indicator operated by the current or energy passing through the meter and showing the rate of supply of that current or energy, a record-surface, and means operated by the integrating mechanism to bring the record-surface and the indicator into intermittent contact substantially as set forth.

2. In an electric meter the combination of a counting-train, an indicator operated by the current or energy passing through the meter and showing the rate of supply of that current or energy, a record-surface and an operative connection between the record-surface and the counting-train for the purpose set forth.

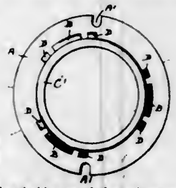
3. In an electric meter the combination of a counting-train, an indicator operated by the current or energy passing through the meter and showing the rate of supply of that current or energy, a pivoted record-strip, an operative connection between such strip and the counting-train and an inclined surface acting as a guide to the strip substantially as set forth.

4. In an electric meter the combination of a counting-train, an indicator operated by the current or energy passing through the meter and showing the rate of supply of that current or energy, a pivoted record-strip comprising an upper portion susceptible of receiving a mark, and a lower portion which comes first into contact with the indicator, an operative connection between such strip and the counting-train and an inclined surface acting as a guide to the strip substantially as set forth.

5. In an electric meter the combination of a conductor caused to revolve by the current or energy passing through the meter, a pivoted or suspended magnetic brake in the field of which the conductor revolves, an indicator operated by said brake to show the rate of supply of current or energy passing through the meter, a counting-train registering the total amount of current or energy which is passed through the meter, a cam upon a spindle of the counting-train, a pivoted lever operated by the cam, a pivoted record-strip and an operative connection between the said strip and the pivoted lever substantially as and for the purpose set forth.

678,930. **SPINNING-RING HOLDER.** JOHN H. BENNETT, Worcester, Mass. Filed Apr. 23, 1900. Serial No. 13,539. (No model.)

Claim.—1. As an article of manufacture, the within-described spinning-ring holder consisting of an annular plate adapted to extend beneath and support the spinning-ring, and having means for attachment to the rail of a spinning-frame, of a series of elastic yielding lugs integral and concentric with said plate, with their free edges adapted to overlap the flanged base of the spinning-ring, and a series of short unyielding lugs between said yielding lugs adapted to bear against the outer edge of the spinning-ring flange and hold it from lateral movement, substantially as described.



2. A spinning-ring holder consisting of an annular plate A with its inner edge extending beneath the flanged base of a spinning-ring, a series of short lugs B overlapping the outer edge of the flanged base of the ring and capable of yielding outwardly to allow the ring to enter between them, and a pair of lugs D arranged at the ends of said yielding lugs, and bearing against the outer edges of the flanged base of the ring to hold it from lateral movement, substantially as described.

3. In a spinning-ring holder, the combination with a plate forming a support for the ring, of a series of lips arranged to overlap the flange of the ring and a series of lips bearing against the edge of the flange of the ring and hold it from lateral movement, substantially as described.

678,931. **VALVE FOR OIL-HOLES.** JOHN H. BENNETT, Worcester, Mass. Filed Dec. 19, 1898. Serial No. 699,659. (No model.)

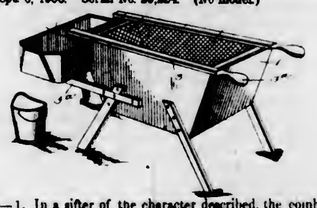


Claim.—1. The combination with a shell or case with a passage therethrough for the flow of oil, a cup-shaped diaphragm by which said passage is closed, said diaphragm having prongs projecting radially therefrom and bent parallel with and brought into contact with the sides of said case, whereby the diaphragm is held concentrically with said shell or case and at right angles with the sides, and a spring applied to said diaphragm, substantially as described.

2. An oil-hole valve consisting of a shell or case adapted to be removably held in the oil-hole of a journal-bearing, said shell or case having an internal flange at one end to receive the thrust of a spring and at its opposite end an internal flange provided with an opening to said shell or case, a cup-shaped diaphragm by which said opening is closed, a spring bearing against said diaphragm and an internal flange of the shell or case and prongs projecting from said shell or case, substantially as described.

3. The within-described valve for oil-holes consisting of a shell or case D adapted to be inserted in the oil-hole of a journal-bearing, an internal flange H at one end of said shell, an internal flange D^2 and an external flange D' at the opposite end of said shell, a cup-shaped diaphragm F adapted to bear against the internal flange D^2, a spring G bearing against said cup-shaped diaphragm and the internal flange H, and prongs I projecting from the edge of said diaphragm and bent downwardly in contact with the sides of said shell or case and outside said spring, substantially as described.

678,932. **ASH-SIFTER.** JOSEPH F. BIRCH, Jr., Washington, D. C. Filed Sept. 6, 1900. Serial No. 29,224. (No model.)



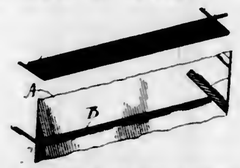
Claim.—1. In a sifter of the character described, the combination with a water-receptacle, of a sifter proper adapted to be lowered into said receptacle to a point above its load, said sifter depending from longitudinal bars hinged to one side of said water-receptacle and extending beyond the opposite side of the receptacle, substantially as shown and described.

2. In a sifter of the character described, the combination of a water-receptacle adapted to contain water, a sifter, proper, having handled bars adapted to engage said receptacle, and pivoted or hinged to said receptacle at their forward ends, and a supplemental receptacle pivoted or hinged upon a support secured to said water-receptacle, substantially as set forth.

3. In a sifter of the character described, the combination of a water-receptacle adapted to contain water, a sifter, proper, having handled bars adapted to rest upon the upper edge of said receptacle and pivoted or hinged to said receptacle at their forward ends, and a supplemental receptacle hinged or pivoted upon supports secured to said water-receptacle, and having a drip outlet or pipe, said water-receptacle having an overflow pipe or outlet, adapted to discharge into said supplemental receptacle, substantially as set forth.

4. In a sifter of the character described, the combination, with a water-receptacle, of a sifter proper having longitudinal bars pivoted to the forward end of said receptacle, and a supplemental receptacle hinged or pivoted to tilt at a right angle to the water-receptacle, said supplemental receptacle being located at the forward end of the water-receptacle and supported from said receptacle.

678,933. **TICKET CASE AND HOLDER.** LEONARD J. BLADES, Chicago, Ill., assignor to the National Ticket Case Co., same place. Filed Jan. 10, 1900. Serial No. 1,026. (No model.)



Claim.—1. A ticket-case having compartments each provided with a rear diagonal and with a corresponding inclined retaining-lip at its front.

2. A ticket-case divided into a plurality of compartments by substantially horizontal partitions, each partition having an integral forward and upward incline near its rear and a front retaining-lip.

3. A ticket-case having its front inclined rearwardly and having substantially horizontal partitions of uniform size dividing its interior into compartments, and a forwardly-inclined diagonal and retaining-lip for each compartment.

4. A holder for tickets provided with a rear diagonal adapted to automatically produce a forward movement of tickets in a package with relation to the lower one upon the insertion of a package of tickets therein, and a correspondingly-inclined front retaining-lip.

5. A holder or tray for tickets composed of a metallic slide having portions at its front and rear bent upward at substantially the same angle to form a rear diagonal and front retaining-lip.

6. In a ticket-holder, the combination with a tray having an upward and forward diagonal near its rear and a correspondingly-inclined retaining-lip at its front, of a follower guided by said diagonal.

7. In a ticket-holder, the combination with a tray having an upward and forward diagonal near its rear and a correspondingly-inclined retaining-lip at its front, of a follower having a slot to receive the diagonal.

678,934. **ASH-SIFTER.** LOUISE A. BRANSON, Lowell, Mass. Filed Nov. 3, 1899. Serial No. 735,726. (No model.)



Claim.—1. A portable sifter, comprising a scoop, a screen and a flexible tubular connection between said scoop and said screen.

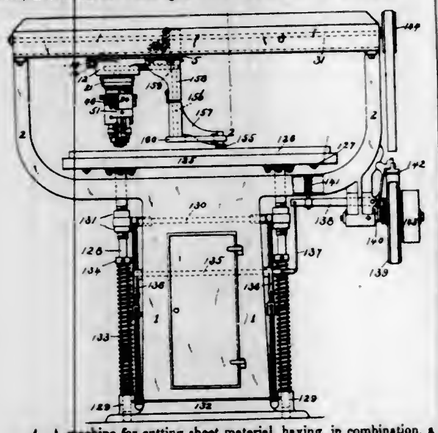
2. A portable sifter, comprising a scoop, a screen, a discharge-section, and flexible tubular connections between said scoop and said screen and between said screen and said discharge-section.

678,935. **MACHINE FOR CUTTING ARTICLES FROM SHEET MATERIAL.** JAMES J. BREACH, Boston, Mass. Filed July 14, 1900. Serial No. 23,600. (No model.)

Claim.—1. A machine for cutting sheet material, having, in combination, a traveling knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a support for the knife and its guiding means and a work-support, said supports being freely movable bodily relatively to each other to position the knife and its guiding means over the work, substantially as described.

2. A machine for cutting sheet material, having, in combination, a traveling knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a support for the knife and its guiding means, and a work-support, said supports being freely movable relatively to each other in two directions to position the knife and its guiding means over the work, substantially as described.

3. A machine for cutting sheet material, having, in combination, a work-support, a traveling knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, and a support for the knife and its guiding means freely movable bodily with relation to the work-support to position the knife and its guiding means over the work, and means for actuating the knife, substantially as described.



4. A machine for cutting sheet material, having, in combination, a work-support, a traveling reciprocating knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a support for the knife and its guiding means freely movable bodily with relation to the work-support to position the knife and its guiding means over the work, and mechanism for actuating the knife, substantially as described.

5. A machine for cutting sheet material, having, in combination, a work-support, a traveling knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a rotary support for the knife and its guiding means freely movable bodily with relation to the work-support to position the knife and its guiding means over the work, and means for actuating the knife, substantially as described.

6. A machine for cutting sheet material, having, in combination, a work-support, a traveling reciprocating knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a rotary support for the knife and its guiding means freely movable bodily with relation to the work-support to position the knife and its guiding means over the work, and mechanism for actuating the knife, substantially as described.

7. A machine for cutting sheet material, having, in combination, a work-support, a traveling knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a support for the knife and its guiding means, freely movable with relation to the work-support in two directions to position the knife and its guiding means over the work, and means for actuating the knife, substantially as described.

8. A machine for cutting sheet material, having, in combination, a work-support, a traveling reciprocating knife, means for guiding the knife in a path corresponding to the outline of the article to be cut out, a support for the knife and its guiding means freely movable bodily with relation to the work-support to position the knife and its guiding means over the work, and mechanism for actuating the knife, substantially as described.

9. A machine for cutting sheet material, having, in combination, a work-support, a reciprocating carriage freely movable over said work-support, an arm pivoted to said carriage, a traveling knife and means for guiding the knife in a path corresponding to the outline of the article to be cut out supported on said arm, and mechanism for actuating the knife, substantially as described.

10. A machine for cutting sheet material, having, in combination, a work-support, a reciprocating carriage freely movable over said support, an arm pivoted to said carriage, a traveling reciprocating knife and means for guiding the knife in a path corresponding to the outline of the article to be cut out supported on said arm, and mechanism for actuating the knife, substantially as described.

11. A machine for cutting sheet material, having, in combination, a work-support, a reciprocating carriage freely movable over said work-support, an arm pivoted to said carriage, a traveling knife and means for guiding the knife in a path corresponding to the outline of the article to be cut out revolubly mounted in said arm, and mechanism for actuating the knife, substantially as described.

12. A machine for cutting sheet material, having, in combination, a work-support, a reciprocating carriage freely movable over said work-support, an arm pivoted to said carriage, a traveling reciprocating knife and means for guiding the knife in a path corresponding to the outline of the article to be cut out, revolubly mounted in said arm, and mechanism for actuating the knife, substantially as described.

13. A machine for cutting sheet material, having, in combination, a knife-carrier, a stationary cam and rack comprising sections adjustable to change the shape of the cam and rack, and connected mechanism for actuating the knife-carrier comprising a roll and pinion engaging the cam and rack respectively and means for rotating the pinion, substantially as described.

14. A machine for cutting sheet material, having, in combination, a knife-carrier, a stationary rack comprising sections adjustable to change the shape of the rack, and connected mechanism for actuating the knife-carrier comprising a pinion engaging the rack and means for rotating the pinion, substantially as described.

15. A machine for cutting sheet material, having, in combination, a knife-carrier, a block provided with parallel rack-sections, blocks provided with curved rack-sections registering with the parallel sections to form a closed rack, said blocks being adjustable to change the shape of the rack, and connected mechanism for actuating the knife-carrier comprising a pinion engaging the rack and means for rotating the pinion, substantially as described.

16. A machine for cutting sheet material, having, in combination, a knife-carrier, a closed rack comprising side and end sections adjustable to change the shape of the rack, and connected mechanism for actuating the knife-carrier comprising a pinion engaging the rack and means for rotating the pinion, substantially as described.

17. A machine for cutting sheet material, having, in combination, a work-support, a clamping member, a support therefor, movable with relation to the work-support to position the clamping member over the work and means for locking said support from movement, substantially as described.

18. A machine for cutting sheet material, having, in combination, a work-support, a clamping member, a support in which the clamping member is yieldingly mounted, movable with relation to the work-support, a device for locking said support from movement and connected mechanism for actuating the locking device by the yielding movement of the clamping member, substantially as described.

19. A machine for cutting sheet material, having, in combination, a rotating arm, a frame pivoted to the arm, a knife-carrier pivoted to said frame, a shaft concentric with the pivot of the frame, a rack, a pinion mounted on said frame engaging the rack, mechanism connecting the shaft and pinion and means for rotating the shaft, substantially as described.

20. A machine for cutting sheet material, having, in combination, a reciprocating carriage, a swinging arm pivoted to said carriage, a pattern-plate revolubly mounted in said arm, a reciprocating knife arranged to travel along said pattern and mechanism for actuating the knife, substantially as described.

21. A machine for cutting sheet material, having, in combination, a reciprocating carriage, a swinging arm pivoted to said carriage, a traveling reciprocating cutter, a support therefor revolubly mounted in the arm, a shaft concentric with the pivot for the arm, mechanism for actuating the same, a shaft concentric with the axis of the revolubly support, mechanism connecting said shaft and cutter and mechanism connecting said shafts, substantially as described.

22. A machine for cutting sheet material, having, in combination, a reciprocating carriage, a swinging arm pivoted to said carriage, a block rotatably supported by said arm, a rotating arm pivoted on said block, a frame movably mounted on said arm, a knife-carrier mounted on said frame, a reciprocating knife mounted in said carrier, and means for actuating the knife and frame, substantially as described.

23. A machine for cutting sheet material, having, in combination, a vertically-movable pattern-plate, a knife-carrier movable toward and from the pattern-plate, a knife-guide for engaging the edge of the pattern-plate and movable therewith, and means for returning the guide to its normal position when the knife-carrier is moved away from the pattern, substantially as described.

24. A machine for cutting sheet material, having, in combination, a vertically-movable pattern-plate, a knife-carrier comprising swinging arms, a knife mounted in one of said arms, a knife-guide for engaging the edge of the pattern, mounted in the other arm, the guide and arm being movable with the pattern-plate, a locking-lever carried by the arm, a stud forming a pivotal bearing for the arm, a lug on said stud with which the locking-lever engages to lock the knife-carrier and to return the arm and guide to their normal position, substantially as described.

25. A machine for cutting sheet material, having, in combination, a rotating arm, a frame, pivoted to the arm, a knife-carrier pivoted to said frame, a reciprocating knife mounted in said carrier, a shaft concentric with the pivot of the frame, a rack, a pinion mounted on said frame engaging the rack, mechanism connecting the pinion and the knife with the shaft, and means for rotating the shaft, substantially as described.

26. A machine for cutting sheet material, having, in combination, a platen provided with a cutting-surface, a knife cutting against said surface, a device for trimming said surface, and mechanism for actuating the trimming device, substantially as described.

27. A machine for cutting sheet material, having, in combination, a knife-carrier comprising swinging arms, a knife mounted therein, a spring acting to swing the arms in one direction and a lever and intermediate connections for swinging the arms against the tension of the spring, substantially as described.

28. A machine for cutting sheet material, having, in combination, a sleeve mounted to reciprocate upon a stud, an arm projecting from said sleeve, a block mounted in the stud, an arm projecting therefrom, a knife mounted in said arms, a slotted sleeve surrounding said first-mentioned sleeve, and a spring acting to rotate said sleeve, substantially as described.

29. A machine for cutting sheet material, having, in combination, swinging arms, a knife, mounted therein, a sleeve surrounding the pivot of said arms, a spring acting on said sleeve to swing the arms in one direction and a lever and connections for actuating the sleeves to swing the arms in the opposite direction, substantially as described.

678,936. VIEW MECHANISM FOR SLOT-MACHINES. FRANK BRESSORI, Bennington, Vt. Filed Nov. 1, 1900. Serial No. 35,152. (No model.)



Claim.—1. In combination, corresponding endless belts, pairs of bars having their terminal portions flattened and offset and attached to the said endless belts, and having their opposing sides grooved to receive picture-bearing plates, and integral stops at the extremities of a bar of each pair of bars, one of the stops being yieldable to be sprung aside, substantially as and for the purpose specified.

2. In picture mechanism, of the type substantially as set forth, comprising a carrier bearing pictures, an illuminator to light up the pictures and included in an electric circuit, a stereoscope, and a circuit-closing device coöperating with and in close proximity to the stereoscope to be engaged and operated by the head of the person when pressing close to the stereoscope, substantially as described.

3. In picture mechanism, of the type substantially as set forth, comprising a carrier bearing pictures, an illuminator to light up the pictures and included in an electric circuit, a stereoscope, and a circuit-closing device comprising a movable part within the limits of the eyepiece of the stereoscope so as to be engaged and pressed upon by the head of the person viewing the picture through the stereoscope, substantially as and for the purpose specified.

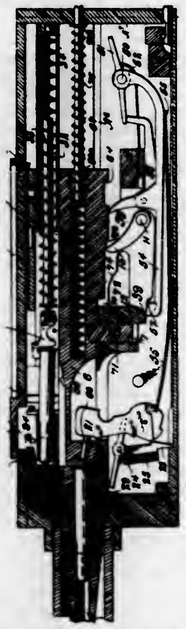
678,987. AUTOMATIC GUN. JOHN M. BROWNING, Ogden, Utah. Filed June 19, 1900. Serial No. 20,574. (No model.)

Claim.—1. The combination of the main casing having longitudinal guide-grooves, of the barrel and extension having guide-tongues which enter the grooves in the casing, and the breech-bolt adapted to slide in said extension and having tongues which enter the same grooves in the casing by which the barrel extension and bolt are both guided by the grooves in the casing and mutually support each other, substantially as described.

2. The combination of the casing having a cam-groove therein, of the barrel extension having a mortise, the locking-block in said mortise having a pin projecting into said cam-groove, and the breech-bolt having a notch with which said block engages to lock the bolt to the barrel extension and the barrel-latch operating to check the barrel and means for releasing the same, all substantially as described.

3. In a gun of the character described, the combination of the casing, the barrel and extension, and means for moving the barrel lengthwise in the casing, the bolt and means for moving the same lengthwise of the barrel extension the locking-block carried by the barrel extension and locking by movement at right angles to the barrel and bolt, a bolt-latch engaging the bolt to hold it retracted, and operating means between the bolt and latch and barrel, whereby the forward movement of the barrel releases the bolt-latch, substantially as described.

4. The combination of the casing, the barrel and extension, the reciprocating bolt and a locking-block moving at right angles thereto and forced into locking engagement with the bolt by direct cam engagement with the casing, a barrel-latch engaging the extension to hold the barrel retracted as described, and the bolt acting on said latch to trip the same, substantially as described.



5. The combination of the casing, barrel and extension reciprocating therein, the bolt moving in line with the barrel and means for locking the two together, separate springs for moving the barrel and the bolt, the bolt-latch in the casing acting to retain the bolt in open position and to be released by the barrel movement, and the barrel-latch engaging the barrel as described, and released by the bolt movement, all substantially as described.

6. The combination of the casing the barrel and extension forming the receiver, and means for moving the barrel and receiver lengthwise in the casing, of a cartridge-carrier pivotally connected to the receiver, engaging cartridges to draw them back with and force them downward into the receiver, and means for closing the breech, substantially as described.

7. The combination of the casing, the barrel and its receiver arranged to reciprocate in the casing, the carrier pivoted in the upper portion of the receiver in position to engage and draw back a cartridge as the receiver moves back, and a spring-pressed plunger engaging the carrier above its pivot, and acting to press the barrel forward by its pressure on the carrier, substantially as described.

8. The combination with the casing, the barrel and receiver reciprocating lengthwise therein, the cartridge-carrier pivoted in the upper part of the receiver and spring-pressed from the rear, and the bolt reciprocating in the receiver and casing and engaging the cartridge-carrier to swing the same upward, substantially as described.

9. In a gun of the character described, the bolt and feed-cam attached thereto and reciprocating longitudinally with the bolt a feed-lever pivoted to the casing and engaging such feed-cam to be oscillated thereby and also engaging the cartridge-feed slide, the feed-slide moving in transverse guideways and actuated by said lever, and a feed-pawl carried by said slide, all combined substantially as described.

10. In a gun of the character described, the longitudinally-reciprocating bolt and a feed-cam attached thereto, the transversely-reciprocating feed-slide and a pawl connected thereto and acting on the cartridges and belt substantially as described, a lever pivoted in the frame and engaging said feed-cam and feed-slide, the feed-pawl on the feed-slide, and a feed-stop operating to hold the cartridge-belt when not engaged by the feed-pawl, all combined.

11. The combination of the transversely-moving cartridge-feed slide, and a spring-pressed pawl carried thereby, said pawl having a plurality of engaging points or surfaces, whereby the pawl will be held out of engagement with the cartridge it should feed when an undrawn cartridge in the belt lifts the point of said pawl, substantially as described.

12. The combination of the casing, the transversely-moving feed-slide, the pawl carried thereby and having two engaging points whereby

it is upheld and detached by an undrawn cartridge, and a spring-actuated feed-stop having an inclined face toward the incoming cartridge, and yielding directly downward as the cartridge-belt moves over said stop, substantially as described.

13. The combination with the casing and reciprocating barrel, of the firing-hammer pivoted in the casing, and two sears engaging said hammer to hold it cocked, one sear being in line of movement of the barrel to be released thereby, the other sear being under control of the trigger and a single spring bearing said sears in opposite directions into engagement with the hammer, all substantially as described.

14. The combination of the casing, barrel, and receiver sliding lengthwise in the casing, the hammer pivoted in the casing, and two sears on a single pivot, engaging the hammer at opposite sides of their pivot, a spring bearing the noses of the sears into engagement with the hammer, means extending from the barrel by which one of the sears is tripped as the barrel moves forward, and a trigger operatively engaging the second sear, all substantially as described.

15. The combination of the casing, barrel reciprocating lengthwise therein, and bolt having additional movement in the line of the barrel movement, the cushion-rocker having a cam or snail face against which the barrel bears in its backward movement, and the bolt engaged by the long arm of said rocker, whereby the rocker serves to check the barrel and convey its energy to the bolt, at the recoil, substantially as described.

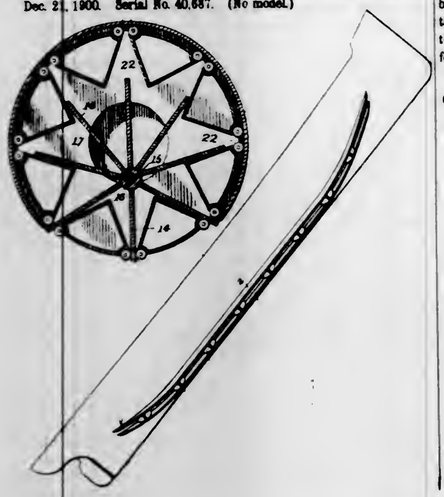
16. The combination with the casing and barrel reciprocating therein, of a cushion-rocker pivoted in the frame having a snail-face against which the barrel engages with a constantly-increasing resistance as the barrel presses back the rocker, and means engaging the rocker by which the energy of the barrel recoil is transmitted to another moving part, while the barrel is checked, substantially as described.

17. The combination with the bolt, bored from the rear, of a bayonet-catch groove surrounding said bore and opening to the rear, a rod having a pin projecting at the side to enter said groove, a coiled spring surrounding the rod and acting to press the bolt forward when the rod is unlatched from the bayonet-catch, and the casing having a perforated rear face-plate against which the spring finds a bearing to press the bolt forward, while the rod retains the cover, substantially as described.

18. The combination with the casing having undercut grooves, the hammer and barrel-latch, of the flat mainspring having side flanges to enter said grooves in the casing and be held thereby, in combination with the hammer and the barrel-latch against which the two ends of the mainspring bear, substantially as described.

19. In a gun of the character described, a reciprocating slide and a spring-pressed pawl carried thereby, said pawl having a contact-shoulder to act as a pusher, and a point projecting therefrom, combined with a slideway along which a flexible belt of cartridges is carried by said pawl, the belt collapsing under the point of the pawl when a cartridge is withdrawn, but otherwise lifting the point so that the contact-shoulder fails to feed, all combined substantially as described.

678,938. PROPULSION MECHANISM FOR BOATS. FRANK BURGER and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Filed Nov. 4, 1899. Renewed Dec. 21, 1900. Serial No. 40,687. (No model.)



Claim.—1. The combination with a vessel, of a plurality of parallel bilge-keels projecting laterally from the sides thereof, and a series of propellers between said keels.

2. The combination with a vessel, of two parallel bilge-keels extending nearly the entire length of each side of the vessel and projecting laterally therefrom, the sides of the vessel being provided with a series of openings between the keels, a water-tight compartment in each opening, and a propeller in each compartment.

3. The combination with a vessel, each side of which is provided with a series of openings, of a water-tight compartment in each opening, the top and bottom plates of which project beyond the sides of the vessel and are each provided with a groove, a gate in said grooves, means for sliding the gate therein and a propeller in the compartment.

4. The combination with a vessel, each side of which is provided with a series of openings, of a water-tight compartment in each opening, the top and bottom plates of which project beyond the side of the vessel and are each provided with a groove, a gate in said grooves, the upper edge of which is provided with teeth, a screw-threaded shaft journaled in the compartment in engagement with said teeth, and a propeller in the compartment.

5. The combination with a vessel, each side of which is provided with a series of openings, of a compartment in each opening, a casing in each compartment, a slotted drum in the casing, a portion of which projects beyond the side of the vessel, a series of blades within the drum, and means for projecting said blades through the slots as they pass beyond the sides of the vessel.

6. The combination with a vessel, each side of which is provided with a series of openings, of an open-sided compartment in each opening, a casing in the compartment, a slotted drum in the casing, a portion of which projects beyond the side of the vessel, and the top and bottom plates each provided with a hollow journal, a shaft through the drum and the hollow journals and having its ends secured to the casing, a series of blades pivotally secured upon the shaft, the outer ends of which project through the slots as they pass beyond the sides of the vessel, and means for rotating said drum.

7. The combination with a vessel, each side of which is provided with a series of openings, of an open-sided compartment in each opening, a semicylindrical casing in each compartment, a drum in each casing, the wall of which is provided with a series of triangular compartments adjacent to each other, the outer walls of which are curved and the inner walls terminate at a point distant from the center, a portion of said drum projecting beyond the sides of the vessel and each end being provided with a hollow journal, a shaft through the drum and the journals and secured at its ends in the casing, a series of blades pivotally secured upon said shaft, the outer ends of which project between the compartments of the drum as they pass beyond the sides of the vessel, a gear-rim secured to the top of the drum, and a motor gear-wheel in engagement with said rim.

8. The combination with a vessel, each side of which is provided with a series of openings, of an open-sided compartment in each opening, a semicylindrical casing in the compartment, a slotted drum journaled concentrically within the casing, a portion of which projects beyond the sides of the vessel, a shaft through the drum eccentrically thereto and between the side of the vessel and the common center of the drum and the casing, a series of blades upon the shaft, the ends of which project through said slots as they pass beyond the side of the vessel, and means for rotating the drum.

678,939. DEVICE FOR REMOVING OR ELEVATING LAMP-CHIMNEYS. BAILEY C. CAUDRY, Coffeyville, Kans. Filed Dec. 7, 1900. Serial No. 39,066. (No model.)



Claim.—1. In combination with a lamp-chimney, a pair of independent non-heat-conducting finger-holds, detachably secured thereto.

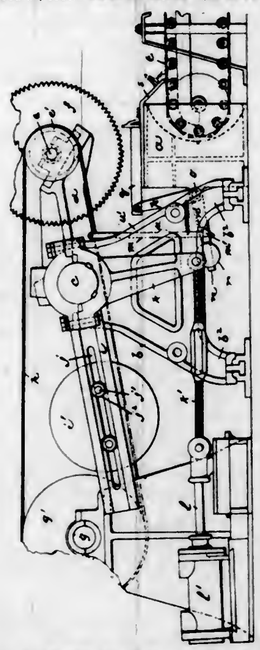
2. In combination with a lamp-chimney having notches or recesses formed in its lower edge, a pair of finger-holds, and means for securing said holds to the chimney, said means being seated in the notches or recesses, substantially as described.

3. A finger-hold for lamp-chimneys, comprising a non-heat-conducting disk or button provided with means for securing it to a lamp-chimney.

4. A finger-hold for lamp-chimneys, consisting of a non-heat-conducting disk or button, and spring retaining-arms secured to said disk or button adapted to grasp the edge of the chimney.

5. A finger-hold for lamp-chimneys, comprising a disk or button of non-conducting material having a groove or channel formed in its periphery, and a wire loop seated within said groove or channel and having spring retaining arms or fingers formed at its ends.

678,940. MACHINE FOR SAWING BARS OF IRON INTO LENGTHS. RICHARD B. CHARLTON, Milwaukee, Wis., assignor to Continuous Rail Joint Company of America, of New Jersey. Original application filed Apr. 26, 1900, Serial No. 14,233. Divided and this application filed Oct. 17, 1900. Serial No. 33,342. (No model.)



Claim.—1. In a machine for sawing bars of iron into lengths, the combination of a saw-bench, a rock-shaft journaled adjacent to said bench and having arms saws carried by said arms, means for oscillating said rock-shaft, pushers working transversely across the saw-bench to remove the sawed pieces and means for transmitting the alternating motion of the rock-shaft to said pushers to secure a reciprocating motion of the pushers, substantially as set forth.

2. In a machine for sawing bars of iron into lengths the combination of a saw-bench, a rock-shaft having arms and saws carried by said arms, means for oscillating said rock-shaft, and reciprocating pushers operated by the oscillating rock-shaft to push the sawed pieces off the saw-bench, substantially as set forth.

3. In a machine for sawing bars of iron, the combination of a saw-bench, a rock-shaft having arms and saws carried on said arms, means for oscillating said rock-shaft to raise and lower the saws, pushers sliding transversely on the saw-bench top, and means connecting said pushers to the rock-shaft arms, whereby as said arms lift the saws away from the bench the pushers are slid forward to push the bars just sawed off the bench, and as said arms drop again the pushers are drawn back out of the way, substantially as set forth.

4. In a machine for sawing bars of iron, the combination with a saw-bench, saws and means for raising and lowering said saws with respect to the bench, of pushers sliding back and forth the saw-bench to remove the sawed pieces and automatically reciprocated by raising and lowering the saws, substantially as set forth.

5. The combination with a saw-bench and a saw carried by a tilting frame and adapted to be raised or lowered with respect to the bench, of a pusher working transversely of the bench, a bell-crank lever fulcrumed at the side of the bench and being pivoted at its upper arm to the pusher, and means connecting the lower arm to the tilting frame, substantially as set forth.

6. The combination with a saw-bench and a saw carried by a rocking frame adapted to raise or lower the saw with respect to the bench, of a pusher sliding transversely upon the bench-top, a bell-crank lever fulcrumed at the side of the bench and having its upwardly-extending arm pivotally connected to the pusher, a weight on the other arm whereby the pusher is normally drawn partially off the bench, and tripping means on the rocking frame for raising said weighted arm of the lever, substantially as set forth.

7. The combination with a saw-bench and a gang of saws carried by a rocking frame adapted to raise or lower them with respect to the bench, of pushers adapted to slide across the bench-top, a shaft having bearings at the side of the bench and provided with fixed arms extending upward and each pivoted to a pusher, a fixed arm projecting outward from said shaft, a hooked lever on the tilting saw-frame and adapted to engage said fixed arm, and means for releasing said lever from said arm, substantially as set forth.

8. The combination with the saw-bench and rocking frame carrying the saws, of pushers *q*, connected to arms *p*, fixed on a shaft *o*, a weighted arm *n*, projecting horizontally or nearly so from the shaft *o*, and having a lug or pintle thereon, a lever pivoted to the rocking frame and hooked at its lower end to engage said lug or pintle and having a boss or cam adapted to engage a fixed pin or bearing when the lever is raised and release the said hooked end, said fixed pin or bearing, and a spring normally holding the lever against the pin, substantially as set forth.

9. In a machine for sawing bars of iron into lengths, a saw-bench comprised of sections bolted together and being recessed at the upper edges of their meeting faces, whereby transverse troughs for the saws to work in are provided in the completed bench, said saws, and an adjustable top plate for the bench, substantially as set forth.

10. In a machine for sawing bars of iron, the combination with a gang of circular saws and means for operating the same, of a saw-bench having transverse troughs or recesses in which the saws may work, and plates covering said troughs or recesses, each plate being slotted to receive the saw and being adjustable upon the bench at right angles to the saw, and means fastening said plates to the bench, substantially as set forth.

11. The combination of a rocking frame carrying a gang of saws, a saw-bench having transverse troughs to receive said saws, top plates on said bench over said troughs and being slotted for the saws and overreaching the front side of the bench and being bent downward to form inclines, means holding said plates to the bench while permitting adjustment of the slots to the saws, pushers sliding transversely of the bench from the rear side, and means connecting said pushers to the rocking frame whereby a raising of the saws will operate the pushers to push the sawed pieces onto the inclines at the front of the bench, substantially as set forth.

678,941. BALING-PRESS. WILLIAM R. COLMAN, Quincy, Ill., assignor of one-half to Frederick C. Andrews, same place. Filed Nov. 23, 1900. Serial No. 37,972. (No model.)

Claim.—1. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, means carried by the pitman to move the carrier-arm, a lug projecting from said arm, the spring 25 acting on the carrier-arm through said lug, a brake for retarding the backward movement of the carrier-arm, and a spring-bumper against which the carrier-arm contacts in its rearward movement.

2. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, means carried by the pitman to move the carrier-arm, a lug projecting from said arm, the spring 25 acting on said arm through said lug, and a brake for retarding the backward movement of the carrier-arm, consisting of an upper non-rotatable and a lower rotatable washer having inclined adjacent faces, and a spring surmounting said washers.

3. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, means carried by the pitman to move the carrier-arm, the lug projecting from said arm, a spring 25 acting on the carrier-arm through said lug, and a brake for retarding the backward movement of the carrier-arm, consisting of an upper and lower washer having inclined adjacent faces, and a spring surmounting the washers, said washers fitting over a stud having a non-circular upper end that fits in a non-circular opening in the upper washer.

4. In a baling-press, the combination of a plunger, a pitman con-

nected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, a stationary spring 25 and a projection that is moved by the carrier-arm and which is adapted to engage said spring, substantially as and for the purpose set forth.



5. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm upon which the pitman rests, a U-shaped stationary spring and a projection moved by the carrier-arm and which is adapted to engage said spring, substantially as and for the purpose set forth.

6. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a carrier-arm having a projection and upon which the pitman rests, a projection on the pitman adapted to engage the projection on the carrier-arm during the advance movement of the pitman, and a spring 25 adapted to be compressed by the forward movement of the carrier-arm, substantially as and for the purpose set forth.

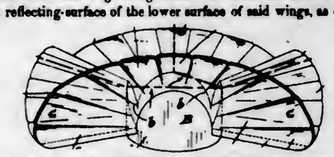
7. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a pivoted arm having an inwardly-curved end and which is adapted to be engaged by said means, and a link forming a connection between said pivoted arm and said pitman, the inwardly-curved end of said arm insuring an inward and forward pull of the pitman, a sufficient distance to seat the power-head against the pitman substantially as set forth.

8. In a baling-press, the combination of a plunger, a pitman connected to the plunger, a cross-head for imparting forward movement to the pitman and plunger, a pivoted arm having an inwardly-curved end and which is adapted to be engaged by said cross-head, and a link forming a connection between said pitman and the inwardly-curved end of said arm insuring an inward and forward pull of the pitman, a sufficient distance to seat the power-head against the pitman, substantially as set forth.

9. In a baling-press, the combination of a plunger, a pitman connected to the plunger, means for imparting forward movement to the pitman and plunger, a cross-head, an arm having an inwardly-curved end and which is adapted to be engaged by said cross-head, recesses 33 formed in the cross-head, a washer to which the arm is pivoted and a link connected to said arm and having a slot-and-pin connection with said pitman, substantially as and for the purpose set forth.

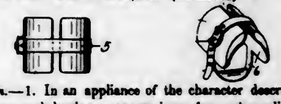
678,942. **REFLECTOR.** FREDERICK W. COX, Toronto, Canada. Filed Mar. 5, 1901. Serial No. 49,966. (No model.)

Claim.—1. A reflector comprising a circular transparent base composed, only at its upper end, of a plurality of semicircularly-shaped portions adjoining each other at their base; a like number of upwardly-curved fan-shaped wings formed integral with said semicircularly-shaped portions and each extended at an upwardly and outwardly inclined angle to said base, the sides of each wing adjoining the sides of its adjacent wings, the upper surface of said wings being coated with suitable material which will make a reflecting-surface of the lower surface of said wings, as described.



2. A reflector comprising a circular transparent base composed, only at its upper end, of a plurality of semicircularly-shaped portions adjoining each other at their base, a like number of upwardly-curved fan-shaped wings formed integral with said semicircularly-shaped portions and each extended at an upwardly and outwardly inclined angle to said base, the sides of each wing adjoining the sides of its adjacent wings, and a number of outwardly-projecting ribs forming an integral part of each of said wings and being on the lower surface of same, the upper surface of said wings being coated with suitable material which will make a reflecting-surface of the lower surface of said wings, as described.

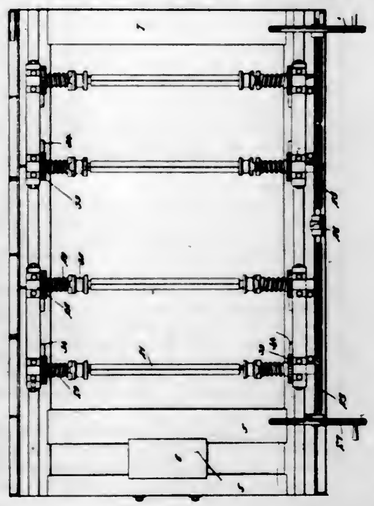
678,943. **COMPRESS.** JOHN C. DAVIS, Kansas City, Mo. Filed Apr. 22, 1901. Serial No. 56,881. (No model.)



Claim.—1. In an appliance of the character described, a pair of saddle-pieces, each having a concave inner face, a depending loop having its ends secured to the inner faces of said pieces respectively, a strap secured to said loop adjacent to one of said pieces, a buckle secured to said loop adjacent to the other of said pieces, and a transverse bar, presenting a convex upper surface and secured to the inner face of said loop, parallel thereto; substantially as described.

2. An appliance of the character described, comprising two saddle-pieces, each having a concave inner face, and made of unyielding material, a depending loop having its ends enlarged to cover the inner faces of the respective saddle-pieces, and secured thereto, a strap having one of its ends secured to said loop adjacent to one of said saddle-pieces, a buckle connected to said loop adjacent to the other saddle-piece, and a transverse bar, made of unyielding material, presenting a convex upper surface, and secured to the inner face of said loop, substantially as described.

678,944. **STONE-CARRIER.** WILLIAM H. DEMOREST, Jr., New York, N. Y. Filed June 25, 1900. Serial No. 21,468. (No model.)



Claim.—1. A stone-carrier, having a vertically-adjustable beam, jaws mounted thereon and adjustable longitudinally thereof, a rod extending between the jaws, and nuts working on the rod and engaging the jaws.

2. A stone-carrier having a bed, frames mounted thereon, a beam held vertically movable in the frames, means for raising and lowering the beam, and jaws carried by the beam.

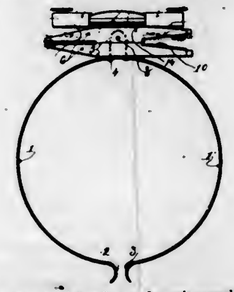
3. A stone-carrier having a frame, a revoluble shaft mounted thereon, a drum carried loosely on the shaft, a clutch splined on the shaft and working with the drum, and stone-gripping devices having connection with the drum to be actuated thereby.

4. A stone-carrier having a frame, a shaft mounted to turn therein, a drum mounted loosely on the shaft, a clutch member splined on the shaft and working with the drum, pawl-and-ratchet devices working between the frame and the drum, and stone-gripping means having connection with the drum.

5. A stone-carrier having a bed, frames erected thereon, guide-bars attached to the sides of the frame to form slideways, blocks mounted in the slideways, a beam extending between and carried by the blocks, means for sustaining the beam, and stone-gripping devices carried by the beam.

6. A stone-carrier having a bed comprising side beams, a cross beam or beams at one end rigidly to hold the side beams together and a removable cross-beam at the other end for the purpose specified, and stone-lifting means sustained on the bed.

678,945. **CLOTH FOLDING AND HOLDING DEVICE.** NELSON P. DENCKLA, Denver, Colo. Filed Oct. 4, 1900. Serial No. 32,094. (No model.)



Claim.—1. In a band-forming and sewing-work-clamping device, the combination of a divided spring-ring, with a band-forming device comprising a bed-plate secured to the top of said clamping-clasp, and having an inwardly-curved, flaring jaw formed on one of its side edges, an adjustable jaw-plate slidably mounted on said bed-plate, and having also an inwardly-curved flaring jaw arranged opposite the jaw of said bed-plate, a thumb-screw arranged to clamp said jaw-plate to said bed-plate and a spring controlled plate arranged to hold a strip of cloth under resilient pressure against said adjustable jaw-plate and in said band-forming jaws, substantially as described.

2. In a device for forming cloth bands by hand, the combination of an elastic clasping-ring adapted to spring over the leg of an operator, a bed-plate secured to said ring having a stationary jaw, a sliding plate resting on said bed-plate also having a jaw arranged opposite the jaw on said bed-plate and having said jaws curved toward each other and flared outward from said bed-plate, and a spring-controlled cap arranged to hold a strip of cloth down on said sliding plate by resilient pressure, substantially as described.

3. The combination of the spring-ring, with the band-forming device comprising the bed-plate, the adjustable jaw and its plate, the thumb-screw and the spring-cap, substantially as described.

4. The combination of the divided spring-ring, with the band-former comprising a bed-plate secured to the clamping-ring and comprising the bed-plate, the boxes at the ends of said bed-plate, the lateral projection on said bed-plate, the inwardly-curved, outwardly-flared jaw formed on said bed-plate, the adjustable jaw and its plate slidably mounted on said bed-plate and having its jaw formed like, and disposed opposite the jaw of said bed-plate, and both jaws arranged to form a tapering die with curved sides adapted to turn over the edge of a strip of cloth when inserted between them and drawn through, the slot in the end of said adjustable jaw-plate, the thumb-screw arranged to secure said jaw-plate in adjusted positions, and the cap-plate fitting slidably in the boxes of said bed-plate and having a spring arranged to hold it resiliently against said jaw-plate, and adapted to hold and press the bands down on said jaw-plate and flatten and press their edges after the jaws have turned them, substantially as described.

678,946. **ELBOW-FORMING MACHINE.** FERDINAND DEBOKHAM, Cincinnati, Ohio. Filed Oct. 15, 1900. Serial No. 33,085. (No model.)



Claim.—1. In an elbow-forming machine, a pair of crimping-jaws having counterpart beveled faces, each jaw adapted to be clamped upon the blank and then moved toward each other to telescope the metal of the blank to form a crimp.

2. In an elbow-forming machine, a pair of jaws having counterpart beveled faces, each adapted to clamp and hold the blank; a spreader adapted to increase the diameter of the blank between the jaws; and means for forcing the jaws toward each other to telescope the metal of the blank to form the crimp.

3. In an elbow-forming machine, a pair of jaws, each adapted to clamp and hold the blank, and having their adjacent faces beveled; a spreader adapted to increase the diameter of the blank between the jaws; and means for forcing the jaws toward each other to telescope the metal of the blank to form the crimps.

4. In an elbow-forming machine, a pair of jaws having counterpart beveled faces, each adapted to clamp and hold the blank; a spreader adapted to increase the diameter of the blank between the jaws; and means for forcing the jaws toward each other to form the crimp, one of said jaws being formed in sections adapted to be opened and then clamped upon the previously-formed crimp, substantially as specified.

5. In an elbow-forming machine, a pair of jaws, each having their adjacent faces beveled and adapted to move toward and from each other to form the crimps; a spreader adapted to increase the diameter of the blank between the jaws, one of said jaws being formed of sections adapted to be opened for the introduction of the previously-formed crimp, substantially as specified.

6. In an elbow-forming machine, a clamping-jaw adapted to clamp and hold the blank; a spreader adapted to increase the diameter of the blank in front of the clamping-jaw; and a jaw hinged to the clamping-jaw, adapted to clamp the blank and to be forced toward the clamping-jaw said jaws having coöperating beveled faces to telescope the metal of the blank to form the crimp.

7. In an elbow-forming machine, a clamping-jaw adapted to clamp and hold the blank in place; a spreader located within the blank and adapted to increase the diameter of the blank in front of the clamping-jaw; a ring within the blank in front of the spreader; and a jaw hinged to the clamping-jaw and adapted to clamp the blank, and to be forced toward the clamping-jaw to telescope the metal of the blank to form the crimps, substantially as specified.

8. In an elbow-forming machine, a clamping-jaw adapted to clamp and hold the blank; a spreader adapted to increase the diameter of the blank at the point where the crimp is to be formed; and a jaw having a beveled face, adapted to clamp the blank, and to be forced toward the opposite jaw to telescope the metal of the blank to form the crimp.

9. In an elbow-forming machine, the combination with a mandrel of a clamping-jaw adapted to clamp the blank upon the mandrel; and a jaw having a beveled face and adapted to move toward and from the clamping-jaw and having means for clamping the blank, substantially as specified.

10. In an elbow-forming machine, a mandrel adapted to support the blank; a jaw having a beveled face and adapted to clamp the blank upon the mandrel; and a divided jaw having a beveled face, and adapted to move toward and from the opposite or clamping jaw.

11. In an elbow-forming machine, a mandrel adapted to support the blank, a clamping-jaw adapted to clamp the blank upon the mandrel and having a recess in its face; a spreader adapted to increase the diameter of the blank at the point where the crimp is to be formed, and a clamping-jaw movable relative to said first clamping-jaw, and having a beveled face.

12. In an elbow-forming machine, two sets of clamping-jaws for gripping the pipe, means for moving said jaws toward each other, the faces of said jaws being so shaped that such motion will cause the metal of one side of the blank to be telescoped to form a crimp, substantially as described.

13. In an elbow-forming machine, a mandrel; a clamping-jaw adapted to clamp the blank upon the mandrel and having a recess in its face; a spreader located within the blank and adapted to increase the diameter of the blank in front of the clamping-jaw; a ring attached to the spreader on the opposite side from the mandrel; and a jaw having a beveled face, adapted to clamp the blank upon the ring, and to be moved toward the clamping-jaw to form the crimp.

14. In an elbow-forming machine, a pair of crimping-jaws having counterpart beveled faces, each jaw adapted to be clamped upon the blank and then moved toward each other to telescope the metal of the blank to form a crimp, one of said jaws being divided into sections so as to be subsequently clamped upon the outside of the crimp to force it down upon the blank.

15. In an elbow-forming machine, a mandrel; a clamping-jaw adapted to clamp the blank upon the mandrel; a spreader adapted to increase the diameter of the blank in front of the clamping-jaw; a jaw adapted to clamp the blank in front of the clamping-jaw, and to be forced toward the clamping-jaw the faces of said jaws being so shaped as to telescope the metal of the blank to form the crimps.

16. In an elbow-forming machine, a mandrel adapted to support the blank; means for feeding the blank forward on the mandrel; a jaw adapted to clamp the blank upon the mandrel; a spreader adapted to increase the diameter of the blank in front of the clamping-jaw, a ring attached to the spreader; a jaw adapted to clamp the blank upon the ring, and to be moved toward the clamping-jaw to telescope the metal of the blank to form the crimps, substantially as specified.

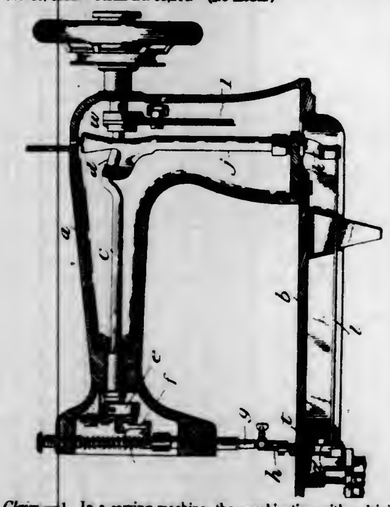
17. In an elbow-forming machine, a mandrel adapted to support the blank; means for feeding the blank forward on the mandrel; a clamping-jaw adapted to clamp the blank upon the mandrel; a spreader adapted to increase the diameter of the blank in front of the clamping-jaw; a ring within the blank in front of the spreader, and a jaw adapted to clamp the blank upon the ring, and to be moved toward the clamping-jaw to telescope the metal of the blank to form the crimps; said jaw being formed of sections, and adapted to be opened and then clamped upon the previously-formed crimp, substantially as specified.

18. In an elbow-forming machine, a mandrel adapted to support the blank; means for feeding the blank forward thereon; a clamping-jaw adapted to clamp the blank upon the mandrel and having a recess in its face; a spreader adapted to increase the diameter of the blank in front of the clamping-jaw; a ring or head within the blank in front of the spreader; and a jaw formed of sections adapted to clamp the blank upon the ring or head, said jaw having a beveled face, and adapted to be moved toward the clamping-jaw to telescope the metal of the blank to form the crimps, substantially as specified.

19. In an elbow-forming machine, a mandrel adapted to support the blank; means for feeding the blank thereon; a clamping-jaw adapted to clamp the blank upon the mandrel; a spreader located within the blank and adapted to increase the diameter of the blank in front of the clamping-jaw; a ring located within the blank in front of the spreader; a jaw formed of sections and adapted to clamp the blank upon the ring; said jaws being beveled upon their adjacent faces, substantially as specified.

678,947. CIRCULARLY-MOVING-HOOK SEWING-MACHINE.

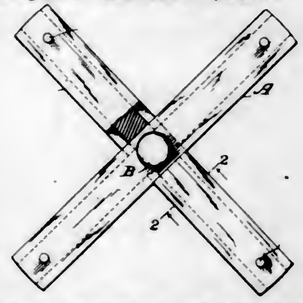
PHILIP DIEHL and ALFRED GRIEB, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Original application filed Apr. 9, 1900, Serial No. 12,215. Divided and this application filed Oct. 16, 1900. Serial No. 33,211. (No model.)



Claim.—1. In a sewing-machine, the combination with a driving-shaft in the upper portion of the arm thereof, a needle-bar operatively connected with the forward end of said shaft, a vertical rock-shaft in the vertical portion of said arm and operatively connected with said driving-shaft, a vertical rocking hub or rocker connected with said vertical rock-shaft, a vertical rock-shaft at the forward end of the machine operatively connected with said rocker, an oscillating loop-taking hook operated by said last-named rock-shaft and coöperating with the needle carried by said needle-bar in forming stitches, and a stationary thread-case supported by said loop-taking hook and arranged eccentric to the axis of the latter on that side of said axis toward which the loops of needle-thread are first carried by the said hook in spreading said loops over said thread-case.

2. The combination with the driving-shaft *c*, of the needle-bar operatively connected with the forward end of said shaft, the rock-shaft *j* connected with the said driving-shaft the vertical rocking hub or rocker *n* having the arms *m* and *p*, the pitman *l* connecting said rock-shaft *j* with the said arm *m* of said rocking hub, the rock-shaft *s* operatively connected with the said arm *p* of said rocking hub and provided with a loop-taking hook coöperating with the needle carried by said needle-bar in the formation of stitches, and a stationary thread-case supported by said hook and arranged eccentric to the axis of the latter on that side of said axis toward which the loops of needle-thread are first carried by the said hook in spreading said loops over said thread-case.

678,948. EXTENSION-TABLE. ROGERS REYES, Los Angeles, Cal. Filed Aug. 4, 1900. Serial No. 25,864. (No model.)



Claim.—1. An extension-table having, in combination, a frame having four radially-extending arms, each grooved along its opposite edges and having a downwardly-projecting stud near its outer end, and a central table-leg rigidly secured to the middle of said frame; four radially-movable sections each carrying a movable table-leg, each of said sections having on its under side radial ribs and a leg-plate which embrace and slide upon one of said frame-arms, each of said ribs having a tongue fitting in one of the grooves of the corresponding frame-arm, and said leg-plate having a groove closed at its inner end to constitute a stop, which groove slides over the downwardly-projecting stud of the corresponding frame-arm, and each of said sections having a top board with a tongue along one edge and a groove along the other edge fitting the corresponding parts of adjacent top boards, substantially as set forth.

2. An extension-table having, in combination, a table-frame comprising four radial arms, four radially-movable sections sliding along said arms, and filling-pieces for completing the top of the table when extended, said filling-pieces comprising a central piece having downwardly-projecting pins which fit in the corners between said frame-arms, substantially as set forth.

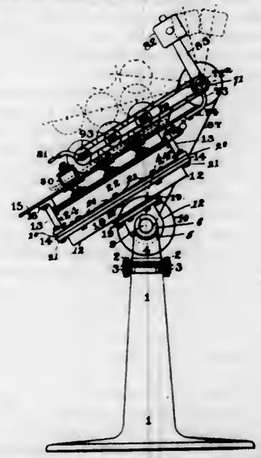
3. An extension-table having, in combination, a frame, radially-movable sections, each having a downwardly-projecting apron, and apron-flaps hinged to said apron, said flaps having coöperating bolts and sleeves, substantially as set forth, whereby the apron can be completed when the table is extended, substantially as set forth.

4. An extension-table having, in combination, a frame, radially-movable sections, each having a downwardly-projecting apron, and apron-flaps hinged to said apron, said flaps having coöperating connections, substantially as set forth, whereby the apron can be completed when the table is extended, substantially as set forth.

678,949. MACHINE FOR IRONING EDGES OF COLLARS AND CUFFS OR OTHER STARCHED ARTICLES. FRED R. FAY, Los Angeles, Cal. Filed Dec. 14, 1897. Serial No. 661,813. (No model.)

Claim.—1. In a machine for ironing the edges of collars and cuffs, the combination with feed mechanism to move a collar or cuff along a given path, of ironing devices disposed in the path of the collar or cuff, and adapted to normally gravitate thereto and hence adjust themselves laterally to the width thereof, substantially as described.

2. An ironing-machine comprising two or more grooved circular heads adapted to iron the edge of a starched collar or cuff, and yielding supports for the heads whereby the latter are permitted to follow the outline of said edge as the article bears thereon; substantially as described.



3. An ironing-machine comprising a series of grooved circular heads adapted to iron the edge of a starched collar or cuff, and swinging supports in which the heads are journaled and whereby the latter are permitted to follow the outline of said edge as the article bears thereon; substantially as described.

4. An ironing-machine, comprising a table, a yielding support, a rotating head having a circumferential groove for receiving the edge of the article to be ironed and mounted in the yielding support, and a guide directing the edge of the article into the groove of the head; substantially as described.

5. An ironing-machine, comprising a table, oppositely-acting yielding supports, rotating heads each having a circumferential groove for receiving the edge of the article to be ironed and mounted in the yielding supports, and guides directing the edge of the article into the grooves of the heads; substantially as described.

6. An ironing-machine, comprising a table, oppositely-acting yielding supports, rotating heads each having a circumferential groove for receiving the edge of the article to be ironed and mounted in the yielding supports, a grooved ironing-head having a fixed support and a guide-plate having transverse and longitudinal shoulders providing guides for directing the article into the grooves of the heads adjacent thereto; substantially as described.

7. In an ironing-machine the combination of a suitable support, and a series of grooved ironing-heads arranged substantially opposite each other, said heads being adapted to move outwardly while an article being ironed is passing between the heads, substantially as set forth.

8. In an ironing-machine the combination of a suitable support, and a series of grooved ironing-heads arranged substantially opposite each other and adapted to move independently of each other from pressure received by contact of the article being ironed, substantially as set forth.

9. In an ironing-machine the combination of a suitable support, and a series of movable grooved ironing-heads arranged in substantially two parallel lines, said heads being adapted to move outwardly from the pressure of the article being ironed passing between the heads, substantially as set forth.

10. In an ironing-machine the combination of a suitable support, a box or frame pivoted to said support whereby it may be inclined at an angle, and a series of oppositely-arranged ironing-heads having a movable support whereby the action of an article passing between the heads causes them to recede, said heads returning by gravity to their inner normal position when the article being ironed has passed out of contact with the heads, substantially as set forth.

11. In an ironing-machine the combination of a suitable support, a box or frame pivoted to said support, a series of oppositely-opposed rotating heads movably connected with said support and adapted to recede from pressure of the article being ironed and feed-rollers for carrying the article being ironed located between the ironing-heads, substantially as set forth.

12. In an ironing-machine the combination of a suitable support, a series of movably-supported ironing-heads, swinging frames in which the heads rotate, means for rotating said ironing-heads and means for feeding an article to be ironed located between said ironing-heads, substantially as set forth.

13. In an ironing-machine the combination of a suitable support, movable ironing-heads pivoted in said support and adapted to yield from pressure, a hinged frame connected with the support and a series of feed-rollers journaled to said hinged frame and operating between the heads, substantially as set forth.

14. In an ironing-machine the combination of a suitable support, a series of pivoted ironing-heads, a frame hinged to the support, feed-rollers journaled to the frame and operating between the heads and a counter-weight for holding said frame and feed-rollers in a raised position, substantially as set forth.

15. In an ironing-machine the combination of a suitable support, an operating-shaft, gear-wheels on the operating-shaft, a series of vertical shafts having gears thereon for transmitting power, swinging arms pivoted to said vertical shafts, grooved ironing-heads mounted on shafts that are journaled to the upper ends of said arms, gears on the lower end of the shafts which support the ironing-heads, and an idler-gearing supported by the arms and connecting the shafts of the ironing-heads with the vertical power-transmitting shafts, substantially as set forth.

16. In an ironing-machine the combination of a suitable support, a box movably pivoted to said support, an operating-shaft journaled in said box and having power-transmitting gear-wheels, a transverse frame having hubs thereon, vertical shafts pivoted in said hubs and having gear-wheels on their upper and lower ends, swinging arms having their lower ends pivoted on said vertical shafts, ironing-heads, shafts for supporting said ironing-heads and suitable gearing mechanism connecting the ironing-head shafts with the vertical shafts, and weights connected with said arms for returning the ironing-heads to their normal position, substantially as set forth.

17. In an ironing-machine the combination with ironing-heads mounted on shafts, of swinging supports for said shafts, and an ironing-table having curved orifices in which the ironing-heads operate, substantially as set forth.

18. In an ironing-machine the combination of suitable ironing-heads, swinging frames for movably supporting said ironing-heads, an ironing-table having curved orifices therein in which the ironing-heads operate and flanges on the lower ends of the ironing-heads for closing the lower portion of said curved orifices, substantially as set forth.

19. In an ironing-machine the combination of a suitable support, ironing-heads mounted on shafts, means for rotating said shafts, supporting-collars secured to said ironing-head shafts, collars resting on said supporting-collars and loosely connected with the ironing-head shafts, contracted orifices in said collars, chambers in the collars with which the contracted orifices connect and burners connected with said chambers thereby forming a medium for heating the ironing-heads, substantially as set forth.

20. In an ironing-machine the combination of a suitable support a series of S-shaped arms movably supported in the ironing-machine, a series of ironing-heads mounted on shafts, said shafts being journaled in said S-shaped arms an inclined table and weights connected with said arms, substantially as set forth.

21. In an ironing-machine the combination of a suitable support, grooved ironing-heads, means for supporting said ironing-heads, an ironing-table serving as a guide to said grooved heads and an upper guide located over said grooved heads and forming an upper guide for the article being ironed, substantially as set forth.

22. An ironing-machine, comprising a table, oppositely-acting yielding supports, rotating heads each having a circumferential groove for receiving the edge of the article to be ironed and mounted in the yielding supports, and a guide-plate having longitudinal shoulders and an upwardly-curved front end providing in connection with the table a double guide for the article passing into the grooves of the heads; substantially as described.

23. In an ironing-machine the combination of grooved ironing-heads, a table through which the heads partially extend and which serves as a lower guide for the article being ironed, and an upper guide having recesses on its under side into which the ironing-heads extend, said upper guide having its forward end curved upwardly for the ready admission of the article being ironed, substantially as set forth.

24. In an ironing-machine the combination of grooved ironing-heads, a table forming a lower guide leading to said ironing-heads, and an upper guide placed over said ironing-heads and perforations extending through the upper guide, substantially as set forth.

25. In an ironing-machine the combination of a suitable support, grooved ironing-heads, a table forming a lower guide, an upper guide placed over the heads and a shoulder located near the forward end of the upper guide for forming a vertical guide, substantially as set forth.

26. In an ironing-machine the combination of a suitable supporting mechanism, a grooved ironing-head adapted to iron the edges of starched articles and a vertical guide to the groove in the ironing-head.

27. In an ironing-machine the combination of a rotatable ironing-head having a peripheral groove for ironing the edges of starched articles and a detachable vertical guide to said groove.

28. In an ironing-machine the combination of a circular ironing-head having a peripheral groove adapted to iron the edges of starched articles, and a guide-plate having a shoulder forming a vertical guide to the groove in the head, and a recess into which the head extends.

29. In an ironing-machine the combination of a circular ironing-head having a yielding support, and a peripheral groove adapted to iron the edges of starched articles, and a guide-plate having a shoulder forming a vertical guide to the groove in the head, and a recess into which said head extends and into which it recedes from pressure of the article being ironed.

30. In an ironing-machine the combination of a suitable support, grooved ironing-heads having a movable support, an enlarged ironing-head having a fixed support, said enlarged ironing-head having a groove therein and guides leading to the ironing-grooves in said heads, substantially as set forth.

31. An ironing-machine having a grooved ironing-head and a guide-plate formed with a vertical wall or shoulder adapted to guide an article being ironed into the groove of the head, substantially as set forth.

32. In an ironing-machine the combination of a suitable support, a grooved ironing-head, means for rotating said ironing-head and a guide-plate formed with a vertical wall or shoulder leading to said head, substantially as set forth.

33. In an ironing-machine the combination of a series of movably-supported grooved ironing-heads adapted to adjust themselves to the size of an article being ironed, said grooved heads forming a combined vertical and horizontal guide for guiding the article being ironed, substantially as set forth.

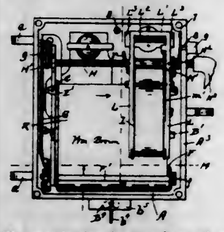
34. The combination of a slotted table, swinging arms pivotally supported below said table, and work-treating rolls revolubly mounted on the arms and protruding through the slots of the table, said rolls being adjustable with the arms and sustained thereby in parallel relation to each other at all points of their adjustment; substantially as described.

35. The combination of the pivoted arms, work-treating rolls journaled on said arms for adjustment therewith and maintained thereby in parallel relation, and driving devices concentric with the axes of adjustment of said arms and connected operatively with the rolls, whereby said rolls may be positively driven at all points of their adjustment, substantially as described.

36. The combination of arbors, swinging arms pivotally supported on said arbors, work-treating rolls revolubly journaled on the arms, gear elements mounted on the arbors in concentric relation to the axes of adjustment of the arms and said rolls, and gear connections between said rolls and the gear elements on the arbors; substantially as described.

37. The combination of a slotted table, swinging arms pivotally supported below said table, a pair of coacting ironing-rolls journaled on said arms and extending through the slots in the table, said rolls provided with coincident annular grooves that lie contiguous to the surface of the table, and means for heating said rolls; substantially as described.

678,950. **FARE REGISTER AND RECORDER.** WILLIAM J. FORDNEY, Lancaster, Pa. Filed Mar. 6, 1899. Serial No. 707,839. (No model.)



Claim.—1. The combination, in a register, of registering-disks, a striker hinged at one side of the registering-disks and extending over said disks, an inking-ribbon carried over the registering-disks by the striker, a record-strip passing between said disks and the inking-ribbon, a shaft under said striker, a cam on said shaft and terminating in a shoulder, an arm on said striker and engaging the cam, and springs actuating the striker toward said shaft, for the purpose specified.

2. The combination, in a register, of registering-disks, a striker hinged at one side of the registering-disks and extending over said disks, a delivery-drum M and a take-up drum N journaled in said striker between the hinge thereof and the registering-disks, an inking-ribbon on drum M and extending around the free end of the striker and attached to drum N, a record-strip located between the registering-disks and the inking-ribbon, a shaft under said striker, a cam on the shaft and terminating in a shoulder, an arm on said striker and engaging the cam, springs actuating the striker toward said shaft, a ratchet-wheel on the drum N, and a pallet engaging said ratchet-wheel and adapted to actuate the drum N to take up the inking-ribbon, for the purpose specified.

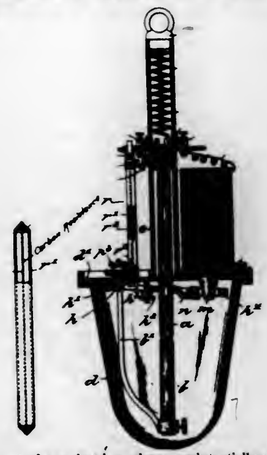
3. The combination, in a register, of registering-disks, an inking-ribbon, a delivery-drum E on one side of said disks, a take-up drum F on the other side of said disks, a record-strip on drum E and passing between the registering-disks and the inking-ribbon and attached to drum F, a shaft H, connections between shaft H and the inking-ribbon, whereby said ribbon is actuated to strike the record-strip on the registering-disks, an arm on shaft H and adapted to revolve said shaft, and a rod G connecting a crank on shaft H and the arm on drum F, whereby the drum F is actuated to take up the record-strip after the same is struck by the inking-ribbon, for the purpose specified.

4. The combination, in a register, of registering-disks, an inking-ribbon, a delivery-drum E on one side of said disks, a take-up drum F on the other side of said disks, a record-strip on drum E and passing between the registering-disks and the inking-ribbon and attached to drum F, a shaft H, connections between shaft H and the inking-ribbon, whereby said ribbon is actuated to strike the record-strip on the registering-disks, crank g on shaft H, lever G′ revolubly attached to a spindle of drum F, ratchet G^2 on the spindle of drum F, a pallet on lever G′ and engaging said ratchet-wheel, and a connecting-rod between crank g and lever G′, for the purpose specified.

5. The combination, in a register, of a closed case, registering-disks, a plate or tablet in line with said disks and located opposite a slot in the case, an inking-ribbon located over the registering-disks, a record-strip passing over said plate or tablet and between the inking-ribbon and the registering-disks, mechanism whereby the inking-ribbon is actuated to strike the record-strip on the registering-disks, mechanism for automatically moving the inking-ribbon on the device carrying the same after said ribbon strikes the record-strip, and mechanism for automatically moving the record-strip over the plate or tablet and the registering-disks after said strip has been struck by the inking-ribbon, for the purpose specified.

6. The combination, in a register, of a case having a slot and an eye therein, registering-disks in line with said slot, a plate or tablet in the case and opposite the slot, a record-strip extending over said plate or tablet and over the registering-disks, a striker carrying an inking-ribbon, mechanism whereby said striker strikes the record-strip against the registering-disks with the inking-ribbon, mechanism for changing the relative positions of the registering-disks, an indicator, and mechanism whereby said indicator is caused to appear at said eye in the case each time the relative positions of the registering-disks are changed, for the purpose specified.

678,951. **ELECTRIC-ARC LAMP.** JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Dec. 13, 1900. Serial No. 39,619. (No model.)



Claim.—1. In an electric-arc lamp, a substantially air-tight receptacle wherein the carbons are adapted to be consumed, and a feeding mechanism for the upper carbon located wholly within the receptacle and comprising a lever pivoted at one end, a magnetic clutch-arm pivoted to the lever intermediate of its ends and adapted to bind or release the upper carbon to or from the lever, a magnet-core projecting into the receptacle and an armature for said core formed on the free end of said lever, substantially as and for the purposes described.

2. In an electric-arc lamp, a tube wherein the upper carbon is adapted to slide and included in the main circuit, a clip comprising two semitubular wings pivoted together to receive and hold the upper carbon, said clip adapted to slide in said tube, and a spring adapted to support said clip and connecting said clip to said tube, substantially as and for the purposes described.

3. In an electric-arc lamp, a tube wherein one of the carbons is adapted to slide and included in the main circuit, a clip, comprising two semitubular wings pivoted together to receive and hold the carbon, said clip adapted to slide in said tube, and means for connecting said clip electrically with said tube and for supporting said clip, while so connected, in said tube, substantially as and for the purposes described.

4. In an electric-arc lamp, an upper and a lower carbon, means for feeding one of said carbons toward the other, a main circuit, wherein the two carbons are included, a binding-post to which one wire of the main circuit is secured, a socket-piece located adjacent to said post and in electrical connection therewith, a second socket-piece located adjacent to and in electric connection with one of the carbons, and a resistance-piece removably secured in said socket-pieces and bridging the same, substantially as and for the purposes described.

5. In an electric-arc lamp, an upper carbon and a lower carbon, means for adjusting said carbons with relation to each other, said means, comprising a feeding mechanism for one of said carbons, an inclosed resistance included in and bodily removable from the main circuit in which said carbons are included, the same consisting of a sealed tube of non-condensing material having a vacuum in its interior, a strip of carbon or similar resistance material traversing said tube, and metallic caps secured to either sealed end of said tube and in electric connection with said resistance, said resistance interposed in the main circuit between the fixed and movable carbons, substantially as and for the purposes described

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678,952. **ELECTRIC-ARC LAMP.** JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Apr. 30, 1901. Serial No. 58,133. (No model.)



Claim.—1. In an electric-arc lamp, an air-tight receptacle wherein the carbons are adapted to be consumed, an inner air-tight tube entering the receptacle wherein the upper carbon and its holder are guided and adapted to slide, an outer air-tight tube concentric with the inner tube, a combined magnetic core and clutch divided into two semitubular members hinged together and provided with gripping-jaws adapted to traverse the wall of the inner tube, said core and clutch sliding and vibrating in the space between the two tubes, and a solenoid-coil located outside the outer tube and in open communication with the external air.

2. In an electric-arc lamp, a tubular solenoid-core and clutch comprising two semitubular members hinged together and each member having a body portion formed of magnetizable material and a gripping or clutch portion formed of non-magnetizable material.

3. In an electric-arc lamp, two concentrically-arranged tubes, a solenoid-coil surrounding the outer tube, a tubular core and clutch comprising two semitubular members hinged together and arranged to slide and to vibrate in the space between the tubes, each member having a body portion of magnetizable material, and a gripping or clutch portion of non-magnetizable material, and each clutch portion having a tooth or lug adapted to traverse the wall of the inner tube.

4. In an electric-arc lamp, two concentrically-arranged tubes, a solenoid-coil surrounding and supported by the outer tube, a carbon adapted to slide in the inner tube, and a combined clutch and core comprising two semitubular members hinged together and arranged to slide and vibrate in the space between the tubes, each member having a gripping-jaw adapted to traverse the wall of the inner tube and to engage the carbon.

5. In an electric-arc lamp, two concentrically-arranged tubes, a combined clutch and solenoid-core consisting of two semitubular sections hinged together and arranged to slide and to vibrate in the space between the tubes, each section having at its lower end a gripping-jaw, a downwardly-beveled ring located within the space between the tubes and in the path of the upper ends of the core-sections, said ring adapted to limit the upward movement of the core-sections and to force the upper ends outward and the gripping-jaws inward, and an upwardly-beveled annular block located within the space between the tubes and in the path of the lower ends of the core-sections, said block adapted to force the lower or gripping jaw ends of the sections outward during the downward movement of the core and clutch.

6. In an electric-arc lamp, two concentrically-arranged tubes, a solenoid-coil surrounding the outer of the tubes, a combined clutch and core consisting of two semitubular members hinged together and arranged to slide and to vibrate in the space between the tubes, each member having at its lower end a gripping-jaw adapted to traverse the wall of the inner tube, means located in the path of the upper ends of the core-sections and adapted to limit the upward movement of said sections and to force the upper ends of the sections outward and the lower ends inward, and means located below and in the path of the lower or gripping ends of the sections, said means adapted to force said gripping ends outward during the downward movement of the core-sections.

7. In an electric-arc lamp, an air-tight receptacle wherein the carbons are adapted to be consumed and comprising a globe and a cover-plate, two concentric tubes joined at their lower ends to said cover-plate and a cap hermetically closing the upper ends of both tubes, a holder and carbon adapted to slide in the inner tube, a flexible bond electrically connecting the holder to the cap, a combined solenoid-core and feeding-clutch for the carbon arranged to slide and to vibrate in the space between the two tubes and a solenoid-coil surrounding and supported on the outer tube.

8. In an electric-arc lamp, an air-tight receptacle wherein the carbons are adapted to be consumed and comprising a globe and a cover-plate, a tube joined at its lower end to said cover-plate and having its wall inwardly creased to form a vertical rib, and a cap or holder substantially cap-shaped to receive one of the carbons in its interior and having on its periphery a vertical channel arranged to slide on the rib of the tube.

9. In an electric-arc lamp, an air-tight receptacle wherein the carbons are adapted to be consumed and comprising a globe and a cover-plate, a tube joined at its lower end to said cover-plate and entering the receptacle, a cap hermetically closing the upper end of said tube, a rib formed vertically in the wall of said tube, a holder for the upper carbon arranged to slide within the tube and to be guided vertically therein by said rib, and a flexible bond electrically connecting the holder to the cap of the tube.

10. In an electric-arc lamp, a feeding mechanism for one of the carbons, a solenoid-core controlling said feeding mechanism, a solenoid-coil controlling said core, and a magnetizable piece located adjacent to the solenoid-coil and to the core, said piece adapted to be energized when the coil is energized and to exert its magnetic influence when energized upon the core to retard the movement of said core in response to the solenoid-coil.

11. In an electric-arc lamp, a solenoid-coil, a combined split core and clutch adapted to be elevated and to be vibrated by said coil to constitute the feeding mechanism for one of the carbons, and a magnetic lag adapted to retard the vibratory and other movements of the core in response to the solenoid-coil.

12. In an electric-arc lamp, a solenoid-coil, two concentric tubes around the outer of which the coil is located, a sectioned magnetic core and clutch constituting the feeding mechanism for one of the carbons, said core and clutch arranged to slide and to vibrate in the space between the tubes under the influence of the solenoid-coil, and a magnetic piece lo-

cated adjacent to the core and to the solenoid-coil, said piece adapted to be energized by said coil and when energized adapted to retard the movements of the core in response to the solenoid-coil.

678,953. ELECTRIC CLOCK. GEORGE HOOKHAM, Birmingham, England. Filed Dec. 15, 1900. Serial No. 39,960. (No model.)



Claim.—The combination with a clock including escapement mechanism and pendulum, of an arbor, electrical means for continuously rotating the same and a spring interposed between said arbor and escapement mechanism whereby said arbor will rotate the escapement-wheel after the spring is tightened, substantially as described.

678,954. WIRE FENCE. VERNON HOXIE, Adrian, Mich. Filed Jan. 24, 1901. Serial No. 44,614. (No model.)



Claim.—1. A joint for wires consisting of intersecting wire portions having interlocking oppositely-extending kinks or deflections, and a tie-wire engaging the same and having loops surrounding the one wire portion adjacent the terminals of the kink therein, an intermediate diagonal member extending across the plane of the kinks of both wire portions and free extremities which are continuous and substantially straight to present smooth sloping surfaces to bear on the wire intersecting that engaged by the tie-loops, whereby one wire is permitted to move on the other without disturbing the tie

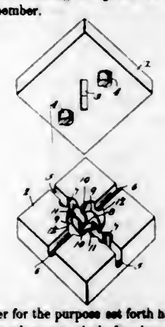
2. A joint for intersecting wires comprising kinks or deflections crossing each other, and an obliquely-arranged S-shaped tie engaging the said wires adjacent the terminals of the kinks therein and engaging the kink of one wire whereby the said tie will have three bearing-points thereon to prevent longitudinal movement thereof, the free ends of the tie being continuous and substantially straight to present smooth sloping surfaces to bear on the one wire to permit the latter to be moved.

3. Intersecting wires having reversely-arranged interlocking kinks or deflections, and a tie-wire having opposite portions bearing against different parts of the wires on opposite sides of the interlocking kinks or deflections thereof, the free extremities of the tie being substantially straight and extending slidably across opposite portions of the one intersecting wire to provide a smooth surface for movement of the latter wire.

678,955. DIE FOR JOINING INTERSECTING FENCE-WIRES. VERNON HOXIE, Adrian, Mich. Filed Jan. 24, 1901. Serial No. 44,615. (No model.)

Claim.—1. A die member for the purpose set forth having grooves for holding cross-wires and tie-forming cavities completely and exclusively located therein, and a second die member to coincide with the first and having an inner smooth face and projections to extend into said first-named die member.

2. A die member for the purpose set forth having means exclusively located therein for holding cross-wires and threading a tie-wire around the latter, and a second die member to coincide with the first and provided with a tie-wire-blank-feeding slot in the center thereof to deliver the said blank in a plane at a right angle to tie-wire-threading means in the first-named die member.



3. A die member for the purpose set forth having means for holding cross-wires and intersecting central tie-forming cavities exclusively located therein, and a second die member to coincide with the first provided with a central diagonally-disposed feed-slot to aline with opposite portions of the said cavities.

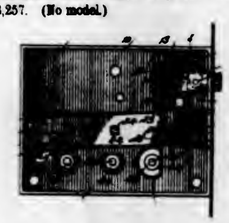
4. A die member having means for holding cross-wires and for threading a tie-wire exclusively located therein, and a second die member having a slot therethrough for feeding a tie-wire blank in a plane at a right angle to the first-named member.

5. A die member for the purpose set forth having means for threading and shaping a tie-wire and grooves intersecting said means for receiving and holding cross-wires, one of said grooves being deeper than the other, and a second die member having projecting devices on the inner side at opposite sides of the center thereof to extend into the deeper groove in the first-named die member and hold one of the cross-wires, the said second die member also having means for feeding a tie-wire blank to the first-named die member.

6. A die member for the purpose set forth having means for receiving and holding cross-wires and tie-wire-forming cavities at the center, the said grooves and cavities being exclusively and completely located in the said member and the cavities reversely directed from beginning end walls inwardly toward one of the said grooves, and a second die member having an inner smooth face to close over the said grooves and cavities in the first-named die member and also provided with a diagonally-disposed central tie-wire-blank-feeding slot and projections to extend into one of the grooves.

7. Coinciding dies having means for holding cross-wires and for receiving and shaping a tie-wire exclusively located in one of said dies and a feeding-slot in the other, and means for feeding a U-shaped tie-wire blank through the said slot in a plane at a right angle to the face of the die having the tie-wire receiving and shaping means.

678,956. LOCK. OSCAR KATZENBERGER, San Antonio, Tex., assignor of one-half to Hubert Uhl, same place. Filed Oct. 16, 1900. Serial No. 33,257. (No model.)



Claim.—1. In a lock, a bolt, means for operating the bolt, a latch for locking the bolt, rotary tumblers controlling the latch, devices for operating the tumblers from the outside of the lock, and a releasing device operated from the inside of the lock, for throwing the latch into its inactive position, independently of said tumblers, said device consisting of a lever fulcrumed on the lock-casing and arranged to engage the latch from below, to lift it out of engagement with the bolt.

2. In a lock, a bolt, means for operating the bolt, a latch-bar for the bolt, tumblers in operative engagement with the latch-bar, knobs arranged to operate the said tumblers, being located at the exterior of the lock, concealed pointers carried by the extensions from the knobs, and a face-plate

having concealed depressions into which the pointers are adapted to enter, as described.

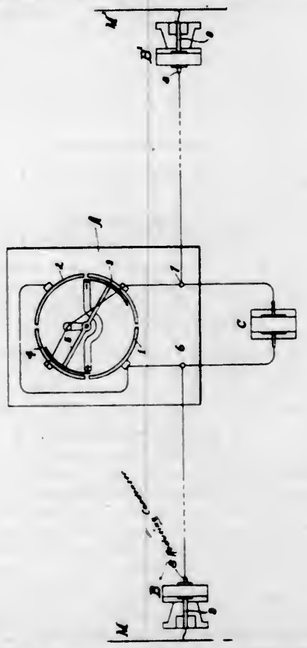
3. In combination-locks, a face-plate, shanks held to turn in the said face-plate, said face-plate being provided with groups of depressions around each shank, and spring-pointers carried by the shanks, arranged to enter the said depressions, for the purpose set forth.

4. In a combination-lock, a face-plate, shanks held to turn in the face-plate and operated from the exterior thereof, the face-plate having groups of depressions in its inner face arranged around said shanks, the arrangement of each group of depressions being in the arc of a circle, a wide space intervening between the end depressions of each group, and spring-pointers carried by the shanks, and adapted to engage with the inner face of the face-plate and to enter the said depressions, for the purpose set forth.

5. In a lock, a spring-latch, a bolt, and a spindle-sleeve arranged to operate both the latch and the bolt, a latch-bar for the said bolt, rotary tumblers controlling the movement of the latch-bar in one direction, said tumblers being operated from an exterior portion of the lock, and a trip device exteriorly located at the opposite side of the lock and arranged to carry the latch-bar from the said tumblers when the bolt is in locked position, for the purpose specified.

6. In a lock, the combination, with a casing, a bolt held to slide in the casing and provided with a lug near its outer end, and means for operating the said bolt, of a latch-lever pivoted at one end and having a recess and a bead at its free end, both of which are adapted to act in conjunction with the lug of the said bolt, rotary tumblers consisting of disks having flat surfaces, which tumblers are adapted for peripheral engagement with the latch-bar, acting to operate the said latch-bar, and means for moving the said tumblers a predetermined distance, the said tumblers being operated from the exterior of the said lock, as and for the purpose specified.

678,957. ELECTRICAL INSTRUMENT. JOHN F. KELLY, Pittsfield, Mass., assignor of one-half to Cummings C. Chesney, same place. Filed Apr. 23, 1901. Serial No. 57,042. (No model.)



Claim.—1. In combination a device possessing static capacity with two reducing-condensers in series therewith one on each side of said device and between it and a high-potential main, said condensers being located so as to remove any danger of contact with the high-potential mains leading thereto.

2. In combination two reducing-condensers connected with high-potential mains, a device possessing variable capacity having its terminals connected to the inner condenser-terminals, a third condenser in shunt across the terminals of the device.

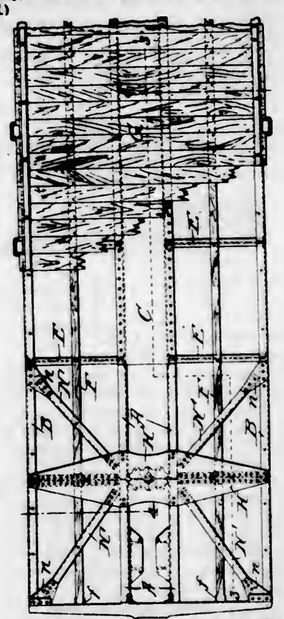
3. In combination two reducing-condensers connected with high-potential mains, a device possessing variable capacity having its terminals connected to the inner condenser-terminals, a third condenser in shunt across the terminals of said device, said shunting-condenser being of large capacity relatively to said device.

4. In combination a static indicating device possessing variable capacity, means for supplying an alternating difference of potential to its terminals, and a condenser in shunt across said terminals.

5. In combination a device possessing variable capacity, a condenser in shunt across its terminals and a second condenser in series with said device and first condenser, and means for supplying an alternating potential.

6. The combination of a base-block of insulating material, a condenser-plate held in contact with one face thereof, a second condenser-plate held in contact with the opposite face, and a terminal extending therefrom, said second plate and terminal being surrounded by insulating material closely embracing a considerable portion at least of said terminal.

678,958. UNDERFRAMING FOR RAILWAY ROLLING-STOCK. GEORGE I. KISE, Detroit, Mich., assignor to the American Car & Foundry Company, St. Louis, Mo. Filed Nov. 23, 1900. Serial No. 37,452. (No model.)



Claim.—1. In an underframing for cars, the combination with flanged metallic center and side sills of uniform depth near the ends, of a transversely-disposed top cover-plate continuous from side sill to side sill and riveted to the top flanges thereof, a bottom cover-plate also continuous from side sill to side sill and riveted to the bottom flanges thereof, I-shaped web-plates adapted to lie flush with the upper and lower surfaces of the sills riveted to the cover-plates, and corner connections for securing the ends of said web-plates to the center and side sills, respectively, substantially as described.

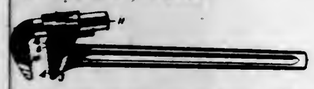
2. In an underframing for cars, the combination with center sills whose flanges are presented outwardly, and side sills whose flanges are presented inwardly, said sills being of uniform depth near the ends of the car, of transversely-disposed top and bottom cover-plates continuous from side sill to side sill, the top plate being riveted at its ends to the upper flanges of the side sills, and the bottom plate being riveted to the lower flanges thereof, commercially-rolled I-shaped web-plates arranged between said cover-plates and extending between the side sills and their nearest center sill, the top and bottom flanges of said web-plates being removed at the ends of the plates to accommodate the flanges of the side and center sills, whereby the top and bottom faces of said side and center sill flanges and web-plate flanges are flush for the continuous attachment of the cover-plates, connection-plates riveted to the reduced ends of the web-plates, and to the side and center sills, a casting between the center sills and in the transverse plane of said web-plates, and center and side bearings secured to the bottom cover-plate; substantially as described.

3. In an underframing for cars, the combination with center and side sills having their flanges presented toward each other, respectively, said sills being deepest at their middle portions, the shallow ends being of uniform depth for some distance from the end of the car, end sills to which the ends of said center and side sills are attached, floor-beams supported by the center and side sills, an elongated cover-plate for tying the center sills together at the center of the car, commercially-rolled I-shaped web-plates corresponding in depth to the shallow ends of the center and side sills, and arranged therebetween, the top and bottom flanges of said web-plates being cut away to accommodate the flanges of the center and side sills, a filler between the center sills in the transverse plane of the web-plates, connection-plates riveted to the web-plates and to the side and center sills, and top and bottom cover-plates riveted to the flanges of the web-plates and to the center sills; substantially as described.

4. The combination with side and center sills, of floor-beams supported thereby, transversely-disposed top and bottom cover-plates, web-plates interposed between said cover-plates, an end sill, stirrups on said end sill and web-plates, and longitudinally-disposed wooden sills mounted in said stirrups and supported by said floor-beams; substantially as described.

5. In an underframing for cars, the combination with center and side sills consisting of metallic beams continuous longitudinally of the car and made deepest at their middle portions, body-bolsters and end sills for tying the center and side sills together, an elongated cover-plate running lengthwise of the car secured to the center sills, and a bottom cover-plate extending throughout the deeper portions of the said center sills and secured thereto, substantially as described.

678,959. **PIPE-WRENCH.** JOSEPH P. LAVIGNE, New Haven, Conn., assignor to the Yale Motor Company, same place. Filed Jan. 19, 1901. Serial No. 43,958. (No model.)



Claim.—1. In a pipe-wrench, a lever-bar formed with a jaw at one end, a yoke, embracing the shank of a jaw adapted to slide therein, pivoted at its ends to said lever-bar, and a spring-operated pawl hinged to said lever-bar eccentric to the yoke-pivot and adapted to engage with teeth upon said shank, substantially as described.

2. In a pipe-wrench, a lever-bar formed with a jaw at one end, a yoke, embracing the shank of a jaw adapted to slide therein, pivoted at its ends to said lever-bar, said yoke having ribs engaging with corresponding grooves in said shank, and a spring-operated pawl hinged to said lever-bar eccentric to the yoke-pivot and adapted to engage with teeth upon said shank, substantially as described.

3. In a pipe-wrench, a lever-bar formed with a jaw at one end, and provided with recesses in its sides in which the ends of a yoke are pivoted, the sides of said recesses operating to limit the oscillatory movement of said yoke which embraces the shank of a jaw adapted to slide therein, and a spring-operated pawl hinged to said lever-bar eccentric to the yoke-pivot and adapted to engage with teeth upon said shank, substantially as described.

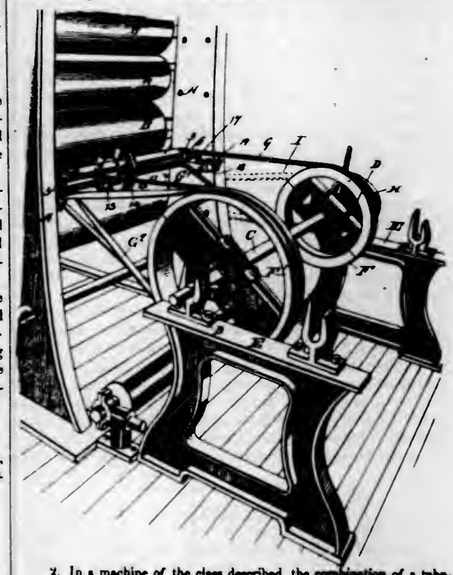
678,960. **PIPE-WRENCH.** JOSEPH P. LAVIGNE and ALBERT W. JOHNSON, New Haven, Conn., assignors to the Yale Motor Company, same place. Filed Jan. 19, 1901. Serial No. 43,959. (No model.)



Claim.—In a pipe-wrench, a lever-bar with a notch having a contracted mouth in one edge and terminating in a toothed jaw at one end, a swinging jaw with a hinge-pin flattened on one side to adapt it to enter and engage with said notch, and a locking-spring arranged to operate in said hinge-pin, substantially as described.

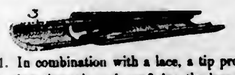
678,961. **MACHINE FOR GRINDING CALENDER-ROLLS.** JOSEPH LINTON, Manchester, Va. Filed Jan. 9, 1901. Serial No. 42,689. (No model.)

Claim.—1. In a machine of the class described, the combination of a tubular shaft having a longitudinal slot, said tubular shaft being further provided at one end with a pulley 5, a shaft having a single screw-thread thereon, said shaft being disposed and having its bearings in said tubular shaft and provided at one end, which projects from the tubular shaft with fast pulleys 7, 10, and a loose pulley 16 between them, a traveling nut on said screw-shaft, and a grinding-wheel on and adapted to travel from end to end of the tubular shaft, said grinding-wheel being connected to said traveling nut, substantially as described.



2. In a machine of the class described, the combination of a tubular shaft having a longitudinal slot, a shaft having a single screw-thread and disposed and adapted for rotation in said tubular shaft, means to rotate said screw and tubular shafts at different rates of speed, and in the same or in reverse directions, a traveling nut on said screw-shaft, and a grinding-wheel on and adapted to travel from end to end of said tubular shaft, substantially as described.

678,962. **LACE.** EMMA F. MADDEN, Chicago, Ill. Filed May 31, 1901. Serial No. 62,631. (No model.)



Claim.—1. In combination with a lace, a tip provided with an integral tooth passing through and confining the lace by a return-bend; said tooth being of such width at its junction with the body of the tip as to be bent or curved transversely of its length when the tip is rolled upon the lace.

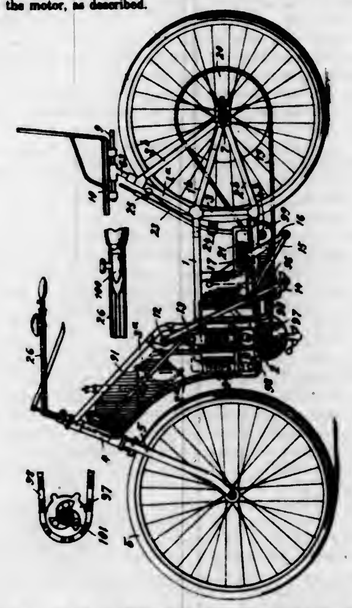
2. In combination with a lace, a tip provided at one end with a tooth passing through and bent upon the lace; said tooth being tapered and of a width at its junction with the body of the tip as to be bent or curved transversely of its length when the tip is rolled upon the lace.

678,963. **MOTOR-CYCLE.** GEORGE W. MASON, New York, N. Y. Filed Nov. 17, 1900. Serial No. 36,843. (No model.)

Claim.—1. The combination of a bicycle, having a frame constructed in two connected sides, each consisting of longitudinal bars one above another, inclined upward and forward in front and converging to the tubular head; and a motor mounted between the said side frames, substantially as herein shown and described.

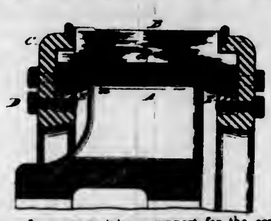
2. In a cycle, the combination of a frame consisting of two vertical sides, approximately parallel in the central or body portion, inclined upward and forward in front and converging to the tubular head; a motor mounted between the said side frames; driving connections between the motor and the drive-wheel of the cycle, and an automatic friction-clutch interposed in the said driving connections, serving to transmit power from the motor to the drive-wheel in one direction and permit the drive-wheel to run independently of the motor when the latter is at rest.

3. In a cycle, the combination of a frame consisting of two vertical sides, each formed of tubular bars one above another; a motor and a drive-wheel mounted in said frame; driving connections between the motor and drive-wheel; a friction-clutch forming part of such driving connections, serving to transmit power from the motor to the drive-wheel in one direction, and to permit the free movement of the drive-wheel independently of the motor, when the latter is at rest; pedal-levers mounted in the frame and driving connections between the pedal-levers and drive-wheel, adapted for optional use, either in conjunction with or independently of the motor, as described.



4. In a cycle, the combination of a frame constructed with two vertical sides each consisting of tubular bars one above another; a motor and a drive-wheel mounted in said frame; driving connections between said motor and drive-wheel; pedal-levers; connections between said pedal-levers and drive-wheel, including changeable gearing for high and low speed; and a shifting-bar for changing the gearing; substantially as described.

678,964. **COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES.** FRANK A. MERRICK, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Nov. 14, 1900. Serial No. 36,475. (No model.)



Claim.—1. In a commutator, a support for the commutator-bars having a raised center bearing therefor, in combination with suitable end clamps.

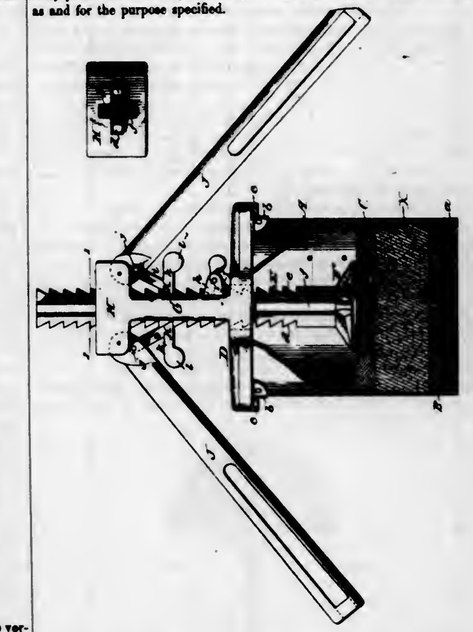
2. In a commutator, a support for the commutator-bars, having end and center bearings for said bars, the center bearing being slightly elevated with respect to the end bearings, in combination with suitable end clamps for the bars.

3. In a commutator, a support for the bars having its peripheral surface provided with a raised central bearing for said bars.

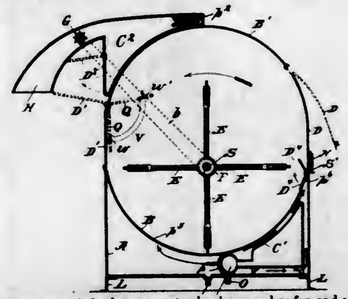
4. In a commutator for dynamo-electric machines, the combination with the commutator bars or segments, of means for securing them in a state or condition of bending stress.

678,965. **CHEESE-PRESS.** LEE MIDDLETON, Clarksville, Mo. Filed Mar. 20, 1901. Serial No. 52,058. (No model.)

Claim.—An attachment for the hoops or cylinders of cheese-presses, consisting of a horizontal support provided with means for detachably connecting it to the hoop or cylinder, a central standard integral with the support and terminating at its upper end in a transverse guide-bracket having guide-slots extending at right angles to each other, a plunger-bar having ratchet-teeth and guides engaging the guide-bracket, and independently pivoted levers and pawls for operating the plunger-bar, substantially as and for the purpose specified.



678,966. **FEATHER-RENOVATOR.** JOHN A. MOONEY, Brooklyn, N. Y., assignor of one-third to Francis F. Wilson, Rockville Center, N. Y. Filed Jan. 16, 1900. Renewed Dec. 14, 1900. Serial No. 39,926. (No model.)



Claim.—1. A feather-renovator having a reel or fan and a renovating-chamber provided with a perforated base located under one portion of the chamber and a heating-chamber under the other portion thereof; in combination with a condensing-chamber adapted to supply steam to the renovating-chamber through the perforated base and to the heating-chamber, said renovating-chamber being provided with an exit-opening on one side and an opening above the heating-chamber located at a point opposite the exit-opening, said latter opening being adapted to admit hot air into the renovating-chamber only at a point near the upper surface of the mass of feathers, in such manner as to dry them and force them outward through the exit-opening as the air enters the chamber, substantially as described.

2. A feather-renovator having a renovating-chamber provided with receiving and exit openings and doors for closing the same; a rotary reel or fan located therein; a perforated base located under one portion and a heating-chamber located under the other portion thereof; in combination with a condensing-chamber adapted to admit steam into the renovating-chamber through the perforated base and into the heating-chamber; together with an opening into the renovating-chamber above the heating-

chamber, said opening being located at a point on the opposite side from the exit-opening of the renovating-chamber and provided with a door for closing it, all of said parts acting substantially as and for the purpose set forth.

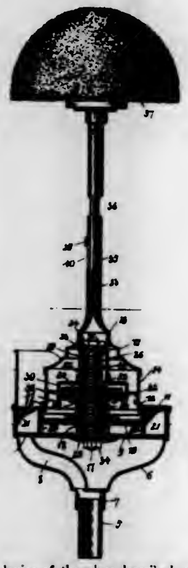
3. A feather-renovator having a renovating-chamber and a reel or fan located therein; in combination with a perforated condensing-chamber located under or beneath the base of the renovating-chamber and provided with a series of curved condenser-plates located in front of the perforations; together with means for admitting steam into the condensing-chamber, substantially as described.

4. A feather-renovator having a renovating-chamber provided with a perforated base, a steam-condensing chamber located beneath said base and a heating-chamber operatively connected with said condensing chamber; together with means for admitting hot air into the renovating-chamber, substantially as described.

5. In a feather-renovator a reel or fan having fan-blades F F' each pivotally supported to an arm E and adapted to be united together so as to form one continuous fan-blade, or to have their detached ends united to the shaft of the reel or fan, substantially as described.

6. In a feather-renovator a reel or fan having fan-blades F F' provided with serrations or teeth *t t*, said fan-blades being pivoted to arms E E and the free ends thereof adapted to be connected either to the opposite arms or to the shaft of the reel or fan, substantially as described.

678,967. DEVICE FOR WASHING CARRIAGES. FREDERICK W. MOTT, Dunton, N. Y. Filed Feb. 7, 1901. Serial No. 46,315. (No model.)



Claim.—1. A device of the class described, comprising a tubular handle, a circular casing connected therewith and in communication therewith, a wheel provided with a flange or rim forming in connection with said casing, a water-race, said wheel being also provided with paddles which move in said race, a stationary shaft on which said wheel revolves, a supplemental casing connected with the water-race, a tube passing through said supplemental casing and geared in connection with the hub of said wheel, said tube being designed to serve as a brush-support, and being adapted to be turned by said wheel, and the wall of said race being open on the side adjacent to the brush, substantially as shown and described.

2. A device of the class described, comprising a tubular handle, a circular casing connected therewith, a water-wheel mounted in the said casing and forming in connection therewith a water-race in communication with said handle, an annular plate or cover for said water-race open at one side, a cylindrical casing within said annular plate or cover, a tube passing into said cylindrical casing and geared in connection with the water-wheel, said tube being adapted to support a brush, substantially as shown and described.

3. A device of the class described, comprising a tubular handle, a circular casing connected therewith, a water-wheel mounted in said casing and forming in connection therewith a water-race, a shaft passing through said wheel, and a brush-support geared in connection with said wheel, substantially as shown and described.

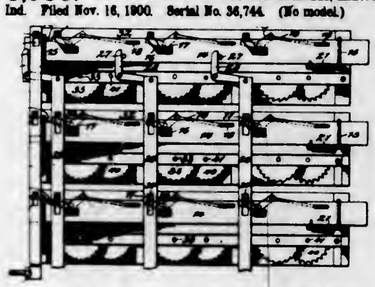
4. A device of the class described, comprising a tubular handle, a casing connected therewith, a water-wheel mounted in said casing and forming in connection therewith a race which is in communication with said handle, said case being open at the side thereof opposite the handle, a cylindrical casing connected with said race, a stationary shaft passing through said water-wheel and through said cylindrical casing, and a tube passing into said cylindrical casing opposite the handle and geared in connection with the water-wheel, said tube being provided with a hollow stem adapted to receive the handle of a brush, substantially as shown and described.

5. A device of the class described, comprising a tubular handle, a circular casing connected therewith, a water-wheel mounted in said casing and forming in connection therewith a water-race which is in communication with said handle, said race being open on the side opposite the handle and provided with a segmental water-discharge spout, a supplemental cylindrical casing secured within said race, a shaft passing centrally through both the said casings and through said water-wheel, a tubular sleeve mounted on said shaft, a tube inclosing said sleeve and secured thereto and projecting from the supplemental casing, said tube being geared in connection with the hub of the water-wheel and being adapted to support a brush, substantially as shown and described.

6. A device of the class described, comprising a tubular handle, a circular casing connected therewith, a water-wheel mounted in said casing and forming in connection therewith a water-race which is in communication with said handle, a cylindrical casing secured within said race, a shaft mounted therein and passing through the water-wheel, a sleeve mounted on said shaft, a tube passing into said cylindrical casing and inclosing said sleeve and secured thereto, said tube being geared in connection with the water-wheel, and being adapted to support a brush, substantially as shown and described.

7. A device of the class described, comprising a circular casing, a water-wheel mounted therein, and forming in connection with said casing a water-race, a stationary shaft passing through said wheel, and a tube into which said shaft passes, said tube being geared in connection with said water-wheel and being adapted to support a brush, substantially as shown and described.

678,968. VOTING-MACHINE. FRANCIS M. MYERS, Millersburg, Ind. Filed Nov. 16, 1900. Serial No. 36,744. (No model.)



Claim.—1. In a voting-machine, the combination of downwardly-swinging voting or key levers arranged in horizontal series for candidates of the same office of different parties and in vertical series for different candidates for various offices of the same party, slide-bars coacting with and operated by the depression of the said voting or key levers, movable devices operated by the depression of the said voting or key levers for gradually shifting the slide-bars, shifting members connected to the movable devices and loosely attached to said slide-bars, and registering mechanism in operative relation to each voting or key lever.

2. In a voting-machine, the combination of downwardly-swinging voting or key levers, a slotted slide-bar arranged edgewise, means for retracting said slide-bar to normal position and locking it in abnormal position, movable devices operated by the depression of the said voting or key levers for gradually shifting the slide-bar, shifting members connected to the movable devices and loosely attached to the said slide-bar, and registering mechanism for each voting or key lever.

3. In a voting-machine, the combination with voting devices for direct engagement by the voter, of a slide-bar, levers independent of and loosely connected to said bar and arranged in the path of movement of the voting devices, means for automatically retracting the slide-bar, a locking device for the latter, and mechanism for registering the votes cast.

4. In a voting-machine, the combination with voting devices for direct engagement by the voter, of a slide-bar, means for moving the slide-bar independent of the voting devices but operated by the latter and in

loose terminal engagement with said slide-bar, the said slide-bar having slots opening out through the upper edges thereof at regular intervals to form locking-shoulders for the said voting devices when the latter are depressed, means for locking and retracting the slide-bar, and means for registering the votes cast.

5. In a voting-machine, the combination with voting devices for direct engagement by the voter, of a slide-bar having slots for the reception of the said voting devices and other slots at the upper portion thereof extending longitudinally of the said bar, levers having connecting wires or rods terminally in loose engagement with the said upper slots, means for retracting the said slide-bar, means for locking the same in abnormal position, and mechanism for registering the votes.

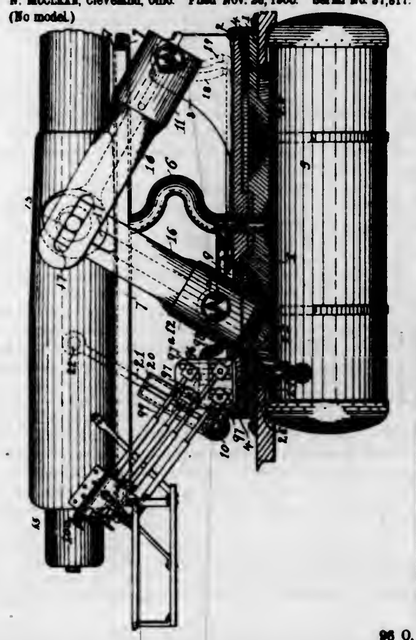
6. In a voting-machine, the combination with voting devices arranged in horizontal series for candidates of the same office for different parties and in vertical rows or series for candidates representing various offices of the same party, of horizontal slide-bars, one for each horizontal row, arranged edgewise, means operated by the voting devices for shifting the said slide-bars, one of said slide-bars being used for straight-ticket voting, levers actuated by the movement of the straight-ticket-voting slide-bar, slotted locking-bars through which the voting devices extend suspended from the levers actuated by the straight-ticket bar, vote-registering mechanism for each voting device, means for automatically retracting the shifted bars, means for locking the bars in abnormal or shifted position, and means for resetting the mechanism in normal position.

7. In a voting-machine, the combination with a frame of voting devices for engagement by voters, of a slide-bar under said devices, levers loosely attached to said frame and operated by the depression of said devices to move the bar, shifting members movably connected to said levers and having terminals slidably attached to the bar, and registering mechanism in connection with each of the said voting devices.

8. In a voting-machine, the combination with voting devices for engagement by voters, of a slide-bar having the upper portion of one extremity notched, a gravitating latch arranged over the said slide-bar, means for disengaging the latch from the notch, means for automatically retracting the bar to normal position, and means for registering the votes cast.

9. In a voting-machine, the combination with voting devices for engagement by voters, of a slide-bar having the upper portion under and normally close to the said devices and provided with shouldered slots to receive the latter, a device for locking the slide in its shifted position, and vote-registering mechanism including in its complement a pivoted arm in each instance located under the individual-voting devices and having a member to actuate a portion of said mechanism.

678,969. GUN-CARRIAGE FOR HEAVY ORDNANCE. SAMUEL N. MCCLEAN, Cleveland, Ohio. Filed Nov. 26, 1900. Serial No. 37,817. (No model.)



Claim.—1. The combination of the gun, the gas-nozzle, the air-compressor and the reservoir, with the motor-cylinder for elevating and depressing the gun and valved connections between said reservoir and cylinder.

2. The combination of the gun, the gas-nozzle, the air-compressor, and the reservoir, with air-cylinders supporting the trunnions of the gun, and valved connections between said cylinders and reservoir.

3. The combination with the gun and its trunnions with pneumatic cylinders sustaining said trunnions and locking the same against recoil.

4. The combination of the gun and its trunnions with pneumatic cylinders mounted on trunnions, pistons in said cylinders having piston-rods projecting therefrom, and trunnion-bearings supported by said rods within which bearings the gun-trunnions rest, and means for simultaneously applying pneumatic pressure to the opposite sides of said pistons.

5. The combination of the gun and its trunnions, with a pair of pneumatic cylinders on each side of the gun, pistons in said cylinders having piston-rods projecting therefrom, trunnion-bearings formed on each rod, each pair of bearings serving to support the trunnion of the gun on the respective sides thereof, and means for supplying pneumatic pressure to the opposite sides of said pistons.

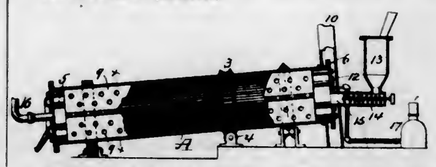
6. The combination of the gun and its trunnions, with a revolving platform having uprights with bearings therein, cylinders mounted to turn in said bearings, pistons in said cylinders, piston-rods projecting therefrom and supporting trunnion-bearings within which the gun-trunnions rest, and means for supplying pneumatic pressure to the opposite sides of said pistons in said cylinders.

7. The combination with a gun, of pneumatic cylinders, pistons in said cylinders, piston-rods attached thereto and supporting the trunnions of the gun, means admitting fluid pressure to said cylinders and means attached to the cylinders and limiting the movements of the trunnions.

8. The combination with a gun and its trunnions, of a pair of cylinders on each side of the gun, pistons in said cylinders having piston-rods engaging and supporting the trunnions, means simultaneously supplying pneumatic pressure to the opposite sides of each piston and means limiting the movement of the trunnions by the pistons.

9. The combination of the gun and its trunnions, with a pair of reversely-inclined cylinders on each side of the gun, pistons in said cylinders having piston-rods engaging and supporting said trunnions, and arms secured to said cylinders and having engagement with the trunnions for limiting and guiding the movements of the trunnions by the pistons.

678,970. APPARATUS FOR MAKING BLEACHING-POWDER. PAUL NAEF, New York, N. Y. Original application filed Aug. 7, 1897, Serial No. 647,463. Divided and this application filed Apr. 24, 1900. Serial No. 14,130. (No model.)



Claim.—1. An absorber comprising a revoluble cylinder, an annular series of disconnected pipes fixed in the cylinder, spaced apart and projecting through the ends thereof, for the passage of cooling fluid and radial perforated partitions fixed in the cylinder, said partitions spaced from and disposed between pipes of the series of pipes so as to shower absorbent upon and among the latter.

2. In apparatus for making bleaching-powder, the combination of a revoluble cylinder, a feeding device at one end of said cylinder for feeding lime thereinto, a pipe communicating with the other end of said cylinder for discharging chlorin gas therefrom, cooling-pipes disposed in the cylinder and extending through the end thereof, a flue communicating with said pipes at one end thereof and means for withdrawing waste gases from the cylinder.

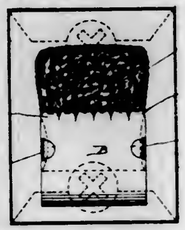
3. An absorber consisting of a revoluble cylinder, agitators therein, a ring secured to one end of said cylinder, a stationary plate supported independently of the cylinder and cooperating with said ring to close the end of the cylinder and a hopper communicating with the cylinder through said fixed plate and cooling-pipes extending through the cylinder, substantially as set forth.

4. The combination of a revoluble cylinder, a number of pipes passing through the cylinder, said pipes spaced apart so as to leave unobstructed spaces between and among them, and radial devices disposed within the cylinder and projecting among and spaced from said pipes for lifting material and showering it upon and among said pipes.

5. An absorber comprising a revoluble cylinder, means for inserting absorbing material and means for injecting gas into said cylinder, a

series of disconnected cooling-pipes disposed in the cylinder, extending through the ends thereof and spaced apart, and a series of radial perforated partitions extending from the center to the peripheral wall of the cylinder and spaced from said cooling-pipes.

678,971. **SHAVING-BRUSH.** OTTO G. L. NETTLICH, Berlin, and GEORG R. J. KÖRNIGER, Radebeul, Germany. Filed Mar. 27, 1901. Serial No. 53,096. (No model.)



Claim.—In a shaving-brush, the combination with the plate bent to form a clip, and provided with the lateral ears for holding the sides of the clip together, and the sponge carried by the clip; substantially as described.

678,972. **TELEPHONE-TRANSMITTER.** JAMES G. NOLEN, Chicago, Ill. Filed Apr. 11, 1901. Serial No. 55,335. (No model.)



Claim.—1. A telephone-transmitter comprising a diaphragm, a case carried by said diaphragm, an electrode in said case adapted to move therewith, an opposing, fixed electrode in said case, carried upon a stem passing through a perforation in said case, a resistance-varying material between said electrodes, and springs adapted to exert a pressure to move the case in opposite directions, substantially as set forth.

2. A telephone-transmitter comprising a diaphragm, a case carried by said diaphragm, an electrode in said case adapted to move therewith, an opposing, fixed electrode in said case, a resistance-varying material between said electrodes, counteracting-springs adapted to exert a pressure to move the case in opposite directions, and a means for adjusting said springs, substantially as set forth.

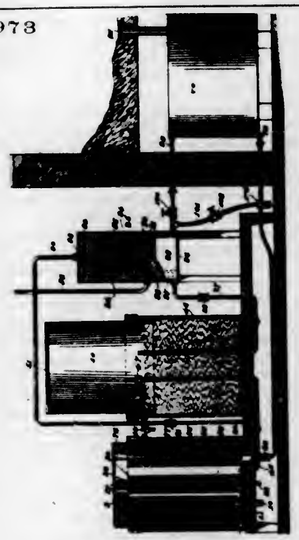
3. A telephone-transmitter comprising a diaphragm, a case carried by said diaphragm, an electrode in said case adapted to move therewith, an opposing, fixed electrode, in said case, carried upon a stem passing through a perforation in said case, a resistance-varying material between said electrodes, a spring between the fixed electrode and the rear wall of said case, a nut on the stem carrying the fixed electrode, and a counteracting-spring between said nut and said case, substantially as set forth.

678,973. **PROCESS OF MAKING CARBURETED AIR.** STANLEY C. HORTY, Canandaigua, N. Y. Filed Sept. 8, 1900. Serial No. 29,405. (No specimens.)

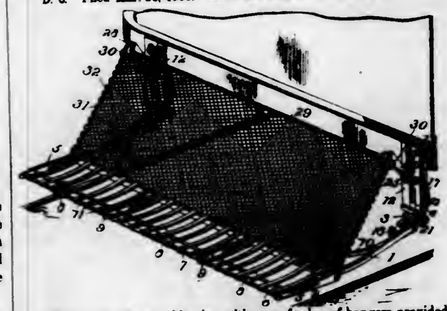
Claim.—1. The improvement in the method of gas manufacture, which consists in discharging into a confined body of carbureted air, a continuous flow of oil at a higher temperature than the air, and thereby condensing the watery vapors held suspended in the carbureted air, substantially as set forth.

2. The improvement in the method of gas manufacture, which consists in producing a flow of carbureted air within a confining-chamber in two directions, and discharging into the same, at a point approximate to that at which the change in direction of flow of the carbureted air takes place, a supply of oil and directing a portion of the flow of oil against the air-current, and a portion along with it, substantially as set forth.

678,973



678,974. **CAR-FENDER.** RICHARD F. PREUSSER, Washington, D. C. Filed Mar. 23, 1901. Serial No. 53,272. (No model.)



Claim.—1. The combination with a car-fender, of hangers provided with yieldingly-supported projections having forwardly-extending coupling members, fender-arms capable of readily-detachable connection with said coupling members, a cushion disposed in rear of and bearing against each projection, and suspension means for connecting the fender and hangers, substantially as described.

2. The combination with a car-fender, of hangers provided with slotted projections movable in respect thereto, fender-arms having readily-detachable connection with said slotted projections, cushions disposed in rear of and bearing against said projections, brackets pivotally connected with the hangers and having a circumscribed arc of movement, and suspension means for connecting the brackets and the fender, substantially as described.

3. The combination with a car-fender, of hangers provided with swinging projections having a circumscribed arc of movement rearward and whereof each is provided with forwardly-extending slotted members, the slots opening upward, fender-arms normally bearing against the rear of and having a range of motion in said slots, and suspension means connecting said hangers and fender, substantially as described.

4. The combination with a car-fender, of hangers provided with hinged projections whereof each is provided with forwardly-extending members having slots opening upward, fender-arms normally bearing against the rear of and having a range of motion in said slots, cushions disposed in rear of and bearing against said hinged projections, and suspension means connecting the fender and hangers, substantially as described.

5. The combination with a car-fender, of hangers provided with hinged projections movable rearwardly only and whereof each is provided with forwardly-extending members having slots opening upward, fender-arms having crank-pins afforded a range of motion in said slots, cushions disposed in rear of and bearing against said hinged projections, brackets pivotally connected with the hangers and having a circumscribed arc of movement, and suspension means for connecting the fender and brackets, substantially as described.

6. The combination with a car-fender, of fender-arms, hangers having cushioned yielding supports capable of readily-detachable connection with the fender-arms, brackets pivotally connected with the hangers and having inclined slots, a cross-bar borne in said slots and being coiled at each extremity to form an eye, and chains connecting the fender with said cross-bar, substantially as described.

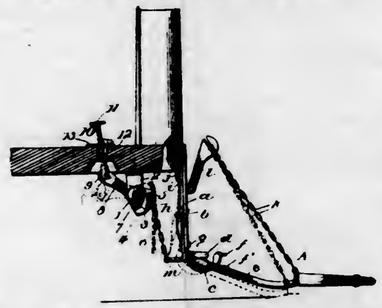
7. A fender comprising a scoop having cross-bars and transverse members connecting said bars, one of said cross-bars being located in the immediate rear of the front bar and carrying rollers designed to limit the downward movement of the fender, fender-supporting arms, hangers having cushioned yielding coupling members capable of readily-detachable connection with the fender-arms, brackets pivotally connected with the hangers, and chains connecting the brackets and fender, substantially as described.

8. A fender comprising a scoop having cross-bars and transverse members connecting said bars, one of said bars being located in the immediate rear of the front bar and carrying rollers designed to limit the downward movement of the fender, fender-supporting arms, angular braces for said arms, hangers having cushioned yielding coupling members capable of readily-detachable connection with the fender-arms, brackets pivotally connected with the hangers, chains connecting the brackets and fender, and a net disposed in inclined relation to the scoop, substantially as described.

9. The combination with a car-fender, of hangers provided with hinged projections having forwardly-extending coupling members, fender-arms capable of readily-detachable connection with said coupling members, a spring disposed in rear of and bearing against each projection, brackets pivotally connected with the hangers, and chains connecting the brackets and fender, substantially as described.

10. The combination with a car-fender, of hangers provided with hinged projections having forwardly-extending coupling members, means for preventing a forward movement of said projections, fender-arms capable of readily-detachable connection with said coupling members, a spring disposed in rear of and bearing against each projection, brackets pivotally connected with the hangers, and chains connecting the brackets and fender, substantially as described.

678,975. **CAR-FENDER.** RICHARD F. PREUSSER, Washington, D. C. Filed May 10, 1901. Serial No. 58,686. (No model.)



Claim.—1. The combination with a car-fender, of hangers provided with yieldingly-supported projections having coupling members, fender-arms capable of readily-detachable connection with said coupling members, and positively-actuated means, substantially as described, for causing said projections to move in a circumscribed arc rearwardly to project the fender.

2. The combination with a car-fender, of hangers provided with yieldingly-supported projections having coupling members, fender-arms capable of readily-detachable connection with said coupling members, a cushion disposed in rear of and bearing against each projection, and positively-actuated means, substantially as described, for causing said projections to move in a circumscribed arc rearwardly to project the fender.

3. The combination with a car-fender, of hangers provided with yieldingly-supported projections having coupling members, fender-arms capable of readily-detachable connection with said coupling members, a cushion disposed in rear of and bearing against each projection, and positively-actuated means, substantially as described, for causing said projections to move in a circumscribed arc rearwardly to project the fender, said coupling members having each a nose or projection adapted to bear against the respective fender-arms when the fender is projected and thereby to lock the same.

4. The combination with the hangers and the yieldingly-supported projections having fender-coupling members, of a rock-shaft operatively connected with said yieldingly-supported projections for moving the same rearwardly, and means for actuating said rock-shaft, substantially as described.

5. The combination with the hangers and the yieldingly-supported projections having fender-coupling members, of a rock-shaft mounted beneath the car structure, means for actuating the same, and means connecting said rock-shaft and yieldingly-supported projections, whereby when the rock-shaft is actuated, the projections are caused to move in a circumscribed arc rearwardly, substantially as described.

6. The combination with the hangers and the yieldingly-supported projections having fender-coupling members, of a rock-shaft mounted beneath the car structure, cams mounted upon said shaft, chains connecting said cams and projections, and means for actuating the rock-shaft, substantially as described.

7. The combination with the hangers and the yieldingly-supported projections having fender-coupling members, of a rock-shaft mounted beneath the car structure, cams mounted upon said shaft, chains connecting said cams and projections, an arm on said shaft, and a foot-lever connected to said arm, substantially as described.

678,976. **FLASK FOR MOLDING.** JOHN C. REED, Allegheny, Pa. Filed Sept. 18, 1899. Renewed Dec. 26, 1900. Serial No. 41,092. (No model.)



Claim.—1. A nowel or drag, comprising a horizontal flange, a wall extending above said flange and a hollow central portion extending above the flange and having a continuous wall, forming, with the outer wall, a space for the retention of sand and extending below said flange so as to project into a hollow pattern, said outer and inner walls being relatively oblique and forming a relatively wedge-shaped cavity for the sand above the flange, substantially as described.

2. A nowel or drag consisting of a horizontal flange, an inwardly-tapering wall extending above said flange, and a hollow central portion having a continuous wall, extending above the flange and projecting below the same, and webs connecting said wall and hollow portion substantially as described.

3. A nowel or drag, consisting of a horizontal flange, an inwardly-inclined wall and an outwardly-inclined hollow central portion, adapted to project into a hollow pattern and forming, with said wall, a wedge-shaped cavity for the retention of sand, substantially as described.

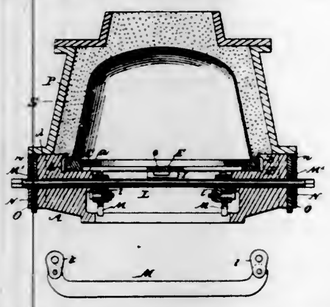
4. A molding apparatus comprising a casing, a hollow pattern inserted in said casing, a nowel or drag having an inwardly-inclined wall with a flange upon which the casing rests, a hollow outwardly-inclined part which projects beyond the horizontal parting-line between the casing and drag and into the pattern and forming, with said wall, a wedge-shaped cavity for the retention of sand, substantially as described.

678,977. **MOLDING APPARATUS.** JOHN C. REED, Allegheny, Pa. Filed Sept. 18, 1899. Renewed Dec. 26, 1900. Serial No. 41,093. (No model.)

Claim.—1. In a molding apparatus, a hollow flask-supporting base A, having a cavity or depression B corresponding to the exterior contour of the pattern and formed with a depressed ledge *a*, a frame C, resting loosely on said ledge and separated at its sides and ends from the vertical walls of said depression so that it may be vibrated therein, a pattern attached to the upper surface of said frame and a vibrating or jarring device secured to said frame and comprising bars which extend laterally and longitudinally beyond said frame and are provided with removable end pieces to receive the impact of a sledge or mallet.

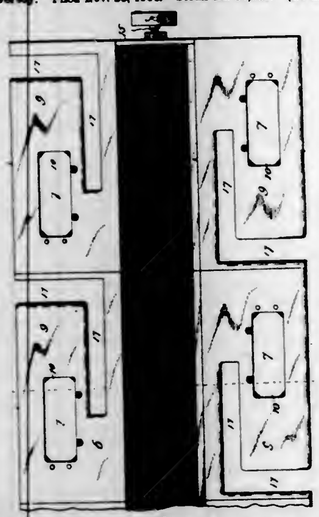
2. In a molding apparatus the combination of a base having a central depression formed with a ledge, a flask supported on said base, a vibratable pattern-supporting frame resting upon said ledge, a pattern rigidly secured to said frame and a jarring or vibrating device attached to said frame and comprising laterally and longitudinally extending bars projecting beyond the edges of the frame and provided with detachable end extensions to receive the impact of a hammer or mallet, substantially as described.

3. In a molding apparatus the combination of a stationary flask-supporting base, a vibratable frame resting on said base, a pattern secured to said frame and a vibrator or agitator comprising a central spider made integral with the frame and having laterally-extending detachable striking or jarring bars, substantially as described.



4. In a molding apparatus, the combination with the hollow base A, having depression B and ledge *a* of the frame C having cross-bars E F, pattern D attached to the frame and the striking or jarring bars H, I, also attached to the frame and extending through the sides and end of the base A substantially as described.

678,978. **SEWING-MACHINE POWER-TABLE.** JOHN A. REID, New York, N. Y., assignor to The Singer Manufacturing Company, of New Jersey. Filed Nov. 28, 1900. Serial No. 37,983. (No model.)

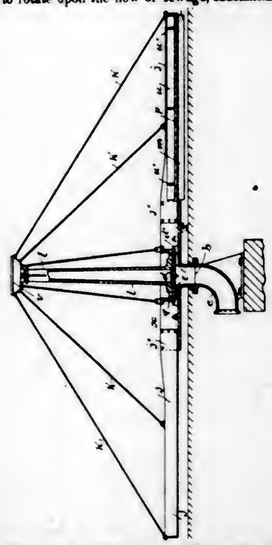


Claim.—A sewing-machine power-table or work-bench on which one or more sewing-machines are to be mounted, and which is furnished beneath with power driving means for such machine or machines, said power-table or work-bench being provided with one or more openings extending inward transversely from the front edge of the said table or bench and then longitudinally of the said table or bench and at an angle to the inwardly-extending part.

678,979. **APPARATUS FOR SPREADING LIQUIDS ONTO FILTER-BEDS.** GEORGE R. RIDGWAY, Brentwood, Ashley, England. Filed Apr. 20, 1901. Serial No. 58,197. (No model.)

Claim.—1. The improved apparatus for spreading sewage or other liquids over filter-beds, consisting of troughs, and means for imparting rotary motion to the troughs, said means being adapted to be operated by the flow of the sewage itself, as and for the purpose described.

2. The improved apparatus for spreading sewage over given areas, consisting of troughs, adapted to be moved rotarily, a supply-pipe, blades and openings between the supply-pipe and troughs whereby the troughs are caused to rotate upon the flow of sewage, substantially as described.



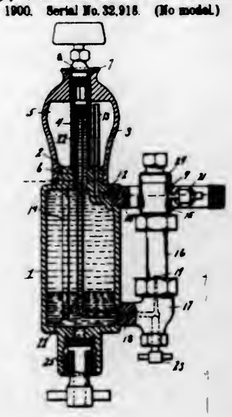
3. The improved apparatus for spreading sewage over given areas, consisting of troughs adapted to be moved rotarily, a supply-pipe, having tangential openings *e* and blades *f*, blades *g* mounted at the inner ends of the troughs whereby the troughs are caused to turn upon the flow of sewage in combination with the regulating-plate *u*, substantially as described.

4. The improved apparatus for spreading sewage over given areas, consisting of a pillar, troughs radially arranged about the pillar and suspended therefrom, a supply-main opening to the axis of the troughs, vanes and openings between the supply-main and the radially-arranged troughs whereby on the flow of sewage through the main, the troughs will be caused to revolve, as and for the purpose set forth.

5. In apparatus having troughs for spreading sewage or other fluids over filter-beds or other given areas the combination with said troughs of an adjustable plate as *u* for regulating the outflow substantially as hereinbefore described.

6. The improved apparatus for spreading sewage or other fluids over filter-beds or other given areas consisting of radial troughs as *j* that are supported by a central pillar as *l* and caused to rotate by the fluid from a central feed acting on tangential blades as *g* in combination with blades as *f*, and with a plate *u* affixed to the troughs for regulating the outflow therefrom all substantially as described.

678,980. **LUBRICATOR.** DUGALD H. ROBERTS, Detroit, Mich. Filed Oct. 13, 1900. Serial No. 32,918. (No model.)



Claim.—1. In a lubricator, the combination of the oil-cup having an oil-discharge port, a condenser mounted on the oil-cup, a steam-induction port leading into the top of said condenser, a tube connecting the condenser with the oil-cup, an oil-tube passing vertically through the condenser and communicating with the oil-cup and an oil-duct communicating with the interior of said oil-tube within the condenser and leading to the oil-discharge port.

2. In a lubricator, the combination of the oil-cup, a condenser communicating with the oil-cup, a steam-induction tube communicating with the condenser, an oil-channel, or chamber, communicating with the oil-cup and extending into the condenser and an oil-educt tube extending into said channel, or chamber, within the condenser.

678,981. **DUST-ABSORBENT.** LAZAR ROSENFELD, Vienna, Austria-Hungary. Filed Jan. 8, 1901. Serial No. 42,563. (Specimens.)

Claim.—1. A dust-absorbent comprising a mixture of any suitable oily or fatty material with a mineral binder and bituminous earth.

2. A dust-absorbent comprising any suitable fatty or oily material in admixture with cement and bituminous earth and with disinfectant and odorous substances, substantially as described.

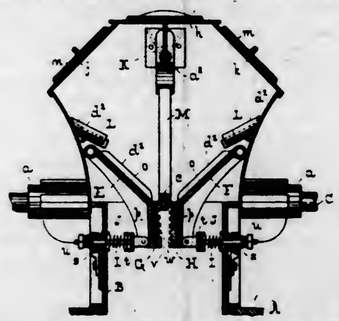
678,982. **SUSPENSION-CLASP.** MAX RUBIN, New York, N. Y. Filed May 6, 1901. Serial No. 58,878. (No model.)



Claim.—1. In a suspension-clasp, the combination of an elongated eye B, a two-shanked arm C extending upward from the same and having its upper end bent over to form a hook D, the plate E hinged to the top member of the elongated eye B to swing toward and from that side of the arm C opposite the one on which the hook D is formed and a prong on the hinged end of the hinged plate E, substantially as herein shown and described.

2. In a suspension-clasp the combination with a frame having a two-shank arm, the free end of which is bent over to form a hook, the shanks of said arm being spread at their lower part, of a plate hinged on said frame at the lower end of said arm and having on its hinged edge a prong between the bent shanks of the arm and substantially at right angles to said plate, substantially as herein shown and described.

678,988. **DISINTEGRATING-MILL.** AUGUST J. SACKETT, Baltimore, Md. Filed Mar. 31, 1899. Serial No. 711,210. (No model.)

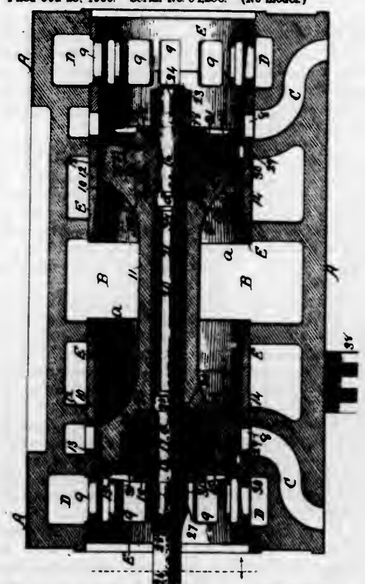


Claim.—1. In a disintegrating-mill, the combination of a casing having a feed-opening at each side thereof, a rotary disintegrating device comprising beaters which extend from a central hub or disk, situated within the casing, and yieldingly-held flat disintegrating-plates between which the said beaters pass, the said disintegrating plates having different dress or character of disintegrating-surface, substantially as specified.

2. In a disintegrating-mill, the combination of a casing, a rotary disintegrating device comprising beaters which extend from a central hub or disk situated within the casing, an inclined hinged plate at each side of the beaters carrying a vertical disintegrating-plate at its lower end, fixed plates which overlap the upper ends of the hinged ones to prevent the passage of the materials introduced into the mill, between the hinged plates and the sides of the casing, substantially as specified.

3. In a disintegrating-mill, a casing, a rotary disintegrating device comprising beaters which extend from a central hub or disk, situated within the casing, hinged inclined plates carrying at their lower ends vertical disintegrating-plates, the said inclined surfaces having ribs which lead to the disintegrating-surfaces, substantially as specified.

678,984. **STEAM-ENGINE VALVE.** EMIL L. SAUER, Chicago, Ill. Filed Oct. 25, 1900. Serial No. 34,258. (No model.)



Claim.—1. In a steam-engine valve, the combination with a supporting-carrier, of a piston-valve, loosely mounted on said carrier and adapted to periodically have an automatic movement in advance thereof, alternately at each end of the stroke, substantially as described.

2. In a steam-engine valve, the combination with the companion auxiliary valves, forming a supporting-carrier, of a piston-valve, loosely mounted thereon and having periodically an independent automatic movement in advance of said auxiliary valves alternately at each end of the traveled stroke, substantially as described.

3. In a steam-engine valve, the combination with the companion auxiliary valves, rigidly connected by a stem, of a piston-valve, loosely mounted on said auxiliary valves and having a steam-actuated movement in advance thereof, alternately, at each end of the stroke, substantially as described.

4. In a steam-engine valve, the combination with the companion auxiliary valves, of a piston-valve, loosely mounted thereon, means for periodically imparting an independent movement to said piston-valve in advance of the auxiliary valves, and the operative connection with a moving part of the engine, substantially as described.

5. In a steam-engine valve, a double piston-valve, having chambered heads joined by an integral tubular stem and loosely retained in its working position, the companion auxiliary valves, seated in said chambered heads; the solid stem, inserted longitudinally through the piston-valve and having the auxiliary valves rigidly mounted thereon, the operative connection, and means for periodically imparting a movement to the piston-valve in advance of the auxiliary valves, substantially as described.

6. A steam-engine valve, comprising a double piston-valve loosely retained in place; the companion piston-heads being connected by an integral tubular stem, the companion auxiliary valves, seated in said pistons and rigidly mounted on a solid stem inserted longitudinally through said piston-valve and projecting from each end thereof, the operative driving connection, and means for imparting a movement to said piston-valve in advance of its carrying-support, alternately at each end of the stroke, substantially as described.

7. In a steam-engine valve, the combination with a steam-chest, of a cylindrical casing, inclosed therein and divided into two sections transversely, the inner separated ends opening into the live-steam space, the double piston-valve, loosely inserted in said casing and having its respective piston-heads chambered, a solid stem, extending longitudinally through said piston-valve, the auxiliary valves, rigidly mounted on said stem and

seated in the chambered piston-heads, the operative connection, with a moving part of the engine and means for imparting a movement to the piston-valve in advance of the auxiliary valves at each end of the stroke, substantially as described.

8. In a steam-engine valve, the combination with a steam-chest, of a cylindrical casing, rigidly secured in said steam-chest and divided transversely into two equal sections opening into the live-steam chamber, a double piston-valve, inserted in said casing and having its respective ends chambered and provided therein with annular shoulders, the companion auxiliary valves seated in the chambered piston-heads, cushioning-chambers, formed between said annular shoulders and the adjacent surfaces of the auxiliary valves and having an alternate opening and closing action in accordance with the direction in which the valve parts are moving, and steam-passages, communicating with the cushioning-chambers, substantially as described.

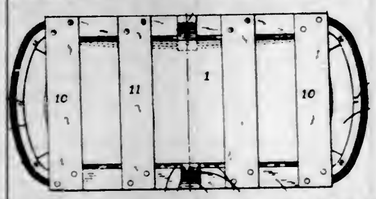
9. In a steam-engine valve, the combination with a piston-valve, loosely retained in its working position and having chambers formed in its respective heads, of the companion auxiliary valves, seated in said chambered heads, the packing-rings, having a cavity formed in the under side thereof, a steam-passage, leading upwardly therefrom and opening into an annular space between the outer sides of the auxiliary valves and the closed ends of the piston-valve, whereby an independent advance movement is imparted to the piston-valve ahead of the auxiliary valves, alternately at each end, substantially as described.

10. In a steam-engine valve, the combination with a double piston-valve, having chambered heads connected by a tubular stem, a solid stem, extending loosely through the longitudinal center thereof, the companion auxiliary valves, seated in the chambered piston-heads and mounted on the respective ends of said solid stem, means for locking said auxiliary valves rigidly in place, and the removable cap ends closing the piston-heads, substantially as described.

11. In a steam-engine valve, the combination with a double piston-valve, of the packing or ball rings, having a portion cut out on the under side, the dowel-segments, inserted in place of said cut-out portion, the steam-cavities, formed in said dowel-segments, and the steam-passages leading upwardly therefrom into the respective ends of the piston-valve, substantially as described.

12. In a steam-engine valve, the combination with the companion auxiliary valves, of the stem, connecting said valves, the double piston-valve, loosely mounted on the auxiliary valves and provided on one of its ends with lugs, *b b*, and the locking-key, engaging said lugs and preventing a rotary movement of the piston-valve, substantially as described.

678,985. BASKET AND COVER THEREFOR. HENRY J. SITTELY, Brooton, N. Y., assignor to the Portville Basket Co., Portville, N. Y. Filed Nov. 21, 1900. Serial No. 37,265. (No model.)



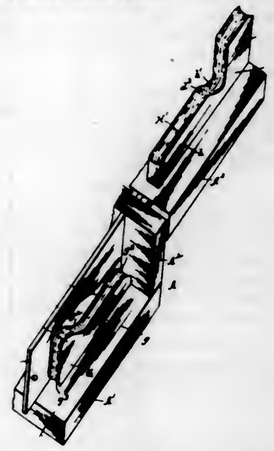
Claim.—1. The combination with a basket, a cover adapted to fit upon said basket, of fasteners secured to the sides of said basket and having bent portions adapted to be sprung over the cover by the spring action of the basket sides.

2. The combination with a basket having metal strips provided with outwardly-bent upper ends of a cover having inner depressions through which the bent ends of the strips pass when the basket sides are sprung toward each other; the bent ends projecting over the cover when in place on the basket.

678,986. CIGAR-MOLD. SAMUEL K. SHAVELY, Lititz, Pa., assignor to J. R. Brinker and Company, same place. Filed Oct. 27, 1899. Serial No. 734,284. (No model.)

Claim.—1. The combination, in a cigar-mold, of a lower mold having the bearing-face of an end deflected from the bearing-face of the body thereof, a follower, and a flap connected with an edge of the follower through a hinge and forming the counterpart of the deflected end of the lower mold, for the purpose specified.

2. The combination, in a cigar-mold, of a lower mold having the bearing-face of the outer end deflected from the bearing-face of the body thereof, a follower connected through a hinge with the lower mold, and a flap connected through a hinge with the swinging edge of the follower and having its inner face forming the counterpart of the deflected end of the lower mold, for the purpose specified.



3. The combination, in a cigar-mold, of a lower mold having a rounded shoulder on an end of the bearing-face, the outer extremity of said bearing-face being depressed, a follower connected through a hinge with the lower mold, and a flap connected through a hinge with the swinging edge of the follower and having its inner face forming the counterpart of the depressed outer extremity of the bearing-face of the lower mold, for the purpose specified.

4. The combination, in a mold-box, of a lid hinged to the mold-box, a series of lower molds on the bottom of the mold-box, a series of followers on the lid, and removable partitions separating the molds, for the purpose specified.

5. The combination, in a mold-box, of a lid, a series of lower molds on the bottom of the mold-box, a series of followers on the lid, removable partitions separating the molds and extending beyond the front of the mold-box, and a rod passing through said extensions, for the purpose specified.

6. The combination, in a mold-box, of a lid, a series of lower molds on the bottom of the mold-box and having the bearing-face of the outer end deflected from the bearing-face of the body thereof, a series of followers on the lid, a flap having a hinge connection with the followers, its inner face forming the counterpart of the deflected ends of the lower molds, and partitions separating the molds, for the purpose specified.

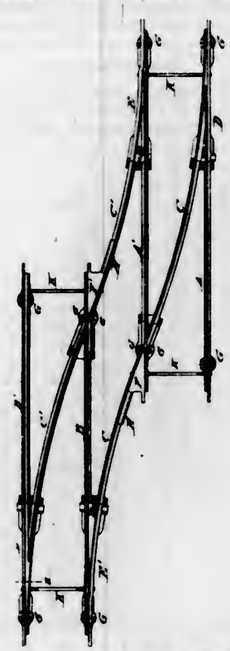
7. The combination, in a mold-box, of a lid hinged to the mold-box, a series of lower molds on the bottom of the mold-box and having the bearing-faces of the outer ends thereof depressed, a series of followers on the lid, a flap having a hinge connection with the swinging edges of the followers, its inner face forming the counterpart of the depressed ends of the lower molds, and removable partitions separating the molds, for the purpose specified.

8. The combination, in a mold-box, of a lid hinged to the mold-box, a series of lower molds on the bottom of the mold-box and having the bearing-faces of the outer ends thereof depressed, a series of followers on the lid, a flap having a hinge connection with the swinging edges of the followers, its inner face forming the counterpart of the depressed ends of the lower molds, removable partitions separating the molds and extending beyond the front of the mold-box, and means for simultaneously removing all said partitions, for the purpose specified.

9. The combination, in a mold-box, of a lid hinged to the mold-box, a series of lower molds on the bottom of the mold-box and having the bearing-faces of the outer ends thereof depressed, a series of followers on the lid and having the bearing-faces of the ends drawn or sloped inward toward the bodies thereof, a flap having a hinge connection with the swinging edges of the followers, its inner face forming the counterpart of the depressed ends of the lower molds and having the ends of said counterpart drawn or sloped inward toward the bodies thereof, removable partitions separating the molds and extending beyond the front of the mold-box, and means for simultaneously removing all said partitions, for the purpose specified.

678,987. PORTABLE CONNECTING-TRACK. HENRY C. STUPP, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Nov. 27, 1900. Serial No. 37,940. (No model.)

Claim.—1. In a portable connecting-track, the combination with the switch-pieces and rail members comprising the same, of the combined tie and clamp bars, one of which connects each of said switch-pieces with the opposite portion or member of the same track, said bars having an interlocking engagement with said switch-pieces and the opposite track members which prevents both endwise and lateral independent movement thereof.



2. In a portable connecting-track, the combination with the switch-pieces and rail members comprising the same, and the clamps for securing the structure to the permanent trackway, of the combined clamp and tie bars connecting the said switch-pieces to each other or to the opposite member of the track at points adjacent to said clamps, said bars having an interlocking engagement with said switch-pieces and opposite track members which prevents both endwise and lateral independent movement thereof.

3. In a portable connecting-track, the combination with the switch-pieces and rail members comprising the same, of the transverse bars having pockets at their end portions to seat the said switch-pieces and rails, said bars forming ties which connect each of said pieces with an opposite portion of the structure, and also acting to prevent independent longitudinal movement of the track members.

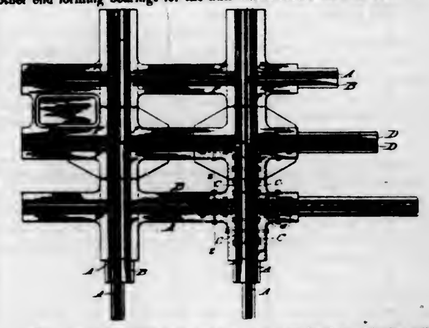
4. In a portable connecting-track, a combined cross-tie and clamp for connecting the switch-pieces to opposite members of the structure, consisting of a straight bar, and pieces secured to the under side of its end portions and having their free ends upturned to form one lateral wall of a rail-seat, the other wall of said seat being formed by the end of said bar.

5. In a portable connecting-track, the combination with the switch-pieces and the rail members comprising the same, of transverse bars adapted to lie across and upon the rails of the permanent track and formed with pockets at their end portions to seat the said switch-pieces and rail members, the latter also having pockets or seats for the pocket portions of the said bars.

678,988. RAILWAY-CROSSING STRUCTURE. HENRY C. STUPP, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Nov. 27, 1900. Serial No. 37,941. (No model.)

Claim.—1. In a railway-crossing structure, the combination with the rail-sections, angle braces or knees, and paving-strips, of bolts extending through said parts, and collars or bushings on the said bolts, said bushings bearing at one end against the said braces or knees, and at the other end forming a bearing for the nuts which secure the bolts.

2. In a railway-crossing structure, the combination with the rails or rail-sections, the angle braces or knees, and the paving-strips, having enlarged bolt-apertures therein, of bolts extending through the rails, knees and paving-strips, and collars or bushings on said bolts in said enlarged apertures, and bearing at one end against the knees or braces, and at the other end forming bearings for the nuts which secure the said bolts.



3. In a railway-crossing structure, the combination with the rails or rail-sections, the angle braces or knees, and the paving-strips, of a plurality of bolts securing said knees or braces to the rails, some of said bolts being also extended through the paving-strips, with nuts at the outer sides of the said strips, and bearing-pieces interposed in said paving-strips intermediate the knees or braces and the said nuts, whereby said strips are relieved from strains.

4. In a railway-crossing structure, the combination with the rail-sections, angle braces or knees, and paving-strips, of bolts extending through said parts, and collars or bushings on the said bolts and extending through said paving-strips, said collars or bushings bearing at one end against the knees or braces and at the other end forming a bearing for the nuts which secure the said bolts, each of said strips having bolts therethrough at different angles.

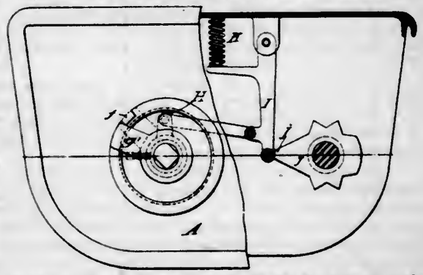
5. In a railway-crossing structure, the combination with the rail-sections, angle braces or knees, and the paving-strips, of the through-bolts G, nuts G', and bushings or collars H extending through the said paving-strips and interposed between said nuts and the knees or braces.

6. In a railway-crossing structure, the combination with the rail-sections, and guard-rails of the intersecting tracks, of the slot-rails consisting of lengths of T-rails having their base-flanges removed on the slot sides and having their ends secured to the said guard-rails.

7. In a railway-crossing structure, the combination with the rail-sections, and guard-rails forming the intersecting tracks, of the slot-rails consisting of lengths of T-rails having their base-flanges removed on the slot sides, and having their ends fitted into the said guard-rails.

8. In a railway-crossing structure, the combination of the rails forming the intersecting tracks, the slot-rails, the angle-braces securing the various rails, the paving-strips fitting the angles formed by said rails, and bolts which secure said angle-braces to the rails, and which also secure said paving-strips.

678,989. CONTROLLER FOR ELECTRIC MOTORS. ERNEST W. STULL, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Sept. 26, 1900. Serial No. 31,427. (No model.)



Claim.—1. In a controller, the combination of a casing, a regulating-switch and a reverse-switch, the two switches being arranged side by side upon independent shafts journaled in said casing, a handle for the regulating-switch, a slotted guard-flange on said casing for preventing the removal of said handle except at the off position of its switch, and means controlled by the reverse-switch for preventing the removal of said handle at any time unless the reverse-switch be at its off position.

2. In a controller for electric motors, the combination with a casing, a regulating-switch journaled therein, a reverse-switch carried by an in-

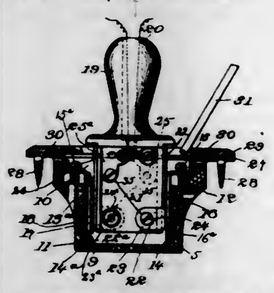
dependent shaft also journaled in said casing to one side of the regulating-switch, a handle for the regulating-switch, and means controlled by the reversing-switch whereby said handle can be removed only when the reversing-switch is at its off position.

3. In a controller for electric motors, the combination of a casing, a regulating-switch journaled therein, a removable handle for said switch, a slotted guard-flange engaged by said handle and preventing its removal except when the switch is at off position, a device for closing the slot of said flange, a reverse-switch also journaled in said casing upon an independent shaft, and an operative connection between the reverse-switch shaft and the device for closing the said slot.

4. In a controller for electric motors, the combination of a casing, a regulating-switch journaled therein, a handle for said switch, a guard-flange on the casing engaged by said handle and preventing its removal except at the off position of the said switch, an auxiliary guard device sleeved on the shaft of said switch, a reverse-switch also journaled in said casing upon an independent shaft, and cam means operated by the reverse-switch for controlling the movement of said auxiliary guard device.

5. In a controller, the combination of the casing having a slotted guard-flange, a regulating-switch, a handle for said switch having an engagement with the said flange, a sleeve mounted on the shaft of said switch to have an independent rotary movement and having an extension arranged to close the said slot, a reverse-switch, a cam carried thereby, and a device impinging the said cam and connected to said sleeve.

678,990. CUT-OUT BLOCK. HANS O. SWOBODA, New York, N. Y. Filed Jan. 22, 1900. Serial No. 2,273. (No model.)



Claim.—1. In an electric cut-out, the combination of a casing having an interior socket which is of greater width at its outer end than at its inner end, and having passages 13 and 13ª formed outside of the side walls of the narrower portion and extending into the wider portion of the socket, contact-plates secured within the narrower portion of the socket and each having one end extending into and bent laterally in the wider portion of the socket, said laterally-bent ends extending parallel to the wall of said socket through which the passages 13 and 13ª open, binding-screws extending through said bent ends of the contact-plates, and a plug adapted to be inserted in the socket and provided with contacts which contact with the contact-plates in the socket when the plug is inserted therein.

2. A cut-out comprising a casing fitted with contact-plates, one of which is resilient and slotted, and a removable contact-plug having one of the contact-strips thereon provided with a longitudinal rib which takes in the slot of the resilient contact-plate of the casing.

3. In an electric cut-out, the combination of a casing having two contact-plates, and a plug adapted to be inserted in said casing and contact with the contacts therein, said plug having means for engaging with one of said contacts, whereby the plug can only be inserted in the casing when adjusted to a certain position relative thereto.

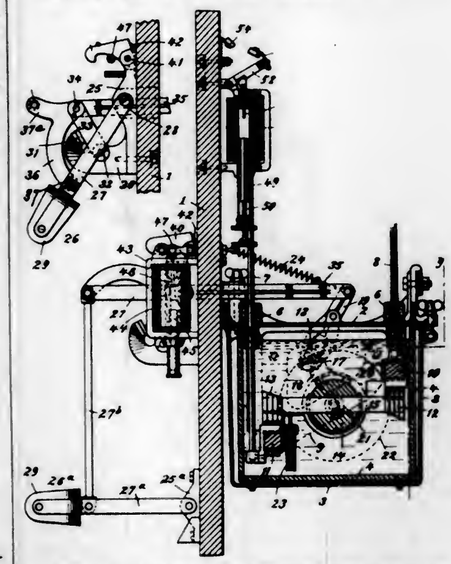
4. In an electric cut-out, the combination of a casing having two contact-plates therein, and a plug adapted to be inserted in said casing and contact with the plates therein, the plug having laterally-projecting means adapted to positively engage one of said contact-plates, whereby the plug can only be inserted in the casing when properly positioned relative thereto.

5. In an electric cut-out, the combination of a socket or casing provided with two interior contact-plates, and a plug adapted to be inserted in the casing and contact with the plates therein, one face of the plug having a longitudinally-extending rib which enters a slot formed in one of the contact-plates, substantially as and for the purpose described.

6. In an electric cut-out, the combination of a socket or casing having two internal contact-plates, one stationary and the other movable toward and from the stationary plate, and a plug adapted to be inserted into the casing and be electrically connected with both plates therein and having means for positively engaging the yielding or movable plate whereby the plug is held from rotation in the socket.

7. The combination in a flush receptacle, of a receptacle provided with a chamber which is enlarged at its outer part, contact-plates provided with flanges which plates are secured to said chamber, and binding-screws at said flanges whereby the leading-in wires have a face connection with said contact-plates, and a plug provided with contact-plates which are connected with fixture-wires, said plates contacting with the aforesaid plates of the receptacle when the plug is home.

678,991. CIRCUIT-BREAKER. HENRY P. BALL, New York, N. Y., assignor to General Incandescent Arc Light Company, same place. Filed July 7, 1900. Serial No. 22,883. (No model.)



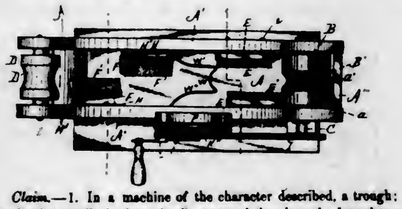
Claim.—1. An automatic circuit-breaker comprising a pair of electromagnets in circuit with two conductors of a three-phase system, a spring-switch having three paths through it, a separate source of electric energy, an electromagnetic releasing device in circuit with said separate source of energy, and means actuated by the electromagnets to close circuit through said releasing device.

2. In a circuit-breaker, the combination of the bracket 25, bars 27, bars 33, shaped plate 36, connecting-rod 35, and the interposed mechanism between the connecting-rod and switch.

3. In a circuit-breaker, the combination of the hand-operated lever, the connecting-rod, the interposed pivoted bars and shaped plate, and means for locking said lever in its upper position.

4. In a circuit-breaker, the combination of the hand-operated lever, the connecting-rod, the interposed bars and shaped plate, the locking device for the lever in its upper position, and the electromagnetic means for lifting the locking mechanism and releasing the lever.

678,992. MACHINE FOR CLEANING TIRES AND RIMS OF WHEELS. THOMAS L. BARLOW, Boston, Mass. Filed Dec. 20, 1900. Serial No. 40,576. (No model.)



Claim.—1. In a machine of the character described, a trough; a pair of substantially horizontal rolls mounted therein and adapted to receive or support the wheel of a bicycle; a pair of stationary brushes secured in substantially vertical positions within the trough at a sufficient distance apart to allow a tire to be moved between them; and mechanism for operating one of said rolls and thereby rotating a wheel supported by said rolls between the brushes, substantially as and for the purpose set forth.

2. In a machine of the character described, a trough; a pair of substantially horizontal rolls mounted therein and adapted to receive or support the wheel of a bicycle; a pair of stationary brushes secured in said trough at such opposite angles with each other and at such a height as to act upon the periphery of a tire of the wheel supported by the rolls; and mechanism for actuating said rolls and thereby rotating the wheel supported thereupon over and in contact with the brushes, substantially as and for the purpose set forth.

3. In a machine of the character described, a trough; the friction-roll B mounted horizontally therein and provided with an annular groove wound or lined with frictional material B'; mechanism for operating said roll; the horizontal roll D formed with the annular groove D' and mounted in the trough; said rolls being substantially at opposite ends of the trough and shaped to receive the tire of a bicycle-wheel; and brushes supported by the trough between said rolls in such positions and at such angles as to be in contact with and clean the tire of the wheel when the wheel is supported by the rolls, substantially as described.

4. In a machine of the character described, a trough; a pair of substantially horizontal rolls mounted therein and adapted to support the wheel of a bicycle; mechanism for rotating one of said rolls; and the cleaner consisting of the central portion W shaped to conform to the shape of the tire of the wheel, supporting-arms W', W'' extending from said portion W and pivoted to the trough, and the footpiece W''' extending from one of said arms through the side of the trough at such an angle as to be in a raised position when the central portion of the cleaner rests on the bottom of the trough, substantially as set forth.

5. In a machine of the character described, the trough; the horizontal friction-roll B mounted therein on the shaft C; a horizontal roll mounted in the trough near the opposite end thereof; said rolls being adapted to receive and support the wheel of a bicycle; brushes supported by the trough between the rolls in the path of rotation of the bicycle-wheel; the standard or support P extending from the trough; the plate K' provided with the horizontal stud K and formed with the hole L whereby it is pivotally supported by the standard, and at its upper end with the slot L' whereby it is adjustably connected with the standard by a suitable pin extending therefrom into the slot; sprocket-wheels on said shaft C and stud K; and a suitable drive-chain connecting the wheels, substantially as described.

6. In a machine of the character described, the trough A provided with the sides A' formed with the recesses a''; the vertically-set brushes E, E'; the screws e extending horizontally through the sides of the trough into the backs of the brushes; springs e' disposed around the screws within the recesses; and rolls for sustaining a bicycle-wheel between the brushes; whereby the brushes are adjustably pressed against opposite sides of the tire and rim of the wheel, substantially as set forth.

7. In a machine of the character described, the trough A provided with the sides A'; the angle-shaped plates H, H' vertically slotted and thereby secured adjustably as to height to said sides; the brushes F, F'' adjustably secured to the portions H' of the plates; rolls for supporting a bicycle-wheel in the trough; and mechanism for operating said rolls, said brushes and the portions H' of said plates being arranged at such opposite angles and distances apart as to bring the bristles in contact with the peripbery of the tire, substantially as described.

678,993. NEEDLE-BAR CUTTER ATTACHMENT FOR SEWING-MACHINES. BENJAMIN BISHOGER, Chattanooga, Tenn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed Oct. 30, 1900. Serial No. 34,935. (No model.)

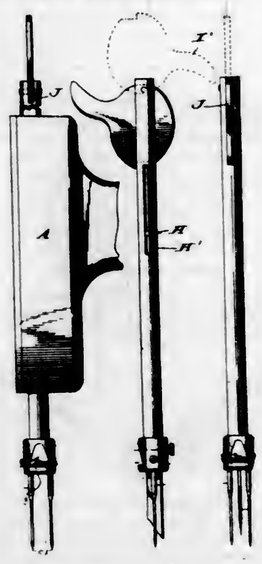
Claim.—1. In a sewing-machine, the combination of a hollow needle-bar, a cutter arranged therein, means carried by the needle-bar for moving said cutter relative to the bar, and means for defining the range of movement of said cutter, substantially as set forth.

2. In a sewing-machine, the combination with a hollow needle-bar, of a knife or cutter arranged within said bar, means for projecting said knife beyond the end of the bar, and spring-actuated means for retracting the knife, substantially as set forth.

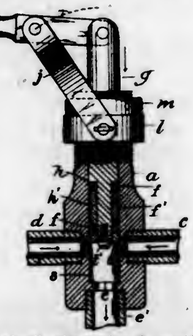
3. In a sewing-machine, the combination with a hollow needle-bar having a stop or shoulder therein, of a rod having a head thereon, a spring interposed between said head and shoulder, means for moving the rod against the resistance of the spring and holding the same, and a cutter carried by the rod, substantially as set forth.

4. In a sewing-machine, the combination with a hollow needle-bar, of a longitudinally-movable rod arranged therein, a spring normally holding said rod in raised position, a cam for depressing said rod against the resistance of the spring, and a knife or cutter carried by the movable rod, substantially as set forth.

5. In a sewing-machine, the combination with a hollow needle-bar, of a longitudinally-movable rod arranged therein, means for raising and lowering said rod, means for preventing said rod from turning, and a knife carried by said rod and arranged to be projected or retracted as said rod is lowered or raised, substantially as set forth.



678,994. VALVE FOR HYDRAULIC PRESSES. CHARLES F. BURROUGHS, Newark, N. J. Filed Nov. 6, 1900. Serial No. 35,595. (No model.)



Claim.—1. In a hydraulic piston-valve, the combination, with the cylinder having transverse passage intersecting its bore, of a plunger having expansible collars spaced to bear upon the cylinder at opposite sides of the transverse passage, and means for expanding the collars when seated and for relaxing the collars when withdrawn from their seats.

2. In a hydraulic valve, the combination, with a cylinder having outlet at one end, of a chamber surrounding the cylinder-bore adjacent to such outlet with supply and discharge passages connected thereto, and a plunger having expansible collars spaced to bear upon the cylinder at opposite sides of the chamber, and means for expanding the collars when seated and for relaxing the collars when withdrawn from their seats.

3. In a hydraulic valve, the combination, with a cylinder having outlet at one end and shoulder adjacent to such outlet, of a chamber surrounding the cylinder-bore adjacent to such shoulder with supply and discharge passages connected thereto, and the plunger having stem h' provided with the expansible collars f, the sleeve f', and the movable cap l adapted to expand the collars at opposite sides of the chamber when the cap is pressed upon the shoulder.

4. In a hydraulic valve, the combination, with a cylinder having outlet at one end and shoulder adjacent to such outlet, of a transverse pas-

sage intersecting the cylinder near the outlet, expansible packings fitted to the stem of the plunger with a cap adapted to compress the same when in contact with the shoulder, and a hand-lever with toggle connection to the valve-casing and to the plunger to force the plunger toward the shoulder, substantially as herein set forth.

5. In a hydraulic valve, the combination, with a cylinder having outlet at one end and shoulder adjacent to such outlet, of a transverse passage intersecting the cylinder near the outlet, expansible packings fitted to the stem of the plunger with a cap adapted to compress the same when in contact with the shoulder, a hand-lever with toggle connection to the valve-casing and to the plunger, and means for adjusting the pivots of the toggle upon the casing to vary the pressure of the plunger upon the shoulder.

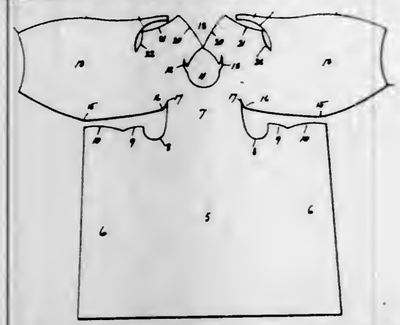
6. In a hydraulic valve, the combination, with a cylinder having outlet at one end and shoulder adjacent to such outlet, of a transverse passage intersecting the cylinder near the outlet, expansible packings fitted to the stem of the plunger with a cap adapted to compress the same when in contact with the shoulder, a hand-lever with toggle connection to the valve-casing and to the plunger, and a collar adjustable upon the head of the casing and carrying the pivots of the toggle, to vary the pressure of the plunger upon the shoulder, substantially as herein set forth.

678,995. **VALLEY FOR ROOFS.** JAMES W. CARNES, Waynesburg, Ohio, assignor of one-half to Hawley W. Dauchey, same place. Filed Mar. 7, 1901. Serial No. 50,162. (No model.)



Claim.—The combination with the sheathing and strips secured thereon, and slates forming the roof; of the angular valley-gutter the side edges of which are bent upward, and then inward, so as to form grooves or channels substantially as described and for the purpose set forth.

678,996. **COAT.** JOSEPH DE MAYO, Mount Vernon, N. Y. Filed Dec. 31, 1900. Serial No. 41,566. (No model.)



Claim.—1. A coat or similar garment, composed of a single piece, comprising a body portion having side extensions, a central upwardly-directed portion in which the neck-opening is formed, and side extensions from said neck-opening which form the shoulders and sleeves of the garments, said parts being adapted to be folded so as to form the coat, said neck-opening being provided with side gores and the top of the pattern being provided with a central gore communicating with the neck-opening and at the outer edges of which are inwardly and downwardly curved gores or openings formed in the shoulder and sleeve portions, substantially as shown and described.

2. A coat or similar garment, composed of a single piece, comprising a body portion having side extensions, a central upwardly-directed portion in which the neck-opening is formed, and side extensions from said neck-opening which form the shoulders and sleeves of the garment, said parts being adapted to be folded so as to form the coat, said neck-opening being provided with side gores and the top of the pattern being provided with a central gore communicating with the neck-opening and at the outer edges of which are inwardly and downwardly curved gores or openings formed in the shoulder and sleeve portions, and the top of the side extensions of the body portions being also provided with sleeve-openings, substantially as shown and described.

678,997. **BRAKE-SHOE.** WILLIAM E. GORTON, Corning, N. Y., assignor to the Corning Brake Shoe Company, same place. Filed Oct. 26, 1900. Serial No. 34,452. (No model.)

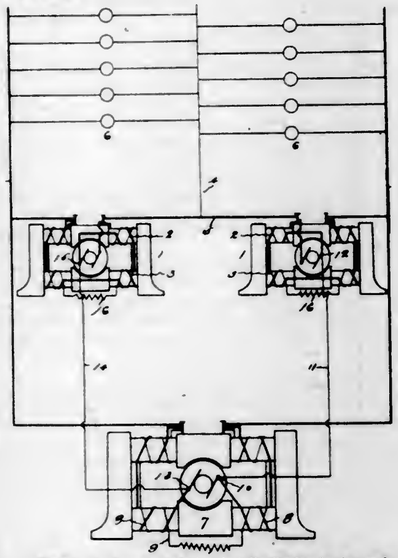


Claim.—1. A brake-shoe comprising a cast-iron body portion and a strengthening-plate of ductile metal secured to the back thereof, said plate having an integral four-walled attaching-lug with a keyway through the transverse walls formed up therefrom, substantially as set forth.

2. A brake-shoe comprising a cast-iron body portion and a strengthening-plate of ductile metal secured to the back thereof, said plate being provided with side projections at the center, whereby a four-walled attaching-lug is formed up therefrom in dies, with perforations through the portions forming the transverse walls to form the keyway therethrough.

3. A brake-shoe comprising a cast-iron body portion and a strengthening-plate of ductile metal secured at the back thereof, said plate being provided with side projections at the center, whereby a four-walled attaching-lug is formed up therefrom in dies, the plate and inner edges of the side walls being secured to the body portion in the process of casting.

678,998. **SYSTEM OF ELECTRICAL DISTRIBUTION.** HARRY E. HEATH, Windsor, Conn., assignor to the Eddy Electric Manufacturing Company, same place. Filed May 15, 1901. Serial No. 60,253. (No model.)



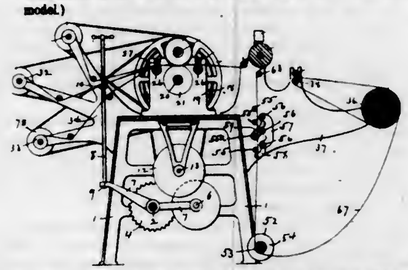
Claim.—1. A system of electrical distribution having main wires, a neutral wire, compound-wound generators connected in series between the main wires with one-half each side of the neutral wire, a compound-wound generator connected between the main wires, and equalizing-wires connecting the armature-terminals of the latter generator with an armature-terminal of each of the former generators, substantially as specified.

2. A system of electrical distribution having main wires, a neutral wire, compound-wound generators connected in series between the main wires with one-half each side of the neutral wire, a compound-wound generator connected between the main wires, and equalizer-wires joining the inner ends of the series coils of the latter generator with the inner ends of the series coils of the former generators that are connected with the same main wire, substantially as specified.

3. A system of electrical distribution having main wires, a neutral wire, compound-wound generators connected in series between the main wires with one-half each side of the neutral wire, a compound-wound generator connected between the main wires, an equalizer-wire connecting one armature-terminal of the secondary generator with the armature-terminal between the armature and series coil of one of the primary generators, and an equalizer-wire connecting the other armature-terminal of the secondary generator with the armature-terminal between the series coil and the armature of the other primary generator, substantially as specified.

4. A system of electrical distribution having main wires, a neutral wire, translating devices connected in multiple between the neutral wire and the main wires, and in multiple series between the main wires, compound-wound generators connected in series between the main wires with one-half each side of the neutral wire, a compound-wound generator connected between the main wires, and equalizer-wires connecting the armature-terminals of the latter generator with an armature-terminal of each of the former generators, substantially as specified.

678,999. **PAPER-SLITTING MACHINE.** CLARENCE W. HOBBS, Worcester, Mass. Filed Nov. 15, 1900. Serial No. 737,044. (No model.)



Claim.—1. In a paper-slitting machine the combination with a slitting mechanism, and a driving-shaft, of a rocking frame pivoted concentrically with the driving-shaft, yielding beveled disks carried by said frame, means for rocking said frame and holding it in a fixed position, means for rotating said disks, a driven disk inclosed between said yielding disks and means for connecting said driven disk with the paper-slitting mechanism, substantially as described.

2. The combination of a slitting mechanism and a driving-shaft, of intermediate mechanism for positively varying the speed of the slitting mechanism relatively to said driving-shaft and consisting of a driven beveled disk inclosed between a pair of beveled driving-disks, a spring for crowding the driving and driven disks into frictional contact, and means for varying the relative position of the driving and driven disks, whereby the speed of the driving-disk is varied, substantially as described.

3. In a paper-slitting machine, a slitting mechanism, a pair of rotating feed-rolls by which the paper is fed to the slitting mechanism, a pair of rotating withdrawing-rolls by which the paper is withdrawn from a coil, and means for varying the speed of said withdrawing-rolls relatively to the speed of said feed-rolls, substantially as described.

4. In a paper-slitting machine, the combination of a slitting mechanism, a feeding mechanism by which the paper is presented to the slitting mechanism, means for driving said feeding and said slitting mechanisms, a pair of rolls by which the paper is withdrawn from the coil in advance of said feeding mechanism, means for driving said withdrawing-rolls, and means for varying the speed of said withdrawing-rolls independently of the speed of said feeding mechanism, substantially as described.

5. In a paper-slitting machine, the combination with the following instrumentalities arranged in the order named, withdrawing mechanism for withdrawing the paper from a coil, feeding mechanism for presenting the paper to the slitting mechanism, a slitting mechanism and a winding mechanism, of means for varying the speed of said mechanisms, and means for independently varying the speed of said withdrawing-rolls, substantially as described.

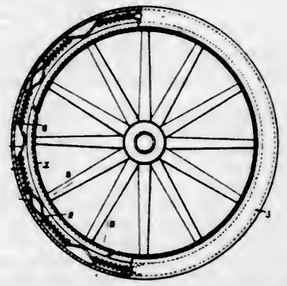
6. In a paper-slitting machine, the combination of a slitting mechanism, a pair of feed-rolls for feeding the paper to the slitting mechanism, a pair of withdrawing-rolls for withdrawing the paper from a coil, means for varying the speed of said withdrawing-rolls relatively to the speed of said feed-rolls, whereby a slack loop is formed in the paper in advance of the feed-rolls, means applied to the edges of the slack paper for bringing the paper into alinement with the slitting mechanism, substantially as described.

7. In a paper-slitting machine, the combination of slitting mechanism, a pair of feed-rolls, a pair of withdrawing-rolls for withdrawing the paper from a coil into a slack loop, means for bringing the slack paper into alinement with the slitting mechanism, and means for imparting a tension to the paper as it is presented to the feed-rolls, substantially as described.

8. The combination with a slitting mechanism, of means for feeding paper to said slitting mechanism, means for withdrawing the paper from a coil into a loop, and means for alining the said paper in said loop between the withdrawing and feeding mechanisms, substantially as described.

9. The combination with means for withdrawing the paper from a coil into a loop, a pair of disks held in contact with the opposite edges of said loops, said disks having their opposing surfaces beveled, whereby the edges of the loop are brought into alinement with the center of the disks, substantially as described.

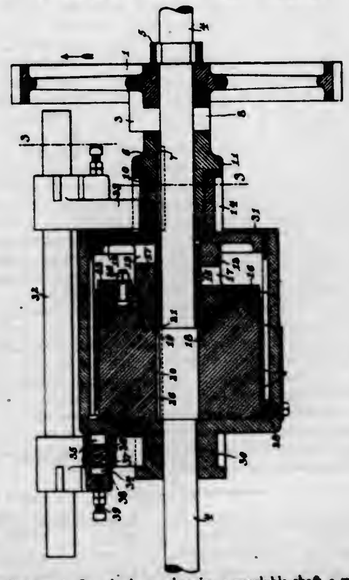
679,000. **VEHICLE-WHEEL HAVING RESILIENT TIRE.** MARIE HOLAUBEK, Vienna, Austria-Hungary. Filed May 14, 1901. Serial No. 60,130. (No model.)



Claim.—1. In a vehicle-wheel, the combination of a U-shaped tire, a plurality of helical springs resting in the hollow of said tire, articulated or toggle-jointed levers interposed between the said helical springs and connected thereto at their ends, guide-disks articulated to the ends of the said levers and bearing against the adjoining helical springs, and a felly made up of a number of segments guided in the said U-shaped tire, substantially as described.

2. In a vehicle-wheel, the combination of a U-shaped tire, a plurality of helical springs, resting in the hollow of the said tire, articulated or toggle-jointed levers interposed between the said helical springs, guide-disks articulated to either end of the said levers and bearing against the adjoining helical springs, a felly made up of a number of segments guided in the said U-shaped tire, overlapping side plates provided upon either side of the felly-segments, and spokes corresponding to the number of the said interposed articulated or toggle-jointed levers, substantially as described.

679,001. **AUTOMATIC BRAKE.** JOHNSON HUGHES, Wissahickon, Pa. Filed Jan. 28, 1901. Serial No. 44,964. (No model.)



Claim.—1. In a brake mechanism, a revolvable shaft, a wheel having a clutch-jaw revolvable on said shaft, a sleeve having a clutch-jaw revolubly fixed but longitudinally movable on said shaft, said wheel being

adapted to revolve said sleeve and to move the same longitudinally, a brake, and mechanism connecting said brake and sleeve whereby the application of said brake is automatically adjusted, substantially as specified.

2. In a brake mechanism, a revolvable shaft, a wheel having one or more clutch-jaws and a lug or stop thereon, said wheel being revolubly mounted on said shaft, in combination with a sleeve having one or more clutch-jaws and a lug or stop thereon adapted respectively to engage with the corresponding parts of said wheel, for the purpose set forth, said sleeve being longitudinally movable and revolubly fixed on said shaft, a brake, and mechanism connecting said brake and sleeve whereby the application of said brake is automatically adjusted, substantially as specified.

3. In a brake mechanism, a revolvable shaft, a drum fixed thereon, a friction-brake adapted to control the revolution of said drum, a sleeve longitudinally movable on said shaft and mechanism operated by said sleeve adapted to automatically adjust said brake, substantially as specified.

4. In a brake mechanism, a revolvable shaft, a drum fixed thereon, a friction-brake adapted to control the revolution of said drum, a stop adapted for limiting the application of said brake, a sleeve longitudinally movable on said shaft and mechanism operated by said sleeve adapted to automatically adjust said brake, substantially as specified.

5. In a brake mechanism, a revolvable shaft, a drum fixed thereon, a brake adapted to control the revolution of said drum, a disk adapted to frictionally engage said drum and apply said brake, and mechanism adapted to automatically adjust said brake, substantially as specified.

6. In a brake mechanism, a revolvable shaft, a drum on said shaft, a friction-brake for controlling the revolution of said drum, a disk frictionally engaging said drum for the application of said brake, a wheel on said shaft, and mechanism connecting said wheel and disk for automatically adjusting said brake, substantially as specified.

7. In a brake mechanism, a revolvable shaft, a drum on said shaft, a friction-brake for controlling the revolution of said drum, a disk frictionally engaging said drum for the application of said brake, a wheel having a clutch-jaw revolubly on said shaft, a sleeve having a clutch-jaw revolubly fixed but longitudinally movable on said shaft, said wheel being adapted to revolve said sleeve and to move the same longitudinally, and mechanism connecting said sleeve and disk for automatically adjusting said brake, substantially as specified.

8. In a brake mechanism, a revolvable shaft, a wheel having a clutch-jaw revolubly on said shaft, a sleeve having a clutch-jaw revolubly fixed but longitudinally movable on said shaft, said wheel being adapted to revolve said shaft and to move the same longitudinally, a collar having a projection connected therewith longitudinally movable along said shaft, and a friction device having a projection adapted to be engaged by said first-named projection, substantially as specified.

9. In a brake mechanism, a revolvable shaft, a drum fixed on said shaft, a cylinder having a toothed hub loose on said shaft, a pawl for engaging said hub and controlling said cylinder, a friction-disk loose on said shaft, a brake-strap on said drum connected with said cylinder and disk, a second disk loose on said shaft and longitudinally movable in said cylinder, and mechanism whereby the longitudinal movement of said second disk adjusts the position of said first disk, substantially as specified.

10. In a brake mechanism, a revolvable shaft, a drum fixed on said shaft, a cylinder having a toothed hub loose on said shaft, a friction-disk loose on said shaft, a brake-strap on said drum connected with said cylinder and disk, a second disk having a toothed collar longitudinally movable on said shaft, said second disk being movable in said cylinder and having means for controlling the action of said first disk, and a pawl for engaging said toothed collar, substantially as specified.

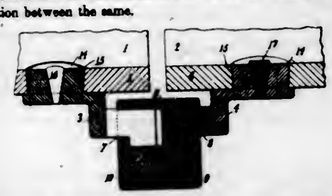
11. In a brake mechanism, a revolvable shaft, a drum fixed on said shaft, a cylinder having a toothed hub loose on said shaft, a friction-disk loose on said shaft and having a wedging projection, a brake-strap on said drum connected with said cylinder and disk, a second disk movable on said shaft within said cylinder and having a wedging projection adapted to engage said first-named projection, said second disk having a toothed collar, and a pawl for engaging said collar and controlling said disks through said projections, substantially as specified.

12. In a brake mechanism, a shaft, a sleeve revolubly fixed and longitudinally movable on said shaft, a toothed collar loose on said shaft, a pawl for controlling said toothed collar, a projection connected with said toothed collar, a friction-disk having a projection thereon, said projections controlling the position of said disk, and a coiled spring for controlling the position of said collar, substantially as specified.

679,002. RAIL-BOND. ALVAN MARKLE, Hazleton, Pa. Filed Jan. 19, 1901. Serial No. 43,236. (No model.)

Claim.—1. A rail-bond consisting of two conductors adapted to be fastened to abutting rails with their ends brought into parallel relation, plastic material electrically connecting said ends and an inclosing box containing the ends, substantially as described.

2. A rail-bond consisting of two metallic conductors having their ends brought into close proximity to each other, a box inclosing said ends, and a plastic material contained within the box for forming an electrical connection between the same.



3. A rail-bond consisting of two electric conductors, means for fastening one end of each conductor to a corresponding rail, a box for containing the respective remaining ends of the conductors having openings in its upper portion through which they extend, plastic material therein, a lid for the said box, and means for securing the lid to the box, substantially as described.

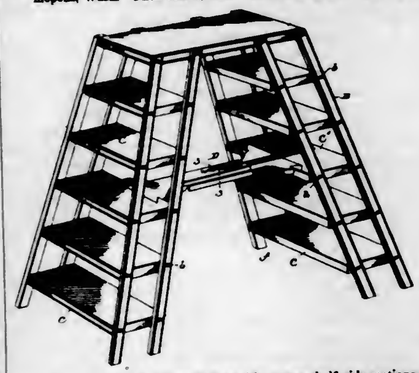
4. The combination with abutting rails of an electric railway, of a rail-bond consisting of two conductors having extensions passing upward through the flanges of the respective rails, and a box containing the remaining ends of the conductors in which they are relatively movable, and a means for securing electrical connection between the ends of the conductors so contained, substantially as described.

5. A conductor constituting a portion of a rail-bond, consisting of a metallic strip having an annular lug or extension at one end for entering the rail, and a rectangular downwardly-extending portion for securing electrical contact with another similar conductor, substantially as described.

6. A rail-bond consisting of two counterpart conductors having a horizontal portion adapted to permit of horizontal motion, a downwardly-extending portion below the horizontal portion, and conducting material for electrically connecting said conductors.

7. A rail-bond consisting of two conductors adapted to be fastened at one end to the rails and to have their remaining ends brought into close mechanical relation, and a plastic material forming an electric connection between the latter ends.

679,003. DISPLAY RACK OR STAND. WILLIAM S. MCRAY, Cosmopolis, Wash. Filed Jan. 4, 1901. Serial No. 42,072. (No model.)



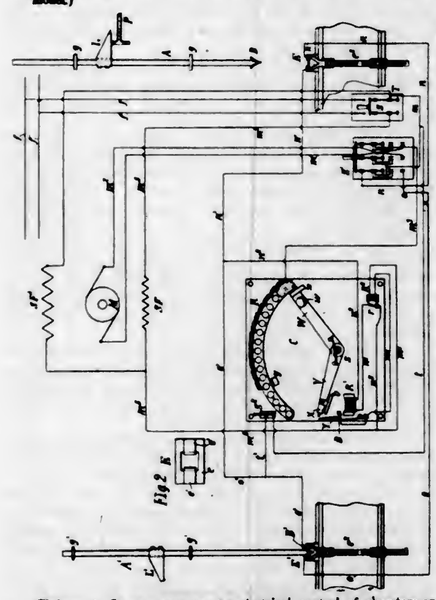
Claim.—1. A display-rack comprising a top shelf, side sections consisting of shelves and diverging bars to which the shelves are pivoted, the upper ends of the bars of each side section being pivoted to the top shelf on opposite sides of the transverse center of said shelf, and bars which are in sliding engagement one with the other to be maintained in line with each other, the sliding bars being rigidly attached to corresponding shelves of the opposite side sections, substantially as shown.

2. In adjustable shelves, in combination with a top or rectangular upper shelf, of two similarly-constructed side sections each section having parallel supporting-legs which are pivoted at their upper ends to the upper shelf, shelves which are pivoted to the legs, and slide-bars which engage one with the other, said slide-bars being rigidly attached to opposite shelves, to insure a corresponding inclination of each section, substantially as shown.

3. A display-rack comprising side sections having parallel side bars and shelves which are pivoted to their respective side bars, a top shelf to which the side bars are pivoted, slide-bars rigidly attached to opposite shelves to be maintained in alinement one with the other, one of the shelves and the slide-bar attached thereto having a dovetailed recess, the other shelf and its slide-bar on its opposite side having a dovetailed tenon, and a clamping means carried by one of the bars to engage the other one, substantially as shown and for the purpose set forth.

4. In adjustable shelves, similar side sections consisting of movable shelves and supporting-bars, a top piece to which both of the side sections are attached, an intermediate shelf of each section carrying a bar, one of said bars and the shelf to which it is attached having a dovetailed recess the opposite shelf and bar having a dovetailed tenon, for the purpose set forth.

679,004. AUTOMATIC ELECTRIC STOP FOR ELEVATORS. HENRY B. NEWHALL, Jr., Plainfield, N. J., assignor to Henry B. Newhall, Sr., same place. Filed Oct. 31, 1900. Serial No. 35,008. (No model.)



Claim.—1. In an apparatus for electrical control of elevators an electric motor and a stop-switch with connections therefor constituting a motor-circuit, a stop-magnet and a table-switch with connections therefor constituting an auxiliary circuit and arranged in connection with the motor-circuit to receive current when the motor is actuated, and means connected to said table-switch and arranged in the path of the elevator so that the elevator is adapted to open said table-switch to open the motor-circuit.

2. In an apparatus for electrical control of elevators, an electric motor and a stop-switch constituting a motor-circuit, a stop-magnet and a table-switch with connections therefor constituting an auxiliary circuit arranged to receive current when the motor is actuated, an armature for said stop-magnet attached to said stop-switch and means for withdrawing said armature from said magnet to open said stop-switch and thereby break the motor-circuit, and means connected with said table-switch and arranged in the path of the elevator so that the elevator is adapted to open said table-switch and break said auxiliary circuit.

3. In an apparatus for electrical control of elevators, a motor arranged to operate an elevator, a stop-switch and an overload-magnet with connections therefor constituting with said motor a motor-circuit, a table-switch, an overload-switch controlled by said overload-magnet and a stop-magnet controlling said stop-switch with connections therefor constituting an auxiliary circuit which is connected with said motor-circuit and means connected to said table-switch whereby the elevator is adapted to open said table-switch and thereby break said motor-circuit.

4. In an apparatus for electrical control of elevators, an electric motor and a stop-switch with connections therefor constituting a motor-circuit, a stop-magnet and a table-switch with connections therefor constituting an auxiliary circuit and arranged in connection with the motor-circuit to receive current when the motor is actuated, said table-switch being adjusted longitudinally of the direction of travel of the elevator and means connected with said table-switch arranged in the path of the elevator whereby the elevator is adapted to open said table-switch.

5. In an apparatus for electrical control of elevators, an electric motor and a stop-switch with connections therefor constituting a motor-circuit, a stop-magnet and a table-switch with connections therefor constituting an auxiliary circuit arranged to receive current when the motor is actuated, an armature for said stop-magnet attached to said stop-switch, a spring connected with said stop-switch arranged to withdraw said armature from said magnet to open said stop-switch and thereby break the motor-circuit, said table-switch being adjusted longitudinally of the direction of travel of the elevator, and means connected with said table-switch arranged in the path of the elevator whereby the elevator is adapted to open said table-switch.

6. In an apparatus for electrical control of elevators, a reversing-switch, a motor-circuit connected thereto and comprising an electric motor arranged to operate an elevator in either direction and a stop-switch, two auxiliary circuits connected with said reversing-switch and each comprising the stop-magnet arranged to control said stop-switch and a table-switch, and means connected with each of said table-switches and arranged in the path of the elevator whereby the elevator is adapted to open said table-switches and thereby limit the motion of said elevator in either direction.

7. In an apparatus for electrical control of elevators, a reversing-switch arranged to be connected with a source of electricity, a motor-circuit connected with said reversing-switch and comprising a motor and a stop-magnet, two auxiliary circuits connected with said reversing-switch and each comprising the stop-magnet having an armature attached to said stop-switch whereby said stop-magnet is adapted to control said stop-switch and a table-switch adjustably mounted adjacent the elevator which is arranged to be actuated by the motor and means connected with said table-switch and arranged to be engaged by the elevator whereby the movement of the elevator is limited.

8. In an apparatus for electrical control of elevators, a motor arranged to operate an elevator and a stop-switch constituting a motor-circuit, a stop-magnet controlling said stop-switch and a table-switch constituting an auxiliary circuit which is connected with said motor-circuit and means whereby the elevator is adapted to open said table-switch and thereby limit the movement of said elevator and a cut-out switch connected in shunt around said table-switch whereby when said cut-out switch is closed, said table-switch does not limit the movement of the elevator.

9. In an apparatus for electrical control of elevators, a reversing-switch, a motor connected with said reversing-switch and arranged to operate an elevator in either direction, a sprig-actuated stop-switch constituting with said motor a motor-circuit, two auxiliary circuits connected to said reversing-switch whereby they are arranged to be alternately energized therefrom, each of said auxiliary circuits comprising a table-switch and both of said circuits including a stop-magnet controlling said stop-switch, said table-switches being adjustably mounted adjacent the elevator and each of said switches having means connected therewith arranged in the path of said elevator whereby said elevator is arranged to be stopped when the said table-switches are open, and a cut-out switch connected in shunt around both of said table-switches and adapted when closed to prevent the stopping of the elevator when the table-switches are opened.

10. In an apparatus for electrical control of elevators, a reversing-switch, a motor-circuit connected therewith comprising a stop-switch, an overload-magnet and a motor arranged to actuate an elevator in either direction, two auxiliary circuits connected with said reversing-switch and arranged to be energized alternately therefrom and each of said auxiliary circuits comprising a table-switch adjustably mounted adjacent an elevator and both of said circuits including a stop-magnet controlling said stop-switch and an overload-switch controlled by said overload-magnet, and means whereby the elevator is arranged to open one of said table-switches and thereby limit its motion and a cut-out switch connected in shunt around both of said table-switches and so arranged that when it is closed the opening of either of said table-switches does not break the corresponding auxiliary circuit.

679,005. HYDRAULIC COUPLING. THEODORE C. PROUTY, Midland, Mich. Filed Aug. 15, 1900. Serial No. 727,264. (No model.)



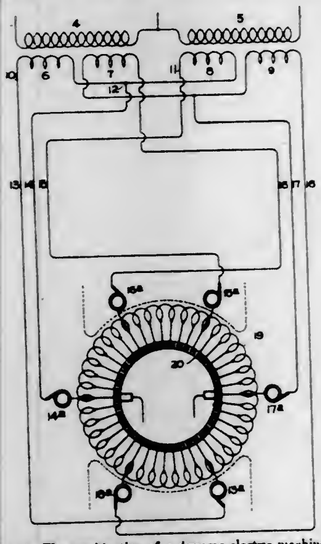
Claim.—1. In a hydraulic coupling, the combination with a male, of a one-piece female member removably secured thereto, said female member being formed with an annular groove permanent as to size and position on the interior of one extremity and provided with a packing-ring located in said groove, said male member projecting into and engaging the inner surface of said ring, substantially as set forth.

2. In a hydraulic coupling, the combination with a male, of a one-piece female member removably secured thereto, said female member having an interior groove permanent as to size and position contiguous to one end opening and provided with a packing-ring in said groove, said male member fitting loosely in said opening and projecting into and interiorly engaging said ring, substantially as set forth.

3. In a hydraulic coupling, the combination with a male, of a one-piece female member removably secured thereto, said female member provided with a groove permanent as to size and position having a packing-ring located therein and confined in both directions of the coupling-axis by said groove, the outer surface of said male member engaging the inner surface of said ring, substantially as set forth.

4. In a hydraulic coupling, the combination with a male, of a female member provided with an interior annular groove permanent as to size and position and having located therein a packing-ring of U-shaped cross-section and substantially equal in width to said groove, the two portions of the U of each section extending in the direction of the coupling-axis, substantially as set forth.

679,006. SYSTEM OF ELECTRICAL DISTRIBUTION. EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 12, 1899. Serial No. 740,054. (No model.)



Claim.—1. The combination of a dynamo-electric machine, and a plurality of distinct multiphase circuits directly connected to a single closed winding on said machine and inductively connected to a single multiphase circuit.

2. The combination of a dynamo-electric machine, leads connected to a single closed winding on said machine and to two independent sets of three-phase transformer-windings, and an inductive connection between a three-phase circuit and said transformer-windings.

3. The combination of a multiphase circuit inductively connected to two, separate, relatively phase-displaced, three-phase circuits, and a dynamo-electric machine having a closed winding connected to said three-phase circuits.

4. The combination of two separate sources of multiphase current, and a dynamo-electric machine having a winding fed from said sources so as to generate magnetomotive forces having a greater number of phases than either of said sources.

5. The combination of primary exciting-circuits of different phase, a plurality of secondary circuits inductively related to each of said primary circuits, and a dynamo-electric machine having a single closed winding fed from all of said secondary circuits.

6. The combination of two primary coils supplied with currents of different phase, two secondary coils inductively related to each primary coil, conductors connecting pairs of secondary coils of different phase together in series, thereby forming two separate sources of multiphase current, a dynamo-electric machine, connections from equispaced points in a winding on said machine to one of said sources, and connections from other equispaced points in said winding to another of said sources.

7. The combination of primary coils supplied with alternating currents of differing phase, secondary coils inductively related to each primary coil, conductors connecting pairs of secondary coils of different phase together in series, thereby forming separate sources of multiphase current, a dynamo-electric machine, and connections from equispaced points on a winding on said machine to said sources of multiphase current.

8. The combination of primary coils supplied with multiphase current, secondary coils inductively related to each primary coil, means for connecting secondary coils of different phase together, thereby forming separate sources of multiphase current, a dynamo-electric machine, connections from equispaced points in a winding on said machine to one of said sources, and connections from other equispaced points in said winding to another of said sources.

9. The combination with a rotary converter, of independent sets of three-phase transformer-windings, connections from one of said sets to points in a winding of said rotary converter, and connections from another set of said transformer-windings to other points in the said windings of said rotary converter.

10. The combination of two independent sets of three-phase transformer-windings, and a rotary converter having a winding connected to said transformer-windings so as to generate six-phase magnetomotive forces.

11. The combination of two sets of series-connected transformer-windings, means for generating three-phase electromotive forces in said windings, a rotary converter having a closed armature-winding, and connections from equispaced points in said winding to the free terminals of said transformer-windings and to points in the connections between said transformer-windings.

12. The combination of two sources of three-phase current, a rotary converter, connections from one of said sources to points in the armature-winding of said rotary converter displaced from each other by one-third of the polar pitch, and other connections, from the other source of three-phase current, to points in said winding between the points of connection of the first source.

13. The combination of a plurality of independent multiphase circuits, and a dynamo-electric machine having a single closed winding connected to said circuits, the points of connection between the winding and one of said circuits being non-identical with the points of connection between said winding and another of said circuits.

14. The combination of a dynamo-electric machine having a closed winding thereon, and connections between said closed winding and a plurality of relatively phase-displaced multiphase circuits.

15. The combination with an alternating-current machine provided with a commutator, of sets of three-phase circuits, and connections between said sets of circuits and a winding of said machine, the points of connection to said winding of one set being non-identical with the points of connection of another set.

679,007. APPARATUS FOR CLEARING OBSTRUCTIONS FROM WATER-CLOSETS, SEWER-PIPES, OR THE LIKE. FRIEDRICH SEITZ, Brooklyn, N. Y. Filed Jan. 5, 1900. Serial No. 462. (No model.)

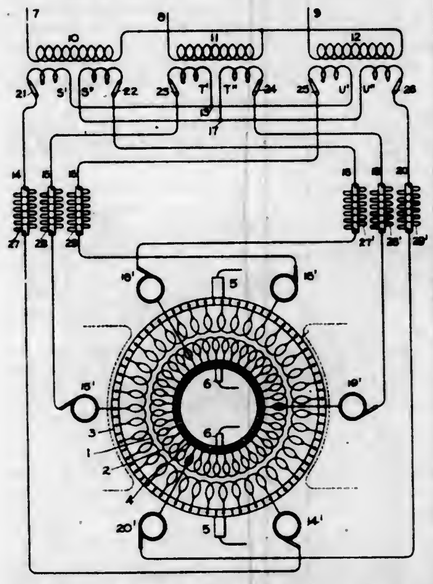


Claim.—1. An apparatus for removing obstructions from closets and waste-pipes, embodying a pump-cylinder provided with a piston and piston-rod, means to operate the piston, and a flat disk-shaped packing on the exterior of the cylinder projecting radially therefrom and loosely supported thereon, whereby it is adapted to bend or curl under pressure and thus automatically assume any desired position relative to the cylinder upon the adjustment of the apparatus within the closet-bowl, for the purposes set forth.

2. An apparatus for removing obstructions from closets and waste-pipes, embodying a pump-cylinder provided with a piston and piston-rod, means to operate the piston, a flat disk-shaped packing on the exterior of the cylinder, projecting radially therefrom and loosely supported thereon, whereby it is adapted to bend or curl and thus automatically assume any desired position relative to the cylinder upon the adjustment of the apparatus within the closet-bowl, and a stuffing-box at the upper end of the cylinder, for the purposes set forth.

3. An apparatus for removing obstructions from closets and waste-pipes, embodying a pump-cylinder provided with a piston and piston-rod and means to operate the same, said apparatus as a whole being supported upon a board or like device of such area as to cover the bowl whether the cylinder is concentric with it or not, and a flat disk-shaped packing projecting radially from the cylinder and loosely supported thereon whereby it will automatically adjust itself to the shape of the bottom of the bowl adjacent to the opening thereof upon the adjustment of the apparatus within the bowl, for the purposes set forth.

679,008. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Dec. 9, 1899. Renewed Aug. 22, 1900. Serial No. 27,731. (No model.)



Claim.—1. The combination of a dynamo-electric machine, a plurality of separate windings on said machine, and separate multiphase circuits connected respectively to said windings and inductively to a single multiphase circuit.

2. The combination of a dynamo-electric machine having two separate windings, three-phase leads connected to one of said windings and inductively connected to a multiphase circuit, and a separate set of three-phase leads connected to the other winding and inductively connected to said multiphase circuit.

3. The combination of a multiphase circuit inductively connected to two, separate, relatively phase-displaced, three-phase circuits, and a dynamo-electric machine having two separate windings connected respectively to said three-phase circuits.

4. The combination of a plurality of separate sources of multiphase current, a dynamo-electric machine having a plurality of separate windings equal in number to the number of said sources, and connections between said windings and said sources respectively.

5. The combination of a rotary converter having two separate armature-windings, independent sets of multiphase transformer-windings, and separate connections between said transformer-windings and said armature-windings respectively.

6. The combination of primary exciting-circuits of different phase, a plurality of secondary circuits inductively related to each of said primary circuits, and a dynamo-electric machine fed from all of said secondary circuits.

7. The combination of two separate sources of multiphase current and a dynamo-electric machine fed from said source so as to generate magnetomotive forces having a greater number of phases than either of said sources.

8. The combination of separate sources of multiphase current and a dynamo-electric machine fed from said sources so as to generate magnetomotive forces having a greater number of phases than any of said sources.

9. The combination of two separate secondary coils inductively supplied with currents of different phase, two other secondary coils similarly supplied with currents of different phase, and a dynamo-electric machine having two separate windings, one of said windings being connected to one pair of said secondary coils and the other to another pair of said secondary coils.

10. A rotary converter provided with two separate multiphase windings and a single set of field-magnets.

11. A rotary converter provided with two separate three-phase windings and a single set of field-magnets.

12. A rotary converter provided with two separate three-phase windings interrelated so as to generate six-phase magnetomotive forces.

13. A synchronous alternating-current dynamo-electric machine having one of its relatively-revolving members provided with two separate, angularly-displaced, multiphase windings.

14. A rotary converter provided with separate multiphase windings, and a commutator connected to each multiphase winding.

15. A rotary converter provided with two, three-phase, windings, and a commutator connected to each winding.

16. A rotary converter provided with two angularly-displaced, three-phase windings, and a commutator connected to each winding.

17. The combination of a plurality of separate sources of multiphase, alternating current, a rotary converter having a plurality of separate multiphase windings, and connections between said windings and said sources of current.

18. A rotary converter provided with two separate multiphase windings, a single set of field-magnets, a commutator for each winding, brushes on each commutator, and direct-current mains connected to said brushes.

19. A rotary converter provided with two separate multiphase windings, a single set of field-magnets, a commutator for each winding, brushes on each commutator, and connections from said brushes to coöperating direct-current mains.

20. A rotary converter, a plurality of independent sets of multiphase, transformer secondaries, and connections between said secondaries and said rotary converter.

21. The combination of a rotary converter having two armature-windings, two independent sets of multiphase, transformer secondaries, connections between one of said armature-windings and one set of said secondaries, and other connections between the other armature-winding and the other set of secondaries.

22. The combination of a rotary converter having two, angularly-displaced, three-phase, armature-windings, two independent sets of three-phase, transformer secondaries, connections between one of said armature-windings and one of said sets of secondaries, and other connections between the other armature-winding and the other set of secondaries.

23. The combination of a plurality of separate sources of multiphase alternating current and a dynamo-electric machine connected to said sources so as to generate magnetomotive forces having a greater number of phases than any of said sources.

24. The combination of a plurality of separate sources of multiphase alternating current and a dynamo-electric machine connected to said sources so as to generate magnetomotive forces having a number of phases different from that of any of said sources.

25. The combination of a rotary converter having separate, three-phase, armature-windings, independent sets of three-phase transformer-windings, and connections between said transformer-windings and said armature-windings respectively.

26. The combination of two separate sets of multiphase transformer-windings each set being so arranged as to have a point of neutral potential, a rotary converter having two separate armature-windings, and a five-wire, direct-current system formed by conductors leading from said neutral points and the direct-current terminals of said converter.

27. A synchronous alternating-current dynamo-electric machine having one of its relatively-revolving members provided with a plurality of separate, angularly-displaced, multiphase windings.

28. A rotary converter provided with a plurality of separate multiphase windings and a single set of field-magnets.

29. A rotary converter provided with a plurality of multiphase windings and a commutator connected to each of said windings.

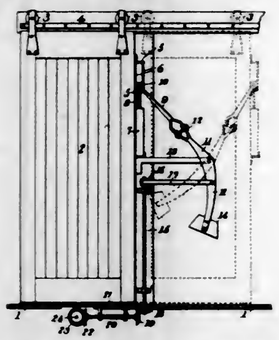
30. An alternating-current machine provided with a plurality of armature-windings, means for commutating current flowing in said windings, and alternating-current leads connected to said windings, the points of connection of the leads corresponding to one winding being angularly displaced from the points of connection of the leads corresponding to another winding.

31. An alternating-current dynamo-electric machine having a plurality of windings to each of which a commutator is connected, and leads connected to points in each of said windings, the points of connection of the leads corresponding to one of the windings being angularly displaced from the points of connection of the leads corresponding to another winding.

32. An alternating-current machine provided with a plurality of windings, means for commutating current flowing in said windings, and alternating-current leads connected to said windings, the points of connection of the leads corresponding to one winding being displaced in phase from points of connection of leads corresponding to another winding.

33. An alternating-current dynamo-electric machine having a plurality of windings to each of which a commutator is connected, and leads connected to points in each of said windings, the points of connection of leads corresponding to one of the windings being displaced in phase from points of connection of leads corresponding to another winding.

679,009. **AUTOMATICALLY OPERATING DOORS.** JOHN H. WHITAKER, Davenport, Iowa. Filed May 11, 1900. Serial No. 16,231. (No model.)

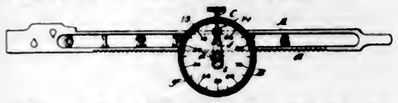


Claim.—1. A sliding door, guide-rods secured to the rear edge of said door, a roller movable vertically between said guide-rods, an arm upon whose upper extremity the roller is loosely mounted, an angular arm centrally pivoted, whose upper end is loosely connected with the lower end of the first-named arm and to whose lower end is attached a weight, a vertical rod or shaft supported in bearings adjacent to the rear edge of the door, means for connecting the upper end of the vertical shaft with the angular arm below its fulcrum, combined with a tread-plate or platform provided with a downwardly-projecting cogged post and loosely secured to the floor some distance from the face of the door and at either side thereof, and means consisting of shafts mounted in bearings just below the floor, and intermeshing gears mounted on such shafts for operatively connecting the tread-plate with the vertical shaft, for the purposes stated.

2. In combination, the sliding door, brackets secured to the rear edge thereof, guide-rods sustained by and between such brackets, the wheel or roller 10 movable vertically between said guide-rods, the cylinder 7 secured to the rear edge of the door, the piston-rod 8 and a head or plunger at the lower end thereof, the arm 9 upon whose upper extremity is loosely mounted the wheel or roller 10 and upper end of the piston-rod 8, the angular arm 11, the brace 13 upon which said angular arm is centrally pivoted, the upper end of said arm 11 being loosely connected with the arm 9 by means of the bolt 12, the weight 14 secured to the lower end of the angular arm 11, the vertical shaft 15 and segment 16 secured to the upper end thereof, the strap 17 connecting the lower member of the angular arm with the vertical shaft, a pinion secured to the lower end of said vertical shaft, the tread-plate 27 having the downwardly-projecting cogged post 27ª, the guide-roller 28 and means consisting of a shaft or shafts supported in bearings below the floor, and intermeshing gears secured to such shaft or shafts for operatively connecting such tread-plate with the vertical shaft, all for the purposes stated and substantially as described.

3. In combination, the sliding door, brackets secured to the rear edge thereof, guide-rods sustained by and between such brackets, the wheel or roller 10 movable vertically between said guide-rods, the cylinder 7 secured to the rear edge of the door, the piston-rod 8 and a head or plunger at the lower end thereof, the arm 9 upon whose upper extremity is loosely mounted the wheel or roller 10 and upper end of the piston-rod 8, the angular arm 11, the brace 13 upon which said angular arm is centrally pivoted, the upper end of said arm 11 being loosely connected with the arm 9 by means of the bolt 12, the weight 14 secured to the lower end of the angular arm 11; the vertical shaft 15 and segment 16 secured to the upper end thereof, the strap 17 connecting the lower member of the angular arm with the vertical shaft, a tread-plate having a downwardly-projecting post and means for operatively connecting such tread-plate with the vertical shaft 15 for the purposes herein stated.

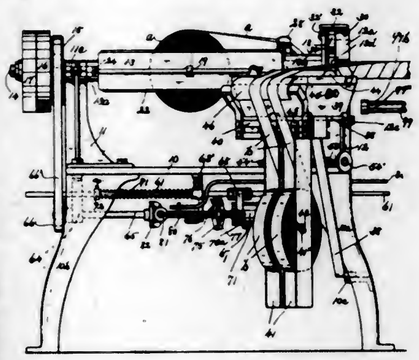
679,010. **SCALE-BEAM WITH INDICATING-POISE.** DANIEL M. WINANS, Binghamton, N. Y., assignor to Horatio B. Osgood, same place. Filed Mar. 15, 1901. Serial No. 51,294. (No model.)



Claim.—1. The combination with a scale-beam and its rack, of a poise movable on said beam and carrying a shaft formed with slots 1 at the end, a pointer *f* provided with a hole 3 adapted to pass over the end of the shaft and a slot 2 adapted to receive the slotted portion of the shaft, and gearing connecting said shaft with the rack, substantially as described.

2. The combination with the beam A having rack *a* on its lower side, of the two-part indicating-poise B grooved to form the beam-slot and having shaft *d* carrying the rotating indicating member, gearing between said shaft and rack, and locking-screw *c* at the top of the poise in a hole formed partly in each part of the poise, substantially as described.

679,011. **PAPER-TUBE MACHINE.** WALTER L. ALLEN, Brooklyn, N. Y., assignor to the Thompson & Norris Company, same place. Filed July 31, 1899. Serial No. 725,675. (No model.)



Claim.—1. In combination, in a tube-machine, a journaled frame with projecting mandrel, as set forth; a core-paper-supporting shaft extending transversely through said frame, and means for centering and supporting the roll of core-paper consisting of plates 21 adjustably secured within said frame, substantially as specified.

2. In combination, a journaled frame with projecting mandrel as set forth, a paper-roll support consisting of a shaft 19 extending transversely through said frame, a guide for the core-strip consisting of a friction-plate 28 carried by the said frame, and means for adjusting the said plate to vary the delivery-angle of the said strip.

3. In combination, a journaled frame with projecting mandrel, a paper-roll support consisting of a shaft extending transversely through said frame, a plate 28 for controlling the delivery-angle of the core-strip, and a spiral guide 27ª fixed upon the said mandrel, substantially as specified.

4. In combination, a journaled frame with projecting mandrel, a paper-roll-supporting shaft located transversely in said frame, suitable guides for controlling the delivery of the core-strip to the mandrel, and tube-feeding mechanism consisting of frictionally-acting wheels 31 whose axes are arranged at an angle to the axial center of the said mandrel.

5. In combination, a revoluble mandrel, means for supporting a core-strip and for guiding the same to the said mandrel, and tube-feeding mechanism consisting of wheels 31 located around and acting frictionally upon the tube, substantially as set forth.

6. In combination, a revoluble mandrel, means for delivering a strip of core-paper to said mandrel, tube-feeding mechanism consisting of wheels whose axes are arranged at an angle to the axial center of the mandrel and whose perimeters are in frictional contact with the tube, and means for changing the angle of the said feed-wheels.

7. In combination, a revoluble mandrel, tube-feeding mechanism consisting of frictionally-acting wheels arranged around said mandrel, each wheel being journaled in a pintle that is mounted in a suitable supporting-frame, and means consisting of an adjusting-screw 35, and connections between said screw and the said pintles, whereby the several feed-wheels may be moved in unison, all being substantially as specified.

8. In combination, a revoluble mandrel, means for supporting a core-strip and for guiding the same to the mandrel, tube-feeding mechanism consisting of wheels 31 acting frictionally upon the tube, pasting mechanism adjacent to said mandrel, and devices substantially as specified for supporting and separating rolls of cover-paper.

9. In combination, a revoluble mandrel, means for supporting a core-strip and for guiding the same to the mandrel, tube-feeding mechanism consisting of wheels 31 acting frictionally upon the tube, pasting mechanism having attached thereto devices for supporting and separating rolls of cover-paper, and mechanism for adjusting the said pasting mechanism and cover-paper relatively to the mandrel to vary the angle at which the cover-paper is coiled upon the core of the tube.

10. In combination with tube-forming mechanism, tube-cutting mechanism consisting of a saw mounted to travel with the said tubing during the operation of cutting, a support for the said tubing, and mechanism for moving the said support to force the tubing into engagement with the saw.

11. In combination, in tube-cutting machinery, a driving-shaft 65 having fixed thereon a cam 82 and drum 67, rolls 69 located adjacent to, and adapted to be moved into engagement with, the said drum, and mechanism intermediate the said rolls and cam for forcing the rolls into engagement with the drum, for the purpose specified.

12. In combination, in tube-cutting machinery, a driving-shaft having fixed thereon a cam and drum as set forth, rolls 69 adapted to engage, and travel upon, the said drum, levers 75 and links 76 77 for forcing said rolls into engagement with the drum, lever 80 connected at one end with the link 76 and bearing in its other end a roll 81, and mechanism substantially as specified for moving the said roll 81 into the path of the cam to start the tube-cutting mechanism into action.

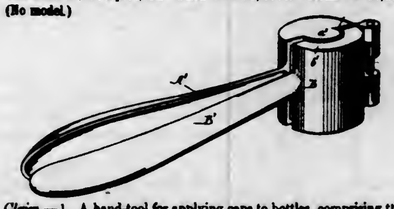
13. In combination, in tube-cutting machinery, a constantly-revolving drum, rolls 69, whose axes are at an angle to the axial center of the said drum, means consisting of levers 75 and links 76 77 for forcing the rolls into engagement with the drum, means for locking the said links in alinement, and means consisting of a stop 89 for unlocking the said links; all substantially as specified.

14. In a tube-cutting machine, in combination, a longitudinally-movable saw-arbor and saw, a constantly-revolving drum, rolls 69 whose axes are at an angle to the axial center of the drum, mechanism for forcing the said rolls into engagement with the said drum, and mechanism connecting the rolls 69 and the saw-arbor whereby the said rolls and arbor are caused to move in unison.

15. In a tube-cutting machine, in combination, a longitudinally-movable saw-arbor and saw, a hinged shelf for supporting the tubing adjacent to the saw, a spring 96, having a head 96ª and inclined portions 96ᵇ 96ᵇ secured to said shelf, and an arm carried by the saw-arbor frame and adapted to engage the said inclined portions 96ᵇ 96ᵇ, for the purpose specified.

16. In a machine for making paper tubes, a journaled frame, a projecting mandrel carried thereby, a shaft arranged transversely in said frame and supporting a roll of paper, plates adjustable on said shaft and disposed on the respective sides of the roll of paper, and means for retaining said plates in their adjustment, substantially as described.

679,012. **DEVICE FOR APPLYING CAPS TO BOTTLES.** ALBERT BAUMGARTEN, Freeport, Ill. Filed Nov. 23, 1900. Serial No. 37,461. (No model.)

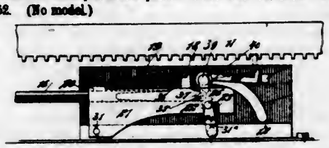


Claim.—1. A hand-tool for applying caps to bottles, comprising the combination of a pair of jaws pivotally secured together at one end to swing laterally, each of said jaws being formed of sides and provided with inward projections at the top and bottom thereof, an elastic bushing formed of sections extending and held between said projections, and formed to fit around a bottle, a stop arranged to rest upon the top of a bottle or cap, and an operating lever or handle rigidly secured on each of said jaws.

2. A hand-tool for applying caps to bottles, comprising the combination of a pair of jaws pivotally secured together at one end to swing laterally, each of said jaws being formed of sides and provided with inward projections at the top and bottom thereof, an elastic bushing formed of sections extending and held between said projections, and formed to fit around a bottle, a stop formed on one of said jaws and arranged to rest upon the top of a bottle or cap, and an operating lever or handle rigidly secured on each of said jaws.

3. A hand-tool for applying caps to bottles, comprising the combination of a pair of jaws, each of which is provided with pivot-lugs at one end whereby the jaws are secured to swing laterally, said jaws having sides and integrally-formed inwardly-projecting ribs, an elastic bushing formed to fit around a bottle, a stop formed on one of said jaws and arranged to rest upon the top of a bottle or cap when in vertical position and serving to position the tool vertically and an operating lever or handle on each of said jaws and integrally formed therewith.

679,018. **AUXILIARY SPACING DEVICE FOR TYPE-WRITING MACHINES.** GAY P. BLESSING, New Milford, Pa., assignor of one-half to Frank H. Gillespie, same place. Filed Oct. 13, 1900. Serial No. 32,962. (No model.)



Claim.—1. An auxiliary or corrective spacing device for type-writing machines, comprising a rack adapted for attachment to the carriage of the machine, a support, a push-rod having end movement in the support, a dog mounted to swing up and down and carried by the support, the said dog being adapted for engagement with the rack, a member engaging the push-rod and pivotally connecting the dog with said push-rod, and a spring connected with said member, the said dog being raised and lowered by the end movement of said push-rod.

2. An auxiliary or corrective spacing device for type-writing machines, consisting of a rack arranged for attachment to the scale-bar of a type-writer, a support arranged for attachment to the frame of the type-writer, a spring-controlled push-rod, one end of which moves in the said support, a crank-arm pivoted in the support, a dog mounted to swing on the crank-arm and arranged for engagement with the rack, and a pivotal connection between the push-rod and the dog, as described.

3. In an auxiliary or corrective spacing device for type-writing machines, the combination, with a rack arranged for attachment to the scale-bar of a type-writing machine, a support arranged to be secured on the frame of the machine adjacent to the rack, and a plate pivoted on the said support and provided with connecting-recesses at its right-hand end and a spring connection at its left-hand end, of a spring-controlled push-rod held to slide in the frame of the machine, the inner end of which rod enters said support, a crank-arm pivoted on said support, a pin carried by the crank-arm and adapted to enter the recesses in said plate, a dog carried by the crank-arm and adapted for engagement with the teeth of the rack, for the purpose set forth, and a pivotal connection between the dog and the push-rod.

4. In an auxiliary or corrective spacing device for type-writing machines, the combination, with a rack having means for attachment to the scale-bar of the machine, a frame having means for attachment to the main frame of the machine adjacent to the rack, and a plate pivoted to the frame of the device and having connecting-recesses in its lower edge at its right-hand end, of a push-rod having guided movement on the frame of the machine, an end of which rod enters the frame of the device, a main crank-arm having one member pivoted to the frame and extending up at the rear of said plate, the other member extending horizontally across the frame of the device, a pin carried by the upright member of the crank-arm, and adapted to enter the recesses in the said plate, a dog secured to the horizontal member of the main crank-arm and adapted for engagement with the rack, a projection from the lower portion of the dog pivotally connected with the end of the push-rod, a projection fixed to the upper portion of the inner end of the push-rod, and a spring connecting the said projection with the pivot end of the said plate, as described.

5. In an auxiliary or corrective spacing device for type-writing machines, the combination, with a rack having means for attachment to the carriage of the machine, a frame having means for attachment to the main frame of the machine and having an upright member, a plate pivoted to the frame of the device in the manner described, a push-rod having guided movement in the frame of the machine, a main crank-arm pivoted to the frame in the manner described, and consisting of an upright member and two horizontal members, the upper one being the longer and passing through a curved opening in the back of the frame of the device, a dog secured to the upper horizontal member of the main crank-arm and having a projection on its outer side normally in contact with the upright member of the main crank-arm, said dog being connected with the push-rod in the manner described, and a pin or stop secured on the upright member of the frame of the device to hold the dog firmly in position at the end of the forward movement of the dog at each operation of the device.

6. An auxiliary or corrective spacing device for type-writing machines, comprising a rack adapted for attachment to the carriage of the machine, a frame for attachment to the machine-frame, an arm pivoted to said frame, a dog pivoted to said arm to swing up and down and adapted for engagement with the rack, and a spring-controlled push-rod pivotally connected with said dog, substantially as set forth.

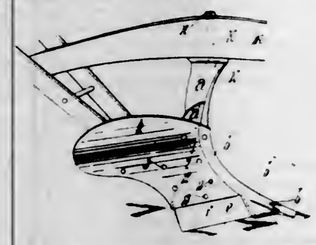
7. An auxiliary or corrective spacing device for type-writing machines, comprising a rack adapted for attachment to the carriage of the machine, a frame, a spring-controlled push-rod having end movement in the frame, a pivoted arm carried by the frame, a dog pivoted to said arm and adapted for engagement with the rack the said dog being provided with a projection normally in contact with the pivoted arm, and an operative connection between the push-rod and the said dog, substantially as set forth.

8. An auxiliary or corrective spacing device for type-writing machines, comprising a rack adapted for attachment to the carriage of the machine, a frame for attachment to the frame of the machine, a crank-arm pivoted to the frame, a dog arranged for engagement with the rack and carried by the crank-arm, a plate pivoted to the said frame and controlling the movement of the said crank-arm, a push-rod for actuating the dog, and a spring controlling the said plate and also controlling the push-rod, as set forth.

9. An auxiliary or corrective spacing device for type-writing machines, comprising a rack adapted for attachment to the carriage of the machine, a frame for attachment to the frame of the machine, and having a base member and an upright member arranged to extend beneath the rack, the said upright member being provided with a curved slot and a stop, a dog for engagement with the rack, a crank-arm pivoted to the base member of the frame and having a member extending through a hole in the dog and through the curved slot in the upright member of the frame, and a spring-controlled push-rod connected with the dog, substantially as specified.

10. An auxiliary or corrective spacing device for type-writing machines, comprising a frame for attachment to the machine-frame, mechanism carried by the frame of the device and adapted when actuated to engage and move the carriage of the machine, means for actuating said mechanism, and a pivoted and spring-controlled action-plate for controlling the movement of said mechanism.

679,014. PLOW. JEROME O. BOGER, Redlands, Cal. Filed Sept. 27, 1900. Serial No. 31,314. (No model.)



Claim.—1. A plow comprising a standard furnished with a lateral rearwardly-slanting moldboard-bracket, and furnished at its lower end with a gain for the landside; a landside furnished with a moldboard front section and a point and share holding nose and fitted to the front of the standard and fastened in the landside-gain, and furnished at the front end of the nose with a socket for the plow-point, and at the rear edge of the nose with a share-holding socket for the front end of the share; a moldboard fitted to the moldboard-bracket and against the rear edge of the moldboard front section; a plowshare fitted to and extending from the lower edge of the moldboard and seated in the share-holding socket; and means for fastening the inner edge of the share to the moldboard.

2. A plow comprising a standard furnished with a lateral rearwardly-slanting moldboard-bracket and furnished at its lower end with a gain for the landside; a landside furnished with a moldboard front section and a point and share holder and fitted to the front of the standard and fastened in the landside-gain and furnished at the front with a socket for the plow-point and at the rear edge of the front with a share-holding socket for the front end of the share; a moldboard fastened to the moldboard-bracket; a share-holding bracket at the lower edge of the moldboard and arranged to provide a dovetail share-holding seat; and a detachable share seated in said seat and the share-holding socket.

3. A plow furnished at the lower edge of its moldboard with a dovetail groove; a share furnished with a dovetail tongue to fit said groove; and means for fastening the tongue in said groove.

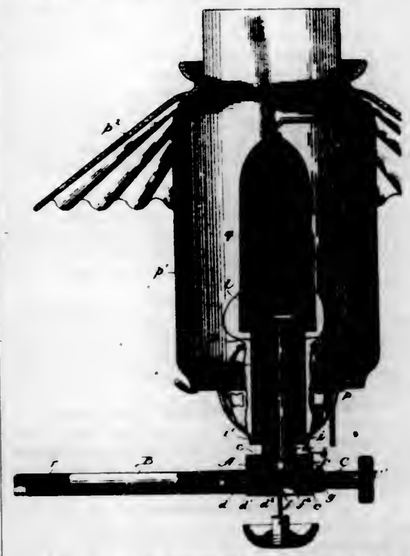
4. In a plow, the combination of a plow-standard; a laterally rearwardly slanting moldboard-bracket fastened to said standard; a landside fastened to said standard and furnished with a moldboard-section and a rearwardly-extending arm to form a share-holding bracket; a moldboard fastened to the standard and to the said arm, the lower portion of said arm extending to form, in connection with the moldboard, a dovetail seat; and a detachable share mounted in such seat.

5. The reversible share furnished opposite its cutting edge with a dovetail shank and furnished at the front end with a tongue extending across the blade of the share at the under side of such blade; and furnished at the rear end with a like tongue on the upper side of the blade.

6. A plow comprising a standard furnished with a gain; and a landside fastened in said gain and furnished with a bottom flange to extend under the standard.

7. A plow comprising a standard; a moldboard front section fastened to the standard; a moldboard fastened to the standard and to said section and fitted against the rear edge of such section; and a detachable share fastened to the moldboard.

679,015. HYDROCARBON-BURNER. JACOB J. BOSENBERG, Chicago, Ill. Filed June 20, 1900. Serial No. 20,978. (No model.)

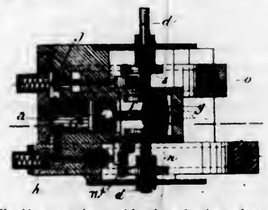


Claim.—1. In a hydrocarbon-burner, the combination with a base, of a feed-tube therein having at one end a removable plug and between its ends a feed-perforation, a valve-seat surrounding the feed-tube, a valve having a sleeve portion surrounding the plug end portion of said feed-tube and movable longitudinally thereon to and from said seat to open and close the feed-perforation, a vertical burner-head comprising an inner tube secured to the base over the feed-perforation, and an outer tube carrying a burner-cap, and an apertured gallery-supporting ring securing the burner-head tubes together at their lower end.

2. In a hydrocarbon-burner, the combination with a base, of a feed-tube therein provided at one end with a removable plug and between its ends with a feed-inlet perforation and surrounded by a valve-seat, an opening through the base in line with said feed-tube, and a valve in said opening having a sleeve portion surrounding the plugged end portion of said feed-tube and movable longitudinally thereon to and from said seat to open and close said feed-inlet.

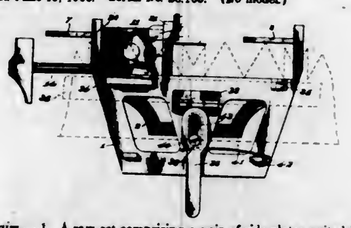
679,016. LIQUID-METER. JEAN M. DUCHAMP, Lyons and RAOUL PHILIPPE, St. Rambert-L'Ile-Barbe, France. Filed Dec. 4, 1900. Serial No. 38,613. (No model.)

Claim.—1. In a liquid-meter, the combination of at least three cylinders, pistons working in said cylinders, a crank-shaft having a single crank thereon, around which the cylinders are arranged radially, a connecting-rod to each piston connected to the said crank, an inlet-valve and an outlet-valve to each cylinder, an inlet-channel and an outlet-channel with which such valves respectively communicate, a single cam on the crank-shaft to open successively the three inlet-valves, springs to close said valves, another cam on the crank-shaft to open successively the three outlet-valves, and springs to close these latter valves, substantially as herein set forth.



2. In a liquid-meter, the combination of at least three cylinders, pistons working in said cylinders, a crank-shaft, a connecting-rod to each piston connected with a crank on the crank-shaft, an inlet-valve and an outlet-valve to each cylinder, cams on the crank-shaft to open the said valves, springs to close the valves, and an inlet-channel and an outlet-channel with which the inlet and outlet valves respectively communicate, substantially as herein set forth.

679,017. SAW-SET. BERNARD EVERARD, Gladstone, Mich. Filed June 13, 1900. Serial No. 20,163. (No model.)



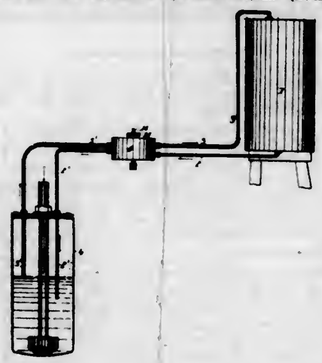
Claim.—1. A saw-set comprising a pair of side plates united longitudinally along one of their respective edges, a tooth-deflecting screw mounted near one end of one of the side plates, and an open space in the adjacent plate opposite said screw.

2. A saw-set comprising a pair of side plates united longitudinally along one of their respective edges, means for imparting a spread to the teeth of a saw, and an adjustable gage in one of the side pieces for determining the degree of spread so imparted.

3. In a saw-set the combination with a pair of side plates and separate cross-pieces uniting them on one side, of a tooth-deflecting screw mounted in one of the side plates, uprights supporting the cross-pieces on the opposite side plate, and oppositely-projecting gages occupying the space between the cross-pieces not occupied by the screw.

4. In a saw-set the combination with a pair of side plates united by cross-pieces, of gage-plates upon two or more of the cross-pieces, and an adjustable raker-gage plate on an intermediate cross-piece, substantially as set forth.

679,018. OIL-FEED FOR CARBURETERS. GUSTAV FISCHER, Riesa, Germany, assignor of four-fifths to MAX RICHTER, Dresden, Germany, and FRITZ WODA, HUGO MESTERN, and PAUL PALLESTER, Vienna, Austria-Hungary. Filed Sept. 1, 1900. Serial No. 28,843. (No model.)

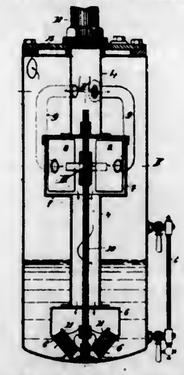


Claim.—1. The combination with a reservoir for liquid fuel and a carbureting-chamber, of connecting-tubes intermediate the two, the ends of which tubes within the carbureting-chamber terminate at different levels, and a regulating device interposed in the said connecting-tubes and divided into chambers, one of which chambers provides direct communication from the carbureting-chamber to the fuel-reservoir, and a valve controlling the flow through the other chamber of the fuel from the reservoir to the carbureting-chamber, said valve being controlled by the pressure of air within the carbureting-chamber.

2. The combination with a reservoir for liquid fuel and a carbureting-chamber, of connecting-tubes intermediate the two, the ends of which tubes within the carbureting-chamber terminate at different levels, and a regulating device interposed in the said connecting-tubes and divided into chambers, one of which chambers provides direct communication from the carbureting-chamber to the fuel-reservoir, a vertically-movable weighted rod extending through the chambers, a flexible diaphragm for one of the chambers to which the rod is connected, and a valve carried by the rod and adapted to control the flow of fuel from the reservoir through the other chamber to the carbureting-chamber.

3. The combination with a fuel-reservoir, and a carbureting-chamber arranged at different levels as described, of connecting-tubes intermediate the said reservoir and chamber and terminating within the carbureting-chamber at different levels, and a regulating device interposed in said connecting-tubes and divided into three chambers as set forth, a vertically-movable weighted rod passing through the chambers, a flexible diaphragm to which the rod is connected, a valve fixed to the rod and controlling the flow of fuel through the lowermost chamber and the middle chamber, and a second valve movable on the rod and controlling the communication between the uppermost chamber and the middle chamber.

679,019. CARBURETER. GUSTAV FISCHER, Riesa, Germany, assignor of four-fifths to MAX RICHTER, Dresden, Germany, and FRITZ WODA, HUGO MESTERN, and PAUL PALLESTER, Vienna, Austria-Hungary. Filed Sept. 1, 1900. Serial No. 28,843. (No model.)



Claim.—1. In a carbureting device the combination with a reservoir for hydrocarbon and a carbureted-air outlet therefor, of a chamber arranged within said reservoirs, an air-inlet for said chamber, a rotatable shaft within the chamber, a perforated bottom for the chamber, and brushes mounted upon the shaft and adapted to make contact with the perforated bottom.

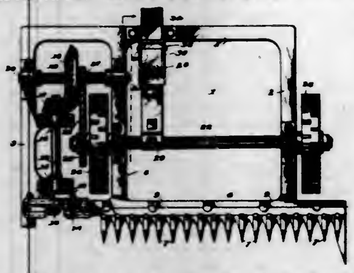
2. In a carbureting device, the combination with a reservoir for hydrocarbon and a carbureted-air outlet therefor, of a chamber arranged within said reservoirs, an air-inlet for said chamber, a rotatable shaft within the chamber, a perforated bottom for the chamber, and brushes adjustably mounted upon the shaft and adapted to make contact with the perforated bottom.

3. In a carbureting device, the combination with a reservoir for hydrocarbon and a carbureted-air outlet therefor, of a chamber arranged within said reservoirs, an air-inlet for said chamber, a rotatable shaft within the chamber, a series of vanes secured to the upper part of the shaft, a perforated bottom for the chamber, and brushes mounted upon the lower part of the shaft and adapted to make contact with the perforated bottom.

4. In a carbureting device, the combination with a reservoir for hydrocarbon and a carbureted air outlet therefor of an air-chamber within the reservoir having an air-inlet at the upper end, the said chamber having portions 7 and 5 intermediate its length, pipes 9 communicating with the upper part of the air-chamber and portion 7, and a perforated bottom for the part 5, a rotatable shaft in the air-chamber, vanes on said shaft

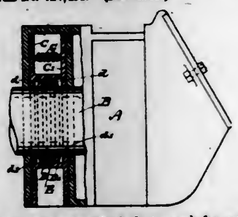
within the part 7, and brushes upon the said shaft within the part 5 and adapted to make contact with the perforated bottom.

679,020. LAWN-MOWER. HENRY GARRETT, Pendleton, Oreg. Filed Feb. 11, 1901. Serial No. 46,913. (No model.)



Claim.—In a lawn-mower, the combination of a rectangular frame provided with a longitudinal connecting-bar extending from the front of the frame to the back of the same, a cutting mechanism arranged at the front of the frame, the axle 22 extending from one side of the frame to the connecting-bar and journaled in suitable bearings thereof, wheels mounted on the axle, gearing connecting the axle with the cutting mechanism, the inclined handle 28 connected at its lower end to the axle and supported by the same, the curved yoke mounted upon and extending upward from the back of the frame and receiving the handle and holding the same against lateral movement, and a locking device mounted on the handle and engaging the yoke and securing the handle at the desired adjustment, substantially as described.

679,021. DUST-GUARD. HENRY S. GOUGHNOUR, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 17, 1900. Serial No. 727,498. (No model.)



Claim.—1. The herein-described dust-guard for axle or journal boxes, consisting of two guard plates or members surrounding the axle or journal and having each on its inner face an annular flange projection whose end face is formed with a receding bevel, whereby when said plates or members are placed together upon the journal there is formed by and between said projections an annular packing-seat the cross-section of which is substantially triangular with its broadest portion contiguous to the journal, packing material in the said space, and spring means acting upon said plates to compress said packing material both longitudinally and radially.

2. The combination with a journal or axle box having a recess or chamber in its end wall, of a dust-guard contained in said recess or chamber and consisting of a pair of plates rotatably secured to the journal and having at their inner sides projections forming between them around the journal an annular packing-space having its greatest width contiguous to the journal, springs tending to compress said packing, and washers interposed between the said plates and the walls of said recess or chamber.

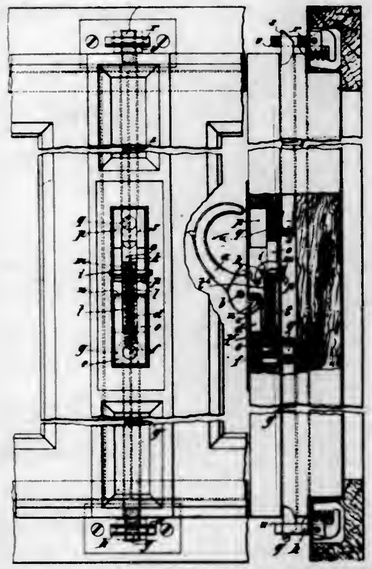
3. The combination with a journal or axle box having a recess or chamber in its end wall, of a dust-guard contained in said recess or chamber and consisting of a pair of plates mounted on the journal to rotate therewith, each of said plates having on its inner face an annular flange projection whose end face is formed with a receding bevel, whereby when said plates are brought together upon the journal, there is formed between said faces an annular packing-seat of substantially triangular cross-section having its widest portion contiguous to the journal, together with springs tending to draw said plates together and thereby compress said packing both longitudinally and radially.

679,022. SHOESTRING-FASTENER. ABRAHAM B. HARRIS, Ritter, Va. Filed Mar. 25, 1901. Serial No. 52,252. (No model.)

Claim.—The combination with a shoe-upper, of a pair of elongated plates of equal length, a space-washer, a tongue and a pair of rivets, one of the latter being longer than the other, the plates being disposed against the inner and outer surfaces of the upper so that their edges will be in coinciding planes, the said plates having their outer ends secured to each other and to the upper by the shorter rivet, the space-washer being applied to the inner end of the outer plate with the inner end of the tongue bearing thereon, and the inner ends of both plates, the washer and the inner tongue end unitedly secured to each other and to the upper by the longer rivet, the tongue projecting longitudinally outwardly over the said outer plate.



679,023. AUTOMATIC LOCKING DEVICE FOR DOORS, &c. AUGUST HELLER, Graz, Austria-Hungary. Filed Sept. 29, 1900. Serial No. 31,552. (No model.)

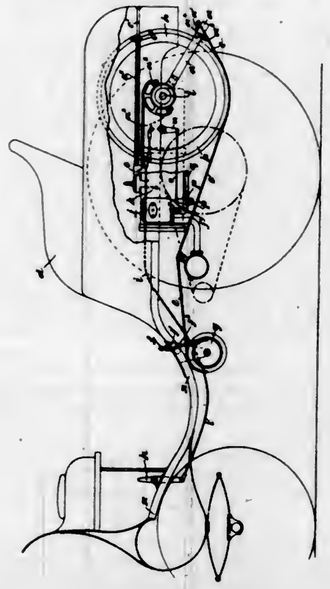


Claim.—A locking device consisting in the combination with a rotatable lever, of a sliding piece *e*, a bar *g* connected with the sliding piece, a second sliding piece *p*, a second sliding bar *z*, a spring arranged to act upon the said sliding pieces *e* and *p* to normally keep the same separated, as described, a pivoted lever *k*, and the keepers *h* and *r*, all arranged for coöperation as set forth.

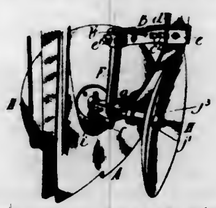
679,024. STARTING MEANS FOR AUTOCARS. JOHN HOPE and WILLIAM R. BUCKLEY, Liverpool, England. Filed Dec. 8, 1899. Serial No. 739,650. (No model.)

Claim.—1. Means for starting the oil or like engines of autocars, comprising in combination a lever adjacent to the seat of the driver; a rod *i* moved thereby; an arm *r* having an incline *r'* thereon, connected with the opposite end of *i*, and with the exhaust-valve-operating lever *n*; a roller *n'* adapted to be operated laterally by the arm *r*, and a loose joint comprising the blocks p^2 and link p^3 on *i*; and cams m' m^3 coöperating with said roller *n'* substantially as and for the purposes set forth.

2. Means for starting the oil or like engines of autocars, comprising in combination a lever adjacent to the seat of the driver; a rod *i* moved thereby; an arm *r* having an incline *r'* thereon, connected with the opposite end of *i*, and with the exhaust-valve-operating lever *n*; a roller *n'* adapted to be operated laterally by the arm *r*, and a loose joint comprising the blocks p^2 and link p^3 on *i*; and an arm *t* carrying the ignition commutator or contact *t'* for varying the point of ignition, also connected with and operated by said rod *i*; and cams m' m^3 coöperating with said roller *n'* substantially as set forth.



679,025. FURROW-OPENER ATTACHMENT. CLAUDE S. KEMPER, Cameron, Mo. Filed May 11, 1901. Serial No. 58,740. (No model.)



Claim.—1. A furrow-opening attachment for planters and the like, comprising disks mounted to have a horizontal adjustment on a supporting-axle, and an attaching-bracket on which the axle is mounted to be vertically adjustable.

2. A furrow-opening attachment for planters and the like, comprising an attaching-bracket, a rod depending from the bracket, an axle adjustably mounted on the rod, and disks horizontally adjustable on the axle.

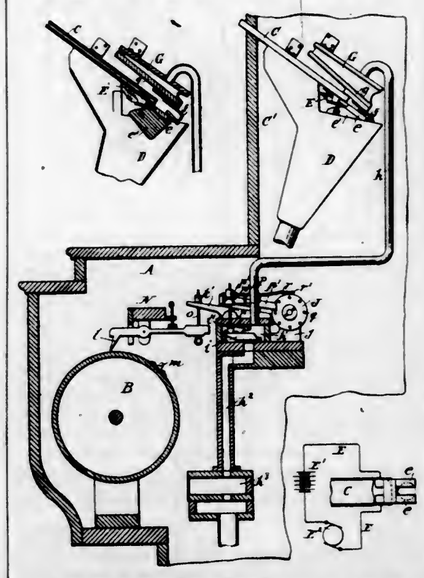
3. A furrow-opening attachment for planters and the like comprising an attaching-bracket having at one end a slot for the shoe said slot being open at one side to admit the shoe, means for firmly securing the bracket, a rod depending from the other end of the bracket, and disks supported on the lower end of the rod.

4. In combination, a vertical rod, an axle adjustable thereon, disks carrying sleeves adjustable on the axle, and set-collars at each side of a disk.

5. In combination, a bracket secured to the upper end of a furrow-shoe, a rod depending from the bracket and having a lower notched end engaging the upper edge of the shoe, and disks supported on the lower end of the rod.

679,026. TUNE-CONTROLLING DEVICE FOR MUSICAL INSTRUMENTS. EUGENE DE KLEIST, North Tonawanda, N. Y. Filed Oct. 4, 1900. Serial No. 31,906. (No model.)

Claim.—1. In a musical instrument, the combination with a rotary pin-barrel which controls the sound-producing parts, and a motor-circuit, of a coin-chute, contacts arranged adjacent to the chute and forming terminals of said circuit, a pneumatic having its movable member provided with a stop which projects normally into the path of the coin, a suction-chamber connected with said pneumatic by a duct or passage, a cut-off valve arranged in said passage, and an actuating device for said valve which is operated by said pin-barrel, substantially as set forth.



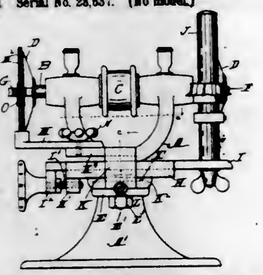
2. In a musical instrument, the combination with a rotary pin-barrel which controls the sound-producing parts, and a motor-circuit, of a coin-chute, contacts arranged adjacent to the chute and forming terminals of said circuit, a pneumatic having its movable member provided with a stop which projects normally into the path of the coin, a suction-chamber connected with said pneumatic by a duct or passage, a cut-off valve arranged in said passage, an actuating-wheel provided with an annular row of feed-pins and an annular row of tappets, a lever which actuates said valve and which is operated by said tappets, a trip-finger which is operated by a projection on said pin-barrel, and a feed-pawl engaging with the feed-pins of said actuating-wheel and operated by said trip-finger, substantially as set forth.

3. In a musical instrument, the combination with a rotary pin-barrel having a projection, of a motor-circuit, a coin-chute, contacts arranged to be traversed by the coins and forming terminals of said circuit, a pneumatic having its movable member provided with a stop which projects normally into the path of the coin, a suction-chamber connected with said pneumatic by a passage containing a cut-off valve, an actuating-wheel provided on one side with an annular row of feed-pins and on its opposite side with an annular row of actuating-pins, a lever which opens said valve and which is operated by the actuating-pins of said wheel, a rock-lever carrying a feed-pawl which engages with the feed-pins of said wheel, and a trip finger or lever connected with said rock-lever and standing in the path of the projection on said pin-barrel, substantially as set forth.

4. In a musical instrument, the combination with a rotary pin-barrel which controls the sound-producing parts, and a motor-circuit, of a coin-chute, contacts arranged adjacent to the chute and forming terminals of said circuit, a pneumatic having its movable member provided with a stop which projects normally into the path of the coin, a suction-chamber connected with said pneumatic by a duct or passage, a cut-off valve arranged in said passage, an actuating-wheel provided with an annular row of feed-pins and an annular row of tappets which latter are removably secured to said wheel, a lever which actuates said valve and which is operated by said tappets, a trip-finger which is operated by a projection on said pin-barrel, and a feed-pawl engaging with the feed-pins of said actuating-wheel and operated by said trip-finger, substantially as set forth.

5. The combination with a motor-circuit, of a coin-chute, contacts arranged adjacent to the coin-chute and forming terminals of said circuit, a pneumatic having its movable member provided with a stop which projects normally into the path of the coin, a suction-chamber connected with said pneumatic by a duct or passage, a cut-off valve arranged in said passage, and means for operating said valve, substantially as set forth.

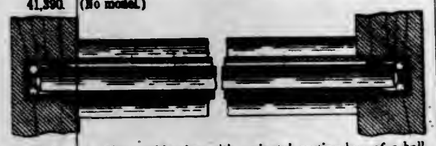
679,027. ATTACHMENT FOR GRINDING SHANK-CUTTERS FOR BOOT OR SHOE TRIMMING MACHINES. GEORGE A. KNOWLTON, Natick, Mass., assignor to Charles L. Leonard, Westboro, Mass. Filed Aug. 31, 1900. Serial No. 28,637. (No model.)



Claim.—1. The combination of frame A having the bracket E, with the swivel-bed H; plate I, fitted to slide therein; pivot-bolt E'; frame K, provided with the disk K', reinforcing-shoulder K^2, set-screw L and arm K^4; swivel-arm M; set-screw N; post M^2; and bushing O, substantially as and for the purpose set forth.

2. The combination of frame A, having the bracket E, with the swivel-bed H; plate I, fitted to slide therein; pivot-bolt E'; frame K, provided with the disk K', reinforcing-shoulder K^2, set-screw L and arm K^4; swivel-arm M; set-screw N; post M^2; bushing O and post J mounted on slide-plate I, substantially as and for the purpose set forth.

679,028. BURGLAR-PROOF BAR FOR WINDOW-GRATINGS. WALTER H. LARMORE, Anderson, Ind. Filed Dec. 28, 1900. Serial No. 41,390. (No model.)



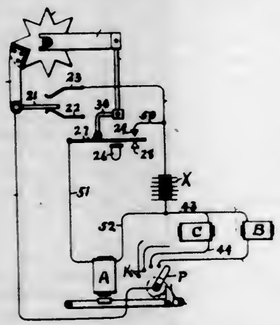
Claim.—1. The combination with a pivotal grating-bar, of a ball-bearing end seat, substantially as specified.

2. A grating-bar, consisting of a metallic casing, having a foot-section provided with a ball-bearing seat, and a pivotal steel core-rod within said casing, having its end engaging said ball-bearing seat, substantially as specified.

3. A grating-bar, consisting of a metallic casing or tube having end sections provided with ball-bearing seats, and an interior pivotal steel core-rod extending from end to end of the window, provided with beveled or rounded ends to engage the ball-bearings, substantially as specified.

4. A grating-bar, consisting of a metallic casing, or tube having separable end sections provided with ball-bearing end seats, and an interior pivotal steel core-rod, having ends engaging the ball-bearings of said end seats, substantially as specified.

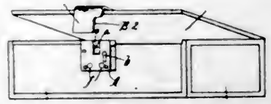
679,029. CALLING DEVICE FOR TELEPHONE-EXCHANGES. FRANK A. LUNDQUIST, Chicago, Ill., assignor to M. R. Richardson, trustee, Sterling, Kans. Filed May 17, 1899. Serial No. 717,147. (No model.)



Claim.—1. A dial and a pointer therefor, a crank detachably connected to said pointer, a contact-closing device operated by the movement of said crank, a second contact-closing device operated by means independent of said crank, a separate electric circuit connected to each contact-closing device, means whereby the rotation of said crank will send a series of electrical impulses over the circuit connected to the first-mentioned contact-closing device and will cause said pointer to indicate on said dial the number of such impulses, and means whereby the operation of the second contact-closing device will cause an electrical impulse to be sent over the circuit connected thereto and will also release said pointer from said crank so that said pointer may be returned to its normal position.

2. A dial and a pointer therefor, a crank detachably connected to said pointer for turning it, a contact-closing device also connected to said crank and operated thereby, an electrical connection from said contact-closing device to a switch, a magnet for moving said switch, a second contact-closing device provided with electrical connections to said magnet, means whereby the operation of the first-mentioned contact-closing device will send a series of electrical impulses through said switch, and means whereby the operation of the last-mentioned contact-closing device will move said switch so as to cause succeeding impulses to flow over a different line and will also detach said pointer from said crank so as to permit it to return to its normal position.

679,030. LOCK FOR CIGAR OR OTHER BOXES. FRANK H. MITCHELL, New York, N. Y. Filed Oct. 26, 1900. Serial No. 34,466. (No model.)



Claim.—1. A detachable locking device for cigar or other boxes or receptacles, comprising two separate members, one of which is provided with means whereby it may be manually affixed to and detached from the body portion of the box, and embodying a lock-casing provided with a keyhole, and a second member adapted to engage the lid of the box and comprising an angular plate, the lower portion of which is formed to fit over in front of the lock-casing to close and conceal all of the same except the keyhole thereof; and locking means upon the said angular plate adapted to engage the lock-casing when the lower portion of the plate projects in front of the said casing.

2. A detachable locking device for cigar or other boxes or receptacles, comprising two separate members, one of which embodies a lock-casing adapted to engage the body portion of the box and provided on its front face with insertible pins extending through the said member and adapted to be pressed inwardly to enter the wood of the box; and the other member being formed and adapted to engage or project over the lid of the box and provided with locking means to engage the lock-casing of the lower member and being also adapted to project over and conceal the insertible pins.

3. A detachable locking device for cigar or other boxes or receptacles, comprising a lock-casing provided with an inwardly-projecting portion adapted to engage over the upper edge of the box to prevent outward movement of the lock-casing, and being further provided with manually-insertible devices for connecting the said lock-casing to the box to prevent inward movement thereof; and a lid-engaging member provided with locking means for engaging the said lock-casing.

4. A detachable lock for cigar or other boxes or receptacles, comprising a lock-casing provided with movable pins adapted to be partially withdrawn, and to be projected inwardly to insert the same in the body portion of a box, and an upper member or plate adapted to project over the lid of the box, and provided with means for engaging the said lock-casing and formed and adapted to project over the front of the lock-casing and conceal the movable pins.

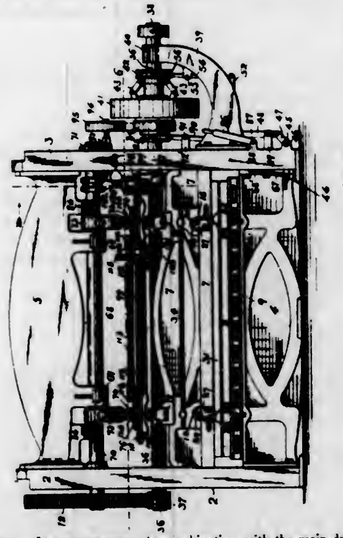
5. A device for locking cigar or other boxes or receptacles comprising a lock-casing provided with movable pins adapted to be partially withdrawn, and to be pressed inwardly to insert the same in the wood of the body portion of the box, and an upper member or plate adapted to project over the lid of the box, and provided with a downwardly-ranging outer extension carrying means for engaging the lock-casing, said extension being adapted to fit over and conceal the said movable pins.

6. A device for locking cigar or other boxes or receptacles, comprising a lock-casing, provided with movable pins adapted to be withdrawn, and to be pressed inwardly to insert the same in the wood of the body portion of the box, whereby to manually affix the locking device thereto and disconnect the same therefrom, and an upper member or plate adapted to project over the lid of the box, and provided upon its under surface with pins whereby it may be manually affixed thereto, and having a downwardly-ranging forward extension provided upon its inner face with a projection or pin adapted to engage the lock-casing, the said extension being adapted to rest in front of the lock-casing and conceal the movable pins thereof.

7. A device for locking cigar or other boxes or receptacles comprising a lock-casing provided rearwardly below the top thereof with a horizontal flange adapted to rest upon the top of the front panel of a cigar-box, and provided with a downwardly-ranging flange adapted to engage the inner face of the said panel, the said lock-casing being centrally apertured at the top thereof, and provided at one side with a keyhole adapted to be operated by a suitable key; movable pins secured in the said lock-casing and adapted to be partially but not wholly withdrawn therefrom and to be pressed inwardly to insert the same in the wood of the cigar-box; and an upper member comprising a plate adapted to project over and engage the upper face of the box-lid, and provided upon its under surface with a plurality of pins adapted to be inserted in the box-lid, the said plate projecting forwardly beyond the edge of the said box-lid and over the box-casing and provided with a downwardly-projecting extension carrying a projection or pin adapted to engage the lock-casing, the said extension normally resting in front of the lock-casing when the box is closed, whereby to conceal the lock-opening and the movable pins, and the said extension being cut out at one side to leave the keyhole of the said lock-casing exposed.

8. A detachable locking device for cigar or other boxes or receptacles, comprising a lock-casing, provided with movable projections or insertible devices adapted to engage the box whereby to be manually affixed thereto; in combination with a member or device adapted to be connected with the said lock-casing and so formed as to project over and engage the lid of the box when so connected to the lock-casing and being further formed and adapted to cover the manually-insertible devices when the device is locked and permit access to them when the device is unlocked.

679,031. POWER-PRESS. GEORGE A. OHL, Sr., GEORGE A. OHL, Jr., FREDERICK W. THEBERATH, and AUGUST A. BERGDOF, Newark, N. J., assignors to George A. Ohl & Co., of New Jersey. Filed Mar. 5, 1901. Serial No. 49,927. (No model.)



Claim.—1. In a power-press, the combination, with the main driving-shaft, the slide or hammer supporting shaft, and the slide or hammer, of a pair of eccentrics on said slide or hammer supporting shaft, a means of pivotal connection on said slide or hammer, consisting, of curved recessed parts 81 in the upper edge of the hammer, and perforated lugs 83 adjacent to the said perforated parts 81, provided with pins 82, and a pitman between each eccentric and said means of pivotal connection, provided with right and left screw-threads, a knuckle on the lower screw portion of each pitman, each knuckle being pivotally secured on a pin 82 and having a curved part snugly fitted into the curved recessed parts 81 between said lugs 83, and means for causing the rotation of said pitmen for adjustment of the slide or hammer, substantially as and for the purposes set forth.

2. In a power-press, the combination, with the main driving-shaft, the slide or hammer supporting shaft, and the slide or hammer, of eccentrics on said slide or hammer supporting shaft, a means of pivotal connection on said slide or hammer, a pitman between each eccentric and said means of pivotal connection, provided with right and left screw-threads, and means for causing the rotation of said pitmen for adjustment of the slide or hammer, comprising, a bevel-gear fixed on each pitman, a spider-frame provided with bearings on the hub of each bevel-gear, a shaft 113 rotatably arranged in said bearings, bevel-pinions at the ends of said shaft in mesh with said bevel-gears, a toothed wheel on said shaft, and a "frog-motion" adapted to be brought in engagement with said toothed wheel for producing the reverse rotations of said shaft and the said pitmen, substantially as and for the purposes set fortl.

3. In a power-press, the combination, with the main driving-shaft, the slide or hammer supporting shaft, and the slide or hammer, of eccentrics on said slide or hammer supporting shaft, a means of pivotal connection on said slide or hammer, a pitman between each eccentric and said means of pivotal connection, provided with right and left screw-threads, means for causing the rotation of said pitmen for adjustment of the slide or hammer, comprising, a bevel-gear fixed on each pitman, a spider-frame provided with bearings on the hub of each bevel-gear, a shaft 113 rotatably arranged in said bearings, bevel-pinions at the ends of said shaft in mesh with said bevel-gears, a toothed wheel on said shaft, a shaft 99 also rotatably arranged in bearings of said spider-frames, a "frog-motion" on said shaft 99, means for operating said motion for its engagement with the toothed wheel on said shaft 113, to produce the reverse rotations of said shaft 113 and of said pitmen, and means for operating said shaft 99, substantially as and for the purposes set forth.

4. In a power-press, the combination, with the main driving-shaft, the slide or hammer supporting shaft, and the slide or hammer, of eccentrics on said slide or hammer supporting shaft, a means of pivotal connection on said slide or hammer, a pitman between each eccentric and said means of pivotal connection, provided with right and left screw-threads, means for causing the rotation of said pitmen for adjustment of the slide or hammer, comprising a bevel-gear fixed on each pitman, a spider-frame provided with bearings on the hub of each bevel-gear, a shaft 113 rotatably arranged in said bearings, bevel-pinions at the ends of said shaft in mesh with said bevel-gears, a toothed wheel on said shaft, a shaft 99 also rotatably arranged in bearings of said spider-frames, a "frog-motion" on said shaft 99, means for operating said motion for its engagement with the toothed wheel on said shaft 113, to produce the reverse rotations of said shaft 113 and said pitmen and means for operating said shaft 99, consisting, essentially, of a friction-clutch on the main driving-shaft, means for actuating said friction-clutch, and a driving means between said friction-clutch and the shaft 99, substantially as and for the purposes set forth.

5. In a power-press, the combination, with the main driving-shaft, the slide or hammer supporting shaft, and the slide or hammer, of eccentrics on said slide or hammer supporting shaft, a means of pivotal connection on said slide or hammer, a pitman between each eccentric and said means of pivotal connection, provided with right and left screw-threads, means for causing the rotation of said pitmen for adjustment of the slide or hammer, comprising a bevel-gear fixed on each pitman, a spider-frame provided with bearings on the hub of each bevel-gear, a shaft 113 rotatably arranged in said bearings, bevel-pinions at the ends of said shaft in mesh with said bevel-gears, a toothed wheel on said shaft, a shaft 99 also rotatably arranged in bearings on said spider-frames, a "frog-motion" on said shaft 99, means for operating said motion for its engagement with the toothed wheel on said shaft 113, to produce the reverse rotations of said shaft 113 and said pitmen, and means for operating said shaft 99, consisting, essentially, of a friction-clutch comprising a pulley 84 and a slide-collar 85 both on the main driving-shaft, a hand-lever 86, and operating-links between said lever and the slide-collar for actuating the said collar, a shaft 94, a pulley 95 thereon, and a belt arranged over said pulleys 84 and 95, a second pulley 96 on said shaft 94, a pulley 98 on said shaft 99, and a belt passing over said pulleys 96 and 98, substantially as and for the purposes set forth.

6. In a power-press, the combination, with the slide or hammer supporting shaft and a slide or hammer, curved recessed parts 81 in the upper edge of said hammer, and perforated lugs adjacent to said parts 81, provided with pins 82, of a means of suspension between said shaft and said curved recessed parts 81 and said lugs 82 on the slide or hammer, consisting, essentially, of a pitman having right and left screw-threads, and a knuckle on one of said screw-threads, said knuckle having a curved part snugly fitted in one of said curved recessed parts 81 and being secured on one of said pins 82, a bevel-gear 76 on said pitman, a bevel-pinion 114 in mesh with said gear 76, and means for causing the reverse rotations of said bevel-pinion 114, substantially as and for the purposes set forth.

7. In a power-press, the combination, with the slide or hammer supporting shaft and a slide or hammer, of a means of suspension between said shaft and said slide or hammer, consisting, essentially, of a pitman

having right and left screw-threads, a bevel-gear 76 thereon, a bevel-pinion 114 in mesh with said gear 76, and means for causing the reverse rotations of said bevel-pinion 114, consisting, essentially, of a shaft 113, a gear 115 on said shaft, and a "frog-motion" in mesh with said gear 115, substantially as and for the purposes set forth.

8. In a power-press, the combination, with the slide or hammer supporting shaft and a slide or hammer, of a means of suspension between said shaft and said slide or hammer, consisting, essentially, of a pair of pitmen having right and left screw-threads, bevel-gears 76 on said pitmen, each gear having a flanged hub, a spider 101 on one hub of one gear, and a spider 102 on the hub of the other gear, means between said spiders to prevent their turning with said gears, said spiders having bearings, a shaft 113 in some of said bearings, a bevel-pinion 114 at each end of said shaft 113, a gear 115, a shaft 99 in other bearings of said spiders, a member 121 on said spider 101, provided with holes or perforations, a plate 119 on said shaft 99, means connected with said plate 119 adapted to be brought in engagement with the holes or perforations in said member 121, and gears 116, 117 and 118 on said plate 119, all arranged substantially as and for the purposes set forth.

9. In a power-press, the combination, with the main driving-shaft, the slide or hammer, and means for causing reciprocatory movements of said slide or hammer, of means for actuating said main driving-shaft, consisting, of a friction device and its clutch, a slide-collar 42 on said shaft, and means for actuating said slide-collar, consisting, essentially, of a foot-treadle, a cross-rod 45, a link 47, a connecting-rod 48, an arm 51, and an arm 55 having a yoke-shaped end in engagement with said slide-collar, substantially as and for the purposes set forth.

10. In a power-press, the combination, with the main driving-shaft, the slide or hammer, and means for causing reciprocatory movements of said slide or hammer, of means for actuating said main driving-shaft, consisting, of a friction device and its clutch, a slide-collar 42 on said shaft, and means for actuating said slide-collar, consisting, essentially, of a foot-treadle, a cross-rod 45, a link 47, a connecting-rod 48, an arm 51, and an arm 55 having a yoke-shaped end in engagement with said slide-collar, and a friction-brake on said shaft, and means for releasing said friction-brake simultaneously with the actuation of said friction-clutch, consisting, of a member 53 of said arm 51, a brake-shoe, and a cam-shaped link 63 arranged between said brake-shoe and the free end of said member 53, substantially as and for the purposes set forth.

11. In a power-press, the combination, with the side frames or housings, and a top piece 5, of bearings on said top piece, a slide or hammer supporting shaft in said bearings, and a downwardly-extending member 84 on said top piece adapted to embrace a portion of said shaft, substantially as and for the purposes set forth.

12. In a power-press, the combination, with the slide or hammer supporting shaft and the slide or hammer, of a means of suspension for the slide or hammer from said shaft, consisting, of a pair of pitmen, means for connecting said pitmen to said shaft, and means for pivotally connecting the lower ends of the pitmen to said slide or hammer, comprising, the pitman-straps 79 having their lower curved portions fitted in correspondingly-shaped recesses 81 in the upper edge of the slide or hammer, perforated lugs on said slide or hammer, and pins in said lugs upon which said straps 79 are pivotally arranged, substantially as and for the purposes set forth.

13. In a power-press, the combination, with a reciprocating slide or hammer, provided with ribs, and depressions on opposite sides of said ribs, a post on each side of said ribs, a latch pivotally arranged on each post, and means at the upper ends of said latches above the points of support of said latches, arranged to spread said upper ends and causing the lower ends to grasp the opposite sides of a die, and immovably lock said lower ends in their grasping positions on opposite sides of the die, substantially as and for the purposes set forth.

14. In a power-press, the combination, with a reciprocating slide or hammer, provided with ribs, and depressions on opposite sides of said ribs, a post on each side of said ribs, a latch pivotally arranged on each post, and means at the upper ends of said latches for causing them to grasp the opposite sides of a die, consisting, of a pin or spindle rotatively arranged in a bearing in each rib, having right and left screw-threads, and nuts on said threads pivotally connected with the upper end of each latch, substantially as and for the purposes set forth.

15. In a power-press, the combination, with a reciprocating slide or hammer, provided with ribs, and depressions on opposite sides of said ribs, a post on each side of said ribs, a latch pivotally arranged on each post, and means at the upper ends of said latches for causing them to grasp the opposite sides of a die, consisting, of a pin or spindle rotatively arranged in a bearing in each rib, having right and left screw-threads, an upwardly-extending finger on each latch, provided with a bearing, a screw-pin in said bearing, and a nut 30 on each screw-pin, and a nut 29 on each screw-pin screwed upon the threaded portions of said pin or spindle, substantially as and for the purposes set forth.

16. In a power-press, the combination, with a reciprocating slide or hammer, provided with ribs, and depressions on opposite sides of said ribs, a post on each side of said ribs, a latch pivotally arranged on each post, and means at the upper ends of said latches for causing them to grasp the opposite sides of a die, consisting, of a pin or spindle rotatively arranged in a bearing in each rib, having right and left screw-threads, an upwardly-extending finger on each latch, provided with a bearing, a screw-pin in said bearing, a nut 30 on said screw-pin, and a nut 29 on said screw-pin screwed upon the threaded portions of said pin or spindle, and means connected with each pin or spindle for preventing the longitudinal displacement of said pins or spindles, consisting, of slotted plates 20 fitted over grooved portions in said pins or spindles, substantially as and for the purposes set forth.

17. In a power-press, the combination, with a reciprocating slide or hammer, of a pair of oppositely-placed holding-latches arranged in depressions on opposite sides of a rib in said slide or hammer, a pin or spindle rotatively arranged in a bearing in said rib, for operating said latches, said pin having a limited movement longitudinally in said bearing, and means for limiting said movement in a longitudinal direction, substantially as and for the purposes set forth.

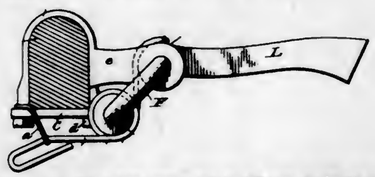
18. In a power-press, the combination, with a reciprocating slide or hammer, of a pair of oppositely-placed holding-latches arranged in depressions on opposite sides of a rib in said slide or hammer, a pin or spindle rotatively arranged in a bearing in said rib, for operating said latches, said pin having a limited movement longitudinally in said bearing, and means for limiting said longitudinal movement of said pin or spindle, consisting, of an annular groove in said pin or spindle, and a plate 20 secured to said rib having a slotted portion arranged in said groove and over said pin or spindle, substantially as and for the purposes set forth.

19. In a power-press, the combination, with a reciprocating slide or hammer provided with a perforated rib, of a holding-latch, a spindle rotatively arranged in the perforation in said rib for operating said latch, said pin also having a limited sliding movement longitudinally in said perforation, substantially as and for the purposes set forth.

20. In a power-press, the combination, with a reciprocating slide or hammer, of a holding-latch a rotatively-arranged pin or spindle for operating said latch, said pin being arranged in a bearing in said slide or hammer, and having a limited movement longitudinally in said bearing, and means for limiting said movement in a longitudinal direction, substantially as and for the purposes set forth.

21. In a power-press, the combination, with the bed of the press, the slide or hammer, and dies, of a housing having openings therein, through which the die or the work thereon can be removed, substantially as and for the purposes set forth.

679,032. THILL-COUPLING. JOHN H. OSBORNE, Anderson, Ind. Filed Nov. 26, 1900. Serial No. 37,788. (No model.)



Claim.—1. The J-form securing-bolt for thill-irons, having the channeled disk bearing secured to its short branch, substantially as specified.

2. The J-form securing-bolt for thill-irons, having a spirally-channeled disk bearing secured to its short end, substantially as specified.

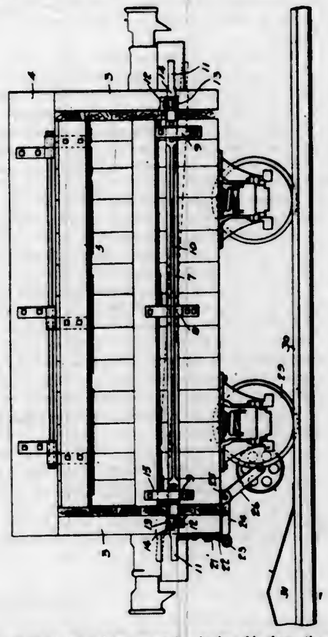
3. The combination with the securing-bolt, having a short branch provided with a channeled disk, of a spring having an antirattler-tongue, and a locking wire or bail, substantially as specified.

4. The quick-shift antirattler device consisting of the securing-bolt having a spirally-channeled disk on its short branch, the antirattler-spring having the middle tongue bend, the lateral coils and rear extensions, and the transverse wire bail or lock, substantially as specified.

679,033. ORE OR GRAVEL CAR. FRANCIS PETELER, Minneapolis, Minn. Filed Feb. 21, 1901. Serial No. 48,232. (No model.)

Claim.—1. The combination, with a car having swinging doors adapted to be opened by the pressure of the material in the car, of vertically-operating means extending lengthwise of said doors for locking them in their closed position, and a device adapted to be automatically actuated when the car is moving in either direction to operate said locking means and release said doors, substantially as described.

2. The combination, with a car and the outwardly-swinging doors provided thereon adapted to be opened by the pressure of the material in the car, of means for normally locking said doors in a closed position, and tilting means suspended between the wheels and adapted to be actuated by an obstruction on the track to automatically operate said locking means and release said doors, substantially as described.



3. The combination, with a car and swinging side doors thereon, of locking means provided on said doors, a tilting device suspended above the track between the rails and adapted to be actuated by an obstruction thereon when the car is moving, in either direction, and suitable means interposed between said tilting device and said locking means, whereby movement of the former will operate the latter to release said doors simultaneously, substantially as described.

4. The combination, with a car and the swinging side doors thereon, of means for locking said doors in a closed position, a tilting device suspended between the rails beneath the car, an adjustable block also provided between the rails and adapted to engage said tilting device to actuate the same when the car is moving in either direction, and suitable means interposed between said tilting device and said locking means, whereby the movement of the former will operate the latter to release said doors simultaneously.

5. The combination, with a car and the swinging doors thereon, of means for locking said doors in a closed position, a tilting device suspended beneath the car, an adjustable block provided between the track-rails, means for locking said block in any desired position on the track, and suitable means interposed between said tilting device and said locking means, whereby movement of said tilting device upon its engagement with said block will operate said locking means.

6. The combination, with a car and the swinging doors thereon, of levers 7 pivoted on said doors and having a vertical swinging movement thereon, brackets 12 provided on said car and antifriction-rollers mounted in said brackets and adapted to engage said levers, and between which and said car said levers are held when the doors are locked, substantially as described.

7. The combination, with a car and the swinging doors thereon, of locking-levers 7 pivoted on said doors, antifriction-rollers mounted on said car between which and the car-frame said levers are vertically movable, and said levers being adapted to move past the centers of said rollers when in their locked position, for the purpose specified.

8. The combination, with a car and the swinging doors thereon, of pivoted locking-levers provided on said doors, antifriction-rolls between which and the car said levers are adapted to move vertically, bell-crank levers provided on said car and adapted to engage said locking-levers and move the same vertically past said antifriction-rolls, a tilting device provided beneath the car, a block or obstruction adjustably arranged on the track in position to engage and actuate said tilting device, and operative connections provided between said tilting device and said bell-crank levers, whereby movement of the former will actuate the latter to operate said levers and release said doors.

9. The combination, with a car and the outwardly-swinging side doors thereon, of means for locking said doors in their closed position, a lever 24 pivotally suspended near its center beneath said car, a wheel 27 pivoted near one end of said lever, an adjustable block provided between the track-rails in position to be engaged by said wheel to tilt said lever when the car is moving in either direction, and operative connections interposed between the opposite end of said tilting lever and said locking means, whereby when said lever is actuated said locking means will be operated to unlock the car-doors, substantially as described.

10. The combination, with a car and the swinging doors thereon, of means for locking said doors in a closed position, a tilting device for operating said locking means provided on the car between the wheels, operative connections provided between said tilting device and said locking means, an adjustable obstacle having a double incline provided between the track-rails, means for locking said obstacle in any desired position, and said obstacle being adapted to engage said tilting device and actuate the same to operate said locking means and release said doors, substantially as described.

11. The combination, with a car and an outwardly-swinging door thereon, of an oscillating locking-lever for said door, and an antifriction-roller mounted on the car and between which and the car said lever is held when in its locked position.

12. The combination, with a car and the swinging doors thereon, of oscillating locking-levers for said doors, antifriction-rollers between which and the car-frame said levers are movable and said levers being adapted to move past the centers of said rollers to assume their locked position, for the purpose specified.

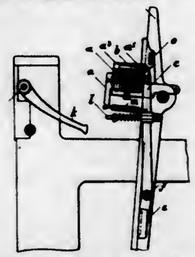
13. The combination, with a car having swinging doors adapted to be opened by the pressure of the material in the car, of means for locking said doors when closed, an oscillating lever device, a wheel carried thereby, operative connections provided between said lever device and said locking means and an obstacle having a double incline adapted to be placed in the path of said wheel to oscillate said lever when the car is moving in either direction.

14. The combination, with a block having a double incline, of bars having end notches to engage the rail-base on one side of the track, and a clamp device provided on said bars and adapted to engage the base of the opposite rail, for the purpose specified.

15. The combination, with a block having a double incline, the angle-bars 34 secured thereon and engaging the rail-base on one side of the track, an extension 35 provided on said bars and having a slot 36, and a clamp device adjustable in said slot and between which and said extension 35 the base of the opposite rail is held, for the purpose specified.

16. The combination, with a block having a double incline, of bars engaging the rail-base on one side of the track, and an adjustable device provided on said bars to engage the base of the opposite rail whereby said block is rendered laterally adjustable, for the purpose specified.

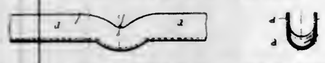
679,034. THREAD-PARTER FOR WEFT-REPLENISHING LOOMS. JULIUS PETER, Rüti, Switzerland, assignor to the Maschinenfabrik Rüti, vormals Caspar Honegger, same place. Filed Sept. 22, 1900. Serial No. 30,841. (No model.)



Claim.—1. In combination in a loom, the lay, a knife-blade carried thereby in horizontal position, a second knife-blade arranged to stand normally upright and means for turning the said knife into a horizontal position beside the first knife and for then moving the same longitudinally, substantially as described.

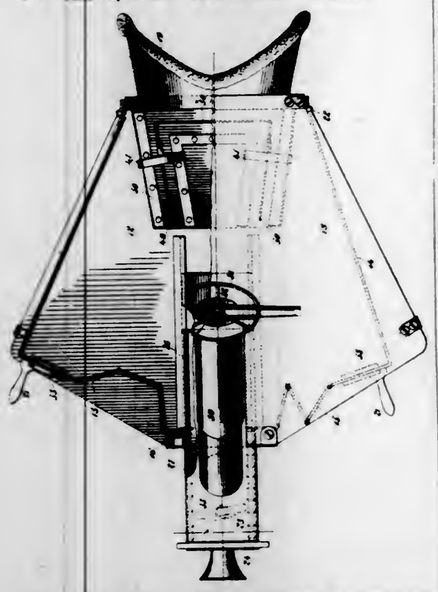
2. In combination, in a loom, the lay, having a horizontally-disposed knife-blade, a second blade extending upwardly therefrom when in inactive position, a pin and slot forming a pivotal connection for said knife-blade and a lever connected with the knife-blade and arranged to move the same down into horizontal position and then longitudinally, substantially as described.

679,035. **UMBRELLA-RIB.** DANIEL H. REDMOND, Philadelphia, Pa. Filed Aug. 7, 1900. Serial No. 26,122. (No model.)



Claim.—A rib having a depression at the point of attachment of the stretcher thereto, the cross-sectional contour of the rib at the depression being substantially the same as the cross-sectional contour of the rib at the side of the depression, substantially as described.

679,036. **OPHTHALMOSCOPE.** ELMER LE ROY RYER, New York, N. Y. Filed May 14, 1901. Serial No. 60,147. (No model.)



Claim.—1. In an instrument for the examination of the eyes, a suitable support, and the casing adapted at its inner end for the operator and at its outer end for the eye to be examined, combined with the objective lens adjacent to the outer end of said casing, the lens and apertured mirror adjacent to the inner end of said casing, and means for supplying light to said mirror for reflection to the eye under examination; substantially as set forth.

2. In an instrument for the examination of the eyes, a suitable support, the casing having at its inner end an adjustable section adapted for the operator and containing the lens and apertured mirror, and light-supply means for coöperation with said mirror, said lens being mounted on a free bearing so that the operator may incline or move the same as may be required, combined with the objective lens adjacent to the outer end of the casing, the shield at the outer end of the casing for the eye to be examined, and means for adjusting said objective lens toward and from said eye; substantially as set forth.

3. In an instrument for the examination of the eyes, the casing adapted at its inner end for the operator and at its outer end for both eyes of the patient, combined with the objective lens adjacent to the outer end of said casing, means for permitting the adjustment of said lens to alinement with each of said eyes and toward and from each eye, the lens and apertured mirror adjacent to the inner end of said casing, and means for supplying light to said mirror for reflection to the eye under examination; substantially as set forth.

4. In an instrument for the examination of the eyes, the casing forming a dark chamber and adapted at its inner end for the operator and at its outer end for the eye to be examined, and said chamber having a darkened window through which the eye under examination may look at a distant object, combined with the objective lens adjacent to the outer end of said casing, the lens and apertured mirror adjacent to the inner end of said casing, and means for supplying light to said mirror for reflection to the eye under examination; substantially as set forth.

5. In an instrument for the examination of the eyes, the casing forming a dark chamber and adapted at its inner end for the operator and at its outer end for the eye to be examined, and said chamber having a movable darkened window through which the eye under examination may look at a distant object and which may be moved so as to direct the turning of the eye pending its examination, combined with the objective lens adjacent to the outer end of said casing, the lens and apertured mirror adjacent to the inner end of said casing, and means for supplying light to said mirror for reflection to the eye under examination; substantially as set forth.

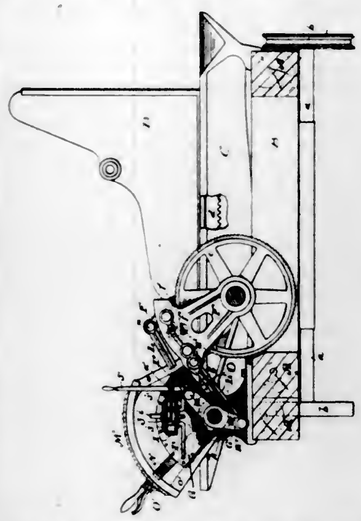
6. In an instrument for the examination of the eyes, the casing forming a dark chamber and having at its inner end an eyepiece for the operator and at its outer end a shield for the eyes of the patient, and said chamber having a darkened window at each side of the said eyepiece for the use of the patient, combined with the objective lens adjacent to the outer end of said casing, the lens and apertured mirror adjacent to the inner end of said casing, and means for supplying light to said mirror for reflection to the eye under examination; substantially as set forth.

7. In an instrument for the examination of the eyes, the casing forming a dark chamber and having an eyepiece at its inner end for the operator, the shield for the eyes of the patient at its outer end, the hinged sides, and the collapsible front end portions having the darkened windows for the use of the patient, combined with the objective lens adjacent to the outer end of said casing, the lens and apertured mirror adjacent to the inner end of said casing, and means for supplying light to said mirror for reflection to the eye under examination; substantially as set forth.

8. In an instrument for the examination of the eyes, the lens having affixed thereon the mirror containing the observation-aperture, and means for supplying light to said mirror for reflection to the eye under examination, combined with the convex lens to receive the reflected image from the eye to be examined, and a suitable support for said parts; substantially as set forth.

9. The ophthalmoscopic lens having directly secured on its outer face the mirror containing the observation-aperture; substantially as set forth.

679,037. **SAWMILL SET-WORKS.** JOHN SCHERER, Menekaunee, Wis. Filed May 11, 1900. Serial No. 16,300. (No model.)



Claim.—1. In a sawmill set-works, the combination with the traveling log-carriage, and head-block, of a longitudinally-moving knee, having a rack on its under side, an inner transverse shaft carrying a pinion for engagement with said rack; a ratchet-wheel fast on said shaft; a pair of plates loose on said shaft, carrying dogs for engagement with said ratchet-wheel; an outer transverse shaft, made in two parts, and united by couplings; a stop-lug on said couplings; a contact surface opposed to said stop-lug; a curved rack-bar; a stop-lever loose on said outer transverse shaft, and provided with means for engagement with said curved rack-bar, and a contact edge opposed to the said stop-lug; upper and lower projecting crank-arms on said outer transverse shaft; connecting-rods between said crank-arms and said dog-carrying plates; a steam-chest and an oil-chest, one disposed on each side of said curved rack-bar; an oscillating piston in each chest, each piston being keyed to said outer transverse shaft; an open-ended oil-pipe communicating with the opposite ends of the said oil-chest beyond the throw of the oscillating piston therein; a regulating-valve in said oil-pipe; a valve-casing having steam inlet and exhaust pipes, and a pair of steam-ports; open-ended steam-pipes, each communicating with one of said ports, and with one end of said steam-chest, beyond the throw of the oscillating piston therein; a lever, having pivoted thereto a valve-stem projecting through one end of said valve-casing, and a pair of valves secured to said stem, within said casing, for controlling the steam-ports therein.

2. In a sawmill set-works, the combination with the traveling log-carriage, head-block, longitudinally-moving knee having a rack on its under side, inner transverse shaft with ratchet-wheel and pinion fast thereon, and dog-carrying plates loose thereon, curved rack-bar and set-lever for engagement therewith, of an outer transverse shaft carrying crank-arms pivotally connected to said dog-carrying plates, and a pair of corresponding sector-shaped chests, one for steam and one for oil, each containing an oscillating piston, whose hub is keyed to said outer transverse shaft, said hubs having bearings in said steam and oil chests, and valved pipe connections between the opposed ends of each of said chests, beyond the throw of the oscillating pistons therein.

3. In a sawmill set-works, the combination with the traveling log-carriage; head-block; longitudinally-moving knee, having a rack on its under side; inner transverse shaft with ratchet-wheel and pinion fast thereon, and dog-carrying plates loose thereon; curved rack-bar and set-lever for engagement therewith; and an outer transverse shaft carrying crank-arms pivotally connected to said dog-carrying plates; of a sector-shaped steam-chest having an oscillating piston keyed to said outer transverse shaft, and a corresponding sector-shaped oil-chest, having a like oscillating piston keyed to said shaft, and valve-controlled pipe connections between the opposed ends of each of said chests beyond the throw of the oscillating pistons therein, and a lever, pivotally attached to the outer face of said steam-chest, and also pivotally attached to the stem of the valve in the said pipe connections between the opposed ends of the said steam-chest together with a supplemental oil-chamber supported exterior to one end of said oil-chest, and having an open pipe connection with the interior thereof, and a spring-actuated plunger for automatically forcing the oil in said supplemental chamber into the said oil-chest, to replace any oil that has escaped from the latter and insure that said oil-chest always contains the proper quantity for effective service during the operation of the set-works.

4. In a sawmill set-works, the combination with the traveling log-carriage, head-block, longitudinally-moving knee, having a rack on its under side; inner transverse shaft with ratchet-wheel and pinion fast thereon, and dog-carrying plates loose thereon; curved rack-bar and set-lever for engagement therewith; and an outer transverse shaft carrying crank-arms pivotally connected to said dog-carrying plates; of a pair of corresponding sector-shaped chests, one for steam and one for oil, each containing an oscillating piston, whose hub is keyed to said outer transverse shaft, said hubs having bearings in said steam and oil chests, and valved pipe connections between the opposed ends of each of said chests, beyond the throw of the oscillating pistons therein; a lever pivotally attached to the outer face of said steam-chest, and also pivotally attached to the stem of the valve in the said pipe connections between the opposed ends of the said steam-chest; a supplementary oil-chamber supported at one end and outside of said oil-chest, and having an open pipe, leading from the bottom of said oil-chamber to and within the adjacent lower end of said oil-chest; perforated lugs projecting outwardly from the said end of the oil-chest; a hollow close-bottomed open-topped plunger fitting within said oil-chamber, and having a central screw-threaded rod projecting up from its closed bottom; a casing, fitting within said plunger, and provided with a screw-threaded bore for the reception of said screw-threaded rod; a cross-bead; secured to said casing, and having perforations adjacent to each end; bolts passing through said perforations, and through the perforations in the said lugs, and having screw-threaded lower ends; spiral springs surrounding said bolts, below the said perforated lugs; and nuts on the lower ends of said bolts for regulating the tension of said springs.

5. In a sawmill set-works, the combination with knees and means to adjust them, of a rock-shaft connected to and actuating said knee-adjusting means and having a rock-arm, and an oscillating piston, a casing in which said piston oscillates, means to apply fluid-pressure alternately to opposite sides of said piston, a set-lever and a stop, said set-lever and stop coacting with said rock-arm to limit the strokes of the rock-shaft.

6. In a sawmill set-works, the combination with knees and means to adjust them, of a rock-shaft and fluid-pressure mechanism to oscillate the same, said rock-shaft connected to and operating said knee-adjusting means, an oscillating cushioning-piston on said rock-shaft, a segmental casing in which said cushioning-piston operates, said segmental casing being adapted to contain a cushioning fluid and having a channel to permit the passage of the fluid from one side of the cushioning-piston to the other, and means to regulate the passage of said fluid through said channel.

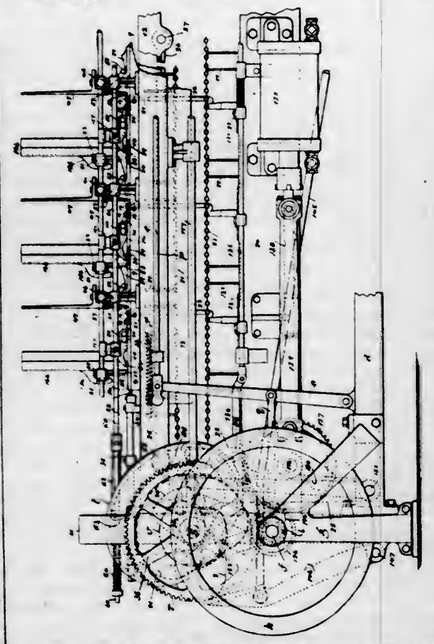
679,038. **ELASTIC-HEEL HORSESHOE.** OTTO W. SIEBENHAAR, Ladoga, Wis. Filed Nov. 21, 1900. Serial No. 37,276. (No model.)



Claim.—1. In a horseshoe, cleft members constituting the heel portion, the upper cleft member being of maximum width and provided in its inner or bottom side with a longitudinal chamber of approximately semicircular outline in cross-section and gradually contracting in transverse extent and increasing in depth from the toe toward the extremity of the heel, and the lower cleft member decreasing in width and thickness toward the extremity of the heel and formed in its top side with a longitudinal seat decreasing in depth toward the outer end of the heel and having flat faces at each side of said seat, and an elastic piece fitted between the cleft members and clamped thereby and secured from longitudinal and lateral displacement by the aforesaid longitudinal seats, substantially as set forth.

2. In a horseshoe, cleft members forming the heel portion, the upper member being of maximum width and having a longitudinal chamber in its inner or lower side of semicircular form in cross-section and gradually deepening and laterally contracting toward the extremity of the heel and flattening toward the toe, and the lower member gradually decreasing in thickness and width toward the extremity of the heel and formed in its inner or top side with a longitudinal seat having its side walls undercut and gradually decreasing in depth from an intermediate point toward the ends of said member, and having flat marginal portions at the sides of the said longitudinal seat, and an elastic piece clamped between said cleft members and forced into the longitudinal seats thereof, substantially as specified.

679,039. **MACHINE FOR GATHERING SIGNATURES.** JOSEPH R. SMITH, Pasadena, Cal. Filed Sept. 24, 1900. Serial No. 30,893. (No model.)



Claim.—1. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, of a sectional table acting in connection with the receptacles and means for reciprocating said table, pivoted atmospheric separators acting in the spaces between the table-sections, means for swinging said separators at predetermined pe-

riods, pivoted deflectors adjacent to the separators, and means for actuating said deflectors to cause them to pass between the signatures engaged by the separators and the next signatures thereto, substantially as specified.

2. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, of a table composed of sections beneath the receptacles, and means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, means for swinging said separators after the folded edges of the signatures have been drawn to the separators by atmospheric action, a pivoted deflector adjacent to each separator, and means for actuating the deflectors so that each deflector passes in between the signature carried down by the separator and the signature next above, substantially as set forth.

3. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, of a table composed of sections beneath the receptacles and means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, means for swinging said separators after the folded edges of the signatures have been drawn to the separators by atmospheric action, a pivoted deflector adjacent to each separator, and means for actuating the deflectors so that they are moved forward and swung upward upon their pivots in advance of the movement given to the reciprocating table, substantially as set forth.

4. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, of a table composed of sections beneath the receptacles and means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, means for swinging said separators after the folded edges of the signatures have been drawn to the separators by atmospheric action, a pivoted deflector adjacent to each separator, and means for actuating the deflectors so that they are moved forward and swung upward upon their pivots and then carried forward with the reciprocating table, substantially as specified.

5. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, of a table composed of sections beneath the receptacles and means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, means for swinging said separators after the folded edges of the signatures have been drawn to the separators by atmospheric action, a pivoted deflector adjacent to each separator and means for actuating the deflectors so that they are moved forward and swung upward upon their pivots and then carried forward with the table and arrested and swung down before the table reaches the end of its forward movement, substantially as specified.

6. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, of a table composed of sections beneath the receptacles and means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, means for swinging said separators after the folded edges of the signatures have been drawn to the separators by atmospheric action, a pivoted deflector adjacent to each separator, and means for actuating the deflectors so that they are moved forward and swung upward upon their pivots and then carried forward with the table and arrested and swung down, and then swung upward again upon the return movement of the table, substantially as specified.

7. The combination in a signature-gatherer with a range of receptacles for holding the piles of signatures, a table composed of sections beneath the receptacles, means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, and means for actuating said separators, of a deflector adjacent to each separator, crossbars to which the deflectors are pivoted, a pull-bar to which the crossbars are connected, inclines upon the table for raising and lowering the deflectors, and means for actuating the pull-bar, substantially as set forth.

8. The combination in a signature-gatherer, with a range of receptacles for holding the piles of signatures, a table composed of sections beneath the receptacles, means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, and means for actuating said separators, of a deflector adjacent to each separator, crossbars to which the separators are pivoted, a pull-bar to which the crossbars are connected, inclines upon the table for raising and lowering the deflector, a stop upon the pull-bar, a spring acting to move the pull-bar in one direction and a cam and lever for moving the pull-bar in the other direction, substantially as set forth.

9. The combination in a signature-gathering machine, with a range of signature-receptacles, a reciprocating table beneath the receptacles, means for reciprocating said table, pivoted atmospheric separators between one section and the next, and means for actuating said separators, of a plate 15 at each table-section adapted to be moved lengthwise of the table so that the edge of said plate may be brought nearer to or farther from the line of the pivots of the separator, and means for clamping said plate to the table, substantially as set forth.

10. The combination in a signature-gathering machine, with a range of signature-receptacles, a reciprocating table beneath the receptacles, means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, and means for actuating said separators, of an adjustable plate 15 at each table-section, means for clamping said plate to the table at the desired place, the hinged plate 54 and the plates 156 secured to said table and with their outer ends on line with the pivots of the separator, substantially as set forth.

11. The combination in a signature-gatherer, with a range of signature-receptacles, a reciprocating table beneath the receptacles, means for reciprocating said table, pivoted atmospheric separators between one table-section and the next, and an arm upon each separator, of grooved cam-plates to act upon the arms of the separators and raise and lower them, a slide-rod to which said cam-plates are adjustably secured, and means for moving said slide-rod, substantially as set forth.

12. The combination in a signature-gatherer, with a range of signature-receptacles, a reciprocating table beneath the receptacles, means for reciprocating said table pivoted atmospheric separators between one table-section and the next, and an arm upon each separator, of grooved cam-plates to act upon the arms of the separators to raise and lower them, a slide-rod to which said cam-plates are adjustably secured, a spring around said rod for moving the same in one direction, and a cam, lever and link for moving said rod in the other direction, substantially as set forth.

13. The combination in a signature-gatherer, with a table and means for reciprocating the same, of front and back stops forming the front and back partitions of the signature-receptacle, means for supporting said front and back stops, a shaft fitted to turn in each pair of said front stops, hooks connected to said shaft and adapted to support the folded-back edges of the pile of signatures between said stops, a spring around said shaft tending to press the fingers between said signatures, an arm at the end of said shaft, and an incline on the table to take against said arm and move the hooks away from the signatures, substantially as set forth.

14. The combination in a signature-gatherer, with a table and means for reciprocating the same, of the front stops and their supports, horizontal rods fitted to slide in said supports, the supporting back-stop bars clamped to said rods, back stops secured to said back-stop bars, and means for moving said rods to adjust all the back stops simultaneously, substantially as set forth.

15. The combination in a signature-gatherer, with a table and means for reciprocating the same, of the front stops and their supports, horizontal rods fitted to slide in said supports, the supporting back-stop bars clamped to said rods, back stops secured to said back-stop bars, a cross-head to which said rods are secured, guide-bars for said cross-head, a support for said guide-bars, and a screw-rod for moving said cross-head, substantially as set forth.

16. The combination in a signature-gatherer, with a table and means for reciprocating the same, of the front stops and their supports, horizontal rods fitted to slide in said supports, the back-stop bar supported by said rods and having teeth upon one side of said bar, back stops secured to said back-stop bar, and the angle-pieces having fingers thereon to set over said back-stop bar and pass between the teeth, substantially as set forth.

17. The combination in a signature-gatherer, with a table and means for reciprocating the same, atmospheric separators each pivoted to the table between one section and the next, a pivoted deflector adjacent to each separator and means for swinging the separators and deflectors, of the front and back stops and means for supporting the same, and hinged plates attached to the back stops that drop vertically when the table is near the end of its forward movement, substantially as set forth.

18. In a signature-gatherer, the combination with means for supporting the signatures and delivering them upon a signature-slide, of a signature-slide composed of a central stationary bar and two movable bars, a shaft for supporting said bars, said shaft having right and left hand screw-threads thereon, supports for the ends of said shaft and a bearing for the shaft at the central bar, and nuts for said screw-shaft upon the under side of the movable bars, so that by turning said shaft the movable bars are brought nearer to or farther from the central bar according to the direction of turning said screw-shaft, substantially as set forth.

19. In a signature-gatherer, the combination with two ranges of devices for supporting the signatures and delivering them upon two signature-slides, of a signature-slide beneath each range of supporting and delivering devices, each slide being composed of a stationary central bar and two movable bars, screw-shafts extending across beneath said signature-slides, each shaft having right and left hand screw-threads, bearings for the ends of each shaft and bearings at the central bars also, nuts upon the under side of said movable bars to receive the screw-threaded portions of said shafts, sprocket-wheels upon said shafts, and an endless chain passing around said sprocket-wheels, so that when either shaft is rotated the other shaft is rotated also and all the signature-slides adjusted simultaneously, substantially as set forth.

20. In a machine for gathering signatures, the combination with two ranges of devices for supporting the signatures and delivering them upon two signature-slides, of a signature-slide beneath each range of supporting and delivering devices, each slide being composed of a central bar and two movable bars, a screw-shaft extending across beneath said signature-slides and supported at its ends, said shaft having right and left hand screw-threads for each signature-slide, bearings for said shaft at the central bars, and nuts upon the movable bars for receiving the screw-threaded portions of said shaft, so that by turning said shaft both signature-slides are adjusted, substantially as set forth.

21. In a machine for gathering signatures, the combination with means for supporting and delivering the signatures, a signature-slide upon which the signatures fall, and an endless chain and pushers for conveying the signatures progressively along said slide, of a shaft supported above and transversely of the signature-slide, fingers connected to said shaft for detaining the signatures and bringing the advancing edges of the signatures in line before they pass off the signature-slide, and means for actuating said fingers, substantially as set forth.

22. In a machine for gathering signatures, the combination with means for supporting and delivering the signatures, a signature-slide upon which the signatures fall, an endless chain and pushers for conveying the signatures progressively along said slide, of a shaft supported above and transversely of the signature-slide, fingers connected to said shaft for detaining the signatures and bringing the advancing edges of the signatures in line before they pass off the signature-slide, bearings for said shaft, a rod connected to an arm on said shaft, a shaft and cam for actuating said rod, and a spring to force the fingers toward the advancing pile of signatures, substantially as set forth.

23. The combination in a signature-gathering machine with the signature-slide, the endless chain for conveying the signatures along said slide, and sprocket-wheels around which said endless chain passes, of two loose bevel-gears, a continuously-rotating shaft passing through the same and to one of which gears one of said sprocket-wheels is keyed, a bevel-pinion meshing with said bevel-gears, a collar secured to said shaft, a pivot-stud secured to said collar and upon which said bevel-pinion rotates, means for holding one bevel-gear stationary during one half-revolution of said continuously-revolving shaft to set the chain in motion and means for releasing said wheel to stop the chain, whereby said endless chain is stationary during one half-revolution of said shaft and is moving during the other half-revolution of said shaft, substantially as set forth.

24. The combination in a signature-gathering machine, with the signature-slide, an endless chain for conveying the signatures along said slide and sprocket-wheels around which said endless chain passes, of two bevel-gears, a continuously-rotating shaft upon which said bevel-gears are loosely mounted and to one of which gears one of said sprocket-wheels is keyed, a bevel-pinion meshing with said bevel-wheels, a collar secured to said shaft, a pivot-stud secured to said collar and upon which stud said bevel-pinion rotates, a tooth 90 upon the bevel-gear 84, a pendent pawl 91, and a finger 93 upon said pawl and in the path of the projecting end of the stud of the bevel-pinion, substantially as and for the purposes set forth.

25. The combination in a machine for gathering signatures, having two horizontal ranges of signature-gathering appliances, with transverse troughs into which the gathered signatures are passed, an endless chain and pushers for moving along the signatures in said troughs, and sprocket-wheels around which said chain passes, of a pinion fixed to a shaft upon which one of said sprocket-wheels rotates, a tooth upon the hub of said pinion, a spring-bolt in the hub of said sprocket-wheel, and means for rotating said pinion first in one direction and then in the other, substantially as set forth.

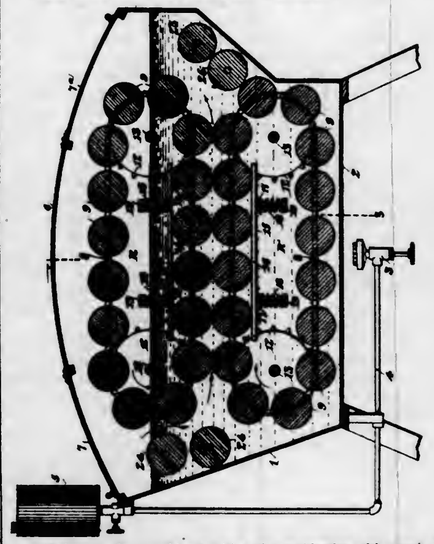
26. The combination in a machine for gathering signatures, having two horizontal ranges of signature-gathering appliances, with transverse troughs into which the gathered signatures are passed, an endless chain and pushers for moving along the signatures in said troughs, and sprocket-wheels around which said chain passes, of a pinion, a stud carrying said pinion and upon which one of said sprocket-wheels rotates, a tooth upon the hub of said pinion, a spring-bolt in the hub of said sprocket-wheel, a rack engaging said pinion, a gear-wheel and means for rotating the same, and a rod connected to said gear-wheel and rack for giving an up-and-down movement to said rack and rotating said pinion in opposite directions, substantially as set forth.

27. In a machine for gathering signatures a receiving-trough into which the gathered signatures are assembled in volumes, consisting of a back portion 122, a support for the same, a bottom portion hinged at one end and free at the other end, and a latch-bar for holding said bottom in place, in combination with a pusher for moving the volumes along in said trough, said pusher and the bottom of the trough being slotted to allow of said bottom being adjusted, substantially as set forth.

28. The combination in a machine for gathering signatures, with a range of receptacles for holding the piles of signatures, a reciprocating table beneath said receptacles, atmospheric separators for drawing downward the folded-back edges of the signatures and means for swinging said separators, of a cam and its shaft for reciprocating said table, said cam having a curved projecting portion for giving a short quick forward-and-backward movement to said table before commencing to give the regular backward movement to said table, substantially as set forth.

29. The combination in a signature-gatherer, with the signature-receptacles, reciprocating table, separators and deflectors applied to said table and means for actuating said separators and deflectors, of a cam for actuating said table, a shaft for said cam, a pivoted lever upon which said cam acts, and a rod connected at one end to said lever and at the other end to said table, said lever having a number of holes arranged lengthwise of said lever so that said rod can be connected to said lever nearer to or farther from the pivot of said lever to regulate the movement given to the table, substantially as set forth.

679,040. **WASHING-MACHINE.** JOSEPH G SOHN, Compton, Cal. Filed Oct. 16, 1900. Serial No. 33,272. (No model.)



Claim.—1. In a washing-machine, the combination with a tank or vessel, of duplicate and coextensive upper and lower endless traveling rubbers, each consisting of an endless series of revoluble rollers, oppositely-acting yielding presser-platforms bearing against the inactive sides of the adjoining runs of the rubbers, and means for imparting positive motion to both rubbers.

2. In a washing-machine, the combination with the tank or vessel, of a pair of duplicate upper and lower endless traveling rubbers, and spring-supported presser-platforms arranged to bear respectively upon the lower run of the upper rubber, and under the upper run of the lower rubber, substantially as set forth.

679,041. **ELECTRICAL SPARKING DEVICE FOR EXPLOSIVE-ENGINES.** RICHARD VARLEY, Jr., Jersey City, N. J. Filed Oct. 5, 1900. Serial No. 32,127. (No model.)



Claim.—1. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means embodying juxtaposed insulating elements the meeting faces of which engage said conductors, and form therewith a tight joint.

2. An electrical sparking device embodying a pair of separated flat conducting-strips having terminals separated by a spark-gap, and insulating means embodying complementary insulating elements between which said conducting-strips are positioned, and forming with said strips a tight joint.

3. An electrical sparking device embodying a pair of separated strips of conducting-foil having terminals separated by a spark-gap, and insulating means embodying juxtaposed insulating elements the meeting faces of which engage said strips of foil, and form therewith a tight joint.

4. An electrical sparking device embodying a pair of separated strips of platinum foil having terminals separated by a spark-gap, and insulat-

ing means embodying juxtaposed insulating elements the meeting faces of which engage said strips of foil, and form therewith a tight joint.

5. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means having complementary curved surfaces between which said conductors are positioned, and with which they form a tight joint.

6. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means having complementary surfaces substantially circular in cross-section between which said conductors are positioned, and with which they form a tight joint.

7. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means having complementary conical surfaces between which said conductors are positioned, and with which they form a tight joint.

8. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means having complementary wedging surfaces between which said conductors are wedged in position, and with which they form a tight joint.

9. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means having complementary tapered insulating members between which said conductors are wedged in position, and with which they form a tight joint.

10. An electrical sparking device embodying a pair of separated conductors having terminals separated by a spark-gap, and insulating means having complementary tapered insulating-shells between which said conductors are wedged in position, and with which they form a tight joint.

11. An electrical sparking device embodying a pair of separated strips of conducting-foil having terminals separated by a spark-gap, and insulating means having complementary wedging-surfaces between which said strips of conducting-foil are wedged in position, and with which they form a tight joint.

12. An electrical sparking device embodying a pair of separated strips of platinum foil having terminals separated by a spark-gap, and insulating means embodying complementary conical insulating-shells between which said strips of foil are wedged in position, and with which they form a tight joint.

13. An electrical sparking device embodying a pair of oppositely-disposed strips of platinum foil having terminals separated by a spark-gap and insulating means embodying juxtaposed insulating elements the meeting faces of which engage said strips of foil and form therewith a tight joint.

14. In an electrical sparking device, the combination, with a body having a tapered bore, of a pair of correspondingly-tapered complementary insulating members mounted in said bore, and a pair of separated electrical conductors disposed between said insulating members and having terminals separated by a spark-gap.

15. In an electrical sparking device, the combination, with a body having a tapered bore, of a pair of correspondingly-tapered complementary insulating members mounted in said bore; means for wedging said insulating members together; and a pair of separated electrical conductors disposed between said insulating members and having terminals separated by a spark-gap.

16. In an electrical sparking device, the combination, with a body having a tapered bore, of a pair of correspondingly-tapered nested insulating-shells mounted in said bore; a tapered core in the inner shell for wedging said shells together; and a pair of separated electrical conductors disposed between said insulating-shells and having terminals separated by a spark-gap.

17. In an electrical sparking device, the combination, with a core, of insulating means surrounding said core and embodying juxtaposed solid insulating layers, and a pair of separated electrical conductors disposed between said insulating layers and forming therewith a tight joint and having terminals separated by a spark-gap.

18. In an electrical sparking device, the combination, with a core, of insulating means surrounding said core and embodying juxtaposed solid insulating layers each of substantially uniform thickness, and a pair of separated electrical conductors disposed between said insulating layers and forming therewith a tight joint and having terminals separated by a spark-gap.

19. In an electrical sparking device, the combination, with a tapered core coacting with the insulating layers to wedge the latter together, of tapered insulating means surrounding said core and embodying juxtaposed solid insulating layers each of substantially uniform thickness, and a pair of separated electrical conductors disposed between said insulating layers and having terminals separated by a spark-gap.

20. In an electrical sparking device, the combination, with a tapered core, of a pair of complementary tapered insulating-shells surrounding said core and wedged together, and a pair of separated electrical conductors disposed between said shells and having terminals separated by a spark-gap.

21. In an electrical sparking device, the combination, with solid insulating means embodying an inner element and a juxtaposed outer element extending beyond the end of the inner element, of a pair of separated electrical conductors disposed between said insulating elements and forming therewith a tight joint and having terminals exteoding beyond the end of the inner element and separated by a spark-gap.

22. In an electrical sparking device, the combination, with solid insulating means embodying an inner element and a juxtaposed outer element extending beyond the end of the inner element, of a pair of separated electrical conductors disposed between said insulating elements and having terminals extending beyond the end of the inner element and secured to said outer element and separated by a spark-gap.

23. In an electrical sparking device, the combination, with insulating means embodying a pair of nested insulating members the outer of which extends beyond the end of the inner, of a pair of separated electrical conductors disposed between said insulating members and forming therewith a tight joint and having terminals extending beyond the end of the inner member and separated by a spark-gap.

24. In an electrical sparking device, the combination, with insulating means embodying a pair of nested insulating-shells the outer of which extends beyond the end of the inner, of a pair of separated strips of platinum foil disposed between said insulating-shells and forming therewith a tight joint and having terminals extending beyond the end of the inner shell and separated by a spark-gap.

25. In an electrical sparking device, the combination, with solid insulating means embodying an inner element and a juxtaposed outer element extending beyond the end of the inner element, of a pair of separated strips of conducting-foil disposed between said insulating elements and forming therewith a tight joint and having separate terminals connected with said strips beyond the end of the inner element and secured to said outer element and separated by a spark-gap.

26. In an electric sparking device, the combination, with a plug having a tapered bore, of a tapered core; insulating means between said plug and core and embodying juxtaposed insulating elements having respectively converging meeting faces; a pair of electrical conductors disposed between said meeting faces and having terminals separated by a spark-gap; and insulated binding-posts on said plug and connected with the opposite ends of said conductors.

27. In an electrical sparking device, the combination, with a screw-plug having a tapered bore, of a tapered core; insulating means between said plug and core and embodying juxtaposed insulating elements having respectively converging meeting faces; a pair of electrical conductors disposed between said meeting faces and having terminals separated by a spark-gap; and insulated binding-posts on said plug and connected with the opposite ends of said conductors.

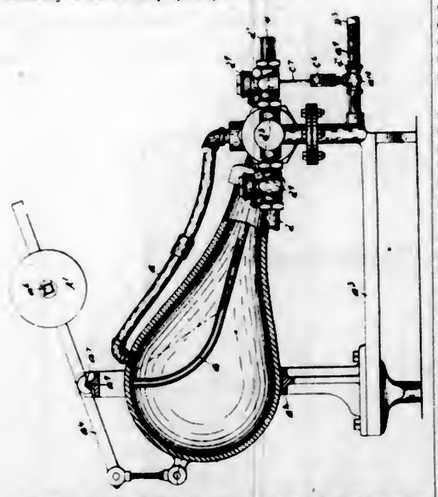
28. In an electrical sparking device, the combination, with a plug having a tapered bore, of a tapered core; insulating means between said plug and core and embodying juxtaposed insulating elements having respectively converging meeting faces; a pair of electrical conductors disposed between said meeting faces and having terminals separated by a spark-gap; and a clamp-screw secured to the head of said plug for wedging said core in place.

29. In an electrical sparking device, the combination, with a plug having a tapered bore, of a tapered core; insulating means between said plug and core and embodying juxtaposed insulating elements having respectively converging meeting faces; a pair of electrical conductors disposed between said meeting faces and having terminals separated by a spark-gap; an insulating-block secured to the head of said plug; binding-posts on said insulating-block and connected with the opposite ends of said conductors; and a clamp-screw secured to the head of said plug and passed through said insulating-block for wedging said core in place.

679,042. DISCHARGING APPARATUS. EDWARD P. WAGGONER, Syracuse, N. Y., assignor to Thomas H. Williams, Jersey City, N. J. Filed Apr. 13, 1900. Serial No. 12,673. (No model.)

Claim.—1. An automatic discharging apparatus comprising a movable reservoir, a pair of conduits respectively communicating directly with the reservoir for respectively exhausting air from the reservoir and admitting steam thereto, means for conducting water to and from the reservoir and for supplying steam to one of said conduits independently of the other conduit and thereby discharging water from the reservoir, and valves actuated by the reservoir for controlling the flow through said conduits, substantially as and for the purpose described.

2. An automatic discharging apparatus comprising a rocking reservoir, inner and outer conduits respectively communicating directly with the reservoir for respectively exhausting air from the reservoir and admitting steam thereto, means for conducting water to and from the reservoir, and for supplying steam to one of said conduits independently of the other conduit and thereby discharging water from the reservoir, and valves actuated by the reservoir for controlling the flow through said conduits, substantially as and for the purpose specified.



3. An automatic discharging apparatus comprising a rocking reservoir, a pair of conduits extending lengthwise of the reservoir and respectively communicating directly therewith for respectively exhausting air from the reservoir and admitting steam thereto, means for conducting water to and from the reservoir and for supplying steam to one of said conduits independently of the other conduit and thereby discharging water from the reservoir, and valves actuated by the reservoir for controlling the flow through said conduits, substantially as and for the purpose set forth.

4. An automatic discharging apparatus comprising a movable reservoir, a stationary conduit communicating directly with a reservoir for exhausting air therefrom, and means for conducting water to and from the reservoir and for supplying steam to said reservoir independently of the stationary conduit and thereby discharging water from the reservoir, substantially as and for the purpose described.

5. An automatic discharging apparatus comprising a rocking reservoir, a stationary conduit projecting into the reservoir, and means for conducting water to and from the reservoir and for supplying steam to said reservoir independently of the stationary conduit and thereby discharging water from the reservoir, substantially as and for the purpose specified.

6. An automatic discharging apparatus comprising a rocking reservoir, a stationary conduit communicating directly with the reservoir for exhausting air therefrom, a second conduit movable with the reservoir for conducting water thereto, and means for supplying steam to one of said conduits independently of the other conduit and thereby discharging water from the reservoir, substantially as and for the purpose set forth.

7. An automatic discharging apparatus comprising a rocking reservoir, inner and outer conduits extending lengthwise of the reservoir and communicating therewith, the inner conduit being stationary and the outer conduit being movable with the reservoir, and means for conducting water to and from the reservoir and for supplying steam to the outer conduit and thereby discharging water from the reservoir, substantially as and for the purpose set forth.

8. An automatic discharging apparatus comprising a rocking reservoir, a stationary conduit communicating directly with the reservoir, means for conducting water to and from the reservoir and for supplying steam to said reservoir independently of the stationary conduit, and a valve actuated by the reservoir for controlling the flow through said conduit, substantially as and for the purpose specified.

9. An automatic discharging apparatus comprising a rocking reservoir, inner and outer conduits communicating directly with the reservoir, the inner conduit being stationary and the outer conduit being movable with the reservoir, means for conducting water to and from the reservoir and for supplying steam to one of said conduits independently of the other conduit, and valves actuated by the reservoir for controlling the flow through the conduits, substantially as and for the purpose described.

10. An automatic discharging apparatus comprising a rocking reservoir, a water-passage communicating with the reservoir, a conduit extending through said passage and communicating with the reservoir for withdrawing air therefrom, and means for conducting water to the water-passage and for discharging water from the reservoir independently of said conduit, substantially as and for the purpose specified.

11. An automatic discharging apparatus comprising a rocking reservoir, a water-passage communicating with the reservoir, a stationary conduit extending through said passage into the reservoir, and means for conducting water to the water-passage and for discharging water from the reservoir independently of said conduit, substantially as and for the purpose set forth.

12. An automatic discharging apparatus comprising a rocking reservoir, a water-passage communicating with the reservoir, a stationary conduit extending through said passage and communicating with the reservoir, means for conducting water to the water-passage and for discharging water from the reservoir independently of said conduit, and a valve actuated by the reservoir for controlling the flow through the conduit, substantially as and for the purpose described.

13. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber communicating with the reservoir, a support for the trunnion having a plurality of passages therein for the entrance and discharge of water and the withdrawal of air, and means for discharging water from the reservoir independently of the passage for the withdrawal of air, substantially as and for the purpose specified.

14. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber, a water-passage connecting the reservoir to the inner chamber of the trunnion, a support for the trunnion having fluid-conducting means for the entrance and discharge of water, a stationary conduit extending through said support, trunnion and water-passage and communicating with the reservoir, and means for discharging water from the reservoir independently of the conduit, substantially as and for the purpose set forth.

15. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber, a water-passage connecting the reservoir to the inner chamber of the trunnion, a support for the trunnion having fluid-conducting means for the entrance and discharge of water, a stationary conduit extending through said support, trunnion and water-passage and communicating with the reservoir, means for discharging water from the reservoir independently of the conduit, and a valve actuated by the reservoir for controlling the flow through the stationary conduit, substantially as and for the purpose described.

16. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber communicating with the reservoir and formed with a closed end, a support projecting into the trunnion and provided with fluid-conducting means communicating with the inner chamber of the trunnion, said support being also provided with a water-inlet and a water-outlet, a conduit extending through the support and trunnion and communicating with the reservoir, and means for discharging water from the reservoir independently of the conduit, substantially as and for the purpose specified.

17. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber communicating with the reservoir and formed with a closed end provided with a bearing-face for resisting end strain, a support projecting into the trunnion and provided with fluid-conducting means communicating with the inner chamber of the trunnion, said support being also provided with a water-inlet and a water-outlet and being engaged with said bearing-face, a conduit extending through the support and trunnion and communicating with the reservoir, and means for discharging water from the reservoir independently of the conduit, substantially as and for the purpose set forth.

18. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber communicating with the reservoir and formed with a closed end provided with an external bearing-face for resisting end strain, a support projecting into the trunnion and provided with fluid-conducting means communicating with the inner chamber of the trunnion, said support being also provided with a water-inlet and a water-outlet, means engaged with said bearing-face, a conduit extending through the support and trunnion and communicating with the reservoir, means for discharging water from the reservoir independently of the conduit, and a valve actuated by the reservoir for controlling the flow through the conduit, substantially as and for the purpose described.

19. An automatic discharging apparatus comprising a rocking reservoir, a chamber movable with the reservoir and separated therefrom, an outer conduit connecting the reservoir and the chamber, a stationary conduit communicating directly with the reservoir, and fluid-conducting means communicating with the reservoir and the chamber, substantially as and for the purpose set forth.

20. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber separated from the reservoir, an outer conduit connecting the reservoir and the chamber of the trunnion, a support for the trunnion having fluid-conducting means communicating with the inner chamber of the trunnion, and fluid-conducting means communicating with the reservoir, substantially as and for the purpose described.

21. An automatic discharging apparatus comprising a rocking reservoir, a trunnion for supporting the reservoir, said trunnion having an inner chamber separated from the reservoir and provided with an internal bearing-face for resisting end strain, an outer conduit connecting the reservoir and the chamber of the trunnion, a support for the trunnion having fluid-conducting means communicating with the inner chamber of the trunnion, said support having its inner end engaged with the internal bearing-face, and fluid-conducting means communicating with the reservoir, substantially as and for the purpose specified.

22. An automatic discharging apparatus comprising a rocking reservoir, a water-passage communicating with the reservoir, a pair of hollow trunnions for supporting the reservoir, the inner chamber of one trunnion communicating with the water-passage and having a closed end provided with internal and external bearing-faces for resisting end strain, and the inner chamber of the other trunnion being separated from the inner chamber of the first trunnion, a conduit connecting the reservoir to said separated inner chamber, and supports projecting into the trunnions and provided with fluid-conducting means communicating with the inner chambers of the trunnions, said supports being engaged with the bearing-faces for resisting end strain, substantially as and for the purpose set forth.

23. An automatic discharging apparatus comprising a movable reservoir having an arm, fluid-conducting means communicating with the reservoir, valves for controlling the flow through said fluid-conducting means, levers connected, respectively, to the valves and movable automatically in the same direction for closing one valve and opening the other valve, and connections between said arm and levers for moving the levers in the opposite direction, substantially as and for the purpose set forth.

679,043. PEDAL. MAX F. WIRTZ, Dunellen, N. J. Filed Aug. 29, 1900. Serial No. 28,449. (No model.)



Claim.—1. In rat-trap, and similar pedals for bicycles, a detachable foot-rest composed of a sheet-metal core or body bent into substantially the form shown, and with a single centrally-projecting ear or tongue provided with an elongated opening to receive a securing-screw, the core or body coated or covered exteriorly with rubber, substantially as and for the purpose set forth.

2. The sheet-metal core or body bent into the form shown and described and provided with a rubber cover or coating exteriorly, and with interior rubber faces each side of the gateway in said body, substantially as and for the purposes set forth.

679,044. OPHTHALMOSCOPE. HENRY L. DE ZENG, Philadelphia, Pa., assignor to A. M. de Zeng, same place, and Walter H. Chamberlin, Chicago, Ill. Filed Apr. 29, 1901. Serial No. 57,901. (No model.)



Claim.—1. In combination, a telescope and an ophthalmoscope having a reflector for extraneous light and means permitting the transmission of light from the object through said reflector, substantially as described.

2. In combination, a telescope and an ophthalmoscope having a reflector, the latter having an opening in its reflecting-surface in line with the telescope.

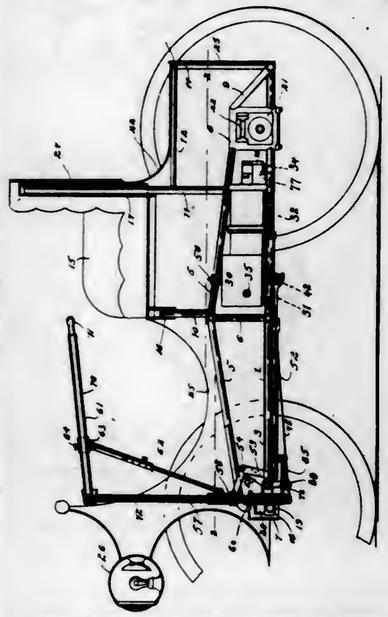
3. In combination, a telescope and an ophthalmoscope having an adjustable reflector for extraneous light and means permitting the transmission of light from the object through said reflector.

4. In combination, an adjustable telescope and an ophthalmoscope having an adjustable reflector for extraneous light and means permitting the transmission of light from the object through said reflector.

5. In combination, a telescope, the lenses of which are relatively adjustable, means for measuring said adjustment, and an ophthalmoscope.

6. In combination, a telescope and an ophthalmoscope having a reflector for extraneous light, said reflector supported by a universal joint, and means permitting the transmission of light from the object through said reflector.

679,045. MOTOR-VEHICLE. ANDREW BENSON and JOHN R. BENSON, Chicago, Ill., assignors of one-half to Robert R. Price and John P. Price, same place. Filed Dec. 4, 1899. Serial No. 739,215. (No model.)



Claim.—1. In a motor-vehicle the combination of a motor having means for regulating its speed, a flexible connection attached to that means, a drum for winding said connection for effecting the actuation of said means and steering means connected with said drum, substantially as set forth.

2. In a motor-vehicle the combination of a motor having means for regulating its speed, a flexible connection attached to that means, a drum for winding said connection for effecting the actuation of said means, a steering-gear and a handle common to both said drum and steering-gear, substantially as set forth.

3. In a motor-vehicle the combination of a motor having means for regulating its speed, a flexible connection connected to that means, a drum upon which said connection is wound, means for reversing the motion of the vehicle and a handle common to both said drum and reversing means, substantially as set forth.

4. In a motor-vehicle the combination of a motor having means for regulating its speed, a flexible connection connected to that means, a drum upon which said connection is wound, means for reversing the motion of the vehicle, a steering-gear and a handle common to said drum, steering-gear and reversing means, substantially as set forth.

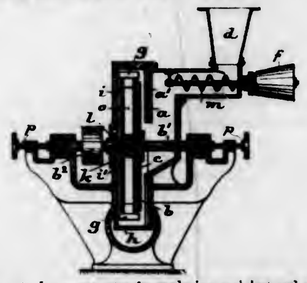
5. In a motor-vehicle the combination of means for regulating the speed of the vehicle, a steering-gear, a hollow stem for operating said steering-gear a drum, a flexible connection wound on said drum and connected with said controlling means, and a handle common to said drum and steering-stem, substantially as set forth.

6. In a motor-vehicle the combination of a motor having means for controlling its supply, means for controlling the speed of the vehicle or reversing its motion independently of the speed of the motor, a steering-gear, a hollow stem by which said steering-gear is actuated, a sleeve on said stem, a lever or handle pivoted to said stem and connected to said sleeve, a drum secured to said handle at the pivoted end thereof, a flexible connection wound on said drum and passing through said stem and having connection with said means for controlling the supply to the motor and an operative connection between said sleeve and said means for controlling the speed of the vehicle or reversing its motion, substantially as set forth.

7. In a motor-vehicle the combination of means for controlling the speed of the vehicle, a steering-gear, a hollow stem by which said steering-gear is actuated having a hood at its upper end, a lever pivoted in said hood, a rotary handle journaled in said lever and having a drum arranged in said hood over said stem, a cable wound on said drum, passing through said stem and connected with said means for controlling the speed of the vehicle and means for reversing the motion of the vehicle connected with said lever, substantially as set forth.

8. In a motor-vehicle the combination of a vehicle-frame, an axle journaled therein, a motor having a shaft, having sliding connection with said frame, sprockets on said shaft and axle respectively and an operative connection between said sprockets, substantially as set forth.

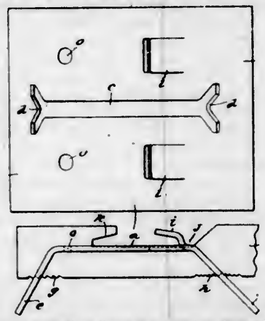
679,046. APPARATUS FOR PRODUCING COAL-DUST AND CARRYING IT INTO FURNACES. FERDINAND DE CAMP, Berlin, Germany. Filed Oct. 8, 1900. Serial No. 32,330. (No model.)



Claim.—1. In an apparatus for producing coal-dust and carrying it into a furnace the combination of a casing provided in its interior on its front wall with ribs, of a disk also provided with ribs opposite to the ribs of the casing and rotating in the latter of ventilator-blades arranged on the back side of the said disk and of an inlet and an outlet for the fuel.

2. In an apparatus for producing coal-dust and carrying it into a furnace the combination of a casing provided in its interior on its front wall with ribs of a disk also provided with ribs opposite to the ribs of the casing and rotating in the latter, of ventilator-blades arranged on the back side of the said disk, an inlet and an outlet for the fuel, of a second disk provided with openings and adapted to be rotated in the casing and moved axially and of air-inlet openings arranged in the rear wall of the casing.

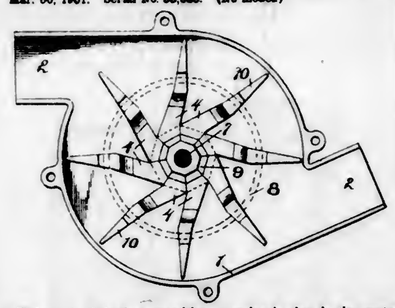
679,047. PERMANENT WAY. CONRAD F. CLOTHIER, Jr., and FRANCIS S. PEIRCE, Philadelphia, Pa. Filed Aug. 17, 1900. Renewed Apr. 15, 1901. Serial No. 55,956. (No model.)



Claim.—1. A metallic railway-tie consisting, in combination, of a tie-bar having the form of an inverted Y and chairs having substantially the form of an inverted U with sloping sides and a flat top, the sides and top of said chairs being furnished with a slot, corresponding in shape to that of said tie-bar, to receive said tie-bar, and the bottom edges of said tie-bar being furnished with teeth or serrations cut at an angle corresponding with that of the sides of the chair adapted to engage the outside edges of the lower ends of the slots in the sides of said chair, substantially as and for the purposes set forth.

2. The combination with a metallic railway-tie substantially as described of a rail-brace the base of which is furnished with a slot inclined at an angle to the rail and the top of which is serrated and which is furnished with an arm adapted to engage the rail as described, a washer with a serrated side adapted to engage the serrations on said base, and a bolt and nut whereby said base may be secured to said tie.

679,048. CAR-LOADER. CHARLES D. COLE, Sullivan, Ill. Filed Mar. 30, 1901. Serial No. 53,625. (No model.)

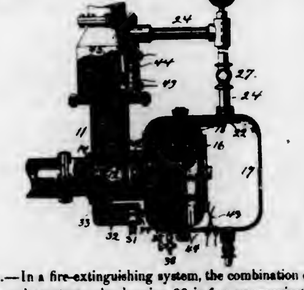


Claim.—1. A loader comprising a casing having in the center of its top an inlet-port and in its sides discharge-openings, a revolving spider located within the casing, the outer ends of the flights of said spider being as wide as the casing will permit, the inner and upper edges of the spider being cut away, said spider having a frusto-pyramidal hub.

2. A loader comprising a casing having in the center of its top an inlet-port and in its sides discharge-openings, a revolving spider located within the casing, the outer ends of the flights of said spider being as wide as the casing will permit, the inner and upper edges of the spider being cut away, said spider having a frusto-pyramidal hub, the upper end of which extends above the inner ends of the flights.

3. A loader comprising a casing having in the center of its top an inlet-port and in its sides discharge-openings, a revolving spider located within the casing, said spider having flights, the inner portions of the said flights being tangential with relation to an outer circumference of the hub, and the outer portions of the said flights being tangential with relation to an inner circumference of the hub, the front faces of the flights forming two planes at an obtuse angle to each other.

679,049. FIRE-EXTINGUISHING APPARATUS. HENRY EVERSMANN, Cincinnati, Ohio. Filed Dec. 13, 1900. Serial No. 39,591. (No model.)



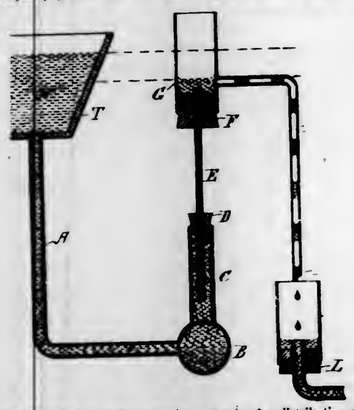
Claim.—In a fire-extinguishing system, the combination of a valve-housing, a supplementary valve-housing 33 in free communication with it and open to the atmosphere, a water-pipe in communication therewith, a valve within the housing, a diaphragm connected therewith and normally holding the same closed against the water-pipes mentioned, being held so by air under pressure, means operating to cause escape of such air to permit the valve to open, a valve in this supplementary housing and a stem extending from one side thereof to within operative reach of the diaphragm so as to be actuated thereby for the purpose described.

679,050. LIQUID-FRED DEVICE FOR ELECTROLYTIC APPARATUS. RAOUL GIROUARD, Westbrook, Me., assignor to S. D. Warren & Company, Boston, Mass. Filed May 11, 1899. Serial No. 716,389. (No model.)

Claim.—1. The combination with a supply-reservoir of a delivery vessel open to the air, a flow-restraining tube connecting the supply-reservoir with the delivery vessel, and an outlet from the delivery vessel having a capacity greater than the delivering capacity of the flow-restraining tube.

2. The combination with a supply-reservoir of a delivery vessel open to the air, a capillary conduit connecting the supply-reservoir with the delivery vessel, and an outlet from the delivery vessel having a capacity greater than the delivering capacity of the capillary conduit.

3. The combination with a supply-reservoir of a delivery vessel, open to the air, a vertically-adjustable capillary conduit connecting the supply-reservoir with the delivery vessel, and an outlet from the delivery vessel having a capacity greater than the delivering capacity of the capillary conduit.



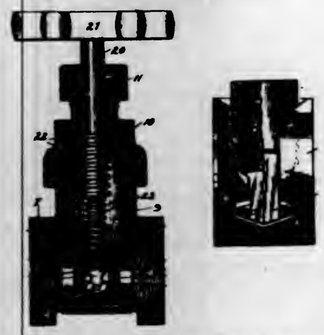
4. The combination with a supply-reservoir of a distributing-main connected therewith, risers branching from the distributing-main, delivery vessels, open to the air, connected with said risers by flow-restraining tubes, and outlets from the delivery vessels having a capacity greater than the delivering capacity of their respective flow-restraining tubes.

5. The combination with a supply-reservoir of a distributing-main connected therewith, risers branching from the distributing-main, delivery vessels, open to the air, connected with said risers by vertically-adjustable flow-restraining tubes, and outlets from the delivery vessels having a capacity greater than the delivering capacity of their respective flow-restraining tubes.

6. The combination with a supply-reservoir of a delivery vessel open to the air, a capillary conduit connecting the supply-reservoir with the delivery vessel, the said delivery vessel mounted on and carried by the capillary conduit and vertically adjustable therewith, and an outlet from the delivery vessel having a capacity greater than the delivering capacity of the capillary conduit.

7. The combination with a supply-reservoir, of a delivery vessel open to the air, a vertically-adjustable flow-restraining tube leading to said delivery vessel and upon which said delivery vessel is mounted and carried, and an outlet from the delivery vessel having a capacity greater than the delivering capacity of the flow-restraining tube.

679,051. GATE-VALVE. ALFRED M. HEWLETT, Kewanee, Ill. Filed May 27, 1901. Serial No. 62,096. (No model.)



Claim.—1. In a gate-valve, the combination of a disk, a seat for the same, means for moving said disk without sliding under pressure on said seat, means for forcing said disk laterally against its seat by impingement substantially against the center thereof after its movement across its seat has been stopped, and a wedge-stop for such disk which acts to tilt and move a portion of the disk laterally against its seat before said forcing means operates, substantially as described.

2. In a gate-valve, the combination with a pair of disks, of means for applying pressure to said disks substantially centrally thereof for spreading said disks apart and seating them against their seats without sliding under pressure thereon, and means for tilting the disks to move a portion thereof laterally into contact with their seats before said spreading means operates, substantially as described.

3. A gate-valve having a disk, a seat therefor, means for moving said disk edgewise into and out of position opposite its seat, means for applying pressure to said disk substantially centrally thereof for forcing said disk laterally against its seat without further edgewise movement, and means for tilting said disk to move one edge portion thereof against its seat before the rest of the disk is forced thereagainst, substantially as described.

4. A gate-valve having a disk, a seat therefor, means for moving said disk into and out of position opposite its seat without sliding under pressure thereon, and means having a rocker-bearing on said disk for forcing it laterally tightly against its seat, substantially as described.

5. A gate-valve having a disk, a seat therefor, means for moving said disk into and out of position opposite its seat without sliding under pressure thereon, means having a rocker-bearing on said disk for forcing it laterally tightly against its seat, and auxiliary means acting to move an edge portion of said disk laterally against its seat before said forcing means acts to force said disk on its seat, substantially as described.

6. A gate-valve having a disk, a seat therefor, means for moving said disk into and out of position opposite its seat, and means having a substantially central rocker-bearing on said disk for forcing it laterally tightly against its seat, substantially as described.

7. A gate-valve having a disk, a seat therefor, means for moving said disk edgewise into and out of position opposite its seat, means having a central rocker-bearing on said disk for forcing it laterally tightly against its seat, and a stop limiting the edgewise movement of said disk and acting thereon before said forcing means operates to press the disk on its seat, substantially as described.

8. In a gate-valve, the combination with a pair of disks adapted to control the flow of fluid through the valve, and each provided on its rear or inner face with a curved and beveled projecting portion, of a movable sleeve located between said disks and having a curved and beveled portion adapted to bear against and slide upon the said beveled portions on the disks, forming a rocker-bearing, means for connecting said disks and sleeve together, and means for moving said sleeve, substantially as and for the purpose specified.

9. In a gate-valve, the combination with a pair of disks adapted to control the flow of liquid through the valve, of a movable sleeve located between said disks and adapted when said disks are brought opposite their respective seats to force said disks against said seats, projections carried by said sleeve and fitting within grooves in said disks, said grooves being wider than said projections, whereby said sleeve may have a slight upward movement independent of said disks, and means for moving said sleeve, substantially as and for the purpose specified.

10. A gate-valve consisting of a pair of oppositely-arranged parallel disks, seats therefor, means for moving said disks into and out of position opposite their seats without sliding under pressure thereon, and means having substantially central rocker-bearings on said disks for spreading said disks to force them against their seats, substantially as described.

11. A gate-valve having a disk, a seat therefor, means for moving said disk edgewise into and out of position opposite its seat, a sleeve connected with said moving means and having a central rocker inclined bearing on said disk for forcing it laterally tightly against its seat, and a stop limiting the downward movement of said disk and adapted to move the lower edge thereof toward its seat, substantially as described.

12. In a gate-valve, the combination with two disks adapted to be spread apart firmly against their seats without sliding thereon, of an operating stem or rod provided with a right and left hand screw-thread, a fixed support for said stem or rod with which one of said screw-threads engages, a sleeve between said disks in which the other of the screw-threads moves, and means carried by said sleeve and engaging said disks forming center rocker-bearings for spreading said disks by longitudinal movement of said sleeve with reference thereto, substantially as described.

13. In a gate-valve, the combination with two disks adapted to be spread apart firmly against their seats without sliding thereon, of an operating stem or rod provided with a right and a left hand screw-thread, a fixed support for said stem or rod with which one of said screw-threads engages, a sleeve between said disks in which the other of the screw-threads moves, and means operated by the movement of said sleeve for spreading said disks, substantially as and for the purpose specified.

14. A gate-valve having a disk, a seat therefor, means for moving said disk into and out of position opposite its seat, means having a substantially central rocker-bearing on said disk for forcing said disk against its seat without edgewise movement while in pressure-contact therewith, and means for tilting said disk to move one edge portion thereof against its seat before said forcing means acts to press the rest of the disk thereagainst, substantially as described.

679,052. BUTTON. WILLIAM HORNICK, Jr., Vallsburg, N. J., assignor to Rudolph Liebmann, East Orange, N. J. Filed May 21, 1901. Serial No. 61,228. (No model.)



Claim.—1. A button comprising a hollow shell of metal, having an opening in its upper surface, and a lower and inwardly-extending binding edge, a back-plate, a fabric backing arranged over said back-plate, said back-plate and its backing being held in position by the binding edge of said shell, and a fabric covering incasing said shell, having its marginal edge arranged over the binding edge of said shell and held in position between said edge and the back-plate and its backing, substantially as and for the purposes set forth.

2. A button comprising a hollow shell of metal, having an opening in its upper surface, and a lower and inwardly-extending binding edge, a back-plate having a centrally-arranged opening in alinement with the opening in said shell, a fabric backing arranged over said back-plate, said back-plate and its backing being held in position by the binding edge of said shell, and a fabric covering incasing said shell, having its marginal edge arranged over the binding edge of said shell and held in position between said edge and the back-plate and its backing, substantially as and for the purposes set forth.

3. A button comprising a hollow shell of metal, having an opening in its upper surface, a back-plate, and a fabric covering incasing said shell and formed with a bunch extending into said opening in said shell and held by the edge of that part of the shell which surrounds said opening, substantially as and for the purposes set forth.

4. A button comprising a hollow shell of metal, having an opening in its upper surface, and an inwardly-extending bead, a back-plate clamped in position by said bead, and a fabric covering incasing said shell and formed with a bunch extending into said opening in said shell and held by the edge of that part of the shell which surrounds said opening, and said covering having its marginal edge arranged over said bead and held in position between said bead and the back-plate, substantially as and for the purposes set forth.

5. The herein-described button comprising a hollow shell of metal, having an opening in its upper surface, and a lower and inwardly-extending clamping-bead, a back-plate having an inwardly-extending marginal shoulder, a fabric backing arranged over said back-plate and said marginal shoulder, said marginal shoulder of said back-plate and that portion of the fabric backing which is arranged over said shoulder being held in position by said clamping-bead of the shell, and a fabric covering incasing said shell, having its marginal edge arranged over said clamping-bead and held in position between said bead and the marginal shoulder of said back-plate and its backing, substantially as and for the purposes set forth.

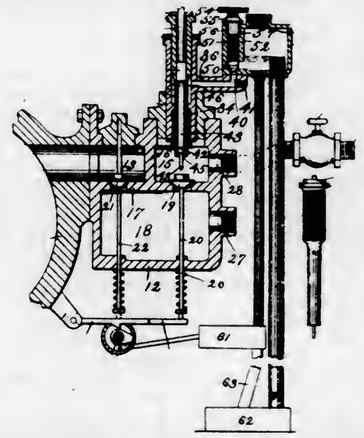
6. The herein-described button comprising a hollow shell of metal, having an opening in its upper surface, and a lower and inwardly-extending clamping-bead, a back-plate having an inwardly-extending marginal shoulder, a fabric backing arranged over said back-plate and said marginal shoulder, said back-plate having a centrally-arranged opening in alinement with the opening in said shell, and said marginal shoulder of said back-plate and that portion of the fabric backing which is arranged over said shoulder being held in position by said clamping-bead of the shell, and a fabric covering incasing said shell, having its marginal edge arranged over said clamping-bead and held in position between said bead and the marginal shoulder of said back-plate and its backing, substantially as and for the purposes set forth.

7. A button comprising a hollow shell of metal, having an opening in its upper surface, and a fabric covering incasing said shell and formed with a bunch extending into said opening in said shell and held by the edge of that part of the shell which surrounds said opening, substantially as and for the purposes set forth.

679,053. VAPORIZER FOR EXPLOSIVE-ENGINES. LAWRENCE M. JOHNSTON, Dayton, Ohio. Filed June 5, 1899. Serial No. 719,511. (No model.)

Claim.—1. In an explosive-engine, the combination with the engine, a supplemental receiving-chamber and a mixing-chamber, the one above the other; an inlet-valve seated in the dividing-wall between said chambers, a supply-valve in the wall of said supplemental receiving-chamber vertically opposite said inlet-valve, a liquid-supply tank, a pipe connection between said tank and said supply-valve, means for operating said inlet-valve, means for operating said supply-valve from said inlet-valve, an opening leading into said mixing-chamber, a separate opening leading from said mixing-chamber to the cylinder of the engine and a valve seated in said separate opening, substantially as specified.

2. In an explosive-engine, the combination with a mixing-chamber, a supplemental receiving-chamber having valve connection with said mixing-chamber, a liquid-supply tank, mechanism intermediate said liquid-tank and the supplemental chamber whereby the liquid contents of said tank are controllably fed to said supplemental chamber, of means intermediate the engine and said valve connection whereby the valve is opened and the contents of the supplemental chamber permitted to enter the mixing-chamber, substantially as shown and for the purpose described.



3. In an explosive-engine, the combination with the cylinder, of an intermediate or secondary liquid-supply tank, a supplemental receiving-chamber situated in a lower horizontal plane than said secondary liquid-supply tank and having valve connection therewith, said supplemental receiving-chamber also having connection with an independent gas-supply, a mixing-chamber provided with an air-inlet and adapted to have communication with the supplemental receiving-chamber and the cylinder at predetermined intervals, and mechanism intermediate the engine and valve connections between said liquid-supply tank, supplemental chamber, mixing-chamber, and the cylinder, whereby the same are actuated and a predetermined quantity of explosive gas communicated to the igniting end of said cylinder, substantially as shown and in the manner described.

4. In an explosive-engine comprising the cylinder, a mixing-chamber, and an explosive-receiving chamber, the combination with a liquid-tank having valve connection with said receiving-chamber, of spring-controlled valves between said cylinder, mixing-chamber, and explosive-receiving chamber, and means intermediate said revoluble shaft and the depending stems of said spring-controlled valves to intermittingly contact with said depending stems, the vertical axes of the valve intermediate the liquid-tank and receiving-chamber, and the valve intermediate the receiving and mixing chambers being coincident, so that when the shaft is revolved the spring-controlled valves will be actuated and one of said valves in turn will actuate the liquid-tank valve, substantially as shown and in the manner described.

5. In an explosive-engine, the combination with a revoluble shaft and the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve between said two chambers, a valve between said mixing-chamber and the cylinder, a liquid-explosive inlet vertically above said first valve, a valve for controlling said liquid-supply inlet, a stem therefor of less diameter than and passing through the center of said liquid-inlet opening, said stem projecting in the path of movement of said first valve, and means including said revoluble shaft for operating said first valve whereby when said first valve is operated the liquid-supply valve is adapted to be operated to admit the liquid in a tubular stream around the stem of said liquid-supply valve and upon and around said first valve into the mixing-chamber, substantially as specified.

6. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve controlling an opening between said two chambers, a valve between said mixing-chamber and the cylinder, a liquid-explosive inlet vertically above said opening controlled by said first valve, a valve for controlling said liquid-supply inlet, a stem therefor passing through the center of said liquid-inlet opening and projecting in the path of and to be operated by said first valve, and means for adjusting said valve-stem closer to or farther away from said first valve for regulating the operation of and the quantity of liquid adapted to be admitted by said liquid-supply valve to flow over the top of said first valve and into said mixing-chamber, substantially as specified.

7. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive receiving or supply chamber, a valve between said two chambers, a valve between said mixing-chamber and the cylinder, a liquid-explosive inlet vertically above said first valve, a valve seated in said inlet comprising two tubular members, the one within the other, a portion of the diameters of said tubular members being such as to form a circumferential chamber or cavity to receive the inflow of liquid, said inner member provided with ports at a point coincident with said cavity, a stem passing through the center of said liquid-inlet opening and adapted to be operated by said first valve, and means for vertically adjusting said liquid-inlet and its valve, valve-seat and valve-stem closer to or farther from said first valve for regulating the operation of and the quantity of said liquid adapted to be admitted by said liquid-supply valve, substantially as shown and described.

8. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve controlling an opening between said two chambers, a valve between said mixing-chamber and the cylinder, a tubular member leading into said explosive-supply chamber vertically above said opening controlled by said first valve, a valve and valve-stem seated in said tubular member, said valve-stem passing loosely through the mouth of said tubular member and extending into the path of movement of said first valve, a liquid-supply tank, and a connection between said tank and the bore of said tubular member, substantially as specified.

9. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve between said two chambers, a valve between said mixing-chamber and the cylinder, a tubular member leading into said explosive-supply chamber vertically above said first valve, a valve and valve-stem seated in said tubular member, said valve-stem passing loosely through the mouth of said tubular member and adapted to be engaged by said first valve, a liquid-supply tank, a connection between said tank and the bore of said tubular member, and means for vertically adjusting said tubular member with its valve and valve-stem with reference to said first valve and its connection with said tank, substantially as specified.

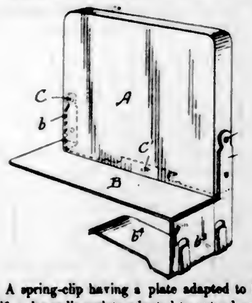
10. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve between said two chambers, a valve between said mixing-chamber and the cylinder, a tubular member leading into said explosive-supply chamber vertically above said first valve, a valve and valve-stem seated in said tubular member, said valve-stem passing loosely through the mouth of said tubular member and adapted to be engaged by said first valve, a liquid-supply tank, a second tubular member surrounding said first tubular member, a cavity between said tubular members, a connection between said tank and said cavity, a connection between said cavity and the bore of said second tubular member, means for operating said first valve, and means independent of said valve-operating means for relatively adjusting said stem and said first valve closer to or farther from each other, substantially as specified.

11. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve between said two chambers, a valve between said mixing-chamber and the cylinder, a tubular member leading into said explosive-supply chamber vertically above said first valve, a valve and valve-stem seated in said tubular member, said valve-stem passing loosely through the mouth of said tubular member and adapted to be engaged by said first valve, a liquid-supply tank, a second tubular member surrounding said first tubular member, a connection between said tank and the bore of said second tubular member, a connection between the bore of said first tubular member and the bore of said second tubular member, and said first tubular member being vertically adjustable with reference to said second tubular member and said first valve, substantially as specified.

12. In an explosive-engine, the combination with the cylinder, of a mixing-chamber, an explosive-supply chamber, a valve between said two chambers, a valve between said mixing-chamber and the cylinder, a tubular member leading into said explosive-supply chamber vertically above said first valve, a valve and valve-stem seated in said tubular member, said valve-stem passing loosely through the mouth of said tubular member and adapted to be engaged by said first valve, a second tubular member surrounding said first tubular member and passing through the wall of said explosive-supply chamber, a stuffing-box in the lower end of said second tubular member adapted to engage the lower end of said first tubular member, a threaded connection between the upper ends of said first and second tubular members, a cavity in said second member and surrounding said first member intermediate said threaded and stuffing-box ends, a tubular connection leading from the top of said cavity in said second member to a supply-tank, one or more openings through the walls of said first member for connecting the cavity in said second member with the tubular cavity in said first member, a valve-seat near the bottom of said tubular cavity in said first member, a spring-pressed valve for said seat, and the stem of said valve passing loosely through the mouth of said tubular cavity toward said first valve, substantially as specified.

13. In an explosive-engine, the combination with an engine, of an inlet-valve moving vertically upon a projection as a guide, a mixing-chamber, a liquid-supply tank, a separate valve intermediate said tank and mixing-chamber, a relatively small opening between said tank and said separate valve, said separate valve being vertically above the opening controlled by said inlet-valve, a projection intermediate said valves, means for operating said inlet-valve, and a cavity between said separate valve and said opening leading to said tank into which cavity said separate valve is operated, means stationarily held in said cavity and surrounding the valve-stem whereby when said inlet-valve is operated the liquid is placed temporarily under pressure in said cavity and forced out upon said inlet-valve after which the liquid in said tank flows through said cavity and onto said inlet-valve until said separate valve is closed, substantially as specified.

679,054. **SHELF BOOK-SUPPORT.** GEORGE J. KRAUSSAAR, Cleveland, Ohio, assignor of three-fourths to William H. Brett and Thomas J. Buchan, same place. Filed Aug. 8, 1900. Serial No. 26,204. (No model.)



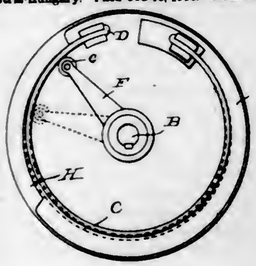
Claim.—1. A spring-clip having a plate adapted to lie on the upper side of a shelf, a depending plate adapted to extend across the front edge of the shelf, and a spring-tongue adapted to take on the under side of the shelf, a pair of ears cut out of the upper plate of the clip and turned upward, and a partition secured to said ears, substantially as described.

2. A sheet-metal clip having a top plate and means for clamping it to a shelf, a pair of ears cut out of said top plate and turned up at substantially right angles thereto, a partition-board between said ears and extending upward at right angles to the top plate, said ears being secured to the front and rear edges of said board and the board being secured on its lower edge to a portion of the top plate projecting between the portions cut out for the ears, substantially as described.

3. A spring-clip made of one integral piece of sheet metal and having a top plate adapted to lie on the top of a shelf, a plate depending therefrom at right angles and adapted to occupy the front side of a shelf, and a spring-tongue extending rearward from the lower edge of the front plate and adapted to bear against the under side of the shelf, a tongue for holding a label cut out of the front plate and offset but lying substantially parallel therewith, and a vertical partition secured to the top plate, substantially as described.

4. The combination of a clip made from a single piece of sheet metal bent to take onto the upper side, the front side and the under side of a shelf, a tongue cut out of said front side and offset forward to provide means for carrying a label on the front side, a pair of ears cut out of the top plate and bent upward, and a partition-board extending upward between said ears and secured thereto, substantially as described.

679,055. **CENTRIFUGAL ENGINE-GOVERNOR.** HUGO LENTZ, Brünn, Austria-Hungary. Filed Oct. 18, 1900. Serial No. 33,532. (No model.)



Claim.—1. In a centrifugal engine-governor, the combination with a shaft, devices loosely mounted thereon for actuating a valve, a disk on said shaft, a slot therein, and a weight movable in said slot and connected with said valve-actuating devices for altering the position thereof, of a spring secured at one end to said disk and at its free end engaging said weight, and devices movably mounted on said disk and engaging said spring between its ends for regulating the effective length thereof.

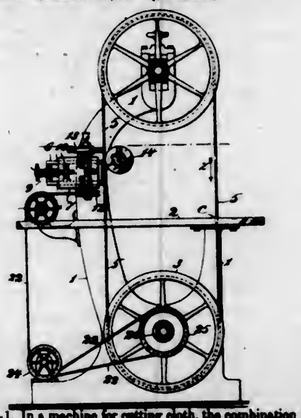
2. In a centrifugal engine-governor, the combination with a shaft, a movable valve-actuating member thereon, a rigid member thereon, and devices connected with said valve-actuating member for controlling the position of same on said shaft, of a spring secured at one end to said rigid member, and at its free end engaging said devices connected with said valve-actuating member, and devices interposed between the ends of said spring and adapted to be clamped rigid with said rigid member for regulating the tension of said spring.

3. In a centrifugal engine-governor, the combination with a shaft, a movable valve-actuating member thereon, a rigid member thereon, and devices connected with said valve-actuating member for controlling the position of same on said shaft, of a flat spring secured at one end to said rigid member, and at its free end engaging said devices connected with said valve-actuating member, and devices interposed between the ends of said spring and adapted to be clamped rigid with said rigid member for regulating the tension of said spring.

4. A centrifugal engine-governor, comprising a member rigidly mounted on a revoluble shaft, a shifting eccentric mounted on said shaft adjacent said member, means for shifting said eccentric comprising a spring having one end clamped rigidly to said member, its free end connected with a block slidingly mounted on said member, said block being also connected in any suitable manner with said eccentric, a weight attached to said block and means for adjusting the tension of said spring comprising devices movable relatively to said spring and on said member to which said spring is clamped and engaging said spring between its ends to change the effective length thereof, substantially as described.

5. A centrifugal engine-governor, comprising a member rigidly mounted on a revoluble shaft, an eccentric adjustably mounted on said shaft adjacent said member, a second member connected with said eccentric and movable relatively to said first-mentioned member, a weight attached to said movable member, a spring carried by said first-mentioned member and adapted to hold said eccentric in its normal position and having its free end connected with said movable member, and means for varying the normal revolutions of said governor comprising devices mounted on said first-mentioned member and engaging said spring between its ends to hold same rigid in connection with said member to change the effective length thereof.

679,056. **MACHINE FOR CUTTING CLOTH.** GEORGE R. LEWIS, Brooklyn, N. Y., assignor to Holzman Brothers, New York, N. Y. Filed Apr. 23, 1901. Serial No. 57,106. (No model.)



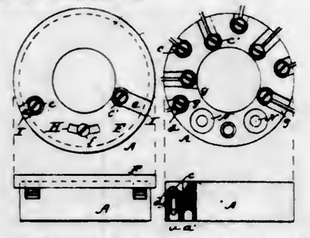
Claim.—1. In a machine for cutting cloth, the combination with the main frame and table, the band-knife, and its supporting and driving pulleys, of the grinding-wheel, means for driving said wheel, means for adjusting said wheel up to the moving knife, a bearing-wheel, and means for adjusting said bearing-wheel up to the moving knife whereby the knife is kept sharp during the cutting operation, substantially as set forth.

2. In a machine for cutting cloth, the combination with the main frame, the knife-supporting pulleys mounted in said frame, the knife, and the cloth-supporting table, of the grinding mechanism comprising the fixed trackway 6, the carriage 7 mounted thereon, the screw 8 for operating said carriage, the upright arbor 11 mounted rotatively in said carriage, the grinding-wheel secured on said arbor, means for driving said arbor, and means for supporting the moving blade at the back while it is being ground, substantially as set forth.

3. In a machine for cutting cloth, the combination with the main frame, the knife-supporting pulleys in said frame, the knife, the cloth-supporting table, and the adjustable grinding mechanism, of the lever 16 fulcrumed on the frame, the bearing-roller 14 mounted rotatively on one arm of said lever and adapted to bear on the inner face of the knife, and the screw 19 and nuts 20, adapted for operating said lever and adjusting the bearing-wheel up to the knife, substantially as set forth.

4. In a machine for cutting cloth, the combination with the main frame, the horizontal table having in it a slot for the band-knife, the upper and lower knife-bearing pulleys arranged one above the other in the frame, and means for driving the lower pulley, of the vertically-traveling band-knife 5, mounted on said pulleys, and means for grinding and sharpening said knife at its ascending side during the cutting operation, said means comprising a grinding-wheel, means for driving said wheel, means for adjusting said wheel up to the ascending part of the knife, a bearing-wheel, and means for adjusting said bearing-wheel up to the face of the knife, substantially as set forth.

679,057. **JUNCTION-BOX AND ADAPTER FOR ELECTRICAL INSTALLATION.** JOHN MEEHAN, Brooklyn, N. Y. Filed May 16, 1901. Serial No. 60,513. (No model.)

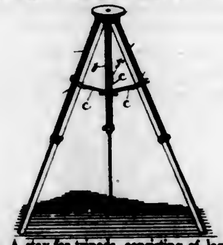


Claim.—1. The adapter for electrical installation consisting of the annular block of porcelain A having the circular grooves *a a'* in its reverse side and the radial recesses *g g* in its face, substantially as described.

2. The combination with the adapter A having the grooves *a a'* in its reverse side and the recesses *g g* in its face of the cap F adapted to be secured to said adapter and having the fixture-wire recesses I I' substantially as described.

3. The combination with the adapter A having grooves *a a'* in its reverse side and recesses *g g* in its face of the cap F and the junction-box K adapted for the connection thereto of the electric-wire conduits and drop connections for gas-fixtures, substantially as described.

679,058. **TRIPOD-STAY.** GEORGE R. MELLEN, Chicago, Ill. Filed Dec. 24, 1900. Serial No. 40,915. (No model.)



Claim.—1. A stay for tripods, consisting of leg-clamps, means for detachably securing one of said leg-clamps to each of the respective tripod-legs, converging rods jointedly connected with said clamps, and a rod-clamp consisting of a bolt and thumb-nut and loose interposed rings having grooves or notches formed in their meeting faces for the reception of said rods, whereby both a lateral and longitudinal adjustment may be given to the respective rods independently of each other, substantially as described.

2. In a device of the class described, the combination of stay-rods for the several tripod-legs, clamps jointedly secured to their outer ends, independent rings having grooves formed in their meeting faces for the reception of said rods, and a bolt and thumb-nut for clamping the rings and rods against each other, substantially as and for the purpose set forth.

3. In a device of the class described, the combination of a plurality of stay-rods, leg-clamps attached to their outer ends by means of a joint and swivel connection, and a clamp for engaging said stay-rods, said clamp consisting of a bolt and thumb-nut and a series of clamping members loosely mounted upon said bolt and interposed between said rods, substantially as described.

4. In a device of the class described, the combination of a plurality of braces, each consisting of parallel rods formed in a single piece, leg-clamps attached to their outer ends by means of a joint and swiveled connection, and a clamp for connecting said braces at a common point, said clamp consisting of a bolt and thumb-nut and interposed clamping-rings having grooves or notches therein for engaging said rods, said rings being free to rotate upon the bolt when not under compression, substantially as described.

5. In a device of the class described, the combination of a plurality of stay-rods, leg-clamps jointedly attached to their outer ends, a common clamp having independent revolable members for engaging and clamping said rods, and means upon the free ends of said rods for preventing the same from becoming disengaged from said clamp when the latter is released, substantially as described.

679,059. **PROCESS OF MAKING COAL-GAS.** ROBERT S. MOSS, Chicago, Ill., assignor to L. Z. Letter, same place. Filed Dec. 17, 1900. Serial No. 40,149. (No specimens.)



Claim.—1. The process of producing coal-gas, which consists in charging a beehive coking-oven with coal, admitting air to the coking-chamber of the oven to produce combustion and heat the walls of the oven and the charge or mass of coal, making the oven gas-tight, after closing the air-supply, for the heat to distil the gases and volatile matter, and alternately educting the distilled gases and products from the top to the bottom layers of the charge or mass of coal, substantially as described.

2. The process of producing coal-gas, which consists in charging a beehive coking-oven with coal, admitting air to the coking-chamber of the oven to produce combustion alternately at the top and bottom of the mass or charge of coal, and heat the walls of the oven and the charge or mass of coal, making the oven gas-tight, after closing the air-supply, for the heat to distil the gas and volatile matter and educting the distilled gas from the bottom when the combustion is at the top of the mass or charge of coal and from the top when the combustion is at the bottom of the mass or charge of coal, substantially as described.

679,060. **HUB FOR FRICTION-CLUTCHES.** JOHN MCCAFFREY, Lawrence, Mass. Filed Feb. 25, 1901. Serial No. 48,656. (No model.)

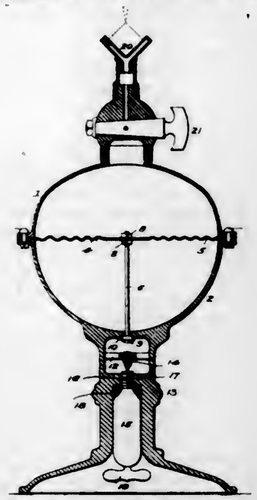


Claim.—1. A hub of the nature described comprising a bearing-cone having a diametrically-enlarged member furnished with a lubricant-reservoir, the bearing having an annular groove in its end and inclined channels connecting the groove with the reservoir, and a thrust-collar adapted to cover said groove and having inlets connecting therewith.

2. The combination with the hub having the cone 5 the member 6 with its flange 7 and the bearing 8, the cone 5 having the groove 12 and the channels 13, the member 6 having the reservoir 14, into which said channels 13 open, and furnished with the ribs 15 and 16 and the outlets 17, of the plate 11 secured to the flange 7 and having an open center as and for the purpose described.

3. A hub for friction-clutches and the like comprising the cone 5 centrally disposed on the member 6 and having the annular groove 12 and the inclined channel 13, the member 6 having the reservoir 14, with which the channels 13 connect, and furnished with the flange 7 and with the outlets 17 opening into the chamber formed by said flange, substantially as described.

679,061. **PORTABLE GAS-LAMP.** GEORGE MCGOVERN, Richmond, Va. Filed Oct. 31, 1900. Serial No. 35,062. (No model.)



Claim.—1. In a lamp of the class described, a lamp body and burner, a hermetically-closed cartridge adapted to be inserted in the lamp-body, said cartridge containing a charge of illuminating-gas, and means for puncturing the cartridge, substantially as and for the purpose set forth.

2. In a lamp of the class described, a burner, a lamp-body formed with a valved inlet, a diaphragm adapted to control said inlet, a hermetically-sealed cartridge containing a charge of illuminating-gas adapted to be inserted in the lamp-body and means for puncturing said cartridge, substantially as and for the purpose set forth.

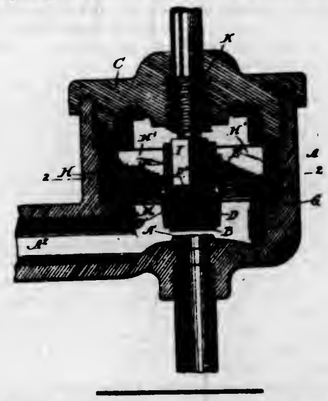
3. In a lamp of the class described, a lamp body and burner, a cartridge containing a charge of illuminating-gas adapted to be inserted in the lamp-body, a valved inlet to the lamp-body, a diaphragm adapted to control said inlet, a spider provided with puncturing means whereby the cartridge is punctured, substantially as and for the purpose set forth.

4. In a lamp of the class described, a lamp body and burner, a pedestal supporting the same, a chamber formed in said pedestal having a threaded orifice adapted to receive the screw-threaded neck of a hermetically-sealed cartridge containing a charge of illuminating-gas, a valved inlet to the lamp-body, a diaphragm adapted to control said inlet, a spider arranged in the chamber in the pedestal provided with means whereby the cartridge is punctured, substantially as and for the purpose set forth.

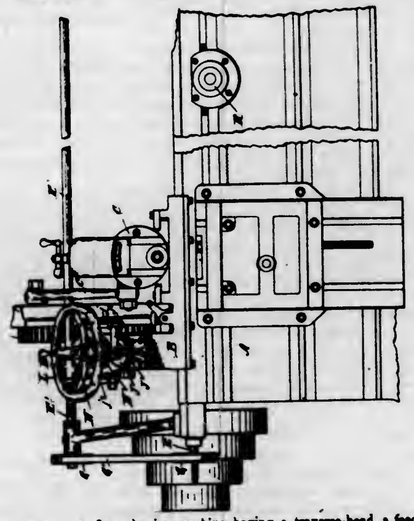
679,062. **STOP-COCK.** FELIX STAEDELI and GUSTAV VOGT, New York, N. Y. Filed May 24, 1900. Serial No. 17,787. (No model.)

Claim.—1. In a faucet having an elastic disk and means for operating such to control the flow, a block B of yielding material, the box D inclosing and retaining such block leaving its lower face exposed, such box having a contracted bearing D′ giving a limited contact with the disk, and the rivet D^2 and closed-ring E for engaging the parts at the center, and the ring H arranged to receive pressure from the top C for tightly holding the periphery of the disk combined substantially as herein specified.

2. In a faucet having an elastic disk and means for operating such to control the flow, a block B of yielding material, the box D inclosing and retaining such block leaving its lower face exposed, such box having a contracted bearing D′ giving a limited contact with the disk, and the piece I capable only of endwise motion and the operating-stem K K′ in combination with each other and with the ring H having radial arms H′ and hub H^2 adapted to perform the double functions of transmitting pressure from the top C and thus tightly holding the periphery of the disk, and also guiding the piece I all substantially as herein specified.



679,063. **SHAPING-MACHINE.** JAMES C. STEEN, Cincinnati, and CHARLES SEYBOLD, Dayton, Ohio, assignors to the Cincinnati Shaper Company, Cincinnati, Ohio. Filed Nov. 23, 1900. Serial No. 37,472. (No model.)



Claim.—1. In a shaping-machine having a traverse-head, a feed-screw operating said traverse-head, a driving-arm actuating the ram, and mechanism in said head intermediate the driving-arm and the feed-screw, whereby the feed of the head may be controlled from the head, substantially as described.

2. In a shaping-machine having a traverse-head, a feed-screw operating said head, a driving-arm actuating the ram, and mechanism in said head intermediate the driving-arm and the feed-screw, whereby the feed of the head may be controlled from the head, in combination with a hand-wheel and mechanism intermediate said hand-wheel, and a rack in the bed, whereby the head may be moved by hand, substantially as described.

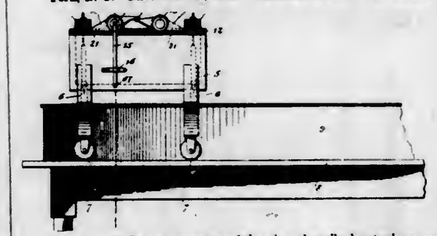
3. In a shaping-machine having a traverse-head, a feed-screw and shaft mounted in the bed, gearing intermediate said shaft and feed-screw, a second shaft mounted in the head, a ratchet-wheel mounted on said second shaft, a pawl engaging said ratchet-wheel, and mechanism intermediate the pawl and the driving-arm, whereby said second shaft is caused to rotate intermittently, substantially as and for the purpose described.

4. In a shaping-machine having a traverse-head, a feed-screw and shaft mounted in the bed, said feed-screw operating the head, gearing intermediate said shaft and feed-screw, a second shaft mounted in the head, gearing intermediate the two shafts, a ratchet-wheel keyed to said second shaft, a pawl engaging said ratchet-wheel, and mechanism intermediate the pawl and the driving-arm, whereby said second shaft is caused to rotate intermittently, in combination with a third shaft, a gear keyed to the end of said shaft and engaging a rack in the bed, and means for gearing the second and third shafts together, whereby the rotation of the second shaft by means of a hand-wheel is communicated to the third shaft, substantially as and for the purpose described.

5. In a shaping-machine having a traverse-head, a feed-screw and shaft mounted in the bed, said feed-screw operating the head, gearing intermediate said shaft and feed-screw, a second shaft mounted in the head, gearing intermediate the two shafts, a ratchet-wheel keyed to said second shaft, a pawl engaging said ratchet-wheel, a pin projecting from said pawl, and engaging the rim of a disk part of which is cut away, and mechanism intermediate the pawl and driving-arm operating the ram, whereby said second shaft is caused to rotate intermittently, substantially as and for the purpose described.

6. In a shaping-machine having a traverse-head, a feed-screw and shaft mounted in the bed, said feed-screw operating the head, gearing intermediate said shaft and feed-screw, a second shaft mounted in the head, gearing intermediate the two shafts, a ratchet-wheel keyed to said second shaft, a pawl engaging said ratchet-wheel, a pin projecting from said pawl, and engaging the rim of a disk part of which is cut away, and mechanism intermediate the pawl and driving-arm operating the ram, whereby said second shaft is caused to rotate intermittently, in combination with a third shaft, a gear keyed to the end of said shaft and engaging a rack in the bed, and means for gearing the second and third shafts together, whereby the rotation of the second shaft by means of a hand-wheel is communicated to the third shaft, substantially as and for the purpose described.

679,064. **BOTTLE-FILLING MACHINE.** REUBEN R. STONE, New York, N. Y. Filed Nov. 23, 1900. Serial No. 37,555. (No model.)



Claim.—1. In an apparatus of the class described, a tank or receptacle provided in the bottom thereof with longitudinal valve-openings, vertically-movable bars placed on said tank or receptacle and provided with valve-rods and valves for closing said openings, and means for moving said bars vertically, consisting of longitudinal shafts placed between said arms and provided at their opposite ends with cross-heads having inwardly-directed arms which overlap each other and outwardly-directed arms which extend beneath said bars, one of said shafts being provided at its end with a crank-arm, substantially as shown and described.

2. In an apparatus of the class described, a tank or receptacle provided with longitudinal shafts mounted in the top thereof one of which is provided with means for turning it, said shafts being provided at their opposite ends with cross-heads having inwardly-directed arms which overlap each other, said tank or receptacle being also provided in the bottom thereof with valve-openings, and devices operated by said cross-heads for closing said valve-openings, substantially as shown and described.

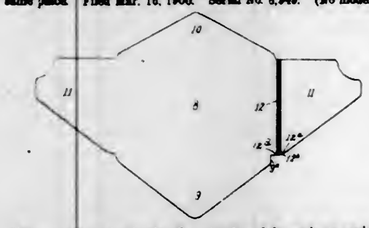
679,065. **PROCESS OF TREATING SPENT GRAIN.** JAMES A. TILDEN, Hyde Park, Mass., assignor to Hersey Manufacturing Company, South Boston, Mass. Filed Jan. 22, 1896. Serial No. 667,682. (No specimens.)

Claim.—1. The process substantially as hereinbefore set forth of treating spent grains, which consists in removing a portion of the liquid from the mass of material by gravity filtration, subjecting the mass of material from which the liquid has thus been filtered to pressure to express a large proportion of the liquid, and returning the expressed liquid to the unpressed mass of material.

2. The process substantially as hereinbefore set forth of treating spent grains, which consists in removing a portion of the liquid from the mass of material by gravity filtration, subjecting the mass of material from which the liquid has been filtered to pressure to express a large portion of the liquid, returning the expressed liquid to the unpressed mass of material

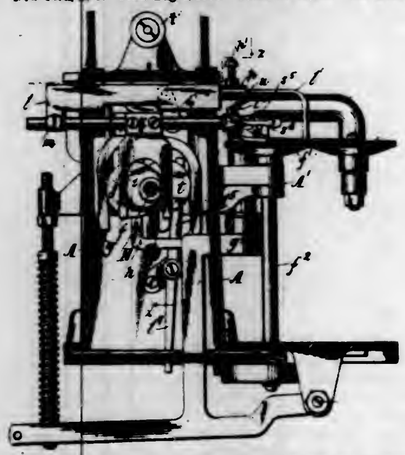
and subjecting the compressed mass to heat to evaporate the remaining liquid.

679,066. **OPENER FOR ENVELOPS OR WRAPPERS.** WALTER S. TINNIN, Brooklyn, N. Y., assignor of one-half to James T. Russell, same place. Filed Mar. 16, 1900. Serial No. 8,949. (No model.)



Claim.—An envelop having flaps 11, 9 at right angles to each other, an opening-strip gummed on one side to the inside of the envelop, a notch between said flaps, said notch having a side 12^a parallel with said strip, close to the strip and terminating in line with the end of said strip, the notch having also a side 9^a parallel with the strip and at a distance equal the width of the strip from the side 12^a whereby said strip which overlies the envelop space is cut from under both flaps at said notch.

679,067. **OVERSEAMING SEWING-MACHINE.** ALBERT BLIDEN, New York, N. Y. Filed Aug. 1, 1900. Serial No. 25,559. (No model.)



Claim.—1. In a machine of the character described the combination of a main frame, a main shaft, a looper suitably mounted in said frame, means for imparting a longitudinal reciprocation to said looper, a shaft mounted in said frame, means for imparting a longitudinal reciprocation to said shaft, and means connecting said looper and shaft whereby a slightly-vertical motion is imparted to the looper, substantially as described.

2. In a machine of the character described the combination of a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for imparting a longitudinal reciprocation to said looper and looper-frame, a shaft mounted in the main frame, means for imparting a longitudinal reciprocation to said shaft and means connecting said shaft and looper-frame whereby a slightly-vertical motion is imparted to the said looper-frame, substantially as described.

3. In a machine of the character described the combination of a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for imparting a longitudinal motion to said looper-bar and looper-frame, a sliding shaft journaled in the main frame provided with a depending yoke adapted to engage a cam on the main shaft whereby a longitudinal reciprocation is imparted to said sliding shaft, and means connecting said looper-frame and sliding shaft, whereby a slightly-vertical motion is imparted to the looper-frame, substantially as described.

4. In a machine of the character described the combination of a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for rocking said looper-bar on its axis, means for imparting a longitudinal motion to said looper-bar and looper-frame, a sliding shaft journaled in the main frame provided with a depending yoke adapted to engage a cam on the main shaft whereby a longitudinal reciprocation is imparted to said sliding shaft, and means connecting said looper-frame and sliding shaft, whereby a slightly-vertical motion is imparted to the looper-frame, substantially as described.

5. In a machine of the character described, the combination of a needle-carrier, a tension-stud provided with a flat head, therein, of a longitudinally-sliding rod and a spring on said rod, adapted to come into contact with the head of the stud, whereby said tension-stud is periodically pressed home, substantially as described.

6. In a machine of the character described, a main frame, a main shaft journaled therein, a slidable rod receiving reciprocation from the main shaft, a looper-frame pivoted thereto, a second sliding rod reciprocated by the main shaft, a connection between said second rod and the looper-frame by which the looper-frame is swung on its pivotal connection with the first-named rod, a looper-bar pivoted in the looper-frame, and a rock-frame operated by the main shaft and having a cam-slot engaging a stud on the looper-bar, substantially as described.

7. In a machine of the character described, a main frame, a main shaft, a looper-frame, a looper-bar journaled in said looper-frame, means for imparting a longitudinal reciprocation to said looper-bar, and looper-frame, means connecting said looper-bar and the main shaft whereby said looper-bar is caused to oscillate in its bearings in the looper-frame, a shaft suitably mounted in the main frame, means for imparting a longitudinal reciprocation to said shaft, and means connecting the looper-frame and said shaft whereby a slightly-vertical motion is imparted to the looper-frame, substantially as described.

8. In a machine of the character described, a main frame, a main shaft journaled therein, a slidable rod receiving reciprocation from the main shaft, a looper-frame pivoted thereto, a second sliding rod reciprocated by the main shaft, a connection between said second rod and looper by means of which the looper-frame is swung on its pivotal connection with the first-named rod, a looper-bar journaled in the looper-frame and means for giving said looper-bar an oscillating motion in its bearings, substantially as described.

9. In machines for overhand stitching the combination of a main frame, a main shaft, a reciprocating needle, a longitudinally-reciprocating looper-frame and looper-bar, means for imparting a slightly-vertical motion to said looper-frame and looper-bar, a rock-frame pivoted at its lower end, provided with a slot at its upper end and rocked by a cam bearing against an intermediate portion, and means connecting said rock-frame and looper-bar whereby a rocking motion is imparted to said looper-bar, substantially as described.

10. In machines for overhand stitching the combination of a needle, means for reciprocating the needle, a looper-frame, means for imparting a longitudinal and slightly-vertical motion to said looper-frame, a looper-bar in said looper-frame, a rock-frame pivoted at its lower end, provided with a slot in its upper end and rocked by a cam-bar against its interior intermediate portion, and a stud secured to the looper-bar and engaging the slot in the rock-frame, whereby a rocking motion is communicated to the looper-bar, substantially as described.

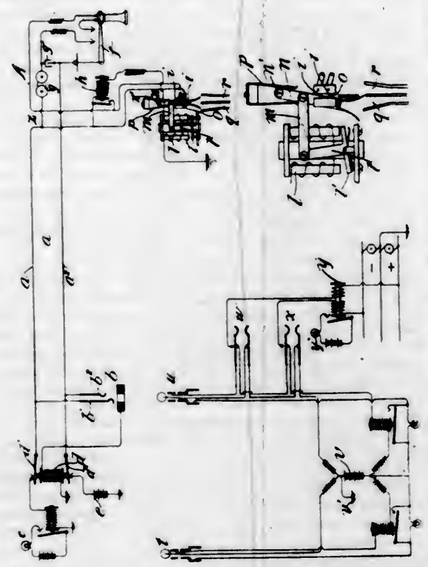
11. In machines for overhand stitching the combination with a needle-carrier, a tension-stud provided with a flat head therein, a longitudinally-sliding shaft, and a spring on said shaft adapted to come into contact with the head of the tension-stud, whereby said stud is periodically pressed home, substantially as described.

679,068. **APPARATUS FOR TELEPHONE-LINES.** ALBERT M. BULLARD, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 7, 1899. Serial No. 719,642. (No model.)

Claim.—1. The combination with a telephone toll-line extending from a substation to a central office, of switch-contacts *i i* adapted to be closed by the subscriber, controlling a break in the telephone-circuit, a relay-magnet connected with the line at the substation in a branch circuit independent of said switch-contacts, a switch operated by said relay-magnet for closing said break controlled by the contacts *i i*, and means controllable from the central office for exciting said relay-magnet, whereby the central-office operator may close the break in the telephone-circuit at the substation independently of the switch-contacts operated by the subscriber, substantially as set forth.

2. The combination with a telephone toll-line extending from a substation to a central office, of switch-contacts *i i* adapted to be closed by the subscriber, controlling a break in the telephone-circuit, a battery and a signaling instrument in the line-circuit at the central office, said signaling instrument being responsive to the flow of current in the circuit controlled by said switch-contacts, a relay connected with the line at the substation adapted when actuated to close the same circuit which is controlled by the contacts *i i*, and means controlled in making connection with the line at the central office, for actuating said relay, whereby connection with the line at the central office dispenses with the closure by the subscriber of the contacts *i i*, substantially as set forth.

3. The combination with a telephone-line extending from a subscriber's station to a central office, of switch-contacts at the subscriber's station adapted to be closed by the subscriber, for controlling the circuit through the telephone apparatus, and electromagnetic mechanism, controllable only from the central office, for completing the circuit through the subscriber's telephone apparatus independently of said switch-contacts, substantially as set forth.



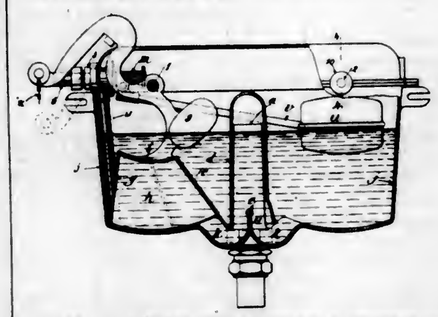
4. The combination with a telephone-line extending from a subscriber's station to a central office, the talking-circuit of said line being normally open at the subscriber's station, a relay connected with the telephone-line at the subscriber's station and adapted when actuated to close the talking-circuit of said line, a spring-jack terminal for the line at the central office, a plug and its cord-circuit for making connection with said line by way of the spring-jack, and a source of current of suitable character to actuate said relay connected with a contact and said plug, whereby the talking-circuit of the telephone-line is automatically closed by the insertion of the plug in the telephone-line spring-jack, substantially as set forth.

5. The combination with a telephone toll-line, of switch-contacts *i i* at the substation of the line, adapted to be closed by the subscriber, controlling the telephone talking apparatus, a relay connected with the line at the substation, adapted to connect the telephone apparatus operatively with the line, and means, independent of the subscriber, for operating said relay, substantially as set forth.

6. The combination with a telephone-line extending from a subscriber's station to a central office, the talking-circuit of said telephone-line being normally open at the subscriber's station, a branch circuit at the subscriber's station including a relay and a polarized electromagnet, said relay being adapted when actuated to close the talking-circuit of the telephone-line, a signaling-circuit for said telephone-line including a line-indicator at the central office, and a switch at the substation for controlling said signaling-circuit, a plug and plug-circuit at the central office, and a spring-jack for the telephone-line in which said plug is adapted to be inserted to make connection therewith, a source of current suitable for actuating said relay connected with one of the contact portions of the plug, whereby the talking-circuit of the telephone-line is automatically closed by the insertion of the plug in the spring-jack, said polarized magnet being unresponsive to the current for operating said relay, and means at the central office for impressing upon the telephone-line suitable current for the actuation of said polarized magnet, substantially as set forth.

7. The combination with a telephone-line extending from a substation to a central office, said telephone-line being normally open at the subscriber's station, of a line-indicator at the central office connected with the telephone-line, switch-contacts at the subscriber's station for controlling the circuit through said line-indicator, and means, controllable from the central office, for completing the circuit of said telephone-line independently of said switch-contacts, substantially as set forth.

679,069. **APPARATUS FOR FLUSHING WATER-CLOSETS, &c.** JULES C. CROPPI and LOUIS EDANT, Paris, France. Filed Dec. 14, 1900. Serial No. 39,832. (No model.)



Claim.—1. A flushing apparatus comprising, in combination, a cistern, a lever pivoted in the cistern, a siphon starting box having a plate *g*, wings *h* and top *i*, a bell *d* open at the bottom, an inclined rectangular fixed plate *e* extending from the bottom of the bell into the forward end of the space between wings *h*, the parts *g*, *h*, *i*, being rigid with and movable with lever *f*, plate *g* being normally retracted from plate *e*, said starting-box communicating with the bell at the bottom thereof by an open passage *k*, a vertical tube in the bell, means for connecting a discharge-pipe therewith, tube *a* forming the long leg of the siphon, and being smaller than the bell, whereby the short leg of the siphon is the bell itself, which leg communicates directly with the cistern, a baffle-plate *c* extending into the bottom of the bell thus forming two passages to the short leg, as set forth.

2. A flushing apparatus comprising, in combination, a cistern, a lever pivoted on the cistern, a siphon-starting box having a plate *g*, wings *h*, and top *i*, a bell *d* open at the bottom, an inclined rectangular fixed plate *e* extending from the bottom of the bell into the forward end of the space between wings *h*, the parts *g*, *h*, *i*, being rigid with lever *f*, a weight 9, on lever *f*, plate *g* being normally retracted from plate *e* by said weight, said starting-box communicating with the bell at the bottom thereof by an open passage *k*, a vertical tube *a* in the bell forming a leg of a siphon and being smaller than the bell whereby the second leg of the siphon is the bell itself, the latter leg communicating with the cistern, the baffle *c* extending into the bottom of the bell and enlarged at its upper end.

3. A flushing apparatus comprising, in combination, a cistern, a lever pivoted on the cistern, a siphon-starting box having a plate *g*, wings *h*, and top *i*, a bell *d* open at the bottom, an inclined fixed plate *e* extending from the bottom of the bell into the forward end of the space between wings *h*, the parts *g*, *h*, *i*, being rigid with lever *f*, a weight 9 on lever *f*, plate *g* being normally retracted from plate *e* by said weight, said starting-box communicating with the bell at the bottom thereof by an open passage *k*, a vertical tube *a* in the bell forming a leg of a siphon and being smaller than the bell whereby the second leg of the siphon is the bell itself, the latter leg communicating with the cistern, the baffle *c* extending into the bottom of the bell and forming two passages to the short leg of the siphon, an inlet-valve to the cistern, and a controlling-float therefor within the cistern.

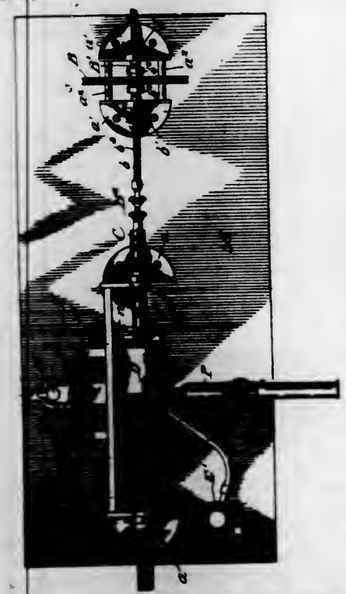
4. The combination of the cistern, the siphon, lever *f*, pivot 1 therefor, weight 9 on the lever, parts *g*, *h*, *i*, carried by the lever within the cistern in advance of the pivot, means outside of the cistern for operating the lever together with parts *g*, *h*, *i*, on pivot 1, plate *e* extending from the bottom of the siphon into the space between wings *h*, the bottom of the cistern having a section curved on said pivot as a center, a passage *k* leading from the short leg of the siphon under plate *e* to the siphon-starting box, and, a similar passage connecting the cistern to the same arm of the siphon on the side opposite plate *e*.

5. The combination of a cistern having a suitable inlet, a central siphon, an outlet-pipe, means for supporting a pivot on the cistern, a lever, a pivot therefor, a siphon-starting box having plates *g*, *h*, extending nearly to the bottom of the cistern, the bottom of the cistern below the siphon being curved downward forming open passages *k*, *k*, both leading to one leg of the siphon, a part of the bottom of the cistern being curved with said pivot as a center, whereby said plates *g*, *h*, swing in close proximity thereto toward and from the siphon, plate *e* extending from the bottom of the siphon and the passages extending from the short leg of the siphon to the siphon-starting box and the cistern respectively.

6. The combination of a cistern having a suitable inlet, a central siphon, an outlet-pipe, means for supporting a pivot on the cistern, a lever, a pivot therefor, a siphon-starting box having plates *g*, *h*, extending nearly to the bottom of the cistern, the bottom of the cistern below the siphon

being curved downward forming open passages *k*, *k*, both leading to one leg of the siphon, a part of the bottom of the cistern being curved with said pivot as a center, whereby said plates *g*, *h*, swing in close proximity thereto toward and from the siphon, plate *e* extending from the bottom of the siphon, passages extending from the short leg of the siphon to the siphon-starting box, and the cistern respectively, the short leg of the siphon consisting of a bell, the bottom of the bell at the side remote from plate *e* being flared outward and shortened to enlarge the inlet to the bell from the cistern.

679,070. MACHINE FOR RULING PHOTOGRAPHIC SCREENS. ELLSWORTH R. FLORA, Chicago, Ill., assignor to Dwight K. Tripp, same place. Filed May 7, 1898. Renewed Dec. 29, 1900. Serial No. 41,466. (No model.)



Claim.—1. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

2. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart, means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, and means for adjusting the ruling mechanism laterally on the cylinder a desired or predetermined distance, substantially as described.

3. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart, means for moving the ruling mechanism out of contact with the material, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

4. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart, means for permitting the ruling mechanism to adjust itself to inequalities on the surface of the material, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

5. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart, means for holding the ruling mechanism in yielding contact with the material, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

6. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart carried by a pivoted frame mounted on a horizontally-adjustable plate, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

7. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling lines on the material while wrapped around the cylinder carried by a pivoted frame mounted on a horizontally-adjustable plate, a vertical standard carrying the plate, a screw, stud or bolt connecting the plate to the standard, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

8. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout, means for rotating the cylinder, mechanism for ruling lines on the material while wrapped around the cylinder carried by a frame provided with an extending tail having a hole therethrough and with an overreaching spring over the extending tail having a notch therein and mounted on a horizontally-adjustable plate having a screw or pin passing up through the hole in the extending tail and the notch in the spring, and means for moving the cylinder longitudinally, while rotating, past the ruling mechanism, substantially as described.

9. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout and mounted on a screw-shaft threaded at one end, a threaded bearing through which the threaded portion of the screw-shaft passes, a driving-shaft provided with a longitudinal keyway, a short hollow shaft surrounding the driving-shaft and keyed thereto in the longitudinal keyway, a driving-pulley mounted on the short hollow shaft, and mechanism for ruling parallel lines on the material while wrapped around the cylinder at a predetermined distance apart, substantially as described.

10. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout and mounted on a shaft threaded at one end, a threaded bearing through which the threaded portion of the screw-shaft passes, a driving-shaft provided with a longitudinal keyway, universal-joint connection between the threaded screw-shaft and the driving-shaft, a short hollow shaft surrounding the driving-shaft and keyed thereto in the longitudinal keyway, a driving-pulley mounted on the short hollow shaft, means for rotating the pulley, and mechanism for ruling lines on the material while wrapped around the cylinder, substantially as described.

11. In a machine for ruling flexible photographic screens, films or papers, the combination of a rotatable cylinder for carrying the material to be ruled wrapped thereabout and mounted on a screw-shaft threaded at one end, a threaded bearing through which the threaded portion of the screw-shaft passes, a driving-shaft provided with a longitudinal keyway, a short hollow shaft surrounding the longitudinal shaft and keyed thereto in the longitudinal keyway, supplementary brackets in which the short hollow shaft is mounted, a driving-pulley mounted on the short hollow shaft, and mechanism for ruling lines on the material while wrapped around the cylinder, substantially as described.

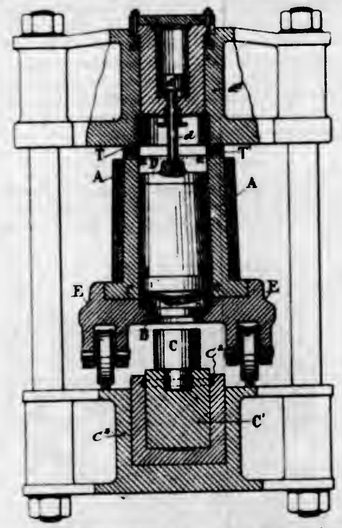
679,071. COCK. JOE GARNER, Chattanooga, Tenn. Filed Apr. 18, 1901. Serial No. 56,396. (No model.)



Claim.—1. In a combination stop and waste cock, the combination with a barrel, its pipe connections, a plug, mainway and drainage connections, of separate drainage connections in the barrel and plug.

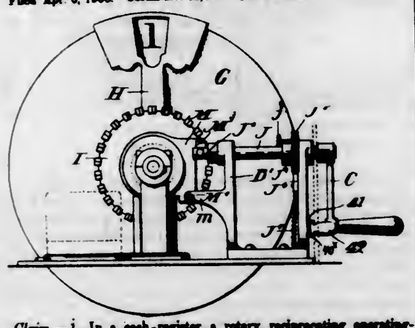
2. In a combination stop and waste cock, the combination with a barrel, its pipe connections, a plug, mainway and drainage connections, of separate drainage connections in the barrel and plug, and means for limiting the movement of the plug, for fixing its position for making and breaking its drainage connections.

679,072. COMPRESSING LIQUID STEEL. HENRI HARMET, St. Etienne, France. Filed May 29, 1900. Serial No. 18,375. (No model.)



Claim.—The improvement in the art of casting steel ingots, which consists in first pouring the steel in liquid form into a frusto-conical mold and in then subjecting the steel to pressure in the direction of the axis of the mold, from each end toward the middle, the pressure toward the smaller end being greater than the opposing pressure, substantially as and for the purposes described.

679,073. CASH-REGISTER. DANIEL W. HARPER, Memphis, Tenn., assignor to the Toledo Cash Register Company, Toledo, Ohio. Filed Apr. 6, 1900. Serial No. 11,867. (No model.)



Claim.—1. In a cash-register, a rotary, reciprocating operating-shaft, a registering mechanism actuated thereby, a handle for rotating said shaft, a crank, connecting between the latter and said shaft, whereby the shaft is given a longitudinal movement, a type-carrier, and connections intermediate the shaft and type-carrier, whereby the two are caused to rotate in unison.

2. In a cash-register, a reciprocating operating-shaft, crank mechanism for operation the latter, a type-wheel actuated by said operating-shaft, and a platen actuated by the crank mechanism.

3. In a cash-register, a rotatable, reciprocating operating-shaft, an indicating mechanism controlled by the rotation of said shaft, a registering mechanism controlled by the longitudinal movement of said shaft, a handle adapted to rotate said shaft axially, a type-carrier coöperating with said handle, a platen and mechanism for contacting the platen and type-carrier, and a second handle controlling the longitudinal movement of the shaft and said contacting mechanism.

4. In a cash-register, a rotatable, reciprocating, operating-shaft, a handle for rotating same, a crank adapted to reciprocate said shaft, a type-carrier, connections intermediate said operating-shaft and type-carrier, whereby shaft and type-carrier are caused to rotate in unison, and means for feeding a paper strip adjacent to the latter.

5. In a cash-register, a rotary reciprocating operating-shaft, a crank-shaft and crank-handle secured thereto, a loosely-mounted plate carried by the reciprocating shaft, and crank-and-pitman connections between said plate and the crank-shaft, as set forth.

6. In a cash-register, a rotary reciprocating operating-shaft, and crank-shaft and crank-handle secured to said operating-shaft, a swivel-plate mounted on said operating-shaft, pitman-and-crank connections between said plate and the crank-shaft, and a sliding guide-rod secured to the swivel-plate, and working in an aperture in the frame, as set forth.

7. In a cash-register, a reciprocating operating-shaft, a handle for rotating and a crank mechanism for longitudinally actuating said shaft, a type-carrier and means intermediate the latter and said shaft for operating the type-carrier, a spring-actuated platen and a cam on the crank-shaft for tripping said platen, as set forth.

8. In a cash-register, a rotary and longitudinal movable operating-shaft, an indicating-dial mounted about and rotating with said shaft, crank mechanism for imparting a longitudinal movement to the operating-shaft, registering mechanism operated by the said operating-shaft, a type-wheel rotating in unison with said dial, a spring-actuated platen and means intermediate the latter and said crank mechanism for throwing said platen up against the type-carrier, as set forth.

9. In a cash-register, a rotary and reciprocating operating-shaft, a dial mounted about and rotating therewith, a registering mechanism controlled by the rotary and longitudinal movement of said shaft, a crank mechanism for operating the shaft longitudinally, a type-carrier and means for rotating same in unison with said dial, a spring-actuated platen driven against the type-wheel at each revolution of the crank mechanism, as set forth.

10. In a cash-register, the combination with the rotary and reciprocating operating-shaft, a dial rotating therewith, a registering mechanism controlled by the rotary and longitudinal movement of said shaft, a crank-shaft and connections between the latter and said operating-shaft for reciprocating said operating-shaft, a type-wheel rotating in unison with said dial, a spring-actuated platen, a trip for actuating the latter, which rotates with the crank-shaft, as set forth.

11. In a cash-register, the combination with the rotary and reciprocating operating-shaft, the dial rotating therewith, the registering mechanism operated by the longitudinal movement of said shaft, type-wheel and geared connection between the latter and said operating-shaft, whereby the type-wheel and dial rotate in unison, a crank and its connections with said operating-shaft, a spring-actuated platen-carrying lever, a cam mounted on said shaft and having an offset in its circumference in which one end of said lever is designed to be sprung at each revolution of the crank-shaft, whereby the platen is thrown against the type-wheel.

12. In a cash-register, the combination with the rotary and reciprocating operating-shaft, the dial rotating therewith, the registering mechanism operated by the longitudinal movement of said shaft, the type-wheel and geared connection between the latter and said operating-shaft, whereby the type-wheel and dial rotate in unison, a crank and its connections with said operating-shaft, a spring-actuated platen-carrying lever, a cam mounted on said shaft, and having an offset in its circumference, which offset has an abrupt wall at one end into which the end of the platen-carrying lever is adapted to be sprung at each revolution of the shaft, as set forth.

13. In a cash-register, the combination with the rotary and reciprocating operating-shaft, the dial rotating therewith, the registering mechanism operated by the longitudinal movement of said shaft, the type-wheel and geared connection between the latter and said operating-shaft, whereby the type-wheel and dial rotate in unison, a crank and its connections with said operating-shaft, a spring-actuated pivoted and angled platen-carrying lever, a cam rotating with the crank-shaft and having in its circumference an offset with an abrupt end wall and curved bottom merging into the circumference of its cam, the end of said lever adapted when opposite the offset to be sprung therein at each revolution of the crank-shaft, and throw the platen up against the type-wheel, as set forth.

14. In a cash-register, a registering-shaft, dollar and cent registering-wheels loosely mounted thereon, geared connection between said wheels, said dollar-wheel having a sliding movement longitudinally on the registering-shaft, while in gear, and means for rotating said dollar-wheel independently of the cent-wheel.

15. In a cash-register, a registering-shaft, dollar and cent registering-wheels loosely mounted thereon, geared connection between said wheels, said dollar-wheel having a yielding spring-actuated movement on the registering-shaft when in gear, whereby the dollar-wheel may rotate independently of the cent registering-wheel.

16. In a registering mechanism for a cash-register, the registering-shaft, the cent and dollar registering-wheels loosely mounted thereon, a loosely-mounted yielding gear-wheel on said shaft, a ratchet-disk turning with the latter and which normally engages and rotates said dollar-wheel in one direction, the latter being allowed to register independent of the

ratchet-disk, and means for transmitting an intermittent rotary movement from the cent-wheel to said gear-wheel, as set forth.

17. In a registering mechanism of a cash-register, the registering-shaft, the cent and dollar registering-wheels, yielding gear-wheel and ratchet-disk, the sleeve, pawl carried thereby, and the ratchet-wheel loosely mounted on said shaft, the adjacent faces of said dollar-wheel and ratchet-disk having intermeshing teeth, a spring for holding same in mesh with one another, and means for transmitting an intermittent rotary motion from the cent registering-wheel to said ratchet-disk.

18. In a registering mechanism of a cash-register, the registering-shaft, the cent and dollar registering-wheels and sliding gear-wheel, and ratchet-disk rotating therewith, loosely mounted thereon, the adjacent faces of said dollar-wheel and ratchet-disk having intermeshing teeth, a spring for holding same in mesh with one another, means for transmitting an intermittent rotary motion from the cent registering-wheel to said gear-wheel, the dollar-wheel adapted to rotate independently of the cent registering-wheel.

19. In a registering mechanism of a cash-register, a registering-shaft, a dollar and a cent registering-wheel loosely mounted thereon, a sliding and spring-actuated gear-wheel loosely journaled on said shaft, a disk secured to said gear-wheel and having a series of laterally-disposed ratchet-teeth normally held in mesh with teeth on the face of said dollar-wheel, sliding geared connection between said cent registering-wheel and the loosely-mounted gear-wheel, whereby an intermittent rotary motion is imparted to the latter, said dollar registering-wheel adapted to rotate independently of the cent-wheel, as set forth.

20. In a registering mechanism for a cash-register, the combination with the registering-shaft, the dollar and cent registering-wheels loosely journaled thereon, a sliding and spring-actuated gear-wheel loosely mounted on said shaft, a disk secured to said geared wheel, intermeshing teeth on the adjacent faces of said disk and dollar registering-wheel, which are normally held in contact by said spring, geared connections between the cent-registering and loosely-mounted gear-wheel, a pawl rotating with the registering-shaft, and engaging internal ratchet-teeth on the dollar-wheel, whereby the latter is allowed to rotate in one direction independently of the cent registering-wheel, as set forth.

21. In a registering mechanism for cash-registers, the combination with the registering-shaft, the cent registering-wheel and the sliding and spring-actuated gear-wheel loosely journaled on said shaft, means for transmitting motion from said cent registering-wheel to the geared wheel, a disk secured to the face of the latter and having a series of laterally-disposed ratchet-teeth, a dollar registering-wheel having a series of ratchet-teeth on its face adjacent to said disk, and an internal series of ratchet-teeth and a pawl rotating with said shaft and engaging said internal series of teeth, as set forth.

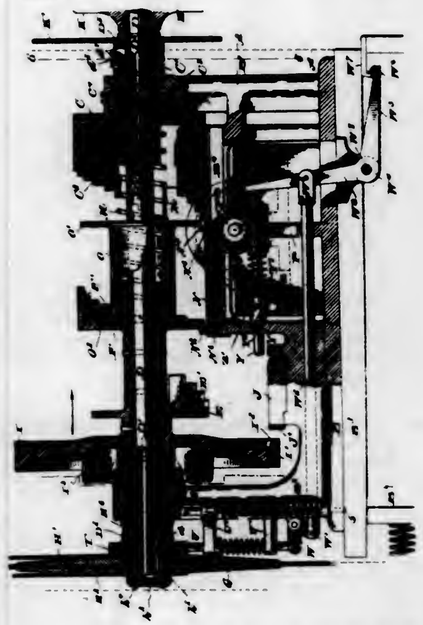
22. In a registering mechanism of a cash-register, a registering-shaft, a cent registering-wheel loosely journaled thereon, means for rotating said wheel, a single-toothed wheel rotating with said registering-wheel, an intermittent wheel actuated by said toothed wheel, a dollar registering-wheel loosely mounted on the registering-shaft, lateral and internal ratchet-teeth on said dollar registering-wheel, a pawl rotating with the registering-shaft, and engaging said internal teeth, a sliding and spring-actuated and loosely-mounted gear-wheel, a disk secured to the latter, and provided with a circular series of teeth on its face, designed to engage teeth of said dollar registering-wheel, a second gear-wheel actuated by said intermittent wheel and having an intermeshing contact with said loosely-mounted sliding gear-wheel, as set forth.

23. In a registering mechanism for a cash-register, the combination with the registering-shaft, the cent registering-wheel and means for operating same, the loosely-mounted and sliding and spring-actuated gear-wheel, and ratchet-ring with teeth thereon rotating with said gear-wheel, and connection between same and the cent registering-wheel, the dollar-wheel having a series of lateral and internal teeth, said lateral teeth engaging the teeth on the ratchet-ring, the transferring-disk secured to said dollar-wheel, a pawl carried by said shaft and engaging the internal series of teeth of the dollar registering-wheel, as set forth.

24. In a cash-register, a registering mechanism comprising a shaft, a sleeve mounted loosely thereon, means for rotating the shaft and sleeve independently of each other, a pawl carried by said sleeve, a cent numeral-wheel loose upon said shaft, adapted to be rotated by said sleeve-pawl, a series of dollar numeral-wheels loose upon said shaft, a pawl-and-ratchet connection between said shaft and the unit-dollar numeral-wheel, intermittent gear connection between the several dollar numeral-wheels, a gear-wheel and ratchet-disk secured thereto, loose upon said shaft, which latter is normally in detachable engagement with said unit-dollar numeral-wheel, intermittent gear intermediate the said gear-wheel and the cent numeral-wheel, and means for automatically throwing said gear-wheel into and out of engagement with said dollar numeral-wheel.

25. In a cash-register, a shaft, a dollar numeral-wheel loose upon said shaft, a pawl-and-ratchet connection between said shaft and dollar numeral-wheel, a gear-wheel and ratchet-disk secured to the said gear-wheel, loose upon said shaft and sliding thereon, ratchet-teeth upon the adjacent faces of said ratchet-disk and dollar numeral-wheel adapted to engage each other and rotate together in one direction, a spring adapted to press the ratchet-teeth of said gear-wheel normally into engagement with the ratchet-teeth of the dollar numeral-wheel, whereby when the gear-wheel is held against rotation, the wedge-like action of the inclined faces of the ratchet-teeth of the dollar numeral-wheel, will overcome the stress of said spring, and force the said gear-wheel along said shaft out of engagement with the dollar numeral-wheel.

679,074. CASH-REGISTER. DANIEL W. HARPER, Memphis, Tenn., assignor, by mesne assignments, to the Toledo Cash Register Company, Dover, Del. Filed Nov. 3, 1897. Serial No. 657,268. (No model.)



Claim.—1. A rotary cash-register having an extensible operating-shaft, stepped cylindrical shells mounted thereon, each of said shells having a blank space without steps about its circumference, the two shells keyed to the operating-shaft, so that, when the steps of one cylinder-shell are presented for engagement with registering operating mechanism, a blank space on the second cylindrical shell will be presented in alinement with the step which is positioned to actuate the registering mechanism and a step-cylinder forming a stop, as set forth.

2. A rotary cash-register, having two cylindrical stepped shells for actuating registering mechanism, an extensible operating-shaft to which said shells are keyed, a third stepped shell on the said shaft for limiting the movement of the operating-shaft, said last-referred-to shell being reversed on the shaft, and registering operating mechanism interposed between the reversed stepped shells, as set forth.

3. A rotary cash-register consisting of an extensible operating-shaft, hollow cylindrical stepped shells keyed to said shaft, a registering-shaft, means intermediate said stepped shells and said registering-shaft to rotate the latter, and a stop-cylinder to limit the forward throw of the stepped shells, as set forth.

4. In a rotary cash-register, the extensible operating-shaft, the stepped cylindrical shells keyed to said shaft, and a third stepped shell, which is rotatable in a fixed position in the framework of the register, and through which the said operating-shaft is longitudinally movable, combined with the registering mechanism, as set forth.

5. In a rotary cash-register, the extensible shaft, the stepped shells keyed thereto, a longitudinally-movable registering actuating member, a leg carried thereby, a stationary, but rotary stepped cylinder forming a stop to the said member, and a flanged shell for returning the member to its starting position, combined as set forth.

6. In a rotary cash-register, an extensible, operating-shaft, stepped cylindrical shells keyed thereto, a stationary rotatable stop cylindrical shell, a flanged cylinder secured to one of the stepped cylinders, the flanged portion of which is adapted to freely enter the said stop-cylinder, combined with mechanism for actuating a registering-shaft, as set forth.

7. In a cash-register, the extensible shaft, the stepped cylindrical shells keyed thereon, the stepped, rotatable stop-cylinder, a spring interposed between said stop-cylinder and one of the stepped cylindrical shells, the flanged cylinder, combined with a longitudinally-movable rack-bar, and lug thereon, and registering-shaft and pinion-wheel for engagement with said rack-bar, combined as set forth.

8. In a rotary cash-register, the combination with the extensible operating-shaft, shells mounted on and rotating therewith, said shaft having a row of teeth in its surface, of a pawl pivoted to the hub of one of the shells and adapted to rotate therewith, and to engage with said teeth, as set forth.

9. In a rotary cash-register, the combination with the extensible operating-shaft, said shaft having a longitudinal row of teeth cut in its surface with recesses in the shaft at each end of the said row, of the hub of shell rotating with said shaft, of the pivoted pawl mounted in a recess of the hub, said pawl engaging with the teeth in the shaft, as set forth.

10. In a rotary cash-register, the extensible operating-shaft, the stepped cylinders, flanged cylinder and rack-bar designed to be actuated thereby, the reversely-arranged hollow stepped stop-cylinder, with extended hub portion, the set-screw mounted in the frame of the machine, and having its end engaging in an annular recess in the said hub, combined as set forth.

11. In a rotary cash-register, the extensible shaft with stepped cylinders secured thereto, the stepped stop-cylinder having an elongated hub mounted to rotate with said shaft, registering mechanism operated by said cylinder, a pawl pivoted in a recess in said hub, and designed to engage with teeth in the surface of the shaft, and the spring secured to the hub with its free end bearing yieldingly against the upper end of said pawl, as shown and described.

12. In a rotary cash-register, the extensible rotary operating-shaft, the sleeve in which one end of said shaft is splined, the dial-wheel mounted on said sleeve, the friction-wheel secured to the extensible shaft, the shutter, a collar loosely mounted on said sleeve and carrying the shutter, and frictional means for rocking the latter at the moment the shaft begins to rotate, as set forth.

13. In a rotary cash-register, the extensible shaft, the sleeve in which a contracted end of the shaft is splined, a friction-wheel secured to said shaft, the dial-wheel secured to said sleeve, and the shutter having friction-arms for engagement with the said friction-wheel, combined as described.

14. In a rotary cash-register, the extensible shaft, the sleeve in which the end of said shaft is splined, the wheel secured to the shaft, and friction-flange on said wheel, the rotary dial keyed to said sleeve, combined with the shutter having apertured arms which are loosely journaled on said sleeve, and friction members secured to one of said shutter-arms, as set forth.

15. In a rotary cash-register, the extensible operating-shaft, the sleeve to which one end of said shaft is splined, the wheel with friction-flange thereon, secured to the operating-shaft, the numeral-dial mounted to rotate with said sleeve combined with a second sleeve loosely journaled over the splined sleeve, and a shutter having an arm secured to said outer sleeve, and friction members for engagement with the said friction flanged wheel, as set forth.

16. A rotary cash-register, having in combination with the extensible operating-shaft, the friction-wheel, the sleeve in which one end of said shaft is splined, the rotary indicating-dial mounted to turn said sleeve, the sleeve loosely journaled on said splined sleeve, the shutter having arms straddling the indicating-dial, one of which arms is loosely journaled on the splined sleeve, the other secured to the outer sleeve, and the friction-arms mounted to rotate with the shutter, as set forth.

17. In combination with the extensible operating-shaft, the friction flanged wheel secured thereon, the sleeve in which the operating-shaft is splined, the indicating-dial mounted to turn with said sleeve, the sleeve loosely journaled about the splined sleeve, the shutter having an arm secured thereto, and the member, T, mounted to rotate with the shutter, and spring friction-arms secured in pairs at right angles to said member, as set forth.

18. In a rotary cash-register, the longitudinally-extensible operating-shaft, the sleeve in which one end of said shaft is splined, the numeral-dial keyed to said sleeve, a shutter loosely mounted on the sleeve, a frictional wheel secured to the extensible shaft and adapted to travel with the shaft in its longitudinal movements, and frictional arms engaging said wheel, combined as set forth.

19. In a rotary cash-register, an extensible operating-shaft, a sleeve in which one end of said shaft is splined, a dial-wheel keyed to said sleeve, a shutter loosely mounted on the sleeve, a friction-wheel secured so as to rotate with the extensible shaft and movable with the shaft longitudinally, frictional arms connected to the shutter and held yieldingly against the flange of the friction-wheel, when the shaft is in its closed or starting position, combined as shown and described.

20. In combination with the extensible shaft, the sleeve in which one end of the shaft is splined, the shutter and sleeve carrying same, which latter is loosely journaled on the said sleeve, the friction-arms, the friction-wheel carried by the extensible shaft in its longitudinal movements, and means for holding the dial in a tilted position, as shown and described.

21. In combination with the extensible shaft, the friction-wheel mounted thereon, the numeral-dial and sleeve carrying same, shutter, friction-arms secured thereto, and spring-actuated members for holding the shutter normally in a vertical position, as set forth.

22. In a cash-register, the combination with the extensible shaft, the wheel with friction-flange mounted to rotate therewith, the numeral-dial and sleeve carrying same, the loosely-journaled shutter, the spring-actuated bolt designed to engage in notches or recesses in a portion of the shutter to hold the latter tilted, and means for automatically operating the said bolt, as set forth.

23. In a rotary cash-register, the combination with the extensible splined shaft, the flanged friction-wheel secured to said shaft, of the sleeve carrying one end of the operating-shaft, the numeral-dial, the sleeve mounted loosely on said sleeve splined to the operating-shaft, of the shutter secured to the loosely-mounted sleeve, lateral projections on the latter, and spring-actuated posts bearing against the said extension, as and for the purpose set forth.

24. In a rotary cash-register, the extensible operating-shaft, the sleeve splined thereto, the numeral-dial mounted on said sleeve, the friction-wheel carried by said shaft, of the loosely-mounted sleeve and shutter carried thereby, with friction-arms secured to the loosely-mounted sleeve having lateral extensions, combined with mechanism for holding the shutter tilted, and spring-actuated telescoping posts for holding the shutter in a numeral-exposing position, as set forth.

25. In combination with the operating-shaft, sleeves, shutter and wheel with frictional flange as described, frictional arms secured to the shutter-carrying sleeve, designed to engage with said flange, the spring-actuated bolt engaging with said shutter-carrying sleeve, the longitudinally-movable rod and connections between same and said spring-actuated bolt, and members for normally holding the shutter-arms in a position to expose a numeral at the sight-aperture, as set forth.

26. In a rotary cash-register, the operating-shaft, the flanged friction-wheel carried thereby, the sleeve in which said shaft is splined, dial-wheel rotating with said sleeve, a loosely-mounted sleeve, the shutter with friction-arms carried thereby, the spring-actuated bolt engaging with said loosely-mounted sleeve, the angle-lever pivoted to the frame of the register, and having one of its arms connected to the said spring-actuated bolt, the longitudinally-movable rod W^2, angle-lever W^4 and spring-actuated bolt Y in the path of said friction-wheel, combined as set forth.

27. In combination with the operating-shaft, the friction-wheel carried thereby, the sleeve in which said shaft is splined, the numeral-dial carried by said sleeve, the shutter and loosely-mounted sleeve carrying the latter, friction-arms secured to the shutter-carrying sleeve, the telescoping posts mounted vertically in extensions of the register-frame, the upper ends of said posts having flaring heads, and shoulders to limit their upward throw, as shown and described.

28. In a rotary cash-register, the combination with the extensible shaft, a wheel secured thereto having a frictional flange on one side thereof, shutter mechanism and means for frictionally engaging the flange to operate said shutter mechanism, the outer circumference of said wheel having a series of recesses therein, of the wedge-shaped guide-block designed to engage with the recesses of the wheel, as set forth.

29. In a cash-register, the combination with the extensible operating-shaft and wheel secured thereto, the spring-actuated shaft, Y, having one end disposed in the path of said wheel to be moved longitudinally thereby as the shaft carrying said wheel is drawn forward, the shaft, Z, and pin carried thereby, which shaft is caused to rock as the shaft, Y, is moved longitudinally, and a bell, and means for ringing same, as the shaft rocks, as shown and described.

30. In combination with the spring-actuated shaft, Y, and means for imparting a longitudinal movement thereto, an elongated shouldered portion of said shaft having an aperture therein, with beveled walls, a shaft, Z, mounted at right angles to said shaft, Y, and a pin, Z', engaging in said aperture for rocking the shaft, Z, to ring a bell arranged as shown and described.

31. In combination with the rocking shaft, Z, and means for operating same, as described, the hammer-rod, having a solid portion recessed out, a pawl pivoted in said recessed portion, a pin carried by shaft, Z, to trip against said pawl, which causes the hammer on the said rod to strike a bell.

32. In combination with the rocking shaft, Z, and means for rocking same, the hammer-rod, having a solid portion, X^4, which is recessed, a pawl pivoted in said recess, the pin, Z^7, mounted on the shaft, Z, and adapted to bear against said pawl and raise the hammer-rod as the said shaft rocks in one direction only, and a pin, X^1, and spring for returning the hammer to its normal position, as set forth.

33. In a registering mechanism for cash-registers, the combination with the shaft, sleeve and pinion-wheel loosely mounted thereon, and rack-bar for rotating the sleeve, of a numeral-band loosely mounted on said sleeve and provided with a notched edge, a pawl pivoted to the sleeve and designed to engage said notches from the under side of the band, of a stop against which the pawl is adapted to engage, and means for preventing a backward rotation of the numeral-band, as set forth.

34. In a registering mechanism for cash-registers, the combination with the stationary shaft, sleeve and pinion loosely mounted thereon, with rack for rotating said sleeve, of the notched numeral-band loosely held on said sleeve and separated from the pinion, the spring-actuated pawl pivoted to the sleeve, and designed to engage with the notched circumference of the numeral-band, of a stationary member in the path of the pawl, against which the latter is adapted to strike, and a pawl to prevent a backward rotation of said band-wheel, as set forth.

35. In a registering mechanism for a cash-register, the stationary shaft, a sleeve loosely journaled thereon, means for rotating said sleeve, a numeral-band mounted about an enlarged portion of said sleeve, a pawl carried by the enlarged portion of the sleeve, which engages with the numeral-band, the circumference of said enlarged portion of the sleeve having an annular groove and members carried therein, by which the numeral-band and sleeve are held together, and the registering actuating mechanism driven by the numeral-band.

36. In a registering mechanism for cash-registers, the combination of the shaft, the pinion-wheel and sleeve loosely mounted thereon, the numeral-band separate from the sleeve and mounted thereon, the pawl pivoted to the sleeve and engaging with the notched numeral-band, the registering-wheels loosely mounted on said shaft and a disk with lug thereon engaging with the numeral-band and adapted to actuate the transfer mechanism for the registering-wheels, as set forth.

37. In combination with the stationary shaft, a sleeve loosely journaled thereon, an enlarged circular portion of said sleeve having about its circumference an annular groove, a numeral-band with an annular groove about its inner circumference registering with the groove in said sleeve, and strips secured in the groove of the sleeve, the ends of which strips engage in the annular groove in the numeral-band, a pawl on the sleeve engaging with the numeral-band, and registering actuating mechanism driven by the numeral-band, as set forth.

38. In combination with the stationary shaft carrying registering-wheels, a loosely-mounted sleeve and pinion-wheel, and means for rotating the pinion-wheel, a numeral-band having a series of notches on its edge, said band rotatable loosely on the enlarged circular part of said sleeve, means for holding the band against lateral movement, and the disk loosely mounted on the shaft, and rotated by the numeral-band, and means for imparting a movement to said registering-wheels, as set forth.

39. In combination with the stationary shaft carrying registering-wheels, the sleeve with enlarged circular portion thereon, a pawl pivoted to said enlarged portion of said sleeve, registering-wheels, a disk, and means for actuating said wheels, said disk being driven by the numeral-band, and a stationary portion of the frame having a lug forming a stop for the said pawl to hold the free end of same in a recess or aperture in the numeral-band, as shown and described.

40. In combination with the shaft carrying registering-wheels, the sleeve loosely mounted thereon, the pawl pivoted to an enlarged portion of the sleeve, and outwardly bent, the notched numeral-band loosely mounted to rotate in one direction on the circumference of the enlarged portion of the sleeve, and to be engaged by said pawl, means for holding the band from lateral movement, a stationary stop in the path of said pawl and means for actuating the registering-wheels, as set forth.

41. In combination with the shaft carrying registering-wheels, the sleeve loosely mounted thereon, the pawl pivoted to the enlarged circular portion of the sleeve, and outwardly bent and having a double beveled end, a spring held yieldingly against its under edge, the notched numeral-band loosely mounted to rotate in one direction on the circumference of the enlarged portion of the sleeve, and to be engaged by said pawl, means for holding the numeral-band against lateral movement and a stationary stop having a projection in the path of a lug carried by the pawl, as shown and described.

42. In a registering mechanism for cash-registers, the shaft with registering-wheels mounted thereon, one of said wheels consisting of a sleeve and numeral-band mounted thereon, and means for actuating same, combined with a disk journaled on said shaft, and having a lug on one edge designed to engage in a notch in the numeral-band and to be rotated by the latter, and means for operating the registering-wheels of higher order, as said disk is rotated, as set forth.

43. In a registering mechanism for cash-registers, the shaft with registering-wheels mounted thereon, one of said wheels consisting of a sleeve and numeral-band mounted thereon, and means as set forth for actuating same, combined with a disk journaled on said shaft, an integral projection of the disk engaging with a notch in the edge of the numeral-band, a rib, with recessed end, on the face of the disk, and geared mechanism meshing with said recessed rib for operating the registering-wheels of higher order as shown and described.

44. In combination with a rocking member, and registering-shaft, a pawl pivoted on said member, and lug on the pawl, a stationary stop, a numeral wheel or ring having a rotary movement in one direction, said pawl designed to turn idly, when the member carrying same, is rocked in one direction, and when rocked in the other direction to engage with said numeral wheel or band to rotate the latter with said member to the starting or normal position of the pawl, and hold the same stationary by means of the lug coming in contact with said stop, as shown and described.

45. In combination, in a rotary cash-register, the casing, the fixed dial secured to the face thereof, a semicircular series of numerals arranged on the face of said dial above the center of the dial, and adjacent to its periphery, a second semicircular series above the center and located within the outer series of numerals, combined with the operating-shaft, the two indicating-pointers mounted on said shaft, and disposed in the same plane, whereby indications may be made without the hand of the operator obscuring the numerals, as set forth.

46. In a rotary cash-register, a longitudinally-movable operating-shaft, a sleeve in which one end of said shaft is splined and has a longitudinal movement, a numeral-dial rotating with said sleeve and shaft, a registering mechanism, a rotary member longitudinally movable with the operating-shaft and having projections of unequal length which are designed to operate said registering mechanism to an extent governed by the various lengths of said projections.

47. A rotary cash-register having an extensible shaft, a registering mechanism, members having projections of unequal length, mounted on said shaft, each of said members having a blank space without projections, whereby when the projections of one of said members are presented for engagement with said registering mechanism, a blank space of the second member will be presented in alinement with the projection which is positioned to actuate the registering mechanism.

48. A rotary cash-register having an extensible shaft, a registering mechanism, cylindrical members, having projections of unequal length, mounted on said shaft, each of said members having a blank space without projections, whereby when the projections of one of said members are presented for engagement with said registering mechanism, a blank space of the second member will be presented in alinement with the projection which is positioned to actuate the registering mechanism.

49. In a rotating cash-register, the extensible operating-shaft, the indicating dial and shutter, means for moving the shaft into positive engagement with the shutter and out of engagement therewith, whereby the shutter is rotated to obscure the indicator when the latter is turned by said shaft.

50. In a rotary cash-register, the extensible operating-shaft, a numeral dial and shutter, frictional gripping-arms on the latter, and means on the shaft to engage said arms when the shaft is pushed in.

51. In a cash-register, an extensible shaft, tilting shutter, spring-pressed latch, side restoring-springs, means for turning the shutter for obscuring a numeral, and connections between said shaft and latch, as set forth.

52. In combination with the shutter having a lug or catch thereon, a central spring-post for engagement with the latter, and side spring-actuated members for restoring the shutter on the releasing of said central post, as shown and described.

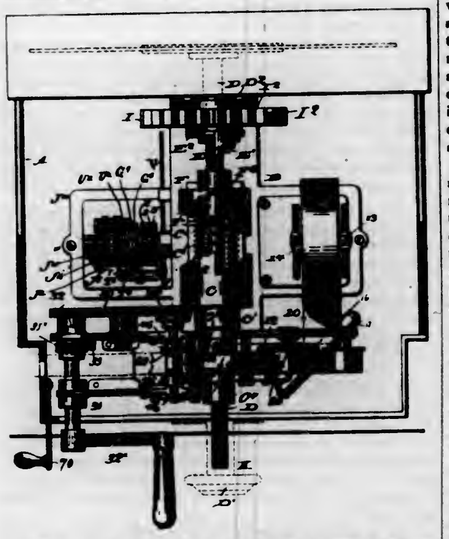
53. In a registering mechanism, the combination with the shaft, registering-wheels mounted thereon, a sleeve loosely journaled on the shaft, means for rotating the sleeve in two directions, a numeral-band loosely mounted on the sleeve, a pawl carried by the latter and engaging said band, and mechanism connected with the band for operating the registering-wheels, as set forth.

54. In a registering mechanism, in combination with a rotatable numeral carrier, a rotatable actuating member for said carrier, a main operating member, said operating member provided with means to rotatably set the actuating member to a predetermined numeral on the carrier and to rotate it in the other direction to effect a registration, means to prevent the operation of the registering mechanism until a complete setting movement has been effected, and a pawl to prevent the operation of the carrier in the direction of the setting movement, substantially as set forth.

55. In a cash-register, an extensible, revolvable operating-shaft, a fixed dial having two rows of numerals arranged in concentric arcs, a registering mechanism, two stepped members fixed on said shaft and having projections adapted to actuate said registering mechanism, the number of steps or projections corresponding with the number of numerals on said fixed dials, two indexes fixed upon said shaft, and describing respectively circles with which said concentric arcs coincide, and means for revolving said two stepped members and said pair of indexes in unison, whereby the position of the indexes indicates which stepped member and which step or projection are in operative relation with the registering mechanism.

56. In a cash-register, an extensible revolvable operating-shaft, a registering mechanism, two stepped members fixed to and movable with the shaft and adapted by the longitudinal movement of the shaft to actuate said registering mechanism, a series of spirally-arranged steps on said stepped members, in equidistance relation, except that in the place of one step is a blank which at this point permits the longitudinal movement of the shaft without engagement of the stepped members with the registering mechanism.

679,075. CASH-REGISTER. DANIEL W. HARPER, Memphis, Tenn., assignor, by mesne assignments, to the Toledo Cash Register Company, Dover, Del. Filed Feb. 26, 1900. Serial No. 706,638. (No model.)



Claim.—1. In a registering mechanism, the registering shaft and wheel, reversely-arranged pawls for normally locking said wheel from rotation in either direction, a disk designed as it is rotated to disengage one of said pawls, to allow the registering-wheel to rotate with said shaft, and means for limiting the rotary movement of said wheel, as set forth.

2. In a registering mechanism for cash-registers, the combination with the registering-shaft of a registering-wheel and ratchet-rings with reversely-arranged teeth thereon, designed to rotate with said wheel, and pawls engaging with the teeth of the ratchet-rings, and means for releasing one of said pawls to allow the registering-wheel to rotate during the registering operation, and for limiting the rotary movement of said wheel, as set forth.

3. In a registering mechanism for cash-registers, the combination of the registering-wheel, the ratchet-rings, with reversely-arranged teeth, stationary pawls normally engaging with said teeth, the rotary disk with notch in its circumference, in which notch one of said pawls normally engages and is lifted out of said notch and out of the path of the teeth of the notched ring, as the disk is rotated, and means for rotating the registering-wheel, as set forth.

4. In a registering mechanism for cash-registers, the combination of the registering-wheel, the ratchet-rings with reversely-arranged teeth, the pawls engaging with said teeth, the notched disk for throwing one of said pawls out of engagement with the teeth of one of said ratchet-rings, and for forming a momentum-stop to the registering-wheel after a registration has been effected, and a spring-actuated dog engaging with teeth on the inner circumference of said ratchet-rings to rotate the registering-wheel in one direction, as set forth.

5. In a registering mechanism for cash-registers, the combination of the registering-wheel, the ratchet-ring with reversely-arranged teeth, the pawls engaging with said teeth, the notched disk for throwing one of said pawls out of engagement with the teeth of one of said ratchet-rings, and for forming a momentum-stop to the registering-wheel, after a registration has been effected, a spring-actuated dog mounted in the hub of said disk, and normally engaging with the two rows of teeth of the inner circumference of said ratchet-rings, and adapted to ride idly over said teeth when the disk is rotated in one direction, but to rotate the registering-wheel when a reverse motion is imparted to said disk, as set forth.

6. In a registering mechanism for cash-registers, the combination of the registering-shaft, a loosely-mounted internal sleeve and notched disk thereon, means for rotating said sleeve, the registering-wheel and ratchet-rings with reversely-arranged teeth thereon, the spring-actuated pawls normally engaging with said teeth, the circumference of said disk of slightly-larger diameter than that of the ratchet-rings, the spring-actuated dog mounted in a radial aperture in the hub of the disk and designed to engage with the teeth on the inner circumference of said ratchet-rings and ride idly over said teeth when the said sleeve is turned in one direction, and when turned in the reverse direction to rotate the registering-wheel, as set forth.

7. In a registering mechanism for cash-registers, an extensible operating-shaft, a sleeve in which one end of said shaft is splined, a driving-wheel keyed to said operating-shaft, combined with the registering-shaft and gear mechanism for rotating the registering-shaft in opposite directions as the operating-shaft is moved longitudinally, a registering-wheel mounted on the registering-shaft, ratchet-rings secured to said wheel, a swinging bail and pawl carried thereby, which pawl engages the teeth on the circumference of said ratchet-rings, a horizontally-movable tapering member for raising said bail, said member being disposed in the path of the driving-wheel and adapted to be struck thereby as the operating-shaft is pulled out.

8. In a registering mechanism for cash-registers, a registering-wheel, and shaft carrying same, ratchet-rings secured to said wheel, reversely-arranged teeth on said rings, stationary pawls normally engaging with said teeth and locking the registering-wheel from rotation in either direction, combined with swinging bail, and pawl carried thereby, engaging with the teeth of one of said ratchet-rings, a reciprocating member for raising the bail, and means for holding one of said stationary pawls out of engagement with said teeth until the bail is returned to its starting position, as set forth.

9. In a registering mechanism for cash-registers, a registering-wheel and shaft carrying same, ratchet-rings secured to said wheel, reversely-arranged teeth on said rings, stationary pawls normally engaging with said teeth, and locking the registering-wheel from rotation, combined with a swinging bail and pawl carried thereby, which latter engages with the teeth of one of said notched rings, and a rocking lever normally supporting the free end of the bail and means for tripping said lever for releasing one of the stationary pawls and returning the bail to its starting position.

10. In a registering mechanism for cash-registers, the registering-wheel, the shaft carrying same, the operating-shaft, ratchet-rings secured to or forming a part of said wheel, reversely-arranged teeth on said rings, stationary pawls normally engaging with said teeth, combined with a swinging bail and pawl carried thereby, which latter is adapted to engage with the teeth of one of the ratchet-rings, and a rocking lever normally supporting the swinging bail, said lever designed to release one of the stationary pawls, as the lever is tilted to allow the bail to drop, and means for rocking said lever and raising the bail to impart a partial rotary movement to the registering-wheel, as set forth.

11. In a registering mechanism for cash-registers, the registering-wheel, the shaft carrying same, the operating-shaft and means for rotating the registering-shaft as the operating-shaft is actuated, the ratchet-rings, the reversely-arranged teeth thereon, stationary pawls normally engaging with said teeth, combined with a swinging bail and pawl carried thereby, which latter is adapted to engage with the teeth of one of said ratchet-rings, a rocking lever designed to support the swinging bail, and engaging with one of said stationary pawls, and adapted to release the same as the said lever is rocked, and a longitudinally-movable wedge-shaped member for returning the bail to its normal position supported by said lever, and means for rocking said lever and for operating the said wedge-shaped member, as set forth.

12. In a registering mechanism for cash-registers, the combination of the operating and registering shafts, and means for rotating the latter, the registering-wheel, the ratchet-rings and stationary pawls engaging with the reversely-arranged teeth thereon, the swinging bail, the shaft carried by said bail and pawl mounted thereon, an antifriction-wheel on the end of said bail-shaft, and an inclined or wedge-shaped member adapted, as it is driven forward when the operating-shaft is pulled out, to strike said antifriction-wheel and raise the bail, as set forth.

13. In a registering mechanism for cash-registers, the operating-shaft, the registering-wheel and shaft carrying same, the ratchet-rings se-

cured to said wheel, the bail and pawl carried thereby, the stationary pawls, the rocking lever having one arm designed to support the swinging portion of the bail, a second registering-wheel adapted at each revolution to rock said lever and cause the bail to fall, and one of said stationary pawls to be released from engagement with one of said ratchet-rings, and means for raising said bail, combined as set forth.

14. In a registering mechanism for cash-registers, the combination of the registering-wheel and shaft carrying same, ratchet-rings secured thereto, or forming a part thereof, the bail and pawl designed to engage with the teeth of one of said rings, the stationary pawls reversely arranged, and engaging with the teeth of said ratchet-rings, the rocking lever having one arm designed to support the swinging portion of the bail, a second registering-wheel and lug carried thereby, which latter is adapted to strike an arm of said lever, at each revolution of the wheel carrying the lug, whereby the lever is rocked and one of the stationary pawls released, and means for raising the bail and for operating the registering-shaft, as set forth.

15. In combination in a registering mechanism, the registering-wheel and ratchet-rings secured thereto, the shaft on which the latter are mounted, and means for rotating same, the stationary pawls engaging with the reversely-arranged teeth on said ratchet-rings, the bail, the pawl carried thereby, the rocking lever designed to support the bail, one of said stationary pawls having a lug which engages in an aperture in said lever, and means for rocking the latter, as set forth.

16. In a registering mechanism for cash-registers, the combination with the registering-shaft, the wheel, ratchet-rings provided with reversely-arranged teeth secured to said wheel, of the stationary pawls mounted on a common pivot, and having a spring connecting corresponding ends of said pawls, and means for automatically releasing one of the pawls to allow a partial revolution to be imparted to the registering-wheel, as set forth.

17. In a registering mechanism for cash-registers, the combination with the registering shaft and wheel and ratchet-rings mounted thereon, of the stationary pawls designed to engage with the reversely-arranged teeth of said ratchet-rings, the swinging bail and pawl carried thereby, the pivoted rocking lever adapted to support the swinging end of the bail, and a sliding pivotal connection between one of said pawls and the lever, whereby, as said lever is tilted, said pawl, pivoted to the latter will be held out of the path of the teeth of the ratchet-ring until the bail is returned to its starting position and supported on said lever, and means for actuating the lever and bail, as shown and described.

18. In combination with the main rotary and reciprocating shaft, a registering-shaft and registering-wheels mounted thereon, pawls for normally locking one of the registering-wheels from rotation in either direction, one of said pawls adapted to be automatically released to allow the wheel to rotate during the registering operation, means for limiting the rotary movement of the latter and mechanism operated by the reciprocating shaft for actuating the registering-wheels, as set forth.

19. In combination with the main rotary and reciprocating operating-shaft of a cash-register, a registering-shaft and registering-wheel mounted thereon, means for operating said wheel, reversely-arranged pawls for normally locking said registering-wheel from rotation in either direction, a disk designed as it is rotated to disengage one of said pawls to allow the registering-wheel to rotate, and means for limiting the rotary movement of said wheel, as set forth.

20. In combination with the main rotary and reciprocating operating-shaft of a cash-register, the registering-shaft and registering-wheel mounted thereon, means for operating the latter and ratchet-rings with reversely-arranged teeth thereon, designed to rotate with said wheel, and pawls engaging with the teeth of the ratchet-rings, and means for releasing one of said pawls to allow the registering-wheel to rotate during the registering operation, and for limiting the rotary movement of said wheel.

21. In combination with the main rotary and reciprocating shaft, a registering-wheel and shaft carrying the same, means for operating said shaft, and ratchet-rings having reversely-arranged teeth rotating therewith, pawls normally engaging with the teeth of said ratchet-rings, a rotary notched disk designed to throw one of said pawls out of engagement with one of said ratchet-rings to allow a registration to be effected, said released pawl adapted to engage in the notch of the disk after the registration is made, and lock the registering-wheel against further rotation, as set forth.

22. A check-printing attachment for cash-registers, comprising the extensible operating-shaft of the register, the type-wheel keyed to rotate therewith, the check and detail strips fed adjacent to said type-wheel, inking-ribbons interposed between said strips and a hammer for striking the strips and inking-ribbons against the type-wheel, and means for operating the hammer, as set forth.

23. In a check-printing attachment for cash-registers, the combination with the extensible shaft of a register, a type-wheel mounted to rotate with said shaft, a pivoted platen and longitudinally-movable bar in contact with one end of said platen, and a wheel carried by said shaft, which is designed to strike against the end of the bar to cause the platen to strike against the type-wheel, as set forth.

24. In a check-printing attachment for cash-registers, the combination with the extensible shaft of a register, a type-wheel mounted to rotate with said shaft, the pivoted platen and a longitudinally-movable bar having a shouldered end designed to contact with the pivoted end of the platen, a wheel keyed to said shaft, adapted to strike against an upturned portion of said bar as the shaft is extended, whereby the platen may be thrown forcibly against the type on the type-wheel, as set forth.

25. In a check-printing attachment for cash-registers, the combination with the shaft, the type-wheel, the platen and means for operating the same, the reel of check-strip paper mounted on a spindle, and loosely held in brackets, a friction-roller against which said reel normally contacts, and a diagonally-disposed roller designed to turn at right angles to said strip and feeding mechanism for advancing the said strip between the platen and the type on the said type-wheel, as set forth.

26. In a check-printing attachment for cash-registers, the combination with the extensible shaft and type-wheel keyed to rotate therewith, the platen and means for operating same as the shaft is extended, the check and detail strips passed over suitable rollers and between said platen and type-wheel, the ribbon between said detail and check strips, a roller having a flattened portion designed to impart an intermittent movement to said check-strip, a knife actuated by said flattened roller for severing the check-strip, as set forth.

27. In a check-printing attachment for cash-registers, the combination with the extensible shaft, the type-wheel splined to rotate therewith, the pivoted platen and means for throwing the latter against the type-wheel as said shaft is extended, the check and detail strips, the friction-roller having a portion of its circumference flattened, a second friction-wheel held in contact with said flattened wheel during a partial revolution of the latter, shearing-knives between which the check-strip is fed, and means for shearing off the check-strip as the flattened portion on said friction-wheel passes adjacent to said second friction-roller, as set forth.

28. In a feeding mechanism for check-printing devices, the combination with the check and transparent detail strip and inking-ribbon mounted on rollers as described, a shaft and feeding-roller turning therewith for advancing the check-strip, a gear-wheel turning with said shaft, a single tooth on a shoulder of said gear-wheel, a feeding-roller for the detail-strip, a gear-wheel rotating with said detail-strip-feeding roller, and designed to be engaged by said single tooth at each revolution of the wheel carrying the latter, shearing-knives, one of which is actuated by said check-feeding roller at each revolution of the latter, as set forth.

29. In a feeding mechanism for check-printing devices the combination of the check and transparent detail strips, and the inking-ribbon mounted on rollers as described, a shaft and feeding-roller mounted thereon, for advancing the check-strip, a gear-wheel turning with said shaft, a single tooth on a shoulder of said gear-wheel, a feeding-roller for the detail-strip, a gear-wheel rotating therewith designed to be engaged by said single tooth at each revolution of the wheel carrying the latter, and a friction-wheel held yieldingly against the detail-feeding roller, as shown and described.

30. In a feeding mechanism for check-printing devices, the feed-roller over which a detail-strip is designed to be passed, the spring-actuated friction-roller held yieldingly against said feed-roller, and a pivoted lever having an end resting underneath said friction-roller, whereby the latter may be raised and held from contact with the feed-roller, combined as set forth.

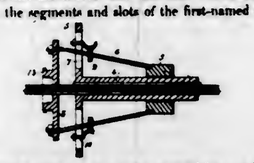
31. In a feeding mechanism for check-printing devices, the feed-roller over which a detail-strip is designed to be passed, the spring-actuated friction-roller held yieldingly against said feed-roller, combined with a bent lever having ears pivoted to the framework, integral arms on said lever resting under the feed-roller, whereby the latter may be raised and held out of contact with the feed-roller, as set forth.

32. In a cash-register, the combination with the rack-bars N and N', lugs at each of the ends of said rack-bars on their upper faces and the operating-shaft, the stepped shells mounted thereon designed to drive forward and return to their starting positions said rack-bars, and the registering mechanism actuated by said rack-bars, as shown and described.

33. In a cash-register, the combination with the operating-shaft, the stepped shells of different diameters mounted thereon, the rack-bars having each a lug at each end, said lug at corresponding ends of said rack-bars being of different heights and the registering mechanism actuated by said rack-bars as the operating-shaft is drawn forward and returned to its starting position, as shown as described.

679,076. EXPANSIBLE PULLEY. LEONE J. JOHNSTON, Petaluma, Cal. Filed July 2, 1900. Serial No. 22,296. (No model.)

Claim.—1. In combination with a shaft, a pulley thereon and comprising a radially-slotted disk, sprocket-segments having guide-arms slidable within the slots, a sleeve connected with the sprocket, a disk on the shaft, and a series of rods arranged in cone form having their ends secured to the sleeve and last-named disk and their intermediate portions extending through the segments and slots of the first-named disk.

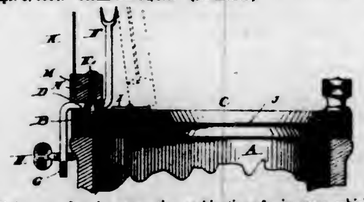


2. In combination with a shaft, a pulley comprising a radially-slotted disk fixed to the shaft, sprocket segments slidable in said slots, pins in said segments adapted to engage the links of a sprocket-chain, and means for expanding or contracting the sprocket.

3. In combination with a shaft, a pulley comprising a radially-slotted disk fixed to the shaft, sprocket-segments slidable in said slots, spring-pressed pins carried upon the segments and adapted to engage the links of a sprocket-chain, and means whereby the sprocket is expanded or contracted.

4. The combination with a driving and a driven shaft, of radially-slotted disks fixed to each of said shafts, sprocket-segments guided and slidable to and from the center in the slots, sleeves slidable upon the hubs of the disks, rods connected with said sleeves and diverging outwardly in conical form and passing loosely through the sprocket-segments, and through the slots in the disk which carries them, a second disk with which the outer ends of said rods are connected, and a centrally-fulcrumed clutch-lever, one end of which engages the clutch upon the movable disk of each of the shafts, and means for moving the clutch-lever so that the sprockets upon one shaft are expanded, and those upon the other are correspondingly and simultaneously contracted whereby the rate of motion transmitted from one shaft to the other is varied.

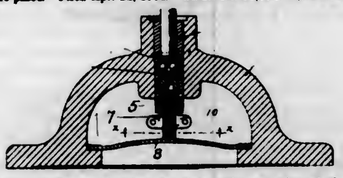
679,077. JAR-COVER. WILLIAM C. KERR, Peoria, Ill. Filed Apr. 5, 1901. Serial No. 54,413. (No model.)



Claim.—1. In a jar-cover, the combination of a jar upon which the cover is mounted, the cover-sections B and C hinged together, the block B' secured to the under side of the section B to be within and engage the inner surface of the neck of the jar, the clamp D and the display-card block M secured to the said section B as described and shown, said clamp depending below the cover opposite the said block B', the screw H therein for grasping the jar, and the forked extremities F F of the part D for holding a fork and supporting the hinged section C when raised substantially as described and shown.

2. In a jar-cover, the combination of the lid-sections B and C on the top of the jar, clamp D on the former, the block B' also on the section B at the bottom for the purpose set forth, the display-card holder M, screws E E for securing it and the clamp in place, the glass J in the section C all arranged substantially as and for the purposes set forth.

679,078. VERTICAL-SHAFT BEARING. PERLEY L. KIMBALL, Bellows Falls, Vt., assignor to the Vermont Farm Machine Company, same place. Filed Apr. 22, 1901. Serial No. 56,354. (No model.)



Claim.—1. In combination the frame of a machine of the class specified, the vertical load-bearing, rotating shaft and a flat spring located in the base of the machine and supporting the lower end of said shaft.

2. The combination, with the frame of a machine of the class specified and a flat spring arched toward its center located in the base of the machine, of a vertical load-bearing, rotating shaft supported laterally by said frame and at its lower end by said spring.

3. The combination in a machine of the class specified, with the frame, a vertical load-bearing shaft supported at its lower end, of an anti-friction-bearing located in said frame, of a spring located in the base of the frame and adjustable supporting devices located between said anti-friction-bearing and the spring, substantially as described.

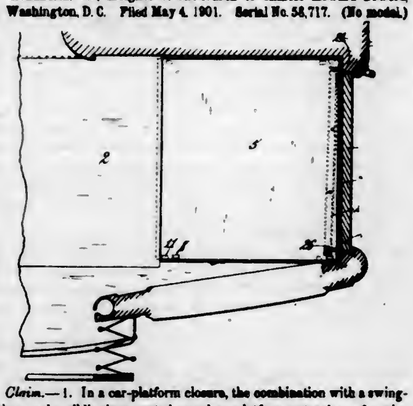
679,079. TOBACCO-PIPE. JOHN P. KING, Philadelphia, Pa. Filed Dec. 14, 1900. Serial No. 39,913. (No model.)



Claim.—1. In a tobacco-pipe, the combination with a bowl having a short stem; of a tube fitted upon the exterior of said stem; a mouthpiece fitted to the free end of said tube; a smoke-passage in said mouthpiece; an imperforate core fixed to said mouthpiece and terminating within said tube, exterior to said stem, in opposition to said smoke-passage; an annular smoke-space, exterior to said stem, between the periphery of said core and said tube; and a tangential recess in said core connecting said annular space with said smoke-passage, solely at the bottom thereof, substantially as set forth.

2. In a tobacco-pipe the combination of a bowl having a short stem a combined core and mouthpiece a tube uniting and holding them together by friction and an absorbent cover over the tube all as described and for the purposes set forth.

679,080. CAR-PLATFORM CLOSURE. WILLIAM M. KING, Sr., Alexandria, Va., assignor of one-fourth to Charles Howard Bowers, Washington, D. C. Filed May 4, 1901. Serial No. 58,717. (No model.)



Claim.—1. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension, of a pivoted arm operatively connected with said door and guard, as and for the purpose set forth.

2. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension, of an arm pivoted to one of said parts and having a sliding connection with the other, as and for the purpose set forth.

3. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension, of an arm pivoted to said door and having a sliding connection with said guard, as and for the purpose set forth.

4. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door having a projection thereon parallel to its pivot, and an elongated engaging portion for said projection on said guard, as and for the purpose set forth.

5. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door having a projection thereon parallel to its pivot, and a rib or flange on said guard or extension against which said projection is adapted to bear, as and for the purpose set forth.

6. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above

the steps, of an arm pivoted to the edge of said door opposite its hinge having an upwardly-extending projection thereon parallel to its pivot, and an elongated engaging portion for said projection on said guard, as and for the purpose set forth.

7. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to the edge of said door opposite its hinge having an upwardly-extending projection thereon parallel to its pivot, and a rib or flange on the under side of said guard or extension against which said projection is adapted to bear, as and for the purpose set forth.

8. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, an antifriction-roller carried by the free end of said arm, and an elongated engaging portion on said guard or extension against which said roller is adapted to bear, as and for the purpose set forth.

9. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, an antifriction-roller carried by the free end of said arm, and a downwardly-extending rib or flange on the under side of said guard or extension against which said roller is adapted to bear, as and for the purpose set forth.

10. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, stops for limiting the pivotal movement of said arm in both directions, an antifriction-roller carried by the free end of said arm, and a projecting rib or flange on said guard against which said roller is adapted to bear, as and for the purpose set forth.

11. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, an antifriction-roller carried by said arm, and a channel-iron secured to said guard or extension in which said roller fits and is adapted to move, as and for the purpose set forth.

12. In a car-platform closure, the combination with a swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, an antifriction-roller carried by said arm, a channel-iron secured in inverted position to the under side of said guard or extension in which said roller fits and moves, and a stop-block in said channel-iron against which said roller is adapted to abut, as and for the purpose set forth.

13. In a car-platform closure, the combination with the swinging door, a guard or platform extension for the space above the steps, and antifrictional rollers on which said guard or extension is mounted to slide, of an arm pivoted to said door, an antifrictional roller carried by the free end of said arm and extending upwardly therefrom, and a channel-iron secured to the under side of said guard in which said roller fits and is adapted to move, as and for the purpose set forth.

14. In a car-platform closure, the combination with the swinging door, and a slidingly-mounted guard or platform extension for the space above the steps, of an antifrictional roller carried by said door and adapted to bear against said guard for forcing the same inwardly, and connections between said door and said guard for moving the latter outwardly, as and for the purpose set forth.

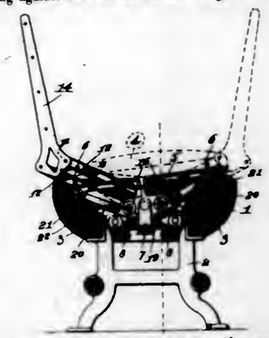
15. In a car-platform closure, the combination with the swinging door and a slidingly-mounted guard or platform extension for the space above the steps, the outer edge of said guard or extension being provided with an upwardly-extending flange, of an antifrictional roller carried by said door and adapted to bear against said flange for forcing said guard inwardly, and connections between said door and said guard or extension for moving the latter outwardly, as and for the purpose set forth.

16. In a car-platform closure, the combination with the swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, a projection on said arm parallel to its pivot, and an elongated engaging portion on said guard or extension against which said projection is adapted to bear, the said engaging portion being set at an angle to the outer edge of said guard, as and for the purpose set forth.

17. In a car-platform closure, the combination with the swinging door and a slidingly-mounted guard or platform extension for the space above the steps, of an arm pivoted to said door, an antifrictional roller carried by the free end of said arm, and a channel-iron secured to the under side of said guard or extension in which said roller fits and is adapted to move, the said channel-iron being set at an angle to the outer edge of said guard, as and for the purpose set forth.

679,081. CAR-SEAT. FRANK G. KOEHLER, St. Louis, Mo. Filed Apr. 15, 1901. Serial No. 55,905. (No model.)

Claim.—1. In a car-seat, the combination of the end pieces of the frame of the seat, cushion-supporting brackets pivoted to the end pieces, a back, arms connecting the back to the brackets respectively on opposite sides of the pivots of the latter, cams carried by the arms, and levers pivoted to the end pieces; said cams bearing against said levers and said levers bearing against said brackets, substantially as set forth.



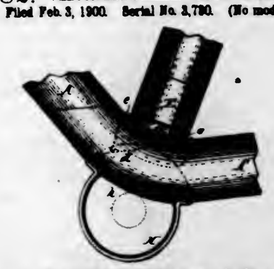
2. In a car-seat, the combination of the end pieces of the frame of the seat, brackets pivoted to the end pieces and adapted to support the cushion, a back, a pair of arms at each end of the seat having pivotal connection with the back and the inner ends of which have pivotal connection with the brackets on each side of the pivot of the latter, bars connecting the inner ends of the arms on one end of the seat to the inner ends of the arms at the other end of the seat, cams carried by the arms, and levers pivoted to the ends of the seat beneath said brackets; said cams bearing against said levers and said levers bearing against said brackets; substantially as set forth.

3. In a car-seat, the combination of the end pieces of the frame of the seat, brackets pivoted to the ends of the seat and provided with openings on each side of their pivots, a back, a pair of arms at each end of the seat pivotally connected at their outer ends to the back and having hollow projections at their inner ends that fit in the openings formed in the brackets, bars fitting in said projections and extending across the seat, cams carried by the arms, and levers pivoted to the ends of the seat beneath the brackets; said cams being adapted to bear against said levers, and said levers bearing against said brackets, substantially as set forth.

4. In a car-seat, the combination of end pieces, cushion-supporting brackets pivotally connected to the end pieces, levers pivoted to the end pieces beneath the brackets, a back, and arms pivoted to the back and to the bracket and having means for engagement with said levers whereby the latter is moved as the back is reversed, substantially as set forth.

5. In a car-seat, the combination of end pieces, cushion-supporting brackets having inclined bottoms, clips secured to the end pieces and on which said brackets have pivotal bearing, a back, a pair of arms, at each end of the seat, pivoted to the back and having pivotal connection with the brackets, cams carried by the arms, and levers pivoted to the end pieces and against which said cams bear; said levers having horizontal projections engaging the inclined bottom of said brackets, substantially as set forth.

679,082. VELOCIPEDE-FRAME. ERNST G. LATTA, Friendship, N. Y. Filed Feb. 3, 1900. Serial No. 3,790. (No model.)



Claim.—1. The combination with a velocipede-reach, of a crank-shaft hanger having in its upper side a transverse opening which receives the lower side of the reach and provided around the entire edge of said opening with an outwardly-extending integral flange which surrounds and incloses the bottom and the sides of the reach, substantially as set forth.

2. In a velocipede-frame, the combination with a crank-shaft hanger provided in its upper side with a central transverse opening arranged tangentially of the hanger, and at the edge of said opening with outwardly-extending integral attaching-flanges, of a reach consisting of a single continuous tube constructed to extend from the steering-head to the rear fork of the frame and having a curved portion which is seated and secured in the tangential opening of the hanger and surrounded by said outwardly-extending flanges, substantially as set forth.

3. The combination with a velocipede-reach, of a crank-shaft hanger applied to the under side of the reach and composed of opposing tubular halves or sections meeting in a joint arranged transversely of the hanger and each having an opening or recess which receives the under side of the reach and an attaching-flange which laps over the reach, and a reinforcing-lining arranged within the hanger and bearing against the under side of the reach and extending across the meeting edges of the hanger-sections, substantially as set forth.

4. In a velocipede-frame, the combination with a reach consisting of a single central tube having a bent or curved portion, of an upright frame member secured to the upper side of the curved portion of the reach, and a crank-shaft hanger having in its upper side a transverse opening forming a depressed seat in which the lower side of the curved portion of the reach is seated and secured, substantially as set forth.

5. In a velocipede-frame, the combination with a crank-shaft hanger, of a reach which is curved at its junction with the hanger, and an upright frame member connected to the upper side of the curved portion of the reach, the hanger being applied to the under side of said curved portion and provided with attaching-flanges which overlap the sides of the reach and the adjacent lower portion of said upright member, substantially as set forth.

6. In a velocipede-frame, the combination with a reach comprising front and rear members which extend in opposite directions from their junction with the crank-hanger, of an upright member joined to the meeting portions of said reach members and forming with the latter three frame members which radiate from a common center, and a crank-shaft hanger located below said center and provided with an attaching-flange which is connected directly to each of said three frame members, substantially as set forth.

7. The combination with a reach, of an upright frame member, a clip or thimble connecting said tube with the reach and provided at its lower end with an attaching-flange which laps over the upper side of the reach, and a crank-shaft hanger applied to the under side of the reach opposite said upright member and provided with an attaching-flange which overlaps the sides of the reach and the flange of said connecting-thimble, substantially as set forth.

8. In a velocipede-frame, the combination with a reach and an adjoining frame member arranged at an angle thereto, of a clip or thimble connecting said tube with the reach, and a cup-shaped reinforcement arranged in said thimble and provided with a concave bottom which bears against the upper side of the reach, substantially as set forth.

9. In a velocipede-frame, the combination with an upright tube, of a central continuous reach having a curved portion which passes under the lower end of said tube and is united thereto, a crank-shaft hanger provided in its upper side with a tangential opening which receives the curved portion of the reach, a reinforcement arranged in the portion of the reach seated in the hanger-opening, and a second reinforcement arranged in the hanger and bearing against the under side of the reach, said several adjoining parts being united by brazing, substantially as set forth.

10. The combination with a reach consisting of a continuous tube, of a crank-shaft hanger having in its upper side a transverse opening in which the lower side of said reach is seated, a reinforce in said hanger having in its upper side a depressed seat alined with said opening and in which the reach is seated, and a frame-tube secured to the upper side of the reach, substantially as set forth.

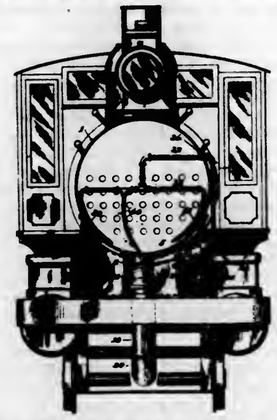
679,083. CINDER-HOPPER. MATHIAS LANZ, Little Rock, Ark., assignor of two-thirds to Thomas R. Glynn and John R. Coates, same place. Filed Mar. 8, 1901. Serial No. 50,249. (No model.)

Claim.—1. The combination with a locomotive-barrel and cinder-discharge chute communicating therewith, of a reciprocatory cut-off adapted to open and close said chute, yielding means adapted to compel close contact between the cut-off and the surface against which it works, and pneumatically-operative means for actuating the cut-off.

2. The combination with a locomotive-barrel and cinder-discharge chute communicating therewith, of a hopper-frame adapted to secure the chute to the barrel, a chute-collar secured thereto, an intermediate cut-off working in a recess therein, spring-actuated gibs adapted to compel contact between the cut-off and the surfaces against which it works, and pneumatically-operative means for actuating the cut-off.

3. As a part of a cinder-box chute, a hopper-frame adapted to be secured to the barrel of a locomotive, a chute-collar secured thereto and provided with a recess, and an intermediate cut-off working in the recess.

4. As a part of a cinder-box chute, the combination with a hopper-frame adapted to carry a cut-off, of a bracket extension integral therewith adapted to support the operative mechanism for the cut-off.



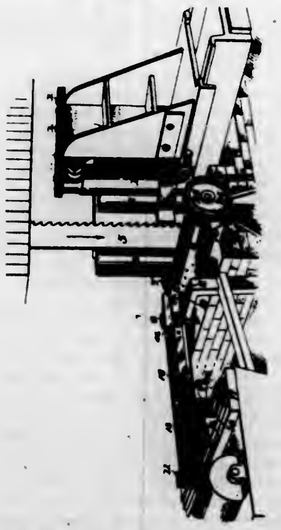
5. As a part of a cinder-box chute, a hopper-frame adapted to be secured to the barrel of a locomotive, a chute-collar secured thereto, an intermediate cut-off working in a recess therein, and spring-actuated gibs adapted to compel contact between the cut-off and the surfaces against which it works.

679,084. SEAL-BOLT. WILLIAM C. LINDSAY, Newport, Vt. Filed Oct. 23, 1899. Serial No. 734,498. (No model.)



Claim.—A seal-bolt comprising a stem, a squared portion thereon, a head having recesses therein, a cap provided with lugs upon its lower surface adapted to be received by the recesses, said cap having a channel therein provided with semiconical outlets, for the purpose and substantially as described.

679,085. BAND-SAW-MILL ATTACHMENT. ZEBULON Z. LINTON, Furnwood, Miss. Filed Jan. 30, 1901. Serial No. 45,334. (No model.)



Claim.—1. A feed-out attachment to a saw, consisting of a horizontal roll having a projecting disk-shaped blade arranged behind the saw in its plane, and a horizontal kerf-guide, arranged in line with the said

disk and having a laterally-yielding motion at its outer end substantially as and for the purpose described.

2. A feed-out attachment to a saw, consisting of a horizontal roll having a projecting disk-shaped blade arranged behind the saw in its plane, and a horizontal kerf-guide arranged in line with said disk, said kerf-guide having its end next the disk rigid, a flexible portion in the middle, and its outer end made laterally movable and resilient substantially as described.

3. A feed-out attachment to a saw consisting of a horizontal roll having a projecting disk-shaped blade arranged behind the saw in its plane, and a horizontal kerf-guide arranged in line with the said disk and made yielding at its outer end from the log side toward the board, and an adjustable tension-spring for regulating the yielding tension as described.

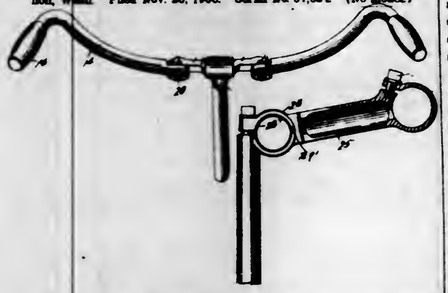
4. In a feed-out attachment to a saw, a combined spreader-guide and roll consisting of a central shaft having four heads with hubs keyed thereto, a disk-shaped blade clamped between the two inner heads, and two spiked cylinders secured to the heads on opposite sides of the disk-shaped blade substantially as and for the purpose described.

5. In a feed-out attachment to a saw, a horizontal kerf-guide made as a thin blade fixed at one end and laterally yielding at the other and arranged parallel to or longitudinally with the line of log travel substantially as described.

6. In a feed-out attachment to a saw, an elongated horizontal kerf-guide made as a thin blade fixed rigidly at its end nearest the saw flexible in its middle portion, and having its outer end laterally movable and resilient as described.

7. In a feed-out attachment to a saw, an elongated horizontal kerf-guide made as a thin blade fixed rigidly at its end nearest the saw, and flexible in its middle portion, and a transverse guide bolt or rod passing through the outer end of the kerf-guide and having on the board side a spiral spring wound about the rod and tension-adjusting devices, substantially as and for the purpose described.

679,086. **BICYCLE HANDLE-BAR.** LOUIS L. LOCK, Mount Vernon, Wash. Filed Nov. 26, 1900. Serial No. 37,824. (No model.)



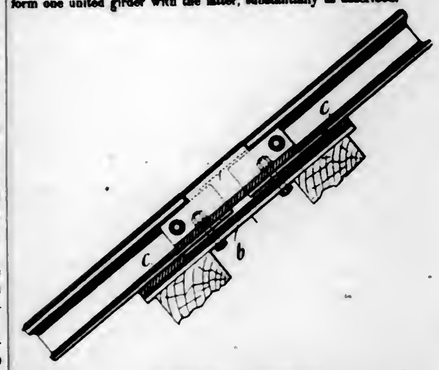
Claim.—1. The combination with a handle-bar post having a split terminal ring, of an extension-link removably connected to the post through the medium of the split ring, and a handle-bar including a central section removably connected to the link and end sections adjustably connected to the central section, said central section being adapted for connection with the split ring of the post interchangeably with the link.

2. The combination with a handle-bar post of an extension-link removably and pivotally connected with the post, and a handle-bar including a central section removably connected with the link and end sections pivotally connected with the central section, said central section being adapted for pivotal connection with the post interchangeably with the link.

679,087. **RAIL-JOINT.** FRANZ MELAUN, Charlottenburg, Germany. Filed Apr. 9, 1901. Serial No. 55,063. (No model.)

Claim.—1. In a rail-joint comprising a bridge, the combination of a bridge-piece having two separate horizontal bearing-surfaces and two inclined lateral bearing-surfaces, with the rail ends projecting beyond said horizontal bearing-surfaces and supported neither below the feet nor under the heads, and with fish-plates resting upon the upper surface of the feet of said rail ends, provided with inclined lateral bearing-surfaces wedging between said lateral bearing-surfaces of the bridge-piece, and bolted to the rail-webs and to said bridge-pieces, substantially as described.

2. In a rail-joint comprising a bridge, the combination of a bridge-piece having two separate horizontal bearing-surfaces and two inclined lateral bearing-surfaces, with the rail ends projecting beyond said horizontal bearing-surfaces and supported neither below the feet nor under the heads, and with fish-plates resting upon the upper surfaces of the feet of said rail ends, provided with inclined lateral bearing-surfaces wedging between said lateral bearing-surfaces of the bridge-piece, and bolted to the rail-webs and likewise bolted and doweled to said bridge-piece so as to form one united girder with the latter, substantially as described.



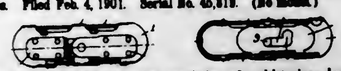
679,088. **SNAP-HOOK.** DANIEL METEVEN, Oakley, Cal. Filed Apr. 4, 1901. Serial No. 54,235. (No model.)



Claim.—1. In a snap-hook, the combination with a shank carrying a hook and provided with a transverse slot, of a tongue pivoted intermediate its ends in the slot and arranged to abut at its outer end against the end of the hook, a dog pivoted intermediate its ends in that side of the slot which is opposite the hook and having an offset finger at one end which is arranged to engage over the inner end of the tongue when the same is in engagement with the hook, the other end of the dog forming an operating-handle, said dog being entirely housed within the shank when in engagement with the tongue, and a single spring engaging both the tongue and the dog to urge them into their respective engagements.

2. In a snap-hook, the combination with a shank carrying a hook at one end and provided with a transverse slot, of a tongue pivoted intermediate its ends in the slot and contiguous to the end thereof which is nearest the hook, the outer end of the tongue being adapted to engage the end of the hook and the inner end being spaced from the end wall of the slot when said outer end is in said engagement, a dog pivoted intermediate its ends in that side of the slot which is opposite the hook, said dog having an offset finger that is arranged to fit in the space between the inner end of the tongue and the adjacent wall of the slot to hold said tongue against movement, the other end of the dog forming an operating-handle, said dog being entirely housed within the shank when in engagement with the tongue, and a single spring engaging both the tongue and the dog to hold them in their respective engagements.

679,089. **SKIRT-SUPPORTER.** ARTHUR L. PAGE, Haverhill, Mass. Filed Feb. 4, 1901. Serial No. 45,819. (No model.)



Claim.—1. A skirt-supporter consisting of a skirt-piece having a projecting stud with an enlarged head, a waist-piece having an aperture therein through which said stud is adapted to pass, means on said waist-piece above said aperture for connecting the same to a waist, and a locking-plate which is permanently and movably connected to one side of said waist-piece, said plate being provided with a slot which is larger than the head of said stud at one point and is smaller than its head but larger than its shank at other points, said plate being adapted to be moved to such a position that the enlarged part of its slot may coincide with the aperture of the waist-piece, so that the stud of the skirt-piece may be passed through both waist-piece and plate and then be moved so that the shank of the stud will be located in the smaller portion of said slot thereby locking said parts together while the skirt-piece is supported by the waist-piece.

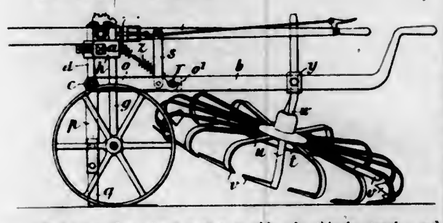
2. A skirt-supporter consisting of two skirt-pieces one of which is provided with a stud having an enlarged head and the other with an aperture through which said stud may pass, a waist-piece having an aperture therein through which said stud is adapted to pass, means for securing the waist-piece to a waist which is located above said aperture, and a locking-plate which is movably connected to one side of said waist-piece and is provided with a slot which is narrower than the head of the stud but of sufficient width to permit the introduction of its shank therein, said plate being adapted to be moved so as to permit the passage of said stud through the waist-piece, and then be moved so that the sides of its slot will engage the inner sides of the head of said stud and lock the same to said waist-piece.

3. A skirt-supporter consisting of two skirt-pieces which are adapted to be secured to the skirt-binding near the ends thereof, a projecting stud having an enlarged head on one of said pieces, an elongated slot in the other piece which is slightly larger than the head of said stud at its inner end and smaller than said head at its outer end, a waist-piece which is provided with means for securing it to a waist, a vertically-arranged aperture in said waist-piece which is of sufficient size at its upper end to permit the passage of the head of said stud therethrough but which will not permit the passage of its head when its shank is in the lower end of said aperture, a locking-plate which is movably connected to one side of said waist-piece, a slot in said plate which is adapted to wholly uncover said waist-piece aperture when said plate is in one position and will uncover only the smaller part of said aperture when moved to a different position, whereby said stud may be locked in the lower end of said aperture.

4. A skirt-supporter consisting of a skirt-piece having a projecting stud with an enlarged head, a waist-piece having an opening therein of sufficient size to permit the passage of the head of said stud therethrough, a pin on said waist-piece above the bottom of said opening for securing the same to a waist, a locking-plate which is permanently and movably connected to one side of said waist-piece and is provided with a slot which is narrower than the head of said stud but wider than its shank, said plate being adapted to be moved so that said stud may pass through said waist-piece and then be moved so that the sides of said slot may engage the inner side of the head of said stud between the head and waist-piece, whereby the skirt-piece may be locked to the waist-piece while its stud is supported by the bottom of the opening of said waist-piece.

5. A skirt-supporter comprising a skirt-piece having a projecting stud with an enlarged head, a waist-piece having a vertically-arranged slot therein which is of sufficient size at its upper end to permit the passage of the head of said stud therethrough, but will only permit the location of the shank thereof in its lower end, a pin directly above the enlarged portion of said aperture for connecting said waist-piece to a waist, a locking-plate which is permanently connected to said waist-piece so that it may be moved in a predetermined path thereon, and is provided with a slot which is narrower than the head of said stud but wider than its shank, said plate and its slot being so formed and arranged that when said plate is in one position the stud may be passed through the enlarged end of said aperture into the smaller end thereof and when it is moved to its opposite position the sides of the slot will engage the inner side of the head of said stud, whereby said stud and skirt-piece will be directly supported by the waist-piece and the plate will prevent the withdrawal of the stud from the aperture in the waist-piece.

679,090. **MACHINE FOR FLAT-HOEING AND THINNING TURNIPS.** PHILIP J. PARSITER, Salisbury, England. Filed Mar. 11, 1901. Serial No. 50,719. (No model.)



Claim.—1. In an implement or machine for thinning turnips and other plants, a wheel or disk having a series of arms carrying hoes at their extremities and arranged at an angle with the ground so that the hoes at one portion of the circumference of the wheel only are in contact with the ground at one time whereby as the implement is caused to travel a rotary motion will be imparted to the said wheel or disk owing to its contact with the ground, giving the hoes a combined rotary and forward cut through the row of plants, substantially as described.

2. In an implement or machine for thinning turnips and other plants, the combination of a rotary wheel having peripheral hoes and adapted to be driven by contact with the ground and flat hoes for working the ground between the rows to be thinned, substantially as described.

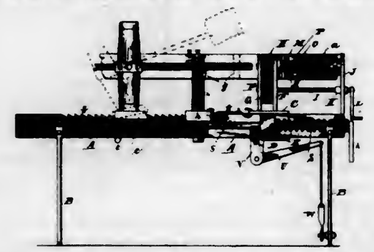
3. In a machine for thinning plants, the combination with the frame and its supporting-wheels, of a beam pivotally connected with said frame, a revoluble wheel or disk having its axis secured to said beam, and arranged in an inclined position with respect to the surface of the ground, a spring normally holding said wheel out of contact with the ground and means for depressing said wheel into engagement with the ground and a series of hoes carried by peripheral portions of said wheel or disk, substantially as described.

4. In a machine for thinning plants, the combination with the main frame and its supporting-wheels, of a beam pivotally connected to said frame, a revoluble wheel or disk carried by said beam and having its axis arranged in an inclined position with respect to the surface of the ground, a series of hoes carried by said wheel or disk, a supplemental frame pivotally connected with the main frame, hoes carried by said supplemental frame, means for adjusting said supplemental frame, and independent means for raising and lowering said beam, substantially as described.

5. In a machine for thinning plants, the combination with the main frame and its supporting-wheels, of a beam pivotally connected with said main frame, a revoluble wheel carried by said beam having its axis arranged in an inclined position with respect to the surface of the ground, a series of hoes carried by said disk or wheel, a supplemental frame pivotally connected with said main frame, hoes connected with said supplemental frame, said supplemental frame being provided with a vertically-movable part adapted to engage a part connected with the said beam, to raise said beam, adjustable lifting mechanism connected to said supplemental frame, and independent means for raising and lowering said beam, substantially as described.

6. In a machine for thinning plants, the combination with the main frame and its supporting-wheels, of a beam pivotally connected with said main frame, a revoluble wheel carried by said beam having its axis arranged in an inclined position with respect to the surface of the ground, a series of hoes carried by said disk or wheel, a supplemental frame pivotally connected with said main frame, hoes connected with said supplemental frame, said supplemental frame being provided with a vertically-movable part adapted to engage a part connected with the said beam, to raise said beam, adjustable lifting mechanism connected to said supplemental frame, a spring connected to said beam to hold said disk or wheel normally out of contact with the ground, and means for depressing said beam to lower the wheel into contact with the ground, substantially as described.

679,091. **TIRE-BOLTING MACHINE.** FRANK P. SCHAAF, Chandlerville, Ill. Filed June 25, 1900. Serial No. 21,582. (No model.)



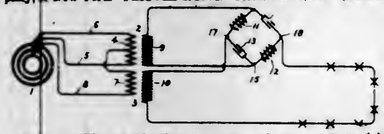
Claim.—1. In a tire-bolting machine the bed A having the legs B, a series of teeth on the top thereof, a slidable plate on the bed adapted to engage the said teeth, a pin *d* on the plate for receiving and holding a vehicle-wheel, in combination with a gear-carrier slidably mounted on the frame consisting of the vertical supports F F, gears journaled between them for operating in opposite directions as set forth, means for driving them, a foot-lever for shifting the gears upon the frame, the same being pivotally hung from the bed A and a chuck adapted to revolve with one of the gears for the purpose described.

2. In a tire-bolting machine the bed A having the legs B, a series of teeth on the top thereof, a slidable plate on the bed adapted to engage the said teeth, a pin *d* on the plate for receiving and holding a vehicle-wheel, in combination with a gear-carrier slidably mounted on the frame consisting of the vertical supports F F, gears journaled between them for operating in opposite directions, as set forth, means for driving them, a foot-lever for shifting the gears upon the frame, the same being pivotally hung from the bed A, a chuck adapted to revolve with one of the gears for the purposes described, and means for holding the head of a bolt being operated upon and which is held in the vehicle-wheel held on said pin *d* as set forth.

3. In a tire-bolting machine the bed A having the supporting-legs B, a series of teeth on the top of the bed, a slidable plate *c* on the bed adapted to engage with the teeth for the purposes set forth, a pin *d* on the plate for receiving and holding a vehicle-wheel, means for preventing the

said plate tipping, a gear-carrier slidable on the bed A consisting of the upright supports F F, gear-wheels journaled between them, a chuck held and driven by one of such gears, means for driving said gears, a lever for shifting such gears on the bed, a spring for carrying the gears to their normal position on the bed after movement by the lever, and means for holding the head of a bolt being operated on and which is in the vehicle-wheel on the plate c all being arranged substantially as described and shown.

679,092. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Jan. 2, 1901. Serial No. 41,809. (No model.)



Claim.—1. The combination of a source of constant-potential current, means in operative relation to said source for deriving therefrom a constant current, and additional means for combining with the electromotive force producing said constant current another electromotive force substantially in phase therewith.

2. The combination of a source of electromotive force, a consumption-circuit, means for impressing upon the consumption-circuit a variable electromotive force derived from and in quadrature to said source, and means for including in the consumption-circuit an electromotive force substantially in phase with the electromotive force impressed thereon.

3. The combination of sources of phase-displaced electromotive forces, a set of reactances of opposite sign connected in series across one of said sources, another set of reactances of opposite sign also connected in series across said source but in reverse relation to the first set, a constant-current circuit connected between the junctions of the reactances of said sets and connections including another of said sources of electromotive force in series in said constant circuit.

4. The combination of a source of electromotive force, a consumption-circuit, means for impressing on the consumption-circuit a variable electromotive force derived from and in quadrature with the electromotive force of said source, and for including in the consumption-circuit an electromotive force out of phase with the electromotive force of said source.

5. The combination of a source of electromotive force, a consumption-circuit, means for impressing on the consumption-circuit an electromotive force derived from and in quadrature with the electromotive force of said source, and means for including in the consumption-circuit an electromotive force out of phase with the electromotive force of said source.

6. The combination of a source of multiphase current, means in operative relation to one phase of said source for producing a constant current, and means for augmenting the power of the constant current by an electromotive force derived from another phase of said source.

7. The combination of a source of multiphase current, a constant-current circuit operatively connected to one phase of said source, and means for including in said constant-current circuit an electromotive force derived from another phase of said source.

8. The combination of a source of multiphase current, means for deriving a constant current from one phase of said source, and means for impressing upon the constant-current circuit a constant electromotive force derived from another phase of said source.

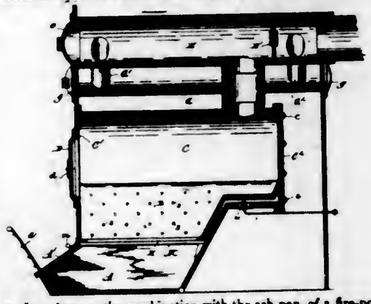
9. The combination of windings constituting seats of phase-displaced electromotive forces, a constant-current circuit connected across one of said windings through the medium of a constant-current regulating apparatus, and connections including another of said windings in series in said constant-current circuit.

10. The combination of separate sources of electromotive force, means for deriving from one of said sources a constant-current electromotive force in quadrature therewith, and means for combining with the constant-current electromotive force another electromotive force of substantially the same phase.

679,093. HOT-AIR FURNACE. VERNON L. SULLIVAN, Grandledge, Mich. Filed Mar. 19, 1901. Serial No. 51,890. (No model.)

Claim.—1. In a furnace, the combination with the ash-pan having a rearward extension at its upper end, of the fire-pot supported in the ash-pan and having a rearward extension overlying the extension of the ash-pan, a space being left between the sides of the ash-pan and fire-pot and the sides of the body portion of the fire-pot provided with conical holes; a damper in the ash-pan, and a hinged plate forming the bottom of the space surrounding the sides of the fire-pot; together with an arm on the door of the ash-pan adapted to swing the hinged plate, substantially as shown and for the purpose set forth.

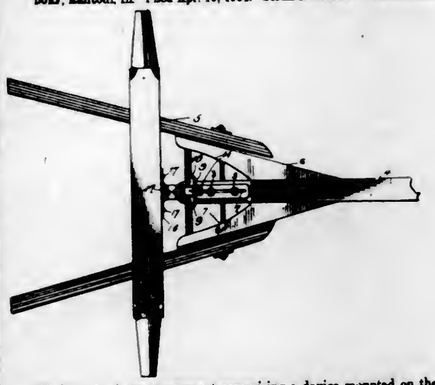
2. In a furnace, the combination with the ash-pan, of a fire-pot supported therein and provided with holes in its sides, a casing bolted to the upper end of the ash-pan, a center flue connected to the casing and to the smoke-pipe, a damper located between the aforesaid connection and smoke-pipe, parallel flues connected at their ends to the center flue, the connections at the rear end being in the rear of the damper in the center flue, substantially as shown and for the purpose set forth.



3. In a furnace, the combination with the ash-pan, of a fire-pot supported therein, an arched dome forming the top of the fire pot, plates bolted to the ends of the dome by bolts extending from one to the other, a door covering the feed-opening in the front plate; together with a center flue located above the arched dome, a flue connecting the dome to the center flue near the rear end thereof, a damper in the rear of said connecting-flue, and auxiliary flues located at either side and below the plane of the center flue, said auxiliary flues being connected by short flues to the opposite ends of said center flue, the connections at the rear end being in the rear of the aforesaid damper, and removable caps fitting into the ends of the flues, substantially as shown and for the purpose set forth.

4. In a furnace, the combination with the fire-pot and dome, of a center flue connected to said dome and to the smoke-pipe, a damper located between said flue connection and smoke-pipe, auxiliary flues located at either side of the center flue and connected thereto at both ends thereof, the connections at the rear end being in the rear of the aforesaid damper, and removable caps closing the ends of said flues; together with a rod extending from the damper to the front of the furnace, a crank-handle and weighted arm at the forward end of said rod, and a lag on the feed-door of the furnace, substantially as shown and for the purpose set forth.

679,094. TONGUE-SUPPORT FOR VEHICLES. HENRY M. SUPPORF, Rantoul, Ill. Filed Apr. 19, 1901. Serial No. 56,597. (No model.)

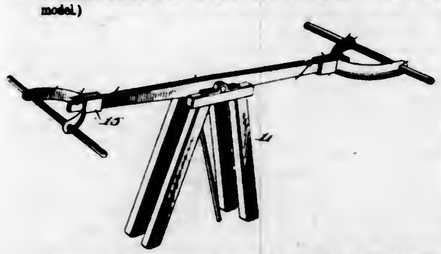


Claim.—1. A tongue-support comprising a device mounted on the tongue or pole and arranged at the rear end thereof and adapted to be swung upward and downward by the same, and a curved spring mounted on the running-gear in rear of the tongue or pole and presenting an outer convex front face to the said device and adapted to permit the same to ride over and beyond it when a wagon is dumped, whereby injury to the tongue-support is prevented, substantially as described.

2. The combination with a running-gear, of a bracket or plate mounted on the tongue or pole and provided with a depending arm, a roller carried by the arm and located at the rear end of the tongue or pole and arranged to swing upward and downward, and a curved spring mounted on the running-gear in rear of the tongue or pole and presenting a front exterior convex face and engaging the roller and arranged to permit the same to ride over and beyond it when the wagon is dumped, whereby the spring will be prevented from being strained or otherwise injured by such movement of the running-gear, substantially as described.

3. The combination with a running-gear, of an approximately semi-circular spring arranged at the front face of the axle and provided with a shank and presenting a convex outer front face, a plate receiving the shank and secured to the running-gear, a bracket or plate arranged at the lower face of the tongue and having its rear portion extended downward, said bracket or plate being provided with a longitudinal opening, fastening devices passing through the opening and engaging the bracket or plate, and a roller or wheel mounted in the opening at the lower end of the depending portion of the said bracket or plate, substantially as described.

679,095. OPERATING-LEVER FOR HAND-CARS, &c. JAMES L. TWYMAN, Fairfield, Wash. Filed Dec. 5, 1900. Serial No. 38,802. (No model.)



Claim.—1. In an operating-lever of the class described, a fulcrum-section pivotally supported intermediate its ends, and handle-sections arranged upon opposite portions of the fulcrum-sections, said handle-sections each comprising a bracket having one end slidably mounted upon the fulcrum-section, and the other end projecting beyond the end thereof and provided with a transverse handle.

2. In an operating-lever of the class described, a fulcrum-section pivotally supported intermediate its ends, and handle-sections arranged upon opposite portions of the fulcrum-sections, said handle-sections each comprising a bracket having one end slidably mounted upon the fulcrum-section, and the other end projecting beyond the end thereof and provided with a transverse handle, and a locking-catch carried by the bracket and adapted to engage the fulcrum-section to hold the handle-sections in fixed position.

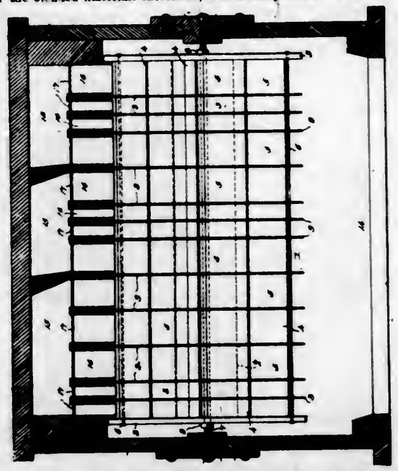
3. In an operating-lever of the class described, a fulcrum-section pivotally supported intermediate its ends, and handle-sections slidably mounted upon the opposite ends of the fulcrum-section, each of said handle-sections comprising a bracket having a shank through which passes the end of the fulcrum-section, and spaced arms projecting from one end of the bracket and beyond the end of the fulcrum-section, said arms being provided with a transverse handle, and means carried by the shank and adapted to engage the fulcrum-section to hold the handle-section in a fixed position.

4. In an operating-lever of the class described, a fulcrum-section pivotally supported intermediate its ends, and handle-sections slidably mounted upon the opposite ends of the fulcrum-section, each of said handle-sections comprising a bracket having a shank through which passes the end of the fulcrum-section, and spaced arms projecting from one end of the bracket and beyond the end of the fulcrum-section, said arms being provided with a transverse handle, and a spring-catch carried by the shank and arranged to engage the fulcrum-section.

5. In an operating-lever of the class described, a fulcrum-section pivotally mounted intermediate its ends and having a plurality of transverse notches, and handle-sections slidably mounted upon the opposite ends of the fulcrum-sections, said handle-sections comprising a bracket having a shank through which passes the end of the fulcrum-section, and spaced arms projecting from one end of the bracket end and beyond the end of the fulcrum-section, said arms being provided with a transverse handle, and a spring-catch comprising a flat leaf-spring secured at one end to the shank and having its other end projecting between the spaced arms, said spring carrying a locking-pin adapted to engage the transverse notches of the fulcrum-section.

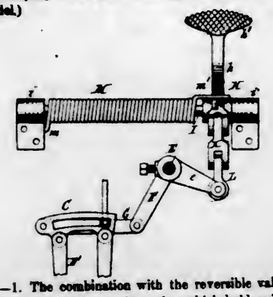
679,096. AUTOMATIC BLENDING-MACHINE. JOSEPH S. ULSER, Williamsport, Pa. Filed Sept. 7, 1900. Serial No. 29,208. (No model.)

Claim.—1. In an automatic blending-machine, a cylindrical casing having a discharge-chute in its lower side and a plurality of receivers of unequal capacities in its upper side, each of said receivers having a plurality of discharge-openings of varying capacities in its lower side and cut-offs for said openings, in combination with a blending-wheel in said cylindrical casing revoluble by the weight of the material passing through the machine and said blending-wheel having tangentially-disposed paddles or plates forming peripheral buckets therein, the speed and capacity of the blending-machine being automatically controlled by the discharge of the blended materials therefrom, substantially as described.



2. A blending-wheel comprising circular heads, a central longitudinal core between them, tangentially-disposed plates connecting said heads, said plates and said core forming peripheral buckets, and a tie-rod, extending through the center of the core, through and projecting beyond the heads, and clamping-nuts on the ends thereof, in combination with a casing having plates secured on the ends thereof, and bearing-studs screwed in said plates and having their inner ends stepped in the ends of said tie-rod, substantially as described.

679,097. REVERSING MECHANISM FOR MOTOR-VEHICLES. WILLIAM VAN WAGONER, Syracuse, N. Y., assignor to Century Motor Vehicle Company, same place. Filed Apr. 26, 1901. Serial No. 57,555. (No model.)



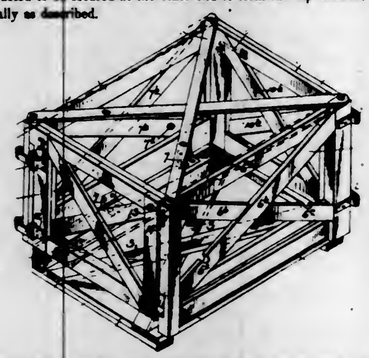
Claim.—1. The combination with the reversible valve-gear of an engine, and the reversing-lever, of a spring which holds said lever in the forward position but permits the lever to be moved to the backward position and returns the lever automatically to the forward position when released, substantially as set forth.

2. The combination with the reversible valve-gear of an engine, of a reversing foot-lever, a rock-shaft to which said lever is secured, and a spring having one end connected with a stationary part and the other with said foot-lever to hold the latter in the forward position, substantially as set forth.

3. The combination with the actuating rock-arm of the reversible valve-gear of an engine, of a reversing-lever, a spring which holds said lever in the forward position but permits the lever to be moved to the backward position, and a flexible connection between said reversing-lever and said actuating rock-arm of the valve-gear, substantially as set forth.

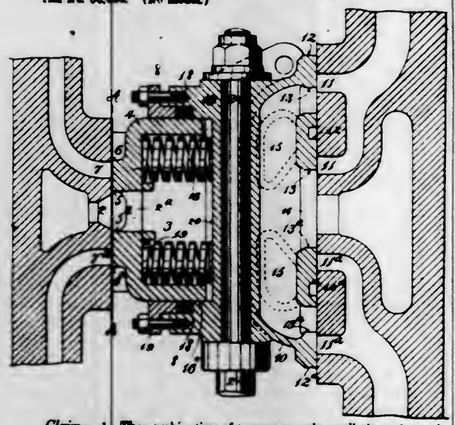
679,098. BUGGY-CRATE. CHARLES VARNER, Author P. MOSHER, and HARRY M. AGNER, Continental, Ohio. Filed Mar. 25, 1901. Serial No. 52,670. (No model.)

Claim.—1. A crate, comprising the combination of a bottom bearing a block extending longitudinally one side thereof, a first side hinged to the other side of said bottom and arranged to be folded inwardly, a second side hinged to said block and arranged to be folded inwardly, an end attached to said first side by hinges consisting of U members and apertured straps engaging said U's, an end attached to said second side by hinges consisting of U members and apertured straps engaging said U's, and diagonal braces pivoted at one end to the corners of the crate and constructed to be secured at the other end to form the top thereof, substantially as described.



2. A crate, comprising the combination with a bottom bearing a block extending longitudinally one side thereof, a first side having apertures therein to accommodate buggy-spindles and hinged to the other side of said bottom and mounted to be folded inwardly, a second slide having notches therein to accommodate buggy-spindles and hinged to said block and arranged to be folded inwardly, an end attached to said first side by hinges consisting of U members and apertured straps engaging said U's, an end attached to said second side by hinges consisting of U members and apertured straps engaging said U's, means for locking said ends, and diagonal braces pivoted at one end to said sides and constructed to be secured at the other end to form the top thereof, substantially as described.

679,099. **STEAM-DISTRIBUTING VALVE FOR MULTIPLE-EXPANSION ENGINES.** ROBERT L. WEIGHTON, Newcastle-upon-Tyne, and DONALD R. MORRISON, Hartlepool, England. Filed Dec. 3, 1900. Serial No. 38,656. (No model.)



Claim.—1. The combination of two consecutive cylinders of a multiple-expansion engine having inlet and exhaust passages, a steam chamber or receiver arranged between said cylinders, two slide-valves arranged back to back in said receiver and adapted to control said inlet and exhaust passages, a connection between said valves to cause them to move to and fro together but to leave them free to move apart toward their seats, one of said valves being adapted to admit high-pressure steam through its central portion to the cylinder controlled thereby and to exhaust past its ends into said receiver and the other to admit steam past its ends to its cylinder and to exhaust through its central portion, and a space between said valves in communication with the central portion of the first-mentioned valve, substantially as described.

2. The combination of two consecutive cylinders of a multiple-expansion engine having inlet and exhaust passages, a steam chamber or receiver arranged between the cylinders, two slide-valves arranged back to back in said receiver and adapted to control said inlet and exhaust passages, a connection between said valves to cause them to move to and fro together but to leave them free to move apart toward their seats, one of said valves being adapted to admit high-pressure steam through its central portion to the cylinder controlled thereby and to exhaust past its ends into said receiver and the other to admit steam past its ends to its cylinder and to exhaust through its central portion, and a projection on the back of one of said valves fitting a recess in the other which recess is in communication with the central portion of the first-mentioned valve, substantially as described.

3. The combination of two consecutive cylinders of a multiple-expansion engine having inlet and exhaust passages, a steam chamber or receiver arranged between said cylinders, two slide-valves arranged back to back in said receiver and adapted to control said inlet and exhaust passages, a connection between said valves adapted to cause them to move to and fro together but to leave them free to move apart toward their seats, one of said valves being single-ported and adapted to admit high-pressure steam through its central portion to the cylinder controlled thereby and to exhaust past its ends into the receiver and the other being multiple-ported and adapted to admit steam past its ends to the cylinder controlled thereby and to exhaust through its central portion, and a space between said valves in communication with a high-pressure steam-supply, substantially as described.

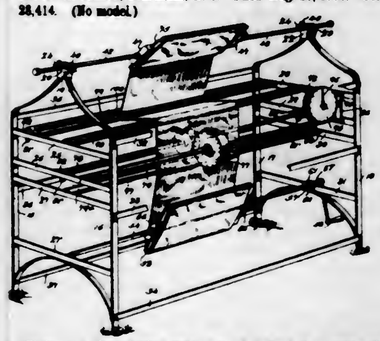
679,100. **ORE-WASHER.** CHARLES F. ALLEN, San Francisco, Cal. Filed Dec. 4, 1900. Serial No. 38,654. (No model.)



Claim.—1. In an ore-washer a sluice having sinks or riffles in its lower side, a magnetized plate in the upper side of the said sluice, above the said sinks or riffles, and streamers adapted by the current of water passing through the sluice, to cover said magnetized plate and also mechanically prevent the settling of the magnetically-attracted particles of the ore on the said magnetic plate, substantially as described.

2. In an ore-washer a sluice having sinks or riffles in it, lower side forming places for the deposit of fine gold particles, screens over said sinks or riffles to prevent the settling of sands therein, means to agitate the material carried by the current through the sluice to prevent the settling therein and means to magnetically attract iron-carrying particles in the said current from above, to countervail the gravity thereof, substantially as described.

679,101. **CLOTH MEASURING AND WINDING MACHINE.** BURDIS ANDERSON, Boardman, N. C. Filed Aug. 29, 1900. Serial No. 28,414. (No model.)



Claim.—1. In a device of the class described, the combination with a measuring mechanism including drums disposed to receive a fabric between them and in frictional contact therewith to rotate the drums, of holding and winding clamps disposed at opposite sides of the measuring mechanism, tension-rolls disposed for engagement with the fabric between the holding-clamp and the measuring mechanism, one of said tension-rolls having adjustable tension devices and direction-rolls disposed at opposite sides of the measuring-drums and in position to hold the fabric between the drums in a plane tangent to the drums and the direction-rolls, one of the drums being bodily movable toward and away from the other drum and having adjustable tension devices for holding it in yieldable contact, and the other drum having connection with a register.

2. In a device of the class described, the combination with a measuring mechanism including drums disposed to receive a fabric between them and in frictional contact therewith to rotate the drums, of holding and winding clamps disposed above and below the drums and adapted to receive bolt-boards, adjustable tension-rolls disposed for engagement with the fabric at opposite sides thereof between the holding-clamps and the measuring-drums, a direction-roll between the tension-rolls and the measuring-drums, a second direction-roll at the opposite side of the drums from the first direction-roll, and means for rotating the winding-clamps, the positions of the measuring-drums and the direction-rolls being such as to hold the fabric at a common tangent thereto.

3. In a device of the class described, the combination with a frame including end uprights and cross-pieces, of a measuring mechanism including drums disposed to engage a fabric at opposite sides thereof having shafts mounted upon a common cross-piece and an indicator driven from the drums and mounted upon one of said cross-pieces and an adjacent cross-piece, adjustable tension-rolls disposed for engagement with the fabric at opposite sides thereof and a direction-roll mounted at one end in said adjacent cross-piece and a corresponding opposite cross-piece, a second direction-roll mounted upon cross-pieces below the drums, the direction-rolls being disposed to receive cloth in a plane tangent to the rolls and drums, holding-clamps mounted above the tension-rolls and adapted to receive a bolt-board, and winding-clamps mounted below the second direction-roll and adapted to receive a bolt-board, said winding-clamps having means for rotating them.

4. A cloth-measuring machine comprising a skeleton frame including uprights and cross-pieces, a body rotatably mounted in the frame and held against bodily movement, U-shaped bearing-plates attached at their ends to the frame and projecting inwardly of the frame, said plates having slotted web portions, a second rotatable body provided with a shaft slidably and rotatably mounted in the slots of the webs, and a leaf-spring for each end of the shaft, each of said leaf-springs being bent upon itself and having its ends disposed between the end of the shaft and a side of the bearing-plate and engaged with the shaft to hold it yieldably at one end of the slot of the plate.

5. A cloth-measuring machine comprising a frame, a rotatable body fixed against bodily movement, a second rotatable body, bearings for the second body comprising U-shaped plates having their ends attached to the ends of the frame and having slots in their webs in which the body is slidable and rotatably mounted, U-shaped springs each having one leg engaged with the body and having its other leg perforated and disposed between the body and a side of the U-shaped plate, and a screw engaged with each of the U-shaped plates and its end engaged with the perforation of the adjacent spring, to move said leg in the direction of the opposite leg to move the second body in the direction of the first body and vary the tension of the spring.

6. A cloth-measuring machine comprising a frame, a rotatable body having a shaft, U-shaped plates secured to the frame and projecting inwardly thereof, said plates having slots in their webs in which the shaft is disposed for rotation and bodily movement, leaf-springs bent upon themselves and disposed each between a side of a plate and the adjacent portion of the shaft to hold the shaft yieldably in a predetermined position, and means for moving and holding the legs of the springs together to increase the tension thereof.

7. A cloth-measuring machine comprising a frame, a rotatable body having a shaft, plates secured to the frame and having each a slotted side in the slots of which the shaft is disposed for rotation and bodily movement, springs bent upon themselves and disposed each within the inclosure of a plate between a side of the plate and the adjacent portion of the shaft and with which latter it is engaged, and a screw engaged with the side of the plate and with the spring to compress the legs and vary the tension of the spring.

8. In a device of the class described, the combination with a supporting-frame, of bearings carried thereby, clamp-rods mounted in the bearings and which bearings are adapted for manipulation to hold the rods fixedly and to release them to permit longitudinal and rotatable adjustment, said rods having their inner ends reduced to form shoulders and having longitudinal threaded recesses, bolt-board clamps having bearings with which the reduced ends of the rods are engaged, screws engaged with the recesses to hold the clamps against displacement, and a winding mechanism adapted to draw fabric from a board held by the clamps.

9. A bolt-board holder comprising a bar, U-shaped clamps having their webs slidably engaged with the bar and having means for holding them at different points of their sliding movement, the legs of the clamps being provided with tapered notches, the walls of which lie at opposite sides of the adjacent face of the bar, whereby a board engaged with the notches may be forced against the bar when the clamps are moved toward each other.

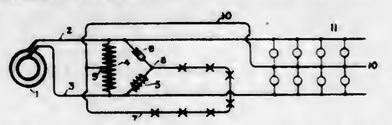
10. A bolt-board holder comprising a cross-sectionally angular bar, U-shaped plates having openings in their webs with which the bar is slidably fitted, and means for holding the plates against movement upon the bar, the ends of the legs of the plates being provided with tapered notches, one wall of each of which lies at an acute angle to the adjacent face of the bar and the other side beyond said adjacent face, whereby a board engaged with the notches will be moved against the bar when the plates are moved toward each other.

11. A device of the class described comprising a frame including oppositely-disposed cross-pieces having bearings therein, one of which is of greater diameter than the other, a cross-sectionally angular bar having a trunnion at one end of lesser width than the bar adapted for engagement with the minor bearing and having an annular enlargement adjacent its opposite end for engagement with the major bearing, said bar being reduced in diameter and formed cylindrical beyond the enlarged portion, a pivoted hook disposed for engagement over said reduced portion to prevent longitudinal movement of the bar in one direction, a keeper for the hook for engagement thereby when in its operative position, clamps slidably fitted upon the bar, and means for rotating the bar.

12. The combination with holding-bars of bolt-board clamps having hubs rotatably mounted upon the bars, plates fixed to the bars and having brake-shoes in operative relation to said hubs, and means for varying the pressure of the shoes on the hubs.

13. The combination with holding-bars, of bolt-board clamps having hubs rotatably mounted on the bars, plates fixed to the bars and having brake-shoes in operative relation to said hubs, said plates having openings therethrough, and thumb-screws passed through the openings and engaged with the bars for varying the pressure of the shoes upon the hubs.

679,102. **SYSTEM OF ELECTRICAL DISTRIBUTION.** ERNST J. BERG, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Jan. 2, 1901. Serial No. 41,816. (No model.)



Claim.—1. The combination of a device across which a constant difference of potential is maintained, reactances of different sign connected in series across said device, and a consumption-circuit connected between the junction of said reactances and a point between the terminals of said device.

2. The combination of a winding, constant-potential mains extending therefrom, reactances of different sign connected in series across points in said winding, and a constant-current circuit connected between the junction of said reactances and a point in said winding.

3. The combination of a winding constituting the seat of an alternating difference of potential, reactances of opposite sign connected in series across said winding, and a circuit connected between the middle point of said winding and the junction of said reactances.

4. The combination of a winding constituting the seat of a constant alternating electromotive force, reactances of opposite sign connected in series across points in said winding, and a circuit connected between an intermediate point of said winding and the junction of said reactances.

5. The combination of a winding constituting the seat of an alternating electromotive force, reactances of opposite sign connected in series across points in said winding, and a circuit connected between an intermediate point of said winding and the junction of said reactances.

6. The combination of a winding forming the seat of an alternating difference of potential, a condenser and an inductance connected in series across said winding, and a consumption-circuit connected between an intermediate point of said winding and the junction between said condenser and said inductance.

7. The combination of a winding, constant-potential mains extending therefrom, another main extending from a point in said winding and cooperating with said constant-potential mains to form a multiple-conductor system, reactances of different sign connected in series across points in said winding, and a constant-current circuit connected between the junction of said reactances and a point in said winding.

8. The combination of a winding forming the seat of an alternating difference of potential, reactances of opposite sign connected in series across said winding, another set of reactances of opposite sign connected in series across said winding but in reverse relation to the first set, and consumption-circuits connected between an intermediate point of said winding and the respective junctions between the reactances of each of said sets.

679,103. SUMMER-HOUSE. FRANCIS X. BLUHLE, Emporium, Pa. Filed May 1, 1901. Serial No. 58,333. (No model.)



Claim.—1. In a summer-house, a fixed fountain mounted upon the roof thereof, a rotating platform beneath and concentric to said fountain, and a motor for said platform actuated by a discharge from said fountain; substantially as specified.

2. In a summer-house, a fountain mounted upon the roof thereof, a rotating platform, a motor for said platform actuated by a discharge from said fountain, and a rotating fan carried by said platform; substantially as specified.

3. A summer-house comprising a substantially conical roof supported by posts, a fixed platform above said roof, a water-supply extended to a fountain carried by said platform, a rotating platform beneath said fixed platform, and a motor for said rotating platform adapted to be driven by a discharge from said fountain; substantially as specified.

4. A summer-house comprising a substantially conical roof supported by posts, a fixed platform above said roof, a water-supply extended to a fountain carried by said platform, a rotating platform beneath said fixed platform, a rotary water-wheel provided with a gear meshing with said rotating platform, and an independent discharge from said fountain directed upon said wheel; substantially as specified.

679,104. SNAP-SEAL. EDWARD J. BROOKS, East Orange, N. J. Filed May 13, 1901. Serial No. 60,879. (No model.)



Claim.—1. An improved snap-seal composed of a flexible shackle having snap-catches at both ends and a hollow sheet-metal seal part having inlets for the respective shackle ends and constructed with inwardly-projecting rigid vestibule-walls surrounding each inlet.

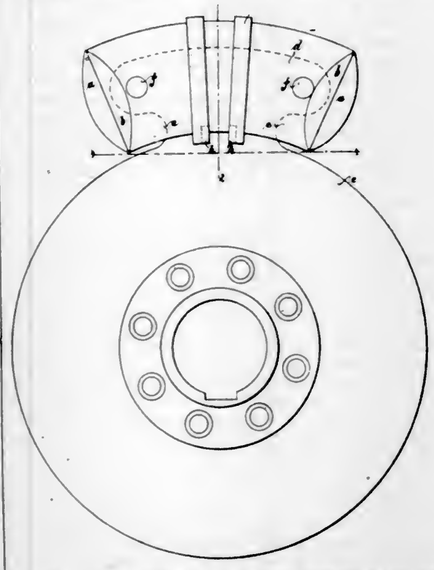
2. An improved snap-seal composed of a flexible shackle having its respective ends provided with snap-catches and a hollow sheet-metal seal part having inlets for the respective shackle ends and constructed with inwardly-projecting rigid vestibule-walls contracted at their inner extremities by rigid inturned edges.

3. An improved snap-seal composed of a flexible shackle having snap-catches at its respective ends and a hollow sheet-metal seal part composed of two cup-shaped pieces united at mid-height of the seal part by a circumferential seam and each provided with an entrance for one of the shackle ends and constructed with an inwardly-projecting rigid vestibule-wall surrounding said inlet.

4. The combination, in a snap-seal, of a flexible shackle of sheet metal or the like provided at both ends with snap-catches and with inlet-guards adjacent to said catches and a hollow sheet-metal seal part having an inlet for each shackle end and constructed with inwardly-projecting rigid vestibule-walls surrounding said inlets and serving to inclose and coact with said inlet-guards in the fastened seal.

5. In a snap-seal, a flexible shackle of sheet metal having oppositely-projecting snap-catches formed at its respective edges by incisions, and provided with hollow ribs extending longitudinally from beyond said incisions near the extremities of the shackle to points beyond said shoulders toward the body of the shackle, and serving to stiffen those portions weakened by such incisions, substantially as hereinbefore specified.

679,105. PISTON FOR ROTARY ENGINES. HENRY A. BUCK, West Stafford, Conn. Filed Dec. 7, 1900. Serial No. 39,079. (No model.)



Claim.—1. A rotary-steam-engine piston consisting of two symmetrical halves, each half being cut away, in combination with a plate provided with a projection adapted to fit into the cut-away portions of said halves, substantially as described.

2. A rotary-steam-engine piston consisting of two symmetrical halves arranged to be placed together face to face and each half having a part thereof cut away, in combination with a plate having a projection with a reduced neck, which projection and neck are adapted to fit into the cut-away portions of the two halves, substantially as described.

3. A rotary-steam-engine piston composed of two symmetrical halves adapted to fit together face to face, each half being provided with a rib and each rib having a cut-away portion, in combination with a carrying-plate adapted to fit into said cut-away portions, substantially as described.

4. A rotary-steam-engine piston composed of two symmetrical halves adapted to fit together face to face, each half being provided with arms extending longitudinally through said half and each arm being provided with ribs, and each half being provided with cut-away portions, in combination with a carrying-plate provided with a projection having a reduced neck said projection and neck being adapted to fit into the cut-away portions of said halves respectively, substantially as described.

5. A rotary-steam-engine piston provided with wear-rings, said piston and rings being notched, in combination with a notched carrying-plate and pins engaging said piston, rings and plate, substantially as described.

679,106. ROTARY ENGINE. HENRY A. BUCK, West Stafford, Conn. Filed Dec. 24, 1900. Serial No. 41,000. (No model.)

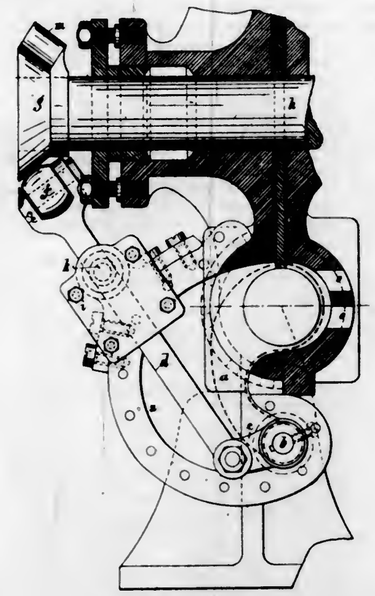
Claim.—1. In a rotary engine, the combination with a cylinder, and a shaft and piston mounted to rotate therein; of a slide adapted to swing into the path of said piston, a cone-shaped cam having its surface inclined toward the cylinder carried by said shaft, and means operated by said cam for controlling said slide, substantially as described.

2. In a rotary engine, the combination with a cylinder, and a shaft and piston mounted to rotate therein; of a rock-shaft mounted in the cylinder-casing, a slide mounted thereon, adapted to swing into the path of said piston, a cone-shaped cam having its surface inclined toward the cylinder mounted on the said shaft, and means operated by said cam for oscillating said rock-shaft, substantially as described.

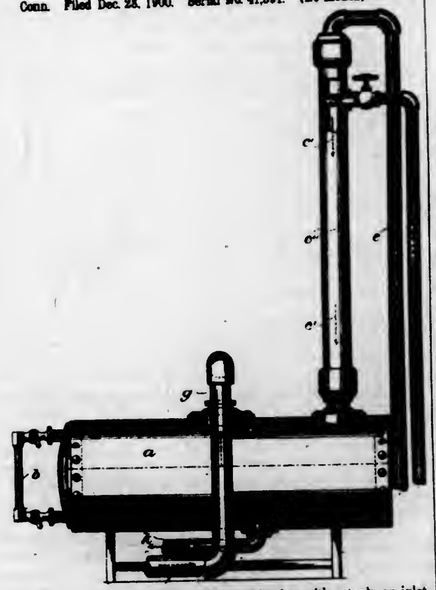
3. A rotating engine having a cam *g* the surface of which is conically inclined toward the cylinder in combination with a rod *d* working on the cam and articulated on the crank-shaft *c* of the slide substantially as described.

4. A rotating engine having a cam *g* the surface of which is conically inclined toward the cylinder and an inclined rod *d* acted upon by the cam and guided in a block *i* articulated at *k* substantially as described.

679,106.



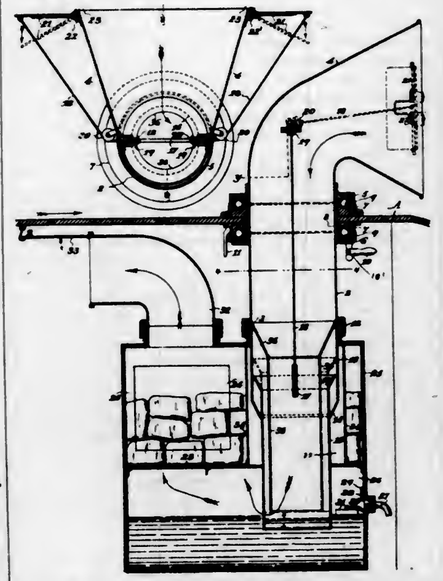
679,107. HOT-WATER TANK. HENRY A. BUCK, West Stafford, Conn. Filed Dec. 28, 1900. Serial No. 41,391. (No model.)



Claim.—1. In a condenser, the combination with a tank, an inlet entering the top of said tank for conveying steam and hot water thereto, and a water-outlet at the bottom of said tank; of a vertical stand-pipe entering the top of said tank, a cold-water pipe entering said stand-pipe at the top thereof provided with means for condensing the vapors within said pipe, and an outlet communicating with the top of said stand-pipe, substantially as described.

2. In a condenser, the combination with a tank, an inlet entering the top of said tank for conveying steam and hot water thereto, a water-outlet at the bottom of said tank, and a gage-glass at one end of said tank for indicating the height of water therein; of a vertical stand-pipe entering the top of said tank, a cold-water pipe entering said stand-pipe at the top thereof provided with means for condensing the vapors within said pipe, and an outlet communicating with the top of said stand-pipe, substantially as described.

679,108. VENTILATOR AND DUST-ARRESTER. BENJAMIN F. CLARKE, San Francisco, Cal. Filed Oct. 17, 1900. Serial No. 33,317. (No model.)



Claim.—1. A ventilator consisting of an air-inlet, an air-chamber containing water, one end of said inlet adapted to be submerged within the water, devices exposed to exterior wind-pressure for automatically moving the air-inlet with relation to the water in the chamber and means for delivering the air from the chamber.

2. A ventilator consisting of an air-inlet, an air-chamber containing water, a governing device exposed to and actuated by exterior wind-pressure whereby one end of the air-inlet is automatically submerged in the water, means for cooling the air within the chamber, and a delivery-tube leading from the air-chamber.

3. A ventilator consisting of a turnable air-inlet tube having a funnel-shaped mouth, connections of this tube with an air-chamber, and a tube slidable in an extension of the air-inlet tube within the chamber, this slidable tube having a governing device exposed to and actuated by exterior wind-pressure by which said tube is automatically submerged in water contained in the bottom of the air-chamber, and means for delivering the air from the chamber.

4. A ventilator combining an air-inlet tube, bearings in which this tube is turnable and means for holding the tube in position, an air-chamber and a pipe therein to which the lower end of the inlet-tube is turnably connected, a tube within the chamber and continuous with the pipe, a pipe slidable with relation to the interior tube, a governor by which this pipe is automatically submerged in water contained in the lower part of the chamber, means for cooling the air in the chamber, and a delivery-tube leading from the chamber.

5. A ventilator having in combination a turnable air-inlet tube, whose lower end is outwardly flanged, a cap joining this tube turnably to a tubular projection upon an air-chamber, a pipe forming a continuation of this tubular projection within the chamber, having on its lower end a cone-shaped flange, a pipe slidable in this tube and extending below it, and having a cone-shaped upper end, a governing device by which this pipe is automatically submerged or withdrawn from water contained within the air-chamber, means for regulating this quantity of water, and an air-passage leading from the chamber.

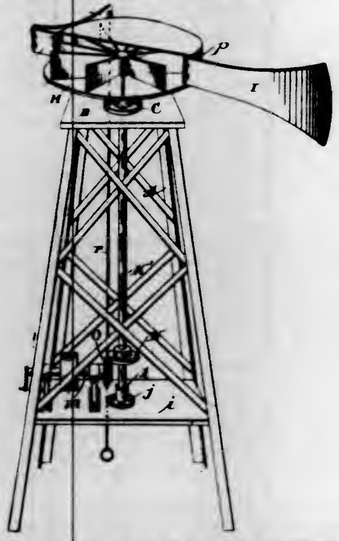
6. A ventilator consisting in the combination of a turnable air-inlet connected with an air-chamber, a pipe slidable in an extension of the air-inlet and within the chamber and devices controlled by the pressure of

wind whereby said pipe is adapted to be automatically submerged in water contained in the bottom of the chamber, a horizontal perforated partition in the chamber forming an upper compartment therein and adapted to receive a cooling substance as ice, a protecting-casing about the above-mentioned pipe, an air-outlet, and means for regulating the amount of water in the chamber.

7. In a car-ventilator, the combination of an air-inlet tube having a funnel-mouth projecting without the car, said funnel and tube turnable in the direction of travel, wings hinged upon the edges of the funnel, and means for distending them in a plane approximately at right angles with the funnel-mouth, an air-chamber with which the air-tube is turnably connected, a tube within the air-chamber and in line with the air-tube, a pipe slidable in this tube and having connections with the wings by which the pipe is submerged in water contained in the bottom of the air-chamber, when the wings are pressed back against the sides of the funnel by the pressure of the air upon these wings, as the car moves forward, wings returning as the air-pressure is reduced whereby the pipe is withdrawn from the water, a cooling-compartment within the chamber, an air-discharge outlet and means by which the amount of water in the chamber is regulated.

8. In a car-ventilator, the combination of an air-inlet tube having a funnel projecting above the roof of the car and turnable in bearings upon the car, means upon these bearings by which the tube is secured with its funnel in the direction of travel, wings hinged upon the edges of the funnel having springs by which they are normally retained in a plane approximately transverse to the funnel-mouth, an exterior flange upon the lower end of the inlet-tube, a cap fitting this flange and joining the tube to the air-chamber, a tube within the chamber in line with the inlet-tube having a cone-shaped flange on the lower edge, a pipe slidable in said tube having a cone-shaped flange upon its upper end, cords by which the pipe is held in suspension, said cords attached to the outer edges of the wings upon the funnel, whereby the pipe is automatically submerged or withdrawn from the water in the bottom of the air-chamber, an ice-compartment in the air-chamber and above the water whereby the air is cooled before being delivered into the car, an air-discharge pipe, a controlling-gate therefor, and a float-valve by which the water in the air-chamber is prevented from rising above a certain height.

679,109. WINDMILL. CHARLES T. COLMAN, Elwood, Ind. Filed Mar. 27, 1901. Serial No. 53,114. (No model.)



Claim.—1. A windmill comprising a frame, a semicircular shield rotatably mounted on said frame, a wheel rotatably mounted within said shield, a vane rigidly connected to the rear edge of said shield, a vertically-arranged forwardly-extending arm rigidly connected to the opposite edge of said shield, and a vertically-arranged semicylindrical plate hinged to said arm, whereby the wind will hold it in either position after it has passed the center thereof, substantially as described.

2. A windmill comprising a frame, a plate mounted thereon, having an upwardly-extending reduced portion, a sleeve surrounding said reduced portion and rotatably mounted thereon, radially-extending arms carried by said sleeve, a semicircular plate mounted on said arms, upwardly-extending portions carried by the radial arms on one side, a semicylindrical vertical plate surrounding said arms, and a semicircular horizontal plate mounted on the ends of said arms, a shaft passing through said plate and the lower portion of the shield, and a wheel on said shaft within the casing, substantially as described.

3. In a windmill, the combination with a frame, of a plate secured thereto and having a reduced upper end, a sleeve surrounding said reduced upper portion, balls between the lower edge of said sleeve and the enlarged lower portion of the plate, radially-extending arms carried by the sleeve, a horizontal plate mounted on said arms, a semicylindrical vertical plate carried by the horizontal plate, a second horizontal plate carried by the top of the semicylindrical plate, a shaft rotatably mounted in the plate carried by the frame, and a wheel carried by said shaft within the shield, substantially as described.

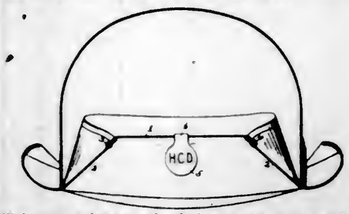
4. A windmill comprising a frame, a semicircular shield rotatably mounted on said frame, a wheel rotatably mounted within said shield, a vane rigidly connected to the rear end of said shield and a semicylindrical plate secured to the forward end of said shield, whereby the wind will hold it in either position after it has passed the center thereof, substantially as described.

679,110. SOAP-DISH. ALLEN CONKLING, Chicago, Ill. Filed Mar. 7, 1901. Serial No. 50,252. (No model.)



Claim.—A soap-dish formed of two parts, the upper part forming a supporting-tray having a retaining-wall, perforated bottom and studs above the same, and a retaining-flange extending downward from the bottom of said upper part to fit the upper edge of the lower part, and a lower part having an upper edge scalloped or depressed downward from said edge to form a ventilating-opening; substantially as specified.

679,111. HAT-PROTECTOR. HARRY C. DICK, Philadelphia, Pa. Filed Apr. 3, 1901. Serial No. 54,196. (No model.)



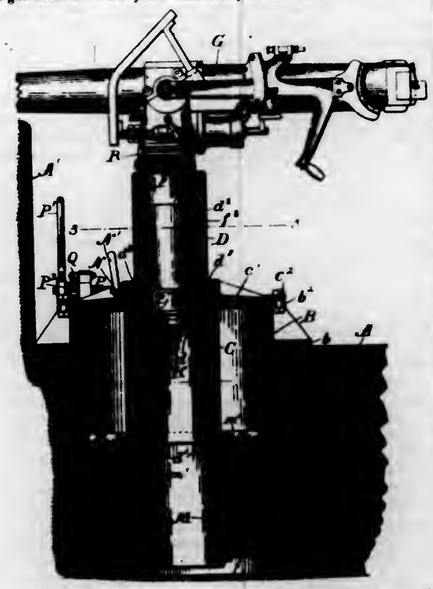
Claim.—1. A hat-protecting device comprising a strip or band connected to the sweat-band of the hat at one side of the same and having a detachable connection with the sweat-band at the opposite side of the hat, said band being less in length than the width of the hat, whereby when it is attached to the opposite sides of the sweat-band, it will draw the same toward each other, substantially as specified.

2. A hat-protecting device comprising an elastic band connected to the sweat-band of the hat at one side of the same and having a detachable connection with the sweat-band at the opposite side of the hat, said band being less in length than the width of the hat, whereby when it is attached to the opposite sides of the sweat-band, it will draw the same toward each other, substantially as specified.

3. A hat-protector consisting of a flexible strip or band connected to the sweat-band of the hat at one side of the same and having a detachable connection with said sweat-band at the opposite side of the hat, said band when detached at one end, being capable of being tucked behind the sweat-band at the opposite side of the hat.

679,112. PARAPET-MOUNT FOR GUNS. LOUIS L. DRIGGS, New York, N. Y., assignor of one-half to William H. Driggs, Washington, D. C. Filed Dec. 9, 1899. Renewed Feb. 12, 1901. Serial No. 47,047. (No model.)

Claim.—1. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular weight mounted between said cylinders, a sleeve inclosed within said inner cylinder and means for holding the same against rotation therein, means for causing said weight to tend to lift said sleeve, a yoke revolubly mounted in said sleeve, and a gun mounted in said yoke, substantially as described.



2. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular weight mounted between said cylinders, a sleeve inclosed within said inner cylinder and means for holding the same against rotation therein, means for causing said weight to tend to lift said sleeve, a yoke revolubly mounted in said sleeve, a rocking slide trunnioned in said yoke, and a gun mounted in said rocking slide, substantially as described.

3. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular weight mounted between said cylinders, a sleeve inclosed within said inner cylinder and means for holding the same against rotation therein, means for causing said weight to tend to lift said sleeve, a yoke revolubly mounted in said sleeve, a gun mounted on said yoke, and means for holding said yoke against rotation in said sleeve when desired, substantially as described.

4. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular counterpoise-weight mounted between said cylinders, a gun-support mounted within said inner cylinder and partly counterbalanced by said weight, and means for moving said gun-support vertically, substantially as described.

5. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular counterpoise-weight mounted between said cylinders, a gun-support mounted within said inner cylinder and partly counterbalanced by said weight, means for moving said gun-support vertically, means for holding said gun-support in the raised position, and means for training the gun on said support; substantially as described.

6. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular counterpoise-weight mounted between said cylinders, a vertically-movable sleeve inclosed within said inner cylinder and means for holding the same against rotation therein, means for causing said weight to tend to lift said sleeve, a yoke revolubly mounted in said sleeve, antifriction-bearings for said yoke, and a gun mounted in said yoke, substantially as described.

7. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular counterpoise-weight mounted between said cylinders, a vertically-movable sleeve inclosed within said inner cylinder and means for holding the same against rotation therein, means for causing said weight to tend to lift said sleeve, means for clamping said sleeve at the desired elevation, a yoke revolubly mounted in said sleeve, and a gun mounted in said yoke, substantially as described.

8. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular counterpoise-weight mounted between said cylinders, a vertically-movable sleeve inclosed within said inner cylinder and means for holding the same against rotation therein, means for causing said weight to tend to lift said sleeve, means for clamping said sleeve at the desired elevation, a yoke revolubly mounted in said sleeve, means for clamping said yoke in the desired train, a rocking slide trunnioned in said yoke, and a gun mounted in said rocking slide, substantially as described.

9. In a disappearing gun-mount, the combination with an outer cylinder, an inner cylinder, an annular counterpoise-weight mounted between said cylinders, a vertically-movable sleeve inclosed within said inner cylinder and means for holding the same against rotation therein means for causing said weight to tend to lift said sleeve, and means for mounting a gun on said sleeve, substantially as described.

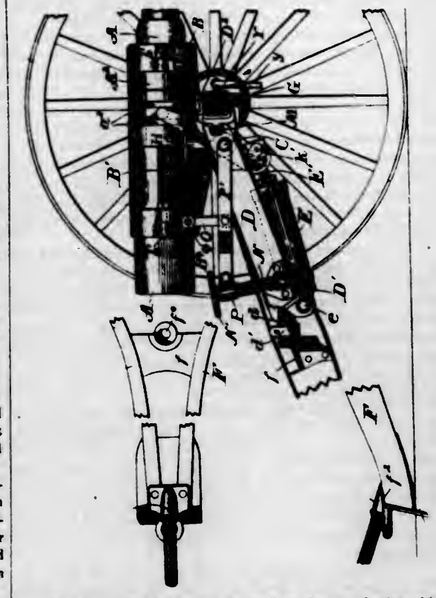
10. In a gun-mount of the character described, the combination with a sleeve, a yoke mounted in said sleeve, a sliding check engaging between said sleeve and said yoke, a hand-lever for operating said check, and a spring-plunger normally holding said check in the disengaged position, substantially as described.

11. In a gun-mount of the character described, the combination with a cylinder having cam-grooves on the inner surface thereof, of a counterpoise weight or weights exterior to said cylinder, a sleeve mounted in said cylinder and having lugs projecting into said cam-grooves, and supports for the gun mounted on said sleeve, substantially as described.

12. In a disappearing gun-mount, the combination with means for raising and lowering the gun, of automatic means operated by the raising and lowering mechanism for swinging the gun laterally through an angle in one direction as it is raised and in the opposite direction as it is lowered, substantially as described.

13. In a disappearing gun-mount, the combination with means for raising and lowering the gun, of coöperating cams and cam-grooves for automatically swinging the gun through an angle laterally as it is raised or lowered, substantially as described.

679,113. MOUNT FOR FIELD ARTILLERY. LOUIS L. DRIGGS, New York, N. Y., assignor of one-half to William H. Driggs, Washington, D. C. Filed Dec 9 1899. Renewed Feb. 12, 1901. Serial No. 47,048. (No model.)



Claim.—1. In a field-mount for artillery, the combination with a trail and axle, the latter being flattened on top, of an upper carriage supporting the gun, pivoted at its rear end to said trail and having its forward end traveling laterally on said axle, a bell-crank lever pivoted to said trail, a link connecting said bell-crank lever and said upper carriage, and means for swinging said bell-crank lever about its pivot, substantially as described.

2. In a field-mount for artillery, the combination with a trail and axle, the latter being flattened on top, of an upper carriage supporting the gun, pivoted at its rear end to said trail and having its forward end traveling laterally on said axle, a bell-crank lever pivoted to said trail, a link

connecting said bell-crank lever and said upper carriage, a nut pivoted to said bell-crank lever, and a screw removably connected to said trail and engaging said nut, substantially as described.

3. In a mount for field artillery, the combination with a trail and axle, said axle being flattened on top, of an upper carriage supporting the gun and pivoted at its rear end to said trail and provided at its forward end with antifriction-rollers traveling on said axle, and a jaw projecting beneath said axle and provided with an adjusting-screw to prevent lost motion, with means for moving said upper carriage through a small angle to the right or left about its pivot, substantially as described.

4. In a mount for field artillery, the combination with a trail and axle, said axle being flattened on top, of an upper carriage supporting the gun and pivoted at its rear end to said trail and provided at its forward end with antifriction-rollers traveling on said axle, and a jaw projecting beneath said axle and provided with an adjusting-screw to prevent lost motion, a bell-crank lever pivoted to the trail, a link connecting said bell-crank lever with said upper carriage, and means for moving said bell-crank lever about its pivot, substantially as described.

5. In a mount for field artillery, the combination with a trail and axle, said axle being flattened on top, of an upper carriage supporting the gun and pivoted at its rear end to said trail and provided at its forward end with antifriction-rollers traveling on said axle, and a jaw projecting beneath said axle and provided with an adjusting-screw to prevent lost motion, a bell-crank lever pivoted to the trail, a link connecting said bell-crank lever with said upper carriage, a nut pivoted to said bell-crank lever, and a screw revolubly connected to the trail and engaging said nut, substantially as described.

6. In a field-mount for artillery, the combination with a trail and axle, the latter being flattened on top, of an upper carriage pivoted at its rear end to said trail and having its forward end traveling laterally on said axle, a bell-crank lever pivoted to said trail, a link connecting said bell-crank lever and said upper carriage, and means for swinging said bell-crank lever about its pivot, and a gun mounted on said upper carriage, substantially as described.

7. In a field-mount for artillery, the combination with a trail and axle, the latter being flattened on top, of an upper carriage pivoted at its rear end to said trail and having its forward end traveling laterally on said axle, a bell-crank lever pivoted to said trail, a link connecting said bell-crank lever and said upper carriage, a nut pivoted to said bell-crank lever, and a screw removably connected to said trail and engaging said nut, a guide-frame pivoted on said upper carriage, and a gun mounted in said guide-frame, substantially as described.

8. In a mount for field artillery, the combination with a trail and axle, said axle being flattened on top, of an upper carriage pivoted at its rear end to said trail and provided at its forward end with antifriction-rollers traveling on said axle, and a jaw projecting beneath said axle and provided with an adjusting-screw to prevent lost motion, with means for moving said upper carriage through a small angle to the right or left about its pivot, a guide-frame pivoted on said upper carriage, and a gun mounted in said guide-frame, substantially as described.

9. In a mount for field artillery, the combination with a trail and axle, said axle being flattened on top, of an upper carriage pivoted at its rear end to said trail and provided at its forward end with antifriction-rollers traveling on said axle, and a jaw projecting beneath said axle and provided with an adjusting-screw to prevent lost motion, a bell-crank lever pivoted to the trail, a link connecting said bell-crank lever with said upper carriage, and means for moving said bell-crank lever about its pivot, a guide-frame pivoted on said upper carriage, and a gun mounted in said guide-frame, substantially as described.

10. In a mount for field artillery, the combination with a trail and axle, said axle being flattened on top, of an upper carriage for the gun pivoted at its rear end to said trail and provided at its forward end with antifriction-rollers traveling on said axle, and a jaw projecting beneath said axle and provided with an adjusting-screw to prevent lost motion, a bell-crank lever pivoted to the trail, a link connecting said bell-crank lever with said upper carriage, a nut pivoted to said bell-crank lever, and a screw revolubly connected to the trail and engaging said nut, substantially as described.

11. A mount for field artillery, comprising a trail and an axle, an upper carriage pivoted at its rear end to said trail and having its front end traveling laterally on said axle, a guide-frame pivoted on said upper carriage and supporting the gun, brake-levers pivoted to said upper carriage and engaging projections on the gun, and recoil-check operated by said brake-levers when the gun is fired, substantially as described.

12. A mount for field artillery, comprising a trail and an axle, an upper carriage pivoted at its rear end to said trail and having its front end traveling laterally on said axle, brake-levers pivoted on said upper carriage and engaging projections on the gun, and a recoil-check comprising a recoil cylinder and piston connected to said brake-levers, substantially as described.

13. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, a guide-frame supporting the gun pivoted on said upper carriage, and recoil apparatus mounted on said upper carriage and connected to the gun, substantially as described.

14. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun, pivoted on said upper carriage, with a recoil-check engaging both said gun and said upper carriage, substantially as described.

15. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun pivoted to said upper carriage, with a recoil-cylinder and its piston interposed between said gun and said upper carriage, substantially as described.

16. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun, pivoted on said upper carriage, a link pivoted to said guide-frame, and elevating-gear connected to said link, substantially as described.

17. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun pivoted on said upper carriage, a link pivoted to the guide-frame, a bar pivoted to the upper carriage and to said link, and an elevating-screw connecting said bar and said upper carriage, substantially as described.

18. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle supported thereby, and a guide-frame supporting the gun pivoted on said upper carriage, with a recoil-check interposed between the gun and said upper carriage, a link pivoted to the guide-frame, and elevating-gear connected to said link, substantially as described.

19. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun pivoted on said upper carriage, with a recoil-check interposed between the gun and said upper carriage, a link pivoted to the guide-frame, a bar pivoted to the upper carriage and to said link, and elevating-screw connecting said bar and said upper carriage, substantially as described.

20. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun pivoted to said upper carriage, with a recoil-cylinder and its piston interposed between the gun and said upper carriage, a link pivoted to the guide-frame, and elevating-gear connected to said link, substantially as described.

21. In a field-mount for artillery, the combination with a trail and axle, of an upper carriage mounted over said trail and axle and supported thereby, and a guide-frame supporting the gun pivoted to said upper carriage, with a recoil-cylinder and its piston interposed between the gun and said upper carriage, a link pivoted to the guide-frame, a bar pivoted to the upper carriage and to said link, and an elevating-screw connecting said bar and said upper carriage, substantially as described.

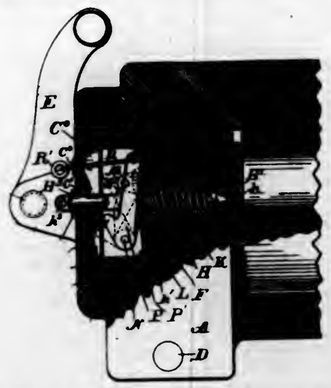
22. In a field-mount for artillery the combination with a trail and axle, the latter being flattened on top, of an upper carriage pivoted at its rear to said trail and having its forward end traveling laterally on said axle, with means connected to the trail for training said upper carriage, a guide-frame pivoted on said upper frame, a gun mounted in said slide, and an elevating-gear connecting said guide-frame and said upper carriage, substantially as described.

23. In a field-mount for artillery, the combination with a trail and axle, the latter being flattened on top, of an upper carriage pivoted at its rear end to said trail and having its forward end traveling laterally on said axle, a bell-crank lever pivoted to said trail, a link connecting said bell-crank lever and said upper carriage, and means for swinging said bell-crank lever about its pivot, a gun mounted on said upper carriage, and elevating-gear for said gun, substantially as described.

24. In a field-mount for artillery, the combination with a trail and axle, the latter being flattened on top, of an upper carriage pivoted at its rear end to said trail; and having its forward end traveling laterally on said axle, a bell-crank lever pivoted to said trail, a link connecting said bell-crank lever and said upper carriage, a nut pivoted to said bell-crank lever, and a screw removably connected to said trail and engaging said nut, a gun mounted on said upper carriage, and an elevating-gear for said gun, substantially as described.

679,114. FIRING MECHANISM FOR BREECH-LOADING ORDNANCE. LOUIS L. DRIGGS, New York, N. Y., assignor of one-half to William H. Driggs, Washington, D. C. Filed Dec. 9, 1899. Renewed Feb. 12, 1901. Serial No. 47,048. (No model.)

Claim.—1. A firing mechanism for breech-loading ordnance comprising a firing-pin mounted in the breech-block, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch carried by the firing-pin, a pivoted cocking-toe engaging said latch and releasing the same when drawn to the rear, and means for drawing said cocking-toe rearward; substantially as described.



2. In breech-loading ordnance, a firing mechanism comprising a firing-pin mounted in the breech-block, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch carried by the firing-pin, a cocking-toe engaging said latch when drawn to the rear and then passing from under said latch in its further rearward motion, and a firing-lever integral with or rigidly attached to said cocking-toe; substantially as described.

3. In a firing mechanism for use in breech-loading ordnance, the combination with a sleeve detachably mounted in the breech-block of the gun, of a firing-pin mounted in said sleeve, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch mounted on said firing-pin, and a cocking-toe pivoted on said sleeve and engaging said latch when drawn to the rear and passing out of engagement with said latch near the end of its rearward motion, with means for moving said cocking-toe rearward, about its pivot, substantially as described.

4. A firing mechanism for breech-loading ordnance comprising a firing-pin mounted in the breech-block, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch carried by the firing-pin, a pivoted cocking-toe engaging said latch and releasing the same when drawn to the rear, a spring normally pressing said cocking-toe forward, and means for drawing said cocking-toe rearward against the action of said spring; substantially as described.

5. In breech-loading ordnance, a firing mechanism comprising a firing-pin mounted in the breech-block, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch carried by the firing-pin, a pivoted cocking-toe engaging said latch when drawn to the rear and then passing from under said latch in its further rearward motion, and a firing-lever integral with or rigidly attached to said cocking-toe; and a spring normally pressing said firing-lever and cocking-toe forward; substantially as described.

6. In a firing mechanism for use in breech-loading ordnance, the combination with a sleeve detachably mounted in the breech-block of the gun, of a firing-pin mounted in said sleeve, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch mounted on said firing-pin, a cocking-toe pivoted on said sleeve and engaging said latch when drawn to the rear and passing out of engagement with said latch near the end of its rearward motion, and a spring normally pressing said firing-lever and cocking-toe forward, with means for moving said cocking-toe rearward about its pivot, substantially as described.

7. A firing mechanism for breech-loading ordnance comprising a sleeve detachably mounted in the breech-block, a firing-pin sliding in said sleeve and held against rotation therein, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch carried by said pin, a pivoted cocking-toe engaging said latch and releasing the same when drawn to the rear, a spring normally pressing said cocking-toe forward, and means for drawing said cocking-toe rearward against the action of said spring; substantially as described.

8. In breech-loading ordnance, a firing mechanism comprising a sleeve detachably mounted in the breech-block, a firing-pin sliding in said sleeve and held against rotation therein, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch carried thereby, a cocking-toe engaging said latch when drawn to the rear and then passing from under said latch in its further rearward motion, a firing-lever integral with or rigidly attached to said cocking-toe, and a spring normally pressing said cocking-toe forward; substantially as described.

9. In a firing mechanism for use in breech-loading ordnance, the combination with a sleeve detachably mounted in the breech-block of the gun, and provided with a rearwardly-projecting arm, of a firing-pin mounted to slide in said sleeve, but held against rotation therein, a spring secured at one end to the breech-block and at the other to the firing-pin and adapted to withdraw the point of the firing-pin clear of the face of the breech-block, a yielding latch mounted on said firing-pin, a cocking-toe pivoted on said arm of said sleeve and engaging said latch when drawn to the rear and passing out of engagement with said latch near the end of its rearward motion, and a spring normally pressing said firing-lever and cocking-toe forward, with means for moving said cocking-toe rearward, about its pivot, substantially as described.

10. In a breech-loading gun, the combination with a sleeve adapted to be screwed into the breech-block, a spring-stop adapted to project into a recess partly in said breech-block and partly in said sleeve, and firing mechanism carried by said sleeve, and removable therewith from the gun, substantially as described.

11. In a breech-loading gun, the combination with a sleeve adapted to be screwed into the breech-block, of a spring S secured to said sleeve, roughened-headed stop S' secured to the end of said spring and adapted to project into a recess partly in said breech-block and partly in said sleeve, and firing mechanism carried by said sleeve and removable therewith from the gun, substantially as described.

12. In a slotted-screw breech-loading gun, the combination with the breech-block and hinged carrier-plate projecting in rear of and covering the rear end of the breech-block, and being provided with a narrow recess in its front face, of a firing-lever pivoted on said breech-block, and having a rearwardly-projecting arm registering with said narrow recess in the carrier only when the breech-block is rotated to the locked position, substantially as described.

13. In a slotted-screw breech-loading gun, the combination with the breech-block and hinged carrier-plate projecting in rear of and covering the rear end of the breech-block, and being provided with two narrow recesses in its front face, of a firing-lever carried by said breech-block, and provided with a rearwardly-projecting arm, said lever and said arm registering with said narrow recess only when the breech-block is rotated to the locked position, substantially as and for the purposes described.

14. A firing mechanism for breech-loading ordnance, comprising a firing-pin mounted in the breech-block, a spring secured at one end to the breech-block and at the other to the firing-pin and normally withdrawing the point of the firing-pin clear of the face of the breech-block, and means for cocking and for releasing said firing-pin, substantially as described.

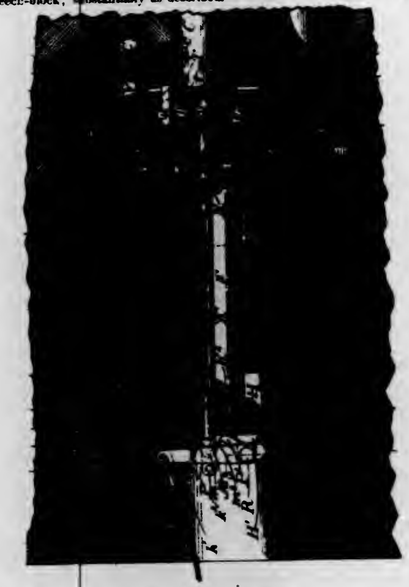
679,115. SUBCALIBER MECHANISM FOR BREECH-LOADING RIFLES. LOUIS L. DRIGGS, New York, N. Y., assignor of one-half to William H. Driggs, Washington, D. C. Filed Dec. 9, 1899. Renewed Feb. 12, 1901. Serial No. 47,050. (No model.)

Claim.—1. A subcaliber-barrel for use in breech-loading guns, provided with a band, with lugs thereon near the forward end of said barrel, and a sloping centering-band at the rear end of the barrel adapted to fit in the obturator slope of the bore of the gun and to center the said barrel in the said gun, in combination with means for closing said barrel and for firing the subcaliber device; substantially as described.

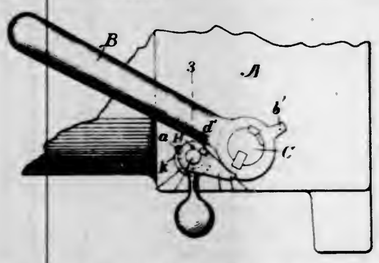
2. A subcaliber-barrel for use in breech-loading guns, provided with a band, with lugs thereon at the forward end of said barrel, and a sloping centering-band at the rear end of the barrel adapted to fit in the obturator slope of the bore of the gun and to center the said barrel in the said gun, in combination with a subcaliber breech-block mounted in the breech-block of the gun and firing mechanism carried by said subcaliber breech-block; substantially as described.

3. A subcaliber-barrel for use in breech-loading guns, provided with a centering device near the forward end of said barrel, and an adjustable sloping centering-band at the rear end of the barrel adapted to fit in the obturator slope of the bore of the gun and to center the said barrel in the said gun, in combination with means for closing said barrel and for firing the subcaliber device; substantially as described.

4. A subcaliber-barrel for use in breech-loading guns, provided with a centering device near the forward end of said barrel, and an adjustable sloping centering-band at the rear end of the barrel adapted to fit in the obturator slope of the bore of the gun and to center the said barrel in the said gun, in combination with a subcaliber breech-block mounted in the breech-block of the gun, and firing mechanism carried by said subcaliber breech-block; substantially as described.



679,116. SAFETY-LOCK FOR BREECH MECHANISM FOR GUNS. Louis L. Driggs, New York, N. Y., assignor of one-half to William H. Driggs, Washington, D. C. Filed Dec. 9, 1899. Renewed Feb. 12, 1901. Serial No. 47,051. (No model.)

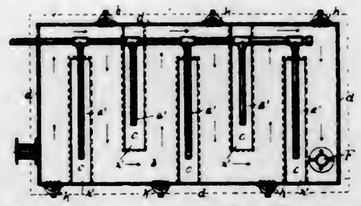


Claim.—1. In a breech-loading gun, the combination with a rock-shaft for operating the breech mechanism, of a ratchet-and-pawl arrangement for holding said rock-shaft against tarning, comprising a pivoted weight and a pawl attached to said weight and a spring normally holding said pawl in engagement, whereby the recoil of the gun causes the inertia of said weight to automatically disengage said pawl against the action of said spring, and a spring-catch connected to said weight and pawl and adapted to hold the said pawl out of engagement after recoil; substantially as described.

2. In a breech-loading gun, the combination with a rock-shaft for operating the breech mechanism, and a hand-lever fast in said rock-shaft and provided with a holding-catch and a tripping-toe, of a pawl normally engaging said holding-catch, a weight rigidly connected to said pawl, a spring-catch for holding said pawl in the disengaged position, and a stop on said pawl struck by the hand-lever when the breech is opened for releasing said spring-catch; substantially as described.

3. In a breech-loading gun, the combination with a rock-shaft for operating the breech mechanism, and a hand-lever fast in said rock-shaft and provided with a holding-catch and a tripping-toe, of a pawl normally engaging said holding-catch, a spring normally holding said pawl in engagement with said catch, a weight rigidly connected to said pawl, a spring-catch for holding said pawl in the disengaged position, and a stop on said pawl struck by the hand-lever when the breech is opened for releasing said spring-catch; substantially as described.

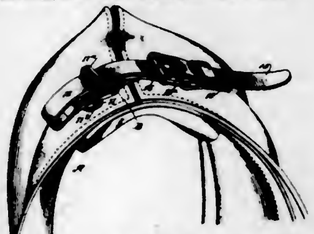
679,117. GAS-COOLING APPARATUS. HERBERT H. EDDY, CHAS. F. BROWN, and JAMES J. HICKEY, Rumford Falls, Me. Filed Apr. 27, 1901. Serial No. 57,771. (No model.)



Claim.—1. An apparatus for cooling gas, comprising a closed tank having water-chambers extending from opposite sides thereof, alternately, forming a serpentine passage-way from one end of the tank to the other, said water-chambers opening through the top of the tank; combined with a water-supply pipe extending above the tank and longitudinally thereof, lateral branch pipes connected to the supply-pipe and disposed above the water-chambers, and smaller discharge-pipes depending from the branch pipes into the water-chambers, a gas-inlet at one end of the serpentine passage-way and a gas-outlet at the other end thereof, substantially as shown and described.

2. An apparatus for cooling gas, comprising a closed tank the top of which is located below the upper ends of the side and end walls, water-chambers located in the tank and extending from the opposite side walls thereof, alternately, forming a serpentine passage-way, said water-chambers opening through the top of the tank; a gas-inlet at one end of the passage-way, and a gas-outlet at the other end thereof; combined with a water-supply pipe, lateral branch pipes, and depending discharge-pipes entering the water-chambers, the ends of said discharge-pipes being in different horizontal planes and turned toward each other, substantially as shown and for the purpose set forth.

679,118. COLLAR-FASTENER. JOHN H. BRENNAN, Quincy, Ill. Filed Nov. 17, 1899. Serial No. 737,313. (No model.)



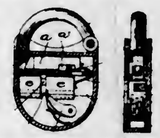
Claim.—1. A device for adjusting and locking horse-collars, consisting of a staple and a buckle adapted to be located at opposite sides of the division in the collar, a locking-plate having an opening to receive the staple, a billet received by the buckle, being connected with the locking-plate, and a stay-strap carried at the opposite side of the said locking-plate, said strap being adapted to pass through the staple after the staple has been passed through the locking-plate.

2. An attachment for horse-collars, comprising a staple adapted to be secured to one side of a collar, a plate provided with three slots, through the central one of which the staple is adapted to be passed, and a strap secured in each of the other slots of the plate, one of the straps being for attachment to a buckle on the collar and the other adapted to be bent upon itself and passed through the staple after the staple has been passed through the plate, substantially as described.

3. An attachment for horse-collars, consisting of a staple, comprising a loop-body and a base, and adapted to be secured to one side of a collar, a flat plate provided with three slots, through the central one of which the staple is adapted to be passed, and a strap secured in each of the other slots of the plate, one of the straps being for attachment to a buckle on the collar and the other adapted to be bent upon itself and passed through the staple after the staple has been passed through the plate, substantially as described.

4. The combination with a horse-collar having a staple secured to one side of the division at the top and a buckle on the other side, of a plate having a slot at about its middle, through which the staple is adapted to be passed, and provided with straps secured to opposite sides thereof, one of the straps being engaged by the buckle and the other adapted to be bent upon itself and passed through the staple after the staple has been passed through the slot of said plate, substantially as described.

679,119. LOCK. PAUL PEHLING, Berlin, Germany. Filed Oct. 20, 1900. Serial No. 33,771. (No model.)



Claim.—1. In combination in a lock, a sliding bolt, controllers therefor having ribbed surfaces, spring-pressed pawls engaging the same, a space separating said ribbed surfaces, and a key adapted to fill said space having a configuration conforming to said ribbed surfaces, substantially as described.

2. In combination in a lock, a sliding bolt, controller therefor having ribbed surfaces arranged in alinement separated by a space, a piece bridging said space, a casing having an opening in alinement with said space when the bolt is in locked position and a branch opening extending in the path of movement of said bolt, a series of tumblers engaging the ribs in said controller and a key having a recess to receive said bridge-piece and fingers corresponding to said rib portion and bridging said space, substantially as described.

3. In combination, a sliding bolt, ribbed blocks having a sliding connection therewith, a space separating said blocks, a piece bridging said space, means for pressing the bolt and blocks forwardly, tumblers engaging with the ribs in the blocks and a key fitted to receive the bridge and conforming in shape to the ribbed surface of the blocks and adapted to bridge the space between the same, substantially as described.

4. In combination, a casing having a key-opening, a bolt guided in an upper chamber in the casing, ribbed blocks arranged in alinement, separated by a short space and guided in a lower chamber in the casing, bridge-pieces connecting the blocks and a series of pivoted pawls, one of which is adapted to engage with each groove in the blocks and a key shaped to conform to the ribbed configuration of the blocks and to bridge the space separating the same, substantially as described.

5. In combination a sliding bolt, a casing, coacting controllers and tumblers, a key adapted to slide with the bolt in operating the same, and means for locking the key to hold the bolt in its retracted position.

6. In combination, a sliding bolt, a casing, coacting controllers and tumblers, a key adapted to slide with the bolt in operating the same, and means for locking the key to hold the bolt in its retracted position, said means comprising a recess in the casing adapted to engage with the key substantially as described.

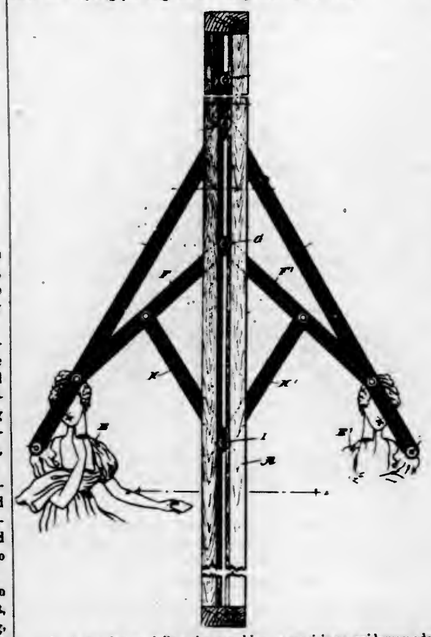
679,120. CARVING AND DELINEATION MACHINE. ARTHUR C. PENN, New York, N. Y. Filed Mar. 5, 1901. Serial No. 49,744. (No model.)

Claim.—1. A carving or delineation machine, comprising a pair of arms connected with each other and carrying a tracer and a tool, a pair of links pivotally connected with each other and with said arms, a pair of braces pivotally connected with each other and with said links between their ends, and a guideway in which the connecting-pivots of said arms, links and braces are mounted to slide in a straight line, said arms, links and braces extending at opposite sides of said guideway, as set forth.

2. A carving or delineation machine, comprising a pair of arms connected with each other and carrying a tracer and a tool, a pair of links pivotally connected with each other and with said arms, a pair of braces pivotally connected with each other and with said links, a guideway in which the connecting-pivots of said arms, links and braces are mounted to slide in a straight line, said arms, links and braces extending at opposite sides of said guideway, and means by which the guideway and the parts carried thereon may be adjusted vertically, as set forth.

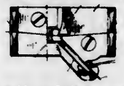
3. A carving or delineation machine comprising a pair of arms connected with each other and carrying a tracer and a tool, a pair of links pivotally connected with each other and with said arms, a pair of braces pivotally connected with each other and with said links, a guideway in which the connecting-pivots of said arms, links and braces are mounted to slide in a straight line, said arms, links and braces extending at opposite sides of said guideway, and a spring for supporting said arms, links, braces and guideway, as set forth.

4. A carving or delineation machine, comprising a pair of arms connected with each other and carrying a tracer and a tool, a pair of links pivotally connected with each other and with said arms, a pair of braces pivotally connected with each other and with said links, the connecting-pivots of the said arms, links and braces being mounted to slide in a straight line, and a spring pressing one of said pivots, as set forth.



5. A carving or delineation machine, comprising a guideway adapted to be suspended in a horizontal position, a pair of arms pivoted together and having their pivot sliding in the guideway, one of said arms carrying a tracer and the other a tool, a pair of links pivoted together and having their pivot sliding in said guideway, the free ends of the links being pivoted to the arms near their outer ends, and braces pivoted together and having their pivot sliding in the guideway, the other ends, of the braces being pivoted to the links between their ends, as set forth.

679,121. THREAD GUIDE AND CLEANER. FRANK E. GARNER, Long Meadow, Mass. Filed Oct. 5, 1900. Serial No. 32,162. (No model.)



Claim.—1. A yarn guide and cleaner comprising a body, centrally-located guide-notches near the ends of said body, a spring-blade secured by one end to said body, and whose free end lies in close proximity to the line of movement of the yarn through said guide-notches, and an abutment whereby the movement of the free end of the blade may be limited, substantially as described.

2. A yarn guide and cleaner comprising a body, centrally-located guide-notches near the opposite ends of the body, and an endwise-adjustable blade secured to the body, one end of which blade is movable toward and from a line drawn through said two guide-notches, an abutment against which the free end of said blade may come in contact to limit the movement of said blade in one direction, substantially as described.

3. A yarn guide and cleaner consisting of a body having guide-notches near each end thereof, an abutment extending more or less across a straight line drawn through said notches, a spring-blade supported on said body at an angle to said straight line, one end of which lies in proximity to said abutment, whereby a narrow slot is provided between said abutment and the end of said blade, through which the yarn passes, substantially as described.

4. A yarn guide and cleaner comprising a body, guide-notches thereon, a yarn-cleaning slot between said notches consisting of one fixed member, one edge of which intercepts a straight line drawn between said notches, and constitutes one edge of said slot, and one movable member consist-

ing of a spring-blade secured to the body by one end and its free end constituting the other edge of said slot, the said free end being movable against the fixed edge of said slot by the contact of the yarn, substantially as described.

5. A yarn guide and cleaner consisting of a body having guide-notches at opposite ends thereof, a cleaning-slot located between said notches, and out of line horizontally therewith and comprising a fixed vertical abutment and a spring-blade, the latter being capable of flexure toward and from said abutment; a boss in front of said slot which is higher than the bottom of one of said guide-slots, whereby the yarn, by means of said cleaning-slot and said boss, may be deflected out of a straight line both horizontally and vertically, in passing through said guide, substantially as described.

6. A yarn guide and cleaner consisting of a body having guide-notches at opposite ends thereof, a boss between said notches having one of its sides in proximity to a line drawn between said notches; a spring-blade oppositely inclined to the direction of movement of the yarn through the guide, secured by one end to said body and having its free end in proximity to said boss; a rib extending lengthwise of said blade to which the latter is secured and which serves as an abutment for the body of the blade when its free end is sprung toward said boss, substantially as described.

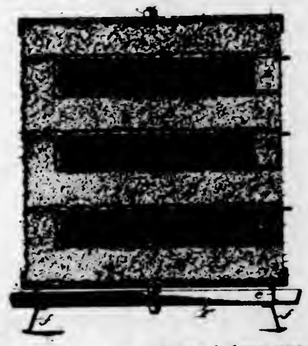
679,122. **GARMENT-SUPPORTER.** AUGUSTA HENNING, Perth Amboy, N. J. Filed Oct. 27, 1900. Serial No. 34,636. (No model.)



Claim.—A garment-supporter comprising a plate having a book formed thereon consisting of a central shank having oppositely-disposed hooks at its outer ends, the bills of which are turned inwardly and terminate in close proximity to the shank, substantially as described.

679,123. **SPROUTING APPARATUS.** JOHN VON DER KAMMER, Chicago, Ill. Filed Jan. 21, 1901. Serial No. 44,058. (No model.)

Claim.—1. In a sprouting apparatus, walls formed of cellular moisture-absorbent vegetable material compacted into a hollow foraminous framework and enveloping a chamber for the grain.



2. In a sprouting apparatus, walls formed of moss compacted into a hollow foraminous framework and enveloping a chamber for the grain.

3. In a sprouting apparatus, the combination of walls formed of cellular moisture-absorbent vegetable material compacted into a hollow foraminous framework and enveloping a chamber for the grain, and a receptacle for the grain, fitting in said chamber and having a compartment at its outer end stuffed with said material to form the outer wall of the chamber.

4. In a sprouting apparatus, the combination of moss compacted into a hollow foraminous framework and enveloping a chamber for the grain, and a receptacle for the grain, fitting in said chamber and having a compartment at its outer end stuffed with moss to form the outer wall of the chamber.

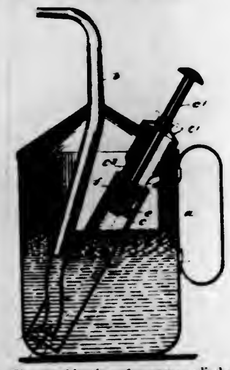
5. In a sprouting apparatus, the combination of a plurality of sections, imposed one upon the other, each section comprising walls composed of cellular moisture-absorbent vegetable material, such as moss, compacted into a hollow foraminous framework and forming a chamber, and a hollow foraminous cover stuffed with said material, on the uppermost section.

6. In a sprouting apparatus, the combination of a plurality of sections imposed, one upon the other, each section comprising walls composed of cellular moisture-absorbent vegetable material, such as moss, compacted into a hollow foraminous framework and forming a chamber, a hollow foraminous cover stuffed with said material, on the uppermost section, and receptacles for the grain fitting in said chambers and having compartments in their outer ends stuffed with said material and forming the outer chamber-walls.

7. A sprouting apparatus comprising, in combination, a plurality of sections imposed one upon the other, each section comprising walls composed of cellular moisture-absorbent vegetable material, such as moss, compacted into a hollow foraminous framework and forming a chamber, a hollow foraminous cover stuffed with said material, on the uppermost section, receptacles for the grain fitting in said chambers and having compartments in their outer ends stuffed with said material and forming the outer chamber-walls, and a catch-basin bottom on which the stack of sections is supported, said sections being separably fastened together.

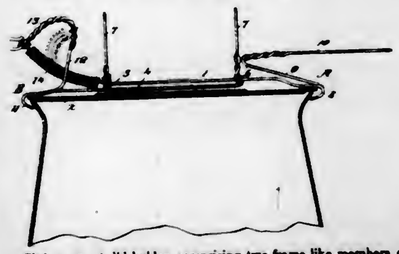
679,124. **SPROUTING APPARATUS.** JOHN VON DER KAMMER, Chicago, Ill. Filed Jan. 21, 1901. Serial No. 44,059. (No model.)

Claim.—1. The combination of a pump-cylinder having an inlet-orifice in its lower end, a piston working in the cylinder, a discharge-tube passing through the lower side wall of the cylinder and projecting therein to a point opposite and adjacent to the inlet-orifice, and a single valve situated between the inlet-orifice and the discharge-tube and movable under the action of the piston to close either the cylinder-inlet or the discharge-pipe.



2. The combination of a pump-cylinder having an inlet-orifice in its lower end, a piston working in the cylinder, a discharge-tube passing through one side wall of the cylinder and projected adjacent to the inlet-orifice, a guide-pin held in the cylinder and projecting from the inlet-orifice to the discharge-pipe, and a valve mounted on and held by said guide-pin, the valve being movable under the action of the piston to close either the inlet-orifice or the discharge-pipe.

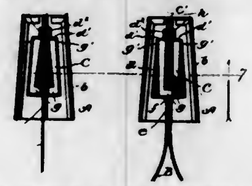
679,125. **LID-HOLDER FOR VESSELS.** BENJAMIN F. KOCH, Brooklyn, N. Y., and JOHN W. COGSWELL, Hoboken, N. J. Filed Feb. 11, 1901. Serial No. 46,815. (No model.)



Claim.—1. A lid-holder, comprising two frame-like members, each member consisting of side bars having eyes through which the side bars of the other member may slide, cross-bars at the inner ends of the side bars of the members, upwardly-extended finger-pieces on said cross-bars, hook portions formed at the outer ends of the frame members, a spring extended from the outer end of one of the frame members to the cross-bar of the other member, and a handle extended from one of said other members, substantially as specified.

2. A lid-holder, consisting of two frame-like sections mounted to slide one upon the other, one of said sections having at its outer end hook portions and a handle, the other frame member having hook portions at the outer end for engaging with a vessel and an upwardly and outwardly extended shank or hook portion, and a spring extended from said shank or hook portion to a connection with the other frame member, substantially as specified.

679,126. **SELF-LOCKING SEAL.** ARTHUR H. PEIRCE, Chicago, Ill. Filed Apr 25, 1901. Serial No. 57,461. (No model.)



Claim.—1. In a self-locking seal, the combination of a casing inclosing a chamber, a shoulder in the chamber and a channel open at one end, a strap secured at one end to the casing and adapted at its opposite end to be passed into said channel and having a locking-slot, and a sliding locking device loose in said chamber having a projecting part, extending into the path of said channel, a shoulder adapted to bear against said shoulder in the chamber and a locking-foot, whereby when the strap is pushed into the said channel it engages said projecting part to press the said shoulder on the locking device against the said shoulder in the chamber and force said locking-foot into said locking-slot, substantially as set forth.

2. In a self-locking seal, the combination of a casing inclosing a chamber, a stationary fulcrum in the chamber and a channel open at one end, a strap secured at one end to the casing and adapted at its opposite end to be passed into said channel and having a locking-slot, and a locking device, in the said chamber, having a projecting part extending into the path of said channel, a part adapted to bear against said fulcrum, and a swinging locking-foot portion, held normally to one side of said channel, whereby when the strap is pushed into the said channel it engages said projecting part of the locking device and swings said locking device on said fulcrum to force said locking-foot into the said locking-slot, substantially as described.

3. In a self-locking seal, the combination of a casing having a chamber and a channel open at one end and crossing said chamber, stops in the chamber at opposite sides of said channel, a strap secured at one end to the casing and having a locking-slot toward its opposite end, at which end it is adapted to be passed into said channel, and a locking device, in the chamber, formed with a flexible end portion, crossing said channel, shoulders on opposite sides to engage said stops, and legs extending along opposite sides of said channel provided with inwardly-projecting feet normally out of the path of said strap, whereby when the strap is pushed into said channel it engages and bends said flexible end portion of the locking device to swing the legs toward the strap and cause the feet to engage said locking-slot in the strap, substantially as set forth.

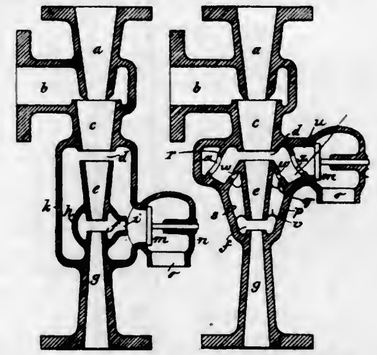
4. In a self-locking seal, the combination of a casing having a chamber and a channel open at one end and crossing said chamber, stops in the chamber at opposite sides of said channel, a strap secured at one end to the casing and having a locking-slot toward its opposite end, at which end it is adapted to be passed into the said channel, and a locking device, in the chamber, formed with a narrow flexible non-elastic strip *h* crossing said channel, shoulders *g'*, and legs and feet *g*, all constructed and arranged to operate, substantially as described.

5. In a self-locking seal, the combination of a casing A, having a chamber *d*, channel *c* and stops *d'* in the chamber, locking device C in the chamber, having a flexible part *h*, legs, and feet extending at an angle to each other to overlap when the device is locked as described, and a strap B secured at its end *e* to the casing and having a locking-slot *f*, all constructed and arranged to operate, substantially as and for the purpose set forth.

679,127. **INJECTOR.** CARL PRIESMANN, Magdeburg, Germany, assignor to Schäffer & Budenburg, Magdeburg-Buckau, Germany. Filed Feb. 16, 1901. Serial No. 47,806. (Model.)

Claim.—1. In an injector, the combination with two openings in the mixing-nozzle for the escape of steam, of means for producing a sucking effect through one of the openings upon the liquid by the steam escaping through the other opening, substantially as set forth.

2. In an injector, the combination with two openings in the mixing-nozzle for the escape of steam, of means for producing the sucking effect by injecting the steam escaping toward the overflow the same as in a divergent nozzle, substantially as set forth.



3. In an injector, the combination with two openings in the mixing-nozzle for the escape of steam, of means for producing the sucking effect by injecting the steam escaping toward the overflow the same as in several divergent nozzles, substantially as set forth.

4. In an injector, the combination with two openings in the mixing-nozzle for the escape of steam, of means for producing the sucking effect by injecting the steam escaping toward the overflow the same as in several divergent nozzles arranged around the axis of the mixing-nozzle, substantially as set forth.

5. In an injector, the combination with two openings in the mixing-nozzle for the escape of steam, of means for producing the sucking effect by injecting the steam escaping toward the overflow the same as in an annular divergent nozzle arranged around the axis of the mixing-nozzle, substantially as set forth.

6. An injector, having walls forming a chamber, and a mixing-nozzle therein, such nozzle being divided to form two openings through which the motive fluid may pass, for the purpose specified.

7. An injector having walls forming a chamber with delivery and overflow orifices, a mixing-nozzle in the chamber, such nozzle being divided to form two openings through which the motive fluid may pass, for the purpose specified, and additional walls forming a second chamber within the first and inclosing the second space in the mixing-nozzle, said second chamber having an orifice opening into the first chamber and juxtaposed to the overflow-orifice thereof.

8. An injector having walls forming a chamber, a mixing-nozzle therein, such nozzle being divided to form two openings through which the motive fluid may pass, and means for causing the steam from one opening to exert a sucking influence upon the other opening, for the purpose specified.

9. An injector having walls forming a chamber, such chamber having an overflow-orifice therein, a mixing-nozzle within the chamber, such nozzle being divided to form two openings through which the motive fluid may pass, and additional walls forming a second chamber within the first chamber and surrounding one of the said openings between the sections of the mixing-nozzle, the second chamber having a discharge-orifice adjacent to the overflow-orifice of the first-named chamber.

10. An injector having walls forming a chamber, said chamber being provided with an overflow-orifice, an outwardly-opening valve commanding the orifice and adapted under certain conditions to be closed by atmospheric pressure, a mixing-nozzle within the said chamber, said nozzle being divided to form two openings through which the motive fluid may pass, and additional walls forming a second chamber surrounding one of the said openings between the sections of the mixing-nozzle and the said second chamber having a discharge-orifice adjacent to the overflow-orifice of the first chamber, for the purpose specified.

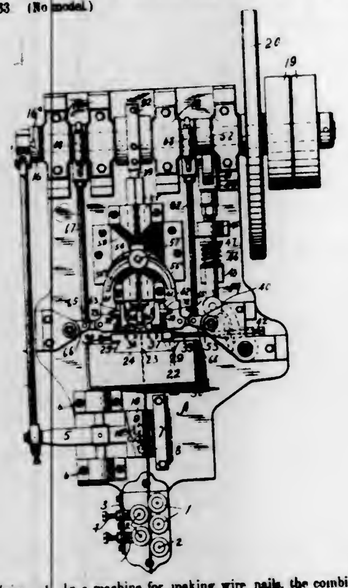
11. An injector having walls forming a casing provided with an overflow-orifice therein, and a mixing-nozzle within the chamber, said nozzle being divided to form two openings between which the motive fluid may pass.

12. An injector having walls forming a chamber provided with an overflow-orifice, an outwardly-opening valve commanding the overflow-orifice and adapted under certain conditions to be seated by atmospheric pressure, and a mixing-nozzle within said chamber, the nozzle being divided to form two openings through which the motive fluid may pass.

13. An injector, comprising walls forming a casing provided with an overflow-orifice, an outwardly-opening valve commanding said orifice

and adapted under certain conditions to be seated by atmospheric pressure, a mixing-nozzle within said chamber, the nozzle being divided to form two openings through which the motive fluid may pass, and means within the chamber for causing the fluid from one of said openings to produce a sucking effect upon the other opening, for the purpose specified.

679,128. NAIL-MACHINE. EDWARD J. SMITH, Pittsburg, and CHARLES J. HILLARD, Bennett, Pa. Filed Sept. 13, 1900. Serial No. 29,963. (No model.)



Claim.—1. In a machine for making wire nails, the combination, substantially as described, with a feeder constructed to intermittently feed wire by being reciprocated, an arm mounted to slide in guides and bearing said feeder, a link pivotally secured at one end and bearing a rigid ear located intermediate its ends, a pitman pivoted at one end to said ear and at its opposite end to said arm, a wrist-pin mounted to slide in said link, and means for actuating said wrist-pin to reciprocate said feeder.

2. In a machine for making wire nails, the combination, substantially as described, with a feeder constructed to intermittently feed wire by being reciprocated, an arm mounted to slide in guides and bearing said feeder on its inner end, a link pivotally secured at one end and bearing a rigid ear formed integral therewith and located intermediate its ends, a pitman pivoted at one end to said ear and at its opposite end to the outer end of said arm, a wrist-pin adjustably mounted in a groove and extending through said link, and means for actuating said pin to operate said link.

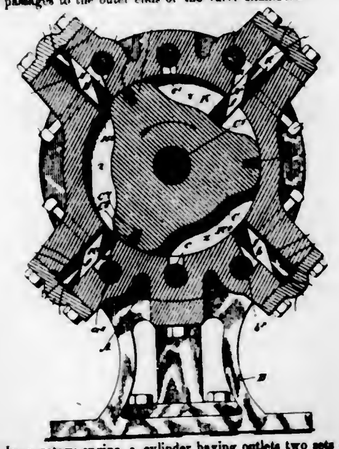
3. In a machine for making wire nails, the combination, substantially as described, of a carrier-block having a dovetailed groove therein, a knife-block comprising a front member and a rear member, said rear member being provided with an elliptical aperture and having a dovetail thereon proportioned to fit the groove in the said carrier and a dovetail groove extending at right angles to the said dovetail; said front member having a dovetail thereon proportioned to fit the dovetail groove in said rear member and an elliptical aperture therein, and a bolt extending through said carrier and traversing the said elliptical apertures in said knife-block.

4. The combination, substantially as described, of a bridge bolted to the bed of the machine, and spanning the guides for the hammer mechanism, a stub-shaft on said bridge, a pair of jaws pivoted on said stub-shaft, and means for operating said jaws.

679,129. ROTARY ENGINE. GEORGE W. SMITH, Petersburg, Ill. Filed Dec. 11, 1900. Serial No. 39,518. (No model.)

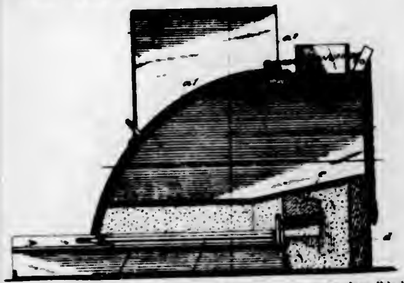
Claim.—1. In a rotary engine, a cylinder having an outlet an inlet and a valve-chamber at the inlet, a cut-off valve mounted to slide in said chamber and having a passage for the admission of the motive agent from the said inlet to the cylinder, and a channel leading from said passage to the outer end of the valve-chamber, said channel being narrowed or tapered toward said passage, and a piston mounted to turn in the cylinder and engaged by the cut-off valve.

2. In a rotary engine, a cylinder having outlets inlets arranged obliquely to the inner periphery of the cylinder and radial valve-chambers at said inlets, cut-off valves held to slide in said chambers and provided with oblique through-passages adapted to connect the inlets with the interior of the cylinder, and with outwardly-flaring channels leading from said passages to the outer ends of the valve-chambers.



3. In a rotary engine, a cylinder having outlets two sets of inlets arranged obliquely to the inner periphery of the cylinder, the inlets of one set facing in a direction opposite to those of the other set, and radial valve-chambers at said inlets, cut-off valves held to slide in said chambers and provided with oblique through-passages adapted to connect the inlets with the interior of the cylinder, and with outwardly-flaring channels leading from said passages to the outer ends of the valve-chamber, a reversing device for connecting one set of inlets or the other with the supply of motive agent, and a piston mounted to turn in the cylinder and engaged by the cut-off valves.

679,130. BROILER. ADRIEN TEBU, New York, N. Y. Filed Mar. 6, 1901. Serial No. 50,021. (No model.)



Claim.—1. A broiler, having a casing, a grate arranged to slide horizontally therein the casing having a fire-space beneath the grate, and a bridge extended transversely across the broiler within the casing and arranged at the limit of the inward movement of the grate, the bridge serving to permit stacking the coals in the rear part of the broiler out of the vicinity of the grate, for the purpose specified.

2. A broiler, having a casing, a sliding grate therein the casing having a fire-space beneath the grate, a non-combustible lining arranged in the casing against the side and back walls thereof, and a bridge extended transversely across between the sides of the casing and within the same, the bridge being located at the limit of the inward movement of the grate to permit stacking the coals out of contact with the grate.

3. A broiler having a casing, a grate arranged to slide therein, the broiler having a fire-space under the grate, and a bridge arranged in the rear portion of the casing and serving to permit stacking the coals in such part of the casing out of the vicinity of the grate, for the purpose specified.

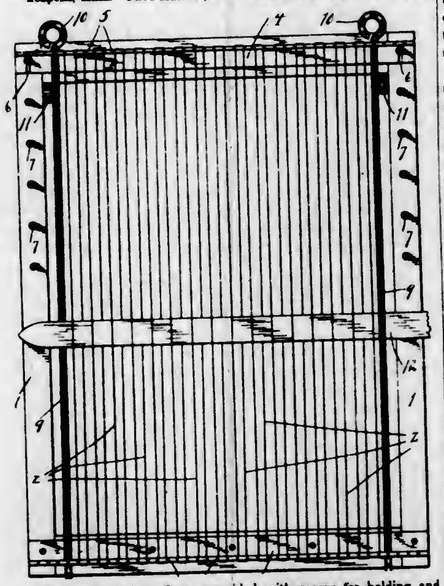
679,131. STRAINER OR FILTER FOR PUMP TUBES OR BARRELS. LESLIE H. THOMPSON, Crowley, La. Filed Nov. 7, 1898. Renewed Mar. 21, 1901. Serial No. 52,238. (No model.)

Claim.—1. The combination with a plain cylindrical pump-tube provided at its lower end with holes or openings, of a wire spirally wound around the tube and secured thereto; and a strainer secured upon the wire-coil.



2. The combination with a pump-tube provided at its lower end with openings, of a wire spirally wound about said tube, a wire-gauze cylinder fitted over said wire with a space between the same and the tube, and a reticulated protecting-covering of larger mesh over the said cylinder and terminating at the lower end of the said tube, substantially as shown and described.

679,132. HAND-LOOM. MARTHA P. TODD and DANA TODD, Minneapolis, Minn. Filed Mar. 25, 1901. Serial No. 52,726. (No model.)



Claim.—1. A loom-frame provided with means for holding and spacing the warp-thread, and provided with longitudinally-extended side rods, over which the woof-thread may be passed, which side rods may be removed endwise from the work, substantially as described.

2. The combination with a loom-frame, of notched end bars for holding and spacing the warp-thread, one of which bars is adjustable with respect to the other to vary the length of the work, and a pair of longitudinally-extended side rods passed through the said end bars and over which the woof-thread may be passed, at least one of which rods is adjustable with respect to the other to vary the width of the work, and both of which rods are removable endwise from its supports and from the work, substantially as described.

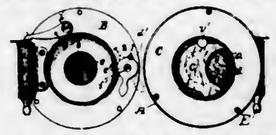
3. The combination with the frame 1 having the headed stud 7, of the notched bar 2, 3, secured to said frame 1, the notched bar 4, 5, having the notches 6 engageable with any of said studs 7, and the rods 9 removable and adjustably mounted in perforations of said bars 2 and 4, substantially as described.

679,133. SCRUBBER. MARY M. VAN DERBECK, Lincoln, Nebr. Filed Jan. 18, 1901. Serial No. 43,728. (No model.)



Claim.—A scrubbing device, comprising a clamp adapted to embrace a brush a screw working in the clamp to hold the brush and projected rearwardly from the clamp, said clamp having a bifurcated shank projecting rearwardly and essentially horizontally below the screw, a wheel mounted in the bifurcated shank, and a handle having two arms fastened thereto and embracing and pivoted to the bifurcated shank of the clamp, said arms being capable of straddling the screw so as to swing upward over the same.

679,134. PHOTOGRAPHIC SHUTTER. ANDREW WOLLENSAK, Rochester, N. Y. Filed Jan. 25, 1901. Serial No. 44,730. (Model.)



Claim.—1. In combination with the exposure mechanism of a photographic shutter a pivotal master-lever formed with two branches at either end, each branch having an operating-terminal, and means for turning said master-lever on its bearing, substantially as shown and described.

2. A photographic shutter comprising a pivotal spring-actuated master-lever, an actuating-lever for the master-lever, a pair of closing blades and an exposure-lever for controlling them, the exposure-lever and the master-lever having directly-engaging projections, substantially as shown and described.

3. In combination with the exposure mechanism of a photographic shutter, an eccentrically-pivoted pivotal master-lever, and an eccentrically-pivoted actuating-lever to engage and move the master-lever, the bearing of the actuating-lever upon the master-lever being adapted to shift as to area during the movements of said levers, substantially as and for the purpose set forth.

4. In combination with the exposure mechanism of a photographic shutter a master-lever to operate the exposure mechanism, and an actuating-lever for controlling the master-lever, and a controlling-spring common to both levers, substantially as and for the purpose specified.

5. In combination with the exposure mechanism of a photographic shutter a master-lever to operate the exposure mechanism, and an actuating-lever for controlling the master-lever, and a controlling-spring having one branch engaging the master-lever and another branch engaging the actuating-lever, substantially as and for the purpose specified.

6. The combination, in a photographic shutter, with the exposure mechanism, of a spring-actuated master-lever, and an actuating-lever for the master-lever, and an exterior thumb-lever to operate the actuating-lever coaxial with said actuating-lever, substantially as and for the purpose specified.

7. In combination with the exposure mechanism of a photographic shutter, a pivotal master-lever having branched end and adapted for operating the exposure mechanism, and an actuating-lever held to turn either way on its bearing and adapted to move the master-lever when turning in one direction and to pass it unaffected when turning in the other direction, the master-lever being adapted to escape from the actuating-lever when both are moving together, substantially as shown and described.

8. In a photographic shutter a pair of closing blades, a master-lever adapted to turn either way upon its bearing, an exposure-lever for controlling the closing blades, the master-lever being adapted to move the exposure-lever when turning in one direction and to pass without moving it when turning it in the other direction, and means for actuating the master-lever, said master-lever and actuating-lever being eccentrically pivoted to form a shiftable bearing between them, substantially as and for the purpose specified.

9. In a photographic shutter a pair of coacting closing blades lapping across each other and across a diametrical line of the exposure opening, each blade being held upon a pivot bearing on the side of said diametrical line opposite from that occupied by the body of the blade, and means for turning said blades upon their bearings, substantially as shown and described.

10. A photographic shutter having a pair of coacting blades crossing each other and a diametrical line of the exposure-opening, each blade being held upon a pivot bearing on the side of said diametrical line opposite that occupied by the body of the blade, and an actuator for said blades having a bearing upon each of the latter between said pivot-bearings, and means for moving said actuator, substantially as shown and described.

11. A photographic shutter having a pair of closing blades lapping across each other, each held at one end upon a fixed pivotal bearing, and a stop for said blades fit the ends opposite said pivotal bearings, and means for operating said blades, substantially as and for the purpose set forth.

12. In combination with the exposure mechanism of a photographic shutter, a master-lever for operating the exposure mechanism and an ac-

tuating-lever for the master-lever, a spring-controlled sway-arm adapted to be engaged by the actuating-lever and to engage the master-lever, said sway-arm being held pivotally independent of the lever mechanism, and means for operating the actuating-lever, substantially as shown and described.

13. In combination with the exposure mechanism of a photographic shutter, a master-lever for operating the exposure mechanism and an actuating-lever for the master-lever, a spring-controlled sway-arm adapted to be engaged by the actuating-lever and to engage the master-lever, the engagement of the sway-arm by the actuating-lever and of the master-lever by the sway-arm being alternated, substantially as shown and described.

14. In combination with the exposure mechanism of a photographic shutter, a master-lever for operating the exposure mechanism and an actuating-lever for the master-lever, a spring-controlled sway-arm adapted to be engaged by the actuating-lever and to engage the master-lever, the actuating-lever causing the sway-arm to move twice during the operation of making an exposure, with interval between, and the action of the sway-arm upon the master-lever being between said two movements of the sway-arm, substantially as and for the purpose specified.

15. In combination with the exposure mechanism of a photographic shutter, a master-lever for operating the exposure mechanism and an actuating-lever for the master-lever, adapted to move the latter temporarily and release it, and a spring-pressed sway-arm controlled by the actuating-lever adapted to engage and detain the master-lever after released by the actuating-lever, and means for operating the actuating-lever, substantially as shown and described.

16. In combination with the exposure mechanism of a photographic shutter, a master-lever and an actuating-lever to move the master-lever, a sway-arm having a projection to engage the master-lever, a spring to control the sway-arm, the actuating-lever being adapted to move the sway-arm against the action of the spring to disengage the master-lever, substantially as shown and described.

17. In combination with the exposure mechanism of a photographic shutter, a master-lever and an actuating-lever to move the master-lever, a sway-arm having a projection to engage the master-lever, a spring to control the sway-arm, the actuating-lever being adapted to move the sway-arm against the action of the spring to disengage the master-lever, the actions of the actuating-lever upon the sway-arm being alternated, substantially as set forth.

18. In combination with the exposure mechanism of a photographic shutter, a master-lever, and an actuating-lever adapted to move either way upon its bearing, a sway-arm having a projection to engage the master-lever, and a spring to control the sway-arm, the actuating-lever being adapted to move the master-lever while turning in one direction and to move the sway-arm while turning in the opposite direction, substantially as set forth.

19. The exposure mechanism of a photographic shutter in combination with a master-lever, an actuating-lever to control the master-lever, a primary sway-arm in position to engage the master-lever and to be engaged by the actuating-lever, a secondary sway-arm adapted to engage the master-lever and be disengaged therefrom by the actuating-lever, and means for operating the actuating-lever, substantially as shown and described.

20. The exposure mechanism of a photographic shutter in combination with a master-lever, and an actuating-lever, a primary and a secondary sway-arm copivotal and held to act independent of the lever mechanism, said sway-arms both being adapted to engage the master-lever and to be controlled by the actuating-lever, and means to operate the latter, substantially as set forth.

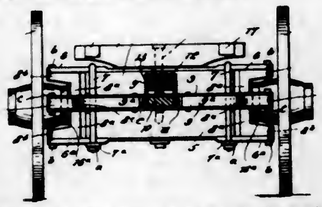
21. A photographic shutter comprising a master-lever and an actuating-lever to control the master-lever, a pair of closing blades and an exposure-lever for controlling the closing blades, and a sway-arm adapted to control the master-lever, the latter being intermediate between said sway-arm and the exposure-lever and simultaneously engaging both, and means for operating the actuating-lever, substantially as specified.

22. In combination with the exposure mechanism of a photographic shutter a master-lever and an actuating-lever to control the master-lever, and copivotal spring-actuated sway-arms to engage the master-lever and be engaged by the actuating-lever, and a shiftable stop-pin for controlling the sway-arms, and means for operating the actuating-lever, substantially as set forth.

23. The exposure mechanism of a photographic shutter in combination with a master-lever and a coacting actuating-lever, a primary and a secondary sway-arm held to turn independent of the lever mechanism, said sway-arms being copivotal and adapted to engage the master-lever and be controlled by the actuating-lever, and means for operating the latter, substantially as set forth.

24. In combination with the exposure mechanism of a photographic shutter, a master-lever and an actuating-lever for engaging and moving the master-lever, both of said levers being eccentrically pivoted on different pivots, the bearing between said levers being adapted to cease or terminate while moving, substantially as described and shown.

679,135. **VEHICLE RUNNING-GEAR.** JOHN E. YORK, Lowell, Wash., assignor of one-half to George M. Pillsbury, same place. Filed May 24, 1901. Serial No. 61,711. (No model.)



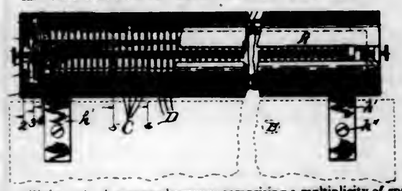
Claim.—1. In wagon running-gears, the pair of stub-spindles, each having four evenly-spaced spider-arms thereon, each of said arms being bent to project an end thereof in the direction of the free end of the spindle, a front axle, means for pivotally connecting two of the spider-arms of each stub-spindle with an end of the axle, and means for connecting the remaining spider-arms of each stub-spindle with like spider-arms on the other stub-spindle.

2. In wagon running-gears, the combination with a front axle, bracket-plates on the upper and lower sides of said axle and extended at the ends of the axle, of two stub-spindles, each having four spaced and bent spider-arms thereon, two of the arms of each spindle being pivoted between the ends of the bracket-plates, and two transverse link-bars, each link-bar having one end thereof pivoted upon one end of one of the spider-arms.

3. In wagon running-gears, the combination with a front axle, two reinforcing bracket-plates secured thereon so as to project at the ends of the axle from the upper and lower sides thereof, and two stub-spindles, each having four angularly-bent spider-arms, evenly spaced from each other and projected in the direction of the free end of said spindle, of two link-bars pivoted at their ends on the ends of corresponding spider-arms, and a draft-bar passing through an opening in the axle and having pivoted engagement with the transverse link-bars.

4. In wagon running-gears, the combination with an axle, laterally apertured at its longitudinal center, two stub-spindles held to rock laterally at the ends of the axle, and two link-bars transversely held by pivotal engagement of their ends with projections on the stub-spindles, of a draft-bar passing through the aperture in the axle and pivoted therein, said draft-bar being also pivoted upon the link-bars, angular bracket-plates held at the sides of the draft-bar upon its front end, a draft-pole pivoted between the members of the angular bracket-plates, and a looped check-piece secured on the draft-bar and through which the rear end of the draft-pole loosely passes.

679,136. **CRAYON-SHARPENER.** GUSTAV O. ANDERSON, Chicago, Ill. Filed Nov. 19, 1900. Serial No. 36,925. (No model.)



Claim.—1. A crayon-sharpener comprising a multiplicity of spring-metal cutters arranged alternately to each other to form the opposite sides of a V-shaped channel, and means for securing together in alinement with each other the cutters on each side of the said channel, substantially as described.

2. A crayon-sharpener comprising a multiplicity of spring-metal cutters arranged alternately to each other to form opposite sides of a V-shaped channel, means for securing together in alinement with each other the cutters on each side of the said channel, and means for varying the angle of said channel by adjusting the cutters on either side thereof, substantially as described.

3. In a crayon-sharpener the combination of a casing, means for securing the same to a bench or table, a multiplicity of spring-metal cutters rigidly secured together on either side of a V-shaped channel, and means for varying the angle of said channel by adjusting the cutters on either side thereof, and a dust-receptacle beneath the said cutters and inclosed within the said casing, substantially as described.

4. A cutter-strip for a crayon-sharpener formed of a thin sheet of flexible and resilient material and provided with a multiplicity of cutters formed by cutting completely through the strip so as to partially detach portions of the body material and then turning the partially-detached portion to an angle with the strip, substantially as described.

5. In a crayon-sharpener parallel knife-mounting rods, spring-metal knives with non-beveled edges mounted on said rods and arranged alternately to each other to form opposite sides of a V-shaped channel, and means connected with the rods for varying the angle between the knives, substantially as described.

6. In a crayon-sharpener parallel knife-mounting rods, spring-metal knives with non-beveled edges mounted on said rods and arranged alternately to each other to form opposite sides of a V-shaped channel, spacing-blocks between the said knives, and means connected with the rods for varying the angle between the knives, substantially as described.

7. In a crayon-sharpener having parallel knife-mounting rods, knives mounted thereon at right angles thereto, spacing-blocks between the said knives, binding-plates at the extremities of said rod to inclose the said plates and spacing-blocks, and projections on the spacing-blocks by which the same are pivotally attached to each other so as to make a free vertical opening between the several knives and between the knives on either side of the sharpener, substantially as described.

679,137. **NUT-PLATE LOCK.** EDMUND G. BAXTER, Matanzas, Cuba. Filed Sept. 25, 1900. Serial No. 31,123. (No model.)



Claim.—1. A nut-lock composed of the plate K corrugated longitudinally, and provided with one or more rectangular openings, each adapted to embrace a nut to prevent the same from turning on its bolt, and provided with two or more openings, each large enough to permit a bolt to pass therethrough, in combination with a screw-threaded bolt passing through said opening, a nut screwed on said bolt, and overlapping said plate K, to secure the same to the fish-plate, tongues cut forming an integral part of said plate K one on each side of and locking said last-mentioned nut, the ends of which when pressed down are adapted to prevent said last-mentioned nut from turning, said plate K being provided also with slots adjacent to, and at right angles with, the ends of said tongues, substantially as set forth.

2. A nut-lock composed of the strip K, provided with rectangular openings adapted to embrace and prevent nuts from turning therein, and provided with smaller openings, a bolt passing through each of said openings, a nut screwed on each of said bolts, overlapping said plate K, said plate K being provided with tongues forming an integral part thereof, one located on each side of, and locking each of, said last-mentioned nuts, and slots in said plate K adjacent to, and at right angles with, the ends of said tongues, substantially as set forth.

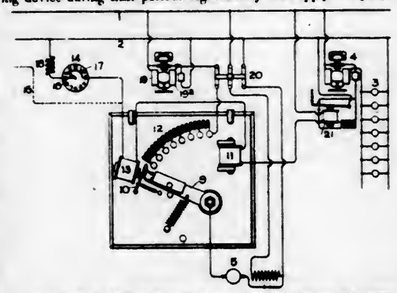
3. A nut-locking plate, consisting of the strip K, having rectangular openings which receive the nuts of all the bolts, save two, and provided with smaller openings to receive two other bolts, nuts adapted to be screwed on said last-mentioned bolts and against the strip K, tongues cut integral with said plate, one on each side of each smaller opening, and slots adjacent to, and at right angles with, the free ends of said tongues, substantially as set forth.

679,188. **ELECTRIC METERING SYSTEM.** LOUIS BELL, Newton Center, Mass., assignor to General Electric Company, of New York. Filed Mar. 26, 1900. Serial No. 10,130. (No model.)

Claim.—1. In an electric system, the combination of a supply-circuit, an electric motor, a starting device, and means for disabling the normal operation of the starting device during time periods regulable by the supply company.

2. In an electric metering system, the combination of a supply-circuit, an electric motor, a starting device, an electric meter, and means for disabling the normal operation of the starting device during time periods regulable by the supply company.

3. In an electric metering system, the combination of a supply-circuit, an electric motor, a meter for measuring its current, a starting device, and a control-circuit for disabling the normal operation of the starting device during time periods regulable by the supply company.



4. In an electric metering system, the combination of a supply-circuit, a current-consuming device, an electric meter for recording its current consumption, and means for disabling the normal operation of the starting device during time periods regulable by the supply company.

5. In an electric metering system, the combination of a supply-circuit, current-consuming devices, current-measuring devices in circuit therewith, means for cutting the consuming devices out of circuit at determinate periods, independent means for cutting them in during such periods, and a switch operated by the latter for changing the rate of registration of the current-measuring devices.

6. In an electric supply system, the combination at a consumer's station of current-consuming devices, means, not under the consumer's control, for cutting them out at determinate periods, means under the consumer's control for cutting them in during such periods, and means for measuring the current when so cut in.

7. In an electric supply system, the combination of a supply-circuit, an electric motor, a starting-rheostat, means independent of the operator for cutting out the rheostat for determinate periods of time, and a lock to prevent its being cut in until the period has passed.

8. In an electric supply system, the combination of a supply-circuit, an electric motor, a starting-rheostat, electromagnetic devices for cutting it out, an electromagnetic lock for holding it out, and a control-circuit operated independently of the consumer at determinate time periods governing said devices.

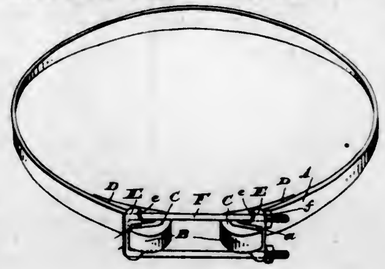
9. In an electric supply system, the combination at a consumer's station of translating devices, a control-circuit for cutting them out at determinate periods, a lock for holding them out, means under control of the consumer for releasing the lock, and a meter controlled thereby to determine the extent of punitive use.

10. In an electric supply system, the combination at a consumer's station of translating devices, a control-circuit for cutting them out at determinate periods, a lock for holding them out, means under control of the consumer for releasing the lock, a two-rate meter to measure the current consumed, and connections for changing the meter rate when the lock is released.

11. In an electric metering system, the combination of a supply-circuit, a motor, a starting-box, an electric lock under seal in said box, means for automatically releasing the lock at determinate time intervals, and an operating-handle projecting from the box.

12. In an electric supply system, a translating device, a two-rate apparatus, means for withdrawing the supply of current from the translating device, and means for restoring the supply and simultaneously changing the registering rate.

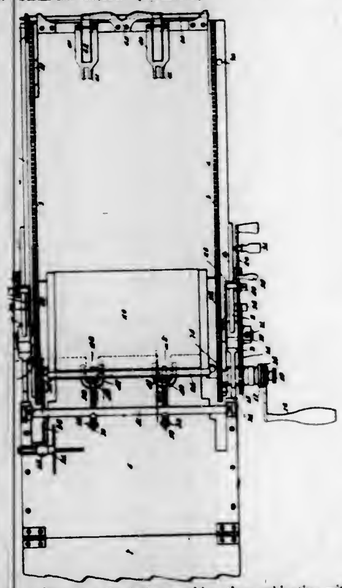
679,139. **DEVICE FOR TIGHTENING HOOPS ON ROUND SILOS, WATER-TANKS, BARRELS, &c.** GEORGE BRETT, Toronto, Canada. Filed Apr. 23, 1901. Serial No. 57,150. (No model.)



Claim.—1. In a tank-lug, the combination with the first lug comprising a stem and a lip, the said stem being much longer than said lip; between the said stem and lip being a wedge-shaped space in which, and against said lip and stem, one end of a hoop to be clamped, rests, and a wedge-shaped block placed between said lip and stem and upon the said end of the hoop to be clamped, the said wedge-shaped block being provided on each side with a hole which extends beyond the sides of said first lug, of a second lug comprising a stem and a lip, the said stem being much longer than said lip; between the said stem and lip being a wedge-shaped space in which, and against said lip and stem, the other end of the hoop to be clamped, rests, a wedge-shaped block placed between said lip and stem and upon the said other end of the hoop to be clamped, the said wedge-shaped block being provided on each side with a hole which extends beyond the sides of said second lug, a clamp passing through the holes in said wedge-shaped blocks, the looped end of said clamp resting against one of the said wedge-shaped blocks, and the threaded ends of said clamp extending beyond the other wedge-shaped block, and a nut screwed on each threaded end of said clamp and jammed against said other block, thus clamping said blocks and said lugs together so as to hold the ends of said hoop tightly in place, and hold said hoop tightly around the body it embraces, as described.

2. In a tank-lug, the combination with a first lug provided with a lip, and a spur-provided stem which is longer than said lip, against which lip and stem one end of a hoop to be clamped rests, and a block placed between said lip and said stem and upon the end of the hoop to be clamped, the said block being provided with two holes which extend beyond the sides of said first lug, of a second lug provided with a lip, and a spur-provided stem which is longer than said lip, against which lip and stem the other end of the hoop to be clamped rests, a block placed between said lip and said stem of said second lug and upon the said other end of said hoop, the said block being provided with two holes which extend beyond the sides of said second lug, a clamp passing through the holes in said blocks, the looped end of the said clamp resting against one of the said blocks and the threaded ends of said clamp extending beyond the other block, and a nut screwed on each threaded end of said clamp and jammed against said other block, thus clamping said blocks and said lugs together so as to hold the ends of said loop tightly in place, and hold said hoop tightly around the body it embraces, as and for the purpose specified.

679,140. **STENCIL-PRINTING MACHINE.** ALBERT B. DICK, Chicago, Ill., assignor to the A. B. Dick Company, same place. Filed June 10, 1899. Serial No. 720,006. (No model.)



Claim.—1. In a stencil-printing machine, the combination with an oscillating stencil-carrier, of an impression-roller coöperating with the carrier, and a reciprocating paper-carrying frame arranged to draw the sheet to be printed between the stencil and the impression-roller, substantially as set forth.

2. In a stencil-printing machine, the combination with an oscillating stencil-carrier, of an impression-roller coöperating with the carrier, a reciprocating paper-carrying frame arranged to draw the sheet to be printed between the stencil and the impression-roller, means for oscillating the stencil-carrier, and connections between the stencil-carrier and the paper-carrying frame, substantially as set forth.

3. In a stencil-printing machine, the combination with an oscillating stencil-carrier, of an impression-roller coöperating with the carrier, a reciprocating paper-carrying frame arranged to draw the sheet to be printed between the stencil and the impression-roller, means for oscillating the stencil-carrier, connections between the stencil-carrier and the paper-carrying frame, and means for adjusting the stencil-carrier relatively to the paper-carrying frame, substantially as set forth.

4. In a stencil-printing machine, the combination with an oscillating stencil-carrier, of an impression-roller coöperating with the carrier, a reciprocating paper-carrying frame arranged to draw the sheet to be printed between the stencil and the impression-roller, a rack on said frame, and a toothed disk carried by the stencil-carrier and engaging said rack, substantially as set forth.

5. In a stencil-printing machine, the combination with an oscillating stencil-carrier, of an impression-roller coöperating with the carrier, a reciprocating paper-carrying frame arranged to draw the sheet to be printed between the stencil and the impression-roller, a rack on said frame, a toothed disk carried by the stencil-carrier and engaging said rack, and means for elevating the stencil-carrier to disengage the disk and rack to permit relative movement of the carrier and said paper-carrying frame, substantially as set forth.

6. In a stencil-printing machine, the combination with an oscillating stencil-carrier, of an impression-roller coöperating therewith and arranged to press the sheet into contact with the stencil during the movement of the stencil in one direction and to be withdrawn from the stencil during the reverse movement, substantially as set forth.

7. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame coöperating therewith, and an impression-roller arranged to press the sheet into contact with the stencil during the movement of the stencil in one direction and to be withdrawn during the reverse movement, substantially as set forth.

8. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame coöperating therewith, an impression-roller arranged to press the sheet into contact with the stencil during the movement of the stencil in one direction and to be withdrawn during the reverse movement, and grippers for engaging the sheet near the completion of the reverse movement of the stencil, substantially as set forth.

9. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame coöperating therewith, an impression-roller, and cams carried by the paper-carrying frame for moving the impression-roller out of engagement with the stencil near the completion of the forward and backward strokes of the paper-carrying frame, substantially as set forth.

10. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame coöperating therewith, an impression-roller, cams carried by the paper-carrying frame for moving the impression-roller out of engagement with the stencil near the completion of the forward and backward strokes of the paper-carrying frame, and a lock for holding the impression-roller in its withdrawn position during the negative stroke of said frame, substantially as set forth.

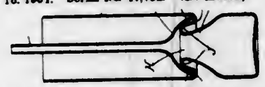
11. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame, an impression-roller moved toward and away from the stencil by cams on said frame, and springs for engaging the impression-roller elastically with the sheet to be printed to force said sheet into contact with the stencil, substantially as set forth.

12. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame, an impression-roller moved toward and away from the stencil by cams on said frame, springs for engaging the impression-roller elastically with the sheet to be printed to force said sheet into contact with the stencil, and means for withdrawing the impression-roller positively out of engagement with the sheet, substantially as set forth.

13. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a paper-carrying frame, an impression-roller moved toward and away from the stencil by cams on said frame, springs for engaging the impression-roller elastically with the sheet to be printed to force said sheet into contact with the stencil, and a rock-shaft and eccentrics for withdrawing the impression-roller positively out of engagement with the sheet, substantially as set forth.

14. In a stencil-printing machine, the combination of an oscillating stencil-carrier, a reciprocating paper-carrying frame coöperating therewith, limiting-fingers against which the sheet to be printed is placed, grippers carried by the reciprocating frame for engaging the sheet to draw it into engagement with the stencil, and means for withdrawing the limiting-fingers simultaneously with the engagement of the grippers, substantially as set forth.

679,141. **TESTING DEVICE.** EDWARD N. EATON, Chicago, Ill. Filed Feb. 18, 1901. Serial No. 47,752. (No model.)



Claim.—1. A testing device, comprising a receptacle for the material to be tested, having two parts, one opening into the other, a measuring-tube adapted to be placed in one part and having an enlarged end, the edge or face of which is below the mouth or opening which forms the communication between the two parts.

2. A testing device, comprising a receptacle for the material to be tested, comprising two parts, one opening into the other, a measuring-tube adapted to be received into one of said parts and provided with an enlarged end, the edge or face of which loosely engages the part into which it is received, the other part projecting into the enlarged end of the measuring-tube so that its mouth is beyond the edge thereof.

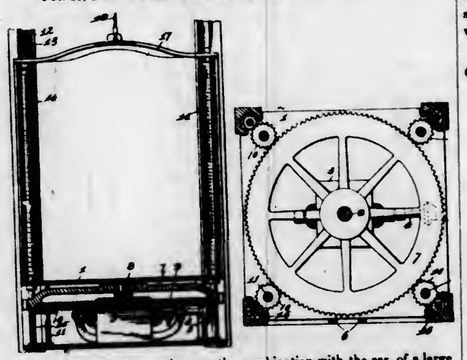
3. A testing device, comprising a receptacle consisting of two communicating parts joined together by a contracted section or neck, a portion of the neck of one part projecting into the other part, a measuring-tube provided with an enlarged end and adapted to be inserted into one part so that a portion of the enlarged end projects past the end of the neck of the other part.

4. A testing device, comprising a receptacle having two communicating parts, one adapted to receive the liquid to be tested, a measuring-tube adapted to be inserted in the other part and having an enlarged end which covers the communication between the two parts, said enlarged end adapted to permit liquid to pass from the part containing the measuring-tube to the part containing the liquid to be tested, the parts arranged so that a trap is formed between them which prevents any of the liquid being tested from escaping from the measuring-tube.

5. A testing device, comprising a receptacle having two communicating parts, one provided with a contracted section or neck, said neck projecting into the other part and being connected with said other part by an inclined face, and a measuring-tube provided with an enlarged end and contained within one of said parts, the enlarged end surrounding said inclined face.

6. A testing device, comprising a receptacle for the material to be tested, having two larger sections connected by a contracted neck having a smaller exterior diameter than the two larger sections, a measuring-tube provided with an enlarged end and adapted to be inserted in said receptacle so that the enlarged end is in proximity to said contracted neck.

679,142. **ELEVATOR.** ARCHIBAS R. FARMER, St. Louis, Mo. Filed Feb. 25, 1901. Serial No. 48,683. (No model.)

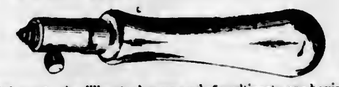


Claim.—1. In an elevator, the combination with the car, of a large gear-wheel supported below the bottom thereof, a secondary bottom carried a suitable distance below the car-bottom, a motor mounted on the secondary bottom, a shaft driven by said motor and adapted to rotate the large gear-wheel, a threaded shaft of equal height with the elevator-car carried at each corner thereof and having gear connections with the large gear-wheel, and a hollow threaded stationary post inclosing each of the threaded shafts and extending as far as the elevator-car is intended to travel.

2. In an elevator, the combination with the car, of a motor, a large gear-wheel driven thereby, a vertical threaded shaft carried at each corner of the elevator-car to prevent the car from becoming tilted, the said shafts extending throughout the length of the car and having gear connections with the large gear-wheel so that all the shafts will be driven by the same wheel, and a hollow threaded stationary post inclosing each of the said shafts.

3. In an elevator, the combination with the car of a large gear-wheel 7 having the gear-teeth 9 on the under side thereof and being also provided with gear-teeth on its periphery, a secondary bottom 2 supported below the bottom of the elevator-car, a motor 3 mounted on the secondary bottom, a shaft 4 driven by the said motor 3, a gear-wheel 5 mounted on said shaft 4 and meshing with the teeth 9 of the gear-wheel 7, a vertical threaded shaft 14 carried at each corner of the elevator-car and extending below the bottom thereof, gear-wheels 16 mounted on the shafts 14 below the bottom of the elevator-car and connected by intermediate gears with the teeth on the periphery of the wheel 7, and a hollow threaded stationary post inclosing each of the said shafts 14 and extending as far as the elevator is intended to travel.

679,143. **MILLING-TOOL.** WILLIAM H. FORD, Lowell, Mass., assignor to Ringsee Company, Boston, Mass. Filed Oct. 19, 1900. Serial No. 33,647. (No model.)



Claim.—1. A milling-tool composed of multiparts, one having a convexed cutting edge, and the other a burnishing-surface.

2. A milling-tool composed of multiparts, one part acting to cut metal, and the other to burnish the cut portion, and means to move one of said parts laterally away from the other.

3. A milling-tool composed of multiparts, one of said parts having a plurality of convexed cutting edges and the other having a plurality of burnishing-surfaces.

4. A milling-tool having an edge to make a circular cut, an end to cut a seat or shoulder to meet the circular cut, and a burnishing-surface to burnish the cut parts.

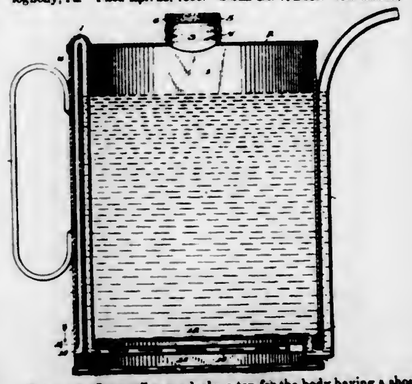
5. A milling-tool having an arc-shaped cutting edge provided with a series of file-like teeth to make a circular cut, and a face extended therefrom to limit the extent of the cut made by said edge.

6. A milling-tool composed of two parts, one to act as a cutter, and the other as a burnisher, combined with a spring to sustain yieldingly one of said parts, and means to provide for placing the said parts at the desired distance apart according to the size of the holes to be provided with seats or notches.

7. A milling device segmental in cross-section and presenting an arc-shaped cutting edge, a stop to determine the depth of cut made by said edge, the entering end of the arc-shaped cutting edge having teeth to determine the shape of the cut at its inner end.

8. A milling device presenting a series of cutting edges, arc-shaped in cross-section, each cutting edge having extended from it a flange to act as a stop to determine the extent of the cut made by the edge from which it projects.

679,144. **NON-EXPLOSIVE OIL-CAN.** DAVID W. HARDESTY, Allegheny, Pa. Filed Apr. 25, 1899. Serial No. 714,442. (No model.)

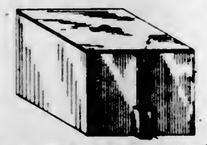


Claim.—1. In an oil-can, a body, a top for the body having a shoulder 7, an outer casing 8, secured thereto; a vent-tube 10, extending up the entire length of the can to a point under the shoulder in alinement with the top; said vent-tube being then doubled on itself and extended

downward to a point in alinement with its mouth; said vent-tube being then bent at an angle and extending in a horizontal plane under a false bottom of the body and having an upturned end extending through the false bottom and communicating with the receptacle near the wall opposite the vertical members of the vent-tube; a discharge-pipe secured to the outer wall of the can having an elbow extending through the wall below the false bottom; said discharge-pipe being bent upward into an opening in the false bottom contiguous to the end of the vent-tube as and for the purpose described.

2. In an oil-can, a body, an outer casing secured thereto, a vent-tube extending up the entire length of the can, said vent-tube being doubled on itself and extending downward terminating near the bottom of said body, said vent-tube being bent at an angle and extending in a horizontal plane under the bottom of the body and having an upturned end extending through the bottom and communicating with the receptacle near the wall opposite the vertical members of the vent-tube, a discharge-pipe secured to the outer wall of the can, an elbow extending through the wall below the bottom communicating therewith, substantially as described.

679,145. **ANNEALING-BOX.** WILLIAM E. HARRIS, Niles, Ohio. Filed July 22, 1898. Renewed June 17, 1901. Serial No. 64,934. (No model.)



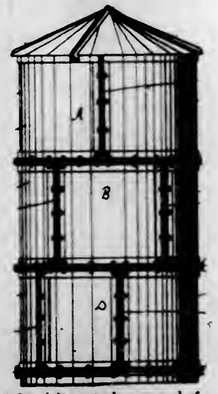
Claim.—1. In an annealing-box, the combination with the base-plate and a box or cover, of a cast-iron brace-block loosely supported on said base-plate with its ends in close proximity to the inner walls of the box, said brace-block constituting a support for the articles to be annealed and preventing collapse of the box.

2. In an annealing-box, the combination with the base-plate and a box or cover, of a brace-block loosely supported on said base-plate and having upwardly-extending projections at its edges lying in close proximity to the inner walls of the box, said brace-block serving as a support for the articles to be annealed and preventing collapse of the sides of the box.

3. In an annealing-box, the combination with a suitable base-plate and a box or cover, of a freely-removable brace-block resting thereon and having laterally and upwardly extending projections along its edges lying in close proximity to the inner walls of the box, said brace-block serving as a support for the articles to be annealed and preventing collapse of the sides of the box.

4. In an annealing-box, the combination with a base-plate and a box or cover, of a cast-iron brace-block having apertures extending therethrough, said brace-block being loosely supported on the base-plate with its ends in close proximity to the inner walls of the box and constituting a support for the articles to be annealed and preventing collapse of the box.

679,146. **KNOCKDOWN TANK.** HUGH W. HARRY and THOMAS C. HARRY, Dallas, Tex. Filed Apr. 3, 1900. Serial No. 11,350. (No model.)



Claim.—1. A knockdown tank composed of a bottom, a top, and a sectional cylindrical body, the sections forming said body being united by seams composed of flanges formed on the folded edges of the material forming said sections, packing between the flanges, and suitable bolts and nuts.

2. A knockdown tank comprising a sectional cylindrical body, a top and a bottom detachably secured to said body, and means for detachably securing together the sections forming said body consisting of flanges formed on the folded edges of the sections, packing placed between the flanges, and suitable bolts and nuts.

3. A knockdown tank composed of a cylindrical body, and a top and a bottom attached to said body, said body being composed of a plurality of cylindrical sections united by horizontal seams, each cylindrical section being composed of one or more longitudinal sections united by vertical seams, said seams being formed of strips of packing and flanges formed on the edges of said sections and suitable bolts and nuts for securing said flanges on said packing, said flanges being formed by folding the edges of the sections and bending the folded edges.

4. A knockdown tank having a cylindrical body, and a top and a bottom secured to said body, said body being composed of a plurality of cylindrical sections united by horizontal seams, said seams being formed of strips of packing and flanges formed on the folded edges of said sections and suitable bolts and nuts for clamping said flanges on said packing, said flanges being adapted to form annular braces for said tank.

5. A knockdown tank having a cylindrical body and a top and a bottom secured to said body, said body being composed of a plurality of cylindrical sections united by horizontal seams each cylindrical section being composed of a plurality of longitudinal sections united by vertical seams, said seams being composed of flanges formed on the folded edges of said sections and strips of packing between the flange of each section and the adjacent section and suitable bolts and nuts for securing said flanges on the packing, said horizontal seams being adapted to form annular braces and said vertical seams being adapted to form braces for the tank by bracing the horizontal seams.

6. A knockdown tank composed of a sectional body and a bottom, the sections forming said tank being united by seams composed of flanges formed on the folded edges of the material forming said sections, packing between the flanges, and means for securing the flanges on the packing.

7. A knockdown tank having a cylindrical body, and a top and a bottom secured to said body, the upper part of said body having the edge folded and a flange formed thereon, said top or cap being composed of two sections, the adjacent edge of each section having a flange formed thereon and the bottom edges of said sections being crimped to engage the flange of said body, and having suitable bolts and nuts for securing the flanges of the sections together.

8. A knockdown tank having a cylindrical body, and a top and a bottom secured to said body, said body being composed of a plurality of cylindrical sections united by horizontal seams, each cylindrical section being composed of one or more longitudinal sections united by vertical seams, said vertical seams having ears by which the vertical seams are attached to the horizontal seams, said horizontal seams being adapted to form braces for said tank, the vertical seams of each cylindrical section being arranged out of alinement with the seams of the adjacent sections whereby said vertical seams are adapted to form braces distributed to various parts of said tank.

9. A knockdown tank composed of a detachable bottom and a detachable top, a cylindrical body in one or more sections, the edges of the section or sections forming said body being lapped upon themselves and flanges formed on the lapped edges, and the seams for uniting the edges of said section or sections consisting of said flanges, packing between said flanges, and suitable bolts for securing said flanges on said packing.

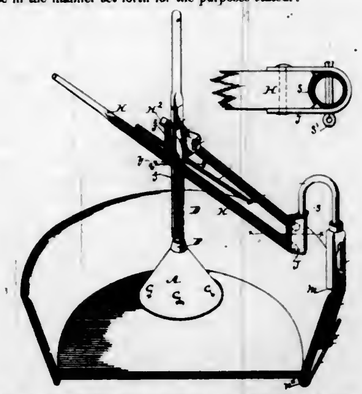
10. A knockdown tank composed of a top and a detachable bottom and a sectional cylindrical body, the sections forming said body having the edges thereof lapped upon themselves and being united by seams composed of flanges formed on said lapped edges, packing between the flanges, and suitable bolts and nuts for securing said flanges on said packing.

11. A knockdown tank composed of a top, a detachable bottom, and a cylindrical body composed of sections, said sections being united by seams composed of flanges formed on the adjacent sections, packing between said flanges, and suitable bolts and nuts, said flanges being formed by folding the edges of said sections and then bending the folded edges.

12. A metallic tank composed of a top, a detachable bottom, and a cylindrical body composed of sections, said sections being united by seams composed of flanges formed on the adjacent sections, packing between the flanges, and suitable bolts and nuts, said flanges being formed by folding the edges of the metal composing said sections and bending the folded edges whereby said seams constitute braces for strengthening the tank.

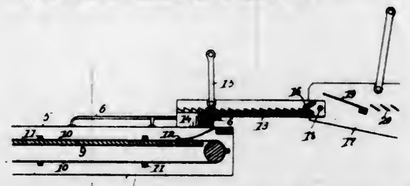
679,147. **WASHING-MACHINE.** LOREN D. HART, Nora Springs, Iowa. Filed Jan. 19, 1900. Serial No. 2,002. (No model.)

Claim.—1. In a washing-machine, a lever pivotally connected with a post, a bar pivotally connected with the same post and connected with the lever by means of a strap pivoted to the end of the bar and the central portion of the lever, a clasp pivoted to the end portion of the bar by means of a rivet, a screw-bolt extended through the ends of the clasp for tightening the same, a rivet extended through the lower portion of the clasp and the lever and a handle having notches in one of its faces to admit the rivets extended through said clasp, arranged and combined to operate in the manner set forth for the purposes stated.



2. In a washing-machine attachment, a straight upright having a bore in its top portion for pivotally connecting a lever-support and a shoulder at its bottom to engage the top edge of a tab, an inclined extension below said shoulder adapted to overlie the outside face of a tab, a shoulder at the bottom of said inclined extension and a vertical bore in the lower end portion, a clamp device consisting of a rod having a hook at its lower end to engage the bottom of a tub extended through said bore and a nut screwing on its top end, arranged and combined in the manner set forth for the purposes stated.

679,148. **STRAW-STACKER.** MARTIN HENNEKE, Springfield, Ill. Filed Dec. 3, 1900. Serial No. 38,496. (No model.)



Claim.—1. The combination with a shaker-shoe of a separator and with a centrally-depressed and horizontally-swinging straw-receiving table of a stacker, of a drag-belt running in the depression of the table, and a pan resting adjacent to the table and partaking of the shaking motion of the shoe.

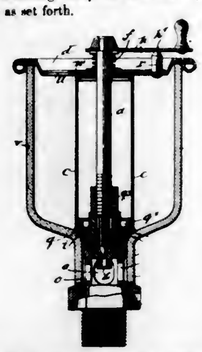
2. The combination with a shaker-shoe of a separator and with a centrally-depressed and horizontally-swinging straw-receiving table of a stacker, of a drag-belt running in the depression of the table, and a pan hinged at its front end to the shaker-shoe and supported at its rear end adjacent to the table.

3. The combination with a shaker-shoe of a separator and with a horizontally-swinging straw-receiving table of a stacker, of a pan hinged at its front end to the shaker-shoe and extended above the table, and a strip on the rear end of the pan extending downward to near the table.

4. The combination with a shaker-shoe of a separator and with a centrally-depressed and horizontally-swinging straw-receiving table of a stacker, of a drag-belt running in the depression of the table and a corrugated pan hinged at its front end to the shaker-shoe and supported at its rear end adjacent to the table.

679,149. **LUBRICATOR.** CARL A. HIRTH, Stuttgart, Germany. Filed May 11, 1901. Serial No. 59,738. (No model.)

Claim.—1. The combination, with a glass vessel having a contracted neck at its lower end, of a sleeve inserted in said neck and provided with sight-openings, a feed device screwed into said sleeve and provided with a feed-nozzle, an adjustable feed-spindle in said feed device, a cover fitted to the rim of said vessel, a crank attached to the upper end of the spindle, and means adapted for coupling the crank with the cover or releasing it therefrom for returning the spindle into closed position in the feed-nozzle, substantially as set forth.



2. The combination, with a glass vessel having a contracted neck, of a sleeve for supporting said vessel and provided with sight-openings, a feed device supported by said sleeve and provided with a feed-nozzle at its lower end, a larger grooved portion connected by inclined channels with the central channel of the feed device and feed-nozzle, a spindle screwed into the interiorly-threaded tubular extension of the feed device and adapted to open and close the feed-nozzle, and a crank attached to the upper end of the feed-spindle for placing the same in open or closed position, substantially as set forth.

3. The combination, with a glass vessel for the lubricant, and a feed device in the same, of a sleeve provided with sight-openings for the lubricant, a feed-spindle for said feed device, a cover fitted to the upper end of the glass vessel, a crank attached to the upper end of the feed-spindle, a spring interposed between the crank and cover, and means for coupling the crank with the cover or uncoupling it therefrom when the feed device is to be placed in operative or non-operative position, substantially as set forth.

679,150. **BRAKE FOR CARS.** THOMAS B. HYLAND, Pittsburg, Pa. Filed May 6, 1901. Serial No. 58,973. (No model.)



Claim.—1. In a car-brake, the combination with the brake-rods, of a cylindrical casing attached to the car-body, guides carried by the inner circumference of said casing, a guide-block arranged within the casing and provided with guideways to receive the guides of the casing, a worm-shaft journaled in the casing, a yoke mounted on said shaft and slidably engaging the guide-block, connections between said yoke and the brake-rods, and means connected to the worm-shaft for operating the same, substantially as described.

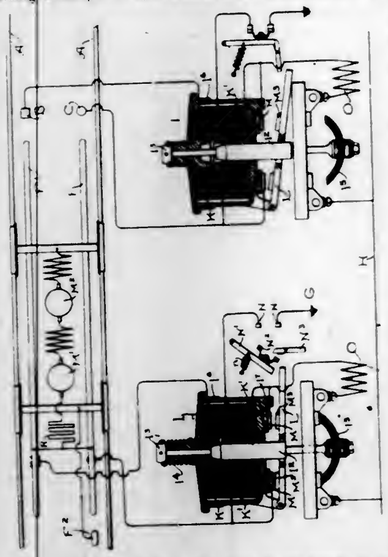
2. In a brake-operating mechanism, the combination of a cylindrical casing, a worm-shaft secured therein, a yoke operating on said worm-shaft connected to brake-rods, a beveled gear secured to the end of the said worm-shaft, a beveled gear meshing with said first-named beveled gear, and a brake-shaft connected to said last-named beveled gear, substantially as described.

3. In a brake-operating mechanism, the combination of a cylindrical casing having guides formed therein, a worm-shaft secured in said cylindrical casing, a yoke operating on said worm-shaft connected to brake-rods, a guide-block mounted on said worm-shaft having guideways formed therein operating in the said guides of the cylindrical casing, beveled gears connected to said worm-shaft, and a brake-staff connected to one of said beveled gears, all parts being arranged and operating substantially as described.

679,151. **COMBINED SWITCH AND CIRCUIT-BREAKER.** THOMAS J. JOHNSTON, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 16, 1899. Serial No. 705,647. (No model.)

Claim.—1. The combination, with an electric switch, normally tending to remain open, of electromagnetic means for closing said switch and holding it closed against such tendency, and a switch which is actuated by an excessive flow of current through said means to cut the latter out of circuit, so that the switch opens.

2. The combination, with an electrically-operated switch, of a circuit-breaking device operated by the same coils which actuate the switch.



3. The combination with the switch closed by the passage of current through coils coöperating with a moving part, of means actuated by rise of current in one of the coils for opening the circuit of the switch.

4. The combination with the electrically-operated switch of a surface-contact-railway system, of an armature actuated by undue rise of current in the switch-controlling coils, and means controlled by the armature for opening the switch.

5. The combination with an electromagnetic switch in a surface-contact-railway system, of coils closing the contacts of the switch, and an armature actuated by undue current in the coils for nullifying their effect so that the switch-contacts open.

6. The combination in the circuit-closing switch of a surface-contact railway, of an electromagnet and contacts closed thereby, with an auxiliary armature, and circuit-opening contacts controlled by the armature for cutting all the coils out of circuit.

7. In a switch for a surface-contact railway, the combination of contacts closed by the action of the switch and completing a circuit between the feeder and a stud in the roadway, a shunt-coil for closing the switch, and a series coil for holding it closed; with an armature actuated by an undue rise of current in the coils, and means controlled by the armature for short-circuiting the series coil and for open-circuiting the shunt-coil.

8. A combined switch and circuit-breaker for a surface-contact-railway system, comprising an iron box containing coils, contacts closed by the coils for completing the circuit from the feeder to a stud in the roadway, an armature within the magnetic attraction of both coils and actuated by undue current therein, and contacts controlled by the armature for nullifying the effect of both coils.

9. In a combined switch and circuit-breaker, for a surface-contact railway, the combination of an iron box containing a shunt-coil and a series coil with a moving part controlled by the magnetic effect of the coils and closing contacts completing a circuit from the feeder to a stud in the roadway, of an armature, contacts carried by the armature for short-circuiting the series coil, and a device controlled by the armature for opening the circuit of the shunt-coil.

10. The combination with the iron box of a combined switch and circuit-breaker, of the armature and coils and the lug I⁷ upon the box for shortening the magnetic circuit.

11. In a surface-contact-railway system, the combination, with the feeder and the sectional working conductor, of the combined switch and circuit-breaker, and a grounded contact carried by the car registering with the working conductor; whereby when any switch sticks, leaving the working conductor alive, said working conductor is short-circuited to ground and actuates the circuit-breaker.

12. The combination with an electric switch, normally tending to remain open, of a coil for closing the switch and holding it closed against such tendency, a coil in series with the switch-contacts, and means whereby, when a current which exceeds a predetermined maximum flows through the switch, said series coil causes itself and the switch-energizing coil to be cut out of circuit.

13. An electric switch, normally tending to remain open, in combination with a coil for closing the switch and holding it closed against such tendency, and a switch actuated by said coil, to open the circuit of the latter upon the flow therethrough of a current in excess of a predetermined permissible maximum current.

14. The combination with an electric switch, normally tending to remain open, of a coil for closing the switch and holding it closed against such tendency, and a coil in series with the switch-contacts, which, upon the passage of an excessive current therethrough, causes the switch to open.

15. The combination with an electric switch; of a coil in series with the switch-contacts for holding the switch closed, and an auxiliary switch which upon the passage of a selected excessive current through the switch and coil cuts the coils out of circuit.

16. The combination with an electric switch; of a coil for controlling said switch, and a coil in series with the switch-contacts, which controls the switch, and which, when a current which exceeds a predetermined maximum flows through the switch, open-circuits the magnet-coil and short-circuits itself.

17. The combination with an electromagnetic switch; of a coil in series with the switch-contacts, a switch in the circuit of the switch-magnet coil, and an auxiliary magnetic portion moved by the series coil to open the switch in the magnet-coil circuit.

18. The combination with an electric switch, of a magnet-coil for controlling said switch, an auxiliary coil in series with the switch-contacts, which also controls the switch, a switch in the circuit of the magnet-coil, and an auxiliary adjustable magnetic portion which is moved by the series coil to open the switch in the magnet-coil circuit, and to short-circuit the series coil itself.

19. In an electric-railway system, the combination with the feeder, of a sectional conductor, normally open electromagnetic switches, each adapted to connect a conductor-section with the feeder; and a collector carried by the car, which closes the circuit of said switches, and switches which are actuated by the flow of a current which exceeds a predetermined maximum, to cut the magnet-coils out of circuit.

20. In an electric-railway system, the combination with the feeder, of a sectional conductor, normally open electromagnetic switches, each of which is adapted to connect a conductor-section with the feeder, a collector carried by the car, which closes the circuit of said switches, and switches which cut the coils of said switches out of circuit when a current exceeding a predetermined maximum flows through the switch.

21. In an electric-railway system, the combination with the feeder, of a sectional working conductor; electromagnetic switches, each of which connects a conductor-section with the feeder; a sectional switch-energizing conductor, each section of which is connected with the coil of one of said switches; and a coil in series with the switch-contacts, which, when a current which exceeds a predetermined maximum flows therethrough, causes the switch to open.

22. In an electric-railway system, the combination with the feeder, of a sectional working conductor, electromagnetic switches, each of which connects a conductor-section with the feeder; a sectional switch-energizing conductor, each section of which is connected with the energizing-coil of one of said switches; a switch in the circuit of each of said coils; and coils, one of which is in series with the contacts of each of the feeder-switches, which coil, when a current which exceeds a predetermined maximum flows therethrough, opens the switch in the circuit of said energizing-coil.

23. In an electric-railway system, the combination with the feeder, of a sectional working conductor, switches each of which connects a conductor-section with the feeder, a sectional switch-energizing conductor; a plurality of energizing-coils, each of which is connected with a section of said energizing-conductor, and actuates one of said switches; a plurality of coils, each of which controls one of said switches, and is connected in series between a section of working conductor and the feeder, which coil, when a current which exceeds a predetermined maximum flows therethrough, opens the circuit in the energizing-coil and short-circuits itself.

24. In an electric railway, the combination with a feeder, of a sectional working conductor, a sectional energizing-conductor; electromagnetic switches, each of which connects a conductor-section with the feeder, and has its coil connected between the section of energizing-conductor and ground; and means whereby each switch is opened by a current flow therethrough which exceeds a predetermined maximum.

25. In an electric-railway system, the combination with the feeder, of a working conductor, a collector carried by a car, and a normally open switch for connecting said conductor with the feeder, a magnet-coil for closing the switch and a switch actuated by a flow of current through said coil which exceed a predetermined maximum, to open-circuit the coil, and permit the normally open switch to open.

26. In an electric-railway system, the combination with the feeder, of a sectional conductor; electromagnetic switches, each of which connects a conductor-section with the feeder, switches which are actuated to cut the magnet-coils out of circuit by a current flow through the switch which exceeds a predetermined maximum; and a grounded collector carried by the car which engages with a conductor section to cause such excessive current to flow through the switch with which the conductor-section is connected.

27. In an electric-railway system, the combination with the feeder, of a sectional working conductor; electromagnetic switches, each of which connects a conductor-section with the feeder; energizing-coils for said switches, a plurality of coils, each of which is connected between a section of working conductor and the feeder, and when a current which exceeds a predetermined maximum flows therethrough, causes the switch to open; and a grounded collector carried by the car which engages with a section of working conductor to cause such excessive current to flow through the coil with which the conductor-section is connected.

28. In an electric-railway system, the combination with the feeder, of a sectional working conductor; electromagnetic switches, each of which connects a conductor-section with the feeder; a switch which is actuated by the flow of a current which exceeds a predetermined maximum through a switch to render its coil inoperative; and a grounded collector carried by the car which engages a conductor-section to cause such excessive current to flow through the switch with which that conductor-section is connected.

29. In an electric-railway system, the combination with the feeder, of a sectional working conductor; electromagnetic switches, each of which connects a conductor-section with the feeder; a switch which is actuated by the flow of a current which exceeds a predetermined maximum through the switch to cause the switch to open; and a grounded collector carried by the car which engages a conductor-section to cause such excessive current to flow through the switch with which that conductor-section is connected.

30. In an electric-railway system, the combination with the feeder, of a sectional working conductor; electromagnetic switches, each of which connects a conductor-section with the feeder; energizing-coils for said switches, a plurality of coils, each of which is connected in series between a section of working conductor and the feeder, which coil, when a current which exceeds a predetermined maximum flows therethrough, opens the circuit of the coil of one of the electromagnetic switches; and a grounded collector carried by the car which engages with a working conductor-section, to cause such excessive current to flow through the series coil which is connected with said section.

31. In an electric-railway system, the combination with the feeder, of a sectional working conductor; electromagnetic switches, each of which connects a conductor-section with the feeder; magnet-coils for said switches, a series coil between each section of working conductor and the feeder, which coil also controls the electromagnetic switch, and when a current which exceeds a predetermined maximum flows therethrough, opens the switch-coil circuit and also short-circuits itself; and a grounded collector carried by the car, which engages with a section of working conductor to cause such excessive current to flow through the coil with which that section is connected.

32. In an electric-railway system, the combination with the feeder, of a sectional working conductor, a sectional switch-energizing conductor; electromagnetic switches, each of which connects a working-conductor section with the feeder, and has its coil connected between a section of the switch-energizing conductor and ground, each of said switches being adapted to be opened by the flow therethrough of a current which exceeds a predetermined maximum; and a grounded collector carried by the car for engaging the working conductor-sections to cause such excessive current to flow through the switches with which the sections are connected.

33. In an electric-railway system, the combination with the feeder, of a working conductor, a switch for connecting said conductor with the feeder, an electromagnet for actuating said switch, a switch which is actuated by the flow through the first switch of a current exceeding a predetermined maximum to cut the coil out of circuit; and a grounded collector carried by the car which engages with the working conductor to cause such excessive flow of current through the switch.

34. In an electric-railway system, the combination with the feeder, of a working conductor, a switch for connecting said conductor with the feeder, an electromagnet for actuating said switch, a switch which is actuated, by the flow through the first switch of a current which exceeds a predetermined maximum, to cut the coil out of circuit; and means for causing an excessive flow through said switch when the switch fails to open.

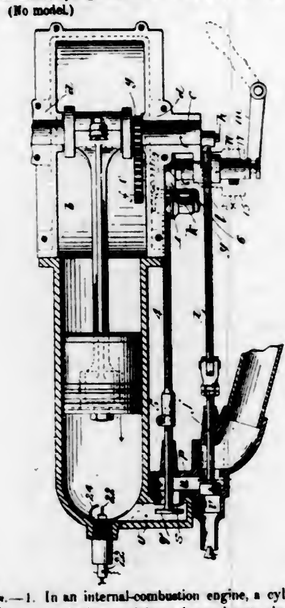
35. In an electric-railway system, the combination with the feeder, of a sectional working conductor, electromagnetic switches connecting the conductor-sections with the feeder; a sectional switch-energizing conductor connected with the coils of said switches; switches which are actuated by the flow through the electromagnetic switches of a current which exceeds a predetermined maximum; to cut the magnet-coils out of circuit and means for causing such excessive flow when the switches are held closed by leakage currents to the energizing-conductor.

36. The combination with an electric switch, of a magnet-coil for controlling the switch, and an auxiliary switch actuated by an excessive flow of current through the controlling-coil itself, to cut the latter out of circuit.

37. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic feeder-switches for connecting said sections with the feeder, switches actuated by an excessive current flowing through the switch-magnet coils to cut the latter out of circuit, so that the feeder-switches open, and means carried by a car for causing such excessive current flow.

679,152. VALVE MECHANISM FOR EXPLOSIVE-ENGINES.

HARRY A. KNOX, Springfield, Mass. Filed Sept. 22, 1900. Serial No. 30,817. (No model.)



Claim.—1. In an internal-combustion engine, a cylinder, a single puppet-valve serving both as an inlet and an exhaust valve for the cylinder, adjustable valve-operating devices for imparting movements to said valve, and means for adjusting said devices during the operation of the machine, whereby said valve may be opened more or less, substantially as described.

2. In an internal-combustion engine, a cylinder, a piston therein, a single valve-port and valve therefor, serving as an inlet and exhaust port for the cylinder, an inlet-passage for an explosive charge, a passage for exhaust-gases, both in communication with said valve-port, and a second valve arranged to alternately open and close said communication between each of these passages and the valve-port, at the proper times, and means for actuating said valves, substantially as described.

3. In an internal-combustion engine, a cylinder, a piston therein, a single valve-port serving both as an inlet and an exhaust port for the cylinder, a valve for said port, and means for operating said valve, whereby the time of its closing may be varied, relative to the position of the piston in said cylinder, without varying the time of its opening, combined with a sparking device constructed and arranged to be operated by the valve-operating means, whereby the time of ignition of the explosive charge may be changed simultaneously with the change of time of said valve, substantially as described.

4. In an internal-combustion engine, a cylinder, a piston therein, a single valve-port and valve therefor serving as an inlet and exhaust port for the cylinder, an inlet-passage for an explosive charge, a passage for exhaust-gases, both in communication with said valve-port, and a second valve arranged to alternately open and close said communication between each of these passages and the valve-port at the proper times, means for actuating said valves, and means for changing the time of closing of said first-named valve, while the movements of the second valve remain uniform, substantially, as described.

5. In an internal-combustion engine, a cylinder, a piston therefor, a valve-port serving both as an inlet and exhaust port, and a valve therefor; an inlet-passage for explosive mixture, and a passage for the exhaust-gases, both in communication with said valve-port; a crank-shaft, a second valve operated by the latter, arranged to alternately close said inlet-passage and said exhaust-passage; a rotating cam having one edge thereof lying diagonal to its axis of rotation, means of connection between said cam and said first-named valve whereby the latter is opened and closed, and means for moving said cam lengthwise of its axis, to vary the time of closing of said valve, substantially as described.

6. In an internal-combustion engine, an adjustable puppet-valve for controlling the admission of explosive mixture, and serving also as an exhaust-valve, a tapered cam for actuating said puppet-valve, an annular flange on said cam, whereby said valve may be held continuously open, and means for moving the cam endwise during the operation of the machine, to variably operate said valve, substantially as described.

7. In an internal-combustion engine, a cylinder and piston, a crank-shaft connected with the latter, a rotatable tapering cam supported near the crank-shaft parallel therewith, and rotated thereby at a different speed from said shaft, a valve-port in said cylinder serving both as an inlet and an exhaust port, a valve for said port operatively connected with said cam, means for moving said cam to bring different portions of its bearing-surface into operative relation with said valve, combined with a sparking device and means operated by the cam, whereby the time of sparking is governed by changes made in the position of said cam to vary the time of the valve, substantially as described.

8. In an internal-combustion engine, a cylinder, a piston therein, a single valve-port serving both as an inlet and an exhaust port for the cylinder, a valve for said port, and means for operating said valve, combined with an inlet-passage and an exhaust-passage, both in communication with said valve-port, a second valve adapted to close said passages in succession, and means for actuating said last-named valve, substantially as described.

9. The combination in an internal-combustion engine, of a cylinder having a piston therein, a single valve-port for said cylinder, serving both as an inlet and an exhaust port; a passage leading to said port, a valve for the latter and a valve for said passage; positive means for actuating the valve in said passage in unison with the piston, and means for variably operating the valve for said port relative to the position of the piston.

10. The combination in an internal-combustion engine, of a cylinder having a piston therein, a single valve-port for said cylinder, serving both as an inlet and an exhaust port; a passage leading to said port, a valve for the latter and a valve for said passage; positive means for actuating the valve in said passage in unison with the piston, and adjustable means for actuating the valve for said port, consisting of a slidable cam having one edge inclined to its axis, and means of connection between the cam and said valve, substantially as shown.

11. The combination in an internal-combustion engine, of a cylinder having a piston therein, a single valve-port for said cylinder, serving both as an inlet and an exhaust port; a passage leading to said port, a valve for the latter and a valve for said passage; positive means for actuating the valve in said passage in unison with the piston, combined with a sparking device, and operative connections between the latter and the means for actuating the valve for said port, whereby the regulation of said valve will coincidently effect the adjustment of said sparking device.

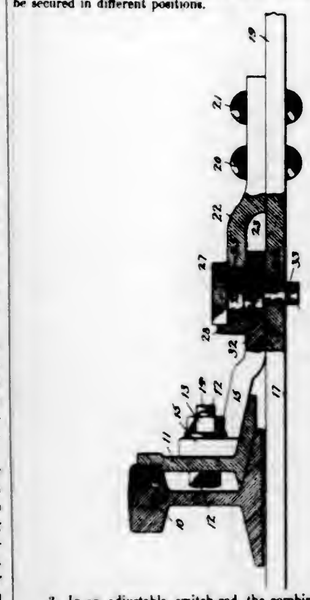
12. In an internal-combustion engine, a cylinder, a single puppet-valve serving both as an inlet and an exhaust valve for said cylinder, a tapered cam for imparting movement to said valve, an annular flange on said cam, means of connection between the valve and the cam, and means for adjusting the latter during the operation of the machine, whereby the valve may be operated either by said cam or said annular flange, substantially as described.

13. In an internal-combustion engine, a variable cut-off puppet-valve for controlling the admission of explosive mixture to the engine and for controlling the eduction of exhaust-gases therefrom, electric igniting devices, and means for operating said cut-off valve during the operation of the machine, and for simultaneously varying the time of operation of said igniting devices, substantially as described.

679,153. ADJUSTABLE SWITCH-ROD. WILLIS C. LEE and MILES F. MOORE, Chicago, Ill., assignors to Morden Frog & Crossing Works, same place. Filed Mar. 18, 1901. Serial No. 51,682. (No model.)

Claim.—1. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, a bolt passing through said lug and bar having an eccentric portion engaging one of said members, a polygonal head upon said bolt adapted to bear against a rigid portion of one of said members whereby said lug and bar may be secured in different positions.

2. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, jaws on one of said members inclosing two opposite sides of the other member, a bolt passing through said jaws, having an eccentric portion engaging the member between the jaws, a polygonal head upon said bolt of greater diameter than said eccentric adapted to bear against a rigid portion of one of said jaws whereby said lug and bar may be secured in different positions.



3. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, jaws on one of said members inclosing two opposite sides of the other member, a bolt passing through said jaws having an eccentric portion engaging the member between the jaws, a polygonal head upon said bolt, a lug on one of said jaws adapted to engage said head of the bolt, substantially as described.

4. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, jaws on one of said members inclosing two opposite sides of the other member, a bolt passing through said jaws having an eccentric portion engaging the member between the jaws, a polygonal head upon said bolt, a lug on one of said jaws adapted to engage said head of the bolt, the proportions of said lug, the eccentric on the bolt and the member between the jaws being such that when the bolt-head is lifted clear of the lug the eccentric will still engage the member between the jaws, substantially as described for the purposes set forth.

679,154. WEIGHING-MACHINE. ALBION L. F. MITCHELL, East Boston, Mass., assignor of one-half to Charles W. Aiken, East Orange, N. J. Filed Oct. 20, 1900. Serial No. 33,674. (No model.)

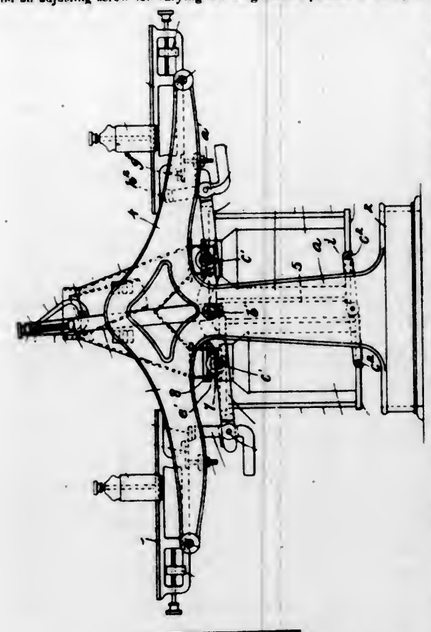
Claim.—1. In a weighing-machine, a weighing mechanism including a scale-pan, in combination with a removable bucket supported thereby and provided with a removable inverted hopper-shaped top, and a feed-chute adapted to supply material to said bucket through said top.

2. In a weighing-machine, a feed-chute, a pivoted double deflector therein, an arm connected to said deflector and having two angularly-related bars, a scale-beam having an arm, and a pin on the last said arm adapted to engage either of said bars.

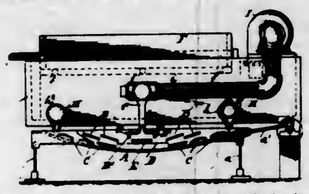
3. In a weighing-machine, a scale-beam, a feed-chute, a deflector therein having a beam-oscillating connection with the beam, and adjustable means to vary the leverage exerted by said deflector on said beam.

4. In a weighing-machine, a scale-beam having an arm, a feed-chute, a deflector having an arm extended in a general direction longitudinally of said scale-beam arm, a pin forming a connection between said arms, and means to adjust said pin longitudinally of said arms and thus vary the leverage exerted by the deflector-arm on the scale-beam arm.

5. In a weighing-machine, a scale-beam having an arm, a feed-chute, a deflector having an arm extended in a general direction longitudinally of said scale-beam arm, a pin mounted on the scale-beam arm and adjustable in guides longitudinally thereof, said pin engaging the deflector-arm, and an adjusting-screw for varying the longitudinal position of the pin.



679,155. CONCENTRATOR. JOHN J. MONTGOMERY, Santa Clara, Cal. Filed June 6, 1900. Serial No. 19,261. (No model.)



Claim.—1. A concentrator, comprising a table, having means for vibrating it, and strips lying transversely above and removed from the bottom of the table and immersed in the water on the table, and accompanying said table in its vibration, the under faces of said strips being set at an inclination to the surface of the table-bottom and uniformly disposed in sets, whereby circulatory currents of given direction are produced in the water upon said table.

2. A concentrator, comprising a table, shaped to contain a body of water, means for vibrating the table, and strips lying transversely above and removed from the bottom of the table, and accompanying said table in its vibration, said strips being immersed in the body of water on the table, and having their under faces set at an inclination to the surface of the table-bottom and uniformly disposed in sets, whereby circulatory currents of given direction are produced in the water upon said table.

3. A concentrator, comprising a table, means for vibrating the table, strips lying transversely above and removed from the bottom of the table, and accompanying said table in its vibration, the under faces of said strips being set at an inclination to the surface of the table-bottom, and said strips being immersed in the water on the table, whereby circulatory currents of given direction are produced in the water upon said table, a transverse perforated diaphragm carried by the table above its bottom and below the horizontal plane of the transverse strips, and means for discharging the gangue.

4. A concentrator, comprising a table, means for vibrating the table, strips lying transversely above and removed from the bottom of the table, and accompanying said table in its vibration, said strips being set at an inclination to the surface of the table-bottom whereby circulatory currents of given direction are produced in the water upon said table, separated riffle-strips carried by the table above its bottom, and below the transverse strips, a transverse perforated diaphragm also carried by the table above its bottom and below the horizontal plane of the transverse strips, said riffles and diaphragm forming a semipartition between the inclined strips and the table-bottom, and means for discharging the gangue.

5. A concentrator, comprising a separating-table, a feed-trough formed with two compartments communicating at or near the top, means for feeding sand and water to one of said compartments, delivery connections from said compartment to said separating-table, and a suction device and connection arranged to withdraw the lighter sand and water from the separating-table and deliver the same into the other compartment of the feed-trough where they are separated and the water delivered to the first-mentioned compartment, substantially as described.

6. A concentrator comprising a separating-table, a feed-trough divided by a partition into two compartments communicating above said partition, a hopper above said trough arranged to deliver sand and water to one compartment of the trough, delivery connections from said compartment to said separating-table, a suction-pipe above the separating-table, a pump connected therewith for drawing off the lighter sand and water, and a discharge-pipe from the pump to said other compartment of the trough, substantially as described.

7. The combination, in a concentrator, of a separating-table, to which the sand and water are fed, a trough having a feed-chamber, with delivery-pipes to supply the sand and water to the table, a feed-hopper with exits communicating with and adapted to supply the sand and water to the feed-chamber, suction-pipes to withdraw the lighter sand and water from the table, a pump connected with said pipes, to effect the suction, said pump having a discharge into the trough, exits from the trough for the sand, and a communication in the trough for permitting the water therein to pass into the feed-chamber thereof, to be redelivered to the table.

8. In a concentrator, the combination of a vibrating table, having transverse strips above and removed from its bottom and immersed in the water upon said table, said strips being set at an inclination to the surface of the table-bottom and uniformly disposed in sets and adapted to effect circulatory currents in the water on the table, whereby the separated particles are moved to given points, and suction devices above said points, adapted to withdraw the water and lighter material from the concentrates.

9. In a concentrator, the combination of a vibrating table, having transverse strips above and removed from its bottom and immersed in the water upon said table, said strips being set at an inclination to the surface of the table-bottom, the inclination of the strips on opposite sides of the central portion of the table being opposite and adapted to effect circulatory currents in the water on the table, whereby the separated particles are moved to the central portion of the table, and suction devices above said points, adapted to withdraw the water and lighter material from the concentrates, said suction devices consisting of a suction-pipe with base-flanges and a pump connection with said pipe.

10. In a concentrator, the combination of a vibrating table, having transverse strips above and removed from its bottom and immersed in the water upon said table, said strips being set at an inclination to the surface of the table-bottom and adapted to effect circulatory currents in the water on the table, whereby the separated particles are moved to given points, and suction devices above said points, adapted to withdraw the water and lighter material from the concentrates, said suction devices consisting of a suction-pipe with base-flanges and a pump connection with said pipe, and agitating-rods moving with the table and located below the base-flanges of the suction-pipe.

11. In a concentrator, the combination of a vibrating table, having transverse strips above and removed from its bottom and immersed in the water upon said table, said strips being set at an inclination to the surface of the table-bottom, the strips on opposite sides of a central portion of the table having an opposite inclination and adapted to effect circulatory currents in the water on the table, whereby the separated particles are moved to a substantially central portion of the table, a trough having a feed-chamber with delivery-pipes, to supply the sand and water to the table, suction-pipes above the said central portion of the table to which the material has been directed by the circulatory currents and adapted to withdraw the lighter sand and water from the table, a pump connected with said pipes, to effect the suction, said pump having a discharge into the trough, exits from the trough for the sand and a communication in the trough, for permitting the water therein to pass into the feed-chamber thereof, to be redelivered to the table.

12. In a concentrator, the combination of a vibrating table, having the separated riffles and perforated diaphragm, forming a semipartition, as described, and the transverse inclined strips for effecting circulatory currents, as described, whereby the separated particles are moved to given points, a trough having a feed-chamber with delivery-pipes to supply the sand and water to the table, suction-pipes above the points to which the material has been directed by the circulatory currents and adapted to withdraw the lighter sand and water from the table, a pump connected

with said pipes, to effect the suction, said pump having a discharge into the trough, exits from the trough for the sand, and a communication in the trough for permitting the water therein to pass into the feed-chamber thereof, to be redelivered to the table.

13. In a concentrator, a separating-table laterally inclined, and having a passage-way at its lower side, a raised barrier-strip on the upper side of the passage-way, an elevated exit in the table side, and an agitating-rib in its bottom, substantially as described.

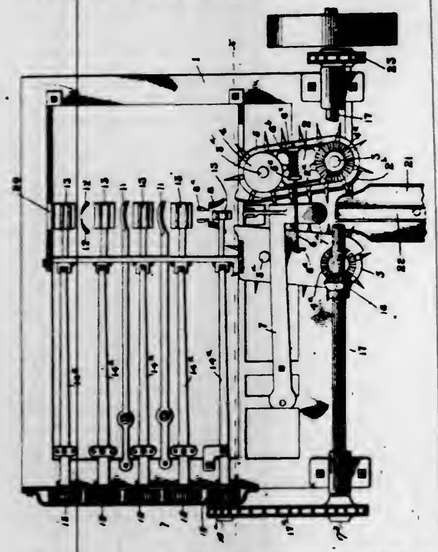
14. In a concentrator, and in combination with a separating-table, a delivery-pipe for the material said pipe having discharge-openings, and an open-sided sleeve surrounding said pipe, the open side thereof being out of registration with said discharge-openings, substantially as described.

15. In a concentrator, and in combination with a separating-table, a delivery-pipe for the material, said pipe having discharge perforations and being mounted in such manner as to be axially movable whereby the perforations may be turned to the desired angle, and an open-bottom loose sleeve upon said pipe.

16. In a concentrator, and in combination with a separating-table, a delivery-pipe for the material, said pipe having discharge perforations and being mounted in such manner as to be axially movable whereby the perforations may be turned to the desired angle, and an adjustable damper-cap or valve at the end of the pipe, to regulate the force of the flow therein.

17. A concentrator comprising a table, means for vibrating it, strips carried by the table and lying transversely above and separated from the bottom of the table, the under faces of said strips being set at an inclination to the surface of the bottom of the table and said strips being uniformly disposed in sets, the inclination of the under faces of the strips in the different sets being different, whereby circulatory currents of given direction are produced in the water upon the said table, substantially as described.

679,156. **MACHINE FOR CUTTING GREEN CORN FROM THE COB.** SAMUEL E. MORRAL and WILLIAM W. MORRAL, Morral, Ohio. Filed July 31, 1899. Serial No. 724,631. (No model.)



Claim.—1. In a machine for cutting green corn from the cob, the combination of two plates or frames 2 capable of movement with respect to each other, means for yieldingly holding said plates toward each other, sprocket-wheels in said plates, toothed feed belts or chains around the sprockets, gear-wheels 4 4ª on shafts of said sprockets, cutters 7ᵇ located near the rear end of the feed-chains, driving-shaft 17 having gears or pinions 18 18 meshing with gears 4ª 4ª, and also having sprockets 17ᵇ, feed-wheel shafts 14 arranged in pairs having spur-gears 15 meshing in pairs, spur-gears 16 intermediate of and meshing with a member of each adjacent pair 15, a sprocket-wheel 15ª connected with one of said spur-gears, and a belt or chain connecting said sprockets 15ª and 17ᵇ, substantially as shown and described.

2. In a machine for cutting green corn from the cob, the combination of two plates or frames 2 capable of movement with respect to each other, means for yieldingly holding said plates toward each other, sprocket-wheels in said plates, toothed feed belts or chains about the sprockets, gear-wheels 4ª 4ª on shafts of said sprockets, spring-arms 7, cutters 7ᵇ located near the rear end of the feed-chains, driving-shaft 17 having gears or pinions 18 18 meshing with gears 4ª 4ª, and also having sprockets 17ᵇ, feed-wheel shafts 14 arranged in pairs having spur-gears 15 meshing in pairs, spur-gears intermediate of and meshing with a member of each adjacent pair 15, a sprocket-wheel 15ª connected with one of said spur-gears, and a belt or chain connecting said sprockets 15ª and 17ᵇ, substantially as shown and described.

3. In a machine for cutting green corn from the cob, the combination of toothed feed-chains and guides and cutters between them, and a series of yielding feed-wheels driven by spur-gears with cutters and scrapers between them arranged beyond and in rear of the feed-belts, one pair of scrapers arranged horizontally and another vertically with respect to the machine.

4. In a machine for cutting green corn from the cob the combination of yielding cutters 7ᵇ, toothed feed-belts 5 yielding at their rear or inner ends only, and a series of yielding feed-wheels with cutters and scrapers between them arranged beyond the feed-belts, one pair of scrapers arranged horizontally and another pair vertically of the machine, said cutters and scrapers mounted upon shafts controlled by springs, substantially as described.

5. In a machine for cutting green corn from the cob, the combination of the feed-belts 5 yielding at their inner or rear ends, and yielding guides 7ª and cutters 7ᵇ arranged between said belts, and feed-wheels 13 in rear of the belts with cutters and scrapers arranged between said feed-wheels, one pair of scrapers arranged vertically and another pair arranged horizontally of the machine, said cutters and scrapers mounted upon shafts controlled by springs.

6. In a machine for cutting green corn from the cob, the combination of plates 2, pivots or shafts 3 on which said plates are supported, sprocketed gear-wheels also on said pivots or shafts, and toothed feed-belts yieldingly separable at their rear ends only mounted on said plates 2 and driven by said sprocketed gear-wheels 4ª, and a series of feed-wheels with cutters and scrapers in pairs interposed therebetween arranged between the feed-belts, one pair of scrapers being disposed horizontally and the other pair vertically with respect to the machine, said cutters and scrapers mounted upon shafts controlled by springs, substantially as described.

7. In a machine for cutting green corn from the cob, the combination with a plurality of toothed feed-chains actuated by sprocket-wheels, said chains being automatically adjustable, and provided with guard-plates and guides therefor, of guides and cutters for the corn located between said chains and a series of yielding feed-wheels with cutters and scrapers between them arranged beyond and in the rear of said feed-chains.

679,157. **COLLAR-BUTTON.** JOHN W. MCAULIFFE, Providence, R. I. Filed June 20, 1900. Serial No. 20,961. (No model.)



Claim.—The combination with the shank of a collar-button having the annular flange a', of the disk c^3, the wire c^3 secured to the disk, the spheroidal head c formed of sheet metal and perforated to form the opening c' for the insertion of the wire c^3, the slots c^4 c^4, the concavo-convex safety-shield c^5, integral with the sheet metal of the head, and the spring-pin c^3, formed integral with the wire c^3, whereby the pin is flexibly connected with the head and adapted to secure the wearing-apparel to the head while the point of the pin is covered, as described.

679,158. **PROCESS OF PRODUCING ELASTIC CONCRETE MATERIAL.** LEOPOLD NOBIS and AUGUSTIN WENKEL, Vienna, Austria-Hungary. Filed Apr. 24, 1901. Serial No. 57,321. (No specimens.)

Claim.—The process for the production of a tough, resisting concrete material, which is particularly suited for the production of vessels constructed of concrete and iron, and for lining iron vessels, more especially cellulose boilers, characterized by the circumstance that it is prepared by mixing blast-furnace slag, "asbestic," Portland cement and asbestos-powder, with a sufficient addition of water, in which substance are introduced the asbestos insertions consisting of asbestos braids or plaits, which are impregnated in a thin liquid bath of powdered glass, asbestos-powder and water-glass, and thereupon coated with a mineral coating, by means of a similar, but thickly-liquid bath.

679,159. **GAS-JET CAGE.** WILLIAM C. PERKINS, New Haven, Conn. Filed Mar. 5, 1901. Serial No. 49,910. (No model.)



Claim.—1. A gas-jet cage having its body composed of a plurality of wire body-sections, each made from a single piece of wire, and each consisting of an upright leg, a horizontal arm, and a coupling end turned downwardly from one end of the said arm, the other end of which merges into the upper end of the said leg, the coupling ends of the said sections being twisted around the upper ends of the legs of the adjacent body-sections, and the lower ends of the legs of the sections being connected together.

2. A gas-jet cage having its body composed of a plurality of wire body-sections, each formed from a single piece of wire, and each comprising an upright leg having an eye at its lower end, a horizontal arm merging at one end into the upper end of the said leg, and a coupling end turned downwardly from the other end of the said arm, and the coupling ends of the several sections being twisted around the upper ends of the adjacent sections, and a hoop passing through the eyes at the lower ends of the upright legs of the respective sections.

3. In a gas-jet cage, the combination with a plurality of wire body-sections each comprising an upright leg, a horizontal arm and a depending coupling end, the coupling ends of the said sections being twisted around the upper ends of the adjacent body-sections, of means for uniting the lower ends of the legs of the said body-sections, a sheet-metal bracket comprising an upper and a lower plate and a connecting-strip between the same, and radially-arranged wire frames connected at their inner ends with the upper and lower plates of the said bracket, and connected at their outer ends with the said legs and with the said means.

4. In a gas-jet cage, the combination with a plurality of wire body-sections each of which has an upright leg, a horizontal arm and a depending coupling end, the coupling ends of the said sections being twisted around the upper ends of the adjacent body-sections, of means for uniting the lower ends of the said legs, a sheet-metal bracket, and radially-arranged wire frames each consisting of a vertical leg passing through the bracket and an upper and a lower arm, the upper arm of each frame being connected with a leg of one of the said body-sections, and the lower arm of each frame being connected with the said means.

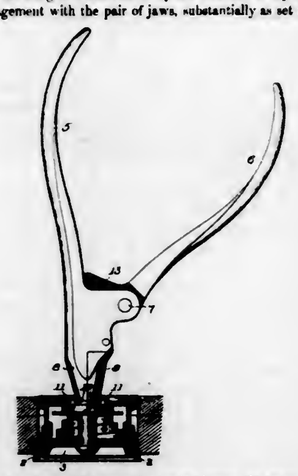
5. In a gas-jet cage, the combination with the body thereof, of a sheet-metal bracket located in the center of the cage and comprising an upper and a lower plate and a connecting-strip between the same, means connected with the said body-sections for supporting the said bracket centrally within the cage, and a coupling-plate applied to the said connecting-strip of the bracket and coacting with a supporting gas-pipe for securing the cage thereto with a capacity for rotation thereon.

6. In a gas-jet cage, the combination with a plurality of wire body-sections each consisting of an upright leg, a horizontal arm merging at one end into the upper end of the said leg, and a coupling end depending from the other end of the said arm, the coupling ends of the said sections being twisted around the upper ends of the upright legs of adjacent sections; of a hoop connecting the lower ends of the said legs, a sheet-metal bracket formed from a single piece of sheet metal and comprising an upper and lower plate, each having a central perforation, and also comprising a strip connecting the said plates, and a plurality of radially-arranged wire frames, each having a vertical arm passing through the upper and lower plates of the said bracket, and each having an upper and a lower arm, the upper arms of the said frames being connected at their outer ends with the upright legs of the body-section and the lower arms of the said frames being connected with the said hoop.

679,160. **IMPLEMENT FOR OPERATING SPRING-BUNGS.** ELWOOD C. PHILLIPS, Chicago, Ill. Filed Feb. 25, 1901. Serial No. 48,660. (No model.)

Claim.—1. In an implement for operating spring-bungs, the combination of a pair of operating-handles pivoted together, a pair of jaws having outturned bung-engaging lips at their lower ends operatively connected to the handles and adapted to expand laterally with an initial closing movement of the handles, and means capable of longitudinal movement connected to the handles and adapted to be operated by the final closing movement of the handles to engage and impart movement to the movable member of the bung in a direction away from the stationary bung member in engagement with the pair of jaws, substantially as set forth.

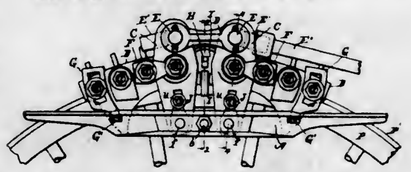
2. In an implement for operating spring-bungs, the combination of a pair of operating-handles pivoted together, a pair of jaws having outturned bung-engaging lips at their lower ends operatively connected to the handles and adapted to expand laterally with an initial closing movement of the handles, and a longitudinally-arranged plunger operatively connected to the handles and adapted to be operated by the final closing movement of the same to engage and impart movement to the movable member of the bung in a direction away from the stationary bung member in engagement with the pair of jaws, substantially as set forth.



3. An implement for operating spring-bungs, the same comprising, a pair of operating-handles pivoted together, a pair of laterally-moving jaws adapted to engage the bung, and means moving in a longitudinal direction, for engaging and forcing the bung members apart, the same comprising a longitudinally-moving plunger having operative connection with a lateral arm of one of the handles, substantially as set forth.

4. An implement for operating spring-bungs, the same comprising, a pair of operating-handles pivoted together, a pair of laterally-moving jaws adapted to engage the bung, and means moving in a longitudinal direction, for engaging and forcing the bung members apart, the same comprising a longitudinally-moving plunger having operative connection with a lateral arm of one of the handles and provided with a tapering end adapted to effect a positive lateral movement of the laterally-expanding jaws, substantially as set forth.

679,161. **TIRE-TIGHTENER.** WILLIAM SCHAU, Sheffield, Ala. Filed Jan. 28, 1901. Serial No. 45,086. (No model.)



Claim.—1. In a tire-tightener, the combination of side pieces A, A; pairs of upright levers pivoted to the center thereof with suitable connections at the tops for actuating the same; side pieces B, B, pivoted to each of said levers having downwardly-extending parts B' extending within the main side pieces A, toward the outer ends of the same; a slotted link G having a lug G' to engage a slot in the side piece A at each side of the machine toward each end; transverse bolts through the said side pieces B, carrying jaw-pieces *t*, all coacting substantially as described for the purpose specified.

2. In a tire-tightener, the combination of side pieces A, A; pairs of upright levers pivoted to the center thereof with suitable connections at the tops for actuating the same; side pieces B, B, pivoted to each of said levers having downwardly-extending parts B' extending within the main side pieces A, toward the outer ends of the same; transverse bolts through the said side pieces B, carrying jaw-pieces *t*, all coacting substantially as described for the purpose specified.

3. In a tire-tightener, the combination of side pieces A, A; pairs of upright levers pivoted to the center thereof with suitable connections at the tops for actuating the same; side pieces B, B, pivoted to each side

of said levers; a slotted link G having a lug G' to engage a slot in the side piece A at each side of the machine toward each end; transverse bolts through the said side pieces B, carrying jaw-pieces *t*, all coacting substantially as described for the purpose specified.

4. In a tire-tightener, the combination of the main side pieces A with means of clamping the same onto a wheel; the upwardly-extending pairs of levers pivoted to the center thereof with means of actuating the same to and from each other; plates B extending from said levers outwardly toward the ends of the main pieces A having suitable guides at their outer ends; engaging jaws supported within the plates B; transverse bolts through said plates B provided with both keys and screw-threaded nuts; and the notched washers *d* to be engaged by said keys for adapting the tire-setter to different widths of tire, for the purpose specified.

5. In a tire-setting machine, the combination of a suitable framework clamping-plates carried by said framework carrying serrated jaws beveled on the side toward the wheel to engage the tire without marring the felly, for the purpose specified.

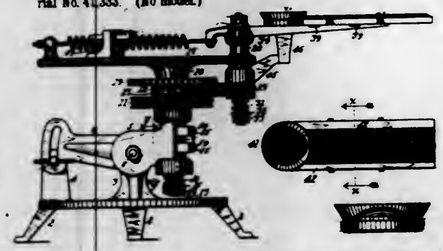
6. In a tire-tightener, the combination of the main frame upwardly-extending levers pivoted thereto; serrated jaws actuated by said levers; central blocks I with lips *h* for engaging under the tires having studs *u* extending through slots in said levers and connections J; and a screw-threaded nut for clamping the said plates I by the said connection to the upright lever to hold the same from an upward movement thereby preventing the buckling of the tire; suitable guide-blocks between said plates I and a key extending through perforations therein to hold the guide-blocks on the periphery of the tire, for the purpose specified.

7. In a tire-tightener, the combination of a suitable framework; actuating-levers for moving pairs of engaging jaws to and from each other; central supporting-blocks with lips to engage beneath the tire; guiding-blocks for resting upon the tire consisting of the hinged part *i*, *i*, and the superimposed blocks *i'* hinged to one of the blocks *i* and a key extending through suitable apertures in the side blocks I for retaining the same in position, coacting for the purpose specified.

8. In a tire-tightener, the combination of a suitable main frame; pairs of side plates carrying engaging jaws for engaging the opposite sides of the tire; guide-plates pivoted to the bolts so that they will be reciprocated thereby and mortised into each other at their inner ends; and wire springs *n* encircling the bolts at each side of the central guide-plates to support the same above the tire so that they can be easily turned on their hinges, for the purpose specified.

9. In a tire-tightener, the combination of oppositely-situated plates bearing engaging jaws to engage the tire; central guide-plates for the sides of the tire; and guides for the periphery of the tire, the ends of which are mortised together so that they can reciprocate, and the outer ends suitably pivoted so that they can be opened for the inspection of the work, for the purpose specified.

679,162. **TARGET-TRAP.** EDWARD D. SCHMITT, Baltimore, Md., assignor to Hallack A. Penrose, same place. Filed Dec. 28, 1900. Serial No. 41,333. (No model.)



Claim.—1. In a target-trap the combination with a base having two upright posts, and a sleeve having a lateral wing pivotally connected with one of said posts, an extended slotted arm adjustably connected with the second post, and means for retaining and releasing said arm, of a shaft mounted to revolve in said sleeve and bearing rigidly-secured target-discharging mechanism, substantially as shown and described.

2. In a target-trap, the combination with a base and a vertical bearing, of a shaft mounted in said bearing, a head mounted on said shaft, a counter-shaft mounted in said head, a horizontally-rocking arm mounted on said counter-shaft a target-discharging apparatus mounted on said arm, and means for rocking said arm, and devices such substantially as shown for changing the horizontal direction of said head, substantially as shown and described.

3. In a target-trap the combination with a supporting-base and a head adapted to oscillate thereon and bearing a horizontally-rocking delivery arm and chute and means for rocking said arm and for successively changing the horizontal direction of said head, of devices to cause the rocking of said arm and means to alternately automatically move said head progressively in opposite directions, substantially as shown and described.

4. In a target-trap the combination with the revoluble head and pulley for intermittingly turning it, and having a toothed wheel connected and adapted to turn with it, of a double-armed pawl arranged to engage said toothed wheel and lock said head, and a cam-stud on said pulley arranged to engage one arm of said pawl, and disengage it, substantially as shown and described.

5. An improved chute for delivering targets by centrifugal force consisting of a shallow trough having movable side pieces and means, as springs to constantly force said movable side pieces toward the center of said chute, substantially as shown and described.

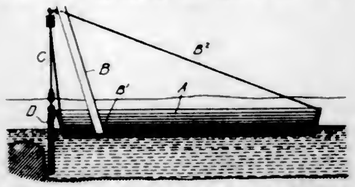
6. In an improved chute for delivering targets by centrifugal force, the combination with a bottom and sides with inturned overhanging edges and means for attaching it to an axis on which to vibrate horizontally, of movable side pieces within said overhanging edges, springs to press said side pieces inward, and an opening for the reception of targets located eccentric to the axis of vibration, all arranged substantially as shown and described.

7. In a target-trap the combination with a base having a sleeve-bearing, a shaft journaled in said sleeve and bearing a revoluble head to carry the target-projecting mechanism, a ratchet-wheel connected with said head and adapted to revolve therewith, and a sheave freely mounted on said sleeve and adapted to be driven to operate said trap, of a pawl pivotally supported on an arm attached to said sleeve provided with a spring to throw it out of contact with the ratchet-wheel, and a boss on said sheave adapted to engage said pawl and cause it to enter said ratchet, as said sheave is revolved, all constructed and arranged to operate, substantially as described.

8. In a target-trap the combination with a base, a sleeve pivotally mounted thereon, a shaft journaled in said sleeve and a head mounted on said shaft to carry the target-projecting mechanism, of a wheel having double concentric ratchet-courses on one face, a sheave freely mounted on said sleeve and provided with a double pawl adapted to alternately engage said ratchet-courses and a driving-drum and cord to operate said sheave, substantially as shown and described.

9. In a target-trap the combination with a base a sleeve pivotally mounted thereon, a shaft journaled in said sleeve and a head mounted on said shaft to carry target-projecting mechanism, embodying a rocking shaft on which is mounted the propelling-arm, of a toothed wheel connected with said head adapted to revolve therewith, a segmental gear mounted on said sleeve, a second segmental gear mounted on a sleeve surrounding said rock-shaft, to cause said second rock-shaft to rotate, and a double-grooved sheave attached to said segmental gear and adapted to move therewith, substantially as described.

679,163. **MOVABLE GATE AND DREDGE.** ORADIAH C. SMITH, Greeley, Colo. Filed May 10, 1901. Serial No. 59,665. (No model.)



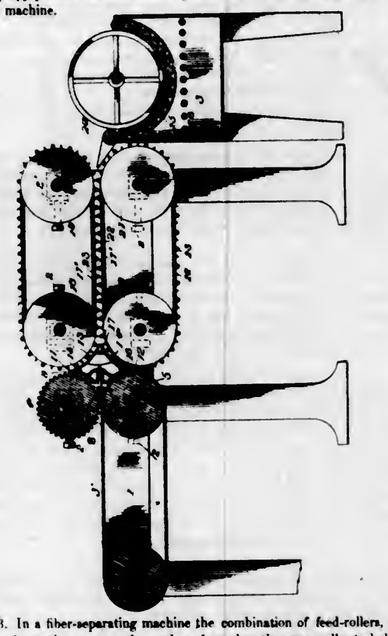
Claim.—The combination, in a movable gate and dredge, a gate D with triangular, swinging wings E on each side, attached by hinges or otherwise so that they will swing freely, said gate D and wings E suspended by a series of pulleys or lifts C to beam B attached to boat, rafts or float A; said gate D and wings E to be lowered or raised by said series of pulleys or lifts C, substantially as set forth and described and for the purposes specified.

679,164. **FIBER-SEPARATING MACHINE.** SAMUEL B. ALLISON, New Orleans, La. Filed May 3, 1898. Renewed Apr. 30, 1901. Serial No. 58,220. (No model.)

Claim.—1. In a fiber-separating machine, the combination of a pair of rollers adapted to feed material, a splitting-blade, springs to hold the blade in a yielding manner, and scutching devices, substantially as described.

2. In a fiber-separating machine, the combination of a pair of rollers adapted to feed material, a splitting-blade, springs to hold the blade in a yielding manner, and scutching devices, said devices comprising a working bed having the edge 12 situated below the splitter to act upon the

more pulpy parts of the material and permit waste to fall immediately out of the machine.



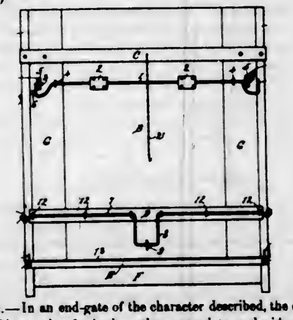
3. In a fiber-separating machine the combination of feed-rollers, a bed having a sharp upper edge and conformed to the upper roller to hold material to be acted upon by said roller, a hinged spring-supported bed situated adjacent the first-named bed, and devices for drawing the material over said edge and acting upon it against the hinged bed, substantially as described.

4. In a fiber-separating machine the combination of feed-rollers, a splitting device, two working beds each conformed to one of the feed-rollers, two reversely-placed hinged working beds adjacent the first-named working beds, and devices to coact with the latter beds and draw the fiber of the split material over the several beds and unite it in a single body, substantially as described.

5. In a fiber-separating machine, the combination of two endless belts each comprising alternately-arranged scraping-blades and circumferentially-grooved bars adapted to act oppositely on the fiber, the adjacent surfaces of the oppositely-situated blades and bars being in the same plane whereby the blades scrape the fiber and press it out into the grooves of the bars separating it longitudinally, substantially as described.

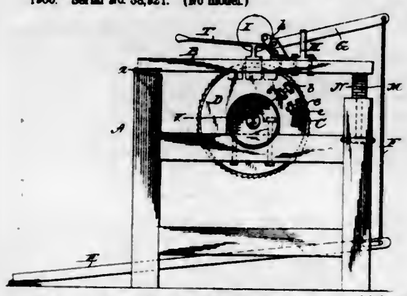
6. In a fiber-separating machine, the combination of a pair of rollers adapted to feed material, a splitting-blade, springs to hold the blade in a yielding manner, scutching devices, and a washing-tank to receive the fiber directly from said devices.

679,165. **COMBINED END-GATE AND SCOOP-BOARD.** GEORGE BRITTELL, Albion, Nebr. Filed Dec. 10, 1900. Serial No. 39,339. (No model.)



Claim.—In an end-gate of the character described, the combination with two side panels, of a back section secured to each side panel, of an upper transverse bar securing said back sections and side panels, a lower strap-iron section forming a support and uniting said side panels and back sections below, a shifting locking-bar pivotally and slidably secured to said back sections adapted to engage suitable holders, of ears secured to said side panels, a grain-door secured to said sliding locking-bar adapted to swing between said back sections, and a rocking locking-bar provided with hook terminations adapted to engage said ears.

679,166. **MACHINE FOR CUTTING OFF AND CROZING BARREL-STAVES.** OLIVER H. P. CORNELL, Brooklyn, N. Y. Filed Dec. 6, 1900. Serial No. 38,921. (No model.)



Claim.—1. A machine for making staves from a multiple-stave-length blank provided with a vertically-movable table, means for depressing the table, and means for returning the table; in combination with a feed mechanism, a cutting-off tool having a line of cut transverse to the line of feed, and crozing-tools on opposite sides and adjacent to the cutting-off tool.

2. A machine for making staves from a multiple-stave-length blank provided with a table hinged to the frame on one side, a stop and a spring on the opposite side, and means for depressing the table; in combination with a feed mechanism, a cutting-off tool having a line of cut transverse to the line of feed, and crozing-tools on opposite sides, adjacent to the cutting-off tool and supported on the same shaft.

3. A machine for making staves from a multiple-stave-length blank provided with a vertically-movable table, a clamp, means for depressing the table and operating the clamp, and means for returning the table and releasing the clamp; in combination with a feed mechanism, a cutting-off tool having a line of cut transverse to the line of feed, and crozing-tools on opposite sides and adjacent to the cutting-off tool.

4. In a machine for making staves from a multiple-stave-length blank, a vertically-movable table having an end stop mounted on a narrow longitudinal hinged section of said table and in line with the feed, means for feeding the stock endwise, means for depressing the table, and means for returning the table; in combination with a cutting-off tool the line of cut of which is transverse to that of the feed, and crozing-tools on opposite sides and adjacent to the cutting-off tool.

5. A machine for making staves from a multiple-stave-length blank provided with a vertically-movable table, a narrow longitudinal hinged section in said table having a stop at its outer end in the line of the feed and inclined on its upper surface at the opposite end, a clamp, means for feeding the blank endwise, and means for depressing the table and operating the clamp; in combination with a cutting-off tool, the line of cut of which is transverse to the line of feed, and crozing-tools on opposite sides and adjacent to the cutting-off tool.

6. A machine for cutting off and crozing staves, provided with a vertically-movable table, a clamp consisting of an eccentrically-mounted disk, a lever connected thereto and fulcrumed on the table and constructed to depress the table, and means for returning the table; in combination with a cutting-off tool and crozing-tools on opposite sides and adjacent to the cutting-off tool.

7. A machine for making staves from a multiple-stave-length blank provided with a vertically-movable table, a cutting-off tool, and crozing-tools on opposite sides and adjacent to the cutting-off tool; in combination with a feeding device and means for holding the strip to the table before reaching the cutting-off and crozing tools.

8. A machine for making staves from a multiple-stave-length blank provided with a vertically-movable table, a cutting-off tool having a line of cut transverse to the line of feed, and crozing-tools on opposite sides and adjacent to the cutting-off tool; in combination with a feeding device, feeding the blank longitudinally of the table, means for holding the strip to the table while permitting the feed, a fixed and a yielding guide parallel to the line of feed, and a clamp for holding the blank while crozes are being formed and the blank severed.

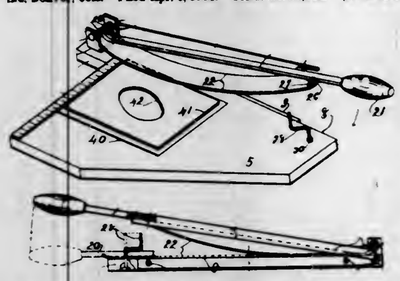
9. In a machine for making staves from a multiple-stave-length

blank, a transversely-arranged cutting-off tool, a table movable vertically to and from said cutting-off tool, a stationary feed device engaging the blank when the table is in its elevated position, and a clamp coöperating with the table on its downward movement to hold the blank while being cut.

10. In a machine for making staves from a multiple-stave-length blank, a transversely-arranged cutting-off tool, a table movable vertically to and from said cutting-off tool, a stationary feed device engaging the blank when the table is in its elevated position, means on the table for holding the blank thereto while permitting the feeding, and a clamp coöperating with the table on its downward movement to hold the blank while being cut.

11. In a machine for making staves from a multiple-stave-length blank, a transversely-arranged cutting-off tool, a table movable vertically to and from said cutting-off tool, a stationary feed device engaging the blank when the table is in its elevated position, means on the table for holding the blank thereto while permitting the feeding, a clamp coöperating with the table on its downward movement to hold the blank while being cut and permitting the feed, a fixed and a yielding guide parallel to the line of feed and a clamp to hold the stock to the table while the stave is being severed from the blank and the crozes formed.

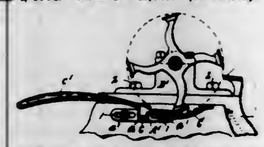
679,167. **PRINT AND CARD CUTTING BOARD.** LEONARD GARDNER, Denver, Colo. Filed Apr. 6, 1901. Serial No. 54,724. (No model.)



Claim.—1. In a print and form bolding, and a print and card cutting board, the combination of the board, the rule and the pivotal bearing-clip, with the lever pivoted to said bearing, and containing a handle at its end, the resilient spring-blade pivotally connected to said pivotal bearing-clip, the spring-blade having its free end slidably secured to and against displacement from said lever, a shear-blade secured to the edge of said board adjacent to said lever and spring-blade; a knife-blade pivotally secured at one end to the end of said shear-blade nearest said lever's pivotal supporting, a slot in the end of said knife-blade, and means, including an adjustable screw for adjustably securing the free end of said knife to an edge of said board, and the knife-blade pivotally secured at one end to said shear-blade, and at a space below the pivotal bearing of said lever and resilient blade, and having the free end of said knife adjustably secured to the free end of said lever, substantially as described.

2. In a print and card trimming and cutting board, the combination with the board, the rule and the keeper of the lever and the spring-blade having a common pivotal support, and the shear and knife blade pivotally connected together at one end, and having said knife adjustably and slidably secured to the free end of said lever, and having the pivotal bearing of said knife placed at a sufficient distance from said lever and spring-blade's pivotal bearing, and arranged and positioned so as to allow said spring-blade to move against said table progressively ahead of the cutting-point of progressive intersection of said knife and shear blade, when said lever and spring-blade are moved in operative relation to said board, substantially as described.

679,168. **ENSILAGE-CUTTER.** EDWIN W. HOTT, Stamford, N. Y. Filed Jan. 4, 1901. Serial No. 42,043. (No model.)



Claim.—1. The combination with the frame and rotary cutter of an ensilage-machine, said frame being provided with open-ended bearings, of a grinding-bar pivotally supported in said bearings beneath the cutter and provided with a grinding-surface and a handpiece at opposite sides of its pivot.

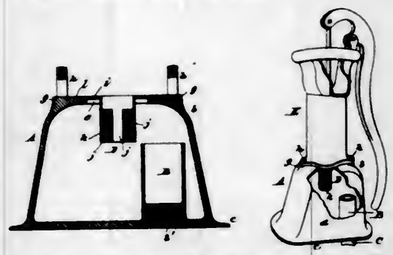
2. The combination with the frame and cutter-bar of an ensilage-machine, of a rotary cutter journaled on the frame and adjustable toward and away from said bar, brackets secured to the frame and provided with open-ended bearings adjustable toward and away from the cutter-bar, and a grinding bar or plate provided with trunnions adapted to be supported in said bearings for the purpose described.

3. The combination with the frame and rotary cutter of an ensilage-machine, of a grinding bar or plate adapted to be pivotally supported on the frame and provided with a concave grinding-surface and a handpiece at opposite sides of its pivot, the handpiece being arranged to control the position of the grinding-surface relative to the cutting edges of the rotary cutter.

4. The combination with the frame and cutter-bar of an ensilage-machine, of a rotary cutter mounted on the frame and adjustable toward and away from said bar, open-sided bearings secured to the frame and adjustable toward and away from the cutter-bar, and a plate removably mounted in said bearings and provided with a concave grinding-face, and a handpiece for rocking the plate for the purpose described.

5. The combination with the frame and cutter-bar of an ensilage-machine, of journal-boxes mounted on the frame and adjustable toward and away from the cutter-bar, brackets secured to the inner faces of the opposite side walls of the frame and adjustable toward and away from the cutter-bar, each of the brackets being provided with an open-sided bearing, a concavo-convex plate having trunnions journaled in said open-sided bearings and provided with a grinding-surface extended beneath the rotary cutter-knives, and a handpiece secured to the plate for moving the grinding-surface into and out of engagement with the cutter-knives.

679,169. **DRIVEN-WELL FILTER.** ARTHUR E. HUNT, Nichols, N. Y., assignor of one-half to Robert C. Harris, same place. Filed Oct. 30, 1900. Serial No. 34,921. (No model.)



Claim.—1. A driven-well filter, having in combination a hollow cast-iron casing A, provided with an upright pipe B cast in one piece with the casing and rising from the bottom plate of the casing within and on one side of the chamber, a central opening in the top of said casing, and a strainer D projecting centrally into the casing from the top, substantially as set forth.

2. In a driven-well filter, the combination with the casing A, of the internal pipe B rising from the bottom of the casing on one side, the removable strainer D projecting centrally into the casing from the top, and the seat *g* on top of the casing, provided with bolts *h* for receiving and securing a pump or coupling for a deep-well cylinder, substantially as set forth.

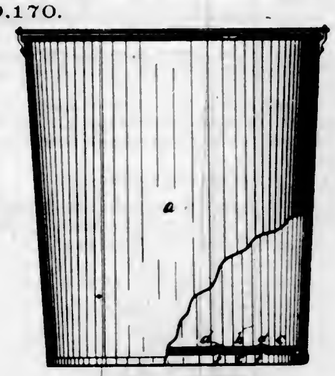
3. In a driven-well filter, the combination with the casing A, of the pipe B rising from the bottom plate of said casing on one side thereof, the driven-well tubing C screwed into said pipe B, the removable strainer D depending in said casing centrally from the top thereof, and the pump E secured to said casing with its handle on the same side of the casing as the pipe B, substantially as set forth.

4. In a driven-well filter, the removable strainer D, consisting of an annular plate *i* with depending fingers *j* and wire-gauze *k* surrounding and secured to said fingers, substantially as set forth.

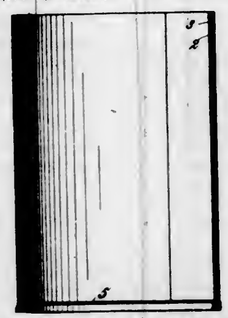
679,170. **METALLIC RECEPTACLE.** HENRY S. HUNT, Newark, N. Y. Filed Dec. 5, 1899. Serial No. 739,239. (No model.)

Claim.—A metallic receptacle having its bottom composed of an upper layer of non-corrosive metal, a lower layer of corrosive metal, and an intermediate layer of absorbent material, the several layers being in close contact throughout and the upper and lower layers being provided with registering annular beads whereby the intermediate layer is clamped and held.

679,170.



679,171. **CAN OR VESSEL.** ELMER M. JONES, Savannah, Ga., assignor to William H. Morehouse, same place. Filed Apr. 11, 1901. Serial No. 55,394. (No model.)



Claim.—1. In a can, a body having a plurality of layers consisting of a plurality of overlapping sheets one sheet being longer than its companion sheet, and the shorter sheet being of moisture-repelling material, and the layers being so arranged that the moisture-repelling sheet is entirely covered by the longer sheet, means for securing said sheets in their overlapped relation and a bottom secured to said body and serving as a means to augment said securing means in maintaining such overlapped relation.

2. In a can, a body having a plurality of layers consisting of a plurality of overlapping sheets one sheet being longer than its companion sheet, and the shorter sheet being of moisture-repelling material, and the layers being so arranged that the moisture-repelling sheet is entirely covered by the longer sheet, means for securing said sheets in their overlapped relation and a sheet-metal bottom for the body crimped over the latter and such crimped portion serving to augment said securing means in maintaining such overlapped relation.

3. In a can, a body having a plurality of layers consisting of a plurality of sheets one sheet being longer than its companion sheet, and the shorter sheet being of moisture-repelling material, and the layers being so arranged that the moisture-repelling sheet is entirely covered by the longer sheet, and said sheets having a lap-joint, and means independent of each sheet to secure the overlapping portions of a sheet together at said joint.

679,172. **ORANGE DYE AND PROCESS OF MAKING SAME.** PAUL JULIUS, Ludwigshafen, Germany, assignor to Badische Anilin & Soda Fabrik, same place. Filed Apr. 1, 1901. Serial No. 53,943. (No specimens.)

Claim.—1. The process of producing orange dye on the fiber by combining primulin sulfonic acid which has been diazotized on the fiber with a hereinbefore-defined phenyl-pyrazolone-carboxylic-acid body, substantially as described.

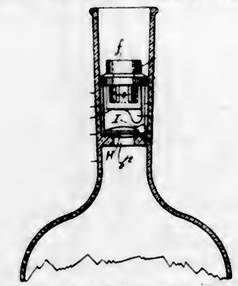
2. The process of producing orange dye by combining diazotized primulin sulfonic acid with a hereinbefore-defined phenyl-pyrazolone-carboxylic-acid body, substantially as described.

3. The process of producing orange dye by combining diazotized primulin sulfonic acid with para-nitro-phenyl-pyrazolone carboxylic acid, substantially as described.

4. The new mono-azo dye which can be obtained from diazotized primulin sulfonic acid and a hereinbefore-defined phenyl-pyrazolone-carboxylic-acid body, which is difficultly soluble to practically insoluble in cold water, which on reduction with zinc-dust and common-salt solution yields primulin sulfonic acid, and which when developed on the cotton fiber produces orange shades, which shades are hardly altered on treatment with dilute carbonate-of-soda solution or with dilute hydrochloric acid and are exceedingly fast to light and soap, substantially as described.

5. The new mono-azo dye which can be obtained from diazotized primulin sulfonic acid and para-nitro-phenyl-pyrazolone carboxylic acid, which is difficultly soluble in cold water with an orange color which solution becomes redder on the addition of caustic-soda solution and which on reduction with zinc-dust and common-salt solution yields primulin sulfonic acid, and which when developed on the cotton fiber produces orange shades which are hardly altered on treatment with dilute carbonate-of-soda solution or on treatment with dilute hydrochloric acid and which are exceedingly fast to light and soap, substantially as described.

679,173. **NON-REFILLABLE BOTTLE.** PHILIP F. LENHART, Brooklyn, N. Y. Filed Dec. 21, 1900. Serial No. 40,629. (No model.)



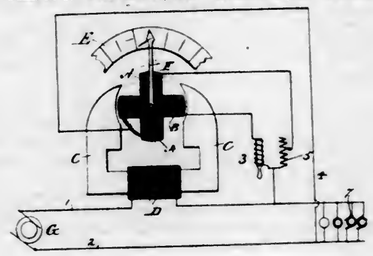
Claim.—1. In the neck of a bottle and the like, a valve, a valve-seat secured in the neck of said bottle, a cover with ports and a central opening secured above the valve, a lug projecting from the bottom face of the cover, ribs in the neck of the bottle, ears on the valve straddling one of the said ribs.

2. In the neck of a bottle and the like, a valve-cage secured in the said neck, ribs formed on the inside of the valve-cage, a cover secured to the top of the cage, a cylindrical barrel contained in the said cover, ports in the barrel extending to a central opening, a lug projecting from the bottom of the cover, a valve in the valve-cage, a lug with two ears on the valve, said ears straddling one of the ribs of the cage.

3. In the neck of a bottle and the like, a valve-cage in the said neck, a projection extending from the inside of the neck, ribs formed on the inside cylindrical face of the valve-cage, a cover secured to the top of the cage, a cylindrical barrel contained in the said cover, ports in the barrel extending to a central opening, a lug projecting from the bottom of the cover, a valve in the valve-cage, a lug with two ears on the valve, said ears straddling one of the ribs of the cage.

4. In the neck of a bottle and the like, a valve-cage in the said neck, a boss projecting from the inside face of the neck of the bottle, a groove formed on the outside cylindrical surface of the valve-cage, ribs formed on the inside cylindrical face of the valve-cage, a cover secured to the top of the cage, a cylindrical barrel contained in the said cover, ports in the barrel extending to a central opening thereof, a lug projecting from the bottom of the cover, a valve in the valve-cage, a lug with two ears on the valve, said ears straddling one of the ribs of the cage.

679,174. **POWER-FACTOR METER.** PAUL M. LINCOLN, Niagara Falls, N. Y. Filed Mar. 27, 1901. Serial No. 53,123. (No model.)



Claim.—1. In an alternating-current-measuring instrument the combination of two elements relatively movable, and means for indicating thereby phase-angle differences, said indicating means being arranged to have supersensitive points of indication at predetermined positions; substantially as described.

2. In a phase-meter, the combination with two elements relatively movable, of means for exerting a plurality of component reactive effects between the same, varying in relation with changes in phase, whereby the movable element is caused to alter its position with phase-angle changes, such instrument being adjusted to give points of supersensitiveness at predetermined positions of the movable member; substantially as described.

3. In a phase-indicator, the combination of two elements relatively movable, and means for exerting two component reactive effects between the said elements, varying in relation with changes in phase, and displaced by a mechanical angle such as to give points of supersensitiveness at predetermined positions in the indication of the instrument; substantially as described.

4. The combination of two systems of relatively-movable coils, one consisting of two relatively-fixed coils angularly displaced, means for indicating thereby the phase relations of alternating currents, the angular displacement of said fixed coils being such as to give points of maximum sensitiveness at predetermined positions in the indication; substantially as described.

5. In a phase-indicator, the combination of two elements relatively movable, and means for acting upon one of said elements with alternating currents of displaced phase to produce a plurality of component reactive effects between said elements, varying in relation with changes in phase, the phase displacement of the currents being such as to give points of maximum sensitiveness at predetermined points in the indication; substantially as described.

6. In an alternating-current-measuring instrument, the combination of two elements relatively movable, means for acting upon said elements with alternating currents to produce a plurality of component reactive effects between the same, varying in relation with changes in phase, whereby the movable element is caused to alter its position with phase-angle changes, the reactive effects being of unequal maximum value; substantially as described.

7. In an alternating-current-measuring instrument, the combination of two systems of relatively-movable coils, one consisting of two relatively-fixed coils angularly displaced, the other of a single coil, means for feeding to the first-named coils currents of displaced phase, means for exciting the single coil by alternating current, and means for adjusting said instrument to produce points of maximum sensitiveness; substantially as described.

8. In an alternating-current-measuring instrument, two systems of coils relatively movable, one system creating two fields, angularly displaced and of unequal magnitude, the other coil system being adapted to react upon the same to cause movement of the movable member corresponding to phase-angle changes; substantially as described.

9. In a phase-meter, the combination of two elements, means for creating an alternating field in one element, means for creating two fields in the other element electrically and mechanically displaced, said elements being adjusted to produce points of maximum sensitiveness in the instrument; substantially as described.

10. In a phase-meter, the combination of two elements, means for creating an alternating field in one element, means for creating two unequal fields in the other element, electrically and mechanically displaced; substantially as described.

11. In an alternating-current-measuring instrument, the combination of means for indicating phase-angle differences, and means for increasing the sensitiveness of such indication at predetermined points in the cycle; substantially as described.

12. In a phase-meter, the combination of means for creating an alternating field in one element, means for creating two fields in another element, said two fields being mechanically and electrically displaced, and means for adjusting the displacement to give sensitiveness at a predetermined point; substantially as described.

13. In a phase-meter, the combination of an element creating an alternating field, a second element creating two alternating fields, and means for adjusting the relative strengths of said two fields to give increased sensitiveness at predetermined points; substantially as described.

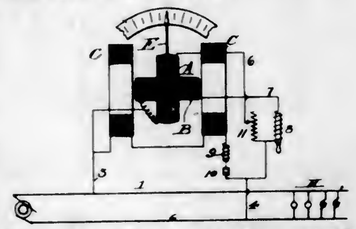
14. In a phase-meter, the combination of an element creating an alternating field, a second element creating two alternating fields, electrically and mechanically displaced, means for adjusting relative strengths of said fields, and means for adjusting the electrical and mechanical displacement; substantially as described.

15. In a power-factor meter, the combination of a field-coil in series with the work-circuit, two coils in shunt thereto, the latter being electrically and mechanically displaced and adjusted to produce points of maximum sensitiveness; substantially as described.

16. In a phase-indicator, the combination of a torque-producing element, a second element producing two torques, and means for effecting a relative adjustment between the two torques of the second element to produce positions of maximum sensitiveness in the indicator; substantially as described.

17. In a phase-indicator, the combination of an element producing a torque, a second element producing two torques, said torques being adjusted to give positions of maximum sensitiveness to the indicator; substantially as described.

679,175. **FREQUENCY OR SPEED INDICATING AND REGULATING DEVICE.** PAUL M. LINCOLN, Niagara Falls, N. Y. Filed Mar. 27, 1901. Serial No. 53,126. (No model.)



Claim.—1. In an alternating-current-measuring instrument, the combination of a stationary field-producing element, a movable field-producing element, means for effecting a phase displacement of the field of one element with changes in frequency, and means for indicating such displacement; substantially as described.

2. A frequency-indicator, consisting of a stationary field-producing element, a movable field-producing element, and a circuit containing inductance and capacity associated with one of said elements; substantially as described.

3. A frequency-indicator, consisting of a stationary field-producing element, a movable field-producing element, and an inductance and capacity in series with one of the said elements; substantially as described.

4. A frequency-indicator, consisting of a stationary field-producing element, a movable field-producing element, and a circuit tuned to a definite frequency associated with one of said elements; substantially as described.

5. A frequency-indicator, consisting of a stationary field-producing element, a movable field-producing element, and a circuit tuned to a definite frequency, including one of said elements; substantially as described.

6. An alternating-current-measuring instrument, comprising two systems of coils, relatively movable, one consisting of a single coil included in a circuit tuned to normal frequency, the other consisting of two relatively-fixed coils angularly displaced and adapted to carry currents of displaced phase; substantially as described.

7. In a speed-indicator, the combination with a rotating body, whose speed is to be measured, of an indicator comprising a stationary field-producing element, and a movable field-producing element, one of the elements being included in a circuit tuned for normal speed or frequency, and means for supplying said elements with currents of a frequency proportional to the speed of said body; substantially as described.

8. In a speed-indicator, the combination with a rotating body, whose speed is to be measured, of an indicator comprising a stationary field-producing element, and a movable field-producing element, one of said elements producing two angularly-displaced fields, means for supplying said latter element with phase-displaced currents of a frequency proportional to the speed of said body, and means for changing the phase relations of the fields produced by the two elements with changes in frequency; substantially as described.

9. The combination of a rotating body, whose speed is to be measured, a two-phase generator attached thereto, an indicator, comprising a stationary field-producing element, and a movable field-producing element, connections between one of said elements, and the said generator, and means for varying phase relations of the fields produced by the two elements with changes in frequency; substantially as described.

10. In an alternating-current-measuring instrument, the combination of two systems of field-coils, one system being free to adjust its position relatively to the other, a source of alternating current, connections between said source and said coils, and means for causing changes in the frequency of the alternating current to alter the relative position of the two field-coil systems; substantially as described.

11. In an alternating-current-measuring instrument, the combination of a stationary field-producing element, a movable field-producing element, an alternating-current generator, connections between the alternating-current generator and the field-producing elements, and means for causing said movable field-producing element to indicate the speed and direction of rotation of said alternating-current generator; substantially as described.

12. In a speed-indicator, having a point of maximum sensitiveness corresponding to a given speed, the combination of two elements relatively movable, electrically-actuated means for exerting reactive effects between the two elements, and means for changing the point of maximum sensitiveness to correspond to a different speed; substantially as described.

13. A frequency-indicator adjusted to a point of maximum sensitiveness corresponding to a normal frequency in combination with means for changing the point of maximum sensitiveness to correspond to a different frequency; substantially as described.

14. In an alternating-current-measuring instrument, the combination of a movable member, a stationary member, a circuit adjusted to a normal frequency including one of said members, and means for adjusting said circuit to a different frequency; substantially as described.

15. In an alternating-current-measuring instrument, the combination of a stationary field-producing element, a movable field-producing element, means for effecting a phase displacement of the field of one element with changes in frequency, and means for effecting a plurality of adjustments in said instrument to measure different frequencies; substantially as described.

16. In an alternating-current-measuring instrument, the combination of a member free to move without mechanical restraint, a stationary member, means for supplying said members with alternating current, such that said movable member is acted upon by two opposing torques, and means for balancing said torques at different positions of the movable member, corresponding to different frequencies; substantially as described.

17. The combination of a phase responsive device, means for acting upon the same through a plurality of currents, means for effecting a phase displacement of said currents with changes in frequency in a tuned circuit, and means for automatically unbalancing said circuit; substantially as described.

18. In a frequency or speed indicator, the combination of an element creating an alternating field through the influence of a circuit tuned to a given frequency, a second element creating two alternating fields, and means for adjusting the relations of the two last-named fields; substantially as described.

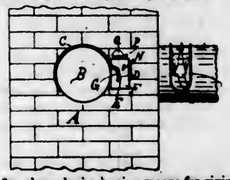
19. In a frequency or speed indicator, the combination of an element producing a torque through the influence of a resonant circuit, a second element creating two torques, and means for effecting a relative adjustment between the two torques of the second element to give positions of maximum sensitiveness to the indicator; substantially as described.

20. In a frequency-indicator, the combination of an element producing a torque through the influence of a resonant circuit, a second element creating two torques, said torques being adjusted to give positions of maximum sensitiveness to the indicator; substantially as described.

21. In a frequency or speed indicator, the combination of two elements relatively movable, an alternating-current circuit associated therewith, and electrically-actuated means for exerting a plurality of component reactive effects between the two elements, varying in relation with changes in frequency in said circuit, said reactive effects being in equilibrium at different positions of the movable member corresponding to different frequencies; substantially as described.

22. The combination of two elements relatively movable, an alternating-current circuit associated therewith, and means carried by each element subject to the influence of alternating currents, serving to exert a plurality of reactive effects, between the two elements, varying in relation with changes in frequency in the alternating-current circuit; substantially as described.

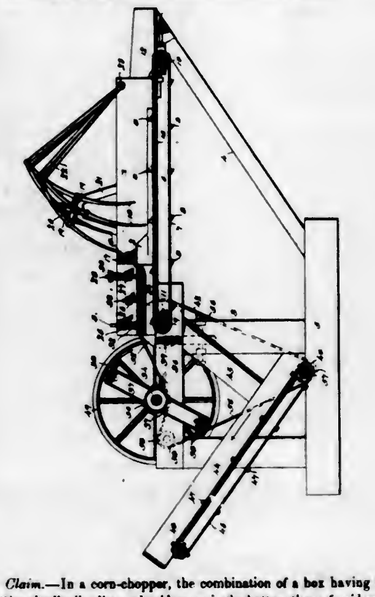
679,176. **FIRE-ALARM.** ANDREW J. LINDEN, Hitterdal, Minn. Filed Jan. 18, 1901. Serial No. 43,822. (No model.)



Claim.—1. A fire-alarm device having means for giving alarms and as the means for releasing or starting it a string holding its mechanism normally arrested, a spring-closed clasp or clamp adjacent thereto and a substance ignitible in dangerous temperature held in the clasp close to the string so as to burn it when ignited.

2. A fire-alarm device having a suitable alarm mechanism and a string holding the same in an inactive condition, an easily-opened clasp adjacent thereto and a match held by the clasp near the string and exposed to such parts of a building as may easily become overheated like stovepipes and chimneys.

679,177. **CORN-CHOPPER.** CHRISTIAN R. LYKKE, Grand Island, Nebr. Filed Feb. 8, 1900. Serial No. 4,541. (No model.)



Claim.—In a corn-chopper, the combination of a box having a series of longitudinally-disposed guideways in the bottom thereof, said guideways forming channels for the passage of ears of corn and cornstalks to the cutter mechanism, feed-carriers in the bottoms of said guideways, a cutter mechanism at the discharge end of said box, concave holders in said guideways adjacent to said cutter mechanism, a transversely-disposed gate at the receiving ends of the concave holders, and a rake-back mechanism, operating immediately above the said guideways and in advance of said gate, substantially as described.

679,178. **APPARATUS FOR COLORING CARROTED SKINS.** JAMES MARSHALL, Fall River, Mass. Filed Apr. 26, 1900. Serial No. 14,445. (No model.)

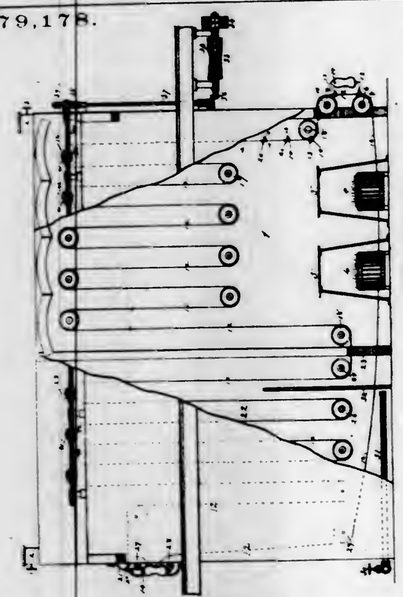
Claim.—1. In a coloring-oven for carroted skins the combination of endless chains, buckets pivoted at intervals thereon, loops in said buckets for supporting rods on which the skins are strung, and a tongue projecting from the pivotal point of each bucket for engaging a device at the point of delivery by which they are automatically turned over and the rods dropped substantially as described and shown.

2. In an apparatus for coloring carroted skins the combination of a compartment, an open receptacle for fire to generate heat placed therein, means for conveying the carroted skins through said compartment whereby they are colored, a steaming-compartment adjacent, means for subjecting said colored skins to the action of steam in said adjacent steaming-compartment and means for delivering them without the compartment substantially as described and shown.

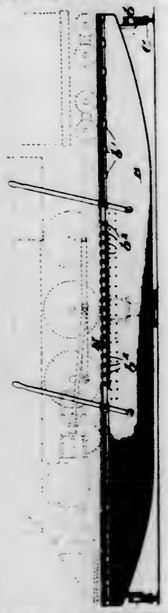
3. In a coloring-oven for carroted skins the combination of compartments, endless chains adapted to carry carroted skins passing through said compartments, cone-palleys placed in reverse relation to each other and connected to the means for conveying the skins, and a belt connecting the cone-pulleys adapted to be shifted longitudinally thereon substantially as described and shown.

4. In a coloring-oven for carroted skins the combination of a compartment, shafts supporting sprocket-wheels arranged therein, endless chains with pivoted buckets passing over and under said sprocket-wheels, rods upon which skins are strung supported by said buckets, and a shaft arranged upon one side of the compartment communicating with the shafts upon which said sprocket-wheels are arranged to give them a uniform movement and means for actuating said shaft substantially as described and shown.

679,178.



679,179. TURN-TABLE. ALFRED R. MARSOLF, Chicago, Ill. Filed Sept. 17, 1900. Serial No. 30,234. (No model.)



Claim.—1. In a turn-table the combination with the sills, of track-rails secured on each end of the same, a plurality of transverse rollers located centrally of the turn-table and adapted to engage the driving-wheels of a locomotive when balanced thereon, operative connection between said rollers and a part rigidly secured to the foundation whereby said turn-table may be operated by the drive-wheels of the locomotive and means operated from the cab of the locomotive for locking said rollers from rotation.

2. In a turn-table a plurality of parallel transverse rollers located centrally and adapted to engage the driving-wheels of a locomotive when balanced on said turn-table, one end of each roller being provided with radial notches and a movable locking-bar provided with teeth or projections and adapted at one limit of its movement to engage in said notches of the rollers thereby locking the same from rotation.

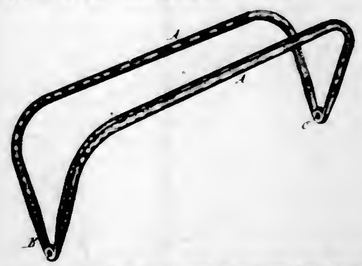
3. In a device of the class described the combination with a fixed pedestal and sills pivoted thereon of transverse rollers journaled intermediate of the ends on said sills and adapted to support the driving-wheels of a locomotive when balanced on the pedestal, a movable bar parallel with each sill and in alinement with the ends of the rollers and means whereby shifting of said bars in one direction serves to lock the rollers from rotation and shifting of said bars in the opposite direction permits free rotation of the rollers.

4. In a turn-table the combination with a fixed pedestal and parallel sills pivoted thereon, of a plurality of transverse rollers journaled intermediate of the ends of said sills the tops of the same being in alinement with the top surface of the track-rails at the ends of the turn-table, means adapted to be operated from a locomotive-cab when balanced on said turn-table for locking said rollers from rotation and vertical shafts secured centrally of the turn-table between the sills and provided at the upper end with beveled gears adapted to intermesh with like gears on said rollers, the lower ends of said shafts being provided with gears adapted to intermesh with a fixed gear on said pedestal.

5. In a device of the class described the combination with a plurality of transverse rollers journaled close together on the sills of a turn-table of a locking mechanism for said rollers comprising a bar slidably supported on each sill in alinement with the ends of the rollers and complemental parts on said roller ends and said bars adapted to interlock when the bars are moved in one direction and to be out of engagement when the bars are moved in the other direction.

6. In a device of the class described the combination with a plurality of transverse rollers journaled close together on the sills of a turn-table of a locking mechanism for said rollers comprising a bar slidably supported on each sill in alinement with the ends of the rollers, said bars being slotted to receive the reduced ends of the axis of the rollers, a pin at one end of each slot and complemental notches in the end of each roller adapted to receive said pins in locking engagement when the bars are in one of their adjusted positions and means for moving both bars into or out of locking engagement adapted to be operated from a locomotive-cab by a lever.

679,180. VEHICLE-AXLE. BISHOP S. MORDEN, Buffalo, N. Y. Filed Apr. 22, 1901. Serial No. 56,315. (No model.)



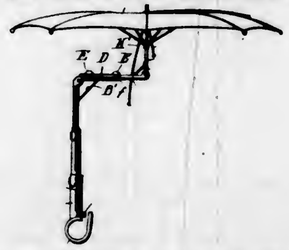
Claim.—1. A vehicle-axle having a horizontal body portion and depending end portions arranged substantially at right angles to its horizontal portion, and composed of a continuous piece of tubing bent from a straight tube-blank, and a continuous core or filling of flexible material arranged both in the horizontal and depending portions of the axle-tube and bent from a straight blank, the end portions of which are sprung or bent with the corresponding portions of the axle-tube after inserting the straight filling-blank in the straight tube-blank, substantially as set forth.

2. A continuous tubular axle having a horizontal body portion and depending end portions, and constructed of elliptical cross-section with the long axis of the tube arranged vertically in the horizontal portion of the axle, and lengthwise of the axle in its depending portions, and a continuous wooden core-bar of corresponding cross-section arranged in the horizontal and depending portions of the axle, substantially as set forth.

3. A tubular vehicle-axle having an internal stiffening web or partition arranged lengthwise thereof, and a filling arranged in the axle on opposite sides of said web, substantially as set forth.

4. A vehicle-axle, consisting of a tube of elliptical cross-section with its long axis arranged vertically, and a longitudinal stiffening web or partition arranged in said tube coincident with its long axis, substantially as set forth.

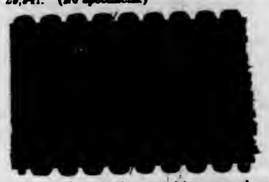
679,181. FOLDING UMBRELLA. ELNA R. MORRISON, Anthony, Fla. Filed Mar. 29, 1901. Serial No. 53,466. (No model.)



Claim.—1. The combination, in an umbrella, with a jointed stick, of a notch mounted thereupon and carrying folding ribs, the sections of said ribs being connected together by a rule-joint, the lower section of each rib having near its outer extremity an eye, a cord passing through each eye and having means for fastening the two ends together, a series of braces connecting the ribs and the runner on the stick, whereby the upward flexure of the jointed ribs is prevented when the frame is opened, as set forth.

2. The combination, in an umbrella, with a jointed stick, of a notch mounted thereupon and carrying folding ribs, the sections of said ribs being connected together by a rule-joint, the lower section of each rib having near its outer extremity an eye, a cord passing through each eye and having means for fastening the two ends together, a series of braces connecting the ribs and the runner on the stick, whereby the upward flexure of the jointed ribs is prevented when the frame is opened, cords secured to the outer hinged ribs passing through apertures in the notch, as set forth.

679,182. OIL-PRESS CLOTH. JOSEPH MCCARRON, CHARLES MCCARRON, and JOHN J. MCCARRON, New Orleans, La. Filed Sept. 13, 1900. Serial No. 29,941. (No specimens.)

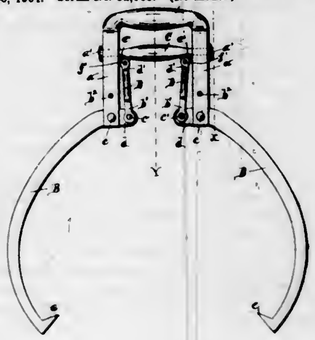


Claim.—1. An oil-press cloth, comprising warp-threads and weft-threads; the said warp and weft threads being each composed of long hard coarse and strong animal hair, and long, soft and pliable animal hair mixed together, substantially as specified.

2. An oil-press cloth comprising warp-threads and weft-threads; the said warp and weft threads being each composed of horse-tail hair, and cattle-tail hair mixed together, in the proportions of two-thirds of the former to one-third of the latter, substantially as specified.

3. The oil-press cloth described having two-thirds as many weft-threads to the inch as warp-threads; the said warp and weft threads being each composed of long, hard, coarse and strong animal hair, and long, soft and pliable animal hair mixed together, substantially as and for the purpose set forth.

679,183. ICE-TONGS. HENRY R. MCKEE, Syracuse, N. Y. Filed Mar. 26, 1901. Serial No. 52,965. (No model.)



Claim.—1. An ice-tongs comprising a handle provided with a pair of depending parallel arms, a pair of non-crossing jaws pivotally connected to the lower ends of said arms, and a grip-bar disposed to slide vertically on said arms and pivotally connected to said jaws substantially as described.

2. An ice-tongs comprising a handle formed at its ends with a pair of parallel depending arms, vertical guides formed in said arms, a pair of non-crossing jaws pivoted to the lower ends of said arms, a grip-bar sliding in said guides and pivotally connected to said jaws substantially as described.

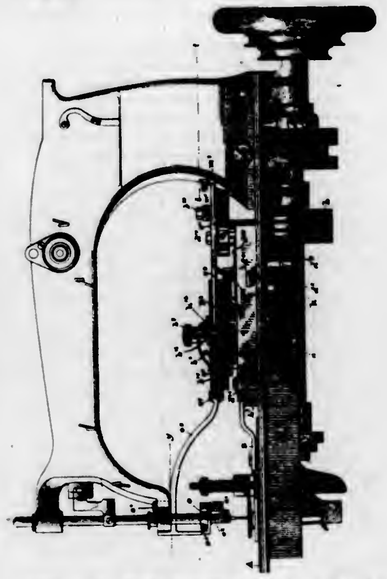
3. An ice-tongs comprising a handle, a pair of non-crossing jaws pivotally connected to said handle, a vertically-movable grip-bar carried on said handle and pivotally connected to the jaws, by which to close said jaws by hand, and springs automatically opening said jaws substantially as described.

4. An ice-tongs comprising a handle, a pair of non-crossing jaws pivotally connected to said handle, hand-operated means for closing said jaws, and means adapted to automatically open said jaws substantially as described.

5. An ice-tongs comprising a handle formed with a pair of parallel depending arms, each formed with a vertical slot, a pair of jaws pivotally connected to said arms, in the lower ends of said slots, a grip-bar disposed to slide vertically in said slots and pivotally connected to said jaws, and a pair of coiled springs located in the slots and connected at their respective ends to the grip-bar and arms for the purpose set forth.

6. An ice-tongs comprising a handle formed with a pair of parallel arms each provided with a vertical slot, a pair of jaws pivotally connected to said arms, in the lower ends of the slots, and formed with extensions at their pivoted ends projecting toward each other, a grip-bar disposed to slide vertically in said slots, links pivotally connecting said grip-bar and extensions, a rigid pin passing transversely through each slot, and coiled springs disposed vertically in the slots and connected at their respective ends to the grip-bar and pins as and for the purpose set forth.

679,184. BUTTONHOLE-SEWING MACHINE. FREELAND W. OSTROM, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company, same place. Filed Nov. 18, 1899. Serial No. 737,517. (No model.)



Claim.—1. In a buttonhole-sewing machine, a stitch-forming mechanism, means for placing bar-stitches and side overseam-stitches, comprising a switch-cam and a yieldingly-rotated controller-cam, combined with yieldingly-vibrated cam-followers, the latter actuated through the vibratory movements transmitted from the switch-cam, said followers operating alternately to resist and compel rotation of the controller-cam while placing bar-binding stitches at substantially right angles to the barring-stitches, and complemental means for producing bar-binding stitches, substantially as described.

2. In a buttonhole-sewing machine, stitch-forming mechanism, means for placing bar-stitches and side overseam-stitches comprising a switch-cam and a feed-cam, and complemental means for producing bar-binding stitches, combined with a controller-cam, a yieldingly-vibrated cam-follower device actuated through the vibratory movements transmitted from the switch-cam alternately to resist and compel rotation of the controller-cam while placing bar-binding stitches at substantially right angles to the side overseam-stitches, substantially as described.

3. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, means including a yielding vibrator and a feed-cam for actuating said clamp, a controller-cam interposed between said vibrator and clamp and adapted to control the transverse feed movement of the material while placing the bar-binding stitches, and to limit the vibration of the material in the formation of two independent series of stitches, combined with complemental means for producing bar-binding stitches, substantially as described.

4. In a buttonhole-sewing machine, stitch-forming mechanism, and feed mechanism comprising a grooved cam for giving lengthwise feed to the material, a peripheral cam for controlling the transverse feed of the material, and opposing followers yieldingly vibrated and intermittently resisted by the walls of the peripheral cam, in combination with means whereby the grooved cam and walls of the peripheral cam may temporarily adjust their relative action to the movements of the cam-followers, substantially as described.

5. In a buttonhole-sewing machine, a stitch-forming mechanism, and a feed mechanism, including a feed-cam and a slide-frame capable of reciprocating motion transversely to the line of feed, a yielding vibrator for imparting motion to the slide-frame, cam-followers fixed to said slide-frame, and a cam yieldingly connected with said feed-cam and rotated in the path of movemet of the cam-followers, said yielding cam during its control of the feed of the material transverse to the lengthwise feed movements being alternately resisted and compelled by the action of the cam-followers, substantially as described.

6. In a buttonhole-sewing machine, a stitch-forming mechanism, and a feed mechanism, including a slide-frame capable of a reciprocating motion transversely to the line of feed and having cam-followers mounted thereupon, means to reciprocate said slide-frame, a feed-cam, and a controller-cam operated by the feed-cam and having a series of concentric surfaces which are successively interposed in the path of movement of the cam-followers to vary the length of throw of the slide-frame, substantially as described.

7. In a buttonhole-sewing machine, stitch-forming and cloth-feeding mechanism, including means for placing bar-stitches, bar-binding stitches and side overseam-stitches, comprising a cloth-holding clamp and mechanism to change the relative position of the cloth-holding clamp and stitch-forming mechanism, combined with a yieldingly-rotated controller-cam actuated to give to the cloth-holding clamp a transverse step-by-step feed movement when placing bar-binding stitches at substantially right angles to the side overseam-stitches, substantially as described.

8. In a buttonhole-sewing machine, a stitch-forming mechanism, and a feed mechanism, including a slide-frame capable of a reciprocating motion transversely to the line of feed and having cam-followers mounted thereupon, a feed-cam, and a controller-cam operated by the feed-cam and having a series of eccentric surfaces which are successively interposed in the path of movement of the cam-followers to change the relative positions of the cloth-clamp and stitch-forming mechanism, the eccentric surfaces being engaged at intervals in the cycle of movement by the cam-followers to advance the cam, substantially as described.

9. In a buttonhole-sewing machine, a stitch-forming mechanism, and a feed mechanism including a slide-frame capable of a reciprocating motion transversely to the line of feed, and having cam-followers mounted thereupon, a feed-cam, a controller-cam operated by the feed-cam and having a series of eccentric surfaces which are successively interposed in the path of movement of the cam-followers to change the relative positions of the cloth-clamp and stitch-forming mechanism, and a yielding connecting medium interposed between the feed-cam and the controller-cam, substantially as described.

10. In a buttonhole-sewing machine, stitch-forming mechanism including means to control the movements of the needle alternately in one and the other of two vertical lines at definite intervals, means to feed and vibrate the material to produce two independent series of stitches, and means for effecting a transverse step-by-step feed movement of the material for the overstitching of one of the two independent series of stitches, substantially as described.

11. In a buttonhole-sewing machine, stitch-forming mechanism, including means for forming overseam-stitches, and means for transverse feeding of the material, combined with means for controlling the movements of the material in the formation of side stitches on one side of the buttonhole-slit, long bar-stitches crosswise of one end of such slit and bar-binding stitches crosswise over such long stitches, and duplicating the said several stitches at the other side and end of said slit to complete the buttonhole in a single automatic cycle of movements, substantially as described.

12. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, mechanism for vibrating and feeding said clamp, including a switch-cam and a feed-cam, a controller-cam interposed between said clamp and its vibrating mechanism and adapted to control the transverse feed movements of the material and to control the limit of vibration of the material in the formation of two independent series of stitches, and complemental means for placing the bar-binding stitches, substantially as described.

13. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, mechanism for actuating said clamp and means for controlling the stitch-forming mechanism and the clamp-actuating mechanism to effect the stitching of the sides of the buttonhole and the formation of long bar-stitches at the ends of the buttonhole-slit obliquely to the direction of the length of the buttonhole-slit, substantially as described.

14. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, mechanism for actuating said clamp and means for controlling the stitch-forming mechanism and the clamp-actuating mechanism to effect the stitching of the sides of the buttonhole and the formation of long bar-stitches at the ends of the buttonhole-slit obliquely to the direction of the length of the buttonhole-slit, and to overstitch the said long bar-stitches with bar-binding stitches placed substantially at right angles to the side stitches, substantially as described.

15. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp mechanism for changing the relative position of the cloth-clamp and stitch-forming mechanism, including devices for automatically controlling the movements of the cloth-clamp for the cycle of feed and vibratory movements necessary to the overseaming of the two sides of a buttonhole and the barring of its opposite ends by overstitched bar-stitches, in combination with mechanism for effecting vertical movements of the needle in a fixed vertical line for a portion of the stitching, and also alternate vertical movements in one and the other of two vertical lines for another portion of the stitching, substantially as described.

16. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, actuating mechanism therefor including a yielding vibrator, and a controller-cam and feed-cam, said cams constructed and arranged to control the feed and vibratory movements of the material through the predetermined movements necessary for the automatic overseaming of the two sides of a buttonhole and the barring of its opposite ends by overstitched bar-stitches, without disconnecting the cloth-clamp from its actuating mechanism, in combination with suitable needle-actuating mechanism for binding the bar-stitches with overstitches laid substantially at right angles to the side overseam-stitches, substantially as described.

17. In a buttonhole-sewing machine, for overseaming buttonholes having like bar ends consisting of bar-stitches bound under subsequently-placed overstitches, the following instrumentalities in combination: a rotating feed-disk, a yieldingly-vibrated cloth-clamp, mechanism for controlling the vibration of the cloth-clamp for the placing of the subsequently-overstitched bar-stitches, stitch-forming mechanism including an eye-pointed needle capable of lateral movements, and mechanism to control said needle movements for the overstitching of the previously-placed bar-stitches, substantially as described.

18. In a buttonhole-sewing machine, for overseaming buttonholes having bar ends consisting of overstitched bar-stitches, the following instrumentalities in combination: a rotating feed-disk, a controller-cam, a cloth-clamp, vibrating mechanism therefor including a switch-cam, mechanism for controlling the vibration of said clamp, stitch-forming mechanism including an eye-pointed needle, means for effecting lateral movements of said needle, and mechanism for controlling said needle movements for the placing and overstitching of the long bar-stitches, substantially as described.

19. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, a laterally-vibrated needle and means for vibrating said needle laterally for the overstitching of the bar-stitches, in combination with feed-actuating mechanism for controlling the feed of the material lengthwise of the buttonhole, and mechanism for limiting the movements of the cloth-clamp transverse to its lengthwise feed movements, said feed-actuating mechanism and mechanism for limiting the clamp's transverse movements capable of changing their positions relatively to each other, substantially as described

20. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, a needle and mechanism for moving the needle laterally for the overstitching of the bar-stitches, in combination with means, including a feed-cam, for controlling the feed of the cloth-clamp lengthwise of the buttonhole, and means for controlling the movements of the cloth-clamp transversely to its lengthwise feed movements, said feed-actuating mechanism and mechanism for limiting the clamp's transverse movements having a yielding connection to permit a relative change of positions, substantially as described.

21. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, and mechanism for changing the relative position of the cloth-clamp and stitch-forming mechanism for the automatic overseaming of the two sides and the barring of the two ends of a buttonhole, including mechanism, for effecting predetermined transverse feed movements of the cloth-clamp and to limit the vibratory movements of the cloth-clamp at right angles to its lengthwise feed movements for the placing of the long bar-stitches, thereby to effect first the placing of the side overseam-stitches and subsequently the placing of the long bar-stitches, in combination with suitable needle-actuating mechanism for binding the bar-stitches with overstitches laid substantially at right angles to the side overseam-stitches, substantially as described.

22. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-clamp, and mechanism for changing the relative position of the cloth-clamp and stitch-forming mechanism for the automatic overseaming of the two sides and the barring of the two ends of a buttonhole, including mechanism, for effecting the predetermined feed movements of the cloth-clamp lengthwise of the buttonhole, and to limit the vibratory movements of the cloth-clamp at right angles to its lengthwise feed movements for the placing of the long bar-stitches, thereby to effect the placing of the side overseam-stitches and thereafter produce movements equal to or slightly longer than the distance from depth-to-depth stitch of the two sides of overseaming for the placing of the long bar-stitches, in combination with suitable needle-actuating mechanism for binding the long bar-stitches with overseam-stitches laid substantially at right angles to the side overseam-stitches, substantially as described.

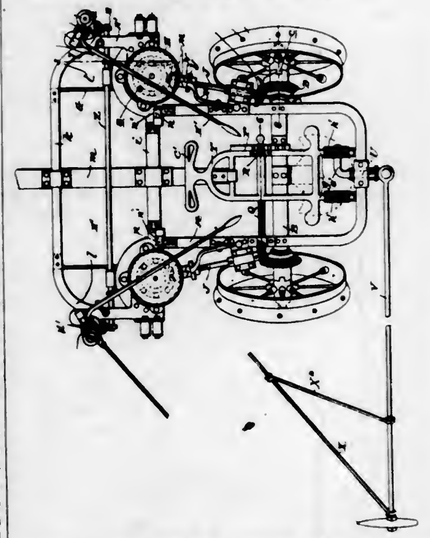
23. In a buttonhole-sewing machine, a cloth-clamp, actuating mechanism therefor including a controller-cam for controlling the extent of the vibratory movements of the cloth-clamp for the placing of the side overseam-stitches and the long barring-stitches, a stitch-forming mechathism including a needle-holder capable of movements alternately in one and the other of two vertical lines, a needle-holder carrier mounted in bearings in the overhanging arm, said carrier capable of vertical movements in a fixed line, and connections between said needle-holder and clamp-actuating mechanism, including a rotating cam-disk to control the movement of said needle-holder laterally at predetermined intervals, in combination, substantially as described.

24. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp and mechanism for giving to the cloth-clamp first, a progressive feed movement lengthwise of the buttonhole and simultaneously therewith vibratory movement substantially at right angles to the length of the buttonhole for the placing of the side overseam-stitches; second, extended vibratory movements, for the placing of long bar-stitches, and third, a feed movement substantially transverse to the feed movement lengthwise of the buttonhole for the overstitching of the long bar-stitches, followed by transverse feed movements and like vibratory movements for overseaming the second side and barring the other end in like manner to the first, substantially as described.

25. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, and actuating mechanism therefor, including a yielding vibrator for giving to the cloth-clamp, first, a progressive feed movement lengthwise of the buttonhole and simultaneously therewith vibratory movements substantially at right angles to the length of the buttonhole for the placing of the side overseam-stitches, second, extended or progressive vibratory movements substantially parallel to the vibratory movements for the side overseaming, for the placing of the bar-stitches, third, a feed movement substantially transverse to the lengthwise feed movement, for the overstitching of the bar-stitches, followed by transverse feed movements and like vibratory movements for overseaming the second side in like manner to the first and barring the finish end of the buttonhole in the same manner as its opposite end, in combination with mechanism for controlling the movements of the needle in a fixed vertical line for a portion of the overseaming and at other times alternately in one and the other of two vertical lines, substantially as described.

26. In a buttonhole-sewing machine, in combination, stitch-forming mechanism, a cloth-clamp, actuating mechanism therefor including a yielding vibrator, mechanism for controlling the movement of the needle laterally, and mechanism constructed and arranged for giving to the material, first, a progressive feed movement lengthwise of the buttonhole and simultaneously therewith vibratory movements substantially transverse to its lengthwise feed movement, and to the needle vertical movements in a fixed line for the placing of the side overseam-stitches; second extended vibratory movements to the material and simultaneously therewith vertical movements to the needle; and third, to the material a feed movement transverse to its lengthwise feed movement and simultaneously therewith alternate vertical movement of the needle in one and the other of two vertical lines, for the overstitching of the bar-stitches, followed by transverse feed movements, like vibratory movements, and like control of the movements of the needle laterally for overseaming the second side in like manner to the first, and barring the finish end of the buttonhole in the same manner as its opposite end, substantially as described.

679,185. CORN-PLANTER. JAMES W. PARKER, Rock Island, Ill. Filed Oct. 18, 1900. Serial No. 33,490. (No model.)



Claim.—1. In a planter, the combination of an axle having downwardly-inclined spindles, a frame connected to the intermediate portion of the axle, and traveling wheels removably secured on said spindles and having square peripheries, and also having peripheral flanges which occupy a portion of their width and have beveled perimeters, substantially as and for the purpose set forth.

2. In a planter, the combination of a main or supporting frame, an axle connected thereto, traveling and covering wheels mounted on the axle, a runner-frame connected in a hinged manner to the supporting-frame, seedboxes arranged on the runner-frame, seed-discharge disks having miter gear-teeth, gear-wheels arranged to turn on the axle and with the traveling and covering wheels, and shafts journaled in bearings on the supporting-frame, and having gears at their rear ends intermeshed with the gears on the axle, and beveled gears at their forward ends intermeshed with the miter gear-teeth on the seed-discharging disks, substantially as specified.

3. In a planter, the combination of a supporting-frame, an axle connected thereto, traveling and covering wheels mounted on the axle, gear-wheels also mounted on the axle, and connected to the traveling wheels so as to turn therewith, a runner-frame hinged to the supporting-frame, means for raising the runner-frame, seedboxes mounted on the runner-frame, rotary seed-discharging disks also carried by the runner-frame and having gear-teeth, and shafts journaled on the supporting-frame and having gears intermeshed with the gears on the axle, and other gears intermeshed with the seed-discharging disks, whereby when the runner-frame is raised, the seed-discharging disks are thrown out of gear, substantially as specified.

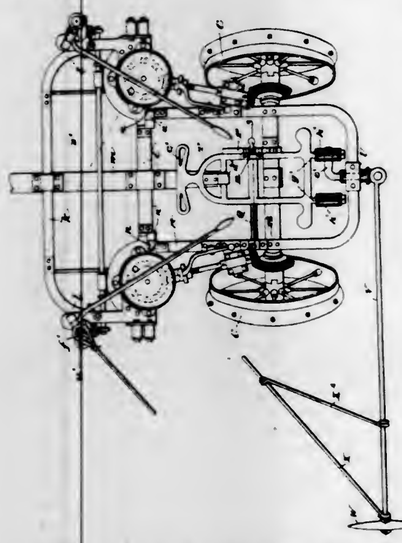
4. In a planter, the combination with a main frame, an axle connected thereto, traveling wheels on the axle, gears on the axle connected to the traveling wheels so as to turn therewith, a runner-frame hinged to the main frame, means for raising said runner-frame, seedboxes carried by the runner-frame, rotary seed-discharging disks also carried by the runner-frame, and having gear-teeth, shafts journaled in bearings on the main frame and having gears intermeshed with the gears on the axle, gears loosely mounted on the shafts in normal engagement with the gear-teeth of the seed-disks, and having clutch-faces, clutch members splined on the shafts and adapted to engage the clutch-faces of the gears, and suitable means for moving the clutch members in and out of engagement with the gears, substantially as specified.

5. In a check-row planter, the combination of a main frame, an axle connected thereto, traveling wheels on the axle, a runner-frame connected to the main frame, seedboxes mounted on the runner-frame, seed-discharging disks also carried by the runner-frame, gearing intermediate of the traveling wheels and the disks for rotating the latter; said gearing comprising means whereby the disks may be thrown out of gear with the wheels, ratchet-teeth on the disks, discharge-spouts arranged below the disks, valves in said spouts, forks adapted to be moved by check-row wire, a shaft carrying said forks, and having cranks, pitmen connecting

the cranks and the valves, and pawls on said pitmen for engaging the ratchet-teeth of the disks, substantially as specified.

8. In a check-row planter, the combination of a main frame, a runner-frame, a swinging bracket connected with the runner-frame and carrying a dumping-sheave, a gravitating latch normally engaging the bracket to hold the sheave in an upright position, a check-row wire resting between the sheave and latch, and a wedge engaging the check-row wire and connected to an anchor-rod; said wedge being adapted to enter between the sheave and the latch and automatically disengage said latch from the bracket carrying the sheave, substantially as specified.

679,186. **LAND-MARKER FOR CORN-PLANTERS.** JAMES W. PARKER, Rock Island, Ill. Filed Feb. 7, 1901. Serial No. 46,384. (No model.)



Claim.—1. In a planter, the combination of a main or supporting frame, a runner-frame connected in a hinged manner thereto, a lever for raising the runner-frame, a crank arranged to be engaged by said lever, and a marker carried by the crank, whereby the marker is raised in concert with the runner-frame.

2. In a planter, the combination of a main or supporting frame, a runner-frame connected in a hinged manner thereto and having pins at its opposite sides, a lever, movable in a vertical plane, for raising the runner-frame, a crank arranged to be engaged by said lever, a marker carried by said crank, and a drag-bar connected to the marker and having an eye arranged to automatically engage the pins on the runner-frame.

3. In a planter, the combination of a main or supporting frame, a runner-frame hinged thereto and having a tongue extending rearwardly, a lever fulcrumed at an intermediate point of its length on the main or supporting frame, a connection between the forward portion of said lever and the tongue of the runner-frame, and a swinging marker having a crank arranged to be engaged by the rear portion of the lever, whereby the marker is raised in concert with the runner-frame.

4. In a planter, the combination of a main or supporting frame, a runner-frame connected in a hinged manner thereto, and having a rearwardly-extending tongue or pole, a lever fulcrumed at an intermediate point of its length on the main frame, a link connecting the forward portion of said lever and the tongue of the runner-frame, and a swinging marker having a crank arranged to be alternately engaged by parallel portions at the rear end of the lever.

5. In a planter, the combination of a main or supporting frame, a runner-frame connected in a hinged manner thereto, a lever, for raising the runner-frame, provided with parallel extensions at its rear end, and a marker having a crank arranged to be alternately engaged by the said parallel extensions of the lever.

6. In a planter, the combination of a main or supporting frame, a runner-frame hinged thereto, a lever, for raising the runner-frame, provided with parallel extensions at its rear end, antifriction-sleeves arranged on said extensions of the lever, and a swinging marker having a crank arranged to be engaged alternately by the antifriction-sleeves on the lever extensions.

7. In a planter, the combination of a main or supporting frame, a segmental rack fixed thereon, a runner-frame connected in a hinged manner to the main frame, a lever fulcrumed at an intermediate point of its length on the supporting-frame and having parallel extensions at its rear end, a connection between the forward portion of the lever and the runner-frame, a hand-lever fixed with respect to said lever and having a detent arranged to engage the segmental rack, and a marker having a crank arranged to be engaged alternately by the rearward extensions of the lever.

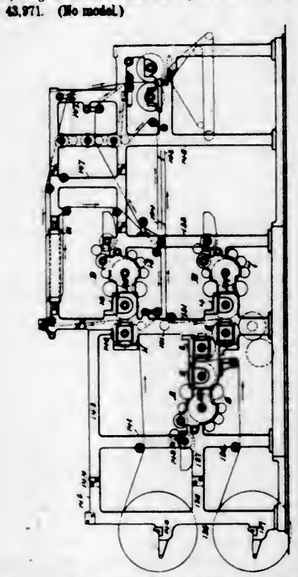
8. In a planter, the combination of a main or supporting frame, a runner-frame connected thereto and having upright pins at its opposite sides, a swinging marker connected to the main frame, and a draw-rod connected to the marker and having an eye adapted to automatically engage the upright pins on the runner-frame.

9. In a planter, the combination of a main or supporting frame, a runner-frame connected thereto, a swinging marker connected to the supporting-frame, a draw-rod connected to the marker, and coacting devices on said draw-rod and runner-frame, whereby the former is automatically connected to the latter.

10. In a planter, the combination of a main or supporting frame, a runner-frame connected thereto and having upright pins at its opposite sides, a swinging marker connected to the supporting-frame, a draw-rod connected to the marker and having an eye adapted to automatically engage said pins, and a brace X^2 interposed between the marker and draw-rod.

11. In a planter, the combination of a frame, a lever thereon, a crank journaled in the frame and arranged to be engaged by said lever, and a marker carried by the crank and movable therewith under the action of the lever.

679,187. **PRINTING-MACHINE.** GEORGE F. READ, New York, N. Y., assignor to Robert Hoe, same place. Filed Jan. 21, 1901. Serial No. 43,971. (No model.)



Claim.—1. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by the frame-sections and located above the pair of couples, removable filling-pieces connected to the frame-sections and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

2. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by the frame-sections and located above the pair of couples, a pair of standards carrying roll-supports connected to the pair of frame-sections, removable filling-pieces connected to the standards and the frame-sections and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

3. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple

supported by said frame-sections and located above the pair of couples, removable filling-pieces consisting of uprights and cross-bars, the upright of each filling-piece resting on and being connected to a frame-section, and the cross-bar of each filling-piece being connected to a frame-section, and suitable associating and delivery mechanism, substantially as described.

4. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, a pair of standards having roll-supports connected to the frame-sections, removable filling-pieces consisting of uprights and cross-bars, the upright of each filling-piece resting on and being connected to a frame-section, and the cross-bar of each filling-piece being connected to a frame-section and a standard, and suitable associating and delivery mechanism, substantially as described.

5. The combination with a pair of frame-sections, each section being provided with a supporting-ledge, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, a pair of standards carrying roll-supports connected to the frame-sections, removable filling-pieces consisting of uprights and cross-bars, the upright of each filling-piece resting on and being connected to a frame-section, and the cross-bar of each filling-piece being connected to a standard and resting on the ledge of a frame-section, and suitable associating and delivery mechanism, substantially as described.

6. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, transferring and reversing mechanism for said additional couple, removable filling-pieces connected to the frame-sections and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

7. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, transferring and reversing mechanism for said additional couple, a pair of standards carrying roll-supports connected to the pair of frame-sections, removable filling-pieces connected to the standards and the frame-sections and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

8. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame sections and located above the pair of couples, means for driving the pair of couples and the additional couple at the same or different speeds, transferring and reversing mechanism for said additional couple, removable filling-pieces connected to the frame-sections and located above the pair of couples, suitable side frames, suitable associating and delivery mechanism mounted in said side frames, a pair of removable frame-pieces connected to the side frames, and an accelerating mechanism, members of which are mounted in said removable frame-pieces, substantially as described.

9. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, means for driving the pair of couples and the additional couple at the same or different speeds, transferring and reversing mechanism for said additional couple, a pair of standards carrying roll-supports connected to the pair of frame-sections, removable filling-pieces connected to the standards and the frame-sections and located above the pair of couples, suitable side frames, suitable associating and delivery mechanism mounted in said side frames, a pair of removable frame-pieces connected to the side frames, and an accelerating mechanism, members of which are mounted in said removable frame-pieces, substantially as described.

10. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, removable filling-pieces connected to the frame-sections, a printing-couple supported by said filling-pieces and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

11. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, a pair of standards carrying roll-supports connected to the pair of frame-sections, removable filling-pieces connected to the standards and the frame-sections, a printing-couple supported by said filling-pieces and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

12. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, removable filling-pieces consisting of uprights and cross-bars, the upright of each filling-piece resting on and being connected to a frame-section, and the cross-bar of each filling-piece being connected to a frame-section, a printing-couple supported by said filling-pieces and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

13. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, a pair of standards carrying roll-supports connected to the pair of frame-sections, removable filling-pieces consisting of uprights and cross-bars, the upright of each filling-piece resting on and being connected to a frame-section, and the cross-bar of each filling-piece being connected to a frame-section and a standard, a printing-couple supported by said filling-pieces and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

14. The combination with a pair of frame-sections, each section being provided with a supporting-ledge, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, a pair of standards carrying roll-supports connected to the pair of frame-sections, removable filling-pieces consisting of uprights and cross-bars, the upright of each filling-piece resting on and being connected to a frame-section, and the cross-bar of each filling-piece being connected to a standard and resting on the ledge of a frame-section, a printing-couple supported by said filling-pieces and located above the pair of couples, and suitable associating and delivery mechanism, substantially as described.

15. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by the frame-sections and located above the pair of couples, a transferring and reversing mechanism for said couple, removable filling-pieces connected to the frame-sections, a printing-couple supported by said filling-pieces and located above the pair of couples, removable frame-pieces connected to the frame-sections, a transferring and reversing mechanism carried by said frame-pieces, said transferring and reversing mechanism operating in connection with the couple carried by the filling-pieces, and suitable associating and delivery mechanism, substantially as described.

16. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by the frame-sections and located above the pair of couples, a transferring and reversing mechanism for said couple, a pair of standards carrying roll-supports connected to the frame-sections, removable filling-pieces connected to the standards and to the frame-sections, a printing-couple supported by said filling-pieces and located above the pair of couples, removable frame-pieces connected to the standards and the frame-sections, said frame-pieces being provided with roll-supports, a transferring and reversing mechanism carried by said frame-pieces, said transferring and reversing mechanism operating in connection with the couple carried by the filling-pieces, and suitable associating and delivery mechanism, substantially as described.

17. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by the frame-sections and located above the pair of couples, a transferring and reversing mechanism for said couple, means for driving the pair of couples and the additional couple at the same or different speeds, removable filling-pieces connected to the frame-sections, a printing-couple supported by said filling-pieces and located above the pair of couples, means for driving said couple at the same speed with or at a lesser speed than the pair of couples, removable frame-pieces connected to the frame-sections, a transferring and reversing mechanism carried by said frame-pieces operating in connection with the couple carried by the filling-pieces, a pair of removable frame-pieces, and an accelerating mechanism, members of which are mounted in said removable frame-pieces, substantially as described.

18. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by said frame-sections and located above the pair of couples, means for driving the pair of couples and the additional couple at the same or different speeds, a transferring and reversing mechanism for said additional couple, a pair of standards carrying roll-supports connected to the frame-sections, removable filling-pieces connected to the standards and the frame-sections, a printing-couple supported by said filling-pieces and located above the pair of couples, means for driving this couple at the same speed with or at a lesser speed than the pair of couples, removable frame-pieces connected to the standards and the frame-sections, a transferring and reversing mechanism carried by said frame-pieces operating in connection with the couple carried by the filling-pieces, a pair of removable frame-pieces, and an accelerating mechanism, members of which are mounted in said removable frame-pieces, substantially as described.

19. The combination with a suitable frame, of suitable means mounted therein for printing upon a plurality of webs, means for driving the printing means which operates upon one of the webs at varying speeds, a pair of removable frame-pieces suitably connected to the machine-frame, and an accelerating mechanism, members of which are mounted in said removable frame-pieces, substantially as described.

20. The combination with a pair of frame-sections, of a pair of printing-couples supported by said frame-sections, an additional printing-couple supported by the frame-sections and located above the pair of couples, means for driving said couples at the same or different speeds, a transferring and reversing mechanism for the additional couple, a pair of removable frame-pieces, and an accelerating mechanism, members of which are mounted in said removable frame-pieces, substantially as described.

679,188. **HAME-TUG.** MARION W. RYLAND, Spokane, Wash., assignor to Frederic James Claxton, Victoria, British Columbia, Canada. Filed May 8, 1900. Serial No. 15,659. (No model.)



Claim.—1. In a hame-tug, the combination with a hame-tug plate having a longitudinal opening and lugs at one end which overhang the opening at one portion and are separated by a slot narrower than the longitudinal opening, of a leaf-spring secured to the plate and extending into the opening therein toward the lugs and provided with an abrupt locking-shoulder on its free end adjacent the lugs and terminating in a finger-hold, and a trace steady-loop having a lug provided with an elongated neck adapted to fit in the slot between the lugs and with a head adapted to abut against the inner faces of the lugs and having one end bearing directly against the shoulder on the spring, said neck on the lug being prevented from turning in the slot between the lugs by reason of its engagement with the lugs and from coming out of the slot by reason of its engagement with the shoulder on the spring.

2. In a hame-tug, the combination with a hame-tug plate having a row of hook-openings to receive the hook on the trace and provided with lugs or portions having a slot between them which is closed at one end, of a spring secured to the plate and having a free portion provided with an abrupt shoulder adjacent the mouth of the slot aforesaid and with a finger-hold for its manipulation, a trace having a locking-hook adapted for reception in the hook-openings, and a steady-loop surrounding the trace and provided with an interior lining to bear on the trace and prevent cutting or injury thereof by the loop, said loop being provided with a lug having an elongated neck adapted to fit snugly in the slot between the lugs and said lug having a head adapted to abut the shoulder on the spring after the neck has entered the slot, said shoulder holding the head against the closed end of the slot whereby the steady-loop is held rigid against twisting or turning and cannot be removed without manipulation of the spring by hand, and the trace is also held rigidly at two points to the hame-tug plate, thus minimizing the wear on said trace.

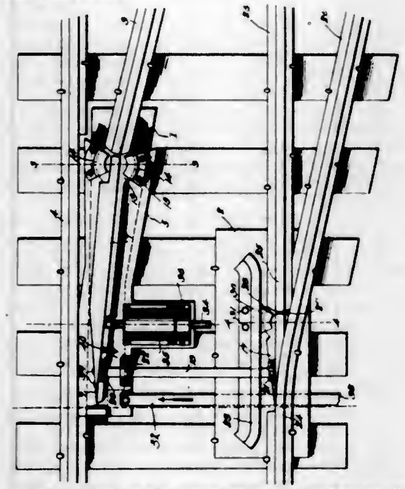
3. In a hame-tug, the combination with a hame-tug plate having lugs or portions separated by a slot closed at one end, of a spring secured to the plate and having a free portion provided with an abrupt shoulder adjacent the open end or mouth of the slot and provided with a finger-hold, and a trace steady-loop provided with a lug having an elongated neck adapted to fit snugly in the slot and having an enlarged head adapted to abut against the abrupt shoulder on the spring, said shoulder holding the head against the closed end of the slot whereby the loop is held rigidly to the plate and cannot twist or become displaced.

679,189. **RAILROAD-SWITCH.** HORACE SAGE, Richland, Ind., assignor of one-half to William L. Newbold, Rushville, Ind. Filed Mar. 13, 1901. Serial No. 50,966. (No model.)

Claim.—1. In a railroad-switch, the combination of the opposite pivoted points connected together, an oscillatory plate yieldingly connected with one of the points and adapted to permit the latter to move independently of it, and operating mechanism connected with the oscillatory plate and adapted to move the same and the points, substantially as described.

2. In a railroad-switch, the combination of the pivoted points, a transverse bar connecting the points, an oscillatory plate supporting one of the points, a spring connected with the oscillatory plate and the adjacent point, and operating mechanism connected with the oscillatory plate, substantially as described.

3. In a railroad-switch, the combination with the opposite rails, of the pivoted points located adjacent to the rails and connected together, an oscillatory plate supporting one of the points, a rod connecting the said point, a spring disposed on the rod and engaging the same and the oscillatory plate, and operating mechanism connected with the latter, substantially as described.



4. In a railroad-switch, the combination with the opposite rails, of the pivoted switch-points 7 and 17 arranged adjacent to the rails, an oscillatory plate supporting the switch-point 7, the transversely-disposed rod connected with the switch-point, a guide receiving the rod and mounted on the oscillatory plate, a spring arranged on the rod and engaging the same and the said guide, means for connecting the points, and operating mechanism connected with the oscillatory plate, substantially as described.

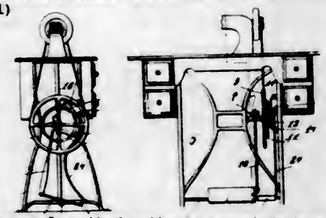
5. In a railroad-switch, the combination with the main rail 4 located at one side of the track, the main-rail section located at the opposite side of the track, and the siding rails, of the pivoted points 7 and 17, located at opposite sides of the track, the point 17 being located between the said main-rail sections, the guard-rail arranged at the inner side of the point 17, the transverse bar connecting the points, the oscillatory plate supporting and yieldingly connected with the points 7, and operating mechanism connected with the oscillatory plate, substantially as described.

6. In a railroad-switch, the combination of a base-plate provided at its upper face with corrugations, an oscillatory plate connected with the base-plate and supported by the same, a point pivotally mounted on the oscillatory plate and yieldingly connected with the same, and operating mechanism for actuating the oscillatory plate, substantially as described.

7. In a railroad-switch, the combination of a base-plate, a pivoted point provided at its bottom with a cavity, a bolt mounted on the base-plate and having a head extending into the said cavity and forming a pivot for the point, and clamps engaging the point and holding the same on the pivot, substantially as described.

8. In a railroad-switch, the combination of a base-plate, an oscillatory plate, a bolt having a tapering head and passing through the said plates and provided with a pivot portion receiving the oscillatory plate and forming a shoulder for engaging the base-plate, a point having a cavity at its bottom to receive the head of the bolt, and clamps engaging the point, substantially as described.

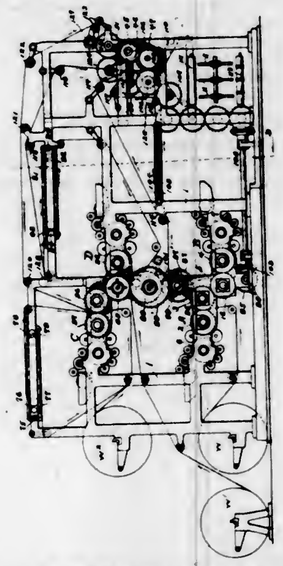
679,190. **STARTER FOR FOOT-POWER MACHINES.** GEORGE SIER, Little Metis, Canada. Filed Apr. 5, 1901. Serial No. 54,431. (No model.)



Claim.—1. In combination with a foot-power mechanism, an annular ratchet revoluble with an element of said foot-power mechanism, a fixed arcuate guide having a concentric disposition with reference to said annular ratchet, a pawl slidably mounted on said guide and having a member adapted to engage with said ratchet, a spring for moving said pawl to its operative position, and a treadle having link connections with said pawl, substantially as described.

2. A starter mechanism for foot-power machines comprising a starter-treadle, an arcuate guide having means for clamping the same in position concentric with a revoluble member of a foot-power mechanism, an annular ratchet adapted to be clamped to a revoluble member of the foot-power mechanism, a pawl slidably fitted on said guide and having a member arranged to engage with the ratchet, a spring connected with the pawl, means for limiting the movement of the pawl in one direction, and a pitman connecting the pawl with the treadle, substantially as described.

679,191. **ROTARY PRINTING-MACHINE.** WILLIAM SPALCKHAVER, New York, N. Y., assignor to Robert Hoe, same place. Filed Nov. 12, 1900. Serial No. 36,190. (No model.)



Claim.—1. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, which may be run at either full or half speed, means whereby one couple of said second pair of couples may be operated independently at either full or half speed, and a transferring mechanism so located with respect to said couple that it is capacitated for use as a double-ender, substantially as described.

2. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, which may be run at either full or half speed, means whereby one couple of said second pair of couples may be operated independently at either full or half speed, and transferring mechanisms, one for each couple of the second pair so located with respect to the couples that each couple is capacitated for use as a double-ender, substantially as described.

3. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine which may be run at either full or half speed, means whereby each couple of said second pair of couples may be run independently at either full or half speed, and transferring mechanisms, one for each couple of the second pair so located with respect to the couples that each couple is capacitated for use as a double-ender, substantially as described.

4. The combination with a pair of printing-couples, the form-carrying members of which have plates so disposed thereon that the columns are parallel with the axis of the cylinder, the couples being arranged to operate as a single machine, of a second pair of couples the form-carrying members of which have similarly-disposed plates, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of the second pair of couples may be operated independently of the other, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, substantially as described.

5. The combination with a pair of printing-couples, the form-carrying members of which have plates so disposed thereon that the columns are parallel with the axis of the cylinder, the couples being arranged to operate as a single machine, of a second pair of couples the form-carrying members of which have similarly-disposed plates, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of the second pair of couples may be operated independently of the other, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, substantially as described.

6. The combination with a pair of printing-couples, the form-carrying members of which have plates so disposed thereon that the columns are parallel with the axis of the cylinder, the couples being arranged to operate as a single machine, of a second pair of couples the form-carrying members of which have similarly-disposed plates, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of the second pair of couples may be operated independently of the other, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, a slitting mechanism arranged to operate in connection with each pair of couples, and means for associating the several webs, substantially as described.

7. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may operate as a single machine, means whereby one couple of said second pair may be operated independently of the other, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, and suitable guides whereby a single web may be led through all or part of the couples in succession, substantially as described.

8. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means for operating one couple of said second pair of couples at either full or half speed, a transferring and reversing mechanism arranged to operate in connection with said couple whereby the couple may be run as a double-ender, means for directing a web from the first pair of couples to the other couple of the second pair, a slitter operating in connection with the first pair of couples, means for associating the slit web, a folding mechanism, and means for leading the products of the several couples to said folding mechanism to be folded together, substantially as described.

9. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be arranged to operate as a single machine running at either full or half speed, means whereby each couple of the second pair may be operated independently either at full or half speed, a transferring and reversing mechanism operating in connection with one of the couples of the second pair, whereby said couple may be used as a double-ender, a slitting mechanism arranged to slit the product of the first pair of couples, guides for directing a portion of the web thus slit through the couple of the second pair which is not acting as a double-ender, a transferrer operating to shift said portion of the web laterally and associate it with the web from which it was cut, a sheet cutting and accelerating mechanism operating in connection with the double-ender couple, and a folding mechanism, substantially as described.

10. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of printing-couples, means whereby said second pair of couples may be operated as a single machine, means whereby each of these couples may be run at full or half speed, a transferring and reversing mechanism operating in connection with each couple of the second pair, whereby it may be run as a double-ender, a slitting mechanism operating to slit the web printed by the first pair of couples, a transferring mechanism operating to associate the parts of the slit web, a sheet-accelerating mechanism operating in connection with one of the double-ender couples, and a cutting and folding mechanism, substantially as described.

11. The combination with a pair of printing-couples arranged to operate as a single machine, the form-cylinders of said couples having the plates so disposed that the columns are parallel with the axis of the cylinder, a second pair of printing-couples, the form-cylinders of which have their plates similarly disposed, means whereby said second pair of couples may be operated as a single machine, means whereby each couple of the second pair may be run at full or half speed, a transferring and reversing mechanism operating in connection with each couple of the second pair, whereby each couple may be run as a double-ender, a slitting

mechanism operating in connection with the first pair of couples, a transferring mechanism operating to associate the parts of the slit web, a sheet-accelerating mechanism operating in connection with one of the double-ender couples, and a cutting and folding mechanism, substantially as described.

12. The combination with a pair of printing-couples arranged to operate as a single machine, the form-cylinders of said couples having the plates so disposed that the columns are parallel with the axis of the cylinder, a second pair of printing-couples, the form-cylinders of which have their plates similarly disposed, means whereby said second pair of couples may be operated as a single machine, means whereby each couple of the second pair may be run at full or half speed, a transferring and reversing mechanism operating in connection with each couple of the second pair, whereby each couple may be run as a double-ender, each of said transferring and reversing mechanisms including angle-bars and an intermediate roller, a slitting mechanism operating in connection with the first pair of couples, a transferring mechanism operating to associate the parts of the slit web, a sheet-accelerating mechanism operating in connection with one of the double-ender couples, and a cutting and folding mechanism, substantially as described.

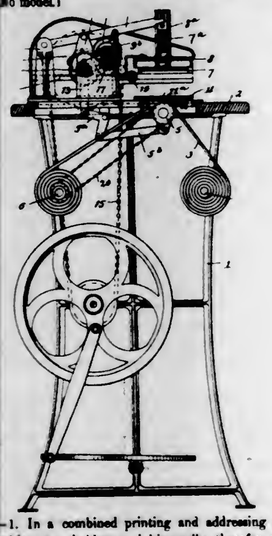
679,192. WHIFFLETREE. THOMAS P. STALCUP, Butte, Nebr. Filed Feb. 18, 1901. Serial No. 47,843. (No model.)



Claim.—1. In a whiffletree, the combination with a doubletree composed of independent, separated, members, pivoted one in front of the other, of links pivotally connected to the members of the doubletree and keeping said members separated, a yoke or clip connected to said plates, and singletrees located under the yokes and on the plates and pivotally connected to said yokes and plates.

2. In a whiffletree, the combination with a tongue, of a yoke secured thereto, a doubletree composed of independent members located between the yoke and the tongue, one in front of the other, and independent connections pivoting said members to the yoke and tongue, links at the ends of the doubletree members, above and below the same, yokes or clips on the upper links, pivotal connections securing the ends of the clips and links to the ends of the doubletree members, and singletrees pivotally mounted between the clips and the plates.

679,193. COMBINED PRINTING AND ADDRESSING MACHINE. JOSIAH L. SULLIVAN, Columbus, Ohio. Filed Aug. 13, 1900. Serial No. 26,768. (No model.)

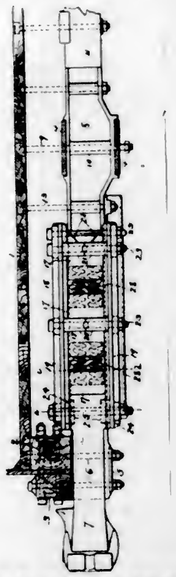


Claim.—1. In a combined printing and addressing machine, the combination with a type-holder, an inking-roller therefor, rack-bars carrying said roller, a shaft having toothed wheels engaging said rack-bars, a pinion, and a spring on said shaft, a second shaft, a segmental gear thereon to engage said pinion, an address-chain support, and means for operating the same together with the inking devices conjointly, substantially as described.

2. In a combined printing and addressing machine, a main type-holder or printing device, an address-printing chain and a support therefor, a platen between the chain and main printing device, a shaft having a cam for intermittently reciprocating the main type-holder, a cam for operating intermittently the address-chain support, and a segmental gear, combined with an inking-roller for the main type-holder, rack-bars carrying said roller, a second shaft having gears engaging such rack-bars to move the inking-roller in one direction over the type in the main holder, a pinion on said shaft to be engaged by the segmental gear on the first-named shaft, and a spring to move the inking-roller in the opposite direction, substantially as described.

3. In a combined printing and addressing machine, an address-printing chain, a support therefor, means for intermittently feeding said chain-support, a spool for winding up said chain after it leaves the drum, a shaft or spindle for said spool, a driving-wheel on said shaft to move said spool, and a belt connecting the address-chain support and said driving-wheel, combined with a main printing and inking mechanism, and means for operating said address-chain support and the printing and inking mechanism conjointly, substantially as described.

679,194. DRAFT-RIGGING FOR CARS. JAMES TIMMS, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed Mar. 22, 1901. Serial No. 52,352. (No model.)



Claim.—1. A yoke for connecting the draft irons or timbers of a car with a coupling, comprising parallel plates provided on their inner faces near one end with circular enlargements having their peripheral walls at right angles to the plates, and spacing devices extending from one plate to the other and secured to both.

2. A yoke for connecting the draft irons or timbers of a car with a coupling, comprising two parallel plates provided at one end with means for the attachment of the coupling, integral lugs projecting from the respective plates intermediate of the extremities thereof, the lugs on one plate engaging the lugs on the other plate and bolts passing through said plates and lugs.

3. A yoke for connecting the draft irons or timbers of a car and coupling comprising two parallel plates, intermeshing lugs on the adjacent faces of the plates, bolts passing through said lugs and plates and securing them together and means at one end of the plates for the attachment of the coupling.

4. A yoke for connecting the coupling and draft irons or timbers of a rigging, comprising two parallel plates, lugs on the adjacent faces of the

plates having mortise-and-tenon connection with each other, bolts passed through said plates and lugs to secure them together, and circular enlargements on the adjacent faces of the plates at one end to fit into correspondingly-shaped recesses in a coupling and constitute a pivotal connection for the coupling to the yoke.

5. In a draft-rigging, the combination with draft irons or timbers and a coupling, of a yoke having integral enlargements provided with circular walls disposed at right angles to the plates and entering similarly-shaped sockets in the coupling and pivotally connecting the coupling with the yoke, spacing devices between the ends of said yoke, and extending from one plate to the other of said yoke, follower-plates and springs arranged in tandem between the lugs and coupling and between the lugs and inner end of the yoke and said draft irons or timbers having pockets therein to receive the ends of the follower-plates.

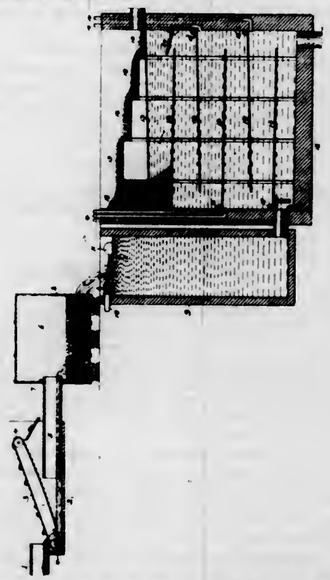
6. In a draft-rigging for cars, the combination with a coupling, body-transom, draft-irons and a tie-plate secured to the draft-irons, of independent angle-iron bars secured between the members of said transom and connected at one end to the timbers of the car, and at the other end to the tie-plate, and a yoke elastically supported between said draft-irons and secured to the coupling.

7. In a draft-rigging for cars, the combination with a body-transom, draft-irons, and a tie-plate secured to the draft-irons, of independent angle-iron bars secured between the members of the body-transom, said angle-iron bars being connected with the tie-plate to said draft-irons.

8. A yoke for connecting the draft irons or timbers of a car and coupling, comprising two ribbed plates, integral lugs on the adjacent faces of the plates between the ends thereof having mortise-and-tenon connection with each other, similar lugs at the inner ends of said plates and circular enlargements on the adjacent faces of the plates at their outer ends to fit into correspondingly-shaped recesses in a coupling.

9. In a draft-rigging for cars, the combination with a body-transom, draft-irons and a tie-plate secured to the draft-irons, of angle-iron bars secured at one end to said tie-plate and extending at their other ends between the members of the transom and projecting rearwardly beyond the same, the rear ends of said angle-iron bars having pockets for the reception of the ends of the sub-sills of the car.

679,195. APPARATUS FOR PURIFYING WATER OR SEWAGE. WILLIAM G. TOPLIS, Philadelphia, Pa. Filed Mar. 16, 1901. Serial No. 51,424. (No model.)



Claim.—1. In apparatus for purifying water or sewage, the combination of an interrupted passage for the liquid, with a rotatable drum interposed between the sections of said passage, and having a grated discharge end, said drum containing a mass of granular material through which the flow is caused to pass, substantially as specified.

2. In apparatus for purifying water or sewage, the combination of an interrupted passage for the liquid, with a rotatable drum interposed between the sections of said passage, and having a grated discharge end, said drum containing a mass of granular material through which the flow is caused to pass and which is kept in agitation by the rotation of the drum so as to exercise a grinding effect upon foreign matters contained in the liquid, substantially as specified.

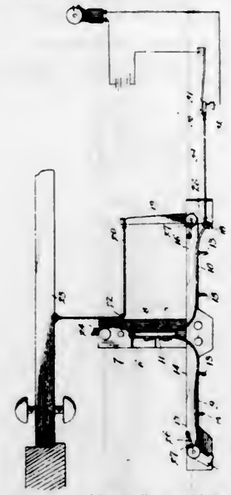
3. In apparatus for the purification of water or sewage, a sedimenting-tank having inclined plates with pipes or passages communicating with the spaces beneath the heads of said plates so as to withdraw the gases from said spaces or introduce supplies of oxygen into the same, substantially as specified.

4. In apparatus for the purification of water or sewage, the combination of a sedimenting-tank, and a supply well or cistern therefor provided with a valve-controlled water-supply pipe, whereby a controlled supply of water in addition to the normal supply is available for maintaining a uniform flow through the sedimenting-tank, substantially as specified.

5. In apparatus for the purification of sewage or water, a sedimenting-tank having a drainage-outlet, transverse baffle-plates and flush-pipes located at the heads of said baffle-plates, substantially as specified.

6. In apparatus for the purification of water or sewage, a sedimenting-tank having a drainage-outlet, a series of baffle-plates, and an automatic trap in the upper portion of the tank, whereby backflow from the compartment above the trap is prevented, substantially as specified.

679,196. TRAP. JAMES M. TYLER, Bay St. Louis, Miss. Filed May 27, 1901. Serial No. 62,139. (No model.)



Claim.—1. A trap comprising bodily-movable spring-jaws mutually connected, movable holding devices for engagement with the jaws to hold them set, and means for moving one of the holding devices from engagement with its jaw to permit of bodily movement of the other jaw from its holding device.

2. A trap comprising movable spring-jaws mutually connected, pivoted hooks for engagement with the jaws to hold them set, each jaw being adapted for movement from its holding-hook when the other jaw is released, and means for moving one of the hooks to release its jaw.

3. A trap comprising bodily-movable spring-jaws mutually connected, and separate means for holding the jaws set, each jaw being adapted for movement from its holding means when the other jaw is released.

4. A trap comprising a slotted post, spring-jaws having a connecting-block at their adjacent ends for engagement with the slot of the post loosely, pivoted hooks for engagement with the ends of the jaws to hold them set, one of the hooks having a lever extending beyond its pivot for moving the hook to release the jaw, and an anchoring connection for the jaws.

5. A trap comprising a base having a slotted post, jaws comprising spring-plates having a connecting-plate at their inner ends for engagement loosely with the slot of the post, laterally-extending arms carried by the base, hooks pivoted upon the arms for movement into and out of engagement with the jaws, said jaws having openings therein, links attached to the arms and adapted for engagement through the openings of the jaws, and pins for engagement with the links beyond the jaws.

6. A trap comprising a slotted post, jaws comprising spring-plates

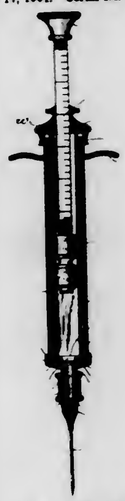
having a connecting-plate at their inner ends for engagement loosely with the slot of the post, pivoted hooks for engagement with the jaws to hold them set, each jaw being movable out of engagement with its hook when the other jaw is disengaged, and means for holding the jaws against operation when the hooks are disengaged therefrom.

679,197. ELECTRICALLY-OPERATED GAS-BURNER. HOLSTEIN W. WEBB, Columbus, Ohio. Filed Apr. 27, 1901. Serial No. 57,650. (No model.)



Claim.—In an electrically-operated gas-burner, the combination with a burner-tube having passages 3 and 4 therethrough and an adjustable valve-screw adapted to intersect said passage 3, of a rotatable valve intersecting said passages, said valve having a peripheral recess in constant communication with the passage 3 and ports through said valve intersecting each other at right angles, ratchet-wheels 8 and 9 carried on said valve, a pivoted armature-bar having a pivoted pawl-carrying arm adapted to engage the teeth of one of said ratchet-wheels and a pin 23 projecting from said armature-bar and adapted when said bar is elevated to contact with a tooth of the remaining ratchet-wheel, substantially as specified.

679,198. HYPODERMIC SYRINGE. CHARLES WITKOWSKI, Boston, Mass. Filed Jan. 17, 1901. Serial No. 43,576. (No model.)



Claim.—1. In a syringe, the barrel, a separable, tubular protective guard therefor, and means to position the barrel in the guard with the inner open end of the barrel projecting beyond the adjacent end of the guard, the projecting portion of the barrel having the internal diameter of the main portion thereof and forming a continuation of the barrel.

2. In a syringe, the barrel having an external annular shoulder near one end, and a separable, tubular guard provided at one end with an internal seat, to be engaged by the shoulder, the barrel below the shoulder passing through and projecting beyond the end of the guard.

3. In a syringe, a glass barrel having permanently secured thereto a metallic collar forming a continuation thereof and having an external, annular shoulder, and a separable, tubular guard having at one end an internal annular seat, to engage the shoulder, the end of the collar projecting beyond the adjacent end of the guard.

4. In a syringe, the barrel having an external annular shoulder near one end, a separable tubular guard therefor having at one end an internal annular seat for the shoulder, the end of the barrel projecting beyond the end of the guard, and a detachable head for the adjacent end of the guard, to cooperate with the projecting end of the barrel, and form an air-tight joint therewith.

5. In a syringe, a glass barrel having a metallic collar permanently secured to one end thereof, and an external, annular shoulder formed in said collar near its end, the portion of the latter beyond the shoulder forming a continuation of the barrel.

6. In a syringe, the barrel, a tubular guard therefor, means to position the barrel in the guard with its lower end projecting beyond the adjacent end of the guard, the projecting portion having the internal diameter of the main portion of the barrel, and a head screwed upon the guard and having a washer to be engaged by the projecting end of the barrel, forming an air-tight joint thereat.

7. In a hypodermic syringe, a glass barrel, a metallic collar surrounding and permanently secured to one end thereof, said collar having an external annular shoulder, and an internal annular shoulder to support the adjacent extremity of the barrel and take up longitudinal thrust upon the latter, the portion of the collar beyond the internal shoulder having the internal diameter of the barrel and forming a continuation of the latter.

8. In a syringe, the barrel having an external shoulder near one end, a separable tubular guard therefor having at one end an internal annular seat for the shoulder, the end of the barrel projecting beyond the guard, a detachable head for the adjacent end of the guard having a washer to engage and form an air-tight joint with the projecting end of the barrel, means to support the needle on the head, and a detachable cap for the other end of said guard, to close the adjacent end of the barrel and maintain its shoulder on the seat of the guard.

9. In a hypodermic syringe, the guard, a barrel longitudinally positioned therein with its end projecting beyond the adjacent end of the guard, the projecting end having the internal diameter of the main portion of the barrel, a head detachably connected with the guard and having a washer to engage and form an air-tight joint with the projecting end of the barrel, and an external nipple on said head, having a smooth tapering tip and a locking-thread at the base of the tip.

679,199. BLUE SULFUR DYE AND PROCESS OF MAKING SAME. JULIUS ABEL, Mannheim, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Filed Mar. 19, 1901. Serial No. 51,874. (No specimens.)

Claim.—1. The process of producing new blue coloring-matter by treating dialkyl-amido-indophenol-thiosulfonic acid with sulfur and sodium sulfid, substantially as described

2. The process of producing new blue coloring-matter by treating dimethyl-amido-indophenol-thiosulfonic acid with sulfur and sodium sulfid, substantially as described.

3. The new blue coloring-matter containing sulfur which is practically insoluble in pure water, hydrochloric acid or dilute carbonate-of-soda solution, which on suitable reduction with sodium-sulfid solution is converted into the form of leuco compound which is precipitated from its solution in sodium sulfid by hydrochloric acid and is practically insoluble in carbonate-of-soda solution, substantially as described.

679,200. SUSPENDER-BUCKLE. ALBERT A. ABRAMS, St. Louis, Mo. Filed Mar. 13, 1901. Serial No. 51,015. (No model.)



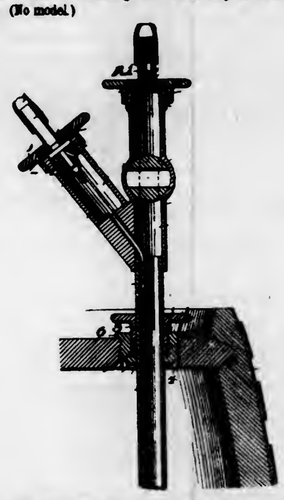
Claim.—1. A suspender-buckle comprising a body portion or plate, parallel arms disposed in the rear thereof on each side of the center line of the plate, terminal offsets separating the arms a suitable distance from the plate, means for coupling the adjacent free ends of said arms and thereby making the same continuous between the offsets, the free end of the suspender-brace being connected directly to said arms, and disconnected from the body portion or plate proper, and a locking-lever pivoted in front of the plate, substantially as set forth.

2. A suspender-buckle comprising a body portion or plate, parallel arms disposed in the rear thereof on each side of the center line of the plate, terminal offsets separating the arms a suitable distance from the plate, locking-pieces coupling the adjacent ends of said arms and thereby making the same continuous between the offsets, the free end of the suspender-brace being connected directly to said arms, and disconnected from the plate, and a locking-lever pivoted in front of the plate, substantially as set forth.

3. A suspender-buckle comprising a body or plate, parallel arms arranged in pairs in the rear of the plate, offsets separating the arms from the plate, locking-pieces connecting the adjacent separated ends of the arms, braces or spanning pieces located at the upper and lower edges of the plate, outwardly-deflected web-guiding flanges formed at each end of the plate between the ends of the braces, ears projecting beyond the flanges, and a locking-lever pivoted between said ears, the free end of the suspender-brace being connected directly to said arms, but disconnected from the body portion or plate, substantially as set forth.

4. A suspender-buckle comprising a body portion or plate, parallel bars disposed in the rear thereof on each side of the center line of the plate, terminal offsets separating the bars a suitable distance from the plate and connecting the same to the opposite ends of the plate, the free end of the suspender-brace being connected directly to said bars, and disconnected from the body portion or plate proper, and a locking-lever pivoted in front of the plate, substantially as set forth.

679,201. LIQUID-DRAWING DEVICE. WILLIAM ALLISON and PATRICK H. KEEFE, Pittsburg, Pa. Filed July 20, 1900. Serial No. 24,316. (No model.)



Claim.—In a liquid-drawing device, the combination of a barrel and vertical beer-discharge pipe arranged in said barrel, a suitable packing arranged in said barrel and engaging said discharge-pipe, an upward extension secured to the upper end of said discharge-pipe, an air-inlet pipe formed integral with said upwardly-extending pipe and arranged at an angle thereto, a contracted air-pipe communicating with a contracted air-pipe extending downwardly through the beer-discharge pipe into said barrel, a removable disk having a central opening, a boss arranged on the under side of said disk, and a contracted neck portion between said boss and said disk, a collapsible check-valve arranged upon said neck and boss in the interior upper extension of said air-pipe; a valve arranged in said upward extension, exterior screw-threads arranged at the upper ends of said upward extension and air-pipe, interiorly-screw-threaded caps each having a central opening formed therein secured upon said screw-threaded portions, nipples, flanges on said nipples seated in said screw-threaded cap, a washer interposed between the under face of said flanges and the ends of said pipes and flexible caps secured to the ends of said nipples, all parts being arranged and operating substantially as herein shown and for the purpose set forth.

679,202. PROCESS OF PRODUCING PURE SAPONIN SOLUTIONS. MAXIMILIAN C. L. ALTHAUSS, Billwärder-an-der-Bille, Germany, assignor to Fabrik Chemischer Praeparate von Dr. Richard Sthamer, Hamburg, Germany. Filed Aug. 6, 1900. Serial No. 26,090. (No specimens.)

Claim.—1. The process of producing a pure saponin solution which consists in reacting upon a suitably-heated solution of saponin with a solution of formaldehyde and removing the resultant precipitate, substantially as and for the purpose described.

2. The process of producing a pure saponin solution which consists in reacting upon a suitably-heated solution of saponin with a solution of formaldehyde and with an acid capable of forming an insoluble precipitate with the lime in the solution and removing the resultant precipitates, substantially as and for the purpose described.

3. The process of producing a pure saponin solution which consists in decocting quillaya-bark by boiling in water and reacting upon the boiling solution with formalin and an acid capable of forming an insoluble salt with the lime in the solution and removing the resultant precipitates from the bark by filtration, substantially as and for the purpose described.

679,203. PROCESS OF OBTAINING HYDROCELLULOSE. MAXIMILIAN C. L. ALTHAUSS, Billwärder-an-der-Bille, Germany, assignor to Fabrik Chemischer Praeparate von Dr. Richard Sthamer, Hamburg, Germany. Filed Aug. 27, 1900. Serial No. 28,199. (No specimens.)

Claim.—1. The process of obtaining hydrocellulose, which consists in reacting upon cellulose with hydrochloric acid at a temperature of from 60° to 70° centigrade and with potassium chlorate in such proportions as to prevent the formation of oxycellulose, for the purposes set forth.

2. The process of obtaining hydrocellulose, which consists in reacting upon cellulose with hydrochloric acid at a temperature of from 60° to 70° centigrade and with potassium chlorate by addition of the latter in successive small doses and in such proportion as to prevent the formation of oxycellulose, substantially as set forth.

679,204. PROCESS OF OBTAINING HYDROCELLULOSE. MAXIMILIAN C. L. ALTHAUSS, Billwärder-an-der-Bille, Germany, assignor to Fabrik Chemischer Praeparate von Dr. Richard Sthamer, Hamburg, Germany. Filed Aug. 27, 1900. Serial No. 28,200. (No specimens.)

Claim.—1. The process of obtaining hydrocellulose which consists in reacting upon cellulose with chlorinated glacial acetic acid while being heated to a non-oxidizing temperature, substantially as set forth.

2. The process of obtaining hydrocellulose which consists in reacting upon cellulose with glacial acetic acid containing free chlorin at a temperature of from 60° to 70° centigrade, and agitating the mixture during reaction, substantially as and for the purpose set forth.

679,205. BOWLING-ALLEY PIN. CHARLES R. BARRETT and ELWOOD C. PHILLIPS, Chicago, Ill. Filed Apr. 20, 1901. Serial No. 56,703. (No model.)



Claim.—1. A bowling-alley pin, in combination with an elastic covering fitting the impact portions of the pin, and provided with confined-air spaces, substantially as set forth.

2. A bowling-alley pin, in combination with an elastic covering fitting the impact portions of the pin, and provided with confined-air spaces formed by corrugations on the inner wall of the covering, substantially as set forth.

3. A bowling-alley pin, in combination with an annular elastic covering fitting the body portion of the pin, and secured thereon by annular top and bottom enlargements engaging peripheral grooves in the pin, substantially as set forth.

679,206. LOCKING-SOCKET FOR INCANDESCENT ELECTRIC LAMPS. CHARLES R. BARRETT and ELWOOD C. PHILLIPS, Chicago, Ill. Filed May 13, 1901. Serial No. 59,912. (No model.)

Claim.—1. A locking-socket for electric lamps, having an internally-

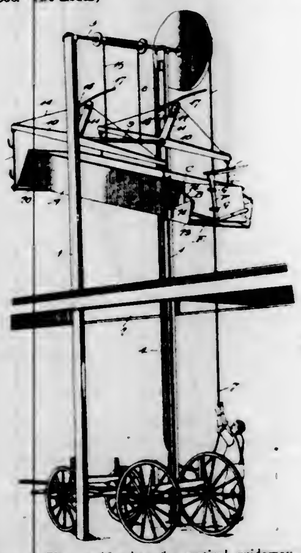
screw-threaded bore or opening adapted to receive the externally-screw-threaded foot of an incandescent electric lamp, a chamber arranged laterally at the side of the lamp-socket and provided with an entrance-keyhole and a tangentially-arranged spring-impelled detent pivoted in said chamber and adapted to engage in a recess in the screw-threaded periphery of the lamp-foot, substantially as set forth.



2. A locking-socket for electric lamps, having an internally-screw-threaded bore or opening adapted to receive the externally-screw-threaded foot of an incandescent electric lamp, a chamber arranged laterally at the side of the lamp-socket and provided with an entrance-keyhole, a tangentially-arranged detent pivoted within said chamber and adapted to engage in a recess in the screw-threaded periphery of the lamp-foot, and a spring for forcing the detent to its engagement, substantially as set forth.

3. A locking-socket for electric lamps, having an internally-screw-threaded bore or opening adapted to receive the externally-screw-threaded foot of an incandescent electric lamp, a chamber arranged laterally at the side of the lamp-socket and provided with an entrance-keyhole, and a series of substantially counterpart detents or tumblers pivoted in said chambers in a direction tangential to the circular bore of the socket, and adapted to engage in a recess in the screw-threaded periphery of the lamp-foot, substantially as set forth.

679,207. **COMBINED ELEVATOR AND DUMP FOR WAGON-BEDS.** HENRY BARSALOU, Momence, Ill. Filed Apr. 4, 1901. Serial No. 54,350. (No model.)

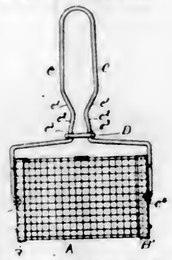


Claim.—1. The combination of a vertical guideway, a fixed trip having a cam, a shoe, movable in said guideway, an elevating and dumping frame carried by said shoe, and having a rock-arm, a detent carried by said rock-arm, and adapted to engage said shoe, to lock the dumping-frame in a horizontal position, and to be disengaged from said shoe by said fixed trip, said cam being in the path of said rock-arm, to engage the latter and thereby incline said dumping-frame when said detent is tripped, and means to raise and lower said dumping-frame, substantially as described.

2. The combination of an elevating and dumping frame, means to raise, incline and lower the same, rods suspended from said frame and adapted to suspend a wagon-bed therefrom; and a trough, the latter and said suspending-rods having coöperating elements adapted on the ascent of the frame, to connect said trough to said rods, and thereby dispose said trough at the discharge end of said wagon-bed, for the purpose set forth, and on the ensuing descent of the frame with the wagon-bed, release said trough from said suspending-rods, substantially as described.

3. The combination of an elevating and dumping frame, means to raise, incline and lower the same, a bed carried by said frame and having a discharge-gate, pivoted at its upper side, means to lock said gate when closed, a trip-bolt carried by said gate, for said locking means, and a fixed trip in the path of said bolt, to engage the latter when the bed is raised, and thereby unlock said gate, substantially as described.

679,208. **SOAP-CAGE.** FRANK J. BETTS, East Orange, N. J. Filed Jan. 23, 1901. Serial No. 44,465. (No model.)



Claim.—1. A cage, bonnets on the ends of the cage and having holes, projections on the outer faces of the bonnets, a detachable handle hooked into the holes in the bonnets, and also secured by the said projections on the bonnets, in combination with a slip lock-band on the handle.

2. A holder, comprising a cage-body, a bonnet tightly secured to one end of the cage-body and having a hole, a bonnet slipped over the opposite end of the cage-body and having a hole, projections on the outer faces of the bonnets, a detachable handle hooked into the holes in the bonnets, and also secured by the projections on the bonnets, in combination with a slip lock-band on the handle.

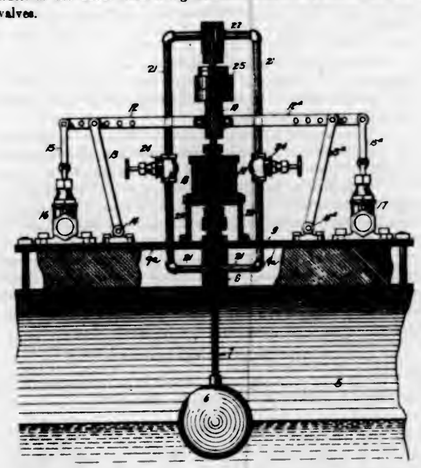
3. A holder, comprising a cage-body, clamps on the cage-body, ears on the clamps bent over the abutting ends of the cage-body, bonnets on the ends of the cage-body and having holes, projections on the outer faces of the bonnets, a detachable handle hooked into the holes, and also secured by the said projections on the bonnets, in combination with a slip lock-band on the handle.

4. A holder comprising a cage A, bonnets B, B′ at the ends of the cage, projections *b* on the outer faces of the bonnets, a detachable handle C C, hooked to the bonnets, and a slip lock-band D on the handle.

679,209. **FEED-WATER REGULATOR FOR STEAM-BOILERS.** JUDSON BIBB and EDWIN R. DUNCAN, Colorado Springs, Colo. Filed Mar. 19, 1901. Serial No. 51,955. (No model.)

Claim.—1. In a feed-water regulator for steam-boilers, the combination with the boiler or water-receptacle in communication with the boiler, and the valves for controlling the passage of steam from the boiler to the pump and the passage of water from the pump to the boiler, of a float located in the boiler or receptacle in communication therewith, a stem to which the float is rigidly attached, said stem protruding from the tank or boiler, levers connected with the stem and suitably fulcrumed, the steam and water valves being respectively connected with said levers, the arrangement being such that the water and steam valves are closed and opened by the rise and fall of the float through the instrumentality of its connection with the valves.

2. The combination with a boiler or a receptacle in communication therewith, and the water and steam valves, of a float arranged to rise and fall with the water in the boiler, a stem connected with said float, levers connected with the stem, connections between the levers and the steam and water valves respectively, whereby the passage of steam from the boiler to the pump, and water from the pump to the boiler is regulated to correspond with the fluctuations of the water-level in the boiler, and a dash-pot acting on the stem to prevent sudden variations of the water in the boiler from being communicated to the water and steam valves.



3. The combination with a boiler or a water-receptacle in communication therewith, and water and steam valves, of a float arranged to rise and fall with the water, a stem connected with the float, two levers connected with the stem and fulcrumed between the stem and the water and steam valves, connections between the said levers and the said valves respectively, and weights mounted on the stem to facilitate the balancing of the mechanism.

4. The combination with the boiler or water-receptacle in communication therewith, and water and steam valves, of a float, a stem connected with the float, levers connected with the stem, links whose upper extremities form fulcrums for the respective levers, between the stem and the said valves, the lower extremities of the links being adjustably connected with a suitable stationary support, and suitable connections between the outer extremities of the levers and said valves, whereby the valves are controlled by the rise and fall of the water in the boiler.

5. In a construction of the class described, the combination with the boiler, and steam and water valves, of a float arranged to rise and fall with the water in the boiler, a stem connected with said float, levers connected with the stem, adjustable fulcrums for the levers, and suitable connections between the levers and the steam and water valves respectively, whereby the latter are controlled by the fluctuations of the water in the boiler.

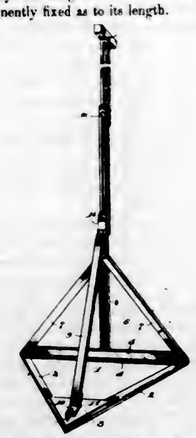
6. In a construction of the class described, the combination with the boiler and the steam and water valves, of a float arranged to rise and fall with the water in the boiler or other water-receptacle in communication therewith, a stem connected with said float, a steam chest or receptacle located outside of the boiler into which the stem protrudes, and a connection between the interior of the boiler or water-receptacle and said chest whereby the boiler-pressure on the stem is balanced.

7. The combination with the boiler and steam and water valves, of a float located in the boiler or water-receptacle in communication therewith, a stem connected with the float, and protruding from the boiler, a sleeve inserted in the boiler and through which the stem passes, the sleeve being large enough to allow the steam to circulate freely around the stem, a chest or receptacle into which the upper extremity of the stem protrudes, and a pipe leading from said sleeve to said receptacle.

8. The combination with the boiler and steam and water valves, of a float located in the boiler, a stem connected with the float and protruding from the boiler, a sleeve or hollow stud inserted in the boiler and through which the stem passes, the sleeve being large enough to allow the steam to circulate freely around the stem, a chest or receptacle into which the upper extremity of the stem protrudes, two pipes leading from said sleeve to said steam-chest, and a valve for controlling the passage of steam through said pipes.

679,210. **DISPLAY-RACK.** WALKER H. BLANDIN, Sedalia, Mo. Filed Sept. 25, 1900. Serial No. 31,049. (No model.)

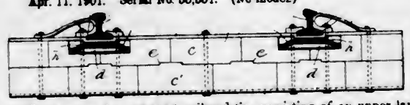
Claim.—1. In a display-rack, the combination of a base, a device hinged thereto and adjustable at an angle in relation to the same, and elongated longitudinally-slotted bars of equal length freely adjustable in relation to each other and to the said device to produce a variety of vertically and laterally extending forms, the said device for supporting the bars being permanently fixed as to its length.



2. In a display-rack, the combination of a base, a back hinged to the base and adjustable at an angle of inclination thereto, an upright fixedly secured to the back, a brace hinged to the upright and adjustably connected to the base, and a pair of longitudinally-slotted bars of equal length adjustably connected to each other, both bars being capable of adjustable connection to the upright.

3. In a display-rack, the combination of a base, a back hinged thereto, an upright fixed on the back at the center of the latter and having a constant length, a brace hinged to said upright and having a slotted keeper at its lower end, movable fastening devices on the base adapted to be engaged by the said keeper, and slotted bars of equal length adjustably carried by the upright.

679,211. **RAILROAD-TIE.** JACOB BOOTH, Reynoldsville, Pa. Filed Apr. 11, 1901. Serial No. 55,351. (No model.)

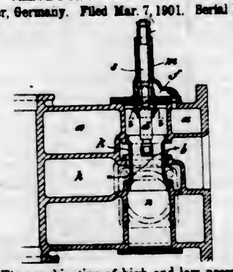


Claim.—1. A compound railroad-tie, consisting of an upper layer part, having a yielding or elastic bearing, a metallic surface-plate extending over the same, a lower layer composed of brick or cement, longitudinally recessed in its bottom, and a base-plate seated flush therein, and connected to the surface-plate by means of bolts, substantially as specified.

2. A compound railroad-tie, consisting of a lower layer part of brick or cement, longitudinally recessed in its bottom, a base-plate engaging the recess in a flush manner, an upper layer part recessed under the rail-seats, springs in the recessed portions, and a metallic surface-plate bridging the recessed portions, the parts being securely held together by vertical bolts, substantially as specified.

3. The combination with the recessed layer portions of body, and the arched inlet-springs and inlet base-plate, of the metallic surface-plate engaging the springs, the rail and brace-plate, and the vertical bolts securing the parts together, substantially as specified.

679,212. **VALVE FOR COMPOUND ENGINES.** AUGUST VON BORRIES, Hanover, Germany. Filed Mar. 7, 1901. Serial No. 50,945. (No model.)

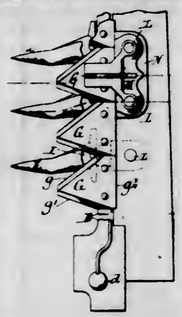


Claim.—1. The combination of high and low pressure cylinders, a valve-casing having a port at one end communicating with the steam-

chest of the low-pressure cylinder, the walls of said casing having two ports in different planes communicating respectively with the exhaust from the high-pressure cylinder and with the main exhaust, a hollow intercepting-valve movable in said casing and having an exterior annular passage between its ends, which, when the valve is in one extreme position establishes communication between the exhaust from the high-pressure cylinder and the main exhaust, and also between its interior and the port in the end of the casing, a reducing-valve movable with the hollow intercepting-valve and opening a port for admission of live steam to the interior of said hollow intercepting-valve when the latter is in said extreme position, said live steam passing from the intercepting-valve through the port in the end of the casing to the steam-chest of the low-pressure cylinder, substantially as set forth.

2. The combination of high and low pressure cylinders, a main exhaust-passage, a valve-casing, having ports communicating respectively with the high-pressure cylinder exhaust, the steam-chest of the low-pressure cylinder, and the main exhaust, a hollow intercepting-valve in said casing movable to direct the exhaust from the high-pressure cylinder to either the main exhaust or the steam-chest of the low-pressure cylinder, a second valve-casing communicating with the first-named casing and with a live-steam-supply pipe, a piston-valve in the second casing connected to and movable with the intercepting-valve, said piston-valve controlling communication between the two casings, a tubular extension of the second casing of less diameter than the casing, a stem connected to the piston-valve and extending through said tubular extension, said stem being of less diameter than the piston-valve and also the tubular extension, a sleeve slidably mounted on the stem and in the tubular extension, and means connected to the stem to move the valves, substantially as and for the purpose specified.

679,213. CUTTER MECHANISM FOR HARVESTERS. THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to Adriance, Platt & Company, same place. Filed Oct. 4, 1900. Serial No. 31,992. (No model.)



Claim.—1. The combination with a cutter-bar and a finger-bar arranged at right angles to the line of draft, an actuating-crank arranged higher than the cutter-bar, and a pitman connecting said crank with the cutter-bar, of cutter-sections secured to said reciprocating cutter-bar and having unequally-inclined cutting edges, the edge on the less effective side of the section being arranged at a smaller angle to the base of the section than that on the more effective side, substantially as set forth.

2. The combination with a cutter-bar and a finger-bar arranged at right angles to the line of draft, an actuating-crank arranged higher than the cutter-bar, and a pitman connecting said crank with the cutter-bar, of cutter-sections secured to said reciprocating cutter-bar and having unequally-inclined cutting edges, the edge on the less effective side of the section being arranged at a smaller angle to the base of the section than that on the more effective side, and guard-fingers provided with differently-inclined cutting edges arranged to form like cutting angles on both sides of each finger, substantially as set forth.

3. The combination with a cutter-bar and a finger-bar arranged at right angles to the line of draft, and an actuating mechanism for reciprocating the cutter-bar arranged higher than the cutter-bar, of cutter-sections secured to said cutter-bar and having unequally-inclined cutting edges, the edge on the less effective side of the section being arranged at a smaller angle than that on the more effective side, and guard-fingers having their bodies arranged obliquely, in a horizontal plane, to the finger-bar, and their points arranged parallel with the line of draft, substantially as set forth.

4. The combination with a cutter-bar and a finger-bar arranged at right angles to the line of draft, and an actuating mechanism for reciprocating the cutter-bar arranged higher than the cutter-bar, of cutter-sections secured to said cutter-bar and having unequally-inclined cutting edges, the edge on the less effective side of the section being arranged at a smaller angle than that on the more effective side, and guard-fingers having their bodies arranged obliquely, in a horizontal plane, to the finger-bar and provided with unequally-inclined cutting edges arranged to form like cutting angles on both sides of each finger and their points arranged parallel with the line of draft, substantially as set forth.

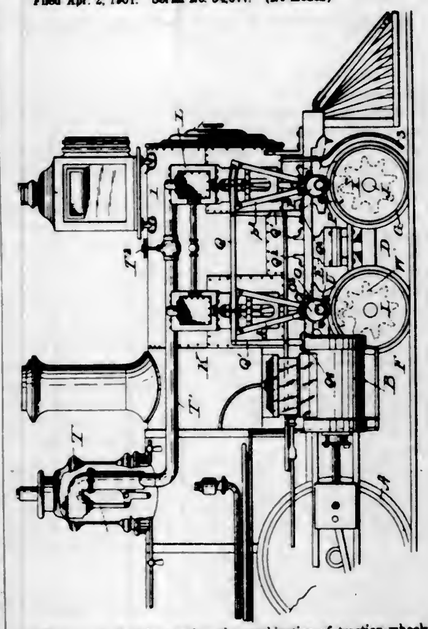
5. The combination with the finger-bar, of a guard-finger having its point and its palm arranged at right angles to the finger-bar and laterally out of line and having its body extending obliquely from the palm to the point, substantially as set forth.

6. A guard-finger having the axial lines of its point and its palm arranged parallel to each other and laterally out of line and having its body extending obliquely from the palm to the point, substantially as set forth.

7. A guard-finger having the axial lines of its point and its palm arranged parallel to each other and laterally out of line and having its body extending obliquely from the palm to the point and provided with cutting edges which are arranged at unequal angles, substantially as set forth.

8. A finger-blade having its axial line arranged at an oblique angle, laterally, to its base and having its two cutting edges arranged at unequal angles, the cutting edge on the side toward which the axial line is deflected being arranged at a steeper angle than that on the other side of the blade, substantially as set forth.

679,214. LOCOMOTIVE. ROBERT M. BRYANT, Riderville, Ala. Filed Apr. 2, 1901. Serial No. 54,077. (No model.)



Claim.—1. In a locomotive, the combination of traction-wheels, a main engine arranged to drive said wheels directly, a pilot-truck and an auxiliary engine arranged to drive the wheels of the pilot-truck through intermediate gearing; substantially as described.

2. In a locomotive, the combination of traction-wheels, a main engine arranged to drive said wheels directly, a pilot-truck having wheels arranged to normally rotate freely, and an auxiliary engine arranged to drive the wheels of the pilot-truck through intermediate gearing; substantially as described.

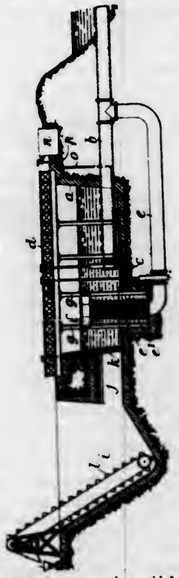
3. In a locomotive, the combination of traction-wheels, a main engine arranged to drive said wheels directly, a pilot-truck having wheels arranged to normally rotate freely, an auxiliary engine arranged to drive the wheels of the pilot-truck through intermediate gearing, and means for throwing the auxiliary engine into and out of gear with the wheels of the pilot-truck; substantially as described.

4. In a locomotive, the combination of traction-wheels, a main engine arranged to drive said wheels directly, a pilot-truck having wheels arranged to normally rotate freely, an auxiliary engine arranged to drive the wheels of the pilot-truck through intermediate gearing, means for throwing the auxiliary engine into and out of gear with the wheels of the pilot-truck, means for controlling the supply of steam to the auxiliary engine and independent means for controlling the supply of steam to the auxiliary engine; substantially as described.

5. In a locomotive, the combination of traction-wheels, a main engine arranged to drive said wheels directly, a pilot-truck having wheels arranged to normally rotate freely, an auxiliary engine arranged to drive the wheels of the pilot-truck through intermediate gearing, means for throwing the auxiliary engine into and out of gear with the wheels of the pilot-truck, means for controlling the supply of steam to the main engine, independent means for controlling the supply of steam to the auxiliary engine, and means whereby the reversing-gear and cut-off of the main and auxiliary engines may be simultaneously controlled.

6. In a locomotive, the combination of the main engine and its drive-wheel, of a vertically-arranged auxiliary engine located directly over the pilot-truck and arranged to drive the wheels of said pilot-truck through intermediate gearing, separate throttle-valves for the two engines, means for simultaneously controlling the cut-off and reversing-gear of the two engines, and means whereby the auxiliary engine may be disconnected from the truck-wheels to permit the latter to revolve freely; substantially as described.

679,215. METHOD OF EXTRACTING GOLD FROM SEA-WATER. HENRY C. BULL, London, England, assignor of one-half to Arthur Watling, same place. Filed Feb. 5, 1900. Serial No. 4,045. (No specimens.)



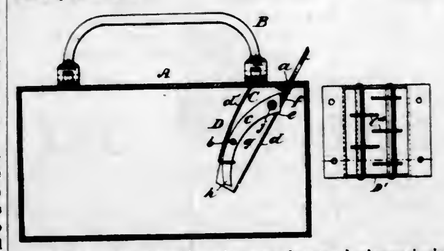
Claim.—1. The method of extracting gold from sea-water consisting in adding to and mixing with the sea-water to be treated a quantity of lime sufficient to precipitate the gold which it contains in a metallic condition, substantially as described.

2. The method of extracting gold from sea-water which consists in mixing with a quantity of sea-water a proportion of milk of lime, to react upon the iodid of gold contained in the sea-water to form iodid of calcium and to liberate the gold, then allowing the sludge formed by the reaction to settle, then drawing off the water and then collecting the sludge and treating it to extract the metallic gold therefrom, substantially as described.

679,216. COIN-RECEPTACLE. CHARLES O. BURNS, New York, N. Y., and EMIL A. STRAUSS, Chicago, Ill., assignors to C. O. Burns Co., of New York. Filed Feb. 27, 1901. Serial No. 49,085. (No model.)

Claim.—1. The combination with a coin receptacle or box having a coin-slot, of a guard-casing within the box and pendent under said slot, and a pivoted, gravity-operated guard in said casing, said guard being normally closed to the full admission of the coin at its end nearest the slot and beveled to form a V-shaped pocket for the entering coin, whereby the latter rocks the guard, substantially as set forth.

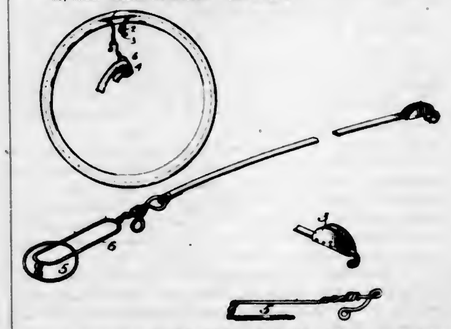
2. The combination with a coin receptacle or box having at its top a coin-slot, of a guard-casing within said box and pendent under said slot, and a pivoted, gravity-operated guard in said casing, said guard being normally closed at its upper end to the full entry of a coin and open at its lower end, and having its upper end nearest said slot beveled to form a V-shaped pocket *f* to receive the entering edge of the inserted coin, substantially as set forth.



3. The combination with a coin receptacle or box having a coin-slot at its top, of an inclined guard-casing D suspended in the box at said slot, and a guard pivoted in said casing at *b* and normally closed at its upper end to the full entry of a coin, and normally open at its bottom, said guard having its upper end beveled to form a V-shaped pocket *f* to receive the entering edge of the coin and its contact edge at its closed upper end engaging an apertare or apertures *e* in the plate *d* of the guard-casing, substantially as set forth.

4. The combination with a coin receptacle or box having a coin-slot at its top, of a guard-casing D suspended in an inclined position under said slot, said casing having a plate *d* with apertures *e* and a plate *d'* with its lower end bent downward and slotted, and the gravity-operated guard C, composed of rigidly-connected bars *c*, which engage and play in the slots in the bent lower edge of the plate D', the upper ends of said bars *c* being beveled to form the pocket *f*, substantially as set forth.

679,217. DEVICE FOR INSERTING INNER TUBES INTO PNEUMATIC TIRES. WILLIAM H. CRABTREE, Dottance, Kans. Filed May 10, 1901. Serial No. 59,630. (No model.)



Claim.—1. A device of the class described, comprising a steel tape having one end turned over or coiled and bearing a guide member, and a clamp attached to the other end of said tape, substantially as described.

2. A device of the class described, comprising a steel tape coiled at one end and provided with means for attaching a tire-tube to the other end, substantially as described.

679,218. METAL ARTICLE. WILLIAM A. DAY, Providence, R. I., assignor to Gorham Manufacturing Company, same place. Filed Apr. 23, 1900. Serial No. 13,886. (No model.)



Claim.—As a new article of manufacture, an article of precious metal having ornamental figures of precious sheet metal soldered to the normal surface, and the normal surface raised by the electrode position of precious

metal differing in color or quality from the sheet-metal ornamentations, as described.

679,219. **DEVICE FOR CUTTING REGISTER SLITS OR OPENINGS IN PRINTED SHEETS.** TALBOT C. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, same place and New York, N. Y. Filed Mar. 31, 1900. Serial No. 10,921. (No model.)



Claim.—1. In a device of the character described, the combination of a supporting block or body formed with a recess or socket in it and adapted to be locked in a printing-form, with a cutting-blade removably mounted in the recess or socket of the said supporting block or body and adapted to be secured in different angular positions therein, substantially as and for the purpose set forth.

2. In a device of the character described, the combination of a supporting block or body formed with grooves in its upper face extending at an angle to each other, with a cutting-blade removably mounted in said supporting-body and adapted to be placed in engagement with either of said grooves of the supporting-body, substantially as and for the purpose set forth.

3. In a device of the character described, the combination of a supporting block or body formed with a recess or socket and grooves extending from said recess or socket at an angle to each other, with a cutting-blade mounted upon a stem or shank and having its ends projecting beyond its stem or shank, the said stem or shank resting in the recess or socket and the projecting ends engaging one of said grooves, substantially as and for the purpose set forth.

4. A device of the character described, comprising a stem or shank, a cutting-blade secured to the stem or shank so as to extend transversely thereto, and having its ends projecting beyond the stem or shank to form wings, and a supporting block or body formed with a socket for the reception of the shank or stem and grooves or notches for the reception of said wings, substantially as and for the purpose set forth.

5. A device of the character described, comprising a stem or shank, a cutting-blade secured to the stem or shank at one end, a supporting block or body formed with a socket or recess for the reception of the stem or shank, and an adjustable screw threaded into the opposite end of the stem or shank and adapted to rest upon the bottom of the socket or recess for supporting the cutting-blade at the desired height, substantially as and for the purpose set forth.

6. In a device of the character described, the combination of a supporting block or body formed with yielding side walls and adapted to be locked up in a printing-form, with a cutting-tool adapted to be mounted between said yielding side walls of the supporting-body, whereby it will be firmly held therein when the side walls are compressed in a printing-form, and means for expanding or separating said side walls to release the cutting-tool, substantially as and for the purpose set forth.

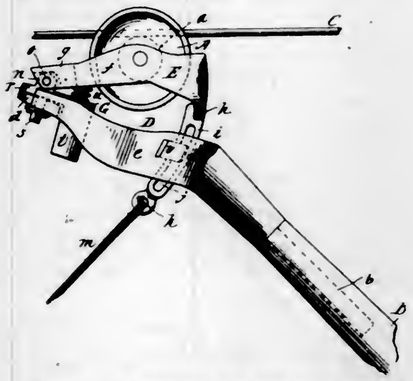
7. In a device of the character described, the combination of a supporting block or body formed with yielding side walls and adapted to be locked up in a printing-form, with a cutting-tool adapted to be mounted between said yielding side walls of the supporting-body, whereby it will be firmly held therein when the side walls are compressed in a printing-form, and a screw threaded into said supporting block or body between the yielding side walls and adapted to expand or separate the side walls to release the cutting-tool, substantially as and for the purpose set forth.

8. In a device of the character described, the combination of a supporting block or body formed with yielding side walls and a receiving socket or recess formed in the inner faces of and between said side walls, said supporting block or body being adapted to be locked up in a printing-form, with a cutting-tool formed with a stem or shank shaped to fit the said recess between the yielding side walls, substantially as and for the purpose set forth.

9. In a device of the character described, the combination of a supporting block or body formed with yielding side walls and a recess or socket between the side walls, a sheet-cutting tool adapted to rest in said recess or socket, and a conical-headed screw or screws threaded into the supporting block or body and engaging the inner faces of the yielding side walls, substantially as and for the purpose set forth.

10. In a device of the character described, the combination of a supporting block or body having a central kerf or groove cut into one face extending from end to end and nearly to its opposite face, thereby forming yielding side walls, a cutting-tool fitting between the yielding side walls of the supporting block or body, and expanding-screws threaded into the block or body between the yielding side walls, substantially as and for the purpose set forth.

679,220. **TROLLEY.** NAPOLEON DURANT, North Adams, Mass., assignor of one-half to Jerome L. Cross, Adams, Mass. Filed Aug. 18, 1900. Serial No. 27,233. (No model.)



Claim.—1. The combination with a trolley-pole, of a trolley-wheel, and a frame carrying said wheel pivotally connected to the trolley-pole at a point in the rear of said wheel, substantially as described.

2. The combination with a trolley-pole, of a supporting-frame carried by said pole, a trolley-wheel frame pivotally connected to the supporting-frame and a trolley-wheel carried by the wheel-frame in advance of the pivotal connection, substantially as described.

3. The combination with a trolley-pole, of a trolley-wheel and a frame carrying said wheel pivotally mounted, and supported by said pole, the point of the pivotal connection of the wheel-supporting frame being in the rear of the wheel, and a spring for exerting an upward pressure on the wheel-carrying frame, substantially as described.

4. A trolley pole or carrier provided with a yoke D having combined therewith a second yoke E in which the trolley-wheel is journaled, said wheel-yoke being pivotally mounted for an up-and-down swinging motion relatively to said yoke D, and provided with a depending limb *i* having the slot *j* therein, the stop-bar or limiting member *v* provided to the yoke D, and extended through said slot and a spring for exerting a pressure upon the trolley-wheel yoke in a direction away from the trolley-pole yoke.

5. A trolley pole or carrier provided with a yoke D having combined therewith a second yoke E in which the trolley-wheel is journaled, said wheel being pivotally mounted for an up-and-down swinging motion relatively to said yoke D, and provided with a depending limb *i* having the slot *j* therein, and having at its lower end the eye *k* the stop-bar or limiting member *v* provided to the yoke D and extended through said slot, *j*, and a spring for exerting a pressure upon the trolley-wheel in a direction away from the trolley-pole yoke.

6. The combination with the pole-carried yoke having the supporting portion *d* of a part G pivotally jointed to said part *d* for a swinging movement horizontally and transversely, the yoke E, and a spring applied for reaction between the said part G and said yoke E, substantially as and for the purposes set forth.

7. The combination with the yoke D having the uniting cross-web provided with the perforation *e*, of the part G having the depending stud, passed through said perforation, and having the upwardly-open socket *t*, the trolley-wheel yoke E, pivotally connected to the part G on a horizontal axis and having the wheel journaled therein, and the spring interposed between said part G and the under side of the trolley-wheel yoke, substantially as described.

8. In a device of the character described, in combination yoke D comprising opposite cheeks *c c* and uniting horizontal web *d* having the vertical socket *e*, and the cross-bar *v* having an arc form generated from said socket, the part G comprising the base *r*, with upstanding ear-lugs *q q*, depending stud *s* and depending upwardly-open socket *t*, the trolley-wheel yoke E comprising uniting cross member *k* having the depending curve-slotted limb *i*, the uniting-pivot *o*, the trolley A journaled in the yoke E, and the spring *u* set in the socket *t* and exerting an upward force against the under side of the said yoke E all arranged as described and shown.

9. A trolley pole or carrier provided with a yoke or frame D having combined therewith a second yoke or frame E in which the trolley-wheel is journaled, said yoke E being pivotally supported for an up-and-down swinging motion relatively to the yoke D at a point in the rear of the wheel, and a spring for exerting a pressure upon the trolley-wheel yoke in a direction away from the trolley-pole yoke.

10. A trolley pole or carrier provided with a yoke or frame D having combined therewith a trolley-wheel-carrying yoke having pivotal supporting connections on the trolley-pole yoke, at a point in the rear of the wheel, whereby it has swinging motions both vertically and horizontally, a spring for imparting an upward swinging pressure on the wheel-carrying yoke, and means for limiting the extent of upward-swinging motion of said yoke and the wheel which is carried thereby.

679,221. **BLACK POLYAZO DYE AND PROCESS OF MAKING SAME.** OTTO ERNST, Höchst-on-the-Main, Germany, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, same place. Filed Jan. 29, 1901. Serial No. 45,227. (Specimens.)

Claim.—1. The herein-described process for the manufacture of azo dyestuffs, which consists in combining a chrysoidin from one molecular proportion of diazotized amidonaphtholsulfonic acid G and one molecular proportion of metadiamin in an alkaline solution with one molecular proportion of para-diazobenzeneazo 1.6 (1.7) naphthylaminsulfonic acid, substantially as set forth.

2. As a new compound, the azo dyestuff of the constitution:

Para-phenylenediamin < 1.6 (1.7) alpha-naphthylaminsulfonic acid
Amidonaphtholsulfonic acid G (diazot.)
+ metaphenylene-(toluylene-) diamin,

being a brown powder of slight metallic luster, almost insoluble in alcohol, soluble in water with a dull-violet color, which on addition of ammonia turns somewhat bluer; concentrated sulfuric acid dissolves it with a gray-green color; on addition of water the dyestuff is separated as a blue-violet precipitate; it directly dyes cotton a deep black.

679,222. **PARALLEL ADJUSTABLE SWING-JOINT.** EDWARD J. FILLIATREAULT, Duluth, Minn. Filed Mar. 18, 1901. Serial No. 51,603. (No model.)

Claim.—1. A conduit-joint comprising interlocking bifurcated members, means for locking said members at any desired angle with relation to each other, and means for operating said locking means, substantially as described.

2. A conduit-joint comprising two bifurcated members, the bifurcation of one member fitting snugly within the bifurcation of the opposite member, whereby a clear central passage will be provided, and means for locking said bifurcated members together, substantially as described.

3. A conduit-joint comprising two bifurcated members, the walls of said bifurcated portions being concavo-convex, and the convex faces of the bifurcated portions of one member being adapted to fit snugly the concave faces of the bifurcated portions of the opposing member, whereby a clear central passage will be provided, and means for locking said parts at any desired angle, substantially as described.

4. A conduit-joint comprising two bifurcated members, the bifurcated portions of one member being adapted to fit within the bifurcated portions of the opposing member, and hand-operated means for locking said parts together, substantially as described.

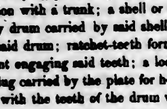
5. A conduit-joint comprising two bifurcated members, the bifurcated portion of one member being formed with an apertare adapted to register with a like aperture in the opposing bifurcated portion, a bolt passed through said registering apertares, and means carried by the outer end of said bolt for locking the parts together, substantially as described.

6. A conduit-joint comprising two bifurcated members, the bifurcated portions of one member being adapted to fit within the bifurcated portions of the opposing member, bolts passed through said bifurcated portions, nuts carried thereby and means for revolving said nuts, whereby said joint may be locked with the members at any desired angle with relation to each other, substantially as described.

7. A conduit-joint comprising members pivotally secured together, bolts forming said pivots, nuts carried by said bolts, the thread upon said bolts running in opposite directions, and a key adapted to engage both bolts at the same time, whereby a movement of the same in one direction will lock the joint and a movement in the opposite direction will unlock the same, substantially as described.

679,223. **NUT-LOCK.** JOHN W. FLETCHER, Chicago, Ill. Filed Jan. 17, 1901. Serial No. 43,565. (No model.)

Claim.—1. The combination with a bolt having a slotted end and a nut adapted to be secured thereon and radially notched on its outer face of a rod or wire flattened centrally and secured at its middle in the slot of said bolt with its ends extending into the notches of the nut and a jam-nut acting to bind said rod or wire into engagement with said nut, the ends of said rod or wire being turned over said jam-nut and secured in the slot of said bolt when in position.



2. The combination with a bolt having a slotted end and a nut adapted to be secured thereon and radially corrugated on its outer face, of a rod or wire flattened centrally and secured at its middle in the slot of said bolt with its ends extending into the corrugations of the nut and a jam-nut also radially corrugated on its outer face and acting to bind said rod or wire into engagement in the corrugations of said nut, the ends of said rod or wire being turned over said jam-nut and into said radial corrugations thereon with the extremities bent downwardly and secured in the slot of said bolt when in position.

679,224. **FASTENING DEVICE FOR TRUNKS.** EDWARD H. FOX, Olympia, Wash. Filed Dec. 14, 1900. Serial No. 39,934. (No model.)

Claim.—1. In combination with a trunk and its lid; a strap or band passing about the same; a tightening device for said strap or band; and means for inclosing said tightening device after the trunk is closed and the strap or band is placed under tension.

2. In combination with a trunk and its lid; a strap or band passing about the same; a tightening device for said strap, mounted upon the exterior of the trunk; and a lock for securing the lid and inclosing said tightening device.

3. In combination with a trunk, a strap or band tightening device carried thereby; a plate hinged adjacent to said device; and a lock carried by said plate.

4. In combination with a trunk; a strap or band tightening device carried thereby; a plate hinged adjacent to said device; a lock for the trunk-lid carried by said plate; and means also carried by the plate arranged to hold the tightening device against action when the trunk is locked.

5. In combination with a trunk; a shell or casing mounted in one face thereof; a rotary drum carried by said shell; means for connecting a strap or band to said drum; means for holding said drum in its adjusted position; and a lock-carrying plate hinged to said shell.

6. In combination with a trunk; a shell or casing mounted in one face thereof; a rotary drum carried by said shell; means for connecting a strap or band to said drum; ratchet-teeth formed at one end of the drum; a dog or detent engaging said teeth; a lock-carrying plate hinged to said shell; and a lug carried by the plate for holding the dog or detent in operative relation with the teeth of the drum when the plate is swung over the shell.

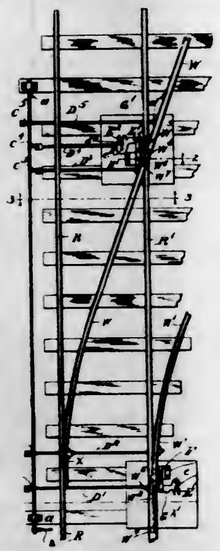
7. In combination with a trunk; a shell or casing mounted in an opening formed in one face thereof; and a rotary drum carried by said casing, said drum having an opening formed therein for the attachment for a strap or band, the casing being likewise provided with an opening in its inwardly-projecting wall in line with the opening in the drum.

8. In combination with a trunk; a shell or casing mounted in an opening therein; and a rotary drum having a collar or enlargement formed at one end thereof with an opening extending therethrough in line with an opening formed in the wall of the shell.

9. In combination with a trunk; a shell or casing mounted in one wall thereof; a drum rotatably mounted in the shell and provided with a series of ratchet-teeth in one end and an enlarged head or collar at the opposite end, said collar having a series of openings formed therein; a pin extending out from the drum; a strap M having one end attached to the pin and the opposite end secured to the drum; means for holding the drum in its adjusted position; and a lock-carrying plate hinged to the lower end of the shell or casing.

10. In combination with a trunk and its lid; a strap or band passing about the same; a tightening device for said strap or band, mounted in a chamber normally open when said trunk is closed and the band or strap is under tension; and means for closing said chamber.

679,225. RAILROAD-SWITCH. DANIEL GRUHLKEY, Marseilles, Ill. Filed May 10, 1901. Serial No. 59,592. (No model.)

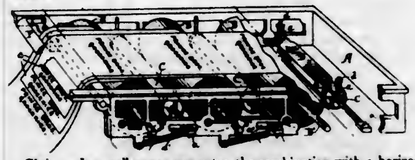


Claim.—1. In a railroad-switch, the combination with the main and unbroken rails of a railroad-track, of a switch-point rail cut at its crossing of the unbroken rail of the main track, means for moving the cut ends laterally in opposite directions and so that the tread thereof may move over and off of the main rail, a rigid plate, a sliding block between the rigid plate and the inner end of the cut switch-point rail, a crank-rod and a connection between the crank-rod and the sliding block, whereby, when the cut ends of the switch-point rail are moved over and onto the main rail the sliding block is moved to lock the switch-point rail with the end thereof adjacent thereto firmly in place on such main rail, and connections between the crank-rod and the toe of the switch-rails, whereby the position of such toe ends of the switch-rails is determined by the crank-rod, and an elevating-plate attached to the inner side of the outside switch-point rail, adjacent to the toe thereof, a rigid plate, a sliding block and a connection between the sliding block and the crank-rod; substantially as described.

2. In a railroad-switch the combination with an unbroken rail of the main track, of a switch-point rail the toe whereof is adjacent to and outside of the main rail, a rigid plate, a sliding block between the rigid plate and the outside of the switch-point rail near the toe of such rail a crank-rod, connection between the crank-rod and the sliding block and between the crank-rod and switch-point rail and an elevating-plate attached to the inner side of the switch-point rail adjacent to the toe thereof whereby when such toe is moved laterally by the movement of the crank-rod the elevating-plate is moved over and off of the main rail and when over the main rail the movable block locks it in place thereon; substantially as described.

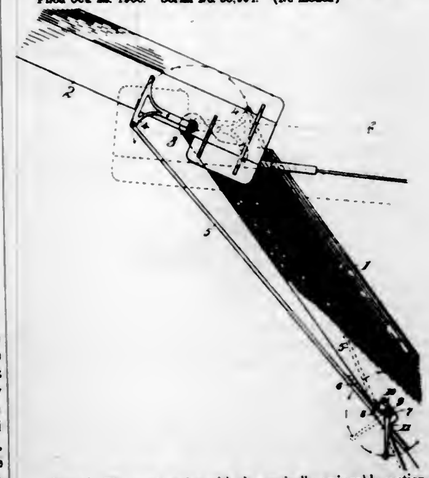
3. In a railroad-switch, the combination with the unbroken rails of the main track, of a switch-point rail cut at its point of crossing such unbroken main-track rail, means whereby the ends obtained by such cut may have lateral movement in opposite directions and so that the tread thereof may move over and off of the main rail, a rigid plate adjacent to one end of the switch-point rail, a sliding block between the rigid plate and the end of the switch-point rail adjacent thereto, a crank-rod, means for operating the crank-rod, and connections between the crank-rod and the ends of the switch-point rail and between such crank-rod and the sliding block; whereby when the crank-rod is operated and the switch-point rails are moved over and onto the unbroken rail the sliding block is moved to lock the end of the switch-point rail which is adjacent thereto; substantially as described.

679,226. ROLL-PAPER HOLDER AND CUTTER. WILLIAM R. HANEY, Dayton, Ohio. Filed Dec. 31, 1900. Serial No. 41,563. (No model.)



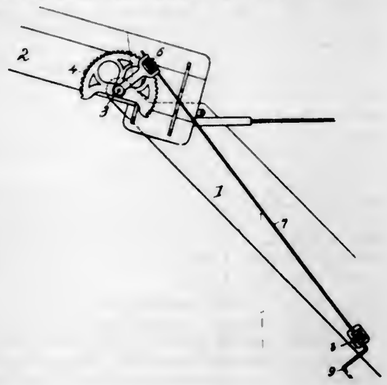
Claim.—In a roll-paper apparatus, the combination with a horizontal frame, of a plurality of rolls of paper of varying lengths mounted therein, a type-cylinder arranged between each two of such rolls of paper, each of such type-cylinders acting upon the forward roll, pins projecting from the shafts of such type-cylinders, an inking-pad mounted above each of such type-cylinders on said pins, and means for maintaining said inking-pads in normal contact with the type-cylinders, substantially as shown and described.

679,227. STRAW-STACKER. MARTIN HEINEKE, Springfield, Ill. Filed Oct. 22, 1900. Serial No. 33,991. (No model.)



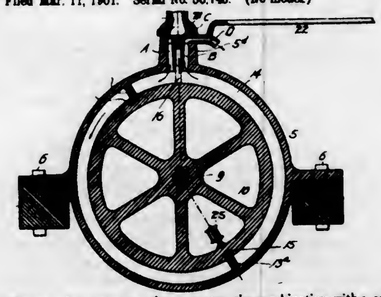
Claim.—The combination with the vertically-swingable section of a stacker, of a push-rod pivotally connected with such section off the pivot thereof, a crank-shaft, a saddle-bracket hung loosely on the crank-shaft and embracing the push-rod, teeth on the push-rod presented toward the crank-shaft and a gear-wheel fixed onto the crank-shaft in mesh with the teeth of the push-rod, substantially as set forth.

679,228. STRAW-STACKER. MARTIN HEINEKE, Springfield, Ill. Filed Oct. 22, 1900. Serial No. 33,993. (No model.)



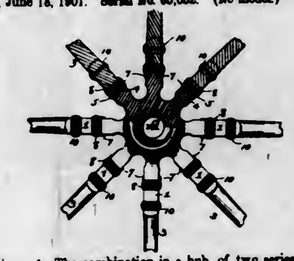
Claim.—The combination with the vertically-swingable section of a stacker, of a pivot-shaft to which the swingable section is fixed, a gear-wheel fixed onto the pivot-shaft, an arm mounted loosely on the pivot-shaft and forked at its extended end, a worm journaled in the forked end of the arm in mesh with the wheel, and a shaft for the worm journaled in a bearing on a relatively stationary part of the stacker and having a crank-arm adjacent to such bearing, substantially as described.

679,229. ROTARY ENGINE. IVAR HERMANSON, Denver, Colo. Filed Mar. 11, 1901. Serial No. 50,743. (No model.)



Claim.—In a rotary engine or motor, the combination with a casing and a shaft journaled therein, of a rotary piston fast on the shaft and provided with wings or blades, the periphery of the piston and the adjacent part of the casing being shaped to form an annular fluid-chamber, the blades or wings of the piston projecting into and across said chamber, the casing having inlet and exhaust ports communicating with the chamber, and provided with a partition separating said ports, said partition having a recess, an abutment normally occupying a position across the annular chamber and in a plane between the said ports, a lever fulcrumed on the casing, a rod connected with said lever at one extremity and with the said abutment at the opposite extremity, and a cam fast on the shaft and adapted to actuate said lever whereby the valve is operated and made to enter the recess of the partition between the ports.

679,230. VEHICLE-HUB. WILLIAM J. HOLLAND, Erie, Tex. Filed June 18, 1901. Serial No. 65,052. (No model.)



Claim.—1. The combination in a hub, of two series of flanges cooperating to form a series of sockets, a spoke in each socket, a band encircling each pair of flanges and the spoke in the socket formed thereby and means coöperating with the bands and the spokes to lock the latter in place.

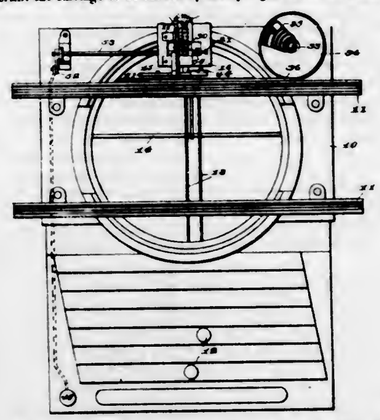
2. The combination in a hub, of two series of flanges coöperating to form a series of sockets, of a spoke in each socket, a band encircling each pair of flanges constituting a socket and ribs on the spokes to be engaged by the bands to secure the said spokes in place.

3. The combination in a hub, of two series of flanges, coöperating to form a series of sockets, of a spoke in each socket, a band encircling each pair of flanges constituting a socket, means for securing said bands against lateral displacement, and ribs on the spokes to be engaged by the bands to secure the said spokes in place.

4. The combination in a hub, of two series of flanges coöperating to form a series of sockets, of a spoke in each socket, a band encircling each pair of flanges constituting a socket, pins passing through the bands and entering the spokes and ribs on the spokes to be engaged by the bands to secure the said spokes in place.

679,231. TYPE-WRITER. ERNST A. HORNBOSTEL, sr., Des Moines, Iowa, assignor of one-half to William Louis Harbach, same place. Filed Feb. 7, 1901. Serial No. 46,302. (No model.)

Claim.—1. In a type-writer, the combination of a machine-frame, a sliding carriage, a pawl-supporting device mounted upon the machine-frame and capable of movement to and from the rack, rack-actuating pawls mounted on said sliding device and normally in engagement with the rack and operated by type-keys, whereby upon the pressure of any type-key the carriage will be pushed one type-space, spring-actuated mechanism for returning the carriage in a direction opposite to that in which it is pushed by the depression of the type-keys, a key connected with the machine-frame, and mechanism connected with said key whereby the said sliding device may be moved out of engagement with the rack to permit the carriage to be moved by the spring-actuated mechanism.



2. In a type-writer, the combination of a machine-frame, a sliding carriage on the machine-frame, a rack connected with the carriage, mechanism connected with the machine-frame in engagement with said rack and operated by the type-keys, whereby upon a pressure of any type-key the carriage will be pushed one type-space, spring-actuated mechanism for returning the carriage in the direction opposite to that in which it is pushed by the depression of the type-keys, a key connected with the machine-frame, mechanism connected with said key, whereby the rack-advancing device may be withdrawn from engagement with the rack, thereby permitting it to be moved by the spring-actuated mechanism, and a releasing device adjustably mounted on the carriage to automatically force the rack-bar-advancing mechanism out of engagement with the rack when the carriage has been advanced to a position where said releasing device engages the rack-bar-advancing mechanism, for the purposes stated.

3. In a type-writer, the combination of a sliding carriage, a rack-bar thereon, spring-actuated mechanism for returning the carriage to position at the beginning of a line, and a lever fulcrumed adjacent to the rack-bar, a pawl pivotally mounted in said lever to engage the rack-bar, whereby when the lever is moved in one direction the said pawl will move said rack, and when the lever is moved in the opposite direction, the pawl may pass from one tooth to an adjoining one of the rack, a second spring-actuated pawl arranged to permit the rack to move in the direction in which it is forced by the aforesaid pawl, and means for operating said lever to advance the rack upon the depression of any of the type-keys.

4. In a type-writer, the combination of a sliding carriage, a rack-bar thereon, a spring-actuated mechanism for returning the carriage to position at the beginning of a line, a lever fulcrumed adjacent to the rack-bar, a pawl pivotally mounted in said lever to engage the rack-bar, whereby, when the lever is moved in one direction, the said pawl will move said rack, and when the lever is moved in the opposite direction, the pawl may pass from one tooth to an adjoining one of the rack, a second spring-actuated pawl arranged to permit the rack to move in the direction in which it is forced by the aforesaid pawl, means for operating said lever to advance the rack, upon the depression of any of the type-keys, and manually-operated means for throwing both of said pawls simultaneously out of engagement with the rack.

5. In a type-writer, the combination of a sliding carriage, a rack-bar thereon, spring-actuated mechanism for returning the carriage to position at the beginning of a line, a lever fulcrumed to the rack-bar, a pawl pivotally mounted in said lever to engage the rack-bar, whereby, when the lever is moved in one direction the said pawl will move said rack, and when the lever is moved in the opposite direction, the pawl may pass from one tooth to an adjoining one of the rack, a second spring-actuated pawl arranged to permit the rack to move in the direction in which it is

forced by the aforesaid pawl, means for operating said lever to advance the rack upon the depression of any of the type-keys, and manually-operated means for throwing both of said pawls simultaneously out of engagement with the rack, and an adjustable release mounted upon the carriage, and arranged to throw both of the pawls out of engagement with the rack when the carriage has been advanced to a certain predetermined position.

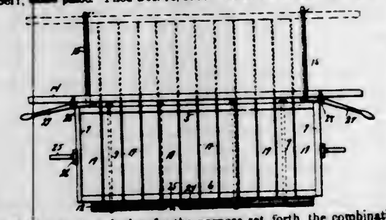
6. In a type-writer, the combination of a machine-frame, a sliding carriage thereon, a rack-bar borne by the carriage, a yielding pressure device for moving the carriage longitudinally in one direction, a bar slidingly mounted upon the machine-frame, capable of movement in a direction to and from the rack-bar, a pivoted lever connected with said sliding bar, a spring-actuated pawl pivoted to the lever, to normally engage the rack-bar, a second spring-actuated pawl pivoted to the said sliding bar to engage the rack-bar, means for actuating said lever upon the depression of any type-key of the machine, a key mounted in the machine and mechanism connected with the key for moving the sliding bar to a position where said pawls will be out of engagement with the rack-bar, and yielding pressure devices for normally holding the sliding bar to a position where the pawls will engage the rack-bar, for the purposes stated.

7. In a type-writer, the combination of a machine-frame, a carriage slidingly mounted thereon, a rack-bar borne by the carriage, a yielding pressure device for returning the carriage, a sliding bar mounted on the machine-frame, capable of movement in a direction to and from the rack-bar, a shaft rotatably mounted in said sliding bar, a lever fixed to said shaft, a spring-actuated pawl on one end of said lever, a rod on the other end of said lever, means for operating said rod upon the depression of any type-key of the machine, a second spring-actuated pawl pivoted to said sliding bar, a shaft mounted in the machine-frame, a crank thereon connected with the sliding bar, another crank thereon, a key connected with the last-mentioned crank, whereby, upon a depression of the key the sliding bar will be moved to a position where the said pawls are out of engagement with the rack-bar, and a yielding pressure device for normally holding the sliding bar to a position where the pawls engage the rack-bar, for the purposes stated.

8. In a type-writer, the combination of a machine-frame, a sliding carriage on the machine-frame, spring-actuated mechanism for returning the sliding carriage, a rack-bar borne by the carriage, a device slidingly mounted on the machine-frame to move in a direction to and from the rack-bar, positively-actuated means mounted on said sliding bar, whereby, upon the depression of any type-key the rack-bar will be advanced against the pressure of the springs, and a releasing device having an inclined surface, adjustably mounted on the carriage-frame, capable of engaging the said sliding bar and forcing it away from the rack-bar, for the purposes stated.

9. In a type-writer, the combination of a machine-frame, a sliding carriage mounted on the machine-frame, a rack-bar borne by the carriage, a yielding pressure device for returning the carriage, a sliding bar mounted on the machine-frame adjacent to the rack-bar and having an upwardly-projecting shoulder thereon, a block secured to the sliding bar, a shaft rotatably mounted in said block, a cylinder connected with the machine-frame and having said shaft passed through it, and also having a notch in its rear end, a spring wound upon the shaft to engage said cylinder and also said block, a collar secured to the shaft and provided with a tooth to enter said notch, a lever fulcrumed to said shaft, a spring-actuated pawl connected with said lever to normally engage the rack-bar, a rod adjustably secured to the said lever, means whereby, upon a depression of any type-key the said rod will be operated, a spring-actuated pawl mounted on said sliding bar, a key mounted in the machine-frame, means operated by the key for forcing the said sliding bar against the pressure of the spring on the said shaft, whereby the pawls are thrown out of engagement with the rack-bar, substantially as, and for the purposes stated.

679,232. **MOLD FOR BRICK OR ARTIFICIAL STONE.** SOLOMAN M. KIBBLE, Corunna, Mich., assignor to George Setzer and Adam Serr, same place. Filed Dec. 10, 1900. Serial No. 39,263. (No model.)



Claim.—1. In a device for the purpose set forth, the combination of the compressible mold having a follow-board forming the bottom and ends thereof, movable partitions crossing the mold-chamber between the ends thereof and means for moving said partitions.

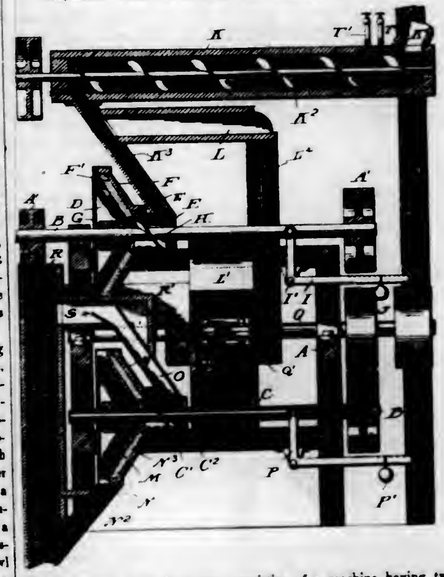
2. In a device for the purpose set forth, the combination of a compressible mold having openings in the side thereof, a series of approximately parallel partitions adapted to enter said openings and extend across the mold-chamber the dividing of the chamber into independent sections, and a movable cross-piece attached to said partitions, whereby they may be actuated in unison.

3. In a device for the purpose set forth, the combination of a mold having a movable side, retractable partitions dividing the mold-chamber and movable through the side of the mold, and a clamp for confining the movable side of the mold.

4. In a device for the purpose set forth, the combination of a compressible mold having a movable side, means for locking and releasing said side, a follow-board forming the bottom and ends of the mold and a movable cross-piece carrying a series of parallel partitions adapted to divide the mold-chamber.

5. In a device for the purpose set forth, the combination of a mold having a movable side, an eccentrically-mounted bar crossing said side and lying contiguous thereto, a follow-board forming the bottom and ends of the mold and a series of retractable partitions dividing the mold-chamber.

679,233. **APPARATUS FOR REMOVING AND SEPARATING BRAN FROM GRAIN.** WILLIARD W. LIND and JOSEPH C. MCKEE, Caldwell, Idaho. Filed Oct. 12, 1900. Serial No. 32,867. (No model.)

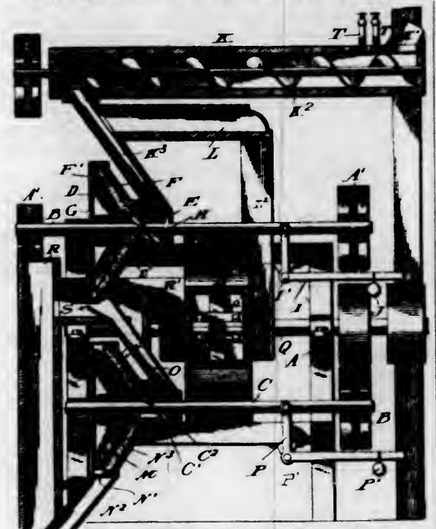


Claim.—1. A grain-scourer, consisting of a machine having two sets of conoidal disks, one disk in each set being stationary, and provided with a facing of semirigid material, the second disk in one set being rotatable, and having a solid surface adjacent to the semirigid facing, the second disk of the other set being rotatable, and having a brush-surface, and means for conveying the grain from one set of disks to the other, as set forth.

2. A grain-scourer, consisting of a set of conoidal disks, one having a solid surface and rotatable, the other being stationary, a semirigid facing on the concave surface of said stationary disk, a second set of conoidal disks, one being rotatable and having a brush-surface, the other being stationary, and having a semirigid facing, a grain-moistening box, conveying means between said box to and through the sets of disks, and pneumatic apparatus for removing the moisture and bran from the grain as it passes through the machine, as set forth.

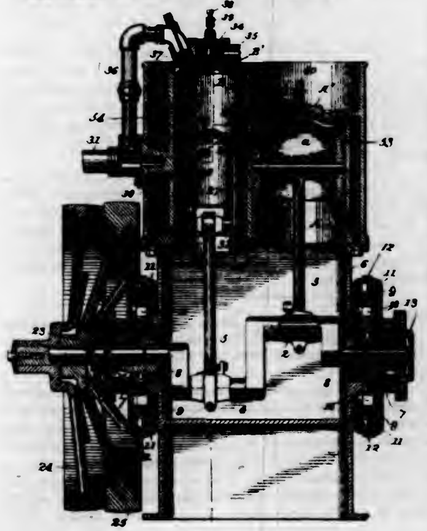
3. In a grain-scourer, the framework, two longitudinally movable and rotatable shafts mounted therein, two sets of conoidal disks, one disk of one set mounted to rotate with one of said shafts, the adjacent disk having a facing of semirigid material on its concave face, one disk of the other set rotating with the second shaft and having a covering of brushes, and its adjacent disk stationary and having its concave face covered with a semirigid facing, a receptacle in which the grain is steamed or soaked, a conveyer therein, communicating passage-ways between said receptacle and sets of disks, feed-worms on said shafts, and pneumatic means for withdrawing moisture and bran from the passage-ways as the grain passes through the machine, as set forth.

679,234. **PROCESS OF REMOVING AND SEPARATING BRAN FROM GRAIN.** WILLIARD W. LIND and JOSEPH C. MCKEE, Caldwell, Idaho. Filed Oct. 30, 1900. Serial No. 34,945. (No specimens.)



Claim.—The herein-described process of treating cereals, which consists in moistening the grain to saturate the first scale, then subjecting it to an artificially-created current of air to remove the surplus moisture and expand the saturated portion, thus partially releasing it from the second bran-scale, then removing all particles of the outer bran-scale, then subjecting the kernels to a similar treatment to independently loosen and remove the inner bran-scale, and finally removing from the kernels all of the bran, substantially as described.

679,235. **AIR OR GAS PUMP.** JOHN PATTEN, Baltimore, Md., assignor to the Patten Vacuum Ice Machine Company, same place. Filed June 23, 1900. Serial No. 21,303. (No model.)



Claim.—1. In a compound air and gas pump, the combination of two cylinders, a port leading from one of said cylinders to the other, reciprocating pistons in said cylinders, the piston in one of the cylinders being arranged to reciprocate across said port and thereby form a valve for the other cylinder.

2. In a compound air and gas pump, the combination of two pump-cylinders, A, B, pistons in said cylinders, a port communicating between the end of cylinder A and an intermediate portion of cylinder B, an inlet to the latter cylinder below its piston, and means for reciprocating the piston, the piston in cylinder B serving as a valve to control the port of cylinder A.

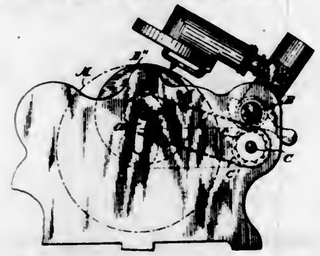
3. In a compound air and gas pump, the combination of two cylinders, A, B, a reciprocating piston in cylinder A, a port leading from the end of cylinder A to an intermediate portion of the cylinder B, a barrel-shaped piston in cylinder B having closed ends and an intermediate transverse passage, and an inlet-port communicating with said passage, the upper end of said barrel being reciprocated across the port of cylinder A whereby said cylinder is alternately placed in communication with cylinder B and the inlet-port, for the purpose set forth.

4. In a compound air and gas pump, the combination of two cylinders A and B, reciprocating pistons in said cylinders, a port communicating between the end of cylinder A and an intermediate portion of cylinder B, and inlet and outlet valves at the end of cylinder B, the piston in cylinder B being adapted to reciprocate across said port and operate as a valve for cylinder A.

5. In a compound air and gas pump, the combination of a cylinder A and a smaller cylinder B, pistons in said cylinders, a port communicating between the upper end of the larger cylinder and an intermediate portion of the smaller cylinder, an inlet-port to the smaller cylinder below the path of its piston, normally-closed inlet and outlet ports at the upper end of the smaller cylinder, and a crank-shaft having two cranks connected to said pistons respectively to reciprocate the same.

6. In a compound air and gas pump, the combination of two cylinders A and B, a port between the upper end of the cylinder A and an intermediate portion of the cylinder B, pistons in said cylinders, the piston in cylinder B serving as a valve for cylinder A, and a double crank-shaft and connecting-rods for operating said pistons, the cranks of said shaft being less than one hundred and eighty degrees apart.

679,236. **GRAPHOPHONE.** THOMAS H. MACDONALD, Bridgeport, Conn., assignor to American Graphophone Company, of West Virginia. Filed Mar. 14, 1901. Serial No. 51,165. (No model.)



Claim.—1. In a talking-machine, the combination with a driving device, of an adjustably-mounted mandrel always in rotatable connection therewith, and means for holding the latter firmly in its various adjustments, substantially as described.

2. In a talking-machine, the combination with a driving-shaft journaled in bearing-plates, of a mandrel-rod carried by said plates in curved bearing-slots that are concentric with said driving-shaft, and a connection from said driving-shaft that turns the mandrel on said rod, substantially as described.

3. In a talking-machine, the combination with bearing-plates and a driving-shaft journaled therein, of an adjustable mandrel-rod supported by said plates within curved bearing-slots that are concentric with said driving-shaft, a sleeve surrounding that portion of the mandrel-rod between said plates and abutting against the latter, and means for holding said mandrel-rod in its adjustment, substantially as described.

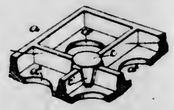
4. In a talking-machine, the combination with a driving-shaft, and a mandrel adjustably mounted so as to be always parallel therewith and equidistant therefrom, of an outer mandrel detachably mounted on said mandrel, substantially as described.

5. In a talking-machine, the combination with a driving device, and an adjustable mandrel so mounted that it may—at pleasure—carry in operative position either a standard cylinder or one of larger diameter, substantially as described.

6. In a talking-machine, the combination with the speaker thereof (recorder or reproducer), of an adjustable mandrel capable of being revolved in any of its positions of adjustment, and adapted to carry either a large or a small record-cylinder in operative contact with said speaker, substantially as described.

7. In a talking-machine, the combination with a speaker (recorder or reproducer), and a revoluble device for carrying a cylinder, of means for adjusting said device relative to said speaker to enable the former to carry—at pleasure—cylinders of different diameters in operative contact with said speaker, substantially as described.

679,237. **SAFETY-TREAD FOR SIDEWALKS.** STEWART MACKAY, North Chelmsford, Mass. Filed Sept. 16, 1899. Serial No. 730,682. (No model.)

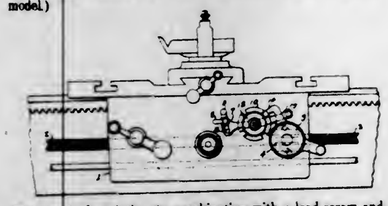


Claim.—1. A safety-tread comprising a frame or base having strengthening-ribs, frictional tread-pieces composed wholly of soft metal, having inner faces formed to bear on said ribs and each having legs projecting from the body of the tread-piece at opposite sides of said face, said legs being formed on their inner sides to bear on the sides of the ribs and formed with their lower ends projecting outwardly, and a body of cement inserted in the spaces between the ribs and confining the tread-pieces and their legs, the outwardly-projecting lower ends of the legs being anchored in the cement.

2. As an article of manufacture, a frictional tread-piece wholly composed of soft metal having an inner face formed to bear on a seat or support and having legs projecting from the body of the tread-piece at opposite sides of said face, said legs being formed on their inner sides to bear on the sides of such seat of support, the said legs being formed with their lower ends projecting outwardly, substantially as and for the purpose described.

3. A frictional tread-piece wholly composed of soft metal having an inner face formed to bear on a seat or support and having legs projecting from the body of the tread-piece at opposite sides of said face, said legs being formed on their inner sides to bear on the sides of such seat or support, the said legs being formed with their lower ends projecting outwardly, in combination with ribs or supports extending between said legs and adapted to prevent the legs from being bent toward each other.

679,238. **SCREW-CUTTING ATTACHMENT FOR LATHES.** LOUIS J. MONAHAN, Oshkosh, Wis. Filed Apr. 5, 1901. Serial No. 54,478. (No model.)



Claim.—1. In a lathe the combination with a lead-screw and carriage-apron, of a movable bracket or casting mounted on said apron, a toothed wheel having a shaft or hub extension and journaled in said bracket or casting, a notched wheel or disk mounted on said shaft or hub, and means for securing the bracket to the carriage-apron in different positions.

2. In a lathe the combination with a carriage and lead-screw, of a toothed wheel adapted to mesh with said screw and having a shaft or hub extension, a bracket movably attached to the carriage and having the said shaft or hub extension journaled therein, a notched wheel or disk removably mounted on the said shaft or hub and means for frictionally securing the notched wheel or disk thereto, whereby the said disk may be removed and substituted with another or differently divided disk.

3. In a lathe the combination with a carriage and lead-screw, of a toothed or worm wheel adapted to be releasably held in mesh with said lead-screw and having a shaft extension 6, a disk or plate 10 mounted on said shaft and having a series of equidistant taper notches in its periphery and said notches decreasing in size toward the center of the disk or plate for the purpose set forth.

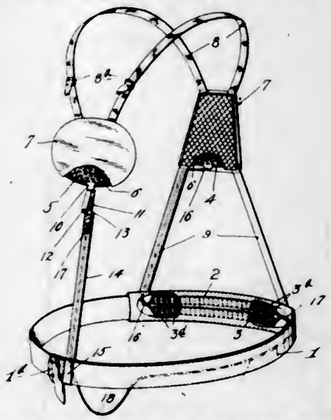
4. The combination in a lathe of a lead-screw of a toothed wheel 5 having a shaft extension 6, a notched wheel or disk 10 mounted on the said shaft, a nut-actuating lever 4 having the solid part 14 adapted to engage a notch in the said notched wheel or disk, and means for supporting the said shaft 6 in different positions causing the toothed wheel 5 to engage or disengage the lead-screw.

5. In a lathe the combination with a carriage-driving screw, of a toothed wheel to engage said screw, a spindle or shaft having one end secured to the said toothed wheel, a flange secured to said shaft, a notched wheel or disk loosely fitted to said shaft and adapted to rest against the said flange, a washer loosely fitted to the shaft and adapted to rest against the disk, a nut fitted to the end of the said shaft for the purpose of holding the disk and washer in place, means for supporting said tooth-wheel and disk.

6. In a lathe the combination with a carriage and lead-screw, of a toothed wheel adapted to engage and mesh with the said lead-screw, a shaft secured to said toothed wheel and journaled in a pivoted bracket, a flange secured to said shaft, a revoluble notched wheel or disk mounted on said shaft, means for holding the notched disk against the said flange under tension.

7. In a lathe the combination with a carriage and lead-screw, of a toothed wheel having a shaft or spindle attached thereto, a notched wheel or disk frictionally attached to the opposite end of the said shaft or spindle, a bracket or casting pivoted to said carriage and having the said shaft or spindle journaled therein, means for clamping said bracket or casting in different positions around said pivot whereby the toothed wheel will engage or disengage the lead-screw.

679,239. **CATAPHORIC PAD.** JOHN F. MOSHERER, Minneapolis, Minn. Filed Dec. 10, 1900. Serial No. 39,303. (No model.)



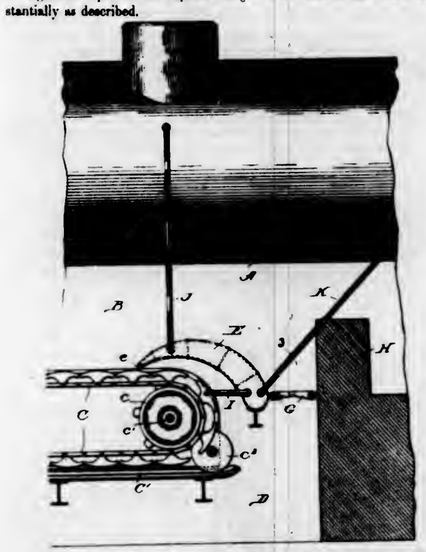
Claim.—1. The combination with the belt 1 having the pocket 2, of the battery within said pocket, the electrodes 4 and 5 having the absorbent pads or facings 6 and backs 7, the shoulder-straps connecting said backs 7, the straps 9 connecting said belt with one of said backs 7, the strap 14 connecting the said belt with the other electrode, and circuit connections between said battery and said electrode, substantially as described.

2. The combination with the belt 1 having the pocket 2, of the battery within said pocket 2, the electrodes 4 and 5 having the absorbent pads or facings 6 and backs 7, the shoulder-straps connecting said backs 7, the straps 9 connecting said belt with one of said backs 7, the strap 14 and clamp 11, 12, connecting the belt with the other electrode, and circuit connections between said battery and said electrodes, substantially as described.

679,240. **FURNACE.** DUGGAL J. MCKENZIE and FREDERICK SARGENT, Chicago, Ill.; said McKenzie assignor to the McKenzie Furnace Company, same place. Filed Aug. 6, 1900. Serial No. 26,040. (No model.)

Claim.—1. In a furnace of the class described, the combination of an endless traveling grate, a supplementary burning-grate, and a scraper arranged intermediate the traveling and supplementary grates so as to scrape the fuel therefrom and deliver it to the supplementary grate where it may be retained and entirely consumed, substantially as described.

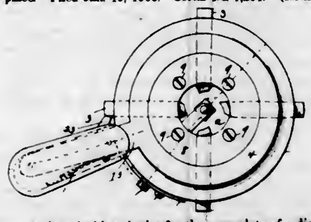
2. In a furnace of the class described, the combination of an endless traveling grate, a supplementary grate upon which fuel may be retained for a time, a hollow scraper arranged adjacent to the discharge end of the traveling grate to scrape the fuel therefrom and deliver it to the supplementary grate upon which it may be retained and entirely consumed, and means connecting the hollow scraper with the source of feed-water supply and the water-space of the boiler for a circulation of water therethrough and to prevent the rapid burning or destruction of the same, substantially as described.



3. In a furnace of the class described, the combination of an endless traveling grate, a supplementary grate arranged to the rear of the same, a hollow curved scraper arranged adjacent to the discharge end of the endless traveling grate and intermediate it and the supplementary grate so as to catch or scrape the unburned fuel on the traveling grate and deliver it to the supplementary grate, and pipes connecting the hollow scraper with the upper and lower water and steam spaces of the boiler to provide for a circulation of water therethrough, substantially as described.

4. In a furnace of the class described, the combination of an endless traveling grate, a supplementary grate arranged to the rear of the same, a hollow steel scraper arranged adjacent to the discharge end of the endless traveling grate and intermediate it and the supplementary grate so as to catch or scrape the unburned fuel on the traveling grate and deliver it to the supplementary grate, and pipes connecting the hollow curved scraper with the upper and lower water and steam spaces of the boiler and with the source of feed-water supply to provide for a circulation of water therethrough at any and all times, substantially as described.

679,241. **LOCKING MECHANISM FOR DIE-HEADS.** HERMAN W. OSTER, Cleveland, Ohio, assignor to the Oster Manufacturing Company, same place. Filed Jan. 13, 1900. Serial No. 1,291. (No model.)



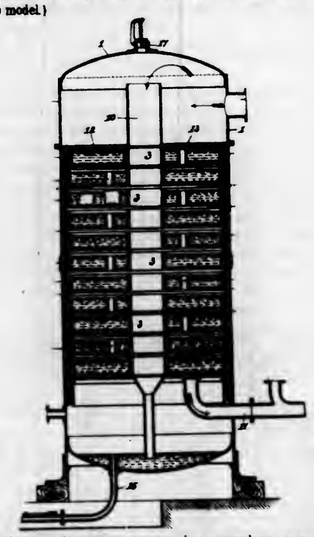
Claim.—1. In a locking device for the cam-plate of a die-head, the combination with the plate and head, of a radial arm or handle extending from the plate, a cover-plate therefor broader at the outer extremity than the arm, and provided with a locking-dog at its inner extremity and with a diagonal slot at its outer extremity and a longitudinal slot at its inner extremity, pins passing through said slots into the said handle, a return-spring between the cover and arm, and an adjustable plate upon the head provided with a slot adapted to engage said locking-dog when the cam-plate has been rotated to the required position, substantially as described.

2. In a locking device for the purpose specified, the combination with a die-head and cam-plate therefor, the said cam-plate provided with a projecting handle, of an adjustable plate upon the head, provided with a slot, a stop-pin on said plate, and a cover-plate upon the said handle provided with a locking-dog, the said cover-plate being wider than the arm at its outer extremity and provided with diagonal and longitudinal slots therein, pins passing through said slots into said handle, a return-spring for the said locking cover and dog, and means for automatically releasing the cam-plate and dies when the required depth of screw has been accomplished, substantially as described.

3. A die-head in combination with an adjustable plate thereon, provided with a vertical slot and stop-pin located at the side of the slot, a movable cam-plate provided with a radial arm or handle, a cover for said handle provided with a dog constructed to enter said vertical slot in the stop-plate and lock the cam-plate, the said cover being of greater width at its outer extremity than the radial arm, means for moving said cover-plate outwardly upon the arm when pressed by the hand to disengage the dog from the vertical slot, consisting of a diagonal slot in the cover-plate and a pin in the handle, and a return-spring between the handle and cover, substantially as described.

4. In combination with a die-head and dies therein, a rotatable cam-plate and cams thereon, a radial handle for said plate, a cover thereon provided with a projecting dog at its inner extremity, constructed and arranged to move longitudinally of the handle when the handle is grasped to rotate the plate, a locking-slot in the die-head, arranged to engage said dog when the handle has rotated the cam-plate into the required position, and means for automatically pressing outward said dog, and releasing the cam-plate when the required depth has been cut upon the work, consisting of a radial arm extending into the center of the die-head, a set-screw in the extremity of said arm, an exterior plate to which said arm is secured, and a cam projection on said plate arranged to engage said dog on said cover, when the work in the head engages said screw in said radial arm, substantially as set forth.

679,242. **STEAM-REGENERATIVE ACCUMULATOR.** AUGUSTE C. E. RATEAU, Paris, France. Filed Apr. 12, 1901. Serial No. 55,456. (No model.)



Claim.—1. In a steam-regenerative accumulator for engines having an intermittent exhaust, a vessel having an inlet for the exhaust and an outlet for the regenerated steam and a series of superposed heat-retaining bodies located within the vessel between the inlet and outlet openings thereof, said bodies being arranged so that their surfaces are opposed to the passage of the steam through the vessel, substantially as and for the purposes described.

2. In a steam-regenerative accumulator of the character described, a cylindrical vessel arranged in an upright position, a series of superposed trays located within the vessel and separated from each other and the internal walls of the vessel, an inlet for the steam arranged so that the steam is adapted to traverse the entire surface of each tray and an outlet for the regenerated steam located below said trays, substantially as and for the purposes described.

3. In a steam-regenerative accumulator of the character described, a vessel having an exhaust-inlet leading from the intermittently-acting engine, said vessel interposed between the same and the condenser or auxiliary low-pressure engine, a series of superposed heat-retaining bodies located within the vessel and having their surfaces opposed to the passage of the exhaust-steam through said vessel, a safety-valve connected with said vessel, an automatic steam-trap adapted to collect the liquid condensation in the vessel, an outlet-pipe leading the regenerated steam to the point of use and a pipe leading auxiliary steam to said outlet-pipe, substantially as and for the purposes described.

679,243. SPARKING-IGNITER FOR EXPLOSIVE-ENGINES. SCHILLER A. REOUE and JACOB DUBOIS, Manitowoc, Wis. Filed Aug. 9, 1900. Serial No. 26,431. (No model.)

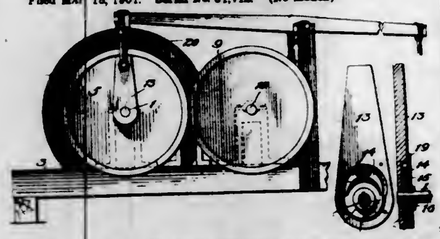


Claim.—1. In an explosive-engine, electric contacts, one fixed and the other movable, a post journaled in the cylinder and carrying the movable electric contact, a rock-shaft journaled in a side of the cylinder, a rocker-bar attached to the inner end of the rock-shaft, a pin adjustably connected with the piston and adapted to strike the rocker-bar, a stop having adjustable connection with the cylinder and serving to hold the rock-shaft in a given position, and exterior connections between the outer end of the said rock-shaft and the movable electric contact, substantially as set forth.

2. In an explosive-engine, normally separated electric contacts, a spring-actuated lever connected with one of the said contacts and normally tending to close the circuit, a spring-actuated restraining-lever normally overcoming the force of the first-mentioned spring-actuated lever, a rock-shaft, means for actuating the rock-shaft from the piston, and an arm attached to the rock-shaft and adapted to be brought into engagement with the restraining-lever and release the contacts under the influence thereof to permit the completion of the circuit, substantially as specified.

3. In an explosive-engine, a fixed contact, a rotatably-mounted post provided at its inner end with a contact normally held separated from the fixed contact, a lever attached to the outer end of said post, a spring connected to said lever to effect a closing of the circuit, a restraining-lever having an end portion extended in the path of the first-mentioned lever, a spring exerting a force upon the restraining-lever to overcome the action of the spring applied to the first-mentioned lever, whereby the contacts are held separated, a rock-shaft, a rocker-bar at the inner end of the rock-shaft and adapted to be actuated by the piston, and an arm secured to the outer end of the rock-shaft and adapted to come in contact with the restraining-lever and release the first-mentioned lever from its influence, substantially as specified.

679,244. WELL-DRILLING APPARATUS. FRANK SIMPKINS, Greenville, Pa., assignor of one-half to George D. Foulk, Maydale, Pa. Filed Mar 13, 1901. Serial No. 51,712. (No model.)



Claim.—1. In a well-drilling apparatus, the combination of a driven shaft, a crank-arm loosely mounted thereon and provided in one side with a recess, a hub fixed to the shaft and having a ratchet-flange fitting within the recess in the arm, pawls pivoted to the crank-arm within said recess to engage the ratchet-flange, whereby the arm is shifted, a ring encompassing the hub and secured to the recessed side of the arm to hold the arm in place and close said recess, connections from the arm to the drill rod or rope, and a slidably-adjustable counterweight mounted upon the shaft and arranged in approximate alinement with the crank-arm to move in a path corresponding with the path of movement of said arm, substantially as described.

2. In a well-drilling apparatus, the combination of a driven shaft, a crank-arm loosely mounted upon one end thereof, a clutch connection between the shaft and crank-arm whereby the latter is shifted, a band wheel or pulley upon the opposite end of the shaft, a counterweight-support carried by the shaft, a counterweight adjustably mounted on said support, and locking means for engaging and disengaging the support with and from the band-wheel, substantially as described.

679,245. HYDROCARBON-BURNER. VICTOR H SLIMACK, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, same place. Filed Apr. 30, 1900. Serial No. 14,895. (No model.)



Claim.—1. A burner comprising an arm adapted for attachment to a suitable support, a vapor-burner attached to said arm, a cylindrical vaporizer having a straight passage through it and having a discharge-orifice near one end of its curved wall and detachably connected with the arm, means for detachably locking and positioning said vaporizer, and an elongated subburner located in the arm and in close proximity with the discharge-orifice of the vaporizer for progressively heating the contents of the vaporizer to point of discharge, and a branch connection from the mixing-tube of the burner for supplying the elongated subburner, substantially as described.

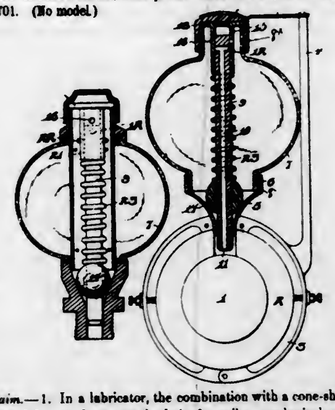
2. A burner comprising an arm arranged for attachment to a gas-supply pipe, a vapor-burner carried by said arm, a removable vaporizer communicating with the vapor-burner, a Bunsen tube contained in the arm, a by-pass climbing-lighter tube leading to the vapor-burner, attachments for supplying gas to said Bunsen tube and by-pass tube, and subjets located along the arm and in proximity with the vaporizer and fed from the vapor-burner, substantially as described.

3. In a hydrocarbon-burner the combination of a vaporizer having a passage through it, an arm arranged for attachment to a gas-supply pipe and extending along and in proximity with the vaporizer and having a slot in its top and openings in its bottom, a foraminous cover for the slot, an elongated subburner and a Bunsen burner arranged within the arm and beneath the cover and attachments for supplying gas from the supply-pipe, substantially as described.

4. In a hydrocarbon-burner the combination of a vapor-burner having a mixing-tube, a removable vaporizer having a straight passage through it and arranged to discharge into said tube, an arm adapted for attachment to a suitable support extending parallel with and supporting the vaporizer and also supporting the vapor-burner, and a subburner within the arm and a branch connection from the mixing-tube to the subburner, substantially as described.

5. In a hydrocarbon-burner the combination of a vaporizer, a mixing-tube communicating therewith and provided with openings for cleaning the vaporizer-outlet, a rotatable cap mounted on the mixing-tube and provided with openings and with foraminous parts for covering and uncovering the first-mentioned openings, an arm supporting the vaporizer and equipped internally with a Bunsen burner and externally with foraminous cover for the Bunsen air-inlets, substantially as described.

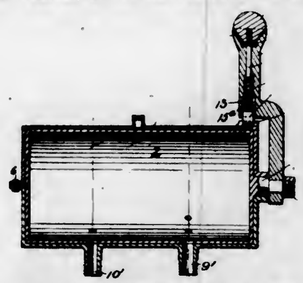
679,246. LUBRICATOR. JOHN J. TUNNEY, Pittsburg, Pa., assignor to John Jenkins, same place. Filed Feb. 26, 1901. Serial No. 48,701. (No model.)



Claim.—1. In a lubricator, the combination with a cone-shaped fitting adapted for attachment to the hub of a pulley, a spherical casing secured to said cone-shaped fitting, a nipple connected to the upper end of said spherical casing and having arranged therein ports, a hollow stem in which are arranged openings extending transversely thereto and adapted to register with the ports formed in the nipple, a weight arranged on said stem, a spiral spring encircling the said stem between said nipple and weight, a screw-threaded cap adapted to hold said nipple in position, substantially as described.

2. In a lubricator, in combination with a cone-shaped fitting adapted for attachment to the hub of a pulley, a spherical casing secured to said cone-shaped fitting, a nipple carrying a head and having formed therein a port, slots arranged in said spherical casing, a stem having a central opening and transversely-extending ports communicating therewith, pins arranged on said stem adapted to operate in said slots, a weight secured to said stem, a spiral spring encircling said stem, and a cap arranged upon the upper end of said spherical casing, all parts being arranged and operating substantially as described

679,247. CYLINDER-VALVE. PAUL WHITING, East Las Vegas, N. Mex. Filed July 25, 1900. Serial No. 24,837. (No model.)



Claim.—1. In a valve the combination of a hollow inner cylinder, an outer cylinder fitting snugly said inner cylinder, a first series of ports which pierce the wall of the inner cylinder all situated in a plane substantially at right angles to the axis of said cylinder, a pair of ports in said outer cylinder, positioned in the same plane with said first series of ports, a second series of ports piercing said inner cylinder and positioned in a plane substantially perpendicular to the axis of said cylinder, a port in said outer cylinder situated in the same plane as said second series of ports, means for revolving said inner cylinder.

2. In a valve the combination of a hollow inner cylinder, an outer cylinder fitting snugly said inner cylinder, ports in said inner cylinder, ports piercing said outer cylinder, a handle secured to said inner cylinder, a catch convex on the bearing-surface seated in said handle, a spring for actuating said catch, and a series of lugs positioned on said outer cylinder, the two end lugs having overhanging lips to engage said catch and limit its movement, and the intermediate ones being beveled so that the catch may be forced to ride over them.

679,248. BELT FOR ORE-CONCENTRATORS. FREDERICK W. WOOD, San Francisco, Cal., assignor to Crown Gold Milling Company, same place. Filed Mar. 15, 1900. Serial No. 8,537. (No model.)



Claim.—1. A flexible belt for dry-ore concentrators comprising a body composed of a plurality of layers of fibrous material pervious to air in close contact and secured together at intervals so as to be capable of traveling as a single structure.

2. A flexible belt for dry-ore concentrators, comprising a plurality of plies or layers of fibrous material pervious to air, the outer layer being formed with integral transverse tucks, and a fastening through each tuck at its base whereby its lower edges are drawn together to form corners.

3. A flexible belt for dry-ore concentrators, comprising a plurality of plies or layers of fibrous material pervious to air, the outler layer being formed with integral transverse tucks, a fastening through each tuck at its base whereby its lower edges are drawn together to form corners, and transverse fastenings between tucks for securing the said plies together.

4. A flexible belt for dry-ore concentrators comprising a body composed entirely of a plurality of plies or layers of textile material pervious to air.

5. A flexible belt for dry-ore concentrators comprising a plurality of plies or layers pervious to air, the outer layer being formed with integral transverse tucks, and a fastening through each tuck at its base whereby its lower edges are drawn together to form corners.

6. A flexible belt for dry-ore concentrators comprising a plurality of plies or layers of silk pervious to air, the outer layer being formed with integral transverse tucks, a fastening through each tuck at its base whereby its lower edges are drawn together to form corners, and transverse stitching between tucks for securing the said plies together.

7. A belt or surface for ore-concentrators comprising side pieces, a working body or surface composed of a plurality of similar plies of textile material having their edges secured to said side pieces, tucks or plaits formed in the outer ply between the side pieces and rods inclosed by said plaits, the edges of said outer ply being cut away where the fullness comes, substantially as described.

8. A belt or surface for the described purpose, having side pieces, and a body or working surface composed of a plurality of plies of material, tucks formed in the outer ply, rods inclosed by said tucks, right-angular clips fitting the inner corner of said side pieces and each having an arm attached to one of said rods, and another arm overlying the face of said side piece and secured thereto.

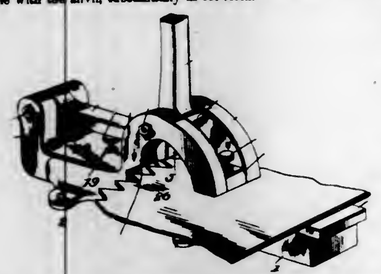
9. In combination with a textile belt and its side pieces or flanges, the reversible and interchangeable clips *j*, having arms at right angles, and two holes placed out of line with each other and transverse rods connecting opposite clips together.

679,249. SAW-SETTING MACHINE. JAMES F. WOOD, Zelda, Ohio. Filed Feb. 20, 1901. Serial No. 48,188. (No model.)

Claim.—1. In a machine of the character described, a base having spaced vertical extensions, a punch, actuating means for the punch, and an anvil adjustable upon the base and having a guide extension adapted to operate between the said vertical extensions of the base, substantially as set forth.

2. In a machine of the character described, a base, standards rising from the base and transversely spaced, forwardly and downwardly extending arms forming a part of said standards and overhanging the base and serving to prevent vertical movement of the saw, a punch operating in the space formed between the said standards, and an operating-lever for the punch pivoted to the standards and adapted to operate in the space formed between the arm extensions thereof, substantially as set forth.

3. In a machine for setting saws, and in combination with a punch, an anvil adjustable with reference to the punch, and guides applied to and movable with the anvil, substantially as set forth.

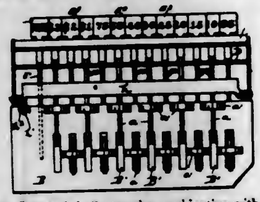


4. In a machine for setting saws, and in combination with a punch an anvil adjustable with reference to the punch, guides, and means for adjustably connecting the guides to the anvil, substantially as set forth.

5. In a machine for setting saws, and in combination with a punch, an anvil adjustable with reference to the punch, guides applied to opposite sides of the anvil and comprising oppositely-extending plates and shanks, and means for adjustably connecting the said guides with the anvil, substantially as specified.

6. The herein-described machine for setting saws and the like comprising a base provided with rear and intermediate standards, the latter having forwardly and downwardly extending arms connected at their lower ends, a set-screw supported in the web or connection at the lower ends of the said arms, a punch having a shank pivotally connected to the rear standards, a spring for normally elevating the punch, an adjustable stop applied to the base for limiting the downward movement of the punch, an operating-lever pivoted to the upper ends of the intermediate standards and operating in the space formed therebetween, a plate having adjustable connection with the base and provided with an anvil and a guide extension, the latter operating in the space formed between the said intermediate standards, and guides having adjustable connection with opposite edge portions of the said plate, substantially as set forth.

679,250. CASH-INDICATOR. DANIEL K. ALLISON, Troy, Ohio, assignor to Daniel K. Allison, same place, and Frank A. Foster, Dayton, Ohio. Filed Oct. 26, 1900. Serial No. 34,239. (No model.)



Claim.—1. In a cash-indicator, the combination with a series of operating-keys, and a series of individual sales-indicators actuated by said operating-keys, of a special visible indicator common to all of said operating-keys and adapted to be actuated by any one of said operating-keys at predetermined times and simultaneously with the actuation of a respective sale-indicator.

2. In a cash-indicator, the combination with a series of operating-keys, and a series of individual sales-indicators actuated by said operating-keys, of a special visible indicator, and mechanism actuated by any one of the operating-keys at predetermined times to elevate said special indicator.

3. In a cash-indicator, the combination with a series of operating-keys, and a series of sales-indicators operated by said operating-keys, of a special indicator, an oscillating frame common to all of said operating-keys and adapted to be operated by any one of said operating-keys, and an oscillating arm supported on said frame and adapted to elevate said special indicator at predetermined times.

4. In a cash-indicator, the combination with a series of operating-keys, a series of sales-indicators, and a series of ratchet-wheels actuated by said operating-keys, of a special visible indicator denoting a prize, premium or other rebate, and mechanism actuated by the ratchet-wheels and the operating-keys for elevating said special indicator at predetermined times.

5. In a cash-indicator, the combination with a series of operating-keys, a series of ratchet-wheels and a series of individual sales-indicators actuated by said operating-keys, of a special indicator common to all of said operating-keys, an oscillating bar adapted to be actuated by said ratchet-wheels at predetermined times, and mechanism actuated by any one of the operating-keys and adapted to engage with said oscillating bar and with the special indicator to elevate the latter at predetermined times.

6. In a cash-indicator, the combination with a series of operating-keys, a series of ratchet-wheels and a series of sales-indicators actuated by said operating-keys, of a special indicator, a pivotal frame common to all of said operating-keys, a pivotal arm carried on said frame and adapted to engage the special indicator at predetermined times, and an oscillating bar actuated by said ratchet-wheels and adapted to be moved into a position to effect an operative relation between the said pivotal arm and the special indicator.

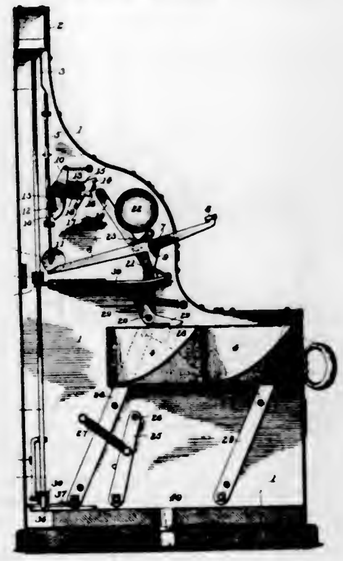
7. In a cash-indicator, the combination with a series of operating-keys, a series of ratchet-wheels and a series of sales-indicators operated by said operating-keys, of a special indicator, a pivotal frame actuated by any one of the operating-keys, a pivotal arm supported on said frame, an oscillating bar adapted to be actuated upon each complete rotation of any one of the ratchet-wheels to engage with the pivotal arm to bring about an operative relation between said pivotal arm and the special indicator.

8. In a cash-indicator, the combination with a series of operating-keys, a series of ratchet-wheels and a series of sales-indicators actuated by said operating-keys, of a special indicator denoting a prize, premium or other item of reward, mechanism interposed between the operating-keys and said special indicator, said mechanism being actuated upon each movement of an operating-key, and an oscillating bar actuated by any one of the ratchet-wheels at predetermined times to effect an operative relation between said mechanism and the special indicator.

9. In a cash-indicator, the combination with a series of operating-keys, a series of ratchet-wheels and a series of sales-indicators operated by said operating-keys, of a special indicator, an oscillating bar arranged to be moved upon its pivot upon each complete rotation of any one of said ratchet-wheels, a pivotal arm arranged to engage said special indicator to elevate it upon each movement of said oscillating bar, and a pivotal frame supporting said arm and actuated by any one of said operating-keys.

10. In a cash-indicator, the combination with a series of operating-keys, a series of ratchet-wheels and a series of sales-indicators operated by said operating-keys, of a special indicator, an oscillating bar arranged to be moved upon its pivot upon each complete rotation of any one of said ratchet-wheels, a pivotal arm arranged to engage said special indicator to elevate it upon each movement of said oscillating bar, and a pivotal frame supporting said arm and actuated by any one of said operating-keys, and means for retaining and releasing the indicators.

679,251. CASH-REGISTER. GEORGE BROWNING, Hinsdale, Ill., assignor of one-half to William Henry Powell, Chicago, Ill. Filed Oct. 15, 1900. Serial No. 33,152. (No model.)



Claim.—1. In a cash-register of the character herein described, the combination of a multiple series of tokens having a plate formation and provided with centrally-arranged guide-openings, a series of vertically-arranged guide-rods engaging said openings, and a series of operating-slides bifurcated at their engaging ends so as to straddle the vertical guide-rods and adapted to support the series of tokens in a superimposed condition and release the same serially, substantially as set forth.

2. In a cash-register of the character herein described, the combination of a multiple series of tokens having a plate formation and provided with guide-openings, a series of guide-rods engaging said openings, a series of operating-slides adapted to support the series of tokens in a superimposed condition and to release the same serially, a swinging frame carrying said guide-rods, and a catch for securing said frame in proper relation to the operating-slides, substantially as set forth.

3. In a cash-register of the character herein described, the combination of a multiple series of tokens having a plate formation and provided with guide-openings, a series of guide-rods engaging said openings, a series of operating-slides adapted to support the series of tokens in a superimposed condition and to release the same serially, a swinging frame carrying said guide-rods, a catch for securing said frame in proper operative position, and a carriage sliding vertically on said frame and adapted to receive the tokens as they are released by the operating-slides, substantially as set forth.

4. In a cash-register of the character herein described, the combination of a multiple series of tokens having a plate formation and provided with guide-openings and reinforced central portions, a series of guide-rods engaging said openings, a series of operating-slides adapted to support the series of tokens in a superimposed condition and to release the same serially, said slides being provided at their token-engaging ends with upper and lower fork members, the lower members having inturned prongs at their rear ends, substantially as set forth.

5. In a cash-register of the character herein described, the combination of a multiple series of tokens having a plate formation and provided with guide-openings and reinforced central portions, a series of guide-rods engaging said openings, a series of operating-slides adapted to support the series of tokens in a superimposed condition and to release the same serially, said slides being provided at their token-engaging ends with upper and lower fork members, the lower members having inturned prongs at their rear ends, a swinging frame carrying the series of guide-rods, and a catch for securing said frame in proper operative position, substantially as set forth.

6. In a cash-register of the character herein described, the combination of a multiple series of tokens having a plate formation and provided with guide-openings and reinforced central portions, a series of guide-rods engaging said openings, a series of operating-slides adapted to support the series of tokens in a superimposed condition and to release the same serially, said slides being provided at their token-engaging ends with upper and lower fork members the lower members having inturned prongs at their rear ends, a swinging frame carrying the series of guide-rods, a catch for securing said frame in proper operating position, and a carriage sliding vertically on said frame and adapted to receive the tokens as they are released by the operating-slides, substantially as set forth.

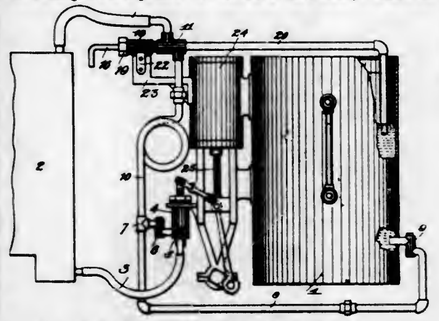
7. In a cash-register of the character herein described, the combination of a multiple series of tokens, a series of operating-slides adapted to support the series of tokens in a superimposed condition and to release the same serially, a series of pivoted levers or keys for individually operating said slides, and a composite lever or key having connection with two or more slides and adapted to operate the same simultaneously to effect a composite registration, substantially as set forth.

8. In a cash-register of the character herein described, and in which a multiple series of separate tokens are successively manipulated to register consecutive purchases, the combination with the operating keys and slides for manipulating said tokens, of a series of indicating-cards, a series of vertically-moving card-carrying rods having operative engagement with the series of slide-operating keys and provided with notches intermediate their length, a series of spring-detents adapted to engage in said notches, a swinging frame adapted to operate said detents to a release, cam-plates pivoted to said frame and adapted to operate the same in its detent-releasing movement, and intermediate levers operatively connected to the series of operating-keys and adapted to engage and operate said cam-plates, substantially as set forth.

9. In a cash-register of the character herein described, the combination with the main casing, of a swinging cash-drawer arranged to move in said casing, pairs of pivoted links forming the supporting means for the cash-drawer, a spring buffer-frame arranged in the path of said links, and means controlled by the cash-registering mechanism for unlocking the cash-drawer from its closed position, substantially as set forth.

679,252. BOILER-FEEDER. HOWARD K. CLOVER, Omaha, Nebr. Filed Sept. 25, 1900. Serial No. 31,081. (No model.)

Claim.—1. In a boiler-feeder, the combination with a boiler, and a water-supply, of a supply-pipe leading from said water-supply, a pump arranged in said pipe, a feed-pipe discharging into the boiler and connected to said supply-pipe, a steam expansion-pipe leading from the boiler, a valve-casing connected to the steam-pipe and in communication with said supply and feed pipes, a sleeve to which the valve-casing is movably connected, a by-pass leading from the valve-casing to the water-supply, and a valve carried by said sleeve and controlling the flow of water to said by-pass, said valve being seated and unseated by the movement of the valve-casing due to expansion and contraction, substantially as described.

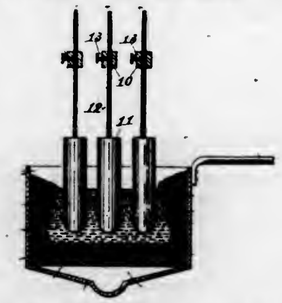


2. In a boiler-feeder, a source of water-supply, a steam-pipe, a valve-casing connected to said water-supply and steam-pipe, a by-pass leading from the valve-casing, and a valve toward and from which the valve-casing is adapted to move, said valve being adjustably mounted, substantially as described.

3. In a boiler-feeder, a valve, a valve-casing having a port and movable toward and from the valve to open and close the port, water-supplying means, a steam-pipe connected to the valve-casing, and a by-pass leading from said valve-casing, substantially as described.

4. In a boiler-feeder, a source of water-supply, a steam-pipe, water-supplying means, a valve-casing connected at one end to said pipe and having at its opposite end a chamber, and also having ports communicating with each other and with said water-supplying means and chamber, a by-pass leading from said chamber, a sleeve in which the chambered end of the valve is slidably fitted, and a valve adjustably mounted in said sleeve and projecting into the valve-chamber, substantially as described.

679,253. PROCESS OF OBTAINING VOLATILE ELEMENTS FROM THEIR COMPOUNDS. ALFRED H. COWLES, Cleveland, Ohio, assignor to the Electric Smelting and Aluminum Co., same place. Filed July 19, 1900. Serial No. 24,198. (No specimens.)



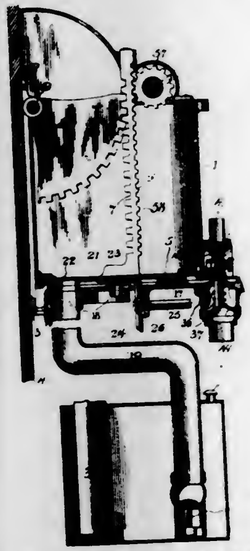
Claim.—1. The herein-described process of obtaining a volatile electropositive element from its ores or compounds, which consists in passing an electric current through a fused mass of such ore or compound to a porous cathode, thereby depositing such element on the cathode, maintaining the element in a state of vapor, and causing the vapor to pass through the cathode and condensing it.

2. The herein-described process, which consists in electrolytically extracting a volatile electropositive element from a fused bath containing the same, which bath is maintained at a temperature higher than the volatilizing temperature of the element, depositing the element against a porous cathode, passing the element as vapor through the cathode, and condensing it.

3. The herein-described process which consists in electrodepositing metallic sodium from an electrolytic bath maintained at a temperature

above the volatilizing temperature of sodium, upon a porous cathode, maintaining the sodium in a state of vapor, passing the vapor through the pores of the cathode, and condensing it.

679,254. LIQUID DISPENSING AND MEASURING APPARATUS. CHARLES W. CRANER, Scranton, Pa. Filed Sept. 19, 1900. Serial No. 30,515. (No model.)



Claim.—1. A pump comprising a casing, a piston moving therein, means for connecting the pump with liquid-receptacles, a piston-rod on the said piston having a rack, formed thereon, a segmental gear engaging the said rack, a crank for operating the same, projections formed upon the said gear and a lever or bolt adapted to be operated in the path of the said projections for limiting the movement of the segment and controlling the amount of liquid pumped, substantially as described.

2. In a pump, the combination with a cylinder and a piston moving therein, a piston-rod having a rack formed thereon, a segment adapted to engage the teeth of the said rack, laterally-extending projections or lugs formed upon the side of the segment, the said lugs being arranged at different radial distances from the center of motion of the segment and at different distances from one edge of the said segment, a lever pivoted upon the top of the pump and having its end extending into close proximity to the side of the segment, the structure being such that the end of the lever may be brought opposite any one of the segments for limiting its movement and thereby controlling the amount of liquid pumped, substantially as described.

3. A pump for dispensing liquids comprising a cylinder and piston, a base-plate closing the end thereof and having a series of openings formed therein, means connecting the said openings with different liquid-containing tanks and means within the cylinder for closing all of the said openings in the base except the one through which the liquid is to be pumped, substantially as described.

4. A pump for dispensing liquids comprising a cylinder and a piston, a base-plate having a series of openings adapted to be connected with different tanks or liquid-containing vessels, a revoluble plate mounted upon the said base and having an opening formed therein, means for turning the said plate so as to bring the said opening opposite any one of the openings in the base-plate whereby the liquid will be pumped only from the desired receptacle, substantially as described.

5. A pump comprising a casing and a piston, a base-plate mounted therein having a series of openings, suction-pipes connecting each of the said openings with a liquid-containing tank, a plate or disk mounted inside the pump above the base-plate and having an opening adapted to be brought in coincidence with the openings in the base-plate, a gear connected to the base-plate, an operating gear-wheel mounted therein, and hand-operated means connected with the gear-wheel whereby the opening in the revoluble plate may be brought opposite any one of the suction-pipes desired, substantially as described.

6. A dispensing-pump comprising a casing, means for supporting the casing at any desired point comprising attaching-lugs adapted to be bolted or screwed to a support, means for connecting the pump with liquid-tanks at different distances comprising suction-pipes leading to separate tanks, tanks for receiving the ends of the said suction-pipes, said tanks having inlet-openings, air-inlet openings also secured on the tanks, valves at the ends of the suction-pipes for preventing the liquid from flowing back into the tanks, the ends of the tanks adjacent to the pump being opposite a series of openings formed in the end of the pump-cylinder, and a revoluble plate mounted in the said cylinder and means for operating the same whereby only one of the suction-pipes will be opened at a time, substantially as described.

7. A dispensing-pump comprising a cylinder, a casing formed upon the cylinder provided with a plurality of nozzles circularly arranged, a revoluble ring mounted upon said casing having a single opening, a beveled gear on said ring, a horizontal shaft, a beveled gear on the inner end of the said shaft engaging the gear of the ring, an index-wheel on the end of the horizontal shaft, and a pointer on the casing, whereby any of the different nozzles may be brought opposite the single opening by turning the index-wheel, substantially as described.

8. A pump for dispensing liquids comprising a cylinder, a piston moving therein, means for connecting the cylinder with liquid-holding tanks, a dispensing-nozzle comprising a casing formed upon the cylinder of the pump, a valve mounted therein, a ring revolubly mounted on the said casing and carrying nozzles or spouts of different sizes and a clamping means interposed between the ring and the said casing whereby nozzles of different sizes may be clamped opposite the discharge-opening for delivering the liquids pumped into the different-sized receptacles, substantially as described.

9. A liquid-dispensing pump comprising a cylinder and a piston moving therein, one or more suction-pipes leading to a pump, a discharge-nozzle comprising a casing having a guideway formed upon it, a revoluble ring mounted in the guideway and carrying a series of nozzles, screw-threaded extensions interposed between the ring and the nozzle-casing, an oppositely-threaded sleeve engaging the said projections, the structure being such that by operating the said sleeve the ring may be clamped so as to hold any one of the nozzles opposite the discharge-opening of the pump, substantially as described.

10. A dispensing-pump comprising a cylinder, a piston moving therein, a discharge-nozzle comprising a casing having a valve mounted therein, a ring arranged around the said casing carrying different-sized nozzles, a hollow extension formed on the casing adapted to coincide with a hollow extension on the ring, a sleeve for connecting the two whereby the ring may be clamped in different positions and a valve or cock controlling the passage through the hollow extensions, the structure being such that when it is desired to clean the casing, the valve may be opened so that the pump may draw in air and then closed so that the pump may force the air outwardly through the valve-casing for cleaning the same, substantially as described.

11. A pump comprising a cylinder, a rack-piston moving therein, stops for regulating the pumping stroke of the piston so as to control the amount of liquid pumped, a register for recording the quantity of liquid passing through the pump, comprising a gear-wheel mounted in a suitable casing, a second rack upon the pump-piston for operating the gear-wheel, a ratchet-wheel actuated by the gear-wheel, pawls for controlling the operation of the ratchet-wheel, and indicating-disks operated by the said ratchet-wheel for showing the quantity of liquid pumped, substantially as described.

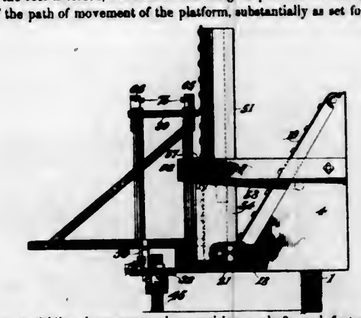
12. A pump comprising a cylinder, a piston moving therein, a piston-rod for operating the piston having a rack formed thereon, a segment for operating the piston and meshing with the said rack, a crank for operating the segment, the said crank being formed in two parts, one part extending within the other, a set-screw upon the outer part adapted to engage recesses or notches formed upon the inner part, the structure being such that by putting the set-screw in different notches, the leverage of the crank may be modified, substantially as described.

679,255. HARVESTER. JACOB H. DANIEL, Owensboro, Ky. Filed Apr. 18, 1899. Serial No. 713,482. (No model.)

Claim.—1. In a harvester, the combination with its frame, and platform pivotally united thereto, of a forwardly-folding, vertical rear wall on the platform, and latch mechanism for detachably uniting said rear wall and the frame, substantially as set forth.

2. In a harvester, the combination with its frame provided with tongues, of a pivoted platform provided with tongues corresponding to the tongues upon the frame, one of each pair of tongues being provided with a bolt, and a supporting-wheel frame provided on one end, with a box adapted to receive one of the tongues of either pair above referred to, and at the other end with a bifurcated plate adapted to engage the bolt upon the other tongue of either pair, substantially as set forth.

3. The combination with a harvester-frame and its platform pivotally united thereto, of a folding reel located to one side of the platform and having frame-arms independently movable around its axis, whereby when the reel is folded, the frame-arms hang in parallel, vertical planes out of the path of movement of the platform, substantially as set forth.



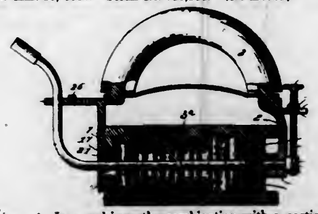
4. A folding harvester-reel comprising a shaft, reel-frame arms mounted thereon at one end respectively, and arranged in pairs extending upon one side only of the shaft, said pairs of reel-frame arms being movable independently around the longitudinal axis of said shaft in such manner as, when the reel is folded, to hang altogether below the shaft in parallel planes.

5. A folding harvester-reel comprising a shaft, reel-frame arms mounted thereon at one end respectively, and arranged in pairs extending from one side only of said shaft, said pairs of reel-frame arms being movable independently around the longitudinal axis of said shaft, and means for holding the pairs of reel-frame arms in distributed positions about the shaft.

6. A folding harvester-reel consisting of a shaft and disk secured thereto, of stops and dogs upon the disk, and reel-frame arms pivoted upon the shaft and coöperating with said stops and dogs, substantially as set forth.

7. In a folding reel, the combination of a shaft a pair of disks provided, respectively, with coöperating stops and dogs, and reel-frames mounted upon the shaft and having arms disposed so as to coöperate with the stops and dogs, respectively, of the disks, substantially as set forth.

679,256. SAD-IRON. THOMAS C. EDWARDS, Philadelphia, Pa. Filed Mar. 23, 1899. Serial No. 710,211. (No model.)



Claim.—1. In a sad-iron, the combination with a sectional body, the sections of which have overlapping lips, of handle-brackets carrying bearings which pass through said overlapping lips thus locking the sections of the body together and locking the handle to the body.

2. In a sad-iron the combination with a sectional body, the sections of which have overlapping lips, of a handle the arms or brackets of which carry bearings passing through openings in said lips and a device for locking the handle against movement.

3. In a sad-iron, the combination with a sectional body, each section having overlapping lips, of a handle the arms or brackets of which have bearings passing through openings in said overlapping lips, and a removable burner-pipe passing through one of said bearings.

4. In a self-heating sad-iron, the combination of the sections of the body portion provided with overlapping ears, the flanged thimble inserted in said ears and protruding beyond the same to form a trunnion, and the handle paving a ring fitting upon the protruding end of said thimble; substantially as herein explained.

5. In a reversible sad-iron, the combination of the sections of the body portion having overlapped ears provided with coinciding openings and means passing through said openings of the ears to hold the sections of the iron together; said ears being vertically halved together, and one of them being provided with a seat in which the other rests, for the purpose of securing the sections of the iron against lateral displacement; substantially as herein explained.

6. In a self-heating sad-iron, the combination of the sections of the body portion having overlapping ears, the thimble passing through said ears and provided with a flange engaging on one side thereof, and the handle provided with a ring fitting upon a protruding end of the thimble and having a set-screw which impinges the thimble to hold the parts in position; substantially as herein explained.

7. In a reversible sad-iron, the combination of the body portion provided with overlapping ears, a trunnion-screw, whereby the ears are connected, a handle pivoted to the trunnion-screw, a reversing-lever having slot-and-pin connection with said trunnion-screw, and means for holding the reversing-lever against movement; substantially as herein explained.

8. In a reversible sad-iron, the combination of the body portion provided with overlapping ears, a trunnion-screw, whereby the ears are connected, a suitable handle in which said body portion is trunnioned, a reversing-lever having slot-and-pin connection with the trunnion-screw, and a hanger on the handle with which the reversing-lever engages by the movement permitted by its slot-and-pin connection; substantially as herein explained.

9. In a reversible sad-iron, the combination of the trunnioned body portion, having overlapping ears at each end and a suitable handle, a trunnion-screw, a reversing-lever movable in the plane of the trunnion-screw, but fixed against movement transversely thereto, and the slotted hanger in which said reversing-lever engages; substantially as herein explained.

10. In a reversible sad-iron, the combination of the body portion provided with a suitable trunnion, a handle in which said body portion is trunnioned, a reversing-lever movable relatively to the trunnion in the plane of said trunnion, but not transversely thereto, and provided with an enlargement, and a hanger for said reversing-lever provided with a socket in which the enlargement fits, and with a reduced slot through which the reversing-lever may be removed from the hanger by withdrawing the enlargement from the socket; substantially as herein explained.

11. In combination with a self-heating sad-iron, a burner-tube removably mounted in said iron, and a slotted bracket in which said burner-tube fits, provided with a latch projecting across the opening of the slot, mounted upon a suitable pivot and having the cross-bar which rests upon the bracket to limit the movement of the latch; substantially as herein explained.

12. A self-heating sad-iron comprising a suitable handle and a body portion formed by two similarly-constructed hollow sections provided on their interior with outer, inner, and intermediate series of rounded projections dividing the interior of the iron into a number of circuitous air-passages and at their ends with overlapping ears; substantially in the manner and for the purposes set forth.

679,257. VISE. WILLIAM H. FORD, Lowell, Mass., assignor to Ringet Company, Boston, Mass. Filed Oct. 19, 1900. Serial No. 33,648. (No model.)



Claim.—1. A vise, composed of a support, a horn-like jaw, means to move the same relatively one to the other and clamp a hollow article inside and outside, and elastic means for forcing the support toward the horn-like jaw to loosely hold an article between them while being adjusted in position.

2. In a vise, a handpiece, a support, a threaded shank, a jaw having a horn-shaped end to engage the inner side of a hollow article, a nut to move the jaw longitudinally with relation to the handpiece to clamp a hollow article between them, and elastic means for forcing the support toward the horn-like jaw to loosely hold an article between them while being adjusted in position.

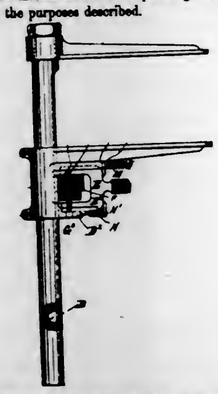
3. In a vise, a hollow handpiece slotted at one end, a hollow threaded shank within said handpiece, a horn-like jaw connected with said shank, a nut on said shank to slide it in said handpiece, and an independent movable and elastic support having a projection and adapted to be seated on said handpiece.

4. In a vise, a handpiece, a spring-pressed support carried thereby and normally projected beyond the end of the handpiece, a horn-like jaw, and means to move said support and jaw relative to each other to clamp an article between them and to seat the spring-pressed support upon the end of the handpiece.

5. A vise composed of a bodily-movable spring-pressed support, a horn-like jaw against which the said support is normally pressed, and means to move the said support and jaw relatively one to the other to clamp a hollow article inside and outside.

679,258. MICROMETER-CALIPERS. EDGARD GIEBELER, Brooklyn, N. Y. Filed Jan. 26, 1900. Serial No. 2,719. (No model.)

Claim.—1. The combination in a micrometer-calipers of a hollow graduated cylindrical rod having a slot provided with screw-cut lips; with an externally-screw-cut graduated cylinder having its screw-threads and graduations proportioned to each other, and supported in means slidably attached to the said rod, the external screw means on the said cylinder and the internal screw-threads in the rod coöperating with each other substantially as and for the purposes described.

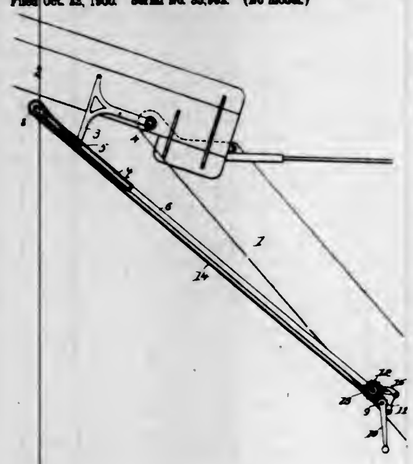


2. The combination in a micrometer-calipers of a hollow, cylindrical rod furnished with a slot having screw-threaded lips, a support consisting of a U-shaped frame, a sliding jaw slidably attached to the said cylindrical rod, having said U-shaped frame forming a part thereof, a cylinder, axially pivoted in said frame, consisting of three parts, a graduated part, an externally-screw-threaded part and a manipulating part substantially as described.

3. The combination in a micrometer-calipers of a cylindrical, hollow graduated rod having inverted screw-threads, a sliding jaw attached to the said cylindrical rod, a U-shaped frame forming a part of said sliding jaw, a cylinder, consisting of graduated, externally-screw-threaded and manipulating parts, pivoted in the U-shaped frame of the said sliding jaw, the said external screw-threads of the cylinder consisting of a predetermined number of said threads to the inch proportioned to the said graduations substantially as and for the purposes described.

4. The combination in a micrometer-calipers of a hollow, graduated rod provided with a slot having screw-cut lips, an externally-screw-cut graduated cylinder whose threads coöperate with the screw-cut lips of said slot, a U-formed support having the said cylinder pivoted therein, a sliding jaw moving on the hollow graduated rod, of which jaw the U-formed support forms a part, an indicator attached to the U-formed support, and means furnished for giving a resilient inward and outward movement to the said support substantially as described.

679,259. STRAW-STACKER. MARTIN HELFRICH, Springfield, Ill. Filed Oct. 22, 1900. Serial No. 33,962. (No model.)



Claim.—1. In a stacker the combination of a lower section held against vertical swing, a vertically-swingable upper section pivoted on the lower section, a flexible line hitched to the swingable section off the pivot thereof and a rod swingable with the swingable stacker-section extended above the hitch of the line and having in its upper end a bearing for the line, substantially as described.

2. The combination with the vertically-swingable section of a stacker, of a laterally-extending pin attached to such section, off the pivot thereof, a swingable rod slotted at its upper end to receive the pin, and a flexible line connected with the pin and run over a bearing in the upper end of the rod, substantially as described.

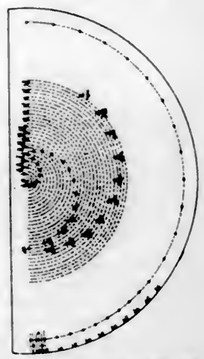
3. The combination with the vertically-swingable section of a stacker, of a laterally-extending pin attached to such section off the center thereof, a rod pivoted at one end to a relatively-fixed part of the stacker and slotted at its other end to receive the pin, a pulley in the rod beyond the pin, a flexible line connected with the pin and extended over the pulley and a drum on which to wind the line, substantially as described.

679,260. COMBINATION-TOOL. FREDERICK G. HEDDING, Perth Amboy, N. J. Filed Nov. 10, 1900. Serial No. 36,075. (No model.)



Claim.—A combination-tool comprising a member having a jaw formed at one end and a longitudinal slot in the rear of said jaw and longitudinally-extending slots cutting the first-mentioned slot and extending at right angles thereto, a second member comprising two arms pivoted together, one of said arms being pivoted to the first-mentioned member, and the other arm having a jaw formed on its end and a lug extending into the longitudinal slot of said first-mentioned member, and a pin extending through said lug and moving in the longitudinally-extending slots of said member, substantially as described.

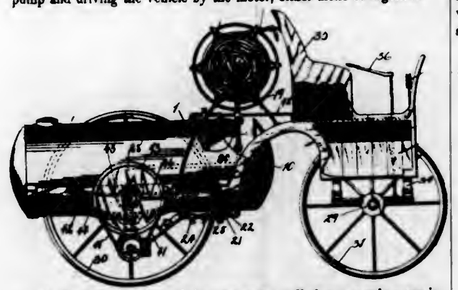
679,261. PERFORATED MENSURATION-SCALES. ASAHEL B. JOHNSON, Pittsburg, Pa. Filed May 22, 1896. Serial No. 717,696. (No model.)



Claim.—A flat scale having a curved edge with an initial curved row of perforations regularly spaced and having a determinate arrangement with relation to a unit of measurement, indicating characters therefor representing multiples of such unit, and subsequent rows of perforations arranged concentric to and laterally parallel to and intermediate of the perforations of such initial row, in like determinate arrangement, so as to define subdivisions thereof, and having a central perforation with subsequent perforations arranged spirally at successively-increasing distance outward from such central perforation with indicating characters therefor, substantially as set forth.

679,262. ANTISEPTIC-APPLYING APPARATUS. WILBER M. KELSO, Chicago, Ill. Filed June 4, 1896. Serial No. 693,588. (No model.)

Claim.—1. In a wheeled antiseptic apparatus, the combination with a motor and a source of power therefor carried by the vehicle for supplying compressed air; air and solution tanks; connections for supplying air under pressure from the pump to either or both of said tanks at will; spraying devices provided with means for regulating the relative amounts of air and solution emitted; and connections for operating the pump and driving the vehicle by the motor, either alone or together.



2. In an antiseptic-applying apparatus, a discharge-nozzle comprising air and solution outlets and means for adjusting the size of either or both of said outlets.

3. In an antiseptic apparatus, the combination with solution and air tanks, and with suitable devices for discharging the solution and air as desired, of means for supplying air under pressure; and suitable connections between such means and the solution and air tanks for supplying the air under pressure to either or both of the tanks, at will.

4. In a wheeled antiseptic apparatus, the combination of a tank or reservoir having solution and air compartments; a hose having two passages or ducts which are respectively connected with the solution and air compartments, and also having a nozzle which is adapted to permit the simultaneous discharge of both the solution and air; a pump for supplying air under pressure; suitable connections between the pump and the air and solution compartments, for supplying compressed air to either or both of the same at will; an electric motor and a storage battery for operating the same; and mechanism for connecting the electrical motor so as to drive the vehicle and also so as to operate the pump either when the vehicle is in motion or at rest.

5. A wheeled antiseptic device, comprising a suitable body-frame mounted on front and rear wheels and axles; a horisontally-arranged tank or reservoir having air and solution compartments; a hose consisting of interior and exterior tubes respectively connected with the solution and air compartments; a nozzle attached to the end of the hose and adapted to permit the discharge of the solution and air as desired; a pump adapted to supply air under pressure and connected with both the air and solution compartments; an electric motor suspended below the rear axle; and mechanism for either propelling the vehicle or operating the pump, or both, by means of the electric motor, at will.

6. In a wheeled antiseptic apparatus, the combination with pumping means and means for driving the vehicle, of a rotary driving-sleeve; mechanism for connecting the motor with the driving-sleeve so as to cause the rotation of the latter; mechanism for operating the pumping means; and means for connecting and disconnecting the driving-sleeve with the mechanism for operating the pumping means at will.

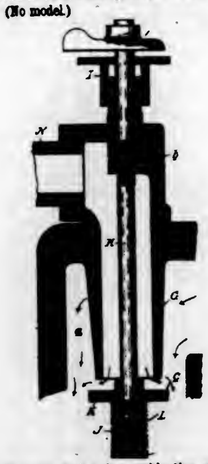
7. In a wheeled antiseptic apparatus, the combination with a motor for propelling the vehicle, and with the wheel-carrying axle having its wheel loosely mounted upon it, and also with a reciprocating pump, of a rotary sleeve revolving about the wheel-axle; a gear-wheel driven by the motor and revolving about the driving-sleeve; an eccentric for operating the pump and revolving about the driving-sleeve; a clutch for connecting and disconnecting the driving-sleeve with the eccentric and with the motor gear-wheel, respectively.

8. In an antiseptic apparatus, the combination of a hose having a couple of passages and also having a nozzle adapted to permit discharge from both passages, of a rotary reel upon which the hose can be coiled; a rotary pipe serving as the axle of the reel and having its opposite ends out of communication with one another and respectively connected with the two passages of the hose; and side pipes supporting the reel and connected with the opposite ends of the reel-carrying pipe so as to permit the rotation of the latter.

9. In an antiseptic-applying apparatus, the combination with a hose comprising interior and exterior tubes, and with a nozzle adapted to permit discharge from both tubes, of a rotary reel upon which the hose can be coiled; a rotary reel serving as the axle of the reel and having its opposite ends out of communication with one another; interior and exterior branch pipes extending radially outward from the rotary reel-carrying pipe, and connected respectively with the opposite ends thereof; a couple of side pipes supporting the reel; and swivel or rotary joints connecting such pipes with the opposite ends of the reel-carrying pipes.

10. A discharge-nozzle comprising a head provided with a rigid outwardly-extending plug; an inner shell screw-threaded upon the head and having an aperture which can be varied in size by the plug as a result of screwing the shell upon the head; and an outer shell screw-threaded upon the inner one, and forming between the same and itself a passage-way which can be varied in size by a relative movement between the two shells.

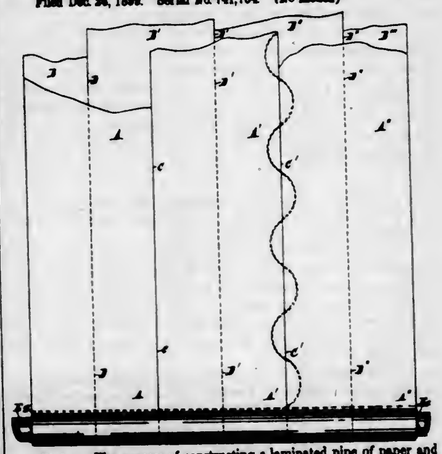
679,263. MIXING AND CONTROLLING DEVICE FOR GAS-ENGINES. RANSOM E. OLDS, Lansing, Mich. Filed Apr. 21, 1899. Serial No. 713,948. (No model.)



Claim.—1. In a gas-engine, the combination of a gas-nozzle, a surrounding casing forming an annular air-inlet passage to the cylinder, a disk valve covering the end of said nozzle and having an annular marginal portion projecting beyond the same into the path of the incoming air-current, but being of lesser diameter than said surrounding casing, and a spring for closing said valve, whereby said valve will be opened by the incoming air-current and the degree of opening thereof will vary according to the velocity of said current.

2. In a gas-engine, the combination of a gas-nozzle, a disk valve for closing the end thereof, a valve-stem passing centrally through said nozzle and disk, a head on said stem forming a stop for limiting the movement of said disk, a spring for pressing said valve to its seat sleeved upon said head and bearing against a shoulder thereon and a casing forming an annular air-inlet passage to the cylinder surrounding said nozzle.

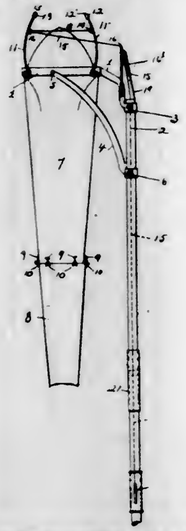
679,264. PAPER TUBE. WILLIAM R. PERLEY, Riverside, Cal. Filed Dec. 26, 1898. Serial No. 741,704. (No model.)



Claim.—The process of constructing a laminated pipe of paper and asphaltum, bitumen or tar, consisting in rolling webs or sheets of paper

which have been immersed in liquid or liquefied asphaltum, bitumen or tar, arranged in layers, into a pipe with the adjacent edges of the webs or sheets of paper of each layer all in the same direction, that is to say, parallel, but the meeting edges of any layer in all the layers of such paper placed to "break joint" in parallel lines or directions with the meeting edges of the webs or sheets of paper of the other layers either above or below, substantially as hereinbefore described.

679,265. **FRUIT-PICKER.** HOMER F. RAMBLER, Versailles, Pa., assignor of one-half to Owen B. Farley, McKeesport, Pa. Filed June 9, 1900. Serial No. 19,656. (No model.)



Claim.—1. A fruit-picker, comprising a pole, a bag-supporting frame mounted thereon, spring-arms secured to and arranged in pairs on opposite sides of said frame, aprons between each pair of arms, jaws secured to said arms, a knife seated in one jaw, and the other grooved to receive said knife, eyes on the arms, and cords fixed to one pair of arms, and having sliding contact with the eyes on the other pair of arms, and means for operating the cords, as set forth.

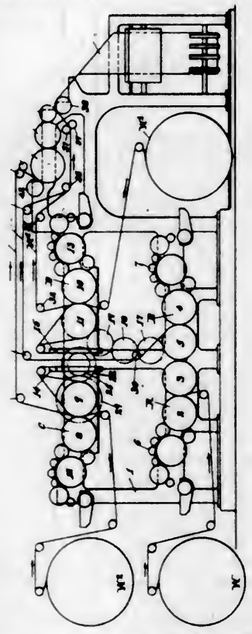
2. In a fruit-picker of the class described, the combination with the pole and belt and a bag supported by the pole, of the frame 24 connected with the belt and having a boot 25 at its outer end to engage on the end of the bag, the flanged sleeve 26 engaging said frame and pole, the collar 28 and set-screws for said frame and collar, all arranged and combined, substantially as and for the purpose described.

3. In a fruit-picker, the combination with the pole, the frame clamped thereto, the bag secured to said frame, the spring-arms fastened to said frame, and in pairs on opposite sides thereof, the jaws mounted on said arms, the eyes 14 and 16, the cords secured to said eyes 14, and sliding through said eyes 16, the arms 16^x secured to the top of the pole, the cross-arm 16′ having eyes through which said cords pass, and the sliding handle working on the pole, and to which handle said cords are connected, as shown and described.

679,266. **ROTARY PRINTING-MACHINE.** OSCAR ROSSEN, New York, N. Y., assignor to Robert Hoe, same place. Filed Nov. 12, 1900. Serial No. 36,209. (No model.)

Claim.—1. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair may be operated independently of the other, and a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, substantially as described.

2. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair may be operated independently of the other, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, means for driving the independently-operated couple at either full or half speed, suitable cutting mechanism, and an accelerating mechanism, substantially as described.



3. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair may be operated independently of the other, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, means for driving the independently-operated couple at either full or lesser speed, suitable cutting mechanism, an accelerating mechanism, and a collecting mechanism, substantially as described.

4. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair of couples may be operated independently, means whereby the other couple of said second pair of couples may be independently operated at either full or lesser speed, and a transferring mechanism so located with respect to this couple that the couple may be used as a double-ender, substantially as described.

5. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair of couples may be operated independently, means whereby the other couple of said second pair of couples may be independently operated at either full or lesser speed, a transferring mechanism so located with respect to this couple that the couple may be used as a double-ender, and a sheet-accelerating mechanism operating on the product of the last-named couple, substantially as described.

6. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair of couples may be operated independently at full speed, means whereby the other couple of said second pair of couples may be independently operated at either full or lesser speed, a transferring mechanism so located with respect to this couple that the couple may be used as a double-ender, a sheet-accelerating mechanism operating on the product of the last-named couple, and a collecting mechanism, substantially as described.

7. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair of couples may be operated independently at full speed, a transferring mechanism so arranged with respect to this couple that the couple may be used as a double-ender, means whereby the other couple of said second pair of couples may be independently operated at either full or lesser speed, a transferring mechanism operating on the product of the last-named couple, and a collecting mechanism, substantially as described.

8. The combination with a pair of printing-couples arranged to operate as a single machine, the form-carrying members of said couples having their plates arranged thereon so that the columns run around the cylinders, of a second pair of couples, the form-carrying members of which have similarly-disposed plates, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair may be operated independently of the other couple, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, means for cutting the product of said double-ender couple into sheets, and means for associating said sheets with the product of the other couples, substantially as described.

9. The combination with a pair of printing-couples arranged to operate as a single machine, the form-carrying members of said couples having their plates arranged thereon so that the columns run around the cylinders, of a second pair of couples, the form-carrying members of which have similarly-disposed plates, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair may be operated independently of the other couple, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, means for cutting the product of said double-ender couple into sheets, a longitudinal folder, and means for directing the cut sheets and the product of the first pair of couples to said folder, substantially as described.

10. The combination with a pair of printing-couples arranged to operate as a single machine, the form-carrying members of said couples having their plates arranged thereon so that the columns run around the cylinders, of a second pair of couples, the form-carrying members of which have similarly-disposed plates, means whereby said second pair of couples may be operated as a single machine, means whereby one couple of said second pair may be operated independently of the other couple, a transferring mechanism so located with respect to the independently-operated couple as to enable it to be used as a double-ender, means for cutting the product of said double-ender couple into sheets, a sheet-accelerating mechanism, cutting and collecting mechanism, and a longitudinal folder, substantially as described.

11. The combination with a printing-couple, of a second couple, means whereby said couples may be operated together to effect two printings on a web, and means whereby each of said couples may be independently operated to effect two printings on a web, substantially as described.

12. The combination with a printing-couple, of a second printing-couple, means whereby the couples may be operated together to produce a printed product, and two transferring mechanisms, one for each couple, substantially as described.

13. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, and two transferring mechanisms, one for each couple, the arrangement being such that each couple of the second pair may be used as a double-ender, substantially as described.

14. The combination with a pair of printing-couples arranged to operate as a single machine, of a second pair of couples, and two transferring mechanisms, one for each couple, located between the couples, the arrangement being such that each couple of the second pair may be used as a double-ender, substantially as described.

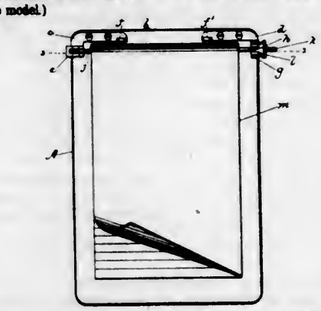
15. The combination with a pair of printing-couples arranged to operate as a single machine, of a second couple, a train of gearing leading from the first couples to the second couple and arranged to drive the same at a speed which is uniform with that of the first couples, a third couple, and connections from said couple to the train whereby said couple may be driven at a speed which is uniform with the speed of the other couples or at a lesser speed, substantially as described.

16. The combination with a pair of printing-couples arranged to operate as a single machine, of a second couple, a train of gearing leading from the first couples to the second couple and arranged to drive the same at a speed which is uniform with that of the first couple, a third couple, connections from said couple to the train whereby said couple may be driven at a speed which is uniform with the speed of the other couples or at a lesser speed, and a transferring mechanism for the third couple whereby it may be run as a double-ender, substantially as described.

17. The combination with a pair of printing-couples arranged to operate as a single machine, of a second couple, a train of gearing leading from the first couples to the second couple and arranged to drive the same at a speed which is uniform with that of the first couples, a third couple, connections from said couple to the train whereby said couple may be driven at a speed which is uniform with the speed of the other couples or at a lesser speed, and transferring mechanisms operating in connection with the second and third couples, whereby each of them may be operated as a double-ender, substantially as described.

18. The combination with a pair of printing-couples arranged to operate as a single machine, said couples having their plates so arranged that the columns run around the cylinder, of a second pair of couples having similarly-disposed plates, gearing for driving one couple of said second pair of couples at a speed uniform with that of the first pair, gearing for driving the other couple of the second pair at a speed uniform with that of the other couples or at a lesser speed, transferring mechanisms, one for each couple, located between the second pair of couples, whereby each of the couples may be used as a double-ender, sheet cutting and accelerating mechanism, a pair of cutting and collecting cylinders, and a suitable folding mechanism, substantially as described.

679,267. **WRITING-TABLET OR BLANK-BOOK HOLDER.** CHAS. W. STOCKETT, Jr., Baltimore, Md. Filed Oct. 19, 1900. Serial No. 33,592. (No model.)

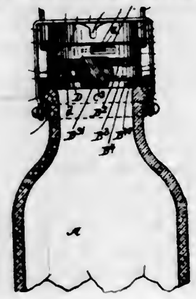


Claim.—1. The combination of a base-board; an angle-bracket secured to said base-board at one upper corner thereof, and provided at one end with a hinge-bearing and at its other end provided with a vertically-projecting stop-lug; a second angle-bracket secured to the opposite upper corner of said base-board, and provided at one end with a vertically-slotted locking-lug in alinement with the hinge-bearing of the first-named angle-bracket, and also provided at its other end with a vertically-projecting stop-lug; a bar pivoted in said hinge-bearing and adapted to extend across said base-board to said vertically-slotted locking-lug; and means for securing said bar in said locking-lug, as set forth.

2. The combination of a base-board; a bracket, *c*, secured to said base-board near one edge, said bracket provided at one end with a part-hinge bearing and the other end having a vertically-projecting stop-lug; a second bracket, *d*, secured to the base-board and provided at one end with a lug, *g*, and the other end having a vertically-projecting stop-lug; a cross-bar pivoted in the said part-hinge bearing and extending across the base-board to said lug, *g*; and means to secure the free end of said bar to said lug, for the purpose set forth.

3. In a writing-tablet or blank-book holder, the combination of a base-board; two brackets secured to the upper corners of said base-board and provided with vertically-projecting stop-lugs; and a bar pivoted to one of said brackets and adapted to be detachably secured to the other bracket, said bar extending across said base-board below, that is, to one side of the said stop-lugs, as set forth.

679,268. **SEAL-LOCK FOR CANS OR BOTTLES.** EMIL TYDEN, Hastings, Mich. Filed Oct. 23, 1900. Serial No. 33,867. (No model.)



Claim.—1. A seal-lock for a can or bottle, comprising two elements relatively movable in one direction; means by which such movement secures closure of the bottle, and means preventing movement in reverse direction, said elements having lodgment for a seal at position to resist such movement onward from locked position; and a ruptarable seal adapted to be so lodged in said elements, and to be engaged preventing its removal by movement of said elements to locked position.

2. A seal-lock for a can or bottle, comprising two elements relatively movable in one direction, and means by which said elements secure closure; said elements having coöperating features affording lodgment for a seal at position resisting movement onward out of securing position; inaccessible automatic means preventing movement in reverse direction, and a ruptarable seal adapted to be lodged in said elements and to be engaged preventing its removal by movement of the elements to a securing position.

3. A seal-lock for a can or bottle, comprising two elements relatively rotatable; means by which such relative rotation in one direction secures closure of the bottle; coöperating features in the two relatively rotatable elements, affording lodgment for a seal at position resisting such relative movement onward out of locked position; inaccessible automatic means preventing such relative rotation in reverse direction, and a ruptarable seal adapted to be lodged in such elements and to be engaged preventing its removal by the relative movement to securing position.

4. A seal-lock for a can or bottle, comprising two elements connected together and relatively rotatable, one of said elements having a ratchet, and the other a pawl to engage the ratchet, permitting such relative rotation in one direction and preventing it in the opposite direction; apertures in said two elements adapted at one position in such relative rotation to register and constitute together a seal-receiving cavity; a seal adapted to be inserted in such cavity when the recesses are so registering, and to be engaged against removal by partial movement away from such registered position; the pawl and ratchet being adapted to become engaged to prevent reverse movement at the limit of the partial movement which engages the seal.

5. A seal-lock for a can or bottle, comprising two parts connected together and relatively rotatable at such connections, each of said parts having one element of a clutch device, permitting relative rotation in one direction only and having respectively apertures which register at one position of the two parts and together constitute a seal-receiving cavity; a seal adapted to be inserted in such cavity, and to be engaged against removal by partial rotation of the parts away from such registered position in the direction permitted by the clutch, and to obstruct further rotation.

6. A seal-lock for a can or bottle, comprising two parts seated one within the other and relatively rotatable; means by which such rotation secures the closure of a can or bottle; a clutch device which prevents rotation away from securing position in one direction; said parts having respectively apertures which register and are adapted to receive a seal at one position in the relative movement; and a seal adapted to be inserted at such position, and to be engaged against removal by movement of the parts in the direction permitted by the clutch out of registered position within the range of securing position.

7. A seal-lock for a can or bottle, comprising two parts seated in each other and relatively rotatable; means by which such rotation secures the closure of the can or bottle; a clutch device which prevents rotation away from securing position in one direction, one of said parts having a cylindrical flange and the other having a cylindrical feature which is inclosed by such flange; such flange and cylindrical feature having respectively slots or apertures which are adapted to register at one position in the relative movement, such slots or apertures being extended or having their greater transverse dimension in a plane transverse to the axis of rotation, and being of slight dimension in a direction parallel to said axis; a seal consisting of a strip of sheet material adapted to be inserted through such apertures when registered and present the dimension of its width in the plane of rotation, and to be engaged against removal by partial movement in the direction permitted by the clutch out of registration within the range of said securing position, and to resist further movement in said direction.

8. A seal-lock for a can or bottle, comprising two relatively rotatable parts, and means by which such rotation secures closure; said parts having features for receiving a seal, and having their relative rotation away from secured position prevented thereby; one of said parts having a hub or projection, and the other having a chamber into which such hub intrudes and which is closed by such intrusion; the wall of the chamber and such intruded hub having coöperating elements of a clutch, preventing rotation away from secured position except in one direction; and a seal adapted to be engaged against withdrawal by rotation in such direction.

9. A seal-lock for a can or bottle, comprising two relatively rotatable parts, and means by which their rotation to a certain position secures closure; means preventing their rotation back from such position; one of said elements having a cylindrical flange, within which the other element is seated, the flange having opposite apertures, and the seated element having a passage inaccessible except through and in line with such apertures at one position; and a seal having two enlargements in the course of its length, adapted to be thrust through the apertures and passage and protrude at both ends, and to be engaged between such enlargements by partial rotation of elements.

10. In a seal-lock for a can or bottle, two relatively rotatable elements, B and C, having the registering seal-apertures, the element B comprising two cupped parts, B′ and B², secured together bottom to bottom, and the disk B³ secured over the mouth of the part B² inclosing a chamber, the element C having a ratchet-hub intruding into such chamber, and the pawl mounted in the chamber to engage the same.

11. In a seal-lock for a can or bottle, two relatively rotatable elements, B and C, the former having a ratchet-chamber b^{20} and the latter having rigid with it a ratchet intruded into such chamber, said latter element being composed of two cupped parts, C′ and C², the first exteriorly beaded at the bottom and the second having its margin at the top crimped around such bead securing such parts together and forming a chamber between them, the wall of such chamber having the seal-apertures of said element.

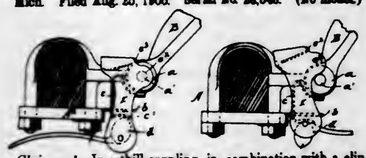
12. In a seal-lock for a can or bottle, two relatively rotatable elements, B and C, the first comprising two cupped parts secured together bottom to bottom, and a disk closing the mouth of the lower one to form a ratchet-chamber, the second having an upper part adapted by rotation of said element to effect closure of said bottle, and comprising a lower cupped part secured by the margin of its flange to the bottom of the upper part, forming a closed chamber, such chamber being seated in the upper cupped part of the first element; said cupped part and said seated part having registering seal-apertures.

13. In a seal-lock, two relatively rotatable elements having surfaces adjacent in such rotation provided with registering seal-apertures; one of said elements being adapted to be seated at the mouth of the receptacle to be sealed, and having a clutch-chamber and one member of a clutch mounted therein; the other element having a hub protruding in such chamber and having therein the second member of the clutch; said second element having a chamber inclosed by a wall which is provided with the seal-apertures.

14. In a seal-lock, two relatively rotatable elements and means by which rotation to a certain distance secures closure; the first element having a bottom plate completely closing it, and above such bottom plate a clutch-chamber; the second element having a hub protruded down into the clutch-chamber, and a retaining plate or key let into the hub within the clutch-chamber, said elements having, at their upper part, seal receiving and engaging features.

15. A seal-lock for a can or bottle, comprising two relatively rotatable elements and means by which such rotation to a certain position secures closure of the bottle; said elements having respectively seal-apertures which register and admit the seal at such securing position; and a seal adapted within the registering apertures and when thus inserted to prevent relative rotation of the elements away from secured position, and to be secured against withdrawal.

679,269. THILL-COUPLING. FREDERICK A. WEGNER, Detroit, Mich. Filed Aug. 25, 1900. Serial No. 28,046. (No model.)



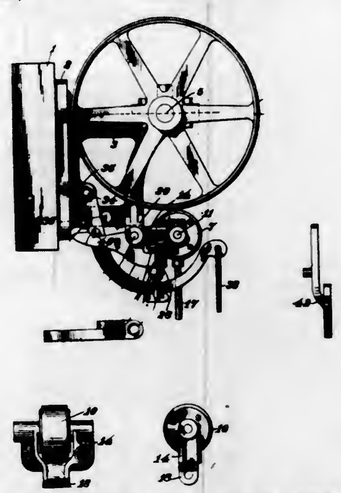
Claim.—1. In a thill-coupling, in combination with a clip adapted to engage over the shackle-ears, a lever fulcrumed in the clip, a spring adapted to engage between the shackle-ears under the thill-eye and over an arm of the lever, a perforated plate adapted to be secured to the shackle, and arranged to secure said spring from escape, substantially as described.

2. In a thill-coupling, in combination with a clip, adapted to engage over the shackle-ears, a bent lever fulcrumed in the clip, a plate adapted to be secured to the shackle and provided with an opening for the passage of a spring, a spring adapted to engage under the thill-eye and between the shackle-ears, the said plate being adapted to allow free movement of the spring, but to prevent its escape when the thill-coupling is disengaged, substantially as described.

3. In a thill-coupling, in combination with a clip adapted to engage over the shackle-ears, a bent lever fulcrumed to the clip, a perforated plate arranged to be secured to the shackle, a bent spring passing through the perforation in said plate, a noise-deadening cover for said spring, substantially as described.

4. In a thill-coupling, in combination with a clip provided with points c^2, adapted to hold a wedge, a perforated plate arranged to be secured to said shackle, a spring adapted to engage between the shackle-ears under the thill-eye, a compression-lever arranged to forcibly compress the spring between itself and the thill-eye, and a noise-deadening cover for said spring, substantially as described.

679,270. FRICTIONAL DRIVING MECHANISM. SAMUEL P. ALLEN, Chicago, Ill. Filed Aug. 11, 1900. Serial No. 26,636. (No model.)



Claim.—1. The combination with a frame and a pair of pulleys, with their shafts, one of which is movable into and out of contact with the other, of a pendent support for the movable pulley, a lever for operating the pendent support, and means in addition to said lever for actuating it to compel contact between the pulleys.

2. The combination with a frame and a pair of pulleys with their shafts, one of which is movable into and out of contact with the other, of a pendent support for the movable pulley, a lever supporting said pendent support, and a yielding connection between said lever and support.

3. The combination with a frame and a pair of pulleys with their shafts, one of which is movable into and out of contact with the other, of a lever for actuating the movable pulley, and an adjustable yielding connection between said lever and its pulley.

4. The combination with a frame, main shaft and pulley, of a counter-pulley and shaft, and yoke movable upon the frame, a lever extending upon opposite sides of its fulcrum into engagement upon one side with the yoke, and on the other into operative relations with an actuating-lever, said actuating-lever being mounted on the frame, substantially as set forth.

5. The combination with a frame and a pair of pulleys with their shafts, one of which is movable into and out of contact with the other, of a yoke supporting the shaft of the movable pulley, and itself movable upon the frame, a tension-lever also movable upon the frame, a spring operatively secured between the yoke and one end of the tension-lever, an actuating-lever, a stud upon the actuating-lever and an inclined face upon the tension-lever with which said stud engages, substantially as set forth.

679,271. CAMERA. CHARLES W. RARNEKOV, Perth Amboy, N. J., assignor of one-half to Frederick E. Wood, New York, N. Y. Filed July 5, 1900. Serial No. 22,513. (No model.)

Claim.—1. In a magazine-camera an exterior case or shell having a recess located in the side thereof, in combination with a ground-glass focusing-screen hinged at its forward end within said recess, and a removable plate-holder having a slide at the front thereof, substantially as set forth.

2. In a magazine-camera the combination of a case, a focusing-screen hinged to said case and resting at one side of the plate-magazine and adapted to be swung into the focusing-line only when said magazine is removed, and a slide adapted to be inserted through an opening in the top of the case to enable the magazine plate-holder to be removed between the successive exposures for focusing purposes, substantially as set forth.

3. A magazine-camera, having therein a focusing-screen, hinged at its forward end within a recess in the wall of the case, and normally resting alongside of the plate-holder, said screen being adapted to be swung out to the focusing-line, in combination with a compartment having therein a removable magazine plate-holder, said magazine being adapted to receive a slide through a lateral opening in the case, for excluding light when it is removed from the camera between successive exposures, and means for feeding the plates to the point of exposure, as set forth.

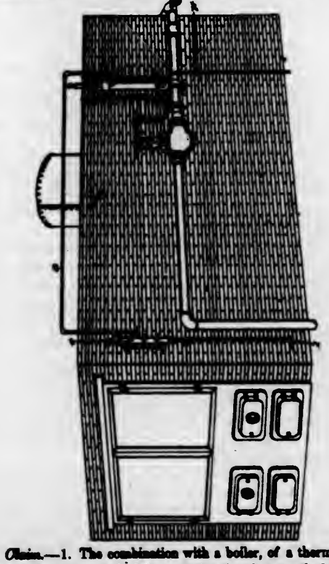


679,272. SHEET-METAL WARE. EDWIN D. BEVITT, Cincinnati, Ohio. Filed Sept. 4, 1900. Serial No. 28,943. (No model.)

Claim.—1. A pipe-section formed of a metal sheet having one edge clipped off diagonally at a corner of the sheet and bent along parallel lines to produce two spaces or chambers open at opposite sides, the other edge of the sheet having a similar corner bent over to produce a locking member adapted for engagement in one of said spaces or chambers, substantially as set forth.

2. A stovepipe formed of a metal sheet having one edge clipped off diagonally at a corner of the sheet and bent along parallel lines to produce two spaces or chambers open at opposite sides, the other edge of the sheet having a similar corner sheared diagonally and bent over to produce a locking member adapted for engagement in one of said spaces or chambers, substantially as set forth.

679,278. FEED-WATER REGULATOR. FRANK M. CHAPPELL, Pittsburg, Pa. Filed Sept. 21, 1900. Serial No. 30,695. (No model.)



Claim.—1. The combination with a boiler, of a thermostat having a central air-passage, a feed-line, a valve therein, a toothed wheel on the valve-stem, a bell-crank lever, a cog-rack actuated thereby, a connection between the cog-rack and the toothed wheel and means whereby the thermostat oscillates the bell-crank lever.

2. The combination with a boiler, of a thermostat having a central

air-passage, a bell-crank lever operated by the thermostat, a feed-line having a valve, a cog-wheel on the stem of the valve, a cog-rack pivoted to the bell-crank lever and means whereby the motion of the cog-rack is imparted to the cog-wheel of the valve-stem.

3. In combination with a boiler, of a thermostat, a bell-crank lever operated by the thermostat, a cog-rack pivoted to the bell-crank lever, a bracket having a guide-arm on which the cog-rack is slidable, a cog-idler mounted on a spindle formed on the bracket, a feed-line, a valve therein, a cog-wheel on the valve-stem meshing with the cog-idler and means for attaching the bracket to the valve-casing, substantially as described.

4. In an apparatus of the character described, in combination with a boiler, a feed-pipe, a regulating-valve arranged in said feed-pipe, a flow-pipe, a thermostat having air-passages arranged therein, and means interposed between said thermostat and said regulating-valve to open and close said valve by the direct action of the thermostat, as specified.

5. In an apparatus of the character described, the combination with a boiler, of a feed-pipe, a regulating-valve arranged in said feed-pipe, a flow-pipe, a thermostat having arranged therein a central air-passage, a waste-pipe connected to said thermostat, and a waste-controlling valve arranged in said waste-pipe, all parts being arranged and operating substantially as described.

6. In an apparatus of the character described, the combination with a boiler, a feed-pipe, a rotary regulating-valve arranged in said feed-pipe, a thermostat connected to said flow-pipe and having arranged therein a central air-passage and ports, and means interposed between said thermostat and said rotary regulating-valve whereby a direct action is obtained from said thermostat to open and close said rotary regulating-valve, substantially as described.

7. In a feed-water regulator, the combination with a boiler, a feed-line, a flow-line, a thermostat interposed between said flow-line and feed-line, said thermostat containing an expansion-tube having a central air-passage and air-ports therein, a rod arranged on the side of said thermostat, a connecting-rod, an operating-rod, a lever, an arm carrying a cog-rack, a cog-idler, a segmental cog-wheel mounted on a valve-stem, a rotary balanced valve arranged upon said valve-stem operating in a suitable valve-casing and arranged in said feed-line, all parts being arranged and operating substantially as described and for the purpose set forth.

8. In combination, a boiler, a thermostat in communication therewith, said thermostat having a casing and an expanding tube provided with means for permitting the circulation of air through the tube, and means operated by the thermostat for controlling the feeding of water to the boiler.

9. In combination, a thermostat in communication with a boiler, said thermostat comprising a casing containing an expanding tube with means for permitting the circulation of air through the tube, and means operated by the thermostat for controlling the feeding of water to the boiler.

10. In combination, a thermostat having connections with a boiler, said thermostat comprising a casing and an expansion-tube, and means for permitting the circulation of air through the tube, a feed-pipe, a controlling-valve therein and means operated by the thermostat for varying the position of the valve.

11. The combination with a boiler, of a thermostat having a central air-passage, a flow-pipe, a feed-line, a rotary valve in the feed-line, a toothed wheel on the valve-stem, a bell-crank lever, a cog-rack actuated thereby, a connection between the cog-rack and toothed wheel and means whereby the thermostat oscillates the bell-crank lever.

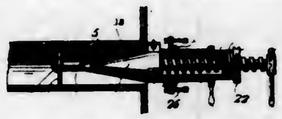
12. The combination with a boiler, of a thermostat comprising a casing communicating with the boiler, a tube in the casing, and means for admitting air to the tube, a feed-pipe having a valve, a cog-rack, connections between the cog-rack and the valve-stem, whereby said valve-stem is partially rotated, a bell-crank lever for actuating the cog-rack and means whereby the bell-crank is reciprocated by the expanding tube of the thermostat.

13. The combination with a boiler, of a thermostat comprising a casing in communication with the boiler and an expansion-tube in the casing a feed-pipe, a valve therein, a cog-wheel on the stem of the valve, a cog-rack, a connection between the cog-wheel and the cog-rack, a bell-crank lever to which the cog-rack is pivoted and suitable connections between the thermostat and the bell-crank lever.

14. The combination with a boiler, of a thermostat in communication with the boiler, a valve-casing having a sleeve, a bracket having apertures to receive the sleeve, a nut for securing the bracket in place; said bracket having a reduced end and guide, an idle cog-wheel on the reduced end, a cog-rack slidable in the guide in engagement with the idle cog-wheel, a cog-wheel on the valve-stem taking motion from the idle cog-wheel and means connected to the thermostat for actuating the cog-rack.

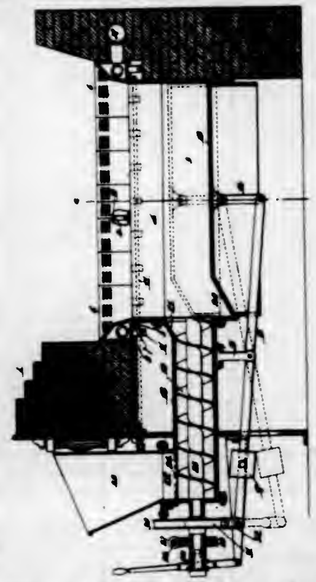
15. The combination with a boiler, of a thermostat, a valve, a cog-wheel on the valve-stem, a bracket supported on the valve-casing having a guide, a cog-rack slidable in the guide, suitable connections whereby the movement of the cog-rack is communicated to the valve-stem, and connections whereby the movement of the thermostat actuates the cog-rack.

679,274. EXPANSIBLE FLUE-CUTTER. JOHN W. COLLINS, Duluth, Minn. Filed Dec. 1, 1900. Serial No. 38,337. (No model.)



Claim.—In a pipe or flue cutter, the combination with a main body, of radially-movable blocks carrying disk-cutters, an annular flange on the body, a disk in front of said flange, set-screws threaded in said disk, the main body being provided with an angular portion to receive a wrench, and a reduced portion beyond the angular portion to support the wrench when not engaged, a screw-plug threaded in the outer end of the main body, a screw-stem threaded through the plug and attached to the solid cone, and means for turning the screw-plug and the screw-stem independently of each other, substantially as described.

679,275. AUTOMATIC STOKER. JOHN MACCORMACK, Bayonne, N. J., assignor to Royal C. Peabody, Brooklyn, N. Y. Filed Aug. 16, 1900. Serial No. 27,011. (No model.)

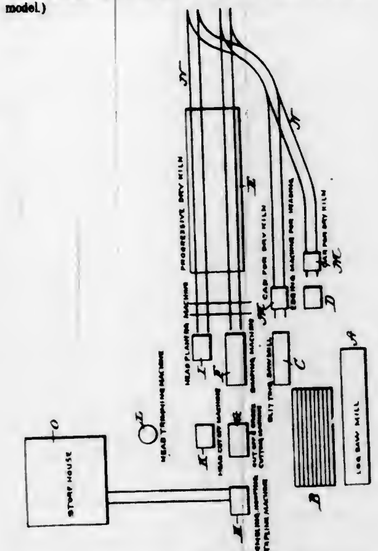


Claim.—1. In a mechanical stoker, the combination of a magazine, a vertically-movable bottom therefor, means for continuously supplying fuel upon said bottom, means for continuously operating said bottom, said fuel-feeding means being at all times in communication with the magazine, whereby fuel may be fed continuously thereto, substantially as set forth.

2. In a machanical stoker, the combination of a magazine, a vertically-movable bottom therefor, means for continuously supplying fuel upon said bottom, means for continuously operating said bottom, said fuel-feeding means being at all times in communication with the magazine, whereby fuel may be fed continuously thereto, the feeding means and the magazine-bottom being operated from a common source of power, substantially as set forth.

3. In an automatically-operating mechanical stoker, the combination of a magazine, a substantially flat horizontal movable bottom therefor, said bottom being provided at its forward end with a tapered edge, a feed-tunnel leading into the magazine for supplying fuel thereto, a device in the feed-tunnel for continuously supplying fuel to the magazine, and means for reciprocating the magazine-bottom without fully closing at any time the outlet from the feed-tunnel and for simultaneously and continuously operating the device in the feed-tunnel, substantially as set forth.

679,276. MANUFACTURE OF BARRELS. OLIVER H. P. CORNELL, Brooklyn, N. Y. Filed Dec. 28, 1900. Serial No. 41,099. (No model.)



Claim.—1. The method of making barrels, which consists in cutting heading material with the growth of the timber, and cutting sections or plank of a thickness equal to the width of a stave, then severing said sections into stave-blanks cut at approximately a right angle to the growth of the timber, then shaping the blanks into the form of staves, then crozing the staves and providing heads for the barrels from material cut with the growth of the timber.

2. The method of making barrels, which consists in removing the outer portions of a log or piece of timber on four sides by cutting off boards to make heading material cut with the growth of the timber, until the log has been squared, then severing the log longitudinally into sections the length of several staves and of a thickness equal to the width of a stave and cutting successively from sides of the log at a right angle to each other, then severing said sections into strips the thickness of a stave and cut at approximately a right angle to the growth of the timber, then subjecting the strips or multiple stave-length blanks to heat, then shaping the blanks into the form of staves, then severing the blanks and crozing the staves, then assembling the staves in the form of mats the length of the circumference of a barrel and securing the staves to hoops, and then providing heads for the barrel from material cut with the growth of the timber.

3. The method of making barrels, which consists in removing the outer portions of a log or piece of timber on four sides by cutting off boards to make heading material cut with the growth of the timber, until the log has been squared, then severing the log longitudinally into sections the length of several staves and of a thickness equal to the width of a stave and cutting successively from sides of the log at a right angle to each other, then severing said sections into strips the thickness of a stave and cut at approximately a right angle to the growth of the timber, then subjecting the strips or multiple stave-length blanks to heat, then shaping the blanks into the form of staves, then severing the blanks and crozing the staves, then assembling the staves in the form of mats the length of the circumference of a barrel and securing the staves to hoops; edging the heading material, drying said material, planing the material, cutting the material into lengths for barrel-heads and forming the heads from said material cut with the growth of the timber.

679,277. BARREL. OLIVER H. P. CORNELL, Brooklyn, N. Y. Filed Dec. 26, 1900. Serial No. 41,100. (No model.)

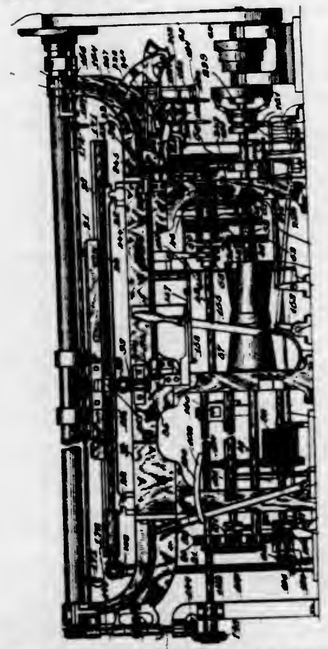
Claim.—1. A barrel having heads made of wood cut with the growth of the timber, and staves made of wood approximately quartered, to equalize the shrinkage of the heads and the staves.

2. A barrel having heads made of wood cut with the growth of the timber, and staves made of wood cut approximately at a right angle to the growth of the timber, to equalize the shrinkage of the heads and the staves.



3. A barrel having heads made of wood cut with the growth of the timber, and staves having the grain running across the thickness of the staves approximately at a right angle to the width of the staves, to equalize the shrinkage of the heads and the staves.

679,278. METAL-WORKING-MACHINE. ADAMS CROCKER, Fitchburg, Mass. Filed Aug. 6, 1900. Serial No. 25,994. (No model.)



Claim.—1. In a metal-working machine, a tool, a tool-carrier, mechanism to bring the tool from its inoperative to its working position, and a pattern-chain to control said mechanism.

2. In a metal-working machine, a tool, a tool-carrier, mechanism to put the tool into its working position and to positively hold the same in such position, and a pattern-chain controlling said mechanism.

3. In a metal-working machine, a tool, a tool-carrier, mechanism to put the tool into and away from its working position, and a pattern-chain to control said mechanism.

4. In a metal-working machine, a tool, a rocking tool-carrier mechanism to operate the tool-carrier to carry the tool from its inactive position to its working position, and a pattern-chain to control said mechanism.

5. In a metal-working machine, a shaft provided with bearings, a second shaft sustained by the bearings, mechanism for rocking the first-mentioned shaft, including a pattern device, a tool upon the second shaft, and means for rotating the latter.

6. In a metal-working machine, a tool, a tool-carrier, mechanism to operate the tool-carrier alternately in opposite directions to first move the same into contact with the work and then out of contact with the work, and to hold it in contact with the work positively for a predetermined time, said mechanism including a worm on the tool-carrier and a gear co-operating therewith, and means to intermittingly rotate said gear.

7. In a metal-working machine, a tool, a tool-carrier, worm-gearing connected with the tool-carrier, a shaft supporting one of the members of

the worm-gearing, and means to rotate said shaft alternately in opposite directions, said shaft remaining at rest between its two movements.

8. In a metal-working machine, a tool-carrier having a tool and a work-holder, each of said parts being shiftable relatively to the other, and pattern-controlled means to operate said parts independently.

9. In a metal-working machine, a work-holder, a rocking tool-carrier, a rotating tool carried thereby, and means to cause the tool to engage the work, and to positively hold it in engagement with the work and against chattering for a predetermined time, and pattern-controlled means to operate the work-holder and tool-carrier either simultaneously or independently.

10. In a metal-working machine, a shaft having bearings, a second shaft supported by the bearings, provided with a plurality of cutters, means for continuously rotating said second shaft, and means for locking the first-mentioned shaft alternately in opposite directions, and said first-mentioned shaft arranged to be held at rest during such two motions.

11. In a metal-working machine, a tool, a tool-carrier, a work-holder, and means, including a pattern-chain, for operating the work-holder.

12. In a metal-working machine, a tool, a tool-carrier, a work-holder through which the work is attached, and pattern-controlled means for operating the work-holder and the tool-carrier either independently or in unison.

13. In a metal-working machine, a tool, a tool-carrier, a work-holder consisting of a plurality of superimposed slides, and mechanism, including a pattern device, for independently operating the slides.

14. In a metal-working machine, a tool, a tool-carrier, a work-holder consisting of a plurality of superimposed slides, and mechanism for operating the slides separately or simultaneously, said mechanism including a pattern device.

15. In a metal-working machine, a tool, a tool-carrier, a work-holder, means to cause the tool to engage the work, said means including coöperating mutilated gears, a tooth or block normally ineffective and adapted to coöperate with one of said gears, and means to put said tooth or block into its effective position.

16. In a metal-working machine, a tool, a tool-carrier, a work-holder, means to cause the tool to engage the work, said means including coöperating mutilated gears, a tooth or block normally ineffective and adapted to coöperate with one of said gears, and means to put said tooth or block into its effective position, said means embodying a pattern device.

17. In a metal-working machine, a tool, a tool-carrier, a work-holder, means to cause the tool to engage the work, said means including two coöperating mutilated gears, a tooth or block normally ineffective and adapted to coöperate with one of said gears, a sliding sleeve supported by the shaft that carries the gear with which said tooth coöperates, and means for moving said sleeve back and forth.

18. In a metal-working machine, a tool, a tool-carrier, a work-holder, means to cause the tool to engage the work, said means including two coöperating mutilated gears, one of said gears having diametrically opposite spaces, a plurality of teeth or blocks adapted to enter said spaces, and automatic mechanism to move said teeth or blocks back and forth simultaneously.

19. In a metal-working machine, a tool, a tool-carrier, a work-holder; two mutilated gears; a tooth normally ineffective; means to put the tooth into its effective position; means to drive the primary mutilated gear; a shaft connected with and operated from the secondary gear, said shaft having an eccentric; a bar operated by said eccentric; and connections between said bar and the tool to operate the latter.

20. In a metal-working machine, a tool, a tool-carrier, a work-holder; two mutilated gears; a tooth normally ineffective; means to put the tooth into its effective position; means to drive the primary mutilated gear; a shaft connected with and operated from the secondary gear, said shaft having an eccentric; a bar operated by said eccentric, said bar having teeth; a pinion meshing with said teeth; and connections between said pinion and the tool for moving the latter into and out of its working position.

21. In a metal-working machine, a tool, a tool-carrier; a work-holder; means to cause the latter to engage the work, said means including two coöperating mutilated gears, one of said gears having a plurality of pockets; a tooth or block to coöperate with the other gear and normally ineffective; means to put the tooth or block into its effective position; and rotary teeth to enter said pockets thereby to turn the gear having the same.

22. In a metal-working machine, a tool, a tool-carrier; a work-holder, means to cause the tool to engage the work and simultaneously to feed the work-holder, said means including driving and driven mutilated gears; teeth to coöperate with both driven mutilated gears; and means to automatically put the teeth into their effective position.

23. In a metal-working machine, a tool, a tool-carrier; a work-holder, a plurality of mutilated gears, a tooth to coöperate with one of said gears and normally ineffective; means to put the tooth into its effective position; and connections between the second one of said mutilated gears and the work-holder.

24. In a metal-working machine, a tool; a tool-carrier; a work-holder; a plurality of coöperating mutilated gears; a tooth adapted to coöperate with one of said gears and normally ineffective; means to put the tooth in its effective position, said means including a pattern device; and connections between the second mutilated gear and the work-holder to operate the latter.

25. In a metal-working machine, a tool, a tool-carrier; a work-holder consisting of a plurality of superimposed slides, a plurality of coöperating mutilated gears; a tooth adapted to coöperate with one of said gears and normally ineffective; means to put the tooth into its effective position; and connections between the second mutilated gear and one of the slides for operating the latter in opposite directions.

26. In a metal-working machine, a tool, a tool-carrier; a work-holder consisting of a plurality of superimposed slides, a plurality of coöperating mutilated gears; a tooth adapted to coöperate with one of said gears and normally ineffective; means to put the tooth into its effective position; and connections between the second mutilated gear and one of the slides for operating the latter in opposite directions, said connections including a plurality of manually-shiftable gears.

27. In a metal-working machine, a tool, a tool-carrier, a work-holder; means to put the work-holder in its effective position, said means including a pattern device and the latter embodying a chain having rolls and a lever to be engaged by said rolls.

28. In a metal-working machine, a tool, a tool-carrier; a work-holder, means to operate the work-holder and the tool-carrier, said means including a pattern device and the latter embodying a chain having rolls and levers to be engaged by said rolls.

29. In a metal-working machine, a tool, a tool-carrier, a work-holder, means to put the work-holder in its effective position, said means including a pattern device, and stop mechanism adapted to be operated on breakage of the jacquard device to stop the machine.

30. In a metal-working machine, a rotating tool, a tool-carrier, a work-holder, and means including a pattern-chain for controlling the position of both the tool and the work-holder.

31. In a metal-working machine, a tool, a tool-carrier, and a work-holder, said work-holder comprising two superimposed slides, and a pattern device for operating independently the tool and work-holder.

32. In a metal-working machine, a tool, a tool-carrier, and a work-holder, said work-holder comprising two superimposed slides, and mechanism for operating independently the tool-carrier and each portion of the work-holder, said mechanism including a pattern device.

33. In a metal-working machine, a tool, a tool-carrier and means to operate the tool-carrier, said means including a worm-gear on the tool-carrier and a worm adapted to drive said worm-gear, a sectional shaft for the worm and means for turning one section relative to the other whereby the position of the tool-carrier may be adjusted to regulate the depth of the cut.

34. In a metal-working machine, a tool-carrier, and means for operating the same, said means including a sectional shaft carrying a worm, and a worm-gear on the tool-carrier to coöperate therewith, a worm-gear splined to one of said shaft-sections, and a worm carried by the other, whereby the one section can be turned relative to the other.

35. In a metal-working machine, a tool-carrier, a reciprocating work-holder, a stop-motion to throw the machine out of operation, said stop-motion including a slidable rod having abutments adapted to be operated by the work-holder, a tripping device, and connections between the rod and tripping device whereby the tripping device is operated by a movement of the rod in either direction.

36. In a metal-working machine, a stop-motion, said stop-motion including a slidable rod, a latch for the operating-lever, a slotted segment pivotally mounted on the machine and connected to the latch, a link detachably connecting the rod with the segment, and a work-holder to operate the rod, and thereby trip the latch.

37. In a metal-working machine, a reciprocating work-holder, and means to stop the machine at the end of each reciprocation of said work-holder, said means including a latch for the operating-lever, a crank-arm, connections between the crank-arm and latch to trip the latch when the crank-arm is raised, and means operable by the work-holder when it reaches either limit of its movement to raise the crank-arm.

38. In a metal-working machine, a reciprocating work-holder, a slidable rod having abutments adapted to be engaged by the work-holder when it reaches either limit of its movement, a latch for the operating-lever, a pivoted arm connected with said latch and adapted to operate said latch when the arm is raised, and connections between the rod and arm, whereby the arm is raised to trip the latch when the rod is moved in either direction by the work-holder.

39. In a metal-working machine, a reciprocating work-holder, a slidable rod having abutments, adapted to be engaged by said work-holder as it reaches the limit of its movement in either direction, and means operated by said rod to effect the stopping of the machine, said means including a pivoted member having a segmental slot therein, a link pivoted to the rod and detachably engaging said slot, whereby the link may be connected with either end of the slot to effect the stopping of the machine, by a movement of the rod in either direction.

40. In a metal-working machine, a rotating tool, a work-holder, means to reciprocate the work-holder with respect to the tool, a pattern device controlling the reciprocations of the said work-holder, said pattern device including a repeating mechanism.

41. In a metal-working machine, a tool-carrier, a work-holder, means to intermittently move the work-holder with respect to the tool-carrier, said means including a pattern device, and a repeating mechanism connected with the pattern device whereby the intermittent motion of the work-holder may be made substantially continuous.

42. In a metal-working machine, a tool-carrier, a reciprocating work-holder, gearing for reciprocating the same, clutch mechanism for rendering said gearing operative or inoperative, and pattern mechanism for controlling said clutch mechanism.

43. In a metal-working machine, a reciprocating work-holder, a feed-screw for reciprocating the same, reversing-gearing for operating said feed-screw, and pattern mechanism controlling said reversing-gearing.

44. In a metal-working machine, a tool-carrier, a reciprocating work-holder, means for reciprocating said work-holder, said means including a shaft, two gears loosely mounted thereon, means to rotate said gears in opposite directions, and pattern-controlled clutch mechanism for clutching either of said gears to the shaft.

45. In a metal-working machine, a reciprocating work-holder, a rock-shaft having arms projecting therefrom, a shaft mounted for rotation in said arms, said shaft adapted to carry a tool, and pattern-controlled mechanism to oscillate said rock-shaft.

46. In a metal-working machine, a reciprocating work-holder, a rock-shaft having integral arms projecting therefrom, a shaft rotatively mounted in said arms and parallel to the rock-shaft, said rotatively-mounted shaft adapted to carry a tool, and pattern-controlled mechanism to oscillate said rock-shaft.

47. In a metal-working machine, a work-holder, a rock-shaft having arms projecting therefrom, a shaft rotatively mounted in said arms, and adapted to carry a tool, means to oscillate said rock-shaft including a sectional shaft, a means to turn one section of said shaft relative to the other whereby the relative positions of the rock-shaft may be varied.

48. In a metal-working machine, a work-holder, a rock-shaft having integral arms projecting therefrom, a tool-carrying shaft rotatively mounted in said arms, pattern-controlled means to operate said rock-shaft, said means including a sectional shaft, and means to turn one section of said shaft relative to the other, whereby the position of the tool-carrying shaft may be adjusted.

49. In a metal-working machine, a work-holder, a tool-carrier comprising a rock-shaft, a tool supported thereby, gearing to oscillate said rock-shaft to carry the tool from its inactive to its working position, said gearing including a rack and pinion, and pattern-controlled means for rendering said gearing inactive when the rack reaches either limit of its movement.

50. In a metal-working machine, a work-holder, a tool-carrier comprising a rock-shaft, a tool supported thereby, gearing to oscillate said rock-shaft to carry the tool from its inactive to its working position, said gearing including a rack and pinion, and pattern-controlled means operating to arrest the operation of said gears for a predetermined time when the rack reaches either limit of its movement.

51. In a metal-working machine, a shiftable work-holder, a tool-carrier, a tool carried thereby, work-holder-shifting devices, tool-carrier-operating devices, and a pattern-chain controlling both of said devices.

52. In a metal-working machine, a work-holder adapted to support the work and move the same in a plurality of directions, a tool-carrier, a tool carried thereby, tool-carrier-shifting devices, work-holder-operating devices and a pattern-chain controlling the operation of both of said devices.

53. In a metal-working machine, a tool, a tool-carrier, a work-holder consisting of a plurality of superimposed slides, and pattern-controlled mechanism for operating the work-holder and tool-carrier independently.

54. In a metal-working machine, a tool, a tool-carrier, a work-holder consisting of a plurality of superimposed slides, and pattern-controlled mechanism for independently operating the slides and for operating the tool-carrier.

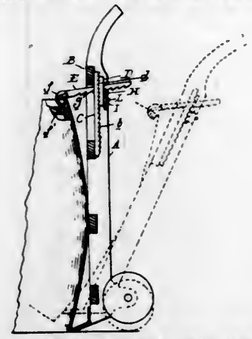
55. In a metal-working machine, a tool, a tool-carrier, a work-holder consisting of a plurality of superimposed slides, and pattern-controlled means for moving each slide at right angles to the direction of movement of the other slide.

56. In a metal-working machine, a tool, a tool-carrier, a work-holder consisting of a plurality of superimposed slides, slide-moving devices operating to move each slide at right angles to the direction of movement of the other slide, tool-carrier-moving devices and pattern mechanism for controlling both of said devices.

57. In a metal-working machine, a tool-carrier, and tool-carrier-operating devices, a shiftable work-holder, and work-holder-operating devices, and a single pattern mechanism to control each of said devices.

58. In a metal-working machine, a tool-carrier, and tool-carrier-operating devices, a reciprocating work-holder, and work-holder-operating devices, and a pattern-chain controlling the operation of both of said devices.

679,279. **TRUCK ATTACHMENT.** FRANK J. FAIRCHILD, Detroit, Mich., assignor to Hand Truck Attachment Company, Limited, same place. Filed Nov. 19, 1900. Serial No. 37,030. (No model.)



Claim.—1. A loading attachment for trucks, comprising a longitudinally-slotted bar secured to the body of the truck, a head having a longitudinally-adjustable locking engagement with said bar and apertured in line with said slot, a hooked member having a shank passing rearwardly through said slot and aperture, and a bolt on said head for pivotally locking said shank thereto in its different positions of adjustment.

2. A loading attachment for trucks comprising a longitudinally-slotted bar secured to the body of the truck, and notched on its rear face, a head having a complementary face engaging said notched bar, and an aperture in line with said slot, a hooked member having a shank provided with a series of notches therein and passing rearwardly through said slot and aperture and a bolt longitudinally slidable in bearings on said head having its end shaped to engage said notches in said shank and lock the latter from longitudinal movement, while permitting of a limited swinging movement thereof in the plane of said slot.

679,280. **CUSHION-TIRE.** JAMES R. FURLONG, Providence, R. I. Filed Nov. 3, 1900. Serial No. 35,411. (No model.)



Claim.—A hard-rubber tire containing within itself air-cells connected by vents with a groove or second air-space, said second air-space being made impervious to the outside air by the tire being cemented firmly to the rim of the wheel, as shown and described.

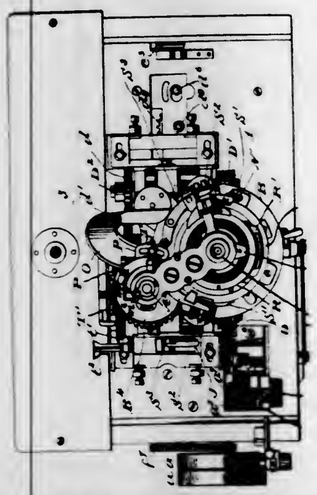
679,281. **KNITTING-MACHINE.** EDWARD R. KILBOURN, New Brunswick, N. J. Filed May 4, 1896. Renewed July 11, 1899. Serial No. 723,466. (No model.)

Claim.—1. A circular-knitting machine organized for circular and reciprocating work and having narrowing and widening devices, said machine having mechanism for automatically stopping circular work and starting the narrowing and widening devices, and means for thereafter automatically starting reciprocating work, substantially as described.

2. In a circular-knitting machine the combination with the stitch-forming mechanism and narrowing and widening devices, of means for automatically stopping circular work and starting the narrowing and widening devices, mechanism for thereafter automatically bringing the stitch-forming devices to the proper position for reciprocating work and automatic devices for thereafter starting reciprocating work, substantially as described.

3. In a circular-knitting machine organized for circular and recipro-

cating work, the combination with the stitch-forming mechanism and narrowing and widening devices of automatic means for simultaneously stopping circular work and starting the narrowing and widening devices, automatic mechanism for bringing the stitch-forming devices to the proper position to begin reciprocating work and like devices for starting reciprocating work, substantially as described.



4. A circular-knitting machine organized for circular and reciprocating work and provided with mechanism for stopping and starting circular work and mechanism for starting and stopping reciprocating work, the said mechanism controlling reciprocating work having provisions for starting reciprocating work a greater and a less time after the stopping of circular work and for stopping reciprocating work a greater or less time before the starting of circular work.

5. In a knitting-machine the combination with a clutch of a shifter-rod connected with said clutch, two springs of unequal strength mounted on said rod, and mechanism for compressing and releasing the stronger spring whereby said rod is moved longitudinally, in one direction from the compression of the spring and in the opposite direction by the release of the said spring, substantially as described.

6. In a knitting-machine the combination with the clutch, of the shifter-rod connected therewith and its springs, of the spring-compressing lever and cam actuating said lever, substantially as described.

7. In a knitting-machine the combination with a clutch, of a shifter-rod for said clutch, two springs of unequal strength mounted on said rod, means for compressing the stronger spring, detent mechanism holding the shifter-rod against movement during the compression of said spring and means for releasing the said shifter-rod to permit the stronger spring to move the clutch and compress the weaker spring, substantially as described.

8. In a knitting-machine, the combination with a clutch, of a shifter-rod for said clutch, two springs of unequal strength upon said rod, means for compressing the stronger spring, detent mechanism for holding the rod against movement during the compressing of the spring, means for releasing said detent mechanism to permit the stronger spring to move the clutch and compress the weaker spring, and mechanism for releasing the stronger spring from pressure to permit the weaker spring to move the clutch in a reverse direction, substantially as described.

9. In a knitting-machine organized for circular and reciprocating work, the combination with a clutch controlling circular knitting, of a shifter-rod for said clutch, two springs of unequal strength upon said rod, means for compressing the stronger spring, detent mechanism for holding the rod against movement during such compression and means connected with the parts active during reciprocating work to release said detent mechanism at the end of reciprocating work to permit the stronger spring to move the shifter-rod and clutch to start circular knitting and to compress the weaker spring, substantially as described.

10. In a knitting-machine the combination with shifter-rod and a spring mounted on the same, of the lever for compressing said spring and the cam-wheel provided with cam-grades having adjustable parts, substantially as described.

11. In a knitting-machine the combination with the shifter-rod and springs, of the lever and cam for compressing a shifter-rod spring and driving mechanism for said cam including among its members two mutilated gear-wheels on the cam-shaft and a pinion engaging said gear-wheels and operative connections between the said gear-wheels, substantially as described.

12. A circular-knitting machine, organized for circular and reciprocating work, having a heel and toe tension yieldingly engaging the outside of the fabric, substantially as described.

13. In a circular-knitting machine organized for circular and reciprocating work, the combination of a heel and toe tension, yieldingly engaging the outside of the fabric adjacent to the needles between the fashioning-needles and means for gradually increasing the power of the tension device, substantially as described.

14. In a circular-knitting machine organized for circular and reciprocating work the combination with the heel and toe tension yieldingly engaging the outside of the fabric, the cam for raising said tension and means for intermittently operating said cam, substantially as described.

15. In a circular-knitting machine organized for circular and reciprocating work, the combination with a cam operative during reciprocating work and narrowing and widening devices, of a cam stationary during reciprocating work, means for stopping circular work, mechanism actuated independently of said stopping means for bringing the said stationary cam to a predetermined position of rest, and means for thereafter starting reciprocating work, substantially as described.

16. In a circular-knitting machine organized for circular and reciprocating work having a cam operative during circular and stationary during reciprocating work, the combination with said cam of means for stopping circular work, independently-actuated means for bringing the said cam to a predetermined idle position for reciprocating work, and means for thereafter starting reciprocating work, substantially as described.

17. In a circular-knitting machine organized for circular and reciprocating work, the combination with a cam operative during reciprocating work and narrowing and widening devices coöperating therewith, of means for simultaneously stopping circular work and starting the narrowing and widening devices, means for bringing the said cam to the proper position to begin reciprocating work and means for thereafter starting reciprocating work, substantially as described.

18. In a circular-knitting machine organized for circular and reciprocating work, the combination with two cams operative during circular work, one of which is stationary during reciprocating work, of means for stopping both cams to stop circular work, independent means for bringing the cam stationary during reciprocating work to the proper position of rest, means for bringing the other cam into the proper position to commence reciprocating work and means for thereafter starting reciprocating work, substantially as described.

19. The combination with the main operating-shaft, of the double-faced pawl journaled to a part loosely mounted on the said shaft, means for oscillating the pawl about the shaft and the placing-sleeve, substantially as described.

20. The combination with the main operating-shaft, of a double-faced pawl journaled to a part loosely mounted on the said shaft, means for oscillating said pawl about the shaft, the placing-sleeve having two parts to engage said pawl and means for moving said placing-sleeve, substantially as described.

21. The combination with the main operating-shaft, of a gear-wheel loosely mounted on said shaft, a double-faced pawl journaled on said wheel, a rack engaging said wheel, the placing-sleeve and a cam for moving said sleeve, substantially as described.

22. In a circular-knitting machine organized for circular and reciprocating work, the combination with two cams in different planes to stop and start reciprocating work, of a tappet to engage the said cams, the said cams and tappet being, the one movable in respect to the other to cause the tappet to be engaged by either of said cams, substantially as described.

23. In a circular-knitting machine organized for circular and reciprocating work, the combination with two cams in different vertical planes, said cams being of different lengths, of a tappet to engage said cams and mechanism to shift the tappet from the plane of the one to the plane of the other, substantially as described.

24. The combination with the tappet-lever and the cam-wheel operating the same, having different cam-grades to engage the said tappet, of the tappet movably connected with the tappet-lever and tappet shifter-cam operatively connected with said tappet, substantially as described.

25. The combination with the tappet-lever and its movable tappet, of the cams for engaging said tappet, the tappet shifter-cam having intersecting cam-grooves and the follower engaging said grooves, substantially as described.

26. In a circular-knitting machine organized for circular work, the combination with the two cam-cylinders of the driving gear-wheels therefor having projections, one of said wheels being loose upon the shaft, of the driver-collar mounted loosely upon said shaft between the two wheels and adapted on the rotation of the shaft in one direction, to engage with the projections of said wheels, substantially as described.

27. The combination with the vertical cylinder-shaft, of the cylinder gear-wheels, the one of which is fast and the other loose on the shaft and the driving-collar between the two and having a loose engagement with both, substantially as described.

28. The combination with the vertical cylinder-shaft, of the cylinder gear-wheels, one of which is fast upon the shaft, the two wheels each having a projection extending toward the other, of the driving-collar between the wheels having projections extending toward each gear-wheel, substantially as described.

29. The combination with the vertical cylinder-shaft of an extension-shaft in line therewith, the circular thread-guide, a wheel loosely mounted on said extension-shaft operatively connected with the thread-guide, said wheel having a projection engaged by a projection on the said shaft and provision for lost motion between the shafts on oscillating the vertical cylinder-shaft, substantially as described.

30. In a circular-knitting machine organized for circular and reciprocating work, the combination with two cams operative during circular work one of which is stationary during reciprocating work, of two thread-guides, one operative with the two cams during circular work, the other operative with the cam operating during reciprocating work, automatic means for stopping circular work and the circular thread-guide and independent means for starting reciprocating work and putting the reciprocating thread-guide into action, substantially as described.

31. In a circular-knitting machine organized for circular and reciprocating work, the combination with two cam-cylinders operative during circular work, of a thread-guide coacting therewith, a thread-guide operative during reciprocating work, and automatic means for throwing the one thread-guide out of and the other into operation, substantially as described.

32. In a circular-knitting machine the combination with a standard extending upward from the bed-plate of the machine, a plate adjustably mounted on said standard, a thread-guide-supporting bracket supported by said plate and adjustable thereon, substantially as described.

33. The combination with the standard, of the thread-guide-supporting plate, a thread-guide supported thereby and the rib and screw constructed for fine adjustment interposed between the two and the clamping-bolt, substantially as described.

34. The combination with the circular thread-guide of the pivoted reciprocating thread-guide, the stop-lever provided with an arm extending on the inside of the reciprocating thread-guide and means for moving said stop-lever outwardly to move the reciprocating thread-guide out of the path of the circular thread-guide, substantially as described.

35. The combination with the reciprocating thread-guide, of the stop-lever having an arm extending inside of the thread-guide, means for throwing the stop-lever into and out of operative position and the locking-plate, substantially as described.

36. The combination with the circular thread-guide of the hollow shaft secured thereto, the bearing for said shaft and a reciprocating thread-guide movably mounted on said hollow shaft, substantially as described.

37. In a circular-knitting machine the combination with the circular thread-guide and the hollow shaft to which it is secured, of a reciprocating thread-guide movably mounted on said hollow shaft means for rotating the circular guide and means for reciprocating the reciprocating thread-guide, substantially as described.

38. In a circular-knitting machine organized for circular and reciprocating work, the combination with the knitting-cylinder and its needles, of a circular thread-guide following one undeviating path around said cylinder and a reciprocating thread-guide for moving in alternate directions less than entirely around the needle-cylinder, means for moving the said circular guide out of the path of the reciprocating guide and means for moving the reciprocating guide out of the path of the circular guide, substantially as described.

39. The combination with the stationary needle-cylinder, of the movable nosing, the lever operatively connected with the said nosing, the cam, an independently-movable lever for engaging said cam adapted to engage an arm of the nosing-actuating lever, substantially as described.

40. In a circular-knitting machine organized for circular and reciprocating work including fashioning-needles, having nibs for engagement with the pickers of the narrowing and widening devices, narrowing and widening devices including pickers, and retainers for said fashioning-needles above said nibs, substantially as described.

41. In a circular-knitting machine organized for circular and reciprocating work including fashioning-needles and narrowing and widening devices, the combination with the said fashioning-needles, of the picker-carriers and the pivoted retainers for the said needles, substantially as described.

42. The combination with the needle-cylinder and fashioning-needles, of the picker-carriers having a rib forming a retainer for the fashioning-needles opposite the same, of pivoted retainers engaging and forming a continuation of said rib, substantially as described.

43. The combination with the stop-levers, of the rock-shaft having an arm for engaging and controlling said stop-levers, and an adjusting-arm, of a rod for engaging the actuating-arm, and a cam for actuating the rod, substantially as described.

44. The combination with a cam-cylinder operative during circular and reciprocating work, of the thread-guide for reciprocating work and the cam projection operatively connected with said cylinder for moving the thread-guide and throwing it out of its operative position, substantially as described.

45. The combination with the mutilated pattern-gears and their shaft, their actuating-pinion and an elastic bearing for the shaft of said pattern-gears, substantially as described.

46. In a circular-knitting machine having needle-actuating means adapted to rotate and reciprocate, the combination of two yarn-guides, a support for said guides independent of said needle-actuating means, means to rotate one of said guides with the said actuating means when the said means is rotated, and other means reciprocating the other of the said guides with the needle-actuating means when said means is reciprocated, substantially as described.

47. A knitting-machine containing the following instrumentalities: a needle-cylinder to contain a series of needles, a cam-cylinder having suitable cams to actuate said needles, two independent detached thread-carriers, one to provide the said needles with thread for circular knitting, and the other to provide them with thread for reciprocating knitting, an independent actuating means for said carriers, each moving in unison with the cam-cylinder, a means to render one and then the other of said actuating means effective in moving its own thread-carrier and then leave it at rest while the other thread-carrier is operated, substantially as described.

48. A knitting-machine containing the following instrumentalities: the needle-cylinder to contain a series of needles, a cam-cylinder having suitable cams to actuate said needles; a thread-carrier support and thread-carrier to supply thread to said needles while circular knitting is being done, means to rotate said thread-carrier on said support for circular knitting, and to stop the operation of the said thread-carrier and leave it at rest during reciprocating knitting, substantially as described.

49. A knitting-machine containing the following instrumentalities: a needle-cylinder to contain a series of needles, a cam-cylinder having a cam to actuate said needles, two independent detached thread-carriers, one to provide the said needles with thread for circular knitting, and the other to provide them with thread for reciprocating knitting, an actuating means for said carriers whereby they are moved in unison with the cam-cylinder, and means to move them independently of each other, substantially as described.

50. In a circular-knitting machine, the combination with needle-actuating mechanism, of two thread or yarn guides detached from the needle-actuating devices, a support for said guides, means for rotating one of said guides to deliver thread to the needles when the said needle-actuating mechanism is rotated, and means for reciprocating the other of said guides when the needle-actuating mechanism is reciprocated, substantially as described.

51. In a circular-knitting machine, the combination of the following instrumentalities; a needle-cylinder to contain a series of needles, needle-actuating devices, two detached thread-guides, one for circular knitting and one for reciprocating knitting, actuating mechanism to move one to supply thread to the needles during circular knitting and actuating mechanism to move the other to supply thread to the needles during reciprocating knitting and means to render the said actuating mechanism of the said guides effective to move one thread-guide to deliver thread to the needles for circular work, and then to leave this guide at rest and to move the other guide to supply thread to the needles for reciprocating knitting, substantially as described.

52. A circular-knitting machine containing the following instrumentalities; a needle-cylinder to contain a series of needles, needle-actuating devices, two independent thread-guides one for circular knitting and one for reciprocating knitting, independent actuating mechanisms for said guides, means for maintaining one guide and its actuating mechanism at rest while the other guide and its actuating mechanism are in operation, and for throwing the operative guide out of operation and putting the other in operation, substantially as described.

53. A knitting-machine containing the following instrumentalities; a needle-cylinder to contain a series of needles, needle-actuating mechanism, a thread guide or carrier support, and a thread-carrier operatively carried by said support, means to rotate said guide or carrier to supply thread to the needles during circular knitting and to stop said guide or carrier and leave it at rest during reciprocating knitting, substantially as described.

54. A circular-knitting machine containing the following instrumentalities; a needle-cylinder to contain a series of needles, needle-actuating

devices, a thread-guide support and a thread-guide movably supported thereon, devices to actuate said thread-guide on said support and to stop said guide independently of the said needle-actuating devices and to hold it out of operation during circular knitting, substantially as described.

55. A circular-knitting machine containing the following instrumentalities: a needle-cylinder to contain a circular series of needles, needle-actuating devices, two independent detached thread guides or carriers, actuating means to move said guides independently of each other to cause one to supply thread to the needles during circular knitting and the other to supply thread to the needles during reciprocating knitting, substantially as described.

679,282. COMBINED TRACE-BUCKLE AND HAME-TUG LOOP.

CHARLES N. LUKE, Aberdeen, S. D. Filed Nov. 9, 1900. Serial No. 35,961. (No model.)

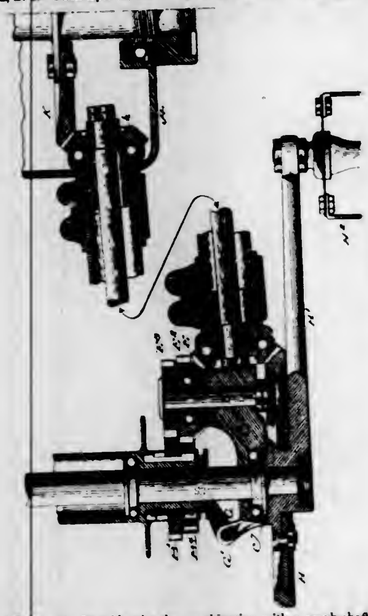


Claim.—1. The combination, substantially as described, of a first strap bearing a series of pins grooved transversely near their heads, a yoke the arms of which are hinged to said first strap, a second strap secured to said yoke and having a series of apertures therein constructed to fit the heads of said pins, and a lock-bar slidingly mounted on said second strap and having a series of keyhole-slots therein constructed to engage the said grooves in said pins to prevent their withdrawal from the said apertures in said second strap.

2. The combination, substantially as described, of a first strap bearing a series of pins, a yoke hinged by its arms to said strap, a second strap secured to said yoke and having a series of apertures therein constructed to fit said pins, and means for locking said pins in said apertures to prevent withdrawal.

679,283. BICYCLE DRIVING MECHANISM.

MARION L. NICHOLS, Westfield, N. J., assignor to the Evolution Cycle Company, Washington, D. C. Filed Apr. 23, 1897. Serial No. 633,388. (No model.)



Claim.—1. In a bicycle, the combination with a crank-shaft, of a gear-wheel rigidly mounted on said shaft and located about midway between the bearings thereof, a transmitting-shaft mounted in the tubular frame, a bevel-gear mounted at the forward end of said shaft and meshing on its inner side with said gear on said crank-shaft, a bracket secured to the rear end of the tubing in which said transmitting-shaft is mounted, a spindle mounted in said bracket, a combined spur and bevel gear mounted on said spindle, a bevel-gear mounted on the rear end of said transmitting-shaft and meshing on its inner side with the bevel portion of said combined gear, a gear mounted on the hub, of the rear wheel and meshing with the spur portion of said combined gear, substantially as described.

2. In a bicycle, the combination with a crank-shaft, of a gear-wheel rigidly mounted on said shaft and located about midway between the bearings thereof, a transmitting-shaft mounted in the tubular frame, a bevel-gear mounted at the forward end of said shaft and meshing with said gear on said crank-shaft, a bracket connected to the lower fork and rear brace in which said transmitting-shaft is mounted, and engaging the axle of the rear wheel, a spindle mounted in said bracket, a combined spur and bevel gear mounted on said spindle, a spur-gear also mounted on said spindle, the said gears carried by the said spindle being located in front of and in the same horizontal plane with said hub, a bevel-gear mounted on the rear end of said transmitting-shaft and meshing with the bevel portion of the said combined gear, gears mounted on the hub of the driven wheel, and means for throwing said gears in or out of action with said hub, substantially as described.

3. The combination in a bicycle adapted to be used as a tandem, of a pedal-shaft and driving-gear thereon, a transmitting-shaft having gears at each end and extending through the side frame-tube, a rear bracket connected at its forward end to the rear end of the said frame-tube, and adapted to contain the driving connections between the rear end of the transmitting-shaft and the hub of the driven wheel, and provided with suitable bearings therefor, and additional bearings within which the axle of the driven wheel is rotatably mounted, one of said bearings being upon and also forming the rearmost support of the bracket.

4. The combination in a bicycle adapted to be used as a tandem, of a pedal-shaft and driving-gear thereon, a transmitting-shaft having a pinion at each end, one of said pinions engaging the drive-gear on the pedal-shaft, said shaft extending through the side frame-tube, a rear bracket formed to inclose the gear on the rear end of said transmitting-shaft and rigidly connected to the rear end of the frame-tube, geared connections between the pinion on the rear end of the transmitting-shaft and gearing upon the hub of the driven wheel, and bearings in the outer portion of the bracket and in the opposite portion of the frame adapted to sustain the axle of the driven wheel, and to form the rearmost support of the bracket, said axle being thereby permitted to rotate independently of its hub while supporting the same, removable auxiliary cranks, and a drive-gear adapted to be secured upon said axle and to also mesh with the gear-pinion on the transmitting-shaft, to supply additional power thereto.

5. In a bicycle adapted to be used as a tandem, a transmitting-shaft adapted to be rotated from the pedal-shaft, a bracket supported on the axle of the driven wheel, and secured to the frame-tubing carrying the transmitting-shaft, an axle or stud-bolt mounted in said bracket, a double gear-wheel mounted on said axle, one of which meshes with a gear to rotate the driven wheel and the other with the rear gear on the transmitting-shaft, and a detachable gear engaged by auxiliary cranks and pedals, adapted to also engage the rear gear on the transmitting-shaft.

6. In a bicycle adapted to be used as a tandem, a pedal-shaft, a transmitting-shaft having a gear at each end, gears of unequal diameters mounted loosely on the hub of the drive-wheel and means for mechanically connecting either of said gears with said hub at will, an axle or stud-bolt arranged intermediate between the gear on the hub and transmitting-shaft carrying gears of unequal diameters, and adapted to have motion imparted thereto by the transmitting-shaft, an auxiliary gear meshing with the rear gear on the transmitting-shaft, and auxiliary cranks and pedals adapted to engage and rotate the auxiliary gear.

7. In a tandem bicycle the combination with the forward pedal-shaft, a rigidly-connected driving-gear thereon, the main or intermediate pedal-shaft and a double driving-gear thereon, a transmitting-shaft geared to the front and main driving-gears, a second transmitting-shaft extending rearward through the side frame-tube and provided with pinions at each end, one of said pinions engaging the driving-gear on the main pedal-shaft, driving-gear upon the hub of the rear or drive wheel, a rear bracket formed to inclose the gear on the rear end of said transmitting-shaft and rigidly connected at its forward end to the rear end of the frame-tube inclosing the rear transmitting-shaft, geared connections between the pinion on the rear end of the transmitting-shaft and the gearing upon the hub of the driven wheel, and separate bearings mounted upon the bracket, for sustaining the intermediate gears between the transmitting-shaft and the gearing upon the hub of the driven wheel.

8. The combination in a convertible tandem-bicycle, of a forward pedal-shaft having a driving-gear thereon, a main or intermediate pedal-shaft also provided with rigidly-connected driving-gear, a transmitting-shaft having a pinion at each end connecting the forward and main pedal-gears, a transmitting-shaft extending rearwardly through the side frame-tube and geared at one end to the main or intermediate pedal-gear, gearing upon the hub of the rear or driven wheel for driving the same, a bracket rigidly connected at its forward end to the rear end of the frame-tube inclosing the transmitting-shaft, intermediate gearing forward of the rear hub and connecting the gearing on said hub with the rear pinion upon the transmitting-shaft, bearings upon the bracket for supporting said intermediate gearing, an independently-rotatable axle extending through the hub of the driven wheel, an additional bearing in the outer portion of the bracket and in the corresponding opposite portion of the frame adapted to sustain the axle of the driven wheel and to form the rearmost support of the bracket, auxiliary cranks for the axle of the driven wheel, and a drive-gear also adapted to be secured upon said axle to mesh with the rear pinion of the transmitting-shaft to impart additional power thereto.

9. In a bicycle (or other vehicle) a pedal or driving shaft carrying a gear rigidly connected thereto, and inclosed in a center bracket or container having bearings for said shaft and a transmitting-shaft, and also connections for the converging frame-tubes, a transmitting-shaft, a cross-shaft intermediate between the gear on said transmitting-shaft and the hub of the driven wheel of the vehicle, the cross-shaft carrying wheels of different diameters, gears of different diameters loosely mounted on the hub of the driven wheel adapted to mesh with the gears upon the cross-shaft, a sliding clutch mounted upon the hub of said driven wheel adapted to rigidly connect either of the gears mounted upon said hub or release both at will, and means for sliding or shifting said clutch to engage or release said gears, a bracket or hollow container having bearings in one part for the transmitting-shaft, the cross-shaft and the hub of the driven wheel, substantially as described.

679,284. ARMATURE-WINDING.

WILHELM LAU, Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Filed Mar. 19, 1900. Renewed June 27, 1901. Serial No. 66,256. (No model.)



Claim.—1. Coil-winding for armatures of electric machines, characterized thereby, that the several conductors forming a coil are placed in neighboring slots, well insulated and taped in those portions within the slots, while the portions crossing the end faces of the armature are provided with less insulation but taped in common, thereby avoiding a lengthening of the armature.

2. The combination with an armature-core, provided with slots, of a plurality of conductors adapted to be placed in adjacent slots, the portions of each of the conductors within the slots being separately provided with insulating-tape, and those portions of the conductors extending across the faces of the armature being placed together and collectively wound with the insulating-tape, substantially as described.

3. An armature-winding unit comprising a plurality of conductors adapted to be placed in adjacent slots about an armature-core, the portions of each of the conductors adapted to be placed within the slots being singly taped, the portions of the conductors adapted to cross the end faces of the armature being placed together and collectively taped, substantially as and for the purpose herein set forth.

4. The combination with an armature-core provided with slots, of a plurality of conductors adapted to be placed in adjacent slots, the portions of each of the conductors within the slots being provided with insulating material and separately provided with insulating-tape, and those portions of the conductors extending across the faces of the armature being also provided with insulating material but placed together and collectively wound with insulating-tape, substantially as described.

5. An armature-winding unit comprising a plurality of conductors adapted to be placed in adjacent slots about an armature-core, the portions of each of the conductors adapted to be placed within the slots being provided with insulating material and singly taped, the portions of the conductors adapted to cross the end faces of the armature being also provided with insulating material but placed together and collectively taped, substantially as and for the purpose herein set forth.

6. An armature-winding unit comprising a plurality of conductors adapted to be placed in adjacent slots about an armature-core, the portions of each of the conductors adapted to be placed within the slots being provided with a normal amount of insulation to insulate the same from the armature-core, and those portions of the conductors adapted to cross the end faces of the armature, being singly provided with less than the normal insulation but placed together and collectively provided with additional insulation to insulate the whole from the core and surrounding conductors, substantially as and for the purpose herein set forth.

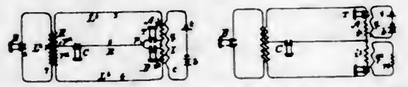
7. The combination with an armature-core provided with slots, of a plurality of conductors adapted to be placed in adjacent slots, the portions of each of the conductors within the slots being provided with cotton covering and separately provided with insulating-tape, and those portions of the conductors extending across the faces of the armature being also provided with cotton covering but placed together and collectively wound with insulating-tape, substantially as described.

8. An armature-winding unit comprising a plurality of conductors adapted to be placed in adjacent slots about an armature-core, the portions of each of the conductors adapted to be placed within the slots being provided with cotton covering and singly taped, the portions of the conductors adapted to cross the end faces of the armature being also provided with cotton covering but placed together and collectively taped, substantially as and for the purpose herein set forth.

REISSUES.

11,922. TELEPHONE-CIRCUITS.

PERCIVAL G. BURGESS, Mexico, Mexico, and HENRY W. WILDER, Albany, N. Y., assignors to the American Bell Telephone Company, Boston, Mass. Filed Apr. 19, 1901. Serial No. 56,663. Original No. 626,826, dated June 13, 1899.



Claim.—1. In a telephone system, the combination of three differently-placed telephones; a circuit including two of the said telephones in such manner that each may transmit to and receive from the other; and a second circuit formed in part of a portion of the first including one of the said telephones, and in part of an auxiliary conductor joining two equipotential points of the first circuit, and including the third or remaining telephone, the said third telephone being thereby adapted to transmit to one of the said two telephones of the first circuit but not to the other.

2. The combination in a telephone system, of a telephone-circuit in two conductively-divided sections; a repeating-coil inductively uniting the said sections, and its windings connected one in each; a telephone in one of the said sections in series with the repeating-coil winding thereof; and the split secondary winding of a transmitter induction-coil, a telephone-receiver, and an impedance device of equal electromagnetic value in the other of said sections in series with the repeating-coil winding thereof, the said receiver and impedance being placed between the two halves of the said split secondary; of an auxiliary conductor extended from a point between the said receiver and impedance to a central point of the repeating-coil winding of the same circuit-section; and a telephone connected in the circuit of said auxiliary conductor; substantially as and for the purposes set forth.

3. In a telephone system, the combination of two independent telephone-circuits, and telephones included therein, the said circuits extending from their respective telephones to a common station; an operator's telephone apparatus at the said station, comprising a transmitter, an induction-coil therefor with a split secondary winding, a telephone-receiver, and an impedance device of equal electromagnetic value, the said receiver and impedance being placed in series between the two halves of said secondary in a local circuit closed through one winding of a repeating-coil serving as an auxiliary impedance device; a terminal loop for the said local circuit including and extending from the other winding of said repeating-coil; and a second terminal loop therefor, the conductors thereof extending respectively from a point between the receiver and its associated impedance device, and from the middle point of the said auxiliary impedance device; and a circuit-changing switch at the junction of the said two independent telephone-circuits, and the said two terminal loops of the operator's telephone-circuit, controlling the respective terminal contacts of the said circuits and loops, and adapted in one position to maintain connection between one of the two circuits and the repeating-coil loop, and between the other circuit and the second terminal loop, and in another position to reverse the order of said connection; substantially as set forth.

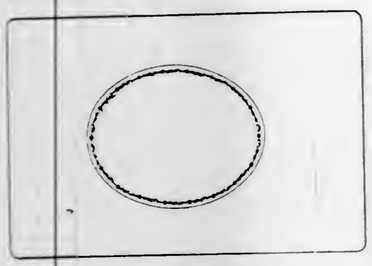
4. In a telephone system, the combination of two outlying telephones, and independent circuits extending therefrom to the same station; a supervisory telephone apparatus including a transmitter and receiver at the said station; circuit connections uniting the said transmitter and receiver to one of the said independent telephone-circuits, and the receiver only to the other; and a circuit-changing device controlling the said connections of the supervisory instruments with the said circuits respectively, and to reverse or transpose them; substantially as set forth.

5. In a telephone system, the combination substantially as hereinbefore described, of three distinct telephone-circuits, converging from associated telephone instruments to a common junction-point, two of the said circuits entering the said junction each by a single pair of loop-conductors, and the third entering by two pairs of loop-conductors, one of which includes the transmitting and receiving telephones of the circuit, and the

other the receiver only; and a circuit-changing switch at the said junction-point controlling all of the said loop-conductors, and adapted to alternatively connect the two pairs of loop-conductors of the third circuit with the loop-conductors of the two other circuits respectively, to reverse or transpose such order of connection, and to connect the loop which contains both transmitter and receiver of the said third circuit with the loops of both of the said other circuits, as desired.

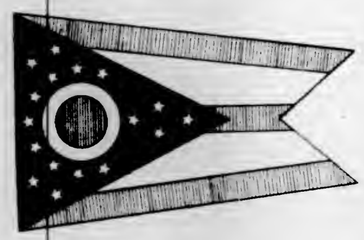
DESIGNS.

34,809. PHOTOGRAPHIC MOUNT. JAMES W. MCCABE, New York, N. Y. Filed May 17, 1901. Serial No. 60,773. Term of patent 3½ years.



Claim.—The design for a photographic mount, substantially as herein shown and described.

34,810. FLAG. JOHN EISENMANN, Cleveland, Ohio. Filed June 17, 1901. Serial No. 64,964. Term of patent 3½ years.



Claim.—The design for a flag, as herein shown and described.

34,811. BADGE OR SIMILAR ARTICLE. ISADORE MACKSON, Buffalo, N. Y. Filed June 13, 1901. Serial No. 65,069. Term of patent 3½ years.



Claim.—The design for a badge or similar article, substantially as herein shown and described.

34,812. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. HENRY L. WALLACE, Wallingford, Conn. Filed June 25, 1901. Serial No. 66,013. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork or similar article, substantially as herein shown and described.

34,813. BACK FOR BRUSHES OR SIMILAR ARTICLES. HENRY A. WEINMAN, Philadelphia, Pa., assignor to John F. Simons and Thomas Maddock, same place, Frederick M. Simons, Swarthmore, Pa., and Edwin S. Simons, Orange, N. J., (trading as Simons, Brother & Company.) Filed June 12, 1901. Serial No. 64,334. Term of patent 3½ years.



Claim.—The design for a back for brushes and similar articles, as herein shown and described.

34,814. BACK FOR BRUSHES OR SIMILAR ARTICLES. HENRY A. WEINMAN, Philadelphia, Pa., assignor to John F. Simons and Thomas Maddock, same place, Frederick M. Simons, Swarthmore, Pa., and Edwin S. Simons, Orange, N. J., (trading as Simons, Brother & Company.) Filed June 12, 1901. Serial No. 64,335. Term of patent 3½ years.



Claim.—The design for a back for brushes and similar articles, as herein shown and described.

34,815. CLOCK-CASE. ERWIN M. JENNINGS and CHARLES F. MOSMAN, Bridgeport, Conn., assignors to The Jennings Brothers Manufacturing Company, same place. Filed June 15, 1901. Serial No. 64,763. Term of patent 7 years.



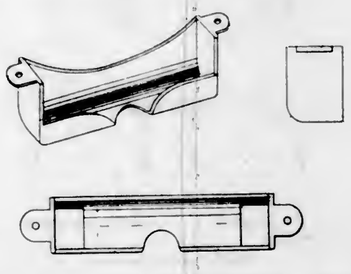
Claim.—The design for a clock-case, as herein shown and described.

34,816. NOSEPIECE FOR EYEGLASSES. JOHN R. LIMEBURNER, Swarthmore, Pa. Filed June 6, 1901. Serial No. 63,473. Term of patent 7 years.



Claim.—The design for a nosepiece for an eyeglass substantially as shown and described.

34,817. CIGAR-CONTAINER. ALBERT H. FOWLER, Rochester, N. Y., assignor of one-half to Louis Schneider, same place. Filed June 26, 1901. Serial No. 66,165. Term of patent 7 years.



Claim.—The design for a cigar-container, substantially as shown and described.

34,818. BOTTLE. GUSTAVE D. GLASER, Chicago, Ill., assignor of one-half to Alfred Kohn, same place. Filed June 27, 1901. Serial No. 66,290. Term of patent 7 years.



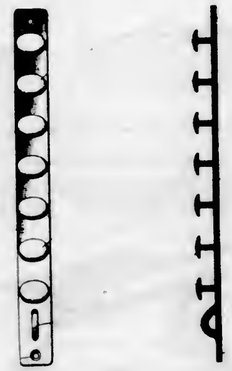
Claim.—The design for a bottle as herein shown and described.

34,819. LACING-STUD BLANK. JOHN C. TELFER, Kansas City, Mo. Filed May 27, 1901. Serial No. 62,172. Term of patent 14 years.



Claim.—The design for a lacing-stud blank, substantially as herein shown and described.

34,820. PICTURE-HANGER. JOHN A. CHRISTMANN, Mount Pulaski, Ill. Filed Apr. 25, 1901. Serial No. 57,504. Term of patent 14 years.



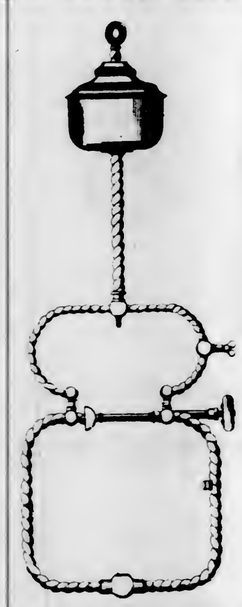
Claim.—The design for a picture-hanger as herein shown and described.

34,821. VAPORIZER FOR INCANDESCENT LAMPS. EDWARD C. SMITH, Canton, Ohio. Filed June 15, 1901. Serial No. 64,761. Term of patent 7 years.



Claim.—The design for a vaporizer for incandescent lamps, as herein shown and described.

34,822. LAMP-FIXTURE. THOMAS M. JAMISON, Memphis, Tenn. Filed May 20, 1901. Serial No. 61,629. Term of patent 14 years.



Claim.—The design for a lamp-fixture, substantially as herein shown and described.

34,823. CANDY-MOLD SECTION. BENJAMIN F. DE KLYN, New York, N. Y. Filed June 6, 1901. Serial No. 63,469. Term of patent 14 years.



Claim.—The design of a candy-mold section, as herein shown and described.

34,824. MUSIC-RACK. WILLIAM A. DENNERLINE, Aurora, Ind. Filed June 20, 1901. Serial No. 65,368. Term of patent 7 years.



Claim.—The design for a music-rack, substantially as herein shown and described.

34,825. TUG-STOP. WILLIAM BRADLEY FREAR, Troy, N. Y. Filed June 15, 1901. Serial No. 64,760. Term of patent 7 years.



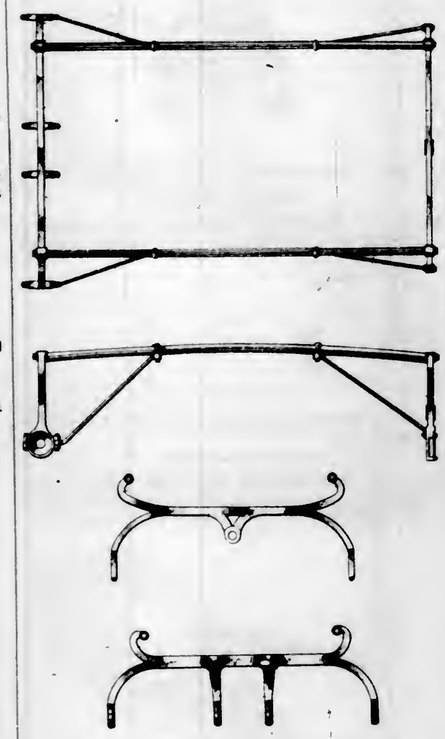
Claim.—The design for a tug-stop as herein shown and described.

34,826. TRACE-FASTENER. CHARLES HORACE MORENEAD, Union City, Tenn. Filed June 17, 1901. Serial No. 64,963. Term of patent 7 years.



Claim.—The design for a trace-fastener, substantially as herein shown and described.

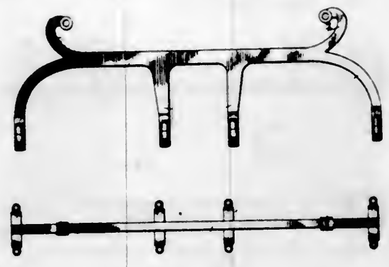
34,827. VEHICLE-FRAME. WALTER A. CROWDON, Chicago, Ill. Filed June 25, 1901. Serial No. 66,015. Term of patent 14 years.



Claim.—The design for a vehicle-frame, substantially as herein shown and described.

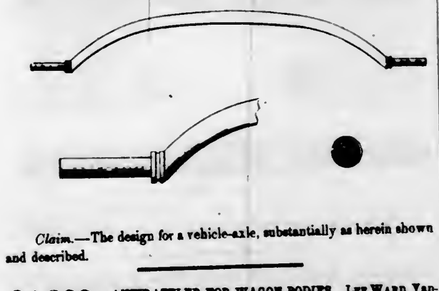
34,828. AXLE-SUPPORT FOR VEHICLE-FRAMES. WALTER A. CROWDON, Chicago, Ill. Filed June 25, 1901. Serial No. 66,017. Term of patent 14 years.

34,828.



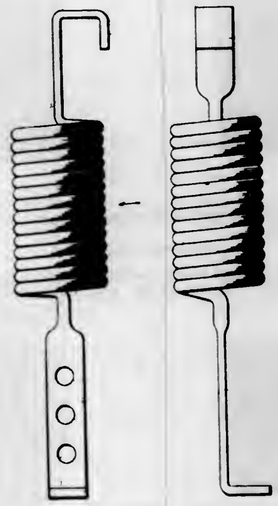
Claim.—The design for an axle-support of a vehicle-frame, substantially as herein shown and described.

34,829. VEHICLE-AXLE. WALTER L. BODMAN, Buffalo, N. Y., assignor to James B. Paynes, same place. Filed June 6, 1901. Serial No. 63,472. Term of patent 7 years.



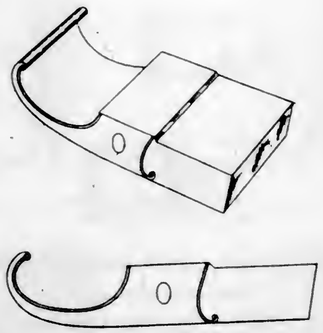
Claim.—The design for a vehicle-axle, substantially as herein shown and described.

34,830. ANTIRATTLER FOR WAGON-BODIES. LEE WARD, Yancey, Tex. Filed June 18, 1901. Serial No. 65,072. Term of patent 7 years.



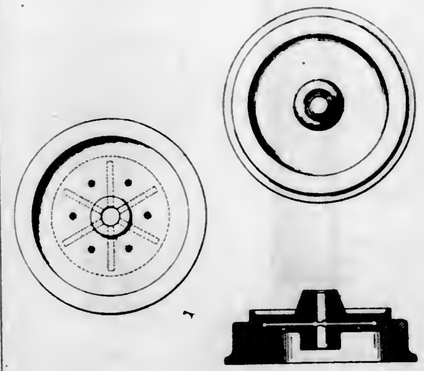
Claim.—The design for an antirattler for wagon-bodies substantially as shown and described.

34,831. VEHICLE-BODY. RANSOM E. OLDS, Detroit, Mich. Filed June 5, 1901. Serial No. 63,312. Term of patent 14 years.



Claim.—The design for a vehicle-body, substantially as herein shown and described.

34,832. HUB FOR FRICTION-CLUTCHES. JOHN MCCAFFREY, Lawrence, Mass. Filed Feb. 25, 1901. Serial No. 48,856. Term of patent 14 years.



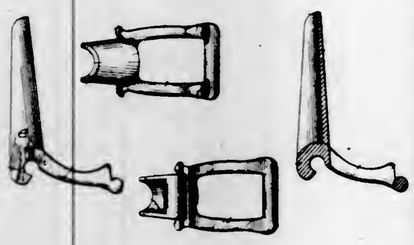
Claim.—The design for a hub for friction-clutches and similar machines as herein shown and described.

34,833. BARBED FENCE-WIRE. DAVID C. SMITH, New York, N. Y. Filed June 21, 1901. Serial No. 66,508. Term of patent 14 years.



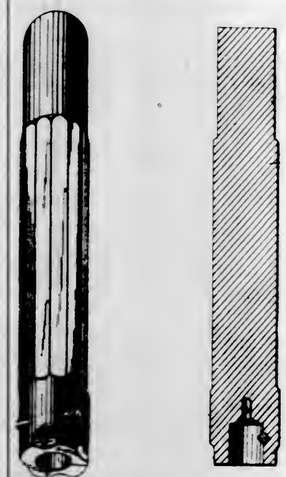
Claim.—The design for a barbed fence-wire, substantially as herein shown and described.

34,834. CHAIN-LINK. JAMES A. PLOPPER, Chicago, Ill., assignor to the Piano Manufacturing Company, same place. Filed June 8, 1901. Serial No. 63,815. Term of patent 14 years.



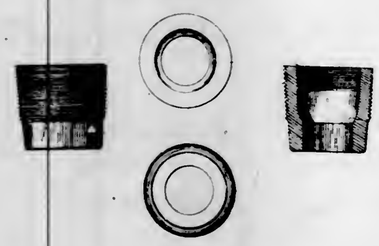
Claim.—The design for a chain-link, substantially as herein shown and described.

34,835. ROCK-DRILL STOCK. HENRY AYLMER, Sherbrooke, Canada, assignor to Aylmer Drill Manufacturing Company, Montreal, Canada. Filed Feb. 16, 1901. Serial No. 47,704. Term of patent 14 years.



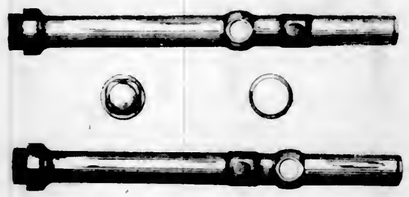
Claim.—The design for a rock-drill stock substantially as shown and described.

34,836. THIMBLE FOR STAY-BOLTS FOR BOILER-SHEETS. JOSHUA R. BARNES, Springfield, Ill. Filed June 8, 1901. Serial No. 63,801. Term of patent 14 years.



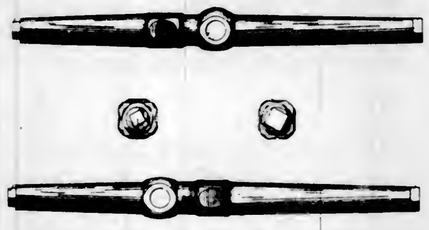
Claim.—The design for a thimble for a stay-bolt for boiler-sheets as herein shown and described.

34,837. WRENCH FOR STAY-BOLTS FOR BOILER-SHEETS. JOSHUA R. BARNES, Springfield, Ill. Filed June 8, 1901. Serial No. 63,802. Term of patent 14 years.



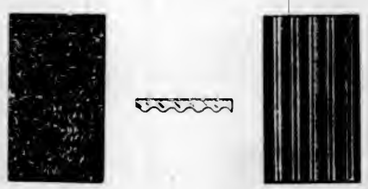
Claim.—The design for a wrench as herein shown and described.

34,838. WRENCH FOR STAY-BOLTS FOR BOILER-SHEETS. JOSHUA R. BARNES, Springfield, Ill. Filed June 8, 1901. Serial No. 63,803. Term of patent 14 years.



Claim.—The design for a wrench as herein shown and described.

34,839. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,779. Term of patent 14 years.



Claim.—The design for sheet-glass substantially as herein shown and described.

34,840. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,780. Term of patent 14 years.



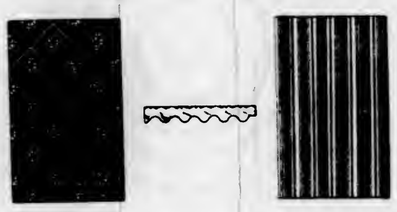
Claim.—The design for sheet-glass, substantially as herein shown and described.

34,841. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,781. Term of patent 14 years.



Claim.—The design for sheet-glass, substantially as herein shown and described.

34,842. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,782. Term of patent 14 years.



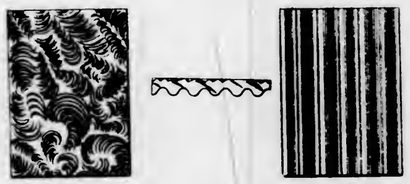
Claim.—The design for sheet-glass, substantially as herein shown and described.

34,843. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,783. Term of patent 14 years.



Claim.—The design for sheet-glass, substantially as herein shown and described.

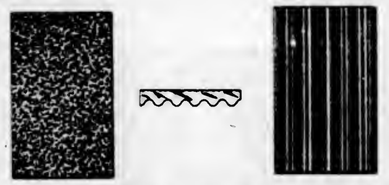
34,844. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,784. Term of patent 14 years.



Claim.—The design for sheet-glass substantially as herein shown and described.

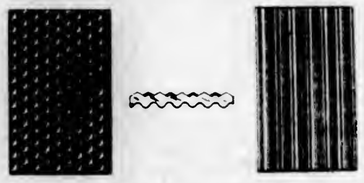
34,845. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,785. Term of patent 14 years.

34,845.



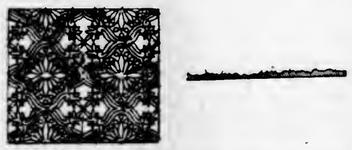
Claim.—The design for sheet-glass, substantially as herein shown and described.

34,846. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed July 1, 1901. Serial No. 66,786. Term of patent 14 years.



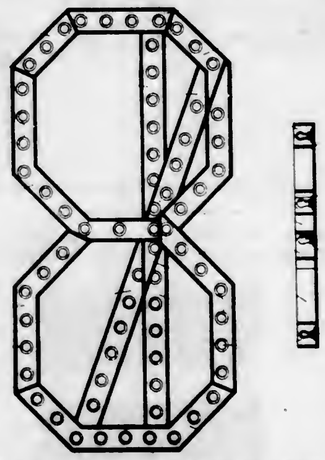
Claim.—The design for sheet-glass, substantially as herein shown and described.

34,847. PLATE-GLASS. THOMAS JOHN WOODWARD, Birmingham, England, assignor to Chance Brothers and Co., Limited, West Smethwick, near Birmingham, England. Filed June 17, 1901. Serial No. 64,962. Term of patent 14 years.



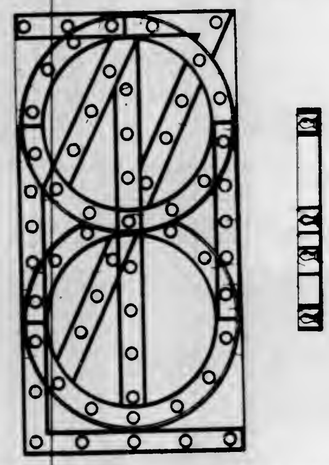
Claim.—The design for plate-glass as herein shown and described.

34,848. ELECTRIC-LIGHT SIGN. MORTIMER NORDEN, New York, N. Y., assignor to himself and John Bittner, same place. Filed June 28, 1901. Serial No. 66,432. Term of patent 14 years.



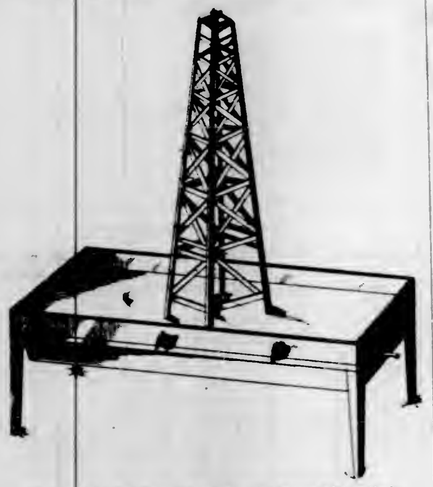
Claim.—The design for an electric-light sign, as herein shown and described.

34,849. ELECTRIC-LIGHT SIGN. MORTIMER NORDEN, New York, N. Y., assignor to himself and John Bittner, same place. Filed June 28, 1901. Serial No. 66,433. Term of patent 14 years.



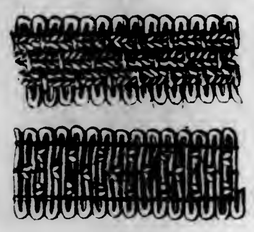
Claim.—The design for an electric-light sign, as herein shown and described.

34,850. TOY. HENRY P. ATTWATER, Houston, TEX. Filed June 17, 1901. Serial No. 64,961. Term of patent 14 years.



Claim.—The design for a toy, as herein shown and described.

34,851. FURNITURE-GIMP. ISAAC HENRY LEITER, New York, N. Y. Filed June 17, 1901. Serial No. 64,958. Term of patent 14 years.



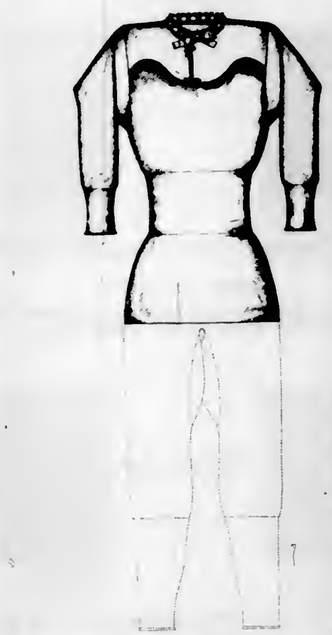
Claim.—The design for furniture-gimp herein shown and described.

34,852. BATHING-CAP. HARVEY F. MITTEL, Barberton, Ohio. Filed May 27, 1901. Serial No. 62,175. Term of patent 7 years.



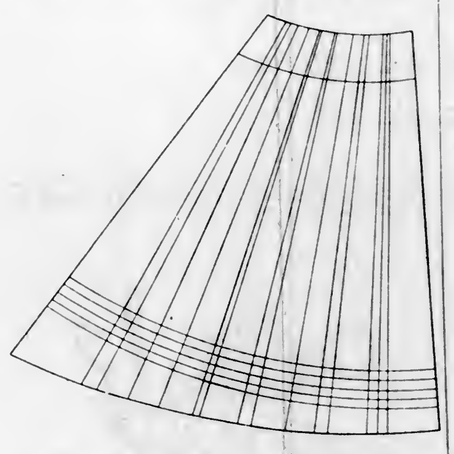
Claim.—The design for a bathing-cap, as herein shown and described.

34,853. UNDERGARMENT. JULIUS HIRSH, Philadelphia, Pa., assignor to Elk Knitting Mills Company, same place. Filed May 15, 1901. Serial No. 60,407. Term of patent 7 years.



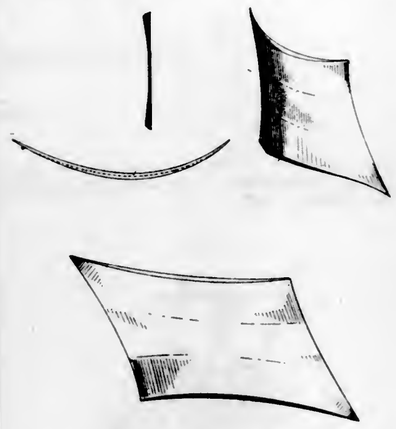
Claim.—The design for an undergarment substantially as described and as shown in the accompanying drawing.

34,854. DRESS-CHART. MARKUS KLEINBERGER, New York, N. Y. Filed May 15, 1901. Serial No. 60,406. Term of patent 7 years.



Claim.—The design for a dress-chart, substantially as shown and described.

34,855. MOLDBOARD FOR PLOWS. JOHN J. SKINNER, Paso Robles, Cal. Filed Apr. 12, 1901. Serial No. 55,550. Term of patent 14 years.



Claim.—The design for a moldboard for plows substantially as shown and described.

TRADE-MARKS

REGISTERED JULY 23, 1901.

36,780. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed Nov. 12, 1900.



Essential feature.—A representation of John Bull carrying a gun. Used since May 1, 1885.

36,781. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed June 29, 1901.



Essential feature.—The representation of a boy and a tiger. Used since October 21, 1887.

36,782. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed June 29, 1901.



Essential feature.—The representation of a boy on a stork. Used since November 21, 1889.

36,783. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed June 29, 1901.



Essential feature.—The representation of a guardsman. Used since April 21, 1885.

36,784. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed June 29, 1901.



Essential feature.—The representation of an oriental woman and a frog. Used since November 23, 1887.

36,785. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed June 29, 1901.



Essential feature.—The representation of a group of boys and fireworks. Used since September 16, 1890.

36,786. CERTAIN NAMED FABRICS. GRINNELL WILLIS, New York, N. Y. Filed Apr. 22, 1901.



Essential feature.—The representation of a laurel wreath surrounded by draped flags. Used since July 1, 1899.

36,787. GRAY AND BLEACHED SHEETINGS, SHIRTINGS, DRILLS, AND JEANS. PEARSON, DANIEL & Co., New York, N. Y. Filed Aug. 27, 1900.





Essential feature.—The picture of a man dressed somewhat in Chinese fashion with a gun over his shoulder placed above a rooster. Used since November 1, 1899.

36,788. SHEETINGS AND DRILLS. GEO. W. SCOTT INVESTMENT Co., Atlanta, Ga. Filed June 20, 1901.



Essential feature.—The representation of a zebra and its foal. Used since January 1, 1901.

36,789. BURLAPS. WHITRIDGE, WHITE & Co., Baltimore, Md. Filed June 29, 1901.

ORIOLE

Essential feature.—The word "ORIOLE." Used since May, 1898.

36,790. LEATHER, CANVAS, OR COMPOSITION BELTS. JOS. C. PAULUS & CO., Philadelphia, Pa. Filed June 10, 1901.

Combination Anchor

Essential feature.—The words "COMBINATION ANCHOR." Used since May, 1882.

36,791. LADIES' SHOES AND UMBRELLAS. W. V. SNYDER & CO., Newark, N. J. Filed Apr. 8, 1901.



Essential feature.—A pictorial representation of an escutcheon having a letter "V" on its surface and a crown. Used since March 1, 1901.

36,792. MISSES' AND CHILDREN'S SHOES. THOMAS G. PLANT CO., Boston, Mass. Filed Apr. 15, 1901.

Little Wonder

Essential feature.—The words "LITTLE WONDER." Used since April 9, 1901.

36,793. PAPER BAGS AND BARREL-LININGS. ARKELL SAFETY BAG COMPANY, New York, N. Y. Filed June 26, 1901.

ARKSAFE

Essential feature.—The word "ARKSAFE." Used since November 8, 1900.

36,794. PAPER AND PAPER BAGS AND SACKS. HOLLINGSWORTH & WHITNEY COMPANY, Boston, Mass. Filed June 25, 1901.



Essential feature.—The letters and word "H AND W," arranged as a monogram. Used since September 1, 1875.

36,795. COUGH-SYRUP. ANNA LEHAU, Providence, R. I. Filed June 14, 1901.



Essential feature.—The word "CROWN" and the pictorial representation of a crown. Used since May 1, 1901.

36,796. CERTAIN NAMED MEDICAL COMPOUNDS. LYDIA E. PINKHAM MEDICINE CO., Saco, Me., and Lynn, Mass. Filed July 20, 1900.



Essential feature.—The picture representation in likeness of Lydia E. Pinkham. Used since 1881.

36,797. REMEDY FOR INTERNAL AND EXTERNAL USE. TAR HEEL CHEMICAL CO., Greensboro, N. C. Filed Jan. 31, 1900.

TAR HEEL

Essential feature.—The words "TAR HEEL." Used since August 1, 1885.

36,798. RODENT VIRUS. PASTEUR VACCINE (UNITED STATES AND CANADA) COMPANY, LIMITED, London, England, and Chicago, Ill. Filed June 24, 1901.

SQUIRRILIN

Essential feature.—The word "SQUIRRILIN." Used since May 1, 1900.

36,799. LIQUID DISINFECTANTS. THE REBALMERS SUPPLY CO., Westport, Conn. Filed June 18, 1901.

FRACRINE

Essential feature.—The word "FRACRINE." Used since March 1, 1901.

36,800. LOGWOOD EXTRACTS. THE WEST INDIES CHEMICAL WORKS, LIMITED, Spanish Town, Jamaica. Filed June 20, 1901.



Essential feature.—The representation of an alligator or the word "ALLIGATOR." Used since December, 1894.

36,801. PAINTS, STAINS, OR LACQUERS. THE PHENIX CHEMICAL WORKS, Brooklyn, N. Y. Filed June 19, 1901.

SIGNALOID

Essential feature.—The word "SIGNALOID." Used since May 1, 1900.

36,802. WHISKIES. SLATER, RODGER & CO., LTD., Glasgow, Scotland. Filed May 15, 1901.

V.S.O.

Essential feature.—The letters "V. S. O." Used since June, 1892.

36,803. PICKLES OR PRESERVES. WILLIAM HUNT, Seattle, Wash. Filed Feb. 5, 1901.



Essential feature.—The word "NUGGET" and the representation of a lump of precious metal located below the same. Used since February 28, 1895.

36,804. BAKING-POWDER. WILLIAM HOWARD HOOPLE, New York, N. Y. Filed June 25, 1901.



Essential feature.—A pictorial representation of a row of cans, with a girl rolling a toy hoop thereon. Used since June, 1901.

36,805. FLOUR. BRADLEY & CO., Hong Kong, China. Filed June 24, 1901.

PERFECT

HARMONY

Essential feature.—The words "PERFECT HARMONY." Used since January 10, 1887.

36,806. WHEAT-FLOUR. C. HOFFMAN & SON, Enterprise, Kans. Filed June 22, 1901.

36,806.



UNION PACIFIC

Essential feature.—The words "UNION PACIFIC" and the representation of a locomotive. Used since 1880.

36,807. WHEAT-FLOUR. KUHNARDT & CO., New York, N. Y. Filed Apr. 25, 1901.



Essential feature.—A representation of the Island of Haiti. Used since March 1, 1901.

36,808. WHEAT-FLOUR, PANCAKE-FLOUR, AND BREAKFAST-FOOD. SHANNON & MOTT CO., Des Moines, Iowa. Filed June 24, 1901.

FALCON



Essential feature.—The word "FALCON" and the pictorial representation of a falcon bird. Used since July 1, 1895.

36,809. BREAD, ROLLS, CAKE, PIES, BUNS, AND BISCUITS. CRESCENT BAKERY, Duluth, Minn. Filed June 6, 1901.

Gold Coin

Essential feature.—The words "GOLD COIN." Used since May 1, 1898.

36,810. GAS-BURNERS. JOSHUA CRANE Jr., Boston, Mass. Filed June 26, 1901.

SENTINEL

Essential feature.—The word "SENTINEL." Used since June 5, 1901.

36,811. CRUCIBLES. THE BRIDGEPORT CRUCIBLE Co., Bridgeport, Conn. Filed June 21, 1901.



Essential feature.—A pictorial representation of Niagara Falls. Used since April 26, 1901.

36,812. UPHOLSTERERS' NAILS, TACKS, AND BUTTONS. THE MATTATUCK MANUFACTURING Co., Waterbury, Conn. Filed June 19, 1901.

LEATHERENE

Essential feature.—The word "LEATHERENE." Used since January 1, 1901.

36,813. HAMMERS, TROWELS, LEVELS, PLUMB-RULES, JOINTING-RULES AND BROAD CHISELS. JAMES F. SULLIVAN, Hartford, Conn. Filed June 11, 1901.



Essential feature.—The letters and character "B. & M. I. U." and the representation of a hammer, trowel, and plumb-rule disposed crosswise of each other. Used since May 16, 1897.

36,814. CHAIRS. MURPHY CHAIR Co., Detroit, Mich. Filed June 24, 1901.



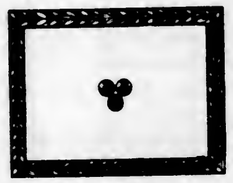
Essential feature.—The representation of a shield surmounted by a lion's head and bearing upon it a monogram composed of the letters "M C Co." Used since February 1, 1901.

36,815. SELF-PROPELLED CARRIAGES AND WAGONS. ROBERT H. HEMPHILL, Hattiesburg, Miss. Filed June 26, 1901.

MOTOBILE

Essential feature.—The word "MOTOBILE." Used since May 1, 1901.

36,816. BRANDY. R. COURVOISIER FILS AINÉ & CIE., Paris, Ornans, Charenton, and Marseilles, France; Mulhouse, Germany, and Brussels, Belgium. Filed Jan. 26, 1894.



Essential feature.—Three circular armorial designs arranged in the form of an inverted pyramid placed in the central portion of the top of an oblong space surrounded by an ornamental border of leaves. Used since 1883.

THE NORRIS PETERS CO. PHOTO-LITHO WASHINGTON D.C.

LABELS

REGISTERED JULY 23, 1901.

8,544.—*Title:* "GRAND MA'S EGG NOODLES." (For Noodles.) CLAMOR H. LANGE, Cleveland, Ohio. Filed July 1, 1901.

8,545.—*Title:* "CARMEL PURE BEST TEA." (For Tea.) WILLIAM H. BRIS, Philadelphia, Pa. Filed May 4, 1901.

8,546.—*Title:* "THE FLOWER OF RUSSIA." (For Tea.) J. N. JAROS & Co., New York, N. Y. Filed June 28, 1901.

8,547.—*Title:* "BARRISTER." (For Gin.) ERWIN L. SADLER, San Francisco, Cal. Filed May 22, 1901.

8,548.—*Title:* "OLE VARGINY." (For Tobacco.) ERWIN L. SADLER, San Francisco, Cal. Filed July 1, 1901.

8,549.—*Title:* "O-LI-ENE." (For Petroleum.) INDEPENDENT REFINING Co., LTD., Oil City, Pa. Filed June 28, 1901.

8,550.—*Title:* "WM. C. BEUTEL'S CELERY TONIC." (For a Nerve-Tonic.) WILLIAM C. BEUTEL, New York, N. Y. Filed June 22, 1901.

8,551.—*Title:* "COUGH CHECKERS." (For a Medicinal Confection.) ISAAC J. WEINREICH, Cincinnati, Ohio. Filed June 29, 1901.

PRINTS

REGISTERED JULY 23, 1901.

375.—*Title:* "TAKE OFF YOUR HAT TO 'THE MEYERS'." (For Pumps, Haying-Tools, &c.) AMERICAN LITHOGRAPHIC COMPANY, New York and Buffalo, N. Y. Filed June 28, 1901.

96 O G—4—i

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE LEFEBVRE.

Decided May 24, 1901.

1. TRADE-MARKS—ANTICIPATION—CHINESE LAUNDRY.

A mark, the principal features of which consist of a Chinese laundry with a Chinaman in view ironing clothes at a table, refused registration because of a previous mark embodying the same general features although differing in details.

2. SAME—SAME—DOUBTS RESOLVED IN FAVOR OF REGISTERED MARK.

Although the applicant's mark is not identical with the previous mark and it may be that in actual use the marks are so distinguished from each other by the acts of the parties and their methods of advertising that they would not infringe, *Held* that doubts on the question whether the marks would deceive purchasers should be resolved in favor of the registered mark.

ON appeal.

TRADE-MARK FOR STARCH.

Application of Ovide Lefebvre for registration filed February 21, 1901, No. 62,747.

Messrs. Marion & Marion for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the action of the Examiner of Trade-Marks refusing to register as a trade-mark for starch a mark the essential features of which are described as follows:

The representation of a Chinese in the act of ironing an article of wearing apparel, the ironing-table being in the foreground and having an open package of starch thereon, the Chinaman located in rear of said table, he being shown with full face, and shelving located in the background, having wrapped bundles or parcels laid thereon, the bundles having a laundry-ticket exposed on the face thereof.

On January 15, 1878, a mark for the same class of goods was registered by The Buffalo Grape Sugar Company, No. 5,507, the essential feature of which was said to consist in "the pictorial representation of a Chinaman ironing clothes," and the ground upon which the present registration is refused is that it so closely resembles that mark "as to be likely to cause confusion or mistake in the minds of the public or to deceive purchasers."

This view is believed to be correct, and therefore registration was properly refused. It is true that each mark contains features not disclosed by the other—for instance, the appellant's mark is within a rectangular border and discloses shelves with parcels thereon, whereas the registered mark is within an oval border and in place of the shelves discloses a rack upon which clothes are hung; but the essential idea conveyed by each mark is a Chinese laundry with a Chinaman in view ironing clothes at a table. This is believed to be the essential feature which would be impressed upon purchasers so that they would be likely to be misled. The mere fact that there are differences between the marks does not warrant this Office in registering the second mark, for, as said by Commissioner Duell in *ex parte Kaufmann and Blache*, (84 O. G., 145:)

In my opinion the Office should not register trade-marks which would be held to be an infringement upon prior registered or unregistered trade-marks. * * * A cursory examination of a few of the reported trade-mark cases shows that the decisions of the courts are uniform in holding that the marks need not be identical to constitute infringement.

In that case a mark including the pictorial representation of a cat in a crouching position and the words "Old Tom" was refused registration upon reference to a mark including a different representation of a cat standing upon a barrel and the words "Old Tom," it being held that the salient feature in each case was the representation of a cat.

In the present case the essential feature of the registered mark is stated to be the feature which is obviously the essential feature of the appellant's mark, and, as said in *ex parte Flint and Walling Manufacturing Company*, (85 O. G., 148)—

the benefit of the doubt, so far as this Office is concerned, should be given to the owner of the registered mark.

In that case it was also said:

It is quite true that a court with proper evidence before it might come to the conclusion * * * that the articles put on the market by these rival manufacturers were so distinguished one from the other by the acts of the parties and their methods of advertising the same that the public was not deceived and readily recognized the distinction between the marks.

This possibility, however, does not warrant registering a mark so nearly resembling a previous mark. The appellant is not deprived of all rights by the refusal to register, since he may rely upon his common-law right and contest the matter in the courts.

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE PUGH.

Decided May 16, 1901.

1. AMENDMENTS—WHEN THE SAME SHOULD BE ENTERED.

When an amendment is presented containing matters which in the opinion of the Examiner are both admissible and inadmissible, *Held* that inasmuch as the entire amendment cannot be entered no part of it should be, and the action of the Examiner refusing to enter the entire amendment was correct. (*Ex parte Stern*, 59 MS. Dec., 254.)

2. SAME—USELESS AMENDMENT, AFTER APPLICATIONS HAVE BEEN EXAMINED AND ARE PRACTICALLY READY FOR ISSUE—ENTRY REFUSED.

When it appears that the original drawing clearly shows the invention and that no objection has ever been made to the same by the chief draftsman as to form or by the Examiner as to merits, and it further appears that the application has been prosecuted practically to the point of allowance, *Held* that an amendment canceling the original drawing and substituting in lieu thereof a new drawing was properly refused entry into the case. To admit the same would necessitate a reëxamination of the entire case in all respects, with the exception of making a new search into the art. To thus cause the Examiners to perform additional unnecessary work is not fair to them or to other applicants who have pending applications on file awaiting action.

ON petition.

DISH-WASHING MACHINE.

Application of Thomas W. Pugh filed April 10, 1900, No. 12,389.

Messrs. C. A. Snow & Co. for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition from the action of the Examiner in refusing to enter an amendment which includes a substitute sheet of drawings not deemed necessary by the Office.

It appears from the records that this case was originally filed by the inventor in person, the drawing having been made by the Office and signed by the inventor.

After several actions the inventor gave a power of attorney to the present attorneys, which power was filed October 29, 1900. On December 1, 1900, a substitute specification was filed accompanied by a request that permission be granted "to place the reference characters upon the drawing in accordance with the substitute specification."

The claims of the substitute specification were canceled by applicant and two claims filed in lieu thereof on January 14, 1901. On January 24, 1901, one of these claims was rejected, and the applicant was informed that the other "may as at present advised be allowed."

On March 15, 1901, applicant filed an amendment accompanied by a new sheet of drawings. The amendment reads as follows:

> Cancel claim 1, and strike out the ordinal of allowed claim 2.
> Cancel the present drawing, and substitute in lieu thereof the accompanying drawing.

On March 21, 1901, the Examiner made an action, in part as follows:

> The proposed substitute drawing presented in this case on the 15th inst. cannot be admitted.
> The invention is fully and clearly shown in the original drawing, which is free from objection. There is therefore no good reason why * * * the Office should be required to examine another drawing. * * *
> Under the decisions in *ex parte Stern*, 59 MS., 251, as the entire amendment cannot be entered, none of it can be.

On April 9, 1901, the Examiner repeated this action and made it final.

It appears that the original drawing, which was signed by the inventor, clearly and fully shows this invention. It was never objected to on formal grounds by the chief draftsman or as to its merits by the Examiner. The new drawing differs from the original only in that the section shown in the new Figure 1 has been taken looking in an opposite direction to that of the original Fig. 1. Certain hooks may therefore be shown in said new figure, which are, however, fully described in the specification and clearly shown in plan in the original Fig. 2. It also obviates the necessity of showing in dotted lines in the new Fig. 1 the strap by which the mechanism is operated.

Fig. 2 of the substitute drawing is a reproduction of the original Fig. 2, except that it has been reversed to agree with Fig. 1. It is necessary to make a careful comparison of the two sheets of drawings in order to discover their differences. From a casual comparison they appear to be duplicates.

After a long series of actions this case has been made ready for allowance. The only obstacle thereto is the presence of the rejected claim 1. This claim, however, applicant has indicated his purpose to cancel.

To admit the new sheet of drawings at this time would make it incumbent upon the Examiner to reread the specification in connection with the new drawing, to see that the new drawing properly illustrates the invention described, to see that the reference characters are properly placed thereon and that none of them has been omitted, and to also see that no new matter has been incorporated into the case. In fact, the Examiner would be obliged to practically reëxamine the case in all respects, with the exception of making a new search into the art.

The Patent Office is already overburdened with work which has been properly brought before it, and to now admit the drawing would increase it to the extent of one more application which has already been considered to the point of allowance.

To ask of the Office to perform this extra useless labor is not fair to the Examiner, neither is it fair to other applicants to be obliged to wait that much longer for an examination of their applications which are already on file and awaiting action.

In this case there is but one sheet of drawings, and the work entailed would be, perhaps, comparatively light; but the principle is the same whether there be one sheet or many.

The petition is denied.

GOSS *v.* SCOTT.

Decided July 12, 1901.

1. INTERFERENCE—MOTION TO DISSOLVE—SETTING A LIMIT OF APPEAL—NULLIFYING A RULE.

Where a motion was made to dissolve an interference on various grounds, some of which are appealable to the Commissioner under Rule 124, and the Examiner in his decision treated the grounds as raising only the question of the right of one of the parties to make the claims and decided that there was such right and refused to fix a limit of appeal, *Held* that the Examiner's refusal to fix a limit of appeal in effect nullifies Rule 124, which, it is apparent, he has no power to do. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.)

2. SAME—SAME—COMMISSIONER TAKING JURISDICTION OF APPEAL.

As each of the parties presented questions involving both merits and form for decision, *Held* that it would serve no useful purpose to remand the interference to the Examiner for the purpose of fixing a limit of appeal; but, on the contrary, such a course involves only unnecessary delay. The appeal having been taken was entertained.

3. SAME—SAME—APPEAL ON GROUND THAT ONE OF THE PARTIES HAS NOT THE RIGHT TO MAKE A CLAIM.

Where an appeal is taken to the Commissioner from the decision of the Examiner refusing to dissolve the interference on the ground that one of the parties has the right to make a claim, *Held* that no appeal from such a decision can be taken and should be dismissed. (Rule 124.)

4. SAME—SAME—APPEAL ON GROUNDS RELATING TO THE MERITS.

Where an appeal is taken direct to the Commissioner refusing to dissolve the interference on grounds relating to the merits, *Held* that decisions on these motions when appealable go to the Examiners-in-Chief in the first instance, and an appeal direct to the Commissioner should be dismissed. (Rule 124.)

5. SAME—SAME—PETITION FROM DECISION OF EXAMINER REFUSING TO DISSOLVE.

Where a petition is taken to the Commissioner from the decision of the Examiner refusing to dissolve an interference on grounds some of which are appealable in the first instance to the Examiners-in-Chief and from others no appeal lies, *Held* that a petition will not be entertained by the Commissioner when it seeks to obtain indirectly a review of an Examiner's decision from which no direct appeal lies by merely misnaming the action and calling it a petition. (*Woodward* v. *Newton*, 86 O. G., 490.)

6. SAME—SAME—DISCRETIONARY POWER OF COMMISSIONER.

The discretionary power of the Commissioner should be exercised only in exceptional cases, and then only to correct some palpable error in the decision of the Examiner which is clear and evident on its face. There should be no mooted question as to the patentability or non-patentability of a claim. (*Bender* v. *Hoffman*, 85 O. G., 1737.)

7. SAME—SAME—INTERFERENCE IN FACT.

In an interference if the counts though identical in language cover mechanisms which differ very materially in construction and in operation there is no interference in fact. It is well settled that interferences are declared between things and not between words.

APPEAL on motion.

PRINTING-MACHINE.

Application of Samuel G. Goss filed January 16, 1897, No. 619,423. Application of Walter Scott filed April 19, 1895, No. 546,316.

Messrs. Bond, Adams, Pickard & Jackson and *Mr. J. L. Norris* for Goss.

Mr. Richard W. Barkley for Scott.

MOORE, *Acting Commissioner:*

This is an appeal from the decision of the Primary Examiner refusing to grant Goss's motion to dissolve the above-entitled interference.

The motion by Goss to dissolve the interference was made on the following grounds:

> 1. That there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority.
> 2. That there is no interference in fact because the parties do not claim the same invention.
> 3. That Scott is not entitled to make the claims of the issues.
> 4. That if the issues are so construed as to include the construction shown and described by Scott in his application, they are anticipated by the prior art.
> 5. That if the issues are so construed as to include the construction shown and described by Scott in his application, they are for aggregations, and not for patentable combinations.

The Examiner held that Scott had the right to make all the claims except count 5 which embody the counts of the issue, and therefore refused to dissolve the interference, save as to this single count. The Examiner set a limit of appeal from his decision with regard to count 5, but refused to set a limit of appeal as to the remaining counts on the ground that no appeal could be taken therefrom, "as it affirms the patentability of the count and the right of Scott to make the claims for the same." It will therefore be seen that the Examiner treated the motion as though it had been brought only on the third specified ground. The motion was not brought before the Examiner on the single ground that Scott did not have the right to make the claims. The grounds of "irregularity in declaring the interference" and that "there was no interference in fact because the parties do not claim the same invention" were also set forth by Goss in his motion before the Examiner.

The Examiner erred in not setting a limit of appeal. The motion was made on various grounds, some of which are appealable to the Commissioner under Rule 124.

The Examiner in effect nullifies Rule 124 in deciding the question of dissolution on one ground and holding that inasmuch as upon that ground Rule 124 does not provide for an appeal to the Commissioner no appeal lies to the Commissioner on any of the other grounds upon which the motion was brought and argued.

This, it is apparent, the Examiner has no power to do. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.) It would serve no useful purpose to remand this interference to the Examiner for the purpose of setting a limit of appeal; but, on the contrary, such a course at this time would only cause unnecessary delay.

The appeal has been taken and it is entertained.

Goss appeals from the decision of the Examiner on the following grounds:

> 1. That the Primary Examiner erred in not finding that there was such irregularity in declaring the interference as precludes a proper determination of the question of priority.
> 2. That the Primary Examiner erred in not finding that there is no interference in fact, because the parties do not claim the same invention.
> 3. That the Primary Examiner erred in finding that Scott is entitled to make the claims of the issues.
> 4. That the Primary Examiner erred in not finding that if the issues are so construed as to include the construction shown and described by Scott in his application, they are anticipated by the prior art.
> 5. That the Primary Examiner erred in not finding that if the issues are so construed as to include the construction shown and described by Scott in his application, they are for aggregations, and not for patentable combinations.
> 6. That the Primary Examiner erred in refusing to dissolve the interference as to all the issues.
> 7. That the Primary Examiner erred in finding that the structure set forth in the Scott application involved in this interference, is patentable; and in not finding that said Scott structure is anticipated by the prior art.

Scott filed a motion to dismiss the appeal as to the third, fourth, fifth, and seventh grounds and also so much of the sixth ground as relates to the merits. In support of this motion he cites Rule 124, which provides that an appeal may only be taken directly to the Commissioner on all motions except those involving the merits of the invention; that decisions on these motions when appealable go to the Examiners-in-Chief in the first instance, and, further, that from the decision of the Examiner affirming the patentability of a claim or the applicant's right to make the same no appeal can be taken.

The motion by Scott to dismiss the appeal is well taken, and Goss's appeal as to the third, fourth, fifth, and seventh grounds and so much of the sixth ground as relates to the merits is dismissed.

Goss, however, filed a petition on the same day that he filed his appeal. In this petition Goss alleges that equity and good practice require in this case the consideration of all the grounds presented for dissolution of the interference, and he therefore prays the Commissioner to exercise his supervisory

authority as the head of the Patent Office and consider all the grounds and reasons presented to and considered by the Examiner in his decision refusing to dissolve this interference.

This petition is not well taken and it must be dismissed. As stated in *Woodward* v. *Newton*, (86 O. G., 490,) a petition will not be entertained by the Commissioner when it seeks to obtain indirectly a review of an Examiner's decision from which no direct appeal lies by merely misnaming the action and calling it a petition. (*Manny* v. *Easley* v. *Greenwood*, 48 O. G., 538.) Instances may arise and have arisen in the prosecution of cases (*Bender* v. *Hoffmann*, 85 O. G., 1737) which make it incumbent upon the Commissioner on his own motion to exercise his authority as the head of the Patent Office and to review the decision of the lower tribunals whenever he thinks equity and good practice require it. As stated by Mr. Commissioner Duell in *Bender* v. *Hoffmann*, *supra*, Rule 124—

> does not prevent the Commissioner from considering any reason for dissolving the (an) interference which might be brought to his attention or which he himself discovers.

The authority of the Commissioner of Patents to exercise his discretionary power at such a time is well established. (*Bender* v. *Hoffmann*, *supra: Hull* v. *Commissioner of Patents*, 7 O. G., 559; *Drawbaugh* v. *Commissioner of Patents*, 77 O. G., 313.)

This discretionary power of the Commissioner should be exercised, however, only in exceptional cases, and then only to correct some palpable error which is clear and evident on its face. There should be no mooted question as to the patentability or non-patentability of the claim. There should be no room for argument. The error should be so clear as to be apparent to all.

I have carefully considered the arguments of counsel, the decision of the Examiner, and the English patent No. 14,611 of 1885 to Conquest, which it is urged anticipates the claims made by Scott. This English patent was considered by the Examiner when he was examining *ex parte* the applications involved in this interference and also when they were before him on the motion to dissolve. I can find no such clear and palpable error on the part of the Examiner as would warrant me in considering this case under the discretionary power delegated to the Commissioner as the head of the Patent Office, and a review of the Examiner's decision as far as it relates to the merits must be refused.

It remains now to consider Goss's appeal under Rule 124, brought on the following grounds:

> 1. That the Primary Examiner erred in not finding that there was such irregularity in declaring the interference as precludes a proper determination of the question of priority.
> 2. That the Primary Examiner erred in not finding that there is no interference in fact, because the parties do not claim the same invention.

And on questions not relating to merits in ground—

> 6. That the Primary Examiner erred in refusing to dissolve the interference as to all the issues.

The claims in each of the applications which form the counts of the issue involved in this interference are identical in language. The question to be decided, therefore, is whether the claims mean the same thing when applied to the machine shown and described by each of the parties involved.

Goss shows and describes a printing-press of the perfecting type. It consists of a plurality of sets of printing mechanisms arranged in horizontal planes one above another, so that the webs may be brought together or run separately, as desired.

There are provided two independent driving devices for driving the different sets of printing mechanisms. The different sets of printing mechanisms are so connected together by an arrangement of gearing that each one of the two independent driving devices is competent without the utilization of the other to drive any selected set or sets of printing mechanism.

Scott shows and describes a printing-press of the same type. Scott does not show or describe a construction by which each one of the two independent driving devices is competent without the utilization of the other to drive any selected set or sets of printing mechanism. This function is accomplished in the Scott machine by one of the driving devices through its connection with the other driving device. In the Goss machine it is accomplished by one of the driving devices without utilizing the other. There is a difference in the construction and in the function of these mechanisms and an important difference.

I am of the opinion, therefore, that there is no interference in fact between the constructions covered in counts 19 and 22, for the reason that these counts, though identical in language, cover, in fact, mechanisms which differ very materially in construction and in operation. These claims set forth combinations which include a plurality of independent driving mechanisms, means for driving certain sets of printing mechanisms independently by each of the driving mechanisms, and means for driving *all* of the sets by one of the driving mechanisms. Goss has invented a machine for performing this function, the very purpose of which is that in the event of a breakdown of one of the driving mechanisms the entire machine may not be put out of commission. Scott must necessarily use both driving mechanisms in order to operate all the sets of printing mechanisms. Though the power may be applied to one of the driving mechanisms, it is conveyed through the other. By a stretch of language the terms of these claims can be made to read on the Scott construction. This can only be done by holding that inasmuch as the claim states that the entire machine is operated by one of the driving mechanisms it is immaterial in view of the fact that power is applied only to one of the driving mechanisms whether this function takes place by the utilization of the other driving mechanisms or whether the power is conveyed from the first driving mechanism to the entire machine by other means than through this second driving mechanism.

This reasoning does not hold good in this case,

because it is the very purpose of the machine invented by Goss to admit of its operation in the event that one of the driving mechanisms, by accident or otherwise, be out of commission for the time being. These claims do not include coupling means between the horizontal drive-shafts. This coupling means admits of the operation of one shaft by the other, and the two structures may then operate in the same way.

Claim 25 can only be read on the Scott construction by holding that a *single* printing mechanism is covered by the word *set*. Scott shows *four* single printing mechanisms, and these are arranged in *two* sets. Goss shows *six* single printing mechanisms, which are arranged in *three sets*.

Count 25 calls for *three sets* of printing mechanisms. The structure covered in this claim, therefore, is different in the Goss construction, which shows three sets, from that of the Scott construction, which shows but two sets, though Scott does show three or more single printing mechanisms.

It is well settled that interferences are declared between things and not between words. Though the words of the counts be the same, if the constructions covered by them are radically different there is no interference in fact.

The decision of the Examiner refusing to dissolve this interference is reversed as to counts 19, 22, and 25 and is affirmed as to the remaining counts upon which this appeal is brought.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

ADAMS *v.* MURPHY.

Decided May 21, 1901.

1. INTERFERENCE—EVIDENCE—PRESUMPTION RAISED BY DELAY—ABANDONED EXPERIMENT.

Where A. claims to have reduced the invention to practice in July, 1897, and thereafter worked on other inventions, but did nothing with the one in controversy until he filed his application on January 14, 1899, and in the meantime M. perfected his invention, *Held* that the presumption is warranted that what was done by A. amounted to nothing more than an abandoned experiment until the contrary is clearly shown.

2. SAME—UNSATISFACTORY EVIDENCE.

Where A. and a member of his company identify certain studs as having been made in 1897 and positively identify certain dies as the ones used in their production and it subsequently appears that the dies referred to will not make the buttons, and it also appears that the memory of the witness is weak as to other matters, *Held* that the evidence is not clear and satisfactory and does not carry conviction with it.

Messrs. Church & Church for the appellant.

Messrs. Wetmore & Jenner for the appellee.

MORRIS, *J.*:

This is an appeal from the decision of the Commissioner of Patents in an interference case.

The invention in controversy has reference to fastening devices for gloves and other articles, wherein there are used a resilient or spring stud member and a rigid socket member, adapted to become firmly attached to each other, yet so as to permit a ready disengagement. And the special purpose of the invention seems to have been to reduce the number of the component parts of the spring-stud, while at the same time securing firmness, elasticity, and facility of attachment to the fabric. The issues or statements of the invention are six in number, not substantially differing from each other so far as the question of invention is concerned, and are as follows:

> 1. A spring-stud intended for engagement with a rigid socket, consisting of a head made resilient by vertical slits, a flanged base integral with the lower end of the head, a centrally-located interior tube integral with the upper end of the head and depending therefrom, said tube operating as a support for the resilient head.
> 2. A stud intended for engagement with a rigid socket, said stud consisting of a head made resilient by vertical slits, a flanged base at the lower end of the head a centrally-located interior tube integral with the upper end of the head, depending therefrom and projecting below the under side of the fabric to which the stud may be attached, said tube operating as a support for the resilient head.
> 3. A spring-stud consisting of a head, made resilient by vertical slits, a centrally-located interior tube integral with the upper end of the head, and depending therefrom, in combination with a flanged eyelet adapted to enter the centrally-located interior tube and to be expanded within the same to attach the stud to the fabric.
> 4. A stud member for separable fasteners having a base-flange, outwardly-bowed resilient sections extending therefrom upwardly to form a head, and an internal attaching-stem formed integral with and depending from the top of said head; substantially as described.
> 5. A stud member for separable fasteners having a base-flange, outwardly-bowed resilient sections extending upwardly therefrom to form a head, and a tubular internal attaching-stem formed integral with and depending from the top of said head, the lower end of said stem being contracted, substantially as described.
> 6. A spring-stud consisting of a head, made resilient by vertical slits, a centrally-located interior tube integral with the upper end of the head and depending therefrom, and means for securing the centrally-located interior tube to the fabric, substantially as described.

Murphy was the first to come into the Patent Office: he filed his application on August 17, 1898. In his preliminary statement filed for the interference he alleged that, after some partial conceptions of the invention in the years 1895 and 1896, he conceived the complete invention about November 15, 1897, and reduced it to practice about December 1, 1897, by the construction of a full-sized working stud, afterward by the construction of two others, all of which he exhibited to other persons, and thereafter by making one or more each month. He had not, however, attempted to manufacture the article on a commercial scale; although in April of 1898, he began to make tools for the construction of the studs for commercial use.

Adams filed his application in the Patent Office on January 14, 1899, nearly five months after Murphy. In his preliminary statement, he alleged that he conceived the invention, made it public, and reduced it to practice by the construction of a sample which was a full-sized operative device all in the month of July, 1897; but that he had not manufactured any of the articles for the market.

Upon the testimony adduced in the cause, all three of the tribunals of the Patent Office awarded judgment of priority of invention to the appellee Murphy. A curious condition, however, was developed in the Board of Examiners-in-Chief. Only two of the three members of the Board sat in the case and heard the arguments. They were divided in opinion. Then the third member of the Board read the record, and decided in favor of Adams; whereupon Murphy appealed to the Commissioner. The latter regarded the intervention of the third

member of the Board as irregular, and the action of the Board as equivalent to an affirmance of the decision of the Examiner of Interferences. Upon consideration of the merits, he awarded judgment of priority to Murphy. And from his decision Adams has prosecuted the present appeal.

No question seems to be made as to the fact that Murphy conceived, disclosed, and reduced to practice the invention in controversy, except as stated in the second count, about the beginning of December, 1897; and that, as to count second, he reduced it only to constructive practice by the filing of his application. But whether his reduction to practice was actual or only constructive of any or all the issues, is of no consequence under the circumstances of the present case. He is entitled in any case to constructive reduction to practice as of the date of the filing of his application, August 17, 1898. It is unnecessary to review the testimony on his behalf, as it is not attacked, and its sufficiency seems to be conceded to establish his claim as set forth in his preliminary statement. The controversy has been made to depend upon the sufficiency of the testimony on behalf of Adams to show conception of the invention by him and its actual reduction to practice in July of 1897, which, of course, would antedate the conception of Murphy. It is not claimed or shown that Adams did anything whatever in reference to this invention between the end of July of 1897 and the time of his application to the Patent Office on January 14, 1899. Consequently, unless he reduced the invention to actual practice in the month of July of 1897, he must necessarily fail. For in the interval between July of 1897 and January of 1899, during which, so far as this invention is concerned, Adams was wholly inactive, without any excuse for the inactivity, Murphy entered the field, conceived the invention, reduced it to practice, and filed his application in the Patent Office. The question then is reduced to the inquiry whether Adams had the invention and reduced it to practice in July of 1897.

The testimony in support of his claim consists mainly of his own and that of Henry C. Hine, who is secretary of the company of which the appellant is vice-president. Of his own testimony, which fairly enough supports his preliminary statement, the salient points are, that on or before July 9, 1897, he made drawings of his invention; that on that day he called Hine to witness them; that these drawings or sketches, which were produced in evidence in the cause, showed two different inventions very nearly related to each other, both appearing on the same piece of paper, of which one was the invention now in controversy and the other was one for which the appellant subsequently obtained a patent; that the paper bore words and figures to the following effect: "Sketches made July 9, 1897, Geo. E. Adams;" "Witnessed July 9, '97, H. C. Hine," of which all, except the name of H. C. Hine, were in the handwriting of Adams; that the name of Hine was appended by himself when he was called to witness the sketches; that subsequently in the same month Adams manufactured dies with which he made the studs involved in the controversy; that he made several specimens of studs, and carefully preserved both the dies and studs, all of which were offered in evidence.

Hine's testimony was substantially to the effect that he remembered his witnessing the sketches at the request of Adams on July 9, 1897, a date which he claimed to remember distinctly and positively upward of two years afterward when he testified, although his memory was weak about everything else, and he gives no reason whatever for remembering this date above any other: and he identified the dies used by Adams and the specimens of studs manufactured by the latter with these dies.

And yet it subsequently appeared conclusively in the evidence, and it was admitted by Adams, that the dies so confidently identified and produced could not make the studs which had been shown as their product. Thereupon another die was produced and offered in evidence which could do the work.

All this was very unfortunate for the case of Adams. As was well pointed out by the Commissioner of Patents in his opinion contained in the record before us, not only his position as the junior applicant, but likewise the rule laid down by this court in the case of *Warner v. Smith*, (13 D. C. App., 111; 84 O. G., 311,) required him to account satisfactorily for his delay, wholly unexplained, and his total inaction in respect of this invention for which no excuse is given, although during this same period he was active enough in procuring patents for other closely-related inventions. We said in that case that delay and inaction of this kind totally unexplained, during which a rival entered the field of invention, conceived and perfected the invention, and made his application to the Patent Office for a device for which there seems to have been a demand by the public, would justify the Patent Office and the courts in presuming that what was claimed to be reduction to practice amounted to no more than a mere abandoned experiment until the contrary is clearly shown.

We are not persuaded that the proof in this case on behalf of Adams, on whom is the burden of proof, is clear and satisfactory. It is not such as carries conviction with it. It is discredited by its own inherent weakness. The mistake in regard to the dies, while perhaps in itself excusable and capable of satisfactory explanation, is sufficient to show that implicit reliance is not to be placed on other portions of the testimony.

We are of opinion that the decision of the Commissioner of Patents was right and just, and that it should be affirmed. Judgment of priority of invention is awarded to the appellee, William B. Murphy.

The clerk of the court will certify this opinion and the proceedings of the court in the cause to the Commissioner of Patents.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 5. TUESDAY, JULY 30, 1901. Price—$5 per year.

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ISSUE OF JULY 30, 1901.

Patents	492	No. 679,285 to No. 679,716,	inclusive.
Designs	20	No. 34,856 to No. 34,895,	inclusive.
Trade-Marks	57	No. 36,817 to No. 36,853,	inclusive.
Labels	20	No. 8,552 to No. 8,571,	inclusive.
Prints	2	No. 576 to No. 577,	inclusive.
Reissues	2	No. 11,923 to No. 11,924,	inclusive.
Total issue	523		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	----	Nevada	----	----
Alaska Territory	----	----	New Hampshire	1	----
Arizona Territory	1	----	New Jersey	28	3
Arkansas	2	----	New Mexico Territ'y	----	----
California	17	2	New York	70	16
Colorado	4	----	North Carolina	2	1
Connecticut	13	2	North Dakota	1	----
Delaware	2	----	Ohio	32	1
District of Columbia	2	----	Oklahoma Territ'y	2	----
Florida	----	1	Oregon	2	2
Georgia	5	----	Pennsylvania	55	3
Idaho	3	----	Rhode Island	6	1
Illinois	39	5	South Carolina	1	----
Indian Territory	----	----	South Dakota	----	----
Indiana	8	3	Tennessee	1	1
Iowa	6	2	Texas	7	----
Kansas	3	1	Utah	----	----
Kentucky	3	1	Vermont	----	----
Louisiana	1	1	Virginia	1	1
Maine	6	----	Washington	1	----
Maryland	3	----	West Virginia	4	----
Massachusetts	33	3	Wisconsin	4	----
Michigan	10	----	Wyoming	----	----
Minnesota	6	1	U. S. Army	----	----
Mississippi	1	----	U. S. Navy	----	----
Missouri	13	3	Total to citizens of the United States	407	54
Montana	----	----			
Nebraska	4	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Jamaica	----	----
Australia	----	----	Japan	----	----
Austria-Hungary	4	----	Mexico	----	----
Barbadoes	----	----	Netherlands	----	----
Belgium	3	----	New South Wales	----	----
Brazil	----	----	New Zealand	----	----
British Guiana	----	----	Norway	1	----
Canada	9	1	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
China	----	----	Russia	----	----
Colombia	----	----	San Salvador	----	----
Cuba	----	----	Scotland	----	----
Denmark	----	----	South Australia	----	----
Egypt	----	----	Spain	----	----
England	18	2	Sweden	----	----
Finland	----	----	Switzerland	1	----
France	6	1	Turkey in Asia	----	----
Germany	9	1	Victoria	----	----
India	----	----	Western Australia	----	----
Ireland	3	----	Total to citizens of foreign countries	55	5
Italy	1	----			
Haiti	----	----			

Change in Classification.

(ORDER No. 1,419.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 25, 1901.

The following change in classification is hereby directed:

A new subclass is established in Division I, class 55, Harrows and Diggers, subclass 76, Pivoted tooth-bars, frameless.

E. B. MOORE,
Acting Commissioner.

History of Patent Office.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 28, 1901.

All persons interested in the publication, as contemplated, of a complete history of the United States Patent Office, who have in their possession illustrations, documents, printed articles, or valuable information bearing upon the subject are cordially invited to communicate with this Office concerning the same. Such communications should state clearly the nature of the material and should be addressed to the Chief Clerk, United States Patent Office, and marked "History of Patent Office."

Material loaned to this Office for the desired purpose will be handled with care and will be returned, if desired.

By direction of the Commissioner.

E. V. SHEPARD,
Chief Clerk.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 23, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	July 16	July 9	48
106	II. Farm Stock, Products, etc.	July 8	July 11	209
253	X. Carriages and Wagons	July 2	July 13	74
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	June 28	June 24	187
122	XXIV. Sewing-Machines, Apparel and Toilet.	June 26	July 3	171
255	XII. Mechanical Engineering, Stores-Service, etc.	June 25	July 2	215
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	June 24	July 10	168
246	I. Tillage and Fences	June 24	July 10	168
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	June 24	July 9	226
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 24	July 5	195
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	June 24	July 5	111
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	June 24	June 24	187
93	XXI. Textiles, etc	June 24	June 18	200
	Between one and two months.			
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 21	June 26	250
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	June 19	July 8	221
240	VII. Velocipedes, Games, and Toys.	June 19	July 6	206
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	June 18	July 9	174
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 17	July 10	106
250	VIII. Furniture, Beds, Store Furniture, etc.	June 15	June 26	422
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt. Surgery.	June 12	June 28	274
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 10	June 24	267
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 6	July 9	137
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 5	July 9	193
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 5	June 20	157
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 4	June 27	209
281	XXXV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	June 3	July 5	185
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 3	June 25	168
248	XVIII. Steam-Engineering, etc.	June 3	June 13	276
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 3	June 12	208
215	XVII. Printing, Type-Writing Machines, and Linotyping.	June 1	July 1	228
256	XXIV. Weighing and Measuring Devices, Driers, and Drafting.	June 1	June 24	251
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 27	July 2	124
102	XIX. Stoves and Furnaces	May 23	May 29	460
	Between two and three months.			
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	May 17	May 29	481
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	May 16	June 11	265
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	May 13	June 19	225

Total number of applications awaiting action.....7,809

Applications Under Examination—Continued.

Under one month.			
*Designs	July 10	July 17	93
†Trade-Marks	July 10	July 22	75
‡Labels and Prints	July 23	July 22	4

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 3, 1901

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Renewal of Forfeited Applications.

Attention is called to section 4,897, Revised Statutes, relating to the renewal of allowed applications forfeited through failure to pay the final fee within six months from the date of allowance. The law requires the petition for renewal to be signed by the *inventor, discoverer*, or *assignee* and that the same be filed in this Office within two years after the allowance of the original application. If the inventor be dead, the petition must be signed by the administrator or executor; if insane, by the guardian, conservator, or legal representative. *It will not be accepted if signed by the attorney.* (Form 12, page 64, Rules of Practice, should be used.)

Drawings.

RULES TO BE OBSERVED IN PREPARING AND FORWARDING DRAWINGS TO THE UNITED STATES PATENT OFFICE.

Where drawings are to be filed in connection with an application for Letters Patent in the United States Patent Office, each sheet, before it can be accepted by the Office as a part of the application, must be signed in the name of the inventor at the lower right-hand corner, either by him or by an attorney whose written authorization from the applicant is filed in connection with the application. This signature must also be attested by two witnesses, each of whom should sign the drawing at the lower left-hand corner of the sheet. The signatures should never be written on a line parallel with the longer edges of the sheet, one of the shorter edges being always regarded, for the purpose of locating the signatures, as the lower edge of the sheet. The signatures must all be within the margin-lines of the sheet and below the lines of the drawing. The title of the invention should be written with pencil on the back of each sheet of drawings.

When there are filed on the same day two or more applications by the same inventor, each of the documents and drawings belonging to the same application should have placed thereon the same letter or number, which should be different from the letter or number placed upon those of any other of the applications.

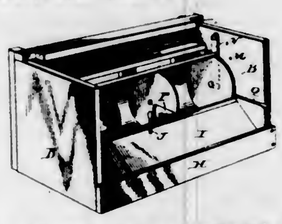
It is desirable that all parts of the complete application, including the drawings, be deposited in the Office at the same time. Should, however, the other parts of the application be filed before the drawings are sent, the latter when forwarded should be accompanied by a letter stating the number of sheets inclosed, and that the drawings are to be filed with the other parts of the application, giving the date at which such other parts were filed in the Office, the name of the inventor, and title of the invention. If the application has received a serial number, that should also be given, and it should be indorsed with pencil on the back of each sheet of drawings. The letter should also state, if such be the case, that the new drawings are to be substituted for those previously filed.

Drawings should be rolled—never folded—for transmission, and should be incased in a substantial mailing-tube.

PATENTS

GRANTED JULY 30, 1901.

679,285. CALF TROUGH AND RACK. FRED M. ALLEN, Esmond, Ill., assignor of one-third to Leon W. Rand, same place. Filed Dec. 15, 1900. Serial No. 40,047. (No model.)



Claim.—1. In a stock-trough, the combination with a box having a plurality of openings in its front wall, of a receptacle pivotally mounted in said box and formed with a plurality of compartments having openings formed therein and adapted to coincide with openings in the box when said receptacle is rocked, said receptacle having openings formed in the dividing-walls of its compartments with the openings so arranged that when the receptacle is swung in position to bring its openings in coincidence with the openings of the box, said openings of the partitions are in the upper portions of said partitions, substantially as described.

2. In a stock-trough, the combination with a box formed with an opening in its front wall, of arms pivoted at their upper ends to the side walls of the box, a receptacle pivotally mounted upon the lower ends of said arms and provided with an opening which is brought into coincidence with the opening of the box, when said receptacle is rocked on the arms, substantially as described.

3. In a stock-trough, the combination with a box having an opening in its front wall, of arms pivoted at their upper ends to the side walls of said box, a receptacle pivotally mounted at the lower end of said arms, and formed with an opening adapted to be brought in coincidence with the opening of the box when the receptacle is rocked, and a swinging board for preventing the swinging of the arms, substantially as described.

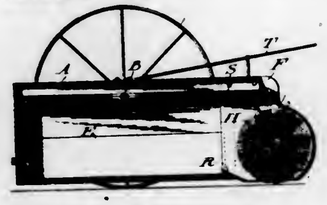
4. In a stock-trough, the combination with a box, having an opening formed in its front wall, and a compartment arranged on its bottom wall, of a receptacle arranged in said compartment and formed with an opening to be brought in coincidence with the opening of the box, and pivoted supports for said receptacle, whereby the latter may be swung into and out of said compartment, substantially as described.

5. In a stock-trough, the combination with a box, having an opening in its front wall, and a compartment arranged upon its bottom wall, a swinging rear wall for said compartment, arms pivoted to the side walls of the box, a receptacle pivotally mounted upon said arms and having an opening formed therein adapted to be brought into coincidence with the opening in the wall of the box, when the receptacle is rocked, an operating-lever for said receptacle, stops for limiting the movement of said lever, an operating-handle for said swinging board, and stops for limiting the movement of said board, substantially as described.

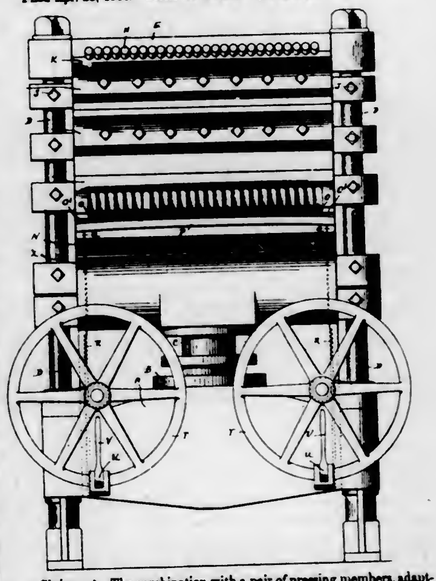
6. A stock-trough, comprising a receptacle divided into a plurality of compartments and formed in its partition-walls with communicating openings, plates adapted to close said openings, and securing means for removably attaching said plates to the partitions, substantially as described.

679,286. STREET-SWEEPER. JAMES V. ALLEN, Ontario, N. Y. Filed Dec. 1, 1900. Serial No. 38,836. (No model.)

Claim.—A street-sweeper comprising ground-wheels, a casing supported between said wheels and having its rear end open and its forward end formed with an opening, a pan in said casing upon the bottom wall thereof and movable in and out through said opening in the forward end, arms adjustably secured to the casing at its rear end and flared outward from the sides thereof a brush positioned at said open end and mounted in said arms, and having its ends projecting to a point in line with the outer sides of the ground-wheels, a housing arranged at the rear end of the casing and entirely incasing said brush excepting at its under side, said housing having a lower wall arranged forward of the brush and inclined upwardly and having its upper end extending over the bottom wall of the removable pan when the same is in position in the casing, and means for imparting motion to said brush by the rotation of the ground-wheels, substantially as described.



679,287. PRESS FOR BENDING WOOD. FRANK H. BANCROFT, Gardner, Mass., assignor of one-half to Henry M. Rich, same place. Filed Apr. 25, 1900. Serial No. 14,249. (No model.)



Claim.—1. The combination with a pair of pressing members, adapted to bend the articles pressed between them, of means for applying a pressure to the center of the articles to be bent and consisting of an elastic curved plate having its ends bearing against one of the pressing members and its convex side applied to hold the articles against the other pressing member, substantially as described.

2. The combination of a pair of forms provided with opposing convex and concave pressing-surfaces, of a curved elastic plate with its ends resting on the concave surface, of one of said forms and with its convex

surface adapted to hold the articles to be pressed against the convex surface of the other form, substantially as described.

3. The combination of pressing members provided with corresponding convex and concave surfaces, of a bar extending across and between said pressing members, rack-bars sliding in vertical ways and engaging said pressing-bar to carry it into contact with the articles to be pressed and hold them in contact with one of the pressing members, substantially as described.

679,288. HAND-GUIDE FOR PIANOS. WILLIAM BOHRER, Montreal, Canada. Filed Jan. 19, 1901. Serial No. 43,960. (No model.)



Claim.—1. A hand-guide for pianos, comprising a supporting-rod, a pair of carriages adapted to travel along such rod, a pair of wrist-guides and connections between each of said carriages and a wrist-guide, such connections adapted when depressed to a certain extent to make a frictional contact with and arrest the movement of the carriages, as and for the purpose set forth.

2. The combination with a pair of carriages traveling above and longitudinally of the keyboard of a piano, and means for supporting said carriages, of a pair of wrist-guides, and means, including a part for arresting the movement of the carriage, for suspending one of said wrist-guides from each of said carriages, substantially as described and for the purpose set forth.

3. The combination with a pair of carriages traveling above and longitudinally of the keyboard of a piano, and means for supporting said carriages, of a pair of wrist-guides, devices for automatically arresting the movement of said carriages, and means for suspending said wrist-guides from the arresting devices, substantially as described and for the purpose set forth.

4. The combination of a pair of carriages each mounted upon a pair of wheels located one at each end thereof and running upon a guide-rod above and extending longitudinally of the keyboard of a piano; means for supporting said rod; a bow-spring secured at its middle to each of said carriages and having its ends extending over the wheels thereof, a pair of wrist-guides and means for suspending one of said wrist-guides from the ends of each of said bow-springs, substantially as described and for the purpose set forth.

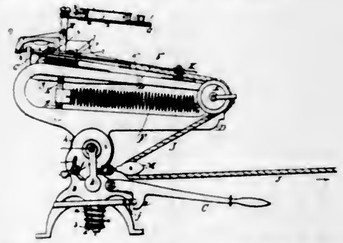
5. The combination of a pair of carriages each mounted upon a pair of wheels located at each end thereof; a guide-rod supporting said carriages and above and extending longitudinally of the keyboard of a piano; means for supporting said guide-rod; rubber tires upon said wheels, a bow-spring secured at its middle to each of said carriages and having its ends extending over the wheels thereof, a pair of wrist-guides and means for suspending one of said wrist-guides from the ends of the bow-spring of each carriage, substantially as described and for the purpose set forth.

6. A hand-guide attachment for pianos comprising a flanged tubular rod, means for supporting said rod in front of and above the keyboard; a pair of carriages; a pair of wheels located one at each end of each of said carriages and running between the flanges upon said rod; rubber tires for said wheels; a bow-spring secured at its middle to each of said carriages and having its ends extending over the wheels thereof; a pair of wrist-rings; two pairs of loops encircling said flanged rod and connected at their upper ends to the ends of the bow-spring of each carriage, a series of chains each connected at one end to one of said loops and at its other end to one of said wrist-rings, substantially as described and for the purpose set forth.

7. A hand-guide attachment for pianos comprising a flanged tubular rod, means for supporting said rod in front of and above the keyboard; means for adjusting said rod toward and from said keyboard; a pair of carriages; a pair of wheels located one at each end of each of said carriages and running between the flanges upon said rod; rubber tires for said wheels; a bow-spring secured at its middle to the under side of each of said carriages and having its ends extending over the wheels thereof; a pair of wrist-rings; two pairs of loops encircling said flanged rod and connected at their upper ends to the ends of said bow-springs; a series of chains each connected at one end to one of said loops and at its other end to one of said wrist-rings, substantially as described and for the purpose set forth.

8. A hand-guide attachment for pianos comprising a flanged tubular rod, means for supporting said rod in front of and above the keyboard; means for adjusting said rod toward and from said keyboard, means for vertically adjusting said rod; a pair of carriages; a pair of wheels upon and located one at each end of each of said carriages and running between the flanges upon said rod; rubber tires for said wheels; a bow-spring secured at its middle to the under side of each of said carriages and having its ends extending over the wheels thereof; a pair of wrist-rings; two pairs of loops encircling said flanged rod and connected at their upper ends to the ends of said bow-springs; a series of chains each connected at one end to one of said loops and at its other end to one of said wrist-rings, substantially as described and for the purpose set forth.

679,289. TARGET-TRAP. JOHN BOWRON, Hamilton, Canada. Filed Dec. 8, 1900. Serial No. 39,172. (No model.)



Claim.—1. In a target-trap, in combination with a frame mechanism carrying a target-rod, of a movable arm, through which the said target-rod passes, provided with curved slots, a crown-plate placed over them and two screws made to pass through the said crown-plate, and through the slots into the frame, by which the said arm is capable of being moved a little over a quarter of a circle, as and for the purpose specified.

2. In a target-trap, the combination with a frame carrying a target-rod, and spring to actuate the same, of a spring-catch, secured at the end of a bracket attached to the main frame, and a rod with a coiled spring at the end of it, secured to the main frame, for holding the target-rod after the target is thrown, substantially as and for the purpose specified.

3. In a target-trap, the combination with a frame and supporting mechanism, of the crank-throwing arm, the movable arm carrying the catch to draw the target-rod backward, a bracket attached to the main frame carrying a catch to hold the target-rod after throwing the target, and a spring secured to the movable arm, and the frame for pushing forward the movable arm after each throw of the target, substantially as specified.

4. In a target-trap, the combination with a frame for carrying the target mechanism, of a spring-catch inclined upward in its top side, attached to a movable arm pivoted to the head of the trap, a spiral spring attached to the outer end of the catch and to the said arm to incline the rear part of the catch upward so as to engage with the target-rod to draw it back by means of a rope attached to the said movable arm, far enough to allow the main actuating-spring to act upon it to throw the target, substantially as described.

5. In a target-trap, the combination with a frame for carrying the target mechanism, of a hook pivoted to a bracket secured firmly to the head of the machine, and formed with a rising inclined top surface for the throwing-rod to ride over and be held thereby, and a spiral spring attached to a projection in rear of the hook, to draw the point of the hook up to catch the throwing-rod after it rides over the hook, on its rebound after the throw of a target, substantially as described.

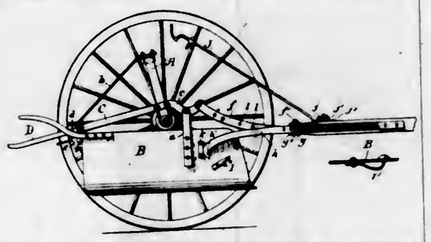
679,290. HAND-STAMP. CHARLES A. BREWER, Moroton Heights, Conn. Filed Oct. 16, 1900. Serial No. 33,270. (No model.)

Claim.—1. The combination with a frame having a grip thereon and arms depending therefrom; of a roller journaled between the arms, a type-holder detachably secured to the roller, type upon the holder, an inking-roller, a movable frame thereto, means for holding the inking-roller normally in contact with the type-roller, and legs to the frame of the type-roller extending below the inking-roller.



2. The combination with a frame having a grip thereon; of a roller journaled below the grip, a type-holder detachably secured to the roller, type upon the holder, an inking-roller, means for holding said inking-roller normally in contact with the type-roller, and legs to the frame of the type-roller extending below the inking-roller.

679,291. WHEELED EARTH-SCRAPER. JAMES M. BROOKS, Molena, Ga. Filed Jan. 14, 1901. Serial No. 43,212. (No model.)



Claim.—1. In an earth-scraper, the combination of an arched axle and wheels, a rearward-extending frame connected to the axle, a pair of plates *d* attached to the rear transverse bar of said frame and extending rearward to form a handle, a brace *b* attached to the arch of the axle and having its rear end passing down between said plates and headed below the same, a scoop, and draft devices.

2. In an earth-scraper, the combination of an axle and wheels, a frame and a scoop swung therefrom, a tongue having a band on its rear end, a U-shaped draft-frame having its transverse bar arched over said band, and U-shaped bolts passing under the band and engaging the transverse bar.

3. In an earth-scraper, the combination of an arched axle and wheels, a U-shaped frame removably clamped to said arch and having its side arms extending forward of the axle, a scoop swung from said arms in front of the axle, a tongue carrying a U-shaped frame approximately the same width as the aforesaid frame and having its rearward-extending arms pivotally and detachably connected to the forward end of said frame, and draft means for taking the draft strain during the loading operation.

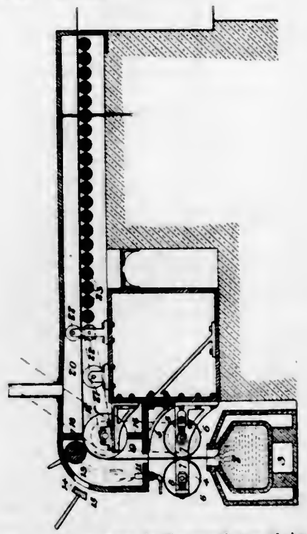
4. In an earth-scraper, the combination of an axle and wheels, a frame attached to the axle and having forward-extending arms, a scoop swung from said arms, a tongue carrying a pair of rearward-extending draft-arms pivotally connected to the forward ends of said frame-arms, a pair of rearward and downward extending draft-hooks also carried by the pole and movable with it, and means on the respective sides of the scoop with which said hooks engage when the scoop is lowered to working position, for the purposes set forth.

5. In an earth-scraper, the combination of an axle and wheels, a frame attached to the axle and having side arms extending forward therefrom, a scoop swung from said frame, a tongue carrying a pair of rearward-extending arms pivotally engaging the forward ends of the frame-arms, rearward-extending draft-hooks carried by the tongue, and means on the scoop with which said hooks engage when the rear end of the tongue and the scoop are lowered.

6. The combination of an axle and wheels, a frame secured thereto and having side arms extending forward of the axle, a scoop pivotally hung to said arms in front of the axle and carrying a draft-eye on each of its sides, a tongue carrying a pair of rigid arms pivotally connected to the forward ends of the frame-arms and a pair of draft-hooks extending rearward and downward and adapted to engage said draft-eyes when lowered, for the purposes set forth.

7. The combination of an axle and wheels, a frame secured thereto and having side arms extending forward of the axle, a scoop pivotally hung to said arms in front of the axle and carrying a draft-eye on each of its sides, a tongue carrying a U-shaped frame having a pair of rigid arms pivotally connected to the forward ends of the frame-arms, and a pair of draft-hooks attached to said rigid arms and extending rearward and downward and adapted to engage said draft-eyes when lowered, said draft-hooks having forward extensions connected to the tongue and forming braces, for the purpose set forth.

679,292. APPARATUS FOR THE MANUFACTURE OF SHEET-GLASS. WILLIAM BUTTLER, Redkey, Ind. Filed Apr. 17, 1900. Serial No. 13,208. (No model.)



Claim.—1. In apparatus for the manufacture of sheet-glass by a continuous operation, the combination of a tank for containing the molten glass, a device for drawing upwardly a sheet of glass from the tank, a heating-chamber in which the sheet thus formed is reheated and softened, said heating-chamber being separated from the tank by a space containing a cooler atmosphere, and flattening devices contained in the heating-chamber, substantially as described.

2. In apparatus for the manufacture of sheet-glass by a continuous operation, the combination of a tank for containing the molten glass, a device for drawing upwardly a sheet of glass from the tank, a heating-chamber situate above the tank, in which heating-chamber the sheet of glass so formed is reheated so as to raise the temperature of the glass above the temperature at which it enters the heating-chamber, flattening devices, and a leer communicating with the heating-chamber, substantially as described.

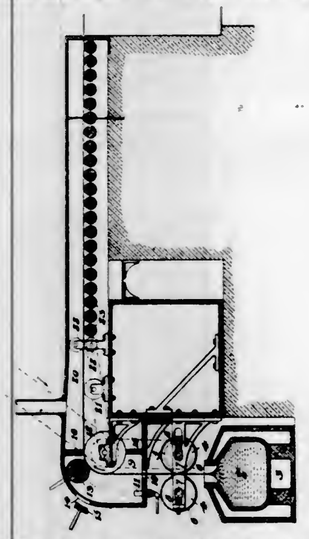
3. In apparatus for the manufacture of sheet-glass by a continuous operation, the combination of a tank for containing the molten glass, feed-rolls situate above the mouth of the tank, a heating-chamber situate above the feed-rolls, in which heating-chamber the sheet of glass coming from the feed-rolls is reheated so as to raise the temperature of the glass above the temperature at which it enters the heating-chamber, a flattening-roll situate within the heating-chamber, and a leer communicating with the heating-chamber, substantially as described.

679,293. MANUFACTURE OF WINDOW-GLASS. WILLIAM BUTTLER, Redkey, Ind. Filed Dec. 15, 1899. Serial No. 740,389. (No model.)

Claim.—1. The method of manufacturing sheet-glass by a continuous operation, consisting in drawing the glass into a continuous sheet, passing the sheet first through a surrounding temperature lower than the temperature of the sheet of glass, then through a temperature greater than the temperature of the sheet of glass for softening the glass, and then flattening the continuous sheet of glass.

2. The method of manufacturing annealed sheet-glass by a continuous operation, consisting in drawing the glass into a continuous sheet, passing the sheet first through a surrounding temperature lower than the temperature of the sheet of glass, then through a temperature greater

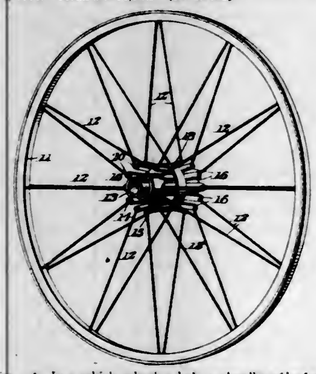
than the temperature of the sheet of glass for softening the glass, flattening the continuous sheet of glass, and annealing the sheet of glass.



2. In the manufacture of annealed sheet-glass, drawing and forming the sheet of glass, reheating the sheet of glass cooled by said drawing and forming operation, figuring the sheet of glass, and annealing the sheet of glass, the glass being subjected to these operations in the order named and in a continuous sheet.

4. In the manufacture of annealed sheet-glass, the continuous method consisting in drawing up and forming a sheet of glass, and for the purpose of softening the same reheating and thereby raising the temperature of the sheet of glass cooled by said drawing and forming operation, bending the sheet of glass from a vertical to a horizontal line of travel, and annealing the sheet of glass, the glass being subjected to these operations in the order named and in a continuous sheet.

679,294. **VEHICLE-WHEEL.** WINFIELD S. CASHADAY, Florence, Ala., assignor of one-third to Andrew B. Paxton, Alexandria, Ind. Filed Nov. 14, 1900. Serial No. 36,511. (No model.)



Claim.—1. In a vehicle-wheel, a hub, a plurality of leaf-springs arranged longitudinally along the hub, and each having one portion secured to the hub and a free end portion, and spokes secured to said free end portions.

2. In a vehicle-wheel, a hub, a plurality of leaf-springs arranged longitudinally of and clustered about the hub, said springs having free ends, and spokes secured to said free ends.

3. In a vehicle-wheel, a hub carrying a plurality of independent leaf-springs secured intermediate their ends, and spokes secured to the opposite ends of said springs.

4. In a vehicle-wheel, a hub carrying a plurality of independent leaf-springs secured intermediate their ends, and spokes detachably and adjustably secured to the opposite ends of said springs.

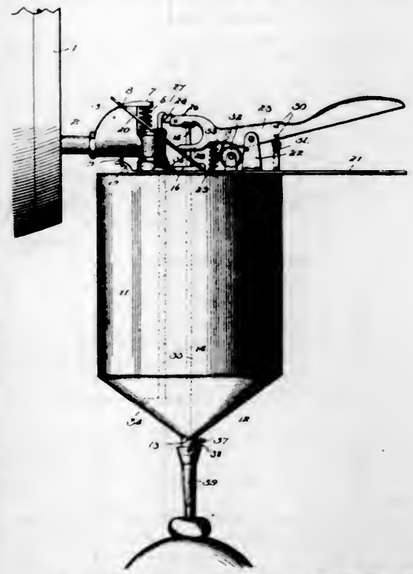
5. In a vehicle-wheel, a hub, a plurality of leaf-springs detachably secured intermediate their ends to said hub, and spokes secured to the opposite ends of said springs.

6. In a vehicle-wheel, a hub having an annular bearing-flange, a plurality of leaf-springs secured to said flange and projecting on both sides thereof, and spokes secured to the projecting ends of said springs.

7. In a vehicle-wheel, a hub having an annular bearing-flange, a plurality of leaf-springs arranged upon said bearing-flange, a clamping-band surrounding the leaf-springs, and spokes secured to said springs.

8. In a vehicle-wheel, a hub having a centrally-arranged annular flange on its exterior face, a plurality of flat leaf-springs arranged upon said flange and having their ends projecting beyond the opposite side edges thereof, a clamping-band surrounding said springs, and spokes secured to the opposite projecting ends of said springs.

679,295. **MEASURING-FAUCET.** ORVIN H. CHANDLER, Clinton, S. C. Filed Dec. 5, 1900. Serial No. 38,786. (No model.)



Claim.—1. The combination with a faucet; of a sliding plug therein; means for holding the plug normally in closed position; a measure detachably secured to the faucet and communicating with the interior thereof; an outlet from the measure; a plug therein; a lever fulcrumed upon the measure and adapted to engage the plug in the faucet; and means for operating the plug in the measure from said lever, said lever being adapted to raise the plugs alternately.

2. The combination with a faucet; of a sliding plug therein, means for holding the plug normally in closed position, a hooked stem to the plug, a measure detachably secured to the faucet and communicating with the interior thereof, an outlet from the measure, a plug within the outlet, a rod extending from said plug and through the top of the measure, a lever fulcrumed upon the measure, a dog pivoted in one end of the lever and adapted to engage the hooked stem, and a fork extending from the lever and inclosing the rod, said lever adapted to raise the plugs alternately.

3. The combination with a faucet; of a sliding plug therein, a spring for holding the plug normally in closed position, a hooked stem extending from the plug, a measure communicating with the interior of the faucet, an outlet from the measure, a plug within the outlet, a rod extending therefrom and through the top of the measure, a lever fulcrumed upon the measure, a dog pivoted in one end of the lever and adapted to engage the hooked stem, a fork to said lever engaging the rod, said lever being adapted to raise and release the plugs alternately, and means for holding the forked end of the lever normally depressed.

4. The combination with a faucet having longitudinally and transversely extending communicating passages; of a sliding plug within the transverse passage, a spring for holding the plug normally in closed position, a hooked stem to said plug, a measure detachably secured to the faucet and communicating with the transverse passage, an outlet from said measure, a plug therein, a stem extending from the plug and through the top of the measure, a lever fulcrumed upon the measure, the end thereof engaging the hooked stem, a fork to the lever engaging the rod, said lever adapted to raise and release the plugs alternately, a float within the measure, a graduated stem extending therefrom through the top of the measure, and a cap to the stem adapted to bear upon the top of the measure.

5. The combination with a faucet having longitudinally and transversely extending communicating passages; of a sliding plug within the transverse passage, means for holding the plug normally in closed position, a hooked stem to the plug, a measure detachably secured to the faucet and communicating with the transverse passage, an outlet to the measure, a plug therein, a rod extending from the plug through the top of the measure, a lever fulcrumed upon the measure, a dog pivoted within the end thereof and when raised, adapted to engage the stem, a fork to the lever adapted when raised to engage the rod, said plugs being lifted and released alternately by the lever, means for returning the forked end of the lever to normal position, means for locking the lever when either of the plugs is in raised position, a register, a catch secured to the lever and adapted to operate the register, a float, a graduated stem extending therefrom and through the top of the measure, and a cap to the stem adapted to bear upon said top.

6. The combination with a faucet having longitudinally and transversely extending communicating passages; of a plug slidably mounted within the transverse passage, means for holding the plug in normally closed position, a stem to the plug, an eye extending from the faucet, a measure communicating with the transverse passage, a hook thereon engaging the eye, a loop hinged to the measure and extending over and engaging the end of the faucet, an outlet to the measure, a plug therein, a rod extending from the plug and through the top of the measure, a lever fulcrumed upon the measure and engaging the stem and rod and adapted to raise and release the same alternately, a float within the measure, a graduated stem extending therefrom through the top of the measure, a hook adjacent to the outlet of the measure, a funnel, and a bail thereto engaging the book.

679,296. **FISH-HOOK.** FRED CLARK, Clearlake, Minn., assignor of one-half to Carl D. Schwab, same place. Filed Oct. 12, 1900. Serial No. 32,853. (No model.)



Claim.—1. A trolling-hook comprising an upper and a lower group of two hooks arranged in planes at right angles to each other, both groups having the pointed ends of the hooks inturned toward each other and continuous with bendable resilient shanks, the pointed ends of the hooks of the lower group being below the plane of the lowermost portions of the bends or elbows of the upper hooks to permit the said lower hooks to have free and unretarded outward lateral movement beyond the vertical plane of said upper hooks and also free inward movement to increase or decrease the lateral extent of the lower hooks.

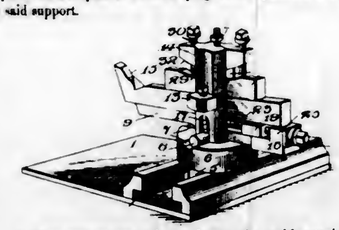
2. A trolling device comprising an upper and a lower group of two hooks arranged in planes at right angles to each other, both groups having the pointed ends of the hooks inturned toward each other and continuous with depending shanks integrally continuing from the lower portions of spring-loops of different lengths and having the upper reduced looped or bent portions thereof contiguously arranged at right angles and the bend of the shorter loop fitted within that of the longer one, the bend of the longer loop being projected above that of the shorter loop to form an eye for attaching purposes, the pointed ends of the lower group of hooks being below the plane of the lowermost portions of the elbows or bends of the hooks of the upper group to permit the said lower group of hooks to have unretarded inward and outward lateral movement beyond the vertical plane of the said upper group of hooks.

679,297. **TOOL-POST FOR LATHES.** BYRON COBURN, Leroy, N. Y. Filed Feb. 14, 1901. Serial No. 47,270. (No model.)

Claim.—1. The combination with a lathe tool-post, of a tool-clamping block hung from the head of the post.

2. The combination with a lathe tool-post, of a tool-clamping block hung from the post, and means connected with the block for effecting vertical adjustment thereof.

3. The combination with a lathe tool-post, of a pivoted rocking tool-support, and a suspended tool-clamping block adjustable independently of the said support.



4. The combination with a tool-post, of a rocking tool-support, and a tool-clamping block, the support and block being adjustable to different positions by independently-operating means.

5. The combination with a lathe tool-post, of a pivoted rocker-support for the tool, and a tool-clamping block carried by the tool-post and arranged to bear against the upper side of the tool.

6. The combination with a lathe tool-post, of a pivoted rocker forming a tool-support, a tool-clamping block hung above the rocker, and means for fastening said block.

7. The combination with a lathe tool-post, of a pivoted rocker forming a tool-support, a tool-clamping block hung above the rocker, means for adjusting the said clamping-block, up and down, and means for fastening the block.

8. The combination with a lathe tool-post provided with a fixed head, of a rocker forming a tool-support, a tool-clamping block hung from the tool-post, and a plurality of binding-screws on the post-head adapted to bear against said block.

9. The combination with a lathe tool-post, of a rocker-support for the tool, a concave-faced tool-clamping block hung from the tool-post and one or more set-screws adapted to coöperate with said block.

10. The combination with a lathe tool-post, of a rocker-support for the tool, tool-feeding means carried by the rocker-support, and a tool-clamping block hung from the tool-post.

11. The combination with a lathe tool-post, of a rocker-support for the tool, tool-feeding means mounted solely on the rocker-support, and a tool-clamping block hung from the tool-post.

12. The combination with a lathe tool-post, of a rocker-support for the tool, a tool-feeding slide thereon, means for moving said slide on the support, and a tool-clamping block hung from the tool-post.

13. The combination with a lathe tool-post, of a rocker-support for the tool, a tool-feeding slide mounted for movement on the rocker-support, means for advancing and retracting said slide, and a tool-clamping block hung from the tool-post.

14. The combination with a lathe tool-post, of a rocker-support for the tool, a tool-feeding slide on the rocker-support, a feed-screw coöperating with the slide, and a tool-clamping block hung from the tool-post.

15. The combination with a lathe tool-post, of a rocker-support for the tool, a tool-feeding slide on the rocker-support, operating means for the slide, tool-engaging means on the slide, and a tool-clamping block hung from the tool-post.

16. The combination with a lathe tool-post, of a rocker-support for the tool, a tool-feeding slide on the rocker-support having means to interlock with the tool, and operating means for the slide.

17. The combination with a lathe tool-post, of a rocker-support for the tool, a tool-feeding slide on the rocker-support having a tool-engaging projection, and operating means for the slide.

18. The combination with a lathe tool post, of a tool, a rocker-support for the tool, a tool-feeding slide on the rocker-support, operating means for the slide, and interlocking means on the tool and slide admitting of relative adjustment between the same.

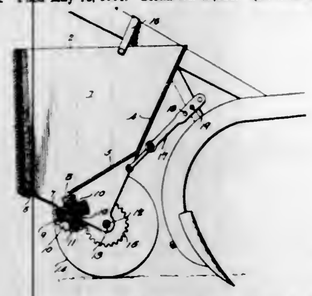
19. The combination with a lathe tool-post, of a tool having a series of sockets, a rocker-support for the tool, a tool-feeding slide on the rocker-support having a projection for engagement with the sockets in the tool, and operating means for the slide.

20. The combination with a lathe tool-post, of a rocker-support for the tool, means for clamping the tool thereon, a removable fulcrum-pin upon which the rocker is mounted, and means on the post for holding the pin at desired adjustments.

21. The combination with a lathe tool-post, of a rocker-support for the tool, means for clamping and holding the tool thereon, a removable fulcrum-pin for the rocker, said pin being provided with a screw-seat, and a binding-screw on the post coöperating with said screw-seat.

22. The combination with a grooved bed-piece, of a lathe tool-post having a head slidably fitted in the grooved bed-piece and provided with a keyway lying within the plane of the groove, and a key detachably mounted in said groove and adapted to bear against one of the walls of the groove for preventing rotation of the post relatively to the bed-piece.

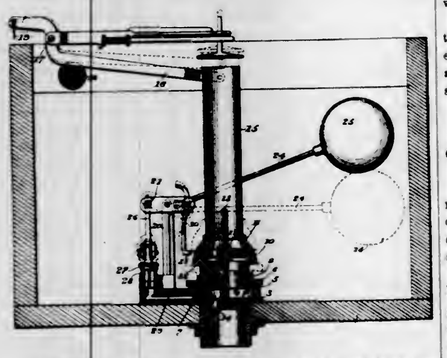
679,298. FERTILIZER-DISTRIBUTER. JOHN T. COLE, Malmaison, Va. Filed May 18, 1901. Serial No. 60,928. (No model.)



Claim.—1. In a fertilizer-distributer, a hopper having an inclined bottom-board 5, oppositely-inclined spring-slats forming part of the bottom of the hopper, a discharge opening 8 being formed between said slats and said bottom-board, a distributing-roller disposed with one side opposite said discharge-opening, said roller having longitudinal peripheral grooves to receive and convey material from said hopper, said spring-slats forming cut-offs and bearing against said roller, and means to rotate said distributing-roller, substantially as described.

2. In a fertilizer-distributer, a hopper having an inclined bottom-board 5, oppositely-inclined spring-slats forming part of the bottom of the hopper, a discharge-opening 8 being formed between said slats and said bottom-board, a distributing-roller disposed with one side opposite said discharge-opening, said roller having longitudinal peripheral grooves to receive and convey material from said hopper, said spring-slats forming cut-offs and bearing against said roller, an axle-shaft having its bearings in said hopper, ground-wheels on said axle-shaft, and gears connecting said axle-shaft and said distributing-roller, whereby the latter is rotated, substantially as described.

679,299. WATER-CLOSET TANK. WILLIAM S. COOPER Jr., and JOHN DOBBCOTT, Philadelphia, Pa. Filed July 10, 1900. Serial No. 23,108. (No model.)



Claim.—1. In a device of the character named, a tank having an outlet, a valve therefor, one means for opening said valve, another means for holding the same in elevated position and means operated by the escape of water from said tank carrying with it said valve and the means for holding it in elevated position, whereby the same will be entirely and gradually closed during the passage of the water from said tank.

2. In a device of the character named, a valve, means for raising the same, a latch adapted to hold the same in elevated position and a float suitably connected with said latch, said float, latch and valve being adapted to descend as the water in the tank falls and said latch being adapted to release said valve when near the seat thereof.

3. In a device of the character named, a valve, means for raising the same, a latch, a lever carrying said latch, a float connected with said lever and adapted to lower said valve as the water descends, and a second valve suitably connected with said lever, whereby the same will be operated when the first-mentioned valve is closed.

4. In a device of the character named, a main outlet, a plurality of passages leading thereto, valves for said passages, one of which serves as a flush-valve and the other as an afterflush-valve, a single float for actuating both of said valves, said float being adapted to fall as the water in the tank descends and carry with it the flush-valve which is reseated slowly and quietly and said float being adapted to open the afterflush-valve and then close the same as the water rises in the tank.

5. In a device of the character named, a valve, means for raising the same, a latch adapted to engage with and hold said valve in elevated position, a pivoted lever to which said latch is movably secured and a float which is connected with said lever, whereby when said float falls with the water, it will depress said lever and carry with it said latch, which carries with it the valve which thus falls slowly as the water descends in the tank.

6. In a device of the character named, a valve, means for raising the same, a latch adapted to engage with and hold said valve in elevated position, a pivoted lever to which said latch is movably secured, an afterflush-valve also secured to said lever and a float which falls with the water and thus depresses said lever and latch which permits the flush-valve to fall slowly and opens the afterflush-valve which will be closed as the float rises in the tank when the same is filled with water.

7. In a device of the character named, a valve, means for raising the same, a post, a latch, a lever and a float connected with said lever, which is adapted to fall when the water in the tank falls and carry with it said lever and latch, said latch being adapted to hold said valve in elevated position until carried down by said float.

8. In a device of the character named, a valve, means for raising the same, a guide for said valve, a pivoted lever, a latch carried by said lever and adapted to engage said valve when in elevated position, and a float connected with said lever adapted to fall with the water in the tank and to carry down the said lever and latch and permit the valve to fall slowly and thus descend as the water in the tank descends.

9. In a device of the character named, a flush-valve, means for raising the same, a pivoted lever suitably supported, a latch, adapted to hold said valve in elevated position, secured to said lever, an afterflush-valve connected with said lever and a float secured to said lever which is adapted to fall with the water, said lever being so arranged that as the flush-valve is closed during the falling of the water, the afterflush-valve is opened and will be closed as the float rises in said tank.

10. In a device of the character named, a valve, means for raising the same, means for holding the same in elevated position, means connected with said valve which descends as the water falls and carries with it said valve and the means for holding the said valve in elevated position, and a second valve adapted to be operated while said first-mentioned valve is closing.

11. In a device of the character named, a valve, means for raising the same, a latch, a lever, a float connected with said lever which is adapted to fall when the water in the tank falls and carry with it said lever and latch, said latch being adapted to hold said valve in an elevated position until carried down by said float.

679,300. ENAMELING METAL. WILLIAM A. DUBLAP, Pittsburg, Pa. Filed Dec. 3, 1900. Serial No. 38,545. (No specimens.)

Claim.—1. As an improvement in the art of enameling surfaces the method herein described, which consists in applying, to a burned ground or foundation coat, a thin finish-coat and while the latter is still wet a second thin coat of a color contrasting with the finish-coat, substantially as set forth.

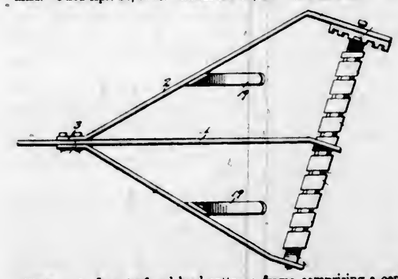
2. As an improvement in the art of enameling surfaces the method herein described, which consists in applying successively to a burned ground or foundation coat, two thin liquid coats of contrasting colors, the second coat being applied while the first is wet, both coats having the same specific gravity, substantially as set forth.

3. As an improvement in the art of enameling surfaces the method herein described, which consists in applying successively to a burned ground or foundation coat, two thin liquid coats of contrasting colors, the second coat being applied while the first is wet, both coats having the same specific gravity and ground to the same or approximately the same degree of fineness, substantially as set forth.

4. As an improvement in the art of enameling surfaces the method herein described, which consists in applying successively to a burned ground or foundation coat, two coats of contrasting colors and having the same or approximately the same fluidity, the second coat being thrown or projected against the first coat while the latter is wet, so that it will enter the first coat, substantially as set forth.

5. As an improvement in the art of enameling surfaces the method herein described, which consists in applying successively to the surface to be enameled, two coats of contrasting colors and having the same or approximately the same fluidity, the second coat being thrown or projected against the first coat while the latter is wet, so that it will enter the first coat, substantially as set forth.

679,301. TURF AND LAND CUTTER. IRA EDMONDSON, Blue, Miss. Filed Apr. 27, 1901. Serial No. 57,747. (No model.)

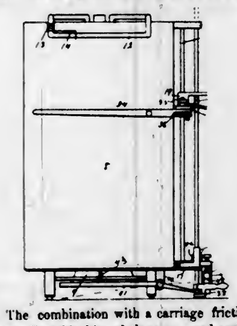


Claim.—1. In a turf and land cutter, a frame comprising a central longitudinal bar, rearwardly-diverging side bars of unequal length connected thereto at a common point and arranged on opposite sides of the central bar, supporting-runners connected to the side bars, a knife-bar oblique to the line of draft and having end journals which connect the ends of the knife-bar to the side bars of the frame, and means for rocking and holding the knife-bar.

2. In a turf and land cutter, a frame comprising rearwardly-diverging side bars of unequal length, supporting-runners connected thereto, a knife-bar oblique to the line of draft and journaled between the side bars, knife-blades having their shanks inserted in a slot in the knife-bar, spacing-blocks interposed between shanks of the blades and embracing the knife, a fastener for holding all of the blades and blocks in place, and a tilting lever connected to said knife-bar.

3. In a turf and land cutter, a frame comprising rearwardly-diverging side bars of unequal length, a knife-bar oblique to the line of draft and journaled between the side bars, knife-blades having their shanks inserted in a slot in the knife-bar and set edgewise to the line of draft, spacing-blocks interposed between said shanks and embracing the knife-bar, a single clamping device for holding all the blades in place, and a tilting lever connected to said knife-bar.

679,302. INDICATING COPY-HOLDER. EDGAR A. EDWARDS, Cincinnati, Ohio. Filed Aug. 27, 1900. Serial No. 28,219. (No model.)



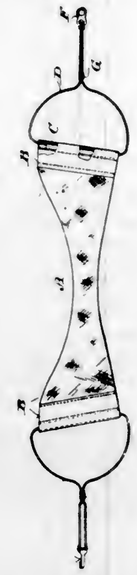
Claim.—1. The combination with a carriage frictionally movable on a guide, a finger adjustably hinged thereon, a rod reciprocated by lever mechanism, and locking mechanism on the carriage arranged to automatically engage and disengage the rod in its respective movements in opposite directions, of a differential stop, a handle secured on the rod and movable into positions to be carried by the rod into engagement with different points of contact on the stop, and means to adjust the stop to limit the movement of the rod.

2. The combination with a rod actuated by lever mechanism, of a differential stop, means to adjust the stop to change the length of the stroke of the rod, a handle secured to the rod and movable into registration with different points of contact therewith on the stop, whereby any adjusted length of stroke of the rod may be changed in a predetermined ratio.

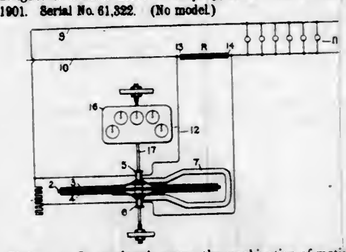
679,303. MUSTACHE-GUARD. PAUL ESCH, Milwaukee, Wis. Filed May 19, 1900. Serial No. 17,186. (No model.)

Claim.—A toilet article comprising a web of silk gauze having gradual increase of width from center to ends, binding material fastened to the web ends, bent stiffeners in folds of the binding material, and attaching cord-loops caught in the stiffeners.

679,303.



679,304. ELECTRIC METER. WALTER C. FISH, Lynn, Mass., assignor to General Electric Company, of New York. Filed May 21, 1901. Serial No. 61,322. (No model.)



Claim.—1. In an electric meter, the combination of motive devices normally tending to produce opposite directions of rotation, and means for varying the speed of the resulting rotation in response to variation of the quantity to be measured by the meter.

2. In an electric meter, the combination of armature-windings, means for impressing on one of said windings a given electromotive force, and means for impressing on another of said windings the same electromotive force diminished by an amount proportional to the quantity to be measured by the meter.

3. In an electric meter, the combination of armature-windings, means for impressing on one of said windings a given electromotive force, and means for impressing on another of said windings an equivalent electromotive force diminished by an amount proportional to the quantity to be measured by the meter.

4. In an electric meter, the combination of two armature-windings mounted in fixed relation to each other, means for impressing upon one of said windings a given electromotive force, and means for impressing on the other winding the same electromotive force diminished by an amount proportional to the flow of current to be measured.

5. In an electric meter, the combination of two armature-windings mounted in fixed relation to each other, means for impressing upon one of said windings a given electromotive force, and means for impressing on the other winding an equivalent electromotive force diminished by an amount proportional to the flow of current to be measured.

6. In an electric meter, the combination of two armature-windings mounted in fixed relation to each other, means for impressing upon the circuit of one of said windings the full electromotive force of the mains with which the meter is to be connected, and means for impressing upon the other winding the electromotive force of the mains diminished by the drop of potential across a resistance connected in one of said mains.

7. The combination with supply-conductors, a resistance device in circuit with one of said conductors, two armature-windings mounted to revolve in fixed relation to each other, a connection from one of said armature-windings to one end of said resistance device, and a connection from the other winding to the other end of said resistance device.

8. In an electric meter, the combination of two motive devices normally tending to produce opposite directions of rotation, and means for varying the torque of one of the motive devices in response to variation of current to be measured.

679,305. **BAKING-POWDER.** MAX H. FISCHER, West Orange, N. J. Filed Mar. 28, 1901. Serial No. 53,317. (No specimens.)

Claim.—1. A dry compound for baking-powder or preservative purposes containing benzoic acid and an alkaline carbonate.

2. A dry compound containing benzoic acid and an alkaline carbonate in proportion to produce an acid reaction.

3. A baking-powder containing benzoic acid and bicarbonate of soda in substantially the proportions specified.

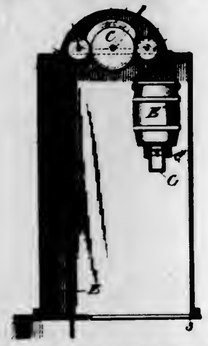
679,306. **PILE-BLOCK.** FREDERICK W. FREUND, Akron, Ohio, assignor of two-thirds to Henry A. Robinson, same place, and Walter M. Viall, Barberton, Ohio. Filed Mar. 5, 1901. Serial No. 49,823. (No model.)



Claim.—1. An improved pile-block, circular in form with flat bottom and top faces, having a central opening, countersunk at one face and provided with a corresponding conical projection at the other, with openings surrounding said central opening, substantially as shown and described.

2. As an improved article of manufacture, a pile-block of vitrified earthenware, circular in form, with flat top and bottom, having a circular central opening countersunk in one face, and with a conical projection about it at its other face; with concentric curved openings surrounding said central opening substantially as shown and described.

679,307. **WELL-FIXTURE.** WARREN A. FULLER, Cherryfield, N. C. Filed May 9, 1901. Serial No. 59,626. (No model.)



Claim.—1. In a well-fixture, a friction feeding-wheel provided with a beveled V-shaped groove and having at its outer edges flat bearing-surfaces, tension-pulleys on opposite sides of said feeding-wheel, a grooved brake-block having a curved face adapted to bear on said surfaces and adapted to travel transversely of the axis of said wheel to engage between the same and either of the pulleys, and a bucket-suspending device adapted to lie within the grooves in the pulley and brake-block; substantially as specified.

2. In a well-fixture, the combination of a grooved feeding-pulley, tension-pulleys upon opposite sides thereof, a bucket-suspending device passing over said tension-pulleys and under said feeding-pulley, bearing-plates for the opposite ends of the shafts of said pulleys each having sockets in fixed relation to each other and in the same horizontal plane, and a wedge-brake adapted to travel transversely to the axis of said feeding-pulley and engage between the same and either one of the tension-pulleys; substantially as specified.

3. In a well-fixture, the combination of a grooved feeding-pulley, tension-pulleys upon opposite sides thereof, a bucket-suspending device passing over said tension-pulleys and under said feeding-pulley, and a wedge-brake adapted to travel transversely to the axis of said feeding-pulley and engage between the feed-pulley and either one of the tension-pulleys; substantially as specified.

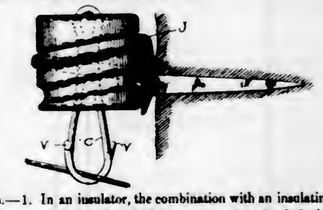
4. In a well-fixture, the combination of a grooved feeding-pulley, tension-pulleys upon opposite sides thereof, a bucket-suspending device passing over said tension-pulleys and under said feeding-pulley, a wedge-brake adapted to engage between the feed-pulley and one of the tension-pulleys, and means for shifting said brake into contact with either tension-pulley; substantially as specified.

5. In a well-fixture, the combination of a grooved feeding-pulley, tension-pulleys upon opposite sides thereof, a bucket-suspending device passing over said tension-pulleys and under said feeding-pulley, a curved wedge-brake supported above said feed-pulley and adapted to be shifted into contact with the tension-pulley at either side thereof; substantially as specified.

6. In a well-fixture, the combination of a grooved feeding-pulley, tension-pulleys upon opposite sides thereof, a bucket-suspending device passing over said tension-pulleys and under said feeding-pulley, a curved wedge-brake supported above said feed-pulley and adapted to be shifted into contact with the tension-pulley at either side thereof, and a laterally-projecting handle extending through a curved slot in a casing for supporting said brake; substantially as specified.

7. In a well-fixture, the combination with a well-bucket having a valved bottom, and means for raising the same, of a pivotally-mounted discharge-spout, means carried by said spout for opening the valve in said bucket, a depending flange from said well-bucket, a curved portion of said spout adapted to receive said flange, and a sliding operating-rod extending to the top of the casing and at its lower end to the outer end of said discharge-spout; substantially as specified.

679,308. **INSULATOR.** HENRY GRIESHÖBER, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 1, 1901. Serial No. 58,241. (No model.)



Claim.—1. In an insulator, the combination with an insulating-support, of a loop carried thereby which has an opening of relatively large size with respect to the line wire or cable, whereby the latter can have free play, said loop being constructed to be resiliently self-closed.

2. In an insulator, the combination with an insulating-support, of a spring-wire loop being a self-closing portion, said loop being carried by said support and having an opening of relatively large size with respect to the line-wire, whereby the latter can have free play.

3. In an insulator, the combination with an insulating-support, of two partial loops carried thereby so as to be held resiliently against each other and having their upturned free ends oppositely disposed, whereby a line-wire can be forced upward between the lower parts of the loops into the inside thereof.

4. In an insulator, the combination with an insulating-support, of two partial loops carried thereby so as to be held resiliently against each other, and having their upturned free ends oppositely disposed and beveled in opposite directions, whereby a line-wire within the loop can be removed therefrom.

5. In an insulator, the combination with an insulating-support, of two oppositely-disposed hooks of spring metal carried thereby and oppositely disposed adjacent each other.

6. In an insulator, the combination with an insulating-support, of a spring-wire carried thereby, its depending free ends extending upwardly in the form of hooks oppositely disposed adjacent to each other.

7. In an insulator, the combination with an insulating-support provided with a perforation larger at one end, of a spring-wire having its free ends extending through the perforation and having an intermediate loop held in the larger part of the perforation, the free ends of the wire extending upwardly in the form of hooks oppositely disposed adjacent to each other.

8. In an insulator, the combination with a rotatably-mounted insulating-support, of a spring-closed loop carried thereby, which has an opening of relatively large size with respect to the line wire or cable.

9. The combination with a threaded primary support constructed to be mounted on the limb of a tree or other suitable anchorage, of a threaded secondary support composed of insulating material, and a device carried by the secondary support and constructed to receive a line wire or cable, the threads on the primary and secondary support being constructed to engage each other loosely to permit free relative rotation of said supports caused by movements of the line-wire or anchorage.

10. As an article of manufacture, a primary support for an insulator, which consists of a stem portion, and a ring on one end thereof, said ring being formed with a suitable pitch for engaging the threads of a secondary support.

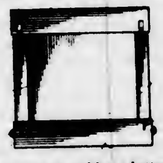
11. The combination with a primary support, consisting of a stem and a ring formed with a pitch, of an insulating-support which is threaded to engage in said ring, and a device carried by the insulating-support for receiving a line wire or cable.

12. In an insulator, the combination with a primary support, consisting of a stem and a ring formed with a pitch, of an insulating-support which is threaded to engage in said ring, and a spring-closed loop carried by the insulating-support, which loop has an opening of relatively large size with respect to the line wire or cable which is received in the loop.

13. As an article of manufacture, a primary support for an insulator, which consists of a stem portion, a projection on the end thereof, and a ring on the projecting portion, said ring being formed with a pitch to engage the threads of a secondary support.

14. As an article of manufacture, a primary support for an insulator, which consists of a spike portion, a ring on one end thereof, which is formed with a pitch to engage the threads of a secondary support, and a projection on the same end of the spike by which the latter can be driven into a support.

679,309. **FOLDING EGG-CRATE.** WILLIAM W. GERMBY, North Harvey, Ill., assignor of one-half to Frank L. De La Mater, Harvey, Ill. Filed Oct. 6, 1900. Serial No. 32,342. (No model.)



Claim.—A folding crate comprising a bottom piece having end and side flanges, side pieces hinged to the upper ends of said side flanges and having inwardly-extending slotted end flanges, end pieces pivoted at their lower ends to the bottom piece on the inner side of the end flanges thereof, and when assembled abutting against said end flanges and the end flanges of the side pieces and each carrying pivoted locking members projecting through the slots of the end flanges of the side pieces, and a cover having slotted end flanges to receive said pivoted locking members, substantially as described.

679,310. **SIGNAL SYSTEM.** JOHN L. HALL, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 16, 1899. Serial No. 705,654. (No model.)

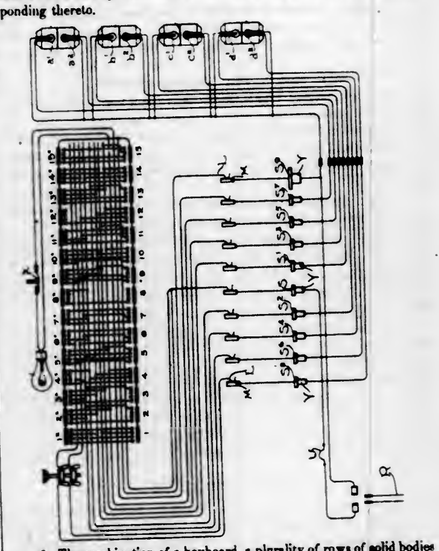
Claim.—1. In a marine signaling set, the combination of a fixed stand containing circuit connections with a group of signaling devices, corresponding terminals for the several devices in the stand, a keyboard rotatable on the stand, and means for preserving the connections during rotation, an independent set of connections for the signaling devices between the keyboard and the rotatable connection, and a joint permitting the keyboard to be separated at said independent connections.

2. The combination with the removable keyboard, of the separable contacts between the keyboard and the box containing it and an independent set of connections with the signal-stand.

3. In a signal system, a keyboard having two rows of buttons with plungers extending to switches beneath the surface of the board, two sets of balls in raceways, one under each set of keys or buttons, and levers at the end of the keyboard for transferring the motion of one set of balls to the other, the whole so arranged that when any key is depressed, the balls are all pressed into contact in both rows, so that no other key may be depressed until the first one is released.

4. In a signaling system, the combination of a group of signaling devices, spring-retracted keys mounted on a keyboard for connecting said devices in different signaling relations, means for disabling all other keys when one is operated, and a lock at the keyboard for holding any desired key in signaling relation.

5. The combination of a keyboard, a plurality of keys, a plurality of yielding devices permitting said keys to be operated one at a time, each having sufficient lost motion or slack to accommodate the movement of one key, and connections between the several devices whereby the slack is all taken up when that of any one is taken up by a key corresponding thereto.



6. The combination of a keyboard, a plurality of rows of solid bodies supported loosely in frames to admit the insertion of a wedge or spacer, means for wedging the bodies in compact relation by the operation of any key, and connections between the several rows for wedging all in compact relation when any one is so wedged.

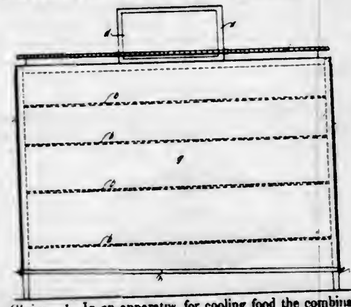
7. The combination in a signal system with keys for controlling the various circuits so as to connect the signal devices in different orders and interlocking means preventing the operation of more than one of the keys at a time, of an auxiliary key free from the interlocking means, by which one or more of the lamps may be made to blink.

8. The combination with a keyboard, of a signal-transmitter, an electric lamp, for illuminating the same, a tilting hood or cover therefor, and means for lifting the cover to illumine the board when the latter is uncovered.

9. In a signal set, the combination of buttons removable from the key mechanism, a rotatable key-stem controlling a signal device, and a joint between the key and stem permitting both depression and rotation of the latter.

10. In a signaling system, the combination of elastically-mounted depressible keys, a switch controlled by each key comprising a spring-retracted pivoted arm carrying a metallic bridge, a group of terminals connected with the signaling devices and controlled by the bridge, a loose connection permitting return of the key to its initial position independently of the bridge, and means for retarding the return of the bridge.

679,311. **FOOD-COOLER.** JAMES P. HARSEN, San Francisco, Cal. Filed Jan. 21, 1901. Serial No. 44,093. (No model.)



Claim.—1. In an apparatus for cooling food the combination of a frame with open sides having shelving attached to the interior thereof and supporting a tank, a pipe leading from each side thereof and con-

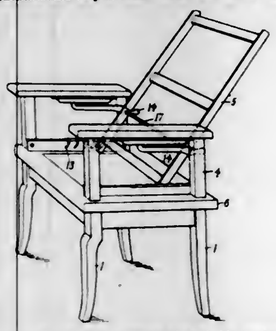
trally connected with a perforated pipe capped at each end, means for controlling the flow of water through such pipes, a curtain of bagging or other absorbent material secured only to the upper cross-piece of each side of the frame and depending loosely therefrom, for carrying off the water dripping therefrom substantially as and for the purpose herein described.

2. In an apparatus for cooling food the combination of a frame with open sides, and provided with shelves, supporting a tank connected with separate and perforated capped pipes, disconnected curtains of bagging or other absorbent material depending loosely from the upper cross-pieces of said frame and gutters arranged under the lower ends thereof to receive water dripping therefrom substantially as and for the purpose described.

3. In an apparatus for cooling food the combination of a frame with open sides having shelves attached to the interior thereof supporting a tank connected with separate and longitudinally-perforated pipes capped at each end, disconnected curtains of bagging or other absorbent material depending loosely from the upper cross-pieces of said frame, means for raising and lowering said curtains and for carrying off the water dripping therefrom, substantially as and for the purpose described.

4. In an apparatus for cooling food the combination of a frame with open sides and shelves secured to the interior thereof, a tank resting thereon, pipes leading therefrom and centrally connected with pipes having longitudinal perforations and capped at each end, means for controlling the flow of water through such pipes for saturating disconnected curtains of bagging or other absorbent material depending from the upper portion of said frame, means for raising and lowering said curtains and for carrying off the water dripping therefrom substantially as and for the purpose described.

679,312. **ADJUSTABLE CHAIR-BACK.** NATHANIEL B. HARMON, Brooklyn, N. Y., assignor of one-half to Claude M. Hart, Boston, Mass. Original application filed Feb. 23, 1900, Serial No. 6,163. Divided and this application filed May 9, 1900. Serial No. 15,998. (No model.)



Claim.—1. In a chair, the combination of side supports, each provided with a series of slots, a back-frame having on each side at the lower end a pin for engaging with said slots, side arms each carrying a rack and levers attached to said back and each provided at its outer end with a pin for engaging with one of said racks, substantially as and for the purposes described.

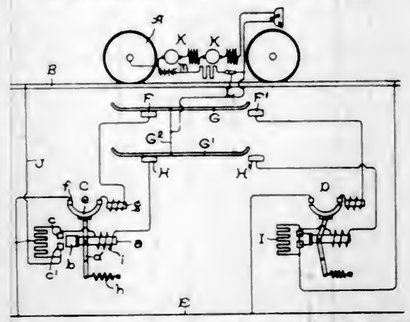
2. In a chair, the combination of a base, supports mounted upon said base and provided with a series of slots or grooves, side bars mounted upon said supports and provided with racks, a detachable back-frame provided near its lower end with pivots for adjustment in said grooves, and rods or levers extending from said back-frame and provided at their outer ends with means for engaging with said racks, substantially as and for the purposes described.

679,313. **VEHICLE-HUB.** WILLIAM F. HEMBREY, Hutchinson, Ark., assignor of one-half to Tye Lawson and Thomas Keen, same place. Filed Jan. 12, 1901. Serial No. 43,026. (No model.)



Claim.—A vehicle-hub comprising a central sleeve formed with external screw-threads extending for a distance at both ends, a hub-section internally threaded to engage directly with the threads of the sleeve and formed with a plurality of radial spoke-lugs on its inner face, a second hub-section 4, having a smooth central aperture to fit movably directly over the unthreaded portion of the sleeve and formed with a plurality of spoke-lugs on its inner face, and a tapering fastening-nut, constituting an extension of the hub, mounted directly on the end of the sleeve which projects from the hub-section 4, substantially as described.

679,314. **ELECTRIC RAILWAY.** EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 19, 1897. Serial No. 655,698. (No model.)



Claim.—1. In an electromagnetically-controlled switch, the combination with relatively movable contacts for making and breaking a circuit, of an energizing-coil for the switch, and a resistance which is normally out of circuit, but is included in circuit with the coil independently of the position of the switch by the movement of the latter after it has started to close.

2. In a surface-contact electric-railway system, the combination with conductor-sections situated in the roadway, of electromagnetic switches for connecting the sections with the source of supply, resistance included in circuit with each of the switch-coils, and an automatic switch for cutting said resistance into and out of circuit.

3. In a surface-contact electric-railway system, the combination with conductor-sections situated in the roadway, of electromagnetic switches for closing the circuit between the sections and the source of supply, and a resistance normally out of circuit, but which is included in circuit after a switch-coil has been energized.

4. In a surface-contact electric railway, the combination with conductor-sections situated in the roadway, of electromagnetic switches for closing the circuit between the source of supply and the sections, energizing-coils on the switches permanently connected to ground, and switches for automatically increasing the resistance of the circuits of the electromagnet-coils after the electromagnetic switches have started to close.

5. In a surface-contact electric railway, the combination with conductor-sections situated in the roadway, electromagnetic switches for closing the circuit between the source of supply and the sections, energizing-coils on the switches permanently connected to ground, and a contact actuated by the core of the magnet for short-circuiting a resistance when the switch is open, and including it in circuit when the switch is closed.

6. In a surface-contact electric railway having a shunt pick-up, the combination with working conductor-sections normally disconnected from the feeder, of shunt-energizing conductor-sections permanently connected to ground through switch-coils, contact-shoes carried by the vehicle and making contact with the sections, contacts actuated by the switch for closing the circuit between the working conductor-sections and the feeder, and a resistance normally short-circuited, but included in the switch-coil circuit after the switch has been energized.

7. In a surface-contact electric-railway system, the combination with electrical conductors for supplying current to the traveling motors, of line-switches in the circuit between the sectional conductors and feeder or source of supply, magnet-coils in shunt-circuits receiving the full, or substantially the full, line potential for closing the line-switches, special resistances in the shunt-circuits, and means whereby said special resistance is out of circuit when the corresponding line-switch is open, but automatically brought into circuit when the line-switch is closed.

8. The combination with an electric switch, of an electromotive device for actuating said switch, and means controlled by said motive device independently of the position of the switch for reducing the amount of current which flows through the energizing-circuit of the motive device after it has imparted the initial movement to said switch.

9. The combination with an electric switch, of an electromotive device for actuating said switch, and means controlled by the switch for reducing the amount of current which flows through said device.

10. The combination with a normally open electric switch, of an electromotive device adapted to quickly move said switch toward its closing position, and means operating independently of the position of the switch whereby a smaller current flows through said electromagnetic device after the switch has been moved than that flowing when said motive device has been moving said switch.

11. The combination with an electric switch which is required to be moved and maintained for a time in the position to which it has been moved, of an electromotive device for moving said switch and maintaining it in the desired position, and means controlled by said switch whereby a smaller current flows through said electromagnetic device after it has moved said switch toward the desired position.

12. The combination with an electric switch which is required to be moved and maintained for a time in the position to which it has been moved, an electromotive device for moving said switch and maintaining it in the desired position, and means controlled by said switch for reducing the current flowing through the circuit of said electromotive device at any time after it has imparted motion to said switch.

13. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a set of switches, each adapted to close the circuit between said feeder and a section of said conductor, a set of electromotive devices, each adapted to control one of said switches, and means operating independently of the position of a switch whereby a smaller current flows through the circuit of the electromagnetic device which operates said switch after the switch has received its primary actuation.

14. In an electric-railway system, the combination with a feeder, of a return, a sectional working conductor, a shunt-circuit from a point between the feeder and the car-motors, through a section of said energizing-conductor to the return, a set of switches each adapted to close a circuit between the feeder and a section of said working conductors, a set of electromotive devices each adapted to control one of said switches, and itself controlled by said shunt-circuit, and means whereby a smaller current flows through the circuit of said electromotive device after the switch has received its primary actuation.

15. The combination with an electric switch which is required to be moved and maintained for a time in the position to which it has been moved, of an electromotive device for moving said switch and maintaining it in the desired position, and a resistance which is cut into the circuit of said electromotive device independently of the position of said switch by means of said switch.

16. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a set of switches each adapted to close a circuit between said feeder and a section of said conductor, a set of electromotive devices each adapted to control one of said switches, and a set of resistances each of which is adapted to be cut into the circuit of one of said electromagnetic devices independently of the position of the switch which it operates, by means of said moving parts during the movement thereof.

17. The combination with an electric switch adapted to be held normally open, an electromagnet for closing the said switch and holding it closed for a time, and a resistance which is cut into circuit with a coil of said magnet independently of the position of said switch by means of a body which is moved by said coil.

18. The combination with a normally open electric switch, of an electromagnet for closing said switch, a resistance in series with the coils of said magnet, a secondery switch normally closing a shunt around the said resistance, said secondary switch being also controlled by said electromagnet.

19. The combination with an electric switch, of an electromagnet for controlling the switch, in shunt to the circuit controlled by the switch, and a resistance which is inserted in series with the coil of said magnet after the magnet has moved the switch.

20. The combination with a primary electric switch, of an electromagnet for controlling the switch and in shunt to the circuit controlled by said switch, a resistance, and a secondary switch which is controlled by the said magnet to insert said resistance in series with the magnet-coil after the magnet has moved the primary switch.

21. The combination with an electric switch, of an electromotive device which controls said switch, and a switch in the circuit of said device, which is also controlled by the movement of the first switch.

22. The combination with a resistance having a broken short-circuited connection, of a switch which normally closes said connection, an electromotive device in series with the resistance, which device opens said switch, and a switch in the circuit of said device, which is closed by the latter.

23. A sectional railway having switches connecting its sections with the feeder, and electromagnet-coils supplied with current from the feeder, for operating said switches, resistances in series with said coils, and having broken short-circuited connections, and switches normally closing said connections, and opened by said coils when the latter are energized to close the feeder-switches.

24. The combination with the feeder-switches of a sectional-conductor electric railway, of electromotive devices supplied with current through closed feeder-switches, to close the advance switches as the car proceeds, resistances, and means for cutting one of said resistances into the circuit of an electromotive device when the latter has actuated its switch.

25. The combination with the feeder, of conductor-sections, switches for connecting the latter with the former, electromagnets for actuating said switches, and supplied in normal operation by current from the feeder, and resistances which are cut into the circuits of the respective magnet-coils by the respective switches in closing, whereby the switches are closed with certainty and positiveness and held closed by only a small current.

26. In a railway, the combination with the feeder, of conductor-sections, switches for connecting the latter with the former, electromagnets for actuating said switches, and supplied in normal operation by current from the feeder, collecting means carried by the car, an independent source of low-potential current which initially energizes an electromagnet when the feeder is not connected to the conductor-section engaged by the collecting means, and resistances which are cut into the circuits of the electromagnets by the switches in closing, whereby only a low-potential independent or auxiliary source of current is required to initially energize the magnets, and whereby during the progress of the car the switches are actuated with certainty and positiveness, and held closed by only a small current.

27. In combination, a feeder, a conductor-section, a feeder-switch for connecting the section with the feeder, a second conductor-section, said sections being adapted to be connected by a car-collecting device, a coil connected with the second section for closing said feeder-switch, a resistance in the circuit of said coil, a switch which normally short-circuits said resistance and is adapted to be actuated by said coil to include the resistance in series with the coil.

28. The combination with the feeder-switches of a sectional-conductor railway, of electromotive devices connected in branches around the car-motors and adapted to close the feeder-switches, resistances, and means for automatically inserting the resistances in series with the electromotive devices as the switch is closed.

29. The combination with a feeder-switch, of an electromotive device for closing the same, a resistance for the circuit of said device, which resistance is short-circuited by the switch in its open position, and is cut into the device-circuit by the closing movement of the switch.

30. The combination with a feeder-switch, of a coil for closing the same, and a resistance which is cut into the coil-circuit by the closing movement of the switch.

31. The combination with an electric switch, of an electromotive device for closing the switch, said device being in the circuit closed by the switch, and a resistance which is cut into circuit with the device by the closing movement of the switch.

32. The combination with an electric switch, of an electromotive device for closing the switch, which device is connected in the circuit closed by the switch, a resistance, and means controlled by the switch whereby the resistance is cut into the circuit of said device.

33. The combination with a toggle, of a switch-piece mounted on an end of the toggle, and a second switch-piece mounted intermediately the ends of the toggle.

34. The combination with an electric switch, of an electromotive device for actuating the switch, a resistance, and means controlled by the switch for cutting resistance in series with the coils of the electromotive device.

35. The combination with an electric switch, of an electromotive device for actuating the switch, a resistance, and means controlled by the movement of the switch for cutting the resistance in series with the coils of the electromotive device.

36. The combination with an electric switch, of an electromotive device for actuating the switch, a resistance connected with the coils of said device, and a shunt around the resistance, which shunt is normally closed by said switch, but is opened when the switch is actuated by said device.

37. The combination with a switch provided with contacts for controlling an electric circuit, of an electromotive device for moving said switch, a resistance, and an auxiliary contact carried by said switch by which, when the switch is moved by the electromotive device, the resistance is inserted in series with the coils of said device.

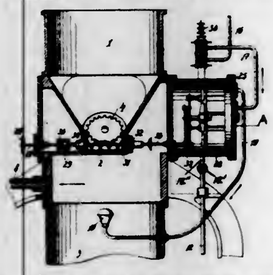
38. The combination with a switch for an electric circuit, of an electromotive device for actuating said switch, a branch from the circuit of said device, a resistance in said branch, and a switch in the circuit of and controlled by the coils of said device.

39. The combination with an electric switch, of an electromotive device for moving the switch, a resistance, and means controlled by the

electromotive device for cutting the resistance in series with the coils of said device after the latter has moved the switch.

40. The combination with an electric switch, of an electromotive device for moving the switch, a resistance, and means whereby when the device is energized it moves the switch, and also inserts the resistance in series with its own coils.

679,315. **ACETYLENE-GAS GENERATOR.** BOHUMIL HOLUB and PANKRÁC DVOŘÁČEK, Vinohrady-Prague, Austria-Hungary. Filed Oct. 20, 1900. Serial No. 33,750. (No model.)



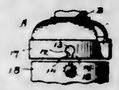
Claim.—1. In combination in an acetylene-gas producer, a hopper for the carbid, an acetylene-reservoir, a vessel containing water and receiving the open lower end of the reservoir, a rotary worm controlling the feed of carbid from the hopper to the gas-reservoir, a motor for driving the worm, a rose for spraying the carbid as it is falling from the feeding-worm into the water in the reservoir and a float with means controlled thereby for controlling the motor of the worm and the supply of water to the rose, substantially as described.

2. In combination with the hopper for the carbid of an acetylene-gas-producing apparatus, a feed-worm for feeding the carbid from said hopper and a toothed wheel in the hopper gearing with the worm, substantially as described.

3. In combination with the hopper for the carbid of an acetylene-gas-producing apparatus, a feed-worm for feeding the carbid from said hopper and a toothed wheel in one of the side walls of the hopper gearing with the worm, substantially as described.

4. In combination in an acetylene-gas-producing apparatus, a hopper for the carbid, a feeding-worm for feeding the carbid from the hopper, motor mechanism for the feed-worm, a spindle 33 connecting the motor with the worm and arranged to have movement longitudinally, a stopper on said spindle arranged to close and open the feed-opening, a piston 34 guided in the wall of the hopper and connected with the worm to move longitudinally therewith and a handle 28 on the outside of the hopper for operating the parts longitudinally, substantially as described.

679,316. **ELECTRIC-SWITCH SHELL.** HARVEY HUBBELL, Bridgeport, Conn. Filed Jan. 28, 1901. Serial No. 44,999. (No model.)

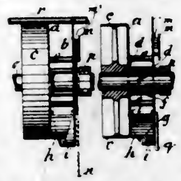


Claim.—1. A switch-shell comprising two detachable parts, one of said parts having slots in its edge leading into holes so that tongues are formed and the other part having corresponding bosses adapted to engage the holes, and headed screws, the tongues being adapted to spring over the bosses and resume their normal position when the bosses enter the holes and the screws when turned down acting to prevent the tongues from springing over the bosses again.

2. In an electric-switch shell the combination with a part 17 having slots leading from its edges into holes whereby tongues are formed on opposite sides of the slots, of a part 18 having corresponding bosses and a headed screw in each boss, the tongues being adapted to spring over the bosses and to resume their normal position after the bosses have entered the holes and the heads of the screws when turned down preventing the tongues from slipping over the bosses again so that the parts are rigidly locked together.

679,317. **APPARATUS FOR PLACING DRIVING-BELTS.** ELI JAGGER, Werneth, England. Filed Nov. 27, 1900. Serial No. 37,911. (No model.)

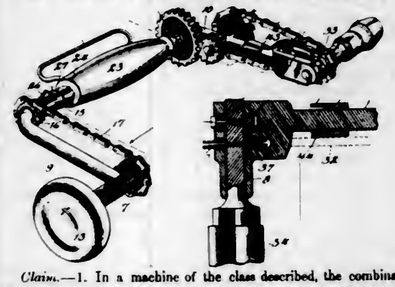
Claim.—1. In apparatus for placing driving straps, belts or ropes on their pulleys, the disks *a*, *b* concentrically formed with holes and connected together by the distance-studs *e* and the casting *g*, the latter forming a "part circle," the face *h* of which has the wedge-shaped projection *i*, the radius of the disk *b* corresponding with the radius of the face *h* and the radius of the disk *a* with the wedge-shaped projection *i*, all the said parts combined substantially as and for the purpose set forth.



2. The two disks *a*, *b* concentrically formed with holes and connected together by the distance-studs *e* and the "part-circle" casting *g*, the said disk *b* being furnished with the grooved segmental flange *m* having attached the rope or chain *n*, all the said parts combined substantially as and for the purpose set forth.

3. The two disks *a* and *b* concentrically formed with holes and connected together by the distance-studs *e* and the part-circle casting *g*, the segmental flange *m* and the projection *q* on the disk *b* and the stationary rail *r*, the chain attached to said flange, and the said projection being adapted to abut against the said rail *r*, all the said parts being combined substantially as and for the purpose set forth.

679,318. **DRILLING-MACHINE.** JOHN G. JOHNSON, Ishpeming, Mich. Filed Mar. 27, 1901. Serial No. 53,106. (No model.)



Claim.—1. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted upon the bearing-head, a tool-holder revolubly mounted upon the frame, gearing carried by the frame, and means for detachably connecting the bearing-head and tool-holder through the medium of said gearing so that upon the rotation of the frame the tool-holder will be rotated at a relatively greater speed.

2. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted upon the bearing-head, a tool-holder revolubly mounted upon the frame, gearing carried by the frame, means for detachably connecting the bearing-head and tool-holder through the medium of said gearing so that upon the rotation of the frame the tool-holder will be rotated at a relatively greater speed, and means for locking said tool-holder against relative movement upon the frame when the bearing-head and tool-holder are disconnected.

3. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted upon the bearing-head, a tool-holder revolubly mounted upon the frame, gearing carried by the frame and engaging the tool-holder, and a movable clutch interposed between the gearing and the bearing-head and adapted to detachably lock a portion of said gearing and the bearing-head against relative movement.

4. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted thereon, a tool-holder rotatably mounted upon the frame, an operating-handle arranged upon the frame, gearing carried by the frame and operatively connected to the tool-holder, and means for connecting the operating-handle and the bearing-head to the gearing.

5. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted thereon, a tool-holder rotatably mounted upon the frame, an operating-handle arranged upon the frame, gearing carried by the frame and operatively connected to the tool-holder, and common means for detachably connecting the operating-handle and the bearing-head to the gearing.

6. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted thereon, a tool-holder revolubly mounted upon the frame, an operating-handle arranged upon the frame, gearing carried by the frame and operately connected to the tool-holder, and a clutch element carried by the handle and arranged to be moved into engagement with the gearing and also serving to connect the bearing-head to the gearing.

7. In a machine of the class described, the combination with a bearing-head, of a frame rotatably mounted upon the head, a tool-holder revolubly mounted on the frame, gearing carried by the frame and connected to the tool-holder, holding means connected to the bearing-head and located adjacent to the gearing, and means for detachably connecting the holding means and gearing.

8. In a machine of the class described, the combination with a bearing-head, of a frame rotatably secured to the head, a tool revolubly mounted on the frame, gearing carried by the frame and connected to the tool-holder, holding means connected to the bearing-head and located adjacent to the gearing, and a handle rotatably mounted upon the frame and carrying means for detachably connecting the holding means and gearing.

9. In a machine of the class described, the combination with a bearing-head, of a frame rotatably secured to the head, a tool-holder revolubly mounted on the frame, gearing carried by the frame and connected to the tool-holder, holding means connected to the bearing-head and located adjacent to the gearing, a handle rotatably mounted upon the frame, and means for simultaneously locking the handle and holding means to the gearing.

10. In a machine of the class described, the combination with a bearing-head, of a frame rotatably secured to the head, a tool-holder revolubly mounted on the frame, gearing carried by the frame and connected to the tool-holder, holding means connected to the bearing-head and located adjacent to the gearing, and a handle-grip rotatably and slidably mounted upon the frame and carrying means for simultaneously locking the handle-grip and holding means to the gearing.

11. In a machine of the class described, the combination with a bearing-head, of a frame revolubly secured to the bearing-head, a tool-holder rotatably mounted upon the frame and in substantial alinement with the bearing-head, gearing carried by the frame and connected to the tool-holder, a handle rotatably mounted on the frame, means for detachably connecting the handle to the gearing, and means for holding said handle in both its connected and disconnected positions.

12. In a machine of the class described, the combination with a frame comprising a pair of crank-arms connected by a shank, a bearing-head rotatably mounted upon one arm, a tool-holder rotatably mounted upon the other arm, gearing carried by the frame and connected to the tool-holder, a sleeve carried by the shank and connected to the bearing-head, and means for detachably connecting the sleeve and gearing.

13. In a machine of the class described, the combination with a frame comprising a pair of crank-arms connected by a shank, a bearing-head rotatably mounted upon one arm, a tool-holder rotatably mounted upon the other arm, gearing carried by the frame and connected to the tool-holder, a sleeve carried by the shank and connected to the bearing-head, a handle-grip rotatably mounted on the sleeve, and means for detachably connecting the grip and sleeve to the gearing.

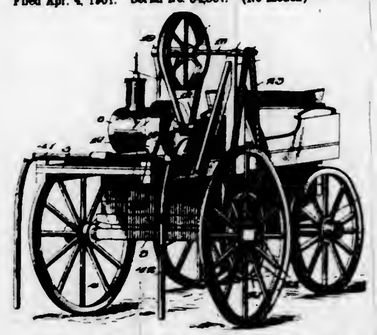
14. In a machine of the class described, the combination with a frame comprising a pair of crank-arms connected by a shank, a bearing-head rotatably mounted upon one arm, a tool-holder rotatably mounted on the other arm, a gear-wheel loosely journaled on the shank and geared to the tool-holder, a sleeve carried by the shank and connected to the bearing-head, a handle-grip rotatably mounted on the sleeve, and means for detachably connecting the grip and sleeve to the gearing.

15. In a machine of the class described, the combination with a frame comprising a pair of crank-arms connected by a shank, a bearing-head rotatably mounted upon one arm, a tool-holder rotatably mounted on the other arm, a gear-wheel loosely journaled on the shank and geared to the tool-holder, a sleeve carried by the shank and connected to the bearing-head, a handle-grip rotatably mounted on the sleeve, means for detachably connecting the grip and sleeve to the gearing, and means for securing the tool-holder against relative movement upon the frame when the grip and sleeve are disconnected from the gearing.

16. In a machine of the class described, the combination with a frame comprising a pair of crank-arms connected by a shank and carrying alined journal-boxes, of a bearing-head journaled in one box, a tool-holder journaled in the other box, a gear-wheel mounted upon the shank and meshing with a pinion mounted on one of the crank-arms, said pinion having a geared connection with the tool-holder, a sleeve rotatably mounted upon the shank and having a fixed connection with the bearing-head, and a grip slidably and rotatably mounted upon the sleeve and carrying teeth arranged to engage the sleeve and the gear-wheel to hold said gear-wheel, sleeve and grip against relative movement.

17. In a machine of the class described, the combination with a frame comprising a pair of crank-arms connected by a shank and carrying alined journal-boxes, of a bearing-head journaled in one box, a tool-holder journaled in the other box, a gear-wheel mounted upon the shank and meshing with a pinion mounted on one of the crank-arms, said pinion having a geared connection with the tool-holder, a sleeve rotatably mounted upon the shank and having a fixed connection with the bearing-head, a grip slidably and rotatably mounted upon the sleeve and carrying teeth arranged to engage the sleeve and the gear-wheel to hold said gear-wheel, sleeve and grip against relative movement, and a pivoted dog carried by one of the crank-arms and adapted to engage the tool-holder to hold the same against independent movement when the grip and sleeve are disconnected from the gear-wheel.

679,319. **INSECT-DESTROYER.** AUGUST KOY and JOHN KVETON, Sealy, Tex., assignors of one-third to James Gallaher, Bonus, Tex. Filed Apr. 4, 1901. Serial No. 54,307. (No model.)



Claim.—1. An insect-destroyer comprising a blower having a casing provided in one side with an inlet-eye, a fume-generating drum supported at one side of the casing and provided with an interior baffle-plate spaced from the blower-casing to form an intervening air-chamber, said generating-drum being provided with a plurality of draft-openings in communication with said air-chamber, and individual pivotal flap-valves for said openings, substantially as set forth.

2. An insect-destroyer comprising a blower having a casing provided with an inlet-eye, a fume-generating drum supported at one side of the blower-casing and provided with an interior grate, and a removable chemical-cup supported on said grate, substantially as set forth.

3. An insect-destroyer comprising a blower having a casing provided with an inlet-eye, a generating-drum in communication with said inlet-eye of the casing and provided with an interior grate, and a tubular entrance-dome offset therefrom, and a separate chemical-cup adapted to be supported on said grate and removable through said dome, substantially as set forth.

4. An insect-destroyer comprising a blower, a generating-drum in communication with the blower-casing, and provided with an interior grate, and with an upright tubular entrance-dome having a removable closure at the top, and a separate chemical-receptacle adapted to be removably supported on the grate and provided with a carrying-stem extended through the closure for the dome, substantially as set forth.

5. An insect-destroyer comprising a blower, a generating-drum in communication with the blower-casing and provided at the top with an upright tubular entrance-dome, a removable lid or cover for said dome, and a separate chemical-receptacle adapted to be supported within the drum and removable through said dome, said removable chemical-receptacle being provided with a carrying-stem loosely working through the lid or cover for the dome, substantially as set forth.

679,320. **FRUIT-PICKER.** THEODORE H. KRUSE, Montrose, Colo., assignor of one-half to Henry C. Fink, same place. Filed Mar. 18, 1901. Serial No. 51,722. (No model.)

Claim.—1. A fruit-picker, having a marginal bag-frame a handle therefor, a bag suspended from the frame, opposite knife members mounted upon the frame, one of the members having its opposite ends fixedly connected to the outer end of the frame and the intermediate portion thereof, respectively, the other knife member having its outer end pivotally mounted upon the outer terminal fastening of the former member, and its inner end loosely resting upon the intermediate portion of the frame opposite the former member, a staple-shaped guard driven into the frame and straddling the free end of the pivotal knife member, and operating means connected to the free end of the pivotal knife member and leading to or adjacent to the outer end of the handle.

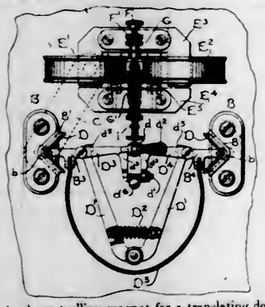
2. A fruit-picker, having a marginal bag-frame and a cutting apparatus, comprising opposite knife members, one of which is fixed, and the other is pivotally mounted to coöperate with the fixed member, and the

latter having a portion of its back edge folded over upon the top thereof and overlapping the pivotal member to form a guard therefor.



3. A fruit-picker, having a marginal bag-frame an arcuate fixed knife having its outer end fixedly connected to the outer end of the frame and its rear end connected to the intermediate portion of one side of the frame, an opposite arcuate movable knife member having its outer end pivotally mounted upon the outer terminal fastening of the former member, and its rear end lying loosely upon the intermediate portion of the frame opposite the rear end of the former member, the convex edges of the members being sharp and arranged for coöperation to produce a shear cut, said members also forming a brace for the frame, a guard for the free end of the pivotal knife member, a spring connected at its opposite ends to the back of the pivotal knife and the adjacent portion of the frame, the back edge of the stationary knife member being folded over to overlap the movable member and form a guard therefor, and an operating device connected to the free end of the movable knife member.

679,321. AUTOMATIC SWITCH. FREDERICK MACKINTOSH, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 1, 1899. Serial No. 715,087. (No model.)



Claim.—1. A controlling-magnet for a translating device, comprising a coil and retractile armature governed thereby, having a determinate retractile force and an adjusting-spring of weaker power opposing said retractile force.

2. In an automatic switch, the combination of an electromagnet, an armature of definite weight supported in a magnetic field by the combined effect of magnetism and an elastic support, and an electric switch provided with a tripping device within the path of said armature when released.

3. A switch for electric circuits, comprising two switch-levers provided with a normal elastic bias tending to draw them together, independent contacts mounted on the outer parts of the levers and coöperating with the terminals of an electric circuit, and a toggle connecting the levers.

4. A switch for electric circuits, comprising two switch-arms tending to collapse toward a line of parallelism when free, a toggle for spreading the arms, independent switch-contacts mounted at or near the ends of the arms, and a flexible electric bridge connecting the contacts to afford a by-pass around the joint.

5. A switch for electric circuits, comprising switch-arms tending to collapse elastically when free, a toggle connecting the arms together, and lugs, as d^3, d^3, on the opening side of the toggle, provided with an adjusting-screw for varying the sensitiveness of the switch.

6. A switch for electric circuits, comprising two elastically-spreading switch-arms carrying elastic contacts, angular or bent contact-terminals coöperating therewith, an electric bridge of good conducting material between the elastic contacts, and a stud mounted on the base and projecting in the path of the switch-arms to promote the folding of the arms centrally between the circuit-terminals.

7. The combination of a toggle-operated electric switch, an electromagnet capable of operating its armature upon a predetermined fluctuation of current, and an arm carried by the armature and sweeping the path of a tripping device for the toggle but normally free from engagement therewith.

8. In an automatic switch, the combination with a magnet-armature having a uniform retractile agent, as a weight, and a toggle-controlled electric switch, the toggle of which lies in the path of the armature when released but is normally disengaged therefrom, thereby permitting momentum to be stored to trip the toggle.

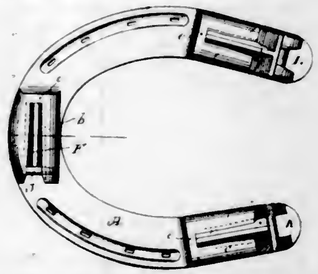
9. The combination in a circuit-breaker, of stationary contacts forming the terminals of the circuit to be opened or closed, a pair of arms pivoted at a common center and carrying contacts for bridging the terminals when the arms are open, a toggle for spreading the arms and forcing the movable contacts into close connection with the stationary terminals, a spring for drawing the arms together, and a trip mechanism responsive to the current.

10. In a circuit-breaker, the combination of the stationary terminals, pivoted arms carrying flexible contacts, which, with the stationary terminals, complete the circuit, a toggle for spreading the arms apart, arranged to cramp above the center, a spring for drawing the arms together and thus breaking the circuit, and a tripping mechanism responsive to the current in the circuit for forcing the toggle over the center so as to bring the spring into action.

11. The combination in an underload-circuit breaker, of an electromagnet and its armature, with a spring assisting the magnet to hold the armature in its attracted position, and means for changing the reluctance of the magnetic circuit.

12. The combination in an underload-circuit breaker, of the toggle mechanism holding contacts closed to complete the circuit, the armature and the electromagnet, and the adjustable screw upon the armature by which the toggle is thrown to one side of the center.

679,322. HORSESHOE. OTTO A. MEYER, Milwaukee, Wis. Filed Apr. 13, 1901. Serial No. 55,632. (No model.)



Claim.—1. A horseshoe formed with toe and heel bosses on the under side thereof, each boss comprising two walls, united at one end, and separated at the other end and from end to end, forming thereby an open socket, whose inner side walls converge vertically and which are longitudinally formed on parallel lines for a portion of their length adjacent to the closed end of the socket and thence on divergently-tapered lines to the open end of the socket, in combination with removable and interchangeable calks having correspondingly-shaped longitudinal portions engaging within said sockets, and having bearing-surfaces projecting below the plane of said bosses.

2. A horseshoe formed with toe and heel bosses on the under side thereof, each boss comprising two walls, united at one end, and separated at the other end and from end to end, and the inner opposed surfaces of said walls converging vertically, and diverging longitudinally to form dovetailed tapered open sockets, one of said walls having a smooth bore, and the other wall having a screw-threaded bore extending transversely, in line with each other, through their separated ends, in combination with removable and interchangeable calks, having longitudinal portions corresponding in shape to said sockets but of less length than said sockets, and in engagement therewith, and fastening-screws passing through said bores, and in engagement with the screw-threaded bores, and in contact with the adjacent ends of said calks.

3. A horseshoe formed with bosses thereon having dovetailed and longitudinally-tapered sockets therein, said sockets being closed at one end, and open at the other end and from end to end, in combination with removable calks having portions thereof tapered longitudinally and beveled vertically to correspond to the shape of said sockets, and horizontal longitudinal bearing-surfaces, and one of said calks having an integral transverse head, having a horizontal bearing-surface, the opposite surface of said head being formed with concavities to receive and embrace the adjacent surfaces of the boss on each side of the socket therein.

4. A horseshoe formed with bosses thereon, having convex exterior surfaces and dovetailed and longitudinally-tapered sockets therein, said sockets being closed at one end and open at the other end and from end to end, in combination with removable and interchangeable calks, having portions thereof corresponding in shape to said sockets, but of less length than said sockets and in engagement therewith, and one of said calks having an integral transverse head, formed with concavities to receive and embrace the convex exterior surfaces of the boss on each side of the socket therein, and fastening-screws passed transversely through said bosses and in contact with the adjacent ends of said calks.

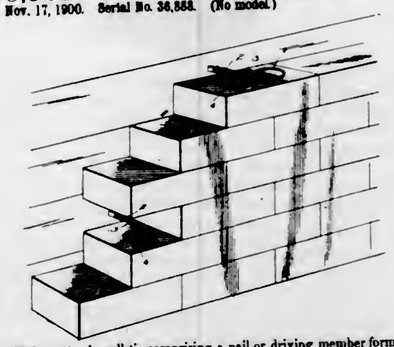
679,323. HEN'S NEST. LOUIS P. MORIN, St. Hyacinthe, Canada. Filed Mar. 28, 1901. Serial No. 53,241. (No model.)



Claim.—1. A nest provided with a laterally and downwardly extending discharge-passage, a storage-compartment below said nest and the passage and having a hand-opening, and a flexible bottom stretched in said compartment and arranged to incline toward the hand-opening thereof, substantially as described.

2. The combination of a base-frame, a nest fitted thereto and forming a hand-opening therewith and provided with a discharge-passage and with depending flanges, a stretched flexible bottom engaging with said flanges and inclined toward a hand-opening in the nest, and yieldable fingers extending across said passage, substantially as described.

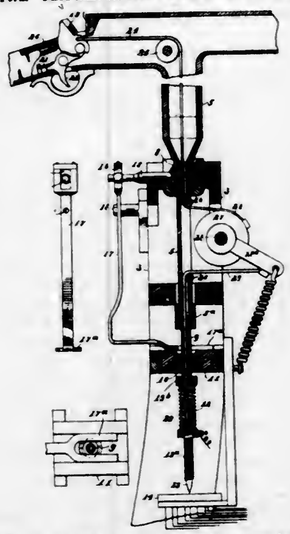
679,324. WALL-TIE. THOMAS J. MCCALL, Tarentum, Pa. Filed Nov. 17, 1900. Serial No. 36,558. (No model.)



Claim.—1. A wall-tie comprising a nail or driving member formed adjacent to its end with an opening through which extends the anchoring member of the device, consisting of a wire bent upon itself to form parallel arms and then bent outwardly to form lateral extensions.

2. A wall-tie comprising a nail or driving member enlarged at one end to form a driving-head, and formed adjacent to the enlarged head with an opening, in combination with an anchoring member consisting of a single piece of wire inserted through said opening and bent centrally upon itself to form laterally-extending arms which are adapted to be secured between the layers of masonry.

679,325. TARGET APPARATUS. JOHN L. MCCULLOUGH, Brooklyn, N. Y., assignor to the Automatic Target Machine Company, of New York. Filed Mar. 15, 1900. Serial No. 8,713. (No model.)



Claim.—1. A target apparatus comprising a gun having a hammer and trigger, a spring which cocks the hammer automatically, a spring mechanism which holds the gun against cocking, and a manually-operatable spring-distending mechanism for putting the last-named spring mechanism under tension, whereby the cocking-spring may cock the hammer.

2. A target apparatus comprising a gun with universal mountings, a target provided with electromagnetic indicators to designate the point aimed at by the marksman, a contact-point which moves as the gun is moved in aiming, and over and above a contact-plate, the said contact-plate having insulated metal segments connected electrically with the respective indicating devices at the target, a spring which cocks the hammer of the gun, the latter being held at cock by the trigger of the gun, a spring mechanism which overcomes normally, the hammer-cocking spring and which holds said contact-point out of contact with the contact-plate, and a manually-operatable spring-distending mechanism for putting the last-named spring mechanism under tension, whereby the cocking-spring may cock the hammer.

3. In a target apparatus, the combination with the fixed casing of the gun-stand, of the fixed guide-frame therein, the sliding frame in said fixed frame and adapted to move upward therein in a curved path, the counterweight for said sliding frame, the gun, the stem thereof having a universal-joint bearing in said sliding frame, the target provided with electromagnetic indicators, the contact-plate carried by said sliding frame and its segments connected electrically with the respective indicators at the target, the contact-point carried by said sliding frame and coupled to the stem of the gun for movement therewith and means between the trigger of the gun and said contact-point for putting the latter into contact with the contact-plate when the trigger of the gun is pulled, substantially as set forth.

4. In a target apparatus, the combination with the fixed casing of the gun-stand, of the fixed guide-frame therein, the sliding frame in said fixed frame and adapted to move upward therein, in a curved path, the counterweight for said sliding frame, the gun, the stem thereof having a universal-joint bearing in said sliding frame, and the target, situated at a distance in front of the gun equal to the radius of the curved path in which said sliding frame moves, substantially as set forth.

5. In a target apparatus, the combination with the gun, provided with a hammer, a spring-actuated trigger, and a spring 20 to cock the hammer, the stem of the gun, and a universal mounting for said stem, of the spring 23, mechanism connecting said spring and the hammer, whereby said spring holds the hammer against cocking, and a manually-operatable distending mechanism for distending the spring 23, whereby the spring 20 is permitted to cock the hammer.

6. In a target apparatus, the combination with a supporting-frame, of the gun, the stem 5 of said gun, having a universal bearing 8 in said frame, the said bearing, the slide-block 11 in said frame, the stem 9, loosely coupled at its upper end to the lower end of the stem 5, and having a universal bearing in the block 11, the said universal bearing, the lever 17, fulcrumed on the supporting-frame at 18, and coupled operatively to the block 11 at its lower end, the arm 15, projecting from the stem 5 at the universal joint and engaging a slot in the upper arm of the lever 17, the contact-point 13, the spring 12 connecting it with the stem 9, the contact-plate 14, and means for moving said point out of contact with said plate when the gun is cocked, and into contact therewith when the trigger is pulled, substantially as set forth.

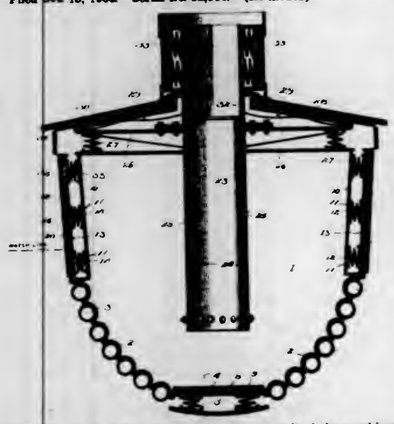
7. In a target apparatus, the combination with a supporting-frame, of the gun, the stem 5 of said gun, having a universal bearing 8 in said frame, the said bearing, the slide-block 11 in said frame, the stem 9, loosely coupled at its upper end to the lower end of the stem 5, and having a universal bearing in the block 11, the said universal bearing, the lever 17, fulcrumed on the supporting-frame at 18, and coupled operatively to the block 11 at its lower end, the arm 15, projecting from the stem 5 at the universal joint and engaging a slot in the upper arm of the lever 17, the contact-point 13, connected with the stem 9, and the contact-plate 14, under said point, substantially as set forth.

8. In an electrical target apparatus, the combination with the contact-point 13, having a flexible stem, of the said stem, the contact-plate 14, divided into sections and having elevated, deflecting-ridges *e* over the joints between said sections, substantially as and for the purpose set forth.

9. In an electrical target apparatus, the combination with a gun mounted on universal bearings for aiming, a contact-point, means between said gun and point compelling the latter to move relatively to the movements of the gun in aiming, a contact-plate 14, composed of insulated metal parts *a* and *b*, and means whereby the pulling of the trigger puts said contact-point into contact with said plate 14, of a target having divisions corresponding to those of the plate 14, and provided with electromagnetic indicators to indicate said divisions, the said indicators, conductors electrically connecting the several parts of the plate 14, and the contact-point with the respective indicators at the target, a generator in the circuit, a circuit closer and breaker in the circuit, and means for automatically operating said circuit closer and breaker, said means serving to close a break in the circuit when the hammer is cocked, and to open said break a little time after the trigger is pulled, substantially as set forth.

10. In a target apparatus, the combination of the following coacting instrumentalities, namely, a gun having a self-cocking hammer, a rock-shaft 28, a disk 27 thereon, a connector 24 attached to the said disk at one end and to the hammer of the gun at the other end, a spring 23, tending to rotate said shaft and oppose the cocking of the hammer, an upright shaft 35, geared to the shaft 28, a crank 44, and connecting means between the shaft 35 and said crank whereby the latter operates said shaft.

679,326. **ARMOR-PLATE.** JOHAN NEDERLAND, Philadelphia, Pa. Filed Oct. 13, 1900. Serial No. 32,981. (No model.)



Claim.—1. In a device of the character described the combination with a plurality of hinged sections provided with grooves, of alternate layers of packing and metal in said grooves, and a covering of metal over the whole.

2. In a device of the character described the combination with a plurality of resiliently-secured hinged sections of alternate layers of removable packing and metal carried thereby and a covering over said packing and metal layers.

3. In a device of the character described; the combination with an inner sheathing-section provided with grooves, and alternate layers of packing and metal secured to said section and lying within the grooves.

4. In a device of the character described; the combination with the hull of the ship of a plurality of sheathing-sections, coil-springs connecting the sheathing to the ship, said hull and sheathing being provided with openings to form port-holes surrounded with the coil-springs, and an outer sheathing over the first-named sheathing.

5. In a device of the character described; the combination with the plurality of hinged sections resiliently secured to a base to form a protected deck, alternate layers of metal and packing carried by each section and means for limiting the upward movement of the free end of each section.

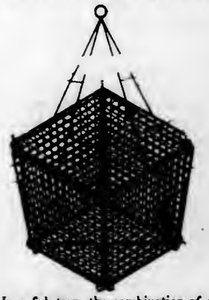
6. In a device of the character described, the combination with a plurality of hinged sections and an inner sheathing; of recesses formed in the respective sections and sheathing; coil-springs seated in the recesses; of alternate layers of packing and metal secured to said sections; and a hardened covering on the outer wall of said sections.

7. In a device of the character described, the combination with the hull of a vessel having spring-retaining seats secured thereto; of a plurality of hinged sections on the outer walls of the sheathing and also provided with spring-retaining seats in alinement with those first named, and springs interposed between the sheathing; and hinged sections having their respective ends resting in said seat.

8. In a device of the character described, the combination with a plurality of hinged sections resiliently secured to a base to form a protective deck; alternate layers of packing carried by each section; a covering of metal over the whole; and stops for limiting the upward movement of the respective sections.

9. In a device of the character described, the combination with a suitable base; of a plurality of bars arranged above the same; coil-springs interposed between the bars and the base; hinged plates arranged on the outer ends of the bars, provided with upwardly and inwardly projecting flanges secured on the longitudinal edges thereof to form grooves in the plates, and a plurality of alternate layers of metal and packing arranged in the grooves for the purpose set forth.

679,327. **FISH-TRAP.** MORRIS S. NEWCORN, New York, N. Y. Filed Apr. 5 1901. Serial No. 54,549. (No model.)



Claim.—1. In a fish-trap, the combination of a top section, a bottom section and side sections, all of said side sections being movable relatively to the top and bottom sections and adapted when unconfined to move to open the trap, and means for moving the said side sections to close the trap.

2. In a fish-trap, the combination of a top section a bottom section and side sections each of which consists of a frame and crossed wires forming meshes secured to said frame, said top section being supported above the bottom section, and said side sections being connected to said bottom section and means for permitting said side sections to move relatively to the top and bottom sections whereby the trap may be opened or closed.

3. In a fish-trap, the combination of an upper section, a lower section, and supports separable from the top and bottom and adapted to support one above the other and side sections connected to the bottom section and adapted to be swung about the bottom section.

4. In a fish-trap, the combination of a bottom section having openings at its corners, supports having a vertical portion passed through diagonally opposite openings and horizontal portions connecting the vertical portions a top section supported by said vertical portions, and side sections each having an edge connected with an edge of the bottom section, and a cord connected with each side section to cause swinging of said sections relatively to the top and bottom sections.

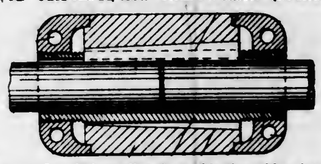
5. A fish-trap consisting of a bottom section, a top section and four side sections, each of which has a hinge connection with the bottom section.

6. A collapsible fish-trap consisting of a bottom, a top, separable supports intermediate the top and bottom, and side sections hinged to said bottom and adapted to be folded thereupon.

7. In a fish-trap, the combination of a bottom section, a top section, supports intermediate the top and bottom sections, side sections, each having an end hinged to said bottom section and adapted normally to fall away from the top section to have the trap open and means for moving said side sections toward the top section to close the trap.

8. In a fish-trap, the combination of a bottom section, supports extending upwardly from said bottom and having clamps at their upper portions, a top section held by said clamps and side sections suitably connected to said bottom section and means for moving said sections relatively to the top to open and close the trap.

679,328. **SHAFT-COUPLING.** JESMOND T. NICHOLSON, Wilkesbarre, Pa. Filed Jan. 24, 1901. Serial No. 44,559. (No model.)



Claim.—1. In a shaft-coupling, the combination, with an inner sleeve provided with screw-threaded end portions and a series of longitudinal and parallel slots; of tapered keys arranged in the said slots, a tapered outer sleeve which bears against the said keys, and nuts arranged on the end portions of the inner sleeve and engaging with the outer sleeve, substantially as set forth.

2. In a shaft-coupling, the combination, with an inner sleeve provided with screw-threaded end portions and a series of longitudinal and parallel slots; of tapered keys arranged in the said slots, a tapered outer sleeve which bears against the said keys and has circular recesses in its ends, and nuts arranged on the end portions of the inner sleeve and provided with laterally-projecting rings which engage with the said recesses of the outer sleeve, substantially as set forth.

679,329. **MOLD FOR CHIMNEY-CAPS.** IRA W. OSTRANDER and RAY COOK, Yorkshire, N. Y. Filed Nov. 28, 1900. Serial No. 38,064. (No model.)

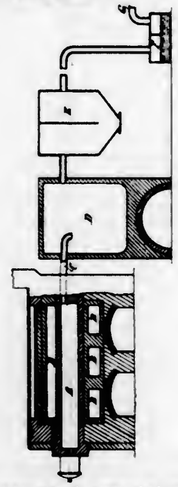


Claim.—1. A mold comprising spaced and parallel ribs each comprising sections having the upper faces thereof cut away at their inner ends, metal plates disposed in the cut-away portions, end boards removably connected with the outermost ribs, a core comprising a separable body portion having end flanges formed to fit against the plates and hold the body portion spaced therefrom, a base-block removably engaged with the body of the core and spaced from the side edges of the latter, and a base-board removably engaged with the base-block, said base-board lying within the inclosure of the mold and separated therefrom at its edges.

2. A mold comprising a shell divided longitudinally to form two sections, said sections having hinge connections, a core comprising a body portion having end flanges adapted to fit within the shell and hold the body spaced therefrom, said core being separable and the adjacent faces of the flanges being converged, a base-block removably engaged with the body of the core and adapted to lie with its upper face adjacent to the upper edge of the shell, and a base-board having a recess to receive a portion of the base-block, said board being adapted to lie within the shell, spaced therefrom and from the adjacent face of the core.

3. A mold comprising parallel ribs having sections, the inner ends of the sections being cut away at their upper edges, cross-pieces connecting the ribs at the upper portions of the cut-away portions, metal sheets secured to the ribs in the cut-away portions, the sections of the ribs having hinged connection, a core having flanges at its end portions formed to fit against the plates and hold the body of the core spaced therefrom, the upper face of the core being flat, a base-block engaged with the upper face of the core and having less transverse dimensions than the core, a base-board engaged with the base-block and separated from the core and the edges of the mold by interspaces, said core being separable, and end boards removably secured to the outermost ribs and against the ends of the sheets.

679,330. **PROCESS OF EXTRACTING ARSENIC, ANTIMONY, OR TELLURIUM FROM SULFUROUS ORES.** ELIAS PETERSSON, Brussels, Belgium, assignor, by mesne assignments, to the Intractable Ore Treatment Company, Limited, London, England. Filed Mar. 23, 1900. Serial No. 9,957. (No specimens.)



Claim.—1. A process for the removal of antimony and tellurium from sulfurous ores containing also arsenic, by direct volatilization, such process consisting in admixing the ore in a powdered state with powdered carbonaceous material, heating the mixture while protected from the atmosphere to a temperature sufficient to volatilize such arsenic as may be present as arsenious and arsenic sulfid, and further heating to a higher temperature to volatilize the antimony as antimonious sulfid and also drive off the tellurium, but not to a temperature sufficient to effect a substantial reduction of such remaining sulfids as may be present.

2. The process of treating sulfurous ores containing arsenic and one or more other metals requiring higher temperature for volatilization, to separate such components from the ore, which process consists in heating a mixture of the pulverized ore and pulverized carbonaceous material in heating such vapor in a condenser, further heating the mixture to a higher a retort or muffle furnace sufficiently to volatilize the arsenic sulfid, coltemperature to volatilize the remaining said component or components and collecting in a condenser the vapor thereof.

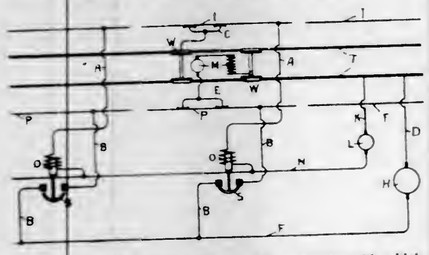
3. The process of treating sulfurous ores containing arsenic and one or more other metals requiring higher temperature for volatilization, which process consists in making up the ore when pulverized and admixed with carbonaceous material into blocks or bricks, and then heating said blocks or bricks in a retort or muffle, substantially as described, to separate the arsenic by volatilization, and further heating to a higher temperature to separate the other said component or components from the ore, bnt not to such temperature as to produce substantial reduction of such remaining sulfids as may be present.

4. The process of treating sulfurous ores containing arsenic and one or more other metals requiring higher temperatures for volatilization, to separate such components from the ore, which process consists in making up the ore when pulverized and admixed with carbonaceous material into blocks or bricks, then heating such blocks to volatilize the arsenic sulfid, and further heating the blocks to a higher temperature to volatilize the other said component or components, substantially as described, but not to such temperature as to produce a substantial reduction of such remaining sulfids as may be present.

5. The process of treating sulfurous ores containing arsenic and one or more other metals requiring higher temperatures for volatilization, to separate such components from the ore, which process consists in heating the ore, when pulverized and mixed with pulverized carbonaceous mate-

rial, in a retort or muffle furnace to volatilize or drive off the arsenic sulfid, and then further heating the mixture to a higher temperature to volatilize or drive off the remaining said component or components, but not to such temperature as to effect a substantial reduction of such remaining sulfids as may be present.

679,331. **ELECTRIC-RAILWAY SYSTEM.** WILLIAM B. POTTER, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed Feb. 28, 1901. Serial No. 49,218. (No model.)



Claim.—1. In an electric railway, the combination with a high-potential or power feeder, of a low-potential pick-up feeder, power conductor-sections, electromagnetic switches for connecting the high-potential feeder with the power-sections, pick-up or switch-energizing conductor-sections connected through the switch-coils with the low-potential feeder; and collecting means carried by the car to engage said power and pick-up conductor-sections, and a common return for the high and low potential feeders.

2. In an electric railway, the combination with a high-potential or power feeder, of a low-potential or pick-up feeder, power conductor-sections, electromagnetic switches for connecting the high-potential feeder with the power conductor-sections, pick-up or switch-energizing conductor-sections permanently connected through the switch-coils with the low-potential feeder, collecting means carried by the car to engage said power and pick-up conductor-sections, and track-rails serving as a common return for the high and low potential feeders.

3. A contact system for electric railways, which comprises a feeder, power conductor-sections located on one side of both track-rails, electromagnetic switches for connecting the feeder with said sections, and pick-up or switch-energizing conductor-sections located on the other side of both track-rails and connected to the switch-coils.

4. A contact system for electric railways, which comprises a line of switch-energizing conductor-sections located at one side of both track-rails, and a line of power conductor-sections located at the other side of both track-rails; in combination with a collecting device carried on one side of the car to engage with the energizing conductor-sections, and a collecting device carried on the other side of the car to engage with the power conductor-sections.

5. In an electric-railway system, the combination with a feeder, of power conductor-sections located at one side of both track-rails, electromagnetic switches for connecting the feeder with said sections, switch-energizing sections located on the other side of both track-rails, and connected with the switch-coils, a collector carried on one side of the car and engaging the power conductor-sections to convey current therefrom to the car-motors, and a collector carried on the other side of the car to engage the switch-energizing sections and connect the switch-coils to ground through the car.

6. In an electric railway, the combination with a high-potential or power feeder, of a low-potential or pick-up feeder, power conductor-sections located at one side of both track-rails, and electromagnetic switches for connecting the high-potential feeder with the power-sections, pick-up or switch-energizing sections located on the other side of both track-rails, and connected with the low-potential feeder through the switch-coils; and collecting means carried by the car to engage said power and pick-up sections respectively.

7. In an electric railway, the combination with a high-potential or power feeder, of a low-potential or pick-up feeder, power conductor-sections, electromagnetic switches for connecting the high-potential feeder with the power conductor-sections, pick-up or switch-enegizing conductor-sections connected with the low-potential feeder through the switch-coils, and collecting means carried by the car to connect the high and low potential feeders through the car to the return, and a common return for the high and low potential feeders.

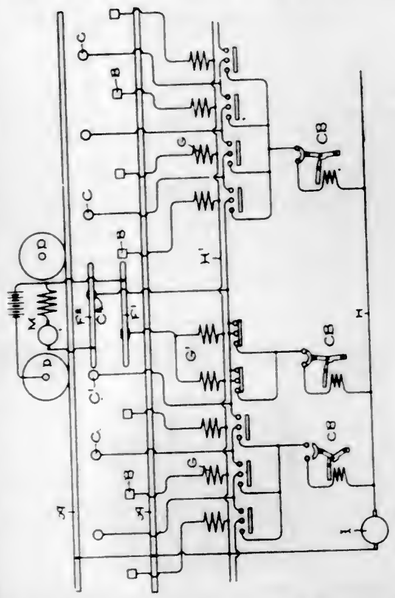
8. In an electric railway, the combination with a high-potential or power feeder, of a low-potential or pick-up feeder, power conductor-sections located at one side of both track-rails, electromagnetic switches for connecting the high-potential feeder with the power-sections, pick-up or switch-energizing conductor-sections located on the other side of both track-rails, and connected with the power-feeder through the switch-coils; and collecting means carried on both sides of the car for connecting the high and low potential feeders through the car to the return.

9. In an electric railway, the combination with power conductor-sections located at one side of both track-rails at one part of the road, of switch-energizing conductor-sections located on opposite sides of the track-rails respectively, collecting means on opposite sides of the car to engage with the power and energizing conductor-sections, and a switch on the car for changing the connections of the collecting devices.

10. In an electric car, the combination with collecting devices on opposite sides of the car, of a switch on the car for reversing the connections of said collecting devices.

11. In an electric car, the combination with a collecting device mounted on one side of the car and connected to the return, of a collecting device mounted on the other side of the car and connected through the car-motors to the return, of a switch on the car for reversing the connections of said collecting devices.

679,332. **SURFACE-CONTACT RAILWAY.** WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 9, 1899. Serial No. 701,579. (No model.)



Claim.—1. In an electric-railway system, the combination with a feeder, of a sectional conductor, a set of switches, for a section of said conductor, which set comprises two or more switches, which are adapted to be operated simultaneously to connect the feeder and said section.

2. In an electric-railway system, the combination with a feeder, of a sectional conductor, a set of switches, for a section of said conductor, which set comprises two or more switches in parallel and adapted to connect the feeder and said section of said conductor, and means whereby the return-circuit simultaneously operates all the switches in said set.

3. In a surface-contact railway, the combination of a feeder, sectional conductors, and groups of electromagnetic switches for connecting the conductors to the feeder in sequence, with a circuit-breaker common to all of the switches of a group.

4. In a surface-contact railway, the combination of a feeder, sectional conductors, and groups of electromagnetic switches for connecting the conductors to the feeder, some of the switches being connected in multiple to the same motor contact or contacts, with circuit-breakers common to all of the switches of any one group; the circuit-breakers for the switches connected in multiple being calibrated for larger current than those connected to the groups of single switches.

5. In an electric-railway system, the combination with a feeder, of a sectional conductor, a return, a set of switches, which comprises two or more switches in parallel and adapted to connect the feeder and a section of said conductor, and sets of coils, each set comprising coils corresponding to said switches and connected in parallel to the return, for simultaneously actuating all the switches in said set.

6. In an electric-railway system, the combination with a feeder, of a sectional conductor, a set of switches, which comprises two or more switches which are adapted to be operated simultaneously to connect the feeder and a section of said conductor, and a circuit-breaker connected in series between the feeder and each set of switches.

7. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a set of switches, which comprises two or more switches in multiple and adapted to connect the feeder and one section of said conductor, of a return, a sectional energizing-conductor, and a set of coils, which comprises coils corresponding to said switches, and connected in parallel between said return and said section of said energizing-conductor.

8. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a collecting-shoe therefor carried by the car, a set of switches which comprises two or more switches in multiple and adapted to connect the feeder and one section of said working conductor, a sectional energizing-conductor, a shoe therefor carried by the car, a return, and means included between each section of said energizing-conductor and said return for simultaneously operating all the switches in said set.

9. An electromagnetic switch for large currents which comprises electromagnetic actuating means and a plurality of independent switch-contacts, each consisting of blocks of fragile material of limited size to prevent sluggishness and the effect of the hammer-blow caused by the electromagnetic actuating means, said contacts being connected in parallel to increase the capacity of the switch for the large currents.

10. An electromagnetic switch for large currents, which comprises an electromagnetic actuating means, and a plurality of independent fragile carbon blocks of small size, to prevent sluggishness and the effect of the hammer-blow caused by the electromagnetic actuating means.

11. A sectional electric railway having at desired parts of the road a plurality of separate switch-contacts consisting of blocks of fragile material and connected in parallel between the feeder and sectional conductor, and electromagnetic means which closes said contacts with considerable force.

12. The improvement on the system of inserting fuses in each of a number of switch-circuits, which comprises a plurality of switches, each having its own connection at one side of the circuit, and all connected to the other side of the circuit through a circuit-breaker common to all the switches.

13. In an electric-railway system, the combination with the feeder, of working conductor-sections, switch-energizing conductor-sections, a set of switches connected in parallel and adapted to connect the feeder and one working conductor-section, and coils in parallel in the connection between a switch-energizing conductor-section and the return, for actuating said switches.

14. In an electric-railway system, the combination with a feeder, of working conductor-sections, switch-energizing conductor-sections, a set of switches connected in parallel between the feeder and a working conductor-section, each of which switches comprises a plurality of carbon contacts in parallel, and coils connected in parallel in the connections between the switch-energizing conductor-section and the return, for actuating said switches.

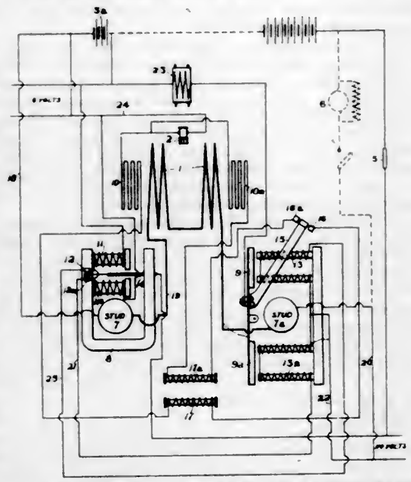
15. An electric switch for large currents which comprises a plurality of separate blocks of fragile material which are subject to severe impact in closing, said contacts being connected in parallel to provide an adequate path for large currents, and each contact being of small size to avoid sluggishness and the effect of the severe impact.

16. An electric switching device for large currents, which comprises a plurality of contacts connected in parallel to provide an adequate path for such currents, an electromagnetic means for closing the device at said contacts, the contacts being composed of carbon in order that the device will not be held closed after the electromagnetic means has been deenergized, and said contacts being of small size to avoid sluggishness and to prevent them from being broken by the impact in closing caused by said electromagnetic means.

17. In an electric railway, the combination with the feeder, of conductor-sections, a plurality of successive electromagnetic feeder-switches, each of which is connected with the two switches on opposite sides of it, and connections to the conductor-sections from the connections between the successive switches.

18. In an electric railway, the combination with the feeder, of conductor-sections, a plurality of successive electromagnetic feeder-switches, an electromagnetic circuit-breaker through which a number of said switches are connected with the feeder, each switch being adapted to supply current to a plurality of conductor-sections.

679,333. **ELECTRIC METER.** WILLIAM H. PRATT, Lynn, Mass., assignor to General Electric Company, of New York. Filed Apr. 22, 1901. Serial No. 56,804. (No model.)



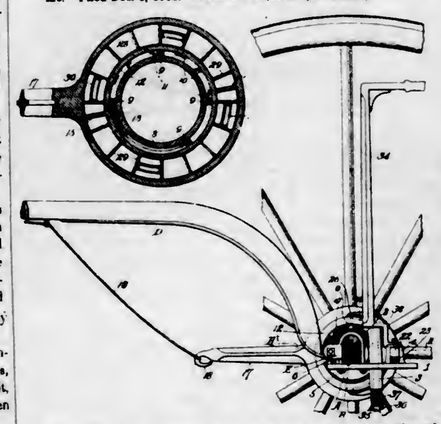
Claim.—1. The combination of a transiating device and a relay governing its circuit connections, the relay-armature being polarized by a conducting-stud adjacent to its magnet-core in circuit with the translating device.

2. An electric meter for storage batteries having its motor operated by series and potential windings, starting-coils for compensating motor friction in opposite directions of movement, and a polarized relay having a magnetic core polarized by the work-current for cutting into operation the respective starting-coils.

3. A meter provided with means to compensate for friction in opposite directions of motor movement, a relay responsive to reversals of work-current, and a magnetically-operated switch governed by the relay controlling the compensating means.

4. A storage-battery meter provided with starting-coils to compensate for friction in opposite directions of motor movement, a polarized relay controlling the respective coils, and a conducting-stud threading the magnetic circuit of the relay, said stud being connected in the work-circuit.

679,334. **HITCHING DEVICE.** CHARLES W. PRINCE, Kansas City, Mo. Filed Dec. 8, 1900. Serial No. 39,130. (No model.)



Claim.—1. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding companion clutch member supported adjacent thereto, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a support carried by the axle, for said means, an arm or yoke engaging the

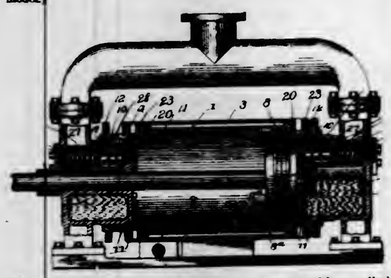
sliding clutch member to adjust it toward or from its companion clutch member, without interfering with its rotatable action, and a lever projecting upward between the body of the vehicle and the contiguous wheel within convenient reach of the driver for the purpose of operating said arm or yoke, substantially as described.

2. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding companion clutch member supported adjacent thereto, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a support carried by the axle, for said means, and provided with guides, a slide-bar mounted in said guides and provided with an arm or yoke embracing the sliding clutch member and adapted, without interfering with its rotatable action to move the same toward or from the companion clutch member, and a lever fulcrumed on said support, and pivotally connected to said slide-bar to operate the same, substantially as described.

3. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding companion clutch member supported adjacent thereto, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a spring or springs interposed between said means and the sliding clutch member to eliminate rattling of the latter, a support carried by the axle, for said means, and provided with guides, a slide-bar mounted in said guides and provided with an arm or yoke embracing the sliding clutch member and adapted, without interfering with its rotatable action to move the same toward or from the companion clutch member, and a lever fulcrumed on said support, and pivotally connected to said slide-bar to operate the same, substantially as described.

4. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding and companion clutch member supported adjacent thereto, and provided with an arm, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a support carried by the axle, for said means, an arm or yoke engaging the sliding clutch member, without interfering with its rotatable action, a lever projecting upward between the body of the vehicle and the contiguous wheel within convenient reach of the driver for the purpose of operating said arm or yoke, and a rein connected to the bridle and to the arm of said clutch member, substantially as and for the purpose set forth.

679,335. AIR-COMPRESSOR. DAVID PRYDE and HENRY GAUERNAH, Braddock, Pa., assignors to the Braddock Machine Manufacturing Company, same place. Filed Aug. 24, 1900. Serial No. 27,875. (No model.)



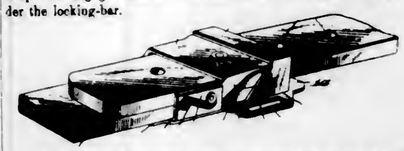
Claim.—1. In an air-compressor the combination with a cylinder having a stationary body and heads, said body being provided with an annular row of air-inlet ports at each end, of a piston in said cylinder, rings movable over said heads and projecting into said body, and means for moving said rings to alternately cover and uncover said ports.

2. In an air-compressor the combination with a cylinder having stationary heads provided with outlet-valves and a stationary body provided with air-inlet ports at its ends, of a reciprocating piston in said cylinder, rings movable over said heads and projecting into said body, and means for reciprocating said rings to alternately cover and uncover said ports.

3. In an air-compressor the combination with a cylinder having a stationary body and heads, said body being provided with air-inlet ports at each end, of a reciprocating piston in said cylinder having a reduced projecting portion on each side, rings movable over said heads and projecting into said body, and means for moving said rings to alternately cover and uncover said ports at each reciprocation of the piston.

679,336. BUCKLE. JOHN H. PURCELL, Conifer, Colo., assignor of one-half to Joel S. Wilson, Meeker, Colo. Filed Aug. 25, 1897. Serial No. 649,519. (No model.)

Claim.—1. A buckle comprising a base, a transverse locking-bar spaced from said base, a pair of ears projecting from the face of said base and provided with longitudinal slots, retaining-shoulders projecting into said slots contiguous to the ends of the same which are nearest the locking-bar, and a pivotal tongue adapted to engage under the locking-bar, said tongue being provided with pintles that operate in said slots and are adapted to engage behind the shoulders when said tongue is engaged under the locking-bar.



2. A buckle comprising a base, a transverse locking-bar spaced from said base, a pair of longitudinally-disposed ears projecting from the face of said base and provided with slots that incline toward the locking-bar, said slots having offset portions at their ends nearest the locking-bar forming retaining-shoulders, a pivotal tongue carrying a strap-engaging stud and having its free end adapted to engage under the locking-bar, said tongue being provided with pintles that slide in said slots and are adapted to be seated in said offset portions behind the retaining-shoulders when the free end of the tongue is engaged under the locking-bar.

3. A buckle comprising a base, having opposite Z-shaped slots, a transverse locking-bar spaced from said base, and a tongue adapted to engage under the locking-bar and having pintles operating in said slots.

679,337. LOCKING MEANS. ORRIN A. REYNOLDS, Covington, Ky. Filed June 11, 1900. Serial No. 19,826. (No model.)

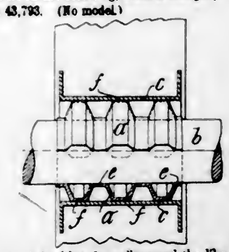


Claim.—1. In closing means for the purpose described, the combination of a door, two key-operated locks each so placed as to be capable of locking or unlocking the door and a keyhole for each lock accessible from the outside of the door only.

2. In closing means for the purpose described, the combination of a door, two key-operated locks, each so placed as to be capable of locking or unlocking the door, a keyhole for each lock, accessible from the outside of the door only and a key specially fitted to each lock and not operative in the other.

3. In closing means for the purpose described, the combination of a door, a key-operated lock thereon, an additional key-operated lock attached in a stationary position and the bolt of which when in its operative or projecting position is adapted to act as a keeper for the lock on the door, a keyhole for each lock both accessible from one side of the door only, and a key specially fitted to each lock and not operative in the other lock.

679,338. BUSH FOR TWO-PART BELT-PULLEYS. FRITZ ROSENBECK, St. Veit-on-the-Triesting, Austria-Hungary. Filed Jan. 18, 1901. Serial No. 43,793. (No model.)



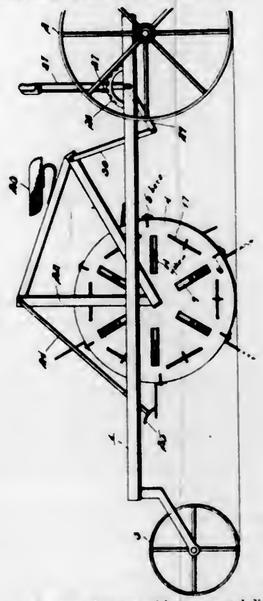
Claim.—1. A bushing for pulleys and the like, comprising a sheet-metal shell channeled circumferentially to form alternating internal and external bearings contacting with the shaft and hub or eye of the pulley respectively, for the purpose set forth.

2. A bushing for pulleys and the like, comprising a sheet-metal shell channeled circumferentially, said channels having flat bases and diverging lateral walls and forming alternating internal and external bearings contacting with the shaft and hub or eye of the pulley respectively, for the purpose set forth.

3. A bushing for pulleys and the like, consisting of sheet-metal shell elements segmental in cross-section and channeled to form when assembled a shell having alternating internal and external circular bearings respectively contacting with the shaft and hub or eye of the pulley, for the purpose set forth.

4. A bushing for pulleys and the like, consisting of sheet-metal shell elements segmental in cross-section and channeled to form when assembled a shell having alternating internal and external circular flat bearings with diverging side walls, respectively contacting with the shaft and hub or eye of the wheel, for the purpose set forth.

679,339. ROTARY PLOW. FRITZ A. SANDBERG, Brighton, Minn. Filed Sept. 12, 1900. Serial No. 29,835. (No model.)



Claim.—1. A rotary plow comprising connected disks; spades pivotally mounted between the disks; adjustable means for limiting the forward movement of the spades upon their pivots and adjustable pivots to the spades.

2. A rotary plow comprising similar connected disks; rows of cutting-spades therebetween, adjustable pivots for said rows, means for locking the rows in adjusted position; means for limiting the backward movement of the spades and adjustable means for limiting the movement thereof in the opposite direction.

3. The combination with a frame; of disks mounted therebetween, strips connecting the disks; L-shaped bolts engaging the strips and disks and adapted to bind the same together; slots within the disks; blocks adjustably secured within the slots; rods journaled within the blocks; cutting-spades secured thereto and adapted to be limited in their movement in one direction by the connecting-strips; and adjustable rods connecting the disks and adapted to limit the movement of the spades in the opposite direction.

4. The combination with a frame; of disks mounted therebetween and having slots therein in alinement with the center; teeth within the slots; blocks adapted to engage the teeth; yokes inclosing the block and extending through the slots; extensions to the yoke adapted to engage the slot; a set-screw within each yoke and bearing upon the blocks; rods journaled within the blocks; cutting-spades secured to the rods; and means for limiting the movement of the spades.

5. The combination with a frame; of disks journaled therebetween; countersunk slots within the disks and in alinement with the centers thereof; teeth within the slots; blocks adapted to engage the teeth; yokes extending over the blocks and through the slots; extensions to the yoke engaging the walls of the slots; set-screws within the yokes adapted to lock the blocks in engagement with the teeth within the slots, rods journaled within the blocks, spades secured to the rods, strips connecting the disks and adapted to limit the backward movement of the spades, adjustable rods within the disks for limiting the movement of the spades in the opposite direction, rods pivoted to the frame and extending in rear of the disks, and a scraper connecting said disks and adapted to contact with the spades.

6. The combination with a main frame; of a triangular frame mounted therebetween; a lever pivoted to the main frame; a link connection between said lever and triangular frame; disks journaled between the lower ends of said triangular frame and having slots therein in alinement with the center thereof, rods within the slots of the disks; means for locking said rods in adjusted position within their slots; spades secured to the rods, adjustable rods connecting the disks and adapted to limit the forward movement of the spades, means for limiting the movement of the spades in the opposite direction, a scraper in rear of the disks and adapted to contact successively with the spades, and pivot-rods connecting said scraper to the frame.

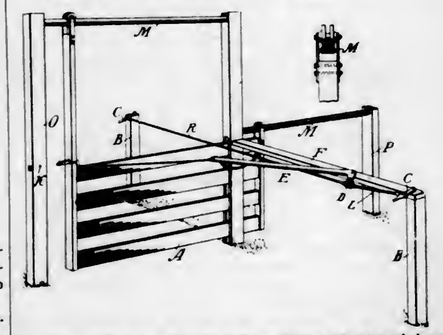
7. A rotary plow comprising connected disks, spades pivotally mounted between the disks and adjustable means for limiting the forward movement of the spades upon their pivots.

8. A rotary plow comprising disks, spades pivotally mounted between the disks, means for limiting the forward movement of the spades upon their pivots and adjustable pivots to the spades.

9. The combination with a frame, of disks mounted therebetween, strips connecting the disks, means for binding the strips and disks together, blocks adjustably secured within slots in the disks, a rod journaled within said blocks, spades secured to the rod and means for limiting the movement of the spades.

10. In a rotary plow, the combination with a disk having a slot therein, of teeth within the slot, a block adapted to engage the teeth, a yoke inclosing the block and extending through the slot, extensions to the yoke adapted to engage the slot and means for binding said yoke upon the block, said block forming a bearing for the pivot of a spade.

679,340. ROLLING GATE. EMANUEL D. SCHNUCKER, Ayr, Ind. Filed Dec. 6, 1900. Serial No. 38,888. (No model.)



Claim.—The suspended gate A, in combination with the angle-lever E D, pivoted upon bar F; the rods R L, connected to the short arm of said lever; cords connecting its long arm to the latch and to the rear of the gate; and the hand-levers for actuating the rods, substantially as shown and described.

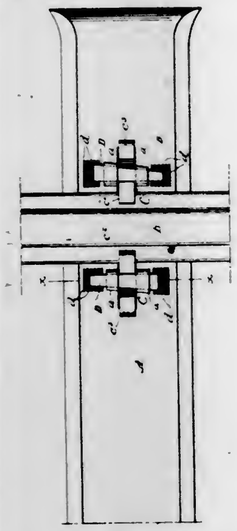
679,341. RAILWAY APPLIANCE. LUCIUS T. SHEFFIELD, New York, N. Y. Filed Dec. 4, 1900. Serial No. 38,672. (No model.)

Claim.—1. The combination of a railway-tie, a rail on said tie, and means for removably and adjustably holding said rail thereon, said means comprising a clip having a flange engaging the rail and a depressed portion and a wedge passing under raised portions of said tie and over the depressed portion of the clip, said wedge being provided with a projection coacting with a correlated depression in the tie to positively lock the parts together, substantially as and for the purposes described.

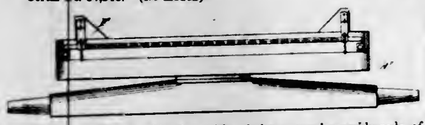
2. The combination of a railway-tie, a rail on said tie, and means for removably and adjustably holding said rail thereon, said means comprising a clip having a flange engaging the rail and a depressed portion and a wedge passing under raised portions of said tie and over the depressed portion of the clip, said wedge being provided with a spring projection coacting with a correlated depression in the tie to positively lock the parts together, substantially as and for the purposes described.

3. The combination of a railway-tie, a rail on said tie, and means for removably and adjustably holding said rail thereon, said means comprising a clip having a flange engaging the rail and a depressed portion and a wedge passing under raised portions of said tie and over the depressed portion of the clip, said wedge being provided with a spring pro-

jection coacting with a correlated depression in the tie to positively lock the parts together, said spring projection being provided with a nose having a substantially vertical pushing-face and a beveled under face, substantially as and for the purposes described.



679,342. CLAMPING DEVICE FOR LOG-WAGONS. JOHN A SIFFORD and THOMAS SHAVER, Cherry Valley, Ark. Filed Nov. 23, 1900. Serial No. 37,515. (No model.)



Claim.—1. The combination with a bolster carrying guide-rods, of a block adjustable upon the bolster and having a strap movable upon one of the guide-rods, and a relatively fixed and a movable jaw engaging the other guide-rod, and a clamping-lever for clamping said rod between said jaws, substantially as described.

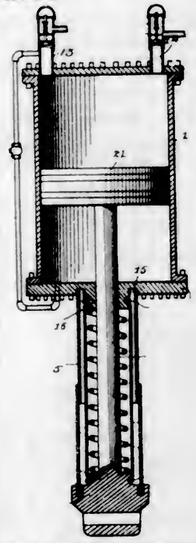
2. The combination with a bolster having longitudinally-extending guide-rods on opposite sides, of a block movable upon said bolster and having a strap embracing and moving upon one of said guide-rods, a relatively fixed and a movable jaw carried by the block and engaging the other guide-rod, and a cam-clamping lever for causing said jaws to tightly engage the rod, substantially as described.

3. The combination with a bolster having two guide-rods disposed on opposite sides thereof, of a block movable upon the bolster and having a strap embracing and moving upon one of said rods, a strap pivoted to the opposite side of the block and having a jaw on its lower end, a jaw pivoted to said strap, and a clamping-lever carried by said strap for causing said jaws to firmly clamp the guide-rod therebetween, substantially as described.

679,343. COMPRESSOR. WILLIAM F. SINGER, New York, N. Y., assignor to the Singer Automatic Ice Machine Company, Jersey City, N. J. Filed Nov. 15, 1900. Serial No. 36,612. (No model.)

Claim.—1. In a pump of the class described, a cylinder, a reciprocating piston-rod, a head through which said rod passes, an extensible packing-sleeve surrounding said rod and secured at its fixed end to said head and at its other end to said piston-rod exterior to said head, and a telescopic casing surrounding said packing-sleeve, one portion of said casing being secured to said head and another portion to said piston-rod, substantially as described.

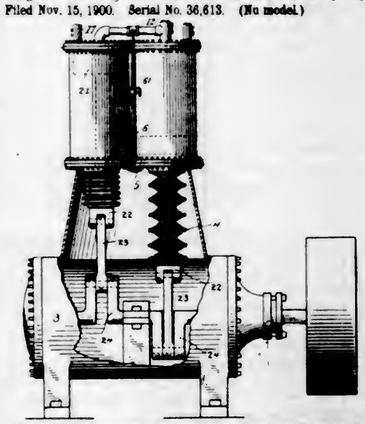
2. In a pump of the class described, a cylinder, a reciprocating piston-rod, a head through which said rod passes, an extensible packing-sleeve surrounding said rod and secured at its fixed end to said head and at its other end to said piston-rod exterior to said head, an extensible coiled spring interposed between said piston-rod and said packing-sleeve and a telescopic casing surrounding said packing-sleeve one portion of said casing being secured to said head and another portion to said piston-rod, substantially as described.



3. In a pump of the class described, a cylinder, a reciprocating piston-rod, a head through which said rod passes, a projecting portion on said rod exterior to said head, an extensible packing-sleeve and a telescoping casing surrounding said rod, said head and said projecting portion being each provided with means substantially as described for securing thereto the extensible packing-sleeve and a portion of the telescoping casing, substantially as set forth.

4. In a single-acting compressor-pump, a flexible envelop surrounding the piston-rod and hermetically sealed at its respective ends, a device within the envelop to prevent the same from collapsing upon the shaft and an extensible device surrounding the flexible envelop to protect the same from external injury and to limit the expansibility of the flexible envelop, substantially as specified.

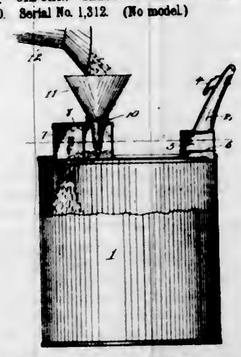
679,344. ROD-PACKING. WILLIAM F. SINGER, New York, N. Y., assignor to the Singer Automatic Ice Machine Co., Jersey City, N. J. Filed Nov. 15, 1900. Serial No. 36,613. (No model.)



Claim.—1. A rod-packing consisting of a plurality of resilient corrugated disks each having flat parallel inner and outer edge flanges and inclined intermediate portions in which are the corrugations and secured together alternately and at said flat inner and outer edges and together forming an extensible sleeve, substantially as described.

2. A rod-packing consisting of a plurality of resilient corrugated disks each having flat parallel inner and outer edge flanges and inclined intermediate portions in which are the corrugations all alike and extending from the concave surface outward and secured together alternately and at said flat inner and outer edges and together forming an extensible sleeve, substantially as described.

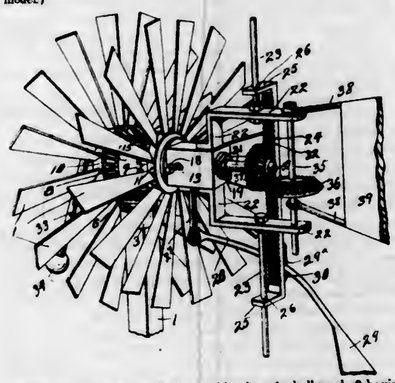
679,345. OIL-CAN. SAMUEL G. STAFFORD, Bellevue, Pa. Filed Jan. 13, 1900. Serial No. 1,312. (No model.)



Claim.—1. An oil-can having a delivery-spout provided with a screen, a filling-passage extending in substantially a horizontal position, said passage communicating at its opposite ends with the can-body and filling-opening, respectively, and a gauze partition extending across said passage between its ends whereby said partition is in substantially a vertical position when the can is in its filling position.

2. An oil-can having a delivery-spout provided with a screen, a filling-chamber extending in substantially a horizontal position and provided with a filling-opening in its top at one end and an opening in the bottom of its other end communicating with the can-body, and a gauze partition extending across said chamber between said end openings whereby said partition is in substantially a vertical position when the can is in its filling position.

679,346. WINDMILL. JOHN C. SUMMERS and HOMER R. YODER, Mount Hope, Ohio. Filed May 31, 1901. Serial No. 62,654. (No model.)

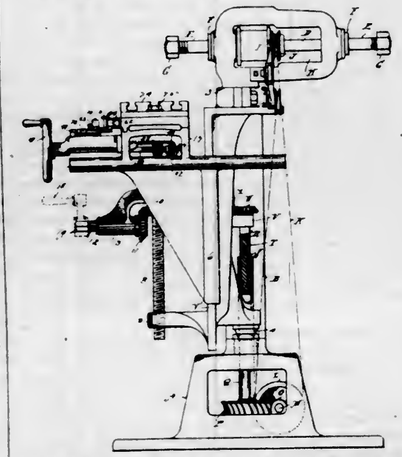


Claim—1. In a windmill the combination of a hollow shaft having mounted thereon two wind-wheels rotatable in opposite direction, a power-shaft provided with a beveled gear at its upper end, gear-wheels loosely mounted upon the hollow shaft and rotatable with the hubs of the two gear-wheels, a rotatable cap mounted upon a fixed post having a head carrying the hollow shaft, a shaft located within the hollow shaft and provided with a weighted arm and a beveled gear-wheel, a gear-wheel meshing with the beveled gear-wheel upon the shaft located in the hollow or fixed shaft and a vane connected to the shaft driven by the beveled gear-wheel on the shaft provided with a weighted arm, a pinion located on the shaft having the weighted arm, and a rack-bar meshing with the pinion and a blade connected to a pivoted arm, said arm loosely connected to the rack-bar, substantially as and for the purpose specified.

2. The combination of a horizontal hollow shaft having mounted thereon wind-wheels provided with blades located at opposite angles, gear-wheels rotatable in opposite directions with the opposite rotations of the wind-wheels, a power-shaft provided with a gear-wheel meshing with the oppositely-rotating gear-wheels upon the hollow shaft, a shaft located in the hollow shaft and provided with a weighted arm, a pinion and a beveled gear-wheel fixed to the shaft carrying the weighted arm and a rack-bar meshing with said pinion, means for imparting reciprocating movement to the rack-bar, a shaft provided with a gear-wheel meshing with the gear-wheel upon the shaft having the weighted arm and a vane securely connected to the shaft upon which the beveled gear-wheel is mounted, substantially as and for the purpose specified.

3. The combination of a hollow shaft, a wind-wheel loosely mounted thereon, a shaft located within the hollow shaft and provided with a weighted arm and a pinion and a beveled wheel, guide-bars having connected thereto a reciprocating rack-bar meshing with said pinion, a beveled gear-wheel meshing with said first-named beveled gear-wheel, a vane fixed to the shaft of the other beveled gear-wheel, and a pivoted arm connected to the rack-bar and provided with a blade, substantially as and for the purpose specified.

679,347. GRINDING-MACHINE. RALPH P. THOMPSON, Springfield, Ohio, assignor of one-half to Jacob M. Pauly, same place. Filed Oct. 4, 1900. Serial No. 31,946. (No model.)



Claim.—1. In a grinding-machine, the combination, with a fixed standard and a spindle mounted thereon and provided with a grinding-table, of a vertical spindle mounted in the standard, an apron pivotally mounted thereon and adapted to swing around said standard and vertical spindle, a grinding-table supported by said apron, means for connecting said table with and disconnecting it from said vertical spindle, and means connecting said vertical spindle with the grinding-spindle, substantially as described.

2. In a grinding-machine, the combination with a spindle, a fixed standard therefor, of an apron pivotally supported by said standard, a reciprocating grinding-table supported by said apron, and mechanism connected with said spindle for automatically driving said reciprocating table, substantially as described.

3. In a grinding-machine, the combination with a standard, of an apron pivotally supported by said standard, a reciprocating grinding-table supported by said apron, and driving mechanism for said table, one member of which has its axis coincident with the axis of said apron, substantially as described.

4. In a grinding-machine, the combination with a standard, of an apron pivotally mounted thereon, a grinding-table supported by said apron, driving mechanism for said table, one member of which has its axis coincident with the axis of said apron, and reversing mechanism for automatically reversing the direction of movement of said table, all substantially as shown and described.

5. In a grinding-machine, the combination with a standard carrying a grinding-spindle, of an apron pivotally supported by said standard, a table-bracket adjustably mounted on said apron, a grinding-table mounted on said bracket, means for adjusting said grinding-table bracket, and driving mechanism engaging with said reciprocating grinding-table and hav-

ing the axis of one of its members coincident with the axis of said apron, all substantially as shown and described.

6. In a grinding-machine, the combination with a standard carrying a grinding-spindle, of an apron pivotally supported by said standard, a table-rest carried by said apron, a grinding-table supported by said rest, mechanism for driving said table, one member of which is coincident with the axis of said apron, and mechanism for automatically changing the direction of movement of said table, all substantially as shown and described.

7. In a grinding-machine, the combination with a standard, of a fixed head mounted thereon, a grinding-spindle carried by said head, a base, a shaft carried by said base, an apron pivotally supported by said standard, a grinding-table reciprocatingly supported by said apron, mechanism for driving said table, one member of which is coincident with the pivotal axis of said apron and another member of which consists of clutches, and means for automatically operating said clutches for changing the direction of movement of said table, all substantially as shown and described.

8. In a grinding-machine, the combination with a standard carrying a grinding-spindle, of an apron pivotally supported by said standard, a grinding-table bracket vertically slidably mounted on said apron, a reciprocating table supported by said table-bracket, and driving mechanism for driving said reciprocating table, one member of which is coincident with the pivotal axis of said apron, substantially as described.

9. In a grinding-machine, the combination with a standard carrying a grinding-spindle, of an apron pivotally mounted upon said standard, a table-bracket slidably mounted upon said apron, a table-rest adjustable at right angles to said table-bracket adjustment, a grinding-table mounted on said table-rest, mechanism to automatically reciprocate said table, one member of which is coincident with the pivotal axis of said apron, and means to engage said mechanism with and also disengage it from said table, all substantially as shown and described.

10. In a grinding-machine, the combination with a standard, of a table-rest supported thereby, a grinding-table carried by said rest, driving mechanism for operating said table, one member of which consists of a three-part clutch, a trip mechanism carried by said rest and connected with one member of said clutch, means for partially operating said trip mechanism to release two of said clutch members from each other, and other means for continuing the operation of said trip mechanism, whereby the part to which said trip mechanism is connected will engage with the third clutch member, the movement of said table being in one direction when the first two members of said clutch members are in engagement with each other and in the opposite direction when the second and third clutch parts are in engagement with each other, substantially as described.

11. In a grinding-machine, the combination with a standard, of a table-rest pivotally supported by said standard, a grinding-table carried by said rest and adapted to reciprocate thereon, mechanism for reciprocating said table, one member of which is coincident with the pivotal support of said table and the other member of which consists of a clutch having a shiftable part and two non-shifting parts, means to rotate said non-shiftable parts in opposite directions, and trip mechanism for automatically operating said shiftable part of said clutch into and out of engagement with each of said non-shiftable parts, respectively, whereby said table is automatically reciprocated in both directions, substantially as described.

12. In a grinding-machine, the combination with a table-rest, of a grinding-table slidably mounted thereon, trip mechanism carried by said rest, driving means connected with said table, one member of which constitutes a three-part clutch, two of which parts rotate in opposite directions from each other and are separated from each other and the other of said parts being shiftable into and out of engagement with first one part and then the other part of said non-shiftable parts, trip mechanism engaging with said shiftable part of said clutch, and means carried by said table for engaging with said trip mechanism, whereby said shiftable clutch member is operated, all substantially as shown and described.

13. In a grinding-machine, the combination with a table-rest and grinding-table, of mechanism for operating said table in both directions, trip mechanism carried by said table-rest, said trip mechanism consisting of a yoke pivotally mounted on said rest, and a lever also pivotally mounted on said rest studs or projections extending from said yoke with which said lever is adapted to contact, one at a time, means for rocking said lever first in one direction and then in the opposite direction for contacting with said pins to rock said yoke, and means for connecting said yoke with said operating mechanism to drive said table first in one direction and then in the other, all substantially as shown and described.

14. In a grinding-machine, the combination with a table-rest, of a grinding-table slidably mounted thereon, said table having a T-shaped groove therein at one edge, bolts having their heads fitting within said groove, wedges held on by said bolts, one at one side of the center of said table and the other at the other side of the center of said table, trip mechanism mounted on said table-rest, said trip mechanism consisting of a pivoted yoke having lugs projecting therefrom and a pivoted lever for engaging with one of said lugs at a time, a plate hinged to said lever carrying a pair of rollers at its outer ends, one at each side of said lever, said rollers normally standing in the path of said wedges, and an auxiliary trip device carried by the first-named yoke having a cam-surface along one edge thereof, said roller engaging with said cam-surface, springs for normally holding said cam-face under a spring-pressure against said lever, mechanism for operating said grinding-table, one member of which is a three-part clutch, and means for connecting said three-part clutch with the first-named yoke, whereby when said lever is operated by said wedges said clutch parts will be separated from each other, said yoke also acting to engage two of said clutch members with each other upon being still further operated through the action of said springs on said lever, substantially as described

15. In a grinding-machine, the combination with a table-rest, of a grinding-table mounted thereon, means for operating said table in both directions, trip mechanism carried by said table-rest and connected with said operating means to change the direction of movement of said grinding-table, said trip mechanism consisting of a pivoted yoke, a spring-controlled yoke mounted thereon, a lever pivoted on a stud carried by said grinding-table, lugs projecting from the first yoke with which said lever engages, and a pair of arms carrying rollers, said second or cam yoke acting to further operate said lever after being operated upon by said wedges, all substantially as shown and described.

16. In a grinding-machine, the combination with a table-rest, of trip mechanism mounted thereon consisting of a pivoted yoke and a pivoted lever, pins projecting from said yoke with which said lever engages, one at a time, a cam-yoke slidably mounted on said first-named yoke, a roller on said lever which contacts with the cam-surface of said cam-yoke, a plate pivoted to said lever, a roller carried at each end of said plate, a reciprocating grinding-table carried by said table-rest, means carried by said table for engaging one of said rollers at a time, whereby said lever is partially operated in one direction, one or more springs engaging with said cam-yoke for pressing against said lever-roller to operate said first yoke, as also said lever, to complete the stroke of said lever and yoke, and means connected with said first yoke and with said grinding-table whereby when said first yoke is operated the grinding-table will be moved in either direction, all substantially as shown and described.

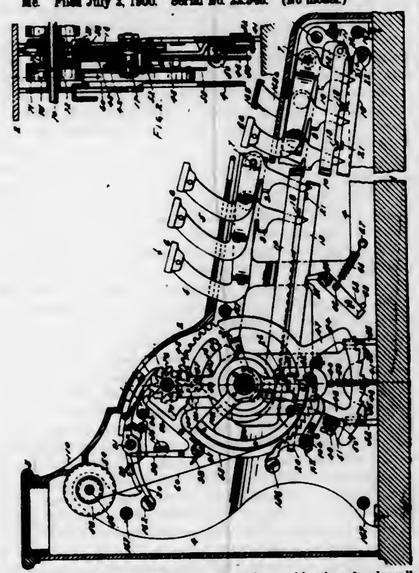
17. In a grinding-machine, trip mechanism consisting of a pivoted yoke and a slidable yoke connected with said pivoted yoke, as also a pivoted lever, a roller-carrying plate pivoted to said lever, a roller carried at one end of said lever and engaging with the cam-surface on said slidable yoke, springs to normally hold said slidable yoke in contact with said lever-roller, a pair of lugs or projections extending from one face of said pivoted yoke adapted to be engaged by said lever, and means to automatically throw said plate and lever first in one direction and then in the other, whereby said pivoted yoke will also be operated first in one direction and then in the other, said plate being hinged to said lever, whereby it may be thrown out of operating engagement with its operating means, all substantially as shown and described.

18. In a grinding-machine, the combination with a standard, of an apron pivotally mounted thereon, a grinding-table bracket vertically slidably mounted on said apron, means for screwing said table-bracket up and down on said apron, a table-rest mounted on said table-bracket and adapted to slide in a horizontal plane, means connected with said bracket and with said table-rest for shifting the rest in each horizontal plane, a grinding-table mounted on said table-rest having a rack beneath it, a shaft carried by said table-rest and extending beneath said rack, a pinion mounted on said shaft and engaging with said rack, a pair of loosely-mounted pinions also mounted on said shaft and each carrying a clutch member, a slidable clutch member engaging with said shaft for engaging with said loosely-mounted clutch members, one at a time, another shaft also carried by said table-rest and by said table-bracket and carrying a pair of gears, one of which engages with one of said clutch-pinions, an idler for engaging with the other of said gears and also with the other of said clutch-pinions, whereby the respective clutch-pinions are rotated in opposite directions, a sprocket-wheel mounted on said last-named shaft and held from sliding with the shaft, yet permitting the shaft to slide through it, a driven shaft having its center coincident with said apron and carrying a bevel-gear at its upper end, a shaft carried by said table-bracket and having a sprocket-gear, as also a bevel-gear, the latter meshing with said last-named bevel-gear, and a sprocket-chain for connecting said sprocket-wheels with each other, and trip mechanism automatically shifting said slidable clutch member first into engagement with one of said loosely-mounted clutches and then into engagement with the other of said loosely-mounted clutches, whereby said grinding-table is automatically reciprocated, all substantially as shown and described.

19. In a grinding-machine, the combination with a standard having a vertical hole or opening through a portion of its base and an overhanging portion near its top in line with said vertical opening, and a conical bearing supported in said vertical opening, an apron carrying a conical bearing and pivoted about said standard in line with said first conical bearing, and a grinding-table reciprocatingly supported by said apron, a spindle extending through said conical bearing and coincident with the pivotal axis of said apron, and means connected with and driven by said spindle and also connected with said reciprocating table for reciprocating it, and means for driving said spindle, all substantially as shown and described.

20. In a grinding-machine, the combination with a standard, of an apron pivoted thereto, a reciprocating grinding-table supported by said apron, a telescoping spindle having its axis coincident with the axis of said apron, means for connecting said spindle with said grinding-table, and means for elevating said grinding-table and for elongating said spindle to accommodate itself to the elevated position of said table, all substantially as shown and described.

679,348. CALCULATING-MACHINE. JOSEPH A. TURCK, Providence, R. I., assignor to the Mechanical Accountant Company, Saco, Me. Filed July 2, 1900. Serial No. 22,346. (No model.)



Claim.—1. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a cam rotatably mounted on a fixed support and pivotally connected with the rear end of said swinging bar, a vertically-movable supporting-piece having suitable guides and provided with a projection in contact with the working face of said cam, a gear mounted on said vertically-movable supporting-piece and means to rotate said gear, a properly-mounted shaft, a gear loose on said shaft engageable with the first-named gear when said movable supporting-piece is in its elevated position and a cylindrical dial mounted on said shaft and movable by the second-named gear, all arranged and operating substantially as and for the purpose specified.

2. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a cam rotatably mounted on a fixed support and pivotally connected with the rear end of said swinging bar, a spring adapted to give a return movement to said cam, a vertically-movable supporting-piece having suitable guides and provided with a projection in contact with the working face of said cam, a gear mounted on said vertically-movable supporting-piece and means to rotate said gear, a properly-mounted shaft, a gear loose on said shaft engageable with the first-named gear when said movable supporting-piece is in its elevated position and a cylindrical dial mounted on said shaft and movable by the second-named gear, substantially as described.

3. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-directed end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a slide vertically movable in suitable ways and having a central aperture in which is secured a short tube, a friction-roller rotatably mounted on a projection of said slide, a shaft passing through said tube but of less diameter than said tube, a cam rotatably mounted on said shaft and having working edges adapted to contact with said friction-roller for the purpose of vertically moving said slide and also having a pivotal connection with the rear end of said swinging bar, a spring adapted to give a return movement to said cam, a gear loosely mounted on said tube, means between said cam and gear adapted to impart a rotary movement from the former to the latter, a spring adapted to give a return movement to said gear, a properly-mounted shaft, a gear loose on said last-named shaft engageable with the first-named gear and a cylindrical dial mounted on the last-named shaft and movable by the second-named gear, substantially as specified.

4. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a slide vertically movable in suitable ways and having a central aperture in which is secured a short tube, a friction-roller rotatably mounted on a projection of said slide, a shaft passing through said tube but of a less diameter than said tube, a cam rotatably mounted on said shaft and having working edges adapted to contact with said friction-roller for the purpose of vertically moving said slide and also having a pivotal connection with the rear end of said swinging bar, a spring adapted to give a return movement to said cam, a gear loosely mounted on said tube, means between said cam and gear adapted to impart a rotary movement from the former to the latter, a spring adapted to give a return movement to said gear, a quadrant extending from said gear and movable with it and having ratchet-teeth on its periphery, a properly-mounted shaft, a gear loose on said last-named shaft, engageable with the first-named gear, a cylindrical dial mounted on the last-named shaft and connected with and movable by the second-named gear, a reciprocating sliding bar with supports for the same and provided with a lug on its upper edge against which said end of the key-lever is movable and also provided with a lug on its lower edge, a centrally-mounted lever having its upper end engageable with the last-named lug and its lower end engageable with the ratchet-teeth of said quadrant, and a spring adapted to give return movement to said lever, substantially as set forth.

5. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm, and provided with a lug against which said end of the key-lever is movable, a slide vertically movable in suitable ways and having a central aperture in which is inserted a short tube, a friction-roller rotatably mounted on a projection of said slide, a shaft passing through said tube but of a less diameter than said tube, a cam rotatably mounted on said shaft and having working edges adapted to contact with said friction-roller for the purpose of vertically moving said slide and also having a pivotal connection with the rear end of said swinging bar, a spring adapted to give a return movement to said cam, a gear loosely mounted on said tube, means between said cam and gear adapted to impart a rotary movement from the former to the latter, a spring adapted to give a return movement to said gear, a properly-mounted shaft, a gear loose on the last-named shaft engageable with the first-named gear, a cylindrical indicating-dial loosely mounted on the last-named shaft and connected with and movable by the second-named gear, a register-pulley loosely mounted on the first-named shaft and provided with ratchet-teeth on a portion of its periphery, means between said first-named gear and said pulley adapted to impart a rotary movement from the former to the latter, a third shaft properly mounted, a key-register dial having a hub loosely mounted on the last-named shaft, a spiral spring on said hub adapted to turn the same, a pulley on said hub, a belt passing over said pulleys, a centrally-mounted bent pawl engageable at its front end with the ratchet-teeth of the register-pulley and a reciprocating sliding bar with proper supports and having a lug against which said end of the key-lever is movable and engageable at its rear end by the upper end of said pawl, substantially as described.

6. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a slide vertically movable in suitable ways and having a central aperture in which is secured a short tube, a friction-roller rotatably mounted on a projection of said slide, a shaft passing through said tube but of a less diameter than said tube, a cam rotatably mounted on said shaft and having working edges adapted to contact with said friction-

roller for the purpose of vertically moving said slide and also having a pivotal connection with the rear end of said swinging bar, a spring adapted to give return movement to said cam, a gear loosely mounted on said tube, means between said cam and gear adapted to impart a rotary movement from the former to the latter, a spring adapted to give return movement to said gear, a quadrant extending from said gear and movable with it and having ratchet-teeth on its periphery, a properly-mounted shaft, a gear loose on said last-named shaft engageable with the first-named gear, a cylindrical dial mounted on the last-named shaft and connected with and movable by the second-named gear, a reciprocating sliding bar with supports for the same and provided with a lug on its upper edge against which said end of the key-lever is movable and also provided with a lug on its lower edge, a centrally-mounted lever, having its upper end engageable with the last-named lug and its lower end engageable with the ratchet-teeth of said quadrant, a spring adapted to give return movement to said lever, a register-pulley loosely mounted on the first-named shaft and provided with ratchet-teeth on a portion of its periphery, means between said first-named gear and said pulley adapted to impart a rotary movement from the former to the latter, a third shaft properly mounted, a key-register dial having a hub mounted on the last-named shaft, a spiral spring on said hub adapted to return the same, a pulley on said hub, a belt passing over said pulleys, a centrally-mounted bent pawl engageable at its front end with the ratchet-teeth of the register-pulley and a reciprocating sliding bar with proper supports and having a lug against which said end of the key-lever is movable and engageable at its rear end by the upper end of said pawl, substantially as specified.

7. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a slide vertically movable in suitable ways and having a central aperture in which is secured a short tube, a friction-roller rotatably mounted on a projection of said slide, a shaft passing through said tube but of a less diameter than said tube, a cam rotatably mounted on said shaft and having working edges adapted to contact with said friction-roller for the purpose of vertically moving said slide and also having a pivotal connection with the rear end of said swinging bar, a spring adapted to give return movement to said cam, a gear loosely mounted on said tube, means between said cam and gear adapted to impart a rotary movement from the former to the latter, a spring adapted to give return movement to said gear, a quadrant extending from said gear and movable with it and having ratchet-teeth on its periphery, a properly-mounted shaft, a gear loose on said last-named shaft engageable with the first-named gear, a cylindrical dial mounted on the last-named shaft and connected with and movable by the second-named gear, a reciprocating sliding bar with supports for the same and provided with a lug on its upper edge against which said end of the key-lever is movable and also provided with a lug on its lower edge, a centrally-mounted lever, having its upper end engageable with the last-named lug and its lower end engageable with the ratchet-teeth of said quadrant, a spring adapted to give return movement to said lever, a stop-pin fixed in position to limit the return movement of said lever, a projection on said vertical slide and a set-screw passing through said projection and having its end abutting said quadrant, substantially as shown.

8. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar with proper supports for the same and provided with a lug against which said end of the key-lever is movable, a cam rotatably mounted on a proper support and connected with said bar so as to be movable thereby, a movable support having a portion thereof in operative contact with said cam, a gear mounted on said movable support, a properly-mounted shaft, a gear on said shaft engageable with the first-named gear and a cylindrical dial mounted on said shaft and connected with and movable by the second-named gear, substantially as shown.

9. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a cam rotatably mounted on a fixed support and pivotally connected with the rear end of said swinging bar, a vertically-movable supporting-piece having suitable guides and a projection in contact with the working face of said cam, a gear mounted on said vertically-movable supporting-piece and means to rotate said gear, a properly-mounted shaft, a gear on said shaft engageable with the first-named gear when said movable supporting-piece is in its elevated position, a cylindrical dial loosely mounted on said shaft and movable by the second-named gear, a ratchet-gear fast on said shaft and a spring-pressed pawl pivotally mounted and engageable with said ratchet-gear, substantially as set forth.

10. In a calculating-machine, the combination of a pivotally-mounted key-lever having a downwardly-extending end, a reciprocating swinging bar pivotally connected at its front end with a properly-mounted rocker-arm and provided with a lug against which said end of the key-lever is movable, a slide vertically movable in suitable ways and having a central aperture in which is secured a short tube, a stop-pin extending from said slide in the upper portion thereof, a friction-roller rotatably mounted on a projection of said slide, a shaft passing through said tube but of less diameter than said tube, a cam rotatably mounted on said shaft and having working edges adapted to contact with said friction-roller for the purpose of vertically moving said slide and also having a pivotal connection with the rear end of said swinging bar, a spring adapted to give return movement to said cam, a gear loosely mounted on said tube, means between said cam and gear adapted to impart a rotary movement from the former to the latter, a spring adapted to give return movement to said gear, a properly-mounted shaft, a gear loose on said last-named shaft engageable with the first-named gear, a cylindrical dial mounted on the last-named shaft and movable by the second-named gear, a ratchet-gear mounted fast on the last-named shaft, a pivotally-mounted spring-pressed pawl engageable with said ratchet-gear, a ratchet-gear mounted on the last-named shaft and secured to the second-named gear, a pivotally-mounted spring-pressed pawl engageable with the last-named ratchet-gear and having an arm whose end rests upon the said stop-pin of the slide, substantially as specified.

11. In a calculating-machine, the combination of two cylindrical indicating-dials mounted upon one shaft and a series of key-levers for each of said dials, each key of the series being adapted to impart independent, intermittent rotary motion to its respective companion dial, a curved slide movable on suitable ways and provided with a projection, an eccentric cam mounted on said shaft and connected with and movable by one of said dials, the edge of which cam is arranged to bear against said projection and to move said curved slide thereby, a ratchet-gear mounted on said shaft and connected and movable with the other of said dials, a parallel pawl connected with and movable by said curved slide and having its end in engagement with said ratchet-gear, and a spring adapted to give a return movement to said curved slide, substantially as specified.

12. In a calculating-machine, the combination of two cylindrical indicating-dials mounted upon one shaft and a series of key-levers for each of said dials, each key of the series being adapted to impart independent, intermittent rotary motion to its respective companion dial, a curved slide movable on suitable ways and provided with a projection, an eccentric cam mounted on said shaft and connected with and movable by one of said dials, the edge of which cam is arranged to bear against said projection and to move said curved slide thereby, a ratchet-gear mounted on said shaft and connected with the other of said dials, a parallel pawl connected with said curved slide by a screw, whose head projects beyond the plane of said pawl, which said pawl is arranged to have its end in engagement with said ratchet-gear and adapted to give a forward movement thereto by the force of said spring, and a locking-pawl, spring-pressed and pivotally mounted, whose end is in engagement with said ratchet-gear and adapted to prevent the reverse movement thereof and which has an arm extending to a position where its end is engageable with said projecting screw-head, substantially as described.

13. In a calculating-machine, the combination of a quadrant-slide pivotally mounted and provided with two radial arms and a knob, a central radial projection of said quadrant-slide between said arms thereof, a quadrant-gear pivotally mounted concentrically with said quadrant-slide and having two radial arms with which alternately said projection of the quadrant-slide is engageable, a series of cylindrical indicating-dials, a properly-mounted shaft on which said dials are rotatably mounted and which is provided with a longitudinal groove, a series of gears mounted on said shaft and respectively connected with and movable by the adjacent cylindrical dial, a gear fastened upon said shaft and engageable with said quadrant-gear, a hub for each of said cylindrical dials and provided with an aperture, a spring-pressed pawl pivotally mounted on the inner face of each of said dials, which pawl extends at an angle along said face with its free end engageable with the groove of the shaft through said aperture of the dial-hub and a spring adapted to give return movement to said slide, substantially as shown.

14. In a calculating-machine, the combination of a pivotally-mounted quadrant-slide having a knob and also a radial projection, a quadrant-gear mounted concentrically with said quadrant-slide and having two radial arms with which alternately the projection of the quadrant-slide is engageable, a plurality of cylindrical indicating-dials, a longitudinally-grooved shaft on which said dials are loosely mounted, a gear for each of said dials, respectively, and connected and movable with it, a gear fastened on the end of said shaft, a hub for each of said dials and provided with an aperture, a spring-pressed pawl for each of said dials mounted on the inner face thereof and engageable with said grooved shaft through said aperture, a spring adapted to give return motion to said slide, a spring-pressed pawl mounted on the radial projection of the slide, a four-armed cam mounted concentrically with said quadrant slide and gear and with which the last-named pawl is engageable, a centrally-mounted bent lever having one portion of its edge adapted as a cam-surface against which said four-armed cam is movable, a flat rock-shaft properly mounted and having a disk at its end and also an arm with a recess into which the upper end of said bent lever extends, a spring adapted to give reverse motion to said arm, a ratchet-gear on each of said dial-hubs, a spring-pressed locking-pawl for each of said ratchet-gears and provided with an angular arm whose end is in contact with said flat rock-shaft, a second flat rock-shaft properly mounted having a disk at its end and also an arm and a recess in which the lower end of said bent lever enters, a spring adapted to give reverse movement to said arm, a plurality of register-pulleys rotatably mounted on a proper support, each having ratchet-teeth on a portion of its periphery, a centrally-pivoted bent pawl for each of said register-pulleys whose upper end bears against said second flat rock-shaft and whose lower end is engageable with said ratchet-teeth, a key-register dial for each of said register-pulleys mounted on a shaft and having a pulley connected therewith and a spring adapted to give reverse movement and a belt passing over each register-pulley and the pulley of its companion key-register dial, substantially as shown.

15. In a calculating-machine, the combination of a pivotally-mounted quadrant-slide having a knob and also a radial projection, a spring adapted to give reverse movement to said slide, a four-armed cam mounted concentrically with said slide, a spring-pressed pawl pivoted to said projection of said slide and engageable with said cam, a centrally-pivoted bent lever having one portion of its edge adapted as a cam-surface against which said four-armed cam is movable, a flat rock-shaft properly mounted and having a disk at its end and also an arm with a recess into which the upper end of said bent lever extends, a spring adapted to give reverse movement to said arm, a plurality of register-pulleys rotatably mounted on a proper support and each having ratchet-teeth on a portion of its periphery, a centrally-mounted bent pawl for each of said register-pulleys and having its upper end bearing against said flat rock-shaft and its lower end engageable with the ratchet-teeth of its companion register-pulley, a key-register dial for each of said register-pulleys mounted on a shaft and provided with a spring adapted to give reverse movement to said dial and also having a pulley and a belt passing over said dial-pulley and over its companion register-pulley, substantially as described.

16. In a calculating-machine, having two cylindrical indicating-dials mounted upon a shaft and a series of key-levers adapted to impart independent, intermittent, rotary motion to said dials, the combination therewith of a curved slide movable on suitable ways and provided with a projection, an eccentric cam fastened on said shaft and connected with and movable by one of said dials, the edge of which cam is arranged to bear against said projection and to move said slide thereby, a spring adapted to give a return movement to said slide, a ratchet-gear mounted on said shaft and connected with and movable by the other of said dials, a parallel pawl pivotally connected near its center with said slide by a screw, which pawl has its free end in engagement with said ratchet-gear, a spring-actuated flat rock-shaft properly mounted and having one of its broad faces in contact with the rear end of said pawl and means adapted to oscillate said flat shaft, substantially as set forth.

17. In a calculating-machine, the combination of key-levers arranged in a row, a pulley mounted on a shaft and rotatable thereon to different degrees in one direction by said key-levers, respectively, a spring adapted to impart a reverse rotation to said pulley, a key-register dial mounted on a fixed shaft and provided with a pulley, a band adapted to communicate rotary motion in one direction to the last-named pulley from the first-named pulley, a spring arranged to give a reverse rotary motion to said key-register-dial pulley, a case having a horizontal slot, two circumferential rows of numerals on said key-register dial, one for the purpose of addition and one for the purpose of subtraction, a slide movable on suitable ways over said slot and provided with a sight-aperture so arranged and located that a numeral of either of said circumferential rows upon the key-register dial is displayed through said sight-aperture, according to the position of the slide and of said key-register dial, substantially as specified.

18. In a calculating-machine for problems in both addition and subtraction, the combination of two rotatable, adjacent, indicating-dials, a properly-mounted pawl movable by means between it and one of said dials and arranged to give an intermittent forward movement to the other of said dials for the purpose of carrying in addition the tenth unit over from the first dial to the second and a tripping device arranged to disengage said pawl, when the machine is used for the purpose of subtraction, substantially as described.

19. In a calculating-machine having two cylindrical indicating-dials mounted on a shaft and a series of key-levers adapted to impart independent, intermittent, rotary motion to said dials, the combination therewith of a curved slide movable on suitable ways and provided with a projection, an eccentric cam fastened on said shaft and connected with and movable by one of said dials, the edge of which cam is arranged to bear against said projection and to move the slide thereby, a spring adapted to give a return movement to said slide, a ratchet-gear mounted on said shaft and connected with and movable by the other of said dials, a parallel pawl pivotally connected near its center with said slide by a screw, which pawl has its free end in engagement with said ratchet-gear, a spring-actuated flat rock-shaft properly mounted and having one of its broad faces in contact with the rear end of said pawl, a two-notched disk, on the end of said flat rock-shaft, with two stop-surfaces, a stop-pin with which said stop-surfaces are alternately in contact, a spring adapted to engage either of the notches of said disk when the latter is turned, and a handle adapted to turn said disk, substantially as shown.

20. In a calculating-machine having two cylindrical indicating-dials mounted on a shaft and a series of key-levers adapted to impart independent, intermittent, rotary motion to said dials, the combination therewith of a curved slide movable on suitable ways and provided with a projection, an eccentric cam fastened on said shaft and connected with and movable by one of said dials, the edge of which cam is arranged to bear against said projection and to move the slide thereby, a spring adapted to give a return movement to said slide, a ratchet-gear mounted on said shaft and connected with and movable by the other of said dials, a parallel pawl pivotally connected near its center with said slide by a screw, which pawl has its free end in engagement with the ratchet-gear, a spring-actuated flat rock-shaft properly mounted and having one of its broad faces in contact with the rear end of said pawl, a pivotally-mounted disk adapted to turn said flat rock-shaft and having two projections, a stop-pin with which said projections are alternately in contact, and a spring adapted to engage said disk at either limit of its movement, substantially as described.

21. In a calculating-machine operated by a series of key-levers, arranged in several rows, the combination therewith of cylindrical indicating-dials rotatably mounted on a shaft, one of said indicating-dials for each row of key-levers, mechanism actuated by each key-lever of a row adapted to rotate the companion indicating-dial of that row, means between each indicating-dial and its next left-hand indicating-dial of the series adapted to advance the latter-named indicating-dial one space upon the completion of each revolution of the former, a rotatable key-register dial for each row of key-levers loosely mounted on a fixed shaft, a pulley for each row of key-levers mounted on a shaft and rotatable thereon to different degrees in one direction by the key-levers, respectively, of that row, a spring adapted to impart a reverse rotation to said pulley, a pulley on the key-register dial on said row, a band adapted to communicate rotary motion in one direction to the last-named pulley from the first-named pulley, a spring arranged to give a reverse rotary motion to said key-register-dial pulley, a setback mechanism adapted to return all the indicating-dials simultaneously to their starting position and a setback mechanism adapted to return all the key-register dials simultaneously to their starting position, substantially as described.

22. The setback mechanism herein described for separatively reversing the register-dials of a calculating-machine, consisting of the combination of a series of register-pulleys rotatably mounted on a proper support and each having ratchet-teeth on its periphery, a series of bent pawls pivotally mounted near the center thereof to a proper support and the forward ends of which are, respectively, engageable with said ratchet-teeth, a series of key-register dials having hubs mounted on a shaft, a spiral spring on each of said key-register-dial hubs adapted to give a return movement to such dial, a belt passing around each of said register-pulleys upon a circumferential flange thereof and wound around each of said key-register-dial hubs, respectively, a flat rock-shaft properly mounted against which the rear ends of said bent pawls are adapted to contact, a lever-arm at the end of said flat rock-shaft, a bent lever centrally pivoted upon a proper support and provided with a spring to give return movement, a rod from the lower end of the last-named bent lever to the lower end of the lever-arm at the end of the flat rock-shaft, a bent key-lever centrally mounted near one side of the machine on a proper support and adapted to move the bent lever last before named, a bent key-lever mounted near the opposite side of the machine and a key-bar extending from one bent key-lever to the other, substantially as described.

23. In a calculating-machine having register-dials, the combination therewith of two bent key-levers pivotally mounted on opposite sides of the machine, with a key-bar extending between them and means between said key-levers and dials to reverse the movement of the dials, substantially as shown and for the purpose specified.

24. In a calculating-machine, the combination of a rotatable gear loosely mounted on a fixed shaft, a cylindrical dial loosely mounted on said shaft and connected and movable with said gear, a slide movable in two straight and parallel guideways which overlap the two vertical edges of said slide, a gear rotatably mounted on said slide and movable therewith to engage with the first-named gear and to disengage therefrom, a key-lever and means between said key-lever and slide adapted to communicate motion from the former to the latter and a case having a sight-aperture contiguous to said dial and arranged to display one-tenth

of the periphery of said dial therethrough, the distance between said dial and sight-aperture being constant, substantially as shown.

25. In a calculating-machine, the combination of nine pivotally-mounted key-levers, each having a downwardly-extending end, a cam rotatably mounted on a proper support, a reciprocating bar supported at its forward end and pivotally connected at its rear end to said cam and provided with nine lugs on its edge, with which, respectively, the downwardly-extending ends of said key-levers are adapted to contact, and which lugs are relatively-increasing distances apart *seriatim* from front to rear, a spring adapted to give return movement to said cam, a gear mounted concentrically with said cam and movable therewith, a properly-mounted shaft, a gear on said shaft engageable with the first-named gear, a cylindrical dial mounted on said shaft and connected with and movable by the second-named gear, a quadrant extending from and movable with the first-named gear and having nine ratchet-teeth on its periphery, a sliding bar with proper supports and provided with nine equidistant lugs on its upper edge, with which the downwardly-extending ends of said key-levers, respectively, are engageable, and a spring-actuated lever centrally mounted, having its upper end engageable with a lug on the lower edge of said sliding bar and at its lower end engageable with the ratchet-teeth of said quadrant, substantially as and for the purposes specified.

26. In a calculating-machine, the combination of a rotatable gear, a cylindrical dial mounted on a shaft and rotatable thereon by said gear, a properly-mounted vertically-movable support, a disk rotatably mounted on said support and having a certain circumferential portion thereof provided with gear-teeth engageable with the first-named gear and also having another certain circumferential portion of a larger radius provided with ratchet-teeth, a pawl adapted to engage said ratchet-teeth and to withdraw therefrom, a key-lever and means actuated thereby for the purpose of operating said vertically-movable support and pawl, substantially as described.

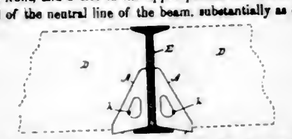
27. In a calculating-machine, the combination of a rotatable gear, a cylindrical dial mounted on a shaft and rotatable thereon by said gear, a properly-mounted vertically-movable support, a gear rotatably mounted on said support and movable therewith so as to engage the first-named gear, a key-register dial mounted rotatably on a shaft and having a spring adapted to give it reverse motion, a register-pulley mounted rotatably upon a shaft and having ratchet-teeth on a portion of its periphery and movable forward by said second-named gear through intermediate means, a pulley connected with said register-dial and concentric therewith, a belt passing over the register-pulley and the key-register-dial pulley, a properly-mounted pawl engageable with said ratchet-teeth, a reciprocating sliding bar engageable at its rear end with said pawl, a key-lever adapted to move said sliding bar and also provided with means to communicate motion to said vertical support, substantially as specified.

28. In a calculating-machine, the combination of a rotatable gear, a cylindrical dial mounted on a shaft and rotatable thereon by said gear, a properly-mounted vertically-movable support, a disk rotatably mounted on said support and having a certain circumferential portion thereof provided with gear-teeth engageable with the first-named gear and also having another certain circumferential portion of a larger radius provided with ratchet-teeth, a pawl adapted to engage said ratchet-teeth and to withdraw therefrom, a key-register dial mounted rotatably on a shaft and having a spring adapted to give it reverse motion, a register-pulley mounted rotatably on a shaft and having ratchet-teeth on a portion of its periphery and movable forward by said second-named gear through intermediate means, a pulley connected with said key-register dial and concentric therewith, a belt passing over said register-pulley and said key-register-dial pulley, a properly-mounted pawl adapted to engage with and disengage from said ratchet-teeth of the register-pulley, a reciprocating sliding bar engageable at its rear end with said pawl, a key-lever adapted to move said sliding bar and also provided with means to communicate motion to said vertically-movable support, substantially as described.

29. In a calculating-machine, the combination of key-levers, a series of cylindrical indicating-disks mounted rotatably on a shaft, a ratchet-gear for each cylindrical dial connected therewith and mounted loosely on said shaft, means actuated by the key-levers and adapted to rotate said disks, a curved slide accompanying each cylindrical dial and movable on suitable guideways, a cam for each curved slide, fastened on said shaft, rotatable therewith and adapted to operate its said companion curved slide, a spring for each curved slide, a pawl pivoted on each curved slide bent so as to engage and move forward the ratchet-gear of the next adjacent cylindrical dial of the series and constituting a carrying mechanism, and an arm from said pawl engageable with the same ratchet-gear and adapted to hold said gear from reverse movement, substantially as specified.

679,349. **JOIST-HANGER.** JULIUS TUTEUR, Cleveland, Ohio. Filed Dec. 24, 1900. Serial No. 40,841. (No model.)

Claim.—1. A joist-hanger having its back and foot meeting at an obtuse angle and rounded on a short radius at the meeting-point, cheeks or sides joining the back and foot, a ridge or web entirely across the foot near the front, and a slot in the upper portion of the back at or above the level of the neutral line of the beam, substantially as described.

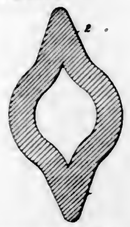


2. A joist-hanger having its back and foot flat and meeting at an obtuse angle and rounded on a short radius at the meeting-point, cheeks or sides joining the back and foot, a ridge or web entirely across the foot near the front, and a slot in the upper portion of the back at or above the level of the neutral line of the beam, substantially as described.

3. A joist-hanger having its back and foot meeting at an obtuse angle and rounded on a short radius at the meeting-point, cheeks or sides joining the back and foot, a ridge or web entirely across the foot near the front, an opening in the foot, and a slot in the upper portion of the back at or above the level of the neutral line of the beam, substantially as described.

4. A joist-hanger having its back and foot meeting at an obtuse angle and rounded on a short radius at the meeting-point, cheeks or sides joining the back and foot, a ridge or web entirely across the foot near the front, and a vertically-arranged slot in the upper portion of the back at or above the level of the neutral line of the beam, substantially as described.

679,350. **RIBBED PIPE.** WILLIAM R. WILLIAMS, Reading, Pa., assignor to Alex Laughlin, Sewickley, Pa. Filed Apr. 26, 1900. Serial No. 14,402. (No model.)



Claim.—A billet-supporting rail for furnaces, consisting of a wrought-metal pipe having portions of its walls pressed together forming an external solid longitudinal rib integral with the pipe, such rib forming a wearing-surface, substantially as set forth.

679,351. **MANUFACTURE OF RIBBED PIPES.** WILLIAM R. WILLIAMS, Reading, Pa., assignor to Alex Laughlin, Sewickley, Pa. Filed Apr. 26, 1900. Serial No. 14,404. (No model.)

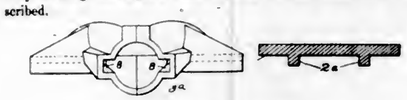


Claim.—1. As an improvement in the art of forming wrought-metal supporting-pipes for furnaces, the method herein described, which consists in forming a pipe from a blank or skelp, contracting the perimeter of portions of the walls of such pipe and forming other portions of such walls inwardly toward and against each other forming an external solid rib along the pipe of a height greater than the thickness of the wall of the pipe itself, substantially as set forth.

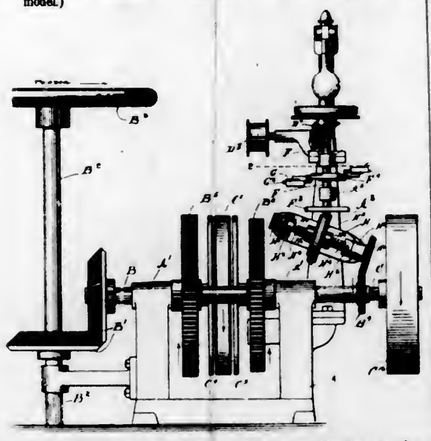
2. As an improvement in the art of forming wrought-metal supporting-pipes for furnaces, the method herein described, which consists in contracting the perimeter of opposite portions of the pipe and forcing other portions and opposite ends of a cord of the circle of the pipe inwardly toward each other, forming an external solid rib of a thickness greater than the wall of the pipe, substantially as set forth.

679,352. **MANUFACTURE OF RIBBED PIPES.** WILLIAM R. WILLIAMS, Reading, Pa., assignor to Alex Laughlin, Sewickley, Pa. Filed Apr. 26, 1900. Serial No. 14,405. (No model.)

Claim.—As an improvement in the art of manufacturing ribbed pipes, the method herein described which consists in forming a blank with one or more ribs extending along one side of the blank, progressively bending such blank with the ribs outside, causing the ribs to follow and conform with the gradual curvature of the body of the blank and progressively welding the edges of the skelp thus formed, substantially as described.



679,353. **GOVERNOR FOR WATER-WHEELS.** ELMER E. WOODWARD, Rockford, Ill. Filed Dec. 8, 1900. Serial No. 39,245. (No model.)



Claim.—1. In a water-wheel governor, in combination, a valve-operating means; and a controlling mechanism therefor, which controlling mechanism comprises a speed-regulator, a cam, and means adapted to be actuated by said cam, to assist the speed-regulator in controlling the valve.

2. In a water-wheel governor, in combination, a valve-operating means; and a controlling mechanism therefor, which controlling mechanism comprises a speed-regulator, a cam, and a tappet for engaging said cam.

3. In a water-wheel governor, in combination, a valve-operating means; and a controlling mechanism therefor, which controlling mechanism comprises a speed-regulator and a compensating mechanism, the latter comprising a cam and a tappet.

4. In a water-wheel governor, in combination, a valve-operating means; and a controlling mechanism therefor, which mechanism comprises a speed-regulator, a cam, and tappets therefor, and a compensating device actuated by the valve-operating means, adapted to assist the speed-regulator to actuate the valve-operating means.

5. In a water-wheel governor, in combination, a valve-operating means; and a controlling mechanism therefor, which mechanism comprises a speed-regulator and a compensating device, said compensating device comprising a cam and tappets and a device actuated by the valve-operating means adapted to bodily move the cam.

6. In a water-wheel governor, in combination, a clutch adapted to operate the power-valve; a tappet-arm adapted to operate said clutch; a rotatable cam; and a speed-regulator adapted to move the tappet-arm with relation to said cam.

7. In a water-wheel governor, in combination, a valve-operating means; and a controlling mechanism for the valve-operating means, said controlling mechanism comprising a speed-regulator, a cam and tappets, and a compensating device, the latter actuated by the valve-operating means and adapted to assist the speed-regulator in controlling the valve.

8. In a water-wheel governor, in combination, a speed-regulator; a valve-operating means controlled by the speed-regulator; and a compensating device actuated by the valve-operating means, and adapted to assist the speed-regulator in controlling the valve, which compensating device comprises a rotatable cam, tappets, and means actuated by the valve-operating means for bodily moving said cam and for rotating it.

9. In a water-wheel governor, in combination, a valve-operating means; a speed-regulator; and a compensating device actuated by the valve-operating means, the latter adapted to assist the speed-regulator in controlling the valve, which compensating device comprises a cam and tappets, a screw-threaded shaft, a friction-wheel having a screw-thread engagement with said shaft, a friction-disk for the friction-wheel, said screw-threaded shaft being placed at an angle with said disk, and means for rotating said screw-threaded disk with the valve-operating means.

10. In a water-wheel governor, in combination, a speed-regulator; a valve-operating means controlled by the speed-regulator; and a compensating mechanism comprising a cam, a cam-shaft, and tappets, also a screw-threaded shaft, a friction-wheel having a screw-thread engagement with said shaft, a friction-disk for the friction-wheel, which disk is fixed on said cam-shaft, the screw-threaded shaft being placed at an angle with said disk, and means for rotating said screw-threaded shaft with the valve-operating means.

11. In a water-wheel governor, in combination, a speed-regulator; a valve-operating means controlled by the speed-regulator; and a compensating mechanism comprising a cam, tappet-arms, an inclined screw-threaded shaft, a friction-wheel on said shaft, a friction-disk for said friction-wheel, and means for rotating said shaft when the power-valve is operated, to move said cam and assist the speed-regulator to release said mechanism.

12. In a water-wheel governor, in combination, a speed-regulator; two friction-disks for operating a power-valve; a friction-wheel for said disks; a tappet-arm adapted to move said friction-wheel into contact with either one of said friction-disks; a cam for moving said tappet-arm; and means for moving said cam bodily to assist the speed-regulator in controlling the power-valve.

13. In a water-wheel governor, in combination, a speed-regulator; two friction-disks for operating a power-valve; a friction-wheel for said disks; a tappet-arm adapted to move said friction-wheel into contact with either one of said friction-disks; a cam for moving said tappet-arm; an inclined screw-threaded shaft; a friction-wheel for said shaft; a friction-disk; and means for rotating said screw-threaded shaft when the power-valve is operated. to withdraw said cam from engagement with said tappet-arm.

14. In a water-wheel governor, in combination, a speed-regulator; two friction-disks for operating a power-valve; a constantly-rotated friction-wheel between said disks, capable of being placed in engagement with either one of said disks; a tappet-arm adapted to move said friction-wheel; a cam for moving said arm; a shaft for said cam; a friction-disk on said shaft; a screw-threaded shaft placed at an angle with the face of said last-mentioned friction-disk; a friction-wheel for said screw-threaded shaft, adapted to engage said friction-disk; and means for rotating the screw-threaded shaft when the power-valve is operated, to withdraw said cam from engagement with said tappet-arm.

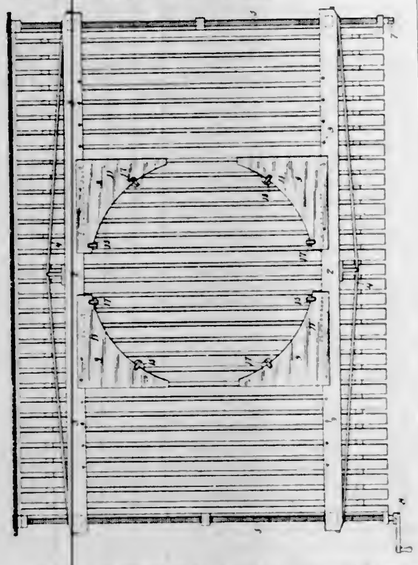
15. In a water-wheel governor, in combination, a speed-regulator; two friction-disks for operating a power-valve; a constantly-rotated friction-wheel between said disks, capable of being placed in engagement with either one of the disks; two tappet-arms adapted to move said friction-wheel; a cam for engaging said tappet-arms; a shaft for said cam; a friction-disk on said shaft; a screw-threaded shaft placed at an angle with the face of said last-mentioned friction-disk; a friction-wheel for said screw-threaded shaft, adapted to engage said friction-disk; a gate-operating shaft; and a rotatable connection between the first-mentioned friction-disks and said gate-operating shaft, and between the screw-threaded shaft and said gate-operating shaft.

16. In a water-wheel governor, in combination, a speed-regulator; a friction-disk shaft; two friction-disks loosely mounted on said shaft; a friction-wheel fixed on said shaft between said friction-disks; a gate-operating shaft; a rotatable connection between one of said friction-disks and said gate-operating shaft, to rotate the shaft in one direction; a rotatable connection between the other friction-disk and the gate-operating shaft, to rotate the said shaft in a contrary direction; tappet-arms for moving the friction-disk shaft to throw the friction-wheel into engagement with either one of said friction-disks; a cam for engaging said tappet-arms; a shaft for said cam; a friction-disk on said shaft; a friction-wheel having contact with said friction-disk; an inclined screw-threaded shaft for said friction-wheel; and means for rotating the screw-threaded shaft when the power-valve is operated, to raise or lower the cam from engagement with the tappet-arms.

17. In a water-wheel governor, in combination, a shaft for operating a power-valve; a speed-regulator; a friction-disk shaft; two friction-disks loosely mounted on said shaft; a friction-wheel between said friction-disks, fixed on said shaft; a spur-gear connection between one of said friction-disks and the shaft for operating the power-valve, to rotate said shaft in one direction; a similar connection between the other friction-disk and said shaft, to rotate said shaft in a contrary direction; a shipping device for throwing the friction-wheel into contact with either one of said friction-disks; a supporting-shaft for the shipping device; a bracket at the upper end of said shipping device; an arm pivotally mounted on said bracket; a saddle on said arm; two tappet-arms fixed with relation to said saddle; a spindle for the speed-regulator, the lower end of which spindle rests upon said saddle; a spring for holding the saddle elevated; a cam between the outer ends of said tappet-arms; a shaft for said cam; a friction-disk on said shaft; a friction-wheel for said disk; a screw-threaded

shaft for said friction-wheel, which said screw-threaded shaft is inclined with relation to the bearing-face of its friction-disk; and a gear connection between the power-valve-operating shaft and the inclined screw-threaded shaft.

679,354. **WORK-TABLE.** CHARLES S. YARNELL, Minneapolis, Minn., assignor to Moore Carving Machine Company, same place. Filed Mar. 27, 1901. Serial No. 52,773. (No model.)



Claim.—1. In combination in a work-table, a work-table frame or top, rails resting movably on said frame or top, reversely-threaded screws mounted rotatably in the work-table frame or top and turning in said rails adapted to adjust the rails toward and from each other, and clamping members secured movably to and adjustable with and on said rails above the top of the work-table, the clamping members being so shaped and arranged as to form complementary members of a work-holding device, each member being substantially triangular in form and provided with thereon-mounted supporting and clamping devices adapted to clamp and hold the work above the table and within and between the clamping members and substantially flush with the top surface thereof.

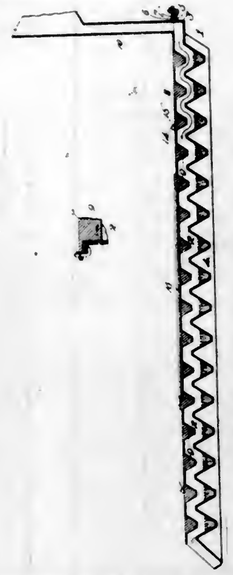
2. In combination in a work-table, a fixed supporting means, a pair of rails adjustable toward and from each other on the supporting means, reversely-threaded screws rotatable in the supporting means and turning by their threads in the rails, clamping members in a generally triangular form in opposite pairs adjustable on and along said rails, means securing the clamping members releasably to the rails, knobs projecting from the clamping members at their long edges, and means in the clamping members adjustable transversely thereof for supporting the article held thereby at a suitable height with reference thereto.

3. In clamping mechanism in a work-table, a clamping member in substantially triangular form, and knobs at a distance apart projecting inwardly from the long edge or hypotenuse of the clamping member below its top surface and adapted to receive the work against them and hold it between the clamping members and substantially flush therewith above the table.

4. In clamping mechanism in a work-table, a clamping member in substantially triangular form, a plurality of knobs projecting from the long edge of the clamping member, and adapted to receive against them the article to be held, bolts movable endwise at a right angle to the direction of the projection of the knobs, and nuts turning on the bolts but held in the clamping member against endwise movement.

679,355. **AMALGAMATOR.** JOHN H. BARR, Kansas City, Kans. Filed May 3, 1900. Serial No. 15,314. (No model.)

Claim.—1. An amalgamator, having a vertically-tortuous passage in the form of a series of connected pockets adapted to contain liquid mercury, the surfaces of said liquid mercury forming the bottom walls of said pockets, the cross-sectional area of the passage being greater in vertical planes intersecting the pockets whereby the passage for the pulp may be made of uniform cross-section by the provision of liquid mercury in said pockets, substantially as described.



2. An amalgamator, having a vertically-tortuous passage in the form of a series of connected pockets adapted to contain liquid mercury, the surfaces of said liquid mercury forming the bottom walls of said pockets, said passage having its walls, including the mercury walls, substantially parallel throughout, the cross-sectional area of the passage being greater in vertical planes intersecting the pockets whereby the passage for the pulp may be made of uniform cross-section by the provision of liquid mercury in such pockets, substantially as described.

3. An amalgamator, having a vertically-tortuous passage in the form of a series of V-shaped pockets connected together at their upper ends and adapted to contain liquid mercury, the surfaces of said mercury forming the bottom walls of said pockets, said passage having its walls, including the mercury walls, substantially parallel throughout, the cross-sectional area of the passage being greater in vertical planes intersecting the pockets whereby the passage for the pulp may be made of uniform cross-section by the provision of liquid mercury in said pockets, substantially as described.

4. An amalgamator, comprising a pan having a series of V-shaped pockets adapted to contain liquid mercury, and a cover for said pan provided with V-shaped baffle-plates adapted to depend centrally over said pockets, the two forming a vertically-tortuous passage whose cross-area is greater in vertical planes intercepting said baffle-plates whereby the said passage may be made of uniform cross-section by the provision of liquid mercury in such pockets, substantially as described.

679,356. **WORM-GEARING.** NORMAN C. BARRETT, Lynn, Mass., assignor to General Electric Company, of New York. Filed Oct. 26, 1900. Serial No. 34,432. (No model.)

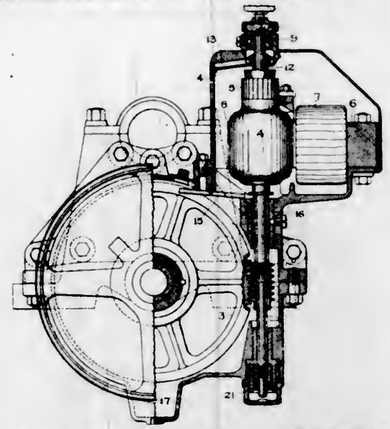
Claim.—1. The combination of a worm-wheel and a worm-shaft adapted to shift endwise under load, with means for giving the worm-shaft a bias to counterbalance the normal load driven by the wheel, whereby the friction of end thrust is obviated.

2. The combination of a worm-wheel and a vertically-mounted worm-shaft weighted to counterbalance the normal load driven by the wheel.

3. The combination of a worm-wheel, a worm-shaft, means for giving a bias to counterbalance its end thrust, and a dash-pot to oppose sudden changes of movement of the shaft.

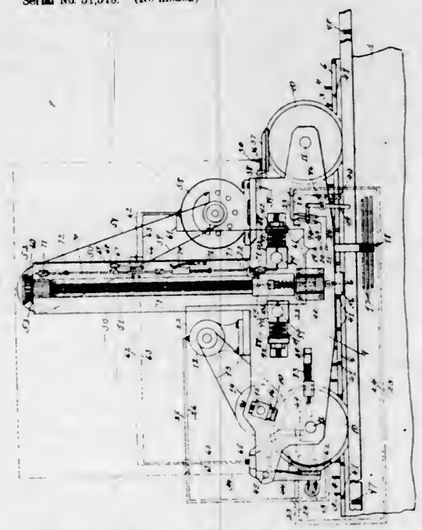
4. The combination of a worm-wheel, a worm-shaft and an electric motor driving the same, the armature of the motor being mounted on the shaft and fixed thereon to hold the shaft against end thrust when symmetrical in its field of force.

5. The combination of a worm-wheel, a vertical worm-shaft, an electric motor driving the same, the armature of the motor being mounted on the shaft, the parts being so adjusted that when the armature is symmetrical with relation to its field, the shaft floats in its bearings.



6. The combination of a worm-wheel, a vertical worm-shaft, an oil-feed at the top of the shaft, and guides for leading the oil from the top bearing to the bottom bearing over the working face of the worm.

679,357. **APPARATUS FOR TREATING METALS BY ELECTROLYSIS.** ANSON G. BETTS, Upper Troy, N. Y. Filed Mar. 18, 1901. Serial No. 51,578. (No model.)



Claim.—1. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; and mechanism supported by said carriage for mechanically treating the electrodeposits on the several electrodes.

2. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; and mechanism supported by said carriage for raising from the vat, and lowering into the vat, the several electrodes and mechanism supported by said carriage for mechanically treating the electrodeposits on the several electrodes.

3. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; means for intermittently moving said carriage along said track; means adapted to operate during the intervals between successive intermittent movements of the carriage, for mechanically treating the several electrodes and means for automatically inducing the alternate operation of said carriage-moving mechanism, and said mechanism for mechanically treating the electrodes.

4. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; an intermittent motor for automatically imparting to said carriage intermittent movements along said track; mechanism for raising from the vat, mechanically treating, and lowering into the vat, the several electrodes and means for automatically inducing alternately intermittent action of the carriage-operating mechanism, and electrode raising, lowering and treating mechanism.

5. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; pressure-rollers mounted upon said carriage; and mechanism supported by said carriage for raising the several electrodes from the vat, passing them between said pressure-rollers, and lowering them into the vat.

6. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; pressure-rollers mounted upon said carriage; electrode raising and lowering mechanism on said carriage; a motor for moving said carriage along said track; and means for operating said electrode raising and lowering mechanism.

7. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track located adjacent to said vat; a carriage adapted to be moved along said track above said vat; pressure-rollers mounted upon said carriage; an intermittent motor for automatically imparting to said carriage intermittent movements along said track; and mechanism adapted to operate automatically during the intervals between successive movements of said carriage for raising the several electrodes from the vat, passing them between said rollers, and lowering them into the vat, substantially as described.

8. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track located adjacent to said vat; a carriage adapted to be moved along said track above said vat; pressure-rollers mounted upon said carriage; mechanism for raising the several electrodes from the vat, passing them between said rollers and lowering them into the vat; and a pair of intermittent motors, one adapted to intermittently move said carriage along said track and the other adapted to operate said electrode raising and lowering mechanism; and means for automatically inducing said motors to operate alternately.

9. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage adapted to move back and forth along said track; a reversible motor for moving the carriage; an automatic switch for reversing said motor at either end of the path of movement of the carriage; means for automatically causing said motor to operate intermittently to move the carriage in one direction; electrode raising and lowering mechanism on said carriage; means for automatically operating said electrode raising and lowering mechanism during the intervals between successive intermittent movements of the carriage; and a pair of pressure-rollers mounted on the carriage in the path of the raised and lowered electrodes.

10. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; pressure-rollers mounted upon said carriage; a frame capable of vertical, reciprocating movements on said carriage and adapted to engage, raise and lower the several electrodes; and means for alternately operating said carriage and frame, substantially as described.

11. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat, and electrodes contained therein; of a track adjacent to said vat; a carriage movable along said track; a pair of pressure-rollers mounted thereon; a pair of screws mounted upon said carriage; a frame adapted to engage, raise and lower, the several electrodes, and provided with a pair of nuts fitting said screws respectively; means for moving said carriage; and means for rotating said screws to raise and lower said frame, substantially as described.

12. In an apparatus for refining metals by electrolysis, the combination with a carriage movable from one to another of a series of electrodes; a movable frame adapted to engage, raise and lower the electrodes severally; and pressure-rollers mounted on the carriage in the path of the raised or lowered electrodes; a reversible motor for raising and lowering said frame; a switch for reversing said motor; and switch-operating mechanism carried by said frame.

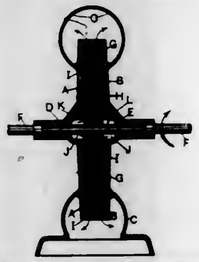
13. In an apparatus for refining metals by electrolysis, the combi-

nation with a carriage movable along a track from one to another of a series of electrodes; and a movable brake for preventing movement of the carriage; of a movable frame adapted to engage, raise and lower the several electrodes; means for raising and lowering said frame; and brake-releasing mechanism actuated by the final descending movement of said frame.

14. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat; of a series of electrodes severally provided on their upper ends with oppositely-projecting lugs; and electrode raising and lowering frame, having hooks adapted to pass beneath and engage said lugs; means for moving said frame from one to another of said electrodes; and means for raising and lowering said frame.

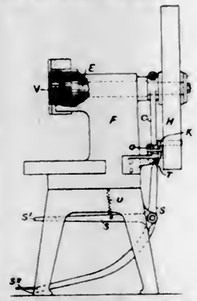
15. In an apparatus for refining metals by electrolysis, the combination with an electrolytic vat; of a series of electrodes contained in said vat and severally provided on their upper ends with oppositely-projecting lugs; a track adjacent to said vat; a carriage movable along said track; a frame movably supported on said carriage and movable therewith from one to another of said electrodes; projections on said frame adapted to pass beneath said lugs on the electrodes; and means for raising and lowering said frame to cause said frame projections to engage, raise and lower the several electrodes, substantially as described.

679,358. **STEAM-TURBINE.** JOHN F. BRADY, Chicago, Ill. Filed Dec. 18, 1899. Serial No. 740,718. (No model.)



Claim.—In a steam-turbine, a revolubly-mounted series of separated rings of expansion-chambers opening against the flow of steam, in combination with a series of separated rings of stationary separated vanes or blades with passage-ways for steam between them subtending an angle to the movement of the expansion-chambers, and passage-ways for steam leading out of the expansion-chambers at an angle to their movement and contrary to the angles subtended by the passage-ways between the vanes or blades, for the purpose stated.

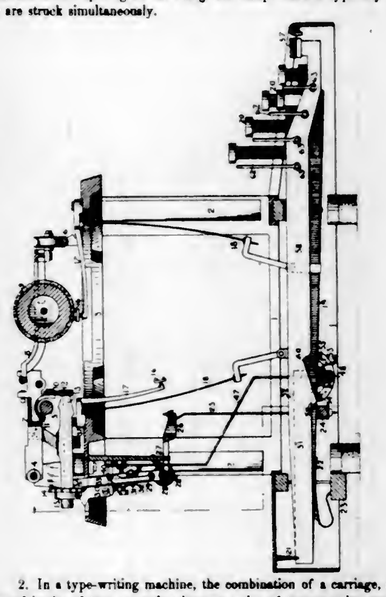
679,359. **CLUTCH.** EDWARD S. BRETT, Coventry, England. Filed Feb. 11, 1901. Serial No. 46,909. (No model.)



Claim.—In clutches for starting and stopping machinery the combination with the shaft E, arm G rigidly secured thereto, and free wheel H having driving-slide K, with movable guide O and operating-lever S, all substantially as set forth and shown.

679,360. **TYPE-WRITING MACHINE.** BYRON A. BROOKS, Brooklyn, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Filed Apr. 20, 1900. Serial No. 13,606. (No model.)

Claim.—1. In a type-writing machine, the combination of a carriage, a series of banks of type-operating keys, a series of transversely-arranged bars, one bar behind each of said banks, a single-spacing mechanism for said carriage controlled by said type-keys, and a double-spacing device controlled partially by said keys and partially by said transverse bars, said double-spacing device being idle except when a type key and bar are struck simultaneously.



2. In a type-writing machine, the combination of a carriage, a series of banks of type-operating keys, a series of transversely-arranged bars, one bar behind each of said banks, a single-spacing mechanism for said carriage controlled by said type-keys, a double-spacing device controlled partially by said keys and partially by said transverse bars, said double-spacing device being idle except when a key and bar are struck simultaneously, said transverse bars being mounted upon a pivoted frame which also carries a space-bar arranged transversely at the front of the keyboard.

3. In a type-writing machine, the combination with a carriage, of a letter-spacing mechanism including a feeding-dog having a variable throw, a type-operating key and a space-key connected to said feeding mechanism, and a movable stop limiting the throw of said feeding-dog and controlled partially by said type-operating key and partially by said space-key, so that by a simultaneous operation of the type-operating key and the space-key, said stop is moved and said dog is enabled to cause a double feed of the carriage.

4. In a type-writing machine, the combination of a carriage, a single-spacing mechanism therefor, a series of type-operating keys and a space-key connected to said spacing mechanism, means controlled partially by the type-operating keys and partially by the space-key for causing a double feed of the carriage, so that when a type-operating key is operated simultaneously with the space-key, the carriage is caused to feed a double space, and an independently-operable key for wholly controlling said double-spacing mechanism.

5. In a type-writing machine, the combination with a carriage and an escapement mechanism therefor, of a series of type-operating keys connected to said escapement mechanism, a frame adapted to move idly at the operation of any of said type-keys, a double-spacing mechanism for said carriage connected to said idle frame, and a key arranged at the keyboard and adapted to coöperate at will with any of said type-keys to cause said idle frame to operate said double-spacing mechanism so as to cause the carriage to move a double space.

6. In a type-writing machine, the combination with a carriage and a letter-spacing mechanism therefor, of a series of type-operating levers, a frame pivoted upon a movable support below said levers and adapted to rock idly at the operation of any of said levers, a double-space mechanism connected to said movable support, and an independent lever extending to the keyboard and provided with a key and adapted to coöperate with any of said type-operating levers to move said support, through said idle frame, and thereby cause the double-spacing mechanism to operate.

7. In a type-writing machine, the combination with a carriage of a letter-spacing mechanism therefor, a series of type-operating levers connected to said letter-spacing mechanism, a pair of space-key levers united at their forward ends by a space-key bar, an idle frame mounted upon a movable support and extending transversely beneath all of said levers and adapted to move idly in one direction at the operation of any type-operating lever, and to move idly in the opposite direction at the operation of said space-key bar, and also adapted to move bodily, together with said movable support, at the simultaneous operation of said space-key bar and any of said type-operating levers, and means connected to said movable support for causing a double-space movement of the carriage.

8. In a type-writing machine, the combination with a carriage of an escapement mechanism therefor, a series of key-levers connected to a series of type-bars, a space-key frame comprising a pair of levers extending parallel with said key-levers and united at their forward ends by a space-key bar, a series of U-frames extending from one of said space-key levers to the other, each U-frame being arranged behind a bank of keys, an idle frame pivoted upon a movable support below all of said levers and adapted to rock in one direction at the operation of any of said type-key levers and to rock in the opposite direction at the operation of said space-key frame, and also adapted to move bodily downward together with said movable support at the simultaneous operation of said spacing-frame and any selected type-key lever, and a double-spacing mechanism connected to said movable support.

9. In a type-writing machine, the combination of a pivoted frame comprising parallel levers 51, united by transverse shaft 48, an idle frame pivoted upon said shaft and comprising cross-bars 53 united by tie-rods 54, 55, the construction and arrangement being such that said frame rocks idly during the usual operation of the machine, means for moving said idle frame bodily together with said shaft 48 and levers 51, link 47 connected to said shaft 48, and means connected to said link for causing a double feed of the paper-carriage.

10. In a type-writing machine, the combination with a paper-carriage and an escapement mechanism therefor, of a series of type-operating key-levers, a pair of space-key levers extending parallel with said type-key levers, an idle frame arranged below all of said levers and comprising cross-bars 53 united by tie-rods 54, 55, shaft 48 on which said cross-bars are pivoted, pivoted levers 51 upon which said shaft 48 is supported, projections 59 formed upon each of said space-key levers and adapted to move one of said tie-rods 54, notch 60 formed in each of said space-key levers, to leave a clearance for the other of said tie-rods 55, and a double-spacing mechanism connected to said shaft 48, the construction and arrangement being such that at the operation of any type-key lever, the tie-rod 55 is depressed and the bars 53 rock idly upon the shaft 48 in one direction, and such that when the space-key frame is depressed, the projections 59 contact with the other tie-rod 54 and cause said bars 53 to rock idly upon the shaft 48 in the other direction, and being also such that at the simultaneous operation of said space-key and any of said type-keys, both of said tie-rods 54, 55 are forced down simultaneously, carrying down said shaft 48, and causing the double-spacing mechanism connected thereto to operate.

11. In a type-writing machine, the combination with a carriage, of an escapement-rack, a dog-rocker, a feeding-dog independently movable upon said rocker, a movable stop for limiting the independent movement of said dog, a series of type-operating keys arranged in banks and connected to said dog-rocker, a bar arranged transversely behind each of said banks of keys, and means called into action by the simultaneous operation of any of said type-keys and its associated transverse bar for moving said movable stop out of the path of the independent movement of said feeding-dog and thereby enabling said dog to move to a position for causing a double feeding of the carriage.

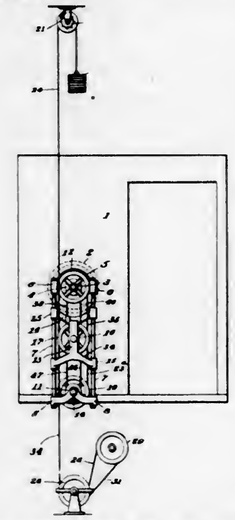
12. In a type-writing machine, the combination with a carriage, of an escapement-rack, a dog-rocker, a feeding-dog independently movable upon said rocker, a movable stop for limiting the independent movement of said dog, a series of type-operating keys, a space-key, all of said keys being operatively connected to said dog-rocker, and the construction and arrangement being such that at the operation of the space-key or any type-key, said feeding-dog contacts with said movable stop and causes a single feed of the carriage, and means called into action by the simultaneous operation of said space-key and any of said type-keys for moving said movable stop out of the path of the independent movement of said feeding-dog and thereby enabling said dog to move to a position for causing a double feed of the carriage.

13. In a type-writing machine, the combination with a carriage, of an escapement-rack, a dog-rocker, a feeding-dog independently movable upon said rocker, a movable stop for limiting the independent movement of said dog, a space-key frame operatively connected to said rocker and normally adapted to move said dog-rocker but not to move said movable stop, and means adapted to coact at will with said space-key frame at the operation of said dog-rocker, so as to cause said movable stop to be moved out of the path of the independent movement of said feeding-dog and thereby enabling said dog to move to a position for causing a double feed of the carriage.

14. In a type-writing machine, the combination with a carriage, of an escapement-rack, a dog-rocker, a feeding-dog independently movable upon said rocker, a movable stop for limiting the independent movement of said dog, a series of type-operating keys connected to said dog-rocker, a frame connected to said movable stop and adapted to move idly at the operation of any of said type-keys, and a device arranged at the keyboard and adapted to coöperate at will with any of said type-keys to cause said idle frame to move said movable stop out of the path of the independent movement of said feeding-dog and thereby enable said dog to move to a position for causing a double feed of the carriage.

15. In a type-writing machine, the combination with a carriage, of an escapement-rack, a dog-rocker, a feeding-dog independently movable upon said rocker, a movable stop for limiting the independent movement of said dog, a series of type-operating levers, a universal bar connected to said dog-rocker and adapted to be operated by any of said levers, a pair of space-key levers united at their forward ends by a space-key bar, an idle frame mounted upon a movable support and extending transversely beneath all of said levers and adapted to move idly in one direction at the operation of any type-operating lever and to move idly in the opposite direction at the operation of said space-key levers, and also adapted to move bodily, together with its said movable support, at the simultaneous operation of said space-key bar and any of said type-operating levers, and a connection from said movable support to said movable stop, whereby the latter is moved out of the path of the movement of said independent feeding-dog and thereby enables the said feeding-dog to move to a position for causing a double feed of the carriage.

679,361. **CONTROLLING MECHANISM FOR ELEVATORS.** ALFRED T. BROWN, Cincinnati, Ohio, assignor to the Warner Elevator Manufacturing Company, same place. Filed June 30, 1900. Serial No. 22,135. (No model.)



Claim.—1. A controlling mechanism for elevators comprising a controller-rope formed in two runs extended in the well and connected to a valve-wheel or the like, each run having a bight produced in it, two sheaves on the cab for each bight, one sheave of each bight being movable, and an operating device having a tiller-rope, the tiller-rope having each end connected to the movable sheave of both bights to move the movable sheaves simultaneously to enlarge one bight and contract the other bight of the controller-rope, substantially as set forth.

2. A controlling mechanism for elevators comprising a controller-rope formed in two runs extended in the well and connected to a valve mechanism or the like, each run having a bight produced in it, two idler-sheaves on the cab, one for the bight of each run of the controller-rope, a traveling frame on the cab having a sheave for the bight of each run of the controller-rope and an operating device having a tiller-rope connected to the traveling frame and adapted for operation to enlarge one bight and contract the other bight of the controller-rope, substantially as set forth.

3. A controlling mechanism for elevators comprising a controller-rope formed in two runs extended in the well and connected to a valve

mechanism or the like, each run having a bight produced in it, guides, a frame movable on said guides and having a sheave for the bight of each run of the controller-rope, a sheave at each end of the guides for one of the bights of the controller-rope and an operating device having a tiller-rope connected to the traveling frame and adapted for operation to move the same to simultaneously enlarge and contract the respective bights of the controller-rope, substantially as set forth.

4. In a controlling mechanism for elevators, the combination of guides carried by the cab, idler-sheaves at the ends of the guides, a traveling frame mounted for movement on the guides and provided with two sheaves, a controller-rope passed over the idler-sheaves and the sheaves of the traveling frame, an operating device carried on the cab and a flexible connection between said operating device and the traveling frame and passed over the said idler-sheaves, substantially as set forth.

5. In a controlling device for elevators, the combination of idler-sheaves carried by the cab and arranged in different planes, traveling sheaves arranged at angles to said idler-sheaves and each having one side alined with one of said idler-sheaves, a traveling frame on which both traveling sheaves are carried, a controller-rope having its runs each passed around one of the traveling and one of the idler sheaves, and means for moving the traveling frame, substantially as set forth.

6. In a controlling mechanism for elevators, the combination of a controller-rope, means for moving the same, an operating device carried on the cab and comprising a drum having openings in its periphery and provided with a passage connecting said openings, and a tiller-rope passed around the drum and through the openings and passage thereof and having its end portions connected with the means for moving the controller-rope, substantially as set forth.

7. In a controlling device for elevators, the combination of idler-sheaves, a traveling frame arranged for movement between the idler-sheaves and provided with two sheaves, a controller-rope passed over the idler-sheaves and the sheaves of the traveling frame, shafts at the ends of the path traversed by the traveling frame, drums on said shafts, a tiller-rope connected to one drum with one end connected to one end of the traveling frame and its other end passed around the other drum and connected to the other end of the traveling frame, and an operating device carried in the cab and connected to the shaft of the drum to which the tiller-rope is connected, substantially as set forth.

8. In a controlling mechanism for elevators, the combination of an operating-shaft, guides, a traveling frame movable thereon and provided with two sheaves, sheaves at the ends of the guides, a controller-rope formed in two runs each having a bight passed over one sheave of the traveling frame and the sheave at one end of the guides thereof, drums at the ends of the guides, one drum being connected to the operating-shaft, and a tiller-rope having its ends connected to the traveling frame, said tiller-rope being passed over the drums at the ends of the guides, substantially as set forth.

9. In a controlling mechanism for elevators, the combination of idler-sheaves on the cab, a traveling frame movable between the idler-sheaves and provided with a single shaft, two independently-rotatable sheaves on said shaft, a controller-rope having its runs each carried over one of the idler-sheaves and one sheave of the traveling frame, an operating device and a tiller-rope connected to said operating device and having each end connected to the traveling frame, substantially as set forth.

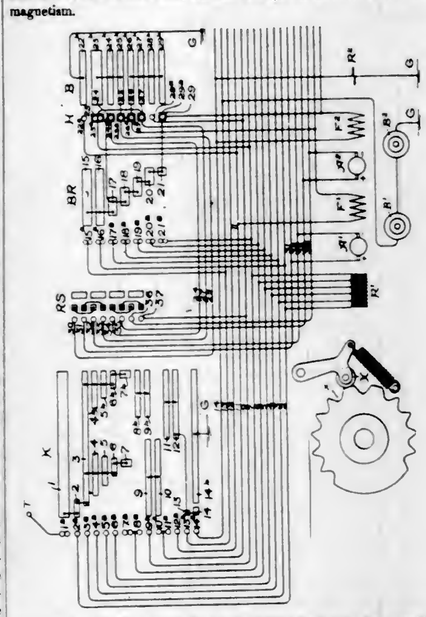
10. A controlling mechanism for elevators comprising a traveling frame adapted for movement upon an elevator-cab, two sheaves carried by said traveling frame and adapted for independent rotation and each adapted for the passage of one bight of a controller-rope, drums at the ends of the path traversed by said traveling frame, a tiller-rope passed over said drums and having its ends oppositely connected to the traveling frame and an operating device for moving the tiller-rope, substantially as set forth.

679,362. **ELECTRIC BRAKE.** FRANK E. CASE, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed July 17, 1897. Serial No. 644,884. (No model.)

Claim.—1. In a control system for propelling motors and electric brake-shoes, a controlling device provided with contacts for supplying current to the motors, contacts for supplying current to actuate the brakes, and contacts at one of the power-points of the controlling device for sending a reverse current through the brake-shoes to demagnetize them.

2. In a control system for propelling motors and electric brake-shoes, a controlling device comprising a power-cylinder provided with contacts for controlling the supply of current to the motors, a brake-cylinder for controlling the supply of current to the brake-shoes, and contacts on the power-cylinder for sending a reverse current through the brake-shoes to demagnetize them.

3. A controlling device for an electric brake system, comprising contacts for regulating the speed of the motors, contacts for regulating their effect as braking-generators, and contacts at the first power-point connected to send a limited trolley-current through the shoes to reverse their magnetism.



4. A controlling device for use in electric brake systems, provided with contacts at one of its power-points for shunting a part of the trolley-current through the brake-shoes to demagnetize and release them.

5. A controlling device for electric brake systems, provided with contacts at one of its power-points, throwing the brake-shoes in multiple with a resistance for shunting a limited portion of the trolley-current through the shoes to demagnetize them.

6. In an electric brake system, means for regulating the motors and for regulating their effect as braking-generators, in combination with an auxiliary device controlled by the trolley-current for throwing the brake-shoes in multiple with a small resistance in the trolley-circuit.

7. In combination, a plurality of dynamo-electric machines, a plurality of electric brake-shoes, a controlling device or switch for controlling the connections of said dynamo-electric machines and said brake-shoes, and an electromagnetic switch for closing a circuit to send a reverse current through said brake-shoes.

8. In combination, a source of current-supply, a plurality of dynamo-electric machines, a plurality of brake-shoes, an auxiliary resistance, and a controlling device in one position, connecting said dynamo-electric machines to furnish current to said brake-shoes, and in another position connecting said dynamo-electric machines to said source in series with said auxiliary resistance and said brake-shoes in shunt to one another.

679,363. **EXPANSION-BOLT.** ISAAC CHURCH, Toledo, Ohio. Filed Apr. 12, 1901. Serial No. 55,449. (No model.)



Claim.—1. An expansion-bolt comprising a threaded bolt, a tapered nut thereon, a sleeve inclosing the nut and longitudinal extensions on said sleeve adapted to be bent inwardly behind the nut to prevent its displacement.

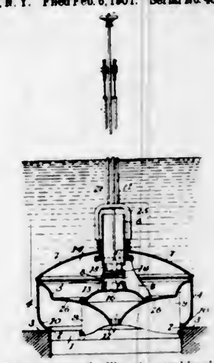
2. In an expansion-bolt, a threaded bolt, a tapered nut on the bolt, a sleeve for the bolt and nut, longitudinal separated portions in said sleeve which form fingers, and inwardly-turned portions at the extremities of said fingers which overlap the nut and which prevent the displacement of the nut.

3. In an expansion-bolt, a sleeve, a threaded bolt and nut, the sleeve and nut having correspondingly-tapered opposing walls, means for preventing the axial rotation of the nut, and inwardly-turned portions of the sleeve at its end to prevent the displacement of the nut.

4. In an expansion-bolt, a sleeve, longitudinally-separated portions at one end of said sleeve forming fingers, extensions on said fingers adapted to be bent inwardly, a longitudinal weakened portion at the opposite end of the sleeve formed by a deep-channel or groove, and a slotted portion in said sleeve opposite said deep channel or groove.

5. In an expansion-bolt, a sleeve, longitudinally-separated portions at one end of said sleeve forming fingers, extensions on said fingers adapted to be bent inwardly, a longitudinal weakened portion at the opposite end of the sleeve formed by a deep channel or groove, a slotted portion in said sleeve opposite said deep channel or groove, and radial points 3^{b} on said sleeve near its outer end.

679,364. **VALVE GATE OR COVERING.** SANFORD L. CLUETT, Hoosick Falls, N. Y. Filed Feb. 6, 1901. Serial No. 46,195. (No model.)



Claim.—1. In a valve or the like, the combination with a fluid-supply reservoir provided with an outlet surrounded by a valve-seat; of a gate movable toward and from said seat and provided with oppositely-disposed surfaces wholly contained within said supply-chamber; and means for regulating the application of the fluid in said supply-chamber to one of said oppositely-disposed gate-surfaces, whereby said fluid-supply can be utilized to either open or close said gate, substantially as described.

2. In a valve or the like, the combination with a fluid-supply reservoir provided with an outlet surrounded by a valve-seat; of a hollow gate movable toward and from said seat, and having oppositely-disposed interior and exterior surfaces exposed to the fluid-supply in said reservoir, and means for regulating the application of said fluid-supply to one of said surfaces.

3. In a valve or the like, the combination with a fluid-supply reservoir provided with an outlet surrounded by a valve-seat; of a hollow gate movable toward and from said seat within said supply-chamber and exposed exteriorly to the fluid-supply therein; a diaphragm supported in fixed relation to said seat and extending transversely of, and fitting, the interior of said gate; and means for regulating the admission of fluid under pressure from said supply-chamber to, and its escape from, the interior of the hollow gate between its outer end and said diaphragm.

4. In a valve or the like, the combination with a liquid-supply reservoir provided with a bottom outlet surrounded by a valve-seat located in a horizontal plane; of a hollow gate movable toward and from said seat; a diaphragm supported above, and in fixed relation to, said seat, and extending horizontally across, and fitting, the interior of said hollow gate; and means for regulating the supply of liquid under pressure from said supply-chamber to the interior of the gate between its outer end and said diaphragm.

5. In a valve or the like, the combination with a fluid-supply reservoir provided with an outlet surrounded by a valve-seat; of a hollow gate movable toward and from said seat; a diaphragm extending transversely of, and fitting, the interior of said gate, and supported in fixed relation to said seat; an inlet leading from said supply-chamber to the gate-chamber formed between the outer end of the gate and said diaphragm; an outlet leading from said gate-chamber past said diaphragm through an opening in the inner end of the gate to the outlet-passage of the fluid-supply chamber; valve mechanisms for controlling said inlet and outlet passages communicating with the gate-chamber; and means for operating said valve mechanisms to simultaneously open one and close the other of said gate-chamber passages.

6. In a valve or the like, the combination with a fluid-supply reservoir provided with an outlet surrounded by a valve-seat; of a hollow gate movable in said reservoir toward and from said seat, said gate having a closed outer end, and closed sides introverted and convexed to form a contracted seating-surface; a diaphragm supported in fixed relation to said seat and extending transversely of, and fitting, the interior of the hollow gate, said diaphragm being of greater area than the space inclosed by the seating-surface on said gate; and means for supplying fluid under pressure to the interior of the gate between its outer end and said diaphragm.

7. In a valve or the like, the combination with a valve-seat surrounding a fluid-passage; and a deflector supported in fixed relation to said seat and provided with a fluid-deflecting surface inclined toward said fluid-passage: of a gate movable toward and from said seat and provided near its seat-engaging end with an inclined fluid-deflecting surface, adapted when said gate is open to terminate in line with the inclined surface on said deflector; and means for operating said gate.

8. In a valve or the like, the combination with a valve-seat surrounding a fluid-passage; a hollow gate movable toward and from said seat and provided on its seat-engaging end with a convexed surface; of a diaphragm supported within said gate at a distance from said seat sufficient to permit the desired quantity of fluid to pass between said seat and diaphragm, said diaphragm being provided with a deflecting-surface concaved toward said passage; and means for operating said gate to bring its convexed end, when closed, into engagement with said valve-seat, and, when open, into line with the concaved deflecting-surface of the diaphragm to form an approximately continuous, reversely-curved, deflecting-surface adjacent to said seat and passage.

9. In a valve or the like, the combination with a valve-seat; and a hollow gate movable toward and from said seat and having an end wall provided with a contracted aperture; of a diaphragm supported in fixed relation to said seat and extending transversely of, and fitting, the interior of the gate-body; a stand-pipe supported in, and fitting, said contracted end aperture in the gate and in fixed relation to said diaphragm, said pipe opening at its outer end exteriorly of the gate and at its inner end interiorly thereof between the end wall thereof and said diaphragm.

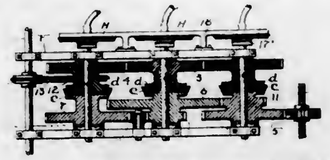
10. In a valve or the like, the combination with a supporting structure provided with a valve-seat; and a hollow gate provided at its inner end with a seating-surface surrounding an opening therein, and having its outer end provided with a contracted aperture; of a diaphragm extending transversely of, and fitting, the interior of the gate; a stand-pipe rigidly connected with said diaphragm and projecting through and fitting said contracted aperture in the outer end of the gate; and rigid supporting connections between said rigidly-connected stand-pipe and diaphragm and said supporting structure, extending through said opening in the inner end of the gate.

11. In a valve, the combination with a tubular case having oppositely-tapered, interior seats located on opposite sides of a transverse diaphragm, and provided with outlets extending laterally through said seats; of a pair of oppositely-tapered, tubular gates adapted to singly engage the respective seats; and a valve-stem common to said gates and passing through said diaphragm, substantially as described.

12. A self-operating valve, gate or covering consisting essentially of but three parts, namely; a fixed-base diaphragm and stand-pipe fixed firmly together; a movable part, the valve proper; and an operating mechanism.

13. In a valve or the like, the combination with a fluid-supply reservoir provided with an outlet surrounded by a valve-seat; of a hollow gate movable toward and from said seat, and having oppositely-disposed interior and exterior surfaces exposed to the fluid-supply in said reservoir, means for regulating the application of said fluid-supply to one of said surfaces, and a counterweight connected with said hollow gate.

679,365. **POWER-TRANSMITTING MECHANISM.** ROLLA R. DARLING, Cleveland, Ohio, assignor to the Beardsley & Hubbs Manufacturing Company, Mansfield, Ohio. Filed Jan. 6, 1900. Serial No. 569. (No model.)



Claim.—1. In power-transmitting mechanism, a drive-shaft and a driven shaft and a series of shafts intermediate thereof and parallel thereto, two trains of gears on said intermediate shafts, one of which is fixed to the shafts and the other free, power connections between the drive-shaft and the first of the said free gears and power connections between the last of the said fixed gears and the driven shaft, and means to operatively connect said gears on the several intermediate shafts, substantially as described.

2. The drive-shaft and the driven shaft, a series of intermediate shafts and a set of gears on each intermediate shaft, a clutch between the gears on each shaft and means to throw each clutch separately into en-

gagement, and power connections between said gears and the drive and driven shafts, substantially as described.

3. The drive-shaft and the driven shaft, a set of intermediate shafts and two trains of gears mounted on said intermediate shafts, one of which is fixed to the shafts, and clutch mechanism between the gears on each intermediate shaft, whereby different combinations of said gears are made for the transmission of power, substantially as described.

4. In power-transmitting mechanism, two trains of gears and parallel shafts each having one gear of each train fixed thereon and one of each train free, and clutch mechanism between the fixed and free gears on each shaft, substantially as described.

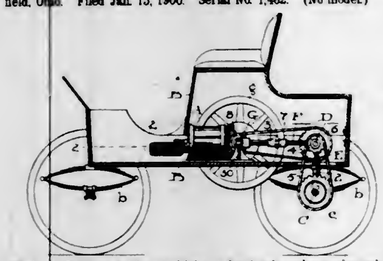
5. A power-transmitting mechanism comprising a series of parallel shafts, a set of gears on each shaft and the gears on one shaft coöperating with the corresponding gears on the next shaft to transmit the power, one line of said gears being fastened to said shafts and the other line loose thereon, substantially as described.

6. The drive-shaft and the driven shaft, three parallel intermediate shafts, a train of intermeshing free gears and a train of intermeshing fixed gears on said intermediate shafts, and clutches between them, in combination with a pinion on the driver-shaft engaged with said free gears, and power-transmitting connections between the last of said fixed gears and the driven shaft, substantially as described.

7. The means substantially as described for varying the speed of the vehicle, comprising a drive-shaft and a driven shaft, a set of intermediate shafts and two trains of gears thereon in parallel lines, one set free on said shafts and the other fixed thereon, clutch mechanism between the gears on each shaft, there being a pinion rigid with the free gear next to the drive-shaft, and meshing with the free gear on the next adjacent shaft, whereby power is taken through a pinion instead of a gear on the first of said series of shafts and the speed is reduced, substantially as described.

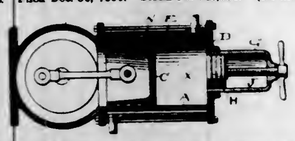
8. In power-transmitting mechanism for motor-vehicles, the drive-shaft and the driven shaft, a series of intermediate shafts, and a series of fixed gears and a series of loose gears thereon and clutches between said gears, in combination with pinions to make connections between said loose gears, and a separately-mounted pinion in the line of said pinions and loose gears, whereby the direction of rotation of the driven shaft is reversed, substantially as described.

679,366. MOTOR-VEHICLE. ROLLA R. DARLING, Cleveland, Ohio, assignor to the Beardsley & Hubbs Manufacturing Company, Mansfield, Ohio. Filed Jan. 15, 1900. Serial No. 1,462. (No model.)



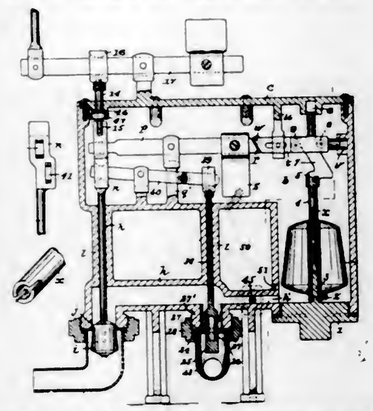
Claim.—In power-driven vehicles, a fixed axle and carrying-wheels thereon, a driven shaft over said axle, pivoted supports for the shaft resting on the axle and power connections from the ends of the shaft to the hubs of said carrying-wheels, in combination with the body of the vehicle, a drive-shaft supported therein, rigid bracing-links pivoted at their ends on said drive-shaft and said driven shaft, respectively, and power-transmitting connections between said shafts, substantially as described.

679,367. GAS-ENGINE. ROLLA R. DARLING, Cleveland, Ohio, assignor to the Beardsley & Hubbs Manufacturing Company, Mansfield, Ohio. Filed Dec. 30, 1899. Serial No. 742,130. (No model.)



Claim.—In gas-engines for automobiles, a piston-cylinder A formed of sheet metal and having an outer covering of non-conducting porous material, and an inclosing casing E about said cylinder provided with water inlet and outlet openings and constructed and arranged to form a water-jacket around said cylinder, whereby a substantially uniform temperature of the piston-cylinder is maintained during operation, substantially as described.

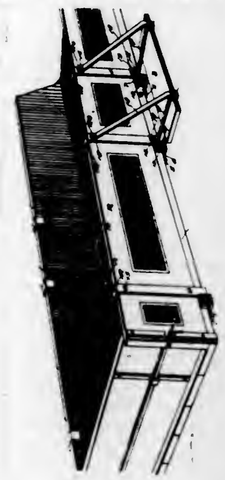
679,368. VALVE FOR WATER-CLOSETS. JOHN DEFTON, Paterson, N. J. Filed Feb. 9, 1901. Serial No. 46,621. (No model.)



Claim.—1. In a flushing apparatus, the combination of a water-supply, a water-discharge having communication with said water-supply, a manually-opened water-supply-controlling means, a suitably-fulcrumed lever connected to said water-supply-controlling means and normally pressed in one direction, a rectilineally-movable lock-bar, said lock-bar and the lever having correspondingly-inclined surfaces adapted to wipe the one on the other and said lock-bar being movable into the path of movement of said lever, a chamber also having communication with said water-supply, a float arranged in said chamber, and a spindle carried by said float and having an oblique or cam portion engaging said lock-bar, substantially as described.

2. In a flushing apparatus, the combination of a water-supply, a water-discharge having communication with said water-supply, a water-supply-controlling means, a locking mechanism for said controlling means adapted to maintain the same at the open position, a float structure controlling said locking mechanism, a chamber for said float structure, said chamber having communication with the water-supply, a drain for said chamber, a valve controlling said drain, a spindle connected to said valve, and a suitably-fulcrumed lever connecting said spindle and said water-supply-controlling means, substantially as described.

679,369. VEHICLE-BODY. ALEXANDER J. DIGGINS, Harvard, Ill. Filed Mar. 26, 1901. Serial No. 52,992. (No model.)



Claim.—1. A side-board fastening for vehicle-bodies, comprising a channel-iron for application to the under side of a vehicle-bottom, a socket comprising a stem to be fitted snugly in one end of the channel-iron, and having its outer end provided with an upstanding loop, and a bracket for application to a side-board, having an upper terminal hook to take over the upper edge of the side-board, and a lower terminal projection at substantially right angles to the hook and constructed to enter and interlock with the upstanding loop of the socket.

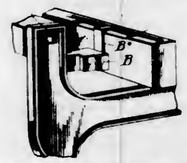
2. In a vehicle-body, the combination with a bottom, and opposite removable side-boards, of a channel-iron secured transversely across the under side of the bottom, and having its ends terminating at or adjacent to the respective side edges of the bottom, opposite sockets having stems, which are fitted in the respective ends of the channel-iron and secured thereto by the same means that secures the iron to the bottom of the body, the sockets lying outwardly beyond the respective ends of the irons and within notches in the respective side edges of the vehicle-bottom, the openings of the sockets being disposed longitudinally of the vehicle-body, and opposite brackets secured to the outer faces of the respective side-boards, and having upper terminal hooks embracing the upper edges of the side-boards, and lower terminal projections arranged at substantially right angles to the hooks and removably entered into the respective sockets.

3. The combination with a vehicle-body having a removable side-board, and a side step supported by the bottom of the body and lying outwardly from the side-board, of a brace carried by the outer face of the side-board and removably resting upon the upper side of the step, the latter and the brace being otherwise free from mutual connection.

4. The combination with a vehicle-body, having a removable side-board, and a side step supported by the bottom of the body and lying outwardly from the side-board, of a brace, comprising an arm projected laterally outward from the side-board and resting freely upon the top of the step, and an inclined arm extending from the outer end of the lower arm upwardly and secured to the side-board.

5. The combination with a vehicle-body, having a removable side-board, and a side step supported by the bottom of the body and lying outwardly from the side-board, of a strap secured to the outer face of the side-board and located intermediate of the ends of the step, a socket carried by the bottom of the body and receiving the lower end of the strap, and a brace formed from a metal strap which is folded intermediate of its ends into a substantially horizontal lower arm, and an upwardly and inwardly inclined upper arm, the terminals of the arms being secured to the strap, and the lower arm resting freely across the top of the step.

679,370. STOPPING DEVICE FOR LOOMS. JOHN HADEN and RICHARD HOWARTH, Paterson, N. J., assignors of one-third to Walter Bamford, same place. Filed Dec. 29, 1900. Serial No. 41,460. (No model.)



Claim.—1. In an emergency stop device for looms, the combination with the batten, the rack, and means for operating the batten and rack, of a stop device, connected to the rack and participating in the motion of the batten, and adapted to engage a fixed part of the loom-frame upon breakage of any part of the operative mechanism of the loom to thereby arrest the movement of the batten.

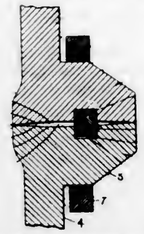
2. In an emergency stop device for looms, the combination with a batten, a rack, means for imparting a traverse movement to said rack and for oscillating said batten, and a fixed part on the loom-frame, of a stop device, and means for securing said device to said rack, whereby said stop device moves simultaneously with said rack and batten during the operation of the loom and engages said fixed part of the loom upon the breakage of any part of the operative mechanism of the loom to thereby arrest the movement of the batten.

3. In an emergency stop device for looms, the combination with a fixed part of the loom-frame, a batten, a rack, and means for imparting operative movement to said batten and rack, of a stop device connected to said rack and arranged to engage the fixed part of the loom-frame and to arrest the forward movement of the batten upon the stoppage of the rack.

4. An emergency stop-block for looms having a shuttle-actuating rack, said block having steps or shoulders at each side and a carrier secured thereto for attachment to the rack.

5. In an emergency stop device for looms, the combination with the loom-frame, the batten and the rack, of a block having steps or shoulders, and a carrier for connecting said block to the rack, whereby the breakage of the mechanism of the loom will cause the block to engage said frame.

679,371. FASTENING FOR SAFE OR VAULT PLATES. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Oct. 31, 1900. Serial No. 34,988. (No model.)



Claim.—1. A pair of safe or vault plates or members each having located on its exterior adjacent to its free edge a projection or flange, said flanges coöperating to form a yielding bead adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates; and means for maintaining the edges of such plates in contact.

2. An improved joint for safes or vaults formed by assembling a pair of safe or vault plates or members each having located on its exterior adjacent to its free edge a projection or flange, said flanges coöperating to form a yielding bead adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates, each of said plates also having an inwardly-extending projection; and means for clamping such projections together.

3. A pair of safe or vault plates or members each having located on its exterior adjacent to its free edge a projection or flange, said flanges coöperating to form a yielding bead adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates, means for maintaining the edges of the plates in contact; and means for locating said plates in alinement.

4. An improved joint for safes or vaults formed by assembling a pair of safe or vault plates or members each having located on its exterior adjacent to its free edge a projection or flange, said flanges coöperating to form a yielding bead adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates, each of said plates also having an inwardly-extending projection; and means for clamping such projections together, and comprising a link shrunk onto said projections.

5. An improved joint for safes or vaults formed by assembling a pair of safe or vault components edge to edge, each having on its exterior adjacent to its free edge a flange or projection, such flanges forming a yielding bead adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates, each of said components also having an inwardly-extending projection, the contiguous faces of said components and projections diverging to form a space intermediate such faces; and means for applying tension to such projections, thereby to bring said contiguous faces into engagement and close up such space.

6. A safe or vault component or plate fastening comprising, in combination with a plurality of wall plates or components set edge to edge, a member or projection rigid with each of said plates and located on the interior of the safe or vault when such plates are assembled in such structure, the contiguous faces of such projections and of the plates diverging so as to form a space; and means for drawing or clamping said contiguous faces together with great force thereby to close up such space and hold the plates under tension.

7. A safe or vault component or plate fastening comprising, in combination with a plurality of wall plates or components set edge to edge, a member or projection rigid with each of said plates and located on the interior of the safe or vault when such plates are assembled in such structure, the contiguous faces of such projections and of the plates diverging so as to form a space; and means shrunk on said projections for drawing or clamping said contiguous faces together with great force thereby to close up such space and hold the plates under tension.

8. A safe or vault component or plate fastening comprising, in combination with a plurality of wall plates or components set edge to edge, a member or projection rigid with each of said plates and located on the interior of the safe or vault when such plates are assembled in such structure, the contiguous faces of such projections and of the plates diverging so as to form a space; and means shrunk on said projections at a point

substantially midway between the outer faces of said plates and the inner ends of said projections for drawing or clamping said contiguous faces together with great force thereby to close up such space and hold the plates under tension.

9. A safe or vault component or plate fastening comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a projection rigid with each of said plates and located on the interior of the safe or vault when such plates are assembled in such structure, the opposing faces of said projections and of the plates adjacent thereto diverging to form a space; means for locating said plates in fixed position or alinement relatively to each other, and comprising a key located in a keyway formed intermediate said projections; and means shrunk on said projections for drawing or clamping said contiguous faces together and closing up said space.

10. A safe or vault component or plate fastening comprising, in combination with a plurality of safe or vault plates or components set edge to edge with the outer edges of the joint-surfaces of such plates in contact, and with a space intermediate such point of contact and the inner faces of such plates, means for drawing said plates together so as to close up such space and hold the plates under tension.

11. A safe or vault component or plate fastening comprising, in combination with a plurality of safe or vault plates or components set edge to edge with the outer edges of the joint-surfaces of such plates in contact, and with a space intermediate such point of contact and the inner faces of such plates, means comprising a device shrunk onto parts of such plates for drawing them together so as to close up such space and hold the plates under tension.

12. A safe or vault component or plate fastening comprising, in combination with a plurality of safe or vault plates or components set edge to edge with the outer and inner edges of the joint-surfaces thereof in contact with a space intermediate such points of contact, means for drawing said plates together thereby to close up such space and hold such plates under tension.

13. A pair of safe or vault plates or members having their outer contiguous faces substantially flush, one of said plates having a flange or projection adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates; and means for maintaining the edges of such plates in permanent contact.

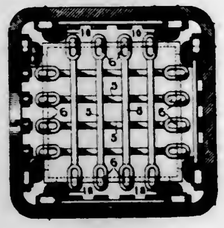
14. A pair of safe or vault plates or members having their outer contiguous faces substantially flush, one of said plates having a flange or projection adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates; means for maintaining the edges of such plates in permanent contact; and means for locating the plates in alinement.

15. An improved joint for safes or vaults formed by assembling a pair of safe or vault plates or members with their outer contiguous faces substantially flush, one of said plates having a flange or projection adapted to yield under the effect of an explosive charge while preserving a metal-to-metal contact of the joint-surfaces of such plates, such joint-surfaces having contact adjacent to the outer sides of the plates and diverging toward the inner sides thereof to form a space; and means for drawing such joint-surfaces together to close up such space.

16. A pair of safe or vault plates or components having projections located at one side thereof with a part of their opposing faces normally out of contact; means for drawing the faces of such projections together; and means for maintaining the plates in alinement and assembled so as to permit all parts of such faces to be drawn into contact.

17. An improved joint for safes or vaults formed by assembling a pair of safe or vault plates or members having a bead located on one side of such plates at the joint thereof, and also having projections located at the opposite side of such plates and formed so that a part of their opposing faces are normally out of contact; and means for drawing such faces together.

679,372. **SAFE OR VAULT.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Oct. 31, 1900. Serial No. 34,989. (No model.)



Claim.—1. A safe or vault, the body of which comprises a plurality of wall components or plates, the edges of which are rabbeted, some of such plates having means rigid therewith and located on the interior thereof for overlapping the edges of a companion plate; and means in engagement with such overlapping means for securing the plates in position.

2. A safe or vault, the body of which comprises a plurality of wall components or plates, the edges of which are rabbeted, some of such plates having means rigid therewith and located on the interior thereof for overlapping the edges of a companion plate; and means shrunk onto parts of some of said plates for clamping them in position.

3. A safe or vault, the body of which comprises a plurality of plates or components, the edges of which are rabbeted, some of such plates having means located at intervals on the interior thereof for overlapping the edges of a companion plate; and means shrunk on said overlapping means of a pair of plates for clamping them in position.

4. A safe or vault, the body of which comprises a plurality of plates or components, including an intermediate plate the edges of which plates are rabbeted, some of such plates having means located at intervals on the interior thereof for overlapping the edges of a companion plate; and means located around the said means of a pair of plates for drawing the edge faces of such plates in position.

5. A safe or vault, the body of which comprises a plurality of plates or components including an intermediate plate, the edges of which plates are rabbeted, some of such plates having means located at intervals on the interior thereof for overlapping the edges of a companion plate; and link-bars shrunk onto the said means of a pair of plates for clamping the edge faces of such plates in position.

6. A safe or vault comprised of a plurality of sections or plates, the edges of which are interlocked and maintained in position under high resistance by means shrunk onto parts of said plates.

7. A safe or vault, the body of which comprises a plurality of sections or plates, the edges of which are interlocked; and link-bars shrunk onto parts of some of said plates for clamping all of them in position.

8. A safe or vault, the body of which comprises a plurality of plates or sections including an intermediate plate, the edges of which plates are interlocked, a plurality of separated plates having inwardly-extending projections; and means located on or secured to said projections for drawing the edge faces of said plates into engagement with an intermediate plate.

9. A safe or vault, the body of which comprises a plurality of plates or sections, the edges of which are interlocked, a plurality of separated plates having inwardly-extending projections; and shrunk-on link-bars located on said projections for drawing the edge faces of said plates into engagement with an intermediate plate.

10. A safe or vault comprising a plurality of plates or sections including an intermediate plate and secured together by means shrunk onto parts of some of said plates.

11. A safe or vault comprising a plurality of plates or sections secured together by link-bars shrunk onto parts of some of such sections.

12. A safe or vault comprising a plurality of plates or sections secured together by short and long links in engagement with parts or projections of such plates.

13. A safe or vault comprising a plurality of plates or sections secured together by short and long links shronk onto parts of such sections.

14. A safe or vault comprising a plurality of plates or sections, the edges of which are rabbeted and secured together by means shrunk onto parts of said plates.

15. A safe or vault comprising a plurality of plates or sections, the edges of which are rabbeted, and secured together by link-bars shrunk onto parts of some of said plates.

16. A safe or vault comprising a plurality of plates or sections, and means for clamping the edges of said sections together, the means located at each side of the structure crossing each other.

17. A safe or vault comprising a plurality of plates or sections, and means shrunk onto parts of some of said sections for securing them together, the means located at each side of the structure crossing each other.

18. A safe or vault comprising a plurality of plates or sections having their edges interlocked, and link-bars for clamping said sections together, the bars located at each side of the structure crossing each other.

19. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and located on the interior thereof when said plates are assembled, and a coupling device located around said projections and effective to draw the edge faces of the two separated plates into engagement with the intermediate plate.

20. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and located on the interior thereof when said plates are assembled, and means shrunk onto said projections and effective to draw the edge faces of the two separated plates into engagement with the intermediate plate.

21. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and overlapping the inner side of the intermediate plate, and means in engagement with such overlapping part or projection for clamping the separated plates in engagement with said intermediate plate.

22. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and overlapping the inner side of the intermediate plate, and a shrunk-on link-bar for clamping the separated plates in engagement with said intermediate plate.

23. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with such edges interlocked, a part or projection rigid with each of the two separated plates and located on the interior of the safe or vault when the plates are assembled, and a retaining device located on said projections for clamping said separated plates in engagement with the intermediate plate.

24. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with such edges rabbeted, a part or projection rigid with each of the separated plates, and a coupling device shrunk onto said projections for drawing said separated plates in engagement with the intermediate plate.

25. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and located on the interior thereof when said plates are assembled; a coupling device located around or secured to said projections and effective to draw the edge faces of the two separated plates into engagement with the intermediate plate; and means for maintaining said coupling device in position.

26. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge, a part or projection rigid with each of the two separated plates and overlapping the inner side of the intermediate plate; a shrunk-on link-bar for clamping the separated plates in engagement with said intermediate plate; and means for maintaining said link-bar in position.

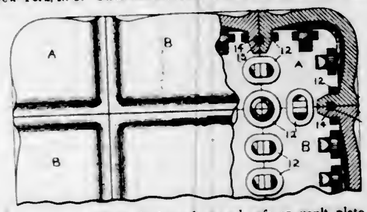
27. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with the edges of the two separated plates of the series overlapping the edges of the intermediate plate, and means in engagement with the overlapping parts of such plates for drawing the two separated plates into engagement with said intermediate plate.

28. A safe or vault section or plate fastening comprising, in combination with three plates or sections set edge to edge with the edges of the two separated plates of the series overlapping the edge of the intermediate plate; means for drawing the two separated plates into engagement with said intermediate plate and comprising link-bars; and bolts for maintaining said link-bars in position.

29. A safe or vault plate having a flange recessed to form projections for the reception of coupling devices.

30. A safe or vault plate having a flange recessed to form projections for the reception of coupling devices, and have a recess formed in the edge of such plate.

679,373. **PLATE FOR SAFES OR VAULTS.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Oct. 31, 1900. Serial No. 34,990. (No model.)



Claim.—1. An angularly-formed curved safe or vault plate, the walls at the juncture thereof forming an arch, said plate having an exterior flange located around the outer or free edge thereof.

2. An angularly-formed curved plate, the walls at the juncture thereof forming an arch, said plate having located around its outer or free edge a plurality of projections extending interiorly of said plate.

3. An angularly-formed curved plate, the walls at the juncture thereof forming an arch, said plate having located around its outer or free edge a plurality of inwardly-extending projections, each having a slot or recess therein.

4. An angularly-formed curved plate having located around its outer or free edge an exterior flange and also having inwardly-extending projections.

5. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch.

6. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch, the outer or free edge of such plate having an exterior flange or projection.

7. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch, the outer or free edge of such plate having interiorly-located projections.

8. An angularly-formed curved plate, each of the side walls of which is curved in two directions thereby forming an arched surface, and such walls at the juncture thereof forming a main arch, the outer or free edge of such plate having an exterior flange or projection, and said plate having inwardly-extending projections.

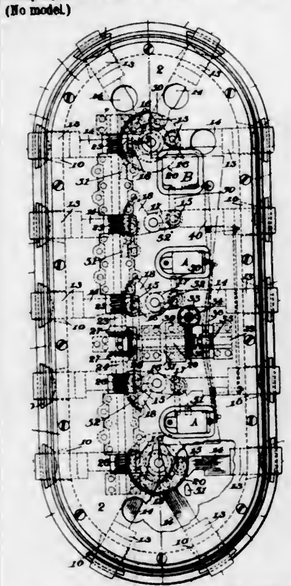
9. A three-sided corner-plate having its free edge provided with an exteriorly-located flange or bead adapted to yield under the action of an explosive charge.

10. A corner-plate for safes or vaults comprising a three-sided rigid or integral structure having substantially the shape of three sides of a hollow cube, said plate having increased thickness in cross-section at its outer or free edge whereby the edge face of the plate which engages the edge face of a companion plate has relatively large area in cross-section.

11. A curved three-sided corner-plate having its outer or free edge provided with a plurality of inwardly-extending projections extending interiorly thereof.

12. A three-sided corner-plate, each side of which is curved in two directions to form an arch, the junction of such sides forming a main arch, and the outer or free edge of said plate having an exteriorly-located flange or projection, and a plurality of inwardly-extending projections for the reception of retaining means.

679,374. **BOLT MECHANISM FOR SAFE OR VAULT DOORS.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Oct. 31, 1900. Serial No. 34,991. (No model.)



Claim.—1. An oval-shaped safe or vault door comprising a body and a rearwardly-extending flange having bolt-openings, said flange having its periphery forming a continuation of the periphery of said body, whereby a continuous joint surface is formed by said flange and body; bolts working in said openings; and means for actuating said bolts.

2. A safe or vault door comprising an oval-shaped structure comprehending a body and a rearwardly-extending flange having tapering or flaring bolt-openings; bolts working in said openings; and means for actuating said bolts.

3. A safe or vault door comprising an oval-shaped structure com-

prehending a body and a rearwardly-extending flange having bolt-openings; a series of bolts working in said openings and located in sets; a rocking member having worm-teeth for each of said bolts; and a device having a worm for actuating said rocking members.

4. A safe or vault door having semicircular ends and parallel sides, and comprising a body having a flange provided with bolt-openings; a plurality of sets of bolts working in said openings; a rocking member having worm-teeth for each set of bolts; a pair of worm-shafts in engagement with said rocking members; and means for rotating said worm-shafts.

5. A safe or vault door having semicircular ends and parallel sides, and comprising a body having a flange provided with bolt-openings; a plurality of sets of bolts working in said openings; a rocking member having worm-teeth for each set of bolts; a worm-shaft in engagement with said rocking plates; means for rotating said shaft; and a lock for controlling the operation of the shaft-rotating means.

6. The combination, with a safe or vault door, of a plurality of bolts carried thereby and located in sets; a rocking member having worm-teeth for each set of said bolts; and a device having a worm for rocking said members thereby to shift the bolts laterally and radially.

7. The combination, with a safe or vault door, of a plurality of bolts carried thereby and located in sets; a rocking member having worm-teeth for each set of said bolts; a device having a worm for rocking said members thereby to shift the bolts laterally and radially; and stops having inclined surfaces cooperating with similar inclined surfaces of the bolts for preventing the premature retraction thereof.

8. The combination, with a safe or vault door, of a plurality of bolts carried thereby and located in sets; a rocking member having worm-teeth for each set of said bolts; a device having a worm for rocking said members thereby to shift the bolts laterally and radially; and a plurality of stops for each set of bolts for preventing the premature retraction thereof.

9. The combination, with a safe or vault door, of a plurality of bolts carried thereby and located in sets; a rocking member having worm-teeth for each set of said bolts; a device having a worm for rocking said members thereby to shift the bolts laterally and radially; and steps for preventing the premature retraction of said bolts.

10. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member for each of said sets; a device for actuating said rocking members; and means comprising clutch mechanism and an actuator for rotating said device.

11. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member for each of said sets; a device for actuating said rocking members; means comprising clutch mechanism and an actuator for rotating said device; and means for controlling the operation of said clutch mechanism, and comprising a combination-lock and a clutch-shifter in operative connection therewith.

12. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member for each of said sets; a device for actuating said rocking members; means comprising clutch mechanism and an actuator for rotating said device; and means for controlling the operation of said clutch mechanism, and comprising a pair of combination-locks and a clutch-shifter in operative connection with each of said locks.

13. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member for each of said sets; a device for actuating said rocking members; means comprising clutch mechanism and an actuator for rotating said device; and means for controlling the operation of said clutch mechanism, and comprising a pair of combination-locks and a clutch-shifter in operative connection with each of said locks, the point of connection of the clutch-shifter with one of said locks constituting a fulcrum to permit the operation of such clutch-shifter on the actuation of the other lock.

14. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member for each of said sets; a device for actuating said rocking members; means comprising clutch mechanism and an actuator for rotating said device; means for controlling the operation of said clutch mechanism, and comprising a pair of combination-locks and a clutch-shifter in operative connection with each of said locks; and a time-lock for controlling the operation of said combination-locks.

15. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member for each of said sets; a device for actuating said rocking members; means comprising clutch mechanism and an actuator for rotating said device; means for controlling the operation of said clutch mechanism, and comprising a combination-lock and a clutch-shifter in operative connection therewith; and a time-lock for controlling the operation of said combination-lock.

16. The combination, with a safe or vault door comprising a body and a flange having bolt-openings; a plurality of sets of bolts working in said openings; rocking members including sector-shaped devices having worm-teeth pivotally secured to the inner ends of such bolts; a worm-shaft in mesh with said rocking members; and means for rotating said worm-shaft thereby to shift the bolts.

17. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member having worm-teeth for each set of said bolts; a pair of worm-shafts in mesh with said rocking members; and means for rotating said worm-shafts thereby to actuate the bolts.

18. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of bolts; a rocking member having worm-teeth for each set of said bolts, the rocking member located adjacent to each end of the door carrying an increased number of bolts; a worm-shaft for operating said rocking members; and means for rotating said shaft.

19. The combination, with a safe or vault door comprising a body and a flange having flaring bolt-openings; a plurality of bolts working in said openings and located in sets; a rocking member pivotally secured to the inner ends of each set of bolts and having worm-teeth, the rocking member located adjacent to each end of said door carrying an increased number of bolts; a pair of worm-shafts in engagement with said rocking members and each carrying a bevel-gear; a spindle-operated shaft also carrying a gear in mesh with said worm-shaft gears; a loosely-mounted clutch member mounted on said spindle-operated shaft and carrying a gear in mesh with a gear located on a spindle projecting at the outer side of the door-body; a clutch member splined to such shaft; a pair of combination-locks; a clutch-shifter in operative connection with said combination-locks, the point of connection of such shifter with one of the locks constituting a fulcrum for such shifter when the other combination-lock is operated; and a time-lock for controlling the operation of such combination-locks.

20. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of longitudinally, or radially and laterally shiftable bolts located to be projected in different directions around the door; and means for shifting said bolts laterally and longitudinally, or radially thereby to swing or rotate the outer ends of the bolts with a grinding action over the bolt-engaging surfaces of a safe or vault body, thereby to effect a most powerful binding of the bolts upon the surface of such body with a minimum amount of power.

21. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of sets of radially and laterally shiftable bolts, and means for shifting said bolts radially, and simultaneously with such radial movement swinging such bolts laterally thereby to obtain a toggle action of said bolts.

22. A safe or vault door comprising an oval-shaped structure comprehending a body and a rearwardly-extending flange having bolt-openings; bolts working in said openings; and gear mechanism for actuating said bolts.

23. A safe or vault door comprising an oval-shaped structure comprehending a body and a rearwardly-extending flange having bolt-openings; a series of bolts located in sets working in said openings; and gear mechanism for actuating said bolts and comprising members having worm-teeth and worms, a set of such gearing for each set of said bolts.

24. The combination, with a safe or vault door, of a series of bolts carried thereby and located in sets; means for actuating said bolts; and stops for preventing the premature retraction of said bolts.

25. The combination, with a safe or vault door, of a series of bolts carried thereby and located in sets; means for actuating said bolts; and a stop for each set of said bolts to prevent the premature retraction thereof.

26. The combination, with a safe or vault door, of a series of swinging bolts carried thereby and located in sets; means for actuating said bolts; stops having inclined surfaces cooperating with similar surfaces on the bolts for preventing the premature retraction of said bolts.

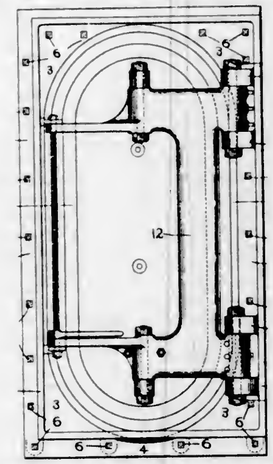
27. The combination, with a safe or vault door, of a series of bolts carried thereby and located in sets; and gear mechanism for actuating said bolts and comprising members having worm-teeth and worms.

679,375. **FALSE FRONT FOR SAFES OR VAULTS.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Oct. 31, 1900. Serial No. 34,992. (No model.)

Claim.—1. A safe or vault body having soft-metal inserts located therein, and a false front or frame having an outwardly-extending flange and secured to said body by bolts projecting from said front into said inserts.

2. A safe or vault body the front of which is provided with soft-metal inserts, and a false front or frame secured to such body-front by bolts projecting into said inserts, said frame comprising a forwardly-extending flange having located on the interior thereof lugs or ears for the reception of the hinge pintle or pintles, and also having laterally-extending flanges for the reception of such bolts.

3. A safe or vault body provided with a doorway and around such doorway with a bead or flange, and a false front or frame bolted to such body and having a part thereof in engagement with said bead or flange.



4. A false front or frame for safes or vaults comprising one or more laterally-extending bolt-receiving flanges and an outwardly-extending flange adapted to completely surround all sides of the safe or vault jamb.

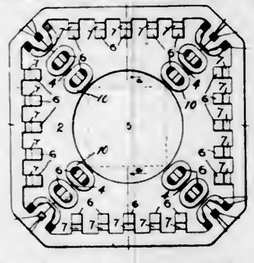
5. A safe or vault body member having soft-metal inserts located therein, and a structure secured to such body member by means projecting from said structure into said inserts.

6. A safe or vault body the front of which is provided with soft-metal inserts, and a false front or frame secured to such body-front by bolts projecting from said front into said inserts.

7. A safe or vault body having soft-metal inserts located therein, and a false structure or frame secured to said body by means projecting therefrom into said inserts.

8. A safe or vault body having soft-metal inserts, and a false frame or front secured to such body by means projecting into such inserts, said false front having lugs or ears for the reception of the hinge-pintle.

679,376. **SAFE OR VAULT FRONT.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Oct. 31, 1900. Serial No. 34,993. (No model.)



Claim.—1. A plurality of separately-formed safe or valve sections or plates assembled with diagonally-located joints to form one side of a safe or vault, and means for securing such sections together.

2. A safe-front having a doorway and formed of a plurality of separately-formed sections having diagonally-located joint-surfaces, each of said sections having projections located at one side thereof, and means connecting the projections of one section with those of another.

3. A safe-front having a doorway and formed of a plurality of triangularly-shaped sections, each having projections located at one side thereof, and a retaining device located around the projections of a plurality of sections for securing such sections together.

4. A safe-front having a doorway and formed of a plurality of triangularly-shaped sections, each having projections located at one side thereof, and a retaining device connecting the projections of a plurality of sections, and comprising shrunk-on links.

5. An octagonally-shaped front having a doorway and formed of four triangularly-shaped sections, each having projections located at one side thereof, and retaining devices connecting the projections of one section with those of another.

6. A plurality of triangularly-shaped safe or vault sections; means for locating said sections in fixed alinement; and means for securing said sections together.

7. A safe or vault front having a doorway and formed of separately-formed sections having joint-surfaces of greater length than the distance between the jamb of such doorway and the side faces of such front; and means connecting such sections together.

8. A safe or vault front having a doorway and formed of sections having joint-surfaces of greater length than the distance between the jamb of such doorway and the side faces of such front; and means shrunk onto parts of such sections for connecting them together.

9. A safe or vault having a doorway and formed of sections having joint-surfaces of greater length than the distance between the jamb of such doorway and the side faces of such front; means for connecting such sections together; and means for locating said sections in fixed alinement.

10. A triangularly-shaped safe or vault plate or component having a plurality of projections located at one side thereof.

11. A triangularly-shaped safe or vault plate or component having a plurality of projections located at one side thereof, each of said projections having a slot or recess therein.

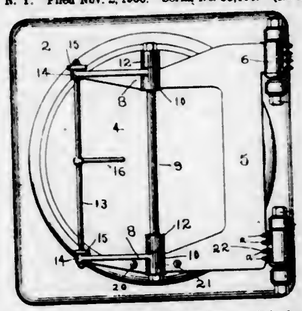
12. A triangularly-shaped safe or vault plate or component having one of its edges forming part of a doorway-jamb, and having located around said jamb portion, on the exterior of said plate, an increased portion or flange adapted to form, when such section is assembled with others of its kind, a bead of yielding metal.

13. A triangularly-shaped safe or vault plate or component having one of its edges forming part of a doorway-jamb, and having located around said jamb portion, on the exterior of said plate, an increased portion or flange adapted to form, when such section is assembled with others of its kind, a bead of yielding metal, said section having a plurality of projections located at one side thereof.

14. A triangularly-shaped safe or vault plate or component having a rearwardly-extending flange and adapted to be assembled with others of its kind to form one side of a safe or vault.

15. A triangularly-shaped safe or vault plate or component having a rearwardly-extending flange and adapted to be assembled with others of its kind to form one side of a safe or vault, the free edges of such plate having projections located at one side thereof.

679,377. **SAFE OR VAULT HINGE.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Nov. 2, 1900. Serial No. 35,196. (No model.)



Claim.—1. The combination, with a safe or vault body and with a door therefor, of a hinge for said door, and means carried by a bearing-sleeve of said hinge for adjusting the door inwardly and outwardly whereby the plane of the door may be adjusted relatively to its seat and also effective to adjust the door in one plane.

2. The combination, with a safe or vault body and with a door therefor, of a hinge for said door, and means comprising set-screws carried by a bearing-sleeve of said hinge for adjusting said door in a vertical plane, in a horizontal plane, and inwardly and outwardly whereby the plane of the door may be adjusted relatively to its seat.

3. The combination, with a safe or vault body, and with a door therefor, of means for supporting said door on said body; and means for adjusting the door inwardly and outwardly relatively to its seat, and comprising two sets of devices, the devices of each set being located diagonally to the plane of the door.

4. The combination, with a safe or vault body, and with a door therefor, of means for supporting said door on said body; and means for adjusting the door inwardly and outwardly relatively to its seat, and compris-

ing two sets of set-screws, the screws of each set being located at an angle of forty-five degrees to the plane of the door.

5. The combination, with a safe or vault body, and with a door therefor, of means for supporting said door on said body; and means for adjusting the door inwardly and outwardly relatively to its seat, and comprising a plurality of sets of devices, one set located at the outer side of the pivotal connection of the supporting means with the body, and the other set located at the inner side thereof, the devices of each set being located diagonally to the plane of the door.

6. The combination, with a safe or vault body, and with a door therefor, of means for supporting said door on said body; and means for adjusting the door inwardly and outwardly relatively to its seat, and comprising a plurality of sets of set-screws, one set located at the outer side of the pivotal connection of the supporting means with the body, and the other set located at the inner side thereof, the set-screws of each set being located at an angle of forty-five degrees to the plane of the door.

7. The combination, with a safe or vault body and with a door therefor, of a hinge for said door, and means comprising a plurality of sets of devices carried by a bearing-sleeve of said hinge for adjusting the door inwardly and outwardly whereby the plane of the door may be adjusted relatively to its seat.

8. The combination, with a safe or vault body and with a door therefor, of a crane hinge member pivotally secured to said body, and having a pair of forwardly-extending arms; a rod connecting said arms at their outer ends, and forming a handle for swinging the door; said door having pivotal connection with the arms of said hinge member intermediate said handle and the pivotal connection of said hinge with the body and in a line located substantially centrally of the door, whereby the door can be started at all points simultaneously.

9. The combination, with a safe or vault body and with a door therefor, of a hinge pivotally connected to said door and body, and means cooperating with the pivotal connection between the door and body for adjusting the door inwardly and outwardly whereby the plane of the door may be adjusted relatively to its seat.

10. The combination, with a safe or vault, and with a door therefor, of a hinge member having a sleeve; a pivot connecting such sleeve with the body; a bearing member or block located intermediate said sleeve and pivot; bearings intermediate said bearing member and pivot; and means engaging said bearing member, and comprising two sets of devices, one located at the inner side of said pivot and the other at the outer side thereof, and effective to adjust the door inwardly and outwardly.

11. The combination, with a safe or vault body, and with a door therefor, of a hinge member having a sleeve; a pivot connecting such sleeve with the body; a bearing member or block located intermediate said sleeve and pivot; bearings intermediate said bearing member and pivot; and means engaging said bearing member, and comprising two sets of devices, one set located at the inner side of, and the other set at the outer side of, said pivot, the devices of each set being located at an angle of forty-five degrees to the plane of the door.

12. The combination, with a safe or vault body, and with a door therefor, of means for supporting said door on said body; and means comprising a pair of devices for limiting the movement of the door relatively to said supporting means.

13. The combination, with a safe or vault body, and with a door therefor, of means for supporting said door on said body; and means comprising a pair of devices located one at each side of the pivotal connection of the door with said supporting means for limiting the movement of the door relatively to said supporting means.

14. The combination, with a safe or vault body, and with a door therefor, of a crane hinge member for supporting said door on said body; means comprising a pair of set-screws located one at each side of the pivotal connection of the door with said hinge for limiting the movement of said door relatively to said hinge member.

15. The combination, with a safe or vault body and with a door therefor, of a hinge member pivotally secured to said body and having a pair of forwardly-extending arms, and means located adjacent to the outer ends of said arms and effective to start the door open, said door having pivotal connection with the arms of said hinge member intermediate the starting-open means and the pivotal connection of said hinge member with the body and in a line located substantially centrally of the door whereby the door is started open at all points simultaneously.

16. The combination, with a safe or vault body and with a door therefor, of a crane hinge member pivotally secured to said body and having a pair of forwardly-extending arms; starting-open means comprising a rod rotatably supported adjacent to the outer ends of said arms, one or more eccentrically-operative devices carried by said rod, and a device secured to said rod for rotating it, said door having pivotal connection with the arms of said hinge member intermediate said starting-open means and the pivotal connection of said hinge with the body and in a line located substantially centrally of the door whereby the door is started open at all points simultaneously.

17. A safe or vault hinge comprising a crane member having a pair of sleeves for the reception of one or more pivots; means for adjusting said crane member relatively to the body of a safe, and comprising two sets of devices, one set located at the outer side of one sleeve, and the other set located at the inner side of the other sleeve, the devices of each set being located at an angle of forty-five degrees to the plane of the door; and means carried by said crane member for limiting the movement of the door.

18. A safe or vault hinge comprising a crane member having a pair of sleeves for the reception of one or more pivots; means for adjusting said crane member relatively to the body of a safe, and comprising two sets of devices, one set located at the outer side of one sleeve, and the other set located at the inner side of the other sleeve, the devices of each set being located at an angle of forty-five degrees to the plane of the door; and means carried by said crane member for limiting the movement of the door, and comprising a pair of set-screws located one at each side of the pivotal connection of said crane member with the door.

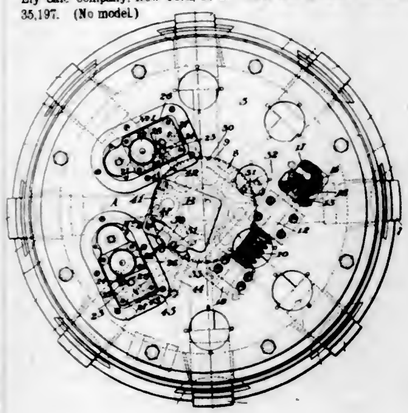
19. A safe or vault hinge comprising a crane member having forwardly-extending arms and one or more sleeves for the reception of a body-pintle; means for adjusting said crane member relatively to said pintle; means located adjacent to the outer ends of said arms for starting the door open; and means located intermediate the starting-open means and the door-adjusting means for limiting the movement of the door relatively to said hinge.

20. A safe or vault hinge comprising a crane member having a pair of sleeves for the reception of one or more body-pintles, and also having a pair of forwardly-extending arms; means for adjusting said crane member relatively to said pintle or pintles, and comprising two sets of devices, one set located at the outer side of one sleeve and the other located at the inner side of the other sleeve, the devices of each set being located at an angle of forty-five degrees to the plane of said crane member; starting-open means comprising a rod carried at the outer ends of said arms, eccentrically-operative devices carried by said rod, and a device for rotating said rod; said arms having sleeves located intermediate said starting-open means and the door-adjusting means for the reception of a door-pintle; and a pair of set-screws located one at each side of said door-pintle for limiting the movement of the door relatively to said crane member.

21. The combination, with a safe or vault body and with a door therefor, of a hinge pivotally connected to said door and body, and means located at the point of one of said pivotal connections for adjusting the door inwardly and outwardly whereby the plane of the door may be adjusted relatively to its seat.

22. The combination with a safe or vault body and a door therefor, of a hinge comprising a crane member pivotally secured to said body and having a pair of forwardly-extending arms, a pintle connecting the door with said member and located in a line substantially centrally of the door, whereby the door can be started open at all points simultaneously; means carried by the hinge and effective when shifted into contact with the door to overcome friction, inertia, and air-pressure of the door and start all parts of said door from the jamb at the same time; and means connected with said hinge for swinging the door, with the grasping part thereof located relatively remote to the pintle connecting said door with the crane member.

879,378. LOCKING MECHANISM FOR SAFES OR VAULTS. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Nov. 2, 1900. Serial No. 35,197. (No model.)



Claim.—1. The combination, with a safe or vault door, of a plurality of bolts; a rocking plate to which the inner ends of said bolts are connected; means for rocking said plate thereby to shift the bolts laterally and radially; a combination-lock for controlling the operation of said means; and time-lock mechanism for controlling the operation of said combination-lock.

2. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; a worm-wheel rocking plate to which the inner ends of said bolts are connected; a worm-shaft in mesh with said rocking plate; means for rotating said shaft thereby to shift the bolts laterally and longitudinally, or radially; a combination-lock for controlling the operation of said means; and time-lock mechanism for controlling the operation of said combination-lock.

3. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; means for shifting said bolts laterally and radially, and comprising a worm-wheel rocking plate to which the inner ends of the bolts are connected; a worm-shaft for operating said plate; means embodying clutch mechanism for rotating said shaft; a combination-lock for controlling the operation of said clutch mechanism; and time-lock mechanism for controlling the operation of said combination-lock.

4. The combination with a safe or vault door, of a plurality of bolts therefor; means for shifting said bolts laterally and radially and embodying a rocking device to which the inner ends of said bolts are connected; and a pair of combination-locks for controlling the operation of said bolt-shifting means.

5. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; means for shifting said bolts laterally and longitudinally, or radially and comprising a worm-wheel connected with said bolts; a worm in engagement with said worm-wheel; means for rotating said worm; and a pair of combination-locks for controlling the operation of said worm-actuating means.

6. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; means for shifting said bolts laterally and radially and comprising a worm-wheel; a worm in engagement with said worm-wheel; means for rotating said worm and embodying clutch mechanism including a clutch-shifter; and a pair of combination-locks for controlling the operation of such clutch-shifter.

7. The combination with a safe or vault door, of a plurality of bolts therefor; means for shifting said bolts laterally and radially and embodying a rocking device to which the inner ends of said bolts are connected; a pair of combination-locks for controlling the operation of said bolt-shifting means; and time-lock mechanism for controlling the operation of said combination-locks.

8. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; means for shifting said bolts laterally and radially and comprising a worm-wheel connected with said bolts; a worm in engagement with said worm-wheel; means for rotating said worm; a pair of combination-locks for controlling the operation of said worm-actuating means; and time-lock mechanism for controlling the operation of said combination-locks.

9. The combination with a safe or vault door, of a plurality of bolts therefor; means for shifting said bolts laterally and radially and embodying a rocking device to which the inner ends of said bolts are connected; a combination-lock for controlling the operation of said bolt-shifting means; and time-lock mechanism for controlling the bolt of said combination-lock.

10. The combination with a safe or vault door, of a plurality of bolts therefor; means for shifting said bolts laterally and radially and embodying a rocking device to which the inner ends of said bolts are connected; a combination-lock for controlling the operation of said bolt-shifting means; and time-lock mechanism for controlling the bolt of said combination-lock by dogging the fence thereof.

11. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism; means for controlling said actuating means and comprising clutch mechanism including a clutch-shifter; a combination-lock having its bolt operatively connected with said clutch-shifter; and time-lock mechanism for controlling the operation of said combination-lock.

12. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism; means for controlling said actuating means and comprising clutch mechanism including a clutch-shifter; a combination-lock having its bolt operatively connected with said clutch-shifter; and time-lock mechanism for controlling the operation of said combination-lock, said time-lock mechanism dogging the fence of said combination-lock.

13. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism; means for controlling said actuating means and embodying clutch mechanism including a clutch-shifter; a pair of combination-locks operatively connected with said clutch-shifter; and time-lock mechanism for controlling the operation of said combination-locks.

14. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism; means for controlling said actuating means and embodying clutch mechanism including a clutch-shifter; a pair of combination-locks operatively connected with said clutch-shifter; and time-lock mechanism for controlling the operation of said combination-locks, said time-lock mechanism dogging one part of one combination-lock and another part of the other combination-lock.

15. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism; means for controlling said actuating means and embodying clutch mechanism including a clutch-shifter; a pair of combination-locks operatively connected with said clutch-shifter; and time-lock mechanism for controlling the operation of said combination-locks, said time-lock mechanism dogging the fence of one combination-lock and the bolt of the other combination-lock.

16. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism; means for controlling said actuating means and embodying clutch mechanism including a clutch-shifter; a pair of combination-locks the bolts of each of which are operatively connected with said clutch-shifter; and time-lock mechanism for controlling the operation of said bolts.

17. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; a worm-wheel connected with said bolts; a worm-shaft meshing with said worm-wheel; means for rotating said worm-shaft; clutch mechanism including a clutch-shifter for controlling the operation of said means; a pair of combination-locks, the bolts of which are operatively connected to said clutch-shifter; and time-lock mechanism for controlling the operation of said combination-locks.

18. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of bolts; a worm-wheel connected with said bolts; a worm-shaft meshing with said worm-wheel; means for rotating said worm-shaft; clutch mechanism including a clutch-shifter for controlling the operation of said rotating means; a pair of combination-locks, the bolts of which are operatively connected to said clutch-shifter; and time-lock mechanism dogging the fence of one combination-lock and the bolt of the other for controlling the operation of said clutch-shifter.

19. The combination with a safe or vault door, of a plurality of bolts therefor; means for actuating said bolts; a pair of combination-locks for controlling the working of said bolts; and time-lock mechanism comprising a pair of time-locks one having a part coöperating with a part of one combination-lock and the other having an independent part coöperating with an independent part of the other combination-lock for controlling the operation of said combination-locks.

20. The combination, with a safe or vault door, of bolt mechanism therefor; a worm-wheel for actuating said bolt mechanism; a worm-shaft meshing with said worm-wheel; means for rotating said worm-shaft; a pair of combination-locks for controlling the operation of said means; and time-lock mechanism comprising a pair of time-locks for controlling the operation of said combination-locks.

21. The combination, with a safe or vault door, of bolting mechanism therefor; means for operating said bolting mechanism; clutch mechanism comprising a pair of clutches for controlling the operation of said bolting mechanism; clutch-shifting means; and a pair of combination-locks in connection with said clutch-shifting means.

22. The combination, with a safe or vault door, of bolting mechanism therefor; means for operating said bolting mechanism; clutch mechanism comprising a pair of clutches for controlling the operation of said bolting mechanism; clutch-shifting means; a pair of combination-locks in connection with said clutch-shifting means; and time-lock mechanism for controlling the operation of said combination-locks.

23. The combination, with a safe or vault door, of bolting mechanism therefor; means for operating said bolting mechanism; clutch mechanism for controlling the operation of said bolting mechanism; clutch-shifting means; a pair of combination-locks in connection with said clutch-shifting means; and time-lock mechanism comprising a pair of time-locks for controlling the operation of said combination-locks.

24. The combination, with a safe or vault door, of bolting mechanism therefor; means for operating said bolting mechanism; clutch mechanism for controlling the operation of said bolting mechanism; clutch-shifting means; a pair of combination-locks in connection with said clutch-shifting means; and time-lock mechanism comprising a pair of time-locks for controlling the operation of said combination-locks, one of said time-locks dogging the fence of one combination-lock and the other dogging the bolt of the other combination-lock through the instrumentality of the clutch-shifting means.

25. The combination, with a safe or vault door, of bolt mechanism comprising a plurality of radially and laterally shiftable bolts; a worm-wheel connected with said bolts; a worm-shaft in mesh with said worm-wheel; clutch mechanism carried by said shaft; clutch-shifting means; a pair of combination-locks the bolts of which are operatively connected with the clutch-shifting means; and time-lock mechanism comprising a pair of time-locks for controlling the operation of said combination-locks.

26. The combination, with a safe or vault door, of bolt mechanism therefor; means for shifting said bolt mechanism and embodying clutch mechanism including a clutch-shifter; a pair of combination-locks the bolts of which are connected with said clutch-shifter; time-lock mechanism embodying an actuator; a pivotally-mounted member connected with said actuator and dogging the fence of one combination-lock, and a pivotally-mounted member connected with said actuator and dogging the bolt of the other combination-lock.

27. The combination, with a safe or vault door, of bolt mechanism therefor; means for actuating said bolt mechanism and embodying clutch mechanism including a clutch-shifter; a pair of combination-locks each connected with said clutch-shifter; and time-lock mechanism embodying counterbalanced means connected with said combination-locks for controlling the operation thereof.

28. The combination, with a safe or vault door, of a plurality of bolts therefor; a worm-wheel connected with said bolts; a worm in mesh with said worm-wheel; means for rotating said worm; and a friction device for controlling the movement of said worm.

29. A lock mechanism comprising a pair of combination-locks; time-lock mechanism; and a pair of members connected with and controlled by said time-lock mechanism for controlling the operation of said combination-locks, one member coöperating with one part of one combination-lock and the other member coöperating with another part of the other combination-lock.

30. A lock mechanism comprising a pair of combination-locks having bolts; time-lock mechanism; and a pair of stop members connected therewith for controlling the operation of said combination-locks.

31. A lock mechanism comprising a pair of combination-locks; time-lock mechanism; and a pair of stop members connected therewith for controlling the operation of said combination-locks, one stop member coöperating with one part of one combination-lock, and the other stop member with another part of the other combination-lock.

32. A lock mechanism comprising a pair of combination-locks having bolts and fences; time-lock mechanism; and a pair of stop members connected therewith, one dogging the fence of one combination-lock, and the other the bolt of the other combination-lock.

33. The combination, with a door, of locking mechanism therefor; means for actuating said locking mechanism; lock mechanism comprising a combination-lock having a bolt; a lever pivoted to said bolt and operatively connected with said actuating means, time-lock mechanism, and a stop member connected therewith and controlling the operation of said combination-lock and thereby the movement of said lever.

34. A lock mechanism comprising in combination with means to be controlled a pair of combination-locks; time-lock mechanism; and means connected therewith and effective to dog the fence of one combination-lock and the bolt of the other combination-lock.

35. The combination, with a door, of means for locking the door; means for actuating said locking means; clutch mechanism for controlling the operation of said actuating means; clutch-shifting means; and a pair of combination-locks operatively connected with said clutch-shifting means.

36. The combination with a safe or vault door, of a plurality of bolts therefor; means for actuating said bolts; a pair of combination-locks for controlling the working of said bolts; and time-lock mechanism having independent devices one controlling the operation of a part of one combination-lock and the other controlling the operation of a part of the other combination-lock.

37. The combination, with a door, of means for locking the door; means for actuating said locking means; clutch mechanism for controlling the operation of said actuating means; a combination-lock connected with said clutch mechanism for controlling the operation thereof; and time-lock mechanism for controlling the operation of said combination-lock.

679,379. SAFE OR VAULT DOOR BOLTING MECHANISM.

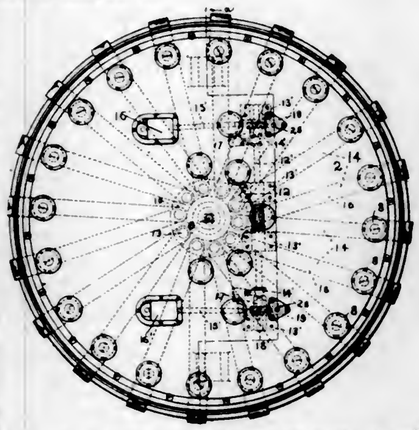
HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Nov. 2, 1900. Serial No. 35,198. (No model.)

Claim.—1. The combination with a safe or vault door, of a series of laterally-swinging, longitudinally-sliding bolts having their inner ends located in sets, each set having a common pivot; and means for shifting said pivots in a curvilinear path, thereby to shift the bolts.

2. The combination with a safe or vault door, of a series of laterally-swinging, radially-sliding bolts all assembled to project toward the central portion of the door, said bolts being located in sets, each set having their inner ends overlapping; and means for shifting said bolts.

3. The combination, with a circular safe or vault door, of a series of bolts assembled about the door to project radially from the central portion thereof, each pair of bolts having their ends overlapping, and means for shifting said bolts.

4. The combination with a safe or vault door, of a series of laterally-swinging, radially-sliding bolts assembled to project around the door and located substantially equidistant around such door, all the bolts projecting toward the central portion of the door and having their inner ends located in sets, the inner ends of each set having a common pivot; and means for shifting said bolts.



5. The combination, with a safe or vault door having a rearwardly-extending flange provided with bolt-openings, of a series of bolts carried by said door; a rocking plate having a part thereof formed as a worm and carrying a series of pins corresponding in number to one-half the number of bolts, the inner ends of each pair of bolts being located on the same pin; a worm-shaft in engagement with said rocking plate; and means for rotating said worm-shaft.

6. The combination, with a safe or vault door having a rearwardly-extending flange provided with bolt-openings, of a series of bolts carried by said door; a rocking plate having a part thereof formed as a worm and carrying a series of pins corresponding in number to one-half the number of bolts, the inner ends of each pair of bolts being located on the same pin; a worm-shaft in engagement with said rocking plate; means for rotating said worm-shaft and comprising clutch mechanism; and a combination-lock for controlling the operation of said clutch mechanism.

7. The combination, with a safe or vault door, of a series of bolts assembled to project radially from the central portion thereof with a plurality at each side of the door, said bolts being located in sets, each set having their inner ends overlapping, and means embodying worm-gearing for shifting said bolts.

8. The combination with a safe or vault door, of a series of laterally-swinging, radially-sliding bolts all assembled to project toward the central portion of the door, with a plurality at each side of the door and having their inner ends located in sets, each of said bolts comprising a head and a shank hinged together; a rocking plate having a series of pins, each set of shanks being located on the same pins; and means for shifting said rocking plate thereby to swing the shanks while shifting the bolt-heads radially.

9. The combination, with a safe or vault door having boltways, of a series of bolts each comprising a head located in one of said ways and a shank hinged to said bolt-head; a rocking plate carrying a series of pins, each pair of shanks of a pair of bolts being located on the same pin; means for shifting said rocking plate thereby to actuate the shanks laterally while shifting the bolt-heads in a straight line, said means comprising a worm-shaft; means for rotating the same; and means for controlling the operation of said rotating means.

10. The combination, with a safe or vault door having boltways, of a series of bolts each comprising a head located in one of said ways and a shank hinged to said bolt-head; a rocking plate carrying a series of pins, each pair of shanks of a pair of bolts being located on the same pin; means for shifting said rocking plate thereby to actuate the shanks laterally while shifting the bolt-heads in a straight line, said means comprising a worm-shaft; means for rotating the same and embodying clutch mechanism; and a combination-lock for controlling the operation of said clutch mechanism.

11. The combination, with a safe or vault door having a rearwardly-extending flange provided with bolt-openings, of a series of bolts comprising bolt-heads working in said openings and shanks hinged to said bolt-heads; a rocking plate having a part thereof formed as a worm and provided with a series of pins for engaging the inner ends of the bolts, each pair of bolts of the series being located on the same pin; a worm-shaft for rocking said plate thereby to shift the bolts; means for rotating said shaft and embodying a spindle; and a combination-lock for controlling the rotation of said shaft.

12. The combination, with a safe or vault door, of a series of bolts located thereon, and duplicate actuating means embodying worm-gearing for operating said bolts.

13. The combination, with a safe or vault door, of a series of bolts located thereon, and duplicate actuating means for actuating said bolts, each of said actuating means comprising gearing and clutch mechanism.

14. The combination, with a safe or vault door, of a series of bolts supported thereby; a rocking plate for shifting said bolts; a worm-shaft in engagement with said rocking plate; and duplicate actuating means for controlling the operation of said worm-shaft.

15. The combination, with a safe or vault door, of a series of bolts supported thereby; a rocking plate for shifting said bolts; a worm-shaft in engagement with said rocking plate; duplicate actuating means for controlling the operation of said worm-shaft, each of said actuating means including clutch mechanism; and a combination-lock for controlling such clutch mechanism.

16. The combination, with a safe or vault door having a rearwardly-extending flange provided with bolt-openings, of a series of bolts carried by said door; a rocking plate having a part thereof formed as a worm and carrying a series of pins corresponding in number to one-half the number of bolts, the inner ends of each pair of bolts being located on the same pin; a worm-shaft in engagement with said rocking plate; and duplicate means for rotating said worm-shaft.

17. The combination, with a safe or vault door having a rearwardly-extending flange provided with bolt-openings, of a series of bolts comprising bolt-heads working in said openings and shanks hinged to said bolt-heads; a rocking plate having a part thereof formed as a worm and provided with a series of pins for engaging with the inner ends of the bolts, each pair of bolts of the series being located on the same pin; means for rocking said plate thereby to shift the bolts and comprising a worm-shaft and duplicate actuating means, said duplicate actuating means comprising a pair of spindles each carrying a gear; clutch mechanism carrying a gear in mesh with said spindle-gear; and a combination-lock for controlling the operation of such clutch mechanism.

18. The combination, with a safe or vault door having a rearwardly-extending flange provided with bolt-openings, of a series of bolts comprising bolt-heads working in said openings and shanks hinged to said bolt-heads; a rocking plate having a part thereof formed as a worm and provided with a series of pins for engaging the inner ends of the bolts, each pair of bolts of the series being located on the same pin; and means for rocking said plate thereby to shift the bolts and comprising a worm-shaft and duplicate actuating means.

19. The combination, with a safe or vault door, of a series of bolts carried thereby; a rocking plate connected with the inner ends of said bolts and having a part of its periphery formed as a worm; a worm-shaft carrying a gear; means for rotating said worm-shaft and embodying a spindle projecting at the outer side of said door; and a gear located on said spindle and in mesh with said worm-shaft gear, said spindle being supported in bearings located at each side of its gear.

20. The combination, with a safe or vault door, of a series of bolts carried thereby; a worm-wheel connected with said bolts; a worm-shaft in mesh with said worm-wheel; a pair of clutch members mounted on said shaft, and carrying a gear having spirally-formed teeth; a spindle carrying a gear having similarly-formed teeth in mesh with said clutch-member gear; and means for controlling the operation of said clutch members.

21. The combination, with a safe or vault door, of a series of bolts carried by said door and having their inner ends located in sets, each set pivoted at the same point; and means embodying clutch mechanism for shifting said bolts.

22. The combination with a safe or vault door, of a series of laterally-swinging, longitudinally-sliding bolts carried by said door and having their inner ends located in sets, each set pivoted at the same point; and means embodying gearing for shifting said bolts.

23. The combination, with a safe or vault door, of a series of bolts carried by said door and having their inner ends located in sets, each set pivoted at the same point; and means embodying worm-gearing for shifting said bolts.

24. The combination, with a safe or vault door, of a series of bolts carried by said door and having their inner ends located in sets, each set pivoted at the same point; and means embodying clutch mechanism and worm-gearing for shifting said bolts.

25. The combination with a safe or vault door, of a series of bolts carried by said door and sliding into and out of their bolting position and having their inner ends located in sets, each set pivoted at the same point, the movement of said bolts being lengthwise from such pivotal point.

26. The combination, with a safe or vault door, of a series of bolts carried thereby, and duplicate actuating means embodying clutch mechanism for operating said bolts.

27. The combination, with a safe or vault door, of a series of bolts assembled about the door to project radially from the central portion thereof; and duplicate actuating means for said bolts.

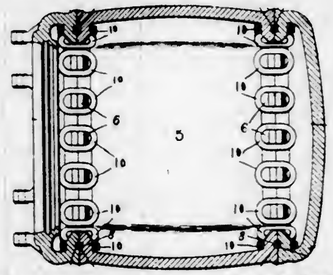
28. The combination, with a safe or vault door, of a series of bolts assembled about the door to project radially from the central portion thereof with their inner ends located in sets, each set located on the same pin; and duplicate actuating means for said bolts.

29. The combination, with a safe or vault door, of a series of bolts assembled about the door to project radially from the central portion thereof, and duplicate actuating means embodying worm-gearing for said bolts.

30. The combination, with a safe or vault door, of a series of bolts assembled to project radially from the central portion of the door and duplicate actuating means embodying clutch mechanism for operating said bolts.

31. The combination with a safe or vault door, of a series of bolts carried by said door and having their inner ends located in sets, each set pivoted at the same point; and bolt-actuating means comprising gearing and duplicate clutch mechanisms; and means comprising a pair of combination-locks for controlling the actuation of said bolt-actuating means.

679,380. SAFE OR VAULT. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Nov. 2, 1900. Serial No. 35,199. (No model.)



Claim.—1. A safe or vault body comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of projections located along its edges and adapted to register with similar projections carried by its companion sections; a key located in a keyway formed in the engaging faces of each plurality of registering projections for locating said sections in alinement; and means for securing the sections together.

2. A safe or vault comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of inwardly-extending projections located along each of its free edges registering with similar projections carried by its companion sections, and means located around each plurality of registering projections for securing the sections together.

3. A safe or vault comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of inwardly-extending projections located along each of its free edges registering with similar projections carried by its companion sections, and a link shrunk on each pair of registering projections for securing the sections together under high tension.

4. A safe or vault comprising a plurality of sections including one or more hoop or band shaped sections, and means shrunk onto parts or projections located on the interior of said sections for securing them together.

5. A safe or vault comprising a plurality of sections including one or more hoop or band shaped sections; means shrunk onto parts or projections located on the interior of said sections for securing them together; and means for locating said sections in proper alinement.

6. A safe or vault comprising a plurality of sections, one or more of which comprises a band or hoop shaped member, each of said sections having a plurality of inwardly-extending projections located along each of its free edges registering with similar projections carried by its companion sections; means securing under tension the projection of one section with the projection of another section; and a key located in each pair of registering projections for locating said sections in alinement.

7. A safe or vault body comprising a plurality of sections embodying one or more octagonal sections, each of said sections having a plurality of inwardly-extending projections located along its free edges, the projections of one section registering with those of a companion section, and means located around such projections for securing them together.

8. A safe or vault comprising a plurality of sections embodying one or more band or hoop shaped sections, each of said sections having an exteriorly-located increased portion or flange disposed adjacent to its free edge and forming with a corresponding flange of a companion section a yielding bead effective under an explosive charge to yield while preserving a tight metal-to-metal joint.

9. A safe or vault section comprising a band or hoop shaped member having along each of its free edges a plurality of inwardly-extending projections, each of said projections having a key-receiving slot in one of its faces.

10. A safe or vault section comprising a band or hoop shaped member having on its outer side adjacent to its edge an increased portion or flange adapted to form with a similar flange of a companion section a yielding bead.

11. A safe or vault section comprising a band or hoop shaped member having on its outer side adjacent to its edge an increased portion or flange, and having on its inner side a plurality or inwardly-extending projections located adjacent to such edge.

12. A safe or vault section comprising a band of hoop shaped member having on its outer side adjacent to its edge an increased portion or flange, and having on its inner side a plurality of inwardly-extending projections located adjacent to such edge, each of such projections having a recess in one of its faces.

13. A safe or vault comprising a plurality of sections embodying one or more band or hoop shaped sections, each of such sections having on the interior thereof a part or projection rigid therewith, and means for clamping a plurality of projections of a plurality of sections together thereby to draw the edge faces of such sections together with great force to hold said sections under high initial resistance, each of said sections having an exteriorly-located increased portion or flange disposed adjacent to its free edge and forming with a corresponding contiguous flange a yielding bead effective, under an explosive charge, to yield while preserving a tight metal-to-metal joint.

14. A safe or vault comprising a plurality of sections embodying one or more band or hoop shaped sections, each of such sections having on the interior thereof a part or projection rigid therewith; means for clamping a plurality of projections of a plurality of sections together thereby to draw the edge faces of such sections together with great force to hold said sections under high initial resistance, each of said sections having an exteriorly-located increased portion or flange disposed adjacent to its free edge and forming with a corresponding contiguous flange a yielding bead effective, under an explosive charge, to yield while preserving a tight metal-to-metal joint; and means for locating said sections in fixed alinement thereby to maintain the outer faces of said flanges flush with each other.

679,381. CELLULAR SAFE. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Nov. 2, 1900. Serial No. 35,200. (No model.)

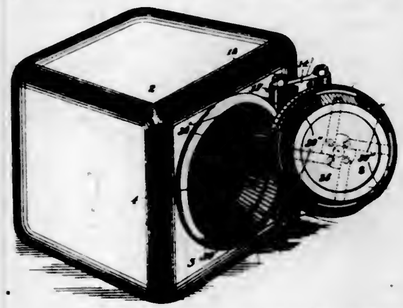


Claim.—1. A cellular safe comprising a body having one or more transversely-extending partitions cast integral with the walls of such body and forming cells, all having a common doorway provided with a yielding bead or flange located around the same.

2. A safe comprising a body having means located on the interior thereof for reinforcing the walls of such body and also having a bead or flange located on the exterior thereof and around the door for reinforcing such door thereby to prevent entrance either by means of the door or through the walls.

679,382. SAFE OR VAULT. HENRY D. HIBBARD, Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Filed Feb. 20, 1901. Serial No. 48,091. (No model.)

Claim.—1. The combination with the body of a safe having a circular door-opening therein, a circular door adapted to fit and turn in said opening, having a recess in its outer surface forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door, of a fixed ring on which the door is supported located within said recess and inclosed by said flange, a pinion mounted on said ring, a shaft for operating said pinion, and rack-teeth on the inner surface of said flange with which said pinion engages, as and for the purpose set forth.



2. The combination, with the body of a safe having a circular door-opening therein, a circular door adapted to fit and turn in said opening and having a recess in its outer face forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door, of a flange located in said recess, one of said flanges carrying gear-teeth; and a gear in mesh with said teeth.

3. The combination, with the body of a safe having a circular door-opening therein, a circular door adapted to fit and turn in said opening and having a recess in its outer surface forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door, of a flange or ring located in said recess and inclosed by said annular flange, one of said flanges carrying gear-teeth on its inner surface; and a gear in mesh with said teeth.

4. The combination, with the body of a safe having a circular door-opening therein, a circular door adapted to fit and turn in said opening and having a recess in its outer surface forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door, of a flange or ring supported in said recess; and gear mechanism for rotating said door.

5. The combination, with the body of a safe having a circular door-opening therein, a circular door adapted to fit and turn in said opening and having a recess in its outer surface forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door; of gear mechanism supported in said recess formed by said flange for rotating said door.

6. The combination, with a safe-body having a circular door-opening, a circular door adapted to fit and turn in said opening and having a recess in its outer surface forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door, of a fixed ring located in said recess and inclosed by said flange and carrying gear-teeth on its inner surface; and a gear in mesh with said gear-teeth.

7. In a safe, the combination of a safe-body having a circular doorway, a circular door adapted to fit and turn therein and having a forwardly-extending member or flange forming a recess in the front face thereof, interlocking devices other than continuous screw-threads on said body and door; a member located in said recess and having a spindle, one of said members carrying gear-teeth; a member having a hub for the reception of such spindle; a hinge secured to said hub member and body; and a gear in mesh with said gear-teeth.

8. In a safe, the combination of a safe-body having a circular doorway; a circular door adapted to fit and turn therein and having a forwardly-extending flange forming a recess in the front face thereof; interlocking devices other than continuous screw-threads on said body and door; a flange seated in said forwardly-extending flange, said door having gear-teeth at one side of said flange and also having a forwardly-projecting member; a member having a rearwardly-projecting member, one of said members being formed as a hub and the other as a spindle projecting into such hub; a hinge pivotally secured to said plate and body; and a gear in mesh with said gear-teeth to rotate the door.

9. In a safe, the combination of a safe-body having a circular doorway; a circular door adapted to fit and turn therein and having a forwardly-extending flange forming a recess in the front face thereof; interlocking devices other than continuous screw-threads on said body and door; a flange located in said recess and having gear-teeth on its inner surface and provided with a projection or spindle; a member having a hub for the reception of such spindle; a hinge pivotally secured to said member and body; and a gear mounted in position to mesh with said gear-teeth to rotate the door.

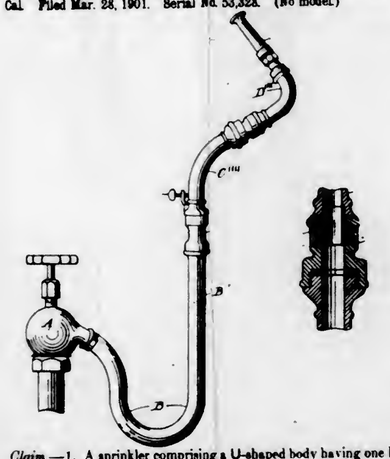
10. In a safe, the combination of a safe-body having a circular doorway; a circular door adapted to fit and turn in said doorway and having a recess in its outer face forming an annular flange, said door and doorway having interlocking devices other than continuous screw-threads; means for supporting the door and embodying a ring or flange located within said recess and inclosed by said flange, one of said parts having gear-teeth; and a gear for rotating said door.

11. The combination, with the body of a safe having a circular door-opening therein, a circular door adapted to fit and turn in said opening and having a recess in its outer surface forming an annular flange, and interlocking devices other than continuous screw-threads on said body and door, of a flange or ring supported in said recess, and means for imparting rotary movement to said door.

12. In a safe, the combination of a safe-body having a circular door-opening, a circular door adapted to fit and turn therein and having a forwardly-extending flange forming a recess in the front face thereof; interlocking devices other than continuous screw-threads on said body and door; a member located in said recess and having a forwardly-projecting part; a member having a rearwardly-projecting part, one of said parts being formed as a hub and the other as a spindle projecting into such hub; a hinge pivotally secured to that member having the rearwardly-projecting part and to said body; and means for rotating the door.

13. In a safe, the combination of a safe-body having a circular door-opening, a circular door adapted to fit and turn therein and having a forwardly-extending flange forming a recess in the front face thereof; interlocking devices other than continuous screw-threads on said body and door; a member located in said recess and having a forwardly-projecting part; a member having a rearwardly-projecting part, one of said parts being formed as a hub and the other as a spindle projecting into such hub; a hinge pivotally secured to that member having the rearwardly-projecting part and to said body; and gear mechanism for rotating the door.

679,383. LAWN-SPRINKLER. LOUIS HORVATH, Los Angeles, Cal. Filed Mar. 28, 1901. Serial No. 53,323. (No model.)

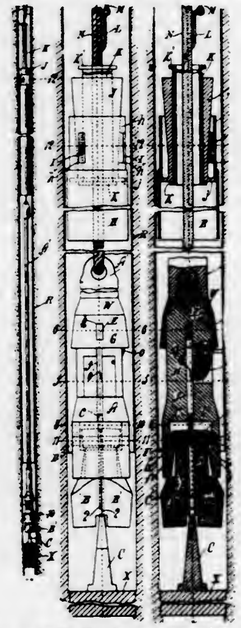


Claim.—1. A sprinkler comprising a U-shaped body having one leg thereof longer than the other, the curves of which are arcs of a circle, a quadrant elbow-shaped member, composed of a base, adapted to be screwed upon the longer leg of the body; a collar adapted to be screwed upon the base; a curved body; a coupling-tube having one end thereof reduced in size and adapted to pass through the collar and screw into the curved body; a second quadrant elbow adapted to be screwed upon the first elbow also composed of a base; a collar; a coupling-tube and a curved body, the enlarged portion of the coupling-tube being adapted to be caught and held against rotation by the base and collar when in their operative position, and a nozzle, all constructed and operated as described herein.

2. In a sprinkler, a quadrant-shaped elbow comprising a base; a collar adapted to be screwed upon the base; a coupling-tube having one end smaller than the other, the smaller end adapted to pass through the collar and screw into the body, and a curved body, all constructed substantially as described herein.

679,384. EXPANDING UNDERREAMER AND DRILL. JAMES M. KELLERMAN, Los Angeles, Cal. Filed Oct. 16, 1899. Serial No. 733,800. (No model.)

Claim.—1. An expansion-drill and underreamer comprising a stock provided with a transverse opening or way and with an axial shouldered chamber; two bits, each being flat on its inner face and having a circumferentially-channeled neck to seat in opposite sides of said chamber, and also provided with a transverse way to register with the transverse way of the stock; a wedge to seat between the bits to hold them in expanded position and provided with a stem which has a slot to register with the ways of the bits and stock; a pin inserted through the ways of the stock, bits and stem; means for temporarily holding the wedge in its wedging position; and means for forcing the wedge out of wedging position.



2. An expansion-drill and underreamer comprising a stock having a shouldered chamber and a transverse opening or way at its lower end; two bits, each provided with a neck to seat in opposite sides of said chamber and also provided with a transverse way to register with the lower transverse way of the stock; a wedge to seat between the bits to hold them in expanded position and provided with a stem which has a slot to register with the ways of the bits; a pin inserted through the ways of the stock, bits and stem; means for temporarily holding the wedge in its wedging position; and means for forcing the wedge out of wedging position.

3. An expansion-drill and underreamer comprising a stock with a slot extending across and lengthwise of the stock at its upper end and with an axial chamber and a transverse opening or way at its lower end; two bits, each provided with a neck to seat in opposite sides of said chamber and also provided with a transverse way to register with the lower transverse way of the stock; a wedge to seat between the bits to hold them in expanded position and provided with a stem which has a slot to register with the ways of the bits and which stem extends into said slot of the stock when the wedge is seated to hold the bits expanded; a pin inserted through the ways of the stock, bits and stem; means for temporarily holding the wedge in its wedging position; a pin inserted through the stock-slot to engage the head of the stem; and means for operating said last-named pin to force the wedge out of its wedging position.

4. In an expanding bit and underreamer, the combination of a stock provided with a chamber at its lower end, the walls of said chamber being shouldered; two bits, each provided with a neck to seat in said chamber and provided at the upper end with a projection to fit over said shoulder when the neck is inserted; a wedge to wedge between said bits and provided with a stem to extend above the upper ends of said necks and to hold the necks outward with their projections over the shoulder; means for retaining the wedge in the stock; means for temporarily holding the wedge in its wedging position; and means for forcing the wedge out of its wedging position.

5. An expanding bit and underreamer comprising a stock provided at its lower end with a chamber with shouldered walls, the shoulder being notched on opposite sides of said chamber; two bits, each provided

with a neck having a projection to extend over said shoulder to prevent withdrawal of the bits when the two bits are inserted and are turned to bring such projections over the shoulder away from the notches thereof; the ends of said projections being adapted to pass through the notches when the bit is brought into position for that purpose; and means carried by the stock for spreading the bits apart.

6. In an expanding bit and underreamer, the combination of a stock provided at its lower end with a transverse keyway and with a chamber with shouldered walls, the shoulder being notched on opposite sides of such chamber; two bits, each provided with a neck having a projection to extend over such shoulder when the bits are in position for that purpose and to pass through the notches when adjusted for that purpose; each of said bits being provided with a transverse hole or keyway, the two holes registering with said way of the stock when the bits are turned to bring the projections over the shoulder; a wedge provided with a stem inserted between the bits and provided with a slot to register with the said keyways; a key inserted in said keyways; and means for adjustably holding the wedge in its wedging position.

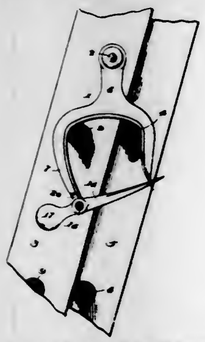
7. An expanding bit and underreamer comprising a slotted stock; two bits loosely secured in the lower end of the stock; a wedge for forcing the bits apart; a sliding member upon the stock and provided with a keyway; a key in said keyway and slot and extending in the path of an extension of the wedge; means for temporarily holding the wedge in its wedging position; and means for forcing the sliding member downward.

8. An expanding bit and underreamer comprising a slotted stock; two bits loosely secured in the lower end of the stock; a wedge for forcing the bits apart; a sliding member upon the stock and provided with a keyway; a key in the keyway and slot and extending in the path of an extension of the bit-wedge; means for temporarily holding the bit-wedge in its wedging position; a weighted member to engage the sliding member to force it downward; one or more friction-blocks mounted to slide radially of said weighted member to engage the walls of the well-casing; a wedge for forcing said friction-blocks outward to engage the casing; a carrier for the block-wedge; and means for raising and lowering the stock.

9. The combination with operative parts of a well drilling or reaming tool, of a weighted member; one or more friction-blocks mounted to slide radially of said weighted member to engage the walls of the well-casing; a wedge for forcing said friction-blocks outward to engage the casing; and a carrier and jar for such wedge.

10. The combination with operative parts of a well drilling or reaming tool, of a weighted member; one or more friction-blocks mounted to slide radially of said weighted member to engage the walls of the well-casing; a wedge for forcing said friction-blocks outward to engage the casing; and a carrier and jar slidingly connected with the wedge and provided with stops to limit its movement relative to the wedge.

679,385. **COUPLING-HOOK FOR EXTENSION-LADDERS.** HERMAN KLEMME and EDWIN AUGUSTLEB, Sheboygan, Wis. Filed Mar. 14 1901. Serial No. 51,116. (No model.)

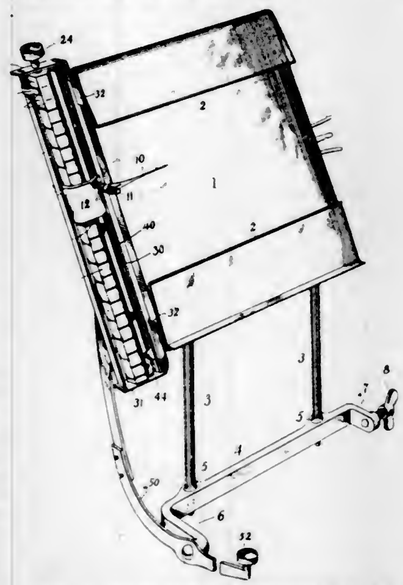


Claim.—1. A device of the class described comprising a hook pivoted at the top and provided with depending approximately vertical inner and outer sides forming a space or recess to receive the adjacent rungs of a ladder, and a lever arranged at a slight inclination and mounted on one of the sides of the hook and abutting against the other side and provided with a weight arranged to close the lever and to swing the hook inward, substantially as and for the purpose described.

2. A device of the class described comprising a hook consisting of a centrally-arranged shank, and the approximately vertical inner and outer sides depending from the shank, one of the sides being longer than the other, and a lever pivoted between its ends to the longer side of the hook and having its outer arm weighted and adapted to swing the hook inward and to hold the inner arm of the lever against the shorter side of the hook, substantially as described.

3. A device of the class described comprising a hook consisting of a centrally-arranged shank, and the approximately vertical sides depending from the shank, one of the sides being longer than the other and having a boss, and a weighted lever fulcrumed between its ends on the longer side of the hook and arranged to swing the latter inward and provided with a lug arranged to abut against the boss to limit the swing of the lever, substantially as described.

679,386. **LINE-INDICATOR.** GEORGE B. LAWTON, Boston, Mass. Filed Nov. 27, 1899. Serial No. 738,324. (No model.)



Claim.—1. In a line-indicator, the combination of a pointer, a slidable carrier therefor adapted to descend by gravity, a notched bar engaged by said carrier, and means for temporarily raising said carrier out of engagement with said notched bar and permitting it to descend to the next lower notch of said bar, substantially as set forth.

2. In a line-indicator, the combination of a pointer, a slidable carrier therefor adapted to descend by gravity, a prismatic bar variously notched on its different faces and capable of turning, and means for temporarily raising said carrier out of engagement with said bar and permitting it to descend to the next lower notch, substantially as set forth.

3. In a line-indicator, the combination of a pointer, a slidable carrier therefor adapted to descend by gravity, a notched bar engaged by said carrier, and a serrated strip adapted to be moved into engagement with said carrier and to disengage it from said notched bar and to descend a short distance, substantially as set forth.

4. In a line-indicator, the combination of a pointer, a slidable carrier therefor adapted to descend by gravity, a notched bar engaged by said carrier, a serrated strip normally located close beneath said carrier, means for advancing said strip against said carrier, and the ratchet-wheel supporting the lower end of said strip, substantially as set forth.

5. In a line-indicator, the combination of a pointer, a slidable carrier therefor adapted to descend by gravity, a notched bar engaged by said carrier, a serrated strip normally located close beneath said carrier, means for advancing said strip against said carrier, the ratchet-wheel supporting the lower end of said strip, and the spring acting against said wheel, as set forth.

6. In a line-indicator, the combination of a paper-holding means, a carrier adapted to be moved parallel with the face of the paper held thereby, a post projecting from said carrier perpendicular to the face of said paper, and a pointer both slidable and rotative on said post, substantially as set forth.

7. In a line-indicator, the combination with the copy-holder and the indicator mechanism, of means for detachably securing said mechanism to said copy-holder, such means comprising the base-pieces having the elbows, the hands, and the set-screws, substantially as set forth.

8. In a line-indicator, the combination with the copy-holder and the indicator mechanism, of the means for detachably securing said parts together, such means comprising the base-pieces having the elbows, the hands, and the set-screws, said copy-holder being formed with the flanged edge with which said means engages, substantially as set forth.

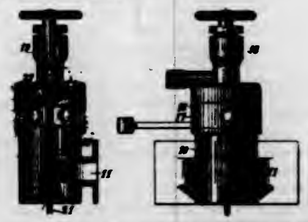
9. The combination of the copy-holder having the standards, the socket-piece adapted to receive said standards and provided with means for its attachment to a suitable support, of the line-indicator held by said copy-holder, the actuating-lever therefor pivoted to said socket-piece and formed in two separable sections, substantially as set forth.

10. In a line-indicator, the combination with the guide-bars, of the notched bar located between the same, the pointer, the carrier for said pointer adapted to be slidably held by said guide-bars but to be moved out of engagement with said notched bar, and means for thus disengaging said carrier from said notched bar.

11. In a copy-holder, the combination with the copy-supporting plate, of the clips pivotally held thereby and having the arms rigidly projecting therefrom, and the levers pivoted to said plate and linked at an intermediate point to said arms, whereby a pressure of said levers one toward the other is adapted to raise said clips, substantially as set forth.

12. The combination with the copy-holding plate, of the clips pivoted thereto and having the rigidly-projecting arms, the levers pivoted at one end to said plate and projecting beyond the edge of the same at their free ends, links joining the median point of said levers to said arms, resilient means for closing said clips, and the fixed tongue located between the free ends of said levers, substantially as set forth.

679,387. **CARBURETING APPARATUS FOR EXPLOSION-MOTORS.** JOSEPH C. B. MATHIEU, Neuilly, France. Filed Apr. 17, 1900 Serial No. 13,251. (No model.)



Claim.—1. In a gas-engine, a carbureter comprising a chest having an ajutage for hydrocarbon and air inlets, a dome, a valve seated against the ajutage and the dome, mixing-chambers formed by plates connected to the valve, and additional air-inlets for diluting the charge, substantially as described.

2. In a gas-engine, a carbureter comprising a chest having an ajutage for hydrocarbon and air inlets, a dome, an axial rod carrying a spring-pressed cone seated against the ajutage and the dome, mixing-chambers formed by corrugated and perforated plates connected with the cone, annular passages between the plates and the chest, and additional air-inlets for diluting the charge, substantially as described.

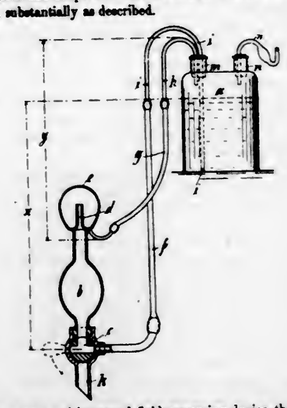
3. In a gas-engine, a carbureter comprising a chest having an ajutage for hydrocarbon and air inlets, additional air-inlets for diluting the charge, a dome, an axial rod carrying a spring-pressed cone seated against the ajutage and the dome, mixing-chambers formed by corrugated and perforated plates connected with the cone, annular passages between the plates and the chest, and means for maintaining the additional air-inlets always between the said plates connected with the cone, substantially as described.

679,388. **CHEMICAL APPARATUS.** JOHANN F. W. MEYER, Scheune, near Stettin, Germany. Filed Jan. 16, 1900. Serial No. 1,596. (No model.)

Claim.—1. In a fluid-measuring apparatus the combination of a store vessel, a neck opening therein, a pipe *i* entering therethrough, a pipe *h* also passing therethrough and both in connection respectively with pipes *f* and *g*, the bulb *c*, and a measuring-bulb *b* in connection therewith, all said parts being so arranged that the fluid-levels in the different pipes aforesaid are kept constant, substantially as described.

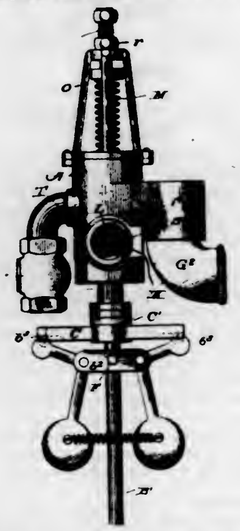
2. In a fluid-measuring apparatus, the combination of a vessel, a neck opening therein, a measuring-tube, a projection on said tube, a bulb also on said tube and about said projection, pipes connecting said bulb and said vessel, a valve on the lower end of said tube and pipes connecting said valve and said vessel substantially as described.

3. In a fluid-measuring apparatus, the combination of a closed vessel, a measuring-tube, a bulb surrounding the upper end thereof, pipes connecting said tube and said vessel and other pipes connecting said bulb and said vessel and adapted to lead the overflow from said tube back to said vessel, substantially as described.



4. In a new and improved fluid-measuring device, the combination of a measuring-tube, a vessel; a neck opening in the lower part thereof, a valve on the lower end of said tube, pipes connecting said valve and vessel, a projection on the upper end of said tube, a bulb about said projection, pipes also connecting said bulb and said vessel, all so arranged that through flow of fluid from said vessel to said tube such overflow in said bulb is forced back into said vessel substantially as described.

679,389. **GOVERNOR FOR EXPLOSIVE-ENGINES.** HARRY M. MCCALL, Pittsburg, Pa., assignor to the Pittsburgh Gas Engine Company, same place. Filed Jan. 22, 1901. Serial No. 44,277. (No model.)



Claim.—1. In a gas-engine governor, the combination with governor-weights operating by centrifugal force, a rotary shaft on which they are mounted and a rotary cross-piece moved longitudinally of the shaft by the outward swing of the weights, of a non-rotary longitudinally-movable governor-valve having a bearing in one end for the governor-shaft, a bearing coöperating with the cross-piece whereby the valve is moved longitudinally and a spring for holding the valve against the action of the weights; substantially as described.

2. In a gas-engine governor, the combination with a fitting having air and hydrocarbon inlet ports and valves controlling said ports, of a non-rotary longitudinally-movable valve controlling the exit of the mixture

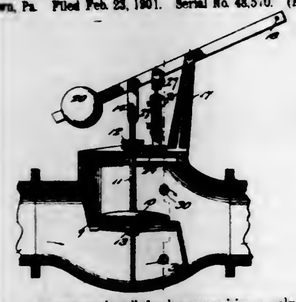
from the fitting, a bearing in the end of said valve, a governor-shaft journaled in said bearing and having a longitudinally-movable cross-piece coöperating with the valve to move it longitudinally, governor levers and weights carried by the shaft and coöperating with the cross-piece; substantially as described.

3. In a gas-engine governor the combination with a fitting having air and hydrocarbon inlet ports and valves controlling the same, of a non-rotary longitudinally-movable valve controlling the exit of mixture from the fitting, an adjustable spring bearing on one end of said valve, a governor-shaft journaled in the opposite end of the valve and having a cross-piece movable longitudinally thereon and coöperating with the valve, governor levers and weights coöperating with the cross-piece to move the same; substantially as described.

4. In a gas-engine governor, the combination with a fitting having a cylindrical opening therethrough with inlet and exit ports transversely thereof, spring-seated valves controlling the inlet-ports and a cylindrical valve working in the fitting, an adjustable spring bearing on one end of the valve, a governor-shaft having a bearing in the opposite end of the valve and governor levers and weights on said shaft for moving the valve longitudinally in the fitting; substantially as described.

5. In a gas-engine governor, the combination with the fitting, the governor-valve working longitudinally therein, the governor-shaft having a bearing in the governor-valve but held against longitudinal movement therewith and the weights and levers carried by the shaft of a cross-piece moved longitudinally of the shaft by the governor-levers and an antifriction-bearing interposed between said cross-piece and the end of the valve in which the shaft is journaled; substantially as described.

679,390. **AUTOMATIC RELIEF-VALVE.** FELIX MCCARTHY, Pottstown, Pa. Filed Feb. 23, 1901. Serial No. 48,570. (No model.)



Claim.—1. An automatic relief-valve comprising a valve-casing, a valve-seat within the casing, a valve on said seat, a valve-stem, extending through the casing, a weighted lever connected with said stem outside of the casing, a fulcrum-standard for said lever mounted on the casing, a dash-pot mounted at the top of the casing and pivotally connected thereto and to the lever, and a by-pass communicating with said casing at opposite sides of the valve and provided with a check-valve.

2. An automatic relief-valve comprising a valve-casing, a valve therein, a valve-stem extending through the casing, a weighted lever connected to said stem outside of the casing, a fulcrum-standard for said lever mounted on the casing, a dash-pot connected with the lever and casing and provided at opposite ends with petcocks, and a by-pass communicating with said casing at opposite sides of the valve and provided with a check-valve.

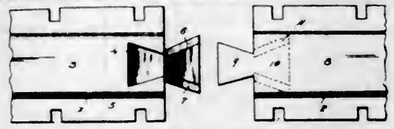
3. An automatic relief-valve comprising a valve-casing, a valve within the casing, a valve-stem extending through the casing, a weighted lever connected to said stem outside of the casing, a fulcrum-standard for said lever mounted on the casing, a dash-pot mounted at the top of the casing and connected with the lever, and a by-pass communicating with said casing at opposite sides of the valve and itself provided with a check-valve.

4. An automatic relief-valve comprising a valve-casing, a valve therein, a valve-stem extending through the casing, a weighted lever connected to said stem outside of the casing, a fulcrum-standard for said lever mounted on the casing, a dash-pot connected to the top of the casing and also connected with said lever, a by-pass communicating with the casing at opposite sides of the valve, and a check-valve and a gate-valve mounted within the by-pass.

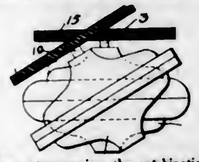
679,391. **RAILWAY-RAIL.** JAMES B. MCCUNE, Newcastle, Pa. Filed Feb. 2, 1901. Serial No. 45,757. (No model.)

Claim.—1. The combination with meeting rail-sections each having a projecting dovetail tongue and a dovetail recess, the tongue of each rail fitting the recess in the other rail.

2. A railway-rail section having its head formed with a dovetail extension and its base with a dovetail recess.



679,392. **ROTARY ENGINE.** JAMES A. MCKENNIE, Hancock, Mich. Filed June 25, 1900. Serial No. 21,568. (No model.)



Claim.—1. In a rotary engine, the combination with an annular raceway; and a piston therefor; of a moving abutment intersecting said raceway at an acute angle, said abutment and piston having a coöperating rotary movement at equal speeds relatively to each other.

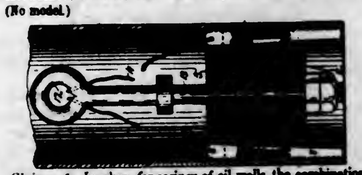
2. A rotary engine comprising a casing having an annular raceway; inlet and exhaust ports therefor; a piston rotatively mounted to move in said raceway; a superposed casing mounted on said first-mentioned casing, said casings being out of vertical alinement; and a rotating cylinder-head or abutment mounted in said superposed casing, said head bisecting said raceway at an acute angle, said head and said piston having an operative connection to cause a relative movement at equal speeds.

3. The combination in a rotary engine, of a rotary piston disk and head, and an annular cylinder or casing with a cylinder-head or abutment, consisting of an annular plate or ring placed at an acute angle with the plane of the piston's revolution and cutting the path of said piston and cylinder, the cylinder having a slot accommodating said ring, means for synchronously turning the ring and piston at equal speeds, and a slot or slots in the ring adapted to pass the piston therethrough, substantially as described.

4. A rotary engine, having a cylinder provided with an annular steam-chamber, a rotating piston-disk and a head thereon fitting said steam-chamber, in combination with a cylinder-head or abutment consisting of an annular plate or ring lying at an acute angle with the cylinder and cutting through the steam-chamber, the walls of said steam-chamber having slots accommodating said ring and the ring having a slot or slots permitting the passage of the piston-head therethrough, a casing fitting closely about the projecting parts of said ring, and secured to the cylinder, and means for turning the ring in unison and equal speed with the piston-disk, substantially as described.

5. A rotary engine having a cylinder provided with an annular steam-chamber, a rotating piston-disk and a head thereon fitting said steam-chamber, in combination with a cylinder-head or abutment consisting of an annular plate or ring lying at an acute angle with the cylinder and cutting through the steam-chamber, the walls of said steam-chamber having slots accommodating said ring, and the ring having a slot permitting the passage of the piston-head therethrough, a casing fitting closely about the projecting parts of said ring and secured to the cylinder, and intermeshing gears carried by the piston-disk and ring whereby the two are turned synchronously at equal speeds, substantially as described.

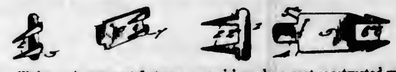
679,393. **PLUG FOR CASINGS OF OIL-WELLS.** ALEXANDER L. MCPHERSON, Oakland, Cal. Filed July 30, 1900. Serial No. 25,370. (No model.)



Claim.—1. In plugs for casings of oil-wells, the combination of the plug-body having upper and lower plates fitting snugly within the casing, said plates having recesses alining vertically with each other to form a downwardly-contracted seat, and the wedge-shaped key in said seat having ratchet-teeth on the outer edge of the key to engage the inner surface of the casing, substantially as described.

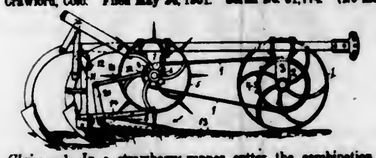
2. In plugs for casings of oil-wells, the combination of a plug-body comprising upper and lower plates fitting snugly within the casing, and vertical radial plates between said upper and lower plates, said upper and lower plates being recessed in line with the edges of the vertical plates to form seats for keys, and wedge-like keys in said seats, said keys having on their outer edges ratchet-teeth engaging the inner surface of the casing, substantially as described.

679,394. **GARMENT-FASTENER.** CHRISTIAN MYHUE, Villisca, Iowa. Filed June 25, 1900. Serial No. 21,534. (No model.)



Claim.—A garment-fastener comprising a loop part constructed with a plain cross-strip having a pair of prongs of acute shape formed with recesses providing shoulders and reduced parts bent at right angles to the cross-strip and to the prongs, so as to bring the latter in rear of and across the cross-strip between the ends of the latter, and a hook part constructed with a rectangular body having a pair of prongs of acute angle shape at one end formed with recesses providing shoulders and narrow parts bent at right angles to the body and to the prongs so as to bring the latter in front of the body parallel therewith, and a reduced part providing shoulders at the other end of the body and a tongue projecting partly in the plane of the body and returned in rear of the latter to provide a hook.

679,395. **STRAWBERRY-RUNNER CUTTER.** WILLIAM PARKER, Crawford, Colo. Filed May 24, 1901. Serial No. 61,774. (No model.)



Claim.—1. In a strawberry-runner cutter, the combination of a sweep-wheel, a shear having lower and upper rearwardly-converging fingers provided with vertical slots, an oscillating knife operating in said slots and between said fingers, and a pitman connecting said oscillating knife to said sweep-wheel, substantially as described.

2. In a strawberry-runner cutter, the combination with a sweep-wheel and means to rotate the same, of a shear having lower and upper rearwardly-converging fingers provided with vertical slots, a runner under the said shear at the heel thereof, a fender on the outer side of the shear, an oscillating knife operating in the slots of said shear and between the fingers thereof, and a pitman connecting said oscillating knife to said sweep-wheel, substantially as described.

679,396. **TIME-FUSE FOR PROJECTILES.** RASMUS H. GUSTLINS, Christianssand, Norway. Filed Feb. 8, 1900. Serial No. 4,550. (No model.)



Claim.—1. The combination with the adjustable fuse-ring containing the time-circuit of a time-fuse for projectiles, firing appliances for igniting the priming of said fuse, and a locking device for locking said appliances out of operation; of means organized to operate the locking device to release the firing appliances and simultaneously therewith revolve the fuse-ring and time the fuse, substantially as set forth.

2. The combination with the adjustable fuse-ring containing the time-circuit of a time-fuse for projectiles, firing appliances for firing the priming of said fuse and a locking device for locking said appliances out of operation; of means organized to operate the locking device to release the firing appliances and to simultaneously revolve the fuse-ring and determine the amplitude of its rotation, for the purpose set forth.

3. The combination with the adjustable fuse-ring containing the time-circuit of a time-fuse for projectiles, firing appliances for igniting the priming of the fuse, and locking devices for locking said firing appliances out of operation and the fuse-ring against rotation; of means organized to operate the aforesaid locking devices to release the firing appliances, to simultaneously revolve the fuse-ring and then to lock said ring against rotation, for the purpose set forth.

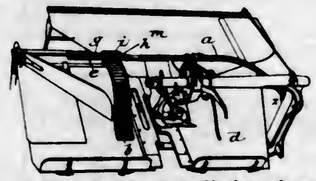
4. The combination with the adjustable fuse-ring containing the time-circuit of a time-fuse for projectiles, firing appliances for igniting the priming of the fuse, and locking devices for locking said firing appliances out of operation and the fuse-ring against rotation; of means organized to operate the aforesaid locking devices to release the firing appliances, to simultaneously revolve the fuse-ring, determine the amplitude of its rotation and then to lock said ring against rotation, for the purpose set forth.

5. The combination with the adjustable fuse-ring containing the time-circuit of a time-fuse for projectiles, percussion and concussion firing appliances for firing the priming of the fuse and locking devices for locking said appliances out of operation and for locking the fuse-ring against rotation; of means organized to operate the aforesaid locking devices, release the firing appliances, revolve the fuse-ring and then lock it against rotation, for the purpose set forth.

6. The combination with the adjustable fuse-ring containing the time-circuit of a time-fuse for projectiles, percussion and concussion firing appliances for firing the priming of the fuse and locking devices for locking said appliances out of operation and for locking the fuse-ring against rotation; of means organized to operate the aforesaid locking devices, release the firing appliances, revolve the fuse-ring, determine the amplitude of its rotation and then lock it against rotation, for the purpose set forth.

7. The combination with a projectile and a flanged internally-screw-threaded sleeve secured axially therein and having a notch in its upper or outer end above the flange, the fuse-body 11 adapted to be screwed into said sleeve, the fuse-rings 40 and 41 mounted on said body, said ring 40 having longitudinal motion only and said ring 41 both longitudinal and rotary motion, percussion and concussion firing appliances contained in said fuse-body and a locking-lever adapted to lock said appliances out of operation and to lock the fuse-body against being fully screwed into its sleeve; of means organized to release the firing appliances and at the same time disengage the locking-lever from said sleeve to permit the fuse-body to be fully screwed into its sleeve and lock the fuse-ring 41 against rotation by pressure of the sleeve on the fuse-ring 40, for the purpose set forth.

679,397. **GRAIN-BINDER.** CHARLES A. A. RAND, Chicago, Ill. Filed Dec. 22, 1900. Serial No. 40,749. (No model.)



Claim.—1. In a grain-binder, the combination to form a retarder for the heads of the grain, of the spring-rail of the binder, a rod fixed horizontally thereto, a retarder plate, arm or bar pivoted upon the rod, and a spring coiled around the rod and having its outer end engaging the retarder-plate to hold it with an elastic pressure down upon the grain.

2. In a grain-binder, the combination to form a retarder for the heads of the grain, of a rod fixed horizontally to the spring-rail of the binder, a retarder plate, arm or bar pivoted upon the rod, and adjustable therealong to suit different lengths of grain, a series of adjusting-notches on the plate, and a spring coiled around the rod and having its outer end engaging the retarder-plate by being adjustable into any one of the notches.

3. In a grain-binder, the combination to form a retarder for the heads of the grain, of the spring-rail of the binder, a retarder plate, arm or bar pivotally connected therewith, and a spring coiled around the pivot and having its outer end engaging the plate, said spring being disconnectable from the plate, and the latter being adapted to be turned up in reverse position.

4. In a grain-binder, the combination to form a retarder for the heads of the grain, of a rod fixed horizontally to the spring-rail of the binder, a retarder plate, arm or bar having its inner end turned over and around said rod so as to pivotally connect it therewith, and being adjustable therealong to suit different lengths of grain, and a spring inclosed by the turned-over end of the retarder-plate and coiled around the rod, one end of said spring engaging the spring-rail, and the other engaging any one of a series of adjusting-notches on the retarder-plate.

679,398. **POWDER-PUFF.** BELLE C. SABIN and BLANCHE C. HULLATT, Harvey, Ill. Filed Jan. 23, 1901. Serial No. 45,132. (No model.)

Claim.—1. In a powder-box, the combination of the box, a cone-shaped wire-gauze top, a layer of antiseptic material on the outside of said gauze top, a puff of down or other soft material secured to said top and covering all but the vertex of said top, means for securing said top to the box, a metal cap adapted to cover the uncovered portion of the gauze top, and a top to cover said puff and gauze top, substantially as described.



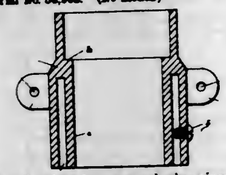
2. In a powder-box, the combination of a box, a gauze top, a puff of down or other soft material secured to said top and covering the same except the vertex thereof, and a top to cover said puff and gauze top, substantially as described.

3. In a powder-box, the combination of a box, a cone-shaped gauze top, a puff of down or other soft material secured thereto, substantially as described.

4. In a powder-box, the combination of a box, a gauze top, a puff secured thereto, and a metal cap, substantially as described.

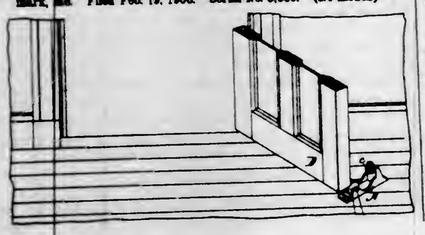
5. In a powder-box, the combination of a box, a gauze top, means for securing said top to the box, a puff secured to said top, and a metal cap, substantially as described.

679,899. **WALL-SOCKET FOR WATER OR OTHER PIPES.** JOHN SMITH and ROBERT WALKER, South Shields, England. Filed May 6, 1901. Serial No. 58,982. (No model.)



Claim.—In wall-sockets for water and other pipes, an inner sleeve, in the space between which and the outer casing, the upper end of the lower pipe is held, an internal ridge or projection to receive the lower end of the upper pipe, a set-screw or stop-pin for adjusting the distance between the sockets, substantially as described and illustrated herein and for the purpose set forth.

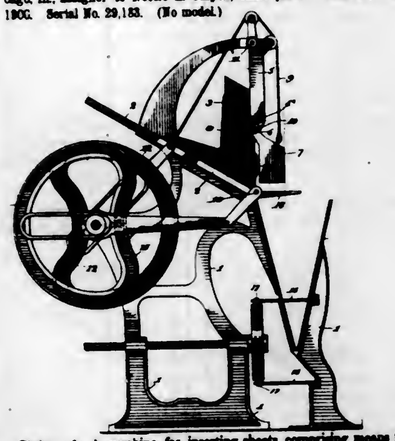
679,400. **DOOR STOP AND HOLDER.** SIDNEY S. SMITH, Denmark, Me. Filed Feb. 19, 1900. Serial No. 5,639. (No model.)



Claim.—1. The door-stop above described consisting of a rigid support, flat on its under side and adapted to rest upon and be attached to the floor, and carrying a yielding roller adapted to engage with the under surface of the door, said roller being made of rubber or the like and adapted by its elasticity to yield when engaged by the door and thereby hold the door by frictional contact therewith and without raising the door when so engaged.

2. The improved door stop and holder above described consisting of a base-plate having an elastic roller mounted upon rigid supports at one end thereof, and a buffer at its other end, said roller and said buffer being mounted in fixed relation to each other and said roller being adapted to yield by reason of its elasticity upon its engagement with the door, as and for the purposes described.

679,401. **BOOKBINDING MACHINERY.** JOSEPH R. SMYTH, Chicago, Ill., assignor to Nettie E. Smyth, same place. Filed Sept. 6, 1900. Serial No. 29,183. (No model.)



Claim.—1. A machine for inserting sheets, comprising means for supporting a pile of sheets in substantially vertical position, movable devices for holding said sheets in position in the pile, movable devices for separating the edge of the first sheet, movable devices constructed to enter between the separated sheets and the remaining sheets for retaining the remaining sheets after the first sheet has been separated, and mechanism for actuating said retaining, separating, and holding devices, substantially as described.

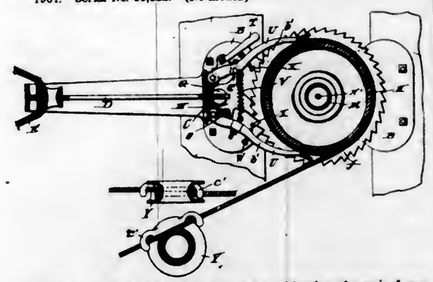
2. A machine for inserting sheets, comprising means for supporting a pile of sheets in substantially vertical position, movable devices for holding said sheets in position in the pile, movable devices for separating the edge of the first sheet, movable devices constructed to enter between the separated sheets and the remaining sheets for retaining the remaining sheets after the first sheet has been separated, mechanism for actuating said retaining device and other mechanism for actuating said separating and holding devices common to both of the latter, substantially as described.

3. A machine for inserting sheets, &c., comprising means for supporting a pile of sheets in substantially vertical position, devices for holding said sheets in position in the pile consisting substantially of a lever pivoted at its upper end, devices for separating the edge of the first sheet comprising substantially a separating-lever pivoted at the lower end of the first-mentioned lever, devices for retaining the remaining sheets after the first sheet has been separated, and mechanism for actuating said retaining, separating, and holding devices, substantially as described.

4. An inserting or other like machine provided with a V-shaped receptacle constructed to receive sheets which it is desired to insert one within the other, the sides of the said V-shaped receptacle being inclined on opposite sides of the vertical at angles sufficient to permit the sheets to open when dropped, and mechanism substantially as described for moving the said sheets progressively in the said receptacle, substantially as specified.

5. In a machine for separating sheets of paper from a pile, the combination of mechanism for separating the edge of the first sheet and mechanism for holding the sheets while the edge of the first sheet is being separated, and a single actuating device for operating both of said mechanisms, said device directly operating the separating mechanism and through the separating mechanism operating the holding mechanism to release the sheet, substantially as described.

679,402. **STUMP-EXTRACTOR.** JOHN S. SWENSON, Cresco, Iowa, assignor of one-half to Lorens Swenson, same place. Filed May 13, 1901. Serial No. 60,082. (No model.)



Claim.—1. In a stump-extractor, the combination of a main frame, a cable-winding drum, cable-guides arranged adjacent to the periphery of the drum and having arms pivotally connected to the main frame, a spring interposed between and connected to arms of the guides, projections on arms of the guides, and stops on the main frame arranged in the paths of said projections.

2. In a stump-extractor, a main frame having a base provided with a central depression and a post rising from the bottom thereof, a drum having a hollow trunnion journaled in said depression of the base, a sweep, a sweep-support comprising a cap disposed above the drum, and a sleeve arranged in the drum and in the depression of the base and around the post thereof, and interposed between the cap and base, and a bolt arranged within the sleeve and connecting the cap and the base.

3. In a stump-extractor, the combination of a main frame comprising an upright post provided with a rib terminating at its lower end in a portion G of circular form in horizontal section, a drum having ratchet-teeth, and a pawl arranged to engage said teeth and having a circular opening receiving said portion G of the post.

4. In a stump-extractor, the combination of a main frame comprising a base provided with a central depression and a post rising from the bottom thereof, an upright, and a vertically-disposed ring connected to said upright, a drum arranged at its upper end within the ring and having a hollow trunnion at its lower end journaled in said depression of the base, a sweep, a sweep-support comprising a cap arranged on the ring of the frame, and a sleeve arranged within the drum and in the depression of the base and around the post thereof, a connection between the sweep-support and main frame, and means for effecting connection between the sweep-support and the drum.

5. In a stump-extractor, the combination of a drum having a clutch-face, a sweep-support, a sweep thereon, a vertically-movable clutch, a rock-shaft disposed longitudinally of and journaled on the sweep and having handles at different points in its length, and also having a crank, and suitable means connecting said crank and the clutch.

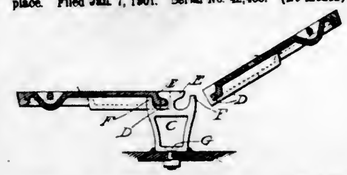
6. In a stump-extractor, the combination of a main frame, a drum having a clutch-face, a sweep-support, a sweep thereon, a rock-shaft journaled on the sweep, and having one or more cranks and one or more handles, a vertically-movable clutch, and connections between the clutch and the cranks of the rock-shaft; said connections comprising upper sections having horizontal slots receiving the cranks of the rock-shafts and guided in brackets on the sweep-support, and lower sections engaging the clutch and adjustably connected to the upper sections.

7. In a stump-extractor, the combination of a main frame, a drum, a sweep-support, a vertically-movable clutch adapted to engage the drum, a sweep connected to the sweep-support, a rock-shaft journaled on the sweep and extending throughout the length thereof, and having handles at its opposite ends, and one or more connections between said shaft and the clutch for moving the latter by the former.

8. In a stump-extractor, the combination of a main frame, a drum journaled at its lower and upper ends in said frame and having a clutch-face at its upper end, a vertically-movable clutch having teeth or cogs in its inner edge, a sweep-support arranged on the frame and comprising a cap, a depending sleeve extending through the drum and provided with teeth or cogs intermeshed with those of the clutch; the lower end of said sleeve being journaled in the base of the frame, a bolt extending through the sleeve and connecting the cap of the sweep-support and the base of the frame, a sweep on the sweep-support, a shaft disposed longitudinally of and journaled in bearings on the sweep, and having handles at different points, and one or more connections between the shaft and clutch for moving the latter by the former.

9. In a stump-extractor a main frame having a base provided with a central depression, a drum having a hollow trunnion journaled in said depression of the base, a movable clutch adapted to engage the drum and having teeth or cogs at its inner edge, a sweep, a sweep-support comprising a cap disposed above the drum, and a sleeve arranged in the drum and in the depression of the base and around the post thereof and interposed between the cap and base; said sleeve also extending through the clutch and having exterior teeth or cogs intermeshed with the interior teeth or cogs of the clutch, a bolt arranged within the sleeve and connecting the cap and the base, and means for moving the clutch toward and from the drum.

679,403. **CUT CENTER FOR STOVES.** JAMES P. TURNEY, Memphis, Tenn., assignor to H. Wetter Manufacturing Company, same place. Filed Jan. 7, 1901. Serial No. 42,403. (No model.)



Claim.—1. A cut center for stoves comprising a post having at opposite sides supporting-lugs and a standard having oppositely-extending locking-lugs extending laterally in a horizontal plane above said supporting-lugs, a cut center having each body-section resting upon the supporting-lugs and provided with depressed tongues to lie beneath the locking-lugs while the body engages the outer faces of said locking-lugs; substantially as specified.

2. A cut center for stoves comprising a post having at opposite sides supporting-lugs and locking-lugs extending laterally thereto, and a cut center having each section provided with tongues to pass beneath the locking-lugs and recessed upon its upper face to receive said locking-lugs and prevent lateral movement of the center; substantially as specified.

679,404. **PROCESS OF EXTRACTING INDIA-RUBBER.** AUGUSTE V. L. VERBEUIL, ALEXANDRE L. GODEFROY-LEBEUF, and ALBERT L. ARNAUD, Paris, France. Filed Aug. 10, 1900. Serial No. 26,522. (No specimens.)

Claim.—1. The herein-described process of extracting india-rubber consisting of submitting barks or similar material containing crude rubber to a crushing treatment in the presence of water, thereby reducing the ligneous portions to such fine divisions as to be carried away by the water and causing the crude rubber to agglomerate, substantially as described.

2. The herein-described process of extracting india-rubber, consisting of submitting barks or similar material containing crude rubber to a crushing treatment in the presence of water, thereby reducing the ligneous portions to such fine divisions as to be carried away by the water and causing the crude rubber to agglomerate and then treating the agglomerated rubber with hot water to eliminate such particles of ligneous matter as are then incorporated with the agglomerated rubber, substantially as described.

679,405. **MICROTELEPHONE.** EMIL VOLKERS, Berlin, Germany. Filed Mar. 22, 1901. Serial No. 52,347. (No model.)

Claim.—1. A telephone-receiver comprising an ordinary open box, an ordinary sheet-metal cover therefor, provided with peripheral turned-over portion or portions, snugly fitting said box, and an electromagnet and securing means wholly within said box.

2. A telephone-receiver comprising an open box, a magnet held therein in a bed of liquable material, and an ordinary cover for the box forming the diaphragm, substantially as described.

3. A telephone-receiver comprising an open box, a magnet held therein, an ordinary cover for the box forming the diaphragm, and a slip-cover mouthpiece partially covering and protecting the diaphragm and concentrating the sound-waves, substantially as described.

4. A telephone-receiver comprising an open box, a magnet therein embedded in a mass of liquable material and wholly supported thereby, and a diaphragm supported by the box, substantially as described.

5. A microtelephone comprising a receiver and a transmitter each comprising a box for containing its inner mechanism, and a straight handle passing into each box and embedded therein in a mass of liquable material, substantially as described.

6. A microtelephone comprising a receiver and a transmitter, each comprising a box for containing its inner mechanism and a support or handle passing into and embedded in each of said boxes in a mass of liquable material, substantially as described.

7. A microtelephone comprising a receiver and a transmitter, each comprising a box for containing its inner mechanism and a support or handle passing into and embedded in each of said boxes in a mass of liq-

uable material, the diaphragms of both receiver and transmitter located in practically the same plane, substantially as described.



8. A microtelephone comprising a receiver and a transmitter each comprising a box for containing its inner mechanism, and a standard or support comprising two wires secured to the transmitter and receiver joined together above the receiver in the form of a loop, substantially as described.

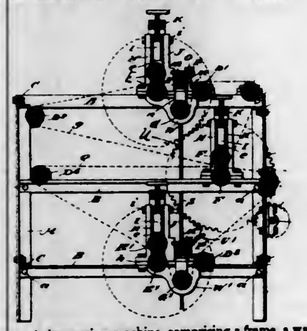
9. A microtelephone comprising a receiver and a transmitter, each comprising a box for containing its inner mechanism, and a wire standard or support bent into reversed-U form, the two branches passing through the receiver and into the transmitter and embedded in each in a mass of liquable material, the upper end serving as a convenient loop for hanging up the instrument, substantially as described.

679,406. **DRILL.** ALFRED W. WATSON, Leyton, England. Filed May 6, 1901. Serial No. 58,979. (No model.)



Claim.—In center-bit drills for working iron, a drill having three projections, the center one being formed similar to an ordinary iron-drill, the second or cutting projection being sharp-pointed, the third or reaming projection being somewhat shorter than the second one and placed diametrically opposite thereto, substantially as described and illustrated herein.

679,407. **DAMPENING-MACHINE.** HERMAN WEBER, Lincoln, Nebr. Filed June 23, 1900. Serial No. 21,311. (No model.)



Claim.—1. A dampening-machine, comprising a frame, a water-pan supported in the upper portion of said frame, a dampening-roller mounted to rotate in the pan, wringer-rollers arranged adjacent to said pan, idler-rollers supported by the frame, wringer-rollers arranged at the discharge end of the machine below the said pan, an endless band extending between said wringer-rollers around the idlers and underneath the dampening-roller, a water-pan supported in the frame underneath the first-named pan, an endless apron movable through said pan and also between the wringer-rollers arranged at the discharge end of the machine, and idler-rollers around which said last-named apron extends, substantially as specified.

2. A dampening-machine, comprising a frame, water-pans supported one above the other in said frame, a pair of wringer-rollers over each pan, an idler-roller adjacent to each pan, endless aprons movable through the pans over the idlers and between the wringer-rollers, and wringer-rollers between which each of the aprons pass, the lower one of said aprons having a delivering portion extended outward from the last-named wringer-rollers, substantially as specified.

679,408. **ADJUSTABLE BEARING.** HENRY ABBOTT, New York, N. Y., assignor to the Calculagraph Company, same place and East Orange, N. J. Filed May 11, 1900. Serial No. 16,360. (No model.)



Claim.—1. In combination with a pivoted lever, an operating-stud, and a bearing-block which is contained within and capable of adjustment lengthwise of such stud, said stud having surfaces against which bear the sides of the lever, substantially as and for the purpose specified.

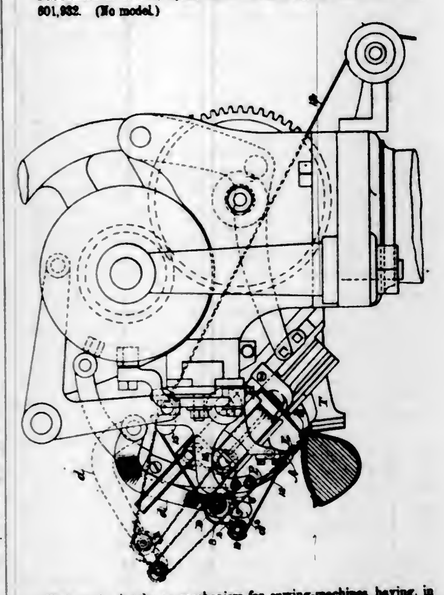
2. In combination with an operating-stud, a pivoted lever, said stud bearing upon such lever between its ends, and a bearing-block that is threaded peripherally and fitted within a correspondingly-threaded opening in such operating-stud, and, by rotation therein, is capable of longitudinal adjustment with reference thereto, said operating-stud having parallel surfaces between which the lever is received and upon which the side of the lever bears, substantially as and for the purpose specified.

3. In combination with a pivoted lever, an operating-stud, a bearing-block that is adapted to be adjusted lengthwise of such stud and is provided at its lower end with a slot which is adapted to receive such pivoted lever, substantially as and for the purpose specified.

4. In combination with a pivoted lever, an operating-stud which at its lower end is slotted to receive the pivoted lever and to operate the same, a block that is adapted to be adjusted lengthwise of such stud and is provided at its lower end with a slot which is adapted to receive such pivoted lever when its said slot is caused to coincide with the slot in said stud, substantially as and for the purpose specified.

5. The combination of the stud provided with the threaded opening and cross-slot within its lower end, the threaded, slotted bearing-block and the lever pivoted at one end, substantially as and for the purpose shown.

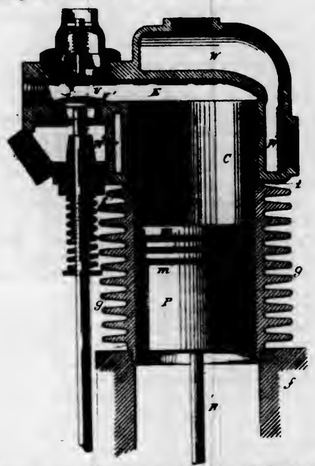
679,409. **TAKE-UP MECHANISM FOR SEWING-MACHINES.** FREDERICK L. ALLEY, Lynn, Mass. Filed Aug. 6, 1900. Serial No. 901,932. (No model.)



Claim.—1. A take-up mechanism for sewing-machines, having, in combination, a main take-up, its actuating-lever and a spring-controlled auxiliary take-up pivotally mounted on the actuating-lever of the main take-up in position to engage the thread between the needle and main take-up, substantially as described.

2. A take-up mechanism for sewing-machines, having, in combination, a main take-up, its actuating-lever, a spring-controlled auxiliary take-up carried by said lever, and a stationary thread-truck located to engage the thread between the main and auxiliary take-ups, substantially as described.

679,410. **EXPLOSIVE-ENGINE.** EDWARD T. BIRDSALL, New Rochelle, N. Y., assignor to Dusberon Motor-Car Co., New York, N. Y. Filed Aug. 3, 1900. Serial No. 25,782. (No model.)



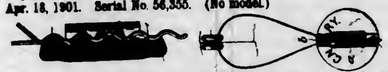
Claim.—1. An explosive-engine having a cylinder provided with heat-radiating gills; in combination with an explosion-chamber provided with a compound water-chamber surrounding the explosion-chamber and one end only of the cylinder, the junction between said compound water-chamber and cylinder being effected by slipping the former over the latter in substantially the manner shown.

2. An explosive-engine having a cylinder provided with heat-radiating gills over a portion of its length; in combination with an explosion-chamber adapted to fit snugly over the remaining portion thereof and provided with a compound water-chamber which surrounds the explosion-chamber and one end only of the cylinder, the lower end of said compound water-chamber resting against a shoulder on the outside of the cylinder and adjacent to one of the heat-radiating gills, the arrangement being such that an absolutely-tight joint is effected between the two under all conditions of usage, substantially as shown and described.

3. An explosive-engine having a cylinder; in combination with an explosion-chamber provided with a compound water-chamber which fits snugly around one end of the cylinder so as to form an absolutely-tight joint between the two, one branch W′ of the compound water-chamber being located between the valves and the cylinder, substantially as shown and described.

4. An explosive-engine provided with an explosion-chamber cast integral with a compound water-chamber and adapted to fit snugly over one end of the cylinder of the engine in such manner that the circulating water cools both the cylinder and the explosion-chamber, one branch of the compound water-chamber being located between the cylinder and the valves of the engine; said compound water-chamber and explosion-chamber being cast integral and located, when in position, with its lower end against a ledge or shoulder on the outside of the cylinder, substantially as shown and described.

679,411. **SEAL.** EDWARD J. BROOKS, East Orange, N. J. Filed Apr. 18, 1901. Serial No. 56,355. (No model.)

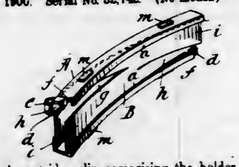


Claim.—1. An improved seal, adapted to be press-fastened, comprising a flexible shackle of wire, cylindrically coiled and crimped at its respective ends, and a seal-disk composed of a main part having an open-ended tunnel raised on its back and a marginal flange on its face, and a supplemental part in the shape of a flat disk attached by said flange, said coiled end of the shackle being held within said tunnel and adapted to receive the crimped end lengthwise, and to retain the same preparatory to the application of the seal-press.

2. The combination, in a seal adapted to be press-fastened, of a flexible shackle cylindrically coiled at one end and having its other end adapted to be threaded lengthwise into such coil, and a seal-disk composed of two substantially flat parts, united by a circumferential flange on one of them, and having an open-ended tunnel, lengthwise within which said coil is secured, with the ends of the coil and the tunnel in direct communication with each other.

3. The combination, in a seal adapted to be press-fastened, of a flexible shackle cylindrically coiled at one end and having its other end adapted to be threaded lengthwise into such coil, and a seal-disk composed of two parts united by a circumferential flange on one of them, and having an open-ended tunnel within which said coil is secured by uniting said parts and depressions in line with said tunnel leading to and from its respective ends, substantially as hereinbefore specified.

679,412. **CARTRIDGE-CLIP.** LUCIEN F. BRUCE, Springfield, Mass. Filed Oct. 11, 1900. Serial No. 32,742. (No model.)

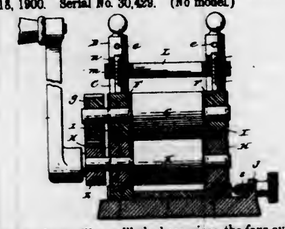


Claim.—1. A cartridge-clip comprising the holder A having the lips *a a*, within which is a way for the engagement therein of the cartridge-heads, provided at its opposite ends with rearwardly-reacting spring-tongues *h h* each having a lip the location of which is across the way for the cartridge-heads, and each tongue *h* having an abutment member extended to the rear of the clip, and a diagonally opposite pair of spring-tongues *i i* having a forward reaction marginally limited by the inner edges of said lips *a a*, substantially as described.

2. A cartridge-clip consisting of a holder A having a way for the engagement, therein, of the cartridge-heads, and having at its ends diagonally oppositely located recesses *f*, and the spring-plate B having the slits extended substantially longitudinally from its opposite ends whereby are formed rearwardly-reacting spring-tongues *h h* provided with lips *d* located in said recesses and having their positions normally across the way for the cartridge-heads, and having the abutment members *e e* extended to the rear of the clip through said recess, and the diagonally opposite pair of forwardly-reacting spring-tongues *i i*, substantially as described.

3. In a cartridge-clip the combination with the holder A of trough shape having the inturned marginal lips *a* and having the recesses *f f* diagonally oppositely located at the ends of the holder, of the plate B of spring metal having the slits *g g* extending substantially longitudinally from its opposite ends whereby the diagonally opposite tongues *h h* and *i i* are produced, those *i* being forwardly while those *h* are rearwardly deflected, the latter being provided with the transversely-formed integral ears *j* bent inwardly and having their end portions constituting the cartridge-head-restraining lip while the extremities of the tongues *h* are outwardly turned and extended beyond the rear of the clip, said parts *d* and *e* having their locations within said recesses *f f*, substantially as described.

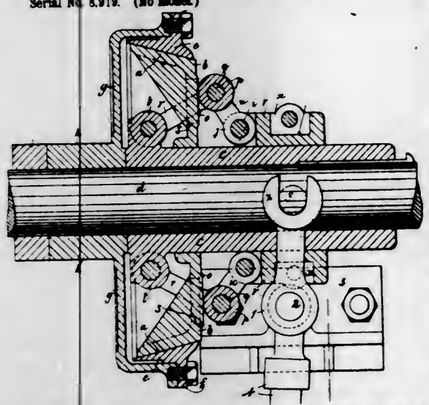
679,413. **ROLLING-MILL.** THOMAS BUNKER, Redoak, Iowa. Filed Sept. 18, 1900. Serial No. 30,429. (No model.)



Claim.—1. In a rolling-mill, the base-piece, the four cylindrical posts or standards, having upper and lower reduced screw-threaded extensions, the base-piece having a screw engagement with said lower post extensions, and a plane-surface engagement with said posts, the top piece connecting said posts, and having a plane-surface engagement therewith, the screw-caps engaging said upper post extensions, and having a plane-surface engagement with said top piece, the boxes having lateral cylindrical bearing-recesses engaging said posts, the rollers having bearings in said boxes, means for turning said rollers, and means for adjusting said boxes, substantially as specified.

2. In a rolling-mill, the base-piece, the four cylindrical posts or standards having upper and lower reduced screw-threaded extensions, and upper reduced cylindrical extensions, the base-piece having a screw engagement with said lower post extensions, and a plane-surface engagement with said posts, the top piece having cylindrical apertures engaging said upper cylindrical post extensions, and having a plane-surface engagement with said posts, the screw-caps engaging said upper-threaded post extensions, and having a plane-surface engagement with said top piece, the upper and lower boxes having lateral cylindrical bearing-recesses engaging said posts, said lower boxes having inclined plane projections, the wedge-piece having throughout the extent of its lower surface a plane-surface engagement with said base, and having wedge portions engaging said inclined plane-box projections, the rollers having bearings in said boxes, means for adjusting said wedge-piece, and means for turning said rollers, substantially as specified.

679,414. **FRICTION-CLUTCH.** JAMES R. CHURCHILL, Sheffield, and FREDERICK G. SEELEY, Hathersage, England. Filed Mar. 16, 1900. Serial No. 8,919. (No model.)



Claim.—1. In a friction-clutch, the combination with the driving and driven portions thereof and one or more springs tending to move the said two portions toward one another, of disengaging gear comprising antifrictional rollers arranged to move transversely and longitudinally of the clutch and to act against one of said portions and press it away from the other against the resistance of the spring or springs, a muff mounted to move endwise in relation to said two clutch portions, links jointed to and carrying said rollers, some of said links extending through the movable part of the clutch against which said rollers act and jointed to a part of the clutch that does not move endwise and others to said muff, and means for moving said muff endwise substantially as described.

2. A friction-clutch comprising two rotary friction-cones arranged one inside the other, separate rotary parts to which said cones are respectively connected so that one cone is fixed in an endwise direction and the other is capable of moving endwise, one or more springs arranged within said clutch and acting to force the endwise-movable cone against the other cone, an endwise-movable muff, driving-pins located within the cones and connecting the rotary driving part with the endwise-movable cone, an abutment device connected to the movable cone, movable bodies adapted to be pressed against said abutment device, sets of links carrying said movable bodies, some of said links being jointed to a part of the clutch that is not endwise movable and others to said muff, and means for moving said muff endwise, substantially as described.

3. In a friction-clutch, the combination with two rotary friction-cones one of which is fixed endwise and the other has a constant tendency to move toward the other, of disengaging mechanism comprising movable bodies adapted to press the movable cone away from the fixed one, a muff mounted to move endwise in relation to said cones, links jointed at one end to said movable bodies and at the other end to a part of the clutch that is not movable endwise, links jointed at one end to said movable bodies and at the other end to said muff, and means for moving said muff endwise, substantially as described.

4. In a friction-clutch, the combination with friction-cones arranged one inside the other and carried by the respective parts to be coupled, and springs acting to press one cone against the other, of a muff arranged to move endwise of said clutch, antifriction-rollers arranged to work against a part connected to the endwise-movable cone, sets of links jointed to said rollers and some of which are jointed to a part of the clutch that is fixed in an endwise direction and others to said muff, and means for moving said muff endwise, substantially as described.

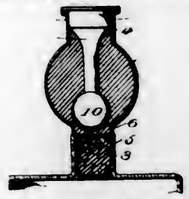
5. A friction-clutch comprising two reversely-arranged rotary friction-cones arranged one inside the other and one of which is connected to a plate that is arranged at right angles to the axis of the clutch and is adapted to be moved endwise thereof, while the other cone is fixed in an endwise direction, a sleeve whereon said plate is mounted to move endwise, springs acting to press said endwise-movable cone against the other cone, driving-pins connecting said endwise-movable cone and sleeve, a muff arranged to slide endwise on said sleeve, diametrically-arranged antifriction-rollers arranged to act against the outer side of said plate, links jointed at one end to each roller and at their other ends to said sleeve and extending through said plate, other links jointed at one end to each roller and at their other ends to said muff, and means for moving said muff endwise, substantially as described.

6. In a friction-clutch having two concentric friction-cones, tubular rotary parts carrying said cones, and springs tending to force one cone into contact with the other, of a muff mounted to slide endwise on the rotary part carrying the endwise-movable cone, antifriction-rollers arranged to bear against a plate connected to said movable cone and arranged at right angles to the axis thereof, antifriction-rollers arranged to bear against the outer side of said plate, two sets of links jointed to said antifriction-rollers, one set extending through said plate and being jointed to the rotary part on which said plate moves endwise and the other set being jointed to said muff, and means for moving said muff endwise, substantially as described.

7. In a friction-clutch, the combination with two concentric friction-cones one of which has a constant tendency to move endwise toward the other and is connected to a plate arranged at right angles to the axis of the cones, and a sleeve to which said plate is connected so that it cannot rotate on said sleeve but can move endwise thereon, of the muff *v* arranged to move endwise on said sleeve, the diametrically-arranged antifriction-rollers *p* arranged to bear against the outer side of said plate, the pairs of links *r* jointed to said rollers, extending through slots in said plates and jointed to lugs on said sleeve, the pairs of links *n* also jointed to said rollers and to said muff, and means for moving said muff endwise on said sleeve, substantially as described.

8. The improved friction-clutch comprising the outer cone *c* the wheel *g* carrying said cone and provided with a boss *h*, the inner cone *a* having a disk *b* formed with roller-paths *o* and slots *s*, the sleeve *c* formed with the flange *k* and whereon said disk can slide endwise, the coiled springs *l* between said disk and flange, the driving-pins *n* connecting said flange and disk, the muff *v* arranged to slide endwise on said sleeve, the antifriction-rollers *p* bearing against the roller-paths on said disk, the links *r* jointed to said rollers, extending through said slots, and jointed to said sleeve within said cone *a*, the links *n* jointed to said rollers and to said muff, and means for moving said muff endwise on said sleeve, substantially as described.

679,415. **NON-REFILLABLE BOTTLE.** WILLIAM F. CLARK, Kidwell, W. Va. Filed Apr. 18, 1901. Serial No. 56,113. (No model.)

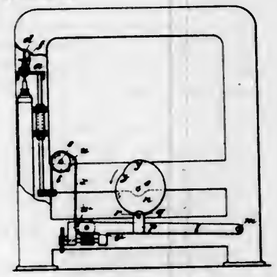


Claim.—A bottle or like receptacle having the middle portion of its neck swelled or enlarged and separable from the inner portion by a break-line, and having the outer end portion of larger internal diameter than the inner end and provided in its inner sides with vertical grooves, a cork fitted into the inner end portion of the neck below the break-line, a plug having its middle portion reduced and its upper end snugly fitting within the outer end portion of the neck and formed with an outer flange to overlap the end of the neck, and a cement filling the swelled portion of the neck and the contracted part of the plug, substantially as described.

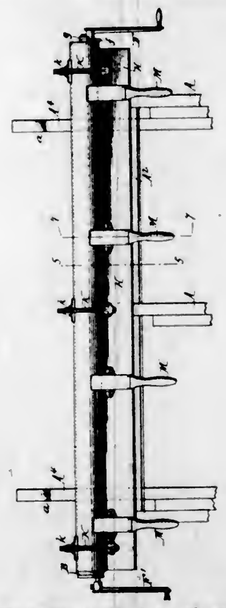
679,416. **MACHINERY FOR SPINNING, DOUBLING, AND TWISTING.** PHINEHAS P. CRAVEN, Manchester, England. Filed Sept. 1, 1900. Serial No. 28,838. (No model.)

Claim.—1. In ring-spinning, doubling and twisting machines the combination of an enlarged or lengthened bottoming-peg *u* on the ring-rail-lifting drum or roller *t*, a projection *w* on the building-motion drum *v* and the lifting-chain *x* substantially as and for the purpose set forth.

2. In combination in a ring-spinning, doubling or twisting machine, a copping-chain, the disk or roller 1, the ring-rail or copping-rail shaft *s* upon which the disk is mounted, a projection 4 on the said disk or roller, a building-motion drum *v*, a building-motion ratchet-wheel 6 connected with the said drum, a pawl-lever 2 acted on by the said projection 4 on the disk or roller 1 and a pawl 5 on the pawl-lever 2 acting on the building-motion ratchet-wheel to accelerate the winding up of the copping-chain onto the building-motion drum while the cop-bottom is being formed, substantially as described.



679,417. **MACHINE FOR BENDING GUTTERS.** JOHN H. CROCKER, Buffalo, N. Y. Filed Apr. 8, 1901. Serial No. 54,925. (No model.)



Claim.—1. The combination with a frame, and a mandrel, of a forcing-bar adapted to be swung over the madrel, supporting means for the forcing-bar pivoted to the frame and pivotally jointed between the frame and the forcing-bar, and means for adjusting said forcing-bar toward and from the frame, substantially as set forth.

2. The combination with a frame, and a mandrel, of a forcing-bar, lower supporting-bars pivoted to the frame, upper supporting-bars secured to the forcing-bar and pivoted to the lower supporting-bars, and means whereby the upper and lower supporting-bars can be adjusted lengthwise, substantially as set forth.

3. The combination with a stationary frame and a mandrel secured thereto, of a forcing-bar connected to the frame by supporting-bars which are jointed at their lower ends to the frame and pivotally jointed between their lower ends and the forcing-bar, and means whereby said supporting-bars can be adjusted lengthwise, substantially as set forth.

4. The combination with a stationary frame and a mandrel secured thereto, of a forcing-bar, upper supporting-bars secured thereto, lower supporting-bars pivoted to the frame, and sockets which are pivoted to the lower supporting-bars and in which the upper supporting-bars are secured, substantially as set forth.

5. The combination with a stationary frame and a mandrel secured thereto, of a forcing-bar, upper supporting-bars secured to said forcing-bar, lower supporting-bars, sockets which are pivoted to the frame and in which the lower supporting-bars are adjustably secured, and sockets which are pivoted to the lower supporting-bars and in which the upper supporting-bars are adjustably secured, substantially as set forth.

6. The combination with a stationary frame, a cylindrical mandrel provided with downwardly and rearwardly projecting arms by which it is secured to the frame, bearings for the beading-rod arranged on the rear side of the mandrel above said arms, a beading-rod, supporting-bars which are pivoted to the frame below said mandrel on the rear side thereof, and a forcing-bar attached to the free ends of said supporting-bars, substantially as set forth.

7. The combination with a stationary frame provided with a rearwardly-sloping table, of a mandrel provided with inclined supporting-arms which are adjustably secured to said table, and a forcing-bar pivotally connected with the frame, substantially as set forth.

8. The combination with a stationary frame, and a mandrel secured thereto, of a slotted beading-rod which is rotatably supported, a gage-disk secured to one end of said rod, and a retaining-button which is secured to the mandrel and engages said disk, substantially as set forth.

9. The combination with a stationary mandrel and a pivotally-supported forcing-bar, of a hand-lever which is pivotally connected with said bar and which has its short arm arranged to clear the mandrel when the hand-lever bears against the forcing-bar and to engage the mandrel when the hand-lever is swung away from the forcing-bar, substantially as set forth.

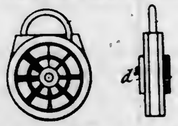
10. The combination with a stationary mandrel and a pivotally-supported forcing-bar, of hand-levers which are pivoted to the rear side of the forcing-bar and which have their short arms projecting rearwardly and adapted to bear against the mandrel and swing the forcing-bar from the mandrel, substantially as set forth.

679,418. **HAME-FASTENER.** ROY DONSON, Dallas, Tex. Filed Nov. 15, 1900. Serial No. 36,588. (No model.)



Claim.—In a hame-fastener, the combination of a plate provided at its outer end with means for connection to one hame and at its inner end with side flanges having forwardly-extending portions, a roller mounted in said forwardly-extending portions of the flanges, a catch pivoted to said flanges and having at its outer end a finger-piece and at its inner end a tongue to bear upon the roller, and a chain passing through the flanges between the rollers and catch and adapted to be connected to the other hame, said chain having open links segmentally curved longitudinally of their lengths and provided with connecting-eyes forming bearing portions to engage the catch, the parts being combined, arranged and operated substantially as and for the purpose described.

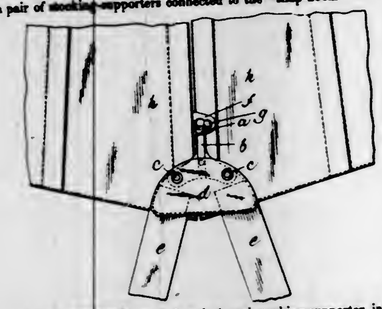
679,419. **PERMUTATION-PADLOCK.** LIONEL DOVE, London, England. Filed Feb. 8, 1901. Serial No. 46,535. (No model.)



Claim.—In a permutation-padlock, a lock-case, a sliding disk connected thereto, a bow of substantially U shape having one arm swiveled in said lock-case whereby said bow is adapted to swing in a plane at right angles to the plane of movement of said sliding disk, and permutation-controlling means for holding said disk in engagement with the free end of said bow or permitting its sliding out of engagement therewith, substantially as described.

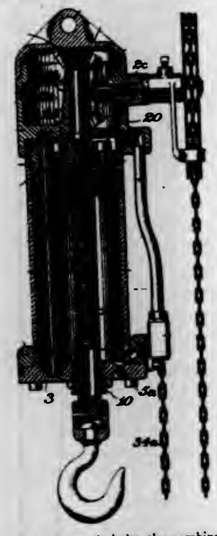
679,420. **DUPLEX STOCKING-SUPPORTER.** HENRY A. GULICKSON, New York, N. Y., assignor to the I. B. Kleinert Rubber Company, same place. Filed Dec. 4, 1900. Serial No. 38,630. (No model.)

Claim.—1. In a combined corset-clasp lock and stocking-supporter, the combination with a spring-acting or "snap" hook adapted to be engaged with the loop or eye of a corset-clasp projecting from the edge of a front corset-steel with its neck adjacent to the edge thereof, and adapted to prevent the disengagement of the loop or eye from its coacting stud, of a pair of stocking-supporters connected to the "snap-hook."



2. In a combined corset-clasp lock and stocking-supporter, in combination, a pair of stocking-supporters; means, as a flexible pad, for connecting together the upper ends of their elastics or tapes; and a spring-acting or "snap" hook attached to the upper end of the stocking-supporters connecting means and adapted to be engaged with the loop or eye of a corset-clasp with its neck adjacent to the edge of the corset-steel carrying the loop or eye and prevent its disengagement from its coacting stud.

679,421. PNEUMATIC HOIST. WILLIAM S. HALSEY, Pittsburg, Pa. Filed May 23, 1901. Serial No. 62,235. (No model.)



Claim.—1. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, means for admitting and releasing fluid to and from the cylinder, a regulating-screw engaging a nut on the piston and rotatable by the traverse thereof, means for preventing rotation of the piston, and means for controlling the speed of rotation of the regulating-screw.

2. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and projecting through a packed opening in one end of the cylinder, a pipe leading from a source of fluid-pressure supply to the end of the cylinder through which the piston-rod passes, a supply-valve controlling said pipe, a pipe communicating with the opposite end of the cylinder and with an atmospheric vent-opening, an exhaust-valve controlling said pipe, a regulating-screw engaging a nut on the piston and rotatable by the traverse thereof, and means for controlling the speed of rotation of the regulating-screw.

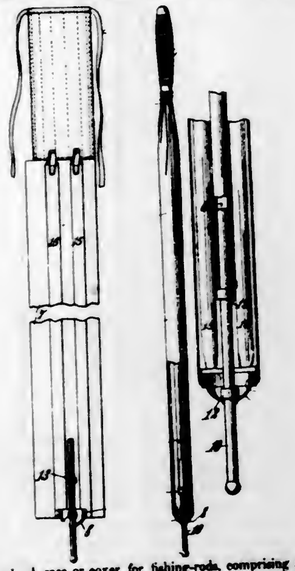
3. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a tubular piston-rod fixed to the piston and projecting through a packed opening in one end of the cylinder, means for admitting and releasing fluid to and from the cylinder, a regulating-screw fitting freely in the piston-rod and journaled at one end of the cylinder, a nut fixed to the piston and engaged by the regulating-screw, means for preventing rotation of the piston, and means for controlling the speed of rotation of the regulating-screw.

4. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, means for admitting and releasing fluid to and from the cylinder, a regulating-screw engaging a nut on the piston and rotatable by the traverse thereof, means for preventing rotation of the piston, a manually-operable shaft journaled on the cylinder, and gearing connecting said shaft with the regulating-screw.

5. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and projecting through a packed opening on one end of the cylinder, means for admitting and releasing fluid to and from the cylinder, a head closing the end of the cylinder opposite that through which the piston-rod passes, a regulating-screw journaled in said head and engaging a nut on the piston, a shaft journaled laterally in said head, gearing connecting said shaft with the regulating-screw, means for manually operating and controlling said shaft, and means for preventing rotation of the piston.

6. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and projecting through a packed opening in one end of the cylinder, means for admitting and releasing fluid to and from the cylinder, a head closing the end of the cylinder opposite that through which the piston-rod passes and having a peripheral wall surrounding a gearing space or chamber, a regulating-screw journaled in said head and engaging a nut on the piston, a shaft journaled in the wall of the gearing-chamber, gearing inclosed in said chamber and connecting said shaft with the regulating-screw, means for manually operating and controlling said shaft, a removable cap closing the outer end of the gearing-chamber, and means for preventing the rotation of the piston.

679,422. CASE FOR FISHING-RODS. JESSE C. HERITAGE, Minneapolis, Minn. Filed May 6, 1901. Serial No. 58,971. (No model.)



Claim.—1. A case or cover for fishing-rods, comprising a tubular flexible casing open at one end and provided at its other end with a ferrule, and a spindle fitted in said ferrule, substantially as and for the purpose specified.

2. A case or cover for fishing-rods, comprising a tubular flexible casing open at one end and provided at its other end with a ferrule, and a spindle movably fitted in said ferrule, substantially as and for the purpose specified.

3. A case or cover for fishing-rods, comprising a tubular flexible casing open at one end and provided at its other end with a ferrule, a spindle movably fitted in said ferrule, and means for limiting the movement of the spindle in both directions, substantially as and for the purpose specified.

4. A case or cover for fishing-rods, comprising a tubular flexible casing, open at one end and provided at its other end with a ferrule, a spindle movably fitted in said ferrule and having an enlargement on its outer end and a collar fixed on its inner portion intermediate its ends, and a second collar fixed on the spindle intermediate its inner end and said first-mentioned collar, substantially as and for the purpose specified.

5. A case or cover for fishing-rods, comprising a tubular flexible casing open at one end and provided with fastening means, and having a ferrule fitted in its other end, said case or cover being provided with internal longitudinal pockets for the reception of the fishing-rod joints, and a spindle movably fitted in said ferrule, substantially as and for the purpose specified.

679,423. HEAD-REST. CHARLES R. HOUSE, Canton, Ohio. Filed Jan. 21, 1901. Serial No. 44,081. (No model.)

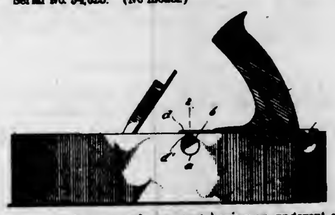


Claim.—1. The combination in a head-rest for surgical and dental chairs, of ways attached to the back of the chair, brackets engaging therewith and projecting forwardly of the back of the chair, a head-support engaging the brackets, and means for locking the brackets in engagement with the guides or ways, substantially as described and for the purpose set forth.

2. The combination in a head-rest for surgical chairs, of ways attached to the back of the chair, brackets mounted thereon and extending forwardly of the back of the chair, a cushion-support attached to the forward ends of the brackets, a coupling-rod journaled in the brackets, and cam-locks mounted thereon, substantially as described and for the purpose set forth.

3. The combination in a head-rest for surgical chairs, of ways attached to the back of the chair, brackets mounted thereon and extending forwardly of the back of a chair, a cushion-support engaging the forward ends of the brackets, cam-locks mounted in the brackets, a coupling-rod journaled therein, and a retaining-band conforming to, and adapted to engage with, the cushion-support, substantially as described and for the purpose set forth.

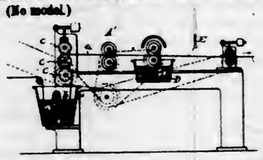
679,424. PLANE. LUDWIG KEELER, Pinole, Cal. Filed Oct. 27, 1900. Serial No. 34,625. (No model.)



Claim.—1. A plane or analogous tool having an undercut groove in the upper side thereof, said groove extending transversely of the plane, a block adjustably mounted in the groove, a handle, a base-plate on which the handle is mounted, and a fastening device extending between the base-plate and block to bind the block against the walls of the groove and adjustably hold the handle.

2. A plane or analogous tool having two undercut grooves formed in its upper side, said grooves extending transversely of the plane, a block adjustable in each groove, a base-plate extending from one groove to the other and having ribs fitting in the grooves, fastening devices extending between the block and the base-plate, and a handle fastened to the base-plate.

679,425. MERCERIZING-MACHINE. ADOLF KERTESS, Mainkur, near Frankfort-on-the-Main, Germany. Filed July 3, 1900. Serial No. 22,422. (No model.)



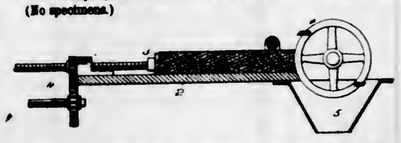
Claim.—1. In combination with a mercerizing-machine, the tissue-stretching device which consists of matched corrugated rolls between which the tissue passes in its progress through the machine.

2. A mercerizing-machine having, in combination, means for subjecting the tissue to a shrinking-bath, and shrinkage-resisting rolls between which the tissue passes, such rolls having circumferential corrugations, the projections of one roll occupying the depressions of the other.

3. A mercerizing-machine having, in combination, means for subjecting the tissue to a bath of caustic lye, devices for washing the lye from the tissue, and shrinkage-resisting rolls acting upon the tissue, between said means and devices, and constructed with circumferential corrugations, the projections of one roll occupying the depressions of the other.

4. A mercerizing-machine having, in combination, means for subjecting the tissue to a bath of caustic lye, squeezing-rolls for removing surplus lye from the tissue, devices for washing the lye from the tissue, comprising matched corrugated rolls having circumferential corrugations between which the tissue passes, and like matched corrugated rolls interposed between said squeezing-rolls and said washing devices to resist shrinkage of the tissue during the mercerizing process.

679,426. PROCESS OF REFINING GRAPE-SUGAR. WILLIAM R. LOVE, St. Louis, Mo., assignor, by mesne assignments, to St. Louis Trust Company, of Missouri. Filed Feb. 6, 1901. Serial No. 46,214. (No specimens.)



Claim.—1. The process of treating crude grape-sugar which consists in expressing impurities therefrom when the sugar is in a hard, non-paste-like condition.

2. The process of refining sugar which consists in taking sugar of a hard non-paste-like consistency, inclosing it in an envelop and subjecting it to high pressure.

3. The process of refining sugar which consists in taking sugar of a hard non-paste-like consistency, separating it into small flakes or particles, inclosing it in an envelop and subjecting it to high pressure.

4. The process of refining grape-sugar which consists in taking crude No. 70 grape-sugar and subjecting it to high pressure.

5. The process of refining grape-sugar which consists in taking crude No. 70 grape-sugar, confining it in an envelop and subjecting it to high pressure.

6. The process of refining grape-sugar which consists in taking crude No. 70 grape-sugar, separating it into small flakes or particles, inclosing it in an envelop and subjecting it to high pressure.

7. The process of refining grape-sugar which consists in taking crude grape-sugar of a hard non-paste-like consistency and subjecting it to a pressure exceeding two thousand five hundred pounds per square inch.

8. The process herein described, of refining grape-sugar, which consists in chipping the sugar when of a hard non-paste-like consistency, then placing the same in an envelop, then pressing it into a cake, then subjecting it to a high pressure, and finally pulverizing and drying it, substantially as set forth.

679,427. VITRIFIED BRICK. MARIE J. MAGARITY, Wilmington, Del. Filed Sept. 17, 1892. Serial No. 446,211. (No specimens.)

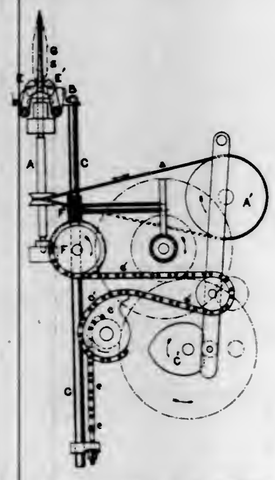
Claim.—1. A vitrified brick suitable for street-paving, composed of the following ingredients, to wit; a plastic cohesive material, such as kaolin or clay, constituting the base of the brick and its principal ingredient; a heavy material, such as garnet, hypersthene, or hornblende, giving density and wearing quality to the brick; a counter-shrinkage material, such

as quartz-sand or any waste of silica; and an igneous or fluxing material, such as mica-schist, gneiss, granite, or syenite, which bonds together the other ingredients; all in the proportions substantially as set forth.

2. A vitrified brick suitable for street-paving, characterized by its weight and homogeneity, due to the incorporation in the process of manufacture with the plastic cohesive material, such as clay, constituting the base of the brick and its principal ingredient, of a material such as garnet having high specific gravity, and of a fluxing and bonding material, such as mica-schist, capable of assimilation with the other ingredients employed, substantially as set forth.

3. A vitrified brick suitable for street-paving, composed of a plastic cohesive material constituting the base of the brick and its principal ingredient, a hard dense material having a greater specific gravity than clay, and a counter-shrinkage material, all bonded together by a mineral flux and thoroughly commingled, substantially as set forth.

679,428. YARN-WINDING MACHINE. ARTHUR W. METCALFE, Belfast, Ireland. Filed May 27, 1896. Serial No. 681,925. (No model.)



Claim.—1. In yarn or thread winding machines the combination with the vertical spindle A and horizontal builder-rail B, of the bracket *b* affixed to the rail, the shaped yarn-guide D carried by the fixed bracket, a vertical presser pivoted upon the fixed bracket capable of applying pressure to the yarn as it is freely wound on while adapting its position to the shape of the base from plain to conical, a horizontal pin fixed to the bracket to carry the presser, and a spiral spring H upon the pin to hold the presser with force against the yarn, substantially as described.

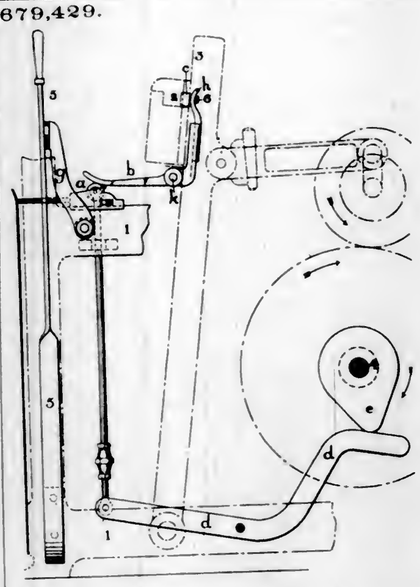
2. In yarn or thread winding machines the combination of the spindles A, builder-rail B, brackets *b* affixed to the rail, yarn-guides D carried by the brackets, pressers E E' pivoted to the bracket capable of applying pressure to the yarn as it is freely wound on while adapting their position to the shape of the base from plain to conical, pins *c'* upon which the pressers are pivoted, springs H for actuating the pressers, notched washers *k* for adjusting the springs, and pins *k'* engaging the notches of the washers, substantially as described.

679,429. LOOM. HUGH R. ROSS, Belfast, Ireland. Filed Dec. 26, 1900. Serial No. 41,394. (No model.)

Claim.—1. In a loom with a change-box at one end, the combination with the shuttle-box 2 and swell *c* therein at the other end and the pivoted finger or lever operated by the swell to operate the stop-motion when the shuttle is absent, of a reciprocating lever acting independently of the shuttle to lift the pivoted operating-lever out of action when the shuttle is in the opposite box substantially as described.

2. In a loom with change-box at one end, the stop-motion comprising a lever or finger pivoted to the shuttle-box at the other end operated by the swell, a frog sliding on the frame in contact with the setting-on lever with which the finger engages, a reciprocating rod which lifts the finger out of operation when the shuttle is in the opposite box, and a cam by which the reciprocating rod is brought into action at each alternate pick substantially as described.

679,429.



679,430. FLOOR AND CEILING CONSTRUCTION. JACOB SCHRATWIESER, Brooklyn, N. Y. Filed Mar. 29, 1900. Serial No. 10,680. (No model.)

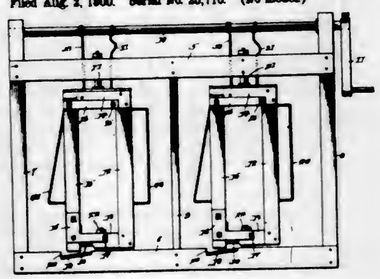


Claim.—1. In the construction of floors and ceilings herein shown and described, the combination with the beams or joists of cross-pieces secured to the lower flange of one beam, extending across and secured to the upper flange of the opposite beam and perforated sheet metal upon the said cross-pieces adapted to receive the concrete for forming the arch.

2. In the construction of floors and ceilings herein shown and described, the combination with the joists or beams of bent cross-pieces extending in convex lines from the flange of one beam to that of another, provided with perforated metal sheets and longitudinal cross-pieces for supporting the concrete forming the arch.

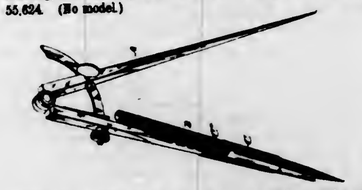
3. In the construction of floors and ceilings herein shown and described, the combination with the joists or beams of bent cross-pieces extending in convex lines from the flange of one beam to that of another, provided with perforated metal sheets and longitudinal cross-pieces for supporting the concrete forming the arch, and angle-irons extending along the lower flange of the beams having one flange resting thereon and another extending downwardly below the same, said downwardly-extended portion being provided with perforations through which rods are passed having metal lath secured thereto.

679,431. CATTLE-STANCHION. LOUIS W. SIMONS, Jordan, N. Y. Filed Aug. 2, 1900. Serial No. 25,710. (No model.)



Claim.—The combination with a supporting-frame comprising upper and lower sills and connecting-uprights, of a stanchion comprising upper and lower end pieces pivoted to the sills, an upright connecting the end pieces rigidly at one end, a second upright having angle-plates fixed to opposite sides thereof above its lower end and extending laterally therefrom to lie at opposite sides of the lower end piece, a pivot connecting the laterally-projecting portions of the angle-plates with the lower end piece beyond the pivot of said end piece to permit of pivotal movement of the second upright into and out of contact with the upper end piece a latch for holding the second upright in contact with the upper end piece, an additional angle-plate secured to the second upright between the first-named plates and having a foot extending below the lower end piece and in the direction of the pivot thereof, and a spring disposed between the upper face of the foot of said intermediate angle-plate and the lower face of the end piece at a point between the second upright and the pivot of the lower end piece, for moving the second upright outwardly when the latch is disengaged therefrom.

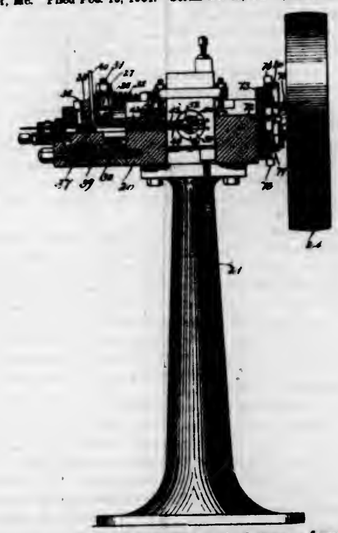
679,432. PENCIL-CLIP FOR DIVIDERS. FLAVEL SIMMONS, Sterling, Ill. Filed Apr. 21, 1898. Renewed Apr. 13, 1901. Serial No. 55,624. (No model.)



Claim.—1. A pencil-clip for dividers, comprising a tube with one cylindrical and one tapered side, said tube being divided longitudinally by a flexible tongue parallel with the cylindrical side, and having one of its sides free, substantially as and for the purpose set forth.

2. As a new article of manufacture, a pencil-clip for dividers formed of a single piece of sheet metal in the form externally of a tube, oblong in cross-section, one side of the tube being cylindrical and the other side tapered, the tube so formed being divided longitudinally by an internal continuation of the cylindrical part of the tube, which is free at one side, and is adapted to be pressed against the pencil, when in position, by the tapered leg of the divider inserted in the tapered part of the tube, as described.

679,433. MACHINE FOR MAKING WIRE BUTTON-FASTENERS. ISAAC H. SIMON, Providence, R. I., assignor to Robert Amory, Bar Harbor, Me. Filed Feb. 16, 1901. Serial No. 47,634. (No model.)



Claim.—1. In a machine for making wire fasteners, a former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of said bender, and mechanism to feed a wire into and lengthwise of said slot.

2. In a machine for making wire fasteners, a rotary wire-bender, a slot extending across the face thereof at right angles to the axis of rotation of said wire-bender, mechanism to feed a wire into and lengthwise of said slot, and a spring-pin arranged to bear against said wire and assist in guiding the same.

3. In a machine for making wire fasteners, a former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, a stationary stop, and mechanism to feed a wire into and lengthwise of said slot against said stop.

4. In a machine for making wire fasteners, a former, a wire bender and cutter, mechanism to rotate said wire bender and cutter around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, a stationary cutter and wire-guide, and mechanism to feed a wire through said wire-guide and lengthwise of said slot.

5. In a machine for making wire-fasteners, a former, a rotary wire bender and cutter, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, a stationary cutter and wire-guide, and mechanism to feed a wire through said wire-guide and lengthwise of said slot, the cutting edge of said stationary and of said rotary cutter being formed at an acute angle with the line of feed of said wire.

6. In a machine for making wire fasteners, a former of curvilinear outline in cross-section, said curvilinear outline consisting of two semicircular arcs 108, 108, located upon opposite sides of a median line and joined together by two straight sides 107, 107, and a projection in the center of each of said semicircular arcs extending outwardly from the end face of said former.

7. In a machine for making wire fasteners, a former, mechanism for imparting a reciprocatory motion to said former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, and mechanism to feed a wire into and lengthwise of said slot.

8. In a machine for making wire fasteners, a former, mechanism for imparting a reciprocatory motion to said former, a rotary wire-bender, a slot extending across the face thereof at right angles to the axis of rotation of said wire-bender, mechanism to feed a wire into and lengthwise of said slot, and a spring-pin arranged to bear against said wire and assist in guiding the same.

9. In a machine for making wire fasteners, a former, mechanism for imparting a reciprocatory motion to said former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, a stationary stop, and mechanism to feed a wire into and lengthwise of said slot against said stop.

10. In a machine for making wire fasteners, a former, mechanism for imparting a reciprocatory motion to said former, a wire bender and cutter, mechanism to rotate said wire bender and cutter around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, a stationary cutter and wire-guide, and mechanism to feed a wire through said wire-guide and lengthwise of said slot.

11. In a machine for making wire fasteners, a former, mechanism for imparting a reciprocatory motion to said former, a rotary wire bender and cutter, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender at right angles to the axis of rotation of said bender, a stationary cutter and wire-guide, and mechanism to feed a wire through said wire-guide and lengthwise of said slot, the cutting edge of said stationary and of said rotary cutter being formed at an acute angle with the line of feed of said wire.

12. In a machine for making wire fasteners, a former, two projections upon the face of said former, located upon opposite sides of a median line, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a wire-passage in said wire-bender, extending across said wire-bender and at right angles to the axis of rotation thereof, and mechanism to feed a wire lengthwise of said wire-passage and between said projections.

13. In a machine for making wire fasteners, a former, two projections upon the face of said former, located upon opposite sides of a median line, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a slot extending across the face of said wire-bender, and mechanism to feed a wire lengthwise of said slot and between said projections.

14. In a machine for making wire fasteners, a former, two projections upon the face of said former located upon opposite sides of a me-

dian line; a rotary wire bender and cutter, a slot extending across the face thereof at right angles to the axis of rotation of said wire-bender, a stationary cutter and wire-guide, and mechanism to feed a wire through said wire-guide lengthwise of said slot and between the projections upon said former.

15. In a machine for making wire fasteners, a prong-bending die, said die consisting of a piece of metal with a hole extending through from one face to the other thereof, said hole having a curvilinear outline consisting of two semicircular arcs 105, 105, located upon opposite sides of a median line and joined together by straight sides 106, 106.

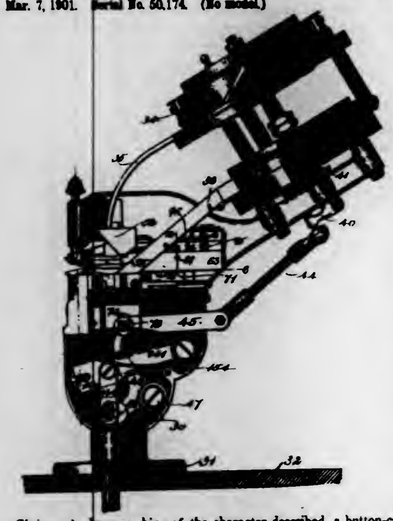
16. In a machine for making wire fasteners, a former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a prong-bending die, and mechanism to impart a reciprocating motion to said former in a direction parallel to the axis of rotation of said wire-bender.

17. In a machine for making wire-fasteners, a former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a prong-bending die, arranged to rotate with said wire-bender, and mechanism to impart a reciprocating motion to said former in a direction parallel to the axis of rotation of said wire-bender.

18. In a machine for making wire fasteners, a former, a wire-bender, mechanism to rotate said wire-bender around said former as a center, a prong-bending die, fast to said wire-bender and concentric with said former, and mechanism to impart a reciprocating motion to said former in a direction parallel to the axis of rotation of said wire-bender.

19. In a machine for making wire fasteners, a former, two projections upon the face of said former, located upon opposite sides of a median line, a rotary wire bender and cutter, a slot extending across the face thereof at right angles to the axis of rotation of said wire-bender, a stationary cutter and wire-guide, mechanism to feed a wire through said wire-guide, lengthwise of said slot and between the projections upon said bender; a prong-bending die fast to said wire-bender, and concentric with said former; mechanism to rotate said wire bender and cutter, and mechanism to impart a reciprocating motion to said former.

679,434. BUTTON-ATTACHING MACHINE. ISAAC H. SIMON, Providence, R. I., assignor to Robert Amory, Bar Harbor, Me. Filed Mar. 7, 1901. Serial No. 50,174. (No model.)



Claim.—1. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said carrier-slide is arranged to reciprocate, a spring connecting said slides, and mechanism to impart a reciprocating motion to said slides.

2. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said carrier-slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides, and mechanism to continue the reciprocating motion of one of said slides after the other reaches the limit of its reciprocating motion.

3. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said carrier-slide is arranged to reciprocate, a spring connecting said slides, mechanism to impart a reciprocating motion to said slides, and mechanism to continue the reciprocating motion of one of said slides after the other reaches the limit of its reciprocating motion.

4. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a rotary button-locator carried by said slide, and a lever pivoted to said carrier-slide and connected to said locator in such a manner as to impart a rotary motion to said locator when said lever is rocked upon its pivot, and means to rock said lever upon its pivot.

5. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a rotary button-locator, a lever pivoted to said carrier-slide and connected to said locator in such a manner as to impart a rotary motion to said locator when said lever is rocked upon its pivot, means to rock said lever upon its pivot, a second slide in which said carrier-slide is arranged to reciprocate, and mechanism to impart a reciprocating motion to said slides.

6. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a rotary button-locator, a lever pivoted to said carrier-slide and connected to said locator in such a manner as to impart a rotary motion to said locator when said lever is rocked upon its pivot, means to rock said lever upon its pivot, a second slide in which said carrier-slide is arranged to reciprocate, a spring connecting said slides, and mechanism to impart a reciprocating motion to said slides.

7. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a rotary button-locator, a lever pivoted to said carrier-slide and connected to said locator in such a manner as to impart a rotary motion to said locator when said lever is rocked upon its pivot, a second slide in which said carrier-slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides, mechanism to continue the motion of said second slide after the carrier-slide has reached the limit of its movement, and means connecting said second slide and lever, whereby a rocking motion is imparted to said lever and a rotary motion to said locator.

8. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a rotary button-locator, a lever pivoted to said carrier-slide and connected to said locator in such a manner as to impart a rotary motion to said locator when said lever is rocked upon its pivot, a second slide in which said carrier-slide is arranged to reciprocate, a spring connecting said slides, mechanism to continue the motion of said second slide after the carrier-slide has reached the limit of its movement, and means connecting said second slide and lever, whereby a rocking motion is imparted to said lever and a rotary motion to said locator.

9. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said button-carrier slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides in a horizontal plane, a button-holder pivoted to a stationary support and arranged to rock in a vertical plane, button-holding grooves in said button-holder adapted to receive the rim of a button held in said button-carrier slide, and mechanism to rock said button-holder upon its pivot and remove said button from said button-carrier slide.

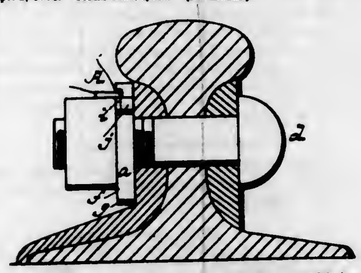
10. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said button-carrier slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides in a horizontal plane, a button-holder pivoted to a stationary support and arranged to rock in a vertical plane, button-holding grooves in said button-holder adapted to receive the rim of a button held in said button-carrier slide, and mechanism actuated by said second slide to rock said button-holder upon its pivot and remove said button from said button-carrier slide.

11. In a machine of the character described, a button carrier slide, a recess therein to receive a button, a second slide in which said button-carrier slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides in a horizontal plane, a button-locator carried by said button-carrier slide, mechanism to impart a rotary motion to said button-locator, a button-holder pivoted to a stationary support and arranged to rock in a vertical plane, button-holding grooves in said button-holder adapted to receive the rim of a button held in said button-carrier slide, and mechanism to rock said button-holder upon its pivot and remove said button from said button-carrier slide.

12. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said button-carrier slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides in a horizontal plane, a clenching-die, a button-holder pivoted to a stationary support encircling said clenching-die and arranged to rock in a vertical plane, button-holding grooves in said button-holder adapted to receive the rim of a button held in said button-carrier slide, and mechanism to rock said button-holder upon its pivot, remove said button from said button-carrier slide, and hold it against the face of said die.

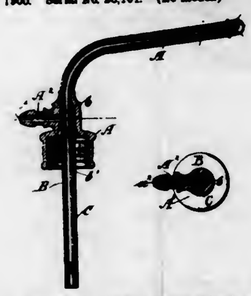
13. In a machine of the character described, a button-carrier slide, a recess therein to receive a button, a second slide in which said button-carrier slide is arranged to reciprocate, mechanism to impart a reciprocating motion to said slides in a horizontal plane, a clenching-die, a button-holder pivoted to a stationary support encircling said clenching-die and arranged to rock in a vertical plane, button-holding grooves in said button-holder adapted to receive the rim of a button held in said button-carrier slide, and mechanism to rock said button-holder upon its pivot, remove said button from said button-carrier slide, and hold it against the face of said die; in combination with a reciprocatory fastener-holder, a vertical guide-passage therein for a fastener, an anvil arranged to slide in said vertical guide-passage, and mechanism to impart a vertical reciprocatory motion to said anvil and force the legs of a fastener held in said guide-passage through the holes in said button and against said clenching-die.

679,435. NUT-LOCK. CADWELL B. SNYDER, Chicago, Ill. Filed Apr. 2, 1901. Serial No. 54,044. (No model.)



Claim.—In a nut-lock, the combination with the nut and bolt, of the plate *a* having its end *g* engaging the flange, a perforation *e* and the groove *e*, the latter partially closed by the nut; the key, comprising the horizontal flange *h* and vertical flange *i*, the latter extending beyond the body of the key, forming horizontally opposite twin lugs *j*, *j*, said key adapted to be passed into the groove from either side of the plate and the two lugs bent to engage the two opposite sides of said plate, all as shown and described.

679,436. ATOMIZER. EMANUEL J. SOUR, New York, N. Y. Filed June 13, 1900. Serial No. 20,161. (No model.)

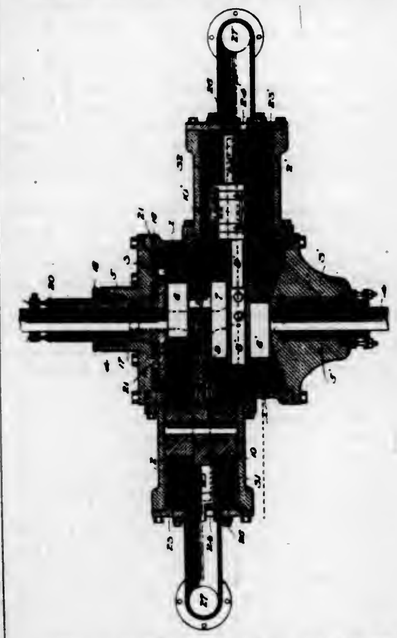


Claim.—1. In a liquid-atomizer, the combination of an air-supply duct communicating with the interior of the head and the outlet-nozzle, a liquid-discharge tube having a reinforcing-tube surrounding its lower part, secured thereto at its lower end and also detachably fitted into the head bearing the outlet-nozzle.

2. In a liquid-atomizer, the combination of an air-supply duct communicating with the interior of the head and the outlet-nozzle, a liquid-discharge tube having a reinforcing-tube constructed to admit the passage of air from the air-supply duct to the nozzle, surrounding its lower part, secured thereto at its lower end and also fitted into the head bearing the outlet-nozzle and provided with exterior channels communicating with the air-supply duct and extending below the part of the head into which said reinforcing-tube is fitted.

3. In a liquid-atomizer, the combination of an air-supply duct communicating with the interior of the head and the outlet-nozzle, a liquid-discharge tube having a reinforcing-tube surrounding its lower part, secured thereto at its lower end and also detachably fitted into the head bearing the outlet-nozzle, provided with an annular channel opposite the air-duct and a longitudinal channel leading therefrom to a point below the part of the head into which said reinforcing-tube is fitted.

679,487. FLUID-PRESSURE ENGINE. ELI A. STARK and THOMAS WINSHIP, Toledo, Ohio, assignors to the Toledo Steam and Air Motor Company. Filed Mar. 29, 1900. Serial No. 10,654. (No model.)



Claim.—1. An engine having a cylinder; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft; means for transforming the reciprocating motion of the pistons to the rotary shaft; a valve-seat; an inlet-port for the admission of motive fluid to the central chamber; an eduction-port and passages from the central chamber to the end chambers; a valve frictionally engaging the valve-seat and controlling the inlet and eduction ports; and means for exhausting the motive fluid from the end chambers; whereby the motive fluid can first be admitted to the central chamber, then educted to the end chambers, and finally exhausted.

2. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a valve-seat in which the inlet and eduction ports are located; a rotary valve on the rotary shaft, engaging the seat, and controlling the inlet and eduction ports; and means for exhausting the motive fluid from the end chambers.

3. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a valve-seat; a rotary valve located in the central chamber, operated by the shaft, engaging the valve-seat, and controlling the inlet and eduction ports; and means for exhausting motive fluid from the end chambers.

4. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and shaft; an eduction-port and passages from the central chamber to the end chambers; a rotary valve adjustable on the shaft and controlling the inlet and eduction ports; and means for exhausting motive fluid from the end chambers.

5. The combination in an engine in which the motive fluid is first admitted to a central chamber, then educted to two end chambers, and finally exhausted to the atmosphere, of a cylinder having inlet and eduction ports and passages from the central chamber to the end chambers; a rotary shaft in the central chamber; a valve-seat; and a rotary valve fitting the seat, operated by the shaft, and controlling the inlet and eduction ports; said rotary valve being slotted or cut away to afford a passage for motive fluid to and from the central chamber.

6. The combination in an engine in which the motive fluid is first admitted to a central chamber, then educted to two end chambers, and finally exhausted to the atmosphere, of a cylinder having inlet and eduction ports and passages from the central chamber to the end chambers; a rotary shaft in the central chamber; and a valve for controlling the inlet and eduction ports; said valve comprising a disk portion bearing against a valve-seat and a cylindrical portion mounted on the shaft.

7. The combination in an engine in which the motive fluid is first admitted to a central chamber, then educted to two end chambers and finally exhausted to the atmosphere, of a cylinder having inlet and eduction ports and passages from the central chamber to the end chambers; a rotary shaft in the central chamber; and a valve fitting a valve-seat and controlling the inlet and eduction ports; said valve being mounted upon the shaft and adjustable longitudinally upon and also about the axis of the shaft.

8. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft; two pitmen; means uniting the pitmen and shaft; a valve controlling the inlet-port and which admits motive fluid only during a part of the period of the outward traverse of the two pistons; an eduction-port and passages from the central chamber to the end chambers; means for periodically opening and closing the eduction-port; and means for exhausting the motive fluid from the end chambers.

9. The combination in an engine in which the motive fluid is first admitted to a central chamber, then educted to two end chambers, and finally exhausted to the atmosphere; of a cylinder having inlet and eduction ports and passages from the central chamber to the end chambers; a rotary shaft in the central chamber; and a valve for controlling the inlet and eduction ports; the said valve being cut away or slotted in the shape of an arc of a circle for a distance less than half the circumference of the valve measured by a circle described by a radius extending from the center of the shaft to the inlet-port; whereby motive fluid can be used expansively in the central chamber of the engine.

10. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; means for transforming the reciprocating motions of the pistons to the rotary shaft; an eduction-port and passages from the central chamber to the end chambers; means for controlling the admission of the motive fluid to and its eduction from the central chamber consisting of a valve fitting a valve-seat; and means operated by the pistons for exhausting the motive fluid from the end chambers.

11. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a valve-seat; a rotary valve engaging the seat and operated by the shaft; and valves operated by the pistons, each valve having an open passage in a part of its length for exhausting motive fluid from the end chambers.

12. The combination in an engine having a cylinder provided with an inlet-port for the motive fluid, of two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a valve-seat having a boss; and a valve operated by a rotary shaft and controlling the inlet and eduction ports, said valve bearing against the boss in which the inlet and eduction ports are located.

13. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a side casting having bosses in which the inlet and eduction ports are located; and a rotary valve bearing against the bosses.

14. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; and a valve operated by a rotary shaft and controlling the inlet and eduction ports; said valve bearing against a tortuous boss in which the inlet and eduction ports are located.

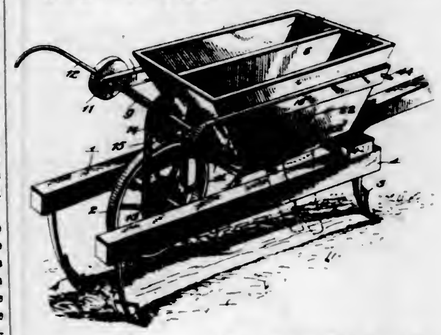
15. An engine having a cylinder provided with inlet and eduction ports; a rotary shaft; two pistons; two pitmen; means uniting the pitmen and shaft; two passages leading from a central chamber to two end chambers; means for controlling the admission of motive fluid through the inlet-port; a valve located within the central chamber which controls the eduction-port; and valves operated by the pistons for exhausting the motive fluid from the end chambers.

16. An engine having a cylinder provided with an inlet-port for the motive fluid; two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; two pitmen; means uniting the pitmen and rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a casting in which the inlet and eduction ports are located; a rotary valve in contact with the inner surface of the casting, said valve operated by the shaft; and means carried by the pistons and engaging bearings in the cylinder-heads for exhausting motive fluid from the end chambers.

17. The combination in an engine in which the motive fluid is first admitted to a central chamber, then educted to two end chambers and finally exhausted to the atmosphere, of two pistons; a rotary shaft; means uniting the pistons and shaft; means for introducing motive fluid to the central chamber and educting it to the end chambers by two passages; and tubes secured to the pistons and notched or slotted at the ends, said tubes reciprocating within bearings made in the cylinder-heads.

18. The combination in an engine having a cylinder provided with an inlet-port for the motive fluid, of two pistons dividing the interior of the cylinder into three chambers; a rotary shaft in the central chamber; means for transmitting the reciprocating motion of the pistons to the rotary shaft; an eduction-port and passages from the central chamber to the end chambers; a valve-seat within which the inlet and eduction ports are located; a disk valve frictionally engaging the valve-seat and operated by the shaft; and valves operated by the pistons for simultaneously exhausting motive fluid from the end chambers.

679,438. **COMBINED SEED-PLANTER AND FERTILIZER-DISTRIBUTER.** CHARLES T. STARKEY, Attalla, Ala. Filed Dec. 27, 1900. Serial No. 41,193. (No model.)



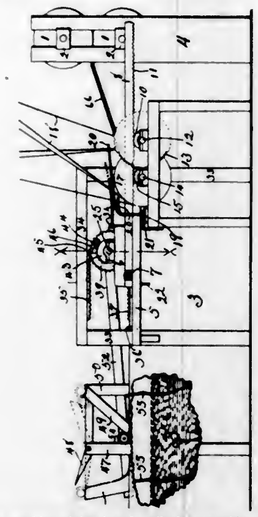
Claim.—1. In a machine of the character described, the combination of a supporting-frame, a hopper provided with compartments, a drive-wheel journaled in said supporting-frame, a bottom in the hopper provided with discharge devices, a tappet-shaft provided with heads, tappet-arms carried by said heads and adapted to operate said discharge devices, and an operative connection between the drive-shaft and the tappet-shaft, substantially as set forth.

2. In a machine of the character described, the combination of a hopper divided to form two feed-compartments, a bottom therefor provided with a transverse slot, blocks seated in the slot and adjustable lengthwise thereof to form pockets for the reception of seed, means for holding the blocks in adjusted position, a shield-blade upon one block to cover the space between the blocks when the same are separated, slotted levers pivoted to the bottom and adjustable to open and close the seed-pockets, arms connected to the levers, and means for engaging said arms to rock the levers, substantially as described.

679,439. **FORKING, ELEVATING, AND CONVEYING MACHINE.** ARTHUR P. TATTERSON, Stockton, Cal. Filed Feb. 25, 1901. Serial No. 48,741. (No model.)

Claim.—1. In a wool-washing machine, the combination with a suitable tub or vat of a suitable fork rigidly attached to a shaft, said shaft mounted and journaled on carriages arranged and adapted to rest on the tub, the cog-wheels 38 and 39 journaled loosely on the shaft aforesaid, the ratchet-wheels 40 and 43 rigidly attached to the said shaft, the pawls 41 and 44 pivoted to the wheels 38 and 39 and adapted to engage with the ratchet-wheels 40 and 43 respectively, the cog-racks 35 and 37 adapted to engage with the wheels 38 and 39 respectively and suitable means for imparting motion to said carriages, all arranged and operating substantially as shown and described and for the purposes specified.

2. In a machine of the class described the combination with a suitable tub for containing wool or other fiber, and having oscillating carriages mounted thereon, of a rake suitably attached at one end to said carriages, suitable rollers or trucks attached to said rake, a track arranged on the tub and adapted to receive the trucks, said track being composed of the piece 49 arranged so as to raise the rake out of the tub, the rail 48 pivoted as described and the rear post 51, and the forks or rakes 55 attached to the rake-frame, all arranged and operating substantially as shown and described and for the purposes specified.



3. In a machine of the class described the combination, a fork rigidly attached to a rotatable shaft which is mounted on carriages adapted to oscillate to and fro on a suitable tub, cog-wheels loosely mounted on said shaft and adapted to engage with cog-racks suitably attached to the tub, ratchet-wheels rigidly attached to said shaft and adapted to be engaged by pawls pivoted on the cog-wheels aforesaid, all arranged and operating substantially as shown and described and for the purposes specified.

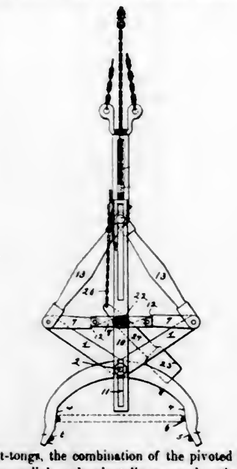
4. In a shaft-rotating device the combination with a shaft mounted on suitable carriages adapted to oscillate to and fro, of the cog-wheel 39 adapted to engage with the cog-rack 37, said cog-rack 37 mounted rigidly on a support, the ratchet-wheel 43 rigidly attached to the shaft aforesaid, and provided with but one lug or tooth 45, the pawl 44 pivoted to the cog-wheel 39 and adapted to engage with the tooth 45, the cog-wheel 38 loosely mounted on the shaft aforesaid, the cog-rack 35 rigidly attached to a suitable support and adapted to engage the wheel 38, the ratchet-wheel 40 rigidly attached to the shaft, and the pawl 41 pivoted to the wheel 38 and adapted to engage with the ratchet-wheel 40 all arranged and operating substantially as and for the purposes specified.

5. In a forking, elevating and conveying machine the combination with a suitable tub or vat provided with a suitable conveyer and wringing-rolls of a carriage mounted on either side of said tub or vat on a track therefor, suitable means for oscillating said carriage to and fro, a shaft journaled on said carriages transversely of the tub or vat, the cog-racks 35 and 37 attached to a suitable frame, the cog-wheels 38 and 39 loosely journaled on the shaft aforesaid and adapted to engage the cog-racks 35 and 37 respectively, the ratchet-wheels 40 and 43 rigidly attached to the shaft, adjacent to the cog-wheels 38 and 39, suitable pawls pivoted to said wheels 38 and 39 and adapted to engage with the ratchet-wheels aforesaid, the ratchet-wheel 26 rigidly attached to the said shaft, the pawl 27 adapted to engage said wheel 26, the lug 30 adapted to engage with the pawl 27, the friction-gears 9 23, the clamps 24 adapted to engage said gear 23, a suitable fork 31, attached to the shaft, the rake 52 54 53 55, and the track 51 49 48 all arranged and operating substantially as and for the purposes set forth herein.

679,440. **TONGS.** WARDELL TEMPEST, Homestead, Pa. Filed May 11, 1901. Serial No. 59,745. (No model.)

Claim.—1. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, a frame in which the parts are mounted, the arrangement being such as to permit the pivot of the tong-levers to move toward and from the link, and means for rotating the link.

2. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, a frame in which the link is rotatably mounted, slotted connections between said frame and the pivot of the tong-levers, and means for rotating the link.



3. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, suspending means connected to the levers, a frame in which the parts are mounted, the arrangement being such as to permit the suspending means to move toward and from the link, and means for rotating the link.

4. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, suspending means connected to the levers, a frame in which the link is rotatably mounted, slotted connections between said frame and the suspending means, and means for rotating the link.

5. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, suspending means connected to the tong-levers, a frame in which the link is rotatably mounted, slotted connections between said frame and the pivot of the tong-levers and the suspending means, and means for rotating the link.

6. In billet-tongs, the combination of the tong-levers having gripping-jaws, a frame in which the same are mounted, means for suspending the frame, and other suspending means connected to the tong-levers.

7. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a frame in which the same are mounted, suspending means connected to the frame, a block, suspending means connected thereto, rods pivotally connecting the block and levers, and slotted connections between the block and frame.

8. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, a frame in which the parts are mounted, suspending means connected to the frame, other suspending means connected to the tong-levers, and means for rotating the link.

9. In billet-tongs, the combination of the pivoted tong-levers having gripping means, a link, rods pivotally connecting the levers and link, a frame in which the same are mounted, means for suspending the frame, a block, suspending means connected thereto, rods pivotally connected to the block and levers, slotted connections between the block and frame, and means for rotating the link.

10. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, suspending means connected to the tong-levers, a frame in which the link is rotatably mounted, slotted connections between said frame and the pivot of the tong-levers and the suspending means for the levers, suspending means connected to the frame, and means for rotating the link.

11. In billet-tongs, the combination of the tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, a handle binged to the link for rotating the same, and other connections between the link and lever whereby the handle may be used as a lever to rotate the link.

12. In billet-tongs, the combination of the tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, a handle pivotally connected to the link for rotating the same, an arm also connected to the link, and connections between the handle and arm whereby the handle may be used as a lever to rotate the link.

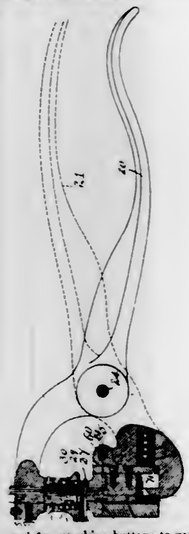
13. In billet-tongs, the combination of the tong-levers having gripping-jaws, a link, means for suspending the tongs, rods pivotally connecting the link and levers, a handle pivoted to the link for rotating the same, a lever pivoted to the suspending means, and connections between said lever and the handle and said lever and the link whereby the handle may be used as a lever to rotate the link.

14. In billet-tongs, the combination of the tong-levers having gripping-jaws, a link, rods pivotally connecting the levers and link, means for suspending the tongs, a handle pivoted to the link for rotating the same, an arm also connected to the link, a lever pivoted to the suspending means, and connections between the arm and lever and between the lever and handle whereby the latter may be used as a lever to rotate the link.

15. In billet-tongs, the combination of the pivoted tong-levers having gripping-jaws, a link, rods, pivotally connecting the levers and link, a handle connected to the link for rotating the same, said handle being formed in two parts united by means which permit one of said parts to rotate independently of the other in one direction.

16. In billet-tongs, the pivoted tong-levers having gripping-jaws, said jaws having their ends projecting toward each other and then projecting outward, thereby providing two pairs of gripping-faces at an angle to each other.

679,441. **BUTTON-ATTACHING IMPLEMENT.** JOHN H. VINTON, Boston, Mass., assignor to Robert Amory, Bar Harbor, Me. Filed Jan. 19, 1901. Serial No. 43,923. (No model.)



Claim.—1. In a tool for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other against said holder and acting to press said button-holder toward said die, whereby a button held by said button-holder is held against said die.

2. In a tool for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a recess in said button-holder to receive a button, opening from one side of said holder and extending across the face of said clenching-die, two parallel side walls to said recess, and a groove in each of said side walls to receive and guide the rim of said button, a chamber in said holder, a spring in said chamber, one end bearing against said flange the other against said holder and acting to press said button-holder toward said die, whereby a button held by said button-holder is held against said die.

3. A tool for attaching buttons to garments by wire fasteners, comprising a pair of jaws pivoted one upon the other, a clenching-die fast to one of said jaws, a button-holder attached to said clenching-die, an anvil, a holder for said anvil pivoted to the other of said jaws, and a spring-supported holder for a fastener having a guide-passage therein to receive and guide said fastener, said fastener-holder arranged to slide upon said anvil and eject said fastener from said guide-passage.

4. A tool for attaching buttons to garments by wire fasteners, comprising a pair of jaws pivoted one upon the other, a clenching-die fast to one of said jaws, a button-holder attached to said clenching-die, and a spring, acting to press a button held by said button-holder against the face of said die; an anvil, a holder for said anvil pivoted to the other of said jaws, and a spring-supported holder for a fastener having a guide-passage therein to receive and guide said fastener, said fastener-holder arranged to slide upon said anvil and eject said fastener from said guide-passage.

679,442. **BUTTON-ATTACHING IMPLEMENT.** JOHN H. VINTON, Boston, Mass., assignor to Robert Amory, Bar Harbor, Me. Filed Jan. 19, 1901. Serial No. 43,924. (No model.)



Claim.—A tool for attaching buttons to garments by wire fasteners comprising a pair of jaws and a fastener-holder therebetween, each having a common pivotal center, a guide-passage in said fastener-holder to receive and guide a fastener, an anvil supported upon one of said jaws and arranged to slide in a chamber in said fastener-holder, a clenching-die fast to the other of said jaws, a button-holder, and a spring, said spring encircling said clenching-die and acting upon said button-holder in such a manner as to press a button held by said button-holder against the face of said clenching-die.

679,443. **BUTTON-LOCATOR.** JOHN H. VINTON, Boston, Mass., assignor to Robert Amory, Bar Harbor, Me. Filed Jan. 19, 1901. Serial No. 43,925. (No model.)



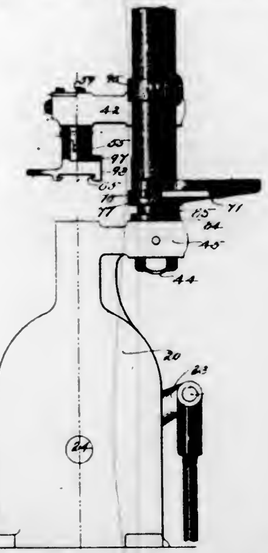
Claim.—A button-locator comprising a carrier-slide having two parallel sides, a depression in one face of said carrier-slide formed to receive the back face of a button and to partially encircle the rim of said button, and a pin fast to said slide and located in said depression at one side of the center of said depression and arranged to enter a hole in a button held in said recess, substantially as described for the purpose specified.

679,444. **BUTTON-ATTACHING MACHINE.** JOHN H. VINTON, Boston, Mass., assignor to Robert Amory, same place. Filed Mar. 20, 1901. Serial No. 52,062. (No model.)

Claim.—1. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrying arm, a button-locator carried by said arm, and a handle fast to said button-locator by means of which said locator is rocked upon said button-carrying arm.

2. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrying arm, a button-locator carried by said arm, a handle fast to said button-locator by means of which said locator is rocked upon said button-carrying arm, and means to limit the extent of said rocking movement with relation to said carrier-arms.

3. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrying arm, a button-locator carried by said arm, and a handle fast to said button-locator by means of which said locator is rocked upon said button-carrying arm and said button-carrier arm is rocked upon its pivot.



4. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrying arm, a button-locator carried by said arm, a handle fast to said button-locator by means of which said locator is rocked upon said button-carrying arm, and a spring arranged to hold said carrier-arm stationary during said rocking movement.

5. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrying arm, a button-locator carried by said arm, a handle fast to said button-locator by means of which said locator is rocked upon said button-carrying arm and said button-carrier arm is rocked upon its pivot, means to limit the extent of the rocking movement of said locator with relation to said arm, and a spring arranged to hold said carrier-arm stationary during said rocking movement of the button-locator and to move said carrier-arm in the opposite direction to that in which it is moved by means of said button-locator handle.

6. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrier arm, a button-locator having a recess therein to receive a button, said locator carried by said arm and arranged to rock thereon, and a handle fast to said button-locator and arranged to travel in a slot in said carrier-arm.

7. In a machine for attaching buttons to garments by wire fasteners, a pivoted button-carrier arm, a button-locator having a recess therein to receive a button, said locator carried by said arm and arranged to rock thereon, a spring arranged to hold said carrier-arm stationary during said rocking movement, and a handle fast to said button-locator and arranged to travel in a slot in said carrier-arm.

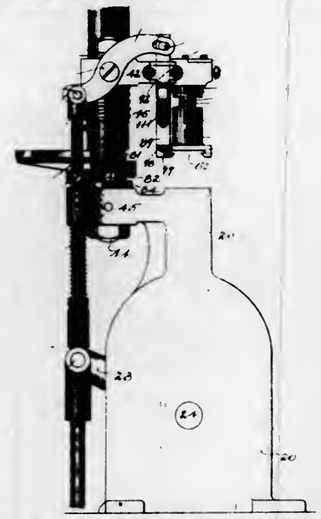
8. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting to press a button held by said button-holder against the face of said clenching-die, a button-carrier, and mechanism actuated by said button-carrier to depress said button-holder against the action of said spring in order to insert a button carried by said button-carrier.

9. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting to press a button held by said button-holder against the face of said clenching-die, a button-carrier, mechanism actuated by said button-carrier to depress said button-holder against the action of said spring in order to receive a button carried by said button-carrier, and mechanism to release said button-holder, whereby the button carried by said button-carrier is removed therefrom by said button-holder.

10. In a machine for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other against said holder and acting to press a button held by said holder against the face of said die, a button-carrier, and mechanism actuated by said carrier to depress said button-holder against the action of said spring in order to receive a button carried by said button-carrier.

11. In a machine for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other against said holder and acting to press a button held by said holder against the face of said die, a button-carrier, mechanism actuated by said carrier to depress said button-holder against the action of said spring in order to receive a button carried by said button-carrier, and mechanism to release said button-holder, whereby the button carried by said carrier is removed therefrom by said button-holder.

679,445. **BUTTON-ATTACHING MACHINE.** JOHN H. VINTON, Boston, Mass., assignor to Robert Amory, same place. Filed Mar. 20, 1901. Serial No. 52,063. (No model.)



Claim.—1. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a button-carrier, a treadle mechanism, and mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier.

2. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a button-carrier, a treadle mechanism, mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier, and mechanism actuated by said button-carrier to release said button-holder, whereby the button carried by said button-carrier is removed therefrom by said button-holder.

3. In a machine for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other against said holder and acting to press a button held by said holder against the face of said die, a button-carrier, a treadle mechanism, and mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier.

4. In a machine for attaching buttons to garments by wire fasteners, a clenching-die having a cylindrical shank and a flange adjacent to the working face thereof, a button-holder encircling said shank and flange and adapted to move lengthwise thereof, a chamber in said holder, a spring in said chamber one end bearing against said flange and the other

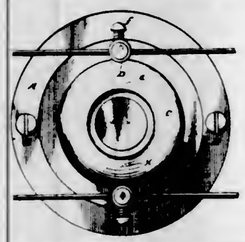
against said holder and acting to press a button held by said holder against the face of said die, a button-carrier, a treadle mechanism, mechanism actuated by said treadle mechanism to depress said button-holder against the action of said spring into position to receive a button carried by said button-carrier, and mechanism actuated by said button-carrier to release said button-holder, whereby the button carried by said button-carrier is removed therefrom by said button-holder.

5. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a reciprocatory slide, and mechanism to impart a vertically-reciprocating motion to said slide to depress said button-holder against the action of said spring.

6. In a machine for attaching buttons to garments by wire fasteners, a clenching-die, a button-holder, a spring acting on said button-holder to press a button held thereby against the face of said clenching-die, a reciprocatory slide, an arm pivoted to said slide, mechanism to impart a reciprocating motion to said slide to depress said button-holder against the action of said spring, and mechanism to rock said arm upon its pivot and release said button-holder.

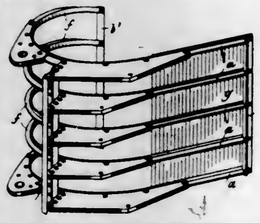
7. A spring-supported button-holder, a reciprocatory slide, an arm pivoted to said slide, mechanism to impart a reciprocating motion to said slide to depress said button-holder against the action of said spring, and mechanism to rock said arm upon its pivot and release said button-holder.

679,445. **AUTOMATIC CIRCUIT-CLOSER.** GEORGE A. WALL, Providence, R. I. Filed Dec. 7, 1900. Serial No. 39,099. (No model.)



Claim.—In an automatic circuit-closer, the combination with a shell having an opening at its center, and a cap fitted to close the opening, the inner surface of the cap having a fastening device held thereon by fusible material, of an arm located within the shell, said arm provided with a triangular slot, and a flat tapering spring fastened at one end and connected to the fastening device on the cap at the other end whereby to hold the cap in place, the free end of this spring located in position to rake against an edge of the triangular slot and automatically close the circuit when the fusible material on the cap is melted.

679,447. **MAIL-POUCH CATCHER.** CHARLES F. WALTHERS, Cincinnati, Ohio. Filed May 25, 1900. Serial No. 17,970. (No model.)



Claim.—1. A mail-pouch catcher comprising a frame of two or more curved braces joined by transverse connections, pivots secured to the braces in position to engage with suitable bearings and having the rear ends of the braces extended rearwardly to provide a return-bend, as herein shown and described.

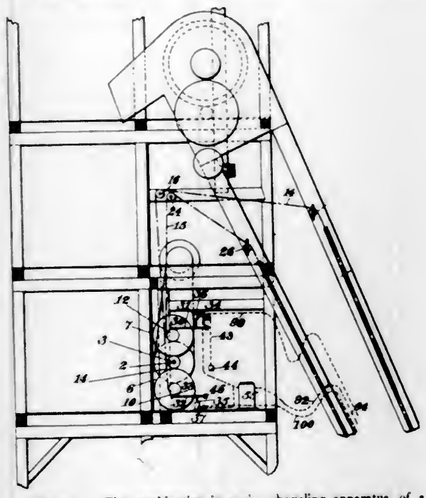
2. A mail-pouch catcher comprising a frame consisting of two or more transversely-connected braces, and provided with pivots in suitable position to engage with bearings to which the catcher is to be affixed, and cutting-blades affixed to the ends of the bar connecting the forward ends of the braces, the ends of the bar extending beyond the width of the frame and being bent approximately at right angles thereto, as herein shown and described and for the purposes set forth.

3. A mail-pouch catcher comprising a frame of two or more curved braces joined by transverse connections, pivots secured to the upper and lower braces in positions to engage with suitable bearings, and a sheathing covering the braces for some distance from the outer edge of the frame as herein shown and described, and so as to leave an open space between the sheathing and the car when the catcher is swung in position to receive the mail-bag.

4. A mail-pouch catcher comprising a frame composed of curved braces and transverse connections; a sheathing and cutting-blades, short lever-arms and a key-bolt all combined as herein shown and described and for the purposes set forth.

5. A mail-pouch catcher consisting of a pivoted frame having transverse connections and curved braces, the concave sides whereof are covered by a sheathing and provided with cutting-blades, short lever-arms and a key-bolt in combination with a cushion or netting for arresting the mail-pouch.

679,448. **DEVICE FOR OPERATING GRAIN-SHOVELS.** JAMES G. WESTBROOK, Ogdensburg, N. Y. Filed Oct. 27, 1900. Serial No. 34,636. (No model.)



Claim.—1. The combination in grain-shoveling apparatus, of a shovel, a cable for operating the same, a drum for actuating said cable, a motor for throwing the drum friction into and out of contact with a driving friction, a valve for controlling said motor, and means at the shovel for controlling the operation of said valve, substantially as set forth.

2. In friction-gear devices for actuating an appliance at a distance from the said friction-gear devices, the combination with said appliance of a motor for throwing said devices into and out of action, a valve controlling said motor, and means on said appliance for controlling said valve, substantially as set forth.

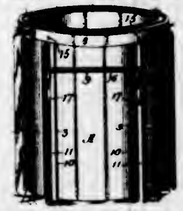
3. In apparatus for operating a grain-shovel and other appliances, the combination of a friction-gear train, a fluid-pressure motor for connecting and disconnecting said train, a piston-valve on said motor adapted to control the admission of such pressure to and its exhaust from said motor, and means for actuating said piston-valve from the shovel or appliance, whereby the connecting and disconnecting of said friction-gear can be controlled from the shovel, or appliance, substantially as set forth.

4. In apparatus for operating grain-shovels and other appliances, the combination of a friction-gear train, a fluid-pressure motor for connecting and disconnecting the gear-train, a piston-valve adapted to be actuated by fluid-pressure and to control the admission and exhaust of such pressure to and from said motor, and a valve at the shovel or other appliance operatively connected with said first-named valve so as to admit and release fluid-pressure to and from the same, substantially as set forth.

5. The combination in grain-shoveling apparatus of a movable elevator-leg, a main shovel, a cable for operating the shovel, a drum for operating the cables, a friction device for driving said drums, a fluid-pressure cylinder and valve for actuating said friction device, a valve on the shovel, and air-pipes from said last-named valve to the valve of said cylinder led from the shovel to the leg and to the said cylinder and also to a source of fluid-pressure, substantially as described.

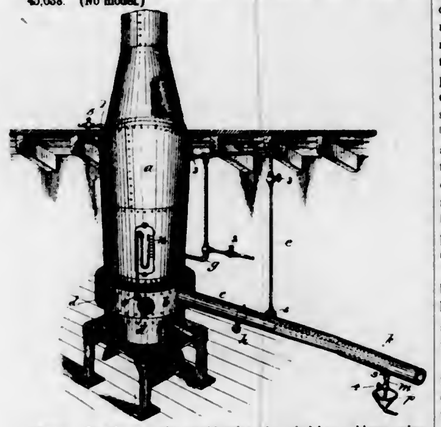
6. The combination in grain-shoveling apparatus, of a shovel and a cable for operating the same, a constantly-running shaft, a drum for the cable adapted to be driven from said shaft, a cylinder operatively connected with said drum so as to throw said drum into and out of operative connection with said constantly-running shaft, and means at said shovel for controlling said cylinder, substantially as described.

679,449. **HOLDER FOR ASH-CANS, &c.** ALBERT BERTER, Jersey City, N. J. Filed Jan. 3, 1901. Serial No. 41,928. (No model.)



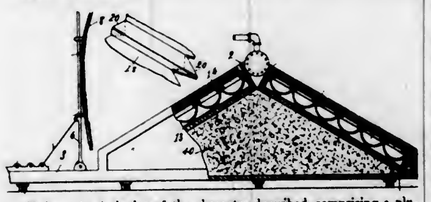
Claim.—An improved ash-can holder, comprising a plurality of body members rigidly connected at their lower ends, a top member consisting of two relatively movable parts, said body members being divided into two series which are connected respectively with the parts of said top member whereby a tensional clamping relation exists between said series of body members, and means for securing said parts of said top member to the upper portion of the can.

679,450. **APPARATUS FOR HEATING FURNACE-BLASTS.** GEORGE D BURTON, Boston, Mass. Filed Jan. 28, 1901. Serial No. 45,038. (No model.)



Claim.—In a furnace, the combination of a wind-box, a blower-pipe connected therewith, a coiled pipe disposed in said blower-pipe, a water-jacket, a pipe connecting said water-jacket with said coiled pipe whereby the air-blast is heated by said coiled pipe in its passage to said furnace, and discharge means connected with said coiled pipe.

679,451. **SOLAR WATER-HEATER AND STEAM-GENERATOR.** MILTON M. BAKER, San Francisco, Cal. Filed Aug. 27, 1900. Serial No. 28,224. (No model.)



Claim.—1. A device of the character described, comprising a plurality of water-tubes each formed of a sheet of metal bent into a substantially semicylindrical form and a top of metal having corrugations running transversely of the tube, adjacent tubes being connected by apertures at the top beneath the ridges of the corrugations, and suitable return connections for the cold water between terminal pipes of the series, the whole inclosed in an air-tight chamber having its upper side transparent to the solar rays, substantially as described.

2. A device of the character described, comprising a plurality of water-tubes each of a general semicylindrical shape, with the rounded portion at the bottom, adjacent tubes being arranged with their upper edges in contact and having communicating perforations in said upper edges, and suitable return connections for the cold water between terminal pipes of the series, the whole inclosed in an air-tight chamber having its upper side transparent to the solar rays, substantially as described.

3. A device of the character described, comprising a plurality of water-tubes each having its bottom formed of a sheet of metal bent into a substantially semicylindrical form, its top formed of a sheet of metal V-crimped transversely to the tube, said top having between adjacent ridges extensions or ears bent up at right angles to the corrugations and overlapping each other, and rivets through the ears of adjacent tops and the contiguous upper edges of adjacent bottoms, adjacent tubes being suitably connected, the whole inclosed in an air-tight chamber having its upper side transparent to the solar rays, substantially as described.

4. A device of the character described comprising a series of parallel, elongated, substantially horizontal, chambers, separated by partitions, the tops of said chambers having corrugations running transversely of the chambers, the partitions having perforations at the top beneath the ridges of the corrugations and above the depressions thereof, the whole inclosed in an air-tight chamber having its upper side transparent to the solar rays, a cold-water-supply pipe entering the lowest chamber, and a hot-water-outlet pipe from the uppermost chamber, substantially as described.

5. A device of the character described comprising a series of parallel, elongated, substantially horizontal, chambers, separated by partitions, the tops of said chambers having corrugations running transversely of the chambers, the partitions having perforations at the top beneath the ridges of the corrugations and above the depressions thereof and suitable return connections for the cold water between terminal pipes of the series the whole inclosed in an air-tight chamber having its upper side transparent to the solar rays, a cold-water-supply pipe entering the lowest chamber and a hot-water-outlet pipe from the uppermost chamber, substantially as described.

6. A device of the character described comprising a series of parallel, elongated, substantially horizontal, chambers, separated by partitions, the tops of said chambers having corrugations running transversely of the chambers, the partitions having perforations at the top beneath the ridges of the corrugations, the whole inclosed in an air-tight chamber having its upper side transparent to the solar rays, a cold-water-supply pipe entering the lowest chamber and a hot-water-outlet pipe from the uppermost chamber, substantially as described.

7. A device of the character described comprising a frame, and two boxes arranged obliquely thereon, sloping in opposite directions, each box having an air-tight chamber exposed on one side to the rays of the sun, and a water-chamber in the air-tight chamber and a reflector arranged to reflect the solar rays into one of said boxes, substantially as described.

8. A device of the character described, comprising a frame having two boxes arranged obliquely thereon and sloping in opposite directions, each box having an air-tight chamber exposed on one side to the rays of the sun, and a water-chamber in the air-tight chamber, a reflector arranged opposite to one of said boxes to direct the solar rays thereinto, and a steam-cylinder supported between the upper edges of the boxes, and connected with the water-chamber in each box, substantially as described.

679,452. **ORE ROASTING AND DISTILLING APPARATUS.** GEORGE D. BURTON, Boston, Mass. Filed Apr. 9, 1898. Serial No. 677,070. (No model.)

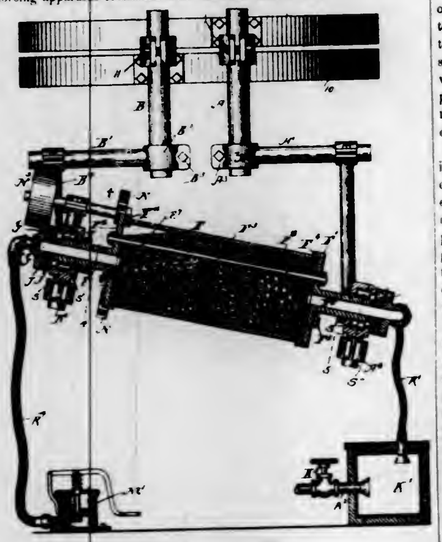
Claim.—1. A rotary furnace for an ore-roasting apparatus, provided with interior hollow electrically-conductive open-ended metallic rods, and with means for connecting said rods with opposite electric poles.

2. A rotary furnace for an ore-roasting apparatus provided with electrically-conductive axles and with interior hollow open-ended metallic rods in conductive connection with said axles.

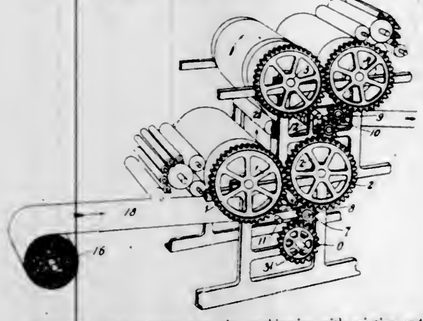
3. In an ore-roasting apparatus, the combination of a rotary furnace provided with hollow electrically-conductive axles and with interior heating-rods in electric connection with said hollow axles, means connected with said hollow axles for passing an electric heating-current through said axles and rods, a pipe connected with one of said axles and provided with branches, receivers connected with said branches for collecting the by-products, and an exhausting device connected with said receivers.

4. In an ore-roasting apparatus, the combination of a rotary furnace provided with hollow electrically-conductive axles and with interior heating-rods in electric connection with said hollow axles, means connected with said hollow axles for passing an electric current through said axles

and rods, a pipe connected with one of said axles and provided with branches, receivers connected with said branches for collecting the by-products, an exhausting device connected with said receivers, and an air-forcing apparatus connected with the other hollow axle.



679,453. PRINTING-PRESS. EMANUEL CARLSON, Los Angeles, Cal., assignor of one-half to John Kahn, same place. Filed Nov. 5, 1900. Serial No. 35,568. (No model.)



Claim.—1. In a printing-press, the combination with printing and impression cylinders and gearing for revolving the cylinders, of a plurality of pairs of studs mounted on the machine-frame, and removable spur-gears adapted to be placed on one stud or the other of each pair of studs to change the direction of rotation of the cylinders.

2. The combination in a printing-press, comprising printing and impression cylinders, and gearing for revolving the cylinders, of a device for effecting a change in the direction of motion of the cylinders, the device comprising a plurality of pairs of studs projecting from the frame of the press, spur-gears adapted to be removably secured on either one of each pair of studs, the spur-gears intermeshing with the gears on one or the other of the cylinders, and effecting the desired change in the rotation of the cylinders.

3. The combination in a printing-press, comprising printing and impression cylinders, and gearing for revolving the cylinders, of a device for effecting a change in the direction of motion of the cylinders, the device comprising a plurality of pairs of studs projecting from the frame of the press, a pair of spur-gears adapted to be removably secured on a single one of each pair of studs, the studs being spaced apart so that when the spur-gears are on a single one of each pair of studs they will mesh with the gear-wheel on one of the cylinders and when the spur-gears are on the other one of each pair of studs, they will engage the teeth of the gear-wheel on the other of said cylinders.

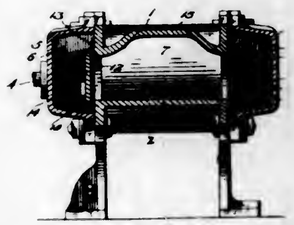
4. The combination with a printing-press, for printing on one or both sides of a web, or for printing on a plurality of webs at the same time, or for printing one or more colors on the same web, printing and impression cylinders, and gearing for actuating the cylinders, of two pairs of studs arranged in the path of the gearing, each pair of studs arranged to removably receive a spur-gear, the spur-gear adapted to engage the teeth of the gear on one cylinder when on one stud and when on the other stud adapted to mesh with the gear on the other cylinder whereby to reverse the direction of rotation of the cylinders and thereby permit the printing of a plurality of colors on one web without running the web through the press more than once, and means for feeding the web through the couples.

5. In a printing-press, the combination with impression and printing cylinders and gearing on the rollers whereby they may be revolved, of a power-shaft for communicating motion to the cylinders, a plurality of pairs of studs on the frame of the press, spur-gears removably received upon either one or the other stud composing each pair, and transmitting the power from the power-shaft to the cylinders, the spur-gears engaging the gear-wheels on the impression-cylinders when on one stud, to drive them forward, and meshing with the teeth of the gearing on the printing-cylinders when on the other stud, whereby the direction of rotation of the cylinders is reversed.

6. In a printing-press, the combination with a plurality of printing and impression cylinders, gearing for revolving them and a power-shaft, of a plurality of pairs of studs arranged in the path of the gearing, and spur-gears removably mounted upon one or the other of the studs of each pair to engage one or the other of the gears on the cylinders whereby the direction of rotation of the cylinders may be reversed, to permit the printing of a plurality of colors on the same side of a web without running the web through the press more than once, and means for leading the web through the couples.

7. The herein-described device for changing the direction of motion of the cylinder in a printing-press comprising a plurality of pairs of studs projecting from the frame of the press, spur-gears removably secured upon one or the other of the members of each pair of studs, the studs being spaced apart so as to bring the studs into mesh with gearing on one or the other of the printing and impression cylinders, whereby the direction of motion of the cylinders may be reversed by placing the studs on one or the other member of each pair of studs, and means for feeding the web through the couples.

679,454. PUMP. GEORGE F. COSNER, Port Huron, Mich. Filed Apr. 1, 1901. Serial No. 53,912. (No model.)

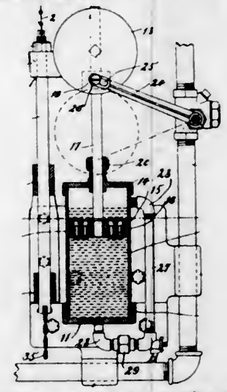


Claim.—1. In a double-acting pump, the combination of a casing having a cylinder arranged longitudinally and centrally therein, inlet and discharge passages on opposite sides of and extending parallel with said cylinder, air-chambers formed intermediate the ends of said passages by enlargements of the walls of the passages, the air-chambers being thus formed on the interior of the casing, and inlet and discharge pipes communicating with the passages, substantially as described.

2. In a double-acting pump, the combination of a horizontal casing having a cylinder centrally disposed therein, inlet and discharge passages on opposite sides of and extending parallel with and of the same length as said cylinder, suction and discharge pipes upon opposite sides of the casing and in communication, respectively, with said inlet and outlet passages, the walls of said inlet and outlet passages being enlarged intermediate their ends to form air-chambers independent of said pipes and located upon the interior of the casing, and the said suction and discharge pipes connecting with the casing below said enlargements, valve-chambers at the ends of the casing, and valves controlling the flow of water to and from the inlet and discharge passages and valve-chambers and mounted to hang perpendicularly, the valve seats being arranged substantially at right angles to the bore of the cylinder, substantially as described.

3. In a double-acting pump, the combination of a horizontal body or casing provided with a central horizontal cylinder, inlet and discharge passages on opposite sides of, and extending parallel with, and of the same length as, said cylinder, the walls of said passages being enlarged intermediate their ends to form air-chambers which are thus located wholly upon the interior of the casing and formed by the walls thereof, removable heads closing the ends of the cylinder and passages and forming valve-chambers, the outer faces of the end walls of the cylinder and inlet-passage and the inner faces of the end walls of the cylinder and heads at the ends of the outlet-passage being planed off to true vertical surfaces forming valve-seats, suction and discharge pipes mounted upon the sides of the cylinder and in communication, respectively, with the said inlet and discharge passages at a point below the air-chamber enlargements thereof, inlet-valves hung perpendicularly in the valve-chambers and opening outwardly into said chambers and adapted to seat against the said outer faces of the end walls of the cylinder and inlet-passage to control the flow of water from the inlet-passage to the valve-chambers, outlet-valves mounted to hang perpendicularly in the outlet-passage and adapted to seat against the said inner faces of the heads of the casing and end walls of the cylinder and to swing inwardly to control the flow of water from the valve-chambers to the suction-pipe, each valve consisting of a metallic backing and a flexible disk secured thereto and having a hinged connection with the cylinder-heads, a piston in said cylinder, and means for operating the piston, substantially as described.

679,455. AUTOMATIC REGULATOR FOR SMOKE-PREVENTING DEVICES. WILLIAM J. CREELMAN, Rochester, N. Y., assignor to the General Manufacturing Company, same place. Filed Apr. 24, 1901. Serial No. 57,170. (No model.)



Claim.—1. In an automatic smoke-preventing attachment for furnaces, &c., in combination, a steam-pipe terminating in jets situated to discharge in proximity to the fire-space, a valve in said pipe, a dash-pot, a weight carried by the piston-rod thereof, a lever attached to said weight and controlling said valve, a guide-rod rigidly attached to said weight and limited to a right-line motion parallel with said piston-rod, and connections between said guide-rod and the fire-door of the furnace whereby movement of said door actuates the guide-rod.

2. In a valve-controller for a smoke-preventing device, the combination, substantially as set forth, of a steam-supply valve, a dash-pot having a weighted piston-rod, an actuating-lever for such steam-supply valve connected directly with said piston-rod, a guide-rod attached to the piston-rod, and bearings for said guide-rod attached to the fire-front of the furnace whereby a right-line movement of said guide-rod and piston-rod is secured, and connections whereby upon the opening of the fire-door of the furnace the piston-rod is raised.

3. In an automatic regulator for a smoke-preventing device, in combination, a steam-supply pipe, a valve in said pipe, a lever for opening and closing said valve, a dash-pot having a weighted piston-rod to which said lever is connected, a guide-rod connected with said piston-rod and held by fixed bearings to a right-line movement, connections from one end of said guide-rod to the fire-door whereby said rod is actuated by the movement of said fire-door, a supplementary draft-door in the fire-door of the furnace, and connections from the other end of said guide-rod to said supplementary door whereby the supplementary door is opened as the guide-rod is moved, substantially as described.

4. In combination, a cylinder, a piston-head carrying a one-way valve, a piston-rod, a cap upon the cylinder surrounding said piston-rod, an adjustable weight at the end of said piston-rod having a recess in its lower part to fit around said cap, a guide-rod moving with said piston-rod and passing through fixed bearings whereby a right-line motion of parts is secured.

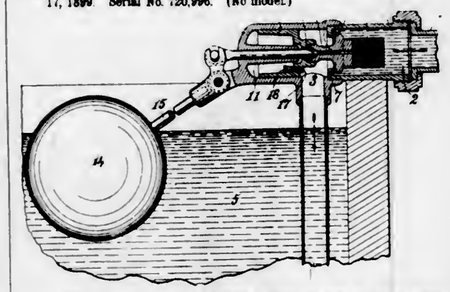
5. In an automatic regulator for a smoke-preventing device, the combination, of a steam-supply pipe, a steam-supply valve in a vertical section of said pipe, a dash-pot device adjacent to said vertical section of pipe comprising a cylinder, a piston-head having a one-way valve, a by-pass and a weighted piston-rod moving parallel to the said vertical steam-pipe, a lever connected at one end to open and close the steam-supply valve and connected at its other end directly to the piston-rod; and a supplementary rod having a rigid connection with said piston-rod and held to a vertical movement whereby the movement of said piston-rod is steadied and the free movement of all the connecting parts is obtained.

6. In a device of the character described, a plate adapted to be attached to the fire-front of a furnace, said plate carrying a vertical sleeve or bearing, a horizontal sleeve or bearing, and a disk-shaped support adapted to serve as the head of a dash-pot cylinder.

7. In a device of the character described, an integral plate adapted to be attached to the fire-front of a furnace, said plate comprising a side offset vertical sleeve or bearing, a lower offset horizontal sleeve or bearing, and an outwardly-projecting, substantially disk-shaped part, upwardly flanged to serve as the lower head of a dash-pot cylinder, substantially as and for the purposes set forth.

8. In a device of the character described, a plate adapted to be attached to the fire-front of a furnace, said plate carrying a bearing or bearings for supporting and guiding the steam-supply pipes, and a disk-shaped support adapted to serve as the head of a dash-pot cylinder, substantially as and for the purposes set forth.

679,456. VALVE. NELSON CURTIS, Boston, Mass. Filed June 17, 1899. Serial No. 720,996. (No model.)



Claim.—1. In a valve, an inclosing casing, an inlet and outlet thereto, a main valve controlling communication between said inlet and outlet normally held upon its seat by the inlet-pressure and moving with the flow of the fluid through said valve when closing, a chamber, a piston in said chamber in equilibrium when the valve is at rest, a passage forming communication between said inlet and said chamber to convey the inlet-pressure to said chamber and thereby cause said piston to act in opposition to the inlet-pressure on said valve to open the valve, a secondary valve seated against the inlet-pressure in said passage and controlling said passage, a float controlling said secondary valve, whereby the main and secondary valves move in opposite directions when the secondary valve is operated to cause the main valve to open and whereby both valves are moved in the same direction, after the secondary valve has been operated to cause the main valve to be closed, by the action of the inlet-pressure, thus insuring a positive, rapid and complete movement of the main valve in both directions, for the purpose set forth.

2. In a valve, in combination with a casing having an inlet-passage and a restricted outlet-passage, a piston-valve arranged to be subjected at one side to a high pressure and to a low pressure, and on the other side to a pressure intermediate between the high pressure and the low pressure, a passage leading from the high-pressure chamber to the intermediate-pressure chamber, and a passage leading from the intermediate-pressure chamber to the low-pressure chamber, whereby the valve will be balanced while open, and means for automatically closing the passage leading from the high-pressure chamber to the intermediate-pressure chamber so as to close the valve, for the purpose set forth.

3. A valve-casing having inlet and outlet passages, a main valve controlling communication between said passages, a piston controlling said valve, a passage to supply inlet-pressure from said inlet-passage to said piston to cause the main valve to open, a secondary valve controlling said latter passage, the piston during its movement in opening the main valve gradually contracting said outlet-passage of the casing to retain a gradually-increasing amount of pressure between the outlet from the casing

and the piston to act upon the piston in opposition to the inlet-pressure thereon, in order to gradually balance said valve and the piston acting on said valve, while the secondary valve is open, and a contracted exhaust-port to relieve the inlet-pressure from acting on said piston in order to allow the main valve to close when the secondary valve is closed, for the purpose set forth.

679,457. CLASP FOR GARMENT-SUPPORTERS. MARSHALL B. GARDNER, Aurora, Ill., assignor to Simon Florsheim and Norman S. Florsheim, Chicago, Ill., (copartners under name of the Chicago Corset Company.) Filed July 28, 1900. Serial No. 25,075. (No model.)



Claim.—1. A clasp for supporting garments, comprising a pair of jaws having parallel connecting-arms joined at one end by a spring integral therewith, a cam pivoted to the inner face of one of said arms, a lug projecting from the other arm for engagement with said cam, and a cam-operating lever having interlocking engagement with said arms.

2. A clasp for supporting garments, comprising a pair of jaws having parallel connecting-arms joined at the end by a spring integral therewith, a cam pivoted to the inner face of one of said arms, a lug projecting from the other arm for engagement with said cam, and a cam-operating lever having interlocking engagement between the side margins of said arms, said lever being curved between its outer end and the cam to project beyond the side margins of said arms when interlocked.

679,458. TUBULAR BELL FOR CHIMING CLOCKS. ALLEN W. HARRINGTON, New York, N. Y., assignor to Harris & Harrington, same place. Filed Jan. 24, 1901. Serial No. 44,509. (No model.)



Claim.—1. In a musical sounding apparatus of the class described, a tube adapted to be struck by a hammer and thereby caused to vibrate to produce a musical sound of a certain pitch, and having an extension from its annular end of gradually-reduced diameter, and lateral suspending apertures below and adjacent said end.

2. A tubular bell having an extension from its annular end of gradually-reduced diameter, and an aperture in the apex of said end.

3. A tubular bell having an extension from its annular end of gradually-reduced diameter, an aperture in the apex of said end, and lateral alining apertures below and adjacent the said end.

4. A tubular bell having an extension from its annular end, integral therewith, and of gradually-reduced diameter, and lateral suspending apertures below and adjacent the initial point of reduction of said end.

5. A tubular bell having an extension therefrom of gradually-reduced diameter, and provided with an aperture in its center.

6. A tubular bell having an integral extension therefrom of gradually-reduced diameter and provided with an aperture in its center.

7. A tubular bell having a hemispherical end, and lateral apertures below said end.

8. A tubular bell provided with an apertured hemispherical end, and lateral alining apertures adjacent to and below said end.

9. A tubular bell having an integral and apertured hemispherical end.

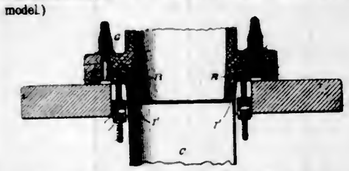
10. A bell for chiming clocks, comprising a continuously-cylindrical tube of greater length than width, in which the metal of the tube at one end is formed into a projection of gradually-reduced diameter and laterally-alined apertures in the tube adjacent and below said reduced end.

11. A bell for chiming clocks, comprising a continuously-cylindrical tube of greater length than width, in which the metal of the tube at one end is formed into a projection of gradually-reduced diameter, said projection having an aperture at its extreme point.

12. A tubular bell having an end spun into a hemisphere and having an aperture in the extreme end of the hemispherical extension.

13. A tubular bell having an end spun into a hemisphere having an aperture in the extreme end of the hemispherical extension, and lateral alining apertures below and adjacent to said end.

679,459. WATER-CLOSET. ROWLAND C. JOHNSON and JAMES B. MARTIN, Brooklyn, N. Y. Filed Nov. 23, 1900. Serial No. 37,423. (No model.)



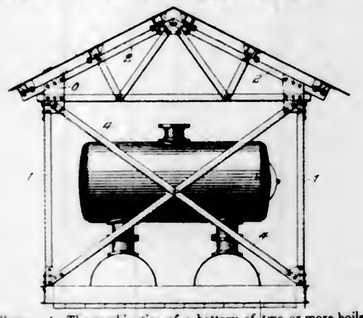
Claim.—1. The combination, with the bowl of a closet, of a ring, clamps which engage with the ring and with the support for it, a gasket made essentially of asbestos and having a horizontal and a vertical position, a dry lubricant, such as plumbago, on the surface of the gasket, and bolts extending between said ring and the base of the closet, for the purposes set forth.

2. The combination, with the bowl of a closet, of a ring, clamps which engage with the ring and with the support for it, a gasket made essentially of asbestos and having a horizontal and a vertical portion, the horizontal portion being thicker than the vertical portion, a dry lubricant such as plumbago on the surface of the gasket, and bolts extending between the ring and the base of the closet, for the purposes set forth.

3. A clamp for the purposes stated, embodying a threaded spindle, a nut for the spindle, and a clamping-bar having a recess adapted to receive the nut in such manner as that the clamping-bar and threaded spindle may lie parallel with each other, substantially as described.

4. The combination of a gasket made essentially of asbestos, the surface of which is covered with a dry lubricant such as plumbago, a ring over which the edge of the sewer-pipe is bent, means to clamp the bowl upon the ring, and means to clamp the ring to the slab or flooring upon which it rests, for the purposes set forth.

679,460. ROOF FOR BOILERS. WALTER KENNEDY, Allegheny, Pa. Filed Nov. 14, 1900. Serial No. 36,496. (No model.)

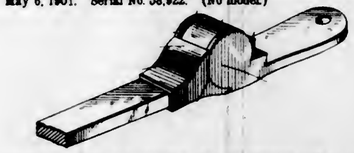


Claim.—1. The combination of a battery of two or more boilers, a roof formed of two or more sections covering said battery, one of said roof-sections rigidly secured to one of the boilers or casing thereof and forming an anchor-section and the other section or sections being loosely connected to the other boiler or boilers or casings thereof, and loosely connected to the anchor-section, substantially as set forth.

2. The combination of a battery of two or more boilers, posts rigidly connected to one of the boilers or casing thereof, a roof supported by and secured to said posts, posts loosely connected to the other boiler or boilers or casings thereof, roofs supported by and loosely connected to said posts and loosely connected to the anchor-section, substantially as set forth.

3. The combination of one or more boilers, roof-sections loosely supported on said boiler or boilers or the casings thereof, and an anchor for holding said section or sections over the boiler, or boilers, substantially as set forth.

679,461. THILL-COUPLING. WILL J. KENNEDY, Erie, Pa. Filed May 6, 1901. Serial No. 58,922. (No model.)

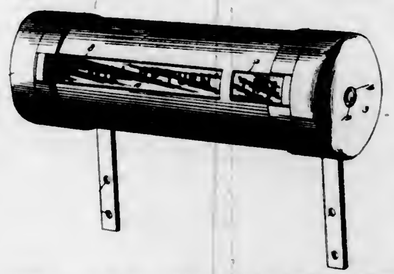


Claim.—1. In a thill-coupling, the combination with a coupling-head provided with cheek-pieces and an interposed segmental wall formed with a T-slot, of a thill-iron provided with a circular head to fit between said cheek-pieces and provided with a T-head to engage said T-slot and with an enlargement formed with an underlying lip spaced from the circular head and designed to engage the lower side of the segmental wall, substantially as set forth.

2. In a thill-coupling, the combination with a coupling-head provided with cheek-pieces and a segmental wall formed with a T-slot, of a thill-iron provided with a circular head to fit between said cheek-pieces and segmental wall and formed with a forwardly-projecting T-head to engage the T-slot, said cheek-pieces being provided on their inner faces with studs and said curved head being provided at its ends with recesses intersected by horizontally-disposed slots, substantially as set forth.

3. In a thill-coupling, the combination with a coupling-head provided with cheek-pieces and an interposed segmental wall formed with a T-slot, of a thill-iron provided with a circular head to fit between said cheek-pieces and provided with a T-head to engage said T-slot and with an enlargement formed with an underlying lip spaced from the circular head and designed to engage the lower side of the segmental wall, said cheek-pieces being provided on their inner faces with studs and said curved head being provided at its ends with recesses intersected by horizontally-disposed slots, substantially as set forth.

679,462. OFFICE-INDICATOR. LEANDER KENNEDY and HENRY A. BURKHART, Fitzgerald, Ga. Filed Feb. 11, 1901. Serial No. 46,880. (No model.)

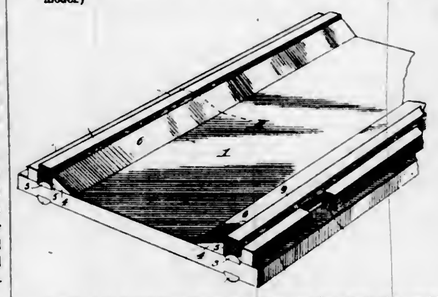


Claim.—1. An indicator comprising a casing, having an open end, an axial spindle carried by the closed end of the casing, a removable cover for the open end of the casing and provided with an opening in line with the adjacent free end of the spindle, a rotatable indicating device mounted upon the spindle, and having its outer end provided with a tubular boss embracing the spindle and projected into the opening in the removable cover, whereby a brace is formed for the free end of the spindle, and a normally-detached operating-key constructed for insertion through the openings in the cover and for engagement with the outer end of the tubular boss for rotation of the indicating device in opposite directions.

2. A device of the class described, comprising a casing having a longitudinal slot and an opening in one end thereof, a pair of rotatable indicators mounted within the casing and in axial alinement with the opening in the end of the casing, and provided with means for interlocking the same for simultaneous rotation in one direction and permitting of an independent opposite rotation of the indicator which is next to the terminal opening of the casing, the outer end of the latter indicator having one or more key-notches formed therein and exposed by the opening in the casing, and a removable key constructed for insertion through the opening, and having one or more projections to register with the key-notches of the indicator.

3. In a device of the class described, the combination with a cylindrical casing, having a longitudinal slot, and a removable terminal cap provided with a central opening, of an axial spindle fixedly projected from the closed end of the casing and having its opposite free end within or adjacent to the opening in the cap, an inner information-drum rotatably mounted upon the spindle and inserted through the open end of the casing, an outer time-drum also rotatably mounted upon the spindle, one of the adjacent end faces of the drums having a spacing-collar to separate the two drums, corresponding overlapped projections carried by the adjacent ends of the drums, and constructed for mutual engagement to interlock the drums for simultaneous rotation in one direction, and permitting of the opposite independent rotation of the outer time-drum, the outer end of the latter having a tubular boss surrounding the spindle and provided with notches in its outer end, and a removable rotatable key for insertion through the opening in the casing, and having an axial bore for the reception of the outer end of the spindle, and projections to enter the notches of the tubular boss.

679,463. SUGAR-REFINING APPARATUS. WILLIAM R. LONG, St. Louis, Mo., assignor, by mesne assignments, to St. Louis Trust Company, of Missouri. Filed Nov. 12, 1900. Serial No. 36,163. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a frame having open ends and clamping sides, a coöperating clamping-plate and an envelop to contain a product to be treated under pressure to expel moisture therefrom, having its ends folded over the product to form closed ends and open sides, means carried by said plate and means on the clamping sides of said frame coöperating to yieldingly clamp the open sides of the envelop, substantially as described.

2. In an apparatus of the character described, the combination of a series of frames arranged to receive envelops containing a product to be treated under pressure to expel moisture therefrom, pliable strips carried by said frames, adapted to receive the edges of said envelops under pressure exerted from the opposing frame, and beads on the face of the plate opposed to the pliable strips and adapted to confine the product in the envelop by embedding the open sides of the envelop in the pliable strips, substantially as described.

3. In an apparatus of the character described, the combination of a series of frame-plates arranged to receive envelops containing a product to be treated under pressure to expel moisture therefrom, members positioned on the upper sides of said plates parallel with each other, pliable strips positioned between said members, and rounded members located at the lower sides of said plates adapted to confine said envelops by clamping them at their edges between said rounded members and pliable strips, substantially as described.

4. An apparatus for subjecting material to pressure consisting of an envelop inclosing the material to be pressed, and means clamping the oppositely-disposed edges of the envelop while leaving the ends unobstructed.

5. An apparatus for subjecting material to pressure consisting of an envelop folded at the ends to inclose the material, and means clamping the edges of the envelop and leaving the folded ends unobstructed, whereby when pressure is applied the expressed material escapes through the folded ends of the envelop.

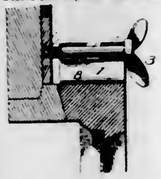
6. An apparatus for subjecting material to pressure consisting of a

series of superimposed plates having clamping members on their upper and lower sides near the lateral edges and envelops interposed between said plates having folded ends and open edges, which edges are clamped between the clamping members on the plates.

7. An apparatus for subjecting material to pressure consisting of a frame having inclined sides and open ends, a superimposed plate or frame and an envelop folded over at the ends and inclosing the material to be pressed, and clamped at the edges between the inclined sides of the frame and the superimposed plate or frame.

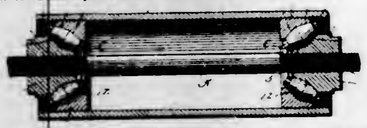
8. An apparatus for subjecting material to pressure consisting of a series of superimposed plates having unobstructed ends and provided with clamping means along the edges thereof upon both the upper and lower sides, and envelops interposed and clamped between the several plates.

679,464. SASH-LOCK. HENRY L. LOOMIS, Bloomington, Ill. Filed May 7, 1900. Serial No. 15,801. (No model.)



Claim.—In a sash-lock comprising a metal strip provided in its length with a series of threaded openings, and a rotary lock-bolt pointed at one end to readily enter any one of the threaded openings of the strip and threaded for a short distance from the point to make positive connection with the selected opening and having a thumb-piece at its outer end, a frame constructed of a single blank of sheet metal having a rectangular opening intermediate of its ends and edges and folded upon itself in line with the said opening to provide a sleeve to receive the aforesaid lock-bolt and having the folded portions brought together adjacent the sleeve and thence curved outwardly in opposite directions, and having the base portions apertured to receive fastenings, the said opening completely intercepting the end portions of the sleeve and forming a cut-away portion, and a pin applied to the lock-bolt and projecting into the said cut-away part of the sleeve and adapted to hold the lock-bolt in place and limit its movements, substantially as specified.

679,465. ROLLER-BEARING. ALEXANDER P. MORROW, Elmira, N. Y. Filed Sept. 19, 1900. Serial No. 30,492. (No model.)



Claim.—1. In a roller-bearing, an outer ring having double conical surfaces, an inner ring or cone having double conical surfaces, a retaining-ring, and rollers in the retaining-ring having reversely-arranged conical bearing-surfaces to run on the double conical surfaces of the outer ring, substantially as described.

2. In a roller-bearing, the combination with an axle, a double conical ring on the axle, a hub, and a double cone ring on said hub, of rollers arranged between the said rings and formed with double conical surfaces, substantially as described.

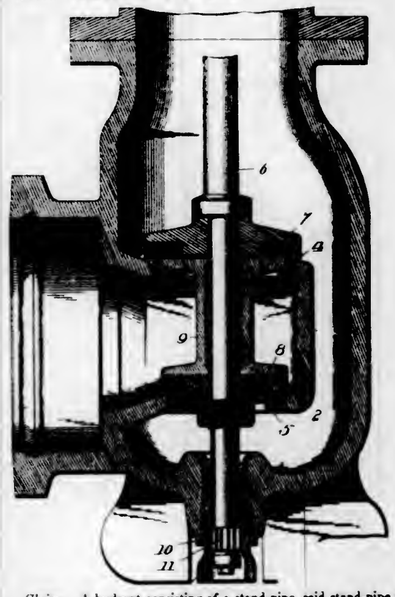
3. In a roller-bearing, the combination of an axle, provided with a cone sleeve, a retaining-ring fitted to said cone sleeve, rollers formed with reversely-arranged double conical bearing-surfaces and journaled in the retaining-ring, a hub, a cone ring adjustable within the hub and formed with double conical bearing-surfaces engaged by the double conical rollers, substantially as described.

4. In a roller-bearing, the combination of a shaft or axle formed with exterior screw-threads, a cone sleeve adjustable on the shaft, a retaining-ring on the shaft and cone sleeve, rollers journaled in the retaining-ring and formed with reversely-disposed conical bearing-surfaces, a cone ring having coincident conical bearing-surfaces engaged by the double cone rollers, and a hub within which the cone ring is adjustably secured, substantially as described.

5. In a roller-bearing, the inner cone having double conical bearing-surfaces, a retaining-ring formed with end flanges having bearings formed therein and a conical body between the flanges, a ring secured to the hub having double conical bearing-surfaces, and rollers journaled in the said retaining-ring, substantially as described.

6. In a roller-bearing, the combination of a shaft, cones or sleeves on the shaft having conical inner faces, retaining-rings on the said cones or sleeves formed with flanges at their ends and bearings on the flanges, rollers journaled in the flange-bearings and formed with double reversely-disposed conical bearing-surfaces, a hub, and cone rings in the hub having double conical bearing-surfaces coincident with the surfaces of the double cone rollers, substantially as described.

679,466. HYDRANT. JOHN MCKENZIE, Troy, N. Y. Filed May 6, 1901. Serial No. 59,004. (No model.)



Claim.—A hydrant consisting of a stand-pipe, said stand-pipe having in its interior a box provided in its top and bottom with inlet-ports, said hydrant having in its bottom a cylinder, said cylinder being flared at its lower end, a valve-stem passing through the inlet-ports of the box and cylinder, valves located on said stem and adapted to close the inlet-ports of the box, a valve located at the lower end of said stem and adapted to pass perpendicularly within the cylinder and close the same, a corrugated annular guide located on the lower end of the stem and being housed within the cylinder, the lower valve adapted to close the cylinder when the valves of the box-ports are opened and adapted to pass into the flared lower end of the cylinder and open the same when the valves of the box-ports are closed.

679,467. PHONOGRAPH REPRODUCER AND RECORDER. CHARLES W. NOYES, Cincinnati, Ohio, assignor of one-half to Ilsen & Company, same place. Filed Mar. 21, 1901. Serial No. 52,126. (No model.)



Claim.—1. In a phonograph reproducer or recorder, the combination of a stylus-lever, a fulcrum, and means for adjusting and fixing the leverage of the stylus, whereby the varying tones of different diaphragms may be compensated for, substantially as specified.

2. In a phonograph reproducer or recorder, a fulcrum, a stylus-lever, provided with a slot admitting of different relative positions of the fulcrum and stylus, and means for adjusting and fixing said fulcrum and stylus in different relative positions, substantially as specified.

3. In a phonograph reproducer or recorder, a fulcrum, a stylus-lever provided with a slotted bearing for the fulcrum, and adjusting means attached to the free end of the stylus adapted to hold the stylus to its position of adjustment, but permitting free pivotal movement in the direction of the diaphragm, substantially as specified.

4. In a phonograph reproducer or recorder, a fulcrum, a stylus-lever provided with a slotted bearing for the fulcrum, and adjusting means attached to the free end of the stylus adapted to hold the stylus to its position of adjustment, but permitting free pivotal movement in the direction of the diaphragm, substantially as specified.

5. In a phonograph reproducer or recorder, a fulcrum, a stylus-lever provided with means for shifting the fulcrum position, flexible in the direction of the diaphragm and substantially rigid in the direction of adjustment, substantially as specified.

6. In a phonograph reproducer or recorder, a fulcrum, a stylus-lever, and means for shifting the fulcrum position of the stylus-lever, said means being flexible in the direction of the diaphragm, substantially as specified.

679,468. CRUTCH. PHILIP W. PRATT, Boston, Mass. Filed Nov. 19, 1900. Serial No. 36,922. (No model.)



Claim.—1. A crutch comprising a body portion having a rigid annular seat at its lower end portion, a foot below said seat, hinge members connected respectively with the foot and with the body, and permitting a tipping motion of the foot, and an elastic tread bearing on the foot and movable therewith, said tread having an upwardly-projecting resilient flange or sleeve surrounding the foot and engaged at its upper end with said annular seat, whereby the tread and foot are yieldingly maintained in their normal position, the flange also serving to exclude dust, &c., from the hinge members.

2. A crutch comprising a body portion having a rigid annular seat at its lower portion, a foot below said seat, hinge members connected respectively with the foot and with the body, and permitting a tipping motion of the foot, and an elastic tread bearing on the foot and movable therewith, said tread having an upwardly-projecting resilient flange or sleeve surrounding the foot and engaged at its upper end with said annular seat, whereby the tread and foot are yieldingly maintained in their normal position, the said seat being loose so that the body can be rotated independently of the foot.

3. A crutch comprising a body portion having a conical seat at its lower end and a socket hinge member above said seat, a stud having a ball hinge member engaged with said socket member, the stud projecting downwardly through the conical seat, a foot affixed to the lower end of the stud and an elastic tread affixed to the foot and having an upwardly-projecting resilient flange or sleeve having a conical upper portion which bears upon the conical seat.

4. A crutch comprising a body portion having a conical seat at its lower end and a socket hinge member above said seat, a stud having a ball hinge member engaged with said socket member, the stud projecting downwardly through the conical seat, a foot affixed to the lower end of the stud and an elastic tread affixed to the foot and having an upwardly-projecting resilient flange or sleeve having a conical upper portion which bears upon the conical seat, the seat being loose so that the body portion can be rotated independently of the foot-tread and flange.

5. A crutch-tip comprising a ferrule adapted to receive a crutch stick or body, and provided internally with a shoulder near its lower end, and with an abutment above said shoulder, the shoulder and abutment constituting a socket member, a ball member contained in said socket and having a stem projecting below the ferrule, a foot secured to the lower end of said stem, and an elastic tread secured to the foot and having an upwardly-projecting resilient flange or sleeve which is seated on the lower portion of the ferrule.

679,469. MACHINE FOR MAKING TUBING. THOMAS J. PRICE, Danville, Pa. Filed May 15, 1901. Serial No. 60,261. (No model.)



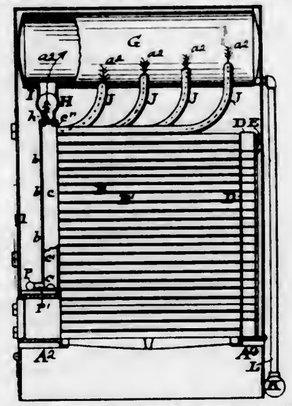
Claim.—1. In a machine for rolling tubes, a forming-die consisting of former and cover-plate, one member of which is divided transversely so as to form a separable end piece, in combination with means for securing this end piece to the rest of the member, said means being strong enough to unite the two against normal pressure, but weak enough to yield to undue pressure and allow the dislocation of the end piece, substantially as described.

2. In a machine for rolling tubes, a forming-die consisting of former and cover-plate, the latter of which is divided transversely by an oblique cut so as to form a separable end piece, in combination with means for securing this end piece to the rest of the member, said means being strong enough to unite the two against normal pressure, but weak enough to yield to undue pressure and allow the dislocation of the end piece, substantially as described.

3. In a machine for rolling tubes, a forming-die consisting of former and cover-plate, the latter of which is divided transversely by an oblique cut so as to form a separable end piece, in combination with a bolt passing through the cover-plate and end piece of sufficient strength to hold the two together under normal conditions and weak enough to yield and allow the dislocation of the end piece under the influence of undue pressure, substantially as described.

4. In a machine for rolling tubes, a forming-die consisting of former and cover-plate, the latter of which is divided transversely by an oblique cut so as to form a separable end piece, in combination with means for holding the rest of the cover-plate in position notwithstanding the detachment of its end piece, substantially as described.

679,470. WATER-TUBE BOILER. GEORGE S. WOLF, West Dover, Ohio, assignor of three-fourths to Nicholas J. Boylan, Cleveland, Ohio. Filed Jan. 15, 1901. Serial No. 43,436. (No model.)



Claim.—1. In a water-tube boiler the front headers C C' having two vertical chambers in communication at their bottom, and alternately swell-curved adjoining sides, alternately-arranged tube-seats in their rear walls, openings in their front walls and opposite to said tube and having removable plugs *b b* for closing said front openings, in combination with the tubes B B' and the cross-header H and steam-drum G, substantially as described.

2. In a water-tube boiler the headers C C' having two vertical chambers in communication at their bottom, the alternately swell-curved adjoining sides, the tubes B B' connected in alternate order with said header-chambers, the return-bend blocks D D connecting the rear ends of the tubes in like alternate order, the cross-header H connected to one of the chambers, respectively, with the headers C C', the tubes J J, attached to the second chambers in said headers C C', and the steam-dome G connected to the cross-header H and the said tubes J J, substantially as shown and described.

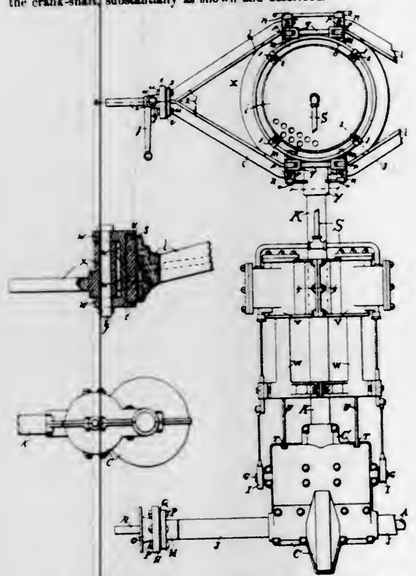
3. In combination with the return-bend blocks D D, provided with the supporting-lugs *d d'* and connected with the tubes B B', and having openings opposite to said tubes closed with removable plugs E E, of the insertible sleeves F, substantially as and for the purpose set forth.

679,471. MOTOR-VEHICLE CONSTRUCTION. JOHN F. BYERS, Ravenna, Ohio. Filed Nov. 5, 1900. Serial No. 35,436. (No model.)

Claim.—1. In a motor-vehicle running-gear frame, two tubular driving-shaft casings and a reach member, in combination with a gear-casing in two parts; said parts clamped to the shaft-casings and reach member by the fastenings that secure them together, substantially as set forth.

2. In a motor-vehicle, two tubular driving-shaft casings, a reach member connected to the steering end of a running-gear, and a gear-cas-

ing in two parts clamped to the shaft-casings and reach member by the fastenings that secure said casing parts together, in combination with a driving-shaft connected to operate driving-wheels and having bearings in said shaft-casings, a crank-shaft having bearings in said gear-casing and connected to operate the driving-shaft, and a motor connected to operate the crank-shaft, substantially as shown and described.



3. In a motor-vehicle, a gear-casing having driving-shaft-casing extensions, a boiler-frame connected to be supported by steering-wheel-spindle members, a reach member connecting the boiler-frame and gear-casing, and a boiler secured to said boiler-frame, in combination with a driving-shaft operatively connected to driving-wheels and having bearings in said casing extensions, and a steam-motor connected to operate the driving-shaft and having steam connection with said boiler, substantially as set forth.

4. In a motor-vehicle, a gear-casing having tubular driving-shaft-casing extensions, a boiler-frame, a reach member connecting the gear-casing and boiler-frame, a boiler supported by the boiler-frame, two axle members pivoted to said boiler-frame and each secured to a steering-wheel-spindle member, and two axle-member connectors pivoted to the axle members, in combination with a driving-shaft having bearings in said casing extensions and connected to operate driving-wheels, and a steam-motor connected to operate the driving-shaft and having steam connection with said boiler, substantially as shown and described.

5. In a steam-motor vehicle, a boiler-frame connected to be supported by steering-wheel-spindle members, in combination with a boiler encircled by and secured to the boiler-frame, and a reach member connecting the boiler-frame to the driving-shaft end of a running-gear frame, substantially as set forth.

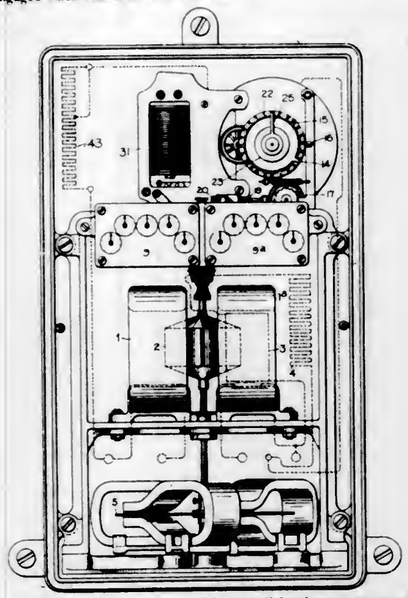
6. In a steam-motor vehicle, a boiler-frame and a boiler secured to said boiler-frame, in combination with two axle members pivoted to the boiler-frame and each secured to a steering-wheel-spindle member, two axle-member connectors pivoted to the axle members, and a reach member connecting the boiler-frame to the driving-shaft end of a running-gear frame, substantially as shown and described.

679,472. **MULTIRATE METER.** FRANK P. COX and CHARLES E. HOLMES, Lynn, Mass., assignors to the General Electric Company, of New York. Filed Dec. 4, 1899. Serial No. 739,066. (No model.)

Claim.—1. A multirate meter comprising two dial-trains, a meter-motor, means for periodically and alternately connecting a clutch with the several dial-trains, either dial-train being locked against rotation when disconnected from the clutch.

2. A multirate meter comprising two dial-trains, a meter-motor, a clutch for engaging either dial-train, a clock and setting devices for operating the clutch at determinate hours to alternately release and engage the several dial-trains, either dial-train being locked against rotation when disconnected from the clutch.

3. A multirate meter, comprising two counters, a meter-motor, sliding clutches on the driving-shaft of the counters having a normal bias toward an element driven by the meter-motor, and a periodically-driven shifting device engaging either clutch when disengaged from the motor, but disengaged when connected with the motor.



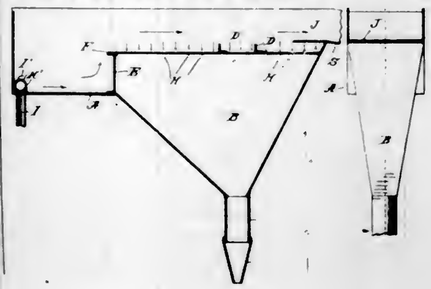
4. A multirate meter comprising two dial-trains, a meter-motor operated at a speed varying with current consumed, spring-actuated clutch-shoes on the dial-trains impelled toward engaging relation to the motor, and a rocking lever operated periodically by a clock to alternately release the clutch-shoes.

5. A multirate meter comprising two dial-trains, a meter-motor operated at a speed varying with current consumed, spring-actuated clutch-shoes on the dial-train impelled toward engaging relation to the motor, and a rocking lever operated periodically by a clock to alternately release the clutch-shoes.

6. A multirate meter comprising a plurality of dial-trains, a sliding spring-retracted clutch-shoe on a shaft of each train, a meter-motor geared to the several dial-trains when the clutch is released, and a clock-operated lever for operating the clutches, said lever being disconnected from the dial-trains when in clutch but adapted to arrest their movement when out of clutch.

7. A multirate meter comprising a plurality of dial-trains, a sliding spring-retracted clutch-shoe on a shaft of each train in driving relation thereto, said shoe having a gripping-face, a loose gear on each train continuously connected to the meter-motor, and means for shifting the clutches to engage the loose gear at determinate hours.

679,473. **GRAPHITE-SEPARATOR.** JOHN H. DAVIS, Glens Falls, N. Y., assignor to United States Graphite Company, same place. Filed Sept. 14, 1900. Serial No. 30,037. (No model.)



Claim.—1. A water graphite-separator of trough-like construction provided with means at one end and near the bottom of the trough for admitting water thereto, and means at the other end for conveying away a portion of the water and the graphite floating thereon; in combination with tailings-conveying pipe or pipes located beneath the trough-like structure and intermediate the ends thereof together with a horizontally-disposed perforated partition located above the tailings-conveying means, the arrangement being such that the entire supply of water is admitted at one end of the machine, while one portion passes out at the other end thereof carrying with it the separated graphite, the remaining portion of the water passing downward and carrying with it the tailings, substantially as described.

2. A water graphite-separator of trough-like construction provided with means located at the bottom and near one end thereof for admitting the water thereto; a graphite-conveying spout located at the other end for conveying away the separated graphite; tailings-conveying means located beneath and intermediate the ends of the machine for conveying away the tailings and the remaining portion of the water; together with a horizontally-disposed perforated partition and crosswise riffles sustained thereby for preventing, in so far as possible, any disturbing suction effect upon the floating graphite as the water passes through the machine, substantially as described.

3. A water graphite-separator of trough-like construction provided with means near the bottom of the trough for admitting water to the interior thereof; a conveying-spout for carrying a portion of the water and the graphite floating thereon in one direction and one or more tailings-conveying pipes for conveying another portion of the water and the tailings in a different direction by the action of gravity; in combination with a horizontally-disposed perforated partition located above the tailings-conveying means, substantially as described.

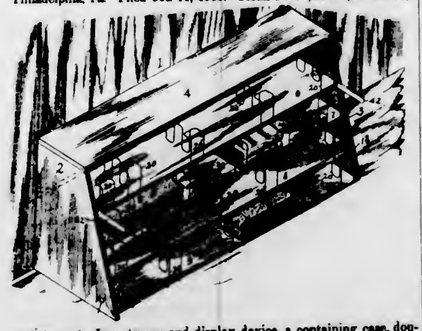
4. A water graphite-separator of trough-like construction provided with means near the bottom of the trough for distributing the inflowing water to the machine; in combination with means for conveying the water and the graphite on the surface thereof in one direction and additional means for conveying the tailings in a different direction by the action of gravity and a part of the water; together with a horizontally-disposed perforated partition located above the tailings-conveying means, substantially as described.

5. A water graphite-separator provided with an inlet-pipe and a perforated cylinder for effecting the gentle admission of the water into the machine; a horizontally-disposed perforated plate having riffles secured to its upper surface; in combination with inward extensions for preventing disturbing currents or eddies; a graphite-conveying spout for conveying the graphite in one direction and a waste-pipe for conveying the tailings in a different direction, substantially as described.

6. A graphite-separator of trough-like construction, having a depression at one end, means for admitting water to said depression, located at the bottom thereof, a screen on a higher level and a discharge-spout on a still higher level, forming a stepped construction; said separator being provided with a tailings-discharge outlet beneath said screen, substantially as described.

7. A graphite-separator of trough-like construction divided into three levels, forming steps of increasing height from the inlet to the discharge, means for admitting water at the bottom of the lowest level, a screen covering the second level, said separator being contracted and provided with a discharge-pipe below said screen, and a discharge spout or chute for the separated graphite on the highest level, substantially as described.

679,474. **STORAGE AND DISPLAY DEVICE.** EARL J. EARLY, Philadelphia, Pa. Filed Oct. 11, 1900. Serial No. 32,694. (No model.)



Claim.—1. In a storage and display device, a containing case, double uprights within each end of the case, pivotal attachments for the outer uprights to the case, a plurality of shelves pivotally supported upon the double uprights for inward and outward swinging, and partitions on the shelves which limit the approach of the shelves toward each other at the time of said swinging movements.

2. In a device of the nature described, a case, a plurality of shelves, pivotally supported at each end upon parallel upright supports, one of said supports at each end being pivotally supported upon the case, lifting means connected to the outer supports and to the case, a projection upon the inner supports whereon the lifting means operates, and means to limit the approach of the shelves toward each other.

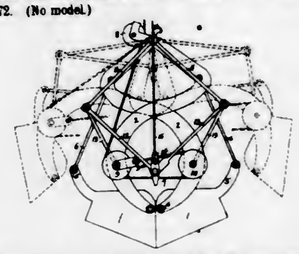
3. In a display device, a case, a pair of uprights within each end, one of each pair being pivotally supported on the case, a plurality of shelves pivotally supported thereon at their ends for the movement of the shelves parallel to each other, and for swinging in unison out of and into the case, means to limit said swinging, and means to limit the space between the shelves when swung.

4. In a display and storage receptacle, a case, uprights pivotally supported by the case, multiple shelves pivotally supported thereon at their ends and adapted for swinging, and adjustable partitions on the shelves, adapted to limit the approach of adjoining shelves, and form compartments thereon.

5. As a new article of manufacture, a shifting shelf-partition, comprising a looped part passing under an edge of the shelf, thereafter in double lines upward in front of and above the shelf, backwardly turned and united to a single line of vertical parallel courses united at their upper and lower parts by alternate bends, in which the lower bends touch the shelf-top, and the last course passing the opposite edge of the shelf and terminating in a loop underneath the shelf.

6. As a new article of manufacture, a shelf-compartment divider, having multiple vertical members reaching across the shelf in single alinement, the members being alternately joined at their top and bottom ends, the lower joining parts resting upon the top of the shelf and the back course extending by and below the shelf and having means to pass under and grip the shelf; the front course attached at its upper end to a member which is there parallel to the shelf edge, thereafter is outward turned in lines practically parallel to members reaching across the shelf, then downward turned by the shelf edge, passing thereunder and forming a means to grip the shelf.

679,475. **EXCAVATING APPARATUS.** FRANK K. HOOVER and ARTHUR J. MASON, Kansas City, Mo. Filed Jan. 8, 1901. Serial No. 42,472. (No model.)



Claim.—1. In an excavating apparatus, the combination with the trays, the principal lever-arms hinged together and pivotally connected with the trays, and the auxiliary arms pivotally connected with the trays and with said principal lever-arms, of means for closing the trays, the same consisting of a closing-cable connected with one of said principal lever-arms and passing around suitable guides on said lever-arms above the pivotal connections thereof with the trays and around a suitable guide located adjacent to the hinge of the principal lever-arms, substantially as set forth.

2. In an excavating apparatus, the combination with the trays and the principal lever-arms pivotally connected with the trays and with each other, of arms extending rearwardly from said trays, and auxiliary arms pivotally connected with said rearwardly-extending tray-arms and with the opposite principal lever-arms, respectively, substantially as set forth.

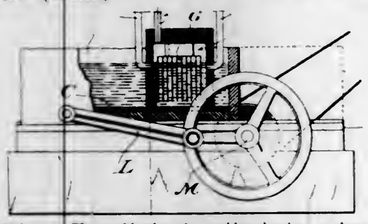
3. In an excavating apparatus, the combination with the trays, the hinged principal lever-arms pivotally connected with the trays, and the auxiliary arms pivotally connected with the trays and with said principal lever-arms and controlling the angle of inclination of the trays, of means for opening and dumping, the same consisting of oppositely-disposed pivotally-connected toggles, having one knee at the hinge of said principal lever-arms and arranged to effect the spread of the trays, a cable connected with the other knee, and arms pivotally connected with the ends of said toggle-arms and with said principal lever-arms above the pivotal point thereof upon the trays, substantially as set forth.

4. In an excavating apparatus of the character described, means for

opening the trays, the same consisting of oppositely-disposed pivotally-connected toggles, having one knee mounted upon the central shaft of the apparatus, a stirrup mounted at the other knee, and a cable connected with said stirrup and passing through an opening in said central shaft, substantially as and for the purpose set forth.

5. In an excavating apparatus, the combination with the trays, the principal lever-arms pivotally connected with the trays, the auxiliary arms pivotally connected with the trays and with said principal lever-arms, oppositely-disposed pivotally-connected toggles having one knee at the hinge of said principal lever-arms and arranged to effect the spread of the trays, a cable connected with the other knee, and arms pivotally connected with the ends of said toggle-arms and with said principal lever-arms above the pivotal point thereof upon the trays of sheaves mounted upon said principal lever-arms above the pivotal point thereof upon the trays, a sheave mounted adjacent the hinge of said principal lever-arms, and a closing and hoisting cable having its end connected with one of said principal lever-arms and passing around said sheaves, substantially as set forth.

679,476. **ELECTROLYZING AND WASHING APPARATUS.** JOHN F. KELLY, Pittsfield, Mass. Filed Sept. 14, 1900. Serial No. 30,056. (No model.)

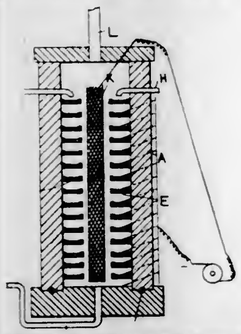


Claim.—1. The combination of a washing-chamber, an electrolyzing-chamber dividing said washing-chamber into two variable subchambers, a mercury cathode in said washing-chamber constituting a seal for said electrolyzing-chamber, and means for imparting to said washing-chamber and the body of said mercury a forcible reciprocating horizontal movement.

2. The combination of a washing-chamber, an electrolyzing-chamber within said washing-chamber, a mercury cathode in said washing-chamber constituting a seal for said electrolyzing-chamber, tracks supporting said washing-chamber and a crank and pitman for imparting to said washing-chamber a reciprocating movement upon said tracks and a forcible reciprocating movement to the body of said mercury.

3. The combination of a washing-chamber, an electrolyzing-chamber dividing said washing-chamber into two subchambers with means for permitting the washing fluid to pass around said electrolyzing-chamber, a mercury cathode in said washing-chamber constituting a seal for said electrolyzing-chamber, means for imparting to said washing-chamber and the body of the mercury a forcible reciprocating motion, and means for blocking the passage of the mercury around said electrolyzing-chamber.

679,477. **ELECTROLYTIC DECOMPOSING-CELL.** JOSIAH W. KYNASTON, Liverpool, England. Filed Feb. 1, 1899. Serial No. 704,079. (No model.)



Claim.—1. An electrolytic decomposing-cell comprising a series of superposed horizontal or substantially horizontal trays each provided with an opening in one end arranged to deliver by gravity directly into the next tray beneath it, with the said openings alternating with each other, said trays adapted to contain a continuous stream of mercury to serve as a cathode; and an upright anode.

2. An electrolytic decomposing-cell comprising a series of superposed horizontal or substantially horizontal trays provided each with a transverse partition near one end, dividing the same into two portions of different dimensions alternating with each other, the said trays being provided in the smaller portions with holes arranged to deliver directly by gravity in the next tray beneath, and the said trays adapted to contain a continuous stream of mercury to serve as a cathode; and an upright anode.

3. An electrolytic decomposing-cell comprising a series of superposed horizontal or substantially horizontal trays formed each with an opening and arranged relatively to deliver by gravity directly to the next tray beneath, the said trays adapted to contain a continuous stream of mercury to serve as a cathode; and an upright anode.

4. An electrolytic decomposing-cell consisting of a series of superposed horizontal or substantially horizontal trays each formed to deliver by gravity directly to the next tray and over which trays mercury flows and covers the bottom of the cell and serves as a cathode; a vertical anode; means for introducing the mercury onto the topmost tray; means for establishing electrical connection between the anode and cathode; means for introducing the electrolyte into the cell and withdrawing it from the same and for withdrawing the gas developed by the passage of the current, and means for withdrawing the resulting amalgam from the bottom of the cell.

679,478. **MENSTRUAL RECEPTACLE AND UTERINE SUPPORTER.** JACOB R. LAMB, Rockport, Ind. Filed May 11, 1901. Serial No. 59,765. (No model.)



Claim.—1. A menstrual receptacle and uterine supporter comprising the tapering curved receptacle formed with centrally-apertured uterus-supporting pessary at its inner, larger end, and provided with a removable liquid-tight cap at its lower end and having an air-duct extending from the inside of the upper portion of the receptacle, said duct having an exterior outlet at or near its lower, smaller end.

2. A self-sustaining menstrual receptacle and uterine supporter constructed of hard rubber and comprising the tapering curved receptacle formed with centrally-apertured uterus-supporting pessary at its inner, larger end and provided with a removable liquid-tight cap at its lower end and having an air-duct extending from the inside of the upper portion of the receptacle, said duct having an exterior outlet at or near its lower, smaller end.

679,479. **LINOTYPE-MACHINE.** CARL MUHLEISEN, Berlin, Germany, assignor to the Mergenthaler Linotype Co., of New York. Filed Dec. 28, 1900. Serial No. 41,384. (No model.)

Claim.—1. A matrix for a linotype-machine, having its upper end inclined or beveled from one edge toward the other, with distributing-teeth on the inclined portion, substantially as described.

2. A matrix for a linotype-machine, having on one side an unbroken vertical edge, at the opposite side a recess having the matrix proper therein, and on the top an inclined series of distributing-teeth, substantially as shown.

3. A linotype-matrix, having its edge recessed and provided with a character or matrix proper, and also provided with two alining-shoulders c' and c^2, one presenting a horizontal and the other an inclined surface.

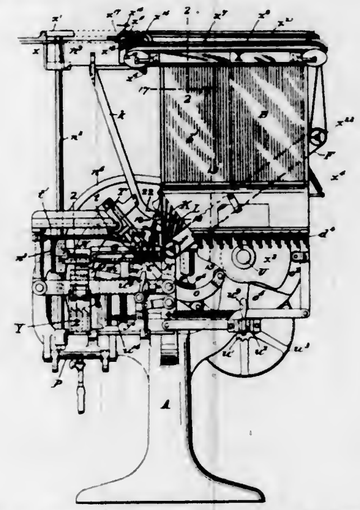
4. A matrix for a linotype-machine, having its upper end inclined in an unbroken line from one edge and provided with distributing-teeth in said end.

5. A linotype-matrix having a vertical edge provided with retaining-shoulders therein, an opposite edge without shoulders, and at the upper end a series of distributing-teeth, whereby it is adapted to be circulated and mechanically handled in the manner herein described.

6. In a linotype-machine, the combination of a series of matrices, each having an inclined and a horizontal shoulder as described, in combination with a mold correspondingly formed, whereby it is adapted to effect exact alinement of the matrices when forced into contact with them.

7. In a linotype-machine, an elongated spacer of varying thickness, having at the upper end a hook adapted to travel on a sustaining wire or guide, in combination with an actuating device adapted and arranged to act on said hook for the purpose of advancing the spacer through the line in the act of justification.

8. A spacer for a linotype-machine, of varying thickness from one end to the other, its upper end provided with a hook-shaped extension projecting edgewise beyond the body portion.



9. In a linotype-machine, the combination of a matrix having its upper end inclined from one of its vertical edges upward and provided with distributing-teeth therein, a distributer-bar having a laterally-inclined toothed surface to engage the matrices, and a plate opposed to the distributer-bar and acting on the untoothed edge of the matrices to keep them in engagement with the bar.

10. In a linotype-machine, a distributer-bar having a laterally-inclined and longitudinally-toothed surface to engage the matrices, and a parallel plate adjacent to the distributer-bar, in combination with a series of matrices having their upper ends adapted to fit and travel between the two bars, and toothed from one edge inward and upward to engage the distributer-bar, substantially as described and shown.

11. In a linotype-machine, in combination with the matrices and the hooked spacers, the elevator N, consisting of the separable members n and n', and means to effect their separation at the completion of their upward movement, whereby the matrices and spacers are separated from each other.

12. In a linotype-machine, the combination of a series of matrices, a series of spacers, and an elevator adapted to raise the composed line of matrices and spacers, said elevator comprising vertically-separable members adapted to remove at one operation all the matrices in the line from the spacers.

13. In a linotype-machine and in combination with matrices and spacers, an elevating mechanism adapted to raise the matrices and the spacers of a composed line to different levels and thus sustain them, means for transferring the matrices from the elevator to the distributing devices, and means for guiding the spacers from the elevator to their magazine.

14. In a linotype-machine, the combination of a magazine for spacers, an inclined rail or guide extending thence upward to the top of the machine, mechanism for elevating bodily the composed lines of matrices and spacers to the top of the machine and thereafter effecting the separation of the matrices in a group from the spacers, and means for transferring the spacers in a group from the elevating devices to the inclined rail above referred to.

15. In a linotype-machine, the vertically-movable elevator consisting of the members n and n', adapted to engage the matrices and spacers respectively, in combination with a connecting-spring, means for separating the two parts of the elevator to cause the separation of the matrices and spacers, and means for holding the matrices and spacers respectively in engagement with the separated members of the elevator preparatory to their transfer therefrom.

16. In a linotype-machine, the elevator for the composed lines, consisting of two separable members n and n', in combination with a stationary plate n^3 to retain the matrices in position when lifted from the spacers.

17. In a linotype-machine, the elevator comprising a member n, adapted to engage and sustain the spacers, and the relatively movable member n', adapted to engage and retain the matrices.

18. In a linotype-machine, a channeled magazine for the matrices, in combination with escapement-pawls d and d', an intermediate operating-lever d^3, a finger-key directly connected to one end of said lever, and a spring connected to the lever and acting in opposition to the finger-key to project the lower pawl into the magazine, whereby the finger-key is adapted to effect the positive action of the escapement to release the matrix, and the spring caused to restore the parts to their normal position.

19. In a linotype-machine, the combination of the magazine, escapements, and a series of finger-keys having a jointed connection at one end to the escapements and bearing loosely against a support or fulcrum, whereby they are adapted to swing away from the magazine around the joints above named.

20. In a linotype-machine, the combination of the magazine, escapements d d', their connecting-levers, and the finger-keys having projections or fulcra arranged to bear against the front plate, substantially as described.

21. In a linotype-machine and in combination with means for delivering matrices thereto, the horizontal assembler G and means for resisting the advance of the matrix-line during composition and for transferring the completed line to and from said channel, consisting of the slide m, the cooperating fingers M and m^2, pivoted thereto, and spring m'.

22. In a linotype-machine, the combination of an assembling-channel into which the matrices are delivered successively, a horizontally-movable slide, a finger pivoted to said slide to resist the advance of the matrix-line during composition and during its transfer through and from the channel, and a second finger, also mounted in said slide, to close behind the composed line and carry the same through and from the channel.

23. In a linotype-machine, a mold-carrying arm, a shaft sustaining said arm and mounted on an axis, a spring tending to turn said arm around its axis in one direction, and a cam acting on the arm to turn the same in the opposite direction.

24. The combination of the mold-supporting arm o mounted to vibrate on its axis, a cam substantially as described, arranged to move the arm positively in the direction of its axis, a spring to ding to turn said arm around its axis in one direction, and a cam acting to turn the arm in the opposite direction.

25. In a linotype-machine, a mold-carrying arm o, mounted to vibrate upon an axis and to move in the direction of the axis, in combination with cam o^3 and projection o^4 cooperating with the arm, to effect said movements.

26. In a linotype-machine, the combination of a series of matrices, a series of spacers having supporting-hooks at their upper ends, the divided elevator whereby the composed line is lifted and the series of matrices thereafter lifted from the spacers, a single rail adapted to receive and support the spacers and guide them downward to their magazine or holder, a distributer overlying the upper end of said rail, and means for transferring the matrices to the distributer and the spacers to the rail.

27. In a linotype-machine and in combination with a melting-pot mounted to swing upward and forward around a horizontal axis, a centrally-pivoted lever p^4 with one end arranged to act with lifting effect on the back of the pot, and a cam p^5 acting on the opposite end of said lever.

28. In a linotype-machine in combination with the main cam-shaft and its gear-wheel, the driving-pinion u', a shaft for said pinion having an end motion in relation thereto, a driving-pulley encircling the shaft, a clutch mechanism actuated by the end movement of the shaft, and a spring tending to hold the clutch in engagement, and means carried by the main cam-shaft to throw said clutch out of action at the completion of each revolution of the cam-shaft.

29. In a linotype-machine, in combination with the driving-pulley u^3, the longitudinally-movable shaft and pinion thereon, the spring u^7 tending to hold the clutch in engagement, and a manual device u^9 for moving the shaft endwise to effect the stoppage of the machine at any point in its action.

30. In a linotype-machine, in combination with the longitudinally-movable shaft u^3, its pinion, the clutch, clutch-operating spring, and a traveling dog u^{10} for throwing the clutch out of action, the bar u^{12} and lever u^{13}, for disengaging the dog u^{10} to permit the starting of the machine.

31. In a linotype-machine and in combination with its driving-clutch, a manual device for throwing the clutch out of action at will, means for automatically disengaging the clutch at the completion of each revolution, and a second manual device for disengaging the automatic devices, whereby the machine may be automatically stopped at a definite point and started from such point, or independently stopped and started by hand at any period in the course of its operation.

32. In a linotype-machine, a reciprocating ejector for delivering the slugs from the mold, in combination with a transversely-acting slug-delivering device T, actuated by the ejector.

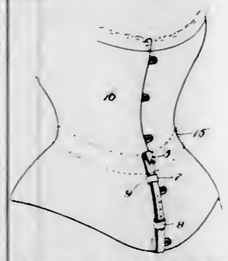
33. In a linotype-machine, an elevator for lifting the composed line of matrices and spacers, comprising vertically-separable members, one of them adapted to engage and lift the entire line of matrices, while the other supports the entire series of spacers, whereby the separation of all

the matrices from the spacers is effected at one operation, preparatory to the distribution of the matrices.

34. In a linotype-machine, an elevator comprising two vertically-movable members, one adapted to sustain the spacers, and the other adapted to engage and lift the matrices, in combination with means to hold the spacers in position on their supporting member while the matrices are being lifted away from the spacers by the other member.

35. In a linotype-machine, in combination with means for sustaining a line of matrices, a series of wedge spacers having sustaining-hooks at their upper ends, and an actuating device engaging said ends to advance the spacers through the line in the act of justification.

679,480. COMBINATION CORSET-STAY AND DRESS-HOLDER. DEBORAH P. MCKENNEY, Boston, Mass. Filed Feb. 18, 1901. Serial No. 47,733. (No model.)



Claim.—1. A combination corset-stay and dress-holder of a length to extend from the lower edge of a corset to the waist-line, having a forwardly-extending, downwardly-turned hook to engage over the upper end of the waistband of a skirt, and having a rearwardly-extending upturned hook to take around the lower edge of the corset, and shaped to constitute a flexible stay conformed to the figure of the wearer, substantially as described.

2. A combination corset-stay and dress-holder consisting of an extensible strip of resilient material comprising a plurality of strips connected together in such a manner that they may slide upon each other, means for detachably locking the said strips together at intervals to produce a combination-strip of varying length, a hook at each end of the combination-strip reversely turned and on opposite sides of the strip, whereby the device may connect the skirt to the corset by engaging one hook with the skirt and the other with the corset so as to retain the garments in proper position, substantially as described.

3. A combination corset-stay and dress-holder consisting of an extensible strip of resilient material comprising two strips overlapping each other, one of the said strips being formed with a series of holes longitudinally thereof and the other strip being formed with a stud which may be made to engage with said holes, guards which encircle said strips and hold them in alinement, one of said guards also holding the locking-stud in engagement with the hole to which it is set and being movable to permit unlocking of the strips, the outer ends of said strips having reversely-turned hooks on opposite sides, substantially as described.

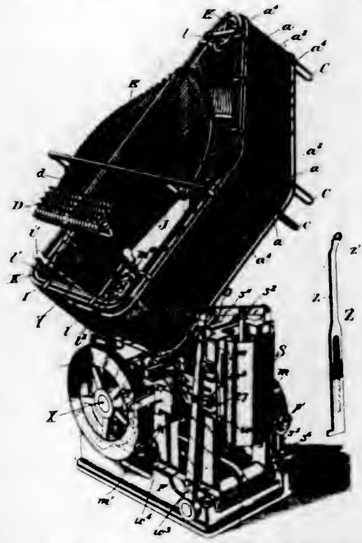
4. A combination corset-stay and dress-holder consisting of a strip of resilient material having at each end a reversely-turned hook, the hook at the upper end being turned outward to hook onto the top of the skirt, and the hook at the lower end being turned inward to engage with the lower edge of the corset, the strip having also a laterally-extending clip intermediate the two hooks to slip under the steel of the corset, substantially as described.

5. A combination corset-stay and dress-holder consisting of an extensible strip of resilient material comprising two strips overlapping each other, one of the strips being formed with a series of holes longitudinally thereof and the other strip being formed with a stud which is adapted to engage with said holes, each strip having attached thereto a guard which encircles the other strip, one of the guards being of sufficient size to permit spreading apart of the stripe to unlock them, and a spring which normally holds them locked, the outer ends of said strips having reversely-turned hooks on opposite sides, substantially as described.

679,481. LINOTYPE-MACHINE. JOHN R. ROGERS, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Filed Feb. 19, 1901. Serial No. 47,992. (No model.)

Claim.—1. In a linotype or analogous machine and in combination with a matrix-supporting guide extending on both sides thereof, a sustaining-plate *a* forming a continuation of the guide, substantially as described.

2. In a linotype or analogous machine, the wire guides A, having their ends sustained within plates *a* forming continuations of the guides.



3. In a linotype-machine, a series of guides A, sustaining-plates *a*, intermediate washers a^2, and means for binding them together in series.

4. In a linotype or analogous machine, a series of matrix-guides A, lying one above another, their supporting-plates *a*, intermediate washers a^2, and a confining-bolt C, extended through the series of washers and plates.

5. In a linotype-machine, a series of matrix-guides A, arranged in two parallel vertical tiers, that dependent matrices may travel between them, in combination with supports for said guides, and two vertical rods C passing through the supports of the respective tiers and connected at their lower ends at a distance from the lowermost guide, whereby the two tiers are held in proper relations but a free passage afforded for the matrices extending below them.

6. In a linotype or analogous machine, an endless matrix-guide consisting of a wire A, sustained at different points in its length by a plate *a*, shaped to encircle the wire and form a continuation thereof.

7. In a linotype-machine having a series of endless diverging and converging guides, substantially as described, a carrier-finger J and the tubular slotted guide for said finger, overlying the matrix-guides and secured thereto.

8. In a linotype-machine and in combination with matrix-guides A, supporting-plates *a*, means for maintaining the separation of said plates, top and bottom frames a^4, and vertical bolts C binding said parts together in one rigid structure.

9. In combination with the guides A, their supporting-plates *a*, the top and bottom frames a^4, and vertical bolts C binding said parts together, with arched top connections k^3.

10. In combination with the endless guides A, the top frame a^4, the matrix-carrying finger J, its tubular guide K, and the arched connections k^3 sustaining said guide and connected to the top frame.

11. In a linotype-machine, matrix-sustaining guides extending downward in converging lines and continued in parallel tiers downward, laterally, and upward, in combination with the means for arresting the released matrices in line at one point between the guides, a casting mechanism to coöperate with the assembled matrices at a distance from the point of assemblage, and mechanism for transferring the assembled or composed matrices from the point of assemblage along the guides to the casting mechanism.

12. In a linotype-machine, endless matrix-sustaining guides, means for assembling the selected matrices at one point in the length of the guide, means for transferring the assembled line from the point of composition, and a casting mechanism to which the assembled line is transferred.

13. In a linotype-machine, the combination of a series of inclined endless guides, converging and diverging for a portion of their length, means for releasing the selected matrices, that they may descend by gravity to the point of assemblage, means for arresting the matrices at such point, casting mechanism adjacent to the guides at a point remote from the point of assemblage, and means for transferring the assembled line first to the casting mechanism and thereafter to the upper rear portion of the guides, that the matrices may descend the converging portions of the guides and be distributed to their first positions.

14. In a linotype or analogous machine and in combination with the inclined guides whereon the matrices are suspended and whereon they descend by gravity, a yielding resistant to control the advance of the lower ends of the assembled matrices.

15. In a linotype or analogous machine, in combination with inclined guides whereon matrices are suspended and arranged to travel, means for maintaining the matrices in inclined positions at substantially right angles to the length of the guides during their downward travel thereon.

16. In a linotype or analogous machine, endless guides whereon suspended matrices travel from the points of storage to the assembling-point, thence to the casting-point, and finally back to the starting-point, in combination with means acting behind the assembled or composed line of matrices to advance the same along said guides from the point of assemblage or composition, and a yielding resistant arranged to act in front of the assembled line to hold the same in compact order as it is advanced along the guides.

17. In a linotype or analogous machine, endless guides whereon suspended matrices are arranged to travel, in combination with an endless power-driven chain, a finger carried thereby to advance the assembled matrices along the guides, and a second endless chain having fingers or projections to resist the advance of the assembled matrices along the guides, whereby the assembled line of matrices is held in compact order while being carried positively along the guides.

18. In a linotype or analogous machine, a series of endless guides whereon suspended matrices are arranged to travel, said guides arranged in converging and diverging lines, as described, in combination with the upper chain and its matrix-carrying finger and the lower chain and its matrix-resisting finger, said chains arranged to follow the guides for a portion of their length only, whereby the matrices are released from the influence of the fingers to permit their distribution and assemblage.

19. In a linotype or analogous machine, a series of inclined, downwardly-converging guides, grouped at their lower ends in two vertical tiers, in combination with suspended matrices arranged to descend said guides by gravity, means for holding the matrices and releasing them individually that they may descend the respective guides, and retractable stop devices, arranged at the lower end of the guide in the path of the descending matrices, whereby the matrices are caused to assemble in line and the subsequent release of the line permitted, that it may advance along the guides.

20. In a linotype or analogous machine, a series of inclined guides, matrices suspended on said guides and arranged to descend by gravity, in combination with means for holding an assembled line of matrices compactly together during their travel downward along the guides.

21. In a linotype or analogous machine, a series of guides extending downward toward the front and curved horizontally to one side, in combination with matrices suspended from said guides, and means acting in advance of the matrices for holding them in positions at substantial right angles to the length of the guides during their travel along the same, whereby they are prevented from binding as they pass along the curved portions of the guides.

22. In a linotype or analogous machine, the series of endless matrix-sustaining guides, arranged in two parallel tiers for a portion of their length and in converging and diverging lines for the remainder of their length, in combination with finger-keys and escapement devices for holding and releasing the matrices, means for arresting the released matrices that they may be assembled in line, means for advancing the composed line along the guides, clamping devices to which the line is presented, a mold coöperating with the line, a melting-pot coöperating with the mold, and means for delivering metal from the pot into the mold.

23. In a linotype or analogous machine, a series of endless matrix-sustaining guides, substantially as described, in combination with a finger for advancing the assembled matrices along the guides, and means for intermittingly advancing said carrier and arresting its motion at two predetermined points.

24. In combination with guides, suspended matrices arranged to travel thereon, means for clamping the assembled matrices compactly together, and means for advancing the line of assembled matrices from the place of assemblage along the guides and into the field of the clamping devices.

25. In combination with a series of guides having an upward inclination, matrices suspended therefrom, a casting mechanism adjacent to the guides, comprising a mold, matrix-clamping devices and a pot for delivering molten metal, and means for advancing the assembled matrices upward along the guides to the casting mechanism.

26. In a linotype-machine, the endless inclined guides, traveling matrices suspended therefrom, a casting mechanism having its operative parts arranged at an inclination corresponding to that of the guides, and means for carrying the matrices upward to the casting mechanism.

27. In a linotype-machine, a casting mechanism, a series of coöperating matrices and a series of continuous guides from which the matrices are suspended and along which they travel, said guides approaching the mold from one end and continuing past the same beyond its opposite end, whereby the matrices are guided to the mold, sustained in front of the same and guided away therefrom without changing their course of travel.

28. In a linotype-machine, in combination with guides whereon traveling matrices are suspended, the carrier-finger J to advance the assembled matrices to the mold, and a jaw or abutment acting behind said finger to support the same and assist in confining the assembled matrices.

29. In a linotype-machine, the combination of a mold having a shoulder or abutment Q to sustain one end of the composed line of matrices, and a matrix-carrier J arranged to act against the opposite end of the matrix-line.

30. In a linotype-machine, the mold provided with the shoulder or abutment Q to confine one end of the matrix-line, the carrier J arranged to bear at the opposite end of the matrix-line, and a jaw or abutment R to sustain said finger while the matrices are in action.

31. In a linotype-machine, in combination with means for presenting the matrices in front thereof, a mold having a shoulder or abutment to confine one end of the matrix-line, and means for moving the mold to and from the matrices, whereby it is caused to effect the confinement and release of the matrices.

32. In a linotype-machine, the combination of the matrices, notched or shouldered in one edge, a fixed anvil having a rib to engage the matrix-shoulders, a mold acting against the matrices in opposition to the anvil, and the reciprocating alining-plate acting repeatedly on the ends of the matrices to seat their shoulders against the anvil and effect exact alinement of the characters.

33. In a linotype-machine, the combination of the ribbed anvil O, matrices Y, mold P, and reciprocating alining-plate *o'* arranged to act repeatedly on the ends of the matrices.

34. In a linotype-machine and in combination with shouldered matrices, an anvil ribbed or shouldered to engage the matrices, a mold opposing the anvil and acting against the matrices, an alining-plate *o'* to adjust the matrices endwise, and means for imparting repeated reciprocations to said plate prior to each casting operation.

35. In a linotype-machine, the combination of a series of matrices, a series of two-part wedge spacers assembled therewith, means for confining the line of matrices and spacers, a space-actuating device adapted to engage the movable members of the spacers with lost motion between, and means for advancing the actuating device by successive steps to effect justification and thereafter retracting the device to loosen the spacers.

36. In a linotype-machine, wedge spacers consisting of members connected by a sliding joint, in combination with an actuating device engaging the movable member of the space and having a limited end play in relation thereto, whereby the space is permitted to remain at rest between the successive blows of the actuating device.

37. In a linotype-machine, a two-part wedge spacer Z, substantially as described, in combination with a reciprocating actuating device T, having a transverse rib or lip engaging loosely over a shoulder or lip on the movable member of the spacer, whereby the actuating device is adapted to impart successive blows to the spacer to advance the same and justify the line, and also adapted to thereafter effect the positive retraction of the spacing member through the line.

38. In a linotype-machine, in combination with notched or shouldered matrices Y, an anvil having an alining-rib to engage them, a reciprocating device acting on the ends of the matrices to insure the seating of their shoulders against the anvil, a series of two-part wedge spacers, and a reciprocating slide or actuating device engaging said spacers.

39. In a linotype-machine, the ribbed anvil O, the mold arranged in opposition to the same, the intermediate shouldered matrices, and the two-part wedge spacers, in combination with the alining-slide *o'*, the space-actuating slide T, and means for imparting repeated reciprocations to each of said slides previous to each casting action.

40. In a linotype-machine, the fixed anvil O, the alining-slide *o'* mounted thereon, and the space-actuating or justifying-slide T, mounted on the first-named slide.

41. In a linotype-machine, the combination of a fixed anvil to sustain the matrices at one edge, the opposing mold to act against the opposite edge of the matrices, the mold-supporting arm P, a shaft supporting said arm, means for imparting to the shaft a rocking motion and also an axial motion, whereby the mold is moved into and out of the field of operation and also moved to and from the matrices a melting-pot having a delivery-mouth to coöperate with the mold, and means for moving said pot to and from the mold.

42. In a linotype-machine, in combination with fixed means for confining the matrices on one side means for delivering metal from the opposite side, an intermediate mold P, having shoulders or abutments to

limit the length of the matrix-line, its carrying-arm, the shaft supporting said arm, and means for imparting to said shaft a rotary reciprocation and also an axial reciprocation.

43. In a linotype-machine, the finger J for advancing and sustaining the matrix-line, in combination with the jaw or abutment R, the swinging finger r' actuating said abutment, and means for vibrating the finger.

44. In a linotype-machine, the finger J for advancing and sustaining the matrix-line, in combination with the pivoted abutment R, lever or finger r', and its actuating devices, consisting of the spring for retracting it and the lever and cam for advancing it.

45. In a linotype-machine and in combination with the mold mounted to vibrate around a center, the coöperating melting-pot having the stop or shoulder s' to determine the operative position of the mold.

46. In a linotype-machine, the combination of the swinging pot-supporting frame, the mold-supporting shaft mounted to slide in said frame, and connections substantially as described between said frame and shaft, whereby the motion of the frame is caused to effect the motion of the shaft therein.

47. The swinging pot-support, in combination with the mold-supporting shaft p' therein, the lever s^2, the fixed support for said lever, and the link s^4 connecting the lever with the pot-support.

48. In combination with means for advancing an assembled line of matrices intermittingly in one direction to and from the mold, a mold having a shoulder or abutment to sustain the forward end of the matrix-line during the casting operation, and means for retracting the mold to withdraw its shoulder from the path of the matrices, that they may be carried from the mold after the casting operation.

49. In a linotype-machine and in combination with side trimming-knives V, a mold, a vibratory arm carrying said mold into position in front of the knives, and an adjustable stop p^3, controlling the final position of the mold in relation to the knives.

50. In a linotype-machine, the combination of a series of continuous guides and matrices suspended therefrom, means for advancing an assembled line of matrices intermittingly along said guides, the casting mechanism adjacent to the guides at a point where the matrix-line is stopped, and clamping devices acting to confine the matrix-line endwise in the casting mechanism, said clamping devices movable into and out of the path of the matrices, whereby the matrices, traveling always in one direction, may be advanced to the casting mechanism, arrested in position to coöperate therewith, and finally removed therefrom.

51. In a linotype-machine, the combination of a casting mechanism, comprising a series of continuous guide-wires, the matrices suspended therefrom, matrix-clamping devices, a slotted mold and means for supplying the mold with metal, means for advancing the composed line of matrices lengthwise of the mold in operative position in front thereof, and thereafter carrying the line of matrices away from the mold lengthwise thereof, their travel to and from the mold being in the same direction.

52. In a linotype-machine, the melting-pot with the well or cylinder therein, in combination with the metal-delivering plunger, fluted for a portion of its length only.

53. In a linotype-machine having guides along which pendent matrices travel, in combination with means for arresting the matrices on said guides during the composition of the line, a driving mechanism for advancing the composed line and a starting device arranged to cause the withdrawal of the arresting device and the action of the driving mechanism.

54. In a linotype-machine and in combination with the inclined guides, the retractable matrix-stop H and the yielding stop G.

679,482. **LINOTYPE-MACHINE.** JOHN R. ROGERS, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Filed Jan. 5, 1901. Serial No. 42,154. (No model.)

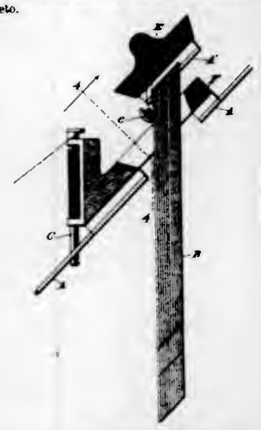
Claim.—1. An endless matrix-guide, having a movable portion to permit the removal of the matrices, substantially as described.

2. In a linotype-machine and in combination with matrices suspended therefrom a guide, divided and having one portion movable in relation to another, whereby its continuity may be interrupted to permit the application or removal of the matrices.

3. In a linotype-machine, wires or guides whereon the matrices are suspended and arranged to travel, having removable sections in combination with means for retaining the matrices thereon, whereby the removal of a section of the guide is caused to effect the removal of the matrices from the machine.

4. In a linotype-machine, a series of inclined guides from which to suspend the matrices, said guides having movable sections, in combination with a common bar or support to which said sections are attached, and means for retaining the matrices temporarily on the sections, substantially as described and shown.

5. In a linotype-machine, the combination of inclined guides A having movable sections A', a plate F sustaining the guides adjacent to the movable sections, and a movable plate E having the movable sections attached thereto.



679,483. **TUBE-CUTTER.** LYNN W. SIPLE, Cherokee, Iowa. Filed Dec. 13, 1900. Serial No. 39,783. (No model.)



Claim.—1. The combination with a mandrel formed with a cylindrical longitudinal chamber and with a transverse slot extending through the wall of the chamber, of a stem rotatable in said chamber, a stop on the stem extending in the slot, a radially-movable knife, and operative connections between the stem and the knife.

2. The combination of a mandrel formed with a longitudinal chamber and with a transverse slot extending through the wall of the chamber, a radially-movable knife-block mounted in the mandrel, a rocking member detachably engaging the knife-block, a rotatable stem mounted in the chamber and detachably engaging the rocking member, and a removable stop-pin carried by the stem and engaging in the slot; whereby said pin serves the double function of a stop and as a means for holding the parts in operative relations.

3. In a tube-cutter the combination with a mandrel having a longitudinal chamber, of a stem rotatable therein, and formed in its end with an eccentric socket, a radially-movable knife formed with a transverse slot, and a rocking member having one end seated in the socket and its other end engaging in the slot in the knife.

4. In a tube-cutter the combination with the mandrel having a longitudinal cylindrical chamber, of a cylindrical stem rotatable in said chamber and formed in its end with an eccentric socket, a radially-movable block formed with a transverse slot, and a rocking member having one end seated in the socket in the stem and its other end engaging in the socket in the knife-block, said rocking member provided with an annular bearing-surface fitting snugly but loosely in the cylindrical chamber and constituting a fulcrum on which the member rocks.

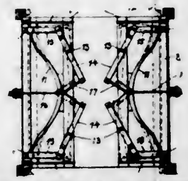
5. In a tube-cutter the combination with a mandrel, of a radially-movable knife, means for moving the knife radially, and independent means for adjusting the movement of the knife, with reference to the movement of the stem.

6. The combination with a mandrel, of a radially-movable knife, an operating-stem rotatable to a limited extent with relation to the mandrel and operatively connected with the knife, and means for varying the movement of the knife with relation to the movement of the stem.

7. In a tube-cutter the combination with a mandrel provided with a chamber, of a radially-movable knife, a rotatable operating-stem mounted in the chamber, a transmitting member engaged by the stem and engaging the knife, and an encircling ring adjustably mounted on said member and formed to fit within the chamber, said ring forming the fulcrum on which the member rocks.

679,484. **ELEVATOR.** CHARLES L. STARTUP, Ellenville, N. Y. Filed Apr. 5, 1901. Serial No. 54,432. (No model.)

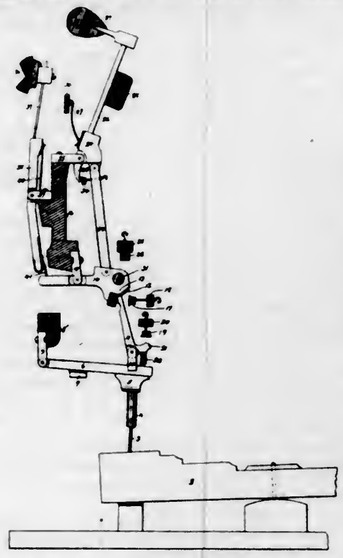
Claim.—1. The combination with an elevator-car, provided with the usual supporting-cable, of laterally-movable spring-operated locking-bars mounted on the bottom of the car, levers pivotally supported beneath the bottom of the car and connected with said locking-bars and flexible devices connected with said levers and passing upwardly around the car and connected with the supporting-cable, substantially as shown and described.



2. The combination with an elevator-car, provided with the usual supporting-cable, of laterally-movable spring-operated locking-bars mounted on the bottom of the car, levers pivotally supported beneath the bottom of the car, and connected with said locking-bars and flexible devices connected with said levers and passing upwardly around the car and connected with the supporting-cable, said locking-bars being adapted to operate in connection with corner-posts in the elevator-shaft provided with ratchet-teeth, substantially as shown and described.

3. The combination with the vertical guide-posts of an elevator-car, which are provided with ratchet-teeth, of an elevator-car, locking-bars adapted to be brought into connection with said ratchet-teeth, springs actuating the locking-bar, levers for actuating the locking-bar, and flexible devices connected with said levers passing up around the car and connecting with the supporting-cable of the car, substantially as shown and described.

679,485. **UPRIGHT-PIANOFORTE ACTION.** MORRIS STEINERT, New Haven, Conn. Filed Mar. 5, 1901. Serial No. 49,912. (No model.)



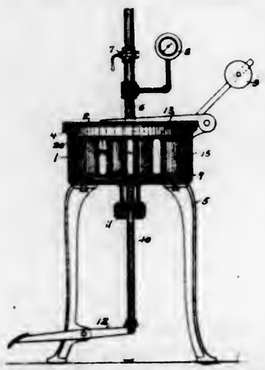
Claim.—1. In an upright-pianoforte action, the combination with a key-lever, of a jack-lever operated thereby, a jack pivotally mounted in said lever, a hammer-lever, a hammer-head carrying a hammer, and a hammer-lever link pivotally connected with the hammer-lever and pivotally connected with the hammer-head.

2. In an upright-pianoforte action, the combination with a key-lever of a jack-lever operated thereby, a jack pivotally connected with the jack-lever, a hammer-lever operated by the jack, a hammer-head carrying a hammer and provided with a depending finger or horn, a hammer-lever link pivotally connecting the hammer-lever and the hammer-head, a regulating-button mounted in the upper end of the said link and coacting with the said horn, and a regulating-button coacting with the hammer-lever, the said buttons being constructed and arranged to prevent the vibration of the hammer after its impact with the string.

3. In a pianoforte-action, the combination with a key-lever, of a horizontally-arranged jack-lever operated thereby, a jack pivotally connected with the forward end of the jack-lever, a horizontally-arranged hammer-lever with the forward end of which the jack coacts, a hammer-head carrying a hammer-rod supporting a hammer, a hammer-lever link pivotally connected with the hammer-lever and hammer-head, and means coacting with the hammer-head and hammer-lever for controlling the vibration of the hammer after its impact with the string.

4. In an upright-piano action, the combination with a hammer-key, of a horizontally-arranged jack-lever operated thereby, a jack pivotally connected with the jack-lever, a horizontally-arranged hammer-lever provided with an obtuse-angled escapement-face with which the jack coacts, a hammer-head carrying a hammer rod or tail supporting the hammer, a hammer-lever link pivotally connected with the said hammer-head and with the forward end of the hammer-lever, means for preventing the vibration of the hammer after its impact with the string, a damper-lever, a damper carried thereby, and means connecting the damper-lever with the rear end of the hammer-lever by which it is operated in retiring the damper.

679,486. **METHOD OF TESTING RECEPTACLES.** WASHINGTON I. TUTTLE, Baltimore, Md., assignor to the American Tobacco Company, New York, N. Y. Filed Mar. 29, 1901. Serial No. 53,388. (No specimens.)



Claim.—1. The method of testing cans or similar receptacles which consists in covering a receptacle or receptacles with a sealing-plate, producing a vacuum in the receptacle or receptacles, subjecting the receptacle or receptacles and plate to gaseous pressure for a period of time, whereby the receptacle or receptacles and plate are first forced together and thereafter the gas enters any imperfect receptacle and said receptacle becomes detached from the plate, and finally subjecting the plate and attached receptacle or receptacles to the action of an exhaust apparatus, whereby the pressure inside and outside the receptacle or receptacles is equalized and the perfect receptacle or receptacles become detached from the plate, substantially as described.

2. The method of testing cans or similar receptacles which consists in covering a receptacle or receptacles with a sealing-plate, subjecting the plate and receptacle or receptacles to the action of an exhaust apparatus in a closed chamber, subjecting the receptacle or receptacles and plate to gaseous pressure in the same chamber, removing the plate and receptacle or receptacles from the chamber and permitting them to stand under gaseous pressure for a period of time, whereby any imperfect receptacle will become detached from the plate, and finally equalizing the pressure inside and outside the receptacle or receptacles whereby the perfect receptacle or receptacles are detached from the plate, substantially as described.

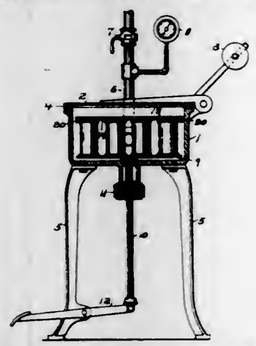
3. The method of testing cans or similar receptacles which consists in covering a receptacle or receptacles with a sealing-plate, subjecting the plate and receptacle or receptacles to the action of an exhaust apparatus in a closed chamber, subjecting the receptacle or receptacles and plate to gaseous pressure in the same chamber, removing the plate and receptacle or receptacles from the chamber and permitting them to stand under gaseous pressure for a period of time, whereby any imperfect receptacle will become detached from the plate, and finally subjecting the plate and attached receptacle or receptacles to the action of an exhaust apparatus in a closed chamber, whereby the perfect receptacles are detached from the plate, substantially as described.

4. The method of testing cans or similar receptacles which consists in covering a receptacle or receptacles with a sealing-plate, subjecting the plate and receptacle or receptacles to the action of an exhaust apparatus in a closed chamber, subjecting the receptacle or receptacles and plate to

gaseous pressure in the same chamber, removing the plate and receptacle or receptacles from the chamber, subjecting the receptacle or receptacles to atmospheric pressure in such position that the action of gravity will tend to separate them from the plate, whereby any imperfect receptacle will become detached from the plate, and finally equalizing the pressure inside and outside the receptacle or receptacles whereby the perfect receptacle or receptacles are detached from the plate, substantially as described.

5. The method of testing cans or similar receptacles which consists in covering a receptacle or receptacles with a sealing-plate, subjecting the plate and receptacle or receptacles to the action of an exhaust apparatus in a closed chamber, subjecting the receptacle or receptacles and plate to gaseous pressure in the same chamber, removing the plate and receptacle or receptacles from the chamber, subjecting the receptacle or receptacles to atmospheric pressure in such position that the action of gravity will tend to separate them from the plate, whereby any imperfect receptacle will become detached from the plate, and finally subjecting the plate and attached receptacle or receptacles to the action of an exhaust apparatus in a closed vacuum-chamber, whereby the sound receptacles are detached from the plate, substantially as described.

679,487. TESTING APPARATUS. WASHINGTON I. TUTTLE, Baltimore, Md., assignor to the American Tobacco Company, New York, N. Y. Filed Mar. 29, 1901. Serial No. 53,389. (No model.)



Claim.—1. In a testing apparatus an exhaust mechanism, a temporary sealing-plate separate from said mechanism but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles covered by said plate, whereby the plate with a sound receptacle or receptacles held thereon by atmospheric pressure may be bodily removed from the exhaust mechanism, substantially as described.

2. In a testing apparatus an exhaust mechanism, a temporary sealing-plate separate from said mechanism but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles covered by said plate, whereby the plate with a sound receptacle or receptacles held thereon by atmospheric pressure may be bodily removed from the exhaust mechanism, and means for equalizing the pressure inside and outside the receptacle or receptacles whereby they are detached from the plate, substantially as described.

3. In a testing apparatus an exhaust mechanism including a vacuum-chamber and a temporary sealing-plate which is separate from said chamber but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles closed by said plate, whereby the plate with a sound receptacle or receptacles held thereon by atmospheric pressure may be removed from the chamber, substantially as described.

4. In a testing apparatus an exhaust mechanism including a vacuum-chamber and a temporary sealing-plate which is separate from said chamber but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles closed by said plate, whereby the plate with a sound receptacle or receptacles held thereon by atmospheric pressure may be removed from the chamber, and means for detaching the receptacle or receptacles from the plate by equalizing the pressure inside and outside the receptacle or receptacles, substantially as described.

5. In a testing apparatus, a temporary sealing-plate, a vacuum-chamber adapted to contain said plate and a plurality of receptacles to be closed by the plate, and means for exhausting and admitting air from and to said chamber, substantially as described.

6. In a testing apparatus, an exhaust mechanism, a temporary sealing-plate separate from said mechanism but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles closed by said plate, and a second exhaust mechanism with which the sealing-plate is adapted to coact to release the receptacles from the plate, whereby the plate may be subjected to the action of one exhaust mechanism to exhaust the air from the cans to test them and to the action of the other exhaust mechanism to release them from the plate, substantially as described.

7. In a testing apparatus for cans or similar receptacles, a vacuum-chamber, means for exhausting and admitting air from and to said chamber, a second vacuum-chamber, means for exhausting and admitting air from and to said chamber, and a temporary sealing-plate adapted to coact with either chamber, substantially as described.

8. In an apparatus for testing cans or similar receptacles, a temporary sealing-plate constructed to close a plurality of receptacles, a vacuum-chamber constructed to contain said plate and receptacles, means for exhausting and admitting air from and to said chamber, a second vacuum-chamber also adapted to contain said plate and receptacles, and means for exhausting and admitting air to and from said chamber, substantially as described.

9. In an apparatus for testing cans or similar receptacles, an exhaust mechanism, a second exhaust mechanism, a temporary sealing-plate constructed to coact with either mechanism, and means for conveying the plate on edge from one mechanism to another, substantially as described.

10. In an apparatus for testing cans or similar receptacles, a vacuum-chamber, a second vacuum-chamber, a temporary sealing-plate constructed to be placed in either chamber, and means for conveying the plate on edge from one chamber to the other, substantially as described.

11. In an apparatus for testing cans or similar receptacles, a temporary sealing-plate having an elastic sealing-surface, said plate being separate from the rest of the apparatus but being adapted to be used in coactive relation therewith, substantially as described.

12. In an apparatus for testing cans or similar receptacles, a temporary sealing-plate having an elastic sealing-surface, said plate being capacitated to cover a plurality of receptacles and being separate from the rest of the apparatus but adapted to be used in coactive relation therewith, substantially as described.

13. In an apparatus for testing cans or similar receptacles, a temporary sealing-plate having an unbroken elastic sealing-surface, said plate being separate from the rest of the apparatus but adapted to be used in coactive relation therewith, substantially as described.

14. In an apparatus for testing cans or similar receptacles, a temporary sealing-plate capacitated to cover a plurality of receptacles, said plate having an unbroken elastic sealing-surface and being separate from the rest of the apparatus but adapted to be used in coactive relation therewith, substantially as described.

15. In an apparatus for testing cans or similar receptacles, a temporary sealing-plate having an elastic sealing-surface, said plate being circular in form and separate from the rest of the apparatus but adapted to be used in coactive relation therewith, substantially as described.

16. In an apparatus for testing cans or similar receptacles, a circular temporary sealing-plate, said plate having an unbroken elastic sealing-surface and being separate from the rest of the apparatus but adapted to be used in coactive relation therewith, substantially as described.

17. In an apparatus for testing cans or similar receptacles, a sealing-plate having a circular unbroken elastic sealing-surface, said plate being capacitated to cover a plurality of receptacles and being separate from the rest of the apparatus but adapted to be used in coactive relation therewith, substantially as described.

18. In an apparatus for testing cans or similar receptacles, a vacuum-chamber, said chamber being provided with means for supporting a cover-plate and a receptacle or receptacles attached thereto above the bottom of the chamber, substantially as described.

19. In an apparatus for use in testing cans or similar receptacles, a vacuum-chamber having a movable top and a movable bottom, substantially as described.

20. In an apparatus for use in testing cans or similar receptacles, a vacuum-chamber having a movable top and a movable bottom, and means for supporting a sealing-plate and a receptacle or receptacles attached thereto above the bottom, substantially as described.

21. In an apparatus for testing cans or similar receptacles, an exhaust mechanism, a sealing-plate separate from said mechanism but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles closed by the plate, a mechanism for detaching the sound receptacle or receptacles from the plate by equalizing the pressure within and without the receptacle or receptacles, and means whereby the sealing-plate may be transferred from the exhaust mechanism to the detaching mechanism, substantially as described.

22. In an apparatus for testing cans or similar receptacles, an exhaust mechanism, a sealing-plate separate from said mechanism but adapted to be placed in coactive relation therewith, said mechanism operating to exhaust the air from a receptacle or receptacles closed by the plate, a mechanism for detaching the sound receptacle or receptacles from the plate by equalizing the pressure within and without the receptacle or receptacles, and means whereby the sealing-plate may be transferred on edge from the exhaust mechanism to the detaching mechanism, substantially as described.

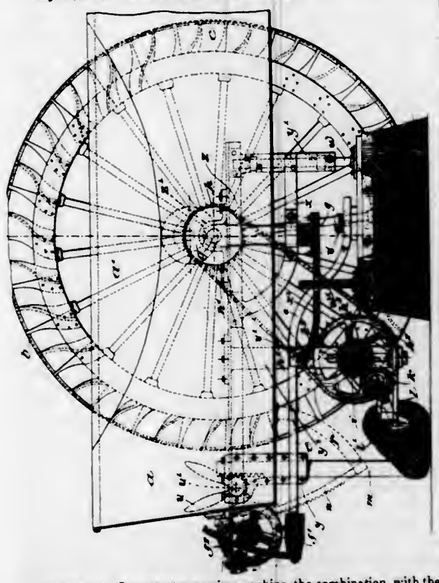
23. In an apparatus for testing cans or similar receptacles, a sealing-plate, a vacuum-chamber, adapted to contain said plate and a receptacle or receptacles, a second vacuum-chamber also adapted to contain the plate and a receptacle or receptacles, and means whereby the plate may be transferred from one receptacle to the other, substantially as described.

24. In an apparatus for testing cans or similar receptacles, an exhaust mechanism, a circular sealing-plate adapted to seal a plurality of receptacles, a detaching mechanism for the sound cans, and a runway between the two mechanisms, substantially as described.

25. In an apparatus for testing cans or similar receptacles, a circular sealing-plate adapted to seal a plurality of cans or similar receptacles, an exhaust mechanism also adapted to contain the plate and receptacles, a second exhaust mechanism also adapted to contain the plate and the receptacles, and a runway between the two exhaust mechanisms, substantially as described.

26. In an apparatus for testing cans or similar receptacles, a circular sealing-plate adapted to seal a plurality of receptacles, a vacuum-chamber adapted to contain the plate and receptacles, a second vacuum-chamber adapted to contain the plate and receptacles, said chamber having means for supporting the plate above its bottom and having a movable bottom and top, and a runway between the two chambers, substantially as described.

679,488. ROAD-SWEEPING AND COLLECTING CART. LOUIS VAN WESENAEL and FRANCISCUS S'JONGERS, Antwerp, Belgium. Filed July 18, 1900. Serial No. 24,054. (No model.)



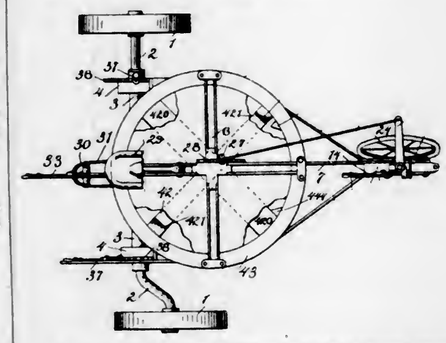
Claim.—1. In a street-sweeping machine, the combination, with the frame, of guides extending downwardly from said frame, brushes, uprights carried by said brushes and movable in said guides, a lever fulcrumed in said frame and engaging said brushes at one end, a receptacle carried by said frame, means for conveying the refuse swept by said brushes to said receptacle, shafts journaled in said frame, a rack-and-pinion connection between said receptacle and one of said shafts, and another rack-and-pinion connection between the other shaft and said lever, substantially as described.

2. In a street-sweeping machine, the combination, with the frame, of guides extending downwardly from said frame, brushes, uprights carried by said brushes and movable in said guides, a lever fulcrumed in said frame and engaging said brushes at one end, a receptacle carried by said frame, alined shafts journaled in said frame, pinions mounted on the adjacent ends of said shafts, hand-wheels mounted on the outer ends of said shafts, and racks engaging said pinions, one of said racks being carried by the receptacle and the other being carried by the lever, substantially as described.

3. In a street-sweeping machine, the combination, with the frame, of guides extending downwardly from said frame, brushes, uprights carried by said brushes and movable in said guides, a lever fulcrumed in said frame and engaging said brushes at one end, a receptacle carried by said frame, alined shafts journaled in said frame, pinions mounted on the adjacent ends of said shafts, hand-wheels mounted on the outer ends of said shafts, racks engaging said pinions, one of said racks being carried by the receptacle and the other being carried by the lever, rotary brushes arranged obliquely in front of said first-named brushes, another shaft journaled in said frame, a sprocket-and-chain connection between said wheels and said last-named shaft, and gearing connecting said obliquely-disposed brushes and said last-named shaft, substantially as described

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679,489. PLOW. JACOB A. WIEBE, Adelaida, Cal. Filed Apr. 3, 1901. Serial No. 54,153. (No model.)



Claim.—1. In a plow, the combination with the framework carrying the share, and a crank-axle having two supporting-wheels for said framework; of a steering-wheel at the front end of the framework, a furrow-wheel at the rear end of the framework, and means for raising one of these wheels, all substantially as described.

2. In a plow, the combinationn with the framework carrying a share, a crank-axle having two supporting-wheels, and means for setting the crank thereof with relation to the framework; of a furrow-wheel at the rear end of the framework, steering mechanism at the front end of the framework, and means for raising this mechanism off the ground, all substantially as described.

3. In a plow, the combination with the framework carrying a share, a crank-axle having two supporting-wheels, and means for setting the axle thereof with relation to the framework; of steering mechanism at the front end of the framework, means for raising this mechanism off the ground, a furrow-wheel at the rear end of the framework, and means for raising it out of the furrow, all substantially as described.

4. In a plow, the combination with the framework, its support, and the share; of a head at the front end of the framework, a steering-post journaled therein, a wheel mounted at its lower end, an arm at the upper end of this post, a hand-lever connected with this arm and moving over a toothed rack, a rack-bar connected with the extremities of the post and moving through said head, a pinion engaging this rack-bar, a gear connected with said pinion, a basket-gear meshing with said other gear, a hand-lever for manipulating this basket-gear, and a latch for holding it against rotation, as and for the purpose set forth.

5. In a plow, the combination with the framework having a circular guideway, two independent crank-shafts adjustable in the framework, and supporting-wheels thereon; of a turn-table mounted rotatably within the guideway, standards depending from the turn-table, and disk shares carried by the standards, as and for the purpose set forth.

6. In a plow, the combination with the framework having a circular guideway, a crank-shaft adjustable in the framework, and supporting-wheels thereon; of a turn-table mounted rotatably within the guideway standards depending from the turn-table, disk shares carried by the standards, and means for adjustably holding the turn-table in the guideway with the plane of the disk axes at different angles to the line of draft, substantially as herein specified.

7. In a plow, the combination with the framework, supporting-

wheels therefor, a trailing furrow-wheel, and means for raising this wheel when desired; of a turn-table rotatable within the framework, a standard depending therefrom, and a disk share journaled on said standard, the whole operating substantially as described.

8. In a plow, the combination with the framework, supporting-wheels therefor, and a trailing furrow-wheel; of a turn-table rotatable within the framework, a standard depending therefrom, a disk share journaled on said standard, and means for locking said turn-table in a number of positions, as and for the purpose set forth.

9. In a plow, the combination with the framework having a circular guideway, and means for supporting and steering the framework; of a turn-table rotatably mounted in said guideway, standards depending from the turn-table, disk shares carried by the standards, a foot-lever on the framework, and a plurality of catches on the guideway adapted to automatically lock the turn-table in a number of positions and to be simultaneously unlocked by movement of the foot-lever, substantially as described.

10. In a plow, the combination with the framework having a circular guideway, and means for supporting and steering the framework; of a turn-table comprising beams connected in plus shape and having their tips rotating in said guideway, standards depending from said turn-table, disk shares carried by the standards, a plurality of catches pivotally mounted on the guideway and each having arms with inclined outer ends adapted to automatically engage one of said beams, and means for simultaneously lifting all the catches, substantially as described.

11. In a plow, the combination with the framework having a circular guideway, and means for supporting and steering the framework; of a turn-table comprising beams connected in plus shape and having their tips rotating in said guideway, one of said beams being narrower than the other, a plurality of catches pivotally mounted on the guideway and each comprising a cross-piece bent at its extremities downward and then outward and obliquely upward into hooks spaced so as to automatically engage the narrower beam but not the wider, and means for raising these cross-pieces, substantially as described.

12. In a plow, the combination with the framework having a circular guideway, and means for supporting and steering the framework; of a turn-table comprising crossed beams having their tips rotatable in said guideway, a plurality of catches each comprising a cross-piece pivotally supported on the guideway and having hooks at its extremities, an arch standing over the catch, a lever pivoted in the arch and connected with the catch, and means for swinging all the levers simultaneously, as and for the purpose set forth.

13. In a plow, the combination with the main framework having a plus-shaped cross on its top with one arm extending forward, a circular guideway carried by this cross, two side arms carried obliquely forward from the guideway, a head-block at the front end of all these arms, steering mechanism therein, and a support for the framework; of a turn-table comprising beams in plus shape whose extremities move rotatably in said guideway, catches mounted on the latter for holding the turn-table in various positions, a single lever on the cross of the framework connected with all the catches, standards depending from the turn-table, and disk shares mounted in the standards, all as and for the purpose hereinbefore set forth.

679,490. **INDICATING SAVINGS-BANK.** FRANK WITTE, Cincinnati, Ohio. Filed Nov. 30, 1900. Serial No. 38,132. (No model.)



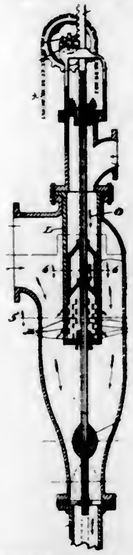
Claim.—1. In a coin-receiver of the kind described, the combination of a hollow case, an inlet-opening in one of the sides thereof, a supporting-plate against which the inserted coin rests flatwise, a slide whereby the coin so deposited is moved off from said supporting-plate and delivered into the case, a door to permit removal of the coins, a dial on the outside of the case, a hand therefor, means whereby said hand is rotated and intermediate mechanism operated by the coins while passing into the case and actuating the aforesaid means for the purpose of moving the hand with each insertion of a coin.

2. In a coin-receiver of the kind described, the combination of a hollow case, an inlet-opening in one of the sides thereof, a supporting-plate against which the inserted coin rests flatwise, a slide whereby the coin so deposited is moved off from said supporting-plate and delivered into the case, a door to permit removal of the coins, a spring-catch which holds the same normally closed, a dial on the outside of the case, a hand for it, means whereby the latter is rotated and intermediate mechanism operated by the coin at each insertion while passing into the case and actuating the aforesaid means for the purpose of advancing the hand with each insertion of a coin and releasing finally the spring-catch after a certain number of insertions to permit access through the door to the interior of the case.

3. In a coin-receiver of the kind described, the combination of a hollow case, an inlet-opening for the coin, means whereby this latter is temporarily supported after insertion, a slide whereby the inserted coin is discharged into the hollow case, a wheel within this latter, a spindle on which the same is mounted and one end of which projects through the front of the case, a hand mounted on this end, a dial on the front and means actuated by the coin during its passage into the case whereby said wheel is partially rotated upon each insertion of a coin thereby moving the hand accordingly with reference to its dial.

4. In a coin-receiver of the kind described, the combination of a hollow case, an inlet-opening for the coin, means whereby this latter is temporarily supported after insertion, a slide whereby the inserted coin is discharged into the hollow case, a spring-actuated door permitting access to this latter, a locking device whereby this door is held normally closed, a wheel within this case, a spindle on which the same is mounted and one end of which projects through the front of the case, a hand mounted on this end, a dial on the front, means actuated by the coin during its passage into the case and whereby said wheel is partially rotated upon each insertion of a coin, moving the hand accordingly, and a projection on said wheel adapted to act upon the locking means of the door in a manner to release the latter when the hand has arrived at a certain designated point on the dial.

679,491. **CONDENSER.** HENRY D. BALAGWANATH, Chicago, Ill. Filed June 25, 1900. Serial No. 21,457. (No model.)



Claim.—1. In a condenser, the combination with the condensing-chamber having water supply and discharge ports above and below said chamber and a steam-inlet port opening into said chamber, of a stationary valve-chamber within said condensing-chamber connected with the water-supply port and opening into the condensing-chamber between the exhaust-steam inlet and the discharge-port, said valve-chamber having a number of circumferential series of valve-controlled ports leading therefrom into the exhaust-chamber, substantially as described.

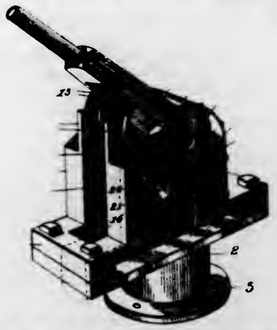
2. In a condenser, the combination with the condensing-chamber having water supply and discharge ports above and below said chamber and a steam-inlet port opening into said chamber, of a valve controlling the water-inlet port, another valve controlling the discharge-port, and a connection between said valves, said valves being adjustable in a common direction to simultaneously open or close said ports, substantially as described.

3. In a condenser, the combination with the exhaust-chamber having water supply and discharge ports above and below the same, and a steam-inlet port opening therein, of a water-supply chamber connected with the inlet-port and discharging into said chamber between the steam-inlet and the discharge-port, said valve-chamber having a number of circumferential series of ports leading therefrom into the condensing-chamber, a valve working in said valve-chamber and adapted to successively close a series of ports leading therefrom, and adapted to gradually throttle the discharge-port from the condensing-chamber, said valves being simultaneously adjustable, substantially as described.

4. In a siphon-condenser, the combination with the valve-chamber having a water-supply port above same, a discharge-port at the lower end thereof, the walls of said chamber contracting toward the discharge-port and a steam-inlet port opening into said chamber, of a valve for controlling the water-supply and a valve working in the contracted portion of the condensing-chamber adjacent to the discharge-port, both of said valves being adjustable, substantially as described.

5. In a siphon-condenser, the combination with the condensing-chamber having water supply and discharge ports above and below the same and a steam-inlet opening therein, of a cylindric valve-chamber connecting with the inlet-port and extending into the condensing-chamber to a point between the steam-inlet port and the discharge-port, a number of circumferential series of ports in the sides of said valve-cylinder near the lower end thereof, a cylindric trunk-valve working in said cylinder and adapted to successively close the series of ports therein, a valve working in the lower contracted end of the condensing-chamber adjacent to the discharge-port, a valve-rod upon which both the supply and discharge valves are rigidly mounted and means for reciprocating said rod, substantially as described.

679,492. **TROLLEY FOR ELECTRIC CARS.** JOHN H. BECKERT, St. Louis, Mo. Filed Sept. 28, 1900. Serial No. 31,343. (No model.)



Claim.—1. The combination with a trolley-arm, a notch in the head thereof and means under tension directly engaging said notch to support the trolley-arm only when said arm is in engagement with its conductor.

2. The combination with a trolley-arm, an integral notched head extending below the pivot of said arm, and means under tension directly engaging said notched head whereby the trolley-arm is under the influence of said tension means only when in engagement with its conductor.

3. The combination with a trolley-arm, a head depending therefrom below the pivot of said arm and means directly engaging said head only when the arm is in contact with its conductor.

4. The combination with a trolley-arm, a head depending therefrom below the pivot of said arm, a spring directly engaging said head for holding said arm in contact with its conductor, and means to release the arm from the action of said spring when not in contact with its conductor.

5. The combination with a trolley-arm, a head depending therefrom below the pivot of said arm, a spring member having direct engagement with said head and means for moving said member into engagement with said head.

6. The combination with a trolley-arm, a shoulder on the head of said arm, a spring adapted to engage said shoulder only when the arm is in contact with its conductor and means to hold the spring in a position to act as a cushion-stop to check the fall of the trolley-arm when said arm is released from the action of the spring

7. The combination of a trolley-arm, the head depending below the pivot of said arm and provided with a shoulder, a spring provided with means for engaging with the shoulder of the head of the trolley-arm, and a pivoted lever adapted to be engaged by the trolley-arm and to move the spring into engagement with said shoulder, substantially as set forth.

8. The combination of a trolley-arm, the head depending below the pivot of said arm and provided with a shoulder, a spring provided with a block engaging said shoulder, and a pivoted lever adapted to be engaged by the trolley-arm and to move said block into engagement with said shoulder, substantially as set forth.

9. The combination of a trolley-arm having a shouldered head below its pivot, a spring provided with a block for engaging said shoulder, and a pivoted lever adapted to be engaged by the trolley-arm to move said block into engagement with said shoulder; the parts being so disposed that when the trolley-arm becomes disengaged from an overhead wire, said block will slip off of said shoulder, and when the trolley-arm falls it will engage said lever and force the lower end thereof against said block so that the spring will act as a cushion to check the descent of the trolley-arm, substantially as set forth.

10. The combination of a base, provided with grooved sides, a trolley-arm, the bifurcated head of which fits between said sides with its forks located in said grooves, a spring provided with a block engaging shoulders on the head of the trolley-arm, and a lever pivoted to said sides and which is adapted to be engaged by the trolley-arm to move said block into engagement with said shoulder, substantially as set forth.

11. The combination of a base having sides formed with inner parts 8^a and outer parts 8^b, a trolley-arm having a bifurcated head, the forks of which fit between the inner and outer parts of said sides, a spring provided with a block adapted to engage shoulders on the head of the trolley-arm, and a lever pivoted between said sides and which is adapted to be engaged by the trolley-arm and move said block into engagement with said shoulders, substantially as set forth.

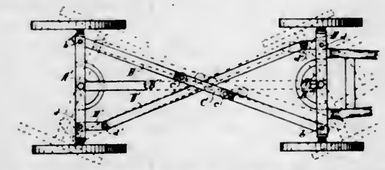
12. The combination of a trolley-arm, a head depending below the pivot of the arm, a spring for supporting the outer end of the trolley-arm by engaging the said head, means for releasing the trolley-arm from the tension of said spring, and means adapted to be engaged by the trolley-arm to restore the action of the spring upon the trolley-arm, substantially as set forth.

13. The combination of a trolley-arm, a head depending below the pivot of said arm, a spring having direct engagement with the head, thereby supporting the outer end of the trolley-arm through said head, and means for releasing the trolley-arm from the action of the spring when the trolley-arm leaves an overhead wire, so that the trolley-arm will drop by gravity to a position beneath the cross-wires.

14. A trolley-arm, a notched head depending from the pivot of the arm in combination with a supporting-spring provided with means for directly engaging said notch.

15. A trolley-arm, a notched head depending from the pivot of the arm, in combination with a supporting-spring and a cross-piece connected to the spring for directly engaging said notch.

679,493. **WAGON RUNNING-GEAR.** CHARLES E. BELKNAP, Grand Rapids, Mich. Filed Mar. 20, 1901. Serial No. 52,096. (No model.)



Claim.—In combination with the axletrees of a wagon, a cross-reach pivoted at opposite ends to the respective axletrees, a second cross-reach forming an X therewith, a link pivoted at one end to each end of the latter reach and at the other end to the respective axletrees, a guard at the crossing-point of the reaches, and antifriction-rollers between the guard and first-named reach, substantially as and for the purpose set forth.

679,494. **BODY AND TRUCK BOLSTER FOR RAILWAY-CARS.** WILLIAM P. BETTENDORF, Davenport, Iowa. Filed Dec. 27, 1899. Serial No. 741,764. (No model.)

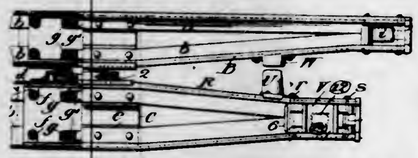
Claim.—1. In a bolster for cars, a metallic beam consisting of a flat plate provided with a plurality of parallel longitudinal webs projecting from the face of the plate between its edges.

2. In a bolster for cars a rolled-metal beam consisting of a flat plate provided with parallel longitudinal webs and longitudinal beads next the side edges thereof.

3. In a bolster for cars a rolled-metal beam consisting of a flat plate provided with parallel longitudinal webs projecting at right angles therefrom between its center of width and its longitudinal side edges, and provided with longitudinal beads next said side edges.

4. A bolster for cars comprising a pair of beams, each provided with

a longitudinal web located between its edges, said webs extending toward each other, and means for uniting said beams.



5. A bolster comprising a pair of beams, each provided with one or more vertical, longitudinal webs located between its edges, said webs extending toward each other, and being separated at their central portions and brought into contact and union at their ends.

6. A bolster for cars consisting of upper and lower sections of rolled-metal beams each comprising a flat horizontal plate having longitudinal webs, and vertical plates which have their longitudinal side edges flanged and are secured to the webs of and hold the central portions of said sections a suitable distance apart; said sections being so arranged one above the other that the webs of one section project toward and aline with those of the other, and said sections having their end portions bent toward the other so that the webs thereof come in contact and are suitably fastened together.

7. A bolster for cars consisting of upper and lower sections of rolled-metal beams, each comprising a flat horizontal plate having longitudinal webs, and vertical plates having their longitudinal side edges flanged and secured to and holding the central portions of said sections a suitable distance apart; said sections being so arranged, one above the other, that the webs of one section project toward the others, and said sections having their end portions bent toward the other so that the webs thereof come in contact and are suitably fastened together.

8. A bolster for cars consisting of upper and lower sections of rolled-metal beams each comprising a flat horizontal plate having longitudinal webs, and vertical plates having their longitudinal side edges correspondingly flanged and having longitudinal ridges projecting from the other side thereof; said vertical plates being secured to the web of said sections so that the edges of said webs are seated against the sides of said ridges so as to hold the central portions of said sections a suitable distance apart; said sections being so arranged, one above the other, that the webs of the one section project toward and are coterminous with those of the other, and said sections having their end portions bent toward the other so that the webs thereof come in contact and are suitably fastened together.

9. A car-bolster comprising two sections, each consisting of a plate and an inwardly-extending web, means for centrally separating said sections having surfaces engaging the inner edges of the webs to form bearings therefor, and means for uniting the ends of the sections.

10. A bolster for cars consisting of upper and lower sections of rolled-metal beams each comprising a flat horizontal plate having longitudinal webs, and so arranged, one above the other, that the webs of one section project toward and are coterminous with the other, vertical plates secured to the inner sides of the webs, and holding the central portions of said sections a suitable distance apart, transverse bolts securing said plates to said webs and sleeves placed between said vertical plates through which said bolts pass; said sections having their end portions bent toward the other so that the webs thereof come in contact and are suitably fastened together.

11. A bolster for cars consisting of centrally-separated upper and lower sections of rolled-metal beams comprising a horizontal plate having longitudinal webs, said sections being so arranged that the webs of one project toward those of the other, the end portions of said sections being inclined or bent toward each other until the webs thereof come in contact and then bent parallel to each other the remainder of their length and fastened together, in combination with an end plate placed flat against the ends of said united sections so that their flanged edges conform to the outer contours of and embrace the same.

12. A bolster for cars consisting of upper and lower centrally-separated sections of beams comprising a horizontal plate having longitudinal webs; said sections being so arranged that the webs of one project toward those of the other, and, having their end portions bent toward the other until their webs come in contact and then being parallel the remainder of their lengths, in combination with a suitable casting fitting between the plates of the parallel end portions of said sections, end plates conforming to the outer contours of the ends of said united sections and having its ends flanged so as to embrace the same and having inwardly-projecting lugs, and vertical bolts passing through the plates of said sections, through said castings and the lugs of said end plates.

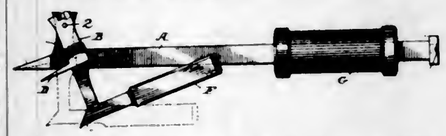
13. A bolster for cars consisting of upper and lower centrally-separated sections of beams comprising a horizontal plate having parallel longitudinal webs, respectively projecting therefrom between its center of width and its side edges, and having longitudinal marginal beads next said side edges; said sections being so arranged that the webs of one project toward and are in the same vertical plane as those of the other, and, one or both, having their end portions bent toward the other until said webs come in contact and are secured together.

14. A car-bolster consisting of an upper and a lower section, each comprising a flat plate having a longitudinal web, said webs being arranged in opposition to each other and brought into contact near their ends, a key passing through an opening in said webs, means for securing one end of said key to the opposing plates on one side of the web, and means for holding the other end of said key in engagement with the webs on the other side thereof.

15. A car-bolster consisting of an upper and a lower section, provided with opposing webs, said webs being brought into contact near their ends, a key passing through an opening in said webs, and means for securing said key to the two sections on both sides of the webs.

16. A car-bolster consisting of an upper and a lower section each provided with two webs, arranged to oppose those on the other section, the opposing webs being brought into engagement near their ends and provided with registering apertures, a key passing through said apertures having exterior and interior knuckles, means for securing the exterior knuckles to the two sections, and an end plate having lugs to engage the interior knuckles.

679,495. BOX-OPENING TOOL. ADOLPHUS C. BOWER, Newkirk, Okla., assignor to H. E. Farnsworth, same place. Filed Apr. 21, 1899. Serial No. 713,911. (No model.)



Claim.—1. In a box-opening tool, the combination with a lifting-lever extending in the plane of the box-cover and provided at its operative end with a lifting-chisel forming a horizontal extension of the lever, and with a pivoted support extending upwardly adjacent to the chisel at substantially right angles to the lever and chisel, of two dependent fulcrum members pivoted on opposite sides of said support, and horizontal forwardly-extending chisels carried by said members respectively, said chisels extending on opposite sides of the lifting-chisel to equalize the strains and extending in the same direction and substantially coextensively with the lifting-chisel so that they can be inserted beneath the box-cover simultaneously with the said lifting-chisel, and said pivot-support being by its location on the end of the lifting-lever, adapted to lie close to the box-cover when the chisels are inserted thereunder, whereby when the outer end of the lifting-chisel is depressed the pressure will be exerted directly downward upon the fulcrum-chisels and the top of the box.

2. In a box-opening tool, the combination with a lifting-lever extending in the plane of the box-cover and provided at its operative end with a lifting-chisel forming a continuation of the lever, and with a pivot-support extending upwardly adjacent to the chisel at substantially right angles to the lever and chisel; of two dependent fulcrum members pivoted on opposite sides of said support; and horizontal forwardly-extending chisels carried by said members respectively, said chisels extending on opposite sides of the lifting-chisel to equalize the strains and extending in the same direction and substantially coextensively with the lifting-chisel so that they can all be simultaneously inserted beneath the box-cover; portions of the lifting-lever having their rear surfaces in substantially the same plane with the rear surfaces of said fulcrum members when all three chisels are in alinement, whereby they can all be simultaneously forced between the box and its cover.

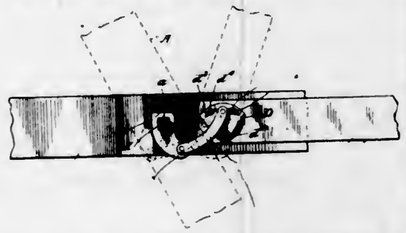
3. In a box-opening tool, the combination with a lifting-lever extending in the plane of the box-cover and provided at its operative end with a lifting-chisel forming a continuation of the lever, and with a pivot-support extending upwardly adjacent to the chisel at substantially right angles to the lever and chisel; of two dependent fulcrum members pivoted on opposite sides of said support; and horizontal forwardly-extending chisels carried by said members respectively, said chisels extending on opposite sides of the lifting-chisel to equalize the strains and extending in the same direction and substantially coextensively with the lifting-chisel so that they can all be simultaneously inserted beneath the box-cover; portions of the lifting-lever having their rear surfaces in substantially the same plane with the rear surfaces of said fulcrum members when all three chisels are in alinement, whereby they can all be simultaneously forced between the box and its cover; and a ram mounted on the lever and adapted to be reciprocated to impinge against the rear surfaces of the lever and fulcrum members.

4. A box-opener, which comprises a lifting-lever having a projection adapted to be inserted beneath the box-cover, a fulcrum-bar hinged to said lever and having a projection adapted to be inserted beneath the box-cover simultaneously with the lever, the rear faces of the projections on such lever and bar being so located with respect to each other that a blow can be delivered to both at the same time to drive them simultaneously beneath the box-cover.

5. A box-opener, which comprises a lifting-lever adapted to be grasped by the hand of the operator, and to have one end inserted beneath a box-cover, a fulcrum-bar pivoted at one end to the lifting-lever at a point which is above the box-cover when the lever is inserted thereunder, said bar being adapted to be inserted beneath the box-cover at the same time as the end of the lifting-lever, and means carried by said bar for engaging in the side of said box.

6. In a box-opening tool, the combination with a lifting-lever extending in the plane of the box-cover and provided at its outer end with a lifting-chisel, a projection extending upwardly from the portion where the chisel and lever meet so as to lie adjacent to the box-cover, fulcrum members pivoted to hang freely from the outer part of said extension, and chisels carried by said members in alinement with the lifting-chisel, so that all three can be inserted beneath the box-cover, and so that when the outer end of the lever is depressed the chisels of the hanging fulcrum members will press down on the top of the box, and the lifting-chisel will press upwardly against the box-cover.

679,496. RAILWAY-GATE. LYMAN CARRIER, Joliet, Ill. Filed Feb. 5, 1901. Serial No. 46,089. (No model.)

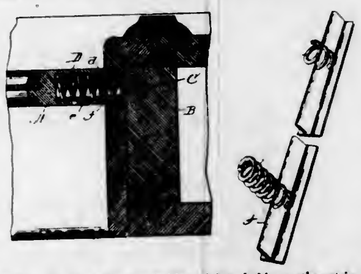


Claim.—1. In a railway-gate, the combination of a standard, a shaft mounted therein, a roadway gate-arm carried by said shaft, operating means for said shaft, a sidewalk gate-arm, and connections between the shaft and sidewalk gate-arm, the same comprising an adjustable plate upon said arm, a crank upon the shaft, and a link connecting said plate and crank, substantially as set forth.

2. In a railway-gate, the combination of hollow standards, shafts mounted therein and provided with cranks, roadway gate-arms carried by said shafts, sidewalk gate-arms, connections between the shafts and sidewalk gate-arms comprising adjustable plates upon said arms, cranks upon the shafts, and links connecting the said plates and shafts, a platform having an operating-lever mounted thereon, pipes or conduits connecting the standards at each side of the gateway, a transverse pipe or conduit connecting opposing standards at one end and upon opposite sides of the gateway, a third conduit connecting the platform and one of the standards, and cables passing through the conduits and standards and connecting the said operating device to the cranks, substantially as described

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679,497. WEATHER-STRIP. ANDREW CRAIG, Lawrence, Mass. Filed Oct. 11, 1900. Serial No. 32,701. (No model.)



Claim.—1. A readily attachable and detachable weather-strip, comprising a T-shaped bar, and a series of springs having the coil thereof adjacent said bar fixedly and permanently secured to the stem of said bar, the said springs being otherwise free.

2. A weather-strip composed of a T-shaped bar, and a series of permanently-connected spiral springs, the stem of the bar entering the end of the spring.

3. A weather-strip composed of a T-shaped bar, provided with a series of openings to receive and hold a coil of the spring.

4. A weather-strip composed of a T-shaped bar having a series of holes arranged in pairs, one hole of each bar being farther from the edge of the stem than the other hole, and a series of springs entering said holes to thereby permanently attach the springs to the strip.

5. A sash-frame, a sash having one of its side edges provided with a narrow longitudinal groove, said groove being provided with a series of pockets at right angles to the length of the sash; combined with a T-shaped weather-strip having connected with the stem thereof permanently a series of spiral springs, said springs entering the pockets in the edge of the sash, the stem of the strip entering the groove in the edge of the sash, the strip applied to the sash preventing the passage of air between the sash and frame, the springs being removable from the sash with the strip.

679,498. APPLIANCE FOR MAKING PLASTERS. HENRY A CROSS, Camden, Me. Filed Apr. 16, 1901. Serial No. 56,116. (No model.)



Claim.—1. An apparatus for making plasters, comprising a bed or block adapted to support a flexible sheet, the margin of said bed being depressed and separated from the raised central portion thereof by a compressible shoulder, and a movable frame formed to hold the marginal portion of the sheet down upon the depressed portion of the bed, the under side of the frame having a beveled face adapted to compress and closely confine the portion of the sheet bearing on said shoulder, and prevent access to said portion of a melted coating composition applied to the exposed portion of the sheet, the inner edge of the frame constituting a knife-guide, so that the cooled portion of the coating lying on the frame may be trimmed from the portion lying on the exposed portion of the sheet.

2. An apparatus for making plasters, comprising a bed or block adapted to support a flexible sheet, the margin of said bed being depressed and separated from the raised central portion thereof by a compressible shoulder, a movable frame formed to hold the marginal portion of the sheet down upon the depressed portion of the bed, the under side of the frame having a beveled face adapted to compress and closely confine the portion of the sheet bearing on said shoulder, said frame being hinged at one end to the bed, and a clamp composed of a member mounted on the swinging end of the frame, and a cooperating member mounted on the bed, whereby downward pressure may be exerted on the frame.

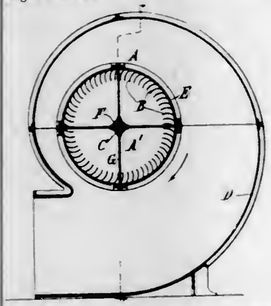
3. An apparatus for making plasters, comprising a bed or block adapted to support a flexible sheet, a movable frame formed to bear on the marginal portion of the said sheet and prevent the access to said marginal portion of a melted coating composition applied to the central portion of the sheet, the inner edge of the frame constituting a knife-guide, so that the surplus portion of the cooled coating lying on the frame may be trimmed from the portion lying on the exposed portion of the sheet, and a base to which said block is pivoted, whereby the block may be turned horizontally to facilitate the trimming operation.

4. An apparatus for making plasters, comprising a bed or block adapted to support a flexible sheet, the margin of said bed being depressed and separated from the raised central portion thereof by a compressible shoulder, and a movable frame composed of a frame-body hinged at one end to the bed and formed to surround the upper portion of the same, and a flange projecting inwardly from the said body over the depressed marginal portion of the bed, the under side of the flange having a beveled face adapted to compress and closely confine the portion of the sheet bearing on said shoulder, while the inner edge of the flange constitutes a knife-guide.

679,499. ROTARY FAN AND PUMP. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Nov. 20, 1899. Serial No. 737,597. (No model.)

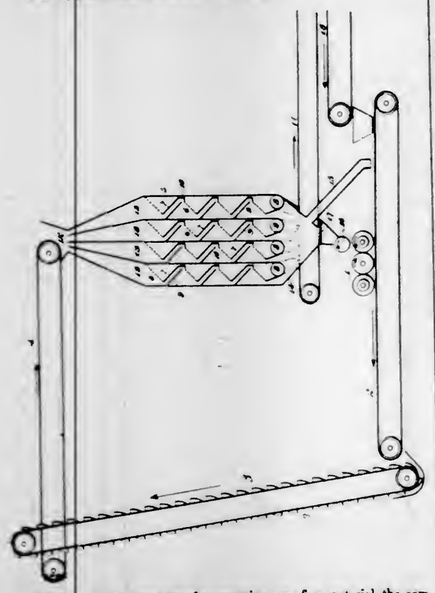
Claim.—1. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it

tangentially, said rotary member being open at both ends, so that the fluid operated on may be taken in axially through both ends thereof, and having a hub, annular supports engaging the outer edges of said blades and adjustable stays connecting said supports with said hub, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.



2. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, said rotary member being open at both ends, so that the fluid operated on may be taken in axially through both ends thereof, and having a hub, annular supports engaging said blades at their ends, and adjustable stays connecting said supports with said hub, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

679,500. **APPARATUS FOR SCREENING OR SIZING VERY FINE MATERIALS.** THOMAS A. EDISON, Llewellyn Park, N. J. Filed Jan. 31, 1900. Serial No. 3,457. (No model.)



Claim.—1. In apparatus for screening very fine material, the combination of a screen, a crushing device, means to divide the tailings of the screen and to pass a proportion of such tailings through the crushing device, and means to convey the crushed proportion and the uncrushed proportion of tailings back to the screen, substantially as set forth.

2. In apparatus for screening very fine material, the combination with a screen, a crushing device, means to divide the tailings of the screen and to pass a proportion of such tailings through the crushing device, means to convey the crushed proportion and the uncrushed proportion of tailings back to the screen, and means to supply an additional proportion of uncrushed material to the screen equal to the screenings removed from the crushed proportion, substantially as set forth.

3. In apparatus for screening very fine material, the combination of a screen, a hopper, a crushing device, a conveyer below said device, means to direct a proportion of the screen tailings in said hopper through the crushing device and to direct the other proportion of such tailings onto said conveyer, and connections between the conveyer and the screen, substantially as set forth.

4. In apparatus for screening very fine material, the combination of a screen, a hopper, a crushing device, a conveyer below said device, means to direct a proportion of the screen tailings in said hopper through the crushing device and to direct the other proportion of such tailings onto said conveyer, connections between the conveyer and the screen, and a supply-conveyer for supplying to the system uncrushed material to compensate for the separated screenings, substantially as set forth.

5. In apparatus for screening very fine material, the combination of a bank of screens, a hopper located beneath all of said screens and receiving the tailings therefrom, crushing-rolls beneath said hopper, a conveyer beneath said rolls, a roller-feed for directing a proportion of the tailings from said hopper through the rolls, a chute for directing a proportion of said tailings to the conveyer, and connections between the conveyer and the bank of screens for returning to the screens the crushed and uncrushed tailings therefrom, substantially as set forth.

6. In apparatus for screening very fine material, the combination of a bank of screens, a hopper located beneath all of said screens and receiving the tailings therefrom, crushing-rolls beneath said hopper, a conveyer beneath said rolls, a roller-feed for directing a proportion of the tailings from said hopper through the rolls, a chute for directing a proportion of said tailings to the conveyer, connections between the conveyer and the bank of screens for returning to the screens the crushed and uncrushed tailings therefrom, and a supply-conveyer for supplying to the system a proportion of uncrushed material to compensate for the removed screenings, substantially as set forth.

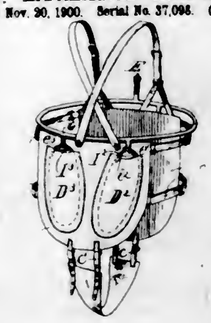
679,501. **PHOTOGRAPHIC PROCESS AND PRODUCT.** LOUIS A. GARCHEY, Demi-Lune, France. Filed Oct. 31, 1899. Serial No. 735,403. (No specimens.)

Claim.—1. The process of photographic reproduction which consists in covering a plate with sensitive material containing potassium bichromate in which collodion and an antiphotogenic substance have been incorporated, exposing said plate, covering the same with suitable enamel-powder, removing the bichromate by repeated acid washings, covering the whole with an isolating layer, and finally baking the same.

2. The process of photographic reproduction in colors which consists in applying a coating of translucent enamel to a plate, applying a film of sensitive material containing potassium bichromate in which collodion and an antiphotogenic substance have been incorporated, exposing and covering said film with an enamel-powder of one color, removing the potassium bichromate by repeated acid washings, applying an isolating-coating to said film, repeating said steps with enamel-powders of other colors, and finally baking the whole.

3. A plate having thereon a foundation coating of translucent enamel, successive films printed from collodionized sensitive material containing potassium bichromate and an antiphotogenic substance, and isolating-coatings between the successive films, the images printed on said successive films being in colored enamels, and the whole being baked.

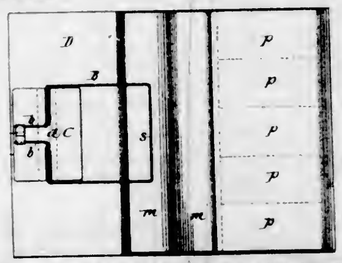
679,502. **LIFE-PRESERVER.** GEORGE GRAHAM, Port Arthur, Tex. Filed Nov. 20, 1900. Serial No. 37,098. (No model.)



Claim.—1. In a life-preserver, the combination with two flaps to fit the front and back of the human body, pockets on said flaps, and suspenders, side bands and bottom bands attached to said flaps for holding the same in proper position, of air-tight bags in said pockets, a flexible annular tube, short tubes connecting said annular tube with said bags and valves as specified adapted for the inflation of said tubes and bags, and for the closing of the same, all substantially as and for the purpose set forth.

2. In a life-preserver, the combination with two flaps of adaptable fabric, for engagement with the front and back of the human body, pockets on said flaps adjustable suspenders attached to the upper edges of said flaps, adjustable side bands attached to the sides of said flaps, and connecting them together, a bottom band, and adjustable straps connecting said bottom band and the lower edge of said flaps of air-tight bags in said pockets, an annular, flexible air-tight tube, short flexible air-tight tubes, connecting said air-tight bags and said annular tube, air-valves on said short tubes between said air-tight bags and said annular tube and an inflation-valve in said annular tube, and all such valves arranged so that said tubes and bags may be inflated with air and also closed to prevent the escape of air therefrom all substantially as shown and described.

679,503. **STUB-HOLDER FOR CHECK-BOOKS.** WILLIAM H. HAWKINS, Springfield, Mass. Filed Nov. 26, 1900. Serial No. 37,781. (No model.)



Claim.—1. A stub-holder constructed from spring-wire comprising an open frame one border of which is free for engaging stubs, frame extremities opposite said stub-engaging border extending in parallelism laterally from said frame, bent-in portions of said frame connecting said extremities therewith, means for attaching the frame to a book-cover consisting of a paper or like board having surface grooves to receive said bent-in portions of the frame, and perforations at the adjoining ends of said grooves through which said frame extremities pass to the surface of said board and on which they are vertically adjustable, said board being cemented to the cover of the stub-containing book, thereby firmly uniting said frame and cover, substantially as described.

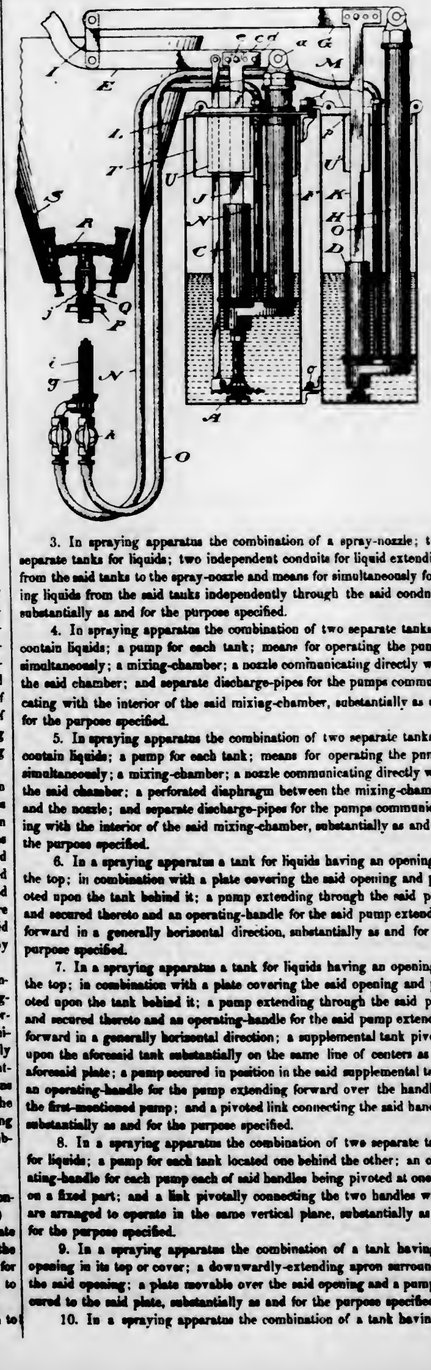
2. A stub-holder constructed from spring-wire comprising an open frame one border of which is free for engaging stubs, frame extremities opposite said stub-engaging border extending in parallelism laterally from said frame, bent-in portions connecting said extremities therewith, means for attaching the frame to a book-cover consisting of paper or like board having surface grooves to receive said bent-in portions of the frame, and perforations at the adjoining ends of said grooves through which said frame extremities pass to the surface of said board and on which they are vertically adjustable, and means for uniting said frame extremities, said board being cemented to the cover of the stub-containing book, thereby firmly uniting said frame and cover, substantially as described.

3. A device substantially as specified for the purposes described consisting of a stub-containing book, a stub-holder constructed from spring-wire comprising an open frame, a stub-engaging border of the frame, borders extending laterally from the stub-engaging border, frame extremities opposite the stub-engaging border extending in parallelism laterally from the frame, parts of the frame connecting the borders extending laterally from the stub-engaging border with the frame extremities, means securing the parts connecting the borders extending laterally from the stub-engaging border with the frame extremities to the stub-containing book, said frame extremities being bent up and means uniting them, substantially as set forth.

679,504. **SPRAYING APPARATUS.** WILLIAM H. HEARD, London, Canada. Filed Dec. 31, 1900. Serial No. 41,001. (No model.)

Claim.—1. In spraying apparatus the combination of two separate tanks to contain liquids; a pump for each tank; means for operating the pumps simultaneously; a spray-nozzle; and separate discharge-pipes for the pumps communicating with one another in immediate proximity to the spray-nozzle, substantially as and for the purpose specified.

2. In spraying apparatus the combination of two separate tanks to contain liquids; a pump for each tank; means for operating the pumps simultaneously; a spray-nozzle; separate discharge-pipes for the pumps communicating with one another in immediate proximity to the spray-nozzle; and means for adjusting the relative action of the said pumps, substantially as and for the purpose specified.



3. In spraying apparatus the combination of a spray-nozzle; two separate tanks for liquids; two independent conduits for liquid extending from the said tanks to the spray-nozzle and means for simultaneously forcing liquids from the said tanks independently through the said conduits, substantially as and for the purpose specified.

4. In spraying apparatus the combination of two separate tanks to contain liquids; a pump for each tank; means for operating the pumps simultaneously; a mixing-chamber; a nozzle communicating directly with the said chamber; and separate discharge-pipes for the pumps communicating with the interior of the said mixing-chamber, substantially as and for the purpose specified.

5. In spraying apparatus the combination of two separate tanks to contain liquids; a pump for each tank; means for operating the pumps simultaneously; a mixing-chamber; a nozzle communicating directly with the said chamber; a perforated diaphragm between the mixing-chamber and the nozzle; and separate discharge-pipes for the pumps communicating with the interior of the said mixing-chamber, substantially as and for the purpose specified.

6. In a spraying apparatus a tank for liquids having an opening in the top; in combination with a plate covering the said opening and pivoted upon the tank behind it; a pump extending through the said plate and secured thereto and an operating-handle for the said pump extending forward in a generally horizontal direction, substantially as and for the purpose specified.

7. In a spraying apparatus a tank for liquids having an opening in the top; in combination with a plate covering the said opening and pivoted upon the tank behind it; a pump extending through the said plate and secured thereto and an operating-handle for the said pump extending forward in a generally horizontal direction; a supplemental tank pivoted upon the aforesaid tank substantially on the same line of centers as the aforesaid plate; a pump secured in position in the said supplemental tank; an operating-handle for the pump extending forward over the handle of the first-mentioned pump; and a pivoted link connecting the said handles, substantially as and for the purpose specified.

8. In a spraying apparatus the combination of two separate tanks for liquids; a pump for each tank located one behind the other; an operating-handle for each pump each of said handles being pivoted at one end on a fixed part; and a link pivotally connecting the two handles which are arranged to operate in the same vertical plane, substantially as and for the purpose specified.

9. In a spraying apparatus the combination of a tank having an opening in its top or cover; a downwardly-extending apron surrounding the said opening; a plate movable over the said opening and a pump secured to the said plate, substantially as and for the purpose specified.

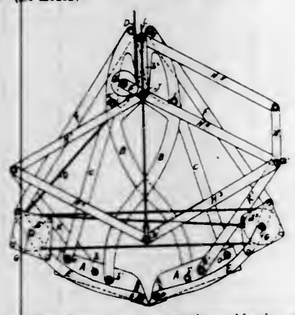
10. In a spraying apparatus the combination of a tank having an

opening in its top or cover; a downwardly-extending sleeve or flange surrounding the said opening; a slotted plate covering the said opening; and a downwardly-extending apron or flange surrounding the slot in the said plate, substantially as and for the purpose specified.

11. In a spraying apparatus a tank having an opening in its top or cover in combination with a slotted plate covering the said opening; and a downwardly-extending apron or flange surrounding the slot in the said plate, substantially as and for the purpose specified.

12. In a spraying apparatus, the combination of a liquid-tank, two pumps for discharging the liquid, a pivoted handle, the plunger-rod of one of said pumps having a T-head, a plurality of holes in said handle and head, and a pin for connecting said handle with said T-head through any of said holes, substantially as described.

679,505. **EXCAVATING APPARATUS.** FRANK K. HOOVER and ARTHUR J. MASON, Kansas City, Mo. Filed Mar. 29, 1897. Serial No. 629,740. (No model.)



Claim.—1. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays, and auxiliary arms also pivoted to said trays in rear of the pivotal connection of said principal arms therewith and each extending to and connected with the principal lever-arm of the opposite tray, substantially as described.

2. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, said arms crossing each other intermediate their pivotal points in all positions of the trays, and auxiliary arms also pivoted to said trays and each extended to and connected with the proximate portion of the opposite principal arm, substantially as described.

3. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, said arms crossing each other intermediate their pivotal points in all positions of the trays, and auxiliary arms also pivoted to said trays in rear of the pivotal connection of said principal arms therewith and each extended to and connected with the proximate portion of the opposite principal arm, substantially as described.

4. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, auxiliary arms also pivoted to said trays and to the proximate portions of the principal lever-arms respectively, and means for closing the trays, said means comprising a pair of toggles the outer ends of which are pivoted to the trays and to the opposite principal lever-arms respectively, and a suitably-guided cable connecting and drawing together the knees of the toggles, substantially as described.

5. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, auxiliary arms also pivoted to said trays and to the proximate portions of the principal lever-arms respectively, and means for closing the trays, said means comprising a pair of oppositely-disposed toggles, the outer ends of which are pivoted to the noses of the trays and the upper extremities of the principal lever-arms respectively, and a suitably-guided cable connecting and drawing together the knees of the toggles, substantially as described.

6. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, auxiliary arms also pivoted to said trays and to the proximate portions of the principal lever-arms respectively, and means for closing the trays, said means comprising a pair of toggles the outer ends of which are pivoted to the trays and to the opposite principal lever-arms respectively, guide-sheaves mounted at the knees of the toggles and near the pivotal connection of the principal lever-arms, and a suitable cable passing over said sheaves, substantially as described.

7. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, auxiliary arms also pivoted to said trays and to the proximate portions of the principal lever-arms respectively, and means for opening the trays, said means comprising a pair of oppositely-disposed toggles pivoted together at their outer ends, the knee of one of said toggles being at the pivotal connection of the principal lever-arms, connections between the outer ends of the toggles and the trays, and a suitable cable connected to the knee of the other toggle, substantially as described.

8. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever-arms pivotally connected with said trays and with each other, auxiliary arms also pivoted to said trays and to the proximate portions of the principal lever-arms respectively, and means for opening the trays, said means comprising a pair of oppositely-disposed toggles pivoted together at their outer ends and having means connected therewith for effecting the simultaneous and equal movement of said toggles toward and past each other, the knee of one of said toggles being at the pivotal connection of the principal lever-arms, connections between the outer ends of the toggles and the trays, and a suitable cable connected to the knee of the other toggle, substantially as described.

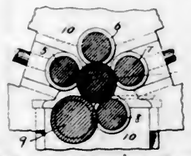
9. In an excavating apparatus, the combination with a pair of oppositely-disposed trays, of principal lever arms pivotally connected with said trays and with each other, auxiliary arms also pivoted to said trays and to the proximate portions of the principal lever-arms respectively, toggle mechanism connected to said trays through the actuation of which the trays may be opened, other toggle mechanism also connected to said trays by the actuation of which the trays may be closed, and suitable cables connected to and actuating said toggle mechanisms, substantially as described.

679,506. **PLUMB-LEVEL.** GEORGE W. KRAHLL, Milford, Nebr., assignor of one-half to Peter M. Smith, Canton, Ohio. Filed Apr. 4, 1901. Serial No. 54,266. (No model.)



Claim.—The combination of a bar provided with a chamber, plates located upon the sides of the chamber and provided with curved slots or openings, and scaled portions located at the sides of the openings in the plates, a chambered bob pivotally connected to the plates and provided with mercury, indicators or pointers pivotally attached to side lugs formed upon the bob and provided with slots and screws passed through the slots formed in the pointers and seated in the bob, all arranged, substantially as and for the purpose specified.

679,507. **PROCESS OF MAKING SMALL PIPE-COUPLINGS.** GEORGE W. LA VOO, Pittsburg, Pa., assignor to the National Tube Company, New York, N. Y. Filed June 23, 1900. Serial No. 21,308. (No model.)



Claim.—1. The method of forming small couplings or similar articles in cluster-roll welding consisting in forming a plate or bar of such length and thickness that two coils are necessary to form a coupling having walls of the desired thickness, raising said plate or bar to a welding heat, feeding the double-length plate to a cluster of rolls surrounding a mandrel, and in one operation coiling the same into tubular form, welding the layers together, and shaping the body of the coupling.

2. The method of forming small couplings or similar articles, consisting in forming a plate or bar of width corresponding to two or more couplings, and of length and thickness such that two coils are necessary to form a coupling having walls of the desired thickness, raising said plate or bar to a welding heat, and in one operation coiling the same into tubular form, welding the layers together and cutting through one or more layers, thereby shaping a number of couplings from a single blank.

3. The method of forming small couplings or similar articles, consisting in forming a plate or bar of width corresponding to two or more rings and of length and thickness such that two coils are necessary to form a coupling having walls of the desired thickness, raising said plate or bar to a welding heat, and in one operation coiling the same into tubular form, welding the layers together and cutting through the outermost layer, thereby shaping a number of couplings from a single blank and forming thin web connections between them.

4. The method of forming small couplings or similar articles, consisting in forming a plate or bar of width corresponding to two or more couplings, and of length and thickness such that two or more coils are necessary to form a coupling having walls of the desired thickness, raising said plate or bar to a welding heat and in one operation coiling the same into tubular form, welding the layers together and cutting through the outermost layer, thereby shaping a number of couplings from a single blank and forming thin web connections between the same, and subsequently threading the blanks so produced, thereby cutting away the web portions and separating the several couplings.

5. The method of forming small couplings or similar articles consisting in forming a plate or bar of such length and thickness that two coils are necessary to form a coupling having walls of the desired thickness, raising such plate or bar to a welding heat, so grasping the heated blank as to preserve the welding heat at its ends, feeding the same to the rolls, and in one operation coiling the same into tubular form, welding the layers together and shaping the body of the coupling.

679,508. **METHOD OF TREATING RAMIE FIBER.** HEINRICH LINNEKOGEL, Stuttgart, Germany. Filed Aug. 25, 1899. Serial No. 728,498. (No specimens.)

Claim.—The method of treating ramie fiber for depriving it of gummy matter, consisting in mixing dried ramie fiber (about one hundred parts), soap (about ten parts), soda=Na_2Co_3 (about twenty parts), glycerin (about ten parts), and pumice (about one part) with a sufficient quantity of water free of lime, boiling this mixture about twelve to sixteen hours, again drawing the fiber through an about five-per-cent. solution of soap and removing any particles of wood by means of an about five-per-cent. solution of sulfuric acid.

679,509. **ROLLER-BEARING.** HENRY MOSS, Cambridge, Mass. Filed Sept. 20, 1900. Serial No. 30,670. (No model.)



Claim.—A roller-bearing comprising an upper box and a lower box, a series of rolls placed in said upper box, a plate secured to each end of said upper box, there being a semicircular inwardly-projecting flange on each plate which is adapted and arranged to engage the opposite ends of said rolls and support the same, the upper surface of the lower box extending under and engaging the lowest rolls on each side of the axle, and means for securing the two parts of the bearing together.

679,510. **EMBROIDERY-HOOP.** JOHN H. POST, Andover, Conn. Filed Sept. 22, 1900. Serial No. 30,839. (No model.)



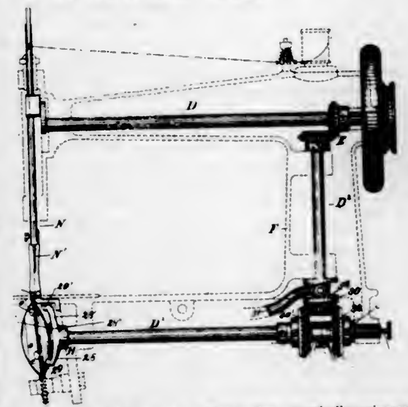
Claim.—1. In combination in an embroidery-hoop, an inner section, an outer section having a cut extending in an indirect line across the hoop from edge to edge and providing separated interlocked ends, and a compound spring extending across the cut and attached at opposite ends to the respective ends of the hoop-section.

2. In combination in an embroidery-hoop, an inner section, an outer section having a cut extending in an indirect line across the hoop from edge to edge and providing separated interlocked ends, and a compound spring of wire bent to conform to the outer surface of the hoop-section and also in loops which extend alternately in opposite directions across the central line of the spring, and means for attaching the opposite ends of the spring to the respective ends of the outer section of the hoop.

3. In combination in an embroidery-hoop, an inner section, an outer section having a cut extending in an indirect line across the hoop from edge to edge and providing separated interlocked ends, and means for yieldingly holding said ends in engagement.

4. In combination in an embroidery-hoop, an inner section, an outer section having a V-shaped cut separating the ends and providing interlocking parts arranged to prevent independent lateral movement of the ends, and means for yieldingly holding said ends in engagement.

679,511. **SEWING-MACHINE.** FRANCIS H. RICHARDS, Hartford, Conn., assignor to Jeremiah Evarts Tracy, Plainfield, N. J. Filed Jan. 26, 1895. Serial No. 536,338. (No model.)



Claim.—1. In a sewing-machine having a vertically-reciprocating needle-bar, the combination therewith of a revolnble looper having sets of peripheral loop-engaging hooks, the hooks of one set being oppositely disposed relatively to the hooks of another set, and each hook having a loop-receiving opening contiguous thereto; driving mechanism in operative connection with and adapted for simultaneously operating said needle-bar and looper at comparative velocities of a predetermined ratio; and looper locking and reversing mechanism in operative connection with, and adapted for changing the direction of movement of, said looper, and also adapted for maintaining an operative relation between the needle-bar and one or the other of the sets of hooks of the looper.

2. In a sewing-machine, an annular recessed looper having sets or series of peripheral loop-engaging hooks, the hooks of one set of which are oppositely disposed relatively to and alternate with the hooks of another set, in combination with reversing driving-gearing composed of members mounted on the loop-taker-driving shaft, and adapted for rotating said shaft, and thereby the looper, in one or the other direction.

3. In a sewing-machine of the class specified, the combination, with a reversibly-revoluble looper, of reversing driving mechanism for said looper consisting of a loop-taker-actuating shaft; two gears revolubly mounted on said shaft; means in position and adapted for locking and releasing said gears reciprocally relatively to the shaft, and for locking one of said gears to the shaft and to the other gear before releasing said other gear from locked engagement with the shaft, and vice versa; and means for rotating said gears in opposite directions.

4. In a sewing-machine of the class specified, the combination, with a reversibly-revoluble looper, of a loop-taker-actuating shaft; two oppositely-disposed driven gears revolubly mounted on said shaft, and having notched hubs in bearing contact; a clutch member carried by the shaft and having a clutch-pin seated in a notch in one or the other of the driven-gear hubs, and adapted for locking and releasing said gears reciprocally relatively to the looper-actuating shaft, and for locking one gear to the shaft and to the other gear before the release of said other gear from locked engagement with the shaft, and vice versa; and means for rotating said driven gears in relatively opposite directions.

5. In a sewing-machine, the combination, with a reciprocating needle and needle-actuating mechanism and with a revolubly-reversible looper and its actuator, of looper-reversing mechanism in direct operative connection with the looper-actuator, and consisting of two driven gears revolubly mounted on said actuator; a clutch carried by said actuator in position and adapted for locking and releasing said gears reciprocally relatively to said actuator, and for locking one gear to the actuator and to the other gear before the unlocking of said other gear from the actuator, and vice versa; a driving-gear in mesh with and adapted for rotating said driven gears in opposite directions; and means for rotating said driving-gear.

6. In a sewing-machine, the combination, with a reversibly-revoluble looper having sets of peripheral loop-engaging hooks, the hooks of one set being oppositely disposed relatively to and alternating with the hooks of another set, and with a vertically-reciprocating needle-bar and

its actuating-shaft, of a looper-actuating shaft carrying a driver in position and adapted for rotating the looper; an intermediate shaft operatively connected with the needle-bar-actuating shaft, and carrying a driving-gear adjacent to the looper-actuating shaft; two reversing driven gears revolubly mounted on the looper-actuating shaft and meshing with the driving-gear of the intermediate shaft; and a clutch device carried by the looper-shaft in position and adapted for locking and releasing the driven gears reciprocally relatively to said shaft, and for locking one of said gears to the shaft and to the other gear before unlocking said other gear from the shaft, and vice versa; and also adapted for maintaining an operative relation between the needle-bar and the sets of hooks of the loop-taker, irrespective of the direction of movement of the loop-taker.

7. In a sewing-machine, the combination, with a revolubly-reversible looper having oppositely-disposed loop-engaging hooks, and with a looper-actuating shaft carrying a driver in position and adapted for rotating said looper, of looper-reversing mechanism comprising two independent oppositely-disposed driven gears, two independent sleeves revolubly mounted on the looper-actuating shaft, and having clutch-pin sockets in adjacent ends thereof, adapted for receiving a clutch-pin, and each sleeve carrying one of said driven gears; a clutch shiftably carried by said shaft, and adapted for engaging in the clutch-sockets in the two sleeves reciprocally of the driven gears, and adapted for locking one sleeve and gear to the other sleeve and to the shaft before unlocking said other sleeve from locked engagement with the shaft, and vice versa; a driving-gear in mesh with and adapted for continuously rotating the two driven gears in opposite directions; and means for actuating said driving-gear.

8. In a sewing-machine, the combination, with a reversibly-revolvable looper and with a longitudinally-recessed looper-actuating shaft, of two bevel driven gears revolubly mounted on said shaft; a clutch member supported for sliding movement transversely of the driven gears in the longitudinal recess of the loop-taker-actuating shaft, and carrying a clutch-pin between the adjacent ends of the hubs of and adapted for engaging said gears reciprocally, and adapted for locking one gear to the looper-actuating shaft and to the other gear before unlocking said other gear from said shaft, and vice versa; a bevel driving-gear in mesh with said driven gears, and adapted for continuously rotating said driven gears in opposite directions, respectively; and means for supporting, and means for rotating said driving-gear.

9. In a sewing-machine, the combination, with a reversibly-revoluble looper, of a looper-actuating shaft having an axial bore, and having a transverse recess in communication with said bore; a driver carried by said shaft in position and adapted for engaging and rotating said looper; two driven gears revolubly carried upon said shaft, one at each side of the transverse recess of said shaft, and having sleeves the inner adjacent ends of which are notched to form clutch-pin sockets; a clutch-rod shiftably supported in the axial bore of the looper-actuating shaft and carrying a clutch-pin which projects through the transverse recess in said shaft and is adapted for engaging in a socket in one or the other of the driven-gear sleeves, and also adapted for locking one sleeve and its driven gear to the shaft and to the other sleeve and its driven gear before releasing said other sleeve and its driven gear from locked engagement with said shaft; a driving-gear in constant mesh with the driven gears, and adapted for continuously rotating said driven gears in opposite directions, respectively; and means for supporting, and means for actuating said driving-gear.

10. In a sewing-machine, the combination, with a reciprocating needle and actuating mechanism therefor, of a reversibly-revolvable looper having sets of oppositely-disposed hooks, alternating the hooks of one set relatively to those of another set; reversing looper-driving mechanism in operative relation with the needle and looper, and embodying two oppositely-revolvable and reciprocally-effective looper-driving members; and means in position and adapted for reciprocally effecting an operative relation between said driving members and looper at one predetermined point in the rotation of said looper, whereby one set of hooks is operative when one driving member is effective for rotating the looper, and whereby the other set of hooks is operative when the other driving member is effective for rotating said looper.

11. In a sewing-machine, the combination, with a reciprocatory needle and actuating mechanism therefor, of a reversibly-revolvable looper having two sets of peripheral opposing loop-engaging hooks, the hooks of one set alternating with those of the other set; driving mechanism in connection with and adapted for actuating the needle and looper at comparative velocities of a predetermined ratio; and a combined looper locking and reversing mechanism in connection with the looper, and adapted for effecting a change in the direction of rotation of said looper at a point in the rotation thereof corresponding with the neutral position of the needle relatively to two opposing hooks, one hook of each set of hooks, and adapted for preventing such change in the direction of rotation of the looper until the needle occupies this neutral position between the two opposing hooks.

12. In a sewing-machine, the combination, with a reciprocatory needle and actuating mechanism therefor, of a reversibly-revolvable looper having two sets of oppositely-disposed hooks, the hooks of one set alternating with those of the other set; a looper-locking device in position and adapted for maintaining an operative relation between the needle and the two sets of hooks reciprocally irrespective of the direction of rotation of the looper; and a reversing driving mechanism in connection with said looper and adapted for changing the direction of movement of said looper without affecting the coöperative relation of the hooks and the needle.

13. The combination, with a looper having opposing loop-engaging hooks, of a reciprocatory needle-bar; and reversing driving mechanism in operative connection with and adapted for rotating the looper in opposite directions, said mechanism comprising locking means for preventing a change in direction of rotation of the looper until the needle-bar has arrived at a neutral position with respect to the opposing hooks of said looper.

14. In a sewing-machine, the combination, with a reversibly-revolvable looper, having a plurality of loop-engaging hooks, a needle-bar and mechanism for revolving the looper and reciprocating the needle-bar, of reversing mechanism including a locking device for reversing the direction of rotation of the looper and maintaining a proper operative relation between the latter and the needle.

15. In a sewing-machine of the class specified, a revolvable looper having a plurality of sets of oppositely-disposed loop-engaging hooks, each of which hooks has a loop-receiving opening contiguous thereto, and the hooks of one set alternating with those of another set, and adapted the hooks of one set for engaging the loops of the needle-thread when the looper is rotated in one direction to form one kind of stitch, and the hooks of the other set for engaging the loops of the needle-thread when the looper is rotated in the opposite direction to form another kind of stitch; needle mechanism; and driving mechanism in operative connection with and adapted for simultaneously operating the looper and needle mechanism at relatively varying velocities of a predetermined ratio, said driving mechanism involving reversing-gearing effective to shift the looper to reset it and for changing the direction of rotation of the looper when desired.

16. The combination, with a looper having at its periphery a plurality of sets of oppositely-disposed hooks so located that the hooks of one set alternate with those of another set, and each hook of each set having a loop-receiving opening contiguous thereto, of gearing effective to shift the looper to reset it and for driving the looper-actuating shaft in one direction and the reverse; and means for maintaining an operative relation between the looper and the needle, whereby the hooks of one set engage the loops of the needle-thread when the looper is rotated in one direction to form one kind of stitch, as a lock-stitch, and the hooks of another set engage the loops of said thread when the looper is rotated in the opposite direction to form another kind of stitch, as a chain-stitch, or a lock chain-stitch.

17. In a sewing-machine, in combination, with needle mechanism, a recessed bobbin-carrying loop-carrying looper having a series of sets of peripheral loop-engaging hooks, the hooks of one set of which are oppositely disposed relatively to the hooks of another set, and each hook of which is separated from the next adjacent hook of the same set by a track-segment, in combination with reversing-gearing carried by the looper-driving shaft and adapted for rotating said looper in one or the other direction as desired and also effective to shift the looper to reset it; and means for maintaining an operative relation between the loop-taker and the needle mechanism.

18. In a sewing-machine, the combination, with the framework, having a vertically-reciprocating needle-bar and means in connection with and adapted for reciprocating said needle-bar, of a revolvable looper peripherally supported below the said needle-bar and at an inclination to the path of movement thereof, and having sets or series of peripheral loop-engaging hooks, the hooks of one set being oppositely disposed relatively to and alternating with the hooks of the other set, the hooks of one set of which are adapted to be brought into operative relation with the needle-bar when the looper is rotated in one direction, and the hooks of the other set of which are adapted to be brought into operative relation with the needle-bar when the looper is rotated in the opposite direction, and means in connection with and adapted for rotating the looper in one or the other direction and also effective to shift the looper to reset it.

19. In a sewing-machine, a revolvable loop-taker having sets or series of loop-engaging hooks, the hooks of each set being oppositely disposed with relation to and alternating with the hooks of another set, and each hook having a loop-receiving space contiguous thereto, and said looper also having a series of driving-sockets formed in one side thereof, each of which sockets is located intermediate two opposing hooks, being one hook of each set of hooks, in combination with a revolvable driver for rotating the looper, said driver having a series of driving-pins in position and adapted for successively engaging in the successive sockets of the looper.

20. In a sewing-machine, the combination, with a reciprocatory needle, of a reversibly-revolvable driving-shaft and looper, the latter having a plurality of sets of hooks in its periphery, the hooks of one set being arranged alternately with and oppositely to the hooks of the other set, and each hook having a beak to take the loop from the needle and a heel to let it off; and means whereby the rotation of the looper-driving shaft may be reversed when it is desired to change from one set of opposing hooks to another for the purpose of making either a lock-stitch or a chain-stitch, said means including an adjusting and locking device, the adjusting and locking being accomplished by said device by one movement of the same.

21. In a sewing-machine, a revoluble looper having sets or series of loop-engaging hooks, the hooks of one set being oppositely disposed relatively to the hooks of the other set, and each hook of each set having a loop-receiving opening contiguous thereto, in combination with looper-reversing gearing loosely mounted on the driving-shaft; and a clutch for connecting said gearing with said shaft, whereby the same may be rotated in either direction.

22. In a sewing-machine organized for making two kinds of stitches, the combination with a needle and actuating mechanism therefor, of a movable looper having loop-takers, located one for making one kind of stitch at one position of the looper, and another for making another kind of stitch at a different position of said looper; means by which said looper may be shifted from one to another working position relatively to the needle mechanism to bring the loop-taker required for use into position for action, whereby one kind of stitch or another kind of stitch may be produced by the same machine; and means for actuating the looper.

23. In a sewing-machine organized for making two kinds of stitches, the combination with a reciprocatory needle and actuating mechanism therefor, of a rotary looper having loop-takers, located one for making one kind of stitch at one position of the looper, and another for making another kind of stitch at a different position of said looper; means by which said looper may be shifted circumferentially from one to another working position relatively to the needle mechanism to bring the loop-taker required for use into position for action, whereby one kind of stitch or another kind of stitch may be produced by the same machine; and means for rotating the looper.

24. In a sewing-machine organized for making two kinds of stitches, the combination, with a reciprocatory needle, of means for actuating said needle; a rotary looper having sets of loop-takers, located one set for making one kind of stitch at one position of the looper and another set for making another kind of stitch at a different position of said looper; mechanism by which said looper may be shifted from one to another working position relatively to the needle mechanism to bring the set of loop-takers required for use into position for action, the construction being such that one kind of stitch or another kind of stitch may be produced by the same machine; and means for rotating the looper.

25. In a sewing-machine organized for making two kinds of stitches, the combination with a needle, of a movable looper having loop-takers located one for making one kind of stitch and another for making another kind of stitch; driving means for said needle and looper; and means by which said looper may be shifted from one to another position relatively to the needle mechanism, thereby to reset the looper so as to bring the loop-taker required for use into action, whereby one kind of stitch or another kind of stitch may be produced by the same machine without reversing the entire driving mechanism.

26. In a sewing-machine organized for making two kinds of stitches, the combination with a reciprocatory needle, of a rotary looper having loop-takers located one for making one kind of stitch and another for making another kind of stitch; driving means for said needle and looper; and means by which said looper may be shifted circumferentially relatively to the needle mechanism, thereby to reset the looper so as to bring the loop-taker required for use into action, whereby one kind of stitch or another kind of stitch may be produced by the same machine without reversing the entire driving mechanism.

27. A machine organized for making different kinds of stitches, comprising a needle and a reversible looper having oppositely-disposed loop-takers, means by which said looper may be shifted from one to another working position relatively to the needle and the needle moved into a neutral position relatively to two opposing loop-takers, and means rendered effective when said needle is in said neutral position to change the direction of movement of said looper whereby on the further operation of the machine a different kind of stitch will be made.

28. A machine organized for making different kinds of stitches, comprising a needle and a reversible looper having oppositely-disposed loop-takers, means by which said looper may be shifted from one to another working position relatively to the needle and the needle moved into a neutral position relatively to two opposing loop-takers, and means rendered effective when said needle is in said neutral position to change the direction of movement of said looper whereby on the further operation of the machine a different kind of stitch will be made, said means being also effective to prevent the changing of the direction of movement of said looper until the needle occupies such neutral position between the two opposing loop-takers.

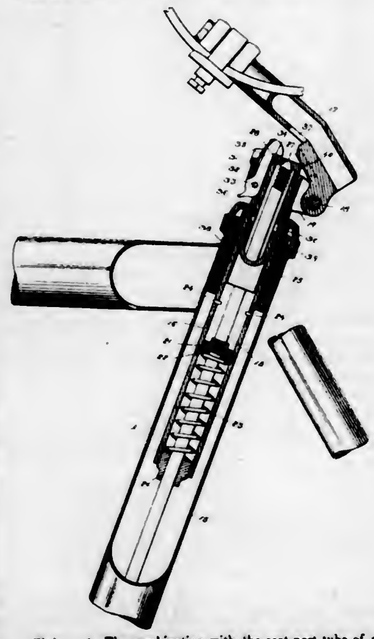
29. In a sewing-machine, the combination with a needle and a rotatable and reversible looper having loop-takers, effective one to make one kind of stitch on the rotation of the looper in one direction and another effective to make a different kind of stitch on the rotation of the looper in the opposite direction; driving means for said needle and looper; and means by which said looper may be reset into a predetermined position relatively to the needle to permit on the reversal of said looper the proper coöperation between the needle and the loop-taker of the set with which it coöperates.

30. In a sewing-machine organized for making two kinds of stitches, the combination with a reciprocatory needle and with a rotary looper supported in proper position for coaction with the needle, of a connecting driving mechanism for operating the needle and the looper in proper timing for the making of the stitches, and looper-position-changing means in connection with said driving mechanism, by which to reset the looper so that the working position of the looper relatively to the needle may be changed, as required for the making of one or the other of the two kinds of stitches.

31. In a sewing-machine organized for making two kinds of stitches, the combination with a needle and a rotary reversible looper, of driving means for said needle and looper, and means by which the position of one of said devices relatively to the other may be changed, thereby to permit the proper coöperation between said needle and looper on the rotation of said looper in either direction.

32. In a sewing-machine organized for making two kinds of stitches, the combination with a needle, of a rotatable looper having loop-takers located, one for making one kind of stitch and another for making another kind of stitch; driving means for said needle; a looper-driving shaft carrying a driver in position to engage and rotate said looper; and means by which said looper may be shifted from one to another working position relatively to the needle together with its driver without affecting the operative relation between such looper and driver, thereby to bring the loop-taker required for use into position for action, whereby one kind of stitch or another kind of stitch may be produced by the same machine.

679,512. BICYCLE-PUMP. MELVIN F. ROCK, Homer, N. Y.
Filed Jan. 12, 1901. Serial No. 43,039. (No model.)



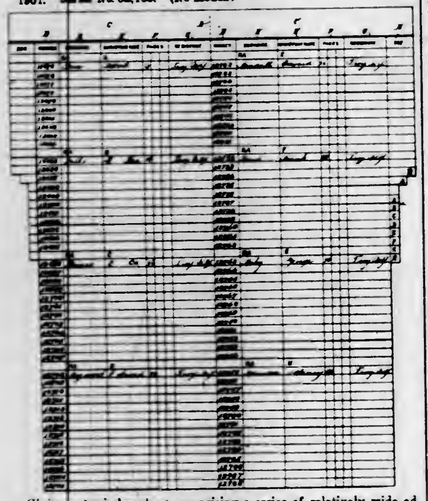
Claim.—1. The combination with the seat-post tube of a bicycle; of a hollow seat-post mounted therein and comprising a pivoted upper horizontal member; a pump-piston mounted in the seat-post tube; a stem connected therewith and passing through the lower member of the seat-

post; a detachable tubular handle surrounding the upper end of the stem; and a latch adapted to engage said handle and also lock the upper horizontal member of the seat-post, substantially as described.

2. The combination with the seat-post tube of a bicycle; of a pump-piston and plunger mounted therein; a saddle-post through which said stem passes; a tubular handle detachably mounted on said stem and inclosed by a saddle-post; and a latch coöperating with the handle for holding the handle and stem within the seat-post tube and the saddle-post, substantially as described.

3. The combination with the seat-post tube of a bicycle; of a hollow saddle-post mounted therein; a pump-piston mounted within the tube; a stem connected therewith and passing through the saddle-post; a bushing in the lower end of the saddle-post; a finger-grip fast on the stem; and a spiral spring encircling the stem and interposed between the finger-grip and bushing, substantially as described and for the purpose set forth.

679,513. INDEX. ZOE B. SAY, Nicklesville, Pa. Filed Mar. 21, 1901. Serial No. 52,163. (No model.)



Claim.—An index-sheet comprising a series of relatively wide adjacent surname and Christian-name columns, characters corresponding to the initial and second letters of the surname subdividing the surname-column into sections for the respective second letters, a second series of characters in horizontal alinement with the characters in the surname-column subdividing the Christian-name column into a section for each letter of the alphabet, a relatively narrow appropriately-headed column adjacent the Christian-name column adapted to receive page-numbers, and a corresponding relatively narrow appropriately-headed column adjacent the surname-column extending the full length of the sheet adapted to receive consecutively-arranged indicator characters, and a general index at the margin of the sheet comprising a surname initial letter or letters, a surname second letter or letters to the left thereof, and the Christian-name initial letter or letters adjacent the surname second letter or letters, the sheet being cut away directly beneath the lowermost letter of each denomination, substantially as described.

679,514. THIMBLE FOR SHOE-LASTS. JOHN E. SCOTT, Philadelphia, Pa. Filed May 10, 1898. Serial No. 680,274. (No model.)



Claim.—1. A thimble for the spindle-socket of a shoe-last, having integral spurs or prongs adapted to engage respectively with the bottom of a socket and side walls of said socket at points above the lower end of the thimble, substantially as set forth.

2. A thimble or lining for the spindle-socket of a shoe-last, formed from a single metallic blank having at its lower end and at an intermediate point in its length spurs or prongs for engaging with the bottom and side walls of such a socket, and also having at its upper end means for securing it to the body of the last beyond said socket, substantially as set forth.

3. A thimble, or lining, for the spindle-socket of a shoe-last having a retaining spur or prong struck up or cut from the thimble-body and normally having a portion extending within the bore or passage in the thimble, and its point flush with, or inside of, the outer face or surface of the thimble, and adapted to be forced beyond the thimble into engagement with the wall of the socket, substantially as set forth.

4. The herein-described thimble for the spindle-socket of a shoe-last formed from a sheet-metal blank having a spur, *d*, at one end, and a spur, *d'*, cut from the body of the blank, at an intermediate point in its length, the latter being bent to have its body extend at an angle to its point and out of line with the body of the plate, whereby, when the blank is rolled up to form the thimble, the spur, *d*, will project beyond the lower and thereof; and the body of the spur, *d'*, will extend into the bore in the thimble, substantially as set forth.

5. A thimble for the spindle-socket of a shoe-last, having integral spurs or prongs adapted to engage with the side walls of said socket at points above the lower end of the thimble, substantially as set forth.

6. A thimble or lining for the spindle-socket of a shoe-last consisting of a tubular body adapted to fit the socket and having at its upper end a flange adapted to conform accurately to the top surface of the last about the spindle-socket, and provided, in its tubular body portion above the bottom with spurs adapted to engage with the last surrounding the spindle-socket.

679,515. THIMBLE FOR SHOE-LASTS. JOHN E. SCOTT, Philadelphia, Pa. Filed Nov. 30, 1898. Serial No. 697,895. (No model.)



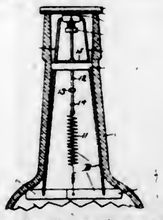
Claim.—1. A thimble or lining for the spindle-socket of a shoe-last having at intermediate points in its length, and at diametrically opposite points, integral spurs or prongs the stems of which are adapted to extend into the bore of the thimble when it is being inserted in a socket to hold the points of said spurs inside of the outer face or surface of the thimble, substantially as set forth.

2. A thimble or lining for the spindle-socket of a shoe-last comprising a tube having at one end longitudinally-extending spurs, *c*, *c*, adapted to engage the bottom of a socket, and having its other end upset to form an annular flange about the upper end of the thimble to protect the surface of the last surrounding the socket from wear, substantially as set forth.

3. A thimble or lining for the spindle-socket of a last comprising a section of thin metal tubing which is provided with integral spurs for securing it to a last, and which has two outwardly-bent members which with the upset portion of the tube form an annular flange about the upper end of the thimble, substantially as and for the purpose set forth.

4. A thimble or lining for the spindle-socket of a last comprising a section of light metal tubing having at its upper end a flange adapted to conform accurately to the top surface of a last about the spindle-socket, and having in its tubular body portion spurs adapted to engage with the last surrounding the spindle-socket, substantially as set forth.

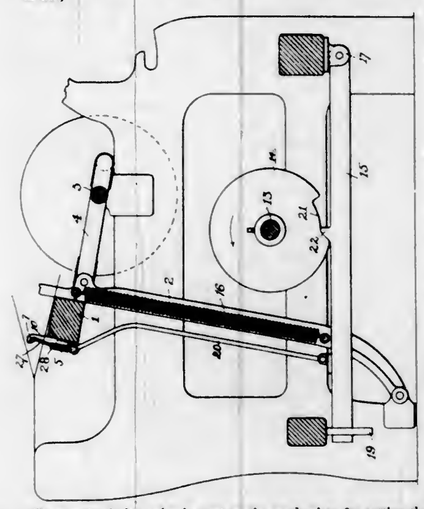
679,516. BOTTLE-STOPPER. JOHN SENICH, Pasadena, Cal., assignor of one-half to Peter Yelich, Los Angeles, Cal. Filed June 3, 1901. Serial No. 63,025. (No model.)



Claim.—The herein-described bottle-stopper, comprising a nut, a bolt passing therethrough in threaded contact therewith; a disk rigidly affixed to the end of the bolt opposite the head thereof, wires oppositely disposed, connected at one end to the nut passing through the rim of the valve-seat, and pivotally attached to stop-bars; stop-bars pivotally connected together, one of which bars is bifurcated, and the other of which

enters the furcation of the other bar, and is provided with a stop to limit its movement in one direction in the furcations of the other bar; a spring attached to said stop-bars at one end, which end forms the pivot which unites the stop-bars together, said spring being connected at its other end to a wire yoke; a wire yoke passing through the rim of the valve-seat; a valve-seat; a valve on said seat, having a stem projecting through the spider of the valve-seat; all constructed substantially as described herein in combination with a bottle.

679,517. FILLING-REMOVER FOR LOOMS. SAMUEL SEWALL, Tewksbury, Mass.; Harry Buttrick Sewall administrator of said Samuel Sewall, deceased. Filed Sept. 27, 1899. Serial No. 731,819. (No model.)



Claim.—1. A loom having automatic mechanism for cutting the loose end of a broken filling-thread at a predetermined point.

2. A loom having automatic mechanism for cutting and removing the loose end of a broken filling-thread at a predetermined point.

3. A loom having automatic mechanism comprising one or more cutters and hooks for severing and removing the loose end of a filling-thread.

4. A loom, having mechanism for automatically removing the loose end of a filling-thread comprising a hook, a knife, and means for moving the hook and knife into and out of the shed, whereby said end is severed while in the shed and is then removed therefrom.

5. A loom having mechanism for automatically removing the loose end of a filling-thread comprising cutting and pulling devices located upon the lathe and movable relatively thereto to engage said end to cause its removal.

6. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife or cutter located to one side of the path of the filling-thread, and means for causing said knife to sever said thread at a predetermined point.

7. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife, and a movable support therefor mounted on the lathe, said knife being adapted to sever the thread at a predetermined point.

8. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife and means for moving said end against said knife.

9. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife, means for moving said end into engagement with said knife to sever it, and means for removing the severed portion of said end.

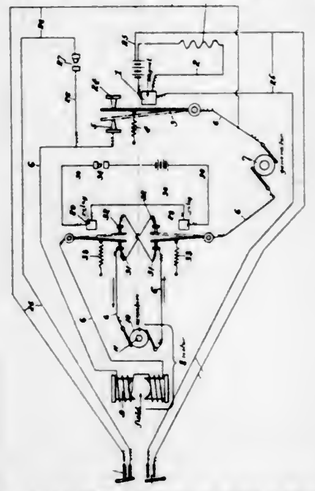
10. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife, means for moving said end into engagement with said knife to sever it, and a rock shaft or bar for actuating said means.

11. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a movable support, a knife thereon adapted to cut said end, a member to move said end into engagement with said knife, and a rock shaft or bar for said member journaled on said support.

12. A loom having mechanism for automatically removing the loose end of a filling-thread comprising means for cutting said end into a plurality of sections, and means for removing each of said sections.

13. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a support movable on the lathe, one or more knives on said support, one or more members to move said end into engagement with said knife or knives, a rock shaft or bar for said member or members, and cams for rocking said shaft or bar.

679,518. ELECTRICAL STOP FOR ENGINES. JOHN F. SKIRROW, East Orange, N. J. Filed Dec. 14, 1900. Serial No. 39,925. (No model.)



Claim.—1. A controlling mechanism, an electric motor connected thereto, a main motor-circuit, means for closing said motor-circuit, a closed safety-circuit, means in said safety-circuit operating normally to hold open the motor-circuit-closing means and to release said closing means when the current through the safety-circuit is interrupted.

2. A controlling mechanism, an electric motor connected thereto, a main motor-circuit, means for closing said motor-circuit, a closed safety-circuit formed of a readily-breakable conductor adapted to be connected to a machine at any point, means in said circuit operating normally to hold open the motor-circuit-closing means and to release said closing means when the safety-circuit is broken.

3. A valve-operating mechanism, an electric motor connected thereto, a motor-circuit, a normally closed safety-circuit, means controlled by the closed safety-circuit for holding open the main motor-circuit whereby should the closed safety-circuit be broken the motor-circuit would be closed.

4. A controlling mechanism, an electric motor, a motor-circuit, means to close said circuit, a closed safety-circuit, means in said safety-circuit for normally holding open the motor-circuit-closing means, and means in the motor-circuit for reversing the motor.

5. A controlling mechanism, an electric motor connected therewith, a motor-circuit, a closed safety-circuit, means in said safety-circuit to normally hold open the motor-circuit-closing means and to release said motor-circuit-closing means when the safety-circuit is interrupted, an open circuit connected to this means, and means operated by the controlling mechanism to close said circuit and thereby open the motor-circuit.

6. A controlling mechanism, an electric motor connected thereto, a main motor-circuit, means for closing said motor-circuit, a closed safety-circuit, means in said safety-circuit operating to normally hold open the motor-circuit-closing means and to release said closing means when the current through the safety-circuit is interrupted, a normally open supplemental motor-circuit connected to the main motor-circuit and bridging the closing means of the main motor-circuit, means for closing said supplemental motor-circuit, means adapted to be operated by the controlling mechanism to open said supplemental motor-circuit, and means for reversing the motor.

7. The combination of an electric motor, a motor-circuit, means for closing said motor-circuit, a closed safety-circuit, means in said safety-circuit operating normally to hold open the motor-circuit-closing means and to release said closing means when the current through the safety-circuit is interrupted and thereby close the motor-circuit, with a movable rod, a controlling device connected to said rod, and means connected to the armature of the motor for moving said rod.

8. The combination of an electric motor, a motor-circuit, means for closing said motor-circuit, a closed safety-circuit, means in said safety-circuit operating normally to hold open the motor-circuit-closing means and to release said closing means when the current through the safety-circuit is interrupted and thereby close the motor-circuit, with a movable rod, a controlling device connected to said rod, means connected to the armature of the motor for moving said rod, and means for permitting said rod to be moved independently of the movement of the armature.

9. A controlling mechanism comprised of a rotatable longitudinally-movable rod and a controlling device carried by said rod, a loose sleeve on said rod rotatable therewith but held against longitudinal movement, a gear carried by said sleeve, a clutch member secured to said sleeve, a clamp for holding the gear against the clutch member, means for rotating the gear, means whereby the rotation of the sleeve will cause the rotation and longitudinal movement of the rod.

10. In combination, a controlling mechanism, main circuit, means for closing said circuit connected to said controlling mechanism and operative means in said circuit adapted to be put in operation by the closing of said circuit, a safety-circuit, means in said safety-circuit operating to hold open the main-circuit-closing means when normal conditions prevail in said circuit and to release said closing means when abnormal conditions prevail in the safety-circuit.

11. A controlling mechanism, a main circuit, means for closing said circuit, operative means in the main circuit connected to the controlling mechanism and adapted to be put in operation by the closing of said main circuit, a safety-circuit, means in said safety-circuit operating to hold open the main-circuit-closing means when normal conditions prevail in the safety-circuit and to release said closing means when abnormal conditions prevail in said circuit.

12. In combination, a controlling mechanism, a main circuit, a motor therein connected to said controlling mechanism, means for closing the main circuit, a safety-circuit, means in said safety-circuit for holding open the main-circuit-closing means when normal conditions prevail in the safety-circuit and to release said closing means when abnormal conditions prevail in said safety-circuit.

13. In combination, a controlling mechanism, a main circuit, a motor therein connected to said controlling mechanism, means for closing said circuit, a normally closed safety-circuit, means in said safety-circuit operating normally to hold open the main-circuit-closing means and to release said closing means when the safety-circuit is interrupted.

14. A controlling mechanism, an electric motor connected thereto, a main motor-circuit, means for closing said motor-circuit, a closed safety-circuit, means in said safety-circuit operating to normally hold open the main-motor-circuit-closing means, and to release said closing means when the current through the safety-circuit is interrupted, a normally open supplemental motor-circuit connected to the main motor-circuit and bridging the closing means of the main motor-circuit, means for closing said supplemental motor-circuit, means adapted to be operated by the controlling mechanism to open the supplemental circuit.

15. In combination, a controlling mechanism, a motor connected to said controlling mechanism, a main motor-circuit, means for closing said main motor-circuit, a safety-circuit, means in said safety-circuit operating to normally hold open the main-motor-circuit-closing means, a normally open supplemental motor-circuit bridging the break in the main motor-circuit and connected to the main motor-circuit, means for closing said supplemental motor-circuit, and means operated by the motor to open said supplemental motor-circuit.

16. A normally open main circuit, a motor therein, means for automatically closing said circuit, and a safety controlling device connected to the motor and operated thereby.

17. A motor-circuit, a motor therein, means for closing said circuit, a controlling device operated by the motor, and means operated by the controlling device to open the motor-circuit.

679,519. VALVE FOR PNEUMATIC TIRES. LYMAN T. SMITH, New Haven, Conn. Filed Dec. 31, 1900. Serial No. 41,650. (No model.)



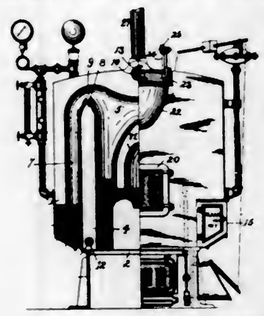
Claim.—1. A valve for pneumatic tires comprising a tubular stem part having a dovetailed notch in its top edge, a flexible wedge-shaped disk valve seated in the top thereof, and having a dovetailed projection or lip from its thickest edge adapted to engage tightly in the notch of the stem, and a screw-threaded cap having a central bore adapted to fit over the tubular stem part and secure said disk valve in place in sealing relation to the hole in said cap.

2. A valve for pneumatic tires comprising a screw-cap having an air-hole in its head, a tubular screw-stem having a dovetailed notch in its upper edge and a flexible wedge-shaped disk valve having a dovetailed projection from its thickest edge adapted for engagement with said dovetailed notch, said wedge-shaped disk valve being interposed between the tubular stem and the interior of the cap.

3. In a valve for pneumatic tires, a tubular screw-stem having a notch in its upper edge, a screw-cap, and a flexibled wedge-shaped disk valve having a hanging lip projecting from the upper part of its thickest edge and adapted to engage the notch in the screw-stem whereby it is horizontally suspended in the top of the screw-stem and interposed between said stem and cap to seal the opening in said cap.

4. A valve for pneumatic tires consisting of a rubber disk formed with a thick heel part standing at right angles to its sealing-surface, its opposite surface inclined from the heel and thereby forming a thin bendable part, the heel formed with a hanging part above the inclined surface.

679,520. HEATER. FREDERICK D. STEPHENS, German Valley, N. J. Filed Nov. 17, 1900. Serial No. 36,796. (No model.)



Claim.—1. A heater, consisting of heater-sections, said sections consisting of a hollow leg portion, a bridge portion, an overhang, and cut-away portions on said sections to form flues between said sections, and a smoke-chamber on each side of said heater under said flues, substantially as described.

2. A heater, consisting of heater-sections, said sections consisting of a hollow leg portion, a bridge-portion, an overhung, cut-away portions on said overhang and outside the leg portion to form flues between the sections, and a smoke-chamber on each side and the rear of said heater, the side chambers being under said flues, substantially as described.

3. A heater, consisting of a base, heater-sections on said base, said sections consisting of hollow leg portions inclosing the fire-box, bridge portions between said leg portions, an overhang outside the leg portions cut-away portions on said overhang, to form flues between said sections, smoke-chambers on either side of said sections under said flues, a smoke-chamber on the back of said heater, connecting said side chambers, and a smoke-pipe on said rear chamber, substantially as described.

4. A heater, consisting of a base, heater-sections on said base, said sections consisting of hollow leg portions inclosing the fire-box, bridge portions between said leg portions, an overhang outside the leg portions, cut-away portions on said overhang, to form flues between said sections, smoke-chambers on either side of said sections under said flues, a smoke-chamber on the back of said heater connecting said side chambers, the heater-sections on the front portion of said heater being provided with openings to form a magazine, substantially as described.

5. A heater, consisting of a base, heater-sections on said base, said sections consisting of hollow leg portions inclosing the fire-box, bridge portions between said leg portions, an overhang outside the leg portions, cut-away portions on said overhang to form flues between said sections, smoke-chambers on either side of said sections under said flues, a smoke-chamber on the back of said heater connecting said side chambers, the heater-sections on the front portion of said heater being provided with openings to form a magazine, and a pocket on the front section communicating with said magazine, substantially as described.

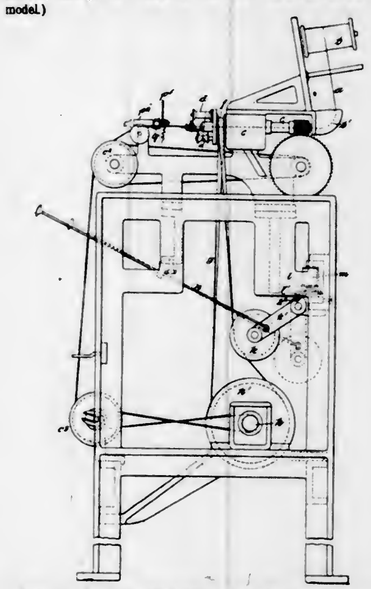
6. A heater, consisting of a base, heater-sections on said base, said sections consisting of a hollow leg portion, bridge portions between said leg portions, an overhang, cut-away portions on said overhang to form flues between said sections, the front sections being provided with openings forming a magazine, and a pocket on the front section communicating with the magazine, substantially as described.

7. A heater, consisting of a base, heater-sections on said base, said sections consisting of leg portions inclosing the fire-box, bridge portions between said leg portions and of less width, overhangs on each section outside the leg portion, cut-away portions on said overhangs to form flues between the sections, a smoke-chamber on either side of said heater, a smoke-chamber on the rear of said heater connecting said side chambers, a smoke-pipe on said rear chamber, and a direct-draft flue through the rear heater-section communicating with said smoke-pipe, a damper in said flue, the front heater-sections being provided with openings to form a magazine, a pocket on the front section communicating with said magazine, a lid on said pocket, and means connected with said lid to operate the damper in the direct-draft flue, substantially as described.

8. A heater consisting of a base, heater-sections on said base, said sections consisting of a leg portion, a bridge portion of less width than the leg portion, an overhang with cut-away portions to form flues between said sections, a smoke-chamber composed of plates, on either side of said sections and under the flues, perforations in said chambers under said flues, lids on said perforations, and a rear smoke-chamber connecting said side chambers, substantially as described.

9. A heater consisting of heater-sections, each section consisting of leg portions, a bridge portion, and an overhang, the bridge portion being of less width than the leg portions, cut-away portions on the overhangs, outside the leg portions, communicating with the faces of the bridge portion, to form vertical flues, smoke-chambers under the flues on either side of the heater, substantially as described.

679,521. WIRE-INSULATING MACHINE. CHESTER H. THORDARSON, Chicago, Ill. Filed Oct. 12, 1900. Serial No. 32,825. (No model.)



Claim.—1. In a wire-insulating machine, the combination with an insulating-head, mechanism for driving the same and for feeding the wire through the machine, of a magnet and mechanism controlled thereby for stopping the machine, a circuit including said magnet and a source of current, and a pair of contact-pieces controlling said circuit, normally separated by the wire passing through the machine, said contact-pieces being adapted to close together when the wire breaks, as set forth.

2. The combination with the wire *a* and mechanism for feeding the same through the machine, a magnet controlling the operation of the feeding mechanism, a circuit including said magnet and a source of current, and a pair of contact-pieces controlling said circuit, normally held out of engagement with one another by the wire and adapted to close together when relieved, substantially as set forth.

3. In a wire-insulating machine, the combination with a rotating insulating-head, mechanism for feeding the wire through said insulating-head, a driving-wheel *h* and a driving-belt connecting the same with the insulating-head, an idler *k* tending to swing away from the belt to loosen the same, a magnet *m*, mechanism controlled by said magnet for holding the idler against the belt, a circuit including said magnet and a source of current, and a pair of contacts mounted upon the stationary framework of the machine controlling said circuit, normally held out of engagement by the wire but adapted to close together when relieved of the wire, substantially as set forth.

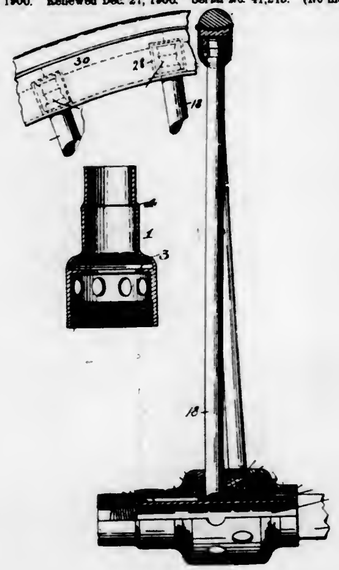
4. In a wire-insulating machine, the combination with a rotating insulating-head, mechanism for rotating the same and for feeding the wire through the machine, a magnet controlling the operation of the machine, a circuit including said magnet and a source of current, a pivoted rider carrying an electrical contact forming one terminal of said circuit, said rider being adapted to swing or rotate in a plane at an angle with the wire, the rider normally lying across the wire as it emerges from the insulating-head, and a plate *g* opposite the rider, against which said rider is adapted to strike, the wire normally holding the rider out of engagement with said plate, said plate and the wire being both connected with the other side of the circuit, substantially as set forth.

5. The combination with a wire-insulating machine, of an electrical testing-circuit therefor, a responsive device and a source of current in the circuit, a rider pressing upon the wire as it is fed through the machine, a contact-piece coöperating with said rider to control the aforesaid circuit, the wire in its normal tension maintaining the rider and contact-piece in predetermined relations, such relations being changed to alter the condition of the circuit and affect said responsive device when the rider is relieved of the wire, substantially as set forth.

6. The combination with a wire-insulating machine, of an electrical testing-circuit therefor, a responsive device and a source of current in the circuit, a rider having an electrical contact portion forming one terminal of said circuit, said rider pressing upon the wire after it has received its coating of insulation, and a contact-plate *g* opposite the rider against which said rider is adapted to strike, the wire at its normal tension holding the rider out of engagement with the plate, said plate and the wire constituting multiple terminals for the other side of the circuit, whereby the circuit is closed and the responsive device actuated when the wire or the insulating material breaks, as set forth.

7. In a wire-insulating machine, the combination with a plurality of insulating-heads, each insulating a different wire, and means for independently operating said insulating-heads and feeding the wires through them, of a magnet associated with each of said insulating-heads and mechanism controlled thereby for stopping the operation of the head with which it is associated, an electric circuit including a source of current and having several branches, one for each of said insulating-heads, each branch including the magnet which is associated with the same insulating-head, and a pair of contacts controlling each branch, normally held out of engagement with one another by the wire which is being insulated, but adapted to close together when relieved of the wire, as when the wire breaks, substantially as set forth.

679,522. METALLIC VEHICLE-WHEEL. EDWIN D. WASSELL, Pittsburg, Pa., assignor to Ann Isabell Wassell, same place. Filed May 17, 1900. Renewed Dec. 27, 1900. Serial No. 41,213. (No model.)



Claim.—1. A vehicle-wheel having a hub made in two sections connected by inwardly-extending screw-threaded members, and having a spoke-chamber formed within said members at the adjacent ends of said sections; in combination with spokes extending into said chambers.

2. A vehicle-wheel having a hub made in two sections connected by inwardly-extended and overlapping screw-threaded members, and having a spoke-chamber formed within said members at the adjacent ends of said sections; in combination with spokes extending into said chambers.

3. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions, and having an annular spoke-chamber formed by the walls of said section, and a sleeve; in combination with spokes extending through said chamber into said sleeve.

4. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions, and having a spoke-chamber formed in the adjacent end of said sections; in combination with spokes extending into said chamber, and an axle-box having longitudinal grooves with which said spokes engage.

5. A vehicle-wheel having a hub made in two sections connected by inwardly-extended screw-threaded members and having a spoke-chamber formed within said members at the adjacent ends of said sections; in combination with spokes extending into said chamber, and a suitable filling in the chamber surrounding the inner ends of the spokes.

6. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions and having a spoke-chamber formed in the adjacent ends of said sections; in combination with spokes extending into said chamber, a suitable filling in the chamber surrounding the inner ends of the spokes, and an axle-box having longitudinal grooves with which the spokes engage.

7. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions and having an annular spoke-chamber formed by the walls of said sections and a sleeve on one section extending into the opposite section; in combination with spokes extending into said chamber and an axle-box whose ends are engaged by one of the hub-sections.

8. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions and one of the sections provided with means for supporting an axle-box; in combination with an axle-box.

9. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions, one of the sections having a sleeve thereon and extending into the opposite section, and the latter section having a seat for the end of said sleeve; in combination with an axle-box.

10. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions, one of the sections having a sleeve thereon provided with a concentric bearing at its free end and an annular bearing at the opposite end of the section, and the opposite section having a seat for the end of said sleeve; in combination with an axle-box engaging both ends of one of said hub-sections.

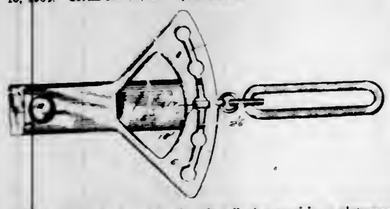
11. A vehicle-wheel having a hub made in two sections connected by screw-threaded extensions, one of said extensions having a bearing at each end to receive an axle-box; in combination with an axle-box having bearings at each end engaging the bearings on the aforesaid section.

12. A vehicle-wheel having a hub made in two sections, one of which is provided with a sleeve extending into the opposite section and supports an axle-box; in combination with an axle-box, and a spindle having a nut engaging the end of said sleeve and the inner end of the axle-box.

13. A vehicle-wheel having a felly and felly spoke-boxes, and braces between said boxes; in combination with a tire surrounding said felly, and felly spoke-boxes and braces.

14. A vehicle-wheel having a felly and felly spoke-boxes, and braces between and over the outer ends of said boxes; in combination with a tire surrounding said felly, felly spoke-boxes and braces.

679,523. CLEVIS. FRED W. ATWELL, Foxlake, Ill. Filed Dec. 13, 1900. Serial No. 39,757. (No model.)



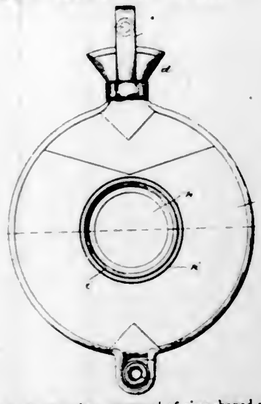
Claim.—1. A device of the class described comprising a plate mounted for lateral pivotal movement, means for holding the plate at different points of its pivotal movement, a second plate connected with the first plate and adapted to stand vertical, said second plate having a plurality of keyhole-slots therein and a longitudinal slot connecting the minor ends of the keyhole-slots, and a draft-ring engaged with the slot and having a narrowed portion for passage through the narrowed portions of the keyhole-slots into the enlarged portions thereof.

2. The combination with a plow-beam, of plates pivoted against the upper and lower faces thereof for lateral movement, said plates having alining arcuate slots having recessed walls, a locking device mounted rotatably in the beam and having its ends engaged with the slots, said ends being adapted to lie transversely of the slots and engaged with the recesses in the walls thereof to prevent movement of the plates, and a draft-ring connected with the plates.

3. The combination with a plow-beam, of plates pivoted against the upper and lower faces of the beam for lateral movement, said plates having alining arcuate slots having recesses in their walls, a locking device mounted rotatably in the beam and having its ends engaged with the slots and adapted to lie transversely thereof and engaged with the recesses to hold the plates against pivotal movement, a second plate having keyhole-slots therein and a connecting-slot, said second plate being connected with the first plate to stand vertically, and a draft-ring engaged with the last-named slot of the second plate and adapted for movement therethrough into engagement with the keyhole-slots interchangeably.

4. The combination with a beam, of plates mounted pivotally against the upper and lower faces thereof, said plates having arcuate slots having recessed walls, a locking-pin rotatably mounted in the beam and having its end portions disposed in the slots of the plates, said pin being adapted to lie with its end portions engaged with the recesses to hold the plates against pivotal movement, a second plate connected with the first plate, said second plate having keyhole-slots therein and a longitudinal slot connecting the minor ends of the keyhole-slots, and a draft-ring having a narrowed portion engaged with the longitudinal slot and adapted for movement therethrough to engage the narrowed portions of the keyhole-slots for movement therethrough to the broadened portions in which it is adapted for pivotal movement.

679,524. WATER-BAG. CHARLES J. BAILEY, Newton, Mass. Filed Jan. 3, 1901. Serial No. 41,956. (No model.)



Claim.—1. A water-bag composed of ring-shaped pieces of india-rubber having their outer edges vulcanized together and their inner edges vulcanized to the edge of a circular disk of india-rubber, said disk terminating at said inner edges.

2. A water-bag composed of ring-shaped pieces of india-rubber having their outer edges vulcanized together and their inner edges vulcanized to the edge of a circular disk of india-rubber, said disk terminating at said inner edges, and means connected to opposite portions of the bag for holding it in folded position.

3. A water-bag composed of two plies of waterproof flexible material each having a portion removed therefrom, said plies having their inner and outer edges united by butt-joints and cemented together to constitute a water-receiving chamber, and a diaphragm of flexible material separate from the two plies and having its edges united to the inner butted edges of the said plies to constitute an air-space at each side of the diaphragm surrounded by the water-chamber.

4. A water-bag composed of two plies of flexible material each having a portion removed therefrom, said plies having their inner and outer edges united by butt-joints and cemented together to constitute a water-receiving chamber, a strip of flexible material covering the butted joint of the outer edges, and a diaphragm of flexible material separate from the two plies and having its edges united to the inner butted edges of the said plies to constitute an air-space at each side of the diaphragm surrounded by the water-chamber.

5. A water-bag composed of two plies of waterproof flexible material each having a portion removed therefrom, said plies having their edges united by butt-joints to constitute a water-chamber, a strip of flexible material covering the butt-joint of the outer edges, a diaphragm of flexible material separate from the two plies and having its edges united to the inner butt-joint of said plies to constitute an air-space at each side of the diaphragm surrounded by the water-chamber, and additional or reinforcing pieces overlapping said inner butt-joint, the said parts being vulcanized together.

6. A water-bag composed of two plies of waterproof flexible material each having a portion removed therefrom, said plies having their edges united by butt-joints to constitute a water-chamber, flexible strips of material covering the inner and outer butt-joints of the two plies, a diaphragm of flexible material separate from the two plies and having its edges united thereto, and a stay-strip secured to the diaphragm around its edges and said parts being vulcanized together.

7. A water-bag comprising two plies of material united by butt-joints to form a water-chamber, a diaphragm of flexible material separate from the said two plies and having its edges united to the inner edges of said plies and surrounded by the water-chamber, and devices at diametrically opposite points of the water-bag for engagement with each other for maintaining the water-bag in folded condition to present inclined heating-surfaces for application to the human body.

679,525. COCK OR VALVE. MICHAEL M. BROPHY, London, England. Filed Mar. 21, 1901. Serial No. 52,197. (No model.)



Claim.—1. In a cock or valve the combination with the valve-casing, of a valve proper adapted to slide longitudinally in a box or extension thereon, inclined surfaces in the said box or extension, corresponding inclined surfaces upon the valve which coöperate with the inclined surfaces in the casing, a disk provided with a stem which projects through the box or casing and with teeth which engage with the valve, the said disk being arranged in connection with packing so as to prevent the escape of steam around the stem, and a spring arranged between the disk and the valve, substantially as, and for the purpose, described.

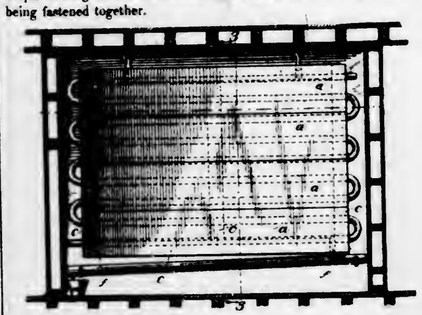
2. In a cock or valve the combination of a casing having a partition provided with a hole adapted to be closed by the valve proper, a nipple upon the side of the said casing in which the valve slides, inclined surfaces upon the edge of the said nipple, corresponding inclined surfaces upon the valve, stops for limiting the movement of the said valve relatively with the inclined surfaces, a cap or cover secured to the nipple and inclosing the valve, a disk provided with a stem projecting through the said cover and with teeth which coöperate with teeth upon the valve and a spring which tends to force the disk and valve apart all substantially as, and for the purposes, described.

679,526. FROST-GUARD FOR REFRIGERATOR-BUILDINGS. WILLIAM R. CARNAT, LOUIS SCHWARZ, and CHARLES SCHWARZ, Ballston Spa, N. Y. Filed Feb. 28, 1901. Serial No. 49,222. (No model.)

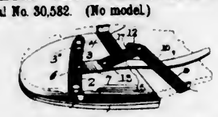
Claim.—1. A non-conducting frost-guard for the purpose set forth provided with means for detachably suspending it from the ceiling and at its lower end with inward-extending arms for maintaining it approximately parallel with the wall holding the pipes to be guarded against.

2. In combination with a cold-storage room, the side wall of which is provided with refrigerating-pipes and whose ceiling is provided with the upper members of hook-and-eye connections, of a non-conducting frost guard or curtain provided at its upper edge with the lower members of said hook-and-eye connections and at its lower end with means for maintaining it approximately parallel with the wall carrying said pipes, the upper edge of said frost guard or curtain lying at a distance below the ceiling and its lower edge terminating short of the floor.

3. A frost-guard for the purpose set forth, consisting of a solid wooden outer face, a layer of insulating-paper on the inner side thereof, a series of separated strips, another layer of insulating-paper on said strips, forming a dead-air chamber, and another series of strips, the whole being fastened together.



679,527. SHOE-SOLE PROTECTOR AND BRAKING DEVICE FOR BICYCLE-RIDERS. FLOYD F. FRISBIE, Ledgedale, Pa. Filed Sept. 20, 1900. Serial No. 30,582. (No model.)



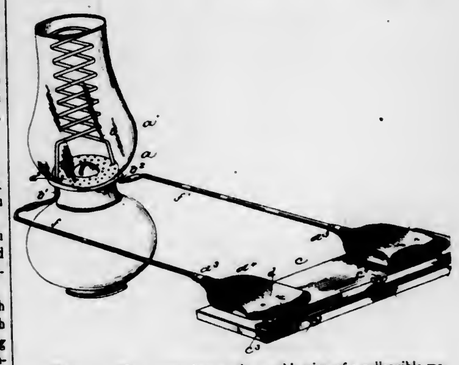
Claim.—1. A shoe-sole protector for the purpose described, comprising a base, a connecting plate or member detachably secured to the base, and clamping mechanism carried by said connecting plate or member, substantially as set forth.

2. A braking device for bicyclists' use and adapted to be applied to the sole of a shoe, the same consisting of a base and fastening mechanism to hold the same secured to the sole of the shoe, the said base serving as a frictional braking device adapted to be brought to bear upon a bicycle-tire, substantially as set forth.

3. A shoe protecting and braking device for bicyclists' use, comprising a base adapted for application to the sole of a shoe, a connecting-plate having a slot and stud or pin connection with said base, and clamping means carried by said connecting-plate for securing the base to the sole of a shoe, substantially as set forth.

4. A shoe protecting and braking device for bicyclists' use, the same consisting of a base provided upon its upper surface with headed pins or studs, a connecting-plate having keyhole-shaped slots to receive said studs and clamping mechanism carried by said plate for connecting the base to the sole of a shoe, substantially as set forth.

679,528. WATER-HEATER FOR THE FEET, &c. SAMUEL A. GOTCHER, St. Louis, Mo. Filed Jan. 21, 1901. Serial No. 44,138. (No model.)



Claim.—1. In a water-heater, the combination of a collapsible water-receptacle, a water-heater and an unobstructed one-pipe system providing communication between the water-receptacle and the water-heater, whereby the water in said water-receptacle may be caused to flow to the

heater, when pressure is applied to the receptacle, and whereby said receptacle may receive the heated water from the heater through the same conduit, when said pressure is removed.

2. A water-heater consisting of a conduit, means for heating said conduit, and two collapsible water-receptacles, one of said receptacles being connected to one end of the conduit and the other receptacle connected to the other end of the conduit, so that communication with each other can only be had through the conduit, as and for the purpose specified.

3. A water-heater consisting of a coil of tubing, said coil having one of its ends connected to a collapsible water-receptacle and its other end connected to a similar water-receptacle, said receptacles being out of communication with each other except through the coil, so that pressure applied to one receptacle will force the water therefrom, through the coil, into the other receptacle, and means for heating the coil.

4. A water-heater consisting of two collapsible water-receptacles, a coil of tubing, and means for heating said coil, said receptacles being out of communication with each other except through said coil, so that water is caused to flow from one receptacle through the coil into the other receptacle, by means of pressure applied to one or the other of the receptacles.

5. In a foot-warmer, the combination of two collapsible water-receptacles, a coil of tubing, and a lamp for heating the coil, one of said receptacles being connected with one end of said coil and the other receptacle connected with the other end of said coil, so that communication between the water-receptacles can only be had through the coil, the water in one receptacle being caused, by pressure on the receptacle, to flow therefrom into the other receptacle.

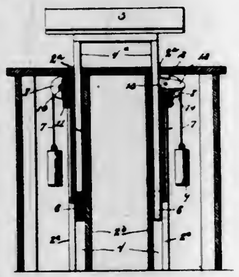
6. In a foot-warmer, the combination with a tubular coil, means for heating the coil, and two collapsible water-receptacles removably secured to a suitable platform or base, one of the receptacles being connected with one end of the coil and the other receptacle connected with the other end of said coil, substantially as specified.

7. In a foot-warmer, the combination of a tubular coil, means for heating the coil, two collapsible water-receptacles, one of said receptacles being connected with one end of the coil and the other with the other end of the coil, a platform or base for supporting the receptacles, and means for detachably connecting said receptacles to the platform or base, substantially as described.

8. In a foot-warmer, the combination with two collapsible water-receptacles, supported upon a suitable platform or base and detachably connected thereto, a tubular coil having one end connected with one receptacle and the other end with the other receptacle, and a lamp for heating the coil, substantially as specified.

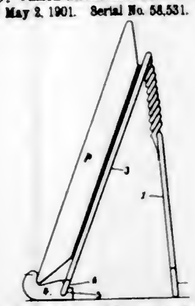
9. In a foot-warmer, the combination of a water-heater, a water-receptacle, and an unobstructed one-pipe system providing communication between the water-heater and water-receptacle, said receptacle adapted to permit the flow of water therefrom to the heater when force is applied thereto, and to receive the return water from the heater.

679,529. ADJUSTABLE SPEAKER'S STAND OR PULPIT. SAMFORD L. HITCHCOCK, Louisville, Ky. Filed Oct. 20, 1899. Serial No. 734,257. (No model.)



Claim.—A reading-stand comprising a support having a top provided with parallel slots, parallel vertical guides providing guideways beneath the slots, an adjustable table having depending bars adapted to slide in the slots and in the guideways, the cross-bars located beneath the top, the bearings secured to the cross-bars, the pulleys having axles journaled in the bearings, the cords working over the pulleys secured at their inner ends to the depending bars, counterbalance-weights supported on the outer ends of the cords, the shoe pivoted to one of the cross-bars, a spring causing the shoe to have frictional bearing against one of the depending bars for retaining the table to its adjustment, and a device for tilting the shoe to release the table, consisting of a guide-pin and a rod having its lower end bifurcated so as to straddle the guide-pin, a lug located over the shoe, and a push-button for depressing the rod.

679,530. PLATE-EASEL AND RACK. LOUIS KAMINSKI, St. Louis, Mo. Filed May 2, 1901. Serial No. 58,531. (No model.)

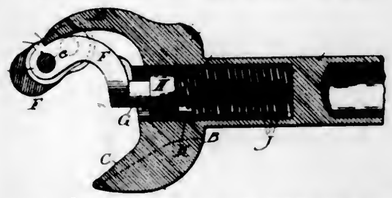


Claim.—1. An easel comprising a wire frame, legs forming a part thereof, forwardly-inclined arms connected to the legs, detachable feet at the lower ends of said arms, each foot comprising a body portion adapted to rest on the supporting-surface for the frame, a forward upturned hook at the outer end of the body portion, the rear end of the body portion having an opening for the passage of the wire, substantially as set forth.

2. An easel comprising a main frame composed of wire supporting members or legs, outwardly-coiled loops at the lower ends thereof, the upper portions of the legs being intertwined and then deflected outwardly, thence downwardly in the form of inclined arms, hooked feet at the lower ends of the arms, the rear ends of the feet having angular recesses or notches, an offset formed in each arm and bearing against the base of said angular offset, the arm being thence passed through the foot, whereby both vertical and horizontal displacement of the foot is prevented, substantially as set forth.

3. In an easel, a foot composed of transparent glass and comprising a body portion, a hook at the forward end thereof, an angular recess or notch at the opposite end, and having an opening adjacent to the recess for the reception of a suitable wire, substantially as set forth.

679,531. AUTOMATIC CAR-COUPLING. JAMES C. LEIDY, Galesburg, Ill. Filed Apr. 13, 1901. Serial No. 55,661. (No model.)



Claim.—1. In a car-coupler, a swinging coupling hook or knuckle, having both of its side faces similar in formation and contour, adapted to be pivotally connected with the draw-head on one of its edge faces and reversed end for end to bring either side face into position for use, substantially as described.

2. In a car-coupler, the combination of a draw-head and a swinging coupling hook or knuckle, having both of its side faces similar in formation and contour, both faces adaptable for use as the operative one with the draw-head, the hook or knuckle turnable end for end and having a pivotal connection at one of its edge faces with the draw-head to bring either side face into position for use.

3. In a car-coupler, the combination of a draw-head, a reversible hook or knuckle, a pivotal pin for the coupling hook or knuckle, a stem pivotally connected with the coupling hook or knuckle, and a locking-block for the stem, substantially as described.

4. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivotal pin for the coupling hook or knuckle to the draw-head, an actuating-stem for opening the coupling hook or knuckle, a pivot for the actuating-stem to the coupling hook or knuckle inside of the pivot-pin of the hook or knuckle to the draw-head, and a locking-block engaging the stem when the hook or knuckle is in its closed position, substantially as described.

5. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivotal pin for the coupling hook or knuckle to the draw-head, an actuating-stem for opening the coupling hook or knuckle, a pivot for the actuating-stem to the coupling hook or knuckle inside of the pivot-pin of the hook or knuckle to the draw-head, a locking-block engaging the stem when the hook or knuckle is in its closed position, and a spring for advancing the stem and opening the hook or knuckle, substantially as described.

6. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivot-pin for the attachment of the hook or knuckle to the draw-head, an actuating-stem for the hook or knuckle, a pivot-pin for the actuating-stem inside of the pivot-pin of the hook or knuckle to the draw-head, a flange or head on the stem, and a locking-block engaging the flange or head when the stem is receded and the hook or knuckle is in its closed position, substantially as described.

7. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivot-pin for the attachment of the hook or knuckle to the draw-head, an actuating-stem for the hook or knuckle, a pivot-pin for the actuating-stem inside of the pivot-pin of the hook or knuckle to the draw-head, a flange or head on the stem, a locking-block engaging the flange or head when the stem is receded and the hook or knuckle is in its closed position, and a spring engaging the stem and operating with the release of the stem from the locking-block to advance the stem and open the hook or knuckle, substantially as described.

8. In a car-coupler, the combination of a draw-head an ear on its upper and lower sides and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, and a divided pivoting-pin, one section of the pin for each upper and lower division of ears, substantially as described.

9. In a car-coupler, the combination of a draw-head having an ear on its upper and lower sides and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, a divided pivoting-pin, one section of the pin for each upper and lower division of ears, and an actuating-stem pivotally connected with the coupling hook or knuckle, substantially as described.

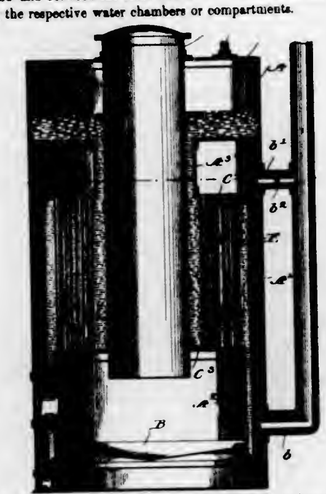
10. In a car-coupler, the combination of a draw-head having an ear on its upper and lower sides and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, a divided pivoting-pin, one section of the pin for each upper and lower division of ears, an actuating-stem connected with the coupling hook or knuckle, and a pivoting-pin for the stem entered through the intermediate ears of the coupling hook or knuckle and the head of the stem, substantially as described.

11. In a car-coupler, the combination of a draw-head having an ear on its upper and lower sides, and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, a divided pivoting-pin, one section of the pin for each upper and lower division of ears, an actuating-stem connected with the coupling hook or knuckle, a pivoting-pin for the stem entered through the intermediate ears of the coupling hook or knuckle and the head of the stem, a flange or head on the stem, a locking-block engaging the flange or head when the coupling hook or knuckle is in its coupling position, and a spring for projecting the stem, with the release thereof from the locking-block, to open the coupling hook or knuckle, substantially as described.

679,532. STEAM-BOILER. GEORGE W. MATHEWS, Chicago, Ill., assignor of one-half to Walter Stokes, same place. Filed Feb. 20, 1901. Serial No. 48,096. (No model.)

Claim.—1. A steam-boiler, comprising an upper and a lower water chamber or compartment an annular combustion-chamber located between the same and surrounding the lower chamber, and a fuel-magazine located centrally of said boiler and extending into the fire-box and an annular passage surrounding the magazine and between the magazine and combustion-chamber and connecting the water-chambers.

2. An upright steam-boiler comprising an upper and a lower water chamber or compartment of unequal diameters, an annular chamber between said chambers and partly surrounding the lower and adapted to receive the gases of combustion, a vertical tubular fuel-magazine located centrally of the boiler and extending into the fire-box, and fire-tubes extending through said lower water-chamber and opening into the fire-box and combustion-chamber and an annular water-passage surrounding the magazine and between the same and the combustion-chamber and connecting the respective water chambers or compartments.



3. A fire-tube boiler comprising an outer and an inner shell, horizontal heads dividing said boiler into an upper and a lower water-chamber, a central annular combustion-chamber between said water-chambers and extending downwardly between the shells and adapted to receive the gases of combustion, a fuel-magazine opening into the fire-box, fire-flues leading from the fire-box to the combustion-chamber through said lower water-chamber, the inner walls of said combustion-chamber lying in close proximity with the walls of the magazine thereby providing a thin annular water-passage surrounding the magazine and pipes or flues communicating with the combustion-chamber designed to convey away the gases of combustion.

4. In a device of the class described, a fire-box, an upper and a lower water-chamber located above the same, a small annular water-passage connecting the same, a water-leg surrounding the fire-box, a combustion-chamber between said upper and lower water-chambers partly surrounding said lower water-chamber and adapted to receive the gases of combustion, a flue connected near the bottom of the same and a fuel-magazine passing through said upper and lower water-chambers and the water-passage connecting the same.

679,533. CONTROLLING VALVES OF FLUID-MOTORS. EDWARD Y. MOORE, Cleveland, Ohio assignor to the Chisholm and Moore Manufacturing Company, same place. Filed Mar. 27, 1901. Serial No. 53,030. (No model.)

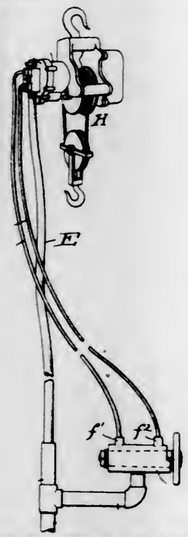
Claim.—1. In an air system, the combination of a valve, a valve-shifter therefor, controlling means, a pair of air-ducts leading therefrom to opposite parts of the valve-shifter, an air-supply pipe leading to said controlling means, said controlling means being adapted to connect either of said air-ducts with the air-supply pipe, and also to shut off the air-supply to the ducts but couple the two ducts together, substantially as described.

2. The combination of a motor, a reversing-valve therefor, a valve-shifter connected with said reversing-valve, a controlling-valve, a pair of air-ducts leading therefrom to the shifter, an air-supply pipe leading to said controlling-valve, said controlling-valve having one position where it couples one of the air-ducts with the supply and the other with the outer air, another position wherein it couples the other air-duct with the supply and the remaining one with the outer air, and an intermediate position wherein it disconnects each air-duct from the supply and from the outer air and couples the two air-ducts together, substantially as described.

3. The combination of a reversing-valve having an intermediate off position, means tending to return said valve to its said off position when displaced in either direction, a valve-shifter consisting of a plunger within a cylinder and connected with said valve, means for admitting compressed air to either end of the cylinder and for connecting together the two ends of the cylinder, substantially as described.

4. The combination of a reversing-valve having an intermediate off position, means tending to return said valve to its said off position when displaced in either direction, a pneumatic valve-shifter connected with said valve, a controlling-valve, a pair of air-ducts leading therefrom to oppo-

site parts of said shifter, a supply-pipe leading to said controlling-valve, said controlling-valve having three positions one of which connects one of said ducts with the supply-pipe, the other of which connects the other duct with the supply-pipe, and the third being an intermediate position which disconnects each duct from the supply-pipe and connects both ducts together, substantially as described.



5. In an air system, in combination, a valve-body, a plug mounted therein, said body having outlets, air-ducts leading from said outlets and adapted to control said system, said plug having a recess which may connect together said two outlets, substantially as described.

6. In an air system, in combination, a valve-body, a plug having recesses therein, said body having two outlets and an inlet, air-ducts leading from said outlets and adapted to control said system, said plug having two extreme positions which may connect either of said outlets with the said inlet, and an intermediate position in which said outlets are connected together, substantially as described.

7. In an air system, in combination, a valve-body, a plug having recesses therein, said body having two outlets, a cylinder and piston, air-ducts leading from said outlets to opposite sides of said piston, one position of said plug connecting said outlets together, substantially as described.

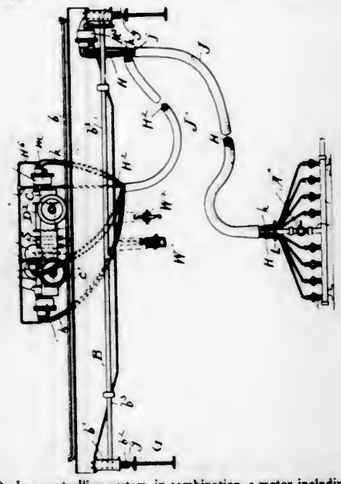
8. In an air system, in combination, a valve-body, a plug having recesses therein, said body having an inlet and two outlets, a cylinder and piston, air-ducts connecting each of said outlets with one end of said cylinder, said plug having two extreme positions in which either of said outlets may be connected with said inlet while the other outlet is connected with the outer air, and an intermediate position in which said two outlets are connected, substantially as described.

9. The combination of a tubular valve-body having an inlet and a pair of outlets, a plug within said body having an external recess adapted in the intermediate position of the plug to couple said two outlets together, a pair of recesses on opposite sides of the plug adapted in one extreme position to couple one outlet-opening with the inlet-opening and in the other extreme position to couple the other outlet-opening with the inlet-opening, substantially as described.

10. The combination of a tubular valve-body having an inlet and a pair of outlets, a plug within said body having an external recess adapted in the intermediate position of the plug to couple said two outlets together, a pair of recesses on opposite sides of the plug adapted in one extreme position to couple one outlet-opening with the inlet-opening and in the other extreme position to couple the other outlet-opening with the inlet-opening, and passage-ways contained in the interior of said plug and leading outside of it, and adapted to connect with one outlet-opening when the other outlet-opening is connected with the inlet, substantially as described.

679,534. SYSTEM OF CONTROLLING PNEUMATIC MOTORS OF CRANES, HOISTING MECHANISMS, &c. EDWARD Y. MOORE, Cleveland, Ohio, assignor to the Chisholm and Moore Manufacturing Company, same place. Filed May 15, 1901. Serial No. 60,331. (No model.)

Claim.—1. In an air-controlled system, in combination, a motor including a valve actuated by the movement of the motor and in turn governing it to allow automatic consecutive operations thereof, a reversing-valve at the motor for governing it, a pneumatic valve-shifter mechanically connected with the reversing-valve, means for supplying air to the shifter to operate it, and means for controlling such supply, substantially as described.



2. In a controlling system, in combination, a motor including a valve actuated by the movement of the motor and in turn governing it to allow automatic consecutive operations thereof, a reversing-valve therefor, a cylinder, a piston connected with said reversing-valve, and means for admitting fluid on either side of said piston, substantially as described.

3. In a controlling system, in combination, a motor, a shaft driven by said motor, said motor including a valve actuated by the movement of the motor and in turn governing it to produce automatic consecutive revolutions of said shaft, a reversing-valve therefor, a cylinder, a piston connected with said reversing-valve, and means for admitting fluid on either side of said piston, substantially as described.

4. In a controlling system, in combination, a motor, a reversing-valve therefor, a cylinder, a piston therein, a cross-head connecting said reversing-valve to said piston, and means for admitting air on either side of said piston, substantially as described.

5. In a controlling system, in combination, a crane, air-motors adapted to operate the same and carried thereby, a valve on each of said motors adapted to admit operating fluid thereto, a system of flexible hose leading from said motors, and a system of valves adapted to control the valves of said motors, substantially as described.

6. In an air-controlled system, in combination, a motor including a valve actuated by the movement of the motor and in turn governing it to allow automatic consecutive operations thereof, a reversing-valve therefor, a pneumatic valve-shifter, two air-hose leading to said shifter, a connection between said shifter and said valve, and means for controlling the admission of air to said hose, substantially as described.

7. In an air-controlled system, hoisting mechanism, a motor adapted to actuate the same, said motor including a valve actuated by the movement of the motor and in turn governing it to allow automatic consecutive operations thereof, a reversing-valve at the motor adapted to govern it, a pneumatic valve-shifter also at the motor connected with the reversing-valve and adapted to operate it, and air-hose leading to the valve-shifter, substantially as described.

8. In an air-controlled system, in combination, hoisting mechanism, a motor adapted to actuate the same, said motor comprising a crank-shaft, driving mechanism therefor, and a valve actuated by the movement of the motor and in turn governing it to produce automatic consecutive revolutions of said crank-shaft, a reversing-valve at the motor adapted to govern it, a pneumatic valve-shifter also at the motor and connected with the reversing-valve and adapted to operate it, and air-hose leading to the valve-shifter, substantially as described.

9. In a crane-controlling system, a motor for operating the crane, said motor including a valve actuated by the movement of the motor and in turn governing it to allow automatic consecutive operations thereof, an air-operated reversing-valve for governing the motor, combined with a system of pneumatic hose for leading compressed air to said motor for operating it and for leading compressed air to and from the reversing-valve for governing said motor, and means for controlling the admission of air to the hose and exhaust of air from them, substantially as described.

10. In a crane-controlling system, in combination, a crane, air-motors carried thereby and adapted to operate the same, an air-operated reversing-valve carried by each of said motors, a pair of flexible hose leading from each motor for governing the same and a main flexible hose for operating said motor, and valves for controlling the air in the governing-hose, substantially as described.

11. In a crane-controlling system, a crane, air-motors carried thereby and adapted to operate the same, a valve in each motor for admitting compressed air thereto, means for normally holding said valves in mid-position, mechanism for shifting the valve in either direction, flexible hose leading from said shifting mechanism, and pneumatic means for governing each of said valves therethrough, substantially as described.

12. In a crane-controlling system, a crane, air-motors carried thereby and adapted to operate the same, valves on said motors for admitting compressed air thereto, valve-shifters connected with said valves, and pneumatic means for operating said valve-shifters, substantially as described.

13. In a crane-controlling system, in combination, a crane, an air-motor carried thereby and adapted to operate the same, a valve on said motor adapted to govern said motor, a valve-shifter comprising a cylinder, a piston movable therein, springs normally constraining said piston to its mid-position, a connection between said piston and said valve, a flexible hose leading from said valve-shifter, and pneumatic means for governing said valve-shifter through said hose, substantially as described.

14. In a controlling system, the combination of a motor, a reversing-valve for said motor, a valve-shifter for operating said reversing-valve, said valve-shifter comprising a cylinder, a pair of piston-heads therein on the same piston-rod, port-openings into the cylinder on the outer side of said two piston-heads, a rigid support carried by the cylinder intermediate of said heads, a pair of springs surrounding the piston-rod between said heads and on opposite sides of said support, and a connection between said piston-rod and the reversing-valve, substantially as described.

15. In a controlling system, the combination of a motor, a reversing-valve for governing the motor, a valve-shifter carried by said motor consisting of a cylinder rigid therewith, and having in its interior a pair of piston-heads on a single piston-rod, a connection between said piston-rod and the reversing-valve, port-openings leading to the opposite ends of the valve-shifter, a rigid support within the shifter-cylinder intermediate of the piston-heads, springs surrounding said piston-rod intermediate of the piston-heads and on opposite sides of said rigid support, each spring being adapted to be compressed when the corresponding piston-head is moved toward said support, a projection carried by said piston-head adapted to hold the opposite spring from expanding into engagement with said support when the first spring mentioned is compressed, substantially as described.

16. In a crane-controlling system, in combination, a crane, air-motors adapted to operate the same, reversing-valves at the motors adapted to govern them, a series of controlling-valves for controlling said motors from one position and ducts connecting said reversing-valves with said series of controlling-valves, substantially as described.

17. In a crane-controlling system, in combination, a crane, air-motors carried thereby and adapted to operate the same, reversing-valves at the motors adapted to govern them, a series of controlling-valves for controlling all of said reversing-valves from one position, and flexible hose connecting said reversing-valves with said series of valves, substantially as described.

18. In a crane-controlling system, in combination, a crane, air-motors carried thereby and adapted to operate the same, a series of valves for controlling the different motors from one position, and air-ducts leading in pairs from valves of said series to said motors, substantially as described.

19. In a crane-controlling system, in combination, a crane, a plurality of air-motors carried thereby and adapted to operate the crane, an air-operated valve for governing each air-motor, a series of valves connected with an air-supply, there being two individual valves corresponding to each motor, and individual conveying-pipes leading from each individual valve to the corresponding motor, substantially as described.

20. In a crane-controlling system, in combination, a crane, a plurality of air-motors carried thereby and adapted to operate the same, a series of valves in the supply-main therefor, said series of valves comprising a valve governing the passage of air to drive said motors and valves for controlling the different motors, substantially as described.

21. In a crane-controlling system, in combination, a crane, air-motors carried thereby and adapted to operate the same, a series of valves in the supply-main therefor, a main air-duct leading from said series of valves and supplying the air that drives said motors, separate air-ducts also connecting said series of valves and said motors, said series of valves comprising a valve controlling said main duct and a plurality of valves controlling said separate ducts, substantially as described.

22. In a crane-controlling system, in combination, a crane, air-motors for controlling the same, reversing-valves on each of said motors, valve-shifters adapted to operate said reversing-valves, a series of valves, a main air-pipe leading compressed air to said reversing-valves, auxiliary pipes leading from said series of valves to said valve-shifters, said series of valves comprising individual valves controlling said auxiliary pipes, substantially as described.

23. In a crane-controlling system, in combination, a crane, air-motors carried thereby, a reversing-valve for each air-motor, and a valve-shifter for operating it, flexible hose leading from the air-supply to the reversing-valve, a series of valves for controlling the valve-shifters, individual flexible hose leading from the series of valves to said valve-shifters, said individual hose being grouped about the main flexible hose and there retained, substantially as described.

24. In a crane-controlling system, in combination, a crane, air-motors carried thereby and adapted to operate the same, a series of valves for controlling the said motors, a flexible main air-hose connecting said motors with said series of valves, auxiliary hose grouped thereabout, and a flexible covering enveloping said composite hose, substantially as described.

25. In a crane-controlling system, in combination, a crane, a motor for operating it, an air-operated reversing-valve for governing said motor, a pair of conveying-pipes leading to said motor for operating said valve, valves for controlling said motor from a distance, said valves comprising a pair of individual valves each adapted to connect the corresponding conveying-pipe with the outer air or with a supply of compressed air, said individual valves being normally held in the first-mentioned position, substantially as described.

26. In a controlling system, in combination, a movable bridge, an air-motor adapted to move said bridge, a carriage traveling on said bridge, air-motors carried by said carriage, air-hose connecting said carriage with that end of the said bridge which carries its motor, and an air-supply for operating the same leading also from the motor of said bridge to the operator's position, and a series of valves connected therewith for operating said motors, substantially as described.

27. In a controlling system, in combination, two rotatable drums, independent air-motors adapted to drive the drums at substantially equal speed, hoisting-tackle connected with one of said drums whereby it may lift at a decreased speed, and means for controlling the movement of said motors from substantially the same distant point, substantially as described.

28. In a controlling system, in combination, two rotatable drums, independent air-motors adapted to drive the said drums at equal speeds, tackle connected with one of said drums whereby it may lift at a decreased speed, and pneumatic means for controlling the movement of said motors, substantially as described.

29. In a controlling system, in combination, two rotatable drums, an air-motor connected with each drum and adapted to drive the same, flexible air-hose leading from said motors to the operator's position, and means for controlling the movement of said motors from said position, substantially as described.

30. In a controlling system, the combination of a tubular body adapted to receive compressed air into its interior and having a plurality of outlets normally closed, individual valves for controlling said outlets, individual pipes leading from said valves and normally connected thereby with the outer air but adapted by the movement of said valves to be closed as to the outer air but connected with compressed air from the tubular body, substantially as described.

31. In a controlling system, the combination of a tubular body, valves controlling the outlets therefrom, air-tubes leading from said openings, gates in said valves normally keeping communication open between said tubes and the outer air, but closing said outlets, push-buttons operating said gates, and means for restraining said gates in position to hold the outlets open, substantially as described.

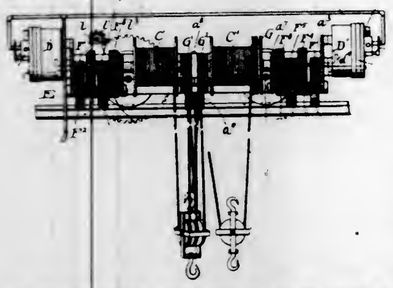
32. In a controlling system, in combination, a hollow body having a plurality of outlets, valves for controlling the same, a perforated holder supported by said body, and tubes leading from said valves and taking through the perforations of said holder, substantially as described.

33. In a controlling system, in combination, a tubular body, a branch rising therefrom, a stop-cock controlling the outlet thereto, said tubular body having a plurality of nipples having outlets therethrough, valves adapted to control the outlets through said nipples, a holder having a central opening taking over said branch, and holes clustered around said opening, tubes for conveying air from said valves and taking through said holes, substantially as described.

679,535. CARRIAGE FOR CRANES. EDWARD Y. MOORE, Cleveland, Ohio, assignor to the Chisholm and Moore Manufacturing Company, same place. Filed Apr. 19, 1900. Renewed June 25, 1901. Serial No. 65,996. (No model.)

Claim.—1. The combination, with a unitary crane-carriage and

means for shifting it bodily, of a pair of independent winding-drums carried thereby, and a pair of similar independent engines for operating said drums, and idler-sheaves carried by said carriage, and a pair of tackle-blocks and elevating-cables running from said drums to the tackle-blocks, one of said cables passing around more idler-sheaves than the other cable whereby with equal speed of rotation different speeds of elevation are attained, and pipes adapted to lead from a common supply jointly to said engines whereby they are caused to operate at the same speed, substantially as described.



2. The combination of a unitary crane-carriage and means for moving it bodily, of a pair of winding-drums carried by the carriage, a pair of independent pneumatic engines connected each with one of said drums, a single supply-pipe leading to the two engines whereby they are adapted to operate at the same speed, and sheaves carried by the frame over which winding-cables may pass whereby with equal speeds of rotation different speeds of elevation may be obtained, substantially as described.

3. In a crane-carriage, in combination, a box-like frame built up of a pair of side plates and intermediate separating-plates, which intermediate plates have flanged ends by which they are bolted to the side plates, supporting-axles mounted in the side plates, and wheels on said axles, and a rotatable drum between the side plates and mounted in the separating-plates, substantially as described.

4. In a crane-carriage, in combination, a frame having side plates and transverse plates, a rotatable drum mounted between the side plates, and loose sheaves between the side plates and mounted in transverse plates with their axes in the same vertical plane with that of said drum, substantially as described.

5. In a crane-carriage, a box-like frame consisting of a pair of side plates, a pair of end plates, and four intermediate separating-plates, a pair of driving-engines each secured on the outer side of one of the end plates, a pair of alined driving-shafts journaled in the said separators, drums on said shafts, gearing between the outer separators and the end plates connecting the engine-shafts with the drum-shafts and changing the speed of rotation thereof, and a revolnble sheave carried by an axle supported by the innermost separators, substantially as described.

6. In a crane carriage, in combination, an open box-like frame consisting of side plates and cross-plates for ends and intermediate separators, an engine secured to the end plate, an axle carried by the end plate and the separator, an idle gear and pinion on said axle, a pinion on the engine-shaft meshing with said gear, and a gear supported axially of the engine-shaft meshing with the pinion on the axle, a main shaft journaled axially of the engine-shaft in two of the cross-plates of the frame, the last gear of the train being secured to this shaft, and a winding-drum on this shaft, substantially as described.

7. In a crane-carriage, in combination, a frame including the side plates a a', and the cross-plates a^2 a^7 a^4, a main shaft journaled in the plates a^4 a^7, a drum on said shaft, a driving-engine secured on the outer side of the cross-plate a^2, the shaft of said engine being alined with the main shaft, an axle supported by the plates a^2 a^7 parallel with the main shaft, and a train of reducing-gearing leading from the engine-shaft to gears on said axle, thence to gears loose on the main shaft, thence to other gears on said axle, and finally to a gear rigid with said main shaft, and a drum carried by said main shaft between the cross-plates a^4 a^7, substantially as described.

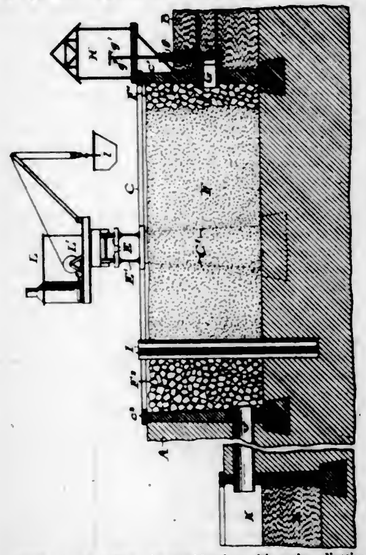
8. In a crane-carriage, the combination of a box-like frame consisting of side plates and cross-plates, the main shaft journaled in said cross-plates, a winding-drum carried by said shaft, a driving-engine having its shaft in alinement with the main shaft, an axle supported parallel with the main shaft, reducing-gearing between the engine-shaft and the main shaft carried by said two shafts and said axle, said gearing consisting of a series of intermeshing pinions and gears, which gears are rigidly connected with other pinions meshing with successive gears, the connected gears and pinions being one surrounding the hub extending from the other whereby a long bearing-surface is obtained, substantially as described.

9. In a crane-carriage, the combination of the frame consisting of side plates and cross-plates between the side plates and having flanges at their ends which are bolted to the side plates, a main shaft journaled at said cross-plates, a drum carried by said main shaft, an engine secured to the outer side of an end cross-plate and having its shaft projecting through the cross-plate, an axle carried by said cross-plates parallel with the main shaft, a train of intermeshing reducing-gearing connecting the engine-shaft with the main shaft and carried by said shafts and said axle, supporting-axles carried by the side plates of said frame, and supporting-wheels on said latter axles, substantially as described.

10. In a crane-carriage, in combination, a frame consisting of side plates and transverse separating-plates, a pair of main shafts in alinement with each other independently journaled in a pair of adjacent separating-plates, independent driving-engines for operating said drums, an idler shaft or rod carried by the separating-plates mentioned out of alinement with the main driving-shafts, one or more sheaves on said idler shaft or rod and winding-drums on said main shafts, substantially as described.

11. In a crane-carriage, the combination of a frame consisting of a pair of side plates and end plates, and four intermediate separating-plates, a pair of main shafts journaled in said four separating-plates in alinement with each other, winding-drums on said shafts, an idler axle or shaft mounted in the centermost separators parallel with but out of alinement with the main shafts, one or more sheaves on said idler-shaft, a pair of pneumatic engines mounted on the outer sides of the end plates, a pair of idler-shafts carried by said end plates and the adjacent separators, reducing-gearing partly carried by said last-mentioned idler-shafts and connecting the engines with the main shafts, the reducing-gearing and the drums and the sheaves being thus contained between the side plates of the frame, a pair of supporting-axles passing through said side plates, and wheels on said axles, and means for revolving one or more of said wheels to cause the carriage to travel bodily as a whole, substantially as described.

679,536. **FILTER.** THOMAS R. MCCANN, Philadelphia, Pa. Filed Mar. 30, 1901. Serial No. 51,983. (No model.)



Claim.—1. In a filter, the combination with a pier adjutting into a body of water from an embankment thereof; of a mass of filtering material embedded in said pier; a dock adjoining said pier; a railway extending over the bed in said pier to said dock; and means arranged to traverse said railway and to transfer the filtering material to and from said pier-bed and said dock, substantially as set forth.

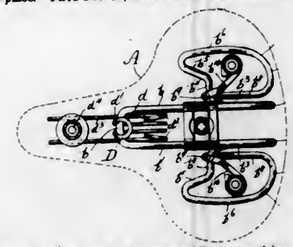
2. In a filter, the combination with a series of alternately-disposed piers and docks in an embankment of a body of water; of masses of filtering material respectively embedded in said piers; a railway extending over the piers and docks of said series; and means arranged to traverse said railway and to transfer the filtering material to and from said piers and docks, substantially as set forth.

3. In a filter, the combination with a pier adjutting into a body of water from an embankment thereof, and comprising a walled inclosure; of a mass of fine granular material embedded in said inclosure; a vertical layer of granular material, coarser than said mass, between said mass and the wall of said inclosure; and means arranged to control the flow of water horizontally through said mass, substantially as set forth.

4. In a filter, the combination with a pier adjutting into a body of water from an embankment thereof, and comprising a walled inclosure; of a mass of fine granular material embedded in said inclosure; a vertical layer of granular material, coarser than said mass, between said mass and the wall of said inclosure; a wall of piles between said mass and said layer of coarse granular material; and means arranged to control the flow of water horizontally through said mass and said wall of piles, substantially as set forth.

5. In a filter, the combination with a pier adjutting into a body of water from an embankment thereof and comprising a walled inclosure; of a mass of filtering material embedded in said inclosure; a column in said inclosure; a dock adjoining said pier; a railway supported by said inclosure and said column, extending over the bed of said pier to said dock; and means arranged to traverse said railway and to transfer the filtering material to and from said pier-bed and said dock, substantially as set forth.

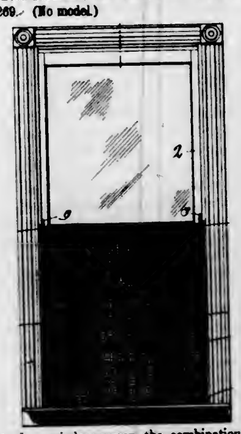
679,537. **BICYCLE SADDLE-SUPPORT.** MOSES H. NABER, Chicago, Ill., assignor, by mesne assignments, to Edward G. Pauling same place. Filed Dec. 19, 1898. Serial No. 699,646. (No model.)



Claim.—1. A support for bicycle-saddles, comprising a base having upper and lower legs, the latter being united in a loop, an integral torsional arm projecting laterally from each of said upper legs, wings formed of the continuation of said arms and having outer and inner ribs, the wire of the inner rib being bent around its associated arm and formed with a loop by which it is fastened to the saddle.

2. A saddle-supporting frame made from a single piece of wire and comprising a base, lateral arms, wings concave in longitudinal section, one on each of said arms, the inner rib of each wing being bent around its appropriate arm and terminating in an angular leg having a loop by which it is fastened to the saddle, substantially as and for the purposes described.

679,538. **WINDOW-SCREEN.** OSCAR NELSON, Brooklyn, N. Y., assignor to Leon Bermann, New York, N. Y. Filed Dec. 10, 1900. Serial No. 39,269. (No model.)



Claim.—1. In a window-screen, the combination of a frame comprising a cross-piece and two side pieces; a roller; a screen having one end secured to the roller so as to be wound thereon, and having its free end secured to the cross-piece of the frame, the side pieces of the frame being disconnected from the screen; and means for guiding the frame in its movement when the screen is being wound or unwound on the roller.

2. In a window-screen, the combination of a frame comprising a cross-piece and two side pieces; a roller; a window-sash carrying the roller; a screen having one end secured to the roller so as to be wound thereon, and having its free end secured to the cross-piece of the frame; and means for guiding the frame in its movement when the screen is being wound or unwound on the roller.

3. In a window-screen, the combination of a frame comprising a cross-piece and two side pieces; a window-sash; a roller; brackets for the roller secured to the sash and having guideways for the side pieces of the frame; and a screen having one end secured to the roller so as to be wound thereon, and having its free end secured to the cross-piece of the frame.

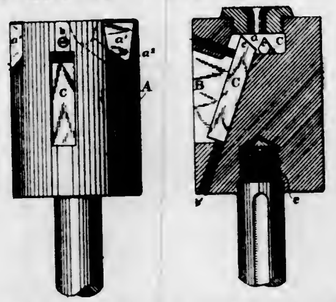
4. In a window-screen, the combination of a frame comprising a cross-piece and two side pieces; a window-sash; a spring-roller; brackets for the roller secured to the sash and having guideways for the side pieces of the frame; and a screen having one end secured to the roller so as to be wound thereon, and having its free end secured to the cross-piece of the frame, said brackets having friction-springs arranged to bear upon the side pieces of the frame to counteract the movement of the spring-roller.

679,539. **TOP-BOX FASTENER FOR WAGONS.** MARK NORAL, Humphrey, Nebr. Filed Apr. 8, 1901. Serial No. 54,810. (No model.)



Claim.—The combination with a top box of a wagon, of a pair of fasteners each comprising an upper member, fitting over the upper edge of the box; a lower member secured to the wagon-body; means for detachably connecting said upper and lower members; and adjustable brace connections between the upper members of the two fasteners consisting of a sleeve and a rod fitting within the sleeve, and a securing device for connecting the sleeve and rod adjustably.

679,540. **CHUCK OR DIE FOR POINTING OR ROUNDING ENDS OF BOLTS.** GEORGE W. PACKER, Chicago, Ill., assignor to the Deering Harvester Company, same place. Original application filed Aug. 2, 1900, Serial No. 25,637. Divided and this application filed Nov. 7, 1900. Serial No. 35,754. (No model.)



Claim.—1. In a chuck or die for pointing or rounding, the combination of a block or head having in its body a plurality of retaining side openings or slots, each opening or slot communicating with a central end chamber in the block or head and each opening or slot having a back or inner wall inwardly converging toward the end chamber, a plurality of cutters or tools for pointing or rounding purposes, one cutter or tool for each side opening or slot, each cutter or tool having its acting end projecting endwise into the central end chamber of the block or head and set against the converging back or inner wall giving each cutter or tool an inward inclination, and means for adjusting and locking the tool in its retaining opening or slot, substantially as described.

2. In a chuck or die for pointing or rounding, the combination of a block or head having in its body a plurality of retaining side openings or slots, each opening or slot communicating with a central end chamber in

the block or head and each opening or slot having a back or inner wall inwardly converging toward the end chamber longitudinally of the block or head, a plurality of cutters or tools for pointing or rounding purposes, one cutter or tool for each side opening or slot, each cutter or tool having its acting end projecting endwise into the central end chamber of the block or head and set against the converging back or inner wall giving each cutter or tool an inward inclination, an end adjusting screw or stem for each cutter or tool abutting against the end of the cutter or tool, and a side clamping stem or screw for each cutter or tool abutting against the outer side face of the cutter or tool, for the stems or screws to act and set and adjust the cutters or tools, substantially as described.

3. In a chuck or die for pointing or rounding, the combination of a block or head, a guide or centering-plate on the receiving end of the block or head, a central opening or chamber in the block or head beneath the guide or centering-plate, a series of discharge-openings leading from the central chamber outward, each discharge opening having an inclined bottom diverging from the bottom of the central chamber, a plurality of side openings or slots in the body of the block or head, each side opening or slot communicating with the central end chamber in the block or head and each opening or slot having a back or inner wall inwardly converging toward the end chamber, a plurality of cutters or tools for pointing or rounding purposes, one cutter or tool for each side opening or slot, each cutter or tool having its acting end projecting endwise into the central end chamber of the block or head and set against the converging back or inner wall giving each cutter or tool an inward inclination, and means for adjusting and retaining each cutter or tool in its opening or slot with its cutting end projected into the central opening or chamber, substantially as described.

4. In a chuck or die for pointing or rounding, the combination of a block or head having a plurality of longitudinal slots or openings in its body converging toward a central chamber in the end of the block or head, and a plurality of cutters or tools for pointing or rounding purposes, adjustably set in the block or head and having their acting ends projected into the central chamber concentrically around such chamber with an inward inclination for the acting ends, and each acting end having an inwardly-inclined cutting edge forming a tapered or inclined space within the cutting edges, substantially as described.

5. In a chuck or die for pointing or rounding, the combination of a block or head having a plurality of longitudinal slots or openings in its body converging toward a central chamber in the end of the block or head, a plurality of cutters or tools for pointing or rounding purposes, adjustably set in the block or head and having their acting ends projected into the central chamber concentrically around such chamber with an inward inclination for the acting ends, and each acting end having an inwardly-inclined cutting edge forming a tapered or inclined space within the cutting edges, and a guide or centering-plate on the acting end of the block or head having a central hole in line with the tapered or inclined space formed by the cutting edges of the cutters or tools, substantially as described.

679,541. CIGAR. JOHN G. PAINT, Port Hawkesbury, Canada. Filed Nov. 3, 1900. Serial No. 35,384. (No model.)



Claim.—1. A cigar having the surface of its body portion exposed and having at its tip end an auxiliary cap or covering wrapped spirally thereon to closely fit the end of the cigar, the inner end of said covering being adhesively secured to the cigar, the free end being twisted, whereby the tip end will be normally inclosed, the twisted portion of said cap being cut off with the tip end of the cigar, the remaining portion of the cap forming a mouthpiece.

2. A cigar having the surface of its body portion exposed and having at its tip end an auxiliary cap or covering, said cap or covering consisting of an elongated strip of "rice-paper" having at one end an adhesive adapted to secure the inner end of the strip to the cigar, said strip being wound spirally about the tip end, the free end of the strip being twisted, whereby the tip end will be normally closed, the twisted portion of said cap being cut off with the tip end of the cigar, the remaining portion of the cap forming a mouthpiece.

679,542. CLASP. ALFRED H. PRATT, New York, N. Y. Filed Apr. 22, 1901. Serial No. 56,305. (No model.)



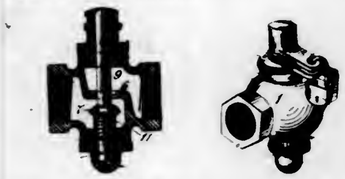
Claim.—1. A clasp comprising a single flat strip having two supporting-loop and the two tongues, said tongues lying parallel substantially the length of the loop and together forming a spring-clip adapted to engage and clamp the clothes of the wearer uniformly along the entire length of said loop, and corrugations formed in said tongues, the corrugations of the respective tongues being adapted to engage each other for the purpose set forth.

2. A clasp comprising a single flat strip bent to form the supporting-loop and the two tongues, said tongues lying parallel to each other substantially the length of the loop and forming a spring-clip adapted to clamp the clothes, uniformly along the entire length of said loop and a projecting end upon one of the said tongues advancing beyond the lower end of the loop, substantially as described.

3. A clasp comprising a single flat strip bent to form the inner and outer parallel tongues and the supporting-loop, said tongues forming a spring-clip adapted to engage the clothes and one of said tongues projecting beyond the lower end of the loop, and corrugations formed in said tongues, the corrugations of the respective tongues being adapted to engage each other for the purpose set forth.

4. A clasp comprising a single flat strip bent to form the inner and the outer tongues and the supporting-loop, said tongues lying parallel to each other substantially the length of the loop and each having corrugations formed therein, the corrugations of the respective tongues being adapted to engage each other, and the end of the outer tongue projecting beyond the lower end of the supporting-loop, substantially as described.

679,543. VALVE FOR GAS OR OTHER PIPES. EDWARD S. ROOT and CHARLES S. DEMAREST, New York, N. Y. Filed Mar. 20, 1901. Serial No. 52,013. (No model.)



Claim.—1. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve, within said casing, provided with a stem; and a bearing-plate, for holding said valve open, secured in place by fusible metal.

2. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve within said casing, provided with a stem; a spring surrounding said stem; and a bearing-plate, for holding said valve open against the pressure of the spring, secured in place by fusible metal.

3. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve, within said casing, provided with a stem; a casing for said valve-stem; and a cap for said stem-casing provided with a bearing-plate for said valve-stem, said bearing-plate being secured in place by fusible metal.

4. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve, within said casing, provided with a stem; a casing for said valve-stem; a spring surrounding said stem; and a cap for said stem-casing, provided with a bearing-plate for said valve-stem, said bearing-plate being secured in place by fusible metal.

5. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve, within said casing, provided with a stem; a casing for said valve-stem; and a removable cap for said valve-stem casing, made of two parts, secured together by fusible metal.

6. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve within said casing provided with a valve-stem on each side; a spring surrounding one of the said stems and tending to hold the valve to its seat; and a bearing-plate on the other side of the valve for engaging the other valve-stem and holding the valve open against the pressure of the said spring, said bearing-plate being secured in place by fusible metal.

7. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve within said casing provided with a valve-stem on each side; a spring surrounding one of the said stems and tending to hold the valve to its seat; a casing for the other valve-stem, and a cap for said valve-stem casing provided with a bearing-plate secured in place by fusible metal, for engaging the valve-stem and holding the valve open against the pressure of the spring.

8. The combination of a valve-casing provided with inlet and outlet openings, and with a valve-seat; a valve within said casing provided with upper and lower valve-stems; a spring surrounding the lower valve-stem; casings for said stems; and a removable cap for the upper casing composed of two parts secured together by fusible metal.

9. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a single lifting-valve within said casing provided with a stem; means for engaging said stem and holding said valve open; fusible means for releasing said valve automatically; and means for releasing said valve by hand.

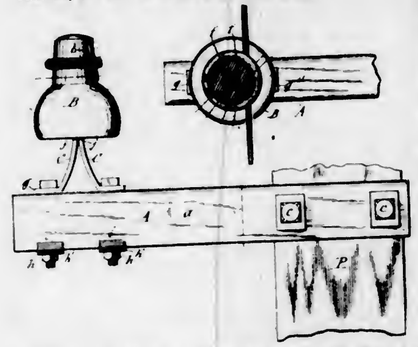
10. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a single lifting-valve within said casing provided with a stem; means for engaging said stem and holding said valve open; fusible means for releasing said valve automatically; means for releasing said valve by hand; and means for locking said valve in its closed position.

11. The combination of a valve-casing provided with inlet and outlet openings and with a valve-seat; a valve within said casing held normally open and provided with a stem; means for closing said valve; a locking-log on said valve-casing; a removable locking-cap for said stem; and a lock, for the purposes set forth.

12. The combination of a gas-meter; a supply-pipe leading to said meter; a distributing-pipe leading from said meter; a single lifting-valve located in said supply-pipe and provided with a stem; means for engaging said stem and holding said valve open; fusible means for releasing said valve automatically; and means for releasing said valve by hand.

13. The combination of a gas-meter; a supply-pipe leading to said meter; a distributing-pipe leading from said meter; a single lifting-valve located in said supply-pipe and provided with a stem; means for engaging said stem and holding said valve open; fusible means for releasing said valve automatically; means for releasing said valve by hand; and means for locking said valve in its closed position.

679,544. INSULATOR FOR ELECTRIC WIRES. JOHN E. SHARPE, Oneida, N. Y., assignor of one-half to Newton D. Bartle, Guilford, N. Y. Filed May 17, 1901. Serial No. 60,625. (No model.)



Claim.—1. An insulator-body provided with a plate disposed to receive between it and said body the wire to be fastened thereto, and a clamp embracing said body and plate and compressing said parts upon the interposed wire as set forth.

2. An insulator-body provided with a transverse groove in its exterior in combination with a plate provided with a tongue engaging said groove, and a clamp compressing said plate upon the wire interposed between the plate and body as set forth.

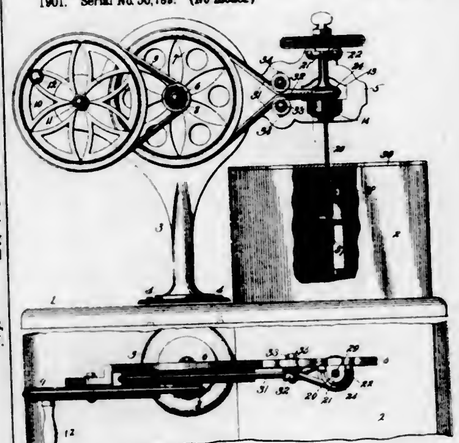
3. An insulator-body formed with a stud projecting from said body and provided with a recess in the side of said stud and with a transverse groove in said recess, in combination with a plate seated in said recess and receiving the wire between it and the stud, and provided with a tongue engaging the aforesaid groove, and a ring embracing the stud and plate and clamping the wire between said parts as set forth.

4. An insulator-body formed with a stud projecting upward from the top of said body and with a recess in the side of said stud and a transverse groove in the face of said recess adjacent to the base thereof, a plate seated in said recess and provided with a tongue engaging the aforesaid groove, and a ring embracing said stud and plate and compressing said parts to clamp the wire inserted between them as set forth and shown.

5. An insulator-body provided with an axial channel extending from the base part way toward the top and terminated with notches in the sides of the channel, in combination with attaching-standards formed separate from each other at both ends and inserted into the aforesaid channel and terminated with lateral projections engaging the notches and fulcrumed intermediate their ends to force said projections into engagement by lateral movement of the outer ends of the standards as set forth.

6. An insulator-body provided with an axial channel extending from the base part way toward the top of said body and terminated with notches in the sides of the channel, in combination with two attaching-standards inserted into the aforesaid channel and terminated with lateral projections engaging the notches and formed intermediate their ends with abutting fulcrums on their adjacent sides, the outer ends of said standards being spread apart to allow them to be compressed and force the inner ends thereof into engagement with the notches as set forth and shown.

679,545. CHURN. FLETCHER D. SWANEY, Kansas City, Kans., assignor of one-half to Herbert Galer, same place. Filed Mar. 12, 1901. Serial No. 50,789. (No model.)



Claim.—1. In a churn, a stand, a bearing carried thereby and provided with a bearing-cavity in its upper side, a sleeve journaled at its lower end in said cavity and provided with a shoulder, and with one or more notches in its upper end, a bearing for said sleeve, resting upon said shoulder, and secured to the stand, a dasher-shaft extending through said sleeve, a pin carried by said shaft and engaging said notch or notches of the sleeve, a cap closing the upper side of said notchee and securing the shaft against vertical movement in the sleeve, and means to rotate said sleeve, substantially as described.

2. In a churn, a stand, a bearing carried thereby and provided with a bearing-cavity in its upper side, a sleeve journaled at its lower end in said cavity and provided with a shoulder, and with one or more notches in its upper end, a bearing for said sleeve, resting upon said shoulder, and secured to the stand, a balance-wheel secured upon the upper end of the sleeve and provided with a threaded hub, a dasher-shaft extending through the sleeve and provided with a pin engaging said notch or notches, a screw-cap engaging the threaded hub of the balance-wheel to hold the shaft with its pin in said notch or notches, and means for rotating the sleeve, substantially as described.

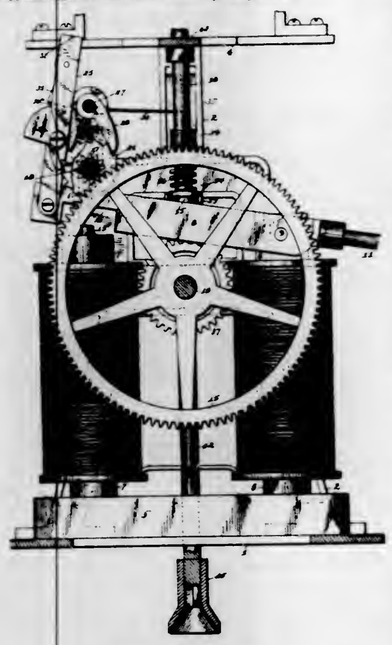
3. In a churn, a stand suitably supported, a bearing secured to the stand and formed with a bearing-cavity in its upper side, a sleeve having its lower end engaging said cavity and having a ball-bearing relation with the bearing and provided with a shoulder near its upper end, a bearing secured to the stand and embracing the sleeve above said shoulder, a shaft extending through said sleeve and provided with a dasher and interlocked as regards rotatable and downward movement at its extreme upper end with the corresponding end of the sleeve, a balance-wheel upon the upper end of the sleeve, a cap screwed to the balance-wheel, and adapted to prevent upward movement of the shaft, and means for rotating said sleeve, substantially as described.

679,546. SECONDARY ELECTRIC CLOCK. THEODORE H. WURMB and ROBERT BAUMANN, St. Louis, Mo. Filed Jan. 26, 1900. Renewed May 2, 1901. Serial No. 58,498. (No model.)

Claim.—1. In an electric clock, a shaft, a driving ratchet-wheel rigid upon said shaft, a pawl operating on said ratchet-wheel, a second ratchet rigid with the said shaft, a pawl operating on said ratchet, a spring for holding the said pawl upon the ratchet, a gear carried upon said shaft, means for rotating said shaft and gear, a second shaft, having a gear keyed thereon and meshing with the first-mentioned gear whereby said shaft is rotated, suitable dial mechanism and means for operating the said dial mechanism when the second-mentioned shaft is rotated, substantially as specified.

2. In an electric clock, an operating-shaft, means rotating said shaft.

a ratchet rigid with said shaft, a pawl for propelling said ratchet, a second pawl to prevent said ratchet from turning backward, a second ratchet carried by the said shaft, a pawl operating upon said ratchet, means for holding said pawl upon said ratchet, means for removing it therefrom, a suitable dial mechanism and means for operating the said dial mechanism when the said shaft is rotated, substantially as specified.



679,547. ATTACHMENT FOR CORSETS. CHRISTINE M. BARNUM, Haworth, N. J. Filed June 5, 1900. Serial No. 19,182. (No model.)



Claim.—In a corset having the point or lower end of the abdominal part extended below the line of the hips, the combination with the said abdominal part, the front steels of the corset, and the lacing-strings of plates attached to adjoining edges of the abdominal part of the corset about midway between the bottom of said abdominal part and the waistline of the corset, and each of said plates having reversely-turned clips at opposite ends of the plate, the clips at one end embracing the front steels, and the clips at the opposite ends adapted to engage the lacing-strings, substantially as specified.

679,548. NECKTIE-FASTENER. JOSEF BAUMGARTEN, New York, N. Y. Filed Feb. 25, 1901. Serial No. 48,646. (No model.)



Claim.—1. In a necktie fastening and securing device, the combination with a collar-button hook or loop of resilient wire having the front wires *e*, and the back wires *f* having the side bends *h*, of a securing device located on the side of the necktie-shield opposite to such collar-button hook or loop and having the tangs or lugs *l* passing through such necktie-shield for securing the front wires *e* to such shield, substantially as shown and described.

2. In a necktie fastening and securing device, the combination with a collar-button hook or loop of resilient wire having the front wires *e*, and the back wires *f* having the side bends *h*, of a securing device located on the side of the necktie-shield opposite to such collar-button hook or loop and having the tangs or lugs *l*, for securing the front wires *e*, and the tangs or lugs *k* for securing the securing device to the necktie-shield, all of which tangs or lugs pass through such shield, substantially as shown and described.

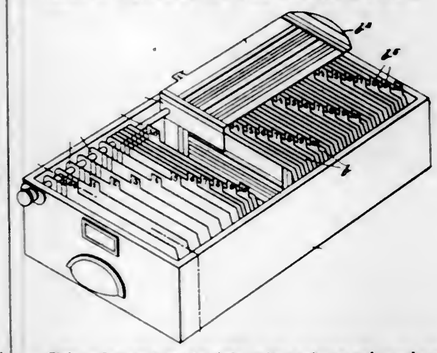
3. In a necktie fastening and securing device, the combination with a collar-button hook or loop having a loop *d*, front wires *e*, and back wires *f* having the central bends *h* and end loops or bends *g*, of a securing-plate having the tangs or lugs *i*, *k* and *l*, adapted to pass through the necktie-shield and secure the securing-plate to one side of the collar-button hook or loop to the other side thereof, substantially as shown and described and for the purposes set forth.

4. In a necktie, the combination with a tie, of a shield secured to the tie, a collar-button hook or loop having a loop *d* passing through the shield, front wires *e*, and back wires *f* having the central bends *h* and end loops or bends *g* and a securing-plate having end lugs or tangs *k* passing through the shield so as to secure the same thereto, a central tang *i* passing through the loop *d*, and central tangs or lugs *l* passing through the shield and around the front wires *e* of the collar-button hook or loop, substantially as shown and described.

5. The combination with a collar-button hook or loop for neckties formed of resilient wire and having the front wires *e*, ending in a loop *d* extending at an angle to the wires *e*, back wires *f* having the side bends *h* and end loops or bends *g*, of means for securing the same to the necktie-shield, substantially as described.

6. A collar-button hook or loop for neckties formed of resilient wire, and having the loop *d* extending at an angle to the front wires *e*, back wires *f* having the side bends *h* and end loops or bends *g*, substantially as shown and described.

679,549. CARD RECORD OR INDEX. ROBERT H. BREEDING, Philadelphia, Pa. Filed May 9, 1901. Serial No. 59,306. (No model.)



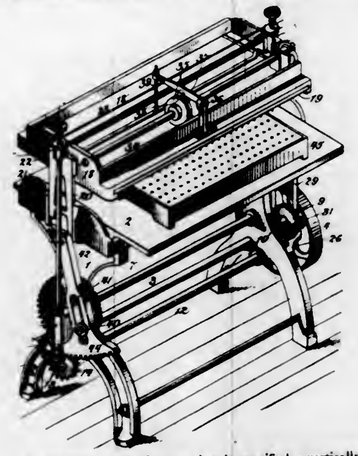
Claim.—In a card record or index, a box or drawer and a card consisting of a body, one face of which is adapted to receive written matter, and a base flexibly connected to the body, the base being pivotally secured at one corner to the interior of the box or drawer, said card adapted to be swung in a vertical plane about its pivotal support and the body bent at right angles to the base to expose the surface of the body of the card to be written on, substantially as and for the purposes described.

679,550. STARCH-PRINTER. GABRIEL CARLSON, Springfield, Mass., assignor to the Confectioners' Machinery and Manufacturing Company, same place. Filed Jan. 4, 1901. Serial No. 42,123. (No model.)

Claim.—1. In a machine of the character herein specified, the combination with the vertically-movable platen, of rods pivotally connected therewith and with a crank-shaft; a gear upon said shaft; a toothed segment engaging with said gear, and means for oscillating said toothed segment, substantially as shown and described.

2. In a machine of the character herein specified, the combination with the vertically-movable platen, of rods pivotally connected therewith and with a crank-shaft; a gear upon said shaft; a slotted bar pivoted at one extremity to the main frame, its other extremity consisting of a toothed segment engaging with the gear upon the crank-shaft; a stud fixed in a revoluble wheel engaging in the slot in the pivoted bar, the whole arranged to operate, substantially as shown and described.

3. In a machine of the character herein specified, a vertically-movable platen, in combination with crank-rods and operating mechanism therefor, said crank-rods being provided with means for simultaneous longitudinal adjustment, substantially as shown and described.



4. In a machine of the character herein specified, a vertically-movable platen; crank-rods pivotally connected therewith, the crank-rods being divided and the parts screw-threaded to engage with each other; springs upon said crank-rods; sprocket-wheels mounted upon said rods and connected with each other by a sprocket-chain, and a hand-wheel upon the end of the said rods, the whole combined and arranged to operate, substantially as shown and described.

5. In a machine of the character herein specified, vibrating mechanism mounted upon and carried by the movable platen, in combination with means for actuating said vibrating mechanism, also carried by and moving vertically only with the platen, substantially as shown and described.

6. In a machine of the character herein specified, a vibratory hammer; a shaft carrying a ratchet arranged to contact with a tooth fixed to the hammer-arm, and also carrying a bevel-gear, and a perpendicular shaft journaled in a bearing and carrying a bevel-gear at its upper extremity which engages with the first-mentioned bevel-gear, all of said parts being carried by the movable platen, in combination with an actuating bevel-gear so fixed upon the perpendicular shaft as to permit longitudinal movement thereof, and means for rotating said gear, substantially as shown and described.

7. In a machine of the character herein specified, a vertically-movable platen, in combination with means for reciprocating the same with diminished speed near the end of the stroke, and with still further diminished speed at the beginning of the return of the stroke, substantially as shown and described.

679,551. LOG-TURNER. MICHAEL CORBY and RUBEN F. BARKER, Marinette, Wis. Filed Dec. 29, 1900. Serial No. 41,519. (No model.)

Claim.—1. In a log-turner, in combination, a hollow knee, a lifting-bar housed within the knee, power mechanism for drawing the bar into the knee and for advancing it therefrom, and means for raising and lowering the bar.

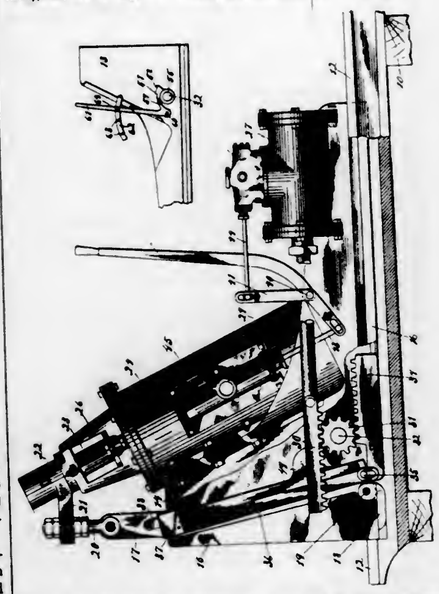
2. In a log-turner, in combination, a lifting-bar mounted on the knee of a sawmill-carriage, means for raising the bar, and power mechanism for advancing and retracting the bar relatively to the knee.

3. In a log-turner, a carriage, a power-cylinder mounted thereon and being inclined upwardly and forwardly, a piston and its rod reciprocating in such cylinder, a lifting-bar swinging from the upper end of the piston-rod and having a hook at its lower end, and means for throwing the lower end of the bar forward as it is raised.

4. In a log-turner, a carriage, a power-cylinder mounted thereon and being inclined upwardly and forwardly, a piston and its rod reciprocating in such cylinder, a lifting-bar swinging from the upper end of the piston-rod and having a hook at its lower end, and a second engine for advancing the lower end of the lifting-bar.

5. In a log-turner, in combination, a lifting-bar, a motor mounted upon a sawmill-carriage for raising the bar, a second motor mounted upon a sawmill-carriage for throwing the lower end of the bar forward, and means for manually controlling both motors and being adapted to start the second motor in advance of the one first named.

6. In a log-turner, in combination, a knee and its shank, a reciprocating steam-engine secured to the back of the knee and being inclined upwardly and forwardly, a lifting-bar swung from the outer end of the engine piston-rod, a hook secured to the bar, a reciprocating member, as 34, a bar pivoted to such member and in sliding engagement with the lifting-bar, and an engine for causing the reciprocation of the member 34.



7. In a log-turner, in combination, a knee and its shank, a reciprocating steam-engine secured to the back of the knee and being inclined upwardly and forwardly, a lifting-bar swung from the outer end of the engine piston-rod, a hook secured to the bar, a rack-bar 34, a bar 36 pivoted thereto and in sliding engagement with the lifting-bar, a pinion for actuating the rack-bar, 34, a rack-bar, 30, for actuating the pinion, and a steam-engine for reciprocating the rack-bar 30, substantially as shown and described.

8. In a log-turner, in combination, a knee and its shank, a reciprocating steam-engine secured to the back of the knee and being inclined upwardly and forwardly, a lifting-bar swung from the outer end of the engine piston-rod, a hook secured to the bar, a rack-bar, 34, a bar 36 pivoted thereto and in sliding engagement with the lifting-bar, a pinion for actuating the rack-bar, 34, a rack-bar, 30, for actuating the pinion, a steam-engine for reciprocating the rack-bar 30, controlling-valves for both engines, a lever for controlling both valves, such valves being so positioned relatively that the second-named engine is started in advance of the first-named engine.

9. In a log-turner, a lifting-bar mounted upon a sawmill-carriage, means for raising the bar, means for advancing the bar as raised, and a variable positive stop for limiting the outward movement of the bar.

10. In a log-turner, a power-cylinder adapted to be mounted upon a carriage and being inclined upwardly and forwardly, a piston and its rod reciprocating in such cylinder, a lifting-bar swinging from the upper end of the piston-rod and having a hook at its lower end, means for throwing the lower end of the bar forward as it is raised, and a variable positive stop for limiting the outward movement of the bar.

11. In a log-turner, in combination, a knee and its shank, a reciprocating steam-engine secured to the back of the knee and being inclined upwardly and forwardly, a lifting-bar swung from the outer end of the engine piston-rod, a hook secured to the bar, a rack-bar 34, a bar 36 pivoted thereto and in sliding engagement with the lifting-bar, a pinion for actuating the rack-bar, 34, a rack-bar, 30, for actuating the pinion, a steam-engine for reciprocating the rack-bar 30, an eccentric stop-block mounted with the pinion and having a plurality of stop-shoulders at different distances from its center of oscillation, and a movable abutment for engaging these shoulders.

12. In a log-turner, in combination, a knee and its shank, a reciprocating steam-engine secured to the back of the knee and being inclined upwardly and forwardly, a lifting-bar swung from the outer end of the engine piston-rod, a hook secured to the bar, a rack-bar 34, a bar 36 piv-

oted thereto and in sliding engagement with the lifting-bar, a pinion for actuating the rack-bar, 34, a rack-bar, 30, for actuating the pinion, a steam-engine for reciprocating the rack-bar 30, an eccentric stop-block mounted with the pinion and having a plurality of stop-shoulders at different distances from its center of oscillation, a movable abutment for engaging these shoulders, and means for manually shifting the abutment.

13. In a log-turner, in combination, a knee and its shank, a reciprocating steam-engine secured to the back of the knee and being inclined upwardly and forwardly, a lifting-bar swung from the outer end of the engine piston-rod, a hook secured to the bar, a rack-bar, 34, a bar 36 pivoted thereto and in sliding engagement with the lifting-bar, a pinion for actuating the rack-bar, 34, a rack-bar, 30, for actuating the pinion, a steam-engine for reciprocating the rack-bar 30, an eccentric stop-block mounted with the pinion and having a plurality of stop-shoulders at different distances from its center of oscillation, a movable abutment for engaging these shoulders, a handle-bar fixed to the abutment, and a stop-plate over which the bar may oscillate and having notches for engaging the bar.

14. In a log-turner, in combination, a power-cylinder fixed upon the knee of a sawmill-carriage, a piston and its rod reciprocating in the cylinder, and a lifting-bar carried by the piston-rod, the said parts being so disposed that the lifting-bar is simultaneously raised and advanced on the forward stroke of the piston.

15. In a log-turner, in combination, a movable support mounted upon a sawmill-carriage, a lifting-bar carried by the support, means for raising the bar, and power mechanism for advancing and retracting the bar relatively to the support.

16. In a log-turner, in combination, a sawmill-carriage, an inclined power-cylinder fixed to the carriage, a piston and its rod reciprocating in the cylinder, and a lifting-bar carried by the piston-rod.

17. In a log-turner, in combination, a sawmill-carriage, an inclined power-cylinder fixed to the sawmill-carriage, a piston and its rod reciprocating in the cylinder, a lifting-bar pivoted at one end to the piston-rod, and means for advancing and retracting the opposite end of the lifting-bar.

18. In a log-turner, in combination, a movable support carried by a sawmill-carriage, turning means carried by the support, and means for moving such turning means upwardly and thereby forwardly relatively to the support.

19. In a log-turner, in combination, turning means, an inclined support carried by a sawmill-carriage and supporting the turning means and adapted to impart thereto movement on an incline, and means for operating the turning means.

20. In a log-turner, in combination, a turning-bar, mechanism mounted upon a sawmill-carriage and to which the turning-bar is pivoted for raising the bar, means for guiding the turning-bar, and means operating the guiding means for advancing and retracting the turning-bar.

21. In a log-turner, in combination, a turning-bar, mechanism mounted upon a sawmill-carriage and to which the turning-bar is pivoted for raising the said bar, a guide-bar in sliding engagement with the turning-bar, and means operating the guide-bar for advancing and retracting the turning-bar.

22. In a log-turner, in combination, a turning-bar mounted upon a sawmill-carriage, means for raising the bar, means for advancing the bar, a stop-block, and a movable abutment adapted to engage the stop-block to vary the advance movement of the bar.

23. In a log-turner, in combination, a turning-bar mounted upon a sawmill-carriage, means for raising the bar, means for advancing the bar, a movable abutment, and an eccentric stop-block adapted to engage the abutment to vary the movement of the means for advancing the turning-bar.

24. In a log-turner, in combination, a turning-bar mounted upon a sawmill-carriage, means for raising the bar, means for advancing the bar, a movable abutment, and a graduated stop-block adapted to engage the abutment to vary the movement of the means for advancing the turning-bar.

25. In a log-turner, in combination, a turning-bar mounted upon a sawmill-carriage, means for raising the bar, means for advancing the bar, a stop-block having a series of graduated shoulders, and a movable abutment adapted to be thrown at will into the path of any of the shoulders to vary the advance movement of the turning-bar.

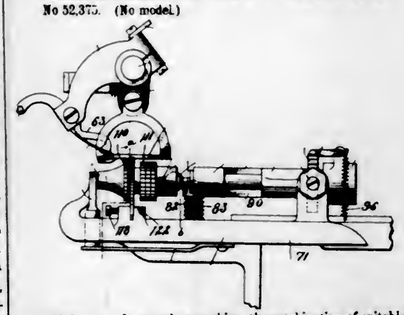
679,552. **WATER-HEATER FOR RANGE-BOILERS.** JOHN J. CUNNINGHAM, Toronto, Canada, assignor to the Gurney Foundry Company, Limited, same place. Filed Mar. 2, 1900. Serial No. 7,140. (No model.)

Claim.—1. A water-heater for range-boilers, embracing in its construction a water-head, flow and return pipes connected to the water-head, a series of water-tubes depending from the water-head surrounding the return-pipe, the lower ends of the water-tubes being hermetically closed, and the upper ends in circulation with the water-head, a vertical partition centrally located in each water-tube forming two legs which are in circulation with each other at the lower end of the tube and with the water-head at the upper end, a heater opposed to the lower ends of the water-tubes and a perforated casing inclosing the water-head, the water-tubes, and that portion of the return-pipe between the water head and heater, substantially as specified.



2. A water-heater for range-boilers embracing in its construction a water-head, flow and return pipes connected to the water-head, a series of water-tubes depending from the water-head surrounding the return-pipe, the lower ends of the water-tubes being hermetically closed and the upper ends in circulation with the water-head, a vertical partition centrally located in each water-tube forming two legs in the same, in circulation with each other at the lower end of the tube and with the water-head at the upper end, a heater opposed to the lower ends of the water-tubes encircling the return-pipe, a perforated casing inclosing the water-head, the water-tubes and that portion of the return-pipe between the water head and heater, and an outlet for the casing contiguous to the water-head, substantially as specified.

679,553. **FEEDING MECHANISM FOR SEWING-MACHINES.** CHARLES A. DEARBORN, New York, N. Y. Filed Mar. 22, 1901. Serial No. 52,375. (No model.)



Claim.—1. In a sewing-machine, the combination of suitable stitch-forming mechanism, with a stationary presser-foot, a yieldingly-mounted ridge-forming rib supported beneath the presser-foot, and a two-part yieldingly-mounted feed device mounted independently of the ridge-forming rib, the two parts of the feed device being rigidly united and adapted to engage the work beneath the presser-foot and upon opposite sides of the ridge-forming rib, substantially as set forth.

2. In a sewing-machine, the combination of suitable stitch-forming mechanism, with a stationary presser-foot, a yieldingly-mounted feed-frame, a ridge-forming rib adjustably mounted in said feed-frame and adapted to engage the work beneath the presser-foot, and a feed device yieldingly mounted upon said feed-frame and independent of the ridge-forming rib, substantially as set forth.

3. In a sewing-machine, the combination of suitable stitch-forming mechanism, with a rigid presser-foot, a ridge-forming rib adapted to engage the work beneath the presser-foot, a feed-shaft adapted to yield downwardly at one end, and a two-part feed-roll mounted rigidly upon the feed-shaft, the two parts of the feed-roll being adapted to engage the work beneath the presser-foot upon opposite sides of the ridge-forming rib, substantially as set forth.

4. In a sewing-machine, the combination of suitable stitch-forming mechanism, a rigid presser-foot, a yieldingly-mounted ridge-forming rib, a feed-shaft pivoted and journaled at or near one end independently of the ridge-forming rib, a two-part feed-roll rigidly mounted upon said feed-shaft, the two parts of the feed-roll being adapted to engage the work beneath the presser-foot upon opposite sides of the ridge-forming rib, and a yielding support for the opposite end of said feed-shaft, substantially as set forth.

5. In a sewing-machine, the combination of suitable stitch-forming mechanism, a rigid presser-foot, a feed-frame, a ridge-forming rib, a feed-shaft pivoted at or near one end in the feed-frame, feed-rolls rigidly mounted upon said shaft and adapted to engage the work beneath the presser-foot upon opposite sides of the ridge-forming rib, and means for operating said feed-shaft, one of said feed-rolls being at a greater distance from the pivot of the shaft than the other, substantially as set forth.

6. In a sewing-machine, the combination of suitable stitch-forming mechanism, with a stationary presser-foot, a ridge-forming rib, a feed-shaft, independent spring-supports for the opposite ends of said feed-shaft, and a feed-roll mounted upon said feed-shaft and adapted to engage the work beneath the presser-foot, substantially as set forth.

7. In a sewing-machine, the combination of suitable stitch-forming mechanism, and a stationary presser-foot, with a ridge-forming rib, a sectional feed-shaft, the sections of which are connected by a universal joint, means for driving said shaft, a feed-roll rigidly mounted upon one section of said shaft, and a yielding support for said sectional shaft, substantially as set forth.

8. In a sewing-machine, the combination of suitable stitch-forming mechanism, and a stationary presser-foot, with a ridge-forming rib, a sectional feed-shaft, the sections of which are connected by a universal joint, means for driving said shaft, pivot-supports for the outer ends of said shaft-sections, a spring-support for the connected ends of said shaft-sections, and a feed-roll mounted upon one of the shaft-sections, substantially as set forth.

9. In a sewing-machine, the combination of suitable stitch-forming mechanism, and a stationary presser-foot, with a ridge-forming rib, a sectional feed-shaft, the sections of which are connected by a universal joint, a pivoted frame or support in which one of said shaft-sections is journaled, a yieldingly-mounted support in which the outer end of the other shaft-section is swiveled, a spring yieldingly sustaining the inner jointed ends of said shaft-sections, a feed-roll mounted upon one of said shaft-sections, and means for operating said sectional shaft, substantially as set forth.

10. In a sewing-machine, the combination of suitable stitch-forming mechanism, and a stationary presser-foot, with a yieldingly-mounted ridge-forming rib, a yieldingly-mounted feed-shaft independent of the ridge-forming rib, a feed-roll mounted upon the yielding feed-shaft, a ratchet-wheel mounted upon said shaft, and a reciprocatory pawl engaging said ratchet, substantially as set forth.

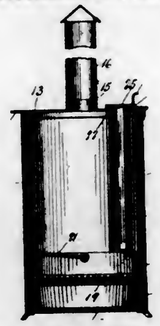
11. In a sewing-machine, the combination of suitable stitch-forming mechanism, and a stationary presser-foot, with a spring-sustained main feed-frame, a ridge-forming rib mounted upon the main feed-frame, an auxiliary feed frame or yoke journaled adjacent to one end upon the main feed-frame, a sectional feed-shaft, one section of which is journaled in the auxiliary feed frame or yoke, a universal joint connecting the shaft-sections, a bearing in which the outer end of the other section is swiveled, a two-part feed-roll mounted upon said other shaft-section, and means for driving said sectional feed-shaft, substantially as set forth.

679,554. **TANK-HEATER.** JAMES J. DOLAN, Sandwich, Ill., assignor to Sandwich Manufacturing Co., of Illinois. Filed Apr. 13, 1901. Serial No. 55,709. (No model.)

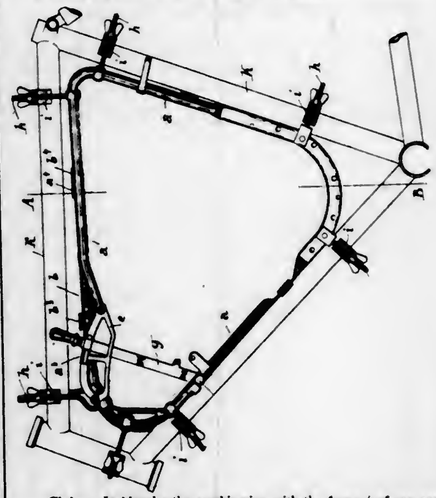
Claim.—1. In a tank-heater, in combination, a casing providing a combustion-chamber, a cover for the casing having an aperture therethrough, and a vertically-movable draft-tube carried by the cover and depending through the aperture and into the combustion-chamber.

2. In a tank-heater, in combination, a casing providing a combustion-chamber, a hinged cover for the casing having an aperture therethrough, and a vertically-movable draft-tube carried by the cover and depending through the apertare and into the combustion-chamber.

3. In a tank-heater, in combination, a casing providing a combustion-chamber, a hinged cover for the casing having an aperture therethrough, a vertically-movable draft-tube carried by the cover and depending through the aperture and into the combustion-chamber, the tube being capable of movement relatively to the cover so as to clear the side of the casing when the cover is swung on its hinge, and having a flange to support the tube when lowered into the combustion-chamber.



679,555. **MOTOCYCLE.** HENRI DUFAUX, Geneva, Switzerland. Filed June 4, 1901. Serial No. 63,063. (No model.)



Claim.—In bicycles the combination with the frame *k* of any construction whatever, of the frames *a* and *b* formed of suitably-bent and partially-flattened metallic pipes, provided with suitable holes and eyes for affixing the motor and its casing to the same and in combination with bolts *h* and sockets *i* suitable for firmly connecting the frames *a* and *b* with the frame *k* and with a hand-lever *g* and guide *e*, substantially as shown and described and for the purpose specified.

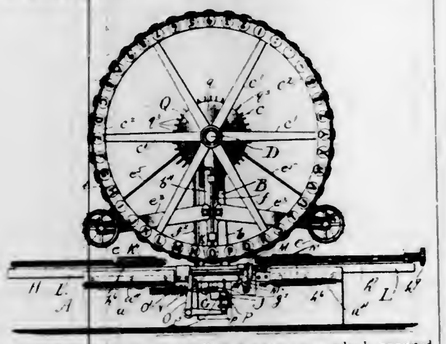
679,556. **LETTERING OR HAND-PRINTING MACHINE.** HJALMAR ELMLAD, Chicago, Ill., assignor to Surarus and Greenhill, same place. Filed June 1, 1898. Serial No. 682,945. (No model.)

Claim.—1. In a printing-machine, a type device, a carriage for paper, having a longitudinal opening and a flexible tympan over said opening, in combination with means for moving the carriage variably across the type device, and means for impressing the type as set forth.

2. In a printing-machine, a carriage provided at or near its front with curved fingers or guides for holding a roll of paper and having curved guides at the rear of carriage for receiving and rolling the paper after it is printed, as set forth.

3. A machine of class described, having a printing-wheel on a shaft supported by a standard having a projecting arm with a journal for said shaft, the standard being attached to a stand provided with a longitudinal slot, a movable carriage above same provided with a flexible tympan, means for moving the carriage, a platen located beneath the carriage and type-wheel, the said platen being provided with means for striking the tympan against type-wheel, in combination with a clutch which holds the carriage in a fixed position while the tympan is being impressed against type wheel, as set forth.

4. A machine of class described, having a type-wheel supported above a stand provided with a longitudinal slot, a movable carriage above same, the said carriage being provided with a flexible tympan and means for holding paper and feeding same across the carriage, a movable platen for pressing the tympan against the type-wheel and means for moving the carriage, as set forth.



5. A machine of class described, having a type-wheel supported above a stand provided with a longitudinal opening, a movable carriage above same, the said carriage being provided with a flexible tympan and feed-rolls for holding a sheet of paper and moving same across the tympan, in combination with means for moving the carriage longitudinally and a platen for striking the tympan against the type-wheel, as set forth.

6. A machine of class described, having a type-wheel supported on a stand provided with a longitudinal opening, a movable carriage above same, the said carriage being provided with a flexible tympan and a device for holding paper on the tympan and feeding the paper across same, in combination with a platen for striking the tympan against the type-wheel, means for locking the type-wheel during said operation, and means for moving the carriage, as set forth.

7. A machine of class described, having a type-wheel supported on a stand provided with a longitudinal opening, a carriage which moves along same, the said carriage being provided with a flexible tympan, means for holding paper on the carriage, a platen which strikes the tympan against the type-wheel, in combination with means for moving the carriage along stand, and means for holding the type-wheel in a fixed position during operation of printing, as set forth.

8. A machine of class described, having a type-wheel supported by a stand, the said wheel being provided with notches, and a catch which locks the wheel while an impression is being made, a sliding carriage provided with means for holding paper on same, a movable platen which strikes the paper against the type-wheel, the said carriage being provided with a rail, a clutch having a dog or catch which engages same so as to move the carriage forward but moves freely in opposite direction, means for moving the clutch, and means for operating the platen, as set forth.

9. In a machine of class described, a type-wheel supported by a projecting arm on a standard, the said arm having a frame extending toward sides of wheel and carrying inking-rollers, and also supporting U-shaped guard for preventing the paper from being smudged while same is being printed, as described and set forth.

879,557. CORN-PLANTER. ERNST E. ENGLUND, Moline, Ill., assignor to the D. M. Sechler Carriage Company, of Illinois. Filed Feb. 13, 1901. Serial No. 47,186. (No model.)

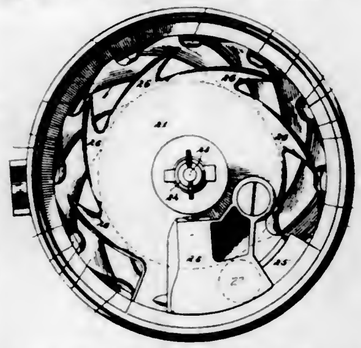
Claim.—1. A seed-plate provided with seed-cups and having on its upper surface a plurality of ridges extending across its upper surface diagonally of the radii of said seed-plate, substantially as described.

2. A seed-plate provided with seed-cups at its outer periphery and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges extending across its upper surface diagonally of the radii of said seed-plate, substantially as described.

3. A seed-plate provided at its outer periphery with seed-cups adapted to receive each a single grain of corn standing on edge therein, and having on its upper surface a plurality of ridges diagonal of the radii of said seed-plate, substantially as described.

4. A seed-plate provided at its periphery with seed-cups adapted to receive each a single grain of corn standing on edge therein, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges diagonal of the radii of said seed-plate, substantially as described.

5. The combination with a seed-plate provided with seed-cups at its outer periphery, of a cover-plate provided with a plurality of fingers extending outward from its periphery and diagonally of the radii of said cover-plate, and with their outer ends extending outward to points near the inner side of said seed-cups, substantially as described.



6. The combination with a seed-plate having at its outer periphery seed-cups adapted to receive each a single grain of corn standing edgewise therein, of a cover-plate provided with a plurality of fingers extending outward from its periphery and diagonally of the radii of said cover-plate to points near the inner edges of said seed-cups, substantially as described.

7. The combination with a seed-plate having upon its periphery seed-cups adapted to receive each a single grain of corn standing edgewise therein, and provided upon its upper surface with a plurality of ridges, of a cover-plate provided with fingers extending outward from its periphery to points near the inner edges of said seed-cups across the ridges on the upper surface of said seed-plate, substantially as described.

8. The combination with a seed-plate having seed-cups adapted to contain each a single grain of corn standing on edge therein, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges thereon, of a cover-plate provided with fingers extending outward from its periphery to points near the inner edges of said seed-cups across the ridges on the upper surface of said seed-plate, substantially as described.

9. The combination with a seed-plate having seed-cups adapted to contain each a single grain of corn standing on edge, and provided on its upper surface with ridges extending across said upper surface diagonally of the radii of said plate, of a cover-plate having upon its outer periphery fingers extending outward across said ridges in said seed-plate to points near the inner edges of said seed-cups, substantially as described.

10. The combination with a seed-plate provided with seed-cups adapted each to contain a single grain of corn standing on edge, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges extending across said upper surface diagonally of the radii thereof, of a cover-plate provided with fingers extending outward from its periphery to points near the inner edges of said seed-cups and extending diagonally of the radii of said cover-plate in a direction opposite to the direction of said ridges in said seed-plate, substantially as described.

11. The combination with a seed-plate provided with seed-cups adapted each to contain a single grain of corn standing on edge, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges extending across said upper surface diagonally of the radii thereof, of a cover-plate having its upper surface sloping downward toward its periphery and provided with fingers extending outward from its periphery to points near the inner edges of said seed-cups and sloping downward toward their points over said seed-plate, and extending diagonally of the radii of said cover-plate in a direction opposite from that of the ridges on said seed-plate, substantially as described.

12. The combination with a seed-plate provided with seed-cups adapted each to contain a single grain of corn standing on edge, and having its upper surface sloping downward toward its periphery and provided with a plurality of curved ridges extending across said upper surface diagonally of the radii thereof, of a cover-plate having its upper surface sloping downward toward its periphery and provided with curved fingers extending outward from its periphery to points near the inner edges of said seed-cups and sloping downward toward their points over said seed-plate, and extending diagonally of the radii of said cover-plate in a direction opposite from that of the ridges on said seed-plate, substantially as described.

13. The combination with a seedbox, of a seed-plate rotatably mounted in said seedbox, and having at its periphery seed-cups adapted each to contain one grain of corn standing edgewise therein, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges thereon, and a cover-plate provided with fingers extending outward from its periphery and across the ridges of said seed-plate to points near the inner sides of said seed cups, substantially as described.

14. The combination with a seedbox, of a seed-plate rotatably mounted therein, and having on its periphery seed-cups adapted to contain each one grain of corn standing edgewise therein, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges thereon diagonal of the radii of said seed-plate, and a cover-plate provided with fingers extending outward from its periphery and downward so as to lie in close proximity to said seed-plate and across the ridges in said seed-plate, substantially as described.

15. The combination with a seed-plate having seed-cups at its periphery and provided with ridges on its upper surface, of a cover-plate provided with fingers extending outward from its periphery and having their operative edges crossing said ridges, whereby, when said seed-ring is rotated, the point of intersection between said ridges and the operative edge of said fingers moves outward toward the periphery of said seed-plate, substantially as described.

16. The combination with a seed-plate having seed-cups at its periphery and having its upper surface sloping downward toward its periphery and provided with ridges, of a cover-plate provided with a plurality of fingers extending outward from its periphery and having their operative edges crossing said ridges, whereby, when said seed-ring is rotated, the point of intersection between said ridges and the operative edge of said fingers moves outward toward the periphery of said seed-plate, substantially as described.

17. The combination with a seed-plate having at its periphery seed-cups adapted each to receive a single grain of corn standing on edge and having ridges on its upper surface, of a cover-plate provided with a plurality of fingers extending outward from its periphery and having their operative edges crossing said ridges, whereby, when said seed-ring is rotated, the point of intersection between said ridges and the operative edge of said fingers moves outward toward the periphery of said seed-plate, substantially as described.

18. The combination with a seed-plate having at its periphery seed-cups adapted each to receive a single grain of corn standing on edge therein and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges, of a cover-plate provided with a plurality of fingers extending outward from its periphery to points near the inner sides of said seed-cups and downward over said seed-plate and having their operative edges crossing said ridges, whereby, when said seed-ring is rotated, the point of intersection between said ridges and the operative edge of said fingers moves outward toward the periphery of said seed-plate, substantially as described.

19. The combination with a seedbox, of a seed-plate rotatably mounted therein and having on its periphery seed-cups adapted to contain each one grain of corn standing edgewise therein, and having its upper surface sloping downward toward its periphery and provided with a plurality of ridges thereon diagonal of the radii of said seed-plate, and a cover-plate provided with fingers extending outward from its periphery and downward so as to lie in close proximity to said seed-plate and across the ridges in said seed-plate and extending outward to points near the inner sides of said seed-cups, substantially as described.

879,558. ENVELOP FOR REPEATED USE. HENRY W. GAYS, Ottawa, Canada. Filed Nov. 19, 1900. Serial No. 37,083. (No model.)

Claim.—1. An envelop of the character described adapted to be shipped from station to station and capable of repeated use, the same containing on its face across one end thereof a single general address applicable to a particular party to whom the envelop is to be delivered at all of the stations, and a series of consecutively-arranged spaces adjacent said general address extending across the space at the opposite end of the envelop running parallel with the general address adapted to receive the names of the stations in the order of shipment, substantially as described.

2. As an article of manufacture, a relatively long envelop adapted to be shipped from station to station and capable of repeated use, the same containing at its upper narrow end a space extending across the surface thereof designed to receive an address common to several stations, means dividing said space from the opposite end of the envelop, a line running longitudinally of the envelop dividing the lower space into two vertical columns, a series of lines running across the envelop dividing the respective columns into relatively small spaces only the names of stations in the order of shipment the spaces in both columns being consecutively numbered, substantially as described.

879,558.

NOT TO BE SEALED.

Agent.

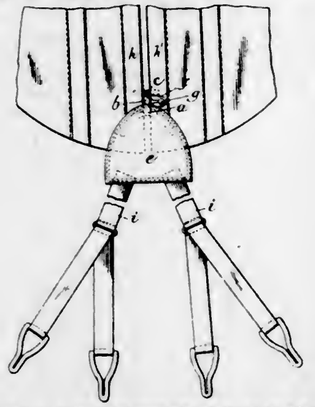
Upon receipt, draw a line through station name. When used again draw name of station on next line, following. When you have an accumulation of these envelopes over your requirements send surplus to store-keeper.

John Doe, General Manager.

TO AGENT N.Y. & O. RY.
AT STATION SHOWN
THAT IS NOT CANCELLED.

1	Winsors	27
2	Ashmans	28
3	Ottawa	29
4		30
5		31
6		32
7		33
8		34
9		35
10		36
11		37
12		38
13		39
14		40
15		41
16		42

879,559. COMBINED CORSET-CLASP LOCK AND STOCKING-SUPPORTER. HENRY A. GUILBURD, New York, N. Y., assignor to the I. B. Kleinert Rubber Company, same place. Original application filed Nov. 29, 1899, Serial No. 738,650. Divided and this application filed Dec. 22, 1900. Serial No. 40,721. (No model.)



Claim.—1. A combined corset-clasp lock and stocking-supporter comprising a plate sustaining the suspended supporter elastics or tapes and having at its upper central part a cross-bar connected thereto by an offset neck, the neck being of such a thickness as to prevent, when interposed between the corset-steels, their movement toward each other and resting on one of the clasps of the corset-fastener when in operative position, and the cross-bar lying behind the corset-steels and transversely to the opening between them.

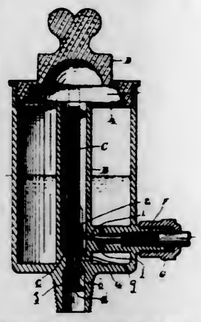
2. A combined corset-clasp lock and garment-supporter, comprising a metal plate having the supporter-tapes connected to and depending below the bottom thereof and having a cross-bar connected to the plate by an offset neck, the neck being of such thickness as to prevent, when interposed between the corset-steels, their movement toward each other, and the cross-bar when in effective position extending beneath the steels and athwart the same, while the neck projecting between the steels rests upon one of the clasps, substantially as set forth.

3. A combined corset-clasp lock and stocking-supporter, comprising a member adapted to bear upon the lower part of the front of the corset, supporter elastics or tapes depending from the bottom or lower part thereof, a rigid offset neck extending up centrally from the upper part of said member, and a cross-bar rigidly attached to the offset neck, the neck being of such a thickness as to prevent, when interposed between the corset-steels, their movement toward each other and resting on one of the clasps of the corset-fastener when in operative position, and the cross-bar

lying behind the corset-steels and transversely to the opening between them.

4. A combined corset-clasp lock and stocking-supporter, comprising a member composed of a fabric pad and a metal plate secured thereto, said plate having an offset neck extending centrally above the upper part of the fabric pad and a cross-bar rigidly attached to the offset neck, and a pair of stocking-supporters connected to and depending from the bottom of the fabric pad, the neck being of such a thickness as to prevent, when interposed between the corset-steels, their movement toward each other and resting on one of the clasps of the corset-fastener when in operative position, and the cross-bar lying behind the corset-steels and transversely to the opening between them.

679,560. LUBRICATOR. ROY R. HARDY, Detroit, Mich., assignor to Detroit Motor Works, same place. Filed Mar. 29, 1901. Serial No. 53,443. (No model.)



Claim.—1. In an oil-cup, the combination of an oil-reservoir divided by a partition-wall into an oil-space and an air-space above the oil-space, of a feed-tube communicating with the outlet of the cup, and with the air-space at its upper end, a restricted feed-opening at or near the bottom of the tube formed with upper and lower valve-seats, and a hollow plunger vertically guided in said feed-tube and provided with two valves adapted to the valve-seats, and a valve-controlled inlet-opening leading from the oil-space of the cup into the feed-tube at a point above the upper valve-seat.

2. The combination with an oil-cup, of a feed-tube communicating with the outlet of the cup, and extending upwardly above the level of the oil, a transverse partition dividing said cup into an oil-space, and an air-space above the oil-space communicating with the upper end of the feed-tube, but separated from the space containing the oil by said partition, a restricted opening at or near the bottom of the tube, formed with upper and lower valve-seats and a hollow plunger vertically guided in said feed-tube, and provided with two valves adapted to alternately seat against the valve-seats, and an inlet-opening connecting the oil-space with the feed-tube at a point above the upper valve-seat.

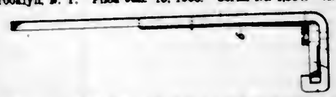
3. The combination of a cup, provided with an outlet at the bottom, and a filler-plug adapted to close the cup, a transverse partition-wall carried by said plug adapted to form an air-space in the plug above the oil in the cup, of a feed-tube communicating at its lower end with the outlet of the cup and at its upper end with said air-space, a restricted feed-opening in the feed-tube at or near the bottom of the tube, and provided with valve-seats on opposite sides of said opening, and a hollow plunger vertically guided in said feed-tube, and provided with two valves on opposite sides of said opening adjustable from and toward each other and adapted to alternately close said opening, and an oil-inlet opening in the feed-tube at a point above the upper valve-seat.

679,561. STEERING OF CYCLES. JOHN T. M. HIBCOCK, Birmingham, England. Filed Mar. 8, 1901. Serial No. 50,409. (No model.)



Claim.—In a cycle the combination of a transverse axle, a central collar for the axle having upwardly and downwardly projecting studs, a vertical tubular head consisting of a sectional sleeve the ends of which are connected to the cycle-frame, tubes within the sleeve rigidly fitted to the studs of the collar, and antifriction-bearings between the sleeve-sections and inner tubes, substantially as specified.

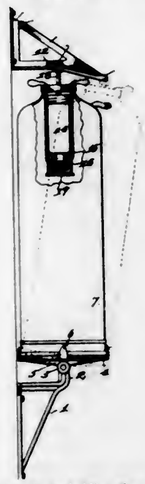
679,562. BENDING AND TWISTING TOOL. JAMES V. HULSE, Brooklyn, N. Y. Filed Jan. 15, 1900. Serial No. 1,567. (No model.)



Claim.—1. A bending and twisting tool for bars comprising a handle with a jaw adapted to receive the bar, a latch pivoted transversely to the direction of the bar and adapted to engage the bar when inserted in said jaw, said latch being displaceable by relative movement of the bar and latch longitudinally of the bar, and means for holding the latch in engaging position.

2. A bending and twisting tool for bars comprising a handle with a jaw adapted to receive the bar, a latch pivoted transversely to the direction of the bar and adapted to engage the bar when inserted in said jaw, said latch being displaceable by relative movement of the bar and latch longitudinally of the bar, and a spring for holding the latch in engaging position.

679,563. AUTOMATIC FIRE-EXTINGUISHER BRACKET. GEO. C. HUTCHINGS and OSCAR C. WIEBNER, Kansas City, Mo. Filed Mar. 12, 1901. Serial No. 50,879. (No model.)



Claim.—1. A bracket for upholding fire-extinguishers, having a spring-held acid-bottle and a protruding push-rod, consisting of a pivoted support for upholding the extinguisher, and an inclined plate for engaging with the push-rod to hold the extinguisher in a vertical position and to depress the push-rod when the extinguisher is moved outwardly and thereby open the acid-bottle, substantially as specified.

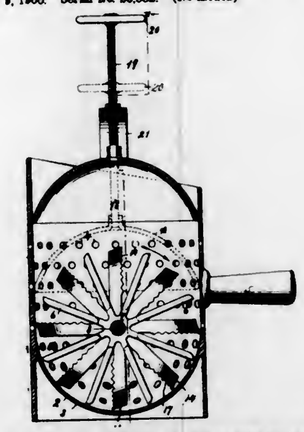
2. In combination with an automatic fire-extinguisher, consisting of a receptacle having a spring-held acid-bottle therein and a protruding push-rod connected to the acid-bottle and adapted to be depressed to open the same, a bracket consisting of a pivoted support for upholding the receptacle, and an inclined arm for engaging with the push-rod so that the receptacle may be held in a vertical position thereby and the said push-rod will be depressed to open the acid-bottle when the receptacle is drawn outwardly underneath the inclined arm, substantially as specified.

3. The herein-described bracket for automatic fire-extinguishers, consisting of a suitable bracket, a plate pivotally carried thereby for upholding the extinguisher, a second bracket adapted to be supported above the extinguisher, and an inclined arm carried by the said second-mentioned bracket to engage with the upper end of the extinguisher, substantially as specified.

4. A bracket for automatic fire-extinguishers, consisting of a lower bracket, an arm pivotally carried thereby and adapted to uphold the fire-extinguisher, projections rigid with said arm to engage the sides of the extinguisher, a second bracket adapted to be supported above the extinguisher, and an inclined arm carried thereby and adapted to engage with the extinguisher and retain the same in a vertical position, substantially as specified.

5. A bracket for automatic fire-extinguishers, consisting of a pivotally-supported plate adapted to uphold the fire-extinguisher, a bracket adapted to be supported adjacent to the extinguisher, means carried thereby to engage with the extinguisher, and means whereby the extinguisher can be removed without releasing any of the parts mentioned, substantially as specified.

679,564. COLANDER. MARY C. JENKINS, Kansas City, Kans. Filed Aug. 9, 1900. Serial No. 26,332. (No model.)



Claim.—1. A colander, comprising an outer cylinder having a hemispherical bottom portion, perforations arranged in the side and bottom of said cylinder, a handle rigidly secured to the side thereof, a transverse shaft journaled in the opposite sides of the same, an operating-crank provided with a handle at one end, and an aperture at its opposite end to receive one of the terminals of the shaft, a tubular shaft fitting over the first-mentioned one and adapted to revolve therewith, and a series of knives graduated in length to conform to the interior shape of the vessel rigidly secured to said tubular shaft, substantially as described.

2. A colander, comprising an outer cylinder having a hemispherical bottom, perforations arranged in the side and bottom of said cylinder, a handle rigidly secured to the side thereof, a square transverse shaft journaled in the opposite sides of same, an operating-crank provided with a handle at one end, and a square aperture at its opposite end to receive one of the terminals of the shaft, a tubular shaft fitting over the first-mentioned one and adapted to rotate therewith, and a series of knives graduated in length to conform to the interior shape of the vessel rigidly secured to said tubular shaft, substantially as described.

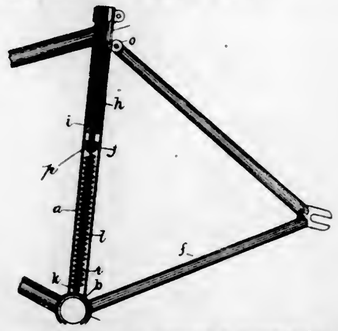
3. A colander, comprising a perforated cylinder having a hemispherical bottom portion, a rotary dasher mounted therein, a crank for operating the dasher, a bar secured to the upper opposite sides of the cylinder and provided with a central aperture, a vertical rod adjustably operating through said aperture, and a convex plate secured to the lower terminal of said rod, substantially as described.

4. A colander, having a perforated cylinder and hemispherical bottom portion, a rotary dasher mounted therein, means for operating the dasher, a transverse bar secured to the upper portion of the cylinder and provided with a threaded central aperture, a vertically-disposed screw arranged to operate through said aperture, an operating-wheel secured to the upper end of the screw, and a convex plate secured to its lower end, substantially as described.

5. A colander, comprising an outer cylinder having a hemispherical bottom portion, perforations arranged in the side and bottom thereof, a handle rigidly secured to one side of the same, a transverse shaft journaled in the opposite sides of the cylinder, an operating-crank secured to one of the terminals of said shaft, a tubular shaft fitting over the first-mentioned one, and adapted to revolve therewith, a series of knives graduated in length to conform to the interior shape of the vessel rigidly secured to the tubular shaft, and a series of loops provided with bearings at their opposite sides having apertures to receive the transverse shaft, substantially as described.

6. A colander, comprising an outer cylinder having a hemispherical bottom portion, perforations arranged in the side and bottom thereof, a handle rigidly secured to one side of the same, a transverse shaft journaled in the opposite sides of the cylinder, an operating-crank secured to one of the terminals of said shaft, a tubular shaft fitting over the first-mentioned one, and adapted to revolve therewith, a series of knives graduated in length to conform to the interior shape of the vessel rigidly secured to the tubular shaft, a series of loops provided with bearings at their opposite sides having apertures to receive the transverse shaft, a hinged frame secured to the upper end of the cylinder provided with a central threaded aperture, a plunger consisting of a vertically-arranged screw operating through said aperture having an operating-wheel secured to its upper terminal, and a convex plate secured to its lower end, substantially as described.

679,565. BICYCLE-FRAME. DALUS W. JUDSON, Barrie, Canada. Filed Feb. 27, 1901. Serial No. 49,144. (No model.)



Claim.—1. A bicycle-frame embracing in its construction a standard slotted at its upper end, a crank-axle bracket rigidly connected to the lower end of the standard, the lower side bars of the rear forks oscillatingly connected to the crank-axle bracket, the upper side bars being pivotally connected to the outer ends of the lower side bars, a vertically-movable thimble contained in the standard provided with a lug extending outwardly through the slot of the standard and to which the upper side bars of the rear forks are connected, and a spring connected to the thimble and to the standard to return the parts to their normal positions, substantially as specified.

2. A bicycle-frame embracing in its construction a standard slotted at its upper end, a crank-axle bracket rigidly connected to the lower end of the standard, a sectional sleeve rotatably contained in the crank-axle bracket, the lower side bars of the rear forks rigidly connected to the outer ends of the sleeve-sections, the upper side bars pivotally connected to the outer ends of the lower side bars, a vertically-movable thimble contained in the standard provided with a lug extending outwardly from the slotted end of the standard, the upper side bars of the rear forks pivotally connected to the lug, a hollow adjustable bolt passing through the lower end of the thimble, a downwardly-opening valve having a diminutive opening through it to close the passage through the bolt and a spring connected to the bolt and to the standard, substantially as specified.

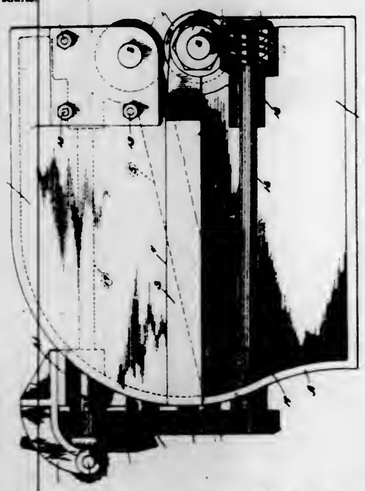
3. A bicycle-frame embracing in its construction a standard slotted in its upper end, a crank-axle bracket rigidly connected to the lower end of the standard, a sectional sleeve rotatably contained in the crank-axle bracket, the lower side bars of the rear forks rigidly connected to the outer ends of the sleeve-sections, the upper side bars pivotally connected to the outer ends of the lower side bars, a vertically-movable thimble contained in the standard provided with a lug extending outwardly through the slotted end of the standard, the upper side bars of the rear forks pivotally connected to the lug, a hollow adjustable bolt passing through the lower end of the thimble, a downwardly-opening valve having a diminutive opening through it to close the passage through the bolt, and a spring connected to the bolt and to the standard, a turnbuckle for the bolt and a spring connected to the turnbuckle and to the lower end of the standard, substantially as specified.

679,566. METAL-SHEARING MACHINE. CHARLES KLIPS, Chicago, Ill. Filed Oct. 1, 1900. Serial No. 31,616. (No model.)

Claim.—1. A rotary shears provided with a pair of coacting rotary cutters, actuating-shafts geared to said cutters and arranged in planes parallel to the cutting-plane of said rotary cutters on opposite sides of the cutter-supporting frame, and means for rotating said shafts.

2. A rotary shears comprising a frame, a pair of coacting rotary cutters secured to gears mounted in said frame and arranged with their cutting-plane extending longitudinally of the frame, driving-shafts extending longitudinally of said frame on opposite sides of the cutting-plane and transversely to the axes of the rotary cutter, gears on said shafts intermeshing with the gears of the cutters, and means for rotating the shafts.

3. A rotary shears comprising a frame, a pair of rotary cutters mounted in said frame, divergent paths extending from the cutters rearwardly along opposite sides of the frame in the direction of the cutting-plane, cutter-actuating shafts also extending along opposite sides of said frame to the rear end thereof, gearing connecting said shafts at the rear of the frame and which at no point on the upper cutter's side of the cutting-plane projects above the path leading from said upper cutter and at no point on the lower cutter's side of the cutting-plane projects below the path leading from said lower cutter, and means for rotating said intergeared shafts.



4. A rotary shears comprising a frame, a pair of coacting rotary cutters mounted in said frame, uninterrupted divergent paths for the severed edges of the sheared metal leading rearwardly from said cutters along opposite sides of said frame, a pair of shafts each geared to one of said cutters leading rearwardly along opposite sides of the frame, spur-gears on the rear end of each of said shafts, and intermediate gears connecting said spur-gears between the paths of travel of the severed edges of the metal, substantially as described.

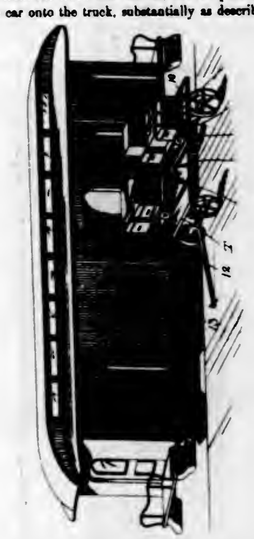
5. A rotary shears comprising a frame, a pair of coacting rotary cutters mounted in said frame, a pair of actuating-shafts each geared to one of said cutters and both extending parallel to the cutting-plane of the cutters on opposite sides of the frame and lengthwise thereof, gearing connecting the rear ends of said shafts, and gearing for rotating said intergeared shafts comprising a gear on one of said shafts, a pinion on an adjacent counter-shaft intermeshing with said gear, and a driving-wheel on said counter-shaft.

679,567. **MEANS FOR HANDLING BAGGAGE.** ARTHUR H. LOWE, Pittsburg, Mass. Filed Nov. 23, 1899. Serial No. 738,045. (No model.)

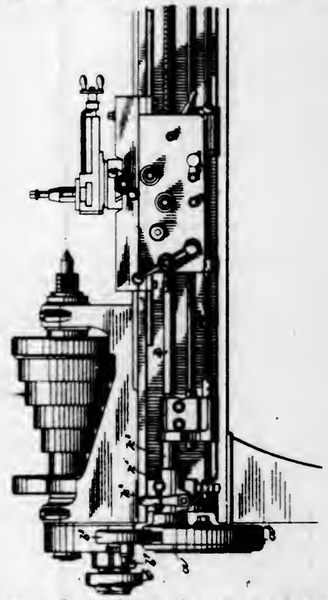
Claim.—1. In an apparatus for handling baggage, the combination of a truck mounted on wheels and having tracks or ways, a baggage-carrier mounted on the tracks or ways of said truck, and means for locking the truck to a railway-car in such position that the tracks or ways on the truck will register with the tracks or ways in the car, whereby continuous tracks will be provided for pushing a baggage-carrier from the truck into the railway-car, or for pushing a baggage-carrier from the railway-car onto the truck, substantially as described.

2. In an apparatus for handling baggage, the combination of a truck mounted on wheels and having tracks or ways extending transversely across the same, a baggage-carrier having wheels mounted to run on said tracks, and means for locking the truck to a railway-car in such position that the tracks or ways on the truck will register with the tracks or ways in the railway-car, whereby continuous tracks are provided for pushing a baggage-carrier from the truck into the railway-car, or for pushing a baggage-carrier from the railway-car onto the truck, substantially as described.

3. In an apparatus for handling baggage, the combination of a truck T mounted to run on wheels and having tracks or ways 10 extending transversely across the top of the truck, a baggage-carrier C having wheels for running on the tracks 10, hooks 12 for securing the truck to the side of a baggage-car, so that the tracks of said truck will register with tracks in the car, and a plank or skid for bridging the space between the truck and the car, said plank having tracks corresponding with the tracks of said truck, whereby a continuous track may be provided for pushing a baggage-carrier from the truck into the car, and for pushing a baggage-carrier from the car onto the truck, substantially as described.



679,568. **ENGINE-LATHE.** EDWARD A. MULLER, Springfield, Ohio, assignor to the Springfield Machine Tool Company, same place. Filed Jan. 31, 1901. Serial No. 45,435. (No model.)



Claim.—1. In an engine-lathe, the combination of a train of gearing from the spindle to the lead-screw having a swinging gear, with a disk having auxiliary gears of different diameters thereon, any one of said auxiliary gears adapted to be journaled on and attached to the lead-screw, and means for connecting said swinging gear with said auxiliary gears in a manner so that any one of said auxiliary gears, when journaled on and attached to the lead-screw, can be driven independently of the other auxiliary gears and independently of the disk, substantially as specified.

2. In an engine-lathe, the combination with a train of gears leading from the spindle to operate the lead-screw, of a disk having gears of different diameters thereon, a shaft, a gear of said train and a swinging frame on said shaft, a gear in said frame engaging with the gear on said shaft and adapted to mesh with and operate any one of the gears on said disk independently of the other disk-gears and independently of the disk, substantially as specified.

3. In an engine-lathe, the combination with a train of gears leading from the spindle to operate the lead-screw of said lathe, of a casing carrying a disk with a plurality of gears journaled therein and having for each of said gears a projecting segment equal to the pitch diameter of its gear and a swinging gear of said train having a casing with a projection equal to its pitch diameter to contact the segments of the disk-gear to form a stop when said swinging gear is in proper mesh with any one of said disk-gears, substantially as specified.

4. In an engine-lathe, the combination of a train of gearing from the spindle to the lead-screw having a swinging gear, with a disk having auxiliary gears of different diameters thereon, any one of said auxiliary gears adapted to be journaled on the lead-screw, and means for connecting said swinging gear with said auxiliary gears in a manner so that any one of said auxiliary gears, when journaled on the lead-screw, can be driven independently of the other auxiliary gears and independently of the disk, and means for attaching said driven gear to the lead-screw, substantially as specified.

5. In an engine-lathe, the combination with a train of gears leading from the spindle to operate the lead-screw of said lathe, of a disk having gears of different diameters journaled therein, and an extension of the lead-screw adapted to engage with and form a bearing for any one of said disk-gears, substantially as specified.

6. In an engine-lathe, the combination with a disk having gears of different diameter, independent of each other journaled therein, said gears each being provided with clutches on one side thereof, of a lead-screw, a shaft slidingly attached to said screw, a clutch on said shaft to engage the clutch on any one of said gears means to throw said clutches in and out of engagement, substantially as specified.

7. In an engine-lathe, the combination with a disk having gears of different diameters, independent of each other journaled therein, said gears each being provided with clutches on one side thereof, of a shaft, a gear and a swinging frame, a gear in said frame engaging with the gear on said shaft and adapted to engage and operate any one of the gears in said disk, a lead-screw, an extension slidingly attached to said screw, a clutch on said extension to engage with the clutch on any one of said disk-gears which may be engaged with said swinging gear and means to throw said clutch in and out of engagement, substantially as specified.

8. In an engine-lathe, the combination with a casing carrying a train of gears leading from the spindle to operate the lead-screw, of a removable auxiliary casing adapted to carry two ratio-gears of the same or different diameters detachably connected in said train whereby the substitution of gears of different diameters will vary the speed, substantially as specified.

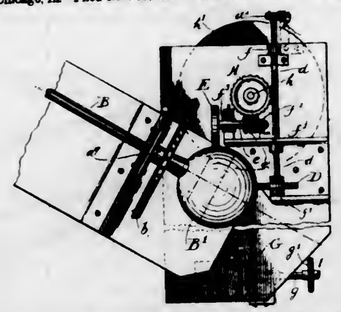
9. In an engine-lathe, the combination with a casing carrying a train of gears leading from the spindle to operate the lead-screw, of a removable auxiliary casing adapted to carry two ratio-gears of different diameters detachably connected in said train and a disk having gears of different diameters journaled therein, a swinging gear in said train adapted to engage and operate any one of the gears in said disk, independent of the others, and means for connecting and disconnecting the disk-gear so engaged with the lead-screw, substantially as specified.

10. In an engine-lathe, the combination with a casing carrying a train of gears leading from the spindle to operate the lead-screw, of a removable auxiliary casing adapted to carry two ratio-gears of the same or different diameters detachably engaging said train, and a disk having gears of different diameters journaled therein, a clutch attached to one side of each of said disk-gears, a swinging gear in said train adapted to engage and operate any one of the gears in said disk independent of the others and a clutch slidingly connected with said lead-screw to engage the clutch of any one of the gears in said disk that is engaged with said swinging gear, substantially as specified.

11. In an engine-lathe, the combination with a train of gears leading from the spindle to operate the lead-screw, of a shaft slidingly attached at one end to said screw and reduced and extended at its other end to carry the adjacent gear of said train, a clutch attached to said gear, a movable bearing to carry said shaft and a clutch on said shaft adapted to move longitudinally with said shaft and bearing to engage with the clutch on said gear, to connect and disconnect said gear and shaft, substantially as specified.

12. In an engine-lathe, the combination with a train of gears, leading from the spindle to operate the lead-screw, of a sleeve keyed to the end of said screw, a shaft slidingly mounted in said sleeve by a key and a keyway in said shaft, a journal-box, a movable bearing in said box to carry said shaft, a rack formed on one side of said bearing, a gear journaled in a recess in said box and having a handle to operate said rack, collars rigidly attached to said shaft at each end of said bearing and a clutch formed on one of said collars to engage a corresponding clutch on the adjacent gear of said train, the outer end of said shaft being reduced and extended to form a bearing for said gear, substantially as specified.

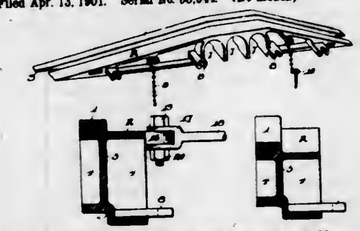
679,569. **VARIABLE FRICTION-GEARING.** WM. M. MCCARTNEY, Chicago, Ill. Filed Nov. 10, 1900. Serial No. 36,061. (No model.)



Claim.—1. The combination with a rotatable sphere, of two rotatable friction-wheels having their axes in the plane of the axis of rotation of the sphere, and their surfaces in contact with said sphere at points separated one-quarter of the circumference thereof, and means of support for said sphere permitting angular movement of the axis of rotation of the sphere about the center of the sphere, and in the plane of the axes of the wheels; substantially as described.

2. The combination with a rotatable sphere, of two rotatable friction-wheels having their axes in the plane of the axis of rotation of the sphere, and their surfaces in contact with said sphere at points separated a given portion of the circumference thereof, and means of support for said sphere permitting angular movement of the axis of rotation of the sphere about the center of the sphere and in the plane of the axes of the wheels; substantially as described.

679,570. **HOSE-BRIDGE.** FRANK R. MCCLURE, Pittsburg, Pa. Filed Apr. 13, 1901. Serial No. 55,644. (No model.)



Claim.—1. The combination with the track-rails, of bridge-rails having their bases formed to fit the track-rails, said bridge-rails having openings to receive the water-hose, both ends of said bridge-rails being tapered to a point with the riding-on end at less pitch than the other and the tread portion of the bridge-rails at the riding-on end extended beyond the flange portion, notched lugs carried by the bases of the bridge-rails, chains pivoted to the webs of said bridge-rails, and spikes carried by said chains for securing the bridge-rails against longitudinal movement on the track-rails, notched lugs carried by the bridge-rails to receive said spikes, apertured lugs carried by the bridge-rails, and tie-rods having bifurcated ends removably connected to said apertured lugs, substantially as shown and described.

2. In combination with the track-rails, of the bridge-rails having their bases formed to fit the track-rails said bridge-rails having openings therein, formed therein to receive the water-hose, the said bridge-rails having an inclined tread-flange which is inclined from each end of the bridge-rails toward the center with the incline at the passing-on ends of the bridge-rails at less pitch than the incline at the other end, notched lugs carried by the said bases of the rails, chains carried by the bridge-rails, spikes carried by said chains for engagement with the notched lugs and in the road-bed to prevent longitudinal movement of the bridge-rails, the said rails carrying apertured lugs, and tie-rods provided with bifurcated ends, and a nut and bolt securing said ends to said apertured lugs substantially as described.

3. The combination with the track-rails, of the bridge-rails having their bases formed to fit the track-rails, said bridge-rails having apertures formed therein to receive the water-hose, notched lugs carried by the bases of the bridge-rails, a chain connecting with the web of the said bridge-rails for securing the same against longitudinal movements, apertured lugs carried by the said bridge-rails, a tie-rod provided with bifurcated ends, the said ends having apertures formed therein adapted to register with the perforation in the lugs, a nut and bolt for securing the said ends of the rod and the perforated lugs together, whereby one of the nuts and bolts may be disengaged and the tie-rods swung around, substantially as described.

679,571. VEHICLE-WHEEL. DENIS H. O'MEARA, Worcester, Mass. Filed July 27, 1900. Serial No. 24,966. (No model.)



Claim.—1. In a vehicle-wheel, the combination with the rim, of an annular series of double flat metallic springs secured directly thereto, each spring having upper and lower portions united by opposed inwardly-extending central portions, and a metallic tire surrounding said annular series of springs and bearing against the outer portions thereof.

2. In a vehicle-wheel, the combination with a rim, having an exterior circumferential groove, of an annular series of double flat metallic springs, whose inner portions rest within said groove; washers and screws for uniting said inner portions to said rim; and a metallic tire, surrounding said annular series of springs, and bearing against the outer portions thereof.

3. In a vehicle-wheel, the combination with the rim, of an annular series of metallic springs secured thereto; a surrounding metallic tire; and strips of fabric entirely surrounding said springs, and interposed between the rim and tire.

4. In a vehicle-wheel, the combination with the rim, and an annular series of double flat metallic springs secured thereto, the outer portions of said springs being formed with central depressions therein; of a surrounding metallic tire provided with corresponding inwardly-projecting depressions which engage with those in the adjacent outer portions of the said springs.

5. In a vehicle-wheel, the combination with a rim having an exterior circumferential groove, of an annular series of double flat metallic springs, whose inner portions rest within said groove, and are secured to said rim, and whose outer portions have central depressions therein; and a surrounding metallic tire provided with corresponding inwardly-projecting indentations which engage with the said central depressions in the adjacent outer portions of said springs.

6. In a vehicle-wheel, the combination with the rim, of an annular series of double flat metallic springs secured thereto, the outer portions of said springs being formed with central depressions therein; a surrounding metallic tire; and strips of fabric entirely surrounding said springs, and interposed between the rim and lower portions of said springs, and between the upper portions of the springs and the tire, and said tire having a series of inwardly-projecting indentations in engagement with the said central depressions in the adjacent outer portions of the said springs.

7. In a vehicle-wheel, the combination with a rim having transverse bores therethrough, of an annular series of double metallic springs, each spring being formed of a continuous strip of flat spring metal, the outer portions of the springs being provided with central depressions therein, and the opposing ends of the inner portions of said springs being separated by some considerable space; flat washers bridging over said space and formed with central screw-threaded bores; screws passing through the bores in the rim, and engaging with said washers; and a surrounding metallic tire formed with a series of inwardly-projecting indentations in engagement with the described central depressions in the adjacent outer portions of the said springs.

8. In a vehicle-wheel, the combination with a rim, of an annular series of double flat metallic springs secured thereto, the outer portions of said springs being formed with central depressions therein; a surrounding flat metallic tire formed with corresponding inwardly-projecting indentations which engage with the said depressions in the adjacent outer portions of the said springs; and a supplemental or outer metallic tire, provided with similar indentations or depressions for engagement with those in the inner flat tire, and the edges of the said outer tire being outwardly inclined at obtuse angles to the body of the tire.

9. In a vehicle-wheel, the combination with a rim, of an annular series of double flat metallic springs secured thereto; a surrounding flat metallic tire; strips of waterproof fabric entirely surrounding said springs and interposed between said rim and tire; and a supplemental or outer metallic tire, the edges of which are outwardly inclined at oblique angles to the body of the tire.

10. In a vehicle-wheel, the combination with the rim, of an annular series of double flat metallic springs secured thereto, each spring having upper and lower portions united by opposed inwardly-extending central portions, and each end of each spring being formed with a longitudinal slot extending continuously from a point in the outer part of the outer portion, to a corresponding point in the outer part of the inner portion of the said spring.

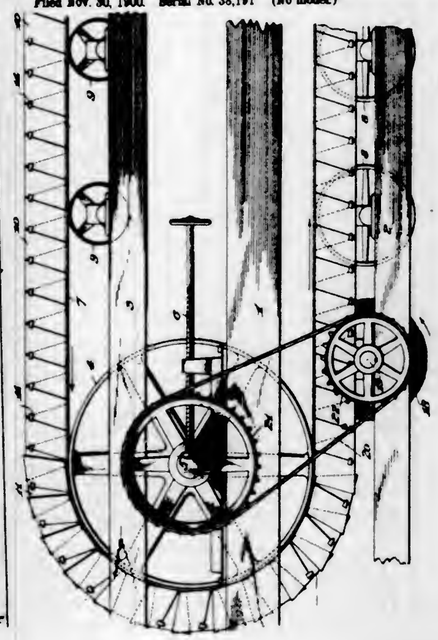
679,572. COMBINATION-UNDERGARMENT. JOHN PENNINGTON, Camden, N. Y. Filed Nov. 24, 1900. Serial No. 37,589. (No model.)



Claim.—1. A union undergarment having the front closed from the neck-opening approximately to the crotch, and having a back opening extending transversely approximately from hip portion to hip portion and from thence downwardly to the crotch portion, and two flaps extending rearwardly from the hip portions and vertically down to the crotch and provided with fastening means, substantially as described.

2. A union undergarment having the closed front and a back opening extending transversely about along the waist-line from hip portion to hip portion and downwardly to the crotch portion, two elongated flaps extending rearwardly from the hip portions, each flap having an approximately straight portion along the waist-line of the garment and a vertical edge from the rear free end of the flap down to the crotch portion, and securing-tapes secured to the angular free ends of said flaps, substantially as described.

679,573. CONVEYER. GEORGE D. POTTER, Wallace, Idaho. Filed Nov. 30, 1900. Serial No. 38,191. (No model.)



Claim.—1. A belt conveyer, having buckets with articulated sides and base-flanges, the base-flanges of opposite buckets extending half-way across the belt and secured to it, and meeting in the middle of the belt and serving also as sheathing therefor, substantially as described.

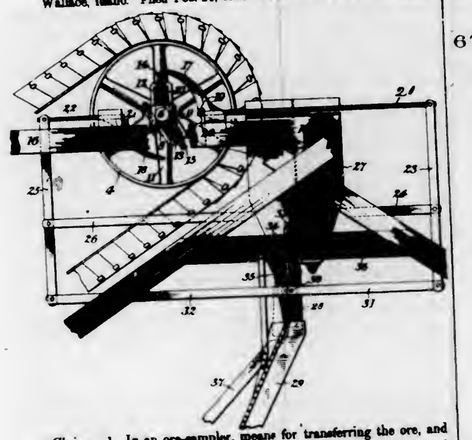
2. A belt conveyer, having sectional buckets secured to the belt, the sides of said buckets being of trapezoidal shape, with interlocking offset portions and retaining ears or lips, substantially as described.

3. A belt conveyer, having sectional buckets provided with base-flanges secured to the belt, the sides of said buckets being of trapezoidal shape, with interlocking offset portions and retaining ears or lips, said buckets serving also to form a truss to aid in supporting the load on the belt, substantially as described.

4. A belt conveyer, having buckets with articulated sides, base-flanges extending half-way across the belt and secured to it, and filling-strips secured to the belt between and parallel with the base-flanges, substantially as described.

5. The combination with an endless-belt conveyer, of a dam arranged transversely of the said conveyer at its lower end, and comprising a yoke and an upright cross-piece stretched between its limbs and in contact with the bottom and sides of the conveyer, substantially as described.

679,574. AUTOMATIC ORE-SAMPLER. GEORGE D. POTTER, Wallace, Idaho. Filed Feb. 21, 1901. Serial No. 48,353. (No model.)



Claim.—1. In an ore-sampler, means for transferring the ore, and a sample-deflector, combined with a rotary shaft, plungers thereon, and means interposed between said plungers and deflector and actuated by said plungers to vibrate the deflector, substantially as described.

2. In an ore-sampler, a sample-deflecting device, combined with actuating mechanism therefor comprising a shaft, plungers adjustably arranged thereon, and means interposed between the plungers and deflecting device to actuate the deflecting device at any degree of revolution of the shaft, substantially as described.

3. A hopper, a swinging boot at its discharge end, a spout into which the said boot discharges, and a split shovel projecting part way into said spout, in combination with a rotary shaft provided with plungers, and means interposed between said plungers and swinging boot and actuated by said plungers to vibrate the boot back and forth relatively to the spout and split shovel.

4. A hopper, a swinging boot at its discharge end, a spout into which the said boot discharges, and a split shovel projecting part way into said spout, in combination with a rotary shaft, spring-pressed plungers arranged upon said shaft, cams with which said plungers engage, levers linked to said swinging boot, and plunger-rods arranged in the path of movement of the said plungers and connected with the said levers, substantially as described.

5. In an ore-sampler, a rotary shaft, spring-pressed plungers adjustably mounted thereupon, cams with which said plungers coact, a swinging boot, and means connected with the swinging boot and interposed in the path of movement of the plungers, whereby said swinging boot is vibrated as the shaft rotates, substantially as described.

6. In an ore-sampler, the combination with a rotary shaft, a pulley thereon, a conveyer on said pulley, and a hopper next the discharge end of the conveyer, of spring-pressed plungers arranged upon said shaft at different angles, plunger-actuating cams, plunger-rods applied to said cams and adapted to be actuated alternately by the spring-pressed plungers, a swinging boot applied to the discharge end of said hopper, and means interposed between the swinging boot and the plunger-rods by which the motion of the plunger-rods is imparted to the boot, substantially as described.

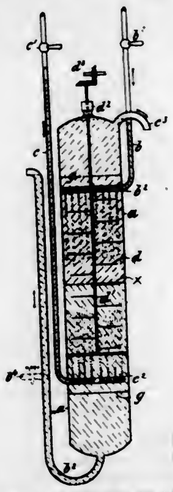
7. In an ore-sampler, a swinging boot adapted to receive the ore, a main spout, and an auxiliary spout, combined with means to oscillate the auxiliary spout relatively to the main spout and swinging boot, substantially as described.

8. In an ore-sampler, the combination of a rotary shaft, plungers thereon, a swinging boot to receive the ore, a main spout, and an oscillating auxiliary spout, with a sliding shield mounted in the main spout and carrying the auxiliary spout, and means interposed between the plungers and sliding shield to impart movement to the latter, substantially as described.

9. In an ore-sampler, the combination of a rotary shaft, plungers thereon, a swinging boot to receive the ore, a main spout, and an oscillating auxiliary spout, with a sliding shield mounted in the main spout and carrying the auxiliary spout, a double-toothed rack on the shield, a reutilated pinion engaging said rack, and means interposed between the plungers and said pinion to rotate the latter, substantially as described.

10. In an ore-sampler, a main spout and an auxiliary spout, a sliding shield with which said auxiliary spout is connected, a shaft, means interposed between the said shaft and shield to convert the motion of the shaft into a reciprocation of the shield, and a pawl-and-ratchet mechanism to actuate said shaft, combined and arranged substantially as described.

679,575. APPARATUS FOR EXTRACTING MATTER FROM LIQUIDS. LOUIS C. REESE, London, England, assignor to Paul Pfleiderer, Hillcrest, Wellington, England. Filed July 5, 1898. Serial No. 686,132. (No model.)



Claim.—1. Apparatus for the extraction from liquids of matters contained therein, comprising a vessel provided with outlets for liquid at its upper and lower ends and with upper and lower inlets for liquid arranged between and at some distance from said outlets and each of which is provided with a liquid-distributing device, means located between said distributing devices and adapted to mix the liquids flowing therefrom, and means for controlling the passage of liquid through the lower outlet, substantially as described for the purposes specified.

2. Apparatus for the extraction from liquids of matters contained therein, comprising a vessel provided with outlets for liquid at its upper and lower ends and with upper and lower inlets for liquid arranged between and at some distance from said outlets and each of which is provided with a liquid-distributing device, means for controlling the flow of liquid through each of said inlets, and a movable mixing device located between the distributing devices, the overflow end of the lower liquid-outlet being arranged at a height above the bottom of said vessel, substantially as described for the purpose specified.

3. Apparatus for the extraction from liquids of matters contained therein, comprising a vertical elongated vessel provided with outlets for liquid at its upper and lower ends, inlets for liquid terminating in upper and lower distributing devices located within said vessel between said outlets, a mixing device located between said distributing devices, means for controlling the flow of liquid to the upper distributing device and its exit

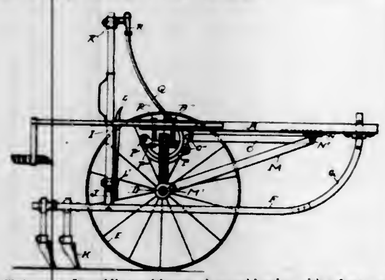
from the lower end of said vessel, and means for controlling the flow of liquid to the lower distributing device and its exit from the upper end of said vessel, substantially as described.

4. Apparatus for the extraction from liquids of matters contained therein, comprising a vessel provided with outlets for liquid at its upper and lower ends and with upper and lower inlets for liquid terminating in distributing devices arranged between and at some distance from said outlets, a mixing device located between said distributing devices, and perforated diaphragms located between the liquid-distributing devices and the top and bottom of said vessel, substantially as described.

5. Apparatus for the extraction from liquids of matters contained therein, comprising a vertical vessel *a* having an outlet-pipe c^3 at its upper end for the exit of the lighter of two liquids and an outlet-pipe b^3 at its lower end for the exit of the heavier of the two liquids, said outlet-pipe b^3 having an overflow-exit at a point above the bottom of said vessel and provided with means for controlling the flow of liquid therethrough, a pipe *b* for the inlet of the heavier liquid, said pipe being provided with controlling means and terminating in the upper part of said vessel but some distance below said outlet-pipe c^3 in a liquid-distributing device b^2, a pipe *c* for the inlet of the lighter liquid, said pipe being provided with controlling means and terminating in the lower part of said vessel but some distance above said outlet-pipe b^3 in a liquid-distributing device c^2, and a movable mixing device located between said liquid-distributing devices, substantially as described.

6. Apparatus for treating liquids comprising the vessel *a* with liquid-outlet pipes c^3, b^3, the liquid-inlet pipes *b*, *c* with valves b' c' and perforated coils b^2 and c^2 respectively, the rotary mixing device *d*, and the perforated diaphragms *g*, the said parts being arranged substantially as described and shown for the purposes set forth.

679,576. CULTIVATOR. ANDREW V. RYDER, Cadiz, Ohio. Filed Nov. 26, 1900. Serial No. 37,769. (No model.)



Claim.—1. In a riding-cultivator, the combination with a frame, and a cultivator-beam pivotally connected to said frame, of a beam-standard pivotally connected to said beam, and a lifting-spring having a pivotal connection at a point rearward of the wheel-axle, and a pivotal connection with the beam-standard, substantially as shown and for the purposes specified.

2. In a riding-cultivator, the combination with a frame, and a wheel-axle connected therewith, of a cultivator-beam pivotally connected with said frame, an adjustable beam-standard pivotally connected to said cultivator-beam, a lifting-spring pivotally connected to said beam-standard, and a support to which said lifting-spring is rigidly connected, said support having a pivotal connection at a point rearward of the wheel-axle, substantially as and for the purposes specified.

3. In a cultivator, the combination with a frame, an arched axle upon which said frame is mounted, cultivator-beams pivotally connected to said frame, and beam-standards pivotally connected to said cultivator-beams, of a curved lifting-spring one end of which is pivotally supported at a point in the rear of the wheel-axle, and the other end of which has a swivel connection with the beam-standards at a point rearward of the wheel-axle, whereby the cultivator-beams may be raised or lowered, substantially as specified.

4. In a riding-cultivator, the combination with a frame, a wheel-axle connected therewith, cultivator-beams, and beam-standards pivotally connected to said cultivator-beams, of a curved lifting-spring having a swivel connection with the beam-standards in a vertical plane rearward of the wheel-axle, and a pivotal support rearward of the wheel-axle, whereby the relative position of the frame and the wheel-spindles may be changed, substantially as described.

5. In a riding-cultivator, the combination with a frame, a wheel-axle, cultivator-beams, and beam-standards pivoted to said cultivator-beams, of a curved spring having a swivel connection with said beam-standards and a pivotal support rearward of the wheel-axle, whereby, when the beam-standards are moved forward to an extent that moves the upper ends of the springs forward of the pivotal support of said springs, the cultivator-beams will be elevated by the strength of said springs, substantially as specified.

6. In a riding-cultivator, the combination with a frame having an axle terminating in wheel-spindles and a cultivator-beam pivotally connected with said frame, of an upright standard pivotally connected with said beam, a lifting-spring connected with said standard said spring having a pivotal connection rearward of the axle, a slide mounted in the frame, and bars pivotally connected to said slide and to a wheel-spindle and the lifting-spring respectively, substantially as and for the purposes specified.

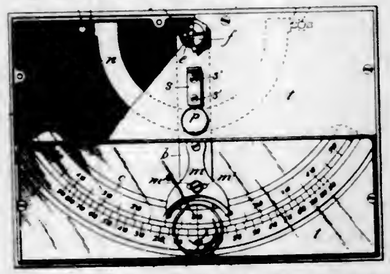
7. An even-balanced cultivator comprising a frame, an arched axle having wheel-spindles, a cultivator-beam pivotally connected to said frame, an upright standard pivotally connected to said beam, a lifting-spring pivotally connected to said standard, a support to which said spring is attached, said support having a pivotal connection rearward of the axle, whereby when the standard is moved forward to an extent that moves the upper end of the spring forward of said pivotal point, the spring will elevate the beams and enable a forward shifting of the frame, a drag-bar connected to the wheel-spindle, a brace pivotally connected to the spring-support, and a slide to which said drag-bar and brace are pivotally connected, whereby means are provided for enabling a shifting of the positions of the frame, substantially as described.

8. In a riding-cultivator, the combination with a suitable frame having wheel-spindles connected therewith, a cultivator-beam, and an upright standard pivotally connected to said beam, of a lifting-spring connected to said standard and controlling the cultivator-beam, a support for said lifting-spring having a pivotal connection rearward of the axle, and connections between the wheel-spindles and said spring which enable a forward shifting of the frame when the lifting-spring elevates the cultivator-beam, substantially as shown and described.

9. In a cultivator, the combination of beams, beam-standards pivotally connected to said beams, curved lifting-springs having swivel connections with the upper ends of said beam-standards, and supports to which said springs are connected, the said supports having a pivotal connection in the rear of the wheel-axle, substantially as specified.

10. In a cultivator, the combination of beams, beam-standards pivotally connected to said beams, curved lifting-springs having swivel connections with the upper portions of said beam-standards, supports for said lifting-springs, said supports having pivotal connections rearward of the wheel-axle, and connections between the wheel-spindles and said springs which enable a forward shifting of the frame when the lifting-springs elevate the cultivator-beams, substantially as described.

679,577. PENDULUM-LEVEL. HENRY L. SCHAFFNER, Florence, Italy. Filed Feb. 23, 1901. Serial No. 48,528. (No model.)



Claim.—1. In a clinometer, the combination of a case, a pendulum-indicator therein having a magnifying-glass in front of the indicating-scale, and a scale in the case in rear of the glass on the indicator; with a curved bar pivoted in front of said pendulum, and means for causing said bar to positively engage and lock the pendulum in any position to which it is gravitated.

2. In a clinometer, the combination of a case, a pendulum therein having an indicator on its lower end and a magnifying-glass in front of the indicator, and a scale in the case in rear of the indicator; with a contact-piece on said pendulum, a curved bar pivoted in front of the pendulum and adapted to contact with said piece, and means for causing said bar to forcibly engage said piece and lock the pendulum in any position to which it is gravitated.

3. In a clinometer, the combination of a case, a pendulum having an annulus on its lower end, an indicator in said annulus, and a magnifying-glass in front of said indicator, with a scale in rear of said indicator, a curved bar pivoted in front of the pendulum, and means for causing said bar to engage and lock the pendulum in any position to which it is gravitated.

4. In a clinometer, the combination of a case having a base, a pendulum-indicator pivoted above the base having an annulus on its lower end, an indicator in said annulus and a glass in front of said indicator, and a contact-piece on said pendulum; with a scale in rear of said indicator, a curved bar pivoted in front of said contact-piece adapted to contact therewith, and means for causing said bar to forcibly engage said piece and lock the pendulum in any position to which it is gravitated.

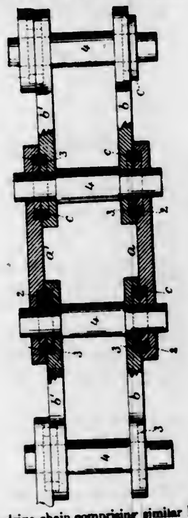
5. In a clinometer, the combination of the case, the pendulum pivoted therein, said pendulum consisting of a resilient metal strip having an indicator on its lower end; with a semicircular strip pivoted in the case in front of the pendulum adapted to contact therewith, and a bolt above said strip adapted to lock the same in engagement with the pendulum, substantially as described.

6. In a clinometer, the combination of the case, the pendulum pivoted therein consisting of a resilient metal strip having an annulus on its lower end provided with an indicator and a glass in front of the indicator, and a rock-shaft from which said pendulum is suspended; with a curved strip a pivoted in the case in front of the pendulum adapted to contact therewith, and a spring-pressed bolt above said strip adapted to lock the same in engagement with the projection on the pendulum, substantially as described.

7. In a clinometer, the combination of a case having a base, a pendulum pivoted above the base having an indicator and a magnifying-glass on its lower end, and means for locking said pendulum in any position it assumes; with a scale in rear of said indicator having one series of marks indicating the degrees of inclination and another series of marks indicating the percentage of inclination assumed by the base relative to a horizontal plane, substantially as described.

8. In a clinometer, the combination of the case, the pendulum pivoted therein consisting of a resilient metal strip having an annulus on its lower end provided with an indicator and magnifying-glass in front of the indicator, with a scale fixed in the case behind the indicator, a laterally-adjustable weight on said pendulum above the annulus, and means for locking the pendulum in any position it assumes, substantially as described.

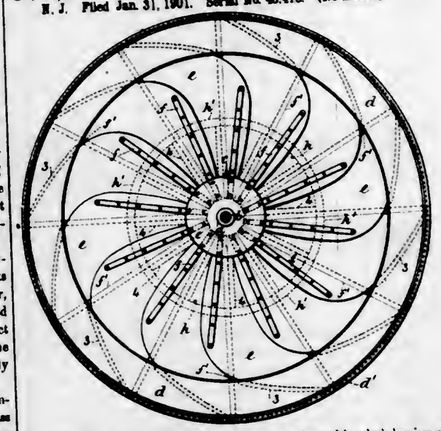
679,578. DRIVE-CHAIN. LOUIS SCHILDKNECHT, Astoria, N. Y. Filed May 6, 1901. Serial No. 58,900. (No model.)



Claim.—1. A drive-chain comprising similar links in alternate and intermediate pairs with eyes at their ends and pivot-pins for holding the pairs of links together and rings between the opposing faces at the ends of the links fitting grooves in the links and upon which rings the links turn, substantially as set forth.

2. A drive-chain comprising links in similar and intermediate alternate pairs, the links being all alike and each one provided at its ends with eyes for the pivot-pins and with annular grooves concentric to the eyes and the links arranged with similar faces in opposition and rings between the ends of the links in the annular grooves and around the ends of the pivot-pins and upon which rings the links of the pairs turn, substantially as set forth.

679,579. ROTARY FAN. ANDREW M. SCHRUBER, Woodbridge, N. J. Filed Jan. 31, 1901. Serial No. 45,418. (No model.)



Claim.—1. In a rotary fan, the combination with a hub having circular flanges and a shaft therefor, of rotary blades at spaced-apart intervals placed diagonally, stiffeners secured respectively to the blades and to the hub-flanges for connecting the parts, a conical peripheral band secured to and around the said blades, and a device connected to the hub and blades at the rear part of the fan and extending beyond the periphery of the flanges for preventing return-currents of air through the center of the fan and for preventing the liability of the fan to throw water, substantially as set forth.

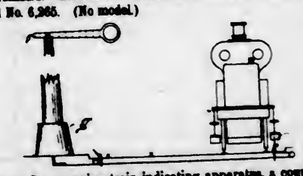
2. In a rotary fan, the combination with the radial diagonal blades, a hub, a shaft therefor and devices for connecting the blades set at regular spaced-apart intervals to the said hub, of a disk having a flanged edge secured to the said hub and to the said blades at right angles to the hub at the rear part of the fan, and projecting sufficiently from the hub to limit the amount of air passing through the fan and for preventing the liability of the fan to throw water, substantially as set forth.

3. In a rotary fan, the combination with the radial diagonal blades, a hub, a shaft therefor and devices for connecting the blades set at regular spaced-apart intervals to the said hub, of a disk independent of the hub having a flanged edge secured to the said hub and to the said blades at right angles to the hub at the rear part of the fan and projecting appreciably beyond the hub, and a conical peripheral band secured around and to the said radial diagonal blades and a strengthening-rib around the said band at the rear edge thereof, substantially as set forth.

4. In a rotary fan, the combination with a hub a shaft therefor, radial diagonal blades and devices for connecting the blades to the hub at regular spaced-apart intervals, and a device for connecting the free ends of said radial blades, of a disk having an inclined flanged edge secured to the hub and to the blades upon the rear face of the fan with the inclined edge extending away from the body of the fan for preventing return-currents of air through the center of the fan and the liability of the fan to throw water, substantially as set forth.

5. In a rotary fan, the combination with a hub, a shaft therefor, radial diagonal blades and devices for connecting the blades to the hub at regular spaced-apart intervals, of a disk having an inclined flanged edge secured to the hub and to the blades upon the rear face of the fan with the inclined edge extending away from the body of the fan for preventing return-currents of air through the center of the fan and the liability of the fan to throw water, substantially as set forth.

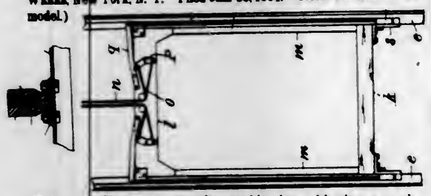
679,580. MEANS FOR ACTUATING INDICATORS UPON MOVING TRAINS. EDOUARD VILPOU, Blois, France. Filed Feb. 23, 1900. Serial No. 6,265. (No model.)



Claim.—In a moving-train indicating apparatus, a counterbalanced knife pivotally secured at one side of the railroad-track, a lever for raising said knife into operative position, means for holding the knife in operative

position, and means for holding it in inoperative position, a cord tensely held on moving car in a position to be severed when the knife is raised, a pivoted lever secured to said cord, an electric contact for said lever, an electric circuit adapted to be closed by the severing of the cord and operating of the lever, and an electrically-operated indicator or signal device arranged in said circuit, as set forth.

679,581. **ELEVATOR SAFETY APPLIANCE.** WILLIAM R. WEEKS, New York, N. Y. Filed Jan. 30, 1901. Serial No. 45,270. (No model.)



Claim.—1. In an elevator, the combination, with the car and a safety appliance having clamping-jaws adapted to grip the guide-strips, of guide-posts formed each with a central metallic rib and having a yielding facing of suitable compressible material attached to the opposite faces of such rib to receive the pressure of the opposite clamping-jaws and operating to secure the effective operation of such jaws.

2. In an elevator, the combination, with the car and a safety appliance having clamping-jaws adapted to grip the guide-strips, of guide-posts formed each with a central metallic rib and having a yielding facing of wood attached to the opposite faces of such rib to secure the effective operation of the clamping-jaws.

3. In an elevator, the combination, with the car and a safety appliance having clamping-jaws adapted to grip the guide-strips, of guide-posts formed each of a wrought T-bar with its central rib projected into the elevator-shaft and such rib faced upon its opposite sides with suitable compressible material to secure the effective operation of the clamping-jaws.

4. In an elevator, the combination, with the car and a safety appliance having clamping-jaws adapted to grip the guide-strips, of guide-posts formed each of a wrought T-bar with its central rib projected into the elevator-shaft and such rib faced upon its opposite sides with wooden strips, to secure the effective operation of the clamping-jaws.

5. In an elevator, the combination, with the car and a safety appliance having clamping-jaws adapted to grip the guide-strips, of a guide post or posts, at one or both sides of the elevator-shaft, formed with a rolled metallic T-bar having holes extended through the thickness of its central rib, and the guide-strips formed of wood strips applied to the opposite sides of such ribs and secured to the same by fastenings extended through the said holes, substantially as herein set forth.

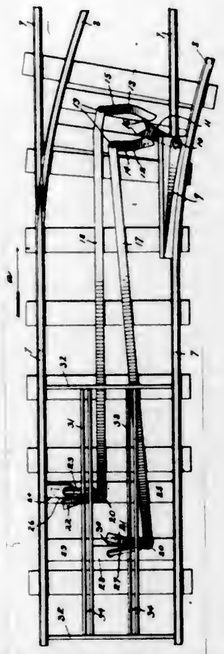
6. In an elevator, the combination, with the car and a safety appliance having clamping-jaws adapted to grip the guide-strips, of guide-posts at opposite sides of the elevator-hoistway comprising each a series of rolled T-bars secured together with their ends abutting in the elevator-shaft, and the central rib of such T-bars projected into the shaft, and facing-strips of wood secured to the opposite sides of such rib to form a guide-strip, with the ends of such facing-strips arranged to break joints with the ends of the T-bars, as and for the purpose set forth.

679,582. **RAILWAY-SWITCH-OPERATING APPARATUS.** WILLIAM D. WOOD, West Haven, Conn. Filed Aug. 8, 1900. Renewed June 8, 1901. Serial No. 63,796. (No model.)

Claim.—1. A switch-operating apparatus, comprising a pivoted switch-tongue provided at its pivoted end with a rigid arm which projects transversely of the track, a rod or bar movable longitudinally of the track and adapted to operate said arm and said switch-tongue, a crank-pin mounted between the rails of the track and connected with said rod or bar, and provided with a horizontal portion which projects transversely thereof, and parallel bars mounted over said crank-pin and between which is a longitudinal slot, said crank-pin being adapted to be operated by a device connected with a car and adapted to be depressed into said slot, substantially as shown and described.

2. A switch-operating apparatus, comprising a pivoted switch-tongue provided at its pivoted end with a rigid arm which projects transversely of the track, a lever pivoted on each side of said arm and adapted to operate the same in opposite directions, a rod or bar pivotally connected with each of said levers and extending longitudinally of the track, and provided at the ends opposite the switch-tongue, with pivoted levers, and pivoted crank-pins adapted to operate said last-named levers, substantially as shown and described.

3. A switch-operating apparatus, comprising a pivoted switch-tongue having at its pivoted end a rigid arm which projects transversely of the track, levers pivoted on the opposite sides of said arm adapted to operate the same, rods or bars pivotally connected with said levers and extending along the track, and provided at their ends opposite the switch-tongue with other pivoted levers, crank-pins pivotally supported adjacent to said last-named levers, and provided with cams which are adapted to operate the latter, and parallel bars mounted over each of said crank-pins and separated by longitudinal slots, said crank-pins being adapted to be operated by devices connected with a car and adapted to be depressed into said slots, substantially as shown and described.



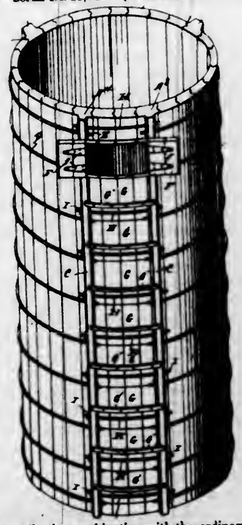
4. A double switch-operating apparatus, comprising two pivoted switch-tongues, each of which is provided at its pivoted end with an inwardly-directed rigid arm, rods or bars pivotally connected with said arms and extending along the track, levers connected with said rods or bars, supplemental rods or bars connected with said levers, supplemental levers connected with said supplemental rods or bars, said last-named levers being operated by angle-fingers pivotally supported, and adapted to be operated by the wheels of a car so as to close the switch, substantially as shown and described.

5. A double switch-operating apparatus, comprising two pivoted switch-tongues, each of which is provided at its pivoted end with an inwardly-directed rigid arm, rods or bars pivotally connected with said arms and extending along the track, levers connected with said rods or bars, supplemental rods or bars connected with said levers, supplemental levers connected with said supplemental rods or bars, said last-named levers being operated by angle-fingers pivotally supported and adapted to be operated by the wheels of a car so as to close the switch, the arms of said switch-tongues being also provided with pivoted rods or bars, and devices connected therewith and adapted to be operated by other devices connected with a car for opening the switches, substantially as shown and described.

6. A switch-operating apparatus, comprising a pivoted switch-tongue having at its pivoted end a rigid arm which projects transversely of the track, two levers pivotally supported at the opposite sides of said arm, each of which is provided with a pivoted rod or bar which extends along the main track, pivotally-supported devices for operating said rods or bars, said last-named devices being adapted to be operated from the platform of a car, substantially as shown and described.

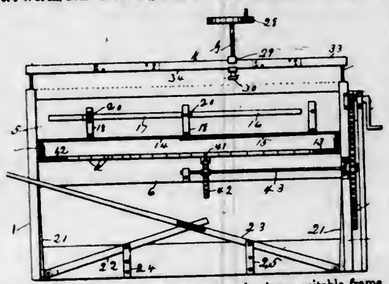
7. A switch-operating apparatus, comprising a pivoted switch-tongue having at its pivoted end a rigid arm which projects transversely of the track, a rod or bar connected therewith and extending along the track and adapted to be operated by the wheels of a car to close the switch, and another rod or bar connected with said arm and extending along the track in the same direction as the first-named rod or bar, and pivotally-supported devices for operating the last-named rod or bar, said pivotally-supported devices being adapted to be operated from the platform of a car, substantially as shown and described.

679,583. **SILO.** JOHN W. WOODRUFF, Hamburg, N. Y. Filed July 16, 1900. Serial No. 23,742. (No model.)



Claim.—In a silo the combination with the ordinary staves thereof, a series of combined beveled staves or coupling-standards located at each side of the opening or doorway and at various points around the silo, said standards being projected beyond the outer surface of the silo, a series of doors for closing said opening or doorway and a series of sectional metallic bracing-hoops passing from standard to standard provided with screw-threaded ends and nuts upon said ends whereby the silo can be tightened or loosened as desired at any point of its circumference, substantially as described and for the purpose set forth.

679,584. **MATTRESS-STUFFING MACHINE.** JOHN T. WOOLERY, Fort Worth, Tex. Filed Aug. 9, 1898. Serial No. 688,167. (No model.)

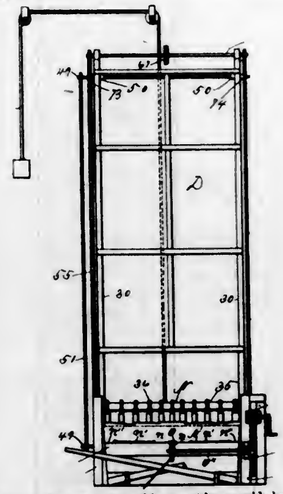


Claim.—1. A mattress-stuffing machine having a suitable frame, a stuffing-box mounted on said frame, and a pressure-frame comprising a number of boards forming a smooth under surface, boards mounted edgewise on said boards flush with the edges thereof to strengthen the same, a cross-beam, means for applying pressure upon said cross-beam, a cross-piece countersunk in said last-mentioned boards and secured to said cross-beam, strips attached to said last-named boards and adapted to engage said cross-piece, and a shaft on which said frame is pivotally mounted at one end.

2. In a mattress-stuffing machine provided with a stuffing-box and a pressure-frame; said box having removable bottom pieces and an adjustable side piece and said frame having sections composed of flat boards reinforced by boards mounted edgewise thereon, said sections being capable of lateral adjustment and arrangement to engage and hold said side piece between any two sections when the frame is down whereby mattresses of any desirable width can be made.

3. In a mattress-stuffing machine provided with a stuffing-box, a pressure-frame, and a chute at the end of said box; said chute being adjustable and provided with telescopic side pieces, means for adjusting the top of said chute consisting of a cross-beam to which said top is attached, two uprights supporting said cross-beam, each of said uprights having a lever pivotally attached to the bottom thereof, suitable fulcrums for said levers, and means for guiding said uprights in their upward and downward motion, said levers being pivotally connected together whereby pressure on one lever will operate both levers and raise the top of the chute.

679,585. **APPARATUS FOR MAKING MATTRESSES.** JOHN T. WOOLERY, Fort Worth, Tex. Filed Aug. 29, 1898. Serial No. 689,782. (No model.)



Claim.—1. In a mattress-making machine provided with a bat-forming box and a chute for delivering material to said box; a pressing-frame for said box and means for raising and lowering and applying power to said pressing-frame, said means consisting of four shafts suitably mounted, sprocket-wheels mounted on the ends of said shafts, a sprocket-chain provided with suitable gearing for transmitting power from one end of said box to the other, sprocket-chains on said wheels at each corner of said box and means for applying power to said chains, said chains being attached to said pressing-frame.

2. In a mattress-making machine provided with a bat-forming box and a chute for delivering material to said box; a pressing-frame for said box and means for operating said pressing-frame consisting of four shafts extending transversely across said box at each end thereof, a sprocket-wheel mounted on the end of each of said shafts, a sprocket-chain mounted on a top and a bottom wheel at each corner of said box, said chains being attached to the cross-beams of said pressing-frame, a sprocket-chain provided with suitable gearing for transmitting power from one end of said box to the other, and means for applying power to said sprocket-chains.

3. In a mattress-making machine provided with a bat-forming box and a chute for delivering material to said box; a pressing-frame for said box constructed of two cross-beams, joists provided with hangers for attaching the joists to the cross-beams loosely, metallic boards attached to said joists, said boards being provided with catch edges for engaging each other, and means for operating said pressing-frame.

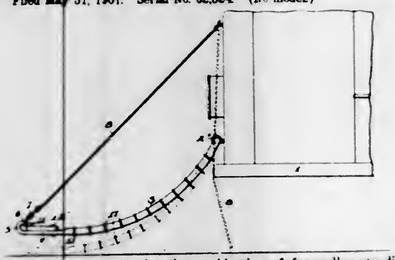
4. In a mattress-making machine provided with a bat-forming box and a chute for delivering material to said box; a bottom for said box constructed of sheet-metal boards, the two central boards being stationary and having a space between the same, the other boards being movable and having catch edges adapted to engage each other and the edges of the central boards which have corresponding catch edges, and means for supporting said boards.

5. In a mattress-stuffing machine provided with a box for collecting and cleaning and compressing material; means for distributing material evenly in said box consisting of a chute for delivering material to said box, said chute having a depending distributer connected thereto by a

flexible joint, means for removing said chute from and inserting the same in said box, and an eccentric for vibrating said distributer consisting of a disk provided with means for operating the same and a pitman-rod connected to said disk and to the depending distributer.

6. In a mattress-stuffing machine provided with a box for collecting and compressing material into bats; a movable chute for delivering material to said box, a depending distributer connected to said movable chute, and means for adjusting the movable chute consisting of a slide on which said part is mounted, a suitable support for said slide, and a thimble having a cord attached to each end of said slide whereby said chute is inserted in said box for delivering the material thereto and removed therefrom when enough material has been delivered to form a mattress.

679,586. **STREET-CAR FENDER.** GEORGE WRAY, Pittsburg, Pa. Filed May 31, 1901. Serial No. 62,524. (No model.)



Claim.—In a car-fender, the combination of forwardly-extending ends, hooked portions arranged on said ends, keepers secured in said hooked portions, means connected to the hooked portions and to the car whereby the said fender is normally suspended in the raised position, and means connecting said keepers adapted when actuated to release the suspending means to permit the fender to drop, substantially as described.

679,587. **APPARATUS FOR COLLECTING GASES, VAPORS, AND FOREIGN PARTICLES FROM AIR.** JOHN ZELLWEGER, St. Louis, Mo. Filed Sept. 26, 1899. Serial No. 731,727. (No model.)

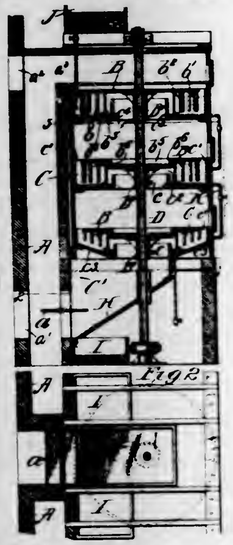


Fig 2.

Claim.—1. The combination with a casing, of a fan-disk rotatably mounted therein, means for rotating the fan-disk, said fan-disk carrying a series of bodies projecting at an angle from the face thereof and serving as vanelets and forming continuous air-passages leading from the center to the circumference of said fan-disk, said passages communicating at both ends with the surrounding air, and means within the zone of rotation of said vanelets for introducing liquid into the zone of rotation of said vanelets, substantially as described.

2. The combination with a casing, of a fan-disk rotatably mounted therein, means for rotating the fan-disk, said fan-disk carrying a series of bodies projecting at an angle from the face thereof and serving as vanelets and forming continuous air-passages leading from the center to the circumference of the fan-disk, said passages communicating at both ends with the surrounding air, and means carried by the fan-disk for causing liquid to enter into the zone of rotation of said vanelets.

3. The combination with a casing provided with a plurality of fan-chambers communicating alternately at the center and the circumference thereof, of a fan-disk rotatably mounted in each fan-chamber, said fan-disk carrying a series of bodies projecting at an angle from the face thereof and serving as vanelets and forming continuous air-passages leading from the center to the circumference of the fan-disk, said passages communicating at both ends with the surrounding air, means for rotating said fan-disks, and means for causing liquid to enter into the zone of rotation of the vanelets on said disks, substantially as described.

4. The combination with a fan-casing, of a fan therein, means for rotating said fan to induce a current of gas through said casing, means in said casing for containing liquid in juxtaposition thereto, and means on said fan for scooping the liquid from said receptacle and projecting it against the working face or faces of said fan, substantially as described.

5. The combination with a fan-disk, and means for rotating the disk, of vanelets projecting therefrom, a receptacle containing a liquid, and scoops mounted on said disk for projecting the liquid in said receptacle against said vanelets, substantially as described.

6. A fan-disk provided with working faces extending at an angle to the disk and with a receptacle for liquid, said receptacle having an opening or openings at or near the periphery of the receptacle, whereby centrifugal force projects the liquid from said receptacle through said openings and against said working faces of the fan, substantially as described.

7. The combination of a fan-disk provided with a receptacle in its upper surface which communicates with the space beneath the disk by suitable openings at or near the periphery of the receptacle, and vanelets depending from the under surface of said fan-disk for receiving a liquid projected through said openings from said receptacle by centrifugal force, substantially as described.

8. The combination with a fan-disk, of a shaft on which said fan is mounted, means for imparting rotation to said shaft, an annular trough opposite said disk for containing liquid in juxtaposition thereto, said trough being provided with overflow-openings, substantially as described.

9. The combination with a casing, of a fan rotatively mounted therein, means for rotating said fan to cause the passage of a gas through said casing, and a trough containing a liquid in juxtaposition to said fan, and a part carried by the fan adjacent the inner periphery of its working face extending into the liquid in the trough and acting to throw the liquid into the zone of rotation of the working face of the fan, substantially as described.

10. The combination with a casing containing a plurality of fan-chambers, of a plurality of fans arranged in said chambers, a shaft on which said fans are mounted, means for imparting rotation to said shaft, liquid-containing receptacles in the bottoms of the several fan-chambers, and means for projecting the liquid in said receptacles against the working faces of the several fans respectively, substantially as described.

11. The combination with a casing, of a plurality of partition-walls for receiving the liquid, said partition-walls also forming fan-chambers, a centrally-arranged shaft, means for rotating said shaft, fan-disks on said shaft, vanelets on said disks and extending at an angle thereto, and receptacles in said disks for receiving a liquid from an adjacent partition-wall and discharging the same by centrifugal force against the vanelets, substantially as described.

12. The combination with a suitable casing, of a plurality of annular liquid-containing troughs arranged therein, a centrally-arranged shaft, fan-disks on said shaft, means for rotating said shaft, vanelets on said fan-disks, and scoops extending into the liquid in the troughs for projecting the liquid against the vanelets, substantially as described.

13. The combination with a casing, of a plurality of stationary troughs arranged therein, a plurality of fans cooperating with said troughs, a shaft on which the fans are mounted, means for rotating said shaft, means for projecting the liquid in the troughs against the working faces of their respective fans, and pipe connections leading to and from said troughs, substantially as described.

14. The combination with a casing, of removable troughs or partitions supported therein for receiving a liquid, fans arranged in juxtaposition thereto, a shaft on which the fans are mounted, means for rotating said shaft, and means for discharging the liquid against the working faces of said fans, substantially as described.

15. The combination with a fan-disk provided with working faces, of a screen attached to said disk, a shaft on which said disk is mounted, means for rotating said shaft, and means for discharging liquid onto said screen while the fan is in motion, substantially as described.

16. The combination with a casing having an inlet-opening at one end, an eccentrically-mounted damper for closing said opening, a plurality of fan-chambers in said casing, fans in said chambers, a shaft on which said disk is mounted, means for rotating said shaft, and means for wetting the working faces of said fans, substantially as described.

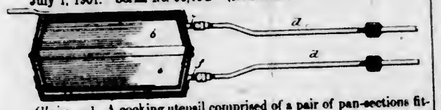
17. The combination with a fan-casing having a central inlet-opening, and a circumferential outlet-opening, of a fan in said casing, means for rotating the same to induce a current of gas through said casing, the fan-vanes arranged to pass through said current, and means carried by said fan for projecting a liquid against said fan-vanes, substantially as described.

18. The combination with a casing, of a fan rotatably mounted therein and having air-propelling faces, means for rotating said fan to cause the passage of the gas through said casing, and means carried by the fan within the zone of rotation of the air-propelling faces of the fan for projecting a liquid into the zone of rotation of the air-propelling faces of the said fan, substantially as described.

19. The combination with a casing, of a rotatable shaft arranged therein, means for rotating said shaft, a disk mounted on said shaft and provided with a series of projections serving as vanelets to positively move the air, means adjacent said vanelets for containing a liquid, and means arranged within the zone of rotation of said vanelets and extending into said liquid for projecting said liquid into the zone of rotation of said vanelets, where said liquid is intercepted and thrown outwardly by centrifugal force, substantially as described.

20. The combination with a casing forming a fan-chamber, of a rotatable shaft in said chamber, a disk mounted on said shaft, a system of bodies carried by the disk at or near its periphery and serving as vanelets, and forming between and around them continuous air-passages, which passages lead from the center of the disk to the circumference thereof, and means at or near the inner periphery of the zone of rotation of said vanelets for introducing liquid into said zone, whereby said liquid is thrown outwardly by centrifugal force by the vanelets with which it contacts, substantially as described.

679,588. **CAMP COOKING UTENSIL.** CHARLES A. ANDERSON and OSCAR ANDERSON, Portland, Oreg. Filed Oct. 16, 1900. Renewed July 1, 1901. Serial No. 66,794. (No model.)



Claim.—1. A cooking utensil comprised of a pair of pan-sections fitting one upon the other and forming a closed receptacle, a lining attached to the interior of each section and forming an air-space all around the same, and means for closing the air-spaces at the edges of the respective pans, the two edges of the linings coming together within one of the pan-sections out of alinement with the joint between said two pan-sections.

2. In a cooking utensil, the combination of a pair of pan-sections hinged together and adapted to close one upon the other and form a closed receptacle and to be opened out to form a pair of open receptacles, a pair of handles connected to the pans at the adjacent ends of the same, one to each pan, and a supporting-pin *g* projecting centrally from one of the pans at a point opposite the point where the handle is connected thereto, said pin being adapted to engage a supporting-stake and support both sections when closed and also to engage under the opposite section or pan when the pans are open, for the purpose set forth.

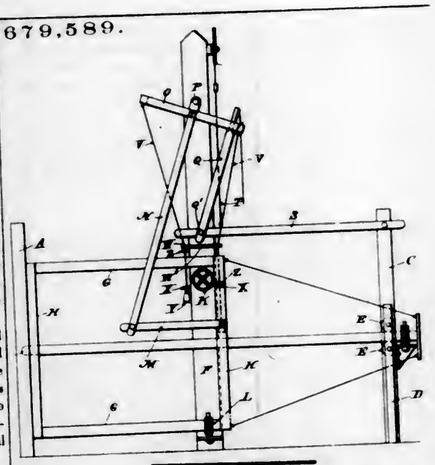
3. A cooking utensil comprising a pair of hinged pan-sections adapted to close one upon the other and form a closed receptacle and to open out and form a pair of open receptacles, a strap-iron extending entirely across the bottom of each pan and secured thereto, one end of each strap-iron being extended and formed into a stem and the opposite end of one of the strap-irons being formed into a supporting-pin, and a pair of handles detachably connected to said stems.

679,589. **GATE.** CICERO M. BAKER, Whitesboro, Tex. Filed Apr. 17, 1901. Serial No. 56,256. (No model.)

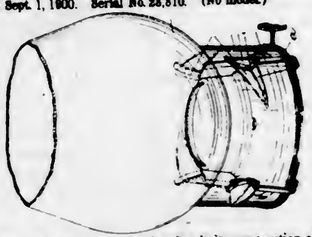
Claim.—1. In a gate, the combination of the end and central posts, guide-rollers on the central and one end post, the elongated rail on the gate proper for guiding the gate, the lever connected to the gate, the open cross-head or link at the upper end of said lever and pivoted to the central post, the lever fitting in said cross-head and having shoulders to engage each end of the cross-head, the long horizontal arm connected to the shouldered lever, and the gate opening and closing levers connected to the said arm to rock the shouldered lever to open the gate.

2. In a gate, the combination of the sliding gate, the lever carrying the open cross-head and connected to the gate, the weighted cords connected to the cross-head and having stops, and means for rocking the cross-head.

679,589.

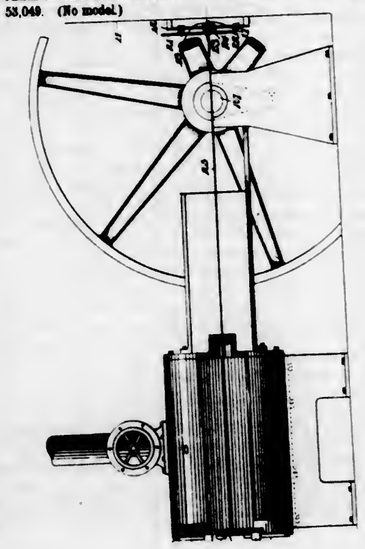


679,590. **LAMP-CHIMNEY.** JOHN L. BARKEY, Toronto, Canada. Filed Sept. 1, 1900. Serial No. 28,810. (No model.)



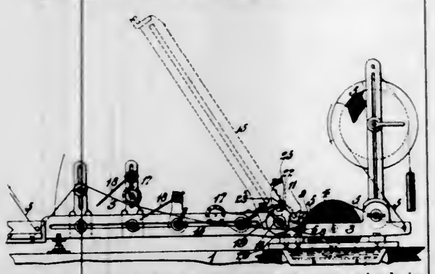
Claim.—A lamp-chimney embracing in its construction a base, a series of indented tapering recesses increasing in depth from their outer to their inner ends to form shoulders concentric with the lower edge of the base to receive the engaging shoulders of the burner-arms, and shoulders at their inner ends to engage the burner-arms to arrest the revolution of the chimney, substantially as specified.

679,591. **CENTERING DEVICE FOR LINING UP ENGINES.** JAMES M. BARNS, New Brighton, Pa. Filed Mar. 27, 1901. Serial No. 53,049. (No model.)



Claim.—In a device of the character described, the combination with a centering-line, of a spider or centering wheel comprising an annular ring, a series of arms made integral with the inner circumference of the said wheel and having spaces formed therebetween, the center of said wheel having an aperture formed therein adapted to receive the said centering-line, apertured clamps secured to the upper face of the said annular ring and in alinement with the said arms, straight arms circular in cross-section and of equal diameter throughout operating in said clamps, notched outer ends made integral with said arms, and set-screws in said clamps, substantially as described.

679,592. **ATTACHMENT FOR MACHINES FOR COVERING PAPER BOXES, LIDS, &c.** GUSTAV A. EISLER, Philadelphia, Pa. Filed Aug. 3, 1900. Serial No. 25,830. (No model.)



Claim.—1. In a machine for covering paper boxes, a tension device consisting of parallel outer and intermediate members 6, 7 and 8, continuations of said intermediate member 7 forming journals 10, bearings for said journals, one of said bearings being open at one side, a clamping device having a member 12 pendent from the free end thereof and extending into said bearing and engaging directly with said journal and the portion 11 carrying said member 12 having means for attachment of the clamping device and by means of which the pendent member 12 is caused to engage said journal under tension.

2. In a machine for covering paper boxes, a stationary frame, having one end thereof curved and provided with a recess, a movable arm mounted on said frame and provided with a recess, and a locking device mounted on said movable arm to engage in said recesses when the same are coincident.

3. In a machine for covering paper boxes, a stationary frame having the upper rounded portion 19 and the recess 20 therein, a movable arm mounted on said frame and having the recess 22, and a spring-catch mounted on said arm to engage both of said recesses when they are coincident.

4. In a machine for covering paper boxes, a stationary frame provided with a recess, a movable arm mounted upon said frame and provided with a recess, and a locking device having a right-angled portion bridging and adapted to enter said recesses.

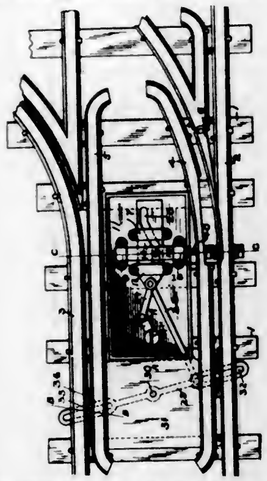
5. In a machine for covering paper boxes, a stationary frame having one arm thereof curved and provided with a recess, a movable arm mounted upon said frame and provided with a recess, and a locking device having a right-angled portion riding upon the curved portion of the stationary arm and adapted to enter said recesses.

6. In a machine for covering paper boxes, a stationary frame having one arm thereof curved and provided with a recess, a movable arm mounted upon said frame and provided with a recess, and a spring-arm secured at one end to said movable arm and provided with a detent disposed opposite the recess in the movable arm and bearing against the curved portion of the stationary arm to enter the recess in the latter when the movable arm is moved to bring the recesses in alinement.

7. In a machine for covering paper boxes, a table, a stationary frame, a movable arm mounted on said frame and extending over said table, a series of mechanism for guiding and manipulating a slip of paper carried by said arm, means for adjusting said arm and mechanisms whereby said table becomes accessible, and can be utilized, a flexible member on said arm and means carried thereby for automatically locking said arm and the mechanism carried thereby in their adjusted position.

679,593. **SWITCH THROWING AND LOCKING MECHANISM.** JOHN E. BISSETT, Anderson, Ind., assignor of one-half to Charles F. Wert, same place. Filed Aug. 30, 1900. Serial No. 28,498. (No model.)

Claim.—1. The combination with a main rail of a railway and a guard-rail beside it, of a switch-rail between them and movable into line with either of them, a movable transverse bar extending through all three of said rails, a spring on said bar on each side and acting against the switch-rail, the holes in said main rail and guard-rail being large enough to permit the movement of said transverse bar and the springs thereon through them, and means for actuating said transverse bar.



2. The combination with a railway switch-rail, of a transversely-movable bar connected therewith, a plate slidable at a right angle to the direction of movement of said bar for actuating said bar, a rotatable pin vertically mounted with the head exposed and slotted, a crank on said pin, and a bar pivotally connecting said crank and sliding plate.

3. The combination with the main rails of a railway, a guard-rail beside each of said main rails and a switch-rail, of a transversely-movable bar connected therewith, a plate slidable at a right angle to the direction of movement of said bar, a lever centrally pivoted and extending across the track beneath the main rails thereof longitudinally slotted at each end, sliding blocks between the main rails and the guard-rails, pins in said blocks operating in the slots in said lever, and a bar pivotally connecting said lever and sliding plate.

679,594. **MACHINE FOR MAKING PAPER TUBES.** HENRY W. BLOEMKER, Philadelphia, Pa. Filed Sept. 14, 1900. Serial No. 30,019. (No model.)

Claim.—1. In a paper-tube machine, a mandrel, a carriage situated on each side thereof, each carriage being provided with pulleys, and each of said carriages being provided with independently-adjustable means for moving the same independently of each other and longitudinally relative to said mandrel, and an endless belt trained around said pulleys and said mandrel.

2. In a paper-tube machine, a mandrel, carriages situated on opposite sides thereof, said carriages being provided with independent driving and tightening pulleys, and an endless belt trained around said driving and tightener pulleys and around said mandrel.

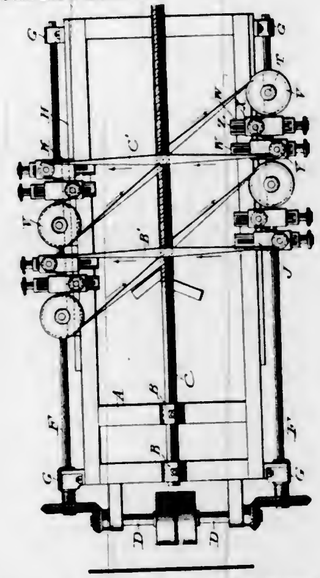
3. In a paper-tube machine, a mandrel, independently-movable carriages situated on opposite sides thereof, each of said carriages being provided with a driving-pulley and with a plurality of tightener-pulleys, and an endless belt trained around said driving and tightener pulleys and around said mandrel.

4. In a paper-tube machine, a mandrel, independent driving and tightener pulleys situated on opposite sides thereof, and an endless belt trained around said driving and tightenes pulleys and around said mandrel.

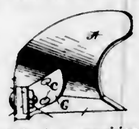
5. In a paper-tube machine, a frame, a mandrel supported thereon, driving-shafts at opposite sides of said frame, a carriage situated upon said frame on each side of said mandrel and having driving-pulleys geared to said shafts, each of said carriages being movable independently of the other and longitudinally relative to said mandrel, and an endless belt trained around said driving-pulleys and around said mandrel.

6. In a paper-tube machine, a frame, a mandrel supported thereon, driving-shafts at opposite sides of said frame, carriages mounted upon said frame and provided with driving-pulleys geared to said shafts, said carriages being independently longitudinally movable relative to the said mandrel and an endless belt trained around said driving-pulleys and said mandrel.

7. In a paper-tube machine, a mandrel, driving-pulleys situated on opposite sides thereof, adjustable tightener-polleys situated adjacent said driving-pulleys, and an endless belt trained around said driving and tightener polleys and around said mandrel.



679,595. **PLOW.** CHARLES A. BOLLINGER, Pleasant Valley, N. D. Filed Dec. 22, 1900. Serial No. 40,791. (No model.)

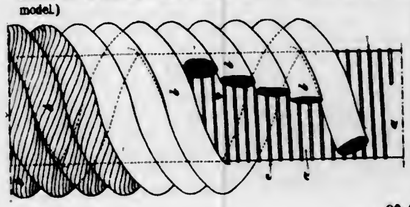


Claim.—1. A landside-plow comprising a share, a moldboard, a rearwardly-extending plate secured to said share and moldboard, a landside, and a T-shaped foot having the vertical portion extending between the landside and said plate, substantially as described.

2. A landside-plow comprising a share, a moldboard, a vertically-arranged rearwardly-extending plate carried by the share and moldboard, a foot secured to said plate and having a horizontal flange covering the lower edge of said vertical plate, a flange carried by the opposite side of said foot, and a landside resting on said flange, and detachably secured to the foot, substantially as described.

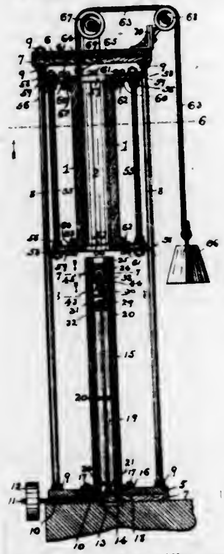
3. A landside-plow comprising a share, a moldboard, a rearwardly-extending vertical plate carried by the board and share and having its outer edge flush with the inner face of the rearwardly-extending portion of the share, a foot adjacent said plate, a flange carried by said foot and extending under the lower wall of said plate, a flange carried by the opposite side of said foot, a landside resting thereon flush with the outer edge, the thickness of the landside and the foot being equal to that of the rearwardly-extending portion of the share, bolts passing through the landside, foot and the plate, and nuts on said bolts, substantially as described.

679,596. **TIRE FOR WHEELED VEHICLES.** AURELIO BOSTICLIETTI, Paris, France. Filed July 1, 1901. Serial No. 66,723. (No model.)



Claim.—An improved tire for wheels of vehicles consisting of suitable textile filaments which have been treated to preserve them, plaited, twisted or otherwise, and wound in juxtaposed spirals around a central core of similar material, substantially as hereinbefore specified.

679,597. **APPARATUS FOR PROVIDING WOODEN SHELLS OR OTHER ARTICLES WITH LONGITUDINAL OPENINGS OR DUCTS OF POLYGONAL CROSS-SECTION.** WM. BROWN, Plainfield, N. J. Filed Sept. 6, 1900. Serial No. 29,184. (No model.)



Claim.—1. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having an angular cross-section, the combination, with the frame of the apparatus, and a vertical standard in said frame, of a movable cradle or support in which the shell or article to be cut is arranged, provided with an opening for permitting the movement of said cradle over and around said standard, and a cutting mechanism in said standard against which the shell or article in the cradle or support is brought, comprising circular saws arranged in pairs and operating in vertical planes at angles to each other, substantially as and for the purposes set forth.

2. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having an angular cross-section, the combination, with the frame of the apparatus, and a vertical standard in said frame, of a movable cradle or support in which the shell or article to be cut is arranged, provided with an opening for permitting the movement of said cradle over and around said standard, a gang of circular saws in said standard against which the shell or article in the cradle or support is brought, said saws being arranged in pairs and operating in planes at right angles to each other, and means for operating said cutters or saws, substantially as and for the purposes set forth.

3. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having an angular cross-section, the combination, with the frame of the apparatus and a vertical standard in said frame, of a movable cradle or support in which the shell or article to be cut is arranged, provided with an opening for permitting the movement of said cradle over and around said standard, a gang of circular saws in said standard against which the shell or article in the cradle or support is brought, said saws being arranged in pairs and operating in planes at right angles to each other, and means for operating said cutters or saws, consisting, essentially, of a vertical spindle, a main driving-shaft and gear mechanism connected therewith for driving said vertical spindle, and a second set of gears operated from said vertical spindle, for driving the said gang of saws, substantially as and for the purposes set forth.

4. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having an angular cross-section, the combination, with the frame of the apparatus, consisting, essentially, of a base and top, and connecting tie-rods, of a movable cradle or support in which the shell or article to be cut is arranged, consisting, of a base and a top piece, having central openings, connecting tie-rods between said base and

top pieces, and a guiding means connected with said base and top pieces of the cradle, in sliding engagement with the tie-rods of the main frame, a tubular standard upon the base of said frame of the apparatus over which the base and top pieces of said cradle or support can be made to reciprocate, and a cutting mechanism in said tubular standard against which the shell or article in the cradle or support is brought, comprising circular saws arranged in pairs and operating in vertical planes at angles to each other, substantially as and for the purposes set forth.

5. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having an angular cross-section, the combination, with the frame of the apparatus, consisting, essentially, of a base and top, and connecting tie-rods, of a movable cradle or support in which the shell or article to be cut is arranged, consisting, of a base and a top piece, having central openings, connecting tie-rods between said base and top pieces, and a guiding means connected with said base and top pieces of the cradle, in sliding engagement with the tie-rods of the main frame, a tubular standard upon the base of said frame of the apparatus over which the base and top pieces of said cradle or support can be made to reciprocate, a gang of circular saws in said tubular standard against which the shell or article in the cradle or support is brought, said saws being arranged in pairs and operating in planes at right angles to each other, and means for operating said cutters or saws, substantially as and for the purposes set forth.

6. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having an angular cross-section, the combination, with the frame of the apparatus, consisting, essentially, of a base and top, and connecting tie-rods, of a movable cradle or support in which the shell or article to be cut is arranged, consisting, of a base and a top piece, having central openings, connecting tie-rods between said base and top pieces, and a guiding means connected with said base and top pieces of the cradle, in sliding engagement with the tie-rods of the main frame, a tubular standard upon the base of said frame of the apparatus over which the base and top pieces of said cradle or support can be made to reciprocate, a gang of circular saws in said tubular standard against which the shell or article in the cradle or support is brought, said saws being arranged in pairs and operating in planes at right angles to each other, and means for operating said cutters or saws, consisting, essentially, of a vertical spindle, a main driving-shaft and gear mechanism connected therewith for driving said vertical spindle, and a second set of gears operated from said vertical spindle, for driving the gang of circular saws, substantially as and for the purposes set forth.

7. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, the combination, with the frame of the apparatus, of a movable cradle or support in which the shell or article to be cut is arranged, a tubular standard 15 in said frame of the apparatus, and a tubular section 24 on the upper portion of said tubular standard, said tubular standard and section having oppositely-arranged slots, and a gang of rotary cutters or saws in said tubular standard and said tubular section, having portions of the cutters or saws extending into and through said oppositely-arranged slots, against which the shell or article in the cradle or support is brought, substantially as and for the purposes set forth.

8. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, the combination, with the frame of the apparatus, of a movable cradle or support in which the shell or article to be cut is arranged, a tubular standard 15 in said frame of the apparatus, and a tubular section 24 on the upper portion of said tubular standard, said tubular standard and section having oppositely-arranged slots, bearing portions in said tubular standard and said tubular section, a vertical spindle in said bearing portions in said tubular standard, a main driving-shaft and gear mechanism connected therewith for driving said vertical spindle, a horizontal spindle in the upper portion of said tubular standard, means for operating the same from said vertical spindle, and a set of rotary cutters or saws on said horizontal spindle, a second set of spindles in the tubular section on said tubular standard, means for operating said second set of spindles, and a set of rotary cutters or saws on one of the spindles in the said tubular section, said cutters or saws having portions extending into and through said oppositely-placed slots arranged respectively in the said tubular standard and the tubular section on said standard, against which the shell or article in the cradle or support is brought, substantially as and for the purposes set forth.

9. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, consisting, essentially, of a base and a top, and connecting tie-rods, of a movable cradle or support in which the shell or article to be cut is arranged, a tubular standard on said base of the apparatus over which said cradle or support can be made to reciprocate, and said standard being provided with oppositely-placed slots, and a cutting mechanism in said tubular standard against which the shell or article in the cradle is brought, comprising circular saws arranged in pairs and operating in vertical planes at angles to each other and said saws working in said slots of the standard, substantially as and for the purposes set forth.

10. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, consisting, essentially, of a base and a top, and connecting tie-rods, of a movable cradle or support in which the shell or article to be cut is arranged, a tubular standard on said base of the apparatus over which said cradle or support can be made to reciprocate, and said standards being provided with oppositely-placed slots, a gang of circular saws in said tubular standard against which the shell or article in the cradle or support is brought, said saws being arranged in pairs and operating in planes at right angles to each other and said saws working in said slots of the standard, substantially as and for the purposes set forth.

11. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, consisting, essentially, of a base and a top, and connecting tie-rods, of a movable cradle or support in which the shell or article to be cut is arranged, a tubular standard on said base of the apparatus over which said cradle or support can be made to reciprocate, and said standard being provided with oppositely-placed slots, a gang of circular saws in said tubular standard against which the shell or article in the cradle is brought, said saws being arranged in pairs and operating in planes at right angles to each other and said saws working in said slots of the standard, consisting, essentially, of a vertical spindle, a main driving-shaft and gear mechanism connected therewith for driving said vertical spindle, and a second set of gears operated from said vertical spindle, for driving the gang of circular saws, substantially as and for the purposes set forth.

12. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, consisting, essentially, of a base and a top, and connecting tie-rods, of a cradle, or support in which the shell or article to be cut is arranged, movably arranged between said base and top and said tie-rods, a tubular standard 15 on said base of the apparatus, and a tubular section 24 on the upper portion of said tubular standard, said tubular standard and section having oppositely-arranged slots, and a gang of rotary cutters or saws in said tubular standard and said tubular section, having portions of the cutters or saws extending into and through said oppositely-arranged slots, against which the shell or article in the cradle or support is brought, substantially as and for the purposes set forth.

13. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, consisting, essentially, of a base and a top, and connecting tie-rods, of a cradle or support in which the shell or article to be cut is arranged, movably arranged between said base and top and said tie-rods, a tubular standard 15 on said base of the apparatus, and a tubular section 24 on the upper portion of said tubular standard, said tubular standard and section having oppositely-arranged slots, bearing portions in said tubular standard and said tubular section, a vertical spindle in said bearing portions in the tubular standard, a main driving-shaft and gear mechanism connected therewith for driving said vertical spindle, means for operating the same from said vertical spindle, a second set of spindles in the tubular section on said tubular standard, means for operating said second set of spindles, and a set of rotary cutters or saws on one of the spindles in the said tubular section, said cutters or saws having portions extending into and through said oppositely-placed slots arranged respectively in said tubular standard and the tubular section on said standard, against which the shell or article in the cradle or support is brought, substantially as and for the purposes set forth.

14. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, the combination, with the frame of the apparatus, and a movable cradle or support in which the shell or article to be cut is arranged, of a tubular standard in said frame of the apparatus provided with oppositely-placed openings forming bearings, having oppositely-placed slots, a horizontal spindle 28, screw-bolts at the ends of said horizontal spindle having their heads rotatively arranged in said bearing portions, rotary cutters or saws on said horizontal spindle, having portions thereof extending into and through said oppositely-placed slots, and means connected with said horizontal spindle for causing a rotary motion of the same, substantially as and for the purposes set forth.

15. In an apparatus for providing a wooden shell or other article with a longitudinal opening or duct having a polygonal cross-section, the combination, with the frame of the apparatus, and a movable cradle or support in which the shell or article to be cut is arranged, of a tubular standard in said frame of the apparatus provided with oppositely-placed openings forming bearings, and having oppositely-placed slots, a horizontal spindle 28, screw-bolts at the ends of said horizontal spindle having their heads rotatively arranged in said bearing portions, rotary cutters or saws on said horizontal spindle, having portions thereof extending into and through said oppositely-placed slots, and a gang of rotary cutters or saws in said tubular standard and said tubular section, having portions of the cutters or saws extending into and through said oppositely-arranged slots, against which the shell or article in the cradle or support is brought, substantially as and for the purposes set forth.

saws on said horizontal spindle, having portions thereof extending into and through said oppositely-placed slots, and means connected with said horizontal spindle for causing a rotary motion of the same, consisting, essentially, of a vertical spindle in said tubular standard, a main driving-shaft and gear mechanism connected therewith for driving said vertical spindle, a gear 21 upon the upper end of said vertical spindle, and a gear 29 on said horizontal spindle in mesh with said gear 21, substantially as and for the purposes set forth.

679,598. **PAPER-STAPLER.** DANTON O. BRUNNER, Somerset, Ohio, assignor of one-half to Elisha Peebles Clayton, same place. Filed Oct. 27, 1900. Serial No. 34,615. (No model.)



Claim.—1. In a stapling device, a box-body provided with a chamber having guides for staples and an outlet for the foremost staple, handle members pivotally attached to the box-body, which handle members cross each other and extend respectively at their forward ends above and below the box-body, a plunger pivotally connected with the upper extension of a handle member, which plunger is adapted to enter the chamber in the box-body at its forward portion and engage with a staple, a spring-support for the forward staple independent of the support for the rearwardly-following staples, a feed device for the staples located within said box-body, a table or anvil carried by the forward portion of the lower extension of a handle, which table or anvil is located below the outlet in the box-body and is adapted to move toward the box-body simultaneously with the entrance of the plunger into the said box-body, and means, substantially as described, for holding the box-body in substantially a horizontal position while the handle members are being operated.

2. In a stapler, the combination, with a box-body provided with longitudinal partitions parallel with its sides and extending from the bottom to a point near the top, the spaces between the partitions and sides of the box-body and the top of the partitions and top of the box-body being adapted to receive staples supported by the partitions, the partitions terminating short of the forward end of the box-body, a spring interiorly located in the box-body at its forward end, a follower arranged to travel on the said partitions and having an upward extension, a mainspring having bearing against the back of the follower and against a wall of the box-body, and a sliding cover for the box-body, having a slot therein through which the extension of the follower is passed, of handle members crossing each other and having their forward portions bifurcated and pivotally connected to the sides of the box-body, guides for the box-body carried by the forward members of the handles, which handles respectively extend above and below the box-body, a plunger pivotally attached to the upper extensions of the handle members, which plunger is arranged to enter the box-body at a point near the front, at which point an outlet is made in the bottom of said box-body, and a table or anvil carried by the lower extensions of a handle member, which table or anvil is located below the forward outlet in the box-body, for the purpose set forth.

679,599. **MANUFACTURE OF ETCHED METAL RULES.** JOHN CAMPBELL, Matteawan, N. Y., assignor of three-fourths to Emory Lakin Tompkins, Fishkill Landing, N. Y. Filed Oct. 9, 1900. Serial No. 32,513. (No model.)



Claim.—1. A transfer-strip for forming etched metal rules, having a plurality of transversely-alined graduations, formed of acid-resisting transfer-ink, as set forth.

2. A transfer-strip for forming etched metal rules having a plurality of graduations arranged one alongside the other lengthwise of the strip, the like graduation-marks of the several graduations being in transverse alinement with each other and formed of acid-resisting transfer-ink, as set forth.

3. A transfer-strip for forming etched metal rules, consisting of a strip of paper of a size to envelop the blank from which the rule is to be made, said strip having a plurality of graduations arranged one alongside the other lengthwise of the strip, the like graduation-marks of the several graduations being in transverse alinement with each other and formed of acid-resisting transfer-ink, as set forth.

679,600. **CULTURE OF BACTERIA.** ALBERT CARON, Hans Ellenbach, Germany, assignor to the Farbenfabriken of Elberfeld Co., of New York. Filed Oct. 26, 1897. Serial No. 656,404. (No specimens.)

Claim.—1. The process of cultivating aerob bacteria which consists in first crumbling boiled potatoes; secondly, filling the granular medium thus obtained into sterilized receptacles; thirdly, inoculating it in the usual manner with pure cultivations of aerob bacteria, and fourthly, placing the thus-inoculated medium in a culture-chamber to develop, substantially as described.

2. The process of cultivating bacteria which consists in first crumbling boiled potatoes; secondly, filling the granular medium thus obtained into sterilized receptacles; thirdly, inoculating it in the usual manner with pure cultivations of the *Bacillus ellenbachensis alpha;* and fourthly, placing the thus-inoculated medium in a culture-chamber to develop, substantially as described.

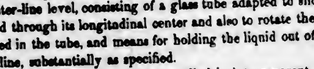
3. As a new article of commerce, cooked potatoes in a granular condition, permeated by the *Bacillus ellenbachensis alpha*, and its spores.

679,601. **PROCESS OF FERTILIZING AGRICULTURAL CROPS.** ALBERT CARON, Hans Ellenbach, Germany, assignor to the Farbenfabriken of Elberfeld Co., of New York. Filed Oct. 26, 1897. Serial No. 656,405. (No specimens.)

Claim.—1. The process for inoculating soil to be fertilized for any agricultural crop consisting in mixing the soil with cultivations of the *Bacillus ellenbachensis alpha*, substantially as described.

2. The process of inoculating soil to be fertilized for any agricultural crop consisting in suspending cultivations of the *Bacillus ellenbachensis alpha* in water, mixing the thus-obtained liquid with the seed-grain and sowing the seed-grain into the soil, substantially as described.

679,602. **CENTER-LINE LEVEL.** BARTLETT B. CHANDLER, Jr., Nevada City, Cal. Filed Dec. 26, 1900. Serial No. 41,070. (No model.)

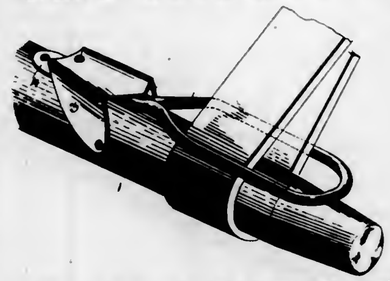


Claim.—1. A center-line level, comprising a glass tube closed at its ends, a liquid in the tube, and a tube extended axially through the first-named tube and through which a line may pass, substantially as specified.

2. A center-line level, consisting of a glass tube adapted to slide on a line extended through its longitudinal center and also to rotate thereon, a liquid inclosed in the tube, and means for holding the liquid out of contact with the line, substantially as specified.

3. A center-line level, comprising a cylindrical transparent tube, closed at its ends, mercury in the transparent tube, and a tube extended axially through the transparent tube, substantially as specified.

679,603. **NECK-YOKE ATTACHMENT.** THOMAS J. CHAPPELL, Grovelake, Minn. Filed Dec. 10, 1900. Serial No. 39,270. (No model.)



Claim.—1. The combination with a neck-yoke; of an attachment located on one side thereof and having a free pivotal movement on the yoke, said movement being in a lateral direction, said attachment preventing a movement of a breast-strap longitudinally of the yoke.

2. The combination with a neck-yoke; of a loop located on one side thereof, said loop having a limited free pivotal movement laterally of the yoke, said loop preventing a movement of a breast-strap longitudinally of the yoke.

3. The combination with a neck-yoke; of a keeper carried thereby, said keeper having stops; and a loop pivotally connected to said yoke and having a free pivotal movement between said stops, said loop being adapted to resist a movement of a breast-strap passed therethrough longitudinally of the yoke.

679,604. APPARATUS FOR COOKING COTTON-SEED MEATS. WALTER H. COOK, New Orleans, La. Filed Mar. 7, 1901. Serial No. 50,251. (No model.)



Claim.—1. In an apparatus for cooking cotton-seed, a plurality of superposed chambers communicating directly with each other, means for agitating the material while in said chambers and for causing its descent from an upper to a lower chamber, and a conveyer operable independently of the agitating means for carrying the matter from a lower to an upper chamber.

2. In an apparatus for cooking cotton-seed, a plurality of superposed communicating chambers, means for agitating material in said chambers, means independent of the agitating means for carrying the material from one chamber to another, and means for creating a vacuum in said chambers.

3. In an apparatus for cooking cotton-seed, a plurality of superposed communicating chambers, means for agitating the material in said chambers, and a conveyer supported independently of the agitating means to conduct the material from one chamber to another, said conveyer being located outside said chambers.

4. In an apparatus for cooking cotton-seed, a plurality of superposed communicating compartments, means for agitating the material in said compartments, a screw conveyer, and a casing for said conveyer having openings communicating with at least two of said compartments.

5. In an apparatus for cooking cotton-seed, a plurality of communicating compartments, agitating means for the material, in the respective compartments, a conveyer to conduct material from one compartment to another and crushing means to receive the material from said conveyer.

6. In an apparatus for cooking cotton-seed, a vacuum-casing containing a plurality of superposed communicating compartments, means for agitating the material while in said compartments, and means for conveying the material from the lowest to the highest compartment.

7. In an apparatus for cooking cotton-seed, a plurality of superposed communicating compartments, means for agitating the material while in said compartments, and a conveyer supported outside said compartments for conducting material from one to another.

8. In an apparatus for cooking cotton-seed, a plurality of superposed compartments the bottoms of which are slotted and the slots being arranged in alternation, means for maintaining a vacuum in said compartments, a vertical shaft projecting through said bottoms having agitating-arms, a conveyer parallel with said shaft for conducting material from the lowest to the highest compartment, and seed-crushing means in the upper compartment.

9. In an apparatus for cooking cotton-seed, a plurality of steam-heated, vacuum-compartments, means for agitating the material in said compartments, and means independent of the agitating means for conducting the material from one compartment to another.

10. In an apparatus for cooking cotton-seed, a casing having a plurality of partitions dividing the same into compartments, said partitions having openings for the passage of material from one compartment to another, a shaft extending through said partitions, agitating devices connected to said shaft, an exhaust-pipe connected to one of the compartments, and a conveyer to conduct the material from the lowermost to the uppermost compartments.

11. In an apparatus for cooking cotton-seed, a casing having a plurality of partitions dividing the same into compartments, said partitions having openings for the passage of material from one compartment to another, a shaft extending through said partitions, agitating devices connected to said shaft, an exhaust-pipe connected to one of the compartments, a conveyer to conduct the material from the lowermost to the uppermost compartments, and crushing-rolls in the uppermost compartment to receive the material from said conveyer.

12. In an apparatus for cooking cotton-seed, a plurality of communicating steam-heated vacuum-compartments, means for agitating the material in the respective compartments, means to convey the material from the last to the first compartment, the said last compartment having a discharge-opening, and a receiver for the material adjacent said discharge-opening.

679,605. CAN-OPENER. TRUMAN A. DARLING, Anaheim, Cal. Filed Jan. 9, 1901. Serial No. 42,632. (No model.)



Claim.—1. A can-opener, comprising a support, hinged jaws adapted to engage a can, a lever connected with the jaws for actuating the same, and a cutting device mounted over the jaws and arranged to engage the upper end of the can to cut the same.

2. A can-opener, comprising a support, hingedly-mounted arms carried thereby and provided at their upper end with jaws adapted to engage a can, a rock-shaft, a lever mounted on said shaft and having its ends respectively in connection with the arms, and cutting devices arranged over the arms to engage the upper end of the can.

3. A can-opener, comprising a support, arms hingedly mounted thereon, a rock-shaft having connection with the arms to operate the same, a handle attached to the shaft, a pawl carried by the handle, a ratchet fastened on the support and engaged by the pawl, and cutting devices mounted over the arms to work with the upper end of the can.

4. A can-opener, comprising a support with means for holding a can, a revolable bar having annular teeth thereon, a knife carried by the bar to engage the can, and a pinion engaging the teeth of the bar, whereby to raise or lower the bar.

5. A can-opener, comprising a support with means for holding a can, a revoluble bar having annular teeth thereon, and provided with a point at its lower end to engage the center of the head of a can, an arm carried by the bar near its lower end, a knife at the end of the arm, and a pinion engaging the teeth of the bar.

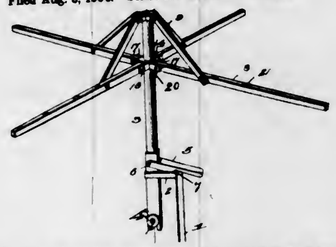
6. In a can-opener, the combination of a support, with means for holding a can, a frame erected on the support, a vertically-disposed sleeve sustained on the frame, a bar movable vertically in the support and revoluble thereon and formed with annular teeth thereon, a revoluble shaft supported by the frame, a pinion mounted on the shaft and engaging the teeth of the bar, and a pawl for holding the pinion stationary.

7. A can-opener, having a support with means for holding a can, a revoluble bar formed with annular teeth and provided with a handle at its upper end, and having a point at its lower end to engage a can, an arm carried by the bar near its lower end and provided with a knife, a shaft mounted to turn and provided with a pinion engaging the teeth of said bar, to raise and lower the bar, and means for holding the pinion stationary.

8. A can-opener, comprising a standard, a platform supported on said standard, jaws adapted to engage opposite sides of a can and provided with arms extending through openings in the said platform and pivoted at their lower ends on opposite sides of the standard, a spring extending through an opening in the standard and engaging said arms to press the jaws apart, a shaft mounted to turn in the standard below the platform, a lever carried by said shaft, links connected to the said arms and to the lever, a handle connected with said shaft, means for holding the handle in the desired position, and a cutting device for engaging the upper end of the can.

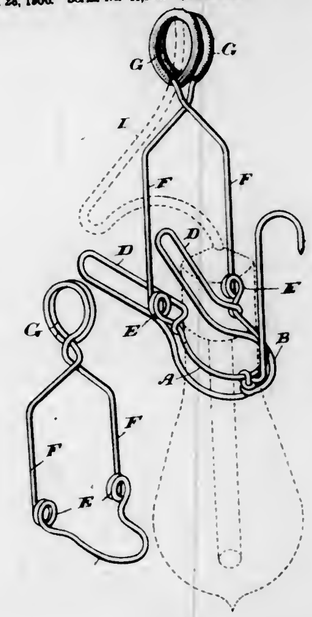
9. A can-opener, comprising a support having a platform for the can, means for holding the can in position on the platform, an arch-shaped framing erected on the platform and having a transverse arm carrying a vertically-disposed sleeve at its outer end, a bar movable vertically in the said sleeve and mounted to turn therein, the said bar being formed with a series of annular teeth, a revoluble shaft mounted in the framing, a handle connected with the said shaft, a pinion carried by said shaft, the teeth of the pinion extending through an opening in the said sleeve and engaging the teeth of the said bar, means for holding the pinion stationary, and a cutting device carried by the said bar.

679,606. CLOTHES-DRIER. JAMES W. DAVIS, Traverse City, Mich. Filed Aug. 8, 1900. Serial No. 26,301. (No model.)



Claim.—A clothes-drier comprising a standard having a laterally-projecting pin, a keeper secured to the standard a post extending through the keeper and having a bifurcated lower end fitting over the pin, radial arms projecting from the post and a catch-lever pivoted to the post and having a shoulder adapted to engage the keeper.

679,607. SUPPORT AND TAKE-UP DEVICE FOR CABLE-SUSPENDED ELECTRIC LAMPS. JOHN H. DORION, Springfield, Mass. Filed Dec. 28, 1900. Serial No. 41,375. (No model.)



Claim.—1. In a device of the class described, a holder or clasp for a detachable, encircling engagement about the shank of an electric-lamp socket, legs merging from the said encircling member, and clamping-jaws extending over the same, substantially as described.

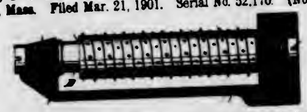
2. In a device for suspending and supporting an electric lamp, a clasp for engaging with the socket of the lamp which is formed from intermediate portions of two separate lengths of wire, one length constituting in addition to the upper portion of the socket-clasp also the clamping-jaws for the cable, and the other length forming in addition to the lower portion of the socket-clasp, also the approximately radially extended legs which together with the said jaws constitute a lamp-supporting stand.

3. A device for the purpose set forth composed of the single length of wire, an intermediate portion of which is bent into bowed form, adapting it to encircle the shank of the lamp, and having its end portions extended upwardly right angularly to the plane occupied by the intermediate portion, the extremities of said end portions being crossed and having widened members arranged in planes at right angles to that of the said end portions.

4. A device for the purpose set forth consisting of the single length of wire, an intermediate portion of which is bent into bowed form adapting it to encircle the shank of the lamp, and having its end portions extended upwardly right angularly to the plane of the intermediate portion, and provided at about the junction of said upwardly-extended members with the spring-coils, the extremities of said end portions being crossed and having widened members arranged in planes at right angles to that of the end portions, substantially as described.

5. A device for the purpose set forth consisting of the single length of wire, an intermediate portion of which is bent into bowed form adapting it to encircle the shank of the lamp, and having its end portions F F extended upwardly right angularly to the plane of the intermediate portion, the extremities of said end portions being crossed and formed into eyes arranged for facewise abutment, in planes at right angles to that of the said end portions F, substantially as described.

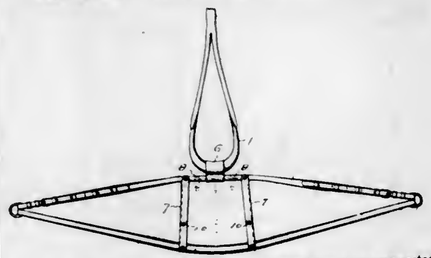
679,608. LOOM TEMPLE-ROLL. FRANK O. DUFFY, New Bedford, Mass. Filed Mar. 21, 1901. Serial No. 52,170. (No model.)



Claim.—1. A loom temple-roll having a body, and cloth-engaging devices thereon, the body being held at one end against lateral movement, and arranged to yield laterally from the fixed end in the direction of the length of the roll and widthwise of the cloth, as set forth.

2. A loom temple-roll having a body formed of a spiral spring held against movement at one end, and cloth-engaging devices on the peripheral surface of said spiral spring, and adapted to engage the cloth, so that a pull exerted by the latter on said devices, causes the convolutions of the spring to open, as set forth.

679,609. BREECHING. ERASTUS R. ECKER, St. Georges, Del. Filed Feb. 16, 1901. Serial No. 47,546. (No model.)



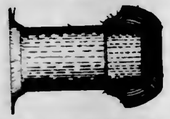
Claim.—1. A harness-breeching consisting of two straps connected at their ends, one strap being attached to the rear end of the crupper and the other depending below, whereby one strap, when the breeching is in use, passes above the protuberant portions of the buttocks, and the other strap passes just below the protuberant portions of the buttocks, substantially as specified.

2. A harness-breeching consisting of two straps connected at their ends, one strap being attached to the rear end of the crupper and the other depending below, whereby one strap, when the breeching is in use,

passes above the protuberant portions of the buttocks and the other strap passes just below the protuberant portions of the buttocks, and stays connected with and holding the straps separated, substantially as specified.

3. A harness-breeching consisting of two straps connected at their ends, one strap being attached to the rear end of the crupper and the other depending below, whereby one strap, when the breeching is in use, passes above the protuberant portions of the buttocks and the other strap passes just below the protuberant portions of the buttocks, stays connected with and holding the straps separated, and an apron covering the openings between the stays and the straps, substantially as specified.

679,610. **SELF-RIGHTING RECEPTACLE FOR TOOTHPICKS, MATCHES, &c.** WILLIAM A. BOKERT, Buffalo, N. Y. Filed Aug. 16, 1900. Serial No. 27,049. (No model.)



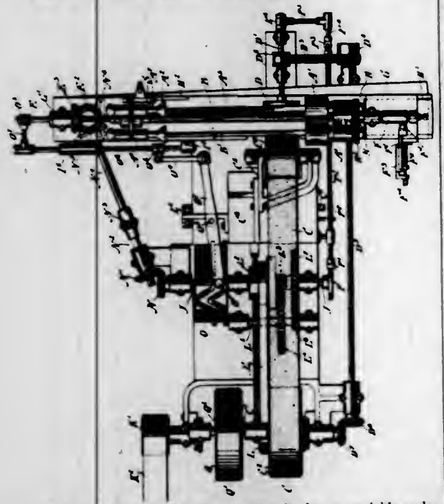
Claim.—1. A self-righting receptacle for matches and like articles, comprising a body having an enlarged weighted lower portion, an upper cylindrical portion to receive the matches or like articles and a top flange.

2. A self-righting receptacle for matches and like articles, comprising a body having an enlarged lower portion, an upper cylindrical portion, a top flange, a weight in the lower portion and a cup above said weight; said cup rigidly holding the weight in place and also forming the bottom for supporting the articles.

3. A self-righting receptacle for matches and like articles, comprising a body having an enlarged lower portion provided with a bottom formed with a raised part, a reduced cylindrical upper portion and a top flange, a weight having a depression fitting over the raised part in the bottom of the lower portion, and a cup above the weight of substantially the same circumference as the cylindrical upper portion having a top flange; the body being turned upon the flange of the cup to secure the same in place, substantially as set forth.

4. A self-righting receptacle for matches and like articles, comprising a body having an enlarged lower portion, an upper cylindrical portion, having an open mouth and a top flange, a weight in the lower portion and a cup above said weight; said cup rigidly holding the cup in place and also forming in connection with the upper cylindrical portion the article-holding compartment and the bottom of the cup supporting the articles.

679,611. **SPOKE-FINISHING MACHINE.** GEORGE A. EMMES, Defiance, Ohio, assignor to The Defiance Machine Works, same place. Filed Apr. 11, 1901. Serial No. 55,313. (No model.)



Claim.—1. A spoke-finishing machine having a revoluble spoke-holder for removably holding a plurality of spokes, means for finishing the throat of one of the spokes, and means for finishing the face of another of the spokes, as set forth.

2. A spoke-finishing machine having a revoluble spoke-holder for removably holding a plurality of spokes, a sand-band for engaging one of the spokes and finishing the throat thereof, and a facing-surface engaging another of the spokes to finish the face thereof, as set forth.

3. A spoke-finishing machine having an intermittently-revoluble spoke-holder provided with revoluble spoke-sockets for holding and revolving spokes, a sand-band for engaging and finishing the throat of one of the spokes, and a revoluble sand-wheel for finishing the face of another of the spokes, as set forth.

4. A spoke-finishing machine having an intermittently-revoluble spoke-holder provided with revoluble spoke-sockets for holding and revolving spokes, a sand-band for engaging and finishing the throat of one of the spokes, a revoluble sand-wheel for finishing the face of another of the spokes, and a manually-controlled locking device for holding the spoke-holder against rotation while the sand-band and sand-wheel are in engagement with the spoke and finishing the throat and face thereof, as set forth.

5. A spoke-finishing machine having an intermittently-revoluble spoke-holder provided with revoluble spoke-sockets for engaging and revolving spokes, a sand-band for engaging and finishing the throat of one of the spokes, a revoluble sand-wheel for finishing the face of another of the spokes, a manually-controlled locking device for holding the spoke-holder against rotation while the sand-band and sand-wheel are in engagement with the spoke and finishing the throat and face thereof, and means for bodily sliding and swinging the spoke-holder and rotating the spoke-sockets, as set forth.

6. A spoke-finishing machine having a spoke-holder provided with revoluble sockets for the tenons and butts of the spokes, a sliding and revoluble shaft on which the spoke-holder is mounted to move endwise therewith and adapted to be turned by hand, a gearing between said shaft and the revoluble sockets for the tenons, and means for imparting a sliding motion to the said shaft, as set forth.

7. A spoke-finishing machine having a spoke-holder provided with revoluble sockets for the tenons and butts of the spokes, a sliding and revoluble shaft on which the spoke-holder is mounted to move endwise therewith and adapted to be turned by hand, a gearing between said shaft and the revoluble sockets for the tenons, means for imparting a longitudinal sliding motion to the said shaft, and means for allowing the shaft to move laterally, as set forth.

8. A spoke-finishing machine having a spoke-holder provided with revoluble sockets for the tenons and butts of the spokes, a sliding and revoluble shaft on which the spoke-holder is mounted to move endwise therewith and adapted to be turned by hand, a gearing between said shaft and the removable sockets for the tenons, a pattern secured on said shaft, a stop engaged by said pattern, means for imparting a longitudinal sliding motion to said thaft, and means for allowing the shaft to swing laterally, as set forth.

9. A spoke-finishing machine, comprising a swinging plate, a revoluble shaft mounted to turn in bearings carried by said plate, one of the bearings being movable lengthwise of the plate, a spoke-holder mounted to turn loosely on said shaft, and carrying sets of tenon-holding sockets and butt-sockets, a gearing connecting the shaft with a set of said sockets, a pattern secured on the end of the said shaft which is mounted in the movable bearing, and a stop on which the pattern abuts, as set forth.

10. A spoke-finishing machine, comprising a swinging plate, a revoluble shaft mounted to turn in bearings carried by said plate, one of the bearings being movable lengthwise of the plate, a spoke-holder mounted to turn loosely on said shaft, and carrying sets of tenon-holding sockets and butt-sockets, a gearing connecting the shaft with a set of said sockets, a pattern secured on the end of the said shaft which is mounted in the movable bearing, a stop on which the pattern abuts, and means for imparting a sliding motion to said shaft, as set forth.

11. A spoke-finishing machine having a spoke-holder provided with revoluble spoke-sockets, and a sand-wheel mounted to turn and adapted to move bodily toward or from a spoke in said sockets, to finish the face of the spoke, as set forth.

12. A spoke-finishing machine having a spoke-holder provided with revoluble spoke-sockets, a sand-wheel mounted to turn and adapted to move bodily toward or from a spoke in said sockets, to finish the face of the spoke, and means, substantially as described, for rotating the spoke-sockets in unison with the bodily movement of said wheel, as set forth.

13. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, and means engaged by said pattern, for imparting a swinging motion to the plate, as set forth.

14. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, means engaged by said pattern, for imparting a swinging motion to the plate, and a gearing connecting said shaft with the spoke-holding devices of the spoke-holder, to rotate the spokes, as set forth.

15. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft mounted in bearings on the swinging plate, one of the bearings being movable, said shaft being geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on the end of the said spoke-holder shaft which is mounted in the movable bearing, means engaged by said pattern, for imparting a swinging motion to the plate, and a gearing connecting the said shaft with the spoke-holding devices of the spoke-holder, to rotate the spokes, as set forth.

16. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, means engaged by said pattern for imparting a swinging motion to the plate, and a locking device on said plate and engaging the spoke-holder for temporarily locking the same against rotation, as set forth.

17. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, means engaged by said pattern, for imparting a swinging motion to the plate, a locking device on said plate, for temporarily locking the spoke-holder against rotation, the locking device comprising a notched disk on the spoke-holder, and a spring-pressed catch fulcrumed on said plate and adapted to engage the notches in said disk, as set forth.

18. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, means engaged by said pattern, for imparting a swinging motion to the plate, bearings for said spoke-holder shaft to turn in, one of the bearings being mounted to slide on the plate in the direction of the length of the spoke-holder shaft, and means connected with said spoke-holder shaft, to slide the same bodily in the direction of its length, as set forth.

19. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, means engaged by said pattern, for imparting a swinging motion to the plate, bearings for said spoke-holder shaft to turn in, one of the bearings being mounted to slide on the plate in the direction of the length of the spoke-holder shaft, means connected with said spoke-holder shaft, to slide the same bodily in the direction of its length, a sand-band for finishing the throat of a spoke in said spoke-holder, and an abrading device movable toward and from another spoke in said spoke-holder, to finish the face of the spoke, as set forth.

20. A spoke-finishing machine having a bed, a driven shaft mounted to turn on said bed, a plate mounted to swing on said bed with said shaft as the fulcrum, a spoke-holder shaft geared with and driven from said driven shaft, a spoke-holder mounted on said spoke-holder shaft, a pattern on said spoke-holder shaft, means engaged by said pattern, for imparting a swinging motion to the plate, bearings for said spoke-holder shaft to turn in, one of the bearings being mounted to slide on the plate in the direction of the length of the spoke-holder shaft, means connected with said spoke-holder shaft, to slide the same bodily in the direction of its length, a sand-band for finishing the throat of a spoke in said spoke-holder, an abrading device movable toward and from another spoke in said spoke-holder, to finish the face of the spoke, and means substantially as described, for imparting a sliding motion to said driven shaft in unison with the movement of said abrading device, as set forth.

21. A spoke-finishing machine having a spoke-holder carrying sockets, a spoke-holder shaft for carrying said spoke-holder, a gearing for revolving said sockets from said shaft, a cam-shaft having a continuous rotary motion, a gearing connecting said cam-shaft with said spoke-holder shaft, a cam-wheel on said cam-shaft, and a connection between said cam-wheel and said spoke-holder shaft, for imparting a sliding motion to the latter, as set forth.

22. A spoke-finishing machine having a spoke-holder carrying sockets, a spoke-holder shaft for carrying said spoke-holder, a gearing for revolving said sockets from said shaft, a cam-shaft having a continuous rotary motion, a gearing connecting said cam-shaft with said spoke-holder shaft, a cam-wheel on said cam-shaft, and a connection between said cam-wheel and said spoke-holder shaft, for imparting a sliding motion to the latter, said connection comprising a lever engaging the cam-wheel, a rod mounted to slide, a link connecting said lever with said rod, and a shifting device on said rod and engaging said spoke-holder shaft, as set forth.

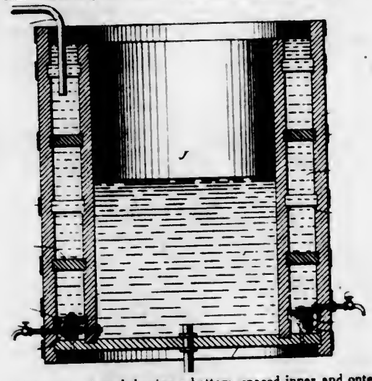
23. A spoke-finishing machine having a spoke-holder carrying sockets, a spoke-holder shaft for carrying said spoke-holder, a gearing for revolving said sockets from said shaft, a cam-shaft having a continuous rotary motion, a gearing connecting said cam-shaft with said spoke-holder shaft, a cam-wheel on said cam-shaft, a connection between said cam-wheel and said spoke-holder shaft, for imparting a sliding motion to the latter, a sand-wheel mounted to turn and to slide bodily, and a connection between said sand-wheel and said cam-shaft, for imparting a sliding motion to said sand-wheel, as set forth.

24. A spoke-finishing machine having a sand-band, a bed provided with a head mounted to swing on the bed, a spoke-holder supported on said head, and an adjusting and locking device for locking said head to said bed after adjusting the head to bring the spoke-holder into the desired angular position relatively to said sand-band, as set forth.

25. A spoke-finishing machine having a sand-band, a bed provided with a head mounted to swing on the bed, a spoke-holder supported on said head, an adjusting and locking device for locking said head to said bed after adjusting the head to bring the spoke-holder into the desired angular position relatively to said sand-band, and means for bodily adjusting said head and said adjusting and locking device transversely, to move the spoke-holder bodily toward or from the sand-band, as set forth.

26. In a spoke-finishing machine, a revoluble shaft, a sleeve mounted on the shaft, and provided with spaced heads, shafts mounted in one of the heads and carrying tenon-sockets, gearing between the tenon-socket shafts and the revoluble shaft, and spindles mounted in the other head and carrying butt-sockets, as set forth.

679,612. **WATER-TANK.** EDWIN F. EVANS, Fredericksburg, Tex. Filed May 14, 1901. Serial No. 60,155. (No model.)



Claim.—1. A tank having a bottom, spaced inner and outer walls of which the outer wall projects upwardly beyond the inner wall, and apertured rings located in the chamber between said two walls.

2. A tank having a bottom, spaced inner and outer walls, and superposed rings located in the chamber between the two walls and provided with apertures arranged out of registry.

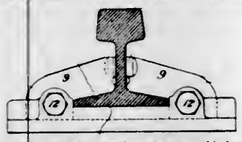
3. A tank having a bottom, spaced inner and outer walls, superposed apertured rings located in the chamber between the two walls and an inlet-pipe leading into said chamber through the uppermost ring.

4. A tank having a bottom, spaced inner and outer walls, and superposed rings located in the chamber between the two walls and consisting of spaced segmental pieces.

5. A tank having a bottom, spaced inner and outer walls rising from the bottom, and a ring located at the bottom of the chamber between the two walls, said ring being cut at its periphery upon its lower surface to form an annular channel adjacent to the joint of the bottom with the outer wall, and having openings leading upward from said channel.

6. A tank having a bottom, spaced inner and outer walls rising from the bottom, and a ring located at the bottom of the chamber between the two walls, said ring consisting of segmental blocks chamfered at their peripheries upon their lower surface to form an annular channel adjacent to the joint of the bottom with the outer wall, said blocks having registering grooves in their contiguous edges, forming openings leading upward from said channel.

679,613. RAIL-JOINT. WILLIAM J. EVANS, Pittsburg, Pa. Filed Feb. 20, 1901. Serial No. 48,200. (No model.)



Claim.—1. A rail-joint bearing-plate provided with a recessed seat for the rail ends and having transverse recesses for retaining-clamps, and longitudinal bolts passing through the plate and clamps and securing them together, substantially as set forth.

2. A rail-joint bearing-plate provided with a recessed seat for the rail ends, transverse recesses, holding-clamps therein, and longitudinal bolts passing through the plate and clamps and securing them together, substantially as set forth.

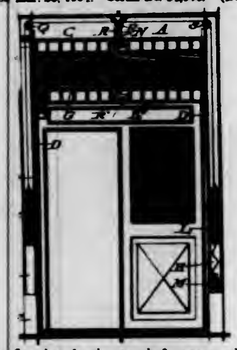
3. In combination, a rail-joint bearing-plate provided with a longitudinal recessed seat for the rails, transverse recesses, holding-clamps seated in the recesses, and embracing the rail-flanges, and longitudinal bolts passing through the plate and clamps and securing them together, substantially as set forth.

4. In combination, a rail-joint bearing-plate provided with a longitudinal recessed seat for the rails, transverse recesses, holding-clamps seated in the recesses, embracing the rail-flanges and having extremities projecting through the rail-web, and longitudinal bolts passing through the plate and clamps and securing them together, substantially as set forth.

5. In combination, a rail-joint bearing-plate provided with a longitudinal recessed seat for the rails, transverse recesses, holding-clamps seated in the recesses, embracing the rail-flanges and having extremities projecting through the rail-web, and securing-bolts passing longitudinally through the plate and clamps, substantially as set forth.

6. In combination, a rail-joint bearing-plate provided with a longitudinal recessed seat for the rails, transverse recesses, alternately-arranged holding-clamps seated in the recesses having a lower portion extending below the rail-flanges, and an upper portion embracing the rail-flanges, and extending through an opening in the rail-web, and securing-bolts passing through the plate and clamps on each side of the rails, substantially as set forth.

679,614. SAFETY-GATE FOR ELEVATORS. JOSEPH W. FLEMING, Philadelphia, Pa., assignor of one-half to Samuel P. Sipe, same place. Filed Mar. 20, 1901. Serial No. 51,976. (No model.)



Claim.—1. In a door for elevator-shafts, upper and lower bars, compressible means connecting the same, a weight secured to the upper bar of said door and a weight secured to the lower bar of said door, the construction being such that when said door is elevated the compressible means will be closed.

2. In a door for elevator-shafts, upper and lower bars, lazy-tongs connecting the same, a weight secured to the upper bars and weights secured to the lower bars, whereby when said door is elevated the lazy-tongs will be closed.

3. In a door for elevator-shafts, upper and lower bars, compressible means connecting the same and a bolt adapted to engage with said door and hold the same in elevated position when the elevator-car is opposite thereto.

4. In a door for elevator-shafts, upper and lower bars, lazy-tongs connecting the same, a bolt carried by one of said bars, and a second bolt operated by the elevator-car for locking said door in raised position.

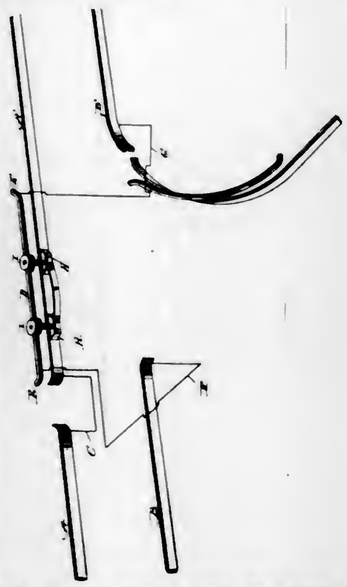
5. In a door for elevator-shafts, upper and lower bars, lazy-tongs connecting the same, guides for said bars, weights connected with said bars, a bolt carried by one of said bars, and a second bolt operated by the elevator-car for locking said door in elevated position.

6. In a door for elevator-shafts, upper and lower bars, lazy-tongs connecting the same, a weight attached to the upper bar, a way in which said weight travels, weights connected with said lower bar, ways in which said weights travel and guides for said bars.

7. In a door for elevator-shafts, upper and lower bars, compressible means connecting the same, a spring-actuated bolt carried by one of said bars and a spring-actuated bolt secured to the walls of said shaft and adapted to be operated by the car, in order to hold the door in elevated position.

8. In a door for elevator-shafts, upper and lower bars connected together, counterbalance-weights connected therewith, and a supplemental weight suspended from one of said weights and adapted to be supported in its way when the door is in its elevated position and brought into action as the door approaches its closed position to cause said door to close slowly.

679,615. UNDERGROUND ELECTRIC CONDUCTOR FOR STREET-RAILWAYS. JOHN FLOYD, Philadelphia, Pa. Filed Nov. 21, 1900. Serial No. 37,267. (No model.)



Claim.—1. In an underground-electric-railway system, a cut-out having the negative and positive conductor-rails arranged upon one side of the conduit, substantially as shown and described.

2. In an underground-electric-railway system, a cut-out having negative and positive rails upon one side of the conduit, one of the rails being continuous, the other being connected by cables to oppositely-disposed rails, which are parallel to the continuous rail, substantially as shown and described.

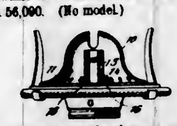
3. In an underground-electric-railway system, the combination with the conductor-rails, a supplementary rail, the said supplementary rail mounted in the conduit above one of the conductor-rails, and of cables connecting the said supplementary rail to the other conductor-rail, substantially as shown and described.

4. In a switch for underground-electric-railway systems, in combination with the conductor-rails, of a supplementary rail, the said supplementary rail mounted above one of the conductor-rails, and of cables connecting the ends of the supplementary rails to the other conductor-rail, substantially as shown and described.

5. In a switch for underground electric railways, of conductor-rails, one of the conductor-rails being cut out, of a supplementary rail arranged above the other conductor-rail opposite the said cut-out, of cables connecting the ends of the said supplementary rail to the ends of the rail which is cut out, substantially as shown and described.

6. In an underground-electric-railway system, a cut-out, of a conductor-rail extending through the said cut-out, a supplementary rail arranged above the said conductor-rail, of cables connecting the ends of the supplementary rail to conductor-rails extending in opposite directions yet parallel with respect to the first-mentioned conductor-rail, substantially as shown and described.

679,616. SMOKE-PREVENTING ATTACHMENT FOR LAMP-BURNERS. EDWARD L. GORHAM, Jersey City, N. J. Filed Apr. 16, 1901. Serial No. 56,090. (No model.)



Claim.—1. In a smoke-preventing lamp, a wick-tube and a sleeve surrounding the same concentrically so as to leave an intermediate flue, in combination with a partition located in the path of the escaping gases of combustion, and provided with openings which communicate with said flue.

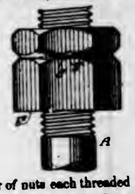
2. In oil-burners, an attachment for the wick-tube thereof, said attachment consisting of a sleeve adapted to be slipped over the wick-tube, said sleeve comprising a chambered body conforming substantially in shape to the shape of the wick-tube of a burner, and a base-flange, the upper edge of the body of the sleeve being convexed and said base-flange provided with recesses in its under face leading to the chamber in the body, as described.

679,617. COMBINED CHAIR AND DISPLAY-RACK. FRANK M. GUTHRIDGE, Chicago, Ill. Filed Apr. 10, 1901. Serial No. 55,125. (No model.)



Claim.—In a combined chair and diplay-rack, in combination, a chair-body having upright rear posts; a tilting back and display-rack hinged to said posts at a point near the upper ends of the latter, and adapted to tilt or incline to move its lower end across the seat of said chair to a position where the plane of the face of said tilting back substantially coincides with the front edge of the chair-seat, said tilting back being of a width sufficient to cover the faces of the rear posts when said back is in an upright position; and a pivoted brace-arm extending between each of said rear posts and said tilting back, said rear posts and said tilting back having coinciding pockets in their meeting faces, which pockets are adapted to receive said brace-arms when the chair is in a folded position.

679,618. NUT-LOCK. WILLIAM HARSON, Philadelphia, Pa. Filed June 3, 1901. Serial No. 62,964. (No model.)

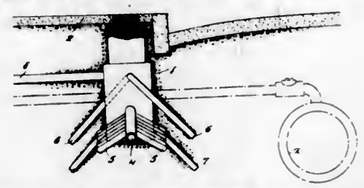


Claim.—1. A pair of nuts each threaded and having a wedge bearing upon each other, the said wedge having a pitch the reverse of that of the thread to which the thread on the nuts is adapted, substantially as described.

2. The combination of two threaded nuts, their adjacent faces being parallel and constructed to form helical surfaces, the pitch of said surfaces being opposite to that of the threads to which the threads on the nuts are constructed to fit, substantially as described.

3. The combination of two threaded nuts having their adjacent bearing-faces constructed to form helical surfaces, said faces being corrugated and parallel to each other.

679,619. GAS-VENTILATOR FOR MAINS. MILTON C. HENLEY, New York, N. Y. Filed Mar. 16, 1901. Serial No. 51,488. (No model.)

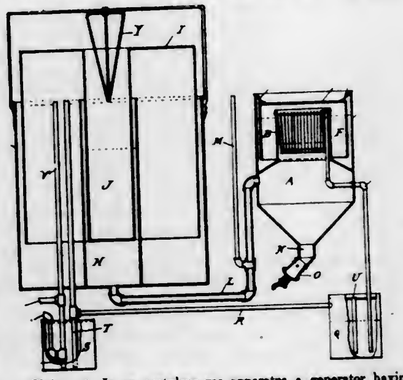


Claim.—1. A gas-ventilator, comprising a casing designed to be seated in the ground and having a perforated or grating top extended above the ground, open pipes extended from opposite sides of said casing within the ground, and open-ended branch pipes extended from the opposite sides of said first-named pipes, substantially as specified.

2. A gas-ventilator, comprising a casing designed to be placed in the ground and having an open-work top, open-ended pipes extended from opposite sides of said casing within the ground, the said pipes being inclined downward from the casing, and open-ended downwardly-inclined branch pipes extending from opposite sides of said first-named pipes, substantially as specified.

3. A gas-ventilator, comprising a casing adapted to be placed in the ground below a pavement and having a perforated top portion designed to extend through the pavement, long open-ended pipes extended from opposite sides of said casing within the ground, branch pipes extended from the first-named pipes, short pipes extended from opposite sides of the casing and near the upper portion thereof within the ground, and short branch pipes extended from the lower portion of said casing, substantially as specified.

679,620. ACETYLENE-GAS GENERATOR. ALMON F. HILL, Portland, Me. Filed Sept. 4, 1900. Serial No. 28,914. (No model.)

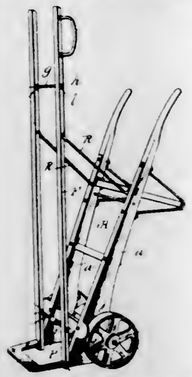


Claim.—1. In an acetylene-gas apparatus, a generator having a water-chamber, means for suspending carbid in said chamber, a gas-chamber above said water-chamber, a gasometer consisting of a water-tank and an inner chamber therein, a water-pipe leading from the water-chamber of the generator to and communicating with the interior of said inner chamber, whereby the level of the water in the generating-chamber varies according to the change in the level of the water in said inner chamber, a bell mounted in said tank and provided with a plunger adapted to reciprocate in said inner chamber and a gas-pipe leading from said gas-chamber in the generator to the gas-chamber in the gasometer.

2. In an acetylene-gas apparatus, a generator having a water-chamber, means for suspending carbid in said water-chamber, a gas-chamber above said water-chamber and means for introducing water into said water-chamber, a gasometer having a water-tank with an inner chamber open at the top, a gas-bell having a plunger adapted to reciprocate in said inner chamber, means for connecting the water-chamber of the generator with the bottom of said inner chamber in the gasometer, whereby the level of the water in the generating-chamber varies according to the change in the level of the water in said inner chamber, and means for conducting gas from the gas-chamber of the generator to the bell of the gasometer.

3. In an acetylene-gas apparatus, a series of generators, each having a water-chamber below the carbid-receptacle, means for suspending carbid in said generator, the carbid in each being at different elevations and a gas-chamber above said water-chamber in combination with a gasometer having a water-tank, an inner chamber open at the top, a gas-bell with a plunger adapted to reciprocate in said inner chamber, a common water communication between the water-chamber of the generator and the inner chamber of the gasometer and means for conducting gas from the gas-generator to the bell of the gasometer.

679,621. TRUCK ATTACHMENT. BYRON H. HULBURD, Sacramento, Cal., assignor of one-half to Herbert A. Fairbank, same place. Filed Apr. 20, 1901. Serial No. 56,729. (No model.)



Claim.—1. The combination with a truck, of the attachment therefor, having the parallel bars adapted to have a pivotal movement with respect to the truck, the flexible axle connection limiting outward movement of the attachment, and the upper detachable brace connection, substantially as specified.

2. The combination with a truck, of the attachment therefor, having the parallel bars adapted to have a pivotal movement with respect to the truck, the flexible axle connection limiting outward movement of the attachment, means for adjusting said bars toward and away from each other, and the upper brace connection adapted to have a detachable engagement with the truck, substantially as specified.

3. The combination with a truck, of the attachment therefor, having the parallel bars of angle form in cross-section, adapted to have a pivotal movement with respect to the truck, and adapted to rest upon the side rails of the truck, and the upper brace connection adapted to have a detachable engagement with the truck, substantially as specified.

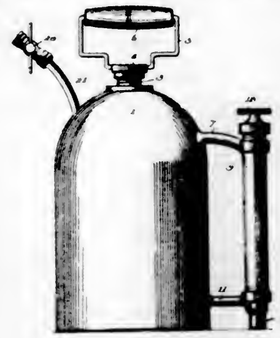
4. The combination with a truck, of the attachment therefor, consisting of the parallel bars having inwardly-extending notches at their lower end portions engaging the front scoop or flange of the truck, means for adjusting said bars toward and away from each other, and means for detachably supporting said bars in upright position away from the truck-frame, substantially as specified.

5. The combination with a truck of the character described, of the adjustable parallel bars, their transverse connecting and adjusting bolts, the detachable axle-catch, and the detachable brace-catches, substantially as specified.

679,622. HAND-OILER. JAMES H. HULINGS, Parsons, W. Va. Filed Oct. 13, 1900. Serial No. 32,980. (No model.)

Claim.—1. A hand-oiler comprising a receptacle, an upper arm having a loop and secured to the receptacle, a lower arm having a passage, a walled recess, a pendent valve-chamber, and a recess at the juncture of the arm and the pendent valve-chamber, a pump-cylinder extending through the loop of the upper arm and seating in the walled recess, a piston having a piston-rod and working in the pump-cylinder, a tube having a valve-seat and extending across the bottom of the pump-cylinder and into the pendent valve-chamber, a plug having a passage therethrough and secured in the bottom of the tube, a valve within the tube and a spring between the plug and the valve for seating the latter.

2. A sprayer for hand-oilers comprising a valve-casing having three longitudinal apertures on the inner side of the valve-chamber, straight passages and two outwardly-converging passages on the outer side of the valve-chamber, a valve having a Y-shaped passage therethrough adapted to register with the central longitudinal aperture and the converging passages or with the outer longitudinal apertures and the straight passage, and a cap having an aperture in alinement with the straight passage of the casing.

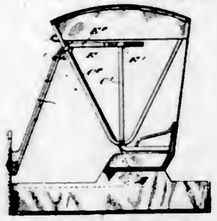


679,623. COMBINED PENHOLDER AND KNIFE ERASER. BENJAMIN F. JERVIS, Connellsville, Pa. Filed Apr. 3, 1901. Serial No. 54,158. (No model.)



Claim.—In a combined penholder and knife eraser, the combination with a sleeve slotted along its underneath side and having depending wings, one at each side of said slot, of a holder adapted to engage in the upper end of said sleeve, and a knife carried by said holder and so located as to have its blade guarded by the wings carried by the sleeve, substantially as described.

679,624. SIDE APRON FOR VEHICLES. THOMAS H. JOYCE, Brooklyn, N. Y. Filed Jan. 2, 1901. Serial No. 41,889. (No model.)



Claim.—1. A vehicle attachment, comprising an attaching-bar for attachment to the side of a vehicle-canopy, an apron-carrying bar pivoted on said attaching-bar, and a spring for holding said apron-carrying bar in either a forward or rearward position, as set forth.

2. A vehicle attachment, comprising an attaching-bar adapted to be secured to the side of a vehicle-canopy, an apron-carrying bar pivoted on said attaching-bar, and a keeper on the vehicle-dashboard and adapted to be engaged by said apron-carrying bar, to hold the latter in a forward position, as set forth.

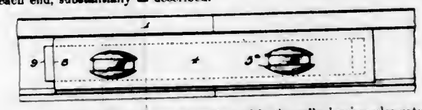
3. A vehicle attachment, comprising an attaching-bar adapted to be secured to the side of the vehicle-canopy, an apron-carrying bar pivoted on said attaching-bar and having a handled arm extending upwardly from the lower end of the said apron-carrying bar, and a keeper on the vehicle-dashboard and adapted to be engaged by said arm, as set forth.

4. A vehicle attachment, comprising an attaching-bar adapted to be secured to the side of a vehicle-canopy, an apron-carrying bar pivoted on said attaching-bar, springs secured on said bars, and a link connecting said springs with each other, as set forth.

5. A vehicle attachment, comprising an attaching-bar adapted to be secured to the side of a vehicle-canopy, a pivot on the forward end of said attaching-bar, a guide-arm on said attaching-bar and concentric to said pivot, and an apron-carrying bar hung on said pivot and engaged at the front by said guide-arm, as set forth.

679,625. RAIL-JOINT. JOHN KAISER and WILLIAM STOCKER, Pittsburg, Pa. Filed Apr. 30, 1901. Serial No. 58,218. (No model.)

Claim.—1. In a rail-joint, the combination of the rails having elongated bolt-openings, and a fish-plate having elongated openings registering with the openings in the rails, of a locking fish-plate also provided with elongated openings, flanges carried on the inner face of the said locking fish-plate, lugs carried on the outer face of the said plate above and below the openings, a locking-plate provided with elongated openings, said locking-plate engaging the inner face of the locking fish-plate and being held by the flanges of said locking fish-plate, and bolts engaging in the openings in said plate and rails, said bolts having a head on each end, substantially as described.



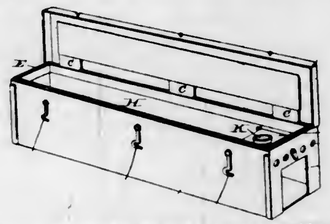
2. In a rail-joint, the combination with the rails having elongated bolt-openings, and a fish-plate having elongated openings, of a locking fish-plate having elongated openings, a locking-plate held against the inner face of the locking fish-plate, said locking-plate having elongated openings and being capable of longitudinal movement, and bolts headed on both ends for engagement through the elongated openings for securing the plates in position, substantially as described.

3. In a rail-joint, the combination with the rails, and a fish-plate, of a locking fish-plate, flanges made integral with the inner face of said locking fish-plate, a locking-plate held against the inner face of said locking fish-plate, by said flanges and slidable thereon, and bolts passed through said plates and rails and held by said locking-plate, substantially as described.

4. In a rail-joint, the combination with the rails, and a fish-plate, and a locking fish-plate having bolt-openings, lugs on the outer face of said locking fish-plate above and below the bolt-openings, flanges formed on the inner face of said locking fish-plate, a locking-plate held against the inner face of the locking fish-plate by said flanges, bolts passed through the plates and rails and held by said locking-plates, and an extension carried by the locking fish-plate adapted to be bent over to retain the locking-plate in the locked position, substantially as described.

5. In a rail-joint, the combination with the rails, and a fish-plate, of a locking fish-plate, a locking-plate slidably held on the inner face of the locking fish-plate, bolts engaging through said plates and rails and locked therein by the locking-plate, and means carried by the locking fish-plate for holding the locking-plate in locked engagement with the bolts, substantially as described.

679,626. STERILIZING APPARATUS. ARTHUR E. LEACH, Winthrop, Mass. Filed June 30, 1900. Serial No. 22,240. (No model.)

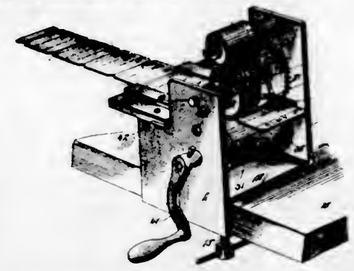


Claim.—1. The described sterilizing apparatus, comprising a close-covered rectangular box or case partitioned to form a distinct lamp-chamber and sterilizing-chamber, said partition having an opening through it forming a socket for the tablet-cup and said lamp-chamber having an aperture for insertion and removal of the lamp without opening the box proper, substantially as set forth.

2. In a sterilizing apparatus, a box or case horizontally elongated and having a partition dividing its interior into two distinct chambers, the lamp-chamber at one end of said box being provided with a lamp and furnished with a suitable closure adapted to carry and locate the lamp, and the sterilizing-chamber having a close-fitting cover with hinges along one edge, fastenings at the opposite edge and impervious packings at the joints, whereby the vapors generated from the sterilizing substance by the heat of the lamp are confined and made effective upon the instruments inclosed in the sterilizing-chamber, substantially as set forth.

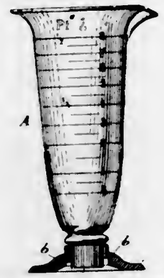
679,627. PRINTING MECHANISM FOR LABELS OR TICKETS. JOSEPH LEAVY and ISAAC ROGERS, New York, N. Y. Filed June 2, 1900. Serial No. 18,833. (No model.)

Claim.—1. In a printing mechanism for labels and tickets, the combination with an inking-roller, and a supporting-roller, of a printing-head eccentrically mounted between the inking and supporting rollers, said head comprising a hub and type-disks adjustably mounted thereon, and a feed-cam secured to the shaft of the printing-head and provided with a longitudinal slot, substantially as and for the purpose set forth.



2. A printing mechanism for labels and tickets, comprising a frame having two spaced members of unequal length and connected together by a bottom plate, the shorter member having below the bottom plate an angular extension provided with a set-screw, an inking-roller mounted in the upper end of the longer member of the frame, a shaft mounted between the members of the frame below the inking-roller and provided with a gear-wheel at one end, a printing-head eccentrically mounted on the shaft, a feed-cam secured to the said shaft adjacent to the printing-head and occupying a corresponding position to that of the printing-head, said cam serving to feed the ticket or label forward and assisting in holding the same from movement during the printing, a second shaft below the first shaft and provided with a gear-wheel meshing with the gear-wheel of the said first shaft, a supporting-roller on the second shaft below the printing-head and feed-cam, and means for locking the strip while it is being printed upon, substantially as herein shown and described.

679,628. DETACHABLE BASE FOR MEASURING-GLASSES. JAMES F. LEHMANN, New York, N. Y. Filed May 7, 1900. Serial No. 15,665. (No model.)



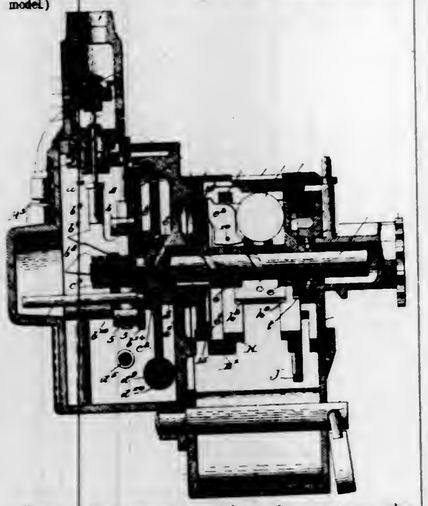
Claim.—The combination of a graduated measuring-glass provided at its lower end with a stem portion, provided upon diametrically opposite sides with offset lugs lying in different horizontal planes, and a separate detachable supporting-base provided with a central opening receiving said stem and with wedging inclines adapted to be engaged by the oppositely-located lugs.

679,629. CAR-COUPLING. WATSON S. LENNON, Tucson, Ariz. Filed Mar. 12, 1901. Serial No. 50,821. (No model.)



Claim.—In a car-coupling, the combination with a chambered draw-head, and a rockable knuckle-block therein which is L-shaped, of a transverse tripping-shaft rockable in the draw-head near its rear end, a locking-block of elongated form through which the shaft passes and an L-shaped detent-dog having one member secured upon the lower side of the locking-block, and the other member which is resilient projecting up through a slot in the locking-block to enter a notch in the tripping-shaft and thus hold the locking-block detachably secured upon the shaft which block when in lowered adjustment contacts with a side of the tailpiece on the knuckle to hold it stationary.

679,630. **PREPAYMENT ATTACHMENT FOR METERS.** CHARLES LUKE, Milford, Conn., assignor to the New Haven Novelty Machine Company, New Haven, Conn. Filed Jan. 14, 1901. Serial No. 43,100. (No model.)

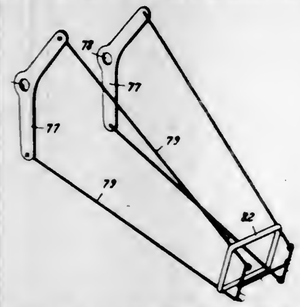


Claim.—1. In a prepayment attachment for gas-meters, a valve, means to close said valve after the delivery of the amount of prepaid gas, and a leak device to permit the continuous delivery of enough gas to prevent the gas issuing from a lighted burner or burners from being extinguished whereby, when the attachment is again supplied with coin to cause the opening of the valve, any burner or burners which were lighted when the valve was closed may come into full flame, thereby preventing the escape of unburned gas from the burner or burners.

2. In a prepayment attachment for gas-meters, the combination with a valve, and means for closing the same after the delivery of the prepaid gas, of a leak device carried by said valve, said device having a cap to prevent distillation or liquid products from the gas entering and closing the delivery-passage in said leak device.

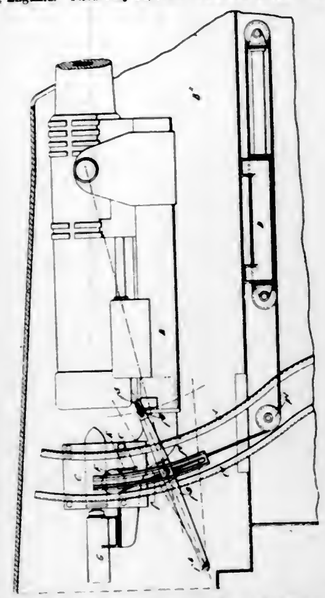
3. In a prepayment attachment for gas-meters, a valve, means for closing said valve after the delivery of prepaid gas, frictional driving means for the means for closing said valve, means for recording the quantity of gas delivered by the meter, and a leak device to admit gas to the meter after the said valve has been closed to thereby obviate the escape of unburned gas to cause suffocation after the closing of the valve, the gas delivered through the leak device being recorded on the usual recording mechanism.

679,631. **MUD-GUARD FOR BICYCLES.** GEORGE W. MASON, New York, N. Y. Filed Nov. 17, 1900. Serial No. 36,846. (No model.)



Claim.—The combination of the rigid supporting-bars 77, a pair of bent-wire frames comprising converging arms 79 attached at their forward ends to the extremities of the bars 77, and connected at their rear ends, a horizontal stay-wire 81 connecting the rear ends of the united arms, and a flexible band secured around said arms in proper position to act as a scraper.

679,632. **AMMUNITION-HOIST.** ROBERT MATTHEWS, Manchester, England. Filed July 24, 1900. Serial No. 24,684. (No model.)



Claim.—1. In an ammunition-hoist, the combination with an ammunition cage or carrier, a chain or rope passing around guide-pulleys and connected at one end with the cage or carrier and at the other end to a fixed point, and a motor for actuating the chain or rope, of means for connecting the axle of the uppermost pulley to the gun-mounting, so that the movement thereof will be substantially one-half that of the breech when the elevation of the gun is altered after the cage has been elevated and only the portion of the rope adjacent to the said pulley will be affected, for the purpose specified.

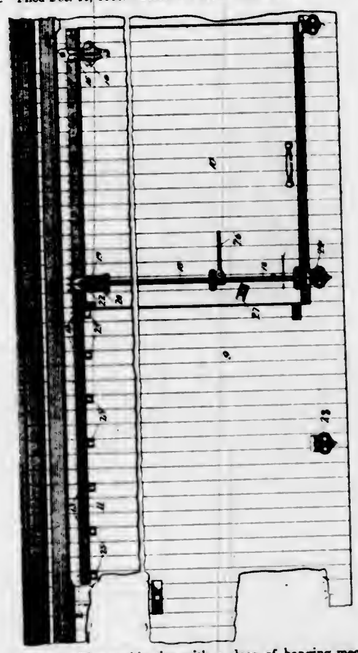
2. In an ammunition-hoist, the combination with an ammunition cage or carrier, a chain or rope passing around guide-pulleys and connected at one end with the cage or carrier and at the other end to a fixed point, and a motor for actuating the chain or rope; of a sliding block to which the axle of the uppermost pulley is connected, of a guide for said block, and of means for connecting the sliding block to the gun-mounting so that the movement of the said block will be substantially one-half of the breech when the elevation of the gun is changed, substantially as and for the purpose specified.

3. In an ammunition-hoist, the combination with an ammunition cage or carrier, a chain or rope passing around guide-pulleys and connected at one end with the cage or carrier, and at the other end to a fixed point and a hydraulic cylinder and ram for actuating the chain or rope; of a sliding block to which the axle of the uppermost pulley is connected, of a segmental slotted guide disposed approximately concentric with relation to the gun-trunnions and carried by a part which does not participate in the movement of elevation or depression of the gun, of means for connecting the said block to the gun-mounting so that when an alteration in the elevation of the gun takes place after the cage has been raised, the said block moves through an angle of approximately only one-half of the angle of elevation of the gun for the purpose specified.

4. In an ammunition-hoist, the combination with the ammunition cage or carrier, a chain or rope passing around guide-pulleys and connected at one end with the cage or carrier and at the other end to a fixed point, and a hydraulic cylinder and ram for actuating the chain or rope; of a sliding block to which the axle of the uppermost pulley is connected, of a segmental slotted guide concentrically disposed relatively to the gun-trunnions and carried by a part which does not participate in the movement of elevation or depression of the gun, of lever mechanism for connecting said block to the gun-mounting so that the movement of said block will be substantially one-half that of the breech when the elevation of the gun is changed substantially as and for the purpose specified.

5. In an ammunition-hoist, the combination with an ammunition cage or carrier, a chain or rope passing around guide-pulleys and connected at one end with the cage or carrier, and at the other end to a fixed point and a hydraulic cylinder and ram for actuating the chain or rope; of a sliding block to which the axle of the uppermost pulley is connected, of a segmental slotted guide disposed approximately concentric with relation to the gun-trunnions and carried by a part which does not participate in the movement of elevation or depression of the gun, of a lever to which the said block is connected at a point between the ends of said lever, the said lever being fulcrumed near one end to the turret of the gun and connected at the other end to the gun-mounting so that the movement of the block will be substantially one-half that of the breech of the gun when the elevation of the latter is changed substantially as and for the purpose specified.

679,633. **CAR-DOOR.** CLARENCE M. MENDENHALL, Bloomington, Ill. Filed Dec. 10, 1900. Serial No. 39,460. (No model.)



Claim.—1. The combination with a door, of hanging mechanism at the top thereof comprising a track, a pivoted hanger engaging said track, and devices engaging said track at the inside thereof whereby to exert pressure inward upon the side of the door at the top thereof, and means whereby pressure is exerted inward upon the bottom of the door simultaneously with the application of pressure to the top thereof, substantially as described.

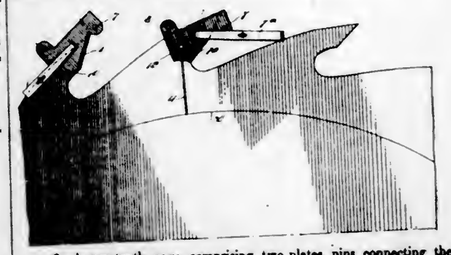
2. The combination with a car, of a door, a track, a hanger pivotally secured to said door at the top thereof, whereby it is capable of lateral movement relative to said track, operating mechanism located within the plane of the outside of the track comprising a horizontally-movable cam situated at the rear end of said door and acting upon said track to move said rear end laterally, and a vertically-rotative rod actuating said cam, substantially as described.

3. The combination with a door, of hanging mechanism at the top thereof comprising a track, a pivoted hanger engaging said track, operating mechanism located within the plane of the outside of the track comprising a horizontally-movable cam or eccentric also engaging said track, a body-plate to which said hanger is pivotally attached and with which said cam or eccentric coöperates, and a vertically-rotative rod for actuating said cam, substantially as described.

4. The combination with a car, of a door, a track comprising a rail the upper edge thereof so disposed as to support the door, a plurality of brackets for supporting said rail arranged at intervals thereon, and projections extending downwardly from said brackets whereby the door at intervals throughout its length is prevented from coming in contact with the side of the car, substantially as described.

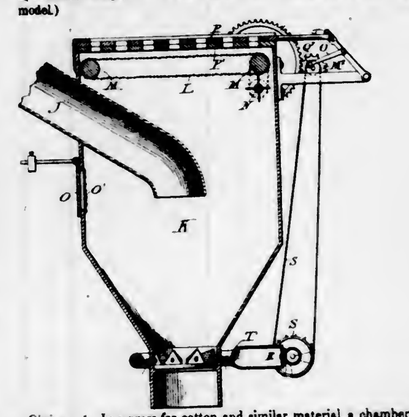
679,634. **SAW-TOOTH GAGE.** WILLIAM MCKNIGHT, Ebensburg, Pa. Filed Jan. 9, 1901. Serial No. 42,629. (No model.)

Claim.—1. A saw-tooth gage, comprising side plates shaped at their upper and lower edges to conform to the back and front edges of a saw-tooth, means for clamping the plates on a tooth, the said plates being channeled at their inner sides, and a gage-arm adjustable on one of the plates, substantially as specified.



2. A saw-tooth gage, comprising two plates, pins connecting the ends of said plates, a clamp mounted to swing forward and rearward of the plates, and a gage-finger on one of the plates and adapted to be set to a line marked on a saw, substantially as specified.

679,635. **FEEDING DEVICE FOR COTTON-PRESSES, &c.** CHARLES E. PARKER, Orange, N. J. Filed Dec. 31, 1900. Serial No. 41,560. (No model.)



Claim.—1. In a press for cotton and similar material, a chamber or receiver, an abutment having a substantially radial feeding-passage therein, means to impart relative rotation to said chamber or receiver and abutment, a receiving-surface in operative relation to said feeding-passage, means whereby the material may be deposited by an air-blast upon said surface, and means to intermittently discharge or pulsate or intermittently interrupt said air-blast, substantially as described.

2. In a press for cotton and similar material, a chamber or receiver, an abutment having a substantially radial feeding-passage therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface in operative proximity to said feeding-passage and upon which cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin, and means for pulsating said blast of air at said foraminous surface by intermittently interrupting the escape thereof through said surface, substantially as described.

3. In a press for cotton and similar material, a chamber or receiver, an abutment having a substantially radial feeding-passage therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface in operative proximity to said feeding-passage and upon which cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin, means for pulsating said blast of air at said foraminous surface by intermittently interrupting the escape thereof through said surface, and means for preventing said blast of air from reacting upon the gin when its escape is intermittently interrupted through said surface, substantially as described.

4. In a press for cotton and similar material, a chamber or receiver, an abutment having a substantially radial feeding-passage therein, means to impart relative rotation to said chamber and receiver or abutment, a foraminous surface in operative proximity to said feeding-passage and upon which cotton may be pneumatically deposited by the blast of air that dis-

charges the cotton from a gin, means for pulsating said air-blast at said foraminous surface by intermittently interrupting the escape thereof through said surface, and means for otherwise permitting the escape of air when its flow through said surface is broken, substantially as described.

5. In a press for cotton and similar material, a chamber or receiver, an abutment having a plurality of substantially radial feeding-passages therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface in operative proximity to each of said feeding-passages, and upon which cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin or gins, and means for pulsating said air-blast at each of said foraminous surfaces by intermittently interrupting the escape thereof through each of said surfaces, substantially as described.

6. In a press for cotton and similar material, a chamber or receiver, an abutment having a plurality of substantially radial feeding-passages therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface in operative proximity to each of said feeding-passages, and upon which cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin or gins, means for pulsating said air-blast at each of said foraminous surfaces by intermittently interrupting the escape thereof through each of said surfaces, and means when the air-blast is pulsated in the same phase at each of said surfaces, for otherwise permitting the escape of said air-blast, substantially as described.

7. In a press for cotton and similar material, a chamber or receiver, an abutment having a plurality of substantially radial feeding-passages therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface in operative proximity to each of said feeding-passages, and upon which cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin or gins, and independent means for pulsating said air-blast at each of said foraminous surfaces by intermittently interrupting the escape thereof through each of said surfaces, whereby the air-blast may be pulsated as an entirety or said surfaces may be arranged in groups according to the phase of pulsation of said air-blast at the surfaces constituting each group, substantially as described.

8. In a press for cotton and similar material, a chamber or receiver, an abutment having a plurality of substantially radial feeding-passages therein, means to impart relative rotation to said chamber or receiver and abutment, two foraminous surfaces in operative proximity to each of said feeding-passages, one on each side, and upon which cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin or gins, and means for pulsating said air-blast at each of said foraminous surfaces by intermittently interrupting the escape thereof through each of said surfaces, substantially as described.

9. In a press for cotton and similar material, a chamber or receiver, an abutment having a substantially radial feeding-passage therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface which is in form substantially a sector of a layer of the forming bale and situated in operative proximity to said feeding-passage and upon which a layer of cotton may be pneumatically deposited by the blast of air that discharges the cotton from a gin, and means for pulsating said blast of air at said foraminous surface by intermittently interrupting the escape thereof through said surface so that a continuous layer of cotton may be delivered through said feeding-passage, substantially as described.

10. In a press for cotton and similar material, a chamber or receiver, an abutment having a substantially radial feeding-passage therein, means to impart relative rotation to said chamber or receiver and abutment, a foraminous surface located in operative proximity to said feeding-passage, so that material deposited in layer form thereon may be discharged with formation unimpaired into the forming bale, means whereby the material may be deposited by an air-blast upon said surface, and means to intermittently discharge or pulsate or intermittently interrupt said air-blast, substantially as described.

679,636. ADJUSTABLE FOLDING CHAIR. WILBUR F. PARMELEE, Middletown, Conn. Filed Aug. 11, 1900. Serial No. 26,631. (No model.)

Claim.—1. In a folding reclining-chair, the combination with a collapsible base comprising two parallel upright side members arranged to move toward and from one another, of a folding back, seat and leg section, and arms connecting the back and leg sections on both sides, said arms being removably seated on the upper ends of the collapsible side members of the base, substantially as described.

2. In a folding reclining-chair, the combination with a collapsible base comprising two parallel upright side members arranged to move toward and away from one another and each provided at its upper end with a horizontal rail having sockets or mortises formed therein, of two arms removably seated on said rails and provided with tenons detachably fitted in said sockets or mortises, and a folding back, seat and leg section suspended from said arms, substantially as described.



3. A collapsible base for folding reclining-chairs, comprising two parallel vertical rigid frames or side members, cross-bars hinged to said side members at both front and rear, said cross-bars being divided and hinged together at their centers and arranged to fold horizontally inward toward one another, said cross-bars being hinged to the side members in different horizontal planes whereby they may be folded one above the other when the side members are collapsed, substantially as described.

4. In a reclining-chair, the combination with the base, of the folding back, seat and leg section, said leg-section comprising two parallel side bars each divided and hinged intermediate its ends whereby the lower portion may be permitted to drop to a vertical position, and means for rigidly locking the hinged portions of said side bars together, substantially as described.

5. In a reclining-chair, the combination with the base, of the folding back, seat and leg section, said leg-section comprising two parallel side bars each divided and hinged intermediate its ends whereby the lower portion may drop to a vertical position, and one of the divided ends of each side bar being provided with a recess or socket and locking mechanism rigidly locking the hinged members of the side bars together, comprising a catch fitted in the end of one of said hinged members and provided at its free end with a beveled head arranged to fit within the recess or socket in the end of the adjacent hinged member, and a set-screw fitted transversely in the last-mentioned member and arranged to impinge against the catch behind the beveled head thereof when the members are folded up in alinement, to lock said members together, substantially as described.

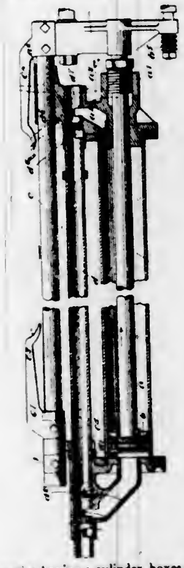
6. In a reclining-chair, the combination with the arms thereof, of metallic plates secured to the ends of the arms and each provided with loops or eyes at its opposite ends, bracket-arms slidably arranged in said loops or eyes and provided on their under sides with ratchet-teeth adapted to engage the loops or eyes and hold the bracket-arms in their adjusted positions, each of said bracket-arms being provided with an eye in its free end, and stirrups provided with vertical pintles loosely journaled in the eyes in the bracket-arms whereby the stirrups may freely oscillate in a horizontal plane, substantially as described.

7. In a folding reclining-chair, a base, and a folding back, seat and leg section arranged to swing or be adjusted in unison, the arms of the back-section being pivoted above their lower extremities to the arms of the seat-section, in combination with movable dowels adjustably mounted on the lower ends of the arms of the back-section and arranged to engage the under sides of the arms of the seat-section, substantially as described and for the purpose specified.

8. In a folding reclining-chair, a base, and a folding back seat and leg section arranged to swing or be adjusted in unison, the arms of the back-section being pivoted above their lower extremities to the arms of the seat-section, in combination with metallic straps or bars dovetailed in cross-section and attached to the lower ends of the arms of the back-section, dowels slidably mounted on said straps or bars and arranged to engage the under sides of the arms of the seat-section, and set-screws carried by the dowels for locking the latter in their adjusted position on the straps or bars, substantially as described and for the purpose specified.

9. In a folding reclining-chair, a base, and a folding back, seat and leg section, arranged to swing or be adjusted in unison, the arms of the back-section being pivoted above their lower extremities to the arms of the seat-section, in combination with movable dowels adjustably mounted on the lower ends of the arms of the back-section and arranged to engage the under sides of the arms of the seat-section, and means for locking the back, seat and leg sections together in their adjusted positions, substantially as described and for the purpose specified.

679,637. ENGINE. EDWARD E. REDFIELD, Grants Pass, Oreg. Filed Mar. 9, 1901. Serial No. 50,462. (No model.)



Claim.—1. An engine having a cylinder, boxes arranged at the end portions thereof and communicating with the cylinder, a tubular valve having its end portions mounted in the boxes, the valve being in communication with a source of fluid-supply and having at each end two ports separated from each other by a plug or stopper fitted in the valve and the ends of the tubular valve being open, and a gear for operating the valve.

2. An engine having a valve-gear comprising a rocker connected with the valve to actuate it, the rocker having a forked upper end, the arms of which are turned laterally in opposite directions, and two tappets moving in unison toward and from the rocker and arranged respectively to engage said laterally-bent ends of the rocker-arms, to throw the rocker.

3. An engine having a valve-gear, comprising a rocker connected with the valve, and two tappets arranged at opposite sides of the rocker and moving in unison toward and from the same to throw the rocker back and forth.

4. An engine having a cylinder with steam-passages at its ends, a tubular valve having communication with the steam-supply and having two ports in each end portion, a closure fitted between each pair of ports, and a gear for reciprocally driving the valve.

5. An engine, comprising a cylinder with steam-passages at its ends, a tubular valve extending parallel with the cylinder and commanding the steam-passages thereof, a rod connected with the piston and arranged to slide parallel with the cylinder, and a rocker connected with the valve and engaged by parts on the rod, whereby to operate the valve.

6. An engine, having a cylinder with steam-passages at its ends, a tubular valve having communication with the steam-supply and having feed-ports coacting with the steam-passages of the cylinder, the tubular valve having exhaust-ports also coacting with the steam-passages, and means carried in the valve for separating the feed and exhaust passages.

679,638. CIGAR CUTTER AND LIGHTER. CARL A. ROSENHOLZ, Wardner, Idaho, assignor of one-third to Seymour Philip Rearick, same place. Filed Feb. 14, 1901. Serial No. 47,343. (No model.)

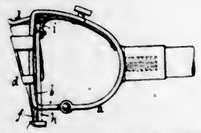
Claim.—1. In a cigar-lighter, a hood or body portion, a collar mounted to swing on the lower end of said hood or body, a lamp having its wick-tube extended through the collar and adapted to rotate therein, an electrode carried on the wick-tube, a spring-pressed electrode forward of the hood or body portion, and electrical connections for said electrodes, substantially as specified.



2. A cigar-lighter, comprising a hood or body portion, a boxing on the lower end of said hood or body portion and having an opening in its front wall through which the tip of a cigar may pass, a collar having trunnion-bearings in said boxing, a cutter-blade carried by said collar, a lamp having its wick-tube extended through said collar and mounted to turn therein, an electrode carried by the wick-tube, a swinging electrode forward of the hood or body portion, and electrical connections for said electrodes, substantially as specified.

3. A cigar-lighter, comprising a hood or body portion, a lamp mounted to swing thereon, an electrode carried by said lamp, a tube attached to and arranged forward of said hood or body portion, a metal rod extended from the lower portion of said tube but insulated therefrom, a casing vertically adjustable on the lower portion of said rod, an electrode pivoted to said casing, and a spring attached to the rod and adapted to bear its free end against said electrode, substantially as specified.

679,689. SAFETY-RAZOR. AUGUST W. SCHEUBER, New York, N. Y., assignor to Mary Zinn, same place. Filed May 1, 1901. Serial No. 58,331. (No model.)



Claim.—1. A safety-razor comprising a casing or blade-support and an automatic or self-adjusting guard substantially as described.

2. A safety-razor comprising a casing or blade-support and a spring actuated or adjusted guard for the blade substantially as described.

3. A safety-razor comprising a blade-support and a blade-adjusted movable guard, substantially as described.

4. A safety-razor comprising a blade-support and a guard adapted to be engaged by the blade to be moved or adjusted thereby substantially as described.

5. A safety-razor comprising a blade-support and a hinged or movable guard set by the blade substantially as described.

6. A safety-razor comprising a blade-support and a guard normally moved inward on the support and adapted for engagement by a blade substantially as described.

7. A safety-razor comprising a casing or blade-support and an automatic or self-adjusting guard movable relatively to or independently of the casing substantially as described.

8. A safety-razor comprising a casing or blade-support, a guard, and a spring connection for uniting the casing and guard substantially as described.

9. A safety-razor casing combined with an automatic or self-setting guard having its opposite portions movable or adjustable independently of one another substantially as described.

10. A safety-razor casing or blade-support and a blade-adjustable guard provided with lugs or stops for securing the proper relative position of the guard to the blade or casing substantially as described.

11. A safety-razor comprising a blade-support and a blade-adjustable guard provided with oppositely-located blade-engaging stops, said guard having its opposite sides independently movable or adjustable so that each end portion of the blade can set its respective portion of the guard substantially as described.

12. A blade-support and a spring-actuated guard made movable or swinging relative to the support substantially as described.

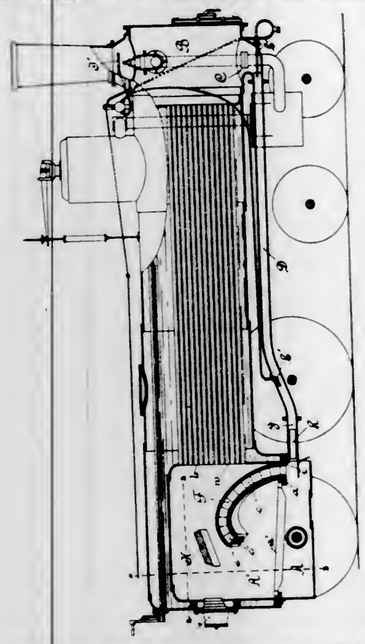
13. A safety-razor comprising a casing or blade-support, and a spring-hinge for allowing the front of the casing to be opened substantially as described.

14. A safety-razor comprising a casing or blade-support, and a guard hinged to the front of the casing so as to open or swing down for giving access to the interior of the casing and to close for carrying the guard to the edge or blade substantially as described.

15. A safety-razor comprising a casing having an opening front and a blade-adjustable guard substantially as described.

16. A safety-razor comprising a casing with a hinged or opening front provided with a guard, said guard having a stop or lugs made to contact with the blade substantially as described.

679,640. **STEAM-BOILER FURNACE.** CHARLES SCHLEYDER, Zdic, Austria-Hungary. Filed Feb. 10, 1900. Serial No. 4,802. (No model.)



Claim.—1. In a steam-boiler furnace, the combination with the fire-chamber, ash-pit, and smoke-box, of a bridge-wall located in said fire-box having a longitudinal conduit therethrough and a return-flue connecting the smoke-box with the ash-pit, and discharging into said ash-pit at a point directly below the base of the bridge-wall, substantially as set forth.

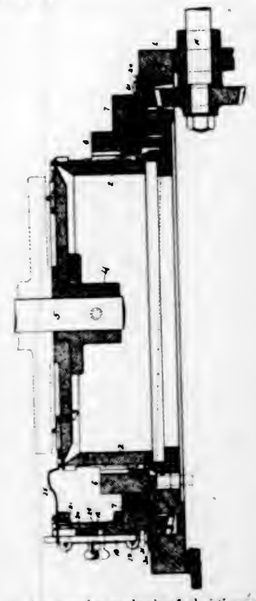
2. In a furnace, the combination with the fire-chamber, and smoke-box, of a return-flue arranged to conduct the products of combustion from said smoke-box, a hollow bridge-wall, located in the fire-chamber, communicating with said return-flue and receiving the products of combustion therefrom, and air-feeding devices opposed to said bridge-wall, said hollow wall and the air-feeding devices discharging toward each other to mix the returned products of combustion with the air above the grate, substantially as set forth.

3. In a steam-boiler furnace, the combination with the fire-chamber, ash-pit and smoke-box, of a return-flue extending from said smoke-box, a hollow, arched bridge-wall, located in the fire-box, communicating with said return-flue, and discharging the products of combustion supplied thereto in a downward direction at a point above the grate, and air-feeding devices located in rear of said bridge-wall, and arranged to discharge air downward into the path of the products of combustion discharged by said bridge-wall conduit, whereby said products of combustion are mixed with air at a point directly above the grate, substantially as set forth.

4. In a smoke-consumer for boiler-furnaces, the combination with the ash-pit, fire-chamber and smoke-box, of a return-flue connecting the smoke-box with the ash-pit, a hollow bridge-wall located in the fire-chamber taking from a point directly above the exit-opening of the return-flue, and discharging into the fire-chamber, a baffle-plate located above and in rear of said point of discharge, and air-feeding devices in rear of said baffle-plate arranged to discharge air downward into the fire-chamber below said baffle-plate, substantially as set forth.

5. In a smoke-consumer for steam-boiler furnaces, the combination with the fire-chamber, the ash-pit and the smoke-box, of flues connecting the fire-box and smoke-box, a return-flue connecting the smoke-box and ash-pit, a steam-injector arranged near the top of the smoke-box and discharging downward, and injectors arranged in the return-flue, whereby a rapid and continuous circulation is maintained through said parts, substantially as set forth.

679,641. **RIB-KNITTING MACHINE.** ROBERT W. SCOTT and HARRY SWINGLEHURST, Philadelphia, Pa., assignors to said Scott and Louis N. D. Williams, Ashbourne, Pa. Filed Feb. 23, 1901. Serial No. 48,477. (No model.)



Claim.—1. In a stopping mechanism for knitting-machines, the combination of a trigger serving as a protector, a bolt held in inoperative position by engagement with said trigger, and means, interposed between the bolt and trigger, whereby the latter is forced into engagement with the bolt when said bolt is moved into inoperative position, substantially as specified.

2. In a stopping mechanism for knitting-machines, the combination of a trigger serving as a protector, a bolt held in inoperative position by engagement with said trigger, and means, interposed between the bolt and trigger, whereby the latter is forced into engagement with the bolt when said bolt is moved into inoperative position, and is relieved from pressure when the bolt moves into operative position, substantially as specified.

3. The combination in a stopping mechanism for knitting-machines, of a trigger serving as a protector, a bolt held in inoperative position by engagement with said trigger, and resilient means interposed between the bolt and trigger and serving to move the bolt to operative position and to move the trigger into position to engage with the bolt and hold it in inoperative position, substantially as specified.

4. The combination in a stopping mechanism for knitting-machines, of a trigger serving as protector, a bolt held in inoperative position by engagement with said trigger, and resilient means interposed between the bolt and trigger and serving to move the bolt to operative position and to move the trigger into position to engage with the bolt and hold it in inoperative position, said resilient means being inert when the bolt has been moved into operative position, substantially as specified.

5. The combination in stopping mechanism for knitting-machines, of a trigger acting as a protector, a bolt held in inoperative position by engagement with said trigger, a cam-block acting upon the trigger so as to hold it in engagement with the bolt, and a connection between said cam-block and bolt, substantially as specified.

6. The combination in stopping mechanism for knitting-machines, of a trigger acting as a protector, a bolt held in inoperative position by engagement with said trigger, a cam-block acting upon the trigger so as to hold it in engagement with the bolt, and a spring interposed between said cam-block and bolt, substantially as specified.

7. The combination in stopping mechanism for knitting-machines, of a trigger acting as a protector, a bolt held in inoperative position by engagement with said trigger, a cam-block acting upon the trigger so as to hold it in engagement with the bolt, and a spring interposed between said cam-block and bolt, said spring being inert when the bolt has been released from engagement with the trigger and moved to operative position, substantially as specified.

8. The combination in stopping mechanism for knitting-machines, of a trigger serving as a protector, a bolt held in inoperative position, by said trigger, a cam-block acting on the trigger to maintain it in engagement with the bolt, said cam-block having a stop-leg for restricting the backward movement of the trigger, and a connection between said cam-block and the bolt, substantially as specified.

9. The combination in stopping mechanism for knitting-machines, of a trigger serving as a protector, a bolt held in inoperative position, by said trigger, a cam-block acting on the trigger to maintain it in engagement with the bolt, said cam-block having a stop-leg for restricting the backward movement of the trigger, and a spring interposed between the bolt and said cam-block, substantially as specified.

10. The combination in stopping mechanism for knitting-machines, of a protector-lever having a forked arm, a bolt held in inoperative position by engagement with one of the limbs of said fork, a cam-block adapted to act upon the other limb of the fork so as to hold the first limb in engagement with the bolt, and a connection between said cam-block and the bolt, substantially as specified.

11. The combination in stopping mechanism for knitting-machines, of a protector-lever having a forked arm, a bolt held in inoperative position by engagement with one of the limbs of said fork, a cam-block adapted to act upon the other limb of the fork so as to hold the first limb in engagement with the bolt, and a spring interposed between the bolt and the said cam-block, substantially as specified.

12. The combination in stopping mechanism for knitting-machines, of a trigger serving as a protector, a bolt held in inoperative position by said trigger, a moving carrier for said bolt, a ring having upwardly-projecting teeth, means for moving the bolt into engagement with said toothed ring when released from the control of the trigger, and belt-shipper mechanism having as elements a shaft with finger also normally in engagement with the toothed ring, whereby movement of the bolt-carrier is immediately transmitted to said element of the belt-shipper, substantially as specified.

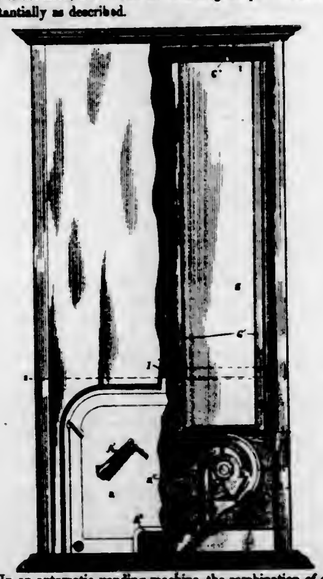
13. The combination in stopping mechanism for knitting-machines, of the cam-ring and stop mechanism carried thereby and mounted upon a bracket secured to the cam-ring by a vertical screw and a lateral screw, substantially as specified.

14. The combination in stopping mechanism for knitting-machines, of a rotating element of the machine, and a stop-motion device carried thereby and comprising a bracket having two slots one guiding a bolt and the other a cam-block, resilient means interposed between said bolt and cam-block, and a trigger serving as a protector, said trigger engaging with the bolt to hold it in inoperative position, and being also engaged by the cam-block so as to maintain it in engagement with the bolt, substantially as specified.

679,642. **COIN-CONTROLLED APPARATUS.** GEORGE L. SLATER and ARTHUR W. ROE, Buchanan, Mich. Filed Aug. 3, 1900. Serial No. 726,612. (No model.)

Claim.—1. In an automatic vending-machine, the combination of a discharger provided with a coin-slot, an actuating-lever provided with a coin-slot, means for directing a coin into said slots so that when registering the discharger will be locked to the actuating-lever, and means for ejecting a coin from the slots when the discharger has been properly operated and for returning the parts to normal position, substantially as described.

2. The combination of a commodity-holder, a discharger below the same adapted to eject articles singly therefrom and provided with a coin-slot, a coin-arresting device at one side of the discharger and a coin-feeding chute at the other side thereof; with an actuating-lever interposed between the discharger and coin-arresting device and provided with a coin-slot adapted to register with the slot in the discharger, means for freeing the coin from the slots of the discharger and receiver after the discharger is actuated, and means for returning the parts to normal position, substantially as described.



3. In an automatic vending-machine, the combination of a shaft, an actuating-lever thereon provided with a coin-slot, a discharger beside the actuating-lever having a coin-slot adapted to register with that of the lever, a coin-arresting device in rear of the lever, and a coin-feed device in front of the discharger, and an ejector beside the discharger adapted to force the coin from the slots of the discharger and lever and thus free the one from the other, and means for returning the parts to normal position, substantially as described.

4. In an automatic vending-machine, the combination of a shaft, an actuating-lever thereon provided with a coin-slot, a discharger loosely mounted on the shaft beside the actuating-lever having a coin-slot adapted to register with that of the lever, a coin-feeding device in front of the discharger, and means for returning the parts to normal position; with a dog adapted to engage the discharger and prevent the return thereof after a partial forward movement until it has made its complete stroke, substantially as described.

5. In an automatic vending-machine, the combination of an oscillatory shaft, an actuating-lever thereon, provided with a coin-slot, a discharger loosely mounted on the shaft beside the actuating-lever having a coin-slot adapted to register with that of the lever, a coin-arresting device in rear of the lever, a coin-feeding device in front of the discharger, an ejector beside the discharger adapted to force the coin from the slots of the discharger and lever and thus free the one from the other, and means for returning the parts to normal position; with a dog adapted to engage the discharger and prevent the return thereof after a partial forward movement until it has made its complete stroke, and a stop for limiting the movement of the discharger and lever, for the purpose and substantially as described.

6. The combination of the commodity-holder, the oscillatory discharger below said holder having a segmental peripherally-wedge-shaped projection adapted to eject the packages from the holder laterally when the discharger is operated and coin-controlled devices for actuating the discharger, substantially as described.

7. The combination of the commodity-holder, the oscillatory discharger below said holder having a segmental and circumferentially-wedge-shaped flange adapted to eject the packages from the holder laterally when the discharger is oscillated, and coin-controlled means for actuating said discharger, substantially as described.

8. The combination of the commodity-holder, the discharger below said holder having a wedge-shaped flange adapted to eject the packages from the holder laterally, and means for actuating said discharger; with a movable lever adapted to engage the discharger and return it to normal position; said discharger and lever having registering coin-slots, and means for introducing a coin into said slots so as to lock the two together.

and means for ejecting the coin from the slots, after the discharger is operated, substantially as described.

9. The combination of the commodity-holder, the oscillatory discharger below said holder having a segmental wedge-shaped flange adapted to eject the package from the holder laterally when the discharger is oscillated, and means for actuating said discharger; with a rocking shaft upon which the discharger is loosely mounted, a lever fixed on said shaft, a spring for returning said lever to normal position, said lever being provided with a lug adapted to engage the discharger and return it to normal position and said discharger and lever being formed with registering coin-slots, means for introducing a coin into said slots so as to lock the two together, and means for ejecting the coin from the slots after the discharger is operated, substantially as described.

10. The combination of a segmental discharger having a series of notches and a dog engaging said notches to prevent the return of the discharger before it has made a complete stroke, said discharger being provided with a guard-rib whereby the dog is kept out of the notches after the discharger has made a complete stroke and during the return of the discharger to normal position and coin-controlled devices for actuating the discharger, substantially as described.

11. The combination with a segmental discharger having a series of notches and a dog engaging said notches to prevent the return of the discharger before it has made a complete stroke, said discharger being provided with a guard-rib whereby the dog is kept out of the notches after the discharger has made a complete stroke and during the return of the discharger to normal position; with the rock-shaft upon which the discharger is loosely mounted, an actuating-lever on said rock-shaft, said lever and discharger having registering coin-slots, means for fitting the coin into said slots so as to lock these parts together, and means for ejecting the coins from the slots when the discharger has been properly actuated, and a spring for returning the parts to normal position, substantially as described.

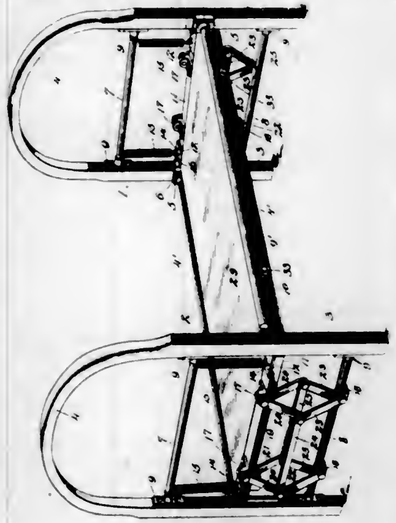
12. The combination of the discharger provided with a wedge-shaped flange and with a notched locking-flange, said locking-flange being provided with a shallow rib to prevent engagement of a dog with the notches during the complete return stroke of the discharger, and a dog adapted to engage said notches during the forward stroke of the discharger; an actuating-lever beside said discharger adapted to return the discharger to normal position, said lever and discharger having registering coin-slots, means for feeding the coin to said registering slots, and means for displacing said coin in the slots, substantially as described.

13. The combination of the rock-shaft, a discharger loosely mounted thereon provided with a wedge-shaped segmental flange and with a notched locking-flange, said locking-flange being provided with a shallow rib to prevent engagement of a dog with the notches during the complete return stroke of the discharger, and a dog adapted to engage said notches during the forward stroke of the discharger, an actuating-lever fixed on said shaft beside said discharger adapted to return the discharger to normal position, said lever and discharger having registering coin-slots whereby when a coin is inserted therein these members are locked together, a coin-arrester in rear of the actuating-lever, a chute for directing a coin into said registering slots, and an ejector for displacing said coin in the slots so as to release the lever from the discharger when the latter has completed its stroke, substantially as described.

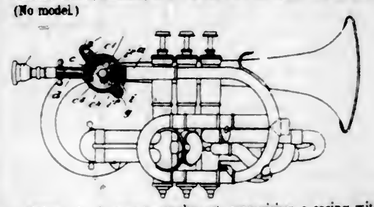
679,643. **BEDSTEAD.** JOSEPH B. SPENCER, Cordele, and ALEXANDER A. CAMERON, McRae, Ga.; said Spencer assignor to said Cameron. Filed May 29, 1900. Serial No. 18,423. (No model.)

Claim.—1. In a bedstead, the combination with inverted-U-shaped frames at opposite ends, a bed-bottom freely movable and suspended at opposite extremities in the said frames and provided with end rails having terminal slots, springs connected to and operating to draw said bottom upwardly to normal position, and vertically-disposed guides on the inner sides of the opposite portions of the said frames to engage the slots in the rails of the bottom and having upper inturned heads to contact with the upper portions of the end rails of the bottom to limit the vertical movement of the latter.

2. In a bedstead, the combination with opposite end frames, of a bed-bottom adapted to be suspended therein and having side and end rails, a covering therefor loosely applied over the side rails and the opposite side edges extended under the latter, clamping-rails disposed under the side rails and free to be adjusted, the said rails being in pairs at each side and having the side edge portions of the covering held vertically between the same and attached to the outer sides of the inner rails of each pair, the outer rails being closely disposed against the inner rails, said rails having wide sides arranged adjacent to each other and the upper and lower edges in the same horizontal planes, rods extending transversely through both extremities of each rail of the pairs of clamping-rails on each side and the edges of the covering, said rods being horizontally disposed, and having screw-threaded terminals outside of the outer rail of each pair, the pairs of rails being transversely shiftable on the rods, and clamping-nuts adjustably fitted on the terminals of said rods.



679,644. **CORNET ATTACHMENT.** CHARLES SPRINGER and GEORGE DAVIS, Newark, N. J. Filed Jan. 18, 1901. Serial No. 43,726. (No model.)



Claim.—1. A cornet attachment, comprising a casing with oppositely-disposed tubular extensions communicating with the interior thereof, one extension serving to connect the mouthpiece with the casing and the other the casing with cornet-tube, a tube passing around the casing and across the longitudinal line of said extensions, said tube having its ends turned inward toward and communicating with the interior of the casing at opposite sides, and being formed of two slidably-connected U-shaped sections adjustable to increase or diminish the length of the tube, and a three-passage rotary valve working in the casing and commanding the said tubular extension and the tube, for the purpose specified.

2. An attachment for cornets, comprising a casing having oppositely-disposed tubular extensions, one for connection with the cornet tube or shank and the other for connection with the mouthpiece of the cornet, a tube passing around the casing and across the longitudinal line of the said tubular extensions, the tube having its ends turned inward and communicating with the interior of the casing at opposite points, and a three-passage rotary valve working in the casing commanding the said tubular extensions and the tube, and means whereby the valve will be held in the position to which it had been moved for the purpose specified.

3. A cornet attachment, comprising a casing with oppositely-disposed tubular extensions communicating with the interior thereof, one extension being adapted to receive the mouthpiece of the cornet and the other to enter the cornet-tube, a tube in two slidably-connected sections, said tube passing around the casing across the longitudinal line of the said tubular extensions and having its ends turned inward toward and communicating with the interior of the casing at opposite sides, one section of the said tube being fixedly connected with the casing and the other section being slidable on the first section and slidable also on the casing, for the purpose specified, and a rotary valve working in the casing and provided with a straight passage and two arc-shaped passages, said passages commanding the said tubular extensions, and the tube.

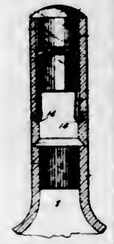
4. A cornet attachment, consisting of a casing provided with oppositely-arranged tubular extensions, one to receive the mouthpiece of the cornet and the other to enter the cornet-tube, a tube formed of two U-shaped sections slidable one upon the other, one section being fixedly secured to the casing and the other slidably connected therewith, a rotary valve in the casing having a stem projecting through the top of the casing and provided with a straight passage and two arc-shaped passages, studs on the top of the casing, and a thumb-piece secured to the stem of the valve and provided with oppositely-projecting springs adapted to engage the said studs, as set forth.

679,645. **MAIL-BOX.** WEBSTER W. SWEIGART, Yorkroad, Md. Filed Feb. 21, 1901. Serial No. 48,286. (No model.)



Claim.—A letter-box comprising a body portion, a tray hinged thereto, one part having a staple and the other a slot to receive the staple, and a fastening device consisting of a bar adapted to pass through the staple, and provided with means for attaching locks to each end thereof on opposite sides of the staple.

679,646. **NON-REFILLABLE BOTTLE.** ALFRED THEBARGE, Laconia, N. H. Filed Nov. 1, 1900. Serial No. 35,160. (No model.)



Claim.—In a device of the class described, the combination of a receptacle having a neck provided with an upper breakable portion, said breakable portion being provided with interior shoulders and having guide-grooves extending from the upper edges of the neck to the said shoulders, a stopper provided with a head, and the fastening device provided with approximately parallel sides clamping the lower portion of the stopper and extending a considerable distance below the same and provided with outwardly-extending arms engaging the shoulders of the neck and adapted to be guided into such engagement by the longitudinal grooves, substantially as described.

679,647. **ARTIFICIAL TOOTH.** JOHN S. THOMPSON, Liverpool, England. Filed Mar. 11, 1901. Serial No. 50,853. (No model.)

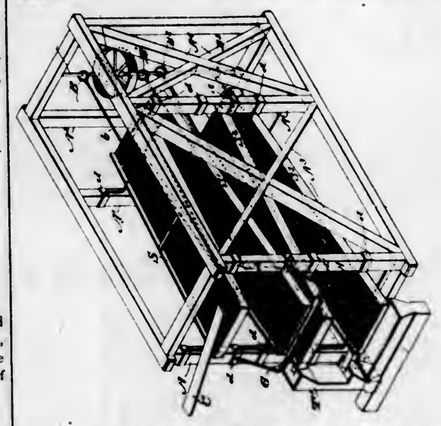


Claim.—An artificial tooth provided at its point of contact with the plate, with a flat heel, having a flat margin for holding against the plate, and with undercut edges at the top and sides, the body of the tooth in front of the heel being provided with vertical and horizontal holes deflected toward the labial surface of the tooth, to bring their entrances into the same vertical plane near the edges of the heel; substantially as described.

679,648. **SIFTING-SCREEN.** ALBERT E. THORNTON, Atlanta, Ga. Filed June 29, 1900. Serial No. 22,065. (No model.)

Claim.—1. A separating-screen comprising a framework having four vertical posts provided with hangers having vertically-adjustable connections with said posts, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at points midway the length of the screens, and means for reciprocating said rods substantially as described.

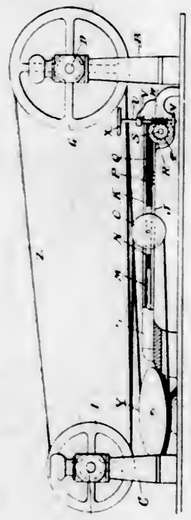
2. A separating-screen comprising a framework having four posts provided with hangers having vertically-adjustable connections with said posts, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at a point midway the length of the screens, one set of rods being connected to their screens below their planes and the alternate set above their planes, and means for reciprocating said rods substantially as described.



3. A separating-screen comprising a framework having four vertical posts provided with hangers having vertically-adjustable connections with said posts, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at points midway between their hangers, one set of rods being connected to their screens below their planes, and the alternate set above their planes, a vertical shaft arranged beyond the ends of the screens and having eccentrics or cranks connecting with and imparting reciprocating motion to said rods and screens substantially as described.

4. A separating-screen comprising a framework having four vertical posts provided with cuffs or sleeves made vertically adjustable thereon, hangers swinging in said cuffs, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at points midway between their hangers, one set of rods being connected to their screens below their planes and the alternate set above their planes, a vertical shaft arranged beyond the ends of the screens and having eccentrics or cranks set quartering, said eccentrics or cranks being connected to the horizontal rods to impart a balanced reciprocating motion to the screens substantially as described.

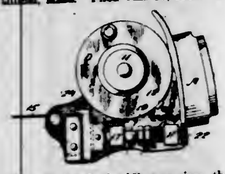
679,649. **ENDLESS-CABLE POWER-TRANSMITTER.** ERNEST P. TIECHE, Newcastle, Pa. Filed Jan. 26, 1901. Serial No. 44,863. (No model.)



Claim.—1. A power-transmitter provided with grooved wheels, a transfer-pulley, a cable adapted to run in the grooves of said wheels and around the transfer-pulley, and a tension device for said cable consisting of a frame, a slidable plate, a pulley carried thereby, a drum, a cable thereon, a spring connecting said cable with the slidable plate, and means for operating said drum to adjust the tension of the spring, substantially as shown and described.

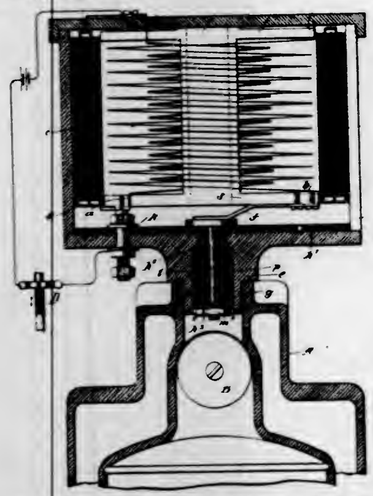
2. A power-transmitter provided with grooved wheels, a transfer-pulley, an endless cable adapted to run in the grooves of said wheels and around the transfer-pulley, and a device for taking up the slack in said endless cable, consisting of a frame, a slidable plate, a pulley carried thereby, a drum, a cable thereon, a worm and a gear-wheel for operating said drum, a hand-wheel on the worm-shaft, and a spring one end connected to the slidable plate and the opposite end to the cable of the tension device, substantially as shown and described.

679,650. **TENSION FOR BRAIDING-CARRIERS.** JULIUS A. TUBER, Southfield, Mass. Filed Jan. 11, 1901. Serial No. 42,875. (No model.)



Claim.—1. In a tension for braiding-carriers, the combination, with a base, a reel mounted to revolve upon the base, a brake for the reel and a stationary thread-guide secured upon the base at one side of the reel, which guide is in the form of a rectangular block, of a tension rod or stem, one end of which faces the thread-guide, supports in which the rod or stem has sliding movement, said rod or stem being provided with a thread between its ends, a nut upon the threaded portion of the rod or stem, and a spring encircling the rod, resting against the nut and a bearing for the rod, a knob at the outer end of the tension-rod, and a head at its inner end, a pressure-block parallel with and close to the stationary thread-guide, a pivotal connection between the pressure-block and head of the tension-rod, and a bifurcated guide member at one end of the pressure-block, extending in direction of one end of the stationary thread-guide, as set forth.

679,651. **ELECTRICAL IGNITION APPARATUS.** ADELBERT R. VOLLERTSEN, Aix-la-Chapelle, Germany. Filed Aug. 30, 1899. Serial No. 729,009. (No model.)

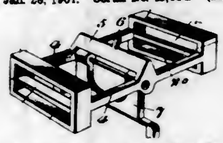


Claim.—1. An igniter consisting of a casing of magnetizable material, a stationary induction-coil within said casing, and stationary, permanently-separated igniter-points connected with said coil.

2. An igniter consisting of a metal casing forming an electrode, an induction-coil located within the casing and having its primary and its secondary connected with the casing, another electrode insulated from the casing and connected with the free end of the secondary and a binding-post connected with the free end of the primary.

3. An igniter consisting of an induction-coil having a primary and a secondary, igniter-points connected with the secondary, and a condenser surrounding the coil and connected with the primary thereof.

679,652. **FASTENING DEVICE.** MYRON S. WALKER, Evart, Mich. Filed Jan. 28, 1901. Serial No. 45,084. (No model.)



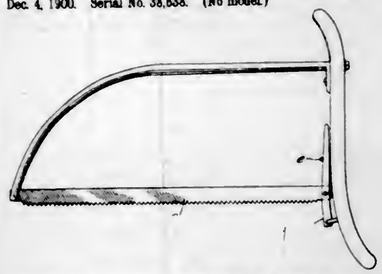
Claim.—1. In a device of the class described, the combination with a frame having transverse loops at its ends through which a strap is passed, of a tongue pivoted to the frame and having a free swinging movement between the loops, the pivot being nearer one loop than the other, said tongue having a transversely-disposed clamping edge that engages the inner face of the strap and clamps it against the edge of the nearer loop but is arranged to drop beneath the edge of the other loop to disengage the strap and permit of the free passage of the same through said loops.

2. In an article of the class described, the combination with a frame comprising a pair of transverse end loops connected by opposite side bars, said side bars being connected by an intermediate cross-bar having an upstanding stud, of a locking-tongue pivoted to intermediate portions of the side bars and closer to one loop than the other, said tongue being provided with a clamping edge extending substantially the width of the frame and arranged to coact with said nearer loop to form a clamp in which a strap passed through the frame is adapted to be held, said tongue being furthermore arranged to be swung below the plane of the outer edge of the other loop with its gripping edge disengaged from the strap to permit of the ready movement of the same through the frame.

3. In a device of the class described, the combination with a frame having transverse loops at the ends thereof through which the strap is passed, of a tongue pivoted to the frame and having a free swinging movement between the loops, the pivot being nearer one loop than the other, said tongue having a transversely-disposed clamping edge at its outer end, said edge being of a width substantially equal to the width of the opening through the loop, and provided at its ends with outstanding guide-ears that project beyond the outer face of the strap and constitute operating-fingers, the clamping edge being arranged to engage the under side of the strap and clamp it against the edge of the nearer loop and adapted to drop beneath the edge of the other loop to disengage the strap and permit of the free passage of the same through said loops.

4. In a device of the class described, the combination with a frame having transverse loops at its ends through which the strap is passed, said strap being located on both sides of the frame, of a stud rigidly mounted on the frame and projecting from one side thereof, said stud maintaining a fixed relation to the loops and engaging the portion of the strap on one side of the frame, and a movable tongue pivotally mounted on the side of the frame which is opposite said stud and coacting with one of the loops to clamp the portion of the strap which is on said opposite side of the frame.

679,653. **HANDSAW.** CHARLES G. WELLS, Hartford, Conn. Filed Dec. 4, 1900. Serial No. 38,638. (No model.)



Claim.—In combination; the saw-handle, the curved reach extending from its upper portion outward and downward, the saw-blade attached at its outer end to the reach, the straining-lever pivoted between its extremities to the inner end of the blade and standing wholly inside of said handle, a link or eye pivotally connecting one end of the said lever with the handle, and a catch or hook on the handle above the blade

with which said lever is adapted to be detachably engaged—all as and for the purpose set forth.

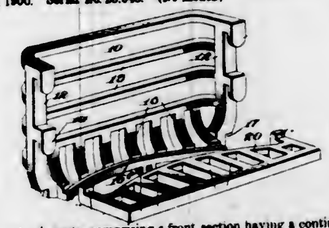
679,654. **BURGLAR-ALARM.** WILLIAM J. WERNETTE, Remus, Mich. Filed Jan. 25, 1901. Serial No. 44,731. (No model.)



Claim.—1. A base of conducting material having an aperture, a case of non-conductive material secured to said base, and a substantially U-shaped spring one branch of which is connected to the case and the other branch of which is free and has a button of non-conductive material projecting through said aperture and said spring and base constituting the terminals of an electric circuit.

2. A base of conducting material having an aperture, a case of non-conductive material secured to said base and open at each end, a substantially U-shaped spring one branch of which is connected to the case and the other branch of which is free, and said spring and base constituting the terminals of an electric circuit, and a button of non-conductive material in engagement with the free end of said spring, one portion of the button projecting from the outer face of said base.

679,655. **GRATE.** THOMAS H. WHITEHEAD, Americus, Ga. Filed July 14, 1900. Serial No. 23,643. (No model.)



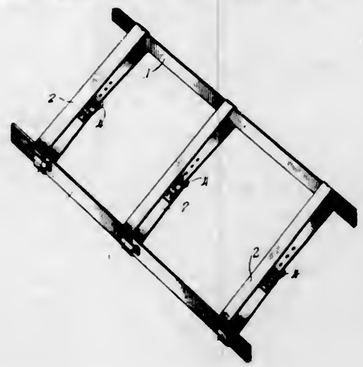
Claim.—1. A grate, comprising a front section having a continuous supporting-flange along the lower edge thereof and having its lower end portions cut away to form shoulders, a bottom section provided with a continuous flange adapted to rest upon the supporting-flange of the front section, and a pair of upturned hooks carried by the bottom section and arranged to engage the said shoulders of the front section.

2. A grate comprising a front section, a bottom section having an interlocking engagement with the front section, interlocking ears carried by the respective sections, and means for securing said ears together.

3. In a grate, a front section, a bottom section pivotally connected with the front section, and means located contiguous to the pivotally-jointed portions of the two sections and on the exterior face of the grate to hold said sections against relative movement.

4. In a grate, a front section, a bottom section pivotally and detachably interlocked with the front section, and means located contiguous to the interlocking portions of the two sections and on the exterior face of the grate to hold said sections against relative movement.

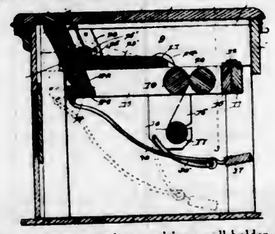
679,656. **MATTRESS-HOLDER.** CECELIA A. WHITING, Tacoma, Wash. Filed Sept. 17, 1900. Serial No. 30,356. (No model.)



Claim.—1. Means for the prevention of lateral spreading of stuffed mattresses, comprising pieces of rigid material adapted to be laid against the sides of the mattress, said pieces being of the length of the mattress and of a height equal to the thickness of the mattress, flexible connections between said side pieces adapted to pass over and under the mattress, and means for adjusting the length of said connections, substantially as described.

2. Means for preventing the lateral spreading of a stuffed mattress, comprising pieces of rigid material of the length of the mattress and of a height equal to the thickness thereof, laid against the sides of the mattress, flexible connections between the side pieces passing over and under the mattress, means for adjusting the extent of said connections whereby the side pieces may be adapted to mattresses of varying widths, and means for preventing the displacement of the flexible connections on the side pieces, substantially as described.

679,657. **PAPER-RACK.** FRANK WILLIAMS, Portland, Mo. Filed Feb. 13, 1901. Serial No. 47,145. (No model.)



Claim.—1. A paper-rack comprising a roll-holder, a reciprocatory frame having jaws for engagement with the paper from the holder to project the paper, supplemental jaws adapted to grip the paper and hold it against return movement with the first-named jaws, and means in the path of return movement of the frame for operating the supplemental jaws.

2. A paper-rack comprising a roll-holder, jaws disposed to receive the paper between them and adapted for operation to grip the paper, additional jaws disposed to receive the paper between them and located between the roll and the first-named jaws, the second jaws being adapted for slight frictional engagement with the paper, means for projecting the second jaws to feed the paper between the first jaws, and means connected with the first jaws for operating them to grip the paper, said means being connected with the feeding-jaws for operation by return movement thereof.

3. A paper-rack comprising a roll-holder, movable feed-jaws adapted for slight frictional engagement with the paper from the roll to unwind and project it when moved in one direction, and supplemental jaws disposed to grip the paper and hold it against return movement with the feed-jaws, and means operably connected with the feed-jaws and the supplemental jaws, for projecting and retracting the feed-jaws and for moving the supplemental jaws into engaging position upon return movement of the feed-jaws.

4. A paper-rack comprising a roll-holder, movable feed-jaws adapted for slight frictional engagement with the paper from the roll to unwind and project it when moved in one direction, supplemental jaws disposed beyond the feed-jaws to hold the paper against return movement with the feed-jaws and means operably connected with the feed-jaws and the supplemental jaws, for projecting and retracting the feed-jaws and for moving the supplemental jaws into engaging position upon return movement of the feed-jaws.

5. A paper-rack comprising a casing having an opening therein a frame slidably disposed within the casing and carrying feeding-jaws, a roll-holder, said jaws being adapted to receive paper from the roll and project it through the opening, as the frame is moved in one direction, gripping-jaws in the opening of the casing and adapted to receive the paper between them to grip it at times, and a finger depending from one of the gripping-jaws into the path of movement of the frame to operate the jaw to grip the paper when the frame moves rearwardly.

6. A device of the class described comprising a casing having a feed-opening, a frame slidably mounted in the casing, a roll-holder to receive paper, feed-jaws carried by the frame for feeding the paper through the opening, and supplemental jaws operably connected with the frame for actuation by the return movement of the frame to grip the paper and hold it from return movement with the feeding-jaws.

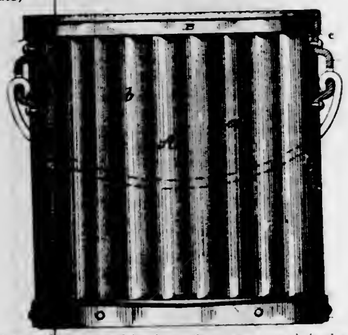
7. A paper-rack comprising a paper-holder, a reciprocatory frame having feed-jaws for engagement with the paper to project it, and supplemental jaws operably connected with the frame for actuation by the return movement of the frame to grip the paper and hold it against return movement with the feed-jaws.

8. A paper-rack comprising a paper-holder, movable feed-jaws adapted for slight frictional engagement with the paper from the holder to project it when moved in one direction, supplemental jaws disposed to grip the paper and hold it against return movement with the feed-jaws, and means operably connected with the feed-jaws and the supplemental jaws for actuating the supplemental jaws upon return movement of the feed-jaws.

9. A device of the class described comprising a casing having a feed-opening, a frame slidably mounted in the casing, a paper-holder, jaws carried by the frame for engagement with the paper to project it through the feed-opening when the frame is moved in one direction, supplemental jaws beyond the feed-jaws for engagement with the paper to hold it against return movement with the feed-jaws, and means connected with the supplemental jaws and lying in the path of return movement of the frame to operate the supplemental jaws to grip the paper.

10. A device of the class described comprising a casing having a feed-opening, a paper-holder, a reciprocatory frame, guideways, a rocker pivoted to the frame and engaged with the guideways, said rocker having feeding-jaws to receive a feed-paper through said opening, supplemental jaws between the feed-jaws and the opening, a finger for operating the supplemental jaws and lying in the path of return movement of the frame to operate the supplemental jaws and prevent return movement of the paper, and a treadle connected with the frame to project it, said frame being adapted for return movement when the treadle is released.

679,658. **RECEPTACLE FOR GARBAGE OR ASHES.** GEORGE C. WITT, Cincinnati, Ohio. Filed Aug. 24, 1900. Serial No. 27,953. (No model.)



Claim.—As a new article of manufacture a receptacle having a general cylindrical form, the extreme ends of the body being offset forming internal annular shoulders, a strengthening band or ring located within the upper offset end and resting on the shoulder and secured in place by bending the upper free end over the upper edge of the ring, a flanged bottom located within the offset lower end and bearing against the shoulder, the flange of the bottom resting within the offset end of the body, the lower end of the latter being turned under the lower edge of the flange of the bottom, and a strengthening-ring located under the bottom and against the upturned end of the body and secured in place by rivets passing through the ring, flange and body substantially as described.

679,659. **BELL.** DAVID P. WOLHAUPTER, Washington, D. C. Filed Mar. 23, 1901. Serial No. 52,579. (No model.)



Claim.—1. In a bell of the class described, a laterally-tiltable support, an upright gong pendent from said support, and adapted to hang alongside of and in close proximity to the wheel of the vehicle, and a rotatable striker working within the gong and carrying an operating-wheel exterior to the gong at the top thereof.

2. In a bell of the class described, a laterally-tiltable normally upright support, an upright gong pendent from said support and adapted to hang alongside of the wheel of the vehicle, a rotatable striker working within the gong and carrying an operating-wheel exterior to the gong and movable with the tiltable support, and means for moving the support to provide for simultaneously swinging the gong outward away from the wheel of the vehicle, and the operating-wheel inward against the latter.

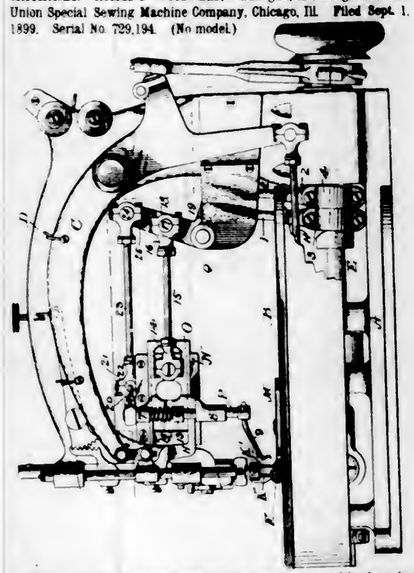
3. In a bell of the class described, the combination of a suitable support, an upright gong suspended at its crown from said support and adapted to hang in an upright position alongside of the vehicle-wheel, a striker working within the gong and carrying an exterior operating-wheel located above the gong and movable with the tiltable support, and means for causing the gong to swing outward away from the vehicle-wheel and simultaneously carrying the operating-wheel inward against the vehicle-wheel.

4. In a bell of the class described, a support, a tiltable bracket pivoted to said support upon an approximately horizontal axis, an upright gong suspended at its crown from said support, and a rotatable striker working within the gong and carrying an exterior operating-wheel located above the gong and movable with the tiltable bracket, the axis of the striker and the pivotal axis of the bracket being disposed at substantially right angles, whereby the gong may swing outward away from the vehicle-wheel simultaneously with the movement of the operating-wheel inward against the latter.

5. In a bell of the class described, a fork-clip, a normally upright spring-returned tiltable bracket pivotally connected with said clip, and provided with upper and lower bracket-arms, complementary gongs arranged mouth to mouth, and respectively fitted to the separate bracket-arms, and a striking device comprising an operating-shaft carrying an exterior wheel and an interior U-shaped striker, having its separate members working respectively in the separate gongs.

6. In a bell, the combination with a suitable support, of a pair of complementary gongs arranged mouth to mouth and carried by said support, and a rotatable centrifugal striking device having separate members working respectively in the separate gongs, said centrifugal striking device being carried entirely by one of the gongs and having an exterior operating-wheel.

679,660. **THREAD-MANIPULATING DEVICE FOR SEWING-MACHINES.** RUSSEL G. WOODWARD, Waukegan, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Sept. 1, 1899. Serial No. 729,194. (No model.)



Claim.—1. In a sewing-machine in combination with the stitch-forming mechanism thereof, a thread-manipulating device arranged on a vertical support with means for reciprocating said thread-manipulating device transversely of the line of feed, and means for oscillating it on its vertical axis of support; substantially as described.

2. In a sewing-machine, in combination with the stitch-forming mechanism thereof including a plurality of needles, a thread-manipulating device arranged on a vertical support with means for moving said thread-manipulating device transversely of the line of feed, in a plane below the points of the needles, means for oscillating it on its supporting axis, and means for returning it to its first position; substantially as described.

3. In a sewing-machine having suitable stitch-forming mechanism, a thread-manipulating device, a vertical shaft supporting the same, means for oscillating said shaft, a support for said shaft, and means for reciprocating said support; substantially as described.

4. In a sewing-machine having suitable stitch-forming mechanism, a thread-manipulating device, a vertical shaft supporting the same, means for oscillating said shaft, a gate or frame on which said shaft is journaled, a stationary frame on which said gate or frame is supported; and means for reciprocating said gate or frame on its supporting stationary frame; substantially as described.

5. In a sewing-machine, in combination with the stitch-forming mechanism, a driving-shaft, a thread-manipulating device, a sliding support therefor, and means for operating said thread-manipulating device comprising a bell-crank lever, connections between the bell-crank lever and said support and eccentric connections between the bell-crank lever and the driving-shaft; substantially as described.

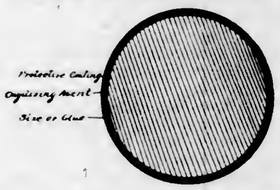
6. In a sewing-machine, in combination with the stitch-forming mechanism, a driving-shaft, a thread-manipulating device, a shaft supporting the same, a sliding support for the shaft, a bell-crank lever oscillated from the driving-shaft and operatively connected with the shaft which supports the thread-manipulating device, and a second bell-crank lever oscillated from the driving-shaft, and operatively connected with the sliding support; substantially as described.

7. In a sewing-machine, the combination with two vertically-reciprocating thread-carrying eye-pointed needles, and complemental stitch-forming mechanism, an oscillating and reciprocating thread-manipulating device with means for moving it into position to engage the thread of one of the needles, and to carry it across into position to be engaged by the other needle, and then to move it toward the rear of the machine to pass out of the loop; substantially as described.

8. In a sewing-machine including a plurality of needles, a thread-manipulating device arranged on a vertical support, with means for reciprocating it to carry a loop of thread across the line of the seam and means for oscillating it to release the loop of thread and for returning it in a plane back of the needles to its initial position.

9. In a sewing-machine having a plurality of needles, a thread-manipulator arranged to engage the thread of one of the needles and carry it across into position to be engaged by the other needle and a pull-off 28, adapted to engage the thread acted upon by the manipulator, whereby an extra amount of slack is supplied to said thread; substantially as described.

679,661. **DETONATING TOY.** WILLIAM H. WYTHE, Bloomfield, N. J. Filed Feb. 4, 1901. Serial No. 46,014. (No model.)



Claim.—1. As an article of manufacture, a detonating toy consisting of two bodies, each provided with a non-combustion-maintaining coating of one of the two components of a detonating compound, substantially as described.

2. As an article of manufacture, a detonating toy consisting of two bodies, one of which bodies is globular in form, each provided with a non-combustion-maintaining coating of one of the two components of a detonating compound, substantially as described.

3. As an article of manufacture, a detonating toy consisting of two bodies of globular form, each provided with a non-combustion-maintaining coating of one of the two components of a detonating compound, substantially as described.

4. As an article of manufacture, a detonating toy consisting of two bodies, adhesive coatings of non-combustion-maintaining size or glue for said bodies and each of said bodies provided with a thin layer of one of the two components of a detonating compound upon said size or glue, substantially as described.

5. As an article of manufacture, a detonating toy consisting of two bodies, one of said bodies provided with a non-combustion-maintaining coating of an oxidizing agent and the other with a similar coating of a readily-oxidizable substance, substantially as described.

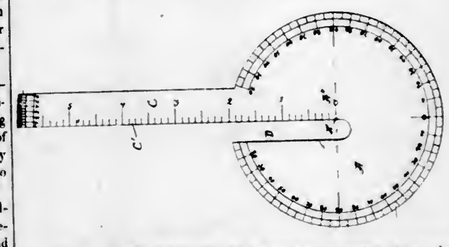
6. As an article of manufacture, a detonating toy consisting of two bodies, one of said bodies provided with a non-combustion-maintaining coating of chlorate of potash and the other with a similar coating of amorphous phosphorus, substantially as described.

7. As an article of manufacture, a detonating toy consisting of two bodies, adhesive coating of non-combustion-maintaining size or glue for said bodies, one of said bodies provided with a thin layer of an oxidizing agent upon said size or glue and the other with a similar layer of a readily-oxidizable substance upon said size or glue, substantially as described.

8. As an article of manufacture, a detonating toy consisting of two bodies, adhesive coatings of non-combustion-maintaining size or glue for said bodies, one of said bodies provided with a thin layer of chlorate of potash upon said size or glue and the other with a similar layer of amorphous phosphorus upon said size or glue, substantially as described.

9. As an article of manufacture, a detonating toy consisting of two bodies, each provided with a non-combustion-maintaining coating of one of the two components of a detonating compound, and an outer protective coating of non-combustion-maintaining material, substantially as described.

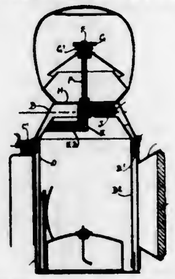
679,662. **PROTRACTOR.** GUSTAV A. ALMORTH, Cambridge, Mass. Filed Oct. 15, 1900. Serial No. 33,056. (No model.)



Claim.—1. The herein-described protractor consisting of a graduated disk provided with a radial recess, eccentrically-arranged opening, and a centrally-arranged notch on one side of said recess, a radially-extending blade formed integral with said disk, provided with a graduated scale and a scale at the outer end thereof, combined with a detachable U-shaped centering-pin adapted to be mounted in said opening and engaging said notch, substantially as described.

2. The herein-described protractor consisting of a graduated disk having a radial recess, an eccentrically-arranged opening and a centrally-arranged notch on one side of said recess, combined with a detachable U-shaped centering-pin adapted to be mounted in said opening and engage said notch, substantially as described.

679,663. **HAND SIGNALING-LAMP.** ALFRED E. APPLETON, Oldbury, England. Filed Oct. 14, 1899. Serial No. 733,615. (No model.)

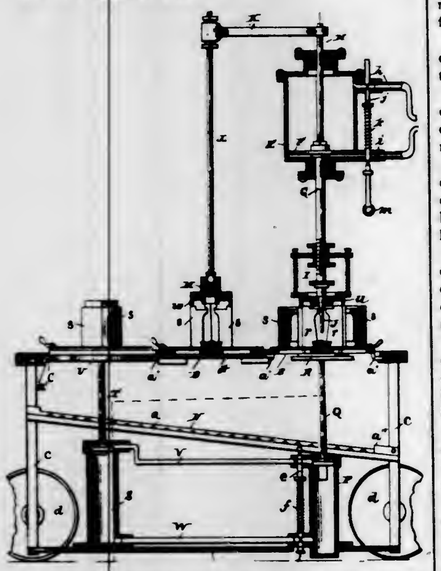


Claim.—1. The combination with a casing of a hand-lamp and a chimney for said casing, of a frame fitted with differently-colored glasses and rotatably arranged within the casing of the lamp, an upwardly-extending operating-rod secured to the rotatable frame and adapted to be operated at its upper end from the outside of the body of the lamp, a spring-actuated bolt, a casing therefor carried by a bar secured to the chimney, a cam device on and rotatable with the operating-rod, the inner end of the spring-actuated bolt normally bearing against the cam device, whereby said bolt acts to hold the rotatable frame in different positions with one of the glasses intermediate the flame of the lamp and the lens of the latter.

2. The combination with a hand-lamp, of a frame fitted with differently-colored glasses and rotatably arranged within the casing of the lamp, an operating-rod secured to the rotatable frame and extending exteriorly and adapted to be operated from the outside of the body of the lamp, a bolt-casing, a spring-actuated bolt therein, a cam E having flat faces, se-

cured to the rod at a point opposite the bolt and adapted to be normally engaged and held by the latter.

679,664. **MACHINE FOR THE MANUFACTURE OF GLASSWARE.** CHARLES E. BLUE, Wheeling, W. Va. Filed Mar. 7, 1898. Serial No. 672,889. (No model.)



Claim.—1. A machine for the manufacture of glassware, comprising a support adapted to receive a plurality of molds, and a plurality of disconnected molds movable in succession upon said support.

2. A machine for the manufacture of glassware, comprising a support adapted to receive a plurality of molds, a plurality of disconnected molds movable in succession upon the support, the support constructed at one end to receive and at the opposite end to permit the molds to pass therefrom, and a glass-forming mechanism coacting with the mold.

3. A machine for the manufacture of glassware, comprising a support adapted to receive a plurality of molds, a plurality of molds movable in succession upon and independent of said support, means for holding the molds a predetermined distance apart, a press-head and a blow-head supported apart a distance equal to the predetermined distance of the molds whereby the heads will engage the molds.

4. A machine for the manufacture of glassware, comprising a support, a plurality of disconnected molds movable in succession upon said support, the movement of one mold effecting a corresponding movement of the other mold or molds, and a glass-forming mechanism coacting with the molds.

5. A machine for the manufacture of glassware, comprising a support adapted to receive a plurality of molds, a plurality of independent molds movable in succession upon said support, one mold abutting against its succeeding mold, whereby the movement of the rear mold effects a movement of the succeeding mold or molds, and a glass-forming mechanism coacting with the molds.

6. A machine for the manufacture of glassware comprising a support adapted to receive a plurality of molds, a press and a blow mold movable in succession upon and independent of said support, the two molds engaging for holding them a predetermined distance apart and whereby a movement of the press-mold effects a corresponding movement of the blow-mold, and a press and a blow head supported a distance apart equal to the distance between the molds for the purpose described.

7. A machine for the manufacture of glassware comprising a plurality of disconnected molds supported and moved in operative position in one plane, and returned to operative position upon a different plane, and a glass-forming mechanism in the operative plane and coacting with the molds.

8. A machine for the manufacture of glassware comprising a plurality of disconnected molds, an operative way in one plane and a return-way in a different plane, and a glass-forming mechanism coacting with the molds in the operative plane.

9. A machine for the manufacture of glassware comprising a plurality of molds, an operative way in one plane, a return-way in a different plane, the return-way receiving the molds from the rear end of and delivering them for the front end of the operative way.

10. A machine for the manufacture of glassware comprising a plurality of independent molds, an operative way, a return-way situated therebelow, the front end of the return-way being in a vertical line below the rear end of the operative way and its rear end in a vertical line below the front end of the operative way.

11. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, and means for taking the molds from one way and delivering them to the other way.

12. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, a mold-lowering member at the receiving end of the return-way, and a mold-raising member at the delivery end of the way.

13. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, a mold-lowering member at the receiving end and a mold-raising member at the delivery end of the return-way, and means for simultaneously operating said lowering and raising members.

14. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, a mold-lowering member at the receiving end of and a mold-raising member at the delivery end of the return-way, and means for moving said members simultaneously in the same direction.

15. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, a mold-lowering member at the receiving end and a mold-raising member at the delivery end of the return-way, and a single member controlling the lowering and raising members.

16. A machine for the manufacture of glassware, comprising an operative way, a return-way therebelow, a plurality of molds, the operative way having openings therein through which it receives the molds from and delivers them to the return-way.

17. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, the operative way having openings therein through which it receives the molds from and delivers them to said return-way, and elevating and lowering members situated respectively under and registering with said openings.

18. A machine for the manufacture of glassware comprising an operative way, a return-way therebelow, a plurality of molds, the operative way having openings through which said molds are delivered to and received from said return-way, the openings having catches for supporting the molds therein, and operating members for said molds adapted to move the catches for releasing the molds.

19. A machine for the manufacture of glassware, comprising an operative way, a plurality of independent molds movable upon said way, and a return-way adapted to receive said molds and declining toward the receiving end of said operative way.

20. A machine for the manufacture of glassware comprising an operative way, a plurality of independent molds movable upon said way, a return-way situated below the operative way and declining toward the receiving end of the operative way for the purpose described.

21. A machine for the manufacture of glassware comprising an operative way, a plurality of independent molds movable upon said way, and a return-way constructed and adapted to carry said molds from the receiving to its delivery end.

22. A machine for the manufacture of glassware comprising a straight operative way, a plurality of independent molds movable upon said way, and means for returning said molds to the receiving end of the operative way.

23. A machine for the manufacture of glassware comprising an operative way having a receiving end and a delivery end, a plurality of independent molds movable upon said way, a presser-head situated at the receiving end of the way, and a blow-head situated intermediate the ends of the way.

24. A machine for the manufacture of glassware comprising an operative way having a receiving-opening at one end and a delivery-opening at the opposite end, a presser situated over the receiving-opening and a blower situated at a point intermediate the openings.

25. A machine for the manufacture of glassware comprising a plurality of independent molds, an operative way adapted to receive and deliver said molds, an incline return-way situated below said operative way and provided with rollers which receive, support and upon which the molds travel by gravity upon said way.

26. A machine for the manufacture of glassware comprising a plurality of independent molds, an operative way adapted to receive and deliver said molds, a return-way situated below the operative way and consisting of parallel mold-supports, and elevating and lowering members for the molds moving between said rails.

27. A machine for the manufacture of glassware comprising a plurality of independent molds, an operative way adapted to receive and deliver said molds, and a return-way consisting of two parallel inclined series of rollers upon which the molds travel by gravity.

28. A machine for the manufacture of glassware comprising a plurality of independent molds, an operative way adapted to receive and deliver said molds, and a gravity-acting return-way for the molds.

29. A machine for the manufacture of glassware comprising a plurality of molds, an operative way, a return-way, a cylinder situated under each end of said ways, pistons therefor adapted to respectively lift and lower said molds from and to the return-way, a source of power having connection with said cylinders, and a controller common to both cylinders.

30. A machine for the manufacture of glassware comprising a plurality of molds, an operative way, a return-way, a cylinder situated under each end of said ways, pistons therefor adapted to respectively lift and lower said molds from and to the return-way, a source of power having communication with said cylinders, and a controller constructed to simultaneously establish communication with corresponding ends of said cylinders.

31. A machine for the manufacture of glassware, comprising an operative way adapted to receive and deliver molds, a return-way adapted to receive and deliver molds, a lifting member at the delivery end of said return-way, the return-way having a stop situated to hold the mold over said lifting member.

32. A machine for the manufacture of glassware comprising a cylinder, a piston therefor, a piston-rod connected with said piston and projecting through both ends of the cylinder, a presser-head connected with one end of said rod, and a blow-head connected with the other end of said rod.

33. A machine for the manufacture of glassware comprising an operative way, a return-way, a plurality of independent molds movable upon said operative way, an elevating member for said molds, said member and molds having interlocking members.

34. A machine for the manufacture of glassware comprising a support adapted to receive a plurality of molds, and a plurality of molds independently movable upon said support in succession and independently movable laterally in respect to said support.

35. A machine for the manufacture of glassware comprising a support adapted to receive a plurality of molds, a plurality of open and shut molds movable in succession upon said support, the molds having abutting members serving to separate them and to cause the movement of one mold to effect the movement of the succeeding molds.

36. A machine for the manufacture of glassware comprising a plurality of independent molds supported and moved in operative position in one plane and independently returned to operative position upon a different plane, and a glass-forming mechanism in the operative plane and coacting with the mold.

37. A machine for the manufacture of glassware comprising an operative way in one plane and a return-way in a different plane, a plurality of independent molds supported and moved in operative position upon the operative way and returned to operative position upon the return-way, and a glass-forming mechanism coacting with the molds in the operative plane.

38. A glass-forming machine comprising a mold-support, a press-mold vertically movable in respect to said support to carry it to the pressing position, a pressing mechanism adapted to coact with said press-mold, a blow-mold supported by said support, and a vertically-movable blowing mechanism adapted to coact with the supported blow-mold.

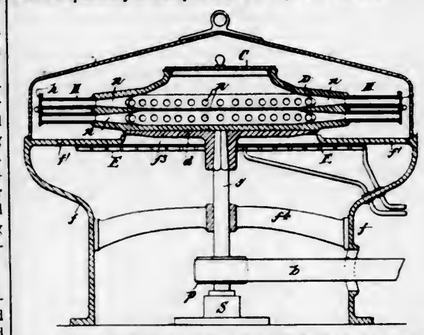
39. A glass-forming machine comprising a pressed-blank-supporting track, a vertically-movable piston located below the way, a press-mold movable vertically through said way by said piston, a pressing mechanism, a blowing mechanism, a pressed-blank support movable upon said track from the pressing to the blowing position, and pressing and blowing mechanisms cooperating respectively with the press and blow molds.

679,665. **APPARATUS FOR FILLING CARTRIDGE-LIKE ENVELOPS.** NORBERT CHIPEK, Vienna, Austria-Hungary. Filed May 5, 1900. Serial No. 15,627. (No model.)

Claim.—1. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles, and means for supplying heat to said drum; in combination with means for detachably connecting a tube or shell to be filled or loaded with a nozzle, for the purpose set forth.

2. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles, and open-ended tubular holders for the tubes or shells to be filled or loaded, constructed for connection with the nozzles, said tubes or shells adapted to move along their holders under the pressure of the material forced into the same, substantially as set forth.

3. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles and open-ended tubular holders for the tubes or shells to be filled or loaded, constructed for connection with said nozzles, said tubes or shells adapted to move along their holders under the pressure of the material forced into the same, and means for regulating said movement independently of said pressure, for the purpose set forth.



4. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles, and means for supplying heat to said drum; in combination with tubular open-ended holders for the tubes or shells to be filled or loaded, and an abutment at the outer end of each holder for the closed end of the tube or shell, for the purpose set forth.

5. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles and open-ended tubular holders for the tubes or shells to be filled or loaded, constructed for connection with said nozzles; in combination with an abutment at the outer end of each holder for the closed end of the tube or shell carried thereby, said abutment movable under the pressure of the material forced into such tube or shell, for the purpose set forth.

6. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles and open-ended tubular holders for the tubes or shells to be filled or loaded, constructed for connection with said nozzles; in combination with an abutment at the outer end of each holder for the closed end of the tube or shell carried thereby, said abutment movable under the pressure of the material forced into such tube or shell, and means for regulating said movement independently of said pressure, for the purpose set forth.

7. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles and tubular open-ended holders for the tubes or shells to be filled or loaded, and constructed for connection with said nozzles; in combination with an abutment at the outer end of each holder and adapted to bear on the closed end of the tube or shell carried thereby, a carrier for said abutment having motion parallel with the axis of said holder under the pressure exerted on the closed end of the tube or shell by the material forced into the same, and means for moving said carrier and its abutment into and out of contact with the holder and shell or tube, for the purpose set forth.

8. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles and tubular open-ended holders for the tubes or shells to be filled or loaded, and constructed for connection with said nozzles; in combination with an abutment at the outer end of each holder and adapted to bear on the closed end of the tube or shell carried thereby, a carrier for said abutment having motion parallel with the axis of said holder under the pressure exerted on the closed end of the tube or shell by the material forced into the same, and means for regulating the travel of the carrier, for the purpose set forth.

9. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles and tubular open-ended holders for the tubes or shells to be filled or loaded, and constructed for connection with said nozzles; in combination with an abutment at the outer end of each holder and adapted to bear on the closed end of the tube or shell carried thereby, a carrier for said abutment, a support for and on which said carrier has motion parallel with the axis of the holder, and a friction-brake controlling the speed of travel of the carrier, for the purpose set forth.

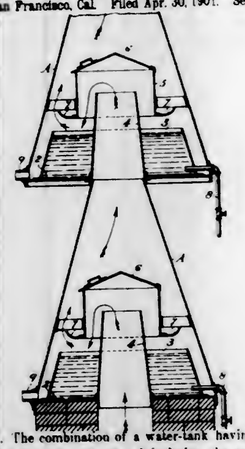
10. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles, holders for the tubes or shells to be filled, constructed for connection with said nozzles, an abutment at the outer end of each holder and adapted to bear on the closed end of the tube or shell carried thereby, a carrier for said abutment, a support for and on which said carrier has motion, said support hinged to the centrifugal drum below the aforesaid holders, means for holding the support in a horizontal position, and a friction-brake for the carrier, for the purpose set forth.

11. In a machine such as described, a centrifugal drum having peripheral discharge-nozzles, holders for the tubes or shells to be filled, constructed for connection with said nozzles, an abutment at the outer end of said holders, and the closed end of the tube or shell carried thereby, car-

rier for said abutment, a support for and on which said carrier has motion, said support hinged to the centrifugal drum below the aforesaid holders, means for holding the support in a horizontal position, a friction-brake for the carrier, and means for regulating the amplitude of the travel of the carrier along its support, for the purpose set forth.

12. In a machine such as described, a centrifugal drum having peripheral tubular discharging devices, said devices comprising a fixed nozzle and a detachable tubular holder for the tube or shell to be filled, whereby holders of different lengths can be interchangeably used with the nozzles, for the purpose set forth.

679,666. **SMOKE-CONDENSER FOR CHIMNEYS.** LEONARD E. CLAWSON, San Francisco, Cal. Filed Apr. 30, 1901. Serial No. 58,128. (No model.)



Claim.—1. The combination of a water-tank having a passage in line with a smoke-flue, a cap above and inclosing the upper end of the passage and having its lower end near the tank, and an inclosure for the cap and tank separated from the walls of the latter to form a smoke-passage and separated from the walls of the tank to form an overflow-water passage, and means for supplying the tank with water.

2. The combination with a chimney of a water-tank located therein, and separated from the inner walls thereof to form an overflow-passage for water, means for supplying the tank with water, a flue by which products of combustion pass above the tank, a hood or cap by which said products are thrown downward into contact with the surface of the water, said cap or hood having its outer walls separated from the walls of the chimney to form a final escape-passage.

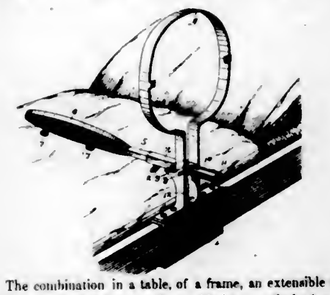
3. The combination of a chimney, with one or more water-tanks contained therein, passages through said tanks, hoods or caps located above said passages and separated from the inner walls of the chimney to form a final escape-passage, and adapted to divert the products of combustion downwardly upon the surface of the water contained within the tank, said hoods having tops capable of being opened to give access to the smoke-passages, and having outwardly-projecting flanges at the bottom whereby the products of combustion are carried outwardly along the surface of the water and then allowed to escape upwardly within the chimney.

679,667. **ADJUSTABLE INVALID'S TABLE.** SAMUEL M. DAVIS, San Francisco, Cal. Filed Dec. 13, 1900. Serial No. 39,688. (No model.)

Claim.—1. The combination in a table of an open center frame in which an arm is pivotally secured, and which is movable therein in a vertical plane, a tray or holder portion attached to this arm, means by which this arm and tray may be supported in a horizontal position, and means by which they may be held in a vertical position within the open center of the frame.

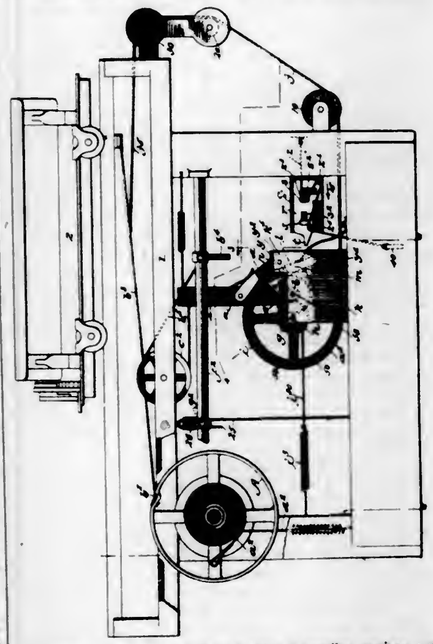
2. The combination in a table, of a frame, an arm pivotally secured in this frame, a tray or holder turnably secured to the end of this arm, said arm and tray movable in a vertical plane in the frame, means by which this arm may be extended, and means by which it may be supported in a horizontal position.

3. The combination in a table of a frame, an extendible arm pivotally secured in this frame and carrying a tray or holder, said arm and tray movable in a vertical plane in this frame, means by which the arm may be supported in a horizontal position, a handle extension of this arm by which it is moved on its pivots, a locking means in the end of this handle by which the arm and tray are held in a vertical position within the frame.



4. The combination in a table, of a frame, an extensible table-arm pivotally secured in this frame and movable in a vertical plane therein, means by which this arm may be supported in a horizontal position, and means by which it may be held in a vertical position in the frame when swung upward, and an extensible base or standard to which this frame may be secured.

679,668. **TYPE-WRITING MACHINE.** WILLIAM H. FLANAGAN, Grants Pass, Oreg. Filed May 1, 1900. Serial No. 15,075. (No model.)



Claim.—1. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected with said spring, key-operated mechanism including a pawl and a ratchet-wheel, for rotating said wheel, and pawl-tripping means on the wheel.

2. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected with said spring, key-operated mechanism, including a pawl and a ratchet-wheel, for rotating said wheel, pawl-tripping means operative with said wheel, and independent key-controlled pawl-tripping means.

3. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected with said spring, key-operated mechanism including a pawl and a ratchet-wheel, for rotating said wheel, pawl-tripping means on the wheel, and a spring connected to the wheel for steadying the same.

4. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected with the spring, a ratchet-wheel connected with and adapted to turn said wheel, a lever, a pawl on said lever for engaging the ratchet-wheel, an independently-mounted pawl for engaging the ratchet-wheel, means on said first-mentioned wheel for engaging a pawl to throw it out of engagement with the ratchet-wheel, and key-operated mechanism for rocking said lever.

5. In combination with the carriage and the return-spring; of a flexible carriage-pull; a take-up drum to which the said pull connects, mechanism for rotating the drum, including oscillating lever and ratchet-and-pawl devices; a rock-shaft; connections joining the said shaft and the oscillating lever and intermediate members joining with the lever operated by the movement of the key-levers, as specified.

6. The combination with the carriage; the return-spring, and the cable or cord j, connected to the carriage; the drum i; and mechanism adapted to be operated by movement of the key-levers for winding up the drum i, said mechanism including check-pawls; of a tripping device for moving the pawls to a released position, and a lever for operating the tripping device, for the purposes specified.

7. The combination with the carriage; the returning-spring; and a mechanism for winding up the said spring, said mechanism including the drum i; an oscillating lever; the pawl-and-ratchet gear connecting the lever and the drum; of the rock-bar f^3; said bar having a crank member g^3; a lever operated by movement of the key-levers; the connections between said bar and the arm g^3; the guide-roll e^3; and a flexible connection b, joining the bar f^3, and the oscillating lever, all being arranged substantially as shown and described.

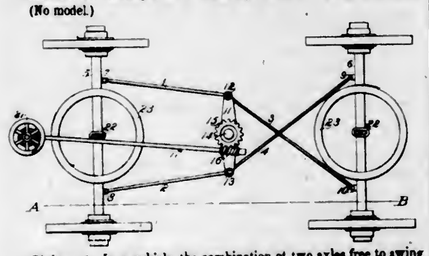
8. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected with the spring, a ratchet-wheel connected with and adapted to turn said wheel, a lever, a pawl on said lever for engaging the ratchet-wheel, an independently-mounted pawl for engaging the ratchet-wheel, means on said first-mentioned wheel for engaging a pawl to throw it out of engagement with the ratchet-wheel, a spring connected to said lever to hold it in its normal position, a rock-shaft having an arm, a flexible connection uniting said arm and lever, a guide to receive the flexible connection, and key-operated means to actuate said rock-shaft.

9. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected to said spring, pawl-and-ratchet mechanism for turning the wheel, key-actuated means for operating the pawl-and-ratchet mechanism, a slide having pawl-tripping means, a second key-operated slide, and means between the slides operated by one for imparting a movement to the other.

10. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected to said spring, pawl-and-ratchet mechanism for turning the wheel, key-actuated means for operating the pawl-and-ratchet mechanism, a slide having pawl-tripping means, a second slide, means between the slides operated by one for imparting a movement to the other, a series of studs on said second slide, a flexible connection passed around the studs and connected at one end to the framework, and a key-lever connected to the other end of the flexible connection.

11. In a type-writing machine, a traveling carriage, a returning-spring for the carriage, a wheel operatively connected with the carriage, pawl-and-ratchet mechanism for turning said wheel, key-controlled means for actuating the pawl-and-ratchet mechanism, a slide having pawl-tripping means, a lever connected with said slide for operating the same, and a second and key-operated lever, having means to operate said lever.

679,669. **SHORT-TURNING GEAR FOR VEHICLES.** FRIEDRICH FRANZ, Brooklyn, N. Y. Filed Apr. 29, 1901. Serial No. 58,072. (No model.)



Claim.—1. In a vehicle, the combination of two axles free to swing pivotally; a lever pivoted at its center between the axles of the vehicle; four rods, each fastened pivotally at one end to one of the axles and at the other end to one end of the lever, two rods being fastened to each axle, one set crossing each other between the lever and the axle, the other set not crossing each other; and two guides for permitting the axles to have a translatory motion while revolving pivotally substantially as set forth in the specification.

2. In a vehicle, the combination of two axles free to swing pivotally; a lever pivoted at its center between the axles of the vehicle; four rods, each fastened pivotally at one end to one of the axles and at the other end to one end of the lever, two rods being fastened to each axle, one set crossing each other between the lever and the axle, the other set not crossing each other; two guides for permitting the axles to have a translatory motion while revolving pivotally; and means for turning the lever substantially as set forth.

3. In a vehicle, the combination of two axles free to swing pivotally; a lever pivoted at its center between the axles of the vehicle; four rods, each fastened pivotally at one end to one of the axles and at the other end to one end of the lever, two rods being fastened to each axle, one set crossing each other between the lever and the axle, the other set not crossing each other; a worm-wheel or other gear-wheel mounted on said lever so as to swing with it; a worm or gear wheel meshing with said worm-wheel or other gear-wheel; and a hand-wheel or lever for turning said worm or gear substantially as and for the purpose set forth.

4. In a vehicle, the combination of two axles free to swing pivotally; a lever pivoted at its center between the axles of the vehicle; four rods, each fastened pivotally at one end to one of the axles and at the other end to one end of the lever, two rods being fastened to each axle, one set crossing each other between the lever and the axle, the other set not crossing each other; two guides for permitting the axles to have a translatory motion while revolving pivotally; the worm-wheel or other gear-wheel mounted on said lever so as to swing with it and a worm or gear wheel meshing with said worm-wheel or other gear-wheel; and a hand-wheel or lever for turning said worm-wheel and gear substantially as and for the purpose set forth.

5. In a vehicle, the combination of two axles free to swing pivotally; a lever pivoted at its center between the axles of the vehicle; four rods, each fastened pivotally at one end to one of the axles and at the other end to one end of the lever, two rods being fastened to each axle, one set crossing each other between the lever and the axle, the other set not crossing each other; a worm-wheel or other gear-wheels mounted on said lever so as to swing with it; a worm or gear wheel meshing with said worm-wheel or other gear-wheel; and a hand-wheel or lever for turning said worm or gear wheel; and a guide for permitting the stem on which the lever is mounted to have a translatory motion while said lever swings pivotally substantially as and for the purpose set forth.

679,670. **REPEATING AIR-RIFLE.** CLARENCE J. HAMILTON, Plymouth, Mich., assignor to the Daisy Manufacturing Co., same place. Filed Dec. 24, 1897. Serial No. 663,435. (No model.)



Claim.—1. In an air-gun, the combination with a false barrel and a true barrel removable from the false barrel for loading, of means connected with the true barrel exposed to the hand of the operator whereby said true barrel may be removed, substantially as described.

2. In an air-gun, the combination with a false barrel and a true barrel removable therefrom for loading, of means connected with the true barrel exposed to the hand of the operator whereby said true barrel may be removed and means for temporarily locking the true barrel within the false barrel substantially as described.

3. In an air-gun, the combination with a false barrel and a true barrel held within the same, adapted to be removed for loading, of means for temporarily locking the true barrel within said false barrel, said means comprising a projection and coacting slot, substantially as described.

4. In combination, an air-gun comprising a false barrel and a true barrel held therein adapted to be removed for loading, said false barrel being slotted, said slot opening into the front edge of said barrel and a projection carried by the true barrel coacting with said slot, substantially as described.

5. In a spring air-gun, the combination of an outer or false barrel, an inner or true barrel and muzzle-cap permanently secured together, and detachable from the false barrel, and means for detachably securing said muzzle-cap and true barrel in position, substantially as described.

6. The combination of the false barrel, the true barrel removably supported in the false barrel and a spring-catch to hold them together substantially as described.

7. The combination of the false barrel, the true barrel having an endwise movement in the false barrel, the magazine having a side opening through which to pass a single shot and means for moving the true barrel and magazine to cut off other shot and deliver the one shot into the false barrel substantially as described.

8. In an air-gun, the combination of the true barrel and the magazine having a fixed relation to each other, and having a common parallel movement, and means operated by such common parallel movement for passing a single shot from the magazine to the true barrel, substantially as described.

9. In an air-gun, the combination of the false barrel, the true barrel located within the false barrel, the magazine located outside of the false barrel, means connecting the magazine and true barrel whereby they are caused to move together and means operated by the common movement of the magazine and true barrel for passing a single shot from the magazine to the true barrel, substantially as described.

10. The combination of the false barrel, the true barrel within the false barrel, the magazine, a fixed sleeve on the true barrel, a slidable sleeve on the true barrel adjacent to the muzzle, a spring between the fixed and slidable sleeves and means for engaging the slidable sleeve with the false barrel whereby the true barrel is given a limited movement against the action of the spring, substantially as described.

11. The combination of the false barrel, the true barrel within the false barrel, the movable sleeve surrounding the true barrel, a fixed sleeve on the true barrel, a spring between the fixed and movable sleeves and a bayonet-fastening for engaging the movable sleeve and the false barrel, substantially as described.

12. The combination of the false barrel, the true barrel within the false barrel, the magazine outside of the false barrel, and the removable plug uniting the true barrel and magazine substantially as described.

13. The combination of the barrel, the magazine and the cover pivoted on the barrel and adapted to swing over the mouth of the magazine, substantially as described.

14. In a spring air-gun, the combination of the outer or false barrel, the inner or true barrel and the muzzle-cap permanently secured together and detachable from the false barrel, and a bayonet-lock for detachably securing the same in position, substantially as described.

679,671. **SYRINGE-NOZZLE.** CHARLES T. HANNIGAN, Providence, R. I. Filed Apr. 26, 1901. Serial No. 57,620. (No model.)

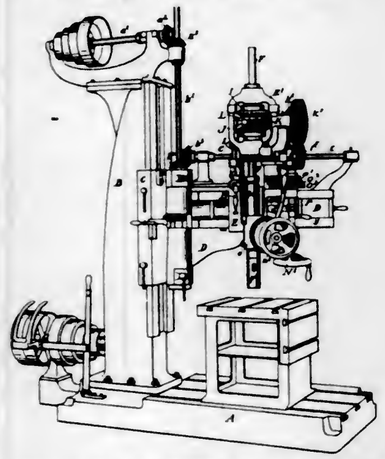


Claim.—1. In a syringe, the combination with a nozzle provided with an exterior longitudinal groove, of a frame comprising a circular sleeve loosely mounted upon the nozzle, a pin rigidly secured in the said sleeve and entering the groove of said nozzle, said sleeve provided with a circular aperture concentric with the center of the nozzle and a series of conical perforations extending longitudinally through from said aperture and surrounding the nozzle, a series of tapering wire arms longitudinally disposed around the nozzle having their larger ends rigidly secured in the perforations of the said sleeve, means for securing the opposite or smaller ends of said arms rigidly to the nozzle, with an eccentric collar loosely mounted on the nozzle and carried by said sleeve within its aperture adapted to give frictional contact between the sleeve and nozzle, respectively, in holding the frame in an expanded condition, substantially as shown and described.

2. In a syringe, the combination with a nozzle having a groove extending longitudinally through one portion thereof, said nozzle circumferentially screw-threaded at one end and provided with a series of slotted openings extending longitudinally through the said threaded end thereof, a sleeve mounted upon the nozzle and provided with a series of conical perforations extending longitudinally through and surrounding the nozzle, a pin rigidly secured in the said sleeve and entering the groove of the said nozzle, a series of wire arms, made of resilient material, longitudinally disposed around the nozzle, each of said arms tapering from a larger end to its opposite or smaller end terminating in a ball integral therewith, said arms having their larger ends rigidly secured in the perforations of said sleeve and their ball end portions connected in the slots of said nozzle, a cone-shaped nut to engage upon the threaded end of said nozzle, to hold said arms to the same, with means carried by said sleeve for giving frictional contact in holding the arms in an expanded condition upon the nozzle, substantially as shown and described.

3. In a syringe, the combination with a nozzle provided with a groove extending longitudinally thereof, of a frame comprising a sleeve mounted upon the nozzle and adapted to move longitudinally thereon, said sleeve provided with conical perforations extending through and surrounding said nozzle, a circular aperture in said sleeve concentric with the center of said nozzle, a series of tapering wire arms longitudinally disposed around the nozzle and having their larger ends rigidly secured in the perforations of said sleeve and their smaller ends rigidly secured in the end of said nozzle, so constructed that a sliding movement of the sleeve will expand the said arms from their smaller end portions on the nozzle, with means carried by said sleeve, within the aperture thereof, to hold the frame by friction upon the nozzle, substantially as shown and described.

679,672. **DRILLING-MACHINE.** WILLIAM HERMAN, Cincinnati, Ohio, assignor to the Fosdick & Holloway Machine Tool Company, same place. Filed Sept. 14, 1900. Serial No. 30,003. (No model.)



Claim.—1. In a drilling-machine, the arrangement, in combination with the supporting-column and the laterally-swinging arm; the cross-head or drill-carrier extended upwardly to form a yoke; a drill-spindle mounted in said yoke; a lateral driving-shaft carried by the yoke and provided with a bevel-pinion; opposing bevel-gears within the yoke and loose on the spindle, and meshing with said pinion, said gears carrying expansible friction devices; a vertically-movable clutch-operating device splined to the drill-spindle and engaging the clutch device of the bevel-gears alternately; and mechanism for moving and retaining the clutch-operating device in its alternate positions or in an intermediate position of disengagement substantially as set forth.

2. In a drilling-machine, the combination with a supporting-column, and a laterally-swinging arm supported therefrom; of a cross-head or drill-carrier movable on said arm and extended upwardly to form a yoke; a vertical drill-spindle; a lateral driving-shaft carried by the yoke and having a bevel-pinion; two opposite bevel-gears loose on the drill-spindle, and within said yoke; a vertically-movable clutch device within the yoke between the loose gears and splined to the drill-spindle, and engaging said gears alternately; and mechanism for moving and retaining the clutch device in its alternate positions or in an intermediate position of disengagement, substantially as set forth.

3. In a drilling-machine the combination with a supporting-column and a laterally-swinging arm supported therefrom; of a cross-head or drill-carrier supported in horizontal guides on said arm, and extended upwardly to form a yoke; a vertical spindle; mechanism supported essentially within the yoke for controlling, varying and reversing the spindle motion; mechanism for moving the spindle vertically while in motion and varying the speed of said motion; and mechanism for moving the entire cross-head or drill-carrier on the lateral arm—all of said mechanism being located on said cross-head or drill-carrier—and the means of controlling said mechanism being arranged at the same side contiguous to the work in convenient reach of the attendant without change of position, substantially as set forth.

4. In a drilling-machine, the combination with a supporting-column, a laterally-swinging arm, a cross-head or drill-carrier movable on said arm, a vertical spindle; a power-shaft; a vertical transmitting-shaft; and gearing between said shafts; of a horizontal transmitting-shaft on the swinging arm adjacent to the drill-carrier, said last-named shaft and vertical transmitting-shaft being interconnected by miter-gears and said horizontal shaft having a sleeve splined thereto and provided with a gear-wheel adjustable on the shaft with said sleeve; a lateral driving-shaft and gearing between it and the drill-spindle; and means connecting the gear on said sleeve with the gear on the said driving-shaft whereby the former constitutes a direct and positive means of delivering power to the spindle at every point of its adjustment, substantially as set forth.

5. In a drilling-machine of the character indicated, the combination of the laterally-swinging arm; the drill-carrier movably mounted thereon; a power-transmitting shaft adjacent to and parallel with the path of the drill-carrier; one or more gears upon a common extended sleeve or hub splined upon the transmitting-shaft a yoke or collar upon the frame of the drill-carrier engaging in a groove of the sleeve or hub, permitting rotation of the latter but carrying it with the movements of the drill-carrier; and a rocker-arm pivoted upon said sleeve or hub, carrying gears in constant mesh with the gears of the sleeve or hub and adapted by oscillation of the rocker-arm to be brought alternately into mesh with gears upon the drill-carrier engaged with the drill-spindle, substantially as set forth.

6. In a drilling-machine of the character indicated, the combination, with the lateral arm and the drill-carrier movable thereon, and a hollow shaft arranged horizontally upon the drill-carrier adjacent to the drill-spindle and carrying the feed devices operating on the spindle, of a central shaft carried within and through said hollow shaft and provided at its outer end with a hand-wheel and at its inner end with a spur-pinion engaging rack-teeth upon the lateral supporting-arm, substantially as set forth.

7. In a drilling-machine of the character indicated, the combination with the drill-spindle, its rack-sleeve, and adjacent shaft with rack-pinion engaging said sleeve, of a worm-wheel (for receiving the feed-power) normally loose upon said shaft and provided with a counterbored hub; a divided spring-ring contained loosely in the counterbore of said hub; a collar rigidly secured to the shaft adjacent to the worm-wheel and having a radially-slotted hub projecting within the chamber of the hub of the worm-wheel; and a hand-lever pivoted radially to said collar in constant engagement between the opposite terminals of said ring, and by its movement in one direction expanding said ring into frictional engagement with the inner wall of the worm-wheel hub, thereby engaging the worm-wheel frictionally with the hub, and by movement in the other direction releasing said worm-wheel while retaining its own operative relation to the shaft as an independent mover, substantially as set forth.

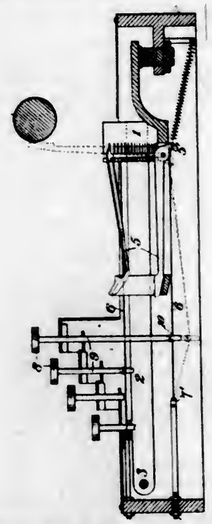
8. In a drilling-machine of the character indicated, a worm-shaft of the drill feeding mechanism constructed hollow for a part or all of its length, and provided with a slot; three gears normally loose upon said shaft, and a rod carried in the hollow of the worm-shaft and longitudinally adjustable, and provided with a cross-key working in the slots of said shaft; said gears being arranged vertically one above the other on the same shaft and the central gear having radial recesses only and each of the outer gears having a circular counterbore adjacent to said center gear and having one or more key-slots adjacent to its own counterbore zones, substantially as set forth.

9. In combination with the hollow and slotted worm-shaft, the three gears normally loose thereon and arranged one above the other, and the rod and cross-key for engaging the gears alternately to the shaft, a sleeve mounted on the shaft and secured to the rod within by a radial pin through the slot and a yoke-lever pivoted to the frame of the machine and engaging the sleeve to move the same up and down as desired, substantially as set forth.

679,673. **WRITING-MACHINE.** EDWARD B. HESS, Brooklyn, N. Y., assignor to Mechanical Improvements Company, New York, N. Y. Filed May 16, 1901. Serial No. 60,537. (No model.)

Claim.—1. In a writing-machine a flexing actuating connection flexible throughout its length and adapted to be flexed on the depression of a finger-piece, and having one end operatively connected to the part to be actuated and the opposite end connected to a fixed point, and means applied to the connection intermediate its ends to swing the part thereof in front of the point of flexure about said fixed point as a center of motion, and the part in rear of the point of flexure about its point of connection as a center of motion, to thereby change the angular disposition of the connection between its front and rear ends for the purpose set forth.

2. In a writing-machine, a flexing actuating connection flexible throughout its length and having its front end operatively connected to a fixed point, and its opposite end connected to the part to be actuated and movable toward and from said fixed point, and means for flexing such connection to change its angular disposition between its end and exert tensile strain thereon from the point of flexure to its opposite ends respectively.



3. The combination of a pivoted type-bar, its actuating connection flexible throughout its length adapted to be flexed on the depression of a finger-piece and having one end operatively connected to the type-bar and the opposite end connected to a fixed point, and means applied intermediate its ends to flex it, the connection being so disposed that when flexed the end connected with the type-bar is caused to approach such fixed point.

4. The combination of a pivoted type-bar, its actuating connection flexible throughout its length and having one end operatively connected to the type-bar and the opposite end connected to a fixed point, a finger-piece and a device which on the depression of the finger-piece acts to flex it and change its angular disposition between the point of flexure and its respective ends and subject it to tensile strain on both sides of the point of flexure.

5. The combination of a pivoted type bar or carrier, its operating connection flexible throughout its length, operatively connected with the type-bar at one end and at its opposite end connected with a fixed point, and means applied to the flexing connection intermediate its ends to depress or flex it whereby in the beginning of the movement of the type-bar it has a minimum velocity and opposes a minimum resistance to its actuation, the velocity and resistance increasing during the excursion of the type-bar toward the printing-point.

6. The combination of a pivoted type-bar having an extension or projection beyond its pivot, a type-bar-operating connection flexible throughout its length, operatively connected at one end with said projection and at the other end attached to a fixed point, and a finger-key jointed to such connection intermediate its ends and acting to depress or deflect it, whereby in the beginning of the movement of the type-bar it has a minimum velocity and opposes a minimum of resistance to its actuation, the velocity and resistance increasing during the excursion of the type-bar toward the printing-point.

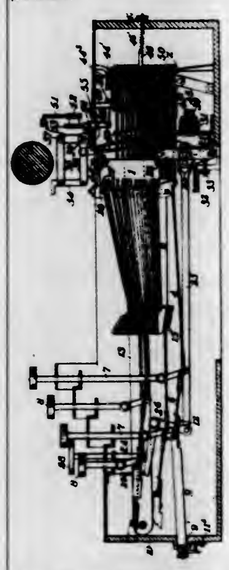
7. The combination of a pivoted type-bar having an extension projecting beyond its pivot, a type-bar-operating connection flexible throughout its length and connected at one end directly to said projection and at the other end to a fixed point and normally lying in such a position that when deflected the type-bar is actuated by a pull upon said projection, and a finger-piece having a stem acting on said connection intermediate its ends to deflect it and thereby throw the type-bar to the printing-point.

8. The combination of a platen, a segmental type-bar support arranged below the plane of the platen, type-bars pivoted therein, connections flexible throughout their length for operating the type-bars and each operatively connected at one end to its corresponding type-bar and at the opposite end to a fixed point, and means acting upon said flexing connections intermediate their ends for flexing them and throwing the type-bars

to the printing-point, said connections being so disposed that when flexed their ends, operatively connected with the type-bars, are moved toward such fixed points.

9. The combination of a platen, a segmental type-bar support arranged below the plane of the platen and in a plane vertical or substantially so, type-bars pivoted in such support, normally lying away from the platen in a position horizontal or substantially so and adapted when actuated to strike against the front face of the platen, connections flexible throughout their length for operating the type-bars and each operatively connected at one end to its corresponding type-bar and at the opposite end to a fixed point, and means acting upon said flexing connections intermediate their ends for flexing them and throwing the type-bars to the printing-point, said connections being so disposed that when flexed their ends, operatively connected with the type-bars, are moved toward such fixed points.

679,674. **WRITING-MACHINE.** EDWARD B. HESS, New York, and JOSEPH M. STOUGHTON, Yonkers, N. Y., assignors to Mechanical Improvements Company, New York, N.Y. Filed May 13, 1901. Serial No. 59,948. (No model.)



Claim.—1. In a writing-machine, the combination of a part to be actuated, a flexing actuating connection, comprising links hinged together at their adjacent ends extending between said part and a fixed point and adapted when flexed to actuate said part with a pull, a finger-piece, and a flexible connection between the finger-piece and said actuating connection.

2. In a writing-machine, the combination of a pivoted type-bar, a flexing connection acting substantially as described, extending between said part and a fixed point and adapted when flexed to throw the type-bar to the printing-point by a pull, a finger-piece and a flexible connection between the finger-piece and said actuating connection.

3. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein and normally lying toward the front of the machine, flexing actuating connections, acting substantially as described, extending from and under the type-bars to fixed points at the front part of the machine, finger-pieces arranged above such connections, and flexible connections between the finger-pieces and such actuating connections.

4. In a writing-machine, the combination of a type-bar segment, means for shifting the segment, type-bars pivoted therein and normally lying toward the front of the machine, flexing actuating connections, acting substantially as described, extending from and under the type-bars to fixed points at the front part of the machine, finger-pieces arranged above such connections, and flexible connections between the finger-pieces and such actuating connections.

5. In a writing-machine, the combination of a type-bar segment, means for shifting the segment downwardly from its normal position, type-bars pivoted therein and normally lying toward the front of the machine, flexing actuating connections, acting substantially as described, extending from and under the type-bars to fixed points at the front part of the machine, finger-pieces arranged above such connections, and flexible connections between the finger-pieces and such actuating connections.

6. In a writing-machine, the combination of a flexing connection extending from a movable part to be actuated to a fixed point, a link having its lower end connected to said flexing connection intermediate its ends, and an actuating device to which the upper end of the link is connected, the operation being substantially as described.

7. In a writing-machine, the combination of a flexing connection extending from a movable part to be actuated to a fixed point and comprising links united at their adjacent ends by a hinge-joint, a third link whose lower end is hinged to the flexing connection intermediate its ends and an actuating device to which the upper end of the link is connected, the operation being substantially as described.

8. In a writing-machine, the combination of a flexing connection extending from a movable part to be actuated to a fixed point and comprising two links united at their adjacent ends by a hinge-joint, a third link hinged to the connection at said joint, and an actuating device by which the other end of the link is depressed, the operation of the flexing connection being substantially as described.

9. In a writing-machine, the combination of a pivoted type-bar, a flexing connection operatively connected at one end to the type-bar and at the other end to a fixed point, a finger-piece a part actuated thereby, a link having its ends respectively flexibly connected to said part and to the flexing connection intermediate its ends, said part and link extending in substantially a direct upright line between the finger-piece and flexing connection.

10. In a writing-machine, the combination of a pivoted type-bar, a flexing connection operatively connected at one end to the type-bar and at the other end to a fixed point and comprising links united at their adjacent ends by a hinge-joint, a finger-piece, a part actuated thereby, a third link having one end flexibly connected to the flexing connection intermediate its ends and the other end flexibly connected to said part, said part and third link extending in substantially a direct upright line between the finger-piece and flexing connection.

11. In a writing-machine, the combination of a pivoted type-bar, a flexing connection operatively connected at one end to the type-bar and at the other end to a fixed point and comprising two links united at their adjacent ends by a hinge-joint, a third link hinged to the connection at said joint, and an actuating device by which the other end of the link is depressed, the operation of the flexing connection being substantially as described.

12. In a writing-machine, the combination of a platen, a type-bar segment, means for moving the segment relatively to the platen, type-bars pivoted in the segment, and normally lying away from the platen toward the front of the machine, flexing connections, operating substantially as described, operatively connected at their rear ends to the type-bars and at their front ends to fixed points, links hinged to such connections intermediate their ends and arranged transversely to the general line or direction of such connections, and actuating devices to which the other ends of the links are connected.

13. In a writing-machine the combination of a platen, a type-bar segment, means for moving the segment relatively to the platen, type-bars pivoted in the segment and normally lying away from the platen toward the front of the machine, flexing connections, operating substantially as described, operatively connected at their rear ends to the type-bars and at their front ends to fixed points, and consisting of two links united at their adjacent ends by a hinge-joint, a third set of links hinged to such connections at said hinge-joints, and actuating devices to which the other ends of the last-named links are connected.

14. In a writing-machine, the combination of a pivoted type-bar, a flexing connection, acting substantially as described, operatively connected at one end to the type-bar and at the other end to a fixed point, a link hinged thereto intermediate its ends and arranged transversely to the general line or direction of such connection, a vertically-movable finger-piece, and its stem to which the link is also hinged.

15. In a writing-machine, the combination of a pivoted type-bar, a flexing connection acting substantially as described, operatively connected at its rear end to the type-bar and at its front end to a fixed point and consisting of links united at their adjacent ends by a hinge-joint, and the link hinged to such connection at such hinge-joint, a vertically-movable finger-piece, and its stem to which said last-named link is also hinged.

16. In a writing-machine, the combination of pivoted type-bars, horizontally-disposed anchor-pieces mounted in the front plate of the frame, flexing connections operatively connected at their rear ends to the type-bars and at their front ends to said anchor-pieces, finger-pieces and the connections between the finger-pieces and flexing connections applied to the latter intermediate their ends.

17. In a writing-machine, the combination of pivoted type-bars, horizontally-disposed endwise-adjustable anchor-pieces mounted in apertures in the front plate of the frame so as to be inserted and removed, flexing connections operatively connected at their rear ends to the type-bars and at their front ends to said anchor-pieces, finger-pieces and the connections between the finger-pieces and flexing connections applied to the latter intermediate their ends.

18. In a writing-machine, the combination of pivoted type-bars, horizontally-disposed anchor-pieces mounted in the front plate of the frame, flexing connections operatively connected at their rear ends with the type-bars and at their front ends to said anchor-pieces, finger-pieces, connections applied to the latter intermediate their ends between the finger-pieces and flexing connections, and springs mounted on said anchor-pieces acting upon the flexing connection.

19. In a writing-machine, the combination of a type-bar segment, a curved slot therein, a series of type-bars, a wire seated in said slot upon which the type-bars are pivoted, and means acting upon the wire obliquely intermediate its extreme ends to thrust it against its seat in the slot.

20. In a writing-machine, the combination of a type-bar segment, a curved slot therein, a series of type-bars, a wire seated in said slot upon which the type-bars are pivoted, and means located at both ends of the series of type-bars acting obliquely upon the wire to force it against the bottom of the curved slot.

21. In a writing-machine, the combination of a type-bar segment, a curved slot therein, a series of type-bars, a wire seated in said slot upon which the type-bars are pivoted, and screws mounted in the segment at both ends of the series and impinging obliquely upon the side of the wire to exert an endwise thrust toward the central part thereof to force the wire against its seat in the slot.

22. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein, a universal bar movable to and fro in rear of the segment, means for operating the type-bars and connections between the type-bars and universal bar by which the latter is actuated by a pull.

23. In a writing-machine, the combination of pivoted type-bars, a universal bar, a series of fixed pieces, two links for each type-bar hinged together at their adjacent ends and connected respectively to a fixed piece and type-bar, a third link loosely connected with the universal bar and connected with the link connected with the type-bar, and means for flexing the hinge-joint of the first-named links to actuate the type-bar.

24. In a writing-machine, the combination of pivoted type-bars normally lying toward the front of the machine, a universal bar arranged in rear of the type-bar pivots, links connecting the universal bar with the type-bars, connections for actuating the type-bars extending under them toward the front of the machine, finger-pieces and means for operating such connections on the depression of corresponding finger-pieces, whereby the type-bars and universal bar are actuated.

25. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein, finger-pieces arranged on one side of the segment, a universal bar on the other side, flexing type-bar-actuating connections means applied intermediate their ends for at will flexing them, and connections between the respective type-bars and the universal bar which actuate the universal bar by a pull when the type-bars are thrown to the printing-point.

26. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein, and normally lying toward the front of the machine, means for actuating the type-bars, a universal bar in rear of the segment, and loose link connections between the type-bars and universal bar.

27. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein, a universal bar, connections extending from fixed points on the frame to the type-bars and thence to the universal bar, and means for flexing said connections intermediate the type-bars and fixed points.

28. The combination of a platen, a vertically-movable segmental type-bar support mounted below the platen, means for operating the type-bars, a vertically-movable type-bar guide adjacent to the platen and mounted independently of the type-bar support, a shift-key, operative connections between the shift-key and the type-bar guide, whereby during the initial depression of the shift-key the type-bar guide is lowered, and operative connections between the vertically-movable type-bar support and the shift-key whereby said support is lowered during the later stage of movement of depression of the shift-key.

29. The combination of a platen, a vertically-movable type-bar support, type-bars pivotally mounted therein, means for actuating the type-bars, a vertically-movable type-bar guide located adjacent to the platen, a shift-key and operative connections between the shift-key and the type-bar guide, and operative connections between the shift-key and the type-bar support, whereby the type-bar guide is lowered before the depression of the shift-key is completed and the type-bar support is lowered on the completion of the movement of the shift-key.

30. The combination of a platen, a vertically-movable type-bar support, type-bars pivotally mounted therein, means for operating the type-bars, a vertically-movable type-bar guide adjacent to the platen, the shift-key, and means interposed between the type-bar support and guide whereby on the depression of the shift-key one of said parts is lowered during the earlier stage of depression of the shift-key and the other said part is lowered during the later stage of depression of said key.

31. The combination of a platen, a vertically-movable type-bar support, a vertically-movable type-bar guide, a shift-key, and means actuated by the shift-key to move one of said vertically-movable parts to its lower position during part of the depression of the shift-key, and the other said part to its lower position during the remainder of the depression of the shift-key.

32. The combination of a movable type-bar support, type-bars mounted therein and means for actuating them, a movable pivoted type-bar guide, a shift-key and devices operated by the shift-key to move the guide during one part of the excursion of the key and the support during the other part of the excursion of the key.

33. The combination of a movable type-bar support, a pivoted type-bar guide adapted to occupy two positions, a single shift-key and means actuated by said key for first moving one of said parts and then the other, type-bars mounted in said support and means for actuating them.

34. The combination of a movable type-bar support, type-bars mounted therein and means for actuating them, a movable type-bar guide, pivoted in parallel link-supports, a shift-key and devices operated by the shift-key to move the guide during one part of the excursion of the key and the support during the other part of the excursion of the key.

35. The combination of a movable type-bar support, a type-bar guide, pivoted in parallel link-supports adapted to occupy two positions, a single shift-key and means actuated by said key for first moving one of said parts and then the other, type-bars mounted in said support and means for actuating them.

36. In a writing-machine, the combination of a platen, a pivoted type-bar, a universal bar, its spring, and means for actuating the type-bar and universal bar by a direct strain in the same line, whereby the reaction of the universal-bar spring is directly applied to the type-bar to accelerate its retreat from the printing-point.

37. In a front-stroke machine, the combination of a platen, a series of pivoted type-bars, a series of horizontally-disposed endwise-movable links or members connected to and actuating the type-bars, a universal bar, its spring, and a series of links or members connecting the type-bars and universal bar.

38. In a writing-machine, the combination with a platen, a series of pivoted type-bars and means for actuating them, of a universal bar, its spring, and connections between the universal bar and type-bars whereby when a type-bar is thrown to the printing-point the universal bar is actuated against the tension of its spring and the reaction of said spring is applied primarily to accelerate the retreat of the type-bar from the platen.

39. In a writing-machine, the combination with a platen, a series of pivoted type-bars and means for actuating them, of a universal bar, its spring, and link connections between the universal bar and type-bar whereby when a type-bar is thrown to the printing-point the universal bar is actuated against the tension of its spring and the reaction of said spring is applied primarily to accelerate the retreat of the type-bar from the platen.

40. In a writing-machine, the combination of a pivoted type-bar, its actuating mechanism that throws the type-bar to the printing-point by a pull comprising a member moving about a fixed axis, a finger-piece movable in a true vertical line and located above said member, a part movable up and down with the finger-piece, and a link having its ends respectively flexibly connected with said part and member.

41. In a writing-machine, the combination of a pivoted type-bar, a flexing connection attached at its rear end to the type-bar and at its front end to a fixed point, an actuating-link flexibly applied to such connection intermediate its ends and arranged transversely to the front part thereof, and means for moving the link endwise to flex said connection while maintaining, substantially, its angular relation to the front part thereof.

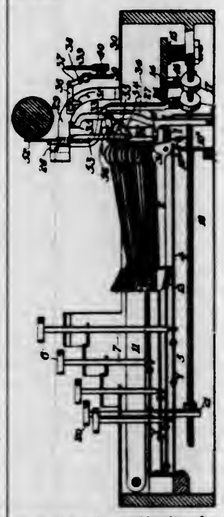
679,675. **WRITING-MACHINE.** EDWARD B. HESS, Brooklyn, N. Y., assignor to Mechanical Improvements Company, New York, N. Y. Filed May 13, 1901. Serial No. 59,949. (No model.)

Claim.—1. In a writing-machine, the combination of a part to be actuated, a flexing connection, acting substantially as described, connected at one end to said part and at the other end to a fixed point, a finger-piece, and a device having sliding connection with said flexing connection intermediate its ends and actuated on the depression of the finger-piece to flex said connection.

2. In a writing-machine, the combination of a part to be actuated, a flexing connection, comprising links united by a hinge-joint and acting substantially as described, connected at one end to said part and at the other end to a fixed point, a finger-piece, and a device having sliding connection with said flexing connection intermediate its ends and actuated on the depression of the finger-piece to flex said connection.

3. In a writing-machine, the combination of a pivoted type-bar, a

flexing connection connected at one end to the type-bar and at the other end to a fixed point, a finger-piece, and a device having sliding connection intermediate its ends with said flexing connection and actuated on the depression of the finger-piece to flex said connection.



4. In a writing-machine, the combination of a pivoted type-bar, a flexing connection comprising links united by a hinge-joint connected at one end to the type-bar and at the other end to a fixed point, a finger-piece, and a device having sliding connection with said flexing connection intermediate its ends and actuated on the depression of the finger-piece to flex said connection.

5. In a writing-machine, the combination of a pivoted type-bar, a flexing connection connected at one end to the type-bar and at the other end to a fixed point, a finger-piece, and a device having a sliding loose or slot connection with said flexing connection intermediate its ends and actuated on the depression of the finger-piece, whereby on imparting a flexing impulse to said flexing connection it may move in advance of the device that actuates it.

6. In a writing-machine, the combination of a platen, a type-bar segment, means for varying the relation of the segment and platen, type-bars in the segment, flexing connections acting substantially as described connected to the type-bars and to fixed points, finger-pieces and devices actuated by the finger-pieces and having sliding connection with said flexing connections intermediate their ends.

7. In a writing-machine, the combination of a platen, a type-bar segment, means for varying the relation of the segment and platen, type-bars in the segment, flexing connections comprising links united by a hinge-joint and acting substantially as described connected to the type-bars and to fixed points, finger-pieces and devices actuated by the finger-pieces and having sliding connection with said flexing connections intermediate their ends.

8. In a writing-machine, the combination of a platen, a type-bar segment, means for changing the relation between the segment and platen, type-bars pivoted in the segment and normally lying toward the front of the machine, flexing connections located under the type-bars, and connected thereto and also connected to fixed points, a series of finger-pieces arranged above the flexing connections and in front of the type-bars and a series of devices actuated by the finger-pieces and having sliding loose or slot connection with said flexing connections intermediate their ends, whereby on imparting an impulse of depression to a finger-piece to flex the connection, the flexing connection may move in advance of the device that actuates it.

9. In a writing-machine, the combination of a pivoted type-bar having a projection beyond its pivot, a spring normally bearing thereon, the relation of the spring and projection being such that as the type-bar is rocked upon its pivot the point of contact between it and the spring is moved farther from the axis of the type-bar and means for actuating the type-bar.

10. In a writing-machine, the combination of a pivoted type-bar having a projection beyond its pivot, a spring normally bearing thereon, the relation of the spring and projection being such that as the type-bar is rocked upon its pivot the point of contact between it and the spring is moved farther from the axis of the type-bar and a flexing connection connected at one end to said projection and at the other end to the fixed point and means for flexing said connection applied thereto intermediate its ends to throw the type-bar to the printing-point with a pull.

11. In a writing-machine, the combination of a platen, a type-bar segment, means for moving the segment relatively to the platen, type-bars pivoted in the segment and having extensions beyond their pivots, springs bearing against said projections and so related thereto that as the type-bar turns about its pivot the distance from the pivot of the point of contact of the spring is increased, flexing connections acting substantially as described connected with the type-bars and fixed points and means operating upon such flexing connections intermediate their ends to flex them and throw the type-bars to the printing-point with a pull.

12. In a writing-machine, the combination of a horizontally-disposed rocking frame, a type-bar segment forming part thereof, type-bars pivoted therein, finger-pieces, means for operating the type-bars, a shift-key, a rock-shaft actuated thereby and extending diagonally from the shift-key to the rear of the machine and under the rear end of the rocking frame and a cam on the rock-shaft controlling the elevation of the rear end of the rocking frame.

13. In a writing-machine, the combination of a horizontally-disposed rocking frame, a type-bar segment forming part thereof, type-bars pivoted therein, finger-pieces, means for operating the type-bars, a shift-key, a rock-shaft actuated thereby and extending diagonally from the shift-key to the rear of the machine and under the rear end of the rocking frame and a cam on the rock-shaft controlling the elevation of the rear end of the rocking frame, a second cam on the rock-shaft, a movable type-bar guide supported on said cam whereby on the actuation of the rock-shaft the position of the guide is changed.

14. In a writing-machine, the combination of the movable type-bar segment, type-bars pivoted therein and means for operating them, the movable type-bar guide, the universal bar actuated by the type-bars, a vibrating ribbon-carrier actuated by the universal bar, a shift-key, and operative connections between it and the segment and guide whereby on the depression of the key the guide is first shifted and then the segment.

15. In a writing-machine, the combination of the movable type-bar segment, type-bars pivoted therein and means for operating them, a movable type-bar guide, the bracket or support on which it is mounted, a vibrating ribbon-carrier also mounted on said support, a shift-key, operative connections by which on the depression of the shift-key the guide is first shifted and then the segment, a vibrating universal bar, and operative connections between it and the vibrating ribbon-carrier.

16. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein and having cam portions 31 adjacent their pivots, a universal bar actuated by such cam portions, flexing type-bar-actuating connections connected at their rear ends to the type-bars and at their front ends to fixed points, and means for acting upon such connections intermediate their ends to throw the type-bars to the printing-point.

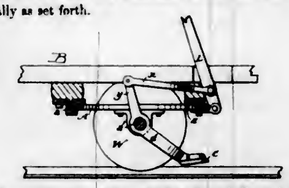
17. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein and having cam portions 31 adjacent their pivots, a universal bar actuated by such cam portions, a vibrating ribbon-carrier actuated by the universal bar, flexing type-bar-actuating connections connected at their rear ends to the type-bars and at their front ends to fixed points, and means for acting upon such connections intermediate their ends to throw the type-bars to the printing-point.

18. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein and having cam portions 31 adjacent their pivots, a universal bar actuated by such cam portions, a vibrating ribbon-carrier actuated by the universal bar, means for shifting the segment, flexing type-bar-actuating connections connected at their rear ends to the type-bars and at their front ends to fixed points, and means for acting upon such connections intermediate their ends to throw the type-bars to the printing-point.

19. In a writing-machine, the combination of a type-bar segment, type-bars pivoted therein and having cam portions 31 adjacent their pivots, a universal bar actuated by such cam portions, a vibrating ribbon-carrier actuated by the universal bar, a type-bar guide, means for shifting the guide and segment, flexing connections for operating the type-bars, and means for acting upon such connections intermediate their ends to throw the type-bars to the printing-point.

679,676. BRAKE FOR SINGLE-TRACK RAILWAYS. LEWIS M. HOSEA, Cincinnati, Ohio, assignor, by mesne assignments, to Crawley Scenic and Pleasure Railway Company, same place. Filed Feb. 21, 1901. Serial No. 48,223. (No model.)

Claim.—1. In a single-rail railway system having guard-wheels bearing upwardly against guard-rails, a track-brake consisting essentially of a shoe attached to trailing arms pivoted to the truck or car body, adapted to trail behind the wheels and means connected with the car or truck operating to force the shoe into frictional contact with the bearing-track, substantially as set forth.



2. In combination with a wheel-truck, a bell-crank lever pivotally carried upon the wheel-axle or extensions thereof, so that one arm of the lever trails behind the wheel; a shoe attached to the rear terminal of said lever, and a hand-lever pivoted upon the truck or car in connection with the opposite terminal of the bell-crank by the operation of which the shoe is forced into frictional contact with the main bearing-rail, substantially as set forth.

3. In a track-brake of the character indicated, the combination of a hand-lever pivoted to the swiveling-truck frame, two straps or connecting braces pivoted to the same at opposite sides, two bell-crank levers upon the wheel-shaft at opposite sides of the bearing-wheel with upper arms projecting upwardly and connecting with the aforesaid straps; and lower arms projecting rearwardly beyond the wheel, and a brake-shoe adapted to the contour of the track, carried by and between the rear terminals of the bell-crank lever, substantially as set forth.

679,677. CURTAIN-FIXTURE. JOHN W. HOUSERS, Pittsburg, Pa. Filed May 13, 1901. Serial No. 60,008. (No model.)



Claim.—1. In a curtain-fixture, a pair of bracket-arms having a curved outer portion forming a seat for the curtain-pole, an upper clamping member pivotally secured to each bracket-arm near its inner end, and a lower clamping member pivotally secured to the inner end of each bracket-arm, said clamping members adapted to impinge the window-frame, and said lower clamping member being adjustable, with means for securing the lower clamping member in the adjusted position, substantially as described.

2. In a window-fixture, a pair of bracket-arms having a curved outer portion forming a seat for the curtain-pole, set-screws carried in the outer ends of said arms for securing the pole in its seat, an upper and a lower clamping member pivoted to the inner ends of said arms, the lower clamping member being adjustable, and means for securing said lower clamping member in the adjusted position, substantially as described.

3. In a window-fixture, a pair of bracket-arms, means carried by said arms for securing a curtain-pole thereto, an upper clamping member pivoted to each arm near the inner end thereof and adapted to engage the window-frame, a threaded rod pivoted to the inner end of each arm, a lower clamping member mounted on each of said rods and adapted to engage with the window-frame, and a nut on each rod for securing said lower clamping member on the rod and holding same in engagement with the window-frame, substantially as described and shown.

679,678. STEAM-SEPARATOR FOR USE IN STEAM-ENGINES. LESTER B KING, Staunton, Ill. Filed Jan. 7, 1901. Serial No. 42,451. (No model.)

Claim.—1. A steam-separator comprising a casing having the oppositely-arranged steam inlet and outlet, a stand-pipe arising within the casing from the steam-outlet, a deflecting-drum inverted over the stand-pipe, and separate baffles arranged about the stand-pipe respectively within the upper and lower end portions of the drum.

2. A steam-separator comprising a casing having the opposite steam inlet and outlet, a stand-pipe arising within the casing from the steam-outlet, a deflecting-drum inverted over the stand-pipe, and spiral baffle-plates encircling the stand-pipe within the drum.

3. A steam-separator comprising a casing having the oppositely-arranged steam inlet and outlet, a stand-pipe arising within the casing, a drum inverted over the stand-pipe, and upper and lower spiral baffle-plates arranged about the stand-pipe within the drum, and respectively coiled reversely or in opposite directions to each other.



4. A steam-separator comprising a casing having the oppositely-arranged steam inlet and outlet, and also provided with a water-drain at the bottom, a stand-pipe arising within the casing from the steam-outlet, a drum inverted over the stand-pipe and provided with a lower open end and a closed conical upper end, and spiral baffle-plates arranged within the upper and lower portions of the drum, and respectively imperforate and perforate.

679,679. DOUGH-RAISER. WILLIAM KOPISCH, Billings, Okla. Filed Feb. 1, 1901. Serial No. 45,646. (No model.)



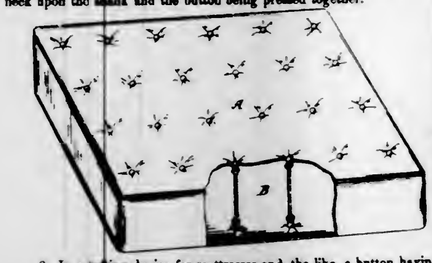
Claim.—1. A dough-raiser comprising a body portion having a re-entrant bottom, and supporting-legs hinged to the body above the lower edge thereof and having means for engagement with the face of the re-entrant bottom to hold them against movement.

2. A dough-raiser comprising a body portion having a re-entrant bottom, supporting-legs hinged to the body above the lower edge thereof, and turn-buttons pivoted to the legs and adapted for engagement with the re-entrant bottom to hold the legs against movement.

3. A device of the class described comprising a body portion having a re-entrant bottom, supporting-legs hinged to the body above the bottom thereof, turn-buttons carried by the legs for engagement with the re-entrant bottom to hold the legs against pivotal movement, an inner vessel within the body and separated therefrom by an interspace to hold a liquid, said vessel having an outwardly-directed and perforated flange connected with the body to support the vessel therein, a dome-shaped cover for the body to collect and direct the water of condensation to the flange, and a filling-opening for the body having a closure.

679,680. MATTRESS OR CUSHION. GUSTAVE F. H. LANGER, Chicago, Ill. Filed Aug. 29, 1899. Renewed Nov. 9, 1900. Serial No. 36,963. (No model.)

Claim.—1. In a tufting device for mattresses and the like, a button having a divided neck, a shank having a recessed portion, adapted to receive the neck of the button, and means for spreading the divided portions of the neck within the recess and then clenching the ends of the neck upon the shank and the button being pressed together.



2. In a tufting device for mattresses and the like, a button having a neck divided into prongs, a shank having a recess therein of greater diameter at the bottom than at the mouth, and means for spreading the prongs and clenching their ends within the recess, substantially as set forth.

3. In a tufting device for mattresses and the like, a button having a neck divided into four prongs, a shank having a recessed portion adapted to receive said prongs, and means separable from the shank adapted to fit said recess and to spread said prongs and then clench same therein, upon the button and shank being pressed together.

4. In a tufting device for mattresses and the like, a button having a neck divided into prongs, a shank having a recess therein adapted to receive said prongs, and a conical plug fitting loosely in said recess and adapted to clench the ends of the prongs upon the button and shank being pressed together.

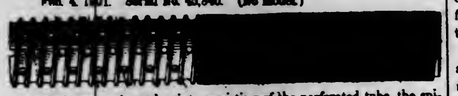
5. In a tufting device for mattresses and the like, a button having a neck divided into four prongs, a shank having a recess therein adapted to receive said prongs, and a plug fitting said recess and adapted to spread said prongs within the recess and clench their ends under the plug, when the button and the shank are pressed together.

6. In a tufting device for mattresses and the like, a button having a neck divided into four prongs, a shank having a recess therein adapted to receive said prongs, means within said recess adapted to spread said prongs and then clench same when the button and shank are pressed together, and means for connecting two shanks placed on opposite sides of a mattress, substantially as set forth.

7. In a tufting device for mattresses and the like, a button having a neck divided into four prongs, a shank having a recess therein adapted to receive said prongs, said recess having its lower part of greater diameter than its mouth, and said shank having an opening to receive a connecting strap or cord, a conical plug adapted to fit loosely within the recess in the shank, and adapted to clench the ends of the prongs thereunder when the shank and button are pressed together, for the purpose described.

8. In a tufting device of the character described, a button having a neck divided into four prongs, a shank having a recess therein of greater diameter at its lower part than at its mouth, and having a rounded bottom, and a tapering plug having a rounded bottom adapted to rest loosely within the recess in the shank, in the manner and for the purpose described.

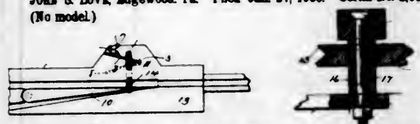
679,681. SAND-POINT. MILTON LATTA, Burwell, Nebr. Filed Feb. 4, 1901. Serial No. 45,840. (No model.)



Claim.—1. A sand-point, consisting of the perforated tube, the spiral rib thereon, and the strainer consisting of the strip of wire-cloth wound spirally upon the tube, over the spiral rib, thereon, having the edges of such cloth lapped upon the said rib and secured, the strands of such strainer being arranged to extend between the convolutions of the rib at approximately the same angle, whereby to secure an equal distribution of the strain, substantially as and for the purposes set forth.

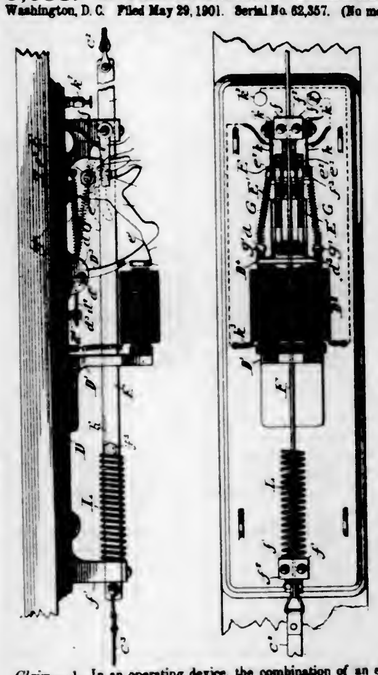
2. A sand-point consisting of the perforated tube having a spiral rib on its outer side, a strainer consisting of a foraminated strip of a width to extend between the spiral ribs and wound spirally on said ribs in the same direction as and at the same pitch as the said ribs and having their edges united together and upon the crowns of the said ribs substantially as and for the purposes set forth.

679,682. DEVICE FOR OPERATING RAILWAY SWITCH-BARS. JOHN S. LOVE, Edgewood, Pa. Filed Jan. 27, 1900. Serial No. 2,986. (No model.)



Claim.—The combination of a base-plate, a pivoted switch-tongue, a pin rigidly secured thereto, a link provided with an eye at each end, said pin pivotally engaging one of said eyes, a bolt with an outwardly-extended annular flange rigidly engaging the other eye, a sleeve mounted on said bolt and extending above the slot in the base-plate provided therefor, a roller with an inwardly-extending annular recess mounted on said sleeve and loosely engaging the said flange of the bolt, and a throwing mechanism attached to the car and adapted to be moved into engagement with the roller for moving the switch-tongue.

679,683. TIME OPERATING MECHANISM. CHARLES H. MAYERS, Washington, D. C. Filed May 29, 1901. Serial No. 62,357. (No model.)



Claim.—1. In an operating device, the combination of an electromagnet, its armature and circuit, a trip carrying said armature, an actuator, means normally tending to move said actuator, and holding and releasing means interposed between said trip and actuator and adapted to engage said trip to hold the actuator in set position and to be released from engagement with said trip on the completion of the circuit to free the actuator to the action of its operating means.

2. In an operating device, the combination of an electromagnet, its armature and circuit, a trip carrying said armature, an actuator, means normally tending to move said actuator, and holding and releasing means interposed between said trip and actuator and adapted to engage said trip to hold the actuator in set position and to be released from engagement with said trip on the completion of the circuit to free the actuator to the action of its operating means, and means for breaking the circuit on movement of the actuator from its set position.

3. In a time-controlled operating device, the combination of an electromagnet, its armature, and circuit, a pivotally-mounted trip carrying said armature, an actuator, means normally tending to move said actuator, and a holding and releasing trigger interposed between the said trip and actuator and adapted to engage and rest upon the trip to hold the actuator in set position and to be released from engagement with the trip on completion of the circuit to free the actuator to the action of its operating means.

4. In a time-controlled operating device, the combination of an electromagnet, its armature, and circuit, an endwise-movable actuator, means normally tending to move the actuator, a holding and releasing trigger adapted for detachable engagement with said actuator, and a trip carrying said armature and adapted to be engaged by the trigger for holding the actuator in set position and to release the trigger to free the actuator to the action of its operating means on completion of the circuit.

5. In a time-controlled operating device, the combination of an electromagnet its armature, and circuit, an endwise-movable actuator, means normally tending to move the actuator, a holding and releasing trigger adapted for detachable engagement with said actuator, and a trip carrying said armature and adapted to be engaged by the trigger for holding the actuator in set position and to release the trigger to free the actuator to the action of its operating means on completion of the circuit and means for breaking the circuit on movement of the actuator.

6. In a time-controlled operating device, the combination of an electromagnet, its armature and circuit, a pivotally-mounted trip having a beveled or rounded end and movable with said armature, an actuator, means tending normally to move said actuator, and a holding and releasing trigger interposed between said trip and actuator and adapted to engage the beveled or rounded end of the trip to hold the actuator in set position against the tension of its operating means and to be released from engagement with the end of the trip on completion of the circuit to thereby free the actuator to the action of its operating means.

7. In an operating device, the combination of an electromagnet, its armature, and circuit, a trigger provided with a slot, an actuator having means for engagement with the slot in the trigger, means normally tending to move said actuator and turn the trigger to free the actuator, and a trip to engage the trigger and restrain movement of the actuator under the impulse of its actuating means.

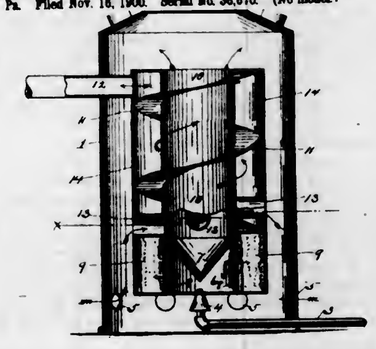
8. In an operating device, the combination of an electromagnet, its armature, and circuit, a trigger provided with a slot, an actuator having provisions for engagement with and disengagement from said slot, means normally tending to move the actuator and turn the trigger to free the actuator to movement under the impulse of its operating means, a trip to engage the trigger to restrain movement thereof, and means to close the circuit to disengage the trip from the trigger.

9. In an operating device, the combination of an electromagnet, its armature, and circuit, a trigger provided with a slot, an actuator having provisions for engagement with and disengagement from said slot, means normally tending to move the actuator and turn the trigger to free the actuator to movement under the impulse of its operating means, a trip to engage the trigger to restrain movement thereof, means to close the circuit and disengage the trip from the trigger to permit the latter to turn and free the actuator, and means to hold the trigger in its freeing position.

10. In an operating device, the combination of an electromagnet, its armature, and circuit, a trigger provided with a curved slot, an actuator having provisions for engagement with and disengagement from said slot, means normally tending to move the actuator and turn the trigger to free the actuator to movement under the impulse of its operating means, a trip to engage the trigger and restrain movement thereof, and means to close the circuit to disengage the trip from the trigger.

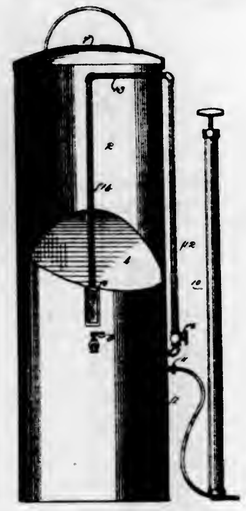
11. In an operating device, the combination of an electromagnet, its armature, and circuit, a movable actuator, means normally tending to move the actuator, a holding and releasing trigger adapted for detachable engagement with said actuator, a trip carrying said armature and positioned to be engaged by the trigger for holding the actuator in set position and to release the trigger to free the actuator to the action of its operating means on completion of the circuit, and means for holding the trigger in its releasing position.

679,684. HALL GAS-HEATER. JOHN W. MELLOTT, Pittsburg, Pa. Filed Nov. 16, 1900. Serial No. 36,670. (No model.)



Claim.—The herein-described gas-heater, consisting of the air-casing 1, the two compartments 10, and 14 arranged within the same, the latter having air inlet and outlet, the mixing-chamber 6, having an inverted-cone-shaped deflector 7, the combustion-chamber 9, surrounding the mixing-chamber, the perforations 8 and fibrous lining in said combustion-chamber, the spiral smoke-flue leading from the combustion-chamber to the smoke-flue 12, a gas-inlet pipe and mixer entering the mixing-chamber 6, and the hot-air flues 2 leading from the casing 1, all arranged and combined for service, substantially as and for the purpose described.

679,685. CREAM-SEPARATOR. JAMES L. ROBERTS, Pontiac, Ill. Filed Aug. 14, 1900. Serial No. 26,876. (No model.)



Claim.—1. A cream-separator of the class described, comprising a receptacle, having an open upper end, an intermediate partition dividing the receptacle into an entirely-closed bottom compressed-air chamber, and an upper milk-chamber, a check-valve for the bottom chamber, a removable cover for the milk-chamber, said cover having a ventilating-opening, an air-passage communicating between the two chambers, and means for controlling the continuous and uninterrupted flow of air to the milk-chamber.

2. A cream-separator of the class described, comprising a receptacle, having a vertically-inclined partition dividing the receptacle into an upper milk-chamber, and a lower compressed-air chamber, a check-valve in one of the walls of the latter chamber, an external pipe communicating between the two chambers, a valve carried by the external pipe, means for drawing off the contents of the milk-chamber and located adjacent to the lowermost portion of the bottom thereof, and an internal pipe communicating with the external pipe, and discharging adjacent to the lowermost portion of the bottom of the milk-chamber.

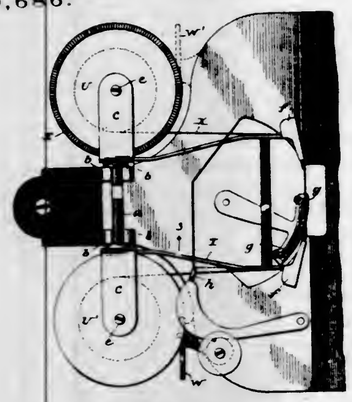
679,686. RIBBON-FEED DEVICE FOR TYPE-WRITING MACHINES. WILLIAM S. SHIRE, Anderson, Ind. Filed Nov. 4, 1899. Serial No. 735,765. (No model.)

Claim.—1. A ribbon-carrier for type-writers consisting of a frame having a bearing for resting detachably on supports of the type-writer frame and adapted for use in reversed positions on said bearing, and two ribbon-spools turning in the frame and provided with ratchets adapted to be engaged by a pawl on the frame when in either position, substantially as set forth.

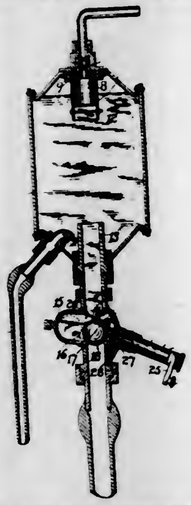
2. The combination in a ribbon-carrier, of a frame having a bearing on which it can vibrate, two ribbon-spools supported to turn in the frame and provided with ratchets oppositely arranged on the different spools, and guides for the ribbon extending between the spools, the whole detachable from supports of the type-writer frame and constructed for use in reversed positions, substantially as set forth.

3. A type-writer ribbon-frame having two similar U-shaped spool-supports, a cross-bar *a* connected at the ends to said supports and adapted to a bearing on the machine, and guides for the ribbon carried by the said supports, substantially as set forth.

679,686.



679,687. FLUSHING APPARATUS WITH VALVE-CONTROLLING APPARATUS FOR SAME. JAMES SIMPSON, New York, N. Y. Filed Mar. 3, 1901. Serial No. 50,304. (No model.)



Claim.—1. A flushing device consisting of a reservoir and exhaust-pipe with a spherical valve interposed in said pipe in combination with a chamber adjacent to said spherical valve adapted to receive said spherical valve when the same is removed from its seat; a shutter suitably pivoted within said exhaust-pipe and adapted to bear on said spherical valve with means to impart to said spherical valve an initial movement sufficient to change its axial position with reference to said shutter and sufficient to throw said spherical valve into the power of said shutter when the same is operated upon by the hydraulic exhaust and means to restore said valve to its seated position when the pressure of the hydraulic exhaust is removed, substantially as described.

2. A flushing device consisting of a reservoir and exhaust-pipe, with a spherical valve interposed in said pipe in combination with a chamber having an inclined base, said chamber being adapted to receive said spherical valve when the same is removed from its seat, and said base being sufficiently inclined toward said valve-seat to permit the spherical valve to gravitate into its normal seated position, a shutter suitably pivoted within said exhaust-pipe and adapted to bear on said spherical valve, with means to impart to said spherical valve an initial movement sufficient to change its axial position with reference to said shutter, sufficient to throw said spherical valve into the power of the said shutter when the same is operated upon by the hydraulic exhaust, substantially as described.

3. A flushing device consisting of a reservoir and exhaust-pipe, with a spherical valve interposed in said pipe in combination with a chamber having an inclined base, said chamber being adapted to receive said spherical valve when the same is removed from its seat, and said base being sufficiently inclined toward said valve-seat to permit the spherical valve to gravitate into its normal seated position, a shutter suitably pivoted within said exhaust-pipe and adapted to bear on said spherical valve, a plunger suitably mounted to reciprocate by hand, and adapted, when pressed toward the spherical valve, to impart to the same an initial movement sufficient to throw the valve out of its normal axial position into a position in which it may be operated upon by said shutter, when affected by the hydraulic pressure of the exhaust, substantially as described.

4. A flushing device consisting of a reservoir and exhaust-pipe, with a spherical valve interposed in said pipe in combination with a chamber having an inclined base, said chamber being adapted to receive said spherical valve when the same is removed from its seat, and said base being sufficiently inclined toward said valve-seat to permit the spherical valve to gravitate into its normal seated position; a shutter suitably pivoted within said exhaust-pipe and adapted to bear on said spherical valve, with means to exhaust a portion of the water lying before the valve with the initial movement of said plunger, substantially as described.

5. A flushing device consisting of a reservoir and exhaust-pipe, with a spherical valve interposed in said pipe in combination with a chamber having an inclined base, said chamber being adapted to receive said spherical valve when the same is removed from its seat, and said base being sufficiently inclined toward said valve-seat to permit the spherical valve to gravitate into its normal seated position; a shutter suitably pivoted within said exhaust-pipe and adapted to bear on said spherical valve; a plunger suitably mounted to be reciprocated manually and adapted to partially unseat the valve with means to exhaust a portion of the water lying before the valve with the initial movement of said plunger, substantially as described.

6. A flushing device consisting of a reservoir and exhaust-pipe, with a spherical valve interposed in said pipe in combination with a chamber having an inclined base, said chamber being adapted to receive said spherical valve when the same is removed from its seat, and said base being sufficiently inclined toward said valve-seat to permit the spherical valve to gravitate into its normal seated position; a shutter suitably pivoted within said exhaust-pipe and adapted to bear on said spherical valve; a plunger suitably mounted to be reciprocated manually and adapted to partially unseat the valve, with means to exhaust a portion of the water lying before the valve with the initial movement of said plunger by exhausting the water through an aperture in the stem of the plunger to a duct leading below the valve, substantially as described.

679,688. STEERING DEVICE. WALTER W. SMALL, Cherryfield, Me. Filed Nov. 3, 1899. Serial No. 736,271. (No model.)



Claim.—1. The combination with a frame, and a fork-stem, of a bracket-arm fast with said stem, a steering-stem loosely fitted to the fork-stem, means carried jointly by the stems for interlocking the two stems and also permitting the steering-stem to have an independent limited rotative movement, and a clutch mechanism carried in part by the bracket and separate from the interlocking means, said clutch mechanism being operative by the steering-stem and normally making the fork-stem fast with the frame, as set forth.

2. The combination with a frame, and a fork-stem, of a clutch means normally holding the fork-stem fast with the frame, and a steering-stem connected with the fork-stem and having actuating means for releasing the fork-stem-locking means previous to an interlocking engagement between the two stems, and means separate from, and independent of, the clutch means, for effecting said interlocking engagement, as set forth.

3. The combination with a frame, and a fork-stem, of a clutch-plate fast with said frame, a steering-stem capable of a limited rotative movement with respect to the fork-stem and having means for securing an interlocking engagement therewith, a bracket-arm carried by the fork-stem, the inclined clutch-dogs mounted on the bracket-arm and engaging individually with the clutch-plate, and means arranged for operation by the steering-stem to release the clutch-dogs from the clutch-plate, substantially as described.

4. The combination with a frame, and a fork-stem, of a clutch-plate fast with said frame, a steering-stem capable of a limited rotating movement with respect to the fork-stem, means carried jointly by the stems for securing their interlocking engagement, a bracket-arm carried by the fork-stem, clutch-dogs pivoted individually on said bracket-arm, a spring engaging with both clutch-dogs and normally holding the latter in fast engagement with the clutch-plate, and a tripping device actuated by a rotative movement of the steering-stem and engaging operatively with the clutch-dogs to individually release the latter from the clutch-plate, as set forth.

5. The combination with the fork-stem of a bicycle, and a bracket rigidly connected thereto, of a steering-stem having a limited rotative movement with relation to the fork-stem, a trip-arm fast on the handle-bar stem, a stationary clutch-plate on the machine-frame, a clutch-dog operatively mounted on said bracket and located in operative relation to said trip-arm, means operative by the trip-arm on the rotative movement of the handle-bar stem to release the clutch-dog, and means independent of the clutch mechanism for interlocking the stems, substantially as described.

6. The combination with the fork-stem of a bicycle, of a steering-stem having a limited amount of rotative movement relatively thereto, a bracket fast with the fork-stem, a stationary clutch-plate on the machine-frame, a pair of clutch-dogs operatively mounted on said bracket to engage the clutch-plate, a trip-lever arranged to simultaneously engage both dogs, and a trip-arm fast on the steering-stem and operatively engaged with said trip-lever, substantially as described.

7. The combination with the fork-stem of a bicycle, of a steering-stem having a limited rotative movement relatively thereto, a stationay clutch-plate on the machine-frame, a bracket-arm fast with the fork-stem, clutch-dogs carried by said arm for engagement with the clutch-plate, bifurcated extensions carried by said dogs, a trip-lever mounted between said extensions, and a trip-arm fast on the steering-stem and operatively connected with said trip-lever, substantially as described.

8. The combination with a fork-stem, of a steering-stem having a limited rotative movement with respect to the fork-stem, means for interlocking the steering-stem and the fork-stem at the termination in either direction of the limited rotative movement of the steering-stem, a clutch separate from, and independent of, said interlocking means for holding the fork-stem against rotation, and means operative by and during the limited rotative movement of the steering-stem to release the clutch immediately before the stems are interlocked, as and for the purposes set forth.

9. In a bicycle, in combination, a fork-stem, a steering-stem having a limited amount of free rotative movement relatively thereto, a bracket-arm rigid on the fork-stem, a stationary clutch-plate on the machine-frame, a pair of clutch-dogs journaled on said bracket-arm, a trip-lever fulcrumed on said arm and arranged in operative relation to said dogs, and a trip-arm fast on the steering-stem, substantially as specified.

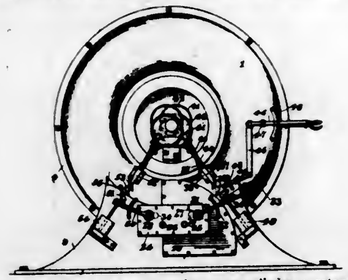
10. The combination with the fork-stem of a bicycle, of a steering-stem having a limited rotative movement relative thereto, a stationary clutch-plate on the machine-frame, a bracket rigid with the fork-stem, and provided with an interior groove, a pair of clutch-dogs mounted upon said bracket and arranged to engage the clutch-plate, a trip-lever mounted between the dogs, and a trip-arm for said lever encircling the steering-stem and housed in the internal groove of the bracket, substantially as described.

11. The combination with a frame, a fork-stem and a steering-stem loosely fitted to the fork-stem, of shoulders extending directly from each of said stems and designed to engage at the termination of a slight independent movement of the steering-stem, a clutch-plate rigid with the frame, a movable clutch member carried by the fork-stem, means for yieldingly urging the clutch member into frictional contact with the plate, and means carried by the steering-stem and operated during the independent movement thereof to urge the clutch member out of contact with the plate immediately before the shoulders are brought into contact to interlock the stems.

679,689. ROTARY ENGINE. EDWIN L. SPENCER, Canon City, Colo., assignor of one-half to William H. Dyer, same place. Filed Feb. 14, 1901. Serial No. 47,289. (No model.)

Claim.—1. In a rotary engine, an annular steam-cylinder, a rotary piston-head therein, an oscillatory division-head, a driving-shaft, steam supply and exhaust mechanism, a two-throw cam actuated from the piston-head, a dog arranged in the path of travel of the said cam, and connections between the dog and the division-head, whereby the division-head is caused to be depressed twice in each complete revolution of the driving-shaft.

2. In a rotary engine, an annular steam-cylinder, a rotary piston-head, a driving-shaft, steam supply and exhaust mechanism, a two-throw cam actuated from the piston-head, a dog arranged in the path of travel of said cam, an oscillatory division-head, connections between the dog and the division-head, whereby the division-head is caused to be depressed twice in each complete revolution of the driving-shaft, and automatically-operating means for returning the division-head to its normal position.



3. In a rotary engine, an annular steam-cylinder, a rotary piston-head therein, an oscillatory division-head, a driving-shaft, steam supply and exhaust mechanism, a two-throw cam actuated from the piston-head, a dog arranged in the path of travel of the said cam, connections between the dog and the division-head, whereby the division-head is caused to be depressed twice in each complete revolution of the driving-shaft, and a pneumatic recoil connected by interposed mechanism with the division-head to cause the same to resume its normal position after having been depressed by the cam.

4. In a rotary engine, an annular steam-cylinder, a driving-shaft, oppositely-arranged rotary piston-heads mounted on the driving-shaft, an oscillatory division-head, steam supply and exhaust mechanism, a shaft bearing a two-throw cam, gear connection between the latter shaft and the driving-shaft, a dog mounted in the path of movement of the cam, interposed mechanism connecting the dog and the division-head, and a pneumatic recoil also coacting with the division-head.

5. In a rotary engine, an annular steam-cylinder, a driving-shaft, a rotary piston-head thereon, an oscillatory division-head, steam supply and exhaust mechanism, a counter-shaft geared to the driving-shaft, and means whereby the counter-shaft is adapted to intermittently operate the division-head.

6. In a rotary engine, an annular steam-cylinder, steam supply and exhaust mechanism, a driving-shaft, a rotary piston-head thereon, an oscillatory division-head, a dog connected with the division-head, and a two-throw cam operated by the driving-shaft and coöperating with the dog for intermittently operating the division-head.

7. In a rotary engine, an annular steam-cylinder, steam supply and exhaust mechanism, a driving-shaft, a rotary piston-head thereon, an oscillatory division-head, a dog connected with the division-head, and a two-throw cam operated by the driving-shaft and coöperating with the dog to produce two full movements of the division-head for each revolution of the driving-shaft.

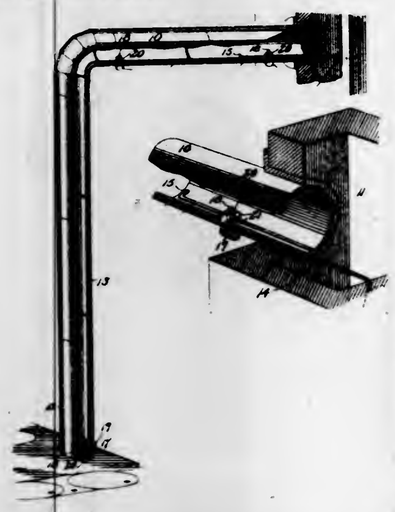
8. The combination with the driving-shaft of a rotary engine, and the steam-supply valve for the cylinder, of a lever connected with said valve, a catch carried thereby, a pair of slides operatively connected with the driving-shaft, a double guide in which the slides move, a wedge for taking up wear on the slides, and means for adjusting said wedge.

9. In a rotary engine, the combination with valve opening and closing mechanism, comprising a pair of parallel slides operated by the driving-shaft of the engine, of a double guide in which the slides move, said guide comprising a frame having an intermediate web which lies between the slides, a wedge movable through one side of the guide, and an adjusting-screw passing through the wedge into the web, said parts being combined and arranged substantially as and for the purpose specified.

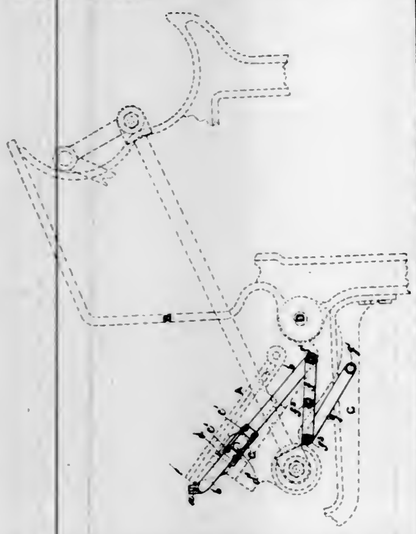
679,690. STOVEPIPE-LOCK. ELLIS J. STANLEY, Lanark, Ill. Filed Mar. 9, 1900. Serial No. 8,057. (No model.)

Claim.—The combination with a sectional stovepipe, of means associated therewith for locking the sections together and at the same time securing the terminal sections to the stove and chimney, said means comprising two rods, one longer than the other, arranged within the pipe, the short rod having a retaining-hook engaging the inner wall of the flue-opening, and the long rod having its end extended across the flue-opening and bearing against the outer wall, the two rods being arranged side by side within the first section of the pipe next the flue, a single clamping-head engaging both rods, exteriorly-located operating means connecting with the clamping-head to clamp the rods between the head and the in-

ner face of the first pipe-section, the long rod being extended beyond the first section and through the intermediate sections down to the terminal pipe-section which connects with the collar of the stove, and means for detachably connecting the end of the long rod to the stove-collar, for the purpose substantially as described.



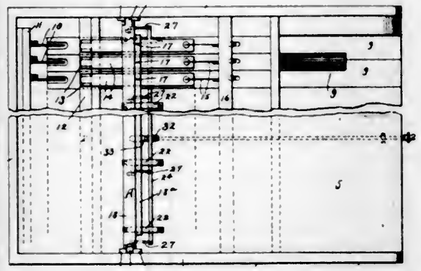
679,691. GUARD FOR PLATEN PRINTING-MACHINES. MAXIMILLIAN T. BARBER, Manchester, England. Filed Feb. 11, 1901. Serial No. 46,590. (No model.)



Claim.—1. In combination with the platen of a printing-machine, a guard or fence, a rod supporting the same, a swiveled guide on the platen, permitting the said rod to slide freely through it and a pair of jointed links connecting the lower end of the said rod to a fixed support, one of said links being pivoted to the platen substantially as set forth.

2. In combination with the platen of the printing-machine and a pivoted guide carried thereby, a rod sliding through the said guide, a guard carried by the said rod and means of connection between said rod and a fixed part of the frame whereby the said rod is caused to move up and down through the said slide as the platen moves to and from the bed substantially as set forth.

679,692. PRACTICE-CLAVIER. AMOS C. BURGHAM, New York, N. Y., assignor to Antha M. Virgil, same place. Filed July 30, 1900. Serial No. 25,289. (No model.)



Claim.—1. In a practice-clavier a key, a striker device arranged to be operated thereby, a sounding element arranged adjacent said striker device and having a slidable play, a laterally-reciprocating rod having a pivotal connection with said sounding element, and a longitudinally-reciprocating operating-rod operatively connected with said first-named rod, substantially as shown and described.

2. In a practice-clavier, a casing, a key mounted thereon, a striker device arranged to be operated by said key, a sounding element having a slidable play in said casing, a rod capable of lateral reciprocation upon the bottom of said casing, and beneath said key, and in operative connection with said sounding element, and a longitudinally-reciprocating operating-rod slidably connected with the casing-bottom and in operative connection with said first-named rod, substantially as shown and described.

3. In a practice-clavier, a movable striker device, a casing in which the keys are arranged, said striker device being arranged to be operated by one of the keys, cleats secured to the casing, a sounding element slidably mounted between said cleats, a laterally-reciprocating rod mounted upon the bottom of the casing and provided with link-arms pivotally connected with said sounding element, cleats secured to the bottom of said casing, a block slidably mounted between said cleats, and operatively connected with said laterally-reciprocating rod, and a longitudinally-reciprocating rod mounted upon the bottom of said casing and in operative connection with said block.

4. In a practice-clavier a casing in which the keys are mounted, striker devices mounted in the casing and arranged to be operated by the keys, cleats secured to the opposite sides of the casing, a sounding element vertically slidably mounted between said cleats and adjacent the striker devices, keepers mounted upon the bottom of the casing and in a series transversely thereof, a laterally-reciprocating rod arranged in said keepers and provided with link-arms pivotally connected with said sounding element, a slidable block mounted beneath said casing-bottom and provided with a head ranging upwardly through an elongated slot in said casing-bottom, said laterally-reciprocating rod being loosely connected with said head, and a longitudinally-reciprocating operating-rod mounted beneath said casing-bottom and adjustably connected with said slidable block.

5. In a practice-clavier, a casing, a sounding element vertically slidably mounted between the opposite sides thereof, a rod laterally slidably mounted beneath said sounding element, and ranging in parallelism therewith, said rod being provided with link-arms pivotally connected with said sounding element, and means for moving said rod into and out of position in vertical alinement with said sounding element.

6. In a practice-clavier, a vertically-slidable sounding element, a rod or similar element ranging in parallelism therewith and laterally slidably mounted, said rod being provided with link-arms loosely connected with said sounding element, and means for moving said rod into and out of vertical alinement with said sounding element, whereby said sounding element is vertically adjusted.

7. In a practice-clavier, an adjustable sounding element, a rod or similar element ranging in parallelism and connected therewith and laterally slidably mounted, and an operating-rod ranging at an angle therewith beneath the casing of the instrument and in operative connection with said first-named rod, said operating-rod being provided at its forward end with a knob or handle which normally projects forwardly of the casing, substantially as shown and described.

8. In a practice-clavier, a slidably-mounted sounding element, a rod or similar element laterally slidably mounted adjacent to said sounding element and operatively connected with the same, and means for moving said rod into and out of alinement with said sounding element within a predetermined plane.

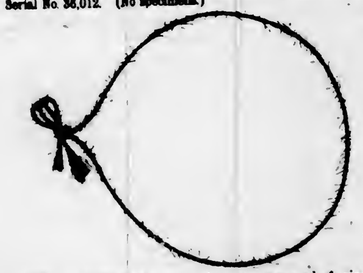
679,693. COMBINED DRILL AND COUNTERSINK. WILLIAM BURKHART, Williamsport, Pa., assignor of one-half to George B. Updegraff, same place. Filed Apr. 13, 1901. Serial No. 55,705. (No model.)



Claim.—1. The combination with the cylinder, the lower ends of which terminate in countersink cutting edges, said cylinder having radial slits, extending from the lower edge upward and having a vertical external groove, the sleeve slidable upon the cylinder, a clamp-screw carried by the cylinder, and adapted to engage with the external groove of said cylinder, said sleeve having cut-out portions on its lower edge, registering with the slits in the said cylinder, all being arranged substantially as shown and for the purposes described.

2. The combination with the drill, and the cylinder 2, detachably and compressibly fitted on the drill, said cylinder having countersink cutting edges at the lower end, of a clamping-collar vertically adjustable on the cylinder, said collar having upwardly-extending recesses 5', and means for clamping the collar on the cylinder, substantially as shown and for the purposes described.

679,694. MANUFACTURE OF TWINE FROM UNRETTED FLAX-STRAWS. GEORGE H. ELLIS, Chicago, Ill., assignor, by mesne assignments, to William Deering, Evanston, Ill. Filed Nov. 10, 1900. Serial No. 36,012. (No specimens.)



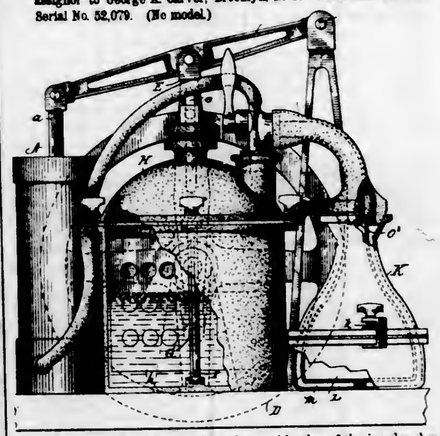
Claim.—A twine of flax-straw, the same composed of wisps of interlapped, unhackled cortices of substantially the full length of the straw, twisted together.

679,695. FLAX-SLIVER. GEORGE H. ELLIS, Chicago, Ill., assignor to William Deering, Evanston, Ill. Filed Feb. 23, 1901. Serial No. 48,616. (No specimens.)



Claim.—A sliver from which twine may be spun, consisting of a multiplicity of lapped ribbons of the cortices of flax-straw, substantially as described.

679,696. ICE-MACHINE. JOHN H. J. HAINES, New York, N. Y., assignor to George A. Carver, Brooklyn, N. Y. Filed Mar. 20, 1901. Serial No. 52,079. (No model.)



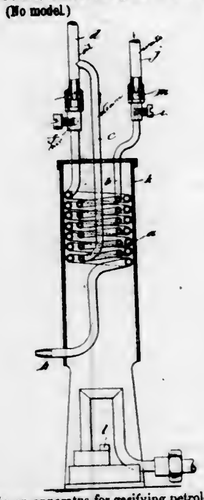
Claim.—1. In an ice-machine the combination of the ice-chamber, a vacuum-chamber inclosing the same, a vessel separate from said vacuum-chamber, for containing the absorbing material, an exhaust-pump, and means for putting said pump in communication with said ice-chamber, vacuum-chamber, and absorbing vessel.

2. The combination of the ice-chamber, the vacuum-chamber surrounding the latter, the absorbing vessel the latter being in free communication with the ice-chamber, the exhaust-pump, and means for putting said pump alternately in communication with said vacuum-chamber, and with said ice-chamber and absorbing vessel.

3. The combination of the exhaust-pump, the ice-chamber, the vacuum-chamber surrounding the latter, the absorbing vessel, and the three-way valve having a port communicating with the pump, a second port communicating with the said vacuum-chamber, and a third port communicating with the ice-chamber and absorbing-chamber.

4. The combination with the exhaust-pump, absorbing-chamber, ice-chamber and pipe connections between said chambers and pump, of a vacuum-chamber inclosing the ice-chamber, and detachably connected with piping leading to said pump, and means for connecting the latter alternately to said vacuum-chamber, and with said ice-chamber and absorbing-chamber.

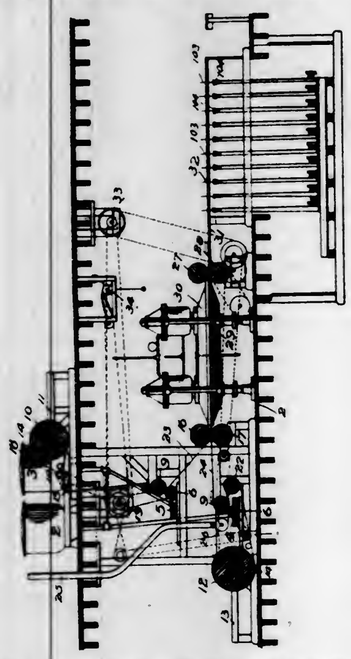
679,697. APPARATUS FOR GASIFYING HYDROCARBONS. CHARLES DE HAUPT, Brussels, Belgium. Filed June 25, 1900. Serial No. 21,530. (No model.)



Claim.—In an apparatus for gasifying petroleum or other hydrocarbons, the combination, with a heating device, of a receptacle having an in-

closed spiral duct and disposed over said heating device, an atomizer, said atomizer having communication with, and discharging into, said duct, another receptacle for the fluid to be combined with the petroleum, said last-named receptacle having communication with the atomizer beyond the nozzle thereof relatively to the first-named receptacle, another atomizer discharging into said last-named receptacle, and a cylindrical casing closely surrounding said receptacles and having its bottom open and disposed over said heating device and also having confined outlet means at the top thereof, substantially as described.

679,698. **MACHINE FOR MANUFACTURING COMPO-BOARD.** CHARLES J. JOHNSON and WILLIAM H. SPRINGER, Minneapolis, Minn., assignors, by mesne assignments, to Northwestern Compo-Board Company. Filed Oct. 23, 1897. Serial No. 655,996. (No model.)



Claim.—1. In a machine for manufacturing compo-boards, the combination of mechanism for supplying sheets or strips of paper in opposed relation, feeding mechanism acting to positively move and insert slats separately and individually between said sheets or strips of paper, a pressing mechanism acting periodically to press determined lengths of the assembled material, drawing mechanism at each end of the pressing mechanism, a cutting mechanism to cut the pressed material into lengths after being delivered by the drawing mechanism, and means acting to automatically stop the drawing mechanism during the operation of the pressing mechanism.

2. In a machine for manufacturing compo-boards, the combination of means for delivering sheets or strips of paper, power-driven mechanism feeding or moving separate slats individually and in succession transversely between said sheets or strips of paper, assembling and pasting mechanism bringing together the slats and paper, a pressing mechanism periodically operating to compress the assembled parts, a drawing mechanism for the material to move the same during the period of inaction of the pressing mechanism, and automatic means for stopping the drawing mechanism during the period of operation of the pressing mechanism.

3. In a machine for manufacturing compo-boards, the combination of means for delivering sheets or strips of paper, power-driven mechanism feeding or moving separate slats individually and in succession transversely between said sheets or strips of paper, assembling and pasting mechanism bringing together the slats and paper, a pressing mechanism periodically operating to compress the assembled parts, a drawing mechanism for the material to move the same during the period of inaction of the pressing mechanism, and automatic means for stopping both the drawing mechanism and assembling mechanism during the period of operation of the pressing mechanism, and a sawing or cutting mechanism operable during the operation of the pressing mechanism for cutting the material into desired lengths.

4. In a machine for manufacturing compo-boards, the combination of mechanism for feeding sheets or strips of paper, power-driven means positively delivering separate slats individually and successively transversely between said sheets or strips of paper, a plate-pressing mechanism, means for operating said mechanism periodically to press separate lengths of the assembled material, and a sawing mechanism comprising a series of saws independently movable transversely across the path of the material to cut the same into various lengths during the operation of the pressing mechanism irrespective of the periodical output of said pressing mechanism.

5. In a machine for manufacturing compo-boards, the combination of an assembling and pasting mechanism to deliver pasted sheets of paper in opposed relation, mechanism for positively moving individual slats transversely between said sheets of paper, a pressing mechanism and a drawing mechanism, means for controlling the operative relations of said mechanism, a cutting mechanism comprising a number of independent transversely-movable cutters, and means for causing any one of said cutters to act upon the material as it is furnished in determined pressed lengths, to cut the same into varying lengths.

6. In a machine for manufacturing compo-boards, the combination of means for feeding sheets or strips of paper, driven supplying mechanism for positively moving individual slats between said sheets or strips, assembling means, means under control of the operator for timing the delivery of the paper and slats to the assembling means, a pressing mechanism and devices in operative connection with said means and mechanism for controlling the relative action thereof.

7. The combination, in a machine for manufacturing compo-board, of the assembling mechanism, with the driven automatic delivery or supply mechanism for the paper, slats and glue, means for controlling the actions of said delivery and said assembling mechanisms, a pressing member, drawing means, automatic means for controlling the operation of said drawing means and said assembling mechanism, and further means common to the assembling mechanism and said pressing member, and controlling said drawing means, substantially as described.

8. In a machine for manufacturing compo-boards, the combination of an assembling mechanism, an intermittently-operating pressing mechanism adjacent thereto, a sawing-table disposed adjacent the pressing mechanism and provided with saws arranged at different distances from said pressing mechanism, and means to move any one of said saws across the table transversely to the line of movement of the material as it comes from the pressing mechanism and drawing devices for drawing a certain quantity of material from the press and passing it onto the sawing-table during the period of inaction of the pressing mechanism.

9. The combination, with a press of a certain length, of a gang of independently-operative saws arranged at different distances from said press, means for operating said saws, and means for drawing a given amount of material from said press at a time, to be cut into desired lengths, substantially as described.

10. In a machine for manufacturing compo-boards, the combination of a pressing mechanism, feeding devices adjacent thereto to feed the material to the pressing mechanism, drawing mechanism, a cutting mechanism and an automatic stopping mechanism acting to stop the drawing mechanism during the action of the press and cutting mechanisms.

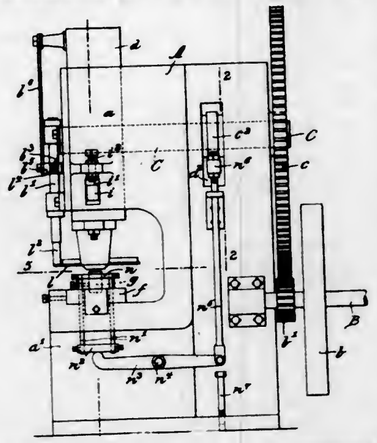
11. In a machine for making compo-board, the combination, of a driven paper and slat assembling and pasting mechanism, with the intermittently-operable press, drawing-rolls, said assembling mechanism and said rolls being capable of continuous operation, and driving means therefor controlled by the operation of said press, substantially as described.

12. In a machine for making compo-board, the combination, of a driven paper and slat assembling and pasting mechanism, with the intermittently-operable press, drawing-rolls, said assembling mechanism and said rolls being capable of continuous operation, driving means therefor controlled by the operation of said press, the gang of transversely-operable saws, said saws being arranged at varying distances from the said press and automatic means determining the number of rotations of said drawing-rolls for each operation of the press, substantially as described.

679,699. **WASHER-MAKING MACHINE.** JOSEPH M. MASON, Philadelphia, Pa. Filed Sept. 29, 1900. Serial No. 31,559. (No model.)

Claim.—1. In a machine of the character described, the combination of a series of upper and lower dies and punches, sleeves adapted to force out the completed washers, a plate resting on said sleeves, pins resting on said plate, a bar resting on said pins and set-screws adapted to restrict the upward movement of said bar, all substantially and for the purposes as set forth.

2. In a machine of the character described the combination of the carrier-plate, a spindle to which said carrier-plate is attached, a helical groove in said spindle and means attached to the oscillating head of the machine for engaging said groove and causing the spindle to be rotated a portion of a revolution substantially as and for the purpose set forth.



3. In a machine of the character described, the combination of the carrier-plate, a spindle to which said carrier-plate is attached, a helical groove in said spindle, a nut provided with a set-screw adapted to engage said groove and a strap connecting said nut to the oscillating head of the machine substantially as and for the purposes set forth.

679,700. **ELECTRIC-ARC LAMP.** SVEND M. MEYER, Brooklyn, N. Y., assignor of one-half to Thomas A. Cayton, same place. Filed Oct. 10, 1900. Serial No. 32,571. (No model.)



Claim.—1. In an arc-lamp, the combination of a pair of electrodes operatively connected to each other, a solenoid and a rigid solenoid-core coöperating with the said solenoid and operating to effect the feed of the electrodes, the said solenoid-core comprising in its structure a series of turns of wire of flexible magnetic material.

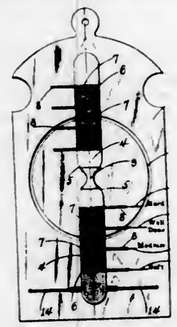
2. In an arc-lamp, the combination of a pair of electrodes operatively connected to each other by a flexible connection, a solenoid in series with the arc and a solenoid-core coöperating with the said solenoid and operating to effect the feed of the electrodes, the said solenoid-core comprising in its structure a series of layers of wire composed of magnetic material.

3. In an arc-lamp, the combination of a pair of electrodes operatively connected to each other by a flexible connection, a solenoid in series with the arc and a solenoid-core coöperating with the said solenoid and operating to effect the feed of the electrodes, the said solenoid-core comprising in its structure a series of layers of wire composed of magnetic material and a flexibly-mounted roller *g* bearing against the ribbed surface of the solenoid-core.

4. A solenoid-core especially adapted for use in arc-lamps requiring a long steady pull magnet comprising in its structure a bar or support and a number of turns or windings of wire composed of magnetic material.

5. A solenoid-core comprising in its structure a bar d^2 and a series of windings of magnetic wire, said turns or windings being transverse to the longitudinal axis of the bar.

679,701. **EGG-TIMER.** JAMES M. MICHAELSON, North Tonawanda, N. Y., assignor of one-third to William Allan, same place. Filed Oct. 31, 1899. Serial No. 735,255. (No model.)



Claim.—1. A timing device having a support, a two-part glass indicating-bulb partially filled with sifting material united by a middle contraction and divided horizontally into a series of differently-colored sections, and a metal tube encircling the middle contraction and having a pivot fastened to the support.

2. An egg-timer comprising a support having an opening, a bulb having a middle contraction and filled with sifting material, a metal tube having enlarged ends and conforming to and encircling the middle contraction of the bulb and provided with extensions passed through the opening in the support.

3. An egg-timer comprising a support, a glass bulb pivoted thereto, and divided into a series of differently-colored sections by encircling bands, said bands having horizontal pointers and said support having a series of indicating-lines corresponding to the pointers.

4. An egg-timer, comprising a support having an opening and a circular groove arranged centrally around said opening, a bulb having a middle contraction and an extension projecting into the groove, a band encircling the contraction and having a pivoting portion extending into the opening in the support, and stops in the groove against which the extension abuts.

5. An egg-timer, comprising a support, a bulb pivoted to said support, and a spring having its ends fastened to the support and its middle bent to form a seat into which the bulb is sprung, for maintaining said bulb in an approximately vertical position.

6. A timing device comprising a support, an indicating-bulb pivoted thereto, and a spring mounted on the support below the pivoting-point of the bulb for maintaining said bulb in an approximately vertical position with a spring tension.

7. A timing device comprising a support having a central opening and a circular depression surrounding said opening, an indicating-bulb pivoted thereto by a pivot fastened in the central opening and a downward extension traveling in the circular depression, and stops arranged in the depression for limiting the pivotal movement of the bulb.

8. A timing device comprising a support having a circular recess, an indicating-bulb pivoted thereto and having a downwardly-extending projection extending into the depression, stops in the depression for limiting the pivotal movement of said bulb, and a spring for maintaining said bulb in an approximately vertical position with a spring tension.

679,702. **SPOKESHAVE.** WALTER D. MURRAY, Portland, Me., assignor of one-half to Walter Ackroyd, same place. Filed May 31, 1900. Serial No. 18,627. (No model.)



Claim.—1. A spokeshave having a detachable rear sole-piece serving as a clamp for the blade.

2. A spokeshave having a detachable reversible rear sole-piece.

3. A spokeshave having a reversible rear sole-piece provided with edges of different forms.

4. A spokeshave provided with a reversible rear sole-piece having edges of different forms, one of said edges being flat and the other rounded.

5. A spokeshave comprising a recessed stock, a blade adapted to fit in said recess, a reversible sole-piece also adapted to fit in said recess behind said blade, said stock being provided with means for engaging said sole-piece, and means for securing the blade and sole-piece to the stock.

6. A spokeshave comprising a stock provided with a recess at its back, a reversible sole-piece, adapted to fit in said recess, interlocking means on said stock and sole-piece, a blade disposed between said stock and sole-piece, and means for securing said sole-piece and blade to said stock.

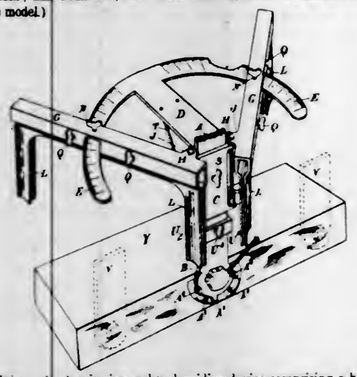
7. A spokeshave comprising a stock provided with a recess at its back and lugs at opposite ends of said recess, a reversible sole-piece adapted to fit in said recess and provided with notches adapted to engage said lugs, a blade disposed between said sole-piece and stock, and means for securing said blade and sole-piece to said stock.

8. A spokeshave comprising a recessed stock having a perforation therein, a detachable rear sole-piece having a bolt attached thereto and adapted to extend through said perforation, a thumb-nut adapted to screw on said bolt and fasten the sole-piece in position, and a blade clamped between said sole-piece and stock.

9. In a spokeshave the combination of a stock provided with a blade-bed and with screw-sockets adjacent to opposite ends of said bed, a blade provided with notches at its opposite ends, means for clamping said blade to said bed, and adjusting-screws disposed in said sockets and provided with heads engaging said lateral notches.

10. A spokeshave comprising, a stock and handles extending from opposite ends thereof, vertical concave recesses being formed at the ends of the stock and adjacent portions of the handles on the rear side of the latter, which recesses serve as rests for the index-fingers when the shave is grasped by the hands.

679,703. **MITERING AND TOOL-GUIDING DEVICE.** JOHN M. J. PHELAN, San Francisco, Cal. Filed Mar. 13, 1900. Serial No. 8,547. (No model.)



Claim.—1. A mitering and tool-guiding device comprising a bed, a standard adjustable laterally at various angles with relation to the bed on which the work is laid, a slide on said standard so as to be laterally immovable but free to slide up and down thereon, and one or more saw-guides hinged to said slide, substantially as described.

2. A mitering and tool-guiding device, comprising a bed, a standard adjustable laterally at various angles with relation to the bed on which the work is laid, a slide on said standard so as to be laterally immovable but free to slide up and down thereon, a neck extending laterally from said slide and carrying a graduated arc at its outer end, and one or more saw-guides hinged to said slide and supported at its or their outer end or ends by said arc, substantially as described.

3. A mitering and tool-guiding device comprising a standard adjustable laterally at various angles with relation to the bed on which the work is laid, a collar fitted on said standard so as to be laterally immovable but free to slide up and down thereon, and one or more saw-guides hinged to said collar, substantially as set forth.

4. A mitering and tool-guiding device comprising a standard adjustable laterally, substantially as described, oppositely-disposed saw-guides on each side thereof, means for flexibly connecting said saw-guides with said standard and so they can slide up and down along the same, and a graduated arc for the saw-guides, said arc having a scale for each guide, substantially as set forth.

5. A mitering and tool-guiding device comprising a standard pivoted or hinged to the bed that the work rests on, a collar fitted on said standard, a neck projecting from said collar, a graduated arc carried by said neck, saw-guides hinged to opposite sides of the collar and arranged to swing laterally on said arc, and means to clamp the saw-guides, or either of them, in a given position, as indicated by the graduations of the arc, substantially as set forth.

6. A mitering and tool-guiding device comprising a standard pivoted or hinged to the bed on which the stock is placed, said standard acting as a central stock-guide post, a plate countersunk in the bed under the pivoted or hinged end of the standard and having graduations disposed concentrically with relation to the standard-pivot, one or more saw-guides flexibly connected with the standard and extending forwardly therefrom over the stock, a pointer indicating on the graduated plate the lateral position of the standard with relation to the bed and stock, and means for securing the standard in its adjusted position, substantially as set forth.

7. A mitering and tool-guiding device comprising a standard adjustably secured to the bed by a centrally-disposed screw, one or more saw-guides connected with the standard and extending therefrom over the work on the bed, and auxiliary screws driven into the bed and arranged so their heads can impinge on the edges of that part of the standard through which the central screw passes, substantially as set forth.

8. A mitering and tool-guiding device comprising a standard adjustably securable to the bed on which the stock is placed, the same acting as a central stock-guide post, one or more saw-guides flexibly connected with said standard and extending over the stock, and a stock-holder fitted so as to slide on the standard and clamp the stock in position on the bed, substantially as set forth.

9. A mitering and tool-guiding device comprising a standard adjustable laterally, substantially as described, with relation to the bed on which the stock is placed, a collar slidable on said standard, one or more saw-guides hinged to said collar, a neck projecting from the collar, a graduated arc supported by said neck and passing transversely through the saw-guide or saw-guides, and a stop secured to said neck and adapted to be turned across the top of the standard, substantially as set forth.

10. In a device of the kind described, a saw-guide consisting of a single piece bent to form the wide trough-shaped arm G and depending fingers L, and means, as a bolt, connecting the opposite sides of the arm, for strengthening the arm and adjusting the fingers to different saw thicknesses, substantially as described.

11. A mitering and tool-guiding device comprising a standard, one or more saw-guides connected therewith having fingers between which a saw can be placed, a finger-adjusting bolt located above the saw, a graduated arc crossing the saw-guide or saw-guides above said bolt, and a roller on the finger-adjusting bolt operating to keep the saw back off this bolt and off the graduated arc, substantially as described.

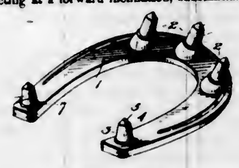
12. In a device of the kind described a saw-guide consisting of a single piece bent to form a wide trough-shaped arm and depending fingers, a bolt connecting the opposite sides of the arm for strengthening the arm and adjusting the fingers to different saw thicknesses, and a roller sleeved on said bolt, substantially as and for the purposes specified.

13. A mitering and tool-guiding device comprising a standard securable to the bed on which the stock is placed, an arm connected with said standard having pendants to grasp a saw, a graduated arc passing transversely through said arm, means for adjusting the arm-pendants to the thickness of the saw, and a roller mounted within the arm operating to limit the inward movement of its pendants and to prevent the saw from bearing either on the graduated arc or on the arm, substantially as described.

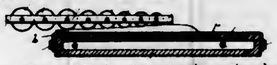
14. A mitering and tool-guiding device comprising a flat-faced standard, a correspondingly-shaped compressible collar slidable thereon, one or more saw-guides carried by said collar and standard, and means for adjustably compressing the collar on the standard and compensating for the wear by friction or springing therebetween, such as bolts passing through the collar by the edges of the standard, on opposite sides thereof, substantially as described.

679,704. **HORSESHOE.** HENRY RUSH and ANDREW RUSH, Elmerton, Pa.; said Andrew Rush assignor to said Henry Rush. Filed Apr. 15, 1901. Serial No. 55,879. (No model.)

Claim.—A horseshoe having threaded orifices at its toe and heel portions, the toe-orifices being obliquely arranged and the heel-orifices right-angularly arranged, and reinforcing-bosses upon the toe and having the said oblique orifices extending therethrough, combined with calks provided with tapered body portions having tapered threaded shanks fitted within said orifices and beveled or inclined shoulders at the bases of said shanks, the heel-calks being arranged at right angles to the shoe and the toe-calks projecting at a forward inclination, substantially as described.



679,705. **APPARATUS FOR USE IN THE MANUFACTURE OF SHEET-GLASS.** PAUL T. SIEVERT, Dresden, and ROBERT HEIKEL, Deuben, Germany; said Heikel assignor to said Sievert. Filed Jan. 16, 1899. Serial No. 702,309. (No model.)

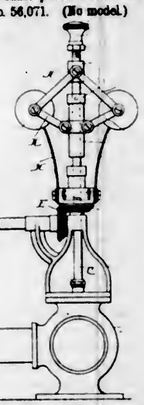


Claim.—1. The combination of two coacting surfaces between which molten glass is adapted to be placed and by which said glass is subjected to pressure and a fibrous covering on the coacting faces of said surfaces each of said surfaces being constructed to permit a liquid or steam to be brought in contact with the covering from the under side of the latter.

2. The combination of two coacting hollow bodies, having perforations extending from the interior to the outer surfaces, and a fibrous covering on the opposing faces of said bodies.

3. The combination of a perforated plate covered with fibrous material, with a series of rolls of different diameters supported one behind another in a frame substantially as described.

679,706. **AUTOMATIC STOP FOR GOVERNORS FOR STEAM-ENGINES.** WILLIAM D. SMITH, Philadelphia, Pa., assignor of one-half to George H. Taber, Jr., same place. Filed Oct. 28, 1899. Renewed Apr. 16, 1901. Serial No. 56,071. (No model.)



Claim.—1. In combination with a governor of the character described, suitable means whereby the valve is held open at normal speed, a sleeve adapted to slide upon the valve-rod, means for connecting said sleeve with the balls, an obstruction—such as a nut, carried by the rod against which said sleeve is adapted to abut, whereby the valve-rod may be moved in the direction for closing the valve when the balls swing inward past a predetermined limit, as specified.

2. In combination with a centrifugal ball-governor having a valve-rod actuated in one direction by the outward swinging of the balls, of a sliding collar connected to the balls by links for actuating the valve-rod in the same direction when the balls swing inward past a predetermined limit, as specified.

3. In combination, a governor-valve controlling the admission of steam to an engine or the like, a rod extending from said valve, balls mounted upon suitable arms, means for revolving said balls, a sleeve mounted loosely upon the rod, links connecting said sleeve with the balls, a collar secured upon the valve-rod whereby the outward movement of the balls will effect the movement of the valve-rod through the sleeve in the direction for reducing the flow of motive fluid to the engine, a second sleeve loosely mounted upon the valve-rod, links connecting the last-named sleeve with the balls, and an adjustable nut so located upon the rod as to bring about the movement of said rod in the direction before named by the swinging inward of the balls past the predetermined point, as specified.

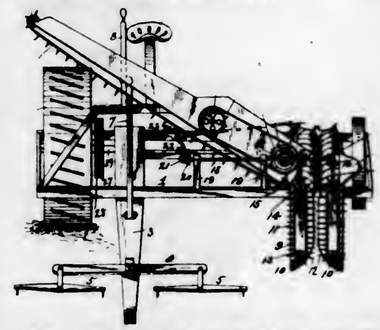
679,707. **TACK-FASTENED BUTTON.** FREDERICK E. STANLEY, Waterbury, Conn., assignor to Scovill Manufacturing Company, same place. Filed Jan. 17, 1901. Serial No. 43,648. (No model.)



Claim.—1. A button, having a back or collet, a spacer externally and superficially applied to said back or collet, and an eyelet inserted in the back or collet with its head resting within the said back or collet and its shank upset or clenched within the spacer, substantially as described.

2. A button, having a back or collet provided with a central perforated depression, a spacer applied externally and superficially to said back or collet next to its opening, and an eyelet having its head arranged within the central depression and its shank upset or clenched within the spacer, substantially as described.

679,708. **CORN-HARVESTER.** HARRY L. STEEL, Dayton, Ind., assignor to the Indiana Development Company, same place. Filed July 12, 1900. Serial No. 23,358. (No model.)



Claim.—1. In a device of the class described, the combination with gathering-chains bearing fingers, of conductor-rolls and means for driving said chains and said rolls, of a reciprocating cutter mounted at the rear end of said rolls and located to automatically sever the cornstalks caught between the said rolls, a crank-shaft, a pitman connecting said crank-shaft and said cutter, and means for operating said crank-shaft, substantially as described.

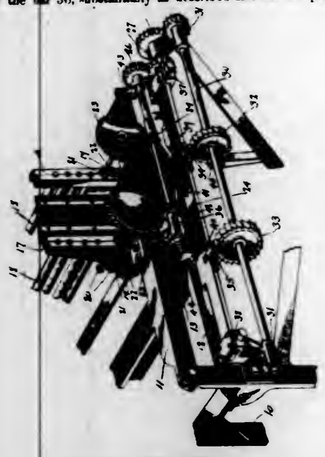
2. In a device of the class described, the combination with conductor-rolls, of gathering-chains bearing fingers and located to catch the cornstalks and bring them within reach of said conducting-rolls, means for driving said gathering-chains and said rolls, a reciprocating cutter located at the rear of said rolls and constructed to sever the stalks held by said conducting-rolls, means for automatically reciprocating said cutter, husking-rolls mounted parallel to said conducting-rolls and constructed to husk the corn as it passes from the conducting-rolls, substantially as described.

3. In a device of the class described, the combination with conductor-rolls and means for driving them, of a reciprocating cutter mounted at the rear end of said rolls and located to sever the stalks engaged by said rolls, a crank-shaft, a pitman connecting said crank-shaft and said cutter, and means for driving said crank-shaft, substantially as described.

679,709. **EXCELSIOR-MAKING MACHINE.** EDGAR J. STEWART, Des Plaines, Ill. Filed Dec. 3, 1900. Serial No. 38,454. (No model.)

Claim.—1. In an excelsior-making machine, in combination, feed-rollers for advancing the material, a reciprocating blade-carrying table, a laterally-reciprocating bar 36 longitudinally disposed as to the table, and having cam-inclines at each end, a bracket on the table for engaging such inclines, a shaft, 30, a ratchet-wheel on the shaft, a spring-pawl carried by the bar 36 engaging the ratchet-wheel, and gear connection between the shaft 30 and the feed-rollers.

2. In an excelsior-making machine, in combination, a suitable frame, a reciprocating blade-carrying table, two sets of intergeared feed-rollers for advancing material, a skew-gear carried by one of the rollers of each set, a shaft 25, skew-pinions fixed upon the shaft for driving the skew-gears, a shaft, 30, gear connection between the shafts 30 and 25, two ratchet-wheels mounted thereon, a laterally-reciprocating spring-retracted bar 36 having two cam-faces, spring-pawls carried by the bar for engaging the ratchet-wheels, and a bracket fixed to the table for engaging the cam-faces of the bar 36, substantially as described and for the purpose specified.



679,710. **PENCIL-SHARPENER.** HENRY E. TITUS, Plainfield, N. J., assignor to Emma W. Titus, same place. Filed Mar. 14, 1901. Serial No. 51,131. (No model.)



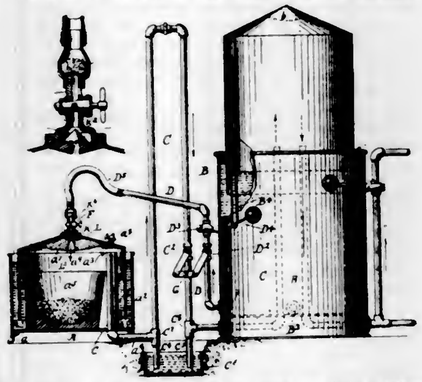
Claim.—1. An improved pencil-sharpener, comprising a body portion provided with an initial sharpening member, and with a final sharpening member consisting of two elements; said body portion consisting of a broad spring-metal blank which is looped centrally to form a seat for the initial sharpening member and a pocket for the cuttings of the pencil, the blank being thence oppositely bent and formed at its end portions into divergent sockets for the elements of the final sharpening member, said sockets embodying angular flaps or ears which embrace said elements and terminate in outwardly-projecting spaced portions which are directed from the opposed operative surface portions of said elements and constitute guides for the pencil when the same is introduced between said elements.

2. An improved pencil-sharpener, comprising a body portion provided with an initial sharpening member, and a final sharpening member consisting of two elements; said body portion consisting of a broad spring-metal blank which is looped centrally to form a seat for the initial sharpening member and a pocket for the cuttings of the pencil, the blank being thence oppositely bowed and formed at its end portions into divergent sockets for the elements of the final sharpening member, said sockets embodying angular flaps or ears which embrace said elements and terminate in outwardly-projecting spaced portions which are directed from the opposed operative surface portions of said elements and constitute guides for the pencil when the same is introduced between said elements, said blank also embodying at one edge and at its central portion a flap or ear which is folded and crimped about one end of the central looped portion of the blank to close the same.

3. An improved pencil-sharpener, comprising a body portion provided with an initial sharpening member and a final sharpening member consisting of two elements; said body portion consisting of a broad spring-metal blank which is looped centrally to form a seat for the initial sharpening member and a pocket for the cuttings of the pencil, the blank being thence oppositely bowed and formed at its end portions into divergent sockets for the elements of the final sharpening member, said sockets embodying angular flaps or ears which embrace said elements and terminate in outwardly-projecting spaced portions which are directed from the opposed operative surface portions of said elements and constitute guides for the pencil when the same is introduced between said elements, said blank also embodying at one edge and at its central portion a flap or ear which is folded and crimped about one end of the central looped portion of the blank to close the same; and said initial sharpening member being provided with a projecting portion which is secured between the oppositely-bowed portions of the blank to prevent displacement of the initial sharpening member.

4. An improved pencil-sharpener, comprising a body portion provided with an initial sharpening member and a final sharpening member consisting of two elements; said body portion consisting of a broad spring-metal blank which is looped centrally to form a seat for the initial sharpening member and a pocket for the cuttings of the pencil, the blank being thence oppositely bowed and formed at its end portions into divergent sockets for the elements of the final sharpening member, said sockets embodying angular flaps or ears which embrace said elements and terminate in outwardly-projecting spaced portions which are directed from the opposed operative surface portions of said elements and constitute guides for the pencil when the same is introduced between said elements; and said initial sharpening member being provided with a projecting portion which is secured between the oppositely-bowed portions of the blank to prevent displacement of the initial sharpening member.

679,711. **ACETYLENE-GAS GENERATOR.** ERIC BERG, San Francisco, Cal. Filed Oct. 10, 1898. Serial No. 693,170. (No model.)



Claim.—1. In an apparatus of the nature described, a governor consisting of a loosely-supported hollow conical valve having its apex turned toward and adapted to close the passage through which the liquid is led to the gas-producing material, and its base arranged so as to be acted upon and moved by the gas that is produced by the action of the liquid on the material, substantially as described.

2. In an apparatus of the nature described, the combination of a gas-generator, a liquid-supply passage leading to said generator, a hollow gravitating valve having a closed top turned toward said supply-passage, and closed to the passage of gas therethrough located to normally permit the entrance of water to said generator and adapted to be acted upon by pressure of gas in the generator to lift said valve to close said passage and shut off the liquid-supply, substantially as described.

3. In an apparatus of the nature described, the combination of a generator, a valve-chamber, a liquid-supply passage entering the top of said valve-chamber, a hollow conical valve located in said chamber below said passage, said chamber communicating with said generator through a passage located directly below said hollow valve, said valve adapted to be lifted by gas-pressure in the generator to close said upper passage, substantially as described.

4. An apparatus of the nature described, comprising a generator, a valve-casing, a suitably-guided conical valve therein having a notched edge, the point of said valve controlling the port in said casing, a support for the conical valve having a suitable passage leading from the notched edge thereof, and a pipe discharging liquid into the valve-casing and through it into the generator, substantially as described.

5. In an apparatus of the nature described, the combination of a generator, a liquid-supply pipe for the generator, a valve-casing through which said supply passes, a conical valve in said casing below the entrance-opening, a concavo-convex plate in said casing and having a central exit-opening and projections on said plate forming supports for said valve over said exit-opening, said valve adapted to be lifted and close said entrance-opening by gas-pressure in said generator, substantially as described.

6. An apparatus of the nature described, comprising a generator, a pipe discharging liquid into the same, a valve-casing through which the liquid passes, a conical valve in said casing, an apertured concavo-convex plate secured to the casing under the valve therein and having inward projections on which said valve can bear, and guide-pins on said projections by the sides of the valve, substantially as described.

7. An apparatus of the nature described, comprising two or more generators, a liquid-conveying pipe connected with each generator, conical valves acting under gas-pressure and respectively adapted to control the several generator-inlets, said valves being pointed toward the incoming liquid, and cocks controlling the flow of liquid through the connections of the liquid-conveying pipe with each generator, the same allowing the generators to be worked singly or jointly, substantially as described.

8. An apparatus of the nature described, comprising a generator, a gasometer, a pipe arranged to convey liquid from the gasometer to the generator, an outwardly-pointed hollow conical valve controlling the flow of the liquid into the generator, and adapted to be raised by the gas-pressure acting on the base of the valve and an outlet-pipe conveying the gas from the generator to the gasometer, substantially as described.

9. An apparatus of the nature described, comprising a generator, a gasometer, a gas-conveying pipe connecting the same, a source from which liquid is supplied, a pipe to convey the liquid to the generator, a gas-raised outwardly-pointed hollow conical valve controlling the flow of the liquid through the generator-inlet, a stop-cock in the liquid-conveying pipe, and a mechanism connected with the gasometer whereby the said stop-cock is shut off by the rise of said gasometer when it has reached a predetermined height, substantially as described.

10. A generator of the nature described, having a plurality of inlets arranged in any suitable order or form, a gas-raised outwardly-pointed hollow conical valve controlling each inlet, means to convey a liquid to the generator through the several inlets past the valves therein, and an outlet for the gas, substantially as described.

679,712. **SPECULUM.** RICHARD E. VENNING, Charlestown, W. Va. Filed Jan. 17, 1901. Serial No. 43,644. (No model.)



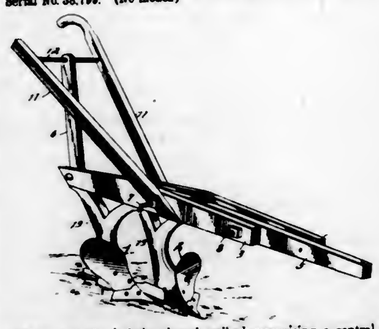
Claim.—1. In a speculum the combination with one member having a flanged outer end forming a finger-piece and bearings formed on opposite sides, one of said bearings being open and the other a closed bearing, of a coöperating member having oppositely-projecting journals for coöperation with the said bearings, a toothed yielding retainer carried by one member and a coöperating edge formed on the opposite member whereby said members may be held in adjusted position; substantially as described.

2. In a bivalve speculum formed of two articulated members with no loose or jointed parts on either member, the combination with one member having a flanged outer end with bearings on opposite sides of said flanged portion, the bearing on one side being open, and a yielding toothed retainer connected at one end to one side of said member, of a coöperating member having oppositely-arranged journals for coöperation with the said bearings, a retaining edge projecting at an angle to the body of the member and adapted to coöperate with the yielding toothed retainer and a hand or finger piece projecting from said retaining edge; substantially as described.

3. In a bivalve speculum the combination with one member having its outer end flanged at an angle to the body of the member, bearings on opposite sides of the outer portion of said member and a yielding toothed retainer of a second member having journals on opposite sides of its outer end for coöperation with said bearings, a curved handle portion connecting opposite sides of its outer end and projecting at an angle to the body of the member and having an opening through which observations may be taken and a retaining edge at one side, for coöperation with the yielding toothed retainer; substantially as described.

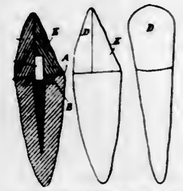
4. In a bivalve speculum the combination with one member having its outer end flanged and provided with separate pairs of bearings, one bearing of each pair being an open bearing, of a second member having a single pair of journals for coöperation with said bearings whereby the size of the speculum may be varied, a yielding toothed retainer on one of said members and a coöperating retaining edge on the other member, said retaining edge being of sufficient length to coöperate with the retainer when the members are articulated with the journals in either pair of bearings; substantially as described.

679,713. **PLOW.** JAMES M. WHITTON, South Mills, N. C., assignor of one-half to Willoughby Lynch, Wallaceton, Va. Filed Dec. 5, 1900. Serial No. 38,799. (No model.)



Claim.—A plow of the class described comprising a central draft-beam, having a brace-standard at its rear end, a pair of turning-plows, having their respective shares oppositely disposed and with their landsides opposed to each other, the beams of said turning-plows being disposed on opposite sides of said central draft-beam, transverse bolts connecting said beams together and adapting said turning-plows to be laterally adjusted to set them at any desired distance apart, and a handle attached to the beam of each turning-plow, said handles being secured on a rung with which the brace-standard of the central draft-beam is provided, substantially as described.

679,714. **CAP FOR FIXING CROWNS TO TEETH.** JAMES L. WILLIAMS, London, England, assignor to the Dental Manufacturing Company, Limited, same place. Filed Jan. 8, 1901. Serial No. 42,513. (No model.)



Claim.—As a new article of manufacture, a cap composed of a thin malleable metallic plate having a metallic ring of less width than the plate soldered securely to one side of it and adapted to enter an annular groove in the root of the tooth surrounding an opening therein to receive the pin, and also having a metal pin passed through the plate and soldered securely thereto concentrically with the ring, so as to extend from both sides of the plate, whereby the plate carrying the ring and pin may be first applied to the stump of a tooth and fitted thereon, then removed and secured to the tooth, and then secured to the root.

679,715. **SPOON-HOLDER.** ALFRED R. WORNWOOD, Portland, Me., assignor of one-half to Walter Pichett, same place. Filed Mar. 8, 1901. Serial No. 50,332. (No model.)

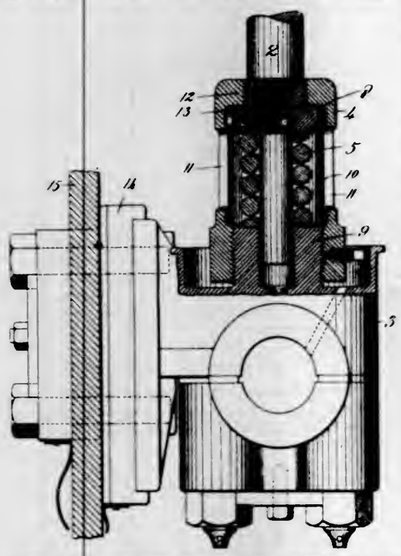


Claim.—1. As a new article of manufacture, a spoon-holder consisting of a suitable base portion, a spring-clasp at one end, rearwardly-extending shoulders on the opposite end and a removable and adjustable spring adapted to be placed on said base and to be moved vertically thereon.

2. As a new article of manufacture, a spoon-holder consisting of a base portion with a spring-clamp at the upper end and at the lower end rearwardly-extending shoulders, stops on said base portion between the spring-clamp and rearwardly-extending shoulders and a removable spring adapted to engage said base portion and to be moved vertically thereon, the vertical movement of said spring being limited to the space between the rearwardly-extending shoulders and the stops.

3. As a new article of manufacture, a spoon-holder having a base portion with a spring-clasp at one end and rearwardly-extending shoulders at the other end, a part of said base being cut away and folded back upon itself to form stops, an adjustable and removable spring adapted to engage the base between said shoulders and stops and adapted to be moved vertically thereon.

679,716. **COMPRESSOR AND PUMP.** ARTHUR G. ENOCK, Willesden, England. Filed Jan. 18, 1901. Serial No. 43,806. (No model.)



Claim.—1. In pumps and compressors, the combination of a cross-head and piston-rod, a projection on the cross-head having a socket into which the end of the piston-rod fits, a collar mounted on the piston-rod, a spring embracing the piston-rod and confined between the collar and projection, a cage secured on the projection and surrounding the spring, and an inwardly-projecting flange on the cage adapted to engage the collar, substantially as described.

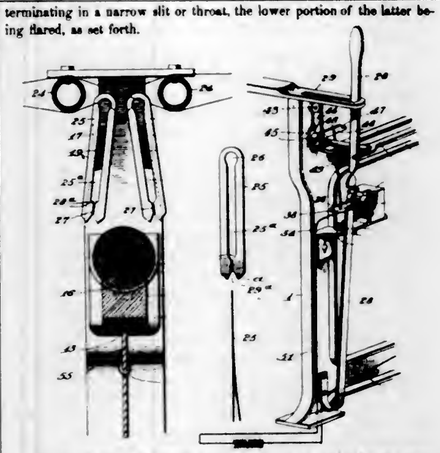
2. In a device of the character described, the combination of a cross-head and a piston-rod, a projection on the cross-head having a socket into which the end of the piston-rod fits, a collar threaded on the piston-rod and provided with an annular shoulder, a spiral spring embracing the piston-rod and bearing on the projection at one end and on the collar at the other end, a slotted cage threaded on the projection and surrounding the spring and collar, and an inwardly-projecting flange on the cage adapted to engage the shoulder of the collar, substantially as described.

3. In refrigerating-compressors the combination of a cross-head 3, a cage 4 carried by said cross-head and provided with slots 11, a spring 5 contained in said cage and always subjected to the normal temperature of the engine-room, a collar 8 on the piston-rod adapted to bear against said spring and to receive the thrust of the cross-head during the working stroke and a flange 12 on the cage adapted to engage with the collar 8 during the return stroke, substantially as described.

REISSUES.

11,928. **WARP STOP-MOTION FOR LOOMS.** JOSEPH COLDWELL and CHRISTOPHER G. GILDARD, Fall River, Mass. Filed Oct. 3, 1900. Serial No. 31,849. Original No. 637,234, dated Nov. 21, 1899.

Claim.—1. As an article of manufacture, a drop-bar formed of sheet metal and having a longitudinal slot provided with lower shoulders and terminating in a narrow slit or throat, the lower portion of the latter being flared, as set forth.



2. As an article of manufacture, the herein-described flexible sheet-metal drop-bar having a longitudinal slot, said slot at its upper end terminating in an enlarged eye, and at its lower end reduced to form a narrow slit or throat, the opposite edges of which, above the slit, are provided with stop-shoulders, and at their lower ends diverged to form a flared mouth, substantially as set forth.

3. An electrically-operated stop-motion for looms, comprising a drop-bar formed of flexible metal and having a longitudinal slot, the lower end of the slot being reduced to form opposite internal shoulders, and below the same a narrow slit or throat of less width than said slot, said drop-bar being normally supported by a warp-thread passing through said slot, a lower contact device, and a circuit-rod arranged to guide said drop-bar in its movement toward said contact device, substantially as set forth.

4. An electrically-operated stop-motion for looms comprising longitudinally-arranged approximately parallel electrical circuit-rods, a lower intermediate metallic electrical conductor, and opposite series of drop-bars loosely embracing said circuit-rods and adapted to be normally supported out of contact with said electrical conductor by the warp-threads of the loom, said circuit-rods serving to guide said drop-bars in their movement toward said conductor, substantially as set forth.

5. In an electrically-operated stop-motion for looms, the combination of a pair of flat electrical parallel circuit-rods, a lower rotatable contact device also in circuit, and opposite series of drop-bars straddling their respective circuit-rods normally supported out of contact with said contact device by the warp-threads of the loom, said drop-bars having lower beveled ends.

6. An electrically-operated stop-motion for looms comprising a pair of flat parallel circuit-rods converged toward their upper edges, a lower intermediate circuit contact-roller, and opposite pairs of drop-bars straddling the circuit-rods and arranged to be guided thereby, said drop-bars being normally supported out of contact with said contact-roller by the warp-threads of the loom, substantially as set forth.

7. In an electrically-operated stop-motion for looms, the combination with an electrical circuit-rod, and a lower contact-roller also in circuit, of the herein-described improved drop-bar formed of thin, flexible metal, and having a longitudinal slot loosely receiving said circuit-rod and terminating at its upper end in an enlarged eye, and at its lower end in a narrow slit or throat, which is flared at its lower extremity and provided at its upper end with internal stop-shoulders, said bar being normally held out of contact with said roller by the warp-threads passing through said eye, substantially as set forth.

8. An electrically-operated stop-motion for looms comprising an electrical circuit-rod, drop-bars having parallel arms loosely embracing the same, a loose roller therebelow in the path of said drop-bars, and also in circuit, and a wiping-bar parallel with said roller and arranged to contact with the latter, as set forth.

9. An electrically-operated stop-motion for looms comprising a supporting-bracket, an electrical circuit-rod supported by said bracket, drop-bars loosely embracing the same, a second bracket adjustably supported by said former bracket and having bushings, a loose roller mounted in said bushings and located in the path of said drop-bars, said roller being also in circuit, and a wiping-bar arranged parallel to and in contact with said roller and against which the latter may be rotated, substantially as set forth.

10. An electrically-operated stop-motion for looms, comprising a supporting-bracket having opposite ears or lugs, circuit-rods supported by said ears or lugs, a second bracket adjustably supported by said former bracket, a contact device mounted in said second bracket, and drop-bars loosely embracing said circuit-rods and adapted to be guided by the latter, substantially as set forth.

11. An electrically-operated stop-motion for looms, comprising an electrical circuit-rod, drop-bars loosely embracing the same, a loose roller mounted therebelow in the path of said drop-bars and also in circuit, and a wiping-bar parallel and arranged to contact with said roller and against which said roller may be rotated, said bar having its contacting-surface longitudinally grooved or concaved to conform to the surface of the roller and provided with a textile covering, substantially as set forth.

12. An electrically-operated stop-motion for looms, comprising a supporting-bracket, a pair of parallel circuit-rods supported thereby, a lower contact device also in circuit and supported by said bracket, adjustable brackets secured to said former bracket, a pair of lease-rods supported by said latter bracket and arranged over and at opposite sides of said circuit-rods, drop-bars having parallel arms straddling the circuit-rods and designed to contact with said contact device, said circuit-rods also serving as guides for said drop-bars, the warp-threads being passed alternately under and over the lease-rods and through the said drop-bars, whereby the latter are held suspended out of contact with the said contact device, substantially as set forth.

13. An electrical stop-motion for looms comprising a loom-frame arranged in circuit, a pair of opposite brackets embraced by the sides of the frame, a contact-roller loosely mounted in the brackets, a pair of parallel circuit-rods arranged above the contact-roller in the brackets, overhanging brackets adjustably supported by said former brackets, a pair of lease-rods arranged above the circuit-rods and supported by said latter brackets, drop-bars loosely straddling the circuit-rods and supported out of contact with the contact-roller by the warp-threads about the lease-rods, and an electrical conductor leading from the said contact-roller, substantially as set forth.

14. In an electrically-operated stop-motion for looms, the combination with the loom-frame, electrical circuit-rods therebelow, and drop-bars supported on said circuit-rods and adapted to be suspended by the warp-threads, of a contact-roller located below the circuit-rods and adapted to rotate, a collar loosely mounted on the roller and provided with a binding-post, and electrical wires leading to the loom-frame and to the contact-roller, substantially as set forth.

15. In an electrically-operated stop-motion for looms, the combination with the loom-frame, a pair of brackets supported therebetween, and a pair of bolts for securing the two together, one of said bolts being bored, of a pair of bearings supported within the brackets and provided with insulated bushings, a contact-roller having its axis rotatably mounted in the bushings, a collar mounted loosely on one of said axes and provided with a binding-post, a circuit-wire leading therefrom and through suitable guides into and through the bored bolt, and to the source of electrical supply, a circuit-wire leading to the frame, a pair of circuit-rods connected electrically with and supported in the frame, and a series of drop-bars loosely embracing the circuit-rods and normally held out of contact with the contact-roller by the warp-thread of the loom, substantially as set forth.

16. In an electrically-operated stop-motion for looms, the combination with the sides of the loom, angular brackets, and bolts for securing the same to said sides, journal-brackets having insulations, a contact-roller journaled in said brackets, a contact-collar carried by said roller having a binding-post, and an electric wire leading therefrom, of a wiping-bar, means for supporting the same, lugs extending from the upper ends of said brackets, circuit-rods connected thereto, inverted-L-shaped brackets also secured to said former brackets, lease-rods carried thereby, drop-bars mounted loosely on said circuit-rods and adapted to be supported by the warp-threads arranged upon the lease-rods, and a circuit-wire leading to the frame, substantially as set forth.

17. The combination with a loom employing a lay, a shipper, a magnet supported adjacent thereto and having an armature-lever, a circuit-wire leading from a source of supply to the magnet, and a contact-spring electrically connected to the magnet and arranged to engage the shipper when the latter is in its locked position, of a swinging approximately L-shaped knocker device supported in front of said shipper and having one of its arms extending opposite the latter, a latch pivoted to said arm and normally out of the path of said lay, a connection between said latch and armature-lever, whereby the raising of said lever causes a raising of the latch into the path of said lay, a contact device arranged in the loom below the path traveled by the warp-threads and in electrical circuit with the magnet through the frame of the loom when the shipper is swung into operative position and therefore in contact with the aforesaid contact-spring, a series of drop-bars normally supported out of contact with said contact device by the warp-threads, and electrical conductors leading from the electrical supply to the aforesaid drop-bars, substantially as set forth.

18. The combination with a loom employing a lay and a shipper, of a magnet supported adjacent to and in rear of said shipper and having an armature-lever, a circuit-wire leading from a source of electrical supply to the said magnet, a contact-spring electrically connected to the magnet and arranged to engage said shipper when the same is in its locked and operative position, a swinging L-shaped bracket pivotally connected to the loom-frame and extending laterally into the path of the said shipper, a latch pivotally mounted on said bracket above said armature-lever and normally out of the path of said lay, a rod connecting said latch with said armature-lever, whereby a raising of the latter serves to raise the former, a contact device arranged in the loom below the travel of the warp-threads and in electrical circuit with the magnet when the shipper is in contact with the contact-spring, a series of drop-bars normally supported out of contact with said contact device by the warp-threads, and parallel electrical conductors leading from the electrical supply to said drop-bars and designed to guide the latter, substantially as set forth.

19. A loom, having, in combination, a plurality of banks of drop-bars, each drop-bar being suspended from a single warp-thread and capable of free movement transversely of the warp-threads, and means for disposing the warp-threads so that each thread is normally out of contact with the drop-bars suspended from the two adjacent threads, whereby chafing of the threads is avoided.

20. A loom, having, in combination, means for disposing warp-thread sections in different planes, and a bank of drop-bars for each section, each drop-bar being suspended from a warp-thread and capable of free movement transversely of the warp-threads, and so shaped that the drop-bars of each bank are normally out of contact with the threads whereon are suspended the drop-bars of the other bank or banks, whereby chafing of the threads is avoided.

21. A loom, having, in combination, means for dividing a series of warp-threads into sections disposed in different planes, and drop-bars arranged in a plurality of banks, each drop-bar being suspended from a warp-thread and capable of free movement transversely of the warp-threads, and being so shaped that each thread is normally out of contact with the drop-bars suspended from the two adjacent threads, whereby chafing of the threads is avoided.

22. A loom, having, in combination, a plurality of banks of drop-bars, each drop-bar being suspended from a warp-thread and capable of free movement transversely of the warp-threads, leasing mechanism which disposes the warp-threads into sections in different planes, and drop-bars so shaped that the drop-bars of each bank are normally out of contact with the threads whereon are suspended the drop-bars of the other bank or banks, whereby chafing of the thread is avoided.

23. A loom, having, in combination, means which divide the warp-threads into intersecting planes, guides located beneath the warp-threads on opposite sides of the intersection between said planes and out of vertical alinement with said dividing means, and a drop-bar for each warp-thread, said drop-bars being arranged in banks positioned respectively by said guides, and suspended respectively from said warp-threads on opposite sides of said intersection, each drop-bar terminating at its upper end below the plane of the warp-threads which is intersected by the thread from which said drop-bar is suspended, whereby each drop-bar comes in contact only with the warp-thread which supports it, and is free to move vertically.

24. A loom, having, in combination, means which cause sections of the warp-threads to cross each other, and a drop-bar for each warp-thread suspended from its warp-thread at a poiot where said thread passes below said crossing and capable of free movement transversely of the warp-threads, each drop-bar terminating at its upper end below the plane of the warp-threads which is intersected by the thread from which said drop-bar is suspended, said drop-bar dropping away from all of the warp-threads on the occurrence of a fault in its thread.

25. A loom, having, in combination, means which cause sections of the warp-threads to cross each other, and a detector for each warp-thread which engages its thread at a point on one side of said crossing, being located relatively to said means for causing said crossing so as to have free vertical movement, extending from said point away from all of the warp-threads, and adapted and arranged to move away from all of said threads upon the occurrence of a fault in its own thread, each section of warp-threads passing beyond and out of contact with the ends of those drop-bars which engage the warp-threads of another section.

26. A loom, having, in combination, lease-rods which dispose the warp-thread sections in different intersecting planes, guides located beneath the warp-threads on opposite sides of the intersection between said planes and a thin drop-bar for each warp-thread, said drop-bars being arranged in banks positioned respectively by said guides, and suspended on opposite sides of said intersection and capable of free movement transversely of the warp-threads, whereby each drop-bar where its thread passes through it occupies a plane substantially parallel to the path of its thread, each drop-bar terminating at its upper end below the plane of the warp-threads which is intersected by the thread from which said drop-

bar is suspended, whereby each drop-bar comes in contact only with the warp-thread which supports it.

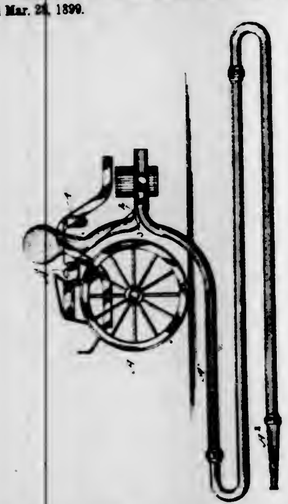
27. A loom, having, in combination, a plurality of banks of drop-bars, each drop-bar being suspended from a single warp-thread and capable of free vertical movement, and means for disposing the warp-threads so that each thread is normally out of contact with the drop-bars suspended from the two adjacent threads, whereby chafing of the threads is avoided.

28. A loom, having, in combination, means for disposing warp-thread sections in different planes, and a bank of drop-bars for each section, each drop-bar being suspended from a warp-thread and capable of free vertical movement, and so shaped that the drop-bars of each bank are normally out of contact with the threads whereon are suspended the drop-bars of the other bank or banks, whereby chafing of the threads is avoided.

29. A loom, having, in combination, a plurality of banks of drop-bars, each drop-bar being suspended from a single warp-thread and capable of free movement vertically and transversely of the warp-threads, and means for disposing the warp-threads so that each thread is normally out of contact with the drop-bars suspended from the two adjacent threads, whereby chafing of the threads is avoided.

30. A loom, having, in combination, means for disposing warp-thread sections in different planes, and a bank of drop-bars for each section, each drop-bar being suspended from a warp-thread and capable of free movement vertically and transversely of the warp-threads, and so shaped that the drop-bars of each bank are normally out of contact with the threads whereon are suspended the drop-bars of the other bank or banks, whereby chafing of the threads is avoided.

11,924. ELECTRIC HOSE SIGNAL SYSTEM. HOWARD SARGENT, Boston, Mass., assignor to the Boston Electric Hose Signal Co., same place. Filed Jan. 7, 1901. Serial No. 42,445. Original No. 621,854, dated Mar. 28, 1899.



Claim.—1. In an electric hose signal system, a coupling for connecting a line of hose with the engine, comprising two contact-pieces insulated from each other and adapted respectively to make contact with the hose-coupling and with an insulated circuit-terminal carried thereby, an insulating-ring interposed between said contact-pieces and the engine, and circuit-wires connected to said contact-pieces respectively and forming a loop which includes a battery and a signaling device, for the purpose set forth.

2. In an electric hose signal system, a coupling for connecting a line of hose with the engine, having an internally-screw-threaded ring of insulating material at one end which engages a screw-threaded nipple on the engine, and having two circuit-wires attached to it but insulated from each other, which are connected to form a loop, and a battery and bell included in said loop, substantially as described.

3. In an electric hose signal system, a coupling for connecting a line of hose with the engine having as a coöperative part of it a conducting-shell provided at one end with an internally-screw-threaded ring of insulating material which engages a nipple on the engine, and provided at the outer end with a conducting-ring insulated from the shell, a circuit-wire extending along the shell and connected with said conducting-ring, and a circuit-wire attached directly to said shell, said circuit-wires being thereby insulated from each other, and connected to form a loop independent of the engine, and an alarm in said loop, substantially as described.

4. In an electric hose signal system, a line of hose having a nozzle, couplings and circuit-wires along its length, and a terminal coupling, each line-coupling adapted to connect the circuit-wires as the hose-sections are joined, and the terminal coupling comprising a body portion or shell attached to and carried by the hose, an inner insulated ring carried by said body or shell, said shell and the insulated ring constituting the terminals of the electric circuit, a double screw-threaded coupling-ring of insulating material fitted to the shell, and adapted to fit a nipple on the engine, a source of current and a signal connected through the shell and ring to the circuit-wires, and a suitable circuit-closer, substantially as described.

DESIGNS.

34,856. PIN. WALTER W. CHASE, Providence, R. I. Filed June 15, 1901. Serial No. 64,756. Term of patent 3½ years.



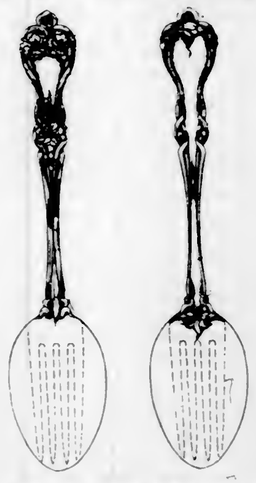
Claim.—The design for a pin as herein shown and described.

34,857. RING FOR CLUSTER-SETTINGS. SIMON GOLDNER and LOUI GOTTLIEB, New York, N. Y. Filed June 25, 1901. Serial No. 66,010. Term of patent 7 years.



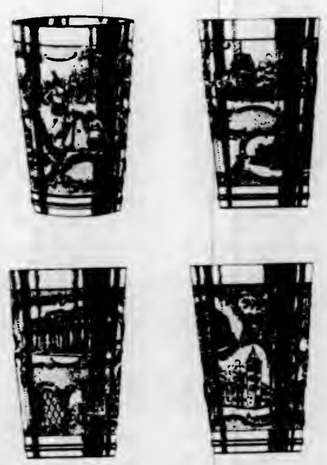
Claim.—The design for a ring for a cluster-setting substantially as shown and described.

34,858. SPOON OR FORK HANDLE. FRED HABENBACK, Sag Harbor, N. Y., assignor to Fahys Watch-Case Company, New York, N. Y. Filed June 29, 1901. Serial No. 66,619. Term of patent 3½ years.



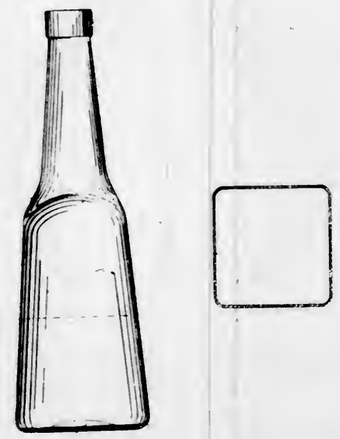
Claim.—The design for a spoon or fork handle, substantially as shown and described.

34,859. CUP. CHARLES A. LEE, Saratoga Springs, N. Y. Filed June 29, 1901. Serial No. 66,616. Term of patent 7 years.



Claim.—The design for a cup, as herein shown and described.

34,860. BOTTLE. ALFRED GOUNELLE, Marseilles, France. Filed June 21, 1901. Serial No. 65,514. Term of patent 14 years.

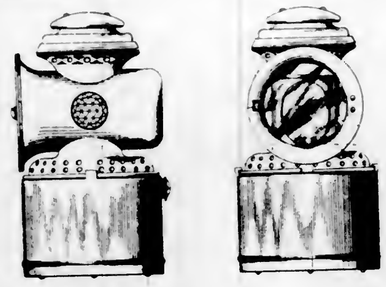


Claim.—The design for a bottle herein shown and described.

34,861. LAMP. CHARLES CARROLL ARMSTRONG, Columbus, Ohio. Filed Dec. 13, 1900. Serial No. 39,792. Term of patent 14 years.



34,861.



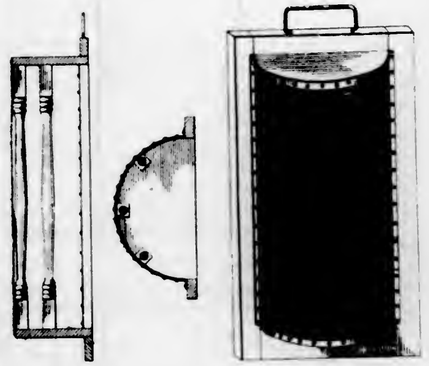
Claim.—The design for a lamp substantially as herein shown and described.

34,862. SHADE-BRACKET. JOHN F. JONES and WILLIAM T. STUCKEY, Montgomery, Ala. Filed Feb. 14, 1901. Serial No. 47,386. Term of patent 14 years.



Claim.—The design for a shade-bracket as herein shown and described.

34,863. WINDOW-SCREEN. EDWARD A. REESE and RICHARD L. ST. CLAIR, Paris, Ill. Filed June 20, 1901. Serial No. 65,363. Term of patent 14 years.



Claim.—The design for a window-screen, substantially as herein shown and described.

34,864. FAUCET-HANDLE. HERMAN STRATER, Boston, Mass. Filed May 31, 1900. Serial No. 18,675. Term of patent 14 years.



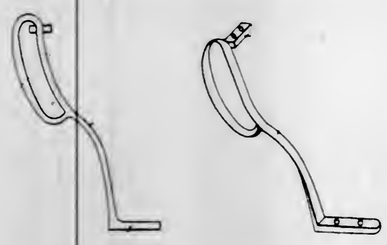
Claim.—The design for a faucet-handle substantially as herein shown and described.

34,865. BURIAL-CASKET HANDLE. FREDERICK J. FEINEMAN, St. Louis, Mo. Filed Mar. 30, 1901. Serial No. 53,728. Term of patent 14 years.



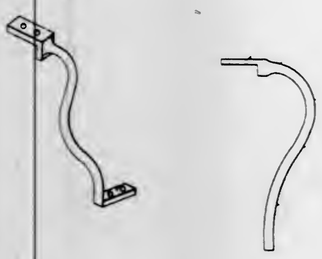
Claim.—The design for a burial-casket handle herein shown and described.

34,866. VEHICLE-SEAT HANDHOLD. WILLIAM B. C. HERSHEY, Columbus, Ohio. Filed July 21, 1900. Serial No. 24,450. Term of patent 3½ years.



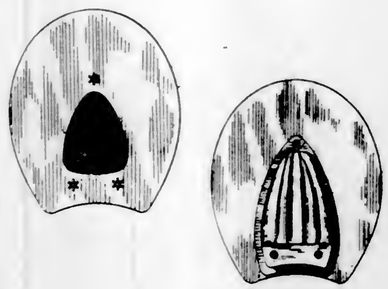
Claim.—The design for a vehicle-seat handhold as herein shown and described.

34,867. VEHICLE-SEAT HANDHOLD. WILLIAM B. C. HERSHEY, Columbus, Ohio. Filed July 21, 1900. Serial No. 24,451. Term of patent 3½ years.



Claim.—The design for a vehicle-seat handhold as herein shown and described.

34,868. HOOF-PAD. WILLIAM J. KENT, Brooklyn, N. Y., assignor to Revere Rubber Company, Boston, Mass. Filed Apr. 26, 1901. Serial No. 57,502. Term of patent 14 years.



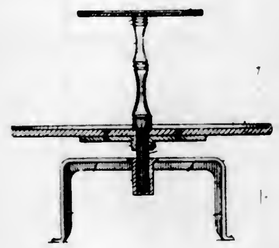
Claim.—The design for a hoof-pad, substantially as herein shown and described.

34,869. SHANK FOR CULTIVATOR-STANDARDS. WILLIAM F. HARTIG, Evansville, Ind. Filed June 5, 1901. Serial No. 63,314. Term of patent 14 years.



Claim.—The design for a shank for cultivator-standards as herein shown and described.

34,870. TABLE. WILLIAM LOEVEN, Chicago, Ill. Filed June 17, 1901. Serial No. 64,965. Term of patent 3½ years.



34,870.



Claim.—The design for a table, substantially as herein shown and described.

34,871. PICTURE-MAT. WARREN C. FISHER, Mount Vernon, Iowa. Filed June 22, 1901. Serial No. 65,700. Term of patent 7 years.



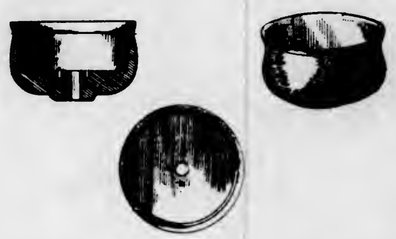
Claim.—The design for a picture-mat, substantially as herein shown and described.

34,872. FONT OF PRINTING-TYPE. BERNE NADALL, Kingston-upon-Thames, England, assignor to Linotype Company Limited, London, England. Filed May 17, 1901. Serial No. 60,776. Term of patent 14 years.



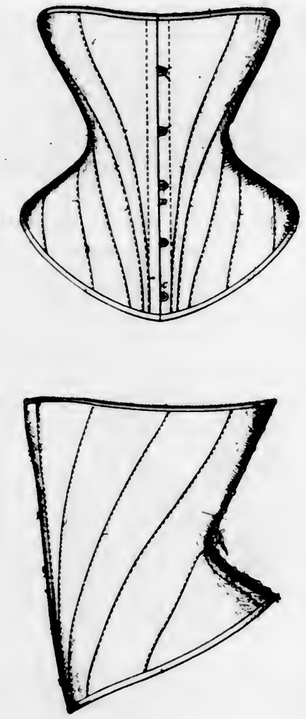
Claim.—The design for a font of printing-type, substantially as shown and described.

34,873. SPOOL-HOLDER. JOHAN PETTER SWENSON, Chicago, Ill. Filed Mar. 30, 1901. Serial No. 53,736. Term of patent 7 years.



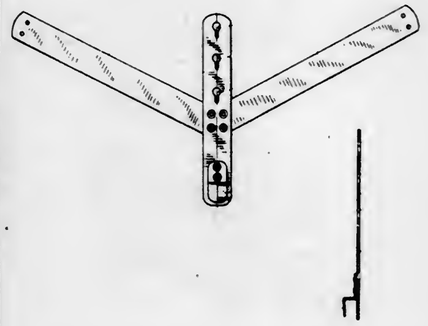
Claim.—The design for a spool-holder, substantially as herein shown and described.

34,874. CORSET. JOSEPH LEMAY, Bridgeport, Conn. Filed May 25, 1901. Serial No. 61,973. Term of patent 7 years.



Claim.—The design for a corset, as herein shown and described.

34,875. WAIST-EXTENDER. HENRY H. TAYLOR, Bridgeport, Conn. Filed June 21, 1901. Serial No. 65,511. Term of patent 7 years.



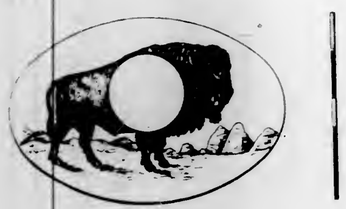
Claim.—The design for a waist-extender for ladies' wear, as herein shown and described.

34,876. RUG. ADOLPH PETSOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, same place, (copartners, trading as John Bromley & Sons.) Filed June 18, 1901. Serial No. 65,070. Term of patent 3½ years.



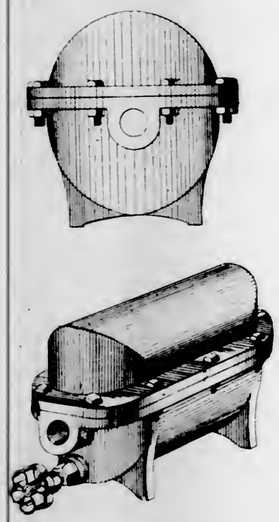
Claim.—The design for a rug, substantially as shown and described.

34,877. PHOTOGRAPHIC MOUNT. ATEN BOWMAN HOWER and SERRIN JEROME FINCH, Ostrander, Ohio. Filed June 29, 1901. Serial No. 66,615. Term of patent 3½ years.



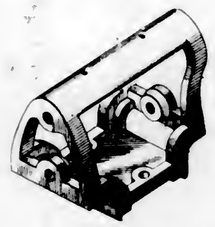
Claim.—The design for a photographic mount, as herein shown and described.

34,878. STEAM-TRAP. CHARLES T. BROWN and FRED W. LEUTHESER, Chicago, Ill., assignors to Monash-Younker Company, same place. Filed May 10, 1901. Serial No. 59,707. Term of patent 14 years.



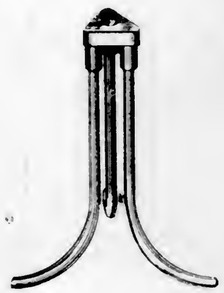
Claim.—The design for a steam-trap as shown and described.

34,879. LEVER-STAND FOR STEAM-PUMPS. EDGAR E. MILLER, Canton, Ohio, assignor to the Canton Pump Company, same place. Filed June 10, 1901. Serial No. 64,052. Term of patent 7 years.



Claim.—The design for a lever-stand for steam-pumps, as herein shown and described.

34,880. STAND FOR ROTARY BLOWERS AND FORGES. HENRY B. KEIPER, Lancaster, Pa. Filed June 8, 1901. Serial No. 63,806. Term of patent 14 years.



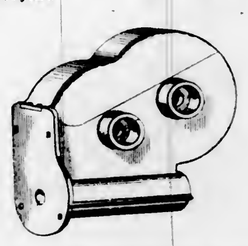
Claim.—The design for a stand for rotary blowers and forges, substantially as shown and described.

34,881. STAND FOR ROTARY BLOWERS AND FORGES. HENRY B. KEIPER, Lancaster, Pa. Filed June 10, 1901. Serial No. 64,048. Term of patent 14 years.



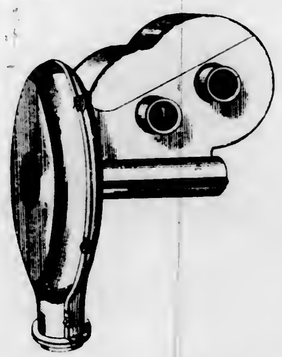
Claim.—The design for a stand for rotary blowers and forges, substantially as shown and described.

34,882. GEAR-TRAIN CASING FOR ROTARY BLOWERS. HENRY B. KEIPER, Lancaster, Pa. Filed June 8, 1901. Serial No. 63,804. Term of patent 14 years.



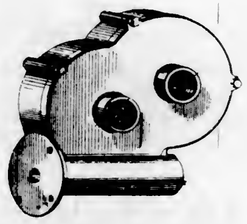
Claim.—The design for a gear-train casing for rotary blowers, substantially as shown and described.

34,883. GEAR-TRAIN AND ROTARY-BLOWER CASING. HENRY B. KEIPER, Lancaster, Pa. Filed June 8, 1901. Serial No. 63,805. Term of patent 14 years.



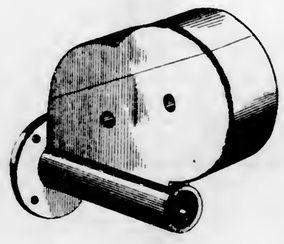
Claim.—The design for a gear-train and rotary-blower casing, substantially as shown and described.

34,884. GEAR-TRAIN CASING FOR ROTARY BLOWERS. HENRY B. KEIPER, Lancaster, Pa. Filed June 10, 1901. Serial No. 64,049. Term of patent 14 years.



Claim.—The design for a gear-train casing for rotary blowers, substantially as shown and described.

34,885. GEAR-TRAIN CASING FOR ROTARY BLOWERS. HENRY B. KEIPER, Lancaster, Pa. Filed July 9, 1901. Serial No. 67,678. Term of patent 14 years.



Claim.—The design for a gear-train casing for rotary blowers substantially as herein shown and described.

TRADE-MARKS

REGISTERED JULY 30, 1901.

36,817. CERTAIN NAMED FABRICS. GRINNELL WILLIS, New York, N. Y. Filed Apr. 18, 1901.

UNION JACK

Essential feature.—The words "UNION JACK." Used since July 1, 1898.

36,818. SPOOL-COTTON, SPOOL-SILK, LINEN THREAD, AND DRESS-BINDING. THE H. R. CLAFLIN COMPANY, New York, N. Y. Filed July 5, 1901.



Essential feature.—The representation of a knight in armor and mounted on a horse. Used for eight years.

36,819. SKIRTS, CAPES, COATS, CLOAKS, MANTLES, AND WAISTS. A. BELLER & Co., New York, N. Y. Filed July 6, 1901.



Essential feature.—A shield surrounded by ornamental scrolls. Used since June 1, 1890.

36,820. SKIRTS, CAPES, COATS, CLOAKS, MANTLES, AND WAISTS. A. BELLER & Co., New York, N. Y. Filed July 6, 1901.

RAYNSHYNE

Essential feature.—The word "RAYNSHYNE." Used since June 1, 1901.

36,821. DRESS-SHIELDS. THE CANFIELD RUBBER CO., Bridgeport, Conn., and New York, N. Y. Filed June 25, 1901.



Essential feature.—A green field or background having thereon the bust-picture of Jared H. Canfield, the whole being inclosed within a border formed of contrasting colors. Used since November 1, 1899.

36,822. CORSETS. GEORGE CLINTON RATCHELLER, New York, N. Y. Filed July 1, 1901.

Militant

Essential feature.—The word "MILITANT." Used since January 1, 1900.

36,823. CORSETS. GEORGE CLINTON RATCHELLER, New York, N. Y. Filed July 1, 1901.

La Victoire

Essential feature.—The words "LA VICTOIRE." Used since May, 1901.

36,824. COLLARS, CUFFS, AND SHIRT FRONTS AND BOSOMS. THE CELLULOID COMPANY, Newark, N. J., and New York, N. Y. Filed June 25, 1901.

ULTIMA

Essential feature.—The word "ULTIMA." Used since May 1, 1901.

36,825. BOOTS AND SHOES. P. W. MINOR & SON, Batavia, N. Y. Filed June 17, 1901.

DE LUXE

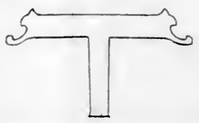
Essential feature.—The words "DE LUXE." Used since September 4, 1900.

36,826. CERTAIN NAMED GOODS MADE OF PAPER-PULP. EUGENE B. CROCKER, Providence, R. I. Filed June 19, 1901.

MACRODI

Essential feature.—The word "MACRODI." Used since June 1, 1901.

36,827. PHOTOGRAPHIC PRINTING-PAPER. COLUMBIAN PHOTO PAPER CO., Chicago, Ill. Filed Jan. 16, 1901.



Essential feature.—A T-shaped field or outline of the form of a large capital "T." Used since June 15, 1900.

36,828. ROOFING-FELT. J. A. & W. BIRD & Co., Boston, Mass. Filed June 13, 1901.

Flintkote

Essential feature.—The word "FLINTKOTE," with the representation of a Norman shield charged with three strips of roofing-felt arranged palewise and bearing in the chief the word "Flintkote" and surmounted in base by a ribbon-scroll and having for a crest an hour-glass and behind said shield two scythes crossed in saltier, the blades projecting downward and the handle of each showing below on either side of the shield. Used since January 1, 1901.

36,829. WHEAT-FLOUR. C. HOFFMAN & SON, Enterprise, Kans. Filed June 22, 1901.



Essential feature.—The representation of a map hanging upon a wall and a man facing the same. Used since April 16, 1901.

36,830. WHEAT-FLOUR. MAYFLOWER MILLS, Fort Wayne, Ind. Filed Mar. 29, 1901.

SILVER DUST

Essential feature.—The words "SILVER DUST." Used since September 15, 1890.

36,831. CONCENTRATED ALBUMINOUS FOOD. LEOPOLD SARASON, Berlin, Germany. Filed Jan. 16, 1901.

ROBORAT

Essential feature.—The word "ROBORAT." Used since May 16, 1899.

36,832. BAKING-POWDER. CALUMET TEA & COFFEE CO., Chicago, Ill. Filed May 24, 1901.

ARISTON

Essential feature.—The word "ARISTON." Used since May 1, 1899.

36,833. CERTAIN NAMED CANNED GOODS. STONE-ORDEAN-WELLS CO., Duluth, Minn. Filed May 17, 1901.

Hiawatha

Essential feature.—The word "HIAWATHA" worked fantastically out of Indian beads. Used since March 6, 1901.

36,834. EDULCORANTS. VINCENT DE MESSINY & Co., Chicago, Ill. Filed June 24, 1901.

PORCHERINE

Essential feature.—The word "PORCHERINE." Used since June 1, 1901.

36,835. MOLASSES. THE SMITH BROS. CO., LTD., New Orleans, La. Filed Apr. 6, 1900.



RED BIRD

Essential feature.—The representation of a redbird and words "RED BIRD." Used since June 5, 1899.

36,836. CONFECTIONERY AND CHOCOLATE. W. F. SCHRAFFT & SONS, Boston, Mass. Filed July 3 1901.

REGAL

Essential feature.—The word "REGAL." Used since February 1, 1897.

36,837. CERTAIN NAMED BOTTLED LIQUIDS. THE AMERICAN MINERAL WATER MACHINE CO., New York, N. Y. Filed June 10, 1901.



Essential feature.—The representation of the head of a dog. Used since June 1, 1901.

36,838. WINES. DANDICOLLE & GAUDIN, LD., London, England, and Bordeaux, France. Filed June 29, 1901.



Essential feature.—The pictorial representation shown, depicting St. Michael transfixing Satan, after Raphael's picture. Used since October 26, 1853.

36,839. WINES. FAIR OAKS RANCH CO., Lamanda, Cal. Filed July 9, 1901.



Essential feature.—The representation of an oak-tree. Used since November 1, 1900.

36,840. APRICOT BRANDY. PAGE & SANDEMAN, London, England. Filed May 31, 1901.

Page & Sandeman

Essential feature.—The facsimile-signature "PAGE & SANDEMAN." Used since February, 1892.

36,841. PLUG-TOBACCO. THE F. B. PERN TOBACCO COMPANY, Reidsville, N. C. Filed May 15, 1901.

Essential feature.—The representation of a pen. Used since August, 1899.

36,842. SMOKING AND CHEWING TOBACCO, CIGARS, CIGARETTES, AND SNUFF. M. C. WETHORE TOBACCO CO., St. Louis, Mo. Filed July 2, 1901.

CUTLASS



Essential feature.—The word "CUTLASS," associated with the pictorial representation of a brace of cutlasses. Used since April 19, 1901.

36,843. SMOKING AND CHEWING TOBACCO, CIGARS, CIGARETTES AND SNUFF. M. C. WETHORE TOBACCO COMPANY, St. Louis, Mo. Filed July 2, 1901.

LOFTER



Essential feature.—The word "LOFTER," associated with the pictorial representation of a player lofting a golf-ball over a bunker. Used since April 19, 1901.

36,844. PERFUMERY. ANDRÉ PERROUD, Lyons, France. Filed June 22, 1901.

XEROL

Essential feature.—The word "XEROL." Used since November 29, 1895.

36,845. TOOTH-POWDER. FREDERICK B. HORTON, South Manchester, Conn. Filed July 23, 1900.

LISTERATED

Essential feature.—The word "LISTERATED." Used since May, 1891.

36,846. LIQUID COMPOUND USED AS A SUBSTITUTE FOR COURT-PLASTER. MARTIN E. WALDSTEIN, New York, N. Y. Filed Jan. 29, 1901.

NEW-SKIN

Essential feature.—The compound word "NEW-SKIN." Used since January 1, 1901.

36,847. CERTAIN NAMED DRUGS AND MEDICINES. ROBERT WIRTH, Newark, N. J. Filed Apr. 9, 1901.



Essential feature.—A six-pointed star arranged within a hexagon and the term "NEW CENTURY." Used since January 1, 1901.

36,848. COMPOUND FOR THE CURE OF KIDNEY DISEASES. HENRY BULL, Belleville, Canada. Filed June 18, 1901.

O. R.

Essential feature.—The letters "O. R." Used since March 1, 1891.

36,849. LINIMENT. VIRGIL P. MCVOY, Pensacola, Fla. Filed July 3, 1901.

VIGILANT

Essential feature.—The word "VIGILANT." Used since June 14, 1901.

36,850. INK. SANFORD MANUFACTURING COMPANY, Chicago, Ill. Filed July 5, 1901.

COUPON

Essential feature.—The word "COUPON." Used since May 31, 1901.

36,851. PAINTS AND PASTES FOR PAINTS. CARRARA PAINT COMPANY, Chicago, Ill. Filed May 2, 1901.



Essential feature.—The representation of a map having the territorial divisions distinctly outlined and defined in colors. Used since April 1, 1901.

36,852. SAWS. E. C. ATKINS & COMPANY, Indianapolis, Ind.; Memphis, Tenn.; Minneapolis, Minn.; Atlanta, Ga., and Portland, Oreg. Filed July 1, 1901.

WOOTZ

Essential feature.—The word "WOOTZ." Used since May 15, 1899.

36,853. FUEL. THOMAS D. BAUSHER, Reading, Pa. Filed July 2, 1901.

GREAT MARVEL

Essential feature.—The words "GREAT MARVEL." Used since January, 1901.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED JULY 30, 1901.

8,552.—*Title:* "'KANTSHRINK' YARN." (For Yarn and Fabrics and Garments made from such Yarn.) THOS WOLSTENHOLME, SONS & CO., Philadelphia, Pa. Filed July 3, 1901.

8,553.—*Title:* "LITHIA-MALT." (For Malt Extracts and Peptonized Malt Food.) ALBERT LIEBER, Indianapolis, Ind. Filed July 8, 1901.

8,554.—*Title:* "DEXTER SPECIAL." (For Rye Whisky.) MAU, SADLER & CO., San Francisco, Cal. Filed July 9, 1901.

8,555.—*Title:* "COMPLIMENTS OF THE SEASON." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed July 5, 1901.

8,556.—*Title:* "SILAS JOHNSON." (For Cigars.) JAMES ANTHONY, Richmond, Va. Filed July 2, 1901.

8,557.—*Title:* "I AM A BUFFALO." (For Cigars.) KOETT & MAHANNAH, Burlington, Iowa. Filed June 15, 1901.

8,558.—*Title:* "AMERICAN." (For Cigars.) KOETT & MAHANNAH, Burlington, Iowa. Filed June 29, 1901.

8,559.—*Title:* "BLUE LION EGYPTIAN CIGARETTES." (For Cigarettes.) PINKUS BROS., New York, N. Y. Filed July 3, 1901.

8,560.—*Title:* "KELLUM BLEND COFFEE." (For Coffee.) HENRY D. KELLY, Kansas City, Mo. Filed July 6, 1901.

8,561.—*Title:* "COLUMBIAN BLACK." (For Black.) BINNEY & SMITH, New York, N. Y. Filed July 6, 1901.

8,562.—*Title:* "BRILLIANT BLACK." (For Black.) BINNEY & SMITH, New York, N. Y. Filed July 6, 1901.

8,563.—*Title:* "PARIS BLACK." (For Black.) BINNEY & SMITH, New York, N. Y. Filed July 6, 1901.

8,564.—*Title:* "RAVEN BLACK." (For Black.) BINNEY & SMITH, New York, N. Y. Filed July 6, 1901.

8,565.—*Title:* "SUNSET CARBON BLACK." (For Lampblack.) THE L. MARTIN COMPANY, Jersey City, N. J. Filed July 6, 1901.

8,566.—*Title:* "NERVO TABLETS." (For a Medicine.) RALPH W. E. COZINE, Louisville, Ky. Filed June 6, 1901.

8,567.—*Title:* "RHODES' ELECTRIC LINIMENT." (For a Liniment.) MOSES W. RHODES, Memphis, Tenn. Filed June 28, 1901.

8,568.—*Title:* "DR. ROSE'S HAIR TONIC AND SCALP INVIGORATOR." (For a Hair-Tonic and Scalp-Invigorator.) CHARLES ALLEN, Astoria, Oreg. Filed July 6, 1901.

8,569.—*Title:* "ALLEN'S ANTISEPTIC TOILET CREAM." (For a Toilet Cream.) CHARLES ALLEN, Astoria, Oreg. Filed July 6, 1901.

8,570.—*Title:* "IDEAL BRILLIANT NAIL ENAMEL." (For a Nail-Polish.) MINNIE A. DALE, New York, N. Y. Filed June 18, 1901.

8,571.—*Title:* "CREAM OF ROSES." (For a Toilet Preparation.) LOUISE D. RICKETSON, New Bedford, Mass. Filed July 5, 1901.

PRINTS

REGISTERED JULY 30, 1901.

376.—*Title:* "WATERPROOF." (For Biscuits.) N. W. AYER & SON, Philadelphia, Pa. Filed July 8, 1901.

377.—*Title:* "ROYAL GARDEN." (For Iced Tea.) THE J. M. BOUR COMPANY, Toledo, Ohio. Filed July 8, 1901.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE NICHOLSON.

Decided July 9, 1901.

1. DEFECTIVE OATH—KNOWLEDGE AND BELIEF—SEC. 4892, R. S.

An oath to an application stating that the applicant believes that the improvement was not known or used in the United States before his invention *Held* not a compliance with section 4892 of the Revised Statutes, since it is limited by its terms to the United States and fails to state that he "does not know" that the invention was ever before known.

2. SAME—SAME.

The word "believe" in an oath cannot be held to include the whole meaning of the words "know and believe" as such in the statute, since knowledge and belief are different things and since effect must be given, if possible, to every clause and word of a statute.

3. SAME—STATUTORY REQUIREMENTS—STRICT CONFORMITY NECESSARY.

Since the grant of a patent follows a course of statutory procedure resulting in the creation of a monopoly in derogation of the common-law rights of the public, *Held* that strict conformity to the terms of the statute is necessary and that any failure to comply with these conditions would render the patent granted fatally defective.

ON petition.

TUBE-ROLLING MILLS.

Application of John H. Nicholson filed April 3, 1901, No. 54,118.

Mr. Harold Binney for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring a new oath in the above-entitled case. In the oath presented the applicant deposes in part as follows:

> I verily believe * * * that the said improvement was not known or used by others in the United States of America before my invention or discovery thereof.

The applicant is required by Rule 46 to make oath—

> that he does not know and does not believe that the same (invention or discovery) was ever before known or used.

The above clause of the oath is proposed as meeting this requirement of the rule. It fails to cover the ground required by the rule, because it is restricted by its terms to the United States of America, while the oath required by the rule is not thus limited, and also because the deponent fails to state that "he does not know" that his alleged invention was ever before known or used.

This portion of Rule 46 is in the precise words of section 4892, Revised Statutes. The statute, section 4892, requires that the applicant shall disclaim not only his belief, but also his knowledge that his invention was ever before known or used.

The Examiner states that—

> if the applicant does not know a certain thing has happened his statement that he believes it has not happened is equally as strong; that is to say, the latter statement necessarily covers the requirement for both knowledge and belief.

Proceeding upon this line of thought, the applicant argues that the use of the word "believe" includes the whole meaning of the words "know and believe" as used in the statute and in Rule 46. It is a sufficient answer to this argument to say that such construction of section 4892 eliminates from the phrase "does not know and does not believe" the first four words.

Instead of eliminating any words of a statute it is, as stated by Justice Harlan in *Montclair* v. *Ramsdell*, (107 U. S., 147)—

> * * * the duty of the court to give effect if possible to every clause and word of a statute, avoiding, if it may be, any construction which implies that the legislature was ignorant of the meaning of the language it employed.

To the same effect see *United States* v. *Bowen*, (100 U. S., 508.)

In the absence of ambiguity it is the duty of the court to give effect to the obvious meaning of the language of the statute. (*Bate Refrigerating Co.* v. *Sulzberger*, 157 U. S., 1.)

It seems clear to my mind that the framers of this section 4892 intended to require the applicant for a patent to disclaim, first, his personal knowledge, and, second, his belief, which, in contradistinction to his knowledge, may be defined as that reasonable belief which is founded upon information derived from others, thus disclaiming two classes of means by which conviction is wrought. Thus considered as excluding personal knowledge and information and belief, the words of the statute have that vitality which should be expected from the fact of their use, and they are not construed as meaningless.

Those provisions of section 4892 are conditions precedent to the grant of a patent, and since such grant follows a course of statutory procedure resulting in the creation of a monopoly in derogation of the common-law rights of the public any failure to comply with these conditions would render the patent granted fatally defective. The only safe course is strict conformity, although some latitude in the use of terms may be permitted to cover the requirements of other portions of Rule 46, whereby the applicant is required to make for himself a *prima-facie* case under sections 4886 and 4887, Revised Statutes.

The petition is denied.

EX PARTE TABOR.

Decided June 25, 1901.

1. TRADE-MARKS—NAME OF APPLICANT—ESSENTIAL FEATURE.
   The name of the applicant not being registrable alone cannot properly be included as an essential feature of a mark to be registered.
2. SAME—SAME—ARBITRARY ARRANGEMENT OF LETTERS IN NAME.
   Although the letters in the applicant's name if arbitrarily arranged so as to destroy the identity of the name would be registrable as a trade-mark, *Held* that where they are printed one after the other in regular order, so as to spell the name in the usual way, their arrangement cannot be considered arbitrary.
3. SAME—SAME—MANNER IN WHICH THE NAME IS PRINTED—IDENTITY NOT DESTROYED.
   Where the name of the applicant is printed on the arms of a cross so that it can be read vertically or horizontally and the single letter "B" is used in both readings, *Held* that the arrangement is not such as to destroy the identity of the name and to render it so arbitrary and fanciful as to be registrable.

ON appeal.

TRADE-MARK FOR WASHING SOLUTION.

Application of Thomas H. Tabor filed November 9, 1900, No. 62,087.

Mr. Wallace A. Bartlett for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the action of the Examiner of Trade-Marks refusing to register as a trade-mark for washing solutions a mark the essential feature of which—

consists of the outline representation of a Latin cross, with the word "Tabor" on the cross-arm thereof, the letter B being about at the center thereof, and also with the word "Tabor" on the vertical arm, reading downward, so that the same letter B forms the middle letter of both words.

The Examiner says:

There is no objection to the registration of the representation of a Latin cross for a washing solution, and if amendment were made to the statement of essential feature to set up merely such representation, registration would be permitted.

The word "Tabor" is merely the name of the applicant and under the express provision of the law is not a valid trade-mark and cannot be registered. It acquires no new or arbitrary significance and is not rendered registrable merely because associated with an arbitrary symbol—the cross—which is registrable. Not being registrable alone, it cannot properly be included as an essential feature of a mark to be registered. (*Ex parte Adriance, Platt & Co.*, 20 O. G., 1820.)

There is nothing so arbitrary and fanciful in the way in which the name is associated with the cross as to destroy its identity, since it is merely printed on the cross. It is true that it can be read vertically or horizontally, and a single letter B is used in both readings; but this does not destroy the identity of the name. The particular manner in which it is printed does not change its character or render it arbitrary in the sense that others would not have the right to print it in the same way. It is no more arbitrary than would be printing it in script or any other particular form of type which is chosen. It may be admitted that the letters in the name if arbitrarily arranged, so as to destroy the identity of the name, would constitute a valid trade-mark; but so long as they are printed one after the other in regular order, so as to spell the name in the usual way, their arrangement cannot be considered arbitrary. This is true whether they are printed in a vertical or horizontal line or in both, since the essential feature which at once strikes the observer is the name, and the individual letters are lost sight of.

The mark disclosed consists of two independent essential features—the cross, which is probably registrable, and the applicant's name, which is not registrable. The name cannot properly be included as an essential feature of a registered mark.

The action of the Examiner of Trade-Marks refusing registration is affirmed.

EX PARTE THE COLUMBIA INCANDESCENT LAMP COMPANY.

Decided July 12, 1901.

1. TRADE-MARKS—GEOGRAPHICAL NAME—ESSENTIAL FEATURE.
   A geographical name not being registrable alone cannot properly be included as an essential feature of a mark to be registered.
2. SAME—SAME—ARBITRARY ARRANGEMENT OF LETTERS IN NAME.
   The fact that the letters are so arranged that the geographical name spelled by them plainly appears and gives the impression to the reader that the name is the essential feature of the mark, *Held* that this arrangement cannot be considered so arbitrary as to warrant registration.
3. SAME—SAME—MANNER IN WHICH NAME IS PRINTED—IDENTITY NOT DESTROYED.
   When the geographical name is printed so that the letter "C" is made to form about three-fourths of a circular band and the band is completed by the letters "olumbia," *Held* that the arrangement is not such as to destroy the identity of the same and to render it so arbitrary and fanciful as to be registrable.
4. SAME—SAME—ASSOCIATION WITH ARBITRARY SYMBOLS.
   A mark which is common property is not made the property of any one individual by associating with it certain arbitrary symbols which in themselves may be registrable.

ON appeal.

TRADE-MARK FOR INCANDESCENT LAMPS.

Application for registration filed April 29, 1901, No. 63,267.

Messrs. Carr & Carr for the applicant.

MOORE, *Acting Commissioner:*

This is an appeal from the action of the Examiner refusing to register as a trade-mark for incandescent lamps the word "Columbia," arranged in the form of a circular band, and the symbol $\frac{W.}{C.\ P.}$ inside of said band.

The petitioner states that—

this trade-mark has generally been arranged as shown in the accompanying facsimile, in which the letter "C" is made to form about three-fourths of the circular band, and the band is completed by the letters "olumbia."

The Examiner states that there is no objection to the registration of either the letters $\frac{W.}{C.\ P.}$ or to the capital letter "C" inclosing these letters, provided the word "Columbia" be made a non-essential feature of the mark or be eliminated from the statement and facsimile.

In the decision of the Supreme Court of the United States in *Columbia Mill Co.* v. *Alcorn* (65 O. G., 1916) it is held that the word "Columbia" is not a valid trade-mark for the reason that it has a geographical significance.

The petitioner distinctly states that the trade-mark "consists of the word 'Columbia'" arranged in a certain way and a certain symbol in connection therewith.

The word "Columbia" is common property. The portion of the mark made up of the letters $\frac{W.}{C.\ P.}$ whether arranged inside the letter "C" or not, is probably a valid trade-mark.

The fact that the petitioner has arranged the letters which spell the word "Columbia" in an arbitrary or fanciful way does not alter the fact that the word so written is the word "Columbia." The letters "olumbia" do not form any portion of the letter "C." A glance at the mark gives the impression to the reader that "Columbia" is the essential feature of the mark.

If the mark is held in any position before the eye, the word "Columbia" plainly appears. It is well settled that a mark which is common property is not made the property of any one individual by associating with it certain arbitrary symbols which in themselves may be registrable. (*Ex parte Farnum & Co.*, 18 O. G., 412; *ex parte Adriance Platt & Co.*, 20 O. G., 1820; *ex parte Weil*, 83 O. G., 1802; *ex parte Tabor*, 71 MS. Dec., 257.)

The decision of the Examiner is affirmed.

MEYER V. SARFERT.

Decided July 16, 1901.

1. INTERFERENCE—MOTION TO DISSOLVE—APPEAL.
   Where an appeal is taken to the Commissioner from the decision of the Examiner refusing to dissolve the interference on the ground that one of the parties has the right to make a claim, *Held* that no appeal from such a decision can be taken and should be dismissed. (Rule 124.)
2. SAME—SAME—SAME—IRREGULARITY IN DECLARATION.
   Where the irregularity is alleged to consist in the fact that M. has stated in his applications involved in the interference that they are divisions of a prior patent granted to him, *Held* that such a statement does not in any way affect the disclosure of the invention in either the patent or the applications. It merely calls attention to an alleged fact (*Bundy* v. *Rumbarger*, 92 O. G., 2002) and does not constitute such an "irregularity in declaring" the interference "as will preclude a proper determination of the question of priority." (Rule 122.) A motion to dissolve for this reason should be denied.
3. SAME—DISCLOSURE IN PATENT—RECORD OF OFFICE.
   Where a patent discloses an invention, *Held* that the patent being part of the records of the Patent Office it is the duty of the office to take notice of said disclosure. (*Fairfax* v. *Hutin et al.* v. *Patten* v. *Steinmetz* v. *Scott*, 85 O. G., 1222.)
4. SAME—SAME—BURDEN OF PROOF.
   The subsequent grant of a patent to one party does not affect the disclosure in the previous grant to another party. The burden of proof should not be on the party who first discloses the invention.
5. SAME—BURDEN OF PROOF—RULE 116 CONSTRUED.
   The words "their completed application" used in Rule 116 are not limited to mean only the application involved in the interference. They refer to any completed application in which the invention is disclosed, by means of which judgment of priority would necessarily be rendered in favor of the party so disclosing, provided no testimony was taken. (Rule 114.)
6. SAME—SAME.
   Where M. has been granted a patent which fully discloses the inventions in issue, so that priority of invention would be awarded to him should no testimony be taken, and after the grant of the same files applications for patents on said disclosed inventions, the claims of the issue having been held to be patentable in said applications, and said applications are placed in interference with previously-granted patents to S. which were granted subsequently to the grant of the patent to M., *Held* that M. being the first to disclose the invention, as shown by the records of the Patent Office, so that priority of invention would be awarded to M. should no testimony be taken, the burden of proof should be on S.

APPEAL on motion.

TUBULAR KNITTED FABRIC.

Application of Robert Meyer filed February 9, 1901, No. 46,713. Patent granted Max Sarfert January 29, 1901, No. 667,141.

Mr. Percy B. Hills for Meyer.

Messrs. Wiedersheim & Fairbanks for Sarfert.

MOORE, *Acting Commissioner:*

This interference comes before me on an appeal by Sarfert from the decision of the Examiner refusing his motion to dissolve and also on an appeal by Meyer from the decision of the Examiner refusing his motion to shift the burden of proof to Sarfert.

The appeal by Sarfert will first be considered.

The grounds of this appeal when condensed are that there has been such an irregularity in declaring the interference as will preclude a proper determination of the questions of priority and that the Examiner erred in holding that Meyer had a right to make the claims. From the Examiner's decision on this last-mentioned ground there is no appeal (Rule 124) and the same is dismissed.

The irregularity is alleged to consist in the fact that Meyer has stated in his applications involved that they are respectively divisions of his Patent No. 641,528, granted January 16, 1900. Such a statement does not in any way affect the disclosure of the invention in either the patent or the application. It merely calls attention to an alleged fact. (*Bundy* v. *Rumbarger*, 92 O. G., 2002.)

Without deciding whether or not it is proper to state in an application that the same is a division of a previously-granted patent, this question not being before me, the fact that such a statement is made by Meyer does not in my opinion constitute such an "irregularity in declaring" the interference "as will preclude a proper determination of the question of priority." (Rule 122.)

The decision of the Examiner refusing to dissolve this interference is affirmed.

It remains now to consider the appeal by Meyer from the decision of the Examiner refusing his motion to shift the burden of proof to Sarfert.

Meyer filed an application on March 16, 1899, for a patent on a method of and apparatus for singeing hosiery, Serial No. 709,302. This application resulted in the grant of the Patent No. 641,528 on January 16, 1900, for an apparatus for singeing hosiery.

The further facts are correctly stated by the Examiner, as follows:

On September 1, 1900, and October 12, 1900, respectively, Sarfert, the other party to these interferences, filed applications for a stocking and for a process of treating hosiery. These applications were rejected upon the patent to Meyer, but upon the filing of an antedating affidavit, under Rule 75, the rejection was withdrawn and the applications finally eventuated in Patents Nos. 667,141 and 667,142, dated January 29, 1901.

Upon February 9, 1901, Meyer filed two applications, Nos. 46,712 and 46,713, for a process of treating tubular knitted fabrics, and for a tubular knitted fabric, the said applications being for the inventions claimed in the patents to Sarfert, and in-

terferences were declared between the said applications of Meyer and the said patents to Sarfert upon March 20, 1901.

In each of these interferences Meyer was made the junior party.

That the inventions of the issues are disclosed by the patent to Meyer, No. 641,528, granted January 16, 1900, is clearly evident from an examination of said patent.

The Examiner held that the patent to Meyer disclosed the issues when he rejected the applications of Sarfert on said patent and required an affidavit to be filed by Sarfert under Rule 75 to overcome the Meyer patent as a reference.

The disclosure of the issues in said patent to Meyer was admitted by counsel for Sarfert at the hearing. It may be taken as a fact, then, that the patent to Meyer fully discloses the invention of the issues of these interferences.

Rule 116 provides that—

> the parties will be presumed to have made the invention in the chronological order in which they filed their completed applications for patents clearly illustrating and describing the invention.

The words "their completed applications" used in the rules are not limited to mean only the applications involved in the interference. (*Cain* v. *Park*, 86 O. G., 797; *Bundy* v. *Rumbarger*, *supra*.) They refer to any completed applications in which the invention is disclosed by means of which judgment of priority would necessarily be rendered in favor of the party so disclosing, provided no testimony at all (Rule 114) or no more testimony were taken.

In *Best on Evidence*, Vol. I, page 498, paragraph 268, the following principle of law is laid down:

> In order to determine on which of two litigant parties the burden of proof lies, * * * the test ought in strict accuracy to be expressed thus, viz.—"which party would be successful, if no evidence at all, or no more evidence, as the case may be, were given."

Applying this law to the facts in this case it is obvious that Meyer would be adjudged the prior inventor. The burden of proof should therefore be on Sarfert.

The patent to Meyer is a part of the records of this Office. Its disclosure is published to the world. It is the duty of the Office to take notice of this fact. (*Fairfax* v. *Hutin et al.* v. *Patten* v. *Steinmetz* v. *Scott*, 85 O. G., 1222.)

It is true that in all cases which I have been able to find and which have been called to my attention in which an interfering applicant has been given for interference purposes the benefit of the date of filing of a prior application the two applications at one time or another were pending concurrently. (*Bundy* v. *Rumbarger*, *supra*; *Forbes* v. *Thomson*, 51 O. G., 297; *Graham* v. *Geneva Lake Crawford Mfg. Co.*, 21 O. G., 1536; *International Tooth Crown Co.* v. *Richmond*, 39 O. G., 1550.)

In those cases, where the first application became abandoned, the abandonment did not take place until after the second application was filed. (*Cain* v. *Park*, *supra*.)

In all of these cases the same question presented itself, viz: Which one of the interfering parties would be adjudged the prior inventor if no testimony were taken?

The Examiner holds that inasmuch as Meyer did not file his present applications until after Sarfert had filed his applications and had obtained his patents Sarfert became *prima facie* the first inventor. In thus holding the Examiner is in error. The fact that Sarfert had been granted patents before Meyer filed his present applications does not change the fact that Meyer was the first to disclose the inventions of the issue in his patent granted January 16, 1900.

The questions presented are: Does the prior patent to Meyer disclose the invention claimed in these pending applications now in interference? If so, is it such a disclosure that Meyer would be awarded priority of invention should no testimony be taken? Each of these questions must be answered in the affirmative.

The decision of the Examiner refusing to shift the burden of proof is reversed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MILLER *v.* KELLEY.

Decided May 21, 1901.

1. INTERFERENCE—ORIGINALITY OF INVENTION—TESTIMONY BALANCED—CORROBORATING CIRCUMSTANCES.

Where each party claims to have disclosed to the other an invention jointly embodied in a machine and there is no other direct testimony on the subject, but the collateral circumstances—such as the previous experience of the parties, the refusal of M. to answer questions, and the contradiction by witnesses of statements made by him on other matters—tend to discredit M. and corroborate K., *Held* that the decision must be in favor of K.

2. SAME—SAME—EMPLOYER AND EMPLOYEE—PROBABILITIES.

Where K. was an expert machinist engaged in perfecting and improving match-making machinery upon which he had obtained a patent and he employed M. as a mechanic, who knew nothing of such machinery, to assist him in his work, and they produced the machine embodying the invention in controversy and each claimed it as his invention, *Held* that the probabilities are in favor of K.

3. EMPLOYER AND EMPLOYEE—PRESUMPTION AS TO INVENTORSHIP.

As between an employer and a party employed for a special purpose matters merely auxiliary or tributary to the main invention can give to the employee no claim as an inventor, and in regard to such features as amount to independent inventions a presumption exists in favor of the employer as the author of the same which can only be overcome by conclusive and unequivocal proof.

4. SAME—SAME—RIGHT TO INVENTION.

Although an employee is to be protected from the rapacity of the employer as much as the employer from the dishonesty of the employee, and if the employee makes an invention wholly independent of the employer it belongs to him and does not inure to the benefit of the employer, *Held* that in case of dispute as to a particular improvement the presumption is in favor of the employer.

Messrs. Prindle & Russell for the appellant.

Mr. E. B. Stocking for the appellee.

MORRIS, *J.*:

This appeal is taken from a decision of the Commissioner of Patents in an interference case, wherein the matter in issue between the parties is defined in nineteen several counts, embracing three classes

of improvements in match-making machines, as follows:

1. In a match-machine, the combination of a splint-carrier and a splint-evening roll provided with a roughened splint-engaging surface, substantially as specified.

2. In a match-making machine, the combination of a splint-carrier adapted to receive and carry splints transversely to the carrier, and parallel evening-rolls located upon opposite sides of said carrier to respectively engage the opposite ends of irregularly-held splints, the axis of said rolls being parallel to the face of the carrier and to the rows of splints.

3. In a match-machine, the combination of a splint-carrier, means for feeding splints thereto, dipping mechanism and rolls on opposite sides of said carrier adapted to respectively engage the opposite ends of irregularly-placed splints, substantially as and for the purpose specified.

4. In a match-making machine, the combination of a splint-carrier and evening-rolls located upon opposite sides thereof, one of which is provided with longitudinal grooves or depressions, substantially as specified.

5. In a match-making machine, the combination of a splint-carrier, evening-rolls upon opposite sides of the carrier, one of which is provided with a roughened periphery and the opposite roll with a grooved periphery, substantially as specified.

6. In a match-making machine, the combination of a splint-carrier, and evening mechanism embodying a longitudinally-grooved roll located to engage the ends of irregularly-placed splints, substantially as specified.

7. In a match-machine, the combination of a series of splint-engaging bars, a chain or carrier therefor, a device to engage with and move said bars from the latter, and means to hold said bars in engagement with said device, adapted to permit their release at a certain point in their travel therewith, substantially as and for the purpose specified.

8. In a match-machine, the combination of a series of splint-engaging bars, a chain or carrier therefor, means for disengaging said bars from the latter that cause them to move in a curved path, and means to hold said bars in engagement with said disengaging means, adapted to permit their release at a certain point in their travel, substantially as and for the purpose specified.

9. In a match-machine, the combination of a series of splint-engaging bars, carrier-chains therefor, wheels to engage the bars whose peripheries move in paths from which the chains diverge, spring-plates extending concentric with said wheels, having one end free, and means moving the bars from the wheels, substantially as and for the purpose shown.

10. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter, and means, engaging the sides of the bars, carried by said bar engaging and moving device, substantially as and for the purpose described.

11. In a match-making machine, the combination of a series of bars angular in cross-section, a chain for moving said bars, a rotary bar-engaging device moving in a path diverging from the path traversed by said chain, and means carried by said rotary device to engage the sides of the bars when in contact with said device, substantially as specified.

12. In a match-making machine, the combination of a series of bars angular in cross-section, the opposing sides of adjacent bars being adapted to receive and engage match-splints, a chain for moving said bars, a rotary device for moving said bars in a path diverging from the path of the chain and provided with portions to engage the sides of the bars and retain them in a fixed relation to said device, and means for disengaging the bars from said rotary device, substantially as specified.

13. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter and means carried by said device that engage and hold the bars from movement relative thereto, substantially as and for the purpose specified.

14. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter, and means whereby the position of the bars relative to said device may be maintained during the time of their engagement therewith, substantially as and for the purpose set forth.

15. In a match-machine, the combination with a series of splint-engaging bars that are angular in cross-section, with pintles at their ends, a chain or carrier for said bars, and toothed wheels to engage said pintles and disengage the bars from the carrier, said wheels having surfaces to engage the bars to prevent the rotation thereof relative to the wheels as the latter revolve, substantially as and for the purpose described.

16. In a match-machine, the combination of a series of splint-engaging bars, between adjacent ones of which splints are held, a chain or carrier therefor, a rotary carrier for disengaging said bars from the latter, and means rotating with said rotary device that engage said bars and prevent the rotation of the same on their axis relative to the carrier when carried by the latter, substantially as specified.

17. In a match-machine, the combination of a series of splint-engaging bars, between adjacent ones of which splints are to be held, a chain-carrier therefor, means for disengaging said bars from the latter, and positively-acting means that engage the bars while being disengaged and control their rotation on their axis, substantially as and for the purpose set forth.

18. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a rotary bar engaging for moving said bars in a path diverging from the path of the chain, to disengage the bars and chain, portions of which device engage the sides of the bars and hold them in a fixed position relative to the device, means for moving the bars from said device into engagement with the chain again, and means for placing splints in the path of the bars as they are moved after such reëngagement, substantially as and for the purpose set forth.

19. In a match-machine, the combination of a series of splint-engaging bars that are angular in cross-section, between adjacent ones of which splints are held, a chain or carriage therefor, a rotary carrier device for disengaging said bars from the latter, and means that engage the flat sides of the bars for preventing rotation of said bars on their axes relative to said rotary carrier when carried by the latter, substantially as and for the purpose shown.

Of these counts those numbered 1, 2, 3, 4, 5, and 6 embody the evening-rolls placed upon the machine; those numbered 7, 8, 14, and 19 relate to the means employed for carrying the bars through the main head of the machine, that is, the guides, the sprocket-wheel, and the auxiliary chain; and those numbered 9, 10, 11, 12, 13, 15, 16, 17, and 18, refer to the rectangular carrier-bars, the sprocket-wheels with flat-faced hubs for controlling the rotation of the bars, an auxiliary chain for gripping the bar after the next bar has been knocked up to grip the match-splints; means for holding the carrier-bar in the tooth of the sprocket-wheel while space for the match-splints coming from the reciprocating head is being made between the face of the two bars; and spring-fingers to hold back the bars temporarily in the sprocket-wheel until forced ahead by the knocker.

The appellant Frederick J. Miller claims to have made the invention set forth in counts 1 to 6, both inclusive, in the month of January, 1897, when one full-sized machine embodying it, was constructed; and to have made the invention set forth in counts 7 to 19, both inclusive, in the month of December, 1896, and to have then embodied it in a full-sized operative machine. He filed his application in the Patent Office on April 12, 1897.

The appellee Alexander Kelley claims to have conceived and disclosed the invention set forth in counts 1 to 6, both inclusive, in 1893; to have made sketches and drawings of it in November of 1896; and to have embodied it in a full-sized operative machine, commenced on August 3, 1896, and completed and successfully tested about February 23, 1897. He claims to have conceived, disclosed, and sketched the invention shown in counts, 7, 8, 14 and 19, in the years from 1890 to 1893, both inclusive; to have made a full-sized model of it in October of 1895, and an operative machine in November of 1896. And he claims to have made the invention set forth in counts numbered 9, 10, 11, 12, 13, 15, 16, 17, and 18, about November 18, 1896, when, or within a few days afterward, he embodied it in a full-sized operative machine. The invention embraced in all the counts was embodied in a full-sized match-making machine begun in the appellee's shop in Wilmington, Del., about August 3, 1896, and completed and successfully operated at the same place about February 23, 1897. Kelley came to the Patent Office with his application on June 3, 1898, which was more than a year after Miller's application. It may be added here that there was actual

reduction to practice by either one of the contestants about February 23, 1897; and that it is the same act which is relied upon both parties. Miller was a workman or machinist in the employment of Kelley at the time, and worked upon the machine in question. The controversy, therefore, is not really one as to priority of invention, but as to originality. In other words, the question is which one of these two suggested the conception which was embodied by them in the machine constructed by Kelley at his shop in Wilmington, Del., between August 3, 1896, and February 23, 1897.

All the tribunals of the Patent Office, the Board of Examiners-in-Chief however with a division, have awarded judgment in favor of Kelley. And from the decision of the Commissioner in that regard, the cause has now been brought here by appeal.

We are of opinion that there is no error in the conclusion reached by the Commissioner of Patents and the tribunals of his Office in this case; and being of that opinion, after full consideration of the record, we deem it wholly unnecessary to review the testimony at any length. It would serve no useful purpose to add another analysis to the three very careful and elaborate examinations of the record made by the tribunals of the Office, when the analysis would merely lead us to the same conclusion. It will suffice for us to say that, in reference to the crucial question in the case, whether the disclosure of the invention, which in this case must determine its parentage, emanated from the appellant to the appellee, or from the appellee to the appellant, the direct testimony is confined to the depositions of the parties themselves; and that the weight of this testimony and its inherent probabilities are in favor of Kelley. In the collateral circumstances there is some corroboration of Kelley, but none of Miller. And every statement of the latter, with reference to matters alleged by him to have taken place in the presence of other persons, is flatly contradicted by those persons. Moreover, the appellant's manner in giving his testimony, as evidenced by the record, and his curt refusals to answer questions put to him, some of which at least he might have readily and properly answered, if he was in good faith, are not calculated to convey a favorable impression of his testimony, or to entitle that testimony to any great weight—although there is perhaps a partial excuse for his course in the fact that he is a foreigner not well acquainted with the English language and not familiar with technical terms.

But there are other considerations which must have weight in the determination of the controversy. Kelley was an expert machinist. He was well acquainted with match-making machines. He was at the time of this invention engaged in experimenting with a match-making machine that would obviate some of the difficulties and deficiencies of previously-existing machines; and he had taken out at least one patent for such a machine. He was desirous to keep his device a secret until it should be perfected; and he suspected that a rival organization was striving to gain possession of his secret. On the other hand, Miller was merely a workman or mechanic, employed by Kelley to assist him with his construction, who was in Kelley's employment only from October 12, 1896, to March 2, 1897, who had never before invented anything, who was a rover and a wanderer remaining not long in any employment, and who at the time of his entrance into Kelley's employment admitted that he had no knowledge of match-making machines, and would not know one, if he saw it. While it was not impossible that he should make this invention, he certainly was not qualified for it by any previous training, and the probabilities of his making it are all against him.

But even if the testimony on behalf of Miller were greatly stronger than it is, and if it could be said to balance that of Kelley, which we do not think it does, yet there still remains the strong presumption against him arising from the relation of employer and employee subsisting between Kelley and himself. It was well said by Mr. Commissioner Marble in the case of *Harrison* v. *Hogan* (18 O. G., 921) that—

> it is a familiar doctrine that as between an employer and a party employed for a special purpose matters merely auxiliary or tributary to the main invention can give to the employee no claim as an inventor, and in regard to such features as amount to independent inventions a presumption exists in favor of the employer as the author of the same which can only be overcome by conclusive and unequivocal proof.

This doctrine the Commissioner has cited as applicable in the present case; and he adds:

> No sufficient proof has been presented in the present case to overcome the natural presumption from the relations of the parties; but, on the contrary, the evidence as a whole tends to support that presumption.

We think that this conclusion is fully warranted by the record, and that the doctrine announced is a fair and just exposition of the law, and is decisive of this case.

We do not mean, of course, to be understood as holding or sanctioning the idea that the employee's intelligence is all for the time being given over to the employer, and that the employee retains no independent power of invention. On the contrary, the employee is to be protected from the rapacity of the employer, as much as the employer from the dishonesty of the employee: and if the employee makes an invention wholly independent of the employer, it is the law that the invention belongs to him who actually makes it, and that it does not inure to the benefit of the employer. What we hold is that when in the course of experiment by an employer with an invention a device is suggested for its improvement which in itself would reach the dignity of independent invention, and a dispute arises between employer and employee as to its conception, the presumption is justly in favor of the employer, and it is incumbent on the employee to overcome that presumption by satisfactory proof.

We conclude that the decision of the Commissioner of Patents in favor of the appellee should be affirmed; and it is hereby affirmed.

The clerk of the court will certify this opinion and the proceedings in the cause in this court to the Commissioner of Patents according to law.

Patents No. 679,717 to 680,211.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Designs	30	No. 34,886 to No. 34,915, inclusive.
Trade-Marks	24	No. 36,854 to No. 36,877, inclusive.
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Prints	6	No. 378 to No. 383, inclusive.
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4	----	Nevada	----	----
Alaska Territory	----	----	New Hampshire	----	----
Arizona Territory	1	----	New Jersey	20	----
Arkansas	1	1	New Mexico Territ'y	1	----
California	17	----	New York	79	10
Colorado	6	----	North Carolina	2	----
Connecticut	15	1	North Dakota	----	----
Delaware	----	----	Ohio	30	2
District of Columbia	5	1	Oklahoma Territ'y	----	----
Florida	----	----	Oregon	5	----
Georgia	1	----	Pennsylvania	63	1
Idaho	----	----	Rhode Island	9	----
Illinois	47	6	South Carolina	----	----
Indian Territory	----	----	South Dakota	----	----
Indiana	18	1	Tennessee	3	2
Iowa	13	----	Texas	2	----
Kansas	5	----	Utah	----	1
Kentucky	2	1	Vermont	3	----
Louisiana	4	1	Virginia	5	----
Maine	2	----	Washington	3	----
Maryland	8	----	West Virginia	----	----
Massachusetts	38	4	Wisconsin	15	2
Michigan	17	----	Wyoming	----	----
Minnesota	9	2	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	8	2			
Montana	1	----	Total to citizens of the United States	465	39
Nebraska	1	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1	----	Jamaica	----	----
Australia	----	----	Japan	----	----
Austria-Hungary	2	----	Mexico	----	----
Barbadoes	----	----	Netherlands	----	----
Belgium	2	----	New South Wales	----	----
Brazil	----	----	New Zealand	----	----
British Guiana	----	----	Norway	1	----
Canada	6	----	Queensland	----	----
Cape Colony	----	----	Russia	1	----
China	----	----	Scotland	3	----
Colombia	1	----	South African Republic	1	----
Cuba	----	----	South Australia	1	----
Denmark	1	----	Spain	----	----
Egypt	----	----	Sweden	3	----
England	14	2	Switzerland	2	----
Finland	----	----	Turkey in Asia	----	----
France	7	1	Victoria	----	----
Germany	13	1	Western Australia	----	----
India	----	----			
Ireland	----	----	Total to citizens of foreign countries	60	4
Italy	1	----			
Haiti	----	----			

Disclaimer.

471,261.—*Horace F. Brown*, Butte City, Mont. IMPROVEMENT IN ORE-ROASTING FURNACES. Patent dated March 22, 1892. Disclaimer filed July 29, 1901, by *the patentee and Selwyn C. Edgar*, licensee.

Enter their disclaimer—

"To the fourth claim of said patent, which is in the following words:

"4. In an ore-roasting furnace, a wheeled carrier adapted to travel within the same having a laterally-projecting arm to which the stirrers or blades are attached, and means for operating the carriers, substantially as herein described."

Foreign Patents and Publications.

The patents (if printed) and other official patent publications of the following governments may be found in the Scientific Library:

Argentine Republic.
Austria.
Austria-Hungary.
Barbadoes.
Belgium.
British Honduras.
Canada.
Ceylon.
Denmark.
Fiji.
Finland.
France.
Germany.
Great Britain.
Hungary.
Hawaii.
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Italy.
Jamaica.
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New Zealand.
Norway.
Portugal.
Queensland.
Russia.
South Australia.
Spain.
Straits Settlements.
Sweden.
Switzerland.
Tasmania.
Trinidad.
Victoria.
West Australia

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business July 30, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	July 16	July 9	68
106	II. Farm Stock, Products, etc.	July 15	July 18	191
253	X. Carriages and Wagons	July 8	July 15	67
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	July 5	July 9	248
246	I. Tillage and Fences	July 1	July 18	153
90	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	July 1	July 17	241
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 1	July 13	224
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 1	July 12	157
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223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 1	July 5	172
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 1	July 5	209
93	XXI. Textiles, etc	July 1	July 3	180
	Between one and two months.			
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251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	June 26	July 5	160
255	XII. Mechanical Engineering, Store-Service, etc.	June 25	July 8	223
307	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	June 25	July 1	231
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120	IX. Hydraulics, Fire-Extinguishers, etc.	June 17	July 1	136
260	VIII. Furniture, Beds, Store Furniture, etc.	June 15	June 27	415
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 13	July 9	206
248	XVIII. Steam-Engineering, etc	June 13	June 19	320
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	June 12	July 1	292
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 12	June 26	206
215	XVII. Printing, Type-Writing Machines, and Linotyping.	June 10	July 10	254
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 4	July 1	233
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 3	June 12	288
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	June 1	June 26	272
102	XIX. Stoves and Furnaces	May 31	June 5	479
	Between two and three months.			
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 27	July 11	152
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	May 24	June 1	486
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	May 18	June 10	312
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	May 13	June 26	268

Total number of applications awaiting action.....8,042

Applications Under Examination—Continued.

Under one month.			
*Designs	July 15	July 23	101
†Trade-Marks	July 17	July 23	85
‡Labels and Prints	July 25	July 27	7

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 3, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

Order in Relation to Drawings and Blue-Prints.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

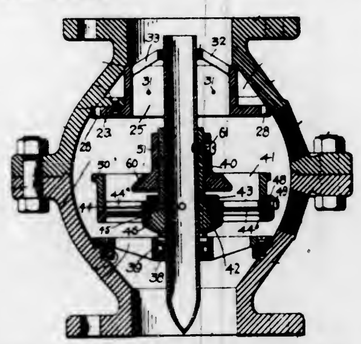
Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

PATENTS

GRANTED AUGUST 6, 1901.

679,717. AUTOMATIC HYDRAULIC GRAVITY-VALVE. GEORGE I. ALDEN, Worcester, Mass. Filed Jan. 23, 1901. Serial No. 45,007. (No model.)



Claim.—1. In a valve the combination with the casing, of a valve-seat, a movable valve having adjustable surfaces located in the path of the flow, whereby said valve may be closed when the flow reaches a certain velocity by the resistance of said surfaces to said flow.

2. In a valve, the combination with the casing, of the valve-seat, a slidable valve, adjustable wing-plates on said valve located to present resisting-surfaces to the flow of water through said casing and adapted to be adjusted to present more or less surface thereto whereby said valve may be seated when the flow reaches a certain velocity.

3. In a valve, the combination with the casing, of the valve-seat, a movable valve adapted to be seated when the velocity of flow attains a certain rate, and means for holding said valve to said seat until after the velocity of flow is reduced nearly to zero.

4. The combination with a valve, means adapted to close said valve when the velocity of flow exceeds a certain rate, and vacuum means, whereby the flow of fluid through the valve creates a vacuum for holding said valve in its closed position.

5. In a valve, the combination with the casing, of the valve-seat, a movable valve adapted to be automatically seated when the velocity of flow attains a certain rate, a vacuum-chamber, apertures through said valve-seat communicating with said vacuum-chamber and adapted to be covered by the valve when seated.

6. In a valve, the combination with the casing, of the valve-seat, a movable valve adapted to be automatically seated when the velocity of flow attains a certain rate, a vacuum-chamber having opening into the main water-passage, apertures through said valve-seat communicating with said vacuum-chamber and adapted to be covered by said valve when seated.

7. In a valve, the combination with the casing, of the valve-seat, a movable valve adapted to be automatically seated by the flow of water through the casing, a vacuum-chamber formed behind said valve-seat and between the casing and the main water-passage, and having openings from said main water-passage into said chamber, and openings through said valve-seat, the latter being adapted to be covered by said valve when seated, whereby when said valve is seated the flow of the water through the main water-passage will create a vacuum in said vacuum-chamber, holding said valve to its seat until a greatly-reduced flow is established.

8. In a valve the combination with the casing, of the valve-seat, a movable valve adapted to be automatically seated by the flow of water through the casing, and adjustable means for regulating the flow of water through the valve when it is seated, substantially as described.

9. In a valve the combination with the casing, of the valve-seat, a movable valve having adjustable wing-plates adapted to be automatically seated by the flow of water through the casing, means for holding said valve to its seat after the reduced flow is established and means for regulating the reduced flow, substantially as described.

679,718. IRONING-MACHINE. WILLIAM M. BARNES, Philadelphia, Pa. Filed Feb. 19, 1901. Serial No. 47,906. (No model.)

Claim.—1. In an ironing-machine, the combination, with a stationary roller; a movable roller and driving means therefor, of mechanism for moving the movable roller into operative relation with the stationary roller, mechanism for reversing the direction of rotation of the rollers, a lever connected with and operating the roll-moving mechanism, and a lever connected with and operating the reversing mechanism, said levers being pivoted to each other on a horizontal pivot and having portions projecting beyond their pivotal connection forming foot-treadles, one treadle extending beyond the other, substantially as described.

2. In an ironing-machine, the combination, with a stationary roller, a movable roller and driving means therefor, of mechanism for moving the movable roller into operative relation with the stationary roller, mechanism for reversing the direction of rotation of the rollers, a lever connected with and operating the roll-moving mechanism, and a lever connected with and operating the reversing mechanism, the last-named lever being pivoted to the first-named lever on a horizontal pivot, each lever having a portion forming a foot-treadle projecting beyond said pivot and the treadle of the last-named lever extending beyond the treadle of the first-named lever, whereby the depression of the treadle of the first-named lever moves said movable roller into operative relation with the stationary roller and also depresses the treadle of the last-named lever and whereby the last-named lever may be moved on its pivot to reverse without affecting the position of the first-named lever, substantially as described.

3. In an ironing-machine, the combination, with a stationary roller, a movable roller and driving means therefor, of mechanism for moving the movable roller into operative relation with the stationary roller, mechanism for reversing the direction of rotation of the rollers, a lever connected with and operating the roll-moving mechanism, and a bell-crank

lever connected with and operating the reversing mechanism the bell-crank being pivoted to the first-named lever, substantially as described.

4. In an ironing-machine, the combination, with a stationary roller, a movable roller and driving means therefor, of mechanism for moving the movable roller into operative relation with the stationary roller, mechanism for reversing the direction of rotation of the rollers, a lever connected with and operating the roll-moving mechanism, and a bell-crank lever connected with and operating the reversing mechanism, the bell-crank lever being pivoted to the first-named lever, a short distance from the end thereof, the free end of the bell-crank lever projecting beyond the free end of the first-named lever and forming a foot-treadle, substantially as described.

5. In an ironing-machine, the combination, with the ironing-rollers, mechanism for bringing them into operative relation with each other, a lever connected with and, by its depression, operating said mechanism, to bring said rollers into operative relation, mechanism for reversing the direction of rotation of the rollers, a bell-crank lever connected with and operating the reversing mechanism, said bell-crank lever being pivoted to the first-named lever and the free end thereof forming a foot-treadle, substantially as described.

6. In an ironing-machine, the combination, with the ironing-rollers, mechanism for bringing them into operative relation with each other, a lever connected with and, by its depression, operating said mechanism to bring said rollers into operative relation, mechanism for reversing the direction of rotation of the rollers, a bell-crank lever connected with and operating the reversing mechanism, the free end of said bell-crank lever forming a foot-treadle, and the free end of the first-named lever, when depressed, being contiguous to, and projecting beyond the pivot of the bell-crank lever, whereby the foot of the operator may engage both levers simultaneously, substantially as described.

7. In an ironing-machine, the combination, with the stationary ironing-roller and its shaft, the movable ironing-roller, and its shaft, the last-named shaft being pivoted, a hollow driving-shaft, a driving-pulley on said shaft, driving connections from said shaft to the shaft of the stationary ironing-roller, a belt-shifter for reversing the direction of rotation of the driving-pulley, a spring-pressed rod extending through the hollow driving-shaft, a connection between said spring-pressed rod and the belt-shifter, a bearing for the pivoted shaft of the movable ironing-roller, a lever pivoted between its ends, a rod connecting one end of said lever with said shaft-bearing, a second lever pivoted between its ends, one end being connected to the spring-pressed rod, a bell-crank lever, and a link connecting the other end of the second lever with one end of the bell-crank lever, said bell-crank lever being pivoted to the other end of the first-named lever, substantially as described.

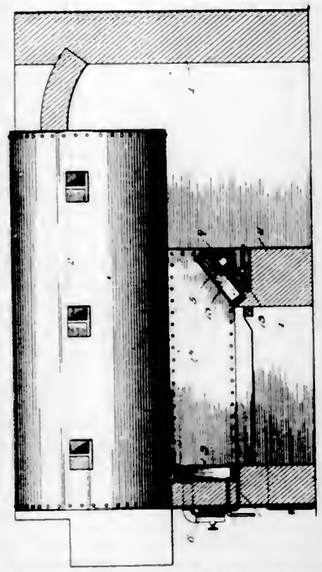
679,719. ROOFING-SEAMER. WILLIAM C. BELL, Syracuse, N. Y. Filed Feb. 12, 1898. Serial No. 670,155. (No model.)



Claim.—In a seaming-tool for roofing, an abutment-jaw and a folding jaw to cooperate therewith, a roller capable of free rotation in its bearings carried by said folding jaw and adapted to engage the seam, all substantially as shown and described.

679,720. FIRE-BOX FOR STEAM-BOILER FURNACES. GEORGE J. BOWE, Hydepark, Mass. Filed Jan. 5, 1901. Serial No. 42,229. (No model.)

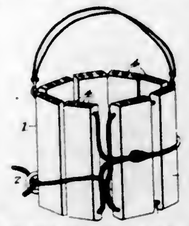
Claim.—1. The combination with the walls of a furnace; of a fire-box comprising four independent hollow sections connected by pipes, the rear section of the fire-box being inclined and resting upon the bridge-wall of the furnace.



2. The combination with the walls of a furnace, and a steam-boiler; of a fire-box comprising four independent hollow sections the rear section of the fire-box being inclined; pipe connections between said sections; and a pipe connection between one of said sections and the boiler whereby a circulation of water is provided for from the front of the fire-box, around the sides and back thereof in its passage to the boiler.

3. The combination with a steam-boiler furnace; of a fire-box consisting of four independent hollow sections the rear section being inclined; pipes connecting said sections; and blow-off pipes for said hollow sections.

679,721. LIFE-PRESERVER. HOWARD C. BRISTOL, East Tawas, Mich. Filed Jan. 11, 1901. Serial No. 42,940. (No model.)



Claim.—1. A life-preserver or similar article comprising a plurality of buoyant blocks of wood or similar material, strung together by cords to form a belt; each block having a series of parallel holes extending longitudinally nearly through said block, and rendered waterproof inside; plugs closing said holes; straps for securing the belt to the shoulders of the wearer; and cords for tying the ends of the belt together, substantially as described.

2. A block or section of a life-preserver consisting of a block of wood rectangular in form, having a series of holes bored nearly through it, and carrying closed air-tubes, a plug for closing each hole, and transverse holes through the ends of said blocks for the passage of supporting-cords, substantially as set forth.

3. A section of a life-preserver comprising a block of wood bored lengthwise with one or more holes that extend nearly through the block, waterproof coating for the interior of each hole, a plug closing the upper end of each hole, a transverse hole extending through the block below the bottom of the longitudinal holes, and a second transverse hole extending through the block at its upper end and through the plugs, substantially as described and for the purposes set forth.

679,722. CARBON COPYING DEVICE. JAMES L. CALHOUN and WILLIAM H. CALHOUN, Chicago, Ill. Filed Dec. 3, 1900. Serial No. 38,424. (No model.)



Claim.—1. In a carbon copying device, a table having a seat or depression in the upper surface thereof, and openings therethrough at the sides and ends of the seat or depression in combination with receiving and supply rolls arranged in parallel relation with respect to each other and at opposite edges of said seat or depression, and adapted to receive thereon a record-strip, said record-strip intermediate said rolls passing over the surface of said depression or seat, and transversely-arranged receiving and supply rolls located adjacent to the ends of said depression or seat, and adapted to receive a carbon-strip, said carbon-strip intermediate said rolls being arranged to operate over said record-strip, and means for actuating said rolls, as and for the purpose set forth.

2. In a carbon copying device, a table having an extended flat top surface and a seat or depression formed in a portion of such surface and openings formed through such table-top adjacent to the edges and ends of said seat or depression, guides arranged along the edges and ends of said seat or depression, receiving and supply rolls arranged in parallel relation beneath the table-top and adjacent to the slots or openings at the edges of said seat or depression and adapted to receive a record-strip, said record-strip intermediate said rolls operating through said edge slots or openings and over the surface of said depression or seat and having its edges guided by the end guides, and transversely-arranged receiving and supply rolls arranged adjacent to the slots or openings at the ends of said seat or depression adapted to receive a carbon-strip, said carbon-strip intermediate said rolls operating over the surface of said depression or seat and said record-strip, the edges thereof being guided in said edge guides, and means for actuating said rolls, as and for the purpose set forth.

3. In a carbon copying device, a table having a depression or seat in the upper surface thereof and having slits or openings therethrough at the ends and sides, respectively, of said seat or depression, in combination with means for moving a record-strip through the slits or openings and over the surface of said seat or depression, and means for moving an overlying carbon-strip through the slits or openings at the ends and over the surface of said seat or depression, the side walls of said seat or depression forming a limit-stop for a loose way-bill or the like, whereby succeeding bills or the like are always brought into the same relation with respect to the carbon and record strips, as and for the purpose set forth.

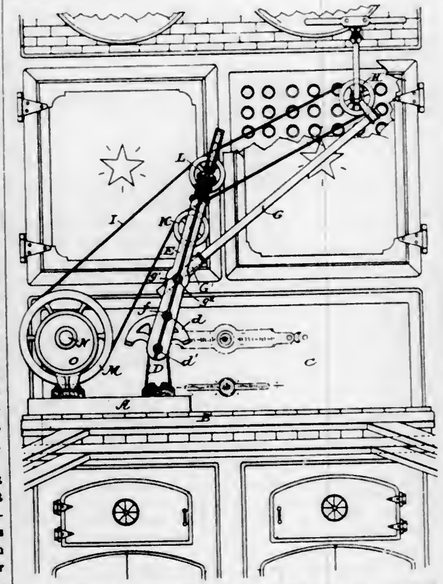
4. In a carbon copying device, a table having a seat or depression in the surface thereof, and a beveled surface at one edge of said seat or depression, and having slits or openings therethrough at the edges and ends of said seat or depression, means for moving a record-strip through the slit or opening at one edge of said seat or depression and over the surface of said seat or depression and through the slit or opening at the other edge of said seat or depression and over said beveled surface, and means for moving an overlying carbon-strip through the slits or openings at the ends of said seat or depression, and a transparent top or cover arranged over the beveled surface and underneath which the record-strip passes after receiving an inscription, as and for the purpose set forth.

5. In a carbon copying device, the combination of a table having an extended plain flat top provided with a seat or depression therein, said seat or depression provided with a beveled surface at one edge thereof, said table having slits or openings therethrough at the edges and ends, respectively, of said seat or depression, receiving and supply rolls arranged in parallel relation and adapted to receive a record-strip, said record-strip intermediate said rolls passing through the slits or openings in the edges of said seat or depression and over the surface thereof and said beveled surface, means for moving an overlying carbon-strip through the slits at the ends of said seat or depression, and a glass sheet or strip overlying said beveled surface and arranged at one side of the path of said carbon-strip and beyond the edge of said seat or depression, as and for the purpose set forth.

679,723. BOILER-TUBE CLEANER AND DRIVING MECHANISM THEREFOR. WILLIAM L. CASADAY, South Bend, Ind. Filed Dec. 9, 1899. Serial No. 739,736. (No model.)

Claim.—1. In a flue-cleaning apparatus the combination with a pedestal of a standard pivoted thereto, a sleeve pivotally mounted on said standard, a beam mounted in said sleeve to rotate therein a set-bolt to hold the beam in the sleeve, a tool-sleeve mounted on the end of the beam and a tube-cleaner mounted transversely upon the end of the beam passing freely endwise through the tool-sheave and turning therewith, substantially as described.

2. The combination in a flue-cleaning apparatus with a pedestal of a standard pivoted thereto, a sleeve pivotally mounted in said standard, a beam mounted to both slide and turn in said sleeve, a set-screw to secure the beam in its primary adjustments, a bracket having a sleeve adjustably connected both to rotate and to move endwise on the beam to provide further adjustments a sheave mounted in bearings upon the bracket, and a flue-cleaner mounted to slide through the hub of the sleeve, substantially as described.



3. In a tool for removing scale from boilers the combination with the base of the segmental pedestal of a standard pivoted thereto, two belt-sheaves and journals mounted upon the standard, the journal of one of said sheaves being adjustable thereon either toward or away from the journal of the other of said sheaves, a beam pivoted to and adjustable upon the standard, a driving-shaft mounted upon the base a tool-sheave and tool-cleaner supported upon the beam and a belt connecting the driving-shaft and tool-sheave, substantially as described.

4. The combination with the base of a flue-cleaning apparatus of the driving-shaft and pulley, the segmental pedestal, a standard pivoted thereto, a beam adjustably supported upon the standard, a tool-rotating sheave and tube-cleaner supported upon the beam, a belt-sheave supported upon the standard a standard extension-bar adjustable endwise upon the standard, a belt-sheave and journal supported thereon, a belt connecting the driving-pulley the intermediate standard-sheave and extension-bar sheave, and tool-rotating sheave and means for adjusting the extension-bar upon the standard substantially as described.

5. In a tool for removing scale from boilers the combination with the supporting-pedestal and segment, of a standard pivoted thereto a beam supported upon the standard, a tool-rotating sheave and a tube-cleaner supported upon the beam, a driving-pulley, belt-sheaves supported upon the standard, a belt connecting them with the tool-sheave, a clamp F, fulcrumed at one end *f'*, upon the standard and bearing at the other end upon the rim of the segment and a bolt *f*, connecting the clamp and standard between the fulcrum and the segment-bearing, substantially as described.

6. In a tool for removing scale from boilers the combination with the supporting-pedestal and segment, of a standard pivoted thereto a beam supported and adjustable upon the standard a tool-rotating sheave supported thereon and extension rack-bar slidable endwise upon the standard a belt-sheave supported upon the extension rack-bar, a driving-belt, connecting said sheaves, a pinion on the standard to engage with the rack-bar and a latch to engage the pinion mounted upon the standard and adapted to adjust and hold the rack-bar and belt-sheave upon the standard, substantially as described.

7. In a tool for removing scale from boiler-tubes the combination with a support of a beam having a pivotal and sliding connection therewith, a rotary tool-holder sheave having hub-extension journals projecting from both ends thereof a tube-cleaner shaft carried thereby, two bracket-

sections each having a bearing for one of the journals of the tool-holder sheave and having overlying connecting-plates, one of which has a sleeve to receive the beam and a bolt for securing the said connecting-plates of the bracket-sections together, substantially as described.

8. In a tool for removing scale from boiler-tubes the combination with the rotary tool-holder of a rotary tube-cleaner shaft, a tool-sheave fitted upon and adapted to rotate the same and allow the said shaft to move endwise therein of a flexible section comprising a coiled spring secured at one end to the outer end of said shaft a swivel-bolt secured to the other end of the spring and a handle supported thereon and adapted to be rotated in a plane variable with that of the tube-cleaner shaft, substantially as described.

679,724. **FASTENING DEVICE.** WENZEL CMÁK, Milwaukee, Wis. Filed June 24, 1901. Serial No. 65,778. (No model.)



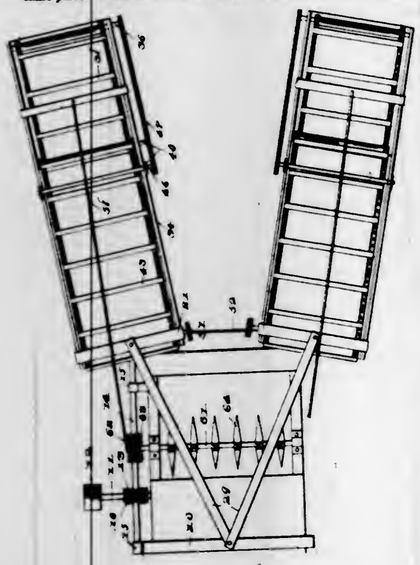
Claim.—1. A fastening device comprising a plate member provided with a slot and a ledge on the wall in front of the slot and a rigid tongue on the wall at the rear of and projecting into the slot, and a complementary plate member provided with a lip adapted to engage said ledge and an aperture adapted to receive said tongue.

2. In a fastening device, a slotted plate member provided with a ledge on the wall at the front of the slot and a rigid tongue on the wall at the rear of and projecting into the slot, and a complementary member adapted to enter edgewise the slot of the other member and on being turned flatwise to engage the ledge and the tongue of the slotted member and thereby to be held against release therefrom except by being tilted edgewise for removal from the slot.

3. In a fastening device, a slotted plate member provided with a ledge on the wall at the front of the slot and a rigid tongue on the wall at the rear of and projecting into the slot, and a complementary plate member having an offset lip adapted to engage said ledge and an aperture in the shoulder of the lip adapted to take said tongue, and means on said members for securing them to parts on an article for holding such parts to each other releasably.

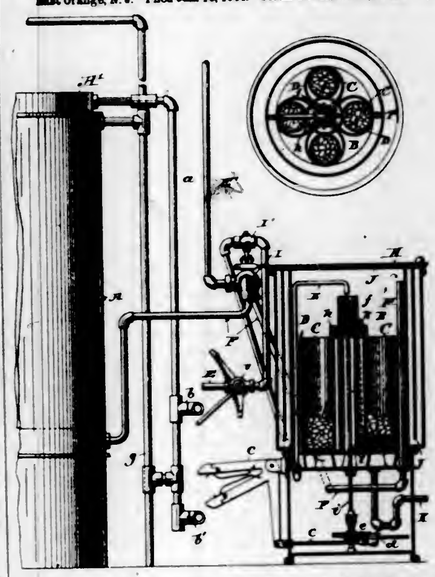
4. A fastening device comprising a slotted plate member provided with a ledge in front of the slot, a rigid tongue at the rear of and extending into a slot, and a tang for securing the plate to an article with which it is to be employed, and a complementary member provided with a lip adapted to engage said ledge, an aperture adapted to take said tongue, and a tang adapted to secure the member to an article with which it is to be used.

679,725. **AUTOMATIC BAND-CUTTER AND SELF-FEEDER.** JOHN N. COLE, Des Moines, Iowa, assignor of one-half to W. W. Kelley, same place. Filed Nov. 17, 1899. Serial No. 737,270. (No model.)



Claim.—In a machine of the class described, a shaft mounted upon the frame of a thresher and geared to the shaft of the threshing-cylinder, said shaft being arranged at the side of the thresher and extending longitudinally thereof, a pair of band-cutters and feeders pivotally mounted upon the thresher and operative in both vertical and horizontal planes, said band-cutters and feeders being geared to operate in unison with the first-mentioned shaft, and a grain-spreader arranged transversely of the thresher and between the cylinder and the band-cutters and feeders, said spreader being geared to said first-mentioned shaft to operate in unison therewith.

679,726. **ACETYLENE-GAS GENERATOR.** MELVIN D. COMPTON, East Orange, N. J. Filed Jan. 10, 1901. Serial No. 42,708. (No model.)



Claim.—In acetylene-gas generators, the combination of a series of vertical removable carbid-compartments, separate containing-cylinders therefor having an offset at one side, a removable liquid-distributing dish provided with separate compartments, each provided with a delivery-orifice registering with one of said offsets, and a rotary mounted liquid-supply vessel, said rotary movement being operated automatically by the gas-supply, substantially as set forth.

679,727. **FASTENER FOR CASKET-COVERS.** JAMES R. CORBETT, Rochester, N. Y. Filed Jan. 12, 1901. Serial No. 43,051. (No model.)



Claim.—1. The combination of the rotatable bolt, the tube having a hook to engage the casket-cover, the bar 3, the socket fixed to said bar, the collar rotatable with the bolt, said collar and socket having a screw-thread connection, and means for preventing the bolt from being drawn through the collar.

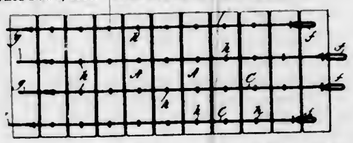
2. The combination of the bolt having a flattened side, the exteriorly-threaded collar surrounding the bolt and having an interior face corresponding to the flattened part of said bolt to prevent independent rotation, the threaded socket screwing on the collar, the pin passed through the bolt below the collar to hold the bolt from being drawn up through the same, and devices for engaging the bolt to the casket-cover.

3. The combination of the bolt having a flattened side, the exteriorly-threaded collar surrounding the bolt, devices for preventing independent rotation of the collar and bolt, the threaded socket screwing on the collar, a device to hold the bolt from being drawn up through the same, and means for engaging the bolt to the casket-cover.

4. The combination of the bolt, the tube 10 having a hook to engage a casket-cover, the casket-bar 3, the rubber situated between the tube and bar, a flanged collar on the bolt and bearing on the bar, a socket situated below and fixed to the bar and having a screw-thread connection with the collar, and the pin, all substantially as set forth, whereby the rotation of the bolt may draw said collar and compress the tube upon the rubber.

5. In combination the casket-bar 3, the tube 10 having hook 1a, the collar 8, the bolt passing through the collar and bar, the pin to prevent the bolt from being drawn up through the collar, and devices situated between the bar and the pin whereby the turning of the bolt forces the tube toward the bar.

679,728. **BARREL.** OLIVER H. P. CORNELL, Brooklyn, N. Y. Filed Dec. 6, 1900. Serial No. 38,922. (No model.)



Claim.—1. An improved article of manufacture, a knockdown barrel composed of staves and a plurality of hoops having interlocking ends, one of said ends having an elongated loop and the opposite end provided with a hook, and loops connecting the hoops to the staves to slide thereon, the loops and the hooks of the hoops being arranged to break joints, as and for the purpose described.

2. An improved article of manufacture a knockdown barrel, composed of staves and a plurality of hoops with interlocking ends, one of said ends having an elongated loop and the opposite end provided with a hook, and loops connecting the hoops to the staves to slide thereon, two of the hoops being secured by loops at the outer quarter of one stave and two hoops secured by loops at the inner quarter of the adjacent stave.

3. An improved article of manufacture, a knockdown barrel, composed of staves having a croze at each end inclined from the inner end of the chime or the surface of the stave, the length of the croze being equal to the thickness of the barrel-head, and heads having the periphery beveled to the incline of the croze; in combination with wire hoops movably connected to the staves, the end hoops being applied opposite the outer face of the heads and secured by loops at the inner quarter of a stave at one end thereof and at the outer quarter of a stave at the opposite end thereof, and hoops secured to the staves at the outer quarter of one stave at one end and to the second stave therefrom at the opposite ends.

679,729. **MACHINE FOR MAKING AND DRIVING STAPLES.** OLIVER H. P. CORNELL, Brooklyn, N. Y. Filed Dec. 28, 1900. Serial No. 41,664. (No model.)

Claim.—1. In a machine for making and driving staples, a head provided with a bifurcated jaw, one part of which bends the wire and the other part drives the staple; in combination with a die for severing the wire.

2. In a machine for making and driving staples, a head provided with a bifurcated jaw, one part of which bends the wire and the other part drives the staple, and a guide for the staple; in combination with a die for severing the wire.

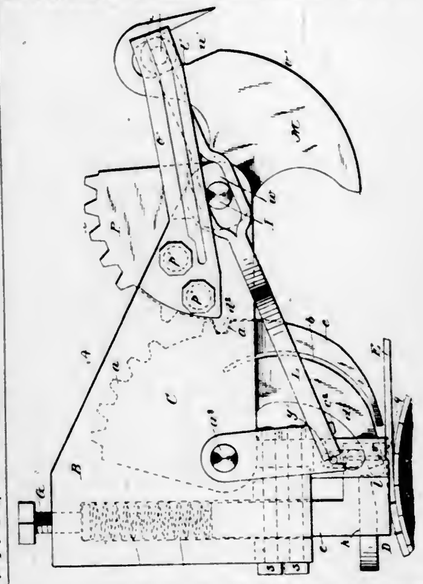
3. In a machine for making and driving staples, a head provided with a bifurcated jaw, one part of which bends the wire and the other part drives the staple, and a spring-actuated guide for the staple; in combination with a die for severing the wire.

4. In a machine for making and driving staples, a head having a bifurcated jaw, one part of which bends the wire and the other part drives the staple, a guide presser-foot having a vertical slot, and a horizontal trip with which the driving-arm engages; in combination with a die for severing the wire.

5. In a machine for making and driving staples, a head having a bifurcated jaw, one part of which bends the wire and the other part drives the staple, a guide presser-foot having a vertical and a horizontal slot, and a yielding trip in the latter slot with which the driving-arm engages; in combination with a die for severing the wire.

6. In a machine for making and driving staples, a head having a bifurcated jaw, one part of which bends the wire and the other part drives the staple, a guide presser-foot having a vertical and a horizontal slot and a bifurcated spring-trip in the latter slot with which the driving-arm engages; in combination with a die for severing the wire.

7. In a machine for making and driving staples, a head having a bifurcated arm, one part of which bends the wire and the other part drives the staple, and is distended laterally at its end, a guide presser-foot having a vertical and a horizontal slot and a yielding trip contracted at one end in the latter slot; in combination with a die for severing the wire.



8. In a machine for making and driving staples, a head having a bifurcated arm, one part of which bends the wire and the other part drives the staple, and a two-part die for severing the wire; in combination with a vertically-movable guide presser-foot having a vertical slot and grooves for the staple.

9. In a machine for making and driving staples, an arm for bending and driving staples, and a two-part die for severing the wire, one of which is fixed and the other movable; in combination with a vertically-movable guide presser-foot having a vertical slot and grooves on opposite sides of the slot.

10. In a machine for making and driving staples, an arm for bending and driving staples, a two-part die for severing the wire, one of which is fixed and the other movable, and a cam for operating the latter die; in combination with a vertically-movable guide presser-foot having a vertical and a horizontal slot and a trip in the latter slot.

11. In a machine for making and driving staples, a head having a bifurcated arm, one part of which bends the wire and the other part drives the staple and provided with suitable gear on its outer edge and above said arm, a guide for the staple and a die for severing the wire; in combination with a transmitter provided with teeth engaging the gear on the head, and means for driving said transmitter.

12. In a machine for making and driving staples, a head having a bifurcated arm, one part of which bends the wire and the other part drives the staple, and means for imparting intermittent motion to said head; in combination with a guide for the staple, and means for severing the wire.

13. In a machine for making and driving staples, a head having a bifurcated arm, one part of which bends the wire and the other part drives the staple, a two-part die for severing the wire and a vertically-movable slotted guide presser-foot; in combination with a transmitter and a wire-feeding device.

14. In a machine for making and driving staples, a head having gear-teeth on its edge and provided with a bifurcated arm, one part of which bends the wire and the other part drives the staple, a transmitter engaging the teeth on said head, a die, and a vertically-movable and vertically-slotted guide presser-foot; in combination with a wire-feeding device, a cam and connections between said cam, the die and the feeding device.

15. In a machine for making and driving staples, a head having a bifurcated arm, a vertically-movable guide presser-foot, and a die; in combination with a wire-feeding device having telescopic sections and provided with automatic oppositely-arranged gripping devices.

16. In a machine for making and driving staples, a wire-feeding device consisting of two telescopic tubular sections, each provided with automatic oppositely-arranged gripping devices.

17. In a machine for making and driving staples, a wire-feeding device consisting of two telescopic tubular sections, one of which is provided

with a longitudinal slot and the other with a pin engaging said slot, a cage on each section and a spring-actuated gripping-disk in each cage.

18. In a machine for making and driving staples, a wire-feeding device consisting of two telescopic tubular sections, each provided with cages having inclined bearing-surfaces, a circular disk engaging said surface and the wire, and a spring engaging the disk.

19. A plurality of machines for making and driving staples arranged in a battery and in different vertical planes; in combination with a revoluble assembling-drum, and means for effecting an intermission of the action of the stapling-machines for each feed of a predetermined number of staves.

20. A plurality of machines for making and driving staples arranged in a battery and in different vertical planes; in combination with a revoluble stave-assembling drum having spurs on its periphery, a laterally-movable stave-feeding device, a connection between the feeding device and the drum for moving the discharge end thereof in the direction of the travel of the drum, means for returning said feeding device, and means connected with the drum for effecting an intermission of the action of the stapling-machines for each feed of a predetermined number of staves.

21. A plurality of machines for making and driving staples; in combination with a revoluble stave-assembling drum made in sections, the center section having spurs on its periphery, and the end sections having a projection to engage the croze of the stave and a stave-feeding device.

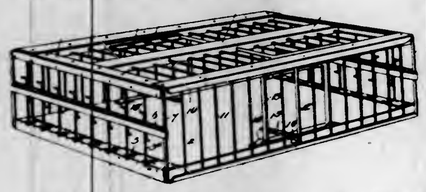
22. A plurality of machines for making and driving staples; in combination with a revoluble stave-assembling drum made in sections, the center section having spurs on its periphery, and the end sections having a projection to engage the croze of the staves, studs or pins on the ends of the center sections, a stave-feeding device pivotally supported, and a lever at each end of the feeding device engaging the studs on the drum.

23. A plurality of machines for making and driving staples, arranged in a battery, the end machines being in advance of the intermediate machines and all the machines driven from the same source of power; in combination with a stave-assembling drum provided with means for effecting an intermission of the action of the stapling-machines for each feed of a predetermined number of staves.

24. A plurality of machines for making and driving staples arranged in a battery, and operated synchronously; in combination with a stave-assembling drum provided with a ratchet-wheel having teeth of different lengths opposite each other, and intermediate teeth of the same length, a ratchet or pawl normally engaging the teeth of the ratchet-wheel and connected to the stapling-machine, and a cam arranged to disengage the pawl from the teeth at specified intervals for each feed of a predetermined number of staves.

25. A plurality of machines for making and driving staples arranged in a battery and operated synchronously; in combination with a stave-assembling drum provided with a ratchet at each end having teeth of different lengths opposite each other, and intermediate teeth of the same length, a compound pawl normally engaging the teeth of the ratchet, a double-ended cam arranged to disengage the pawl from the teeth at specified intervals, a link connected to the bar of the pawl at one end and to a crank connected to the stapling-machine at the opposite end, and means for disengaging said link in said crank, at specified intervals.

679,730. **FOLDING CRATE.** MERRETT G. COUGHLAN, Chicago, Ill. Filed Dec. 8, 1900. Serial No. 39,226. (No model.)



Claim.—1. The combination with a base; of wire loops hinged to said base, a top hinged to the loops, wires revoluble within the top and base and connecting the same at the sides, and extensible wires hinged within and connecting the ends of the top and base.

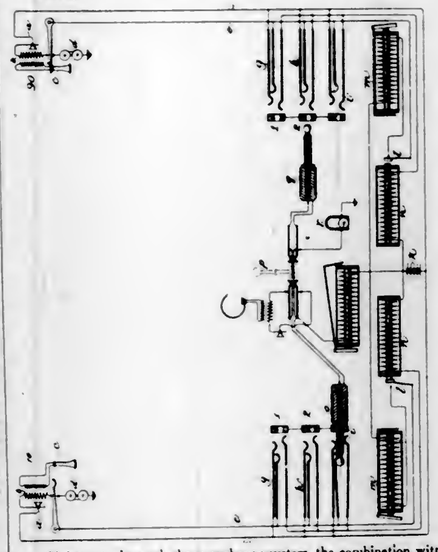
2. The combination with a base; of loops hinged thereto, a top also hinged to said loops, wires revoluble within the base and top and connecting the sides thereof, cross-strips between the ends of the top and base, substantially U-shaped wires hinged to the top and base respectively, the ends thereof being slidably mounted within the cross-strips, and means for limiting the movement of the wires within said strips.

3. The combination with a base; of loops hinged thereto, a top also hinged to said loops, wires revoluble within the top and base and connecting the sides thereof, extensible wires hinged to and connecting the ends of the top and base, a loop hinged to the top, a straight edge thereto adapted to contact with the base and prevent movement of said top, and means for locking said loop in position upon the base.

4. The combination with a base; of a top, wires revoluble within the top and base and connecting the sides thereof, a strip slidably mounted upon two of the wires of the top, wires connected thereto and slidably mounted within the top, a series of wires hinged to each end of the top and base respectively, laterally-bent ends to said wires, and a strip located between each end of the top and base, said series being slidably mounted within the strips.

5. The combination with a base and top; of slotted plates inclosing the ends thereof, loops and wires revoluble within the top and base and connecting the sides thereof, substantially U-shaped wires hinged within the end plates and extending from the slots therein, strips connecting the end loops at points between the top and base, laterally-bent portions to the end wires, said ends being slidably mounted within the cross strips, and means for locking the top in raised position.

679,731. **TELEPHONE-EXCHANGE SYSTEM.** WILLIAM M. DAVIS, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company. Filed Dec. 15, 1899. Serial No. 740,413. (No model.)

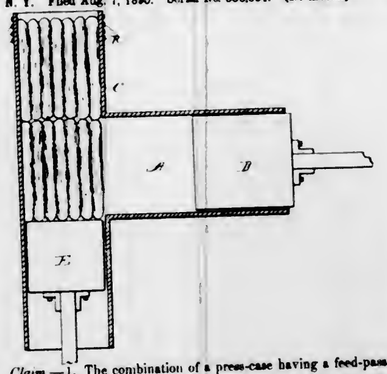


Claim.—1. In a telephone-exchange system, the combination with a telephone-line extending from a substation to an exchange, a telephone switch-hook being provided at the substation for supporting a receiver and adapted upon the removal of the receiver to connect the sides of the telephone-circuit together, of a line-indicator, a common battery adapted to be included in circuit with the line-indicator upon the removal of the receiver at the substation from its telephone switch-hook, a relay controlling the circuit through the line-indicator, a line-jack for the said telephone-line having three contact-terminals, and a plug constituting a part of a line-connecting apparatus having two contact parts, one of the said contact parts being adapted for engagement with two of the terminal contacts of the jack, the latter terminals of the jack being connected respectively with one terminal of the line-relay and one side of the telephone-circuit, the other terminal of the relay being connected with one terminal of the battery whose other terminal is adapted for connection with the aforesaid side of the telephone-line through the agency of said plug when inserted in a jack, the said plug upon its insertion thereby being adapted to effect the operation of the line-relay and thereby the restoration of the line-indicator, substantially as described.

2. In a telephone-exchange system, the combination with a telephone-line extending from a substation to an exchange, a telephone switch-hook being provided at the substation for supporting a receiver, and adapted upon the removal of the receiver to connect the sides of the telephone-circuit together, of a line-indicator, a common battery adapted to be included in circuit with the line-indicator upon the removal of the receiver at the substation from its telephone switch-hook, a relay controlling the circuit through the line-indicator, a jack connected with the telephone-line, provided with a plurality of spring-contacts, connecting apparatus employing a plug adapted for insertion within the jack, the said plug cooperating with the said jack upon the insertion of the plug, to short-circuit two of the said spring-contacts, thereby to direct current from the common battery through the said relay, and a portion of the telephone-line, substantially as described.

3. In a telephone-exchange system, the combination with a telephone-line extending from a substation to an exchange, a telephone switch-hook being provided at the substation for supporting a receiver and adapted upon the removal of the receiver to connect the sides of the telephone-circuit together, of a line-indicator, a common battery adapted to be included in circuit with the line-indicator upon the removal of the receiver at the substation from its telephone switch-hook, a relay controlling the circuit through the line-indicator a jack provided with a plurality of spring-contacts, two of said contacts being connected with the two sides of said telephone-line, the remaining spring-contact being connected with one terminal of said relay, connecting apparatus employing a plug adapted for insertion within the jack, the said plug and jack coöperating upon the insertion of the plug to electrically connect the said spring-contact connected to the said relay with one of the said spring-contacts connected to one side of the telephone-line, thereby to direct current from the common battery through the said relay, and a portion of the telephone-line, substantially as described.

679,732. **BALING-PRESS.** PETER K. DEDERICK, Loudonville, N. Y. Filed Aug. 7, 1895. Serial No. 558,531. (No model.)



Claim.—1. The combination of a press-case having a feed-passage for the entrance of the material to be baled, and a discharge-passage at an angle to the first-named passage for the ejection of the bale, of means for forcing the material into said feeding-passage to form the bale, and for ejecting the formed bale transversely through the discharge-passage into bale-confining devices, such as bands, having connections controlled by the movement of the bale to deliver the bands upon the bale; substantially as described.

2. The combination of a press-case having passages intersecting each other at substantially right angles, means for pressing the material to form bales in said passages alternately, partitions with suitable stops or retainers, and strips to release them; substantially as described.

3. The combination with a plunger, of a pivoted baling-case, having intersecting passages at substantially right angles and provided with scaffolds or receptacles for the loose material; substantially as described.

4. A pivoted press-case having intersecting passages at substantially right angles in combination with a plunger and means for operating the same to form bales alternately in the intersecting passages and a connecting device between the plunger and the pivoted press-case whereby the intersecting passages are alternately brought in line with the plunger; substantially as described.

5. In a baling-press the combination of centrally-pivoted chamber A, having transversely-arranged openings, with partitions F and suitable retainers at the transverse receiving sides and suitable stops or retainers at the transverse discharge sides of said chamber A, with means for forcing the material to be baled through said chamber in transverse directions for the purpose set forth.

6. In a baling-press the combination with the reciprocating traverser and partitions F with the pivoted central turn-chamber A having stops or retainers at its four sides and transverse discharge-openings as and for the purpose set forth.

679,733. **HOSE-NOZZLE.** CHARLES N. EDGELL, Gardner, Mass. Filed Nov. 14, 1900. Serial No. 36,481. (No model.)

Claim.—1. A hose-nozzle having an efflux-tube presenting at its inner end a conical bore, intermediate its length a cylindrical bore, and at its discharge end a smaller short cylindrical bore, the inner end of the efflux-tube projecting into the interior of the nozzle and being of smaller diameter than the nozzle whereby an annular chamber is formed around said efflux-tube.



2. A hose-nozzle of substantially cylindrical form having at and within its discharge end an efflux-tube having a conical bore projecting into the mouth of the nozzle, the inner end of said efflux-tube being slightly smaller in diameter than the interior bore of the nozzle, whereby an annular chamber is formed around said efflux-tube.

3. A hose-nozzle of substantially cylindrical form having at and within its discharge end an efflux-tube having a conical bore, said tube presenting at its inner end an annular sharpened edge situated a slight distance from the interior of the bore, whereby an annular space is left between the efflux-tube and the interior bore of the nozzle.

4. A hose-nozzle of substantially cylindrical form having at and within its discharge end an efflux-tube presenting a converging bore, the inner end of the efflux-tube projecting into the end of the nozzle and being of smaller diameter than the interior bore thereof and situated a slight distance from the interior bore of the nozzle.

5. A hose-nozzle having in its discharge end an efflux-tube having a conical bore projecting into the mouth of the nozzle, the inner end of said efflux-tube being slightly smaller in diameter than the interior bore of the nozzle, whereby an annular chamber is formed around said efflux-tube, and having intermediate its length a cylindrical bore, and at its discharge end a smaller cylindrical bore.

6. A hose-nozzle having in its discharge end an efflux-tube having a conical bore projecting into the mouth of the nozzle, the inner end of said efflux-tube being slightly smaller in diameter than the interior bore of the nozzle, whereby an annular chamber is formed around said efflux-tube, and having a cylindrical bore intermediate its length, a smaller cylindrical bore at its discharge end, and an annular groove or recess at the inner end of the smaller cylindrical bore.

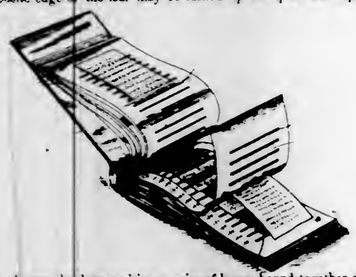
7. A hose-nozzle having in its discharge end a conical efflux-tube having a conical bore, the inner end of said efflux-tube being slightly smaller in diameter than the interior bore of the nozzle whereby an annular chamber is formed between the efflux-tube and the interior bore of the nozzle which is contracted near the edge of said efflux-tube and enlarged toward the end of the nozzle.

8. A hose-nozzle having in its discharge end an efflux-tube, forming with said nozzle an air-chamber, the entrance thereto being of less transverse area than said chamber.

679,734. **INDEX SCRAP-BOOK AND LEAVES THEREFOR.** CHARLES C. ELY, New York, N. Y. Filed Sept. 21, 1900. Serial No. 30,726. (No model.)

Claim.—1. A scrap-book comprising a series of leaves, each leaf comprising a gummed sheet of paper having a series of slots, each slot

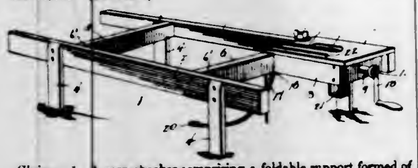
terminating within a defined margin and parallel with one edge of the leaf, and means for securing all of the leaves together at such edge, whereby the opposite edge of the leaf may be turned up to expose the clipping.



2. A scrap-book comprising a series of leaves bound together at one end, each leaf comprising a gummed sheet of paper having a series of parallel slots terminating within a defined margin, said slots being parallel to the binding of the book, whereby the leaf may be turned up at the bottom to expose the clipping.

3. A scrap-book comprising a series of leaves bound together at one end, each leaf comprising a gummed sheet of paper having a series of parallel slots terminating within a defined margin, said slots extending parallel to the binding of the book, whereby a series of gummed strips are formed extending across the page and suitable index characters placed on the margin of each leaf, said index characters being placed opposite the gummed strips.

679,735. **COMBINED CORN-HUSKING BENCH AND FODDER-BINDER.** JOHN EHAM, Ottawa, Ohio. Filed Nov. 14, 1900. Serial No. 36,474. (No model.)



Claim.—1. A corn-shocker comprising a foldable support formed of parallel bars and cross-bars hinged to and extending between said parallel bars, an inclosing non-folding frame carried by one of said parallel bars, a rotating spindle carried by said frame, a compressing-cord having one end secured to said frame and having its other end adapted to be removably secured to said spindle, and means for securing said table or support to said frame in an operative position.

2. A corn-shocker comprising a foldable support formed of parallel bars and cross-bars hinged to and extending between said parallel bars, a non-folding frame carried by one of said parallel bars, a top, having an opening, secured to the upper portion of said frame, a spindle mounted within said frame, a removable handle therefor, a hook or pin carried by said spindle, a compressing-cord having one end secured to said frame below the top or cover and having its free end provided with a ring to engage said spindle-hook, said cord extending through said opening, a twine-box located below said frame, and a hook-and-eye connection between said frame and one of the cross-bars for securing said table or support to said frame in an operative position.

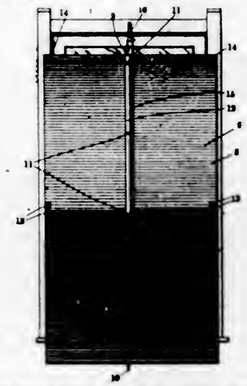
679,736. **WINDOW-SHADE.** GEORGE M. FRAMPTON, Pendleton, Ind. Filed May 17, 1900. Serial No. 16,992. (No model.)

Claim.—1. A window-shade consisting of a length of flexible material, a strip secured at one end to one end of said shade, and means carried by the opposite end of said shade for engaging said strip at various points in its length.

2. A window-shade consisting of a length of flexible material, a flexible strip secured at one end to one end of said shade, a series of eyelets carried by said strip, and a hook carried by the opposite end of said shade and adapted to enter any one of said eyelets.

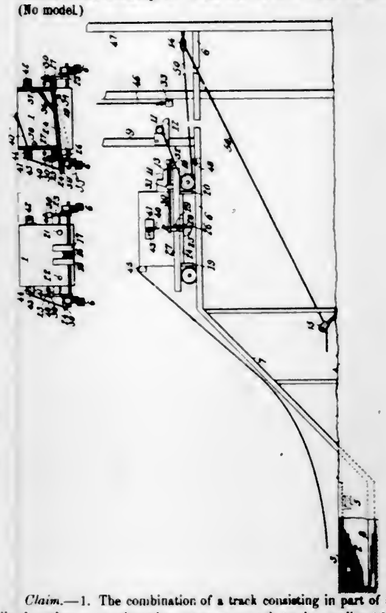
3. A window-shade having two pairs of adjacent and coöperating eyelets mounted therein on a line intermediate of its length, and a pair of pins projecting from said shade, each of said pins being adapted to receive one pair of said eyelets and thus project through the shade.

4. A window-shade consisting of a length of flexible material, a flexible strip secured to one end of said shade, means carried by the opposite end of said shade to engage said strip, two pairs of eyelets formed in said shade on a line intermediate of its length, and a pair of pins projecting from said shade and adapted to enter said eyelets.



5. An adjustable support for window-shades, consisting of a frame carrying the support 17, a pivoted dog 18 arranged to coöperate with said support, arm 20 carried by said dog and overlapping the face of said frame, and provided with an inclined edge 22 between which and the frame a cord may be drawn so as to swing the dog, substantially as and for the purpose set forth.

679,737. **MACHINE FOR HANDLING GRAIN.** WILLIAM GALBREATH, Yates township, Ill. Filed Mar. 16, 1901. Serial No. 51,481. (No model.)



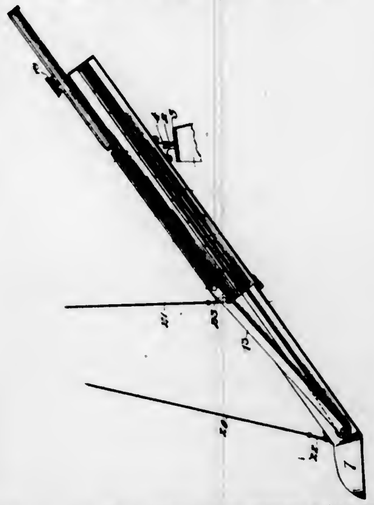
Claim.—1. The combination of a track consisting in part of an inclined section, a car adapted to move upon such track, a pulley 16 upon the end of the car, brackets 13 upon the end of the car, brackets 12 fixed upon each side of the track, a horizontal bar 11 adapted to rest upon the brackets 12 or brackets 13, a rope attached to said bar 11 with deflecting-pulleys 14 and 15 substantially as described and for the purposes specified.

2. A car adapted to contain grain and to be drawn upon a track, the bottom of said car supported at one side by a removable rod 34, and at the other upon the shoulder of a pivoted latch 25, a spring-actuated dumping-rod 30, in combination with a dumping-bar 33, substantially as described and for the purposes specified.

3. In a car adapted to move upon a track, a removable bottom as described in combination with a removable rod 34 adapted to insert in holes in the end of the car, a pivoted latch 25, dumping-rod 30 and spring 32, a dumping-bar 33 all in combination with pulley-blocks 41 and 42 and a rope 40 attached to one side of the removable bottom of the car, substantially as described and for the purposes specified.

4. In combination with a track having an inclined section connecting horizontal sections in different vertical planes and a car adapted to receive grain from a loaded wagon, a removable bottom for said car, a removable supporting-rod 34, a pivoted latch 25, a dumping-rod 30 with a helical spring 32, a suspended dumping-bar 33, pulley-blocks 41 and 42, pulley-block 45 and rope 40 all substantially as described and in combination with brackets 13 upon said car, and brackets 12 and 12 fixed at the sides of the track, a pulley 16 upon the end of said car a bar 11 with the rope 50 and deflecting-pulleys 14 and 15 substantially as described and for the purposes specified.

679,738. **DREDGING APPARATUS.** JOSHUA L. GARWOOD, Butte, Mont. Filed Feb. 5, 1901. Serial No. 46,094. (No model.)



Claim.—1. A dredge comprising a main conductor-section mounted to swing in vertical and horizontal planes, a sliding section adapted to telescope therein, said sections adapted to serve as conveyers through which the load is adapted to discharge by gravity when the dredge is raised, a shovel carried by the sliding section, means for guiding and limiting the outward movement of the sliding section, and means mounted upon the fixed section for projecting said sliding section, substantially as described.

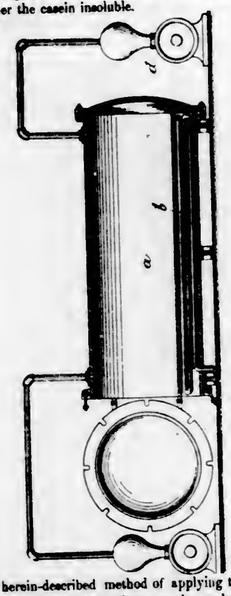
2. In a dredge, the combination of a support, a relatively fixed conductor-section mounted to swing in vertical and horizontal planes upon said support, a sliding section adapted to telescope therein, said conductor-sections serving as conveyers for the discharge of the load by gravity therethrough when the dredge is raised, a shovel carried by the sliding section, guide and brace bars slidably connected to the fixed conductor-section and also connected to the sliding conductor-section to guide and brace and limit the outward movement of the latter, means for raising and lowering the dredge, a cylinder mounted upon the fixed section, a piston in said cylinder, a cross-head sliding in guides on the fixed conductor-section and connected to the piston-rod, and connecting-rods between said cross-head and the sliding conductor-section, substantially as described.

679,739. **PROCESS OF FIREPROOFING WOOD.** JOSEPH F. GEISLER, New York, N. Y., assignor to the American Wood Fireproofing Company, same place. Filed Feb. 12, 1900. Serial No. 5,084. (Specimens.)

Claim.—1. The herein-described method of sealing into the pores of fibrous material substances with which such material is impregnated, which consists in introducing casein into such material, and then rendering the casein insoluble.

2. The herein-described method of sealing into the pores of fibrous material substances with which such material is impregnated, which consists in introducing casein into such material, and then applying a gaseous reagent to render the casein insoluble.

3. The herein-described method of sealing into the pores of fibrous material substances with which such material is impregnated, which consists in introducing casein into such material, and then applying formaldehyde to render the casein insoluble.



4. The herein-described method of applying to fibrous material a water repellent, which consists in impregnating such material with a solution containing a soluble soap, and then liberating the fatty acid of the soap by the action of an acid.

5. The herein-described method of applying to fibrous material a water-repellent, which consists in impregnating such material with a solution containing a soluble soap, and then liberating the fatty acid of the soap by the action of a gas having an acid reaction.

6. The herein-described method of applying to fibrous material a water-repellent, which consists in impregnating such material with a solution containing a soluble soap, and then liberating the fatty acid of the soap by the action of carbonic-acid gas.

7. The herein-described process of fireproofing wood and other fibrous substances, which consists in impregnating such substance with a fireproofing material and with casein, and then rendering the casein insoluble.

8. The herein-described process of fireproofing wood and other fibrous substances, which consists in impregnating such substance with a fireproofing material, with an oil, and with casein, and then rendering the casein insoluble.

9. The herein-described process of fireproofing wood and other fibrous substances, which consists in impregnating wood with a fireproofing material, with casein, and with a soluble soap, and then rendering the casein insoluble and liberating the fatty acid of the soap.

10. The herein-described process of fireproofing wood and other fibrous substances, which consists in impregnating wood with a fireproofing material and with a soluble soap, and then liberating the fatty acid of the soap.

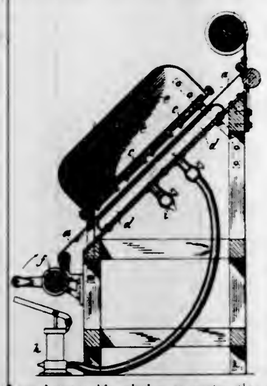
11. The herein-described process of fireproofing wood and other fibrous substances, which consists in impregnating wood with a solution containing ammonium salts and casein, and then rendering the casein insoluble.

12. The herein-described process of fireproofing wood and other fibrous substances, which consists in impregnating wood with a solution containing ammonium and sodium sulfate, ammonium and sodium phosphate, and casein, and then rendering the casein insoluble.

13. The herein-described process of introducing casein into the pores of wood and other fibrous substances, and fixing the same therein, which consists in first neutralizing possible acidity of the substance treated with a gas or vapor having an alkaline reaction, applying a solution containing casein, and then rendering the casein insoluble.

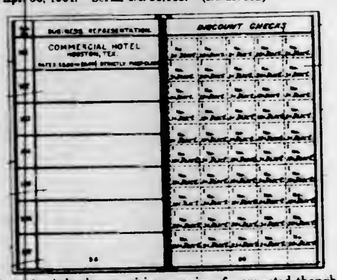
14. The herein-described process of fireproofing wood and other fibrous substances, which consists in first neutralizing possible acidity of the substance treated with a gas or vapor having an alkaline reaction, then impregnating such substance with a fireproofing material and with casein, and then rendering the casein insoluble.

679,740. PHOTOGRAPHIC-PRINTING APPARATUS. GEORG GERLACH, Berlin, Germany. Filed Jan. 4, 1901. Serial No. 42,058. (No model.)



Claim.—In a photographic-printing apparatus, the combination of a fluid-chamber having flexible walls, a holder for the negatives located in front of said chamber, means for conducting a strip of material between the chamber and the holder, a source of light, means for inflating and deflating said chamber and means for shifting the strip of material.

679,741. TRADE-BOOK. AMOS A. GLIDDON, Fort Worth, Tex. Filed Apr. 30, 1901. Serial No. 58,183. (No model.)



Claim.—1. A book comprising a series of connected though separable discount-checks of different values, a list of names of business-houses with the designated rate of discount allowed by each house, and a separate series of advertisements corresponding to the list of names.

2. A book comprising a page made up of a series of connected though separable discount-checks each having the same designating-number but possessed of different discount values, a page or pages containing a list of names of business-houses, the rate of discount allowed by each, and their advertisement-number, and a separate page or pages containing the advertisements of the aforesaid business-houses arranged in order to correspond with the number in the list.

3. A book comprising a page made up of a series of connected though separable discount-checks each having two numbers, and a discount value, the numbers being uniform and designating, respectively, the number of the edition to which the book belongs—and the number of the book itself, and the discount-checks varying in amounts, a page or pages containing a list of names of business-houses, the rate of discount allowed by each and their advertisement-number, and a separate page or pages containing the advertisements of the aforesaid business-houses arranged in order to correspond with the number in the list.

4. A book comprising a page made up of a series of connected though separable discount-checks each having two numbers, and a discount value, the numbers being uniform and designating, respectively, the number of the edition to which the book belongs—and the number of the book itself, and the discount-checks varying in amounts, a page or pages containing a list of names of business-houses, the rate of discount allowed by each and their advertisement-number, and a separate page or pages containing the advertisements of the aforesaid business-houses arranged in order to correspond with the number in the list, and a contract as an integral part of the book, indicating the time limit within which the discount-checks must be used.

5. A book comprising a page made up of a series of connected though separable discount-checks each having two numbers, and a discount value, the numbers being uniform and designating, respectively, the number of the edition to which the book belongs—and the number of the book itself, and the discount values of the checks varying in amounts, a page or pages containing a list of names of business-houses, the rate of discount allowed by each and their advertisement-number, a separate page or pages containing the advertisements of the aforesaid business-houses arranged in order to correspond with the number in the list, and a contract as an integral part of the book, indicating the time limit within which the discount-checks must be used, the front cover of the book to bear the name of the owner, the number of the book, and the month issued.

679,742. DETACHABLE CAN-HOLDER. WILFRED H. GODDARD, Chelsea, Mass. Filed Dec. 14, 1900. Serial No. 39,882. (No model.)



Claim.—1. A can-holder consisting of one piece of wire bent to form a loop to embrace the body of the can, a loop to embrace the neck of the can and means to cause the loop embracing the neck of the can to contract and fit said neck snugly.

2. A can-holder consisting of wire bent and joined to present a closed loop to embrace the body of a can, and an open loop to surround the neck of the can, and a device to contract the open loop surrounding the neck of the can to embrace and hold said neck and retain the holder in position on the body of the can.

3. A can-holder consisting of a wire bent to constitute a holder presenting at one end a closed loop to embrace the body of the can, and at the other end an open loop to surround the neck of the can, portions of said wire connecting said open and closed loops, and a movable device embracing the wire between the open and the closed loop and slidable on said portions toward the open loop to cause it to embrace the neck of a can closely.

4. The combination with a can having a body and neck varying in diameter, of a can-holder composed of wire having a closed loop to embrace the body of the can, a handle part, and a second normally open loop at the upper end thereof, and a device embracing the handle part to close the loop at the upper end of the holder snugly about the neck of the can

679,743. MOLD FOR MAKING CHILLED ROLLS. FRANK GORMAN, Mount Oliver, Pa. Filed Mar. 14, 1901. Serial No. 51,144. (No model.)

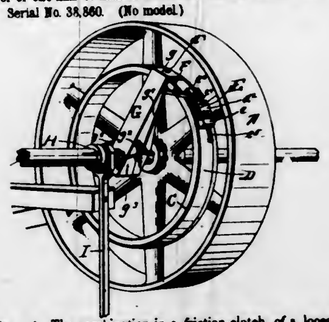


Claim.—1. As a new and improved article of manufacture, a chill-mold consisting of an external tubular casing and an internal tubular removable mold-section, having an interposed water-circulating space, said removable mold-section being provided with an internal roughened or serrated surface adapted to serve as a support for the external surface or shell of the casting, substantially as described.

2. A chill-mold comprising a casing and an internal removable mold-section having an interposed water-circulating space or jacket, said mold-section being provided with a continuous internal roughened surface formed by minute pits and projections, and supply and exhaust pipes communicating, respectively, with the bottom and top of said water-circulating space so as to cause the upward flow of a current of water supplied thereto, substantially as described.

3. A chill-mold comprising an outer inclosing casing and an inner removable mold section, said mold-section being provided upon its exterior with vertical grooves terminating adjacent to the ends thereof and intersected by annular transverse grooves, said grooves forming a water-circulating space or jacket between the casing and mold-section, and supply and exhaust pipes connected to the casing and communicating with said chamber, substantially as described.

679,744. CLUTCH. GEORGE R. GOUGHNOUR, Middlebranch, Ohio, assignor of one-half to Ezekiel Davidson, Canton, Ohio. Filed Dec. 6, 1900. Serial No. 38,860. (No model.)



Claim.—1. The combination in a friction-clutch, of a loose pulley provided with a projecting cylindrical flange, with a metallic gripping-band embracing the outer surface of the flange and carried by the driving member, an adjustable coupling-block carried on the ends of the band, and means for expanding and contracting said band, substantially as described and for the purpose set forth.

2. The combination in a friction-clutch, of a loose pulley mounted upon a shaft and provided with a projecting cylindrical flange, with a metallic gripping-band extending around the outer surface of the flange, and carried by the driving member, an adjustable coupling-block carried on the ends of the band, an operating-lever mounted on the coupling-block, and means for operating the same, substantially as described and for the purpose set forth.

3. A friction-clutch consisting of a loose pulley mounted upon a shaft and provided with a projecting cylindrical flange, a metallic gripping-band extending around substantially the entire outer surface of said flange, an adjusting coupling-block carried upon and uniting the ends of the band, an operating-lever pivotally mounted in one end of the coupling-block, and engaging one end of the band, a driving-arm keyed to the shaft and engaging the gripping-band, a sliding collar mounted upon the shaft, a hand-lever engaging the collar, and a linked connection between the collar and the operating-lever, substantially as described and for the purpose set forth.

679,745. SCARF. SPENCER M. GRIFFITH, Philadelphia, Pa., assignor of one-half to Charles Pierson, same place. Filed Mar. 9, 1901. Serial No. 50,444. (No model.)



Claim.—1. An improved scarf of the character described, provided with end sections and a central portion projecting on each side beyond the edges of the portions of the end sections contiguous thereto.

2. An improved scarf of the character described, provided with end sections and a central portion projecting on each side beyond the edges of the portions of the end sections contiguous thereto, the central portion being provided with oblique angular corners.

3. An improved scarf of the character described, provided with end sections and a central portion projecting on each side beyond the edges of the end sections, one end section having one portion thereof of less width than the other end section.

679,746. BUILDING CONSTRUCTION. WILLIAM H. GRUBBY, Chelsea, Mass. Filed Apr. 8, 1901. Serial No. 54,821. (No model.)

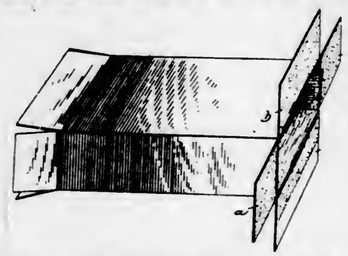


Claim.—1. A partition or wall consisting of two stacks of tiles, the adjacent faces of which are provided with projecting ribs extending from top to bottom of the tiles, and having enlarged ends, the tiles of each stack having their ends formed at an acute angle to their faces, and a cement bond interposed between said two stacks of tiles which embraces said projecting ribs, and which when hardened locks the two stacks of tiles together, substantially as described.

2. The partition or wall herein described consisting of two stacks of tiles having on their adjacent faces projecting ribs which extend from top to bottom of the tiles, and formed with enlarged ends, there being such a rib at each end of each tile formed with a flat side at an acute angle to the face, and a cement bond interposed between said two stacks of tiles which embraces said projecting ribs, and when hardened, locks the tiles of each stack together and also locks the two stacks of tiles together, substantially as described.

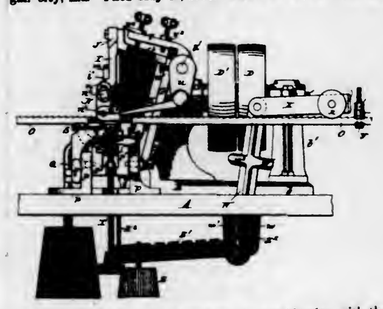
3. A tile consisting of a body portion having upon one side several projecting ribs, and formed with its ends at an acute angle to its face, substantially as described.

679,747. BOX OR PACKAGE. GILBERT HESS and JESSE L. CLARK, Ashland, Ohio. Filed Apr. 10, 1901. Serial No. 55,161. (No model.)



Claim.—A waterproof box having overlapping end flaps, said box having its inner wall coated with paraffin and having the faces of the flaps including those which overlap upon the faces of the other flaps coated with paraffin so that there will be paraffin between the meeting faces of the flaps, one of said flaps having a portion free from paraffin, substantially as described.

679,748. SAW-FILING MACHINE. JACOB E. HILLSTROM, Michigan City, Ind. Filed May 11, 1901. Serial No. 59,758. (No model.)



Claim.—1. In a saw-filing machine, the combination with the stationary and movable jaws of the vise, of a pivoted lever carrying a weight

and having a handle, and a dog pivoted to the lever and engaging the movable jaw of the vise.

2. In a saw-filing machine, the combination of the stationary and movable jaws of the vise, of a pivoted lever, a weight carried by the lever, connections between the lever and the movable jaw, a handle and a stop arranged beneath the weighted end of the lever.

3. In a saw-filing machine, the combination of a vise for holding the saw, a feed-pawl, a vertically-moving frame to which the file is attached, and connections between this frame and the feed-pawl whereby the latter is operated.

4. The combination of the vertically-moving frame to which the file is attached, the feed-pawl, the rock-shaft to which it is connected, and an arm projecting from the rock-shaft carrying devices against which the frame bears when moving upwardly to withdraw the file from the saw.

5. The combination of the vertically-moving frame to which the file is attached, the feed-pawl, the rock-shaft to which it is connected, the arm or lever projecting from the rock-shaft, and set-screws carried by this arm against which the vertically-moving frame bears when moving upwardly to cause the pawl to feed the saw.

6. The combination of the vertically-moving frame to which the file is attached, means for moving the frame upwardly, an adjustable stop for limiting the downward movement of the frame, and a weight attached to the frame for moving it downward.

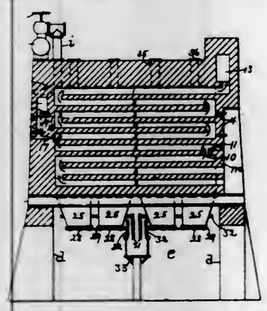
7. The combination of the vertically-moving frame, a plate carried thereby to which the file is attached, a driving-shaft, a cam thereon engaging directly the vertically-moving frame to move it upward, and a crank-arm on said shaft extending into a slot in the plate to reciprocate it in guides on the vertically-moving frame.

8. The combination of the vertically-moving frame, the plate carried thereby to which the file is attached, a driving-shaft, a cam thereon engaging the vertically-moving frame to move it upward, a weight for moving the frame downward, an adjustable stop for limiting the downward movement of the frame, and a crank-arm on the driving-shaft engaging a slotted portion of the file-carrying plate.

9. The combination in a saw-filing machine, of the driving-shaft and the fast and loose pulleys, of a belt-shifter comprising a shifting-lever having arms engaging the belt, a rod pivoted to the upper end thereof, and a wheel on the end of the rod adapted to bear on the saw for the purpose specified.

10. The combination in a saw-filing machine, of the driving-shaft, the fast and loose pulleys, the belt-shifting lever having arms for engaging the belt, a rod pivotally connected with the upper end of the lever, a wooden wheel carried by the arm and adapted to rest upon and supply oil to the saw, and a stop carried by the saw for operating the belt-shifter.

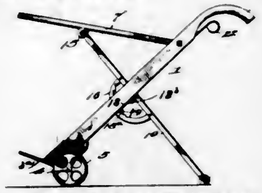
679,749. **COKE-OVEN.** LOUIS J. HIRT, Brookline, Mass. Filed Mar. 12, 1901. Serial No. 50,773. (No model.)



Claim.—In a coking-oven, the combination with a vertically-arranged oven provided with vertically-arranged partition-walls separating the said oven into a series of chambers which communicate at their upper ends with a common passage extended across the tops of said chambers, a fuel-inlet for said chambers, and a coke-outlet for said chambers at their lower ends, substantially horizontal superimposed flues in the opposite side walls of said oven connected at their opposite ends to form a continuous passage, which communicates with the atmosphere at the lower end of said passage, a gas-inlet communicating with the said flues at an intermediate point and with the gas-outlet for said oven, and means to control the communication of said gas-inlet with said gas-outlet, substantially as described.

679,750. **TRUCK.** CHARLES HOFFMANN, Sandusky, Ohio. Filed Jan. 16, 1901. Serial No. 43,535. (No model.)

Claim.—1. A hand-truck comprising a truck-frame; a rear cross-bar connecting the sides of said frame, between the handles, a cross-bar located at the forward end of the frame providing a platform-support, a platform pivotally secured to the rear cross-bar and adapted to be supported on the forward cross-bar; a rocking frame pivotally secured between the sides of the truck-frame and adapted to elevate said platform and support it from the ground and means for securing the rocking frame and the platform at desired elevation.

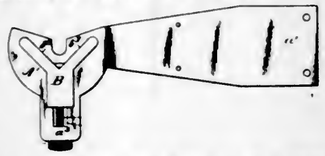


2. The combination with a frame of a hand-truck; of a cross-bar connecting the sides of said frame between the handles, a platform pivotally secured to said cross-bar, a rocking frame pivotally secured between the sides of the truck-frame; rollers mounted between the ends of said rocking frame; and means for securing the rocking frame and the platform at desired elevation.

3. The combination with a frame of a hand-truck; of a cross-bar secured to the sides of the frame between the handles; a platform pivotally secured to said cross-bar; a second cross-bar arranged parallel to the first-mentioned cross-bar; a rocking frame pivotally supported on said second cross-bar, rollers mounted between the ends of said rocking frame; and means for securing said rocking frame and the platform at desired elevation.

4. The combination with the frame of a hand-truck; of a platform pivotally supported between the sides of the frame; a rocking frame pivotally supported within the truck-frame below the platform, and having its ends converged; rollers mounted between the convergent ends of the rocking frame; and means for securing the rocking frame in its adjusted position comprising toothed segments depending from the under sides of the rocking frame; brackets having yokes secured to the sides of the truck-frame, and a cross-bar mounted in the yokes and adapted to engage the toothed segments.

679,751. **CLAMP FOR HOLDING BUTTONS.** JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Co., of New York. Filed Nov. 8, 1899. Serial No. 736,227. (No model.)

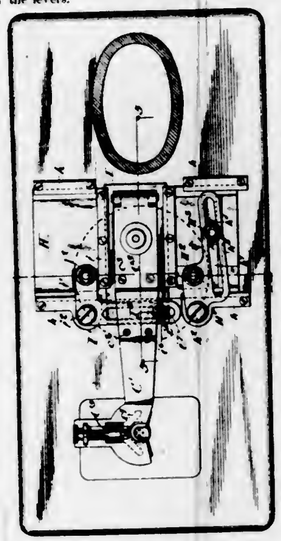


Claim.—1. In a clamp for holding buttons, the combination of a stiff upper plate having an opening therein, a resilient lower plate, each of said plates having an open-ended slot and which slots register, a centering-piece intermediate of said upper and lower plates having two oppositely-inclined surfaces forming bearings for a button, a shank provided for the centering-piece which projects through the opening in the upper plate, and a screw for positively moving and controlling the position of said centering-piece.

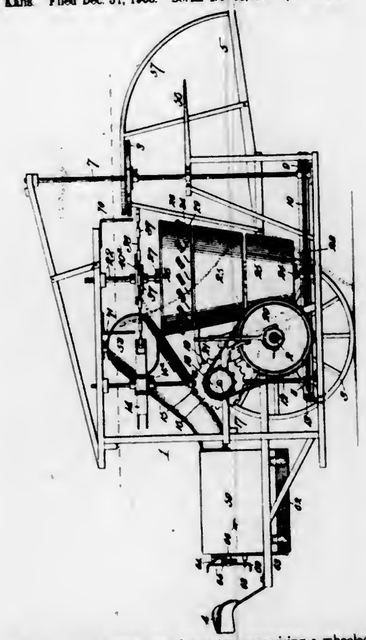
2. In a clamp for holding buttons, the combination of a stiff upper plate having an opening therein, a resilient lower plate, each of said plates having an open-ended slot and which slots register, a centering-piece intermediate of said upper and lower plates and having two oppositely-inclined surfaces forming bearings for a button, a shank provided for the centering-piece which projects through the opening in the upper plate, a screw for positively moving and controlling the position of said centering-piece, a scale provided on one of said plates, and an index carried by the shank.

679,752. **MACHINE FOR SEWING BUTTONS TO FABRICS.** JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Company, New York, N. Y. Filed Feb. 14, 1900. Serial No. 5,152. (No model.)

Claim.—In a button-sewing machine, the combination with sewing mechanism comprising a reciprocating needle-bar, of a button-holder and mechanism for producing a vibratory movement of the button-holder relatively to the needle in two directions at an angle to each other, said mechanism comprising a rotatable cam having an active and an inactive portion, pivoted levers each having one arm slotted, a pair of plates both of which move the button-holder and with which the slotted arms are connected, one slotted arm with one plate and the other slotted arm with the other plate, and followers operated by said cam and connected with the other arms of the levers.



679,753. **BROOM-CORN HARVESTER.** MARION INGELS, Leanna, Kans. Filed Dec. 31, 1900. Serial No. 41,728. (No model.)



Claim.—1. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby, around which the corn is adapted to spirally wind, a corn-gripping device to grip the corn and draw the stalk tightly around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, and means for effecting the disengagement of the head or severed portion from said devices, substantially as described.

2. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby, around which the corn is adapted to spirally wind, a corn-gripping device to grip the corn and draw the stalk tightly around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, a rotating reel to disengage the severed head from the gripping device, substantially as described.

3. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby, around which the corn is adapted to spirally wind, a corn-gripping device to grip the corn and draw the stalk tightly around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, a rotating reel to disengage the severed head from the gripping device, a receptacle, and a downwardly-inclined chute communicating with said receptacle and having its upper end or mouth arranged to receive the heads when disengaged by the reel, substantially as described.

4. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby, around which the corn is adapted to spirally wind, a corn-gripping device to grip the corn and draw the stalk tightly around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, a rotating reel to disengage the severed head from the gripping device, a downwardly-inclined chute to receive the heads from the reel, a bin to receive from the chute, and provided with a hinged bottom, a handle, and connections between said handle and the hinged bottom, whereby the latter can be readily opened and closed, substantially as described.

5. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby, around which the corn is adapted to spirally wind, a corn-gripping device to grip the corn and draw the stalk with a yielding pressure around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, and means for effecting the disengagement of the head or severed portion from said devices, substantially as described.

6. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby around which the corn is adapted to spirally wind, a rotating corn-gripping device above the frustum, a spring-arm supporting the same and adapted to operate in a vertical plane, said gripping device being adapted to grip the corn and draw the stalk tightly around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, and means for effecting the disengagement of the head or severed portion from said devices, substantially as described.

7. A broom-corn harvester, comprising a wheeled frame, an inverted frustum carried thereby around which the corn is adapted to spirally wind, a rotating corn-gripping device above the frustum, a spring-arm supporting the same and adapted to operate in a vertical plane, said gripping device being adapted to grip the corn and draw the stalk tightly around said frustum, devices for effecting the severance of the head of the corn from the stalk by the pressure or pull upon the latter, means for effecting the disengagement of the head or severed portion from said devices, and a disk providing an abutment for said springs to limit the upward movement of the gripping device, substantially as described.

8. A broom-corn harvester, comprising a wheeled frame an inverted frustum carried thereby around which the corn is adapted to spirally wind, a rotating cutting device, a rotating gripping device above the frustum and said cutting device, a spring-arm holding said gripping device yieldingly elevated, and a reel to disengage the head from the gripping device after it has been severed by the cutting device, substantially as described.

9. A broom-corn harvester, comprising a wheeled frame, a driven shaft, an inverted frustum thereon, and provided with a circular series of cutting devices, a corresponding series of corn-gripping devices above the frustum and mounted on said shaft and adapted to grip and wind the corn spirally on the frustum, and press it so heavily against the cutting devices that the latter effect the severance of the heads, and means to disengage the severed heads from said gripping devices, substantially as described.

10. A broom-corn harvester, comprising a wheeled frame, a driven shaft, an inverted frustum thereon, and provided with a circular series of cutting devices and a corresponding series of spring-advanced devices to cover the cutting devices, a corresponding series of corn-gripping devices above the frustum and mounted on said shaft and adapted to grip and wind the corn spirally on the frustum, and press it so heavily against the spring-advanced devices as to force the same to uncover and expose the cutting devices for action, and means to disengage the severed heads from the gripping devices, substantially as described.

11. A broom-corn harvester comprising a wheeled frame, a driven shaft thereon, a frustum upon said shaft, consisting of the loose lower section or sections, and the rigid upper section, cutting devices carried by

said upper section, spring-advanced devices normally covering said cutting devices from action, a series of rotating spring-elevated corn-gripping devices above the frustum and adapted to grip the corn and draw it spirally around the frustum and against said devices, so as to force the latter inward and expose the cutting devices for action, and means for disengaging the severed portion of the corn from said gripping devices, substantially as described.

12. A broom-corn harvester, comprising a wheeled frame, a rotating reel, a rotating gathering-wheel, guides to guide the corn to the latter, a rotating shaft between the reel and gathering-wheel, an inverted frustum upon the last-named shaft, and provided with a plurality of cutting devices, a plurality of gripping devices above the frustum and rotatable with the frustum-shaft, means for disengaging the severed heads from the gripping device, means for transferring motion from the axle to the operating mechanism, and means for throwing the latter in and out of gear with the axle, substantially as described.

13. In a broom-corn harvester, a drum, a plurality of rock-levers, a push-bar and a knife secured to the opposite ends of each rock-lever and projecting through the drum, and a spring secured to each rock-lever and normally holding the push-bar advanced beyond the cutting edge of the knife, substantially as described.

14. In a broom-corn harvester, a driven shaft, an arm carried thereby, a fork-hook secured to the outer end of the arm and adapted to engage a cornstalk, a lever carried by said arm and provided with arms adapted to bridge the fork-hook one in front and the other rearward of the tines thereof, a rotatable rod journaled in the fork-hook arm at a suitable point and provided with an arm engaging said lever, and means to operate said rod in one direction to cause the lever through the instrumentality of said arm to release the stalk confined in the fork-hook and leave the latter free or open to receive the next stalk in its path, substantially as described.

15. In a broom-corn harvester, a driven shaft, an arm carried thereby, a fork-hook secured to the outer end of the arm and adapted to engage a cornstalk, a lever carried by said arm and provided with arms adapted to bridge the fork-hook one in front and the other rearward of the tines thereof, a rotatable rod journaled in the fork-hook arm at a suitable point and provided with an arm engaging said lever, means to operate said rod in one direction to cause the lever through the instrumentality of said arm to release the stalk confined in the fork-hook and leave the latter free or open to receive the next stalk in its path, and means to return the lever to its original position so as to close the fork-hook and prevent the release of said next stalk until after its head has been detached, substantially as described.

16. In a broom-corn harvester, a driven shaft, an arm carried thereby, a fork-hook secured to the outer end of the arm and adapted to engage a cornstalk, a lever carried by said arm and provided with arms adapted to bridge the fork-hook one in front and the other rearward of the tines thereof, a rotatable rod journaled in the fork-hook arm at a suitable point and provided with an arm engaging said lever, means to operate said rod in one direction to cause the lever through the instrumentality of said arm to release the stalk confined in the fork-hook and leave the latter free or open to receive the next stalk in its path, means to return the lever to its original position so as to close the fork-hook and prevent the release of the said next stalk until after its head has been detached, and a reel to force the stalk and its head out of the fork-hook after the latter is severed from the former, substantially as described.

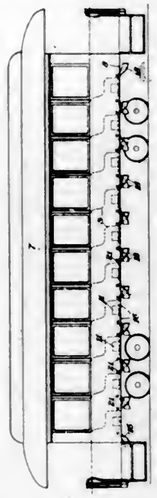
679,754. **CAR-VENTILATING APPARATUS.** CLARENCE O. JOHNSON, New York, N. Y. Filed Mar. 1, 1901. Serial No. 49,444. (No model.)

Claim.—1. A ventilating apparatus for cars, comprising air-boxes placed beneath the seats of the car, air-tubes connected with said boxes and passing through the bottom of the car and turning toward the opposite ends of the car and provided with air-funnels, and means for discharging the air from said boxes into the car, substantially as shown and described.

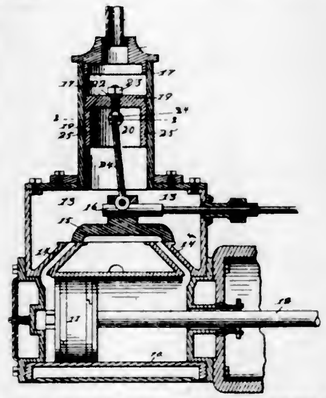
2. A ventilating apparatus for cars, comprising air-boxes placed beneath the seats of the car, air-tubes connected with said boxes and passing through the bottom of the car and turning toward the opposite ends of the car and provided with air-funnels, and means for discharging the air from said boxes into the car, consisting of adjustable shutters in one side thereof, substantially as shown and described.

3. A ventilating apparatus for cars, comprising air-boxes placed beneath the seats of the car, air-tubes connected with said boxes and passing through the bottom of the car and turning toward the opposite ends of the car and provided with air-funnels, and means for discharging the air from said boxes into the car, consisting of adjustable shutters in one side thereof, said boxes being also provided with transverse screens between the points where the air-tubes are connected therewith and said shutters, substantially as shown and described.

4. A ventilating apparatus for cars, comprising air-boxes placed beneath the seats of the car, air-tubes connected to said boxes and passing through the bottom of the car and directed toward the opposite ends of the car, said tubes being also provided with dampers which are located between the seats of the car, substantially as shown and described.



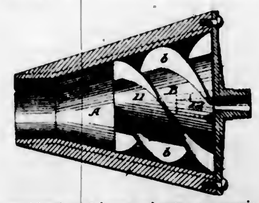
679,755. **BALANCED VALVE.** JOHN A. JOHNSON and ELMER O. HENDERSON, Okoboji, Iowa. Filed Apr. 2, 1900. Serial No. 11,075. (No model.)



Claim.—An improved balanced slide-valve, comprising in combination a steam-chest, a slide-valve in the steam-chest, a cylinder projecting from the steam-chest and communicating therewith, a hollow cylindrical piston capable of longitudinal movement within the cylinder, and having its end farthest from the steam-chest closed, a bolt adjustably secured in the central portion of the closed end of said piston and projecting toward the steam-chest, and a connecting-link pivotally attached to the slide-valve, and also pivotally attached to the said bolt within the cylindrical piston, whereby the position of the cylindrical piston in the cylinder may be adjusted, for the purposes stated.

679,756. **STEAM AND HOT-AIR FLUE-CLEANER.** WILLIAM B. KENNEDY and HENRY T. HOOPES, New Brighton, Pa. Filed May 23, 1901. Serial No. 61,588. (No model.)

Claim.—1. The combination of inner and outer concentric coniform shells having a space between them, the inner shell being shorter than the outer shell and arranged wholly within the latter, spirally-twisted webs in the space between the shells, said webs being rigidly connected to one shell and frictionally engaging the opposing surface of the other, and means to maintain such frictional engagement, substantially as set forth.



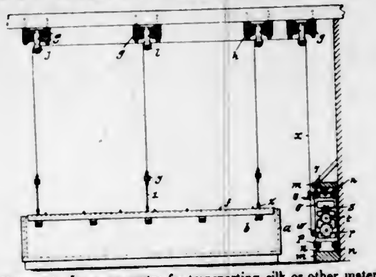
2. The combination of inner and outer concentric coniform shells having a space between them, the inner shell being shorter than the outer, spirally-twisted webs in the space between the shells, said webs being rigidly connected to one shell and frictionally engaging the opposing surface of the other, a spider bearing against the larger ends of both shells, and means for securing said spider to the outer shell, substantially as and for the purpose set forth.

3. The combination of inner and outer concentric coniform shells having a space between them, the inner shell being shorter than the outer, spirally-twisted webs in the space between the shells, said webs being rigidly connected to one shell and frictionally engaging the opposing surface of the other shell, a spider having a hollow hub and radiating arms, the latter engaging the larger ends of the two shells, means for securing the arms to the outer shell, a steam-jet nozzle projecting from the hub into the inner shell, and means for connecting a steam-supply pipe to said hub, substantially as set forth.

4. The combination of inner and outer concentric coniform shells, having a series of spiral passages between them open at both ends, means for discharging a jet of steam into the inner shell, and means for discharging sand in the form of a thin film or sheet in front of and adjacent to the outer open ends of the spiral passages, substantially as set forth.

5. In a flue-cleaner the combination of inner and outer concentric coniform shells having a series of spiral passages between them open at both ends, means for discharging a jet of steam into the inner shell, a sand-box detachably connected to said cleaner and having an elongated narrow discharge-opening to discharge the sand in the form of a thin film or sheet in front of and adjacent to the outer ends of said spiral passages, substantially as set forth.

679,757. **CONVEYER FOR DYE-HOUSES.** JACOB KNOTT, Paterson, N. J. Filed Nov. 30, 1900. Serial No. 38,236. (No model.)



Claim.—1. In an apparatus for transporting silk or other material being subjected to the dyeing or other similar process, the combination, with the rods from which the material is immediately suspended, of hangers having rails, said rails being adapted to sustain the rods, and means for raising and lowering said hangers, substantially as described.

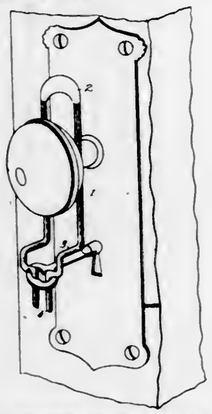
2. In an apparatus for transporting silk or other material being subjected to the dyeing or other similar process, the combination, with the rods from which the material is immediately suspended, of hangers having rails, said rails being adapted to sustain the rods, and means for raising and lowering said hangers, and means, also, for shifting said hangers in a substantially horizontal direction, substantially as described.

3. In an apparatus for transporting silk or other material being subjected to the dyeing or other similar process, the combination, with the rods from which the material is immediately suspended, of suitably-guided travelers, hangers having rails, said rails being adapted to sustain the rods and said hangers being suspended from said travelers, and means for moving the travelers, substantially as described.

4. In an apparatus for transporting silk or other material being subjected to the dyeing or other similar process, the combination, with the rods from which the material is immediately suspended, of suitably-guided travelers, a suitably-guided movable carriage, a drum journaled in said carriage, a rope or other flexible connection wound on said drum at one end and engaging said travelers, said rope being divided and an end being suspended from each traveler, and hangers carried by the suspended ends of said rope and sustaining said rods, substantially as described.

5. In an apparatus for transporting silk or other material being subjected to the dyeing or other similar process, the combination, with a series of vats and with the rods from which the material is immediately suspended in said vats, of pairs of guideways arranged above said vats, a traveler movable between the guideway of each pair of guideways, a pulley carried by each traveler, an antifriction-roller also carried by each traveler and engaging one of the guideways, a carriage guided for movement substantially parallel with said guideways, a drum journaled in said carriage, means for rotating said drum, a rope wound on said drum at one of its ends, the other end portion of said rope being divided and the divided portions being extended over said pulleys and suspended therefrom, hangers carried by said portions of the rope and sustaining said rods, and means for moving said carriage, substantially as described.

679,758. **KEY-KEEPER.** ALBERT B. LANG, St. Louis, Mo., assignor of one-half to Lewis A. Brown, same place. Filed Nov. 12, 1900. Serial No. 36,243. (No model.)



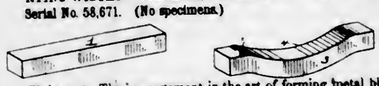
Claim.—1. A key-keeper adapted to be mounted over the shank of a door-knob, and consisting of the two arms 1 having the parallel extensions 3 and the projections 4 normally bearing against each other and adapted to engage with the ring of the key, substantially as specified.

2. A key-keeper, consisting of the arms 1 having their ends rigid with the retaining-casting 2 and having the parallel extensions 3, and the terminals 4 bearing against each other and being adapted to engage with the ring of a key, substantially as specified.

3. A key-keeper, consisting of a pair of vertical arms, each having a horizontal projection rigid therewith and a vertical extension integral with each of said horizontal projections and adapted to engage with the ring of the key, substantially as specified.

4. A key-keeper consisting of a pair of vertical arms rigid with a suitable reinforcing casting, horizontal projections rigid with said arms, and the vertical extensions 4 integral with said horizontal projections.

679,759. **METHOD OF FORMING PLATES OR BLANKS OF VARYING WIDTHS.** JOHN LANZ, Pittsburg, Pa. Filed May 3, 1901. Serial No. 58,671. (No specimens.)



Claim.—1. The improvement in the art of forming metal blanks of varying widths longitudinally, which consists in bending a heated metal billet or bloom at one or more points, then subjecting the same to pressure applied sidewise thereto in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce depressions or tapers in the sides of the blank and a corresponding protuberance, swell or taper in the edge thereof, and then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width or the contour of its edges.

2. The improvement in the art of forming metal blanks of varying widths longitudinally, which consists in bending a heated metal billet or bloom at one or more points, then subjecting the same to a rolling pressure applied one or more times sidewise to said billet or bloom in such a manner as to effect simultaneously varying degrees of side flow, the side flow being greatest at the point or points where the billet or bloom was bent, and thereby producing depressions or tapers in the sides of the blank and a corresponding protuberance, swell or taper in one edge thereof, and then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width and the contour of its edges.

3. The improvement in the art of forming metal articles of varying widths longitudinally, which consists in subjecting a heated metal billet or bloom to pressure applied sidewise to the same in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce depressions or tapers in the sides of the blank and corresponding protuberances, swells or tapers in the edge or edges thereof, then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end whereby the blank is elongated without materially changing its width or the contour of its edges, and then bending or pressing the edges of said plate at an angle to the body thereof.

4. The improvement in the art of forming metal articles of varying widths longitudinally, which consists in subjecting a heated billet or bloom to pressure applied sidewise to the same in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce depressions or tapers in the sides of the blank and corresponding protuberances, swells or tapers in the edge or edges thereof, then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width or the contour of its edges, shearing said plate to the desired size and contour, and then bending or pressing the longitudinal edges thereof at an angle to the body.

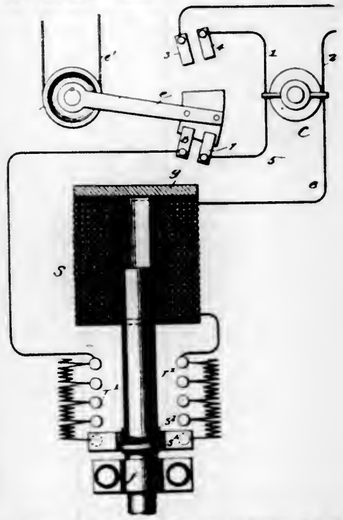
5. The improvement in the art of forming metal articles of varying widths longitudinally, which consists in bending a heated metal billet or bloom edgewise at one or more points, subjecting the same to pressure applied sidewise thereto in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, the side flow being greatest at the points where the billet or bloom was bent, and thereby producing depressions or tapers in the sides of the blank and a corresponding protuberance, swell or taper in bent convex portion of blank, then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end whereby the blank is elongated without materially changing its width or the contour of its edges, and then pressing or bending the longitudinal edges of said plate at an angle to the body thereof.

6. The improvement in the art of forming metal blanks of varying widths longitudinally, which consists in bending a heated metal billet or bloom at one or more points, then subjecting the same to pressure applied sidewise thereto in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce depressions or tapers in the sides of the blank and a corresponding protuberance, swell or taper in the edge thereof, pressing the same edgewise to give the desired edge contour thereto, and then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width or the contour of its edges.

7. The improvement in the art of forming metal blanks or articles of varying dimensions longitudinally, which consists in subjecting a heated bloom, billet or blank to pressure applied sidewise to the same in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce a depression or taper in a side of the blank and a corresponding protuberance, swell or taper in the free side or sides thereof, then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width or the contour of its edges, and then cutting or shearing said blank or plate to the desired size and contour.

8. The improvement in the art of forming metal blanks or articles of varying dimensions longitudinally, which consists in subjecting a heated bloom, billet or blank to pressure applied sidewise to the same in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce a depression or taper in a side of the blank and a corresponding protuberance, swell or taper in the free side or sides thereof, then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width or the contour of its edges, and then flanging or bending the said blank or plate to form the desired article.

679,760. **ELECTRIC-ELEVATOR CONTROLLER.** NILS O. LINDSTROM, New York, N. Y., assignor to Alonzo B. See and Walter L. Tyler, same place. Filed Apr. 15, 1901. Serial No. 55,816. (No model.)

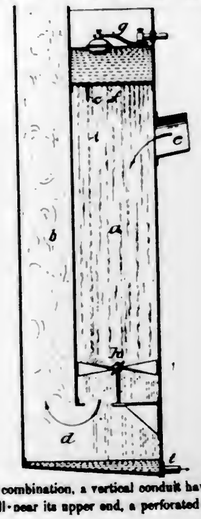


Claim.—1. In an electrically-actuated elevator, the combination of the car, the actuating-machine and its main circuit, a circuit across the brushes of the machine, and means for closing the latter circuit each time the main circuit is opened.

2. In an electrically-actuated elevator, the combination of the car, the actuating-machine and its main circuit, a circuit across the brushes of the machine, means for closing the latter circuit each time the main circuit is opened, a resistance in said circuit across the brushes, and means for automatically cutting said resistance out, for the purpose set forth.

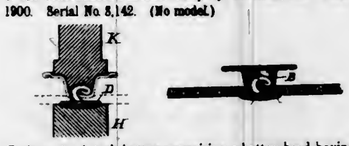
3. In an electrically-actuated elevator, the combination of the car, the actuating-machine and its main circuit, a circuit across the brushes of the machine, means for closing the latter circuit each time the main circuit is opened, a resistance and an electromagnet in said circuit across the brushes, said electromagnet being adapted to cut the resistance out upon an excessive flow of current.

679,761. **APPARATUS FOR PURIFYING GASES.** ALEXANDER L. LION, Paris, France. Filed Apr. 27, 1899. Serial No. 714,717. (No model.)



Claim.—In combination, a vertical conduit having an air or gas inlet in its side wall near its upper end, a perforated spraying-diaphragm located above said opening, means for supplying water above said diaphragm and a rotating fan located at the lower end of said conduit, substantially as described.

679,762. **TACK-BUTTON.** THOMAS LOWE, Boston, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Mar. 10, 1900. Serial No. 8,142. (No model.)



Claim.—1. A tack-button comprising a button-head having a base, and a tack or rivet having a pointed straight stem located eccentric of the tack-head, said stem being adapted to be passed through said base at one side of the center and be upset upon the upper side of the base, extending substantially across the upper surface thereof.

2. A tack-button comprising a button-head having an imperforate base, and a tack or rivet having a pointed straight stem located eccentric of the tack-head, said stem being adapted to be passed through said base at one side of the center and forming on said base a portion turned upon itself, and be upset upon the upper side of the base, extending substantially across said upper side.

3. A tack-button comprising a button-head having an imperforate base, and a tack or rivet having a pointed straight stem located eccentric of the tack-head, one side of the stem being inclined to form a stem of gradually-increasing thickness toward the head, said stem being adapted to be passed through said base at one side of the center and forming on said base a portion turned upon itself, and be upset upon the upper side of the base, extending substantially across said upper side.

4. A tack-button comprising a button-head having a depressed center with an imperforate base, and a tack or rivet having a pointed straight stem located eccentric of the tack-head, one side of the stem being inclined to form a stem of gradually-increasing thickness toward the head, said stem being adapted to be passed through said base at one side of the center and forming on said base a portion turned upon itself, and be upset upon the upper side of the base, extending substantially across said upper side.

5. The method of attaching a button-head to a garment or flap by means of a tack or rivet, which consists in placing an imperforate button-head on the upper side of the flap and a tack or rivet on the lower side, then forcing the tack through the flap and the imperforate base, forming on said base a portion turned upon itself within the button, and then upsetting the stem of the rivet on the upper side of the base, the stem extending substantially across the base, substantially as and for the purposes described.

679,763. **NECKTIE.** CHARLES H. LOWE, Milwaukee, Wis. Filed Aug. 11, 1900. Serial No. 26,567. (No model.)



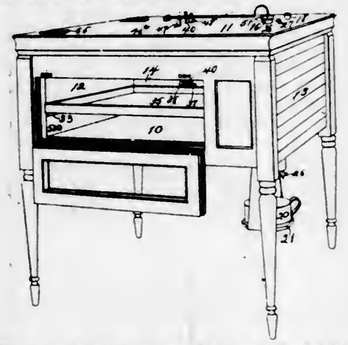
Claim.—1. In a necktie, the combination with the cloth covering of the tie; of the flat holding-plate, or shield 1, of comparatively stiff, though flexible material, having a concave upper edge and serving as backing for the tie, said holding-plate being formed with an aperture adapted to receive the head of an ordinary collar-button; and a second aperture adapted to receive the shank of the button, but of less size than the head thereof, said plate also having a slit connecting the apertures, and a notch formed in the edge of the first-mentioned aperture, with convergent sides leading to the slit, neither of said apertures being open to the side edges of the plate.

2. In a necktie, the holding-plate 1 formed of comparatively stiff heavy fabric, such as felt, and provided with apertures therein, located one above the other, the lower aperture being adapted to receive the head of an ordinary button, and the other being of less size than the head of the button, said plate being also provided with an opening communicating between said apertures of less width than the button-shank, but having sides adapted to yield sufficiently to permit the passage of the shank when subjected to pressure, neither of said apertures being open to the side edges of the plate, and said plate being adapted to permit the cloth of the tie to be stitched or glued thereto along its outer edges, and along the edges of said apertures.

3. In a necktie, a holding-plate of flexible material formed of compressed felt, provided with two apertures, one of which is adapted to receive the head of a collar-button and the other being of less diameter than the head of the button, and with a slit or passage communicating between said apertures, of less width than the diameter of the shank of the button, and cementitious material covering the sides of said slit or passage.

4. In a necktie, a holding-plate of flexible material with two apertures, one of which is adapted to receive the head of a collar-button, and the other being of less diameter than the head of the button, and with a slit or passage communicating between said apertures of less width than the diameter of the shank of the button, and a forming-plate secured at its side edges to the holding-plate with its central portion bulged outwardly along its upper edge.

679,764. **INCUBATOR.** JETHRO L. MACY, Des Moines, Iowa. Filed Oct. 16, 1899. Serial No. 733,843. (No model.)



Claim.—1. An incubator comprising a casing, the hot-air tank in the top of the casing, a flue vertically traversing the hot-air tank, a lamp in the lower end of the flue, a lever-damper located above the top of the flue and arranged to close said flue, a thermostat controlling said lever-damper, a pipe leading from the flue and discharging within the hot-air tank, a vent-pipe leading from the hot-air tank and discharging outside the casing, an annular water-tank having an inner shell of less height than the outer shell and the broad and relatively shallow moisture-pan fixed to the upper edge of the outer shell of the water-tank and open to the space between the shells of said water-tank and provided with moisture-vents in its edges, which moisture-pan is sealed to the bottom of the hot-air tank, the inner shell of the water-tank being spaced apart from the flue, whereby air may enter the flue and traverse the hot-air tank and be discharged through the top of the casing and air may enter the space between the flue and the inner shell of the water-tank and escape over the upper edge of said inner shell into the moisture-pan and thence through the egg-chamber of the casing to the atmosphere at the top of the casing and in so doing be heated by radiation from the flue and surcharged with moisture from the water-tank.

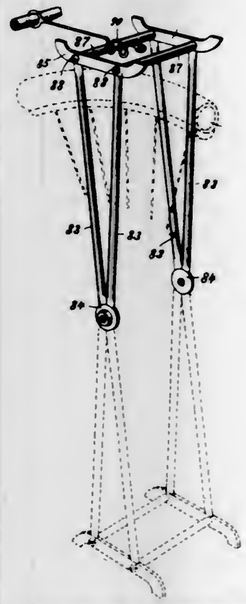
2. In an incubator, a hot-air tank, a flue traversing one end of the hot-air tank and fixed thereto, a pipe in the hot-air tank communicating at its initial end with the flue, extending forwardly from the flue, bent at right angles and extended lengthwise of the hot-air tank and then bent at right angles and extended rearwardly and terminating with an open end in the central portion of one end of the hot-air tank, and a vent-pipe leading from the hot-air tank adjacent the flue, in combination with a lamp in the flue, egg-trays in the chamber, and means for ventilating the egg-chamber.

3. In an incubator, a casing, a hot-air tank in the top of said casing, a flue vertically traversing one end of the hot-air tank and extending outside the casing, a damper arranged to close the upper end of said flue at times, a pipe located in the hot-air tank and communicating at its initial end with the flue, which pipe extends forwardly from the flue nearly to the front edge of the hot-air tank and is bent at right angles and extends along the front portion of said hot-air tank adjacent a doorway of said casing, and is again bent at right angles and extends rearwardly in the end portion of the hot-air tank opposite the flue and terminates with an open end in said tank, the vent-pipe leading from the hot-air tank at the rear of and adjacent the flue, a lamp in the lower end of the flue, egg-trays in the casing below the hot-air tank and means for ventilating the casing.

4. In an incubator, the hot-air tank, the broad and relatively shallow moisture-pan sealed to the bottom of the hot-air tank and provided with moisture-vents, the water-tank of annular form having its outer shell fixed to and depending from the moisture-pan and its inner shell of less height than its outer shell and open at both ends, the flue traversing the central opening of the water-tank and communicating with the hot-air tank, which flue is spaced apart from the inner shell of the water-tank, air-vents in the end of the incubator opposite to the water-tank and a lamp in the lower end of the flue, whereby air may enter between the flue and the inner shell of the water-tank and escape over the upper edge of said inner shell into the moisture-pan and thence through the egg-chamber of the incubator and in so doing be heated by radiation from the flue and surcharged with moisture from the water-tank.

5. In an incubator, the annular water-tank having an inner shell of less height than the outer shell, the broad and relatively shallow moisture-pan fixed to the upper edge of the outer shell of the water-tank and open to the space between the shells of said tanks, and provided with moisture-vents in its edges, the hot-air tank to the bottom of which the moisture-pan is sealed, which air-tank is formed with an aperture in vertical alinement with the center of the annular water-tank, a flue mounted within the central portion of the annular water-tank and extended through said aperture in the air-tank, which flue is spaced apart from the inner shell of the water-tank and extended wholly therethrough, the casing and the vent-pipes for the casing, whereby air may enter between the inner shell of the water-tank and the flue, escape over the upper edge of said inner shell into the moisture-pan and thence through the egg-chamber of the casing to the atmosphere at the top of the casing and in so doing be heated by radiation from the flue and surcharged with moisture from the water-tank.

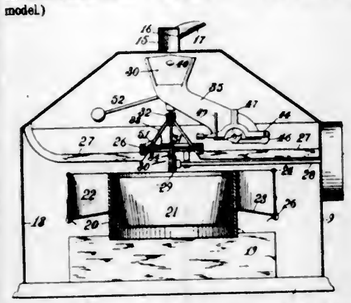
679,765. **SUPPORT FOR BICYCLES.** GEORGE W. MANSON, New York, N. Y. Filed Nov. 17, 1900. Serial No. 36,847. (No model.)



Claim.—1. A supporting-rest for bicycles comprising two pairs of diverging tubular arms, a collar fixed to the inner ends of the respective pairs of arms, horizontal flat shoe-bars formed with downturned ends secured to the outer ends of the diverging arms, and tie-rods connecting the shoe-bars.

2. A supporting-rest for bicycles comprising two pairs of diverging tubular arms, a collar fixed to the inner ends of the respective pairs of arms, horizontal flat shoe-bars formed with downturned ends secured to the outer ends of the diverging arms, and tie-rods connecting the shoe-bars, in combination with a supporting-hook secured to a bicycle-frame adapted to engage and hold the support in elevated position.

679,766. **WORKMAN'S CHECK-RECEIVER.** STEPHEN A. MARKER, Newark, N. J. Filed Oct. 26, 1899. Serial No. 734,823. (No model.)



Claim.—1. A time-check receiver, composed of a case having therein a series of compartments surrounding a separately-removable receiving-check tray, the compartments and tray being on a horizontal plane and resting on the base of said case, and adapted to be horizontally removed from the case at one side, and a check-delivery mechanism operated by a clock, which delivers checks in the concentrically-arranged compartments during certain predetermined periods, and during the intervening periods in the central check-tray, and automatically resets itself at the end of each period, substantially as shown.

2. A time-check receiver, having within the case centrally a separately-removable tray or receptacle for checks, and surrounding said tray on the same horizontal plane, a series of check-receiving compartments, in combination with a check-delivery chute above said tray and compartments, adapted to automatically deliver checks in either the outer compartments or the inner tray during certain predetermined periods, substantially as set forth.

3. In a time-check receiver, a case having centrally within the same a horizontally-removable check-receptacle, and surrounding said receptacle and on the same horizontal plane, a series of compartments, in combination with a check-delivery chute above said compartments and tray adapted to be set so as to automatically deposit checks in either the central check-tray or in the compartments surrounding the central tray at certain predetermined periods, substantially as set forth.

4. A time-check receiver, composed of a case having a clock on one side thereof, exteriorly, and a check-delivery chute within the case mounted on a shaft and geared to operate with the clock, said chute having an enlarged mouth beneath the top wall of the case, the rear wall of which is A-shaped in horizontal section, and provided with a similarly-formed A-shaped door for the front wall of said chute, the door being hinged at its upper end to the chute, and means for normally holding the lower end of the door against the rear wall of the chute for the purpose of diverting the checks into an inclined channel in the chute, substantially as shown.

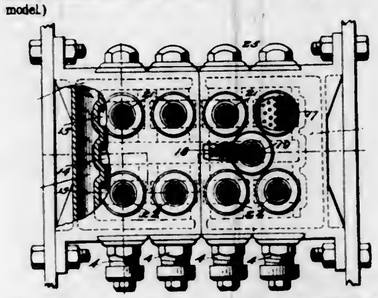
5. A time-check receiver, composed of a case with a clock therein and a check-recording chute mounted on a vertical shaft geared with said clock, the discharge end of said chute being enlarged so that the opening thereof projects over both the inner tray and the outer compartments beneath, and having within said discharge end a finger to divert the checks to the inner tray or to the outer compartments, said finger being operated by a lever hinged to the chute, provided at its inner end with a roller-bearing, in combination with an inclined adjustable piece on a central ring below said roller-bearing and an A-shaped swinging door on the upper end of the delivery-chute for diverting the checks into the body of the chute, substantially as shown.

6. In a time-check receiver, the combination, with a clock, its mechanism, and a central arbor operated thereby, of a series of check-receiving compartments concentrically disposed around a removable central check-tray, said compartments and tray being on the same horizontal plane, a check-delivery chute on said arbor rotatively arranged above said compartments, and mechanism in the discharge end of said chute arranged to automatically adjust the tripping device for the delivery of a deposited check into the concentrically-disposed compartments or into the central tray at certain predetermined periods, as set forth.

7. In a time-check receiver, the combination with a clock, its mechanism, and a central arbor operated thereby, of a series of check-receiving compartments concentrically disposed around an inner check-tray, and on the same horizontal plane, a check-delivery chute on the same arbor, rotatively arranged above said compartments and tray, means in the discharge-opening of said chute whereby said discharge-opening can be diverted to the central tray or to the outer compartments, and means connected with said operating mechanism for automatically actuating and setting said mechanism in the delivery-chute to open its discharge for the delivery of a deposited check into one of said compartments or into the inner tray at certain predetermined periods, substantially as shown.

8. In a time-check receiver, a series of check-receiving compartments concentrically disposed around an inner removable check-tray, both being horizontally removable from the containing-case, in combination with a clock, its mechanism, and a central arbor operated thereby, a check-delivery chute on said arbor rotatively arranged above said compartments, and mechanism in the discharge-opening of said chute whereby said discharge-opening can be automatically diverted and reset for the delivery of a deposited check into one of the aforesaid outer compartments or to the central tray, said mechanism consisting essentially of a hinged lever and an inclined piece secured adjustably to a ring above the central tray, substantially as set forth.

679,767. **HYDRAULIC VALVE MECHANISM.** ELMER R. E. MEARS, Munhall, Pa. Filed Mar. 21, 1901. Serial No. 52,178. (No model.)



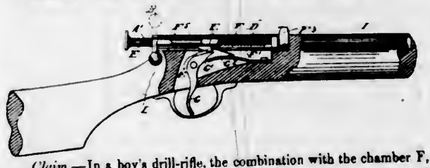
Claim.—1. In hydraulic valve mechanism, a divided casing having independent waste-passages on opposite sides thereof and extending around three sides of each division of the casing, one or more independent valve-chambers on each side of the casing and with which the waste-passage on that side is in communication, a double-acting piston-valve within each valve-chamber, a supply-passage formed in the casing and common to all the valve-chambers, and exhaust-pipes for the waste-passages, one communicating with the upper portion of one waste-passage and the other with the lower portion of the other waste-passage, substantially as described.

2. In hydraulic valve mechanism, a casing composed of separable sections, one or more individual valve-chambers formed in each section, a double-acting piston-valve within each chamber, a waste-passage formed in each section and independent of each other, and a supply-passage formed in the casing and common to all the valve-chambers, substantially as described.

3. In hydraulic valve mechanism, a casing composed of separable sections, one section having a dovetailed groove to receive a dovetailed key on the other section, one or more individual valve-chambers formed in each section, a double-acting piston-valve within each chamber, a waste-passage formed in each section and independent of each other, and a supply-passage formed in the casing and common to all the valve-chambers, substantially as described.

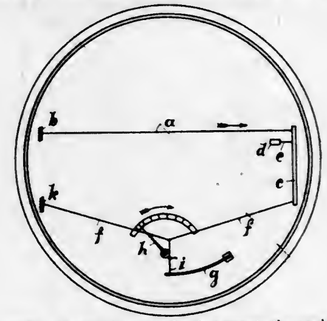
4. In hydraulic valve mechanism, a casing composed of separable sections, one section having a dovetailed groove to receive a dovetailed key on the other section, one or more individual valve-chambers formed in each section, a waste-passage formed in each section, the waste-passage in one section being independent of the waste-passage in the other section, waste-pipes communicating with opposite sides of the waste-passages, and a supply-passage formed in the casing and common to all the valve-chambers, substantially as described.

679,768. **BOY'S DRILL-RIFLE.** ANDREW B. MELLIS, Glasgow, Scotland. Filed Jan. 21, 1901. Serial No. 44,117. (No model.)



Claim.—In a boy's drill-rifle, the combination with the chamber F, comprising an upper and lower part, the lower part having a slot and adapted to rest on the stock of the rifle, a projection extending from the lower part adapted to enter the barrel of the rifle, of the bolt having the operating-arm A', at one end, a cylindrical enlargement having a projection C' formed at the other end of the bolt, a slide mounted in the chamber under the bolt, a coiled spring the ends of which are secured respectively to the slide and bolt, a hook or projection E' depending from the slide through the slot in the lower part of the chamber, and a trigger adapted to engage the said hook E', substantially as described.

679,769. **ELECTRICAL HOT-WIRE-MEASURING INSTRUMENT.** PAUL MEYER, HEINRICH HARTMANN, and ROBERT ABRAHAMSOHN, Berlin, Germany. Filed June 1, 1901. Serial No. 62,799. (No model.)



Claim.—In hot-wire-measuring instruments the combination of a two-armed lever to one end of which is attached the hot wire, and to the other end the tension-wire operating the needle, with a sheet-metal spring which supports said lever, takes up linear expansion of the hot wire and forms a frictionless center of rotation of the lever, substantially as set forth and described.

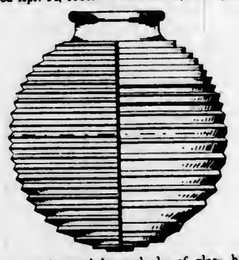
679,770. **LAMP-SHADE.** OTIS A. MYGATT, New York, N. Y. Filed Mar. 30, 1900. Serial No. 10,766. (No model.)



Claim.—1. A spheroidal shade divided vertically and having external prisms extending in generally vertical direction at the sides, a hinge uniting the sections, and means for adjusting the sections so that the ribs have oblique arrangement, to deflect the light in generally lengthwise direction but out of horizontal, substantially as described.

2. A two-part spheroidal shade provided with supporting metallic bands hinged together, and means for adjusting the parts to oblique relation.

679,771. **LAMP SHADE OR GLOBE.** OTIS A. MYGATT, New York, N. Y. Filed Apr. 14, 1900. Serial No. 12,920. (No model.)

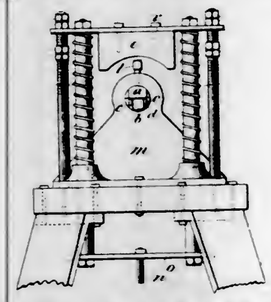


Claim.—1. An integral lamp-shade, of glass, having its external surface covered with horizontal deflecting-prisms, such prisms divided by vertical lines into a plurality of areas, the prisms of one of these areas dif-

fering from the prisms of the adjacent area in the angles of their deflecting-faces, so that rays of light will be deflected at different angles, a to opposite sides of said vertical lines of division, substantially as described.

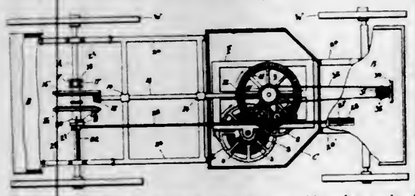
2. A glass lamp-shade having its external surface substantially covered by horizontal deflecting-prisms, the prisms of one illuminating area being calculated to project transmitted light in a calculated general direction with reference to the horizontal, while the prisms of the adjacent area divided from the first by a vertical meridian, are calculated to project transmitted light in a generally different direction with reference to the horizontal, substantially as described.

679,772. **MACHINE FOR STRAIGHTENING EMPTY TIN CANS.** JAMES W. MCCALL, Paxton, Ill. Filed Apr. 30, 1900. Serial No. 14,852. (No model.)



Claim.—In a machine of the character described, a standard supported on a bed-plate, said standard having a hole through its upper end, a die having a shank adjustable in the hole of the standard and secured therein, said die comprising two sections one of which is formed with the shank, links pivoted to the section formed with the shank and carrying the movable section, the said sections lying together to enter a can end, the said movable section being supported in an elevated position by the links when the can is applied, vertically-reciprocating bars, springs encircling the bars above the bed-plate, a bar attached to and carried by the vertically-reciprocating bars, a block carried by the second-named bar acting in conjunction with the die and suitable connections at the lower end of the vertical bars for causing their descent against the action of the springs, substantially as described.

679,773. **SPRING-MOTOR VEHICLE.** JAMES L. MCDOWELL, St. Louis, Mo., assignor of one-half to Charles H. Dodge, same place. Filed Apr. 15, 1901. Serial No. 56,454. (No model.)



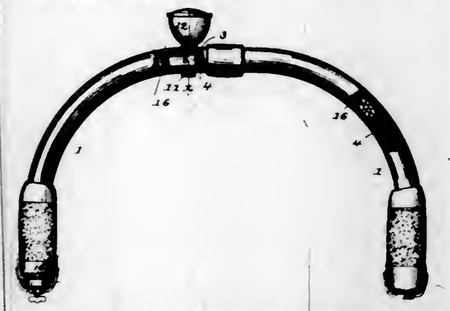
Claim.—1. In a spring-motor vehicle, a rotatable axle, a pair of gear-wheels feathered to the same and movable longitudinally thereon, a spring-actuated pinion rotating in one direction adapted to mesh with one or the other of said gear-wheels, springs for effecting engagement with one of said gear-wheels and the pinion, a reversing disk rotatable about the axle, a longitudinally-movable disk mounted on the axle and actuated in one direction by the rotation of the reversing disk, means for guiding said longitudinally-moving disk and preventing rotation of the same about the axle during such longitudinal movement, and means under the control of the operator for actuating the reversing disk, substantially as set forth.

2. In a spring-motor vehicle, a rotatable axle, a pair of gear-wheels feathered to the same and movable longitudinally thereon, a disk fixed to the axle on one side of the gear-wheels, springs interposed between said disk and the hub of the adjacent gear-wheel, a disk mounted loosely on the axle on the opposite side of the gear-wheels, lugs formed on the peripheral walls of said last disk, a rigid arm passing between said lugs to insure longitudinal movement for said disk along the axle, a rotatable disk having an inclined face mounted on the axle, and engaging the longitudinally-movable disk along a similar inclined face, a collar fixed to the axle on the opposite side of the rotatable disk, and means under the control of the operator for rocking the rotatable disk, the parts operating substantially as, and for the purpose set forth.

3. In a spring-motor vehicle, a gear mechanism having a main or vertical rotatable shaft forming a part thereof, and projecting through the floor of the wagon-body, a pulley or disk at the upper end of said vertical shaft, a brake-band passing around said disk, a brake-lever, a casting having lugs formed integrally therewith, arms forming a part of the brake-lever and pivoted to said lugs, the ends of the brake-band being secured to the arms of the brake-lever, and a spring for normally forcing the brake-lever, to a position for effecting frictional disengagement between the brake-band and vertical shaft, substantially as set forth.

4. In a spring-motor vehicle, a rotatable reversing disk mounted on the rear axle of the vehicle, a connecting-rod extending forward from said disk, a reversing-lever pivoted in the forward part of the vehicle, a spring-actuated pawl carried by the lever, a toothed plate for engaging the pawl, gear-wheels feathered to the axle, a second disk located adjacent to the rotatable disk, said second disk being longitudinally movable along the axle, the contacting surfaces between the disks being inclined to the plane of rotation of the reversing disk, and springs on the opposite side of the gear-wheels for shifting the latter back to their normal position, the parts operating substantially as, and for the purpose set forth.

679,774. **ACETYLENE-GAS GENERATOR.** EDWARD M. MCNAMARA and JAMES D. O'REILLY, Chicago, Ill. Filed Sept. 2, 1899. Serial No. 729,366. (No model.)



Claim.—1. In a device of the character specified, the combination with a hollow bicycle handle-bar provided with partitions dividing it into separated water and carbid containing chambers with a gas-receiving chamber located between the water and carbid chambers into which the gas is discharged, the water-chamber having an open end, a closure-plug for the open end of the water-chamber, means provided with a projecting handle for regulating the flow of water from the water-chamber to the carbid-chamber, and an acetylene-lamp and its burner carried by the gas-receiving chamber between the water and carbid containing chambers.

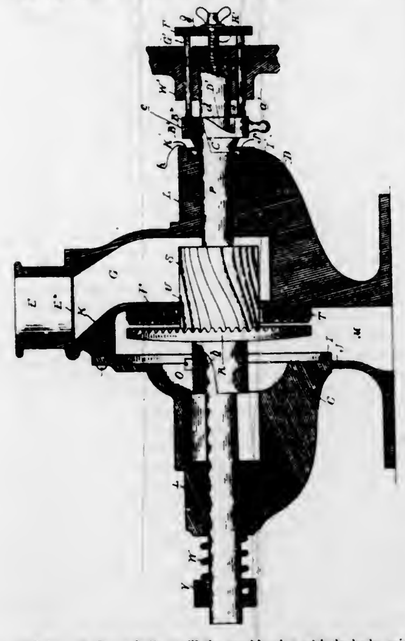
2. The combination with an acetylene-lamp and its burner, of a hollow bicycle handle-bar and its immediate attachments, provided with partitions forming separated water and carbid containing chambers, and a gas-chamber between them, a gas-outlet in the wall of said chamber to which the lamp is adapted to be connected, the water-chamber having an open end, a connection from the carbid-chamber to the lamp-burner, a closure-plug for the open end of the water-chamber, a filling of carbid inclosed within an elongated sack, and adapted for ready insertion and removal from the carbid-chamber, and means for regulating the flow of water from the water-supply chambers to the carbid-containing chamber, substantially as set forth.

3. In an acetylene-gas generator for bicycles as herein described, the combination with the gas-outlet orifice of an inwardly-opening check-valve having an outwardly-projecting stem that is adapted to be forced inward to open the valve, when the lamp is attached in place, substantially as set forth.

4. In an acetylene-gas generator for bicycles, the combination of a hollow handle-bar, partitions dividing said handle-bar into separated water and carbid chambers, a gas-chamber in communication with the carbid-chamber, a gas-outlet in the wall of said gas-chamber, a check-valve normally closing the gas-outlet, and means to unseat the valve when the lamp is put in place.

5. In an acetylene-gas generator for bicycles the combination of a hollow handle-bar, partitions dividing said handle-bar into separated water, carbid, and gas chambers, the latter being located between the water and carbid chambers, a filling of carbid inclosed within an elongated sack for ready insertion and removal with relation to the carbid-chamber, means for connecting the water and carbid chambers to permit a flow of water from the former to the latter, the partition between the carbid and gas chambers being provided with perforations to permit the ready flow of gas into the gas-chamber and yet prevent solid material from passing thereinto, a lamp and a valved connection between the lamp and gas-chamber.

679,775. **GRINDING-MILL.** CHRISTOPHER W. PARK, Chicago, Ill. Filed Feb. 9, 1900. Serial No. 4,643. (No model.)



Claim.—1. In a grinding-mill, the combination with the body, grinding instrumentalities, shaft, and the drive-wheel secured to the shaft, of a ball-bearing in the body for and extending about the shaft, a cone loosely sleeved upon said shaft and projecting into engagement with the ball-bearing, a collar mounted upon the cone and detachably secured thereto, and means coöperating with said collar and acting normally to hold the cone in engagement with the ball-bearing.

2. In a grinding-machine, the combination of a casing, a rotatable shaft supported by said casing and movable axially, a spring acting to move said shaft axially, a roller-bearing in the casing surrounding said shaft, a bearing and adjusting cone loose on said shaft and having a reduced shank, a collar detachably secured to said shank and having a cam-face, and a device secured to said shaft and engaging said cam-face, substantially as and for the purpose set forth.

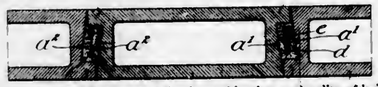
3. In a grinding-machine, the combination with a shaft, and a bearing part, of means for adjusting the shaft axially comprising a bearing-ring having a reduced shank, an annular cam-ring sleeved on said reduced shank and detachably secured to the bearing-ring, and antifriction-bearing devices between said ring and said bearing part and a part coöperating with said cam-ring, substantially as described.

4. In a grinding-mill, the combination of a casing, a rotatable shaft, a ball-bearing for the shaft, a bearing and adjusting cone loose on the shaft and capable of being shifted thereon rotatably and longitudinally for the purpose described, and means acting to maintain said cone in contact with said ball-bearing, substantially as described.

679,776. **BUILDING CONSTRUCTION.** JOHN C. PELTON, New York, N. Y., assignor to the Pelton Fireproof Construction Company, same place. Filed Oct. 19, 1900. Serial No. 33,563. (No model.)

Claim.—1. In a building construction in combination, a plurality of hollow building-blocks with the ends beveled and flanged, an inclosed space between the ends of the adjacent blocks and a locking-post situated in said space.

2. A building construction comprising a plurality of building-blocks, each block having a flange and a beveled surface at each end, an inclosed space between the abutting ends of adjacent blocks, and a locking-post situated in said space and continuous through a plurality of layers.



3. In a building construction in combination, a plurality of building-blocks with their ends beveled and flanged the flanged portion of one block being opposite to the beveled portion of the adjacent block in the same layer, a substantially-inclosed space between the ends of adjacent blocks and a locking-post situated in said space.

4. In a building construction, a wall comprising a plurality of building-blocks having an inclosed space between the ends of the adjacent blocks, the said space having sides oblique to the plane of the wall, and a locking-post situated within said space.

5. In a building construction, a wall comprising a plurality of building-blocks each block having a flange at each end and adjacent the same side, a portion of the end of each block being beveled, the said beveled surfaces converging, an inclosed space between the ends of adjacent blocks, and a locking-post situated in said space and continuous through a plurality of layers.

6. In a building construction, a wall comprising a plurality of building-blocks, each block having a flange and a beveled surface at each end, said blocks being superposed so that the ends of the block in one layer are directly above the ends of the block in the lower layer, a substantially inclosed space between the ends of the adjacent blocks, and a locking-post situated in said space and continuous through a plurality of layers.

7. In a building construction, a wall comprising a plurality of building-blocks forming a continuous surface on both sides of said wall, each block having a flange and a beveled surface at each end, a substantially inclosed space between the ends of adjacent blocks, and a locking-post situated in said space.

8. In a building construction, a double-faced wall comprising a plurality of building-blocks, each block having a flange and a beveled portion at each end, a substantially inclosed space between the abutting ends of adjacent blocks, and a locking-post situated in said space and continuous through a plurality of layers.

9. In a building construction, a wall, comprising a plurality of building-blocks, each block having a flange and a beveled surface at each end, said blocks being superimposed in such a manner that the flanges and the beveled portions of the ends of a block in one layer are directly above the corresponding portions of the block in the lower layer, a substantially inclosed space between the abutting ends of adjacent blocks, and a locking-post situated in said space and continuous through a plurality of layers.

679,777. **PROCESS OF EXTRACTING FAT FROM WOOL.** GEORGES PELTZER, Verviers, Belgium. Original application filed Aug. 29, 1900, Serial No. 28,448. Divided and this application filed May 10, 1901. Serial No. 59,694. (No specimens.)

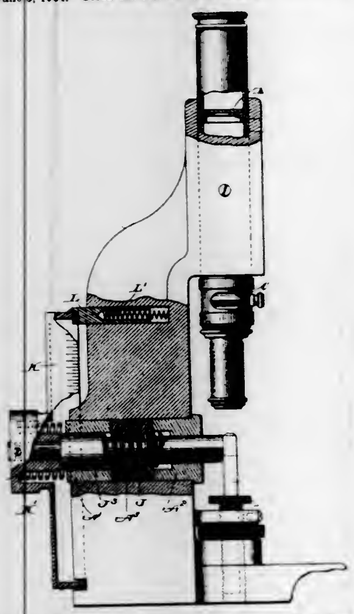
Claim.—The herein-described continuous process for removing fatty matters from raw wool by agitating the wool in carbon tetra chlorid, protected by a layer of water from loss by evaporation.

679,778. **GARMENT.** ALBERT PHILLIPS, New York, N. Y., assignor of two-thirds to Frank Haas, same place, and Ignatius Haas, Philadelphia, Pa. Filed Sept. 11, 1900. Serial No. 29,683. (No model.)



Claim.—In a garment for men's wear, the combination with a coat, and means for fastening the same around the body; of the dicky D, comprising the neckband *d*, secured thereto, the depending extension *d'*, forming a part of said neckband, the button 3, on one end of said extension, secured thereto, and arranged to engage a buttonhole in the back of said coat; and the buttons 5 fastened to said dicky and arranged to engage buttonholes in the sides of said coat, under the lapels thereof; all substantially as and for the purpose set forth.

679,779. **MICROMETER.** FRANK H. PIERPONT, Horley, England, assignor to Lanston Monotype Machine Company, Washington, D. C. Filed June 5, 1901. Serial No. 63,282. (No model.)



Claim.—1. In a measuring instrument such as described, the combination with a supporting-frame, of a microscope provided with an index-line and a gage movable in a plane perpendicular to the axis of the microscope and having its contact-surface in a plane parallel to said index-line, as and for the purpose set forth.

2. In a measuring instrument, such as described, the combination with a microscope fitted within a vertical illuminator and an index-line, of a micrometer-gage supported to move in a plane at right angles to the optical axis of the microscope and provided with an engaging or contacting face in a plane parallel with the index-line, as and for the purpose specified.

3. In a measuring instrument such as described, the combination with a frame provided with two openings at right angles, of a microscope having an index-line at its ocular diaphragm occupying one of said openings, and a micrometer-screw with an end surface against which the object to be measured is directly held, said end surface and the index-line lying in parallel vertical planes, as set forth.

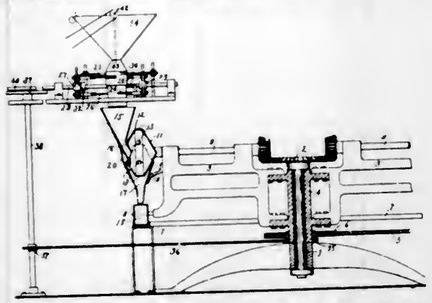
4. In a measuring instrument such as described, the combination with a microscope provided with a vertical illuminator and index-line, of a focusing-table and a micrometer-gage, the latter movable in a plane transverse to the optical axis of the microscope and provided with a contact-surface lying in a plane parallel to the said index-line, as and for the purpose set forth.

5. In a measuring instrument such as described, the combination with a frame or standard and a microscope mounted therein, of a micrometer side gage mounted in an opening or bearing in the frame and comprising a screw-shaft provided with cylindrical end portions, two sleeves each engaging one end of the shaft and forming a bearing therefor, a nut intermediate said sleeves, a graduated wheel secured to the rear end of said screw-shaft, and a spring interposed between said wheel and the contiguous sleeve; substantially as described.

679,780. **CAN-FILLING MACHINE.** CLARENCE H. PLUMMER, Waukesha, Wis. Filed Aug. 11, 1900. Serial No. 26,556. (No model.)

Claim.—1. In a can-filling machine, a chamber having one or more discharge-apertures, of such size as to permit the discharge of all the contents of the chamber, but of such small size as to prevent the discharge of the contents of the chamber in bulk; and means for actuating the chamber to bring said aperture or apertures successively under and above the contents of the chamber, whereby the contents are caused to fall successively toward and away from each aperture, and a portion of the same permitted to escape with each such movement.

2. In a can-filling machine, a rotary chamber provided with peripheral discharge-openings, and sides converging toward said openings; means for delivering material to said chamber in bulk; and means for conveying the material escaping through said openings into a can.



3. In a can-filling machine, a rotary chamber provided with one or more discharge-openings of a size adapted to permit a gradual escape of all the material from the chamber, the walls of said chamber being arranged to converge toward said opening or openings.

4. In a can-filling machine, the combination of a series of axially-rotating chambers, each provided with one or more discharge-apertures, adapted to permit the contents of the chamber to escape slowly therethrough; a collecting-funnel located underneath each chamber; and means for supporting a can underneath each of said funnels; together with means for separately charging said chambers from a common source of supply.

5. In a can-filling machine, the combination with a series of filler-chambers arranged and adapted for axial rotation, and having discharge-apertures adapted to permit a slow discharge of the contents of the chambers; means for moving said chambers in an endless path or orbit, in addition to the axial movement of the individual chambers; a series of funnels, each leading to and discharging into one of the filler-chambers; a series of funnels, each leading from one of the filler-chambers, and adapted to convey its contents into a can; and means for actuating the funnels and cans in synchronism with the orbital movement of the fillers.

6. In a can-filling machine, a measuring device; a rotary chamber of greater capacity than the measuring device, provided with one or more peripheral discharge-apertures, adapted to permit the material to escape slowly from said chamber; means for directing the material from the measuring device into said chamber; and means for directing the material escaping from said chamber, into a can.

7. In a can-filling machine, the combination of a series of filler-chambers arranged to travel in an orbit, and provided with one or more discharge-apertures of relatively small size, adapted to permit a slow escape of the contents of the chamber; a charging device located at one point in said orbit, and adapted to deliver material for the cans into the fillers in quantities insufficient to fill the same; means for actuating the filler-chambers on an axis having a different plane from that of the movement of the apertures; and means for conveying the contents discharged from the filler-chambers into the cans.

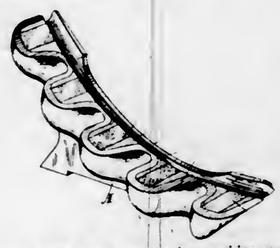
8. In a can-filling machine, the combination of a series of filler-chambers, provided with one or more discharge-apertures of relatively small size, and adapted to permit a slow escape of the contents of the chambers; means for actuating said chambers in an orbit; a charging device located at one point in said orbit, and adapted to deliver material for the cans into the fillers; means for conveying cans along said orbit; means for actuating the filler-chambers on an axis in a different plane from that of the movement of the discharge-aperture; and means for conveying the contents discharged from the filler-chambers into the cans.

9. In a can-filling machine, the combination of a series of axially-rotating filler-chambers arranged to travel in an orbit around a central axis; means for passing an annular row of cans around said axis in an orbit parallel to that of the filler-chambers; a main hopper; a measuring device connected therewith; and means for charging the fillers successively from said measuring device with material for the cans, said filler-chambers being adapted to slowly feed the material into the cans during their revolution around the central axis.

10. In a can-filling machine, a hopper provided with a plurality of discharge-conduits; valves separating each conduit into one or more measuring-chambers of definite capacity; and means for actuating the valves of each conduit alternately, and in alternation with similar valves of the other conduits; together with a series of axially-rotating fillers having fixed funnels communicating therewith, and contracted discharge-openings, each adapted to permit the escape of a limited portion of the contents of the filler during each rotation thereof; and means for bringing said measuring-chambers successively into communication with said funnels.

11. In a can-filling machine, a hopper provided with one or more discharge-conduits; valves separating each conduit into one or more measuring-chambers of definite capacity; a series of axially-rotating filler-chambers, each having one or more peripheral discharge-apertures of relatively small size, each adapted to permit the escape of a limited portion of the contents of the chamber during each revolution; and means for bringing said filler-chambers successively into communication with the measuring chamber or chambers.

679,781. **SHOE FOR TRUING UP CAR-WHEELS.** MICHAEL POWER, Toronto, Canada. Filed Oct. 13, 1900. Serial No. 33,010. (No model.)



Claim.—1. A truing-shoe for car-wheels comprising an arc-shaped body and a series of laterally-extending teeth, said teeth being separated from one another by laterally open spaces, substantially as described.

2. A truing-shoe for car-wheels comprising an arc-shaped body having a groove at the inner side to fit the flange of the wheel and forming a flange at the inner side, a series of laterally-projecting teeth having chilled cutting edges having a sheer or incline outwardly, so that the teeth are narrower at the point than at the base as and for the purpose specified.

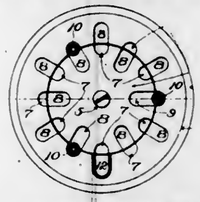
3. A truing-shoe for car-wheels comprising an arc-shaped body having a groove at the inner side to fit the flange of the wheel and forming a flange at the inner side and a longitudinal recess in such flange and a series of laterally-projecting teeth having chilled cutting edges as shown and for the purpose specified.

4. In a truing-shoe for car-wheels, the combination with the arc-shaped body having a groove at the inner side to fit the flange of the wheel and forming a flange at the inner side, and a series of laterally-projecting teeth having chilled cutting edges and recesses formed in the teeth extending to the arc-shaped groove, of a suitable block of roughening material fitting within the recess and extending to the edge of the groove whereby a combined cutting and grinding surface is provided, as and for the purpose specified.

5. In a truing-shoe for car-wheels, the combination with the arc-shaped body having a groove at the inner side to fit the flange of the wheel and forming a flange at the inner side, and a series of laterally-projecting teeth having chilled cutting edges, and recesses formed in the teeth extending to the arc-shaped groove, of a suitable block of roughening material fitting within the recess and extending to the edge of the groove and strips of adhesive-acting metal fitting within the recess at each side of the roughening material.

6. The combination with the shoes provided with an arc-shaped groove at the inner side and the laterally-extending teeth, of the block of roughening material comprising emery corundum, Portland cement and fish-glue in the proportions specified and the side strips of adhesive-acting material as and for the purpose specified.

679,782. **PUZZLE.** GUSTAF L. REINSTIERNA, Winchester, Mass. Filed Nov. 22, 1900. Serial No. 37,339. (No model.)



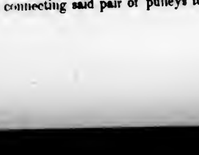
Claim.—1. In a puzzle, the combination of a plurality of movable pieces, a circular block with peripheral cavities, certain of which are less deep than one of such pieces, others thereof being deeper than one piece but less in depth than two pieces, and a ring rotatable on the block and having corresponding cavities, one of said parts having also a cavity sufficiently deep to receive two pieces, substantially as described.

2. In a puzzle, the combination of a plurality of balls, a circular block with peripheral cavities of different depths, certain of which are less deep than one of the balls, others thereof being deeper than one ball but less in depth than two balls, and a ring rotatable on the block and having corresponding cavities, one of said parts having also a cavity sufficiently deep to receive two balls, substantially as described.

3. In a puzzle, the combination of a plurality of balls, a circular block with peripheral cavities of different depths, certain of which are less deep than one of the balls, others thereof being deeper than one ball but less in depth than two balls, the deeper cavities having sloping bottoms, and a ring rotatable on the block and having corresponding cavities, one of said parts having also a cavity sufficiently deep to receive two balls, substantially as described.

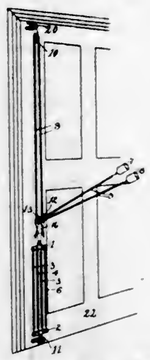
4. In a puzzle, the combination of a plurality of balls, a circular block with peripheral cavities some of which are too shallow to wholly contain one ball, others relatively deep to contain one ball but not quite contain a predetermined number greater than one, and a ring rotatable on the block and having corresponding cavities, one of such parts having also a cavity slightly deeper than the rest to contain the said predetermined number of balls, substantially as described.

679,783. **SUSPENDER-END.** JOHN RILEY, Greencastle, Ind. Filed Jan. 30, 1901. Serial No. 45,379. (No model.)



Claim.—As an article of manufacture a suspender-end provided with a buttonhole therein, and having a portion of its material turned up and against itself and provided with means for detachably securing said turned-up portion in position independent of said buttonhole, substantially as described.

679,784. **EXERCISING-MACHINE.** MICHAEL E. RYAN, London, England. Filed Mar. 29, 1900. Serial No. 10,587. (No model.)

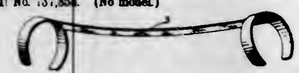


Claim.—1. An exercising-machine, comprising two cross-bars connected together by two or more elastic connections, a pulley-supporting cross-bar, a pair of pulleys mounted thereon, means for detachably attaching said pulley cross-bar to one of said elastic-connection cross-bars, a single pulley located at a distance from said pair of pulleys, and means for supporting said single pulley, and a cord fitted with handles, said cord running over and connecting said pair of pulleys to said single pulley.

2. An exercising-machine, comprising two cross-bars, connected together by two or more elastic connections, a pulley-supporting cross-bar, a pair of pulleys mounted thereon, a hook on each of said elastic-connection cross-bars, a hole 19 in said pulley-supporting cross-bar adapted to receive one of said hooks, and thereby detachably attach one of said elastic-connection cross-bars, to said pulley-supporting cross-bar; a single pulley located at a distance from said pair of pulleys and means for supporting said single pulley, and a cord fitted with handles, said cord running over and connecting said pair of pulleys to said single pulley.

3. An exercising-machine, comprising two cross-bars connected together by two or more elastic connections, a pulley-supporting cross-bar, a pair of pulleys mounted thereon, means for detachably attaching said pulley cross-bar to one of said elastic-connection cross-bars, a single pulley located at a distance from said pair of pulleys, and means for supporting said single pulley, and a cord fitted with handles, said cord running over and connecting said pair of pulleys to said single pulley, all so interchangeably arranged and constructed that said pulleys, cord, and pulley-supporting cross-bar, may be detached from said elastic-connection cross-bars, and said handles attached to said elastic-connection cross-bars to form a chest-expander, substantially as described.

679,785. ATTACHMENT FOR TYPE-WRITERS. WILLIAM J. RITHER and BERT A. COLE, St. Paul, Minn., assignors to the Smith Premier Typewriter Company, Syracuse, N. Y. Filed Nov. 22, 1899. Serial No. 737,854. (No model.)



Claim.—1. A card or slip holding attachment for type-writers, comprising a longitudinal bar or strip adapted to bear directly upon the platen, and spring-arms at opposite ends of said strip adapted to pass around somewhat more than half the circumference of the platen, and by the spring action of said arms to draw and hold the connecting-bar firmly in contact with the platen.

2. An attachment for type-writing machines, comprising a pair of spring-clamps adapted to partially encircle and to firmly clasp a platen or paper-roll; and a connecting-strip extending from one clasp to the other and adapted to receive beneath it and to clamp or bind directly upon the platen, a card, slip, or other body to be printed.

3. An attachment for type-writing machines, comprising a longitudinal bar to press and hold a card, sheet, or slip against the platen or paper-roll; and spring-clamps of arc shape carried by the ends of said strip and having their extremities bent inward toward each other, substantially as described and shown, whereby they are caused to embed themselves slightly in the surface of the platen and thereby prevent accidental displacement.

4. An attachment for type-writing machines, comprising a longitudinal bar and spring clamping-arms carried at the ends of said bar and adapted to partially encircle the platen or paper-roll, and by their inward pressure to draw and hold the connecting-bar closely to the platen and to bind between said strip or bar and the platen, a card, slip, or other object to be printed, the bar being without projections of any kind above or below the paper, beyond the face of the binding or clamping strip.

5. A device of the class described, consisting of a pair of curved spring-arms, and a strip connecting said arms, said strip being inwardly curved as shown.

679,786. CUSHIONING DEVICE FOR FLUID-CONDUITS. HORACE SEE, New York, N. Y. Filed Dec. 5, 1900. Serial No. 38,722. (No model.)



Claim.—1. An elongated vessel everywhere hermetically closed except at an opening at one end, means for attaching to said open end a conduit adapted to convey fluid, and a delivery-pipe connected to said vessel at a point near said open end, substantially as described.

2. A tubular vessel hermetically closed at one end and open at the opposite end, means for connecting said open end to a conduit adapted to convey fluid and a delivery-pipe connected to said vessel at a point near said open end, substantially as described.

3. An elongated vessel hermetically closed at one end and open at the opposite end, means for connecting said open end to a conduit adapted to convey fluid, and a delivery-duct communicating with said vessel near said open end and having its connection at the place of communication placed substantially at right angles to the longitudinal axis of said vessel, substantially as described.

4. In combination with a conduit adapted to convey a fluid-current, a hermetically-closed chamber having its axis in prolongation of the axis of said condnit and a delivery-pipe communicating with said chamber near the junction of said chamber and said conduit, substantially as described.

5. In combination with a conduit adapted to convey a fluid-current, a hermetically-closed chamber having its axis in prolongation of the axis of said conduit, a delivery-pipe and a duct between said delivery-pipe and said chamber, the said duct communicating with said chamber near its junction with said conduit and having its axis at said place of junction substantially at right angles to the axis of said chamber, substantially as described.

6. In combination with a pipe closed at one end and open at the other, and provided with an aperture in its wall near said closed end, a shell of greater diameter than said pipe inclosing the same and hermetically joined thereto near the open extremity thereof and protruding beyond the closed end of said pipe, substantially as described.

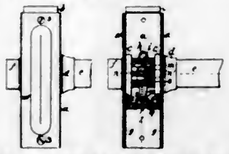
7. The combination with a pipe open at one end and at its opposite extremity closed and provided with a conical extremity said pipe having an aperture in its wall near said closed end, a shell of larger diameter than said pipe and inclosing the same and said conical extremity, and hermetically secured to said pipe near the open end thereof, substantially as described.

8. The combination of the pipe D E closed at one end and near said end having apertures H, with the shell A surrounding and hermetically secured to said pipe near the open end thereof and of larger diameter than said pipe, substantially as described.

9. The combination of the tapered pipe D E closed at the larger end and near said end having apertures H, with the cylindrical shell A surrounding and hermetically secured to said pipe near the smaller end thereof, and of larger diameter than said pipe, substantially as described.

10. The combination of the pipe D E open at one end and closed at the other and provided with apertures H near said closed end, a plug G having a conical portion protruding beyond said pipe and a conical portion within said pipe and serving to close the said pipe, and a shell A of larger diameter than said pipe and inclosing the same and hermetically secured thereto near the open end thereof, substantially as described.

679,787. BRAKE-SHOE. JOHN SHEEHAN, Ossining, N. Y. Filed May 28, 1901. Serial No. 62,257. (No model.)



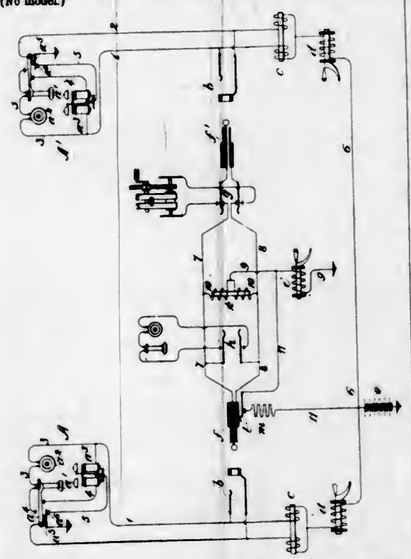
Claim.—1. In a brake-shoe the combination of a brake-rod threaded at the end, a shoe having a double hub one fitting the brake-rod and one threaded to receive the screw end of the brake-rod, a collar on the rod and between the said hubs the collar bolding a locking-pin, a locking-pin to engage with a groove in the brake-rod, a lug on the collar, an adjusting set-screw in said lug, a lug on the opposite side of said collar to engage with a spring, and a spring supported on a pintle in the flanges of the shoe, a cover over the mechanism of the shoe, and a cap over the end of the threaded ends of the shoe and brake-rod, substantially as set forth.

2. A brake-shoe laterally adjustable on the brake-rod by means of screw-threads on the rod and in the shoe as described, a collar upon the rod between the hubs on the shoe with a lug and adjusting set-screw upon one side and a lug on the opposite side acted upon by a spring fast to the shoe, and a locking-piece clamped by said collar and extending into a groove in the rod substantially as and for the purposes set forth.

3. In a brake-shoe the combination of a brake-rod screw-threaded at the end, a shoe having a double hub one fitting the brake-rod and one threaded to receive the screw end of the rod, a collar on the rod between

the said hubs holding a locking-piece, a locking-piece to engage with a groove in the rod, a lug on the collar, an adjusting-screw in said lug, a lug on the opposite side of said collar to engage with a spring fast to the shoe, substantially as and for the purposes set forth.

679,788. TELEPHONE-EXCHANGE SYSTEM. DANIEL SINCLAIR and WILLIAM AITKEN, London, England, assignors to Western Electric Company, Chicago, Ill. Filed Dec. 29, 1897. Serial No. 664,345. (No model.)



Claim.—1. In combination, a telephone-line, a line-signal therefor connected with the line, a source of current in circuit with the line-signal, the signal being adapted to display its indicator when inert, and means controlled from the substation for rendering the signal inert; plugs and a plug-circuit for making connection with the line, and a clearing-out signal associated with the plug-circuit and in connection therewith, the clearing-out signal being adapted to display its indicator when inert; circuit connections adapted to complete a local circuit when the plug-circuit is connected with the line, said local circuit including the source of current, the line-signal and the clearing-out signal; and means controlled from the substation adapted to break the current through the clearing-out signal; whereby the line-signal and the clearing-out signal are concealed in making connection with the line, while the clearing-out signal may be controlled from the substation of the line, as described.

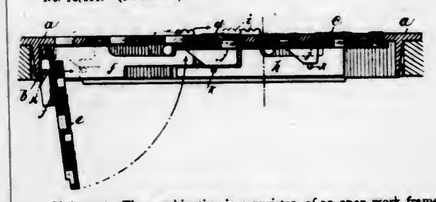
2. In combination, a telephone-line, a switch for closing a return-circuit thereto at the substation, and a line-signal and a source of current in a permanent connection between the said line and the said return-circuit at a central station, the said signal being adapted to display its indicator when inert; a plug and a plug-circuit for making connection with the line and a clearing-out signal in a branch between said plug-circuit and said return-circuit, said clearing-out signal being adapted to display its indicator when inert; and means at the substation for diverting current from the said clearing-out signal to permit its display, substantially as described.

3. In combination, a metallic-circuit telephone-line, a bridge of the line at the substation, a telephone-switch, and a ground branch from said bridge controlled by the switch, a bridge of the line at the central office having impedance-coils interposed therein, a ground branch from the said bridge, a source of current in the said branch and a line-signal connected with the line to be in the path of current from said source; a spring-jack for the line, a plug and a plug-circuit for making connection therewith, a bridge of the plug-circuit including impedance, and a ground branch from the said bridge; both of said signals being adapted to display their indicators when inert, and the circuit through said clearing-out signal being of high resistance compared to that of the circuit through the line to earth at the substation; whereby making connection with the line causes the concealment of the line-signal and the clearing-out signal, while placing the telephone on its switch at the substation during connection displays the clearing-out signal, as described.

4. The combination with telephone-lines, plugs and a plug-circuit for uniting lines, a bridge of the plug-circuit, a clearing-out signal in the bridge, the signal being adapted to display its indicator when its magnet is inert, a source of current in circuit with the clearing-out signal, and means controlled from the substation of a telephone-line with which the plug-circuit is connected for depriving the clearing-out signal of current, of a plug-seat switch for one of said plugs in its normal resting-socket, and a local circuit including a source of current together with said clearing-out signal normally completed by the said plug-seat switch, as described.

5. In combination, a metallic-circuit telephone-line, a bridge of the line at the substation, a call-bell in the said bridge, and a ground branch from the middle of said call-bell, a bridge of the line at the central office, two impedance-coils in the said bridge, a ground branch from the said bridge between the said impedance-coils, and a line-signal and source of current in the ground branch, said signal being adapted to display its indicator when inert; plugs and a plug-circuit for making connection between lines, a bridge of the plug-circuit, impedance-coils in the bridge, a ground branch from the bridge between the impedance-coils, and a clearing-out signal in the ground branch, the clearing-out signal being adapted to display its indicator when inert, said clearing-out indicator being of high resistance; a plug-seat switch for one of said plugs, and a local circuit, including a source of current, together with said clearing-out signal, normally completed in the switch-contacts of said plug-seat switch, as described.

679,789. REGISTER. PETER S. STAUFFER, Springfield, Mass., assignor to James H. Burt, same place. Filed May 29, 1900. Serial No. 18,411. (No model.)



Claim.—1. The combination in a register, of an open-work frame, two or more doors arranged to close the openings in said frame, said doors being shaped at their meeting edges to conform to a line drawn through said open-work in a general direction, but following the central line of the ribs forming said open-work substantially as shown.

2. A register comprising a frame having three fixed and one removable flange, and an open-work exterior surface, doors provided with projections adapted to enter and substantially fill the openings in said surface, when closed, pivotally mounted in the flanges, sliding bars arranged to turn the doors on their pivots, one bar to operate one door and one bar to operate two or more doors simultaneously substantially as shown.

3. The combination in a register, of a register-frame provided with an open-work exterior surface and having one depending rib thereof provided with an inwardly-projecting flange *m*, sliding bars arranged to rest upon said inturned flange, pins *k* projecting laterally from said bars, doors pivotally mounted in said frame and provided with projections adapted to enter and substantially fill the openings in said surface, when closed, and having lugs *j*, arranged in path of said pins, and footpieces projecting above the surface of the frame and connected with the sliding bars substantially as and for the purposes stated.

4. The combination in a register of a register-frame, having an open-work exterior surface and having three fixed downwardly-projecting flanges, a removable flange k^3 detachably secured to said frame, three doors pivotally mounted, and provided with projections adapted to enter and substantially fill the openings in said surface, when closed, a bar *f* having a footpiece *g* adapted to operate one of said doors and a sliding bar *h* having a projecting footpiece *i* adapted to operate two of said doors simultaneously, substantially as shown.

679,790. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Mar. 5, 1901. Serial No. 49,723. (No model.)

Claim.—1. In a fountain-pen, the combination of a reservoir, a nozzle having a bore therein, a feeder-bar seated in said bore and having a longitudinally-extending opening therein which communicates with a laterally-extending opening whereby open communication is established between the interior of the reservoir and the open air and a flat controlling-plate contained within said feeder-bar and in contact with the pen-nib.

2. In a fountain-pen, the combination of a reservoir, a nozzle having a bore therein, a feeder-bar seated in said bore and having an open-

ing therein through which open communication is at all times established between the interior of the reservoir and the open air, a pen-nib seated next to the feeder-bar and a fixed controlling-plate contained in said feeder-bar and which is maintained in contact with a wall of the opening in the feeder-bar and with the pen-nib so as to form a nucleus for the flow of ink to the pen-nib.



3. In a fountain-pen, the combination of a reservoir, a nozzle having a bore therein, a feeder-bar seated in said bore and having a longitudinally-extending trough-like opening therein and a slot in the bottom of said trough through which open communication is established between the interior of the reservoir and the open air and a flat controlling-plate contained within the trough-like opening of said feeder-bar and in contact with the pen-nib.

4. In a fountain-pen, the combination of a reservoir, a nozzle having a bore therein, a feeder-bar seated in said bore and having a longitudinally-extending trough-like opening therein and a slot in the bottom of said trough through which open communication is established between the interior of the reservoir and the open air and a longitudinally-extending flat controlling-plate contained within the trough-like opening in the feeder-bar so as to divide the same into a plurality of separate channels and having a portion thereof which extends into the said slot of the feeder-bar and in contact with the pen-nib.

5. In a fountain-pen, the combination of a reservoir, a nozzle having a bore therein, a feeder-bar seated in said bore and having a longitudinally-extending trough-like opening therein and a slot in the bottom of said trough through which open communication is established between the interior of the reservoir and the open air, a pen-nib seated next to the feeder-bar and a removable longitudinally-extending controlling-plate contained within the trough-like opening in the feeder-bar so as to divide the same into a plurality of separate channels, each of which is substantially triangular in cross-section, said controlling-plate having a portion thereof which extends into said slot in the feeder-bar.

6. In a fountain-pen, a nozzle having a bore, a feeder-bar seated in said bore and having a longitudinal channel open to the outside air, and a vertically-disposed controlling-plate located in said channel and having its upper edge flush with the upper surface of the feeder-bar so as to engage the pen-nib.

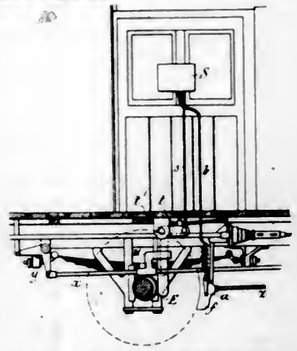
7. In a fountain-pen, a nozzle having a bore, a feeder-bar seated in said bore and having a longitudinal channel open to the outside air, said channel being trough-shaped, and a plane controlling-plate extending vertically from the bottom of said channel lengthwise thereof and dividing it into a plurality of parallel channels running side by side.

679,791. **BRAKE-CONTROLLING APPARATUS.** FRANTS C. STÖCKEL, Copenhagen, Denmark. Filed Feb. 2, 1901. Serial No. 45,778. (No model.)

Claim.—1. The combination with a brake-block, of a receptacle located therein to contain a suitable liquid, and an indicating device actuated by the heat expansion of said liquid to record upon a diagram the intensity of the working.

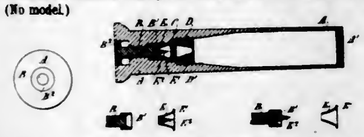
2. The combination of a brake-block, a receptacle located therein, a tube connected therewith and closed by a diaphragm, said receptacle and tube filled with a suitable liquid, a lever carried by said diaphragm, and an indicator upon said lever for tracing upon diagram-paper a diagram of the intensity of the working.

3. In a vehicle, a drum for carrying diagram-paper, and a reciprocating device actuated by the revolution of the vehicle-axle when its brake is applied, said device operating by an escapement to revolve said drum and draw the diagram-paper under a suitable indicator to record the amount of the work done.



4. In a vehicle, a drum for carrying diagram-paper, a reciprocating device actuated by the revolution of the vehicle-axle when its brake is applied, said device operating by an escapement to revolve said drum and draw the diagram-paper under a suitable indicator, and a device actuated by the heat produced by the friction of the brake to move said indicator, whereby is recorded both the amount and the intensity of the work done.

679,792. **MECHANICAL PRIMER FOR GUNS.** GEORGE STUART, Newcastle-upon-Tyne, England, assignor to Sir W. G. Armstrong, Whitworth & Co., Limited, same place. Filed Feb. 4, 1901. Serial No. 45,898. (No model.)



Claim.—1. The combination of the outer tubular case A having a hole extending centrally through its rear end, the detonator C held in the forward part of this hole, the striker B lying in the rear part of the hole and the hollow truncated cone E of thin metal interposed between the forward end of the striker and the detonator.

2. The combination of the outer tubular case A having a hole extending centrally through its rear end, the striker B lying in the rear part of the hole, the detonator-disk C lying across an enlargement of the inner end of the hole, the thin truncated metallic cone E interposed between the disk and the striker, its flange E′ and the screw-plug D screwing into the inner end of the hole and serving to nip the disk C and flange E′ between itself and the shoulder formed by the enlargement of the hole.

3. The combination of the outer tubular case A having a hole extending centrally through its rear end, the detonator C, the striker B and the thin truncated metallic cone E interposed between the detonator and striker having its rear end closed and a striker-point E^2 extending inwardly from this closed end.

4. The combination of the outer tubular case A having a hole extending centrally through its rear end, the detonator-disk C, the striker B, the thin truncated metallic cone E closed at its rear end, the striker-point E^2 projecting inwardly from this closed end, the flange E′ extending around the forward end of the cone and the screw-plug D serving to nip the disk C and the flange E′ between itself and the shoulder formed by the enlargement of the hole.

5. The combination of the outer tubular case A having a hole extending centrally through its rear end, the striker B with enlarged head lying in this hole, the conical recess B′ in the forward end of the head, the disk B^2 fixed on the rear end of the striker and lying in an enlargement of the rear end of the hole, the enlargement being made deep enough to allow of the disk and striker being driven a short distance forward, the detonator-disk C, the thin truncated metallic cone E, its flange E′ and the screw-plug D serving to nip the disk C and flange E′ between itself and the shoulder formed by the enlargement of the hole.

679,793. **GARMENT-FASTENER.** NORTON STUTSON, Washington Court-House, Ohio. Filed Mar. 25, 1901. Serial No. 52,720. (No model.)

Claim.—1. A garment-fastener consisting of a section provided with two diverging springs headed at their outer ends, an opposing section having diverging sockets extending through said section and adapted to receive said springs whereby the heads are protruded on the outer surface of the second section for interlocking the sections together and to afford access for releasing the springs, substantially as specified.



2. A garment-fastener consisting of an animal body, provided with two diverging spring members headed at the ends, an opposing animal head having a socket pierced through the same adapted to receive the said springs, the said socket being less in length than said springs, whereby, when the sections are respectively placed together the heads of the springs are exposed externally representing eyes adapted when compressed to uncouple the head from the body, substantially as specified.

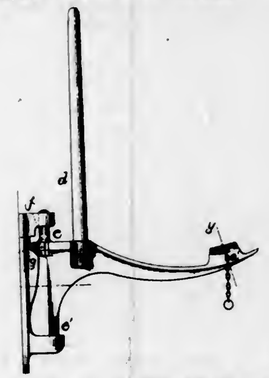
3. In a fastening device, a pair of sections the meeting edges of which are formed to interlock, one of said sections being formed to represent an animal body, the other section representing an animal head, a pair of headed springs projected from the body-section, a receiving-socket for the spring in the head-section allowing the headed springs to protrude exteriorly, interlocking against the exterior surface of the head-section, whereby the said spring-heads represent the eyes of the animal and afford a convenient means for uncoupling the device when the head end of the same is grasped, substantially as specified.

4. In a fastening device, two abutting sections, the one provided with divergent springs headed at the end, the opposing sections having a socket for each spring, the springs being greater in length than the sockets, and terminating on the exterior end surface of the second section, whereby they may be compressed and released when the second section is grasped, substantially as specified.

5. In a fastening device, two abutting sections, the one provided with divergent springs headed at the ends, the opposing section having a socket for each spring traversing the said section, the end of the said second section having a substantially convex contour, the springs being greater in length than the sockets, whereby the heads are exposed on the end of the said second socket, interlocking therewith and affording free access for release when the end of the second section is grasped, substantially as specified

6. In a fastening device, a pair of sections provided with meeting edges adapted to interlock, a pair of headed springs on one section, a receiving-socket pierced through the opposing section from end to end, adapted to compress the springs until the heads are exposed exteriorly, whereby they automatically lock against the exterior surface of the said second section, affording convenient means for uncoupling the sections by the compression of the protruding heads of the springs, substantially as specified.

679,794. **BICYCLE-SUPPORT.** JOHN E. SWEET, Syracuse, N. Y. Filed Nov. 20, 1897. Serial No. 659,218. (No model.)

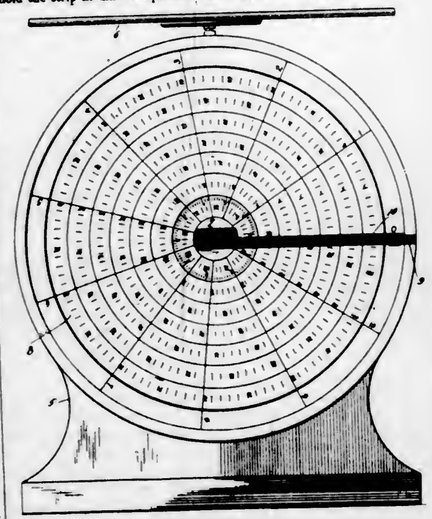


Claim.—1. A cycle-rack comprising a bracket, a wheel-arm having upwardly-extending arms and provided at one end with oppositely-extending pintels adapted to engage said bracket

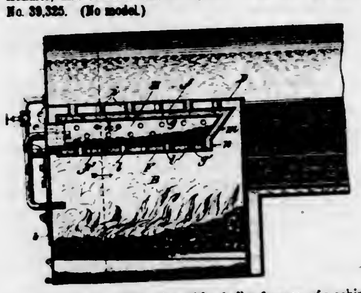
2. A cycle-rack comprising a bracket, a wheel-arm having at one end oppositely-extending pintels adapted to engage said bracket, and provided with a semicircular slotted shoulder adapted to engage with a lug upon the bracket, for the purposes set forth.

679,795. **COMPUTING-SCALE DIAL.** LUTHER S. THOMAS, Ringgold, La. Filed Dec. 6, 1900. Serial No. 38,924. (No model.)

Claim.—In a computing-scale, the combination with a scale-pan and a dial operably connected therewith for rotation thereby, said dial having weight and value markings thereon, of an arm fixed against movement and disposed radially of the dial, said arm having rate markings thereon and an index for the arm consisting of a metal strip having one end pointed, said strip being bent into rectangular form with its pointed end projecting beyond the adjacent side and free from the latter whereby it may be sprung outwardly to engage the strip over the arm and may hold the strip at different points of the length of the arm.



679,796. **COKING AND STEAM-PRODUCING ATTACHMENT FOR FURNACES.** THOMAS J. TILLER, Richmond, Va., assignor of three-fourths to Wyatt L. Goode, Richard H. Goode, Louis Goldback, Jos. Kendler, and H. Bernstein, same place. Filed Dec. 10, 1900. Serial No. 39,325. (No model.)



Claim.—1. The combination with a boiler-furnace, of a coking-oven suspended in the fire-chamber, said oven being provided with hollow plates forming its bottom, means for dumping said plates, and connections for circulating water through said plates, substantially as described.

2. The combination with a boiler-furnace, of a coking-oven suspended in the upper part of the fire-chamber and provided with hollow bottom-plates hinged on tubular supports, and connections for admitting water through said supports into said plates, substantially as described.

3. The combination of a boiler-furnace, a coking-oven suspended in the fire-chamber thereof and having hollow walls, water connections between the hollow walls of the oven and the water-space of the boiler, means for introducing coal into the oven, and means for dumping the coke from the oven into the fire-chamber, substantially as described.

4. The combination of a boiler-furnace, a coking-oven suspended in the fire-chamber thereof and having hollow walls and hollow dumping bottom-plates, water connections between the hollow walls of the oven and plates, and the water-space of the boiler, means for introducing coal into the oven, means for conducting the gas from the oven into the fire-chamber, and means for dumping the bottom-plates to discharge the coke from the oven into the fire-chamber, substantially as described.

5. The combination with a boiler-furnace, of a coking-oven suspended in the upper part of the fire-chamber, said oven being provided with hollow plates forming its bottom, said plates being hinged on tubular supports, and connections for admitting water through said supports into said plates; with means for introducing coal into the oven, and connections between the hollow bottom-plates and the water-space of the boiler, for the purpose and substantially as described.

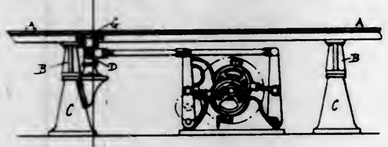
6. The combination with a boiler-furnace, of a coking-oven suspended in the upper part of the fire-chamber, said oven having hollow walls, and being provided with hollow plates forming its bottom, said plates being hinged on tubular supports, and connections for admitting water through said supports into said plates; with means for introducing coal into the oven, pipes for conducting gases generated in the oven into the fire-chamber, and connections between the hollow walls of the oven and the water-space of the boiler, for the purpose and substantially as described.

7. The combination with a boiler-furnace, of a double-walled coking-oven suspended in the fire-chamber, said oven having a dumping bottom formed of opposite hollow plates having hollow trunnions, and means for closing or opening said plates, pipes connecting the space between the walls of the oven with the water-space of the boiler; pipes for conducting gases generated in the oven back into the fire-chamber, and pipes connecting the trunnions of said bottom-plates with the water-space of the boiler, all substantially as and for the purpose set forth.

8. The combination of a boiler-furnace, a coking-oven in the fire-chamber thereof having opposite hollow bottom-plates provided with hollow trunnions extending through the front wall of the fire-chamber, levers connected to the said trunnions, an intermediate pivoted lever, and links connecting said levers to the opposite ends of said pivoted lever whereby said bottom-plates are opened or closed simultaneously, and water connections between said plates and the boiler, all substantially as and for the purpose described.

9. The combination of a boiler-furnace, a hollow-walled coking-oven in the upper part of the fire-chamber thereof having opposite hollow plates forming its bottom, the levers connected to the trunnions of said plates, the links connecting said levers to the opposite ends of an intermediate pivoted lever whereby said plates are opened or closed simultaneously, pipe connections between the hollow walls of the oven and the water-space of the boiler, and pipe connections between the water-space of the boiler and the hollow bottom-plates, and means for conducting gases from the oven into the fire-chamber, substantially as and for the purpose set forth.

679,797. **TENTERING-MACHINE RAIL.** HENRY A. TILLINGHAST, Providence, R. I. Filed Dec. 31, 1900. Serial No. 41,648. (No model.)

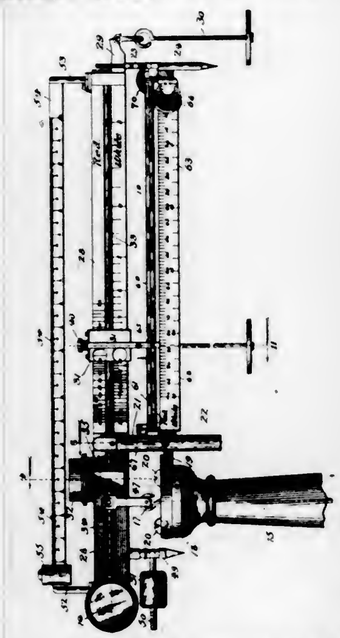


Claim.—1. In combination with the side rails of a tentering-machine mounted upon pivoted supports between them so that they may oscillate to and fro in opposite directions, an oscillatory transverse shaft also mounted upon a pivot between the rails, and mechanism for swinging the shaft, of means for connecting the shaft with one of the rails and capable of being changed in position lengthwise of the shaft and transversely of the rail, and mechanism by which the connecting means may be firmly fixed in the varied positions as required without interfering with the oscillations of the rails.

2. In combination with the side rails of a tentering-machine mounted upon pivoted supports between them so that they may oscillate to and fro in opposite directions, an oscillatory transverse shaft also mounted upon a pivot between the rails, and mechanism for swinging the shaft, of means for connecting the shaft with each rail and capable of being changed in position lengthwise of the shaft and transversely of the rail, and mechanism by which the connecting means may be firmly fixed in the varied positions as required without interfering with the oscillations of the rails.

3. In combination with the side rails of a tentering-machine mounted upon pivoted supports between them so that said rails may oscillate to and fro in opposite directions, an oscillating transverse shaft also mounted upon a pivot between the rails, and mechanism for swinging the shaft, of connections between the shaft and each rail consisting of two pieces movable upon the shaft and each carrying a pin, a piece upon each rail having a slot transverse to the rail through which the pin passes, and means surrounding the pins and capable of being firmly fixed in different portions of the slots.

679,798. **COMPUTING-SCALE.** THOMAS L. TISCHER, Chicago, Ill., assignor to Arthur G. Wilmore, same place. Filed Apr. 13, 1901. Serial No. 55,737. (No model.)



Claim.—1. In a computing-scale, a balanced price-beam graduated in units of price, a movable price-poise mounted on said price-beam adapted to carry weights denoting value, means for counterbalancing said price-poise when empty in all positions on said price-beam, an independently-balanced value-beam graduated in units of value connected to and controlling said price-beam, a movable value-poise mounted on said value-beam, said weights so scaled and said value and price beams so calibrated that the sum of the units of weight indicated at a balance by said value-weights and said value beam and poise denotes the value of the load weighed at the price indicated by the price beam and poise.

2. In a computing-scale, the combination of a price-beam, a price-poise adapted to slide along said beam, means for detachably securing value-weights to said price-poise, graduations on the price-beam representing price per unit of weight, a value-beam pivoted independently at an angle to said price-beam and adapted to control the price-beam through the sliding price-poise, a value-poise upon said value-beam, a graduated scale upon said value-beam adapted, in all positions of the price-poise upon the price-beam, to read directly in units of money the value of the part of the article weighed which is in excess of the portion represented by the value-weights upon the price-poise.

3. In a computing-scale, the combination of a price-beam graduated to represent prices per unit of weight, a value-weight-carrying slide or price-poise upon said beam, an angular beam pivoted at one side of the price-beam and extending through the vertical plane of said price-beam, a connection between the angular beam and the price-poise adapted to give the angular beam control of the price-beam in all positions of the price-poise, an angular scale-bar upon the angular beam, a poise upon said angular bar and graduations upon said scale-bar, the proportions of the various parts and the angle of the angular bar being such that when the apparatus is brought to a balance said divisions on the angular beam indicate in units of money the value of the portion of the load being weighed which is in excess of the portion of said load which is represented by the value-weights upon the price-poise.

4. The combination of an angular beam 60 adapted to be pivoted at one side of the price-beam of a computing-scale, means for connecting said angular beam to the price-poise of the scale in all positions of said price-poise, an angular scale-bar 63 on said angular beam, a poise 66 upon said bar 63 and graduations upon said bar representing value in units of money, for the purposes set forth.

5. In a computing-scale, the combination of a base adapted to be secured to the upright of ordinary platform counter-scales, a price-beam pivoted to said base, a price-poise upon one end of said price-beam, a counterweight upon the other end of said beam, means for moving said poise and said counterweight in opposite directions at such rates of speed that the scales will balance in all positions of the empty poise on the beam, means for detachably securing value-weights to the price-poise, means for connecting the counterweighted end of the price-beam to the mechanism of the weighing-platform and two scales upon the price-beam, one graduated to represent prices per unit of weight (with a given unitary value-weight on the price-poise) and the other scale graduated to represent multiples of said prices, substantially as described.

6. In a computing-scale, the combination of a base adapted to be secured to the upright of ordinary platform counter-scales, a price-beam pivoted to said base, a price-poise upon one end of said price-beam, a counterweight upon the other end of said beam, means for moving said poise and said counterweight in opposite directions at such rates of speed that the scales will balance in all positions of the empty poise on the beam, means for detachably securing value-weights to the price-poise, means for connecting the counterweighted end of the price-beam to the mechanism of the weighing-platform, two scales upon the price-beam, one graduated to represent prices per unit of weight with a given unitary value-weight on the price-poise and the other scale graduated to represent multiples of said prices, an auxiliary beam or lever adapted to control the price-beam through the price-poise in all its positions, and a graduated scale with its poise upon said auxiliary lever, adapted when the apparatus is brought to balance to indicate in units of money the value of the portion of the load to be weighed which is in excess of the portion of said load which is represented by the value-weights upon the price-poise, substantially as described.

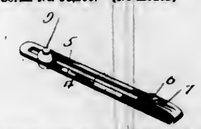
7. In combination with a computing-scale having a price-beam bearing graduated scales of two colors, the one adapted to indicate prices per unit of weight of the article to be weighed and the other to indicate multiples thereof, and having a price-poise adapted to slide upon said price-beam and having means for detachably securing value-weights to the price poise, a value-weight adapted to be secured to the price-poise having one side colored and value indications thereon to correspond with one of the scales on the price-beam and the other side colored and value indications thereon to correspond with the other scale on the price-beam, substantially as described.

8. In a computing-scale, the combination of a price-beam, a price-poise adapted to slide thereon, means for automatically counterweighting said price-poise, means for detachably securing a value-weight to said price-poise, a colored scale graduated on said price-beam to represent prices from a small number up to a certain number, a different-colored scale on said price-beam graduated to represent multiples of the first scale, one or more units-of-value weights adapted to be attached to the price-poise having one side numbered and colored to correspond to one of said scales and the other side numbered and colored to correspond to the other scale, an auxiliary lever or beam adapted to control the price-beam through the price-poise, two scales on the auxiliary beam colored respectively to correspond with the scales on the price-beam, and graduations on said auxiliary scales indicating in units of money the value of the portion of the load to be weighed which is in excess of the portion represented by the total value of the value-weights of the same color on the price-poise, substantially as described.

9. In a computing-scale, the combination of a price-beam, a counterweight adapted to slide thereon, a [ ]-piece secured to the lower edge of the beam of such dimensions that the counterweight may slide freely past it, and knife-edge bearings on the sides of said [ ]-piece, substantially as described for the purposes set forth.

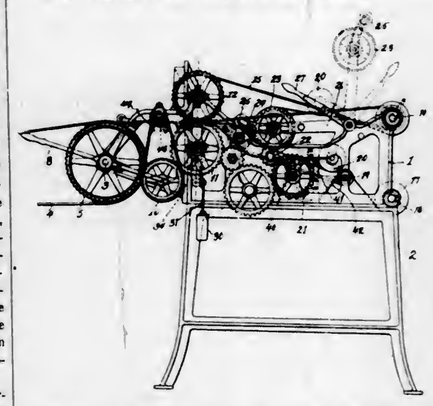
10. In a computing-scale, a price-beam graduated in scales of two colors, one adapted to indicate price per unit of weight of the article to be weighed and the other multiples thereof, a price-poise slidably mounted thereon with means for detachably securing value-weights, said value-weights having one face colored and value indications thereon to correspond with one of said scales and the other face colored and value indications thereon to correspond with the other of said scales and a number on the edge thereof indicating the amount in units of weight which said value-weight will balance.

679,799. **CUFF-HOLDER.** EDGAR H. TRICK, Niles, Ohio. Filed May 1, 1901. Serial No. 58,299. (No model.)



Claim.—The herein-described cuff-holding device comprising the slotted body portion 5 having the overlapping end 6 provided with an integral spring-tongue 7, all substantially as specified, in combination with an anchoring-screw 3 having the handle 9 and coöperating buttons 10 and 11, as set forth.

679,800. **CUTTING-MACHINE.** FRANK H. TURNER, Hartford, Conn. Filed July 9, 1900. Serial No. 22,923. (No model.)



Claim.—1. In combination in a machine of the class specified, a driving and carrying belt, a main driving-wheel, means for supporting and guiding the material to be cut to the cutter, means for removing the lining said means being frictionally driven, and one or more cutters adapted to cut said material to any desired width.

2. In combination, in a machine adapted to cut a web of material which is introduced to the machine in contact with a second web of material, a swinging frame bearing rollers for conveying one of said webs to a winding-spindle and means for guiding the first-named web to the cutters, and cutters for cutting the web.

3. In combination in a machine including a cutting and winding mechanism, positively-driven feed mechanism for the material to be operated in said closed position, and a gravity-latch disposed in the path of the material operated upon, and frictionally-driven winding mechanism for winding the carrying-web, and a belt for driving the driving-shaft adapted to receive and convey the cut material.

4. In combination in a machine for automatically cutting a strip of material, a pair of power-driven cutters, a pair of cutting-disks adjustable with relation to the cutters and adapted to be held in contact therewith with a forced yielding pressure.

5. In combination, in a machine for cutting a strip of material, a pair of rotary cutters standing in planes not truly parallel, parallel rotary cutter-disks mounted in operative relation to said cutters and held in yielding engagement therewith, gearing directly connecting the shafts of the cutting-disks, which shafts stand in a single plane, and means for driving them at corresponding speeds.

6. In combination, a pair of rotary cutters mounted upon a driving-shaft comprising two sections arranged with their axes disposed at an angle to each other, cutting-disks rotarily mounted in operative relation to the cutters and adapted to bear yieldingly against them to produce a shearing cut.

7. In combination, a pair of rotary cutters mounted upon a driving-axle, said axle being divided between the cutters, means connecting the two sections of the driving-shaft forming a coupling by which the cutters may be arranged at an angle to each other, and a pair of cutting-disks resiliently held against the cutters and coöperating with them to produce a shearing cut.

8. In combination in a machine of the class specified, the material to be cut and its lining-web suitably supported, mechanism for dusting the material to be cut and feeding it to the cutters, means for separating the lining-web therefrom and winding it up, and an adjustable guide-roll for guiding the material to be cut as it is separated from its lining, said feeding and winding mechanism traveling at different rates of speed.

9. In a machine for cutting strips of elastic material comprising a dusting, a feeding, and a cutting mechanism, rotary gummers whose edges apply an adhesive to the edges of the material after it has been cut and while it is in motion, said gummers being set oblique to the plane of the strip and having a rate of movement substantially equal to the rate of movement of the material, and means for adjusting said gummers to and from each other.

10. In a machine for cutting strips of material comprising feeding

mechanism and a pair of rotary cutters operating with a shearing cut upon the moving material, means for applying an adhesive to the newly-cut edges of the material, said means including a pair of obliquely-disposed rotary disks having their edges cut to conform to the edges of the material which has been cut, and means for adjusting said disks obliquely to their axes but in a line parallel with the plane of said material.

679,801. CAR-ROOF. JOSEPH E. ULSH, Altoona, Pa. Filed May 3, 1901. Serial No. 58,620. (No model.)



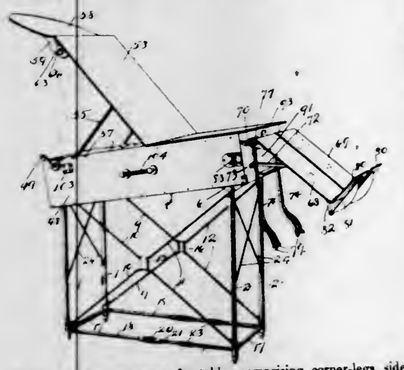
Claim.—1. A car-roof comprising transverse beams having longitudinal slots in their inner faces and openings communicating therewith through the lower faces of the beams, and plates passed through the openings in the lower faces of the beams and into the slots and having their mutually-adjacent ends engaged.

2. A car-roof comprising transverse beams having slots in their inner faces and having cut-away portions leading from the slots through the bottom faces of the beams, plates having their side edges slidably engaged with the slots and filling-blocks disposed in the cut-away portion to hold the plates against displacement.

3. A car-roof comprising beams having longitudinal slots in their inner faces and cut-away portions leading therefrom through the lower faces of the beams, plates slidably engaged with the slots, one of the plates having a hollow bead at its inner end and the other plate having an upwardly-turned flange at its inner edge for engagement with the bead, and filling-blocks disposed in the cut-away portion and against the plates to hold the flange in engagement with the bead to prevent displacement of the plates in the slots.

4. A car-roof comprising transverse beams disposed upon the side frames of the car and projecting therebeyond, planks secured to the ends of the beams, said beams having longitudinal slots therein and cut-away portions opening inwardly from the slots, plates disposed in the slots with their outer edges disposed to direct drainage beyond the frame of the car sides, the inner edges of the plates being interlocked.

679,802. OPERATING-TABLE. THOMAS M. VAUGHAN, Mattoon, Ill. Filed Nov. 17, 1900. Serial No. 36,813. (No model.)



Claim.—1. A substructure for tables comprising corner-legs, side bars, each having a long bend at one end and a short bend at the other end, to which the corner-legs are pivoted, cross-bars whereby the side bars are braced, means for restraining said legs from separating, and spreading-braces arranged between said legs for forcing them apart and each comprising two sections abutting against opposite legs and a turnbuckle connecting said sections together and adapted to force them in opposite directions, substantially as set forth.

2. A substructure for tables comprising corner-legs, side bars, each having a long bend at one end and a short bend at the other end, to which the corner-legs are pivoted, cross-bars whereby the side bars are braced, means for restraining said legs from separating, and spreading-braces for forcing said legs apart at their lower ends each comprising two rods removably socketed in opposite legs, and a turnbuckle in which one of said rods is loosely journaled and in which the other is screw-threaded, substantially as set forth.

3. In a table for the purpose described the combination of two pairs of legs one pair of which is longer than the other, the longitudinal side bars 3 having the portions 5 6 extending downwardly different distances and to the lower ends of which portions said legs are hinged, connections between the side bars, the braces 9 10 11 12 flexibly connected to the upper and lower ends of said legs respectively and adapted to fold against the inner sides of said legs, means for detachably connecting opposite braces together, and means for forcing the lower ends of said legs apart, substantially as set forth.

4. In a table for the purpose described the combination of the longitudinal side bars 3, the cross-bars 4 connecting said side bars together, a rigid rod connecting said cross-bars together, the longitudinal beam 26 having a longitudinal groove on its lower side and saddled on said rod so as to rock loosely thereon, straps for holding the beam from displacement, a table-body having support on said longitudinal beam and means for tipping said longitudinal beam on its longitudinal axis, substantially as set forth.

5. In a table for the purpose described the combination of a table-body, a frame on which said body is pivoted on a longitudinal axis, a nut swiveled to said frame, and a screw passing through said nut and having swivel connection with said table-body for tipping the table-body on its longitudinal axis, substantially as set forth.

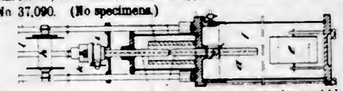
6. In a table for the purpose described the combination of a table-body, a frame on which said body is pivoted on a longitudinal axis, the arms 37 secured to said frame, a nut swiveled on said arms, a screw passing through said nut, and a bracket 32 swiveled to the end of said screw and having pivotal operative connection with the table-body, substantially as set forth.

7. In a table for the purpose described the combination of a frame, the longitudinal beam 26 pivoted thereto on its longitudinal axis, the cross-beam 29 secured to said beam 26, a table-body hinged to said beam 29 on its transverse axis, the bracket 32 pivoted to the end of beam 29, the nut 35 having a swivel support on said frame, a screw passing through said nut and operatively connected with said bracket, and means supported on the end of said longitudinal beam for raising the end of said body, substantially as set forth.

8. In a table for the purpose described the combination of a frame, the longitudinal beam 26 pivoted to said frame on its longitudinal axis, the cross-beam supported on beam 26, a table-body hinged to said cross-beam, a nut having pivotal connection with and supported on said beam 26, a screw passing through said nut and having swivel connection with said body, an operating-shaft journaled in said body portion and gears connecting said shaft with said screw, substantially as set forth

9. In a table for the purpose described the combination of a standard having bifurcations 97, semicylindrical leg-rests 98 having longitudinal slots 99 and pivots 100 secured in said bifurcations and passing through said slots, substantially as set forth.

679,803. MANUFACTURE OF FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS. WILLIAM L. VOELKER, London, England, assignor to Theron Clark Crawford, Arrochar Park, borough of Richmond, New York, N. Y. Original application filed July 30, 1900, Serial No. 25,337. Divided and this application filed Nov. 19, 1900. Serial No. 37,090. (No specimens.)



Claim.—The herein-described method of producing carbid filaments for electric incandescing lamps consisting in treating a carbon filament in an electric arc in the presence of vapor of the metal or metals constituting the metallic base of the carbid to be produced, the said carbon filament being converted into graphite and then into carbid at a single operation, substantially as set forth.

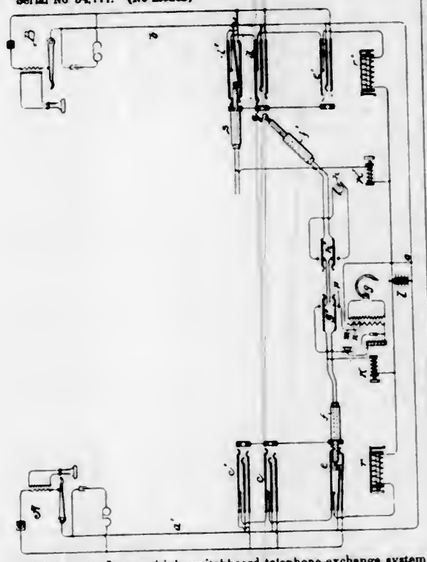
679,804. WASHBOARD. CHARLES J. VOHS, New London, Wis. Filed Apr. 29, 1901. Serial No. 58,043. (No model.)



Claim.—A washboard comprising a rubbing-board formed with horizontal parallel grooves in its face and grooves in its edges communicating with the parallel horizontal grooves and provided at its upper end

with a shelf, wires seated in said horizontal grooves and having their ends bent to engage the grooves in the edges of the board, side pieces or stiles having vertical grooves intersected at their upper ends by transverse slots 10 said side pieces or stiles engaging with the edges of said board and with the ends of the shelf and embracing said wires and secured in place, substantially as set forth.

679,805. TEST SYSTEM FOR MULTIPLE SWITCHBOARDS. HARRY G. WEBSTER, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, same place. Filed Oct. 29, 1900. Serial No. 34,771. (No model.)



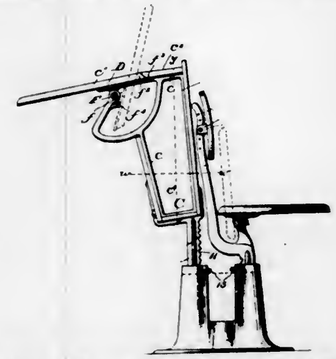
Claim.—1. In a multiple-switchboard telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each telephone-line being connected at the exchange with jacks upon a number of sections of a multiple switchboard, cord-connecting apparatus for uniting subscribers for conversation including a testing-plug, connected thimbles for the jacks of each line, the said test-plugs being provided with tip and sleeve portions, the sleeve portions being adapted for connection with the test-thimbles when inserted, an operator's telephone appliance, a listening-key for connecting same with and disconnecting it from the cord-circuit, a coil portion *n* in inductive relation with the secondary of the operator's telephone appliance, a battery connected between one terminal of the said coil portion and the sleeve-strand, the remaining terminal of the coil portion being adapted for connection with the tip of the testing-plug upon the operation of the listening-key, and a second coil portion also in inductive relation with the secondary coil of the operator's telephone appliance adapted for inclusion in a subscriber's telephonic circuit, substantially as described.

2. In a multiple-switchboard telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each telephone-line being connected at the exchange with jacks upon a number of sections of a multiple switchboard, cord-connecting apparatus for uniting subscribers for conversation including a testing-plug, connected thimbles for the jacks of each line, the said test-plugs being provided with tip and sleeve portions, the sleeve portions being adapted for connection with the test-thimbles when inserted, an operator's telephone appliance, a listening-key for connecting same with and disconnecting it from the cord-circuit, a coil portion *n* in inductive relation with the secondary of the operator's telephone appliance, a battery connected between one terminal of the said coil portion and the sleeve-strand, the remaining terminal of the coil portion being adapted for connection with the tip of the testing-plug upon the operation of the listening-key, a second coil portion also in inductive relation with the secondary coil of the operator's telephone appliance adapted for inclusion in a subscriber's telephonic circuit, and a clearing-out indicator included in circuit with the battery and the sleeve of the testing-plug, substantially as described.

3. In a multiple-switchboard telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each telephone-line being connected at the exchange with jacks upon a number of sections of a multiple switchboard, cord-connecting apparatus for uniting subscribers for conversation including a testing-plug, connected thimbles for the jacks of each line, the said test-plugs being provided with tip and sleeve portions, the sleeve portions being adapted for connection with the test-thimbles when inserted, an operator's telephone appliance including inductively-related primary and secondary coils, a listening-key for connecting the same with and disconnecting it from the cord-circuit, a battery interposed between the primary winding and the sleeve of said plug, and a conductor connected between the terminals of the primary winding and adapted for connection with the tip of the test-plug upon the operation of the listening-key, said listening-key serving to include the operator's telephone appliance in circuit with the subscriber's line, whereby a portion of the primary winding may be included in the test-circuit while the entire primary winding may be included in circuit with a subscriber's line, substantially as described.

4. In a multiple-switchboard telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, each telephone-line being connected at the exchange with jacks upon a number of sections of a multiple switchboard, cord-connecting apparatus for uniting subscribers for conversation including a testing-plug, connected thimbles for the jacks of each line, the said test-plugs being provided with tip and sleeve portions, the sleeve portions being adapted for connection with the test-thimbles when inserted, an operator's telephone appliance including inductively-related primary and secondary coils, a listening-key for connecting the same with and disconnecting it from the cord-circuit, a battery interposed between the primary winding and the sleeve of said plug, a conductor connected between the terminals of the primary winding and adapted for connection with the tip of the test-plug upon the operation of the listening-key, said listening-key serving to include the operator's telephone appliance in circuit with the subscriber's line, whereby a portion of the primary winding may be included in the test-circuit while the entire primary winding may be included in circuit with a subscriber's line, and a clearing-out indicator included in circuit with the battery and the sleeve of the testing-plug, substantially as described.

679,806. COMBINED SCHOOL DESK AND CHAIR. HOWARD W. WELLER, Poughkeepsie, N. Y., assignor of one-half to Isaac W. Sherrill, same place. Filed Oct. 22, 1900. Serial No. 33,941. (No model.)



Claim.—1. The combination with a supporting-base and a hollow standard having dog-seats, of a stem, the construction of said standard being such as to permit of a rocking and vertical, non-rotary movement of the stem within the standard, and a movable dog adapted to move from one seat to the other and to lock the stem in adjusted position, substantially as set forth.

2. The combination with a supporting-base provided with a hollow standard, of a stem having dog-seats, the construction of said hollow standard being such as to permit of a rocking and vertical, non-rotary movement of the stem within the standard, said standard being provided with a dog-chamber having a stop at its lower end and a shoulder or offset near its upper end, the wall of said chamber between the stop and the offset or shoulder being inclined, and a dog located in said chamber and adapted to engage said seats and lock the stem in adjusted position, substantially as set forth.

3. The combination with a supporting-base, provided with a hollow standard, of a stem, the construction of said hollow standard being such as to permit of a rocking and vertical, non-rotary movement of the stem within the standard, said standard being provided with a dog-chamber

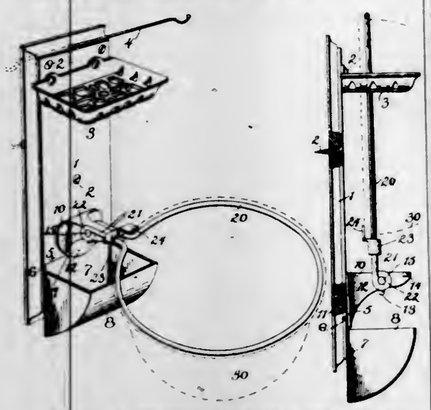
which communicates with the hollow bore of the standard and is provided with an inclined wall, the said chamber having at its lower end a stop and at its upper end an inclined shoulder or offset, said stem being provided with a longitudinal rib which travels within the dog-chamber and is provided with dog-seats, and a dog located in said chamber and adapted to engage said seats and hold the stem in adjusted position, substantially as set forth.

4. A supporting bell-shaped base having hollow standards projecting upwardly therefrom at diametrically opposite points from its center and adapted to receive adjustable stems for supporting a desk and chair, substantially as set forth.

5. In a desk the combination with the metal supporting-arms, of a desk-top, lugs secured to the under side of the desk-top and adapted to lie between and engage the extremities of said arms and provided with sockets, a longitudinally recessed or grooved book-support having its ends seated in said sockets, and a rod passed through said lugs, arms, and the groove of said book-support, and provided with tightening means at its ends, substantially as set forth.

6. In a desk, the combination with the metal supporting-arms, of a desk-top, lugs secured to the under side of the desk-top and adapted to lie between and engage the extremities of said arms, a book-support located between said lugs, a rod passed through said lugs and arm extremities and provided with tightening-nuts for clamping said arms and extremities together and said book-support in place, substantially as set forth.

679,807. WASHSTAND. WILLIAM C. WERUM, Toledo, Ohio. Filed Nov. 22, 1900. Serial No. 37,401. (No model.)



Claim.—1. The combination with an upright base having a groove across its face, and a bowl-support having a shank entering said base and a depending flange extending over the groove; of a drip-cup having an upright back extending above its body and provided with a rearwardly-projecting lip adapted to removably engage said groove, as and for the purpose set forth.

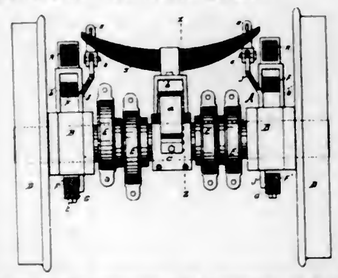
2. The combination with an upright base having a groove across its face, a support secured to said base and having a flange standing over said groove, and a bowl-carrier pivoted to said support; of a drip-cup having an upright back extending above its body and provided with a rearwardly-projecting lip adapted to removably engage said groove, as and for the purpose set forth.

3. The combination with a horizontal support having laterally-projecting stub-shafts and a T-head at its front end, and a drip-cup beneath this support; of a hoop whose ends stand parallel and are adapted to rest on said T-head, eyes at their extremities pivoted on said stub-shafts, and a clamp connecting said eyes and having a bowl-retaining tongue, as and for the purpose set forth.

4. The combination with a horizontal support having laterally-projecting stub-shafts and a T-head at its front end, and a drip-cup beneath this support; of a hoop having its ends outturned and standing parallel, eyes at their extremities pivoted on said stub-shafts, means for holding the hoop frictionally in upright position, and a clamp connecting said ends near the hoop proper and having a tongue on its body projecting toward the center of the hoop, as and for the purpose set forth.

5. The combination with a horizontal support having side lugs, stub-shafts projecting laterally therefrom, a T-head at the front of the support, and a drip-cup beneath; of a bowl-carrier comprising a hoop with outturned ends adapted to rest on said T-head when the bowl-carrier stands horizontal, and eyes at the extremities of said ends provided with notches in their inner edges adapted to engage said lugs when the carrier stands in vertical position, all as and for the purpose set forth.

679,808. LOCOMOTIVE. GEORGE W. WEST, Middletown, N. Y. Filed Feb. 9, 1900. Serial No. 4,626. (No model.)

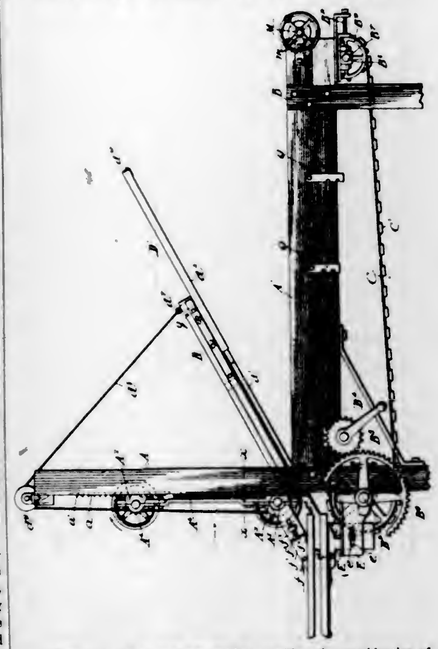


Claim.—1. The combination with a locomotive-axle having an intermediate journal-bearing between the ordinary bearings, of journal-box C, sustaining part of the weight of the locomotive through the spring S, and hangers H and J, connected to the locomotive between the pedestal-brace G and frame F, substantially as described.

2. A third journal in the center of a locomotive-axle in combination with driving-box C and spring S impinging on the same, the resisting ends of spring being attached to the frame of locomotive by an intermediate connection, substantially as described.

3. A third journal in center of locomotive-axle in combination with driving-box C, held in position by braces *a* and *a'*, bolted to cross-braces K and K' substantially as shown and for the purposes set forth.

679,809. MATTRESS-MAKING MACHINE. CHARLES W. WHITE, Waco, Tex. Filed Mar. 11, 1901. Serial No. 50,537. (No model.)



Claim.—1. In a mattress-making machine, the combination of a main frame, a compression-frame pivotally mounted in said main frame, means for raising and lowering the pivoted end of said compression-frame, and devices movable with said means and operable independent thereof for raising and lowering the free end of said compression-frame.

2. In a mattress-making machine, the combination of a main frame, a compression-frame pivotally mounted in said main frame, means for raising and lowering the pivoted end of said compression-frame, devices movable with said means and operable independent thereof for raising and lowering the free end of said compression-frame and means for securing the free end of the compression-frame upon the material to be compressed.

3. In a mattress-making machine, the combination of a main frame, a compression-frame comprising a fixed section pivotally mounted in the main frame and an adjustable section movable lengthwise of the fixed section and means for securing the sections in adjusted relation.

4. In a mattress-making machine, the combination of a main frame, a compression-frame pivoted therein, and comprising a fixed and an adjustable section movable lengthwise of the fixed section, means for securing said sections in adjusted relation, and means for independently raising and lowering the free and pivoted ends of said frame.

5. In a mattress-making machine, the combination of a main frame, a compression-frame pivoted therein at the exit end of the main frame, means for raising and lowering the free end of the compression-frame, devices for securing said end upon the material to be compressed, means to thereafter force the pivoted end of said compression-frame downward to compress the material, and a tick-holder one member of which is connected and movable with the pivoted end of the compression-frame.

6. In a mattress-making machine, the combination of a main frame having an open end, a compression-frame pivoted therein, and provided with an extension to close the open end of the main frame when the compression-frame is raised, and means for raising and lowering the free end of said compression-frame.

7. In a mattress-making machine, the combination of a main frame, a tick-holder supported and spaced therefrom, a compression-frame pivoted in the main frame and provided with an extension to close the end of the main frame when the compression-frame is raised and to bridge the space between the upper member of the tick-holder and compression-frame when the latter is lowered upon the material, and means for raising and lowering said compression-frame.

8. In a mattress-making machine, the combination of a main frame, a shaft supported thereby, a compression-frame pivotally mounted upon said shaft, means operable from said shaft for raising and lowering the free end of said compression-frame, a tick-holder spaced from and extending beyond said shaft the upper member of which is movable with said shaft, and means for positively raising and lowering the said shaft and the pivotal end of the connected compression-frame and upper member of the tick-holder.

9. In a mattress-making machine, the combination of a main frame having uprights, racks secured to said uprights, a shaft having pinions engaging said racks, means for restraining the shaft from rotation in one direction, a second shaft, devices connecting the two shafts to cause them to move in unison, a compression-frame hung from said second shaft, and means operable from said second shaft for raising and lowering the free end of the compression-frame, whereby the free end of said compression-frame may be lowered and thereafter the opposite end may be forced downward to compress the material

10. A compression-frame comprising fixed and adjustable sections, the latter being movable lengthwise of the former to vary the combined length of the two sections, means for securing them in adjusted relation, and an extension secured to the fixed section.

11. In a mattress-making machine, the combination of a main frame provided with a slatted apron, a compression-frame pivotally mounted on the main frame, and a separate and independent shaping or forming frame to receive the stuffing material and adapted to be supported on the apron of the main frame, said shaping and forming frame being provided with means for engagement between the slats of the apron and means for adjusting the shaping and forming frame to the size of mattress desired.

12. In a mattress-making machine, the combination of a main frame provided with a slatted apron, an auxiliary side board adjustably connected to said main frame, a compression-frame pivotally mounted on the main frame, and a separate and independent shaping or forming frame to receive the stuffing material and adapted to be supported on the apron of the main frame, said shaping and forming frame being provided with means for engagement between the slats of the apron, and means for adjusting the shaping and forming frame to the size of mattress desired.

13. In a mattress-making machine, the combination of a main frame having an open end provided with a slatted apron and means for operating it, a compression-frame pivotally mounted on the main frame and provided with an extension to close the open end of the main frame when the compression-frame is in raised position, a shaping or forming frame adapted to rest upon the slatted apron to receive the stuffing material and means for causing the shaping and forming frame to move with the apron to carry the material into the tick.

14. In a mattress-making machine, the combination of a main frame provided with a slatted apron and means for moving the apron, of a shaping or forming frame adapted to rest upon the apron to receive the stuffing material, and means on said shaping and forming frame for engagement between the slats of the apron for connecting the said shaping or forming frame to said apron and to cause it and the stuffing material to be moved into the tick.

15. In a mattress-making machine, the combination of a main frame provided with a slatted apron and means for moving the apron, of a shaping or forming frame adapted to rest upon the apron to receive the stuffing material, and means for engagement between the slats of the apron for connecting the said shaping or forming frame to said apron to cause it and the stuffing material to be moved into the tick, and means independently of the apron for thereafter withdrawing the shaping or forming frame from the tick.

16. In a mattress-making machine, the combination of a main frame provided with an apron and means for moving said apron, of a shaping and forming frame adapted to rest upon said apron and having a push-board or ram, connected to and forming part of the shaping and forming frame and means on said shaping and forming frame to engage the slatted apron for detachably connecting the shaping and forming frame to said apron to cause it and the material contained therein to be carried into the tick.

17. In a mattress-making machine, the combination of a main frame provided with a slatted apron, an auxiliary side piece or board adjustably connected to the main frame, a shaping or forming frame independent of the auxiliary side piece or board and adjustable as to width and adapted to rest upon said apron between a side piece of the main frame and the auxiliary side piece, and means for detachably connecting the shaping or forming frame between the slats of the apron to cause it and the material therein to be carried into the tick.

18. In a mattress-making machine, the combination of a main frame provided with a slatted apron, an auxiliary side piece or board adjustably connected to the main frame, a shaping or forming frame independent of the auxiliary side piece or board and adjustable as to width and adapted to rest upon said apron between a side piece of the main frame and the auxiliary side piece, an adjustable push-board or ram connected to the shaping or forming frame, and means connected to the shaping and forming frame for detachably connecting the shaping or forming frame between the slats of the apron to cause it and the material therein to be carried into the tick.

19. A shaping or forming frame, comprising a series of slats some of which are adjustable toward and from the others, side pieces arranged at the sides of said series of slats, an adjustable push-board or ram connecting said side pieces, an angle-iron hinged to said slats, and means for securing the slats in adjusted relation.

20. A shaping or forming frame, comprising a series of slats some of which are adjustable toward and from the others, rollers disposed between said slats, side pieces arranged at the sides of said series of slats, an adjustable push-board or ram connecting said side pieces and means for securing the slats in adjusted relation.

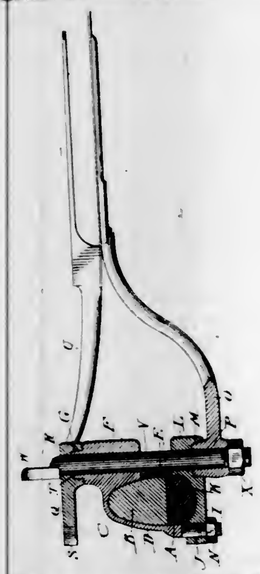
21. In a mattress-making machine, the combination of a main frame provided with a slatted apron and operating means and an adjustable tick-holder, a compression-frame pivoted in said main frame and adjustable lengthwise, a shaping or forming frame adapted to rest upon said slatted apron and adjustable in width, a push-board or ram carried by said frame, and means connected to said shaping and forming frame and adapted to be engaged between the slats of the apron to cause the said frame to move therewith and carry the stuffing material and be itself carried into the tick.

22. In a mattress-making machine, the combination of a main frame having an open end, a compression-frame pivoted therein and provided with an extension to close the open end of the main frame when the compression-frame is in raised position, a shaping or forming frame provided with a push-board or ram, a dummy push-board or ram, and a series of loose pieces or dummies adapted to be inserted between the two push-boards to vary the length of the mattress to be made and means for moving the shaping or forming frame and the material carried thereby into the tick.

23. In a mattress-making machine, the combination of a main frame, a compression-frame having an open end pivoted therein and provided with an extension to close the open end of the main frame when the compression-frame is in raised position, a shaping or forming frame provided with a push-board or ram, a dummy push-board or ram, and a series of loose pieces or dummies adapted to be inserted between the two push-boards to vary the length of the mattress to be made and means for moving the shaping or forming frame and the material carried thereby into the tick, and means for withdrawing the shaping or forming frame from the tick.

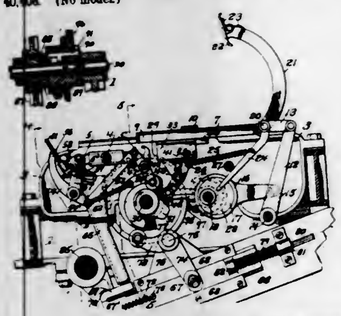
679,810. VEHICLE-GEAR. FRANK E. WILCOX, Mechanicsburg, Pa., assignor of one-half to Lester E. Hickok, same place. Filed Apr 26, 1901. Serial No. 57,560. (No model.)

Claim.—1. The combination in a vehicle-gear, of an integral clip having three legs, D and E E, adapted to embrace opposite sides of an axle and axle-bed, and a lug, F, said lug having a hole for a king-bolt, and the said legs and lugs having curved surfaces on the inside at H; an axle-yoke having a perforated lug; a head-block plate having a perforated lug; a brace-head; a reach or reaches; and a king-bolt; the said king-bolt passing through the lugs of the head-block plate, the clip, the axle-yoke, and the brace-head; in substance as set forth.



2. The combination in a vehicle-gear, of the integral clip having three legs D and E E and a perforated lug, F; the axle-yoke having the lug, L; the brace-head, P; the head-block plate having the integral lug, R; and the king-bolt passing through lugs, R F and L; the brace-head, P, interlocking with the axle-yoke, and the lug, F, interlocking with the lug, R, of the head-block plate; whereby the king-bolt is relieved of shearing strains and the bearings remotely separated.

679,811. **MACHINE FOR BOXING CIGARETTES.** GEORGE M. WILLIAMS, Baltimore, Md., assignor to the American Tobacco Company, of New Jersey. Filed Mar. 14, 1899. Renewed Dec. 19, 1900. Serial No. 40,408. (No model.)



Claim.—1. In a machine for filling and closing boxes having hinged flanged lids, the combination with a box-support of means for placing the contents in a box, and means for closing down the lid and for bringing the flange thereon into proper engagement with the edge of the box, substantially as described.

2. In a machine for closing boxes, the combination with means for supporting a box having a hinged flanged lid of means for closing down the lid upon the box and for bringing the flange thereon into proper engagement with the box, substantially as described.

3. The combination with a box-support, of means for springing in an edge of the box, and means for placing a flanged cover in position on the box with its flange overlapping said edge, substantially as described.

4. In a machine for filling and closing boxes having hinged flanged lids, the combination with a box-support, of means for placing the contents in the box means for pressing them home therein, and means for pressing the lid down upon the box and for bringing the flange into proper engagement with the edge of the box, substantially as described.

5. In a machine for filling and closing boxes, the combination with a box-support, of means for placing the contents therein, means for evening up and pressing home the contents, means for springing in an edge of the box, and means for placing a flanged cover in position on the box with its flange overlapping the edge, substantially as described.

6. The combination with a movable box-support, of means for springing in an edge of a box resting on the support, means for placing a cover in position with its flange overlapping the edge, and means for moving the support to discharge the box, substantially as described.

7. In a machine for filling and closing boxes, the combination with a movable box-support, of means for placing the contents therein, means for springing in an edge of the box, means for placing a flanged cover in position on the box with its flange overlapping the said edge, and means for moving the support to discharge the box, substantially as described.

8. In a machine for filling and closing boxes, the combination with a box-support, of a table on which the contents are laid, a slide for transferring the contents from the table to the box, a packing device for evening and pressing home the contents of the box, means for springing in an edge of the box, and means for placing a flanged cover in position with its flange overlapping the said edge, substantially as described.

9. In a machine for filling and closing boxes, the combination with a box-support, of a table on which the contents are laid, a slide for transferring the contents from the table to the box, a packing device for evening and pressing home the contents of the box, means for springing in an edge of the box, means for placing a flanged cover in position with its flange overlapping the said edge, and means for delivering the filled and closed box, substantially as described.

10. The combination with a box-support, of a table upon which the articles to be placed in the box are laid, a slide for transferring the articles from the table to the box, a packing and evening device carried by said slide, and means for operating the slide and the packing device, substantially as described.

11. The combination with a box-support, of a table upon which the articles to be placed in the box are laid, a slide surrounding the table on three sides, a packer-arm carried by the slide, means for reciprocating the slide, and means whereby the packer-arm is caused to operate as the slide reciprocates, substantially as described.

12. The combination with a box-support, of a table upon which the articles to be placed in the box are laid, a slide for transferring the articles from the table to the box, a packer-arm pivoted to the slide, an extension on said arm, means for reciprocating the slide and arm, a pin in the path of the extension on the arm, whereby the arm is rocked by contact of the extension with the pin as the slide moves in one direction, and a spring for returning the arm as the slide moves in the opposite direction, substantially as described.

13. The combination with a box-support, of a table upon which the articles to be placed in the box are laid, said table being mounted to have a limited movement, a pusher-slide, and means whereby the pusher-slide and table are caused to move together for a distance and then the slide is caused to move forward alone and deliver the articles from the table, substantially as described.

14. The combination with a box-support, of a table upon which the articles to be placed in the box are laid, the table being mounted to have a limited movement, a pusher-slide, connections between the slide and the table by which the table is given a limited movement by the slide, and means for operating the slide, the slide in its movement being caused to advance after the table has stopped, substantially as described.

15. The combination with a box-support, of a table, means whereby the table is supported, a pin-and-slot connection between the table and its support, a pusher-slide, a slip connection between the pusher-slide and the table whereby the table is given a limited movement, and means for operating the pusher-slide, the slide in its movement being caused to advance after the table has stopped, substantially as described.

16. The combination with a box-support, of a slotted table upon which the articles to be placed in the box are laid, brackets for supporting the table, a pin-and-slot connection between the table and the brackets, bowed springs carried by the table, a pusher-slide, openings in the slide which are engaged by the springs, and means for operating the slide, substantially as described.

17. In a machine for filling and closing boxes, the combination with a box-support having a plurality of supporting sides, of means coöperating therewith to hold the boxes thereon, means for placing the contents in the boxes, means for closing the boxes, said closing means operating while the support is stationary, and means for giving the support a partial rotation between successive filling and closing operations, substantially as described.

18. In a machine for filling and closing boxes, the combination with a box-support having a plurality of supporting sides, of means coöperating therewith to hold the boxes thereon, means for placing the contents in the boxes, means for closing the boxes, said closing means operating while the support is stationary, and means for giving the support a partial rotation between successive filling and closing operations, means for locking the support against movement except during the periods when it is rotated, substantially as described.

19. In a machine for filling and closing boxes, the combination with a rotating box-support having two oppositely-arranged supporting sides and two sets of stops cooperating with said sides, of means for giving the box-support a half-rotation whereby boxes may be successively placed on each side thereof, substantially as described.

20. In an organized machine for filling boxes, the combination with a box-support upon which a box containing a strip of paper may be placed, of means in proximity to the support for holding one edge of the strip of paper, substantially as described.

21. In an organized machine for filling boxes, the combination with a box-support upon which a box containing a strip of paper may be placed, of means for holding one edge of the strip of paper, and means for placing the contents of the box in position, substantially as described.

22. In an organized machine for filling boxes, the combination with a box-support upon which a box containing a strip of paper may be placed, of means for placing the contents of the box in position, and means for folding one edge of the strip of paper over said contents, substantially as described.

23. In an organized machine for filling boxes, the combination with a box-support upon which a box containing a strip of paper may be placed with a part of the paper overlying the cover of the box and an edge projecting beyond a side of the box, of means for placing the contents of the box in position, means for folding the edge of the paper over said contents, and means for closing down the cover of the box and thus folding down the remainder of the strip of paper over the contents, substantially as described.

24. The combination with a box-support, of a table upon which the contents of the box are placed, a spring-clamp for holding one edge of a strip of paper placed in the box, a slide for transferring the contents from the table to the box, means carried by the slide for releasing the clamp and causing it to grip the paper, and a second slide for folding the edge of the paper over onto the contents of the box, substantially as described.

25. The combination with a box-support, of a table upon which the contents of the box are placed, a spring-clamp for holding one edge of a strip of paper placed in the box, a slide for transferring the contents from the table to the box, means carried by the slide for releasing the clamp and causing it to grip the paper, a second slide for folding the edge of the paper over onto the contents of the box, and means carried by said slide for releasing the clamp prior to the folding operation, substantially as described.

26. The combination with a box-support whereon a box having a hinged cover is placed with a strip of paper overlying the cover of the box and an edge projecting beyond a side of the box, of means for placing the contents in the box, a clamp thrown into operation by said means for holding the edge of the strip of paper, a folding device, means operated by the folding device for releasing the clamp, and means for closing down the cover of the box and thus folding over the remainder of the strip of paper, substantially as described.

27. In a machine for closing boxes having hinged flanged lids, the combination with a box-support, of clamping devices acting against two sides of the box and devices for closing down the hinged lid so that the flange thereon will be in engagement with the edge of the box, substantially as described.

28. In a machine for filling boxes, the combination with a box-support constructed to hold a box having a hinged flanged lid of a pair of blades acting against the front and rear sides of the box and means operating in connection with the blades to close down the lid and bring the flange into proper engagement with the edge of the box, substantially as described.

29. In a machine for filling and closing boxes, the combination with a box-support of a blade acting against one side of the box and below the edge thereof to press the same inward, means for operating the blade and means acting in opposition to the blade on the opposite side of the box, substantially as described.

30. The combination with a box-support, of a blade acting against the rear side of the box, means for supporting and operating such blade, and lid-closing devices carried by said supporting and operating means, substantially as described.

31. The combination with a box-support, of a blade for acting against one side of the box, means for supporting and operating said blade, a second blade acting against the opposite side of the box, a pair of arms by which said second blade is carried, said arms having hooked extensions which act as lid-closing devices, substantially as described.

32. The combination with a box-support, of a shaft, a pair of arms on said shaft, a blade for acting on one side of the box carried by said arms, a second shaft, a pair of arms on said second shaft, hooked extensions forming lid-closing devices on said arms, a second blade for acting against the rear side of the box carried by said arms, and means for rocking the shafts, substantially as described.

33. The combination with a box-support, of a shaft, a pair of arms on said shaft, a blade for acting on one side of the box carried by said arms, a second shaft, a pair of arms on said second shaft, hooked extensions forming lid-closing devices on said arms, a second blade carried by said arms for acting against the opposite side of the box, means for rocking one of the shafts, and connections between the two shafts whereby the rocking movement of one shaft is transmitted to the other, substantially as described.

34. The combination with a box-support, of means for acting against one side of the box, means for acting against the opposite side of the box, said means including a pressing device, lid-closing devices connected to said means, and a supplemental lid-closing device, substantially as described.

35. The combination with a box-support, of a blade for acting against one side of the box, means for supporting and operating the blade, a second blade, a pair of arms by which it is supported, hooked extensions on the arms forming lid-closing devices, and a supplemental lid-closing device, substantially as described.

36. The combination with a box-support, of means for springing in one edge of a box resting on the support, means for acting on the opposite side of the box, the box being held between the two sets of means, and lid-closing devices carried by the means which act on the rear side of the box, substantially as described.

37. The combination with a box-support, of means for springing in one edge of a box resting on the support, means for acting on the opposite side of the box, the box being held between the two sets of means, lid-closing devices carried by the means which act on the rear side of the box, and a supplemental lid-closing device, substantially as described.

38. The combination with a box-support, of a pair of shafts located in proximity thereto, devices carried by the shafts for acting on the two sides of the box, lid-closing means carried by one set of devices, a supplemental lid-closing device, connections between the shafts, and means for operating one of the shafts, substantially as described.

39. The combination with the box-support, of a pair of shafts located in proximity thereto, devices carried by the shafts for acting on two sides of the box, lid-closing means carried by the devices on one side of the box, a spring-bail acting as a supplemental closing device, and means whereby said spring-bail is operated from one of the shafts, substantially as described.

40. The combination with a delivery-trough for receiving filled boxes, of advancing devices operating against the rear side of the boxes, means for depositing boxes in the space caused by advancing the boxes in the trough, and means whereby the advancing devices are permitted to pass around the boxes so deposited as they are withdrawn after finishing their advancing movement, substantially as described.

41. The combination with a delivery-trough for receiving filled boxes, said trough having its delivery end higher than its receiving end, of advancing devices operating against the rear side of the boxes, means for depositing boxes in the space caused by advancing the boxes in the trough, and means whereby the advancing devices are permitted to pass around the boxes so deposited as they are withdrawn after finishing their advancing movement, substantially as described.

42. The combination with a trough for receiving filled boxes, said trough having its delivery end higher than its receiving end, of a pair of slides mounted on the trough, pivoted advancing devices for the filled boxes carried by the slides, said devices being farther apart at their rear than at their operating ends, means for operating the slides and thus causing the advancing devices to move forward the boxes in the trough, and means for delivering the filled boxes into the trough behind the operating ends of the advancing devices, substantially as described.

43. The combination with a trough, of a pair of slides carried thereby, pivoted advancing devices carried by the slides, said devices being farther apart at their pivotal points than at their operating ends, springs operating to force the operating ends of the advancing devices toward each other, and means for reciprocating the slides, substantially as described.

44. The combination with a trough having its delivery end higher than its receiving end, of a pair of slides carried thereby, a shaft pivoted in each slide, pawls pivoted to the shafts, said pawls being farther apart at their pivotal points than at their operating ends, arms on the shafts, springs connected to the arms and slides and operating to force the pawls

toward each other, and means for reciprocating the slides, substantially as described.

45. In a machine for filling and closing boxes, the combination with a box-support, of a table on which the contents of the box are laid, devices for transferring the contents from the table to the box, a pressing and evening device, lid-closing devices, a cam-shaft, means for revolving the shaft, means whereby the shaft is brought to a stop after each revolution, and cams on the shaft for successively causing the operation of the transferring, pressing and evening, and lid-closing devices, substantially as described.

46. In a machine for filling and closing boxes, the combination with a rotating box-support, of a table on which the contents of the box are laid, a transferring device, lid-closing devices, a cam-shaft, means for revolving the shaft, means whereby the shaft is brought to a stop after each revolution, and cams on the shaft for causing the successive operation of the transferring and lid-closing devices and the rotation of the support, substantially as described.

47. In a machine for filling and closing boxes, the combination with a rotating box-support, of a table on which the contents of the boxes are laid, a transferring device, a pressing and evening device, lid-closing devices, a cam-shaft, means for revolving the shaft, means for bringing the shaft to a stop after each revolution, and cams on the shaft for causing the successive operation of the transferring, pressing and evening, and lid-closing devices, and the rotation of the box-support, substantially as described.

48. In a machine for filling and closing boxes, the combination with a rotating box-support, of a table on which the contents of the boxes are laid, a transferring device, a pressing and evening device, lid-closing devices, a cam-shaft, means for rotating the shaft, means for bringing the shaft to a stop after each revolution, cams on the shaft for causing the successive operation of the transferring, pressing and evening and lid-closing devices, and the rotation of the box-support, and means for locking one of said devices against movement except at predetermined times, substantially as described.

49. In a box filling and closing machine, the combination with a rotating box-support, of a table on which the contents of the boxes are laid, a transferring device, a pressing and evening device, lid-closing devices, devices for delivering the filled boxes out of the machine, a cam-shaft, means for rotating the shaft, means for bringing the shaft to a stop after each revolution, and cams for causing the successive operation of the transferring, packing and lid-closing devices, the rotation of the support and the operation of the delivery devices, substantially as described.

50. In an organized machine for filling and closing boxes having hinged flanged lids, the combination with a box-support, of means for supporting the contents of the boxes prior to their insertion thereinto, means for transferring said contents into the boxes, means for closing down the lids of the boxes so that their flanges will be in engagement with the edges of the boxes, and devices for delivering the closed boxes, substantially as described.

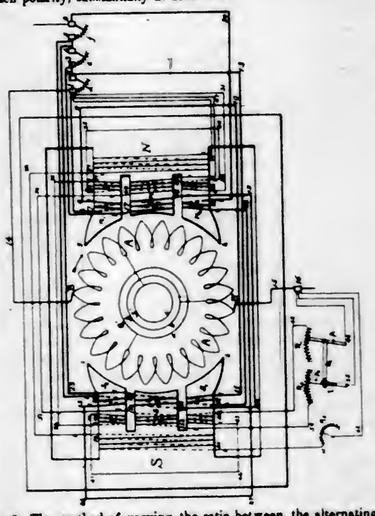
679,812. METHOD OF REGULATING DOUBLE-CURRENT DYNAMO-ELECTRIC MACHINES. JOSEPH L. WOODBRIDGE, Cambridge, Mass. Filed June 19, 1899. Serial No. 721,100. (No model.)

Claim.—1. In the operation of a double-current dynamo-electric machine adapted to develop or utilize both alternating and direct currents in the same armature-winding, the method of varying and controlling the relation between the alternating and direct current electromotive force developed in the armature, which consists in varying the distribution of the lines of magnetic force over the pole-face, in a general direction parallel to the adjacent direction of armature motion

2. In the operation of a double-current dynamo-electric machine, adapted to develop or utilize both alternating and direct currents in the same armature-winding, whose poles are each divided into several paths for the magnetic flux by divisions in a general direction at right angles to the adjacent direction of armature motion, the method of altering the distribution of the lines of magnetic force over the pole-face which consists in varying unequally or oppositely the excitation of the several paths.

3. In the operation of a double-current dynamo-electric machine, adapted to develop or utilize both alternating and direct currents in the same armature-winding, the method of controlling independently the alternating and the direct current electromotive force developed in its armature, which consists in increasing (or diminishing) the strength of the magnetic field near the tips of the pole-face and simultaneously diminishing (or increasing) the field strength in the middle of the pole-face by an amount greater or less in proportion to the change at the tips, according to which electromotive force is to be varied.

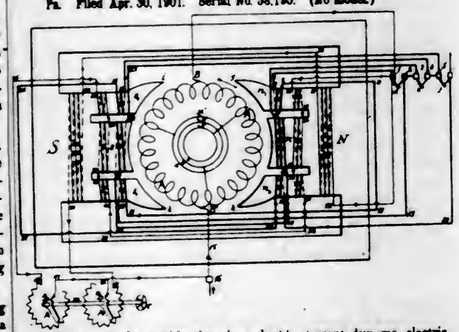
4. The method of controlling the relation between the alternating and the direct current electromotive force developed in the armature of a double-current dynamo-electric machine adapted to develop or utilize both alternating and direct currents in the same armature-winding, which consists in passing separately around each of three parallel paths of the magnetic circuit of each polarity, adjacent to the armature, electric currents which shall vary or may be varied in such manner as to produce unequal or opposite effects on the quantity of magnetic flux in the several paths of each polarity, substantially as described.



5. The method of varying the ratio between the alternating and the direct current electromotive force developed in the armature of a double-current dynamo-electric machine adapted to develop or utilize both alternating and direct currents in the same armature-winding, with changes in its output or intake, which consists in passing separately around each of three parallel paths of the magnetic circuit of each polarity, adjacent to the armature, direct currents equal or proportional to and varying with said output or intake, in such manner that variations in said currents shall cause unequal or opposite effects on the quantity of magnetic flux in the several paths of each polarity, substantially as described.

6. The method of varying the direct-current electromotive force developed in the armature of a double-current dynamo-electric machine adapted to develop or utilize both alternating and direct currents in the same, armature-winding, with changes in the direct-current output or intake of the machine, without altering the alternating electromotive force developed in the armature, which consists in passing separately around each of three parallel paths of the magnetic circuit of each polarity adjacent to the armature, currents equal to or proportional to and varying with the direct-current output or intake, in such manner that variations in said currents shall increase (or diminish) the strength of the magnetic field near the pole-tips and simultaneously decrease (or increase) the field strength in the middle of the pole-face, substantially as described.

679,813. MEANS FOR REGULATING DOUBLE-CURRENT DYNAMO-ELECTRIC MACHINES. JOSEPH L. WOODBRIDGE, Philadelphia, Pa. Filed Apr. 30, 1901. Serial No. 58,196. (No model.)



Claim.—1. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings and a field-magnet having its poles each divided into three paths for the magnetic flux by divisions in a general direction at right angles to the adjacent direction of armature peripheral motion, and means for varying disproportionately or oppositely the quantity of magnetic flux in each of the three paths, substantially as described.

2. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings and a field-magnet having its poles each divided into three paths for the magnetic flux by division in a general direction at right angles to the adjacent direction of armature peripheral motion and windings embracing separately these several paths, said windings being so designed and connected that variations in the electric currents flowing through them shall vary disproportionately or oppositely the quantity of magnetic flux in each of the three paths, substantially as described.

3. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings, and a field-magnet having its poles each divided into three paths for the magnetic flux by divisions in a general direction at right angles to the adjacent direction of armature peripheral motion and windings embracing separately these several paths, and means for so varying the currents in each of said windings as to cause disproportionate or opposite effects on the quantity of magnetic flux in each of the several paths, substantially as described.

4. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings, and a field-magnet having its poles each divided into three paths for the magnetic flux by division in a general direction at right angles to the adjacent direction of armature peripheral motion, and windings embracing separately these several paths, said windings being connected in series between one of the direct-current brushes of the machine and the main machine terminal of like polarity, said windings being so relatively proportioned and connected that variations in the currents flowing in them shall vary disproportionately or oppositely the quantity of magnetic flux in each of the three paths, substantially as described.

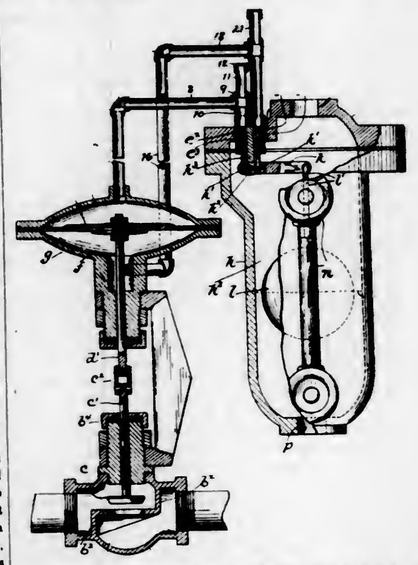
5. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings, and a field-magnet having its poles each divided into three paths for the magnetic flux by divisions in a general direction at right angles to the adjacent direction of armature peripheral motion, a winding embracing in series the first or leading horns of the several poles, another winding embracing in series the middle horns of the several poles and a third winding embracing in series the last or trailing horns of the several poles, these three windings being connected in series, between one of the direct-current brushes of the machine and the main machine terminal of like polarity and so connected that a flow of current will have a like effect on the quantity of magnetic flux in all the middle horns and the opposite effect on the quantity of magnetic flux in all of the outer (leading and trailing) horns, substantially as described.

6. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings, and a field-magnet having its poles each divided into three paths for the magnetic flux by divisions in a general direction at right angles to the adjacent direction of armature peripheral motion, a winding embracing in series the first or leading horns of the several poles, another winding embracing in series the middle horns of the several poles and a third winding embracing in series the last or trailing horns of the several poles, these three windings being connected in series, between one of the direct-current brushes of the machine and the main machine terminal of like polarity and so connected that a flow of current will have a like effect on the quantity of magnetic flux in all the middle horns and the opposite effect on the quantity of magnetic flux in all the other (leading and trailing) horns, and adjustable shunts across the terminals of each of the said windings, as and for the purpose described.

7. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings, a field-magnet having its poles each divided into three paths for the magnetic flux by division in a general direction at right angles to the adjacent direction of armature peripheral motion, a winding consisting of separate coils embracing each of said paths, the coils of the outer (leading and trailing) horns of the poles being wound in the same relative direction and the coils on the middle horns being wound in the opposite direction, and means for varying at will the amount of current in said windings, substantially as described.

8. In combination, in a double-current dynamo-electric machine, an armature having a single winding connected both to the commutator and to collector-rings, a field-magnet having its poles each divided into three paths for the magnetic flux by divisions in a general direction at right angles to the adjacent direction of armature peripheral motion, a principal winding embracing each pole as a whole, an auxiliary winding consisting of separate coils on each of the pole-horns, the coils on the outer (leading and trailing) horns being wound in the same relative direction, and the coils on the middle horns being wound in the opposite direction, and means for varying at will either the current in the principal winding or the current in the auxiliary winding, or the current in both windings simultaneously, substantially as described.

679,814. FEED-WATER REGULATOR FOR STEAM-BOILERS. ALLEN J. WRIGHT, Cleveland, Ohio. Filed May 13, 1901. Serial No. 60,067. (No model.)



Claim.—1. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe and normally open, of a casing or receptacle *h* extending above and below the water-level desired to be maintained in the boiler and having a steam-inlet and a water-inlet connected with the steam-space and water-space, respectively, of the boiler; two ports formed in, and connected with, the steam-space of the said casing; two valves for controlling or regulating communication through the different ports, respectively, and both normally open, and means whereby the two valves are moved in opposite directions, respectively, during the shifting of the water-level within the boiler from the normal line; a movable body or member operatively connected with the water-supply-regulating valve; a shell or casing divided by the said movable body into two chambers, and two pipe-lines or passage-ways connecting the different chambers, respectively, of the said last-mentioned shell or casing with the different ports, respectively, of the first-mentioned casing or receptacle, and the arrangement of parts being such that the water-supply-regulating valve shall move in the direction required to increase the flow of water to the boiler or in the opposite direction according as the water-level within the boiler falls below or rises above the normal line.

2. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe, of a casing or receptacle *h* extending above and below the water-level desired to be maintained in the boiler and having a steam-inlet and a water-inlet connected with the steam-space and water-space, respectively, of the boiler; two ports formed in, and connected with the steam-space of, the said casing; two valves for controlling or regulating communication through the different ports, respectively; means whereby the two last-mentioned valves are moved in opposite directions, respectively, during the shifting of the water-level within the boiler and the aforesaid casing from the normal line; a movable body or member operatively connected with the water-supply-regulating valve; a shell or casing divided by the said movable body into two chambers; and two pipe-lines or passage-ways connecting the different chambers, respectively, of the said last-mentioned shell or casing with the different ports, respectively, of the first-mentioned casing or receptacle, and having, respectively, such trend or arrangement as to become supplied with and retain water resulting from condensation of steam during the operation of the apparatus and

conduct the excess of water formed therein to the aforesaid ports, substantially as and for the purpose set forth.

3. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe, of a casing or receptacle *h* extending above and below the water-level desired to be maintained in the boiler and having a steam-inlet and a water-inlet connected with the steam-space and water-space, respectively, of the boiler; two ports formed in, and connected with the steam-space of, the said casing and arranged side by side; two valves for controlling or regulating communication through the different ports, respectively, and both normally open; a vertically-tilting lever supported from the said casing centrally between and operatively connected with the said last-mentioned valves; means whereby the said lever is tilted in the one direction or the other according as the water-level within the boiler falls below or rises above the normal line; a movable body or member operatively connected with the water-supply-regulating valve; a shell or casing divided by the said movable body into two chambers, and two pipe-lines or passage-ways connecting the different chambers, respectively, of the last-mentioned shell or casing with the different ports, respectively, of the first-mentioned casing or receptacle, and the arrangement of parts being such that the water-supply-regulating valve shall move in the direction required to increase the flow of water to the boiler or in the opposite direction according as the water-level within the boiler falls below or rises above the normal line.

4. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe, of a casing or receptacle *h* extending above and below the water-level desired to be maintained in the boiler and provided with a steam-inlet and a water-inlet connected with the steam-space and water-space, respectively, of the boiler; two ports formed in, and connecting with, the steam-space of the said casing and arranged side by side; two normally open valves for controlling or regulating communication through the different ports, respectively; a vertically-tiltable lever fulcrumed to the said casing centrally between and operatively connected with the last-mentioned valves; a float within the said casing and suspended from the lever; a movable body or member operatively connected with the water-supply-regulating valve; a shell or casing divided by the said movable body into two chambers, and pipe-lines or passage-ways connecting the different chambers, respectively, of the last-mentioned shell or casing with the different ports, respectively, of the first-mentioned casing or receptacle, and the arrangement of parts being such that all of the valves shall be in an intermediate open position when the level of water in the boiler is normal.

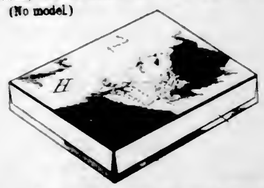
5. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe, of a casing or receptacle *h* extending above and below the water-level desired to be maintained in the boiler and provided with a steam-inlet and a water-inlet connected with the steam-space and water-space, respectively, of the boiler; a cap closing the casing or receptacle at the top; two vertically-arranged ports formed in the cap at one side of the casing or receptacle; two valves for controlling or regulating communication through the different ports, respectively; a lug or hanger depending from and rigid with the cap between the two ports; a vertically-tiltable lever fulcrumed to the said lug or hanger centrally between and operatively connected with the last-mentioned valves; means whereby the said lever is tilted in the one direction or the other according as the water-level within the boiler falls below or rises above the normal line; a movable body or member operatively connected with the water-supply-regulating valve; a shell or casing divided by the said movable body into two chambers, and pipe-lines or passage-ways connecting the different chambers, respectively, of the last-mentioned shell or casing with the different ports, respectively, of the first-mentioned casing or receptacle, and the arrangement of parts being such that all of the valves shall be and remain open when the boiler has once been supplied with the normal depth of water.

6. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe, of a receptacle *h* arranged externally of the boiler and extending above and below the water-level desired to be maintained within the boiler, which receptacle has a water-inlet and a steam-inlet connected with the water-space and steam-space, respectively, of the boiler; two ports formed in and connected with the steam-space of the said casing; two valves controlling or regulating communication through the different ports, respectively; means whereby the last-mentioned valves are both normally open but movable in opposite directions, respectively, during the shifting of the water-level within the boiler from the normal line; another shell or casing arranged externally of the boiler; a movable body or member dividing the last-mentioned casing or shell interiorly into two chambers, an operative connection between the said movable body or member and the aforesaid water-supply-regulating valve; two water-retaining pipe-lines or passage-ways connecting the different aforesaid chambers, respectively, with the different aforesaid ports, respectively, and arranged to receive steam from the said ports and adapted to conduct to the said ports water resulting from condensation of steam, and comprising pipe-sections so arranged that water shall be retained in the aforesaid chambers during the operation of the apparatus.

7. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve for controlling or regulating the flow of water through the said pipe, of a casing or receptacle *h* arranged externally of the boiler and extending above and below the water-level desired to be maintained within the boiler, which casing has a water-inlet and a steam-inlet connected with the water-space and steam-space, respectively, of the boiler, and two ports arranged to receive steam from the said steam-inlet and arranged to discharge water into the said casing; two valves controlling or regulating communication through the different ports, respectively; means whereby the two last-mentioned valves are moved in opposite directions, respectively, during the shifting of the water-level within the boiler from the normal line; another shell or casing arranged externally of the boiler below the first-mentioned casing or receptacle; a movable body or member dividing the said lower casing or shell interiorly into two chambers; an operative connection between the said movable body or member and the aforesaid water-supply-regulating valve; two water-retaining pipe-lines connecting the different aforesaid chambers, respectively, with the different aforesaid ports, respectively, and extending above and below the ports so that water will be retained within the lower portion of the pipe-lines during the operation of the apparatus, and water displaced into or formed in the upper portion of the pipe-lines can escape through the ports into the chamber of the ported casing or receptacle.

8. In apparatus for supplying water to a boiler, the combination, with the boiler, the pipe for supplying water to the boiler, and the valve controlling or regulating the flow of water through the said pipe, of a casing or receptacle *h* arranged externally of the boiler and extending above and below the water-level desired to be maintained within the boiler, which casing has a water-inlet connected with the water-space of the boiler and has its upper portion provided with a steam-inlet connected with the steam-space of the boiler; two ports formed in the upper portion of the said casing; two valves controlling or regulating communication through the different ports, respectively; means whereby the two last-mentioned valves are moved in opposite directions, respectively, during the shifting of the water-level within the boiler from the normal line; another shell or casing arranged externally of the boiler below the first-mentioned casing or receptacle; a movable body or member dividing the said lower casing or shell interiorly into two chambers; an operative connection between the said movable body or member and the aforesaid water-supply-regulating valve; two pipe-lines or passage-ways connecting the different aforesaid chambers, respectively, with the different aforesaid ports, respectively, and comprising each a pipe-section arranged in a horizontal plane and connected, at one end, with the connected port, an upright pipe-section connecting the opposite end of the first-mentioned pipe-section with the connected chamber, and another upright pipe-section closed at its upper end and connected with the first-mentioned pipe-section above the said port, substantially as and for the purpose set forth.

679,815. ENGRAVING-PLATE. JAMES H. ZEARING and TYLER MCWHORTER, Des Moines, Iowa. Filed Sept. 13, 1900. Serial No. 29,893. (No model.)

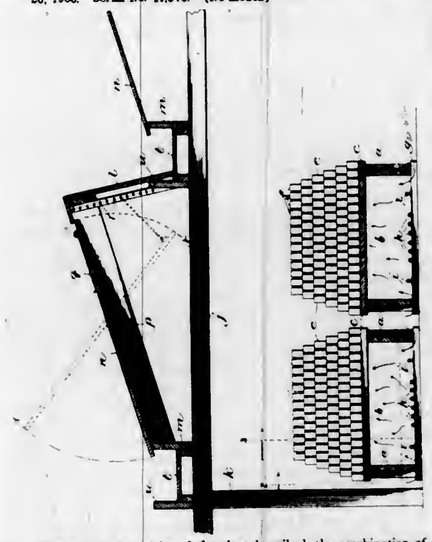


Claim.—1. An engraving-plate of thin metal provided with score-lines, having its four corners removed as shown, and having the remaining portions outside the score-lines bent at the score-lines to form flanges in position to frictionally engage the four sides of a block, substantially as set forth.

2. The process of forming an engraving-plate which consists in marking score-lines upon a thin plate and etching them out simultaneously with the etching of the engraving, substantially as set forth.

3. The process of forming an engraving-plate which consists in marking score-lines on a thin plate, etching out said lines simultaneously with the etching of the engraving, cutting out the four corners of the plate approximately on the score-lines extended, and bending down, approximately at right angles, the parts remaining without the score-lines.

679,816. BRICK-DRIER. FRANK ALSIP, Chicago, Ill. Filed Dec. 28, 1900. Serial No. 41,370. (No model.)



Claim.—1. In a drier of the class described, the combination of a pair of supporting-standards extending parallel with each other forming inclosing sides of a heating-chamber, cross-ties upon which they are arranged to provide an opening between the standards and the ground, a removable cover portion formed of the pallets *c*, and mechanism for heating the chamber, substantially as described.

2. In a drier of the class described, the combination of a pair of side-supporting standards extending parallel with each other forming inclosing sides of a heating-chamber, cross-ties upon which they are arranged to provide an opening between the standards and the ground, a removable cover portion formed of the pallets *c*, and heating mechanism arranged in the heating-chamber, substantially as described.

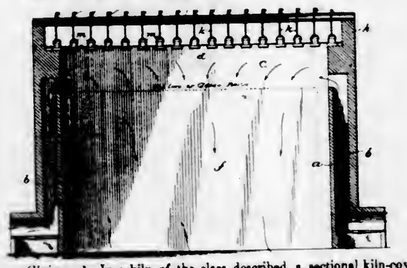
3. In a drier of the class described, the combination of a pair of side-supporting standards arranged parallel with each other so as to form inclosing sides of a heating-chamber, cross-ties arranged upon the floor to sustain the side-supporting standards and provide openings between them and the ground through which cold air may enter, a series of removable planks or boards to form a cover for the heating-chamber, and a pipe or pipes extending longitudinal of the heating-chamber and connected with a source of fluid-heat supply, substantially as described.

4. In a drier of the class described, the combination of a pair of side-supporting standards arranged parallel with each other and forming inclosing sides of a heating-chamber between them, a series of cross-ties to sustain the supporting-standards above the floor and provide an opening between them and the ground for the admission of cold air, a series of removable planks forming a cover for the heating-chamber and resting upon the supporting-standards, a series of pipes arranged longitudinal of the heating-chamber upon the cross-ties and connected with a source of exhaust-steam for supplying artificial heat to the heating-chamber, and a pair of tracks arranged longitudinal of and in the heating-chamber by which a truck may be run into or out of the heating-chamber for the purpose of placing bricks on the supporting-standards or removing them therefrom, substantially as described.

5. In a drier of the class described, the combination of a pair of side-supporting standards arranged parallel with each other and forming inclosing sides of a heating-chamber between them, cross-ties upon which such supporting-standards are sustained to provide an opening between them and the floor for the admission of cold air, a set or series of removable planks arranged crosswise on the upper portion of the supporting-standards to form a cover for the heating-chamber, and a roof portion to the drier provided with a ventilator having a pivoted inclined cover arranged to be opened and closed, substantially as described.

6. In a drier of the class described, the combination of a pair of side-supporting standards arranged parallel with each other and forming a heating-chamber between them, cross-ties upon which such supporting-standards are sustained to provide an opening between them and the floor for the admission of cold air, a set or series of removable planks arranged crosswise on the upper portion of the supporting-standards to form a cover for the heating-chamber, a ventilator for the main portion of the drier provided with side supports of different heights which form a portion of a gutter at each side of the ventilator, a pivoted inclined cover portion on the ventilator having its pivot arranged at one side of the longitudinal center thereof to keep the same normally closed, and means for holding the cover in an open position, substantially as described.

679,817. KILN. FRANK ALSIP, Chicago, Ill. Filed Jan. 9, 1901. Serial No. 42,604. (No model.)



Claim.—1. In a kiln of the class described, a sectional kiln-cover formed of a plurality of suspensible blocks, a plurality of fireproof slabs resting upon the blocks, and means for suspending the blocks in position, substantially as described.

2. In a kiln of the class described, a sectional kiln-cover formed of a plurality of suspensible blocks provided with upwardly-projecting portions and laterally-extending portions forming flanges or shoulders, a plurality of slabs formed of fireproof material resting thereupon to provide in connection with the suspensible blocks a lower fireproof surface where it is exposed to the heat of the kiln, and means for holding the suspensible blocks by their upwardly-projecting portions, substantially as described.

3. In a kiln of the class described, the combination of a sectional kiln-cover, a series of main supporting-beams extending from side wall to side wall of the kiln and supported thereby, a plurality of secondary supports resting upon the main supporting-beams, and means for suspending the cover from the secondary supports, substantially as described.

4. In a kiln of the class described, the combination of a plurality of supporting-beams arranged above the kiln, upright supports upon which the supporting-beams rest, a plurality of secondary supports extending laterally of the kiln and resting upon the main supporting-beams, a sectional kiln-cover formed of a plurality of suspensible blocks and a plurality of slabs resting thereon, and a series of rods supported by the secondary supports and provided with jaws which grasp the suspensible blocks and hold such blocks and slabs suspended above the space inclosed between the walls, substantially as described.

5. In a kiln, a plurality of suspensible supporting-blocks, a plurality of fireproof slabs arranged between the suspensible blocks and supported thereby, and means for suspending the blocks and slabs above the kiln-space, substantially as described.

6. In a kiln, a plurality of fireproof slabs, a plurality of suspensible blocks, each provided with an upwardly-extending portion projecting between the slabs, and means for suspending the blocks and slabs above the kiln-space, substantially as described.

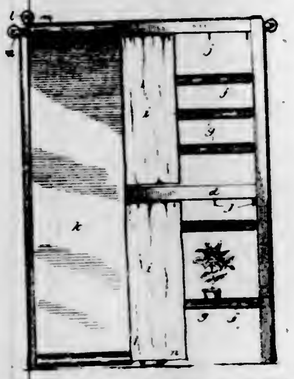
7. In a kiln, a plurality of suspensible fireproof supporting-blocks, a plurality of fireproof slabs arranged side by side and covering the area between the suspensible blocks and supported by such blocks, and means for suspending the blocks and slabs above the kiln-space, substantially as described.

679,818. PORTABLE CONSERVATORY. FRANK ALSIP, Chicago, Ill. Filed Jan. 26, 1901. Serial No. 44,881. (No model.)

Claim.—1. In a portable conservatory, the combination with the frame of inclosing curtains, concave removable shelves mounted within the frame, removable rods upon which the shelves are mounted, and saturated cloths within the inclosure formed by the curtains, substantially as described.

2. In a portable conservatory for plants, the combination of a frame having uprights provided with slots at corresponding distances therein, removable rods resting in such slots, removable concave shelves supported upon such rods, saturated cloths hung within the frame, and curtains inclosing the frame, substantially as described.

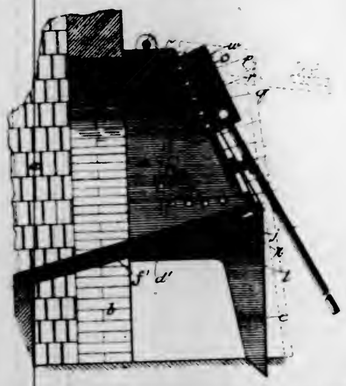
3. In a portable conservatory for plants, the combination of a frame having uprights provided with slots at corresponding distances therein, removable rods resting in such slots, removable concave shelves supported upon such rods, saturated cloths hung within the frame, curtains inclosing the frame, and means for heating the conservatory, substantially as described.



4. In a portable conservatory for plants, the combination with the frame, of inclosing curtains at the top and all sides thereof, saturated cloths hung therein, concave movable shelves for containing water, means for heating the conservatory, and means for winding and unwinding the curtains, whereby the atmospheric conditions may be regulated as required substantially as described.

5. In a portable conservatory for plants, the combination with the frame of inclosing curtains of oil-cloth, means for winding and unwinding the curtains, shelves mounted within the frame, and means for moistening the air within the conservatory, substantially as described.

679,819. KILN-FURNACE. FRANK ALSIP, Chicago, Ill. Filed Feb. 8, 1901. Serial No. 46,530. (No model.)



Claim.—1. In a kiln-furnace, the combination of the arch-walls provided with interstices communicating with all parts of the kiln above the arch, a metallic frame at the end of the arch, a movable compressed-air chamber having openings into the furnace, and means for connecting the air-chamber with a source of compressed air, substantially as described.

2. In a kiln-furnace, the combination of the arch-walls provided with interstices communicating with all parts of the kiln above the arch, a metallic frame at the end of the arch, a movable compressed-air chamber having openings into the furnace, means for connecting the air-chamber with a source of compressed air, and means for moving the compressed-air chamber, whereby the current of air through the openings therein may be directed to any desired part of the furnace, substantially as described.

3. In a kiln-furnace, the combination of the arch-walls provided with interstices communicating with all parts of the kiln above the arch, a metallic frame at each end of the arch, a movable compressed-air chamber having openings into the furnace, and means for connecting the air-chamber with a source of compressed air, substantially as described.

4. In a kiln-furnace, the combination of the arch-walls, a metallic frame at each end of the arch, a compressed-air chamber for each of the frames provided with openings into the furnace, and are movable fuel-holding plate within the furnace, substantially as described.

5. In a kiln-furnace, the combination of the arch-walls, a metallic frame at each end of the arch, a fuel-holding plate for each of the frames, a compressed-air chamber for each of the frames provided with openings into the furnace, and means for connecting the air-chamber with a source of compressed air, substantially as described.

6. In a kiln-furnace, the combination of the arch-walls, a metallic frame at each end of the arch, a fuel-holding plate for each of the frames, a swinging door for each of the frames, a compressed-air chamber mounted upon each of the doors and movable therewith, and means for connecting the air-chamber with a source of compressed air, substantially as described.

7. In a kiln-furnace, the combination of a metallic frame, a fuel-holding plate within the frame, a compressed-air chamber movably mounted and provided with openings into the furnace, and means for connecting the compressed-air chamber with a source of compressed air, substantially as described.

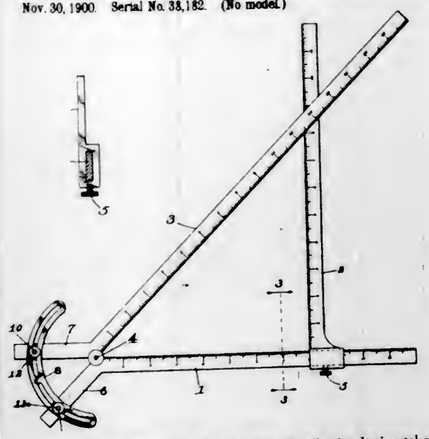
8. In a kiln-furnace, the combination of a metallic frame, a removable fuel-holding plate within the frame, a grate beneath the fuel-holding plate, a compressed-air chamber movably mounted and provided with openings communicating with the inside of the furnace, and means for connecting the compressed-air chamber with a source of compressed air, substantially as described.

9. In a kiln-furnace, the combination of the arch-walls, a metallic frame at each end of the arch, a removable fuel-holding plate for each of the frames, a compressed-air chamber for each of the frames mounted upon a swinging door movable therewith and having openings communicating with the inside of the furnace, and means for connecting the compressed-air chambers with a source of compressed air, substantially as described.

10. In a kiln-furnace, the combination of the arch-walls provided with interstices communicating with all parts of the kiln above the arch, a metallic frame at the end of the arch, a door in the frame provided with openings communicating with the interior of the furnace, and means for connecting the openings in the door with a source of compressed air, substantially as described.

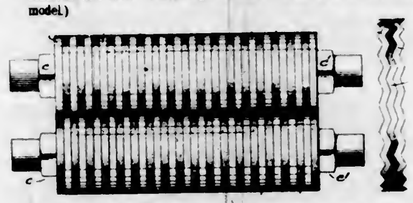
11. In a kiln-furnace, the combination of the arch-walls provided with interstices communicating with all parts of the kiln above the arch, a metallic frame at the end of the arch, a vertically-swinging door mounted in the frame provided with openings communicating with the interior of the furnace, and means for connecting the openings in the swinging door with a source of compressed air, substantially as described.

679,820. MEASURING-TOOL. JAMES H. ARMSTEAD, Indianapolis, Ind., assignor of one-half to John T. Armstead, Duluth, Minn. Filed Nov. 30, 1900. Serial No. 38,182. (No model.)



Claim.—The combination, in a measuring-tool, of a horizontal or base blade 1 having suitable graduations, a hypotenuse or angle-blade 3 also provided with suitable graduations, said blades 1 and 3 being hinged together by the hinge 4, and each formed with a tailpiece extending back from said hinge at an angle with the main portion of the blade and diverging from each other, a screw-stud on each of said tailpieces, the curved slotted bar 8 the slot in each end of which engages one of said screw-studs, the thumb-nuts 9 and 10 on said screw-studs for clamping said bar 8 to either tailpiece in the position desired, and the perpendicular blade 2 also provided with suitable graduations and slidably mounted on blade 1, all substantially as shown and described.

679,821. COMPOSITE GRINDING-ROLLS. WILBER E. ARNOLD, Madisonville, Ohio. Filed Aug. 18, 1899. Serial No. 727,623. (No model.)



Claim.—1. A pair of grinding-rolls each comprising two sets of grinding-disks of which one set is of softer metal than the other, all of equal diameter and each provided with a central bore, a shaft to which these bores are fitted and upon which the two sets of disks are mounted side by side to form grinding-rolls and in a manner that one disk of softer metal alternates with one of harder metal, said disks further so arranged that one of hard metal in one roll operates against one of soft metal in the other roll and means whereby all these disks are held sidewise together to form a complete roll with a continuous cylindrical grinding-surface.

2. A composite grinding-roll consisting of alternate hard and soft metallic disks, having radially-arranged corrugations or crimps and secured side by side and all mounted upon a central shaft for the purpose described.

679,822. VEHICLE-DOOR. WILLIAM BARRENBURG, Belleville, Ill. Filed June 6, 1901. Serial No. 63,373. (No model.)



Claim.—1. A vehicle having doors hinged on its frame or body at the front of the body, the lower part or half being one-half of the width of the upper part, and hinged to said lower part or half another door equal thereto in height and of same width, and means of folding said second door on lower part of first-named door thereby limiting outward movement of the lower part of door to one-half the full width of complete door, and likewise securing door that does not mar, break or limit the view of driver, substantially as described.

2. A vehicle having doors hinged on its frame or body at the front of the body, the lower part being one-half the width of the upper part, to this lower part hinged a second door of same height and width, and a link pivotally or by means of brackets connected at its ends to said second door and the vehicle-body, for folding said second door on lower part of first-named door and guiding said door clear of the wheel and the shaft, thereby likewise securing door giving driver full, unbroken side view.

679,823. ARTICLE PROVIDED WITH HEAD OF LEATHER. CHARLES R. BAILEY, Providence, R. I., assignor to William R. Talbot, North Kingston, R. I. Filed Dec. 27, 1897. Serial No. 663,521. (No model.)



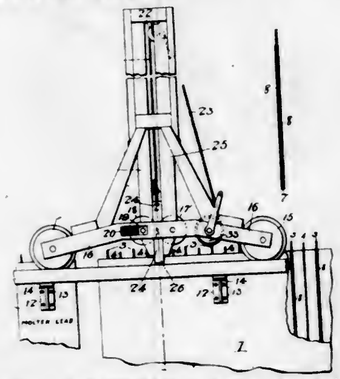
Claim.—1. A device for securing an attaching device to a head of leather or similar material consisting of a cup-shaped cap provided with an opening in its end for the shank of the attaching device, and having a flaring mouth and substantially straight walls constructed to partially collapse as the cap is forced into the head, substantially as described.

2. An article of the character referred to consisting of a head, an attaching device, and a cup-shaped cap for securing said device having walls partially collapsed by being forced into the solid head, substantially as described.

3. An article of the character referred to consisting of a head, an attaching device, a cap for securing said attaching device to said head having inwardly-bowed walls formed by the partial collapse of said walls as they are forced into the solid head, substantially as described.

4. An article of the character referred to consisting of a head, an attaching device, and a cap for securing said attaching device to said head having a flaring mouth and substantially straight walls which partially collapse as the cap is forced into the head, substantially as described.

679,824. ART OR PROCESS OF REFINING LEAD BY ELECTROLYSIS. ANSON G. BETTS, Lansingburg, N. Y. Filed Oct. 12, 1900. Serial No. 32,842. (No specimens.)



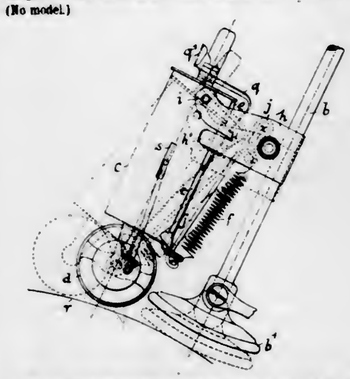
Claim.—1. That improvement in the art of refining lead by electrolysis which consists in subjecting the lead alloy as anode to an electric current in a solution of a lead salt of a fluorin acid, and electrodepositing the lead on the cathode, substantially as described.

2. That improvement in the art of refining lead by electrolysis which consists in subjecting the lead alloy as anode to an electric current in a solution of lead salt of a fluorin acid of silicon and electrodepositing the lead on the cathode, substantially as described.

3. That improvement in the art of refining lead by electrolysis which consists in subjecting the lead alloy as anode to an electric current in an electrolyte containing lead salt, electrodepositing the lead on a cathode consisting of a metallic core comparatively infusible and coated with lead, and removing such electrodeposit from the cathode by fusion, substantially as described.

4. That improvement in the art of refining lead, which consists in alternately electrodepositing, and compacting by mechanical pressure, lead upon a cathode consisting of an infusible core of great tensile strength, and removing the compacted electrodeposit from the cathode by fusion.

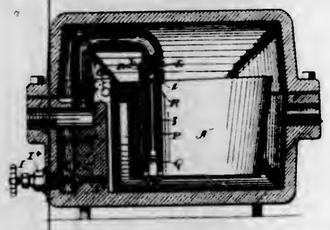
679,825. ALARM APPARATUS FOR BICYCLES, &c. JOHAN BLOMSTER and CARL J. E. GUSTAFSSON, Borås, Sweden; said Blomster assignor to said Gustafsson. Filed Apr. 20, 1901. Serial No. 56,700. (No model.)



Claim.—In an apparatus of the character described, the combination with a cylinder, a wheel independently journaled below the same, a

piston in the cylinder, a rod having a suitable connection with said wheel, at one end, its opposite angular armed end passing through one side of the cylinder, and connected to both sides of the said piston, and the separate chambers formed at the top portion of the cylinder, of the whistles mounted on the upper surface of said cylinder, and the dampers coacting with said whistles, substantially as and for the purpose specified.

679,826. **STEAM-TRAP.** CHARLES T. BROWN and FRED W. LEUTHEBER, Chicago, Ill., assignors to Monash-Younker Co., same place. Filed May 10, 1901. Serial No. 59,587. (No model.)



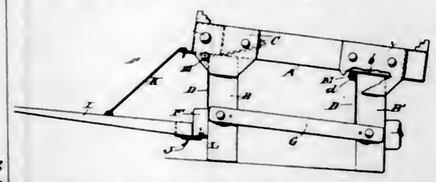
Claim.—1. In a steam-trap the combination of a shell or casing cylindrical in vertical section and provided with circular ends, and consisting of two parts respectively provided with peripheral flanges extending horizontally around the meeting edges thereof, the ends of the lower one of such parts provided with projecting bodies adjacent to the flange thereof, with the inlet and the outlet of the steam-trap extending through such bodies, respectively, and the outlet end of such lower part also provided with a horizontal aperture and a vertical passage-way communicating with such horizontal aperture and with the outlet, a valve in the horizontal aperture arranged to seat to close communication from the interior of the shell to the outlet, a return-bend in the shell, a valve-seat attached to one end of the return-bend, the other end of the return-bend attached to the shell and communicating with the outlet, an open float pivotally attached at one of its ends to the shell, a valve-stem loosely attached at its lower end to the bottom of the float, and at its upper end passing through the valve-seat, a valve at the upper end of the valve-stem and a tube extending from the valve-seat to near the bottom of the float; substantially as described.

2. In a steam-trap, a shell comprising a lower and an upper part, forming, respectively, a bowl and an inverted bowl, both of such parts provided with a horizontally-extending peripheral flange at the meeting edges thereof, bolts through such flanges securing such parts together, the lower one of such parts provided with an inlet at one end and an outlet at the other end and provided in the inlet-end wall with passage-ways communicating with the outlet and with the interior of the shell, constituting a by-pass and a valve to close such by-pass, in combination with a return-bend attached at one end thereof to the lower part of the shell and communicating with the outlet, a valve-seat at the other end of the return-bend adjustably attached thereto, a float open at its upper end and pivotally attached at one end thereof to the lower part of the shell, a tube from the adjustable valve-seat to near the bottom of the float, a valve-stem loosely attached to the float and a valve on the stem arranged to seat to close the valve-seat when the float is raised; substantially as described.

3. In a steam-trap, a shell comprising a lower and an upper part respectively forming a bowl and an inverted bowl, both of such parts provided with a horizontally-extending peripheral flange at the meeting edges thereof, projecting bodies on the ends of the lower part adjacent to the flange a vertical post within the lower part adjacent to one end thereof and integral therewith, such lower part provided with an inlet through the projecting body at one end thereof and provided with an outlet through the projecting body and post at the other end thereof and provided with a by-pass communicating with the interior of the shell near the bottom thereof and with the outlet substantially midway thereof, a valve to the by-pass a return-bend attached to the post and communicating with the outlet near the inner end thereof, an open float, lugs on one end of the open float, a pivotal connection between such lugs and the post, a valve-seat attached to the inner end of the return-bend, such valve-seat provided with a passage-way extending to near the bottom of the open float, a valve-stem attached to the bottom of the open float and extending through the valve-seat and a valve on such stem seating to close such valve-seat; substantially as described.

4. In a steam-trap, a shell comprising a lower and an upper part respectively forming a bowl and an inverted bowl, both of such parts provided with a horizontally-extending peripheral flange at the meeting edges thereof, projecting bodies on the ends of the lower part adjacent to the flange, a vertical post within the lower part adjacent to one end thereof and integral therewith, such lower part provided with an inlet through the projecting body at one end thereof and provided with an outlet through the projecting body and post at the other end thereof and provided with a by-pass communicating with the interior of the shell near the bottom thereof and with the outlet substantially midway thereof, a valve to the by-pass, a return-bend attached to the post and communicating with the outlet near the inner end thereof, a valve at the inner end of such return-bend and means to automatically open such valve to discharge water of condensation from the steam-trap to the return-bend and outlet thereof and to automatically close such valve after the discharge of such water of condensation, substantially as described.

679,827. **LIFTING-JACK.** LACORTUS F. BROWN, Galena, Kans. Filed Mar. 11, 1901. Serial No. 50,695. (No model.)



Claim.—1. In a lifting-jack, a rectangular frame, and legs pivoted at one of their top edges to said frame, the ends of which are directly under the frame, all of said legs being pivoted to the frame on corresponding edges of the tops of said legs, substantially as shown and described.

2. In a lifting-jack, an open rectangular frame comprising side and end beams, legs pivoted to the bottoms of said side beams at corresponding edges of the tops thereof, and metal plates secured to each side of said beams and extending partly down the sides of said legs, substantially as shown and described.

3. In a lifting-jack, an open rectangular frame comprising side and end beams rectangular in cross-section, and legs having slanting tops pivoted to the botton of said side beams, all of said legs being pivoted to swing in the same direction, as and for the purpose shown and described.

4. In a lifting-jack, a rectangular frame comprising side beams and end beams, legs having slanting tops pivoted to the bottom of said side beams, said legs being of equal width with said side beams, and plates depending from each side of said side beams, as and for the purpose shown and described.

5. In a lifting-jack, a rectangular frame, legs having slanting tops pivoted to the bottom of the side beams of said frame, all of said legs swinging in the same direction, braces on said legs, a loop on said frame, a loop on one of said braces, and a lever adapted to engage said loops, as and for the purpose shown and described.

6. In a lifting-jack, a rectangular frame, notched blocks affixed to the top thereof, legs pivoted to the bottom thereof, and plates depending from said frame to brace said legs, substantially as shown and described.

7. In a lifting-jack, a rectangular frame, legs pivoted thereto, metal plates secured to one side of each leg, the upper end of each plate curled over to form an eye, metal plates depending from said frame, and bolts passing through said plates and said curled-over portions of said legs, as and for the purpose shown and described.

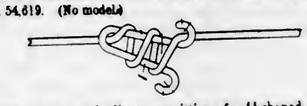
8. In a lifting-jack, a rectangular frame, notched blocks affixed to the top thereof, legs having slanting tops pivoted to the bottom thereof, metal plates depending from said frame, loops on said frame and a brace connecting two of the legs, and a lever having hooks adapted to be inserted in said loops, as and for the purpose shown and described.

679,828. **MANUFACTURE OF ARTIFICIAL STONE.** PROSPER CARRIÈ, New York, N. Y. Filed Oct. 22, 1900. Serial No. 33,959. (No specimens.)

Claim.—1. An indurated artificial stone having a rough surface, and comprised of a slowly-hardening Portland cement, a quickly-hardening Portland cement, hydraulic lime slaked with water containing sulfuric acid, and sand, as described and in the proportions substantially as set forth.

2. The process of manufacturing an artificial stone having a rough surface, which comprises a mixture of slowly-hardening Portland cement, a quickly-hardening Portland cement, hydraulic lime slaked with acidulated water, and sand in the proportions set forth, with water, pouring the whole into molds and allowing the mixture to set, then removing the stone thus formed, roughening its surface, drying it, and finally washing it with water containing twenty per cent. of muriatic acid, substantially as described.

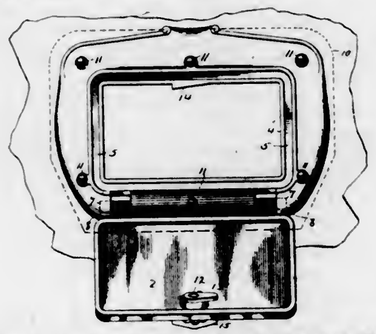
679,829. **CORD-ADJUSTER FOR ELECTRICAL CONDUCTOR-CORDS.** DAVID M. CARR, Rochester, N. Y. Filed Apr. 6, 1901. Serial No. 54,619. (No model.)



Claim.—1. A cord-adjuster consisting of a U-shaped portion having recurved hooks on its ends, substantially as described.

2. A cord-adjuster consisting of two united arms separated by a slot open at one end and a portion on either arm having a slot opening backward with relation to the first-mentioned slot, substantially as described.

679,830. **STOVE-DOOR AND FRAME THEREFOR.** JOHN R. CARTER, Augusta, Ky., and JOSEPH E. HAUSFELD, Cincinnati, Ohio, assignors to Ernst H. Huenefeld, Cincinnati, Ohio. Filed Dec. 3, 1900. Serial No. 38,535. (No model.)



Claim.—1. In a stove-door, the combination with an open frame cut away at two points, said frame having journal-bearings therein to one side of each cut-away portion, of a door having lugs to enter said cut-away portions of the frame and trunnions projecting laterally from said lugs and entering the said journal-bearings within the frame.

2. The combination with an open frame having a depressed seat around the opening therein, said frame being cut away below said seat and having bearings in its rear face communicating with said cut-away portions, of a door constructed to enter said seat and close the opening in the frame, lugs on the door to enter said cut-away portions and trunnions projecting from said lugs and entering said bearings in the rear face of the frame.

3. The combination with an open frame having a depressed seat around the opening therein, said frame being cut away below said seat and having bearings in its inner face and commonicating with the cut-away portions, of a door having flanges to enter said seat, lugs on the door, entering said cut-away portions, shoulders on said lugs to limit the movement of the door and trunnions projecting from said lugs and entering said bearings.

679,831. **BALE OF FIBROUS MATERIAL.** JAMES T. COWLEY, Lowell, Mass., assignor to the Planters Compress Company, Boston, Mass. Filed July 23, 1900. Serial No. 24,743. (No model.)



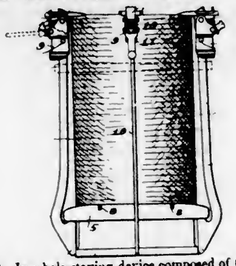
Claim.—1. A bale of fibrous material composed of strands of highly-compressed flattened layers, one end of each of the strands of a layer being located at or near the center, and the other end of each strand located near the outer periphery, the adjacent strands of each layer being approximately parallel to each other, substantially as and for the purpose set forth.

2. A bale of fibrous material composed of highly-compressed flattened layers, each layer consisting of one or more strands, forming a bunch, and one end of each bunch being located at or near the center and the other end near the outer periphery, the adjacent bunches of each layer being approximately parallel to each other, substantially as and for the purpose set forth.

3. A bale of fibrous material composed of highly-compressed flattened layers, each layer consisting of one or more strands, forming a bunch, which starts at or near the center and extends toward the outer periphery, and with the adjacent bunches of each layer substantially parallel to each other, substantially as and for the purpose set forth.

4. A bale of long fibrous material composed of highly-compressed flattened spiral layers, each of which comprises a series of bunches, and each bunch of which starts from at or near the center and extends to or near the outer periphery of the bale in a long curve and approximately parallel to the adjacent bunches in the same layer, substantially as and for the purpose set forth.

679,832. **BALE-STAYING DEVICE.** JAMES T. COWLEY, Lowell, Mass., assignor to the Planters Compress Company, Boston, Mass. Filed Aug. 3, 1900. Serial No. 25,727. (No model.)



Claim.—1. In a bale-staying device composed of two portions suitably connected together, the combination of a bale-base, the portions of the staying device arranged to respectively engage the end of the bale and said base, and means operated by the endwise expansion of the bale for drawing said staying device into closer engagement with the bale and base, as and for the purpose set forth.

2. In a bale-staying device composed of two portions longitudinally movable with respect to each other, in combination with a bale-base, and means operating to tighten the grasp of the bale-staying device upon the bale to retain the same thereon as the bale expands, as and for the purpose set forth.

3. In a bale-staying device composed of two portions longitudinally movable with reference to each other, each portion adapted to be connected with an end of the bale, in combination with a bale-base, and means operating to draw the staying device in closer relation to the bale at both ends as the bale expands, substantially as and for the purpose set forth.

4. In a bale-staying device composed of two portions longitudinally movable with reference to each other and adapted to be connected with an end of the bale to retain the same under compression, in combination with a bale-base coöperatively arranged and constructed with reference to the bale-stay to effect a drawing of the portions of the bale-staying device into closer engagement with the ends of the bale under the influence of the expansive tendency of the bale, as and for the purpose set forth.

5. In a bale-staying device composed of two portions longitudinally movable with reference to each other, one of which is adapted to grasp the top of the bale and the other of which is adapted to engage a bale-base and is provided with an inclined surface, in combination with such bale-base having a correspondingly-inclined surface adapted to force the stay toward the bale and to maintain engagement of the stay with the bale under the expansive action of such bale, as and for the purpose set forth.

6. In a bale-staying device composed of two portions, one of such portions provided with a hook for engaging the bale and the other of which is provided with an inclined surface, in combination of a bale-base having a rim or flange provided with a coöperating inclined surface and an additional bearing or connection between said stay and bale-base, as and for the purpose set forth.

7. In a bale-staying device composed of two portions, one of which has means for engaging the upper end of the bale, and the other a hook portion, in combination with a bale-base affording a bearing for the said hook portion at two points; substantially as and for the purpose set forth.

8. In a bale-staying device composed of two portions, the upper of which has means for engagement with the bale at one end, and the lower of which has a hook, in combination with a bale-base adapted to be engaged by the hook, and having a bearing at another point in the length thereof for said hook; substantially as and for the purpose set forth.

9. In an apparatus of the class described, a bale-stay composed of pivotally-connected portions, and means for locking said portions against relatively swinging or rocking movements, as and for the purpose set forth.

10. In an apparatus of the class described, a bale-stay including pivotally-connected portions, one of said portions provided with a shoulder, in combination with means for engaging said shoulder and yieldingly locking said portion against swinging or rocking movement, as and for the purpose set forth.

11. In an apparatus of the class described, a bale-stay including pivotally-connected portions, one of said portions provided with a hook or projection arranged to engage the end of the bale, in combination with a lever provided with a projection, said lever being also pivotally mounted in position for said lever to engage said hook portion and lock the same against pivotal movement, as and for the purpose set forth.

12. In an apparatus of the class described, a pivotally-mounted bale-stay head, a pivotally-mounted lever having a projection arranged to engage said head, and means for yieldingly maintaining said projection in engagement with said head, as and for the purpose set forth.

13. In an apparatus of the class described, a pivotally-mounted bale-stay head, said head provided with a shoulder, a pivotally-mounted lever having a projection arranged to engage said shoulder, and a spring for normally pressing said projection against said head, as and for the purpose set forth.

14. In a bale-staying device, a frame, a hook portion and a stay-head, respectively pivoted upon said frame, as and for the purpose set forth.

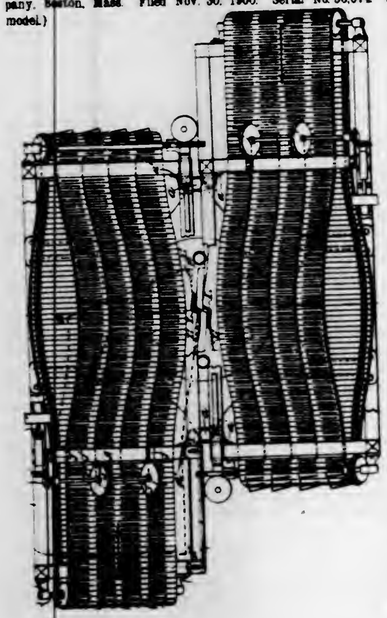
15. A bale-staying device, comprising a hook portion and a stay-head, said hook portion and head being pivotally connected, and means for maintaining said hook portion and head in suitable alinement, as and for the purpose set forth.

16. A bale-staying device, comprising a pivotally-connected head and hook portion, and a spring interposed between said head and hook portion, as and for the purpose set forth.

17. A bale-staying device, comprising a frame, a head, and a hook portion pivotally connected thereto, and a spring interposed between said frame and hook portion, as and for the purpose set forth.

679,883. APPARATUS FOR BALING FIBROUS MATERIAL.

JAMES T. COWLEY, Lowell, Mass., assignor to Planters Compress Company, Boston, Mass. Filed Nov. 30, 1900. Serial No. 38,074. (No model.)



Claim.—1. In an apparatus for baling fibrous material, the combination with compressing apparatus, of a feeding mechanism arranged to receive the material transversely thereon, said mechanism operating past said compressing apparatus, and arranged to convey the material into position to be received longitudinally into said compressing mechanism, whereby such material is drawn into the compressing mechanism transversely of the line of feed thereof, as and for the purpose set forth.

2. In an apparatus for baling fibrous or other materials, the combination with compressing mechanism adapted to receive and compress the material to be baled, of a carrier upon which the material is placed transversely with respect to the line of feed of the carrier, said carrier arranged to travel in a path past such compressing mechanism to feed the material thereto, whereby the material is presented in position to be drawn longitudinally into the compressing apparatus transverse with respect to the line of movement of said carrier, as and for the purpose set forth.

3. In an apparatus for baling fibrous or other materials, the combination with compressing apparatus, of a carrier for the material to be baled, the material occupying a position on said carrier transverse to the line of feed thereof, said carrier operating to present the material into position to be drawn longitudinally into the compressing mechanism, and said carrier being inclined relative to the compressing apparatus and arranged to operate past the same whereby the material is drawn longitudinally into the compressing apparatus, as and for the purpose set forth.

4. In an apparatus for compressing and baling fibrous material, the combination with compressing mechanism adapted to engage and draw longitudinally the material to be compressed and baled therein, and means for feeding the material past the compressing mechanism and in a line transverse with respect to the drawing action exerted by the compressing mechanism, as and for the purpose set forth.

5. In an apparatus for baling and compressing fibrous material, the combination with the compressing mechanism adapted to receive and draw longitudinally therein the material to be compressed and baled, and means for feeding the material transversely with respect to the line of draw of the compressing apparatus and in inclined relation, as and for the purpose set forth.

6. In an apparatus for baling and compressing fibrous material, a compressing apparatus including a compression-chamber and a slotted head-plate, in combination with means for feeding the material to be compressed lengthwise with respect to the slot in said head-plate, whereby the material is drawn into the compression-chamber in layers, the fibers, stems, stalks, strands or the like, thereof, being in parallel relation with each other in each layer, as and for the purpose set forth.

7. In an apparatus for compressing and baling fibrous material, the combination with compressing apparatus including a compression-chamber and a slotted cap-plate, the material to be compressed adapted to be drawn through the slot in said cap to effect the baling and compressing operation, and means for moving the material lengthwise of said slot during the baling operation, as and for the purpose set forth.

8. In an apparatus for compressing and baling fibrous material, the combination with a compressing apparatus including a relatively movable slotted head-plate and compression-chamber, the material to be compressed adapted to be introduced, lengthwise of the fiber thereof, to the compression-chamber through said slot, and means for progressively moving the material lengthwise of such slot during the baling operation, as and for the purpose set forth.

9. In an apparatus for compressing and baling fibrous material, a compression-chamber, means for condensing the material in superposed layers within said chamber and correspondingly advancing the compressed material through the same, and means for imparting to the material a feeding movement in a radial direction relative to the compressed mass within the chamber during the condensing and compressing operation, whereby the fibers, stems, stalks or the like, of the material, will have one of the ends thereof terminating at or near the center of the compressed mass, and the other end terminating at or near the periphery of the mass, as and for the purpose set forth.

10. In an apparatus for baling fibrous or other material having long stems, stalks or fibers, the combination with a compressing apparatus operating upon such stems, stalks or fibers, to draw the same longitudinally therein, and means for progressively feeding said stems, stalks or fibers, transverse with respect to the drawing action of the compressing mechanism, as and for the purpose set forth.

11. In an apparatus for compressing and baling fibrous material, the combination with a compressing mechanism including a compression-chamber and a slotted head-plate, of a feeding mechanism for the material to be compressed, said feeding mechanism operating to convey the material in a direction lengthwise of the slot in the head-plate, as and for the purpose set forth.

12. In an apparatus for compressing and baling fibrous material, a compressing mechanism including a compression-chamber and a slotted head-plate, in combination with a carrier arranged to operate in a line parallel with the slot in the head-plate, and operating to progressively move the material lengthwise of said slot, as and for the purpose set forth.

13. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a relatively movable compression-chamber and a slotted head-plate therefor, in combination with a carrier-belt arranged in inclined relation with respect to said head-plate, and operating to convey the material lengthwise of the slot in said head-plate, as and for the purpose set forth.

14. In an apparatus for compressing and baling fibrous material, compressing mechanism including a slotted cap and a compression-chamber, a feed-carrier for the material to be compressed, said carrier operating to feed the material in the direction of the length of the slot in the cap, and means for guiding said carrier into close proximity to the slot, as and for the purpose set forth.

15. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a slotted head-plate and a compression-chamber, a carrier arranged to operate lengthwise with respect to the slot in the head-plate, and a cam-track arranged to guide the carrier into close proximity to the slot, as and for the purpose set forth.

16. In an apparatus for compressing and baling fibrous material, a compressing mechanism, in combination with feeding devices for the material to be compressed and baled, said feeding mechanism operating alongside of and past the compressing mechanism, operating-gearing for said feeding mechanism, and means for controlling said feed mechanism to vary the speed thereof, as and for the purpose set forth.

17. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a slotted head-plate and a compression-chamber, shafts arranged in inclined relation with respect to the plane of said head-plate, an endless carrier operating over said shafts, said carrier operating in the direction of the length of the slot in said head-plate, driving mechanism for one of said shafts, and means for varying the speed of action of said driving mechanism, as and for the purpose set forth.

18. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a slotted head-plate and a compression-chamber, shafts arranged in inclined relation with respect to the plane of said head-plate, an endless carrier operating over said shafts, said carrier operating in the direction of the length of the slot in said head-plate, means for actuating said carrier, and means for guiding the edge of said carrier into close proximity with respect to the slot in the head-plate, as and for the purpose set forth.

19. In an apparatus for compressing and baling fibrous material, a compressing mechanism, in combination with a feeding mechanism for presenting the material to such compressing mechanism, said feeding mechanism operating alongside of and past said compressing mechanism, whereby the material is moved transversely to the drawing action of said compressing mechanism, a friction drive-gearing for said feeding mechanism, and means for adjustably regulating the speed of action of said friction drive-gearing, as and for the purpose set forth.

20. In an apparatus for compressing and baling fibrous material, a compressing mechanism including a slotted head-plate and a compression-chamber, in combination with a carrier operating past the compressing mechanism to move the material lengthwise of the slot in said head-plate for presenting the mateirial to be compressed and baled to the action of such compressing mechanism, means for actuating said feeding mechanism including engaging friction-disks, and means for shifting said friction-disks relatively to each other to vary the speed of said feeding mechanism, as and for the purpose set forth.

21. In an apparatus for compressing and baling fibrous material, a compressing mechanism including a slotted cap or head plate and a compression-chamber, a carrier-belt arranged to move in a line parallel with the slot in said cap or head plate for presenting the material to the action of said compressing mechanism, drive-gearing for said feeding mechanism including engaging friction-disks, a bell-crank lever arranged to move one of said disks relatively to the other, and means for locking said lever in adjusted position, as and for the purpose set forth.

22. In an apparatus for compressing and baling fibrous material, the combination with compressing mechanism, of a feeding-carrier for presenting the material to be compressed to said compressing mechanism, said carrier operating past said compressing mechanism, and having inclined projections arranged to engage the material, and means for actuating said carrier, as and for the purpose set forth.

23. In an apparatus for compressing and baling fibrous material, a compressing mechanism, in combination with a feed-carrier for presenting the material to be compressed to said compressing mechanism, said carrier operating past said compressing mechanism and provided with inclined projections arranged to engage the material, said projections being inclined in a direction away from the compressing mechanism, as and for the purpose set forth.

24. In an apparatus for compressing and baling fibrous material, a compressing mechanism, in combination with a carrier adapted to receive the material in transverse relation with respect to the line of feed thereof, and having projections arranged to engage the material, and presser-feet arranged to cooperate with said projections to efficiently maintain the material in engagement in proper relation with respect to the carrier, said carrier operating past the compressing apparatus and means for actuating said carrier, as and for the purpose set forth.

25. In an apparatus for compressing and baling fibrous material, a compressing mechanism, in combination with a carrier arranged to operate in a line alongside of and past said compressing mechanism, and having projections arranged to engage the material to be compressed, and rotary wheels having pins and operating above said carrier to press the material into efficient engagement with the projections on the carrier, and means for actuating said carrier and disks, as and for the purpose set forth.

26. In an apparatus for compressing and baling fibrous material, compressing mechanism, in combination with a carrier arranged to operate alongside of and past said compressing mechanism, and having projections, stationary presser-feet arranged above said carrier, and disks or wheels having pins arranged to cooperate with the projections of said carrier and said presser-feet to establish efficient engagement of the carrier with the material to be fed, as and for the purpose set forth.

27. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a compression-chamber and a slotted head-plate, the slot in said head-plate having an overhanging lip, as and for the purpose set forth.

28. In an apparatus for baling and compressing fibrous material, a compressing apparatus including a compression-chamber and a slotted head-plate, the slot in said head-plate being wider at one end than at the other, as and for the purpose set forth.

29. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a compression-chamber and a slotted head-plate, the slot in said head-plate extending in a radial direction and having an overhanging lip, and means for progressively moving the material to be compressed lengthwise with respect to said slot while such material is being drawn through said slot, as and for the purpose set forth.

30. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a compression-chamber and a slotted head-plate, the slot in said head-plate extending from the center to the periphery thereof, and means for progressively moving or feeding the material from the inner toward the outer end of said slot during the operation of said compressing mechanism, as and for the purpose set forth.

31. In an apparatus for compressing and baling fibrous material, a compressing apparatus including a compression-chamber and a slotted head-plate, a stationary support for said head-plate, a frame mounted upon said stationary support, a carrier mounted on said frame and operating to feed the material in the direction of the length of the slot in said head-plate during the operation of said compressing mechanism, and means for actuating said carrier, as and for the purpose set forth.

32. In an apparatus for compressing and baling fibrous material, a compressing mechanism including a compression-chamber and a head-plate, said head-plate provided with a plurality of slots therethrough, and a feeding device for each slot, each feeding device operating in the direction of the length of its corresponding slot, as and for the purpose set forth.

33. In an apparatus for compressing and baling fibrous material, a compressing mechanism, and a carrier for presenting the material to be compressed thereto, in combination with a driving-gearing for said feeding mechanism, said driving-gearing including a worm-block, a shaft arranged to be rotated by said worm-block but capable of longitudinal movement therethrough, gearing actuated by said worm-block for driving said feeding mechanism, and means actuated by the longitudinal movement of said shaft for varying the speed of rotation thereof, as and for the purpose set forth.

34. In an apparatus for baling fibrous or other material, the combination with compressing apparatus, of a carrier for the material to be baled, said carrier arranged to operate alongside of and past said compressing apparatus, and means for regulating the projection of the material beyond the carrier, as and for the purpose set forth.

35. In an apparatus for baling fibrous or other material, the combination with compressing mechanism, of a carrier, and means for actuating the same to present the material to the compressing mechanism and an adjustable stop arranged adjacent to the line of travel of the carrier to regulate the position of the material on said carrier, as and for the purpose set forth.

36. In an apparatus for compressing and baling fibrous material, the combination with compressing mechanism adapted to engage and draw the material to be compressed and baled therein, a carrier for feeding the material transversely with respect to the drawing action exerted by the compressing mechanism, and an adjustable stop arranged adjacent to the line of travel of the carrier for regulating the position of the material upon said carrier, as and for the purpose set forth.

37. In an apparatus for compressing and baling fibrous material, a

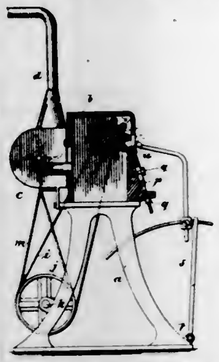
compressing mechanism and a feed-carrier therefor, in combination with a housing, a worm-gear mounted in said housing, gearing actuated thereby for driving said feed-carrier, a shaft upon which said worm-gear is mounted, said shaft being splined to rotate with said worm-gear but capable of longitudinal movement therethrough, means for adjustably projecting said shaft through said worm-gear, a friction-disk mounted upon said shaft, and a cooperating driving friction-disk, all combined and arranged as and for the purpose set forth.

679,834. **RECEPTACLE FOR SUGAR OR OTHER POWDERED OR PULVERIZED MATERIALS.** GEORGE B. CRITES, Chicago, Ill. Filed June 22, 1899. Renewed Nov. 19, 1900. Serial No. 37,062. (No model.)



Claim.—As a new article of manufacture, a receptacle for ground and powdered material comprising a built-up outer shell, and an inner lining of cloth of greater capacity than the outer shell, such inner lining placed in the outer shell, and consisting of a cylinder and circular heads, the beads attached to the cylinder, by stitching, whereby the inner lining will not be burst in the making of a hole in the outer receptacle when the same is filled with such material, substantially as described.

679,835. **MACHINE FOR REMOVING DOWN OR PULLINGS FROM FUR OR PELTS.** CARL DOHNER, Frankfort-on-the-Main, Germany. Filed Apr. 6, 1901. Serial No. 54,573. (No model.)



Claim.—1. The combination of an elastic roller, a second roller mounted to rotate about an axis parallel to that of the first-named roller, said second roller being adjustable in a direction at an angle to a radial line connecting the centers of the two rollers, longitudinal bodily elastic ribs or corrugations on the second roller, and means for holding a pelt adjacent to the bight of the two rollers.

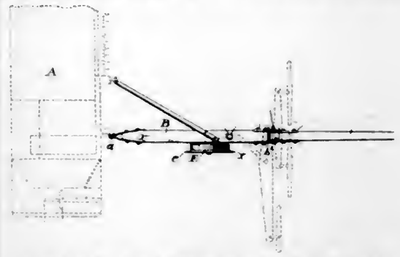
2. The combination of two rollers, one having a smooth elastic surface and the other rounded longitudinal elastic ribs or corrugations, one of the rollers being adjustable in a direction at an angle to a radial line connecting the centers of the two rollers, and means for holding a pelt adjacent to the bight of the two rollers.

3. The combination of two rollers of materially-different sizes, one of them having a substantially cylindrical elastic surface and the other longitudinal bodily elastic ribs or corrugations, one of the rollers being adjustable in a direction at an angle to a radial line connecting the centers of the two rollers, and means for holding a pelt adjacent to the bight of the two rollers.

4. The combination of two rollers one having longitudinal elastic ribs or corrugations and the other a substantially cylindrical elastic surface, the latter roller being adjustable in a direction at an angle to a radial line connecting the centers of the two rollers.

679,836. **TONGUE-TRUCK FOR HARVESTERS.** OREEN S. ELLITHORP, Chicago, Ill. Filed Feb. 12, 1901. Serial No. 47,063. (No model.)

Claim.—1. In a draft device for harvesting and similar machines, a stub-tongue connected to said harvesting and similar machines, a tongue proper jointed to said stub-tongue on an axis which is substantially horizontal, draft-equalizers secured to the said stub-tongue, and a caster-wheel also secured to said stub-tongue, all combined substantially as described.



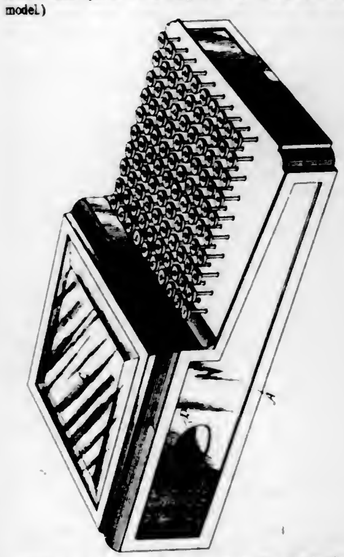
2. In a draft device for harvesting and similar machines, a stub-tongue, a tongue proper pivoted to said stub-tongue, draft-equalizers secured to said stub-tongue, a caster-wheel beneath said stub-tongue, said wheel placed stubbleward from the line of forward movement of the pivot of the arm of said caster-wheel, substantially as described.

3. In a draft device for harvesting and similar machines, a tongue, draft-equalizers secured thereto, a caster-arm beneath said tongue, a wheel thereon, said wheel placed stubbleward from the line of forward movement of the pivot of said caster-arm, substantially as described.

4. In a draft device for harvesting and similar machines, a draft-tongue, a caster-arm pivoted thereto, a wheel mounted upon said caster-arm stubbleward and rearward from the point of pivoting said arm, substantially as described.

5. In a draft device for harvesting and similar machines, a draft-tongue, a caster-arm pivoted thereto, a wheel mounted upon said caster-arm stubbleward and rearward from the point of pivoting said arm, said wheel provided with a flange *e*, substantially as described.

679,837. **COIN-DELIVERY APPARATUS.** HARVEY L. FISHER, Chicago, Ill., assignor of three-fourths to Douglas Smith and Edward Rector, same place. Filed July 28, 1899. Serial No. 725,372. (No model.)



Claim.—1. In a coin-delivery apparatus, the combination of a coin-chute and means for lifting the row of coins from the chute and advancing them toward the delivery end thereof, substantially as described.

2. In a coin-delivery apparatus, the combination of a coin-chute and means for lifting the row of coins therefrom and advancing them toward the delivery end thereof and releasing the end coin, and redepositing the remainder of the coins in the chute, substantially as described.

3. In a coin-delivery apparatus, the combination of a coin-chute provided at its delivery end with a stop engaging the end coin in the row, and means for lifting the row of coins from the chute and the end coin out of engagement with said stop, and advancing the row of coins toward the delivery end of the chute to eject said end coin, substantially as described.

4. In a coin-delivery apparatus, the combination of a coin-chute provided at its delivery end with a stop engaging the end coin in the row, and means for lifting the row of coins from the chute and the end coin out of engagement with said stop, advancing the row of coins toward the delivery end of the chute to eject said end coin, and redepositing the remaining coins in the chute, substantially as described.

5. In a coin-delivery apparatus, the combination of a coin-chute, a stop-plate at the delivery end with a stop engaging the end coin in the row, a second plate intermediate the stop-plate and the end of the coin-chute and provided with a coin-delivery aperture and a vertically-extending recess, and means for lifting the row of coins from the chute and the end coin vertically in said recess and out of engagement with the stop-plate, advancing the row of coins toward the delivery end of the chute to eject the end coin, and redepositing the remainder of the coins in the chute, substantially as described.

6. In a coin-delivery apparatus, the combination of a coin-chute and a coin lifting and delivering bar operating to lift the row of coins in the chute and advance them toward the delivery end thereof, substantially as described.

7. In a coin-delivery apparatus, the combination of a coin-chute and a coin lifting and delivering bar operating to lift the row of coins in the chute and advance them toward the delivery end thereof to eject the end coin in the row, and to then redeposit the remaining coins in the chute, substantially as described.

8. In a coin-delivery apparatus, the combination of a coin-chute and a coin lifting and delivering bar located in the bottom of the chute and extending longitudinally thereof, said bar operating to lift the row of coins from the chute, advance them toward the delivery end of the chute and eject the end coin in the row, and redeposit the remaining coins upon the bottom of the chute, substantially as described.

9. In a coin-delivery apparatus, the combination of a coin-chute provided in its bottom with a longitudinal slot, and a coin lifting and delivering bar extending longitudinally of said slot and operating to lift the row of coins from the chute, advance them toward the delivery end thereof and eject the end coin in the row, and redeposit the remaining coins in the chute, substantially as described.

10. In a coin-delivery apparatus, the combination of a coin-chute, a coin lifting and delivering bar extending longitudinally thereof, and means for giving said bar a four-motion movement to cause it to first rise and lift the row of coins from the chute, then advance them toward the delivery end of the chute and eject the end coin in the row, then redeposit the remaining coins in the chute, and then return to normal position, substantially as described.

11. In a coin-delivery apparatus, the combination of a coin-chute provided in its bottom with a longitudinal slot, a coin lifting and delivering bar extending longitudinally of said slot, and means for giving said bar a four-motion movement to cause it to first rise in said slot and lift the row of coins from the chute, then advance them toward the delivery end of the chute, then redeposit them in the chute, and then return to normal position, substantially as described.

12. In a coin-delivery apparatus, the combination of a coin-chute, a spring-pressed follower therein pressing the row of coins toward the delivery end of the chute, and a vertically and longitudinally movable coin lifting and delivering bar operating to lift the row of coins from the chute and permit the spring-pressed follower to then advance them toward the delivery end of the chute, substantially as described.

13. In a coin-delivery apparatus, the combination of a coin-chute provided at its delivery end with a stop engaging the end coin in the row, a spring-pressed follower located in said chute and pressing the row of coins toward the delivery end thereof, and a vertically and longitudinally movable coin lifting and delivering bar operating to lift the row of coins from the chute and the end coin from engagement with said stop and permitting the spring-pressed follower to then advance the row of coins toward the delivery end of the chute and eject said end coin, substantially as described.

14. In a coin-delivery apparatus, the combination of a coin-chute, a spring-pressed follower therein pressing the row of coins toward the delivery end of the chute, a vertically and longitudinally movable coin lifting and delivering bar extending longitudinally of said chute, a resetting-spring yieldingly holding said bar from longitudinal movement, and means for lifting said bar, to cause it to lift the row of coins from the chute and permit the spring-pressed follower to move them and the bar toward the delivery end of the chute, and then permitting the bar to drop downward and redeposit the remainder of the coins upon the chute and be returned longitudinally to normal position by its resetting-spring, substantially as described.

15. In a coin-delivery apparatus, the combination of a plurality of coin-chutes and means for simultaneously lifting the rows of coins in several chutes and advancing them toward the delivery ends thereof, to eject the end coins in said rows, substantially as described.

16. In a coin-delivery apparatus, the combination of a plurality of coin-chutes and means for simultaneously lifting the rows of coins in several chutes and advancing them toward the delivery end thereof, to eject the end coins, and redepositing the remainder of the coins in their respective chutes, substantially as described.

17. In a coin-delivery apparatus, the combination of a plurality of coin-chutes, a stop-plate extending across their delivery ends and engaging the end coins in rows, and means for simultaneously lifting the rows of coins in several chutes and disengaging the end coins in said rows from said stop-plate, and advancing the rows of coins toward the delivery ends of the chutes, to eject said end coins, and then redepositing the remainder of the coins in their respective chutes, substantially as described.

18. In a coin-delivery apparatus, the combination of a plurality of coin-chutes, coin lifting and delivering bars coöperating with the several chutes to lift the rows of coins therein and advance them toward the delivery ends of the chutes, and means for operating single bars and combinations of bars, substantially as and for the purpose described.

19. In a coin-delivery apparatus the combination of a plurality of coin-chutes, coin lifting and delivering bars located in the bottoms of the several chutes and operating to lift the rows of coins from the chutes and advance them toward the delivery end of the chute, to eject the end coins in the rows, and then redepositing the remaining coins in their respective chutes, and means for simultaneously operating different bars in combination with each other, substantially as and for the purpose described.

20. In a coin-delivery apparatus, the combination of a plurality of coin-chutes, coin lifting and delivering bars coöperating with said chutes and each having a four-motion movement causing it to first rise and lift the rows of coins from the chute, then advance them toward the delivery end thereof, and eject the end coin in the row, then redeposit the remaining coins in the chute, and then return to normal position, and means for simultaneously operating different ones of said bars in combination with each other, substantially as and for the purpose described.

21. In a coin-delivery apparatus, the combination of a plurality of coin-chutes, spring-pressed followers located therein and pressing the rows of coins toward the delivery ends of the chutes, vertically and longitudinally movable coin lifting and delivering bars coöperating with the respective chutes to lift the rows of coins from the chutes and permit the spring-pressed followers to then advance them toward the delivery ends of the chutes, and means for simultaneously operating different ones of said bars in combination with each other, substantially as and for the purpose described.

22. In a coin-delivery apparatus, the combination of a plurality of coin-chutes, a stop-plate extending across their delivery ends and engaging the end coins in the rows, spring-pressed followers located in the chutes and pressing the rows of coins toward the delivery end thereof, vertically and longitudinally movable coin lifting and delivering bars coöperating with the respective chutes to lift the rows of coins from the chutes and the end coins from engagement with the stop-plate, to permit the spring-pressed followers to advance the rows of coins toward the delivery ends of the chutes and eject the end coins, and means for simultaneously operating different ones of said coin-lifting bars in combination with each other, substantially as and for the purpose described.

23. In a coin-delivery apparatus, the combination of the coin-chute F provided with the longitudinal slot in its bottom, and the four-motion coin lifting and delivering bar J operating in said slot and coöperating with the coins in said chute in the manner and for the purpose described.

24. In a coin-delivery apparatus, the combination of the coin-chute F having the longitudinal slot in its bottom, the stop-plate G′ at the delivery end of said chute, and the coin lifting and delivering bar J provided with the finger J′ and coöperating with the coin-chute and stop-plate in the manner and for the purpose described.

25. In a coin-delivery apparatus, the combination of the coin-chute F having the longitudinal slot in its bottom, the stop-plate G′ at the delivery end of said chute, the plate G located intermediate the stop-plate G′ and coin-chute and having the coin-aperture and the vertical recess G″, and the coin lifting and delivering bar J having the finger J′ and coöperating with the coin chute and plates G G′ in the manner and for the purpose described.

26. In a coin-delivery apparatus, the combination of the coin-chute F having the longitudinal slot in its bottom, the spring-pressed coin-follower K located in said chute, the pair of bell-cranks M having their upper ends connected by the cross-rod O, the links L pivotally supported at their lower ends upon the horizontal arms of the bell-cranks M, the coin lifting and delivering bar J pivotally supported upon the upper ends

of the links L and operating in the slot in the bottom of the coin-chute, and the resetting-spring Q for the bar J, substantially as described.

27. In a coin-delivery apparatus, the combination, with a series of coin-chutes and suitable coin ejecting or delivering devices cooperating therewith, of a series of bell-cranks M for actuating said devices, a series of slides R cooperating with the bell-cranks to actuate the same singly and in combination, the bell-cranks S connected to the slides R, and the operating-keys E connected to the bell-cranks S, substantially as described.

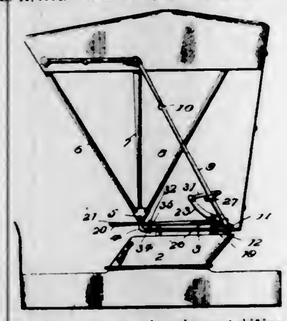
28. In a coin-delivery apparatus, the combination, with a plurality of coin-chutes and suitable coin ejecting or delivering devices cooperating therewith, of a series of pairs of bell-cranks M, one pair for each coin-chute for actuating the coin-ejecting devices thereof, and the vertical arms of the bell-cranks of each pair being connected by a cross-rod O, the series of slides R having the slots U through which the rods O pass and by which the several pairs of bell-cranks are actuated singly and in combination, the bell-cranks S connected to the slides R, and the operating-keys E connected to the bell-cranks S, substantially as described.

29. In a coin-delivery apparatus, the combination, with the coin-chutes F, and the spring-pressed followers K and coin lifting and delivering bars J cooperating therewith, of the series of pairs of bell-cranks M and connecting-rods O, the supporting-links L for the bars J pivotally supported at their lower ends by the horizontal arms of the bell-cranks M, the series of slides R having the slots U through which the rods O pass and by which the bell-cranks are actuated singly and in combination, the bell-cranks S connected with the slides R, and the operating-keys connected to the bell-cranks S, substantially as described.

30. In a coin-delivery apparatus, the combination, with the coin-chute F, of the follower K guided therein and provided with the sheaves *d*, the cord *e* having the loop portion passing across said follower, over said sheaves, and having its free end connected to the sheave V, the cord *e'* wound at one end around the spindle of the sheave V, and the spring W connected to the opposite end of said cord, substantially as described.

31. In a coin-delivery apparatus, the combination, with the coin-chute F, of the follower K guided therein and composed of the horizontal plate *a* and vertical disk *b*, and provided with the sheaves *d*, the edges of the plate *a* of the follower being provided with grooves engaging strips *c* secured to the upper edges of the coin-chute, the cord *e* secured at one end to one side or corner of the coin-chute and extending thence longitudinally of the chute, thence transversely across the chute over the sheaves *d* of the follower, thence longitudinally of the chute in the opposite direction and downward over the sheave *f*, and thence to the sheave V, the cord *e'* wound at one end upon the spindle of the sheave V, and the spring W secured to the opposite end of said cord, substantially as described.

679,838. **BUGGY-TOP RAISER.** JOHN C. FORD, Macon, Mo. Filed Mar. 19, 1901. Serial No. 51,852. (No model.)

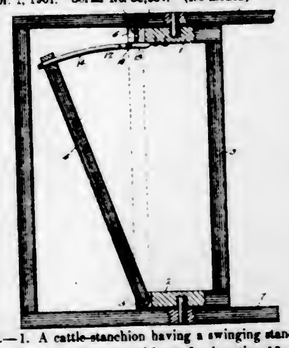


Claim.—1. In a buggy-top raiser, the usual shifting rail-clips having a concaved under face and comprising a forwardly-extending lug having an elongated slot, and an upwardly-extending perforated lug, said clips being secured to the seat-rail in combination with a shaft extending across the buggy and journaled in said clips, an operating-lever rigidly secured to one end of the shaft, an upwardly-curved arm secured to said lever, a link pivoted at one end to the upper end of said arm and at its other end to a long hinged prop and a spring-catch for locking the operating-lever in its depressed position.

2. In a buggy-top raiser, the combination with the long hinged prop, of a shaft extending across the buggy, an operating-lever secured to said shaft and an upwardly-curved arm integral with the operating-lever, a connecting-rod pivotally secured at one end to the operating-lever, of a clip secured to said prop, a crank-arm removably secured to said clip and means for adjustably connecting said crank-arm to one end of the connecting-rod.

3. In a buggy-top raiser, the combination with the long hinged prop, of a shaft extending across the buggy, an operating-lever secured to said shaft, an upwardly-curved arm integral with the operating-lever, a connecting-rod having an enlarged end provided with a series of openings through the same, a clip secured to the said prop, a crank-arm secured to said clip and adjustably secured in one of the openings in the enlarged end of the connecting-rod whereby said connecting-rod is connected with the prop while the other end of the said rod is connected to the operating-lever.

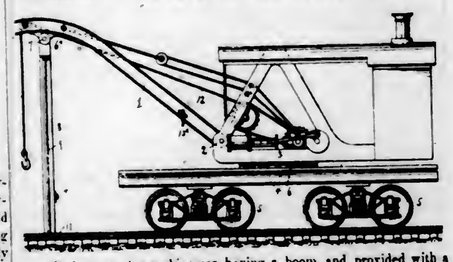
679,839. **CATTLE-STANCHION.** JOHN G. FRAGNER, Monroe, Mich., assignor of one-half to Casimir Henry Wallinger, same place. Filed Apr. 1, 1901. Serial No. 52,857. (No model.)



Claim.—1. A cattle-stanchion having a swinging stanchion-bar, in combination with a lock-link comprising a fixed section 13 and an outer section 14 pivoted thereto, said fixed section being secured to one of the stanchion-heads, said pivoted outer section 14 passing through an opening in said swinging stanchion-bar, said section 14 being adapted to drop to a vertical position on the outer side of said swinging stanchion-bar when the latter is closed, and the upper end of said section 14 when thus disposed extending above said fixed section 13, to lock said swinging stanchion-bar in a closed position, substantially as described.

2. A cattle-stanchion having a swinging stanchion-bar, in combination with a lock-link comprising a fixed section and a pivoted section, the former being secured to one of the stanchion-heads and the latter passing through an opening in said swinging stanchion-bar, the said pivoted section of said link being adapted to drop to a vertical position on the outer side of said swinging stanchion-bar when the latter is closed, to lock the same in said closed position, and a gravity-latch disposed in the path of said swinging stanchion-bar, said latch serving to lock said stanchion against rotation on its pivots when said swinging stanchion-bar is opened and being turned to and held in inoperative position by said swinging stanchion-bar, when the latter is closed and locked by said lock-link, substantially as described.

679,840. **STRUT FOR WRECKING-CARS.** JOHN R. GRAHAM, Roanoke, Va. Filed Apr. 30, 1901. Serial No. 58,169. (No model.)



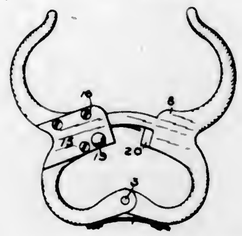
Claim.—1. A wrecking-car having a boom, and provided with a folding strut or brace carried by the boom and arranged to support the outer end of the same, whereby the car will be relieved of strain and its capacity and reach increased, and means for securing the strut or brace in its folded position, substantially as described.

2. A wrecking-car having a pivoted boom, arranged to swing around the car, said car being also provided with a strut, hinged to and carried by the boom at the outer portion thereof and arranged to rest upon the ground or other support, whereby the wrecking-car is relieved of strain, said strut being adapted to be folded against the boom, substantially as described.

3. A wrecking-car having a boom, and provided with a hinged strut connected at its upper end to the boom near the outer end thereof and adapted to support the outer portion of the boom and capable of folding against the same, and a fastening device for locking the strut in its folded position, substantially as described.

4. A wrecking-car having a boom, and provided with a folding strut hinged to the outer portion of the boom and adapted to fold against the same and composed of a base, channel-steel sides converging upward from the base, and the latticed braces connecting the sides, and means for securing the strut in its folded position, substantially as described.

679,841. **POLICE-NIPPERS.** GEORGE A. HARRISON, Lafayette, Ind., assignor of one-half to William C. Mitchell, same place. Filed Mar. 22, 1901. Serial No. 52,453. (No model.)



Claim.—1. Police-nippers consisting of two grasping members pivoted together at one end, and means intermediate their ends for locking them together.

2. Police-nippers consisting of two grasping members doubly curved substantially as shown and pivoted together at one end and with extensions intermediate their ends that abut when the nippers are closed, and means for locking said extensions together.

3. Police-nippers consisting of two grasping members doubly curved substantially as shown and pivoted together at one end and with extensions intermediate their ends that abut when the nippers are closed, an arm extending from one of said extensions with a spring-catch thereon, a recess in the other extension to receive said arm, a stop to engage the catch, and means for releasing the catch.

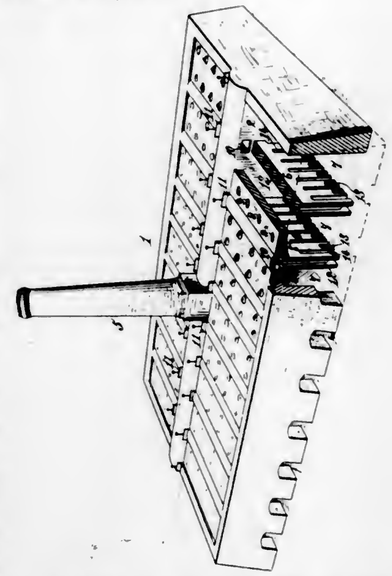
4. Police-nippers consisting of two grasping members doubly curved substantially as shown and pivoted together at one end and with extensions intermediate their ends that abut, a spring tending to close said members, an arm extending from one of the extensions on said member curved concentric with the pivotal connection of said members, a spring-catch secured on said arm, a groove in the extension on the other member that is concentric with the pivotal connection of said members to receive said arm, a shoulder adjacent to said groove to engage the catch on said arm, a plate secured over said groove having a slot in it, and a pin extending through said slot into engagement with the spring-catch whereby when the pin is moved it will release the catch.

679,842. **KILN.** FREDERICK W. HEIDENREICH, Hedrick, Iowa. Filed Apr. 29, 1901. Serial No. 58,016. (No model.)

Claim.—1. In a brick-kiln, the combination with an outer inclosing wall, of a central partition-wall dividing said kiln longitudinally into sections, and provided with a main flue along its top, a stack into which said flue delivers, pier-walls extending from said central partition-wall to the side walls of the kiln and dividing the sections of the kiln into independent chambers, said pier-walls supporting the arches or roof of the kiln and being provided with openings leading from one chamber to another, branch flues in the tops of said pier-walls in communication with said main flue, dampers in said branch flues, and a series of vertical flues in said pier-walls communicating with said branch flues and provided with draft-openings communicating with one of said chambers.

2. In a brick-kiln and in combination, side and end walls, a central partition-wall dividing said kiln longitudinally into sections and provided along its top with a main flue, a stack midway said flue into which the said flue delivers directly, a series of pier-walls extending from said central wall on either side thereof to the side walls of the kiln to form independent burning-chambers, arches forming the roof of the kiln supported by said pier-walls, a series of heat-conducting openings piercing said pier-walls so as to establish communication between said chambers, branch flues at the tops of said pier-walls entering said main flue, dampers at the inner ends of said branch flues, and a series of vertical flues in said pier-walls delivering into said branch flues and provided with draft-openings at their lower ends on one side only of said pier-walls.

3. In a brick-kiln and in combination, side and end walls, a central partition-wall dividing the kiln longitudinally into two sections and provided with a main flue along its top, a stack midway said flue into which the said flue delivers directly, communicating passages between the two sections at either end of the kiln, a series of pier-walls extending from said partition-wall to the side walls of the kiln so as to form independent burning-chambers, said pier-walls supporting the roof-arches of the kiln, intercommunicating passages between said chambers adapted to be temporarily sealed, branch flues in the tops of said pier-walls closed at their outer ends and entering said main flue, dampers controlling said branch flues, and a series of vertical flues in said pier-walls delivering directly into said branch flues and having draft-openings at their lower ends on one side only of said pier-walls.



4. In a brick-kiln, the combination with inclosing side and end walls, of a central partition-wall dividing said kiln longitudinally into two sections, said partition-wall having passages at its ends to afford communication between said sections, a main flue in the top of said partition-wall closed at its ends and emptying midway its length into a stack, a series of pier-walls extending from said central partition-wall to the side walls of the kiln, said pier-walls serving to support the roof-arches of the kiln, said pier-walls being provided along their tops with branch flues closed at their outer ends and delivering into said main flue, dampers at the inner ends of said branch flues, a series of alternately-arranged openings and vertical flues in said pier-walls, whereby intercommunication may be established between said chambers, said passages being adapted to be temporarily closed during the operation of the kiln, and draft-openings at the lower ends of said vertical pier-wall flues communicating with a chamber on one side only of said pier-wall.

5. In a brick-kiln, the combination with side and end inclosing walls, of a central partition-wall dividing said kiln longitudinally into two sections, said partition-wall being of less length than the kiln to form communicating passages between the two sections, a main flue traversing the top of said partition-wall, said main flue being closed at its ends, a stack midway said flue into which said flue delivers, a series of pier-walls extending from said partition-wall to said side walls, roof-arches provided with stoke-holes supported by said pier-walls, branch flues traversing the tops of said pier-walls, said branch flues being closed at their outer ends and delivering to said main flue, dampers at the inner ends of said branch flues to control their delivery to the main flue, a series of alternately-arranged chamber-connecting openings and vertical flues in said pier-walls, said connecting-openings being adapted to be temporarily closed by suitable combustible material during operation of the kiln, said vertical pier-wall flues delivering into said branch flues and being provided at their lower ends on one side only of said pier-walls with draft-openings, and a series of vertical flues in each of the end walls of the kiln connecting one of the end chambers of each section with a branch flue leading to the said main flue.

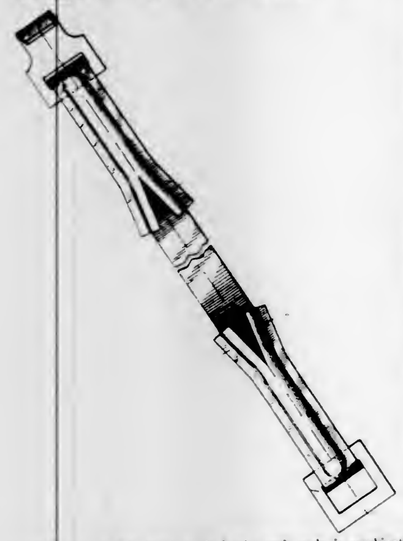
679,843. **MEANS FOR HOLDING LOOSE MEMBERS OF MACHINES UPON ENDS OF STUDS OR SHAFTS.** BENJAMIN HOLLAND, Providence, R. I. Filed June 6, 1901. Serial No. 63,494. (No model.)



Claim.—1. A cotter-washer provided with a notch at its edge, and the deflected lips at each side of the notch, substantially as described.

2. The combination of a cotter-washer provided with a notch at its edge and the deflected lips, with the cotter-pin passing through the stud or shaft and into the notch of the washer, substantially as described.

679,844. **BALE TIE OR BAND.** WATSON M. HOLMES, Hoosick Falls, N. Y., assignor to the Planters Compress Company, Boston, Mass. Filed June 18, 1900. Serial No. 20,670. (No model.)



Claim.—1. A bale band or tie having split ends, in combination with a hook and an eyelet to be strung upon said band, the split ends of said band adapted to be spread apart to retain the hook and eyelet upon the band, as and for the purpose set forth.

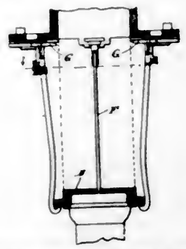
2. A bale band or tie having the ends thereof bent back upon and in a plane parallel with the body of the band, said ends being ribbed or corrugated and split at the extremities thereof, in combination with a hook and an eyelet adapted to be strung upon said band, the split ends of said band adapted to be spread apart to retain the hook and eyelet upon the band, as and for the purpose set forth.

3. A bale band or tie having stiffening-ribs or corrugations formed therein at suitable distances apart, the ends of said band being longitudinally split, said split ends adapted to be bent or folded down upon and in a plane parallel with the body thereof from points between adjacent stiffening-ribs or corrugations, in combination with a hook and an eyelet adapted to be strung upon said band, the split ends of said band adapted to be spread apart to retain said hook and eyelet thereon, as and for the purpose set forth.

679,845. **BALE-STAY BAND.** WATSON M. HOLMES, Hoosick Falls, N. Y., assignor to the Planters Compress Company, Boston, Mass. Filed Jan. 16, 1901. Serial No. 43,492. (No model.)

Claim.—1. The combination with a bale-stay, of a bale-stay band or securing device, means for detachably connecting one end thereof to said bale-stay the other end arranged to be passed around and in encircling relation with respect to the bale, and means for holding the free end of said band or device in such encircling relation, as and for the purpose set forth.

2. The combination with a bale-stay, of a bale-stay band or securing device, means for detachably connecting the same at one end to said bale-stay, the other end arranged to be passed around in encircling relation with respect to the bale, and means for detachably holding the free end of said band or device in such encircling relation, as and for the purpose set forth.



3. The combination with bale-stays and a hook arranged to be detachably engaged with a bale-stay, of a band or securing device connected at one end to said hook, the other end of said band arranged to be passed around and in encircling relation with respect to the bale-stays, and means for detachably connecting said band at the free end thereof to said hook, as and for the purpose set forth.

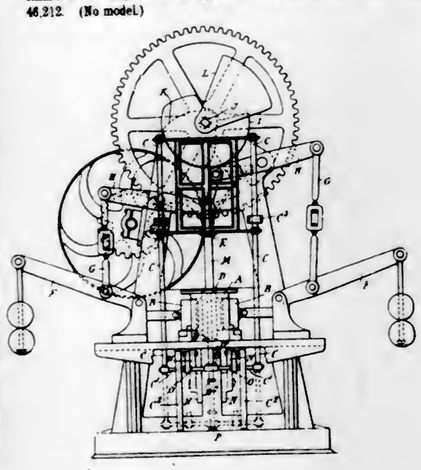
4. The combination with bale-stays a casting or forging having a hook, said hook arranged to be detachably engaged with a bale-stay, of a band or securing device connected at one end to said casting or forging the other end thereof arranged to be passed around and in encircling relation with respect to the bale-stays, and means formed on said hook for detachably engaging said band at its free end, as and for the purpose set forth.

5. The combination with bale-stays and a forging or casting having a flange or projection, adapted to form a hook to detachably engage a bale-stay, of a band or securing device connected at one end to said forging or casting, and means formed on said forging or casting for detachably engaging the other end of said band or securing device, whereby after passing around in encircling relation with respect to the bale-stays, said end may be detachably held by said casting or forging, as and for the purpose set forth.

6. The combination with a casting or forging having flanges or projections, one of said flanges or projections forming a hook for detachable engagement with a bale-stay, and the other provided with fingers, of a stay-band or securing device connected at one end to said forging or casting, and adapted to be passed around and in encircling relation with respect to the bale-stays, and to be detachably received between said fingers, as and for the purpose set forth.

7. A bale-stay-securing device comprising a casting having a hook adapted to detachably engage a bale-stay, a chain connected at one end to said casting the other end of said chain arranged to be passed around and in encircling relation with respect to the bale-stays, said casting provided with fingers arranged to engage the free end of said chain to hold the same in encircling relation, as and for the purpose set forth.

679,846. **MACHINERY FOR PRESSING BRICKS OR THE LIKE.** RALPH T. HUGHES, Saltburn, England. Filed Feb. 6, 1901. Serial No. 46,212. (No model.)



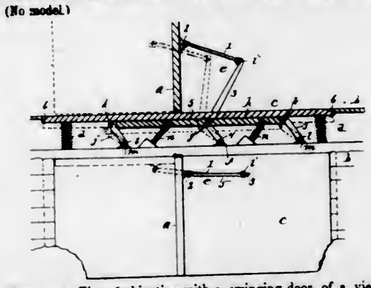
Claim.—1. The combination of the tubular mold A, the two side plungers B, the sliding frame C, the plungers D and E carried by it and cams on a continuously-revolving cam-shaft for raising and lowering the frame C and moving the side plungers toward and away from one another at the proper times substantially as described.

2. The combination of the tubular mold A, the sliding frame C, the discharging-plunger D which can move up and down within the mold its stem D′ extending downward through the bottom bar of the sliding frame, the collars D^2 on the stem D′ one above and the other below this bottom bar and at such a distance apart that the stem can rise or fall a short distance independently of the sliding frame the stop P for limiting the descent of the plunger D the plunger E fixed to the sliding frame and serving to close the top of the mold and cams upon a continuously-revolving camshaft for controlling the upward-and-downward movement of the sliding frame.

3. The combination of the tubular mold A, the two side plungers B, the vertically-sliding frame C, the discharging-plunger D which can move up and down within the mold, its stem D′ extending downward through the bottom of the frame C, the collars D^2, the stop P and the upper plunger E fixed to the sliding frame in such position that it enters and closes the top of the mold when the sliding frame is lowered and the stem D′ rests upon the stop P and means for raising and lowering the frame C and for moving the side plungers toward or away from one another at the proper times.

4. The combination of the tubular mold A, the two side plungers B, the sliding frame C, the discharging-plunger D, its stem D′, the collars D^2, the stop P for limiting the descent of the plunger D, the plunger E fixed to the sliding frame and cams upon a continuously-revolving camshaft to first lower the frame C until the downward movement of the plunger D is arrested by the stop P and the plunger E has entered into and closed the top of the mold and to subsequently cause the side plungers to be simultaneously thrust inward to make indents in the sides of the brick and finally to withdraw the side plungers and then lift the frame C and cause the discharging-plunger to discharge from the mold the now compressed brick.

679,847. **AUTOMATIC DOOR OPENING OR CLOSING DEVICE.** LOUIS IVES, Dearborn, Mich. Filed Feb. 11, 1901. Serial No. 46,757. (No model.)



Claim.—1. The combination with a swinging door, of a yielding platform, a movable support beneath the platform, means connecting the movable support with the body of the door, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed, said support having a forward-and-backward and vertical movement.

2. The combination with a swinging door, of a yielding platform, a movable support beneath the platform, rocking levers carrying said support, means to restore the platform to normal position, and means connecting the body of the door with the support whereby when the platform is depressed the door will be opened and held in open position while the platform is depressed, and whereby when the platform is restored to normal position the door will be closed and held in closed position.

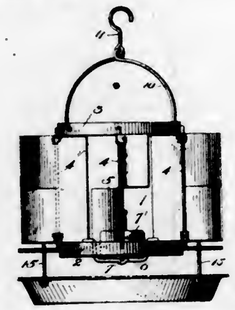
3. The combination with a swinging door, of a yielding platform, rocking mechanism supporting said platform, and toggle-lever mechanism connected with the door and actuated by the movement of the platform, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

4. The combination with a door, of a platform, a movable support beneath the platform, rocking mechanism carrying said support, toggle-lever mechanism connected with the door and with said support, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

5. The combination with a door, of a yielding platform, a movable support underneath the platform, rocking levers connected with said support, means to restore the support and platform to normal position, and toggle-lever mechanism connected with the door and with the support whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

6. The combination with a door, of a yielding platform, a yielding support movable longitudinally of the platform, rocking mechanism carrying said support, means to restore the support and the platform to normal position, and mechanism connecting the support with the door, whereby when the platform is depressed the door will be opened, and whereby when the platform is restored to normal position the door will be closed.

679,848. **INSECT-EXTERMINATOR.** JOHN K. JESSUP, Mound City, Kans., assignor of one-half to O. M. West, same place. Filed Apr. 29, 1901. Serial No. 58,011. (No model.)



Claim.—1. In an insect-exterminator, the combination with a suitable supporting-frame, of an illuminating agent supported thereby, and radially-disposed wings having extensions projecting in opposite directions, substantially as set forth.

2. In an insect-exterminator, the combination with a frame, consisting of upper and lower rings and posts connecting them together, of radially-projecting reflector-wings secured to said posts, the lower ends of the diametrically opposite wings being connected together and the upper ends of each pair of adjacent wings being connected together, and a torch placed between the inner edges of said wings, substantially as set forth.

3. In an insect-exterminator, the combination with a frame provided with radially-disposed vertically-extending reflector-wings, of a torch, a pan or receptacle, hooks secured to the pan or receptacle, and rods passed through the said frame and engaged with said hooks for releasably connecting the pan to the exterminator, substantially as set forth.

4. In an insect-exterminator, the combination with a frame, of radially-disposed wings having members *a* and *b*, the members *a* curved in one direction, and the members *b* curved in the opposite direction, and a torch, substantially as set forth.

5. In an insect-exterminator, the combination with a frame, of radially-disposed reflectors, U-shaped cross-bars connecting the lower ends of said reflectors and interlocked at their point of intersection, and a torch seated upon the U-shaped cross-bars, substantially as set forth.

679,849. **FURNITURE-CASTER.** BERTRAND P. KENYON, Grand Rapids, Mich. Filed Feb. 2, 1901. Serial No. 45,727. (No model.)

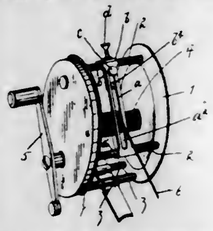


Claim.—1. A blank for caster-yokes, substantially T-shaped in outline, and consisting of a middle part adapted to form the top, bottom and two vertical sides of a substantially square head, and having a recess at one end and a shouldered opposite end adapted to engage the recessed end; and two arms projecting oppositely, and diagonally from the recessed end, substantially as described.

2. In a caster-yoke a head formed of a continuous strip of sheet metal bent transversely at right angles in three places, to form the top, bottom and two vertical sides of a substantially square head the ends of said strip being joined at an upper angle of the head; and two integral arms projecting from the vertical side of the head adjacent to said angle, substantially as described.

3. In combination with a pin having a circumferential enlargement, a yoke rotative on the pin, and formed of a single piece of sheet metal, having a middle portion perforated to receive the pin, and having bosses, and a bead surrounding the perforations, said middle portion also having a recess at one end, and a reduced and shouldered opposite end, and folded transversely at right angles and joined at the ends, and integral arms projecting from a vertical side of the head, and perforated to receive the wheel-journal, substantially as described.

679,850. LINE-GUIDE FOR REELS. HENRY KRUEGER, Minneapolis, Minn. Filed Feb. 16, 1901. Serial No. 47,529. (No model.)



Claim.—1. A reel having its sides connected by two or more spacing-rods, in combination a line-guide involving seats or bearings mounted to slide freely on a pair of said spacing-rods, a rigid connection between said bearings, provided with a longitudinally-extended line-passage, the upper of said bearings having a thumb-piece which projects upward and terminates in position to be engaged by the thumb of the hand which holds the reel, and which guide is adapted to be moved at will and independently of the movements of the reel-spool, substantially as described.

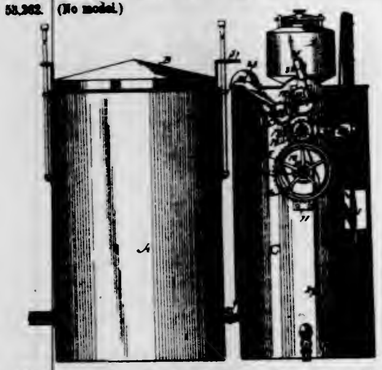
2. A line-guide for reels, adapted to be applied to the spacing-rods thereof, and provided with separable parts adapting the same to be applied to and removed from said spacing-rods without taking the reel apart, substantially as described.

3. A line-guide for reels, comprising a pair of longitudinally-adjustable sections provided with open seats, and adapted for application to the spacing-rods of the reel, substantially as described.

4. A line-guide for reels, comprising the sections *a* and *b*, the former having the open seat a' and slot a^2, and the latter having the open seat b' and thumb-piece *d*, and the thumb-screw *c* adjustably connecting the said sections, substantially as described.

5. The combination with a reel, having the spacing-rods 2, of the line-guide comprising the longitudinally-adjustable sections *a* and *b*, the former having the open seat a' and slot a^2, and the latter having the open seat b' and thumb-piece *d*, the pin b^2 on said member *b* working in the said slot a^2, and a thumb-screw *c* working through said slot a^2 and screwed into said member *b*, for adjustably securing said members *a* and *b*, substantially as described.

679,851. GOVERNOR FOR GAS-GENERATORS, &c. THEODOR H. J. LEBRARD, Des Moines, Iowa. Filed Mar. 23, 1901. Serial No. 53,262. (No model.)



Claim.—1. In a governor for machines, a frame, a rotatable shaft mounted on said frame, a spur-wheel fixed on said shaft, a journal fixed to the frame, a spur-wheel loosely mounted on said journal, a weighted lever fulcrumed to said journal and a spur-wheel carried by the lever to engage the wheel on the rotatable shaft and also the wheel on the fixed journal, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a governor for machines, a frame, a rotatable shaft mounted on said frame, a spur-wheel fixed on said shaft, a journal fixed to the frame, a spur-wheel loosely mounted on said journal, a weighted lever fulcrumed to said journal and a spur-wheel carried by the lever to engage the wheel on the rotatable shaft and also the wheel on the fixed journal, a second fixed journal, a drum on said journal and means for transmitting motion from the drum to the wheel loosely mounted on the first-mentioned journal, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a governor for machines, a frame, a rotatable shaft mounted on said frame, a fixed spur-wheel on said shaft, a journal fixed to the frame, a spur-wheel loosely mounted on said journal, a weighted lever fulcrumed to said journal and a spur-wheel carried by the lever to engage the wheel on the rotatable shaft and also the wheel on the fixed journal, a second fixed journal, a drum on said journal and means for transmitting motion from the drum to the wheel loosely mounted on the first-mentioned journal, a rope fixed to the drum and extended over pulleys and a weight on the end of the rope, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a governor for machines, a frame, a rotatable shaft mounted on the frame, a spur-wheel fixed to the shaft, a journal fixed to the frame, a spur-wheel having a clutch member at one end mounted loosely on said journal to engage the fixed wheel on the rotatable shaft, a second spur-wheel on said journal provided with a clutch member and a spring on the journal to normally retain the two clutch members engaged, a weighted lever pivotally connected with the said journal and a spur-wheel mounted on the lever to engage the fixed wheel on the shaft and the inner loose wheel on the said journal, arranged and combined to operate in the manner set forth for the purposes stated.

5. In a governor for machines, a frame, a rotatable shaft mounted on the frame, a spur-wheel fixed to the shaft, a journal fixed to the frame, a spur-wheel having a clutch member at one end mounted loosely on said journal to engage the fixed wheel on the rotatable shaft, a second spur-wheel on said journal provided with a clutch member and a spring on the journal to normally retain the two clutch members engaged, a weighted lever pivotally connected with the said journal and a spur-wheel mounted on the lever to engage the fixed wheel on the shaft and the inner loose wheel on the said journal, a cylinder pivoted to the frame, a piston in the cylinder and the piston-stem pivotally connected with a crank-pin on the fixed wheel on the rotatable shaft, arranged and combined to operate in the manner set forth for the purposes stated.

6. An automatic governor for a machine comprising a frame, a rotatable shaft mounted on the frame, a spur-wheel fixed on said shaft, a cylinder pivotally connected with the frame and the stem of a piston in the cylinder pivotally connected with a crank-pin on said fixed wheel, a journal fixed to the frame, two spur-wheels loosely mounted on said journal and each provided with a clutch member, a spring on the journal to normally retain the clutch members locked together, a weighted lever pivotally connected with the said journal, a spur-wheel mounted on the lever to engage the spur-wheel on the shaft and the rear spur-wheel on said journal, a second journal fixed to the frame, a drum loosely mounted on said second journal, a spur-wheel on the end of the drum, a rope fixed to the drum and extended over an elevated pulley and a weight attached to the rope, arranged and combined to operate in the manner set forth for the purposes stated.

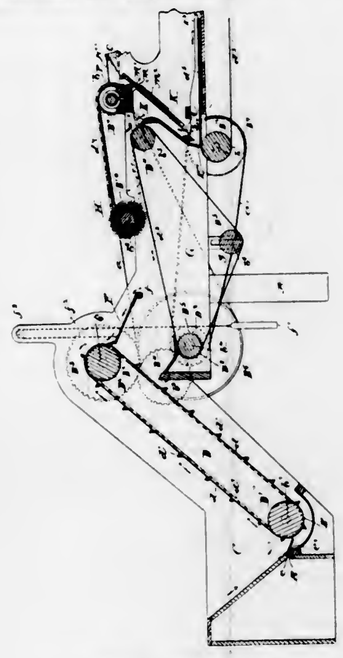
679,852. CRACKER-STACKING MACHINE. EDMUND MACKAY, Jersey City, N. J. Filed Aug. 28, 1897. Serial No. 649,811. (No model.)

Claim.—1. A cracker-stacking machine consisting of a lifting device placed in advance of the feeder, a feeder, a separating and inverting device, and a receiving device adapted and arranged to receive a mixed supply of crackers, select and arrange them in suitable rows, substantially as shown and described.

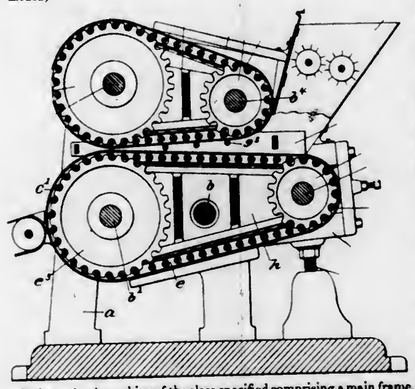
2. A cracker-stacking machine provided with a separating and inverting device which consists of a box provided with a series of hinged partitions, the movable portions of which are adapted to reciprocate in front of the crackers presented by the feeding device, mechanism whereby reciprocating motion is given to said partition, and suitable feeding devices and their operating mechanisms, whereby the crackers are presented, substantially as shown and described.

3. In a cracker-stacking machine a lifting and arranging device which consists of an inclined lifting-apron and its operating devices, a hopper at one end of said lifting-apron, and provided with a movable bottom intermittently lifted by said apron and at the other end with a receiving-shelf intermittently depressed by said apron, whereby the crackers thrown into said hopper are constantly turned about and selected when they assume a face-upward position and so lifted and transferred to the feeding device of said cracker-stacking machine.

4. In a cracker-stacking machine a separating device which consists of a box placed between the feeding and receiving devices and provided with an inclined reciprocating bottom and a series of partitions the upper portions of which reciprocate laterally, dividing said box into channels corresponding to the channels of the receiving device, means for operating said sliding bottom and said partitions whereby the crackers presented to said separating device are divided, inverted and delivered in rows or stacks to said receiving device and a receiving device provided with suitable channels for receiving the crackers.



679,853. MACHINE FOR MAKING BRICKS. MARK W. MARSDEN, Philadelphia, Pa. Filed Mar. 19, 1900. Serial No. 9,139. (No model.)



Claim.—1. A machine of the class specified comprising a main frame, accessory frames pivoted to the main frame, a pair of aprons mounted in the accessory frames and having dies or molds and rollers, apron-supports to accommodate the rollers, and means for rotating the aprons, substantially as described.

2. A machine of the type recited comprising a main frame, accessory frames pivoted at one of their ends to the main frame by hollow trunnions, adjustable connections between the main frame and the other ends of the accessory frames, apron-shafts whereof two are mounted in said trunnions and two in said accessory frames, apron-supports carried by each accessory frame, and aprons coöperating with the apron-supports, substantially as described.

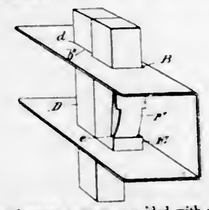
3. A machine of the class specified comprising a pair of driven endless aprons each made up of half dies or molds, means for guiding them at an inclination toward each other to consolidate and shape the material and away from each other to open the molds and discharge the molded material, apron-supports, and means for adjusting either apron in respect to the other, substantially as described.

4. In combination, a main frame, accessory frames pivoted to the main frame, a pair of aprons mounted in the accessory frames and having dies or molds and rollers, apron-supports to accommodate the rollers, means for rotating the aprons, means for feeding the raw material to the aprons, and a conveyer for the molded material, substantially as described.

5. In combination, a main frame, accessory frames pivoted to the main frame, a pair of aprons mounted in the accessory frames and having half dies or molds and rollers, apron-supports to accommodate the rollers, means for rotating the aprons, a feeding-hopper, means for regulating the feed therefrom, and a conveyer for the molded material.

6. In apparatus such as described, the pair of driven aprons superposed one above the other and each comprising half dies or molds and rollers, means for guiding said aprons at an inclination to each other, such that at their point of contiguity they form complete dies or molds, apron-supports to accommodate the rollers, a hopper adapted and arranged for automatically feeding the raw material to the space between the aprons, means for adjusting the aprons relatively to each other, and a conveyer to receive the molded material, substantially as described.

679,854. HARROW. JACOB W. MILLER, Marion, Ohio, assignor of one-half to Edward Huber, same place. Filed Mar. 22, 1901. Serial No. 52,365. (No model.)



Claim.—1. In a harrow, a beam provided with an elongated rectangular opening, one end of which is narrower than the other end, and means, attached to said beam, for securing a tooth in said beam, as and for the purpose shown and described.

2. In a harrow, a beam provided with an elongated opening having its opposite sides parallel, and one end narrower than the other end, and a leaf-spring, attached to said beam, for securing a tooth in said beam, as and for the purpose shown and described.

3. In a harrow, a beam having parallel flanges, a rectangular opening in each of said flanges, and a spring fixed to one of said flanges, substantially as shown and described.

4. In a harrow, a beam made of channel-iron, a rectangular opening in one of its flanges one end of which is narrower than the other end, and a rectangular opening in its other flange opposite the first-named opening, substantially as shown and described.

5. In a harrow, the combination of a beam having parallel walls, rectangular openings in said walls, a tooth having lateral grooves thereon, a notched wedge, and a spring on one of said walls, as and for the purpose shown and described.

6. In a harrow, a beam having parallel flanges, a rectangular opening in one of its flanges, a spring adjacent to said opening, and a rectangular opening in the other flange, substantially as shown and described.

7. In a harrow, a beam with parallel flanges, an elongated opening in one of its flanges, the opposite sides of said opening parallel and one end narrower than the other end, a spring adjacent to the larger end of said opening extending between the flanges, and an elongated opening with parallel sides in the other flange opposite to the first-named opening, substantially as shown and described.

8. In a harrow, a beam made of channel-iron, a portion of one of the flanges thereof cut out to form a rectangular opening therein, said portion turned down on one of its edges to form a spring, and a rectangular opening in the other flange, substantially as shown and described.

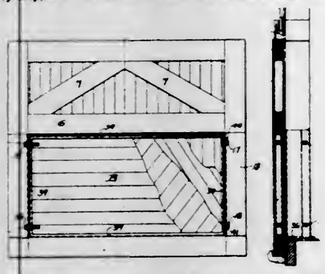
9. In a harrow, a beam made of channel-iron, a rectangular opening cut out of one of the flanges thereof, one end of which is narrower than the other end, the portion cut out being turned, between the flanges of said channel-iron, at the wider edge and curved to form a leaf-spring, and a rectangular opening in the other flange, substantially as shown and described.

10. In a harrow, the combination of a beam, an elongated opening therein, one end of said opening narrower than the other end, a tooth provided with lateral grooves, a notched wedge, and means for retaining said parts in an assembled position, substantially as shown and described.

11. In a harrow, the combination of a beam, an elongated opening therein, one end of said opening narrower than the other end, a spring adjacent to said opening, a tooth provided with lateral grooves, and a notched wedge, substantially as shown and described.

12. In a harrow, the combination of a beam made of channel-iron, a rectangular opening cut out of one of its flanges, the cut-out portion turned between the flanges of said channel-iron and curved to form a leaf-spring, a tooth provided with lateral grooves, and a notched wedge, substantially as shown and described.

679,855. **COMBINED CAR AND GRAIN DOOR.** JOSEPH B. MOCKRIDER, New York, N. Y., assignor of one-half to Charles L. Duenkel, Jersey City, N. J. Filed June 1, 1901. Serial No. 62,658. (No model.)



Claim.—1. A combination car and grain door comprising a main door with a recess and a grain-door adapted to fit in said recess and also adapted to serve as a grain-door proper in addition to said main door, and devices on said grain-door for securing it either in the main door or in its place in the doorway at will, substantially as described.

2. The combination of a main car-door provided with a recess, a grain-door adapted to fit in said recess, recessed door-posts in the car, and devices on said grain-door adapted to lock it in the recess of the main door or in the recessed door-posts at will, substantially as described.

3. The combination of a main car-door, a recess therein, and a grain-door adapted to fit in said recess and provided with devices for locking it therein, substantially as described.

4. In combination with a recessed main door, a grain-door having metal-protected edges and devices for locking said grain-door into the recessed main door, substantially as described.

5. A grain-door for cars consisting of thin strips of wood laid at an angle and fastened together, and metal protection around the edges of said door, substantially as described.

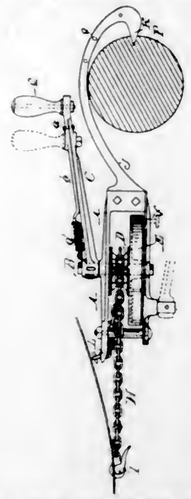
6. The combination in a car of a recessed main car-door provided with sockets, recessed door-posts also provided with sockets, a grain-door adapted to fit removably either the recessed main door or the recessed door-posts, devices on said grain-door adapted to engage either said sockets in the main door or said sockets in the door-posts, and a grooved sill adapted to engage the bottom of said grain-door when the latter is locked in the recessed door-posts, substantially as described.

7. In railroad-cars, a disappearing grain-door, consisting of a panel which is adapted to fit in the doorway when used as a grain-door, and to fit in the main door and disappear when loading or unloading the car, substantially as described.

679,856. **DEVICE FOR STRETCHING WIRE.** WILLIAM MCCLOSKEY, Essex, Canada. Filed Sept. 10, 1900. Serial No. 29,561. (No model.)

Claim.—1. In a wire-stretcher, the combination of the supporting-frame having means at the rear end for anchoring it to the fence-post and provided at the front end with a fork forming a chain-stop, a chain-pulley journaled in the frame and provided with means for revolving it in either direction, and a loose chain coacting with said fork and adapted to form with said chain-pulley a chain-gear and provided with wire-grips at both of its ends, whereby it may be used alternately at each end of the chain, substantially as specified.

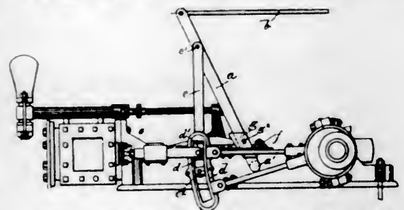
2. In a wire-stretcher, the combination of the supporting-frame having means at the rear end for anchoring it to a fence-post and provided at the front end with a fork forming a chain-stop, a shaft journaled transversely of said frame, a chain-pulley secured on said shaft, an internally-geared wheel on said shaft, a gear-pinion engaging with said gear-wheel, a loose chain adapted to form a chain-gear with said chain-wheel and provided with wire-grips at both ends and a crank-handle adapted to be interchangeably secured to the shaft of the chain-pulley or to the shaft of the gear-pinion for imparting motion thereto in either direction.



3. In a wire-stretcher, the combination of the supporting-frame having means at the rear end for anchoring it to a fence-post and provided at the front end with a fork forming a chain-stop, a shaft journaled transversely of said frame, a chain-pulley secured on said shaft, an internally-geared wheel on said shaft, a gear-pinion engaging with said gear-wheel, a loose chain adapted to form a chain-gear with said chain-wheel and a crank-handle adapted to be interchangeably secured to the shaft of the chain-pulley or to the shaft of the gear-pinion for imparting motion thereto-in either direction.

4. In a wire-stretcher, the combination of the supportiug-frame having means at the rear end for anchoring it to the fence-post and provided at the front end with a fork forming a chain-stop, a chain-pulley journaled in the frame and provided with a crank-arm for revolving it in either direction, and a loose chain coacting with said fork and adapted to form with said chain-pulley a chain-gear and provided with wire-grips at both its ends whereby it may be used alternately at each end of the chain, the aforesaid crank-arm having a lever *b* pivotally secured thereto and arranged to form a tension-indicator for the stretcher.

679,857. **LINK-MOVEMENT FOR ENGINES.** IRA L. NEELY, Fairmount, Ind., assignor of one-half to L. G. Neely, St. Marys, Ohio. Filed Apr. 19, 1900. Serial No. 13,472. (No model.)



Claim.—1. In a steam-engine, a link-movement comprising the following elements: a valve-controlling link, an upright lever pivoted at its lower end, an elongated operating-rod pivotally connected with the upper end of said lever, a connecting-bar pivotally secured at its upper end to the lever and having suspended from its lower end the link, stops on the engine for limiting the throw of the lever, a block or shoe movable upon said lever arranged to contact with said stops, and means for detachably securing said block or shoe in adjusted relation to said lever.

2. In a steam-engine, a link-controlling lever, a pivotal support for one end of the lever, a slotted plate through which the lever passes, the ends of which slot serve as stops to limit the throw of the lever, a block or shoe movable upon said lever and arranged to contact with the ends of said slot, and means for detachably securing said block or shoe in relation to said lever.

679,858. **TIME-FUSE.** ANDREW NOBLE and GEORGE STUART, Newcastle-upon-Tyne, England, assignors to Sir W. G. Armstrong, Whitworth & Company, Limited, same place. Filed Jan. 23, 1901. Serial No. 44,405. (No model.)



Claim.—1. In a time-fuse, the combination of two composition rings adapted to communicate with each other, an igniting device and means for gearing the two rings together.

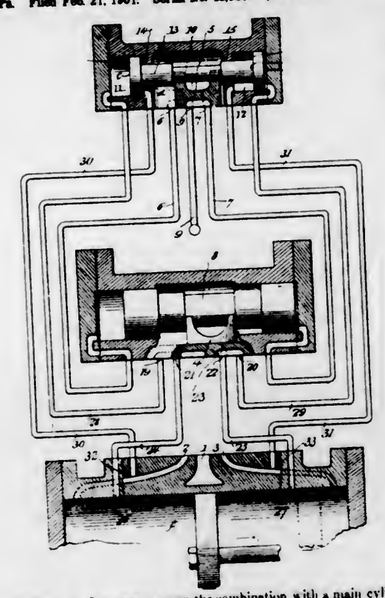
2. In a time-fuse, the combination of a rack on the body of the fuse, an igniting device, an upper composition ring adapted to communicate with the upper ring, a rack on this ring, a lower ring and a pinion carried by the lower ring and gearing with the two racks.

3. In a time-fuse, the combination of two composition rings, an igniting device, means for gearing the two rings together, and a pressure-plate carrying springs exerting pressure on the rings, substantially as described.

4. In a time-fuse, the combination of two composition rings adapted to communicate with each other, an igniting device, means for gearing the two rings together, a rack of teeth on the lower ring and a spring-ratchet on the body of the fuse engaging with the teeth on the lower ring.

5. In a time-fuse, the combination of the igniting device *g*, the ring *c* in which are cut the channel c^2 and vent c^3, the ring *b* in which are cut the hole b^2 channel b^4 and vent b^3 and the body *a* in which are cut the vents a^6 and a^7.

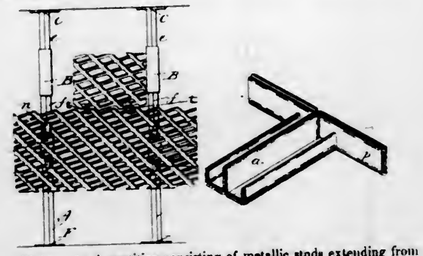
679,859. **STEAM PUMPING-ENGINE.** JOHN B. POORE, Scranton, Pa. Filed Feb. 21, 1901. Serial No. 48,303. (No model.)



Claim.—1. In a steam-pump the combination with a main cylinder having main steam and exhaust ports and a piston-operated main valve therefor, of an auxiliary valve controlling the ports leading to the main-valve piston, a piston for operating said auxiliary valve, said auxiliary-valve piston having two large opposing faces, and two smaller opposing faces, means for admitting live-steam pressure to one of the large faces and an opposing small face during the stroke of the pump, and for admitting live steam to the opposite large piston-face at the end of the stroke.

2. In a steam-pump the combination with a main cylinder having main steam and exhaust ports and a piston-operated main valve therefor, of an auxiliary valve controlling the ports leading to the main-valve piston, a piston for operating said auxiliary valve, said auxiliary-valve piston having two large opposing faces and two smaller opposing faces, passage-ways leading from said smaller faces to the interior of the main cylinder near its opposite ends, valve-controlled passage-ways leading from said larger faces to the interior of the main cylinder between the terminals of the passage-ways leading from the smaller faces, and a valve operated by the main-valve piston adapted to connect said valve-controlled passage-ways alternately with the interior of the main cylinder and with the steam-chest.

679,860. **FIREPROOF PARTITION FOR BUILDINGS.** SAMUEL E. RABBITT, Washington, D. C. Filed Apr. 20, 1901. Serial No. 56,735. (No model.)



Claim.—1. A partition consisting of metallic studs extending from a floor to a ceiling and having a flat side and a plurality of ribs and grooves on the opposite side, and lathing secured to the flat side thereof; in combination with plastic material embedding the studs and the lathing.

2. A partition consisting of metallic studs extending from a floor to a ceiling and having a flat side and a plurality of ribs and grooves on the opposite side, metallic lathing, and metallic clips securing the lathing to the flat side; in combination with plastic material embedding the lathing and the studs.

3. A partition consisting of metallic studs extending from a floor to a ceiling, metallic lathing having serrated edges, and metallic clips securing the adjacent edges of the sheets of lathing with their serrations interlocked; in combination with plastic material embedding the studs and the lathing.

4. A partition consisting of metallic studs and metallic lathing, and having a door-frame formed of two members secured together at a right angle to each other with projections on each side of one member, the lathing being secured to one side of said member and the opposite side thereof provided with means for securing plastic material thereto; in combination with plastic material embedding the studs, the lathing and one of the members of the door-frame.

5. An improved article of manufacture, a metallic stud for partitions having a flat side and a plurality of ribs and grooves on the opposite side, and provided with flanged supports at each end integral with the stud.

6. An improved article of manufacture, a metallic stud for partitions having a flat side and a plurality of ribs and grooves on the opposite side and provided with lateral supports at each end integral with the center rib of the stud.

7. An improved article of manufacture, a metallic stud for partitions having a double flat side and a plurality of double ribs on the opposite side formed by bending a sheet of metal transversely upon itself, and having supports at its ends.

8. An improved article of manufacture, a metallic stud for partitions made in extensible sections connected by a sleeve-coupling overlapping the adjacent ends of the sections.

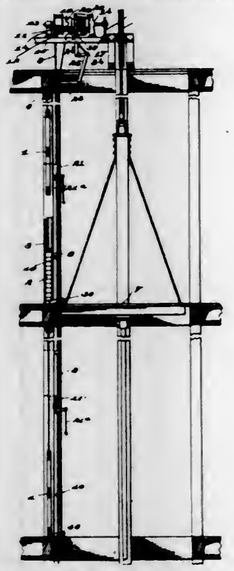
9. An improved article of manufacture, a metallic stud for partitions made in extensible sections, a sleeve-coupling connecting and overlapping the adjacent ends of the sections, and said stud having supports at its ends.

10. An improved article of manufacture, an extensible metallic stud for partitions having a flat side and a plurality of ribs and grooves on the opposite side and provided with clips adjustably secured thereon.

679,861. **MEANS FOR OPERATING ELEVATOR GATES OR DOORS.** JOSEPH RICE, Chicago, Ill., assignor of two-thirds to William I. Reedy and William H. Reedy, same place. Filed Oct. 25, 1899. Serial No. 734,715. (No model.)

Claim.—1. A device for the purpose described having in combination the elevator-operating mechanism, a cable-winding device, a cable thereon, means for holding said winding device inactive, means for releasing the same, a shiftable power-transmitting connection between said winding device and the elevator mechanism whereby the cable will be moved always in the same direction by the motion of the elevator mech-

anism, an elevator gate or door and an operative connection between said cable and gate for actuating the gate, substantially as set forth.



2. A device for the purpose described having in combination the elevator-operating mechanism, a cable, a winding device for said cable, a shiftable power-transmitting connection between said winding device and elevator mechanism whereby the cable will be moved always in the same direction by the motion of the elevator mechanism, a trip having operative relation to said cable for shifting said power-transmitting connection after the cable moves a certain distance, an elevator gate or door, and an operative connection between said gate and cable, substantially as set forth.

3. A device for the purpose described having in combination the elevator-operating mechanism, a cable-winding device, a cable adapted to wind thereon, a shiftable power-transmitting connection between said winding device and elevator mechanism whereby said cable will be moved always in the same direction by the motion of the elevator mechanism, a lock for holding said power-transmitting connection inactive, an elevator gate or door, an operative connection between said cable and gate and a trigger actuated in unison with the opening movement of the gate for releasing said lock and permitting said cable-winding device to operate, substantially as set forth.

4. A device for the purpose described having in combination the elevator-operating mechanism, a cable, a winding device for said cable, a shiftable power-transmitting connection between said winding device and elevator mechanism, a lock actuated in unison with the movement of said cable for holding said power-transmitting device inactive, a gate having operative relation to said cable and a trigger actuated in unison with the movement of the gate for disengaging said lock and rendering said winding device active, substantially as set forth.

5. A device for the purpose described having in combination a gravitating gate, means for lifting said gate, a cable having operative connection with said means for moving the latter in one direction and permitting the gate to close, a winding device for said cable, the elevator-operating mechanism, a shiftable power-transmitting connection between said winding device and elevator-operating mechanism and means connected to said cable for disengaging said power-transmitting device after the cable has been wound a certain length, substantially as set forth.

6. A device for the purpose described having in combination a gravitating gate, means for lifting said gate, a cable having operative connection with said means for moving the latter in one direction and permitting the gate to close, a winding device for said cable, the elevator-operating mechanism, a shiftable power-transmitting connection between said winding device and elevator mechanism, a trip for disengaging said power-transmitting connection and releasing said winding device and means on said cable for actuating said trip, substantially as set forth.

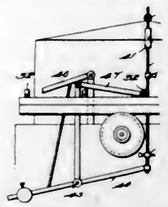
7. A device for the purpose described having in combination a gravitating gate, means for lifting said gate, a cable having operative connection with said means for moving the latter in one direction and permitting the gate to close, a loose winding-drum on which said cable is wound, the elevator-operating mechanism, a clutch having its members connected with said elevator-operating mechanism and winding-drum respectively, means for holding said clutch members out of engagement operated during the winding movement of the cable and means actuated during the opening movement of the gate for again connecting said clutch members by the time the gate has opened, substantially as set forth.

8. A device for the purpose described having in combination a gravitating gate, means for lifting said gate, a cable having operative connection with said means for moving the latter in one direction and permitting the gate to close, a loose winding-drum on which said cable is wound, the elevator-operating mechanism, a clutch having its members connected with said winding-drum and elevator-operating mechanism respectively, means for holding said clutch members out of engagement operating during the winding movement of the cable and means operated by the means for lifting the gate for again effecting the engagement of said clutch members, substantially as set forth.

9. A device for the purpose described having in combination a gravitating gate, a weight for lifting said gate, a winding-drum, a cable having one end attached to said drum and being suspended therefrom, a button on the cable, means in connection with said weight for engagement with said button, the elevator-operating mechanism, a clutch having its members connected with said winding-drum and elevator-operating mechanism respectively, a trip for disengaging said clutch members, a button on said cable adapted to actuate said trip, a lock actuated by the movement of the last said button for holding said clutch members out of engagement, a trigger connected with said lock and arranged to be struck by said weight as it descends for disengaging said lock, substantially as set forth.

10. A device for the purpose described having in combination a gravitating gate, a weight for opening said gate, a loose winding-drum, the elevator-operating mechanism, a clutch having its members connected with said operating mechanism and winding-drum respectively, a cable suspended from said drum and having sliding connection with said weight for lifting the latter, a lever for throwing said clutch members apart, a bell-crank 23 through which said cable passes, a button on said cable adapted to strike said bell-crank when the cable rises, a connection between said bell-crank and lever, the pulley 22 having projection 33 adapted to strike said lever, the cable 34 passing over said pulley and having its ends attached to the arms of said bell-crank respectively, the trigger 38 arranged to be struck by said weight when it descends and a connection between said trigger and bell-crank, substantially as set forth.

679,862. ACETYLENE-GAS GENERATOR. Timothy B Rider, Fitch Bay, Canada. Filed Oct. 23, 1900. Serial No. 34,094. (No model.)



Claim.—1. The combination with a casing having a partition therein forming a generator thereunder and a gasometer thereover; of a bell within the gasometer; a tube extending through the partition into the bell, said tube having slots within the lower end thereof; a slotted valve revoluble within the lower end of the tube; an arm to the valve; a toothed strip thereto; a shaft journaled within the casing; a pinion thereon engaging the strip; and means for revolving the shaft.

2. The combination with a casing having an inclined partition therein forming a generator thereunder and a gasometer thereover; of a bell within the gasometer; a tube extending through the partition and into the bell and having slots within the lower end thereof; a slotted valve within the lower end of the tube; means for turning said valve within the tube and bringing the slots thereof into or out of register with the slots of the tube; a receptacle without the casing and communicating with the generator; an inclined bottom thereto projecting into the generator; a screen suspended within the generator at a point below the inner edge of the inclined bottom; and a hopper communicating with the receptacle.

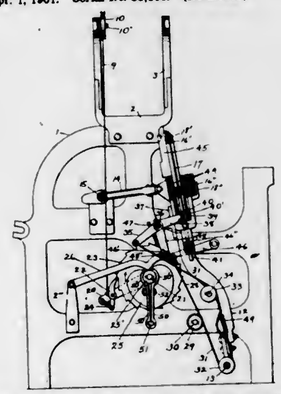
3. The combination with a casing having an inclined partition therein forming a generator thereunder and a gasometer thereover; of a bell within the gasometer; a tube extending through the partition and into the bell and having slots within the lower end thereof; a slotted valve within the lower end of the tube; means for turning said valve within the tube and bringing the slots thereof into or out of register with the slots of the tube; a receptacle without the casing and communicating with the generator; an inclined bottom thereto projecting into the generator; a screen suspended within the generator at a point below the inner edge of the inclined bottom; a hopper communicating with the receptacle; a gate hinged above the inlet to the receptacle and normally closing the same; an outlet to the receptacle above the gate and a downwardly-extending flange to the receptacle at the bottom thereof.

4. The combination with a generator and a gasometer having a bell therein; of a hopper; a receptacle connecting said hopper with the interior of the generator; studs projecting from the casing of the gasometer; grooved wheels journaled thereon; a carriage mounted upon the wheels and inclosing the gasometer; brackets upon the carriage; carbid-receptacles detachably secured to the brackets and adapted to automatically discharge their contents into the hopper when registering therewith; a bell-crank lever; a dog pivoted thereto and engaging a bracket; an arm upon the bell adapted to contact with the lever and impart motion to the carriage through the dog; a lever pivoted to the generator and engaging a second bracket of the carriage; and an arm to the bell-crank lever adapted to contact with and release said lever from engagement with the carriage soon after the operation of the bell-crank lever.

5. The combination with a generator and gasometer having a bell therein; of a hopper, a receptacle connecting said hopper with the interior of the gasometer, studs projecting from the casing of the gasometer, grooved wheels journaled thereon, a carriage mounted upon the wheels and inclosing the gasometer, brackets upon the carriage, carbid-receptacles detachably secured to the brackets and adapted to automatically discharge their contents into the hopper when registering therewith, a bell-crank lever, a dog pivoted thereto and engaging a bracket, a second dog operated from the bell-crank lever and adapted to normally prevent forward movement of the carriage, and an arm to the bell of the gasometer adapted to contact with the bell-crank lever and force one of the dogs against a bracket, raise the second dog and move the carriage.

6. The combination with a generator having a bell therein; of a hopper, a receptacle connecting said hopper with the interior of the generator, studs projecting from the casing of the gasometer, grooved wheels thereon, a carriage mounted upon the wheels and inclosing the gasometer, brackets upon the carriage, carbid-receptacles detachably secured to the brackets and adapted to automatically discharge their contents into the hopper when registering therewith, a bell-crank lever, a dog pivoted thereto and engaging the bracket, an arm secured to the bell of the gasometer and adapted to contact with the lever and impart motion to the carriage through the dog, a second dog connected to and operated by the bell-crank lever and adapted to normally prevent the forward movement of the carriage, a bracket to the gasometer, spring-strips mounted thereon and insulated therefrom and from each other, said strips lying in the path of the arm, an alarm, and means for sounding the alarm when the spring-strips are forced into contact with each other by said arm.

679,863. REED-MOTION FOR LOOMS. Eppa H. Ryon, Worcester, Mass., assignor to Crompton & Knowles Loom Works, same place. Filed Apr. 1, 1901. Serial No. 53,810. (No model.)



Claim.—1. In a loom of the class described, the combination of the lay, means for operating it, a vertically-movable reed mounted on said lay, pattern mechanism for varying the vertical position of the reed on the lay, means operative only on the backward movement of the lay in case the reed is not at the upward limit of its travel to positively raise the reed to enable the shed to be formed.

2. In a loom of the class described, the combination with the lay, and a vertically-moving reed having dents arranged at varying distances from each other, of means for positively raising the reed, and allowing the lowering of the reed by gravity, to gradually vary the position of the dents, relative to the plane of the fabric, and supplemental means operative only on the backward movement of the lay for positively raising the reed, to produce an additional upward movement of the reed, to allow of the formation of the shed and the passage of the shuttle, substantially as shown and described.

3. In a loom of the class described, the combination with the lay, and a vertically-moving reed having dents arranged at varying distances from each other, of means for moving the reed, to gradually vary the position of the dents relative to the plane of the fabric, said means consisting of a driven cam or pattern surface, a lever operated by said cam, flexible connections from said lever to an arm fast on a rock-shaft, and said arm and rock-shaft, and two arms fast on said rock-shaft and carrying pins engaging slotted collars on rods extending down from the reed-frame, and said collars and rods, substantially as shown and described.

4. In a loom of the class described, the combination with the lay, and a vertically-moving reed having dents arranged at varying distances from each other, of means for moving the reed, to gradually vary the position of the dents relatively to the plane of the fabric, said means consisting of a driven cam or pattern surface, a lever operated by said cam, connections from said lever to an arm fast on a rock-shaft, and said arm and rock-shaft, and two arms fast on said rock-shaft and carrying pins engaging slotted collars on rods extending down from the reed-frame, and said collars and rods, and supplemental means for positively raising the reed on the backward stroke of the lay, to produce an additional upward movement of the reed, to allow of the formation of the shed and the passage of the shuttle, substantially as shown and described.

5. In a loom of the class described, the combination with the lay, and a vertically-moving reed having dents arranged at varying distances from each other, of means for moving the reed to gradually vary the position of the dents relatively to the plane of the fabric, said means consisting of a driven cam or pattern surface, a lever operated by said cam, connections from said lever to an arm fast on a rock-shaft, and said arm and rock-shaft, and two arms fast on said rock-shaft and carrying pins engaging slotted collars on rods extending down from the reed-frame, and said collars and rods, and supplemental means for raising the reed on the backward stroke of the lay, to produce an additional upward movement of the reed, to allow of the formation of the shed and the passage of the shuttle, said additional means consisting of an arm fast on the rock-shaft above mentioned, and a device extending in the path of and adapted to engage said arm on the backward stroke of the lay, and through said arm to rotate said rock-shaft and raise the reed, substantially as shown and described.

679,864. ROCKING-CHAIR. Charles L. Santee, Plymouth, Wis. Filed Mar. 11, 1901. Serial No. 50,714. (No model.)



Claim.—1. A rocking-chair, comprising a stationary base, a movable chair-body, and a spring having its intermediate portion secured to the chair-body, and its opposite end portions twisted into helical springs, which have their outer ends connected to the respective sides of the base.

2. A rocking-chair, comprising a stationary base, a movable chair-body, and a spring formed from a single spring-rod, which is folded intermediate of its ends to form a tongue, and the opposite end portions being bent laterally outward in opposite directions from the tongue and formed into helical springs, the tongue being secured to the chair-body, and the ends of the spring being secured to the respective sides of the base.

3. In a rocking-chair, a stationary base, a movable chair-bottom, a spring having an intermediate tongue, and opposite torsional-spring portions extending laterally outward in opposite directions from the tongue, a bracket or clamp connecting the tongue to the under side of the chair-bottom, and opposite brackets or clamps connecting the respective ends of the spring to the adjacent sides of the base.

4. In a rocking-chair, a stationary base, a movable chair-bottom, a spring formed from a single spring-rod folded intermediate of its ends into a tongue, with the opposite end portions of the tongue bent laterally outward in opposite directions therefrom to form torsional springs, a sectional clamp or bracket having pairs of corresponding grooves receiving the respective side members of the tongue and also connected to the under side of the chair-bottom, and opposite clamps or brackets connecting the respective ends of the spring to the adjacent sides of the base.

5. In a spring-rocker, a fastening bracket or clamp for the spring, having a pair of attaching-bolts, which have their projected ends provided with circular peripherally-toothed nuts, and a rotatable peripherally-toothed tightening device mounted upon the clamp or bracket and in mesh with the toothed nuts.

6. In a spring-rocker, a fastening bracket or clamp for the spring, having a pair of attaching-bolts, the projected ends of which are provided with circular peripherally-toothed nuts, an internally-toothed tightening device housing the nuts and in mesh with the toothed peripheries thereof, said tightening device being centrally pivoted to the clamp or bracket.

7. In a spring-rocker, a fastening clamp or bracket for the spring, having a pair of attaching-bolts, the projected ends of which are provided with circular peripherally-toothed nuts, a stud carried by the bracket and located midway between the bolts, and a disk centrally pivoted upon the stud, and having cylindrical marginal flanges located upon opposite sides thereof, the inner flange being internally toothed and in mesh with the toothed nuts, and both flanges forming a hand-grip for rotating the disk.

8. In a spring-rocker, the combination with the frame thereof provided with a pair of recesses or grooves that are respectively enlarged at opposite ends, and provided with opposite inwardly-directed flanges at the other ends, of a clamp or bracket for the spring, having a pair of ribs or projections which are provided with terminal enlargements, and fitted snugly in the respective grooves or recesses, and a pair of bolts having their heads entered through the enlarged ends of the grooves and lying snugly in the opposite ends of the grooves, said bolts being alined between the projections and passed through the clamp.

9. In a spring-rocker, the combination with the frame thereof provided with a pair of parallel grooves or recesses that have their outer ends enlarged and their inner ends provided with inwardly-directed flanges, of a pair of bolts having their heads entered through the enlarged ends of the grooves and lying snugly in the opposite inner ends thereof, a clamp or bracket for the spring, having a pair of parallel ribs which are enlarged at their opposite outer ends, the ribs being fitted snugly into the respective recesses, the bolts passing through the clamp or bracket, and nuts applied to the projected ends of the bolts.

679,865. **LOOSE-LEAF BINDER.** LARS G. SCHULT, Chicago, Ill. Filed Mar. 11, 1901. Serial No. 50,628. (No model.)



Claim.—1. A device of the class described, in which are combined parallel binding-plates, overlapping back expansion-plates arranged at right angles thereto, the same being shaped in scroll or tubular form at the respective ends to telescope with each other, and an adjustable locking mechanism for securing the binding-plates in position when compressed upon the leaves, substantially as described.

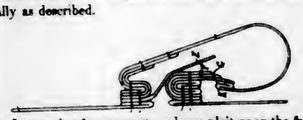
2. The combination in a device of the class described, of parallel binding-plates, back-plates arranged at right angles thereto, one of said back-plates being rigidly secured to one and the other to the other of said binding-plates, said back-plates being shaped at the respective ends to form interlocking telescoping tubular scrolls, expansion-springs arranged within said tubular scrolls, and an adjustable locking mechanism for locking said plates together, substantially as described.

3. The combination of parallel binding-plates, back-plates arranged at right angles thereto, one of said back-plates being rigidly attached to one and the other to the other of said binding-plates, said back-plates being shaped at the respective ends to form interlocking telescoping tubular scrolls, expansion-springs within said tubular scrolls, an adjustable locking mechanism, and a series of leaf-retaining posts, each post consisting of one long and one short member of like diameter, one being pointed and the other recessed to receive the point thereof, said members being alternately attached to opposite binding-plates, whereby, in adjacent posts, a short member may stand adjacent to a long one, substantially as described.

679,866. **GARMENT-POCKET.** JOSEPH W. SHIELDS, Philadelphia, Pa. Filed Feb. 5, 1901. Serial No. 46,115. (No model.)

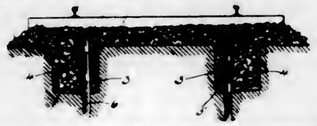
Claim.—1. As an improved article of manufacture, a garment provided with a pocket-opening, a pocket, a facing-strip or reinforce and a finishing-piece of the same fabric as the garment, the material of the pocket being folded into a plait about said opening at its edge and attached to the fabric of the garment, substantially as described.

2. As an improved article of manufacture, a garment provided with a pocket-opening, a pocket and a reinforce consisting of a facing-strip and a finishing-strip of the same fabric as the garment, the material of the pocket being folded into a plait about the edge of said opening and inturned with said reinforce and attached to the cloth of the garment, substantially as described.



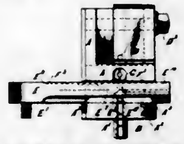
3. In a pocket for garments, a loose plait upon the front side of said pocket below the pocket-opening, formed by doubling the material of the pocket upon itself and catching and holding same solely by the stitching upon the sides of the pocket, substantially as described.

679,867. **RAILROAD-BED.** JOSEPH R. SMITH, Manorville, Pa. Filed Oct. 14, 1899. Serial No. 733,617. (No model.)



Claim.—Road-bed for railways comprising in its construction, a pair of parallel right-angular U-shaped ditches arranged beneath and parallel with the rails of the track, a layer of stone forming a bottom for said ditches, a filling of ballast in said ditches extending above the top thereof, said ballast and bottom in said ditch provided with a perforation extending below the subsoil and flush with the top of the ballast, substantially as described.

679,868. **NAILING-MACHINE.** JAMES H. SOUTHCOTT, Adelaide, South Australia, assignor of one-half to Johann Heinrich Theodore Brüggemann, same place. Filed Jan. 10, 1900. Serial No. 972. (No model.)



Claim.—1. A distributer having a slot E^3 extending obliquely therethrough from side to side of said distributer, means for reciprocating the distributer, the distributer having a point E^4 at the front end of slot E^3, means for delivering nails to the distributer in position to be engaged below their heads and moved forward by point E^4 into slot E^3 one side of which slot then engages and moves the nail through, said slot E^3 having an enlarged part E^7 for the nail-heads.

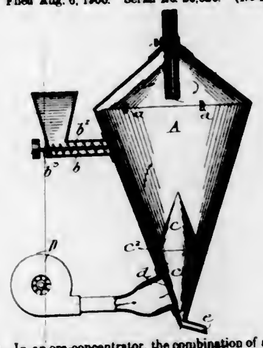
2. The combination in a nailing-machine, of a delivery-channel for nails, a reciprocating distributer E having an oblique slot E^3 therethrough, the distributer having a point E^4 at the forward end of slot E^3, said slot E^3 having an enlarged part E^7, for the nail-heads, the side of the distributer on which the point E^4 terminates having a recess E^4 giving a passage-way for the nail-bodies to slot E^3.

3. The combination in a nailing and riveting machine, of a casing having a delivery-slot and a driver-channel, a reciprocating distributer movable between said slot and channel, the distributer having a slot E^3 extending obliquely in one direction through the distributer and adapted to communicate with the slot in the casing, point E^4 at the forward end of the slot, the distributer having a portion cut away at E^4 below point E^4, the distributer having a plurality of guide-slots, and corresponding parts carried by the casing moving in said slots.

4. The combination in a nailing and riveting machine of a casing having a delivery-channel and a driver-channel, a reciprocating distributer movable between said channels, the distributer having a slot E^3 extending obliquely through the distributer, a sliding shutter movable to close and open slot E^3, the shutter being moved by the distributer to close the slot E^3 during movement of the distributer in one direction and to open it during its movement in the opposite direction.

5. The combination of distributer E having oblique slot E^3 therethrough, and point E^4 at the forward end of the slot, of means for delivering nails to the distributer, a driver-channel, and a shutter moved by the distributer at the proper times to open and close the slot E^3, the distributer having a partial movement independent of the shutter while said shutter remains at rest.

679,869. **ORE-CONCENTRATOR.** ALBERT H. STEBBINS, Little Rock, Ark. Filed Aug. 6, 1900. Serial No. 26,026. (No model.)



Claim.—1. In an ore-concentrator, the combination of a separating-chamber of gradually-increasing cross-sectional area from its bottom to its top, a feeding device for feeding material into the upper part of said separating-chamber, an air or fluid inlet below said feeding device, means for producing a blast of air or fluid through the same, an augmenting and distributing device adjacent to said inlet for producing a maximum strength of current and distributing the same around the separating-chamber, and suitable outlets for the concentrates and waste products, the lower portion of said augmenting and distributing device against which the blast is directed conforming in shape to the adjacent walls of the separating-chamber to contract the blast between the two and thereby give maximum strength to the air-currents throughout the said space between the said device and separating-chamber.

2. In an ore-concentrator, the combination of a separating-chamber of gradually-increasing cross-sectional area from bottom to top, a feeding device for feeding material into said chamber, an air or fluid inlet below said feeding device, means for producing a blast of air or fluid through said inlet, a double conical augmenting and distributing device having its lower portion adjacent said air or fluid inlet conforming to the shape of the adjacent wall of said chamber to contract the space between them and on the conical surface of which the blast of air or fluid impinges as it enters the said chamber to be thereby increased in carrying capacity and suitable outlets for the values below the said device and a waste product discharged.

3. In an ore-concentrator, the combination of a separating-chamber of gradually-increasing cross-sectional area from bottom to top, a feeding device for feeding material into said chamber, an air or fluid inlet below said feeding device, means for producing a blast of air or fluid through said inlet, a double conical augmenting and distributing device adjacent said air or fluid inlet the lower conical surface of which conforms in shape to the adjacent wall of the separating-chamber and onto which the blast of air or fluid directly impinges as it enters the said chamber to be thereby increased in carrying capacity throughout the space between the said device and chamber, means for adjusting said double conical augmenting and distributing device to vary the distance between it and the walls of the separating-chamber and suitable outlets for the values and waste products.

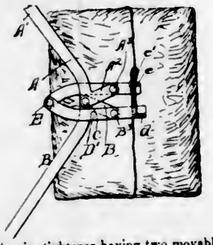
4. In an ore-concentrator, the combination of a separating-chamber of increasing cross-sectional area from its bottom toward its top, a feeding device for feeding material to said chamber, an air or fluid inlet below said feeding device in the side of said chamber, said inlet varying in size between its upper and lower portions, means for introducing a blast of air or fluid through said inlet, an augmenting and distributing device having a portion conforming in shape with the adjacent walls of the separating-chamber and against which the blast of air or fluid is directed, the said augmenting and distributing device having an upper portion to guide the falling particles into the currents of maximum strength between said device and the walls of the separating-chamber, and suitable outlets for the values and waste products.

5. In an ore-concentrator, the combination of a separating-chamber, a feeding device for feeding material thereto, an air or fluid inlet in the side of said chamber, the said inlet being larger in its upper than in its lower portion, an augmenting and distributing device having a portion opposite said inlet conforming substantially with the shape of the adjacent walls of the separating-chamber, means for passing a blast of air or fluid through said inlet and suitable outlets for the values and waste material.

6. In an ore-concentrator, the combination of a substantially conical separating-chamber, a feeding device for feeding material into the upper part of said chamber, an air or fluid inlet in the side wall of the chamber below the feeding device, a double conical augmenting and distributing device supported in said chamber with its lower conical surface opposite the air or fluid inlet conforming to the contour of the adjacent walls of the separating-chamber and forming a space between the walls of the chamber and throughout the area of said conical surface for currents of maximum strength, an outlet for the values below the air or fluid inlet, and an outlet for the waste material above the augmenting and distributing device and extended into the separating-chamber.

7. In an ore-concentrator, the combination of a substantially conical separating-chamber, a feeding device for feeding material into the upper part of said chamber, an air or fluid inlet in the side wall of the chamber below the feeding device, a double conical augmenting and distributing device supported in said chamber with its lower conical surface opposite the air or fluid inlet conforming to the general contour of the adjacent walls of the separating-chamber and forming a space between the walls of the chamber and said conical surface for currents of maximum strength, means for adjusting said device with relation to the walls of the separating-chamber, an outlet for the values below the air or fluid inlet, and an adjustable outlet for the waste material above the augmenting and distributing device and extended into the separating-chamber.

679,870. **WIRE-TIGHTENER.** CHARLES F. STODDARD, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed Sept. 1, 1900. Serial No. 28,736. (No model.)



Claim.—1. A wire-tightener having two movable parts, each provided with means for grasping the wire, in combination with bell-crank levers pivotally connected together at the angle thereof and respectively connected at the ends thereof to said movable parts, as and for the purpose set forth.

2. A wire-tightener comprising a pair of arms or jaws pivotally connected together and each provided with means for grasping the ends of the wire to be tightened, in combination with levers pivoted to each other and respectively connected to said pivoted arms or jaws, as and for the purpose set forth.

3. A wire-tightener comprising a pair of jaws or arms pivotally connected together and having arms for grasping the ends of the wire to be tightened, in combination with a pair of bell-crank levers pivotally connected to each other and each connected to one of said jaws, as and for the purpose set forth.

4. A wire-tightener comprising a pair of arms or jaws pivotally connected together at the ends thereof and provided with means at the other ends thereof for grasping the ends of the wire to be tightened, in combination with a pair of bell-crank levers pivotally connected together at the angles thereof, one arm of each lever being pivotally connected to one of said pivoted arms or jaws at a point intermediate the ends of the latter, as and for the purpose set forth.

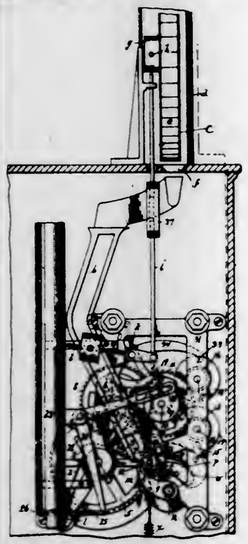
5. A wire-tightener comprising a pair of arms or jaws pivotally connected together at one end, one of said jaws provided at the free end thereof with an abutment and the other of said arms or jaws provided at the free end thereof with a slot, in combination with bell-crank levers pivotally connected at the angles thereof, one arm of each of said levers being pivotally connected to one of said arms or jaws, as and for the purpose set forth.

6. A wire-tightener comprising a pair of pivoted arms or jaws, the lower ends of which are respectively provided with a lip having a notch therein, against which lip the loop of the wire to be tightened rests, and an inclined slot in which the free end of the wire is gripped, and bell-crank levers pivoted by their shorter ends to the said arms or jaws and having their longer ends project upward to serve as handles for manipulating the same; substantially as and for the purpose set forth.

679,871. **COIN-CONTROLLED VENDING-MACHINE.** JOSEPH AARONS, Detroit, Mich. Filed Sept. 10, 1900. Serial No. 29,485. (No model.)

Claim.—1. In a coin-controlled vending mechanism, a storage-chamber, delivery mechanism therefor, a coin-actuated wheel provided with a

governing device, and means coöperating with the coin-actuated wheel to govern the operation of the delivery mechanism.



2. In a coin-controlled vending mechanism, a storage-chamber, delivery mechanism therefor, a coin-actuated wheel provided with a hub having recesses of different depths upon its periphery, and means coöperating with the coin-actuated wheel to govern the operation of the delivery mechanism.

3. In a coin-controlled vending mechanism, a coin-actuated wheel provided with a governing device, a reciprocatory plunger engageable with said device, means to reciprocate said plunger, a storage-chamber, and mechanism governed by said wheel to deliver articles from said chamber.

4. In a coin-controlled vending mechanism, a coin-actuated wheel, a storage-chamber, delivery mechanism therefor at the base of said chamber, and a reciprocatory plunger governed by said wheel to govern the delivery mechanism.

5. In a coin-controlled vending mechanism, a coin-actuated wheel, a storage-chamber, delivery mechanism therefor, and means coöperating with the coin-actuated wheel to govern the operation of the delivery mechanism.

6. In a coin-controlled vending mechanism, a rotatable coin-actuated wheel, a storage-chamber, a delivery mechaniam therefor at the base of said chamber, and means coöperating with the coin-actuated wheel to govern the operation of the delivery mechanism, said mechaniam constructed to deliver one or more articles from said storage-chamber, the number of articles so delivered being governed by the rotation of said wheel.

7. In a coin-controlled vending-machine, a storage-chamber, delivery mechanism to discharge merchandise or its equivalent from the storage-chamber, a rotary coin-actuated wheel, and intervening mechanism governed by the coin-actuated wheel to regulate the number of articles of merchandise discharged from the storage-chamber upon one operation of the coin-actuated wheel.

8. In a coin-controlled vending mechanism, a storage-chamber, a coin-actuated wheel, a crank-shaft, delivery mechaniam to deliver merchandise from said chamber, a plunger actuated by the crank-shaft to engage said wheel, and means to actuate the crank-shaft, said plunger governed by said wheel and governing the delivery mechanism.

9. In a coin-controlled vending mechanism, a coin-actuated wheel provided with a hub, a storage-chamber, delivery mechanism therefor, a reciprocatory plunger governed by said wheel, means to elevate the plunger, and means to move the plunger out of engagement with said hub.

10. In a coin-controlled vending mechanism, the combination of a storage-chamber, delivery mechanism therefor, a coin-actuated wheel provided with a governing device, a reciprocatory plunger governed by said wheel, a coin-runway, a governing crank-shaft provided with an arm adjacent to the base of the runway, an additional crank-shaft provided with an arm adjacent to the base of the runway, and with a pawl to lock the governing-shaft, a train of gears to actuate the plunger, and means to lock said train of gears when the governing-shaft is operated.

11. In a coin-controlled vending mechanism, a storage-chamber, a coin-actuated wheel, a plunger, governed by said wheel, a crank-shaft carrying said plunger, means to deliver merchandise from said chamber, and means to actuate said crank-shaft to elevate the plunger, a gear upon said crank-shaft, and means to actuate said gear to restore the plunger to normal position.

12. In a coin-controlled vending mechanism, the combination of a coin-controlled wheel, a storage-chamber, delivery mechanism therefor, a plunger governed by said wheel, a crank-shaft to carry the plunger, means to actuate the crank-shaft to elevate the plunger, a gear upon said crank-shaft, means to actuate said gear to restore the plunger to normal position, and means to lock the crank-shaft in position.

13. In a coin-controlled vending mechanism, the combination of a coin-controlled wheel, a storage-chamber, delivery mechanism therefor, a plunger governed by said wheel, a crank-shaft carrying the plunger, means to actuate the crank-shaft to elevate the plunger, additional means to actuate the crank-shaft to depress the plunger, a bell-crank, a delivery-slide engaged with one end of the bell-crank, a disk eccentrically engaged with the outer end of the bell-crank, and mechanism to actuate said disk.

14. The combination with a coin-actuated wheel, of a coin-runway, a plunger governed by said wheel, a storage-chamber, mechanism to deliver articles from the storage-chamber, means to actuate said mechanism, a governing-shaft provided with an arm adjacent to the base of the runway, an additional shaft provided with a crank-arm arranged in the path of the previously-mentioned arm and spaced therefrom to receive a coin therebetween, means to lock said shafts, and a train of gears to operate the delivery device.

679,872. TOBACCO-PIPE-CHARGING DEVICE. DAVID H. ALLEN, Miamisburg, Ohio. Filed Oct. 1, 1900. Serial No. 31,603. (No model.)



Claim.—1. In a tobacco-charger, an outer barrel and a movable barrel concentrically journaled within the outer barrel, feeding-orifices pierced through the sides of said barrels adapted to register with each other, a hopper attached to the outer barrel and surrounding the filling-orifices, the lower end of the barrel being provided with a nozzle adapted to fit in the bowl of a pipe, and a finger-opening at the top of both of said barrels, substantially as specified.

2. A tobacco-charger composed of a bag, an outer barrel, a hopper attached thereto and to said bag, an inner barrel concentrically journaled within the outer barrel, orifices pierced through the sides of said barrels adapted to register each with the other, a nozzle adapted to fit the bowl of a pipe fixed to the lower end of the barrel, and a finger-opening through both of said barrels, substantially as specified.

679,873. LEVER. HIRAM A. BACKUS, Evans, N. Y. Filed Sept. 12, 1900. Serial No. 29,803. (No model.)

Claim.—1. In a power-exerting device, the combination with a flexible means extending between an object to be moved and any suitable staying power, of a lever, a plurality of pairs of gripping devices situated at different points on the lever, the gripping devices engaging the flexible means at opposite points whereby when the lever is swung, to simultaneously exert a tension on the flexible means in opposite directions.

2. A lever provided with a plurality of sets of chains, the individual members of the sets extending in opposite directions from one another, a main chain extending between an object to be moved and any suitable staying power, the alternate chains on the lever engaging the main chain whereby when the lever is operated, to slacken that portion of the main chain held between them, and cause the movable object to advance by exerting a pulling force thereon.

3. A lever provided with a plurality of double-looped shackles pivoted thereon, a plurality of pairs of chains oppositely mounted on the lever by means of said double-looped shackles whereby the chains are capable of a lateral swing as the lever is operated, a main chain extending between the object to be moved and any suitable staying power, the alternate chains on opposite sides of the lever engaging the main chain whereby to advance the movable object step by step, when the lever is operated, by exerting a pulling force thereon.

4. The combination with a lever provided with a plurality of pairs of gripping devices secured thereto at different points, of a flexible connection extending between an object to be moved and any suitable staying power, the gripping devices alternately engaging the flexible connection whereby, when the lever is operated to cause the advance of the object to be moved.



5. The combination with a lever provided with two pairs of short chains pivotally attached thereto, the individual members of each pair extending oppositely from one another and parallel with the corresponding individual member of the other pair of chains, of a main chain extending between an object to be moved and any suitable staying power, the alternate individual members of each pair of lever-chains removably attached to the main chain, whereby to advance the object to be moved step by step.

6. A lever provided with a plurality of pairs of short chains at or near one end thereof, the chains extending oppositely to one another and at approximately right angles to the lever, a main chain extending between the object to be moved and any suitable staying power, hooks on the lever-chains removably engaging the main chain, the alternate chains of each pair engaging the main chain, whereby to slacken that portion of the main chain held between them, to advance the object, when the lever is operated, and a standard provided with a traction-wheel, the standard secured to the lever for its support.

7. A lever provided with a plurality of pairs of gripping devices extending oppositely to one another, a flexible means extending between an object to be moved and any suitable staying power, the diagonally-opposed gripping devices alternately engaging the flexible means whereby to cause it to exert a pulling force on the object to be moved when the lever is operated, the device being so constructed that it will retain its position whenever the operating force is removed, thus preventing the movable object from returning to its original position.

8. In a power-exerting device, the combination with a flexible means extending between the object to be moved and any suitable staying device, of a lever, a plurality of pairs of gripping devices situated at different points on the lever, these gripping devices adapted to engage the flexible means at opposite points whereby, when the lever is operated, to simultaneously exert a pulling force upon the flexible means in opposite directions.

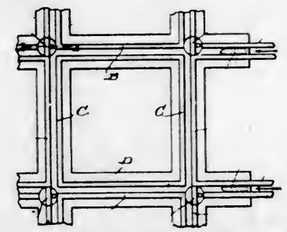
9. A lever provided with a plurality of pairs of gripping devices, in combination with a flexible connection extending between an object to be moved and any suitable staying power, one member of each pair of gripping devices adapted to engage the flexible connection whereby, when the lever is operated, to cause a tension or pulling force to be exerted on the flexible connection and thereby upon the object to be moved, the device being so arranged that it will retain its position at the end of a stroke thus preventing the movable object from returning to its original position.

10. In a power-exerting device, the combination with a main cable extending between an object to be moved and any suitable staying power, of a lever provided with a plurality of pairs of gripping devices extending in opposite directions from one another, and adapted to removably clutch the main cable, whereby a pulling force is exerted upon the object to be moved, when the lever is operated.

11. In a power-exerting device, the combination with a cable extending between an object to be moved and a suitable staying power, of a lever provided with pairs of gripping devices located oppositely to one another and adapted to removably clutch and hold the main cable whereby, when the lever is operated, to exert a pulling force on the object to be moved.

12. In a power-exerting device, the combination with a lever provided with a plurality of pairs of gripping devices, of a flexible device connecting the object to be moved with some suitable staying power, the diagonally-disposed member of each pair of gripping devices adapted to alternately engage the flexible device whereby, when the lever is operated, to advance the object to be moved.

679,874. RAILWAY-CROSSING. SAMUEL C. BALL and JOHN J. GIBSON, Chicago, Ill. Filed Dec. 21, 1900. Serial No. 40,631. (No model.)



Claim.—1. In a railway-crossing, the combination of the intersecting main track-rails, with a bed-plate located beneath said rails and supporting the same, and having on its upper surface a boss formed with a central opening, said boss being located between the adjacent ends of the main track-rails, a rotatable post located in the opening of the boss on the bed-plate, a disk on the upper portion of the post and having on its lower surface an annular recess to receive the boss, and a rail-section diametrically located on the upper surface of said disk, substantially as described.

2. In a railway-crossing, the combination of the intersecting main track-rails, with a bed-plate located beneath said rails and supporting the same, and having on its upper surface a boss formed with a central opening, said boss being located between the adjacent ends of the main track-rails, a post rotatably located in the opening of the boss on the bed-plate, a disk on the upper portion of the post and having in its lower surface an annular recess to receive the boss, a rail-section diametrically located on the upper surface of said disk, and a spring surrounding the lower portion of the post, substantially as described.

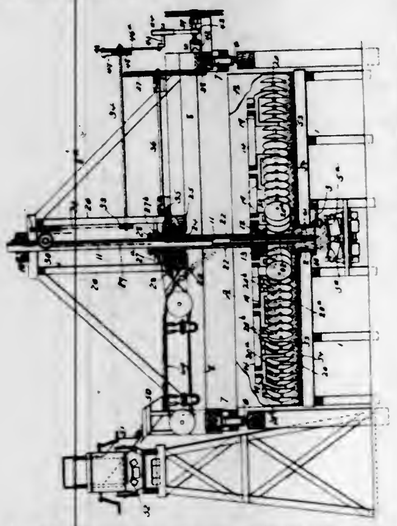
3. In a railway-crossing, the combination of the intersecting main track-rails, with a bed-plate located beneath said rails and supporting the same, and having on its upper surface a boss formed with a central opening, said boss being located between the adjacent ends of the main track-rails, a post rotatably located in the opening of the boss on the bed-plate, a disk on the upper portion of the post and having in its lower surface an annular recess to receive the boss, a rail-section diametrically located on the upper surface of said disk, said post, disk, and rail-section being made of one piece, a washer secured on the lower end of the post, and a spring located around the post and between said washer and the bed-plate, substantially as described.

4. In a railway-crossing, the combination of the intersecting main track-rails, with a bed-plate located beneath said rails and supporting the same and having on its upper surface a boss formed with a central opening, said boss being located between the adjacent ends of the main track-rails, a post rotatably located in the opening of the boss on the bed-plate, a disk on the upper portion of the post provided with an oil-chamber and having in its lower surface an annular recess to receive the boss, a rail-section diametrically located on the upper surface of said disk, a washer located on the lower end of the post and a spring surrounding the post and located between said washer and the lower surface of the bed-plate, substantially as described.

679,875. CONVEYER. HIRAM W. BLAISDELL, Yuma, Ariz. Filed Aug. 4, 1900. Serial No. 25,932. (No model.)

Claim.—1. In apparatus for filling and emptying a bin having a central discharge-opening, a rotary distributing and discharging apparatus, and means whereby said apparatus is adjustable in two directions, to move material in the bin either toward the central discharge-opening or away from the same.

2. The combination with a bin or receptacle having a discharge-port in its center and a traveling conveyer beneath said discharge-port, of a series of rotary discharging-disks in said bin and means for revolving said series of rotary disks around the central discharge-port to move the material in the bin to said discharge-port.



3. The combination with a bin or receptacle having a discharge-port, of a revoluble discharging apparatus in said bin or receptacle, adapted to force the material to the discharge-port, means for revolving said apparatus in a horizontal plane and means for bodily raising and lowering said discharging apparatus.

4. The combination with a bin having a central discharge-opening, of a distributing and discharging apparatus mounted to revolve in the bin around said central discharge-opening, means for revolving said apparatus to draw the material therein toward or away from the discharge-port, and means for gradually raising or lowering said apparatus in the bin.

5. The combination with a bin having a discharge-port, of distributing and discharging apparatus mounted to rotate in the bin to force the material toward or away from the discharge-port, driving mechanism for rotating said apparatus and means connected with said driving mechanism for automatically raising or lowering the distributing and discharging apparatus while rotating in the bin.

6. The combination with a circular bin having a discharge-port, of a distributing and discharging apparatus mounted to rotate in said bin and comprising a series of gangs of disks and means for locking said gangs of disks in position to force the material in the bin toward or away from the discharge-port.

7. The combination with rails to be disposed at respective sides of a series of bins, of an elevated frame having wheels mounted on said rails, a distributing and discharging apparatus carried by said frame and adapted to force material in a bin toward or away from the discharge-port therein, means for rotating said apparatus and automatic means for raising and lowering same simultaneously with the rotation thereof.

8. The combination with a bin or receptacle having a discharge-port, an endless conveyer below the same, a gate adapted to close said discharge-port and a conveyer adapted to discharge material into the bin, of a distributing and discharging or excavating apparatus mounted to rotate in the bin and adapted to force the material toward or away from the discharge-port.

9. The combination with a bin having a discharge-port, a conveyer below the same, a gate adapted to close said discharge-port, and a conveyer disposed beside the bin, of a frame mounted above the bin, a conveyer carried by the frame adapted to receive material from the conveyer beside the bin and discharge it into the bin, and a rotary distributing and discharging apparatus carried by the frame and adapted to force the material in the bin toward or away from the discharge-port.

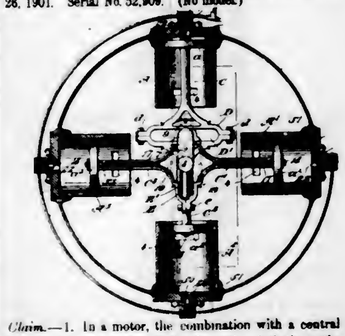
10. A rotary distributing and discharging apparatus for bins or receptacles, comprising bars spaced apart and supporting bearings between them, forks mounted in said bearings, keys adapted to lock the forks in different positions in the bearings, and a gang of disks supported by each fork.

11. In an apparatus for filling and emptying bins, the combination with a conveyer and a discharging device for deflecting the material on said conveyer, of a traveling frame adapted to move lengthwise said conveyer and carrying an endless conveyer adapted to receive material deflected from said first-mentioned conveyer and a rotary distributing and discharging apparatus also carried by said movable frame and adapted to operate within a bin.

12. The combination with a bin having a false or filter bottom and a discharge-port in the latter, a conveyer below said port, and a conveyer alongside of said bin, of a frame above the bin, a conveyer carried by said frame and adapted to receive material from the conveyer alongside of the bin and discharge it into the bin, and a rotary distributing and discharging apparatus carried by the frame and adapted to force the material in the bin toward or away from the discharge-port.

13. A horizontal revoluble distributing and discharging apparatus comprising a traveling frame adapted to move over a series of bins or vats, a rotary distributing or discharging apparatus carried by said frame, means for revolving said apparatus and means also carried by said frame for elevating and lowering said apparatus bodily into or out of a bin.

679,876. MOTOR. JOHN R. BLAKE, New York, N. Y. Filed Mar. 26, 1901. Serial No. 52,909. (No model.)



Claim.—1. In a motor, the combination with a central revolving crank-shaft, of a series of radially-disposed relatively stationary cylinders, valve-provided pistons therein, piston-rods for connecting the pistons in pairs, said rods traveling across the face of each other, a cam on the crank of the shaft, and release-valves carried by the pistons and operated by the cam.

2. In a motor, the combination with a central revolving crank-shaft, of a series of radially-disposed relatively stationary cylinders, valve-provided pistons therein, piston-rods that connect the pistons in pairs, said rods being provided with elongated slots at right angles to their axes which slots are engaged by the crank-pin on the shaft, a valve-operating cam on the crank-pin, and supply-valves for introducing the impelling pressure into the cylinders.

3. In a motor, the combination with a shaft, of a series of radially-disposed cylinders, pistons therein, piston-rods connecting the pistons into pairs, said rods having elongated slots at right angles to their axes, a crank-pin carried by the cranks on the shaft and engaging the slots, release-valves carried by the pistons and having valve-rods whose ends are in proximity to the aforesaid slots, and a cam on the crank-pin which operates upon the said valve-rods.

4. In a motor, the combination with a shaft, of a series of radially-disposed cylinders, pistons therein, piston-rods having right-angled slots, a crank-pin supported by the shaft and engaging the slots, valves in the pistons having valve-rods, a cam rigid on the crank-pin and actuating the valve-rods, and valves for supplying an explosive or other impelling mixture to the cylinders.

5. In a motor, the combination of a shaft, the cylinders, pistons therein, piston-rods connecting the pistons in pairs, a crank-pin on the crank of the shaft, which pin engages the piston-rods, valves in the pistons, a cam on the crank-pin for actuating the valves, supply-valve devices for introducing the impelling pressure into the cylinders, a series of levers for operating said valve devices successively, and a cam-wheel on the main shaft that engages and vibrates the aforesaid levers.

6. In a motor, the combination with an open-ended cylinder and a supply-valve device at one end, of a piston within the cylinder, said piston having a port, a valve controlling said port, said valve having a valve-rod, a piston-rod connected to the piston and having a yoke providing a slot at right angles to the piston-rod, a slide belonging to the valve-rod and having its edge parallel to the yoke-slot, a crank-shaft, a cam thereon operating in connection with the slide and a valve-closing spring.

7. In a motor, the combination with a crank-shaft, having a single crank-pin, of a series of cylinders, pistons therein, rods connecting the pistons in pairs, and a cam on the crank-pin engaging said rods.

8. In a motor, the combination with a shaft having a single crank, of a series of cylinders, pistons therein, rods connecting the pistons in pairs, valves carried by the pistons and a single cam on the crank for engaging and actuating the valves.

9. In a motor, the combination with a shaft having a crank, of the cylinders, pistons therein, rods connecting the pistons, valves carried by the pistons, said valves having rods, slides belonging to these rods, springs for closing the valves, and a cam on the crank for opening the valves.

10. In a motor, the combination with a shaft having a crank, of the cylinders, pistons therein, rods connecting the pistons, valves carried by the pistons and having valve-rods, slides belonging to said rods, valve-closing springs, sleeves loose on the crank-shaft and working in slots in the piston-rods, and a cam rigid on the shaft and operating against the valve-slides for opening the valves, together with valve-closing springs.

11. In a motor, the combination with a shaft having a crank, of the cylinders, pistons therein, rods connecting the pistons, valves carried by the pistons, said valves having rods, slides belonging to these rods, springs for closing the valves, a cam on the crank for opening the valves together with supply-valve devices for introducing the impelling pressure into the cylinders, a series of levers for operating said valve devices, and a cam-wheel on the main shaft that engages and vibrates the levers.

12. In a motor, the combination with a shaft having a crank, of the cylinders, pistons therein, rods connecting the pistons, valves carried by the pistons, said valves having rods, slides belonging to these rods, springs for closing the valves, a cam on the crank for opening the valves, supply-valve devices for introducing the impelling pressure into the cylinders, circular pipes arranged around the cylinders for conveying the pressure to the valves, levers for operating the valve devices, said levers being pivoted, and a cam-wheel having an irregular peripheral groove for receiving and vibrating said levers, said cam-wheel being mounted on the main shaft.

13. In a motor, the combination of a shaft, the cylinders, pistons therein, piston-rods connecting the pistons, a crank on the shaft which crank engages the piston-rods, valves in the pistons, a cam on the crank for actuating the valves, supply-valve devices for introducing the impelling pressure into the cylinders, levers for actuating these devices, a cam-wheel on the main shaft for vibrating the levers, pumping devices for forcing the pressure to the valves, and an eccentric on the main shaft for operating said pumping devices.

14. In a motor, the combination of a crank-shaft, cylinders arranged around it, pistons in the cylinders, piston-rods connecting the pistons in pairs, said piston-rods being engaged by the crank-shaft, valves in the pistons, a cam for actuating them, supply-valve devices arranged at the heads of the cylinders, levers for operating said valve devices, said levers being pivoted, a cam-wheel having an irregular peripheral groove that receives the ends of the levers and acts to vibrate them, pump-cylinders with their pistons and rods, an eccentric on the main shaft for actuating the pump-cylinders, and circularly-arranged delivery-pipes for carrying the impelling pressure to the supply-valve devices.

15. In a motor, the combination with a crank-shaft, of a plural arrangement of cylinders and their pistons, piston-rods connecting said pistons in pairs and having cross-slots at a right angle to their axes, valves in the pistons that are operated by slides whose edges are in the cross-slots, and means on the crank-shaft and working in the slots against the slides for actuating the valves.

679,877. ELECTRODE FOR ARC-LAMPS. HUGO BERNER, Nebeim, Germany. Filed Nov. 13, 1899. Serial No. 736,806. (No model.)



Claim.—1. An electrode for arc-lamps composed of pure coal and of ten to seventy per cent. of metallic salts or metalloids as calcium, magnesium, glass, fluor-spar or the like in combination with an addition of a high quantity of boron and fluorin for the purpose described and set forth.

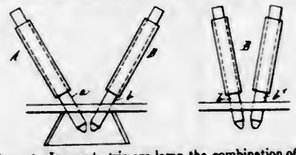
2. An electrode for arc-lamps composed of pure coal and of ten to seventy per cent. of metallic salts or metalloids as calcium, magnesium, glass, fluor-spar or the like in combination with an addition of boron and fluorin in such a quantity, that said chemicals, forming a flux, during the combustion are not expelled prematurely from the electrode for the purpose described and set forth.

3. An electrode for arc-lamps composed of pure coal and of ten to seventy per cent. of metallic salts or metalloids as calcium, magnesium, glass, fluor-spar or the like in combination with an addition of a high quantity of boron and fluorin and a further quantity of twenty-five per cent. of fluorin, bromin or iodin for the purpose described and set forth.

4. An electrode for arc-lamps composed of pure coal and of ten to seventy per cent. of metallic salts or metalloids as calcium, magnesium, glass, fluor-spar or the like in combination with an addition of a high quantity of boron and fluorin such carbon being provided with ribs so as to receive a sharply-edged section for the purpose as described and shown in the drawings.

5. An electrode for arc-lamps composed of pure coal and of ten to seventy per cent. of metallic salts or metalloids as calcium, magnesium, glass, fluor-spar or the like in combination with an addition of a high quantity of boron and fluorin such carbon being provided with grooves so as to receive a sharply-edged section for the purpose as described and shown in the drawings.

679,878. ELECTRIC-ARC LAMP. HUGO BERNER, Nebeim, Germany. Filed July 16, 1900. Serial No. 23,783. (No model.)



Claim.—1. In an electric-arc lamp the combination of two pairs of downwardly-pointed parallel or converging carbon pencils, arcs between them, a metal chamber surrounding the carbon points, said carbons containing an addition of metallic salts for the purpose described and set forth.

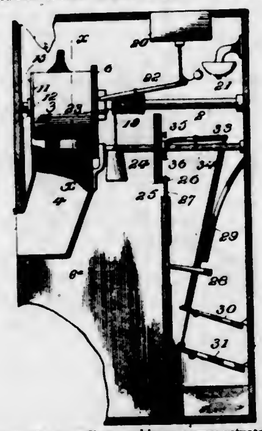
2. In an arc-lamp, an economizer or reflector of metal placed immediately above the luminous point or arc of a pair of downwardly-pointed parallel or converging carbon pencils, containing a sufficiently high percentage of metallic salts to yield deposits in such quantities as to cover the adjacent metallic parts with a reflecting and protective coating which may be of a white or light-yellow color as described and set forth.

3. In an electric-arc lamp the combination of a pair of downwardly-pointed parallel or converging carbon pencils, an arc between them, a metal chamber surrounding the carbon points, said carbons containing an addition of metallic salts and an electromagnet having extended pole-pieces, said pieces being bent in a suitable angle with regard to the arc for the purpose described and set forth.

4. In an electric-arc lamp the combination of a pair of downwardly-pointed parallel or converging carbon pencils, an arc between them, a metal chamber surrounding the carbon points, said carbons containing an addition of metallic salts and an electromagnet having extended pole-pieces, said pieces being constructed of wire rope and placed vertically with regard to the carbons for the purpose described and set forth.

5. In an electric-arc lamp having downwardly-pointed parallel or converging carbons, a guide having a curved or bent form and provided with springs that enter the tube for the purpose described and set forth.

679,879. VENDING-MACHINE. FRANK BROWORI, Bennington, Vt. Filed Nov. 1, 1900. Serial No. 35,151. (No model.)



Claim.—1. In a vending-machine, a power-actuated shaft, a vending mechanism loosely mounted upon said shaft, a plate, and interlocking means between the said shaft and vending mechanism to cause the parts to rotate together, substantially as set forth.

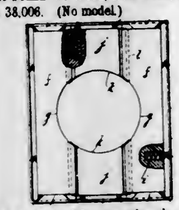
2. In a vending-machine, a power-actuated shaft, a vending mechanism loosely mounted upon said shaft, a plate, interlocking means between the said shaft and vending mechanism to cause the parts to rotate in unison, and a sleeve projected from the said plate and adapted to form a support for the heater, substantially as and for the purpose set forth.

3. In a vending-machine, a power-actuated shaft, a train of gearing including a gear-wheel loosely mounted on said shaft, a compartment attached to said gear-wheel to rotate therewith, a cap for closing the compartments of the drum, and interlocking means between the said drum and power-actuated shaft, substantially as set forth.

4. In a vending-machine, a power-actuated shaft, a train of gearing including a gear-wheel loosely mounted upon said shaft and constituting an element of the train of gearing, a drum secured to the said gear-wheel and having compartments around its periphery, a plate, interlocking means between the plate and the power-actuated shaft, and catches between said plate and drum, substantially as specified.

5. In a vending-machine, a power-actuated shaft, a train of gearing including a gear-wheel loosely mounted thereon and constituting an element of a train of gearing, a drum provided with a series of openings and having peripheral compartments and attached to the aforesaid gear-wheel to turn therewith, a cap, adapted to close the compartments thereof, interlocking means between the cap and power-actuated shaft, a sleeve projected from the said cap and loosely mounted upon the power-actuated shaft and having a centrally-disposed annular enlargement, and a heater suspended from said sleeve and prevented from movement thereon by the annular enlargement, substantially as specified.

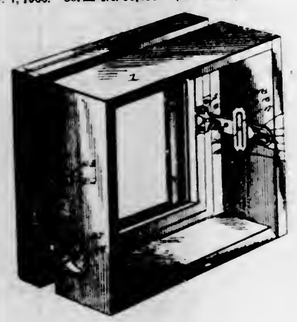
679,880. DUST-GUARD. HIRAM E. BROWER, Quaker Farms, Conn., assignor to Frank W. Wood, New York, N. Y. Filed Nov. 28, 1900. Serial No. 38,006. (No model.)



Claim.—1. In a dust-guard for car-axles, the combination of a case comprising a plate centrally perforated and provided with perpendicular side flanges, with keeper-flanges on two of the side flanges, side packing-pieces confined within said case by said keeper-flanges, and intermediate packing-pieces confined by said side packing-pieces, said packing-pieces all adapted to converge on the axle, and means for causing such convergence.

2. In a dust-guard for car-axles, the combination of a case comprising a plate centrally perforated for the axle and provided with perpendicular side flanges, and keeper-flanges; side packing-pieces notched at the middle of one edge to bear against the axle and being confined at the ends by said keeper-flanges, short packing-pieces intermediate of the side packing-pieces and notched at one end to bear against the axle, and being confined by lap-joints with the side pieces, said several packing-pieces adapted for converging movement against the axle, and springs intermediate of said packing-pieces and the case-flanges to cause said converging movement, and said dust-guard adapted for application to the packing-recess of the axle-box.

679,881. CAMERA. EDGAR R. BULLARD, Springfield, Mass. Filed Nov. 7, 1900. Serial No. 35,759. (No model.)



Claim.—1. A camera comprising a case, means whereby the swing-back frame is movably connected with the case or box, means for releasing said swing-back frame, and means for projecting it automatically when released.

2. A camera comprising a case, one or more slidable bearings mounted on the same, a swing-back frame pivoted to the slidable bearings, and means for releasing said bearings.

3. A camera comprising a case, one or more slidable bearings, a swing-back frame pivoted to said slidable bearings, and means for locking the slidable bearings in their inner and outer positions.

4. A camera comprising a case, a swing back frame, one or more slidable bearings to which the swing-back frame is pivoted, one or more spring-latches extending across the slidable bearings, each having a pin adapted to interlock with its slidable bearings, and means for releasing the latches.

5. A camera comprising a case, one or more slidable spring-bearings, a swing-back frame pivoted to the slidable spring-bearings, means for locking the slidable bearings in their inner and outer positions, and means for releasing said bearings.

6. A camera comprising a case having guides, a swing-back frame having angle-plates, slidable bearings supported in the guides, and pivots whereby the angle-plates are hinged to the slidable bearings for adjustably connecting the swing-back frame to the case.

7. A camera comprising a case having guide-plates each formed with a longitudinal slot, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, each formed with a tongue adapted to slide in its respective slot, a spring fixed at one end and at the other end secured to said tongue, and means for locking and releasing the said slidable bearings.

8. A camera comprising a case, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, a spring-latch interlocking normally with each slidable bearing, and a push-pin for releasing each latch from the exterior of the case.

9. A camera comprising a case, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, a spring for projecting each bearing, a spring-latch interlocking normally with each bearing, and a push-pin for releasing the latch of each from the exterior of the case.

10. A camera comprising a case, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, having perforations, a spring-latch for each bearing, having a locking-pin adapted to engage said perforations, and a push-pin for releasing the latch.

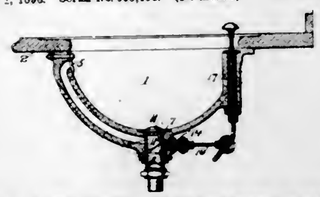
11. A camera comprising a case, a swing-back frame centrally pivoted to the case, a hinged arm having a slot and pivoted to the swing-back frame, a clamping-plate having an arm, and a clamping-screw extending through the clamping-plate, through the slot of the hinged arm and through the clamp-arm.

12. A camera comprising a case, a swing-back frame having latches, and a reversible back having spring-locking pins adapted to engage said latches.

13. A camera comprising a case, a swing-back frame having latches, a reversible back having recesses and latch-retaining plates, and spring-locking pins mounted in the reversible back for releasing the latches from the retaining-plates.

14. A camera comprising a case, a swing-back frame having latches provided with inclined lips, a reversible back having retaining-plates with which the lips are adapted to engage, and means for releasing the lips.

679,882. WASHBASIN. WILLIAM BUFFING, Jr., New York, N. Y., assignor to The Meyer-Sniffen Company, Limited, same place. Filed Nov. 1, 1898. Serial No. 696,153. (No model.)



Claim.—1. The combination with a bowl having an overflow-pipe and a perforation formed in its side, said perforation being independent of the overflow-pipe, of a stopper, a pusher-rod located outside of the overflow-pipe and engaging the stopper, and an actuating-rod for the pusher-rod located in the perforation of the bowl, substantially as described.

2. The combination with a bowl having an overflow-pipe formed in its side and a vertical perforation also formed in its side, said perforation being independent of said overflow-pipe, of a stopper, a pusher-rod located outside the overflow-pipe and engaging the stopper, and an actuating-rod for the pusher-rod located in the vertical perforation of the bowl, substantially as described.

3. The combination with a bowl, of a stopper therefor, a perforation formed in the bowl, an actuating-rod located in the perforation, an opening formed in the bowl, a pusher-rod working through the opening, means whereby a longitudinal movement of the actuating-rod operates the pusher-rod, and means whereby movement of the pusher-rod operates the stopper, substantially as described.

4. The combination with a bowl, of a downwardly-depending boss having a vertical orifice, an opening in the side of the boss, a vertical perforation in the side of the bowl, a stopper located in the orifice, a pusher-rod working through the opening in the boss, an actuating-rod located in the perforation, and means whereby a longitudinal movement of the actuating-rod causes movement of the pusher-rod, substantially as described.

5. The combination with a bowl having a perforation in its side, of an operating-rod located in the perforation, a discharge-orifice in the bowl, a stopper located in the orifice, a pusher-rod engaging the stopper close to the base of the bowl, means whereby the movement of the pusher-rod actuates the stopper, and means whereby a longitudinal movement of the actuating-rod operates the pusher-rod, substantially as described.

6. The combination with a bowl, of a downwardly-depending boss having a vertical orifice therein, an overflow-passage discharging into said orifice, a stopper for closing the orifice, an opening in the boss lying in substantially the same horizontal plane as the discharge-opening of the overflow-passage, and a pusher-rod for the stopper passing through said opening, substantially as described.

7. The combination with a bowl, of a downwardly-extending boss having a vertical orifice therein forming a waste-passage, an overflow-passage communicating therewith, a horizontal opening formed in the boss on substantially the same level as the opening through which the overflow discharges, a stopper closing the vertical orifice, a pusher-rod for the stopper passing through the horizontal opening, a perforation independent of the overflow-passage formed through the material of the bowl, an actuating-rod for the pusher-rod passing through said opening, means whereby a longitudinal movement of the actuating-rod is caused to operate the pusher-rod, and means whereby the pusher-rod is caused to actuate the stopper, substantially as described.

8. A bowl or basin having a downwardly-depending boss which has a discharge-orifice extending therethrough, and an opening for a stopper-operating rod, an overflow-passage formed in the material of the bowl and communicating with the discharge-orifice, and a perforation independent of and disconnected from the overflow-passage, said perforation being formed in the material of the bowl at the side thereof and extending in the same general direction as the discharge-orifice, substantially as described.

9. The combination with a bowl having an overflow-pipe and a perforation formed in its side, said perforation being independent of the overflow-pipe, of a stopper, a pusher-rod located outside of the overflow-pipe and actuating the stopper, an actuating-rod for the pusher-rod located in the perforation of the bowl, and a cam-and-slot connection between the two rods whereby a longitudinal movement of the actuating-rod causes a longitudinal movement of the pusher-rod and moves the stopper, substantially as described.

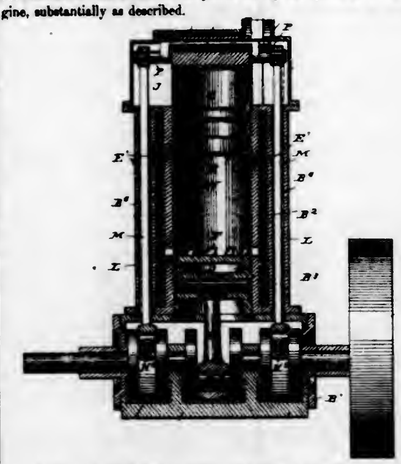
679,883. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, same place. Filed May 3, 1899. Serial No. 715,442. (No model.)

Claim.—1. In a gas-engine, the combination with a working cylinder having inlet-ports, of a piston within the cylinder for controlling said inlet-ports, a governor and connections between the same and the piston whereby the stroke of the piston is varied to automatically regulate its movement to open and close the ports to a greater or less extent during the operation of the engine, substantially as described.

2. In a gas-engine, the combination with a working cylinder having inlet-ports, of a piston within the cylinder for controlling said ports, connections between the piston and the power-giving parts of the engine, a governor and connections between the same and the piston whereby the stroke of the piston is varied to automatically regulate its movement thereby controlling the opening and closing of the inlet-ports during the operation of the engine, substantially as described.

3. In a gas-engine, the combination with a working cylinder having inlet-ports, of a piston mounted therein controlling the ports, reciprocating connections between the piston and the power-giving parts of the engine, cranks or eccentrics between the connections and the piston, and a governor for automatically controlling the relation of such cranks to the piston during the operation of the engine, substantially as described.

4. In a gas-engine, the combination with a working cylinder having inlet-ports, of a piston controlling said ports, driving-cranks, connecting-rods between the piston and driving-cranks, an eccentric or crank between the connecting-rods and piston, and a governor for automatically changing the relation of said cranks to the piston during the operation of the engine, substantially as described.



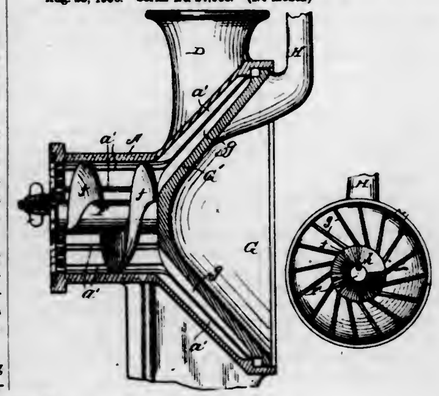
5. In a gas-engine, the combination with a cylinder having inlet-ports, of a piston reciprocating therein and controlling said ports, an eccentric connected to the piston, a lever connected to the eccentric, a slot in the frame of the machine in which said lever operates, an adjustable slot extension, and a governor connected with said slot extension whereby the movements of the piston with relation to the ports are controlled, substantially as described.

6. In a gas-engine, the combination with a working cylinder provided with inlet-ports, of two pistons therein the length of movement of one of which pistons is constant and that of the other piston is variable, a governor and connections between the same and the latter piston whereby the stroke of said piston is varied to automatically regulate its movement to open and close the ports to a greater or less extent during the operation of the engine, substantially as described.

7. In a gas-engine, the combination with a working cylinder provided with inlet and outlet ports, of two pistons therein, one of which controls the inlet and the other controls the outlet ports, a governor and connections between the same and the former piston whereby the stroke of said piston is varied to automatically regulate its movement to open and close up said inlet-ports during the operation of the engine, substantially as described.

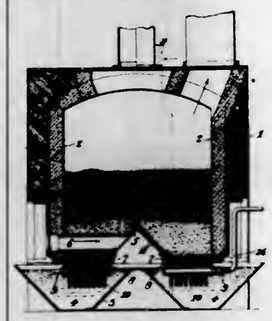
8. In a gas-engine, the combination with an explosion-chamber, provided with inlet and outlet ports, of two pistons therein, a two-throw crank adjacent to the cylinder, a pitman from each piston to said crank, a crank-shaped cross-head between one of the pistons and its pitman, and means for rotating said cross-head, substantially as set forth.

679,884. MEAT-CUTTER. MATTHEW BURTON, Batavia, Ill. Filed Aug. 25, 1900. Serial No. 27,980. (No model.)



Claim.—The combination with a casing having its front portion flaring and provided with a hopper communicating with said flaring part, and also having on its interior a series of ribs, and at its rear end small openings, of a forcer journaled in the casing and having a convex and ribbed portion located in the flaring part of the casing and a worm or screw in the rear part thereof, blades or knives movably located on the rear end of the casing, one of said knives having a slot or elongated opening, and a pin eccentrically located on the end of the shaft of the forcer and extending into the said slot, substantially as described.

679,885. GAS-PRODUCER. ARTHUR R. CALDER, Steelton, Pa. Filed Nov. 20, 1900. Serial No. 37,142. (No model.)



Claim.—1. In a gas-producer, the combination with a draft-cone, of independently-rotatable dumping members located below the line of draft and whose parts that support the ash are arranged to rotate through the sealing liquid, substantially as and for the purpose set forth.

2. In a gas-producer, the combination with a draft device and a water-sealed ash-pit, of a rotatable dumping member composed of star-shaped elements threaded on a rotatable bar, the arms of said star-shaped elements arranged to rotate through the sealing liquid in the ash-pit, substantially as and for the purpose set forth.

3. In a gas-producer, the combination with a centrally-located draft-prism, of independently-rotatable dumping members arranged on either side of said draft device, substantially as and for the purpose set forth.

4. In a gas-producer, the combination with a centrally-located draft prism or cone, and a water-sealed ash-pit, of rotatable dumping members dipping into the water seal, substantially as and for the purpose set forth.

5. In a gas-producer, the combination with a centrally-located draft prism or cone, and a water-sealed ash-pit, of independently-rotatable dumping members located below the line of draft and organized to positively discharge the ash into said pit, substantially as and for the purpose set forth.

6. In a gas-producer, the combination with a draft-prism and a water-sealed ash-pit, of rotatable dumping members located below the line of draft and comprising a bar, four-armed elements threaded thereon, the arms of said elements to pass through the sealing liquid in the ash-pit when the member is rotated, substantially as and for the purpose forth.

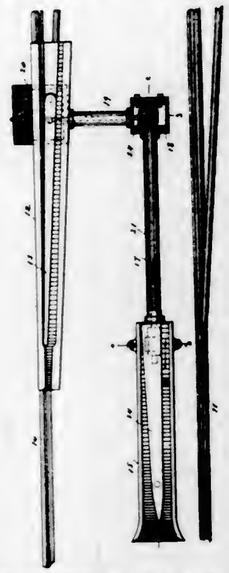
7. In a gas-producer, the combination with a central-draft supply device, of rails supporting said device, brackets depending from said rails and brackets depending from the sides of the producer and independently-rotatable members between the inner and outer brackets, substantially as and for the purpose set forth.

8. In a gas-producer, the combination with a water-sealed ash-pit, of a central-draft prism, supporting-rails on either side of the base thereof, brackets hung from said rails, and brackets at the sides of the producer, dumping members journaled in said brackets below the draft-prism and arranged to dip into said water seal, substantially as and for the purpose set forth.

9. In a gas-producer, the combination with a central-draft prism and a water-sealed ash-pit, of independently-rotatable dumping members located below the line of draft and comprised of a rotatable rod and star-shaped members threaded thereon, the arms of said members arranged to be submerged in the sealing liquid of the ash-pit when rotated, substantially as and for the purpose set forth.

10. In a gas-producer, the combination with a central-draft device, means for supporting said device centrally in the producer, of rotatable water-sealed dumping members supported at one end from the sides of the producer and at the other from the means for supporting the draft device, substantially as and for the purpose set forth.

679,886. RAILWAY-SWITCH. GEORGE W. CANTRELL and WILLIAM J. EMPEY, Spokane, Wash. Filed July 25, 1900. Serial No. 24,777. (No model.)



Claim.—The combination with a switch-tongue, of a shifting lever arranged between the rails of the track and having a notch, a casing below the rear end of the lever, a casing rearward of the first-named casing, a tube connection between the two casings, a rock-bar extended through the tube and having bearings in the casings, an arm extended from the rock-bar and engaging loosely in the notch of the lever, a casing at the opposite side of the track from the last-named casing, a tube connection between the two casings, a shifting bar extended through the tube and into the casing, an arm connection between the shifting bar and the rock-bar, and a connection between the shifting bar and switch-tongue, substantially as specified.

679,887. LADDER-HOOK. ELWOOD L. CLARK, Buckeye, Mich. Filed Mar. 28, 1901. Serial No. 53,304. (No model.)



Claim.—Means for suspending a bucket or like receptacle from the rung of a ladder, the same comprising an attaching-hook free to move forward or backward from a straight line passing through the pivot of the hook and lengthwise of the latter, a U-shaped yoke, a pin connecting the side members of the yoke and forming the axis for the said hook to turn upon, and a supporting-hook connected to the closed end of the yoke by a swivel-joint, substantially as set forth.

679,888. PLANTER. JAMES M. COLEMAN, Yazoo City, Miss. Filed Jan. 18, 1901. Serial No. 43,750. (No model.)

Claim.—1. In a planter, the combination with a hopper, of concentrically-arranged shafts, centrally-arranged teeth carried by one shaft and teeth carried by the second shaft on both sides of said teeth and working in opposite directions to the centrally-located teeth, substantially as described.



2. In a planter the combination with a hopper, of shafts arranged across said hopper one within the other, teeth carried by said shafts, and means carried on opposite ends of said shafts for oscillating the shafts in opposite directions, substantially as described.

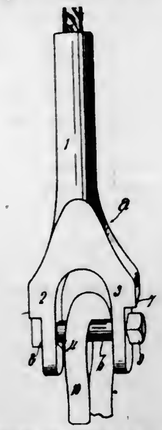
3. In a planter, the combination with a hopper, of a hollow shaft having slots extending partially therearound, teeth carried by said shaft, a shaft within said shaft teeth carried by said shaft and projecting through the hollow shaft, and means for oscillating said shafts in opposite directions, substantially as described.

4. In a planter, the combination with a hopper, of a hollow shaft carrying centrally-located downwardly-projecting teeth and having an elongated slot on either side extending partially therearound, a solid shaft within the hollow shaft, teeth carried by said shaft and projecting through the elongated opening and means for oscillating said shafts in opposite directions, substantially as described.

5. A planter, comprising a frame, a hopper mounted thereon, a drive-wheel mounted therein and carrying driving-cranks on either side, a hollow shaft extending transversely through the hopper and having slots extending partially therearound, teeth carried by said shaft between said slots, a solid shaft within the hollow shaft and having teeth projecting through the slots, a crank on one side connected to the hollow shaft, a second crank on the opposite side connected to the solid shaft, and pitmen connecting said cranks with the drive-cranks, substantially as described.

6. In a planter the combination with a hopper of shafts arranged across said hopper, one entirely within the other, teeth carried by said shafts and cranks on opposite ends of the shafts for oscillating them in opposite directions, substantially as described.

679,889. SAND-LINE AND PUMP OR BAILER CONNECTION. CHARLES I. DORR, Barksdale, Cal. Filed Aug. 16, 1900. Serial No. 27,084. (No model.)

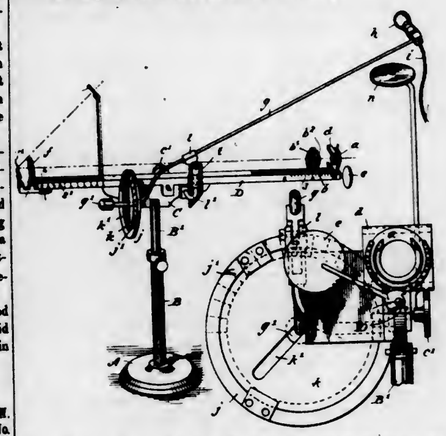


Claim.—1. A sand-line and pump or bailer connection provided at one end with a tubular shank, and provided at the other end with two arms perforated to receive a bolt; a lug on the outside of one of the arms to project outward above the perforation through said arm; a lug on the outside of the other arm above the bolt-hole; a bolt inserted through the arms and provided with a head which fits against the under side of one of said lugs; and a nut screwed on the other end of the bolt beneath the lug on the other arm, said lug on the other arm being close to the perforation and at a distance therefrom sufficiently great to allow the nut to be turned.

2. A sand-line and pump or bailer connection provided at one end with a tubular shank, and provided at the other end with two arms perforated to receive a bolt; a lug on the outside of one of the arms sloping from the shank downward and outward to project outward above the perforation through said arm; a like sloping lug on the outside of the other arm above the bolt-hole; a bolt inserted through the arms and provided with a head which fits against the under side of one of said lugs; and a nut screwed on the other end of the bolt beneath the lug on the other arm, said lug on the other arm being close to the perforation and at a distance therefrom sufficiently great to allow the nut to be turned.

3. A sand-line and pump or bailer connection comprising a shank provided at its upper end with a tube and at its lower end with arms which are perforated for holding a bolt and are furnished between the tube and the perforations with shoulders which slope outwardly away from the tube and terminate abruptly above the perforations, substantially as set forth.

679,890. APPARATUS FOR MEASURING ERRORS OF REFRACTION IN THE HUMAN EYE. LOUIS I. FERGUSON, New York, N. Y. Filed July 18, 1900. Serial No. 24,066. (No model.)



Claim.—1. In an instrument for the examination of the eyes, a suitable support, stationary means containing the observation-aperture for directing the rays of light to the eye under examination combined with movable light-supply means for coöperation with said light-directing means, as set forth.

2. In an optometrical instrument, the combination of a horizontal supporting bar or frame, a stationary retinoscopic mirror mounted on one end of said bar, an eyepiece mounted on the other end of said bar, and a lens-holder mounted on a separate sliding bar, and adjustable in relative distance between the retinoscopic mirror and eyepiece, as described.

3. In an optometrical instrument, the combination of a retinoscopic mirror, a support on which it is mounted and held in fixed position, a suitable lens-holder for retinoscopic examinations, and a lamp mounted on an adjustable support and movable in angle relatively to the retinoscopic mirror, substantially as and for the purposes set forth.

4. In an optometrical instrument, the combination of the support D, eyepiece *a*, mounted at one end thereof, lens-holder *b* mounted on a sliding support D′ and adjustable relatively to the eyepiece; the hinged support *p* and retinoscopic mirror *f* mounted thereon, adapted to be fixed in stationary position for use, and to be removed from the line of vision, when the instrument is to be used for other than retinoscopic examinations, as explained.

5. The combination of a suitable support D, an adjustable lens-holder *b*, a retinoscopic mirror *f* mounted on the support in fixed position for use, and a reflector *m* mounted on a support in rear of the retinoscopic mirror, substantially as described.

6. The combination of the beam D adjustable lens-holder *b*, retinoscopic mirror *f*, reflector *m* and perforated disk or finder, substantially as and for the purposes set forth.

7. The combination of the beam D adjustable lens-holder *b*, support *p* movably mounted on the beam D, the retinoscopic mirror *f* mounted on the movable support *p*, and the reflector *m* mounted on said support in rear of the retinoscopic mirror and in line with the axis thereof, whereby the said retinoscopic mirror and reflector are held in fixed position while in use and are adapted to be moved out of the line of vision when not in use, as explained.

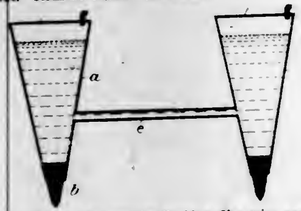
8. The combination of the beam D, adjustable lens-holder *b*, the sliding bar D′ on which the lens-holder *b* is mounted, a mechanical ad-

justing device *c* for sliding the bar D', a retinoscopic mirror *f* mounted on the rear end of the beam D in fixed position for use, and a lamp *h* mounted upon an adjustable support *g*, to permit the angular movement of the lamp relatively to the retinoscopic mirror, as explained.

9. The combination of the beam D slidable bar D', lens-holder *b* mounted on said bar, retinoscopic mirror *f* mounted on the beam D in fixed position for use, movable lamp *h*, rod *g*, on which said lamp is mounted, slotted disk *k*, in which the rod *g* is guided, and the annular holder *j*, in which the slotted disk *k* is mounted rotatably, to permit the placing of the slot *k'* therein at any angle, to determine the plane of movement of the lamp *h*, as explained.

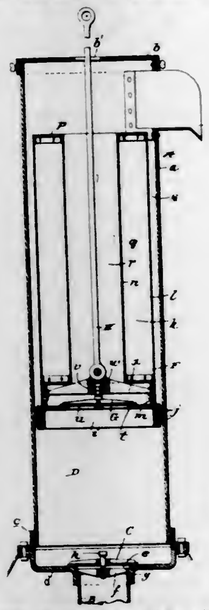
10. The combination of the support D, eyepiece *a*, adjustable lens-holder *b*, retinoscopic mirror *f*, and the mirror *t* mounted on the support in position, to enable the patient to view a distant object reflected in said mirror, while the eye is under retinoscopic examination, as explained.

679,891. **DEVICE FOR APPLYING LIQUIDS TO FILM-STRIPS, &c.** HERMANN FORSTERLING, Schlachtensee, Germany. Filed Nov. 21, 1900. Serial No. 37,304. (No model.)



Claim.—A device for applying liquids to film-strips, paper-rolls and the like comprising two or more liquid-reservoirs each having closed upper ends with air-pipes, a connection between said reservoirs which is adapted to keep the level of the liquids in each reservoir even with the other and some porous material filling the open lower ends of the reservoirs substantially as described and set forth.

679,892. **PUMP.** LAURENT E. GENERELLY, New Orleans, La. Filed Apr. 26, 1901. Serial No. 57,579. (No model.)



Claim.—In a pump, the combination of the case having the valve-controlled induction-opening at its lower end, and also having a lateral discharge, and the reciprocatory plunger arranged in said case, and comprising the head having an opening in its horizontal portion, and a flange rising from said horizontal portion, a cross-bar connected to said flange, a valve disposed above the opening in the head, and the annular air-tight portion disposed above the head and made up of the outer circular wall connected to the flange of the head, the inner circular wall, and the end walls interposed between and connected to the outer and inner walls; said annular portion being of a less size than the interior of the case whereby a space is afforded between it and said case, and a rod connected to the cross-bar of the head.

679,893. **HOSE-SUPPORTING DEVICE.** MYRON B. HAMMOND, Bridgeport, Conn. Filed Feb. 6, 1901. Serial No. 46,201. (No model.)



Claim.—1. A hose-supporting device comprising a metal plate having two rearwardly-extending hooks at its upper end, said plate being cut away whereby a clear space is left between said hooks, the latter being thus adapted to be applied to the edge of the corset-busk which carries the loop-fasteners, while the hooks embrace the loop thereby preventing vertical displacement of the device, substantially as set forth.

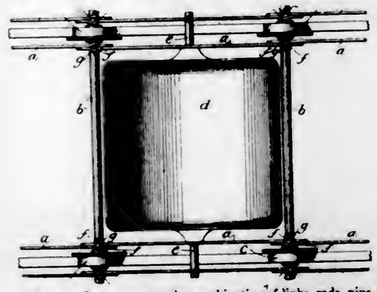
2. A hose-supporting device, comprising a metal plate cut away at its front to provide an opening and having resilient hook portions extending rearwardly on opposite sides of said opening and adapted to engage the edge of a corset-busk, the body of said plate being cut away to leave a clear space between said hooks whereby the latter will embrace the loop of the corset-clasp, substantially as set forth.

3. A hose-supporting device, consisting of a metal plate having an opening formed therein and having its stock on opposite sides of said opening bent rearwardly whereby resilient hooks are formed which are adapted to engage with a corset on opposite sides of the loop of a corset-clasp, and the hook pivoted to said plate and adapted to engage with the stud of the corset-fastening when the latter is in locked condition, substantially as set forth.

4. In a hose-supporting device, the combination of the metal plate having a clear opening formed therein and provided with hook elements extending beneath said plate rearwardly and on opposite sides of said opening and adapted to engage with the corset-busk which carries the loop element of a corset-clasp, and the hook pivoted to said plate and adapted to engage with the stud element of a corset-clasp on the other busk when said stud and loop are in locked condition, substantially as set forth.

5. A hose-supporting device comprising a plate cut away to provide an opening and having its front portion bent rearwardly whereby a book element is formed, and having a tongue extending forwardly from the rear wall of said opening, substantially as set forth.

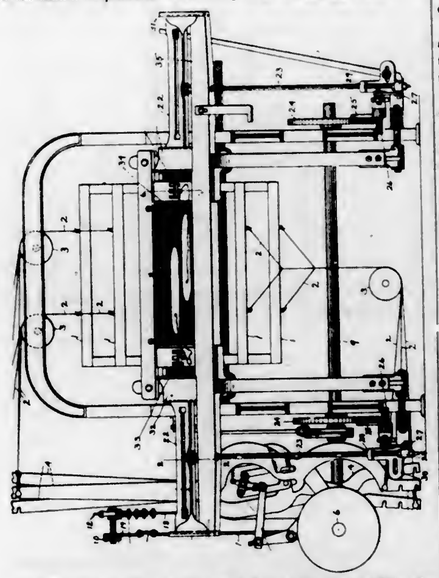
679,894. **CONVEYER.** CHARLES W. HUNT, West New Brighton, N. Y. Filed May 22, 1901. Serial No. 61,375. (No model.)



Claim.—In a conveyer the combination of links, rods, pins or shafts connecting said links, and buckets, said links being bent at their overlapping ends to form between them an oil-cavity, substantially as shown and described.

679,895. **BAG-LOOM.** GEORGE F. HUTCHINS, Worcester, Mass., assignor to Crompton & Knowles Loom Works, same place. Filed Mar. 9, 1901. Serial No. 50,446. (No model.)

Claim.—1. In a loom of the class described, for weaving tubular fabrics, the combination with the lay, of a yielding shuttle guide-plate on the lay, at each end of the reed, extending in the same horizontal plane as the central warp-threads, substantially as shown and described.



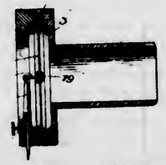
2. In a loom of the class described, for weaving tubular fabrics, the combination with the lay, of a movable shuttle guide-plate on the lay, at each end of the reed, extending in the same horizontal plane as the central warp-threads, substantially as shown and described.

3. In a loom of the class described, for weaving tubular fabrics, the combination with the lay, of a spring-actuated shuttle guide-plate on the lay, at each end of the reed, extending in the same horizontal plane as the central warp-threads, substantially as shown and described.

4. In a loom of the class described, for weaving tubular fabrics, the combination with the lay, of a hinged shuttle-box at each end of the lay, one of said shuttle-boxes having a downwardly-extending lip at its outer end, for the purpose stated, substantially as shown and described.

5. In a loom of the class described, for weaving tubular fabrics, the combination with the lay having a movable shuttle-box at each end, and means for moving said boxes alternately up and down, and a shuttle guide-plate at each end of the reed extending in the same plane as the central warp-threads, of a warp-tension mechanism, for putting a tension on the central warp-threads to support the shuttle thereon, consisting of two parallel rolls, and rocking arms supporting said rolls, and means for rocking said arms, substantially as shown and described.

679,896. **SOUND-BOX FOR TALKING-MACHINES.** ELDRIDGE R. JOHNSON, Philadelphia, Pa. Filed May 2, 1901. Serial No. 58,459. (No model.)



Claim.—1. In a sound-box, a spring-mounting for the stylus-bar, comprising a thin piece of tempered steel having its ends twisted in opposite directions, and secured to the sound-box casing, and its intermediate portion secured to the stylus-bar.

2. In a sound-box, a spring-mounting for the stylus-bar comprising a strip of tempered steel having screw-holes provided in each end and the said ends twisted or sprung in opposite directions so as to render the intermediate portion extremely sensitive, the said intermediate portion being rigidly secured to the stylus-bar, and the end portions to the sound-box casing, thereby rendering the stylus-bar sensitive, for the purpose described.

3. The combination with the sound-box casing, a diaphragm mounted therein, a stylus-bar mounted in an opening formed in the lower wall of the casing, a tempered-steel spring secured to the said stylus-bar, having its ends twisted in opposite directions and secured to the sound-box casing on each side of the stylus-bar.

4. In a sound-box for talking-machines, a spring-mounting for the stylus-bar comprising tempered-steel fingers extending from each side of the stylus-bar transversely thereto, and the free ends of said fingers adapted to be secured to the sound-box casing.

5. In a sound-box for talking-machines, a spring-mounting for the stylus-bar comprising small tempered-steel fingers extending from each side of the stylus-bar transversely thereto, each of said fingers being twisted or sprung in opposite directions and having their free ends rigidly secured to the sound-box casing.

6. In a sound-box for talking-machines, an annular casing having a radially-disposed aperture provided in its wall, a stylus-holder adapted to pass through said aperture, small tempered-steel fingers extending from the said stylus-bar on each side thereof, each of said fingers being bent or sprung in opposite directions, and having their free ends secured to the sound-box casing, for the purpose described.

7. The combination with the sound-box casing, a diaphragm mounted therein, a stylus-bar mounted in an opening formed in the lower wall of the casing, a wire connection rigid in the direction of its length secured to the diaphragm and to the stylus-bar, a tempered-steel spring secured to the said stylus-bar having its ends twisted in opposite directions, and secured to the sound-box casing on each side of the stylus-bar.

8. The combination with the sound-box casing, a diaphragm mounted therein, a stylus-bar mounted in the casing, a wire connection rigid in the direction of its length secured at one end to the stylus-bar, a head formed on the other end of said wire adapted to an opening in the diaphragm, means for securing said head to the diaphragm, and a tempered-steel spring secured to the stylus-bar having twisted ends, the said twisted ends being secured to the sound-box casing on each side of the said stylus-bar.

9. The combination with the sound-box casing, a diaphragm mounted therein, a stylus-bar mounted in the casing, a wire connection rigid in the direction of its length secured at one end to the stylus-bar, a head formed on the other end of said wire adapted to an opening in the diaphragm, means for securing said head to the diaphragm, a film or seal of wax applied over the said connection and a tempered-steel spring secured to the stylus-bar having twisted ends, the said twisted ends being secured to the sound-box casing on each side of the said stylus-bar.

10. The combination with the sound-box casing, a diaphragm mounted therein, a stylus-bar mounted in the casing, a wire connection rigid in the direction of its length secured at one end to the stylus-bar, a head formed on the other end of said wire adapted to an opening in the diaphragm, a flange formed on the outer end of said head, a washer secured on said head adapted to bear against the opposite face of the diaphragm, a film or seal of wax applied over the said connection for preventing the same from rattling, and a tempered-steel spring secured to the stylus-bar having twisted ends, the said twisted ends being secured to the sound-box casing on each side of the said stylus-bar.

11. The combination with the sound-box casing, a diaphragm mounted therein so as to be free to move throughout its entire area, a stylus-bar loosely mounted within the casing, a wire connection rigid in the direction of its length secured to the stylus-bar, a head formed on the opposite end of said wire, means for positively connecting this head to the diaphragm, a seal of wax applied over said connection, and a thin twisted spring secured at its middle portion to the stylus-bar and having its twisted ends secured to the sound-box casing on each side of said stylus-bar, for the purpose described.

12. In a sound-box, the combination with the diaphragm, a stylus-bar mounted on the sound-box casing, a wire connection rigid in the direction of its length secured at one end to the stylus-bar, a head formed on the other end of said wire adapted to an opening in the diaphragm, and means for securing said head to the diaphragm.

13. In a sound-box, the combination with the diaphragm and stylus-bar, of a connection between the two comprising a metallic rod or wire rigidly secured to the stylus-bar, a head formed on the other end of said wire adapted to an opening in the center of the diaphragm, a flange formed on the outer end of said head, and a washer secured on said head adapted to bear against the opposite face of the diaphragm, substantially as described

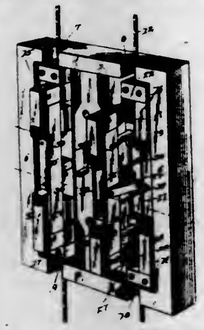
14. In a sound-box, the combination with the diaphragm, a stylus-bar mounted on the sound-box casing, a wire connection rigid in the direction of its length secured at one end to the stylus-bar, a head formed on the other end of said wire adapted to an opening in the diaphragm, means for securing said head to the diaphragm and a film or seal of wax applied over the said connection.

15. In a sound-box, the combination with the diaphragm and stylus-bar, of a connection between the two comprising a metallic rod or wire rigidly secured to the stylus-bar, a head formed on the other end of

said wire adapted to an opening in the center of the diaphragm, a flange formed on the outer end of said head, a washer secured on said head adapted to bear against the opposite face of the diaphragm, and a film or seal of wax applied over the said connection for preventing the same from rattling.

16. A sound-box for talking-machines comprising a casing made in two sections adapted to fit one within the other the said two sections being driven or shrunk together, a diaphragm confined at its periphery between the two sections, yielding gaskets provided on each side of the said diaphragm, the said parts being adjusted so as to prevent the said diaphragm from rattling yet leaving it free to vibrate throughout its entire area, a stylus-bar mounted within the casing, a tempered-steel spring having twisted ends which are secured to the casing on each side of the diaphragm, and having its intermediate part secured to the stylus-bar, a wire connection permanently secured to the stylus-bar at one end and to the diaphragm at its other, and a wax seal applied over the connection to the diaphragm, substantially as described.

679,897. **SELF-RESTORING FUSE-BLOCK.** MACON L. JONES, Montgomery, Ala. Filed Apr. 4, 1900. Serial No. 11,523. (No model.)



Claim.—1. A fuse-block comprising line-terminals adapted for engagement of a fuse therewith to bridge the terminals, a switch comprising mutually-insulated terminals, adapted for contact with their respective line-terminals, said switch-terminals being adapted for connection of a fuse therewith, means for moving the switch to engage its terminals with the line-terminals, said switch carrying an insulated portion disposed for engagement with the first fuse-wire to hold the switch normally inoperative.

2. A fuse-block comprising line-terminals adapted for connection of a fuse thereto to bridge the terminals, said terminals having switch-sockets, and a switch for engaging the sockets, said switch comprising an insulating-bar having contact-pieces for engagement with the sockets, guide-pins carried by the switch, and springs connected with the switch and the base of the block for moving the switch into engagement with the sockets, the bar of the switch having means for engagement with the fuse on the terminals for holding the switch inoperative.

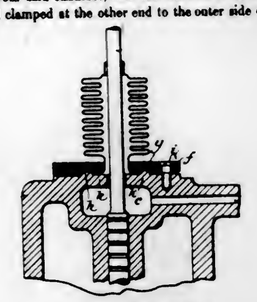
3. A fuse-block comprising terminal-plates adapted for connection of a fuse thereto to bridge the plates, a switch comprising contacts for connection with the plates to complete the circuit between them, a projection carried by the switch for engagement with the fuse upon the terminal-plates to hold the switch inoperative, and means for moving the switch into operative position when the fuse is broken.

4. A fuse-block comprising terminal-plates mutually insulated and adapted for attachment of a fuse thereto to bridge the plates, each of the plates having a switch-socket, a switch comprising an insulating-bar having insulated contact-pieces thereon for engagement with the sockets, said contacts being adapted for connection of a fuse therewith, guide-pins carried by the switch and engaging perforations in the base of the block, springs connecting the switch and base for moving the switch into operative position, and a lateral projection on the switch disposed to rest upon the fuse connecting the terminal-plates to hold the switch inoperative.

5. A fuse-block comprising terminal-plates adapted for connection of a fuse thereto to bridge the plates, a switch adapted to bridge the terminals, and means carried by the switch and disposed to rest upon the fuse to hold the switch inoperative, said switch being movable into operative position when the fuse is broken.

679,898. **MEANS FOR SEALING PARTS OF MACHINERY.** EMIL JOSSE, Wilmersdorf, Germany. Filed Feb. 25, 1901. Serial No. 48,745. (No model.)

Claim.—The combination of a cylinder, having a chamber *c* below its end wall *k*, a rod *a* passing through said chamber and said end wall *k*, an outlet *e* from said chamber, and the bellows *b* secured at one end to the rod, and clamped at the other end to the outer side of the plate *k*.



679,899. **GAS OR OTHER COCK.** CHARLES F. KIECHELOR, Quincy, Ill. Filed Mar. 22, 1901. Serial No. 52,383. (No model.)



Claim.—1. A gas-cock comprising a shell which is provided with a gas-passage and a cavity for the valve and a margin around the valve-cavity having a high part and a low part with intervening shoulders, a valve having a fixed pin on one side and a movable pin on the other side, the movable pin being provided with a spring operating to press it against said margin and being arranged to be pressed by said spring so as to cause it to bear against either shoulder when the plug is turned, and the fixed pin being arranged to turn upon the low part of said margin and bear also against either shoulder, and means for withdrawing the movable pin, all substantially as described.

2. A safety gas-cock comprising a shell having a gas-passage and a cavity for the valve, with a high and a low part and intervening shoulders around the margin of the valve-cavity, and a valve provided with a fixed pin and a movable pin the movable pin being located in a slot and opposite the fixed pin, and provided also with a longitudinal passage and a stem located in said passage and connected with the movable pin whereby said movable pin may be drawn away from the margin about the valve-cavity, and a spring located in said passage for pressing the movable pin against said margin, all substantially as described.

3. A valve for gas or other cocks the plug portion of which has a fixed pin on one side and a movable pin located in a slot on the other side, a passage for the gas or other liquid or fluid, a longitudinal passage connecting with the slot in which said movable pin is located, and a spring and a stem located and supported in said longitudinal passage and connected with the movable pin for operating said movable pin, said stem being provided with a button attached to the free end thereof for operating said stem and movable pin, all substantially as described.

4. A valve for gas or other cocks which comprises a thumb-piece having two opposite jaws, and a plug having a fixed pin on one side and a movable pin on the other side and means for operating said movable pin, said plug being adapted to receive and hold the jaws of the thumb-piece, and said jaws being adapted to fit to and firmly grasp and hold said plug, all substantially as described.

5. A gas or other cock comprising the shell A having the shoulders *a a* and being provided with the ordinary plug-cavity and passage for the gas or other liquid or fluid, the valve B having the fixed stop-pin *d* and the guides *m m*, longitudinal passage *e*, slot *g*, and passage *c*, and in combination with said shell and valve, the perforated screw *h* fitting in the outer end of the passage *c*, the stem *i* fitted to move easily in the passage *e* and perforated screw *h* and being provided with the knob *n* and operating-button *k*, the movable pin *o* transversely fixed in the knob *n* and adapted to move easily in the slot *g*, and the spring *p* fitted loosely in the passage *e* and around the stem *i* between the perforated screw *h* and the knob *n* in such manner as to press the pin *o* against the shell A, all substantially as described.

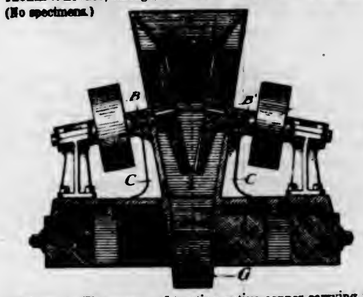
6. A valve for gas or other cocks comprising the plug *b'* having the longitudinal grooves *r r* provided with the transverse notches *s s*, and the thumb-piece *b²* having the jaws *n n* provided with the transverse teeth *v v* and being adapted to fit to and grasp and firmly hold said plug, all substantially as described.

679,900. **DISPLAY-HOOK.** JOHN LA BURT, Brooklyn, N. Y., assignor of two-thirds to Albert E. Spencer and Henry A. Kessel, same place. Filed Feb. 26, 1901. Serial No. 48,920. (No model.)



Claim.—A display-hook comprising in combination, a book member and a clamp member, the latter being formed of a single piece of wire bent upon itself, the ends thereof serving as the jaws of the clamp, which are held normally closed by the resiliency of the wire, a spiral formed in the wire on one side of the clamp member adapted to receive a price-card, and spiral eyes formed in the wire at the top and bottom of the clamp member engaged by the hook member and serving as a swivel connection therefor.

679,901. **PROCESS OF TREATING METAL-BEARING ROCK.** THOMAS J. LOVETT, Chicago, Ill. Filed Oct. 29, 1900. Serial No. 34,697. (No specimens.)



Claim.—1. The process of treating native copper-carrying rock or ore, which consists in subjecting it to simultaneous triturating and torsional impacts, whereby the non-metallic part is broken up and the copper part is formed into lumps of slag, pellet or similar shape, as described.

2. The process of treating a native copper-bearing ore or rock to render the metal more easily separable from its rocky environment, which consists in subjecting a mass of the broken ore or rock to simultaneous triturating and torsional impacts, whereby each particle of the rock grinds upon its neighbor producing the trituration of the non-metallic element and the forming of the copper into lumps of slag, pellet or similar shape, substantially as described.

3. The method of treating native copper-bearing ore or rock, in which the metal is presented in the form of scale, which consists in subjecting a mass of broken ore or rock to a grinding impact action and a simultaneous torsional action, whereby the non-metallic ore or rock is broken and the copper scale is twisted into a compact form, substantially as described.

4. The process of treating native copper-bearing ore or rock, which consists in subjecting a mass of the broken ore or rock to a grinding impact action operating in different directions on opposite sides of the mass, whereby attrition between all the particles of rock is effected, and the non-metallic element is crushed into smaller particles while the native copper is twisted, rolled or massed into pellet, slug, or similar shape, substantially as described.

679,902. **RAIL-JOINT.** ELLSWORTH A. MITZNER, Thelma, Ind. Filed Aug. 30, 1900. Serial No. 28,538. (No model.)

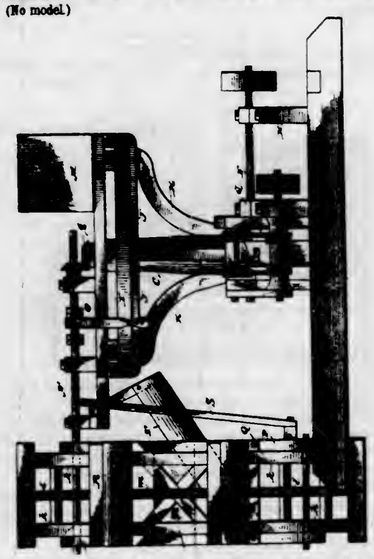


Claim.—1. In a rail-joint the combination with a base having arms thereto; of side strips engaging the rails said strips having recesses therein, a U-shaped portion to each strip adapted to receive a flange of each rail, inwardly-curved plates loosely mounted upon the base and supporting the rails, said plates engaging the recesses of the strips at points between the fulcrums of the plates.

2. In a rail-joint the combination with a base having arms thereto; of side strips engaging the rails, inwardly-curved plates loosely mounted upon the base and supporting the rails, said plates engaging the strips at points between the fulcrums thereof, wedges between the plates and arms, and means for automatically projecting the wedges therebetween.

3. In a rail-joint the combination with a base having arms thereto; of side strips engaging the rails, inwardly-curved plates loosely mounted upon the base and supporting the rails, said plates engaging the strip at points between the fulcrums thereof, wedges between the plates and arms, a tube to one wedge of each side, rods to the remaining wedges slidably mounted in the adjacent tubes, and a spring bearing at opposite ends upon the wedges.

679,908. **EXCAVATOR OR MACHINE FOR UNLOADING CARS.** PATRICK J. MULLANEY, Chicago, Ill. Filed Jan. 6, 1900. Serial No. 592. (No model.)



Claim.—1. In a machine for unloading gondola cars, in combination with a base, a hollow mast having a shaft adjustably mounted thereiu, said shaft supporting a circular platform, of the conveyer mounted on the said platform and mechanism for operating the same, substantially as shown and described.

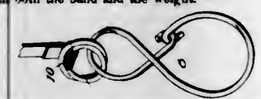
2. In a machine for unloading gondola cars, a base having a hollow mast, a hollow shaft adjustably mounted in said mast, said hollow shaft having a shaft journaled in the center thereof the said shaft having a gear keyed at its top, and another mounted in a groove near the base, of a horizontal shaft having a gear adapted to engage the gear mounted in the groove and to drive the vertical shaft, of a circular platform supported by the hollow shaft, of a frame pivotally mounted on the said platform, of a horizontal shaft mounted on the said frame having a gear mounted in a groove therein adapted to engage the gear on the end of the vertical shaft and to be driven by the same, the shaft on the frame supporting the conveyer, substantially as shown and described.

3. In a machine for unloading gondola cars, a base supporting a hollow mast, of a hollow shaft adjustably mounted in the said mast the said hollow shaft supporting a circular platform, the said platform carrying a frame which revolves freely thereon, a shaft journaled upon said frame adapted to support a swinging frame having oppositely-disposed sprocket-wheels and pulleys connected by sprocket-chains and belts carrying a series of buckets, of the said sprocket-wheels and pulleys operated by the shaft supporting the same, of a lever for throwing the conveyer to and from the machine, of an upright and horizontal shaft connected by gear-wheels, of the upright shaft connected to the shaft upon the frame, substantially as shown and for the purpose set forth.

679,904. **SASH-BAND FASTENER.** CHARLES H. COMPAGON, Rochester, N. Y. Filed July 6, 1899. Serial No. 722,961. (No model.)

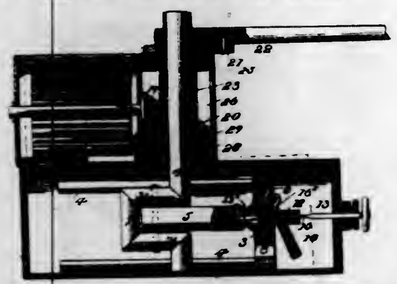
Claim.—1. A sash-band, a weight mediately supported thereby, a

loose ring through which one end of the band is passed and about which it is folded back upon itself, and means independent of said ring to bind the band to the ring, said means bearing on one side only of the band-fold and above the ring and immediately supporting the weight to form and maintain a bend in the folded part of the band adjacent to the ring through the pull of said weight, said means being loosely connected to and separable from both the band and the weight.



2. A sash-band, a weight supported thereby, a ring through which one end of the band is passed and about which it is folded back upon itself, and means independent of the ring to bind the band to the ring by the pull of the weight, said means comprising a second ring bearing loosely on one side of the part of the fold next the end of the band and above the ring.

679,905. **DOOR-CHECK.** CHARLES H. OCUMPAUGH, Rochester, N. Y. Filed Aug. 18, 1900. Serial No. 27,326. (No model.)



Claim.—1. In a door check and closer, the combination of a liquid-holding piston-chamber, a distinct removable cover therefor, a piston in said chamber, a separate chamber containing a door-closing spring, and a third chamber inclosing mechanism operatively connecting the spring and piston, the two latter chambers being arranged at right angles to each other and provided each with an independent removable cover.

2. In a door check and closer, the combination of an arm, a spindle at right angles to the arm, a piston-chamber, a piston driven by the spindle, a spring-containing chamber, a spring, and a spring-winding shaft in a plane parallel to the piston-rod.

3. In a door check and closer, a casing comprising in its construction three separate chambers, a liquid or piston chamber, a shaft-chamber at right angles thereto and a spring-chamber lying above the piston-chamber in a plane parallel thereto and on one side of the shaft-chamber, substantially as shown and described.

4. In a door check and closer, the combination of a door-closing arm, a door-closing spring, a spring-containing chamber whose axis is in a plane parallel to the arm, and intermediate devices whereby the arm may put the spring under tension by the movement of said arm, said devices subsequently moving in reverse direction under the action of the spring.

5. In a door check and closer, the combination of a door-closing and spring-compressing arm, a spindle operatively connected to the arm, and an independent spring-winding shaft mediately connected with the spindle whereby the spring may be put under tension and then subsequently close the door.

6. In a door check and closer, an arm, a spindle connected to the arm, a spring, a rotatable spring-winding shaft situated at an angle to the spindle, and gears to operatively connect the said shaft and spindle.

7. In a door check and closer, an arm, a spindle connected to the arm, a shaft at right angles to the spindle, gears operatively connecting the spindle and shaft, and a spring connected at one end to the shaft and at the other end to a spring-adjusting device, and said device.

8. In a door check and closer, a liquid-holding chamber, a gear-containing chamber, and a spring-containing chamber, each having an independent removable cover whereby access may be had to each without disturbing another.

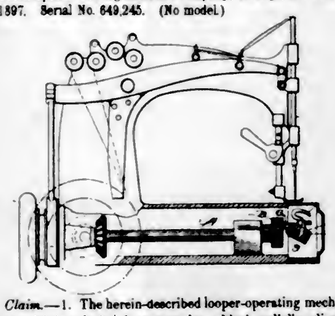
9. In a door check and closer, an arm with an attached spindle, a piston operatively connected to the spindle, and a spring-winding shaft connected to the spindle at a point between the arm and the piston.

10. In a door check and closer, a liquid-holding chamber, a gear-containing chamber, an arm, a spring whose axis is in a plane parallel to the arm, and means independent of the liquid-holding and gear-containing chambers for adjusting the tension of the spring.

11. In a door check and closer, a liquid-holding chamber, a gear-containing chamber, a door-closing and spring-compressing arm, a spring whose axis is parallel to the arm, a spring-containing chamber, and means for adjusting the tension of the spring from the exterior of the check and closer.

12. In a door-check, the combination of a cylinder, and a piston-head having fixed to its periphery guides with free ends bearing on the inner surface of the cylinder in separate lines.

679,906. **LOOPER-OPERATING MECHANISM FOR SEWING-MACHINES.** LARKIN ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Aug. 23, 1897. Serial No. 649,245. (No model.)



Claim.—1. The herein-described looper-operating mechanism, comprising a driving-shaft, a looper-carrier, a block radially adjustable across the face of the driving-shaft, a rigid inclined pin or rod secured at or near one end to said block, and means carried by said block for adjusting the inclination of said pin or rod with reference to the axis of the driving-shaft; substantially as described.

2. The herein-described looper-operating mechanism, comprising a driving-shaft, a looper-carrier, a block radially adjustable across the face of the driving-shaft, a rigid inclined pin or rod, pivotally secured to said block, and means carried by said block for adjusting the pin or rod on its pivot to vary the inclination of said pin or rod; substantially as described.

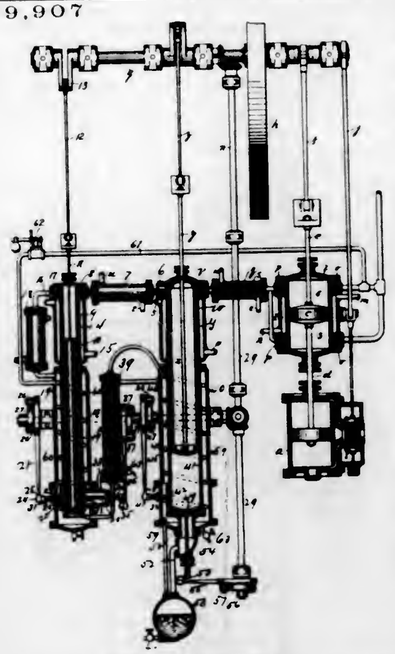
3. The herein-described looper-operating mechanism, comprising a driving-shaft, a looper-carrier, a block radially adjustable across the face of the driving-shaft, a rigid inclined pin or rod, pivotally secured to said block, and means carried by said block for adjusting the pin or rod on its pivot to vary the inclination of said pin or rod, said means including stop-screws arranged on opposite sides of the pivot-point; substantially as described.

679,907. **APPARATUS FOR REFRIGERATION OF ATMOSPHERIC AIR.** OSCAR P. OSTERGREN, New York, N. Y., assignor to the Ostergren Manufacturing Company, of New Jersey. Filed Oct. 20, 1900. Serial No. 33,581. (No model.)

Claim.—1. In apparatus for refrigerating compressed air, the combination of air compressing and cooling apparatus, said compressing apparatus having power in excess of the power to be expended in compressing the air, a plurality of engines for utilizing the power of the compressed air and for expanding and cooling it, said engines arranged in series and being coupled with the compressing-engine, and means for regenerating the expanding air by heat absorbed from the compressed air prior to admission into the expanding-engines, the said expanding-engines together with the prime motor adapted to continue the operations of and the expansion in the terminal engine of the series however the expansive energy of the air therein may be reduced.

2. In apparatus for refrigerating compressed air, a combined air compressing, and expanding, power-utilizing and air-cooling engine, as auxiliary to the prime-motor engine, consisting of a two-part cylinder of continuous structure, and a like plunger-piston working in both parts, the compressing parts of the cylinder and piston being close fitting and having a jacket and means for the circulation of a cooling fluid around the parts subject to the heat of compression, and the expanding parts of the same being fitted with a clearance-space between the cylinder and plunger, and also having an air-regenerating jacket, and means whereby the compressed air enters the expanding part of the cylinder through said jacket, said compressing and expanding parts of the cylinder having suitable inlet and outlet ports and valves, and said engine adapted with the aid of the prime-motor engine to continue the expansion of the air however its expansive energy may be reduced.

679,907



679,908. **MAGAZINE-FIREARM.** EDWARD G. PARKHURST, Hartford, Conn., assignor of one-half to Lyman E. Warren, New York, N. Y. Filed Nov. 10, 1898. Serial No. 696,035. (No model.)



Claim.—1. In combination with a gun-magazine, adapted to receive a cartridge-clip of the class having a locker for retaining the cartridges, a locker-actuator carried by the magazine and movable into and out of actuating relation to the clip-locker.

2. In combination with a gun-magazine adapted to receive a cartridge-clip of the class having a locker for retaining the cartridges, a detent for retaining the body of the cartridge-clip against retractive movement, and a locker-actuator carried by the magazine and movable into and out of actuating relation to the clip-locker.

3. In a gun-magazine for receiving the described cartridge-clip, provided with an inclined locker-actuator located in engaging relation to the uppermost locker-arm so as to press the latter backwardly and unlock the upper end of the clip as it is inserted in the magazine, means for engaging with the clip to retain it against return upward movement, and means for moving the locker-actuator into and out of actuating relation to the uppermost locker.

4. In a magazine for receiving the described cartridge-clip, having its locker-arms located to pass in different paths to operative position in the magazine, an inclined locker-actuator for retracting one of the arms, and a clip-retaining detent for engaging with the other arm to retain the clip against return movement.

5. In a magazine for receiving the described cartridge-clip, having its locker-arms located to pass in different paths to operative position in the magazine, a locker-actuator movable into and out of engaging relation to one of the locker-arms of the clip, and a retaining-detent for engaging the other locker-arm to resist displacement of the clip by the movements of the locker-actuator.

6. In a magazine for receiving the described cartridge-clip, having its locker-arms located to pass in different paths to operative position in the magazine, a locker-actuator movable into and out of engaging relation to the upper locker-arm, and a retractable detent located in the path of the lower locker-arm, and engaging therewith to resist upward displacement of the clip, by the movements of the locker-actuator.

7. In combination with a gun-magazine adapted to receive a cartridge-clip of the class having a retractable locker for retaining the cartridges, a detent for retaining the body of the cartridge-clip against retractive movement, and a cut-off for the cartridges in the magazine, comprising an actuator for the clip-locker, having an inclined face for retracting the locker, the actuator being mounted for reciprocating movement upon the magazine whereby it may be moved by the operator into and out of its locker-engaging position.

8. In combination with a gun-magazine adapted to receive a cartridge-clip of the class having a retractable locker for retaining the cartridges, a detent for retaining the body of the cartridge-clip against retractive movement, and a cut-off for the cartridges in the magazine, comprising a reciprocating slide mounted upon the magazine and having an inclined face for retracting the clip of the locker when the slide is pushed in one direction, and for allowing the locker to remain closed when the slide is pushed in the opposite direction, with means for yieldingly retaining the slide in its two positions.

679,909. **DISPLAY-BOX.** WALTER K. PEEK, New York, N. Y. Filed Feb. 16, 1901. Serial No. 47,654. (No model.)



Claim.—1. A display-box having a main body portion open at the top and having a series of pockets arranged on the outer face of one side and its ends, T-shaped partitions interposed between pockets on the same side of the box, corner-pieces arranged along the corner of the box and having flanges extending each way therefrom, the said T-shaped partitions and corner-flanges extending from top to bottom of the pockets, the said pockets being open at the top and a cover which fits down over the top of the main body portion of the box and also extends beyond the same and fits over the pockets and thereby covers all the receptacles formed on the outside of the box, whereby an article may be displayed in the pockets but cannot be removed therefrom without removing the cover of the box, substantially as described.

2. A display-box formed with a central compartment having a plain back and a series of open-front pockets arranged along the front and both ends of the box, T-shaped partitions between the pockets on the front of the box, corner-partitions having flanges extending each way between the side pockets and the corner-pockets, the said pockets being open at the top, a cover for closing the central compartment of the box and extending beyond the same on three sides to cover all the said pockets, a display-easel arranged upon the said top and a catch for holding the box-cover in position, the structure being such that the materials to be displayed may be placed in the open-front pockets and prevented from removal by means of the cover of the box, substantially as described.

679,910. **SEPARABLE BUTTON.** ETHEL M. PHELPS, New York, N. Y. Filed Nov. 23, 1900. Serial No. 37,500. (No model.)



Claim.—1. The combination with the back-plate and its cloth-piercing notched prongs, of the rear face-plate apertured to receive the prongs, the automatically-acting spring-locking latch lying in or on the rear face-plate and the cover-plate E placed over the latch in permanent concentric relation to the rear face-plate.

2. The combination with the back-plate and its cloth-piercing prongs notched on corresponding sides, of the rear face-plate apertured to receive the prongs and the one-piece spring-latch having two locking-arms normally covering or lying opposite corresponding sides of said apertures and a covering-plate placed over the latch in permanent concentric relation to the rear face-plate.

3. The combination with the back-plate and its cloth-piercing prongs notched upon corresponding sides, of the dish-shaped rear face-plate apertured to receive the prongs, the three-armed spring-latch and the cover-plate having projecting lips, one of which serves as the pivot of the latch and all of which serve to hold the cover-plate from bearing against the latch.

4. The combination of the back-plate and its cloth-piercing prongs notched upon corresponding sides, the rear face-plate having apertures to receive the prongs and also a slot, the one-piece three-armed latch having a projecting lip fitting in said slot and the cover-plate having projecting lips, one of which serves as the pivot for the latch and all serving to hold the cover-plate out of contact with the latch.

5. The combination with the back-plate and its cloth-piercing prongs notched upon corresponding sides, of the slotted and apertured dish-shaped rear face-plate struck in or indented as at c, the one-piece spring-latch

having three arms, one pivot-arm notched or recessed at its end and two oppositely-projecting locking-arms, the bent end of the longer one of which lies in the slot in the rear face-plate, and the cover-plate fitting closely within the dish-shaped rear face-plate and having projecting lips or parts serving to hold it out of contact with the latch, a notch in its periphery through which the struck-in edge *c* of the rear face-plate passes when the cover-plate is placed in position and a projecting part serving as a pivot about which the latch rocks.

6. The combination with the apertured dish-shaped rear face-plate having its edge indented or struck in as at *c*, the single-piece three-armed spring-latch, one arm of which is notched or recessed at its end, and the cover-plate closely fitting the dish-shaped rear face-plate, notched in its edge for the passage of the part *c* of the rear face-plate, having a projecting part entering the notch in the arm of the latch and serving as a pivot therefor, and also projecting parts serving to prevent the plate from binding or bearing upon the latch.

7. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head having an apertured rear face to receive the prong, a contained spring-latch and a slot in its outer face occupied by an end of the latch.

8. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a locking-latch within the button-head for engaging the prongs and a slot in the rear face of the button-head occupied by an end of the latch.

9. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a locking-latch within the button-head for engaging the prongs and a slot in the rear face of the button-head to afford access to the latch to operate it to disengage the prongs.

10. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a spring-latch within the button-head acting to automatically engage the notches in the prongs and a slot in the button-head to afford access to the latch to operate it to disengage it from the prongs.

11. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a pivoted spring-latch within the button-head acting to automatically engage the notches in the prongs and a slot in the button-head to afford access to the latch to operate it to disengage it from the prongs.

679,911. **BUTTON-FASTENER.** BYRON M. PHELPS, New York, N. Y. Filed July 24, 1900. Renewed Mar. 28, 1901. Serial No. 53,301. (No model.)



Claim.—1. A button-fastening device comprising a back-piece, prongs attached thereto that converge, then diverge and are parallel at their outer ends, and a detachable locking device adapted to engage the ends of the prongs.

2. A button-fastening device comprising a back-piece, prongs attached thereto, that converge and then diverge, and a detachable locking device adapted to engage the ends of the prongs.

3. A button-fastening device comprising a back-piece, prongs attached thereto, that converge and then diverge, and a locking device adapted to engage the ends of the prongs.

4. A button-fastening device comprising a back-piece, prongs attached thereto that converge and then diverge, a button-clamping device through which the outer ends of the prongs pass, and a detachable locking device adapted to engage the ends of the prongs.

5. The combination of a back-piece, one or more prongs attached thereto, and formed with apertured, beveled and channeled ends, and a hollow apertured locking-disk having yielding locking-pins adapted to be forced back by the ends of the prongs and then enter the apertures therein.

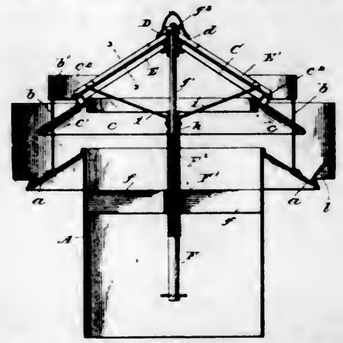
6. The combination of a back-piece, one or more prongs attached thereto and formed with apertured, beveled and channeled ends, and a hollow apertured locking-disk having yielding locking-pins adapted to be forced back by the ends of the prongs and then enter the apertures therein, and also having an opening in its peripheral face for the insertion of a device for at will disengaging the locking-pins from the prongs.

7. In a button-fastening device, the combination of a back-piece, two prongs attached thereto, and a locking device comprising a hollow body containing spring-acting locking devices acting in unison to detachably engage the ends of the prongs and having a peripheral aperture for the insertion of a pointed instrument to simultaneously press both locking devices out of engagement with the prongs.

8. The combination of a back-plate, prongs attached thereto that converge and then diverge, an ordinary apertured button having a cavity in its face, and a locking-disk removably seated in the cavity.

9. The combination of a back-plate, prongs attached thereto that converge and then diverge thereby forming a shank contracted at a point in front of the back-plate and an outer locking-plate having recesses or apertures, one for each prong and within each recess or aperture a locking device for detachably engaging the prongs.

679,912. **VENTILATING-SKYLIGHT.** JOHN F. PREUTHUN, Philadelphia, Pa. Filed July 30, 1900. Serial No. 25,275. (No model.)



Claim.—1. A combined skylight and ventilator comprising a lower stationary section having an inclined or conically-disposed flange extending from its upper edge, a movable hood-section consisting of a transparent upper section, a tapering metallic section, *c*, adapted to bear against the inclined flange of the stationary section when the skylight is closed, a vertical flange, *c'*, formed at the upper edge of the tapering metallic section, *c*, for more effectually sealing the two sections when closed, and means for raising or lowering the hood-section, for the purpose described.

2. A combined skylight and ventilator comprising a lower stationary section having a downwardly-inclined flange adjacent its upper end, a movable hood-section having skylights provided in its upper section, a tapering metallic lower section adapted to bear against the inclined flange of the stationary section when the ventilator is closed, a series of guide-rods secured to the lower section adapted to pass through the flange of the hood-sections, circular band connecting the upper ends of the guide-rods for bracing the same and limiting the upward movement of the hood-section, and means for raising or lowering the said hood-section, substantially as described.

3. The combination of a stationary section having an outwardly-tapering flange secured to its upper edges, a tapering hood-section having a solid metallic lower section adapted to rest on the flange of the stationary section when the ventilator is closed, vertically-disposed flanges carried by the said metallic portion of the hood, adapted to fit neatly within the stationary section, means for supporting and elevating or lowering the hood-section, and a circular band secured to the flanges of the stationary section and extending above the lower edge of the hood-section, substantially as described.

4. The combination of the rigid section, A, a movable hood-section, C, comprising a metallic frame, *c*, bent to form a flange, *c'*, a shoulder *c²*, formed on its upper surface, a central metallic section, D, having ledges, *d³*, and *d³*, formed thereon, and sheet-metal glass frames or mullions, E, adapted to rest on and be secured to the sections, *c*, and D, substantially as described.

5. In a skylight the combination with the frames *c* and D, of the mullions, E, comprising a single piece of sheet metal having flanges, *e* and *e¹*, formed on their edges to provide gutters, shoulders, *e'*, *e²*, in their opposing sides to form ledges on which the glass rests, a centrally-disposed U-shaped flange, *e³*, and a metallic cap, E', secured over the flange, *e³*, substantially as described.

679,913. **CLIP FOR BICYCLE-SADDLES.** CHARLES R. REID, Springfield, Ohio, assignor to the Kirkpatrick Saddle Company, same place. Filed May 11, 1900. Serial No. 16,311. (No model.)

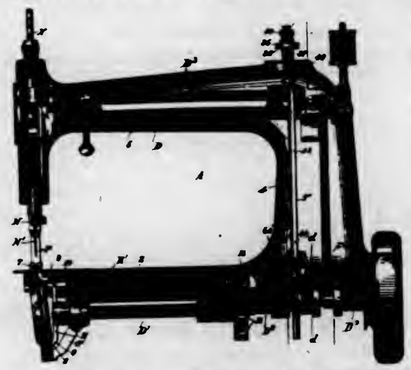


Claim.—1. In a clip for bicycle-saddles, the combination with the seat-post arm and frame-supports of the saddle, of adjustable tipping-bars segmental on one edge and straight on the opposite edge, the straight edge to contact with the straight portions of said frame-supports, a clamping device engaging said bars and supports and means to operate said clamp and to tighten the same on said seat-post arm, substantially as specified.

2. In a clip for bicycle-saddles, the combination of segmental tipping-bars, straight longitudinally on one edge to conform to and contact with the frame-supports of said saddle and rounded longitudinally, in a single curve, on the opposite edge, a clamp, the bearings of one side adapted to engage said frame-supports on the side opposite said bars and the bearings of the other side thereof adapted to engage said longitudinally-rounded edge of said bars for the purpose of tipping and adjusting the saddle and means to operate said clamps and to tighten the same on the seat-post arm of said saddle, substantially as specified.

3. In a clip for bicycle-saddles, the combination of segmental bars having longitudinally-rounded edges and straight edges, the straight edges contacting the frame-supports of said saddle, a clamp consisting of a T and U shaped part, one extending through the other, with openings through the sides thereof for the seat-post arm of sufficient size to permit a movement of said parts at right angles to said arm, the U-shaped part adapted to engage the longitudinally-rounded edge of said bars and the seat-post arm and the T-shaped part adapted to engage said frame-supports on the side opposite said bars and a set-screw working through said T-shaped part against the seat-post arm to operate the clamp and to tighten it on the seat-post arm of the saddle, substantially as specified.

679,914. **SEWING-MACHINE.** HUBERT P. RICHARDS, New Britain, Conn., assignor to J. Evarts Tracy, Plainfield, N. J. Filed Sept. 12, 1898. Serial No. 690,730. (No model.)



Claim.—1. In a sewing-machine, the combination, with stitch-forming mechanism, of a thread-tensioning device, a stitch-changing device, and automatically-operative tension-varying means controlling said thread-tensioning device and coöperating with the stitch-changing device.

2. In a sewing-machine, the combination, with stitch-forming mechanism, of a thread-tensioning device; a stitch-changing device; and means controlled by the stitch-changing device for actuating the thread-tensioning device to decrease the tension upon the thread when the stitch-changing device is thrown into operative position and to increase said tension when the stitch-changing device is thrown to its inoperative position.

3. In a sewing-machine, the combination, with stitch-forming mechanism embodying a rotary looper, of a thread-tensioning device; a stitch-changing device working on the loops of the thread; and a tension-changing device operatively connected with said stitch-changing device.

4. In a sewing-machine, the combination, with stitch-forming mechanism including a rotary looper, of a thread-tensioning device; automatically-operative tension-modifying means controlling said thread-tensioning device and operative for actuating the latter during each rotation of the looper to vary the tension on the thread; a stitch-changing device; and a tension-changing device controlled by said stitch-changing device.

5. In a sewing-machine, the combination, with stitch-forming mechanism normally operative for making a stitch of one kind, of feed mechanism; a stitch-changing device independent of said feed mechanism and controlling the making of a stitch of another kind; a thread-tensioning device; and a tension-changing device controlling said thread-tensioning device and controlled by said stitch-changing device.

6. In a sewing-machine, the combination, with stitch-forming mechanism normally operative for making a stitch of one kind, of feed mechanism; a stitch-changing device independent of said feed mechanism and controlling the making of a stitch of another kind and shiftable into and out of operation; a thread-tensioning device; and a tension-changing device controlling said thread-tensioning device and controlled by said stitch-changing device.

7. In a sewing-machine, the combination, with stitch-forming mechanism normally operative for making a stitch of one kind and embodying a rotary looper, of feed mechanism; a stitch-changing device independent of said feed mechanism and controlling the making of a stitch of another kind and shiftable into and out of operative relation with the looper; a thread-tensioning device; and a tension-changing device controlling said thread-tensioning device and controlled by said stitch-changing device.

8. In a sewing-machine, the combination, with lock-stitch-forming mechanism, of a chain-stitch-forming device shiftable into and out of operation; a thread-tensioning device; and a tension-changing device controlling said thread-tensioning device and controlled by said chain-stitch-forming device.

9. In a sewing-machine, the combination, with stitch-forming mechanism normally operative for making a stitch of one kind and embodying a rotary looper having a plurality of loop-taking hooks, of a stitch-changing device controlling the making of a stitch of another kind and automatically shiftable into engagement with successive loops a plurality of times during each rotation of the looper; a thread-tensioning device; and a tension-changing device controlling said thread-tensioning device and controlled by said stitch-changing device.

10. In a sewing-machine, the combination, with stitch-forming mechanism, of a thread-tensioning device; a pair of tension-modifying devices; a shiftable stitch-changing device located for working on the loops of the thread; and means connecting said stitch-changing device with one of the tension-modifying devices.

11. In a sewing-machine, the combination, with stitch-forming mechanism, of a stitch-changing device; a thread-tensioning device; a tension-changing device; a separately-operative tension-varying device controlling the thread-tensioning device conjointly with said tension-changing device; and means for automatically operating said tension-varying device during the making of each stitch.

12. In a sewing-machine, the combination, with stitch-forming mechanism normally operative for making a stitch of one kind, of a stitch-changing device controlling the making of a stitch of another kind; a thread-tensioning device; a tension-changing device controlling said thread-tensioning device and controlled by said stitch-changing device; a separately-operative tension-varying device controlling the thread-tensioning device conjointly with said tension-changing device; and means for automatically operating said tension-varying device during the making of each stitch.

13. In a sewing-machine, the combination, with stitch-forming mechanism embodying reciprocatory needle mechanism and a rotary looper, of a tension device for the needle-thread; a shiftable stitch-changing device; and tension-changing means controlling said tension device and thrown into action when the stitch-changing device is shifted.

14. In a sewing-machine, the combination, with stitch-forming mechanism embodying reciprocatory needle-actuating mechanism and rotary looper-actuating mechanism, of a tension device for the needle-thread, a stitch-changing device; and automatically-operative tension-modifying means controlling said tension device, controlled by a part of the looper-actuating mechanism and coöperating with the stitch-changing device.

15. In a sewing-machine, the combination, with stitch-forming mechanism embodying needle-actuating mechanism and looper-actuating mechanism and normally operative for making a stitch of one kind, of a stitch-changing device controlling the making of a stitch of another kind; a tension device for the needle-thread; a tension-changing device controlling said tension device and controlled by said stitch-changing device; and a separately-operative tension-varying device controlling said tension device conjointly with said tension-changing device and operative by a part of the looper-actuating mechanism during the making of each stitch.

16. In a sewing-machine, the combination, with stitch-forming mechanism embodying a needle and a looper and normally operative for making a stitch of one kind, of a stitch-changing device controlling the making of a stitch of another kind and operative for deflecting each loop

and holding it in such deflected position until a succeeding loop has passed therethrough; a thread-tensioning device; and a tension-changing device controlling said thread-tensioning device and controlled by said stitch-changing device.

17. In a sewing-machine, the combination, with stitch-forming mechanism, of a tension device embodying a pair of tension-plates and a spring; a tension-changing device controlling said spring; a separately-operative tension-varying device controlling said spring conjointly with said tension-changing device; and means for operating said tension-varying device automatically during the making of each stitch.

18. In a sewing-machine, the combination, with needle mechanism and a looper, of change-stitch mechanism, feed mechanism; a tension device embodying a pair of tension-plates and a spring, and a tension-changing device independent of said feed mechanism controlling said tension device and controlled by the change-stitch mechanism and settable for different degrees of tension in accordance with the character of stitch being made.

19. In a sewing-machine, a tension device embodying a support, a pair of tension-plates, a tension-changing sleeve having a stop, a spring encircling said sleeve between the stop and one of the plates, and a tension-varying rod slidable in said sleeve and coöperative with the spring, in combination with stitch-forming mechanism, and separately-operative sleeve-actuating and rod-actuating devices at least one of which is controlled by said stitch-forming mechanism.

679,915. **SEAT.** CHARLES RUDOLF, Chicago, Ill. Filed Mar. 20, 1901. Serial No. 51,998. (No model.)



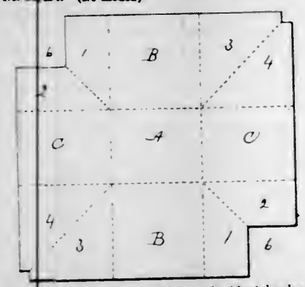
Claim.—A seat consisting of two cushions for the support respectively of the right and left buttocks of a person, each of said cushions provided with a base, flexible means connecting said cushions, whereby said cushions are brought into contiguous position, and clasping means whereby said cushions are held in compact contiguous position, substantially as described and for the purposes set forth.

679,916. **BRIDGE-BEARING FOR PIANOS.** FRIDOLIN SCHIMMEL, Faribault, Minn. Filed Oct. 29, 1900. Serial No. 34,703. (No model.)



Claim.—A bridge-bearing comprising the base *a* with parallel end flanges or agraffes *b*, and side web *c* having at its intermediate portion the overlying bearing-lug or agraffe *d* that projects parallel to said agraffes *b*, whereby the strings may be applied to said bridge-bearing by lateral movements in a common direction, substantially as described.

679,917. **PAPER BOX.** THEODORE SCHMIDT, Dayton, Ohio, assignor of one-half to Simon Dancyger, same place. Filed Dec. 3, 1900. Serial No. 38,451. (No model.)



Claim.—1. The paper box comprising the blank having a quadrangular bottom, side and end sections for the body, the corner folds provided with an angular notch adapted to receive when folded the upper ends of the opposite corner folds as fixed against said side sections above the line of the intersection of said corner folds at the longitudinal center of the box, substantially as shown and described.

2. The paper box comprising the blank having a quadrangular bottom, side and end sections for the body, the corner folds provided with an angular notch and adapted t receive when folded the upper ends of the opposite corner folds as fixed against said side sections above the line of the intersection of said corner folds, and the other corners slightly notched to relieve the bulkiness, substantially as shown and described.

679,918. **SHIELD FOR WOUNDS.** EDWARD C. SHEARS, Lakota, N. D., assignor, by direct and mesne assignments, to Splint-Gate Bandage Company, same place. Filed Aug. 17, 1900. Serial No. 27,168. (No model.)



Claim.—1. A shield for wounds, comprising two skeleton frames hinged together and constructed to fit around and over a wound when closed one upon the other, said shield having a foraminous covering and provided with apertured projections through which a flexible securing-strip is adapted to be passed, substantially as herein shown and described.

2. A shield for wounds, comprising a rigid frame having an opening therein and adapted to be placed over a wound or an opening in the dressing therefor, said frame being provided with means whereby it may be secured in position, a second rigid frame hinged to the first frame and having an opening covered with reticulated material, and means for locking the frames together, substantially as described.

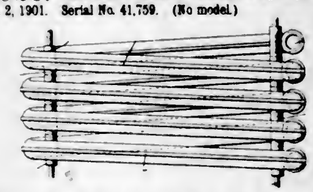
3. A shield for wounds, comprising two ring-like hinged frames having means for locking them together, one of the frames being provided with slotted peripheral projections and the other with a reticulating covering, substantially as described.

679,919. **ROLLING-MILL.** ROBERT H. SNYDER, Worcester, Mass. Filed Jan. 21, 1901. Serial No. 44,068. (No model.)



Claim.—In a rolling-mill, the combination with the stationary, horizontal, longitudinal side plate over the carrying-rolls, of a series of projections or lugs arranged in a horizontal line upon the inner, vertical face of said side plate, for holding the outer, upper corner of the ingot in turning it by means of the usual manipulators, substantially as set forth.

679,920. **RADIATOR.** ADOLPH STADEL, Jersey City, N. J. Filed Jan. 2, 1901. Serial No. 41,759. (No model.)

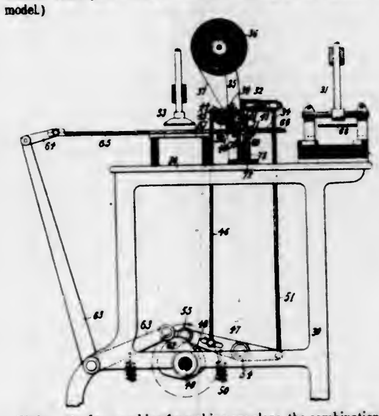


Claim.—1. A radiator consisting of a plurality of loops or coils arranged horizontally, said loops or coils being each divided at one end and one side thereof being raised, and the other depressed, the depressed side of one loop or coil being connected with the raised side of the loop or coil thereunder, substantially as shown and described.

2. A radiator consisting of a plurality of loops or coils arranged horizontally, said loops or coils being each divided at one end, and one side thereof being raised, and the other depressed, the depressed side of one loop or coil being connected with the raised side of the loop or coil thereunder, the raised side of the top coil or loop and the depressed side of the bottom coil or loop being adapted to serve as attachments for supply, and drain or exhaust pipes, substantially as described.

3. A radiator comprising a plurality of oblong loops or coils divided at one end and arranged horizontally, one side of each of said loops or coils being raised at the divided end and the other side depressed, and the depressed side of one of said loops or coils being connected with the raised side of the loop or coil thereunder, and the raised side of the top loop or coil and the depressed side of the bottom loop or coil being adapted to serve respectively as inlet and discharge ports or openings, said loops or coils being also provided at their opposite ends with devices whereby they are held in proper relative position, and separated, substantially as shown and described.

679,921. **MACHINE FOR MANUFACTURING ENVELOPS.** WALTER S. TINNIN, Brooklyn, N. Y., assignor of one-half to James T. Russell, same place. Filed June 1, 1900. Serial No. 18,705. (No model.)



Claim.—1. In a machine for making envelops, the combination with a support for an envelop-blank, of mechanism for cutting a strip from a sheet of fabric along a line parallel with the line in which one of the folding-lines of the blank lies when on the support, means for applying a stripe of gum to one of the surfaces which are to be contiguous when the envelop-blank and the strip of fabric are pressed together, mechanism for pressing said strip and envelop-blank together while maintaining an edge of said strip parallel to said folding-line, and mechanism for folding said blank at said folding-line and over said strip.

2. In a machine for making envelops, the combination with means for applying a stripe of gum to an envelop-blank along one of its folding-lines, of mechanism for cutting a strip from a sheet of fabric along a line parallel with the said folding-line of the blank, mechanism for pressing said strip of fabric upon a portion of the blank to which gum has been applied while maintaining an edge of said strip at the said folding-line, and mechanism for folding the blank along said folding-line and over the edge of said strip and against its face.

3. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along one o. its folding-lines, of mechanism for feeding out a sheet of fabric, a knife for cutting a strip from said sheet, a conveyer for placing an edge of said stripe underneath the cutting edge of the knife said cutting edge occupying a line parallel with said folding-line, and mechanism for folding the blank at said folding-line and along the edge of said strip and against its face.

4. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along one of its folding-lines, of mechanism for feeding out a sheet of fabric, a knife for cutting a strip from said sheet, a conveyer for placing an edge of said stripe underneath the cutting edge of the knife in a line parallel with said folding-line, a presser for applying said strip to said stripe, parallel to said folding-line, and mechanism for folding the blank at said folding-line and at the edge of said strip.

5. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along one of its folding-lines, of a knife for cutting a strip from a sheet of fabric, a conveyer for placing an edge of said stripe underneath the cutting edge of the knife, the edge of the knife being in a line parallel with said folding-line, a presser attached to and moving with the knife for applying said strip to said stripe, and mechanism for folding the blank along said folding-line at the edge of said strip and against its face.

6. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along one of its folding-lines, of mechanism for feeding out a sheet of fabric, a knife for cutting a stripe from said sheet at right angles to the direction of the feed and parallel with said folding-line, a presser, a conveyer for placing the edge of said stripe underneath the edges of said knife and of said presser, and mechanism for folding said blank at said folding-line at the edge of said strip and against its face.

7. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along one of its folding-lines, of a knife having its cutting edge parallel with said folding-line, a presser placed parallel with said knife, a conveyer for bringing said stripe underneath said presser and for bringing one of the edges of the stripe parallel with and substantially underneath the cutting edge of the knife, and mechanism for folding said blank at said folding-line and at the edge of the strip and against its face.

8. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along one of its folding-lines, of a pair of guide-cheeks for the fabric, means for conducting the fabric between said cheeks, a knife for cutting off a strip of fabric along a line parallel with said folding-line, a presser for applying said strip to said stripe adjacent to said folding-line, the knife being placed between said cheeks and said presser and mechanism for folding said blank against the face of the strip.

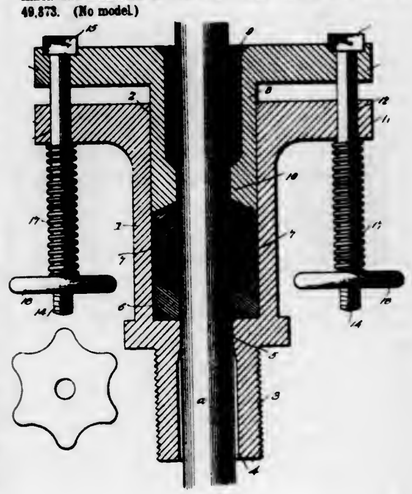
9. In a machine for making envelops, the combination with means for applying a stripe of gum to the blank of an envelop along both sides of one of its folding-lines, of means for feeding out fabric, a knife for cutting said fabric, a presser for applying a strip of fabric so cut to said stripe along one side of said folding-line, and means for folding the portion of the blank on the other side of said folding-line which contains a portion of said stripe, against said strip.

10. In a machine for making envelops, the combination with a knife-blade, of a presser, and means for adjustably attaching said knife to said presser, a narrow space being left between the portion of the knife-blade having the cutting edge and the side of the presser to which it is attached.

11. In a machine for making envelops, the combination with a picker, of means for attaching a strip of fabric to a blank, a conveyer adapted to slide between said appliances, a suitable aperture being provided in said conveyer, and a spring-actuated stopping device adapted to operate through said aperture and hold the blank opposite said strip-attaching means.

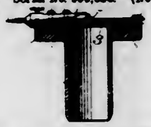
12. In a machine for making envelops, the combination with a picker, of means for attaching a strip of fabric to a blank, a conveyer adapted to slide between said appliances, a suitable aperture being provided in said conveyer, a spring underneath the conveyer, and a stop in the form of a head having a slanting surface mounted upon said spring, said stop being adapted to hold said blank in position to permit a strip of fabric to be attached adjacent to one of the folding-lines and adapted to be depressed by the conveyer while it slides over said head.

679,922. **STUFFING-BOX.** RICHARD TITUS and DOE C. COVERT, Bowling Green, Ohio, assignors of three-fourths to Stephen Floyd Aiken and Alexander C. McDonald. Filed Mar. 5, 1901. Serial No. 49,873. (No model.)



Claim.—A stuffing-box for the polish-rod of an oil-well, having an extension at its lower end to couple said stuffing-box to an oil-well tubing, the bore of said extension being of greater diameter than the polish-rod and being contracted at its upper end to engage the polish-rod, said stuffing-box having guide-lugs projecting therefrom, a removable bushing in said stuffing-box, a follower movable in said stuffing-box, having a bore of greater diameter than the polish-rod and contracted at its lower end to engage the polish-rod, said gland being further provided with lugs projecting therefrom, adjusting-bolts attached to the lugs of the gland and guided by the guide-lugs of the stuffing-box, compression-springs on said bolts, bearing under the lugs of the stuffing-box, and adjusting-nuts on said bolts, engaging the lower ends of said springs and adapted to vary the tension thereof, for the purpose set forth, substantially as described.

679,923. **SOUND-REPRODUCER.** LOUIS P. VALIQUET, New York, N. Y., assignor to the Universal Talking Machine Company, same place. Filed Dec. 19, 1898. Serial No. 699,636. (No model.)

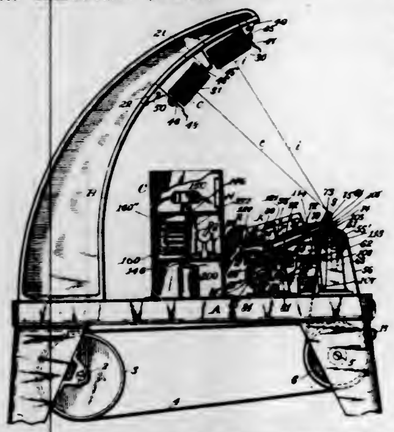


Claim.—1. In a sound-reproducer the combination of the sound-box, the diaphragm therein, the retaining-ring therefor which has a spring extension formed integral therewith, and the reproducing-stylus mounted on said spring extension, and phonetically connected to the diaphragm, substantially as described.

2. In a sound-reproducer the combination of the sound-box, the diaphragm therein, the retaining-ring therefor which has a spring extension, said retaining-ring being partly cut away at the base of the spring extension, and the reproducing-stylus mounted on said spring extension, and phonetically connected to the diaphragm, substantially as described.

3. In a sound-reproducer the combination of the sound-box, the diaphragm therein, the retaining-ring therefor, the stylus-carrier mounted on an integral projection of said ring, and having one end bearing on the diaphragm, and the stylus mounted in said carrier, substantially as described.

679,924. **ELECTRICAL CONTROLLING MEANS FOR WINDING-MACHINES.** RICHARD VARLEY, Jr., Jersey City, N. J. Filed Sept. 20, 1900. Serial No. 30,569. (No model.)



Claim.—1. The combination, in an electrical system, with an electric circuit including a meter, of means for automatically varying the electrical quantity measured by said meter, and an electrically-controlled device governed by such variation and operative at a predetermined point for automatically controlling an element of the system.

2. The combination, with an electric circuit including a meter, of means for varying the electrical quantity measured by said meter, and an electrically-controlled device governed by such variation and operative at a predetermined point and also controlling such variation.

3. The combination, with an electric circuit including a meter, of means for varying the electrical quantity measured by said meter, and an electrically-controlled device governed by such variation and also operative for automatically stopping such variation at a predetermined point.

4. The combination, with an electric circuit having a variable resistance therein, of means for varying said resistance, and a device controlled by the resistance of said circuit for automatically stopping such variation at a predetermined point.

5. The combination, with an electric circuit having a variable resistance therein and also including a galvanometer for determining said variable resistance, of means for varying said resistance, and a device controlled by said galvanometer for stopping such variation at a predetermined point.

6. The combination, with an electric circuit having a variable resistance therein and also including an electric bridge having in the bridge-circuit a galvanometer for determining said variable resistance, of means for varying said variable resistance, and a device controlled by said galvanometer and automatically operative for stopping such variation at a predetermined point.

7. The combination, with an electric circuit having a variable resistance therein and also including an electric bridge having in the bridge-circuit a galvanometer for determining said variable resistance, of means for varying said variable resistance, and a device controlled by said galvanometer and automatically operative for stopping said variation on the balancing of the resistances of the bridge-circuit.

8. The combination, with an electric circuit having a variable resistance therein, of means for progressively increasing said resistance to a predetermined maximum amount, and a device controlled by such maximum resistance for automatically stopping such variation.

9. The combination, with an electric circuit having a variable resistance therein and including an electric bridge having in the bridge-circuit a galvanometer for determining said variable resistance, of means for progressively increasing said variable resistance until the resistances of the bridge-circuit are balanced, and a device controlled by said galvanometer and automatically operative for stopping such variation on the balancing of said resistances.

10. The combination, in an electrical system, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means, and an electrically-controlled device responsive to a predetermined resistance in said circuit and operative for automatically controlling an element of such system when such predetermined resistance is reached.

11. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means, and an electrically-controlled stop device responsive to a predetermined resistance in said circuit.

12. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means, and a stop device governed by the resistance of such coils and operative for stopping the operation of the wire-coiling means at a predetermined point.

13. The combination, with wire-coiling means, of an electric circuit including an electric bridge having in the bridge-circuit the coils wound by such wire-coiling means, and a translating device responsive to a predetermined resistance in the bridge-circuit.

14. The combination, with wire-coiling means, of an electric circuit including an electric bridge having in the bridge-circuit the coils wound by said wire-coiling means, and a stop device governed by the balancing of the resistances of the bridge-circuit and operative for stopping the operation of the wire-coiling means.

15. The combination, with wire-coiling and coil-insulating means, of an electric circuit including the coils wound by said wire-coiling means, and a stop device governed by the resistance of such coils and operative for stopping the operation of the wire-coiling means at a predetermined point.

16. The combination, with mechanism for winding a bare wire and an insulating-thread side by side in parallel coils, of an electric circuit including the wire coils wound by said mechanism, and a stop device governed by the resistance of such wire coils and operative for stopping the operation of the coiling mechanism at a predetermined point.

17. The combination, with mechanism for winding a bare wire and an insulating-thread side by side in parallel coils and with sheet-delivering mechanism for wrapping a sheet of insulating material around each layer of coils, of an electric circuit including the wire coils wound by said mechanism, and a stop device governed by the resistance of such wire coils and operative for stopping the operation of the coiling mechanism at a predetermined point.

18. The combination, with mechanism for winding a bare wire and an insulating-thread side by side in parallel coils, said mechanism embodying a reciprocatory wire and thread guide, of an electric circuit including the wire coils wound by said mechanism, and a stop device governed by the resistance of such wire coils and operative for stopping the operation of the coiling mechanism at a predetermined point.

19. The combination, with mechanism for winding a bare wire and an insulating-thread side by side in parallel coils, said mechanism embodying a reciprocatory wire and thread guide, of web feeding and cutting sheet-delivering mechanism for feeding a web of insulating material, cutting it into sheets, and wrapping said sheets around the layers of coils; an electric circuit including the wire coils wound by such coiling mechanism; and a stop device governed by the resistance of such wire coils and operative for stopping the operation of the coiling mechanism at a predetermined point.

20. The combination, with wire-coiling means, of guiding and traversing means; web feeding and cutting sheet-delivering mechanism having different feeds for feeding a web of insulating material different distances, cutting it into sheets of different lengths, and wrapping said sheets around the layers of coils; an electric circuit including the coils wound by said wire-coiling means; and a translating device responsive to a predetermined resistance of said circuit.

21. The combination, with wire-coiling means, of guiding and traversing means; web feeding and cutting sheet-delivering mechanism having progressively-increasing feeds for feeding a web of insulating material progressively-increasing distances, cutting it into sheets of progressively-increasing lengths and wrapping said sheets around the layers of coils; an electric circuit including the coils wound by said wire-coiling means; and a stop device governed by the resistance of such wire coils and operative at a predetermined point.

22. The combination, with a main circuit having a variable resistance therein, of means for varying said resistance; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of the main circuit for producing a disruptive discharge between said terminals at a predetermined point; and a device controlled by the closing of the local circuit for automatically stopping the variation of the resistance of said main circuit.

23. The combination, with wire-coiling means, of a main circuit including the coils wound by said wire-coiling means; a local circuit having a pair of terminals separated by a spark-gap; and means controlled by the resistance of said coils for producing a disruptive discharge between said terminals at a predetermined point.

24. The combination, with wire-coiling means, of a main circuit including the coils wound by said wire-coiling means; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of said coils for producing a disruptive discharge between said terminals at a predetermined point; and a translating device in said local circuit.

25. The combination, with wire-coiling means, of a main circuit including the coils wound by said wire-coiling means; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of said coils for producing a disruptive discharge between said terminals at a predetermined point; and a stop device controlled by the closing of the local circuit for automatically stopping the operation of the wire-coiling means.

26. The combination, with a plurality of electric circuits each having a variable resistance therein, of means for varying the resistance of each of said circuits, and an automatic stop device governed automatically and selectively by each of said circuits and operative for automatically stopping such variation when the resistance of any circuit reaches a predetermined point.

27. The combination, with multiple wire-coiling means, of a plurality of electric circuits each including one set of coils wound by such wire-coiling means, and an automatic stop device governed by each of said circuits and operative for stopping the operation of said wire-coiling means when the resistance of any circuit reaches a predetermined point.

28. The combination, with multiple insulated-wire-supplying means, of multiple insulated-wire-guiding means; multiple wire-coiling means; a plurality of electric circuits each including one of the wire-guides and one set of coils wound by said wire-coiling means; and an automatic stop device governed by each of said circuits and operative for stopping the operation of said wire-coiling means when the resistance of any circuit reaches a predetermined point.

29. The combination, with multiple insulated-wire-supplying means, of multiple wire-guiding means embodying a plurality of insulated guide-rolls; multiple wire-coiling means; a plurality of electric circuits each including one of the guide-rolls and one set of coils wound by said wire-coiling means; and an automatic stop device governed by each of said circuits and operative for stopping the operation of said wire-coiling means when the resistance of any circuit reaches a predetermined point.

30. The combination, with multiple insulated-wire-supplying means, of multiple insulated-wire guiding and traversing means; multiple wire-coiling means; a plurality of electric circuits each including one of the wire-guides and one set of coils wound by said wire-coiling means; and an automatic stop device governed by each of said circuits and operative for stopping the operation of said wire-coiling means when the resistance of any circuit reaches a predetermined point.

31. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means, and an annunciator controlled by said circuit and responsive to a predetermined resistance therein.

32. The combination, with wire-coiling means, of an electric circuit including the coils woond by such wire-coiling means, and an annunciator and a stop device both controlled by said circuit and responsive to a predetermined resistance therein and the latter operative for stopping the operation of said wire-coiling means.

33. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means; an annunciator controlled by said circuit and responsive to a predetermined resistance therein; and a translating device controlled by said annunciator.

34. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means; an annunciator controlled by said circuit and responsive to a predetermined resistance therein; and a stop device controlled by said annunciator and operative for stopping the operation of said wire-coiling means.

35. The combination, with multiple wire-coiling means, of a plurality of electric circuits each including one set of coils wound by such wire-coiling means, and a plurality of annunciators controlled respectively by said circuits and each responsive to a predetermined resistance in its respective circuit.

36. The combination with multiple wire-coiling means, of a plurality of electric circuits each including one set of coils wound by such wire-coiling means; a plurality of annunciators controlled respectively by said circuits and each responsive to a predetermined resistance in its respective circuit; and a translating device controlled by, and common to, all of said annunciators.

37. The combination, with an electric circuit, of a plurality of variable resistances connected in parallel in said circuit; means for varying each of said resistances; and an automatic stop device governed by each of said variable resistances and operative for automatically stopping such variation when any resistance reaches a predetermined point.

38. The combination, with a plurality of controlling-circuits each having a variable resistance therein, of means for varying the resistance of each of said circuits; a local circuit including a plurality of parallel branches each having a normally open break; a plurality of circuit-controllers governed respectively by said controlling-circuits and controlling said breaks respectively, and each operative for closing its respective break when the resistance of its controlling-circuit reaches a predetermined point; and a stop device controlled by said local circuit and operative for stopping the variation of the resistance of its controlling-circuit.

39. The combination, with a plurality of controlling-circuits each having a variable resistance therein, of means for varying the resistance of each of said circuits; a normally open local circuit; a plurality of parallel-connected pairs of circuit-terminals in said local circuit, the terminals of each pair being separated by a spark-gap; a plurality of circuit-controllers associated respectively with said sets of local-circuit terminals and governed respectively by said controlling-circuits and each operative for producing a disruptive discharge between its associated local-circuit terminals when the resistance of its controlling-circuit reaches a predetermined point; and a stop device controlled by said local circuit and operative for stopping the variation of the resistance of its controlling-circuit.

40. The combination, with a plurality of controlling-circuits each having a variable resistance therein, of means for varying the resistance of each of said circuits; a local circuit including a plurality of parallel branches each having a normally open break; indicators in said branch circuits; a plurality of circuit-controllers governed respectively by said controlling-circuits and controlling said breaks respectively and each operative for closing its respective break when the resistance of its controlling-circuit reaches a predetermined point; and a stop device controlled by said local circuit and operative for stopping the variation of the resistance of its controlling-circuit.

41. The combination, with a plurality of controlling-circuits each having a variable resistance therein, of means for varying the resistance of each of said circuits; a local circuit including a plurality of parallel branches each having a normally open break; a plurality of circuit-controllers governed respectively by said controlling-circuits and controlling said breaks respectively and each operative for closing its respective break when the resistance of its controlling-circuit reaches a predetermined point; a second local circuit controlled by said branch circuits; and a stop device controlled by said second local circuit and operative for stopping the variation of the resistance of such controlling-circuit.

42. The combination, with a plurality of controlling-circuits each having a variable resistance therein, of means for varying the resistance of each of said circuits; a local circuit including a plurality of parallel branches each having a normally open break; a plurality of circuit-controllers governed respectively by said controlling-circuits and controlling said breaks respectively and each operative for closing its respective break when the resistance of its control-

ling-circuit reaches a predetermined point; a second local circuit controlled by said indicators; and a stop device controlled by said second local circuit and operative for stopping the variation of the resistance of such controlling-circuit.

43. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means; a brake for said wire-coiling means; and a brake-operating device governed by the resistance of such wire coils and operative when said resistance reaches a predetermined point.

44. The combination, with a driving member, of wire-coiling means normally coupled to said driving member; an electric circuit including the coils wound by such wire-coiling means; and an uncoupling device controlling said wire-coiling means and governed by the resistance of such wire coils and operative when such resistance reaches a predetermined point.

45. The combination, with a driving member, of wire-coiling means normally coupled to said driving member; an electric circuit including the coils wound by such wire-coiling means; and a combined uncoupling device and brake controlling said wire-coiling means and governed by the resistance of such wire coils and operative when such resistance reaches a predetermined point.

46. The combination, with wire-coiling means, of a controlling-circuit including the coils wound by such wire-coiling means; a local circuit; a local-circuit controller governed by said controlling-circuit and effective when the resistance of the controlling-circuit reaches a predetermined point; and a device controlled by said local circuit for stopping the operation of the wire-coiling means.

47. The combination, with a main circuit having a variable resistance therein, of means for varying said resistance; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of the main circuit for producing a disruptive discharge between said terminals at a predetermined point; a line-circuit; a transformer, the primary winding of which is included in said line-circuit and the secondary of which is included in said local circuit; and a device controlled by the opening of the local circuit for stopping the variation of the resistance of said main circuit.

48. The combination, with wire-coiling means, of a controlling-circuit including the coils wound by such wire-coiling means; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of the main circuit for producing a disruptive discharge between said terminals at a predetermined point; a line-circuit; a transformer, the primary winding of which is included in said line-circuit, and the secondary of which is included in said local circuit; and a translating device controlled by said local circuit.

49. The combination, with wire-coiling means, of a controlling-circuit including an electric bridge having in the bridge-circuit the coils wound by such wire-coiling means; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of the bridge-circuit for producing a disruptive discharge between said terminals at a predetermined point; and a translating device controlled by said local circuit.

50. The combination, with wire-coiling means, of a controlling-circuit including an electric bridge having in the bridge-circuit the coils wound by such wire-coiling means; a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of the bridge-circuit for producing a disruptive discharge between said terminals at a predetermined point; a line-circuit; a transformer, the primary winding of which is included in said line-circuit, and the secondary of which is included in said local circuit; and a translating device controlled by said local circuit.

51. The combination, with an electric circuit having therein a variable resistance and a rolling contact in traveling engagement with each other, of a translating device responsive to a predetermined resistance in said circuit.

52. The combination, with a main circuit having therein a variable resistance and a rolling contact in traveling engagement with each other, of a local circuit having a pair of terminals separated by a spark-gap; means controlled by the resistance of the main circuit for producing a disruptive discharge between said terminals at a predetermined point; and a translating device controlled by said local circuit.

53. The combination, with wire-coiling means, of an electric circuit including therein the wire wound by such wire-coiling means, and also a rolling contact in engagement with such wire, and a translating device responsive to a predetermined resistance in said circuit.

54. The combination, with wire-coiling means, of an electric circuit including therein the wire wound by such wire-coiling means, and also a contact in traveling engagement with each other, and a translating device responsive to a predetermined resistance between said contact and the opposite end of such wire coils.

55. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means, and also including a galvanometer for determining the resistance of such coils; and a short circuit for said galvanometer.

56. The combination, with wire-coiling means, of an electric circuit including the coils wound by such wire-coiling means, and also including an electric bridge having in the bridge-circuit a galvanometer for determining the resistance of such coils; and a short circuit for said galvanometer.

679,925. **ARTIFICIAL EAR-DRUM.** LAURA H. VICKERS, West Philadelphia, Pa., assignor to the Morley Pharmaceutical Company, Wilmington, Del., and Philadelphia, Pa. Filed Dec. 15, 1900. Serial No. 39,971. (No model.)



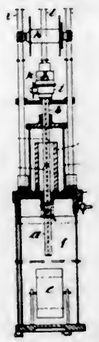
Claim.—1. An artificial ear-drum, consisting of a membrane formed substantially cup-shaped, the body portion of which is adapted to rest substantially parallel to the ear-drum proper, and the rim of the body portion fluted or corrugated to form in said rim a series of air passage-ways, substantially as and for the purposes described.

2. An artificial ear-drum, consisting of a membrane having a body portion adapted to occupy a position in the ear substantially parallel to the ear-drum proper thereof, and the rim of the body portion fluted or corrugated to form in said rim a series of air passage-ways, substantially as and for the purposes described.

3. An artificial ear-drum, consisting of a membrane formed substantially cup-shaped, the body portion of which is adapted to rest substantially parallel to the ear-drum, the rim of the body portion being fluted or corrugated to form a series of air passage-ways and a thread or cord connected with said membrane, substantially as and for the purposes described.

4. An artificial ear-drum, consisting of a membrane having a body portion with a fluted or corrugated rim to form a series of air passage-ways, a thread or cord connected with said membrane, and a tube adapted to surround said thread or cord and to engage said membrane during the inserting and locating of said membrane in the ear, substantially as and for the purposes described.

679,926. **MANUFACTURE OF FILAMENTS FOR INCANDESCING ELECTRIC LAMPS.** WILLIAM L. VOELKER, London, England, assignor to Theron Clark Crawford, Arrochar Park, borough of Richmond, New York, N. Y. Original application filed July 30, 1900, Serial No. 25,337. Divided and this application filed Nov. 19, 1900. Serial No. 37,091. (No model.)



Claim.—The herein-described method of producing carbid filaments for electric incandescing lamps, consisting in passing a carbon filament through an electric arc, the atmosphere being displaced by hydrogen or like gas or by vapor of the metal or metals intended to form the metallic base of the carbid, and passing the filament, thus converted into graphite, through an electric arc while surrounded by a cylinder or like envelop composed of the aforesaid metallic base and inclosed within a vessel charged with vapor of the metal or metals constituting the metallic base of the carbid to be produced, substantially as set forth.

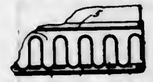
679,927. **METHOD OF MAKING SCREWS.** WILLIAM A. WARMAN, Rochester, N. Y., assignor of one-half to MAX H. Fischer, New York, N. Y. Filed Apr. 4, 1900. Serial No. 11,528. (No model.)

Claim.—1. The method of making screws consisting in drawing a flat blank of sheet metal into a cylindrical shell or capsule with a closed lower end, then simultaneously reducing the exterior diameter and giving the interior a polygonal form in cross-section and finally threading the exterior of the screw, substantially as described.



2. The method of making screws, consisting in drawing a flat blank of sheet metal into a cylindrical shell or capsule with a closed lower end, then simultaneously reducing the exterior diameter, shaping the lower end and giving the interior a polygonal form in cross-section and finally threading the exterior of the screw substantially as described.

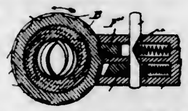
679,928. **TEA-KETTLE ATTACHMENT.** CHARLES E. WARREN, Los Angeles, Cal. Filed Oct. 26, 1900. Serial No. 34,483. (No model.)



Claim.—1. As a new article of manufacture, an attachment for vessels consisting of a peripheral plate adapted to receive within its upper edge the lower end of the vessel and to support said vessel, and having its lower end curled into a supporting-bead, and a corrugated heating-plate having upwardly-opening grooves for receiving liquid and downwardly-opening grooves for retaining heat, the corrugations extending across and having their ends closed by said peripheral plate the liquid-containing grooves communicating with a free space extending above all of them.

2. In a tea-kettle the combination of a body having a flat perforated bottom, a peripheral plate or flange receiving the bottom of the tea-kettle within its upper edge and supporting said tea-kettle, and a corrugated auxiliary bottom secured at the sides and ends of the corrugations to said peripheral flange or plate, having the ends of the corrugations closed by said flange or plate and upwardly-opening grooves of the corrugated bottom communicating with a free space extending above all of them and adapted to hold water and the downwardly-opening grooves adapted to receive and retain heat; substantially as herein set forth.

679,929. **RATCHET-WRENCH.** EDWARD C. WEBSTER, East Shoreham, Vt. Filed Aug. 24, 1900. Serial No. 27,877. (No model.)

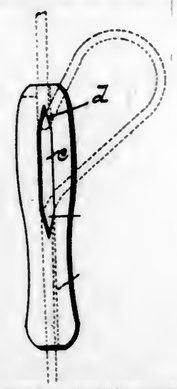


Claim.—1. A ratchet and chuck consisting of a cylindrical head, ratchet-teeth formed around the periphery thereof, a strap embracing the head so as to permit the latter to revolve, a handle to which the strap is secured, two spring-actuated pawls fitted within suitable recesses in the handle, a shifting pin having a notch therein adapted to throw one or both of the pawls into or out of engagement, two jaws fitted in the head to slide diametrically across said head, a barrel secured within the head so as to revolve upon its axis, threads formed upon the lower face of the barrel, and screw-threads formed upon the upper faces of the jaws, said threads engaging each other, as and for the purpose set forth.

2. In combination, a cylindrical head, ratchet-teeth formed around said head, a strap embracing the head while permitting it to revolve, a handle having recesses therein to which said strap is secured, the inner end of said handle completing the circle of the strap, two pawls fitted in the recesses of the handle, springs arranged back of the pawls so as to give them an outward tendency, a shifting pin having a V-shaped notch therein, said pin being adapted to slide crosswise through the handle and the pawls, whereby either of the pawls may be thrown into action or one or both thereof thrown out of action, as specified.

3. In combination with a ratchet-head of a device of the character described, two jaws fitted to slide within the head, threads formed upon the upper faces of the jaws, a barrel adapted to revolve within the head, threads formed upon the lower face of the barrel and engaging with the first-named threads, whereby the revolving of the barrel will open or close the jaws, a pin secured in the ratchet-head, said pin adapted to lie within an annular groove formed around the periphery of the barrel for the purpose of allowing the barrel to revolve, and at the same time preventing any longitudinal movement of the same, a projection formed in the groove and adapted to abut against the pin for the purpose of limiting the movement of the barrel in either direction, as and for the purpose specified.

679,930. **CORD-ADJUSTER FOR ELECTRIC LAMPS.** GEORGE WEBSTER, Christiana, Pa. Filed Jan. 17, 1901. Serial No. 43,612. (No model.)



Claim.—A cord-adjuster for electric lamps comprising a handle provided with a central passage and a lateral slot having outwardly-inclined V-shaped ends, the narrow portion being inclined, whereby a tight grip is given to the cord when drawn out of the slot, substantially as described.

679,931. **NON-REFILLABLE BOTTLE.** FRANK J. ARATH, New York, N. Y., assignor of one-half to Nicholas John Gartelman, same place. Filed Feb. 13, 1901. Serial No. 47,097. (No model.)



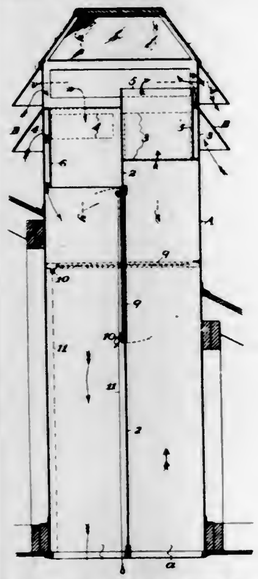
Claim.—1. An improved non-refillable bottle, comprising a body portion and a neck portion, a valve device arranged with respect to the orifice of the neck portion, and a hood or cage inclosing and extending above the orifice of the neck portion and provided with a plurality of pouring-openings arranged in a series in a transverse plane, said pouring-openings extending angularly through said hood or cage with respect to radii of the same whereby the introduction of a tool or implement through the same into engagement with said valve device is prevented.

2. An improved non-refillable bottle, comprising a body portion and a neck portion, a valve device arranged with respect to the neck portion, a hood or cage inclosing and extending above the orifice of the neck portion, and means for locking the valve device in seated position, said valve device comprising a valve-disk which constitutes the valve proper and a depending lug and hollow nipple arranged respectively below and above said valve-disk, and said means for locking said valve device in seated position consisting of an adjustable pin which is arranged to project within said hollow nipple.

3. An improved non-refillable bottle, comprising a body portion and a neck portion, a valve device arranged with respect to the orifice of the neck portion, a hood or cage inclosing and extending above the orifice of the neck portion, means for locking the valve device in seated position, and means for permanently securing the hood or cage in position, the hood or cage being provided with a plurality of pouring-openings arranged in a continuous series in a transverse plane at the base of said hood or cage and in proximity to the plane of the valve device, said pouring-openings being arranged alternately in parallel relation, and the adjacent pouring-openings extending relatively angularly.

679,932. **VENTILATOR.** PETER ABRAHAMSON, San Francisco, Cal. Filed Oct. 9, 1900. Serial No. 32,487. (No model.)

Claim.—1. A ventilator consisting of an air-shaft divided by a vertical partition into separate open-ended passages for the ingress and egress of air, said shaft having openings in the exterior walls and near the outer end of each of these passages, and means forming channels in the shaft cut off from one portion of each passage and in open communication with another portion of the same passage whereby the outer air is deflected downwardly in the ingress-passage and upwardly about the egress-passage to cause an outdraft in the latter.



2. A ventilator consisting of an air-shaft divided by a vertical partition into ingress and egress air-passages, openings in the exterior walls near the upper end of each of these passages, an inner wall within each of these passages and opposite the aforesaid openings to form annular channels, the channel around the ingress-passage being closed at the top and open at the bottom, and the channel around the egress-passage, closed at the bottom and open at the top, and means directing air-currents into said channels.

3. The combination in a ventilator of vertical contiguous flues with openings around the top to the exterior air, trunks or casings of smaller diameters fixed within the flues opposite to the openings and forming channels between the outer and inner walls, one of said channels being closed around the bottom, and extending above its external openings, and the other closed at the top and extending below its external openings, and a hood by which air-currents are directed into the openings and channels.

4. The combination in a ventilator of vertical contiguous flues, with openings around the top to the exterior air, trunks or casings of smaller diameter fixed within the flues opposite to the openings and forming channels between the outer and inner walls, one of which channels is closed at the bottom, and the other at the top whereby exterior air-currents are directed through the openings and into the channels to produce upward and downward currents in the respective flues, and a gate or damper pivoted in the plane of the separating-partition, and turnable to stand in the plane of the partition or transversely to close both flues.

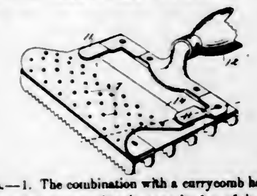
5. A ventilator consisting of an air-shaft having a hood or covering, a vertical partition dividing said shaft into an air-ingress flue, and an air-egress flue, openings in the exterior walls and near the upper ends of the flues, inner casings or trunks opposite these openings forming annular channels within the flues, one of which is closed below and the other above the openings, a second hood located below the first-named hood with intervening spaces connecting the flues with the outer air, said second hood fitting closely around the top of the flue or air-shaft.

6. The combination in a ventilator of vertical flues connecting the space to be ventilated with the open air and having a separating-partition common to both, openings around the upper ends of the flues to the outer air, and means directing air-currents into said openings, trunks or casings of smaller diameter fixed in the flues opposite the openings and forming annular channels, one of which is closed at the bottom and the other at the top whereby opposite currents are produced within the flues, a gate or damper pivoted in the plane of the intermediate partition and turnable to form a continuation thereof, or to close both flues, said gate being made transparent, and a transparent closed hood or roof above the flues whereby the latter act also as light-wells.

7. A ventilator including an air-shaft divided by a vertical partition into ingress and egress air-passages, with openings to the exterior air, trunks or casings of smaller diameters fixed within the flues opposite to the said openings and forming channels, cut off from one portion of each passage and in open communication with another portion of the same passage, means for admitting light from above and means for controlling the air-currents without cutting off the light.

8. A ventilator consisting of vertical contiguous flues, horizontal openings into the upper ends of said flues, trunks fixed within the flues opposite the openings and forming annular channels with which the openings connect, one of said channels being closed at the bottom, and extending above the upper edges of the openings, and the other closed at the top and extending below the lower edges of its openings and means directing air-currents into said channels.

679,933. CURRYCOMB. MATHEW ALSTON, Hamilton, Ill. Filed Feb. 25, 1901. Serial No. 48,806. (No model.)

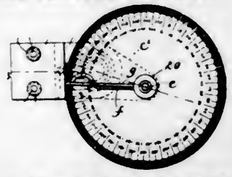


Claim.—1. The combination with a currycomb having teeth on one face of a curved plate secured to the opposite face of the comb and having projections struck up therefrom without breaking the metal of which the plate is formed.

2. The combination with a currycomb having teeth on one face, of a curved, spring-metal plate attached to the opposite face of the comb at one edge and having its opposite edge free to move toward and away from the comb, said plate having projections struck up therefrom without breaking the metal of which the plate is formed.

3. The combination with a currycomb comprising a plate having teeth at one side, of a handle including a yoke-plate attached to the first-named plate with its extremities spaced upwardly therefrom, and a metal, curved plate attached at one edge to the first-named plate and having its opposite edge disposed between said plate and the spaced ends of the yoke-plate for movement therebetween, said curved plate having projections struck up therefrom.

679,984. PROTRACTOR ATTACHMENT FOR CENTER-FINDING INSTRUMENTS. RALPH W. BAILEY, West Newbury, Mass. Filed Apr. 19, 1901. Serial No. 56,568. (No model.)



Claim.—1. An appliance of the character specified, comprising a graduated protractor, and a jointed holder composed of a fixed part adapted for adjustable connection with a center-finding instrument, and a swinging part supporting the protractor.

2. An appliance of the character specified, comprising a graduated protractor, and a jointed holder composed of a fixed part adapted for adjustable connection with a center-finding instrument, and a swinging part supporting the protractor, the said holder having a spring whereby the swinging part and the protractor are pressed yieldingly in one direction.

3. An appliance of the character specified, comprising a graduated protractor, a holder on which said protractor is rotatively mounted, said holder having clamping members adapted for detachable and adjustable connection with the blade of a center-square, and a pointer adjustably engaged with the holder and cooperating with the graduated surface of the protractor.

4. An appliance of the character specified, comprising a graduated protractor, a holder on which said protractor is rotatively mounted, said holder having clamping members adapted for detachable and adjustable

connection with the blade of a center-square, a pointer adjustably engaged with the holder and cooperating with the graduated surface of the protractor, and a pointer adjustably engaged with the protractor and cooperating with the graduated surface thereof, and with the fixed pointer engaged with the holder.

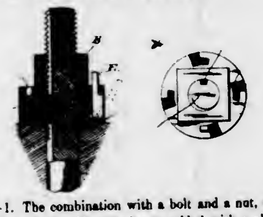
5. An appliance of the character specified, comprising a protractor, a holder having a stud on which the protractor is rotatably mounted, a pointer adjustably engaged with the stud, and a pointer engaged with the protractor.

6. An appliance of the character specified, comprising a protractor, a holder having a stud on which the protractor is rotatably mounted, clamping members on said stud, a pointer having a hub grasped by said clamping members, and a pointer having a hub held in frictional contact with the protractor by a clamping member on the stud.

7. A proportional protractor comprising a graduated disk, a jointed holder therefor composed of a fixed part having means for adjustable connection with a center-finding instrument, and a swinging part on which the disk is rotatably mounted, a tubular stud secured to the fixed part and having a rotative connection with the swinging part, and a coiled spring located within said tubular stud, the ends of the spring projecting from the stud, one of said ends engaging the fixed part of the holder and the other the swinging part.

8. The combination with a center-finding instrument comprising a head having a plurality of faces adapted to bear simultaneously on the periphery of a circular piece of work, and a blade having a straight-edge arranged to extend across the center of said piece when the said faces are brought to a bearing on the periphery thereof, of a protractor adjustable on said blade toward and from said head, said protractor being provided with means for engagement with the work in any position to which it may be adjusted, whereby the protractor may be adapted to cooperate with the center-finding instrument in subdividing pieces of work of different diameters.

679,935. NUT-LOCK. GEORGE BEHLER, Threecoaks, Mich. Filed June 7, 1901. Serial No. 63,499. (No model.)



Claim.—1. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided with a plurality of outwardly-opening L-shaped notches, the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer, the outer end of which is adapted for engagement with said notches, said key being pivoted at its inner end to swing toward and away from the nut.

2. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided with a plurality of outwardly-opening L-shaped notches, the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer, the outer end of which is adapted for engagement with said notches, said key being pivoted at its inner end in a manner permitting the same to swing into and out of the groove and the outer end thereof to swing toward and away from the nut.

3. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided with a plurality of outwardly-opening L-shaped notches the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer, the outer end of which is adapted for engagement with said notches, said washer being provided with a peripheral groove which receives the body of the key, and on its inner face with a transverse groove intersecting said peripheral groove, and the key being provided at its inner end with oppositely-extended trunnions which engage said transverse groove whereby the outer end of the key may be swung into and out of said peripheral groove and toward and away from the nut.

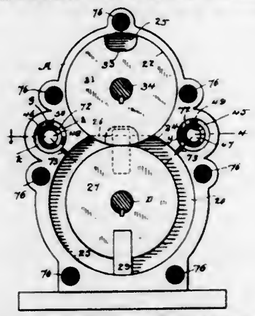
4. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided with a plurality of outwardly-opening L-shaped grooves, the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer the outer end of which is adapted for engagement with said notches, said washer being provided with a peripheral groove which receives the body of the key and on its inner face with a transverse groove intersecting said peripheral groove, and the key being provided with oppositely-extended trunnions which engage said transverse groove, whereby the outer end of the key may be swung into and out of the peripheral groove and toward and away from the nut, said trunnions being formed to permit the same to be engaged with and disengaged from said transverse groove in one position only of the key.

5. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided at its inner end with a radial annular flange which latter is provided with outwardly-opening L-shaped notches, the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer the outer end of which is adapted for engagement with said notch, said key being pivoted at its inner end to swing toward and away from the nut.

6. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided with outwardly-opening L-shaped notches, the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer, the outer end of which is adapted for engagement with said notches, said washer being provided on its periphery with a groove which receives the body of the key and the key being pivoted at its inner end to the washer in a manner permitting the outer end thereof to swing into and out of the groove and toward and away from the nut, the outer surface of the key at the inner end thereof being inclined to permit the key to swing away from the nut when the washer is in contact with a part through which the bolt passes.

7. The combination with a bolt and a nut, of a non-rotative washer on the bolt, said nut being provided with outwardly-opening L-shaped notches, the inner parts of which are curved concentrically with respect to the axis of the nut, and a key on the washer the outer end of which is adapted for engagement with said notches, said washer being provided in its periphery with a groove which receives the body of the key, and the key being pivoted at its inner end to the washer in a manner to swing toward and away from the nut, and being made of such depth as to entirely fill the groove, the outer surface of said key being flush with the periphery of the washer.

679,936. ROTARY ENGINE. HEZEKIAH A. BENSON, Bridgeport, Conn. Filed Oct. 5, 1900. Serial No. 32,138. (No model.)



Claim.—1. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and an auxiliary valve comprising a hollow rotary member having independent ports for the cylinders.

2. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves each comprising a hollow rotary member having independent ports for the cylinders, each of said auxiliary valves being adapted to control either the supply or the exhaust.

3. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members corresponding in length with the length of the space occupied by the cylinders and having independent ports for the cylinders.

4. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members corresponding in length with the length of the space occupied by the cylinders and having independent ports for the cylinders, each port being the full length of its respective cylinder.

5. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members having independent ports for the cylinders, and oscillatory sleeves outside of the valve members, said sleeves being adapted to change each valve member from supply to exhaust or from exhaust to supply.

6. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members having independent ports for the cylinders, oscillatory sleeves outside of the valve members, said sleeves being adapted to change each valve member from supply to exhaust or from exhaust to supply, and reversing-gear for oscillating said sleeves.

7. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members having independent ports for the cylinders, sleeves 49 and 50 surrounding said valve members, shafts 55 and 56 for operating said sleeves, and means whereby said shafts and the sleeves and the main valve may be oscillated in unison.

8. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members having independent ports for the cylinders, sleeves 49 and 50 surrounding said valve members, shafts 55 and 56 for operating said sleeves, and means whereby said shafts and the sleeves and the main valve may be oscillated in unison, said means comprising pinions on the ends of the sleeve-shafts, a lever for operating the main valve, and toothed racks carried by said lever and engaging said pinions.

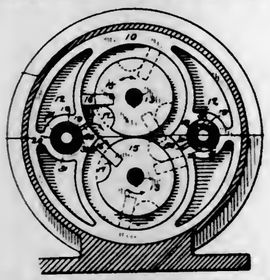
9. A rotary engine comprising a plurality of cylinders in alinement with each other, rotary pistons therein, a main valve, and auxiliary valves comprising hollow rotary members having independent ports for the cylinders, sleeves 49 and 50 surrounding said valve members, shafts 55 and 56 for operating said sleeves, and means whereby said shafts and the sleeves and the main valve may be oscillated in unison, said means comprising pinions on the ends of the sleeve-shafts, a lever for operating the main valve, and toothed racks carried by said lever and engaging said pinions, one end of said lever having three notches 60, a spring-catch being provided to engage either of said notches to hold the lever and the main valve and the auxiliary-valve sleeves in either one of three positions.

10. The auxiliary valve 47 consisting of a cylinder closed at each end and having a circumferential external groove near one end, a plurality of holes leading from said groove to the interior of the valve, and a plurality of elongated ports at different distances from said grooved end.

11. The auxiliary valve 47 consisting of a cylinder closed at each end and having a circumferential external groove near one end, a plurality of holes leading from said groove to the interior of the valve, and a plurality of elongated ports at different distances from said grooved end, said ports being formed out of alinement with each other.

12. In an engine of the character described the combination with rotary pistons having radial floats diametrically opposite to each other and auxiliary disks of uniform diameter with the pistons and provided with recesses which give clearance to the floats, of a main valve, auxiliary valves having receiving holes and ports opposite to each other whereby steam is supplied to the cylinders alternately and reversing-sleeves which inclose the auxiliary valves and are operated in unison with the main valve.

679,937. ROTARY ENGINE. HERKELAH A. BENSON, Bridgeport, Conn. Filed Apr. 17, 1901. Serial No. 56,230. (No model.)



Claim.—1. A rotary engine comprising in its construction a casing, a plurality of independent castings therein each having piston and valve chambers, intermediate partition-plates between said castings, and pistons and supply and exhaust valves located in their respective chambers in the said castings.

2. A rotary engine comprising in its construction a casing, a plurality of independent castings therein each having piston and valve chambers, intermediate partition-plates between said castings, and pistons and supply and exhaust valves located in their respective chambers in the said castings, the pistons being separated from each other by the partitions, and the shafts of the pistons and valves extending through said partitions.

3. A rotary engine comprising in its construction a cylindrical casing having its central portion of less diameter than its end portions, a chambered casting fitting said central portion, similar but larger chambered castings fitting the end portions of the casing, partition-plates separating the three castings, pistons in the chambers of the castings, and supply and exhaust valves.

4. A rotary engine comprising in its construction a casing provided with end walls and containing the pistons, and rotary valves, the shafts of the pistons and valves extending through one of said end walls and geared together outside of said wall, a casing inclosing said gearing, and a power-shaft extending through said casing and provided with a stuffing-box.

5. A rotary engine comprising in its construction rotary pistons, rotary valves, oscillatory sleeves for said valves, said sleeves being provided with sprockets 23, a chain connecting said sprockets and means for moving said chain, said sleeves being provided with ports for reversing the direction of the motive fluid.

6. A rotary engine comprising in its construction pistons, rotary valves, oscillatory sleeves inclosing said valves, and provided with ports for reversing the direction of the motive fluid, said sleeves having sprockets 23, a lever having a toothed hub mounted between said sprockets, a chain connecting the sprockets and engaging the teeth of said hub, and means for holding the lever in adjusted position.

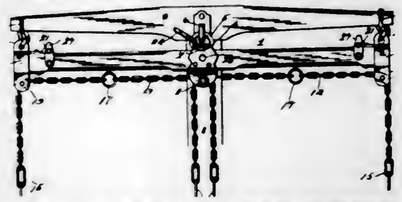
7. A rotary engine comprising in its construction a casing, one end wall of which is formed with a steam-chest, pistons and valves in the casing, oscillatory sleeves inclosing said valves and having reversing-ports, the said valves and sleeves extending into said steam-chest.

8. A rotary engine comprising in its construction a casing having two end walls one of which is formed with a steam-chest, rotary pistons and valves in the casing and having stems or shafts projecting through one end wall and geared together, oscillatory sleeves inclosing the valves and having reversing-ports, the said valves and sleeves extending into said steam-chest.

9. A rotary engine comprising in its construction a casing having two end walls one of which is formed with a steam-chest, rotary pistons and valves in the casing and having stems or shafts projecting through one end wall and geared together, oscillatory sleeves inclosing the valves and having reversing-ports, the said valves and sleeves extending into said steam-chest, the said sleeves being provided with stems extending through and outside of the steam-chest and carrying means whereby they may be simultaneously oscillated.

10. A rotary engine comprising in its construction a casing having two end walls one of which is formed with a steam-chest, rotary pistons and valves in the casing and having stems or shafts projecting through one end wall and geared together, oscillatory sleeves inclosing the valves and having reversing-ports, the said valves and sleeves extending into said steam-chest, the said sleeves being provided with stems extending through and outside of the steam-chest, sprockets mounted on said stems, a lever having a toothed hub between said sprockets, and a chain connecting the sprockets and engaged by said toothed hub.

679,938. DRAFT-EQUALIZER. JEFFRIE BLANCHETTE, Chippewa Falls, Wis. Filed Apr. 16, 1901. Serial No. 56,106. (No model.)



Claim.—1. In a device of the class described, the combination with a pole, and a cross-bar, of a doubletree, a yoke centrally connected with the doubletree and with the pole and extending beyond the doubletree, a pulley mounted in the yoke, flexible connections between the ends of the doubletree, and the ends of the cross-bar, end pulleys mounted on the doubletree, and the chains arranged on the said pulleys and having their inner portions located adjacent to the pole, substantially as described.

2. In a device of the class described, the combination with a pole, and a cross-bar, of a doubletree, a yoke centrally secured to the doubletree and extending in advance and in rear of the same and forming a rear loop, a pulley mounted within the front portion of the yoke, end caps or supports mounted on the end of the doubletree and provided with forwardly and rearwardly extending ears, flexible connections between the rear ears and the ends of the cross-bar, end pulleys mounted between the front ears, and chains arranged on the pulleys, substantially as described.

3. In a device of the class described, the combination with a pole, and a cross-bar, of a doubletree, a yoke centrally connected with the doubletree and extending rearward from the same to form a loop, a pulley mounted between the front portion of the yoke, a ring linked into the loop formed by the yoke, a plate provided with an arm to engage the link and having a tongue for retaining the link in such engagement, end pulleys mounted on the doubletree, chains arranged on the said pulleys, and means for connecting the ends of the doubletree with the ends of the cross-bar, substantially as described.

4. In a device of the class described, the combination with a pole and a cross-bar, of a doubletree detachably connected at its center with a pole, means for flexibly and detachably connecting the ends of the doubletree with the ends of the cross-bar, pulleys arranged at the center and ends of the doubletree, and chains arranged on the pulleys, substantially as described.

5. In a device of the class described, the combination of a doubletree, central and end pulleys, and the flexible connections arranged on the said pulleys and having their inner portions located at the center of the doubletree, each of the flexible connections being provided with a single central stop located between the central and end pulleys and arranged to engage either of the same to limit the movement of the flexible connections, substantially as described.

679,939. CHAIR BOTTOM OR BACK. EDWIN F. BRAINARD, Gardner, Mass., assignor of one-half to Frank J. Pierce, same place. Filed Nov. 1, 1900. Serial No. 35,081. (No model.)

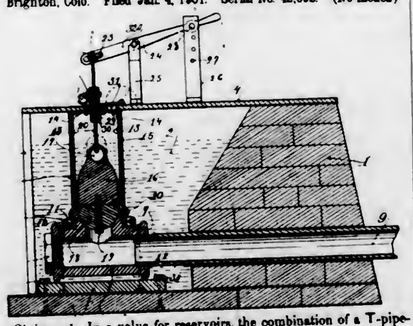


Claim.—1. As an article of manufacture, a chair bottom or back comprising a frame, a supporting fabric having its edges turned or folded back, an outer or wearing section having its edges folded around the supporting-section and inserted between the body portion and folded-back edges of said supporting-section, and nails or fastening devices driven through the five-layer edges of said sections into the frame to secure the same thereto, substantially as described.

2. As an article of manufacture, a chair bottom or back comprising a frame, a woven-wire supporting-section having its edges turned or folded back, an outer or wearing section having its edges folded around the supporting-section and inserted between the body portion and folded-back edges of the supporting-section, a layer of covering material arranged under the supporting-section, and nails or fastening devices driven through the five-layer edges and the covering-section to fasten the same to the frame, substantially as described.

3. A chair bottom or back comprising a frame D, a woven-wire supporting-section B having its edges turned or folded back, an outer wearing-section A having its edges folded around the supporting-section and inserted between the body portion and folded-back edges of said supporting-section, stuffing C interposed between said sections, and nails or fastening devices 13 driven through the five-layer edges and into the frame D, substantially as described.

679,940. RESERVOIR OUTLET-VALVE. EMMET A. BROMLEY, Brighton, Colo. Filed Jan. 4, 1901. Serial No. 42,092. (No model.)



Claim.—1. In a valve for reservoirs, the combination of a T-pipe-shaped valve-body portion having a side entrance between its ends and a semicircular valve-seat at said entrance, and having one of its ends closed and a discharge-pipe threaded to and leading from the opposite end, a valve comprising a piece of metal provided with a rounded end fitting the semicircular seat in said T-pipe, a rod pivotally connected to the upper end of said valve and means including a rocking lever connected to the upper end of said rod for raising and lowering said valve, substantially as described.

2. In a reservoir-valve the combination of the T-shaped valve-body having a side entrance, an open semicircular valve-seat in said entrance, a valve comprising a plug-shaped casting having a rounded seat at one end adapted to fit said semicircular valve-seat in said T-shaped body portion, a rod pivoted to the upper end of said valve, means including a rocking lever for raising and lowering said valve from and to said seat, a thread on said rod and check-nuts threaded thereto, and arranged to adjust and set the vertical movement of said valve, vertical guide-rods extending upward around said valve, a wire-netting around said rods and the discharge-pipe leading from said T-pipe and valve, substantially as described.

3. In a reservoir-valve, the combination of the T-valve body, the valve, the rod threaded at one end and pivoted to the top of the valve, the sleeve, the standards, the handle-lever pivoted to said rod and to one of said standards, the check-nuts and the discharge-pipe leading from said T-pipe, substantially as described.

4. In a reservoir-valve, the combination of the T-pipe having an open valve-seat, the valve having an end fitting said valve-seat, the rod threaded at one end and containing nuts and pivoted to the top of the said valve, the handle-lever pivoted to said rod, the standards for supporting said handle-rod, the valve's vertical guide-rods, the semicircular straps arranged to clamp them to the T-pipe, the screen surrounding said guide-rods, the sleeve guiding said valve-rod, the lock through said sleeve and rod, the dam, the platform extending from said dam over said valve and connected to said valve's vertical guide-rods and the discharge-pipe leading from said T-pipe through said dam, substantially as described.

679,941. LOOM AND FILLING-CARRIER THEREFOR. ROBERT BURGESS, New Bedford, Mass. Filed Apr. 22, 1901. Serial No. 56,832. (No model.)



Claim.—1. In a loom provided with automatic filling-replenishing mechanism, a shuttle adapted to contain a supply of filling, means to part the filling when exhausted to a predetermined extent, and means to effect the actuation of the filling-replenishing mechanism upon parting of the filling.

2. A filling-carrier for looms, having a mass of filling wound thereupon, and means to effect breakage of the filling when exhausted to a predetermined extent.

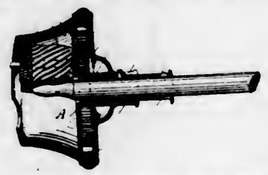
3. A filling-carrier for loom-shuttles, having a filling mass thereon having at or near its inner end an anchor-winding, and a service-winding, the portion of filling traversed from the former to the latter winding being exposed and externally accessible.

4. A filling-carrier for loom-shuttles, having a filling mass thereon having at or near its inner end an anchor-winding, upon the head of the carrier and a service-winding upon the barrel, the portion of filling traversed from the former to the latter winding being exposed.

5. A filling-carrier for loom-shuttles, having a filling mass thereon having an anchor-winding at or near its inner end, and a main or service winding, the portion of filling leading from the anchor-winding being readily parted without releasing the said winding.

6. A filling-carrier having an annular recess in its head, and having a filling mass having at or near its inner end an anchor-winding in said recess and a main or service winding upon the barrel of the carrier, the filling traversed from one to the other winding being externally accessible.

679,942. PENCIL-SHARPENER. EUGENE BURKE, Lakeview, Oreg. Filed Nov. 21, 1900. Serial No. 37,205. (No model.)



Claim.—1. In a pencil-sharpening device, the combination with a rotatable disk, adapted to be rotated by rolling the same on a surface, of

a tubular hub secured thereto, a non-rotatable bearing-sleeve fitted therein and through which the pencil slips, a planer carried by the rotatable disk, and means for operating the planer, said means being operatively connected with said disk, substantially as described.

2. In a pencil-sharpening device, the combination with a rotatable disk, adapted to be rotated by rolling the same on a surface, of a tubular hub secured thereto, a non-rotatable bearing-sleeve fitted therein and through which the pencil slips, a planer and a file-disk, secured to and carried by the rotatable disk, and of means for imparting rotation to the file-disk and planer during the movement of the disk.

3. In a pencil-sharpening device, the combination with a rotatable substantially circular disk having a tubular hub, of a non-rotatable bearing-sleeve fitted within the hub of the disk, of a planer rotated by the movement of the disk, a stationary gear-ring, and of pinions for rotating the knife-blade or planer, said pinions being driven from the gear-ring during the movement of the disk.

4. In a pencil-sharpening device, the combination with a rotatable substantially circular disk adapted to be rotated by rolling it on a surface, of a tubular hub secured thereto, a planer attached to said disk, and means operatively connected to the disk for operating the planer, substantially as described.

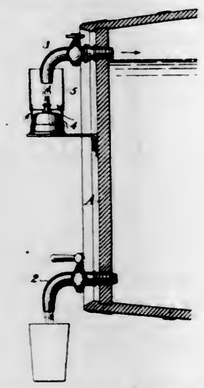
5. In a pencil-sharpening device, the combination with a rotatable substantially circular disk, of a tubular hub secured thereto, a planer secured to and carried by the disk, a rotary file for sharpening the lead of the pencil, of means for imparting rotation to the file and planer during the movement of the disk, and of a hood or cover attached to the disk and within which the knife-blade or planer and disk file operate.

6. In a pencil-sharpening device, the combination with a rotatable disk, adapted to be rotated by rolling it on a surface, of a tubular hub secured thereto, a bearing-sleeve fitted within the tubular hub, a planer attached to the disk, gear-and-pinion mechanism for imparting rotation to the planer during the movement of the disk, of a disk file rotated by the gear-and-pinion mechanism.

7. In a pencil-sharpening device, the combination with a rotatable substantially circular disk, of a tubular hub secured thereto, a planer secured to and carried by the disk, the mechanism for rotating the planer during the movement of the rotatable disk, a bearing-sleeve fitted within the tubular hub of the disk, a spring therein, and of a thumb-clamp for holding the pencil in the bearing-sleeve.

8. In a pencil-sharpener, the combination of a bearing-sleeve adapted to receive a pencil, a part rotatable on said sleeve and adapted to be rotated by rolling on a surface, a planer, and means operated by said rotatable part for operating said planer, substantially as described.

679,943. **MEANS FOR PRESERVING FRUITS AND THEIR JUICES.** FRANK BUTCHER, Healdsburg, Cal. Filed Dec. 22, 1900. Serial No. 40,759. (No model.)



Claim.—1. The combination of a sealed vessel adapted to contain a preserve, a draw-off connecting with the lower portion of the vessel; a valve-controlled air-inlet pipe entering the upper portion of the vessel and adapted to communicate with the space above the preserve, a means for producing a flame about the entrance to the air-inlet for consuming the oxygen of the air and sterilizing said air as it enters the vessel to fill the vacuum produced by drawing off the contents of the vessel, and means for directing the flame into the mouth of the inlet whereby the injection of ordinary air is prevented.

2. The combination with a sealed vessel adapted to contain a preserve in liquid or semiliquid form, of an air-inlet, a flame-producing medium proximate to and in line with the entrance to said inlet, and a shield surrounding the flame to prevent deflection of air.

679,944. **HAIR-CLIPPER.** CYRUS CARLETON, Providence, R. I., assignor to Brown and Sharpe Manufacturing Company, same place. Filed Feb. 9, 1900. Serial No. 4,647. (No model.)



Claim.—1. A hair-clipper having a fixed handle provided with a perforated base, a comb-plate provided with an opening, a bolt extending through the opening in the comb-plate and the perforation of the base of the fixed handle and forming the fulcrum-post of the operating-lever, and means for securing the bolt in the base of the fixed handle, as described.

2. A hair-clipper having the comb-plate secured to the fixed handle by a fulcrum-post in screw-thread engagement with the fixed handle, as described.

3. A hair-clipper having a comb-plate provided with an opening and a depression in its upper surface, a fixed handle having a perforated base, a member projecting from the base into the depression in the comb-plate, and a fulcrum-post bearing on the comb-plate and in screw-thread engagement with the base of the fixed handle, as described.

4. In a hair-clipper, a comb-plate having the rear upper surface below the plane of the cutter-surface and provided with a depression, a fixed handle having a perforated base, a member projecting from the base into the depression in the comb-plate, and a bolt bearing on the comb-plate and in screw-thread engagement with the base of the fixed handle, as described.

5. A hair-clipper having a comb-plate, a fixed handle, an operating-lever, a cutter-plate, a cap and a fulcrum-post extending through the comb-plate, in screw-thread engagement with the fixed handle, and having a nut on the upper screw-threaded end, whereby all the operative parts of the clipper are secured together by the fulcrum-post, as described.

6. A hair-clipper having a fixed handle, a pocket for a coiled spring having a non-adjustable closed end, an operating-lever with a heel near its fulcrum, and a coiled spring projecting beyond the heel and requiring to be compressed to engage with the heel, as described.

7. A hair-clipper having a comb-plate the rear portion of which is thinner than the front portion, a depression on the rear portion of the comb-plate, a fixed handle the base of which is provided with a pocket containing a push-spring, an interlocking member on the base of the fixed handle engaging with the depression in the comb-plate, and a fulcrum-post the head of which engages, by a ball-and-socket connection, with the comb-plate and the lower screw-threaded portion with the base of the fixed handle, as described.

8. A hair-clipper having a comb-plate provided at the rear portion with a depression having inclined sides, a fixed handle, the base of which has an interlocking member formed to bear on the inclined sides of the depression in the comb-plate, and a screw-threaded fulcrum-post, as described.

679,945. **AIR-BRAKE SYSTEM.** NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed July 26, 1900. Serial No. 24,864. (No model.)

Claim.—1. In an air-brake system, the combination with a main reservoir having a check-valved connection with a source of fluid-pressure, and in communication with the system, of a whistle communicating with such source on the near side of the check-valve.

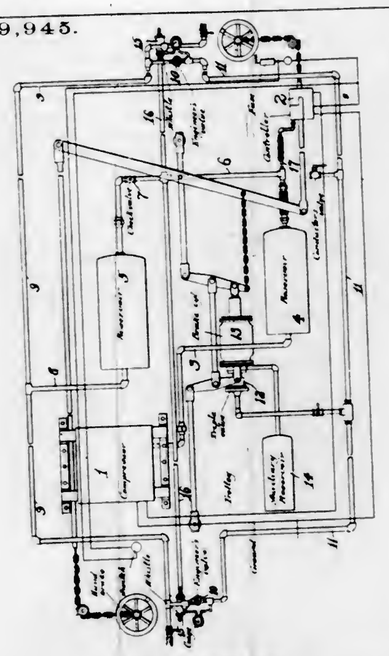
2. In an air-brake system, the combination of a main reservoir connected with the system, an air-compressor delivering pressure thereto through a check-valve connection, and an air-whistle communicating with such connection on the compressor side of the check-valve.

3. In an air-brake system, the combination of two main reservoirs, check-valved piping therebetween, the first reservoir being in communication with a source of air-pressure and the second reservoir with the brake system, and an air-whistle communicating with said piping on the side of the check-valve toward the first reservoir.

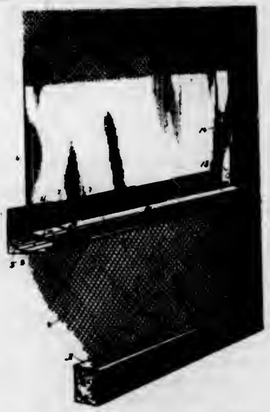
4. In an air-brake system, the combination of two reservoirs, check-valved piping therebetween, an air-compressor delivering into the first reservoir, the second reservoir communicating with the brake system, an air-whistle and an automatic governor for the compressor both communicating with said piping on the compressor side of the check-valve.

5. The combination with a brake system, of an air-whistle communicating with and receiving air-pressure from such system, such system and whistle being independent of each other as to their operations.

679,945.



679,946. **EXTENSIBLE FLY-ESCAPE.** ADONIRAM J. COLLAR, Yreka, Cal. Filed Oct. 24, 1900. Serial No. 34,174. (No model.)



Claim.—1. A fly-escape including a horizontal base portion having transverse openings or channels, a screen-surface and a section of transparent material constituting a part of the escape and forming a continuation of the same, and means for attaching the escape to a light-aperture.

2. A fly-escape including a horizontally-extensible concaved base having transverse openings or outlets, a screen-surface and a transparent section or continuation of said screen-surface, constituting a portion of the escape and means for attaching the escape to an opening or light-aperture.

3. A fly-escape including a transversely-channeled, concaved base, a screen-section and a transparent section forming a continuation of the screen-section, means for the attachment of the transparent section, and means whereby the escape may be secured in a light-aperture.

4. A fly-escape comprising a seat having a concaved upper surface, and adapted to fit upon the lower rail of the screen-frame, and between the sides of the frame, a similarly-concaved base fitting in this seat, said base composed of parts slidable upon and within each other, and having transverse channels, an extension of flexible transparent material attached to the upper inner edge of the channeled portion of the base, and means for attaching the escape to the screen-frame.

5. A portable fly-escape consisting of a base made in two parts, each part having a similarly-concaved bottom, and a sheath supported upon and parallel to this bottom portion, leaving transverse channels between, the other edge of the bottom portion extending upwardly and above the top of these channels to form a trough with the edge of the sheath and into which trough these channels open, the edges of one bottom piece being turned to form grooves in which the other bottom piece is slidable, and the sheath of one part slidable within the sheath of the other part, so that the two base parts are capable of being longitudinally extended or contracted, a stick fastened in one sheath and sliding in the other and of a length approximately that of the base, and a flexible transparent sheet or extension upon the edge of this stick and extending upwardly from the edge of the trough.

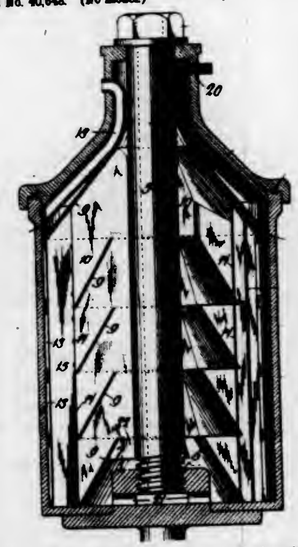
679,947. **HINGED SPLIT FOLLOWER.** JEREMIAH F. COLLINS, Brockton, Mass. Filed Aug. 22, 1899. Serial No. 728,046. (No model.)



Claim.—1. A hinged split follower comprising a heel-section, a sectional distensible fore part, a hinge member connected to the heel part and formed with a slot, complemental inclined cam-faces formed upon opposite lower walls of said slot, complemental holding-faces formed upon opposite upper side walls of said slot, a finger upon each section of said fore part and each finger arranged in said slot whereby the fore part may be contracted by the engagement of the fingers with the cam-faces and held in contracted position by the engagement of the pins with the holding-faces.

2. A hinge member for split followers comprising a tube, a single recess formed in said tube having an enlarged lower portion and a reduced upper portion, the side walls of one being arranged at an angle to the complemental side walls of the other and forming, in effect, a broken continuation thereof.

679,948. **CENTRIFUGAL CREAM-SEPARATOR.** THOMAS COLLINS and ERNEST L. HARTMANN, Bainbridge, N. Y., assignors to the American Separator Company, of New York. Filed Dec. 21, 1900. Serial No. 40,648. (No model.)



Claim.—1. In a cream-separator, the combination with a separator-bowl, of a plurality of conical rings located at the inner part of the bowl,

and a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl.

2. In a cream-separator, the combination with a separator-bowl of a plurality of conical rings located at the inner part of the bowl and arranged one wholly above another, and a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl.

3. In a cream-separator the combination with a separator-bowl of a plurality of conical rings located at the inner part of the bowl, a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl, and an upper conical ring located above said vertical partition and extending nearly to the periphery of the bowl.

4. In a cream-separator the combination with a separator-bowl, of a plurality of conical rings located at the inner part of the bowl and arranged one wholly above another, a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl, and an upper conical ring located above said vertical partition and extending nearly to the periphery of the bowl.

5. In a cream-separator the combination with a separator-bowl, of a plurality of conical rings located at the inner part of the bowl, a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl, and a plurality of intermediate radial sections each connecting the outer edge of one of the oblique sections to the inner edge of the next adjacent oblique section.

6. In a cream-separator the combination with a separator-bowl of a plurality of conical rings located at the inner part of the bowl and arranged one wholly above another, a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl and a plurality of intermediate radial sections each connecting the outer edge of one of the oblique sections to the inner edge of the next adjacent oblique section.

7. In a cream-separator the combination with a separator-bowl, of a plurality of conical rings located at the inner part of the bowl, a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl, and a plurality of intermediate radial sections each connecting the outer edge of one of the oblique sections to the inner edge of the next adjacent section, and an upper conical ring located above said vertical partition and extending nearly to the periphery of the bowl.

8. In a cream-separator the combination with a separator-bowl of a plurality of conical rings located at the inner part of the bowl and arranged one wholly above another, a vertical partition arranged between said rings and the periphery of the bowl, said partition having a plurality of vertical sections arranged obliquely to the radial line of the bowl, and a plurality of intermediate radial sections each connecting the outer edge of one of the oblique sections to the inner edge of the next adjacent oblique section, and an upper conical ring located above said vertical partition and extending nearly to the periphery of the bowl.

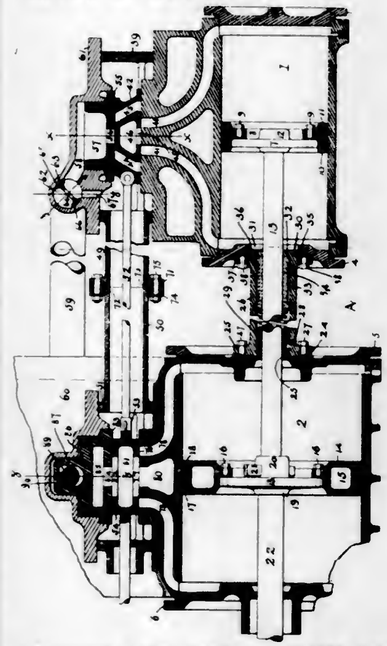
9. In a cream-separator the combination with a separating-bowl, of a partition having a plurality of vertical sections arranged in the liquid-space and obliquely across the radial lines of the bowl, and having openings along their inner and outer edges, and a plurality of radial sections each connecting the outer edge of one oblique section with the inner edge of the next adjacent oblique section, said oblique and radial sections forming a rigid integral zigzag partition-frame, having the outer edges of the sections resting against the inner periphery of the bowl, a plurality of conical rings arranged between the axis of the bowl and said zigzag frame, a plurality of upright radial plates, said upright plates and said conical rings intersecting each other, and an upper conical ring arranged above said zigzag partition and extending to near the periphery of the bowl.

10. In a cream-separator the combination with a separating bowl, of a partition having a plurality of sections arranged in the liquid-space and obliquely across the radial lines of the bowl, and having openings along their inner and outer edges, and a plurality of radial sections each connecting the outer edge of one oblique section with the inner edge of the next adjacent oblique section, substantially as described.

11. In a cream-separator the combination with a separating-bowl, of a partition having a plurality of sections arranged in the liquid-space and obliquely across the radial lines of the bowl, and having openings along their inner and outer edges, and a plurality of radial sections each connecting the outer edge of one oblique section with the inner edge of the next adjacent oblique section, said oblique and radial sections forming a rigid integral zigzag partition-frame, substantially as described.

12. In a cream-separator the combination with a separating-bowl, of a partition having a plurality of sections arranged in the liquid-space and obliquely across the radial lines of the bowl, and having openings along their inner and outer edges, a plurality of radial sections each connecting the outer edge of one oblique section with the inner edge of the next adjacent oblique section, said oblique and radial sections forming a rigid integral zigzag partition-frame having the outer edges of the sections resting against the inner periphery of the bowl, and an upper conical ring arranged above said zigzag partition and extending to near the periphery of the bowl, substantially as described.

679,949. STEAM-ENGINE. HENRY F. COLVIN, Philadelphia, Pa. Filed Dec. 24, 1900. Serial No. 40,992. (No model.)



Claim.—1. In an engine, cylinders arranged tandem, pistons and piston-rods within the cylinders, exhaust-steam chests mounted on the cylinders, and a slide-valve having live-steam ports therethrough, a balance-plate above the valve, an exhaust-port in the valve open to the exhaust-port of the cylinder, and having means of communication from the cylinder-ports directly through the valve to the interior of the exhaust-steam chest, and means to operate the valve.

2. In an engine, cylinders arranged tandem, pistons and piston-rods within the cylinders, steam-chests on the cylinders, a steam-valve having vertical steam-ports therethrough, an exhaust-port at the bottom and at each side, communicating with a central cavity and therethrough to the interior of the steam-chest, a balance-plate mounted above the valve, having a central port put in alternate communication with the valve's steam-ports, and also in constant communication with an interior open space in the balance-plate, a cover over the balance-plate, a chamber in the cover in communication with the engine's steam-pipe, and a port leading from the chamber to the balance-plate's open space.

3. In an engine, high and low pressure cylinders, pistons and their rods within the cylinders, steam-chests on the cylinders, valves in the steam-chests, covers on the steam-chests and in the high-pressure cover a chamber connected to the engine's steam-pipe and having a port communicating with the high-pressure valve and therethrough to the cylinder's steam-ports, a by-pass valve in the chamber, a port from the chamber communicating with the interior of the steam-chest, and means to operate the by-pass valve to open or close the port aforesaid to admit or shut off live steam leading to the interior of the exhaust-steam chest, and exterior to the exhaust-steam-chest's valve.

4. In an engine, a cylinder, a piston in the cylinder, a steam-chest mounted on the cylinder, a steam-valve in the steam-chest, a balance-plate on the steam-valve, a cover on the steam-chest and over the balance-plate, means inclosed therein and upon the relief-plate by which to lift the relief-plate from the valve and means exterior to the cover for the operation of the lifting means.

5. In an engine, multiple cylinders, pistons and rods within the cylinders, steam-chests mounted upon the cylinders, valves within the steam-chests, relief-plates on the valves, a by-pass valve for one of the cylinders, a relief-plate-lifting means for the valve of the other cylinder, means to connect the by-pass valve and the lifting means for coöperative action, and means for their coacting movement.

6. In a steam-engine, cylinders therefor, a piston for each cylinder, a steam-chest for each cylinder, a steam admission and exhaust valve for each cylinder, a balance-plate for each valve, a by-pass valve for each steam-chest, a chamber wherein the by-pass valve is located, a steam-passage from the steam-chest to the by-pass chamber, a steam-passage from the by-pass chamber to the balance-plate and therethrough to the engine's valve and cylinder, and means to operate the by-pass valve to close or open the passage from its chamber to the balance-plate.

7. In an engine, multiple cylinders arranged tandem and spaced longitudinally apart, pistons within the cylinders and connected by a common piston-rod, heads for the cylinders, a connecting-sleeve surrounding the piston-rod, removably secured to one cylinder-head and freely passing into and telescoping through the adjacent cylinder-head, and into the high-pressure cylinder when the low-pressure piston is to be removed into the space between the cylinders, for inspection or the adjustment of its parts.

679,950. STEAM-ENGINE. HENRY F. COLVIN, Philadelphia, Pa. Filed Dec. 31, 1900. Serial No. 41,587. (No model.)

Claim.—1. In an engine, multiple cylinders, pistons in the cylinders, a piston-rod to connect the pistons, a seat on each cylinder, a steam-chest secured on each seat, a circular valve-seat in each steam-chest, telescoping sleeves connecting the steam-chests, piston-valves within the steam-chests, connected through the telescoping necks for coacting, and means to move the valves.

2. In an engine, multiple cylinders, pistons within the cylinders, a common piston-rod for the cylinders, steam-chests secured to the cylinders, circular valve-seats for the steam-chests, piston-valves in the seats a common stem for the valves, and means to connect the steam-chests by telescopic construction around the valve-stem.

3. In an engine, multiple cylinders, high and low pressure, pistons and rods within the cylinders, a steam-chest mounted on the high-pressure cylinder, a circular valve-seat within the steam-chest, a truncated piston-valve having solid and connected piston-heads, trunks reaching outward from the heads, sleeves wherein the trunks move and which are secured to the steam-chest heads, and packing between the trunks and sleeves.

4. In a compound engine, multiple cylinders, pistons and rods in the cylinders, steam-chests for the cylinders, piston-valves in the steam-chests, a chamber above each steam-chest, a port from the chamber to the exhaust-passage of each chest, passage-ways from the chambers to the steam-chest's interior, by-pass valves in the chambers, and means to operate the by-pass valves for the admission of live steam to the high-pressure cylinders only, as when running compound, or multiple expansion.

5. In a compound engine, multiple cylinders, pistons and rods in the cylinders, steam-chests for the cylinders, piston-valves in the steam-chests, a chamber above each steam-chest, a port from the chamber to the exhaust-passage of each chest, passage-ways from the chambers to the steam-chest's interior, by-pass valves in the chambers, and means to operate the by-pass valves in manner to open the port to the steam-chest exhaust in the high-pressure steam-chest only, and thereby admit high-pressure steam to all the cylinders.

6. In a compound engine, multiple cylinders, pistons and rods in the cylinders, steam-chests for the cylinders, piston-valves in the steam-chests, a chamber above each steam-chest, a port from the chamber to the exhaust-passage of each chest, passage-ways from the chambers to the steam-chest's interior, by-pass valves in the chambers, and means to operate them and open the ports from the chambers to their steam-chests.

679,951. REIN-HOLDER. CHARLES A. CONGER, Oakland, Cal. Filed Dec. 28, 1900. Serial No. 41,063. (No model.)

Claim.—1. In a rein-holder, the combination with a whip, of a ferrule fitted thereover and locked thereto having an elongated member, and a spring attached to said elongated member and overlying the same, adapted in conjunction therewith to constitute a clamp for the reins, substantially as described.

2. In a rein-holder, the combination with the whip, of a two-part ferrule fitted thereover and locked thereto, and a spring member attached at its lower end to one part of the ferrule and overlying the same adapted in conjunction therewith to constitute a clamp for the reins, substantially as described.

3. In a rein-holder, the combination with the ferrule comprising two sections, of an adjustable hinge connection between the sections, adapted to vary the size of the ferrule, of means for clamping the ferrule to a whip, and of a rein-clamp secured to one section of the ferrule.

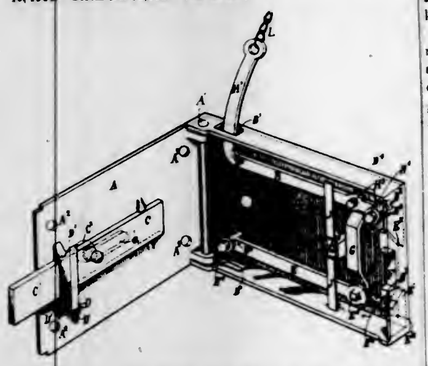
4. In a rein-holder, the combination with the ferrule, of means whereby the same is clamped or attached to a whip, of a rein-clamp secured to the ferrule, said clamp consisting of a single piece of wire bent into proper shape, the ends of said clamp being coiled into springs in order to hold the clamp pressed against the ferrule.

5. In a rein-holder, the combination with the ferrule comprising two hinged sections, of means for clamping the same to a whip, of a rein-clamp secured to one section of the ferrule, said clamp consisting of a

single piece of wire bent into proper shape, the ends of said clamp being coiled into springs in order to hold the clamp pressed against the ferrule, and of a seat formed with the section to which the clamp is secured and into which seat is held the spring-coils.

6. In a rein-holder the combination with a whip, of a holder secured directly to the whip comprising a portion overlying the surface thereof, and a spring secured at approximately its lower end to said overlying portion and adapted in conjunction therewith to constitute a clamp for the reins, substantially as described.

679,952. **DOOR-CLOSING APPARATUS.** JOHN H. COOK, Brooklyn, N. Y., assignor to Henry R. Newhall, Plainfield, N. J. Filed Apr. 19, 1901. Serial No. 56,661. (No model.)



Claim.—1. In a door-closing apparatus, a bar adapted to extend across the line of travel of the door, a locking device to hold said bar in position, a support upon which said bar and said locking device are movably mounted, duplicate bearings on said support upon either of which said locking device may be mounted, the coacting surfaces of said locking device and of said bar being reversible.

2. In a door-closing apparatus, a manually-movable bar adapted to extend across the line of travel of a door, a guiding-piece in which said bar is movably mounted, a locking device to hold said guiding-piece in position, a support upon which said locking device and said guiding-piece are movably mounted, duplicate bearings upon said support for said locking device, the engaging surfaces of the locking device and of the guiding-piece where the two coact being reversible.

3. In a door-closing apparatus, a movable bar adapted to extend across the line of travel of a door, a base-plate for securing said bar to a door-jamb, a locking device for holding said bar in position and duplicate bearings for said locking device formed on said base-plate, said locking device being reversible.

4. In a door-closing apparatus, hinged door-retaining means, a locking device to hold said retaining means in position, securing means adapted to secure said retaining means to a door-jamb, means for supporting and releasing the locking device, duplicate bearings formed on said securing means for said locking device, said locking device and said retaining means and the engaging surfaces of said retaining means and said locking device being reversible.

5. In a door-closing apparatus, hinged door-retaining means, a base for said retaining means, a lever, means for maintaining said lever in engagement with said retaining means and for releasing it therefrom, duplicate bearings on said retaining means for said lever, said lever and the engaging surfaces of said lever and said retaining means being reversible.

6. In a door-closing apparatus, a hinged plate, a sliding bolt carried thereon, a base to which said plate is hinged, a lever, means for maintaining said lever in engagement with said plate and for releasing it therefrom, duplicate bearings formed in said plate for said lever and for the means for maintaining said lever in engagement with said plate, said lever and said maintaining means, and the coacting surfaces of said lever and plate being reversible.

7. In a door-closing apparatus, a hinged plate carrying a sliding bolt, a base to which said plate is hinged, a locking device for said plate, means for retaining the locking device, duplicate bearings formed in the base for said locking device, said locking device and retaining means and the coacting surfaces of said locking device and said plate being reversible.

8. In a door-closing apparatus, a hinged plate carrying a sliding bolt, a base to which said plate is hinged, a lever removably pivoted in said base and engaging said plate when raised and releasing the same when lowered, said lever being reversible and said lever, base and plate being provided with duplicate coacting bearings, and means for supporting and operating said lever, as and for the purposes aforesaid.

9. In a door-closing apparatus, a hinged plate carrying a sliding bolt, a base to which said plate is hinged, a lever removably pivoted in said base and engaging said plate when raised, and releasing the same when lowered, said lever being reversible, and said lever and base being provided with duplicate coacting bearings, and means for supporting and operating said lever, as and for the purposes aforesaid.

10. In a door-closing apparatus, a hinged plate carrying a sliding bolt, a base to which said plate is hinged, levers removably pivoted to said base and loosely connected with a reversible link, one of said levers engaging said plate when raised and releasing the same when lowered, said levers and link being provided with reversible bearings for said parts and for said base and plate, and means for supporting and operating said levers, as and for the purposes aforesaid.

11. In a door-closing apparatus, a casing having duplicate and corresponding openings in the top and bottom faces, a front plate hinged to said casing and carrying a sliding bolt, said plate having a double-ended catch, a lever pivoted to said casing and having reversible surfaces engaging with either end of said catch, and means for supporting and operating said lever, as and for the purposes aforesaid.

2. In a door-closing apparatus, a casing having duplicate and corresponding openings in the top and bottom faces, a front plate hinged to said casing and carrying a sliding bolt, said plate having a double-ended catch, a system of reversible levers pivoted to said casing and to said plate and having surfaces adapted to engage either end of said catch, said levers and the bearings of the same on the casing and plate and on the catch being reversible, and means for supporting and operating said levers, as and for the purposes aforesaid.

13. In a door-closing apparatus, a casing having duplicate and corresponding openings in the top and bottom faces, a front plate hinged to said casing and carrying a sliding bolt, said plate having a double-ended catch, a lever pivoted to said casing and having reversible surfaces engaging with either end of said catch, and means for supporting and operating said lever, and a guard-piece for said lever, as and for the purposes aforesaid.

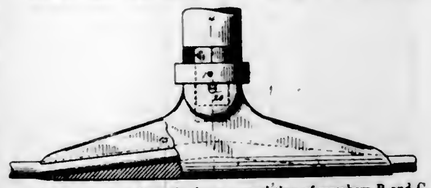
14. In a door-closing apparatus, a hinged plate carrying a sliding bolt, a base to which said plate is hinged, a locking device for said plate, means for retaining the locking device in position, duplicate bearings formed in the base for said locking device, said locking device and retaining means and the coacting surfaces of said locking device and said plate being reversible and the coacting surfaces of said locking device and said plate being beveled.

15. In a door-closing apparatus, hinged door-retaining means, a base for said retaining means, a lever, means for maintaining said lever in engagement with said retaining means and for releasing it therefrom, duplicate bearings on said retaining means for said lever, said lever and the engaging surfaces of said lever and said retaining means being reversible and said engaging surfaces being beveled to permit the ready disengagement of said lever and said retaining means.

16. In a door-closing apparatus, a bar adapted to extend across the line of travel of the door, a locking device having a beveled portion to hold said bar in position, a support upon which said bar and said locking device are movably mounted, duplicate bearings on said support upon either of which said locking device may be mounted, the coacting surfaces of said locking device and of said bar being reversible.

17. In a door-closing apparatus, a casing having duplicate and corresponding openings in the top and bottom faces, a front plate hinged to said casing and carrying a sliding bolt, said plate having a double-ended beveled catch, a lever pivoted to said casing and having reversible, beveled surfaces engaging with either end of said catch, and means for supporting and operating said lever, as and for the purposes aforesaid.

679,953. **TROLLEY-WIRE HANGER.** ALBERT D. CROSSLEY, South Norwalk, Conn. Filed Dec. 20, 1900. Serial No. 40,557. (No model.)



Claim.—1. A trolley-wire hanger consisting of members B and C, said member B comprising an elongated trough of rigid unyielding material having a bottom made thickest at its mid-length and integral with the sides and diminishing in thickness toward both ends and a hub having a slot continuing with the trough, said slot having a permanent width sufficient to receive the trolley-wire, and said member C comprising a clamping-piece adapted to pass within the trough and a ring adapted to pass outside the hub, the lower side of said clamping-piece being curved longitudinally to correspond with the curvature of the bottom of the trough and having a longitudinal groove to receive a trolley-wire which is securely locked between the trough and the clamping-piece.

2. A trolley-wire hanger consisting of members B and C, said member B comprising an elongated trough of rigid unyielding material having a bottom made thickest at its mid-length and integral with the sides and diminishing in thickness toward both ends and a hub having a slot continuous with the trough, said slot having a permanent width sufficient to receive the trolley-wire, and said member C comprising a clamping-piece adapted to pass within the trough and a ring adapted to pass outside the hub, the lower side of said clamping-piece being curved longitudinally to correspond with the curvature of the bottom of the trough and having a longitudinal groove to receive a trolley-wire and said ring standing higher than the hub so that when either of said members is held and the other member moved toward it the trolley-wire will be clamped between said members.

3. A trolley-wire hanger consisting of members B and C, said member B comprising an elongated trough of rigid unyielding material having a bottom made thickest at its mid-length and integral with the sides and diminishing in thickness toward both ends and a hub having a slot continuous with the trough, said slot having a permanent width sufficient to receive the trolley-wire, and an internal screw-thread adapted to engage the shank of an insulator, and said member C comprising a clamping-piece adapted to pass within the trough and a ring adapted to pass outside the hub and to be engaged by an insulator when the shank of the latter is turned down to place in the hub so that a trolley-wire will be locked between the clamping-piece and the bottom of the trough.

4. A trolley-wire hanger consisting of members B and C, said member B comprising an elongated trough having a bottom made thickest at its mid-length and diminishing in thickness toward both ends and a hub having a slot continuous with the trough and recesses 20, and member C comprising a clamping-piece adapted to pass within the trough and a ring adapted to pass outside the hub and having lugs adapted to be turned into the recesses, whereby the members may be locked together in use independently of the insulator.

5. The combination with member B having a trough of rigid unyielding material with integral sides and bottom to receive a trolley-wire and a hub having a slot continuous with the trough and an internal screw-thread adapted to engage an insulator-shank, said slot having a permanent width sufficient to receive the trolley-wire, of a member C having a clamping-piece adapted to pass within the trough and a ring which passes outside the hub and stands higher than the hub so that when the shank of an insulator is turned down in the hub the insulator will engage the ring but not the hub, substantially as described.

6. A trolley-wire hanger consisting of members B and C, said member B comprising an elongated trough of rigid unyielding material having a bottom made thickest at its mid-length and integral with the sides and diminishing in thickness toward both ends and a hub having a slot continuous with the trough, said slot having a permanent width sufficient to receive the trolley-wire, and said member C comprising a clamping-piece adapted to pass within the trough and a ring adapted to pass outside the hub and to be engaged by an insulator when assembled, substantially as described.

679,954. **TYPE-WRITING MACHINE.** HENRY R. CURTIS, New York, N. Y., assignor to the Yost Writing Machine Company, Ilion, N. Y. Filed July 5, 1900. Serial No. 22,581. (No model.)

Claim.—1. In a type-writing machine, the combination of a platen, a slotted type-carrying lever working upon two fixed points, and a finger-key operatively connected to said lever.

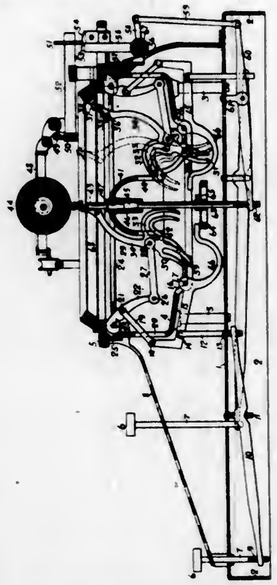
2. In a type-writing machine, the combination of a platen, a slotted type-carrying lever working upon two fixed points and constructed to first turn upon one of said points and to then slide upon both of said points, and a finger-key operatively connected to said type-bar.

3. In a type-writing machine, the combination of a platen, a slotted type-carrying lever working upon two fixed points, lateral guides for said type-bar at said points, and a finger-key operatively connected to said type-bar.

4. In a type-writing machine, the combination of a platen, two concentric rings, a series of type-bars working in guide-slots, each bar being provided with slotted portions to engage said rings, and a series of finger-keys operatively connected to said type-bars.

5. In a type-writing machine, the combination of a platen, a circular framework provided with radial slots, two concentric rings supported upon said framework, a series of type-bars working within the slots in said framework and provided with slotted portions for engaging said rings, and a series of finger-keys operatively connected to said type-bars.

6. In a type-writing machine, the combination of a platen, two fixed concentric rings, a series of radial type-bars, each of which has two arms for engaging said rings, and a series of keys operatively connected to said type-bars.



7. In a type-writing machine, the combination of a platen, a type-bar comprising three spider-arms, a type secured upon the end of one of said arms, slots provided in the other two arms, fixed points upon the machine engaged by said slots, and a finger-key operatively connected to said type-bar.

8. In a type-writing machine, the combination of a platen, a fixed pivot, a type-bar provided with a slot having a pivotal portion which normally engages said fixed pivot, said type-bar being also provided with a separate curved slot, a portion whereof is cut concentrically to said fixed pivot, means for engaging said separate curved slot, and a key operatively connected to said type-bar.

9. In a type-writing machine, the combination of a platen, a type-bar which both turns and slides upon fixed points in the machine and which is wholly supported upon said fixed points, and a key operatively connected to said type-bar.

10. In a type-writing machine, the combination of a platen, a slotted type-carrying bar working upon two fixed points, an inking-pad with which the type on said bar contacts, and a finger-key operatively connected to said type-bar.

11. In a type-writing machine, the combination of a platen, a slotted type-bar which constantly engages two fixed points, upon one of which it turns and upon both of which it slides, an inking-pad with which the type on said bar contacts, the face of said type when in contact with said pad being at an angle to its printing position, and a key connected to said type-bar.

12. In a type-writing machine, the combination of a platen, a series of radially-arranged type-bars working upon fixed points, and a series of radially-arranged driving-arms connected to said type-bars.

13. In a type-writing machine, the combination of a platen, a series of radially-arranged type-bars working upon fixed points, a series of radially-arranged driving-arms, and a series of links connecting said driving-arms to said type-bars.

14. In a type-writing machine, the combination of a platen, slotted type-bars 29 having fixed pivots, links 27, pivoted arms 22, links 19, pivoted levers 15, links 12, and key-levers 10.

15. In a type-writing machine, the combination of a platen, a set of slotted type-bars having fixed pivots, a set of drive-links 27 therefor, a set of radially-arranged type-operating levers 22 connected to said links 27, a set of radially-arranged levers 15, links 19 connecting said sets of levers, links 12, and key-levers engaged by said links.

16. In a type writing machine, the combination of a platen, a carriage, a set of radial type-operating levers, a set of key-levers, a series of levers intermediate said sets of levers, a universal bar operated directly by

said intermediate levers, and a carriage escapement mechanism connected to said universal bar.

17. In a type-writing machine, the combination of a platen, a carriage, a set of radial type-operating levers, a set of key-levers, a series of radial levers intermediate said sets of levers and having inwardly-extending arms, a centrally-arranged universal bar directly operated by said inwardly-extending arms, and a carriage escapement mechanism connected to said universal bar.

18. In a type-writing machine, the combination of a platen, a carriage, a set of radially-arranged type-operating levers, links 19, levers 15 having arms 65, links 12, key-levers 10, universal bar 64, and a carriage escapement mechanism connected to said universal bar.

19. In a type-writing machine, the combination of a platen, a carriage, a series of type-bars, and a fixed guiding-pin whose axis coincides with the printing-point.

20. In a type-writing machine, the combination of a platen, a guiding-pin arranged in proximity to the printing-point, and a type-bar constructed to have a lateral engagement with said guiding-pin.

21. In a type-writing machine, the combination of a platen, a guiding-pin arranged in proximity to the printing-point, a series of type-bars, and a yoke provided upon each type-bar for engaging said guiding-pin.

22. In a type-writing machine, the combination of a platen, a guiding-pin arranged in proximity to the printing-point, a series of type-bars, a yoke provided upon each type-bar for engaging said guiding-pin, and means for causing said yoke to slide upon said pin during the final portion of the printing-stroke of the type-bar.

23. In a type-writing machine, the combination of a platen, a guiding-pin arranged in proximity to the printing-point, a series of bars, a type-socket provided upon each type-bar, and a curved yoke provided upon each type-bar concentric with said type-socket.

24. In a type-writing machine, the combination of a platen, a guiding-pin arranged in proximity to the printing-point, a series of bars, a type-socket provided upon each type-bar, and a curved yoke provided upon each type-bar concentric with said type-socket, said yoke and socket being formed integrally and attached to the type-bar.

25. In a type-writing machine, the combination of a platen, a slotted type-bar constructed to slide and turn, a guiding-pin arranged in proximity to the printing-point, and a device upon said type-bar which forks said guiding-pin.

26. In a type-writing machine, the combination of a platen, a slotted type-bar constructed to slide and turn, means for guiding said type-bar laterally, a guiding-pin arranged in proximity to the printing-point, and a device upon said type-bar which forks said guiding-pin.

27. In a type-writing machine, the combination of a platen, a circular slotted framework, a fulcrum-ring, a series of type-bars arranged in the slots in said framework and having slots to engage said fulcrum-ring, a center guiding-pin fixed upon said framework, and yokes upon said type-bars for engaging said guiding-pin.

28. In a type-writing machine, the combination of a platen, a slotted type-carrying lever working upon two fixed points, a center guiding-pin, means upon said type-bar for engaging said pin, and a finger-key operatively connected to said type-carrying lever.

29. In a type-writing machine, the combination of a platen, a slotted type-carrying bar, an inking-pad with which the type on said bar contacts, a center guiding-pin, means upon said bar for engaging said guiding-pin, and a finger-key operatively connected to said type-carrying-bar.

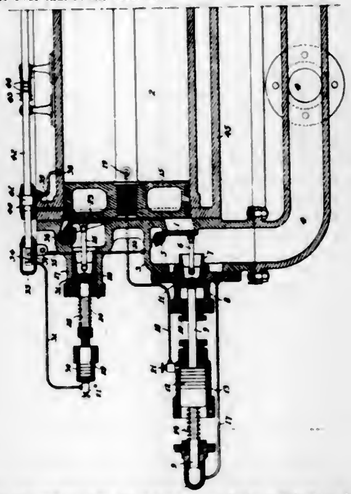
30. In a type-writing machine, the combination of a platen, a guiding-pin arranged in line with the printing-point, and a series of type-bars each provided with means for partially embracing said pin and guiding the type to the printing-point.

31. In a type-writing machine, the combination of a platen, a cylindrical guiding-pin arranged in line with the printing-point, and a series of type-bars having curved shoes, each of which is arranged to partially embrace said pin at different radial points or portions and guide the type to the printing-point.

32. In a type-writing machine, the combination of a platen, a guiding-pin arranged in line with the printing-point, a series of type-bars having means for partially embracing said guiding-pin, a set of driving-levers, as 22, a set of connecting-links as 27, a set of sublevers as 15, a set of connecting-links as 19, a set of key-levers as 10, and a set of connecting-links as 12.

679,955. VALVE MECHANISM FOR ENGINES FOR COMPRESSING AIR OR GASES. ZACHARIAS W. DAW, London, England. Filed Jan. 21, 1901. Serial No. 44,160. (No model.)

Claim.—1. The combination of a compression-cylinder, a delivery-valve opening outward therefrom and having its rear face exposed to the pressure in the receiver, a cylinder open at its inner end to the pressure in the receiver, a spindle provided with a piston on its inner end adapted to work in said cylinder, means connecting said piston with said valve, a spring for closing said valve, and means for balancing the differences in the pressures on the opposite sides of the delivery-valve up to the time the valve begins to open, to avoid great differences in the compression-cylinder over that in the receiver.



2. The combination of a compression-cylinder, a delivery-valve opening outward therefrom and having its rear face exposed to the pressure in the receiver, a cylinder open at its inner end to the pressure in the receiver, a spindle provided with a piston on its inner end adapted to work in said cylinder, means connecting said piston with said valve, a spring for closing said valve, and a cylinder open at its outer end to the atmosphere, a piston disposed on said spindle, and working in said cylinder, and means for connecting the inner end of said cylinder with the compression-cylinder whereby the differences in the pressures on the opposite sides of said delivery-valve are balanced.

3. The combination of a compression-cylinder, a delivery-valve therefor, a cylinder closed at one end, a spindle connected with said valve and having a piston working in said cylinder, said piston having a passage connecting the cylinder with the receiver, whereby the piston acts as a dash-pot to cushion the opening and closing of said valve, and means connected with said spindle for balancing the differences in pressures on the opposite sides of the delivery-valve.

4. The combination of a compression-cylinder, a delivery-valve therefor, mechanism for closing said valve, and means for balancing the differences in pressures on the opposite sides of the valve up to the time the valve begins to open.

5. The combination of a compression-cylinder, a delivery-valve therefor, a spindle connected to said valve, a spring on said spindle to close said valve, a cylinder having its inner end open to the pressure in the receiver, a piston disposed on said spindle and working in said cylinder, said piston being provided with a small passage to allow the air to pass from one side thereof to the other, a cylinder open at its outer end to the atmosphere and having its inner end in communication with the compression-cylinder, a second piston disposed on said spindle and working in said open-end cylinder, a cylinder having its outer end in communication with the receiver, a piston on the end of said spindle working in said cylinder, and means connecting said cylinder with the receiver.

6. The combination of a compression-cylinder, an inlet-valve therefor, a spindle provided with pistons on its opposite ends, means for connecting said valve to one of said pistons, cylinders disposed at opposite ends of said spindle in which said pistons work, a spring disposed on said spindle between said cylinders and adapted to close said inlet-valve, a valve-chest, means connecting the outer cylinder with said chest, means connecting said chest with the receiver, and means for connecting said cylinder with the receiver or with the atmosphere.

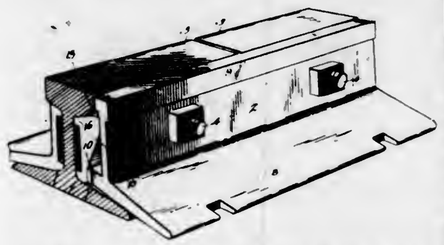
7. The combination of a compression-cylinder, an inlet-valve opening inward to the compression-cylinder, a cylinder open at both ends to the atmosphere, a piston working in said cylinder, means for connecting said piston to said valve, a spindle connected to said piston and provided with a spring for closing said valve, a cylinder disposed at the outer end of said spindle, a piston disposed on the end of said spindle and working in said cylinder, and means for connecting said cylinder alternately with the receiver and the atmosphere.

8. The combination of a compression-cylinder, an inlet-valve opening inward to the compression-cylinder, a cylinder open at both ends to the atmosphere, a piston working in said cylinder, means for connecting said piston to said valve, a spindle connected to said piston and provided with a spring for closing said valve, a cylinder disposed at the outer end of said spindle, a piston disposed on the end of said spindle and working in said cylinder, a valve-chest having passages leading to the receiver and to the atmosphere respectively, a valve adapted to uncover said passages alternately, and a pipe connecting said valve-chest with the cylinder disposed on the outer end of the spindle whereby said piston acts as a buffer on the opening and closing of the inlet-valve.

9. The combination of a receiver, a compression-cylinder having an inlet-valve, mechanism for closing said inlet-valve, a valve-chest having passages communicating with the receiver and the atmosphere, a slide-valve mounted on a spindle and working in said valve-chest, said valve being adapted to open communication with the receiver and the atmosphere alternately, a cylinder disposed adjacent to said valve-chest and having passages at its opposite ends communicating with said compression-cylinder, and a piston mounted on said valve-spindle and working in said cylinder the movement of said piston being controlled by the travel of the compression-cylinder piston whereby the slide-valve is actuated.

10. The combination of a compression-cylinder, an inlet-valve therefor, cylinders disposed at opposite ends of said compression-cylinder, each cylinder being connected by two separate passages with the compression-cylinder at points one behind the other, a spindle provided with pistons adapted to work in said cylinders, mechanism for actuating said inlet-valve, and means for transmitting the movement of said spindle to said inlet-valve actuating mechanism for cushioning the opening and closing of the inlet-valve.

679,956. RAIL-JOINT. WILLIAM J. DEVERS, Scranton, Pa., assignor of one half to Morgan Davis, Jr., same place. Filed Apr. 27, 1901. Serial No. 57,825. (No model.)



Claim.—1. In a rail-joint, the combination with a pair of rails, of an inner fish-plate, an outer fish-plate provided with a head extending above the rails, said outer fish-plate being also provided with an inwardly-extending bottom flange, and the tapering supporting-plate interposed between the outer fish-plate and the rails and supporting the heads of the rails and the top of the outer fish-plate, the bottom of the supporting-plate abutting against the bottom flange of the outer fish-plate and the web of the rails and resting upon the bottom flanges of the same, substantially as described.

2. In a rail-joint, the combination with a pair of rails, of an inner fish-plate, the outer fish-plate provided with a head, longitudinal strips arranged upon the bottom flanges of the rails and upon the top of the inner fish-plate and supporting the outer fish-plate to raise the same, and means for securing the fish-plates to the rails, substantially as described.

3. In a rail-joint, the combination with a pair of rails, of an inner fish-plate, an outer fish-plate provided with a head and having an inwardly-extending bottom flange, the supporting-plate interposed between the outer fish-plate and the rails, and the longitudinal strips arranged beneath the head and the inwardly-extending bottom flange of the outer fish-plate, substantially as described.

679,957. BURGLAR-ALARM OR DOOR-SIGNAL. WILLIAM R. EDELEN, Washington, D. C. Filed Dec. 31, 1900. Serial No. 41,689. (No model.)

Claim.—1. In combination with a burglar-alarm or door-signal suspended from the shank of a door-knob, composed of a gong, of a clamping device having a rack thereon for securing said clamping device to the shank of a door-knob, said rack being pivoted to the lower member of said clamping device, and the teeth of said rack engaging the upper member thereof, a hanger extending from said clamping device, a bar pivoted to said hanger and having an adjustable gong thereon, a cam forming the continuation of said hanger and adapted to operate a pin or knob connected to the alarm mechanism of said gong when said knob is turned for the purpose as shown and specified.



2. In combination with a burglar-alarm or door-signal suspended from the shank of a door-knob, composed of a clamping device having a rack thereon for securing said clamping device to the shank of a door-knob, said rack being pivoted to the lower member of said clamping device, and the teeth of said rack engaging the upper member thereof, a hanger extending from said clamping device, the extreme end of said hanger being cam-shaped for operating a knob connected to a gong, a bar pivoted to said hanger and having means for adjusting a gong or bell thereon, a locking device, secured to said hanger, said locking device to engage the knob on the gong and prevent said cam from returning to its normal position when the door-knob is released and said bell is rung as specified.

3. In combination with a burglar-alarm or door-signal suspended from the shank of a door-knob, composed of a clamping device having a rack thereon for securing said clamping device to the shank of a door-knob, a hanger extending from said clamping device, a bar pivoted to said hanger and having an adjustable gong thereon, a cam forming the continuation of said hanger for operating said gong, stops on the extreme ends of the travel of said cam for preventing the gong-knob from leaving the face of said cam for the purpose as shown and described.

4. In combination with a door-signal suspended from the shank of a door-knob consisting of a clamping device having a rack or toothed bar pivoted thereon for securing said clamping device to the shank of a door-knob, a hanger extending from said clamping device and having a cam thereon for operating a gong, a bar pivoted to said hanger and having a gong thereon, an extension above the pivotal point of said bar for operating a telltale device which consists of a tripping-lever and a tilting-lever, the tripping-lever being secured to the hanger, and the tilting-lever to the clamping device for the purpose as described.

5. In combination with a door-signal or alarm-bell suspended from the shank of a door-knob composed of a clamping device, a hanger suspended from said clamping device with a cam thereon, said cam for operating a knob connected to said alarm-bell, a bar pivoted to said hanger, a spring secured to said bar, a rubber button on said spring for contacting a door for the purpose as described.

6. In combination with an alarm or door-signal, suspended from the shank of a door-knob composed of a clamping device, a hanger suspended from said clamping device with a cam thereon, said cam for operating said door-signal, a bar pivoted to said hanger, a spring secured to said bar and carrying a rubber button thereon and an adjusting device for regulating the pressure of said button against a door for the purpose as specified.

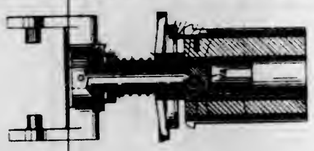
7. In combination with a burglar-alarm suspended from the shank of a door-knob, composed of a clamping device, said clamping device consisting of an upper and a lower member, the lower member having a toothed rack pivoted thereto, the teeth of which engage the upper member when clamping the same to a door-knob, a hanger secured to said lower member having a cam thereon, said cam for operating a knob on said burglar-alarm, a bar pivoted to said hanger carrying a bell or gong as specified, and the means for sounding an alarm on said bell or gong.

8. In combination with a burglar-alarm suspended from a door-knob composed of a clamping device, said clamping device consisting of two members which are clamped to a door-knob by a toothed rack pivoted to the lower member and engaging the upper member of said clamping device, a hanger secured to the lower member of said clamping device and carrying a cam thereon for engagement with a knob attached to an alarm-bell, a bar pivoted to said hanger for supporting said alarm-bell, a tilting-lever secured to the lower member of said clamping device which engages with a tripping-lever on said hanger and operated by the extension on said bar pivoted to said hanger for the purpose as shown and described.

9. In combination with a burglar-alarm suspended from the shank of a door-knob, composed of a clamping device, said clamping device consisting of an upper and a lower member a hanger secured to said lower member, with a cam thereon, said cam for operating an alarm-bell, a telltale device secured to said lower member of the clamping device and said hanger, the telltale device acting independently of the signal, a bar pivoted to said hanger having thereon an extension for operating said tell-

tale device when a door-knob is turned for sounding an alarm on a bell or gong for the purpose as shown.

679,958. REVOLVING CHAIR. JOHN ELLENBECKER, Port Washington, Wis. Filed Sept. 10, 1900. Serial No. 29,500. (No model.)



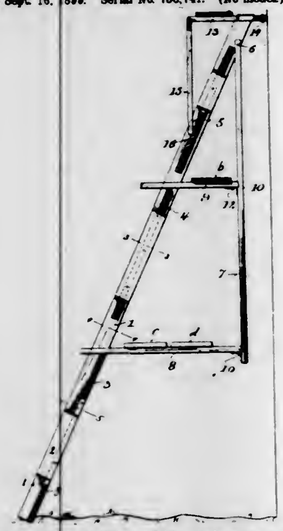
Claim.—1. In combination, a smooth-bore hub provided with a longitudinal groove, a hollow externally-screw-threaded sleeve slidable endwise in the hub and provided interiorly with an inwardly-projecting annular shoulder and with a pin projecting exteriorly into the groove in the hub, a nut resting on the hub and turning on the thread of the sleeve, a detachable spindle-block seated on the annular shoulder in the sleeve, and a spindle footed in the block and rotatable in the sleeve.

2. In combination, a smooth-bore hub, a hollow exteriorly-screw-threaded sleeve provided medially with an interior inwardly-projecting shoulder and slidable endwise in the bore of the hub, means securing the sleeve against rotation in the hub, a nut resting on the hub and turning on the sleeve, a metal spindle-block seated removably and non-revolubly on the shoulder in the sleeve, and a chair-seat spindle footed in the spindle-block and rotatable in the sleeve.

3. In combination, a smooth-bore hub, an exteriorly-screw-threaded sleeve movable endwise in the hub, a nut resting on the hub and turning on the sleeve, an annular flange on the nut disposed in a radial plane and provided with notches, and an elastic coupling device fixed on the hub and disposed to engage said flange and prevent the escape of the nut and the sleeve from the hub and to hold the nut releasably against rotation.

4. In combination, a smooth-bore hub, a hollow exteriorly-screw-threaded sleeve loose in the hub, a nut resting on the hub and turning by its screw-thread on the sleeve, means holding the nut to the hub rotatively, a spindle provided with a head, the spindle being seated rotatively in the sleeve, and a coupling-ring secured detachably to the spindle-head and engaging and connecting the sleeve rotatively to the spindle-head.

679,959. FOLDING SCAFFOLD. EMILIUS ENOS, Racine, Wis. Filed Sept. 16, 1899. Serial No. 730,741. (No model.)



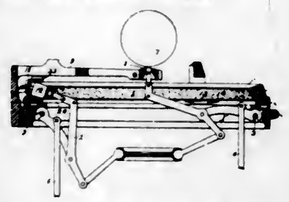
Claim.—1. In a folding scaffold, a main support consisting of two parallel side boards and intervening strips of boards between them of less thickness than the width of the side boards, a depending arm pivoted to said main support between its parallel boards and one or more foot-board-supporting arms hinged to said vertical arm and adapted when in operative position to lie horizontally and to rest upon the intervening strips, the intervening strips and said supporting-arm being arranged so that the latter folds on the former and lies within the width of the side boards.

2. In a folding scaffold, a main support consisting of two parallel side boards and intervening strips of boards between them, a depending arm pivoted to said main support between its parallel side boards, one or more cross-arms hinged to said depending arm and adapted when in position to lie horizontally, and to project between the side boards of the main support and rest upon its intervening strips, said intervening strips and supporting-arms being of less width than the width of the side boards, and the parts being so connected that the cross-arms fold on the intervening strips and lie within the width of the side boards.

3. In a folding scaffold, a supporting and housing member consisting of two parallel side boards and intervening strips of boards between them, of less thickness than the width of the side boards, a depending arm pivoted to said supporting member, one or more floor-supporting members hinged to said depending arm, and adapted when the scaffold is in operative position to rest horizontally upon the intervening strips of the housing member, and when said scaffold is in inoperative position or folded, to lie within the width of the housing member.

4. In a folding scaffold, a main supporting member consisting of two parallel boards and intervening strips of boards between them, a depending arm pivoted to said supporting member between its component boards, one or more floor-supporting members hinged to said depending arms, and a roller-carrying arm pivoted to the parallel boards, and an arm 15 pivoted to the roller-carrying arm and having its lower end resting on notches in the intervening strips of the supporting member.

679,960. TYPE-WRITING MACHINE. JACOB FELSEL, New York, N. Y., assignor to Yost Writing Machine Company, Ilion, N. Y. Filed June 22, 1900. Serial No. 21,132. (No model.)



Claim.—1. In a type-writing machine, the combination with a curved support, of a curved rotatable pad-case, and catching devices on said support and case, said parts being so constructed and arranged that the pad-case may be placed loosely upon the support and by a slight rotation thereon cause a locking engagement between the members of said catching devices.

2. In a type-writing machine, the combination with a support, of a rotatable pad-case made in ring form, handles thereon, and locking devices, the whole being so constructed and arranged that the pad-case may be placed upon the support and by said handles given a slight rotation and locked upon said support.

3. In a type-writing machine, the combination with a support, of a rotatable pad-case made in ring form and having a division, as 11, handles 22 thereon, and locking devices, the whole being so constructed and arranged that the pad-case may be placed upon the support and by a slight rotation locked thereon and simultaneously contracted in diameter.

4. In a type-writing machine, the combination with a type-ring, of lips thereon, and a pad-case arranged upon said type-ring and having depending hooks to engage said lips.

5. In a type-writing machine, the combination of ring 4 having lips 14, overhanging bracket 18, 19, and divided annular pad-case 10 having bearers 21 and hooks 13.

6. In a type-writing machine, the combination with a curved pad-case having hooks 13, of a curved support, and lips 14 provided upon said support and having beveled portions 25 to engage said hooks.

7. In a type-writing machine, the combination with a curved pad-case having hooks 13, of a curved support, and lips 14 provided upon said support and having beveled portions 25 to engage said hooks, said beveled portions 25 being undercut at 26.

8. In a type-writing machine, the combination with a curved rotatable pad-case and a support, of a handle 22 arranged thereon, and means operating automatically when said case is rotated by said handle for locking said pad-case upon the support.

9. In a type-writing machine, the combination with a support, of a ring-like divided rotatable pad-case, handles 22, and means operating automatically upon rotating the pad-case by means of said handles for contracting the diameter of the pad-case and locking it in position.

10. In a type-writing machine, the combination of annular pad-case 10 having division 11, bearers 21, hooks 13, and handles 22, plate 18, inclined wings 23, uprights 19, annular support 4, and lips 14.

11. In a type-writing machine, the combination of annular pad-case 10 having division 11, bearers 21, hooks 13, and handles 22, plate 18, uprights 19, annular support 4, lips 14, annular recess 24 in said support 4, type-bar fulcrum-ring 2, and slotted type-bars 1 pivoted upon said fulcrum-ring and confined thereon by the support 4.

12. In a type-writing machine, the combination of a type-ring having an inwardly-projecting lip 14, and an annular ink-pad case arranged to rotate upon said ring and having a rigid hook 13 adapted to engage and disengage said lip by rotative movements of the case on the ring.

13. In a type-writing machine, the combination of a type-ring having an inwardly-projecting lip 14 and an annular ink-pad case arranged to rotate upon said ring and having a handle 22 and a hook 13, the latter being adapted to engage and disengage the lip 14 by rotative movements of said case on said ring.

14. An annular pad-case having a pair of hooks 13 projecting inwardly and downwardly and adapted to inwardly-projecting lips 14 supported upon a type-writing machine.

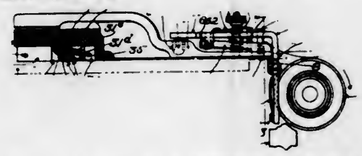
15. An annular pad-case having a pair of handles 22, whereby it may be rotated, and also having a pair of inwardly and downwardly projecting hooks 13 adapted to engage lips 14 fixed upon a type-writing machine.

16. An annular divided pad-case having a hook 13 and a bearer 21, said hook being adapted to an ear 14, and said bearer 21 being adapted to an ear 19, said lip and ear being suitably fixed upon a type-writing machine.

17. An annular divided pad-case having a pair of downwardly and inwardly extending ears 13 adapted to lips 14, and also having near its ends a pair of outwardly-projecting bearers 21 adapted to ears 19, said lips and ears being suitably supported upon a type-writing machine.

18. An annular divided pad-case having a pair of handles 22, whereby it may be rotated, a pair of ears 13 extending inwardly and downwardly from the lower portion of the pad-case and adapted to lips 14, and also having outwardly-projecting bearers 21, adapted to ears 19, said lips and ears being suitably mounted upon a type-writing machine.

679,961. MECHANISM FOR FEEDING CARDS OR THE LIKE. JOSEPH FRENCH, Woonsocket, R. I. Filed Jan. 23, 1901. Serial No. 44,378. (No model.)



Claim.—1. In combination, a receptacle for cards or the like, and a floating throat-piece controlled in position by the position of the leading end of the card which is next to be fed, substantially as described.

2. In combination, a receptacle for cards or the like, a floating throat-piece, a gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, and means to hold said throat piece pressed with yielding force toward its normal position, substantially as described.

3. In combination, a receptacle for cards and the like, a movable throat-piece, a gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, means to adjust the said gage to vary the throat or passage-way, and means to hold the throat-piece pressed with yielding force toward its normal position substantially as described.

4. In combination, a receptacle for cards and the like, a movable throat-piece, means to hold the same pressed with yielding force into normal position, a gage connected with said throat-piece forming one side of the throat or passage-way, and a block forming the other side thereof and yielding to obviate injury to a card, substantially as described.

5. In combination, a receptacle for cards and the like, a movable throat-piece having a yielding gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, said gage forming one side of the throat or passage-way, a yielding block forming the other side of the throat or passage-way, and means to hold the throat-piece pressed with yielding force toward the normal position thereof, substantially as described.

6. In combination, a receptacle for cards and the like, a movable throat-piece, means to hold the same pressed with yielding force into normal position, a gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, and forming one side of the throat or passage-way, means to adjust the said gage to vary the throat or passage-way, and a block forming the other side of said throat or passage-way and yielding to obviate injury to a card, substantially as described.

7. A receptacle for cards and the like having a throat in narrow sections separated from each other to facilitate passage of a card therethrough, substantially as described.

8. In combination, a receptacle for cards and the like having a throat in narrow sections separated from each other, to facilitate passage of a card therethrough, and the sectional feeder, substantially as described.

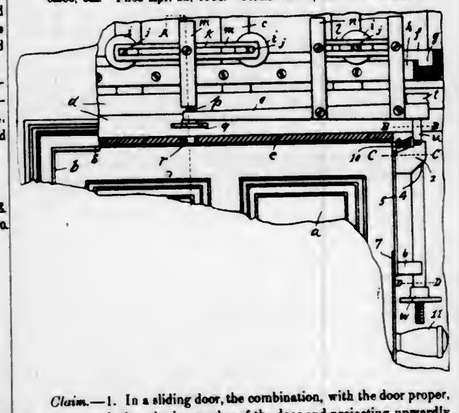
9. In combination, a receptacle for cards having a floating throat, and a sectional feeder, substantially as described.

10. In combination, a receptacle for cards, a yielding throat-piece, yielding gages to coact with the face of the leading end of the first card, and pivoted yielding blocks forming one side of the throat or passage-way, substantially as described.

11. In combination, a receptacle for cards, a yielding throat-piece, gages to coact with the face of the leading end of the first card, pivoted blocks forming one side of the throat or passage-way, and means to adjust the width of said throat or passage-way, substantially as described.

12. In combination, a receptacle for cards, a yielding throat-piece, yielding gages to coact with the face of the leading end of the first card, pivoted blocks forming one side of the throat or passage-way, and means to adjust the width of said throat or passage-way, substantially as described.

679,962. SLIDING DOOR. JOHN HANDSCHUMACHER, San Francisco, Cal. Filed Apr. 22, 1901. Serial No. 57,001. (No model.)



Claim.—1. In a sliding door, the combination, with the door proper, of a stem attached to the inner edge of the door and projecting upwardly above the top thereof, a hanger-arm secured thereto and extending therefrom parallel with and above the top of the door, hangers attached to said arm, rollers supporting said hangers, and a track for said rollers, substantially as described.

2. In a sliding door, the combination, with the door proper, of a stem removably attached to the inner edge of the door and projecting upwardly above the top thereof, a hanger-arm secured thereto and extending therefrom parallel with and above the top of the door, hangers attached to said arm, rollers supporting said hangers, and a track for said rollers, substantially as described.

3. In a sliding door, the combination, with the door proper, of a track, rollers on said track, a hanger-arm suspended from said rollers, a stem secured to and suspended from one end of said hanger-arm, a sleeve on said stem, means for vertically adjusting said sleeve on said stem, and a plate attached to the door and having a bearing or socket resting on said sleeve, substantially as described.

4. In a sliding door, the combination, with the door proper, of a track, rollers on said track, a hanger-arm suspended from said rollers, a stem secured to and suspended from one end of said hanger-arm, a sleeve on said stem, means for vertically adjusting said sleeve on said stem, a plate attached to the door and having a bearing or socket resting on said sleeve, and means for adjusting said door horizontally with reference to said plate, substantially as described.

5. In a sliding door, the combination, with the door proper, of a track, rollers on said track, a hanger-arm suspended from said rollers, a stem secured to and suspended from one end of said hanger-arm, a sleeve on said stem, means for vertically adjusting said sleeve on said stem, a plate attached to the door and having a bearing or socket resting on said sleeve, and means for adjusting said hanger-arm vertically with reference to said rollers, substantially as described.

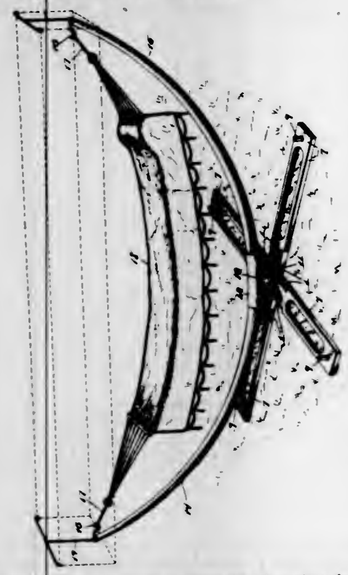
6. In a sliding door, the combination, with a door proper, of a track, rollers on said track, hangers on the axles of said rollers; a hanger-arm adjustably secured to said hangers, a vertical stem secured to said hanger-arm, a sleeve on said stem, a nut screwed on said stem and supporting said sleeve and a plate secured to the door having a socket resting on the end of said sleeve, said socket being open at the rear side and cut away obliquely below to permit the plate to be withdrawn when the sleeve is lowered, substantially as described.

7. In a sliding door, the combination, with a door proper, of a track, three rollers on said track, front and rear slotted plates carried by the axles of said rollers, the front plates being carried on the axles of two rollers, a hanger pivotally attached to said front plates, a hanger attached to the rear plates, a hanger-arm attached to said hangers, a stem secured to and suspended from one end of said hanger-arm, and means for detachably securing the door to the stem, substantially as described.

8. In a sliding door, the combination, with a door proper, of a track, rollers thereon, a hanger-arm supported on said rollers, a stem detachably secured to the door, said stem having a tapering end, and said hanger-arm having at one end a corresponding socket, and means for drawing said tapering end tightly into said socket, substantially as described.

9. In a sliding door, the combination, with a door proper, of a track, three rollers on said track, front and rear slotted plates carried by the axles of said rollers, the front plates being carried on the axles of two rollers, a hanger pivotally attached to said front plates, a hanger attached to the rear plates, a hanger-arm, a screw for attaching the front end of the hanger-arm to the front hanger, said screw having a head with a notched periphery, a vertical stem having a tapering upper end, the rear end of said hanger-arm having a corresponding socket, a nut on the threaded projecting upper end of said stem, a sleeve on said stem, a nut on the threaded lower end of said stem for supporting said sleeve, said nut having a perforated head, a plate attached to the door and having a bearing or socket resting on said sleeve, an adjustable stop for limiting the movement of the door to close the same, and a resilient stop limiting its movement in the opposite direction, substantially as described.

679,963. **HAMMOCK-SUPPORT.** THOMAS S. HAYWARD, Easton, Md., assignor of one-half to Dallas B. Hayward, same place. Filed Jan. 30, 1900. Serial No. 3,366. (No model.)

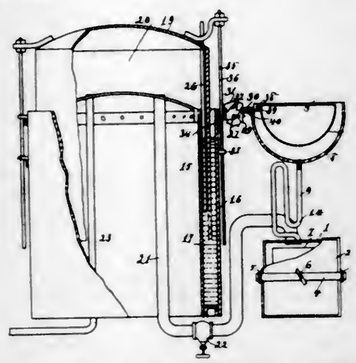


Claim.—1. A hammock-support comprising a base-piece adapted to be laid on the ground, having flat radial arms formed with dovetail sockets in their upper faces, a central pivot-post and radial webs located between the pivot-post and the sockets, the flat braces having peg-holes in their outer ends and provided with dovetail inner ends removably secured in the dovetail sockets of the radial arms.

2. A hammock-support comprising a base-piece adapted to be laid on the ground, having flat radial arms formed with flat braces, and a central pivot-post, a sleeve or thimble fitting around the pivot-post having an annular flange at its lower end and a slightly-curved tube at its upper end and curved tubular bars having their inner ends adapted to be secured rigidly in the tube and their outer ends provided with means for connecting a hammock therewith.

3. A hammock-support comprising a base-piece adapted to be laid on the ground, having flat radial arms formed with dovetail sockets in their upper faces, a central pivot-post, the flat braces having peg-holes in their outer ends and provided with dovetail inner ends removably secured in the dovetail sockets of the radial arms, a sleeve or thimble fitting around the pivot-post having an annular flange at its lower end and a slightly-curved tube at its upper end, and tubular bars having their inner ends adapted to be secured rigidly in the tube and their outer ends provided with means for connecting a hammock therewith.

679,964. **ACETYLENE-GAS APPARATUS.** JOHN J. HENDLER, Kansas City, Mo., assignor to Alexander Gray, William K. Reeves, and Edward K. Reeves, comprising the firm of the International Light and Heat Company, same place. Filed Oct. 23, 1899. Serial No. 734,441. (No model.)



Claim.—1. The combination with a liquid-sealed gas-holder provided with a supply-pipe and discharge-pipe, of a gas-generating chamber with which said supply-pipe communicates, a series of carbid-cells arranged in said chamber, a series of water-compartments mounted above said chamber, a series of water-sealed passages communicating severally and respectively with said compartments and with said cells, a series of water-cups eccentrically mounted in said compartments, means for retaining said cups in position to contain the water therein, and means for successively tripping said cups to empty the water therefrom, substantially as set forth.

2. In an apparatus for generating acetylene gas, the combination with a gas-generating chamber having a sealed door and provided with a gas-pipe leading therefrom, and a series of carbid-cells arranged in said chamber, of a series of water-compartments, a series of water-cups eccentrically mounted in said compartments, a series of tubes forming water-sealed passages severally and respectively between said compartments and said cells, means for retaining said cups to contain the water therein and means for tripping said cups to empty the water therefrom, substantially as set forth.

3. In an apparatus for generating acetylene gas, the combination with a gas-holder provided with suitable supply and discharge pipes, a gas-generating chamber communicating through said supply-pipe with said holder, a series of carbid-cells in said chamber, a series of water-compartments, a series of water-sealed passages between said compartments and said carbid-cells, a series of water-cups eccentrically mounted in said compartments, and provided with marginal lips, trips mounted on the water-chamber casing arranged to engage said lips to retain said cups in position to contain the water, and means controlled by the rise and fall of the gas-holder for successively tripping said cups to empty the water therefrom, substantially as set forth.

4. In an apparatus for generating acetylene gas, having a suitable gas-holder, a series of water-compartments, a series of water-cups eccentrically mounted in said compartments, and provided with marginal lips, a series of trips mounted on the compartment-casing arranged to engage said lips, a shaft mounted adjacent to said compartments, a series of pins on said shaft arranged to successively engage said trips, a ratchet-wheel fixedly mounted on said shaft, a recessed sector loosely mounted on said shaft, a spring-controlled pawl mounted on said sector and arranged to engage said ratchet-wheel, a tripping-finger on said sector, and a tripping-rod mounted on the gas-holder provided with a tripping-pin arranged to engage said finger as the holder falls to trip said water-cups and empty

the water therefrom, and to engage said shoulder of said recess as the holder rises and restore said pawl to position, substantially as set forth.

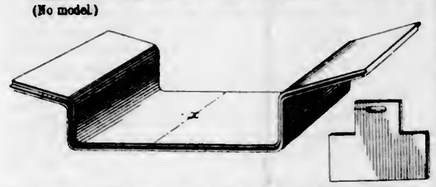
5. In an apparatus for generating acetylene gas, a series of water-compartments, water-sealed discharge-pipes communicating with said compartments, a series of water-cups mounted aside from the center of gravity in said compartments, and a series of trips mounted on the casing of said compartments and arranged to engage said water-cups to retain the same in position to contain the water therein, and a series of carbid-holders communicating through said pipes with said water-compartments, and means for disengaging said trips to permit the tilting of said water-cups to empty the water therefrom, substantially as set forth.

6. In an apparatus for generating acetylene gas the combination with a gas-generating chamber having a suitable gas-discharge pipe, and a series of carbid-cells arranged in said chamber, of a series of water-compartments corresponding with said series of cells, and having each separate and independent water-sealed communication with a corresponding carbid-cell, a series of water-cups mounted aside from their center of gravity in said compartments, and a series of trips mounted on the compartment-casing arranged to retain said water-cups in position to contain the water therein, substantially as set forth.

7. In an apparatus for generating acetylene gas the combination with a gas-generating chamber having a suitable gas-discharge pipe, and a series of carbid-cells arranged in said chamber, of a series of water-compartments corresponding with said series of cells, having each separate and independent communication with a corresponding carbid-cell and sealed to the passage of gas from the gas-chamber, a series of water-cups mounted aside from the center of gravity in said compartments and a series of trips mounted on the compartment-casing arranged to retain said water-cups in position to contain the water therein, substantially as set forth.

8. In an apparatus for generating acetylene gas, a water-compartment, a water-sealed discharge-pipe communicating with said compartment, a tilting water-cup mounted therein and arranged to be tilted by the force of gravity, a trip engaging said cup to retain the same in position to contain the water therein, and means for disengaging said trip to permit the tilting of said cup; substantially as set forth.

679,965. **CLAY TROUGH FOR IRRIGATING-DITCHES.** FREDERICK VON HOLDT, Alcott, Colo. Filed Dec. 18, 1900. Serial No. 40,247. (No model.)

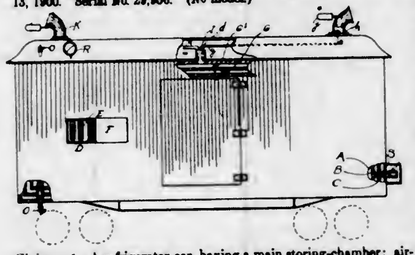


Claim.—1. The clay-trough section of size and shape, substantially as set forth and adapted to be severed for the insertion of an additional plate or plates for variation of the width of the ditch.

2. The combination with severable clay-trough sections, of supplemental plates insertible between the severed parts to vary the width of the ditch as set forth.

3. The combination with the trough-section, having a side opening and gate as described, of apertures in the gate and section and a fastening-chain, all substantially as set forth.

679,966. **REFRIGERATOR-CAR.** JACOB HOMMEL, Los Angeles, Cal., assignor of one-half to Frederick T. Griffith, same place. Filed Sept. 13, 1900. Serial No. 29,956. (No model.)



Claim.—1. A refrigerator-car, having a main storing-chamber; air-tight chambers surrounding said storing-chamber; a thermometer in each of said chambers, valvular means to connect the said chambers together; an air-circulating chamber above said chambers; funnels revolubly mounted above and at each end of the ventilating-chamber and connecting directly with said ventilating-chamber; vanes on said ventilators arranged to present the open mouth of one to the wind, and the mouth of the other from the wind, and a valve communicating with the said chambers and operatively connected with the ventilator-funnels, and adapted to be operated thereby; and a pressure-gage connected with the other jacketing-chamber.

2. In a refrigerating-car, the combination of a main storing-chamber; jacketing-chambers surrounding the storing-chamber, provided with a thermometer and pressure-gage as shown; a ventilating-chamber above the said chambers; the said chambers being valvularly connected one with the other; ventilators revolubly mounted on the car at either end thereof, the said ventilators having vanes, as shown, and being connected with the ventilating-chamber, and provided with a bell-crank rigidly attached thereto; a rotary valve connecting the outer jacketing-chamber with the ventilating-chamber, having on the upright stem thereof, a crank; a connection-rod between the crank on the ventilator and the crank on the rotary valve, whereby the rotation of the ventilator will operate the valve, substantially in the manner shown and described.

3. In a refrigerator-car, the combination of the ventilating-funnel *i*, rotatively mounted on the end of the car above the ventilating-chamber *m* and connecting directly with said chamber; the crank A attached to said ventilator; the rotary valve I connecting the ventilating-chamber with the outer jacketing-chamber C, a stem on said valve projecting therefrom and having mounted thereon a crank; the connecting-rod *g*, one end rotatively mounted on the crank of the valve and the other end mounted on the crank on the ventilator, whereby the rotary movement of the ventilator operates the valve.

4. In a refrigerator-car, having ventilating-chambers; a storing-chamber, and jacketing-chambers, as shown, the combination of the ventilating-funnel *i*, located at the end of the car above the said ventilating-chamber and connecting directly therewith; a crank A on said ventilator; the rotary valve I, located in the partition and forming a connection between the ventilating and the outer jacketing-chambers; a crank-arm *d* on said valve; a connecting-rod *g* mounted, one end on the crank of the valve and the other end on the crank of the ventilator, substantially as shown and described.

5. A refrigerator-car, comprising a storage-chamber, jacketing-chambers, surrounding the storage-chamber; valvular connections between the said chambers; a ventilating-funnel, revolubly mounted on said car and carrying at its lower end a crank-arm; a rotary valve in the casing of the outer jacketing-chamber, having a crank-arm; a connecting-rod attached to said crank-arm at one end, and to the crank-arm on the ventilator to impart motion to and operate said valve when the ventilator rotates a vane on said elevator to keep its mouth to the wind.

6. In a refrigerator-car, having different compartments therein, the herein-described ventilating-valve I, located to give valvular connection between two different compartments, comprising a cylindrical casing, closed at the top and bottom, the same forming valve-seats for the valves, one port in the upper valve-seat and a plurality of ports in the lower seat; a revoluble valve-stopper therein, having an upper member *e* in the top, with one port therein, and an under member with a plurality of ports; a stem *c* projecting therefrom and having mounted thereon a crank-arm *d*, the said crank-arm being operatively connected with a revoluble ventilator, mounted on the top of the car, and having a vane adapted to cause the ventilator to revolve when the wind shifts, substantially as and for the purpose shown and described.

679,967. **LOADING OR UNLOADING APPARATUS.** GEORGE H. HULETT, Akron, Ohio, assignor of one-half to Webster, Camp and Lane Machine Company, same place. Filed May 11, 1901. Serial No. 59,757. (No model.)

Claim.—1. In an unloading apparatus, a bucket comprising telescopic shells, and means for moving one of said shells relatively to the other.

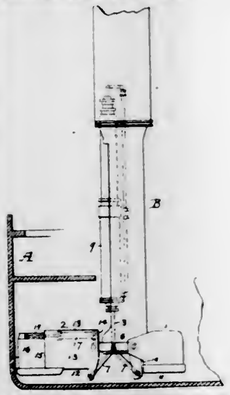
2. In an unloading apparatus, the combination of two shells comprising a combined bucket and gatherer, and means for moving one of said shells relatively to the other.

3. In an unloading apparatus, the combination with a shell having three open sides, of a shell having two open sides and constructed to telescope within the first-mentioned shell, one wall of the telescopic shell constituting a scraper when moved relatively to the first-mentioned shell, and also constituting a bottom for said first-mentioned shell when the telescopic shell is disposed therein.

4. In an unloading apparatus, the combination with a revoluble leg, of a combined bucket and scraper or gatherer carried thereby and comprising telescopic shells and means for moving one of said shells relatively to the other.

5. In an unloading apparatus, the combination with a support, of two buckets hinged thereto, one bucket comprising telescopic members,

means for moving one of said members relatively to the other and means for closing said buckets together to form a scoop.

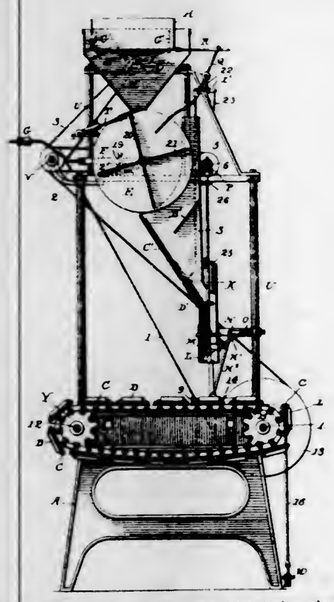


6. In an unloading apparatus, the combination of two shells comprising a combined bucket and gatherer, and a motor secured within one shell and connected with the other shell.

7. In an unloading apparatus, the combination of two shells, one telescoping within the other and comprising a combined bucket and scraper or gatherer, rollers mounted within one shell and bearing against the other shell, trackways secured to the first-mentioned shell and rollers carried by the telescoping shell between said trackways and first-mentioned rollers and bearing on said trackways.

8. In an unloading apparatus, the combination of two shells comprising a combined bucket and gatherer, and guideways for the respective sides of one shell within the other.

679,968. WEIGHING AND FILLING MACHINE. HORACE INMAN, Amsterdam, N. Y. Filed July 24, 1900. Serial No. 24,700. (No model.)



Claim.—1. The combination of the weighing devices, chute H, a hopper consisting of a pan having a perforated bottom and suspended within the chute to be vibrated horizontally, means for vibrating the hopper, and means for elevating the hopper in the chute to throw it out of connection with the vibrating means, substantially as set forth.

2. The combination of the weighing devices, chute H, a hopper consisting of a pan having a perforated bottom and suspended to be vibrated horizontally, means for vibrating the hopper, and means for shifting the hopper to position out of action with the vibrating means, substantially as set forth.

3. The combination of the rotary pocketed receiver, chute H, vibrating hopper H' having a perforated bottom, means for vibrating the hopper, and an arm Q in position to be shifted as the receiver rotates and connected to shift the hopper out of action with the vibrating means, substantially as set forth.

4. The combination with the hopper and means for feeding material, of a rotary pocketed receptacle E, a counterweighted frame supporting said receptacle, a detent for preventing the rotation of the receptacle while elevated, and an arm Q arranged to make contact with parts of the receptacle and connections whereby the feeding means are thrown out of action by the movement of said arm, substantially as set forth.

5. The combination with the independent feeding and weighing devices, of a continuous traveling bed and means for moving it, a series of chutes each provided with a movable sleeve M, and means for mechanically raising and lowering the said sleeves, substantially as set forth.

6. The combination with means for supporting a receptacle to be filled, of a receiver, means for supplying material thereto and discharging it therefrom, a chute between the receiver and receptacle, a presser-screw on a vertically-movable shaft in said chute and driving-gear through which said shaft slides, and means for rotating the said gear and shaft, substantially as set forth.

7. The combination with the means for weighing and feeding material, of a delivery-chute having a sleeve at the lower end, an endless band carrying supports for receptacles to be filled, and means for arresting the travel of the band when a support is beneath the chute and for simultaneously lowering the sleeve, substantially as set forth.

8. The combination with an intermittently-traveling supporting-bed, of a plurality of receivers, means for feeding material to and discharging regulated quantities from each, means for conducting the material discharged from each receiver toward the said bed, and means for simultaneously starting the feeding devices, substantially as set forth.

9. The combination with an intermittently-moving supporting-bed, of independent receivers for receiving and weighing material, means for arresting the feed to each receiver and discharging the latter when the proper quantity of material is deposited therein, and means for starting the feed of all the receivers simultaneously, substantially as set forth.

10. The combination with a traveling bed and means for moving the same intermittently, of a chute, means for feeding material thereto, and a sleeve M movable upon said chute and devices for moving said chute from said bed, substantially as set forth.

11. The combination with a traveling bed and means for moving the same intermittently, of a chute, means for feeding material thereto, a sleeve M movable upon said chute, and devices for stopping and starting the bed and simultaneously moving the said sleeve, substantially as set forth.

12. The combination of a receiver, means for supplying and discharging the same, a traveling bed for the receptacles, an intermediate chute provided with a deflector-blade B', and an agitator for breaking up the contents, substantially as set forth.

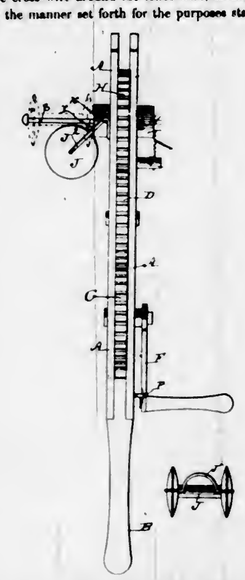
679,969. MACHINE FOR MAKING WIRE FENCES. CHARLES V. KANOA, Russell, Iowa, assignor of one-half to C. H. Ruart, same place. Filed Nov. 23, 1900. Serial No. 37,443. (No model.)

Claim.—1. In a machine for fixing cross-wires to fence-wires, a frame composed of two mating parts fixed to a handle to extend in parallel position and the ends of said mating parts bifurcated, and a gear-wheel having a tubular hub and coinciding slots in the wheel and hub to admit a fence-wire, two mating gear-wheels journaled in the frame below the wheel having the tubular hub, a crank-handle on the axle of the lower gear-wheel, and a wire frame fixed across the lower end of the frame to engage the crank-handle, arranged and combined to operate in the manner set forth for the purposes stated.

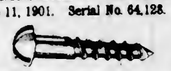
2. In a machine for fixing cross-wires to fence-wires, a wheel having a tubular hub and coinciding slots in the wheel and hub, a wire frame adapted to be detachably fastened to one end of the hub by means of pins, and a spool mounted in said wire frame, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a machine for fixing cross-wires to fence-wires, a wheel having a tubular hub and coinciding slots in the wheel and hub, a wire frame adapted to be detachably fastened to one end of the hub by means of pins, a spool mounted in said wire frame, and means for coiling the wire that extends from the spool longitudinally through the hub around a fence-wire also extended longitudinally through the hub, arranged and combined to operate in the manner set forth for the purposes stated.

4. A machine for fixing cross-wires to fixed fence-wires, comprising a frame composed of two mating parts fixed to a handle to extend in parallel position therefrom and in alinement therewith, the ends of said mating parts bifurcated, three gear-wheels mounted between the mating parts of said frame, the wheel nearest the handle provided with a crank-handle, a detent on the lower end of the frame for holding the crank-handle, the wheel at the bifurcated ends provided with a tubular hub, coinciding slots in said wheel and hub to admit a fence-wire, a frame adapted to be detachably fastened to one end of said hub, means for fastening said frame to the hub, a spool mounted on said frame and means fixed in said hub for coiling the cross-wire around the fence-wire, arranged and combined to operate in the manner set forth for the purposes stated.



679,970. TENSION-SCREW. HERBERT E. KRELER, New York, N. Y. Filed June 11, 1901. Serial No. 64,128. (No model.)



Claim.—1. A tension device consisting of a cylindrical shank, a threaded end and an enlarged head and having a slot extending part way through the head and also another slot extending through the head and into the shank.

2. A tension-screw comprising a threaded end, a cylindrical shank connected therewith and an enlarged head attached to said shank to form a shoulder at the end of said shank, there being a slot formed in said head and extending partly through the same and another slot, substantially at right angles to the first slot extending through said head and into said shank.

3. A tension-screw consisting of a threaded end, an unthreaded shank and an enlarged head at the end of said shank, there being a slot formed in said head extending partly through the same and another slot extending through said head and partly through said shank.

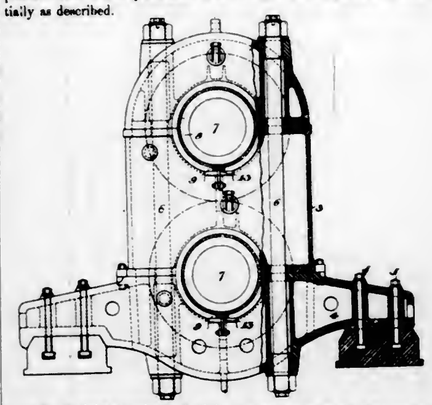
4. A tension-screw comprising a threaded body an enlarged head at the end of said body forming a shoulder in connection with the same, a slot cut in said head and a second slot cut through said head and into said body.

5. A tension-screw comprising a threaded body, an enlarged cylindrical head attached to said body, there being a slot formed in said head and a second slot extending through said head into said body at an angle to the first slot.

6. A tension-screw comprising a threaded end, a cylindrical shank coaxial therewith, an enlarged cylindrical head attached to said shank, there being an axial slot extending partly through said head and a second axial slot at right angles to the first slot extending through said head and partly through said shank.

679,971. PINION-HOUSING. JULIAN KENNEDY, Pittsburg, Pa. Filed Mar. 16, 1901. Serial No. 51,550. (No model.)

Claim.—1. A pinion-housing and pinions whose axes are in different horizontal planes, said housing being made in sections divided in planes which are in parallelism with the axes of the pinions; substantially as described.



2. A pinion-housing and pinions whose axes are in different horizontal planes, said housing being made in sections divided in planes which substantially pass through the axes of the pinions; substantially as described.

3. A pinion-housing and pinions whose axes are in different horizontal planes, said housing being made in sections divided in planes which are in parallelism with the axes of the pinions, and through-bolts by which the sections are held together; substantially as described.

4. The combination of pinions arranged at different levels, a pinion-housing formed in sections, and bearings for the pinions, said housing being divided into sections on planes which pass respectively through the bearings, said bearings being held between adjacent sections; substantially as described.

5. A pinion-housing made in sections, with pinion-bearings held between adjacent sections, said bearings having angular portions engaging the housing and adapted to prevent turning of the bearings; substantially as described.

6. A pinion-housing made in sections, with pinion-bearings held between adjacent sections, said bearings being interlocked with the housing-sections to prevent motion of the latter on each other; substantially as described.

679,972. MATERIAL FOR PROTECTING SHEETS, &c., IN TINNING. JOHN A. KYLE, Pittsburg, Pa., assignor of one-half to Grant McCargo, same place. Filed May 27, 1901. Serial No. 62,073. (No specimens.)

Claim.—1. A material for use in coating sheets with metal consisting of a fatty acid solidifying at or above 68° Fahrenheit and practically non-oxidizable by atmospheric air at the melting-point of tin and a solvent of the fatty acid, substantially as set forth.

2. A material for use in coating sheets with metal, consisting of a fatty acid solidifying at or above 68° Fahrenheit and practically non-oxidizable by atmospheric air at the temperature of molten tin, and a petroleum product, substantially as set forth.

3. A material for use in coating sheets with metal, consisting of a mixture of two or more fatty acids which solidify at or above 68° Fahrenheit and are practically non-oxidizable at the melting-point of tin, and a solvent of fatty acids, substantially as set forth.

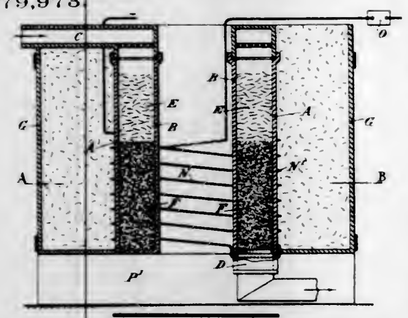
4. A material for use in coating sheets with metal, consisting of palmitic acid, and a petroleum product, substantially as set forth.

679,973. ELECTRIC FURNACE. DENIS LANGE, RAPHAEL L. E. DE BOURGADE, and LÉON SCHNITZ, Paris, France. Filed Mar. 28, 1899. Serial No. 710,822. (No model.)

Claim.—1. In an electric furnace, a reaction-chamber having a gas-inlet in its upper part and a gas-outlet in its lower part, means in the upper part of said chamber for subdividing the gases therein, resistance-wires adjacent to the walls of said chamber, and electrical connections with the said wires, substantially as herein described.

2. In an electric furnace, an annular reaction-chamber the walls of which are composed of refractory material which is a non-conductor of electricity, a resistance-coil adjacent to the outer wall of said chamber, a resistance-coil adjacent to the inner wall of said chamber, and electric connections with the two coils, substantially as herein described.

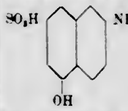
679,978.



679,974. **BLUE-RED DISAZO DYE AND PROCESS OF MAKING SAME.** AUGUST L. LASKA, Offenbach-on-the-Main, Germany, assignor to The Firm of K. Oehler, Anilin- & Anilinfarben Fabrik, same place. Filed May 27, 1901. Serial No. 62,014. (No specimens.)

Claim.—1. The herein-described process of production of claret-red disazo coloring-matters consisting in the combination of the intermediate products from paradiamins and the oxy-carboxylic acids of the benzene series with benzoyl-amidonaphthol-sulfonic acid.

2. As new articles of manufacture the bluish-claret-red disazo dyestuffs herein described resulting from the combination of the intermediate products from paradiamins and oxy-carboxylic acids with the benzoyl-2:5-amidonaphthol-7-sulfonic acid of the formula



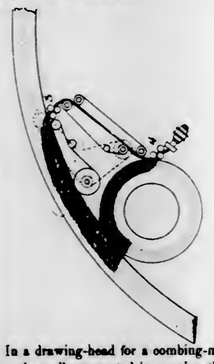
hardly soluble in cold, readily soluble in hot water with a yellowish-red color and dyeing unmordanted cotton a bluish claret red.

3. As a new article of manufacture the dyestuff, the constitution of which is represented by the following scheme

Salicylic acid
Benzidin
Benzoyl-2:5-amidonaphthol-7-sulfonic acid

which forms in its dry state a reddish black-brown powder, scarcely soluble in cold, readily soluble in hot water yielding a yellowish-red soultion, from which on adding concentrated sodium-lye, a reddish, and on adding hydrochloric acid a brownish precipitate falls down, dissolves in concentrated sulfuric acid to a pure-blue solution, which by running in water yields a reddish-brown precipitate and dyes unmordanted cotton a bluish claret red, very fast to washing and light.

679,975. **DRAWING-OFF DEVICE FOR CIRCLE-COMBS.** ALBERT LODGE, Lawrence, and ROBERT FOSTER, Methuen, Mass. Filed Oct. 3, 1900. Serial No. 31,842. (No model.)



Claim.—1. In a drawing-head for a combing-machine, the combination of three drawing-rolls connected in a series, the middle roll having two gears on its shaft, the end rolls each having a gear on its shaft meshing with one of said middle-roll gears, the gears on the end rolls being located at different heights and overlapping.

2. In a drawing-head for a combing-machine, the combination of three drawing-rolls connected in a series, the middle roll having on its shaft a double-gear member comprising two gears, the teeth of one of which are continuations of those of the other, the end rolls each having a gear on its shaft meshing with said gear member, the gears on the end rolls being located at different heights and overlapping.

3. In a circle-comb the combination with the large and small toothed circles, of the drawing-off devices adjacent thereto, means to conduct the sliver from the drawing-off device of the large circle to that of the small circle, an endless belt independent of said drawing-off devices and of said conducting means, extended along the inner edge of the large circle and adapted to slant the combed fringe on said circle toward the drawing-off device of that circle, and means to drive said belt.

4. In a circle-comb, the combination with the large circle, of means for drawing off the fiber therefrom and for conducting the drawn sliver away fram the drawing-point, and an endless belt independent of said drawing and conducting means and adapted to slant the combed fringe toward the drawing-point, said belt having an operating stretch extended along the inner edge of the circle and located nearer thereto at its forward end than at its rear end.

5. In a drawing-head for a combing-machine, the combination of a series of smooth-faced drawing-rolls, one or more of which is annularly concaved on its working face.

6. In a drawing-head for a combing-machine, the combination of a series of drawing-rolls, smooth-faced and cylindrical in general form, one or more of which is annularly concaved on its working face.

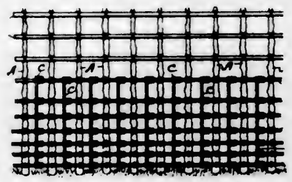
7. In a drawing-head for a combing-machine, the combination of two drawing-rolls, and means to adjust one of said rolls both tangentially and radially with respect to the other.

8. In a drawing-head for a combing-machine, the combination of two drawing-rolls, means to press one of said rolls yieldingly in a radial direction toward the other, and means to also adjust said roll tangentially with respect to the other.

9. In a drawing-head for a combing-machine, the combination of two drawing-rolls, a carrier in which one of said rolls is mounted, said carrier being movable to adjust said roll tangentially and radially with respect to the other roll, means acting on the carrier to yieldingly press the adjustable roll toward the other roll, and an adjusting device acting on the carrier for moving the roll tangentially, said device having a pivotal bearing on the carrier.

10. In a drawing-head for a combing-machine, the combination of two drawing-rolls, a carrier in which one of said rolls is mounted, guides in which said carrier is adjustable both tangentially and radially with respect to the other roll, yielding means acting on said carrier to press its roll toward the other roll, and a tangential adjusting-screw having a pivotal connection with the carrier.

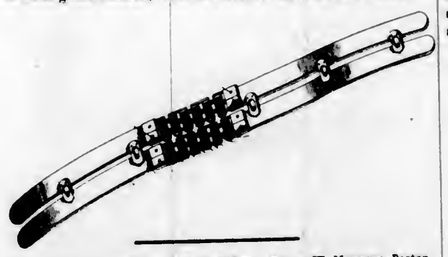
679,976. **COMBINED HEDGE AND WIRE FENCE.** GUY E. MANNING, Dayton, Ohio, assignor to Wm. H. Manning, same place. Filed Dec. 10, 1900. Serial No. 39,333. (No model.)



Claim.—In a hedge fence the combination of a series of live posts suitably spaced, an interwoven fabric consisting of parallel wires and vertical stay-wires secured to the lower part of said posts, the height of said vertical stay-wires being from twenty-two to twenty-four inches, and a series of upper parallel wires of larger gage than the parallel wires of the interwoven fabric, the spaces between the wires of larger gage being essentially greater than the spaces between the parallel wires of the interwoven fabric.

679,977. **CORSET-STEEL.** ERNEST J. MARTIN, Fall River, Mass. Filed Nov. 19, 1900. Serial No. 36,956. (No model.)

Claim.—The combination in a corset steel or stay, of the end sections of solid material, with a series of separate and independent spring-wires having formed therein a series of six separate and independent spiral coils, each coil consisting of two turns of the wire, a bracket, a keeper thereon struck up from the body of the bracket beneath which the free ends of said wires when assembled are held independent of the means for securing said brackets to the steels, the said bracket being constructed to be folded over and upon the adjacent ends of the steels or stays, and means for holding said brackets, when so folded, to said steels, as set forth.



679,978. **SEAM-CLOSING STRIP.** FRANK W. MERRICK, Boston, Mass. Filed Nov. 25, 1898. Serial No. 697,318. (No model.)



Claim.—1. The improved seam-closing strip comprising the narrow strip having the longitudinal grooving, as at 6 in the surface thereof formed intermediately of the width thereof, substantially as described.

2. The combination with the pieces of leather or other material, 1, 2, of the closing-strip 3 placed between the said pieces and having the longitudinal grooving at 6, and the line of stitching 4 uniting the three and passing through the grooved portion of the said strip, all substantially as described.

679,979. **CAR-SEAL.** ALFRED P. MILLER, Chicago, Ill., assignor to the Miller Car Lock & Seal Company, same place. Filed Oct. 22, 1900. Serial No. 33,890. (No model.)



Claim.—1. A car-seal formed in a single piece and comprising a strip having at one end, and integral therewith, a cup to receive within it the other end of the strip over which such cup is folded down.

2. A car-seal comprising a strip having near one end a hole and also having a cup, the other end of the strip being provided with an eyelet, the said hole receiving such eyelet and the cup receiving within it such other end of the strip.

3. A car-seal comprising a strip having at one end a cup with a side opening 9 and having its other end formed so as to be received within the cup and provided with a neck 10 entering said opening, the cup being folded over upon the strip received within it.

4. A car-seal comprising a strip 1 having at one end a hole 5 and also a cup 6 with a side opening 9 and having at its other end 2 an eyelet 7 and a neck 10, the end 2 entering within the cup and its eyelet passing through the hole 5 and its neck being received by said side opening in the cup, the seal being sealed by upsetting the eyelet and folding down the cup.

5. A car-seal comprising a strip having near one end a hole and also having a cup with projecting points 11, the other end of the strip having an eyelet, the said hole receiving such eyelet and the cup receiving within it the eyelet end of the strip.

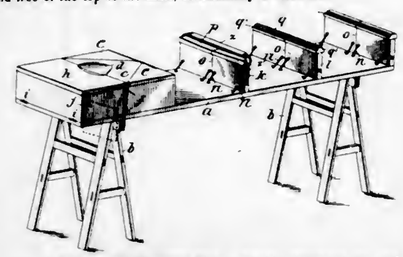
6. A car-seal formed in a single piece and comprising a strip having at one end, and integral therewith, a cup, the other end of the strip being adapted to lie flat upon the first-named end of the strip and within the cup, the cup being adapted to be folded down upon the end of the strip so received within it.

679,980. **BANDAGING-TABLE.** BENJAMIN C. MILLER, Cumberland, Md. Filed May 7, 1901. Serial No. 59,137. (No model.)

Claim.—1. A bandaging-table, comprising a top and suitable legs therefor, and separate supports applied to the upper surface of the top and adapted to receive independently various members of the body and sustain the body above and free of the top, substantially as described.

2. A bandaging-table, having a suitably-sustained top, provided with a head-rest, independent shoulder-rests, and independent thigh, leg, and foot rests, arranged to support a person above and free of the top and exposed on all sides, substantially as described.

3. A bandaging-table, having a suitably-supported top, a rest for the upper portion of the body, comprising a receptacle, a head-support, shoulder-supports, and means to support the remainder of the body above and free of the top of the table, substantially as described.



4. A bandaging-table, comprising a suitably-supported top, and independent supports for the various portions of the body, applied to the top and adapted to sustain a body above and free of the top, such supports being made in sections which are independently movable to expose any desired portion of the body, substantially as described.

5. A bandaging-table, comprising a top suitably supported, having body-supports rising above the top to sustain a body free of said top, and supplied with interchangeable rests, substantially as described.

6. A bandaging-table, comprising a top and suitable legs therefor, a fixed head-support, and independent folding body-supports, said supports adapted to sustain a body above and free of the top, substantially as described.

7. A bandaging-table, comprising a top and suitable legs therefor, a fixed head-support, and independent sectional folding body-supports, said supports adapted to sustain a body above and free of the top, substantially as described.

8. A bandaging-table, comprising a top and suitable legs therefor, a fixed head-support, and independent folding body-supports supplied with rests, said supports adapted to sustain a body above and free of the top, substantially as described.

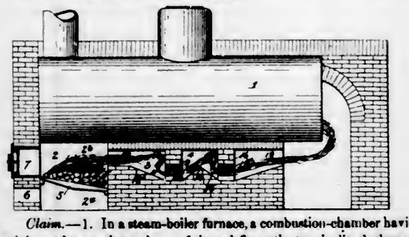
9. A bandaging-table, comprising a top and suitable legs therefor, a fixed head-support, and independent folding body-supports supplied with interchangeable rests, said supports adapted to sustain a body above and free of the top, substantially as described.

10. A bandaging-table, having a suitably-supported top, and body-supports rising from said top and supplied with means to receive solid members, such as boards, in order to provide a continuous surface above the top to support a body above and free of the top, substantially as described.

11. A bandaging-table, comprising a top and means to support it, and body-supports rising from the said top, said supports having ledges and means to receive an added removable solid surface, said supports adapted to sustain a body above and free of the top, substantially as described.

12. A bandaging-table, having a top composed of jointed sections and adapted to be folded upon itself, and jointed legs adapted to be folded between these sections of the top, and folding body-supports applied to the top, the said supports adapted to sustain the body above and free of the top, substantially as described.

679,981. **STEAM-BOILER FURNACE.** JOHN O. MORRIS, Richmond, Va., assignor to Morris Moore, Danville, Va. Filed Sept. 12, 1900. Serial No. 29,790. (No model.)

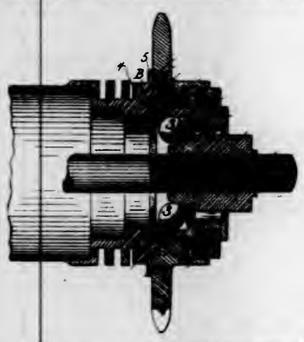


Claim.—1. In a steam-boiler furnace, a combustion-chamber having an inlet and an outlet and a roof-shaped floor, the two inclined planes of which slope toward the outlet and inlet respectively, and the ridge thereof being in the same horizontal plane with the tops of said outlet and inlet, substantially as described.

2. In a steam-boiler furnace, the combination, substantially as de-

scribed, of a first combustion-chamber having an outlet and an inlet and a downwardly-inclined floor sloping toward said outlet, a second combustion-chamber communicating with said first chamber by means of the said outlet thereof, said second chamber having a roof-shaped floor, the inclined-plane sides of which slope from the ridge to the inlet and outlet thereof, the said ridge being in the same horizontal plane with the top of said inlet and outlet.

679,982. **FRICTION CLUTCH FOR BICYCLES.** ALEXANDER P. MORROW, Elmira, N. Y., assignor of one-half to H. H. Fulton, same place. Filed Feb. 6, 1899. Serial No. 704,656. (No model.)



Claim.—1. The friction-clutch herein described, comprising a rotative element formed with an integral annular boss or bead, a clutch-ring loosely mounted on the rotative element having a flaring inclined interior to engage the bead, and formed with a longitudinal annular flange having face-cams on its end, a wheel loosely mounted on the rotative element and having face-cams to engage the cams on the clutch-ring, and push it in contact with the head, whereby the rotative element, the clutch-ring and the wheel are locked together, and retaining means for preventing lateral displacement of the sprocket-wheel.

The friction-clutch herein described, comprising a rotative element formed with an integral annular boss or bead, a clutch-ring loosely mounted to revolve on the rotative element, formed with a flaring inclined interior to engage the bead, and formed with a vertical flange and a longitudinally-disposed annular flange having cams on its end, a wheel mounted loosely on the rotative element and having face-cams in its hub to engage the cams on the clutch-ring, springs in the said wheel to bear against the vertical flange of the clutch-ring and a retaining-ring, substantially as described.

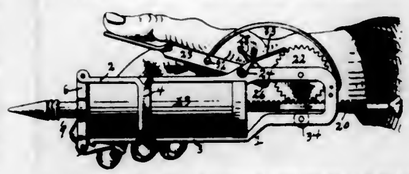
3. The friction-clutch herein described, comprising a shaft, a sleeve mounted upon ball-bearings and formed with an integral annular boss, a wheel mounted to turn on the sleeve and having face-cams formed in its hub, and a clutch-ring on the shaft-sleeve to turn thereon and having face-cams to engage the face-cams in the hub of the wheel and formed with a flaring interior surface to engage the boss on the shaft-sleeve, whereby when the wheel is turned the cams will push the clutch-ring onto the bead and lock the wheel and the shaft together and a retaining-ring, substantially as described.

4. The friction-clutch herein described, comprising a rotative element formed with an integral annular bead, a clutch-ring loosely mounted on and having a limited longitudinal movement and formed with face-cams, a wheel loosely mounted on the rotative element and formed with face-cams to engage the face-cams on the clutch-ring, and push it into engagement with the bead and lock them together, and means for holding the wheel laterally against displacement.

5. The friction-clutch herein described, comprising a hub formed with an annular bead, a clutch-ring loosely mounted on the hub having a flaring interior surface to engage the bead, and formed with face-cams, a sprocket-wheel loosely mounted on the hub and formed with face-cams to engage the face-cams on the clutch-ring, a retaining-ring on the end of the hub formed with radially-disposed seats in its inner side, and anti-friction-rollers in the seats disposed to bear against the hub of the sprocket-wheel, substantially as described.

6. The friction-clutch herein described comprising a hub formed near one of its ends with an integral bead or boss; a clutch-ring having a flaring interior surface, a vertical annular flange and face-cams, and loosely mounted upon the hub over said boss; a sprocket-wheel also loosely mounted upon the hub beyond said boss, and having face-cams to engage the face-cams of the clutch-ring, means interposed between said sprocket-wheel and the vertical flange of the clutch-ring for forcing said wheel and ring apart and retaining means mounted on the hub.

679,983. **DECORATING-MACHINE.** CHARLES E. O'NEIL, Toledo, Ohio. Filed Nov. 28, 1900. Serial No. 37,997. (No model.)

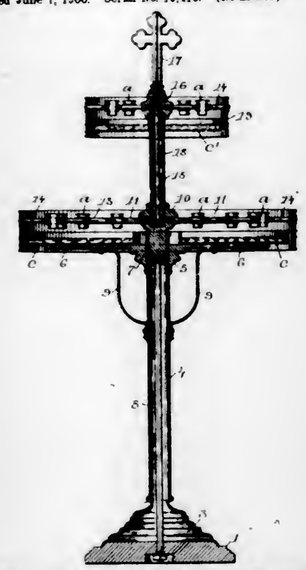


Claim.—1. In a decorating-machine, the combination with the frame, of cylinder, removable therefrom, the clamp for holding the cylinder in position, the piston movable in the cylinder, and means for actuating the piston, substantially as shown and for the purpose specified.

2. In a decorating-machine the removable cylinder secured in the frame and held in position by a clamp, an opening in the end of the cylinder to register with an ejecting-tube integral with the clamp, the piston and rack movable in the cylinder, the pinion meshing with the rack, the lever having the pawl on the end thereof to actuate the pinion, rack, and piston, the spring to return said lever to its normally raised position, the pawl in engagement with the aforesaid pinion to prevent back motion of the piston, substantially as described and for the purpose specified.

3. In combination the frame, the removable cylinder, the nozzle registering with an opening in the end of the cylinder, the rack and piston movable in said cylinder, the pinion meshing with the rack, the lever with the pawl on the end thereof to normally engage the pinion, and extension on the pawl, for disengagement of the pinion, a spring having one end thereof attached to the frame and the other end attached to the aforesaid lever to raise the same when released, and a pawl normally in engagement with the aforesaid pinion, to prevent back movement of the piston, and adapted to fall by gravity when the machine is inverted and thereby disengage the pinion substantially as described and for the purpose specified.

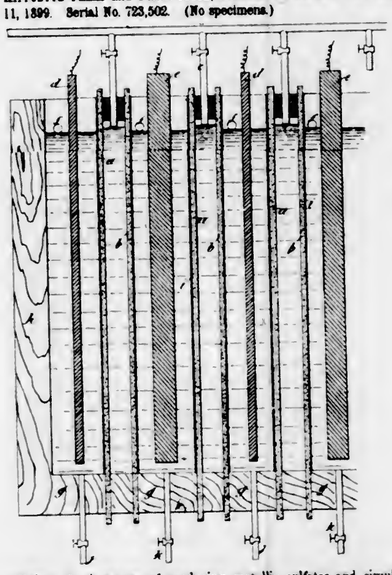
679,984. **CANDELABRUM.** JAMES T. O'REILLY, Lawrence, Mass., assignor to The W. J. Feeley Company, Incorporated, Providence, R. I. Filed June 7, 1900. Serial No. 19,418. (No model.)



Claim.—1. In a candelabrum, in combination, a standard supporting a removable tray adapted to contain water, a cup on the standard, a boss rotatably supported on the standard, supports connected with the boss and extending over the tray, and open-ended sockets in the supports, whereby the candle-supports may be rotated and removed, as described.

2. In a candelabrum, the combination with a standard supporting a removable tray, and the removable tray, of arms rotatably supported over the tray, and open-ended sockets in the arms, whereby the candle-supporting arms may be rotated and the candles supplied to said sockets, as described.

679,985. **PROCESS OF MANUFACTURING COPPER SULFATES.** HIPPOLYTE PALAS and FÉLIX COTTA, Marseilles, France. Filed July 11, 1899. Serial No. 723,502. (No specimens.)



Claim.—1. A process of producing metallic sulfates and simultaneously obtaining an alkaline base as a by-product by electrolysis, said process consisting in separating the anode and cathode by a porous diaphragm, supplying a stream of the electrolyte solution of an alkali-metal sulfate to a soluble anode of the metal to be transformed into sulfate, supplying another stream of the same electrolyte solution to the cathode on the other side of the diaphragm and passing a current of electricity therethrough, all substantially as described.

2. A process of producing copper sulfate and simultaneously obtaining an alkaline base as a by-product by electrolysis, said process consisting in separating the copper anode from the cathode by a porous diaphragm, supplying a stream of an alkali-metal sulfate to the copper anode and supplying another stream of the same electrolyte solution to the cathode on the other side of said diaphragm and passing a current of electricity therethrough all substantially as described.

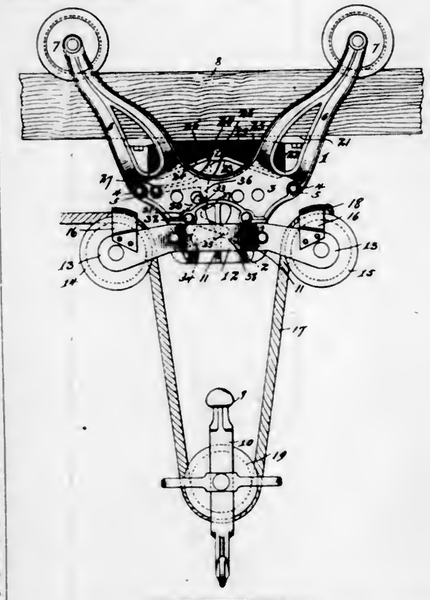
3. A process of producing copper sulfate and simultaneously obtaining an alkaline base as a by-product by electrolysis, said process consisting in separating the copper anode from the cathode by a hollow porous diaphragm, feeding a stream of an alkali-metal sulfate into the hollow diaphragm, whence two streams of the same electrolyte solution are supplied one to the anode and the other to the cathode, and passing a current of electricity therethrough, substantially as described.

4. A process of producing metallic sulfates and simultaneously obtaining an alkaline base as a by-product, by electrolysis, said process consisting in separating the anode and cathode solutions by a porous diaphragm, supplying a stream of the electrolyte solution of an alkali-metal sulfate to a soluble anode of the metal to be transformed into sulfate, supplying another stream of the same electrolyte to the cathode on the other side of the diaphragm, and passing a current of electricity therethrough and drawing off the electrolyzed solution as the process goes on, all substantially as described.

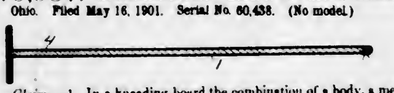
5. A process of producing copper sulfate and simultaneously obtaining an alkaline base as a by-product, by electrolysis, said process consisting in supplying a stream of the electrolyte solution of an alkali-metal sulfate to a copper anode on one side of a porous diaphragm and supplying another stream of the same electrolyte to the cathode on the other side of the said diaphragm, and passing a current of electricity therethrough, and drawing off the electrolyzed solution, as the process goes on, all substantially as described.

679,986. **HAY-FORK CARRIER.** FRANK C. PATTEN and GUNDER HAUGEN, Sycamore, Ill., assignors to the Frank C. Patten Company, same place. Filed Mar. 31, 1900. Serial No. 10,945. (No model.)

Claim.—In a hay-fork carrier, the combination with a carrier-frame, a rail or support upon which said carrier-frame is arranged to travel and a locking and tripping block mounted upon the under side of said rail and provided with a cam portion of inverted-T shape in cross-section, the lateral flange portions thereof being arched upwardly between their ends to form upper cam-surfaces and a lower locking-surface, of a block-engaging latch member pivotally mounted on the carrier-frame and provided with a bifurcated engaging member having inturned lugs adapted to pass into operative engagement with said lateral cam-surfaces when the carrier approaches the locking and tripping block from either direction and a crotch or web portion underlying and extending between the arms adapted to engage said lower locking-surface, a projection upon the under side of said latch member located at a point substantially beneath the crotch portion which engages the locking-surface and means for engaging said projection to hold the latch member positively in uplifted position, substantially as described.



679,987. **KNEADING-BOARD.** LORENZO D. PATTEN, Mansfield, Ohio. Filed May 16, 1901. Serial No. 60,438. (No model.)



Claim.—1. In a kneading-board the combination of a body, a metal covering located thereon, a metal strengthening-strip located at the forward end of the body and extended above the face of the board and below the bottom or under side thereof, substantially as and for the purpose specified.

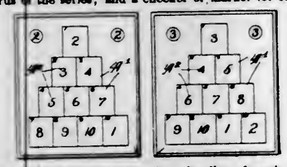
2. In a kneading-board, a body provided with a flange or head-piece formed at the forward end thereof, a metal top folded over the head-piece and under a portion of the body, substantially as and for the purpose specified.

3. In a kneading-board, the combination of a body, a metal top, a strengthening-strip extending above the working face of the board and depending downward below the bottom or under side of said board, and said top folded under portions of the body at its ends and sides, substantially as and for the purpose specified.

679,988. **GAME AND APPARATUS FOR PLAYING SAME.** JOHN S. PAUL, Chicago, Ill. Filed Apr. 12, 1901. Serial No. 55,535. (No model.)

Claim.—1. A game apparatus consisting of a plurality of cards or boards having a series of spaces arranged upon each of the cards, each of which spaces bears a figure or character, which figures or characters are repeated on each card but are differently arranged upon each; and a checker or marker for each space.

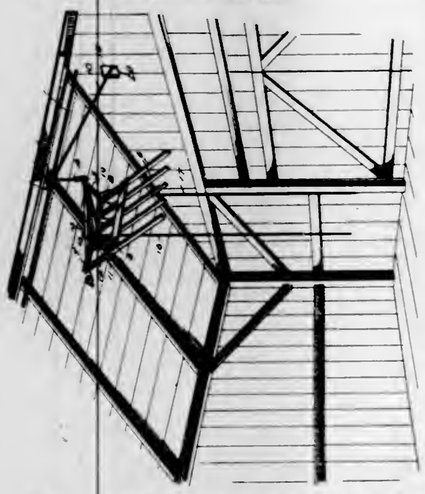
2. A game apparatus consisting of a plurality of cards or boards having a series of spaces arranged in uniform order upon all the cards, each of which spaces bears one figure or character of a series, which figures or characters appear individually in rotation upon a given space of each of the cards of the series; and a checker or marker for each space.



3. A game apparatus consisting of a plurality of cards or boards having a series of spaces arranged in uniform order upon all the cards, which spaces are uniformly numbered throughout the series of cards, and bear one figure or character of a series, which figures or characters appear individually in regular rotation upon any given space of all the cards of the series; and a checker or marker for each space.

4. A game apparatus comprising a card or board having a number of spaces arranged thereon, said spaces being marked with numbers in a series, the spaces also bearing figures or characters; and a checker or marker for each space, which checker or marker bears the same figure or character as one of the spaces.

679,989. **MOWER.** GARDNER H. PERKINS, Cazenovia, N. Y. Filed Dec. 10, 1900. Serial No. 39,403. (No model.)



Claim.—1. A mower comprising tines connected at one end, a frame hinged to the tines, at their connected end, and means connecting the frame with the tines for adjusting the frame to a desired angle to said tines.

2. A mower comprising parallel tines, a cross-strip connecting the same at one end thereof, a frame hinged to the tines, rods extending therefrom and engaging the tines, and means for adjusting said rods back and forth upon the tines, thereby securing the frame at a desired angle thereto.

3. A mower comprising parallel tines, a cross-strip connecting the same at one end thereof, a frame hinged to the tines, rods extending therefrom and adapted to engage any one of a series of recesses in each tine, a carriage, and a rod secured to the frame and swiveled within said carriage.

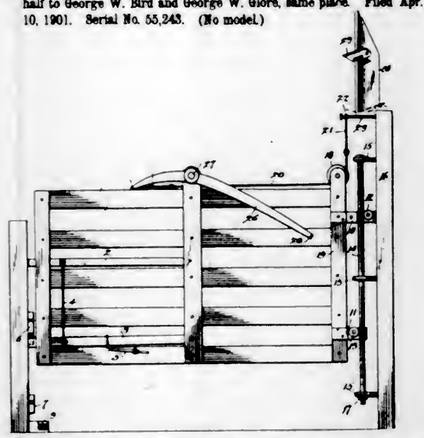
4. In a mower, the combination with parallel tines connected at one end; of a frame hinged thereto, arms extending from the mower, spring-hooks secured to the arms and normally in position adjacent to each other, and means for separating the hooks.

5. In a mower, the combination with parallel tines; of a cross-strip at one end of the mower connecting the tines, a frame hinged to the mower, means for adjusting the free end of the frame from or toward the mower, arms extending from the cross-strip, spring-hooks secured thereto and lying normally adjacent to each other, and means for separating the hooks.

6. In a mower, the combination with parallel tines; of a cross-strip connecting said tines at one end of the mower, a frame hinged to the mower, braces connecting said frame and tines, whereby the frame may be hooked at a desired angle to the mower, arms extending from the cross-strip, spring-hooks secured thereto and lying normally adjacent to each other, means for separating the hooks, a carriage, and a rod swiveled to said carriage and secured to the frame.

7. In a mower, the combination with parallel tines; of a cross-strip connecting said tines at one end of the mower, a brace upon the tines, a frame hinged to the mower, rods secured to the frame and adjustably secured to the tines, whereby the free end of the frame may be adjusted from or toward said tines, arms extending from the cross-strip, spring-strips secured to the arms and having inwardly-inclined hooks lying normally adjacent to each other, means for separating the hooks, a carriage, a rod swiveled thereto and secured to the frame, a flexible strip secured to one of the tines, and a rod secured to the carriage.

679,990. **GATE.** EBER W. PRATT, Ipava, Ill., assignor of one-half to George W. Bird and George W. Giors, same place. Filed Apr. 10, 1901. Serial No. 55,243. (No model.)



Claim.—1. The combination with a support having a pintle-rod, of a swinging gate slidably mounted on the pintle-rod and having a pulley, a flexible connection passing around the pulley and connected with the support, and the two-armed lever having a terminal transverse projection on one arm connected with the said flexible connection so that when the said projection is swung below the fulcrum-point of the lever into engagement with the gate, the weight of the gate will hold the lever against backward movement, substantially as described.

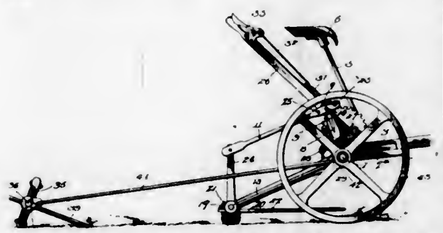
2. The combination of a hinge-post, a swinging gate mounted on the hinge-post and capable of vertical movement, a flexible connection slidably engaging the gate and extending upward therefrom and connected with the hinge-post, and a two-armed lever fulcrumed on the gate and having one of its arms connected with the said flexible connection and arranged to engage the gate so that when such arm is swung downward below the fulcrum-point of the lever into engagement with the gate, the weight of the gate will hold the lever against backward movement, substantially as described.

3. The combination of a support, a pintle-rod mounted on the support, a swinging gate hinged to the pintle-rod and slidably connected therewith, an arm extending from the support and located above the gate, a pulley mounted on the gate, a flexible connection arranged on the pulley and provided at its ends with links 21 and 24, the link 21 having a hook detachably engaging the said arm, and a two-armed lever fulcrumed on the gate and having a terminal transverse projection on one of its arms connected with the link 24 so that when such projection is swung below the fulcrum-point of the lever into engagement with the gate, the weight of the gate will hold the lever against backward movement.

679,991. **COMBINED STALK CUTTER AND RAKE.** RICHARD H. PURNELL, Rosedale, Miss. Filed Sept. 10, 1900. Serial No. 29,601. (No model.)

Claim.—1. In a cotton-stalk cutter, the combination, with a supporting-axle; of a frame having brackets projecting upwardly therefrom; a pair of arms pivotally supported upon said axle; a cutter-bar carried by the rear ends of said arms; parallel arms adjustably secured at their forward ends to the brackets of the frame, and at their rear ends to arms projecting from said cutter-bar; and means for raising and lowering said arms.

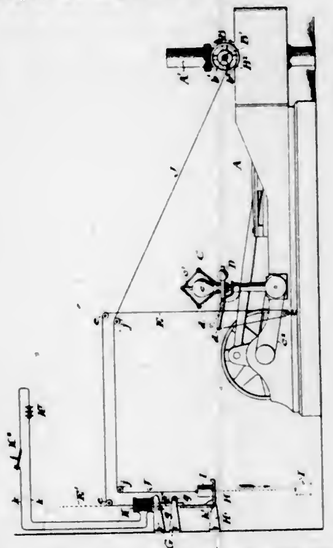
2. In a cotton-stalk cutter, the combination, with a supporting-axle; of a cutter-bar adjustably supported in rear of said axle; and a cutter secured to said cutter-bar and having a wing depending from its under surface.



3. In a cotton-stalk cutter, the combination, with a supporting-axle; of a frame provided with upwardly-projecting brackets; parallel arms adjustably secured at their forward ends to said brackets; a second pair of arms pivotally supported upon the axle below said brackets; a cutter-bar supported in bearings at the rear ends of said second pair of arms; connections between the ends of said cutter-bar and the rear ends of the adjustable arms; a cutter secured to said cutter-bar; and means for raising and lowering said arms.

4. In a cotton-stalk cutter, the combination, with a supporting-axle; of a frame having upwardly-extending brackets; a pair of longitudinally-adjustable arms pivotally secured at their forward ends to said brackets; a second pair of arms pivotally secured at their forward ends to said axle; a yoke pivotally supported upon the axle and connecting said second pair of arms; a cutter-bar supported in bearings at the rear ends of the lower arms; connections between said cutter-bar and the rear ends of the adjustable arms; a lever for raising and lowering said lower arms; and a link connection between said lever and yoke.

679,992. **VALVE-GEARING.** WILLIAM G. RICE, Philadelphia, Pa. Filed Aug. 29, 1899. Serial No. 728,836. (No model.)



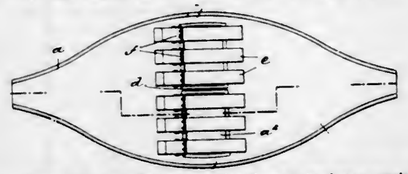
Claim.—1. In valve-gearing for an engine, the combination with a movable member of the engine-governor and a throttle-valve in the main supply-pipe of the engine, of mechanism arranged to close said valve, means to normally detain said valve-closing mechanism, mechanism physically connecting said governor member and said detent, arranged to automatically release said valve-closing mechanism, whenever said governor ceases to operate, and an electric circuit, comprising means in cooperative relation with said automatic mechanism, arranged to effect the release of said valve-closing mechanism at the will of the operator, substantially as set forth.

2. In valve-gearing for an engine, the combination with the lever D, operatively connected with the engine-governor C; of the throttle-valve B, in the main supply-pipe of the engine; the stem *b'*, arranged to be rotated to open and close said valve; the drum B', directly fixed to said valve-stem; the flexible connector J, extending from said drum B', and provided with the weight I, arranged to close said valve B; the lever H, arranged to support said weight; the slide-bar detent F, normally engaged with said lever; and the flexible connector E, extending from said lever D, to said detent F, arranged to automatically release said lever H, when said governor ceases to operate, and thereby permit the closure of said valve B, solely by the gravitation of said weight I, substantially as set forth.

3. In valve-gearing for an engine, the combination with the lever D, operatively connected with the engine-governor C; of the arm *d*, upon said lever D; the detent F; the flexible connector E, extending from said arm *d*, to said detent F; the lever H, normally engaged by said detent F, and arranged to support the weight I; the throttle-valve B, in the main supply-pipe of the engine, provided with the rotatable valve-stem *b'*; the drum B', fixed upon said valve-stem *b'*; and the flexible connector J, extending from said weight I, in operative engagement with said drum B', substantially as set forth.

4. In valve-gearing for an engine, the combination with the lever D, operatively connected with the engine-governor C; of the detent F; a flexible connector extending from said lever D, to the differential sheave e^2, e^3; a flexible connector extending from said sheave to said detent F; the lever H, normally engaged by said detent F, and arranged to support the weight I; the throttle-valve B, in the main supply-pipe of the engine provided with the rotatable valve-stem *b'*; the drum B', fixed upon said valve-stem *b'*; and the flexible connector J, extending from said weight I, in operative engagement with said drum B', substantially as set forth.

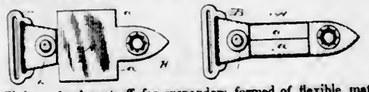
679,993. **ADJUSTABLE ADHESIVE SUPPORTING PLASTER OR BANDAGE.** JOHN G. ROSS and HOWARD M. TAGGART, Philadelphia, Pa. Filed May 11, 1901. Serial No. 59,774. (No specimens.)



Claim.—1. An adhesive supporting plaster or bandage, comprising two or more sections, each having an adhesive face, the contiguous edges of adjacent sections being connected by non-adhesive inelastic material, and adjustable elastic connections between the adjacent sections adapted to tighten or slacken the sections toward or away from each other when said sections adhere to the parts to be supported.

2. An adhesive supporting plaster or bandage, comprising two or more sections, each having an adhesive face, non-elastic and non-adhesive straps connecting the contiguous edges of adjacent sections together, and elastic take-up straps also connecting said edges, said elastic straps comprising means for adjusting the sections toward or away from each other, while adhering to the parts to be supported, and said non-elastic and non-adhesive straps constituting means for gaging the movement of the sections and supported parts toward or away from each other.

679,994. **CAST-OFF FOR SUSPENDERS.** ALBERT E. SAWYER, Brooklyn, N. Y., assignor to A. C. Knothe, trading under the name of Knothe Brothers, New York, N. Y. Filed May 16, 1901. Serial No. 60,517. (No model.)

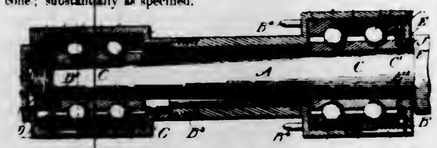


Claim.—1. A cast-off for suspenders formed of flexible material, having the integral reinforcing-tabs folded down and secured to the body portion of the cast-off.

2. A cast-off for garment-supporters formed of flexible material having the side tabs folded in to form rounded edges and greater thicknesses at the bend of the cast-off and a separable fastener having its members secured in the ends of the cast-off beyond the ends of the side tabs; substantially as and for the purpose set forth.

679,995. **BALL-BEARING HUB.** PHILIP F. SCHAFFER, Philadelphia, Pa., assignor of one-half to Robert J. McNally, same place. Filed Feb. 26, 1901. Serial No. 48,934. (No model.)

Claim.—1. In a ball-bearing for hubs, a bearing-sleeve adapted to slide upon an axle and engaged therewith against rotation, a casing having a longitudinal groove or way, a bearing-cone adapted to slide into said casing and having a projection entering said groove, balls between said sleeve and cone, and an adjusting-cone cooperating with said secured cone; substantially as specified.



2. In a ball-bearing for hubs, an axle having a slot at one end, a bearing-sleeve provided with a socket and adapted to be secured to said axle, a casing having a longitudinal groove or way, a bearing-cone having a projection entering said groove, balls between said sleeve and cone, an adjusting-cone cooperating with said secured cone, and a lock-washer for said sleeve having a projection to engage the axle and a pin to enter said sleeve; substantially as specified.

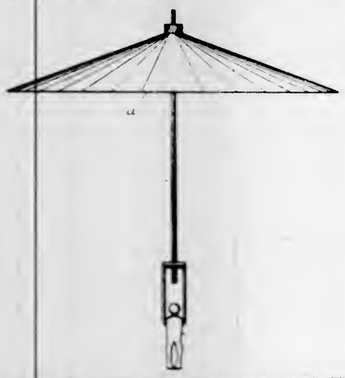
3. In a ball-bearing for hubs, an axle provided with a slot at one end, a bearing-sleeve having a socket therein and adapted to be secured to said axle, a casing having a longitudinal groove or way, a bearing-cone having a projection entering said groove, balls between said sleeve and cone, an adjusting-cone cooperating with said secured cone, a lock-washer for said sleeve having a projection to engage the axle and a pin to enter said sleeve, a closure for the end of the bearing-box, and a lock-plate between said closure and the adjusting-cone and having a lug to enter the groove of said casing; substantially as specified.

4. In a ball-bearing hub, the combination with an axle having a longitudinal groove in its outer end, of an unthreaded bearing-sleeve adapted to slide upon said axle and provided with a socket at one end, a lock-washer having a lug to enter the groove in said axle and a pin to enter a socket in the end of said sleeve, a threaded nut adapted to engage the end of the axle to hold said lock-washer in position, and a casing surrounding said sleeve provided with bearing-balls; substantially as specified.

5. In a ball-bearing hub the combination with a casing, bearing-cone and balls, of an adjusting-cone threaded into said casing, a closure threaded into said casing beyond said adjusting-cone, and a lock-plate lying between said cone and closure and having a projection to enter the casing and hold said plate against rotation; substantially as specified.

6. In a ball-bearing hub, a casing having boxes at opposite ends each having longitudinal grooves therein, bearing-cones having projections to enter said grooves, adjusting-cones threaded into said boxes, bearing-sleeves adapted to fit the axle and provided with a socket at one end, lock-washers having a pin to enter said sleeves and a lug to enter a groove in an axle, a dust-cap threaded upon the outer box, a plate between said cap and adjusting-cone, a dust-guard threaded upon the inner box, a plate between said guard and the adjacent cone having a lug to hold the plate against rotation, and bearing-balls between said sleeves and cones; substantially as specified.

679,996. TOY. GEORGE SCHNEIDER, Baltimore, Md., assignor of one-half to H. Herbert Hammond, same place. Filed Dec. 18, 1900. Serial No. 40,250. (No model.)



Claim.—1. The combination of a parachute provided with a stick; a link movable longitudinally on said stick and limited in its downward movement thereon; and a weighted figure suspended by said link and provided with a socket in which the end of said stick is received whereby to hold said figure on the lower end of said stick at the time the parachute is projected, as set forth.

2. The combination of a parachute provided with a stick having a cross-pin near its lower end; a link having a loop loosely surrounding said stick above said cross-pin and adapted to contact with the latter whereby to limit the downward movement of said link, and also having vertical side bars and a cross-bar at the lower ends of said side bars; and a weighted figure held loosely on said cross-bar and provided with a socket in which the lower end of said parachute-stick may be inserted, as set forth.

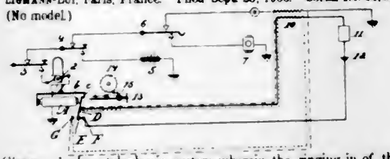
679,997. ELECTROLYTIC PROCESS OF OBTAINING METALS FROM THEIR FUSED COMPOUNDS. GEORGE P. SCHOLL, Philadelphia, Pa., assignor to Charles W. Roepper, same place. Filed Nov. 14, 1898. Serial No. 696,454. (No specimens.)

Claim.—1. The process of obtaining metals by the electrolysis of their fused compounds, which consists in fusing a bath containing a mixture of sulfid of the desired metal with another compound of said metal which is convertible into sulfid by nascent sulfur; and subjecting the fused bath to electrolysis by the action of suitable electrodes, substantially as described.

2. The process of obtaining metals by the electrolysis of their fused compounds, which consists in fusing a bath composed of a mixture of sulfid of the desired metal with a more fusible compound of said metal which is convertible ioto sulfid by nascent sulfur; and subjecting the fused bath to electrolysis by the action of suitable electrodes under a current which will decompose the sulfid only, substantially as described.

3. The process of obtaining metals by the electrolysis of their fused compounds, which consists in fusing a bath composed of a mixture of sulfid of the desired metal with a more fusible compound of said metal which is convertible into sulfid by nascent sulfur; subjecting the fused bath to electrolysis by the action of suitable electrodes under a current which will decompose the sulfid only; and continuously renewing the bath by addition of the other constituents in proportion as the metal ingredient is liberated at the cathode, substantially as described.

679,998. COUNTING TELEPHONIC MESSAGES. GUSTAVE SIGLMANN-LUI, Paris, France. Filed Sept. 25, 1900. Serial No. 31,025. (No model.)

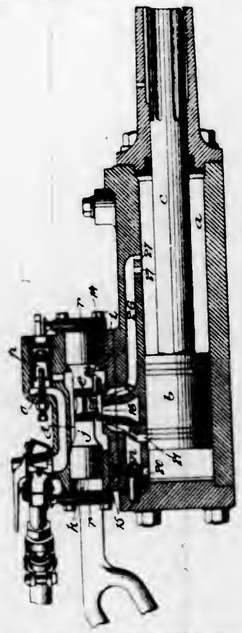


Claim.—1. In a telephonic system wherein the ringing in of the correspondent is done solely by the calling subscriber, a circuit wherein the ringing apparatus is included, said circuit actuated by a source of electricity separate and distinct from the source of electricity actuating the apparatus of the central office, an electromagnet included in the ringing-circuit and adapted to be energized when said circuit is actuated by its source of electricity, a shutter adapted to be released when the magnet is energized, and said shutter adapted when released to break or short-circuit a portion of the microphone-circuit of the subscriber's instrument, substantially as and for the purposes described.

2. In a telephonic system wherein the ringing in of the correspondent is done solely by the calling subscriber, a circuit wherein the ringing apparatus is included, said circuit actuated by a source of electricity separate and distinct from the source of electricity actuating the central-office apparatus, an electromagnet included in the ringing-circuit and adapted to be energized when said circuit is actuated by its source of electricity, a shutter adapted to be released when the magnet is energized to break or short-circuit a portion of the microphone-circuit of the subscriber's instrument, a counting ratchet-disk, and a push-rod adapted to be shifted in one direction to advance the disk one unit and to replace the shutter to thereby reëstablish the microphone-circuit, substantially as and for the purposes described.

3. In a telephonic system of the character described, an electromagnet placed at each subscriber's station and included in the ringing-in circuit whereby the subscriber may call up the correspondent, a source of electricity adapted to actuate the ringing-in circuit and to thereby energize the electromagnet, a shutter adapted to be released when the magnet is energized and arranged when released to break the microphone-circuit of the subscriber's instrument, and a counting mechanism adapted when operated to replace said shutter and to thereby make the microphone-circuit of said instrument, substantially as and for the purposes described.

679,999. DIRECT-ACTING ENGINE. HENRY C. SERGEANT, Westfield, N. J., and WILLIAM PRELLWITZ, Easton, Pa., assignors to the Ingersoll-Sergeant Drill Company, New York, N. Y. Filed Feb. 21, 1901. Serial No. 48,273. (No model.)



Claim.—1. In a direct-acting reciprocating engine, the combination with the engine cylinder and piston, of a valve-chest, a valve and a seat therefor in said chest, and a piston in said chest for operating said valve, said seat having independent inlet and outlet ports for communication with the same end of the engine-cylinder and having an exhaust-port, said inlet-port communicating with said cylinder near said end, and said outlet-port communicating with said cylinder at such greater distance from said end that its closure by the engine-piston before the completion of the stroke of the latter will time the reversal of the valve, all substantially as herein described.

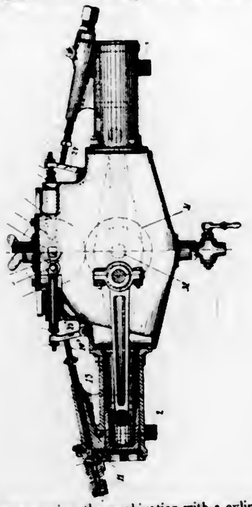
2. In a direct-acting reciprocating engine, the combination of a valve-seat having two ports side by side one an inlet-port to one end of the cylinder and the other an outlet-port fort he same end of the cylinder and having also an exhaust-port, and a slide-valve in which is a cove for communication between said outlet-port and the exhaust-port, and which has at one edge an outside lap of a width to cover the outlet-port without covering the inlet-port, substantially as herein described.

3. In a direct-acting reciprocating engine, the combination of a valve-seat in which are two ports leading respectively toward opposite ends of the engine-cylinder but communicating therewith at such distances from the ends thereof that their communication is closed by the engine-piston before completing its stroke, said seat also containing an exhaust-port intermediate to said two ports, and a slide-valve in which is a cove of a length to overlap both of said two ports and bring both into communication at the same time with the exhaust-port, substantially as herein described.

4. In a direct-acting reciprocating engine, the combination of a valve-seat in which is a central exhaust-port 16 and a port 17 having branches 20, 21 for communication with the cylinder at and near one end thereof and in which are also inlet and outlet ports 18, 19, communicating with the cylinder at and near the other end thereof, and a slide-valve adapted to said seat and having a cove 28 and an outside lap 24, the said cove being of a length to form communication between both said ports 17, 19 and said lap being of a width to cover said outlet-port 19 without covering said inlet-port 18, all substantially as and for the purpose herein described.

680,000. VALVE-GEAR MECHANISM FOR SINGLE-ACTING ENGINES. LEON SERPOLLET, Paris, France. Filed Mar. 27, 1900. Serial No. 10,357. (No model.)

Claim.—1. In a steam-engine, the combination with a cylinder and its piston, of a steam admission or exhaust valve, a valve-rod for said valve movable in a longitudinal direction only, a rotatable cam and connections for driving the same, a sliding rod movable in a longitudinal direction only and actuated by said cam, and an adjustable connection for transmitting movement from the sliding rod to the valve-rod.



2. In a steam-engine, the combination with a cylinder and its piston, of a steam admission or exhaust valve, a valve-rod for said valve movable in a longitudinal direction only, a rotatable cam and connections for driving the same, a sliding rod movable in a longitudinal direction only and actuated by said cam, a lever pivoted at one end and at its other end adjustably connected to the sliding rod, said lever being adapted when moved to come into contact with and transmit movement to the valve-rod for opening the valve.

3. In a steam-engine, a cylinder and its piston, a gear-casing at one end of and projecting above the cylinder, a steam admission or exhaust valve on the cylinder, a valve-rod inclined upwardly from each valve movable in a longitudinal direction only, a rotatable cam located at the upper part of the gear-case and connections for driving the same, a sliding rod movable in a longitudinal direction only and actuated by said cam, and means for transmitting motion from the sliding rod to the valve-rod.

4. In a steam-engine, a cylinder and its piston, a steam-admission valve for the cylinder, a valve-rod for said valve, a rotatable cam, means transmitting movement from the cam to the valve-rod, a shaft on which the cam is mounted, a gear-wheel on said shaft, a second gear-wheel rotated from a driven part of the engine and meshing with the first-mentioned gear-wheel to drive the cam-shaft, and means for changing the position of engagement of the two gear-wheels to vary the lead of steam admission.

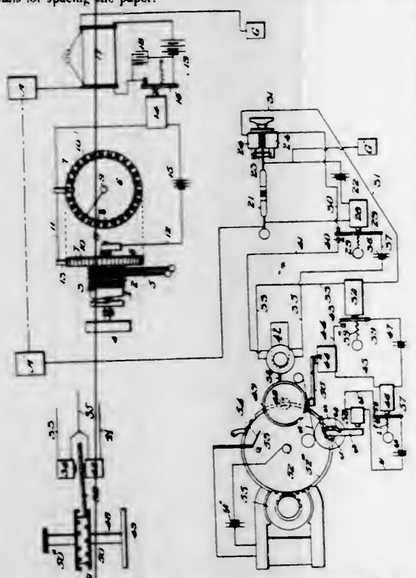
5. In a multiple-cylinder engine, two or more cylinders and pistons for the same, a gear-casing having a thin sheet-metal bottom interposed between the cylinders and adapted to contain a lubricant in which the piston connections operate.

6. In a steam-engine, a cylinder, a steam-admission valve for the cylinder, and a cam-surface of varying width for opening said valve the edge or side of said surface corresponding to the beginning of steam admission to the cylinder being inclined so that the lead of admission may be varied by altering the position of the cam-surface with relation to the valve and the edge or side of said cam-surface corresponding to the termination of admission being at a greater inclination whereby the duration of admission decreases as the lead of admission increases.

7. In a steam-engine, a cylinder, a steam-admission valve for the cylinder, and a rotatable cam-surface of varying width opening said valve the edge or side of said surface corresponding to the beginning of steam admission to the cylinder being inclined so that the lead of admission may be varied by altering the position of the cam-surface with relation to the valve and the edge or side of said cam-surface corresponding to the termination of admission being at a greater inclination whereby the duration of admission decreases as the lead of admission increases.

680,001. WIRELESS TELEGRAPHY. HARRY SHOEMAKER, Philadelphia, Pa., assignor to Marie V. Gehring, same place. Filed Feb. 1, 1901. Serial No. 45,586. (No model.)

Claim.—1. In a type-writing wireless telegraph a transmitting apparatus and a receiving apparatus; said receiving apparatus consisting of the air and ground plates, a coherer connected therewith, a main relay-circuit connected with the coherer, another circuit operated to oscillate the coherer when the main relay-circuit is magnetized and demagnetized, means to operate a type-wheel, means for stopping the type-wheel at the proper place, means for pressing the paper against the proper type and means for spacing the paper.



2. A type-writing wireless telegraph comprising a transmitting apparatus consisting of a commutator, means for revolving said commutator, a relay-circuit operated by said commutator and a circuit having an induction-coil operated by said relay-circuit; and a receiving apparatus consisting of air and ground plates, an imperfect electrical contact, means for operating a type-wheel, means for printing and means for spacing the paper operated by the influence of the oscillations received by the contact.

3. A type-writing wireless telegraph comprising a transmitting apparatus consisting of a keyboard, a cylinder and a commutator mounted upon a common shaft, means to revolve the same, a circuit in electrical connection with said commutator and an induction-coil circuit operated by said first-mentioned circuit; and a receiving apparatus consisting of air and ground plates, an imperfect electrical contact, a type-wheel operated simultaneously with the commutator and adapted to stop at the proper place when the commutator is stopped, means for causing the type-wheel to print and means to space the paper, all being operated by the influence of the impulses sent by the transmitting apparatus and received by the contact.

4. A type-writing wireless telegraph comprising a transmitting apparatus consisting of a cylinder and a commutator upon a common shaft, means to stop the same, means to revolve the same and an electromagnetic circuit operated by said commutator, another circuit operated by said first-mentioned circuit, and a spark-producer in said last-mentioned circuit; and a receiving apparatus consisting of a coherer and an electromagnet in circuit therewith, means for operating a type-wheel, means for printing and means for spacing, all operated by said electromagnet.

5. A type-writing wireless telegraph comprising a transmitting apparatus and a receiving apparatus, said receiving apparatus consisting of air and ground plates, a coherer connected therewith, a relay-circuit connected therewith, a circuit for oscillating the coherer operated as the relay-circuit is magnetized and demagnetized, means for stopping the type-wheel at the proper time, means for printing and means for spacing the paper, all of which are controlled through different circuits by said relay.

6. A type-writing wireless telegraph comprising a transmitting and a receiving apparatus; said receiving apparatus consisting of an oscillated coherer, a relay-circuit connected therewith, means for operating a type-wheel, means for printing and means for spacing the paper controlled by said relay-circuit.

7. A type-writing wireless telegraph comprising a transmitting and receiving apparatus, said receiving apparatus consisting of a coherer, a relay-circuit in circuit with said coherer, electromagnets adapted to be energized by said relay-circuit, and a spring to oscillate said coherer, and separate means for operating a type-wheel for printing and for spacing paper operated by said relay-circuit.

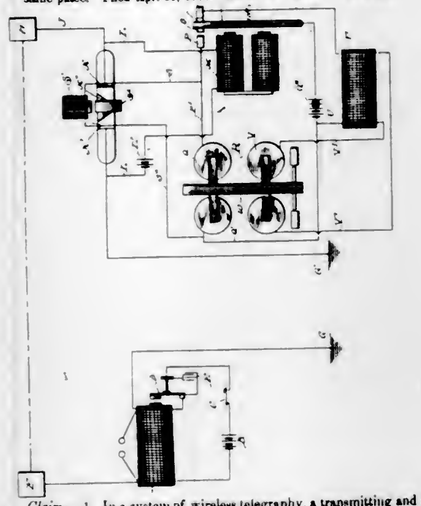
8. A receiving apparatus for a type-writing wireless-telegraph system comprising an imperfect electrical contact, a relay-circuit connected to said contact, means for oscillating said coherer operated as the relay-circuit is magnetized and demagnetized; means operated after the contact gains its resistance to print and means to space the paper after the printing operation.

9. A receiver for a type-writing wireless-telegraph system comprising an imperfect electrical contact, means for oscillating the same after the contact loses its resistance, a relay-circuit connected with said contact, a pair of electromagnets adapted to be energized one at a time as said relay-circuit is energized and deënergized, a type-wheel operated by said pair of magnets and an electromagnetically-operated means for printing and an electromagnetic means for spacing the paper, all controlled by said relay-circuit.

10. A receiving apparatus for type-writing wireless-telegraph systems comprising an imperfect electrical contact, a main relay-circuit connected therewith, a pair of electromagnets operated one at a time as the relay-circuit is energized and deënergized, a stepped type-wheel, a lever operated by said pair of magnets to allow said type-wheel to be moved one step at a time, an electromagnet in the same circuit with the pair of magnets, another circuit having therein two electromagnets, a printing means operated by one of said last-mentioned magnets and a spacing-circuit operated by the other of said last-mentioned magnets.

11. In a type-writing wireless telegraph, a receiving apparatus comprising an imperfect electrical contact; a relay-circuit connected therewith; means for printing operated by said relay-circuit consisting of a type-wheel, a spring-drum connected with said wheel, means for making an electrical circuit at every revolution of said wheel for operating a motor to wind the spring, and a lever for pressing the paper against said type-wheel; and means for spacing the paper after the printing operation.

680,002. WIRELESS-TELEGRAPH SYSTEM. HARRY SHOEMAKER, Philadelphia, Pa., assignor of one-half to Gustave P. Gehring, same place. Filed Apr. 18, 1901. Serial No. 56,438. (No model.)



Claim.—1. In a system of wireless telegraphy, a transmitting and a receiving station, said receiving-station having therein a relay, a recorder-magnet, means for producing three magnetic impulses in the recorder-magnet to every one received in the relay.

2. A receiving apparatus of wireless telegraphy, comprising air and ground plates, a coherer, a relay-magnet in circuit with said coherer, a recorder-magnet and means operated by said relay for causing one impulse received by the relay to make three in the recorder-magnet.

3. A receiving apparatus for wireless telegraphy, consisting of air and ground plates, a coherer, a relay, means operated by said relay to make two distinct circuits, a pair of magnets energized when one circuit is made, another pair of magnets energized when the other circuit is made, and an induction-coil adapted to have its primary circuit broken when the last-mentioned magnet-circuit is broken.

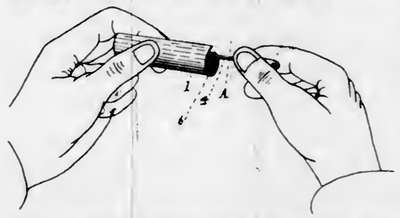
4. A receiving apparatus for wireless telegraphy, consisting of a receiving-circuit including a coherer, a main circuit in parallel with said coherer, a relay in said circuit, a recorder-magnet operated by the relay and two separate circuits controlled by said relay so that to every impulse received three impulses are caused to traverse the recorder-magnet.

5. A receiving apparatus for wireless telegraphy, consisting of a receiving-circuit including a coherer, a main circuit in parallel with said coherer, a relay in said circuit, means operated by said circuit to make two separate circuits, a circuit formed when the relay is magnetized, a sounder-magnet in said circuit, a decoherer-magnet in shunt with said circuit, another circuit formed when the relay is demagnetized, and an induction-coil and a sounder-magnet energized when this last-mentioned circuit is made.

6. A receiving apparatus for wireless telegraphy, comprising a receiving-circuit including a coherer, a main circuit in parallel with said coherer, a relay in said circuit, a retracted armature operated by said relay, a sounder-circuit operated when the relay is magnetized, and again when it is demagnetized, and an induction-coil adapted to be energized when the relay is demagnetized to hold the sounder over.

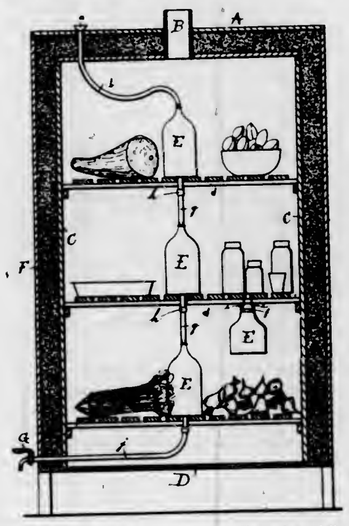
7. A coherer and decoherer consisting of a non-conducting tube, metallic plugs located in said tube, metallic powder located in the tube between the plugs, a band or ring loosely surrounding said tube opposite the pocket and a magnet adapted to attract said band when energized.

680,003. CIGARETTE-WRAPPER. JOHN C. SIMERING, Baltimore, Md. Filed May 31, 1901. Serial No. 62,460. (No model.)



Claim.—A cigarette-wrapper having at one lateral edge thereof, a permanent pasted, vacant hollow fold adapted to receive a rolling-up rod, substantially as and for the purpose specified.

680,004. REFRIGERATOR. JOHN R. SIMMS, Linden, Cal. Filed Apr. 25, 1901. Serial No. 57,415. (No model.)

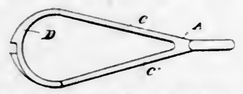


Claim.—1. In a refrigerator the combination substantially as described and shown of the chest, ventilator-chimney B at the top A, the bottom D provided with air-inlets, the slotted shelves *d*, and canvas water-jugs E suspended beneath the shelves *d*.

2. In a refrigerator the combination with a suitable chest provided with a door C, and shelves *d*, provided with slots, of the ventilator-chimney B on the top A, provided with water-inlet *a*, air-inlets at the bottoms or sides of the base, the jugs E, and means for filling the jugs E with water consisting of the pipe *b* secured to the top A at the inlet *a*, and the connecting-pipes *g*, all constructed and operating substantially as described and shown.

3. In a refrigerator the combination of a chest, a ventilator-chimney at the top, a bottom provided with air-inlets, a series of canvas water-jugs within the chamber and means for supplying the jugs with water and flushing the same composed of the water-inlet *a*, a supply-pipe *b*, connecting-pipes *g*, supplied with couplings *h*, and the discharge-pipe *j*, provided with the faucet G, all arranged and operating substantially as described and shown.

680,005. HOOK. PRESTON B. SOUTHWORTH, Mayville, Oreg. Filed Apr. 29, 1901. Serial No. 58,061. (No model.)



Claim.—A hook of the character described comprising a shank portion, overlapping spring-hooks extending therefrom and adapted to be sprung apart perpendicularly to their plane, and outwardly-extending shoulders projecting in parallelism from each hook, said shoulders forming between them an intervening space into which a ring may be inserted perpendicularly to the plane of the hooks, said shoulders adapted to be engaged by the ring, and to force the hooks apart, when the ring is turned to the plane of the hooks.

680,006. WHIFFLETREE. WILLIAM H. SPILLMAN and ADOLPHUS E. ROACH, Leamington, Canada. Filed Nov. 9, 1900. Serial No. 35,948. (No model.)



Claim.—1. A new article of commerce, consisting of sheet-metal sections stamped to a concave form having inturned flanges and bound together by hoops, substantially as described.

2. An article for draft purposes consisting of sheet-metal sections stamped to a concave form and each section being provided with inturned flanges, binding-hoops provided with draft appliances securing the sections together, substantially as described.

680,007. APPLIANCE FOR WORKING TRAMWAY OR RAILWAY POINTS. WILLIAM J. STEWART, Glasgow, Scotland, assignor of one-half to Mary Anne Stewart, Ardmore, Scotland. Filed Apr. 16, 1901. Serial No. 56,135. (No model.)

Claim.—1. In appliances for working tramway or railway points the combination with rails having specially-deepened grooves, and fitted with shifting tongue-pieces jointed to the point-tongues and connected by a tie-rod, of actuating-rods with wheels on the vehicles suspended by rods from horizontal levers carried by vertical rods *l* held out of acting position by a ratchet and pawls substantially as set forth.

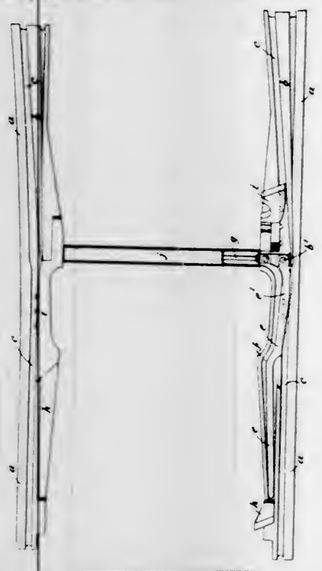
2. In appliances for working tramway or railway points the combination comprising the rail *a* having a specially-deepened groove *c*, the tongue-piece *e* jointed to the point-tongue *b* and the toe-piece *v*, wheels *q*, rod *o* lever *k*, rod *r* with ratchet-and-pawl mechanism on the vehicle-body substantially as set forth.

3. In appliances for working tramway or railway points the combination with shifting tongue-pieces jointed to the point-tongues, of the toe-piece *v*, with wheel *q*, the rod *o*, the lever *k* and the rod *r* fitted with ratchet-and-pawl mechanism substantially as set forth.

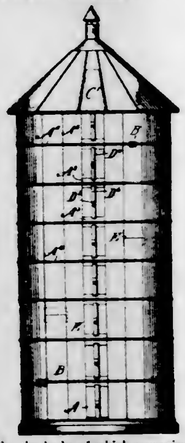
4. In appliances for working tramway or railway points, a rail having a deepened groove and a raised portion *d* in the groove, a point *b* and a tongue-piece attached thereto, said tongue-piece extending within the groove but a distance below the top of rail, in combination with a car, a wheel on the car adapted to travel in the groove and carrying means to move the tongue-piece and ratchet-and-pawl means to hold the wheel out of operative position upon the wheel striking the raised portion *d* of the groove, substantially as described.

5. In appliances for tramway and railway points, a rail having a deepened groove and a raised portion *d* in the groove, a wheel carried by the car and adapted to run in the groove and levers on the car to lift or lower the wheel, in combination with a pawl-and-ratchet means re-

cured to the levers to hold the wheel in its raised position upon its striking the raised portion of the groove *d*, substantially as described.



680,008. SILO. RALPH STODDARD, Rutland, Vt., assignor to Moseley & Stoddard Manufacturing Company, same place. Filed Mar. 11, 1901. Serial No. 50,634. (No model.)

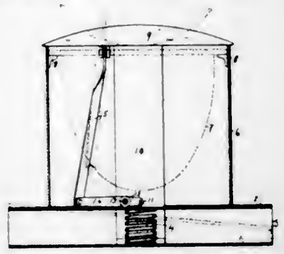


Claim.—1. A silo, the body of which comprises a series of staves, a series of cross-bars having door-bearings and spaced to form door-openings, each bar being in line with and abutting at its ends against the first and last staves of the series, and a hoop embracing the series of staves and a bar thereby to firmly bind the parts against separation; substantially as specified.

2. In a silo, the combination of a series of staves, a series of cross-bars spaced to form door-openings, each bar abutting at its ends against the first and last stave of the series, binding-hoops passing over the cross-bars, and a door having beveled edges and upon its outer face a pivoted locking-bar adapted to bear upon the said cross-bars; substantially as specified.

3. In a silo comprising vertical staves having tongue-and-groove connections at their sides, a metallic connector adapted to be seated in transverse grooves within the adjacent ends of abutting staves, said connector having projections beyond the side edges of said staves and being located in a vertical plane at one side of said tongue and groove; substantially as specified.

680,009. CUSPIDOR. FRANK STROTHENKE, Milwaukee, Wis. Filed Aug. 20, 1900. Serial No. 27,386. (No model.)



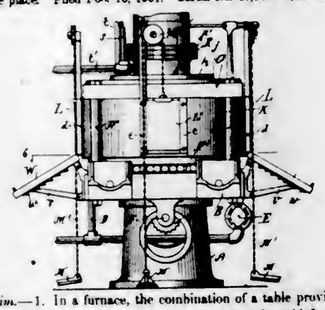
Claim.—1. A cuspidor, comprising a bowl; an inclosing receptacle therefor; one or more hinged covers for said receptacle, adapted, when open, to expose the bowl; a base-plate; a movable plate supported therefrom by a central spring; inclosing flexible connections between the outer edges of the plates; a rock-shaft, having an arm centrally connected to the upper plate; and end arms extending in planes parallel and adjacent to the walls of the receptacle; and connecting bars or rods extending upwardly between the bowl and the walls of the receptacle, and connected with the covers.

2. A cuspidor comprising a bowl; an inclosing receptacle therefor; one or more hinged covers for said receptacle, adapted, when open, to expose the bowl; a base-plate; a movable plate located above the base-plate; an inclosing flexible wall between, and connected with, the outer edges of the plates; a spring interposed between the plates and adapted to raise the upper plate normally to the limit of movement permitted by the flexible connections; and motion-transmitting connections between the central portion of the movable plate and the covers.

3. A cuspidor comprising a base; a movable plate; flexible connection between the base and the movable plate; a spring interposed between the plates; a bowl-supporting receptacle mounted on the movable plate and provided with one or more hinged lids or covers; and connections adapted to communicate motion from the movable plate to the covers.

4. A cuspidor comprising a base; a movable spring-supported plate connected therewith; a bowl-retaining receptacle mounted on said plate; one or more hinged covers for said receptacle; a rock-shaft; an arm projecting therefrom and coupled to the central portion of the plate; and one or more oppositely-projecting arms secured to said shaft and connected with the covers.

680,010. FURNACE FOR HEATING BARS OF METAL. JAMES H. TAYLOR, Pawtucket, R. I., assignor of one-half to Richard Roscow, same place. Filed Feb. 18, 1901. Serial No. 47,886. (No model.)



Claim.—1. In a furnace, the combination of a table provided with a grooved annular flange, a water-tank surrounding the said flange, a series of antifriction-balls in the groove of the flange, and a rotary hearth supported by the antifriction-balls, substantially as described.

2. In a furnace, the combination of a conical rotary hearth, delivering-doors arranged opposite each other, and an intermediate feeding-door, with the hydrocarbon-burner provided with a water-jacket, and located in the furnace above the hearth, substantially as described.

3. In a furnace, the combination of a casing provided with a recess at its upper portion arranged to receive water for cooling the casing, with a circumscribing plate extending inwardly from the upper edge of the casing, and leaving a passage between the edge of the plate and the casing for the flow of water onto the exterior surface of the said casing, substantially as described.

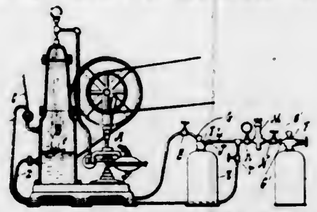
4. In a furnace, the combination of a casing provided with a recess at its upper portion, arranged to receive water for cooling the casing, with a circumscribing plate extending inwardly from the upper edge of the casing, and leaving a passage between the edge of the plate and the casing for the flow of water onto the exterior surface of said casing, and a rotary hearth provided with an annular groove, arranged to receive the water from the exterior surface of the casing, substantially as described.

5. In a furnace, the combination of a casing provided with a recess at its upper portion arranged to receive water for cooling the casing, with a circumscribing plate leaving a passage between the edge of the plate and the casing for the flow of water onto the exterior surface of said casing, a rotary hearth provided with an annular groove, arranged to receive the water from the surface of the casing to cool the edge of the hearth, a table provided with a water-tank below the hearth, and means for removing the water from the tank, substantially as described.

6. In a furnace, the combination of a casing provided with an annular recess at its upper portion, arranged to receive water for cooling the casing, with a circumscribing plate extending inwardly from the upper edge of the casing, and leaving a passage between the edge of the plate and the casing for the flow of water onto the exterior surface of said casing, the rotary hearth provided with an annular groove arranged to receive the water from the exterior surface of the casing, the table, and the posts which serve to connect the circumscribing plate with the table, substantially as described.

7. In a furnace, the combination of the feeding-door, and the stationary inclined racks upon which the bars to be fed may be placed, with the opposite delivering-doors, and the pivoted racks adapted for holding the heated bars, substantially as described.

680,011. SODA-WATER APPARATUS. HENRY A. ALLWARDT, Detroit, Mich. Filed Feb. 8, 1901. Serial No. 46,494. (No model.)



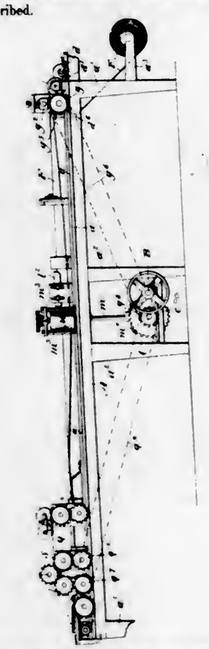
Claim.—1. The combination with a tank E, having a passage-way opening toward its bottom, means for detachably connecting said tank with a source of supply of carbonated water under pressure so that said water may enter said tank through said passage, said tank being also provided with a passage I opening into said tank near the top thereof, of a pipe L adapted to be detachably connected to said tank so as to form a continuation of the passage I, a pressure-regulating valve on the pipe L adapted to open when the pressure in said pipe is a little less than the pressure forcing the water into the tank E, and a second tank E detachably connected to the outlet-passage of said reducing-valve and adapted to replace the first-mentioned tank, substantially as described.

2. The combination with a tank E having a passage-way opening toward its bottom, means for detachably connecting said tank with a source of supply of carbonated water under pressure, so that said water may enter said tank through said passage, said tank being also provided with a passage I opening into said tank near the top thereof and provided with apparatus adapted to permit the passage of a gas, but to close the passage when the water flows therethrough, of a pipe L adapted to be detachably connected to said tank so as to form a continuation of the passage I, a pressure-regulating valve on the pipe L adapted to open when the pressure in said pipe is a little less than the pressure forcing the water into the tank E, and a second tank E' detachably connected to the outlet-passage of said reducing-valve and adapted to replace the first-mentioned tank, substantially as described.

680,012. MATCH-BOX-SHUCK MACHINE. CHARLES R. ANDREWS, Lebanon, Pa., assignor to the Diamond Match Company, Chicago, Ill. Filed Aug. 11, 1900. Serial No. 26,616. (No model.)

Claim.—1. In a machine for making box-shucks, a folding device for acting on a scored strip, such device consisting of a blade which acts only on a score of the strip, parts for turning the outer surfaces of the strip, and a gage for an edge of the strip, such gage having a shoulder which bears against the inner surface of the strip, substantially as and for the purpose described.

2. In a machine for making box-shucks, the combination of means for scoring a strip, means for gluing the strip near one edge thereof, a folding-blade which acts only on a score of the strip, parts for turning the outer surfaces of the strip, a gage for the glued edge of the strip, and a gage for the opposite edge of the strip, such latter gage having a shoulder which bears against the inner surface of the strip, substantially as and for the purpose described.



3. In a machine for making box-shucks, the combination with scoring devices, of a folding device consisting of a triangular frame, gages for the edges of the strip, such gages being on sides of the frame, and a folding-blade on the top of the frame and extending toward the angle of the frame, substantially as and for the purpose described.

4. In a machine for making box-shucks, the combination with scoring devices, of a folding device consisting of a triangular frame, gages for the edges of the strip, such gages being adjustably secured on the sides of the frame, and a folding-blade adjustably secured on the top of the frame and extending toward the angle of the frame, substantially as and for the purpose described.

5. In a machine for making match-box shucks, the shuck-sanding devices, comprising a table, a glue-pan beneath the table, a glue-wheel running in said pan and extending into an opening in said table, a leaf-spring extending over said opening and adapted to press the shucks against the glue-wheel, a sand-receptacle below the table, a wheel for throwing sand up through an opening in said table against the glued shuck, a pair of guides on said table for the shuck, and an overhanging guide supported between the said pair of guides, substantially as and for the purpose described.

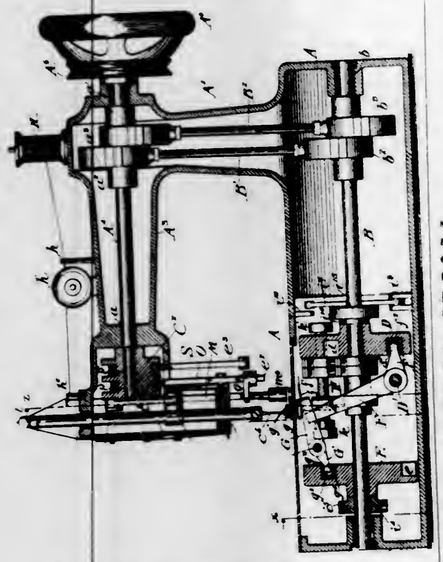
680,013. OVERSEAMING SEWING-MACHINE. CHARLES J. APPLETON, Ravenswood, N. Y. Filed July 10, 1900. Serial No. 23,112. (No model.)

Claim.—1. In an overedge sewing-machine, the combination of a vertical needle and means to reciprocate it, a lower needle and means to reciprocate it below the work-plate of the machine, a circular needle and means to reciprocate it above and below said work-plate over the edge of a fabric, each of said needles carrying a thread, and a slack take-up for each of said threads, said slack take-up for the lower and circular needles comprising a fixed eye, a movable arm provided with an eye, and an eccentric for moving said movable arm.

2. In an overedge sewing-machine, the combination of a vertical needle and means to reciprocate it, a lower and a circular needle, needle-bars each carrying one of said needles and pivoted to the frame of the machine, a shaft journaled in said frame and carrying cams, the faces of which are disposed opposite each other, the said lower and circular needle bars being extended beyond their pivotal connection with the frame to engage said cams to be thereby positively moved as described.

3. In an overedge sewing-machine, the combination of a vertical needle and means to reciprocate it, a lower and a circular needle, needle-

bars each carrying one of said needles and pivoted to the machine-frame, a shaft journaled in the machine-frame and carrying two face-cams, the faces whereof are disposed opposite to each other, and blocks movable in the cam-grooves in the face of cams, the said lower and circular needle bars being extended beyond their pivotal connection with the machine-frame to engage said blocks in the face-cams.



4. In an overedge sewing-machine, the combination of a vertical needle and means to reciprocate it, a lower and a circular needle, needle-bars each carrying one of said needles, a shaft journaled in the machine-frame and carrying cams for directly engaging and operating said lower and circular needle bars, one of said needle-bars being pivoted to the frame below said shaft, and the other of said needle-bars being pivoted to the frame above said shaft, and each of said bars being extended beyond their pivotal connection with the frame to engage one of said cams carried by the shaft.

5. In an overedge sewing-machine, the combination of a vertical needle and means to reciprocate it, a lower and a circular needle, needle-bars each carrying one of said needles and pivoted to the frame of the machine, a shaft journaled in said frame and carrying cams, the faces of which are disposed opposite each other, the said needle-bars being extended beyond their pivotal connection with the frame to engage said cams to be thereby positively moved as described, and an independent take-up for the threads carried by said needles.

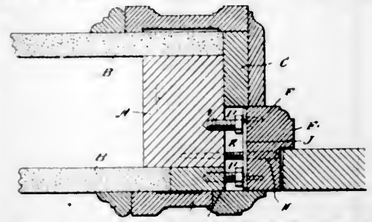
680,014. BLIND-STITCH SEWING-MACHINE. JOSEPH ARBES, New York, N. Y. Filed Apr. 29, 1899. Serial No. 715,012. (No model.)



Claim.—1. In a sewing-machine, the combination of a feed-plate and means for feeding material thereover, a needle and operating mechanism, a shuttle and operating mechanism, and a tapered tubular needle-guide supported in the path of the needle between the feed-plate and shuttle and adapted to confine the needle in working relation to the shuttle during operation, substantially as set forth.

2. In a sewing-machine, the combination of a feed-plate projecting toward the path of the needle, means for feeding material over the feed-plate, a needle formed with a straight face presented toward the feed-plate and a point substantially in line with its straight face, needle-operating mechanism, a shuttle-casing mounted beneath the feed-plate, a shuttle within the casing, means for operating the shuttle, and a guide in the path of the needle between the feed-plate and shuttle, adapted to confine the needle during operation in working relation to the shuttle, substantially as set forth.

680,015. ADJUSTABLE DOOR-FRAME. JOHN BACMUS, Jersey City, N. J. Filed Mar. 23, 1901. Serial No. 53,214. (No model.)



Claim.—1. A door-frame having the door-jamb cut away on one side to form a guideway between the door-jamb and the trimming-board, and a rabbet-strip mounted in said guideway and integrally and rectilinearly adjustable toward and from the door, said rabbet-strip having throughout its adjustment a solid and direct abutment against the rigid portion of the door-jamb to resist the impact of the slamming of the door, as set forth.

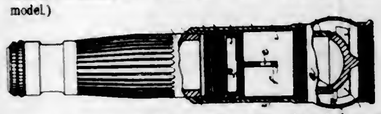
2. A door-frame having a stud, a jamb secured thereto, but cut away on one side, a trimming-board forming with said jamb a guideway, a rabbet-strip mounted in said guideway, and means between said rabbet-strip and said stud, to integrally and rectilinearly adjust the rabbet-strip relatively to the door, said rabbet-strip having throughout its adjustment a solid and direct abutment against the rigid portion of the door-jamb to resist the impact of the slamming of the door, as set forth.

3. A door-frame having a stud, a fixed jamb cut away on one side, a trimming-board forming with the jamb a guideway, a rabbet-strip adjustably held in said guideway, means for integrally and rectilinearly adjusting the rabbet-strip toward or from the door, said means consisting of lag-screws seated in the stud and forming a back bearing for the rabbet-strip, and fastening-screws for holding the rabbet-strip in position on said stud, said rabbet-strip having throughout its adjustment a solid and direct abutment against the rigid portion of the door-jamb to resist the impact of the slamming of the door, as set forth.

4. A door-frame having a stud, a fixed jamb cut away on one side, a trimming-board forming with the jamb a guideway, the trimming-board being made in sections, one of which is removable to give access to said guideway, a rabbet-strip adjustably held in said guideway, and means for adjusting the rabbet-strip toward or from the door, said means comprising lag-screws screwing in the stud and abutting with their heads against the inner face of the rabbet-strip to form a back bearing for the same and fastening-screws extending through the rabbet-strip into the stud, said rabbet-strip having throughout its adjustment a solid and direct abutment against the rigid portion of the door-jamb to resist the impact of the slamming of the door, as set forth.

5. A door-frame having a stud, a fixed jamb cut away on one side, a trimming-board forming with the jamb a guideway, the trimming-board being made in sections, one of which is removable to give access to said guideway, a rabbet-strip adjustably held in said guideway, and means for integrally and rectilinearly adjusting the rabbet-strip toward or from the door, said means comprising lag-screws screwing in the stud, wear-plates on the rabbet-strip and against which abut the heads of said lag-screws and fastening-screws passing through the rabbet-strip into the stud, said rabbet-strip having throughout its adjustment a solid and direct abutment against the rigid portion of the door-jamb to resist the impact of the slamming of the door, as set forth.

680,016. SHUT-OFF NOZZLE FOR FIREMEN'S HOSE. JAS. M. BAKER, Providence, R. I. Filed Feb. 26, 1901. Serial No. 48,993. (No model.)

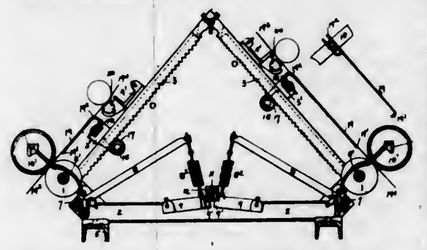


Claim.—1. In a shut-off nozzle, the combination of the revoluble nozzle-tube, with the sliding valve-tube actuated by the revolution of the nozzle-tube, and the closing seat for the valve-tube, substantially as described.

2. In a shut-off nozzle, the combination of the shell provided with the spherical enlargement the cylindrical portion provided with a guiding-slot open at its outer end and the centrally-arranged valve-seat, with the valve-tube provided with a stud held in the slot of the shell, and serving to prevent the rotation of the valve-tube, substantially as described.

3. In a shut-off nozzle, the combination of the shell provided with the cylindrical portion having a guiding-slot open at its end and the centrally-arranged valve-seat, with the valve-tube provided with a stud held in the guiding-slot of the shell, and with the external screw-thread formed upon the outer end of the valve-tube beyond the end of the slot in the shell, the revoluble nozzle-tube provided with the internal screw-thread engaging with the external screw-thread of the valve-tube, and means for holding the said valve-tube and the nozzle-tube in proper working relation with each other, substantially as described.

680,017. ROVING, SPINNING, OR ANALOGOUS MACHINE. THOMAS A. BOYD, Glasgow, Scotland. Filed Nov. 30, 1900. Serial No. 38,215. (No model.)



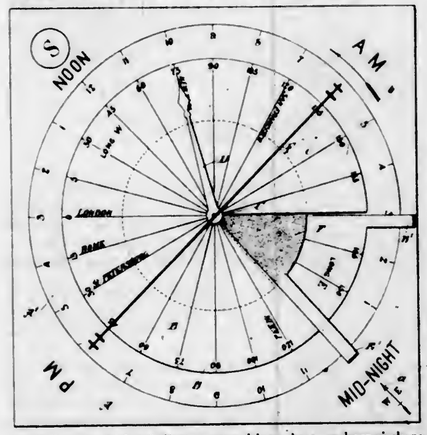
Claim.—1. Roving, spinning and analogous machinery provided with means for regulating the pressure on the front feed-rollers throughout a section of or throughout the whole of the frame for the purposes stated.

2. In roving, spinning and analogous machinery, the combination of a main frame, feed-rollers and means for applying pressure to the front feed-rollers, with supports for the feed-rollers on both sides of the frame, said supports comprising a horizontal and two diagonal members forming a triangle so as to resist the pressure put upon the front feed-rollers, substantially as described.

3. In roving, spinning and analogous machinery, the combination of levers fulcrumed on the framing and extending toward the center of the frame with a bar extending from end to end of the frame which bar operates the whole of the pressure-levers, substantially as and for the purposes described.

4. In roving, spinning and analogous machinery, the combination of a pair of feed-rollers, a link acting on one of the rollers and a pressure-lever to which the link is connected, with a swing-lever having a spring connection with the pressure-lever and a horizontal bar provided with cams to act on the pressure-lever, substantially as described.

680,018. TIME-INDICATOR. CHARLES H. BRAKE, Hawarden, Iowa. Filed Aug. 3, 1900. Serial No. 25,784. (No model.)



Claim.—1. A time-indicator, comprising a base, an hour-circle rotatable in its own plane and divided according to the hours of the night and day, a meridian-bearer rotatable about an axis disposed at an angle to the plane of the hour-circle, said meridian-bearer being provided with a series of lines adapted to register with the divisions of the hour-circle, and a night and day arc mounted to swing about an axis extending transversely of that of the meridian-bearer and lying in the plane of the hour-circle.

2. A time-indicator, comprising a base having an hour-circle divided according to the hours of the night and day, a meridian-bearer rotatable about the center or axis of the hour-circle, and provided with a series of lines adapted to register with the divisions of the hour-circle, said meridian-bearer having a radial slit at the one hundred and eightieth meridian, and an indicator consisting of a radially-slotted plate pivoted about the same axis as the meridian-bearer and adapted to partially overlap the same.

3. A time-indicator, comprising a base having an hour-circle divided according to the hours of the night and day, a meridian-bearer rotatable about the center or axis of the hour-circle, and provided with a series of lines adapted to register with the divisions of the hour-circle, said meridian-bearer having a radial slit at the one hundred and eightieth meridian, an indicator consisting of a radially-slotted plate pivoted about the same axis as the meridian-bearer and adapted to partially overlap the same, an hour-hand secured to the meridian-bearer at the axis thereof and held to normally rotate therewith, but adjustable to any meridian, and a night and day arc pivoted to the base about an axis extending transversely of that of the meridian-bearer.

680,019. HOLDING-SOCKET FOR BOBBINS. JAMES BROWN, Pawtucket, R. I. Filed June 5, 1901. Serial No. 63,321. (No model.)



Claim.—1. The bobbin-holding socket, having the inwardly-turned tips or clutch projections adapted for engagement with the notches of a bobbin.

2. A bobbin-holding socket, provided with an inwardly-tapered chamber adapted to fit the outwardly-tapered end of a bobbin, and with clutch projections, adapted for engagement with notches at the end of the bobbin.

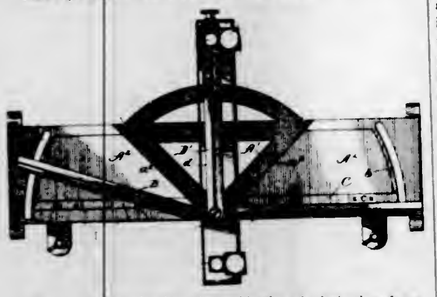
680,020. SWITCH-OPERATING MECHANISM. FRED A. CARROLL, Penn Yan, N. Y., assignor of one-half to Henry B. Turner, same place. Filed Nov. 27, 1900. Serial No. 37,867. (No model.)

Claim.—1. In a switch-operating mechanism, a rod movable vertically through a car-platform, means for holding the rod in its axially-adjusted position, springs for taking the thrust of the rod in opposite directions, a shoe carried on the lower end of said rod, and a switch-tongue operated by said shoe, substantially as specified.

2. A switch-operating device, comprising a vertically-movable rod carried by a car, a shoe on the lower end of said rod and comprising longitudinally-curved members converging at their free ends, a brace extended from the rod, and compression-springs arranged between said brace and the shoe members, substantially as specified.

3. In a switch mechanism, a swinging switch-tongue, a switch-rod connecting therewith, a boxing in which said rod is movable, a tappet extended upward from the rod through an opening in the top of the boxing, an angle-lever pivoted in the boxing and having a portion movable through the opening in the top of the boxing, a spring connected at one end to said rod and at the other end to a fixed part of the boxing, a link connection between the angle-lever and said rod, the connecting-point of the link with the angle-lever being adapted to fall below the plane of the pivotal point of the lever and form a lock for the switch-tongues, and means carried by a car for operating the rod, substantially as specified.

680,021. MITER-BOX. Alphonso L. Chandler, Chicago, Ill. Filed Sept. 8, 1900. Serial No. 29,387. (No model.)



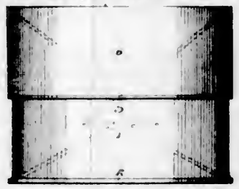
Claim.—1. In a miter-box, the combination of a bed or base frame, an adjustable rest or support for each half of the box endwise at the rear side of the bed or base frame, screw-threaded sockets inserted in each rest or support, one socket adjacent to each end of the rest or support, and adjusting-screws one for each screw-threaded socket each screw passing through and rotatably supported on the rear side rail of the bed or base frame and entering its screw-threaded sockets, for the screws to operate and raise and lower the rests or supports, substantially as described.

2. In a miter-box, the combination of a bed or base frame having in its upper surface a depressed quadrant-shaped transverse center formed by cutting away the upper face of both the front and rear side rails each side of the transverse center of the box on converging lines from front to rear and diagonal cross-pieces extending from side rail to side rail and converging from front to rear parallel with the convergence of the cut-away ends of the side rails, each diagonal cross-piece having its upper face in a plane with the upper faces of the cut-away sections of the rails, a bar on the under side of the bed or base frame pivoted at its rear end on the center line and at the apex end of and swinging beneath the depressed center, a vertical post at each end of the bar, each post having a vertical passage rectangular in cross-section open at the top and closed at the bottom and each post having a lateral slot through its side wall, opening into the vertical passage and of a less length than the passage, a limit-stop carried by the closed bottom of the post, a slide for each post, each slide rectangular in cross-section and entered into the vertical passage and having a lateral neck or web passing through the lateral slot of the post on the side adjacent to the longitudinal center of the bar, each slide limited as to the extent of its downward movement or drop by the stop in the bottom of the post, and a saw-guide carried by the lateral neck or web of the slide with its lower end in line with the lower end of the neck or web for the guide to overhang the post, each guide having a vertical slot in line with the pivotal center of the horizontal swinging bar, substantially as described.

3. In a miter-box, the combination of a bed or base frame having in its upper surface a depressed quadrant-shaped transverse center formed by cutting away the upper face of both the front and rear side rails each side of the transverse center of the box on converging lines from front to rear and diagonal cross-pieces extending from side rail to side rail and converging from front to rear parallel with the convergence of the cut-away ends of the side rails, each diagonal cross-piece having its upper face in a plane with the upper faces of the cut-away sections of the rail, a bar on the under side of the bed or base frame pivoted at its rear end on the center line and at the apex end of and swinging beneath the depressed center, a vertical post at each end of the bar, each post having a vertical passage rectangular in cross-section open at the top and closed at the bottom and each post having a lateral slot through its side wall opening into the vertical passage and of a less length than the passage, a slide for each post, each slide rectangular in cross-section and entered into the vertical passage and having a lateral neck or web passing through the lateral slot of the post on the side adjacent to the longitudinal center of the swinging bar, a screw entered into the closed bottom of each post and limiting the downward movement of the slide in the post, a saw-guide carried by the lateral neck or web of the slide with its lower end in line with the lower end of the neck or web for the guide to overhang the post, each guide having a vertical slot in line with the pivotal center of the horizontal swinging bar, and a strip extending from the pivotal point of the swinging bar forwardly to and alongside of the front vertical post and having a groove in its upper face in line with the vertical slot of the saw-guide, substantially as described.

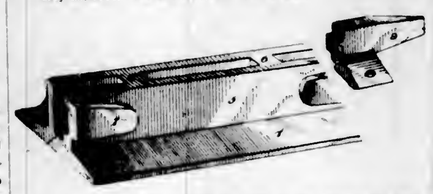
4. In a miter-box, the combination of a bed or base frame having in its upper surface a depressed quadrant-shaped transverse center formed by cutting away the upper face of both the front and rear side rails each side of the transverse center of the box on converging lines from front to rear and diagonal cross-pieces extending from side rail to side rail and converging from front to rear parallel with the convergence of the cut-away ends of the side rails, each diagonal cross-piece having its upper face in a plane with the upper face of the cut-away sections of the rails, a forwardly-projecting rim at the front or base of the quadrant-shaped depressed center having its edge curved on the arc of a circle struck from the apex center of the quadrant and provided with a series of notches, a bar on the under side of the bed or base frame pivoted at its rear end on the center line and at the apex end of and swinging beneath the depressed center, a vertical post at each end of the bar, a slide for each post vertically movable therein, a saw-guide for each slide connected with the slide to overhang the post, each saw-guide having a vertical slot in line with the pivotal center of the horizontal swinging bar, a strip extending from the pivotal point of the swinging bar forwardly to and alongside of the front vertical post and having a groove in its upper face in line with the vertical slot of the saw-guide, a fixed upwardly-projecting guide-block on top of the swinging bar adjacent to the front end thereof, a sliding latch or catch mounted on the upper side of the swinging bar and having an acting end to engage with the notches of the circular rim at the front or base of the quadrant-shaped opening, a chamber or recess in the under side of the sliding latch or catch to receive the guide-block, a longitudinal slot in the top of the latch or catch, a guard-plate above the sliding latch or catch, a screw connecting the front end of the grooved longitudinal strip and the guard-plate with the block of the swinging bar, a pull at the front end of the sliding latch or catch, and a coiled spring between the fixed block of the swinging bar and the acting end of the sliding latch or catch, operating to advance the latch or catch into engagement with a notch on the rim, substantially as described.

680,022. NON-SPILLABLE CUSPIDOR. Oliver D. Charles, Homestead, Pa. Filed Sept. 11, 1900. Serial No. 29,677. (No model.)



Claim.—In a cuspidor, the combination of a lower vessel, a cone-shaped bottom extending upwardly from the bottom and side walls of said vessel to the center thereof, an outwardly-extending annular flange arranged to the upper end of said cone-bottom, an upper cone secured upon said annular flange, an upper section of the cuspidor, a bell-shaped mouth formed therein, and means whereby said upper section and lower vessel are secured together, substantially as described.

680,023. RAIL-JOINT. Griff Conliff, Connellsville, Pa. Filed May 25, 1901. Serial No. 61,872. (No model.)

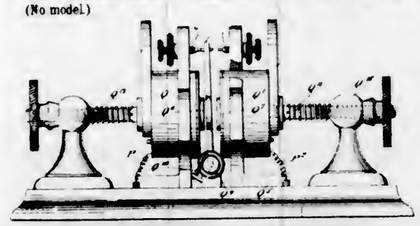


Claim.—1. In combination with rails having a portion of their base cut away and a vertical slot formed near the ends of said rails, a chair carrying integral fish-plates having wedge-shaped recesses formed therein, partitions arranged between said fish-plates engaging said slots of the rails, and a wedge-shaped lock arranged in said wedge-shaped recess, substantially as described.

2. In combination with rails having a portion of their base cut away and a vertical slot formed in the web of the rails, a chair carrying integral fish-plates, partitions arranged in said fish-plates engaging in said slots of the rails, substantially as described.

3. In a rail-joint, the combination with the rails having a portion of their base cut away and a vertical slot formed in the web, a chair carrying integral fish-plates, partitions arranged between said fish-plates engaging said slots of the rails, a wedge-shaped lock secured in the ends of said fish-plates and a fastening-lug formed integral with said wedge-shaped lock, all parts being arranged and operating substantially as described.

680,024. TELEGRAPH-RELAY. Julio E. Cordovez, Panama, United States of Colombia. Filed Aug. 14, 1900. Serial No. 26,856. (No model.)



Claim.—1. In an electric telegraph, a movable armature, cores arranged on opposite sides of the armature, permanent magnets connected with said cores, coils surrounding the cores, said magnets and coils being so arranged that a current passing through the coils will increase the magnetism of the core on one side of the armature, and decrease the magnetism of the core on the other side of the armature, a movable support to which the armature is pivoted, a shaft journaled in a stationary part and carrying an eccentric, and a link engaging said eccentric and pivotally connected with the said support.

2. In an electric telegraph, two lines, two sets of contacts, two switches adapted to connect the lines with either of the respective contacts, telegraph-keys each connected with one of the contacts of one set, electromagnet-coils connected with the keys and through them, normally, with the said set of contacts, a ground connection or equivalent connection from said electromagnet-coils, armatures controlled by the coils, a connection from each armature to one of the contacts of the other set, two contacts for each armature, a source of electricity connected with one of the contacts of each armature and with contacts which the telegraph-keys engage when depressed, and a connection from each of the other armature-contacts to the same end of the coils of the other armature which is connected with the telegraph-key.

3. In an electric telegraph, two lines, two sets of contacts, two switches adapted to connect the lines with either of the respective contacts, telegraph-keys each connected with one of the contacts of one set, two relays each comprising electromagnet-coils connected with the keys and through them, normally, with the said set of contacts, a ground connection or equivalent connection from the other terminals of said relay-coils, relay-armatures, a source of electricity connected with each of the relay-armatures, stops for limiting the movement of said armatures, a circuit-closer for each relay, said circuit-closer comprising electromagnet-coils connected at one terminal with one of the stops of the corresponding relay, a connection from the other terminal of said circuit-closer coils to said source of electricity, a circuit-closer armature, two contacts adapted to be engaged by said armature alternately, another source of electricity connected with one of the contacts of each circuit-closer and with contacts which the telegraph-keys engage when depressed, a connection from the other contact of each circuit-closer to the same end of the coils of the other relay which is connected with the telegraph-key, and a connection from each of the circuit-closer armatures to one of the other set of switch-contacts.

680,025. BEEHIVE. Raphael Decroly, Renaix, Belgium. Filed Feb. 7, 1901. Serial No. 46,395. (No model.)

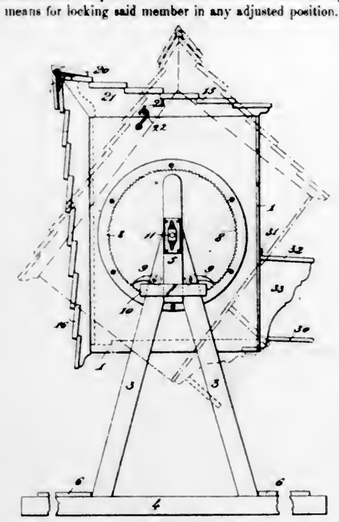
Claim.—1. In a beehive, the combination of a base or support, a hive-body revolubly mounted on said support, and means for holding the body in any adjusted position.

2. In a beehive, the combination with a suitable base or support, of a body, rectangular in cross-section, mounted on said base and movable about a horizontal axis, and a fastening means for holding the hive-body in any adjusted position, consisting of a member secured to the hive and extending concentric with the axis about which the hive is movable, and a coacting member on the support adapted to engage with the first said member at any desired point in its length.

3. In a beehive, the combination of two uprights or standards, a hive-body mounted on trunnions fitted to bearings in said uprights, a rack secured to and extending concentric with the axis about which the hive-body is movable, and a pawl or dog mounted on one of the standards and adapted to engage the teeth of said rack.

4. In a beehive, the combination of two uprights or standards, a hive-body, arranged between said standards and rotatably mounted thereon by horizontal trunnions, a rack extending concentric with the axis about which the hive-body is movable, a pawl mounted on one of the standards and adapted to engage with the rack for holding the hive in any desired position, and a releasing-slide for the pawl mounted on said standard.

5. The combination with a beehive, of means for supporting a series of frames within the hive, partitions adapted to be inserted within the hive between the series of frames and an adjacent side wall, each of said partitions bearing against one wall of the hive and having an adjustable member adapted to be forced into contact with the opposite wall and means for locking said member in any adjusted position.



6. In the improved beehive, the combination with the casing thereof, of a roof mounted upon said casing and comprising a stationary part removably secured to the top of the beehive, and a movable part hinged to said stationary part and covering the rear wall of the beehive, a free space being left between said parts of the roof and the walls of the beehive, to receive a filling of straw, substantially as and for the purpose set forth.

7. The combination with an oscillating beehive and a suitable supporting-frame therefor, of a circular plate suitably secured to the side of the hive, gear-teeth on the inner periphery of the plate, two pawls pivotally secured to the supporting-frame and adapted to engage said gear-teeth, and means for readily disengaging said pawls, substantially as set forth.

680,026. PAPER-FASTENER. Frank E. De Long, Philadelphia, Pa. Filed Mar. 14, 1901. Serial No. 51,042. (No model.)



Claim.—1. A paper fastener consisting of a pair of crossed wire arms adapted to rest as to their entire length respectively upon and in contact with the opposite sides of the papers to be secured, said arms merging at their inner ends into a transversely extending base continuous of both and at their outer ends respectively formed with inwardly turned bends, substantially as set forth.

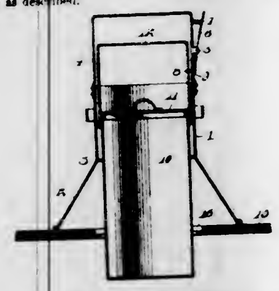
2. A paper fastener consisting of a pair of crossed wire arms adapted to rest as to their entire length respectively upon and in contact with the opposite sides of the papers to be secured, said arms merging at their inner ends into a transversely extending base continuous of both and at their outer ends respectively formed with eyes, said eyes being in a substantially common plane, substantially as set forth.

3. A paper fastener consisting of a pair of crossed wire arms adapted to rest as to their entire length respectively upon and in contact with the opposite sides of the papers to be secured, said arms merging at their inner ends into a transversely extending base continuous of both, and at their outer ends respectively formed with eyes, the axes of said eyes being separated a distance approximately equal to the breadth of the base, substantially as set forth.

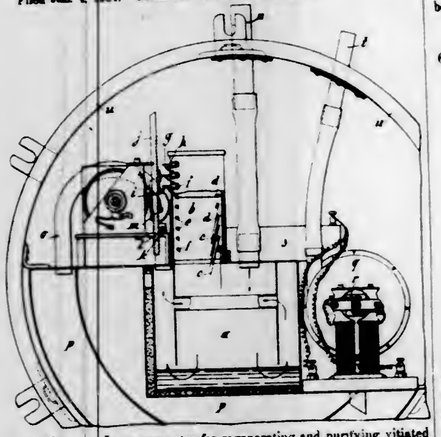
680,027. QUICK WATER-HEATING DEVICE. Joseph Deschamps, Hazelhurst, Pa. Filed May 13, 1901. Serial No. 59,942. (No model.)

Claim.—In a device of the character described, a cylindrical outer

casing terminating at its lower end in a flaring hood with an interior annular flange at the upper end of the hood, a handle rigidly connected to the upper end of said casing and provided in one side with an aperture, lugs carried by said handle, a spring-pressed lever pivoted in said lugs with its lower end projecting through the aperture in the handle, an inner cylindrical vessel fitted to slide vertically within the annular flange carried by the outer casing, a removable lid for said vessel, and a handle rigidly secured to said vessel and provided in one side with a series of apertures to receive the projecting end of the spring-pressed lever for supporting the inner vessel in the position to which it has been adjusted, substantially as described.



680,028. APPARATUS FOR REGENERATING AND PURIFYING AIR. ALEXANDRE DESGREZ and VICTOR BALTHAZARD, Paris, France. Filed Jan. 4, 1901. Serial No. 42,082. (No model.)



Claim.—1. In an apparatus for regenerating and purifying vitiated air, the combination of an air-inlet, a reaction-chamber containing water, means for releasing at regular intervals, a predetermined quantity of sodium bioxid which falls into the reaction-chamber, a refrigerator, a fan or ventilating apparatus, to draw the air through the apparatus, and an exit-orifice, substantially as herein shown and described.

2. In an apparatus for regenerating and purifying air, the combination of a closed case, an air-inlet tube, a reaction-chamber containing water into which said air-inlet opens, a distributing apparatus for an alkaline bioxid, arranged above said reaction-chamber, a number of hinged plates, carrying said alkaline bioxid, arranged in said distributing apparatus, a number of axes arranged in said distributing-chamber, a stop carried by each axis, a short arm arranged at the end of each axis, a rack, a projection carried by said rack, means for raising said rack, an exit-tube connected to the reaction-chamber, a refrigerator into which said exit-tube opens, a fan to draw air into the apparatus, and an exit-tube connected to the refrigerating-chamber, substantially as herein shown and described.

3. An apparatus for purifying vitiated air, comprising a purifying-receptacle provided with an air-inlet and an air-outlet so that a current of air may be forced through said receptacle, movable supports located adjacent to said receptacle and each adapted to carry a supply of a purifying agent, individual movable stops for holding said supports in a carrying position, and a releasing mechanism operatively connected with said stops, to cause them to successively release the supports, thus allowing the material carried by the supports to pass into the purifying-receptacle.

4. An apparatus for purifying vitiated air, comprising a purifying-receptacle provided with an air-inlet and an air-outlet so that a current of air may be forced through said receptacle, movable supports located adjacent to said receptacle and each adapted to carry a supply of a purifying agent, individual movable stops for holding said supports in a carrying position, a bar having a projection adapted to successively actuate said stops to release the corresponding supports and the material carried thereby, and mechanism for moving said bar.

680,029. LUMBER-COUPLING. JERRY E. DUBRAY, Madera, Cal. Filed Mar. 22, 1901. Serial No. 52,415. (No model.)



Claim.—1. A coupling for bundled lumber, comprising two metallic members, adapted to be clamped between boards of adjacent bundles, a flexible and separable connection between said members, and a swivel forming part of said connection.

2. A coupling for the described purpose comprising two flat metal pieces which form the ends of the coupling, links or rings connected to each piece, and a loose cross-piece attached to one link or ring and adapted to be detachably connected to an adjacent link or ring the whole coupling being substantially straight when extended.

3. A coupling for the described purpose comprising flat members having end lips or flanges and adapted to be clamped between the bondled boards, chain links connected to each member, a cross-piece on one chain adapted to be detachably connected to the other chain, and a swivel between two adjacent links.

680,030. CORN-HUSKING IMPLEMENT AND TWINE-CUTTER. JOHN EVANS, Ottawa, Ohio. Filed Nov. 14, 1900. Serial No. 36,473. (No model.)



Claim.—The herein-described husking implement consisting of a blade of metal terminating at one end in a husking-peg, a cutter arc-shaped in cross-section, fitted in the blade at the other end and extended beyond such end, straps attached at one end to said blade near opposite ends thereof with their other ends overlapped, a supplemental strap secured at its center to the center of the blade between the fastened ends of and the points of attachment of the first-mentioned straps, with its free ends both disposed beneath the overlapped ends of the first-mentioned straps, and a fastening device as the cord G passed through the ends of the central strap and through the overlapped free ends of the first-mentioned straps, all substantially as shown and described.

680,031. MANTLE-SUPPORT. NELS E. ERICSON, Ridgway, Pa. Filed Mar. 23, 1901. Serial No. 52,568. (No model.)



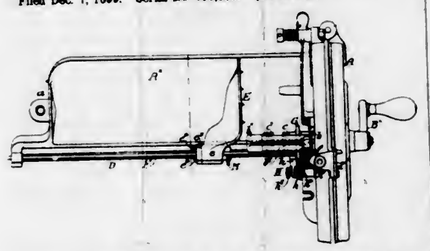
Claim.—1. A mantle-support, comprising a supporting-arm adapted for removable connection with the upper portion of the chimney-frame, lateral wings on the arm for preventing a swinging lateral movement of the arm relatively to the chimney-frame, clamping-jaws on said arm in line with the axial center of the frame, a collar for clamping said jaws, and a supporting-rod adapted for engagement with the jaws, substantially as specified.

2. A mantle-support, comprising a sheet of metal folded together and having a socket formed at the lower portion to engage over a rod of the chimney-frame, laterally-extended wings on the lower portion of said support for engaging against the inner surfaces of the frame-ring, clamping-jaws on the upper end of said support, and means for clamping said jaws, substantially as specified.

3. A mantle-support, comprising a sheet of metal folded together, a lag on one section of the sheet of metal and turned against the outer surface of the other section of the sheet of metal, the said support being provided with a socket at its lower portion, wings extended laterally from the support below said socket, clamping-jaws on the upper end of the support, means for clamping said jaws, and a supporting-rod adapted for engagement with said jaws, substantially as specified.

4. A supporting-arm for an incandescent mantle adapted for removable connection with the upper portion of the burner-chimney frame and having its upper end turned inward over the chimney-frame and having jaws, a supporting-rod held by the jaws, and means for holding the arm from swinging or lateral movement, substantially as specified.

680,032. FOOD-SLICER. JOSEPH FELLOWS, Philadelphia, Pa. Filed Dec. 7, 1899. Serial No. 739,539. (No model.)



Claim.—1. The combination in a machine for slicing food, of a frame, a trough projecting rearwardly therefrom, a shaft shorter than said trough having one end supported in a bearing in said frame, an arm supported on the frame and providing a bearing for the other end of the shaft, a knife on the shaft on the outside of the frame, a cam also on the shaft, between the two bearings, a lever actuated by the cam, a pusher in the trough, a feed-rod connected to said lever, and frictional gripping mechanism between it and said rod whereby the pusher will be intermittently fed forward when the shaft is rotated, substantially as described.

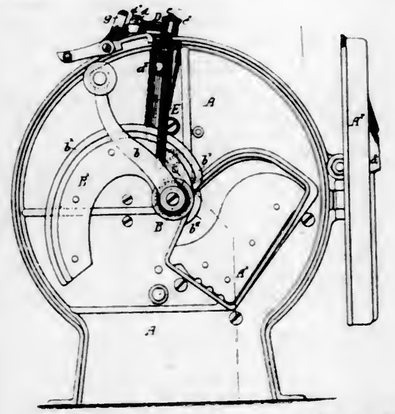
2. The combination of a frame, a shaft mounted thereon, a knife carried by the shaft, a cam also on the shaft, a lever pivoted to the frame and constructed to be actuated by the cam, a feed-rod connected to the lever, a fixed shaft, a pusher having a box with a tapered socket, a carrier in the said socket through which pass the feed and the fixed rod, balls in the socket and a spring constructed to keep the same therein, the balls and socket being constructed so that the pusher is fed forward when the knife is rotated, substantially as described.

3. The combination of a frame, a trough mounted thereon, a shaft on the frame, a knife and a cam on said shaft, a pivoted lever actuated by the cam, a feed-rod engaged by the pivoted lever, a fixed shaft at the side of the trough, a pusher in the trough operative on the feed-rod and on the fixed shaft, the said pusher having a box in which are sockets, one of these being at the feed-rod and the other being at the fixed shaft, a carrier in the sockets through which pass the fixed shaft and the feed-rod, balls also in the sockets and springs constructed to act against said balls, the whole acting to intermittently feed forward the pusher when the feed-rod is reciprocated, substantially as described.

4. The combination of a trough, cutting mechanism, a fixed shaft at the side of the trough, a rod paralleling the shaft, a pusher adapted to the rod and to the shaft, means for intermittently reciprocating the rod, sockets in the pusher, a carrier having portions adapted to the sockets and through which pass the shaft and rod, balls mounted between the carrier and the sockets, a spring back of the carrier, and means for forcing the carrier out of the socket so as to throw the friction mechanism out of gear, substantially as described.

5. The combination of a trough, cutting mechanism, a fixed shaft at the side of the trough, a rod paralleling the shaft, a pusher adapted to the rod and to the shaft, means for intermittently reciprocating the rod, sockets in the pusher, a carrier having portions adapted to the sockets and through which pass the shaft and rod, balls mounted between the carrier and the sockets, springs back of the carrier, and a push-bolt mounted in the pusher and resting against the front of the carrier, substantially as described.

680,083. SHARPENING DEVICE FOR CUTTERS. JOSEPH FELLOWS, Philadelphia, Pa. Filed Dec. 23, 1899. Serial No. 741,460. (No model.)



Claim.—1. The combination in a cutter, of a frame, a rotatable knife-blade supported thereon, with a relatively-elongated sharpener for the knife pivotally carried by the frame, said sharpener being supported with its long axis parallel to the bevel edge of the blade and connected to said frame by a construction permitting it to be bodily moved toward and from the said beveled edge, while preserving the same angular relation thereto, substantially as described.

2. The combination in a cutter, of a frame, a rotatable knife-blade having a shaft operating in bearings therein, with a relatively-elongated sharpener for said knife, a device pivotally supporting said sharpener upon the frame whereby it is permitted to be bodily moved toward and from the bevel edge of the knife-blade while preserving the same angular relation thereto and a device tending to rotate the sharpener on its pivot and constructed to force said sharpener into contact with the bevel edge of said blade, substantially as described.

3. The combination of a cutter having a rotatable knife-blade with a relatively-elongated sharpener of circular cross-section constructed to act against the side of said knife-blade, said sharpener being pivotally supported so that it is permitted to be moved toward and from the side of the knife-blade while preserving the same angular relation thereto, a device tending to rotate the sharpener on its pivot toward the blade and a second device constructed to prevent such motion, substantially as described.

4. The combination in a cutting-machine, of a frame, a knife-blade pivoted thereon, an arm also pivoted to the frame, a sharpener attached to said arm having its long axis extending approximately parallel to the bevel of the cutting edge of said knife, the pivotal point of the arm being placed on the frame so that any motion of the sharpener is at right angles to the bevel of the knife, substantially as described.

5. The combination of a frame, a knife pivoted thereto, an arm pivoted on said frame, a sharpener carried by said arm and capable of being moved to bear against the cutting edge of the knife, a projection on said arm and a lever pivoted to the casing constructed to engage said projection and thereby prevent the sharpener from coming into engagement with the knife edge, substantially as described.

6. The combination of a cutter having a pivoted knife-blade with a beveled face and curved edge eccentric in respect to the axis of said pivot, a sharpener for bearing against the beveled face of the blade, and means for mounting said sharpener whereby it is movable from and toward the beveled face of the blade while preserving a constant angular relation thereto, substantially as described.

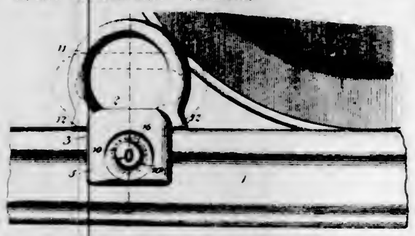
7. The combination of the frame of a food-cutter, a shaft mounted on said frame, a beveled knife carried by said shaft, a cap-plate forming with the frame a casing in which the knife rotates, a pivoted sharpener arranged on the same angle as the bevel of the knife-blade, the casing and the cover-plate being recessed for the reception of the sharpener, substantially as described.

8. The combination of the frame of a food-cutter, a shaft mounted in said frame, a beveled knife carried by said shaft, a cap-plate forming with the frame a casing in which the knife rotates, a pivoted sharpener arranged on the same angle as the bevel of the knife-blade, the casing being recessed for the reception of the sharpener, and a buffer within said recess against which the sharpener strikes, substantially as described.

9. The combination of the frame of a food cutter or slicer, a shaft,

a beveled knife carried by said shaft, an arm pivoted to the casing, said arm having a hollow hub, a spring within the hollow hub, a sharpener detachably secured to the end of the arm, the arm and sharpener being raked on the same line as the bevel of the knife-blade, the spring tending to force the sharpener in the path of the knife-blade, and means for holding the sharpener out of the path of the knife-blade, substantially as described.

680,034. DEVICE FOR LOCKING OR ANCHORING RAILROAD-CARS ON SIDINGS. HENRY E. FLOWER, Philadelphia, Pa. Filed Sept. 27, 1900. Serial No. 31,247. (No model.)



Claim.—1. A device for locking or anchoring cars, comprising a body portion adapted to the rail and having a projection thereon disposed in the path of travel of the car-wheel, and means adjustable in said body portion to engage the under side of the tread of the rail for securing said body portion to the rail.

2. A device for locking or anchoring cars comprising a body portion having side extensions thereon and adapted to the rail, said body portion having a projection thereon disposed in the path of travel of the car-wheel and means adjustable in one of said extensions to engage the side of the tread of the rail for securing said body portion to the rail.

3. A device for locking or anchoring cars, comprising a body portion and side extensions, and adapted to the rail, one of said side extensions being provided with teeth or serrations adapted to impinge the side of the rail, and said body portion having a projection thereon disposed in the path of travel of the car-wheel, and means carried by one of said extensions for engaging the side of the rail for securing said body portion to the rail.

4. A device for locking or anchoring cars, comprising a body portion and side extensions, and adapted to fit over the rail, one of said side extensions being provided with a lip adapted to engage the under side of the tread portion of the rail, and said body portion having a projection thereon disposed in the path of travel of the car-wheel, and means adjustable in an extension of said body portion for securing said body portion to the rail.

5. A device for locking or anchoring cars, comprising a body portion and side extensions, and adapted to fit over the rail, one of said side extensions being serrated and further provided with a lip adapted to engage the under side of the tread portion of the rail, and said body portion having a projection thereon disposed in the path of travel of the car-wheel, and means adjustable in an extension of the body portion for engaging the side of the rail for securing said body portion to the rail.

6. A device for locking or anchoring cars, comprising a body portion having a vertically-disposed ring or projection thereon and side extensions adapted to fit over the rail, one of said side extensions being adapted to impinge one side of the rail, and the other of said side extensions being provided with a threaded opening, and a threaded plug adapted to said threaded opening, by adjusting which it is caused to impinge the opposite side of the rail and retain said body portion in place.

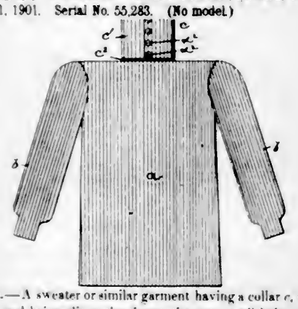
7. A device for locking or anchoring cars, comprising a body portion having a vertically-disposed ring or projection thereon, and side extensions adapted to fit over the rail, one of said side extensions being adapted to impinge one side of the rail, and the other of said side extensions being inclined outwardly toward its lower extremity and being provided with a threaded opening, and a threaded plug adapted to said opening, by adjusting which it is caused to impinge the opposite side of the rail and retain said body portion in place.

8. A device for locking cars on sidings, &c., comprising a body portion having a vertically-disposed ring or projection thereon, and side extensions adapted to fit over the rail, one of said side extensions being adapted to impinge one side of the rail, and the other side of said extensions being provided with a threaded opening, a threaded plug for said opening, said plug having its inner end made conical to fit under the lower surface of the tread portion of the rail, and means for turning said plug.

9. A device for locking cars on sidings, &c., comprising a body portion having a vertically-disposed ring or projection thereon, and side extensions adapted to fit over the rail, one of said side extensions being adapted to impinge one side of the rail, and the other of said side extensions being provided with a threaded opening, a threaded plug adapted to said opening, said plug having its inner end made conical so that its apex will fit under the lower surface of the tread portion of the rail, and the outer end of said plug being provided with a groove, and a key adapted to said groove whereby said plug is turned to fasten the body portion to the rail or release it therefrom.

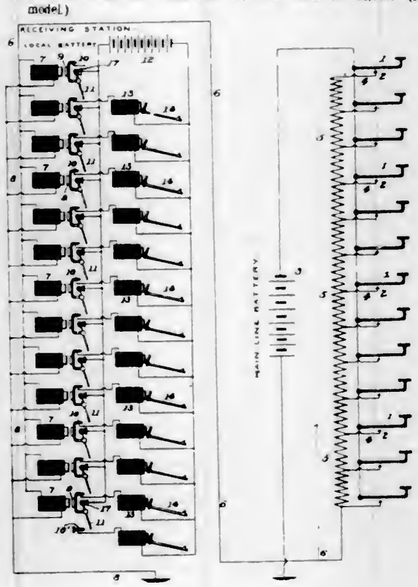
10. A device for locking cars on sidings, &c., comprising a body portion having a vertically-disposed ring or projection and longitudinal serrated extensions thereon, side extensions forming part of said body portion, and adapted to fit over the rail, one of said side extensions being adapted to impinge one side of the rail, and the other of said side extensions being provided with a threaded opening, a threaded plug adapted to said opening, said plug having its inner end made conical so that its apex will fit under the rail, and the outer end of said plug being provided with an elliptical groove, and a key adapted to said groove whereby said plug is turned to fasten the body portion to the rail or release it therefrom.

680,035. SWEATER. OSWALD FRIEBEL, Newark, N. J. Filed Apr. 11, 1901. Serial No. 55,283. (No model.)



Claim.—A sweater or similar garment having a collar *c*, with double walls *c'*, *c²*, and being slit at the throat, the outer wall being provided at opposite edges of the slit with fastening means for joining said edges together, said outer wall holding the inner wall in position when the collar is closed about the wearer's neck in standing position and the fastening means being hidden by said inner wall when the collar is turned down upon the wearer's shoulders, substantially as set forth.

680,036. ELECTRICAL SIGNALING SYSTEM. JULIEN A. GEBRUNG, St. Louis, Mo. Filed Mar. 14, 1901. Serial No. 51,055. (No model.)



Claim.—1. In an electrical signaling system, the combination of a main line, a main-line battery, an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets having windings of a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by said operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

2. In an electrical signaling system, the combination of a main line, a main-line battery, an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, a series of operating-electromagnets controlled by said circuit-closers and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

3. In an electrical signaling system, the combination of a main line, a main-line battery, an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

4. In an electrical signaling system, the combination of a main line, a main-line battery, an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the final contact-finger of the series by a fixed support on the main frame, a series of operating electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

5. In an electrical signaling system, the combination of a main line, a main-line battery, an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet, the said companion finger comprising a bar or member fulcrumed at one end to a stationary bracket and pivotally connected at its center with an extension on the armature of a selective electromagnet, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

6. In an electrical signaling system, the combination of a main line, a main-line battery, an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the final contact-finger of the series by a fixed support on the main frame, the said companion finger comprising a bar or member fulcrumed at one end to a stationary bracket and pivotally connected at its center with an extension on the armature of a selective electromagnet, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

7. An electrical signaling system having means for sending to the main line signal impulses having a graded electromotive force combined with a main line, a main-line battery, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

8. An electrical signaling system having means for sending to the main line signal impulses having a graded electromotive force combined with a main line, a main-line battery, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the final contact-finger of a series by a fixed support on the main frame, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

9. An electrical signaling system having means for sending to the main line signal impulses having a graded electromotive force combined with a main line, a main-line battery, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet the said companion finger comprising a bar or member fulcrumed at one end to a stationary bracket and pivotally connected at its center with an extension on the armature of a selective electromagnet, a series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distance, substantially as set forth.

10. An electrical signaling system having means for sending to the main line signal impulses having a graded electromotive force combined with a main line, a main-line battery, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the final contact-finger of the series by a fixed support on the main frame, the said companion finger comprising a bar or member fulcrumed at one end to a stationary bracket and pivotally connected at its center with an extension on the armature of a selective electromagnet, series of operating-electromagnets controlled by said circuit-closers, and a series of recording devices actuated by the operating-electromagnets and adapted to record signals at a distant station, substantially as set forth.

11. In a printing-telegraph system, the combination of counterpart combined sending and receiving instruments at the respective stations, a main line, a main-line battery, each instrument being provided with an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets having windings of a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, a series of local-battery circuits controlled by said circuit-closers, a series of electromagnets in said local circuits and a series of type-bars operated by said electromagnets, substantially as set forth.

12. In a printing-telegraph system, the combination of counterpart combined sending and receiving instruments at the respective stations, a main line, a main-line battery, each instrument being provided with an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, a series of local-battery circuits controlled by said circuit-closers, a series of electromagnets in

said local circuits and a series of type-bars operated by said electromagnets, substantially as set forth.

13. In a printing-telegraph system, the combination of counterpart combined sending and receiving instruments at the respective stations, a main line, a main-line battery, each instrument being provided with an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet, a series of local-battery circuits controlled by said circuit-closers, a series of electromagnets in said local circuits, and a series of type-bars operated by said electromagnets, substantially as set forth.

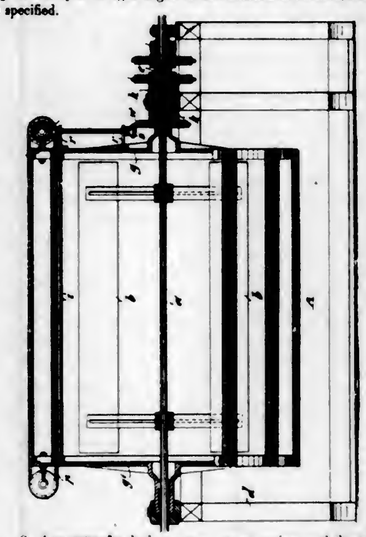
14. In a printing-telegraph system, the combination of counterpart combined sending and receiving instruments at the respective stations, a main line, a main-line battery, each instrument being provided with an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the final contact-finger of the series by a fixed support on the main frame, a series of local-battery circuits controlled by said circuit-closers, a series of electromagnets in said local circuits, and a series of type-bars operated by said electromagnets, substantially as set forth.

15. In a printing-telegraph system, the combination of counterpart combined sending and receiving instruments at the respective stations, a main line, a main-line battery, each instrument being provided with an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet, the said companion finger comprising a bar or member fulcrumed at one end to a stationary bracket and pivotally connected at its center with an extension on the armature of a selective electromagnet, a series of local-battery circuits controlled by said circuit-closers, a series of electromagnets in said local circuits, and a series of type-bars operated by said electromagnets, substantially as set forth.

16. In a printing-telegraph system, the combination of counterpart combined sending and receiving instruments at the respective stations, a main line, a main-line battery, each instrument being provided with an electrical resistance divided into sections that are connected in series, individual branch wires between the main-line battery and the resistance-sections, a series of sending-keys controlling the branch circuits and adapted to send to the main line signals of a graded electromotive force, a series of selective electromagnets the windings of which are arranged in parallel and have a graded electromotive force, a series of interdepending circuit-closers actuated by said selective magnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-finger by the next adjacent selective electromagnet and the final contact-finger of the series by a fixed support on the main frame, the said companion finger comprising a bar or member fulcrumed at one end to a stationary bracket and pivotally connected at its center with an extension on the armature of a selective electromagnet, a series of local-battery circuits controlled by said circuit-closers, a series of electromagnets in said local circuits, and a series of type-bars operated by said electromagnets, substantially as set forth.

680,037. **DEVICE FOR DRYING WARPS, YARNS, OR THE LIKE.** FRANCESCO OLLI, Florence, Italy. Filed Dec. 3, 1900. Serial No. 38,527. (No model.)

Claim.—1. Apparatus for drying warps, yarns, rovings and similar material in the process of sizing, dyeing, mercerizing, bleaching, or the like, comprising the combination with a rotatable reel, carrying supports or guides, of endless conveyers within said guides, and flexible bands attached to the conveyers and serving as a support for the material under treatment, means whereby the reel may be rotated, and means for feeding the conveyers at right angles to the direction of rotation, substantially as specified.



2. Apparatus for drying warps, yarns, rovings and threads of any description comprising the combination with a reel, of endless conveyers supported upon the surface of said reel parallel to the axis thereof, a hollow shaft turning loosely upon the driving-shaft of the reel, means for transmitting an independent forward movement to the conveyers, flexible bands secured to the conveyers, and means whereby said hollow shaft may be rotated independently of the shaft of the reel, substantially as specified.

3. Apparatus for drying warps, yarns and threads of any description comprising the combination with a rotatable reel and a fan at the interior thereof, of endless conveyers parallel to the axis of said reel, the shaft of said reel being hollow and surrounding the shaft of the fan, and a hollow shaft turning loosely and independently upon the shaft of said reel, means for moving the conveyers in a longitudinal direction, and flexible continuous supports secured to said conveyers, substantially as specified.

680,038. **MOTOR.** KOSSUTH GORR, Berkeley, Cal. Filed Oct. 29, 1900. Serial No. 34,814. (No model.)

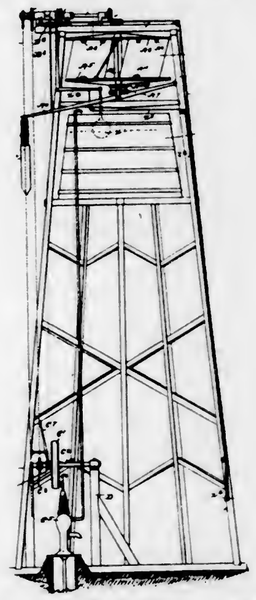
Claim.—1. In a device of the nature indicated, a primary motor, a storage-motor, connection between both of said motors and the machine to be driven, means whereby said primary motor can operate to drive said machine but not operate said storage-motor, means whereby said primary motor can be caused to operate said storage-motor to store energy therein, and means under control of the said driven machine for automatically throwing said primary motor out of operative connection with said driven machine and into operative connection with said storage-motor to store energy therein; substantially as described.

2. In a stationary device of the nature indicated, a primary motor, a secondary motor, connection between both of said motors and the machine to be driven, means for holding said secondary motor out of operative connection with the said driven machine, and means under the control of said driven machine for automatically throwing said secondary motor into operative connection with said driven machine; substantially as described.

3. In a stationary device of the nature indicated, a primary motor, a storage-motor, connection between both of said motors and the machine to be driven, means for holding said storage-motor out of operative connection with said driven machine, means for causing said primary motor to operate said storage-motor to store energy therein, and means under the control of the said driven machine for automatically throwing said storage-motor into operative connection with said driven machine; substantially as described.

4. In a device of the nature indicated, a primary motor, a storage-motor, connection between both of said motors and the machine to be driven, means for causing said primary motor to operate said storage-motor to store energy therein; and means under the control of the said driven machine for automatically throwing said primary motor out of operative connection with the said driven machine and for automatically throwing said storage-motor into operative connection with said driven machine; substantially as described.

5. In a device of the nature indicated, a primary motor, a storage-motor, connection between both of said motors and the machine to be driven, means whereby said primary motor can operate to drive said machine but not operate said storage-motor, means whereby said primary motor can be caused to operate said storage-motor to store energy therein, and means under control of the said driven machine for automatically throwing said primary motor out of operative connection with said driven machine and into operative connection with said storage-motor to store energy therein and for automatically throwing said storage-motor into operative connection with said driven machine; substantially as described.



6. In a device of the nature indicated, a primary motor having connection with the machine to be driven, a weighted chain in connection with said primary motor and adapted to be raised thereby, positive means whereby said primary motor normally operates without raising said weighted chain, positive means for causing the surplus energy generated by said primary motor to raise said weighted chain, and driving connection between said chain and said driven machine whereby said weighted chain can become a storage-motor for driving said machine; substantially as described.

7. In a device of the nature indicated, a primary motor, a pulley driven thereby, a second pulley, an elongated endless driving-belt connecting said pulleys and so supported that a bight is produced intermediate said pulleys, a weight suspended in said bight of said belt, driving connection between said pulleys and the driven machine, and means for temporarily locking said second pulley against movement, said belt being held against movement thereon, whereby said first pulley raises the weight-carrying portion of the belt and converts said weight into the power member of a secondary motor; substantially as described.

8. In a device of the nature indicated, a primary motor, a pulley driven thereby, a second pulley, an elongated endless driving-belt connecting said pulleys and so supported that a bight is produced intermediate said pulleys, a weight suspended in said bight of said belt, driving connection between said pulleys and the driven machine, and means automatically controlled by said driven machine for temporarily locking said second pulley against movement, said belt being held against movement thereon, whereby said first pulley raises the weight-carrying portion of the belt and converts said weight into the power member of a secondary motor; substantially as described.

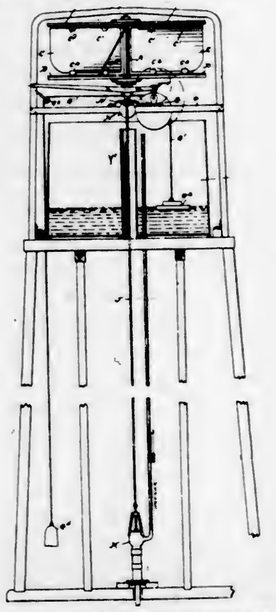
9. In a device of the nature indicated, a primary motor, a pulley driven thereby, a second pulley, an elongated endless driving-belt connecting said pulleys and so supported that a bight is produced intermediate said pulleys, a weight suspended in said bight of said belt, driving connection between said pulleys and the driven machine, and a clutch adapted to engage said second pulley and lock the same against movement, said belt being held against movement on said pulley, whereby said first pulley raises the weight-carrying portion of the belt and converts said weight into the power member of a secondary motor; substantially as described.

10. In a device of the nature indicated, a primary motor, a pulley driven thereby, a second pulley, an elongated endless driving-belt connecting said pulleys and so supported that a bight is produced intermediate said pulleys, a weight suspended in said bight of said belt, driving connection between said pulleys and the driven machine, a tank receiving a fluid from the action of said driven machine, a float in said tank, and means carried by said float for temporarily locking said second pulley against movement, said belt being held against movement thereon, whereby said first pulley raises the weight-carrying portion of the belt and converts said weight into the power member of a secondary motor; substantially as described.

11. In a device of the nature indicated, a primary motor, a pulley driven thereby, a second pulley, an elongated endless driving-belt connecting said pulleys and so supported that a bight is produced intermediate said pulleys, a weight suspended in said bight of said belt, driving connection between said pulleys and the driven machine, a tank receiving a fluid from the action of said driven machine, a float in said tank, a clutch member mounted upon the shaft of said second pulley, and a lever connected to said clutch and said float, whereby as said float is raised said clutch is thrown from temporarily locking said second pulley against movement, said belt being held against movement thereon, whereby said first pulley raises the weight-carrying portion of the belt and converts said weight into the power member of a secondary motor; substantially as described.

12. In a device of the nature indicated, the combination with a wheel adapted to be rotated by suitable power, a primary shaft adapted to turn in one direction only and geared to said wheel, a secondary shaft, sprocket-wheels mounted in line on said primary and secondary shaft, an endless chain engaging said sprocket-wheels, a weight member suspended in the bight of the endless chain in such a manner that the secondary shaft is actuated by the weight of the weight member, gearing from the secondary shaft to operate a pulley having a surface cam adapted to reciprocate the pitman-rod of a force-pump, means for throwing the cam and pump into and out of engagement, means for automatically stopping and starting the secondary shaft with relation to the water-supply, and means for automatically stopping and starting the said wheel with relation to the weight member; substantially as described.

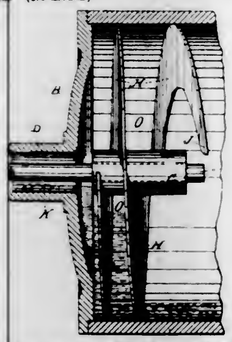
680,039. **WINDMILL.** KOSSUTH GORR, Berkeley, Cal. Filed June 3, 1901. Serial No. 63,081. (No model.)



Claim.—In a windmill, a wheel adapted to be rotated by wind-power, consisting of a vertical central shaft journaled at each end; a horizontal platform rigidly secured to said central shaft by radial arms there-

from: pendent wind-vanes hinged to said radial arms, the lower edges of said wind-vanes being supported by rollers resting upon a platform slidable vertically upon said central shaft; means for raising and lowering said slidable platform consisting of a lever fulcrumed to the frame of the windmill and supporting the slidable platform; an eccentric-wheel journaled in the frame of the windmill supporting upon its periphery the free end of the lever, a cord passing around said eccentric-wheel, its one end attached to a float within the reservoir, and its other end suspending a counterbalance; substantially as described.

680,040. DEVICE FOR REMOVING WATER OF CONDENSATION. PETER J. HARLEMAN, Boston, Mass. Filed June 26, 1900. Serial No. 21,613. (No model.)



Claim.—1. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a device located transversely to the axis of rotation of said cylinder and inclined to said axis for removing through its passage the water of condensation from said cylinder and closing communication between said inlet and said outlet except through its said passage.

2. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a screw for removing the water of condensation through its spiral passage from the cylinder to the outlet.

3. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a screw of differential pitch for removing the water of condensation through its spiral passage from the cylinder to the outlet.

4. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a device inclined to the axis of rotation of said cylinder and located between said inlet and said outlet for removing the water of condensation from the cylinder through its spiral passage which establishes communication between said inlet and said outlet and through which passage said water of condensation passes to the outlet.

5. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a screw located between said inlet and said outlet at the outlet end of the cylinder for removing the water of condensation through its spiral passage from the cylinder to the outlet.

6. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a screw of differential pitch located between said inlet and said outlet at the outlet end of the cylinder for removing the water of condensation through its spiral passage from the cylinder to the outlet.

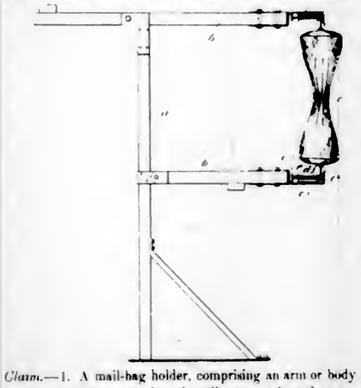
7. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a screw fast in said cylinder and located between said steam-inlet and said water-outlet for removing the water of condensation through its spiral passage from the cylinder to the outlet.

8. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet, and a screw of differential pitch fast in said cylinder and located between said steam-inlet and said water-outlet for removing the water of condensation through its spiral passage from the cylinder to the outlet and closing communication between said inlet and said outlet except through said spiral passage.

9. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet surrounding said steam-inlet, a screw fast in said cylinder and located between said steam-inlet and said water-outlet for removing the water of condensation through its spiral passage from the cylinder to said outlet and having its hub located on the steam-inlet, and a driving-wheel secured to said water-outlet for revolving the cylinder.

10. In an apparatus of the character described, a revolving cylinder, a steam-inlet, a water-outlet surrounding said steam-inlet, a screw of differential pitch fast in said cylinder and located between said steam-inlet and said water-outlet for removing the water of condensation through its spiral passage from the cylinder to said outlet and having its hub located on the steam-inlet, and a driving-wheel secured to said water-outlet for revolving the cylinder.

680,041. MAIL-BAG HOLDER. ALEXANDER M. HARRIOTT, Rye, N. Y. Filed Apr. 10, 1901. Serial No. 55,163. (No model.)



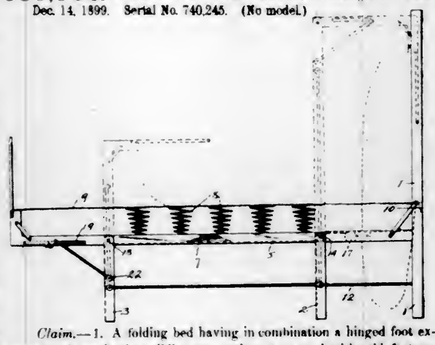
Claim.—1. A mail-bag holder, comprising an arm or body portion with an abutment thereon, a bar pivotally mounted on the arm or body portion, and a spring-pressed rod carried by the bar and adapted normally to engage the abutment.

2. In a mail-bag holder, the combination of an arm or body portion with two abutments thereon, a U-shaped bar pivotally mounted on the arm between the abutments, and a spring-pressed rod mounted on the bar and moving therewith, the rod being capable of lying between the abutments to hold the mail-bag.

3. The combination of a body member, an axially-actuated rod normally engaged with a part of said body member, and a means mounting said rod on the body member, by a pivot transverse to the longitudinal axis of the rod, whereby to allow a lateral movement of the rod to engage and disengage said part of the body member.

4. A mail-bag holder, comprising a body member with an abutment thereon, a bar pivotally mounted on the body member, and an axially-actuated rod carried by the bar and adapted normally to engage the abutment.

680,042. FOLDING BED. THEODORE HAUSER, Chicago, Ill. Filed Dec. 14, 1899. Serial No. 740,245. (No model.)



Claim.—1. A folding bed having in combination a hinged foot extension, a brace having sliding connection at one end with said foot extension for holding it horizontal and a sliding bolt for locking said brace against movement with reference to the foot extension, substantially as set forth.

2. A folding bed having in combination a hinged foot extension, a brace having lug-and-slot connection with said foot extension, said slot having a notch for receiving said lug and a bolt for engaging said lug and forcing it into said notch, substantially as set forth.

3. A folding bed having in combination hinged side rails, an upwardly-folding hinged foot extension, the foot-posts to which said extensions and side rails are hinged, a brace hinged at one end to said foot-posts and having sliding connection at the other end with said foot extension and means for locking said brace against movement with relation to said foot extension, substantially as set forth.

4. A folding bed having in combination a hinged foot extension, a brace fixed at one end and having movable connection at the other end with said foot extension, a sliding bolt for locking said foot extension and brace together and means for imparting a normal tendency to said bolt to engage said brace, substantially as set forth.

5. A folding bed having in combination a hinged foot extension, a brace fixed at one end and having lug-and-slot connection at the other end with said foot extension, a sliding bolt for locking said brace and foot extension together adapted to engage said lug and a spring for causing said bolt to engage and automatically lock said lug in said slot, substantially as set forth.

6. A folding bed having in combination a hinged foot extension provided with two substantially parallel longitudinal flanges having longitudinal slots, a brace fixed at one end and having a lug passing through said slots, and a bolt supported on the foot extension between said flanges and adapted to slide under said lug, substantially as set forth.

7. A folding bed having in combination side rails each composed of one rigid and one hinged section having relative longitudinal movement and a projection on one adapted to be engaged by the other for preventing downward movement of the hinged section at the end adjacent to the rigid section, substantially as set forth.

8. A folding bed having in combination side rails each composed of a rigid and a hinged section having relative longitudinal movement, a projection on one adapted to be engaged by the other for preventing downward movement of the hinged section at the end adjacent to the rigid section and the mattress having connection at opposite ends with said sections respectively and adapted to draw them toward each other for causing said projection on one section to be engaged by the other section, substantially as set forth.

9. A folding bed having in combination side rails each composed of a rigid section and a hinged section having a slot-and-pin connection with said rigid section permitting of longitudinal movement of the hinged section and a projection on the rigid section adapted to engage with the hinged section, substantially as set forth.

10. A folding bed having in combination side rails each composed of a rigid section and a hinged section, one of said sections having a ledge or flange and the other having a projection adapted to engage under said ledge or flange, said sections being relatively movable longitudinally and the mattress having connection at opposite ends with said sections and tending to draw said flange and projection into engagement with each other, substantially as set forth.

11. A folding bed having in combination upwardly-folding side rails movable from a horizontal to an upright position, an upwardly-folding hinged foot extension movable on its hinge with relation to said side rails throughout an arc of ninety degrees, the foot-posts to which said extension and side rails are hinged, a brace hinged at one end to said foot-posts and having sliding connection at the other end with said foot extension and means for locking said brace against movement with relation to said foot extension, substantially as set forth.

680,043. SCREW-DRIVER WITH ADJUSTABLE SIDE CLAWS. WILHELM L. A. HECKEN, Hamburg, Germany. Filed Feb. 13, 1901. Serial No. 47,174. (No model.)



Claim.—1. The combination of the screw-driver having oppositely-projecting lugs on its blade, with a pair of tapered claws having recesses to receive said lugs and hung thereon and adapted to clamp a screw, a sliding socket-piece for clamping the claws, and a thumb-nut for binding said socket-piece, substantially as described.

2. The combination of the screw-driver having a threaded part above the blade, and oppositely-projecting lugs below the threaded part, opposite exteriorly-tapered screw-clamping claws hung on said lugs below the threaded part, an internally-tapered adjustable socket-piece fitted over the jaws, and a thumb-nut on the threaded part above the socket-piece, all substantially as described.

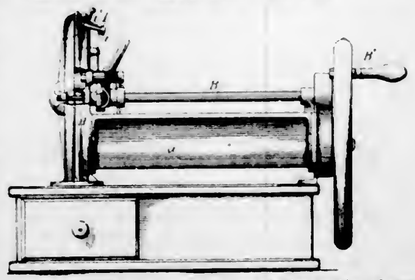
3. A screw-driver with safety arrangement to prevent slipping of the end or edge thereof from the screw-head, which consists of a screw-driver blade 3 with a pair of side claws 5 hung thereon in such a manner that they are capable of being turned outward or inward to a limited extent, the broad edges 8 of which grip over the head of the screw, the distance apart of the said edges 8 being regulated by a socket-piece 10 and a regulating thumb screw or nut 11 on a screw-threaded part 2 of the screw-driver shaft or blade the whole combined, arranged and operating substantially as described with reference to the drawings.

680,044. INDEX-BOOK. LEO HIRSCH, Chicago, Ill. Filed Nov. 11, 1899. Serial No. 736,574. (No model.)



Claim.—In a system of indexing, a vertical column divided into spaces by horizontal lines and having names entered in the spaces, vertical columns adjacent to the name-column headed by the letters of the alphabet and divided into spaces by the horizontal lines dividing the name-column, and a numeral for each name designating the number of words in the name entered in a space both in alinement with the name and also in the column headed by a letter respresenting a letter arbitrarily selected from its numerical position in the name, substantially as described.

680,045. SHARPENING ATTACHMENT FOR BEEF-SHAVING MACHINES. CABEL B. HOPKINS, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Oct. 10, 1899. Serial No. 733,191. (No model.)



Claim.—1. The combination in a food-shaving machine, of a rotating knife having one or more blades beveled on one side, and a sharpener pivoted at or near the axis of rotation and constructed to be rotated about its pivotal point in order to bring it into its sharpening position, substantially as described.

2. The combination in a food-shaving machine, of a rotating knife having one or more blades beveled on one side, a lever pivoted at or near the axis of rotation of the knife, said lever supporting on one arm, a sharpening device constructed to bear against the beveled portion of the blade or blades, and means acting on the other arm of the lever tending to force the said sharpening device into contact with the blades, substantially as described.

3. The combination in a food-shaving machine, of a rotating knife having one or more beveled blades, a lever pivoted at or near the axis of rotation of the knife, one arm of said lever supporting a sharpening device constructed to bear against the beveled portion of the blade or blades, means acting on the other arm of the lever to force the sharpening device into contact with the knife and means constructed to be applied to the arm of the lever carrying said sharpening device, normally holding the same out of contact with the knife, substantially as described.

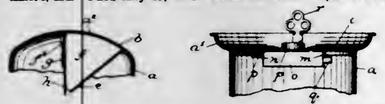
4. The combination in a rotary food-shaver having a trough, a shaft,

means for rotating the same, knives on the shaft adapted to shear past the end of the trough, a carrier on the end of the shaft, a lever pivoted to the carrier, a sharpener attached to one arm of the lever and adapted to bear against the knives as they are revolved, a spring bearing against the lever tending to keep the sharpener in contact with the knives, and a guideway for the sharpener, substantially as described.

5. The combination in a rotary food-shaver, of a revolving shaft, one or more knife-blades carried thereby, a pivoted sharpener adapted to rest against the knives and lugs on the hub of the knife-carrier controlling the position of the sharpener, substantially as and for the purpose set forth.

6. The combination of a food-shaving machine, consisting of a frame, a trough for the food to be cut, a shaft, one or more knives on the said shaft, a casing inclosing the knives, a sharpening device within the casing adapted to be thrown into and out of contact with the knives, and means exterior of the casing for holding the sharpener out of contact, substantially as described.

680,046. PORTABLE SAVINGS-BANK. JAMES E. INGRAM, Baltimore, Md. Filed May 15, 1901. Serial No. 60,271. (No model.)

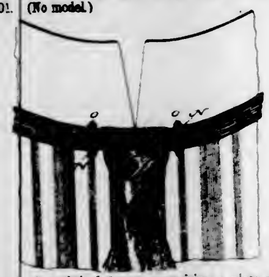


Claim.—1. A savings-bank, provided with a convex rounded top and a coin-slot in said top; a coin-chute secured within said bank to the convex or rounded portion thereof adjacent said coin-slot and provided with an inclined bottom and two side walls whose edges are inclined in a direction reverse to the said bottom and have lugs extending toward each other; and a guard pivoted to swing between said side walls and limited in its movement by said lugs, as and for the purpose set forth.

2. A savings-bank, provided with a coin-slot; a coin-chute within said bank adjacent said slot and provided with an inclined bottom, *e*, two side walls, *f*, whose edges are inclined in a direction reverse to the bottom, *e*, and having two retaining-lugs, *g*, all formed of one piece of metal; and a guard-plate, *h*, provided at one end with lugs taking in apertures in said side walls and suspended so as to swing from said lugs—the movement of said guard-plate being limited by said two retaining-lugs, *g*, as and for the purpose set forth.

3. A savings-bank, provided with an opening by which the bank may be emptied, and also provided with opposite butting flanges, *k*, at two sides of said opening, and opposite stop-flanges, *m*, *n*, at the other sides of said opening; and a cover or lock adapted to rest on said butting flanges, and provided at one side with a flange adapted to take under one side of said opening and engage with one of said stop-flanges and provided at the other side with a bolt adapted to be shot under the opposite side of said opening and engage with the other stop-flange, as set forth.

680,047. COMBINED COLLAR-BUTTON AND NECKTIE-RETAINER. CARL C KIRG, Evansville, Ind. Filed Dec. 11, 1900. Serial No. 39,501. (No model.)



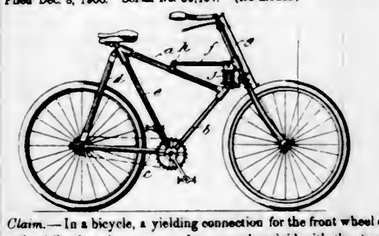
Claim.—1. A necktie-fastener, comprising a plate carrying means intermediately of its ends for attaching it to a collar-button, stationary jaws at the respective ends of said plate and disposed transversely thereof, and swinging jaws pivoted at one end to the stationary jaws, substantially as described.

2. A necktie-fastener, comprising a body portion having means intermediately of its ends for attaching it to a collar-button, stationary jaws at the ends of said body portion having teeth formed thereon, swinging jaws pivoted to the stationary jaws, and also carrying engaging portions or teeth, and means for retaining said swinging jaws in a closed position, substantially as described.

3. The combination with a collar-button, having a notched shank, of a plate formed intermediately of its ends with a casing having an opening for the insertion of said shank, a depressible locking member positioned in said casing for engaging the notch of the shank and preventing disengagement thereof from the plate, a spring for holding said depressible member normally outward, fixed jaws carried by the ends of said plate, and swinging jaws pivoted to said fixed jaws, substantially as set forth.

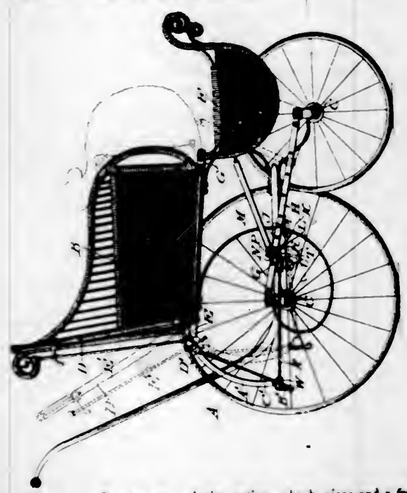
4. A necktie-fastener, comprising a body portion having means intermediately of its ends for attaching the same to a collar-button, stationary jaws carried by the respective ends of said plates, each of said jaws formed at one end with a centrally-disposed spring-arm and loops disposed on opposite sides of said arm and at some distance inward from the free end of the arm, and swinging jaws having pintles engaging in said loops of the stationary jaws, and formed with centrally-disposed spring-arms for coacting with the spring-arms of the stationary jaws, substantially as set forth.

680,048. BICYCLE. EMIL KOCH, Gross-Lichterfelde, Germany. Filed Dec. 8, 1900. Serial No. 39,157. (No model.)



Claim.—In a bicycle, a yielding connection for the front wheel combining the following elements, to wit: a member rigid with the steering-head and having articulate connection with the main frame for permitting movement between the frame and the front wheel, springs for the said articulation connected between said frame and said steering-head, and a connection between the main frame and steering-head independent of said springs for guiding and limiting the extent of said movement, substantially as set forth.

680,049. GO-CART. HARRY LEVI, Philadelphia, Pa. Filed Sept 19, 1900. Serial No. 30,454. (No model.)



Claim.—1. In a go-cart, a body portion, a back piece and a front piece pivoted to said body portion, separate runners connected with the front and back piece respectively, means on which said runners are adapted to travel and means for coupling and uncoupling said runners.

2. In a go-cart, a body portion, a front piece, and a back piece pivoted thereto, a runner connected with said back piece, a bar upon which said runner is mounted, a runner connected with the footpiece and mounted on the same bar, and means for operating said runners in unison.

3. In a go-cart, a body portion, a footpiece, and a back piece pivoted thereto, a runner connected with said back piece, a runner connected with said footpiece, a bar upon which said runners are mounted, means for moving said carriers in unison, and means whereby said runners can be operated separately.

4. In a go-cart, a body portion, a back piece, a footpiece, a bar suitably supported and having openings therein, a runner connected with said back piece and mounted on said bar, a runner connected with said footpiece and mounted on said bar, a rod movably connected with said first-mentioned runner, a pin on said rod adapted to pass through openings in said first-mentioned runner and said openings in said bar, and a hook on said rod adapted to engage with the second-mentioned runner in order to move the same.

5. In a go-cart, a body portion, a back piece, a footpiece pivoted thereto, a bar suitably supported and having openings therein, a runner mounted on said bar, a rod having one end mounted in a sleeve on said runner, the other end mounted on a sleeve supported by said back piece, a pin on said rod adapted to pass through openings in said runner and through the openings in said bar, means for revolving said rod, a second runner mounted on said bar and connected with said footpiece, and a hook on said bar adapted to engage with an opening in said second runner.

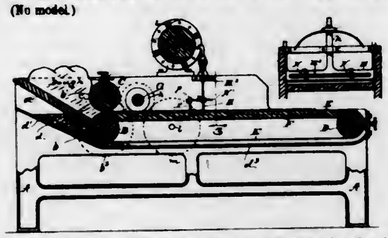
6. In a go-cart, a body portion, a front piece and a back piece pivoted to said body portion, a runner connected with said back piece, a runner connected with said front piece, means for supporting said runners on which they are adapted to travel, means for operating said runners in unison or separately, and means for coupling and uncoupling one of said runners with said supporting means.

7. In a go-cart, a body portion, a back piece and a front piece pivoted to said body portion, a runner connected to said froot piece, a runner connected with said back piece, means on which said runners are adapted to travel and means on said second-mentioned runner for connecting and disconnecting the same with respect to said first-mentioned runner.

680,050. PROCESS OF PRODUCING BARIUM CARBID. CLAUDE M. J. (dit CLAUDIUS) LIMB, Lyons, France. Filed May 3, 1900. Serial No. 15,353. (No specimens.)

Claim.—The process of producing barium carbid consisting in applying a high temperature, such as that produced by an electric furnace, to a mixture of barium sulfid, carbon and a metal capable of forming a sulfid stable at the temperature of the operation.

680,051. BREAD OR CANDY DIVIDING MACHINE. CHARLES LUETKER, Greencastle, Ind. Filed Jan. 15, 1901. Serial No. 43,316. (No model.)



Claim.—1. In a machine for molding and dividing bread, cakes, candy, &c., the combination of a table, a pair of feed-rollers located at one end of the table, the lower roller having its upper surface about flush with the top of the table, a rotary cutter located above the table in the rear of the feed-rollers for cutting the dough into strips longitudinally, an endless carrier passing between the feed-roller and between the rotary cutter and the table, a vertically-reciprocating knife transverse to the table and held normally away from the table by a spring said knife having a standard and a rotating wheel with strikes to contact with the standard and depress the knife, substantially as described and shown.

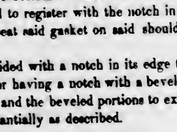
2. A table, an endless carrier passing over the table, a rotary cutter located above the table in close relation to cut such material as may be carried past it by the endless carrier, and a knife transverse to the table and carrier having reciprocating movement to and from the table, said knife being pressed normally away from the table by a spring, a standard connected with the knife and a wheel rotating in close proximity to the standard and having strikes to contact with the standard and depress it and the knife, substantially as described and shown.

3. A table, a rotary cutter located above the table in close relation thereto, an endless carrier passing over the table between it and the rotary cutter, a vertically-reciprocating knife transverse to the table pressed upwardly by a spring, said knife having a standard, and a wheel rotating adjacent to the standard and having a series of adjustable strikes adapted to contact with the standard and depress same thereby lowering the knife, substantially as described and shown.

4. A table, a rotary cutter located above the table in close relation thereto, an endless carrier passing over the table between it and the rotary cutter, a vertically-reciprocating knife transverse to the table pressed upwardly by a spring, said knife having a standard, and a wheel rotating adjacent to the standard and having a double flange forming a groove into which the end of the standard takes, said flanges having a series of perforations to receive bolts to form strikes to depress the standard and knife, bolts removably secured in some or all of said perforations, all substantially as described and shown.

5. A table, a rotary cutter above the table in close relation thereto, an endless carrier passing over the table between it and the rotary cutter, a vertically-reciprocating knife transverse to the table pressed upwardly by a spring, said knife having a standard, and a wheel rotating adjacent to the standard and having a plurality of strikes adjustable with relation to their distances from each other, said strikes being adapted to contact with the standard and depress it and the knife and dockers secured to and moving with the knife, substantially as described and shown.

680,052. SOAP CAKE. THOMAS A. LYNCH, Brooklyn, N. Y. Filed Apr. 2, 1901. Serial No. 54,069. (No model.)



Claim.—1. The combination with a cake of soap, of a plate of rigid material embedded therein and having its opposite sides projected outward from the plane of the soap to form legs, the space between the legs being open at the ends, substantially as specified.

2. The combination with a cake of soap, of a plate of rigid material embedded therein and having opposite sides projected outward from the plane of the soap to form legs, the space between the legs being open at the ends, and an erasive material attached to the plate between said legs, substantially as specified.

680,053. JAR OR BOTTLE CLOSURE. JOHN J. MADIGAN and RALPH W. CROCKER, Seattle, Wash., assignors to the Yakima Valley Fruit Company, same place. Filed Jan. 19, 1901. Serial No. 43,933. (No model.)



Claim.—1. A jar provided with a notch in its upper edge, a cover having a notch adapted to register with the notch in said jar, a gasket, said notches registering to allow the insertion of an instrument therethrough and between the gasket and the jar and means for clamping said cover in place, substantially as described.

2. A jar provided with a notch in its edge, a shoulder on its interior, and a beveled portion extending from the upper edge of the jar to said shoulder, and a cover provided with a notch, said notches adapted to register with each other, and a gasket, substantially as described.

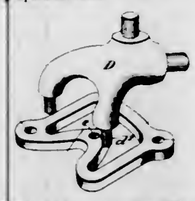
3. A jar provided with a notch in its edge the bottom of which is beveled inwardly, a cover having a notch adapted to register with the notch in said jar, and a gasket, substantially as described.

4. A jar having a shoulder on its interior, and provided with a notch in its upper edge the bottom of which is beveled inwardly, a cover having a notch adapted to register with the notch in said jar, a gasket, and means adapted to seat said gasket on said shoulder, substantially as described.

5. A jar provided with a notch in its edge the bottom of which is beveled, and a cover having a notch with a beveled portion, said notches adapted to register and the beveled portions to extend toward each other, and a gasket, substantially as described.

680,054. GATE. JOSEPH L. MANLOVE, Milton, Ind. Filed Apr. 6, 1901. Serial No. 54,687. (No model.)

Claim.—1. In a gate, a lower or actuating hinge comprising a part having depending pins located near and one on each side of the gate, in combination with an approximately square skeleton throw-plate, having perforated ears at two of its diagonal corners, and a heart-shaped internal cam occupying one of its sides, the depending pins engaging the cam and inner walls of the throw-plate adjacent thereto, said pins being susceptible of movement without actuating the throw-plate, substantially as shown and for the purpose set forth.



2. In a swinging gate, the combination with an upper hinge which sustains the weight of the gate, and a lower hinged section having on each side of the gate and in the rear of its pivotal center depending pins, of a skeleton throw-plate which is approximately square the same having perforated ears at two of its diagonal corners, an inwardly-extending heart-shaped cam and straight inner walls on each side of the cam, the distance between the pins relative to the size of the throw-plate being such that the gate may be opened and closed without actuating the throw-plate, substantially as set forth.

680,055. **PLANE.** EDWARD S. MARES, Auburn, N. Y., assignor to Ohio Tool Company, of New York. Filed Dec. 4, 1900. Serial No. 38,705. (No model.)



Claim.—1. In a plane and in combination, a plane-stock, a chisel, means for clamping said chisel in said plane-stock, a carriage having a vertical pivotal connection with said plane-stock, a lever carried by and having a horizontal pivotal connection with said carriage to shift said carriage laterally on its pivot, means on said carriage to engage and shift said chisel laterally, and means on said pivoted carriage-lever to engage said chisel and shift it longitudinally.

2. In a plane and in combination, a plane-stock, a chisel, means for clamping said chisel in said plane stock, a carriage having a vertical pivotal connection with said plane-stock, a segment formed on said stock to support said carriage, a lever carried by and having a horizontal pivotal connection with said carriage to shift said carriage laterally on its pivot, upright ears on said carriage to engage and shift said chisel laterally, and means on said pivoted carriage-lever to engage said chisel and shift it longitudinally.

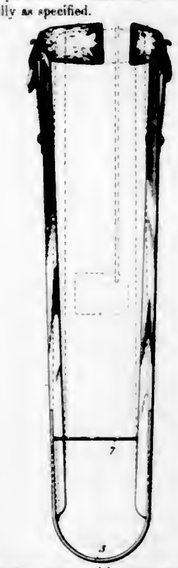
680,056. **PLANE.** EDWARD S. MARES, Auburn, N. Y., assignor to Ohio Tool Company, of New York. Filed Dec. 10, 1900. Serial No. 39,447. (No model.)



Claim.—In a plane and in combination; a plane-stock; a chisel mounted therein; means for clamping said chisel in said stock; a carriage pivotally mounted on said plane-stock so as to permit a lateral adjustment of said carriage and the parts supported thereby; a slide mounted on said pivoted carriage, and engaging said chisel; and means carried by said carriage to adjust said slide and chisel longitudinally.

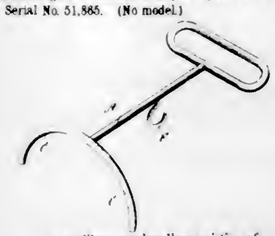
680,057. **WINDOW-CLEANER.** THOMAS MART, Brooklyn, N. Y. Filed Dec. 10, 1900. Serial No. 39,335. (No model.)

Claim.—1. A window-cleaner, comprising two arms or members having spring yielding connection at one end, a spreader having swinging connection with one of the members and adapted to hold the members in inoperative position, and head-blocks on the free ends of said members, substantially as specified.



2. A window-cleaner, comprising two arms or members having spring yielding connection at one end, a spreader-loop having swinging connection with one of the members and adapted to engage its free end with the opposite member for holding the members in inoperative position, head-blocks on the free ends of said members, the said head-blocks being of different widths, and spring-plates mounted on the members for securing cloths on the head-blocks, substantially as specified.

680,058. **AUXILIARY POT-HANDLE.** EMIL MEYER, Jersey City, N. J., assignor to Emma R. Meyer, Nyack, N. Y. Filed Mar. 19, 1901. Serial No. 51,565. (No model.)



Claim.—1. An auxiliary pot-handle consisting of a shank provided at its inner end with means to bear and fulcrum upon the top of the pot, and the hook depending from such shank between its ends and arranged for engagement with the pot handle or bail to support the pot substantially as set forth.

2. An auxiliary pot-handle, comprising a handled shank, arms extending from the inner end of the shank in opposite directions at right angles to the shank, and a hook on the shank between the ends thereof, the hook extending lengthwise of the shank at the under side thereof, the open end being toward the shank-handle, as set forth.

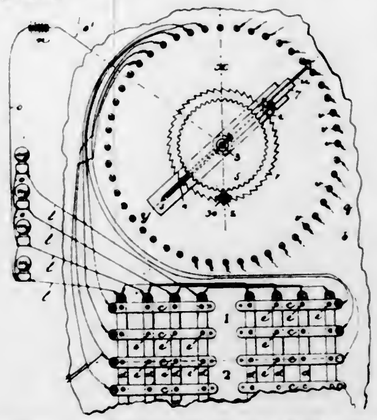
3. An auxiliary pot-handle, comprising a handled shank, arms extending from the inner end of the shank in opposite directions and approximately at right angles to the shank, the arms also being bent downward, and a hook on the shank between the ends thereof and extending lengthwise of the shank at the under side, the open end being toward the shank-handle, as set forth.

4. A device for use in handling pots composed of the pair of auxiliary handles each such handle being composed of a shank provided at its inner end with a depending portion to bear upon the top of the pot and between its ends with means for engagement with the bail of the pot all substantially as set forth.

5. An auxiliary pot-handle for use on a pot having side bails, and composed of the shank arranged to extend in use over the bail and fulcrum at its inner end upon the pot adjacent to said bail and provided at its under side between its ends with means for supporting the pot by engagement with the bail thereof at a point outside the circumference of the pot substantially as set forth.

6. The herein-described auxiliary pot-handle composed of the shank the arms extending from the inner end of the shank and arranged to bear upon the top of the pot, and the hook depending from the shank between its ends and arranged for engagement with the bail of the pot substantially as set forth.

680,059. **ELECTRICAL CALL OR ALARM DEVICE.** ALEXANDER B. MILLER, Newark, N. J. Filed Feb. 25, 1901. Serial No. 48,757. (No model.)



Claim.—1. In combination with the case *b*, having at the top a clock *a*, a vertical series of horizontal metallic terminal plates *c*, a horizontal series of vertical terminal plates *d*, *d*, crossing one another, said plates being perforated in alinement to receive connecting contact-pins, boards for holding said series of plates in relative positions out of contact with one another, the front board being perforated in alinement with the perforations of the terminal plates and having each vertical row of perforations marked with a room number or letter and each horizontal row of perforations marked with a time-indication, said vertical plates being each in electrical connection with an alarm bell or sounder distant from said case and with an arbor or shaft *p*, within or on said case at the rear thereof on an insulated board or plate, a ratchet-wheel fixed on the last said board or plate concentric with said arbor, an arm of insulating material arranged on said arbor or shaft *p*, and projecting beyond the ratchet-wheel and at its free end provided with a pawl *t*, and a contact-arm *u*, an annular series of terminal contacts arranged on said board concentric with the shaft or arbor *p*, and adapted to be engaged by said arm *u*, connections of said annular series terminal contacts with the series of horizontal plates crossing the vertical plates, clock connections for turning the arm of insulating material, an electrical battery and a circuit-closing pin, all arranged and adapted to operate substantially as set forth.

2. The combination of a vertical series of horizontal terminal plates *c*, a horizontal series of vertical terminal plates *d*, means for connecting any two of said plates where they cross, a circular series of terminals, an arm pivoted at the center of said circular series, a contact-hammer fulcrumed on said arm, means for tripping said hammer at intervals and causing a percussion with one of the terminals, one set of the first-mentioned terminal plates being each in electrical connection with an alarm bell or sounder, a battery and through the pivot of the said arm with the said contact-hammer carried thereby, and the other set being each in connection with a terminal of the said circular series, a clock independent from and outside of the electrical circuits, and means for transmitting motion from said clock to the rotary arm.

3. In an alarm or call device, the combination of a circular series of terminals, an arm pivoted at the center of said series, a contact-hammer fulcrumed on said arm, means for uniformly rotating said arm, means for tripping said hammer at intervals to effect a percussive blow upon the terminal of the circular series, and circuit-wires terminating in the said terminals and contact-hammer, respectively.

4. In an alarm or call device, the combination of a series of terminals, an arm adapted to travel along over said series of terminals, a contact-hammer fulcrumed on said arm, means for tripping said hammer at intervals, and circuit-wires.

5. In an alarm or call device, the combination of a series of terminal knobs, a traveling arm adapted at intervals to effect a percussive blow at right angles to its normal plane of movement upon said knobs, means for actuating said arm, and circuit-wires connected to said arm and terminals.

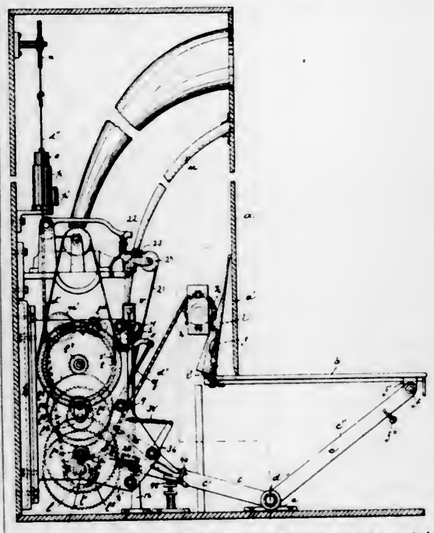
6. In a hotel call device, the combination with a series of bell-circuits adapted to be closed by the clerk or attendant, said circuits being each broken near a clock, of a clock-controlled circuit-closing connection comprising a terminal arm having a pawl, a fixed ratchet-wheel engaged by said pawl, a hammer on said arm connected to the pawl, a series of terminal knobs adapted to be struck by the said hammer, and a clock connection for operating said terminal arm and insulated therefrom substantially as set forth.

7. In an electric call device, the combination of a circular series of terminal knobs, a rotary arm pivoted at the center of the series, a contact-hammer fulcrumed on said arm in position to strike the terminal knobs, a spring in electrical connection with the pivot of said arm, and pressing against the said hammer to normally depress it and at the same time conduct the current thereto, a bent lever or pawl pivoted on the arm and engaging said hammer, a fixed ratchet or the like engaging said pawl, means for rotating said arm, and circuit-wires connected to said terminal knobs and pivot of the arm.

8. In an electric call device, the combination with a series of terminal knobs and circuit-wires leading thereto, of a rotating arm *s*, a percussion-hammer thereon fulcrumed on the upper side of the arm and having an extension n^3, bent to lie beneath the said arm, a ratchet-wheel beneath the arm *s*, a pawl pivoted on the lower side of the arm and adapted to be pressed by the ratchet-teeth against the extension n^3, of the hammer to operate the same, a circuit-wire connected to the pivot of said arm *s*, and means for conducting the current to the hammer.

9. In an electrical calling or alarm device, the combination with the case *b*, and clock *a*, having arbor 30, pinion 6, cog-wheel 5, and arm 4, of a board having a series of terminals, a ratchet-wheel and shaft *p*, the latter having an arm *s*, receiving motion from the said arm 4, a pawl *t*, on the arm *s*, engaging the ratchet-wheel, and a hammer *u*, actuated by said pawl and engaging the series terminals one by one as the clock operates the arm 4, and arm *s*, substantially as set forth.

680,060. **PLATFORM-MOTOR FOR PHONOGRAPHS, &c.** WALTER H. MILLER, Orange, N. J. Filed Apr. 26, 1898. Serial No. 678,835. (No model.)



Claim.—1. The combination with the horizontal platform, of the lever fulcrumed below said platform and having upwardly-extending arms, one of which is pivotally connected to the front of said platform and the other extends rearward thereof, an idle pulley arranged above the rear of said platform and a chain connected to the rear of the platform and extending up therefrom over said pulley and thence to the rearwardly-extending arm of the lever to which latter said chain is connected, substantially as set forth.

2. The combination with the horizontal platform, of the lever, fulcrumed below said platform and having upwardly-extending arms, one of

which is connected to the front of said platform, the other extending rearward thereof, an idle pulley arranged above the rear of the platform and a chain attached to the rear of the platform and extending up therefrom over said pulley and thence to the rearwardly-extending arm of the lever to which it is attached, and a counterbalance-weight and chain, the latter being so attached to the rearwardly-extending arm of the lever as to raise the platform when the weight of the occupant of the platform is removed, substantially as set forth.

3. In a motor, the combination with a horizontal platform, of a lever having upwardly-inclined arms extending toward the front of the platform and rearward thereof and directly connected to the platform at the front, a chain or flexible connection attached to said platform at the rear and supporting said platform thereat, a counterbalance-weight so connected to the lever as to raise the platform, the rear extension of the lever having a friction-spring q'', a bar q, engaged by said spring, and detent or stop mechanism connected to said bar, substantially as set forth.

4. In a motor, the combination with a horizontal platform, of a lever having arms c', c'', one of which is connected to and supports the platform, an idle pulley, a chain or flexible connection connected to the platform and supporting the same at the side or end opposite that supported by said lever, said chain being arranged over the pulley and connected to the other arm of the lever, substantially as set forth.

5. In a motor, the combination with a platform and supporting-lever, of power-transmitting gearing including a sprocket-wheel l, a chain engaging said sprocket-wheel and imparting motion thereto, a counterbalance-weight attached at one end to said chain, the other end of the chain being attached to the platform-supporting lever, the weight being supported in such a manner as to lower one end of said lever to raise the other end supporting said platform, said lever having upwardly-inclined oppositely-extending arms, one of which receives said chain and the other supports the platform, substantially as set forth.

6. In a motor, the combination with a platform, of a train of power-transmitting gearing including a sprocket-wheel, a lever having oppositely-inclined arms, the forward one of which supports the platform, a chain attached to the rearward arm of said lever and extending downward therefrom around the said sprocket-wheel to impart motion thereto, and carrying a counterbalance-weight at its end, the chain also extending beyond its point of attachment to the lever into connection with the platform and supporting the same at the side opposite to that supported by the lever, substantially as set forth.

7. In a motor, the combination with the platform and the train of power-transmitting wheels including a sprocket-wheel l, of a flexible connection having a weight at one end and connected to the platform at the other, said flexible connection, at points intermediate of said weight and platform being arranged over an idle pulley, under said sprocket-wheel and over a second idle pulley, and means cooperating with said flexible connection in supporting said platform and maintaining the same in a horizontal position as the said platform moves vertically, substantially as set forth.

8. In a motor, the combination with the platform and lever having an arm c', of a friction-clip attached to said arm, a rod or bar q, arranged in said clip, and detent means operated by said rod, substantially as set forth.

9. In a motor, the combination with the platform and lever operated thereby, of a friction-clip and a detent rod or bar held by said clip, said clip permitting independence of movement between the lever and rod or bar, and detent mechanism engaged by said rod or bar, substantially as set forth.

10. The combination with the platform and lever, c, operated thereby, a train of gearing and connections with the lever for transmitting power therefrom to said gearing, of a friction-spring q'' connected with said lever, a rod or bar q, operated by said lever and spring, a lever s, operated by said rod, and a pawl operated by said lever and adapted to engage one of the train of gear-wheels, substantially as set forth.

11. The combination with a platform and lever, c, of a train of power-transmitting gearing, a friction-clip attached to the lever, a rod or bar in frictional contact with said clip, a lever s, connected to said rod or bar, a pawl s', connected to said lever s, and adapted to engage the power-transmitting gearing, a walking-beam, rods 8 and 9, one of which connects the lever, s, to said walking-beam, and the other of which rod connects said walking-beam to a lever 10, and said lever 10, adapted to be engaged by the lever c, substantially as and for the purpose set forth.

12. The combination with the motor-gearing, of a detent adapted to engage said gearing and having a downwardly-extending rod or bar, a vertically-movable platform, a lever having one arm connected to said platform and adapted to move therewith, and a friction clutch, or clip adapted to clutch by friction, arranged on the other arm of said lever and engaging the said rod or bar but capable of moving independent thereof, substantially as set forth.

13. The combination of a train of gearing, a lever c having a friction clutch or clip, a detent adapted to engage said gearing, and a bar or rod connected to said detent and engaged by said friction-clip, substantially as set forth.

14. The combination with the train of motor-gearing, of a platform-lever c, having a friction-clip, a pawl adapted to engage the gearing to prevent operation of said gearing, and a rod q, extending into frictional relation to said clip and adapted to operate said pawl, substantially as set forth.

15. The combination with the motor-gearing, of a platform and counterbalance therefor, of a detent to prevent operation of said gearing, a friction device in connection with the platform and adapted to frictionally clutch a part connected to said detent to cause the latter to engage and stop said gearing upon the ascent of the platform, and releasing means adapted to disengage the detent from engagement with the gearing preliminary to the descent of said platform, substantially as set forth.

16. The combination with the motor-gearing, of a platform and a counterbalance therefor, a lever s, having a pawl for stopping the operation of the motor, a connecting rod or bar attached to said lever s, a lever c, having a friction-clip for operating said connecting rod or bar, and means connecting said platform and lever c, substantially as set forth.

17. The combination with a moving platform and means for transmitting motion from said platform to the device to be operated, of a friction-clip in connection with the platform, a detent having a rod or bar engaged by said clip, said detent being adapted to engage the said power-transmitting means upon the ascent of the platform, and means for raising said platform, substantially as set forth.

18. The combination with a moving platform and means for transmitting motion from said platform to the device to be operated, of a friction-clip in connection with the platform, a detent adapted to engage the power-transmitting means and having a rod engaging said friction-clip, a locking-lever for said detent, and means for releasing said detent, substantially as set forth.

19. In a motor, the combination with a vertically-movable platform, means for locking said platform in its elevated position and for releasing the same, a lever connected at its forward arm to said platform and operated thereby, and power-transmitting gearing, of a power-storage spring connected to the rear arm of said lever and brought under tension by the ascent of the platform, and means for releasing said spring and transmitting its energy to the said gearing, substantially as set forth.

20. The combination with the power-transmitting gearing, of the platform, lever c, push-pawl 35, a crank-lever supporting said pawl, a storage-spring 38, adapted to expend its power upon said gearing directly upon the release of said platform to aid in effecting an immediate operation of the motor upon such release, means for locking the platform in its elevated position and releasing means, substantially as set forth.

21. In a motor, the combination with the platform and its supporting-lever c, having an arm c', and a catch 40, attached thereto, of the spring 38, lever 36, and push-pawl, and a bearing 45, adapted to throw said catch 40 from said lever when the lever-arm c', is at or near its lower limit of movement, substantially as set forth.

22. In a motor, the combination with the platform and its supporting-lever and chain and connections, of a train of power-transmitting wheels including the sprocket-wheel l, having a ratchet-and-pawl connection, said pawl causing the sprocket-wheel to turn with it during the operation of the motor and to turn freely in the opposite direction, a pushing-lever stationed near said supporting-lever, a catch 40, arranged on said supporting-lever and adapted to engage said pushing-lever, and releasing means adapted to release said catch from the pushing-lever, substantially as set forth.

23. In a motor having a train of power-transmitting gearing, of a movable platform and connections, and a detent or stopping device controlled by said platform, substantially as set forth.

24. In a motor, the combination with the motor transmitting devices, of a moving platform in connection with said transmitting devices, a stop or detent controlled by said platform to effect an engagement of said stop or detent with said transmitting devices to lock the same against movement, and means permitting the rising and falling of said platform, substantially as set forth.

680,061. **BEARING FOR DISK DRILLS.** CHRIST MOERRING, Middletown, Ohio, assignor to the McSherry Mfg. Company, same place. Filed May 24, 1901. Serial No. 61,771. (No model.)

Claim.—1. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a wooden journal on which the boxing of the disk turns.

2. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a wooden journal on which the boxing of the disk turns, said journal having a tubular or hollow center.

3. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a wooden journal on which the boxing of the disk turns, said disk having a longitudinally tubular or hollow center and a transverse opening between its ends.

4. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a wooden journal on which the boxing of the disk turns, said journal having a tubular or hollow center inclosing a metallic sleeve.



5. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a wooden journal on which the boxing of the disk turns, said journal being clamped against rotation between metal disks or plates at its ends.

6. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a wooden journal on which the boxing of the disk turns, and a metal disk or plate held against rotation in the bearing, and engaging one end of the journal so as to prevent the same from turning.

7. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a socket, a metal disk or plate held in said socket against rotation, a wooden journal clamped against said plate so as not to turn, a metallic sleeve passing centrally through said journal, an oil-duct communicating with one end of the sleeve, and an opening leading from the sleeve at a point between the ends through the journal to the interior of the boxing.

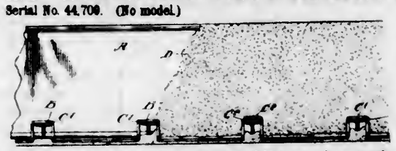
8. A journal for the bearings of disk drills and the like, the same consisting of a wooden truncated cone.

9. A journal for the bearings of disk drills and the like, consisting of a wooden truncated cone having a tubular metallic center.

10. A journal for the bearings of disk drills and the like, consisting of a wooden truncated cone having a tubular metallic center, and a metal cap or disk at one end.

11. In a bearing for disk drills and the like, the combination with the disk and its drag bar or bars, of a socket, a metal disk or plate held in said socket against rotation, a conical wooden journal clamped against said plate so as not to turn, a metallic sleeve passing centrally through said journal, a conical boxing for the disk turning on said journal, a cap inclosing the small end of the journal and the edge of the boxing, an oil-duct communicating with one end of the sleeve, a transverse opening in the sleeve and bearing for conducting the oil to the interior of the boxing, and a clamping-bolt passing through the sleeve and clamping the same between the cap and the plate fixed in the socket.

680,062. **CONSTRUCTION OF FLOORS, PARTITIONS, OR THE LIKE.** VALENTINE MOEHLEIN, New York, N. Y. Filed Jan. 25, 1901. Serial No. 44,709. (No model.)



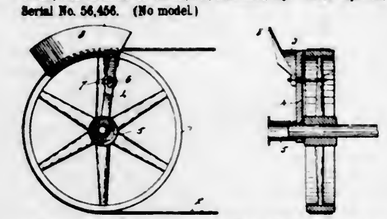
Claim.—1. A building structure, comprising spaced supporting-irons, and laths extending transversely of the same from one to the other, said laths having laterally-offset recessed portions passing around the supporting-irons and securing the laths thereto, the recessed portions holding the major portion of the laths at one side of the supporting-irons opposite the side embraced by the said recessed portions, for the purpose specified.

2. A fireproof floor, comprising spaced supporting-irons arranged transversely and resting on the bottom flanges of the floor-beams, and a sheet-metal lath having recessed portions arranged transversely and engaging said supporting-irons, to form a support for the filling-in material between the floor-beams and the support for the plaster, as set forth.

3. A fireproof floor, comprising floor-beams, spaced T-irons resting on the bottom flanges of adjacent floor-beams, and a sheet-metal lath formed with upwardly-bent portions resting on said supporting-irons, said upwardly-bent portions extending transversely of the lath and being arranged to bring the under surface of the lath to or below the plane of the floor-beam flanges, as set forth.

4. A fireproof floor having supporting-irons resting on the bottom flanges of adjacent floor-beams, sheet-metal laths extending between the floor-beams and resting on said supporting-irons, said metal laths extending below the bottoms of the floor-beams, and narrow sheet-metal laths extending under the floor-beams and resting on adjacent metal laths, as set forth.

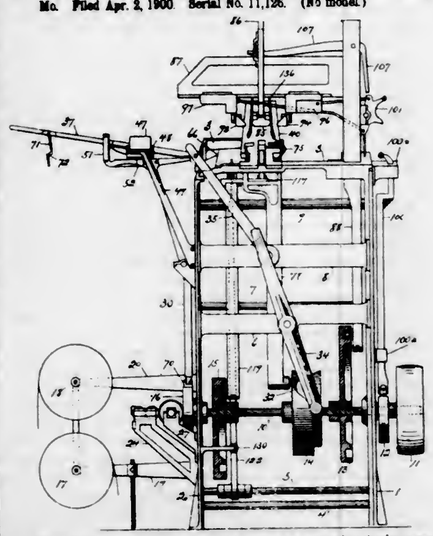
680,063. **BELT-PLACER.** JORDAN S. MONTGOMERY, FELIX O. OWEN, and ROBERT R. OWEN, Jr., Franklin, Ky. Filed Apr. 18, 1901. Serial No. 56,456. (No model.)



Claim.—1. A belt-placer, comprising a segmental plate gradually diminishing in width from one end to the other and provided with an upwardly-projecting flange on its outer edge, an arm to which the plate is secured, a hub on the inner end of the arm and adapted to loosely fit upon the end of a pulley-shaft, and means for detachably securing the arm to the pulley, as set forth.

2. A belt-placer, comprising a segmental plate diminishing in width from one end to the other, an upwardly and outwardly extended flange on the outer edge of said plate, an arm to which the said plate is attached, a tubular hub on the arm, adapted to fit loosely upon the shaft of a pulley, and a hook-bolt extended through the arm and adapted to engage with a spoke of the pulley, the bolt being threaded and provided with a nut, substantially as specified.

680,064. **WRAPPING-MACHINE.** EDWARD NELSON, Kansas City, Mo. Filed Apr. 2, 1900. Serial No. 11,126. (No model.)



Claim.—1. In a wrapping-machine, a paper traction device comprising an oscillating arm, a cross-head secured to the upper end of said arm transversely to the path of the paper; an upper gripping-bill secured rigidly to the cross-head; a rocker-shaft parallel to the cross-head and mounted in bearings secured thereto; a movable gripping-bill secured to

one end of said shaft in alinement with said upper bill; a depending lever secured to the opposite end of said shaft, said lever being made of springy or resilient material and slightly twisted; a spring having one end secured to said oscillating arm and its other end secured to said lever, for pressing said bills together; and a stationary pin, arranged in the path of said lever, operating to engage the lever and separate said bills when the bills are moved toward the paper to engage it, and said lever slipping past said pin when the bills carry the paper back; substantially as described.

2. In a wrapping-machine, a folding-table, a cross-head, means for oscillating said cross-head intermittently across said table, a carrier-bar actuated by said cross-head, means for supporting the outer end of said bar, a pocket secured to said bar, adapted to receive a cake of the material, carry it to the folding-table and deposit the same thereon, substantially as set forth.

3. In a wrapping-machine, a folding-table, a cross-head oscillating intermittently above said table, a carrier-bar actuated by said cross-head, means for supporting the outer end of said bar, a feed-pocket secured on said bar, having its sides formed by lateral projections from said bar, a pivoted bottom for said pocket, adapted to support the material during the feeding-in movement of said arm, and means for rotating said bottom out of such supporting position, at the end of said movement, substantially as set forth.

4. In a wrapping-machine, a folding-table, a cross-head oscillating intermittently above said table, a carrier-bar actuated longitudinally by said cross-head, means for supporting the outer end of said bar, a stationary feed-chute, a feed-pocket secured on said bar and adapted to register with said chute at the proper moment, said pocket having its sides formed by lateral projections from said bar, a pivoted bottom for said pocket adapted to support the material during the feeding-in movement of said bar, means for rotating said bottom out of such supporting position, to deposit the material on the table, a spring at the outer end of the pocket adapted to hold the material therein, and means for retracting said spring to admit the material from said chute, substantially as set forth.

5. In a wrapping-machine, a folding-table, a cross-head oscillating intermittently above said table, a carrier-bar actuated longitudinally by said cross-head, a feed-pocket mounted on said bar, a pivoted arm at the side of the frame, means for alternately advancing and retracting said pivoted arm, a bracket mounted on said arm, provided with a vertical slot through which the outer end of said bar extends, a lifter-rod vertically pivoted to said bar near its outer end and adapted to be drawn through said slot by said bar during the inward movement of said bar, said lifter being provided with a notch or angle adapted to engage the bottom of said slot, when said pivoted arm is advanced, and elevate said carrier-bar, substantially as set forth.

6. In a wrapping-machine, a folding-table, means of feeding a strip of wrapping material into the machine, traction devices for drawing such strip across said table, means for carrying a cake of the material to be wrapped into the machine and depositing it on said table, over the wrapper, means for severing the wrapper from the strip, means for releasing and retracting the carrying-in devices, and means for effecting the first folds of the wrapper over the top of the cake, consisting of substantially right-angular blades hinged at the sides of the table, a vertically-reciprocating post beneath the table, having a forked upper end adapted to engage said blades and push them up over the top of the package, and means of actuating said post intermittently, substantially as set forth.

7. In a wrapping-machine of the character described, a folding-table, top-folders consisting of substantially right-angular blades hinged at the sides of the table, a vertically-reciprocating post beneath the table, having a forked upper end adapted to engage said blades and push them up over the package, flexible links connecting said blades and the forked ends of said post, for retracting said blades when said post descends, and means for actuating said post intermittently, substantially as set forth.

8. In a wrapping-machine of the character described, a folding-table, top-folders consisting of substantially right-angular blades hinged at the sides of the table, a vertically-reciprocating post beneath the table, having a forked upper end adapted to engage said blades and push them up over the package, one prong of said forked end being higher than the other, so that the folder against which it bears will be operated first, flexible links connecting said folders and the prongs of said fork, and means for actuating said post intermittently, substantially as set forth.

9. In a wrapping-machine of the character described, a folding-table, a vertically-reciprocating post at the side of the machine, means for actuating said post intermittently, a horizontal bracket-arm, fixed to said post and extending transversely over said table, a yoke straddling said bracket-arm, above said table, and having a vertical movement on said arm, means for holding said yoke stationary on said arm during its descent, top end-folders hinged to the lower ends of said yoke, parallel with said arm, and adapted to turn down the top end folds of the wrapper on the package, and means for releasing said yoke and moving it upward on said arm after said folders have operated, substantially as set forth.

10. In a wrapping-machine, a folding-table, a vertically-reciprocating post, means for actuating said post intermittently, a horizontal bracket-arm fixed to said post and extending over said table, a yoke straddling said bracket-arm vertically above said table, and having a vertical movement in guides on said arm, folders carried on the lower ends of said yoke for turning down the top end folds of the wrapper, a latch, having a notch therein, pivoted on said yoke and extending over said arm, a catch on said arm adapted to engage said notch and hold said yoke fixed on said arm during its descent, an angular lever pivoted on said post and having a horizontal arm extending through the slot in said yoke, beneath said latch, and means for tilting said lever at the proper moment, to release said latch and elevate said yoke on said arm, substantially as set forth.

11. In a wrapping-machine, a folding-table, a vertically-reciprocating post, means for actuating said post intermittently, a horizontal bracket-arm fixed to said post and extending transversely over said table, horizontal slideways on each side said arm, oppositely-reciprocating folder-carriages adapted to traverse said slideways, means for reciprocating said carriages at proper intervals, lateral end-folders pivoted vertically on said carriages, adapted to engage the lateral end folds of the wrapper and press them against the ends of the package, lying on said table, when said carriages are moved inward, substantially as set forth.

12. In a wrapping-machine, a folding-table, a vertically-reciprocating post, means for actuating said post intermittently, a horizontal bracket-arm fixed to said post and extending transversely over said table, horizontal slideways on each side of said arm, oppositely-reciprocating folder-carriages adapted to traverse said slideways, folders pivoted vertically on said carriages, adapted to effect the lateral end folds, a rotating block pivoted on said post, rods pivotally connected to said block and said carriages, so as to carry them both inward to the folding-table, to effect said folds, when said block is rotated in one direction, and to retract both said carriages when said block is rotated in the opposite direction, and means for rotating said block intermittently, substantially as set forth.

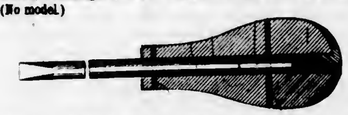
13. In a wrapping-machine, a folding-table having a vertical longitudinal slot therein, a vertically-reciprocating post mounted in the frame below said table, means for actuating said post intermittently, a track-plate mounted horizontally on said post, a reciprocating carriage slidably mounted on said track-plate, means for reciprocating said carriage, folding-blades hinged on said carriage, adapted to be projected upward through said slot, to engage the partially-wrapped package on said table and effect the bottom end folds, substantially as set forth.

14. In a wrapping-machine, a folding-table having a vertical longitudinal slot therein, a vertically-reciprocating post mounted in the frame below said table, means for actuating said post intermittently, a track-plate mounted horizontally on said post, a reciprocating carriage slidably mounted on said track-plate, means for reciprocating said carriage, bottom end-folders hinged on said carriage, said folders having upwardly-extending blades projecting into said slot, and inwardly-extending blades, one of which overlaps the other, a spring bearing against said overlapped blade, tending to hold said folders in open position, a transverse pin on said overlapping blade, adapted to engage the sides of said slot when the folders are carried upward, and force said upwardly-extending blades, against the stress of said spring, into engagement with the wrapper and package lying on said table, substantially as set forth.

15. In a wrapping-machine, a folding-table having a vertical longitudinal slot therein, a vertically-reciprocating post mounted in the frame below said table, means for actuating said post intermittently, a track-plate mounted horizontally on said post, having a vertical longitudinal slot therein, a reciprocating carriage slidably mounted on said track-plate, folders carried on said carriage, adapted to make the bottom end folds of the wrapper on the package, a lever pivoted on the frame, extending upward through the slot in said track-plate and attached to said carriage, and means for throwing said lever and carriage toward the discharge end of said table and retracting the same to normal position, substantially as set forth.

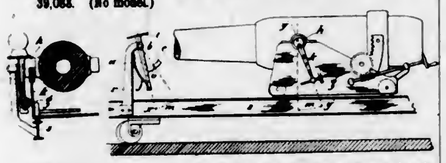
16. In a wrapping-machine, a folding-table having a vertical longitudinal slot therein, a reciprocating folder-carriage mounted below said table, folders mounted on said carriage, adapted to be projected upward through said slot and make the final folds of the wrapper on the package, means for throwing said carriage and the wrapped package hold between the blades of said folders toward the discharge, means for withdrawing said blades from the package, and means for holding the folds of the wrapper at the inner end of the package after said blades are withdrawn, consisting of a lever pivoted on the side of said table, an arm projecting inwardly from said lever into the path of the packages passing toward the discharge, at the point where each package is left by the withdrawal of the folders, means for depressing said arm to permit the package to pass, a transverse recess in said table to receive said arm when depressed, and means for reëlevating said arm into contact with the inner end of the package, substantially as set forth.

680,065. SCREW-DRIVER OR KINDRED TOOL. BOUGHTON T. NOBLE, Southington, Conn. Filed Mar. 5, 1901. Serial No. 49,906. (No model.)



Claim.—A screw-driver or kindred tool having a tang, a handle having a longitudinal recess into which the tang extends, and a plug inserted into the outer end of the handle and against the inner end of said tang, and a head at the outer end of said plug overlapping the end of the handle, substantially as described.

680,066. APPARATUS FOR DISCHARGING SHIPS' GUNS. LUDWIG OBRY, Triest, Austria-Hungary. Filed Dec. 7, 1900. Serial No. 39,068. (No model.)



Claim.—1. An apparatus for discharging ships' guns by an electric contact made by a point swinging with the ship and a point maintained in the absolute vertical, said apparatus being mounted on an axis, parallel with the gun-trunnion axis, and capable of being angularly set thereon relative to the absolute vertical as may be required, and means for locking it therewith to cause the apparatus to oscillate synchronously with the gun-barrel in its elevation and depression, substantially as described.

2. An apparatus for discharging ships' guns by an electric contact made by a point swinging with the ship and a point maintained in the absolute vertical, said apparatus consisting of an arm suspended on a pivot fixed with relation to the gun-carriage and carrying the discharge apparatus, the suspension-axis of this arm, when the gun has been run out, coinciding with or parallel to the trunnion-axis of the gun, said arm being provided with a graduated elevation-scale, and an arm keyed upon the gun-barrel trunnion and furnished with a set-screw, all the parts being combined, and operating, substantially as described.

3. An apparatus for discharging ships' guns by an electric contact made by a point swinging with the ship and a point maintained in the absolute vertical, said apparatus being carried by an arm on a fixed pivot which coincides with the gun-trunnion axis, and means for varying the position of said arm, all the parts being combined, and operating substantially as described.

680,067. WATCHCASE-PENDANT. ELWOOD C. PHILLIPS, Chicago, Ill. Filed Jan. 7, 1901. Serial No. 42,290. (No model.)

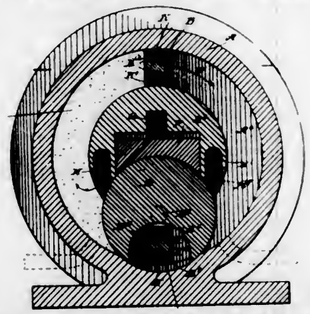


Claim.—1. In a stem winding mechanism for watches, the combination of the crown formed with a bottom recess or cavity of an acute truncated-cone form, and the winding-stem formed with an enlarged head the periphery of which is of a corresponding truncated-cone form, and a spring for holding the parts in frictional engagement, substantially as set forth.

2. In a stem winding mechanism for watches, the combination of the crown formed with a central partition and with an upper cylindrical cavity, a lower cavity having an acute truncated-cone form, its crown being of an obtuse cone formation, a winding-stem formed with an enlarged head the periphery of which is of a corresponding cone formation, a cap-disk secured to the upper end of the winding-stem and fitting the cylindrical cavity of the crown, and a spring arranged between said cap-disk and the partition of the crown, substantially as set forth.

3. In a stem winding mechanism for watches, the combination of the crown formed with a central partition and with an upper cylindrical cavity, a lower cavity having an acute truncated-cone form its crown being of an obtuse cone formation, a winding-stem formed with an enlarged head the periphery of which is of a corresponding cone formation, a cap-disk secured to the upper end of the winding-stem and fitting the cylindrical cavity of the crown and a ray-shaped spring arranged between said cap-disk and the partition of the crown, substantially as set forth.

680,068. ROTARY ENGINE. FREDERICK S. PICKERING, Olathe, Kans. Filed Oct. 25, 1900. Serial No. 34,312. (No model.)



Claim.—1. A rotary engine, comprising a cylinder having a central core spaced from the wall of the cylinder to form an annular working chamber, a piston mounted to turn in said cylinder and having a plurality of piston heads traveling in said working chamber, a revoluble abutment mounted to turn in fixed bearings and extending in said annular working chamber, the said abutment having a cut-out portion for the passage of the piston-heads, peripheral seats for said abutment formed by a recess in the inner surface of the cylinder and a recess in the core, the core being provided at said recess with a packing forming part of the said seat, the surfaces of contact of the abutment against its seats in the cylinder and core being greater than the cut-out portion of the cylindrical surface of the abutment, the peripheral surface of the abutment contacting closely with its seats in the said recesses, thereby forming a closed working chamber and a perfect abutment for the back pressure of the motive agent at all times, and means for driving said abutment from said piston, as set forth.

2. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder and having a plurality of piston-heads traveling in said working chamber, an abutment mounted to turn in fixed bearings, and extending in said annular chamber, the said abutment having a cut-out portion in its surface for the passage of the piston-heads, the said cylinder and core being provided with recesses forming peripheral seats for the abutment, the surfaces of contact of the abutment against its seats being greater than its cut-out portion, the peripheral surface of the abutment contacting closely with its seats, thereby forming a closed working chamber, and a perfect abutment for the back pressure of the motive agent at all times, means for driving said abutment from said piston and a movable packing carried by the core and forming part of the seat for said abutment and holding said abutment against its seat in the recess in the cylinder, and means for pressing said packing against the abutment, as set forth.

3. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder and having a plurality of pistons-heads traveling in said working chamber, an abutment mounted to turn in fixed bearings and extending in said annular chamber and having peripheral seats in said cylinder and core, means for driving said abutment from said piston, a packing carried by the core and engaging the peripheral surface of the abument, means for subjecting said packing to steam-pressure for counterbalancing purposes, and springs engaging the said packing and acting in conjunction with the steam-pressure to insure a constant excess of pressure in direction of the abutment and constant contact therewith, as set forth.

4. A rotary engine comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder, a revoluble abutment for said piston and driven from the latter, a

movable packing in the core and engaging the peripheral surface of said abutment an inlet-pipe for conducting the motive agent to a space in said core behind the packing to counterbalance the latter, and ports arranged in said core on opposite sides of the abutment for admitting and exhausting the motive agent to and from said working chamber, as set forth.

5. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder, a revoluble abutment for said piston and driven from the latter, a movable packing in the core and engaging the peripheral surface of said abutment, means for conducting the motive agent to the core to exert pressure on the packing to press it in contact with the abutment, ports in said core and opening into the working chamber on opposite sides of the abutment for admitting and exhausting the motive agent to and from said chamber and means for transmitting the rotary motion of the abutment to other machinery, as set forth.

6. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder and comprising piston-disks and piston-heads carried by said disks and arranged to travel in the annular working chamber, a revoluble abutment for the passage of said piston-heads and driven from the said piston, a packing in said core for said abutment, means for subjecting the said packing and the piston-disks to steam-pressure for counterbalancing purposes, and ports arranged in the said core on opposite sides of the abutment for admitting and exhausting the motive agent to and from the working chamber, the said ports being connected respectively with a steam-inlet pipe and an exhaust-pipe as set forth.

7. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder, and comprising radial piston-heads and piston-disks carrying said heads for the latter to travel in the annular working chamber, a revoluble abutment driven from said piston-disks, and arranged to transmit the rotary motion of the engine to other machinery, and means for counterbalancing the piston-disks by steam-pressure, as set forth.

8. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder and having a plurality of piston-heads traveling in said working chamber, piston-disks carrying said piston-heads, an abutment mounted to turn in fixed bearings and extending in said annular working chamber and having peripheral seats in said cylinder and core, means for driving said abutment from said cylinder, and a packing carried by the shaft of said revoluble abutment and engaging a portion of the surface of the end of said abutment, and also a portion of the inner cylindrical surface of said piston-disks, as set forth.

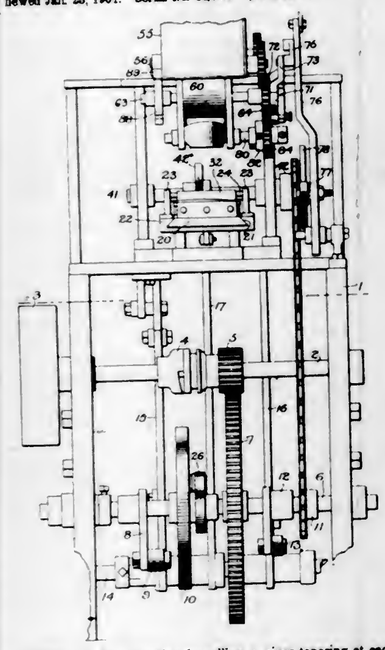
9. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder, and comprising a plurality of piston-heads and piston-disks carrying said heads for the latter to turn in the annular working chamber, an abutment mounted to turn in fixed bearings and extending in said annular working chamber and having peripheral seats in said cylinder and core, means for driving said abutment from said cylinder, and a packing carried by the shaft of said revoluble abutment and engaging a portion of the surface of the end of said abutment and a portion of the inner cylindrical surface of the piston-disks, and holding said radial piston-heads in their perfect circle of revolution in said working chamber about said central core, as set forth.

10. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder, and comprising piston-heads and piston-disks carrying said heads for the latter to turn in said annular working chamber, a revoluble abutment mounted to turn in fixed bearings and extending in said annular working chamber and having peripheral seats in said cylinder and core, means for driving said abutment from said cylinder, and packing-rings engaging a portion of the outer cylindrical surface of said piston-disks and a crescent-shaped portion of the surface of the end of said abutment, preventing the fall of the piston-heads into the peripheral seat of the abutment in said cylinder and holding said piston-heads in their perfect circle of revolution in said working chamber, as set forth.

11. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder, and comprising radial piston-heads and piston-disks carrying said heads for the latter to travel in the annular working chamber, a revoluble abutment for the passage of said piston-heads and driven from said piston-disks and arranged to transmit the rotary motion of said abutment to other machinery a packing in said core for said abutment, a packing carried by the shaft of said revoluble abutment, and means for subjecting said piston-disks and said packing to steam-pressure for counterbalancing purposes, as set forth.

12. A rotary engine, comprising a cylinder having a central core to form an annular working chamber, a piston mounted to turn in said cylinder and comprising radial piston-heads and piston-disks carrying said heads for the latter to travel in the annular working chamber, a revoluble abutment for the passage of said piston-heads and extending in said annular working chamber, having peripheral seats in said cylinder and core, mounted to turn in fixed bearings and driven from said piston-disks, means for transmitting the rotary motion of said abutment to other machinery, means for admitting the motive agent for counterbalancing purposes, and means for admitting and exhausting the motive agent to and from said working chamber by way of said core on opposite sides of said abutment, substantially as shown and described.

680,069. CIGAR OR CIGARETTE MAKING MACHINE. EMANUEL PISKO and JACOB PHILIPPI, New York, N. Y. Filed Oct. 13, 1896. Renewed Jan. 23, 1901. Serial No. 44,466. (No model.)



Claim.—1. In a machine for rolling a cigar tapering at each end, the combination of an apron, pocket forming and rolling mechanism, and means for manipulating the apron to shape the cigar, substantially as described.

2. In a machine for forming a cigar tapering at each end, the combination of the rolling-table, bunching-roller and apron, means for manipulating the apron to form first the tuck and then to give shape to the cigar, substantially as described.

3. In a machine for forming a cigar tapering at each end, the combination of the apron, pocket forming and rolling devices, of means for manipulating the apron to shape the cigar, and means for maintaining a uniform pressure throughout the extent of the cigar being rolled, substantially as described.

4. In a cigar-rolling machine, the combination of the apron, pocket forming and rolling mechanism, means for pulling taut one side of the apron to form the tuck, and means for pulling taut the other side of the apron to form the head, substantially as described.

5. In a machine for rolling a shaped cigar, the combination of the apron, pocket forming and rolling mechanism, means for pulling back one side of the apron to form the tuck and shape one end of the cigar, and means for pulling forward the other side of the apron to form the other end of the cigar, and means for maintaining a constant pressure on the cigar being rolled, substantially as described.

6. In a machine for rolling a shaped cigar, the combination of an apron, pocket forming and rolling mechanism and means for manipulating the apron to form the tuck, substantially as described.

7. In a machine for making cigars, the combination of the rolling-table, bunching-roller, and apron, means for pulling end of the apron backward, means for pulling back one side of the apron to form the tuck, means for slacking that side of the apron as the roller moves forward, and means for pulling forward the opposite side of the apron to form the head substantially as described.

8. In a machine for rolling cigars, the combination of the rolling-table, bunching-roller, and apron, means for feeding the filler to the pocket of the apron, means for moving the roller to close the pocket, means for moving the end of the apron backward to tighten the pocket around the tobacco, means for pulling back one side of the apron to form the tuck, means for slacking up that side as the roller moves over the table, means for pulling forward the other side of the apron to form the head, substantially as described.

9. In a device for feeding tobacco, the combination of the hopper, means for discharging tobacco therefrom, a tilting feeding-trough, having an orifice at the forward end thereof, the forward boundary of said orifice being composed of a ledge or rim shaped to cause the tobacco passing through said orifice to assume approximately the form of the finished cigar, and means for operating said trough, substantially as described.

10. In a cigar-rolling machine, the combination of an apron, pocket forming and rolling mechanism and means for positively tightening one side and then the other of the apron, substantially as described.

11. In a cigar-rolling machine, the combination of the table, roller and apron, means for pulling back one side of the apron to form the tuck, means for moving the roller across the table, means for pulling forward the other side of the apron to form the head, and means for maintaining a constant pressure upon the cigar being rolled substantially as described.

12. In a cigar-rolling machine, the combination of the table, roller, and apron, means for moving the roller forward to close the pocket, means for pulling back one side of the apron to form the tuck, means for causing the roller to pass over the table, means for pulling forward the other side of the apron to form the head, and means for slacking the part of the apron previously hauled taut, whereby a constant pressure is maintained on the cigar being rolled.

13. The combination of the table, roller, and apron, means for causing the roller to pass over the table, a gripping device at one side of the apron, means for causing the same to be moved backward at the beginning of the operation to form the tuck and shape one end of the cigar, a gripping device for the other side of the apron, and means for causing the same to move forward to shape the other end of the cigar, substantially as described.

14. The combination of the table, roller and apron, means for pulling back one side of the apron to form one tapering end, means for gradually relieving the strain as the roller passes over the table, until the largest diameter of the cigar is rolled, means for gradually tightening the other side of the apron as the roller passes farther over the table, whereby the other tapering end is rolled, substantially as described.

15. In a machine for rolling cigars, the combination of the table, bunching-roller, and apron, the gripping device attached to one side of the apron in rear of the roller, means for causing it to move backward, a part at the forward end of the table pivoted to swing in a horizontal plane, the front end of the apron being attached to said part, and means for moving the pivoted piece forward, substantially as described.

16. In a feeding device for cigar or cigarette machines, the combination of the hopper, having an orifice in the bottom thereof, feeding device below said orifice, an agitator mounted to rotate in said hopper, a guard-plate extending partly over said orifice in the bottom of said hopper, whereby the rotation of the agitator causes the tobacco to be forced into the feeding device, substantially as described.

17. In a cigar-machine, the combination of the apron and rolling mechanism, of a carriage, means for attachment of the end of the apron thereto, guides on which said carriage travels, rods connected to said carriage and passing through said guides, and operative mechanism connected to said rods for giving motion to the carriage.

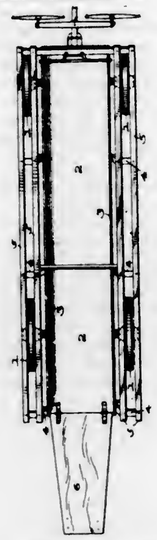
18. In a machine for rolling a cigar tapering at each end, the combination of an apron, pocket forming and rolling mechanism, and means for manipulating the apron to vary the shape of the pocket while the cigar is being rolled, substantially as described.

19. In a machine for rolling a cigar tapering at each end, the combination of an apron, pocket forming and rolling mechanism, means for pulling back one side of the apron and means for pulling forward the other side of the apron, substantially as described.

680,070. HAY-RACK FOR WAGONS. ROBERT E. POINDEXTER, Indianapolis, Ind. Filed May 31, 1901. Serial No. 62,637. (No model.)

Claim.—In combination with the running gear of a wagon, a bed so mounted as to insure the front end thereof to be on a higher plane than the rear end, a tail-board forming the approach to the bed proper, the said tail-board being on an exact line with the floor of the bed, runners secured to the tail-board and on which it rests and rides during the loading period, the said runners being of such a height as to form the initial riser for the approach toward the bed's floor, substantially as shown and for the purposes set forth.

680,070.



680,071. BELT. SAMUEL J. PROKESCH, New York, N. Y. Filed Oct. 20, 1900. Serial No. 33,719. (No model.)



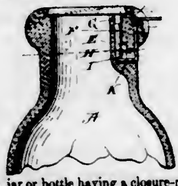
Claim.—1. A belt provided with a guide through which a member of the belt loosely passes, and an elastic connection between the guide and the member of the belt passing through the said guide, substantially as described.

2. A belt, comprising a plurality of sections, one of the sections being provided with a guide through which another section of the belt loosely passes, an elastic connection between the guide and the section passing loosely through the guide and an elastic connection between the end of the section passing through the guide and the section carrying said guide, substantially as described.

3. A belt, comprising a plurality of body-sections, of which the front body-sections are adapted to be fastened together, a guide fixed on the ends of one section to be slidingly engaged by the end of an adjacent section, a flexible connection secured at one end to the said guide and at its other end to the sliding body-section, and a second flexible connection attached at one end to the sliding body-section and secured at its other end to the body-section carrying the guide, as set forth.

4. A belt, consisting of three sections, two of which are detachably secured together, a guide carried by each end of the third section and through which the ends of the two first-named sections loosely pass, a flexible connection secured to each of the said ends and to the section carrying the guide, and a flexible connection secured to each guide and to the sections that are detachably connected, substantially as described.

680,072. DEVICE FOR REMOVING CLOSURES FROM BOTTLES OR JARS. HENRY K. PROSSER, Washington, D. C. Filed Apr. 1, 1901. Serial No. 53,844. (No model.)



Claim.—1. A jar or bottle having a closure-removing member movable in the wall of the neck thereof, and means for operating said member from the exterior of the bottle or jar, substantially as described.

2. A jar or bottle having a longitudinally-movable plunger arranged adjacent to its mouth, and a rocking member movable longitudinally and

operable from the exterior of the jar or bottle and provided with a lifting-arm to engage the plunger, substantially as described.

3. A bottle or jar having a longitudinally-movable member near its mouth, a longitudinally-movable and pivotally-mounted operating member having an arm adapted to engage the inner end of the member and provided with a handle, substantially as described.

4. The combination in a jar or bottle having an outwardly-movable closing-disk, of an outwardly-movable plunger arranged adjacent to the mouth of the bottle or jar and adapted to engage the under side of the disk and unseat the same when moved outwardly, and an operating member for effecting the outward movement of said plunger, substantially as described.

5. A bottle or jar having a boxing formed upon the inner side of the mouth thereof, an outwardly-movable member positioned in said boxing, a swinging member mounted upon the exterior of said mouth and movable outwardly, a lifting-arm formed upon the inner end of said member and adapted to be swung beneath the inner end of the member, and a handle carried by said member and disposed oppositely to the arm, substantially as described.

6. A jar or bottle having an outwardly-movable closure-removing member mounted in the wall of the neck thereof, and a member for operating said first-mentioned member from the exterior of the bottle or jar, substantially as described.

7. A jar or bottle having a closure-removing member mounted to slide in the wall of the neck thereof, and means for operating said member from the exterior of the bottle or jar, substantially as described.

8. A jar or bottle having a closure-removing member carried by the neck thereof, and means for operating said member from the exterior of the jar or bottle, substantially as described.

680,073. NON-REFILLABLE BOTTLE. HENRY K. PROSSER, Washington, D. C. Filed Apr. 17, 1901. Serial No. 56,223. (No model.)



Claim.—1. In a non-refillable bottle, a stopper formed with a valve-chamber and longitudinally-extending passages arranged out of line with said chamber and communicating with each other, some of said passages leading to the exterior of the stopper and others communicating with said chamber by means of laterally-extending passages, and a valve in said chamber, substantially as described.

2. In a non-refillable bottle, a stopper formed with a valve-chamber, a passage communicating therewith at its inner end and closed at its outer end, passages extending transversely from and communicating with said passage at its outer end, an annular passage intermediately of its ends, longitudinal passages communicating with said annular passage and with the exterior of the stopper, and longitudinal passages communicating with the cross-passages and with the annular passage, and a valve in said chamber, substantially as described.

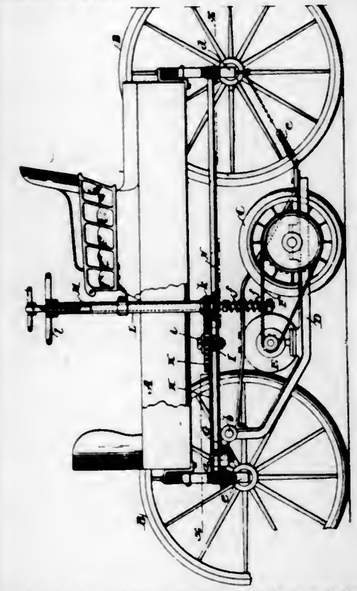
3. In a non-refillable bottle, a stopper formed with a valve-chamber and provided with depending notched lugs, a valve in said chamber having a perforated stem depending between said lugs, and a spring looped through said perforated stem and having its legs crossed and seated in said notches, substantially as described.

4. In a non-refillable bottle, a stopper formed with a valve-chamber closed at its outer end and with longitudinally-extending passages, one of said passages communicating at its outer end with the outer end of the valve-chamber and the other passage communicating at its outer end with the exterior of the stopper, said passages communicating with each other at their inner ends, and a valve in said chamber, substantially as described.

5. In a non-refillable bottle, a stopper formed with a central passage closed at its outer end, a valve-chamber at the inner end of said passage, and a plurality of longitudinally-extending passages disposed around said central passage, some of said passages communicating at their outer ends with the outer end of the central passage by means of transversely-extending passages, and others communicating at their outer ends with the exterior of the stopper, all of said passages communicating at their inner ends with an annular passage formed in the stopper, and a valve in said chamber, substantially as described.

680,074. MOTOR-VEHICLE. LEON W. PULLEN, Camden, N. J. Filed Dec. 27, 1899. Serial No. 741,719. (No model.)

Claim.—1. In a motor-vehicle, the combination with the main body and running-gear, of a frame located below the main body and running-gear and hinged adjacent to the front thereof on both a vertical and horizontal axis, yielding supports for said frame at the rear of said hinge, a traction wheel or wheels carried by said frame, a motor mounted on said frame and operatively connected with said traction wheel or wheels, and means extending above the main body of the vehicle and connected with the yielding supports for the frame in the rear of its hinge to adjust the tension of said supports.



2. In a motor-vehicle, the combination with the main body and running-gear, of a frame located below the main body and running-gear and hinged adjacent to the front thereof on both a vertical and horizontal axis, a traction wheel or wheels carried by said frame, a motor mounted on said frame and operatively connected with said traction wheel or wheels, adjustable devices extending above the main body of the vehicle, and yielding connections between said frame and the adjustable devices located at the rear of the hinge and adapted to have their tension adjusted by said adjustable devices.

3. In a motor-vehicle, the combination with the main body and running-gear, of a frame located below the main body and running-gear and hinged adjacent to the front thereof on both a vertical and horizontal axis, a traction wheel or wheels carried by said frame, a motor mounted on said frame and operatively connected with said traction wheel or wheels, adjustable devices extending above the main body of the vehicle, and yielding connections between said frame and the adjustable devices located at the rear of the hinge and adapted to have their tension adjusted by said adjustable devices and having provision for the lateral movement of said frame on the vertical axis of its hinge.

4. In a motor-vehicle, the combination with the vehicle proper, of an auxiliary frame located beneath the vehicle and connected therewith adjacent to the front on a horizontal axis, a traction-wheel carried by said frame to the rear of its point of connection, a motor operatively connected with said traction-wheel, a hollow steering-shaft, a rod extending through the steering-shaft and connected with said frame at the rear of its horizontal axis, and means for raising and lowering said rod in the hollow steering-shaft to adjust the position of said frame and the traction-wheel carried thereby.

5. In a motor-vehicle, the combination with the main body and running-gear, of a frame supported thereby at its front end with provision for vertical and lateral movement and having a transverse slot *n*, an adjustable rod M extending through the main body and projecting through said slot *n*, springs *f f* between the rod and the transversely and vertically movable frame, a traction wheel or wheels carried by said frame, and a motor operatively connected therewith.

6. In a motor-vehicle, the combination with the vehicle proper, of an auxiliary frame located beneath the vehicle and connected therewith adjacent to the front, and movable upon a transverse axis with reference thereto, a traction-wheel carried by said frame to the rear of its point of connection, the steering-shaft L, the rod M connected with said frame at the rear of its transverse axis, extending upward through the steering-shaft L and in threaded engagement therewith, and the hand-wheel *m* carried by the rod M for turning it to raise or lower the traction-wheel-carrying frame, and a motor operatively connected with said traction-wheel.

680,075. DRAFT-REGULATOR FOR FURNACES OR STOVES. CHARLES A. RAGGIO and LOUIS MALATESTA, Chicago, Ill. Filed Mar. 21, 1901. Serial No. 52,122. (No model.)



Claim.—1. The combination with a stovepipe, of an open-bottomed chamber therein, a chamber exterior to said pipe provided with an air-inlet and having a passage to said interior chamber, substantially as specified.

2. The combination with a stovepipe having therein an open-bottomed chamber, of a chamber exterior to said pipe having an inlet to said interior chamber and an inlet into said exterior chamber, substantially as specified.

3. The combination with a stovepipe having therein an open-bottomed chamber, of an exterior and partitioned chamber having an opening on one side of said partition and another opening into said interior chamber on the other side of said partition, substantially as specified.

4. The combination with a stovepipe having therein an open-bottomed chamber, of an annular and partitioned exterior chamber having an exterior and valved inlet on each side of said partition and an inlet into said interior chamber, substantially as specified.

5. The combination with a stovepipe having therein an open-bottomed chamber, and an exterior chamber to said pipe and valved passages connecting said chambers, of a damper axially beyond said chambers, substantially as specified.

6. The combination with a stovepipe having therein an open-bottomed chamber, of a vertically-partitioned chamber exterior to said pipe having valved inlets on each side of said partition and a passage near said partition into said interior chamber, substantially as specified.

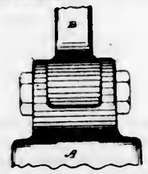
680,076. PROCESS OF PRODUCING NON-ALCOHOLIC MALT LIQUOR. WILHELM RATH, Bottmingen, Switzerland. Filed Jan. 2, 1901. Serial No. 41,901. (No specimens.)

Claim.—1. The process for the production of non-alcoholic malt liquor consisting in obtaining an infusion of malt at temperatures below the boiling-point, then boiling the infusion and pouring it over the malt husks or residue several times, boiling the infusion with hops, meanwhile adding thereto an infusion taken from the residue of the mash, continuing the boiling to the desired degree of concentration, then straining the wort, cooling it out of contact with the air, impregnating it with carbonic-acid gas and filtering it under pressure and out of contact with the air, substantially as set forth.

2. The process for the production of non-alcoholic malt liquor consisting in making a mash in the proportions of twenty-five kilos of malt to one hundred and fifty liters of water at a temperature of 35° centigrade, raising the temperature of the mash to 50° centigrade during one-half hour, letting it stand at the latter temperature one hour, then raising it to 70° centigrade during one-half hour, then maintaining the mash at that temperature for twenty-five to thirty minutes, then draining off the wort and boiling it for twenty-five minutes and while seething hot pouring the same over the malt husks or residue leaving it in contact therewith ten minutes, again draining off the wort and boiling it fifteen minutes, then pouring it while hot over the malt husks or residue leaving it in contact therewith ten minutes, then drawing off the wort and boiling it for two hours with 0.200 kilograms of hops, during the boiling with the hops adding thereto an infusion obtained by flooding the malt husks or residue with water at 77° to 80° centigrade the same having been allowed to stand on said husks for fifteen minutes, then straining the hops from the wort, cooling the wort in an air-tight cooler to a temperature below 25° centigrade, impregnating the wort with carbonic-acid gas, then filtering under pressure and bottling it.

680,077. TELEPHONE-TRANSMITTER-ARM JOINT. HERBERT B. SAMS, Cleveland, Ohio. Filed Jan. 28, 1901. Serial No. 44,859. (No model.)

Claim.—1. In a pivoted transmitter-arm joint, the combination of the arm seating between the lugs of the base and having on each side a conical depression, screws threaded through the lugs and projecting outside the same, said screws having conical points entering and fitting the conical depressions in the arm, and nuts threaded on said screws outside the lugs and serving as lock-nuts without occupying more space than a single nut, substantially as described.

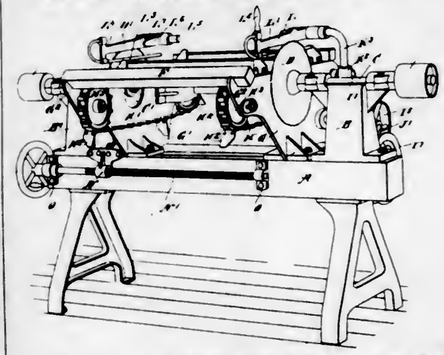


2. In a pivoted transmitter-arm joint the combination of the arm seating between the lugs of the base and having on each side a conical depression, screws threaded through the lugs and projecting outside the same, said screws having conical points entering and fitting the conical depressions in the arm, and capped nuts threaded on said screws outside the lugs and serving as lock-nuts without extending beyond the shoulder of the base, substantially as described.

3. In a pivoted transmitter-arm joint the combination of the arm seating between the lugs of the base and having on each side a conical depression, headless screws threaded through the lugs and projecting outside the same, said screws having conical points entering and fitting the conical depressions in the arm, and nuts threaded on said screws outside the lugs and serving as lock-nuts without occupying more space than a single nut nor extending beyond the shoulder of the base, substantially as described.

4. In a pivoted transmitter-arm joint the combination of the arm seating between the lugs of the base and having on each side a conical depression, headless screws threaded through the lugs and projecting outside the same, said screws having conical points entering and fitting the conical depressions in the arm, and capped nuts threaded on said screws outside the lugs and having no exterior opening, whereby the nuts serve as lock-nuts without the appearance thereof and without occupying more space than a single nut nor extending beyond the shoulder of the base, substantially as described.

680,078. SAWING-MACHINE. CHARLES SEYMOUR, Defiance, Ohio, assignor to the Defiance Machine Works, same place. Filed Apr. 9, 1901. Serial No. 55,020. (No model.)



Claim.—1. A sawing-machine having circular saws for sawing off the work, an endless carrier for feeding the work to the saws, swing-arms resting on the work while the saws cut off the ends of the work, and a friction drive-gear for said endless carrier and controlled from one of said arms, as set forth.

2. A sawing-machine having an endless carrier for carrying work to the saws, and a drive-gear for said endless carrier, arms for holding the work on the carrier while the ends are being sawed off, and a connection between one of said arms and the drive-gear, to throw the latter in or out of action, as set forth.

3. A sawing-machine, having saws for sawing off the work, an endless carrier for feeding the work to the saws an arm resting on the work while the saws are operating thereon, a drive-gear for said endless carrier and means by which each gear may be thrown in or out of action by said arm, substantially as set forth.

4. In a sawing-machine provided with an endless carrier for feeding the work, a drive-gear for said endless carrier including a shaft, a rocker

having an arm provided with a bearing for said shaft and with an upwardly-projecting arm composed of adjustable members and the arm connected with the upper member and arranged to rest upon the work, substantially as set forth.

5. A sawing-machine having an endless carrier for feeding the work, a drive-gear for said carrier including a shaft movable relatively to the other shafts of the gear, a rocker supporting said shaft and having an upwardly-extending arm, and the arm arranged to rest upon the work and jointed to the said rocker-arm, whereby it may swing at such joint, substantially as set forth.

6. In a sawing-machine, the combination with the endless carrier and the drive-gear therefor including a shaft and a rocker supporting the same, and having an upwardly-extending arm composed of adjustable members, and the forwardly-extending arm jointed to the upper one of said members, and arranged to rest upon the work, substantially as set forth.

7. A sawing-machine comprising a bed-frame, the upright plate G thereon and provided with a hook and with the carrier-supporting devices, the upright plate G' provided with a hook and with the supporting devices for the carrier, the carrier, means for adjusting the plate G' toward and from the plate G, the saws and their operating devices, substantially as set forth.

680,079. MANUFACTURE OF FIBROUS PRODUCTS. GEORGE R. SHERWOOD, Kearney, Nebr. Filed May 1, 1901. Serial No. 58,380. (No specimens.)

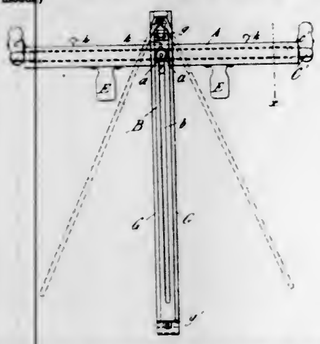
Claim.—1. The process of manufacturing a fibrous product from the stalks of Indian corn or analogous plants of the cane species, consisting of severing the pith from the shell by mechanical means before chemical treatment and thereafter dissolving the intercellular structure of the shell.

2. The improvement in the manufacture of fibrous products, consisting in removing the pith of Indian corn or analogous plants of the cane species from the shell by mechanical means before steeping or chemical treatment and thereafter dissolving the intercellular structure of the shell by boiling in a suitable chemical solution.

3. The improvement in the manufacture of fibrous products from Indian corn or analogous plants of the cane species, consisting in cutting the pith from the shell before chemical treatment, then chemically dissolving the intercellular structure of the shell and recovering the fibers therefrom, substantially as described.

4. The improved fibrous product composed of the fibers of Indian corn, or analogous plants of the cane species, from which the pith has been mechanically removed before chemical treatment, and the intercellular structure thereafter dissolved, substantially as described.

680,080. HOLDER FOR BOOKS, NEWSPAPERS, &c. JENS C. SKOGVOLD, Kongsberg, Norway. Filed Oct. 4, 1900. Serial No. 32,045. (No model.)

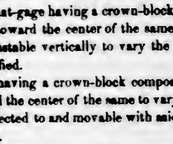


Claim.—1. The combination of the bar A, provided with clips E, the longitudinally-slotted bar B having rest or projection *e*, the screw-bolt *a* fixed to bar A and passing through the slot in bar B, and the clamping-nut *a'* engaging said screw-bolt, whereby said bar B may be adjusted up and down with reference to bar A, as herein described.

2. The combination of bar A, extension-bars C, C' working in said bar A, to expand its effective area, and provided with clips *c'* at the outer ends, the longitudinally-slotted bar B, the screw-bolt *a*, fixed to bar A and passing through the slot in bar B, and the clamping-nut *a'*, whereby said bar B may be folded up alongside the bar A, as and for the purpose described.

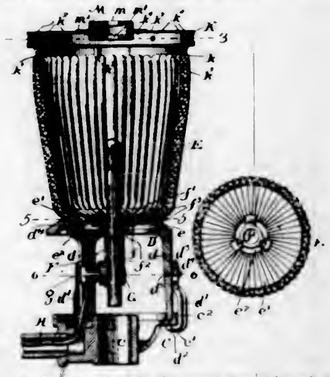
3. The combination of the bar A, the extension-slides C, C' working therein and provided with clips *c'* at their outer ends, the clips E depending from said bar A, the slotted bar B, the screw-bolt *a* fixed to said bar A and passing through the slot in bar B, the clamping-nut *a'* engaging said screw-bolt to lock bar B in adjustment relatively to bar A, and the legs G hinged to said bar B, as and for the purpose herein set forth.

680,081. WINDOW-STOP. ALBERT STEIERT, Philadelphia, Pa. Filed July 26, 1900. Serial No. 24,959. (No model.)



Claim.—A stop for window-sashes, consisting of a single piece of metal having a hole therethrough for the passage of a screw and being so bent as to provide a spring-nose, strengthening-rib, and thumb-piece, as specified.

680,082. ELECTRIC-ARC LAMP. HENRY STERN, Chicago, Ill. Filed Dec. 3, 1900. Serial No. 38,385. (No model.)



Claim.—1. In an electric light, the combination with a suitable supporting-base, C, provided with a horizontal supporting-plate, *c'*, of a stand, D, having legs, *d*, resting upon the plate, longitudinally-adjustable books, *d'*, provided with points, d^2, embracing the under side of the plate, and slots, d^1, and screws, d^3, threaded in the legs and passing through the slots, whereby the hooks may be adjustable longitudinally to fit the base; substantially as described.

2. The combination with the supporting-base, C, of the open stand, D, secured to the base, the globe, E, secured to the stand and provided with the bottom, *e'*, and the carbon-holder, F, secured to said bottom and extending downward within the open stand; substantially as described.

3. The combination with a hollow cap or cover, K, provided with perforations, k', k^2, and the central opening, k^4, in the top, of the hollow carbon-guide, M, having the flange, m^2, and the perforations, *m*, *m'*, to receive the carbon, the body of the guide projecting downward into the opening, k^4, and the flange, m^2, resting upon the top of the cover; substantially as described.

680,083. HAT BLOCK AND GAGE. EDGAR G. TAYLOR, Philadelphia, Pa. Filed Nov. 5, 1900. Serial No. 35,569. (No model.)

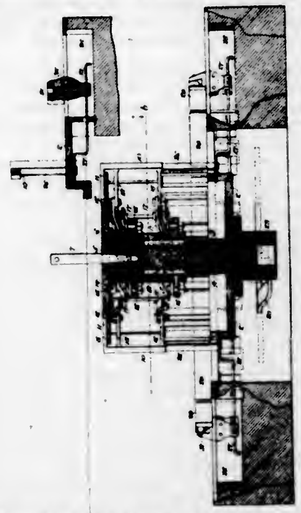
Claim.—1. A hat-gage having a crown-block composed of segments adjustable from and toward the center of the same to vary the size of the crown, and also adjustable vertically to vary the height of the crown, substantially as specified.

2. A hat-gage having a crown-block composed of segments adjustable from and toward the center of the same to vary the size of the crown, and brim-gages connected to and movable with said crown-segments, substantially as specified.

3. A hat-gage having a crown-block composed of segments adjustable from and toward the center of the same, and brim-gages adjustable independently of said crown-segments, substantially as specified.

4. A hat-gage having a crown-block composed of segments adjustable from and toward the center of the same, and brim-gages connected to and movable with said crown-segments, and also adjustable independently of the same, substantially as specified.

5. The combination in a hat-gage, of a vertically-adjustable crown-block and laterally-adjustable brim-gages, substantially as specified.



6. The combination in a hat-gage, of a crown-block composed of segments movable from and toward the center to vary the size of the crown, and also movable vertically to vary the height of the crown, and brim-gages connected to and movable with said crown-segments, substantially as specified.

7. The combination in a hat-gage, of a crown-block composed of segments adjustable from and toward the center to vary the size of the crown, and also adjustable vertically to vary the height of the crown, with brim-gages adjustable laterally in respect to the crown-segments, substantially as specified.

8. The combination in a hat-gage, of a crown-block composed of segments adjustable from and toward the center to vary the size of the crown, and also adjustable vertically to vary the height of the same, with brim-gages connected to and movable with said crown-segments and also adjustable independently of the same, substantially as specified.

9. The combination in a hat-gage, of a base, a crown-block having a top plate supported upon said base, a series of crown-segments, a rotatable sleeve suspended from the top plate and connections between said sleeve and the crown-segments, substantially as specified.

10. The combination in a hat-gage, of a base, a crown-block having a top plate supported above said base and having projecting arms, and a series of crown-segments adjustable from and toward the center of the block and having wings guided on said arms of the top plate, substantially as specified.

11. The combination in a hat-gage, of a base, a crown-block having a top plate supported above said base, and crown-segments adjustable from and toward the center of the block and having tongues guided in slots in said top plate, substantially as specified.

12. The combination in a hat-gage, of a radially-slotted base, a crown-block having a top plate supported above said base, and crown-segments adjustable from and toward the center of the block and guided upon said top plate and also by the slots in the base thereby preserving the proper alinement of the segments in different positions of adjustment, substantially as specified.

13. The combination in a hat-gage, of a base, a crown-block having a top plate supported above said base so as to be vertically adjustable in respect thereto, and a series of crown-segments adjustable from and toward the center of the block and means independent of the crown-blocks for maintaining said top plate in its different positions of adjustment, substantially as specified.

14. The combination in a hat-gage, of a base, a crown-block comprising a top plate supported above said base and adjustable vertically in respect thereto, and a series of crown-segments mounted upon and vertically adjustable with the top plate, said segments being also adjustable from and toward the center of the block, substantially as specified.

15. The combination in a hat-gage, of a base, and a crown-block having a top plate and crown-segments adjustable from and toward the center of the block, and a screw-stem connecting the base and the top plate of the crown-block and serving when turned, to adjust said top plate vertically in respect to the base, substantially as specified.

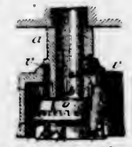
16. The combination in a hat-gage, of the base, a crown-block comprising a top plate and crown-segments adjustable from and toward the center of the block, and a right and left threaded screw-stem adapted to nuts upon the base and top plate of the crown-block, substantially as specified.

17. The combination in a hat-gage, of a crown-block comprising a vertically-adjustable top plate and laterally-adjustable crown-segments, a sleeve carried by said top plate, rods connecting said sleeve to the crown-segments, an operating-lever and connections between said lever and the sleeve which permit of vertical adjustment of said sleeve, substantially as specified.

18. The combination in a hat-gage, of a crown-block having laterally-adjustable crown-segments, a central sleeve, rods connecting said sleeve to the crown-segments, an operating-lever, connections between the same and the sleeve, and means for locking said lever in different positions of adjustment, substantially as specified.

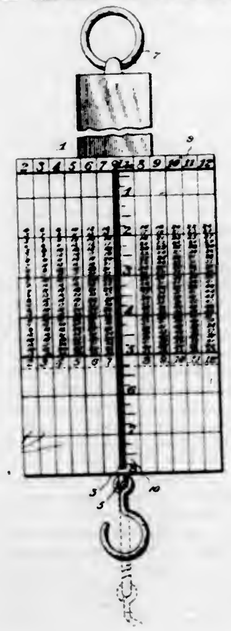
19. The combination in a hat-gage, of a laterally-guided brim-gage, a bar parallel with said guide, a bolt carried by the gage and adapted to press upon said bar, and a cam-lever also mounted upon the gage for actuating said bolt, substantially as specified.

680,084. AUTOMATIC FIRE-EXTINGUISHER. JOSEPH TESSIER and JOEL SEVIGNY, New Bedford, Mass. Filed Dec. 3, 1900. Serial No. 38,506. (No model.)



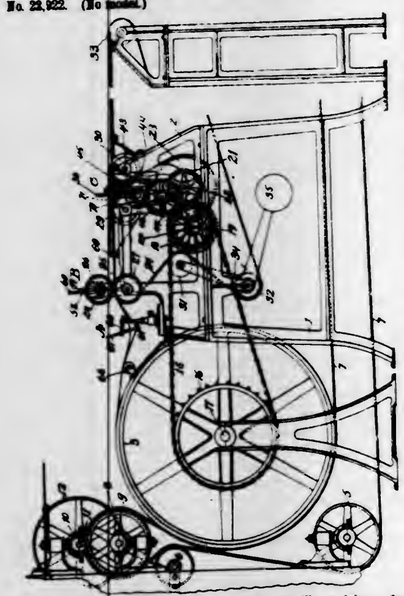
Claim.—An automatic fire-extinguisher comprising a cylindrical shell having a central water-passage therethrough and an annular depending flange formed in the upper portion thereof, a distributer-plate loosely mounted upon screws adjustable within the shell, a packing-plate upon the upper face of the distributer, oppositely-arranged slots formed in the rim of the shell, arms pivoted within the said slots, one of said arms being formed with a recess *q* and the other with a lug *p*, adapted to engage the said recess, said arms being adapted to fold up within the shell, whereby accidental dislodgment is prevented, said arms being soldered together to hold the distributer against the annular depending flange to make a water-tight joint.

680,085. COMPUTING SPRING-SCALE. LUTHER B. THOMAS, Ringgold, La. Filed Jan. 17, 1901. Serial No. 43,609. (No model.)



Claim.—A computing spring balance-scale, comprising a casing having a widened face-plate provided with a slot and projecting laterally at each side beyond the casing, said plate having a pound-scale and vertical columns containing two or more sets of differentiable numerals representing the total cost price of an article of a certain weight at a certain price per pound and such prices and a fractional portion thereof, a spring in the upper portion of the casing, a bar suspended from said spring and carrying a finger projecting through the slot in the face-plate, and a cross-bar attached to and extending transversely across the face-plate, said bar carrying coöperating price-per-pound numerals, substantially as set forth.

680,086. MACHINE FOR MANUFACTURING RUBBER ARTICLES. FRANK H. TURNER, Hartford, Conn. Filed July 9, 1900. Serial No. 23,922. (No model.)



Claim.—1. In a machine for forming tubes or like articles, a feeding mechanism and means for operating it, a forming mechanism adapted to receive the material from said mechanism and including two rings adjustable with relation to each other, and means whereby the opposite edges of the strip of material are brought into close contact and maintained in the same plane.

2. In a machine for forming tubes or like articles, a feeding mechanism including a combined feeding and driving belt and means for operating it, a forming mechanism adapted to receive the material from said feeding mechanism while off the belt and in a flat or strip-like condition, means for curling said material into tubular forms, means coincident with said last-named means for abutting the extreme edges of the material, means for pressing the edges into close alinement, and means for cutting the tubular product into predetermined lengths.

3. In combination in a device of the class specified, a combined feeding and driving belt and means for operating it, a forming mechanism adapted to bring the two edges of a strip of material into close contact, means for pressing the two edges into alinement, means for cutting the tubular product into predetermined lengths, and means for conveying the material to and from the several mechanisms above set out.

4. In combination, a main driving and feeding belt, a drum driven by said belt, mechanism driven by said drum and including an endless belt arranged in a tortuous path, and a cutting mechanism arranged to operate transversely of said belt without affecting the operation of the latter.

5. In a machine for forming tubes, the combination with the feeding, forming and pressing mechanism, of a rotary frictionally-driven cutter adapted to automatically cut a material into predetermined lengths, means for holding the cutter from action, means for releasing it at predetermined times, and means for adjusting the periods of such release.

6. In combination, in a machine for forming tubes from strips of material including feeding and forming mechanism, a cutting mechanism comprising swinging arms alternately operated and adapted to automatically cut the tubes into predetermined lengths, and means for varying the period between the strokes of the cutters.

7. In combination, in a device of the class specified, a cutting mechanism including cutters, frictional means for moving said cutters, means for holding said cutters from action and means for releasing the cutters at predetermined times.

8. In combination in a device of the class specified, a cutting mechanism including cutter-bars, means for holding the cutter-bars inoperative, means for rotating the cutter-bars upon their release, said means being constantly rotated and acting upon the cutters with a frictional grasp, and means for releasing the cutters at predetermined times.

9. In combination, in a machine for forming tubes, a pair of presser-rolls, a former-ring adjustable with respect to the rolls, and a universally-adjustable guide-ring coöperating with the former-ring and adapted to place the two edges of a strip of material together.

10. In combination, in a machine for forming tubes, an adjustable former-ring having a hinged section, a guide-ring mounted in operative relation to the former-ring and adapted to coöperate with it to unite the two edges of a strip of material, and means for passing the strip of material through the former-ring.

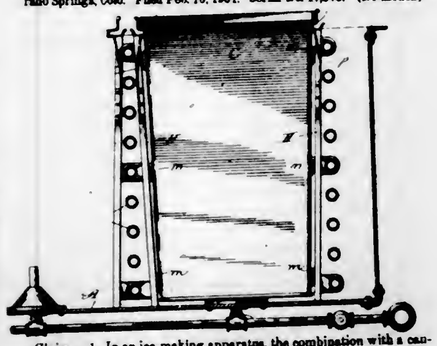
11. In combination in a machine for forming tubes, presser-rolls adapted to press the edges of the tube into close alinement, one of said rolls being adjustable toward and from the other and held against it with yielding force, the feed and driving belt passing around the last-named roll, and a cutting mechanism adapted to operate at predetermined times.

12. A device of the class specified comprising a feeding and carrying belt and cutters, a system of power-driven deflector-rolls adapted to deflect the stock from the carrying-belt and drive it forward.

13. In combination in a device of the class specified, a carrying-belt adapted to feed the stock to the cutting mechanism, cutters adapted to cut the stock into predetermined lengths, means adapted to release the stock from the carrier-belt and drive it forward, said means operating at a greater speed than the carrier.

14. A device of the class specified, comprising a feeding and carrying belt and cutting mechanism, and a system of rolls having a deflecting and driving action with relation to the stock borne upon the carrier-belt.

680,087. ICE-MAKING APPARATUS. EDGAR J. ULLRICH, Colorado Springs, Colo. Filed Feb. 16, 1901. Serial No. 47,575. (No model.)



Claim.—1. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can adapted to be inserted into said receptacle and to be removed therefrom when filled with ice and having an opening in its lower end portion, a relatively stationary fluid-pressure supplier having an outlet-opening toward the base of said receptacle, and readily-separable interfitting coupling members about said can and supplier openings.

2. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can adapted to be inserted into said receptacle and removed therefrom when filled with ice, and having an air or gas inlet opening in its base, a relatively stationary compressed air or gas supplier adjacent to the lower part of the receptacle having an outlet-opening below the base of the can, and readily-separable interfitting coupling members about said can and supplier openings.

3. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can adapted to be inserted into said receptacle and removed therefrom when filled with ice, and having an air or gas inlet opening in its lower end portion, a relatively stationary air or gas supply pipe adjacent to the lower part of the receptacle and having an outlet-opening provided with a check-valve near the base of the can, and readily-separable interfitting coupling members about said can and supplier openings.

4. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can adapted to be inserted into said receptacle and removed therefrom when filled with ice, and having a fluid-pressure inlet-opening at its lower end portion, a relatively stationary fluid-pressure supplier adjacent to the lower part of the receptacle and having an outlet-opening near the base of the can, and readily-separable insulated interfitting coupling members between said can and supplier.

5. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can adapted to be inserted into said receptacle and having an opening in its lower end portion, a fluid-pressure supplier having an outlet-opening near the base of said receptacle, separable interfitting coupling members secured respectively to the said supplier and can openings, and guides in said receptacles for directing the coupling members into engagement when the can is inserted into place.

6. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can adapted to be inserted into said receptacle and removed therefrom when filled with ice and having an opening in its lower end portion, a fluid-pressure supplier having an outlet-opening toward the base of said receptacle, readily-separable interfitting coupling members about said can and supplier openings, and means for locking down the can when said members are coupled together.

7. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of an ice-making can adapted to be inserted into said receptacle and having an opening in its lower end portion, a fluid-pressure supplier having an outlet-opening toward the base of said receptacle, separable interfitting coupling members about said can and supplier openings, automatic locking means for engaging said can and holding it down when the said members are coupled together, and means for engaging, automatically unlocking and raising said can.

8. In an ice-making apparatus, the combination with a can-refrigerating receptacle of a fluid-pressure supplier extending adjacent to the base of the receptacle, a tube projecting vertically from said supplier, within the receptacle, a removable ice-making can having an opening in its base, and a downward-extending tube around said opening and carried by the can, said tubes telescoping together when the can is placed in position, substantially as described.

9. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of a fluid-pressure supplier extending adjacent to the base of the receptacle, an air or gas conducting tube projecting from said supplier, within the receptacle, a seating-surface around said tube, a removable ice-making can having an opening in its base, a tube fastened to the can at said opening adapted to receive said conducting-tube, a seating-face around said conduit and carried by the can, said seating-faces operating, when the can is placed in position, to produce an approximately water-tight joint between the supplier and can.

10. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of a fluid-pressure supplier extending adjacent to the base of the receptacle, an air or gas tube projecting vertically from said supplier, within the receptacle, a seating-surface at the tube in the receptacle, a removable ice-making can having an opening in its base, a downward-extending tube, a seating-face around said opening and carried by the can, said tubes and seating-faces operating, when the can is placed in position, to produce an approximately water-tight coupling between the supplier and can.

11. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of a compressed air or gas supplier extending adjacent to the base of the receptacle, a valved air or gas tube projecting vertically from said supplier, within the receptacle, a removable ice-making can having an opening in its base, a seating-face at said opening in the can, said valved tube and seating-faces operating as readily-separable coupling members to produce an approximately water-tight joint between the supplier and can when the can is placed in position.

12. In an ice-making apparatus, the combination with a can refrigerating receptacle of a fluid-pressure supplier extending adjacent to the base of the receptacle, a tube projecting vertically from said supplier, within the receptacle, a seating-face about the tube within the receptacle, a removable ice-making can having an opening in its base, a downward-extending tube around said opening and carried by the can, a gasket forming a seating-face around said tube carried by the can, said tubes and seating-faces operating, when the can is placed in position, to produce an approximately water-tight joint between the supplier and can.

13. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of an ice-making can movable into and out of said receptacle, a compressed air or gas supplier terminating at its discharge end at an opening in the lower part of the can, and an adjustable spring-actuated check and pressure-reducing valve in the discharge end portion of said supplier.

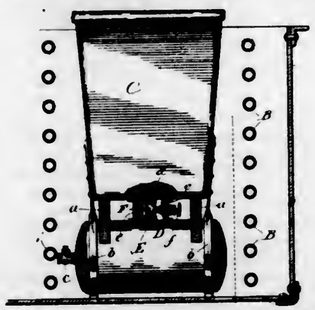
14. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of an ice-making can movable into and out of said receptacle and having an opening in its lower end portion, a removable plug in said opening operating when in place to close the same, a fluid-pressure supplier having an outlet-opening near the base of said receptacle, and separable interfitting coupling members between said can and supplier openings.

15. In an ice-making apparatus, the combination with a can-refrigerating receptacle of an ice-making can movable into and out of said receptacle and having an opening in its lower end portion, a removable plug in said opening, a fluid-pressure supplier having an outlet-opening near the base of said receptacle, separable interfitting coupling members between said can and supplier openings, and means operating as the coupling members are moved into engagement to discharge said plug from the opening in the can.

16. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of an ice-making can movable into and out of said receptacle and having an opening in its lower end portion, a removable plug in said opening operating when in place to close the same and of less specific gravity than water, a fluid-pressure supplier having an outlet-pipe opening near the base of said receptacle, and separable interfitting coupling members about said can and pipe openings.

17. In an ice-making apparatus, the combination with a can-refrigerating receptacle, of a fluid-pressure supplier extending adjacent to the base of the receptacle, an air or gas tube projecting vertically from said supplier, within the receptacle, a removable ice-making can having an extended opening in its base, and a removable plug in said can-opening, said tube operating, when the can is placed in position, to enter said can-opening, force out the plug and produce an approximately water-tight coupling between the supplier and the can.

680,088. ICE-MAKING APPARATUS. EDGAR J. ULLRICH, Colorado Springs, Colo. Filed Feb. 16, 1901. Serial No. 47,576. (No model.)



Claim.—1. In an ice-making apparatus, the combination with the freezing means, of an ice-making can, a closed compressed air or gas supplying reservoir, and an air or gas discharge passage extending from the reservoir into the lower part of the can, the said can and reservoir being attached to each other and adapted to be inserted into and removed from the said freezing means together.

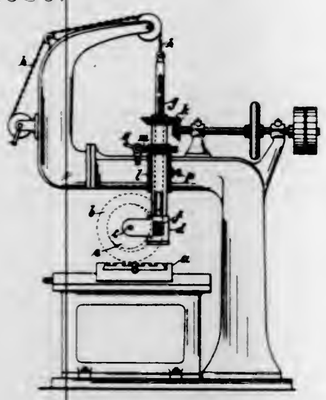
2. In an ice-making apparatus, the combination with the freezing means, of an ice-making can, a closed compressed air or gas supplying reservoir, and a valved air or gas discharge passage extending from the reservoir into the lower part of the can, the said can and reservoir being attached to each other and adapted to be inserted into and removed from the said freezing means together.

3. In an ice-making apparatus, the combination with the freezing means, of an ice-making can, a closed compressed air or gas supplying reservoir, and an insulated air or gas discharge passage extending from the reservoir into the lower part of the can, the said can and reservoir being attached to each other and adapted to be inserted into and removed from the said freezing means together.

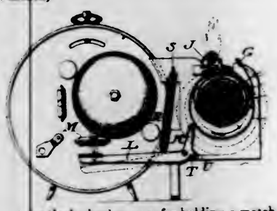
680,089. COLD-SAWING MACHINE. HEINRICH UHTHOFF, Schweinfurt, Germany. Filed Feb. 26, 1901. Serial No. 48,900. (No model.)

Claim.—The combination in a cold-sawing machine, of a vertical driving-shaft, a sleeve embracing said shaft, a cross-arm, slidable on and rotatable with the sleeve, a horizontal shaft journaled in said arm, a circular blade secured to the horizontal shaft, a pulley and a crank-shaft mounted in the frame of the machine, a chain from the crank-shaft passing over the pulley and secured to the top of the vertical shaft, and means for driving the shaft, substantially as described.

680,089.



680,090. TIME LAMPLIGHTER. WALDEMAR WALTER and FRANK WALTER, Philadelphia, Pa. Filed Mar. 26, 1901. Serial No. 52,894. (No model.)



Claim.—1. A toothed wheel, means for holding a match in contact therewith, a spring for causing the rotation of said wheel, a pawl adapted to engage with the teeth of said wheel for controlling the wheel, and a lever adapted to be located in proximity to the winding cross-bar of the alarm mechanism and be engaged therewith, said pawl being carried by the limb of said lever opposite to the limb engaged by said cross-bar.

2. A toothed wheel, a winding-spring connected therewith, a match-holder and a lamp adjacent to the periphery of said wheel, a lever, a pawl carried by one limb of said lever and engaging the teeth of said wheel and having its other limb adapted to be engaged by the cross-bar of the alarm mechanism on the exterior of the clock-casing.

3. In a self-lighting attachment for an alarm, a wheel adapted to strike a match, means for holding said match, a spring for operating said wheel and a pawl adapted to engage with said wheel, in combination with a spring for holding said pawl engaged with said wheel, and a spring for holding said pawl from said wheel.

680,091. AIR-BRAKE CONTROLLER. JOHN C. WANDS, St. Louis, Mo. Filed Aug. 4, 1900. Serial No. 25,914. (No model.)

Claim.—1. In an air-brake controller, the combination with cylinder-levers and an air-brake piston, of a movable fulcrum for one of the cylinder-levers other than that connected with the piston-rod, means for causing the travel of said movable fulcrum, and a contact connection arranged in the path of the piston-rod for transmitting the excessive travel of the piston to the devices which actuate the movable fulcrum; substantially as and for the purposes specified.

2. In an air-brake controller, the combination with cylinder-levers and an air-brake piston, of a movable fulcrum-block for one of the cylinder-levers, a feed-screw for actuating the movable fulcrum-block, pawl-and-ratchet mechanism for actuating the feed-screw, and a bridle or flexible connection interposed between the pawl-and-ratchet mechanism and the air-brake piston; substantially as and for the purposes specified.

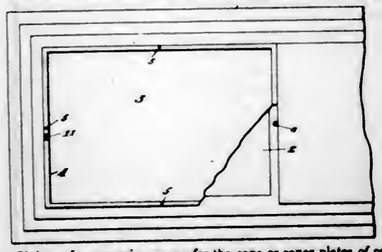
3. In an air-brake controller, the combination with cylinder-levers and an air-brake piston, of a movable fulcrum-block for one of the cylinder-levers, a screw-feed and a pawl-and-ratchet mechanism for actuating the movable fulcrum-block, a bridle or flexible connection between the pawl-and-ratchet mechanism and the air-brake piston, and means for reversely actuating the pawl-and-ratchet mechanism on the instroke of the piston; substantially as and for the purposes specified.

4. In an air-brake controller, the combination with cylinder-levers and an air-brake piston, of a feed-screw housing mounted on the head of the air-brake cylinder, a sliding fulcrum-block for one of the cylinder-levers, and a feed-screw carried by the feed-screw housing, a loose sheave, and a pawl-and-ratchet mechanism carried by the feed-screw, a rock-shaft, a retracting-spring, and suitable connections between the rock-shaft, sheave, and retracting-spring; substantially as and for the purposes specified.



5. In an air-brake controller, the combination with cylinder-levers and an air-brake piston, of a movable fulcrum-block for one of said levers other than that connected with the piston, a rock-shaft arranged in the path of the piston-rod, and means for actuating the movable fulcrum-block from the rock-shaft, substantially as and for the purposes specified.

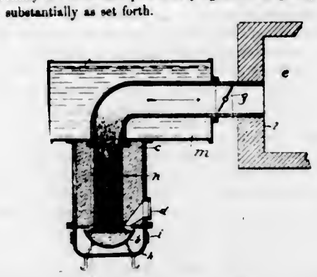
680,092. CAP FOR BURIAL-CASKET LIDS. FRANK WARTHER, Cincinnati, Ohio, assignor to the Crane and Breed Manufacturing Company, same place. Filed Apr. 18, 1901. Serial No. 56,446. (No model.)



Claim.—In a securing means for the caps or cover-plates of caskets and the like, the combination of a cap-frame having a downwardly-extended stud the lower end of which is formed with a rounded enlargement, and a casket-lid having a tubular socket-piece open at its upper end to receive said stud, the lower end of said socket-piece being extended below the under side of the casket-lid and having longitudinal slits in its side walls forming between them elastic tongues for engagement with the enlarged lower part of the stud to hold the stud in place in said socket-piece, substantially as set forth.

680,093. PROCESS OF MAKING LAMPBLACK. GOTTFRIED WEBELIN, Rondorf, Germany. Filed June 28, 1899. Serial No. 722,196. (No specimens.)

Claim.—The process of manufacturing soot or lampblack and of controlling the specific gravity of the product, which consists in controllably abstracting heat from the flame of combustion by passing the flame through a somewhat-restricted cooling flue or chimney, and cooling the flue externally at determined points varying with the quality of product desired, substantially as set forth.



680,094. BUGGY-TOP. JESSE O. WELLS, Des Moines, Iowa. Filed June 15, 1900. Serial No. 20,419. (No model.)



Claim.—1. The combination of a buggy, a foldable top pivoted thereon and a seat-back hinged to said buggy and arranged to be moved in an arc out of the orbit of travel of the foldable top.

2. The combination of a buggy, a foldable top pivoted thereto, a seat-back mounted on said buggy in the orbit of travel of said top and shaped and arranged for movement out of said orbit of travel at times.

3. The combination of a buggy, a foldable top pivoted thereto, a seat-back mounted on the buggy and arranged and so shaped as to be swung out of the way of the foldable top in the folding or expanding of said top.

4. The combination of a buggy, a foldable top mounted for oscillation thereon and susceptible of location, when folded, below the horizontal plane of its axis of oscillation and a seat-back mounted on said buggy and arranged and so shaped as to be moved out of the path of oscillation of said foldable top.

5. The combination of a buggy, a foldable top thereon and arranged and so shaped as to occupy, when folded, a position below its axis of oscillation, and stops on the buggy arranged for engagement by the top, whereby said top is compactly folded.

6. The combination of the buggy provided with abnormally-elevated finger-props, the foldable buggy-top provided with curved bow-fingers pivoted to the abnormally-elevated finger-props, the seat-back arranged to be moved out of the way of the buggy-top and means for compactly folding said top.

7. The combination of the buggy, the finger-props thereon and elevated abnormally relative to the seat thereof, the seat-back mounted on the buggy and arranged for movement in an arc, the front bow pivoted on the finger-props, the center bow pivoted on the finger-props and flexibly connected with the front bow, the rear bow jointed to the center bow and further flexibly connected with the center bow, the jointed top-braces flexibly connecting the buggy and rear bow, the stops for compactly folding the bows and the valance carried by the front bow.

8. The combination of the buggy, the finger-props thereon and elevated abnormally relative to the seat thereof, the seat-back mounted on the buggy and arranged for movement in an arc, the front bow pivoted on the finger-props, the center bow pivoted on the front bow and further flexibly connected therewith, the rear bow jointed to the center bow at its ends and further flexibly connected therewith and the top-braces connecting the buggy and rear bow.

9. The combination of the buggy, the finger-props thereon and elevated abnormally relative to the seat thereof, the seat-back mounted on the buggy and arranged for movement in an arc, the front bow pivoted on the finger-props, the center bow pivoted on the finger-props and flexibly connected with the front bow, the rear bow jointed at its ends to the center bow and further flexibly connected therewith, the jointed top-braces flexibly connecting the buggy and rear bow, the cover for the bows, the rear curtain connecting the rear of the cover to the rear of the buggy, the seat-cushion and the back-cushion connecting the seat-cushion and seat-back whereby in the movement of the seat-back the seat-cushion is elevated.

10. The combination of the buggy, the finger-props thereon and elevated abnormally relative to the seat thereof, the seat-back mounted on the buggy and arranged for movement in an arc, the front bow pivoted on the finger-props, the center bow pivoted on the finger-props and flexibly connected with the front bow, the rear bow jointed at its ends to the center bow and further flexibly connected therewith, the jointed top-braces flexibly connecting the buggy and rear bow, the cover for the bows, the rear curtain connecting the rear of the cover to the rear of the buggy, the seat-cushion the back-cushion connecting the seat-cushion and the seat-back, whereby in the movement of the seat-back the seat-cushion is elevated, and the valance carried by the front bow and projecting laterally therefrom outwardly.

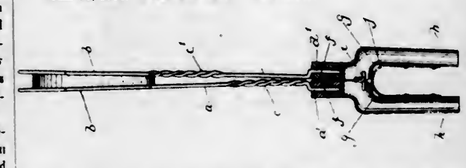
11. The combination of the buggy, the finger-props thereon and elevated abnormally relative to the seat thereof, the seat-back mounted movably on the buggy, the front bow formed with curved bow-fingers pivoted on the finger-props, the center bow pivoted on the front bow and further flexibly connected therewith, the rear bow jointed at its ends to the center bow and further flexibly connected therewith, the jointed top-braces flexibly connecting the buggy and the rear bow, the cover for the bows, the rear curtain connecting the rear of the cover to the rear of the buggy, the seat-cushion, the back-cushion connecting the seat-back and seat-cushion, whereby in the movement of the seat-back the seat-cushion is elevated, the stops whereby the bows are compactly folded and the valance carried by the front bow.

12. The combination of the buggy, the finger-props thereon and elevated abnormally relative to the seat thereof, the seat-back mounted movably on the buggy, the front bow pivoted on the finger-props, the center bow pivoted on the finger-props and flexibly connected with the front bow, the rear bow jointed at its ends to the center bow and further flexibly connected therewith, the jointed top-braces flexibly connecting the buggy and rear bow, the cover for the bows, the rear curtain connecting the rear of the cover to the rear of the buggy, the seat-cushion, the back-cushion connecting the seat-cushion and seat-back, whereby in the movement of the seat-back the seat-cushion is elevated, the stops whereby the bows are compactly folded and the valance carried by the front bow.

13. The combination of the buggy, the finger-props thereon and abnormally elevated relative to the seat thereof, the front bow formed with abruptly-curved bow-fingers pivoted to said finger-props and arranged to serve as handholds or loops when the top is folded, the center bow pivoted to the finger-props, the jointed brace connecting the upper portions of the front and center bows, the short props fulcrumed on the lower portions of the center bow and detachably connected at their forward ends to the front bow, the rear bow pivoted at its ends on the rear ends of the short props, the jointed braces connecting the upper portions of the rear bow and center bow, the jointed braces connecting the rear bow and buggy, the cover for the bows, the seat-back arranged for movement in an arc and the stops on the buggy arranged for engagement by the rear bow whereby the buggy-top may be compactly folded.

14. In a foldable buggy-top the combination of the front bow, the center bow, the rear bow, the short props fulcrumed on the center bow, detachably connected with the front bow and pivotally carrying the rear bow and the jointed braces connecting said bows and connecting the rear bow to a buggy on which the top is mounted.

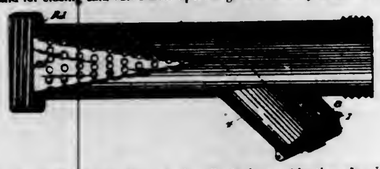
680,095. TOASTER. WALTER WELLS, Baltimore, Md. Filed Jan. 16, 1901. Serial No. 43,487. (No model.)



Claim.—As a new article of manufacture, a toaster, comprising two clamping-arms, *a*, *a'*, each composed of a single length of wire bent upon itself to form bread-clamping frames; two handle members provided at one end with abutting sides, *f*, and laterally-offsetting shoulders, *g*, extending away from said sides, and the other ends being spaced apart and forming hand-grasps, *h*; a pivot, *i*, connecting said two handle members at the said abutting sides and adjacent said laterally-offsetting shoulders; and a U-shaped spring, *j*, having each of its two arms rigidly secured to the inner side of a different one of said hand-grasp ends, with its curved part close against the said laterally-offsetting shoulders, as set forth.

680,096. STRAINER-CLEANING DEVICE FOR LOCOMOTIVES. RICHARD K. WEST, Sharpsburg, Pa. Filed Apr. 24, 1901. Serial No. 57,305. (No model.)

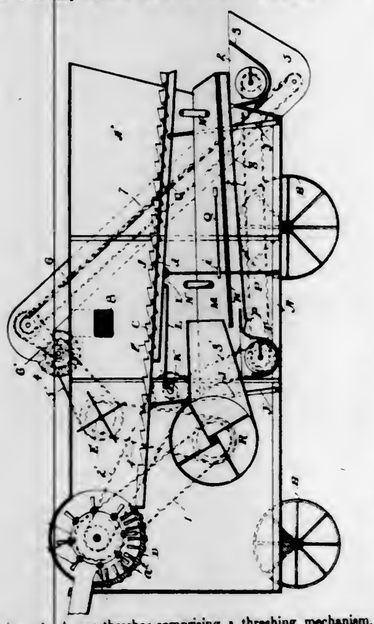
Claim.—1. In a device of the character described, the combination of a pipe having an elbow forming a drain-opening, a U-shaped lever pivoted to opposite sides of said pipe and straddling the elbow, a flap-valve hinged to the elbow and connected to said lever, an extension made integral with one end of said lever, operating means connected to the free end of said extension, and a spring for normally holding the flap-valve closed and for closing said valve after operating, substantially as described.



2. In a device of the character described, the combination of a pipe having a drain-opening, a substantially U-shaped lever pivoted to opposite sides of the pipe, a flap-valve hinged to the pipe and connected to the U-shaped lever for normally closing the drain-opening, an extension carried by said lever, operating means connected to the free end of said extension, a bracket carried by the pipe, and a spring connected to said bracket and to the extension for holding the flap-valve normally closed and for closing said valve after operating, substantially as described.

3. In a device of the character described, the combination of a pipe having a drain-opening, a cone-shaped strainer secured in one end of said pipe, a substantially U-shaped lever pivoted to opposite sides of the pipe, a flap-valve hinged to the pipe and connected to the U-shaped lever for normally closing the drain-opening, an extension carried by said lever, operating means connected to the free end of said extension, a bracket carried by the pipe, and a spring connected to said bracket and to the extension for holding the flap-valve normally closed and for closing said valve after operating, substantially as described.

680,097. **PEA-THRESHER.** MARTIN T. WHITE, Maury City, Tenn. Filed May 23, 1900. Serial No. 17,671. (No model.)

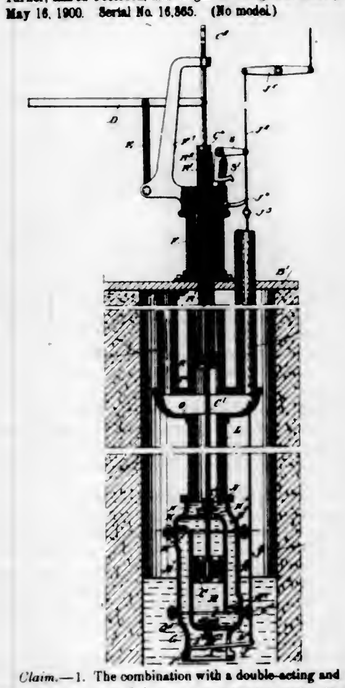


Claim.—1. A pea-thresher comprising a threshing mechanism, a separator comprising an upper reciprocating member, an independent lower reciprocating member, a vertically-arranged bar having one end connected with the upper reciprocating member, and a connection between the said bar at a point intermediate its ends and the lower reciprocating member of the separator whereby the movement of the upper member causes a reciprocation of the lower member, substantially as described.

2. A pea-thresher comprising a threshing mechanism, and a separating mechanism including a horizontally-reciprocating member, and vertically-arranged supports having their lower ends connected with the frame of the machine and their upper ends connected with the said reciprocating member, the vertically-arranged supports being inclined slightly rearward of a vertical line, and a separating member provided with rearward-projecting teeth, the parts adapted to operate substantially as described.

3. A pea-thresher comprising a supporting-frame, a threshing-cylinder therein, a reciprocating sieve below said cylinder, vertically-arranged rearwardly-inclined supports having their lower ends pivotally connected to frame and upper ends to the sieve, a lower reciprocating sieve, supporting-links having their upper ends pivotally connected to the sieve and the lower ends to the frame, an operating-bar pivotally connected to the upper sieve and the frame, and a lever having one end connected to the lower sieve and the other end adapted to receive the said bar, substantially as described.

680,098. **PUMP.** WILLIAM C. WHITTAKER and WALTER V. TURNER, Raton, N. Mex., assignors to William C. Whittaker, Walter V. Turner, Alfred Peterson, and Edgar W. Fulghum, same place. Filed May 16, 1900. Serial No. 16,865. (No model.)



Claim.—1. The combination with a double-acting and single-acting pump, of means controlled by a governor on a motor, to automatically change the pump from a single action to a double action, and vice versa, according to the force of the wind, as set forth.

2. In a pump, the combination with a motor, and a governor thereon, of a cylinder having a suction-valve in its lower portion, a piston in the cylinder and operatively connected with the motor, an auxiliary cylinder above the first cylinder, a piston in the auxiliary cylinder, means whereby the suction-valve is controlled from the governor, and means for locking the piston of the auxiliary cylinder stationary, said means being controlled by the means controlling the suction-valve, substantially as described.

3. In a pump, the combination with a motor and a governor thereon, of a cylinder having a suction-valve in its lower portion, a piston in the cylinder and operatively connected with the motor, an auxiliary cylinder above the first cylinder, a piston in the auxiliary cylinder and having a hollow piston-rod through which the piston-rod of the first-named piston passes, a collar on the first-named piston-rod and adapted to engage the upper end of the hollow piston-rod, means whereby the suction-valve is controlled from the governor, and a locking device for the piston of the auxiliary cylinder, substantially as described.

4. A pump, comprising a main cylinder having a valve in its bottom and adapted to be arranged in a well, an auxiliary cylinder adapted to be arranged approximately midway between the water-level in the well and the discharge of the pump, pistons in the cylinders and each arranged to move the water about one-half the distance of its travel from the well to the discharge, the piston in the auxiliary cylinder moving downward with the piston of the main cylinder, and said auxiliary-cylinder piston moving upward by the force of the water lifted by the main-cylinder piston during the upstroke of the latter, means for holding the valve of the main cylinder off its seat, and means, whereby when the valve is allowed to be seated, the auxiliary-cylinder piston will be held stationary, substantially as described.

5. A pump, comprising a main cylinder in a well, an auxiliary cylinder approximately midway between the water-level in the well and the discharge of the pump, pistons in said cylinders, and each arranged to move the water about one-half the distance of its travel from the well to the discharge, the piston in the auxiliary cylinder moving downward with the piston of the main cylinder, and said auxiliary-cylinder piston moving upward by the force of the water lifted by the main-cylinder piston during the upstroke of the latter, section and discharge valves for said main cylinder, to control the flow of water to and from the said cylinder, and means for holding the suction-valve off its seat, substantially as shown and described.

6. A pump, comprising a main cylinder in a well, an auxiliary cylinder located approximately midway between the water-level of the well and the discharge of the water, the auxiliary cylinder being located in the discharge-pipe of the main cylinder, pistons reciprocating in said cylinders, the main-cylinder piston being hand or power actuated, and the auxiliary-cylinder piston receiving its downstroke from the piston-rod of the main-cylinder piston and its upstroke by the water lifted by the main-cylinder piston during the upstroke of the latter, a suction-valve for the cylinder, and means for controlling the movement of said valve from the governor on a motor, substantially as shown and described.

7. A pump, comprising a main cylinder in a well, an auxiliary cylinder located approximately midway between the water-level of the well and the discharge of the water, the auxiliary cylinder being located in the discharge-pipe of the main cylinder, pistons reciprocating in said cylinders, the main-cylinder piston being hand or power actuated, and the auxiliary-cylinder piston receiving its downstroke from the piston-rod of the main-cylinder piston during the downstroke of the latter, a suction-valve for controlling the inlet of the water to the lower end of the main cylinder, means for controlling the movement of said valve and holding the auxiliary-cylinder piston stationary from the governor on a motor, and a discharge-valve for controlling the outlet of the water from the cylinder to the discharge-pipe, substantially as shown and described.

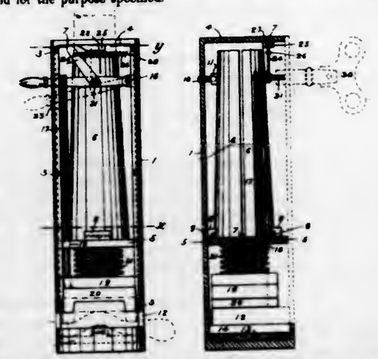
8. A pump, comprising a main cylinder in a well, an auxiliary cylinder located approximately midway between the water-level of the well and the discharge of the water, the auxiliary cylinder being located in the discharge-pipe of the main cylinder, pistons reciprocating in said cylinders, the main-cylinder piston being hand or power actuated, and the auxiliary-cylinder piston receiving its downstroke from the piston-rod of the main-cylinder piston during the downstroke of the latter, a suction-valve for controlling the inlet of the water to the upper end of the main cylinder, a discharge valve for controlling the outlet of the water from the cylinder to the discharge-pipe, a suction-valve for the lower end of the main cylinder, a discharge for the lower end of said cylinder, means for lifting said suction-valve for the lower end of the cylinder off its seat, and means for locking the piston for the auxiliary cylinder in position, as set forth.

9. In a pump, the combination with a cylinder, a piston therein, a motor with which the piston is connected, and a governor on the motor, of a suction-valve in the lower part of the cylinder, a pivoted lever upon which the stem of the valve rests, and a connection between the lever and governor, substantially as described.

10. In a pump, the combination with a main cylinder, a piston therein, a motor with which the piston is connected, and a governor on the motor, of an auxiliary cylinder above the main cylinder, a piston in the auxiliary cylinder and having a hollow piston-rod through which the main piston-rod extends, a collar on the main piston-rod and adapted to engage the upper end of the hollow piston-rod, a suction-valve in the lower part of the main cylinder, a lever upon which rests the stem of said valve, a rod connected with said lever and operatively connected with the governor, and a bell-crank lever connected with the said rod and adapted to engage the hollow piston-stem to hold the same stationary, substantially as described.

680,099. **WHIP AND REIN HOLDER.** JOHN E. WILLIAMS, Philadelphia, Pa., assignor of one-half to Frederick Mettetal, same place. Filed May 14, 1901. Serial No. 60,606. (No model.)

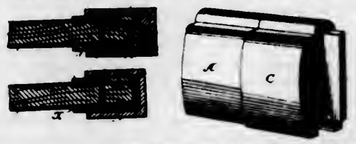
Claim.—1. The combination of a whip and reins holder having an opening on or near its top to receive a whip, and another opening to receive the reins; of jaws forming a whip-socket arranged within the casing and beneath the opening at or near the top of the casing; of a reins-holder arranged within the casing and at the other opening; of a locking device, arranged within the casing, which can grip or release both whip and reins; of a key to open the locking device; all substantially as described and for the purpose specified.



2. The combination of a casing having an opening at or near its top to receive a whip; of jaws forming a whip-socket, arranged within the casing and beneath the opening at or near the top of the casing; of a locking device, arranged within the casing, which can grip or release a whip; of a key to open the locking device; all substantially as described and for the purpose specified.

3. The combination of a casing having an opening to receive reins; of a locking device arranged within the casing, which can grip or release reins; of a key to open the locking device; all substantially as described and for the purpose specified.

680,100. **ROLLING SHUTTER.** PERCY H. WILSON, Olean, N. Y. Filed Feb. 28, 1901. Serial No. 49,319. (No model.)



Claim.—1. A rolling shutter consisting of a series of parallel non-metallic slats connected edge to edge, and each provided at the ends with independent inclosing cap-pieces, substantially as set forth.

2. A slat for a rolling shutter provided with cap-pieces sealing the ends and with a cement below the cap-pieces, substantially as set forth.

3. The combination with the side guides of a rolling shutter, of a series of connected non-metallic slats each provided with a separate inclosing cap-piece extending between said guides, substantially as set forth.

4. The combination with the side guides of a rolling shutter, of a series of connected slats each provided with an end bearing consisting of a cap-piece within which the end of the slat is confined, substantially as set forth.

5. The combination with the side guides of a rolling shutter, of a series of connected slats each provided with an end bearing consisting of a cap-piece having a tapering socket within which the end of the slat is confined, substantially as set forth.

6. The combination with the side guides of a rolling shutter, of a series of connected non-metallic slats each provided with a metallic sheath and with an end bearing consisting of a cap-piece within which the end of the slat is confined, substantially as set forth.

7. The combination with a rolling shutter consisting of a series of connected slats, of guides, and a rib or projection at the end of each slat extending between said guides, substantially as set forth.

8. The combination with the slats of a rolling shutter, of separate cap-pieces sealing the ends of the slats and provided with vertical ribs, substantially as and for the purpose set forth.

9. The combination with a rolling shutter having slats with projections at the ends, of a guide receiving the ends of the slats and provided with a channel receiving said projections, substantially as set forth.

680,101. **NUT-LOCK.** VIRGIL M. WINSFIELD and JOHN T. LITTLE, Jr., Olathe, Kans. Filed Dec. 4, 1900. Serial No. 38,713. (No model.)

Claim.—1. In a nut-lock a fastener provided with a head and spring-arms projecting therefrom having catches, the head of said fastener adapted to be inserted in an aperture in proximity to the side of a nut and prevent the same from turning, substantially as described.

2. A nut-lock comprising two members, one member having apertures one of which is provided with offsets, and the other member provided with a head adapted to be inserted into said aperture and engage said offsets, substantially as described.



3. A nut-lock comprising a plate having apertures one of which is provided with offsets, a fastener having a bead adapted to be inserted into said aperture, and spring-arms each provided with a catch adapted to engage the offsets thereof, substantially as described.

4. A nut-lock comprising a plate having an aperture with inclined walls, an aperture with offsets, and a fastener having spring-arms each provided with a catch adapted to engage the offsets of the plate, substantially as described.

5. A nut-lock comprising a plate having apertures one of which is provided with offsets, spurs, and a fastener provided with a wedge-shaped head having spring-arms with catches, each of said arms having its inner side inclined outwardly, said catches adapted to engage said offsets, substantially as described.

6. In a nut-lock the combination of a washer having two apertures extending through it from its side, for the reception of a spring-fastener and a bolt, and on the back of said washer a convenient number of spurs for engaging the surface upon which the washer rests.

7. In a nut-lock the combination of a washer A having two apertures *t* and *f* extending through it from its side, aperture *t* shaped for the reception of a spring-fastener E E and aperture *f* shaped for the reception of a bolt, said washer A having its bottom and top cut at certain angles, and said washer A having the spurs *m m m m* attached to its back, all substantially as shown and for the purposes set forth.

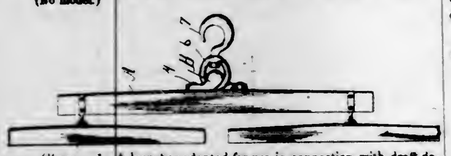
8. A nut-lock comprising a plate having apertures, a fastener provided with spring-arms having catches to engage one of the apertures of said plate, said arms extending laterally inward toward the nut it is desired to lock, substantially as described.

9. A nut-lock comprising a plate provided with apertures, a fastener having spring-arms, a head the upper portion of which projects above one of said spring-arms, and the lower portion below the other spring-arm forming catches which are adapted to engage one of the apertures of said plate, substantially as described.

10. A nut-lock comprising a plate having an aperture with its walls inclined from the front to the rear of said plate, and an aperture adapted to receive a spring-fastener, substantially as described.

11. A nut-lock comprising a plate provided with apertures, a fastener having a head provided with catches, said head adapted to be inserted in one of said apertures and the catches to engage therewith, and spring-arms with depressions on their outer ends, substantially as described.

680,102. **LOOP-BAR FOR DRAFT DEVICES.** NORMAN C. WOODWARD, Hornellsville, N. Y. Filed May 7, 1901. Serial No. 59,103. (No model.)



Claim.—1. A loop-bar adapted for use in connection with draft devices, said loop-bar being twisted or bent whereby the ring held thereby may lie in substantially the horizontal plane of the loop-bar.

2. A loop-bar adapted to be used in connection with draft devices, said loop-bar having side members 1 1, and a central member 2 substantially at right angles to such side members, substantially as described and for the purposes set forth.

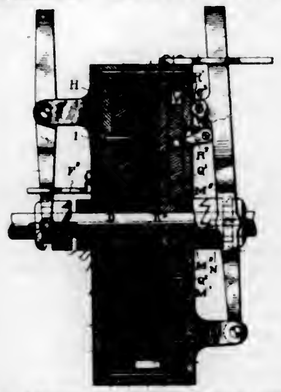
3. In combination with a doubletree and connecting-ring of a swivel-hook, a loop-bar adapted to be attached to such doubletree, said loop-bar being so shaped that the swivel-hook is permitted to lie and may be turned in a horizontal plane which is substantially that of the doubletree.

4. In combination with the doubletree and connecting-ring of a draft device, a loop-bar adapted to be attached to such doubletree, said loop-bar having side members 1 1 and central cross connecting member 2 between such side members, substantially as described.

5. A loop-bar having a part thereof between its ends at an angle to the main lines of the loop-bar.

6. A loop-bar having a part thereof so shaped that the plane of draft of a ring held thereby is substantially horizontal when in operative position.

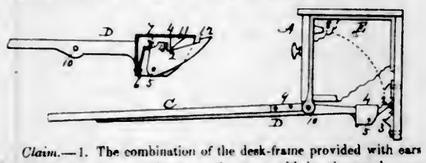
680,103. **STARTING DEVICE FOR OIL OR GASOLENE ENGINES FOR AUTOMOBILES.** JACOB P. WRIGHT, New Haven, Conn., and JAMES N. WRIGHT, Newark, N. J. Filed May 9, 1900. Serial No. 16,104. (No model.)



Claim.—1. The combination of a shaft, a cylindrical casing surrounding such shaft, a pinion loose on said shaft, means for clutching such pinion to said shaft, a disk loose on said shaft, means for preventing motion of said disk in one direction, a gear carried by such disk and meshing with said pinion, an internal gear on the casing with which meshes such first-mentioned gear, a spring attached at one end to said disk, a friction-disk loose on such shaft, one end of said spring being attached to such friction-disk, a stationary friction member which is adapted to coact with said friction-disk, and a clutch by which such friction-disk can be secured to said shaft, substantially as and for the purpose described.

2. The combination of a shaft, a cylindrical casing surrounding such shaft, a pinion loose on the shaft, a clutch member splined thereon and adapted to engage a clutch member formed on said pinion, a lever for operating such clutch, said lever being mounted on the casing, a ratchet-disk loose on the shaft, a pawl on the casing for holding the disk from rotating in one direction, a gear carried by the disk and meshing with the pinion, an internal gear on the casing, with which meshes such first-mentioned gear, a spring attached at one end to the disk, a friction-disk loose on said shaft, the opposite end of the spring being attached to such friction-disk, a stationary, split friction-ring which is adapted to coact with the friction-disk, a wedge for expanding said friction-ring, a clutch member formed on the friction-disk, a clutch member splined on such shaft and adapted to engage with the clutch member on the friction-disk, and a lever fulcrumed on the casing and adapted, when moved in one direction, to move the wedge, and when moved in the opposite direction to engage the last-mentioned clutch member, substantially as and for the purpose described.

680,104. **LEAF-SUPPORT FOR DESKS.** GEORGE H. WYMAN, Los Angeles, Cal., assignor to Walter S. Rutledge, John R. Feustermaker, and Charles A. McFarland, Dayton, Ohio. Filed Feb. 13, 1900. Renewed Dec. 28, 1900. Serial No. 41,361. (No model.)

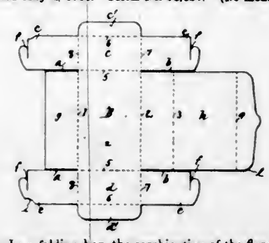


Claim.—1. The combination of the desk-frame provided with ears at the lower front corners, the supporting-arms with housing on the rear end, the pawls pivoted within said housing, the leaf with plates pivoted to said ears, the rack-bar attached to said desk-frame adapted to be engaged by said pawl, the lug 3 of the rack-bar, and the flat spring adapted to engage the pawl and hold the same out of engagement with said rack-bar, substantially as described.

2. The combination of the desk-frame with ears attached to the lower front corners, the supporting-arms provided with housing on the back end, the leaf pivoted to said desk-frame, the pawl pivoted within said housing, the rack-bar attached to the desk-frame adapted to engage said pawl, the disengaging lug, the flat spring adapted to engage the notch in said pawl,

and the lug 8 of the front wall to throw said pawl forward, and bring the same into possible engagement with said rack-bar, substantially as described.

680,105. **FOLDING PAPER BOX.** FRANK N. YOUNG, Providence, R. I. Filed May 4, 1901. Serial No. 58,827. (No model.)



Claim.—In a folding box, the combination of the flaps *g* and *h*, and *c* and *d*, turned upward from the bottom *k* of the box, the said flaps *c* and *d* being provided with the locking-notches *f*, *f*, and also cut away at the points *i*, *i*, to form a thumb-notch *j*, when the said flaps are locked together at the front outer side of the box, whereby ready access may be had to the inclosed downwardly-turned portion *l* of the covering-flap *h*, for opening the box; substantially as described.

680,106. **WAIST AND SKIRT SUPPORTER.** ELIZABETH M. ADAMS, Portland, Oreg. Filed May 11, 1901. Serial No. 59,844. (No model.)



Claim.—1. A skirt-supporter comprising a hook member carrying a pin, and formed with a shoulder extending parallel with the pin and with a hook forming a continuation of the shoulder and bent or flexed inward and overlapping the same, and an eye member carrying a pin and provided with a slot to engage the hook the side of the eye member, in use, to bear firmly against the shoulder, and to be held in engagement therewith by the hook and to fill the space between the shoulder and the bend of the hook, the coaction between the side of the eye and the shoulder being such that lateral play will be obviated, thereby to insure positive engagement between the members when locked together.

2. A skirt-supporter comprising a hook member carrying a pin, and formed with a shoulder extending parallel with the pin and with a hook forming a continuation of the shoulder and bent or flexed inward and overlapping the same, an eye member carrying a pin and provided with a slot to engage the hook, the side of the eye member, in use, to bear firmly against the shoulder, and to be held in engagement therewith by the hook and to fill the space between the shoulder and the bend of the hook, the coaction between the side of the eye and the shoulder being such that lateral play will be obviated, thereby to insure positive engagement between the members when locked together, one side of each of the members being cut away to leave a projection at one end, the said projection being bent to form a shield and having arranged parallel to its length, at the cut-away portion, a tubular rib, and a pin having one of its arms suitably secured in the rib, and the pointed free end of the other arm to engage with the shield.

680,107. **FURNACE.** GEORGE ALLEN, Franklin, Pa. Filed June 1, 1900. Serial No. 18,775. (No model.)

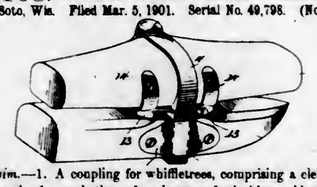


Claim.—1. In a furnace, the combination with two fire-chambers, of a vertical flue disposed between said fire-chambers and extending from the bottom to the top thereof, said flue adapted to communicate near its respective ends with both of said fire-chambers, two independent valves or gates in said flue and pivotally supported in line with the vertical axis and in line with the points of communication of said flue with the fire-chambers, means for operating said gates independently to open communication between the respective ends of the flue and the respective ends of the respective fire-chambers, another flue common to both fire-chambers and a single valve independent of the first-mentioned valves for closing communication between one fire-chamber and said last-mentioned flue and opening communication between the latter and the other fire-chamber.

2. In a boiler-furnace, the combination with a boiler, two fire-chambers and a flue under the boiler and common to both fire-chambers, of a valve in said flue for opening communication between said flue and one of the fire-chambers and closing communication between said flue and the other fire-chamber, a vertical flue disposed between said fire-chambers and extending from bottom to top of the fire-box, said flue adapted to communicate at one end with both fire-chambers under the grates and adapted to communicate at the upper end with the fire-chambers above the grate, two independent valves in said vertical flue arranged to direct products of combustion therethrough, from the top of one fire-chamber to the bottom of the other fire-chamber, and means for independently adjusting said valves.

3. In a furnace, the combination of two fire-chambers each having a grate, a vertical flue disposed between said fire-chambers and closed at its respective ends, said flue having lateral openings near its upper end to communicate with the respective fire-chambers, a valve in the flue between said lateral openings, said flue also having lateral openings at or near its lower end to communicate with the respective fire-chambers some distance below the grates therein, a valve in the flue between said last-mentioned lateral openings, a flue common to both fire-chambers, and an independent valve in the last-mentioned flue to close the outlet of one fire-chamber and open the outlet of the other.

680,108. **COUPLING FOR WHIFFLETREES.** THORE A. BAKKEN, De Soto, Wis. Filed Mar. 5, 1901. Serial No. 49,798. (No model.)



Claim.—1. A coupling for whiffletrees, comprising a clevis, a bolt carried by the free ends thereof, and means for locking said whiffletrees in their movement with respect to each other, comprising a locking-plate, means carried thereby for engaging parts of said clevis, strips of material integral with said locking-plate and adapted to be secured about the rear of one of the trees, whereby a clamping effect will be produced upon said tree, and means for securing said strips to said tree, substantially as described.

2. A coupling for whiffletrees, comprising a double clevis, one of its members being adapted to pass above one of said trees, one below the other tree, and one between the two trees, a bolt passed through the free ends of said members, a plate carried by one of said trees for limiting the movement of the same, a housing about a portion of said bolt formed integral with said locking-plate, and a housing about another portion of said bolt and formed integral with said central member and with one of the outer members, substantially as described.

3. A coupling for whiffletrees, comprising a double clevis for securing the trees together, means for limiting the movement of said trees with respect to each other, means for preventing the singletree from tipping or turning over, a lock-plate carried by said singletree, apertured strips extending from said lock-plate to the rear of and adapted to be clamped upon the singletree, securing-flanges extending from either side of the lower half of the rear of the double clevis, a bolt adapted to pass through the free ends of said clevis to lock the parts together, bearing-plates between the upper and central, and central and lower members of said clevis, partially surrounding said bolt, securing-flanges extending from either side of each of said bearing-plates, securing means passed through the flanges of the lower bearing-plate, the doubletree and through the flanges on the rear of said clevis, and means passed through the flanges of said upper bearing-plate, the singletree and through the apertured strips extending from said locking-plate for securing the parts together, substantially as described.

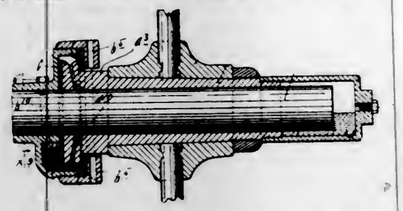
680,109. **CLASP FOR HOLDING TIES.** ANDREW J. BARR and JACOB W. WEIL, Mansfield, Ohio. Filed June 4, 1900. Serial No. 18,963. (No model.)



Claim.—As an article of manufacture, a necktie-clasp secured to the rear face of the knot of a ready-made tie and provided with a lateral slot

cut therein, the material of which the clasp is composed being bent laterally across the slotted portion forming two spring members whereby the slot lies partly in each member of the folded blank, one of the members being tapered in general outline, the clasp being widest at its upper or slotted portion, and provided with apertures *f*, *f*, for permitting its attachment to the lie, one member provided with an upturned longitudinal flange on either edge thereof, the remaining member bent downwardly against the inner surface of the first-named member and between the flanges to form a clip, the free end of the last-named member provided with an upwardly or outwardly curved tongue or lip.

680,110. **WHEEL BOX AND AXLE.** DELBERT E. BARTON, Minneapolis, Minn. Filed Jan. 10, 1901. Serial No. 42,717. (No model.)



Claim.—1. The combination with an axle-box having a raised flange or bead at its inner end, of an axle having a lubricating-box rigid therewith, constructed to receive said axle-box bead within a bath of oil, and means for detachably connecting said parts together, substantially as described.

2. The combination with an axle-box having a raised flange or bead, at its inner end, provided with oil-distributing ducts therethrough, of an axle having a lubricating-box rigid therewith, constructed to receive said axle-box bead within a bath of oil, and means for detachably connecting said parts together, substantially as described.

3. The combination with an axle-box having a raised bead or flange at its inner end, provided with oil-ducts thereto, of an axle having a lubricating-box rigid therewith constructed to receive said axle-box bead within a bath of oil, and a retaining-nut of angular form in longitudinal section having screw-threaded engagement with said lubricating-box and embracing said axle-box bead, substantially as described.

4. The combination with an axle, of an axle-box having a raised bead or flange, at its inner end, a lubricating-box securable to the axle at any desired point of adjustment, lengthwise of the axle, and constructed to receive said axle-box bead within a bath of oil, and means for detachably connecting said parts, substantially as described.

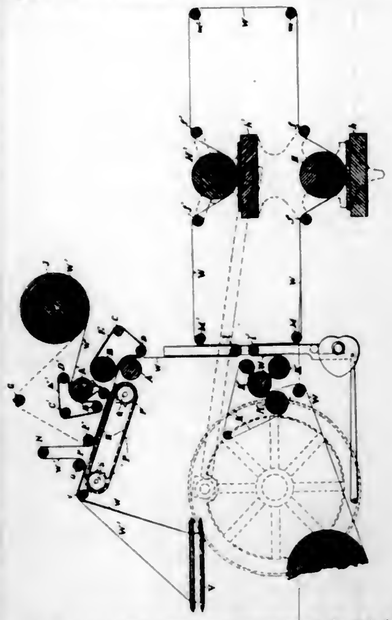
5. The combination with an axle, of an axle-box having a raised bead or flange at its inner end, provided with lubricating-ducts therethrough, a lubricating-box securable to the axle at any desired point of adjustment, lengthwise of the axle, and constructed to receive said axle-box bead within a bath of oil, and means for detachably connecting said parts, substantially as described.

6. The combination, with an axle-box having a raised flange or bead, at its inner end, provided with oil-ducts, and having at its outer end an oil-well cap secured thereto and rotating therewith, of an axle having a lubricating-box constructed to receive said axle-box bead within a bath of oil, the outer end of the axle terminating inward of the outer end of said oil-well cap, and means for detachably connecting said axle-box and axle, substantially as described.

680,111. **REWINDING AND INSERTING MECHANISM.** HENRY F. BECHMAN, Battlecreek, Mich., assignor to Edwin C. Nichols, same place. Filed Dec. 4, 1899. Serial No. 739,171. (No model.)

Claim.—1. In a web-printing press, the combination of the feeding, printing, delivering, folding and cutting mechanisms; with mechanism for rewinding the web, located between the delivering and folding mechanisms whereby a web of paper after it is printed may be rewound, and mechanism for subsequently unwinding the rewound web, without change of position thereof, and associating the same with a second web, as the latter issues from the press, at a point between the delivery and the folder, the two webs being then passed through, and handled as one web in, the folding and cutting mechanisms, substantially as described.

2. In a printing-press, the combination with the feeding, printing, delivering, folding and cutting mechanisms for a web, of a secondary web-feeding mechanism located beside the delivery, a web-spool beside the secondary feeding mechanism, frictional gearing for driving said web-spool, and guide-rollers whereby a web of paper may be diverted from the folder to said spool and rewound thereon as it is being printed, said web being subsequently broken when a sufficient amount is accumulated on the spool, and led back to the secondary feed and associated with the freshly-printed web coming from the press and carried therewith through the folding and cutting mechanisms, substantially as described.



3. In a web-printing press, the combination of the web feeding, printing, delivering, folding and cutting mechanisms; a secondary feeding mechanism located beside the delivery and gearing for operating the secondary feed from the delivery mechanism, a web-spool beside the secondary feed, and frictional gearing for driving said web-spool from said secondary feed, with guide-rollers whereby a web of paper may be diverted from the folder to said spool and rewound thereon as it is being printed, said web being subsequently broken when a sufficient amount is accumulated on the spool, the frictional gearing then loosened, and mechanism whereby the rewound web is led back through the secondary feed and associated with a second web coming from the press and carried therewith through the folding and cutting mechanisms, substantially as described.

4. In a web-printing press, the combination of web feeding, delivering, printing, folding and cutting mechanisms; with a combined rewinding and web-feeding mechanism located intermediate the delivery and folding mechanisms, said mechanism being constructed first to divert a web from the folder and to rewind the same as it is being printed and thereafter, without changing the position of the rewound web, to unwind the same and feed it forward to the folder at the same speed as, and together with, a second web being then printed on the machine and fed directly to the folder by the press-delivery mechanism, said two webs being associated as one web, given the first fold and subsequently severed, for the purpose and substantially as described.

5. In a web-printing press, the combination of the web feeding, delivering, printing, folding and cutting mechanisms and a combined rewinding and web-feeding mechanism intermediate the delivery and folding mechanisms, adapted first to divert a web from the folder and to rewind the same as it is being printed and thereafter, without changing the position of the rewound web, to unwind the same and feed it forward to the folder at the same speed as, and together with, a second web then being printed on the machine, said two webs being associated and subsequently handled as one web; with margin-indicating mechanism for the web passing directly from the press to the folder, and mechanism for looping the rewound web before it is associated with the second web to insure register of the margins of the two webs, substantially as described.

6. The combination of a pair of stationary beds, a pair of reciprocating impression-cylinders coacting with such beds and the web feeding, printing, delivering and folding mechanisms of a press, a secondary feed mechanism, a web-rewinding spool and gearing to drive the same; with web-guiding rolls the construction being such that a web may be diverted from the folder and directed to said spool to be rewound thereon as printed, said web to be subsequently broken and fed by the secondary feed toward the folder and associated with a second web issuing from the press and fed directly therefrom to the folder, the two webs being associated and passing through the folding mechanism as one web, substantially as described.

7. The combination of a pair of stationary beds, a pair of reciprocating impression-cylinders coacting with such beds and the web feeding, printing, delivering, folding and cutting mechanisms of a press, a secondary feed mechanism located beside the delivery mechanism and driven by gearing therefrom, and a web-rewinding spool and gearing to drive the same from the secondary feed mechanism; with web-guiding rolls whereby a web may be diverted from the folder and rewound upon said spool as printed, said web to be subsequently broken and fed by the secondary feed toward the folder and associated with a second web issuing from the press and fed directly therefrom to the folder, the two webs being associated and passing through the folding and cutting mechanisms as one web, substantially as described.

8. The combination of a pair of stationary beds, a pair of reciprocating impression-cylinders coacting with such beds and the web feeding, printing, delivering and folding mechanisms of a press, a secondary feed mechanism, and a web-rewinding spool, and web-guiding rolls whereby a web may be diverted from the folder and rewound upon said spool, said web to be subsequently broken and fed by the secondary feed toward the folder, and associated with a secondary web issuing from the press and fed directly therefrom to the folder; with mechanism for indicating the margins of the second web, and mechanism for looping the rewound web, whereby the margins between the impressions on the rewound web may be caused to register with the margins on the secondary web at the point of association thereof, for the purpose and substantially as described.

9. The combination of a pair of stationary beds, a pair of reciprocating impression-cylinders coacting with such beds and the web feeding, printing, delivering, folding and cutting mechanisms of a press, a secondary feed mechanism located beside the delivery mechanism and driven by gearing therefrom, a web-rewinding spool and frictional gearing to drive the same from the secondary feed mechanism, and web-guiding rolls whereby the web may be diverted from the folder and rewound upon said spool, said web to be subsequently broken and fed by the secondary feed toward the folder, and associated with a second web issuing from the press and fed directly therefrom to the folder; with mechanism, comprising an endless sprocket-chain and a series of pointers thereon, for indicating the margins of the secondary web, and web guiding and looping rollers for looping the rewound web, whereby the margins between the impressions on the rewound web may be caused to register with the margins on the secondary web at the point of association thereof; said webs being associated and given a first fold together and subsequently severed into sheets, for the purpose and substantially as described.

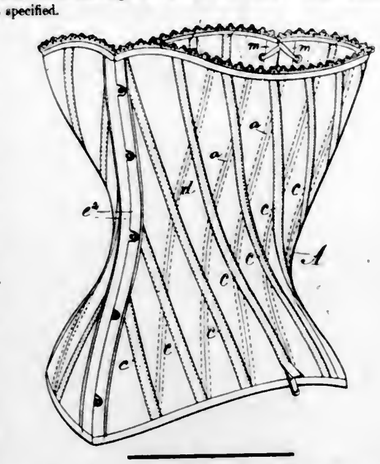
10. In a printing-press, the combination of web feeding, printing, delivering, folding and cutting mechanisms; with web-rewinding mechanism whereby a web of paper run through the press and printed may, before folding or cutting, be rewound, between the delivery and the folding mechanisms, and mechanism whereby the rewound web may without change of position be unwound and associated with freshly-printed web issuing from the press before it reaches the folder, the two webs being then passed together onto the folding mechanism and partly folded prior to the cutting thereof into sheets, substantially as and for the purpose described.

11. In a printing-press, the combination of web printing, delivering, folding and cutting mechanisms, and a rewinding mechanism comprising a frictionally-driven spool and gearing for operating the same from the delivery mechanism, whereby a web of paper may be printed in the machine and immediately rewound as a web; with a second feeding mechanism located beside the delivery mechanism, and gearing for driving said secondary feed mechanism from the delivery mechanism, said secondary feed mechanism being adapted to withdraw the rewound web from said spool without changing the position of the latter and feed the web to the folding mechanism simultaneously with a second web fed from the press directly to the folding mechanism, the two webs being associated prior to reaching the folder and being handled as one web in the folding and cutting mechanisms, substantially as described.

680,112. **CORSET.** JOHN D. BELCHER, St. John, Canada. Filed Nov. 7, 1900. Serial No. 35,776. (No model.)

Claim.—1. A corset having the double series of bias bones or steels, having each series an inward inclination from bottom to top toward the front joint of the two sections of the corset, and an inward inclination from top to bottom toward the rear joint of the two sections of the corset, each such series terminating in short bones or steels, substantially as specified.

2. A corset having the double series of bias steels or bones, having opposite inclinations with respect to each other at front and rear of the corset, and terminating each series in short bones or steels, substantially as specified.



680,113. **MOUTHPIECE.** ADAM BERGMAN, Sacramento, Cal. Filed Apr. 17, 1901. Serial No. 56,287. (No model.)



Claim.—1. A mouthpiece comprising sections detachably secured together and having a communicating passage-way therethrough, and an antiseptic pad arranged in the passage-way and held in place by adjoining portions of the sections.

2. A mouthpiece comprising sections detachably secured together and having a communicating passage-way therethrough, and an antiseptic pad arranged across the passage-way, said pad being located between the sections and held in place thereby.

3. In a device of the class described, the combination with a mouth-section having an interior passage-way, of a tube-section detachably connected to one end of the mouth-section and having a passage-way communicating with the passage-way of the same, and an antiseptic pad detachably arranged across the passage-way at the point of connection of the sections.

4. In a device of the class described, the combination with a mouth-section provided with an interior passage-way, said section having one end flared and the other end screw-threaded, of a tube-section screwed to the threaded end of the mouth-section, and an antiseptic disk disposed between the adjoining ends of the two sections.

5. In a device of the class described, the combination with a mouth-section provided with an interior passage-way, said mouth-section having one end flared and the other end screw-threaded, of a sleeve fitting in the screw-threaded end of the mouth-section and provided with an outstanding annular flange, a tubular section having an enlarged end fitting over and screw-threaded to the threaded end of the mouth-section, and a perforated antiseptic disk interposed between the ends of the two sections.

6. A mouthpiece comprising a tubular casing having a passage-way therethrough, and an antiseptic pad detachably secured across the passage-way intermediate the ends of the casing.

7. A mouthpiece comprising a tubular casing having a passage-way therethrough, and a perforated antiseptic pad detachably secured across the passage-way intermediate the ends of the casing.

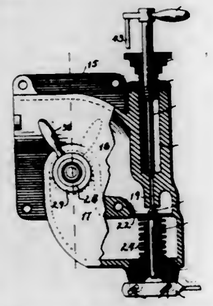
680,114. **ANIMAL-TRAP.** CHARLES BLOKER, Kensett, Iowa, assignor of one-half to A. H. Bjorgo, same place. Filed June 3, 1901. Serial No. 62,906. (No model.)

Claim.—In a trap of the character described, the combination with a coiled spring terminating in bail-wires having horizontal extensions which are secured to the coiled spring, of a bridge secured to the bail-wires to hold them spaced apart, a choker-rod formed integral with the

coiled spring and adapted to move between said bail-wires, a trigger pivoted to the bridge and having a curved lower end and a toe at its upper end, and a lever pivoted to the free end of the choker-rod and adapted to engage and hold up the toe of the trigger, substantially as set forth.



680,115. VAPORIZER FOR INTERNAL-COMBUSTION ENGINES. CARL H. BLOMSTROM, Marquette, Mich., assignor to Lake Shore Engine Works, same place. Original application filed Nov. 8, 1898, Serial No. 695,912. Divided and this application filed Mar. 23, 1901. Serial No. 52,606. (No model.)



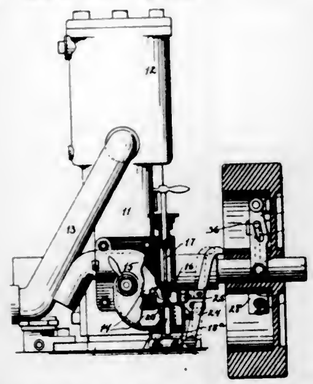
Claim.—1. In a vaporizer for explosive-engines, the combination with a vaporizing-passage provided with air and liquid fuel inlets, of an automatically-operating, suction-valve at the inner end of said passage, an adjustable flange on the stem of said valve, a coil-spring intermediate said flange and the valve-casing, and a normally fixed rotatably-adjustable nut for engaging said flange, whereby the throw and suction of said valve may be regulated.

2. In vaporizers for explosive-engines, the combination with an inlet-passage comprising downwardly and upwardly extending elbow-sections arranged at right angles and connected to each other at their lower ends, an automatically-operating suction-valve at the inner end of said upwardly-extending elbow-section, a tangentially-arranged oil-inlet at the lower end of said downwardly-extending elbow-section, and an auxiliary downwardly-movable suction-valve at the junction of said elbow-sections, comprising a disk portion for obstructing said passage, and a conical upper end portion above said disk for controlling said oil-inlet.

3. In vaporizers for explosive-engines, the combination with an inlet-passage comprising downwardly and upwardly extending elbow-sections connected to each other at their lower ends, an automatically-operating suction-valve at the inner end of said upwardly-extending elbow-section, a tangentially-arranged oil-inlet at the lower end of said downwardly-extending elbow-section, an auxiliary, downwardly-movable suction-valve at the junction of said elbow-sections comprising a disk portion for obstructing said passage and a conical upper end portion for controlling said oil-inlet, the stems of said valves being projected through the walls of said vaporizer and adjustable stops for engaging the ends of said valve-stems to regulate the throw of each of said valves.

4. In vaporizers for explosive-engines, the combination with an inlet-passage comprising downwardly and upwardly extending elbow-sections arranged at right angles and connected to each other at their lower ends, said elbow-sections being cast in piece with a face-plate by which it is secured in position to the engine-cylinder, a main suction-valve at the inner end of said upwardly-extending elbow-section, an oil-inlet at the lower end of said downwardly-extending section, an auxiliary suction-valve at the junction of said elbow-sections provided with means for controlling said oil-inlet, an oil-well cast in piece with the downwardly-extending elbow-section and arranged above said oil-inlet, a stuffing-box closing the upper end of said well and a needle-valve adjustably threaded through said stuffing-box and extending through said well to regulate said oil-inlet.

680,116. GOVERNING MECHANISM FOR INTERNAL-COMBUSTION ENGINES. CARL H. BLOMSTROM, Marquette, Mich., assignor to Lake Shore Engine Works, same place. Original application filed Nov. 8, 1898, Serial No. 695,912. Divided and this application filed Mar. 23, 1901. Serial No. 52,607. (No model.)



Claim.—1. In governor mechanism for internal-combustion engines, the combination with the engine-shaft and fly-wheel, and with a suction-valve controlling the charge admission to the engine of a shiftable abutment for variably regulating the throw of said valve, a lever pivoted intermediate its end to the engine-frame, connected at one end to said abutment and arranged with the opposite free end adjacent to said shaft and fly-wheel, a longitudinally-movable sleeve carried on the shaft in operative relation to the free end of said lever, a link pivoted to said fly-wheel and to said sleeve, and a centrifugally-operative arm carried by the fly-wheel and operatively connected to said link.

2. In governor mechanism for explosive-engines, the combination with the engine-shaft and fly-wheel, of a pair of levers, one of which is weighted, pivoted to said fly-wheel to move in planes at right angles to each other, one of said levers being provided with an inclined cam-surface engaged by the other of said levers, and means for controlling the speed of the engine arranged to be actuated by said levers.

3. In governor mechanism for explosive-engines, the combination with the engine-shaft and fly-wheel, of a pair of levers pivoted to said fly-wheel to swing in planes at right angles to each other, one of said levers being provided with an inclined cam-slot, the other of said levers being weighted and operatively engaging said cam-slot, and means for controlling the speed of the engine arranged to be actuated by said first-mentioned lever.

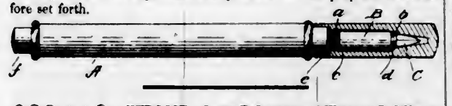
4. In governor mechanism for internal-combustion engines, the combination with the engine-shaft and fly-wheel, of a spring-held, weighted, bell-crank lever and a forked lever pivoted to said fly-wheel to swing in planes at right angles to each other, an inclined cam-slot in said forked lever operatively engaged by one end of said bell-crank lever, and a shiftable sleeve rotatable with said engine-shaft and fly-wheel, which is operatively engaged by said forked lever, and means for controlling the engine's speed actuated by said sleeve.

5. In governor mechanism for internal-combustion engines, the combination with the engine-shaft and fly-wheel and with a valve for controlling the charge admission to the engine, of a movable abutment for controlling the throw of said valve, an actuating-lever therefor arranged with its free end adjacent the hub of the said fly-wheel, a longitudinally-shiftable sleeve on said hub in operative relation to said lever, and a forked lever pivoted to said fly-wheel to swing in a plane at right angles to the plane thereof, the free end of which lever operatively engages said sleeve, an inclined cam-slot in said forked lever and a spring-held, weighted, bell-crank lever pivoted to said fly-wheel to swing in the plane thereof, one end of which lever is in operative engagement with the inclined cam-slot of said forked lever.

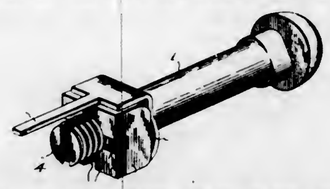
680,117. FOUNTAIN-PEN. CLARK W. BOMAN, New York, N. Y., assignor to Eagle Pencil Company, same place. Filed May 11, 1901. Serial No. 59,315. (No model.)

Claim.—The cap provided internally with an annular seat *d*, a screw-threaded portion *c*, and a smooth cylindrical portion *e* of greater diameter than the screw-threaded portion *c* located between the latter and the open end of the cap, and the pen-body, comprising the pen-barrel and the nozzle, provided at the front with a valve end or portion *b* to engage the seat *d* and a screw-threaded portion *a* to engage the screw-threaded

portion *c* and at the rear with a smooth cylindrical portion *f* to enter and fit the part *e* of the cap, substantially as and for the purposes hereinbefore set forth.



680,118. NUT-LOCK. JAMES E. BRALEY and WILLIAM R. O'NEILL, Mineral, Ohio. Filed May 20, 1901. Serial No. 61,085. (No model.)



Claim.—The combination with a bolt provided with a slot in its threaded end, of a nut provided with radiating grooves in its top, and a washer having a laterally-extending lip to engage one of the sides of said nut, and a ductile tongue to lie in the alining groove and slot of the nut and bolt, respectively, substantially as set forth.

680,119. DENTAL FORCEPS. FRANK A. BREWER, Jr., Watsonville, Cal. Filed Mar. 11, 1901. Serial No. 50,642. (No model.)

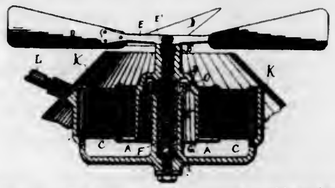


Claim.—1. Forceps comprising operating-handles having beaks detachably and pivotally connected thereto by toggle-levers, substantially as set forth.

2. Forceps comprising pivoted operating-handles, pivoted beaks, and toggle-levers connecting said handles and beaks, said handles, beaks and levers being detachably connected, substantially as set forth.

3. Forceps comprising handles having pivot-plates at their forward ends provided with interfitting detachable pivot connections and forwardly-projecting arms, beaks similarly connected and having rearwardly-extending arms jointed to the arms of the handles, the pivot-plates of the handles and beaks being provided with locking-ribs, and keepers on the handles, jaws and arms coacting with said ribs, substantially as set forth.

680,120. ELECTRIC FAN. EDGAR W. BROWN, Dayton, Ohio. Filed Nov. 8, 1900. Serial No. 35,807. (No model.)



Claim.—1. In an electric fan, the combination with an electric motor, and a suspending-tube, of an air-deflector surrounding said motor, arms connecting the motor with the suspending-tube, and common means for connecting the arms and the deflector to the motor, substantially as specified.

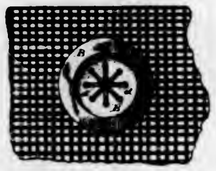
2. In an electric fan, the combination with an electric motor, of an air-deflector secured to said motor below the fan-blades, means for securing said deflector to the motor, arms extending beyond the ends of the fan-blades and by means of which the motor is connected to the depending rod, substantially as specified.

3. In an electric fan, the combination with a motor and fan-blades driven thereby, of a stationary air-deflector inclosing said motor, the smaller part of said deflector being closer to the fan-blades than the larger part thereof, the deflecting-surface of said deflector being curved inwardly so that the air deflected thereby from its original direction will be deflected less abruptly than if the said deflecting-surface was straight, and whereby a greater volume of air is directed from the deflector.

4. In an electric fan, the combination with an electric motor, of an air-deflector inclosing said motor and secured thereto, a series of tubular arms by means of which said deflector and motor are connected to a suspending-tube, the said tubular arm also providing means whereby the conducting-wires passing through the suspending-tube are enabled to be connected with the motor free from any interference with the fan-blades, substantially as specified.

5. In an electric fan, the combination with a motor and a suspending-tube therefor, of a stationary air-deflector inclosing said motor, the shaft of said motor being projected through an opening in said deflector, fan-blades mounted on said shaft above said deflector, whereby the motor, fan-blades, and deflector are brought into a compact relation, substantially as shown and described.

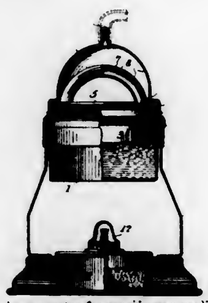
680,121. BUTTON. JEREMIAH D. BURNS, Washington, D. C., assignor of one-half to Charles G. Quast, Baltimore, Md. Filed Dec. 14, 1900. Serial No. 39,906. (No model.)



Claim.—1. A button having securing-openings therein that comprise a central or focal hole, and a plurality of oppositely-arranged holes, substantially as described.

2. A button having securing-openings that comprise one focal opening and a group of concentrically-arranged holes or securing means.

680,122. APPARATUS FOR VAPORIZING MEDICINAL AGENTS. ERASMUS T. CAMP, Gadsden, Ala. Filed Jan. 24, 1901. Serial No. 44,608. (No model.)



Claim.—1. An apparatus for vaporizing a medicinal agent comprising in its construction a suitable generating-chamber, a diaphragm arranged on top of said chamber and provided with apertures or openings which are connected by an upwardly-extending curved or arched tube, said tube being provided in its upper surface or portion with fine apertures or perforations for the escape of generated gases, substantially as described.

2. An apparatus for vaporizing a medicinal agent comprising in its construction a suitable generating-chamber, a diaphragm arranged on top of said chamber and provided with apertures or openings which are connected by an upwardly-extending curved or arched tube which is in communication with the generating-chamber, said tube being provided in its upper surface with fine perforations, the under portion of said tube being imperforated, and a hood or dome arranged over said diaphragm and tube and provided with an aperture for the escape of fumes or gases, substantially as described.

3. An apparatus for vaporizing a medicinal agent, comprising in its construction a suitable generating-chamber provided with an opening for the introduction of the liquid to be vaporized, a diaphragm arranged

on top of said chamber and covering the introduction-aperture, a gasket arranged between the diaphragm and the top of the generating-chamber to form a tight closure, the diaphragm being provided with openings which are connected by an upwardly-extending curved or arched tube which is in communication with the generating-chamber, said tube being provided in its upper surface with fine perforations, the under portion of said tube being imperforated, and a hood or dome arranged over said diaphragm and tube, and removably attached to the generator by screw-threads, said dome or hood being provided with an aperture for the escape of fumes or gases, substantially as described.

680,123. HEATING STOVE OR FURNACE. BENJAMIN R. CHRISTIE, Dayton, Ohio. Filed Oct. 2, 1900. Serial No. 31,779. (No model.)



Claim.—1. In a heating-stove, a burner, a base having a ring-drum within the same, said ring-drum divided by a vertical partition, a down-flue leading from the upper chamber of the stove to said ring-drum at one side of said vertical portion, and an up-flue leading away from said flue at the other side of the partition, vertical pipes or passages through such ring-drum and openings through the stove-shell above the same, and an open-bottomed passage through the center of the ring-drum, for the passage of air to the burner, all arranged and combined substantially as described.

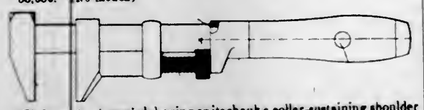
2. In a heating-stove, a central cold-air-supply pipe at the base, a burner-ring surrounding this air-pipe, within an open-bottomed chamber, and a ring-drum around said chamber, inlet and outlet flues to said ring-drum, an annular heating-passage extending upward above the ring-burner and communicating at the top with the inlet-flue of the ring-drum, and a drum within the annular heating-passage, receiving the cold-air-supply pipe, and having an escape-pipe leading from the top thereof, substantially as described.

3. In a heater as described, the combination of a ring-burner, up-passages therefrom consisting of a fluted or corrugated drum within a tubular drum, a cold-air passage within the ring-burner, a deflector above the same serving to spread the entering cold air against the fluted drum, and a separate drum within the so-deflected currents, substantially as described.

4. In a heater, a vertically-fluted drum and means for heating the outside of said fluted surface, a cold-air pipe entering the bottom of said drum and a flat deflector above said pipe, and a vertically-fluted shell corresponding to the fluting of the drum, rising from the edge of said deflector, whereby the rising air is compelled to enter the fluted drum and the fluted deflector, substantially as described.

5. In a heater, the combination of the ring-burner, the up-passages therefrom in form of spaces between a cylindrical and a corrugated drum, and a cold-air passage through the burner leading to a corrugated deflector within the corrugated drum, substantially as described.

680,124. WRENCH. LORING COES, Worcester, Mass., assignor to Coes Wrench Company, same place. Filed Oct. 19, 1900. Serial No. 33,639. (No model.)

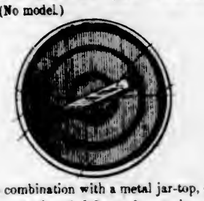


Claim.—1. A wrench having on its shank a collar-sustaining shoulder and a depression presenting at its end most remote from the collar-sustaining shoulder a strut-supporting shoulder, a movable screw-sustaining collar adapted at one end to abut the collar-sustaining shoulder and provided at its interior with a shoulder acted upon by one end of a strut, and a curved strut which is sufficiently straightened after contact with the said receiving shoulder of the shank and of the collar to firmly seat the collar against the collar-receiving shoulder of the shank.

2. A wrench-shank provided with a collar-sustaining shoulder, and provided at each side with a shoulder, combined with independent struts abutting at one end a shoulder of the shank and at the other end a shoulder of the collar, said struts entering each a space in the shank at one side of the shoulder in the side thereof, said struts being straightened and fixed in position and serving to hold the collar adjusted longitudinally of the shank of the wrench to thereby seat one end of said collar immovably against the collar-sustaining shoulder of the shank.

3. In a wrench, a shank having a shoulder to sustain the screw-receiving collar, and a shoulder to receive one end of a strut, combined with a strut, and a screw-sustaining collar having a V-shaped notch embraced by one end of the strut.

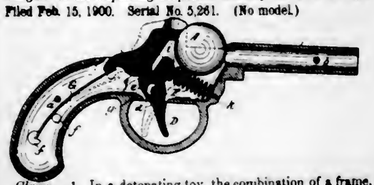
680,125. JAR-TOP. WILLIAM P. COLDREN, Lebanon, Pa., assignor of one-half to Grant F. Lauser, same place. Filed Apr. 11, 1901. Serial No. 55,354. (No model.)



Claim.—1. The combination with a metal jar-top, of a lining therefor, the top having a screw-threaded flange for attachment to the jar and formed above the screw-threads with lugs, and a lining consisting of a disk located above the screw-threads and leaving them exposed for attachment with the jar, said lining having a recess for engagement with one of said studs to permit of the connection of said lining with said top, substantially as set forth.

2. The combination with a metal jar-top, of a lining therefor, the top having a screw-threaded flange for attachment to the jar and formed above the screw-threads with lugs, and a lining consisting of a disk located above the screw-threads and leaving them exposed for attachment with the jar, said lining having a recess for engagement with one of said studs to permit of the connection of said lining with said top, and an inclined lug adapted to work over one of said studs and frictionally lock the lining to the top, substantially as set forth.

680,126. TOY PISTOL. WILLIAM H. WYTHE, Glenridge, N. J., assignor to the Repeating Torpedo & Novelty Co., East Orange, N. J. Filed Feb. 15, 1900. Serial No. 5,261. (No model.)



Claim.—1. In a detonating toy, the combination of a frame, a cavity therein, a ball coated with detonating material loosely contained in said cavity, a hammer pivoted on said frame and adapted to strike said ball and means for propelling said hammer against said ball, substantially as described.

2. In a detonating-pistol, the combination of a stock, barrel and trigger, a cavity in the frame of said pistol, a ball provided with detonating composition loosely contained within said cavity, a hammer actuated by said trigger, and means whereby said ball is revolved in every direction to present a different part of the surface of said ball to said hammer at each successive operation of the pistol.

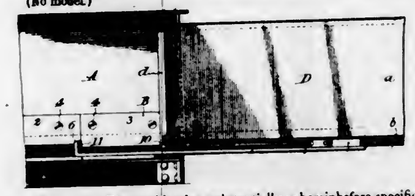
3. In a detonating-pistol, the combination of the frame thereof, a ball provided with detonating composition, a receptacle in which said ball is loosely contained, and frictional engaging means to revolve said ball, as and for the purpose set forth.

4. In a detonating-pistol, the combination of the frame thereof, a trigger and hammer, springs for said trigger and hammer, a ball provided with detonating composition, a receptacle in which said ball is loosely contained, frictional engaging means for revolving said ball, and a shield or guard, as and for the purpose set forth.

5. In combination with a ball provided with a coating of detonating material, a receptacle in which said ball is adapted to be loosely contained, a hammer mechanism for striking said ball consisting of a hammer, a trigger, pivots and springs for said hammer and trigger and frictional means for rotating said ball actuated by said trigger, substantially as set forth.

6. In a detonating toy, the combination with a frame, a cavity therein, a ball coated with detonating material loosely contained in said cavity, a hammer pivoted on said frame and adapted to strike said ball, a trigger for actuating said hammer, and frictional material carried by said trigger for rotating said ball upon the movement of said trigger, substantially as described.

680,127. DRAWER-GUIDE FOR STEEL FURNITURE. JOHN M. CORNELL, New York, N. Y. Filed May 18, 1901. Serial No. 60,881. (No model.)



Claim.—1. The combination, substantially as hereinbefore specified, of a metallic sliding drawer having sides projected below its bottom in the form of flanges and provided with tappets at mid-length carried by said flanges, a pair of angle-bar slides, L-shaped in cross-section, having the lower lateral angles of the drawer nested therein, and provided with tappets at their outer ends, in the paths of said tappets on the drawer, to cause the slides to move outward with the drawer and support the fully-opened drawer from beneath, and a casing for the drawer provided with supports beneath said slides, and with guides embracing the upper edges of said slides and stops to limit their outward movement.

2. The combination, substantially as hereinbefore specified, of a metallic sliding drawer having sides projected below its bottom in the form of flanges and provided with elastic tappets at mid-length carried by said flanges, a pair of angle-bar slides, L-shaped in cross-section, having the lower lateral angles of the drawer nested therein, and provided with tappets at their outer ends, in the paths of said tappets on the drawer, to cause the slides to move outward with the drawer and support the fully-opened drawer from beneath, and a casing for the drawer provided with supports beneath said slides, and with guides embracing the upper edges of said slides and stops to limit their outward movement.

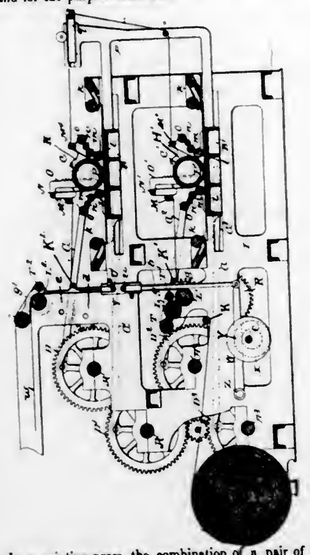
3. The combination, substantially as hereinbefore specified, of a sliding drawer provided with tappets at mid-length beneath its bottom near its respective lateral edges, a pair of angle-bar slides, L-shaped in cross-section, having the lower lateral angles of the drawer nested therein, and provided with tappets at their outer ends, in the paths of said tappets on the drawer, to cause the slides to move outward with the drawer and support the fully-opened drawer beneath, and with tappets at their inner ends to coact with the inner end of the drawer when the latter is pushed inward, and a casing for the drawer having longitudinal supports beneath said slides, full-length way-bars above the same, inner guide-plates clearing the tappets last named and outer guide-plates forming stops in the paths of said last-named tappets.

4. The combination of a metallic sliding drawer having laterally-projecting wired upper edges, and provided with tappets at mid-length beneath its bottom near its respective lateral edges, a pair of angle-bar slides, L-shaped in cross-section, having the lower lateral angles of the drawer nested therein, and provided with tappets at their outer ends, in the paths of said tappets on the drawer, to cause the slides to move outward with the drawer and support the fully-opened drawer beneath, and with tappets at their inner ends to coact with the inner end of the drawer when the latter is pushed inward, and a casing for the drawer having longitudinal supports beneath said slides, and guides embracing the upper edges of said slides, said guides being fixedly attached to the casing beneath said laterally-projecting wired edges of the drawer, substantially as hereinbefore specified.

680,128. PRINTING-PRESS. JOSEPH L. COX, Battlecreek, Mich., assignor to Duplex Printing Press Company, same place. Filed Aug. 10, 1896. Serial No. 558,916. (No model.)

Claim.—1. In a printing-press the combination of a reciprocating bed, an oppositely-reciprocating cylinder, web-feeding mechanism, and a web-guide roller moving with the bed, and a web-compensating roller moving with the cylinder, substantially as described.

2. The combination of a pair of reciprocating beds, a pair of oppositely-reciprocating cylinders coacting with said beds, a web-feeding mechanism, and web-reversing guide-rollers between and movable with the beds, and web-compensating rollers moving with the cylinders, substantially as and for the purpose described.



3. In a printing-press, the combination of a pair of reciprocating beds, and cylinders coöperating with said beds; and web feeding and delivery mechanism; with a web-compensating device between the feed and first printing mechanism; a second web-compensating device between the printing mechanisms; and a third web-compensating device between the second printing mechanism, and the delivery, and a compensating roller beside and moving with each cylinder, substantially as set forth.

4. In a printing-press the combination of a pair of reciprocating beds, and a pair of reciprocating cylinders coöperating with said beds, a web-compensating device beside and moving with each cylinder; and web feeding and delivery mechanism, with a looping-roller intermediate the feed and first moving compensating device; and a web-looping roller intermediate the second moving compensating device and delivery, substantially as described.

5. In a printing-press the combination of a pair of reciprocating beds, and a pair of reciprocating cylinders coöperating with said beds, a web-compensating device beside and moving with each cylinder; and web feeding and delivery mechanism, with a looping-roller intermediate the feed and first moving compensating device; and a web-looping roller intermediate the second moving compensating device and delivery, and web-reversing rollers between and moving with the beds, all substantially as and for the purpose set forth.

6. The combination of a locomotive-cylinder with an oppositely-moving bed, and a web-looping roller beside and moving with the cylinder, and means for moving said roller independently of, but during its travel with the cylinder, substantially as described.

7. The combination of a locomotive-cylinder with a web-looping roller beside and moving with the cylinder, and means for moving said roller independently of, but during, its travel with the cylinder, with a bed moving oppositely to the cylinder, and means for feeding a web around said looping-roller and between the bed and cylinder, substantially as and for the purpose described.

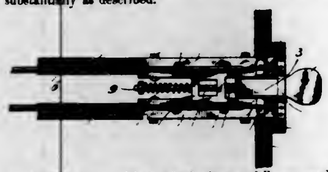
8. The combination of oppositely-reciprocating beds and cylinders, web feeding and delivery mechanism, a pair of connected looping-rollers between the feed and delivery, and the printing mechanisms, and cams and levers for operating said looping-rollers; with web-reversing rollers intermediate and moving with said beds; and web-compensating rollers beside and traveling with each cylinder, and operated therefrom, substantially as and for the purpose set forth.

680,129. WITHDRAWN.

680,130. DRAFT-GEAR FOR FREIGHT-CARS. JOHN J. CREED, McDonoghville, La., assignor of two-thirds to Charles M. Babcock and William A. Bell, same place. Filed Mar. 2, 1901. Serial No. 49,623. (No model.)

Claim.—1. A draft-rigging for cars comprising a draft-plate or fol-

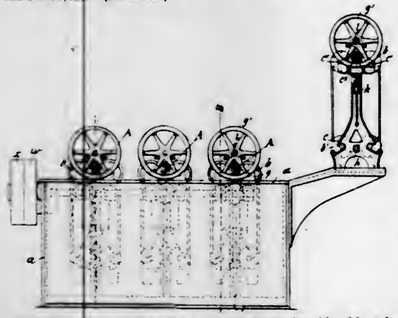
lower formed with a central bearing-box, vertically-extending attaching-flanges secured thereto projecting beyond the said bearing-box in each direction for bracing it each way and extending between the draft-sills of the car, laterally-extending horizontal flanges extending along the under sides of the said draft-sills on each side of the bearing-box and forwardly under the end sill, and means for holding the coupler of the car in position with respect to the said bearing-box, the structure being such that the draft or follower plate may be secured to the draft-sills by vertical or horizontal bolts passing either through the vertical or horizontal attaching-flanges or through both and will be equally braced against strains in either direction, substantially as described.



2. A draft-rigging comprising a draft-plate or follower made up of a central bearing-box having a bearing formed therein for receiving the tail-bolt of the coupler, elongated laterally-projecting horizontal attaching-flanges secured to the bearing-box extending each way therefrom and adapted to fit upon the under surface of the draft-sills of a car or other vehicle and extend forwardly under the end sill thereof, elongated vertically-extending attaching-flanges extending each way from the bearing-box and adapted to fit upon the inner faces of opposing draft-sills, springs interposed between the said bearing-box and the coupler mechanism for pulling on said bearing-box in either direction, and bolts for securing the flanges to the said sills, the structure being such that if the draft-plate should become broken while the car or other vehicle is in use a new one can be put in position and the bolts for attaching the same may be placed through the vertical flanges for securing them to the draft-sills without removing the car-body from the said sills, substantially as described.

3. A draft-rigging for cars or similar vehicles comprising a draft or follower plate formed with a central body portion having a bearing therein to receive the tail-bolt of a coupler, laterally-extending horizontal attaching-flanges upon each side of the body portion and vertically-extending attaching-flanges adapted to fit against the lower and inner faces of the draft-sills respectively of the vehicle, the horizontal flanges extending forward beneath the buffer-blocks to its outer edge while the vertical flanges are cut away so as to be shouldered against the end sill of a car, a coupler carried by the follower-plate, having its tail-bolt extending through the bearings therein, springs interposed between the coupler and the bearing-box on one side thereof and between the tail-bolt end nut and the bearing-box on the other side and means for connecting the couplers at each end of the car with each other, substantially as described.

680,131. **MERCERIZING APPARATUS.** WILLIAM H. CROMPTON and WILLIAM HORROCKS, Radcliffe, England. Filed Mar. 27, 1901. Serial No. 53,140. (No model.)

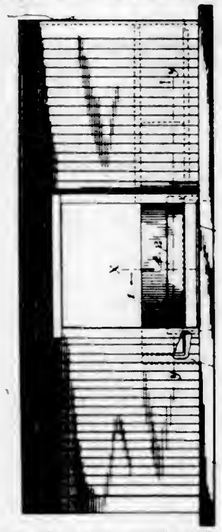


Claim.—1. In a machine for mercerizing, scouring, bleaching, dyeing, washing, sizing and like treatment yarn in hank form, consisting of a tank *a* furnished on the top with bearings *q* and containing one or more removable frames A each carrying pairs of hank-reels *b*, *b'*, and having a loose connection with the shafts of said reels to allow the frame to fall in relation to the said upper reels the shaft ends of the upper reels being received by the said bearings while the lower reels *b'* and the frame A are carried by the hanks and the latter thereby subjected to the whole weight of the frame A, all substantially as set forth.

2. In combination, the upper and lower reels, the frame carrying the lower reel and having a loose bearing connection with the upper-reel shaft to permit said frame to be raised and lowered in relation to said upper reel, means for adjusting the said loose bearing vertically in relation to the said frame and a tank having fixed bearings thereon for the reel-shaft substantially as described

3. The upper reels *b*, *b* in combination with vertically-adjustable bearings *c'*, *c'* on the reel-frame A, the said reels being formed with eccentric shaft ends *n* adapted to rotate in the said bearings and stretch the hanks intermittently, all substantially as set forth.

680,132. **GRAIN-CAR DOOR.** WILLIAM H. DANIELS, Duluth, Minn. Filed Feb. 20, 1901. Serial No. 48,180. (No model.)



Claim.—1. A grain-car door, comprising in its construction a main body portion movable longitudinally and provided with a groove formed within its cross-sectional area, said groove being arranged with beveled end portions, a supplemental section adapted to fit within said groove and to move vertically therein, whereby when the said supplemental section is entirely within the groove the outer contour of the said door will be of the same size from end to end and the door can be easily moved back and forth in its guides, and guiding means for receiving the said main body portion and holding it at a proper distance above the car-floor, which distance will be less than the supplemental section, whereby said section will be held against lateral pressure when in its lowered position, substantially as described.

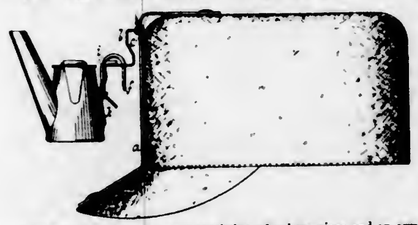
2. A grain-car door, comprising in its construction a horizontally-movable section, a vertically-movable section carried by said horizontally-movable section, said vertically-movable section being of a length greater than the width of the doorway whereby said last-mentioned section is adapted to be supported by the doorway-uprights against lateral pressure, and a casing adapted to inclose said sections when opened to their fullest extent, said horizontally-movable section being adapted to be moved longitudinally into said casing, whereby the possibility of grain clogging the parts is obviated, substantially as described.

3. A car-door, comprising in its construction a main section, a supplemental section movable vertically within the same, a hinged sill, pivoted to the car-floor and adapted to bear against said supplemental section and be supported in a vertical position thereby when said supplemental section is in its lowered position, and means for locking said supplemental section in said lowered position, substantially as described.

4. A grain-car door, comprising in its construction a main section, a supplemental section carried by said main section, a casing adapted to inclose said main and supplemental sections when said supplemental section is at the highest point of its vertical movement and said main section has been slid longitudinally to the farthest point of its longitudinal movement, and means for supporting the outer end of said main section when in a closed position, substantially as described.

5. A grain-car door, comprising in its construction a main section, a supplemental section movable vertically within the same, a pivoted sill hinged to the floor of the car, said sill being beveled at its longitudinal corners and adapted to bear against said supplemental section and be supported in a vertical position thereby when said supplemental section is in its lowered position, whereby said sill is adapted to assume a horizontal position upon the supplemental section being raised, thereby permitting the ready and unretarded flow of grain from the car, substantially as described.

680,133. **MINER'S-LAMP SUPPORT.** SAMUEL DAVIS, New York, N. Y. Filed Oct. 13, 1900. Serial No. 32,994. (No model.)



Claim.—1. A lamp-support consisting of a base-piece and an arm made to swivel or pivot on the base and extended downward from such pivot to support a lamp with its center of gravity below the pivot substantially as described.

2. A lamp-support consisting of a base-piece and a swiveling arm on the base, said arm extended downward and having an eye and slot for engaging and steadying a lamp-hook substantially as described.

3. A lamp-support consisting of a base, and a pivoted arm having an opening *d* and a slot below the pivotal point of the arm, and a flange for steadying the lamp arranged at each side of the slot.

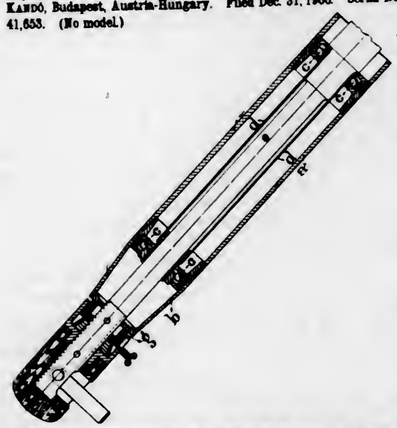
4. A lamp-support consisting of a base, an arm and a pivot for the arm, said pivot having a convex or non-binding washer made to bear against the base substantially as described.

5. A lamp-support comprising a base, a downwardly-extending arm pivotally connected thereto and provided with a slot and opening for supporting the lamp, and a lock connected to the base and adapted to engage said arm.

6. A lamp-support comprising a base, a downwardly-extending arm pivotally connected thereto and provided with an opening and a slot for supporting the lamp, flanges at the sides of the slot below the pivotal point thereof adapted for steadying the lamp, and a lock connected to the base and adapted to engage the arm.

7. A lamp-support comprising a base, a downwardly-extending arm pivotally connected thereto and provided with an opening and a slot for supporting the lamp, padded flanges at the sides of the slot for noiselessly steadying the lamp and a buffer carried by the said arm.

680,134. **ELECTRICAL CONTACT APPARATUS.** KOLOMAN DE KANDÓ, Budapest, Austria-Hungary. Filed Dec. 31, 1900. Serial No. 41,653. (No model.)

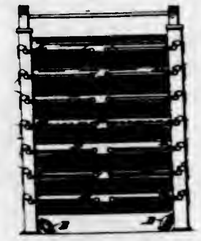


Claim.—1. In combination, the roller contact part, an insulating-rod within the said roller contact part, the ball-bearings between the roller contact part and the insulating-rod and the sliding contact part bearing against the rolling contact part, substantially as described.

2. In combination, the rolling contact part *b*, the insulating-rod *e* within the same, the tube *d* carried by the rod within the rolling contact part, the ball-bearings between the rolling contact part and the tube *d*, a contact bearing against the end of the rolling contact and a spring for pressing the said contacts, substantially as described.

3. In combination, the roller contact part, an insulating-rod within the said roller contact part, the ball-bearings between the roller contact part and the insulating-rod and the annular sliding contact *g* fixed concentrically to the insulating-rod and pressed by a spring in axial direction against the side faces of the rolling contact part, substantially as described.

680,135. **MEANS FOR COOLING CALENDER-ROLLS.** GEORGE F. DREW, Brunswick, and CHARLES DICKINSON, Lisbon Falls, Me. Filed Nov. 30, 1900. Serial No. 38,214. (No model.)



Claim.—1. The combination of a stack of calender-rolls, the hollow stand or housing, means whereby air may be supplied to said hollow stand, and a discharge device leading from said stand to discharge to the rolls substantially as described.

2. The combination of the calender-rolls, a hollow stand therefor having bearings for the rolls, means whereby air may be supplied to the stand, and a discharge-pipe leading from said stand to discharge to the rolls substantially as set forth.

3. In calender-rolls substantially as described the combination of a hollow stand or housing to receive the cool air having bearings for the rolls, and discharge-pipes leading from such stand to discharge to the rolls whereby the stand may form a conduit for the cooling-air and the latter may operate in passing to cool the bearings for the rolls substantially as set forth.

4. A stand for calender-rolls made hollow for the passage of air and having openings for the connection therewith of discharge-pipes and provided with dampers for closing said openings when the discharge-pipes are disconnected substantially as set forth.

5. The combination of calender-rolls, stands or housings therefor made hollow for the passage of air, and discharge-pipes connected with said stands and extending horizontally thence to discharge to the rolls substantially as set forth.

6. The apparatus herein described comprising rolls, a hollow stand having bearings therefor, means by which air may be supplied to such stands, and discharge-pipes connected with the stands and leading horizontally thence to discharge to the rolls, substantially as set forth.

7. The apparatus herein described comprising rolls, hollow stands provided with bearings therefor, means by which air may be supplied to such stands, the latter having openings for the connection of the discharge-pipes, discharge-pipes leading from said openings horizontally to discharge to the rolls, and dampers for closing the openings when the discharge-pipes are removed substantially as set forth.

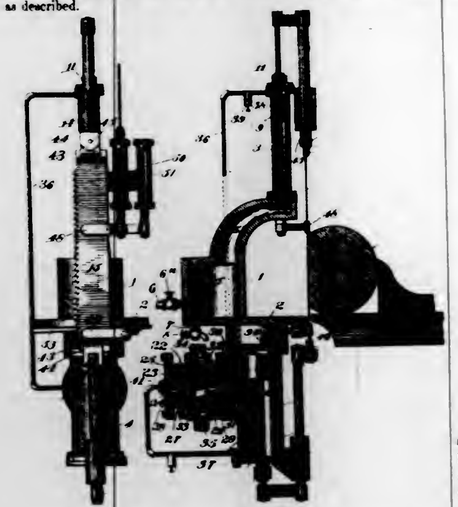
680,136. **APPARATUS OR ENGINE FOR RECIPROCATING SAWS, &c.** JOSHUA EVERED, Duluth, Minn. Filed Jan. 15, 1901. Serial No. 43,406. (No model.)

Claim.—1. A reciprocating mechanism for saws or other tools comprising two cylinders, one of which is of larger diameter than the other, a saw or other tool for connecting the pistons in the two cylinders, means for applying pressure to the smaller cylinder for exerting constant pressure thereon, and keeping the tool taut, means for applying intermittent pressure to the larger cylinder for giving the reciprocating movement to the tool and means for controlling said latter means by pressure from the cylinders, substantially as described.

2. A reciprocating mechanism comprising a frame in which two or more pistons are arranged, slide-rods connected with the said pistons, a saw or other operating implement connecting the slide-rods, means for regulating the admission of power to one of the pistons, and means connected with each of the said cylinders for controlling automatically by pressure the power-admitting mechanism, substantially as described.

3. A reciprocating mechanism for saws comprising a frame having two or more cylinders formed therein, pistons moving in said cylinders, a saw connecting the pistons, means for admitting a constant pressure to

the cylinder of one piston, for normally pulling the saw in one direction, means for admitting an intermittent heavier pressure to the cylinder of another piston for producing the desired reciprocating movement and a pressure-operated valve controlling the admission of an intermittent pressure in correspondence with the movement of the pistons, substantially as described.



4. A reciprocating mechanism for saws or other implements, comprising a frame, cylinders mounted thereon, pistons of different diameters moving in the said cylinders, means for maintaining a constant pressure upon one of the pistons, means for admitting an intermittent pressure to another piston, a saw or other implement connecting the two pistons, and a valve operated by air-pressure from the cylinders for controlling the intermittent admission of power to one of the pistons, the structure being such that the saw or other implement will be always maintained in a taut condition and will be reciprocated as required, substantially as described.

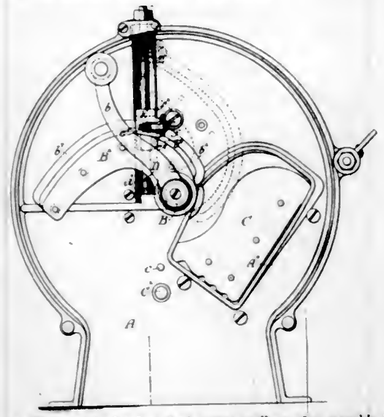
5. A reciprocating mechanism for saws or other implements, comprising a frame formed with a pressure-chamber, a cylinder connected with the said pressure-chamber, a comparatively small piston moving in said cylinder, a large cylinder secured to the base of the frame and having a comparatively large piston moving therein, a saw interposed between and connecting the said pistons, inlet-ports being provided in the said frame for admitting pressure to the large cylinder, a valve for controlling the inlet of the said pressure, and means connected with both the cylinders whereby the movement of the pistons will generate pressure to automatically operate the said valve, substantially as described.

6. An engine for reciprocating saws or like implements, comprising a frame, cylinders of different diameters mounted thereon, pistons of different diameters moving in said cylinders, guide-rods connected to the piston-rods of the said pistons, a saw or like implement interposed between the guide-rods for connecting the pistons and receiving power therefrom, means for exerting a constant pressure upon the inner end of one of the pistons, the larger cylinder in the engine being provided with inlet and exhaust ports for accommodating an intermittent pressure for operating the piston in said large cylinder, a valve for controlling these ports, and piping leading from each end of the valve to the ends of the cylinders, whereby compressed air may be employed for operating the valve in conjunction with the movement of the piston, substantially as described.

7. A reciprocating mechanism for saws comprising a frame having a large and a small cylinder formed therein, and a large and a small piston working in said cylinders, means for forcing the pistons away from each other by steam or other pressure, guide-rods connected with each of the pistons and arranged to one side of the cylinders so as to work in lines parallel to the pistons, saw-grasping blocks carried by the said guide-rods, a saw connecting the said blocks, and means for controlling the pressure exerted upon the larger piston for reciprocating the saw, the structure being such that all of the operating parts will be well out of the way of the material being operated upon by the saw, substantially as described.

680,137. SHARPENING DEVICE FOR FOOD SLICERS OR CUTTERS. Joseph Fellows, Philadelphia, Pa. Filed Dec. 8, 1899. Serial No. 739,698. (No model.)

Claim.—1. The combination in a food cutter or slicer, of a movable knife structure with a sharpening device for acting upon the blade of said knife, and a guide for said sharpening device so disposed that the latter will be caused to move on said guide by reason of its contact with the moving knife structure, substantially as described.



2. The combination in a food cutter or slicer, of a movable knife structure, a sharpening device consisting of a sharpener for acting on the blade of the knife, a carrier for said sharpener, a guide for said sharpener so disposed that the latter will be moved on said guide by contact with the knife structure, and means for mounting the sharpener on said carrier so that it can have transverse movement independently thereof, substantially as described.

3. The combination of a frame, a shaft, means for rotating the shaft, a blade-carrier on said shaft, a blade thereon, a fixed rod, a slide mounted on the fixed rod, and a sharpening device carried thereby, the said slide being raised by the knife structure as it is rotated, causing the sharpener to pass over the blade, substantially as described.

4. The combination of a frame, a shaft mounted thereon, a curved blade-carrier mounted on the shaft, a curved blade carried thereby, a rod on the frame, a slide mounted on the rod, and adapted to be engaged by the curved surface of the knife structure, and a sharpener adapted to the said slide and bearing against the blade, substantially as described.

5. The combination of a frame, a shaft, means for rotating the shaft, a blade-carrier on said shaft, a blade thereon, a fixed rod, a slide mounted on said fixed rod, a sharpener carried thereby, a roughened steel piece on the sharpener set at the same angle as the taper of the knife-blade, and means for forcing the sharpener against the blade, the said slide being raised by the knife structure as it is rotated causing the sharpener to pass over the blade, substantially as described.

6. The combination of a frame, a shaft mounted thereon, a curved blade-carrier mounted on the shaft, a curved blade carried thereby, a rod on the frame, a slide mounted on the rod having a portion resting on the blade-carrier, said slide being recessed for the reception of the blade, a sharpener mounted on the slide, and means for causing the sharpener to bear against the beveled edge of the knife-blade, substantially as described.

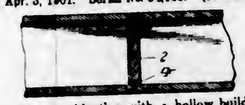
7. The combination of a frame, a shaft, means for rotating the shaft, a blade-carrier on the said shaft, a blade thereon, a fixed rod on the frame, a slot in the frame back of the rod, a slide mounted on the fixed rod and having a projection entering the slot, and a sharpening device carried by the slide, said slide being actuated by the knife structure as it is rotated causing the sharpener to pass over the blade, substantially as described.

8. The combination of the frame, a shaft, means for rotating the shaft, a knife structure mounted on the shaft consisting of a carrier and a blade, a vertically-arranged rod fixed to the frame, a slide on said rod recessed to receive the blade of the knife structure, a sharpening device mounted on the slide, and means for causing the sharpener to bear against the beveled edge of the blade, substantially as described.

9. The combination of the frame, a shaft, means for rotating the shaft, a knife structure mounted on the shaft consisting of a carrier and a blade, a vertically-arranged rod fixed to the frame, a slide on said rod recessed to receive the blade of the knife structure, a sharpening device mounted on the slide, means for causing the sharpener to bear against the beveled edge of the blade, and means for retaining the slide in the elevated position clear of the knife-blade, substantially as described.

10. The combination of the frame, a shaft, means for rotating the shaft, a knife structure mounted on the shaft consisting of a carrier and a blade, a vertically-arranged rod fixed to the frame, a slide on said rod recessed to receive the blade of the knife structure, a sharpening device mounted on the slide, means for causing the sharpener to bear against the beveled edge of the blade, and a guide for said slide having a projection at the rear passing through a slot in the casing, and a latch engaging the projection to hold the slide clear of the knife structure, substantially as described.

680,138. BUILDING-BLOCK. Augustus M. Fenner, Linesville, Pa. Filed Apr. 3, 1901. Serial No. 54,162. (No model.)



Claim.—1. The combination with a hollow building-block, of an interior joint-block adapted to span the joint at the end of the building-block and uniformly of a less width than the internal width of the building-block to leave an intervening mortar-space surrounding the entire periphery of the joint-block and extending the full width of the latter.

2. The combination with hollow building-blocks, of a joint-block arranged wholly therein and spanning the joint between their contiguous ends, said joint-block having centering means upon the periphery thereof, and also being of a less width than the internal width of the building-blocks to leave an intervening mortar-space entirely surrounding the periphery of the joint-block and extending the full width of the latter.

680,139. LADLE-CAR. George M. Ferry and David Laing, Duquesne, Pa. Filed Nov. 28, 1900. Serial No. 37,833. (No model.)



Claim.—1. The combination with a truck, of a ladle pivotally mounted therein, said ladle having oppositely-located openings, a lid for these openings, and means for simultaneously removing the lid from both openings.

2. A ladle having oppositely-located openings, a lid or cover for said openings and means for simultaneously removing the lid from both openings.

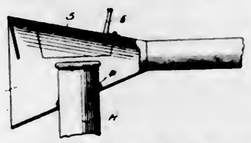
3. A ladle having a top with oppositely-located openings, lid for the openings, refractory lining for the top and lid and means for simultaneously removing the lid from both openings.

4. A ladle having a top with oppositely-located openings, lid for the openings, means for simultaneously removing the lid from both openings, and bearings located opposite each other and adjacent to the solid portion of the top.

5. The combination with a truck, a ladle pivoted thereon and means for swinging it in either direction to pour the metal contained therein, of a lid or cover composed of two plates, one stationary and having openings in its opposite sides and the other pivoted at its center to the center of the stationary plate and capable of swinging on its pivot whereby to simultaneously cover the openings in the stationary plate.

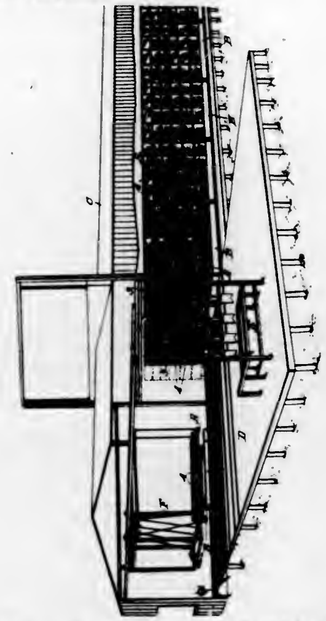
6. A ladle having a lid or cover thereon composed of a stationary plate having an opening therein, and a movable plate for covering or uncovering said opening, said movable plate provided with a socket, wherein to receive a bar for moving the plate and a catch adapted to engage the socket whereby to lock the movable plate.

680,140. SPARK-ARRESTER. Halleck Floyd, Dublin, Ind. Filed Apr. 4, 1901. Serial No. 54,321. (No model.)



Claim.—The herein-described funnel-shaped spark and smoke conveyer, having a lower opening and an upper opening arranged above the same, the said upper opening being provided with a hinged door, and means connected therewith for opening and closing the same, an inwardly-inclined apron secured to the upper surrounding edge portion of the funnel and also to the body portion thereof, the lower opening provided with a band surrounding its edge portion, whereby the smoke-stack of the engine is mounted therein to have direct communication with the said upper opening, the said edge band serving to prevent cinders from passing through the opening, substantially as shown and described.

680,141. METHOD OF DRYING SHINGLES. William F. Gibbard and Hans Anderson, Eureka, Cal. Filed Feb. 1, 1901. Serial No. 45,641. (No specimens.)



Claim.—1. The method of drying shingles which have been previously bunched, consisting in unbinding the bunches, applying pressure to the ends of said unbound bunches, to prevent the shingles from warping and to separate their inner ends from one another, and exposing them while in this condition to a drying agent, substantially as described.

2. The method of drying shingles, consisting in assembling green shingles in bunches, with the inner ends of the shingles overlapped, temporarily binding the same, disposing said bunches in superincumbent layers, thereby subjecting the ends of said bunches to pressure, unbinding the bunches thereby causing the inner ends of the shingles to separate, and exposing them while in this condition to a drying agent, substantially as described.

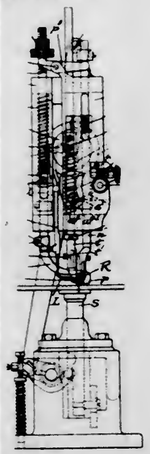
3. The method of drying shingles and preparing them for handling consisting in assembling green shingles in bunches with the inner ends of the shingles overlapped, temporarily binding the same, disposing said temporarily-bound bunches in superincumbent layers, thereby subjecting the ends of said bunches to pressure, unbinding the bunches, thereby causing the inner ends of the shingles to separate, exposing them while in this condition to a drying agent, and subsequently rebinding the bunches, substantially as described.

680,142. SEWING AND INDENTING MACHINE. Howard W. Gould, Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Filed Sept. 1, 1900. Serial No. 28,814. (No model.)

Claim.—1. A sewing-machine, having, in combination, stitch-forming mechanism, comprising a work-piercing implement, an independently-supported work-indenting tool having its work-engaging end located in the plane of the work-piercing implement and transversely to the line of the seam, acting to indent the work while the work-piercing implement is in the work, and means for actuating the parts, substantially as described.

2. A sewing-machine, having, in combination, stitch-forming mechanism comprising a work-feeding tool, an independently-supported work-indenting tool having its work-engaging end located in the plane of the

feeding-tool and transversely to the line of the seam, acting to indent the work while the work-feeding tool is in the work, and means for actuating the parts, substantially as described.



3. A sewing-machine, having, in combination, stitch-forming mechanism comprising a needle, an independently-supported work-indenting tool having its work-engaging end located in the plane of the needle and transversely to the line of the seam, acting to indent the work while the needle is in the work, and means for actuating the parts, substantially as described.

4. A sewing-machine, having, in combination, stitch-forming mechanism comprising a work-piercing implement, an independently-supported work-indenting tool movable with the work-piercing implement having its work-engaging end located in the plane of the work-piercing implement and transversely to the line of the seam, acting to indent the work while the work-piercing implement is in the work, and means for actuating the parts, substantially as described.

5. A sewing-machine, having, in combination, stitch-forming mechanism comprising a work-feeding implement, an independently-supported work-indenting tool movable with the work-feeding implement having its work-engaging end located in the plane of the feeding implement and transversely to the line of the seam, acting to indent the work while the work-feeding implement is in the work, and means for actuating the parts, substantially as described.

6. A sewing-machine, having, in combination, stitch-forming mechanism comprising a needle acting to feed the work, an independently-supported work-indenting tool movable with the needle having its work-engaging end located in the plane of the needle and transversely to the line of the seam, acting to indent the work while the needle is in the work, and means for actuating the parts, substantially as described.

7. A sewing-machine, having, in combination, stitch-forming mechanism comprising a needle, an independently-supported work-indenting tool embracing the needle and acting to indent the work transversely to the line of the seam, and means for actuating the parts in timed relation to each other so that the indenting-tool engages the work after the needle has entered the work and before the needle has completed its downward movement, substantially as described.

8. A sewing-machine, having, in combination, stitch-forming mechanism, comprising a needle, an independently-supported work-indenting tool embracing the needle acting to indent the work transversely to the line of the seam, a thread-finger acting to engage and measure off thread for the next stitch and means for actuating the parts, substantially as described.

9. A sewing-machine, having, in combination, stitch-forming mechanism comprising a needle, an independently-supported work-indenting tool embracing the needle acting to indent the work transversely to the line of the seam, a thread-finger acting to engage the thread and to move rearwardly to measure off thread for the next stitch and means for actuating the parts, substantially as described.

10. A sewing-machine, having, in combination, stitch-forming mechanism comprising a needle, an independently-supported work-indenting tool embracing the needle acting to indent the work transversely to the line of the seam, a thread-finger acting to engage and measure off thread for the next stitch, and means for actuating the parts in timed relation to each other so that the indenting-tool engages the work after the needle has entered the work and before the needle has completed its downward movement, substantially as described.

11. A sewing-machine, having, in combination, stitch-forming mechanism comprising a needle, an independently-supported work-indenting tool embracing the needle acting to indent the work transversely to the line of the seam, a thread-finger acting to engage the thread and to move rearwardly to measure off thread for the next stitch, and means for actuating the parts in timed relation to each other so that the indenting-tool engages the work after the needle has entered the work and before the needle has completed its downward movement, substantially as described.

12. A sewing-machine, having, in combination, stitch-forming mechanism, comprising a needle, a needle-bar, a work-indenting tool, a tool-bar, a spring normally acting to lift the tool-bar, connections between the needle-bar and tool-bar acting to depress the tool-bar with the downward stroke of the needle-bar, and means for actuating the parts, substantially as described.

13. A sewing-machine, having, in combination, stitch-forming mechanism, comprising a needle, a needle-bar, a work-indenting tool, having its work-engaging end located in the plane of the needle and transversely to the line of the seam, a tool-bar, a movable support for the bars, means for moving the support while the needle and work-indenting tools are in engagement with the work to feed the work, and means for actuating the parts, substantially as described.

680,143. DETACHABLE HANDLE FOR SAD-IRONS. PETER C. GREENAWALT, Reading, Pa., assignor of one-half to Wrightsville Hardware Company, Wrightsville, Pa. Filed Feb. 28, 1901. Serial No. 49,262. (No model.)



Claim.—1. In a sad-iron, the combination of a body portion provided with a central socket having overhanging flanges, a detachable handle having a plate attached to its lower ends, the said plate being constructed with a downwardly, transversely arranged and an inverted-T-headed coupling-lug and with a vertical, elongated opening for the passage of a spring-actuated latch or bar having a knob located about midway of its length for lifting the same so as to be readily grasped between the fingers without removing the hand from the handle of the iron, a flat spring for actuating the latch or bar extending the entire length of the same, and secured about midway of its length to the top of the latch by the lifting-knob, the outer ends of the spring being secured between the lower ends of the handhold and the handle-plate, the construction and arrangement being such, that when the handle is properly placed on the body of the iron proper, at right angles thereto, the inverted-T-headed coupling-lug will enter the passage, and when the handle is turned parallel with the longitudinal axis of the body of the iron proper the inverted-T head will pass beneath the overhanging flanges of the body portion proper and the spring-actuated latch will automatically descend and prevent the handle from being turned, substantially as described.

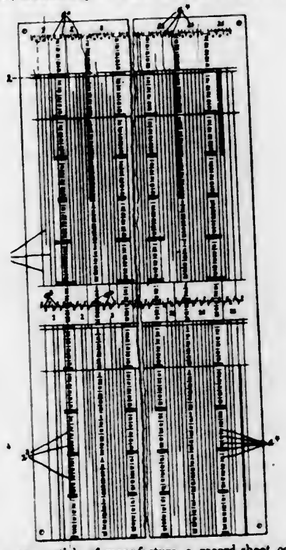
2. In a sad-iron the combination of a body portion provided with a central chamber, and a removable cover forming overhanging flanges, said cover being provided with an elongated slot having an enlarged central portion, and a centering-pin arranged within the enlarged portion of said slot of the removable cover and projecting vertically from the interior of the iron proper, a detachable handle having a plate attached to its lower ends, said plate being connected with a downwardly-extending transversely-arranged and inverted-T-headed coupling-lug, an automatically-operating engaging latch operating in a slot in the base of the handle and provided with a knob for lifting the same, an with engaging lugs, and a flat spring resting upon the top of the latch and connected therewith between its ends by means of the lifting-knob, the outer ends of said spring being secured to the handle, substantially as described.

680,144. COMPOUND FOR RENOVATING FABRICS. JOHN HAMNER, Tacoma, Wash. Filed Apr. 4, 1901. Serial No. 54,344. (No specimens.)

Claim.—The compound, for the purpose described, resulting from the mixture of oxalic acid and borax in substantially the proportions stated.

680,145. RECORD-SHEET. WILLIAM D. HAWLEY, Syracuse, N. Y. Filed June 6, 1900. Serial No. 19,244. (No model.)

Claim.—1. As a new article of manufacture, a record-sheet provided with a coating formed of ink, said coating being non-removable by handling and being removable by a stylus from the underlying surface of the record-sheet, substantially as and for the purpose described.



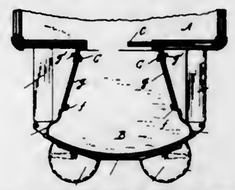
2. As a new article of manufacture, a record-sheet consisting of a strip of paper provided with a glazed surface, and a coating on the glazed surface, said coating being non-removable by handling and being removable by a stylus from the underlying glazed surface to display said surface, substantially as and for the purpose set forth.

3. As a new article of manufacture, a record-sheet provided with a coating, said coating being non-removable by handling and being removable by a stylus from the underlying surface of the record-sheet, said record-sheet being provided with graduations corresponding to intervals of time and formed by openings in the coating and the portions of the underlying surface exposed through the openings, substantially as and for the purpose specified.

4. As a new article of manufacture, a record-sheet provided with a coating, said coating being non-removable by handling and being removable by a stylus from the underlying surface of the record-sheet, said record-sheet being provided with indicating characters corresponding to intervals of time and formed by openings in the coating and the portions of the underlying surface exposed through the openings, substantially as and for the purpose specified.

5. As a new article of manufacture, a record-sheet consisting of a strip of paper provided with a glazed surface, and a coating formed of ink, said coating being non-removable by handling and being removable by a stylus from the underlying surface of the record-sheet, said record-sheet being provided with graduations and indicating characters, substantially as described, corresponding to intervals of time and formed by openings in the coating and the portions of the underlying surface exposed through the openings, substantially as and for the purpose set forth.

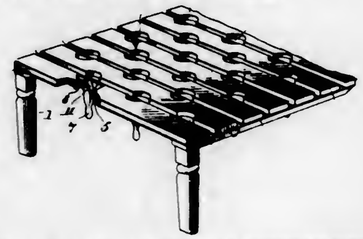
680,146. CAR-VESTIBULE. CORNELIUS C. HODGES and EDWARD G. CRICK, Watertown, Mass. Filed Apr. 27, 1901. Serial No. 57,705. (No model.)



Claim.—1. The combination, with the end platform of a car, and a car-door frame in the middle thereof; of a dashboard provided with rearwardly-projecting hoods for the brake and power handles, double-curved extension-pieces of flexible sheet metal at the sides of the dashboard, door-jambs secured to the car-door frame, door-posts secured to the said extension-pieces, and vestibule-doors hinged to the said jambs and arranged at an acute angle with each other when closed against the said door-posts, substantially as set forth.

2. The combination, with the end platform of a car, and a door-frame in the middle thereof; of a dashboard extending around the rear part of the platform, double-curved extension-pieces of flexible sheet metal at the sides of the said dashboard, and hinged vestibule-doors extending between the sides of the said car-door frame and the said extension-pieces and arranged at an acute angle with each other when closed, substantially as set forth.

680,147. TUFTING-TABLE. ERNEST HOLLATZ, Chicago, Ill. Filed Mar. 2, 1901. Serial No. 49,634. (No model.)



Claim.—1. A tufting-table comprising in its construction supporting means, a series of slats supported thereby and spaced apart, thereby leaving a longitudinal aperture between said slats, and means beneath said apertures for securing the parts of a tufting-button, substantially as described.

2. A tufting-table comprising in its construction supporting means, a plurality of parallel slats supported thereby and spaced apart to form longitudinal apertures therebetween, a strip of material secured beneath each of said slats and partially filling said aperture, and means supported by said lower strip for securing the parts of a tufting-button, substantially as described.

3. A tufting-table comprising in its construction a plurality of slats formed with cut-away portions in their edges intermediate their length adapted to receive the disk portion of a tufting-button, means for supporting said disk within said cut-away portion, and means beneath said cut-away portion for securing the parts of said tufting-button, substantially as described.

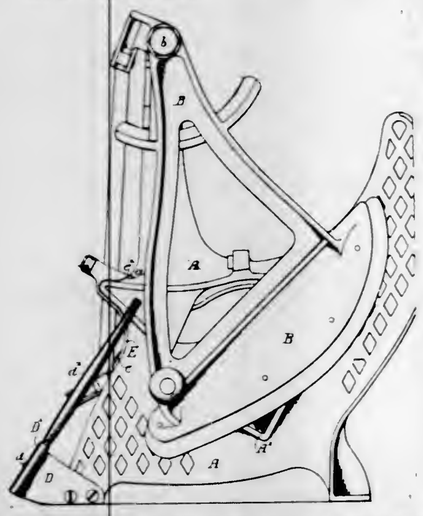
4. A tufting-table comprising in its construction a plurality of slats formed with semicircular cut-away portions in their edges intermediate their length, the cut-away portions of one of said slats being adapted to register with those of the next contiguous, whereby a circular aperture is formed, said slats being spaced apart forming longitudinal apertures, a strip of material secured beneath each of said slats having its edges in the same vertical plane as the edges of its respective slat except at the cut-away portions, whereby said lower strip is adapted to form a bottom for said cut-away portions for supporting the disk of a tufting-button, and means centrally beneath said circular apertures for spreading the prongs of a tufting-button, substantially as described.

5. The combination with a tufting-table provided with apertures for receiving the disk of a tufting-button, of means for spreading the prongs of said button when passed through the central aperture of said disk, comprising a pivoted arm adapted to swing in opposite directions and thereby spread said prongs and secure the parts of said button together, substantially as described.

6. The combination with a tufting-table provided with apertures for receiving the disks of tufting-buttons, means for securing the parts of said buttons together, comprising an arm pivotally secured centrally of each of said apertures and below the same, the upper end of said arm being beveled in two directions from the center, whereby when the prongs of a tufting-button are pressed upon the upper end of said arm they will spread and fit snugly said beveled portions, thereby permitting said prongs to be clamped tightly against said disk, substantially as described.

7. The combination with a tufting-table provided with a plurality of slats spaced apart forming apertures longitudinally thereof, of means for securing the parts of a tufting-button, comprising a pivoted arm beneath said aperture and adapted to swing therein, whereby when the prongs of a tufting-button have been pressed upon said arm they may be clamped firmly against the disk of said button by a swing from the vertical to a horizontal plane and a full swing from the horizontal plane on one side of its pivot to the horizontal plane on the opposite side, substantially as described.

680,148. SHARPENING ATTACHMENT FOR MEAT-CUTTERS. CAREL B. HOPKINS, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Sept. 20, 1899. Serial No. 731,052. (No model.)



Claim.—1. The combination in a shaver or cutter for meat, &c., of a knife having a beveled edge with a sharpening device constructed to be brought into yielding contact with the beveled portion of the knife, and means for normally holding said device on the side of the blade opposite to that having said beveled edge and out of the path thereof, substantially as described.

2. The combination in a shaver or cutter for meat, &c., of a knife having a beveled edge, a pivoted sharpener adapted to rest against said edge, a spring tending to keep the sharpener in contact with the blade when the edge thereof is being sharpened, said spring normally tending to keep the sharpener out of the path of the blade, substantially as described.

3. The combination in a shaver or cutter for meat, &c., of a knife having a beveled edge, a pivoted lever having a sharpener on one arm, a spring bearing against the other arm of the lever, and a pivoted shifter adapted to throw the sharpener into the path of the knife, said spring being arranged to press the sharpener device into yielding contact with the knife when the said device is in gear and to keep the said sharpener out of the path of the knife-frame when the device is out of gear, substantially as described.

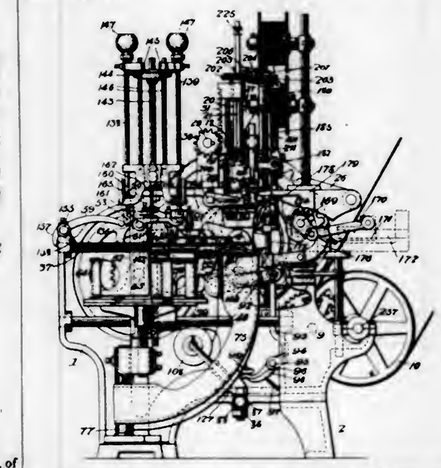
4. The combination of a shaver or cutter for meat, &c., having an oscillating blade, a pivoted lever carrying a sharpener, and a pivoted shifter for said sharpener, said shifter having a stop to limit the movement of the blade, substantially as described.

680,149. MACHINE FOR MAKING BASKETS. ERNST HORTON, Elmira, N. Y., assignor to Horton Basket Machine Company, New York, N. Y. Filed Mar. 18, 1901. Serial No. 51,676. (No model.)

Claim.—1. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and die, means for actuating said mechanism to bend the blanks, means for separating these two members at a time when a partly-completed basket is on the form and subsequently restoring their cooperative relation, whereby material for the formation of the body of another basket may be delivered to the die while separated from the form, and means for completing the partly-made basket on the form while the two members are so separated.

2. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and die, means for actuating said mechanism to bend the blanks, means for separating these two members at a time when a partly-completed basket is on the form and subsequently restoring their cooperative relation, whereby material for the formation of the body of another basket may be delivered to the die while separated from the form, means for completing the partly-made basket on the form while the two members are so separated, and means for applying to and about the form a band for the next basket to be made from the material so delivered to the die.

3. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and die, means for actuating said mechanism to bend the blanks, means for separating these two members at a time when a partly-completed basket is on the form and subsequently restoring their cooperative relation, means for automatically feeding blanks for another basket to the die while so separated from the form, and means for completing the partly-made basket on the form while the form and die are separated.



4. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and die, means for actuating said mechanism to bend the blanks, means for separating these two members at a time when a partly-completed basket is on the form and subsequently restoring their cooperative relation, means for automatically feeding blanks for another basket to the die while so separated from the form, means for completing the partly-made basket on the form while the form and die are separated, and means for applying to and about the form a band for the next basket to be made from the blanks so fed to the die.

5. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and a laterally-reciprocating die, means for actuating said mechanism to bend the blanks, whereby the blanks for a basket may be deposited on the die while reciprocated laterally away from the form, and means for applying a band to and about the form during the lateral excursion of the die.

6. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and a laterally-reciprocatable die, means for actuating said mechanism to bend the blanks, means for reciprocating the die laterally while an unfinished basket is on the form, whereby the blanks for another basket may be deposited on the die while it is removed from the form, and means for finishing the uncompleted basket on the form during the lateral excursion of the die.

7. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and a laterally-reciprocatable die, means for actuating said mechanism to bend the blanks, means for reciprocating the die laterally while an unfinished basket is on the form, whereby the blanks for another basket may be deposited on the die while it is removed from the form, means for finishing the uncompleted basket on the form and means for then applying a band to and about the form, both operating during the lateral excursion of the die.

8. In a machine for making baskets, the combination of blank-bending mechanism comprising a form and die, means for moving the die laterally away from the form and then returning it, means for depositing the blanks crossed at right angles upon or opposite the die while so removed from the form and means for then applying and wrapping a band about the form, means for actuating the forming mechanism to fold the blanks about the form, and means for completing and nailing the basket while upon the form.

9. In a machine for making baskets, the combination of bending mechanism comprising a form and die, means for moving the die laterally away from the form and then returning it, band-feeding mechanism for applying a band to the form while the die is away, means for then wrapping the band about the form and for subsequently further wrapping it to complete the basket, means for depositing the blanks on or opposite the die while away from the form, means for actuating the bending mechanism to fold the blanks upon the form and over the band thereon, and mechanism for nailing the band after it is further wrapped about the form outside the blanks.

10. In a basket-making machine, the combination of an axially-movable intermittently-rotative form, a rotative laterally-movable die, and their actuating mechanism, whereby the die is moved laterally away from the form, the form at the same time rotated, the die returned opposite the form, the form moved into the die and then rotated with the die.

11. In a basket-making machine, the combination of an axially-movable intermittently-rotative form, a rotative laterally-movable die, and their actuating mechanism, whereby the die is moved laterally away from the form, the form at the same time rotated, the die returned opposite the form, the form moved into the die and then rotated with the die, the die again moved away from the form, the form further rotated, and finally the form again raised.

12. In a basket-making machine, the combination of an axially-movable intermittently-rotative form, a rotative laterally-movable die having a movable or yielding side, and their actuating mechanism, whereby the die is moved laterally away from the form, the form at the same time rotated, the die returned opposite the form, the form moved into the die and then rotated with the die, the die again moved away from the form, the form further rotated and finally the form again raised.

13. In a basket-making machine the combination of an axially-movable intermittently-rotative form, a rotative and laterally-movable die and a band-applying mechanism, and their actuating mechanisms whereby the die is moved laterally away from the form to then receive the blanks, the band automatically applied to the form and the form rotated to wrap the band about it, the die returned opposite the form, the form moved into the die to bend the blanks about it and upon the band thereon, and the form then further rotated to wrap the band about the outer edges of the blanks.

14. In a basket-making machine the combination of an axially-movable intermittently-rotative form, a rotative and laterally-movable die, a band-applying mechanism and a band-nailing mechanism, and their actuating mechanism whereby the die is moved laterally away from the form to receive the blanks, a band applied to the form and the form rotated to wrap the band about it, the die returned opposite the form, the form moved into the die to fold the blanks about it and upon the band thereon, and the form further rotated to wrap the band about the outer edges of the blanks, and the nailing mechanism actuated to nail the band.

15. In a basket-making machine the combination with an axially-movable intermittently-rotative form, a rotative and laterally-movable die and automatic blank-feeding mechanism, and their actuating mechanism, whereby the die is moved laterally away from the form, the blanks then automatically fed thereto, the form at the same time rotated, the die returned opposite the form, the form moved into the die and then rotated with the die.

16. In a basket-making machine the combination with an axially-movable intermittently-rotative form, a rotative and laterally-movable die and automatic blank-feeding mechanism, and their actuating mechanism, whereby the die is moved laterally away from the form, the blanks then automatically fed thereto, the form at the same time rotated, the die returned opposite the form, the form moved into the die and then rotated with the die, the die again moved away from the form, the form further rotated and finally the form again withdrawn to its initial position.

17. In a basket-making machine the combination of an axially-movable intermittently-rotative form, the rotative and laterally-movable die, automatic blank-feeding mechanism and automatic band-feeding mechanism, and their actuating mechanism, whereby the die is moved laterally away from the form, the blanks automatically fed thereto, a band applied to the form and the form rotated to wrap the band about it, the die returned opposite the form, the form moved into the die to fold the blanks about it and upon the band thereon, the form further rotated with the die and the form finally withdrawn to its initial position.

18. In a basket-making machine the combination of an axially-movable intermittently-rotative form, a rotative and laterally-movable die, automatic blank-feeding mechanism, automatic band-feeding mechanism and automatic nailing mechanism, and their actuating mechanism, whereby the die is moved laterally away from the form, the blanks automatically fed thereto, a band automatically applied to the form, the form rotated to wrap the band about it, the die returned opposite the form, the form moved into the die to fold the blanks about it and upon the band thereon, the die and form rotated, the nailing mechanism actuated to nail the band, and finally the form withdrawn to its initial position.

19. In a basket-making machine the combination with the form and laterally-movable die, of the blank-pickers and the wipers or hammers for stripping the blanks from the pickers and depositing them upon the die while away from the form.

20. In a basket-making machine, the combination with the axially-movable form and laterally-movable die, of the blank-pickers and the wipers or hammers for stripping the blanks from the pickers and depositing them upon the die while away from the form.

21. In a basket-making machine the combination with the form, of a laterally-movable die-carrier, a die mounted to rotate therein and having a yielding side normally urged into an upright position by a spring, but yielding as the die leaves the form, a locking device for locking the die and carrier together while away from the form and a tripping device for releasing the lock when the die is returned to the form.

22. In a basket-making machine the combination of the axially-movable intermittently-rotative form, the laterally-movable die having a spring-sustained hinged or swinging side that yields when the die is away from the form, and means for positively raising the side of the die into its upright position when the die and form are rotating in coöperative relation in the formation of the basket.

23. In a basket-making machine the combination of the axially-movable intermittently-rotative form, a laterally-movable die-carrier, the die rotatively mounted therein and having a hinged or folding side and a flange or projection on the die-carrier that raises said side when the form and die are rotated together in the formation of the basket.

24. In a basket-making machine the combination of the axially-movable intermittently-rotative form, a laterally-movable die-carrier, a die mounted to rotate therein and having a hinged or swinging side, a spring applied to said side and normally urging it upward, a locking device that secures the die and carrier together when the die moves laterally away from the form, a tripping device for releasing the lock when the form subsequently enters the die, and means for positively raising the side into its uppermost position when the form and die are rotated in coöperative relation in the formation of the basket.

25. In a basket-making machine the combination of the form, the laterally-movable die that leaves the form with a basket in process of completion thereon, a laterally-movable bottom-nailer and its actuating mechanism whereby the nailer is moved into position beneath the form and a nail driven into the bottom of the basket while the die is away from the form.

26. In a basket-making machine, the combination of the axially-movable intermittently-rotative form, the laterally-movable rotative die that leaves the form with a basket in process of completion thereon, a bottom-nailer and its actuating mechanism, whereby a nail is driven into the bottom of the basket while the die is away from the form.

27. In a basket-making machine, the combination of the axially-movable intermittently-rotative form, the laterally-movable rotative die that leaves the form while a basket is in process of completion thereon, a laterally-movable basket-receiver in which the completed basket is deposited by the form, a laterally-movable bottom-nailer, and actuating mechanism, whereby as the receiver is moved from opposite the form the nailer is moved opposite the form, a nail driven into the bottom of the basket, the nailer moved away and the receiver again brought into position to have the completed basket deposited therein.

28. In a basket-making machine, the combination of the axially-movable intermittently-rotative form, the laterally-movable rotative die that leaves the form while a basket is in process of completion thereon, a laterally-movable basket-receiver in which the completed basket is deposited by the form, a bottom-nailer mounted upon the side of the basket-receiver, and actuating mechanism for said parts.

29. In a basket-making machine, the combination with a form, of a laterally-movable die, two blank-hoppers arranged at an angle to each other and over which the die moves, pickers for lifting blanks from said hoppers, and means for discharging the blanks from the pickers upon the die.

30. In a basket-making machine, the combination with a form, of a die movable laterally in a right line, two blank-hoppers arranged at right angles to each other and over which the die moves, pickers for lifting blanks from said hoppers, and means for discharging the blanks from the pickers upon the die.

31. In a basket-making machine, the combination with the axially-movable intermittently-rotative form, the laterally-movable rotative die, two blank-hoppers arranged at an angle to each other, pickers for lifting blanks from the hoppers and between which and the hoppers the die passes, and means for discharging the blanks from the pickers and upon the die.

32. In a basket-making machine, the combination with the axially-movable intermittently-rotative form, the laterally-movable rotative die, two blank-hoppers arranged at an angle to each other, pickers for lifting blanks from the hoppers and between which and the hoppers the die passes, means for discharging the blank from the picker farthest removed from the form while the die is at the limit of its excursion from the form, and means for discharging the other blank from its picker as the die passes under it.

33. In a basket-making machine the combination of a vertically-reciprocating form, a laterally-movable die and a curved basket-receiving chute in which the baskets are deposited by the form and which delivers the nested baskets laterally to the base of the machine.

34. In a basket-making machine, the combination of an axially-mov-

able intermittently-rotative form, a rotative laterally-movable die, and their actuating mechanism, whereby the die is moved laterally away from the form to receive the blank, and the form is rotated while the die is so removed through three-fourths of a revolution to wrap a band which has been applied to one side around the remaining three sides of the form, the die is then returned opposite the form, the form is then caused to move axially into the die to fold the blanks about it, and is thereafter successively partially rotated while the band is wrapped and nailed and further moved axially after the die has moved laterally away from it to deposit the basket in a receiver.

35. In a basket-making machine, a flanged picker-head having pickers or needles extending through the flange and supported in a ring loosely surrounding the body of the head, a nut applied to the threaded body below the ring and a nut applied to it above the ring whereby the projection of the needles from the head may be adjusted.

36. In a basket-making machine the combination of the vertically-reciprocating needle-heads, weights applied thereto and operating mechanism which drops the needle-heads quickly and raises them less quickly.

37. In a basket-making machine the combination of the vertically-reciprocating needle-heads, adjustable weights applied thereto and operating mechanism which drops the needle-heads quickly and raises them less quickly.

38. In a basket-making machine the combination of the vertically-movable picker-heads, weight cups or receptacles thereon and mechanism permitting the picker-heads to fall rapidly and for lifting them at a slower rate of speed.

39. In a basket-making machine the combination with a rotatable form, of band-feeding mechanism for delivering a band to one side of the form comprising a notched or bifurcated follower or arm that straddles the edge of a band being delivered to the form and presses it into position on the form.

40. In a basket-making machine the combination with a rotatable form, of band-feeding mechanism for delivering a band to one side of the form comprising a notched or bifurcated follower or arm that straddles the edge of a band being delivered to the form and presses it into position on the form, and a tension device in which the projecting band lies while being wrapped around the form.

41. In a basket-making machine the combination with a rotatable form, of band-feeding mechanism for delivering a band to one side of the form comprising a notched or bifurcated follower or arm that straddles the edge of a band being delivered to the form and presses it into position on the form, a tension device in which the projecting band lies while being wrapped around the form, and a guide for holding the band in proper relation to the form as the form rotates to wrap the band around it.

42. In a basket-making machine the combination with a rotatable form, of band-feeding mechanism for delivering a band to one side of the form comprising a notched or bifurcated follower or arm that straddles the edge of a band being delivered to the form and presses it into position on the form, and an adjustable tension device in which the projecting band lies while being wrapped around the form.

43. In a basket-making machine, the combination of a rotatable form having a projection, hook or catch at one side to receive a band applied thereto, band feeding and applying mechanism for so applying the band, a guide for holding the band in proper relation to the form and the pivoted tension device acting upon the band while the form rotates to wrap the band about it.

44. In a basket-making machine the combination of a rotatable form having a projection, hook or catch to receive a band applied thereto, band feeding and applying mechanism comprising a follower notched or bifurcated at its lower end to straddle the upper edge of a band being applied to the form and press it into position, and a pivoted tension device into which the lower edge of the band is at the same time pressed or delivered, the band being held and guided by the follower and the tension device as the form rotates to wrap the band about it.

45. In a basket-making machine the combination with the rotatable form, of a band-feeding mechanism for separating and delivering the bands toward the form, a tension device having jaws or bifurcations into which the band is delivered and a swinging follower notched at its end to straddle the band and press it into position with reference to the form and into the jaws of the tension device.

46. In a basket-making machine the combination with the rotatable form, of a band-feed mechanism for separating and delivering the bands toward the form, a tension device having jars or bifurcations into which the band is delivered and a swinging follower notched at its end to straddle the band and press it into position with reference to the form and into the jaws of the tension device and a guide for holding the band in position relatively to the form while the form rotates to wrap the band about it.

47. In a basket-making machine, the combination of the rotative form, a hook projecting from the side thereof and adapted to receive a band delivered to the form, means for holding the jaw of the hook away from the side of the form to permit the free entrance of the band when the form is in its initial position, and means tending to draw the jaw of the hook toward the form to clamp the band when the form rotates to wrap the band about it.

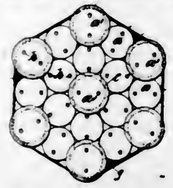
48. In a basket-making machine, a hook projecting from the side of the form to receive a band delivered thereto, means whereby the hook is rotated to turn the jaw of the hook downward when the completed basket is being stripped from the form and for then returning the hook to its initial position to receive the next band.

49. In a basket-making machine, a form, a hook projecting from the side thereof, a spring normally tending to draw the hook toward the side of the form, means for overcoming the tension of the spring and pressing the hook away from the side of the form while the form is in its initial position but which permits the spring to draw the hook toward the form to clamp a band when the form commences to rotate.

50. In a basket-making machine, a form, a hook projecting from the side thereof, a spring normally tending to draw the hook toward the side of the form, means for overcoming the tension of the spring and pressing the hook away from the side of the form while the form is in its initial position but which permits the spring to draw the hook toward the form to clamp a band when the form commences to rotate, means for turning the jaw of the hook downwardly to permit the stripping of a completed basket from the form and for then returning the hook to its normal position.

51. In a basket-making machine, the combination of an axially-movable rotative form, a laterally-movable die, means for delivering the band to one side of the form, means for rotating the form through three-fourths of a revolution to wrap the band about the remaining three sides thereof, means for then advancing the form into the die to fold the blanks about it, means for then rotating the form through three-fourths of a revolution, a nailer then actuated to nail the band at one side of the basket and means for then successively rotating the basket through one-fourth of a revolution at each step, the side of the basket being nailed after each fourth of a revolution.

680,150. ELECTRIC CABLE. CARL A. W. HULTMAN, Stockholm, Sweden. Filed Mar. 23, 1901. Serial No. 52,543. (No model.)



Claim.—1. An electric cable comprising wire-supports each composed of a plurality of perforated insulating-plates arranged edge to edge, means for locking said plates together and wires threaded through the perforations of the plates, for the purpose set forth.

2. An electric cable, comprising a plurality of wires air-insulated from one another and helically twisted, substantially as described.

3. An electric cable comprising wire-supports each composed of a plurality of perforated insulating-plates arranged edge to edge, means for locking the plates together and wires threaded through the perforations of the plates and twisted, for the purpose set forth.

4. An electric cable comprising wire-supports each composed of a plurality of edge-interfitting insulated plates having spaced perforations and constructed to form tie-grooves about the outer edges of the group of plates, means for tying said group of plates together, and wires threaded through the perforated plates, for the purposes set forth.

5. An electric cable comprising wire-supports each composed of a plurality of insulating-plates provided with spaced perforations and arranged concentrically, means for locking the plates together and one or more pairs of wires threaded through the perforations of each of said plates, for the purposes set forth.

6. An electric cable comprising wire-supports each composed of a plurality of circular insulating-plates provided with spaced perforations and arranged concentrically and revolubly on and independently of one another, means for locking the group of plates together, and one or more pairs of wires threaded through perforations of each plate, for the purpose set forth.

7. An electric cable, comprising a plurality of wires air-insulated from one another and a plurality of perforated insulating-pieces of a form arranged to be interfitted, and means for holding said insulating-pieces together, substantially as described.

8. An electric cable, comprising a plurality of wires, insulating-pieces of regular form arranged to hold said wires in different relative positions to one another and means for holding said pieces together in a plane, substantially as described.

9. An electric cable, comprising a plurality of wires, a series of perforated insulating-pieces of regular form arranged to space said wires and a binding-strip surrounding said series of insulating pieces to bind them together, substantially as described.

10. An electric cable, comprising a plurality of wires, a series of perforated disks for spacing said wires and spool-shaped pieces arranged between the disks to hold them in a plane and means for binding said disks together, substantially as described.

11. An electric cable, comprising a plurality of perforated disks and perforated spool elements coöperating with said disks to hold them in a plane, and a metallic binding-strip to hold said spools and disks together, substantially as described.

12. An electric cable, comprising a plurality of insulating-disks, each provided with one or more perforations, similar disks provided with flanges overlapping the adjoining disks and a metallic band for locking said disks together, substantially as described.

13. An electric cable, comprising a plurality of air-insulated wires, perforated disks for spacing said wires, perforated spool-shaped elements for locking said disks in a plane, and suitable longitudinal rods arranged to connect the several series of disks together and a binding-strip surrounding each series of disks, substantially as described.

14. An electric cable, comprising a plurality of air-insulated wires, a series of disks arranged in a plane to space said wires, a binding-strip securing said disks in a plane, and longitudinal rods connecting the series of disks, substantially as described.

15. An electric cable, comprising a plurality of air-insulated wires, perforated insulating-plates for spacing the wires from one another and slots from the periphery of said plates to the perforations, substantially as described.

16. A spool-shaped insulating-plate for electric cables, provided with two or more perforations to receive the wires of said cable, substantially as described.

17. A spool-shaped insulating-plate of regular form, provided with two or more perforations, substantially as described.

18. A hexagonal spool-shaped insulating-plate, provided with perforations, substantially as described.

680,151. UNDERGROUND CONDUIT FOR ELECTRIC CONDUCTORS. CARL A. W. HULTMAN, Stockholm, Sweden. Filed Mar. 23, 1901. Serial No. 52,543. (No model.)



Claim.—1. A conduit for electric conductors comprising sections arranged end to end and having one or more passages for a conductor or conductors and a waterproof sheathing for each of said sections constructed to telescope onto the sheathing of an adjacent section, for the purpose set forth.

2. A conduit for electric conductors comprising sections arranged end to end and having one or more passages for a conductor or conductors, one or more of said passages projecting from one end of a section and telescoping into the corresponding passage or passages of an adjacent section, and a waterproof sheathing for each of said sections constructed to telescope onto an adjacent section, for the purpose set forth.

3. A conduit for electric conductors comprising sections arranged end to end and having one or more passages for a conductor or conductors, a waterproof sheathing for each of said sections of greater length than the latter and having its portion projecting from one end made outwardly flaring and telescoping onto the sheathing of an adjacent section, for the purpose set forth.

4. A conduit for electric conductors comprising sections arranged end to end and having one or more passages for a conductor or conductors, and a sheathing for each of said sections constructed to telescope onto an adjacent section; in combination with an inclosing structure made of sections of less length than the conduit-sections and arranged about the same to leave a gap at the telescopic connection between the conduit-sections, a waterproof luting filling said gaps and the telescopic joints, and a bridge bridging the gap between the sections of the inclosing structure, for the purpose set forth.

5. A sectional conduit for electric conductors, comprising conduit-sections and telescopically interfitting sheaths inclosing said sections, for the purpose set forth.

6. A conduit for electric conductors comprising sections arranged end to end and having one or more passages for a conductor or conductors, and a sheathing for each of said sections constructed to telescope onto an adjacent section; in combination with an inclosing structure made of sections of less length than the conduit-sections and arranged about the same to leave a gap at the telescopic connection between the conduit-sections, a waterproof more or less flexible or elastic luting filling said gaps and the telescopic joints, and a bridge bridging the gap between the sections of the inclosing structure, for the purpose set forth.

7. A conduit for electric conductors comprising sections arranged end to end and having one or more passages for a conductor or conductors, and a waterproof sheathing of a more or less flexible material for each of said sections constructed to telescope onto the sheathing of an adjacent section, for the purposes set forth.

680,152. APPARATUS FOR SHARPENING FILES. EDWARD C. HUNTLEY, Chicago, Ill., assignor, by direct and mesne assignments, of seven-eighths to Minnie J. Huntley, same place, Alfred Weyhenmeyer and Oliver F. Bittner, Mauchchunk, and Benedict H. Birkel and Alexander C. Graham, South Bethlehem, Pa. Filed Dec. 15, 1900. Serial No. 40,034. (No model.)



Claim.—1. An apparatus for resharpening files and the like, comprising in its construction a suitable casing provided with a plurality of compartments extending longitudinally of the casing and vertically side by side, the first compartment being where the file or other tool is sharpened and provided with a blast-nozzle extending into said compartment, the bottom of the said compartment being imperforated and inclined for directing the abrasive material to a discharge-opening, a second compartment provided with means for sucking up the abrasive material discharged from the first compartment and conducting it to the blast-nozzle, and a third compartment provided with means for drawing off the overflow from the other two compartments and delivering it into one of the other compartments, substantially as described.

2. An apparatus for resharpening files and the like, comprising a suitable casing provided with a substantially closed compartment having imperforated end boards which are inclined in opposite directions toward the center of the compartment for conducting the abrasive material to a discharge-opening located near the bottom of the compartment, a deflector arranged within the compartment in line with the blast-nozzle, a deflector at the upper rear end of the compartment, and an exhaust-pipe, substantially as described.

3. An apparatus for resharpening files and other tools, comprising in its construction a suitable casing, a single blast-nozzle arranged at one end of the casing and projecting into the same, a mixing-chamber completely surrounding the outer end of the nozzle and also projecting into the casing, the wall of the mixing-chamber being provided with an inlet for the abrasive material, which inlet is connected by a suction-pipe with the interior of the casing, and combined reducer and file-tester provided on the end of the mixing-chamber in front of the nozzle, substantially as described.

4. An apparatus for resharpening files and other tools, comprising in its construction a suitable casing, a single blast-nozzle arranged at one end of the casing and projecting into the same, a mixing-chamber completely surrounding the outer end of the nozzle and also projecting into the casing, the wall of the mixing-chamber being also provided with an inlet for the abrasive material which inlet is connected by a suction-pipe with the interior of the casing, and a combined removable reducer and file-tester provided on the outer end of the mixing-chamber, the inner ends of the mixing-chamber being provided with screw-threads and the nozzle provided with screw-threads which engage the screw-threads on the rear end of the mixing-chamber, substantially as described.

5. An apparatus for resharpening files and other tools, comprising in its construction a suitable casing, a single blast-nozzle arranged at one end of the casing and provided with a tapering end, said tapering end being formed of Babbitt metal or the like and extending within the casing, the main body portion of the nozzle being formed of hard metal capable of receiving the Babbitt-metal end, a mixing-chamber completely surrounding the outer end of the nozzle and projecting into the casing, the wall of the mixing-chamber being also provided with an inlet arranged at right angles to the Babbitt end of the nozzle, so that the force of the abrasive material will be received by said end of the nozzle, which inlet

is connected by a suction-pipe with the interior of the casing, substantially as described.

6. In an apparatus for resharpening files and the like, comprising a suitable casing, a blast-nozzle arranged at one end of the casing, a mixing-chamber surrounding the outer end of the blast-nozzle, a comparatively short combined reducer and file-tester carried at the outer end of the mixing-chamber and disconnected from the nozzle, there being a space between the outer end of the nozzle and said reducer, said mixing-chamber being connected with the interior of the casing by a suction-pipe, substantially as described

7. An apparatus for resharpening files and other tools, comprising in its construction a suitable casing having a plurality of compartments extending longitudinally of the casing and vertically side by side, communicating one with the other by passages formed in the walls of the compartments, the passages being a sufficient distance from the bottom of each compartment to always retain a quantity of abrasive material, a blast-nozzle arranged in one of the compartments and inclosed by a mixing-chamber, and a suction device arranged in one of the other compartments for drawing up the abrasive material and delivering it to the mixing-chamber, substantially as described.

8. An apparatus for sharpening files and other tools, comprising in its construction a suitable casing having a plurality of longitudinally-extending compartments extending longitudinally of the casing and vertically side by side, the first compartment being where the file or other tool is sharpened and provided with a blast-nozzle extending into said compartment, the compartment being inclosed on all sides, and having its bottom converging in opposite directions toward its center and provided with apertures in its partition-wall arranged at a suitable distance above the bottom of the compartment so as to always retain a quantity of the abrasive material in the bottom of said compartment, a mixing-chamber surrounding the blast-nozzle and a suction device arranged in one of the other compartments for drawing up the abrasive material which overflows from the first compartment and returning it to the mixing-chamber, substantially as described.

9. An apparatus for sharpening files and other tools, comprising in its construction a suitable casing having a plurality of longitudinally-extending compartments arranged vertically side by side, one of the compartments being where the files or other tools are sharpened and having a blast-nozzle extending into said compartment, a second compartment communicating with the first compartment and provided with means for sucking up the abrasive material and conducting it to the blast-nozzle, and a third compartment communicating with the second compartment, means connected with the third compartment for drawing off the overflow of abrasive material therefrom and delivering it into one of the other compartments, and means for cutting off the suction from the last compartment, substantially as described.

10. An apparatus for sharpening files and other tools comprising in its construction a plurality of communicating compartments, a blast-nozzle arranged at one end of one of the compartments and projecting into the same, a suction-pipe arranged in another compartment, and a lever mechanism for bringing the said suction-pipe into and out of operative position, so that the supply of abrasive material to the blast-nozzle will be cut off and only steam or air be forced from said nozzle, substantially as described.

11. An apparatus for sharpening files and the like, comprising in its construction a suitable casing having a plurality of longitudinally-extending compartments arranged vertically side by side, one of the compartments being where the files or other tools are sharpened, and having a blast-nozzle extending into the said compartment, a mixing-chamber surrounding said nozzle, a second compartment communicating with the first compartment and provided with means for sucking up the abrasive material and conducting it to the mixing-chamber, and a third compartment communicating with the second compartment, the construction and arrangement being such that the discharge-apertures in the partition between the second and third compartments can be closed, and the abrasive material allowed to rise and be thus thinned out for sharpening fine files.

680,153. RAILROAD-TRACK. HAMPTON R. JACKSON, Anderson, Ind., assignor of one-half to Clarence Leib, Harry Skehan, and Percy Doyle, same place. Filed Apr. 1, 1901. Serial No. 53,534. (No model.)



Claim.—1. The improvement in railroad-tracks herein described consisting of the rail, the tie provided with the inclined notch having a shoulder at its outer end, the bracket having a body portion, and a shank arranged obliquely to the body portion and fitting and held within the notch of the tie, the body portion of the bracket being fitted against the outer side of the rail, the shoe fitting against the outer side of the opposite rail and having an opening for the tie-rod and a base grooved in alinement with said opening and the tie-rod extending at one end through the shoe and provided with a securing-nut and having its other end slightly upbent and provided with a hook engaging with the body of the bracket all substantially as and for the purposes set forth.

2. The combination of the tie, the rail, the bracket held to the tie and provided with a body portion fitting against the rail, and the tie-rod anchored at one end and provided at its other end with a hook engaged with the bracket substantially as set forth.

3. The combination of the rail, the bracket having its body portion engaged with the rail and provided with an inclined upper edge, and the tie-rod having a hook engaged with said edge from one side thereof, whereby it may operate therein substantially as set forth.

4. The combination of the notched tie, the rail and the bracket fitting against said rail and having an oblique shank fitting in the notch of the tie substantially as set forth.

5. The combination of the tie having an oblique notch in its upper surface, the rail, and the bracket having its body portion bearing against the rail and provided with an oblique shank fitting in the notch of the tie, and the tie-rod having a book engaging said bracket substantially as set forth.

6. The combination of the tie, the rails, the bracket fitting against the outer side of one rail, the shoe fitting against the outer side of the other rail, and the tie-rod anchored adjustably to the shoe and extended at its other end alongside the bracket and provided at such end with a hook engaged with the bracket substantially as set forth.

7. In a railroad-track the combination of the bracket, the tie, the rail, the tie-rod engaged with the bracket, and the shoe having an opening for the tie-bar, and a base portion extending beneath the rail and provided in its upper side next the rail with a groove in alinement with said opening and adapted to receive the tie-rod whereby the latter may lie close to the rail substantially as set forth.

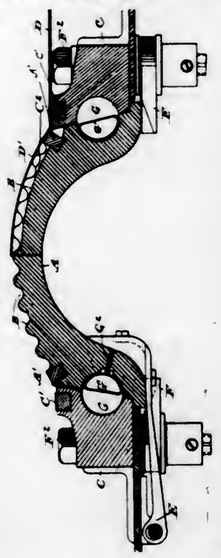
8. A bracing-bracket for railroads having a body portion to bear against the rail, and a shank for connection with the tie, said shank being arranged obliquely to the body portion, combined with the tie, notched, and forming a seat for said oblique shank substantially as set forth.

9. A rail-bracing bracket having a body portion, and an obliquely-arranged shank, and twisted between said parts substantially as set forth.

10. A rail-bracing bracket having a body portion, a shank in a different plane from said body portion and a twisted portion between said body and shank substantially as set forth.

11. The combination of the tie having an oblique notch and the rail-bracing bracket having a shank fitting in said notch substantially as set forth.

680,154. DISCHARGE-DOOR FOR CYANID-TANKS. ALEXANDER D. JAMES, Johannesburg, South African Republic. Filed July 5, 1899. Serial No. 722,872. (No model.)

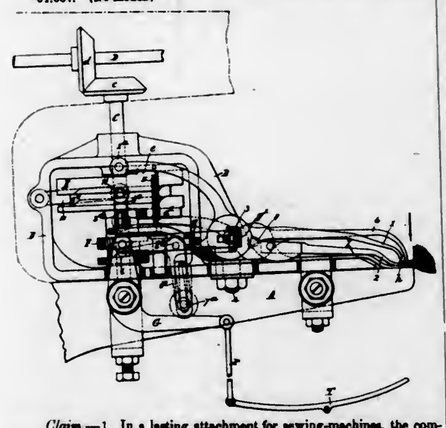


Claim.—An improved discharge-door for cyanid-tanks and the like provided on its upper side with a series of channels and cross-channels B over which is placed a piece of filtering medium D', a wooden rim A', to which the filtering medium is fastened, the seating C into which the door A fits said seating C being provided with a wooden rim C' to which the filtering medium at the bottom of the tank is secured and cross-channels C^2 to drain the solution into the bottom of the tank, the hinge E, the fastening devices F F, the air-tube G' interposed between the door A and the seating C contained within the recess G and means for inflating same the whole arranged substantially as hereinbefore described.

680,155. LUBRICANT FOR COMMUTATORS. WILLIAM M. JONES, San Francisco, Cal. Filed Jan. 7, 1901. Serial No. 42,424. (No specimens.)

Claim.—A solid lubricant comprising paraffin and graphite in substantially the proportions specified, which has been boiled at a high temperature until the vapor driven off is perfectly colorless, to which a small quantity of spermaceti has been added after boiling and before cooling, substantially as described.

680,156. LASTING ATTACHMENT FOR SEWING-MACHINES. JOHN KRATZ, Bagnall, England, assignor to Phoenix Boot Machinery Company, Limited, Street, England. Filed Sept. 25, 1900. Serial No. 31,067. (No model.)



Claim.—1. In a lasting attachment for sewing-machines, the combination with a pair of lasting-jaws, of a pair of smoothing-jaws, and means for operating the latter in either direction laterally to the pulling movement of the lasting-jaws, substantially as described.

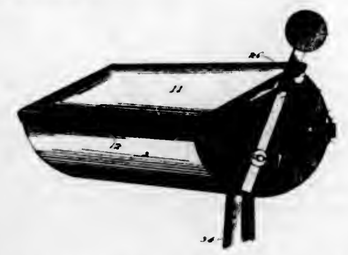
2. The combination with the smoothing-jaws, of the means described for moving the same sidewise in either direction, said means comprising a pair of bowls mounted on one of the said jaws, a tappet traveling continuously in a horizontal rotary path, a treadle-lever and connections between said lever and the smoothing-jaws to effect the engagement of one or other of the said bowls with the aforesaid tappet, substantially as described.

3. In a lasting attachment for sewing-machines, the combination of a pair of lasting-jaws, a pair of smoothing-jaws, means for giving said lasting-jaws a longitudinal reciprocating movement, means for giving said smoothing-jaws a movement laterally to the reciprocating movement of the lasting-jaws and an adjustable connection between the lasting-jaws and said means for producing their reciprocating movement whereby said movement may be varied independently of the movement of the smoothing-jaws, substantially as herein described.

680,157. LETTER-BOX. ALANSON M. KEENEY, Adrian, Mich., assignor to Century Post Co., same place. Filed Mar. 14, 1901. Serial No. 51,115. (No model.)

Claim.—1. A letter-box, having a hinged lid or cover, a signal device mounted upon one end of the fixed body of the box and constructed to swing transversely across the same and independently of the movement of the lid, and a detachable supporting connection between the signal device and the lid or cover when the former is in its displayed position.

2. A letter-box, having a hinged lid or cover, a signal device pivotally mounted upon one end of the fixed body of the box and mounted to swing transversely across the same and independently of the movement of the lid, the lid having a signal-engaging device which lies in supporting engagement with the signal when the latter is in its displayed position and the lid is closed.



3. A letter-box, having a hinged lid or cover provided with a laterally outwardly projected stud at one end thereof, and a signal pivotally mounted upon that end of the fixed body of the box which is next to the stud and arranged to swing vertically across the said end of the box and independently of the movement of the lid, the stud being located in supporting engagement with one side of the signal when the latter is in its displayed position and the lid is closed.

4. A letter-box, having a hinged lid or cover, a signal pivotally mounted upon one end of the fixed body of the box and arranged to swing vertically and transversely across the box and independently of the movement of the lid, opposite signal-engaging stop-shoulders provided upon the said end of the box, and a detachable supporting engagement between the lid and the signal when the latter is displayed and the former is closed.

5. A letter-box, having a hinged lid or cover, a pivot-stud projecting laterally outward from one end of the box, a concentric flange surrounding the pivot-pin and provided with opposite stop-shoulders, and a signal pivotally mounted upon the stud intermediate of its ends, whereby the signal travels in frictional engagement with the flange, and the shoulders are arranged to support the signal at its opposite limits, and a detachable supporting connection between the lid and the signal when the latter is displayed and the former is closed.

6. A letter-box, having a hinged lid or cover, a lateral stud projected outwardly from one end of the lid, a vertically-swinging signal-arm pivotally mounted upon the end of the box which is next to the stud on the cover, and arranged to swing transversely across said end of the box, opposite stop-shoulders carried by said end of the box and arranged at the opposite limits of the signal-arm, a signal carried at the free end of the arm, and a lateral shoulder upon the intermediate portion of the arm and constructed for detachable supporting engagement with the stud of the lid when the latter is closed and the arm is in the displayed position of the signal.

7. A letter-box, having a hinged lid or cover, a lateral stud projecting outwardly from one end thereof and adjacent to the hinged edge of the lid, and a signal, having an arm which is pivotally mounted upon that end of the box which is next to the stud of the lid, the free end portion of the arm being offset laterally outward from the box and adjacent to the outer free end of the arm to form a lateral shoulder, which lies against the front side of the stud when the signal is displayed and the lid is closed.

8. A letter-box, comprising opposite end pieces, each of which has an inner marginal flange providing an outer marginal rim, a body having its end portions embracing the respective flanges and abutted against the rims of the end pieces, a lid or cover having a front and opposite end pendent flanges embracing the body, the rear longitudinal edge of the cover being formed into a bead or sleeve, the end flanges of the lid being extended, a pivotal connection between the bead or sleeve of the cover and the body of the box.

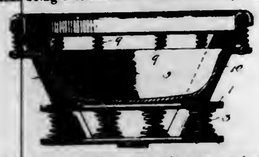
9. A letter-box, having corresponding outwardly-projecting studs at opposite ends thereof, and a pair of shoulders in rear of each stud, and a supporting yoke-shaped bracket which embraces the back and ends of the box, the opposite sides of the bracket being seated snugly between the respective pairs of shoulders, and their terminals having perforations receiving the respective studs, the intermediate portion of the bracket having a clamp for application to a support.

680,158. SEAT FOR VEHICLES, &c. FRANK M. LIGHT, Edgerton, Ohio. Filed Feb. 15, 1901. Serial No. 47,496. (No model.)

Claim.—1. A seat for vehicles mounted upon springs and suspended from a separate series of springs.

2. A seat for vehicles resting upon a series of springs and suspended from an independent series of springs, substantially as described.

3. A seat comprising a yielding support, a seat mounted upon said support, said seat being suspended from a series of springs.



4. The combination with a seat resting upon springs, of an arm-rest above the seat, and a series of springs connected to the seat and to the arm-rest, substantially as described.

5. The combination of an upper and lower support, with a series of springs secured to said supports, a seat resting on the upper support, an arm-rest supported by braces from said lower support, and an independent series of springs secured to said seat and to the arm-rest, substantially as described.

680,159. **BELT-CHAIN.** EMILIO MAGALDI, Buenos Ayres, Argentina. Filed May 14, 1901. Serial No. 60,135. (No model.)



Claim.—1. A power-transmitting device comprising strips of leather, bolts extending transversely between and secured to the strips and ferrules on the bolts between the strips, substantially as described.

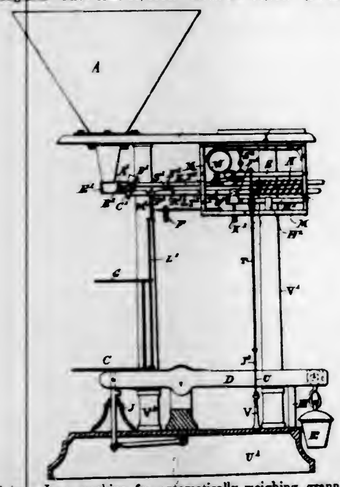
2. A power-transmitting device comprising strips of leather and bolts extending between them, said strips being held separated to leave the bolts exposed for engagement with sprocket or chain wheels, substantially as described.

3. In combination, the strips of leather set with their edges upward and cross connections, said cross connections being exposed for engagement of chain-wheel teeth, substantially as described.

4. In combination, a chain composed of strips of leather and cross-bolts and a chain-wheel to engage said bolts, substantially as described

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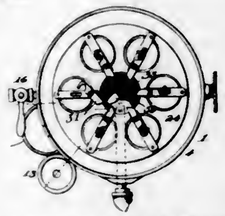
680,160. **AUTOMATIC WEIGHING-MACHINE.** JOHN J. MARSHALL, Leeds, England, assignor to John Potts Brown, Minneapolis, Minn., and William Henry Seward and Edwin Potter Carpenter, London, England. Filed Mar. 11, 1901. Serial No. 50,710. (No model.)



Claim.—In a machine for automatically weighing granular substances, the combination with a weighted scale-beam, a scale-pan carried thereby, and a feed-hopper mounted above said scale-pan; of a reciprocating rod, means carried by said rod for reducing the delivery from said hopper when reciprocated, a spring for reciprocating said rod, a stop on said rod adapted to engage with a fixed portion of the frame, an elastic buffer interposed between said stop and portion for reducing the shock of said rod when reciprocated, means operated by said scale-beam for automatically releasing said reciprocating rod, and a second rod for cutting off the delivery from said hopper, also adapted to be operated automatically by said scale-beam, substantially as described.

680,161. **ACETYLENE-GAS GENERATOR.** EDWARD S. MARTINDALE, Warren, Pa., assignor to the Kinnear Mfg. Co., Limited, same place. Filed Oct. 17, 1899. Serial No. 733,896. (No model.)

Brief.—The shaft 45, intermittently rotated by a ratchet actuated by the gasometer, turns the trip-arm 59, attached thereto, which unhooks the latches 31, allowing the carbid cartridges 34 to drop into the water in the generating-tank.



Claim.—1. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a series of plates supported in the upper part of the generating-chamber, said plates having each an opening, a series of buckets having each a staple designed to be inserted through the openings in the respective plates, a series of levers, one of which is pivoted on each of said plates and has a hook adapted to engage in the staple inserted through the opening of its plate, and means operated by the movement of the bell of the gasometer to successively trip said levers to release them from engagement with the staples and permit the buckets to fall, substantially as described.

2. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a head adapted to be inserted and supported in the upper part of the generating-chamber and provided with a series of tubes, a series of buckets, means for suspending said buckets from the bails and within said tubes, and means operated by the movement of the bell of the gasometer to release said buckets and permit them to fall, substantially as described.

3. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a head adapted to be inserted and supported in the upper part of the generating-chamber and provided with a series of tubes, a series of rectangular bails one of which is slidably mounted in each of said tubes and has its side bars connected at their upper ends by an apertured plate which is of a length to adapt it to rest upon the upper edge of its tube, a trip-lever pivotally mounted on each of said plates and having a hooked end, a series of buckets adapted to be inserted in said tubes and each of said buckets having a staple which may be passed through the aperture in any one of said plates and be engaged by the hooked end of the trip-lever, and means operated by the movement of the bell of the gasometer to successively release said levers from engagement with said staples and permit the buckets to fall, substantially as described.

4. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a head adapted to be inserted and supported in the upper part of the generating-chamber and provided with a series of tubes having longitudinal guide-grooves, a series of rectangular bails, one of which is slidably mounted in the grooves of each of said tubes, a series of buckets adapted to be inserted in said tubes, means carried by said bails for suspending said buckets above the water-line of the generating-chamber, and operated by the movement of the bell of the gasometer to successively release said buckets and permit them to fall, substantially as described.

5. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a head adapted to be inserted and supported in the upper part of the generating-chamber, and of a depth to extend downward to the water-line in said chamber, whereby to fill up the air-space therein, said head having secured therein a series of depending tubes, a series of buckets, means for suspending said buckets within said tubes, and means operated by the movement of the bell of the gasometer to release said buckets and permit them to fall, substantially as described.

6. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a head adapted to be inserted and supported in the upper part of the generating-chamber and provided with a series of tubes, a series of rectangular bails, one of which is slidably mounted in each of said tubes and projects below the bottom thereof, a series of buckets, means for suspending said buckets from the tops of said bails and within said tubes, and means operated by the movement of the bell of the gasometer to release said buckets and permit them to fall, substantially as described.

7. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a head adapted to be inserted and supported in the upper part of the generating-chamber and provided with a series of depending tubes, said tubes being provided with two encircling parallel rows of apertures, a series of buckets, each of which is provided with an encircling row of apertures, means for suspending said buckets within said tubes, means operated by the movement of the bell of the gasometer to release said buckets and permit them to fall into the water of the generating-chamber, and means for limiting the fall of said buckets whereby the row of apertures therein shall occupy a position intermediate the two rows of apertures in the tubes, substantially as and for the purpose described.

8. In an acetylene-gas generator, the combination with the generating-chamber and with the gasometer, of a pipe affording communication between the two and having a vertical extension within the generating-chamber, a carbid-container comprising a head having a tube, a hood secured within, and to one side of, said tube and adapted to cover the upper end of said pipe, and filtering material supported in said tube above the lower end of said hood, substantially as described.

680,162. **BOTTLE-STOPPER.** CHRISTIAN W. MEINECKE, Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Filed Mar. 7, 1901. Serial No. 50,238. (No model.)



Claim.—1. A bottle having a stopper, a ring freely rotative on said stopper, the stopper having means to prevent the withdrawal of the ring, a second ring mounted loosely upon and freely revolnble on the said first ring, and a connection uniting the second ring and the bottle in such manner as not to interfere with the complete rotation of the second ring upon the said first ring, substantially as described.

2. A bottle having a body portion, a funnel portion, a stopper adapted to screw within the funnel portion, and a freely-rotatable connection between the stopper and the funnel portion of the bottle so arranged that when the stopper is screwed into the bottle the said freely-rotatable connection will be within the funnel-mouth, the said freely-rotatable connection consisting of a ring freely rotatable on said stopper, a second ring mounted loosely upon and freely revolnble on the first ring, and a connection uniting the second ring and the funnel in such manner as not to interfere with the complete rotation of the second ring upon the said first ring, substantially as described.

680,163. **BAILER.** KENNETH MOORING, Rockland, Ohio. Filed Apr. 25, 1901. Serial No. 57,456. (No model.)

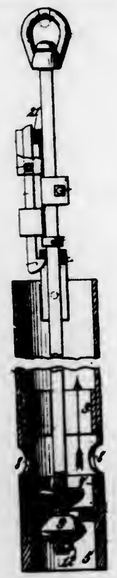
Claim.—1. In a bailer, a cylinder provided with an opening in the side thereof, a slide-valve operating in said cylinder for closing said opening, a valve-stem operating through said slide-valve, and a pair of choke-valves carried by said stem.

2. In a bailer, a cylinder provided with an opening in the side thereof, a slide-valve operating in said cylinder, provided with an opening and adapted to close the opening of the cylinder, a valve-stem operating through the opening of said valve for elevating and lowering the latter and a pair of choke-valves adapted to engage said slide-valve for closing the opening thereof.

3. In a bailer, a cylinder provided with an opening in the side thereof, a slide-valve for closing said opening and provided with an opening, a choke-valve for closing the opening in the slide-valve, and means for retaining said valves away from said openings.

4. In a bailer, a cylinder provided with an opening in the side thereof, a slide-valve for closing said opening, a choke-valve for closing the bottom of said cylinder, means for operating said valves simultaneously, and means for retaining said valves in an open position.

5. In a bailer, a cylinder provided with an opening in the side thereof, a slide-valve for closing said opening, a choke-valve for closing the bottom of said cylinder, means for operating said valves simultaneously, and spring-actuated means for retaining said valves in an open position.



6. In a bailer, a cylinder constructed of a pair of sections, one of which is provided with an opening in the side thereof, a band for securing said sections together and forming a stop, a collar secured to the lower of said sections and forming a stop, a slide-valve operating in said cylinder for closing the opening in one of the sections, and having its movement arrested by said stops, said valve provided with an opening, a valve-stem operating through the opening of said valve, and a choke-valve carried by said stem for closing said opening in the slide-valve.

7. In a bailer, a cylinder constructed of a pair of sections, one of which is provided with an opening in the side thereof, a band for securing said sections and forming a stop, a collar secured to the lower of said sections and forming a stop, a slide-valve operating in said cylinder for closing said opening and having its movement arrested by the said stops, said valve provided with an opening, a valve-stem operating through the opening of said valve, a choke-valve carried by said stem and adapted to close the opening of the slide-valve, and a clutch mechanism for retaining said valves in an open position.

8. In a bailer, a cylinder, a slide-valve operating therein, a choke-valve operating in the cylinder, and a clutch mechanism for retaining said valves in an open position.

9. In a bailer, a cylinder, a valve-stem operating therethrough, a slide-valve within the cylinder, a choke-valve carried by said stem and adapted to operate said slide-valve, and a clutching mechanism carried by said stem and adapted to retain said valves in an open position.

10. In a bailer, a cylinder having an opening in the side thereof, a slide-valve for closing said opening, a choke-valve for closing the bottom of said cylinder and carrying said slide-valve, a valve-stem connected to said choke-valve, and a spring-actuated clutching mechanism for retaining said valves in an open position.

11. In a bailer, a cylinder having an opening in the side thereof, a slide-valve for closing said opening, a choke-valve for closing the bottom of said cylinder, and carrying said slide-valve, and a valve-stem connected to said choke-valve for operating the same.

12. In a bailer, a cylinder, a slide-valve, a choke-valve supporting the same, and a valve-stem for operating said valves.

13. In a bailer, a cylinder, stops arranged therein, a slide-valve operating between said stops, a pair of choke-valves engaging said slide-valve, and a valve stem connected to said choke-valve for operating the same and said slide-valve.

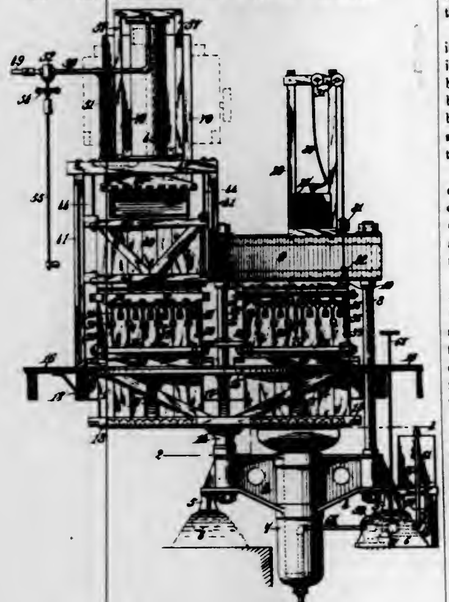
14. In a bailer, a cylinder, a slide-valve, a choke-valve supporting the same, a valve-stem for operating said valves, and means for retaining said valves in an open position.

15. In a bailer, a cylinder, a slide-valve, a choke-valve supporting the same, a valve-stem for operating said valve, and a spring-actuated

clutching mechanism connected with said valve-stem for retaining the valves in an open position.

16. In a baler, a cylinder, a bail connected to the top thereof, a slide-valve, a choke-valve, a valve-stem connected to said choke-valve for operating the same and said slide-valve, and a clutching mechanism connected with said stem and engaging said bail for retaining the valve in an open position.

680,164. **BALING-MACHINE.** ROBERT S. MUNGER, Birmingham, Ala. Filed May 19, 1900. Serial No. 681,150. (No model.)



Claim.—1. The combination with a movable box-press, of a stationary charging-chamber above said press, closed on all its sides, but open at its upper and lower ends, a tramper-head movable in said charging-chamber and out of the upper open end thereof to a position above said chamber to permit the feeding of the material into the open end of the latter, and means for reciprocating said tramper-head, substantially as described.

2. The combination with a rotatable double box-press, of a stationary charging-chamber above said press having its sides closed and its upper and lower ends open, a feed-chute arranged to deliver the material into the upper open end of the charging-chamber, a reciprocating tramper-head movable in said charging-chamber and out of the upper open end thereof to a position above said chamber, a piston connected with the tramper-head, a cylinder containing the piston, and means for supplying a working fluid to the cylinder to operate the piston and tramper-head, substantially as described.

3. The combination with a rotatable double box-press, of a stationary charging-chamber above said press having its sides closed and its upper and lower ends open, means for feeding material into the upper open end of the chamber, a reciprocating tramper-head movable in said charging-chamber and out of the upper open end thereof to a position above said chamber, a cylinder arranged above and in alinement with said charging-chamber, a piston in said cylinder connected with said tramper-head, and means for supplying a working fluid to either end of the cylinder for reciprocating said piston and tramper-head, substantially as described.

4. The combination with a movable box-press, of a stationary charging-chamber above said press open at its upper and lower ends and having its sides closed, a reciprocating tramper-head movable in said chamber and out of the upper open end thereof to a position above said chamber, means for delivering material into the upper open end of said chamber, and means for preventing the material from entering said chamber above said tramper-head, substantially as described.

5. The combination with a movable box-press, of a stationary charging-chamber above said press open at its upper and lower ends and having its sides closed, a reciprocating tramper-head movable in said chamber and out of the upper open end thereof to a position above said chamber, means for delivering material into the upper open end of said chamber, and means actuated by said tramper-head for cutting off the supply of material to said chamber when said tramper-head enters the upper end thereof, substantially as described.

6. The combination with a movable box-press, of a stationary charging-chamber above said press open at its upper and lower ends and having its sides closed, a reciprocating tramper-head movable in said chamber and out of the upper open end thereof to a position above said chamber, means for delivering material into the upper open end of said chamber, and a movable shield or guard for cutting off the supply of material to said charging-chamber when said tramper-head enters the upper end thereof, substantially as described.

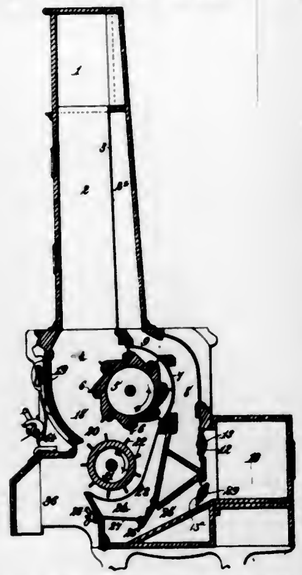
7. The combination with a movable box-press, of a stationary charging-chamber above said press open at its upper and lower ends and having its sides closed, a reciprocating tramper-head movable in said chamber and out of the upper open end thereof to a position above said chamber, means for delivering material into the upper open end of said chamber, and a shield or guard carried by said tramper-head for cutting off the supply of material to said charging-chamber when said tramper-head enters the upper end thereof, substantially as described.

8. The combination with a press-box having vertical slots in its sides, of crank-shafts journaled outside the press-box, retainers loosely mounted on the crank portions of said shafts, projecting through the vertical slots of the press-box and capable of rocking on the crank-shafts while they are stationary, and devices for turning the crank-shafts to bodily swing the retainers inward and outward, substantially as described.

9. The combination with a press-box having vertical slots in its sides, of crank-shafts journaled outside the press-box, retainers loosely mounted between their ends on the crank portions of the said shafts to rock thereupon while the shafts are stationary, each retainer extending at one end through a slot into the press-box and weighted at the other end, a lever connected with each crank-shaft to rock the same and bodily swing the retainers inward and outward, and means for locking the levers to hold the shafts stationary, substantially as described.

10. The combination with a press-box having vertical slots in its sides, of crank-shafts journaled on the press box, bell-crank retainers loosely mounted at their angles on the crank portions of the shafts to rock independent thereof, and each having one arm extending through a slot in the press-box and the other arm weighted, and devices for rocking and locking the crank-shafts, substantially as described.

680,165. **COTTON ELEVATOR, CLEANER, AND FEEDER.** ROBERT S. MUNGER, Birmingham, Ala. Filed Feb. 3, 1899. Renewed Sept. 10, 1900. Serial No. 29,587. (No model.)



Claim.—1. In an apparatus for elevating, conveying and cleaning seed-cotton and feeding it to the ginning mechanism, the combination with a suitable drop-pipe and conveyer, of means for establishing suction therein, an exhaust-chamber communicating with the conveyer, a feed-drum having peripheral valve-wings arranged in a chamber opening into the exhaust-chamber, a breast located in proximity to the feed-drum and arranged to create a gradually-contracting passage-way in which the cotton is rolled and compacted by the valve-wings, a curved wall or partition against which the valve-wings move, and a cleaning-drum arranged directly below and receiving the cotton from the lower end of said gradually-contracting passage-way, the passage of air between the said curved wall or partition and the feed-drum being cut off by the wings of said drum, substantially as described.

2. In a mechanism for elevating, conveying and cleaning seed-cotton and feeding it to the gin, the combination with suitable elevating and conveying conduits, or passages, of means for establishing suction therein, an exhaust-chamber opening into the conveyer, a feed-drum in a chamber communicating with the exhaust-chamber, a breast located in proximity to the feed-drum and arranged to create a gradually-contracting passage-way in which the cotton is rolled and compacted by said drum, and a spiked cleaning-drum arranged directly below and receiving the cotton from the lower end of said gradually-contracting passage-way, said drum having wings to cut off leakage of air between it and the opposite wall, substantially as described.

3. In a cotton elevating, feeding and cleaning mechanism, the combination with a passage for carrying the cotton, means for establishing air suction in said passage, and an exhaust-chamber into which said passage opens, of a cotton-feeding and bat-rolling device arranged in a chamber below the exhaust-chamber and having means to cut off the escape of air at one side, a breast located in proximity to the opposite side of said device and constructed to create a gradually-contracting passage-way in which the cotton is rolled and compacted by said device, and a cotton-cleaning device arranged below and receiving the compacted cotton from the lower end of said gradually-contracting passage-way, substantially as described.

4. In a cotton elevator, feeder and cleaner, the combination with a passage for the cotton, and means for withdrawing air from said passage, of an exhaust-chamber divided into two parts by a vertical screen, one part receiving the cotton from said passage and the other communicating with a suction-flue by which the air is withdrawn from said passage, a feeding-drum having wings which prevent ingress of air upon one side of said drum, a breast located in proximity to the opposite side of said drum and arranged to create a gradually-contracting passage-way in which the cotton is rolled and compacted by said drum, a cleaning-drum arranged below and receiving the compacted cotton from the lower end of said gradually-contracting passage-way, and means for driving thet wo drums at different speed, substantially as described.

5. In a cotton elevator, feeder and cleaner, the combination with a passage for the cotton, of means for withdrawing air therefrom, an exhaust-chamber divided by a screen into two parts, one receiving the cotton and the other communicating with a suction-flue through which the air is withdrawn, a feed-drum to compact the cotton and cut off ingress of air on one side of said drum, the latter having wings which operate in conjunction with a curved partition to cut off air-ingress on the other side of said drum, a cleaning-drum rotating at a higher speed than said feeding-drum, a dust-chamber behind and beneath the cleaning-drum and separated from it by a screen, and independent valved passages between said dust-chamber and suction-flue and the exhaust-chamber and said flue, substantially as described.

6. In a cotton elevator, feeder, and cleaner, the combination with a passage for the cotton, of means for producing air-suction therein, a feeding-drum having wings which engage a curved partition on one side of the drum and prevent ingress of air to the exhausted passage, an adjustable wall on the other side of the drum inclosing a passage for the cotton which contracts in the direction of rotation of the drum, a cleaning-drum having spikes which act upon the cotton compacted in said passage, a dust-chamber separated by a screen from said drum, and a valve-controlled passage from said dust-chamber to a flue through which the air is withdrawn, substantially as described.

7. In a cotton elevator, feeder and cleaner, the combination with a passage for the cotton, of means for producing air-suction therein, an exhaust chamber divided by a screen, the cotton being received from said passage in a compartment on one side of said screen, while the compartment on the other side has communication with a flue through which the air is removed from said passage to produce suction, a feeding-drum having elastic wings, and arranged on one side of a passage for the cotton and rotating in such a direction that the side of the drum next the cotton moves in the same direction with it, compacting it in the narrowest part of said passage and preventing the entrance of air, the elastic wings engaging a curved, concentric partition to prevent entrance of air on the other side of said drum, a cleaning-drum having spikes projecting from it and rotating at a speed higher than that of the feeding-drum, a screen against which the cotton is threshed by the cleaning-drum, a dust-chamber on the other side of said screen, and a valve-controlled air-passage from said chamber to the flue through which the air is withdrawn, substantially as described.

8. In a cotton elevator, feeder and cleaner, the combination with a pipe and conveyor and with means for producing an air-suction therein, of an exhaust-chamber divided by a screen, the compartment on one side receiving cotton from the conveyer and that on the other side having communication with a suction-flue, through which air is withdrawn to produce the air-suction, a feeding-drum on one side of a passage for the cotton coming from the exhaust-chamber, a wall for said passage which is adjustable to vary its contraction toward the exit end, wings projecting from the feed-drum and engaging with a curved partition to cut off entrance of air on the side of the drum farthest from the contracting passage, in the throat of which the feed-drum compacts the cotton to cut off entrance of air to the passage, a spiked cleaning-cylinder to act upon the compacted cotton, and means for driving said drums at different speeds of rotation, substantially as described.

9. In a cotton elevator, feeder and cleaner, the combination with a passage for the cotton, of a suction-flue to withdraw air therefrom, a feeding-drum and a cleaning-drum acting successively upon the cotton coming from said passage, a dust-receiving chamber below the cleaning-drum, and an independent air-passage between the suction-flue and said dust-receiving chamber, substantially as described.

10. In a cotton elevator, feeder and cleaner, the combination with a passage for the cotton, of a suction-flue to withdraw air from said passage, a feeding-drum to which the cotton passes a breast located in proximity to the opposite side of said drum and arranged to create a gradually-contracting passage-way in which the cotton is rolled and compacted by the drum, a cleaning-drum arranged below and receiving the compacted cotton from the lower end of said gradually-contracting passage-way, an air-passage to carry the dust and other substances removed from the cotton into the suction-flue, and a ginning apparatus to which the cotton is delivered directly after passing the cleaning-drum, substantially as described.

11. In a cotton elevator, feeder and cleaner, the combination with a cotton-conveying passage and with means for creating an air-suction therein, of an exhaust-chamber divided into two parts by a screen, a suction-flue communicating by a valve-controlled passage with one of said parts, a feed-drum to act upon the cotton as it comes from the other part of the chamber, a cleaning-drum operating on the cotton passing the feed-drum, an independent, valve-controlled passage to a suction-flue which is independent of said cotton-conveying passage to carry away the dust and dirt removed by the cleaning-drum, and a gin to which the cleaned cotton is delivered, substantially as described.

12. In a cotton elevator, feeder and cleaner, the combination with a passage for the cotton, of an exhaust-chamber divided by a screen, a suction-flue drawing air from one part of said chamber, a feed-drum acting on the cotton coming from the other part into a passage on one side of said drum, elastic wings carried by the latter in contact with a curved partition behind said drum to prevent entrance of air, means for varying the width and contraction of the passage in front of the drum in which the cotton is compacted to prevent entrance of air, a cleaning-drum revolving at high speed and acting upon the cotton compacted by the latter, a screen behind and beneath said drum, an independent, valve-controlled passage leading from the place behind and beneath the screen to the suction-flue, and a gin to which the cleaned cotton is delivered direct, substantially as described.

680,166. **FLUE-CUTTER.** JOHN T. MCGRATH, Stratford, Canada. Filed Oct. 23, 1900. Serial No. 34,086. (No model.)



Claim.—1. A flue-cutter, comprising a rotatable spindle provided with an integral segmental extension forming a shoulder, a cylindrical casing into which said spindle extends provided with an opening in its periphery, a pivoted arm, a cutting-wheel journaled therein, the segmental end or shoulder of said spindle coacting with said arm to press the wheel outwardly as and for the purpose specified.

2. In a flue-cutter, in combination a rotatable spindle having its ends recessed to form a segmental extension, a cylindrical casing having a closed end, the said casing being fitted to said spindle, the head thereof abutting said extension whereby a pocket is formed between the end of the casing and end of the spindle, said casing having an opening through the same in alinement with said pocket, a pivoted arm located in said pocket guided between the head of the casing and the end of the spindle and a cutter carried by said arm, said extension coacting with said arm to force the cutter outwardly, substantially as described.

3. In a flue-cutter, in combination a cylindrical casing having an

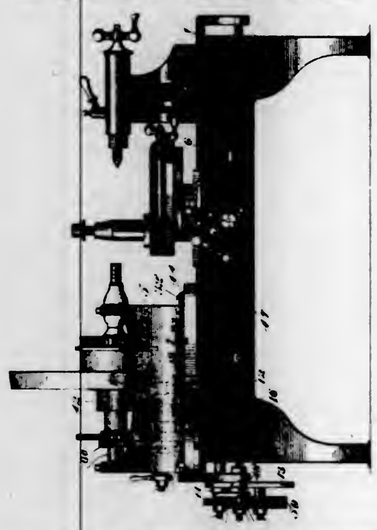
opening in its periphery, a cutting-wheel journaled in said opening and capable of an outward movement therein, a central rotatable spindle provided with an annular flange provided with a notch, a stop secured to said spindle designed to enter said notch and means for imparting an outward movement to said cutting-wheel as and for the purpose specified.

4. In a flue-cutter, in combination a cylindrical casing having an opening in its periphery in proximity to its outer end and provided with an enlarged portion at its inner end, a pin extending lengthwise from the vertical position of the wall of the cylinder, a central rotatable spindle having a notched annular collar, said notch being designed to receive said pin, a cutting-wheel capable of a movement within the opening of said cylinder, means for adjusting the position of said wheel, and a friction-collar loosely supported at the end of said casing as and for the purpose specified.

5. In a flue-cutter, in combination a cylindrical casing having an opening in its periphery in proximity to its outer end and an enlarged portion at its inner end, a central rotatable spindle, a cutting-wheel capable of an outward movement within the opening, a collar provided with an outer knurled face secured to the casing in proximity to its inner end and means combined with the knurled face for throwing the cutting-wheel outwardly as and for the purpose specified.

6. In a flue-cutter, in combination a cylindrical casing having an opening in its periphery in proximity to its outer end and an enlarged portion at its inner end, a cutting-wheel journaled within said opening, a central rotatable spindle extending beneath said wheel provided with a collar intermediate of its length designed to enter the enlarged portion of the casing and an end nut designed to encircle said spindle and engage with the enlarged portion of the casing as and for the purpose specified.

680,167. **ENGINE-LATHE.** CHARLES W. NITTERAUER, Duluth, Minn. Filed Nov. 3, 1900. Serial No. 35,394. (No model.)



Claim.—1. A lathe comprising a frame or base, a head-stock pivoted thereon, shafting passing through the pivot-point and forming the pivot of the head-stock for transmitting motion from mechanism on one side of the head-stock to mechanism upon the other side thereof, without interfering with the pivotal motion of the head-stock, substantially as described.

2. In a lathe, the combination with a frame, of a stock and base mounted thereon and provided with guide-grooves in its upper surface, a head-stock centrally pivoted on the said base and having segmental ribs adapted to engage the grooves upon the said base, means passing through the pivotal point of the head-stock for communicating motion from mechanism above to mechanism below the same, and means for holding the head-stock in its various positions on the base, substantially as described.

3. In a lathe, the combination with a suitable frame, a head-stock base mounted thereon, a head-stock pivoted upon said base, a shaft passing through the pivotal axis of the said head-stock, gearing connecting the shaft with the lathe-spindle, a gearing connecting the shaft with the lathe, feeding mechanism whereby the said train of gearing will not be interfered with, no matter what the position of the head-stock, substantially as described.

4. In a lathe, the combination with a frame, a head-stock base mounted thereon and provided with grooves adapted to engage longitudinal ribs upon the frame, a head-stock pivoted upon the stock-base, a shaft passing through the frame and base and into the head-stock for holding the same pivotally in position, a spindle carried by the head-stock, a counter-shaft mounted therein, gearing connecting the counter-shaft with the spindle, and gearing connecting the counter-shaft with the vertical pivotal shaft and gearing connecting the lower end of the vertical pivotal shaft with the feed mechanism of the lathe, the structure being such that the train of gearing will not be interfered with, no matter to what angle the head-stock may be turned, substantially as described.

5. In a lathe, the combination with a frame, a head-stock base secured thereon and provided with an aperture, a head-stock pivotally mounted upon said base, a shaft passing through the aperture in the base, a supporting-collar also mounted in the aperture in the said base for holding the shaft in position therein, the said collar having a supporting annular flange at its upper edge, a nut upon the lower end of the collar for holding the parts in position, and gearing connecting the shaft with the lathe-spindle and with the lathe feed mechanism, substantially as described.

6. In a lathe, the combination with a frame, a head-stock base mounted thereon, a pivotal head-stock resting on the base, a spindle carried by the head-stock and having suitable gearing, a counter-shaft mounted in the head-stock and having a gear-wheel keyed thereto, an oscillating plate loosely mounted on the said counter-shaft and having a sleeve extending outside the head-stock, a handle secured to the said sleeve for oscillating the plate, gears mounted upon the oscillating plate and meshing with each other, one of said gears also meshing with the gear upon the counter-shaft, the structure being such that by rocking the oscillating plate one or the other of the intermeshing gears carried thereby may be brought into engagement with actuating-gears upon the spindle, and means for transmitting motion from the counter-shaft through the pivotal point of the head-stock to the feed mechanism of the lathe, substantially as described.

7. In a lathe, the combination with a frame, a head-stock base mounted thereon, a pivotal head-stock mounted on the base, shafting passing through the pivotal point of the head-stock, gearing connecting the same with the lathe-spindle, a shaft mounted upon the frame and connected with the said gearing, a pendulum-lever loosely mounted upon the said frame-shaft, a gear-wheel upon the frame-shaft, and an adjustable gear-wheel carried by the pendulum-lever, a gear-wheel secured to the lead-screw of the lathe and arranged in the path of the gear carried by the pendulum-lever, the structure being such that by varying the position of the pendulum-lever motion may be imparted from the frame-shaft to the lead-screw, substantially as described.

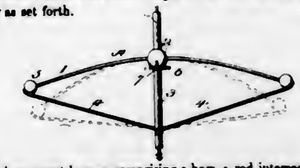
8. In a lathe, the combination with a frame, of a pivotal head-stock mounted thereon, shafting passing through the frame and head-stock upon the line of its pivotal point, gearing connecting the shafting with the lathe-spindle, a shaft mounted on the frame, gearing connecting the shaft with the pivotal shafting, a pendulum-lever mounted loosely upon the frame-shaft, the said pendulum-lever having a longitudinal slot formed therein, an adjustable gearing mounted in the said slot, a gear-wheel upon the end of the frame-shaft adapted to mesh therewith, and a gear upon the lead-screw of the lathe, also adapted to be brought into mesh therewith, a set-screw adapted to engage a segmental slot formed in the pendulum-lever for holding the lever in its adjusted positions, the structure being such that by adjusting the lever the gear which it carries may be brought into mesh with the gear upon the lead-screw, and by adjusting the said gear in the slot of the lever the gear may be brought into or out of mesh with the gear upon the frame-shaft, substantially as described.

9. In a lathe, the combination with a suitable frame, a pivotally-mounted head-stock arranged thereon, and carrying a lathe, a shaft passing through the pivotal point of the head-stock, shafting and gearing connecting the said pivotal shaft with the spindle, a shaft mounted in the said frame, gearing connecting the same with the pivotal shaft, the said shaft also being provided with a belt-cone, a gear-wheel connected with the said shaft, adjustable gearing for connecting the said gear-wheel with the lead-screw of the lathe, a feed-rod mounted in the said frame, a cone secured to the feed-rod, and belting for connecting the feed-rod with the cone upon the frame-shaft, substantially as described.

680,168. **GARMENT-HANGER.** RICHARD NORRIS, Philadelphia, Pa. Filed May 31 1900. Serial No. 18,574. (No model.)

Claim.—1. A garment-hanger comprising a bow composed of a single wire, a hook located centrally of said wire, balls on the ends of said wire, a connection between said balls, and means intermediate the ends of said connection by which the curvature of the bow may be regulated.

2. A garment-hanger comprising a bow of flexible material, a rod located centrally of said bow, a cord connecting the ends of the bow and in engagement with said rod, and means whereby said rod may be adjusted to wind the cord thereon to regulate the curvature of the bow, substantially as set forth.



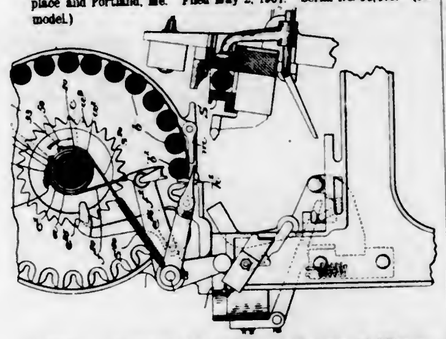
3. A garment-hanger comprising a bow, a rod intersecting said bow at its center, means for detachably locking said rod to said bow, and a flexible connection between the ends of said bow engaging said rod, as set forth.

4. A garment-hanger comprising a bow, a head thereon, a rod passed through said head, a flexible connection between the ends of the bow engaging said rod, and means for adjusting the position of said head on said rod, substantially as set forth.

5. A garment-hanger comprising a bow, a rod intersecting said bow at its center and having a hole therein, a flexible connection between the ends of said bow passed through said hole, and means for detachably locking said rod to said bow, as set forth.

6. A garment-hanger comprising a bow, a head on said bow, having a series of slots, a rod inserted through said head having a stop designed to enter any one of said slots, and a flexible connection between the ends of the bow engaging said rod, as set forth.

680,169. **FILLING-REPLENISHING MECHANISM FOR LOOMS.** JONAS NORTHROP, Hopedale, Mass., assignor to Draper Company, same place and Portland, Me. Filed May 2, 1901. Serial No. 58,479. (No model.)



Claim.—1. A rotatable filling-feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, a clutch to rotate the feeder, means governed by operative movement of the transferrer to set the clutch, and independent means to actuate the clutch and rotate the feeder when the transferrer returns to normal position.

2. A rotatable filling-feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, a clutch mounted coaxially with and to rotate the feeder intermittingly, means governed by operative movement of the transferrer to set the clutch, and independent means to actuate the clutch and rotate the feeder when the transferrer returns to normal position.

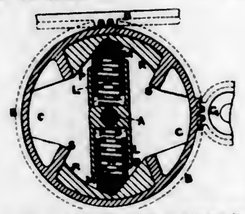
3. A rotatable filling-feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, a clutch member rotatable with the feeder, a coöperating loose clutch member, a connection between the latter and the transferrer, to set the loose member when the transferrer operates, and a spring-actuator to effect forward rotative movement of the clutch members, and thereby to rotate the feeder, when the transferrer returns to normal position.

4. A rotatable filling-feeder having an attached ratchet, a coöperating pawl, an oscillating pawl-carrier coaxial with the feeder, a transferrer, means actuated by operation of the transferrer to retract the pawl-carrier and set the pawl, and independent means to move the pawl-carrier forward to rotate the filling-feeder when the transferrer returns to normal position.

5. A rotatable filling-feeder having an attached ratchet, a coöperating pawl, an oscillating pawl-carrier coaxial with the feeder, a transferrer, a flexible connection between the pawl-carrier and the transferrer, to retract the former when the transferrer operates, and an actuating-spring connected with the pawl-carrier to move it forward and thereby rotate the filling-feeder when the transferrer returns to normal position.

6. A rotatable filling-feeder having an attached ratchet, a coöperating pawl, an oscillating pawl-carrier coaxial with the feeder, a transferrer, two oppositely-extended flexible bands attached to the pawl-carrier, one of said bands being secured at its free end to the transferrer, to retract or set the pawl-carrier when the transferrer operates, and a spring fixedly secured at one end and at its other end connected with the free end of the other band, to move the pawl-carrier forward when the transferrer returns to normal position.

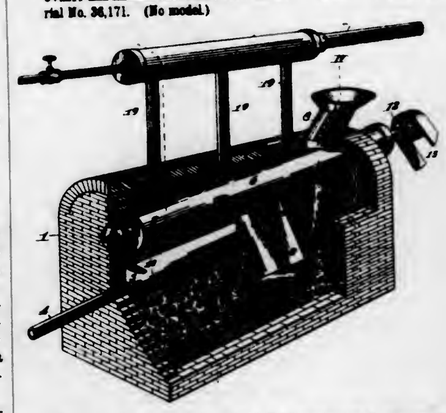
680,170. **CUSHIONED DRIVING DEVICE.** TOM OLDFIELD and JOSEPH A. SCHOFIELD, Halifax, England. Filed Mar. 6, 1901. Serial No. 50,122. (No model.)



Claim.—1. The combination, with a driving-shaft, and chambers L secured thereon; of a power-transmitting wheel journaled concentric with the said shaft and provided with inclined surfaces P and R, and spring-actuated plungers slidable in the said chambers and engaging with the said inclined surfaces, substantially as set forth.

2. The combination, with a driving-shaft, and chambers L secured thereon; of a power-transmitting wheel journaled concentric with the said shaft and provided with inclined surfaces P and R and stops S at the ends of the inclined surfaces R, and spring-actuated plungers slidable in the said chambers and engaging with the said inclined surfaces and stops, substantially as set forth.

680,171. **APPARATUS FOR DESULFURIZING ORES.** ELLEN M. OVIATT and ALEXANDER DEAN, Denver, Colo. Filed Nov. 12, 1900. Serial No. 36,171. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a furnace, having a settling-chamber, means for heating the interior of said furnace, a retort-cylinder mounted within said furnace, and discharging in front of the means for heating the interior of the furnace, a conveyer arranged to operate within said retort-cylinder, a manifold located directly over the retort-cylinder, having communication with said retort-cylinder, and means whereby the gases liberated in said retort-cylinder are drawn into and delivered from said manifold, the means for heating the interior of the furnace being adapted to complete the roasting of the ore and drive it into the settling-chamber, substantially as described.

2. In an apparatus of the character described, the combination of a furnace, having a settling-chamber, a retort-cylinder mounted within said furnace and provided with an outlet, a conveyer arranged to operate in said retort-cylinder, and means for heating the interior of said furnace immediately beneath the outlet from said retort-cylinder, the means for heating the interior of the furnace being adapted to complete the roasting of the ore and drive it into the settling-chamber, substantially as described.

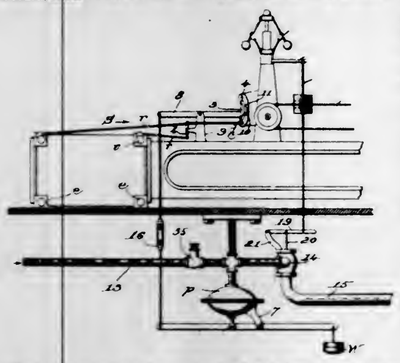
3. In an apparatus of the character described, the combination of a furnace, having a settling-chamber, a retort-cylinder mounted in said furnace, a conveyer arranged to operate in said retort-cylinder, a trough located within said furnace beneath the outlet from said retort-cylinder, and means for heating the interior of the furnace within said trough and immediately beneath the outlet from said retort-cylinder, the means for heating the interior of the furnace being adapted to complete the roasting of the ore and drive it into the settling-chamber, substantially as described.

4. In an apparatus of the class described, the combination of a furnace, having a settling-chamber and trough therein, means for effecting a blast-flame within said trough, and for driving the ore into the settling-chamber, a retort-cylinder having an outlet located above said trough, and a conveyer arranged to operate in said retort-cylinder, substantially as described.

5. In an apparatus of the character described, the combination of a furnace, a retort-cylinder within said furnace, a conveyer having a shaft formed with openings and mounted in said retort-cylinder, and valves arranged to control said openings, substantially as described.

6. In an apparatus of the character described, the combination of a furnace, a retort-cylinder in said furnace, a conveyer having a hollow perforated shaft and mounted in said retort-cylinder, valves arranged to control said perforations, and blades fixed to said shaft at the locations of the perforations therein, substantially as described.

680,172. STEAM-ENGINE CONTROLLER. RALPH J. PATTERSON, Woburn, Mass. Filed Oct. 4, 1900. Serial No. 31,953. (No model.)



Claim.—1. In an engine-controller, a pressure-chamber, means connecting the same with the source of steam-supply for the engine, means governed by the speed of the engine to control the steam-pressure in said pressure-chamber, and means operated by variations in the steam-pressure in the said chamber to control the cut-off.

2. In an engine-controller, a cut-off for the cylinder, a pressure-chamber, means connecting the same with the source of steam-supply for the cylinder, a ball-governor, means operated by said ball-governor to control the steam-pressure in the steam-chamber, and means operated by variations in the pressure in said chamber to control said cut-off.

3. In an engine-controller, a pressure-chamber, a pipe connecting said chamber with the source of steam-supply for the engine, a movable member in said pressure-chamber operated by variations of steam-pressure therein, connections between said movable member and the cut-off, and means operated by the speed of the engine to control the steam-pressure in said pressure-chamber.

4. In an engine-controller, a cut-off for the cylinder, a pressure-chamber, a pipe connecting said chamber with the source of steam-supply for the cylinder, a diaphragm in said chamber, means connecting the diaphragm with the cut-off, whereby variations in steam-pressure in said chamber vary the cut-off, and means governed by the speed of the engine to control the pressure in said chamber.

5. In an engine-controller, a cut-off for the cylinder, a pressure-chamber, a pipe connecting said chamber with the source of steam-supply for the cylinder, a diaphragm in said chamber, means connecting the diaphragm with the cut-off whereby variations in steam-pressure in said chamber vary the cut-off, a centrifugal governor governed by the speed of the engine and means operated by said governor to control the pressure in said pressure-chamber.

6. In an engine-controller, a pressure-chamber, means for connecting the same with the source of steam-supply for the engine, a valve controlling the exhaust therefrom, means controlled by the speed of the engine for operating said valve, movable means in said chamber operated by variation in the steam-pressure therein, and mechanism connecting said movable means with the cut-off of the engine, whereby the pressure in said chamber varies with the speed of the engine, and such variation operates to control the cut-off.

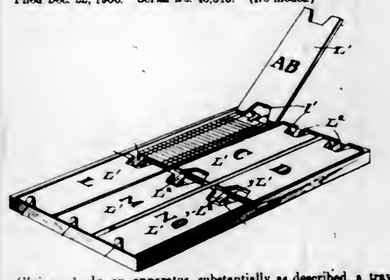
7. In an engine-controller, a pressure-chamber, a pivoted link having a cam-slot, a reach-rod to the cut-off operated by said link, a lever engaging said cam-slot, means operated by variations in the pressure in said chamber to operate said lever, and means controlled by the speed of the engine to vary the pressure in said pressure-chamber.

8. In an engine-controller, a pivoted link having a double cam-slot, a reach-rod connected to said link and controlling the cut-off, a pivoted lever having one end engaging the slot and controlling the position of the link, a pressure-chamber, mechanism controlled by the speed of the engine for varying the pressure in said chamber, and means operated by the variations in the pressure in said chamber and connected to said lever, whereby such variations in pressure control the cut-off, the construction being such that whenever the lever is at either extreme of the slot, the inlet-valves are closed.

9. In an engine-controller, a cut-off for the cylinder, a piston-pot having a diaphragm therein, a pipe connecting said piston-pot with the source of steam-supply for the engine, a valve controlling the exhaust from said piston-pot, means controlled by the speed of the engine for operating said valve, a plunger connected to the diaphragm, a lever connected with the plunger, and connections between the lever and cut-off whereby variations in the pressure of the steam in the piston-pot control the cut-off.

10. In an engine-controller, a cut-off for the cylinder, a pressure-chamber connected with a source of steam-supply, said chamber having an outlet, a valve in said outlet, a centrifugal governor connected thereto whereby the speed of the engine controls the pressure in the pressure-chamber, and means operated by variations of the pressure in said pressure-chamber to control said cut-off.

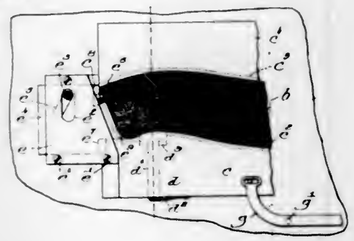
680,173. ACCOUNT-LEDGER. PAUL K. PAULSEN, Irwin, Iowa. Filed Dec. 22, 1900. Serial No. 40,815. (No model.)



Claim.—1. In an apparatus, substantially as described, a tray for slips comprising the frame, the clasps or clips and the lids pivoted or hinged adjacent to said clasps, and provided in their hinged ends with recesses in which said clasps are received, substantially as set forth.

2. An account-ledger, substantially as described, comprising a plurality of trays, each consisting of a frame, clasps therein and adapted to secure account-slips, and lids hinged or pivoted adjacent to the clasps and provided with recesses adjacent to the said clasps whereby to avoid interference with the operation of the clasps in either the open or closed position of the lid, substantially as set forth.

680,174. MACHINE FOR FOLDING COLLAR-BLANKS, &c. GEORGE REECE, Wollaston, Mass., assignor to Reece Folding Machine Company, Boston, Mass. Filed May 13, 1901. Serial No. 59,896. (No model.)



Claim.—1. A device for folding collars and the like, comprising a folding-blade for folding over and inturning an edge of a blank, and an auxiliary edge-shaper held yieldingly in proper position and including means for maintaining the edge of the blank against accidental outward movement while the folder is completing the folding operation.

2. A device for folding collars and the like, comprising a bed having a raised portion or pad for receiving a blank in position with the edges of the blank projecting over the edge of the pad, a folder having a folding edge for turning up and inwardly said projecting edge of the blank, a shoulder back of the edge of the folder and beneath the same, said shoulder corresponding in shape to the required shape of the blank when folded, an auxiliary edge-shaper for coöperating with said shoulder and normally projecting beyond said shoulder, and means maintaining said auxiliary edge-shaper in constant retaining position against the blank for preventing the edge of the latter from accidental displacement.

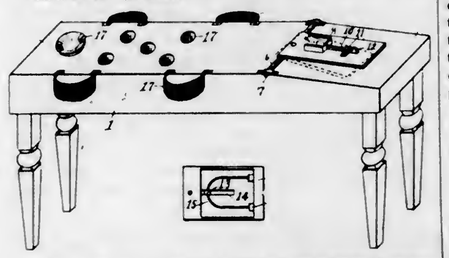
3. A device for folding collars and the like, comprising a folding-blade for folding over and interning an edge of a blank, and an auxiliary edge-shaper carried by said blade on the under side thereof, and a spring normally projecting said edge-shaper in position to rest against the edge of the blank as the latter is being folded by said folder.

4. The herein-described mechanism for folding at the corner a blank having an inwardly-extending curve adjacent said corner, said mechanism consisting of a folder having an independently-movable auxiliary edge-shaper on its under side, means for moving said edge-shaper forward in position for defining said inwardly-extending curve, an end-folder provided with a folding edge contacting with the folding edge of said first-mentioned folder, and means for moving said end-folder laterally as the first-mentioned folder moves forward.

5. A folding mechanism, comprising a front edge-folder having at its end a guide-plate, an end-folder sliding in said guide-plate, the folding edges of said two folders being in alinement with each other and forming a continuous edge, said end-folder having an oblique slot, and said guide-plate having a slot in the direction of its forward movement, and a stationary pin passing through said two slots, the forward movement of said first-mentioned folder causing the end-folder to move simultaneously in a transverse direction.

6. The herein-described mechanism for folding a blank with a reverse curve comprising means for holding down the blank and defining the shape to be folded, the independently-movable folding members having together a folding edge corresponding in shape to the fold to be made, means for moving said two members respectively in the general direction transversely of the portions of the reverse curve which they are respectively to fold, and means movable independently of said members for pressing against the blank at the convex portion of the curve and holding said blank in accurate position at said point during the completion of the folding operation.

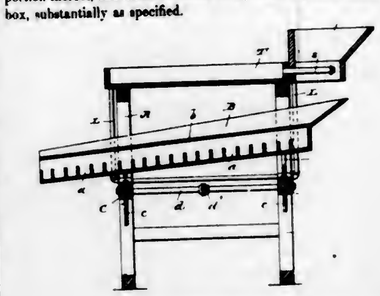
680,175. GAME. MAX REINHART, Portland, Oreg., assignor of one-half to J. D. Meinhardt, San Francisco, Cal. Filed Jan. 2, 1900. Serial No. 53. (No model.)



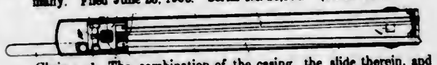
Claim.—The combination of a table having an elongated aperture a roller mounted in said aperture, carrying at its center a stud, an auxiliary board pivoted on said stud, and a suitable projector carried by said board, substantially as described.

680,176. GOLD SEPARATOR OR WASHER. GEORGE ROBERTSON, Durango, Colo. Filed Oct. 20, 1900. Serial No. 33,668. (No model.)

Claim.—In a gold-separator, the horizontal transverse supporting-beam, the upper stationary water-box, having a perforated bottom, the vibratory frame, the laterally-adjustable bearing-boxes upon said beam, the hangers for said frame, having pivotal bearings in said bearing-boxes, and a pivotal connection with said frame, the laterally offset or shouldered screw-threaded standards carried by said frame, the adjusting-nuts for said standards, the riffle-box resting upon the shoulders of said standards, which have open slots at their upper ends, the securing-bolts for said riffle-box engaging said slots of the standards, the hopper on the same level as said water-box, the water-tubes communicating with said water-box, and located at opposite sides of said hopper inside and at the lower portion thereof, and means for transversely vibrating said frame, and riffle-box, substantially as specified.



680,177. BICYCLE-STAND. HEINRICH ROSSKOPF, Steglitz, Germany. Filed June 23, 1900. Serial No. 21,354. (No model.)



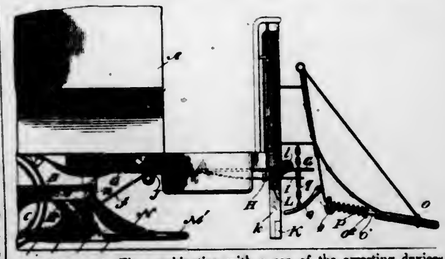
Claim.—1. The combination of the casing, the slide therein, and the bolt for automatically locking said slide in its lowered position, the legs pivoted to said slide and the slotted guide-plate in the end of the casing whereby said leg is caused to be extended when the slide is lowered, for the purpose and substantially as described.

2. The combination of the casing, the tubular slide therein, the bolt carried by said slide, the rock-shaft and arm for releasing said bolt when the shaft is rocked, the legs pivoted to said slide and the plate attached to the end of the casing and provided with guide-slots through which the legs project and whereby they are caused to be extended when the slide is lowered, for the purpose and substantially as described..

3. The combination of a bicycle-frame, the rod journaled thereon, the casing connected to said rod and adapted to be swung parallel with one member of the frame when turned upward, and into a vertical position when turned downward, the slide in said casing, the tripod-legs attached to said slide, the slotted guide-plate in the free end of said casing through which the legs project, whereby the legs are extended when the slide is lowered.

4. The combination of a bicycle-frame, the rod journaled thereon, the casing connected to said rod and adapted to be swung parallel with one member of the frame when turned upward, the slide in said casing, the tripod-legs attached to said slide, the slotted guide-plate in the free end of said casing through which the legs project, whereby the legs are extended when the slide is lowered; with the bolt in said slot adapted to engage a recess in the free end of the casing and automatically lock the slide with the legs in extended position, the rock-shaft at right angles to the bolt adapted to be operated by a key, and an arm on said shaft engaging the bolt and adapted to release the same when said shaft is properly rocked, all substantially as and for the purpose described.

680,178. STREET-CAR FENDER AND BRAKE. THOMAS M. SANDERLIN, Norfolk, Va., assignor of one-half to George P. Hudson and Asher J. Hudson, same place. Filed Mar. 23, 1901. Serial No. 52,644. (No model.)



Claim.—1. The combination with a car, of the arresting devices comprising opposite shoes, links suspending each shoe from the truck-frame directly in front of the wheels, rods connecting the shoes, springs for throwing said shoes into operative position and means for raising said

shoes into inoperative position; with a latch-bar hinged to said shoes and projecting forward under the platform, a retainer for locking the latch-bar when the shoes are raised, and devices for automatically releasing said latch-bar from its retainer, for the purpose and substantially as described.

2. The combination with a car, of the opposite connected arresting-shoes provided with tongues, the pairs of links suspending each shoe from the truck-frame directly in front of the wheels, means for raising said shoes into inoperative position, a latch-bar pivoted to the shoes and extending forwardly under the car-platform, and a keeper or pin under the platform adapted to engage said latch-bar and lock said shoes in inoperative position, and a trip-bar and its connections for automatically releasing said latch-bar from said keeper, for the purpose and substantially as described.

3. The combination of a car and arresting devices therefor comprising shoes adapted to chock the wheels, links suspending said shoes directly from the car-truck, a latch-bar connected to the shoes and extending forward under the car-platform, a keeper attached to the platform for locking the said bar to hold said shoes in inoperative position; with a trip-bar adapted to release the latch-bar when struck by an object, and an emergency-fender connected to and moving with the shoes, all substantially as described.

4. The combination of a car and arresting devices therefor, comprising chocking-shoes, links pivotally suspending said shoes from the truck-frame, a latch-bar connected to the shoes and having its front end extended under the car-platform, and a retaining device under the platform adapted to lock said bar; with a swinging trip-bar hung from the car-platform in front of the shoes and adapted to be moved by contact with a body, and devices actuated by said trip-bar for releasing said catch-bar from the retaining device, for the purpose and substantially as described.

5. The combination of a car, emergency-brakes or arresting devices therefor suspended from the truck, a latch-bar hinged to and extending forward beneath the car-platform, a retainer attached to the platform adapted to engage the latch-bar to retain the arresting devices in inoperative position, a trip-bar connected to the lower end of hangers pivotally suspended from the car-platform and a rod connecting the upper ends of the hangers adapted to engage and release the latch-bar from its retainer when the trip-bar is swung inward, substantially as described.

6. The combination of a car and arresting devices therefor, comprising chocking-shoes, links pivotally suspending said shoes from the truck-frame, a shaft and connections for raising said shoes, and a latch-bar hinged to a rod connecting the shoes, having a perforated front and adapted to engage a retaining pin or device; with a swinging trip-bar hung in front of the shoes and adapted to be moved by contact with a body, and the devices actuated by said trip-bar for releasing said catch-bar, for the purpose and substantially as described.

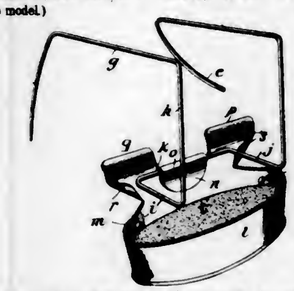
7. The combination of a car, emergency-brakes or arresting devices therefor, a latch-bar adapted to retain the arresting devices in inoperative position, a trip-bar connected to hangers suspended from the car-body and a rod connected to the upper ends of said hangers adapted to engage and release the latch-bar from its retainer when the trip-bar is swung inward, with a fender attached to the front end of the car adapted to engage the hangers and actuate the trip-bar when the fender is struck, substantially as described.

8. The combination of a car, emergency-brakes or arresting devices therefor suspended from the truck, a latch-bar hinged to said devices adapted to engage a keeper to retain the arresting devices in inoperative position, a trip-bar connected to hangers suspended from the car-body and devices operated by said trip-bar adapted to engage and release the latch-bar from its retainer when the trip-bar is swung inward, with a fender attached to the front end of the bar, having a rearwardly-movable front rod, springs for normally holding said rod in proper position, and arms pivoted to the ends of said rod adapted to engage the hangers and actuate the trip-bar when the front fender is struck, for the purpose and substantially as described.

9. The combination of a car, the arresting-shoes, the links suspending said shoes from the truck-frame in front of the wheels, the fender connected to and between said shoes, a latch-bar hinged to said shoes, and projecting through a guide attached to the car-body and adapted to engage a pin or keeper thereon, and a spring for holding said latch-bar in engagement with the keeper, with a swinging trip-bar suspended in front of the shoes and adapted to disengage the latch-bar from the keeper when swung backward; a fender attached to the front of the car, and means whereby the front fender actuates the trip-bar when struck by an object, substantially as described.

10. The combination of a car, the arresting-shoes, the pairs of links suspending said shoes from the truck-frame in front of the wheels, the fender connected to and between said shoes, a latch-bar hinged to said shoes, and projecting through a guide attached to the car-body and adapted to engage a pin or keeper thereon, a spring for holding said latch-bar in engagement with the keeper, and a shaft and ropes or chains for raising said shoes to inoperative position; with a swinging trip-bar suspended in front of the shoes and adapted to disengage the latch-bar from the keeper when swung backward; a fender attached to the front of the car, and means whereby the front fender actuates the trip-bar when struck by an object, substantially as and for the purpose described.

680,179. TOILET-DISINFECTING APPARATUS. LEON C. SCHOFIELD, New York, N. Y. Filed Apr. 2, 1901. Serial No. 54,102. (No model.)

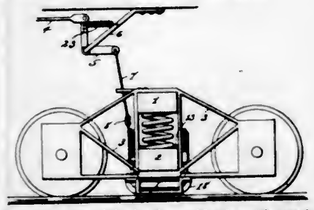


Claim.—1. In a toilet-disinfecting apparatus, the combination with a bowl, means for flushing said bowl, a supporting-clip and a receptacle for disinfectant material, said receptacle being provided with ears and bent up portions forming channels.

2. In a toilet-disinfecting apparatus, the combination with a supporting-clip and a receptacle carried thereby, said receptacle being provided with perforated sides with rear extensions and with bent-up corners forming channels inclined toward each other.

3. In a toilet-disinfecting apparatus, a receptacle consisting of a perforated body portion having at its rear an extension, the center part of said extension being bent down for attachment to a suitable support, leaving two projecting ears, the lower corners of said ears being bent up to form inclined channels.

680,180. TRACK-BRAKE. JOHN S. SMITH, Carthage, Tenn. Filed May 6, 1901. Serial No. 58,985. (No model.)



Claim.—1. In a track-brake, the combination with a truck and frame, of a guide or yoke at the bottom thereof, a brake-beam carried thereon, brake-shoes secured to said beam, brake-shoe-operating levers, an equalizing-lever, and means for operating the same, substantially as described.

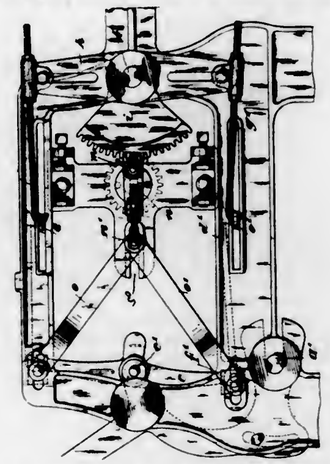
2. In a track-brake, the combination with the truck of brake-shoe-operating levers, cranks secured thereto, a brake-beam connected to said levers and cranks, and brake-shoes secured thereto, substantially as described.

3. In a track-brake, the combination of an equalising-lever, brake-shoe-operating levers connected thereto, a brake-beam and brake-shoes, substantially as described.

4. In a track-brake, the combination with a truck, of a brake-beam, brake-shoes dovetailed thereto, and a key to secure said brake-shoes to the brake-beam substantially as described.

680,181. SHEDDING MECHANISM FOR LOOMS. HERMANN BRÄUEL, Horgen, Switzerland. Filed Sept. 12, 1900. Serial No. 605,672. (No model.)

Claim.—1. In a double-lifting shedding-machine, having in combination with the shed-lifting blades *e e'* a driving mechanism comprising a toothed wheel-sector *i* mounted on the axle *h'* of the double-armed rock-shaft *h* actuating the said blades *e e'* a spur-wheel *k* engaging with the toothed wheel-sector *i* and which can be thrown out of gear, cranks *m* arranged on the shaft *l* of the spur-wheel on both sides of the machine and having links *n* a sliding traverse *n'* connecting the links *n*, lifting-wire supports *f f'* and connecting-rods *o, o'*, said parts being arranged in such a manner that reversing movements are imparted to the lifting-wire supports bringing the shed-lifting blades in the high and deep shed position.



2. In a double-lifting shedding-machine having in combination with the shed-lifting blades *e, e'*, a driving mechanism by means of which the said blades operate, and comprising the gearing *i, k, m, n*, with suitable connections, an arrangement comprising a traverse *p* connected with the gearing *i, k, m, n* and having cams or lifters *q* which are movable for the purpose being thrown into and out of gear, and which when in operation support the shed-lifting blades so as to be actuated by the gearing mechanism and consequently operate as required for closed-shed weaving while the blade for which the lifters remain out of gear, is disconnected with the gearing and consequently operates on the open-shed principle.

3. In a double-lifting shedding-machine, having in combination with the shed-lifting blades *e e'*, a driving mechanism by which the said blades can be made to move either separately or jointly also for closed-shed weaving, the cranks of the gearing mechanism being adapted for displacing on the shaft *l* in such a manner that their eccentricity can be altered according to requirements, and the links *n* forming a part of the gearing, said links being adjustable as to length when it is necessary to alter the stroke of the gearing mechanism and therewith the deep-shed movement of the blades dependent on the same.

4. In a double-lifting shedding-machine, in combination with the harness-levers, with operating mechanism therefor, the devices acting on the harness-levers to control their movements, and controlling means for said devices comprising the pinion and segment, the crank *m* in connection with the pinion to turn therewith the links *n* connected with the crank and connections extending from the links *n* to the devices to be moved, said parts being adjustable.

5. In a double-lifting shedding-machine in combination, the harness-levers, the mechanism for operating the same, the needles *q* adapted to act on the levers to control the movements thereof, said needles being arranged to be thrown out of operation the carrier for said needles, and the driving mechanism for operating the carrier to change the position thereof relative to the levers, substantially as described.

680,182. WELDING. BENJAMIN B. THOMAS, Rossville, Tenn. Filed Feb. 27, 1901. Serial No. 49,157. (No specimens.)

Claim.—1. The herein-described method of welding metals, consisting in cleansing the latter, raising the same to a red heat, subjecting the heated portions to a welding-powder, which has the properties of promoting fusion, causing softening during the heating of the metals, and also hardening during the cooling thereof, and consisting of carbonate of iron, steel-dust, or cast-iron filings, pulverized glass, pulverized borax, prussiate of potash, muriate of ammonia and pulverized rosin, then reheating the treated metals to a white heat, and finally submitting the metals to a continuous pressure.

2. A step in the process of welding, consisting in subjecting the heated metals to the action of a welding compound having the properties of promoting fusion, producing softening, and also promoting hardening and preventing disintegration of the metals during and after the cooling thereof, and composed of carbonate of iron, steel-dust, or cast-iron filings, pulverized glass, pulverized borax, prussiate of potash, muriate of ammonia and pulverized rosin.

680,183. BARREL. GRANVILLE M. TILGHMAN, West Norfolk, Va. Filed May 22, 1901. Serial No. 61,390. (No model.)



Claim.—1. The barrel or like package substantially as herein described, consisting of the inner and outer series of staves reversely arranged and each stave being formed with its ends square and parallel with each other and between its ends with its side edges curved from end to end on continuous curves, all substantially as described whereby the ends of the staves will be approximately opposite each other in the direction of length of the package and such staves will be deflected between their ends in the direction of their planes and in the direction of the circumference of the package substantially as and for the purposes set forth.

2. A barrel or like package formed with staves whose ends are opposite each other in the direction of length of the package and which are deflected between their said ends in the direction of the circumference of the package substantially as set forth.

3. A stave for barrels or like packages which is deflected between its ends in the direction of its plane whereby the staves can be arranged in a package with their ends opposite each other in the direction of length of the package, and their intermediate portions will be deflected at one edge outward in the direction of the circumference of the package substantially as set forth.

4. A barrel or like package composed of inner and outer series of staves which are deflected laterally between their ends in the direction of the circumference of the package and spaced apart, the direction of deflection of the inner and outer series being reversed substantially as set forth.

5. A stave substantially as herein described comprising a single section, having its ends square and parallel with each other, and deflected between its ends in the direction of its plane.

6. A stave having its ends square and parallel with each other and having its side edges formed on curved lines extending between the said ends whereby the stave will be deflected between its ends in the direction of its plane substantially as set forth.

7. A barrel or like package having its staves formed with their intermediate portions deflected in one direction only circumferentially of the barrel with respect to a line drawn through the opposite ends of the stave substantially as set forth.

8. A stave for use in barrels and like packages, having its ends square and parallel with each other, and deflected in the plane of the stave laterally between its ends, with respect to a line dropped between said ends at right angles thereto and outward in the direction of the circumference of the package, substantially as set forth.

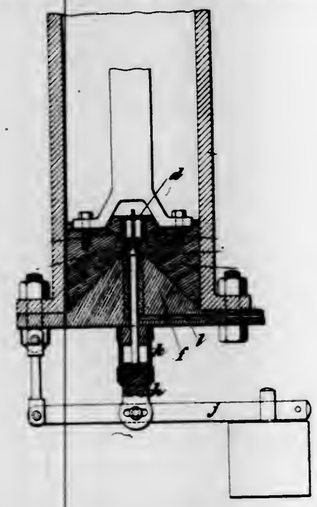
9. A barrel or like package, consisting of a circular series of staves, whose ends are square and parallel to each other, and which are deflected between their said ends laterally to lines drawn between their said ends at right angles thereto, whereby there will be produced a package whose staves stand with their opposite ends approximately opposite each other in the direction of the length of the package, while their intermediate portions are deflected in the direction of the planes of the staves and of the circumference of the package, substantially as shown and described.

10. A stave substantially as described, having its ends square and parallel with each other and having its side edges formed on uniform curves extending between the said ends, the opposite side edges of the stave being curved concentrically, substantially as and for the purposes set forth.

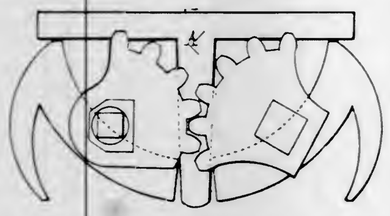
680,184. AIR OR GAS EXHAUSTING PUMP. MICHEL TOUPIKOW, St. Petersburg, and CHARLES K. GRAHAM, Zavod, Russia. Filed Dec. 8, 1900. Serial No. 39,222. (No model.)

Claim.—An air or gas exhausting pump, consisting of a cylinder, a removable bottom therefor provided on its upper face with a cone-shaped portion extending within said cylinder, said bottom further provided with a vertical passage extending therethrough at the center thereof and further provided with a horizontally-extending passage communicating with said vertical passage, means for connecting said bottom to said cylinder, a piston operating in said cylinder and having its lower face made to conform to the shape of the conical-shaped portion of the bottom, said piston formed with sloping passages adapted to communicate with the vertical passage in the bottom of said cylinder, a discharge-valve carried by said

piston and adapted to open and close the sloping passages therein, a valve-stem extending through said vertical passage in said bottom, a suction-valve secured to the upper end of said stem and engaging said discharge-valve, a weighted lever pivotally connected with the said bottom, a head carried by said lever and suitably connected to the lower end of said stem, and a flexible tube connected to said head and with said bottom.



680,185. STOVE-GRATE. CHARLES F. TURNER, Hunter, N. D., assignor of one-half to David H. Houston, same place. Filed Dec. 4, 1900. Serial No. 38,660. (No model.)



Claim.—1. The combination of a duplex grate and a supplementary grate resting upon and adapted to be moved by the duplex grate, said supplementary grate being provided with a depending flange arranged to pass between the halves of the duplex grate.

2. The combination of a duplex grate and a supplementary grate resting upon the duplex grate, said supplementary grate being provided with a depending flange arranged to pass between the halves of the duplex grate.

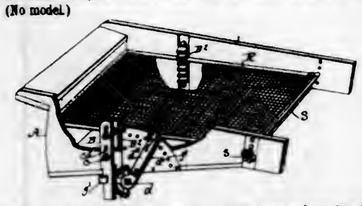
3. As a new article of manufacture, a supplementary grate adapted to combine with a duplex grate, said supplementary grate having a depending flange adapted to pass between the halves of a duplex grate, for the purpose described.

680,186. NESTABLE PAPER BOX. JOHN R. VAN WORMER, Atlanta, Ga., assignor of one-half to J. Frank Beck, same place. Filed Mar. 1, 1900. Serial No. 6,890. (No model.)



Claim.—The superposed folded boxes described, in combination with the lid of one box in which the said superposed boxes are contained, and the lid of the other box arranged over the first-named lid, whereby two complete closed boxes substantially identical in size, shape and construction may be arranged to be shipped in the form of one single box substantially as and for the purpose set forth.

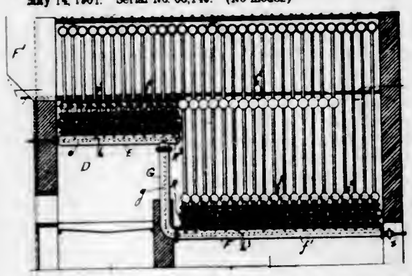
680,187. GRAIN THRESHER AND SEPARATOR. ORRIN C. ZIMMERMAN, Hampton, Iowa. Filed Apr. 21, 1899. Serial No. 713,904. (No model.)



Claim.—1. In a grain-separator, a main frame adapted to be connected with the operative mechanism of a separator, bars adapted for carrying sieves inside of said main frame, adjustable bars on the outer sides of the parallel side walls of the main frame, slots in the said parallel side walls, bolts extended through said slots for connecting the adjustable bars on the outer sides of the main frame with the bars inside for carrying sieves, and means for raising and lowering the bars on the outside and the bars on the inside of the main frame simultaneously, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a grain-separator, a main frame adapted to be connected with the operative mechanism of a separator and provided with openings in its parallel sides, bars having racks on their lower end portions fitted to the parallel sides of the main frame on their outer sides and adapted for vertical adjustment, bars provided with lateral projections on their inside faces to support sieves on the inner sides of the parallel sides of the frame, means for connecting the bars on the inside of the main frame with the bars on the outside of the same frame, a rotatable shaft in bearings on the under side of the bottom of the main frame and toothed sectors on each end of the shaft to engage said racks on the adjustable bars, a lever for operating the rotatable shaft and means for locking the shaft, arranged and combined to operate in the manner set forth for the purposes stated.

680,188. BOILER. STEPHAN AMAN, Port Richmond, N. Y. Filed May 14, 1901. Serial No. 60,149. (No model.)



Claim.—1. In a boiler, removable sections, comprising manifolds, tubes connecting the said manifolds, independent conduits contained in the lower manifolds of the sections, mud-drums under the lower manifolds, and valves interposed between the said lower manifolds and mud-drums.

2. In a boiler, removable sections, comprising manifolds, tubes connecting the manifolds, pipes in the lower manifolds, mud-drums under the lower manifolds, valves interposed between the lower manifolds and mud-drums, a conduit in each mud-drum, a water-feed pipe connecting with said conduits, risers extending from said conduits, and leading to the pipes in the lower manifolds.

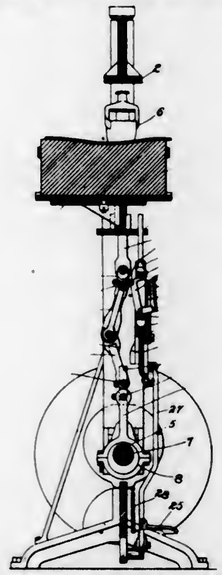
3. In a boiler, removable sections, comprising manifolds, tubes connecting the manifolds, an independent conduit contained in each lower manifold, mud-drums under the lower manifolds, valves interposed between the lower manifolds and mud-drums, two ports in said valves, one port connected with the conduits in the manifolds and mud-drums, and the other ports connecting the main portions of the mud-drums and manifolds.

4. In a boiler, removable sections, comprising manifolds, tubes connecting the said manifolds, independent conduits in the lower manifolds, mud-drums under the lower manifolds, valves interposed between the said lower manifolds and mud-drums, a steam-dome connected to the top manifolds, a check-valve and by-pass with valve interposed between each top manifold and the steam-dome.

5. A boiler, sections of different lengths in the boiler, the said sections comprising manifolds, tubes connecting the manifolds, mud-drums under the lower manifolds, double-ported valves connecting the mud-drums and lower manifolds, a pipe connecting the mud-drum under the shorter sections, with the mud-drum under the longer sections, a feed-pipe entering a conduit under the shorter sections, said conduit extending to and into the mud-drum under the longer sections, risers extending from said conduits and leading to the valves, and into pipes and conduits in the lower manifolds extending from the said valves, a furnace under the shorter sections, a flue connection in front of the shorter connections, a steam-dome connected with the top manifolds.

6. A boiler, sections of different lengths in the boiler, the said sections comprising manifolds, tubes connecting the manifolds, mud-drums under the lower manifolds, valves connecting the mud-drums and lower manifolds, a pipe connecting the mud-drums, a feed-pipe connecting with a conduit in the mud-drums and in the connecting-pipe of said drums, risers extending from said conduits and leading through valves into pipes and conduits in the lower manifolds, a furnace under the shorter sections, a flue connection in front of the said shorter sections, a steam-dome connected with the top manifolds, check-valves and a by-pass between each top manifold and the steam-dome, a pipe leading from steam-dome to a lower mud-drum, independent spray-piping with outlets extending around the sections of the boiler.

680,189. PRESS FOR LEATHER-CUTTING, &c. ALBERT G. BREWER, Hopkinton, Mass. Filed Dec. 13, 1900. Serial No. 39,738. (No model.)



Claim.—1. In a press, a press member, a continuously-moving actuator, a motion-transmitting connection between said press member and actuator, adapted to assume an operative or an inoperative position, a controller having provisions for rendering said connection operative when moved in a certain manner, and means automatically actuated through a continuation of said movement of the controller for rendering its provisions inoperative.

2. In a press, a press member, a continuously-moving actuator, a toggle adapted, when set, to form a motion-transmitting connection between said actuator and press member and rendered inoperative when broken, a controller having provisions for setting the toggle when moved in a certain manner, and means automatically actuated through said movement of the controller for rendering its said provisions inoperative, after the toggle has been set.

3. In a press, a press member, a continuously-moving actuator, a toggle adapted, when set, to form a motion-transmitting connection between said actuator and press member and rendered inoperative when broken, a controller having a latch adapted to engage and set the toggle during the movement of the controller in a certain manner, and means automatically actuated through said movement of the controller for retracting the latch from operative position after the toggle has been set.

4. In a press, a press member, a continuously-moving actuator and a controller, both adapted to project the press member, a toggle interposed between the actuator and press member and adapted to be set by the controller, said toggle when set forming a motion-transmitting connection between the actuator and press member, coacting devices on the controller and toggle whereby the controller engages and sets the toggle and thereby projects the press member, and means automatically actuated during the projecting movement of the press member for throwing one of said devices out of the path of the other.

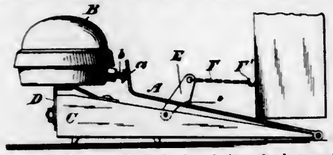
5. In a press, a press member, a continuously-moving actuator, a toggle adapted, when set, to form a motion-transmitting connection between said actuator and press member and rendered inoperative when broken, a slide having a latch adapted to engage and set the toggle, and a fixed abutment adapted to engage and retract the latch during a continuation of the toggle-setting movement of the slide.

6. In a press, a press member, a continuously-moving actuator, a toggle adapted, when set, to form a motion-transmitting connection between said actuator and press member and rendered inoperative when broken, provisions under control of the operator for setting the toggle, and means actuated automatically through the retracting movement of the toggle for breaking the toggle.

7. In a press, a press member, a continuously-revolved eccentric, a toggle adapted, when set, to form a motion-transmitting connection between the eccentric and press member and rendered inoperative when broken, a controller adapted to set the toggle and impart a relatively quick initial projecting movement to the press member, the eccentric imparting to said member a relatively slow final projecting movement, and means actuated automatically through the retracting movement of the toggle for breaking the toggle.

8. In a press, a press member, a continuously-moving actuator adapted to impart a relatively slow movement of pressure to said press member, a device under control of the operator for imparting a relatively quick movement of clearance to said member, a motion-transmitting mechanism intermediate between the actuator and press member and adapted to be set by said device, and means actuated automatically through the retracting movement of the mechanism for throwing said mechanism out of action.

680,190. DOOR CHECK AND ALARM. JOSEPH A. BRITTON, New York, N. Y. Filed June 10, 1901. Serial No. 63,966. (No model.)



Claim.—1. In a combined check and alarm for doors and the like, the combination with an alarm mechanism proper having a device pushed to actuate the same, of a rigid wedge-shaped base and a resilient arm, said arm having one end bent and slidably engaged with said device and its other end essentially arranged immediately over the inclined surface of the rigid wedge-shaped base and attached at the point of the latter, whereby it will be rigidly supported by said inclined surface at the place which is engaged by the door or like device when it is depressed, said arm being normally arranged in inclined position above and out of contact with said inclined surface, substantially as described and for the purposes specified.

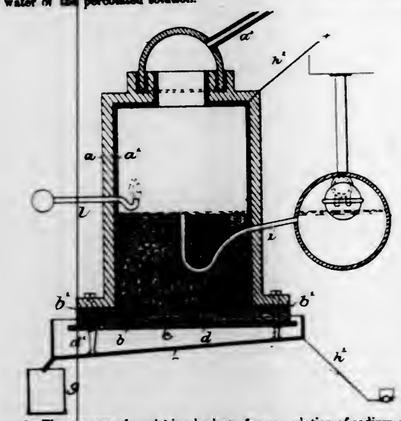
2. In an alarm for doors and the like, the combination with an alarm mechanism proper having a device pushed to actuate the same, of an actuating means for said device embracing an inclined arm having one end adapted to be engaged by the door and depressed by movement of the same in one direction and its other end adapted to push said device when the arm is depressed, a lever connected with said arm for depressing the same, and a means for connecting said lever with said door so as to cause the arm to be depressed by movement of the door in a direction opposite that hereinabove mentioned.

3. In a combined check and alarm for doors and the like, the combination of a base and a spring on its upper part, presenting an inclined plane, an alarm mechanism at the upper free end of the said spring which end is normally removed a slight distance from the upper surface of the base, and a lever, the movement of which in a direction opposite to the upper end of the spring will depress the said spring, and means for attaching the said lever to the base and the door.

680,191. ELECTROLYZING SALTS OF ALKALI METALS. EDWARD A. ALLEN, Rumford Falls, Me., and HUGH K. MOORE, Lynn, Mass., assignors, by mesne assignments, to Moore Electrolytic Company, Portland, Me., and Boston, Mass. Filed Oct. 22, 1897. Serial No. 656,064. (No specimens.)

Claim.—1. The process of producing hydrate from sodium salt, consisting in bringing a solution of said salt in contact with one face of

a non-conducting diaphragm of sufficient porosity to readily permit percolation, passing an electric current through said solution and diaphragm into an unimmersed cathode, causing the undecomposed solution to pass through said diaphragm thereby depositing metallic sodium in the cathode, converting the sodium into hydrate by the water of the solution which passed through the diaphragm and washing the hydrate from the cathode by water of the percolated solution.



2. The process of producing hydrate from a solution of sodium salt, consisting in placing said solution in contact with one face of a non-conducting diaphragm of sufficient porosity to readily permit percolation, passing an electric current through said solution and diaphragm into an unimmersed cathode, causing the undecomposed solution to pass through said diaphragm, thereby depositing metallic sodium in the cathode, converting the sodium into hydrate by the water of the solution which passes through the diaphragm, removing the hydrate from the cathode by the water of the percolated solution, and continuously withdrawing the solution of sodium chlorid and sodium hydrate, to prevent its diffusion through the cell.

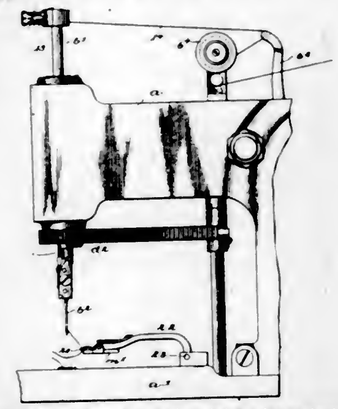
3. The process of producing hydrate from a solution of sodium or potassium salt consisting in placing said sodium or potassium solution in contact with one face of a non-conducting diaphragm of sufficient porosity to readily permit percolation, passing an electric current through the solution and diaphragm into an unsubmerged cathode in contact with the outer face of said diaphragm, said cathode being a porous layer of such thickness as to retain a considerable body of liquid in its pores, by capillary action, thereby in the first instance depositing metallic sodium or potassium in the cathode, causing the undecomposed portions of the solution to pass through said diaphragm and by the water contained therein converting the sodium or potassium previously deposited in the cathode into hydrate and completing the electrolytic decomposition of such sodium or potassium salt as has passed through said diaphragm.

4. The herein-described process for producing hydrate from sodium or potassium chlorid, consisting in bringing an undecomposed aqueous solution of such chlorid into contact with one face of a non-conducting diaphragm of sufficient porosity to readily permit percolation, passing an electric current through said solution and diaphragm into an unimmersed metallic cathode which holds by capillary attraction a considerable quantity of the said solution, whereby there is deposited in said cathode metallic potassium or sodium, converting said metallic potassium or sodium into hydrate by the water of the undecomposed solution in the cathode, and continuously completing in the pores of the cathode the electrolytic decomposition of the said chlorid solution and the hydration of the metal which results therefrom until the hydrate solution is greater than the capacity of the cathode to hold it by capillary action, whereby said hydrate solution flows by gravity from said cathode.

5. The process of producing the hydrate from the salt of an alkaline metal, consisting in continuously filtering a solution of said salt through a permeable non-conducting diaphragm into the capillary pores of a spongy cathode; passing a current of electricity through said solution and diaphragm to said cathode; continuously washing away the hydrate by the passage of the filtered liquid through the cathode, and removing the hydrate and filtered solution from the cell simultaneously with its removal from the cathode.

680,192. **THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES.** BENJAMIN J. BERGMAN, New York, N. Y. Filed Apr. 24, 1900. Serial No. 14,099. (No model.)

Claim.—1. In a buttonhole-sewing machine, stitch-forming mechanism comprising a needle-bar, means to rotate said needle-bar, an attached pull-off having a thread-receiving hole near its end to receive the needle-thread on its way to the needle-bar, and an attached thread-guard extending lengthwise of the pull-off and on which the thread is adapted to be freely supported, the rotation of the needle-bar in stitching a buttonhole pulling off a supply of thread with which to commence the next buttonhole.



2. In a buttonhole-sewing machine, stitch-forming mechanism comprising a needle-bar, means for rotating said bar, an attached pull-off having a series of thread-receiving eyes near its end and a thread-guard connected to said pull-off, said guard extending lengthwise of the pull-off and on which the thread is adapted to be freely supported.

3. In a sewing-machine, a hollow needle-bar; means for rotating said bar, a connected eye-pointed needle, a pull-off composed of an arm and collar surrounding the needle-bar, the arm having a series of thread-passages to receive the thread on its way through the hollow needle-bar to the eye-pointed needle, means to connect said collar adjustably with the needle-bar, the side of the arm and the collar-sustaining thread at the completion of the stitching of a buttonhole which is given up at the commencement of the next buttonhole.

4. A hollow needle-bar, a pull-off adjustably attached to said needle-bar and having a thread-receiving eye near its outer end to receive the thread preparatory to its passage through said needle-bar, and means to rotate said needle-bar during the stitching operation to draw off slack thread from the thread-supply during stitching and to give up said slack thread during a reverse movement of said needle-bar to put it in position to resume stitching of another buttonhole, and a thread-guard extending on one side of the pull-off and on which the thread is adapted to be supported.

5. In a sewing-machine, the combination with the stitch-forming mechanism comprising a needle-bar, of a pull-off axially adjustable on said needle-bar and having a series of thread eyes or passages for the thread located at different distances from the needle-bar and thread-guards connected to said pull-off and movable therewith and on which the thread is adapted to be freely supported.

6. In a sewing-machine, the combination with the stitch-forming mechanism comprising a needle-bar, of a pull-off carried by said needle-bar, and having a thread-eye, and thread-guards extending lengthwise of and above and below the pull-off between which the thread is adapted to be freely supported.

680,193. **FOUNTAIN OILING DEVICE.** GUSTAVE BURKHARDT, Chicago, Ill. Filed Mar. 23, 1901. Serial No. 52,529. (No model.)



Claim.—1. The combination of a body having an opening at the bottom thereof, a feeding and rubbing device arranged in said opening and fastening means on the body adjacent to said opening for clamping

the side and end walls of the opening in the body upon the feeding and rubbing device to secure the same in place, substantially as described.

2. The combination of a tapered body having an opening at the bottom thereof, a feeding and rubbing device arranged in said opening and means for compressing the sides and ends of the body upon said device to secure the same in place, substantially as described.

3. The combination of a body having an opening at the bottom thereof, a feeding and rubbing device arranged in said opening, creases in the ends of the body, and means for fastening the body upon the feeding and rubbing device to secure the same in place, substantially as described.

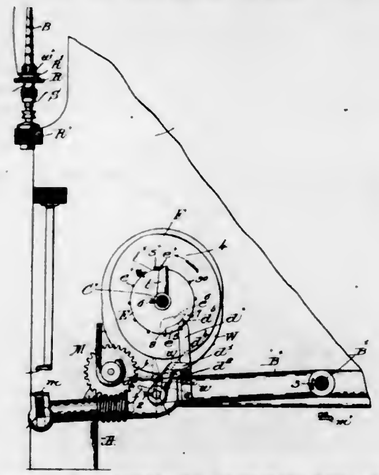
4. The combination of a body having an opening at the bottom thereof, a feeding and rubbing device arranged in said opening, rods carried by the body adjacent to said opening, creases in the ends of the body, and bolts passing through said rods and securing the feeding and rubbing device in place between the sides of the body, substantially as described.

5. The combination of a body having an opening at the bottom thereof, two pieces of felt secured in said opening, and ribs on the inner sides of the ends of the body for separating the upper portions of the felt pieces, substantially as and for the purpose described.

6. The combination of a body having an opening at the bottom thereof and closed sides and ends, a feeding and rubbing device arranged in said opening and comprising two pieces of felt, and a liquid-supply tank supported within the body above the felt pieces and provided with openings through which the liquid feeds to said felt pieces, substantially as described.

7. The combination of a body having an opening at the bottom thereof, a feeding and rubbing device arranged in said opening, a liquid-supply tank in the upper portion of the body, and a top for said tank having its edges extended beyond the tank to engage the upper edges of the sides and ends of the body to constitute a top also for the body, substantially as described.

680,194. **SPINNING-FRAME.** ROBERT J. CHAPMAN, Lowell, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filed June 3, 1901. Serial No. 62,820. (No model.)



Claim.—1. In a spinning-frame, a builder-motion, primary and secondary actuators therefor, the former effecting the winding of a bunch, and the latter the winding of the main body of yarn, upon a yarn-receiver, and means to automatically render the primary actuator inoperative and the secondary actuator operative after the bunch has been wound.

2. In a spinning-frame, a builder-motion, and automatically-operating controlling means therefor to effect the winding of a bunch, and thereafter the main or service winding, of yarn upon a yarn-receiver.

3. In a spinning-frame, a builder-motion, warp and filling wind actuating devices therefor, and means to automatically render the former of said devices inoperative after a bunch of yarn has been wound upon a receiver, and the latter of said devices operative, to complete the main winding of the yarn.

4. In a spinning-frame, a builder-motion, including a builder-arm, two different actuating-cams therefor, to effect respectively the winding of a bunch, and the main winding, of yarn upon a yarn-receiver, and means to automatically render one cam inoperative and effect the coöperation of the other cam with the builder-arm.

5. In a spinning-frame, a builder-motion, including a builder-arm, and a winding mechanism carried thereby, two traverse-cams to coöperate one at a time with the builder-arm, to effect different winding of yarn upon a yarn-receiver, and means to automatically render one cam inoperative and the other operative.

6. In a spinning-frame, a builder-motion, including a builder-arm, a winding mechanism mounted thereon, and an actuator for said mechanism, two traverse-cams to coöperate singly with and actuate the builder-arm, and means to automatically effect coöperation of first one and thereafter the other of the cams with the builder-arm, and to render the winding mechanism inoperative during the actuation of the builder-arm by one of the cams.

7. In a spinning-frame, a builder-motion, including a builder-arm, a bunch-winding cam, a body-winding cam, a follower for each cam, carried by the builder-arm, and means to automatically move one follower into inoperative, and the other into operative, position, to thereby effect the actuation of the builder-arm by the bunch-winding and body-winding cams successively.

8. In a spinning-frame, a builder-motion, including a building-arm, two different actuating-cams, two connected followers pivotally mounted on the builder-arm, one for each cam, a detent to hold one of the followers in operative position, and means to automatically release the detent at a predetermined time to move the operating-follower into inoperative position and effect the coöperation of the other follower with its cam.

9. In a spinning-frame, a builder-motion, including a builder-arm, a rotatable shaft, bunch-winding and body-winding cams fast thereon, two connected followers pivotally mounted on the builder-arm and having an attached dog, a detent for the latter, a friction-actuated releasing device for the detent, mounted on the shaft and adapted to be intermittently rotated thereby, a stop for said device, and means to render said stop inoperative at each revolution of the shaft, the releasing device at each complete rotation thereof acting upon the detent to release the dog, and thereby acting upon the detent to release the dog and thereby change the followers, whereby the builder-arm is controlled first by the bunch-winding, and then by the body-winding, cam.

10. In a spinning-frame, a builder-motion, means to actuate it to wind a bunch of yarn upon a yarn-receiver, separate means to effect the body-winding of yarn upon the receiver, and a controlling device to automatically render the first means inoperative, and the second means operative, after the winding of the bunch of yarn has been completed.

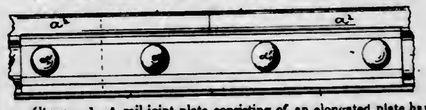
11. In a spinning-frame, the reciprocating ring-rail, auxiliary traversing mechanism therefor to effect warp-wind of yarn upon the base of a yarn-receiver, to form a bunch thereon, main traversing mechanism to effect filling-wind of the yarn upon the body of the receiver, and means to automatically change from warp-wind to filling-wind after a bunch of yarn has been wound upon the receiver.

12. In a spinning-frame, a builder-motion, actuating mechanism therefor to lay yarn on a yarn-receiver with warp-wind, and separate actuating mechanism to lay the yarn with filling-wind, and means to automatically change the action of the builder-motion from warp to filling wind.

13. In a spinning-frame, a builder-motion, two separate actuators therefor, to respectively wind a bunch of yarn on a yarn-receiver and thereafter to effect the service-winding of the yarn, and means to automatically render the former of said actuators inoperative and the latter operative at a predetermined time.

14. In a spinning-frame, a builder-motion, to effect the service-winding of the yarn upon a yarn-receiver, mechanism to vary the action of the builder-motion, to cause the latter to wind a bunch of yarn on the receiver, and means to automatically render such mechanism inoperative after the bunch of yarn has been wound, and permit the normal operation of the builder-motion to be effected.

680,195. **RAILWAY-RAIL JOINT.** RICHARD B. CHARLTON, Milwaukee, Wis., assignor to the Continuous Rail Joint Co. of America, of New Jersey. Filed Apr. 5, 1901. Serial No. 54,464. (No model.)



Claim.—1. A rail-joint plate consisting of an elongated plate having a foot and top flange projecting therefrom laterally in reversely-oblique directions at the same side, and spreading means adapted to be forced between said flanges.

2. A box-girder for a rail-joint, comprising an elongated fish-plate having a foot and top flange projecting therefrom laterally in reversely-oblique directions at the same side, and an interposed reinforcing-plate bearing against the inner surfaces of the foot and top flanges at a distance from the main plate.

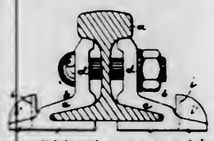
3. A box-girder for a rail-joint, comprising an elongated fish-plate having a foot and top flange projecting therefrom laterally in reversely-oblique directions at the same side, an interposed reinforcing-plate bearing against the inner surface of the foot and top flanges at a distance from the main plate, and means for clamping the members together and to the meeting ends of the two rails.

4. A box-girder for a rail-joint, comprising an elongated main plate having a laterally-obliquely downwardly-projecting foot-flange, and a laterally-obliquely upwardly-projecting top flange, a reinforcing-plate fitted between and wedgingly against the inclined inner surfaces of the foot and flange members at a distance from the main plate, and means clamping the reinforcing member in place.

5. In a rail-joint, the combination with the meeting ends of two rails, having an upright web and a head and base forming at the under and upper sides, respectively, outwardly-diverging surfaces, of a fish-plate having a body part adapted to lie parallel to the rail-web at a distance therefrom and having at its opposite edges flanges projecting laterally at the same side and presenting oppositely-inclined surfaces on their inner faces and at their outer faces being adapted to engage the head and base of the rail, a spreader adapted to engage the inner inclined faces of the said flanges, and means for clamping said parts together.

6. In a rail-joint, the combination with a rail having an upright web, a head and a base projecting therefrom and forming at their facing sides divergent surfaces, of a fish-plate comprising a plate substantially U-shaped in cross-section and adapted to be laid between said head and base of the rail with its middle or body part parallel thereto, a spreading or reinforcing plate adapted to be inserted between the flanges of the fish-plate parallel to the body part, and bolts passing transversely through the rail, fish-plate and spreader for clamping them together.

680,196. **RAILWAY-RAIL-JOINT PLATE.** RICHARD R. CHARLTON, Milwaukee, Wis., assignor to the Continuous Rail Joint Co. of America, of New Jersey. Filed Apr. 5, 1901. Serial No. 54,465. (No model.)



Claim.—1. A rail-joint plate, constructed integrally of metal and having a horizontal or approximately horizontally disposed member with an upright girder intermediate of the ends of said member and formed of a marginal portion of said member turned or bent upward from the normal plane of the member, while remaining connected thereto at its opposite ends by integral webs.

2. A rail-joint plate, rolled out of one integral piece of metal and having a horizontal or approximately horizontally disposed member, said member having intermediate of its ends, a vertically-upright girder formed of a marginal portion of said member turned or bent upward at substantially right angles to the body portion.

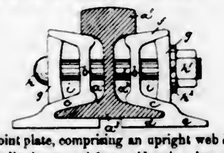
3. A rail-joint plate constructed integrally of metal, comprising an upright member, a laterally-extending foot member, an under inwardly-extending base member, a toe member projecting laterally from the foot and base members in the plane of the base member, and a girder medially of the length of the plate formed of a marginal portion of the toe member bat upward from the plane of the base member.

4. In a rail-joint, an integral plate having a laterally-extending foot member and an under inwardly-extending base member, said parts being adapted to embrace the edge of the base of a rail, a toe member extending laterally from the junction of said foot and base members, and two girders medially of the length of the plate and in the same transverse line, one being formed of a downturned portion of the inner edge of the base member and the other of an upturned portion of the outer edge of the toe member, whereby access to the under side of the plate is provided at the toe member.

5. A rail-joint plate constructed integrally of metal, having an upright member, a laterally-extending foot member, an inwardly-extending base member beneath said foot member, a corrugated or ribbed toe member projecting laterally from the junction of said foot and base members, and a girder intermediate of the ends of the plate and formed by upturning a marginal portion of said corrugated toe member.

680,197. **RAILWAY-RAIL JOINT.** RICHARD R. CHARLTON, Milwaukee, Wis., assignor to the Continuous Rail Joint Co. of America, of New Jersey. Filed Apr. 5, 1901. Serial No. 54,466. (No model.)

Claim.—1. A joint-plate for railway-rails, comprising an integral elongated plate having a vertical web, a foot member extending outwardly downward from the lower edge of said web, a base member turned under said foot member, an outwardly-extending top member, at the upper edge of said web, an interposed reinforcing-plate bearing against the inner surfaces of said top member and foot member at a distance from the vertical web, and means for clamping to the rails.

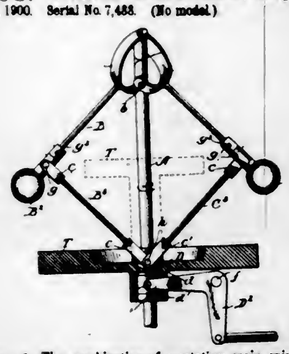


2. A rail-joint plate, comprising an upright web *b*, a foot member *c*, extending outwardly downward from said web, a base member turned inward from the outer edge of the foot member to lie beneath said foot member, a top member extending outward from the upper edge of the web *b*, and having an upwardly-inclined under surface forming with the foot member an outwardly-enlarging space *i*, and a reinforcing-plate adapted to lie in vertical position in said space *i*, and engage the upper and lower walls thereof.

3. In a rail-joint, the combination of an integral elongated plate having an upright web *b*, a foot member *c*, extending downwardly outward from the lower part of said web, and adapted to lie upon the base of a rail, a foot member *d*, bent inwardly under the foot member and adapted to lie against the bottom of a rail, a top member *f*, extending outwardly upward from the upper part of the web *b*, a reinforcing-plate *g*, placed edgewise between the foot and top members and engaging the same at its opposite edges while at a distance from the web *b*, and means for retaining said reinforcing-plate in place.

4. In a railway-rail joint, the combination with the meeting ends of two rails, of a fish-plate laid against the side of the rails and having an upright member adapted to engage at its upper and lower edges the head and base-flange of the rail, respectively, while remaining away from the web of the rail, a foot member extending downwardly outward from the lower edge of the upright member and being bent inward beneath itself to clasp the rail-base flange, a top member extending outward from the top edge of the upright member and presenting an upwardly-inclined under surface, a reinforcing-plate adapted to stand parallel to the upright member with its edges pressing oppositely against the top member and foot member at points out from their junction with the upright member, and bolts passed transversely through the rail, fish-plates and reinforcing-plate for clamping said parts together.

680,198. **GOVERNOR.** EDGAR P. COLEMAN, Chicago, Ill. Filed Mar 6, 1900. Serial No. 7,488. (No model.)



Claim.—1. The combination of a rotating main spindle provided with fixed inclined pivots, heads journaled on said pivots, differential weight-arms obliquely connected with said heads, and slider-actuating links connected with one set of weight-arms, substantially as and for the purpose set forth.

2. The combination of a rotating main spindle provided with fixed inclined pivots, heads journaled on said pivots, two governor-balls obliquely attached to respective heads and disposed in such horizontal planes that their centrifugal forces are opposed, and slider-actuating links connected with one set of weights, substantially as and for the purpose set forth.

3. A governor comprising a spindle, centrifugal ball-arms, a slider and ball-arm connections with said slider, said ball-arms being obliquely pivoted upon said spindle, and also occupying oblique relations to their respective pivots, substantially as described.

4. In a governor, the combination of the governor-spindle, with the differentially-weighted arms obliquely pivoted upon said spindle and occupying angles that are oblique to their respective pivots, a slider and suitable means connecting said slider and arms, substantially as described.

5. In a governor, the combination of the governor-spindle, with the differentially-weighted arms obliquely pivoted upon said spindle and occupying angles that are oblique to their respective pivots, a slider, suitable means connecting said slider and arms, and an inertial load upon said slider, substantially as described.

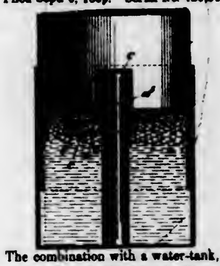
6. In a governor, the combination of the governor-spindle, with the ball-arms obliquely pivoted with respect to said spindle, and revoluble therewith, said ball-arms occupying angles that are oblique to their respective pivots, a slider and connecting-links, substantially as described.

7. In a governor, the combination of the spindle with the ball-arms obliquely pivoted with relation to said spindle and revoluble therewith, said arms occupying oblique relation to their pivots, a slider, links connecting said slider and said arms, and an inertial load upon said slider, substantially as described.

8. A centrifugal governor comprising a spindle, ball-arms, a slider and connecting-links, said ball-arms being obliquely pivoted upon said spindle and arranged obliquely with relation to their pivots and said slider being capable of partial rotation about said spindle, substantially as described.

9. A centrifugal ball-governor comprising a spindle, ball-arms, a slider and connecting-links, said ball-arms, slider and links being capable of partial rotation about said spindle and said slider being provided with the inertia load or fly-wheel, substantially as described.

680,199. **GAS-HOLDER.** AUGUSTINE DAVIS, Chicago, Ill., assignor, by direct and mesne assignments, to Carbolite Construction Company, same place. Filed Sept. 6, 1899. Serial No. 729,900. (No model.)



Claim.—1. The combination with a water-tank, a gas-holder floating within said tank, a gas-conducting pipe leading up through the water into the gas-holder, a cap closing the upper end of said pipe and extending beneath the surface of the water, an outlet-opening in the side wall of the pipe within the cap, and an outlet-passage leading from the upper end of the pipe down to the outlet-opening.

2. The combination with a water-containing gas-holder, of a gas-conducting pipe leading into said holder and provided with an outlet-passage discharging the gas beneath the surface of the water, and a hood surrounding the outlet-passage and extending above the surface of the water and provided in its portion above the water with minute perforations through which the gas is forced into the holder.

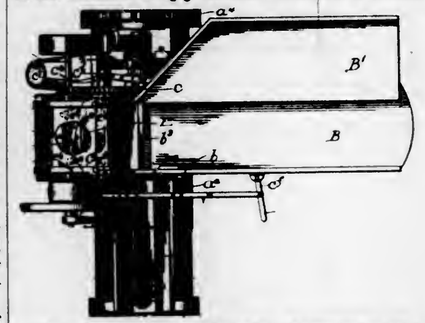
3. The combination with a water-containing gas-holder, of a gas-conducting pipe leading into said holder through the water therein, a cap covering the upper end of said pipe, an outlet-opening in the side of the pipe below its top, and a partition within the pipe extending from below the opening nearly to the top of the pipe.

4. The combination with a water-containing gas-holder, of a gas-conducting pipe leading into said holder through the water contained therein, a cap covering up the end of said pipe, an outlet-opening in the side of the pipe below the top, a partition within the pipe leading from below the opening nearly to the top of the pipe, a downwardly-open spout beneath which the gas is discharged from the opening, and a serrated margin on said spout.

5. The combination with a water-containing gas-holder, of a gas-conducting pipe leading into said holder, a submerged open discharge-spout beneath which the gas is discharged from the pipe, and a hood surrounding said spout and extending above the surface of the water and provided in its portion above the water with minute perforations through which the gas passes into the holder.

680,200. **CORN SNAPPING, CUTTING, AND HUSKING MACHINE.** HENRY L. FERRIS, Harvard, Ill., assignor to Hunt, Helm, Ferris & Company, same place. Filed July 24, 1900. Serial No. 24,646. (No model.)

Claim.—1. In a machine of the class described, the combination with the feed-rolls, of a clutch for connecting and disconnecting the same with and from the driving-gear, and an operating-handle for said clutch suitably connected therewith, located in the ordinary path of movement of the body of the feeder as he approaches the feed-rolls, and moving in the same direction to disengage the clutch; substantially as described.



2. In a machine of the class described, the combination with a longitudinally-reciprocating clutch-operating rod, c^4, of an operating-bar therefor at right angles and slidingly connected to said rod, said bar being carried by a pair of links, one of which forms an operating-handle for reciprocating the bar longitudinally and laterally; substantially as described.

3. In a machine of the class described, the combination with a suitable framework, of a feed-trough, a husking-trough extending from the frame on the side of the feed-trough where the operator stands, suitable gearing for driving the working parts of the machine, located upon the opposite side thereof from that occupied by the operator, suitable clutches for controlling said gearing, and devices for actuating said clutches located adjacent to the operator's position and suitably connected with the clutches; substantially as described.

680,201. **WIRE FENCE.** JOHN E. FREDRICK, Kokomo, Ind., assignor to Kokomo Steel & Wire Company, same place. Filed Apr. 10, 1901. Serial No. 55,208. (No model.)



Claim.—1. A wire fence comprising a series of horizontal strand-wires and vertical stay-wires, each vertical stay-wire formed in sections and having the sections locked to each other and to the horizontal strand-wires by coils oppositely projected and interwoven one with the other at the opposing ends of adjacent sections of the vertical stay-wire, substantially as described.

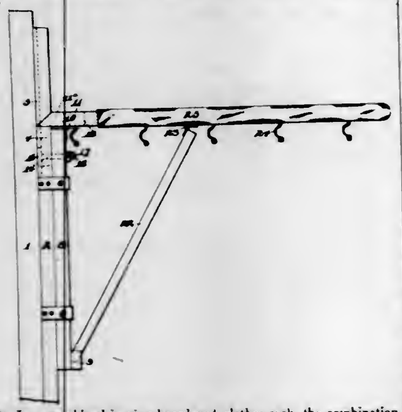
2. A wire fence comprising a series of horizontal strand-wires and vertical stay-wires, each vertical stay-wire formed in sections and having the sections approach each other on opposite sides of the horizontal strand-wires and locked to each other and to the horizontal strand-wires by coils oppositely projected and interwoven one with the other at the opposing ends of adjacent sections of the vertical stay-wires, and barbs formed by extending the end of the coils of each section of the vertical stay-wire, substantially as described.

3. A wire fence comprising a series of horizontal strand-wires and vertical stay-wires, each vertical stay-wire formed in sections and having the sections approach each other on opposite sides of the horizontal strand-wires and locked to each other and to the horizontal strand-wires by coils oppositely projected and interwoven one with the other at the opposing ends of adjacent sections of the vertical stay-wires, and barbs formed by extending the end of the coils of each section of the vertical stay-wire for the extended end to stand in right-angle relation to the horizontal or strand wire, substantially as described.

680,202. **COMBINED IRONING-BOARD AND CLOTHES-RACK.** GEORGE R. FREEMAN, Turtlecreek, Pa., assignor of one-half to Thomas Oakley, Wilkinsburg, Pa. Filed Jan. 24, 1901. Serial No. 44,538. (No model.)

Claim.—1. In a combined ironing-board and clothes-rack, the combination of a standard, guideways arranged therein, guides secured to said standard, a sliding support connected to said standard, an ironing-board hinged to the upper end of said sliding support, a locking-hook having a head on one end thereof and a hook portion on the other end, said lock-

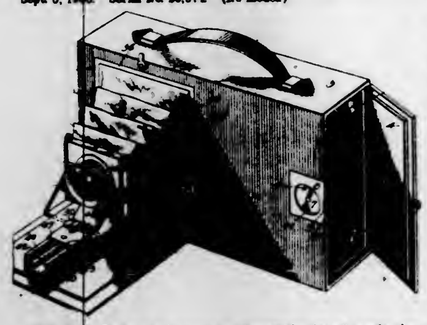
ing-book adapted to engage in the said guideways, substantially as described.



2. In a combined ironing-board and clothes-rack, the combination of a standard, guideways arranged therein, guides secured to said standard, a sliding support connected to said standard, an ironing-board hinged to the upper end of said sliding support, hooks secured to the under face of said ironing-board, a locking-hook having a circular head on one end thereof and a hook portion on the other end, said locking-book adapted to engage in the said guideways to hold the ironing-board locked in an upright position, substantially as described.

3. In a combined ironing-board and clothes-rack, the combination of a standard having formed therein a slot, guideways arranged on each side of said slot in said standard, guides arranged on each side of said standard, a sliding support operating in said guides, a bolt extending through said sliding support and standard, a nut secured to the end of said bolt, an ironing-board hinged to the upper end of said sliding support, a locking-book arranged in said board adapted to engage in the guideways arranged on the sides of the slot, hooks arranged on the under face of said ironing-board, and a hinged support secured to the under face of said ironing-board and adapted to engage said sliding support, all parts being arranged and operating substantially as described and for the purpose set forth.

680,203. MAGAZINE-CAMERA. CHARLES C. HENDERSON, Springvalley, Minn., assignor to Conley Camera Company, same place. Filed Sept. 5, 1900. Serial No. 29,074. (No model.)



Claim.—1. In a magazine-camera, the combination of a casing having a magazine-chamber and an exposing-chamber with a passage-way connecting the same, a sensitized-surface carrier movable through said passage-way into both of said chambers, means for automatically closing said passage-way, and a bellows located in front of and foldable into the said exposure-chamber and arranged to support a lens.

2. In a magazine-camera, the combination of a casing having a magazine-chamber and an exposing-chamber with a passage-way connecting the same, a sensitized-surface carrier movable through said passage-way into both of said chambers, means for shifting said carrier from one chamber to the other, lens devices in front of the exposing-chamber, and automatically-operating focusing means in the rear portion of the exposing-chamber.

3. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber with a passage-way connecting the same, means for moving sensitized surfaces from one chamber to the other, an automatically-operating focusing means in the rear portion of the exposing-chamber, lens devices applied to the front part of the latter chamber, and means for automatically disposing the several sensitized surfaces in proper focal range and actuated by the means for moving said surfaces.

4. A magazine-camera comprising a casing having two alined chambers, the one chamber for storing and the other chamber for exposing sensitized surfaces, and automatically-operating means in the rear portion of the exposing-chamber approximately of the same size as and for holding and vertically disposing said surfaces in proper focal range after they have been moved from the storing-chamber for the same.

5. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber respectively for the storage and exposure of sensitized surfaces, an automatically forwardly movable ground glass in the rear portion of the exposing-chamber, and a bellows in front of and foldable into the exposing-chamber and carrying lens devices.

6. A magazine-camera having two communicating chambers, the one for receiving a charge of and the other for individually exposing sensitized surfaces, and an automatically-movable focusing means in the form of a ground glass in the exposing-chamber.

7. A magazine-camera having a magazine-chamber and an exposing-chamber for respectively receiving a charge of and individually exposing sensitized surfaces, and an automatically-operating forwardly-movable device for focusing purposes within the exposing-chamber, said movable device being fully retracted to the rear of the exposing-chamber while exposing and shifting the said surfaces.

8. A magazine-camera comprising two communicating chambers for respectively receiving a charge of and individually exposing sensitized surfaces, and an automatically forwardly movable device within the exposing-chamber adapted to have the sensitized surfaces individually drawn in front of the same for focusing purposes, said movable device being fully retracted to the rear of the exposing-chamber while exposing and shifting the said surfaces.

9. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber, a partition for separating the chambers having spaces between the front and rear edges thereof and the front and rear walls of the casing, automatically-operating shutters for closing said spaces, and a carrier for moving sensitized surfaces from one chamber to the other through the said spaces.

10. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber communicating with the latter, upper and lower flat springs in the exposing-chamber having projecting portions, flat springs in the rear portion of the magazine-chamber, an automatically-operating placer in the front portion of the magazine-chamber, and a carrier for shifting sensitized surfaces from one chamber to the other in alternation.

11. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber in communication with each other, upper and lower flat springs with projections located in the exposing-chamber, flat springs in the rear portion of the magazine-chamber, an automatically-operating placer in the front portion of the magazine-chamber, rearwardly-directed substantially V-shaped springs in the upper and lower portions of the exposing-chamber, and a carrier for shifting sensitized surfaces from one chamber into the other in alternation.

12. A magazine-camera comprising a magazine-chamber and an exposing-chamber in communication with each other, upper and lower substantially V-shaped springs in the exposing-chamber having a rearward direction, and a carrier for shifting sensitized surfaces from one chamber into the other in alternation.

13. A magazine-camera comprising a magazine-chamber and an exposing-chamber in communication with each other, the magazine-chamber having upper and lower inclined dischargers at the rear thereof, and a carrier for shifting sensitized surfaces from one chamber into the other in alternation provided with a rear seat for said surfaces and movable in relation to said dischargers.

14. A magazine-camera comprising a magazine-chamber and an exposing-chamber in communication with each other, a carrier for shifting sensitized surfaces from one chamber into the other in alternation, said carrier having a rear seat for said surfaces, and an automatically-operating disposing device for said surfaces in the exposing-chamber for arranging the said surfaces in the seat of the carrier.

15. A camera comprising a magazine-chamber and an exposing-chamber in communication with each other, and a carrier for shifting sensitized surfaces from one chamber into the other and provided with a front pair of arms with hooked terminals and a rear pair of arms forming a seat for said surfaces.

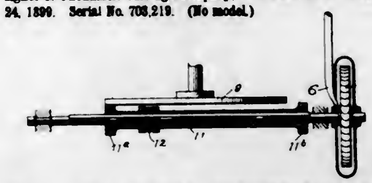
16. A magazine-camera comprising a magazine-chamber and an exposing-chamber in communication with each other, means for shifting sensitized surfaces from one chamber into the other, a drop-door in front of the exposing-chamber, and a bellows foldable into the latter chamber and adapted to be adjustably connected to the drop-door, the said bellows having lens devices.

17. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber in communication with each other, means for shifting sensitized surfaces from one chamber into the other, a drop-door in front of the exposing-chamber having slidable hangers attached thereto, and a bellows carrying lens devices foldable into the said exposing-chamber and adapted to be connected to the drop-door.

18. A magazine-camera comprising a casing having a magazine-chamber and an exposing-chamber in communication with each other, means for shifting sensitized surfaces from one chamber into the other, an automatically-operating focusing attachment in the rear of the exposing-chamber, foldable lens-carrying devices in front of the latter chamber, and a slide removably mounted in the rear portion of said exposing-chamber.

19. A magazine-camera comprising a magazine-chamber and an exposing-chamber, means for shifting sensitized surfaces from one chamber into the other, an automatically forwardly moving focusing means in the rear of the said exposing-chamber operating to properly focus said surfaces, and a slide for rearwardly closing over and retracting said focusing means.

680,204. MOTOR. ALFRED H. HOADLEY, Worcester, Mass., assignor to Pneumatic Carriage Company, New York, N. Y. Filed Jan. 24, 1899. Serial No. 703,219. (No model.)



Claim.—1. The combination in a motor-vehicle, of a fluid-pressure reservoir supported on the vehicle, an impact-motor having a connection to said reservoir, a valve in said connection, a controller for said valve, and transmitting-gearing between the motor and a driving-wheel of the vehicle, said transmitting-gearing comprising a variable-speed mechanism and a controller for said variable-speed mechanism.

2. In a motor-vehicle, the combination of a fluid-pressure reservoir supported in the vehicle, an impact-motor having a connection with said reservoir, a variable-speed and reversible transmitting mechanism operatively connecting said motor to a driving-wheel of the vehicle, and a controller for said mechanism.

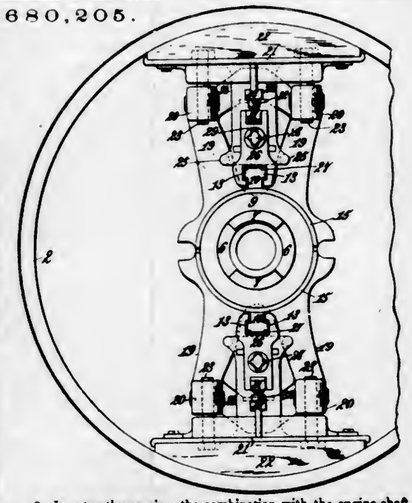
3. In a motor-vehicle, the combination of a fluid-pressure reservoir supported in the vehicle, an impact-motor having a connection with said reservoir, a throttle-valve in such connection, a variable-speed and reversing mechanism connecting said motor to a driving-wheel of the vehicle, and a controller connected to said variable-speed and reversing mechanism and to the said throttle-valve to control the same simultaneously.

680,205. FRICTION-CLUTCH FOR TRACTION-ENGINES. MINARD LAFEVER, Battlecreek, Mich. Filed June 8, 1901. Serial No. 63,771. (No model.)

Claim.—1. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, said collar being provided with a plurality of projecting lugs having tapered outer faces, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel, thrust-plates adjustably connected with said friction-shoes and arranged to be engaged at their inner ends by said lugs, and means for moving said collar longitudinally on the sleeve to cause the tapered lugs to engage the ends of the thrust-plates and force the friction-shoes into engagement with the flange of the fly-wheel, substantially as described.

2. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, said collar being provided with a plurality of projecting lugs each having a portion of its outer face beveled and the remaining portion parallel with the axis of the collar, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel, thrust-plates connected with said friction-shoes and arranged to be engaged at their inner ends by said lugs, and means for moving said collar longitudinally on the sleeve to cause the tapered portions of the lugs to engage the ends of the thrust-plates and thrust the friction-shoes into engagement with the flange of the fly-wheel and to force the parallel faces of said lugs into engagement with the thrust-plates and hold the friction-shoes in contact with the flange of the fly-wheel, substantially as described.

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3. In a traction-engine, the combination with the engine shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, said collar being provided with a plurality of projecting lugs T-shaped in cross-section and having tapered outer faces and correspondingly-tapered laterally-projecting ribs on its opposite sides, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel, thrust-plates connected with said friction-shoes and provided at their inner ends with T-shaped slots in which the said lugs are loosely fitted, and means for moving the collar longitudinally on the sleeve to cause the lugs to move the thrust-plates and friction-shoes radially in and out, substantially as described and for the purpose specified.

4. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, said collar being provided with a plurality of projecting lugs having tapered outer faces, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel, thrust-plates adjustably connected with said friction-shoes and arranged to be engaged at their inner ends by said lugs, and means for moving the collar longitudinally on the sleeve to cause the tapered lugs to engage the ends of the thrust-plates and force the friction-shoes into engagement with the flange of the fly-wheel, substantially as described.

5. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, said collar being provided with a plurality of projecting lugs having tapered outer faces, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel, thrust-plates adjustably connected with said friction-shoes and arranged to be engaged at their inner ends by said lugs, means for moving the collar longitudinally on the sleeve to cause the tapered lugs to engage the ends of the thrust-plates and force the friction-shoes into engagement with the flange of the fly-wheel, and means for adjusting the friction-shoes radially outward to compensate for wear, substantially as described.

6. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel and provided with inwardly-projecting arms, inwardly-extending thrust-plates adjustably bolted to said arms, and provided at their inner ends with T-shaped slots, radially-projecting tapered T-shaped lugs on the periphery of the collar and loosely fitted in said T-shaped slots, and means for moving the collar longitudinally on the sleeve to cause said lugs to thrust the friction-shoes radially in and out, substantially as described.

7. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, friction-shoes operatively connected to the sleeve arranged to engage the flange of the fly-wheel and provided with inwardly-projecting arms, inwardly-extending thrust-plates adjustably attached to said arms and provided at their inner ends with T-shaped slots, wedge-shaped lugs on the

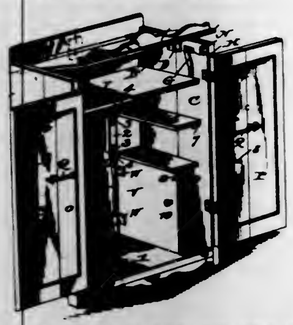
periphery of the collar and T-shaped in cross-section, said lugs being loosely fitted in said T-shaped slots and each having an untapered portion, and means for moving the collar longitudinally on the sleeve to move the thrust-plates radially in and out, substantially as and for the purpose specified.

8. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, a spider on the collar, bearings on the outer ends of the spider-arms, friction-shoes arranged to engage the flange of the fly-wheel, pins projecting inwardly from the said shoes and loosely fitted in said bearings, arms projecting radially inward from the friction-shoes, thrust-plates adjustably connected to said arms, devices carried by said collar for engaging the thrust-plates and moving them radially, and means for moving the collar longitudinally on the sleeve, substantially as described.

9. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gearing of the engine, a spider on the sleeve, radially-movable friction-shoes carried by the spider-arms and arranged to engage the flange of the fly-wheel, arms projecting radially inward from the friction-shoes and having a sliding bearing on the spider-arms, thrust-plates adjustably connected to said arms, means for moving the collar longitudinally on the sleeve, and devices carried by the collar for engaging and moving the thrust-plates radially, substantially as described.

10. In a traction-engine, the combination with the engine-shaft and the fly-wheel fixed thereon, of a sleeve loose on the shaft-collar movable on the sleeve and rotatably connected with the driving-gear of the engine, a spider on the sleeve, radially-movable friction-shoes carried by the spider-arms and arranged to engage the flange of the fly-wheel, arms projecting radially inward from the friction-shoes and having a sliding bearing on the spider-arms, thrust-plates adjustably connected to said arms, means for moving the collar longitudinally on the sleeve, devices carried by the collar for engaging and moving the thrust-plates radially, and coiled springs arranged under tension between projections respectively on the spider-arms and the radial arms of the friction-shoes and operating to take up lost motion, substantially as described.

680,206. **COMBINATION-WARDROBE.** ANDREWVILL LA MAR, Shelbyville, Ind., assignor of one-half to FRANK BORGER, same place. Filed June 11, 1900. Serial No. 20,779. (No model.)

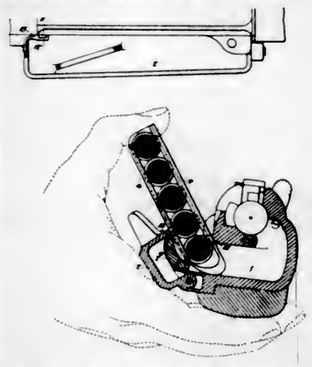


Claim.—1. A folding wardrobe having straps secured to the back piece and formed with loops, a pintle carried by said loops, a transversely-extending partition, loops carried thereby receiving said pintle, a stop limiting the movement of said partition, a transversely-arranged shelf pivotally supported at its rear end and forming a top for the compartment formed by said partition, a support for the forward end of said shelf, and coacting locking means carried by said shelf and partition, substantially as described.

2. A folding wardrobe having a strap secured to the back-piece thereof and formed with a loop and having an opening formed in its side wall, a swinging shelf having pintles projecting from opposite sides at its rear end, one of said pintles entering said loop, and the other the opening formed in the side wall of the wardrobe, and a support for the forward end of said shelf, substantially as described.

3. A folding wardrobe comprising a back piece, hinged side pieces, top and bottom pieces pivotally supported at their rear ends, supports for the forward ends of said top and bottom pieces carried by the side pieces, securing means for securing the top and bottom pieces to the side pieces, a door consisting of two sections hinged together with the inner section hinged to the side section, a partition arranged vertically in the wardrobe and hinged to the back piece thereof and forming one of the side walls of a compartment of which the inner section of the door forms the outer end wall, a stop for limiting the movement of said swinging partition, a swinging top piece for said compartment hinged to the back piece of the wardrobe, and a support carried by the inner section of the door for the forward end of said swinging top piece, substantially as described.

680,207. **MAGAZINE-FIREARM.** ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis N. D. Williams, Ashbourne, Pa. Filed Jan. 30, 1901. Serial No. 45,355. (No model.)



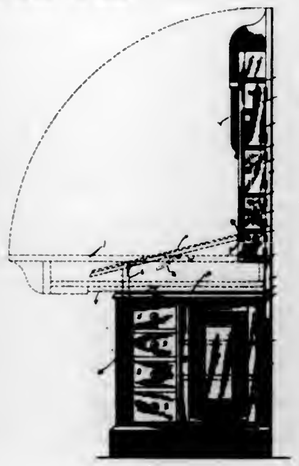
Claim.—1. A magazine-gun having a swinging gate for closing the magazine, said gate having a guide-notch and bearing such relation to the side of the magazine that it will receive the edge of a cartridge-clip introduced between the magazine and gate, and bearing upon the side of the magazine.

2. A magazine-gun having a swinging gate for closing the magazine, said gate and the upper lip of the mouth of the magazine having notches for receiving the edges of a cartridge-clip when the latter is adjusted to deliver its charge of cartridges into the magazine.

3. A magazine-gun having a swinging, magazine-closing gate, with spring-actuated bar or plate having a guide-notch for the reception of the edge of a cartridge-clip when the latter is adjusted to deliver its cartridges into the magazine.

4. A magazine-gun having a swinging, magazine-closing gate, with guide-notch for the reception of the edge of a cartridge-clip when the latter is adjusted to deliver its cartridges into the magazine, and a beveled cam in rear of said notch for directing the edge of the clip into the same.

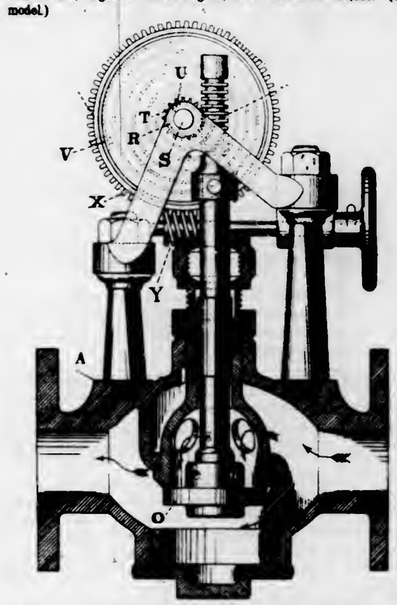
680,208. **COMBINATION FURNITURE.** CAMILLE ST. HILAIRE and ETTIENNE ST. HILAIRE, Wilson, Mich. Filed Nov. 28, 1899. Serial No. 738,563. (No model.)



Claim.—1. An article of furniture comprising a lower body portion, an upper body projecting above the lower body portion and having a portion overhanging the lower body portion, said overhanging portion having hook-receiving means, and a removable top for the lower body portion having hooks for engagement with the hook-receiving means, said top having a support hinged to its under side and adapted to support the forward portion of the top and a spring-catch on the under side of the top for engagement with the support to hold it in inoperative position.

2. In an article of furniture, the combination with a lower body portion of a back portion extending thereabove, an upper body portion hinged to the back portion and overhanging the lower body portion, said upper body being adapted to fold to lie horizontally upon the lower body portion, a top for the lower body portion removable therefrom and having hooks, hook-receiving devices on the back portion to receive the hooks and hold the top on the lower body portion, hook-receiving means on the upper body portion to receive the hooks of the top, and hold the top above the lower body portion, a support hinged to the under side of the top to rest on the lower body portion and support the top in an inclined position, and a latch for holding the support in inoperative position.

680,209. **VALVE.** WILLIAM H. THOMPSON and ROBERT THOMPSON, London, England. Filed Aug. 31, 1899. Serial No. 729,100. (No model.)



Claim.—1. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup, a hollow stem formed by an upward extension of said cup passing through an aperture in said casing and screw-threaded externally, a spindle to which said valve is attached passing up through said hollow stem and movable therein, a gland-nut provided with screw-threads and adapted to screw on the top of the said hollow stem, means for adjusting and holding said valve-cup in position, means for operating said valve, and an opening with movable cover in the bottom of said casing for withdrawing the valve, substantially as set forth.

2. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup, a hollow stem formed by an upward extension of said cup passing through an aperture in said casing and screw-threaded externally, a spindle to which said valve is attached passing up through said hollow stem and movable therein, a gland-nut provided with screw-threads and adapted to screw on the top of said hollow stem, a second nut below the said gland-nut engaging the screw-threads on said hollow stem and adapted to adjust and hold said valve-cup in position, means for operating said valve, and an opening with movable cover in the bottom of said casing for withdrawing the valve, substantially as set forth.

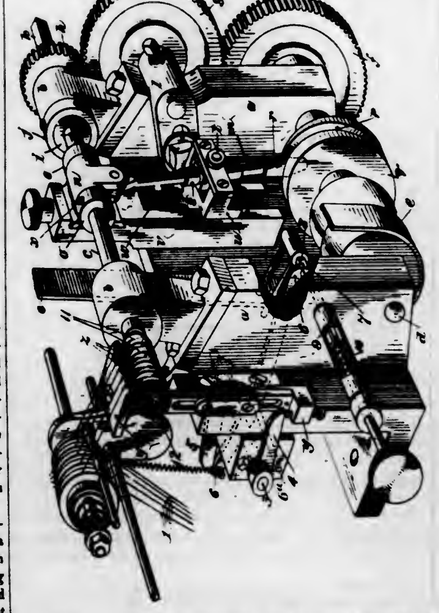
3. In a valve, the combination of a casing, a cup seated in said casing, a valve seated on the bottom of said cup, a hollow stem formed by an upward extension of said cup and passing through the top of said casing, a valve-spindle passing through said stem, means for packing and adjusting said valve, and spring-actuated mechanism for operating said valve-spindle, substantially as set forth and for the purpose stated.

4. In a valve, the combination of a casing, a cup seated in said casing, a valve seated in said cup, a hollow stem formed by an upward extension of said cup and passing through the top of said casing, a valve-spindle passing through said stem, means for packing and adjusting said valve, a rack on the upper part of said spindle, a pinion engaging said rack, a spindle on which said pinion is mounted, supports attached to said casing on which said spindle has its bearings, a hollow drum mounted on said spindle, and a coiled spring within said drum adapted to revolve said spindle by its expansion, substantially as set forth.

5. In a valve, the combination of a casing, a cup seated in said casing, a valve seated in said cup, a hollow stem formed by an upward extension of said cup and passing through the top of said casing, a valve-spindle passing through said stem, means for packing and adjusting said valve, a rack on the upper part of said spindle, a pinion engaging said rack, a spindle on which said pinion is mounted, supports attached to said casing on which said spindle has its bearings, a hollow drum mounted on said spindle, a coiled spring within said drum adapted to revolve said spindle by its expansion, a worm-wheel mounted on the circumference of said drum, a worm mounted on said supports and adapted to engage said worm-wheel, and means for turning said worm, substantially as set forth.

6. In a valve for controlling the passage of fluids, having a spindle or operating connection to its moving valve, means for operating said valve-spindle or operative connection consisting of a coiled spring, mechanism whereby the coiling or uncoiling action of the spring may automatically operate the valve, and gearing for putting the said spring under adjustable tension, substantially as described.

680,210. **WINDING-MACHINE.** PETER J. WESTPHAL, Holyoke, Mass., assignor to George W. Cressy, Springfield, Mass. Filed July 6, 1900. Serial No. 22,700. (No model.)



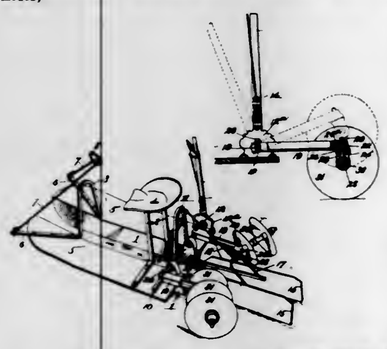
Claim.—1. The combination in a thread-winding machine, of a driving-shaft, a cam thereon, a spindle, driving connections between the latter and the driving-shaft, means of connection between said spindle and said driving connections whereby said spindle may be rotated, means for moving said spindle endwise during its rotation, a sleeve on said spindle, an arm one end of which is pivotally secured to said sleeve, and the op-

posite end of which engages with said cam, a fulcrum for said arm between its ends, and means for shifting said fulcrum, substantially as described.

2. In a winding-machine, a driving-shaft, a spindle parallel therewith, connections between said shaft and spindle whereby the latter may be rotated at different speeds, a sleeve on said spindle, an arm pivotally connected with said sleeve and extending toward the driving-shaft, a cam on the latter with which said arm engages, a vertically-movable block, a sleeve on said arm pivotally supported on said block for oscillation in the plane of the axis of the driving-shaft, means for moving said block vertically, and means restraining the sleeve on said spindle from endwise movement thereon, substantially as described.

3. In a winding-machine, a driving-shaft, a spindle, gear connections between said shaft and spindle for rotating the latter, a sleeve on said spindle having a sliding connection with the frame, as described, an arm connected with said sleeve by one end, a movable fulcrum for said arm, a cant on the driving-shaft with which the opposite end of said arm engages, whereby said spindle has imparted thereto endwise movements; a tight and loose pulley on said shaft, a spring-actuated shipper-rod, a vertically-movable thread-guide, a stop-motion actuated by the latter and adapted to release said shipper-rod to stop the machine, substantially as described.

680,211. DISK CULTIVATOR. WILLIAM J. WENWALL, Kansas City, Mo., assignor to the Ohio Cultivator Company, Bellevue, Ohio. Filed Oct. 23, 1899. Renewed May 9, 1901. Serial No. 59,527. (No model.)



Claim.—A disk cultivator, comprising a sled, a shaft carried thereby, a lever mounted on said shaft, an arm projecting non-rotatably from said shaft and provided with a hole 22, and teeth extending radially of said hole at the under side of the arm, a casting provided with a registering hole and corresponding teeth, and provided also with depending perforated ears, a shaft extending through the perforations of said ears and carrying cultivator-disks, an eyebolt having its eye encircling said shaft between said ears, and its stem extending up through said registering holes, and a clamping-nut engaging the upper end of said eyebolt, substantially as described.

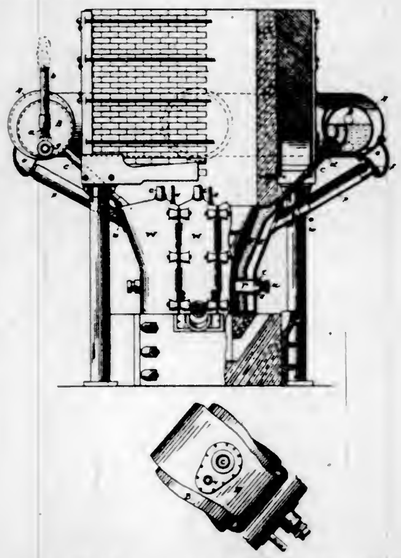
REISSUES.

11,925. BLAST-FURNACE. JOHN W. HESKITH, Denver, Colo., assignor to the Colorado Iron Works Company, same place. Filed Sept. 22, 1900. Serial No. 30,775. Original No. 612,754, dated Oct. 18, 1898.

Claim.—1. In combination in a blast-furnace, a series of independent water-jackets, a drum or tank open to the atmosphere forming an elevated reservoir, a water-supply thereto, a series of pipes leading from the drum directly to said series of jackets, and a second series of discharge-pipes leading directly from the jackets to the drum, substantially as described.

2. In combination in a blast-furnace, a series of independent water-jackets, a drum or tank, a water-supply connected with said drum near the bottom, a series of pipes leading from the drum directly to said jackets, and a second series of discharge-pipes leading from the jackets upward to the drum, said discharge-pipes being extended upward within the tank above the water-supply, substantially as described.

3. In combination in a blast-furnace, a series of independent water-jackets, a drum or tank forming a reservoir, a water-supply thereto, a series of pipes leading from said tank directly to said series of jackets, a second series of discharge-pipes leading directly from the jackets to the drum, and a single discharge-outlet serving to discharge both steam and the overflow from the drum, substantially as described.



4. In a blast-furnace, a series of independent water-jackets having each an independent air-compartment in rear thereof, substantially as described.

5. In a blast-furnace, a series of independent water-jackets, each water-jacket having an independent air-chamber in rear thereof, a passage for the air through the water-chamber, and an air-supply for the air-chamber, substantially as described.

6. In a blast-furnace, a series of independent water-jackets having independent air-compartments in rear thereof, a series of air-pipes connecting with the series of independent air-chambers, a bustle-pipe in connection with the series of air-pipes, and intermediate valves between the bustle-pipe for controlling the air to the series of pipes, substantially as described.

7. A blast-furnace, a series of independent water-jackets and a series of independent air-chambers in rear of the water-jackets, a partition dividing the water and air chambers, a bustle-pipe, a tank within the the bustle-pipe having feed and discharge connections with the water-jackets and a series of air-pipes between the bustle-pipes and the air-chambers with discharge-openings from the air-chambers, substantially as described.

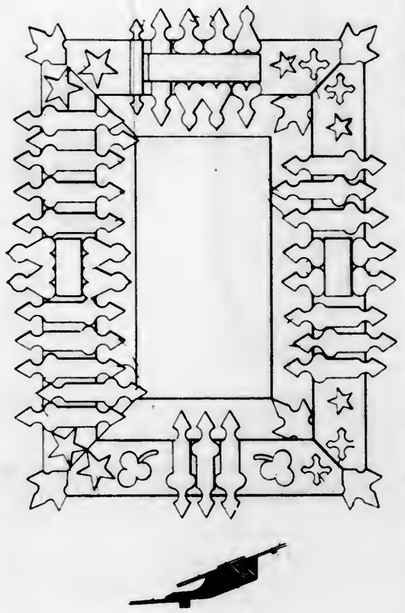
8. In combination with a water-jacketed blast-furnace, an evaporating tank or reservoir having a water-space, a steam-space and a steam-outlet, one or more hot-water-discharge pipes connecting the water-jacket with the tank and one or more supply-pipes connecting the tank with the water-jacket and an inlet-pipe for the supply of water to the tank to compensate for that lost by vaporizing into steam from the surface of the water therein.

9. In combination with a water-jacketed blast-furnace, a tank or reservoir having a maintained water-level with a steam-space above the water-level, pipe connections between said tank and jacket for causing a free circulation in the jacket, the induction and eduction pipes connecting with the said tank at different elevations so as to secure the discharge of the hot water at or near the top of the water-level and the feed of the cooler water from near the bottom of the tank, a source of water-supply for the tank and means for maintaining a constant level therein, substantially as described.

10. In combination, a blast-furnace having a plurality of independent water-jackets and a tank or drum elevated above the jackets with pipe connections to the jackets to keep them constantly supplied with water, a water and steam outlet located below the top of the drum whereby a steam-space is provided above the water, the connections with the jacket being such as to discharge the hot water at or near the top of the water-level of the tank or drum at the point of least pressure, a steam-discharge from said tank and a suitable water-supply.

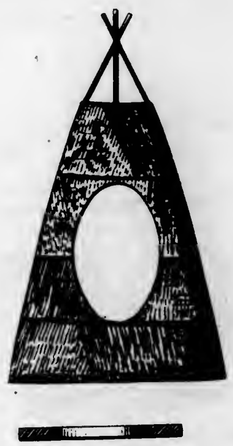
DESIGNS.

34,886. PICTURE-FRAME. GEORGE H. GOUDIE, North Evanston, and HENRY H. HENLEY, Chicago, Ill. Filed July 8, 1901. Serial No. 67,547. Term of patent 14 years.



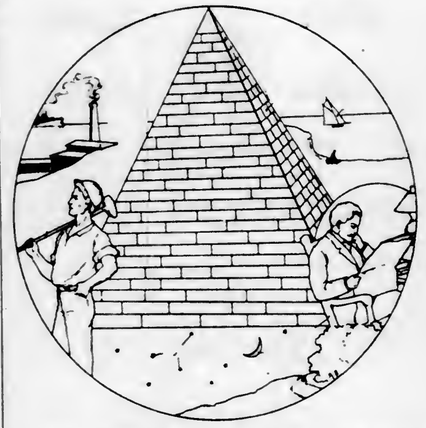
Claim.—The design for a picture-frame, herein shown and described.

34,887. PICTURE-FRAME. JOHN A. KIRKHAM, Portland, Oreg. Filed May 11, 1901. Serial No. 59,870. Term of patent 3½ years.



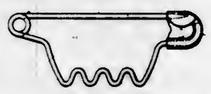
Claim.—The design for a picture-frame, substantially as shown and described.

34,888. BADGE. GEORGE L. ROCKWELL, Minneapolis, Minn. Filed May 18, 1901. Serial No. 60,944. Term of patent 14 years.



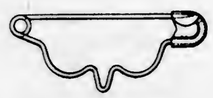
Claim.—The design for a badge, substantially as herein shown and described.

34,889. SAFETY-PIN. JAMES V. WASHBURNE, Waterbury, Conn. Filed May 6, 1901. Serial No. 59,052. Term of patent 14 years.



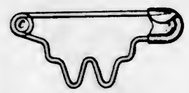
Claim.—The design for a safety-pin as herein shown and described.

34,890. SAFETY-PIN. JAMES V. WASHBURNE, Waterbury, Conn. Filed May 6, 1901. Serial No. 59,053. Term of patent 14 years.



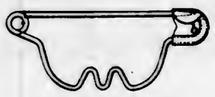
Claim.—The design for a safety-pin as herein shown and described.

34,891. SAFETY-PIN. JAMES V. WASHBURNE, Waterbury, Conn. Filed May 6, 1901. Serial No. 59,054. Term of patent 14 years.



Claim.—The design for a safety-pin as herein shown and described.

34,892. SAFETY-PIN. JAMES V. WASHBURNE, Waterbury, Conn. Filed May 6, 1901. Serial No. 59,055. Term of patent 14 years.



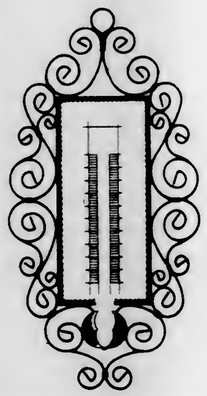
Claim.—The design for a safety-pin as herein shown and described.

34,893. BUTTON. JOHANN F. BOEPPLE, Davenport, Iowa. Filed July 8, 1901. Serial No. 67,553. Term of patent 3½ years.



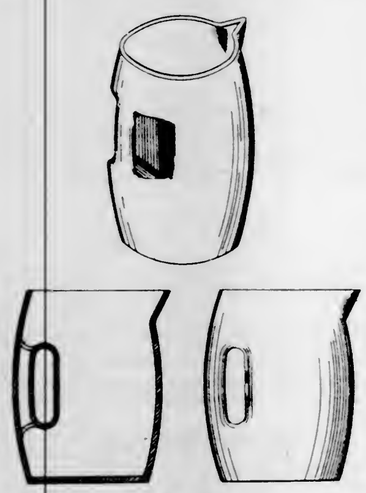
Claim.—The design for a button substantially as herein shown and described.

34,894. THERMOMETER-FRAME. ISAAC MAYER, New York, N. Y. Filed June 26, 1901. Serial No. 66,164. Term of patent 7 years.



Claim.—The design for a thermometer-frame as herein shown and described.

34,895. PITCHER OR MUG. HARRISON D MCFADDIN, New York, N. Y. Filed June 19, 1901. Serial No. 65,205. Term of patent 7 years.



Claim.—The design for a pitcher or mug, as herein set forth and described.

34,896. BOTTLE. PETER E. MALMSTROM, New York, N. Y. Filed June 15, 1901. Serial No. 64,759. Term of patent 14 years.



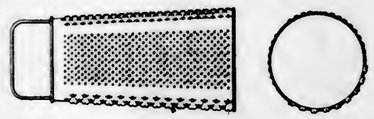
Claim.—The design for a bottle or similar article substantially as herein shown and described.

34,897. KNIFE. JOHN H. WRAY, Danville, Pa., assignor of one-half to Sharpless M. Dietz, same place. Filed July 10, 1901. Serial No. 67,796. Term of patent 7 years.



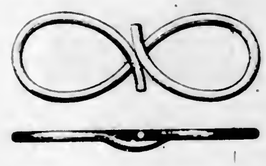
Claim.—The design for a knife, as herein shown and described.

34,898. GRATER. CHARLES L. WAGANDT, Baltimore, Md., assignor to National Enameling & Stamping Co., of New Jersey. Filed July 5, 1901. Serial No. 67,250. Term of patent 3½ years.



Claim.—The design for a grater herein shown and described.

34,899. SNAP-LINK. AUGUSTUS BROCKELBANK, Ossining, N. Y. Filed May 29, 1901. Serial No. 62,440. Term of patent 14 years.



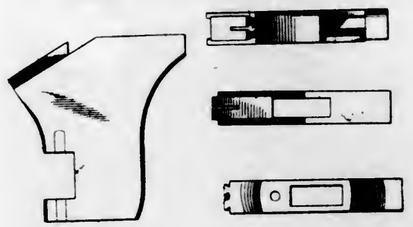
Claim.—The design for a snap-link herein shown and described.

34,900. BARBED FENCE-WIRE. DAVIS C. SMITH, New York, N. Y. Filed June 26, 1901. Serial No. 66,166. Term of patent 14 years.



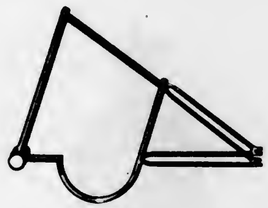
Claim.—The design for a barbed fence-wire, substantially as herein shown and described.

34,901. SLIDE-PIECE FOR WRENCHES. ALBERT DUDLY, Menominee, Mich. Filed July 1, 1901. Serial No. 66,789. Term of patent 14 years.



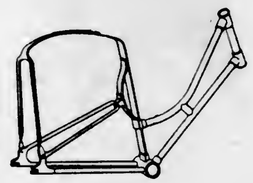
Claim.—The design for a slide-piece of a wrench substantially as herein shown and described.

34,902. REAR FRAME FOR MOTOR-CYCLES. VINCENT H. BENDIX, New York, N. Y. Filed July 6, 1901. Serial No. 67,371. Term of patent 7 years.



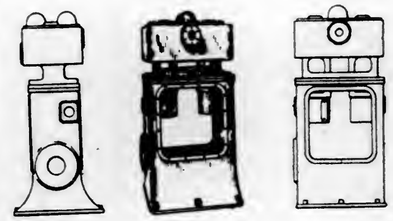
Claim.—The design for a rear frame of a motor-cycle, as herein shown and described.

34,903. BICYCLE-FRAME. JONAS L. KROLL, Lebanon, Pa. Filed July 5, 1901. Serial No. 67,248. Term of patent 14 years.



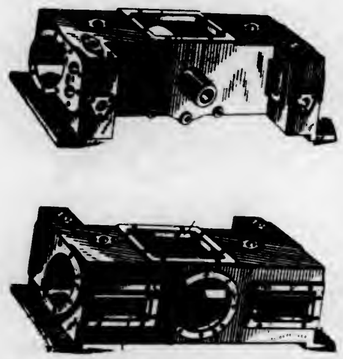
Claim.—The design for a bicycle-frame as herein shown and described.

34,904. ENGINE-FRAME. RODOLPHUS FULLER, Detroit, Mich. Filed May 31, 1901. Serial No. 62,675. Term of patent 14 years.



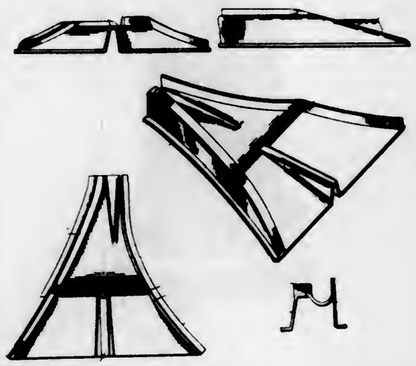
Claim.—The design for an engine-frame, substantially as herein shown and described.

34,905. GAS-ENGINE BODY. HERBERT H. HENNEGIR, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed July 1, 1901. Serial No. 66,790. Term of patent 14 years.



Claim.—The design for a gas-engine body substantially as described and shown.

34,906. CAR-REPLACER. OLIVER WARREN JOHNSON, Oakharbor, Ohio. Filed Oct. 11, 1900. Serial No. 32,791. Term of patent 14 years.



Claim.—The design for a car-replacer, substantially as herein shown and described.

34,907. SHIP'S VENTILATOR. CHARLES MCVEETY and JOHN F. FORD, Philadelphia, Pa. Filed July 10, 1901. Serial No. 67,794. Term of patent 14 years.



Claim.—The design for a ventilator substantially as herein shown and described.

34,908. RANGE. THOMAS I. RANKIN, Philadelphia, Pa., assignor to the Abram Cox Stove Company, same place. Filed Aug. 27, 1900. Serial No. 28,261. Term of patent 7 years.



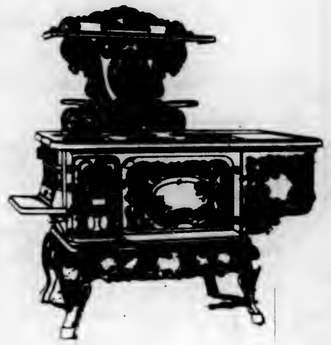
Claim.—The design for a range as herein described and as illustrated in the accompanying drawing.

34,909. HEATING-STOVE. THOMAS I. RANKIN, Philadelphia, Pa., assignor to the Abram Cox Stove Company, same place. Filed Sept. 8, 1900. Serial No. 29,464. Term of patent 7 years.



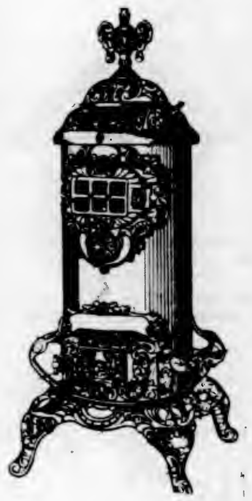
Claim.—The design for a stove as herein described and as illustrated in the accompanying drawing.

34,910. COOKING-STOVE. THOMAS I. RANKIN, Philadelphia, Pa., assignor to the Abram Cox Stove Company, same place. Filed Sept. 8, 1900. Serial No. 29,465. Term of patent 7 years.



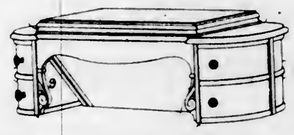
Claim.—The design for a stove as herein described and as illustrated in the accompanying drawing.

34,911. STOVE. SOREN SORENSEN, Milwaukee, Wis., assignor to A. J. Lindemann and Hoverson Co., same place. Filed June 14, 1901. Serial No. 64,598. Term of patent 7 years.



Claim.—The design for a stove, substantially as herein shown and described.

34,912. SEWING-MACHINE CABINET. ALFRED C. ABRAHSON and WILLIAM PERSON, Rockford, Ill., assignors to East Rockford Mantel Company, same place. Filed June 12, 1901. Serial No. 64,336. Term of patent 3½ years.



Claim.—The design for a sewing-machine cabinet substantially as herein shown and described.

34,913. RUG. ERNEST H. BENNETT, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa., copartners trading as John Bromley & Sons. Filed July 6, 1901. Serial No. 67,365. Term of patent 3½ years.



Claim.—The design for a rug, substantially as shown and described.

34,914. RUG. ERNEST H. BENNETT, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa., copartners trading as John Bromley & Sons. Filed July 6, 1901. Serial No. 67,366. Term of patent 3½ years.



Claim.—The design for a rug, substantially as shown and described.

34,915. RUG. ERNEST H. BENNETT, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa., copartners trading as John Bromley & Sons. Filed July 6, 1901. Serial No. 67,367. Term of patent 3½ years.



Claim.—The design for a rug, substantially as shown and described.

TRADE-MARKS

REGISTERED AUGUST 6, 1901.

36,854. GAME. HAMLEY BROTHERS, London, England. Filed July 9, 1901.

PING-PONG

Essential feature.—The word "PING-PONG." Used since August, 1900.

36,855. BOND WRITING-PAPER AND ENVELOPS. RAYNOR & PERKINS ENVELOPE COMPANY, New York, N. Y. Filed July 5, 1901.

SENATE

Essential feature.—The word "SENATE." Used since January 2, 1896.

36,856. BOOKBINDERS' CLOTH. THE WINTERBOTTOM BOOK CLOTH COMPANY, LIMITED, Manchester, England. Filed May 23, 1901.



Essential feature.—The representation of a shield bearing a cross and two stars surmounted by a crown carrying two crossed quills or feathers and a spear. Used since January 1, 1870.

36,857. SHEETINGS AND DRILLINGS. THE H. B. CLAFLIN COMPANY, New York, N. Y. Filed June 22, 1901.



Essential feature.—The representation of an eagle and the representation of a cannon on which the eagle is standing. Used since January 1, 1901.

36,858. CERTAIN NAMED EXTERIOR AND INTERIOR WOODEN FINISH FOR BUILDINGS. BRISTOL DOOR & LUMBER CO., Boston, Mass. Filed May 27, 1901.

TENN.

Essential feature.—A diamond-shaped figure and the letters "TENN" arranged within the figure. Used since January 1, 1898.

36,859. GLASSWARE. SCHOTT & GEN, Jena, Germany. Filed Apr. 27, 1901.



Essential feature.—The representation of a circle. Used since October 1, 1897.

36,860. PRESSED GLASSWARE. A. H. HEISEY & CO., Newark, Ohio. Filed June 21, 1901.

H

Essential feature.—The letter "H" inclosed in a diamond-shaped figure. Used since November 1, 1900.

36,861. ATOMIZER. THE MAHONING NOVELTY CO., Youngstown, Ohio. Filed June 20, 1901.

PRIVATO

Essential feature.—The word "PRIVATO." Used since May 10, 1901.

36,862. MEDICINE FOR CERTAIN NAMED DISEASES AND VAPORIZERS FOR EVAPORATING SAME. FRITZ JACOBSON, Brooklyn, N. Y. Filed June 21, 1901.

36,862.

LUNGOLEO

Essential feature.—The word "LUNGOLEO." Used since March, 1901.

36,863. PREPARATION FOR THE HAIR. MINNIE M. HARRIS, Washington, D. C. Filed June 20, 1901.

Lus-Tro

Essential feature.—The compound word "LUS-TRO." Used since April 24, 1900.

36,864. PILLS FOR CERTAIN NAMED DISEASES. GEORGE CHRISTIAN WEBER, Lowville, N. Y. Filed June 8, 1901.



Essential feature.—The picture of a royal Bengal tiger. Used since June 1, 1901.

36,865. CERTAIN NAMED PINE-TREE PRODUCTS. AMERICAN CONSOLIDATED PINE FIBRE COMPANY, New York N. Y. Filed June 14, 1901.



Essential feature.—The representation of a long-leaf pine-tree bough. Used since May 4, 1901.

36,866. MALT EXTRACTS AND PEPTONIZED MALT FOODS. ALBERT LIEBER, Indianapolis, Ind. Filed June 22, 1901.



Essential feature.—The representation of a calla lily inscribed with the letter "L." Used since May, 1901.

36,867. CERTAIN NAMED GRAIN FOOD PRODUCTS. KANSAS CITY OAT MEAL & CEREAL COMPANY, Kansas City, Mo. Filed May 24, 1901.

ATLAS

Essential feature.—The word "ATLAS." Used since February 1, 1900.

36,868. CRACKERS, CAKES, COOKIES, BISCUITS, BREAD, AND PIES. THE COLONIAL BISCUIT CO., Philadelphia, Pa. Filed May 31, 1901.

Colonial

Essential feature.—The word "COLONIAL." Used since May 30, 1895.

36,869. CANTALOUPS. V. SCALSO FRUIT COMPANY, St. Louis, Mo. Filed July 1, 1901.



Essential feature.—The word "STAG" and the representation of of a stag's head. Used since March, 1901.

36,870. CERTAIN NAMED CANNED PROVISIONS. THE SMITH BROS. CO., LTD., New Orleans, La. Filed July 12, 1901.

UWANTA

Essential feature.—The word "UWANTA." Used since April 1, 1900.

36,871. WATER. MOUNTAIN VALLEY SPRINGS COMPANY, Hot Springs, Ark. Filed June 8, 1901.



Essential feature.—The representation of an oval band, a horseshoe-shaped space inside of said band, and in the field and upper part of said horseshoe-shaped space the representation of a sunburst bursting through the field and looking down on a landscape scene below. Used since March, 1897.

36,872. ABSINTHE. E. CHERRIER FILS AÎNÉ & CIE., Paris, Ornans, Charenton, and Marseilles, France; Mulhouse, Germany, and Brussels, Belgium. Filed Jan. 26, 1894.



Essential feature.—The representation of a branch of the artemisia-plant crossed by a band and also by a crown, the representation of three armorial designs arranged in the form of an inverted pyramid, and facsimiles of two medals. Used since 1886.

36,873. SMOKING AND CHEWING TOBACCO. CARTHAGE TOBACCO WORKS, Carthage, Tenn. Filed June 25, 1901.



Essential feature.—A leaf crossed by a twist of tobacco in connection with the words "RED LEAF." Used since June 1, 1899.

36,874. BOILER COMPOUNDS. WHITE STAR CHEMICAL COMPANY, Salt Lake City, Utah. Filed Apr. 5, 1901.



Essential feature.—The representation of a star. Used since March 15, 1900.

36,875. CARBONS FOR ELECTRICAL PURPOSES. HUGO REISINGER, New York, N. Y. Filed July 8, 1901.



Essential feature.—The representation of two carbons and a spark and flashes arranged in conjunction therewith. Used since September 15, 1893.

36,876. GUNS. W. B. BELKNAP & Co., Louisville, Ky. Filed Apr. 30, 1901.

SX

Essential feature.—The letters "S," and "X." Used since January 15, 1901.

36,877. PIPE-WRENCHES. J. H. WILLIAMS & Co., Brooklyn, N. Y. Filed July 13, 1901.

FALCON

Essential feature.—The word "FALCON." Used since May 1, 1901.

THE NORRIS PETERS CO.
PHOTO LITH. WASHINGTON, D. C.

LABELS

REGISTERED AUGUST 6, 1901.

8,572.—*Title:* "DIRECT FROM THE MILL TO THE MAN." (For Trousers.) ROCHESTER WOOLEN MFG. CO., Rochester, Minn. Filed May 8, 1901.

8,573.—*Title:* "ROYAL HARVEST." (For Cigars.) AMERICAN LITHOGRAPHIC CO., New York, N. Y. Filed July 13, 1901.

8,574.—*Title:* "BIG SUCCESS." (For Cigars.) AMERICAN LITHOGRAPHIC CO., New York, N. Y. Filed July 13, 1901.

8,575.—*Title:* "RED ROSE SWEET SCOTCH SNUFF." (For Snuff.) STANDARD SNUFF CO, Nashville, Tenn. Filed July 15, 1901.

8,576.—*Title:* "SLIVOVITZ." (For an Alcoholic Liquor.) WALTER MOISE & CO., Omaha, Nebr. Filed April 6, 1901.

8,577.—*Title:* "DAGGETT'S BOSTON CHOCOLATES." (For Confectionery.) F. L. DAGGETT & Co., Boston, Mass. Filed July 8, 1901.

8,578.—*Title:* "BANQUET." (For Macaroni.) LOUIS R. LORENZ, Milwaukee, Wis. Filed July 13, 1901.

8,579.—*Title:* "PLANTATION TEA." (For a Medicine.) DORR THOMAS, St. Paul, Minn. Filed July 11, 1901.

8,580.—*Title:* "DE BELL'S KIDNEY PILLS." (For a Medicine.) C. W. BEGGS SONS & Co., Chicago, Ill. Filed January 7, 1901.

8,581.—*Title:* "BORO-CARBOL SALVE." (For Salve.) C. W. BEGGS SONS & Co., Chicago, Ill. Filed January 7, 1901.

8,582.—*Title:* "BROWN'S MAGNETIC LINIMENT." (For a Liniment.) GEORGE W. BROWN, Brooklyn, N. Y. Filed July 15, 1901.

8,583.—*Title:* "MAXCY'S VIOLET CREAM." (For Toilet Cream.) MAXCY LABORATORY CO., Allston, Mass. Filed July 11, 1901.

8,584.—*Title:* "PROPHYLACTIC." (For Tooth-Brushes.) FLORENCE MFG. CO., Florence, Mass. Filed July 11, 1901.

PRINTS

REGISTERED AUGUST 6, 1901.

378.—*Title:* "ROYAL FASHIONS FALL 1901, WINTER 1902." (For Clothing.) THE ROYAL TAILORS, Chicago, Ill. Filed June 25, 1901.

379.—*Title:* "PAY LESS AND DRESS BETTER." (For Clothing.) THE ROYAL TAILORS, Chicago, Ill. Filed June 25, 1901.

380.—*Title:* "PAY LESS AND DRESS BETTER." (For Clothing.) THE ROYAL TAILORS, Chicago, Ill. Filed June 25, 1901.

381.—*Title:* "PAY LESS AND DRESS BETTER." (For Clothing.) THE ROYAL TAILORS, Chicago, Ill. Filed June 25, 1901.

382.—*Title:* "GINTY'S BEAN TABLETS." (For Baked Beans and Bean Tablets.) EDWARD C. GINTY, Danbury, Conn. Filed July 11, 1901.

383.—*Title:* "THE WORLD'S ONLY DUSTLESS." (For Brushes.) Milwaukee Dustless Brush Co., Milwaukee, Wis. Filed July 18, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

CAMMETT v. HALLETT.

Decided May 9, 1901.

1. INTERFERENCE—MOTION TO DISSOLVE—APPEAL.

Where it is contended by the appellant on appeal from the decision of the Examiner refusing to dissolve an interference that his opponent has not the right to assert claim to the invention in view of his concession of priority as a joint inventor in a former interference and it appears that to render a decision on that question adverse to the appellee would be to refuse him a patent, *Held* that the question involved goes to the merits and is not a mere interlocutory matter and the appeal should be dismissed.

2. SAME—SAME—SAME.

Where a motion to dissolve alleges no interference in fact and irregularity and that one of the parties has not the right to make the claim and the Examiner renders a decision denying the motion on the ground that the party has the right to make the claim, *Held* that the Examiner properly set a limit of appeal, since the motion also alleged no interference in fact and irregularity. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.)

3. SAME—SAME—SAME.

Where a limit of appeal is set and an appeal is taken from the decision of the Examiner refusing to dissolve an interference, *Held* that it does not follow that the Commissioner will entertain and determine such an appeal when he is satisfied from a consideration of the case that the real question involved relates to the merits. (*Breul* v. *Smith*, 86 O. G., 1635.)

4. SAME—SAME—SAME.

The proper practice on an interlocutory appeal is for the Commissioner to refuse to entertain said appeal from a favorable decision on the merits, and said appeal should be dismissed.

APPEAL on motion.

ORE-CONCENTRATOR.

Application of Ira A. Cammett filed November 15, 1898, No. 696,503. Patent granted Samuel I. Hallett November 15, 1898, No. 614,322.

Mr. Harold Binney for Cammett.
Mr. Julian C. Dowell for Hallett.

ALLEN, *Commissioner:*

This case comes up on an appeal by Hallett from the decision of the Primary Examiner denying his motion to dissolve the above-entitled interference.

At the hearing it was contended by Cammett that the decision of the Examiner from which this appeal was taken was a favorable decision upon the merits and under Rule 124 not appealable. That matter was argued and is the question now to be decided. The parties were informed that if upon consideration it was held that the appeal was proper and should be entertained they would be given a further opportunity to argue the merits.

To correctly understand the present situation and the questions presented, it is necessary to recite certain facts shown by the records of the Office. It appears that on September 28, 1897, the present applicant, Cammett, as joint inventor with one Phillips, filed an application for a patent, and an interference was declared between that application and the present application of Hallett. On January 29, 1898, another application was filed by Cammett; but in that application he claimed to be a joint inventor with one Shepard. This application was held to cover the same invention as those involved in the interference, and it was placed in the interference with the other cases. In that interference judgment was entered on the record against the Cammett and Phillips application for the reason that no preliminary statement was filed in support of it. The other parties filed statements; but before testimony was taken the contest was settled by agreement and a written concession of priority in favor of Hallett. In the agreement it was said:

> This agreement is intended as and for a complete settlement of all questions arising in the said interference proceedings—

and that the concession of priority should be—

> signed by themselves and each of them and by their and each of their assignees.

One of the conditions of the agreement was that Hallett should give to Cammett and Shepard a license to make, use, and sell devices made in accordance with the issue. After the concession of priority was filed a decision on priority was rendered in favor of Hallett and his patent issued. Thereafter Cammett filed his present sole application covering the same invention, and this interference was declared. After the declaration Hallett filed a motion before the Examiner of Interferences to dismiss this interference under the provisions of Rule 127, which provides that—

> 127. A second interference will not be declared upon a new application for the same invention filed by either party.

The Examiner of Interferences denied this motion, and the Assistant Commissioner affirmed his decision (70 MS. Dec., 115) on the ground that the Examiner of Interferences had no authority to dismiss an interference as requested. Hallett also filed a motion to dissolve at the same time, and by the decision of the Assistant Commissioner above referred to it was transmitted to the Primary Examiner for decision.

The reasons for dissolution were stated as follows:

> 1. Because no interference in fact exists, in view of the issue and judgment of priority heretofore entered in favor of the said Hallett in the former interference No. 19,540, involving substantially the same invention.
> 2. Because the said Cammett has no right to make the claim involved herein.

3. Because there has been such irregularity in declaring the interference as will preclude a proper determination of the question of priority.

The Primary Examiner denied the motion, stating that he had no authority on a motion of that kind to consider the proceedings in other interferences than the one before him and refusing to consider the question of estoppel raised. Upon appeal Commissioner Duell directed him to consider and pass upon that question, (70 MS. Dec., 321,) saying:

I think it advisable to remand the case to the Primary Examiner to consider the record in the prior interference and if he holds that the issues in the two interferences are the same and that Cammett is estopped under the law and decisions from making the claim, in view of the concession of priority in the former interference and the agreement leading up to that concession, he will of course grant the motion.

The Examiner after a consideration denied the motion, and it is from that action that the present appeal is taken.

It seems clear from a review of the record and proceedings in this case that the real question, and the only one which Hallett has been attempting to have determined, is whether or not Cammett should be permitted to assert claim to the invention in view of his conduct in the previous interference. This was the view of Commissioner Duell, for he said in his decision above referred to:

The other questions raised by the motion and appeal depend upon the decision whether Cammett has a right to make the claims or is estopped from contesting the present interference, and they will therefore not be considered here.

It is apparent that to render a decision on that question adverse to Cammett would be to refuse him a patent, and therefore it is clear that it goes to the merits and is not a mere interlocutory matter. The question involves his right to make the claims, and under Rule 124 there is properly no appeal from the Examiner's favorable decision on that question. It is contrary to the settled practice of the Office to review a favorable decision by an Examiner upon the merits except under unusual circumstances and in a clear case. It does not appear that in the present case substantial justice cannot be done without entertaining Hallett's appeal. As was said in the decision of the Assistant Commissioner in this case above referred to:

No such substantial rights on the part of Hallett would be affected by the refusal of his request and the refusal to review the decision upon an interlocutory appeal, since no decision on priority or on the merits of the case adverse to his right to a patent has been rendered. The refusal merely makes it necessary for the case to proceed in the regular way to a final decision on priority. Hallett may without taking testimony rely entirely upon the matters now referred to as showing that he is entitled to a judgment of priority at final hearing and if the decision is against him then he will have the right of appeal to the Examiners-in-Chief, to the Commissioner, and to the court in the regular way.

The Primary Examiner properly set a limit of appeal from his decision, since the motion alleged no interference in fact and irregularity. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.) It does not follow, however, that the Commissioner will entertain and determine such an appeal when he is satisfied from a consideration of the case that the real question involved relates to the merits. (*Breul* v. *Smith*, 86 O. G., 1635.)

Hallett has cited the decision in *Harlow* v. *Guernsey*, (7 O. G., 512,) wherein a question similar to that here presented was considered by the Commissioner upon an interlocutory appeal. That decision was, however, rendered many years ago, and, as above stated, the more recent practice of the Office has been to refuse to entertain an appeal from a favorable decision on the merits. The present practice is, in my opinion, proper.

The appeal is dismissed.

EX PARTE WARNER.

Decided July 8, 1901.

1. ACCESS TO ABANDONED APPLICATIONS—PRIOR INTERFERENCE.

Where it appears that there was an interference between two applications and after judgment of priority had been finally rendered one of the applications became a patent and the other application became abandoned, *Held* that the patentee has no right to have access to the abandoned application merely because he previously had the right of inspection of the application when it was involved in the interference.

2. SAME.

A party is not entitled to copies of applications filed in this Office merely because he considers that they would be useful to him, since under Rule 15 applications are preserved in secrecy.

3. SAME—DISCLOSURE IN PRIOR INTERFERENCE.

Applications are placed in interference by the Office without consulting the applicants, and disclosures are made to the interfering applicants during the interference as a matter of necessity. After the proceeding is ended the necessity for the disclosure is ended. The fact that a party has enjoyed a privilege temporarily through necessity does not entitle him to that privilege indefinitely against the protest of the other party.

IN the matter of the petition of William Warner for copy of abandoned application of Charles E. Warner filed April 21, 1897, No. 633,186.

Messrs. Munn & Co. for the applicant.

Mr. D. P. Wolhaupter for William Warner.

ALLEN, *Commissioner:*

This is a petition by William Warner that he be furnished with a copy of an abandoned application of Charles E. Warner.

It appears that there was an interference in this Office between an application of William Warner and the application of Charles E. Warner referred to, decision on priority being in favor of William Warner and the patent being granted to him. The affidavit in support of the present petition sets forth that William Warner has instituted suit on his patent against the Consolidated Barb Wire Company, the assignee, who defended the interference on behalf of Charles E. Warner, and it is alleged that a copy of Charles E. Warner's application is necessary for use in that suit.

The basis for William Warner's claim that he has a right to obtain the copies seems to be the fact that there was an interference and that he then had a right to inspect and obtain copies of Charles E. Warner's application. If there had been no such interference, it is clear that he would not be entitled to the copies merely because he had sued Charles E. Warner or those making his invention. A party is not entitled to copies of applications filed in this Office merely because he considers that they would be useful to him, since under Rule 15 applications are preserved in secrecy. As was said by the Supreme Court of the District of Columbia

in United States, *ex rel. Bulkley*, v. *Butterworth*, (81 O. G., 505:)

No person is required to submit his private papers to others or produce them in court on demand of a party to a suit on his allegation or claim that they are material evidence for such party, but only in obedience to the mandate of the court in which such suit is pending, and it is only reasonable that when a public officer has under his control a paper or document in its nature private, or such as the public generally is not entitled to have access to as a public record, he should not be compellable to produce it or deliver copies of it until he has some information from the court in which the case is pending that it is required as evidence.

In that case it was said that abandoned applications come under the head of papers which are in their nature private, and it was said by Commissioner Duell in *Metropolitan West Side Elevated Railroad Co.* v. *Siemens*, (85 O. G., 290:)

As a general rule it will probably be found to be safer to require an order or certificate from a court of competent jurisdiction before furnishing parties with copies of pending or abandoned applications.

An apparent exception has been made in cases where the abandoned application has been referred to by the applicant in the papers of some patented case; but this is not a true exception, since by the reference to the abandoned case it is made a part of the record of the patent and can therefore no longer be considered private. The applicant has by his own act made it public. This was the case in the case of *Reed Mfg. Co.*, (92 O. G., 2001.)

In the present case the question arises whether or not the fact that there was an interference renders Charles E. Warner's application a public document in so far as William Warner is concerned and entitles him to see it, thus bringing this case outside of the general rule. The applicants themselves are not consulted on the question whether or not an interference shall be declared, and the declaration of the interference and the disclosure of their applications to the opposing parties are beyond their control. This Office makes the disclosure as a matter of necessity for that particular proceeding and not because of any other or natural right which the party possesses to see the case. After the proceeding is ended the necessity for the disclosure is ended. The fact that a party has enjoyed a privilege temporarily through necessity does not entitle him to that privilege indefinitely against the protest of the other party. As was said in *ex parte Dyer*, (56 O. G., 1564:)

It was a necessity in appellant's interference case that he should establish the record date of his said application; since it was a matter of record he could not prove it by parol testimony, and therefore it was a matter of necessity that he should introduce the record itself or a certified copy thereof. It is a familiar legal principle that matters of necessity are not to be extended beyond the limits of that necessity.

A party derives no right to see an application from the fact that he was at one time involved in an interference with it. After the conclusion of the interference he stands upon the same footing as third parties and must establish his right derived from other sources.

It may be that William Warner can show to the court the necessity for a copy of Charles E. Warner's application in the suit and obtain a certificate from the court to that effect; but the showing here made does not warrant furnishing such copy in the absence of the certificate and over the objection of Charles E. Warner.

The petition is denied.

EX PARTE SODAFOAM BAKING POWDER COMPANY.

Decided June 5, 1901.

TRADE-MARK—IDENTITY OF MARKS—"SODAFOAM" AND "SEA FOAM."

Held that the word "Sodafoam" as a trade-mark for baking-powder so nearly resembles the registered mark "Sea Foam" as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers, and therefore registration should be refused.

APPEAL on motion.

TRADE-MARK FOR BAKING-POWDER.

Application for registration filed November 13, 1900, No. 62,113.

Mr. Wallace A. Bartlett for the applicant.

MOORE, *Assistant Commissioner:*

This is an appeal from the action of the Examiner of Trade-Marks refusing to register the word "Sodafoam" as a trade-mark for baking-powder in view of the registered mark "Sea Foam" for the same merchandise.

The question is whether or not the two marks so nearly resemble each other "as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers."

As pointed out by the Examiner, the distinctive feature of both marks is the word "foam," and the first letter of the first word of each mark is the same. Appellant argues that the two marks are as dissimilar as the words *sea-water* and *soda-water* and refers to the result if sea-water were furnished for soda-water when the latter was ordered at a soda-fountain. It is argued that such a mistake could not happen.

This argument is not well taken. Sea-water and soda-water are not arbitrary words. They are descriptive in the highest sense. They have a distinct and well-known meaning and are illustrative of some special quality of the water referred to. If appellant means to argue that his mark "Sodafoam" is distinctive from "Sea Foam" because of its meaning, he has set forth another ground for refusing its registration.

I am of the opinion that a purchaser using ordinary caution might easily be deceived and be in danger of confusing appellant's mark for the registered mark in seeking the class of goods to which both are applied. (*Ex parte Meriwether & Co.*, 83 O. G., 1513; *White* v. *Miller*, 50 Fed. Rep., 277.)

The decision of the Examiner is affirmed.

EX PARTE CODDINGTON.

Decided June 24, 1901.

1. FINAL REJECTION—NEW REASON FOR REJECTION.

Where in a letter of final rejection the Examiner for the first time stated that "the introductory words of a claim import no structure whatever into a claim," *Held* that such a statement is merely an elaboration or explanation of the grounds of rejection previously cited against the claims and does not constitute a new reason for rejection.

2. SAME—SAME.

The words "new * * reasons for rejection" in Rule 68 mean new "grounds involving the merits of the invention," such as are enumerated in Rule 133.

3. SAME—INCORPORATION OF AMENDMENT.

After a case is under final rejection an amendment inserting or substituting new claims should not be entered unless accompanied by a duly-verified statement setting forth satisfactory reasons why the amendment was not earlier presented or unless the claims presented differ from those under final rejection only in the matter of form, and it is requested that they be entered in order that the claims may be in better form for appeal. (Rule 68.)

ON petition.

MACHINE FOR LAYING CLOTH.

Application of Cephas D. Coddington filed December 3, 1900. No. 38,505.

Mr. L. P. Graham for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition that the Examiner be instructed as follows:

First. That his letter of March 25th gave a new reason for rejection.
Second. That the new reason for rejection gave applicant the right to amend.
Third. That the right to amend in response to a new reason for rejection carries with it the right to have the amendment considered by the Office.

The record shows that the claims presented were carefully considered by the Examiner in three separate actions made, respectively, on January 8, February 12, and March 2, 1901. These letters are very full and complete and show that the claims have been considered with painstaking care.

On March 13 the petitioner made a formal amendment and requested a reconsideration of the claims. In response to this request the Examiner on March 25 rejected the claims a second time. In this letter of final rejection the Examiner made the following statement:

It is well settled that the introductory words of a claim import no structure whatever into a claim.

It appears that this particular statement was then made for the first time.

On March 29, 1901, the petitioner filed an amendment making formal changes in certain claims and canceling claims 4 and 5 and substituting in lieu thereof two new claims. On April 8 the Examiner refused to enter this amendment, citing Rule 68 in support of his action.

On April 13 the petitioner filed a letter reading as follows:

In letter of March 25, the Examiner gave as a new reason for rejection the statement that the introductory words of a claim import no structure into the claim and the amendment of March 27 meets this new reason for rejection by providing terms that do import structure. (See Rule 67.) Moreover Rule 68 gives an applicant the right to present finally-rejected claims in better form for consideration on appeal.
The Examiner will please incorporate and consider the proposed amendment in accordance with Rule 67.

In reply thereto the Examiner informed the petitioner that in accordance with his request the amendment of March 29 had been incorporated in order to place the claims in better form for appeal, citing Rule 68.

Whether or not the Examiner properly construed the reference by the petitioner to his right to have the claims entered under Rule 68 in order to place them in better form for appeal as a request to so enter them or whether or not he should have simply reconsidered his action of April 8 refusing to incorporate the amendment presented on March 29, as provided for in Rule 67, is of no special moment. The question before me to decide is whether the statement—

It is well settled that the introductory words of a claim import no structure whatever into a claim—

is a "new reason for rejection," as contemplated in Rule 68.

I am of the opinion that the words "new * * reasons for rejection" in Rule 68 mean new "grounds involving the merits of the invention," such as are enumerated in Rule 133. This statement made by the Examiner is merely an elaboration or explanation of the grounds of rejection previously cited against the claims. It is in the nature of the citation of a decision or an authority in support of the grounds of rejection. It is not, therefore, a new ground of rejection. The grounds of rejection set forth in the action of March 25 are the same as those previously given.

It follows, therefore, that the claims in this application were properly rejected a second time in the action of March 25, and the Examiner was correct in refusing to incorporate into the case the amendment filed March 29, the petitioner not having filed therewith a satisfactory statement duly verified, as required in Rule 68, why the amendment was not earlier presented. In order to expedite business, the Examiner construed the assertion made by the petitioner in the letter of April 13 that "Rule 68 gives an applicant the right to present finally-rejected claims in better form for consideration on appeal" to be a request that said claims be entered on that ground.

In view, however, of the fact that said assertion was not strictly a request, the petitioner is granted permission, if he so desires, to file an amendment restoring the claims to the form they were in as finally rejected. If this be done, the Examiner is directed to enter the same, so that an appeal may be taken, if desired, on the claims as they stood when finally rejected.

The petition is denied.

EX PARTE DELBEY.

Decided July 11, 1901.

1. NEW MATTER—AMENDMENTS TO THE DRAWING.

Where it appears that the changes sought to be made to the drawing include matter not originally shown and described and are not merely for the correction of clear and unmistakable errors of the draftsman, *Held* that such changes constitute new matter and should not be admitted.

2. SAME—AMENDMENTS TO THE DRAWING AND SPECIFICATION.

Where it appears that amendments sought to be made to the drawing and specification include matter not originally shown and described, though not affecting the claims in the case, the same could be made the basis for new claims, *Held* to constitute new matter and should not be admitted.

ON petition.

SCULPTURE ROUGH-CUTTING MACHINE.

Application of Désiré Delbey filed April 20, 1898, No. 678,291.

Mr. William E. Boulter for the applicant.

MOORE, *Acting Commissioner:*

This is a petition from the action of the Examiner refusing to admit certain amendments to the

specification and drawing on the ground that they present matter not originally shown and described.

This matter the petitioner urges does not affect the claims and is only such as might be made by a skilled mechanic, and therefore is not properly objectionable as new matter.

From a careful consideration of the description and drawing it is clear that there is matter presented by the amendments which was not originally presented in this case as filed. Much of this matter would support claims, should they be presented. If this new matter was now admitted, there would be no reason why claims drawn to cover the same could not subsequently be admitted and allowed. Such a contingency should not be permitted.

The changes in the drawing are not such as to to correct clear and unmistakable errors of the draftsman. The whole machine is changed in appearance. In fact, it is much easier to find the points of difference than it is to find the points of similarity between the drawing as originally filed and the drawing presented as a substitute therefor.

The Examiner's objections are well taken.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MILLETT AND REED *v.* DUELL, COMMISSIONER OF PATENTS.

Decided May 21, 1901.

1. ANTICIPATION—SUBSEQUENTLY-GRANTED PATENT—DATE OF APPLICATION.

Where a patent showing in the drawing but not describing or claiming the invention was granted to another three days after the appellants' case was filed on an application filed two years before that time, *Held* that the appellants' claims were properly rejected.

2. SAME—SAME—EVIDENCE OF THE STATE OF THE ART.

A patent granted after the appellants' filing date, but upon an application filed before, is evidence of the state of the art at the time as shown by the drawings and specifications of the application, and it is a state of the art and not the existence of a patent which determines a party's right to a patent.

3. SAME—PATENT NOT CLAIMING INVENTION—ABANDONMENT.

A patent is no less an anticipation because it does not claim the invention, since the failure to claim it simply implies either that he abandoned it to the public or that he regarded it as already well known to the art.

4. REFERENCE—DRAWING WITHOUT DESCRIPTION.

Disclosure in a drawing alone if sufficiently plain and clear may be sufficient to show an anticipation of an invention.

5. ANTICIPATION—DISCLOSURE OF THE INVENTION—CONSTRUCTION OF REFERENCE.

Where the appellant claims a steam-gage having a tapering end, so that it may be secured in place without soldering, and the reference shows a similar gage, but contains no statement that solder is not used, *Held* that the patent is an anticipation and that there is no reason for assuming that the patentee intended to use solder when it is entirely unnecessary.

Mr. William H. Singleton for the appellants.
Mr. W. A. Megrath for the Commissioner.

MORRIS, *J.:*

This is an appeal from a decision of the Commissioner of Patents wherein he refuses to issue Letters Patent to the appellants.

The alleged invention is stated in seven several issues, not substantially different from each other, and which it is not necessary to consider separately. They are the following:

1. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and held solely by frictional contact, as explained.
2. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and held by frictional contact, as explained.
3. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and held by a frictional binding screw-joint connection, as explained.
4. In a steam-gage, the Bourdon tube and the part to which it is secured, the joint between the two being unsoldered and tapering, as explained.
5. In a steam-gage, the Bourdon tube, D, having the threaded tapered end, *d*, in combination with the head, C, having the correspondingly-threaded tapered opening, c^2, as explained.
6. A Bourdon tube, having a reduced elastic portion and enlarged or reinforced threaded ends, in combination with a gage-case having threaded portions which engage the threaded ends of the tube.
7. The Bourdon tube, D, having the reduced elastic body portion, *d*, and the enlarged or reinforced end portions, in combination with the gage-case having correspondingly-threaded portions.

As stated by the appellants in their application, the alleged—

invention relates to an improvement in Bourdon-tube springs employed in steam or pressure gages, more especially to the means of connecting the ends of these tubes within a gage.

It seems to consist substantially in dispensing with the soldering of tin, lead, or other fusible material previously used for the connection of the joints, causing the joint to taper, and screwing it more tightly.

The application was filed on February 17, 1900. It was rejected by the Primary Examiner in an elaborate opinion on reference to a patent issued to one Frederick Lane on February 20, 1900, three days after the filing of the application of the appellants, but which patent had been applied for by Lane upward of two years before. It was contended by the appellants that their application should not be rejected by reference to a patent issued after the filing of their application, in which their alleged invention, if shown at all, was not claimed, and only appeared in the drawing annexed to the patent; and further that this drawing did not show the invention of the appellants. This contention the Primary Examiner did not sustain; and his ruling was affirmed on appeal both by the Board of Examiners-in-Chief and the Commissioner of Patents. And from the decision of the Commissioner the case has been brought to this court by appeal.

With reference to the first branch of the contention of the appellants, we are satisfied that the tribunals of the Patent Office were entirely right in the conclusion reached by them. If the drawings annexed to the Lane patent fully and satisfactorily show the device claimed by the appellants, and if these drawings were the same that were filed with Lane's application in the first instance—and we must assume that they were the same until the contrary is made to appear—it is very plain that they show anticipation of the invention of the appellants. It is of no consequence that Lane does not include this device among the claims of his own invention. His failure so to do simply implies either that he abandoned it to the public, or that he re-

garded it as already well known to the art. It does not help the appellants in any manner that he does not claim it.

It is not the fact that a patent was issued to Lane upon his application which constitutes anticipation in this case. Although that patent was issued in so short a time after the application of the appellants that, in view of the usual and necessary course of business in the Patent Office, we might fairly assume that the facts which justified its issue had been satisfactorily shown long before the advent of the appellants to the Office, yet the patent of itself would not be sufficient to show anticipation by Lane of the device of the appellants. But the fact which shows such anticipation is the state of the art at the time as evidenced by the drawings and specifications of Lane's application. For it is the condition of the art at the time at which an alleged invention is made, and not the existence of a patent, which in this connection is no more than evidence of the state of the art, which determines whether an invention claimed is actually an invention or not under the patent law. And this state of the art may be shown by a printed book, a periodical publication, a newspaper, anything in fact which can be regarded in law as reasonably sufficient proof of the fact. This we understand to be the rule deduced from reason and the authorities. (See *Wright* v. *Yuengling*, 69 O. G., 639; 155 U. S., 47.)

This proposition is not seriously, if at all, controverted by the appellants. Indeed, they seem to admit its correctness. Their argument is, that, while a drawing alone, if sufficiently plain and clear, may be sufficient to show an anticipation of the invention, yet the drawing in Lane's patent is not sufficient for that purpose. And this proposition, in view of the previous admission, necessarily means that the Lane drawing is not sufficiently plain and clear to show the invention in question. It is further conceded, however—at all events, it is not denied—that the joints of the Lane drawing have the tapering form which constitutes an element in the invention of the appellants; and so, in the ultimate analysis, the question of anticipation is narrowed down to the inquiry whether in the device shown by the Lane drawing the connection of the joints was effected by soldering or without soldering. The contention of the appellants is that, inasmuch as soldering had been generally used to connect the joints of the devices in previous use, therefore it is to be presumed or assumed that the Lane device also had soldering, notwithstanding that soldering was entirely unnecessary to it. But the specifications of the Lane patent are wholly silent as to soldering; and inasmuch as such soldering was wholly unnecessary to its successful operation, it is not apparent to us why we should assume that to exist which had no reason to exist. If there was in fact a soldering in the device mentioned or shown in the Lane patent, and such soldering rendered that device essentially different from the invention of the appellants, it ought not to have been difficult to adduce some evidence of the fact. Whether, if shown, the fact of soldering would have differentiated the two devices, it is unnecessary for us to determine. The Commissioner of Patents was of the opinion that it would not have that effect.

The Commissioner of Patents has also remarked that the appellants have not availed themselves of the opportunity afforded to them by the rules of the Patent Office to show priority of invention in themselves by filing an affidavit to carry back their date of invention beyond the date of the filing of the Lane application. From their failure so to do it is just to assume that their invention did not antedate the date of the Lane application.

We see no reason to doubt the correctness of the conclusion reached by the tribunals of the Patent Office; and we are of opinion that the decision of the Commissioner of Patents should be affirmed.

The clerk of the court will certify this opinion, and the proceedings in the cause in this court to the Commissioner of Patents according to law. And it is so ordered.

Patents No. 680,212 to 680,678.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 7. TUESDAY, AUGUST 13, 1901. Price—$5 per year.

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Trade-Marks	19—No.	36,878 to No. 36,896, inclusive.
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			Nevada		
Alaska Territory			New Hampshire		
Arizona Territory		1	New Jersey	25	2
Arkansas	2		New Mexico Territ'y		
California	13	1	New York	65	7
Colorado	5		North Carolina	5	
Connecticut	13	2	North Dakota		
Delaware	4		Ohio	43	5
District of Columbia	7		Oklahoma Territ'y	3	
Florida	1	2	Oregon	1	
Georgia	1	1	Pennsylvania	34	3
Hawaii Territory	1		Rhode Island	5	1
Idaho			South Carolina	1	
Illinois	50	3	South Dakota		
Indiana	13	1	Tennessee	1	
Iowa	12		Texas	8	
Kansas	7		Utah	1	
Kentucky	3	1	Vermont		
Louisiana	1		Virginia	5	
Maine	3		Washington	4	
Maryland	6		West Virginia	1	
Massachusetts	37	2	Wisconsin	16	
Michigan	17	1	Wyoming	1	
Minnesota	6		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	17	1	Total to citizens of the United States	440	34
Montana	1				
Nebraska					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Japan		
Austria-Hungary	2		Mexico		
Barbadoes			Netherlands		
Belgium			New South Wales		
Brazil			New Zealand	1	
British Guiana			Norway		
Canada	8		Queensland		
Cape Colony			Russia	1	
China			Scotland	1	
Colombia			South African Republic	1	
Cuba			South Australia		
Denmark			Spain		
Egypt			Sweden	2	
England	16	5	Switzerland		
Finland			Turkey in Asia		
France	7	1	Victoria		
Germany	21		Western Australia	1	
India					
Ireland	1		Total to citizens of foreign countries	64	6
Italy	2				
Haiti					

Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 208. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Access to Pending Applications.

Hereafter no person except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 6, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	July 25	July 9	79
106	II. Farm Stock, Products, etc.	July 20	July 22	179
358	X. Carriages and Wagons	July 13	July 25	70
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	July 9	July 24	231
346	I. Tillage and Fences	July 8	July 23	155
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 8	July 16	147
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 8	July 15	159
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 8	July 10	166
98	XXI. Textiles, etc	July 8	July 3	198
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 6	July 16	149
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	July 6	July 15	285
	Between one and two months.			
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 5	July 17	120
122	XXIV. Sewing-Machines, Apparel, and Toilet.	July 3	July 17	150
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 3	July 13	254
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 2	July 13	223
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 1	July 22	166
281	XXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 1	July 22	185
250	VIII. Furniture, Beds, Store Furniture, etc.	June 29	July 8	457
240	VII. Velocipedes, Games, and Toys.	June 26	July 10	225
255	XII. Mechanical Engineering, Store-Service, etc.	June 25	July 15	270
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	June 25	July 9	320
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 20	July 25	88
215	XVII. Printing, Type-Writing Machines, and Linotyping.	June 20	July 17	246
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 19	July 11	276
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 18	June 22	169
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 17	July 9	150
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Harriery, Nut and Bolt Locks, etc.	June 14	July 20	199
248	XVIII. Steam-Engineering, etc	June 13	July 20	336
	Between two and three months.			
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 4	July 2	262
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 3	June 17	283
102	XIX. Stoves and Furnaces	June 3	June 11	477
256	XXVI. Weighing and Measuring Devices, Driers, and Drafting.	June 1	July 1	206
221	XIII. Registers, Fluid-Meters, and Acoustics, etc.	May 31	June 27	259
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 27	July 11	145
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	May 27	June 11	340
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	May 27	June 7	481
	Total number of applications awaiting action			8,170

Applications Under Examination—Continued.

Under one month.			
*Designs	July 25	July 25	70
†Trade-Marks	July 25	Aug. 2	55
‡Labels and Prints	Aug. 6	Aug. 6	----

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 3, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1896, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.

Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.

Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70pages. In paper covers, $1.50.

Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 68 pages. In paper covers, $1.50.

Vol. 15. Appendix No. 15, July 1, 1895, to June 30, 1896. One volume, 82 pages. In paper covers, $1.50.

Complete Applications.

It is hereby ordered that applications shall not be given serial numbers as complete applications and forwarded to the examining divisions for examination (1) when the petition has not been signed by the inventor; (2) when the specification and claims have not been signed by the inventor and the signature attested by two witnesses; (sec. 4888, Rev. Stats.;) (3) when the drawing has not been signed by the inventor or his attorney in fact and the signature attested by two witnesses; (sec. 4889, Rev. Stats.;) and (4) when the oath to the application does not fill the requirements of sections 4887 and 4892, Revised Statutes.

The requirements of section 4896, Revised Statutes, respecting the right of executor or administrator to make application for a patent for the invention of a deceased person must also be observed before the application will be considered as complete and forwarded for examination. The legal requirements in cases where the application is made by a foreign administrator are stated in *ex parte Ransome*, (C. D., 1870, 143.)

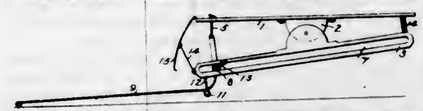
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This order, so far as applicable, relates to applications for the registration of trade marks, labels, and prints, which must in all respects comply with the requirements of the statutes.

PATENTS

GRANTED AUGUST 13, 1901.

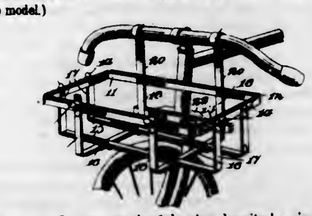
680,212. CAR-FENDER. NATHAN ABRAHAMS, St. Louis, Mo. Filed Apr 9, 1901. Serial No. 55,089. (No model.)



Claim.—1. A car-fender comprising a stationary tilting platform pivoted to the bottom of the car, suitable slotted ways formed on opposite sides of said platform, an extension having rollers traveling in said ways, arms depending from the forward end of the tilting platform and having rollers over which the extension may travel, rollers at the free forward end of the extension, springs interposed between the rear adjacent corners of the tilting platform and the bottom of the car, pawls pivoted to the tilting platform at the forward end thereof adapted to lock the extension when fully withdrawn from its normal position under the car, and means under the control of the motorman for depressing the forward end of the tilting platform, the parts operating substantially as and for the purpose set forth.

2. A car-fender comprising a stationary tilting platform pivoted to the bottom of the car, resilient arms secured to the forward end thereof, an apron pivotally mounted on the outer ends of said arms, suitable slotted ways formed on opposite sides of the tilting platform an extension having rollers traveling in said ways, arms depending from the forward end of the tilting platform and having rollers over which the extension may travel, rollers at the free forward end of the extension, springs interposed between the rear adjacent corners of the tilting platform and the bottom of the car, pawls pivoted to the tilting platform at the forward end thereof adapted to lock the extension when fully withdrawn from its normal position under the car, and means under the control of the motorman for depressing the forward end of the tilting platform, the parts operating substantially as, and for the purpose set forth.

680,213. LUGGAGE-CARRIER. ALFRED L. BAKER and ARTHUR W. TAYLOR, Bakers, Mich. Filed Aug. 29, 1900. Serial No. 28,405. (No model.)



Claim.—1. In a receptacle of the class described, a rim, and extensible slats having upstanding portions secured to the rim and forming side walls of the receptacle.

2. In a receptacle of the class described, a rim, and extensible slats made of overlapping angular sections and having upstanding portions secured to the rim and forming side walls of said receptacle.

3. In a receptacle of the class described, a rim, and a plurality of crossed extensible slats having upstanding end portions secured to the rim and forming the side walls of said receptacle.

4. In a receptacle of the class described, a basket comprising a plurality of crossed extensible slats, and fastening means engaging said slats at their points of intersection.

5. In a receptacle of the class described, the combination with an expansible and contractible rim, of a plurality of intersecting slats secured to said rim, and fastening means engaging said slats at their points of intersection.

6. In a receptacle of the class described, the combination with an expansible and contractible rim, of a plurality of independently-extensible intersecting slats, each of which is made up of overlapping sections, said slats being secured to the rim, and means for holding the sections of said slats against movement, said means engaging the slats at their points of intersection.

7. In a receptacle of the class described, the combination with an expansible and contractible rim, of a plurality of intersecting extensible slats having upturned portions secured to the rim and forming the side walls of said receptacle, and fastening means engaging said slats at their points of intersection.

8. In a receptacle of the class described, the combination with an expansible and contractible rim, of a plurality of extensible slats, each of which is made up of overlapping angular sections, said slats having upturned terminal portions secured to the rim and forming the side walls of the receptacle, and fastening means engaging said slats at their points of intersection.

9. In a receptacle of the class described, the combination with an expansible and contractible rim, of walls secured to said rim, and means for fastening the rim against expansion or contraction, said means also serving to fasten the walls to said rim.

10. In a receptacle of the class described, the combination with an expansible and contractible rim, of extensible slats secured to said rim, and means for fastening the rim against expansion or contraction, said means also serving to fasten the slats to said rim.

11. In a receptacle of the class described, the combination with an expansible and contractible rim, of crossed extensible slats secured to the rim, means for fastening the rim against expansion or contraction, said means also serving to fasten the slats to the rim, and fastening means engaging the slats at their points of intersection.

12. In a receptacle of the class described, a rim comprising a plurality of overlapping sections, a plurality of slats having upturned terminal portions secured to the rim, and means for securing the overlapping sections of the rim against relative movement, said means also serving to fasten the terminal portions of the slats to the rim.

13. In a receptacle of the class described, an expansible and contractible rim, comprising a plurality of overlapping sections, extensible intersecting slats secured to said rim, and means for holding the rim-sections against relative movement, said means also serving to fasten the slats to the rim.

14. In a luggage-carrier, a receptacle comprising a rim and a plurality of crossed extensible slats having upstanding end portions secured to the rim and forming the side walls of said receptacle, certain of said slats having their upstanding portions projecting above the rim and provided with means for supporting a receptacle upon a bicycle or similar vehicle.

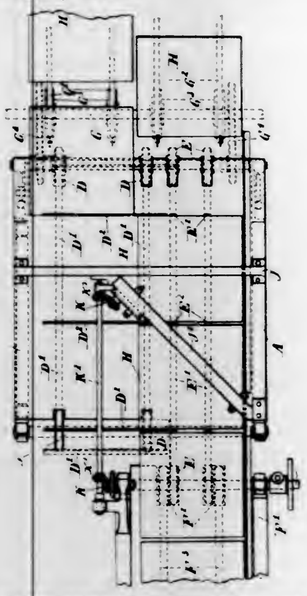
680,214. CONVEYER APPARATUS. GEORGE S. BAKER, London, England. Filed Feb. 4, 1901. Serial No. 45,953. (No model.)

Claim.—1. In conveyer apparatus the combination of a conveyer to carry articles in a single row, a plurality of conveyers traveling synchronously side by side one of which receives the articles delivered by the first conveyer, registering projections upon the conveyers which serve as guides for the articles and means to divert alternate articles from one conveyer to another substantially as set forth.

2. In conveyer apparatus the combination of a conveyer to carry articles in a single row, a plurality of conveyers traveling synchronously side by side, one of which receives the articles delivered by the first conveyer, registering projections upon the conveyers which serve as guides for the articles, a downwardly-extending projection, and means to move the projections in a path oblique to the direction of travel of the articles substantially as set forth.

3. In conveyer apparatus the combination of a conveyer to carry articles in a single row, a plurality of conveyers traveling synchronously side by side, one of which receives the articles delivered by the first conveyer, registering projections upon the conveyers which serve as guides for the articles, a downwardly-extending projection, means to move the projection in a path oblique to the direction of travel of the articles and

means to raise and lower the projection out of or into engagement with the articles substantially as set forth.



4. In conveyer apparatus the combination of a conveyer to carry articles in a single row, a plurality of conveyers traveling synchronously side by side, one of which receives the articles delivered by the first conveyer, registering projections upon the conveyers which serve as guides for the articles, a guide disposed obliquely to the direction of travel of the articles, a cross-head sliding upon the guide, a lever linked to the cross-head, means for oscillating the lever, parallel arms pivoted to the cross-head, a downwardly-extending projection carried by the parallel arms, a weighted lever pivoted to the cross-head and connected to the parallel arms by a toggle-joint and adjustable stops upon the guide in the path of the toggle-joint operating to cause the weighted lever to raise and lower the downwardly-extending projection substantially as set forth.

680,215. CUSHION-SPRING AND SUPPORT-WIRE. WILLIAM H. BATES, Jackson, Mich. Filed Oct. 3, 1900. Serial No. 32,384. (No model.)



Claim.—1. In a device of the class described the combination with a frame, of conical convolute springs having upwardly and downwardly directed kinks in their lowermost coils; hangers depending from the top of said frame and having loops in their lower ends, supporting-wires crossing each other with the ends thereof resting within the loops of the said hangers and adapted at their points of crossing to support said conical convolute springs therein, said wires interlocking with said kinks.

2. In a device of the class described, the combination with the frame, of hangers carried by the frame and having clamping means, supporting-wires detachably sprung into engagement with said clamping means, and the springs interlocked with the wires.

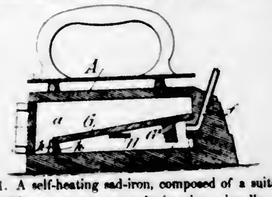
3. In a device of the class described the combination with a frame; of hangers depending therefrom and having their lower ends formed into clamping-loops; supporting-wires having their ends sprung into the loops of said hangers, and adapted to receive and support springs mounted thereon.

4. In combination with a seat-frame, hangers having their middle portions formed into loops the openings thereof being of a less width than the diameter and adapted to receive and hold firmly and rigidly, support-wires, in the seats at the lower portions of said loops, the portions of said hangers adjacent to said loops extending upward to the top of said frame, with horizontal portions adapted to rest upon the top of said frame, and downwardly-directed ends pointed and adapted to be driven into the top side of said frame, substantially as shown and described.

5. In a device of the class described the combination with a frame; of conical convolute springs having upwardly and downwardly directed kinks formed in their lowermost coils; hangers depending from the top of said frame and having loops formed in their lower ends; supporting-wires crossing each other with the ends thereof resting within the loops of said hangers, and adapted near their points of crossing to register with the kinks in the said springs, the lowermost coil of the latter being adapted to pass above and below the supporting-wires alternately, and the extreme lower end thereof formed into a hook and adapted to engage a higher coil whereby the supporting-wires are firmly fastened together, and the springs secured firmly upon said supporting-wires.

6. In a device of the class described the combination with a frame; of hangers depending therefrom and having their lower ends formed into resilient parallel guideways; and detachable supporting-rods having their ends sprung into engagement with the guideways of said hangers and adapted to receive and support springs mounted thereon.

680,216. SAD-IRON. ARTHUR T. BEACH, Brooklyn, N. Y. Filed Oct. 13, 1900. Serial No. 32,961. (No model.)



Claim.—1. A self-heating sad-iron, composed of a suitable hollow body provided with means of access to its interior, a handle, a duct leading through the toe of the body, a rearwardly and downwardly inclined heat-concentrating plate suitably supported within the chamber of the body, above the inner end of the duct, and a baffle located on the under side of the said plate, adjacent to the said duct, substantially as set forth.

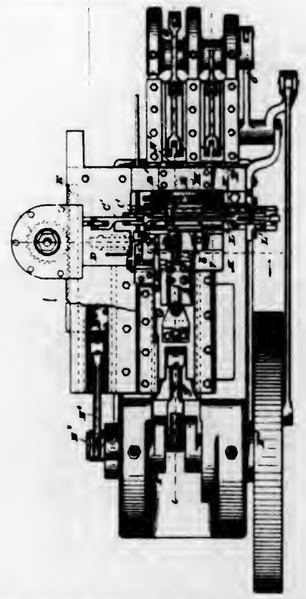
2. A self-heating sad-iron, composed of a suitable hollow body provided with means of access to its interior, a handle, a duct leading through one end of the body, a plate suitably supported within the chamber and disposed lengthwise thereof, said plate extending above the inner end of the said duct, and a baffle located on the under side of said plate, adjacent to the duct, substantially as set forth.

680,217. RIVET-MAKING MACHINE. JOHN R. BLAKESLEE, Glenville, Ohio, assignor to the Ajax Manufacturing Company, Cleveland, Ohio. Filed June 16, 1900. Serial No. 20,528. (No model.)

Claim.—1. In a rivet-making machine, the combination of a rotatable die-support, a series of equidistant dies arranged upon the circumference of a circle having its center upon the axis of rotation of said support, a reciprocating blank-carrier adapted to intermittently and partially rotate said support, means for feeding blanks from said carrier into said dies and acting at a fixed point in the rotative path of said support, and a heading-tool acting at a second such point, substantially as set forth.

2. In a rivet-making machine, the combination of a rotatable die-support, a series of equidistant dies arranged upon the circumference of a circle having its center upon the axis of rotation of said support, a reciprocating blank-carrier having its path of movement located transversely of the axis of rotation of said support and provided with means for securing a blank against displacement in the direction of such reciprocal movement, feeding means mounted upon a reciprocal support adapted to eject such blank from said carrier and insert same into a die, said support provided with means for actuating said blank-securing means to release the inserting means whereby said carrier may be released, substantially as set forth.

3. In a rivet-making machine, the combination of a rotatable turret provided with a series of dies equidistant from each other and from the turret-axis, having their axes parallel with the latter and being open to communication with both ends, a series of tools having their axes located in different lines in the cylindrical surface passing through the die-axes, and consisting of a blank-inserting tool, a heading-tool, an ejector and a plunger, the axis of the latter located in the same straight line with the heading-tool axis and upon the side of said turret opposite that upon which said heading-tool is located, a carrier for carrying blanks into the line of action of said inserter, said tools and plunger connected so as to respectively act within the sphere of each die consecutively, and means for intermittently and partially rotating said turret, substantially as set forth.



4. In a rivet-making machine, the combination of a rotatable turret provided with a series of dies equidistant from each other and from the turret-axis and having their axes parallel with the latter, means for intermittently and partially rotating said turret through an arc of a circle equal to that between the axes of two consecutive dies, an inserter having a reciprocatory movement parallel with said turret-axis, the axis of said inserter located upon the line passing through a die-axis when said turret is at rest, a blank-carrier having a reciprocatory movement in a direction transverse to that of the turret-axis and provided with a pocket for receiving a blank, said pocket having three confining-walls adapted to secure such blank against displacement in the direction of both reciprocatory movements of said carrier and in one direction of the blank-axis, such wall effecting non-displacement in the last-described direction being movable, whereby said inserter is permitted to enter said pocket eject the blank therefrom, and means for moving said wall, substantially as set forth.

5. In a rivet-making machine, the combination with a blank-carrier, of means for reciprocating same, said carrier provided with a pocket for the reception of a rivet-blank and provided with a gage at one end movable in a direction transverse with respect to the longitudinal direction of the pocket, substantially as set forth.

6. In a rivet-making machine, the combination with a blank-carrier, of means for reciprocating same, said carrier provided with a pocket for the reception of a rivet-blank and provided with walls adapted to prevent displacement in the direction of reciprocation, one of such walls being movable in a direction transverse with respect to such direction, substantially as set forth.

7. In a rivet-making machine, the combination with a blank-carrier, of means for reciprocating same, said carrier provided with a pocket for the reception of a rivet-blank provided with walls adapted to prevent displacement in the direction of reciprocation, one of such walls being movable in a direction transverse with respect to and capable of yielding in the direction of such movement, substantially as set forth.

8. In a rivet-making machine, the combination of a blank-carrier, means for reciprocating same, said carrier provided with a pocket for the reception of a rivet-blank and with a gage at one end slidably mounted, and an inclined plane secured to or formed upon the machine-frame, said gage provided with a roller for engaging such plane whereby said gage may be moved in its slideways upon the reciprocation of said carrier, substantially as set forth.

9. In a rivet-making machine, the combination with a reciprocating blank-carrier, of a reciprocating heading-tool slide, said carrier provided with a pocket for the reception of a rivet-blank provided with walls adapted to prevent displacement of such blank in the direction of reciprocation, one such wall being slidably mounted upon a spring-actuated support, said heading-tool slide provided with means for actuating said wall in its slide-bearings and for causing said spring-actuated support to yield, whereby such support may be arrested and held stationary during a part of the reciprocation of the carrier, substantially as set forth.

10. In a rivet-making machine, the combination of a rotatable turret provided with a series of dies arranged equidistantly from its axis of rotation, a reciprocating carrier for transporting a rivet-blank opposite such dies, a pawl engaging the periphery of said turret connected with and actuated by said carrier to periodically rotate same through successive arcs of rotation, substantially as set forth.

11. In a rivet-making machine, the combination of a rotatable turret provided with a series of dies arranged equidistantly from its axis of rotation, a reciprocating carrier for transporting a rivet-blank opposite such dies, a pawl engaging the periphery of said turret connected with and actuated by said carrier and means for locking said turret during one reciprocal movement of said carrier, substantially as set forth.

12. In a rivet-making machine, the combination of a rotatable turret provided with a series of dies, a reciprocating carrier for transporting a rivet-blank opposite such dies, a pawl engaging the periphery of said turret connected with and actuated by said carrier and a bolt for engaging recesses in said turret's periphery connected with and actuated by said carrier, whereby said turret may be locked against rotative movement during one reciprocatory movement of said carrier, substantially as set forth.

13. In a rivet-making machine, the combination of a rotatable turret provided with a series of dies having their axes parallel with the turret's axis of rotation and located equidistantly from each other and from said turret-axis, means for periodically rotating said turret through successive arcs each equal to that between successive die-axes and taken upon the circumference of a circle described by a fixed point upon one such axis, a stationary portion adjacent to said turret provided with a series of bores located equidistantly from the line of the turret-axis and from each other in a manner such as to cause them to be coaxial with the die-bores when said turret is stationary, and water connections communicating with said bores whereby water may be injected into same, substantially as set forth.

14. In a rivet-making machine, the combination of a die-support, a die in said support, a heading-tool and means for actuating same, an ejector and means for actuating same, means for moving said support from the sphere of action of said heading-tool to that of said ejector, and means located intermediately of said spheres for cooling the interior of said die, substantially as set forth.

15. In a rivet-making machine, the combination of a die-support, a die in said support open to communication at both ends, a heading-tool and means for actuating same, an ejector and means for actuating same, means for moving said support from the sphere of action of the heading-tool into that of said ejector, and means located intermediately of said spheres for injecting water into the said die whereby the inner end of the rivet may be cooled, substantially as set forth.

16. In a rivet-making machine, the combination of a series of dies mounted in a rotatable die-support and means for actuating the latter to cause said dies to traverse a fixed cycle, an inserter, heading-tool and ejector located and operating at different successive points in said cycle, and means for injecting water through said dies located in said cycle intermediately of the ejector and inserter, substantially as set forth.

17. In a rivet-making machine, the combination of a series of dies mounted in a rotatable die-support and means for actuating the latter to cause said dies to traverse a fixed cycle, an inserter, heading-tool and ejector located and operating at different successive points in such cycle, and means located in said cycle intermediately of said ejector and inserter for oiling the die-bore, substantially as set forth.

18. In a rivet-making machine, the combination of a series of dies mounted in a rotatable die-support, means for intermittently actuating said support to successively bring each die to a fixed point, an oil-swab, and means for actuating said swab to enter each die at such point whereby each die-bore may be oiled, substantially as set forth.

19. The combination of a tool-slide provided with a recess for receiving a tool-support, said recess being of a width and depth greater than the width and height respectively of said support, of a gib secured to said slide having an angularly-placed screw passing therethrough bearing diagonally upon said support, substantially as set forth.

680,218. METHOD OF MAKING JAW-RODS. JOHN R. BLAKESLEE, Glenville, Ohio, assignor to the Ajax Manufacturing Company, Cleveland, Ohio. Filed Mar. 3, 1900. Serial No. 7,147. (No model.)

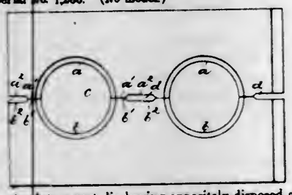
Claim.—1. The method of forming jaws of jaw-rods, which consists in welding together two parallel pieces of metal intermediately of their extremities whereby the two rod portions will be formed by a single welding operation and each extremity of the structure so formed is caused to consist of two parallel unwelded portions, separating the two

parallel members of each such extremity to form the two jaw members, and dividing the structure at the welded portion, substantially as set forth.



2. The method of forming jaws of jaw-rods, which consists in welding together two parallel pieces of metal intermediately of their extremities whereby the two rod portions will be formed by a single welding operation and each extremity of the structure so formed is caused to consist of two parallel unwelded portions, reducing the cross-section of such intermediate welded portion, separating the two parallel members of each such extremity to form two jaw members, and dividing the structure at the welded portion, substantially as set forth.

680,219. DIE. JOHN R. BLAKESLEE, Glenville, Ohio, assignor to the Ajax Manufacturing Company, Cleveland, Ohio. Filed Jan. 13, 1900. Serial No. 1,286. (No model.)

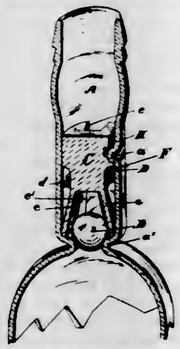


Claim.—1. A two-part die having oppositely-disposed contact surfaces bounded upon one side by a depressed surface and upon the other by the edges of the working face of the die, substantially as set forth.

2. A two-part die, each part provided with the complementary portion of the working face of the other, each such portion formed with alining contact-surfaces intermediate of said working faces and depressed surfaces formed upon such portion, substantially as set forth.

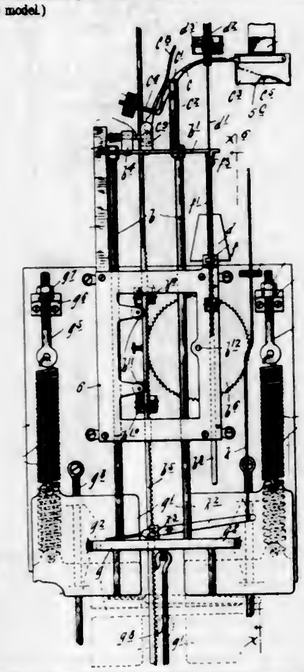
3. A die for upsetting the ends of tubes, comprising companion die-blocks having working surfaces formed therein, oppositely-disposed contact-surfaces bordering the meeting edges of the working surfaces, and alining depressed surfaces in the face of each block into which the contact-surfaces lead whereby scale from the tubes will be discharged into the channels formed by the depressions.

680,220. NON-REFILLABLE BOTTLE. WALTER S. BOWNESS, Moncton, Canada. Filed Jan. 19, 1901. Serial No. 43,920. (No model.)



Claim.—In a non-refillable bottle, the combination with the neck portion thereof, provided with an inwardly-projecting knob or seat intermediate of its height, and the annular shoulder or valve seat at the base thereof, and the ball-valve, of a stopper or plug having downwardly-extending projections from its body portion, designed to rest on the annular shoulder to each side of the ball-valve, and forming passage-ways diametrically in line with passage-ways in the body portion, an intervening rim or ledge on the stopper between the body and lower projections, having passage-ways out of line with the aforesaid passage-ways, the encircling groove F and the recess H leading into the groove G, and suitable cement filling to lock the knob *a* into the closed end of the groove G, as and for the purpose specified.

680,221. COIN-CONTROLLED WEIGHING DEVICE. OTTO A. BROMSON, Minneapolis, Minn. Filed Nov. 16, 1900. Serial No. 36,668. (No model.)



Claim.—1. The combination with a scale-platform, of an indicator, an indicator-actuating mechanism, a lock for restraining the operative movement of said actuating mechanism, a coin-controlled trip operating to release said lock, means for causing said lock to again become active only at the predetermined limit of movement of said actuating mechanism, another lock for preventing the returning movement of said indicator, a releasing device for said latter lock, and means whereby said releasing device is operated by the upward movement of the scale-platform.

2. The combination with a scale-platform, of an indicator, a primary and a secondary indicator-actuator, a lock restraining the operative movement of said primary actuator, means whereby the operative movement of said primary actuator imparts an operative movement to said secondary actuator, a coin-controlled trip operating to release said lock, means for causing said lock to again become active at the predetermined limit of movement, another lock for holding said secondary actuator against return movement, a releasing device for said latter lock, means whereby the return movement of said primary actuator operates said releasing device, and a limiting-stop controlled by said scale-platform and arranged to be set in advance to limit and predetermine the operative movement of said primary actuator.

3. The combination with a scale-platform, of an indicator, a primary and a secondary indicator-actuator, movable the one with respect to the other; a pawl-and-ratchet lock limiting the operative movement of said primary actuator, means whereby said primary actuator operates said indicator through said secondary actuator, a coin-controlled trip for releasing the pawl of said lock, means for permitting said pawl to become active again at the predetermined limit of the scale indication, a pawl-and-ratchet lock for holding said secondary actuator against return movement, a releasing device for the pawl of said latter lock, means whereby said releasing device is actuated by the final return movement of said primary actuator, and a limiting-stop controlled by said scale-platform, and arranged to be set in advance to variably limit and predetermine the operative movement of the primary actuator.

4. The combination with the scale-platform, of an indicator, a primary and secondary actuator for said indicator, means whereby the former actuator imparts an operative movement to the latter but has an advance return movement, a pawl-and-ratchet lock restraining the operative movement of said primary actuator, a coin-controlled trip for the pawl of said lock, having the coin-pocket with a drop-bottom, a pawl-and-ratchet lock restraining the return movement of said secondary actuator, a releasing device for the pawl of said latter lock actuated by the final return movement of said primary actuator, an actuator stop or controller controlled by the scale-platform and arranged to be set in advance to variably intercept and predetermine the movement of said primary actuator, an automatic releasing device operative on the drop-bottom of said coin-trip, and means whereby said release device is itself rendered operative by said register-actuator, at the limit of its predetermined movement.

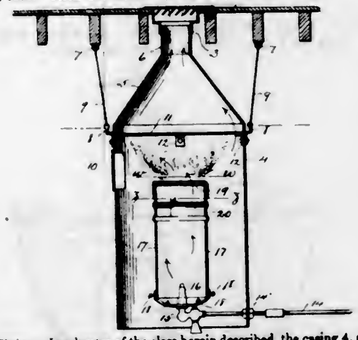
5. The combination with an indicator, of an indicator-actuator, a stop for said actuator, adapted to be set in advance to predetermine the movement of said actuator, means for releasing said actuator after said stop has been set, and means for automatically locking said actuator against return movement at the limit of its predetermined operative movement.

680,222. TANNING COMPOUND. DANIEL W. BROWN, Westplains, Mo. Filed Sept. 3, 1900. Serial No. 29,424. (No specimens.)

Claim.—1. A tanning compound, composed of gambier, extract of crane's-bill, and oil of birch.

2. A tanning compound composed of gambier, extract of crane's-bill, oil of birch and hardhack.

680,223. HEATER. LOUIS O. CAMERON, Bellevue, Pa. Filed Jan. 14, 1901. Serial No. 43,179. (No model.)



Claim.—In a heater of the class herein described, the casing 4, adapted to be suspended beneath a hot-air register and provided with an open bottom, and a baffle-plate 11 and door 10 near its top, in combination with the combined burner and mixer consisting of a cylindrical shell 17, open at the bottom and supported upon a gas-supply pipe provided with a burner; said cylindrical shell having a perforated plate 19 at its top, and one or more of said plates beneath the top, all substantially as and for the purpose specified.

680,224. VEHICLE-WHEEL. JULIAN R. CAMP, Brooklyn, Ill. Filed Jan. 18, 1901. Serial No. 43,780. (No model.)



Claim.—1. A vehicle-wheel having filling-pieces interposed between the outer portion of adjacent spokes to divide mud and prevent creeping and accumulation thereof upon the sides of the wheel, substantially as set forth.

2. In combination with a vehicle-wheel, filling-pieces detachably fitted between the outer portions of adjacent spokes and serving to prevent accumulation of mud, substantially in the manner specified.

3. In combination with a vehicle-wheel, filling-pieces having their longitudinal edges grooved and fitted between the outer portions of adjacent spokes and held from lateral displacement by the seating of the spokes in the grooved edges of the filling-pieces, substantially as set forth.

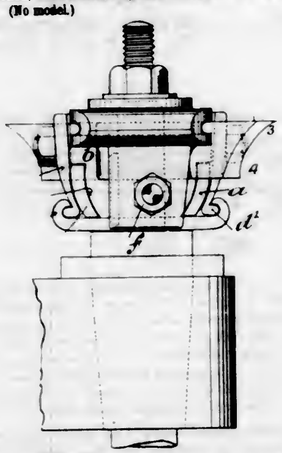
4. In combination with a vehicle-wheel, filling-pieces interposed between the outer portion of adjacent spokes, and jacks interposed between the outer ends of the filling-pieces and the rim of the wheel, substantially as set forth.

5. In combination with a vehicle-wheel, filling-pieces interposed between the outer portions of adjacent spokes and having openings in their outer end portions, and a jack interposed between each of the filling-pieces and the rim of the wheel and consisting of a threaded stem having its inner end fitted into the opening of the filling-piece, a head at the outer end of the threaded stem and fitted to the rim, and a nut mounted upon the threaded stem and adapted to exert an inward pressure against the filling-piece, substantially as set forth.

6. In combination with a vehicle-wheel, a filling-piece interposed between the outer portions of adjacent spokes and having its edges grooved and its outer end indented or depressed, and a jack interposed between the rim of the wheel and the outer end of the filling-piece, substantially as set forth.

7. In combination with a vehicle-wheel, a filling-piece interposed between the outer portions of adjacent spokes and having its longitudinal edges grooved, its outer end portion centrally depressed or indented and formed with an opening, a threaded stem having its inner end portion fitted loosely in the opening of the filling-piece and having a rest or head at its outer end concave in its outer face to receive the rim of the wheel, and a nut mounted upon the threaded stem and adapted to exert a pressure against the filling-piece, substantially as specified.

680,225. ROTARY CUTTER. ISAAC CHORLTON and WALTER J. WENTWORTH, Manchester, England. Filed Nov. 6, 1900. Serial No. 35,596. (No model.)



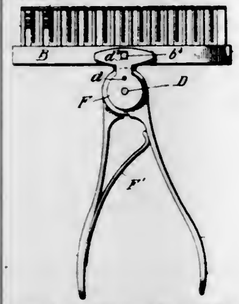
Claim.—1. A rotary planing appliance for planing or shaping rounded-off or curved tops, edges, shoulders or the like upon pieces of timber, consisting of a carrier-block *b* carried on a spindle and having formed thereon convexed or curved faces or recesses lying at an angle to the axis of the carrier-block and adapted to receive cutting tools or chisels *a* and *a'*, formed from the unslotted pieces of correspondingly-curved tool-steel, the said tool or tools being held in position by a clamp or clamps and so shaped and set at the cutting edge or edges as to bring about an angular or shearing or drawing cut, for the purposes and substantially as described.

2. In a rotary cutting-tool having cutting-tools *a a'* means for securing or clamping the cutter blades or tools without the necessity for slotting the same to the revolving block consisting of a clamp or washer hooked, pivoted or otherwise loosely connected to the block and designed to bear on the tool and secure the same to the said block, substantially as herein described.

680,226. CHECK-PUNCH. CHARLES F. COOLEY, Hot Springs, Ark. Filed Apr. 4, 1901. Serial No. 54,337. (No model.)

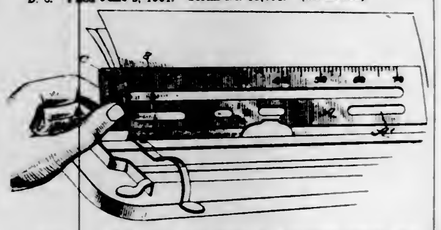
Claim.—1. A check-punch, comprising a stationary and a longitudinally-movable plate, held in contact with each other, alternately-die-

posed male and female dies carried by said plates, an integral handle on said stationary plate, a threaded pivotal pin carried by said handle, a second handle pivotally mounted on said pin, a projecting plate held on the threaded end of the pin, a lug secured to said projecting plate and engaging in a recess in the pivotal handle, a lug projecting from the outer face of the longitudinally-movable plate, and engaging in an aperture in said projecting plate, as set forth.



2. A check-punch comprising a plate A having a series of grooves in one face thereof, a series of dies having contracted portions which are seated in said grooves and having the outer faces of said contracted portions flush with the inner face of the plate, combined with a second plate having a similar series of dies similarly mounted and alternately disposed with relation to said first series of dies, a pivoted handle, and a projecting plate connecting one end of said handle and one of the plates which is longitudinally movable, as set forth.

680,227. **ERASING-SHIELD.** VIRGINIA I. COPLAND, Washington, D. C. Filed June 8, 1901. Serial No. 63,731. (No model.)



Claim.—1. An erasing-shield composed of the upper section perforated to permit the operation of the eraser through it and the base-section in connection therewith and adapted to fit between the type-copy and carbon-copy and overlie the latter, substantially as set forth.

2. An erasing-shield composed of the section having openings through which the eraser can operate and the base-section connected at one end with the upper section and adapted to underlie the type-copy and receive the pressure of the eraser, substantially as set forth.

3. An erasing-shield consisting of the upper or main section or strip perforated to permit the operation of the eraser through it, the base section or strip and the riveted eyelets connecting said strips at one end, substantially as set forth.

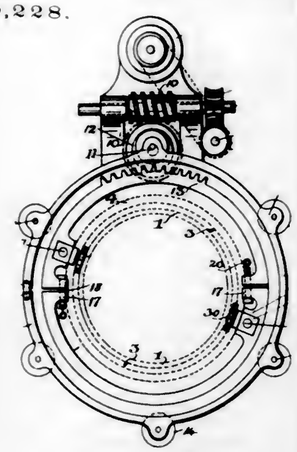
4. The erasing-shield herein described composed of two flexible strips one of which is provided with openings through which the eraser may operate and the other of which is imperforate and is adapted to underlie the sheet being erased and is closed or imperforate opposite the openings in the first plate, and the fastenings connecting said strips at one end, substantially as set forth.

680,228. **APPARATUS FOR CALKING AND CUTTING PIPE.** JAMES COMPTON and JAMES FIELATSON, Perth, Western Australia. Filed June 13, 1900. Serial No. 20,171. (No model.)

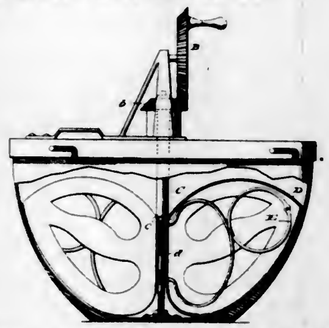
Claim.—1. In combination in a calking-machine, a pair of rings adapted to surround the pipes to be joined, means for rotating said rings simultaneously, presser-disks arranged in pairs, carried by the rings and means for forcing said disks toward each other, substantially as described.

2. In combination in a calking-machine, a frame adapted to surround the pipes to be joined, a pair of rings guided thereby, means for rotating said rings, transverse ways carried by the rings, presser-disks, blocks forming bearings for the shafts of the same guided in said ways and means for adjusting said disks toward each other, substantially as described.

680,228.



680,229. **MIXING APPARATUS.** DELIA DAVIS, Guthrie, Okla. Filed Feb. 2, 1901. Serial No. 45,749. (No model.)



Claim.—1. In a stirrer the combination of a revolving shaft with a spoon-body, said spoon-body being provided with a longitudinal opening at each side of the median line, and having across its face a convex doubly-curved wire, substantially as and for the purposes set forth.

2. In a stirrer the spoon-body D, provided with longitudinal openings, and having across its face the convex wire E with one end attached at each side of the base of the spoon, said wire being twisted a half-turn forming a figure 8, and the end of the loop thus formed, being secured to the outer end of the spoon, substantially as specified.

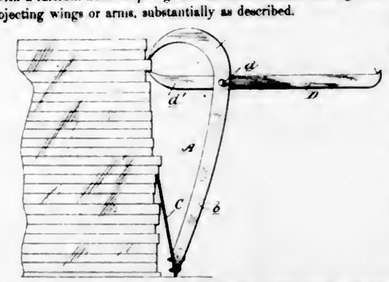
3. In a stirrer, the combination of a receptacle with a spoon-body, said spoon-body conforming to the inner surface of the receptacle and being provided with longitudinal openings, and having across its face a convex wire with one end attached at each side of the base of the spoon, said wire being twisted a half-turn forming a figure 8, and the end of the loop thus formed, being secured to the outer end of the spoon, substantially as specified.

680,230. **LUMBER-JACK.** NELSON R. DEPPE, Maysville, N. C. Filed Jan. 24, 1901. Serial No. 44,612. (No model.)

Claim.—1. A lumber-jack for the purpose described, comprising members pivotally connected between their ends, said members at one side of said connection having jaws for engaging an object and holding the jack in operative position, and one of said members providing a fulcrum, substantially as described.

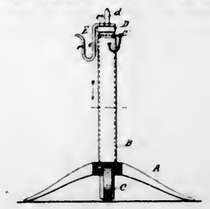
2. A lumber-jack for the purpose described comprising two members pivotally secured together and having jaws for engaging between them an object or objects and holding the jack in operative position, one of said members being provided with a fulcrum hook or prong, substantially as described.

3. A lumber-jack for the purpose described comprising two members pivoted together each having a jaw which jaws are adapted to grasp or bite between them a holding object, one of said members being provided with a fulcrum hook or prong and the other member having laterally-projecting wings or arms, substantially as described.



4. A lumber-jack for the purpose described, comprising two members pivoted together each having a jaw adapted to grasp or bite between them a holding object, one of said members being provided with a fulcrum hook or prong and the other member having lateral upwardly-curved projecting wings or arms, substantially as described.

680,231. **LUMBER-JACK.** NELSON R. DEPPE, Maysville, N. C. Filed Mar. 5, 1901. Serial No. 49,797. (No model.)

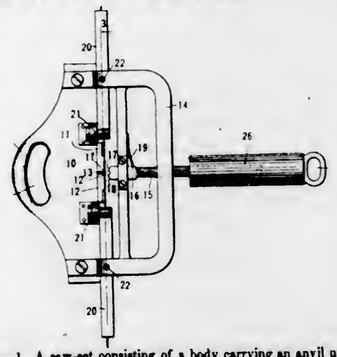


Claim.—1. A lumber-jack comprising a support, a standard thereon, and a bracket rotatively mounted on the standard provided with oppositely-disposed portions adapted to overlie the surfaces of a board when supporting the same edgewise, substantially as described.

2. A lumber-jack comprising a base or support, a standard thereon, a pin or projection at the upper end of the standard, and a bracket pivotally mounted upon said pin or projection, substantially as and for the purposes described.

3. A lumber-jack comprising a base or support, a standard thereon, a pin or projection at the upper end of the standard, and a bracket adapted to support a board edgewise comprising the member *e*, return-bend *e'*, and the member *e²* adapted to engage the pin or projection on the standard so as to have a pivotal movement thereupon, substantially as described.

680,232. **SAW-SET.** WILLIAM M. DICKERSON, Indianapolis, Ind. Filed Apr. 17, 1901. Serial No. 56,183. (No model.)



Claim.—1. A saw-set consisting of a body carrying an anvil upon one edge thereof, a U-shaped frame secured to said body, a reciprocating die arranged in said frame to coöperate with said anvil, a pair of adjustable guards pivoted upon said body and arranged to rest upon the teeth of the saw, and a stop mounted adjacent the anvil to aline the saw-tooth therewith.

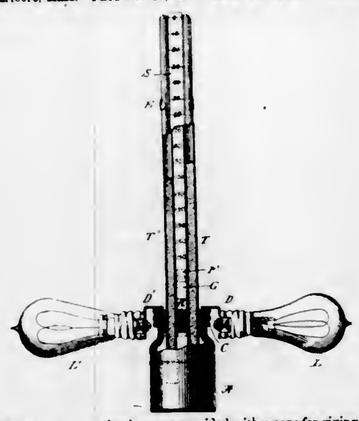
2. A saw-set, consisting of a body carrying a pair of oppositely-arranged anvils, a stop mounted between said anvils, a reciprocating die arranged to coöperate with both of said anvils, and adjustable supporting means carried by the body for engaging the periphery of the saw.

3. A saw-set, consisting of a body carrying a pair of oppositely-arranged anvils upon one edge thereof, a reciprocating die arranged to coöperate with both of said anvils, and a hammer reciprocably mounted upon said die.

4. A saw-set, consisting of a body carrying a pair of oppositely-arranged anvils upon one edge thereof, a reciprocating die arranged to coöperate with both of said anvils, a pair of adjustable guards carried by the body and arranged to rest upon the periphery of the saw, a stop mounted between the anvils, and a hammer reciprocably mounted upon the die.

5. A saw-set, consisting of a body, an anvil carried by said body, a swaging-face formed upon said anvil at an angle to the saw-face thereof, a pair of supporting means pivotally mounted upon the body for engaging the periphery of the saw, and means for swinging said supporting means whereby the intersection of the swaging-face and the saw-face of the anvil may be brought substantially at right angles to the medial line of the teeth of the saw.

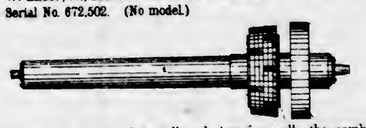
680,233. **ELECTRICAL COULOMB-METER.** SAMUEL E. DOANE, Marlboro, Mass. Filed Dec. 10, 1900. Serial No. 39,251. (No model.)



Claim.—1. A coulomb-meter provided with means for giving simultaneous comparative indications of the volumes of the liberated gases, substantially as described.

2. A coulomb-meter, consisting of means for simultaneously electrolytically liberating, storing and indicating independent volumes of gases, substantially as described.

680,234. **SAND-REEL FOR OIL OR ARTESIAN WELLS.** HIRAM W. EATON, Jr., and ANDREW BENSON, Bradford, Pa. Filed Mar. 4, 1898. Serial No. 672,502. (No model.)



Claim.—1. In a reel for oil and Artesian wells, the combination with a shaft having a polygonal head, of a series of tangential arms secured to said head, and a series of sector-blocks which fill the spaces between and are supported by the tangential arms, substantially as and for the purposes specified.

2. In a reel for oil and Artesian wells, the combination with a shaft provided with a plurality of adjacent polygonal heads whose apices break joint, of a plural series of tangential arms, and corresponding series of overlapping sector-blocks interposed between the tangential arms of the respective series, substantially as and for the purposes specified.

3. In a reel for oil and Artesian wells, the combination with a shaft provided with a plurality of adjacent polygonal heads, of a plural series of tangential arms, and corresponding series of overlapping sector-blocks interposed between and supported by said arms thus comprising a laminated driving-wheel, substantially as and for the purposes specified.

4. In a reel for oil and Artesian wells, the combination with a shaft

provided with a plurality of adjacent polygonal heads, of a plural series of tangential arms, and corresponding series of overlapping sector-blocks interposed between and supported by said arms thus comprising a straight-grain laminated driving-wheel, substantially as and for the purposes specified.

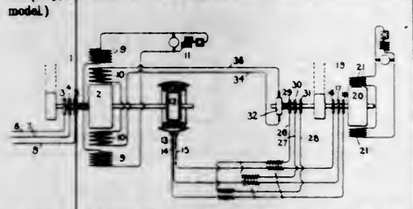
5. In a reel for oil and Artesian wells, the combination with a spooling-drum having an enlarged head, of polygonal depressions surrounding said head in alternate arrangement forming a double hub, of arms tangentially projected from each of said depressions, overlapping sector-blocks tangentially supported by said arms, and a brake-wheel also mounted upon the head composed of laminated overlapping flanges, substantially as and for the purposes specified.

680,235. GEARING FOR CYCLES. ROBERT ECCLES, Ballywalter, Ireland. Filed Oct. 4, 1900. Serial No. 31,962. (No model.)



Claim.—In a cycle-gear, the combination with the driving-axle mounted on the lower end of the seat-pillar tube, of cranks *g g'* upon said axle, links *i i'* connected to the cranks by joints *h*, tread-levers *k* fulcrumed as at *l* on fixed ball-bearing fulcrums and having their arms, *k'*, connected to the links *i i'* by joints *j*, pedals *p* upon the levers, and the forked bracket *n* secured to the seat-pillar tube and having rigid arms *m m* supporting the fixed ball-bearing fulcrums of the levers at the lower extremities of said arms, all arranged substantially as shown and described.

680,236. REGULATION OF DYNAMO-ELECTRIC MACHINES. HAROLD EDWARDS, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 17, 1901. Serial No. 60,659. (No model.)



Claim.—1. The combination of a main machine, an auxiliary regulating-machine driven at constant speed, and means responsive to variations in relative motion of said machines for producing a regulating-current, and means for controlling by said current the field strength of said main machine.

2. A combination of a main machine, an auxiliary machine electrically connected thereto and driven at speed independent of that of the main machine, and means for causing a regulating-current to flow between said machines in response to a variation in speed of one of said machines relatively to the other.

3. The combination of a main machine, an auxiliary machine electrically connected thereto and driven at constant speed, and means for regulating the main machine through the instrumentality of current flowing betwen said machines.

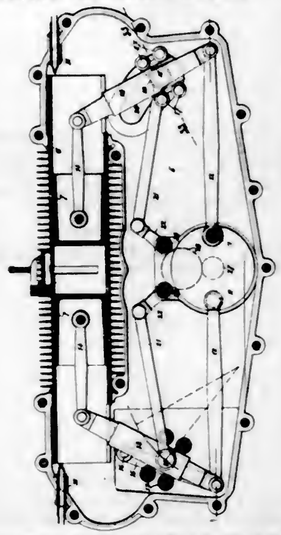
4. The combination with a main machine, of an induction-machine driven at constant speed and electrically connected with a circuit or circuits of said main machine, and means controlled by current flowing in the circuits of said induction-machine for regulating said main machine.

5. The combination with an alternating-current generator and an induction-machine, electrical connections between said machines, and means responsive to variations in the relative speed of said machines for producing a direct current of a value corresponding to the magnitude of said relative speed variations.

6. A combination with a main alternator, an induction-machine driven at constant speed, circuits connecting said machines, series transformers included in said circuits, a rectifying-commutator connected to secondary windings of said transformers, and a winding on said main machine connected to said rectifying-commutator.

7. The combination of a machine of variable speed, a machine of constant speed, means for causing current to flow between said machines in accordance with the variation of speed of said machines relatively to each other, and means for regulating the field of the variable-speed machine through the instrumentality of said currents.

680,237. MOTOR FOR AUTOMOBILES DRIVEN BY EXPLOSION OF INFLAMMABLE VAPORS. MAURICE A. BUDELIN, Paris, France. Filed Nov. 12, 1900. Serial No. 36,225. (No model.)

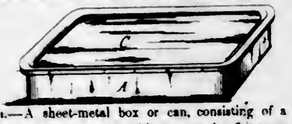


Claim.—1. In an explosion-motor the combination with a cylinder having but one admission and one escapement valve of two pistons, of two oscillating levers articulated on one end to the piston-rods and with the other end on the connecting-rods acting on the crank, of two arms on which the said levers are suspended; of friction-rollers regulating respectively the swinging of the levers, of two connecting-rods articulated on the pivots on which the levers swing, of movable bearings for said pivots, of two toothed segments mounted on the shafts of the said connecting-rods and of an endless screw gearing with the two segments, substantially as shown and described and for the purpose specified.

2. In an explosion-motor the combination with each piston of a lever transmitting its movement to the driving-shaft, of an articulation consisting of friction-rollers on both sides of said lever mounted on a piece having a circular groove, of a bearing of a pivot of articulation movable in said groove, substantially as shown and described and for the purpose set forth.

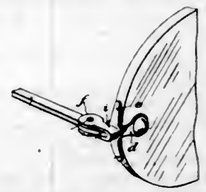
3. In an explosion-motor the system of changing the position of the movable articulations consisting in a combination with said articulations of connecting-rods articulated respectively to the pivots of said articulations, of levers articulated on those connecting-rods, of toothed segments mounted on the shafts of said levers and of an endless screw gearing with the said segments, substantially as shown and described.

680,238. SHEET-METAL BOX. FRÉDÉRIC FOUCHÉ, Paris, France. Filed Oct. 13, 1900. Serial No. 32,966. (No model.)



Claim.—A sheet-metal box or can, consisting of a box-body of stamped sheet metal, provided with an exterior flange at its rim, said flange being approximately of inverted-U shape in cross-section, so that its outer edge has a down turn, while the curve of its inner portion merges directly into and forms an unbroken continuation of the side walls of the box-body, a cover or top resting upon the convex portion of the inverted-U-shaped flange and extending beyond the line of contact so as to provide a recess between the edge of the flange and the top, and a suitable filling or soldering in said recess, substantially as set forth.

680,239. SPECTACLE-FRAME. IVAN FOX, Lansdowne, Pa. Filed Feb. 4, 1901. Serial No. 45,879. (No model.)



Claim.—1. In a spectacle, a lens clasp or the like and a temple, and a pivotal connection between said clasp and temple, said clasp having a recess which receives the temple when the temple is in open position and out of which the temple passes in its movement to closed position, substantially as set forth.

2. In a spectacle, a lens clasp or the like and a temple, pivotally engaged, one of said devices having a tongue and the other a recess, said tongue engaging in said recess when the temple is in open position and being carried out of said recess by the movement of the temple to closed position.

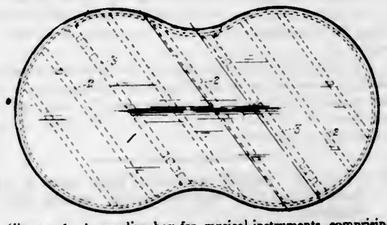
3. In combination, a spectacle lens, a clasp or the like mounted thereon and extending rearwardly from said lens and having a recess in its outer face and a pair of cheek pieces at its rear end, and a temple pivotally engaged between said cheek pieces and having an extension adapted to enter said recess when the temple is brought to open position, substantially as set forth.

4. In a spectacle frame, or mounting in combination with a temple, a lens clasp or the like, and a connecting pivot, a lock adapted to restrain the temple from rocking movement lengthwise of the pivot, and which is automatically engaged when the temple is brought to open position and disengaged in the movement of the temple to closed position.

5. In combination, a spectacle clasp consisting of a basal portion and a temple engaging portion, which temple engaging portion is of the form of a U-shaped loop and is secured to said basal portion, and a temple pivotally mounted between the extremities of the U-shaped loop and provided with a tongue or extension adapted in the movement of the temple to be carried into and out of the space between the side walls of the U-shaped loop, substantially as set forth.

6. In a spectacle, a clasp provided with two narrow flat strips of sheet metal extending in parallelism in planes perpendicular to that of the lens of the spectacle, a temple passing between the rear ends of said strips, and a pivot passing the rear ends of said strips and through the temple at a point to the rear of its front end portion, the front end portion of the temple in the pivotal movement of the temple being carried alternately into and out of position between the bodies of said strips, substantially as set forth.

680,240. SOUNDING-BOX FOR MUSICAL INSTRUMENTS. MARTIN PUSCH, St. Louis, Mo. Filed Feb. 21, 1901. Serial No. 48,293. (No model.)



Claim.—1. A sounding-box for musical instruments, comprising a hollow box or chamber, a series of reinforcing-strips secured to the interior of the top and bottom walls of the same, said strips running transversely across and at an angle to the axis of the box, and means for bridging the top and bottom walls of the box on either side of the reinforcing-strips, substantially as set forth.

2. A sounding-box for musical instruments comprising a hollow elongated box or chamber, a series of reinforcing-strips secured along the inner faces of the top and bottom walls thereof, and running in pairs in planes disposed obliquely to the major axis of the box; and one or more partitions disposed between the series of strips, substantially as set forth.

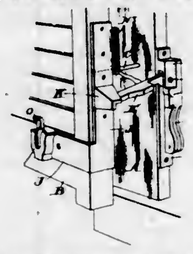
3. A sounding-box for musical instruments comprising a hollow elongated box or chamber, a series of reinforcing-strips having tapering ends, secured along the inner faces of the top and bottom walls of the box, and running in pairs in planes disposed obliquely to the major axis of the box, one or more partitions disposed between the series of strips and running parallel therewith, said partitions tapering toward their upper and lower edges and having cut-away portions for the passage of the sound-waves, and retaining-strips carried by the side walls of the box for securing the opposite ends of the partitions, substantially as set forth.

4. A sounding-box for musical instruments comprising a hollow elliptical box contracted at the center and having F-holes along the side walls thereof, a series of transversely and obliquely disposed reinforcing-strips secured to the inner faces of the top and bottom walls of the box, each strip being substantially U-shaped in cross-section and having tapering ends, the corners of the box being well rounded, a series of partitions disposed parallel to the reinforcing-strips and having cut-away portions for the free travel of the sound-waves, vertical retaining-strips carried by the side walls for securing the opposite ends of the partitions, a pair of reinforcing-strips, one above and one below, being arranged on each side of a partition, substantially as set forth.

5. A sounding-box for musical instruments, comprising a hollow box or chamber, a series of reinforcing-strips secured to the interior of the top and bottom walls of the same, said strips running transversely across and at an angle to the axis of the box, and one or more partitions disposed between the strips, substantially as set forth.

6. A sounding-box for musical instruments, having one or more partitions disposed between the upper and lower walls of the same, and a series of reinforcing-strips on each side of said partitions, substantially as set forth.

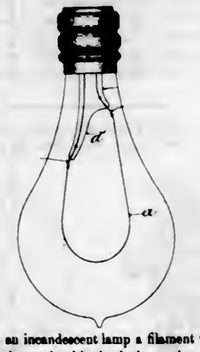
680,241. BLIND-FASTENER. MASSIMINO GIGLIO, Boston, Mass. Filed Dec. 21, 1900. Serial No. 40,634. (No model.)



Claim.—1. In a blind-fastener, a metallic base or shell adapted to be secured to the window-casing, and two folding arms pivoted on said base or shell and serving successively as hooks or braces, in combination with a casting adapted to fit upon the blind and formed with two sockets to engage said arms when they are unfolded, substantially as set forth.

2. In a blind-fastener, a metallic base or shell adapted to be secured to the wall or casing, and two folding arms pivoted on said base and adapted to serve as hooks or braces, each arm being provided near its pivot with a suitable spring, in combination with an angular casting fitting upon the side and edge of the blind and formed with two sockets to engage said arms successively, substantially as set forth.

680,242. INCANDESCENT ELECTRIC LAMP. HOWARD GILMORE, Boston, Mass. Filed June 14, 1899. Serial No. 720,458. (No model.)

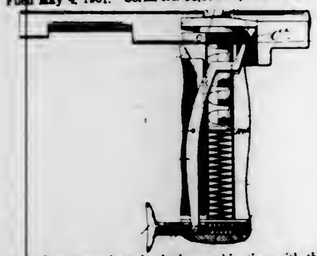


Claim.—1. In an incandescent lamp a filament with a curved body portion and two legs integral with the body portion, but one leg mate-

rially longer than the other, and each of the legs supported by a tube of glass sealed at its inner end, and also sealed at its outer end to the neck of the bulb.

2. In an incandescent lamp two filaments each with a curved body portion and two legs integral with the body portion, but one leg of each filament materially longer than the other leg of that filament, and with each of the legs supported by a tube of glass sealed at its inner end, and also sealed at its outer end to the neck of the bulb.

680,243. REPEATING PISTOL. GAETANO GIODA, New York, N. Y. Filed May 4, 1901. Serial No. 58,697. (No model.)



Claim.—1. In a repeating pistol, the combination with the handle having a magazine therein, the barrel fulcrumed to the handle so as to fold alongside the same, and means for locking the barrel in folded and firing positions, of a sliding breech-block containing a firing-pin and guided in the frame of the barrel, a trigger, means between the trigger and the breech-block, means for cocking the firing-pin, and means for driving said pin, substantially as set forth.

2. In a repeating pistol, the combination, with the handle having a magazine therein, and the barrel carried by the handle, of a breech-block guided in the frame and containing a spring-actuated firing-pin, a trigger, a U or horseshoe shaped cocking-lever for engaging, by one arm, a portion of the firing-pin, and means actuated by the trigger for causing a portion of the breech-block to act on the other arm of said lever for disengaging the U-shaped cocking-lever from the firing-pin, substantially as set forth.

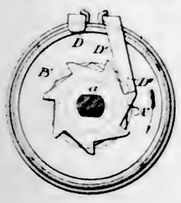
3. In a repeating pistol, the combination, with the handle having a magazine therein, and the barrel carried by the handle, of a breech-block guided in the frame and containing a spring-actuated firing-pin, a trigger, a U or horseshoe shaped cocking-lever pivoted at one corner in the breech, to provide a long and a short arm, the long arm being adapted to engage a portion of the firing-pin for cocking the same, a lug or projection on the breech-block adapted to engage the short arm of said lever, and means for actuating the breech-block from the trigger and closing the breech thereby, substantially as set forth.

4. In a repeating pistol, the combination, with the handle having a magazine therein, the barrel fulcrumed to the handle so as to fold alongside the same, and means for locking the barrel in folded and firing positions, of a trigger, a main lever actuated by said trigger and mounted on the handle, a breech-block guided in the frame and containing a spring-actuated firing-pin, a suitably-guided bar or link on the breech-block, provided with a recess into which the upper end of said lever may enter for operating the breech-block, when the barrel is locked in firing position at right angles to the handle, means for cocking said firing-pin, and means for releasing the firing-pin, substantially as set forth.

5. In a repeating pistol, the combination with the handle having a magazine and provided with a longitudinal recess in front of the magazine, a barrel fulcrumed to the handle and adapted to be folded into said recess, means for locking the barrel in folded and firing positions and a spring tending to throw the barrel from the recess, substantially as set forth.

680,244. BACK-PEDALING BRAKE. GEORGE S. GREEN, Philadelphia, Pa. Filed Dec. 19, 1900. Serial No. 40,383. (No model.)



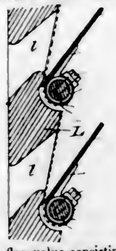


Claim.—1. In a back-pedaling brake, the combination with a hub and axle; of a clamp-band fitted to said hub; a driving-wheel mounted to rotate upon said hub; means arranged to clamp said band upon said hub by rotation of said driving-wheel in either direction; and means to respectively prevent and permit the rotary traverse of said band in accordance with the movement of said driving-wheel in one direction or the other, substantially as set forth.

2. In a back-pedaling brake, the combination with a hub and axle; of a clamp-band fitted to said hub and normally relaxed thereon; a driving-wheel mounted to rotate upon said hub; opposed levers arranged to respectively clamp said band upon said hub when said driving-wheel is rotated in either direction; a non-rotatable ratchet; and a pawl fixed to one of said levers, arranged to engage or disengage said ratchet in accordance with the movement of said driving-wheel in one direction or the other, substantially as set forth.

3. In a back-pedaling brake, the combination with a hub and axle; of a clamp-band fitted to said hub and normally relaxed thereon; a sleeve mounted to rotate upon said hub; opposed levers fulcrumed in said sleeve, and respectively engaged at their outer ends with the opposite extremities of said band; a driving-wheel mounted to rotate upon said sleeve; a lug upon said driving-wheel arranged to actuate one or the other of said levers, when said driving-wheel is rotated in either direction; a non-rotatable ratchet; and a pawl fixed to one of said levers arranged to engage or disengage said ratchet in accordance with the movement of said driving-wheel in one direction or the other, substantially as set forth.

680,245. VALVE. MAX F. GUTERMUTH, Darmstadt, Germany. Filed Jan. 23, 1900. Serial No. 2,480. (No model.)



Claim.—1. A spring flap-valve consisting of the valve-plate and a bent spring extending from the valve-plate, integral therewith, and supporting the same, substantially as described.

2. A spring flap-valve consisting of the valve-plate and a spring part integral therewith, coiled helically, and supporting the valve-plate, substantially as described.

3. A spring flap-valve consisting of a valve-plate, a spring extending from an edge of said plate, and a rotatable axis to which the other end of the spring is fixed, substantially as described.

4. A spring flap-valve consisting of a valve-plate, a spring integral therewith and bent helically, and a rotatable axis to which the inner end of the helical spring is fixed, substantially as described.

5. The combination of a valve-casing, a spring flap-valve consisting of one piece of rolled sheet metal forming the valve-plate and the bent spring for connecting the plate with the valve-casing, substantially as described.

6. The combination of a number of spring flap-valves, each valve having a valve-plate and a supporting-spring extending from an edge of said plate with one rotatable axis common to said flap-valves and extending outside the valve-case, and means to adjust the position of said axis, substantially as described.

680,246. METHOD OF SLAKING LIME. JAMES H. HARRIER, North Industry, Ohio. Filed Sept. 14, 1900. Serial No. 30,053. (No specimens.)

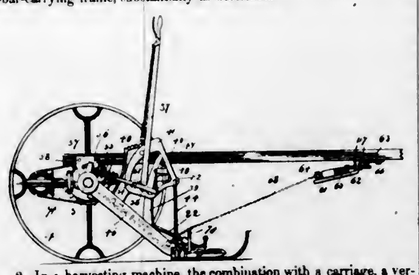


Claim.—1. The herein-described improvement in the art of slaking quicklime, consisting in exposing it to moisture, and then excluding the air by a covering of pulverized slaked lime, substantially as specified.

2. The herein-described improvement in the art of slaking quicklime, consisting in exposing it to water on an inclined surface, and then excluding the air by a covering of pulverized slaked lime, substantially as specified.

680,247. MOWER. ALFRED HART, Harvey, Ill. Filed June 29, 1891. Serial No. 397,912. (No model.)

Claim.—1. In a harvesting-machine, the combination with a carriage, a vertically-swinging finger-bar-carrying frame and a finger-bar carried thereby, of a longitudinally-movable draft device, means for supporting said draft device, spring mechanism controlling the longitudinal movement of said draft device, and connecting means extending downward and back from said draft device to the lower forward portion of the finger-bar-carrying frame, substantially as described.



2. In a harvesting-machine, the combination with a carriage, a vertically-swinging finger-bar-carrying frame and a finger-bar carried thereby, of a draft device, connecting means extending downward and back from said draft device to the lower forward portion of the finger-bar-carrying frame for transmitting a part of the draft applied to said draft device to said finger-bar-carrying frame, and spring mechanism for transmitting to the carriage a part of the draft applied to said draft device, substantially as described.

3. In a harvesting-machine, the combination with a carriage, a finger-bar-carrying frame, and a finger-bar carried thereby, of a draft device, spring mechanism for transmitting a part of the draft applied to said draft device to the carriage, connecting means extending downward and back from said draft device to the lower forward portion of the finger-bar-carrying frame for transmitting a part of the draft to the finger-bar-carrying frame, and means for regulating the division of the draft between the carriage and the finger-bar-carrying frame, substantially as described.

4. In a harvesting-machine, the combination with a machine-frame, and a vertically-movable finger-bar, of a longitudinally-movable draft device, means operated by the longitudinal movement of said draft device to lift the finger-bar, and spring mechanism between the draft device and the machine-frame for limiting the longitudinal movement of the draft device and transmitting a part (more or less) of the draft applied thereto directly to the machine-frame, substantially as described.

5. In a harvesting-machine, the combination with a machine-frame having a tongue, of a vertically-movable finger-bar carried by the machine-frame, a draft device movable longitudinally of the tongue, adjusting mechanism carried by the tongue for regulating the extent to which said draft device may move longitudinally, and means for transmitting a part of the draft to the finger-bar when said draft device moves longitudinally, substantially as described.

6. In a harvesting-machine, the combination with a machine-frame, of a vertically-movable finger-bar carried thereby, a longitudinally-movable draft device, an adjustable stop for limiting the longitudinal movement of said draft device, and means for transmitting a part of the draft to the finger-bar when said draft device moves longitudinally, substantially as described.

7. In a harvesting-machine, the combination with a machine-frame, of a vertically-movable finger-bar carried thereby, a longitudinally-movable draft device, adjustable spring mechanism for regulating the extent to which said draft device may move longitudinally, and means for transmitting a part of the draft to the finger-bar when said draft device moves longitudinally, substantially as described.

8. In a harvesting-machine, the combination with a carriage, and a tongue connected thereto, of a rocking finger-bar-carrying frame, a longitudinally-movable draft device, a flexible connection connecting said draft device with said finger-bar-carrying frame, and adjustable mechanism carried by the tongue for regulating the extent to which said draft device may move longitudinally, substantially as described.

9. In a harvesting-machine, the combination with a carriage, and a tongue connected thereto, of a rocking finger-bar-carrying frame, a longitudinally-movable draft device, a flexible connection connecting said draft device with said finger-bar-carrying frame, and adjustable spring mechanism carried by the tongue for regulating the extent to which said draft device may move longitudinally, substantially as described.

10. In a harvesting-machine, the combination with a carriage, and a tongue connected thereto, of a rocking finger-bar-carrying frame, longitudinally-movable whiffletrees, a flexible connection connecting said whiffletrees with said finger-bar-carrying frame, a spring between said whiffletrees and the tongue, and means for adjusting said spring to regulate the extent to which said whiffletrees may move longitudinally, substantially as described.

11. In a mower, the combination with a finger-bar, the ends of which are supported by inner and outer shoes, cutting devices located in said finger-bar, and mechanism for operating said cutting devices, of a bracket 41 pivotally mounted in the frame of the mower, rod 44 connecting the forward end of the bracket 41 with the inner shoe of the cutter-bar, rod 54 secured at its rear end to the frame of the machine, a roller 59 mounted upon said rod 54 and adapted to move upon the inside surface of the bracket 41, and devices for raising the rod 54 to elevate the forward portion of the bracket 41, substantially as and for the purpose specified.

12. In a mower, the combination with a finger-bar supported by inner and outer shoes, bracket 41 pivotally mounted in the frame of the mower, the forward end of said bracket being connected to the inner shoe of the finger-bar, rod 54, and roller 59 adapted to move upon the inside surface of the bracket 41, of a foot-lever 52 mounted in the frame of the mower, and connecting-rod for connecting said foot-lever with the bar 54, whereby said bar may be raised or lowered by the operation of the foot-lever, substantially as and for the purpose specified.

13. In a mower, the combination with a finger-bar, inner and outer shoes supporting the ends of said finger-bar, bracket 41 pivotally mounted in the frame of the machine, said bracket being connected at its forward end to the inner shoe of the finger-bar, and rod 54, having roller 59 adapted to move upon the interior surface of the bracket 41, of a foot-lever 52, connecting-rod 51, levers 47 and 48, and connecting-rod 53 connecting the lever 47 and bar 54, substantially as and for the purpose specified.

14. In a mower, the combination with a finger-bar-carrying frame, a shoe hinged thereto and a finger-bar secured to said shoe, of a tongue, whiffletrees mounted on said tongue and adapted to move longitudinally thereof, a chain connecting said whiffletrees with the finger-bar-carrying frame of the mower, and a lever secured to said shoe and projecting under the chain, whereby the finger-bar is raised by the forward motion of the whiffletree, substantially as described.

15. In a mower, the combination with a finger-bar and inner and outer shoes supporting said finger-bar, said inner shoe having a lateral projection 72, of a tongue 63, doubletree 61 supported at the under side of said tongue, said doubletree being movable longitudinally of the tongue, a spring 65 adapted to limit the forward motion of said doubletree, chain 68 connecting said doubletree and the front portion of the frame of the mower, a lever 70 secured at one end to the inner shoe, and projecting under the chain 68 in such position as to normally hold the chain in a raised position, said bar having a downwardly-projecting arm 71 adapted to bear upon the extension 72 of the shoe, whereby the cutter-bar will be slightly raised by the forward motion of the doubletree, substantially as described.

16. In a mower, the combination with a finger-bar, the ends of which are supported by inner and outer shoes, cutting devices located in said finger-bar, and mechanism for operating said cutting devices, of a bracket 41 pivotally mounted in the frame of the mower, a rod connecting the forward end of the bracket 41 with the inner shoe of the cutter-bar, rod 54, having a roller 59 mounted upon it and adapted to move upon the inside surface of the bracket 41, a spring connecting the inner end of the rod 54 to the frame of the machine, and a foot-lever adapted to be operated to raise the rod 54, whereby the spring will operate to raise the forward end of the bacbet 41, substantially as and for the purpose specified.

680,248. PLOW. HERMANN HAUSSMANN, Chicago, Ill. Filed June 11, 1900. Serial No. 19,797. (No model.)

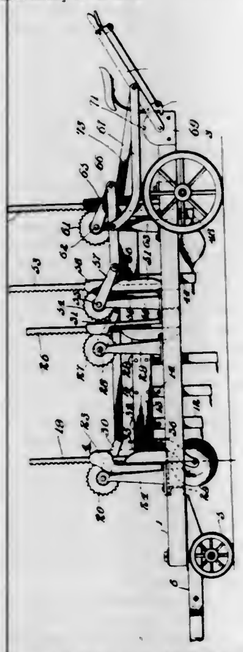
Claim.—1. In an implement for the purpose described the combination of a horizontally-arranged cutter extending transversely of the line of travel of the implement for stratifying the earth and an earth-inverter following in the path of said cutter and consisting of a flat blade twisted substantially a half-turn with its forward end arranged in substantially a horizontal plane, substantially as set forth.

2. In an implement for the purpose described the combination of a horizontally-arranged cutter extending transversely of the line of travel of the implement and a plurality of twisted inverting-blades arranged in the path of and following said cutter, substantially as set forth.

3. In an implement for the purpose described the combination of a plurality of horizontally-arranged cutters extending transversely of the line of travel of the implement and arranged in different horizontal planes and an inverting-blade arranged to follow said cutters for inverting the stratum formed thereby, substantially as set forth.

4. In an implement for the purpose described the combination of a horizontally-arranged stratifying-cutter extending transversely of the line of travel of the implement, a series of vertically-arranged cutters located in front of said stratifying-cutter and across its line of travel and means

arranged in the rear of said stratifying-cutter for inverting the stratum formed thereby, substantially as set forth.



5. In an implement for the purpose described the combination of a vertically-adjustable frame, a carrying-frame upon which said adjustable frame is supported, a stratifying-cutter arranged in a horizontal plane and supported from said adjustable frame and means arranged in the rear of said stratifying-cutter for inverting the stratum formed thereby, substantially as set forth.

6. In an implement for the purpose described the combination of a vertically-adjustable frame, a carrying-frame to which said adjustable frame is secured, a plurality of horizontally-arranged stratifying-cutters supported at different elevations from said adjustable frame and means arranged in the rear of said stratifying-cutters for plowing the stratum formed thereby, substantially as set forth.

7. In an implement for the purpose described the combination of a pair of horizontally-arranged twisted inverting-blades each having its twist turned to throw the earth toward the other and means for forcing said blades horizontally through the earth, substantially as set forth.

8. In an implement for the purpose described the combination of a pair of twisted inverting-blades having their forward ends arranged in substantially a horizontal plane, means arranged in advance of said twisting blades for lightening up the earth and means for carrying said means and blades, substantially as set forth.

9. In an implement for the purpose described the combination of a pair of twisted inverting-blades having their forward ends pointed and arranged in substantially a horizontal plane and means for forcing said blades through the earth, substantially as set forth.

10. In an implement for the purpose described the combination of a pair of twisted inverting-blades, a vertically-adjustable frame upon which said blades are horizontally supported and a vehicle-frame upon which said first frame is adjustably carried, substantially as set forth.

11. In an implement for the purpose described the combination of a stratifying-cutter, a vertically-adjustable frame carrying said cutter, inverting-blades arranged in the rear of said cutter for inverting the stratum formed thereby and a frame carrying said inverting-blades and being vertically adjustable independently of said first frame, substantially as set forth.

12. In an implement for the purpose described the combination of an inverting-blade consisting of a twisted plate having its ends arranged in substantially a horizontal plane and two frames upon which the ends of said blade are respectively supported and means for carrying said frames and forcing said blade through the earth, substantially as set forth.

13. In an implement for the purpose described the combination of a carrying-frame, an adjustable frame on the forward end thereof, a series of vertical cutters supported from said adjustable frame and arranged transversely of the line of movement of said carrying-frame, a series of stratifying-cutters arranged transversely of the line of movement of said carrying-frame and in different horizontal planes and supported from said adjustable frame, a series of inverting-blades arranged at the rear of said stratifying-cutters and adapted to invert the stratum formed thereby, an adjustable frame to which said inverting-blades are secured and means for raising and lowering said adjustable frames, substantially as set forth.

680,249. SHOE-LACING. MARGARET M. HEINITSH, Philadelphia, Pa., and JOSEPH T. MORIARTY, New Bedford, Mass. Filed Apr. 29, 1901. Serial No. 57,374. (No model.)



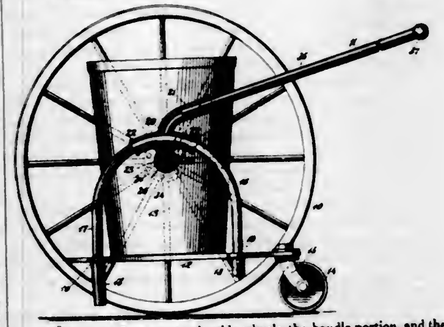
Claim.—1. In a lacing, the combination of a web-covered tip comprising in cross-section a convolute having an outer layer of webbing, and a series of layers of thin metal and webbing substantially alternately disposed, as described.

2. In a lacing, the combination of a tip comprising a metal strip rolled together closely with the webbing forming a coil, the outer edges of the said webbing overlapping the outer edge of the metal strip and confined between the coils of the roll, substantially as described.

3. In a lacing, the combination of a tip comprising a metal strip rolled closely with the webbing forming a coil, the outer edge of the said webbing overlapping the outer edge of the metal strip and confined between the coils of the roll, the ends of the webbing overlapping the metal strip before rolling, substantially as described.

4. In a lacing, the combination of a web-covered tip forming a cross-section a convolute comprising an outer layer of webbing, a coating of hardening material permeating the webbing, and a series of layers of thin metal and webbing substantially alternately disposed, the hardening material operating to cement and unite the webbing to the metal, as described.

680,250. PUSH-WAGON FOR STREET-CLEANING PURPOSES. THOMAS HILL, Jersey City, N. J. Filed Dec. 6, 1900. Serial No. 38,853. (No model.)



Claim.—1. In a wagon the side wheels, the handle portion, and the sides 16, 16, having the vertical members, combined with the platform 12 having the vertical sockets 18 within which the lower ends of said vertical members are secured; substantially as set forth.

2. In a wagon the side wheels, the handle portion, and the sides 16, 16, having the vertical members, combined with the platform 12 having the vertical sockets 18 extending downward from said platform and receiving the lower ends of said vertical members the front sockets 18 being of sufficient length to form supporting-legs for the said platform when the wagon is tilted frontward; substantially as set forth.

3. In a wagon, the side wheels, the handle portion, the platform 12, and the sides 16, 16, formed of the arched bars whose lower ends are secured to said platform, combined with the axles for said wheels, said axles being supported from the upper or arched portion of said sides; substantially as set forth.

4. In a wagon, the side wheels, the handle portion, the platform 12, and the sides 16, 16, formed of the arched bars whose lower ends are secured to said platform, combined with the axles for said wheels, and the lugs 23 at the upper or arched portion of said sides and having the bearing-apertures 24 to receive said axles; substantially as set forth.

5. In a wagon, the side wheels, the handle portion, the platform 12, and the sides 16, 16, formed of the arched bars whose lower ends are secured to said platform, combined with the axles for said wheels, the lugs 23 suspended from the upper or arched portion of said sides and having the apertures 24 to receive said axles, and the sockets 21 at the upper side of said arched portion of said sides to receive the side arms of the said handle portion; substantially as set forth.

6. In a wagon, the side wheels, the handle portion, the platform 12, and the sides 16, 16, formed of the arched bars whose lower ends are secured to said platform, combined with the axles for said wheels, and the castings 20 on the upper or arched portion of said sides, said castings comprising the lugs 23 having the apertures to receive said axles, the sleeve portions 22 encircling said bars, and the sockets 21 to receive the side arms of said handle portion; substantially as set forth.

7. In a wagon, the side wheels, the handle portion, the platform 12, and the wagon sides each of which is composed of members whose lower ends are secured to said platform and whose upper portions converge above the central plane of said platform, combined with the axles for said wheels, and the castings 20 at the converging point of said sides and having the lugs 23 to receive said axles, and the sockets 21 to receive the side arms of said handle portion; substantially as set forth.

8. In a wagon, the side wheels, the handle portion, the platform 12 having the rear swivel-wheel, and the sides having members extending downward at opposite sides of a vertical central line through said side wheels and secured to said platform, whereby said platform becomes supported at points adjacent to its four corners and disposed substantially centrally below the axis of said side wheels, combined with the axles for said side wheels, and means at the upper central portion of said sides for receiving said axles; substantially as set forth.

9. In a wagon, the side wheels, the handle portion, the platform 12, and the sides having members extending downward at opposite sides of a vertical central line through said side wheels and secured to said platform, whereby said platform becomes supported at points adjacent to its four corners and disposed substantially centrally below the axis of said side wheels, combined with the axles for said side wheels, and means at the upper central portion of said sides for receiving said axles; substantially as set forth.

10. In a wagon, the side wheels, the handle portion, the platform 12, and the side frames secured to and suspending said platform, combined with the hollow axles 26 for said wheels, and lugs 23 on said side frames and having the apertures 24 to receive and support said axles, said axles having the outlet-apertures within the hubs of said wheels and being provided on one end with the upturned elbows or nozzles having closures; substantially as set forth.

11. In a wagon, the side wheels, the handle portion the platform 12, and the side frames secured to and suspending said platform, combined with the hollow axles 26 for said wheels and having at their outer end the flanges 30 to engage the wheel-hubs, and lugs 23 on said side frames and having the apertures 24 to receive and support said axles, said axles having the outlet-apertures within the hubs of said wheels and being provided on their inner ends with the upturned elbows or nozzles having closures; substantially as set forth.

12. The wagon comprising the side wheels, handle portion, side frames, suspended platform and can, the axles for said wheels being at the upper central portion of said side frames, and said platform supporting said can, combined with the loops and hooks 40, 41, carried by the can and side frames respectively for detachably securing said can in position on said platform; substantially as set forth.

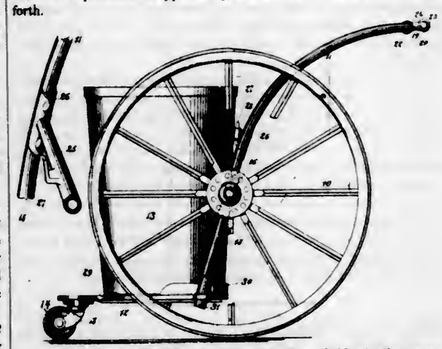
13. In a wagon, the side wheels, the side frames, the platform suspended by said side frames, the axles at the upper ends of said side frames for said wheels, and the handle structure comprising the side arms 35, the sleeve 37 at the front ends of said side arms 35 and the wooden bar 30 held by said sleeve, combined with the castings 20 at the upper ends of said side frames and having sockets to receive said side arms 35; substantially as set forth.

14. The wagon comprising the side wheels, handle portion, side frames, suspended platform and can, said platform supporting said can between said wheels, combined with the loop and hook 40, 41, carried by the can and wagon-frame respectively for detachably securing said can in stationary position on said platform; substantially as set forth.

680,251. PUSH-WAGON. THOMAS HILL, Jersey City, N. J. Filed Dec. 31, 1900. Serial No. 41,597. (No model.)

Claim.—1. In a wagon, the side wheels and a handle for the wagon, combined with the suspended platform 12 in one integral piece and having at its front end the wheel 14, said platform being supported at its rear portion by the said side wheels; substantially as set forth.

2. In a wagon, the side wheels 10, and a handle for the wagon, combined with the suspended platform 12 in one integral piece and adapted to support the can 13, said platform 12 having at its front end the small wheel 14 and at its rear portion the raised flange 30, the front portion of said platform being supported upon the said wheel 14 while the rear portion of said platform is supported by said wheels 10; substantially as set forth.



3. In a wagon, the side wheels 10, a handle, and sides for the wagon, said sides having the axles 16 for the wheels 10, combined with the platform 12 having at its front portion the small wheel 14 and at its rear portion the sockets 31 into which the lower ends of said sides may be secured, said platform being adapted to receive the can 13 and being supported at its front portion by the said wheel 14 and at its rear portion by the said wheels 10; substantially as set forth.

4. In a wagon, the side wheels 10, the handle for the wagon, and side frames carrying axles 16 for said wheels 10, combined with a platform 12 suspended at its rear portion by said side frames and having at its front portion the small wheel 14, the said platform being adapted to receive the can 13 substantially intermediate the vertical planes of said wheel 14 and said axles 16; substantially as set forth.

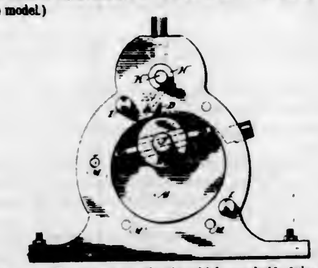
5. In a wagon, the side wheels, a handle for the wagon, side frames having axles 16, for said wheels 10, and a transverse bar 25 intermediate said sides, combined with the platform 12 suspended by said sides below said axles 16 and having at its front portion the small wheel 14, the can 13 upon said platform and interlocking devices in separable members one secured to said can and the other to said transverse bar, for detachably holding said can upon said platform; substantially as set forth.

6. In a wagon, the side wheels 10, side frames having axles 16 for said wheels, and the transverse bar 25 connecting said side frames, combined with the platform suspended by said side frames and having at one end the small wheel 14, the can 13 upon said platform, and interlocking devices in separable members one secured to said can and the other to said transverse bar, for detachably securing said can upon said platform; substantially as set forth.

7. In a wagon, the side wheels 10, side frames having axles 16 for said wheels 10, the transverse bar 25 connecting said side frames, and a handle for the wagon, combined with the platform 12 suspended from the lower ends of said side frames, the can 13 upon said platform, and the hook and loop carried by said can and said transverse bar, respectively, for detachably securing said can upon said platform; substantially as set forth.

8. In a wagon, the side wheels, handle-frame, and means to support the can 13, combined with the frame 19 adapted to be secured to the handle-frame and consisting of the flanged portion 22, the tubular portion 23 adapted to receive the handle-bar 20, and the portion 24 intermediate said flanged portion 22 and said tubular portion 23; substantially as set forth.

680,252. ROTARY ENGINE. WALTER S. HOLCOMB and DANIEL H. THURSTON, Plymouth, Iowa. Filed Jan. 25, 1901. Serial No. 44,737. (No model.)



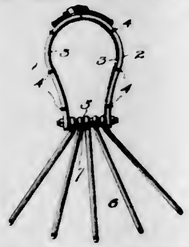
Claim.—1. In a rotary engine in which one half of the cylinder is in the form of a true circle and the other half in the form of an irregular

circle, the combination with a piston-drum placed eccentrically in said cylinder and nearly touching one of the points at which the two half-circles meet, with a piston projecting through the drum and in contact with the cylinder on each side of said drum, substantially as and for the purpose set forth.

2. In a rotary engine in which one half of the cylinder is in the form of a true circle and the other half in the form of an irregular circle, the combination of a piston-drum placed eccentrically in said cylinder and nearly touching one of the points at which the two half-circles meet, with a loose abutment at said point held against the drum by steam-pressure, and a piston through said drum and contacting with the cylinder in its revolution, substantially as and for the purpose described.

3. In a rotary engine, the combination of a drum with a piston passing therethrough, said piston being divided longitudinally and provided with a tongue and groove and springs for lateral movement, and projections and recesses for preventing longitudinal movement of one part with the other, substantially as and for the purpose set forth.

680,253. ANIMAL-POKE. EVERLY A. JONES, Cass City, Mich. Filed May 9, 1901. Serial No. 59,430. (No model.)



Claim.—In an animal-poke, the combination with a yoke, of prongs or arms pivoted at the lower end of the yoke, one of which projects forwardly and downwardly and the remainder of which diverge therefrom in fan-like fashion, and means for supporting the prongs or arms in an inclined position free to swing upwardly, substantially as set forth.

680,254. ELECTRICAL CONDUIT AND BOX. HUBERT KRANTZ, Brooklyn, N. Y. Filed May 3, 1901. Serial No. 58,633. (No model.)



Claim.—1. An electrical conduit-box with a split connecting-neck formed with internal projections in combination with the pipe end having external projections to engage therewith, the box having an internal stop-shoulder at the inner end of the connecting-neck.

2. An electrical conduit-box with a split connecting-neck internally threaded in combination with the pipe end correspondingly threaded externally, the box having an internal shoulder at the inner end of the connecting-neck.

3. An electrical conduit-box with a split connecting-neck internally threaded, the box being formed with an inwardly-flaring internal shoulder at the inner end of the neck.

4. The combination of an electrical conduit-pipe with an outlet-box having an outwardly-projecting neck, in two parts, one formed on the body and the other separate therefrom, and means for securing the two parts together.

5. An electrical outlet-box having connecting-necks, each in two parts, one formed integral with the body of the box and the other a separate piece.

6. An electrical outlet-box having connecting-necks, each in two parts, one formed integral with the body of the box and the other a separate piece, and the two parts having internal projections to engage with the pipe end.

7. An electrical outlet-box having a connecting-neck in two parts with side flanges or lugs, one part being formed integral with the body of the box and the other a separate piece, and adapted to be secured to the part on the body by means of the lugs.

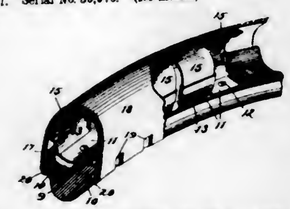
8. An electrical conduit-box having a solid side wall with an opening and a semicylindrical connecting-neck formed integral with the body of the box and means for securing the end of the pipe therein, the box having at the inner end of the neck a shoulder flaring on the inside of the box.

9. An electrical outlet-box having a connecting-neck in two parts, one formed integral with the body of the box and the other a separate piece, each part having internal projections, and the box having at the inner end of the neck a shoulder flaring on the inside of the box.

10. An electrical outlet-box having a solid side wall with an opening and a semicylindrical connecting-neck formed integral with the body of the box and means for securing the end of the pipe therein.

11. An electrical outlet-box having a solid side wall with an opening and a semicylindrical connecting-neck formed integral with the body of the box and means for securing the end of the pipe therein, the box having at the inner end of the neck a shoulder, as and for the purpose described.

680,255. WHEEL. HYMAN LIEBERTHAL, Chicago, Ill. Filed May 13, 1901. Serial No. 59,976. (No model.)



Claim.—1. The combination with the rim of a wheel, of a series of curved spring-plates carried thereby, each of said springs having formed on its end a lip, a tongue above said lip with which said lip is adapted to engage to hold the spring in position, and a suitable covering for the springs, substantially as specified.

2. The combination with the rim of a wheel, of a series of curved spring-plates carried thereby, each of said springs having formed on its end a laterally and inwardly projecting lip, a tongue above said lip with which said lip is adapted to engage to hold the spring in position, and a suitable covering for the springs, substantially as specified.

3. The combination with the rim of a wheel, of a series of bases attached to the rim, a series of curved spring-plates carried by and movable in said bases, means for securing said spring-plates against accidental withdrawal from said bases, and a suitable covering for the springs, substantially as specified.

4. The combination with the rim of a wheel, of a series of curved bases 11 attached to the rim, tongues 13 on said bases, a series of springs 15, each adapted to have its ends inserted between the inner face of one of said bases and the tongues carried by such base, means carried by the spring and adapted to contact with one of the tongues to prevent accidental withdrawal of the spring from the base, and a suitable covering for the series of springs, substantially as specified.

5. The combination with the rim of a wheel, of a series of curved bases 11 attached to the rim, tongues 13 on said bases, a series of springs 15, each adapted to have its ends inserted between the inner face of one of said bases and the tongues carried by such base, projecting lips at the ends of the springs adapted to contact with said tongues, and a suitable covering for the series of springs, substantially as specified.

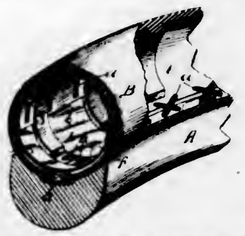
6. The combination with the rim of a wheel, of a series of curved bases 11 attached to the rim, tongues 13 on said bases, a series of springs 15, each adapted to have its ends inserted between the inner face of one of said bases and the tongues carried by such base, laterally and inwardly projecting lips at the ends of the springs adapted to contact with said tongues, and a suitable covering for the series of springs, substantially as specified.

7. The combination with the rim of a wheel, of a series of curved spring-plates carried by said rim, both ends of each of said spring-plates being adapted to move toward and away from the center of said rim, means for retaining said springs in position, and a suitable covering for the springs, substantially as described.

8. The combination with the rim of a wheel, of a series of bowed springs extending transversely of the said rim, means for permitting both ends of each of said springs to move toward and away from the center of said rim, means for securing said springs in position, and a suitable covering for the springs, substantially as described.

680,256. WHEEL. HYMAN LIEBERTHAL, Chicago, Ill. Filed June 15, 1901. Serial No. 64,656. (No model.)

Claim.—1. The combination with the rim of a wheel, of a series of curved bases carried by the rim, a series of springs, each adapted to have its ends movably held against one of said bases, a connection between each spring and its base, comprising a projection on one of said parts and a slot in the other part, into which slot said projection is adapted to enter, and a suitable covering for the series of springs, substantially as specified.



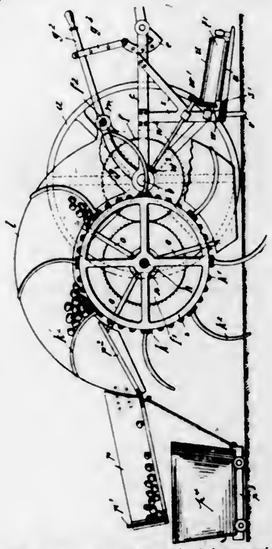
2. The combination with the rim of a wheel, of a series of curved bases carried by said rim, a series of slotted springs each adapted to have its ends movably held within one of said bases, projections on the ends of said bases adapted to enter the slots in said springs, and a suitable covering for the series of springs, substantially as specified.

3. The combination with the rim of a wheel, of a series of curved bases carried by said rim, a series of springs arranged over and upon said bases, each base having a projection at its end and each spring having a slot extending longitudinally of the spring, into which slot said projection on the base is adapted to enter, and a suitable covering for the series of springs, substantially as specified.

4. The combination with the rim of a wheel, of a series of curved bases carried by said rim, a series of springs arranged over and upon said bases, each member of one of said series being provided with a slot enlarged at one end, and each member of the other of said series being provided with a projection having an enlarged outer end adapted to enter the enlarged end of the slot in the opposite member, and a suitable covering for the series of springs, substantially as specified.

5. The combination with the rim of a wheel, of a series of curved spring-plates, a series of bases in which said spring-plates are adapted to move, and a flexible covering provided on its interior with a series of transverse strips, a spring-plate and its base being arranged in each space between said strips, substantially as specified.

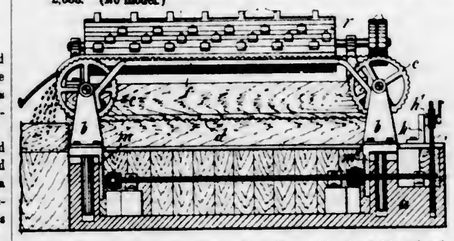
680,257. POTATO-DIGGER. ANNA VON LOEPER, GEBOREN MÜHLENBECK, Rostock, Germany. Filed Jan. 24, 1900. Serial No. 2,637. (No model.)



Claim.—1. The combination with a wheeled supporting-frame, of a rake, means for imparting rotation thereto and cutting devices arranged in advance of the rake in position to act upon the tops, said cutting devices comprising an endless belt, knives carried thereby, and a series of teeth into which the tops are adapted to pass, the said knives and teeth being arranged relatively to each other as described, and means for imparting rotation to the belt.

2. The combination with a wheeled supporting-frame, of a rake, means for imparting rotation thereto, and cutting devices arranged in advance of the rake in position to act upon the tops, said cutting devices comprising an endless belt, knives carried thereby, and a series of teeth into which the tops are adapted to pass, said knives and teeth being arranged relatively to each other as described, means for imparting rotation to the belt, and a series of vertical pins adapted to project into and loosen up the earth in advance of the rake.

680,258. THRESHING-MACHINE. ANNA VON LOEPER, GEBOREN MÜHLENBECK, Rostock, Germany. Filed Jan. 24, 1900. Serial No. 2,638. (No model.)

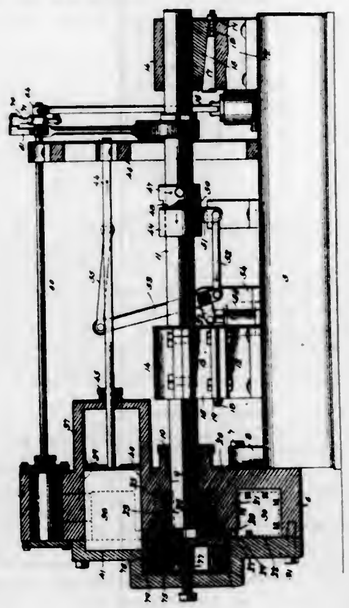


Claim.—1. In a threshing-machine, the combination with a threshing-table, an endless carrier, and means for adjusting the table vertically, of hammers arranged to strike at one end upon the table, and a rotatable cylinder having projections adapted to successively engage and operate the opposite end of the hammers for the purpose specified.

2. In a threshing-machine, the combination with a threshing-table, an endless carrier and means for adjusting the table vertically comprising bearings supporting the table, racks on the bearings, an adjusting crank-shaft, and gearing intermediate the latter and the racks whereby the bearings will be simultaneously adjusted vertically, hammers arranged to strike upon the table, and means for operating the hammers.

3. In a threshing-machine, the combination with a threshing-table, of hammers arranged to strike upon the table, an endless carrier, rollers supporting the carrier, bearings supporting the rollers, and means for adjusting the bearings in a vertical direction.

680,259. ROTARY ENGINE. ELMER C. LONG, Monroe City, Mo., assignor of one-third to Edmund P. Melson, St. Louis, Mo. Filed May 2, 1900. Serial No. 15,244. (No model.)

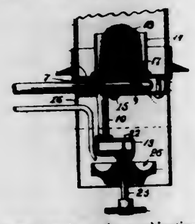


Claim.—1. A rotary engine comprising a cylinder having a fixed head at one end and a removable head at the opposite end, a central annular flange upon the inner face of the fixed head and extending to a point adjacent to the removable head, and forming an inner cylindrical chamber and an outer annular expansion-chamber having a communicating passage, a shaft passed through the fixed cylinder-head and terminating short of the removable head, which latter has a recess in its inner face, a hub fixed to the shaft and having a radial web lying between the end of the flange and the removable head of the cylinder, said web having a head at its outer end fitting the expansion-chamber, a hollow cylindrical wear-block in the recess of the removable head and having one end closed and disposed against the end of the piston-hub, a set-screw passed through the removable head and into the wear-block for engagement with the closed end thereof to limit its rearward movement, and a helical spring disposed upon the screw and having its ends bearing against the wear-block and the bottom of the recess to hold the block yieldably in operative position.

2. In a rotary engine, the combination with a base having pillow-blocks thereon, of a shaft mounted in said blocks, a cylinder at one end of the base and into which the shaft is passed, a piston within the cylinder and fixed upon the shaft for rotating it, an abutment-chest communicating with the cylinder, a slidable abutment in the chest for movement into and out of the cylinder, an upright between the pillow-blocks and having bearings, an operating-rod connected with the abutment and disposed slidably in a bearing of the upright, a cam upon the shaft, a collar upon the shaft and adapted for sliding movement by the cam, a rock-lever mounted upon the base and connected at one end with the collar and at the other with the abutment-rod through the medium of links, a dash-pot connected with the rock-lever, a steam-chest, an oscillatory cut-off valve in the steam-chest, a rod for the valve disposed in a bearing of the upright, and eccentric connections between the shaft and valve-rod for operating the latter, the rods and shaft lying in a common vertical plane and the eccentric connections lying beyond the end of the abutment-rod.

3. A rotary engine comprising a cylinder having an annular flange on the inner face of a head thereof and concentric therewith, a central opening in the flanged head, a shaft disposed in said opening and extending part way through the cylinder, a piston having a hub fixed upon the shaft and extending into the inclosure of the flange and against the inner face of which it has a bearing, said piston having a head lying between the flange and the outer wall of the cylinder, and an adjustable wear-block held between the inner end of the shaft and the adjacent head of the cylinder and against the end of the piston.

680,260. VAPOR-BURNER. EDMUND R. LUDWIG, Kansas City, Mo. Filed Apr. 28, 1900. Serial No. 14,674. (No model.)

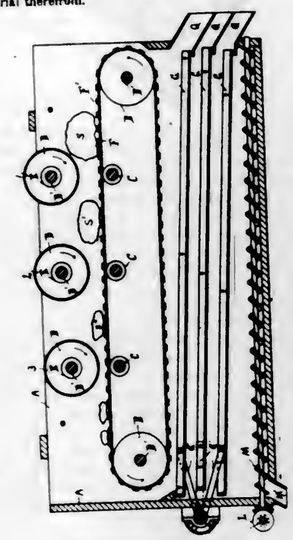


Claim.—In a gasolene-lamp the combination of a shell, open at its lower end and provided at its upper end with a casing composed of two plates separated from each other and having central openings therein, a feed-pipe having a coil within the casing formed by said plates, said coil and casing being removable from the shell, a vapor-chamber and the terminal of the coil connected therewith, said vapor-chamber provided with a vapor-jet arranged below the plates forming the casing and in vertical line with the axis of the central openings in said plates, a needle-valve arranged to control the opening in the vapor-jet, and a pair of reticulated conical caps above the central openings of the plates, substantially as set forth.

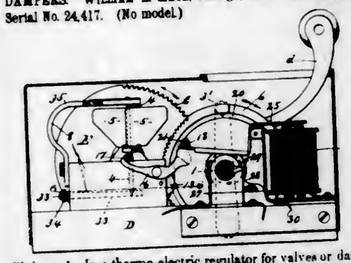
680,261. STARCH BREAKER AND GRADER. JOHN M. LYMAN, Cincinnati, Ohio. Filed Feb. 15, 1901. Serial No. 47,526. (No model.)

Claim.—1. In a machine for reducing starch or other brittle or fragile substances, the combination of a horizontal traveling endless slatted platform, and a series of shafts located thereabove and carrying circular cutting-disks, said disks being placed with their edges at progressively-diminishing distances from the surface of the belt, and means for imparting to said disks and said belt a movement in the same direction, and at the same peripheral speed, so as to split and not either cut or crush the material.

2. In a machine for reducing starch or other brittle or fragile substance, the combination of a horizontal traveling endless slatted platform, and a series of shafts located thereabove and carrying circular cutting-disks, said disks being placed with their edges at progressively-diminishing distances from the surface of the belt, and means for imparting to said disks and said belt a movement in the same direction, and at the same peripheral speed, so as to split and not either cut or crush the material with a sieve or sieves placed directly beneath the belt and receiving the reduced material therefrom.



680,262. THERMO-ELECTRIC REGULATOR FOR VALVES OR DAMPERS. WILLIAM E. MACK, Oswego, N. Y. Filed July 21, 1900. Serial No. 24,417. (No model.)



Claim.—1. In a thermo-electric regulator for valves or dampers, the combination with a motor-actuated rotary shaft connected to actuate the valve or damper and provided with a member having an annular groove and a recess communicating therewith, an upright rotary spindle actuated by the shaft and provided with one or more upright blades, a gravity-pawl having its weighted end provided with a shoulder normally resting on one of the walls of the groove and adapted to drop into said cut-out for forcing the other end of the pawl into engagement with a moving portion of the governor for interrupting its movement, electrically-actuated means independent of the pawl for engaging and actuating the weighted end of the pawl to release the governor, terminals connected in the electric circuit, a thermostat connected in the circuit and adapted to contact with one of the terminals, and a contact-piece on the shaft arranged to close the circuit through the other terminal.

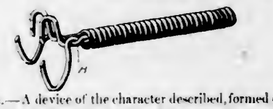
2. In a thermo-electric regulator for valves or dampers, the combination with a thermostat and a motor-actuated crank connected to the valve or damper, of an adjustable bearing, an upright spindle journaled on the bearing and actuated by the motor, upright fan-blades secured to the spindle, a pawl controlled by the motor for stopping the governor, means for adjusting the bearing toward and from the pawl, and electrically-actuated means independent of said pawl and controlled by the thermostat and motor for actuating the pawl to release the governor.

3. A thermo-electric regulator for valves or dampers comprising a motor, a shaft rotated by the motor and provided with a crank-arm connected to the valve or damper for operating the same, a gear secured to the shaft and provided with a groove and one or more recesses communicating with the groove, a governor connected to the gear for controlling the speed of the motor, a stop guided in the groove and adapted to move automatically into the recesses for interrupting the movement of the governor, and thereby interrupting the movement of the gear and motor, and thermostatic-controlled electric means independent of the pawl for forcing the stop out of the recess and thereby releasing the governor and motor.

4. A thermo-electric regulator for valves or dampers comprising a motor, a shaft rotated by the motor and provided with a crank-arm connected to the valve or damper for operating the same, a gear secured to the shaft and provided with a groove, and one or more recesses in one of its side faces communicating with the groove, a governor connected to the gear for controlling the speed of the motor, a stop consisting of a gravity-pawl having its weighted end extended into the groove and adapted to drop into the recess for forcing its other end into engagement with the governor for interrupting the movement of the governor and the shaft and motor connected thereto, and thermostatic-controlled electric means independent of the pawl for forcing the stop out of the recess, and thereby releasing the governor and motor.

5. A thermo-electric regulator for valves or dampers comprising a motor-actuated shaft having oppositely-projecting crank-arms, a gear secured to the shaft and provided with an annular groove and recesses in one of its side faces communicating with the groove, a revoluble spindle having fan-blades and a worm, a worm-gear meshing with said worm, additional gears connecting said worm-gear with the former gear, a pivoted pawl having one end provided with a stop guided in the groove and movable by gravity into the recesses of the former gear for forcing the other end of the pawl into engagement with the governor for interrupting the movement of said former gear and the governor, an electromagnet connected in an electric circuit and having its armature independent of the pawl adapted to move the stop out of the recesses for releasing the governor and mechanism connected thereto, independent terminals and contact-points electrically connected to each other, a contact-piece on the shaft connected in said circuit and adapted to engage each of the terminals, and a thermostat having its movable finger connected in the circuit and adapted to contact with either of the points for closing the circuit through the electromagnet.

680,263. LID OR PLATE LIFTER. CHARLES D. MADDUX, Mobeetie, Tex. Filed Oct. 27, 1900. Serial No. 34,629. (No model.)



Claim.—A device of the character described, formed of a single piece of wire twisted to form a handle portion having at one end thereof two pairs of oppositely-disposed hooks having their points or ends facing each other, the hooks of each pair being spaced, the hooks of one pair being farther apart than those of the other pair and having their points disposed in a plane in advance of the points of the hooks of said other pair, substantially as described.

680,264. BOOT OR SHOE DRIER. HENRY C. MANSFIELD, Chico, Cal. Filed Jan. 31, 1901. Serial No. 45,503. (No model.)

Claim.—1. A boot and shoe drier, comprising an open-ended drum or tube, having a pendent marginal outwardly-flared bottom flange, provided with keyhole-slots, and a bracket, having a lateral arm provided with headed studs for detachable engagement with the slots of the flange.

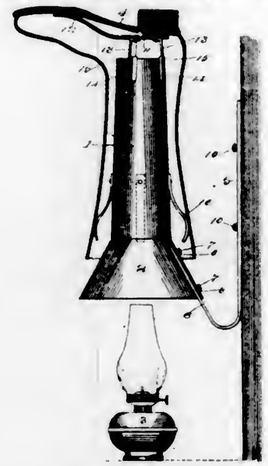
2. A boot and shoe drier, comprising a drum or tube, having an external marginal series of outwardly and downwardly flared spring-arms connected at their upper ends only to the drum and forming boot-leg spreaders.

3. A boot and shoe drier, comprising an open-ended drum or tube, and a boot and shoe support, having pendent spring-legs detachably inserted into the upper open end of the drum, with the support spaced above the top of the drum.

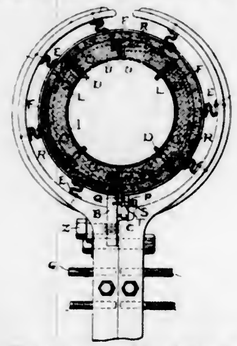
4. A boot and shoe drier, comprising an open-ended drum or tube, and a boot and shoe support, having a plurality of pendent spring-legs to be inserted into the open top of the drum, and having lateral shoulders to rest upon the top of the drum.

5. A boot and shoe drier, comprising an open-ended drum or tube, and a boot and shoe support, comprising a plate, and a plurality of pendent spring-legs to be inserted into the open top of the drum, each leg having its free end portion offset laterally inward and forming an intermediate transverse shoulder to rest upon the top edge of the drum.

6. In a boot and shoe drier, the combination of an open-ended drum or tube having a bottom marginal outwardly-flared and pendent flange, elastically-yieldable external boot-leg spreaders carried by the exterior of the drum, a boot and shoe support, having pendent supporting-legs for detachable engagement with the top of the drum, and a vertically-adjustable supporting-bracket connected to the flange of the drum.



680,265. CURRENT-COLLECTING DEVICE. WALTER S. MOODY, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 22, 1901. Serial No. 61,346. (No model.)



Claim.—1. The combination with a collector-ring, of an annular contact-ring having an extended surface and adapted to be pressed against substantially the entire periphery of the collector-ring.

2. The combination with a collector-ring composed of lubricating conducting material, of an annular contact-ring having an extended surface and adapted to be pressed against substantially the entire periphery of the collector-ring.

3. The combination with a collector-ring, of an annular contact-ring consisting of a flexible metal strap having an extended surface adapted to be pressed against substantially the entire periphery of the collector-ring.

4. The combination with a collector-ring, of an annular contact-ring consisting of a flexible metal strap having its ends unconnected with each other, but adapted to be pressed against substantially the entire periphery of the collector-ring.

5. The combination with a collector-ring, of an annular contact-ring, adapted to engage substantially the entire periphery of the collector-ring, and consisting of a flexible metal strap, having its ends adjacent to each other on the collector-ring, and provided with means for drawing the ends of the strap together to compensate for the wear of the parts.

6. The combination with a collector-ring, of an annular contact-ring adapted to engage substantially the entire periphery of the collector-ring, and consisting of a flexible metal strap, having its ends adjacent to each

other on the collector-ring, and means for automatically drawing the free ends of the strap together around the collector-ring as the parts wear away.

7. The combination with a collector-ring, of an annular contact-ring adapted to engage substantially the entire periphery of the collector-ring, and consisting of a flexible metal strap, having its ends adjacent to each other on the collector-ring, and a spring arranged to draw the ends of the strap together around the collector as the parts wear away.

8. The combination with a collector-ring, of a stationary member, and an annular contact-ring mounted on said member in engagement with substantially the entire periphery of the collector-ring.

9. The combination with a collector-ring, of an annular contact-ring consisting of a flexible metal strap, a stationary member to which one end of the strap is attached, a movable member to which the other end of the strap is attached, and a bolt which passes freely through said movable member and is seated in said stationary member.

10. The combination with a collector-ring, of an annular contact-ring consisting of a flexible metal strap, a stationary member to which one end of the strap is attached, a movable member to which the other end of the strap is attached, a bolt passing freely through said movable member and seated in said stationary member, and a spring interposed between the head of the bolt and said movable member.

11. The combination with a collector-ring, of a stationary member, a contact-ring engaging substantially the entire periphery of the collector-ring, one end of the contact-ring being attached to said member, and means for adjusting the other end of the contact-ring, said ends lying adjacent to each other on the collector-ring.

12. The combination with a collector-ring, of a stationary conducting-yoke, a flexible strap forming a contact-ring adapted to engage the periphery of the collector-ring, and flexible leads connecting the yoke with the strap.

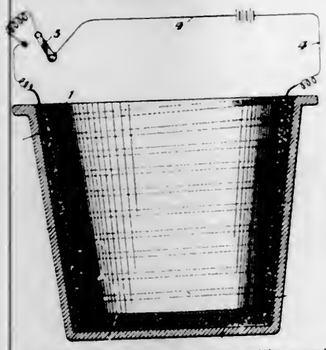
13. The combination with a collector-ring, a flexible contact-ring, a conducting-yoke carrying the contact-ring, flexible leads connecting the yoke with the contact-ring, and means for contracting the latter.

14. The combination with a rotatable member, of a collector-ring support mounted thereon, a collector-ring comprising carbon blocks dovetailed in said support, and a locking-ring securing said blocks in position and in good contact with said support.

15. The combination with a collector-ring, of an annular contact-ring in engagement therewith, and a plurality of flexible metal supporting connections for the contact-ring.

16. The combination with a carbon collector-ring, of a metal contact-ring having its ends adjacent to substantially encircle the collector-ring.

680,266. **PROCESS OF PREPARING RUBBER ADULTERANT.** WILLIAM V. MCMANUS, New York, N. Y. Filed Aug. 24, 1899. Serial No. 728,277. (No specimens.)



Claim.—1. The process of preparing rubber adulterant which consists in mixing an appropriate oil with a solid mineral more or less vulcanizable with oils, heating the mixture, sprinkling the heated mass with sulfuric acid and chlorid of sulfur and then treating with alkali to remove the superfluous acid.

2. The process of preparing rubber adulterant which consists in mixing rape-seed oil with a solid mineral more or less vulcanizable with oils, heating the mixture, sprinkling the heated mass with sulfuric acid and chlorid of sulfur and then treating with alkali to remove the superfluous acid.

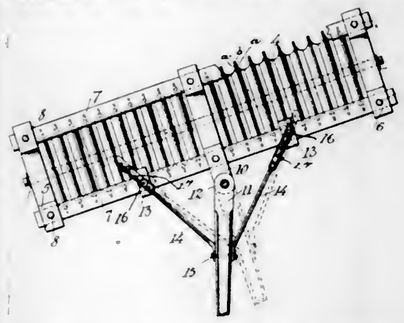
3. The process of preparing rubber adulterant which consists in mixing rape-seed oil with a graphitic solid, heating the mixture, sprinkling the heated mass with sulfuric acid and chlorid of sulfur and then treating with alkili to remove the superfluous acid.

4. The process of preparing rubber adulterant which consists in subjecting appropriate basic materials to the simultaneous influence of heat and adjacent electric current, and sprinkling the mass thus heated with sulfuric acid and chlorid of sulfur.

5. The process of preparing rubber adulterant which consists in subjecting appropriate basic materials to a high temperature developed by adjacent electric current and sprinkling the heated mass with sulfuric acid and chlorid of sulfur.

6. The process of preparing rubber adulterant which consists in mixing an appropriate oil with a solid mineral more or less vulcanizable with oils, heating the mixture, sprinkling the heated mass with sulfuric acid and chlorid of sulfur and grinding the resultant granules in running water.

680,267. **LAND ROLLER AND PULVERIZER.** ROBERT NEWTON, Jerseyville, Ill. Filed May 13, 1901. Serial No. 60,109. (No model.)

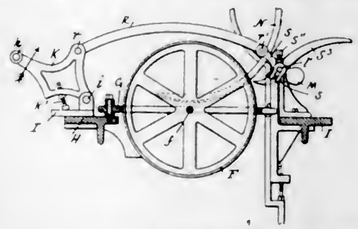


Claim.—1. In a land roller and pulverizer, the combination of a frame, hangers secured thereto and adjustable thereon, toward and from each other, a shaft journaled in said hangers, and a series of detachable roller-disks on said shaft, said hangers clamping said roller-disks together, substantially as described.

2. In a land roller and pulverizer, the combination of a bar, hangers secured thereto, and adjustable thereon toward and from each other, a shaft journaled in said hangers, and a series of roller-disks on said shafts and detachable therefrom, said roller-disks being in contact with each other and clamped together by said adjustable hangers, substantially as described.

3. In a land roller and pulverizer, the combination of a bar, hangers secured thereto, a shaft journaled in said hangers, roller-disks on said shaft, a tongue pivotally connected to one of said hangers, clips adjustable on said bars, means to secure said clips to said bar when adjusted, and connections between said tongue and said adjustable clips, substantially as described.

680,268. **DOG-RELEASING DEVICE.** JOSIAH E. NIGHTINGALE, Danvers, Mass. Filed Mar. 23, 1901. Serial No. 52,576. (No model.)



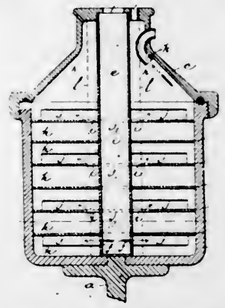
Claim.—In an organized machine for measuring areas of surfaces, a dog-releasing device as described, consisting in combination, a hand-lever K, pivotally connected to the upper front bar of the machine, and provided with an adjustable stop device for limiting the forward adjustment of said hand-lever, an arm or projection, adjustably secured to the pawl-carrying shaft, a link or rod pivotally connecting said hand-lever and arm, a stop arm or lever secured to said shaft and a series of dogs or pawls arranged on said shaft and adapted for engagement and disengagement relative to a series of toothed segments substantially as herein set forth.

680,269. **TROUSERS-STRETCHER.** JEWETT L. NORRIS, Columbus, Ohio, assignor of one-half to Thomas H. Ricketts, same place. Filed May 31, 1900. Serial No. 18,541. (No model.)



Claim.—The trousers-stretcher herein described consisting of the upper bar mounted for pivotal movement, a clamp eccentrically mounted on said bar, to fold downward to clamp the trousers, a vertically-disposed rod independent of the upper bar and having means for its attachment to a door, a lower bar mounted on said rod for sliding movement thereon and for pivotal movement on said rod as a center, and a clamping-bar eccentrically mounted on said lower bar and movable in the direction opposite to that of the upper clamp to clamp the trousers, substantially as shown and for the purpose set forth.

680,270. **CENTRIFUGAL PURIFYING-MACHINE.** OLOF OHLSON, Newark, N. J. Filed July 24, 1894. Serial No. 518,428. (No model.)



Claim.—1. A centrifugal machine for purifying milk, comprising a rotary bowl provided with suitable inlet and outlet ports and provided with a series of transverse partitions dividing the interior space of the bowl into a plurality of transverse chambers, said chambers having restricted conduits or ducts extending from near the center of the bowl in one chamber to near the periphery of the bowl in the next chamber, whereby the milk traverses the bowl axially and is given a tortuous course through the chambers, flowing rapidly outward toward the periphery through the restricted conduits or ducts and more slowly inward toward the center through the chambers, whereby the separation of impurities is accomplished without separating the fat particles from the blue milk, substantially as set forth.

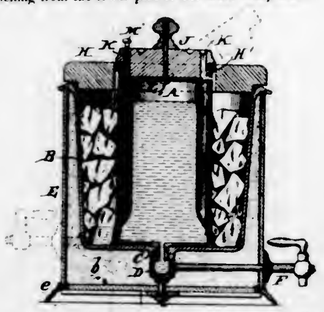
2. In a centrifugal machine for purifying milk, the combination of the rotary bowl, a central supply-tube, and a plurality of plates disposed within the bowl and encircling the supply-tube and forming transverse chambers; each of said chambers communicating near its center with one or more tubular conduits or ducts which extend to near the periphery of an adjoining chamber, and a suitable outlet-port for the milk, substantially as set forth.

3. An interior device for a centrifugal purifying-machine, comprising a central supply-tube, a series of transverse plates rigidly secured to said tube and provided with apertures near their center, and tubular conduits or ducts communicating with said apertures and opening near the outer edges of the plates, substantially as set forth.

680,271. **WATER-COOLER.** AUBORN F. OLD, New York, N. Y., assignor to the Hale and Kilburn Manufacturing Company, of Pennsylvania. Filed Sept. 27, 1900. Serial No. 31,233. (No model.)

Claim.—1. In a water-cooler, the combination of an inner receptacle or central compartment and an outer receptacle forming an annular compartment about the inner receptacle and open at the top one of which compartments is adapted to contain ice and the other water, a lid for the inner receptacle, and a lid for the outer annular compartment made entirely removable and composed of two semi-annular parts hinged together at the top having an overhanging flange resting upon the top edge of the outer receptacle and having a lower part of much smaller diameter than the upper diameter of the outer receptacle and fitting slightly down into the said annular receptacle so that either part may be fully and independently lifted and the other part act as its support.

2. In a water-cooler, the combination of an inner receptacle or central compartment and an outer receptacle forming an annular compartment about the inner receptacle and open at the top and in which the inner receptacle is considerably higher than the outer receptacle, an annular lid for the outer receptacle divided transversely and the parts hinged together on a level approximately on a line with the top of the inner receptacle, an independent lid for the inner receptacle over which the semi-annular parts of the annular lid may be turned without removal, and a spigot opening from the lower part of the inner receptacle.



3. In a water-cooler, the combination of a water vessel, an ice-receptacle, and an intermediate vertical air-chamber partly separating the water vessel and ice-receptacle, with a spigot opening from the water vessel, and a valved lid for controlling the extent of communication between the air-chamber and the atmosphere.

4. In a water-cooler, the combination of a water vessel, an ice-receptacle, and an intermediate vertical air-chamber partly separating the water vessel and ice-receptacle and in which the air-chamber and ice-receptacle are of less height than the water vessel, with separate lids for the ice-receptacle and water vessel, a spigot opening from the water vessel, and a valve in the water-vessel lid for controlling the extent of communication between the air-chamber and the atmosphere.

5. In a water-cooler, the combination of a water vessel formed on opposite sides with upright air-chambers, a lid for closing the top of the water vessel provided with valve devices for controlling the admission of air to the said air-chambers, a spigot for drawing the water from the lower part of the water vessel, an ice-receptacle surrounding the water vessel, and a non-conducting packing about the ice-receptacle.

6. In a water-cooler, the combination of a water vessel formed on opposite sides with upright air-chambers, a lid for closing the top of the water vessel provided with valve devices for controlling the admission of air to the said air-chambers, a spigot for drawing the water from the lower part of the water vessel, an ice-receptacle surrounding the water vessel, a non-conducting packing about the ice-receptacle, and an annular cover or lid for the ice-receptacle divided transversely and the two parts hinged together at their upper adjacent edges.

7. In a water-cooler, the combination of a water vessel and an ice-receptacle separated by the metallic division-wall, and an intermediate vertical air-chamber separating the water vessel and ice-receptacle over a portion only of their separating-wall and open at the top to the atmosphere for the purpose of tempering the temperature of the water in the water-receptacle.

680,272. **RAILWAY-SLEEPER AND RAIL SUPPORT AND CONNECTION.** GEORGE A. OWEN, Springfield, Mass. Filed Jan. 26, 1900. Serial No. 2,927. (No model.)

Claim.—1. A two-part sleeper having a tie-bar and having an interposed section with curved surfaces whereby the end sections of the sleeper may have independent deflecting movements thereon, substantially as described.

2. A sleeper having rail-supports which consist of telescoping cases with interposed cushions of suitably-elastic material and a packing meterial between the adjacent walls of the casing-sections for the exclusion of moisture from entrance to the inclosed chamber in which the cushion is contained, substantially as described.

3. A rail-support consisting of upper and lower casing-sections with an interposed cushion, the upper casing-section having its top provided with a depression and at either side thereof near one end the paired hook-lugs *m m*, and the bar *o* located in said depression to be overlaid by the rail-base and having at its other end the hook-lug o^2 and means for confining this hook-bar against displacement, substantially as described.

4. In a railway, the combination with the sleepers having the rail-supports thereon consisting of the upper and lower casing-sections, each case-section having at its top the depression *n* and the hook-lugs *m m*, at

one edge of said top, and a bar *o* located in each of said depressions having the hook-lug n^2 at its end portion to overlie the base-flange of the rail opposite the portion thereof overlaid by said hook-lugs *m m*, and means for confining said bars within said depressions, the paired integral hook-lugs *m m* being alternately arranged outermost, substantially as described and shown.



5. In a rail-support of the character described, the combination with the sleeper of the lower casing-section provided with depending flanges or projections overlying opposite sides of the sleeper, bolts, bars, rods, or rivets passing through said projections and transversely through the sleeper, and an upper casing-section telescoping on the casing-section confined as above, for the support of the rail and an interposed cushion, substantially as described.

6. The combination with a sleeper having end sections *a a* composed of hardened plastic material with rounded ends and the interposed block *d* having its opposite sides concaved, the tie-rod *f* longitudinally penetrating the sleeper, of a rail-support consisting of lower upwardly-open case-section *g* having depending flanges g^2, the cross-rods passing through said flanges and through the sleeper, and the upper casing-section telescoping over the one *g* and having in its top the depression *n* and hook-lugs *m m*, the hook-ended bar *o* located in said depression and engaging the base-flange of the rail, and means for preventing its displacement from within said depression, and a cushion inclosed within the said casing-section, all substantially as shown and described and for the purposes set forth.

7. A railway-sleeper consisting of two end sections of hardened plastic material, as brick, having rounded inner ends and a metallic block interposed between said end sections having opposite concave ends, the tie-bar longitudinally penetrating said end sections and block and means for placing the said end sections and interposed metallic block in compression, substantially as described.

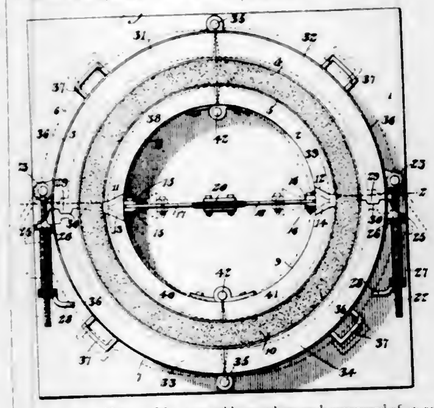
680,273. **MOLD.** WILLIAM S. PARKER, Austin, Tex. Filed May 3, 1900. Serial No. 15,393. (No model.)

Claim.—1. A mold comprising inner and outer shell members each composed of hinged sections, means for drawing the edges of the outer member into position, and means for urging the inner member into position.

2. A mold comprising an outer shell member composed of exteriorly-hinged sections, an inner shell member composed of interiorly-hinged sections, means for drawing the edges of the outer member into position, and means for urging the inner shell into position.

3. A mold comprising inner and outer shells, the inner shell being composed of members each comprising hinged sections, and means for urging apart the members of the inner shell.

4. A mold comprising inner and outer shells, the inner shell being composed of a plurality of members each comprising interiorly-hinged sections, joint members interposed between the opposed edges of the inner shell members, and means for urging the joint members in opposite directions to expand the inner shell or to permit its contraction.



5. A mold comprising separable members each composed of an outer shell having exteriorly-hinged sections, and an inner shell having interiorly-hinged sections, means for drawing the outer shell members together, and means for urging the inner shell members apart.

6. A mold comprising separable members each composed of an outer shell having exteriorly-hinged sections, and an inner shell having interiorly-hinged sections, means for drawing the outer shells of the members together, joint members intermediate of the opposed edges of the inner shells of the members, and means for urging the joint members in opposite directions to expand the inner shell or to permit its contraction.

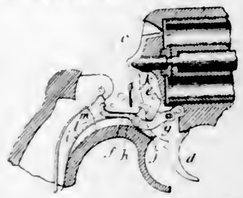
7. A mold comprising separable members each composed of an outer shell having exteriorly-hinged sections, and an inner shell having interiorly-hinged sections, locking-bolts pivotally connected to the outer shell of one section, recessed locking-lugs projecting from the outer shell of the contiguous member and designed to receive the locking-bolts, jam-nuts carried by said bolts, wedge-shaped joint members intermediate of the contiguous edges of the inner shells of the contiguous members, a longitudinally-movable key-rod, and links pivotally connected at their opposite ends to the key-rod and joint members.

8. A mold comprising a base-plate, inner and outer flanged shells, and an intermediate foot-plate extending over the flanges of the shells.

9. A reversible base-plate for molds provided with foot-plates on its opposite faces.

10. A mold comprising inner and outer shell members, each composed of hinged sections, means for drawing one of said members into position, and means for urging the other member into position.

680,274. **REVOLVER.** JAMES J. PEARD, Hartford, Conn., assignor to Colt's Patent Fire Arms Manufacturing Company, same place. Filed Dec. 4, 1900. Serial No. 38,617. (No model.)



Claim.—1. In a revolver, a hammer and a lever engaging with said hammer to cause the same to rebound and interlocking with said hammer in its rebounded position, substantially as described.

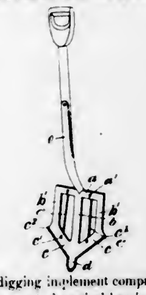
2. In a revolver, a hammer and a lever engaging with said hammer to cause the same to rebound and provided with a hook for interlocking with said hammer in its rebounded position, substantially as described.

3. In a revolver, the combination with a hammer having a notch formed therein, of a lever provided with a cam engaging with the hammer to rebound same, and a hook formed integral with the lever and interlocking with the notch in said hammer when same is in its rebounded position, substantially as described.

4. In a revolver, the combination with a hammer having a notch

formed therein, and a trigger, of a two-armed lever, one of said arms being connected with the trigger and the other arm engaging with the hammer to cause same to rebound and being provided with a hook for interlocking with the notch in the hammer when same is in its rebounded position, substantially as described.

680,275. **HAND DIGGING IMPLEMENT.** WILLIAM E. PHILLIPS, Chester, England. Filed Feb. 26, 1901. Serial No. 48,927. (No model.)



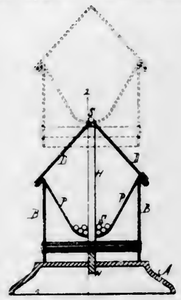
Claim.—1. A hand digging implement comprising a blade consisting of a horizontal bar *a;* a central vertical bar *b;* outside vertical bars *b'*; upwardly and outwardly inclined lower bars *c*, extending between the lower ends of the bars *b* and *b'*, the said bars *c* being extended beyond the outside vertical edges of the bars *b'*; and the projecting toe *d* extending down below the edge of the bars *c;* all the said bars and parts being integral with each other at the parts of junctions therewith, respectively; substantially as described.

2. A hand digging implement, comprising upper and lower bars, and vertical central and outside vertical bars, integral therewith, constituting a blade with an aperture between the said central, outside, and upper and lower bars, on each side of the center bar, and having the lower entrance edge of the blade extended beyond the vertical outside edges of the outside vertical bars; substantially as described.

3. A hand digging implement, comprising upper and lower bars, and vertical central and outside vertical bars, integral therewith, constituting a blade with an aperture between the said central, outside, and upper and lower bars, on each side of the center bar, and having the lower entrance-bars upwardly and outwardly inclined from the lower part of the central, vertical bar, and extended beyond the vertical outside edges of the outside vertical bars; substantially as described.

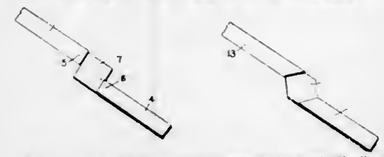
4. A hand digging implement, comprising upper and lower bars, and vertical central and outside vertical bars, integral therewith, constituting a blade with an aperture between the said central, outside, and upper and lower bars, on each side of the center bar, and having the lower entrance-bars upwardly and outwardly inclined from the lower part of the central vertical bar; and holes in the upper and lower bars at parts between the vertical central and outside bars, adapted to hold wires to extend vertically over the said openings in the blades; substantially as described.

680,276. **MATCH-SAFE.** CHARLES C. PITTS, Raynham, Mass. Filed Apr. 30, 1900. Serial No. 14,835. (No model.)



Claim.—A match-safe comprising in combination, a base comprising side and end walls, the side walls being connected by the horizontal rods L, a receptacle movable vertically relative to the base, an inverted-V-shaped cover for the receptacle, a vertically-disposed plate grooved at its upper edge and normally projecting through the cover, provided with elongated slots in which the rods L are adapted to slide when the receptacle is raised or lowered, and means permitting a horizontal sliding movement of the cover comprising inturned flanges on the edges thereof, flanges on opposite edges of the receptacle over which those of the cover engage, and an extended inturned portion B' on one of the flanges of the receptacle adapted to limit the sliding movement of the cover in that direction, substantially as described.

680,277. **ELECTRICAL CONDUCTOR.** EDWARD D. PRIEST, Schenectady, N. Y., assignor to General Electric Company, of New York. Filed May 31, 1901. Serial No. 62,580. (No model.)



Claim.—1. An armature-conductor formed of a longitudinally-folded sheet-metal strip.

2. An electrical conductor formed of two crossed counterpart strips of folded metal.

3. An electrical conductor consisting of a strip of metal having a portion of one edge folded against the surface of the main strip, and a portion of the other edge folded in an opposite direction against the main strip.

4. An electrical conductor formed of a strip of sheet metal longitudinally folded upon itself at intervals.

5. An electrical conductor formed of a strip of metal folded to constitute two members in substantially parallel planes, with an offset connecting the two members.

6. A composite electrical conductor formed of counterpart strips of metal each folded to constitute two members in substantially parallel planes, with an offset connecting the two members.

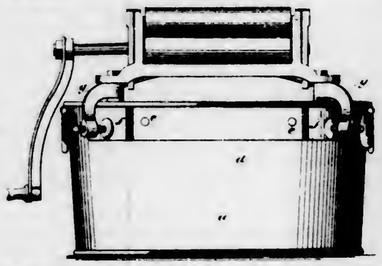
7. An electrical conductor consisting of a strip of conducting material having a portion of one edge folded against the main strip, a portion of the other edge folded in an opposite direction against the main strip, and an unfolded portion of the main strip connecting the folded portions.

680,278. **SALICYLATE OF DIMETHYL-AMIDO-PHENYL-DIMETHYL-PYRAZOLONE AND PROCESS OF MAKING SAME.** BAPTIST REUTER, Höchst-on-the Main, Germany, assignor to the Farbwerke, vorm. Meister, Lucius & Brüning, same place. Filed July 21, 1900. Serial No. 24,363. (Specimens.)

Claim.—1. The herein-described process for the manufacture of salicylate of 4-dimethyl-amido-1-phenyl-2.3-dimethyl-5-pyrazolone, which consists in heating molecular quantities of salicylic acid and 4-dimethyl-amido-1-phenyl-2.3-dimethyl-5-pyrazolone, substantially as set forth.

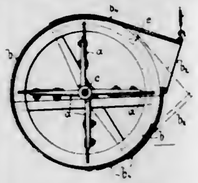
2. As a new product, the salicylate of 4-dimethyl-amido-1-phenyl-2.3-dimethyl-5-pyrazolone, being a white crystalline body, easily soluble in alcohol and water, soluble with difficulty in ether; melting-point 75° to 81°.

680,279. **WASHTUB WITH WRINGER ATTACHMENT.** SOLOMON RICHMAN, New York, N. Y., assignor to National Enameling and Stamping Co., same place. Filed Mar. 20, 1901. Serial No. 51,995. (No model.)



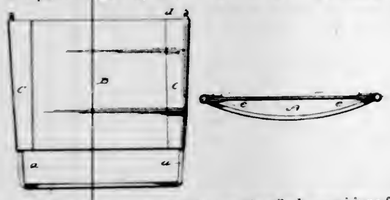
Claim.—In a washtub, the combination of a tub with a wringer attachment comprising a strap secured to the upper portion of the tub and provided with outwardly-extending projections, each projection having two short end members and a flat central member of greater extent spaced from the tub and adapted to form a spring-bearing for a clamp of a wringer.

680,280. BLOWING-FAN. RUDOLF ROESSER, Vienna, Austria-Hungary, assignor to Orkan Lufttrocknungsapparat Actien Gesellschaft, same place. Filed Sept. 9, 1899. Serial No. 729,899. (No model.)



Claim.—The combination of a stationary casing provided with an opening or aperture, a rotary fan in said casing, means for imparting continuous rotary motion to said fan, a discharge-nozzle provided with a regulating portion, concentric with and guided and rotatably movable on the apertured or open portion of the casing, and means for oscillating the nozzle simultaneously with the continuous rotation of the fan, substantially as set forth.

680,281. POCKET PENCIL-HOLDER. CASSIUS C. RUSSELL, St. Joseph, Mo. Filed May 7, 1901. Serial No. 59,101. (No model.)



Claim.—1. A device of the character described, comprising a frame with side portions, a rubber sheet and leather loops cemented to and securing the said sheet to the side portions of the frame, as set forth.

2. A pencil-retainer of the class described provided with a frame having side bars and curved lower cross portion, and a sheet of rubber on one side only connecting the side portions of the frame and extended substantially the whole height of the frame, as set forth.

3. A pencil-holder of the character described having its side portions connected by a single sheet of rubber serving as a lining to the pocket and as a frictional retainer for the pen or pencil, as set forth.

4. A pencil-holder comprising a frame with side bars, a rubber protecting-sheet connecting the side bars, and a spring joining the upper ends of said side bars, as set forth.

680,282. PUZZLE. ROBERT SCHELOSKE, St. Marys, Kans. Filed Apr. 4, 1901. Serial No. 54,345. (No model.)



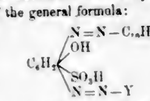
Claim.—1. A box having an open top, in combination with a casing open at its sides and one end and inclosing the box; a block closing one end of the box and formed with parallel vertical openings connected by a narrow passage; and a pivot-bolt extending through openings in said casing and block and adapted when properly adjusted, to permit the movement of the block thereon.

2. A box having an open top in combination with a casing open at its sides and one end, and inclosing the box; a block closing one end of the box and formed with parallel vertical openings one of which is formed with a pocket; a pivot-bolt extending through openings in said casing and block, and adapted when properly adjusted to permit the movement of the block thereon, and a ball within one of the openings in the block and adapted to drop into said pocket.

3. A box having an open top, in combination with a casing open at its sides and one end and inclosing the box and having its end wall formed with an opening; a knob projecting from the box into said opening; a block closing one end of the box; and formed with parallel vertical openings connected by a contracted passage one of said openings having a pocket; a pivot-bolt extending through openings in said casing and block and adapted when properly adjusted to permit the movement of the block thereon; and a ball within one of the block-openings and adapted to drop into said pocket.

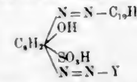
680,283. BLACK DISAZO DYE AND PROCESS OF MAKING SAME. KARL SCHIRMACHER, Soden, Germany, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed May 11, 1901. Serial No. 59,809. (Specimens.)

Claim.—1. The herein-described process for the manufacture of disazo dyestuffs of the general formula:



wherein Y means a phenol or amin of benzene, naphthalene or their sulfonic acids, which consists in combining ortho-ortho-diamido-para-phenolsulfonic acid with beta-naphthol and then with another azo component, substantially as set forth.

2. As products the disazo dyestuffs of the general formula:

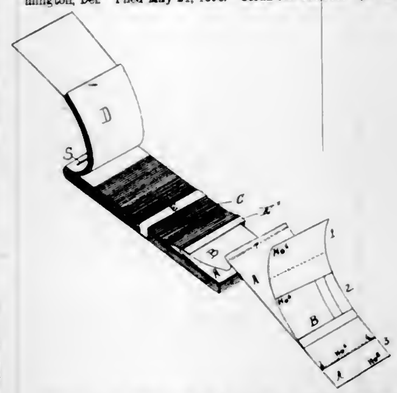


being black powders soluble in water to a blue solution, dyeing wool in an acid-bath red-brown to brown, their dyeings turning to black shades on subsequent treatment with chromates.

3. The herein-described process for the manufacture of a disazo dyestuff which consists in combining ortho-ortho-diamido-para-phenolsulfonic acid with one molecular proportion of beta-naphthol and then with one molecular proportion of 2.6-naphtholsulfonic acid, substantially as set forth.

4. As product the dyestuff which may be obtained by combining ortho-ortho-diamido-para-phenolsulfonic acid with one molecular proportion of beta-naphthol and one molecular proportion of 2.6-naphtholsulfonic acid, being a black powder soluble in water to a blue solution, dyeing wool in an acid-bath deep brown, its acid dyeing turning blue-black on subsequent treatment with chromates.

680,284. MANIFOLDING SALES-BOOK. SAMUEL SHOUP, Wilmington, Del. Filed May 21, 1898. Serial No. 681,333. (No model.)



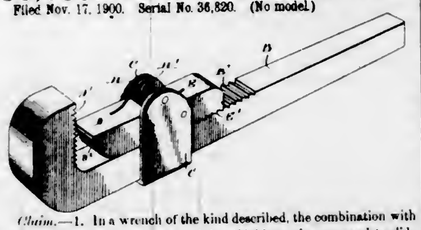
Claim.—1. A check sales-book having a series of duplex check-slips bound together at one end, each duplex slip being separate from the next duplex slip, except that the under sheet or fold of each duplex slip is tacked to the upper sheet or fold of the next duplex slip below, whereby as each duplex slip is torn off it will draw out the upper sheet or fold of the next, ready to lie over the manifolding-sheet, substantially as described.

2. A check sales-book having a manifolding-sheet attached thereto, in combination with a series of duplex check-slips bound together at one end, each duplex slip being separate from the next, except that the under sheet or fold of each duplex slip is tacked to the upper sheet or fold of the next duplex slip below it, as and for the purpose set forth.

3. A check sales-book having a series of duplex check-slips bound together at one end, with intervening triplicate sheets, each duplex sheet being separate from the next, except that the under sheet or fold of each such duplex slip is tacked to the upper sheet or fold of the next duplex slip below it, as and for the purpose set forth.

4. A duplex check-slip consisting of two sheets pasted together near one end, the under sheet extending beyond the upper sheet at that pasted end and being numbered on that extended end to correspond with the number on the upper sheet.

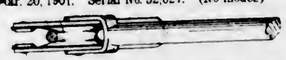
680,285. PIPE-WRENCH. THOMAS E. SMYTHE, Galion, Ohio. Filed Nov. 17, 1900. Serial No. 36,820. (No model.)



Claim.—1. In a wrench of the kind described, the combination with the fixed jaw and integral handle, of the slidable carrier arranged to slide upon said handle, the pivoted gripping-jaw carried by the said carrier, the locking jaw or dog also carried by said carrier and provided with teeth to engage the teeth upon the handle, the spring for normally holding the jaws closed, and the contacting lips formed upon the contiguous ends of the gripping-jaw and locking jaw or dog, substantially as and for the purpose described.

2. In a wrench of the character described, the combination with a fixed jaw and an integral handle formed with teeth, of a slidable carrier arranged to slide upon said handle, a pivoted gripping-jaw carried by said handle, a locking member also carried by said handle and provided with teeth to engage the teeth of the handle, a spring normally pressing said gripping-jaw and locking member toward the handle, and contacting lips formed upon the contiguous ends of the gripping-jaw and locking member, the lip of the locking member being uppermost, substantially as described.

680,286. TROLLEY-GUARD. CHARLES E. STANLEY, Canton, Ohio. Filed Mar. 20, 1901. Serial No. 52,027. (No model.)



Claim.—1. In a trolley-guard, the combination with the trolley-arm provided with a fork, a shaft mounted in the arms of the fork, and a trolley-wheel journaled upon said shaft, of a guard consisting of an elongated, counterbalanced U-shaped yoke journaled upon the said trolley-wheel shaft between the arms of the fork, and beveled-edge guide-wheels journaled upon horizontal shafts mounted in the free ends of the arms of the yoke and spaced apart and arranged vertically above the sides of the trolley-wheel with their beveled edges extending inwardly and above the flaring sides of said wheel, substantially as described.

2. A trolley-guard consisting of a metallic yoke adapted to be journaled in the forks of a trolley-arm, shafts mounted horizontally in the free ends of the yoke, and spaced, vertically-arranged guide-wheels journaled upon said shafts and having inwardly-extending beveled edges, substantially as described.

680,287. ASPHALTUM OR GRANOLITHIC FILLED FLOOR OR TRENCH PLATE. WILLIAM O. STEELE, Philadelphia, Pa. Filed Mar. 19, 1901. Serial No. 51,870. (No model.)



Claim.—1. A floor or trench plate, consisting of a dish-shaped plate having inclined sides with overlapping rims or flanges, vertical straight surface ends and a herring-bone bottom, substantially as and for the purposes described.

2. A floor or trench plate, consisting of an oblong dish-shaped plate having inclined sides with inturned rims or flanges, vertical straight surface ends and a herring-bone bottom and an asphaltum or granolithic material mounted in and filling said plate, substantially as and for the purposes described.

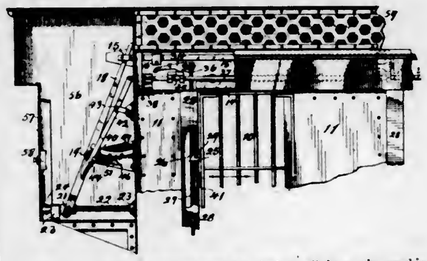
3. A floor or trench plate, consisting of a dish-shaped oblong plate having sides with overlapping rims or flanges and vertical plain surface ends, a transversely and longitudinally ribbed bottom, and projections extending upward through the bottom of said plate near the respective ends of the same, and a filling material mounted in said plate, substantially as and for the purposes described.

4. A floor or trench plate, comprising an oblong plate provided with inclined sides and overlapping rims or flanges, granolithic, asphaltum or other material mounted in and filling said plate, and the bottom of said plate provided with a series of transverse ribs or projections and with a central longitudinal rib or projection, substantially as and for the purposes described.

5. A floor or trench plate, comprising a rectangular dish-shaped plate provided with inclined sides, asphaltum or other similar material mounted in and filling said plate and the bottom of said plate provided with a central longitudinal rib and with transverse ribs extending therefrom on both sides of the central rib at suitable distances apart, and tubular openings extending through the body of said plate from top to bottom near the respective ends thereof, substantially as and for the purposes described.

6. A floor or trench plate, comprising a rectangular dish-shaped plate provided with a herring-bone bottom having inclined sides with overlapping rims or flanges and vertical straight ends, tubular openings extending through the body of said plate near the respective ends thereof and spurs or projections extending up from the top surface of the bottom of said plate, and a material mounted in the body of said plate and filling the same, substantially as and for the purposes described.

680,288. OPERATING MEANS FOR CELL-DOORS. RICHARD C. STEWART, Jr., and WALLACE A. STEWART, Covington, Ky. Filed Apr. 1, 1901. Serial No. 53,848. (No model.)



Claim.—1. In operating means for closing cell-doors, the combination with a number of sliding doors, of a sliding bar supported above them, downwardly-projecting lugs 17 on this latter, one for each door, the upper parts of these latter and said lugs extending into each other's paths, a lever to shift this bar for the purpose of moving the doors into their closing position and locking means operating automatically when the doors arrive in their closed position for the purpose of holding them in such position.

2. In means for operating cell-doors, the combination of a number of sliding doors, a sliding bar supported above and provided with projections adapted to enter into operative connection with the door, a lever to shift this bar for the purpose of moving the doors, slots at the free forked end of this lever, a nut thereat having laterally-projecting pins which engage these slots, a screw-shaft on which this nut is mounted and means to rotate this screw-shaft for the purpose of manipulating the lever.

3. In operating means for cell-doors, the combination with a number of sliding doors, of means to move them, a lever to operate these means, a nut at the free end of this lever, a screw-shaft on which this nut is mounted, a closable case whereby access to this screw-shaft may be prevented, and a crank-handle to rotate this latter, the same being connected to this screw-shaft with an articulated joint to permit of the same being turned into the inclosing case after use.

4. In means for locking cell-doors, the combination of a latch-bar supported so as to be capable of a limited movement in a vertical direction behind one of the door-jambs, it being free to drop to its lowest position which it normally occupies and having openings with inclined surfaces at their upper edge, catches with notches also inclined at their outer edges projecting from that edge of the door which in closing, approaches the door-jamb mentioned and in which position said catches are adapted to enter the openings in the latch-bar, the inclined surfaces at the upper edge of the catches being normally in line with the inclined surfaces at the upper edge of said openings, so that said entrance requires a raising of the latch-bar caused by the engagement of the inclined surfaces which enables the latch-bar to drop into the notches of the catches after these latter have entered the openings in the former.

5. In means for locking cell-doors, the combination of a hollow post, a sliding door supported so as to have a movement to or from this post, a latch-bar inclosed by this latter and supported so as to be free to drop with a limited vertical movement, notched catches projecting from that edge of the door which, when closing, approaches the hollow post, openings in the side of this latter next to this approaching door edge to permit said catches to pass through, and openings in the latch-bar, back of this side of the post to permit said catches to enter for the purpose of engaging the latch-bar.

6. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by dropping into the notches of these latter when the doors are completely closed, holds them locked and means operating to simultaneously raise the dropped latch-bars to unlock the doors.

7. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by dropping into the notches of these latter when the doors are completely closed, holds them locked and means operating to hold these latch-bars in this locking position or to raise them to unlock the doors.

8. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by dropping into the notches of these latter, when the doors are completely closed, holds them locked, means to simultaneously move all open doors into such closed position and means operating to simultaneously raise the dropped latch-bars to unlock the doors.

9. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by dropping into the notches of these latter, when the doors are completely closed, holds them locked, a sliding bar and means operatively connecting it with the upper ends of the latch-bars whereby these latter may be raised to unlock the doors.

10. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported and vertically-movable latch-bar for each door having openings adapted to receive the catches and by dropping into the notches of these latter, when the doors are completely closed, holds them locked, a sliding bar adapted to engage the upper parts of all the doors and operating to move all open doors into such closed position and an additional sliding bar operatively connected to the upper ends of the latch-bars, whereby these latter may be manipulated to unlock the doors.

11. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by engaging the notches in these latter, when the doors are closed, holds them in such closed position, a sliding bar supported to have a reciprocatory movement past all latch-bars and close to them, a projection on one and an inclined cam-surface on the other whereby, when these two engage each other, the latch-bars may be raised.

12. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported and vertically-movable latch-bar for each door having openings adapted to receive the catches and by engaging the notches in these latter, when the doors are closed, holds them in such closed position, levers at the upper end of each latch-bar, a sliding bar supported to have a reciprocatory movement past all these levers and projections on this bar whereby, when engaging the levers mentioned, the latch-bars may be manipulated.

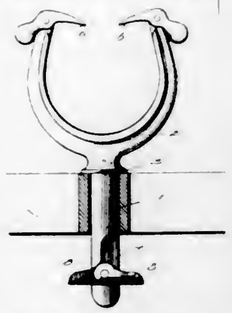
13. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by engaging the notches in these latter when the doors are closed, holds them in such closed position, levers pivotally supported between their ends and connected with one of their free ends, one to each latch-bar, a sliding bar having projections and supported so as to permit of it being moved to bring these projections either under the connected or free ends of the levers mentioned, whereby in the first case the end connected to the latch-bars is raised and in the other case the lever is prevented from moving.

14. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported latch-bar for each of these latter, free to drop, with a normal tendency to occupy its lowest position and having openings adapted to receive the catches and by dropping into the notches of these latter, when the doors are completely closed, holds them locked, and means operating to positively hold the latch-bars in their locked position.

15. In means for locking and unlocking a number of cell-doors, the combination of notched catches projecting from one of the edges of each door, a vertically-supported and vertically-movable latch-bar for each door having openings adapted to receive the catches and by dropping into the notches of these latter, when the doors are completely closed, holds them locked, means operating to simultaneously raise the dropped latch-bars to unlock the doors, an independent lock for each one of these latter, whereby any door may be kept locked, irrespective of the general locking and a projection on each latch-bar adapted to be engaged by the bolt of this independent lock, whereby any latch-bar may be independently raised to unlock the particular door independent of the general unlocking.

16. In means for locking and unlocking cell-doors, the combination of notched catches projecting from one of the edges of each door, a hollow jamb-post formed of two connected channel-irons, one of which between its flanges, receives the edge of the door when the same is closed, openings in the web of this channel-iron to permit the catches on the door to pass through, a vertically-supported and movable latch-bar supported within this hollow post and having openings adapted to receive the catches after they have passed through the openings in the jamb and by engaging these latter, holds the doors closed.

680,289. OAR-LOCK. WILLIAM L. SUTTERLIN, Trenton, N. J. Filed Dec. 15, 1900. Serial No. 40,048. (No model.)



Claim.—1. In an oar-lock, the combination with a stem; of a yoke thereto; a dog pivoted to each end of the yoke and each dog having an inwardly-extending portion and an outer weighted portion.

2. In an oar-lock, the combination with a stem; of a yoke thereto having recesses at its ends; a dog pivoted within each recess; an inwardly-extending portion to the dog; and a weighted outer end to the dog adapted to hold the inner extension normally in a horizontal position.

3. In an oar-lock, the combination with a yoke; of a stem thereto having recesses therein; and a dog pivoted within each recess, said dogs being supported normally in a horizontal position by the end walls of the recesses.

4. In an oar-lock, the combination with a yoke; of dogs pivoted to the ends thereof; inwardly-extending portions to the dogs; outer weighted portions thereto; a stem; dogs pivoted within recesses of the stem and adapted to normally extend laterally from said stem in opposite directions and to be retracted into the recesses.

680,290. COMPOSITION OF MATTER FOR FILTERING OR CLEANING PETROLEUM, &c. MORRIS THOMAS, Sharon, Pa. Filed Mar. 19, 1901. Serial No. 51,939. (No specimens.)

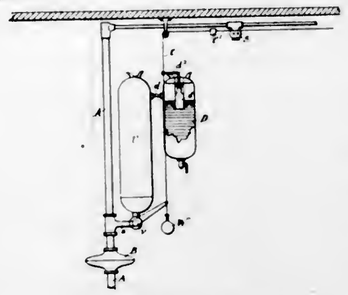
Claim.—1. The herein-described composition of matter, consisting of sawdust and salt substantially as described and for the purpose specified.

2. The herein-described composition of matter for filtering or cleaning petroleum and other oils consisting of sawdust ninety-nine per cent., and salt one per cent. substantially as described.

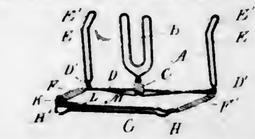
680,291. FIRE-EXTINGUISHING APPARATUS. WALTER M. THOMPSON and CHARLES NUHRING, Cincinnati, Ohio. Filed July 5, 1900. Serial No. 22,596. (No model.)

Claim.—The combination with a water-service pipe, supplying a distributing device such as a sprinkler or hose, &c., of a tank connected to said supply-pipe and adapted to contain a chemical solution, an auxiliary tank and devices for generating therein a gas, connections between said tanks for transferring said gas-pressure, and suitable controlling-valves to govern the conjoint action and inject said chemical solution by means of said gas-pressure into the water-supply, substantially as set forth.

680,291.

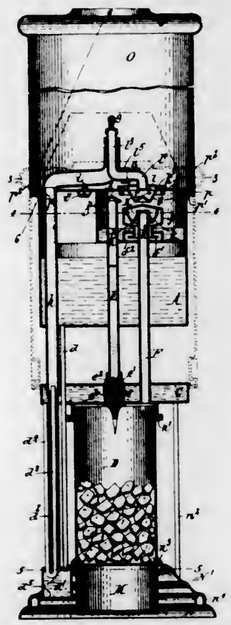


680,292. NECKTIE-FASTENER. HARRY S. TILLOTSON, Philadelphia, Pa. Filed May 11, 1901. Serial No. 59,778. (No model.)



Claim.—A necktie-fastener, made of a single piece of wire bent upon itself to form an upright loop B, said wire thence being horizontally bent and slightly inclined rearward, each portion of the wire being twisted at points D', thence bent upon themselves, forming upright portions which are slightly rearwardly inclined at their upper ends twisted portions F and F' of the wire at right angles to said upright portions, a tongue G formed by bending the wire upon itself, forming a curved portion H, and a tongue K formed by bending the wire upon itself, said tongues adapted to be normally held in contact with each other, as set forth.

680,293. ACETYLENE-GAS GENERATOR. DANIEL H. TREICHLER, Niagara Falls, N. Y. Filed July 14, 1900. Serial No. 23,645. (No model.)



Claim.—1. The combination with a water-supply, a carbid-chamber, and a gas-delivery pipe connected with the carbid-chamber, of a stand-pipe communicating at its upper end with the gas-delivery pipe and at its lower end with said water-supply, a branch pipe or passage extending from the lower end of said stand-pipe to the carbid-chamber, and a valve arranged in said branch pipe or passage, whereby the feed of water may be positively cut off from the carbid-chamber but the stand-pipe is constantly in communication with the water-supply, thereby permitting the water in the stand-pipe to recede and accommodate any excess gas when the valve is turned off and preventing undue pressure at the burner, substantially as set forth.

2. The combination with a water-supply, a carbid-chamber, and a gas-delivery pipe connected with the carbid-chamber, of a stand-pipe communicating at its upper end with the gas-delivery pipe and at its lower end with said water-supply, a branch pipe connecting the lower end of the stand-pipe with the carbid-chamber and a valve arranged in the branch pipe, said branch pipe having its passage restricted or of smaller size than the size of the stand-pipe, whereby the water is caused to rise in the stand-pipe above the inlet of the branch pipe and vary in its height according to the pressure of the gas, thereby regulating the feed of water to the carbid and the generation of the gas, substantially as set forth.

3. The combination with a water-chamber, a carbid-chamber, and a gas-delivery pipe connected with the carbid-chamber, of a stand-pipe connected at its upper end with said delivery-pipe and at its lower end with the carbid-chamber, and a conduit connecting the lower end of the stand-pipe with the water-chamber and containing a double trap or water seal, substantially as set forth.

4. The combination with a water-chamber, a carbid-chamber, and a gas-delivery pipe connected with the carbid-chamber, of a stand-pipe connected at its upper end with said delivery-pipe and at its lower end with the carbid-chamber, a conduit connecting the lower end of the stand-pipe with the water-chamber and containing two water seals or traps, and a vent connected with said conduit between the two water seals or traps, substantially as set forth.

5. The combination with a water-chamber, a carbid-chamber, and a gas-delivery pipe connected with the carbid-chamber, of a stand-pipe connected at its upper end with said delivery-pipe and at its lower end with the carbid-chamber, a conduit connecting the lower end of the stand-pipe with the water-chamber and containing two water seals or traps, and a sediment-chamber arranged at the lower end of one of said water seals or traps, substantially as set forth.

6. The combination with a water-chamber, an equalizing-chamber arranged below the water-chamber, and a carbid-chamber arranged below the equalizing-chamber, of a gas-delivery pipe connected with the carbid-chamber, a stand-pipe connected at its upper end with said delivery-pipe and at its lower end with the carbid-chamber and with the equalizing-chamber, a conduit connecting the bottom of the equalizing-chamber with the bottom of the water-chamber and containing two water seals which are arranged below the equalizing-chamber, a sediment-chamber arranged at the lower end of one of said water seals, and a vent-pipe connected with said conduit between the upper end of one of the water seals and the upper end of the other water seal, substantially as set forth.

7. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a gas-delivery pipe connecting the carbid-chamber and purifying-chamber, a stand-pipe arranged with its upper end in the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, and an upwardly-tapering cap arranged on the upper end of the stand-pipe and provided with a perforation, substantially as set forth.

8. The combination with a water-chamber, a purifying-chamber and a carbid-chamber, of a gas-delivery pipe connecting the carbid-chamber and the purifying-chamber, a stand-pipe arranged with its upper end in the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, and an upwardly-tapering cap arranged on the upper end of the stand-pipe and provided with a perforation at the top and projecting with its edge beyond the side of the stand-pipe, substantially as set forth.

9. The combination with a water-chamber, and a carbid-chamber, of a stand-pipe connected at its lower end with the water-chamber and also with the carbid-chamber and adapted to contain a variable liquid column, a gas-pipe connected at its lower end with the carbid-chamber, and a liquid chamber or passage which connects the upper end of the gas-pipe with the upper end of the stand-pipe and which is adapted to contain a column of liquid through which the gas passes from the upper end of the gas-pipe to the upper end of the stand-pipe, substantially as set forth.

10. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a stand-pipe opening with its upper end into the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening with its upper end in the purifying-chamber, and a dome arranged over the upper end of the gas-delivery pipe and having a closed top and an open lower end, substantially as set forth.

11. The combination with the water-chamber, the purifying-chamber, and the carbid-chamber, of a stand-pipe opening with its upper end into the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening with its upper end in the purifying-chamber, and a dome arranged over the upper end of the gas-delivery pipe and having a closed top and a laterally-extending flange around the open lower end thereof, substantially as set forth.

12. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a stand-pipe opening into the purifying-chamber and connected with the carbid and water chambers, a gas-delivery pipe connected with the carbid-chamber and opening into the purifying-chamber, and a dome arranged in the purifying-chamber above the delivery-pipe and having an enlarged closed upper end and a contracted open lower end which is submerged in the water of the purifying-chamber, substantially as set forth.

13. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a stand-pipe opening with its upper end into the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening with its upper end in the purifying-chamber, a dome arranged over the upper end of the gas-delivery pipe and having a closed top and an open lower end, and a screen inclosing the lower end of the dome, substantially as set forth.

14. The combination with a water-chamber, the purifying-chamber, and the carbid-chamber, of a stand-pipe opening with its upper end into the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening with its upper end into the purifying-chamber, a dome arranged over the upper end of said delivery-pipe and having a closed top and an open bottom, and a trap-chamber arranged between the upper end of the delivery-pipe and the upper end of the dome and having its bottom composed of two reversely-inclined cones which form a trough and having perforations in the lowest part thereof, substantially as set forth.

15. The combination with the water-chamber, the purifying-chamber, and the carbid-chamber, of a stand-pipe opening with its upper end into the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening with its upper end into the purifying-chamber, a dome arranged over the upper end of said delivery-pipe and having a closed top and an open bottom, a flange arranged around the lower end of the dome, a screen inclosing the lower end of the dome and its flange, and a trap-chamber arranged between the upper end of the delivery-pipe and the upper end of the dome and having its bottom composed of two reversely-inclined cones which form a trough and having perforations in the lowest part thereof, substantially as set forth.

16. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a stand-pipe opening with its upper end in the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening at its upper end into the purifying-chamber a removable dome arranged in the purifying-chamber over the upper end of the gas-delivery pipe, and a cover which closes an opening in the purifying-chamber, substantially as set forth.

17. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a stand-pipe opening with its upper end in the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening at its upper end into the purifying-chamber, a burner-pipe opening into the top of the purifying-chamber, and a trap-chamber inclosing the inner end of the burner-pipe and having its bottom composed of two reversely-inclined cones forming a trough and having perforations in the lowermost part thereof, substantially as set forth.

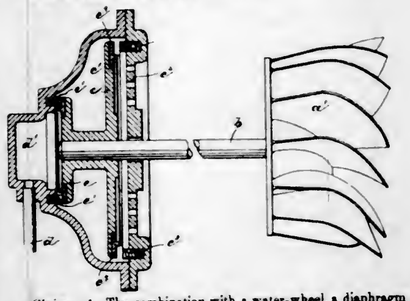
18. The combination with a water-chamber, a purifying-chamber, and a carbid-chamber, of a stand-pipe opening with its upper end in the purifying-chamber and connected at its lower end with the carbid-chamber and with the bottom of the water-chamber, a gas-delivery pipe connected at its lower end with the carbid-chamber and opening at its upper end into the purifying-chamber, a burner-pipe consisting of a fixed section and a movable section which opens into the purifying-chamber, a union connecting the sections of the burner-pipe, a removable cover closing an opening in the purifying-chamber and carrying the movable section of the burner-pipe, substantially as set forth.

19. The combination with a carbid-chamber having a closed bottom, and a water-supply which is connected with the upper end of the carbid-chamber and whereby the water is delivered upon the top of the carbid in said chamber, of a removable filling-piece which is arranged in the lower part of the carbid-chamber and which occupies a part of the space in the carbid-chamber not occupied by the carbid, substantially as set forth.

20. The combination with the water-supplying devices of an acetylene-generator, of a carbid-chamber having a detachable connection at its upper end with the water-supplying devices and provided at its lower end with a main supporting-base, and a subbase arranged on the lower part of the water-supplying devices, substantially as set forth.

21. The combination with the water-supplying devices of an acetylene-generator, of a carbid-chamber having a detachable connection at its upper end with the water-supplying devices and provided at its lower end with a main supporting-base, and a subbase arranged on the lower part of the water-supplying devices and engaging with the carbid-chamber and its base, substantially as set forth.

680,294. BALANCING DEVICE FOR WHEEL-SHAFTS HAVING END THRUST. FULLER TRUMP, Springfield, Ohio. Filed Oct. 24, 1900. Serial No. 34,166. (No model.)



Claim.—1. The combination with a water-wheel, a diaphragm rigidly connected thereto, the connected parts being free to move longitudinally, a housing within which said diaphragm is placed, said diaphragm being adapted to form an inlet to said chamber, another diaphragm in said chamber rigidly connected to said water-wheel in like manner with said first-named diaphragm and adapted to form an outlet-valve to said chamber, each of said diaphragms being provided with seats or bearing-rings, substantially as and for the purpose specified.

2. The combination with a water-wheel and its shaft, a diaphragm secured rigidly to said shaft and arranged within a housing or chamber, a bearing-seat forming with said diaphragm a valve for an inlet-opening to said chamber, an outlet-opening from said chamber provided with a bearing-seat, a valve positively connected with said diaphragm adapted to control said outlet-opening, substantially as specified.

3. The combination with a wheel-shaft, of a counterbalancing member rigidly connected thereto and located within a chamber, openings in said chamber provided with bearing-seats, which, together with the respective ends of the counterbalancing member, form inlet and outlet valves to said chamber, and means for furnishing liquid under pressure against said counterbalancing member and to said chamber, substantially as and for the purpose specified.

680,295. CIGARETTE-MAKING DEVICE. HARRY J. VALENTINE, Hempstead, N. Y., assignor to William Vogel and Brothers, Brooklyn, N. Y. Filed Apr. 23, 1901. Serial No. 57,055. (No model.)

Claim.—1. In a cigarette-making device, the combination, with a box or case, of a forming-tube collapsing or telescoping into the same, and being shorter than the box or case, so that it may be completely inclosed in the same, and means adapted to be connected with the inner end of the forming-tube, for protruding it from the box or case for use, substantially as set forth.

2. In a cigarette-making device, the combination, with a box or case, of a longitudinally-shiftable forming-tube guided in said box or case, and a plunger provided with suitable actuating means and adapted to feed a charge of tobacco through said forming-tube, said forming-tube, when shifted into the box or case, fitting over or telescoping onto the said plunger, and the said plunger and forming-tube being of less length than that of the box or case so that they may be entirely inclosed therein, substantially as set forth.

3. In a cigarette-making device, the combination, with a box or case provided with a short interior guide-neck, of a forming-tube movable and guided into said box or case by said neck and having free communication at the inner end of said guide-neck with the entire interior of the box or case, and means for feeding a charge of tobacco through said forming-tube, substantially as set forth.



4. In a cigarette-making device, the combination, with a box or case, of a forming-tube collapsing or telescoping into the same and having a a bayonet-joint connection with a portion of the box or case, and means for feeding a charge of tobacco through said forming-tube, substantially as set forth.

5. In a cigarette-making device, the combination, with a box or case, of a collapsible or telescopic forming-tube adapted to be projected beyond the box or case, a plunger guided in said forming-tube, an actuating-rod, and a friction-coupling for the plunger and actuating-rod, substantially as set forth.

6. In a cigarette-making device, the combination, with a box or case, of a longitudinally-shiftable forming-tube, a plunger, and an actuating-rod, said forming-tube, plunger and actuating-rod telescoping or collapsing one within the other, substantially as set forth.

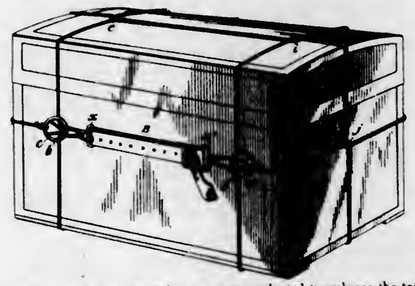
7. In a cigarette-making device, the combination, with a box or case, and a shiftable forming-tube guided in the box or case, of a plunger provided with suitable means of actuation, and provided with a stop or pin adapted to engage with the inner end of said forming-tube, substantially as set forth.

8. In a cigarette-making device, the combination, with a box or case, having an opening, and a spring-actuated cap or lid for closing said opening, of a longitudinally-shiftable forming-tube guided in said opening and adapted to automatically open said cap, substantially as set forth.

9. The combination, with a box or case provided with a forming-tube, of a hollow plunger adapted to work in said tube, an actuating-rod telescoping into said plunger, a friction-sleeve on the plunger, and means for frictionally engaging a portion of said actuating-rod with said sleeve, substantially as set forth.

10. The herein-described tubular plunger provided with exterior blades or flanges, in combination with an actuating-rod detachably connected with and guided in the tubular plunger, substantially as set forth.

680,296. TRUNK-HARNESS. LOIS J. VANDERVOORT, Guthrie, Okla. Filed Feb. 2, 1901. Serial No. 45,773. (No model.)



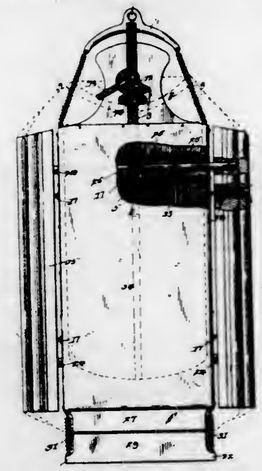
Claim.—1. In a trunk-harness, a rope adapted to embrace the top, bottom, ends and sides of a trunk, and having a ring at each end, and means adapted to draw the transverse portion of the rope at each end of the harness through its corresponding ring and to fasten the harness on the trunk, substantially as specified.

2. In a trunk-harness, a rope adapted to embrace the top, bottom, ends and sides of a trunk, or the like, and having means to preserve its form, a ring secured at each end of said rope, and means adapted to draw the portion of the rope embracing the ends of the trunk through its corresponding ring, to take up the slack and to fasten the harness, substantially as specified.

3. In a trunk-harness, the combination of the rope *a* with the stays C, the rings *b* and *b'* each attached to one end of the rope and each having a cross-bar, over which a portion of the rope passes, and the loops *x* and *x'* in which the strap B operates, substantially as specified.

4. In a trunk-harness, a rope having a ring attached to each end, and means adapted to draw a portion of said rope through each ring, and to fasten the harness in place, substantially as specified.

680,297. IRONING-BOARD. CHARLES H VAN DEUSEN, Verona, Ill. Filed Oct. 8, 1900. Serial No. 32,429. (No model.)



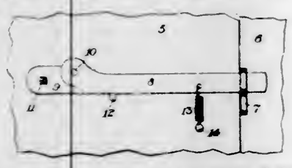
Claim.—1. In an ironing-board, the combination with a body, of a fixed clamp at one end thereof, laterally-movable clamps at opposite sides of the board, an intermediate longitudinally-movable rod projected beyond that end of the body which is opposite the fixed clamp, means for transferring lateral movement to the side clamps by a longitudinal movement of the intermediate rod, and opposite springs connecting the projected portion of the rod to the adjacent end of the body and diverging toward said body, the springs forming means for yieldably supporting the neckband of a shirt, and for automatically returning the rod to its normal position.

2. In an ironing-board, the combination with a body, having a reduced neck portion at one end thereof, a fixed clamp at the opposite end of the body, laterally-movable clamps at opposite sides of the body, an intermediate longitudinally-movable stretching-rod extending across the neck of the board, means for transferring lateral motion to the side clamps by a longitudinal movement of the rod, an operating handled cam mounted upon that portion of the rod which extends across the neck of the body, and a friction-shoulder provided upon the neck portion of the body and in frictional engagement with the peripheral edge of the cam.

3. An ironing-board, having opposite laterally-movable clamps, each of the latter comprising a relatively-fixed inner member, having a lateral opening formed therethrough, an outer member, and a coiled spring located within the opening in the inner member, and having its opposite ends connected to the board and the outer clamp member, respectively, whereby a spring-hinge connection is formed between the two clamp members, and means for moving the clamps outwardly in opposite directions.

4. In an ironing-board, the combination with the board proper, having a reduced neck at one end, of an intermediate longitudinally-slidable stretching-rod projecting outwardly beyond the neck, and provided at its outer end with a cross-bar, coiled springs connecting the opposite ends of the cross-bar with the adjacent end of the board, one or more wedge portions provided upon the stretching-rod, operating means for the rod, a fixed clamp at the opposite end of the board, and opposite laterally-movable side clamps, each comprising a relatively-fixed inner strip, having opposite transverse openings formed therethrough, and lateral rods slidably received through openings in the board and having their inner ends in frictional engagement with the respective wedge portions of the stretching-rod, an outer strip, and opposite coiled springs received within the respective openings in the inner strip, and having their opposite ends connected to the adjacent edge of the board and the outer strip, respectively.

680,298. LATCH. ARTHUR B VANES, London, England. Filed Mar. 20, 1901. Serial No. 51,984. (No model.)

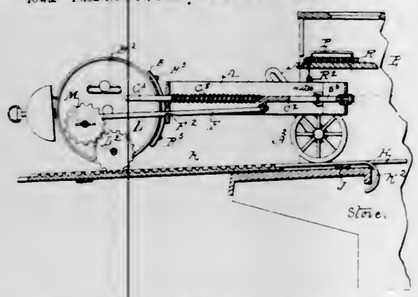


Claim.—1. A latch consisting of two parts one of which is longer than the other, said parts being hinged together so as to fold in one direction only, and the shorter part being provided with an opening through which a knob-bolt is passed, substantially as shown and described.

2. The combination of a door or gate with a latch comprising two parts hinged together so as to fold in one direction only, a knob-bolt passed through one of said parts, a pin secured beneath the other and a spring connected with the last-named part and with a door or gate and adapted to pull said part downwardly, substantially as shown and described.

3. A latch for doors or gates, comprising two parts one of which is shorter than the other, said parts being hinged together so as to fold in one direction only, a knob or latch bolt passed through the shorter part and a spring for holding the longer part in a depressed position, substantially as shown and described.

680,299. TIME FIRE-LIGHTER. OLUF VOLKERTS, Sac City, Iowa. Filed Nov. 17, 1900. Serial No. 36,822. (No model.)



Claim.—1. In an automatic fire-lighter, a frame having one end portion adapted to support match-holders, spring-actuated match-holders attached to said frame and a sliding frame adapted to rub the fuse on the ends of the matches and to allow the matches to be pressed inward for lighting a torch, arranged and combined to operate in the manner set forth for the purposes stated.

2. In an automatic fire-lighter, a frame having one end portion adapted to support match-holders, spring-actuated match-holders attached to said frame, a sliding frame adapted to rub the fuse on the ends of the matches and to allow the matches to be pressed inward for lighting a torch, and a torch connected with a grate in a stove, arranged and combined to operate in the manner set forth for the purposes stated.

3. In an automatic fire-lighter, a frame having a bearing at one end to hold matches, traction-wheels connected with the frame, an alarm-clock connected with the frame, a spring-actuated match-rubber slidably connected with the frame, and means to transmit power and motion from the clock to the match-rubber, arranged and combined to operate in the manner set forth, for the purposes stated.

4. In an apparatus for lighting fire in a stove or furnace, a frame consisting of parallel side bars connected by cross-pieces and a rack fixed to the cross-pieces to extend parallel with the side bars, a frame mounted upon wheels to hold matches and match-rubbing mechanism, an alarm-clock and an alarm-winding shaft connected with said frame, a gear-wheel connected with the alarm-winding shaft of the clock and a meshing gear-wheel journaled to the clock-case, arranged and combined to operate in the manner set forth, for the purposes stated.

5. An apparatus for lighting fires, comprising a frame mounted on traction-wheels, spring-actuated match-holders at one end of the frame, a spring-actuated match-rubber mounted on the frame, an alarm-clock attached to the other end of the frame, a latch pivotally connected with the match-rubber and provided with a notch and shoulder to engage the end of the frame, a track to support the traction-wheels, a rack connected with the track to engage a gear-wheel, a gear-wheel journaled to the frame of the clock, a meshing gear-wheel adjustably mounted on the end of the alarm-winding shaft of the clock, a cam on said shaft to lift said latch, and a device for retaining asbestos under the grate in a stove or furnace, a piece of asbestos in said device and a torch suspended from said device, arranged and combined to operate in the manner set forth, for the purposes stated.

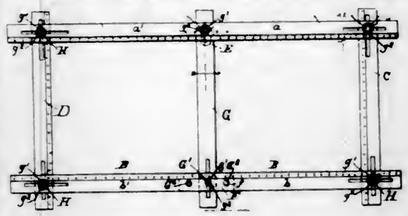
680,300. SPIKE-EXTRACTOR. ELMER E. WELSH, Lawrence, Kans. Filed May 7, 1901. Serial No. 59,157. (No model.)



Claim.—1. In an implement for extracting spikes, &c., the combination with a main operating-lever and pivoted spike-grasping jaws upon said lever of a separate lever operating one of said jaws lugs rigidly connected with and extending outwardly from one side of the main lever, and a power-conveying lever pivoted at its lower end in the outer ends of said lugs and an adjustable connecting device pivotally connected at one end with the power-conveying lever and concentric with its fulcrum and having said pivotal end movable in the arc of a circle past said fulcrum in the direction of the main lever and also pivotally connected at the other end with the lever operating one of said jaws.

2. In an implement for extracting spikes, &c., the combination with separate fixed and movable spike-grasping jaws of a main operating-lever connected with the body of the fixed jaw and a vibrating lever connected with the body of the movable jaw lugs rigidly connected with one side of the main lever and extending outwardly therefrom and a power-conveying lever pivotally connected at its lower end with the outer ends of said lugs a bell-crank lever on the main lever pivotally connected with the vibrating lever and separate rods adjustably connected with each other one of which rods is pivotally connected with the bell-crank lever and the other rod with the power-conveying lever and having its pivotal end concentric with the fulcrum of said power-conveying lever and movable in the arc of a circle past said fulcrum in the direction of the main operating-lever.

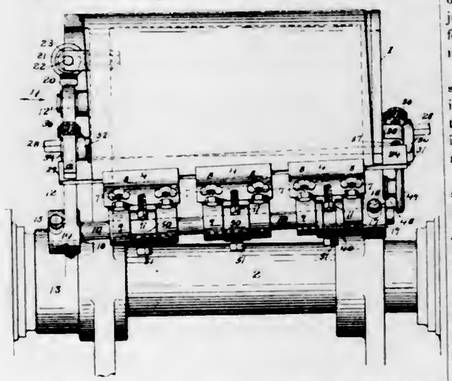
680,301. LACE-CURTAIN STRETCHER. JAMES C. WHIPPLE, Chicago, Ill. Filed Feb. 1, 1899. Serial No. 704,085. (No model.)



Claim.—1. In a lace-curtain stretcher, side rails joined to end rails, such side rails comprising, on one side of the frame, bars hinged together by a hinge the plates whereof are pivotally secured together, with interlocking projections on the plates, and a cross-bar secured to one of the projections, and on the other side of the frame, bars joined together by a connecting-plate provided with openings therethrough, bolts passing through such opening and through the bars, nuts on the bolts, and a bolt passing through the central opening in the plate, through the cross-bar which is secured to the hinge on the other side rail, and between the ends of the side bars, with a nut on such bolt; substantially as described.

2. In a curtain-stretcher, side rails, one whereof comprises bars joined together by a hinge and the other, bars joined together by a connecting-plate; such hinge consisting of plates pivoted together, projections on such plates respectively, such projections interlocking when the hinge is open, and means for pivotally attaching a cross-bar to one of the projections of the hinge, and such connecting-plate consisting of a plate having openings therethrough, bolts having nuts thereon extending through the openings in the plate adjacent to the ends thereof and through the bars to which the plate is attached, and a bolt extending through the opening in the center of the plate, and through between the ends of the bars forming the side rail, with a washer and a nut on such bolt, and a connecting cross-bar secured to the hinge by a pivot passing through the projection on one of the plates thereof and to the connecting-plate by the bolt which passes through the central opening therein; substantially as described.

680,302. PLATE HOLDING AND STRAINING DEVICE. JOSEPH WHITE, New York, N. Y., assignor to Robert Hoe, same place. Filed Dec. 14, 1900. Serial No. 39,814. (No model.)



Claim.—1. The combination with a plate-supporting surface, of devices for holding a plate in position thereon, and means for giving said holding devices an angular adjustment with respect to the surface while holding the plate, substantially as described.

2. The combination with a cylindrical plate-supporting surface, of devices for holding a plate in position thereon, and means for giving said holding devices an angular adjustment with respect to the surface while holding the plate, substantially as described.

3. The combination with a plate-supporting surface, of devices for holding a plate in position thereon, and means for giving said holding devices a lateral adjustment with respect to the surface while holding the plate, substantially as described.

4. The combination with a cylindrical plate-supporting surface, of devices for holding a plate in position thereon, and means for giving said holding devices a lateral adjustment with respect to the surface while holding the plate, substantially as described.

5. The combination with a plate-supporting surface, of devices for holding a plate in position thereon, means for giving said holding devices an angular adjustment with respect to the surface while holding the plate, and means for giving said devices a lateral adjustment, substantially as described.

6. The combination with a cylindrical plate-supporting surface, of devices for holding a plate in position thereon, means for giving said holding devices an angular adjustment with respect to the surface while holding the plate, and means for giving said devices a lateral adjustment, substantially as described.

7. The combination with a plate-supporting surface, of devices for holding a flexible plate in position thereon, means for adjusting said devices to strain the plate to its seat, means for releasing the strain on the plate, and means for giving said holding devices while holding the plate an angular adjustment with respect to the supporting-surface, substantially as described.

8. The combination with a cylindrical plate-supporting surface, of devices for holding a flexible plate in position thereon, means for adjusting said devices to strain the plate to its seat, means for releasing the strain on the plate, and means for giving said holding devices while holding the plate an angular adjustment with respect to the supporting-surface, substantially as described.

9. The combination with a plate-supporting surface, of devices for holding a flexible plate in position thereon, means for adjusting said devices to strain the plate to its seat, means for releasing the strain on the plate, and means for giving said holding devices while holding the plate a lateral adjustment with respect to the supporting-surface, substantially as described.

10. The combination with a cylindrical plate-supporting surface, of devices for holding a flexible plate in position thereon, means for adjusting said devices to strain the plate to its seat, means for releasing the strain on the plate, and means for giving said holding devices while holding the plate a lateral adjustment with respect to the supporting-surface, substantially as described.

11. The combination with a plate-supporting surface, of a bearing-surface, plate-holding devices, means carried by the devices and operating against said surface to strain the plate to its seat, means for adjusting the bearing-surface to release the strain on the plate, and means for giving the holding devices while holding the plate an angular adjustment with respect to the supporting-surface, substantially as described.

12. The combination with a cylindrical plate-supporting surface, of a bearing-surface, plate-holding devices, means carried by the devices and operating against said surface to strain the plate to its seat, means for adjusting the bearing-surface to release the strain on the plate, and means for giving the holding devices while holding the plate an angular adjustment with respect to the supporting-surface, substantially as described.

13. The combination with a plate-supporting surface, of a bearing-surface, plate-holding devices, means carried by the devices and operating against said surface to strain the plate to its seat, means for adjusting the bearing-surface to release the strain on the plate, and means for giving the holding devices while holding the plate a lateral adjustment with respect to the supporting-surface, substantially as described.

14. The combination with a cylindrical plate-supporting surface, of a bearing-surface, plate-holding devices, means carried by the devices and operating against said surface to strain the plate to its seat, means for adjusting the bearing-surface to release the strain on the plate, and means for giving the holding devices while holding the plate a lateral adjustment with respect to the supporting-surface, substantially as described.

15. The combination with a plate-supporting surface, of devices for holding a plate in position thereon, a bearing-surface supported independently of the holding devices, means carried by the holding devices and operating against said surface to strain the plate to its seat, and means for adjusting the bearing-surface, substantially as described.

16. The combination with a cylindrical plate-supporting surface, of devices for holding a plate in position thereon, a bearing-surface supported independently of the holding devices, means carried by the holding devices and operating against said surface to strain the plate to its seat, and means for adjusting the bearing-surface, substantially as described.

17. The combination with a plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface, and means for adjusting the bearing-surfaces, substantially as described.

18. The combination with a cylindrical plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface, and means for adjusting the bearing-surfaces, substantially as described.

19. The combination with a plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface, and means for giving the holding devices while holding the plate and the bearing-surfaces an angular adjustment, substantially as described.

20. The combination with a cylindrical plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface,

and means for giving the holding devices while holding the plate and the bearing-surfaces an angular adjustment, substantially as described.

21. The combination with a plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface, and means for giving the holding devices while holding the plate and the bearing-surfaces a lateral adjustment, substantially as described.

22. The combination with a cylindrical plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface, and means for giving the holding devices while holding the plate and the bearing-surfaces a lateral adjustment, substantially as described.

23. The combination with a plate-supporting surface, of holding devices located at opposite edges of the plate, bearing-surfaces, one for each holding device, said surfaces being supported independently of the holding devices, means carried by said devices and operating against the bearing-surfaces to strain and hold the plate on the supporting-surface, means for adjusting the bearing-surfaces, means for giving the holding devices while holding the plate and the bearing-surfaces an angular adjustment, and means for giving the holding devices while holding the plate and the bearing-surfaces a lateral adjustment, substantially as described.

24. In a plate-holding device, the combination with a plate-supporting surface, of a plurality of pairs of gripping-jaws, means for operating each pair of jaws to cause them to seize and release the plate, a bearing-surface supported independently of the pairs of jaws, means whereby each pair of jaws may be adjusted with respect to the bearing-surface to strain the plate to its seat, and means for adjusting the bearing-surface, substantially as described.

25. In a plate-holding device, the combination with a plate-supporting surface, of a plurality of pairs of pivoted gripping-jaws, means for operating each pair of jaws to cause them to seize and release the plate, a bearing-surface supported independently of the pairs of jaws, means whereby each pair of jaws may be adjusted with respect to the bearing-surface to strain the plate to its seat, and means for adjusting the bearing-surface, substantially as described.

26. The combination with a plate-supporting surface, of a plurality of pairs of gripping-jaws, means for causing said jaws to clamp and release the plate, a support upon which the jaws are mounted, and means for giving the jaws and the support an angular adjustment with respect to the supporting-surface, substantially as described.

27. The combination with a plate-supporting surface, of a plurality of pairs of pivoted gripping-jaws, means for causing said jaws to clamp and release the plate, a support upon which the jaws are mounted, and means for giving the jaws and the support an angular adjustment with respect to the supporting-surface, substantially as described.

28. The combination with a plate-supporting surface, of a plurality of pairs of gripping-jaws, means for causing said jaws to clamp and release the plate, a support upon which the jaws are mounted, and means for giving the jaws and the support a lateral adjustment with respect to the supporting-surface, substantially as described.

29. The combination with a plate-supporting surface, of a plurality of pairs of pivoted gripping-jaws, means for causing said jaws to clamp and release the plate, a support upon which the jaws are mounted, and means for giving the jaws and the support a lateral adjustment with respect to the supporting-surface, substantially as described.

30. The combination with a plate-supporting surface, of a plurality of pairs of gripping-jaws, means for causing said jaws to grip and release the plate, a support on which said jaws are mounted, a bearing-surface, means for forcing the pairs of jaws away from the bearing-surface in order to strain the plate to its seat, and means for giving the supports and the bearing-surface an angular adjustment with respect to the plate-supporting surface, substantially as described.

31. The combination with a plate-supporting surface, of a plurality of pairs of pivoted gripping-jaws, means for causing said jaws to grip and release the plate, a support on which said jaws are mounted, a bearing-surface, means for forcing the pairs of jaws away from the bearing-surface in order to strain the plate to its seat, and means for giving the supports and the bearing-surface an angular adjustment with respect to the plate-supporting surface, substantially as described.

32. The combination with a plate-supporting surface, of a plurality of pairs of gripping-jaws, means for causing said jaws to grip and release the plate, a support on which said jaws are mounted, a bearing-surface, means for forcing the pairs of jaws away from the bearing-surface in order to strain the plate to its seat, and means for giving the supports and the bearing-surface a lateral adjustment with respect to the plate-supporting surface, substantially as described.

33. The combination with a plate-supporting surface, of a plurality of pairs of pivoted gripping-jaws, means for causing said jaws to grip and release the plate, a support on which said jaws are mounted, a bearing-surface, means for forcing the pairs of jaws away from the bearing-surface in order to strain the plate to its seat, and means for giving the supports and the bearing-surface a lateral adjustment with respect to the plate-supporting surface, substantially as described.

34. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, means for forcing each pair of jaws away from the surface in order to strain the plate to its seat, and means for giving each set of jaws and the support therefor an adjustment with respect to the supporting-surface, substantially as described.

35. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, means for forcing each pair of jaws away from the surface in order to strain the plate to its seat, and means for giving each set of jaws and the support therefor an angular adjustment with respect to the surface, substantially as described.

36. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, means for forcing each pair of jaws away from the surface in order to strain the plate to its seat, and means for giving each set of jaws and the support therefor an adjustment with respect to the surface, substantially as described.

37. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, means for forcing each pair of jaws away from the surface in order to strain the plate to its seat, and means for giving each set of jaws and the support therefor an angular adjustment with respect to the surface, substantially as described.

38. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, means for forcing each pair of jaws away from the surface in order to strain the plate to its seat, means for giving each set of jaws and the support therefor an angular adjustment with respect to the surface, and means for giving the sets of jaws a lateral adjustment, substantially as described.

39. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, means for forcing each pair of jaws away from the surface in order to strain the plate to its seat, means for giving each set of jaws and the support therefor an angular adjustment with respect to the surface, and means for giving the sets of jaws a lateral adjustment, substantially as described.

40. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from said surfaces, and means for giving each set of jaws, the support therefor and the coöperating bearing-surface an adjustment with respect to the plate-supporting surface, substantially as described.

41. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from said surfaces, and means for giving each set of jaws, the support therefor and the coöperating bearing-surface an angular adjustment with respect to the plate-supporting surface, substantially as described.

42. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from said surfaces, and means for giving each set of jaws, the support therefor and the coöperating bearing-surface an adjustment with respect to the plate-supporting surface, substantially as described.

43. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from said surfaces, and means for giving each set of jaws, the support therefor and the coöperating bearing-surface an angular adjustment with respect to the plate-supporting surface, substantially as described.

44. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from said surfaces, and means for giving each set of jaws, the support therefor and the coöperating bearing-surface a lateral adjustment with respect to the plate-supporting surface, substantially as described.

45. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from said surfaces, and means for giving each set of jaws, the support therefor and the coöperating bearing-surface a lateral adjustment with respect to the plate-supporting surface, substantially as described.

46. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from the bearing-surfaces, means for giving each set of jaws, the support therefor and the coöperating bearing-surface an angular adjustment with respect to the plate-supporting surface, and means for giving each set of jaws, the support therefor, and the coöperating bearing-surface a lateral adjustment with respect to the plate-supporting surface, substantially as described.

47. The combination with a plate-supporting surface, of sets of holding and straining devices arranged at opposite edges of the surface, each set including a plurality of pairs of pivoted gripping-jaws, a support for the jaws of each set, means for causing each pair of jaws to clamp and release the plate, bearing-surfaces, means carried by each pair of jaws for forcing the jaws away from the bearing-surfaces, means for giving each set of jaws, the support therefor and the coöperating bearing-surface an angular adjustment with respect to the plate-supporting surface, and means for giving each set of jaws, the support therefor, and the coöperating bearing-surface a lateral adjustment with respect to the plate-supporting surface, substantially as described.

48. The combination with a plate-supporting surface, of a frame, means for moving the frame along the surface, a pair of supports, one end of each support being mounted in the frame, straining devices mounted on each support, means for causing said devices to seize and release the plate, and means for causing said devices to strain the plate over the surface, substantially as described.

49. The combination with a plate-supporting surface, of a frame, means for moving the frame along the surface, a pair of supports, one end of each support being mounted in the frame, straining devices pivoted on each support, means for causing said devices to seize and release the plate, and means for causing said devices to strain the plate over the surface, substantially as described.

50. The combination with a plate-supporting surface, of a frame, means for moving the frame along the surface, a pair of supports, one end of each support being mounted in the frame, a pair of bearing-surfaces, one end of each bearing-surface being mounted in the frame, holding and straining devices mounted on each support, means for causing said devices to seize and release the plate, and means for adjusting the bearing-surfaces, substantially as described.

51. The combination with a plate-supporting surface, a frame, means for moving the frame along the surface, a pair of supports, one end of each support being mounted in the frame, a pair of bearing-surfaces, one end of each bearing-surface being mounted in the frame, holding and straining devices pivoted on each support, means for causing said devices to seize and release the plate, and means for adjusting the bearing-surfaces, substantially as described.

52. The combination with a cylindrical plate-supporting surface, of a frame, means for giving the frame a movement in an arc, a pair of supports, one end of each support being mounted in the frame, holding and straining devices mounted on each support, means for causing said devices to seize and release the plate, and means for causing said devices to strain the plate over the surface, substantially as described.

53. The combination with a cylindrical plate-supporting surface, of a frame, means for giving it a movement in an arc, a pair of supports, one end of each support being mounted in the frame, holding and straining devices pivoted on each support, means for causing said devices to seize and release the plate, and means for causing said devices to strain the plate over the surface, substantially as described.

54. The combination with a cylindrical plate-supporting surface, of a frame, means for giving the frame a movement in an arc, a pair of supports, one end of each support being mounted in the frame, a pair of bearing-surfaces, one end of each surface being mounted in the frame, holding and straining devices mounted on each support, means for causing said devices to seize and release the plate, and means for adjusting the bearing-surfaces, substantially as described.

55. The combination with a cylindrical plate-supporting surface, of a frame, means for giving the frame a movement in an arc, a pair of supports, one end of each support being mounted in the frame, a pair of bearing-surfaces, one end of each surface being mounted in the frame, holding and straining devices pivoted on each support, means for causing said devices to seize and release the plate, and means for adjusting the bearing-surfaces, substantially as described.

56. The combination with a cylinder having a plate-supporting surface, of a frame supported on the cylinder-shaft, means for giving the frame a movement about the shaft, a pair of supports, one end of each support being mounted in the frame, a plurality of straining devices mounted on each support, means for causing each pair of straining devices to grip and release the plate, and means for giving the straining devices a movement to strain the plate to its seat, substantially as described.

57. The combination with a cylinder having a plate-supporting surface, of a frame supported on the cylinder-shaft, means for giving the frame a movement about the shaft, a pair of supports, one end of each support being mounted in the frame, a plurality of straining devices pivoted on each support, a pair of bearing-surfaces, one end of each bearing-surface being mounted in the frame, and means for giving each bearing-surface a bodily adjustment, substantially as described.

58. The combination with a plate-supporting surface, of sets of straining devices located at opposite edges thereof, means for causing the straining devices to seize and release the plate, a bearing-bar for each set of devices, means coöperating with the bars whereby each straining device of each set may be operated to strain the plate to its seat, a shaft adjacent to each bar, and means operated by the shafts for adjusting the bearing-bars with respect to the straining devices, substantially as described.

59. The combination with a cylinder having a plate-supporting surface, of a frame, means for giving the frame a movement in an arc, a support at each end of the frame, each support having one end mounted in the frame and the other end mounted in the cylinder, a plurality of plate-clamps mounted on each support, means for causing said clamps to seize and release the plate, a bearing-bar at each end of the frame, one end of each bar being mounted in the frame and the other end being mounted in the cylinder, means for giving each bar a bodily adjustment, and means coöperating with the bars whereby each clamp is caused to strain the plate to its seat, substantially as described.

60. The combination with a cylinder having a plate-supporting surface, of a frame, means for giving the frame a movement in an arc, a support at each end of the frame, each support having one end mounted in the frame and the other end mounted in the cylinder, a plurality of plate-clamps pivoted on each support, means for causing said clamps to seize and release the plate, a bearing-bar at each end of the frame, one end of each bar being mounted in the frame and the other end being mounted in the cylinder, means for giving each bar a bodily adjustment, and means coöperating with the bars whereby each clamp is caused to strain the plate to its seat, substantially as described.

61. The combination with a cylinder having a plate-supporting surface, of a frame, means for giving the frame a movement in an arc, a support at each end of the frame, each support having one end mounted in the frame and the other end mounted in the cylinder, a plurality of plate-clamps pivoted on each support, means for causing said clamps to seize and release the plate, a bearing-bar at each end of the frame, one end of each bar being mounted in the frame and the other end being mounted in the cylinder, shafts extending across the cylinder adjacent to the bars, worms on the shafts, suitably-mounted screws driven by the worms and bearing against the bars, whereby the bars are bodily adjusted, and means coöperating with the bars whereby each clamp is caused to strain the plate to its seat, substantially as described.

62. The combination with a cylinder having a plate-supporting surface, of sets of plate-clamps at opposite edges of the surface, supporting-rods on which the clamps are mounted, means for causing the clamps to

seize and release the plate and to strain the plate to its seat, and means for giving the rods and the clamps mounted on them a lengthwise adjustment, substantially as described.

63. The combination with a cylinder having a plate-supporting surface, of sets of plate-clamps at opposite edges of the surface, supporting-rods on which the clamps are pivoted, means for causing the clamps to seize and release the plate and to strain the plate to its seat, and means for giving the rods and the clamps mounted on them a lengthwise adjustment, substantially as described.

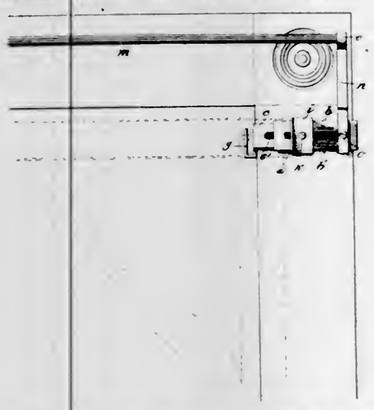
64. The combination with a cylinder having a plate-supporting surface, of sets of plate-clamps at opposite edges of the surface, supporting-rods on which the clamps are pivoted, means for causing the clamps to seize and release the plate and to strain the plate to its seat, and means for giving the rods and the clamps mounted on them a simultaneous adjustment, substantially as described.

65. The combination with a cylinder having a plate-supporting surface, of sets of plate-clamps at opposite edges of the surface, rods on which the sets of clamps are pivoted, a bar supported in the cylinder, connections between the ends of the bar and the rods, and means for moving the bar to give the rods a lengthwise adjustment, substantially as described.

66. The combination with a cylinder having a plate-supporting surface, of a frame, means for giving the frame a movement in the arc of a circle, a set of plate-clamps at each end of the surface, rods on which the clamps are pivoted, one end of said rods being mounted in the frame and the other end in the cylinder, bearing-bars one for each set of clamps, one end being mounted in the frame and the other end in the cylinder, means for causing the clamps to seize and release the plate, means cooperating with the bearing-bars for causing the clamps to strain the plate against the supporting-surface, means for giving the bearing-bars a bodily adjustment, and means for giving the supporting-rods a longitudinal adjustment, substantially as described.

67. The combination with a cylinder having a plate-supporting surface, of a frame, means for giving the frame a movement in the arc of a circle, a set of plate-clamps at each end of the surface, rods on which the clamps are pivoted, one end of said rods being mounted in the frame and the other end in the cylinder, bearing-bars one for each set of clamps, one end of said bars being mounted in the frame and the other end in the cylinder, means for causing the clamps to seize and release the plate, means cooperating with the bearing-bars for causing the clamps to strain the plate against the supporting-surface, shafts mounted in the cylinder adjacent to the bearing-bars, means driven by the shafts for bodily adjusting the bars, and means for giving the supporting-rods a longitudinal adjustment, substantially as described.

680,303. CURTAIN-FIXTURE. JAMES M. WHITTAKER, New Bedford, Mass. Filed Apr. 4, 1900. Serial No. 11,427. (No model.)

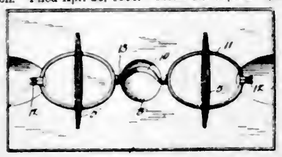


Claim.—1. A curtain-bracket comprising a member having a flange arranged to engage a window-casing, a second member overlapping said former member and having a widened portion bent to form a second engaging flange, a curtain-bracket formed integral with said widened portion, a clamping member arranged to unite said former members, and a second curtain-bracket formed integral therewith, substantially as set forth.

2. A curtain-bracket comprising a member having a flange arranged to engage a window-casing, a second member overlapping said former member and having a widened portion bent to form a second engaging flange, both of said members being provided with coincident slots, a curtain-bracket formed integral with said widened portion, a clamping member having an integral flange forming a second curtain-bracket, and a clamping-screw passed through said slots and engaging said clamping member, substantially as set forth.

3. A curtain-bracket comprising a member having side flanges and provided also with an end flange arranged to engage a window-casing, a second member overlapping said former member and having side flanges telescoping with the side flanges of the first member, both of said members having coincident longitudinal slots, said second member being also provided with a widened portion bent to form an engaging flange, a curtain-bracket formed integral with said widened portion, a clamping member having an integral flange forming a second curtain-bracket, and a clamping-screw passed through said slots and engaging said clamping member, substantially as set forth.

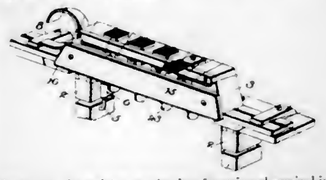
680,304. SOLDERING-CLAMP. FRANKLIN W. WIGHTMAN, Vassar, Mich. Filed Apr. 26, 1901. Serial No. 57,604. (No model.)



Claim.—1. A soldering-block, consisting of a non-combustible and heat-non-conducting body, an endwise-movable stem projected in opposite directions through a perforation formed in the body, a removable head fitted to one end of the stem, a tension-spring bearing in opposite directions against the head and the adjacent side of the body, and a laterally-projected clamping-head carried by the opposite end of the stem and held in elastically-yieldable engagement with the adjacent side of the body by the spring.

2. A soldering-block, comprising a metallic casing having an open top, a charcoal block held within the casing, the bottom of the latter and the block having a pair of corresponding perforations, a pair of endwise-movable and rotatable clamping-stems mounted in the respective perforations, each stem having a clamping cross-head at its upper end and cooperating with the exposed face of the charcoal block, a removable head carried by the opposite end of the stem, and a coiled spring embracing the projected lower end of the stem and bearing in opposite directions against the casing and the finger-piece.

680,305. PICKER MECHANISM FOR STRINGED MUSICAL INSTRUMENTS. HUGH WILBURN, Valparaiso, Ind. Filed Dec. 22, 1900. Serial No. 40,806. (No model.)



Claim.—1. In a picker mechanism for stringed musical instruments, the combination of a bar forming a support for the picker mechanism, legs detachably fitted to said bar to rest upon the top of the instrument, and means for securing said bar to the instrument, substantially as set forth.

2. In a picker mechanism for stringed musical instruments, the combination of a bar forming a support for the picker mechanism, legs detachably fitted to said bar to rest upon the top of the instrument, clamp-blocks adapted to cooperate with the said legs, and hooked bolts and nuts to effect a clamping of the top of the instrument between the aforesaid legs and clamp-blocks, substantially as set forth.

3. In a picker mechanism for stringed musical instruments, a bar, keepers at the ends of said bar and having one end open and having their overhanging portion grooved in its under side, a bar provided with the picker mechanism and having its end portions adapted to work beneath the overhanging portions of the aforesaid keepers, and springs applied to the end portions of said bar and fitted into the grooves of the aforementioned keepers, substantially as set forth.

4. In a picker mechanism for stringed musical instruments, a supporting-bar, keepers at the ends of said bar having one end open and having their overhanging portion grooved in its under side, a reciprocating bar provided with the picker mechanism and having its end portions cooperating with the aforementioned keepers and grooved in their top sides, and springs secured to the end portions of the reciprocating bar opposite the grooves formed therein and entering the grooves of the aforesaid keepers, substantially as set forth.

5. In a picker mechanism for musical instruments, a bridge having an edge portion cut away intermediate of its ends and provided with keepers at its ends, a key-bar mounted to reciprocate upon the bridge and having its end portions cut away and held in place by said keepers, stops applied to the key-bar to engage with the end portions of the bridge formed by the cut-away part thereof, and depressible keys applied to the key-bar and provided with picks, substantially as set forth.

6. In combination, a bar having a series of key-guides opening through a side thereof, a series of keys mounted to reciprocate in the said guides, and an elastic stretched across the open sides of the key-guides and adapted to engage with the keys to hold them in a given position, substantially as set forth.

7. In combination, a bar provided with a series of key-guides opening through a side thereof, keys mounted to reciprocate in the said guides, an elastic stretched across the open sides of the key-guides and secured at its ends to the bar, pins applied to the bar at each side of the key-guides to engage with the elastic and to form supports therefor at intervals in its length, and other pins applied to the keys to engage with the elastic intermediate of the supporting-pins therefor, substantially as set forth.

8. In combination, a bar having a series of key-guides opening through a side thereof, spaced strips secured to a side of said bar and closing the open side of the key-guides, keys mounted to reciprocate in the said guides and held therein by the strips, and pins applied to the keys and operating in the space formed between the aforesaid spaced strips and adapted to enage therewith to limit the movements of the keys, substantially as specified.

9. In combination, a bar having a series of key-guides opening through a side thereof, keys mounted to reciprocate in said guides, spaced strips secured to the bar and closing the open side of the key-guides, an elastic stretched across the open side of the key-guides and supported at intervals in its length at each side of the respective key-guides, and pins applied to the keys to engage with the said elastic and adapted to operate in the space formed between the aforementioned spaced strips to limit the movement of the keys, substantially as specified.

10. In picker mechanism for stringed musical instruments, a key having a kerf, a picker inserted in said kerf, and a clamp-screw connecting the parts of the key separated by the kerf so as to secure the picker in an adjusted position, substantially as specified.

11. In picker mechanism for stringed musical instruments, a key provided with a kerf, a clamp-screw connecting the parts separated by said kerf, and a picker having the upper portion of its sides protected by an elastic covering and adapted to be secured in the kerf in an adjusted position, substantially as set forth.

680,306. TOOL FOR FINISHING NECKS OF BOTTLES, &c. ALLEN F. WILSON, Clayton, N. J., assignor of one-half to David Wilson Moore, Jr., same place. Filed Mar. 23, 1901. Serial No. 52,563. (No model.)

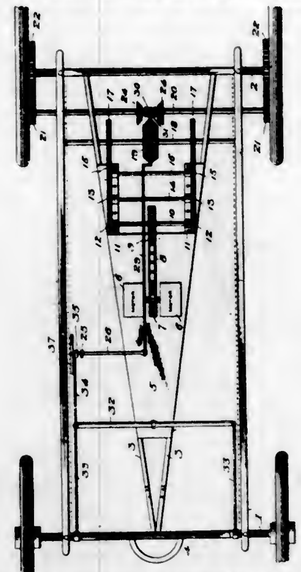


Claim.—1. In an implement for finishing externally-screw-threaded bottle-necks, a rotating screw-mold, a pair of jaws adapted to close in parallel position upon a bottle-neck beyond the screw-mold in combination with means to allow retracting them from the bottle-neck and moving the screw-mold in the direction of its axis between said jaws, whereby said mold may be held between the jaws against rotation for the purpose of unscrewing the bottle-neck from the mold substantially as shown and described.

2. In a tool for finishing screw-threaded bottle-necks, a pair of parallel jaws having grooves adapted to fit on a circumferential bead on the bottle-neck, a screw-threaded mold having a shoulder in the bottom adapted to upset the ends of the bottle-neck, in combination with a tapering plug, adapted to expand the bottle-neck into the threads of the mold and means of retracting the jaws to allow them to move and to embrace the mold and hold the same against rotation arranged to operate as and for the purpose set forth.

3. In an implement for finishing screw-threaded bottle-necks, a pair of jaws, handles attached thereto and connected by a spring, in combination with a centrally-guided sliding stem, and connected die and rotatable screw-threading mold, secured to said die by a stationary collar adapted to upset the neck of the bottle within said mold, a spring upon said stem, arranged to press said mold to a position between said jaws, and a tapering plug arranged to expand the neck of the bottle into the threads of the said mold and means of holding said mold against rotation between said jaws as set forth.

680,307. MOTOR-VEHICLE. GEORGE B. ANDERSON, Washington, D. C. Filed Oct. 29, 1900. Serial No. 34,774. (No model.)



Claim.—In a motor-vehicle, the combination with the running-gear, a motor mounted thereon, a sprocket-wheel mounted on the axle of the motor, means connecting said sprocket-wheel with a sprocket-wheel mounted on a shaft in rear of the motor, gears mounted on the ends of said shaft, intermediate gears of different sizes adapted to operate gears on a shaft 18, duplex gears mounted on the shaft 18, a shaft 20 in rear of shaft 18 having gears mounted thereon adapted to mesh with gears on the hubs of the rear wheels, together with gears 24 and the clutch mechanism and means for throwing the gears 24 and 19 into engagement for giving a forward or backward movement to the vehicle, substantially as described.

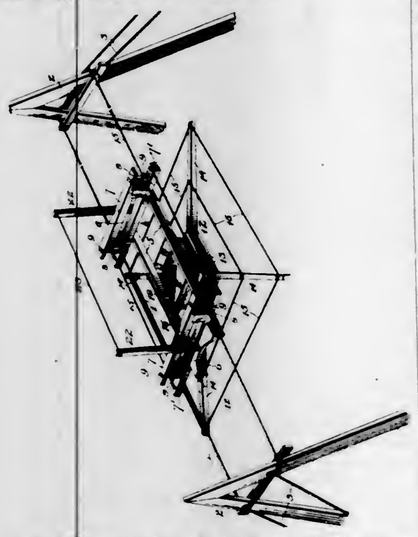
680,308. MOP. JOHN E. ATKINS, Meriden, Conn. Filed Nov. 27, 1900. Serial No. 37,877. (No model.)



Claim.—1. A mop comprising a handle having an annular channel formed in it and adapted to have an end inserted into a cake of soap, and a bag-like cover drawn over the cake of soap and secured in said annular channel, substantially as specified.

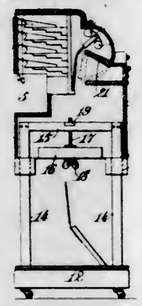
2. A mop, comprising a handle having a reduced portion designed to be inserted into a cake of soap and having a channel near the junction of said reduced portion with the larger portion, a covering closed at one end and open at the other end, the covering being first drawn over the cake of soap and secured at about its middle portion in said channel, a cord for so securing the cover, the cover having a portion passing over the portion engaging with the cake of soap, and means for fastening the open end of the cover at the outer end of the cake of soap, substantially as specified.

680,309. CLOTHES-DRIER. MILES BASSETT, Kokomo, Ind. Filed Dec. 13, 1900. Serial No. 39,724. (No model.)



Claim.—The combination with suitably-supported cables, of a carriage mounted to travel upon said cables and provided with a centrally-disposed cross-bar formed with an aperture, a rack consisting of radial arms and plates to which said arms are secured, a disk carried by the uppermost plate, said disk and intermediate cross-bar being provided with an aperture adapted to aline, a pin to engage said apertures and lock the rack against rotation, a stud-shaft extending through the plates, arms, disk and intermediate cross-piece, and a cotter-pin passed through the upper end of said shaft to lock said rack to said carriage, substantially as set forth.

680,310. CASE OR CABINET FOR AUTOMATIC PIANO-PLAYERS. THEODORE P. BROWN, Worcester, Mass. Filed Mar 8, 1901. Serial No. 50,281. (No model.)



Claim.—1. A case or cabinet for automatic players of the class described, comprising a case proper, guide-blocks carried by said case, each provided with a vertical opening, supporting-legs for the case extended through said guide-blocks, and means for vertically adjusting said case upon the legs.

2. A case or cabinet for automatic players of the class described, comprising a case proper having guide-blocks each provided with a vertical opening extending therethrough, a supporting base or structure having legs extending through the openings in said guide-blocks, and means for vertically adjusting said case upon the supporting base or structure.

3. A case or cabinet for automatic players of the class described, comprising a case proper having guide-blocks depending from the under side thereof, and each provided with a vertical opening extending therethrough, a supporting base or structure having legs extending upward through the openings in the guide-blocks, and means for vertically adjusting said case upon the supporting base or structure.

4. A case or cabinet for automatic players of the class described, comprising a rectangular case proper having guide-blocks depending from the under side thereof at the four corners and each provided with a vertical opening, a supporting base or structure having four legs extending upward through the openings in said guide-blocks, and means for vertically adjusting said case upon the supporting base or structure.

5. A case or cabinet for automatic players, comprising a rectangular case proper having guide-blocks depending from the under side thereof at the four corners and each provided with a vertical opening, a supporting base or structure comprising end pieces connected together, and legs carried by the end pieces and extending upward through said guide-blocks, rails connecting the upper ends of said legs, and adjusting means engaging said case proper and rails, for the purpose specified.

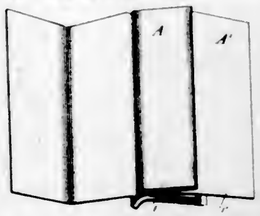
6. A case or cabinet for automatic players, comprising a case proper having guide-blocks depending from the under side thereof and each provided with a vertical opening, supporting-legs extending freely through said guide-blocks and entering the case proper, and adjusting means engaging the case proper and legs, respectively, whereby the case may be adjusted vertically upon the legs.

7. A case or cabinet for automatic players of the class specified, comprising a case proper having guide-blocks depending from the under side thereof and each provided with a longitudinal opening, supporting-legs extending freely through said guide-blocks and entering the case proper, and adjusting-screws having a threaded connection with the case proper and with the legs for vertically adjusting the case proper.

8. A case or cabinet for automatic players of the class specified, comprising a case proper having an opening in its front, a tracker facing said opening and a fall-board pivoted to said case proper and arranged to cover the tracker and close said opening, said fall-board being provided at its lower edge with an inwardly-extending wing arranged to partially close the opening in the case proper when the fall-board is in its open position.

9. A case or cabinet for automatic players of the class specified, comprising a case proper having an opening in its front, a tracker facing said opening and a fall-board arranged to cover the tracker and close said opening, said fall-board comprising a curved portion and a rearwardly-extending wing formed integral with the lower edge of the curved portion and pivoted at its ends to the case proper adjacent to the inner end of the tracker, the construction being such that the said wing partially closes the said opening in the case when the fall-board is in its open position, and the curved portion covers the tracker when said board is in its closed position.

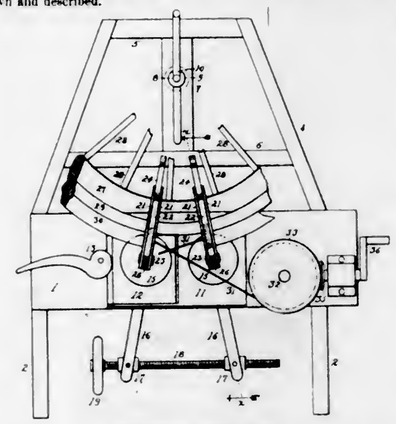
680,311. BOOK. GEORGE H. BROWNE, Cambridge, Mass. Filed Sept. 25, 1900. Serial No. 31,065. (Model.)



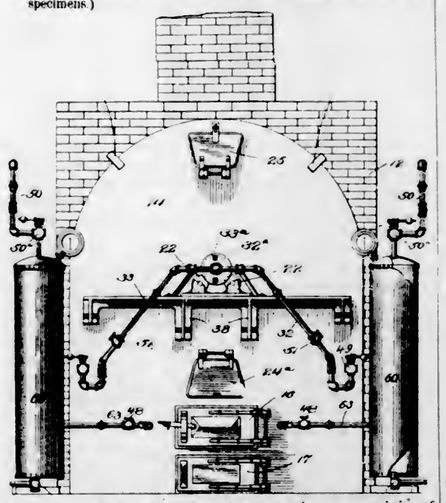
Claim.—In a book of the character described, a series of leaves, each of which is folded upon itself longitudinally at its middle portion, the outer faces of each leaf when thus folded displaying a column of text printed thereon, the inner faces of each leaf, which are normally hidden when the leaves are folded upon themselves, containing printed matter thereon which is the counterpart of one of the leaves of text, whereby when one of the leaves containing the counterpart of a sheet of text is opened out, the column on the latter and the column printed on the counterpart sheet may be read line for line with each other, as set forth.

680,312. RUBBER-TIRE-SETTING MACHINE. JOSEPH A. BURROWS, Akron, Ohio. Filed Feb. 16, 1900. Renewed Apr. 26, 1901. Serial No. 57,619. (No model.)

Claim.—In a rubber-tire-setting machine the combination with an inclined supporting-table and a frame having adjustable means for holding a wheel-hub, of journals mounted and adapted to turn in bearings in said table having gripping devices to seize the wires of a rubber tire, and radial arms with pivoted nuts, a right and left handed screw to swing said arms, a windlass to draw the wires from one direction, and means for moving one of said journal-bearings to and from the other, substantially as shown and described.



680,313. PROCESS OF DESULFURIZING ORES. LINUS P. BURROWS, Washington, D. C. Filed Dec. 8, 1900. Serial No. 39,135. (No specimens.)



Claim.—The process of desulfurizing ores, the same consisting of taking high-pressure steam, permitting a jet of it to expand in a chamber, drawing off the condensed water from this chamber, passing the lower-pressure steam drawn from the chamber through a pipe subjected to external heat; applying heat to a retort containing a body of sulfid ore and passing the resultant gaseous product from the aforesaid pipe through the mass of ore, in the manner substantially as specified.

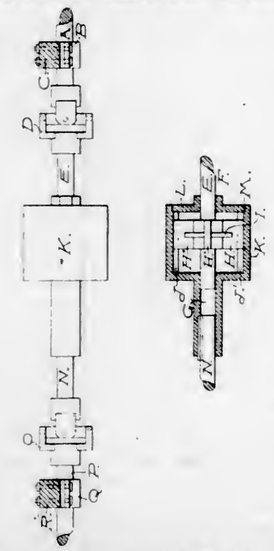
680,314. WINDMILL. ALLIE K. CHILDS, Leoti, Kans. Filed Mar. 6, 1901. Serial No. 50,124. (No model.)

Claim.—1. A vane for windmills comprising a blade, rods bent upon themselves to form two arms, said arms being attached to the blade adjacent to the upper and lower edges thereof, and having eyes at their bights aliming in the plane of the blade, and a block disposed between and secured to the arms adjacent to the eyes to form trusses.

2. In a windmill the combination with a rotatable head provided with a wheel and pumping mechanism operably connected therewith, of a bracket upon the rear of the head and including a vertical pintle, a vane including a blade having rods bent upon themselves and attached at their ends to the blade, the bights of the rods being bent to form aliming eyes rotatably engaging with the pintle, a block disposed between the rods to hold them spaced adjacent to the eyes, a second bracket upon the head, a double helical spring wound upon the second bracket and having the adjacent ends of the sections thereof taken outwardly and formed with a terminal eye, the opposite ends of the sections being connected with the pintle, a link connecting the eye of the spring with the block of the vane to hold the vane yieldably in predetermined position, and means for moving the vane against the tendency of the spring.



680,315. FLEXIBLE SHAFTING. EDSON B. COLLINS, Chicago, Ill. Filed Oct. 31, 1900. Serial No. 35,057. (No model.)



Claim.—1. The combination with a shaft, of a box rigidly mounted thereon and provided with internal grooves, and a second shaft provided with arms or extensions fitting said grooves and upon which shaft the box is slidably mounted, substantially as described.

2. The combination with a shaft, of a box rigidly mounted thereon and provided with internal grooves, a second shaft provided with arms or extensions fitting said grooves and upon which shaft the box is slidably mounted, a driving-shaft and a driven shaft and universal joints between the driving and the driven shafts and said first-mentioned shafts, respectively, substantially as set forth.

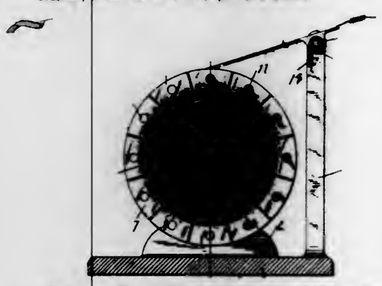
3. The combination of the universal joints D and O, the shaftings E, and N, the box K, the plate L, the extensions or arms H, H', H'', H''', substantially as set forth.

4. The combination with two universal joints, and a section of shafting connecting them, of a sliding joint in said section of shafting adapted to permit said universal joints to approach or recede from each other.

5. The combination with a shaft, of a box rigidly mounted thereon and provided with one or more internal grooves, a second shaft provided with one or more arms or extensions fitting said groove or grooves and upon which shaft the box is slidably mounted, a driving-shaft and a driven

shaft and universal joints between the driving and the driven shafts and said first-mentioned shafts respectively, substantially as set forth.

680,316. **TIMED ELECTRIC SWITCH FOR MULTIPLE-RATE METER SYSTEMS.** FREDERICK R. M. CUTCHEON, St. Paul, Minn. Filed Mar. 29, 1901. Serial No. 53,400. (No model.)



Claim.—1. The combination with a rotary head, of a plurality of contact-rings carried thereby, at least one of which rings is formed by insulated sections, means for electrically connecting certain of the sections of said sectioned ring with a coöperating member of said rings, and leads having brushes working on said contact-rings, substantially as described.

2. The combination with a rotary head, movable with a timed action, of a plurality of contact-rings carried by said head, at least one of which rings is formed by insulated sections, means for electrically connecting certain of the sections of said section-ring with a coöperating member of said rings, and leads having brushes working on said contact-rings, substantially as described.

3. The combination with a rotary head movable with a timed action, of a plurality of contact-rings carried by said head, at least one of which is formed by insulated sections, contact plugs or pins insertible through alined seats in the sections of said sectioned ring, and in a coöperating member of said rings, and leads having brushes working on said contact-rings, substantially as described.

4. The combination with a rotary head movable with a timed action, of three contact-rings carried by said head, at least two of which are broken or sectioned, means for electrically connecting certain of the sections of the broken ring with the third ring, and the divided circuit having brushes working on the said three contact-rings, substantially as described.

5. The combination with a rotary head movable with a timed action, of three contact-rings carried by said head, at least two of which are broken or sectioned, contact plugs or pins for connecting certain of the sections of said broken rings to the third ring, brushes working on the said contact-rings and a divided circuit including the said brushes and through which the current is alternately switched, substantially as described.

6. The combination with leads for supplying current for a local plant, of a pair of meters with circuit connections to said leads, a switch for throwing the one or the other of said meters into circuit, and a magnetic controller for said switch including a rotary head movable with a timed action and provided with broken and continuous contact-rings, which controller operates to throw said switch, and to thereby render said meters operative in alternate order.

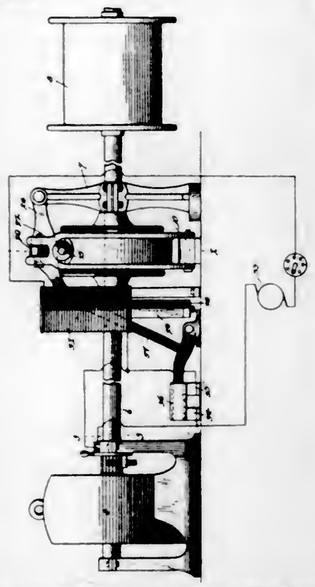
7. The combination with leads for supplying current to a local plant, of a pair of wattmeters with circuit connections to said leads, a double-throw switch for closing either of the said wattmeters into the main circuit, a magnetic controller for said double-throw switch, and a timed switch for actuating said magnetic controller, connected in a local circuit and comprising a rotary head having a continuous contact-ring, two broken contact-rings, contact plugs or pins, for connecting the sections of said broken ring to said continuous ring, and brushes working on said contact-rings, substantially as described.

8. The combination with a rotary head, of contact-rings carried by said head, at least one of which is formed by insulated sections extended eccentric to the axis of said ring to form a series of steps, and leads having brushes working on the said contact-rings, substantially as described.

9. The combination with a rotary head, of contact-rings carried by said head, at least one of which rings is formed by insulated sections extended eccentric to the axis of said ring to form a series of steps, means for connecting said ring-sections with the coöperating ring, and a split or divided brush, sections of which are of different lengths and work on said broken ring, substantially as described.

680,317. **ELECTRIC BRAKE-RELEASE.** EDWIN E. DARLING, Anaconda, Mont. Filed Sept. 27, 1900. Serial No. 31,340. (No model.)

Claim.—1. In a brake mechanism, the combination with an electric motor of brake mechanism therefor, electromechanical means for operating the brake mechanism to release the brake when the magnet of said mechanism is energized, a source of energy with which the motor and the brake-operating means are connected in series, a shunt around the motor between it and the magnet, a switch for opening and closing the shunt, and connections between the switch and the brake mechanism for opening the switch when the magnet of said mechanism is energized to release the brake.



2. In a brake mechanism, the combination with an electric motor and a brake therefor, of electromechanical means for releasing the brake when the magnet thereof is energized, said means and motor being connected in series with a source of electricity, a shunt around the motor between it and the magnet and means operable by movement of the releasing mechanism for breaking the shunt.

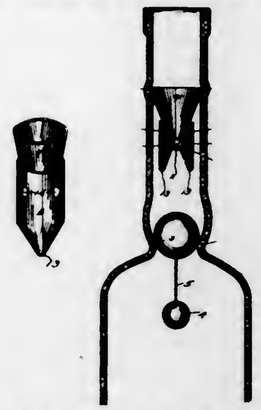
3. The combination with an electric motor and a brake-drum connected therewith, of brake-shoes pivotally mounted for engagement with the drum, said shoes having means for holding them in yieldable contact with the drum, a pivoted lever, means connected with the lever and operable thereby for moving the brake-shoes from the drum, solenoids having cores for movement thereinto when the solenoids are energized and connected with the lever for operating it, said solenoids and motor being connected in series with a source of electricity, a shunt around the motor between it and the solenoids, a controlling-switch for the shunt, and connections between the switch and the pivoted lever for opening the switch when the solenoids are energized.

680,318. **STEP-LADDER.** JOSHUA B. DETWEILER, Nappanee, Ind. Filed May 16, 1901. Serial No. 60,506. (No model.)



Claim.—In an extensible ladder, the combination of an inclined main ladder-section, having a top step extending across the tops of the side rails thereof, opposite cross-bars connected to the outer sides of the rails and projected rearwardly therefrom, a step secured across the rear ends of the cross-bars, there being an intervening space between the opposite steps, the latter forming a head, props connected to the rear ends of the cross-bars, an extensible ladder-section inserted downwardly through the opening or space in the head and in slidable engagement with the rear side of the main ladder-section, the steps of both sections normally corresponding, and the uppermost step having its projected ends lying upon the respective cross-bars and filling the opening in the head, clips secured to the side rails of the main section and slidably embracing the rails of the extensible section, means for adjustably supporting the extensible section upon the main section, and an adjustable prop having a detachable connection with the upper end of the extensible section.

680,319. **NON-REFILLABLE BOTTLE.** SHILOH W. DURHAM, San Jose, Cal. Filed Mar. 26, 1901. Serial No. 52,993. (No model.)



Claim.—1. The combination with the neck of a receptacle, of a valve arranged therein, and a shield comprising an inverted cone interlocked at its upper edge or case with the neck of the receptacle and provided with an opening, and a centrally-arranged lower casing secured to the bottom of the cone and wholly supported by the latter and spaced from the neck of the receptacle, the upper edges of the casing terminating short of the top of the cone, substantially as described.

2. The combination with the neck of a receptacle, of a valve arranged therein, and a shield comprising an inverted resilient cone interlocked at its upper edges or base with the neck of the receptacle and provided with an opening, and a casing arranged at the bottom of the cone and secured to and wholly supported by the same and covering the said opening, the upper edges of the casing terminating short of the top of the cone and being spaced from the neck of the receptacle, substantially as described.

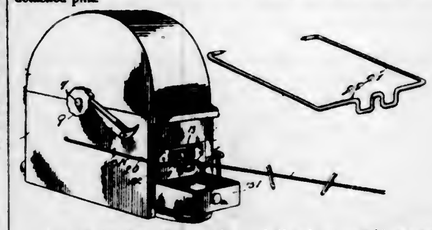
3. The combination with the neck of a receptacle, of a valve arranged therein, and a shield comprising a cone having a bottom opening and provided with prongs, and an approximately cylindrical lower casing receiving the lower portion of the cone, and having its bottom extended upward and slotted to receive the said prongs, said casing being provided with apertures, substantially as described.

4. The combination with the neck of a receptacle having a seat and provided with a groove, of a ball-valve arranged on the seat, a weight located within the body of the receptacle and connected with the ball-valve, and a shield composed of a resilient cone and having a bottom opening and split longitudinally whereby it is rendered resilient and is adapted to spring into engagement with the groove of the neck, and a lower casing secured to the cone and extending above the said opening and provided with apertures, substantially as described.

680,320. **CLOTHES-LINE REEL.** ROBERT H. ELLIOTT, Carthage, Mo. Filed Mar. 15, 1901. Serial No. 51,356. (No model.)

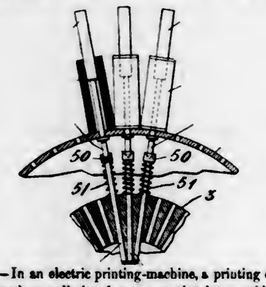
Claim.—1. In a device of the class described, the combination with the casing, of the pin-detaching device consisting of a wire attached to the casing and having a notch bent therein to straddle the line in its passage into the casing, said casing having a drum therein to receive the line.

2. A clothes-line reel comprising a casing, a winding-drum within the casing and adapted to receive a line, a pin-detaching device consisting of a wire attached to the casing and having a notch bent therein to straddle the line in its passage to the drum, and a drawer in the casing disposed to be drawn outwardly to lie beneath the notch to receive the detached pins.



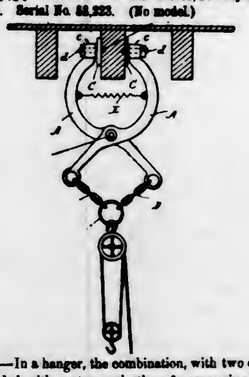
3. A clothes-line reel comprising a winding-drum rotatably mounted and having an inclosing casing provided with an opening to receive a clothes-line, a wire comprising parallel side members and a connecting cross-bar and disposed with the side members in engagement with the sides of the casing and the cross-bar across the opening and exterior to the casing, said cross-bar being bent to form a downwardly-opening notch to receive the clothes-line in its passage into the casing, and a pin-receptacle disposed and constructed for movement into position below the notch to receive the pins as they are disengaged from the line thereby.

680,321. **CARRIAGE FOR TYPE-WRITERS.** WILHELM FABER, Berlin-Westend, Germany. Filed Mar. 6, 1901. Serial No. 50,056. (No model.)



Claim.—In an electric printing-machine, a printing device comprising spring type-bars radiating from a central point, a guide-piece for said type-bars, hollowed heads secured to the upper ends of said type-bars, pressing-bars arranged coaxially above said type-bars, a spherical calotte the center of which is the point of contact of a type and the printing-surface, located over said type-bars and guiding said pressing-bars, and bobbins supported by said calotte and receiving said pressing-bars, in such manner that on a current passing through said bobbins the pressing-bars are temporarily drawn down, depressing said type-bars, all substantially as described.

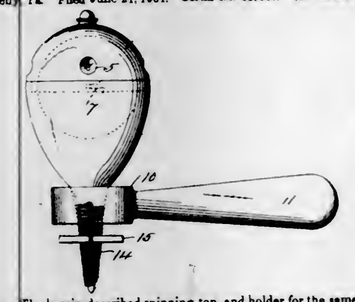
680,322. **HANGER.** GUSTAV FAUST, Brooklyn, N. Y. Filed Mar. 28, 1901. Serial No. 53,223. (No model.)



Claim.—In a hanger, the combination, with two opposed clamping-plates provided with center projections for engaging with a beam and

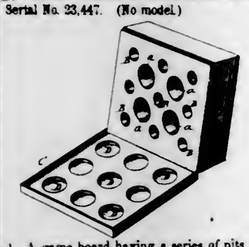
permitting the plates to oscillate on their axes while in contact with the beam, of crossed and pivoted arms having their upper ends connected to the said clamping-plates, a ring and flexible connections secured to the lower ends of the said arms for supporting a lifting-tackle, and a spring arranged between the said arms and holding the clamping-plates in contact with the beam before the load is applied to the said ring, substantially as set forth.

680,323. SPINNING-TOP AND HOLDER. JOSEPH FLEISCHMANN, Allegheny, Pa. Filed June 21, 1901. Serial No. 65,447. (No model.)



Claim.—The herein-described spinning-top, and holder for the same, consisting of the top constructed in two sections, and provided with an inner cavity, perforations leading to the said inner cavity, and a point or shank 3, fitted to the lower section 2, a means for connecting the two sections of the top together consisting of radial pins engaging with circumferential slots 7, in combination with a holder, consisting of the handle portion 11, the integral annular holder 10 provided with the orifice 12 for the reception of the shank of the top, and the transverse opening 13 through which the free end of the cord is threaded, all arranged and combined for service, substantially as and for the purpose described.

680,324. GAME. BURTON H. GEDEK, Anderson, Ind. Filed July 13, 1900. Serial No. 23,447. (No model.)



Claim.—1. A game-board having a series of pits arranged in rows and columns of three, adapted to receive, conceal and retain counters, and to afford access to said counters without disturbing their relative positions, substantially as and for the purpose set forth.

2. A game-board consisting of a block having a series of pits arranged in rows and columns of three and passing entirely through the block, the block being of sufficient depth to conceal the counters when they are placed in the pits formed therein, substantially as and for the purpose set forth.

3. The combination in a game-board of a series of pits arranged in three rows and three columns, adapted to receive and conceal counters, and a bottom piece having pockets in line with the pits to receive the counters deposited in the pits, substantially as and for the purpose set forth.

4. The combination in a game-board of a series of pits arranged in three rows and three columns, the pits being adapted to receive and conceal counters, and a bottom piece, hinged to the board, having pockets of a larger diameter than the pits to receive the counters deposited in the pits, substantially as and for the purpose set forth.

680,325. COMPENSATION-REGULATOR FOR WATCHES. CHAS. M. GEISER, Salt Lake City, Utah. Filed Nov. 10, 1900. Serial No. 36,059. (No model.)

Claim.—1. In a temperature-compensating device for watches, the combination with the watch, of an open-ended ring arranged in the watch, composed of two metals having different coefficients of expansion and arranged with a plurality of reverse curves or corrugations in its circumference, and having one end rigidly secured to the casing of said watch and its opposite end pivotally secured to one end of a small open-ended, adjustable spring-ring, a block pivotally secured in said watch, a screw-controlled cross-head slidably secured in said block and pivotally connected to the opposite end of said open-ended small, adjustable spring-ring, and an arm on said pivotal block arranged and adapted to straddle and slide loosely on the effective portion of the hair-spring of said watch, substantially as described.



2. In a temperature-compensating device for watches, the combination of a watch, an open-ended ring arranged in the watch and composed of two metals having different coefficients of expansion and arranged with a plurality of reverse curves or corrugations in its circumference, and having one end rigidly secured to the casing of said watch and its opposite end pivotally secured to one end of a small open-ended adjustable ring, a block pivotally secured in said watch, a screw-controlled cross-head adjustably secured in said block and pivotally connected to the opposite end of said open-ended, small, adjustable spring-ring, and an arm on said pivotal block, a depending pin in the end of said arm having a bifurcated end arranged to straddle an effective portion of the hair-spring of said watch, substantially as described.

3. In a temperature-compensating device, the combination with the watch-plates, of the corrugated temperature expansion-ring composed of brass and steel having one end rigidly secured to said watch-plates, the small open-ended spring-ring pivotally attached at one end to the opposite and free end of said corrugated ring, the cross-head pivotally attached to the opposite end of said small spring-ring, the pivotal block slidingly supporting said cross-head, the pivot-points on said block, the plate and jewel bearings arranged to support the lower end of said pivot and the plate and jewel arranged to support the top end of said pivot, substantially as described.

4. In a temperature-compensating device the combination with the watchcase and the hair-spring, of the open-ended, corrugated ring having one end fixed to said plate and its opposite end free, the small expansible ring pivotally connected to the free end of said corrugated ring and the pivotal block having an arm operatively connected loosely and slidably to an effective part of said hair-spring, with a cross head slidably and adjustably connected to said pivotal block and pivotally connected to the opposite end of said open-ended, small, expansible ring, substantially as described.

5. In a temperature-compensating device for watches, the combination of the watch-plate and the hair-spring, of the corrugated ring, the small spring-ring, the pivotal block, arranged to adjustably support said cross-head, and having an arm slidably connected to the effective part of said hair-spring, the supporting-plates and jewels for supporting said pivotal block and the spring arranged to take up the lost motion and to hold said corrugated ring, the small ring, the cross-head and the pivotal block under operative tension, substantially as described.

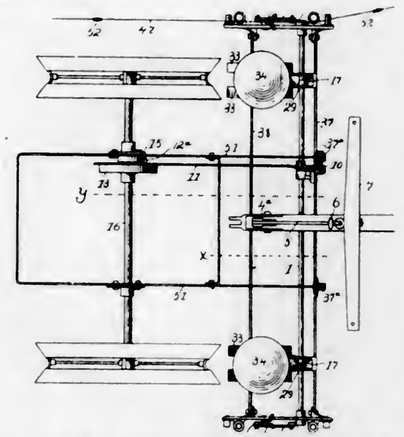
680,326. CORN-PLANTER. LEVI P. GRAHAM, Decatur, Ill. Filed June 12, 1900. Serial No. 20,030. (No model.)

Claim.—1. In a planter, the combination of a seed-plunging prod, or prods, and a planter-pulling hitch connected with the prods and having a limited movement lengthwise of the planter, whereby the movement of the hitch with relation to the planter may be used to plunge the prods.

2. In a planter, the combination of a seed-plunging prod, or prods, a planter-pulling hitch connected with the prods and having a limited movement lengthwise of the planter, and a check-row appliance adapted to transfer the pull of the team from the planter to the prods.

3. In a planter, the combination of a rock-shaft, a seed-plunging prod, or prods, actuated from the rock-shaft, a planter-pulling hitch connected with an arm on the rock-shaft and normally forming a dead-center lock with the arm, and a check-row appliance to rock the shaft and break the lock.

4. In a planter, the combination of a rock-shaft, seed-plunging prods actuated from the rock-shaft, an arm on the lever normally presented forward, a lever fulcrumed in the rear of the shaft, a link from one end of the lever connecting with the arm and normally forming therewith a dead-center lock, a team-hitch connected with the other end of the lever and means for rocking the shaft to break the lock.



5. In a planter, the combination of a seed-plunging prod, or prods, a planter-pulling hitch connected with the prods and having a limited movement lengthwise of the planter, a check-row appliance to convert the forward pull on the planter into downward push on the prods, and prod-raising mechanism actuated by the travel of the planter.

6. In a planter, the combination of a shaft, a seed-plunging prod, or prods, actuated from the shaft, an arm on the shaft, a prod-plunging appliance normally applying potential stress ineffectively in the direction of the length of the arm and means for turning the arm so as to make the stress effective.

7. In a planter, the combination of a seed-plunging prod, or prods, planter-driven mechanism for raising the prods and storing plunging force, a dead-center lock to hold the plunging force, and means for breaking the dead-center lock.

8. In a planter, the combination with the planting mechanism thereof, of an internally-toothed wheel driven by the travel of the planter, and a bar connecting at one end with the planting mechanism and having a stud at the other end to engage the teeth of the wheel.

9. In a prod-raising mechanim for plunger-planters, the combination of an internally-toothed wheel fixed on the planter-axle, a prod-raising bar having a stud to engage the teeth of the wheel, and a cam attached to the planter-frame to carry the stud of the bar in contact with a tooth of the wheel while the bar is raising the prods.

10. In a planter the combination of a front frame, a rear frame hinged to the front frame to permit independent vertical swing in the frames, a rock-shaft in the front frame through which the planting mechanism is actuated, a push-bar operated from the rear wheels to rock the shaft in one direction and an arm on the rock-shaft with which the push-bar is pivotally connected, the pivotal connection of the push-bar with the arm being approximately in alinement with the hinge of the planter when the bar is pushed forward.

11. In a plunger-planter the combination of a vertically-swinging rock-arm, a seed-depositing prod pivotally connecting with the rock-arm and means for holding the lower end of the prod against backward swing during its seed-depositing operation.

12. In a plunger-planter, the combination of a shank or casing, a vertically-swinging rock-arm, a seed-depositing prod in the shank or casing, a cam on a side of the casing and a stud on the prod to bear against the cam during the seed-depositing operation and control the prod against backward swing.

13. In a plunger-planter, the combination of a rock-arm, a hollow prod pivotally connected with the arm, a plunger in the prod pivoted to the arm beyond the pivot of the prod and a rear valve for the prod pivoted to the planter independent of the prod.

14. In a plunger-planter, the combination of a rock-arm, a hollow prod pivoted to the arm, a plunger in the prod pivoted to the arm beyond the pivot of the prod, a rear valve for the prod pivoted in the planter-frame independent of the prod with its lower end normally closing the prod below the plunger, and an inward shelf or extension on the valve normally bearing against the plunger.

15. In a plunger-planter, the combination of a rock-arm, a hollow prod pivotally connected with the arm, a plunger pivoted to the arm beyond the pivot of the prod, a rear valve for the prod pivoted to the planter independent of the prod, and a spring holding the lower end of the valve against the prod and the plunger therein.

16. In a plunger-planter, the combination of a seedbox, a rock-arm under the box, and a hollow seed-depositing prod pivoted to the arm with its upper end normally presented to the discharge-opening of the seedbox.

17. In a plunger-planter, the combination with seed-depositing prods, of shanks, or casings, in which the prods operate and rolling supports for the shanks.

18. The combination with a seed-depositing prod moving downward and upward and also swinging backward and forward, of a prod-cleaning scraper partaking of the swing of the prod and held against up-and-down motion.

19. In a plunger-planter, the combination of a rock-arm, a seed-depositing prod pivoted on the rock-arm, and a scraper-bar slidably connected with the prod at its scraper end and pivoted at its upper end near the pivot of the rock-arm.

20. In a planter, the combination with the seed-dropping mechanism thereof, of an appliance for storing potential energy, a rock-arm to impart the stored energy to the seed-dropping mechanism, such arm receiving the stress of the potential-energy appliance in the direction of its length during rest intervals, and means for rocking the arm to apply the potential energy.

21. In a planter the combination with a seedbox, of a seed-chute pivoted at its upper end under the discharge-opening of the seedbox, a valve to close the lower end of the chute and a seed-expelling plunger pivoted under the seedbox and extended into the chute.

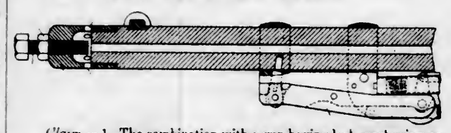
22. In a planter, the combination with a seedbox, of a seed-chute pivoted under the discharge-opening of the seedbox, a valve for the seed-chute, an arm pivoted outside the chute and extended into the upper end thereof, and a seed-depositing plunger in the chute pivotally connected with the arm.

23. In a planter, the combination with a seedbox, of a seed-chute pivoted at its upper end under the discharge-opening of the seedbox so that its lower end may swing backward and forward, a valve to close the lower end of the chute, a rock-arm under the seedbox to return the chute to a seed-receiving position after a planting operation and a seed-discharging plunger in the chute connected pivotally with the arm.

24. In a planter, the combination of an intermittently-acting furrow-former and a seed-expeller in the furrow-former adapted to expel the seed forcibly as the furrow is formed.

25. In a planter, the combination of a front frame supported on the soil, an intermittently-acting furrow-former protrudable below the support of the frame and a seed-expeller in the furrow-former acting forcibly on the seed concurrently with the protrusion of the furrow-former.

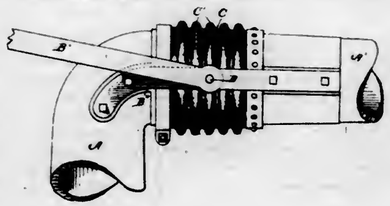
680,327. COLT GUN. WILLIAM G. HAY, Liverpool, England. Filed Oct. 24, 1900. Serial No. 34,148. (No model.)



Claim.—1. The combination with a gun having lock mechanism arranged to be operated by lateral escape of gas, of a cap secured to the muzzle and having a gas-passage through it and means for regulating the escape of gas through said passage; substantially as described.

2. In combination with a Colt or other gun having its lock mechanism worked by lateral escape of gas, a sleeve screwed on the muzzle with lateral passage and an adjustable throttling-screw for causing sufficient gas-pressure in the bore to work the lock mechanism in blank firing, substantially as described.

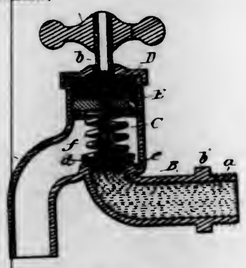
680,328. STAND-PIPE. JAMES HENDERSON, Three Rivers, Mich., assignor to the Sheffield Car Company, same place. Filed Sept. 11, 1900. Serial No. 29,721. (No model.)



Claim.—1. The combination of the vertical pipe A; the horizontal delivery-pipe A'; arms extending from each side of said pipes and pivotally connected together; and a cylindrical or tabular connection C of rubber with corrugations only on its upper and under side, coacting for the purpose specified.

2. The combination of the vertical pipe A; the horizontal pipe A'; suitable pivotal connections between the same; and a flexible joint between the two pipes corrugated only on its upper and under side, for the purpose specified.

680,329. **FAUCET.** NEVIL M. HOPKINS, Washington, D. C., assignor, by mesne assignments, to Anti-Bursting Pipe Company, of Pennsylvania. Filed Apr. 7, 1900. Renewed July 10, 1901. Serial No. 67,311. (No model.)

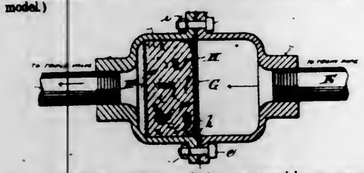


Claim.—1. A non-bursting faucet, comprising an inlet branch, a discharge branch, a relief-chamber, and a pressure-valve normally closing the inlet branch, said inlet branch being of non-diminishing bore and having its interior walls free of shoulders, abrupt curves, or other obstructions to the free movement of the ice column along the inlet branch, to the valve-opening.

2. A non-bursting faucet, comprising an inlet branch, a discharge branch, a relief-chamber, and a pressure-valve normally closing the inlet branch, said inlet branch having a gradual curvature between the water-supply end and the valve-seat end and of non-diminishing bore in the direction of the flow, so as to relieve strain upon the faucet-walls and direct the freezing water or ice column without undue resistance into the relief-chamber; substantially as described.

3. A spring-seated relief-valve for faucets, in combination with a valve-seat normally closed thereby, and pipe-walls of gradual curvature below the valve and of non-diminishing bore in the direction of flow to direct or guide the freezing water or ice column against the valve; substantially as described.

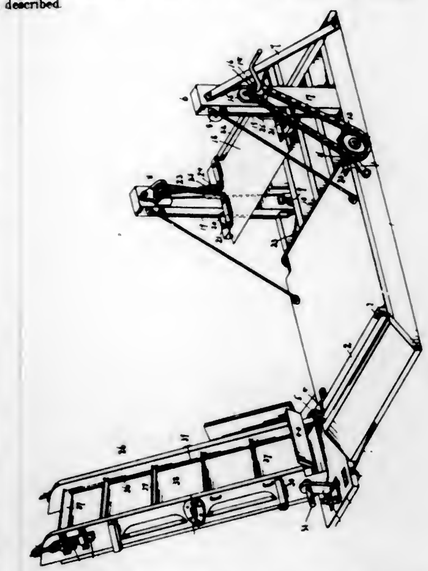
680,330. **RAILWAY AIR-BRAKE DRAIN-CUP.** PETER JACOBSON, Milwaukee, Wis. Filed Mar. 5, 1901. Serial No. 49,671. (No model.)



Claim.—A railway air-brake drain-cup comprising a separable cylinder having opposite head-nipples attachable to train and triple-valve pipes, and an air-strainer consisting of a coarse-mesh diaphragm, a backing of absorbent material and a fine-mesh diaphragm back of the absorbent material all confined in the triple-valve-pipe section of the cylinder, the whole of the train-pipe section of said cylinder being in rear of the fine-mesh diaphragm and constituting an accumulator for gritty particles separated from air in its passage from one to the other of said pipes.

680,331. **GRAIN-DUMP AND ELEVATOR.** GEORGE W. JOHNSON, Piper City, Ill. Filed May 14, 1901. Serial No. 60,913. (No model.)

Claim.—1. A frame having a platform onto which a wagon may be driven, a vertically-movable dump-platform at one end of said wagon-platform, standards between which said dump-platform is disposed and by which it is guided, a winch below said wagon-platform, a hand-crank mounted on one of said standards, sprocket-wheels and an endless chain connecting said hand-crank to said winch, sheaves on said standards, above and below said dump-platform, and cords or ropes attached to said winch, engaging said sheaves and attached to said dump-platform, substantially as described.



2. A frame having a platform onto which a wagon may be driven, a chock-bar 2 at one end of said platform, one end of said chock-bar being pivoted thereon and a keeper and locking-pin to secure the free end of said chock-bar on said platform, the latter being provided with a vertically-movable dump-section 18 and means to raise and lower the same, for the purpose set forth, substantially as described.

3. In combination with a platform onto which a wagon may be driven and having a dump-platform at one end and means to raise and lower said dump-platform, an elevator on one side of the said platform, and a chute, the latter being adapted to be disposed transversely over the platform and provided with means whereby it may be suspended under the rear end of the wagon-bed and supported thereby, said chute receiving the load from the wagon, as the latter is tilted by the raising of the dump-platform, and discharging into said elevator, substantially as described.

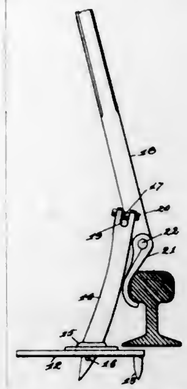
680,332. **ELASTIC TIRE.** WILLIAM KIGHTLINGER, Marysville, Ohio. Filed Oct. 25, 1899. Serial No. 734,730. (No model.)



Claim.—In a wheel, the combination of a wooden rim, a metal tire, a compound elastic supplemental tire comprising a ring detachably secured by bolts to the metal tire and rim, a rubber band covering the ring in close contact therewith and bearing on the face of the metal tire on both sides of the ring, said band being narrower than the metal tire where-

by it is defended from wear at its sides, and bolts passing transversely through the ring and band parallel to the metal tire for detachably securing the band and ring together.

680,333. **ALINING-BAR FOR RAILWAY-TRACKS.** FRITZ H. KOELLING, Augusta, Mo. Filed Mar. 29, 1901. Serial No. 53,469. (No model.)



Claim.—1. An alining-bar, consisting of a suitable bar, an inclined support for upholding the bar and a hook pivotally carried by the bar for engaging under the head of the rail, substantially as specified.

2. An alining-bar consisting of a base-plate, an inclined support removably carried thereby, a bar pivotally supported by said support, and a hook hinged to said bar for engaging under the head of the rail.

3. An alining-bar, consisting of a base-plate adapted to rest upon the earth or ballast, an inclined support carried thereby and extending above the rail, a bar pivotally supported by said support, means for retaining said bar in position, and a hook hinged to said bar for engaging under the head of the rail.

4. An alining-bar, consisting of the base 12 adapted to rest upon the earth or ballast and having the projections 13 on the under side thereof, an inclined arm 14 removably carried by said plate and extending above the rail, a bar 18 pivotally carried by said arm, and a hook 21 hinged to the lower end of the said bar 18 and adapted to engage under the head of the rail, substantially as specified.

680,334. **PROCESS OF BLEACHING LEATHER.** WILLIAM H. KRUG, Washington, D. C., and EDWIN J. HALEY, New York, N. Y. Filed May 8, 1901. Serial No. 59,310. (No specimens.)

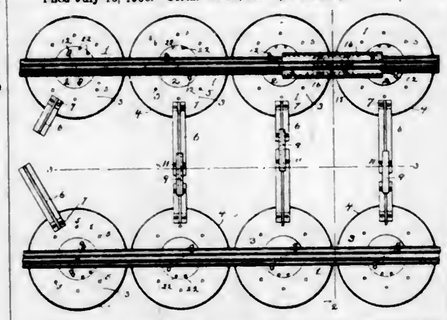
Claim.—1. In the art of bleaching leather, the process substantially as hereinbefore described, which consists in subjecting leather, after the tanning operations, to the action of a solution of tanning material and alkali, in which the tanning material is approximately as strong as that to which the leather was last subjected and in which the alkali is in excess of the amount necessary to clarify and sufficient to produce the bleaching effect.

2. In the art of bleaching leather, the process substantially as hereinbefore described, which consists in subjecting leather, after the tanning operations, to the action of a solution of tanning material and alkali, in which the tanning material is approximately as strong as that to which the leather was last subjected and in which the alkali is in excess of the amount necessary to clarify and sufficient to produce the bleaching effect, and then subjecting the leather to the action of an acid-bath.

3. In the art of bleaching leather, the process substantially as hereinbefore described, which consists in subjecting leather, after the tanning operations, to the action of a solution of tanning material and alkali, in which the tanning material is approximately as strong as that to which the leather was last subjected and in which the alkali is in excess of the amount necessary to clarify and sufficient to produce the bleaching effect, then subjecting the leather to the action of an acid-bath, and then subjecting the bleached leather to a solution of tanning material with or without the addition of alkali to change its color.

4. In the art of bleaching leather, the process substantially as hereinbefore described, which consists in subjecting the same, after tanning operations, to the action of a solution of tanning material and alkali, in which the proportion of tanning material is greater than in the last tanning liquor, and thereafter immersing in an acid-bath.

680,335. **RAILWAY CROSS-TIE.** JOHN LANZ, Pittsburg, Pa. Filed July 16, 1900. Serial No. 23,735. (No model.)



Claim.—1. A metallic railway cross-tie comprising two inverted-bowl-shaped members adapted to be embedded in the road-bed, means for securing the rail to the top thereof, an arm united to each of said members, and adjustable means uniting the ends of said arms.

2. A metallic railway cross-tie comprising two bowl-shaped members adapted to be embedded in the road-bed, means for securing the rail to the top thereof, an arm united to each of said members, said arms being of different lengths, and means for uniting the ends of said arms, the members with the long and short arms being alternately on opposite sides of the track.

3. A metallic railway cross-tie comprising two circular members, separate hook-shaped clamps secured to said members, said clamps being arranged diagonally to the line of the rail-base and engaged by a portion of said member so as to be incapable of movement when engaging said base, and detachable cross connections between said members.

4. A metallic railway cross-tie comprising two circular members provided with openings arranged diagonally to the line of the rail-base, clamps comprising a bar having hook-shaped ends projecting through said openings and adapted to engage the rail-base, said hook-shaped ends being held against the rail-base by the walls of the openings through which they pass, and detachable cross connections between said circular members.

5. A metallic railway cross-tie comprising an inverted-bowl-shaped member adapted to be embedded in the road-bed and to be rotated in place, said member having a flat top with openings arranged diagonally to the line of the rail-base, and hook-shaped clamps extending through said openings and adapted to engage the rail-base, said clamps being held against the rail-base by the walls of the openings through which they pass.

6. A metallic railway cross-tie comprising two members adapted to be embedded in the ballast, T-bars united to each of said members and U-shaped clamping-pieces for uniting the ends of said bars.

7. A metallic railway cross-tie comprising two or more circular members, adapted to be embedded in the road-bed, angle-irons uniting adjacent members, said angle-irons having their upper faces flush with the top of said members whereby they serve to support the rail.

8. A metallic railway cross-tie comprising inverted-bowl-shaped members adapted to be embedded in the road-bed, and flange shapes secured to adjacent members, said flange shapes having their upper faces flush with the top of said members.

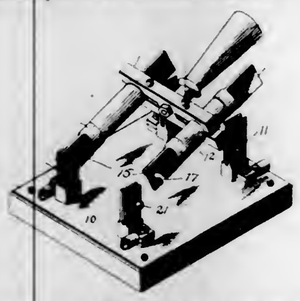
9. A metallic railway cross-tie comprising two members adapted to be embedded in the road-bed, an arm secured to each of said members, said arms having a series of holes in their outer ends, the holes in one arm being differently spaced from the holes in the other arm, a coupling member also suitably perforated, and bolts or pins for uniting said coupling member to said arms.

10. A metallic railway cross-tie comprising two members adapted to be embedded in the road-bed, an arm united to each of said members, said arms having a series of holes in their outer ends, the holes in one arm being differently spaced from the holes in the other arm, a coupling member having a plurality of holes at each end spaced differently from each other and from the holes in the arms, and bolts or rivets for uniting said coupling member and arms.

680,336. **ELECTRIC SWITCH.** GEORGE R. LIFTON, Worcester, Mass. Filed Sept. 14, 1900. Serial No. 30,005. (No model.)

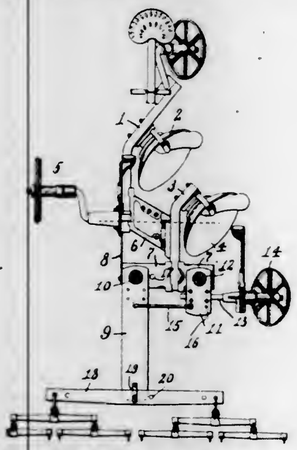
Claim.—1. In an electric switch, the combination of a base-plate, two sets of terminals secured thereon, two switch-blades pivotally mounted in one set of terminals, each switch-blade comprising a tubular body portion of non-conducting material having contact-sections at its ends con-

nected by an inclosed fusible wire, and a cross-piece of insulating material having grooved and split ends clamped onto said switch-blades by two clamping-screws, said parts being combined so that by loosening a clamping-screw and releasing a switch-blade from the terminal in which it is pivoted, said switch-blade may be then drawn out longitudinally without otherwise dismantling the switch, substantially as described.



2. In an electric switch, the combination of a base-plate A, two sets of terminals 10 and 11 secured thereon, switch-blades pivotally mounted in the terminals 10, each switch-blade comprising a tubular body portion of non-conducting material with a contact-section at each end, said contact-sections being connected by fusible wires 14, and the hinged contact-section being provided with an open-mouth curved slot for receiving its hinge-screw, and a cross-piece 18 having grooved and split ends which may be clamped onto the switch-blades by screws 19, said parts being combined so that by loosening a clamping-screw 19 and a corresponding pivot-screw a switch-blade may be drawn out longitudinally without otherwise dismantling the switch, substantially as described.

680,337. **DISK PLOW.** JOHN M. W. LONG, Hamilton, Ohio, assignor to the Long & Allstatter Company, same place. Filed June 10, 1901. Serial No. 63,881. (No model.)



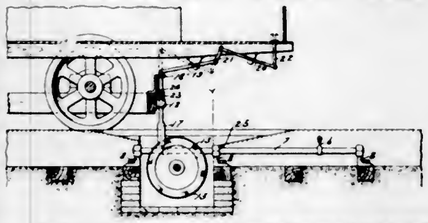
Claim.—1. In a plow, the combination, substantially as set forth, of a pair of plow-beams parallel with each other and one with its forward end in advance of that of the other, a rigid arm projecting from the advance plow-beam, a flexible bar uniting said arm with the forward portion of the less advanced plow-beam, and an adjustable stretcher disposed between and rigidly uniting the two plow-beams.

2. In a plow, the combination, substantially as set forth, of a pair of plow-beams parallel with each other and one with its forward end in advance of that of the other, a rigid arm projecting from the advance plow-beam, a flexible bar uniting said arm with the forward portion of the less advanced plow-beam, a stretcher member rigidly secured to one of the plow-beams and projecting toward the other, a stretcher member rigidly secured to the remaining plow-beam and overlying the first-mentioned stretcher member, and bolts adjustably clamping said two stretcher members together.

3. In a plow, the combination, substantially as set forth, of a double parallel plow-beam structure carrying the plows, a rigid transverse arm at the forward end of said structure, a tongue, a pivot uniting said tongue to said arm and adapted for engagement in either of a plurality of pivot-eyes, a subtongue, a furrow-wheel supported thereby, a pivot uniting said subtongue to said arm and disposed in the common plane of said plurality of pivot-eyes, a link pivotally connecting said tongue and subtongue at points forward of their pivotal union with said arm and adapted to have one of its ends engaged in a selective one of a plurality of pivot-eyes, and draft devices connected with said tongue.

4. In a plow, the combination, substantially as set forth, of a pair of plow-beams disposed substantially parallel with each other, a plow carried by each of said beams, one of said plows being in advance of the other, and an adjustable stretcher disposed between and rigidly uniting the two beams, said stretcher being disposed and adjustable in a direction at an angle to said beams corresponding substantially with the angular relationship between the two plows due to the fact that one of the plows is in advance of the other, whereby when the stretcher is adjusted in length to increase the forrowing distance between the plows the actual distance between the plows is increased to a greater extent.

680,338. **AUTOMATIC RAILWAY-SWITCH.** CHARLES F. LUTHER, Pawtucket, R. I. Filed Dec. 21, 1900. Serial No. 40,627. (No model.)



Claim.—1. The combination with a switch-tongue of a rock-shaft for operating the same, said rock-shaft being provided a projecting arm, a cam-wheel provided with a cam-groove to engage said arm and thereby rock said shaft to operate the switch, said cam-groove being constructed to permit the operation of the switch-tongue by hand without disconnecting the operating mechanism therefrom.

2. The combination with a switch-tongue of a rock-shaft connected therewith, and provided with an arm, and a cam-wheel provided on one side with a cam-groove to be engaged by said arm and on the other side with projections adapted to be engaged by a bar projecting from a passing car.

3. The combination, with a switch-tongue, of a rock-shaft for operating the same arranged parallel with the track, said rock-shaft being provided with a projecting arm, a cam-wheel provided with a cam-groove to engage said arm and thereby rock said shaft to operate the switch, the converging portions of said cam-groove merging into each other.

4. The combination of a depending bar supported by the car, a vertical rotary cam-wheel provided on one side with projections to be engaged by said bar and on the other side with a cam-groove adapted to engage and actuate switch-operating mechanism.

5. The combination with a switch-tongue of a depending bar supported by the car, mechanism to operate said bar, a vertical rotary cam-wheel provided on one side with projections to be engaged by said bar and on the other side with a cam-groove, and a rock-shaft connected with the switch-tongue and provided with an arm arranged to be engaged by said cam-groove.

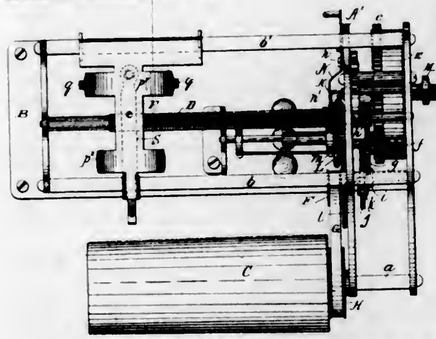
6. The combination of a depending bar supported by the car, mechanism to operate said bar, a vertical rotary cam-wheel provided on one side with projections to be engaged by said bar and on the other side with cams, a rock-shaft arranged parallel with the track and provided with a pin or arm, a switch-tongue, and a connection between said rock-shaft and switch-tongue.

7. The combination, with a switch-tongue provided with a projection on its under side, of a connecting-rod, a rock-shaft provided with a projecting arm and arranged parallel with the track, a vertical rotary cam-wheel provided on one side with an endless cam-groove having a series of alternating curves with their converging portions merging into each other, said cam-wheel being provided on its opposite side with projections adapted to be engaged by a depending bar supported by the car.

680,339. **GRAPHOPHONE.** THOMAS H MACDONALD, Bridgeport, Conn., assignor to the American Graphophone Company, of West Virginia. Filed Nov. 22, 1897. Serial No. 659,407. (No model.)

Claim.—1. In a graphophone the combination of a base, two upright

plates secured thereto, a motor-spring between said plates and having its shaft journaled in said plates, a feed-screw journaled in one of said plates and in a third plate, a carriage actuated by said screw, a sound-conveyer supported by said carriage but removable therefrom, a recorder or reproducer supported by said sound-conveyer, a suitable gearing between the motor-shaft and the mandrel-shaft and between the motor-shaft and the feed-screw, substantially as described.



2. In a graphophone, the combination of a mandrel or tablet support, of a carriage, means for giving said carriage translatory motion relative to the tablet, a sound-conveyer supported on but removable from said carriage and a recorder or reproducer supported by said conveyer, substantially as described.

3. The combination of a carriage and means for moving the same with a horn supported by said carriage and a recorder or reproducer supported by said horn.

4. The combination of a horn and means for supporting the same, with a recorder or reproducer supported by said horn.

5. The combination of a horn and means for supporting the same, with a recorder or reproducer loosely mounted in and supported by the small end of the horn.

6. In a graphophone the combination with the feed-screw, of a carriage, a horn supported thereby, and a hollow socket for attachment of the recorder or reproducer supported in the small end of said horn, substantially as described.

7. The combination with the feed-screw, of a sliding carriage adapted to be driven by said feed-screw, a horn supported by said carriage, and a hollow socket swiveled in the small end of said horn and provided with means for attachment of a recorder or reproducer, substantially as described.

8. The combination with the carriage, and means for moving the same, of a saddle on said carriage, a horn provided at its small end with a socket attachment for the recorder or reproducer, and means for attaching said horn to said saddle, substantially as described.

9. The combination with the feed-screw, of the carriage, the horn supported thereby, the nut for engagement with said screw movably supported by said carriage, the socket swiveled in the end of said horn, and connections between the socket and nut, whereby the tilting of the former moves the latter into or out of engagement with the feed-screw, substantially as described.

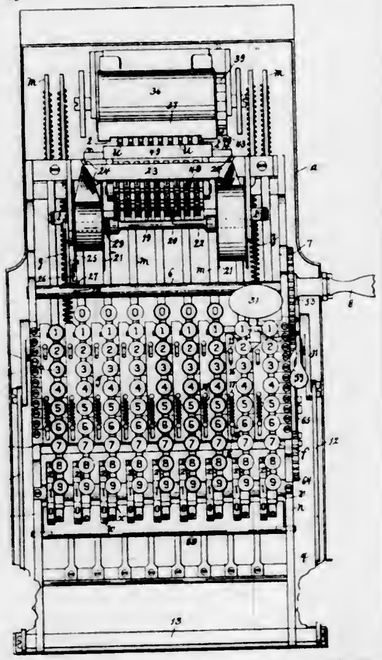
10. The combination with the feed-screw, of the carriage, the horn supported thereby, the nut for engaging said screw, a lever pivoted on said carriage and connected with said nut the socket swiveled in the end of said horn, and a plate on said socket engaging said lever, substantially as described.

11. In a talking-machine, the combination with a motor and its train of gears supported by and between two bearing-plates, of a feed-screw that propels the carriage for a recorder or reproducer, a governor located below the said feed-screw, and a mandrel supported at one end from said bearing-plates and located in front of said feed-screw and governor, the said feed-screw, governor, and mandrel being so arranged relative to each other and to the driving-gears, that motion is imparted to each of them from opposite sides of a common driving-gear.

12. In a talking-machine, the combination of a recorder or reproducer supported by a sound-conveyer, said sound-conveyer being both supported and moved longitudinally by a carriage, and said carriage in combination with a mandrel and means for revolving said mandrel while moving said carriage longitudinally, substantially as described.

680,340. **CALCULATING-MACHINE.** JAMES MALLMANN, Sheboygan, Wis. Filed Sept. 1, 1900. Serial No. 28,745. (No model.)

Claim.—1. The combination of actuating-bars provided at their rear ends with teeth and at their forward ends with teeth, mechanism for normally holding said bars locked against movement, a series of keys, mechanism between said keys and the locking mechanism; whereby when a key is depressed the locking mechanism is released from engagement with the particular bar relating thereto, means acting on the actuating-bars so as to cause said bars when unlocked to move forwardly a certain distance depending upon the particular key depressed, means for returning the actuating-bars to their normal locked positions, means for returning the keys to their normal positions, a series of printing-wheels, each wheel having a toothed wheel fast thereto, the said toothed wheel being adapted to be engaged by the rear teeth of the actuating-bars, and being thereby rotated when said actuating-bars are moved forwardly, and a series of calculating-wheels having ratchet-wheels fast thereto, said ratchet-wheels being adapted to be engaged by the forward teeth of the actuating-bars and being thereby rotated, when said actuating-bars are moved rearwardly.



2. The combination of a series of actuating-bars, mechanism operated by said bars, locking mechanism normally holding the actuating-bars locked, a series of keys adapted, when depressed, to act on the locking mechanism and thereby release the actuating-bars, means, when the bars are so released for thrusting said bars forwardly a certain distance depending upon the particular key depressed, a revoluble shaft, crank-arms extending from said shaft, links connected at their inner ends to the crank-arms, a transverse bar connected to the outer ends of the links, said bar adapted, when the shaft is rotated, to be moved forwardly and with the continued rotation of the shaft to move rearwardly and thereby contact with the ends of the forwardly-adjusted actuating-bars, and thereby return said bars to their normal locked positions, and means for returning the keys to their normal positions.

3. The combination of a series of actuating-bars provided with projecting shoulders, a series of medially-pivoted locking-arms, each arm engaging with the shoulder of an actuating-bar, a series of keys, mechanism between said keys and the locking-arms, and adapted to be operated by the depression of the keys, and to act on the upper ends of the locking-arms, and thereby turn said locking-arms and release the same from the shoulders of the actuating-bars, mechanism, when the actuating-bars are released, for moving said bars forward a certain distance, depending upon the particular key depressed, mechanism operated by said actuating-bars on the forward thrust thereof, mechanism for returning the actuating-bars to their normal locked positions, mechanism operated by said actuating-bars on their return movement, and means for returning the keys to their normal positions.

4. The combination of a series of actuating-bars provided with pro-

jecting shoulders, mechanism operated by said actuating-bars, a series of locking-arms, each arm engaging at one end with the shoulder of an actuating-bar, a series of slide-bars having beveled surfaces engaging the locking-arms, and said slide-bars also provided with notches, a series of keys adapted, when depressed, to act on the slide-bars and cause said bars to move, and through the engagement of the beveled surfaces of the bars with the locking-arms to move said locking-arms out of engagement with the shoulders, the slide-bars at the limit of their movements being locked by the engagement of the locking-arms with the notches, means when the actuating-bars are unlocked for moving said bars a certain distance depending upon the particular key depressed, means for returning the actuating-bars to normal positions, the return movement causing the shoulders thereof to contact with the locking-arms and thereby release said locking-arms from engagement with the notches of the slide-bars, means for returning the slide-bars to normal position when so released, the return movement of said slide-bars causing the locking-arms to again engage the shoulders and holding the actuating-bars in locked positions, and means for returning the keys to normal positions.

5. The combination of a series of actuating-bars, mechanism operated by said actuating-bars, locking mechanism engaging the actuating-bars and normally holding said bars in locked position, a series of slide-bars provided with inclined slots, a series of keys provided with projecting pins, the pin of any particular key adapted, when the key is depressed, to pass into the inclined slot of the slide-bar relating thereto and cause said slide-bar to move, the movement of the slide-bar acting on the locking mechanism and causing said locking mechanism to be released from the actuating-bar, said locking mechanism at the same time engaging the slide-bar and holding said bar in its adjusted position, means when the actuating-bar is unlocked for moving said bar a certain distance depending upon the particular key depressed, means for returning the actuating-bar to its normal locked position, the return movement of said bar releasing the locking mechanism from engagement with the slide-bar, means for returning said slide-bar to its normal position when so released, and means for returning the key to its normal position.

6. In a calculating-machine, the combination of a series of printing-wheels having printing characters on the periphery thereof with spaces between the characters, means for rotating said printing-wheels so as to bring different characters thereof to printing position and the spaces of the several wheels into alinement, a pivotal bar, arms carrying a paper-carrying cylinder, means for swinging said arms so as to cause the paper-cylinder to be swung to a position to bring the paper carried thereby into contact with the characters on the printing-wheels, and a contact-arm carried with the swinging arms and adapted to strike the pivoted bar and cause the same to engage the alined spaces of the printing-wheels.

7. The combination of printing-wheels, spindles, reels mounted loosely thereon, the side flange of one of said reels provided with teeth around its periphery, a dog, and a rotatorily movable shaft having a finger projecting therefrom, said finger adapted to engage the dog and cause said dog to engage the teeth of the flange of the reel, to thereby give to said reel an intermittent motion and cause an inking-ribbon upon one of the reels to be unwound therefrom, and wound up upon the other reel.

8. The combination of a series of actuating-bars, calculating mechanism operated by the bars upon one movement thereof, printing-wheels operated by the bars upon the reverse movement thereof, a swinging paper-carrying cylinder, a revoluble shaft, a crank-handle for turning the same, a gear-wheel mounted upon the said shaft, another shaft having a gear-wheel thereon in mesh with the first-referred-to gear-wheel, a transverse bar, a connection between said bar and the last-referred-to shaft, whereby when said shaft is rotated the transverse bar will act on the actuating-bars which have been moved in one direction and return said bars to their normal positions, means for normally locking the revoluble shaft against turning, a key adapted, when depressed, to unlock said shaft, and mechanism between said key and the paper-carrying cylinder for causing a movement of said paper-carrying cylinder in a direction to thrust the paper into engagement with the characters on the printing-wheels which have been brought to printing position.

9. The combination of a series of actuating-bars, calculating mechanism operated by the bars upon one movement thereof, a swinging paper-carrying cylinder, a revoluble shaft, a crank-handle for turning said shaft, a gear-wheel mounted on the said shaft, said gear-wheel provided on one face with a lug, a pivoted limitedly-slidable lever having its free end normally in engagement with the lug, and also provided with a projecting pin, a key having a hooked or bent arm in engagement with the pin, said hooked arm adapted, when the key is depressed, to bring the free end of the lever beneath the lug of the gear-wheel, and thereby permit the revoluble shaft to turn, a connection between said key and the paper-carrying cylinder for causing said cylinder, when the key is depressed, to be swung in a direction to bring the paper carried thereby into contact with the characters on the printing-wheel which have been brought to printing position, another shaft, a gear-wheel mounted thereon and in mesh with the first-mentioned gear-wheel, a transverse bar, and a connection between said bar and the last-referred-to shaft, whereby when said shaft is rotated the bar will act on the actuating-bars which have been moved in one direction and return said bars to their normal positions.

10. The combination of a series of levers each having a projecting lug, a series of dogs each provided with two shoulders, the upper shoulder being normally engaged by the lug of the lever, a series of pawls, one of said pawls being pivoted to each lever, a series of calculating-wheels, each having a ratchet-wheel fast thereto, each ratchet-wheel being engaged by a pawl, and each calculating-wheel also provided with a projecting finger which is adapted, after the calculating-wheel has rotated a certain distance, to contact with the upper end of the dog and turn said dog so as to release the upper shoulder thereof from engagement with the lug of the lever and thereby permit said lever to drop and bring the pawl into engagement with the next lower tooth of the ratchet-wheel, a cylinder having a series of graduated fingers extending therefrom and arranged spirally around a portion of the circumference thereof, and means for rotating said cylinder, whereby after the cylinder is rotated a certain distance, one of the fingers projecting therefrom will contact with the lever and thereby raise said lever and cause the pawl to partially rotate the ratchet-wheel, and also cause the lug of the lever to again engage the upper shoulder of the dog.

11. The combination of a series of calculating-wheels, ratchet-wheels fast thereto, means engaging the teeth of said ratchet-wheels in order to operate the calculating-wheels, a pawl engaging each ratchet-wheel, means after a calculating-wheel has rotated a certain distance to cause one of the pawls to jump to a lower tooth of the next succeeding ratchet-wheel and to subsequently act on the tooth and partially rotate said succeeding ratchet-wheel and the calculating-wheel fast thereto, a rock-bar provided with a series of projections in line with the pawls, and a cam constructed to act on the rock-bar when the pawl partially rotates the ratchet-wheel so as to throw the projections of the bar close to the pawls, and thereby prevent the pawls from overrotating the calculating-wheels.

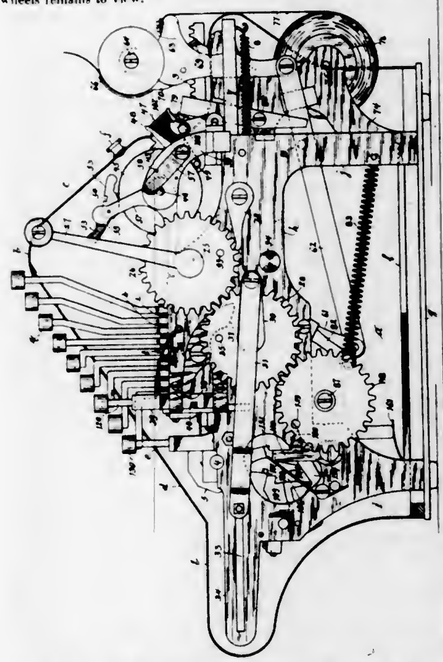
12. The combination of a series of calculating-wheels, actuating-bars for operating said wheels, a pivoted bar having a series of fingers projecting therefrom in line to engage the actuating bars, an arm engaging the pivoted bar so as to swing said bar in a direction to cause the fingers thereof to engage the actuating-bars, and a cam for operating the arm.

13. The combination of a type-wheel, means for rotating said wheel to bring different characters thereof to printing position, links, levers pivotally connected to the links, a paper-carrying cylinder having its axis journaled in the levers, a ratchet-wheel rotatable with the paper-carrying cylinder, a spring-pressed pawl pivoted to a fixed part and having its free end engaging the ratchet-wheel, another pawl pivoted medially to one of the levers and having one end engaging the ratchet-wheel, a stop adapted to contact with and limit the movement of the depending arm of the last-mentioned pawl in one direction, means for actuating the links in one direction, whereby the paper-carrying cylinder is thrown into a position to contact with the type on the type-wheel which has been brought to printing position, and a spring acting on the links to cause a reverse actuation thereof whereby the paper-carrying cylinder is returned to normal position.

680,341. CALCULATING-MACHINE. JAMES MALLMANN, Sheboygan, Wis. Filed Dec. 21, 1900. Serial No. 40,607. (No model.)

Claim.—1. In a calculating-machine, the combination of a series of calculating-wheels having a series of characters thereon running from "0" to "9," means for normally holding said calculating-wheels so as to display "0" to view, a series of printing devices each having a blank space and a series of numbered spaces, the numbers running from "0" to "9," and the printing devices being normally set so that the blank spaces will be at printing position, a series of actuating-bars, means for operating said bars variable distances whereby when operated the printing devices are operated so as to bring to printing position characters corresponding to the characters represented by the distances the actuating-bars move, and the calculating-wheels are also operated so as to display to view characters corresponding to the characters represented by the distances the actuating-bars move, and means, when only one actuating-bar is operated, for causing all of said actuating-bars on one side of the bar which is positively operated, to move a distance to bring the printing devices relating thereto from their normal position in which blank spaces are presented to printing position to a position in which zeros are in printing position, while the calculating-wheels relating to the bars so moved are unaffected, and hence "0" on each of said calculating-wheels remains to view.

2. In a calculating-machine, the combination of a series of calculating-wheels having a series of numbers running from "0" to "9," means for normally holding said calculating-wheels so as to display "0" to view, a series of printing devices each having a blank space and a series of numbered spaces, the numbers running from "0" to "9," and the printing devices being normally set so that the blank spaces will be at printing position, a series of actuating-bars, keys for controlling the operation of the actuating-bars variable distances, said keys being numbered consecutively in a line from "1" to "9," and said keys when operated permitting the actuating-bars to move, the movement of the actuating-bars operating the printing devices so as to bring to printing position characters thereon corresponding to the characters which the particular keys operated represent, and the calculating-wheels being also thereby operated so as to display to view characters corresponding to the characters which the particular keys operated represent, and means, when only one key is operated, for causing all of the actuating-bars on one side of the actuating-bar positively operated by the key, to move a distance to bring the printing devices relating thereto from their normal position in which blank spaces are presented to printing position to a position in which zeros are in printing position, while the calculating-wheels relating to the bars so moved are unaffected, and hence "0" on each of said calculating-wheels remains to view.



3. In a calculating-machine, the combination of a series of calculating-wheels, having a series of numbers thereon running from "0" to "9," means for normally setting said calculating-wheels so as to display "0" to view, a series of printing devices each having a blank space and a series of numbered spaces, the numbers running from "0" to "9," and the printing devices being normally set so that the blank spaces will be at printing position, a series of normally-locked actuating-bars each provided at one side with a lug, means for moving said bars variable distances when unlocked, a series of pivoted zero-arms each having its lower end normally engaging the lug of an actuating-bar, and each also contacting with the next adjacent arm, so that when one of said arms is moved all of the other arms on one side thereof will be simultaneously moved, a series of pivoted stop-arms, each being mounted slightly in advance of the zero-arm, means for turning a set of the zero and stop arms simultaneously, whereby the actuating-bar relating thereto is permitted to be moved and the printing device relating to this actuating-bar is turned so as to bring to printing position a character corresponding to the character represented by the distance the actuating-bar is moved, and the calculating-wheel also thereby turned so as to bring to view a similar character, while the zero-arms on one side of the zero-arm which is positively operated are simultaneously turned so as to permit the actuating-bars relating thereto to move a slight distance permitted by contact of the lugs of said actuating-bars with the ends of the stop-arms, said slight distance being sufficient to permit the printing-wheels to be turned so as to bring zeros to printing position, while the calculating-wheels are unaffected and hence "0" thereon remains to view.

4. In a calculating-machine, the combination of a series of calculating-wheels having a series of numbers running from "0" to "9," means for normally holding said calculating-wheels so as to display "0" to view, a series of printing devices each having a blank space and a series of numbered spaces, the numbers running from "0" to "9," and the printing devices being normally set so that the blank spaces will be at printing position, a series of normally-locked actuating-bars, each provided upon one side with a lug, means for moving said bars variable distances when unlocked, a series of pivoted zero-arms, each having its end normally engaging the lug of an actuating-bar, and each also contacting with the next adjacent zero-arm, so that when one of said arms is moved all of the other arms on one side thereof are simultaneously moved, a series of pivoted stop-arms each stop-arm being mounted slightly in advance of a zero-arm, a series of operating-keys, the keys of a line being numbered consecutively from "1" to "9," mechanism between each operating-key and a set of zero and stop arms, for turning the latter simultaneously when a key is operated, whereby the actuating-bar relating thereto is permitted to be moved and the printing device relating to this actuating-bar turned so as to bring to printing position a character corresponding to the character on the particular key operated, and the calculating-wheel also thereby turned so as to bring to view a similar character, while the zero-arms on one side of the zero-arm which was positively operated are simultaneously turned so as to permit the actuating-bars relating thereto to move the slight distance permitted by contact of the lugs of said bars with the ends of the stop-arms, said slight distance being sufficient to permit the printing-wheels to be turned so as to bring "0" to printing position, while the calculating-wheels are unaffected, and "0" thereon remains to view.

5. In a calculating-machine, the combination of a series of calculating-wheels having a series of numbers running from "0" to "9," means for normally holding said calculating-wheels so as to display "0" to view, a series of printing devices each having a blank space and a series of numbered spaces, the numbers running from "0" to "9," and the printing devices being normally set so that the blank spaces will be at printing position, a series of normally-locked actuating-bars, each provided upon one side with a lug, and upon its upper edge with a lug, means for moving said bars when unlocked, a series of pivoted zero-arms each having its end normally engaging the side lug of an actuating-bar, and also each of said arms contacting with the next adjacent zero-arm, so that when one of said arms is moved all of the other arms on one side thereof will be simultaneously moved, a series of pivoted stop-arms, each stop-arm being mounted slightly in advance of a zero-arm, a series of slide-bars provided with beveled ends engaging the zero-arms and the stop-bars, operating-keys engaging the slidable bars, and adapted when a key is operated to cause a slidable bar to move and thereby turn a zero-arm and its companion stop-arm on their pivot in order to release the actuating-bar relating thereto and permit said bar to move the distance limited by contact of the shoulder on the upper edge of said bar with the end of the operating-key which was operated, means at the proper time for returning the operating-keys to normal position, means for returning the actuating-bars to normal position, and means at the proper time for returning the slidable bars to normal position.

6. In a calculating-machine provided with a series of calculating-wheels and a series of actuating-bars for operating said wheels, each actuating-bar provided with a lug, of a series of pivoted arms each having its end normally engaging the lug of an actuating-bar, a series of slidable bars provided with beveled ends engaging the pivoted arms, retracting-springs engaging said slidable bars, operating-keys engaging the slidable bars, and each when operated adapted to cause a slidable bar to move and thereby turn the pivoted arm out of engagement with the lug of an actuating-bar and thereby permit the actuating-bar relating thereto to move a certain distance, a series of levers normally engaging the slidable bars near the ends thereof opposite to the beveled ends, springs acting against said levers, a slidable lever-actuated bar provided with a series of projecting pins, means for normally holding said lever-actuating bar in a position to bring the pins out of contact with the levers, and means for moving said lever-actuating bar in a direction to cause the pins to contact with the levers, and thereby throw said levers out of engagement with the slidable bars.

7. In a calculating-machine provided with a series of calculating-wheels and a series of actuating-bars for operating said wheels, each actuating-bar provided with a lug, the combination of a series of pivoted arms each having its end normally engaging the lug of an actuating-bar so as to hold said bar locked against movement, a series of slidable bars provided with beveled ends engaging the pivoted arms, retracting-springs engaging said slidable bars, operating-keys engaging the slidable bars and each adapted when operated to cause a slidable bar to move and thereby turn the pivoted arm out of engagement with the actuating-bar relating thereto and permit said actuating-bar to move a certain distance, a series of levers normally engaging near the ends of the slidable bars opposite to the beveled ends thereof, springs acting against said levers, a slidable lever-actuating bar provided with a series of projecting pins, means for normally holding said bar in a position in which the pins are out of contact with the levers, a bar provided with a beveled surface engaging a

registering beveled surface of the lever-actuating bar, a rotatable wheel provided with a projecting pin, and a lever engaging the bar which engages the lever-actuating bar, said lever as the wheel is rotated adapted to be engaged by the pin and thereby turned on its pivot, whereby the bar which it engages is moved and the lever-actuating bar thereby caused to move in a direction to bring the pins thereof into engagement with the levers.

8. In a calculating-machine provided with a series of calculating-wheels and a series of actuating-bars for operating said wheels, each bar provided with a lug, the combination of a series of pivoted arms each having its end normally engaging the lug of an actuating-bar so as to hold said bar locked against movement, a series of slidable bars provided with beveled ends engaging the pivoted arms, retracting-springs engaging said slidable bars, operating-keys engaging the slidable bars, and each adapted when operated to cause a slidable bar to move and thereby turn the pivoted arm out of engagement with the actuating-bar relating thereto, and thereby permit said actuating-bar to move a certain distance, a series of levers normally engaging the ends of the slidable bars opposite the beveled ends thereof, springs acting against said levers, a slidable lever-actuating bar provided with a series of projecting pins, means for normally holding said bar in a position in which the pins are out of contact with the levers, and a spring-pressed bar having an upward extension provided with a finger-piece, said bar also provided with a beveled surface engaging a similar surface of the lever-actuating bar.

9. In a calculating-machine, the combination of a series of calculating-wheels, printing devices, a paper-carrying cylinder, means for operating the calculating-wheels so as to display certain characters thereon to view, means for operating the printing devices so as to bring corresponding characters to printing position, and mechanism adapted, after the printing devices have been brought to printing position, to automatically act on the paper-carrying cylinder so as to bring the paper carried thereby into contact with the characters which have been brought to printing position.

10. The combination of printing devices, means for bringing any particular characters on said printing devices to printing position, pivoted arms, a paper-carrying cylinder mounted in said arms, a revoluble cam, a shaft, cranks extending from said shaft, a lever also extending from the shaft and adapted to be acted upon by the cam, and links connected to the cranks and also connected to the pivoted arms.

11. In a calculating-machine, the combination of calculating-wheels having characters thereabout, printing devices having characters thereon corresponding to the characters on the calculating-wheels, a paper-carrying cylinder, means for operating the calculating wheels so as to display certain characters thereon, and for operating the printing devices so as to bring corresponding characters to printing position, pivoted arms in which the paper-carrying cylinder is mounted, a revoluble cam, a shaft, cranks extending from said shaft, a lever also extending from the shaft and adapted to be acted upon by the cam, and links connected to the cranks and also connected to the pivoted arms.

12. In a calculating-machine, the combination of a series of calculating-wheels and means for operating the same, a main operating-shaft having a crank-handle at one end thereof, and also having a toothed wheel mounted thereon, said toothed wheel forming part of a train of gearing, and said toothed wheel also provided upon one face with a lug, a locking-bar provided at one end with a projecting pin adapted normally to engage the lug of the toothed wheel and thereby lock the main shaft against rotation, means for moving said locking-bar in one direction to disengage the pin from the lug and thereby permit of the turning of the main shaft, and means adapted, when the shaft has completed its revolution, for causing the locking-bar to move in the opposite direction, and thereby again lock the main shaft against rotation.

13. In a calculating-machine, the combination of a series of calculating-wheels, a series of actuating-bars for operating said wheels, a series of pivoted arms normally engaging said bars in order to hold them against movement, the last pivoted arm of the series at one end being extended downwardly a greater distance than the other arms, means for positively turning any one of the pivoted arms on its pivot so as to release it from engagement with the actuating-bar relating thereto, means when said pivoted arm is positively operated for simultaneously and automatically operating all of the other pivoted arms on one side thereof, a main operating-shaft having a crank-handle at one end thereof and also having a toothed wheel mounted thereon, said toothed wheel forming part of a train of gearing, and said toothed wheel also provided upon one face with a lug, a locking-bar provided at one end with a projecting pin adapted normally to engage the lug of the toothed wheel and thereby lock the main shaft against rotation, said locking-bar also provided with a projecting pin which is adapted to be engaged by the downward extension from the last pivoted arm of the series, when all of the pivoted arms on one side of the arm positively operated are turned, whereby the locking-bar is moved in one direction and the main shaft thereby unlocked, and means adapted, when the shaft has completed its revolution, for causing the locking-bar to move in the opposite direction and thereby again lock the main shaft against rotation.

14. In a calculating-machine, the combination of a series of calculating-wheels and means for operating the same, a main operating-shaft having a crank-handle on one end thereof and also having a toothed wheel mounted thereon, said toothed wheel provided upon one face with a lug, a locking-bar provided at one end with a projecting pin adapted normally to engage the lug of the toothed wheel and thereby lock the main shaft against rotation, and provided near its opposite end upon its under edge with a conical projection adapted to engage on either side of a conically-shaped bordering edge of an opening through which the end of the bar passes, a spring for normally holding these conical surfaces in engagement, means for moving the locking-bar in one direction to disengage the pin at the end thereof from the lug and thereby permit of the turning of the main shaft, and means adapted, when the shaft has completed its revolution, for causing the locking-bar to move in an opposite direction and thereby again lock the main shaft against rotation.

15. In a calculating-machine, the combination, of a series of calculating-wheels, normally-locked longitudinal actuating-bars for operating said calculating-wheels, a main operating-shaft having a crank-handle at one end thereof and also having a toothed wheel mounted thereon, said wheel provided upon one face with a lug, another shaft provided with cranks, one of said cranks provided with an extension, and said shaft having a toothed wheel in mesh with the first-named toothed wheel, links connected to said cranks, a transverse movable bar to which the opposite ends of the links are connected, a locking-bar provided at one end with projecting pin adapted normally to engage the lug of the first-referrel-to toothed wheel and thereby lock the main shaft against rotation, means for moving said locking-bar in one direction to disengage the pin from the lug, and thereby permit of the turning of the main shaft, means for causing the longitudinal actuating-bars when unlocked to move longitudinally in one direction and with the transverse movable bar, the latter on its return movement contacting with the longitudinal actuating-bars and returning said bars to normal position, the movement of the movable bar being caused through the action of the cranks and links, the extension from one of the cranks acting on the end of the locking-bar and causing said bar, upon the completion of the rotation of the main shaft, to move in a direction to bring its pin again into engagement with the toothed wheel of the main shaft.

16. In a calculating-machine, the combination, of a series of calculating-wheels having a series of characters thereon, a series of printing devices having corresponding characters thereon, means for operating the printing devices, a paper-carrying cylinder, a main operating-shaft having a crank-handle at one end and also having a toothed wheel mounted thereon, another shaft having a toothed wheel thereon which is operated by the toothed wheel of the main shaft, a connection between this shaft and the paper-carrying cylinder, whereby when said shaft is rotated the said cylinder is turned in a direction to cause the paper carried thereby to contact with the characters on the printing-wheels which have been brought to printing position, means for throwing the paper-carrying cylinder back to a normal position, means for shifting the paper carried by the cylinder, a locking-bar provided at one end with a pin which normally engages a lug on the face of the toothed wheel of the main shaft, a finger-key extending from said locking-bar and adapted when pushed in one direction to cause the locking-bar to move in a direction to disengage its pin from the lug of the toothed wheel and thereby unlock the main shaft so as to permit said shaft to be turned without the necessity of performing the calculating and printing operations, a series of longitudinal actuating-bars for operating the calculating-wheels and the printing devices, a series of pivoted arms normally engaging the actuating-bars and holding them against movement, and mechanism between the pivoted arms and the locking-bar, whereby when one of said pivoted arms is operated the locking-bar is unlocked and the main shaft thereby permitted to be turned so as to cause the calculating and the printing devices to be operated.

17. In a calculating-machine, the combination of a series of calculating-wheels, printing devices, pivoted arms having a paper-carrying cylinder journaled therein, a series of longitudinal actuating-bars for operating the calculating-wheels and the printing devices, mechanism for throwing the paper-carrying cylinder into contact with the characters on the printing devices which have been brought to printing position, and a pivoted device adapted to be turned into engagement with one of the arms carrying the paper-carrying cylinder, to thereby prevent the throwing of said cylinder on its pivots and thereby prevent the printing operation, but permitting the calculating mechanism to work.

18. In a calculating-machine, the combination of a series of calculating-wheels, a series of longitudinal actuating-bars, means for normally holding said bars in inoperative position, a shaft, cranks extending from said shaft, links connected to the cranks, a movable cross-bar to which the links are also connected, said cross-bar being normally in engagement with the ends of the longitudinal actuating-bars, means for rotating the shaft and thereby causing a movement of the movable bar, and means for causing the longitudinal bars when released to move, the said movement being simultaneous with the movement of the movable cross-bar, said cross-bar upon its return movement contacting with the longitudinal bars which have been moved, and thereby returning said bars to their normal position.

19. In a calculating-machine, the combination of a series of calculating-wheels, a series of printing devices, a series of longitudinal actuating-bars adapted normally, when moved, to operate the calculating-wheels and the printing devices, a pivoted bar, said bar being in such position that when turned on its pivot it will act on the longitudinal actuating-bars and raise them to a position to engage the calculating-wheels and rotate said calculating-wheels, a pivoted arm having its free end normally in position to raise the pivoted bar when the arm is turned on its pivot, a key provided with an inclined surface, means for returning said key to normal position after finger-pressure thereon is removed, and a lever provided with a pin which the inclined surface of the key is adapted to engage, said lever having the arm pivoted thereto, and said lever when the key is depressed adapted to be turned in a direction to move the arm pivoted thereto in a downward direction to such an extent that on the up movement of said pivoted arm it will not contact with the pivoted bar, and consequently the longitudinal actuating-bars while permitted to operate the printing devices will not be permitted to operate the calculating-wheels.

20. In a calculating-machine, the combination of a series of calculating-wheels, a series of printing devices, a series of longitudinal actuating-bars adapted when moved to operate the calculating-wheels and the printing devices, a pivoted bar in position when turned on its pivot to act on the longitudinal actuating-bars and raise them to a position to engage the calculating-wheels and rotate said wheels, a pivoted arm having its free end in position to raise the pivoted bar when the arm is turned on its pivot, a pivoted lever having its free end in position to act on the pivoted arm, and a cam adapted to act on the pivoted lever at the proper time and cause said lever to turn on its pivot.

21. The combination of a main revoluble shaft having pins extending therefrom, a series of printing-wheels, means for turning said wheels so as to bring different characters thereon to printing position, a paper-carrying cylinder, means for actuating said cylinder so as to bring the paper carried thereby into contact with the characters on the printing-wheels which have been brought to printing position, another shaft provided with shoulders, said shaft adapted to have longitudinal play, reels loosely mounted on said shaft, one of the side pieces of each reel having a toothed periphery, a spring acting against one end of the reel-shaft so as to cause one of the shoulders of said shaft to bear against the inner side of one of the reels and thereby move said reel into frictional contact with a fixed part, an arm adapted to be turned against the opposite end of the reel-shaft so as to move said shaft in the opposite direction against the action of the spring, and cause the other shoulder to act against the other reel and force said reel into frictional contact with a fixed part, a ribbon wound on the reels and passing over the face of the printing-wheels, bell-crank levers having their lower arms in position to be engaged by the pins of the main shaft, the toothed dogs pivoted to the other arms of the bell-crank levers, the dog of either bell-crank lever adapted to be turned so that its teeth will be in engagement with the teeth of the reel pertaining thereto.

22. In a calculating-machine, the combination of a shaft, a series of calculating-wheels mounted loosely thereon, said wheels having a series of characters thereon running from "0" to "9," means for turning said calculating-wheels so as to display different characters thereon to view, mechanism between the shaft and the calculating-wheels for causing all of said wheels to be turned to "0" when said shaft is rotated, a disk mounted fast on the shaft and provided with a peripheral recess, a "0" key provided with a lug normally engaging the recess, and a crank on the shaft for turning the same when the "0" key is actuated and the lug thereof released from engagement with the recess.

23. In a calculating-machine, the combination of a shaft, a series of calculating-wheels mounted loosely thereon, said wheels having a series of characters thereon running from "0" to "9," means for turning the calculating-wheels so as to display different characters thereof to view, mechanism between the shaft and the calculating-wheels for causing all of said wheels to be turned to "0" when said shaft is rotated, a "0" key, mechanism between said key and the shaft for normally holding said shaft locked against rotation but permitting said shaft to be rotated when the key is operated, a lever adapted to be turned on its pivot when the key is operated, a pivoted bar adapted to be acted upon by the lever when said lever is turned, and carrying-over mechanism adapted to be acted upon by the bar when said bar is turned on its pivot, in order to prevent the carrying-over operation.

680,842. **FENCE.** JOHN S. MARTIN, Baughman Township, Ohio. Filed Nov. 6, 1900. Serial No. 35,641. (No model.)



Claim.—1. The combination of a wooden fence-post provided with upper and lower longitudinal bores and having an intermediate solid portion and provided with transverse perforations located beneath the surface of the ground and communicating with the lower longitudinal bore, vertical ribs arranged at the lower portion of the post and offset from the said perforations, and a sleeve loosely supported by the ribs and adapted to shield the transverse perforations, substantially as described.

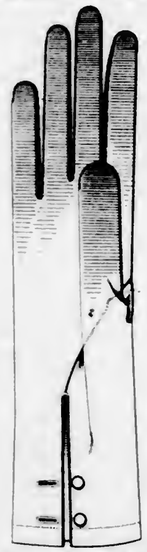
2. The combination of a wooden post provided with a longitudinal bore and having transverse perforations communicating with the bore and located below the surface of the ground, said post being rectangular in cross-section and provided at the surface of the ground with a solid portion, the vertical strips secured to the post at the corners thereof and offset from the transverse perforations, and a sleeve supported by the ribs and forming a shield for the perforations, substantially as described.

3. A wooden fence-post provided with upper and lower longitudinal bores adapted to contain a preservative, said post being provided between the bores with an intermediate solid portion designed to be located at the surface of the ground, substantially as described.

4. The combination of a wooden fence-post provided at its bottom with a longitudinal bore and having a transverse perforation communicating with the bore at the upper portion thereof, said post being provided at the surface of the ground with a solid portion, a removable plug fitting in the bore, and a sleeve surrounding the post at the lower portion thereof and spaced from the same at the transverse perforation and forming a shield for the latter, substantially as described.

5. The combination of a wooden fence-post having a solid portion at the surface of the ground and provided at its bottom with a longitudinal bore and having an inclined perforation or passage at the upper portion of the bore, said inclined passage extending downward and inward, and a sleeve surrounding the post and spaced therefrom at the transverse or inclined perforation or passage and forming a shield for the latter, substantially as described.

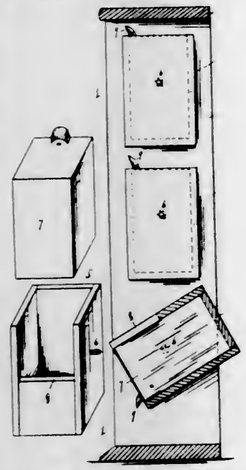
680,343. **GLOVE.** JOHAN P. MÖLLER, Pankow, Germany. Filed Apr. 15, 1899. Serial No. 713,086. (No model.)



Claim.—A kid or like glove provided with finger-stalls and a placket, said glove comprising a thumb-stall and the fronts and backs of the finger-stalls formed integral with the body of the glove, the said thumb-stall being seamless except for a single seam which extends around the end and along one side thereof, the glove itself being seamless at the back and front except for a single seam which extends diagonally across the palm thereof in substantially a straight line from the placket to the outside of the first finger-stall, where it joins a seam that extends along the outside

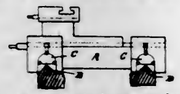
of said finger-stall to the end thereof and a substantially triangular gusset 4 formed integral with the thumb-stall of the glove and occupying the crotch formed at the base of the thumb-stall, said gusset in the blank being formed with a base *d* which extends about one-half the distance formed by the side lines *e f* thereof and in a direction transverse to the length of the glove, whereby the strain that is exerted upon the crotch will be directly taken up by the material of the gusset before it can be exerted upon the seams.

680,344. OIL-RACK. LAWRENCE K. MOORE, Moro, Oreg., assignor of one-half to Geo. M. Frost, same place. Filed Apr. 9, 1901. Serial No. 55,094. (No model.)



Claim.—In an oil-rack, the combination of a casing completely open at the front and back, and a series of jockeys fully open at their upper ends and pivotally mounted in vertical alinement in said casing for removably supporting cans or receptacles, the distance between the upper open end of one jockey and the lower closed end of the jockey next above throughout the series being such as to permit each jockey to clear the other in its swinging operation, one side of each jockey being cut away from the upper open end downwardly a portion of its length to form an opening for facilitating the introduction thereinto and removal therefrom.

680,345. LUBRICATOR. WALTER S. MORRISON, St. Louis, Mo., assignor to the Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Filed Nov. 19, 1900. Serial No. 37,059. (No model.)



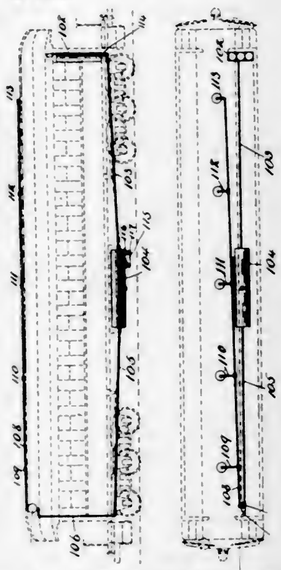
Claim.—1. In a lubricating device a part adapted to move relatively to a part to be lubricated; an oiling-compartment carried by the movable part and adapted to distribute oil on the stationary part; and a wiper of flexible material also carried by the movable part and spring-held against the stationary part immediately preceding the oiling-compartment, substantially as and for the purpose set forth.

2. In a lubricating device, a part adapted to move relatively to a part to be lubricated; an oiling-compartment provided with means for admitting oil and filled with loose material contacting with the stationary part, and a wiper of comparatively compact material also carried by the movable part and spring-held against the stationary part immediately preceding the oiling-compartment, substantially as and for the purpose set forth.

3. A lubricator attachment for lathes, consisting of a casing adapted to be carried by the carriage thereof immediately over the shears and having a substantially V-shaped bottom adapted to loosely fit the shears; an oiling-compartment in the casing provided with means for admitting oil and filled with loose material contacting with the shears; and a wiper of comparatively compact material mounted in the casing immediately preceding the oiling-compartment and spring-held against the shears, substantially as and for the purpose set forth.

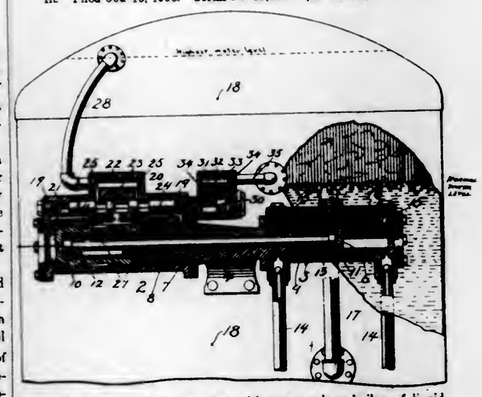
4. A lubricator attachment for lathes, consisting of a casing adapted to be carried by the carriage thereof immediately over the shears and having a substantially V-shaped bottom adapted to loosely fit the shears; an oiling-compartment in the casing provided with means for admitting oil and filled with wool contacting with the shears; and a wiper of leather mounted in the casing immediately preceding the oiling-compartment and spring-held against the shears, substantially as and for the purpose set forth.

680,346. PIPING SYSTEM FOR GAS DISTRIBUTION. JOHN A. MOSHER and WILLIAM S. HAMM, Chicago, Ill., assignors to the Adams & Westlake Company, of Illinois. Filed Aug. 11, 1900. Serial No. 26,635. (No model.)



Claim.—In a gas-distributing system, in combination, a generator, a gas-receiving tank, a pipe leading to such tank from the generator and a pipe leading from such tank for distributing the gas, all the pipes of the system being so pitched as to drain to the receiving-tank, a liquid-receptacle, a pipe leading from the receiving-tank to the receptacle and having a valve, a pipe leading from the receptacle and having a valve, connection between such two valves so that they move in unison to open the one and close the other.

680,347. BOILER-FEED REGULATOR. ARTHUR G. MCPHERSON, Highland Park, Ill., assignor of one-half to George B. Foster, Chicago, Ill. Filed Oct. 18, 1900. Serial No. 33,511. (No model.)



Claim.—1. The combination with a reservoir or boiler, of liquid-supply apparatus connected therewith and having the usual valve means operatively interposed between said reservoir and the valve of said apparatus for regulating the operation of said valve and hence the operation of said apparatus, and said means being connected with said reservoir at approximately the normal water-level therein, substantially as described.

2. The combination of a reservoir or boiler, wherein a vapor-pressure is normally maintained with liquid-supply apparatus connected with said reservoir and normally actuated by the pressure from said reservoir, the steam-valve of said apparatus, and means operatively interposed between said reservoir and the steam-valve of said apparatus, permitting the flow of liquid from approximately the normal water-level of said reservoir and controlling the movement and operation of said valve and said apparatus to cut down the supply of liquid to said reservoir, substantially as described.

3. The combination of a reservoir or boiler, wherein a vapor-pressure is normally maintained with liquid-supply apparatus connected with said reservoir and normally actuated by the pressure from said reservoir, said reservoir having the usual steam-valve and means operatively interposed between said reservoir and the steam-valve of said apparatus, permitting the flow of liquid from approximately the normal water-level of said reservoir and thereby controlling the movement and position of said valve to cut down the supply of liquid to said reservoir, during and so long as liquid continues to flow from said reservoir at a point approximately the normal water-level therein, substantially as described.

4. The combination of a boiler or reservoir, with liquid-supply apparatus therefor having a valve and a valve-brake apparatus comprising a cylinder and a displacement-piston and a connection between said cylinder and said reservoir, at approximately the normal water-level in said reservoir, whereby liquid entering said cylinder controls the movement of said valve, substantially as described.

5. The combination with a boiler, of a steam-pump driven therefrom, for supplying water thereto, said pump provided with a suitable reciprocating steam-valve and a brake device or regulator provided in connection with said valve, comprising a cylinder that is connected with said boiler at normal water-level therein, and a displacement-piston in said cylinder attached to said valve, substantially as described.

6. The combination of the liquid-reservoir, with valved liquid-supply means capable of supplying liquid to said reservoir in excess of the normal requirement, and a regulator for the valve of said supply means, comprising a plunger operated upon by liquid when and only after the liquid-level in said reservoir has risen above the normal level and controlling the operation of said valve, substantially as described.

7. The combination of a liquid-reservoir, such as a boiler with automatic liquid-supply means, the automatic steam-valve thereof, and a regulator for said valve, comprising a mechanism for blocking or checking the operation thereof, and operated by the flow of the excess liquid in said reservoir, substantially as described.

8. The combination with a boiler, of an automatic steam-pump comprising a frame, the cylinders at opposite ends thereof, sleeves upon said frame, pistons in said cylinders, the piston-rod for said pistons extending through said frame and sleeves, the valves for said pump, steam and water connections therefor and a regulator governed by the flow of water from the normal water-level in said boiler and having its moving part connected with the steam-valve of said pump, substantially as described.

9. The combination with a boiler, of the automatic valved steam-pump, the steam connection for said pump extending from said boiler at a point near the top thereof and adapted to be filled with water when the water rises to the highest permissible level in the boiler, and a pump-valve regulator comprising a plunger operated upon by the flow of water from the normal water-level of said boiler, to check the operation of said pump-valve, substantially as described.

680,348. PUZZLE. JAMES P. NOLAN, Middletown, Conn. Filed May 22, 1899. Serial No. 717,840. (No model.)



Claim.—A puzzle comprising a base having circular openings of different diameters and movable bodies corresponding in number to the openings, each of the said bodies being adapted to slide and roll upon the base and consisting of a hemisphere having a diameter equal to that of an opening and a disk fixed upon the flat side of the hemisphere, and concentric therewith, said disk projecting beyond the periphery of the hemisphere whereby the hemisphere and the disk may each have a single point bearing upon the base and may move thereover in a zigzag course, and whereby it will be necessary to slide the bodies upon the base to move them in a straight line.

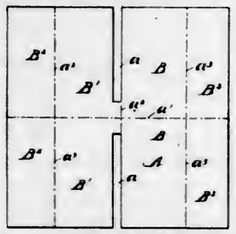
680,349. FILE-BINDER. WILLIAM P. NORTHCOTT, Chicago, Ill. Filed Mar. 19, 1898. Serial No. 674,456. (No model.)



Claim.—1. In a file-binder the combination of two cover-leaves each provided with a flexible portion having an inner and an outer fold, a perforated binding-strip between the inner and outer fold of each of the cover-leaves each provided with rounded edges extending above the body portion of the strip and integral therewith forming a recess between such rounded portions, and a plurality of threaded bolts extending through and connecting the binding-strips and cover-leaves and each provided with a head and threaded nut upon their respective ends within the recess formed by the rounded portions of the binding-strips, substantially as described.

2. In a file-binder the combination of two cover-leaves each provided with a flexible portion having an inner and outer fold and a rigid portion, a perforated metallic binding-strip having rounded edges extending above the body portion thereof and integral therewith arranged between the outer and inner folds of the flexible portion of each of the cover-leaves, a plurality of bolts extending through and connecting the binding-strips and having their ends within the recesses between the rounded portions of the strips, and means for adjusting the strips and holding them in position upon the bolts, substantially as described.

680,350. INDEXED FOLDER OR PAMPHLET. SAMUEL B. PARKER, Saratoga Springs, N. Y., Filed July 3, 1900. Serial No. 22,410. (No model.)



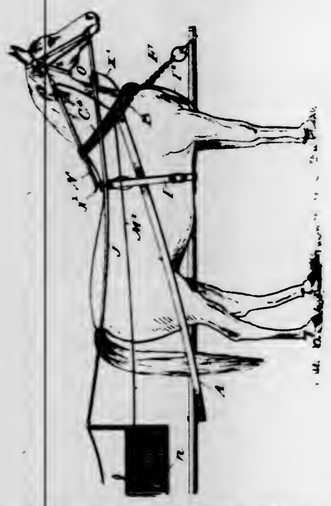
Claim.—A new article of manufacture comprising an improved folder or book formed of one sheet of material, having two cut-away portions adjacent to the folding-line a^2 as at *a* and folded along the center line *a'* and again along the line a^2 at right angles to the first fold and at a slightly-greater distance from the outer edge of the leaves B^2 than from the outer edge of the leaves B^2, and thirdly along the line a^2 parallel to the line a^2 of the second fold and at a distance from the center on the side away from the last fold, so as to form leaves successively smaller, producing thereby stepped margins, along the edges of the said leaves, adapted to be used as indexes, substantially as described.

680,351. HORSE-DETACHING DEVICE. WILLIAM C. PARSONS, Pennington Gap, Va. Filed Dec. 28, 1900. Serial No. 41,406. (No model.)

Claim.—1. In a horse-detaching apparatus, the combination with the hames, traces secured thereto, a rod having a hooked end detachably held to one of the hames and connections between said rod and the second hame, means for holding said rod to the hame and means for releasing the upper end of the rod when it is desired to disconnect the hames, as set forth.

2. A horse-detaching device, comprising the hames, a rod having a hooked end engaging one of the hames, and connections between said

rod and the second hame, a ring carried by said rod and adapted to hold the neck-yoke chain, means carried by the hame to engage and hold said rod to the hame, and connections for disengaging the rod to allow the neck-yoke chain and the hames to be disconnected, as set forth.



3. In a horse-detaching device, a hame, a socket member secured thereto, a rod having a hooked end engaging said socket, a hame-strap secured to said rod, guide-pieces integral with said socket member for holding said rod against lateral movement, the upper end of the rod being bent to form a hook, a neck-yoke-chain ring carried by said hook, and means carried by the hame to engage said hook and hold the same to the hame, and cord connections for releasing the rod from the hame, as set forth.

4. In a horse-detaching device, the combination with the hame, a plate with a socket portion and integral guide-pieces, a rod having a hook to engage said socket, a hame-strap secured to said rod, said rod adapted to be held against lateral movement between said guide-pieces, the upper portion of the rod being bent to one side, and a hook formed at its end, a neck-yoke-chain ring engaging said hook, a staple secured to the hame and a loop or ring retained thereby, adapted to fit over the hooked end of said rod, a rope secured to said loop or ring, whereby as said ring to which the cord is connected is raised over the end of said rod, the latter is allowed to fall by gravity and the hame to become detached, as well as the neck-yoke-chain ring, as set forth.

5. In a horse-detaching device, the combination with a hame, and means for connecting same to a second hame, a cord for detaching said hames, traces held to the hames, the check and driving reins, connections between said reins and the traces, whereby as the hames are disconnected, said reins will become detached, as set forth.

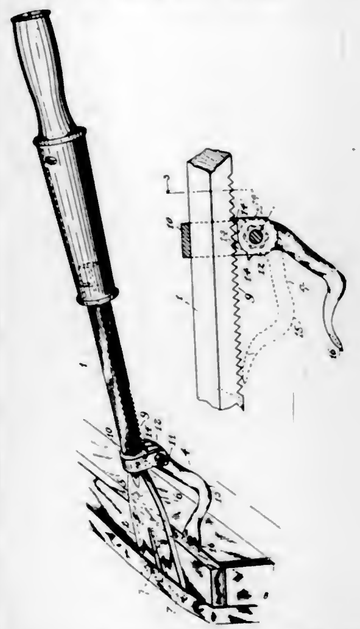
6. In a horse-detaching device, a hame and connections for detaching the same and a cord for releasing the same, a trace secured to said hame, the check and driving reins each having a buckle with tongue designed to be detachably held to said buckle, connections between the tongue or each buckle and a trace, whereby as the hames are released, said cord connected to the traces will cause the tongues of said buckles to swing outward and release the check and driving reins, as set forth.

7. In a horse-detaching device, the combination with a hame, means for disconnecting same, a trace secured to said hame, the check and driving reins, each rein having a buckle to which one end of the rein is secured, said buckle having a tongue with lugs thereon adapted to be held in a locked relation over an integral hooked portion of the buckle, a bit-engaging strap having apertures which are engaged by said lugs and held to the buckle, and cord connections between said tongue and the trace, whereby as the hame is disconnected the tongue will be opened and the rein released from the bit-engaging strap as set forth.

8. In combination with the hame, a trace, the collar on which the hame is mounted, the check and driving reins, connections between same and the trace for detaching said reins, the girth having slits therein and a strap secured at one end to the collar and passed through the registering slits in said girth, whereby as the harness is detached and drawn rearward, the ends of said girth will become detached, as set forth.

680,352. BOX-OPENER. JOHN C. PATTERSON, Seattle, Wash.

Filed Apr. 1, 1901. Serial No. 53,877. (No model.)



Claim.—1. An implement of the nature indicated; comprising a rectangular shank formed with a diagonally-disposed wedge-shaped extremity brought to a chisel edge, a nail-notch in said edge and a ram slidably mounted for impact on the opposite end.

2. An implement of the nature indicated, comprising a shank having a working point and a handle, a rack between the handle and point, a carrier slidably mounted on said shank and a fulcrum-piece pivoted to the carrier between its stems and operative pawls on said piece adapted to engage said rack when the piece lies in open or closed position.

3. An implement of the nature indicated; comprising a shank having a working point and a handle, a carrier slidably mounted on said shank and a fulcrum-piece attached to said carrier and having a knee.

4. An implement of the nature indicated; comprising a shank having a working point and a handle, a substantially U-shaped carrier mounted on said shank, means to lock the carrier from movement and a substantially L-shaped fulcrum-piece pivoted to said carrier between the stems.

5. An implement of the nature indicated; comprising a shank having a working point and a handle, a U-shaped carrier slidably mounted on the shank, means to secure the carrier on the shank and a substantially L-shaped fulcrum-piece pivoted between the stems of the carrier by one end and having the opposite end formed as a claw.

6. An implement of the nature indicated; comprising a rectangular shank having a working point and a handle and indentures in one corner to form a rack, a carrier slidably mounted on the shank and a substantially L-shaped fulcrum-piece pivotally mounted on the carrier and having opposite pawls adjacent the pivot alternately coöperating with the rack as said piece lies opened and closed.

7. An implement of the natore indicated; comprising a rectangular shank having a working point and a handle and a rack formed of notches in one corner, a substantially U-shaped carrier slidably mounted on the shank and having a clamping-bolt beyond said rack, a substantially L-shaped fulcrum-piece pivotally engaged with said bolt by one end and having pawls on said end adapted to alternately coöperate with said rack as the lever lies opened and closed and a claw at the free end of said piece.

8. An implement of the nature indicated; comprising a shank formed with a wedge-shaped working point having a chisel edge and a nail-notch, a ram slidably mounted on said shank, a carrier slidable on the shank between said point and ram and a substantially L-shaped fulcrum-leg pivotally attached to the carrier.

9. An implement of the nature indicated; comprising a shank formed with a wedge-shaped working point having a chisel edge and nail-notch, a ram, a carrier on said shank, means to lock the carrier from movement and a substantially L-shaped fulcrum-leg pivoted to the carrier by one end and adapted to offer a fulcrum to the shank on its pivot, angle-point or free end.

10. An implement of the nature indicated comprising a shank, formed with a wedge-shaped working point, a ram, a substantially U-shaped carrier slidable on the shank, a clamping-bolt transversely the stems of the carrier and a substantially L-shaped fulcrum-leg pivoted on said bolt and formed with a claw at the free end.

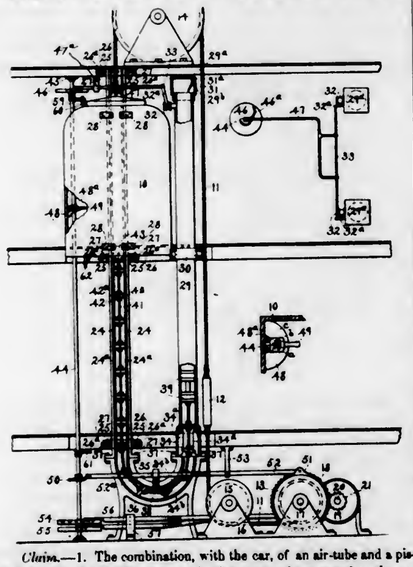
11. An implement of the nature indicated; comprising a shank formed with a wedge-shaped working point, a ram, a carrier, a rack on said shank and a fulcrum-leg pivoted to the carrier and having opposite pawls adapted to alternately coöperate with said rack as the leg is opened and closed.

12. An implement of the nature indicated; comprising a shank formed with a wedge-shaped working point and a nail-notch, a ram, a substantially U-shaped carrier, a clamping-bolt transversely the stems of the carrier, a rack on said shank and a substantially L-shaped fulcrum-leg pivoted on said bolt and having pawls adapted to coöperate with said rack as the leg is opened and closed and a claw at the free end.

13. An implement of the nature indicated; comprising a rectangular shank formed with a diagonally-disposed wedge-shaped working point and a nail-notch, a ram, a substantially U-shaped carrier bored to slidably fit said shank, a clamping-bolt transversely the stems of the carrier, a succession of notches in one corner of the shank between said stems and a substantially L-shaped fulcrum-leg pivoted by one end to said bolt and having pawls adapted to alternately coöperate with said notches when the leg is opened and closed and a claw at free end.

14. An implement of the nature indicated; comprising a rectangular shank formed with a diagonally-disposed flattened working point composed of substantially broad side surfaces converging outwardly at a slight angle and then converged abruptly to form a chisel edge and a nail-notch in said edge, a ram slidably mounted on the opposite end of the shank, a series of rack indentures in the under corner of said shank, a substantially U-shaped carrier bored to slidably fit the shank, a clamping-bolt transversely the stems of the carrier and a substantially L-shaped fulcrum-leg pivoted on said bolt between the stems having pawls arranged to coöperate with the said indentures when the leg is open or closed and a claw at the free end.

680,353. ELEVATOR MECHANISM. WILLIAM A. PENTECOST, Worcester, Mass. Filed Mar. 6, 1901. Serial No. 50,006. (No model.)



Claim.—1. The combination, with the car, of an air-tube and a piston therein, and a flexible support having one end connected to the car and the opposite end connected to said piston, said support adapted to uphold or sustain the car from below.

2. In combination with flanged tracks for an elevator, a flexible support having slotted members to register with said tracks.

3. The combination, with the car, of an air-tube and a piston therein, a flexible support having one end connected with the car and the opposite end connected to said piston, said support adapted to uphold or sustain the car from below, and flanged tracks to register with slotted members of the support.

4. In combination with tracks for an elevator, a flexible support to run in said tracks, means to prevent lateral movement of the support, an air-tube arranged to receive the free end of said support, and means to guide the support from said tracks into said tube.

5. In combination with tracks for an elevator, an air-tube adjacent to said tracks, a guide extending between the former and the latter, a flexible support adapted to run in said tracks, guide and tube, and means to prevent lateral movement of the support.

6. The combination, in elevator mechanism, of a car, an air-tube having a valve controlled from the car, a piston in said tube, and a flexible support connected with said car and piston and arranged to uphold or sustain the car from below.

7. The combination, in elevator mechanism, of a car, an air-tube having an air-valve, a bar connected with said valve and operated from the car, a cam to actuate said bar, a piston in said tube, and a flexible support connected with said car and piston and arranged to uphold or sustain the car from below.

8. In combination, elevator-tracks having flanges, segmental guide having similar flanges, an air-tube, and a flexible support adapted to engage said flanges and enter said tube, substantially as set forth.

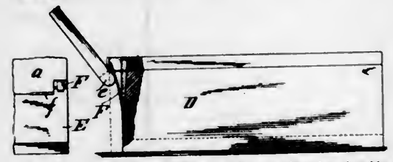
9. In combination, elevator tracks having flanges, a connected segmental guide having similar flanges, an internally-flanged box connected with said guide, an air-tube attached to said box, and a flexible support adapted to engage the flanged members and enter said tube, substantially as described.

10. A flexible support for elevator mechanism, comprising a plurality of links each consisting essentially of a body, a head and a lug attached to said body, said head set across said body and having slotted ends, and adapted to receive the lug of the next link, which is pivoted thereto, substantially as set forth.

11. The combination, in elevator mechanism, of an air-tube having an air-valve, a flexible support connected with the car and a piston in said tube, a brake-lever, an operating-rod and connections between the same and said air-valve and lever, and automatic means for actuating said rod to stop said car when at the end of its downward travel, substantially as set forth.

680,354. CABINET FILE-BOX. RALPH W. POPE, Elizabeth, N. J.

Filed June 25, 1900. Renewed June 20, 1901. Serial No. 65,357. (No model.)



Claim.—1. A file-box having a top piece overhanging the sides and bottom thereof, a door hinged at its upper edge to said top piece and adapted to close against the sides and bottom to form a uniform front, a pocket or recess in the side of said box, said pocket extending into the overhanging top, a lateral extension upon the end of the hinged door adapted to move in said pocket or recess, and a spring of less width than the side of the box and contained in the pocket or recess and adapted to engage the projection upon the door to hold it in its closed or open position.

2. A file-box having a top piece overhanging the sides and bottom, a door hinged at its upper edge to said top piece and adapted to close against the sides and bottom to form a uniform front, a reinforced extension from said door projecting laterally beyond its hinged edge, a pocket formed within the end of the side of the box and extending into the overhanging top, a spring within said pocket secured at its lower end and bearing with its free end against the extension upon the door and moving therewith as the door is opened and closed to hold it in position.

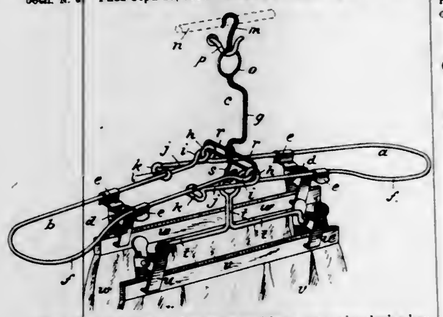
680,355. STOCKING. MYRON H. POWELL, Muskegon, Mich. Filed May 28, 1900. Serial No. 18,278. (No model.)

Claim.—1. As a new article of manufacture a stocking whose foot portion comprises two independently-knit webs having on their proximate edges rows of selvage-loops interlocked with each other, and whose leg portion is continuous with said webs but has its loops in a single tubular web.

2. The seamless stocking consisting of a tubular seamless knit leg with its front portion continued and forming the top of the foot and provided on its respective edges with a row of selvage-loops, a bottom section for the foot forming a continuation of the back of the leg composed of a fabric knit from an independent distinct yarn having on its respective edges a row of selvage-loops, the said row of loops of said sections being interlocked, with the rows of one section disposed in the field of the other section and vice versa.



680,356. GARMENT-HANGER. ANDREW B. PRITCHETTE, Elizabeth, N. J. Filed Sept. 25, 1900. Serial No. 31,038. (No model.)



Claim.—1. A garment-hanger comprising a suspension device having a lateral loop formation, two folding arms hinged together and sustained at their hinge by said laterally-looped portion of the suspension device for adjustment of opposite sides of said arms relatively to each other, and means supporting one unfolded arm from the other arm, substantially as described.

2. A garment-hanger comprising a suspension device having a lateral support, two folding arms hinged together and sustained by said support for adjustment of their opposite sides relatively to each other; one of said arms having side extensions forming rests for the sides of the other unfolded arm, substantially as described.

3. A garment-hanger comprising a suspension device having a lateral support, two folding arms hinged together and sustained by said support for adjustment of their opposite sides relatively to each other; one of said arms having side extensions provided with open loop-rests supporting and normally overlocking the sides of the other unfolded arm, substantially as described.

4. A garment-hanger comprising a suspension device having a lateral support, two folding arms hinged together and sustained by said support for adjustment of their opposite sides relatively to each other; one of said arms having two side extensions provided with loop-rests having openings at their top central portions and supporting the sides of the other unfolded arm and adapted to overlock said arm at opposite ends of the loop-rests, substantially as described.

5. A garment-hanger comprising a suspension device having a lateral support, oppositely-extending arms on said support having opposite sides adjustable thereon relatively to each other, and clasps adapted to the arms and openable by pressing opposite sides of the arms toward each other, substantially as described.

6. A garment-hanger comprising a suspension device having a lateral support, oppositely-extending arms on said support having opposite sides adjustable thereon relatively to each other, and clasps adapted to the arms and adjustable thereon toward and from each other and openable by pressing opposite sides of the arms toward each other, substantially as described.

7. A garment-hanger comprising a suspension device having a lateral support, oppositely-extending arms hinged together and having opposite sides adjustable on said support relatively to each other, means sustaining one unfolded arm from the other arm, and clasps adapted one to the opposite sides of each arm and openable by pressing opposite sides of the arms toward each other, substantially as described.

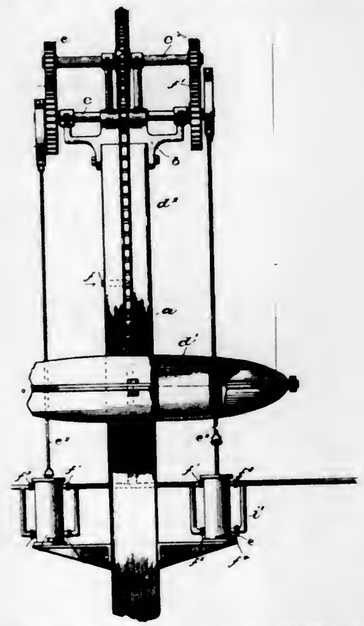
8. In a garment-hanger, the combination of a suspension device having lateral loop-support, and two arms *a*, *b*, having eyes hinging them together and sustaining them from said support; one arm having extensions provided with loops *k*, sustaining the other unfolded arm, substantially as described.

9. In a garment-hanger, the combination of a suspension device having a lateral loop-support, two arms *a*, *b*, having eyes hinging them together and sustaining them from said support; one arm having extensions provided with loops *k*, sustaining the other unfolded arm; and clasps *d*, *d*, having hooks *e*, *e*, adapted to and adjustable along the arms *a*, *b*, substantially as described.

10. A garment-hanger comprising a suspension device having a lateral loop formation and a loop or hook above said looped portion, two folding arms hinged together and sustained at their hinge by said laterally-looped portion of the suspension device for adjustment of opposite sides of said arms relatively to each other, and means supporting one unfolded arm from the other arm, substantially as described.

11. A garment-hanger comprising a suspension device having a lateral loop formation and a loop or hook both above and below said looped portion, two folding arms hinged together and sustained at their hinge by said laterally-looped portion of the suspension device for adjustment of opposite sides of said arms relatively to each other, and means supporting one unfolded arm from the other arm, substantially as described.

680,357. WAVE-POWER APPARATUS. WARREN L. RHOADS, Lansdowne, Pa. Filed Oct. 8, 1900. Serial No. 32,426. (No model.)

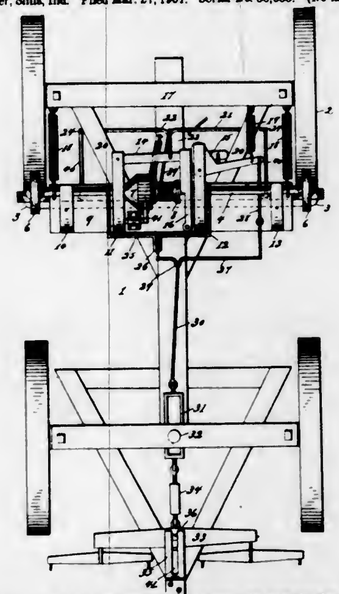


Claim.—1. Apparatus of the class recited comprising a post or pile having a driving-wheel, a float movable in respect to the post or pile, a submerged air-compression cylinder having a piston and having an air-intake carried by the post or pile and independent of the float and located above the water-line, and means interposed between the driving-wheel and said piston for operating the piston, substantially as described.

2. Apparatus of the class recited comprising a fixed post or pile having a sprocket-wheel, a movable float penetrated by said post or pile and adapted to operate the sprocket-wheel, a sprocket-chain, submerged air-compression cylinders having pistons and valved inlet and outlet ports and an intake located above the water-line, and means substantially as described for operating said pistons.

3. Apparatus of the class recited comprising a fixed post or pile provided with a sprocket-wheel, a sprocket-chain, a movable float penetrated by said post or pile and connected to said sprocket-wheel by means of the sprocket-chain, submerged air-compression cylinders having pistons and valved inlet and outlet ports, an air-intake separate from the float and located above the water-line, and means interposed between the sprocket-wheel and pistons for operating the same, substantially as described.

680,358. AUTOMATIC VEHICLE-BRAKE. JESSE D. RICHARDS, Wabash, Ind., assignor of one-half to Edward Gillenwater and Eber Baker, Sims, Ind. Filed Mar. 27, 1901. Serial No. 53,035. (No model.)



Claim.—1. In an automatic vehicle-brake, the combination with a vehicle-truck of a longitudinally-moving whiffletree, cylindrical pulleys, means for connecting said cylindrical pulleys and whiffletree, a cross-rod adapted to carry said pulleys, a friction-clutch on said cross-rod, brake-shoes adapted to be operated by the revolution of said clutch through intermediate mechanism, and means for throwing said clutch in and out of engagement, substantially as described.

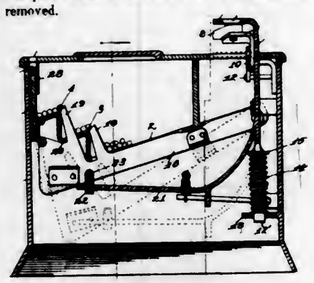
2. In an automatic vehicle-brake, the combination with a vehicle-truck of a longitudinally-moving whiffletree, cylindrical pulleys, means for connecting said cylindrical pulleys and whiffletree, pawls secured within said pulleys, a cross-rod adapted to carry said pulleys, ratchet-teeth in said cross-rod, adapted to be engaged by said pawls, a friction-clutch, brake-shoes adapted to be operated by said friction-clutch through intermediate mechanism, and means for operating the whole, substantially as described.

3. In an automatic vehicle-brake, the combination with a vehicle-truck, of vehicle-wheels, cylindrical pulleys adapted to engage the tread of the same, a friction-clutch operated by said pulleys, a spool connected to said clutch, brake-shoes adapted to be operated by said clutch, through intermediate mechanism, and means for increasing the friction of said clutch directly as the power of the brakes is increased, substantially as described.

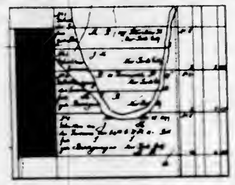
680,359. COMBINED CIGAR-CUTTER AND MATCH-SAFE. JOSEPH RIST, St. Louis, Mo. Filed Apr. 22, 1901. Serial No. 56,951. (No model.)

Claim.—1. A match-box, having an inclined bottom and a number of slots formed therein, arms pivotally supported below the bottom, a plate carried by said arms, means for operating the arms and plate, means whereby the said arms will deliver matches onto the plate, and means whereby the matches will be delivered one by one and held until removed, substantially as specified.

2. A match-box, having an inclined bottom provided with elevated portions near its lower end, a number of arms pivotally supported below the bottom, projections carried by said arms adjacent to the elevated portions, a plate carried by said arms and comprising a carrier and one member of a clamp, a section of soft material supported near said plate and forming the second member of the clamp, and means for operating the arms and plate to deliver matches to the clamp whereby they will be held until removed.

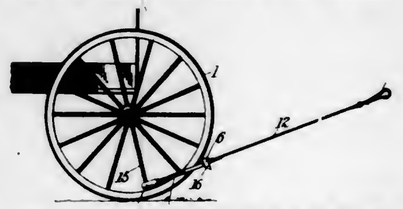


680,360. FORM AND RECORD BOOK. MAX ROSETT, New York, N. Y. Filed Dec. 23, 1899. Serial No. 741,483. (No model.)



Claim.—A form-book provided with two successively-arranged form-sheets, the forms on both sheets being of the same height, the upper sheet being arranged in the book so that each of its forms will overlap the forms of the other form-sheet to the extent of one-half the height of a form, a part-record sheet directly beneath the form-sheets and adapted to receive a portion of the forms on each, two full-record sheets arranged beneath the part-record sheet and a page of copying-paper between the second form-sheet and the part-record sheet, the copying material being arranged upon the paper in horizontal lines, separated by lines free from copying material.

680,361. HORSE-CHECKING DEVICE. WILLIAM L. G. RUMPF, Chicago, Ill. Filed Apr. 4, 1901. Serial No. 54,314. (No model.)



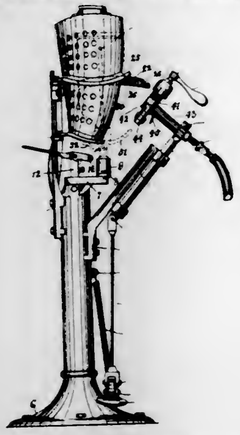
Claim.—1. In a device of the character described, the combination with a hitch-strap, of a checking device comprising a frame, and means for connecting the frame to the spoke of a wheel, said frame being provided with downwardly-projecting anchor-teeth, substantially as described.

2. In a device of the character described, the combination with a hitch-strap, of a checking device comprising a frame, and means for connecting the frame with the spoke of a wheel, said means consisting of a spring-actuated bolt, said frame being provided with an elastic cushion to prevent abrasion, and at one end with downwardly-projecting anchor-teeth, substantially as described.

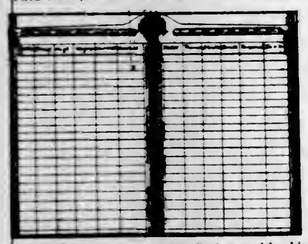
3. In a device of the character described, the combination with a hitch-strap, of a checking device consisting of an oblong rectangular frame provided with a cushion upon its rear cross-bar and with downwardly-projecting teeth on its front cross-bar, said frame being open at one side, a housing connected to the front cross-bar, a bolt sliding in said housing to close the open side of the frame, and a spring encompassing the bolt within the housing for holding said bolt closed, substantially as described.

680,362. MACHINE FOR FILLING BOTTLES OR SIPHONS. EUGENE J. SCHWEIKER, New York, N. Y., assignor to the New York Bottlers' Supplies Manufacturing Co., Ltd., same place. Filed Jan. 24, 1901. Serial No. 44,523. (No model.)

Claim.—An apparatus for filling bottles or siphons comprising a standard an upright connected therewith, a support secured to the top of the standard and adapted to hold a bottle or siphon in an inverted position, a shield pivoted to said upright and adapted to partially inclose the bottle or siphon on one side thereof, a segmental arm also connected with said upright and adapted to inclose the bottle or siphon on the other side thereof, a lever pivoted beneath said shield and adapted to operate the valve-lever of the bottle or siphon, an arm connected with the standard and projecting upwardly and forwardly, a slide connected with said arm, a filling device connected with said slide and adapted to engage the discharge-spout of the bottle or siphon when said slide is depressed, and means for operating said slide, substantially as shown and described.



680,363. PAGE-INDICATOR. ROBERT SCOTT, North Yakima, Wash. Filed Dec. 1, 1900. Serial No. 38,352. (No model.)



Claim.—1. A device of the class described comprising hinged plates having clips at the front and rear edges on the under sides thereof adapted to receive a blotter, and clips upon the upper faces of the plates at the front edges thereof to receive slips of headings.

2. A device of the class described comprising weighted hinged plates, said plates having each a blotter secured to its under side and having clips on its upper side for engagement with heading-slips.

3. A device of the class described comprising hinged plates, a weight secured to the upper face of each plate, spring-clips engaged in the weights and disposed to exert clamping actions against the plates, and means for holding blotters to the under sides of the plates.

680,364. RADIATOR. ISAAC D. SMEAD, Cincinnati, Ohio. Filed Mar. 23, 1901. Serial No. 52,599. (No model.)

Claim.—1. A radiator composed of two substantially parallel walls with an intervening water-space, each of said walls being provided with ribs on both their inner and outer faces, the ribs on one inner face alternating with those on the opposing inner face and arranged to form a series of vertical channels extending from top to bottom, substantially as shown and described.

2. A radiator formed with two substantially parallel opposing walls with an intervening space for water, each wall being provided with a series of vertical ribs on their inner faces, the ribs on one face projecting into the spaces between the ribs on the opposing face, thereby forming a series of vertical channels and also a tortuous passage from end to end of the radiator, substantially as shown and described.

3. A radiator formed with two opposing walls, each provided with ribs or projections on their inner faces, the ribs or projections of one inner face extending into the spaces between those of the opposing inner face; and an enlarged chamber extending throughout the length of the radiator at both the top and bottom thereof, said chambers being in direct communication with the passages formed intermediate the ribs, substantially as described.

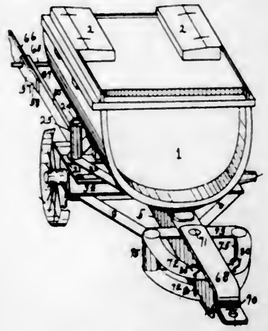


680,365. TOOTH-BRUSH. WILHELM STARK, Vienna, Austria-Hungary. Filed Dec. 18, 1899. Serial No. 740,766. (No model.)



Claim.—In a tooth-brush, the combination of two arms *a* and *b* each provided with bristles near one end, the other ends being adapted to serve as handles having respectively an edged projection *d* on the arm *a*, and a recess therefor in the arm *b*, together with an elastic ring *e* surrounding said arms *a* and *b* for the purpose set forth.

680,366. TENDER FOR TRACTION-ENGINES. JOSEPH STAVER, Quinby, Iowa. Filed June 4, 1901. Serial No. 63,073. (No model.)



Claim.—1. In a tender for traction-engines, a central draw-bar, angular stay-frames rigidly secured to the draw-bar, one beneath and one above, axles carrying sustaining-wheels pivoted between the angular frames, means connected with the engines for operating the axles, an equalizer connecting the axles, and a draw-frame flexibly secured to the tender and connected with the engine, as and for the purposes shown.

2. In a tender for traction-engines a central draw-bar, angular frames secured one above and one beneath the draw-bar, axles pivoted in the frame and a draw-frame provided with plates 50 flexibly attached to the frame of the tender and a bar 65 loosely engaging the central draw-bar, as and for the purposes shown.

3. In a tender for traction-engines, a central draw-bar, angular stay-frames secured to the draw-bar one above and one below the draw-bar, axles carrying sustaining-wheels pivoted between the stay-frames, a track secured on opposite sides of the draw-bar, rollers pivoted to the inner ends of the axles and adapted to travel upon the tracks, an equalizer connecting the axles, means connecting the axles with the engine for operating the axles and a draw-frame flexibly connected to the frame of the tender, substantially as and for the purposes shown.

4. In a tender for traction-engines, a central draw-bar, angular frames, rigidly secured to the draw-bar, the one above and the other beneath the same, a stay 24, a water-tank upon said stay, a yielding draw-frame attached to the draw-bar and angular frames and yielding connections between the tender and engine, as and for the purposes shown.

5. In a tender for traction-engines a central draw-bar, angular stay-frames fastened to the draw-bar, axles pivoted in the frame and provided with rollers, a track attached to the frame, a coupler pivoted to the rear of the draw-bar and adapted to be turned in the plane of the draw-bar, a yielding draw-frame, means for attaching the draw-frame and axles to the engine and a tank, substantially as and for the purposes shown.

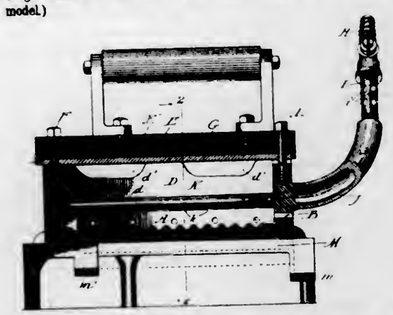
6. In a tender for traction-engines a central draw-bar, frames 7 and 19 secured to the draw-bar, axles pivoted in the angular frames and provided with rollers upon their inner ends, curved tracks for said rollers, means for connecting the axles with the engine, and the frame 47 provided with plates 50 loosely secured to the cross-plates 48, bar 65 loosely engaging the forward end of the draw-bar and connecting-plates 66, as and for the purposes shown.

7. In a tender for traction-engines, a central draw-bar, an angular frame fastened to the top of the draw-bar, an angular truss-frame secured to the under side of the draw-bar, axles pivoted between the frames and provided with rollers on their inner ends, curved tracks for the rollers, a tank, stays for holding the tank upon the frame and a yielding draw-frame attached to the draw-bar, as and for the purposes shown.

8. In a tender for traction-engines, a central draw-bar, stay-frames secured to the draw-bar, one above and the other beneath, axles pivoted between the outer corners of said stay-frames, a curved track secured upon the opposite sides of the draw-bar, rollers pivoted to the inner ends of the axles, and adapted to travel upon the tracks, bars loosely connected to the inner ends of the axle and to the engine, a frame consisting of plates 48 rigidly attached to the draw-bar and stay-frame, said draw-bars attached in a yielding manner to the plate 48 and yielding connection between the tender and engine, substantially as described and shown.

9. A tender for traction-engines, consisting of a central draw-bar, angular frames secured to said draw-bar, axles pivoted in the frames and provided with rollers, tracks 29, connection between the axles and engine, an equalizer connecting the axles, supporting-wheels, coupler 68, draw-frame 47 loosely united to the frame of the tender and provided with a bar 65 loosely engaging the forward end of the draw-bar 5, means for connecting the frame with the engine, and a tank secured to the tender, as and for the purposes shown.

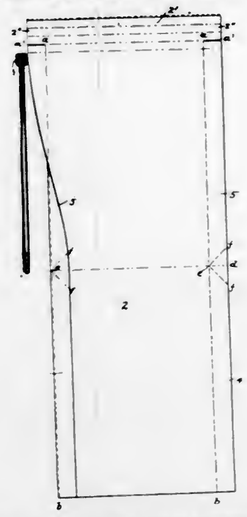
680,367. FLAT-IRON. THOMAS D. STEWART, Chicago, Ill., assignor, by mesne assignments, to the Ryder Manufacturing Company, Binghamton, N. Y. Filed Sept. 28, 1899. Serial No. 731,977. (No model.)



Claim.—1. A flat-iron having a hollow body and a burner disposed therein, said burner having a combined mixing and heating chamber, said chamber being curved upward and downward so that its upper end is practically vertical while its lower end is practically horizontal, and provided with an outlet for gas, said chamber being also gradually enlarged toward its outlet, substantially as set forth.

2. A flat-iron having a hollow body, and a burner disposed therein, said burner comprising the gas-pipe H, the neck I having air-openings, the mixing and heating chamber J curved upward and downward and also toward one side, said chamber being provided at its lower end with an outlet for gas and being enlarged toward said outlet, and the tube K communicating with the outlet of the mixing and heating chamber and provided with openings for the discharge of the gas, substantially as set forth.

680,368. ENVELOP. WILLIAM P. SHATTUCK, Minneapolis, Minn., assignor to the Shattuck Manufacturing Company, same place. Filed Aug. 13, 1900. Serial No. 26,736. (No model.)



Claim.—1. An envelop formed from a rectangular blank folded once upon itself to provide two body parts, said blank being provided throughout the length of the body parts with continuous uncut side flaps or folds, having the triangular folds *f*, *f*, and one part of each side flap being secured to the inside of the opposite body part, and the other part of each side flap being secured to the other side of the body part, substantially as described.

2. An envelop formed from a rectangular blank folded once upon itself to provide two body parts, said blank being provided throughout the length of the body parts with continuous uncut side flaps or folds having the triangular folds *f* *f*, one part of each side flap being secured to the inside of the opposite body part, and the other part of each side flap being secured to the other side of the body part, and the upwardly and laterally projecting top flap 2', substantially as described.

3. An envelop formed from a rectangular blank folded once upon itself to provide two body parts, said blank being provided throughout the length of the body parts with continuous uncut side flaps or folds having the triangular folds *f* *f*, one part of each side flap being secured to the inside of the opposite body part, and the other part of each side flap being secured to the other side of the body part, the top envelop-flap 2', and the U-shaped metal strip clasped upon the top edge of said flap, 2', said strip being of less width than said flap, and adapted to be rolled and covered therein and thereby to close the envelop, substantially as described.

4. The envelop provided with an upwardly and laterally projecting top flap, in combination with the U-shaped strip of metal clasped upon the top edge of said flap, said strip being of less width than said flap and adapted to be rolled in and covered by said flap, and the ends of said metal strip being adapted to be bent around the sides of the envelop as and for the purpose specified.

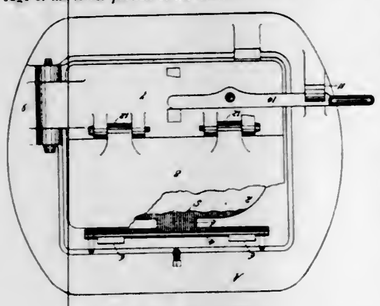
680,369. FURNACE FIRE-DOOR AND ATTACHMENT. FRANK L. BATES, San Francisco, Cal. Filed Apr. 13, 1901. Serial No. 55,649. (No model.)

Claim.—1. The combination with a furnace and a fire-door, of a door-casing having a slot above the door-opening, and a downwardly-inclined directing-plate fitted in said slot said slot having offsets forming supplemental air-openings leading to the furnace.

2. The combination with a furnace having a door-opening, of a door-casing having an opening which registers with that of the boiler-front, a two-part door hinged to the casing and the upper portion of which is hinged to the lower portion to open outwardly and downwardly, and a plate projecting into the furnace, said casing having a slot in it above its opening, adapted to adjustably receive said plate, and having supplemental air-openings contiguous to the plate.

3. A steam-boiler furnace having a surrounding water-leg, an opening made through the rear wall thereof, a door-casing fixed to said wall

and having an opening coincident with that of the boiler, and having a slot above said opening, a horizontally-divided door, the lower part of which is closed, and the upper part is hinged to remain open when the boiler is in use, a deflecting-plate secured within said slot and extending into the furnace, said casing having supplemental air-openings contiguous to said plate, and an inclined deflecting-plate extending inwardly from the upper edge of the lower portion of the door.



680,370. BUCKLE. ERICK P. BERGMAN and ARTHUR E. RENARD, Concordia, Kans. Filed June 18, 1901. Serial No. 65,029. (No model.)

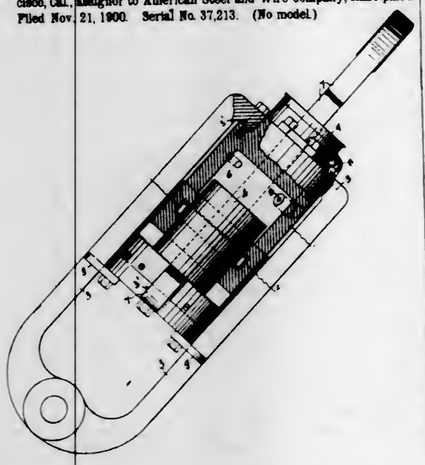


Claim.—1. In a buckle, the combination with a box-frame having a partially cut-away top and open ends, the side pieces having elongated bearings, a spring carried by the top, of a plate having a tongue and at its sides pivots which engage the elongated slots, and lugs which engage the front of the box-frame, substantially as shown and for the purpose set forth.

2. In a buckle, the combination with an open-ended box-frame, of a tongue-carrying piece pivotally connected thereto so as to be susceptible of a longitudinal movement the tongue-piece having near its front end laterally-projecting lugs for retaining the tongue-carrying piece on a line with the upper side of the box-frame, substantially as shown.

3. In a buckle the combination of a box-frame comprising a base-plate having a slot therethrough, side pieces which are cut away to provide near the ends recesses, elongated bearings adjacent to the partial top of the box-frame, a spring carried by said partial top so that its free end will project beyond the same, a tongue-carrying piece having a tongue and at its ends laterally-projecting pivots and lugs, substantially as shown.

680,371. STRESS APPARATUS. HENRY M. BRITTAN, San Francisco, Cal., assignor to American Steel and Wire Company, same place. Filed Nov. 21, 1900. Serial No. 37,213. (No model.)



Claim.—1. In a stress apparatus the combination of a cylinder, and a piston, yokes connected with the cylinder and piston and extending in opposite directions said yokes including arms having interned ends secured respectively to the heads of the cylinder and piston; means carried by the yokes for the attachment of a rope or part to be tested; and means for indicating the tension upon the part to be tested.

2. In a stress apparatus the combination of a cylinder: a piston; radial slotted guides fixed to the head of the piston; a yoke the arms of which extend through said guides and are interned and attached to the head of the cylinder; a second yoke at right angles to the first-named one and radial slotted guides on the head end of the cylinder through which the arms of the second yoke extend said arms having interned ends fixed to the head end of the piston; means carried by the yokes for the attachment of the part to be tested; and an indicator and means connecting it with the interior of the cylinder whereby the tension transmitted is shown.

680,372. MECHANICAL MOVEMENT. ORLANDO W. BROWN, Pittsburg, Pa. Filed Sept. 6, 1900. Serial No. 29,200. (No model.)



Claim.—A mechanical movement comprising a reciprocable shaft formed with reversed spiral grooves in its surface, a collar loosely mounted on the shaft and formed with an interior recess, a shoe loosely disposed in the recess and engaging the spiral grooves, disks loosely mounted on the shaft, and tie-rods connecting said disks and engaging the said collar, and means to rotate the disks with the collar, substantially as specified.

680,373. STUD FOR FASTENERS. WILLIAM P. DEVINE, Boston, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Nov. 6, 1899. Serial No. 735,907. (No model.)



Claim.—1. In a ball-and-socket fastener, a ball member made of a single piece having a central boss, as *c*, said boss having flaring sides and depressed top and annular base, an annular interned rim, as E, and a series of curved spring holding-pieces.

2. In a ball-and-socket fastener, a ball member made of a single piece of metal, comprising a base-plate consisting of a solid disk having a centrally-located boss, an annular interned flange pressed down on said base-plate, a series of curved spring-fingers struck upward and having their upper free ends curved inward, and perforations passing through both the flange and base-plate.

3. In a ball-and-socket fastening, a ball member formed of a single piece of metal comprising a base-plate having a central boss, said base-plate having its outer edge turned in and downward on the body portion thereof and forming an annular flange, and a series of upwardly-extending spring-fingers having their base portions in contact with the periphery of the boss, the upper ends of said fingers being curved inwardly over said boss, substantially as specified.

4. In a ball-and-socket fastening, a ball member formed of a single piece of die-formed metal provided with a central boss C having flaring sides, an interned flange E, and a series of upwardly-extending perforated spring-fingers, each of said fingers having its base pressed closely against the periphery of the boss and having its upper free end bent inwardly over said boss, substantially as specified.

680,374. PROCESS OF PRESERVING MEATS. RUDOLF EMMERICH, Munich, Germany. Filed Mar. 28, 1898. Serial No. 675,474. (No specimens.)

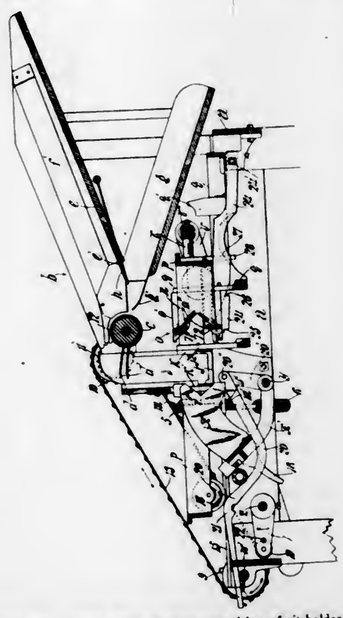
Claim.—1. The process of preserving meats which consists in treating the exterior of the meat on which the natural membranes and sinews including the hide have been left, with an antiseptic and then packing the said carcass in hygroscopic sterilized material.

2. The process of preserving meats which consists in treating the exterior of the meat, on which the natural membranes and sinews including the hide have been left, with an antiseptic, and then packing the said carcass with dried and sterilized sawdust.

3. The process of preserving meats which consists in treating the exterior of the meat, upon which the natural membranes and sinews have been left with an antiseptic, then packing dried and sterilized sawdust, while still warm around the entire carcass.

4. The process of preserving meats, which consists in retaining on the carcass the hide and sinews, treating the cut surfaces with vinegar and salt, and filling the cavities with dried sawdust.

680,875. FRUIT GRADER, CUTTER, AND PITTER. JOSEPH W. FAWKES, Sr., Burbank, Cal. Filed May 28, 1900. Serial No. 18,317. (No model.)



Claim.—1. A fruit cutter and pitter comprising a fruit-holder adapted and arranged to hold the fruit against the force of gravity; a knife to split the fruit; an expander to follow behind the edge of the knife to expand the split fruit; means for operating the knife and expander horizontally; means for returning the knife and pushing the pit back while the expander is stationary; and means for causing the fruit-holder to allow the cut fruit and pits to fall.

2. A fruit cutter and pitter comprising a fruit-holder adapted and arranged to hold the fruit against the force of gravity; a knife moving in a horizontal part to split the fruit from one side toward the other side; an expander to follow behind the edge of the knife to expand the split fruit; a knife to split the fruit from the other side and to push the fruit-pit back from the expanded pulp in a horizontal path while the expander is stationary; means for operating the knives and expander horizontally; means being arranged to hold the expander stationary while the fruit-pit is being pushed back from the pulp; and means for causing the fruit-holder to allow the cut fruit and pit to fall.

3. A fruit cutter and pitter comprising a fruit-holder adapted and arranged to hold the fruit against the force of gravity; a V-edged knife moving in a horizontal path to split the fruit from one side toward the other; an expander to follow behind the edge of the knife to expand the split fruit and to remain stationary at the close of its forward stroke; a V-edged knife to split the fruit from the other side and to push the fruit-pit back from the expanded pulp while the expander is stationary; means for operating the knives and expander horizontally; means for holding the expander stationary while the fruit-pit is being pushed back; and means for causing the fruit-holder to allow the cut fruit and pit to fall.

4. A fruit cutter and pitter comprising a fruit-holder; a knife to split the fruit from one side toward the other; a fruit-expander comprising an upper pair and a lower pair of superposed pulp-expanding blades, the blades of each pair being arranged on opposite sides of the path of the knife and diverging rearwardly and the edges of the superposed expander-blades diverging forwardly; and means for operating the knife and the expander.

5. A fruit cutter and pitter comprising a fruit-holder; a knife to split the fruit from one side toward the other; a fruit-expander comprising an upper pair and a lower pair of pulp-expanding blades; the blades of each pair being arranged on opposite sides of, and diverging rearwardly from the vertical plane of the path of the knife, and the edges of the superposed blades diverging forwardly from a horizontal plane; a knife to split the fruit from the side opposite the first-named knife; and means for operating the knives and expander.

6. A fruit cutter and pitter comprising a fruit-holder; a knife-carrier; a knife fastened to said carrier and arranged to be moved into and out of the fruit-holder; a pulp-expander carrier arranged to move toward and from the fruit-holder in the path of the knife-carrier; means for moving the knife-carrier to throw the knife into and out of the fruit-holder; yielding means carried by the knife-carrier to receive the forward thrust of the knife-carrier-operating means; and a stop connected with the pulp-expander carrier and mounted behind the knife-carrier-operating means to be actuated thereby to retract the pulp-expander at the close of the rearward movement of the knife.

7. A fruit cutter and pitter comprising a fruit-holder; a knife-carrier; a knife fastened to said carrier and arranged to be moved into and out of the fruit-holder; a pulp-expander carrier arranged to move toward and from the fruit-holder in the path of the knife-carrier; a plunger mounted in ways in the knife-carrier and provided with a shoulder; a spring mounted in the knife-carrier in front of said shoulder to receive the forward thrust of the plunger; means to prevent the plunger from being withdrawn from said ways; a stop connected with the pulp-expander carrier and arranged to be moved backward by the rearward movement of the plunger; a pitman connected with the plunger to move it forward and back to throw the knife and expander into and out of the fruit-holder; and a crank for operating the piston.

8. A fruit cutter and pitter comprising a fruit-holder; a knife-carrier; a knife fastened to said carrier and arranged to be moved into and out of the fruit-holder; a pulp-expander carrier arranged to move toward and from the fruit-holder in the path of the knife-carrier; a plunger mounted in ways in the knife-carrier and provided with a shoulder; a spring mounted in the knife-carrier in front of said shoulder to receive the forward thrust of the plunger; means to prevent the plunger from being withdrawn from said ways; a stop connected with the pulp-expander carrier and arranged to be moved backward by the rearward movement of the plunger; a pitman connected with the plunger to move it forward and back to throw the knife and expander into and out of the fruit-holder; a crank mounted on a shaft and connected with the pitman to operate the same; a knife arranged to move into and out of the fruit-holder in the extended path of said fruit-splitting knife; and means connected with said crank-shaft for operating said knife.

9. The combination of a fruit-holder; a knife-carrier; a knife projecting forward from said carrier; means for reciprocating the carrier for throwing the knife into and out of the fruit-holder; a pivoted knife arranged to move into and out of the fruit-holder in the extended path of said first-named knife; a wrist-pin connected with the knife-carrier to reciprocate the same; a pitman connected with said wrist-pin; a crank connected with said pitman; means connected with the crank for throwing the pivoted knife into the fruit-holder; and means for retracting the pivoted knife from the fruit-holder.

10. The combination of a fruit-holder; a knife-carrrier; a knife projecting forward from said carrier; means for reciprocating the carrier for throwing the knife into and out of the fruit-holder; a pulp-expander carrier furnished with pulp-expanders and arranged to move toward and from the fruit-holder in the path of the knife-carrier and to be actuated by the knife-carrier; a pitman connected with the knife-carrier to reciprocate the same; a crank connected with the pitman to operate the same; a pivoted knife arranged to move into and out of the fruit-holder in the extended path of said first-named knife; a cam-shaft operatively connected with the crank to be rotated thereby and provided with a cam to throw the pivoted knife into the fruit-holder to split the pulp opposite the split made by the first-named knife.

11. In a fruit cutter and pitter, a fruit-holder comprising a chute which forms the sides of the holder; two gates pivoted at opposite sides of the chute below the top thereof to form the bottom of the holder; means for simultaneously extending said gates toward each other a part of the way across said chute; means for feeding fruit into the top of the chute; and means for simultaneously retracting the gates.

12. In a fruit cutter and pitter, the combination of a chute; two gates consisting in bent wires pivoted at opposite sides of the chute; two arms, one for each of said gates and oppositely arranged relatively to said gates; and a bar connected with said arms to simultaneously operate them to move the gates, the arms of the two gates being bent vertically in opposite directions and being connected with the operating-bar above and below their respective journals.

13. In a fruit cutter and pitter, the combination of a chute with openings at its opposite sides; a reciprocating knife arranged upon one side of the chute to play through one of said openings; a reciprocating pulp-expander to follow the edge of said knife and to be reciprocated into

and out of said opening in said chute; a reciprocating knife on the other side of the chute arranged to play through the opening in said other side; two gates pivoted at the sides of the chute; means for reciprocating the knives and expander; means operatively connected therewith to move said gates toward each other to sustain the fruit in the chute while the knives and expander are advancing and to withdraw the gates from said chute after the knives and expander have been retracted.

14. In a fruit cutter and pitter, the combination with a chute having openings at its opposite sides; of a reciprocating knife arranged upon one side of the chute to play through one of said openings; a reciprocating pulp-expander to follow the edge of said knife and to be reciprocated into and out of said opening in said chute; a reciprocating knife on the other side of the chute arranged to play through the opening in said other side; two gates pivoted at the sides of the chute; means for reciprocating the knives and expander; arms connected with said gates respectively, one projecting upward and the other downward from the axis of its respective gate; a reciprocating bar for simultaneously operating the said arms to throw said gates across and retract them from said chute; means for holding the bar normally in position to throw the gates across the chute; a lug connected with said bar; and a reciprocating pivoted trip operatively connected with said first-named reciprocating knife and arranged to engage said lug at the retracting movement of said knife to withdraw said bar from its normal position, thereby to withdraw the gates from said chute.

15. In a fruit cutter and pitter, the combination of a chute; two gates pivoted to partially close the chute and arranged to be withdrawn from said chute; a reciprocating knife arranged to play into and out of said chute; an expander to follow the edge of the knife to expand the pulp of the fruit; a pivoted knife arranged to reciprocate into and out of the chute from the other side; a pitman operatively connected with the first-mentioned knife to operate the same; means for operating the expander; a crank for operating said pitman; a shaft furnished with a cam and operatively connected with the crank to throw the pivoted knife into the chute in the extended path of the first-named reciprocating knife; gates pivoted respectively at the opposite side of the chute and arranged to extend partially across the chute to close the same; arms connected with the gates respectively and extending in opposite directions on the different gates; a reciprocating bar arranged to operatively engage the said arms; a lug on said bar; means for normally holding the bar in position with the gates across the chute; and a pivoted latch operatively connected with the first-named knives to retract said bar on the return movement of said knives.

16. In a fruit cutter and pitter, the combination with a pivoted knife; a cam for throwing said knife to cut the fruit; a latch pivotally connected with said knife; and means to move with the cam to catch said latch to retract the knife at the return movement of the cam.

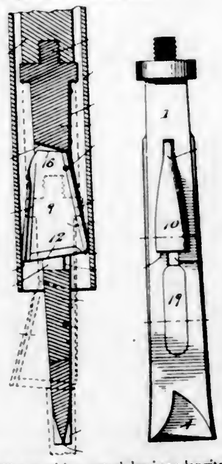
17. In a fruit cutter and pitter, the combination of a driving-shaft; a cog-wheel on said driving-shaft; a cam-shaft; a cog-wheel on the cam-shaft geared with the cog-wheel of the driving-shaft; a pivoted knife; a cam on the cam-shaft to throw the pivoted knife to split the fruit; a latch pivotally connected with the pivoted knife; a catch carried by the cam-shaft to catch the latch; said latch extending to normally rest upon the driving-shaft; and an arm on the driving-shaft to lift the latch from the catch after the knife has been retracted.

18. The combination of fruit-cutting mechanism; a fruit-holder for holding the fruit to be operated on by such mechanism; a roller provided with fingers to feed fruit to the fruit-holder; a chute to carry fruit to the roller and provided with notches to allow the fingers to pass; and operative means for synchronously operating the roller and the fruit cutting and pitting mechanism.

19. The combination of a feed-roller furnished with fingers; a chute leading to said feed-roller and provided in its floor with notches at the roller to allow the fingers to pass; a holder arranged to receive the fruit from said fingers when the roller is rotated; V-shaped splitting-knives arranged to reciprocate into and out of said holder; means for holding the fruit in said holder and releasing it therefrom; pivoted knives to reciprocate into and from the holder in the extended path of the first-mentioned knives; a crank-shaft; a pitman connected with the crank-shaft to operate the said first-mentioned knives; a cog-wheel on the crank-shaft; a cog-wheel meshing with such cog-wheel and mounted on a cam-shaft; such cam-shaft provided with a cam for operating the second-mentioned knives; a sprocket-wheel on the crank-shaft; a cog-wheel on the roller; a pinion meshing with said cog-wheel; a sprocket-wheel to drive said pinion; and a sprocket-chain connecting said sprocket-wheels together.

680,376. EXPANSION-DRILL. JAMES FORSYTHE, Onslow, Iowa. Filed Aug. 3, 1900. Serial No. 25,823. (No model.)

Claim.—1. A rock-drill comprising a stock having a longitudinal slot, and an expansion-bit pivoted within the slot and provided with flanges at its opposite edges, said flanges being disposed to permit its pivotal movement but to prevent its withdrawal.



2. A rock-drill comprising a stock having a longitudinal slot, and an expansion-bit pivoted within the slot, said bit being provided at its upper end with a flat face arranged to abut against the end wall of the slot in the expanded position of the bit, and formed at its lower end with an arcuate cutting edge and a stop-flange disposed at one side of the bit and located to be seated against the stock when the bit is expanded.

3. A rock-drill comprising a stock having a longitudinal slot, and an expansion-bit pivoted within the slot and having at its upper end a flat face arranged to abut against the end wall of the slot in the expanded position of the bit, said bit being provided with a web having a straight cutting edge formed at its lower end and a bit-flange disposed along the longitudinal edge of the bit and terminating in the plane of the lower extremity of the web, the lower end of said flange being formed with an arcuate cutting edge bisected by the straight cutting edge of the web and a stop-flange disposed at one side of the bit and located to be seated against the stock when the bit is expanded, said bit-flange and stop-flange being disposed at opposite edges of the bit to permit the pivotal movement of the bit but to prevent its withdrawal from the stock.

4. A rock-drill comprising a stock having a longitudinal slot widened at one side face of the stock, and a pivoted expansion-bit comprising a web located within the slot, a stop-flange along one edge of the web for reception within the widened end of the slot, and a bit-flange along the opposite edge of the web, the lower ends of said bit-flange and web being provided with cutting edges.

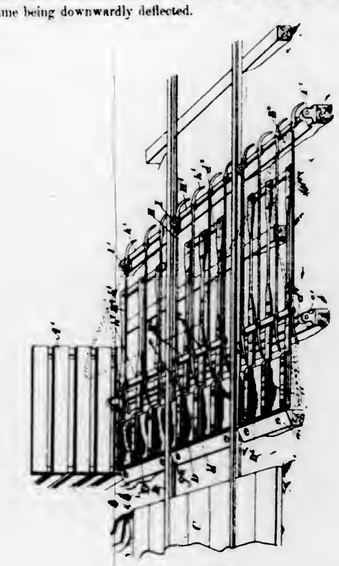
5. A rock-drill comprising a stock having a cutting edge formed at one end and provided with a slot having an inclined end wall, an expansion-bit pivoted within the slot and comprising a web having an inclined upper end arranged to abut against the inclined wall of the slot in the expanded position of the bit and having its lower end formed with a cutting edge, a stop-flange located along one longitudinal edge of the bit and designed in the working position of the latter to lie flush with the face of the stock, a bit-flange formed at the opposite edge of the web and formed at its lower end with an arcuate cutting edge, and a spring located upon one side of the stock and bearing against the stop-flange.

6. In a rock-drill, the combination with a stock formed with a slot extending entirely therethrough and with a bit-removing opening likewise extending through the stock and of greater width than said slot, a bit mounted within the slot, means preventing the lateral withdrawal of the bit from the slot and a key-block closing the bit-removing opening.

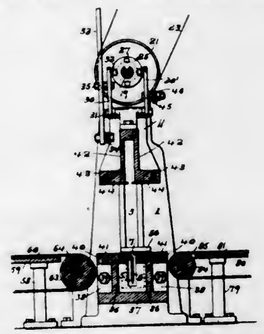
7. A rock-drill comprising a stock formed with a bit-removing opening and with a comparatively narrow slot opening therein, pivoted bit located within the slot and provided with flanges at its opposite edges of greater width than the width of the slot and disposed upon opposite sides of the stock, one of said flanges being capable of withdrawal through the opening in the stock, and a removable key-block located within the bit-removing opening.

680,377. CATTLE-GUARD. CHARLES E. HARRIS, Cookeville, Canada. Filed Feb. 1, 1901. Serial No. 45,624. (No model.)

Claim.—In combination in a cattle-guard, a pivoted frame comprising a series of longitudinal bars, a transverse bar connecting said bars at one end and a platform carried by the opposite ends of the bars and a second pivoted frame comprising a series of longitudinal bars in staggered relation to the bars of the first frame, the ends of the bars of the second frame being downwardly deflected.



680,378. CUTTING MECHANISM. EMIL C. R. HEINRICH, West Hoboken, N. J., assignor to the American Tobacco Company, of New Jersey. Filed Sept. 12, 1900. Serial No. 29,794. (No model.)



Claim.—1. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, and a receptacle containing a liquid bath located in the path of travel of the knife and into which the knife enters after passing through the substance to be cut, substantially as described.

2. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, and a receptacle containing a liquid bath located in the path of travel of the knife and into which the knife enters after passing through the material to be cut, the mouth of said receptacle being provided with means for removing from the knife any portions of material to be cut which may adhere thereto, substantially as described.

3. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, of a receptacle containing a liquid bath located in the path of travel of the knife and into which the knife enters after passing through the material to be cut, the mouth of said receptacle being provided with scraping edges, substantially as described.

4. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, a bearing-surface for the material to be cut, said surface being provided with means for removing from the knife any portions of material which may adhere thereto, and a fluid-receptacle located behind the surface and into which the knife enters after passing through the material, substantially as described.

5. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, a bearing-surface for the material to be cut, said surface being provided with a slot the edges of which operate as scraping devices, and a fluid-receptacle located behind the surface and into which the knife enters after passing through the material, substantially as described.

6. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, and bearing-plates against which the substance to be cut may be forced during the cutting operation, said plates being provided with slots into which the knife enters after passing through the substance, the edges of the slots being arranged to act as scraping devices, substantially as described.

7. In a cutting mechanism, the combination with a knife, of means for supporting and operating it, bearing-plates against which the substance to be cut may be forced during the cutting operation, said plates being provided with slots into which the knife enters after passing through the substance the edges of the slots being arranged to act as scraping devices, and a fluid-receptacle arranged behind one of the plates and in the path of the knife, substantially as described.

8. In a cutting mechanism, the combination with a frame having slotted side pieces, of a knife-carrier guided in the slots of the side pieces, means for moving the carrier, a knife secured to the carrier, a bearing-plate supported in the frame having a slot into which the knife enters after passing through the material, and a fluid-receptacle arranged behind the bearing-plate and in the path of the knife, substantially as described.

9. In a cutting mechanism, the combination with a frame having slotted side pieces, of a knife-carrier guided in the slots of the side pieces, means for moving the carrier, a knife secured to the carrier, a bearing-plate supported in the frame having a slot into which the knife enters after passing through the material, the edges of said slot being arranged to act as scraping devices, and a fluid-receptacle arranged behind the bearing-plate and in the path of the knife, substantially as described.

10. In a cutting mechanism, the combination with the frame having slotted and chambered side pieces, nuts arranged in the chambers of the side pieces and guided in the slots said nuts forming a carrier, a knife connected to the nuts, means for rotating the screws, and a bearing-plate supported in the frame, said plate having a slot into which the knife enters, the edges of the slot being arranged to act as a scraping device, substantially as described.

11. In a cutting mechanism, the combination with the frame having slotted and chambered side pieces, screws located in the chambers of the side pieces, nuts arranged in the chambers of the side pieces and guided in the slots said nuts forming a carrier, a knife connected to the nuts, means for rotating the screws, a bearing-plate supported in the frame, said plate having a slot into which the knife enters, and a fluid-receptacle arranged behind the plate, substantially as described.

12. In a cutting mechanism, the combination with the frame having slotted and chambered side pieces, screws located in the chambers of the side pieces, nuts arranged in the chambers of the side pieces and guided in the slots said nuts forming a carrier, a knife connected to the nuts, means for rotating the screws, a bearing-plate supported in the frame, said plate having a slot into which the knife enters, the edges of the slot being arranged to act as a scraping device, and a fluid-receptacle arranged behind the plate, substantially as described.

13. In a cutting mechanism, the combination with the frame having slotted sides, of a knife-carrier guided in the slots of the frame, a knife secured to the carrier, means for driving the carrier, slotted bearing-plates supported in the frames and located at each end of the travel of the knife, and a fluid-receptacle arranged behind one of the plates, substantially as described.

14. In a cutting mechanism, the combination with the frame having slotted sides, of a knife-carrier guided in the slots of the frame, a knife secured to the carrier, means for driving the carrier, slotted bearing-plates supported in the frames and located at each end of the travel of the knife the edges of the slots being arranged to act as scraping devices, and a fluid-receptacle arranged behind one of the plates and in the path of travel of the knife, substantially as described.

15. In a cutting mechanism, the combination with a frame having slotted and chambered sides, of screws located in the chambers of the sides, nuts engaging the screws, a knife secured to the nuts, means for rotating the screws, and a slotted bearing-plate at each end of the travel of the knife, the edges of the slot being arranged to act as scraping devices, substantially as described.

16. In a cutting mechanism, the combination with a frame having slotted and chambered sides, of screws located in the chambers of the sides, nuts engaging the screws, a knife secured to the nuts, means for rotating the screws, a slotted bearing-plate at each end of the travel of the knife the edges of the slot being arranged to act as scraping devices, and a fluid-receptacle located behind one of the bearing-plates and in the path of travel of the knife, substantially as described.

17. In a cutting mechanism, the combination with a frame having slotted sides, a knife-carrier guided in the slots of the sides, a knife secured to the carrier, means for driving the carrier, a slotted bearing-plate supported in the frame the edges of the slot being arranged to act as scraping devices, a power mechanism for the carrier-driving means, and automatic devices for disconnecting the power mechanism from the driving means after the knife has entered the slot in the bearing-plate, substantially as described.

18. In a cutting mechanism, the combination with a frame having slotted sides, a knife-carrier guided in the slots of the sides, a knife secured to the carrier, means for driving the carrier, a slotted bearing-plate supported in the frame the edges of the slot being arranged to act as scraping devices, a power mechanism for the carrier-driving means, automatic devices for disconnecting the power mechanism from the driving means after the knife has entered the slot in the bearing-plate, and a fluid-receptacle located behind the slotted plate and in the path of the knife, substantially as described.

19. In a cutting mechanism, the combination with a frame having slotted sides, of a knife-carrier guided in the slots of the sides, means for driving the carrier, slotted bearing-plates supported in the frame and located at each end of the travel of the knife, the edges of said slots being arranged to act as scraping devices for the knife, a power mechanism for the carrier-driving means, and automatic stopping devices arranged to disconnect the power mechanism from the driving means at each end of the travel of the knife, substantially as described.

20. In a cutting mechanism, the combination with a frame having slotted sides, of a knife-carrier guided in the slots of the sides, means for driving the carrier, slotted bearing-plates supported in the frame and located at each end of the travel of the knife the edges of said slots being arranged to act as scraping devices for the knife, a power mechanism for the carrier-driving means, automatic stopping devices arranged to disconnect the power mechanism from the driving means at each end of the travel of the knife, and a fluid-receptacle located behind one of the bearing-plates and in the path of travel of the knife, substantially as described.

21. In a cutting mechanism, the combination with a carrier consisting of a pair of recessed blocks, a guide for each block arranged to prevent any lateral movement thereof, a knife-blade, the ends of said blade being located in the recesses in the blocks, and a cover-plate closing the recesses and serving to hold the knife firmly in the blocks, substantially as described.

22. In a cutting mechanism, the combination with a pair of slotted guides, of a knife-carrier consisting of a pair of recessed threaded blocks moving in the slots and guided thereby, screws engaging the threaded blocks, a knife-blade, the ends of which are located in the recesses in the threaded blocks, and cover-plates closing the recesses and serving to hold the knife-blade firmly in the threaded blocks, substantially as described.

23. In a cutting mechanism, the combination with a frame, of a knife-carrier supported and guided therein, means for operating the knife-carrier, a knife mounted on the carrier, a slotted bed-plate for supporting the substance to be cut, the edges of the slot being arranged to act as scraping devices, a feeding device arranged to deliver said substance to the bed-plate and advance it thereacross, and a fluid-receptacle behind the bed-plate and in the path of the knife, substantially as described.

24. In a cutting mechanism, the combination with a frame, of a knife-carrier supported and guided therein, means for operating the knife-carrier, a knife mounted on the carrier, a slotted bed-plate for supporting the substance to be cut, the edges of the slot being arranged to act as scraping devices, a feeding-belt arranged to deliver said substance to the bed-plate and advance it thereacross, means for operating the belt, and a fluid-receptacle behind the bed-plate and in the path of the knife, substantially as described.

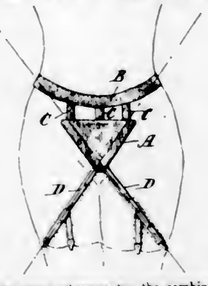
25. In a cutting mechanism, the combination with a frame, of a knife-carrier supported and guided therein, means for operating the knife-carrier, a knife mounted on the carrier, a slotted bed-plate for supporting the substance to be cut the edges of the slot being arranged to act as scraping devices, a feeding-belt arranged to deliver said substance to the bed-plate and advance it thereacross, a second feeding-belt arranged to deliver the material after it is cut, means for driving both belts, and a fluid-receptacle located behind the bed-plate and in the path of the knife, substantially as described.

26. In a cutting mechanism, the combination with a frame having slotted sides, of a knife-carrier guided in the slots of the sides, means for driving the carrier, slotted bearing-plates supported in the frame, a power mechanism for operating the knife-driving means, and means operated by the knife at each end of its movement for disconnecting the power mechanism from the knife-driving means, substantially as described.

27. In a cutting mechanism, the combination with a frame having slotted and chambered sides, of slotted bearing-plates supported in the frame, screws located in the chambers of the sides of the frame, nuts engaged by the screws and guided in the slots in the sides of the frame, a shaft for driving the screws, power devices for driving the shaft in opposite directions, a clutch for causing either power device to drive the shaft, shifting-levers for operating the clutch to disconnect the power devices from the shaft, and means whereby the knife-carrier operates a shifting-lever at each end of its stroke, substantially as described.

28. In a cutting mechanism, the combination with a frame having slotted and chambered sides, of slotted bearing-plates supported in the frame, screws located in the chambers of the sides of the frame, nuts engaged by the screws and guided in the slots in the sides of the frame, a shaft for driving the screws, power devices for driving the shaft in opposite directions, a clutch for causing either power device to drive the shaft, shifting-levers for operating the clutch to disconnect the power devices from the shaft, means whereby the knife-carrier operates a shifting-lever at each end of its stroke, bearing-surfaces having slots through which the knife works, the edges of the slots being arranged to act as scraping devices, and a fluid-receptacle located behind one of the plates and in the path of the knife, substantially as described.

680,379. **GARMENT-SUPPORTER.** CHRISTINA J. HIGLEY, New York, N. Y. Filed June 8, 1900. Serial No. 19,608. (No model.)



Claim.—1. In a garment-supporter, the combination, with a flexible abdominal pad, the sides of which converge downwardly, and which is provided with an elastic suspension device whereby it may be secured to the wearer, of stocking-supporting tapes secured to the lower portion of said pad.

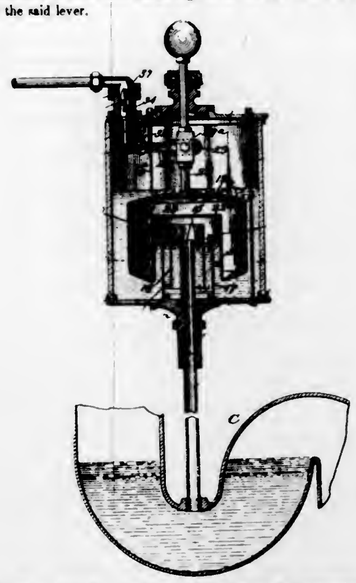
2. In a garment-supporter, the combination, with an abdominal pad, the sides of which converge downwardly, and which is formed of flexible and elastic material, and is provided with an elastic suspension device whereby it may be secured to the wearer, of stocking-supporting tapes secured to the lower portion of said pad.

3. In a garment-supporter, the combination, with an abdominal pad formed of flexible material, of a waist-belt for supporting said pad, elastic material connecting said pad and waist-belt, and stocking-supporting tapes secured to the lower portion of said pad.

680,380. **MEANS FOR PRESERVING SEALS IN TRAPS OF WATER-CLOSETS, URINALS, WASHBASINS, SINKS, &c.** MARY A. HYDE, New York, N. Y. Filed Oct. 13, 1900. Serial No. 32,944. (No model.)

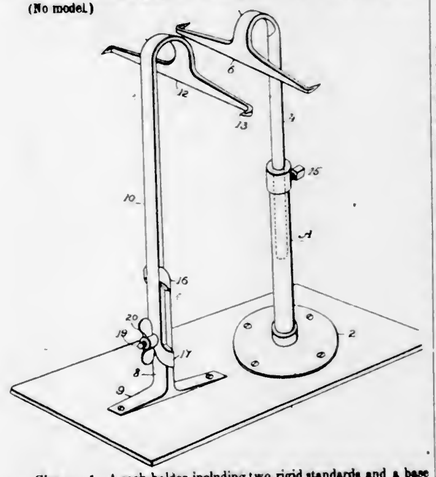
Claim.—1. The combination, with a reservoir, means for connecting said reservoir with the water seal of a trap, a stand-pipe within the reservoir, in communication with the connection between the reservoir and trap, jackets located one within the other and around the said stand-pipe, the outer jacket being open at its top only and the inner jacket being open at both its bottom and its top, of a bell having double walls and an air-space between the walls, a stem connected with the bell and having guided movement in a head of the reservoir, a lever having sliding connection with the stem, and a pressure-valve the casing of which is located at the exterior of the reservoir, and in communication with the interior thereof, which pressure-valve is operated through the medium of said lever, for the purpose described.

2. The combination, with a reservoir, a connection whereby the reservoir may be attached to a water-seal trap, a stand-pipe within the reservoir in communication with said connection, jackets located one within the other around the stand-pipe, the outer jacket at its upper edge being substantially in a horizontal plane with the upper edge of the stand-pipe, the upper edge of the inner jacket extending above the stand-pipe, the outer jacket having an open top and closed bottom and the inner jacket being open at the top and bottom, and a bell having sliding movement over both jackets, the said bell being provided with double walls, an air-space being between the walls and the tapering bottom, of a stem having sliding movement in a head of the reservoir, a lever pivoted within the reservoir, having a slot at one of its ends, a pin passed through said stem into the slot of the lever, a valve-casing connected with a source of water-supply and connected likewise with the interior of the casing, a valve within the said casing, normally seated by the water-pressure, and a stem attached to said valve, extending within the reservoir, and operated by the said lever.



3. The combination, with a reservoir adapted for connection with a water-seal trap, a stand-pipe in communication with said connection, concentric jackets surrounding the stand-pipe, the outer jacket receiving water at the top and the inner jacket at the bottom the said inner jacket being open at top and extending above the outer jacket, and a bell having movement over said jackets and adapted to be seated on the inner jacket, of a guide for the bell, a pressure-valve connected with the interior of the reservoir, and a lever for operating the pressure-valve, which lever is operated by the guide for said bell, as described.

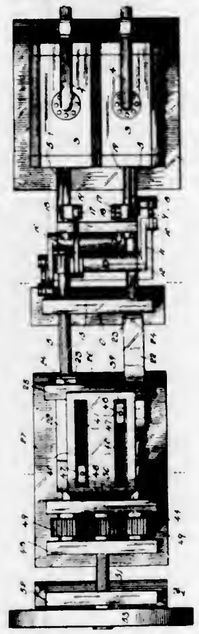
680,381. **SACK-HOLDER.** WILLIAM M. INMAN, Randsburg, and CLAUDE C. INMAN, Bishop, Cal. Filed Nov. 17, 1900. Serial No. 36,837. (No model.)



Claim.—1. A sack-holder including two rigid standards and a base to which they are fixed, a rigid extension of one of said standards and an elastic extension of the other standard said extensions having their upper ends curved toward each other and provided with transverse spreaders, having sack-engaging devices.

2. A sack-holder consisting of a fixed tubular standard, a rigid extension fitting and slidable therein and a set-screw for locking the same when adjusted, the upper end of said extension being curved into a segment having a transverse bar at its end with holding-points, a second rigid standard fixed opposite to the first having a slidable elastic extension curved at the top with a transverse bar and holding-points turned in the opposite direction from those of the first standard whereby the mouth of the sack may be first engaged with the points of the first standard, and afterward by those upon the second one by bending it inwardly, the elasticity serving to hold the sack distended while being filled.

680,382. **DOUBLE-CYLINDER ENGINE.** CHARLES S. JOHNSON, Brownville, Me. Filed Jan. 26, 1901. Serial No. 44,902. (No model.)



Claim.—1. The combination with a double-cylinder engine and the parallel alternating reciprocating piston-rods thereof; of parallel screws, pinions on the outer ends of the screws, sleeves slidably mounted on the screws and connected to the piston-rods and formed with interior chambers, pivotally-supported nut-segments in the said chambers and adapted to engage the screws in the outward movement of the sleeves, a driving-shaft and a pinion on the driving-shaft in mesh with the pinions on the screws.

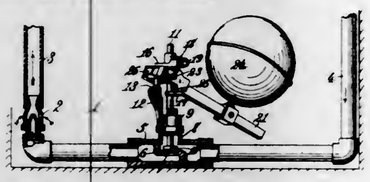
2. The combination with a double-cylinder engine and the parallel alternating reciprocating piston-rods thereof of a mechanism for connecting the reciprocative motion of the piston-rods into continuous rotary motion, comprising suitably-journaled parallel screws, pinions mounted on the shafts of the screws, a driving-shaft, a pinion mounted thereon in mesh with the pinions of the screws, sleeves connected to the piston-rods and slidably mounted over the screws, and formed with an enlargement having upper and lower arms and an interior chamber, guides in which the arms of the sleeves engage, nut-segments pivotally supported in the chambers of the sleeves and adapted to engage the screws, and springs in the chambers bearing on the nut-segments.

3. The combination with a double-cylinder engine and parallel alternating reciprocatory piston-rods; of parallel screw-shafts geared to the driving-shaft, sleeves connected to the piston-rods and carrying operating devices for the screw-shafts, the operating devices being arranged so as to drive their respective screw-shafts in corresponding throws of the piston-rods, upper and lower arms connected to the sleeves, and upper and lower guiding-yokes which are slotted to receive said arms.

4. The combination with a double-cylinder engine and parallel alternating reciprocatory piston-rods; of parallel screw-shafts geared to the driving shaft, sleeves connected to the piston-rods, operating devices carried by said sleeves and coöperating with the screw-shafts, the operating

devices being arranged so as to drive their respective screw-shafts in corresponding throws of the piston-rods, vertically-disposed arms projecting in opposite directions from the sleeves, antifriction-rollers carried by said arms, and guiding-yokes having guideways in which the rollers move.

680,383. FLUID-EJECTOR. CHARLES R. KEMP, Baltimore, Md., assignor of one-half to Clarence M. Kemp, same place. Filed Dec. 24, 1900. Serial No. 40,374. (No model.)



Claim.—1. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, a float-lever fulcrumed near one end and provided with a yoke straddling said sleeve between the flanges, cams on the upper and lower edges of said yoke and arranged to engage the adjacent faces of said flanges, and a float on the float-lever, substantially as described.

2. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve adjustably fixed on the stem of said valve and provided with a flange on its upper and lower ends, a float-lever fulcrumed near one end and provided with a yoke straddling said sleeve between the flanges, cams on the upper and lower edges of said yoke and arranged to engage the adjacent faces of said flanges, and a float on the float-lever, substantially as described.

3. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, a float-lever fulcrumed near one end and provided with a yoke straddling said sleeve between the flanges, and a float on the float-lever, substantially as described.

4. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve movably mounted on the stem of the valve and provided with a flange at its upper and lower ends, an internally-threaded boss formed on one of said flanges, a set-screw fitted in said boss and engaging the valve-stem to hold the sleeve in its adjusted position, a float-lever fulcrumed near one end and provided with a yoke straddling said sleeve between the flanges, and a float on the float-lever, substantially as described.

5. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, the uppermost flange being oblong, a float-lever fulcrumed near one end and provided with a yoke straddling said sleeve between the flanges, means for preventing the sleeve from turning relatively to the yoke, and a float mounted on the float-lever, substantially as described and for the purpose specified.

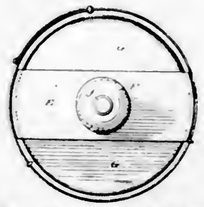
6. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, the uppermost flange being oblong, a float-lever fulcrumed near one end and provided with a yoke straddling the sleeve between the flanges, means for holding the sleeve with its oblong flange transversely to the major axis of the yoke, and a float mounted on the float-lever, substantially as described.

7. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, the uppermost flange being oblong and the lowermost flange being provided with a notch or recess in one edge, a fixed web or standard engaging said notch or recess and preventing said sleeve from turning, a float-lever fulcrumed near one end and provided with a yoke straddling the sleeve between the flanges, and a float mounted on the float-lever, substantially as described.

8. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, of a valve in the pressure-pipe, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, the uppermost flange being oblong and the lowermost flange being provided with a notch or recess in one edge, a fixed web or standard engaging said notch or recess and operating to prevent the sleeve from turning, a float-lever fulcrumed near one end and provided with a yoke straddling the sleeve between the flanges, a lug on the rear end of said yoke arranged to engage the upper end of the standard and limit the upward movement of the float-lever, and a float mounted on the float-lever, substantially as described.

9. In an apparatus of the character described, the combination with an ejector and a pressure and discharge pipe, an upright standard projecting vertically from the valve-casing and provided on its upper end with a perforated lug or ear, a sleeve fixed on the stem of said valve and provided with a flange on its upper and lower ends, a float-lever provided at one end with a yoke embracing the lug or ear and fulcrumed thereon by a pivot-pin, said yoke straddling the sleeve between the said flanges, and a float mounted on the free end of said float-lever, substantially as described.

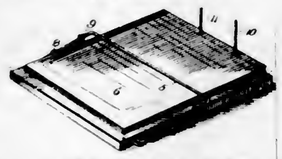
680,384. PROCESS OF FUMIGATING AND DISINFECTING. CHARLES T. KINGZETT, Chiselhurst, England. Filed Dec. 26, 1900. Serial No. 41,147. (No specimens.)



Claim.—1. The process of generating and distributing fumigating-vapors which consists in incorporating the fumigating material into a mass of refractory material, heating this mass to effect vaporization of the fumigating material therein contained, and at the same time delivering upon the surface of the mass a small regulated quantity of a liquid, substantially as herein described.

2. The process of generating and distributing fumigating-vapors which consists in saturating a mass of refractory material with a solution of fumigating material, heating the mass to produce vaporization of the saturating solution and at the same time delivering upon the surface of the mass in a small regulated quantity an aqueous solution of fumigating material.

680,385. BILL-FILE. GEORGE H. MAURER, Washington, D. C. Filed June 7, 1901. Serial No. 63,597. (No model.)



Claim.—1. In a bill-file of the class described, the combination with the back provided with the parallel guide-rods secured to its side edges, of the hinged clamping-frame having bearings in said side edges, and the larger and smaller sliding loops connecting said guide-rods and the parallel sides of said clamping-frame, substantially as specified.

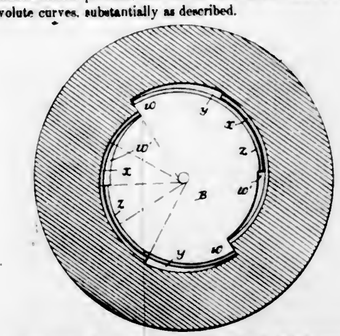
2. The combination with the body, or back, of a bill-file having parallel guide-rods, secured to its side edges, and hinged stop-arms connected with its top edge and loops or limit-eyes projecting from said top edge, of the hinged clamping-frame, and the larger and smaller sliding loops connecting said hinged clamping-frame with said parallel guide-rods, substantially as specified.

680,386. BREECH MECHANISM. JOHN F. MEIGS, South Bethlehem, and SIGARD A. S. HAMMAR, Bethlehem, Pa., assignors to the Bethlehem Steel Company, Bethlehem, Pa. Filed Jan. 18, 1901. Serial No. 43,809. (No model.)

Claim.—1. A breech-loading gun, the screw-box and breech-block of which are provided with threads or collars the faces of which threads or collars coincide with involute curves, substantially as described.

2. A breech-loading gun, the screw-box and breech-block of which are provided with alternating slotted and threaded or collared portions, the curves of the threads or collars being involute curves, substantially as described.

3. A breech-loading gun, the screw-box and breech-block of which are provided with alternating slotted and threaded or collared portions, the threaded or collared portions being circumferentially greater than the intermediate slotted portions, and the curves of the threads or collars being involute curves, substantially as described.



4. In a breech-loading gun, the combination with a screw-box and breech-block each having threads or collars the faces of which coincide with involute curves, of means to seat the breech-block by an advancing and turning motion constituting a screw motion the pitch of which screw motion is greater than the pitch of the threads or collars into which the threads or collars of the breech-block seat, substantially as described.

5. In a breech-loading gun, the combination with a screw-box, of a breech-block each having collars the faces of which coincide with involute curves, the pressure sides of the collars being inclined, substantially as described.

6. In a breech-loading gun, the combination with a screw-box and breech-block, each provided with collars, of means for forcing the breech-block outward when it is rotated to disengage the collars, substantially as described.

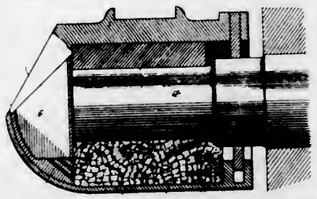
7. In a breech-loading gun, the combination with a screw-box and breech-block each provided with alternating collared and slotted portions, of inclined ribs arranged in the screw-box, substantially as described.

680,387. RUBBER CEMENT. LESLIE R. MOORE, Newton, Mass. Filed May 24, 1900. Serial No. 17,826. (No specimens.)

Claim.—1. A new composition of matter for use in the arts consisting of the combination with solutions of caoutchouc and similar gums of a reducing agent, substantially as herein set forth.

2. A new composition of matter consisting of caoutchouc dissolved in a suitable solvent as petroleum distillate combined with a reducing agent, as pyrogallol, substantially as herein described.

680,388. AXLE-LUBRICATOR. THOMAS H. MCCAULEY, Port Arthur, Canada. Filed Aug. 25, 1900. Serial No. 28,054. (No model.)



Claim.—1. A car-axle-box packing comprising a length of elastic packing material capable of absorbing oil and a longitudinally-disposed stiffening-core, as a wire in the said length of packing material, the relative dimensions of said core and packing material thereon being such as to adapt the said packing to be bent and doubled upon itself and crowded in a mass into a car-axle box so as to bear against the journal of the axle, substantially as described.

2. An elastic car-axle-box packing comprising a length of wire forming a core and pieces of absorbent material strung on the said core, the relative dimensions of said core and said packing material being such as to adapt said packing to be bent and doubled upon itself and crowded into car-axle box so as to bear against the journal of the axle, substantially as described.

3. An elastic car-axle-box packing comprising a length of spring-wire forming a core and pieces of absorbent material strung on the said wire, the relative dimensions of said core and said packing material being such as to adapt the said packing to be bent and doubled upon itself and crowded into a car-axle box so as to bear against the journal of the axle, substantially as described.

4. A car-axle box having a removable closure in its outer end, and bearing against the outer end of the axle-spindle, said closure being adapted to bear against packing material in the said car-axle box and prevent said material from being displaced from under said spindle, substantially as described.

5. A car-axle box having a removable closure in its outer end, and bearing against the outer end of the axle-spindle, said closure being adapted to bear against packing material in the said car-axle box and prevent said material from being displaced from under said spindle, said closure forming an oil-receptacle and being perforated to feed oil to the packing, substantially as described.

680,389. DEVICE FOR FORMING MODELS OF CROWNLESS TOOTH-ROOTS. PERCY R. MCCULLOUGH, Philadelphia, Pa. Filed Dec. 10, 1900. Serial No. 39,395. (No model.)

Claim.—1. A device for forming an impression of a tooth-root, said device comprising a casing shaped approximately to the outline of said root and adapted for the reception of a mass of plastic material, substantially as specified.

2. A device for forming an impression of a tooth-root, said device comprising a casing shaped approximately to the outline of said root and having a movable false bottom or ejector, substantially as specified.

3. A device for forming an impression of a tooth-root, said device comprising a casing shaped approximately to the outline of said root and having a movable false bottom or ejector with stem projecting beyond the casing, substantially as specified.

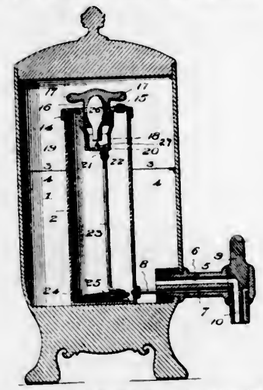
4. A device for forming an impression of a tooth-root, said device consisting of a casing shaped to accord approximately to the outline of said root and adapted for the reception of a mass of plastic material, said casing having a nozzle whereby it may be fitted to a socketed handle, substantially as specified.

5. The combination of a casing adapted to receive plastic material to form an impression of a tooth-root, with a handle having sockets at different angles for the support of said casing, substantially as specified.

6. The combination of a casing adapted to receive plastic material for forming an impression of a tooth-root, with a handle having a socket for receiving a portion of said casing, and a bite-plate adjacent to said socket, substantially as specified.

7. The within-described support for the model of a crownless tooth-root, said support comprising a block with a plain face for the reception of said model, and an opposite face with recess for holding a plastic mass for receiving an impression in which to form the masticating surfaces of bicuspid and molar teeth, substantially as specified.

680,390. COMBINATION WATER-COOLER. GEORGE MCGOVERN. Richmond, Va. Filed Oct. 27, 1900. Serial No. 34,598. (No model.)

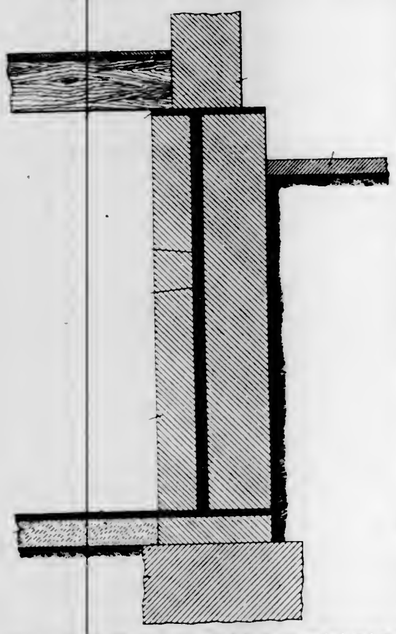


Claim.—1. A cooler of the class described, comprising an outer shell, a tank located within said shell, a removable cap for said tank, a cartridge-chamber formed in said cap and communicating with said tank, a cartridge for said chamber, means for discharging said cartridge into said

tank, and ducts leading from said chamber and tank to a two-way cock common to both, substantially as and for the purpose set forth.

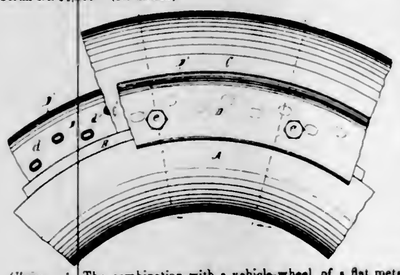
2. A cooler of the class described, comprising a shell, a tank within the shell, a cap for the tank having a valved chamber formed therein communicating with said tank, and ducts leading from the chamber and tank to a two-way cock common to both, substantially as and for the purpose set forth.

680,391. MAKING DAMP-PROOF CELLARS OR UNDERGROUND COMPARTMENTS. JAMES A. MCNAMEE, Cambridge, Mass. Filed May 17, 1901. Serial No. 60,691. (No model.)



Claim.—In combination a cellar-wall, having a vertical pocket or recess arranged therein, a layer of asphalt arranged in said recess, a layer of asphalt arranged on top of the cellar-wall, and a layer of asphalt arranged on top of the cellar-floor and extending through the cellar-wall substantially as and for the purpose set forth.

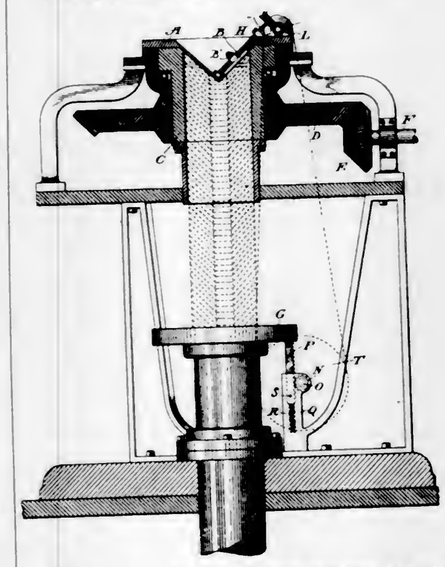
680,392. MEANS FOR SECURING RESILIENT TIRES TO VEHICLE-WHEELS. HARRY A. PALMER, Erie, Pa. Filed Mar. 15, 1901. Serial No. 51,366. (No model.)



Claim.—1. The combination with a vehicle-wheel, of a flat metal tire, a resilient tire having its inner surface wider than the metal tire, annular flanges adapted to be brought into contact with the resilient tire and compress it until the flanges contact with the sides of the wheel-rim and the metal tire, two or more rows of obtuse inwardly-projecting lugs on the portions of the flanges contacting with the sides of the resilient tire, and bolts passing through said flanges, substantially as and for the purpose set forth.

2. The combination with a wheel having a metal tire, of a resilient tire having its inner portion wider than the peripheral face of the metal tire, annular flanges adapted to fit against the sides of the resilient tire and compress it to the same width as the peripheral face of the metal tire, two or more rows of inwardly-projecting lugs extending entirely around the inner faces of said annular flanges having the outer ends thereof rounded and adapted to be pressed into the sides of the resilient tire, and bolts passing through said annular flanges adjacent to the periphery of the metal tire, substantially as and for the purpose set forth.

680,393. BALING-PRESS. CHARLES E. PARKER, Orange, N. J. Filed May 9, 1901. Serial No. 59,353. (No model.)

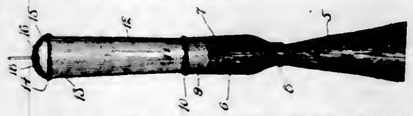


Claim.—1. In a baling-press the combination of means for forming the bale in a series of nested, self-binding layers and means for varying the width of the material being fed in, substantially as described.

2. In a baling-press a means for forming the bale in a series of nested, self-binding layers, means for varying the width of the material being fed in and connected mechanisms whereby the variation of the width of the material will be proportional with the feed of the bale, substantially as described.

3. In a baling-press a substantially conical abutment, a feeding-slot therein, a baffle-plate adapted to slide lengthwise of said slot to vary the working length thereof, and means for moving said baffle-plate, substantially as described.

680,394. BRUSH. GEORGE PAVLIK, Boston, Mass. Filed Jan. 15, 1901. Serial No. 43,369. (No model.)



Claim.—1. A brush, comprising bristles, a sheet-metal holder therefor, clamped thereon, said holder having a cylindrical shank, a cylindrical sheet-metal handle, fast at one end to said cylindrical shank, a cap fast to the other end of said cylindrical handle and a wire 17 with bent end portions 18, said end portions inserted in holes 16 in said cap.

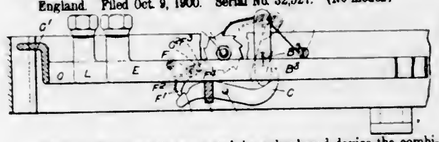
2. A brush, comprising bristles, a sheet-metal holder therefor, clamped thereon, said holder having a cylindrical shank, a cylindrical sheet metal handle, fast to said shank by a bead 10 formed upon said holder-shank and engaging a bead 11 formed upon one end of said cylindrical handle.

3. A brush, comprising bristles, a sheet-metal holder therefor, clamped thereon, said holder having a cylindrical shank, a cylindrical sheet-metal handle fast at one end to said cylindrical shank, by a bead 10 formed upon said holder-shank and engaging a bead 11 formed upon one end of said cylindrical handle; and a cap fast to the other end of said handle by a bead 14 thereon, which engages a bead 13 on said handle.

680,395. PROCESS OF MAKING INDOXYL DERIVATIVES. JOHANNES PFLEGER, Frankfort-on-the-Main, Germany, assignor to Deutsche Gold & Silber Scheide Anstalt vorm. Roessler, same place. Filed July 8, 1901. Serial No. 67,558. (No specimens.)

Claim.—The herein-described process of producing indoxyl derivatives from aromatic glycocol by reacting on the latter with an alkaline amid substantially as and for the purpose set forth.

680,396. COUNTING DEVICE. WALTER ROSENHAIN, London, England. Filed Oct. 9, 1900. Serial No. 32,527. (No model.)



Claim.—In a machine operated by a keyboard device the combination of character-keys, a spacing-key, a counting device, a pawl-and-ratchet mechanism for operating the counting device, an arm to carry the pawl pivoted to the frame of the machine, a universal lever pivoted to the frame of the machine and arranged beneath the character-keys and adapted to be displaced when any one of the character-keys is depressed, an extension of the pawl-arm, a cam-shaped extension on the universal lever in operative engagement with the extension on the pawl-arm, means for keeping the extension of the pawl-arm against the face of the cam-shaped extension of the universal lever, a catch to retain the universal lever in its displaced position when any one of the character-keys has been depressed so that any further movement of the character-keys in succession after the operation of the first will not move any of the parts of the counting device and means for operatively connecting the catch with the spacing-key so that the former may be disengaged from the universal lever when the spacing-key is struck substantially as set forth.

680,397. BUNG-HOLE BUSHING. JOHN SCIOR, Mansfield, Ohio. Filed Dec. 15, 1900. Serial No. 39,996. (No model.)



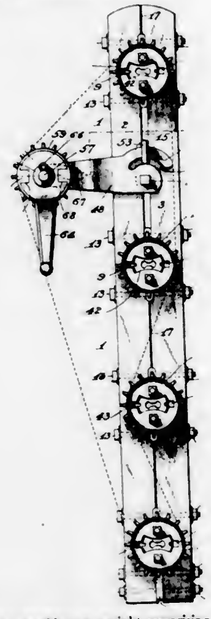
Claim.—In a closure for bung-holes, the combination with an exteriorly-threaded bushing provided with an integral flange fitting around the bung-hole, the aperture inclosed by the flange being of greater diameter than the bung-hole, the bushing provided with an upwardly-extending wall on its interior edge, of a cap, means for producing a tight joint between the cap and bushing, a locking means for the cap and bushing, and a rib extending diametrically across the outside of the cap, the rib provided with a plurality of holes or sockets formed therein on either side of the center of the rib thereby permitting the unfastening of the cap by any one of a plurality of means.

680,398. SLAT-AND-WIRE-FENCE MACHINE. WILLIAM F. SEARGEANT, Marshall, Mo. Filed Dec. 19, 1900. Serial No. 40,418. (No model.)

Claim.—1. In a fence-machine, an upright having a series of circular openings from opposite sides of each of which extend slots, a journal-bracket secured in each of said openings and comprising a ring having on opposite sides tongues located in said slots, a twister revolubly mounted in the ring of each journal-bracket, and means for revolving said twisters, substantially as described.

2. In a fence-machine, an upright having a series of circular openings from opposite sides of each of which extend slots, and in such manner as to afford a continuous slot between two of the openings, a journal-bracket secured in each of said openings and comprising a ring having on opposite sides tongues located in said slots, a twister revolubly mounted in the ring of each journal-bracket, and an arm adjustably mounted in said continuous slot and carrying means for revolving said twisters, substantially as described.

3. In a fence-machine, an upright comprising two parallel sections provided at coincident points with semicircular recesses and transverse apertures, a series of journal-brackets, each of which comprises a ring embraced on opposite sides by the recessed portions of said sections and having on opposite sides apertured tongues lying between said sections, bolts passing through said sections and tongues and having nuts, a twister revolubly mounted in the ring of each journal-bracket, and means for revolving said twisters, substantially as described.



4. In a fence-machine, an upright comprising two parallel sections provided at coincident points with semicircular recesses and transverse apertures, a series of journal-brackets, each of which comprises a ring embraced on opposite sides by the recessed portions of said sections and having on opposite sides apertured tongues lying between said sections, the edge portions of the sections between said tongues being cut away for the purpose described, bolts passed through said sections and tongues and having nuts, a twister revolubly mounted in the ring of each journal-bracket, and means for revolving said twisters, substantially as described.

5. In a fence-machine, in combination with an upright having a circular opening from opposite sides of which extend slots, a journal-bracket secured in said opening and comprising a ring having on opposite sides tongues located in said slots, an integral arm projecting from one of said tongues and having on its outer end a bumper-plate, a twister revolubly mounted in said ring, and means for revolving said twister, substantially as described.

6. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having on opposite sides radial wire-slots and at opposite ends of an imaginary line drawn at right angles to said slots apertures coinciding with recesses formed on opposite sides of said twister-head and connected by a groove extending across the end thereof, a sprocket-wheel abutting against the end of said journal and having apertures and a wire-opening, screw-threaded bolts passed through the apertures in said twister-head and sprocket-wheel and lying in said recesses and having an extension lying in said groove and a nut screwed on each bolt for securing the sprocket-wheel to the twister-head, and means for revolving said sprocket-wheels, substantially as described.

7. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having on opposite sides radial wire-slots and at opposite ends of an imaginary line drawn at right angles to said slots, apertures coinciding with recesses formed on opposite sides of said twister-head and connected by a groove extending across the end thereof, a sprocket-wheel abutting against the end of said journal and having apertures and a wire-opening, a rectangular staple having its legs screw-threaded and passed through the apertures in said twister-head and sprocket-wheel and lying in said recesses, and its head lying in said groove and a nut screwed on each of said legs for securing the sprocket-wheel to the twister-head, and means for revolving said sprocket-wheels, substantially as described.

8. In combination with an upright having a series of circular open-

ings, a journal-bracket comprising a flat metal ring secured in each of said openings, a series of twisters, each of which comprises a twister-head having a journal seated in said ring and an annular flanged portion overlapping the edge thereof, said twister-head having on opposite sides radial wire-slots and at opposite ends of an imaginary line drawn at right angles to said slots, apertures coinciding with recesses formed on opposite sides of said journal and connected by a groove extending across the head of said twister, a sprocket-wheel abutting against the end of said journal and having apertures and a wire-opening, screw-threaded bolts passed through the apertures in said twister-head and sprocket-wheel and lying in said recesses, and having an extension lying in said groove and a nut screwed on each of said bolts for securing the sprocket-wheel to the twister-head, and means for revolving all of the sprocket-wheels simultaneously, substantially as described.

9. In combination with an upright having a series of circular openings, a journal-bracket comprising a flat metal ring secured in each of said openings and having an offset affording a recess, a series of twisters, each of which comprises a twister-head having a journal seated in said ring and an annular flanged portion overlapping the edge thereof, said twister-head having on opposite sides radial wire-slots enlarged at their outer sides, a sprocket-wheel abutting against the edge of said ring and bolted to said twister-head and having a wire-opening, and means for revolving all of the sprocket-wheels simultaneously, substantially as described.

10. In combination with an upright having a series of circular openings, a journal-bracket comprising a flat metal ring secured in each of said openings and having an offset affording a recess, a series of twisters, each of which comprises a twister-head having a journal seated in said ring and an annular flanged portion overlapping the edge thereof, said twister-head having on opposite sides radial wire-slots enlarged at their outer sides in said flanged portion, a sprocket-wheel abutting against the edge of said ring and bolted to said twister-head and having a wire-opening from opposite ends of which extend recesses, and means for revolving said sprocket-wheels, substantially as described.

11. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having extending through the same circular openings connected by a passage, and having on opposite sides radial wire-slots, a sprocket-wheel bolted to said twister-head and having a wire-opening, and means for revolving all of the sprocket-wheels simultaneously, substantially as described.

12. In a fence-machine, in combination with an upright, a series of twisters journaled therein each of which comprises a twister-head having extending through the same circular wire-openings connected by a passage, and having on opposite sides radial wire-slots, a sprocket-wheel bolted to said twister-head and having a wire-opening, a spacing-block adapted to be inserted between the wires passed through said openings and having on opposite sides slots for receiving said wires, and means for revolving all of the sprocket-wheels simultaneously, substantially as described.

13. In a fence-machine, in combination with an upright, a series of twisters journaled therein each of which comprises a twister-head having extended through the same circular openings connected by a passage, and having on opposite sides radial wire-slots in line with said openings and apertures at opposite ends of an imaginary line drawn at right angles to said slots, a sprocket-wheel having a wire-opening and apertures, a rectangular staple having screw-threaded legs passed through the apertures in said twister-head and sprocket-wheel and having its head, or cross-bar, extending between said openings in the twister-head and a nut screwed on each of said legs for securing the sprocket-wheel to the twister-head, and means for revolving all of the sprocket-wheels simultaneously, substantially as described.

14. In a fence-machine, in combination with an upright having a series of twisters revolubly mounted thereon and having a longitudinal slot, an arm pivotally mounted on a bolt passed through said slot and adjustable therein, means for securing said arm in fixed relation to said upright, and means mounted on said arm for operating said twisters, substantially as described.

15. In a fence-machine, in combination with an upright having a series of twisters revolubly mounted thereon and having a longitudinal slot, an arm pivotally mounted on a bolt passed through said slot and adjustable therein, means for securing said arm in fixed relation to said upright, a driving sprocket-wheel mounted on said arm, a sprocket-chain passed over said wheel and said twisters, and a crank for turning said wheel, substantially as described.

16. In a fence-machine, in combination with an upright having a series of twisters revolubly mounted thereon and having a longitudinal slot, an arm having at one end an aperture and a curved arm, a plate provided at opposite ends with apertures, a bolt passed through the aperture in said arm and through said slot and an aperture in said plate, a nut screwed on said bolt for engaging said plate, a bolt having an eye receiving said curved arm, said bolt extending through the said slot and having its screw-threaded end passed through the other aperture in said plate, and means mounted on the opposite end of said arm for operating said twisters, substantially as described.

17. In a fence-machine, an upright having a series of twisters revolubly mounted thereon each of which is provided with a sprocket-wheel, an arm mounted at one end on said upright, and at its opposite end having a stud, a driving sprocket-wheel journaled on said stud and having a cylindrical hub, a circular recess, and lugs projecting inwardly from its edge, a crank-arm having a circular head fitting in said recess and provided with recesses for receiving said lugs and with a central opening for receiving said hub, means for holding the sprocket-wheel on said stud and the crank-arm in engagement with the sprocket-wheel, and a sprocket-chain passed about said driving sprocket-wheel and the spocket-wheels of the twisters, substantially as described.

18. In a fence-machine, in combination with an upright having a series of circular openings from opposite sides of each of which extend slots, the slot at the bottom of the upright extending through to the end thereof, a journal-bracket secured in each of said openings and comprising a ring having on opposite sides tongues located in said slots, a twister revolubly mounted in the ring of each journal-bracket, means for revolving said twisters, and a picket-rest comprising an apertured plate inserted in said bottom slot and having on its upper side a recess for receiving the end of the tongue located therein, a plate formed integral with said first-named plate, and extending in a plane at right angles thereto for receiving the pickets, and a bolt passed through the upright and said first-named plate, substantially as described.

19. A wire-straining device for the purpose described comprising a block having a corrugated upper surface, each of which corrugations is provided centrally of its bed with a rectangular aperture, a bolt passed through each of said apertures and having a squared portion for engaging in the same to prevent rotation of the bolt, and a transverse head, a rubber plate passed over said bolts and lying against the bottom of said block, a washer and nut on each bolt, and means for anchoring said block, substantially as described.

20. A wire-straining device for the purpose described comprising a block provided with wire-grooves at one end and having a corrugated upper surface, each of which corrugations is provided centrally of its bed with a rectangular aperture, a bolt passed through each of said apertures and having a squared portion for engaging in the same to prevent rotation of the bolt, and a transverse head, a rubber plate passed over said bolts and lying against the bottom of said block, a nut and washer on each bolt, a keeper for retaining the wires in said grooves, and means for anchoring said block, substantially as described.

21. A wire-straining device for the purpose described comprising a block provided with wire-grooves at its ends and having clamping means for the wires, projections at the ends of the block extending upward from each side thereof, one pair of said projections being apertured, a keeper passed through said apertures and extending across the top of the grooves at one end of the block, and means for anchoring said block, substantially as described.

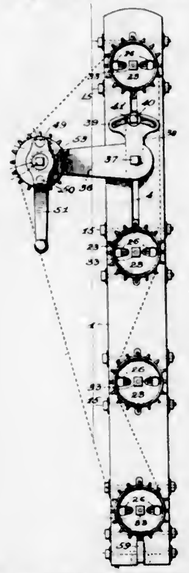
680,399. SLAT-AND-WIRE-FENCE MACHINE. WILLIAM F. SEARGEANT, Marshall, Mo. Filed Dec. 19, 1900. Serial No. 40,419. (No model.)

Claim.—1. In a fence-machine, an upright having a series of circular openings from opposite sides of each of which extend slots, a journal-bearing secured in each of said openings and comprising a ring having on opposite sides tongues located in said slots and provided around one edge with an annular flange for engaging the face of the upright, a twister revolubly mounted in the ring of each journal-bearing, and means for revolving said twisters, substantially as described.

2. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having a central aperture and in its opposite sides radial wire-slots connected by a groove formed in one end of the twister-head, a sprocket-wheel abutting against the opposite end of the twister-head and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, and a cross-plate at the other end of said bolt lying in said groove, and means for revolving said sprocket-wheels, substantially as described.

3. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having a central aperture and in its opposite sides radial wire-slots connected by a groove formed in one end of the twister-head, a cross-groove formed in the opposite end of the twister-head, a sprocket-wheel abutting against said latter end and having a projection engaging in said cross-groove and provided with a central aperture and with wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, and a cross-plate at the other end of said bolt lying in said groove, and means for revolving said sprocket-wheels, substantially as described.

4. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having a journal provided with a flanged head and having a central aperture extending through the twister-head and in its opposite sides radial wire-slots connected by a groove formed in and extending across said head, a sprocket-wheel abutting against the end of said journal and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, and a cross-plate at the other end of said bolt lying in said groove and having rounded ends projecting beyond the bottoms of said wire-slots, and means for revolving said sprocket-wheels, substantially as described.



5. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having a journal provided with a flanged head and having a central aperture extending through the twister-head and in its opposite sides radial wire-slots connected by a groove formed in and extending across said head, a sprocket-wheel abutting against the end of said journal and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, and a cross-plate at the other end of said bolt lying in said groove and having at opposite ends antifriction-rollers projecting beyond the bottoms of said wire-slots, and means for revolving said sprocket-wheels, substantially as described.

6. In a fence-machine, in combination with an upright, a series of twisters journaled therein, each of which comprises a twister-head having a journal provided with a flanged head and having a central aperture extending through the twister-head and in its opposite sides radial wire-slots, connected by a groove formed in and extending across said head, a sprocket-wheel abutting against the end of said journal and having a central aperture and wire-openings, a bolt passed through the apertures in said twister-head and sprocket-wheel and having a nut screwed on one end, a cross-plate at the other end of said bolt lying in said groove and having its opposite ends recessed, and antifriction-rollers mounted in said recesses and projecting beyond the bottoms of said wire-slots, and means for revolving said sprocket-wheels, substantially as described.

7. In a fence-machine, an upright having a series of circular openings from opposite sides of each of which extend slots, one of each pair of slots having a semicircular enlargement 7 communicating with said opening, a journal-bearing secured in each of said openings and comprising a ring having on opposite sides tongues located in said slots and provided with a semicircular offset fiting in said enlargement and with an annular flange bearing against the face of the upright, a series of twisters, each of which comprises a twister-head journaled in said ring and having on opposite sides wire-slots provided with enlarged openings and a sprocket-wheel bolted to said twister-head and abutting against the flange of said ring and having enlarged wire-openings, and means for revolving the sprocket-wheels, substantially as described.

8. In a fence-machine, in combination with an upright having a series of twisters revolubly mounted thereon and having a longitudinal slot, an arm having at one end an aperture and a widened portion provided with a horizontally-disposed curved slot, bolts passed through said aperture and curved slot, respectively, and through the slot in the upright and secured by nuts, and means mounted on the opposite end of said arm for operating said twisters, substantially as described.

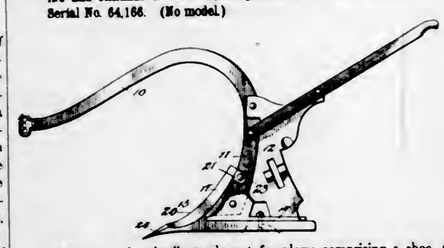
9. In a fence-machine, an upright having a series of twisters revolubly mounted thereon each of which is provided with a sprocket-wheel, an arm mounted at one end on said upright and at its opposite end having a stud provided with an aperture extending through the arm, a driving sprocket-wheel journaled on said stud and provided near opposite edges with an outwardly-extending projection and a stud, respectively, a crank-arm having a flattened extension journaled on said first-named stud and provided with an aperture for receiving said last-named stud and in its end with a recess for receiving said projection, a washer, and a bolt passed through said washer and stud and secured by a nut, and a sprocket-chain passed about said driving sprocket-wheel and the sprocket-wheels of the twisters, substantially as described.

10. In a fence-machine, in combination with the upright having a slot at its lower end, a picket-rest comprising an apertured plate inserted in said slot and having a plate extending at right angles thereto for supporting the pickets, an upright flange formed integral with said plates and adapted to bear against the face of the upright, and a bolt passed through the upright and said first-named plate, substantially as described.

11. A wire-straining device for the purpose described, comprising a block having a corrugated upper surface, each of which corrugations is provided centrally of its bed with an aperture, a tension-plate bent to conform to the curvatures of said block and having similar apertures, bolts passed through the apertures in said tension-plate and block and having each a transverse head, a nut on each bolt, and means for anchoring said block.

12. A wire-straining device for the purpose described comprising a block provided with wire-grooves at its ends and having a corrugated upper surface, a tension-plate bent to conform to the curvatures in said block and means for clamping said plate on said block, projections on said block forming guards for said wire-grooves, integral, parallel arms projecting from one end of said block in the space between the grooves at that end, and a grooved pulley journaled between said arms, substantially as described.

680,400. SUBSOIL ATTACHMENT FOR PLOWS. JACOB A. SHUPING and CHARLES L. SHUPING, Morganton, N. C. Filed June 11, 1901. Serial No. 64,166. (No model.)



Claim.—1. A subsoil attachment for plows comprising a shoe, a shin located at the front portion of the shoe and disposed at an angle thereto, and means for fastening the shin to the standard of a plow located in the angle formed by the shoe and shin.

2. A subsoil attachment for plows comprising a shoe, a shin located at the front portion of the shoe and disposed at an angle thereto, a rearwardly-extending lug located upon the shin, and means for securing the lug to the standard of a plow located in the angle formed by the shoe and shin.

3. A subsoil attachment for plows comprising a shoe, a shin located at the front portion of the shoe and disposed at an angle thereto, spaced rearwardly-extending lugs located upon the shin and arranged to embrace the standard of a plow located in the angle formed by the shoe and shin, and means for securing the lugs to said standard.

4. A subsoil attachment for plows comprising a shoe, and a shin located at the front portion of the shoe and disposed at an angle thereto, said shoe having a groove in its upper face that is arranged to receive the lower end of a standard located in the angle formed by the shoe and shin.

5. A subsoil attachment for plows comprising a shoe, a shin located at the front portion of the shoe and disposed at an angle thereto, said shoe having a groove in its upper face that is arranged to receive the lower end of a standard located in the angle formed by the shoe and shin, and means for fastening said standard in the groove.

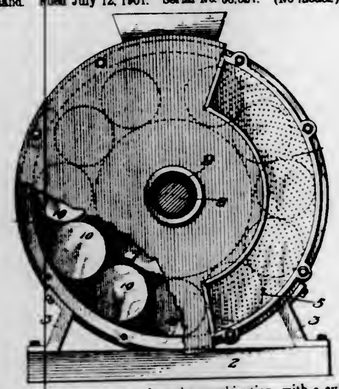
6. A subsoil attachment for plows comprising a shoe, a shin located at the front portion of the shoe and disposed at an angle thereto, said

shoe having a groove in its upper face that is arranged to receive the lower end of a standard located in the angle formed by the shoe and shin, and a bolt passing vertically through the shoe and arranged to engage the standard to hold it in the groove.

7. A subsoil attachment for plows comprising a shoe, a shin located at the front portion of the shoe and disposed at an angle thereto, means for fastening the shin to the beam of a plow, and means for fastening the shoe to the standard of the same.

8. A subsoil attachment for plows comprising a shoe having a longitudinally-disposed groove in its upper face arranged to receive the lower end of a plow-standard, a shin located at the front portion of the shoe and disposed at an angle thereto, said shin having its front end sharpened to constitute a cutting edge, and means for securing the attachment to a plow.

680,401. **ORE-CRUSHER.** CHARLES SUTTIE, Onehunga, New Zealand. Filed July 12, 1901. Serial No. 68,027. (No model.)



Claim.—1. In an ore-crusher, the combination, with a cylindrical crushing-chamber provided with an inlet and an outlet, of a drive-roll mounted in said chamber, and a series of loose rolls located in the race of said chamber formed by the periphery of said drive-roll and the interior annular wall of said chamber and bodily movable about said race and driven by the action of said drive-roll, substantially as set forth.

2. In an ore-crusher, the combination, with a cylindrical crushing-chamber provided with an inlet in its periphery and a grated outlet, of a drive-roll having its axis loosely mounted in the ends of the chamber to rotate and having a vertical play therein whereby the roll may assume an eccentric or concentric relation with the chamber, and a series of loose rolls located in the race of said chamber formed by the periphery of said drive-roll and the interior annular wall of said chamber, and bodily movable about said race, and driven by the action of the drive-roll, substantially as set forth.

3. In an ore-crusher, the combination, with a cylindrical crushing-chamber provided with an inlet in its periphery, of sieves located in the ends of said chamber to the side of its axis, a shaft loosely journaled in the ends of the chamber, and having a vertical movement therein, a drive crusher-roll fixed to said shaft, and a series of rolls loosely mounted within the chamber between the interior wall thereof and the periphery of the drive-roll and free to move around the chamber and driven by the action of the drive-roll, the aggregate diameter of said rolls being less than the circumference of the drive-roll, substantially as set forth.

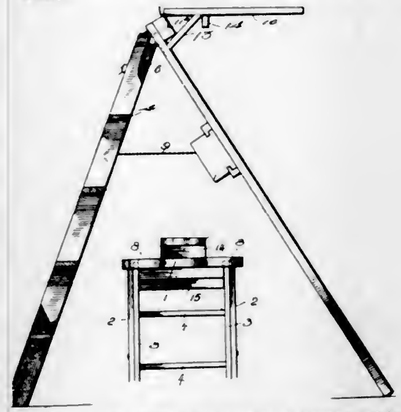
680,402. **COMBINED LADDER AND TRUCK.** ROBERT E. VAN COURT, Newton, Iowa. Filed Jan. 21, 1901. Serial No. 44,173. (No model.)

Claim.—1. The combination with a ladder having a receptacle at one end and facing the cross-strips or rounds thereof; of braces pivoted to the main strips at opposite sides of the receptacle; means for locking the braces at a desired angle to the ladder or in line with the latter; open bearings extending from the bottom of the receptacle; wheels, and an axle thereto adapted to project into the bearings.

2. The combination with a ladder having handles at one end thereof; of a receptacle at the opposite end of the ladder and facing the cross-strips or rounds thereof; braces pivoted to the main strips at the opposite sides of the receptacle; cross-strips connecting the same; a lever pivoted upon each brace; an arm thereto adapted to engage any one of the series of recesses formed within the main strips and the side of the receptacle, a spring for holding the arm normally in engagement with the recesses, open bearings extending from the bottom of the receptacle, wheels, an axle thereon adapted to project into the bearings, and collars upon the axle for preventing lateral movement of the receptacle.



680,403. **IRONING-TABLE.** WILLIAM WILDERMUTH and JOHN G. HILL, Rochester, Ind. Filed Sept. 24, 1900. Serial No. 30,970. (No model.)



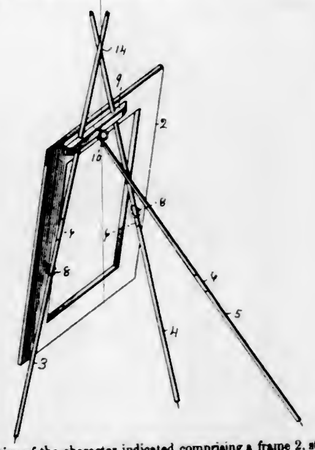
Claim.—1. An ironing-table comprising an ironing-board having series of recesses formed in the under side thereof, supporting side bars hinged to the ironing-board and provided with a step, and with an upper cross-bar set in recesses in the inner sides of the side bars, one of the side bars having a pivoted bar on its outer side, the side bars pivoted to the supporting side bars, and connected by steps, the transverse block secured to the ironing-board, the sleeve-board hinged to the transverse block on the ironing-board to swing upwardly, and means for elevating the sleeve-board on the ironing-board.

2. An ironing-table comprising an ironing-board having series of recesses formed in the under side thereof, supporting side bars hinged to the ironing-board and provided with a step, and with an upper cross-bar set in recesses in the inner sides of the side bars, one of the side bars having a pivoted bar on its outer side, the side bars each formed with a reduced end pivoted to the supporting side bars, and connected by steps, the transverse block secured to the ironing-board, the sleeve-board having a transverse block secured thereto and hinged to the transverse block on the ironing-board and a prop for elevating the sleeve-board on the ironing-board.

680,404. **EASEL.** SETH H. WOODBURY and CHARLES H. WOODBURY, Lynn, Mass. Filed Sept. 13, 1900. Serial No. 29,930. (No model.)

Claim.—1. A device of the character indicated comprising frame 2, staple connections 8, standards 3 and 4 arranged to pass freely through said staple connections, means connecting with said frame and standards at a distance from said staple connections 8, said means adapted to be operated for rendering said frame and standards immovable relatively and a connecting third standard.

2. A device of the character indicated comprising a frame 2, standards 3 and 4, connections between said frame and standards adapted to permit spreading and free endwise movements of said standards separately, the yoke 9, and a screw connection to operate said yoke for rendering said frame and standards relatively immovable and a connecting third standard.



3. A device of the character indicated comprising a frame 2, standards 3, and 4, connections between said standards and said frame, permitting spread and free endwise movement of said standards separately, the yoke 9 and means to operate said yoke for rendering said frame and standards relatively immovable, and a connecting third standard.

4. A device of the character indicated comprising the frame 2, standards 3, and 4, connections between said frame and standards, said connections permitting free endwise movement of said standards separately and also permitting said standards to be placed in position with staff portions crossing each other at an altitude above said connections, means to be operated for rendering said frame and standards relatively immovable, and a connecting third standard.

5. In an easel, the combination with a frame and standards therefor, of means connecting the frame and standards whereby spread and free endwise movement of the standards separately, independent of the frame is permitted, a yoke connecting the frame and standards for rendering them relatively immovable, and a single support connected with the yoke and extending rearwardly from the frame.

6. A device of the character indicated comprising the frame 2, standards 3, 4, means connecting with said frame and said standards, and adapted to permit spreading and free endwise movement of said standards separately, the yoke 9, its standard 5 connected with said yoke and means connecting said yoke and said frame 2, said means adapted to be operated for rendering said frame, said yoke, and standards 3, 4, relatively immovable.

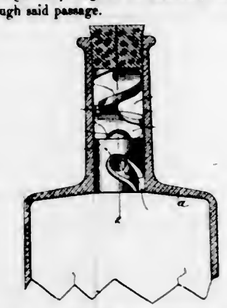
7. In a device of the character described, the combination with a frame, of standards having sliding connection therewith, said connection permitting spread and free endwise movement of the standards separately or together, removable means fitting over said standards for rendering said frame and standards relatively immovable and an independent support for said frame and standards.

8. An easel consisting of a frame and standards, means connecting the frame and standards whereby spread and free endwise movement of the standards separately or together, independent of the frame is permitted, means for connecting the frame and standards for rendering them relatively immovable, said means provided with tapering slots in which the standards are received, and a connecting third support.

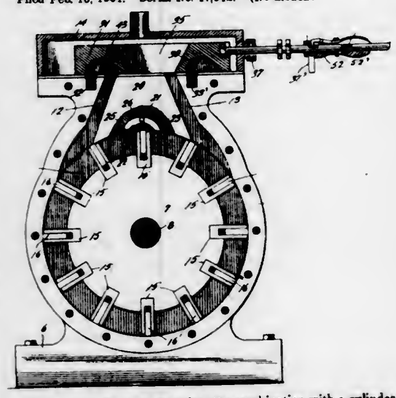
9. An easel consisting of a frame and standards, means loosely connecting the frame and standards, a yoke for connecting the frame and standards to render them relatively immovable, said yoke provided with tapering slots in which the standards are received and having flat face fitting against the face of the frame to afford a broad bearing-surface, means for rigidly securing the yoke to the frame, and a connecting third standard for supporting the frame.

680,405. **NON-REFILLABLE BOTTLE.** WILLIAM H. AARON, Stockton, Cal. Filed May 13, 1901. Serial No. 60,071. (No model.)

Claim.—The combination of the bottle, the core snugly arranged and secured in the neck thereof and having the concave valve-seat at an intermediate point of its length, the passage *d* leading downwardly from said seat and connecting the same with the interior of the body of the bottle, the chamber *f* above the valve-seat, the spiral passage *e* extending upwardly from said chamber *f*, and the air-vent *g* arranged in the edge of one of the whirls forming the spiral passage, and the rubber ball-valve arranged in the chamber *f* of the core; said valve being of a diameter greater than the width of the spiral passage *e* whereby it may be crowded through the passage to the chamber *f* but cannot be drawn outwardly through said passage.



680,406. **STEAM-ENGINE.** ALBION P. CHARLES, Iola, Kans. Filed Feb. 16, 1901. Serial No. 47,612. (No model.)



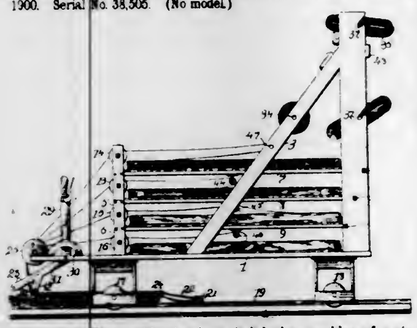
Claim.—1. In a rotary engine, the combination with a cylinder having a steam-chest and inlet-ports connecting opposite ends of the chest with the cylinder, of a slide-valve in the chest adapted for adjustment to operative relation to the ports interchangeably, a rocker adapted to project its ends into the cylinder and connected with the valve for movement therewith to project either end into the cylinder, a piston in the cylinder having heads for engagement with the inwardly-projecting end of the rocker, a lever having cam connection with the piston for oscillation thereby, and a locking device connected with the lever and adjustably connected with the valve for operating the latter.

2. In a rotary engine, the combination with a cylinder having a chest and inlet-ports connecting the cylinder and chest, said chest having also an outlet-port, a rotatable piston in the cylinder having heads, a slide-valve in the chest for communicating the inlet-ports with the chest and adapted for adjustment into operative relation with the inlet-ports alternately, a valve-rod connected with the valve and having recesses therein, a cam connected with the piston, a lever having a roller engaged with the cam, a connecting-rod attached to the lever, and a locking device attached to the connecting-rod and slidably mounted upon the valve-rod, said locking device including a trigger for engagement with the recesses of the valve-rod interchangeably when the rod is shifted, to operatively connect the rod with the eccentric in the different adjustments of the valve-rod.

3. In a rotary engine, the combination with a cylinder, of a rotatable piston mounted therein and having heads, a steam-chest having ports communicating with the cylinder to supply steam thereto, a slide-valve in the chest adapted for adjustment into operative relation to the ports alternately, a rocker disposed to project its ends into the path of the heads of the piston alternately, a telescopic and yieldable connection between the rocker and valve for shifting the rocker to correspond to the position of the valve and permit movement of the rocker by the engaging heads to pass therebeyond, a cam carried by the piston, a rod for the valve, and connections

between the cam and rod and including an adjustable locking device for locking the rod in operative relation to the cam in the different adjusted positions of the rod.

680,407. CLOTH-PILER. CEPHAS D. CODDINGTON, Decatur, Ill., assignor of one-half to Oscar C. Robertson, same place. Filed Dec. 3, 1900. Serial No. 38,505. (No model.)



Claim.—1. The combination in a cloth-laying machine, of a plurality of trays each hinged at one end one above another and each having attached to its under surface, near the longitudinal center thereof, a guide-roller for the cloth in the tray next below.

2. In a cloth-laying machine the combination of a platform, standards thereon providing bearings for the pivot-rods of cloth-rolls, and a plurality of flat trays hinged each at one end to the standards one above another.

3. In a cloth-laying machine, the combination of a platform, cloth-carrying trays hinged each at one end to an extension of the platform, a pair of arms carrying cloth-spreading rollers, and a guide-roller in the platform above the spreading-rollers.

4. In a cloth-laying machine the combination of a platform, standards thereon, a plurality of trays hinged to the standards, an arm-frame carrying spreading-rollers, a lock-lever attached to the arm-frame at the pivot thereof and a guide-roller in the platform above the spreading-rollers.

5. A pivot rod or shaft for flat rolls of cloth comprising a rod, a fixed clamp member on an end of the rod, a ring slidable on the rod, a clamp member on one side of the ring, an arm on the opposite side of the ring and a cam-lever pivoted in the arm and adapted to engage the rod.

6. The combination with a cutting-table and a cloth-laying machine traveling thereon, of a pair of loop-bars hinged to the table, and extended lengthwise thereof and a rod insertible through the loops of the loop-bars to hold the end of a fold of cloth.

680,408. APPARATUS FOR USE IN ELECTRODEPOSITION OF METALS. SHERARD O. COWPER-COLES, Westminster, England. Filed Apr. 8, 1901. Serial No. 54,873. (No model.)

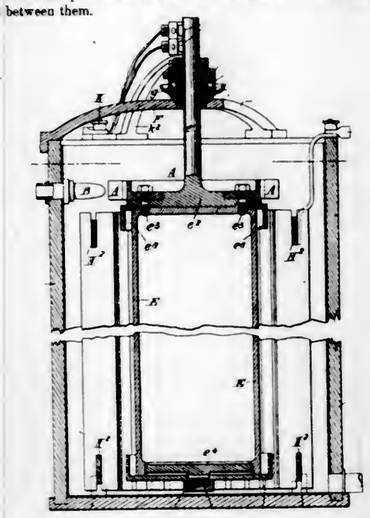
Claim.—1. In apparatus for the electrodeposition of metals, a vat, a revolubly-mounted cathode in the vat, a turbine located in the upper part of the vat for rotating the cathode, and means for projecting the electrolyte against the said turbine as it is introduced into the vat thereby rotating the cathode.

2. In apparatus for the electrodeposition of metals, a vat, a revolubly-mounted cathode in the vat, a turbine associated with the cathode, and one or more nozzles projecting into the vat for discharging the electrolyte against the turbine thereby rotating the cathode.

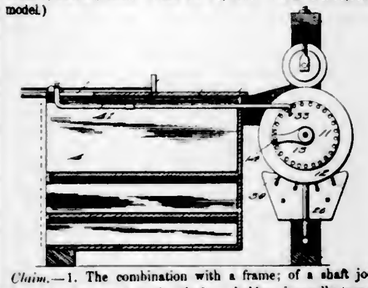
3. In apparatus for the electrodeposition of metals a cathode mounted so as to be capable of revolving and of swinging in its mounting and provided with a turbine, and means for projecting the electrolyte against the said wheel or turbine so as to rotate the cathode substantially as hereinbefore described.

4. Apparatus for the electrodeposition of metals consisting of a vat having an outlet for the electrolyte, anodes mounted in said vat so as to leave a space between them for the passage of the electrolyte, jets or nozzles adapted to project the electrolyte into the vat, a vertically-disposed shaft, a supporting-bracket on the vat, a plate having an approximately spherical bottom resting against said bracket, ball-bearings interposed between the plate and shaft, a mandrel or cathode on the shaft, and a turbine associated with the mandrel and its shaft and adapted to be acted upon by the electrolyte projected into the vat to rotate the mandrel.

5. In apparatus for the electrodeposition of metals, a vat, a revolubly-mounted cathode in said vat, a turbine associated with the cathode, means for projecting the electrolyte into the vat against the turbine so as to rotate the cathode, and a plurality of anodes disposed at intervals about the cathode adapted to act as baffles for the electrolyte and allow it to pass between them.



680,409. MACHINE FOR PRINTING PAPER BAGS. FREDERICK CUDNEY, Detroit, Mich. Filed Nov. 3, 1900. Serial No. 35,399. (No model.)



Claim.—1. The combination with a frame; of a shaft journaled therein; a chase secured to the shaft; a holder; inwardly-turned ends thereto detachably secured to the chase; a trough secured to the frame below the chase; longitudinally-extending inking-rollers journaled within the trough adjacent to the top thereof, and a feed-roller within the trough and below the inking roller.

2. The combination with a frame having a top, of a shaft journaled within the frame, a disk secured thereto and having apertures arranged adjacent to the periphery thereof, a spring-arm mounted upon the shaft of the roller, a pin secured thereto and adapted to be placed into engagement with any one of the apertures in the disk, a slide upon the top of the frame, a strip thereto, a rod secured to said strip and extending forward to a point adjacent to the disk, a hooked end to the rod adapted to be engaged and moved by the pin, and a spring for holding the rod and slide normally removed from the roller.

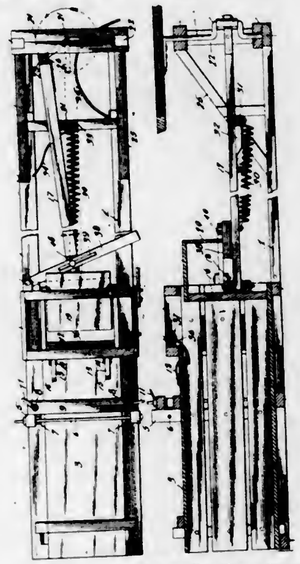
3. The combination with a frame, of a shaft journaled therein, disks secured to the shaft, a chase detachably secured between the disks and partially inclosing the shaft, a holder, and inwardly-turned ends thereto adapted to engage the edges of the chase.

4. The combination with a frame, of a shaft journaled therein, disks secured to the shaft, shoulders upon the inner faces thereof, a chase secured to the shoulders and partially inclosing the shaft, a holder, inwardly-turned ends thereto engaging the edges of the chase and a platen adjustably secured within the frame at a point above the disks.

5. The combination with a frame, of a shaft journaled therein, disks secured to the shaft, shoulders upon the inner faces thereof, a chase detachably secured to the shoulders and partially inclosing the shaft, a holder having a channeled convex face, inwardly-turned ends thereto adapted to engage the edges of the chase, a trough secured to the frame at a point below the disks, longitudinally-extending inking-rollers journaled within the trough adjacent to the top thereof, a feed-roller journaled within the trough below the inking-rollers, and a platen adjustably secured within the frame at a point above the disks.

6. The combination with a frame having a top, of a shaft journaled within the frame, a disk secured thereto and having apertures arranged adjacent to the periphery thereof, a spring-arm mounted upon the shaft of the roller, a pin secured thereto and adapted to be placed into engagement with any one of the apertures in the disk, a slide upon the top of the frame, a strip thereto, a rod secured to said strip and extending forward to a point adjacent to the disk, a hooked end to the rod adapted to be engaged and moved by the pin, a spring for holding the rod and slide normally removed from the roller, disks secured to the shaft, shoulders upon the inner faces thereof, a chase detachably secured to the shoulders and partially inclosing the shaft, a holder having a channeled convex face, inwardly-turned ends thereto adapted to engage the edges of the chase, a trough secured to the frame at a point below the disks, longitudinally-extending inking-rollers journaled within the trough adjacent to the top thereof, a feed-roller journaled within the trough below the inking-rollers, and a platen adjustably secured within the frame at a point above the disks.

680,410. BALING-PRESS. FELIX H. DENNIS, Merkel, Tex. Filed Dec. 8, 1900. Serial No. 39,192. (No model.)



Claim.—1. In a baling-press, a rebounding plunger having a laterally-swinging plunger-rod, an automatically-disengageable operating device therefor, a cross-bar loosely supporting the free portion of the plunger-rod, a laterally-engaging stop-shoulder carried by the cross-bar and at one side of the plunger-rod, a pendent cross-bar-engaging stop-shoulder carried by the plunger-rod and in rear of the cross-spring bar, and a bowed stop device arranged in the path of the initial lateral swing of the pendent stop-shoulder and opposite the shoulder upon the cross-bar.

2. In a baling-press, the combination with a base-frame, of a press-box at one end thereof, an upright frame structure at the opposite end thereof, a rebounding plunger, a laterally-swinging plunger-rod, a cross-bar in the upright frame structure and forming a support for the free end portion of the plunger-rod, a pendent stop-shoulder carried by the plunger-rod and in rear of the cross-bar, a plunger-rod-engaging stop-shoulder upon the cross-bar and arranged in the path of the final lateral swing of the rod, an elastically-yieldable stop device located opposite the latter stop-shoulder and formed by a bowed spring secured to the cross-bar and located in the path of the initial lateral swing of the stop on the plunger-rod, a vertical operating-shaft mounted upon the upright frame, and having a rod-engaging operating-head, and a yieldable buffer carried by the upright frame and located in that portion of the path of the head where the latter disengages from the plunger-rod.

3. A baling-press having a rebounding plunger, a rotary operating device constructed for operative engagement with the plunger during the latter half only of the rotary movement thereof, the plunger being free from the operating device during the remainder of the operation and capable of rebounding, and a yieldable bowed spring-buffer located in that part of the path of the operating device where the latter leaves the plunger.

4. In a baling-press, a press-box, having a hopper, a bowed tucker-plate having its concaved side embracing the rear bottom edge of the hopper, the upper portion of the plate bowing upwardly and rearwardly through the top of the hopper, and the bottom bowing downwardly and rearwardly into the press-box, one or more bowed springs secured to the rear portion of the plate, projected loosely upward through an opening in the top of the box, and secured to the exterior thereof, and a guide-pin projecting from the rear side of the hopper and loosely received in a longitudinal slot in the tucker.

5. The combination with a baling-press, having a press-box, a plunger working therein, and a plunger-rod, of means for locking the plunger, comprising a locking-bar pivoted or hinged to the press-box, and having a slidable connection with the plunger-rod, and means for automatically locking the bar at the inner limit of the plunger.

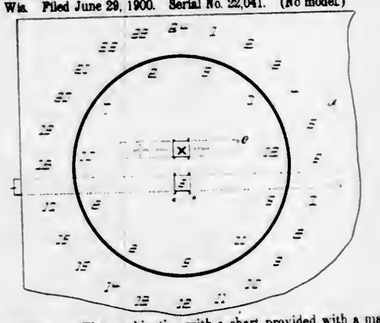
6. The combination with a baling-press, having a press-box, a plunger working therein, and a plunger-rod, of means for locking the plunger, comprising a locking-bar pivoted or hinged to the front of the press-box, extending transversely across the plunger-rod, and having a slidable pin-and-slot connection therewith, and a gravity latch or detent mounted upon the front portion of the press-box and in the path of the inward swing of the locking-bar.

7. The combination with a baling-press, having a press-box, a plunger working therein, and a plunger-rod, of means for locking the plunger at its inner limit, comprising a transverse locking-bar having one end pivoted or hinged to the front of the press-box, extending transversely across the plunger-rod, and having a pin-and-slot connection therewith, the free end of the bar projecting beyond the opposite side of the press-box at the inner limit of the plunger, and a substantially L-shaped gravity latch or detent pivoted to said opposite side of the box and swinging in a vertical plane, the horizontal member of the latch projecting in front of the box, and having a pendent catch-shoulder in the path of the free end of the locking-bar, the other member of the latch forming a handle to adjust the latch into its operative and inoperative positions, and stops located at opposite sides of the pivotal support of the latch, to support the latter in its opposite positions.

8. In a baling-press, a press-box, a rebounding plunger therefor, a plunger-rod having a free outer end, an operating device which travels in a circular path and is constructed for operative engagement with the free end of the plunger-rod during the latter half only of the inward swing of the operating device, the rod and plunger being free from the operating device and capable of rebounding during the remainder of the swinging movement of the operating device, and a bowed spring-buffer having its convex side located in that portion of the outward swing of the operating device where the latter leaves the end of the plunger-rod.

9. In a baling-press, the combination of a rebounding plunger, an operating device consisting of a rotatable shaft having an intermediate double crank constructed for impact operative engagement with the plunger during the inward movement only of the crank, and a bowed spring-buffer having its convex side arranged in the initial part of the outward swing of the operating device at the point where it disengages from the plunger.

680,411. NUMBER-CHART. MATTIE F. DOCKERY, Whitewater, Wis. Filed June 29, 1900. Serial No. 22,041. (No model.)

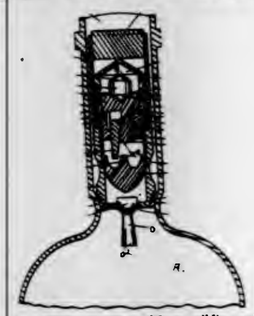


Claim.—1. The combination with a chart provided with a mathematical problem; of a series of number slides or carriers; a series of digits on each of said slides or carriers; means for mounting said slides or carriers on said chart, in positions to separately cover individual numbers of the problem; and means for adjusting said slides laterally whereby digits may be removed, shifted, replaced, or added, and the character of the problem indefinitely altered.

2. The combination with a chart provided with a mathematical problem; of a series of number slides or carriers, and a series of digits on each of said slides or carriers; said chart being provided with parallel slots or openings at the respective ends of the various numbers of the problem adapted to permit the insertion of the slides with a portion exposed on the face of the chart between the slots and a portion or portions of the slide concealed at one or both ends, whereby said slides may be adjusted laterally to alter the character of the problem, both by shifting the position of the exposed digits and introducing new digits.

3. The combination with a chart provided with a mathematical problem, and having parallel slots arranged in pairs, one at each end of each number of the problem; and a series of slides adapted to be inserted in said slots to separately cover the numbers of the problem and provided with a series of digits exceeding in number the digits of the number such slide is designed to cover, whereby a lateral adjustment of the slide will introduce new elements into the number and rearrange the remaining elements with reference to the other factors of the problem.

680,412. **NON-REFILLABLE BOTTLE.** EDWARD FRERER and LEO LEVY, New York, N. Y., assignors, by direct and mesne assignments, of three-eighths to Samuel Levy, same place, and Harry L. Rosen and Abraham Marks. Filed Nov. 26, 1900. Serial No. 37,783. (No model.)



Claim.—1. A bottle-closure, comprising a sliding valve seated on a shoulder within the neck of a bottle, a sliding wedge adapted to normally hold said valve seated, and direct means for automatically actuating said wedge to release and unseat said valve.

2. A multiple-valve bottle-closure, comprising a sliding valve seated on a shoulder within the neck of a bottle, a sliding wedge normally holding said valve seated, a pendent valve-weight and an intermediate valve-weight adapted, as the bottle is inverted, to coöperate with said pendent valve-weight and wedge to release and unseat said sliding valve.

3. A multiple-valve bottle-closure, comprising a sliding valve seated on a shoulder within the neck of a bottle, a pendent locking extension to said valve, a sliding wedge, a pendent valve-weight and an intermediate valve-weight adapted to coöperate with said pendent valve-weight and wedge, to release said pendent extension and unseat the sliding valve, as set forth.

4. A multiple-valve bottle-closure, comprising a sliding valve seated on a shoulder within the neck of a bottle, an integral pendent locking extension to said valve, a sliding wedge, held frictionally against the face of said pendent extension, a pendent valve-weight seated in the lowermost part of the neck, an intermediate valve-weight thereabove, adapted to coöperate with said pendent valve-weight, to impart a longitudinal movement to the wedge, whereby said locking extension will be released and the sliding valve unseated, as set forth.

5. A multiple-valve bottle-closure, comprising a sliding valve seated within the neck of a bottle, a pendent extension to said valve, having an offset at its lower end, a sliding wedge held in frictional contact with the inclined face of said pendent extension, and normally holding the valve seated, a pendent valve-weight, and an intermediate valve-weight adapted to coöperate with said pendent valve-weight and wedge to release said pendent extension and unseat the sliding valve, as set forth.

6. A multiple-valve bottle-closure, comprising a sliding valve with pendent extension, a wedge, pendent valve-weight and intermediate valve-weight adapted to coöperate with said wedge to release and unseat said sliding valve, an inclosure over the sliding valve, and a valve-closing weight normally resting on said sliding valve, as set forth.

7. A multiple-valve bottle-closure, comprising a sliding valve with pendent extension, a wedge, pendent valve-weight and intermediate valve-weight adapted to coöperate with said pendent valve-weight and wedge to release and unseat the sliding valve as the bottle is inverted, a cap with conical top over said sliding valve, and a valve-closing weight with conical ends, normally resting in the hollowed top of the sliding valve, as set forth.

8. In a multiple-valve bottle-closure, the valve-supporting member H and packing-ring interposed between said member and the neck of the bottle, the pendent valve-weight seated in the lowermost part of said supporting member, the weight-valve within the latter, the union G resting on said supporting member, the sliding valve resting on said union and having a pendent extension passing through the union, a wedge held by the inner wall of the union against the face of said pendent extension, the cap C with ducts therein and packing P resting upon the union, and the tubing B surrounding said cap, as set forth.

9. In a multiple-valve bottle-closure, the valves as set forth, the valve-supporting member, the union, the cap with alternately-arranged ducts and guards, the tubing supported on said union and surrounding said cap, and means for normally holding the ducts in said cap closed, as set forth.

10. A valve for a bottle-closure, having a pendent extension with an inclined face and provided with an offset at its lower end adapted to coact directly with a wedge positioned below the valve and against said inclined face to hold the valve seated within the neck of a bottle.

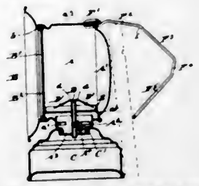
11. In a multiple-valve bottle-closure, the hollow valve-supporting member H provided with ducts H', the pendent valve-weight seated in the lowermost part of said supporting member, the valve-weight mounted within said member, and designed to regulate said ducts, a hollow union mounted on said member, sliding valve seated on said union, and having a pendent extension passing through the union, and a sliding wedge also held within the union and adapted to coöperate with said valve-weight to release and unseat said sliding valve, as set forth.

12. In a multiple-valve bottle-closure, the hollow valve-supporting member H, provided with ducts H', the pendent valve-weight seated in the lowermost part of said supporting member, the valve-weight mounted within said member, and designed to regulate said ducts, a hollow union having ducts G' in its inner wall, the sliding valve seated on and having a pendent extension passing through said union, a sliding wedge also confined within the union and in contact with said pendent extension, and adapted to coöperate with said pendent and valve-weights to unseat the sliding valve, as set forth.

13. In a valve-closure for bottles, a hollow union supported within the neck of a bottle and having ducts G' therein, a sliding valve seated on said union, a pendent extension of said valve having an inclined face, and an offset adapted to engage over the lower edge of said union, a wedge held within said union and in frictional contact with the inclined face of the valve extension, the lower end of the wedge extending below the union, and means for striking the lower end of the wedge to release and unseat the sliding valve, as set forth.

14. In a multiple-valve bottle-closure, the valve-supporting member H, the pendent valve seated in the bottom of said member, the valve-weight thereabove having a recess with inclined wall in its top, the hollow union seated on said member, the sliding valve seated upon and having a pendent extension with inclined face passing through said union, a sliding wedge, confined within the union and in contact with said inclined face, the lower end of said wedge extending below the union and designed to be struck by the wall of said recess as the bottle is inverted, as set forth.

680,413. **LAMP.** FREDERICK B. HAYDEN, Belleville, N. J., assignor to William R. Noe, East Orange, N. J. Filed Apr. 16, 1901. Serial No. 56,035. (No model.)

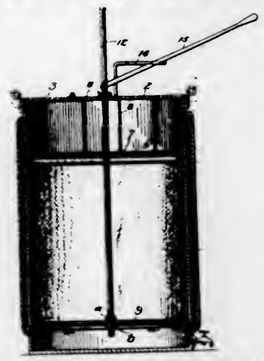


Claim.—1. In a lamp the wick-tube described consisting of a single piece of sheet metal and comprising the body portion D, the wings D' D' provided with openings *d d* at their line of junction with the body portion and easily-bent portions D^2 D^2 connecting the former to the latter and upon opposite sides of the openings *d d*, all substantially as herein specified.

2. In a lamp, the body A and tube A^2, the wick-tube D and its wings D' D' formed integral therewith, joined to said tube A^2, the plate E lying within said body and held in position relatively thereto by said wick-tube, and locked against removal by said wings, the latter being bent downward toward said plate after the latter has been placed in position, all combined and arranged to serve substantially as herein specified.

3. In combination with a lamp of the character set forth, a supporting-frame comprising the loops F' F', converging arms F^2 F^2, outwardly and downwardly curved portions F^2 F^2, downwardly-projecting straight portions F^4 F^4 and downwardly and inwardly projecting bight F^3, adapted to serve as a handle and in attaching the lamp to a bicycle-head or to a dashboard or analogous objects, all substantially as herein specified.

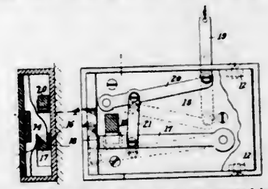
680,414. **WASHING-MACHINE.** JOHN D. KING, Mount Sterling, Ky. Filed Jan. 10, 1901. Serial No. 42,752. (No model.)



Claim.—1. In a washing-machine, the combination with a suds box or casing, of a flexible clothes-holder, a perforated plate immovable relatively to the holder, a vertical reciprocating plate secured to the lower end of the holder, and means for reciprocating said plate to collapse and distend said clothes-holder, and for rotating said plate to twist said holder, substantially as set forth.

2. In a washing-machine, the combination with a suds box or casing provided with return-pipes communicating with the upper and lower ends of the suds box or casing, of a rotary vertical reciprocatory shaft, a flexible clothes-holder having secured to its upper end a perforated plate held against movement relatively to the casing, and a perforated plate secured to the lower end of said clothes-holder and connected to said shaft to turn and to reciprocate therewith, substantially as set forth.

680,415. **THERMAL DOOR-CLOSING APPARATUS.** OLIVER H. KINGSLAND, New York, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed July 7, 1899. Serial No. 723,063. (No model.)



Claim.—1. A movable catch adapted to be moved into the path of a self-closing door, a movable support on which said catch is movably mounted, means connected to a thermal fuse to hold said catch in position or to allow said catch to move out of the path of said door and said thermal fuse.

2. A manually-operated bolt adapted to be moved into the path of a self-closing door, a movable support in which said bolt is guided, a thermal fuse and means connected to said fuse to hold said bolt in position or allow said bolt to move out of the path of said door.

3. A manually-operated bolt adapted to be moved across the line of travel of a self-closing door, a pivoted support on which said bolt is guided, a thermal fuse and a retainer connected to said fuse to releasably hold said support in position.

4. The combination with a self-closing door, of a sliding bolt capable of being manually moved in the path in which it slides, and a device comprising a thermal fuse for holding it in that path, releasable by heat for permitting the movement of the bolt out of that path.

5. In a thermal door-closing apparatus, a self-closing door, a thermal fuse, a bar extending across the line of travel of the door and capable of being manually withdrawn out of said line of travel, a locking device connected with said thermal fuse for holding the bar in said path when the fuse is intact, and permitting the movement of the bar out of said path when the fuse is broken.

6. A manually-operated bolt adapted to move in the path of a self-closing door, a movable support in which said bolt is movable, a thermal fuse, and a retainer engaging said support and connected with said thermal fuse to releasably hold said support in operative position, the engaging faces of said retainer and support being inclined so that the pressure of said door tends to disengage said retainer and said support to allow said bolt to move out of the path of said door.

7. A manually-operated bolt adapted to move into the path of a self-closing door, a pivoted support having suitable guides thereon for said bolt and being formed with a slanting member, a thermal fuse and a pivoted retainer having a slanting portion to engage said slanting member on the support and connected with said thermal fuse to allow said bolt to move out of the path of said door in case of excessive rise of temperature.

8. A thermal fuse, a lock adapted to be supported adjacent a self-closing door comprising a pivoted front plate in which is supported a manually-operated bolt adapted to be moved into the path of said door, said front plate having a slanting member, and a retainer pivoted to the back of said lock having a slanting portion to engage said slanting member of the front plate, said retainer being connected to said thermal fuse to releasably hold said retainer in operative position in engagement with said front plate.

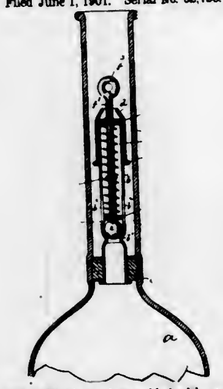
9. A thermal fuse, a manually-operated catch adapted to be moved into the path of a self-closing door, a movable plate on which said catch is movably mounted, a retainer to hold said plate in operative position, said retainer being connected to said thermal fuse, the bearing-surfaces between said plate and said retainer being inclined whereby upon the breaking or weakening of the thermal fuse the said surfaces may be forced apart by the pressure of the door and the plates released from the retainer.

10. The manually-movable bolt, a movable support upon which said bolt is movably mounted, a thermal fuse, retaining devices engaging said support, and means connected to said thermal fuse to releasably hold said support and said retaining devices in engagement whereby if said bolt is engaged by a self-closing door the force of said door tends to disengage said support and said retainer.

11. A manually-operated bolt adapted to be moved into the path of a self-closing door, a support upon which said bolt is movably mounted, a thermal fuse, a pivoted retainer connected to said fuse and engaging said support, the contacting surfaces of said support and said retainer being so shaped that the pressure of said door upon said bolt tends to force said retainer from its operative position to allow said bolt to move out of the path of said door.

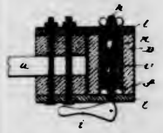
12. A manually-operated bolt adapted to be moved into the path of a self-closing door, a pivoted support in which said bolt is guided, a thermal fuse, a pivoted retainer connected with said thermal fuse, said retainer engaging said support to hold the said bolt in the path of said door, the engaging surfaces of said retainer and said support being so shaped that upon the weakening or breaking of said fuse the pressure of the door disengages said retainer from said support and forces said bolt out of the path of said door.

680,416. **NON-REFILLABLE BOTTLE.** FRIEDRICH KUHLEN, Maywood, N. J. Filed June 1, 1901. Serial No. 62,728. (No model.)



Claim.—A non-refillable bottle provided with a tube having a valve seat and exit-ports, a valve seated within said tube, a spring-plunger bearing upon the valve, means for limiting the play of said plunger, an eye at the upper end of the plunger-rod, and a flanged cap surrounding the tube, substantially as specified.

680,417. GATE. ISRAEL L. LANDIS, Chicago, Ill. Filed Apr. 11, 1901. Serial No. 55,297. (No model.)



Claim.—1. In combination with the gate A provided with a subpost D slotted at right angles with the gate; the clamping-plates *l l* secured to the gate by bolts *c'' c''*, said plates embracing the subpost D; the bolt *h*, cam-lever *i*, spring *n*, roller *v* secured through the plates *l l* and through the slot *f* in the subpost; the diagonal slotted braces E provided with a cam-lever *i'* and bolt *h'* and a friction-plate *g* interposed between the slotted brace and adjacent rail; the latch-bolt X and plate *z* secured with the bolt *h''* and cam-lever *i''* as and for the purpose set forth.

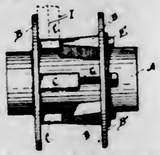
2. In a gate the clamping device consisting of two plates *l l* secured to the rear uprights or batten B of the gate and embracing the slotted subpost D; the bolt *h* provided with cam-lever *i*, spring *n* and roller *v*, passing through plates *l*, and through the slot *f* of the subpost D, in combination with the diagonal slotted braces E the friction-plate *g*, the bolt *h'* and lever *i'*; to secure and adjust the slotted braces to the gate as and for the purposes set forth.

3. In combination with a gate the perforated clamping-plates *l l* secured to the gate by bolts *c'' c''* and embracing the subpost D, the bolt *h* passing through the plates *l l* through the slot *f* in the subpost D and through the spring *n* and the roller *v*; the slotted braces E secured by the cam-lever *i'* and bolt *h'* at the lower front end of the gate, as and for the purposes described.

4. In combination with the gate A, the slotted subpost D, the clamping-plates *l l*, the bolt *h*, cam-lever *i* roller *v*, and the braces E provided with bolt *h'*, lever *i'* and friction-plate *g* as and for the purpose set forth.

5. In combination with the gate A the subpost D, the guide and clamp-plates *l l* secured to the battens B at the rear end of the gate, and embracing the subpost D, the bolt *h* passing through the plates *l*, *l*, and through the slot *f* in the subpost D, the slotted braces E secured to the subpost D, and at the lower front end of the gate with a bolt *h'* and friction-plate *g* as and for the purpose set forth.

680,418. HUB FOR POLISHING-BRUSHES. SIMON ROSS, Cincinnati, Ohio, assignor to the Ross, Moyer Manufacturing Company, same place. Filed Feb. 25, 1901. Serial No. 48,758. (No model.)

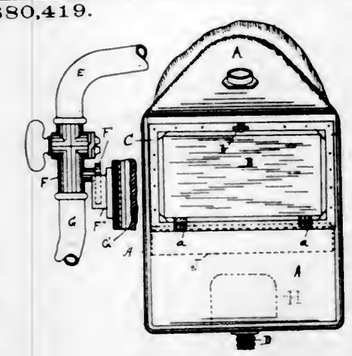


Claim.—A brush-hub composed of a sleeve-section adapted to be secured to a shaft and provided with a clamping-flange, and a series of peripheral lugs upon said sleeve, in combination with a removable clamping member provided with lugs adapted to coact with the lugs of the fixed section, and serve as a seat for the brush-rings, and clamping-bolts adapted to draw said clamping members together and engage the brush-sections, substantially as specified.

680,419. VARNISHER'S MASK. DANIEL W. SCHAEFFER, Dayton, Ohio, assignor of one-half to Adam Schantz, Jr., same place. Filed Mar. 1, 1901. Serial No. 49,405. (No model.)

Claim.—A mask for use in varnishing the interior of brewery-casks, comprising a flexible covering for the upper portion of the head, a leather casing or face portion to which said head-covering is attached, the said casing or face portion provided with a transverse sight-opening extending across the upper portion thereof and extending from the central part to the top of said casing, an air-outlet at the top of said casing, an air-inlet at the bottom of said casing, an air-deflector on the interior bottom of said casing by means of which the air is directed away from the mouth and nostrils of the wearer, and an air-deflector adjacent to the nose of the wearer by means of which the air is retarded in its passage to the upper portion of the mask, an air-inlet hose connected with the opening in the lower portion of the mask, and means for supporting such hose on the body of the wearer whereby the mask is relieved of the weight of said hose, substantially as specified.

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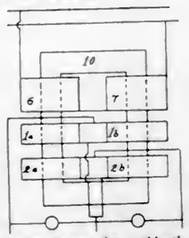
680,420. COMPOSITION FOR CLOSING PUNCTURES IN PNEUMATIC TIRES. WILLIAM H. SIMMONS, San Jose, Cal., assignor of one-half to Harlow J. Ayres, same place. Filed Mar. 25, 1901. Serial No. 52,840. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of crude petroleum-oil, liquid asphalt prepared from asphaltic petroleum, balsam of fir, white lead, and an oil, substantially in the proportions specified.

2. The herein-described composition of matter consisting of crude pretroleum-oil, liquid asphalt prepared from asphaltic petroleum, balsam of fir, white lead, varnish, and an oil, substantially in the proportions specified.

3. The herein-described composition of matter consisting of crude petroleum-oil, liquid asphalt prepared from asphaltic petroleum, balsam of fir, white lead, varnish, castor-oil, raw linseed-oil, olive-oil, substantially in the proportions specified.

680,421. TRANSFORMER. FREDERICK C. SUTTER, Pittsburg, Pa., and ROBERT V. BENGAY, Montreal, Canada. Filed May 23, 1901. Serial No. 61,530. (No model.)



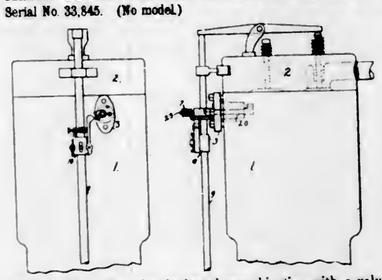
Claim.—1. In a transformer the combination of a core having a single magnetic circuit, a primary winding composed of sets of coils located on various parts of said core, said sets being connected in multiple across the supply-mains, and each set consisting of two or more coils which may be connected in series or in multiple with each other and a secondary winding consisting of a plurality of coils located on various parts of said core, and portions of said secondary winding connected across each of the various branches of a three-wire circuit.

2. The combination in a transformer of a core having a single magnetic circuit, a primary winding mounted thereon, and a secondary winding mounted on said core consisting of two or more groups of coils connected to a three-wire system there being an equal number of groups connected across each branch of the three-wire system, each of said groups consisting of two or more coils located on different parts of the core, and connected in multiple across the branch of the three-wire system to which said group pertains.

3. In a transformer the combination of a core having a single magnetic circuit; a secondary winding consisting of two coils connected to a three-wire circuit a single coil being connected across each branch of the circuit, a primary mounted on said core consisting of two or more sets of coils connected in multiple so that the full primary potential is applied to each set of coils, the sets consisting of one or more coils which are adapted to a series or multiple connection thus providing for more than one primary voltage, the transformer maintaining substantially normal regulation under balanced or unbalanced load.

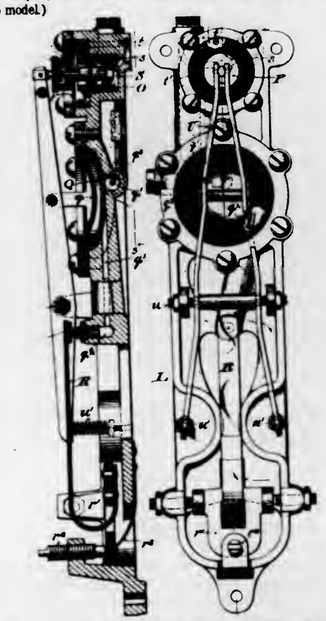
4. The combination in a transformer of a core having a single magnetic circuit; a primary winding mounted thereon, and a secondary winding consisting of two sets of coils connected to a three-wire circuit one set being connected across one branch and the other set across the other branch of the three-wire circuit, each of said sets being composed of two coils connected in multiple, one of said coils being located on one leg of the core and the other coil located upon the other leg of said core.

680,422. SPARKING IGNITER FOR GAS-ENGINES. JOHN D. TERMAAT and LOUIS J. MONAHAN, Oshkosh, Wis. Filed Oct. 22, 1900. Serial No. 33,845. (No model.)



Claim.—In a gas-engine igniter the combination with a valve-actuating rod, of a casting or sleeve 10 mounted thereon, a yielding engagement-finger 15 pivotally attached to said casting or sleeve, an adjustable spring 17, means for adjusting the tension of said spring, a pin 14 secured to the rod 9, a slot 13 in casting 10, a thumb-screw 12 for clamping the casting 10 to the rod 9, a stationary electrode, a movable electrode having a lug or tappet 5 secured thereto and forming part thereof, a stop 8, a coiled spring 7 having one end attached to said stop and the other end attached to the movable electrode adapted to normally hold the contact-points 21 and 22 apart for the purpose set forth.

680,423. TEMPERATURE-REGULATING APPARATUS. HENRY WINKENWERDER, Milwaukee, Wis., assignor to Johnson Electric Service Company, same place. Filed Aug. 13, 1898. Serial No. 688,529. (No model.)

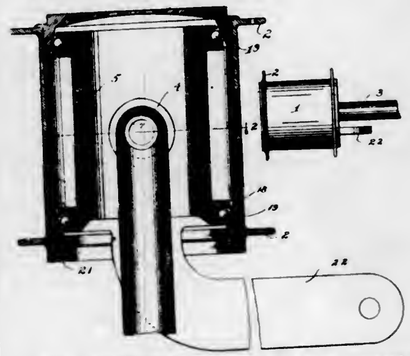


Claim.—1. In temperature-regulating apparatus the combination with a heat-controlling damper or valve, a fluid-pressure motor for operating the same and a source of fluid-pressue, of valve mechanism comprising a service-chamber in communication with said motor, a supply-chamber in communication with the source of fluid-pressure, a supply-valve controlling a port between said chambers and having a stem attached to a flexible diaphragm which forms one side of said supply-chamber, a passage in said stem leading from the service-chamber through said diaphragm to the atmosphere and being enlarged at its outer end, a waste-valve normally closing the enlarged end of said passage, and a thermostat arranged to effect the initial movement of said supply and waste valves according to changes of temperature in the room in which the thermostat is located, said supply and waste valves and their fluid connections being so constructed and arranged that such movement will be checked or modified by variations in the service-pressure controlled by said valves, substantially as and for the purposes set forth.

2. In temperature-regulating apparatus the combination with a heat-controlling damper or valve, a fluid-pressure motor for operating the same and a source of fluid-pressure, of valve mechanism controlling the supply and release of the fluid medium to and from said motor and comprising a service-chamber in communication with said motor, a supply-chamber in communication with the source of fluid-pressure, a supply-valve controlling a port between said chambers and having a hollow stem attached to a flexible diaphragm which forms one side of the supply-chamber, the passage in said stem leading from the service-chamber through said diaphragm to the atmosphere and having an enlarged port at its outer end, a waste-valve normally closing said port and having a stem guided in the hollow stem of the supply-valve, and a second fluid-pressure motor having supply and waste connections one of which is thermostatically controlled for effecting the initial movement of said supply and waste valves, substantially as and for the purposes set forth.

3. In temperature-regulating apparatus the combination with a heat-controlling damper or valve, a fluid-pressure motor for operating the same and a source of fluid-pressure, of valve mechanism comprising a service-chamber in communication with said motor, a supply-chamber in communication with the source of fluid-pressure, a supply-valve normally closing a port between said chambers and having a hollow stem the passage in which leads from said service-chamber to the atmosphere, and a waste-valve normally closing said passage, a second fluid-pressure motor having inlet and outlet ports one of which is thermostatically controlled, a lever connected with said second motor and with the waste-valve and a spring acting on said lever in opposition to the fluid-pressure in said second motor, said spring tending to close the waste-valve and to open the supply-valve, substantially as and for the purposes set forth.

680,424. HUB FOR VEHICLE-WHEELS. ANDREW BENSON, Chicago, Ill., assignor of three-fourths to John P. Price and Robert P. Price, same place, and John B. Benson. Filed Nov. 20, 1899. Serial No. 737,588. (No model.)

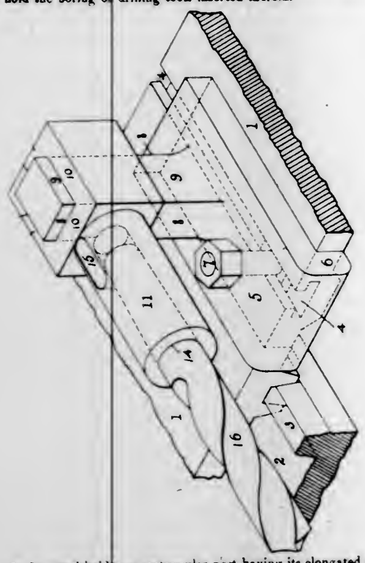


Claim.—The combination with an axle of a bearing 4 arranged vertically thereon, the bearing-cone 7 socketed in the upper end of said bearing, the cup 11 in which the lower end of said bearing is seated, a box containing said bearing and having the collars 9 15, ball-cups having antifriction-rollers secured in said collars respectively and engaging with said cone and cup, means for oscillating said box on said bearing and a barrel journaled on said box and adapted to form part of a wheel, substantially as set forth.

680,425. BORING-TOOL HOLDER. BERNARD O. BRETTFIELD, Philadelphia, Pa. Filed Apr. 19, 1901. Serial No. 56,560. (No model.)

Claim.—1. In a tool-holder, a rectangular post and means to secure it to a slide-rest, a removable tool-holder having a rectangular socket adapted to be adjustably secured to the rectangular post aforesaid, and a

circular section part adjoining the rectangular part, taper-bored, and adapted to hold the boring or drilling tools inserted therein.



2. In a tool-holder, a rectangular post having its elongated sides in parallel alinement with the center of the machine it is used on, means to secure the post for movement with a slide-rest, a tool-holder having a socket wherein a boring-tool is held, a rectangular part adjoining the circular section part and fitting around the rectangular post, and means to secure it to the tool-post at a desired height.

680,426. SUBSTITUTE FOR RUBBER OR GUTTA-PERCHA. ADAM CAIRNS, Glasgow, Scotland. Filed Dec. 11, 1899. Serial No. 739,920. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of vegetable fiber, subjected to the action of caustic alkali and carbon bisulfid in the presence of water, and rubber or gutta-percha mixings, substantially as described.

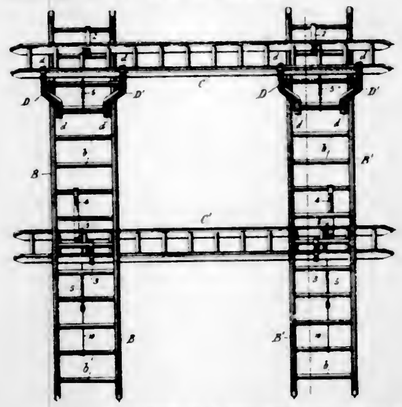
2. The herein-described composition of matter consisting of vegetable fiber, subjected to the action of caustic alkali and carbon bisulfid in the presence of water, and mixed with rubber or gutta-percha mixings with the addition of sulfate of zinc or other suitable salt, substantially as described.

680,427. BRUSH. HENRY D. CARRYL, New York, N. Y. Filed Nov. 28, 1899. Serial No. 738,555. (No model.)



Claim.—The combination of a cylindrical handle; brushes of different shapes and sizes, mounted at one end of said handle at any desired angle; a series of tubes in the interior of the handle, each connected with one of said brushes through which a painting or cleansing medium can be supplied to the brushes; a connecting-joint, in which said tubes terminate; a flexible hose, one end of which is connected with a suitable source of supply, and valves in the interior of each tube actuated by handles sliding in suitable openings in the cylindrical handle.

680,428. LADDER. HENRY D. CARRYL, New York, N. Y., assignor to James R. Hay, Nutley, N. Y. Filed Dec. 21, 1899. Renewed Mar. 18, 1901. Serial No. 51,768. (No model.)



Claim.—1. The combination of supporting-ladders arranged in sets so as to assume an appropriate position with reference to a surface in place; an auxiliary ladder arranged to be held horizontally at any desired height on the supporting-ladders; S-hooks for attaching the inner sides of the auxiliary ladder to convenient rungs on the supporting-ladders and a bracket notched at both ends to support the outer side of the auxiliary ladder so as to hold it in a horizontal position and a turnbuckle for drawing and locking the various parts together after being set up as described.

2. The combination of supporting-ladders arranged in sets so as to assume an appropriate position with reference to a surface in place; an auxiliary ladder arranged to be held horizontally at any desired height on the supporting-ladders; S-hooks for attaching the inner sides of the auxiliary ladder to convenient rungs on the supporting-ladders, a bracket notched at both ends to support the outer side of the auxiliary ladder so as hold it in a horizontal position; and turnbuckles for drawing and locking the various parts together after being set up as described.

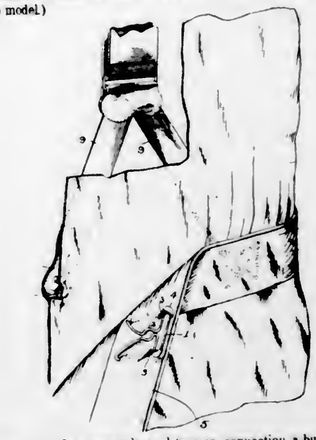
3. The combination of supporting-ladders arranged in sets so as to assume an appropriate position with reference to a surface in place; an upper auxiliary ladder arranged to be held horizontally, at any desired height on outer face of supporting-ladder; S-hooks for attaching said auxiliary ladder to convenient rungs on the supporting-ladder; a bracket provided with a suitable notch at either end for holding the outer side of the auxiliary ladder in a horizontal position; a lower auxiliary ladder arranged to be held horizontally on the inner faces of the supporting-ladders, short S-hooks for attaching the inner side of the auxiliary ladder to convenient rungs on the supporting-ladders, longer hooks for attaching the outer sides of the auxiliary ladder to appropriate rungs of the supporting-ladders so as to hold the former in a horizontal position and turnbuckles for drawing and locking the parts together after being set up substantially as described.

680,429. BUTTON ATTACHMENT FOR SUSPENDER-ENDS. RICHARD T. CLARKE, Columbus, Ohio. Filed Jan. 2, 1901. Serial No. 41,870. (No model.)



Claim.—In a button attachment for suspender-ends the combination with a suspender terminal strap having a buttonhole therein, of a plate 1 having a button projecting from one face thereof and having clamping-tongues 5 also projecting therefrom, said clamping-tongues and button-bead adapted to be inserted through said buttonhole and said tongues adapted to be clamped downward against the suspender-end, substantially as specified.

680,430. SUSPENDER AND TROUSERS CONNECTION. RICHARD T. CLARKE, Columbus, Ohio. Filed Jan. 11, 1901. Serial No. 42,825. (No model.)

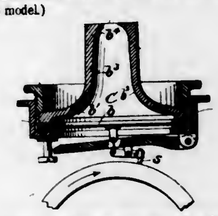


Claim.—1. In a suspender and trousers connection, a button-receiving device comprising a head portion, arms depending therefrom and having a spring-socket or loop formed therein as described, said arms terminating in upwardly-extending pins on opposite sides of said loop, which connect with the ends of said head, substantially as specified.

2. In a suspender and trousers connection, a button-receiving device comprising an elongated link-like head, arms depending from said head and provided with opposing bends to form a button-receiving spring-socket 2, said arms diverging from said socket and terminating in upwardly-extending side arms which connect with the ends of said head, substantially as specified.

3. In a suspender and trousers connection, the combination with a button receiving and retaining device comprising a head portion provided with pin-engaging shields 4, arms depending from said head and bent to form a loop or spring-socket as described, said arms terminating in upwardly-extending spring-pins, adapted to be engaged with said pin-shields, substantially as specified.

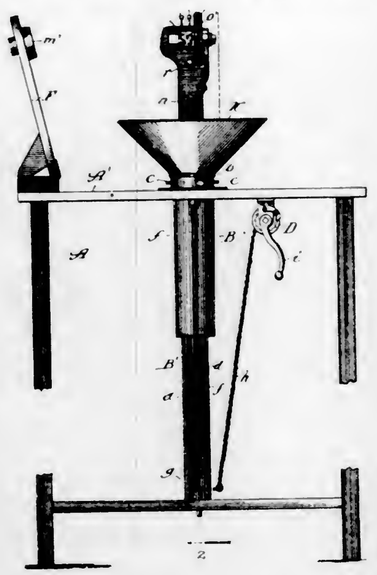
680,431. DIAPHRAGM TUBE-PLATE FOR PHONOGRAPHS. WILLIAM R. DUTENPLE, Auburn, R. I. Filed Oct. 12, 1900. Serial No. 32,841. (No model.)



Claim.—1. In a sound box or reproducer for phonographs or other analogous sound-reproducing machines, the combination with a suitably-mounted diaphragm and stylus-carrying mechanism in engagement with said diaphragm, of a diaphragm tube-plate located above the diaphragm, and having a contracted or reduced diaphragm-chamber made by forming the base of the tube-plate with convex interior-curved walls which merge into a central taper-bored shank which terminates by a concave surface into a reduced central opening, the inner periphery of the opening having thin and sharp edges, whereby the sound-waves are first condensed and then contracted before expanding into the open air or projector, substantially as described and for the purpose set forth.

2. In a device of the class described, the combination of a housing member having a diaphragm mounted therein and stylus-carrying mechanism in engagement with said diaphragm, of a diaphragm tube-plate mounted above the diaphragm, an annular follower-nut adapted to engage the interior of the housing member and clamp the tube-plate to the diaphragm; said tube-plate having a contracted chamber whose base is provided with an interior convex surface which merges into a central taper-bored shank and then terminates in a spherical or concave upper portion, through which a small central opening is formed having thin and sharp edges, substantially as described.

680,432. CEMENT-POST-MOLDING MACHINE. LEO G. HAASE, Oakpark, Ill. Filed Apr. 1, 1901. Serial No. 53,862. (No model.)



Claim.—1. In a post-molding machine, the combination with a supporting-frame, of a molding-tube supported in vertical position on said frame, a ring for rounding the top portion of the post molded in said tube, said ring being removably seated on the upper end of said tube, a plunger supported to be raised in said tube to discharge from its upper end the molded post, said plunger forming at its upper extremity, in its normal lowered position, the mold base for shaping the base of the post, and means for raising and lowering the plunger.

2. In a molding-machine, the combination with a supporting-frame, of a cylindrical molding-tube supported in vertical position in said frame, a plunger supported to be reciprocated in said tube, means for raising and lowering the plunger, and a mold-base for the tube removably seated upon the upper end of said plunger and comprising a block carrying on its upper face a dished metal disk fitting within said tube.

3. In a molding-machine, the combination with a supporting-frame, of a molding-tube supported in vertical position in said frame, a plunger supported to be reciprocated in said tube of angular cross-section with the corners flattened and faced with packing, means for raising and lowering the plunger in said tube, and a mold-base for the tube removably seated on the upper end of the plunger.

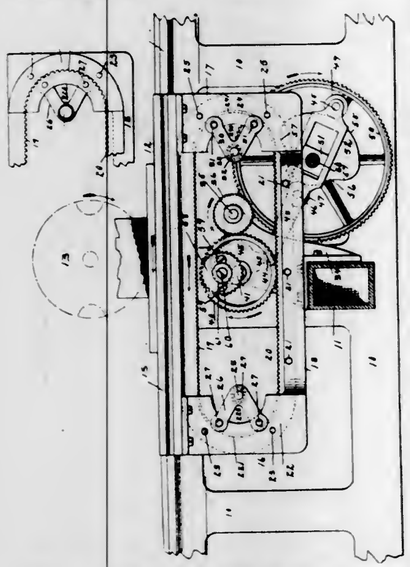
4. In a molding-machine, the combination with a supporting-frame, of a molding-tube supported in vertical position in the top of said frame, vertical guide-rods at opposite sides of said tube, a plunger reciprocable in said tube and having guides extending laterally from it to engage said rods, a drum journaled on said frame and provided with a crank for operating it, and a chain connecting said plunger and drum to actuate the plunger by rotating the drum.

5. In a molding-machine, the combination with a frame, of a molding-tube supported in vertical position in the frame-top, and an adjustable stamp comprising an arm hinged on said top and carrying on its free end, to extend over the upper end of said tube, a marking device.

6. In a molding-machine, the combination with a frame, of a molding-tube supported in vertical position in the frame-top, and an adjustable stamp comprising an arm hinged on said top and carrying on its free end, to extend over the upper end of said tube, a marking device and, adjacent thereto, a stop.

7. In a molding-machine, the combination with a frame, of a molding-tube supported in vertical position in the frame-top, and an adjustable stamp comprising an arm hinged on said top and carrying on its free end, to extend over the upper end of said tube, a marking device composed of a frame provided with printing-type removably held in their frame by set-screws, and a rotatably-supported wheel provided about its periphery with imprinting characters.

680,433. **MECHANICAL MOVEMENT.** WINFIELD S. HUBON, Taunton, Mass., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y. Filed Feb. 20, 1893. Renewed Mar. 10, 1897. Serial No. 626,893. (No model.)



Claim.—1. In a mechanical movement, the combination of the bed, with mechanism for giving the same its main reciprocation, a rack secured to the bed, a pinion mounted on a revolving crank adapted to engage said rack to reverse the movement of the bed, and means for keeping the pinion in constant mesh with said rack during the reversing movement, substantially as described.

2. In a mechanical movement, the combination of the bed, with mechanism for giving the same its main reciprocation, a rack attached to each end of the reciprocating bed or member, a pinion mounted on a revolving crank adapted to engage alternately with said racks to reverse the movement of the bed in either direction, and means for keeping the pinion in constant mesh with one of said racks during the reversing movement, substantially as described.

3. In a mechanical movement, the combination of the reciprocating bed or member, a rack carried by the reciprocating bed or member, a pinion mounted on a revolving crank, and adapted to engage said rack to reverse the movement of the bed, and guiding mechanism arranged to keep said pinion constantly in mesh therewith during the reversing movement, substantially as described.

4. In a mechanical movement, the combination of a reciprocating bed or member, a rack mounted at each end of said bed or member, a pinion mounted on a revolving crank and adapted to engage said racks alternately to reverse the movement of the bed in either direction, and guiding mechanism arranged to keep said pinion in constant mesh with one of said racks during the reversing movement, substantially as described.

5. In a mechanical movement, the combination of the reciprocating bed or member, a curved rack carried by said bed or member, a pinion rigidly mounted on a revolving crank, and adapted to engage said curved rack to reverse the movement of the bed, a roller mounted concentrically with said pinion, and a guideway formed on the bed, which said roller is adapted to engage to keep said pinion properly in mesh with said curved rack, substantially as described.

6. In a mechanical movement, the combination of the reciprocating bed or member, curved racks mounted at each end of said bed, a pinion rigidly mounted on a revolving crank, and adapted to alternately engage said curved racks to reverse the movement of the bed in either direction, a roller concentrically mounted with said pinion, and guideways formed on the bed with which said roller is adapted to engage to keep said pinion properly in mesh with said curved racks, substantially as described.

7. In a mechanical movement, the combination of the reciprocating bed or member, a curved rack mounted on said bed, a pinion rigidly mounted on a revolving crank and adapted to engage said curved rack, a roller concentrically mounted with said pinion, and a guideway for said roller, consisting of a curved face, substantially concentric with said curved rack, and a roller mounted on the bed at the center of said curved face and rack, substantially as described.

8. In a mechanical movement, the combination of a reciprocating bed or member, curved racks secured to the ends of said bed, a pinion rigidly mounted on a revolving crank, and adapted to alternately engage said curved racks to reverse the movement of the bed in either direction, a roller concentrically mounted with said pinion, and guideways for said roller consisting of curved faces, substantially concentric to said curved racks, and rollers mounted at the centers of said curved racks and faces, whereby a guideway is formed for said roller concentric with each of said racks, and whereby said roller will, when in said guideways, keep said pinion properly in mesh with said curved racks, substantially as described.

9. In a mechanical movement, the combination of the reciprocating bed or member having two oppositely-disposed racks, the driving-gear adapted to alternately engage said racks to give the bed its main forward and backward reciprocation, curved racks mounted at the ends of said bed, and a pinion mounted entirely on one side of said driving-gear adapted to alternately engage said curved racks to reverse the movement of the bed in either direction, substantially as described.

10. In a mechanical movement, the combination of the reciprocating bed or member having two racks, the driving-gear adapted to alternately engage these racks to give the bed its main forward and backward reciprocation, curved racks secured to the ends of said bed, guideways formed substantially concentric with said racks, a pinion mounted on said driving-gear and adapted to alternately engage said curved racks to reverse the movement of the bed in either direction, and a roller, also, mounted on said main driving-gear adapted to engage said curved guideways, and to keep the pinion properly in mesh with the curved racks, substantially as described.

11. In a mechanical movement, the combination with the bed, a mechanism for giving the same its main reciprocation, a semicircular rack secured to the bed, and a pinion mounted on a revolving crank adapted to engage said rack to reverse the movement of the bed, substantially as described.

12. In a mechanical movement, the combination of the bed, with mechanism for giving the same its main reciprocation, a semicircular rack attached to each end of the reciprocating bed, and a pinion mounted on a revolving crank adapted to alternately engage with said racks to reverse the movement of the bed in either direction, substantially as described.

13. In a mechanical movement, the combination of the bed, with mechanism for giving the same its main reciprocation, a semicircular rack secured to the bed, and a pinion of substantially half the diameter of said semicircular rack mounted on a revolving crank adapted to engage said semicircular rack to reverse the movement of the bed, substantially as described.

14. In a mechanical movement, the combination of the bed, with mechanism for giving the same its main reciprocation, a semicircular rack attached to each end of the reciprocating bed, and a pinion of half the diameter of said semicircular racks mounted on a revolving crank, and adapted to engage with said racks to reverse the movement of the bed in either direction, substantially as described.

15. In a mechanical movement, the combination of the reciprocating bed or member with a rack-and-pinion mechanism for giving the same its main reciprocation, curved racks carried by the bed, and a reversing-pinion mounted on a revolving crank adapted to alternately engage said curved racks to reverse the movement of the bed in either direction, the parts being so arranged that there will be a continuous mesh either between the rack-and-pinion mechanism giving the bed its main reciprocation, or between said reversing-pinion and one of the curved racks, substantially as described.

16. In a mechanical movement, the combination of the bed, a mechanism for giving the same its main reciprocation, a rack secured to the bed, and a circular toothed pinion mounted on a revolving crank adapted to engage said rack to reverse the movement of the bed, substantially as described.

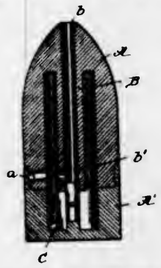
17. In a mechanical movement, the combination with the bed, a mechanism for giving the same its main reciprocation, racks secured to each end of the reciprocating bed, and a circular toothed pinion mounted on a revolving crank adapted to alternately engage with said racks to reverse the movement of the bed in either direction, substantially as described.

18. In a mechanical movement, the combination with the bed, a mechanism for giving the same its main reciprocation, a pinion mounted on a revolving crank, and a curved rack secured to each end of the bed, said pinion and said curved racks being all disposed to one side of said revolving crank, substantially as described.

19. In a mechanical movement, the combination with the bed, racks carried thereby, a driving-gear alternately engaging said racks to give the bed its main reciprocation, a pinion mounted on one side of said gear, and a curved rack secured to each end of the bed, said pinion and said curved racks being all disposed to one side of said driving-gear, substantially as described.

20. In a mechanical movement, a reversing mechanism, comprising a reversing-pinion secured to a revolving crank, and a semicircular rack carried by the moving member, having a radius substantially equal to the diameter of the reversing-pinion, substantially as described.

680,434. **PUZZLE.** WILLIAM P. LYLE, Philadelphia, Pa., assignor of two-thirds to Frederick B. Marvel, Avondale, and P. J. Lynch, Westgrove, Pa. Filed June 5, 1901. Serial No. 63,188. (No model.)



Claim.—1. As a new article of manufacture, a hollow receptacle having a cylindrically-shaped inner side wall and a passage leading from its exterior to its interior, there being a radial depression formed in its inner side wall, said depression being of substantially the same diameter as, and substantially opposite to, the mouth of the passage, substantially as described.

2. As a new article of manufacture, a hollow receptacle having a cylindrically-shaped inner side wall and a tube extending from the top down through the center of the hollow interior of the shell, the tube communicating with the exterior at the top, closed at its lower end and provided with an orifice in its peripheral wall, there being a radial depression formed in the inner side wall of the shell, said depression being of substantially the same diameter as, and substantially opposite to, said orifice, substantially as described.

3. As a new article of manufacture, a hollow receptacle having a flat bottom and a cylindrically-shaped inner wall, there being a radial depression in the inner wall some distance above the bottom of the shell, the shell having a tube extending from the top down through the center of the hollow interior of the shell, the tube communicating with the exterior at the top, the lower end of the tube terminating some distance above the bottom of the shell, a pin or standard projecting upwardly from the bottom of the shell and extending into and closing the lower end of the tobe, said tube being provided with an orifice just above the top of said pin and substantially opposite said depression, substantially as described.

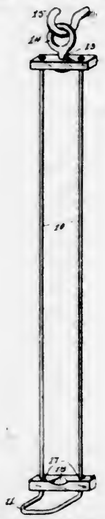
4. As a new article of manufacture, a hollow receptacle formed of two sections A and A', the upper section A' having a tube extending from its top down through the center of its hollow interior and communicating with the exterior at its top, said tube being closed at its lower end and provided with an orifice *b'* in its peripheral wall, said section having a radial orifice *a* extending from its inner to its outer wall and substantially opposite the orifice in the tube, the side wall of the lower section A' projecting outside of the lower end of the wall of upper section A and closing the outer end of said orifice *a*, substantially as described.

680,435. **FOUNTAIN-COMB.** JAMES G. MCALPINE, Jr., Gilroy, Cal. Filed Nov. 18, 1899. Serial No. 737,453. (No model.)



Claim.—A comb having a medicament-reservoir formed of a tube of pliable metal, means for contracting one end of the tube, and a number of tapering teeth projecting in a row from the other end of the tube and communicating at their larger ends with the interior and having outlet-openings through their smaller ends, substantially as specified.

680,436. **SHOULDER-BLADE EXTRACTOR.** ELMER P. NICHOLS, Stamford, Conn. Filed Feb. 7, 1901. Serial No. 46,348. (No model.)



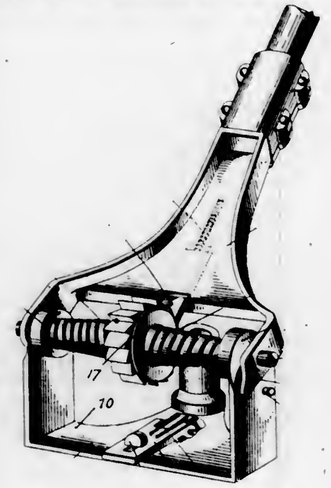
Claim.—1. A shoulder-blade extractor consisting essentially of side rods bent to form a loop adapted to engage the knob of a shoulder-blade and a sliding cross-bar adapted to lock the knob of a shoulder-blade in the loop.

2. A shoulder-blade extractor comprising side rods bent to form a loop, for the purpose set forth, a cross-bar adapted to slide on said rods and to coöperate with the loop and means, as an eye, whereby the extractor is suspended in use.

3. A shoulder-blade extractor comprising side rods bent to form a loop, a cross-bar 16 adapted to slide on the side rods and to coöperate with the loop, a bar 12 by which the upper ends of the side rods are connected and an eye having a shank swiveled in bar 12 substantially as described.

4. A shoulder-blade extractor comprising side rods bent to form a loop, and a cross-bar adapted to slide on the side rods and provided with a recess 18, substantially as shown, for the purpose specified.

680,437. **TROLLEY-STAND.** EUGENE J. PARKER, Worcester, Mass., assignor to himself and Alexander S. Paton, Leominster, Mass. Filed Jan. 31, 1901. Serial No. 45,439. (No model.)



Claim.—1. In a trolley construction for electric railways, the combination of a frame, a trolley-arm pivoted therein, a loose piece or wheel pivotally mounted on the axis of the trolley-arm, a torsional spring arranged concentrically with the axis of the trolley-arm and having one end connected to a fixed point, and its other end connected to the loose piece or wheel, and means for adjustably connecting the loose piece or wheel with the trolley-arm for varying the tension of the spring, substantially as described.

2. In a trolley construction for electric railways, the combination of a pivoted frame, a horizontal shaft mounted therein, a fork carrying the trolley-arm and pivotally mounted on the horizontal shaft, two torsional springs coiled about said shaft, the ends of said springs being connected to an adjustable piece or ratchet-wheel, and means for adjustably connecting the trolley-arm fork with said ratchet-wheel, substantially as described.

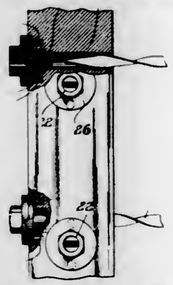
3. In a trolley construction for electric railways, the combination of a pivoted frame, a horizontal shaft mounted therein, a trolley-arm pivoted on the horizontal shaft, two torsional springs coiled about said horizontal shaft, a ratchet-wheel connected to the inner ends of the springs, a pawl connecting the ratchet-wheel and trolley-arm, and a holding-pawl cooperating with said parts when it is desired to adjust the tension of the torsional springs, substantially as described.

4. In a trolley construction for electric railways, the combination of a pivoted frame, a trolley-arm pivoted therein, two torsional springs coiled about the pivotal line of the trolley-arm, a ratchet-wheel connected to the inner ends of said springs, a pawl connecting the ratchet-wheel and trolley-arm, a holding-pawl, and means for locking said holding-pawl out of engagement with the ratchet-wheel except when it is desired to adjust the tension of said torsional springs, substantially as described.

5. In a trolley construction for electric railways, the combination of a pivoted frame, a vertically-movable trolley-arm pivotally mounted therein, two tapering or conical square wire torsional springs coiled about the pivotal line of the trolley-arm, a ratchet-wheel connected to the inner ends of said torsional springs, a pawl connecting the ratchet-wheel and trolley-arm, and a holding-pawl for cooperating with said parts when it is desired to adjust the tension of the springs, substantially as described.

6. In a trolley construction for electric railways, the combination of a trolley-stand having an upright shaft or stud, a trolley-frame pivotally mounted on said stud, a trolley-arm pivoted in the frame in front of the upright stud, and extending to the rear thereof, so that the weight of the trolley-frame and the trolley-pressure will tend to balance each other, two torsional springs coiled about the line of the pivot of the trolley-arm, a ratchet-wheel connected to the inner ends of the torsional springs, and a pawl adjustably connecting the trolley-arm with the ratchet-wheel, substantially as described.

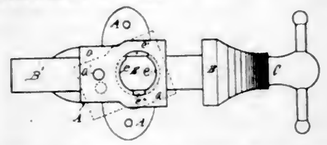
680,438. **FENCE-WIRE TIGHTENER.** EDWARD A. PIERCE, Boston, Mass. Filed Dec. 13, 1900. Serial No. 39,722. (No model.)



Claim.—1. A tightening device for wire fences, comprising, first, a holding member formed to bear against a fence-post and having an aperture or bearing to coincide with a hole in the post, and means for engagement with a fence-post to prevent rotation of said member, and secondly, a twisting member composed of a hub which is rotatable in said bearing, said hub having means for engagement with a band-wire, and a flange adapted to bear against the outer side of the holding member, the said flange and holding member having complemental engaging parts which are held in engagement with each other by the tension of the wire, and retain the twisting member in any desired position of adjustment.

2. A device for tightening band-wire, comprising a holding member having a central aperture, post-engaging studs on its inner side, and cam-teeth on its outer side, and a twisting member composed of a hub portion rotatable in the aperture of the holding member and having a cross-bar to engage a band-wire, and a flange having notches formed to engage said cam-teeth.

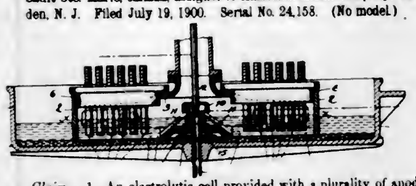
680,439. **BENCH-VISE.** HENRY F. RENNER, Erie, Pa., assignor to Hollands Manufacturing Company, same place. Filed Feb. 16, 1901. Serial No. 47,657. (No model.)



Claim.—1. The combination in a bench-vise of a frame, a seat for an adjustable jaw thereon having a circular opening therein, an interrupted annular flange around said opening, an adjustable jaw fitting upon said seat, a stud thereon projecting down into the flanged opening therein, and an interrupted annular flange on said stud, adapted to engage the interrupted flange in said opening, substantially as and for the purpose set forth.

2. The combination in a bench-vise, of a stationary frame, a seat thereon for an adjustable jaw having a circular opening therein, inwardly-projecting flanges having spaces of unequal length in said opening, an adjustable jaw fitting upon the seat on said frame, a stud thereon projecting downward into the opening in said seat, radial flanges having spaces of unequal length thereon adapted to engage the flange-sections in said opening, substantially as and for the purpose set forth.

680,440. **ELECTROLYTIC APPARATUS.** BRODDE E. F. RHODIN, Sault Ste. Marie, Canada, assignor to American Alkali Company, Camden, N. J. Filed July 19, 1900. Serial No. 24,158. (No model.)



Claim.—1. An electrolytic cell provided with a plurality of anode-compartments arranged in a ring and with a centrally-placed cup and with ducts, passages or conduits leading from the cup to the compartments, substantially as described.

2. An electrolytic cell provided with a plurality of anode-compartments arranged in a ring and with ducts, passages or conduits radiating from the center of the ring and leading to these compartments, substantially as described.

3. An electrolytic cell provided with depending anodes and flanges each surrounding an anode and constituting an anode-compartment and having a cup located above the flanges and also having ducts, passages or conduits radiating from the cups and leading to the anode-compartments, an exterior vessel, and cathode connections, substantially as described.

4. An electrolytic cell provided with a plurality of anode-compartments concentrically arranged and with an outlet and a cup disposed centrally of the compartments and with ducts or passages leading from the cup to the compartments, substantially as described.

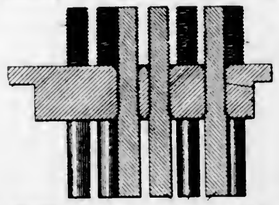
5. An electrolytic cell provided at its bottom with depending flanges forming the walls of anode-compartments and with a cup located above and centrally of the anode-compartments and with ducts leading from the cup to the anode-compartments, substantially as described.

6. In combination an external vessel or chamber provided with an offtake and adapted to contain mercury, cathode connections, an electrolytic cell revolubly mounted in said vessel or chamber and provided with a plurality of downwardly-extending flanges forming the walls of anode-compartments and with ducts radiating from the center of the cell and leading to the anode-compartments and with an outlet, anodes arranged in the anode-compartments, means at the center of the cell for supplying the electrolyte to said ducts, and a flange and groove interposed between the cell and vessel and adapted to constitute a seal, substantially as described.

680,441. **ELECTRODE FOR ELECTROLYTIC CELLS.** BRODDE E. F. RHODIN, Sault Ste. Marie, Canada, assignor to American Alkali Company, Camden, N. J. Filed July 19, 1900. Serial No. 24,159. (No model.)

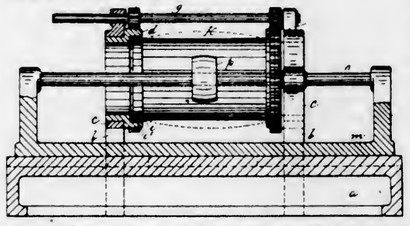
Claim.—1. An electrode for electrolytic cells comprising a block of carbon and carbon rods extending through the block and adjustably and detachably connected thereto by a screw-thread connection, substantially as described.

2. An electrode for electrolytic cells comprising a block of carbon having tapped holes formed through it and carbon rods provided with threads and extending through said holes, substantially as described.



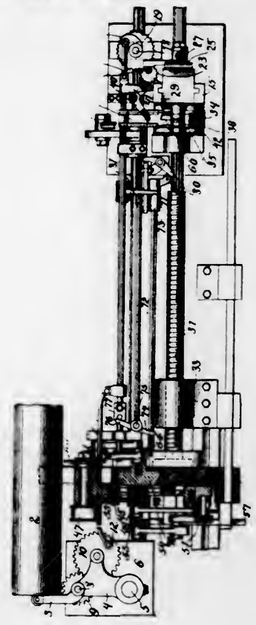
3. An electrode for electrolytic cells comprising a block of carbon having a marginal flange and having openings through it, carbon rods extending through said openings, and a screw-thread connection between the rods and block, substantially as described.

680,442. **MACHINE FOR THE MANUFACTURE OF CASK-LIKE VESSELS.** WILHELM SCHMITT, Schwelm, Germany. Filed Oct. 5, 1900. Serial No. 32,093. (No model.)



Claim.—In a machine for making cask-like vessels from a sheet-iron cylinder the combination of a bed having a curved slide-head, a rest to travel on it carrying the working roller, bearings fixed to the bed, ring-shaped pieces turned in said bearings, a suitable gear to revolve said pieces and clamping-rings fitted in said pieces for the purpose described and set forth.

680,443. **PIPE-CUTTING MECHANISM.** FREDERICK W. STAFF, Brooklyn, N. Y., assignor to John A. Wilbur, New York, N. Y. Filed Feb. 14, 1901. Serial No. 47,298. (No model.)



Claim.—1. In a pipe-cutting mechanism, the combination with one or more cutters, of means for moving the cutter or cutters into contact with the pipe and actuating the same to cut the pipe and for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth.

2. In a pipe-cutting mechanism, the combination with one or more cutters, of a controller located in the path of the pipe and having a fixed pivotal point and constructed to be actuated by the pipe and moved completely out of the path of the pipe and by such movement to actuate the cutter or cutters, substantially as set forth.

3. In a pipe-cutting mechanism, the combination with one or more cutters, of a controller located in the path of the pipe and constructed to be actuated by the pipe and moved out of the path of the pipe and means controlled thereby for moving the cutter or cutters into contact with the pipe and actuating the same to cut the pipe and for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth.

4. In a pipe-cutting mechanism, the combination with one or more cutters, and a traveling cutter-head carrying the same of a controller located in the path of the pipe and constructed to be actuated by the pipe and moved out of the path of the pipe and thereby to cause the starting movement of the cutter-head, and means for continuing and completing such movement and for moving the cutter or cutters into contact with the pipe and actuating the same to cut the pipe, substantially as set forth.

5. In a pipe-cutting mechanism, the combination with one or more cutters, of means for moving the cutter or cutters in a circular path about the pipe and for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth.

6. In a pipe-cutting mechanism, the combination with one or more cutters, of a controller adapted to be actuated by the pipe and means controlled thereby for moving the cutter or cutters in a circular path about the pipe and for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth.

7. In a pipe-cutting mechanism, the combination with one or more cutters, a carrier for the same, and a traveling cutter-head in which the carrier is fitted for circular movement about the pipe, of means for actuating the carrier and cutter or cutters and feeding the cutter-head longitudinally of the pipe during the cutting operation, substantially as set forth.

8. In a pipe-cutting mechanism, the combination with one or more cutters, a carrier for the same, and a traveling cutter-head in which the carrier is fitted for circular movement about the pipe, of a controller adapted to be actuated by the pipe to cause the starting movement of the cutter-head and carrier and cutter or cutters, and means for continuing and completing such movement, substantially as set forth.

9. In a pipe-cutting mechanism, in combination, a plurality of cutters, cutter-blocks in which the cutters are mounted, and means for actuating the cutter-blocks, adapted to move the cutters toward and from the pipe, a carrier for the cutter-blocks, and automatic means for reciprocating the carrier in a circular path about the pipe to effect a cutting operation, substantially as set forth.

10. In a pipe-cutting mechanism, in combination, a plurality of cutters and cutter-blocks, in which the cutters are mounted, and means for actuating the cutter-blocks adapted to move the cutters toward and from the pipe, a carrier for the cutter-blocks, and means for moving the carrier circularly about the pipe and for feeding the carrier longitudinally of the pipe during the cutting operation, substantially as set forth.

11. In a pipe-cutting mechanism, the combination with one or more cutters, of means for reciprocating the cutter or cutters in a circular path about the pipe and for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth.

12. In a pipe-cutting mechanism, the combination with one or more cutters, of a controller adapted to be actuated by the pipe and means controlled thereby for reciprocating the cutter or cutters in a circular path about the pipe and for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth

13. In a pipe-cutting mechanism, the combination with one or more cutters, a carrier for the same and a traveling cutter-head in which the carrier is fitted for circular movement about the pipe, of means for reciprocating the carrier and actuating the cutter or cutters and feeding the cutter-head longitudinally of the pipe during the cutting operation, substantially as set forth.

14. In a pipe-cutting mechanism, the combination with one or more cutters, a carrier for the same and a traveling cutter-head in which the carrier is fitted for circular movement about the pipe and means for reciprocating the carrier, of a controller adapted to be actuated by the pipe to cause the starting movement of the cutter-head and carrier and cutter or cutters, and means for continuing and completing such movement, substantially as set forth.

15. In a pipe-cutting mechanism, the combination with cutting means

and feeding means, the feeding means being constructed to feed the cutting means longitudinally of the pipe, of a controller adapted to be actuated by the pipe, a shifting mechanism connected therewith and constructed to shift the feeding and cutting mechanism to actuating condition for the forward movement thereof, and reversing means brought into action by the forward movement of the cutting means to put the feeding mechanism and cutting mechanism in condition for the backward movement thereof, substantially as set forth.

16. A pipe-cutting mechanism, in combination, cutting means and feeding means and actuating mechanism for the same, the feeding means being constructed to feed the cutting means longitudinally of the pipe, a controller adapted to be actuated by the pipe and a shifting mechanism and an engaging part actuated by the controller, the shifting mechanism being actuated by such controller to shift the feeding and cutting means to actuating condition for the forward movement thereof and the engaging part being actuated by the controller to engage and start the actuating mechanism, reversing means brought into action by the forward movement of the cutting means to actuate the shifting mechanism and engaging part in the reverse direction and thereby to put the feeding means and cutting means in condition for the backward movement thereof, and means brought into action by the reverse movement of the cutting means to discontinue the actuation of the actuating mechanism, substantially as set forth.

17. In a pipe-cutting mechanism, in combination, cutting means and feeding means and actuating mechanism for the same, the feeding means being constructed to feed the cutting means longitudinally of the pipe, a controller adapted to be actuated by the pipe and a shifting rod and a hook actuated by the controller, means actuated by such shifting rod to shift the feeding and cutting means to actuating condition for the forward movement thereof, such hook being actuated by the controller to engage and start the actuating mechanism, reversing means brought into action by the forward movement of the cutting means to move the shifting rod and hook in the reverse direction, thereby putting the feeding means and cutting means in condition for the backward movement thereof, and means brought into action by the reverse movement of the cutting means to discontinue the actuation of the actuating mechanism, substantially as set forth.

18. In a pipe-cutting mechanism, in combination, cutting means and feeding means and actuating mechanism for the same, the feeding means being constructed to feed the cutting means longitudinally of the pipe, a controller adapted to be actuated by the pipe and a shifting rod and a hook actuated by the controller, means actuated by such shifting rod to shift the feeding and cutting means to actuating condition for the forward movement thereof, means engaged by such hook to start the actuating mechanism, reversing means brought into action by the forward movement of the cutting means to move the shifting rod and hook in the reverse direction, thereby putting the feeding means and cutting means in condition for the backward movement thereof, and another shifting rod connected to the starting means of the actuating mechanism and actuated by the reverse movement of the cutting means to discontinue the actuation of the actuating mechanism, substantially as set forth.

19. In a pipe-cutting mechanism, the combination with cutting means and feeding means, the feeding means being constructed to feed the cutting means longitudinally of the pipe, of a controller adapted to be actuated by the pipe, an actuating part adapted to be continually actuated and means connected to the controller for connecting such actuating part with the feeding and cutting mechanism, substantially as set forth.

20. In a pipe-cutting mechanism, the combination with cutting means and feeding means, the feeding means being constructed to feed the cutting means longitudinally of the pipe, of a controller adapted to be actuated by the pipe, an actuating part adapted to be continually actuated, and means connected to the controller for connecting such actuating part with the feeding and cutting mechanism and means independent of the controller for disconnecting such actuating part from the feeding and cutting mechanism, substantially as set forth.

21. In a pipe-cutting mechanism, the combination with cutting means and feeding means, the feeding means being constructed to feed the cutting means longitudinally of the pipe, of a controller adapted to be actuated by the pipe, an actuating part adapted to be continually actuated, means connected to the feeding and cutting mechanism, a locking part constructed to lock the actuating part thereto, a hook connected with the controller and constructed to put the locking part into condition for engagement when the controller is actuated by the pipe, means connected with the controller for shifting the feeding mechanism into condition for a forward movement thereof and for reversing such forward movement at a predetermined point and means actuated on the completion of the reverse movement to disengage the locking part and return the controller and connected means to normal position, substantially as set forth.

22. In a pipe-cutting mechanism, in combination, a cutter-head and cutting means carried thereby, a feeding device connected to the cutter-head and a feed-ratchet constructed to actuate the feeding device, a reversible pawl therefor, a controller adapted to be actuated by the pipe, means connected thereto for reversing the pawl and means controlled by the controller for actuating the feed-pawl and cutting means, substantially as set forth.

23. In a pipe-cutting mechanism, in combination, a cutter-head and cutting means carried thereby, a feeding device connected to the cutter-head and a feed-ratchet constructed to actuate the feeding device, a reversible pawl therefor, a spring for said pawl constructed to reverse the same and control its movement in either position, a controller adapted to be actuated by the pipe, means connected thereto and controlling the feed-pawl spring and means controlled by the controller for actuating the feed-pawl and cutting means, substantially as set forth.

24. In a pipe-cutting mechanism, in combination, a cutter-head and cutting means carried thereby, a feed-screw connected to the cutter-head, a feed-ratchet constructed to actuate the feed-screw, a reversible pawl therefor, a controller adapted to be actuated by the pipe, means connected thereto for reversing the pawl and means controlled by the controller for actuating the feed-pawl and cutting means, substantially as set forth.

25. In a pipe-cutting mechanism, in combination, a cutter-head and cutting means carried thereby, a feed-screw connected to the cutter-head, a controller adapted to be actuated by the pipe and controlling the means for actuating the feed-screw, a friction device connected to the feed-screw and means actuated thereby to put the cutting means into operative position when the feed-screw is actuated in one direction and to withdraw the cutting means from operative position when the feed-screw is actuated in the reverse direction, and means controlled by the controller for causing the actuation of the feeding mechanism, substantially as set forth.

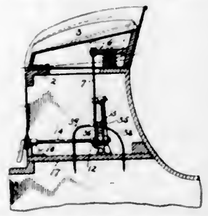
26. In a pipe-cutting mechanism, in combination, one or more automatic feeding and actuating cutters, means for actuating the same to move the cutter or cutters into contact with the pipe and press the cutter or cutters against the pipe with a constant pressure and for moving the cutter or cutters away from the pipe after the completion of the cutting operation, substantially as set forth.

27. In a pipe-cutting mechanism, in combination, one or more cutters, a carrier for the same and automatic means for moving the cutter or cutters into contact with the pipe and pressing the cutter or cutters against the pipe with a constant pressure and reciprocating the carrier in a circular path about the pipe to effect the cutting operation, substantially as set forth.

28. In a pipe-cutting mechanism, in combination, one or more cutters, a carrier for the same, a friction device for moving the cutter or cutters into contact with the pipe and pressing the cutter or cutters against the pipe and means for moving the carrier in a circular path about the pipe, substantially as set forth.

29. In a pipe-cutting mechanism, in combination, one or more cutters, a carrier for the same, an automatic friction device for moving the cutter or cutters into contact with the pipe and pressing the cutter or cutters against the pipe, and automatic means for feeding the cutter or cutters longitudinally of the pipe during the cutting operation, substantially as set forth.

680,444. SAFETY-STOP FOR VEHICLES. ARTHUR L. STEVENS, New York, N. Y. Filed June 4, 1900. Serial No. 19,034. (No model.)



Claim.—1. In vehicle safety-stops, the combination, with a seat or platform automatically movable when relieved of the weight or pressure of the motorman controlling the vehicle, and power mechanism adapted for propelling the vehicle, of interposed means making said power mechanism inoperative when the motorman leaves the seat or platform, and auxiliary devices including a movable part of said interposed means, a key adapted to said movable part, and latch devices coöperating with said movable part and the key and permitting removal of the key only when the power mechanism is inoperative.

2. In vehicle safety-stops, the combination, with a seat or platform automatically movable when relieved of the weight or pressure of the motorman controlling the vehicle, and power mechanism adapted for propelling the vehicle, of interposed means making said power mechanism inoperative when the motorman leaves the seat or platform, and auxiliary devices including a movable part of said interposed means, a key adapted to said movable part, and latch devices coöperating with said movable part and the key and permitting removal of the key only when the power mechanism is inoperative; said key being adapted to adjust the interposed means controlling the power mechanism and render the latter operative or inoperative independently of movement of the vehicle seat or platform.

3. In vehicle safety-stops, the combination, with the power-controlling mechanism including a key to manually operate the same to turn the power on or off and removable only when the power is turned off, of an additional emergency trip automatically operative to turn off the power, substantially as set forth.

4. In vehicle safety-stops, the combination, with the power-controlling mechanism including a key to manually operate the same to turn the power on or off and removable only when the power is turned off, of an additional emergency trip operative to turn off the power, and a movable seat or platform on the vehicle constructed to operate the emergency trip when relieved of pressure, substantially as set forth.

5. A vehicle safety-stop comprising power-controlling mechanism including an operating-key to normally turn the power on or off, and devices to automatically lock the key in operative position when the power is turned on and to release it when the power is turned off, and an additional emergency trip automatically operative to turn off the power, substantially as set forth

6. A vehicle safety-stop comprising power-controlling mechanism including an operating-key to normally turn the power on or off, and devices to automatically lock the key in operative position when the power is turned on and to release it when the power is turned off, an additional emergency trip automatically operative to turn off the power, and a movable seat or platform on the vehicle constructed to operate the emergency trip when relieved of pressure, substantially as set forth.

7. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod operated by the seat or platform, a lever loosely coupled to said rod at its slot, and means actuated by movement of the lever and making said power-applying mechanism inoperative when the seat or platform is relieved of pressure.

8. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod operated by the seat or platform, a spring-actuated lever loosely coupled to said rod at its slot, and means actuated by movement of the lever and making said power-applying mechanism inoperative when the seat or platform is relieved of pressure.

9. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod actuated by the seat or platform, a spring-actuated lever loosely coupled to said rod at its slot, means actuated by movement of the lever and making the power applying mechanism inoperative when the seat or platform is relieved of pressure, and stops limiting movement of the lever in both directions by the spring.

10. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod operated by the seat or platform, a lever loosely coupled to said rod at its slot, means actuated by movement of the lever and making the power-applying mechanism inoperative when the seat or platform is relieved of pressure, a shaft movable with the lever, and a key adapted to said shaft and removable therefrom only when the power-applying mechanism is inoperative.

11. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod operated by the seat or platform, a spring-actuated lever loosely coupled to said rod at its slot, means actuated by movement of the lever and making the power-applying mechanism inoperative when the seat or platform is relieved of pressure, a shaft movable with the lever, and a key adapted to said shaft and removable therefrom only when the power-applying mechanism is inoperative.

12. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod operated by the seat or platform, a lever loosely coupled to said rod at its slot, means actuated by movement of the lever and making the power-applying mechanism inoperative when the seat or platform is relieved of pressure, a shaft movable with the lever, and a key adapted to said shaft and removable therefrom only when the power-applying mechanism is inoperative; said key also adapted to adjust said mechanism and render it operative or inoperative independently of movement of the seat or platform.

13. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a slotted rod operated by the seat or platform, a spring-actuated lever loosely coupled to said rod at its slot, means actuated by movement of the lever and making the power-applying mechanism inoperative when the seat or platform is relieved of pressure, a shaft movable with the lever, and a key adapted to said shaft and removable therefrom only when the power-applying mechanism is inoperative; said key also adapted to adjust said mechanism and render it operative or inoperative independently of movement of the seat or platform.

14. In vehicle safety-stops, the combination, with a movable seat or platform, relatively stationary and movable electric contacts, and circuit connections adapted to couple said contacts to a battery and motor, of a slotted rod operated by the seat or platform, and a lever loosely coupled to said rod at its slot and carrying the movable contact.

15. In vehicle safety-stops, the combination, with a movable seat or platform, relatively stationary and movable electric contacts, and circuit connections adapted to couple said contacts to a battery and motor, of a slotted rod operated by the seat or platform, and a spring-actuated lever loosely coupled to said rod at its slot and carrying the movable contact.

16. In vehicle safety-stops, the combination, with a movable seat or platform, relatively stationary and movable electric contacts, and circuit connections adapted to couple said contacts to a battery and motor, of a slotted rod operated by the seat or platform, a spring-actuated lever loosely coupled to said rod at its slot and carrying the movable contact, and stops limiting movement of the lever in both directions by the spring.

17. In vehicle safety-stops, the combination, with a movable seat or platform, a rod 7 operated thereby and having a slot 8, a standard, a lever fulcrumed to said standard and coupled by pin 9 to rod 7 at its slot 8, a block 20 pivoted at 19 to the lever and having a pin 21, a guide 22 for pin 21 swiveled to the standard, a spring 23 on rod 21 between parts 20, 22, and means operated by the spring-actuated lever for making the power-applying mechanism inoperative when the seat or platform is relieved of pressure.

18. In vehicle safety-stops, the combination, with a movable seat or platform, a rod 7 operated thereby and having slot 8, a standard, a lever fulcrumed to said standard and coupled by pin 9 to rod 7 at its slot 8, a block 20 pivoted at 19 to the lever and having a pin 21, a guide 22 for pin 21 swiveled to the standard, a spring 23 on rod 21 between parts 20, 22, electric contacts 35, 36 on the standard and lever respectively, and wires 38, 39 adapted to couple said contacts to the vehicle battery and motor.

19. In vehicle safety-stops, the combination, with a movable seat or platform and power-applying mechanism, of a rod operated by the seat or platform, bearings, a shaft rocking in said bearings, a lever fixed to the shaft, means coupling said lever to the seat-rod, means actuated by the lever and making the power-applying mechanism inoperative when the seat or platform is relieved of pressure, a removable key adapted to the lever-shaft to turn it or be turned by it and having a lip adapted to a slot of the shaft-bearing and also having a portion adapted to slip over or past said bearing when the lip is disengaged from the bearing-slot as the power-applying mechanism is made inoperative.

20. In vehicle safety-stops, the combination, with power-applying mechanism, bearings, a shaft journaled in said bearings, and a lever turning with the shaft and adapted to make the power mechanism operative or inoperative, of a key adapted to turn the shaft or be turned by it and having a lip 30 and shoulder 33; the adjacent shaft-bearing having a lug 32 provided with slot 31 to which the key-lip 30 is adapted for locking the key to the shaft when the power mechanism is operative and permitting removal of the key only when the power mechanism is inoperative.

680,445. CORK INSULATING-STRIP. JUNIUS H. STONE, Bridgeport, Conn. Filed Mar. 15, 1901. Serial No. 51,330. (No model.)



Claim.—An insulating-strip composed solely of granulated vegetable material and a stiffening and attaching and nailing strip of wood inclosed therein, the granulated material being molded and compressed about and against the stiffening-strip.

680,446. GASOLENE-LAMP. WILLIAM A. STUDEBAKER, Denver, Colo., assignor of two-thirds to Lyman J. Studebaker, same place, and Elkans W. Farmer, Boulder, Colo. Filed Feb. 8, 1900. Serial No. 4,526. (No model.)

Claim.—1. A gasolene-lamp provided with a generator having a U-shaped portion adapted to enter the top of the chimney, and a starting device located between the U-shaped arms of the generator-tube, which arms form its support.

2. A gasolene-lamp provided with a generator having a U-shaped portion adapted to enter the top of the burner-chimney, and a starter device engaging between the arms of and supported by the U-shaped por-

tion of the generator, and comprising a receptacle filled with some suitable non-combustible absorbent material for the purpose set forth.

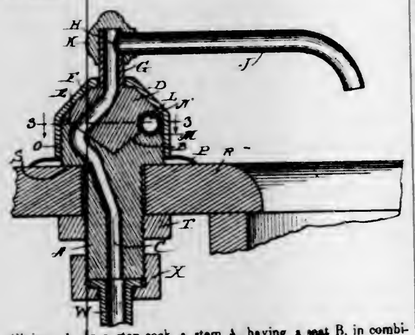


3. A gasolene-lamp provided with a generator having a U-shaped portion adapted to enter the top of the burner-chimney, and a lighting device comprising a hollow block supported by and adapted to slide between the branches of the U-shaped portion of the generator, and provided with a filling of non-combustible absorbent material.

4. A gasolene-lamp provided with a generator having a U-shaped portion adapted to enter the top of the burner-chimney, a wire-cloth filter inserted in the tube of the generator, and a starting device arranged to engage between the arms of the U-shaped portion of the generator, which arms form its support.

5. The combination with a gasolene-lamp, of a transversely-adjustable supporting-hook adapted to be moved to vary the point of support as the center of gravity changes, whereby the lamp may be made to occupy a vertical position.

680,447. COCK. JOHN SWEDIN, Chicago, Ill., assignor of one-half to Martin Zatterberg, same place. Filed Oct. 8, 1900. Serial No. 32,323. (No model.)

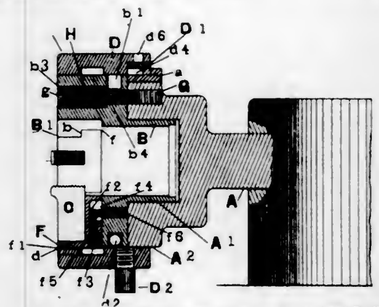


Claim.—1. In a stop-cock, a stem A, having a seat B, in combination with a plug D, having a face E, the lower part of plug D, which forms its face being conical and fitting the peculiar-shaped seat B, of stem A, orifices passing through said stem and plug which are brought to meet to make a continuous passage for the water by moving the spigot over the bowl, the supply of water being cut off, by moving the spigot back into its normal position, substantially as and for the purposes set forth.

2. In a stop-cock a stem A, having a seat B, in combination with a plug D, having a face E, the lower part of plug D, which forms its face, being conical and fitting the peculiar-shaped seat B, of stem A, orifices passing through said stem and plug, which are brought to meet to make a continuous passage for the water by moving the spigot over the bowl, the moving of the parts to assume this position putting a tension on a spring which lies between said stem and plug, and when the spigot is released the parts are forced to assume their normal positions and the supply of water is cut off automatically, by the spring flying back to its normal or released position; all combined as set forth.

680,448. DIE. JACOB R. WALLACE, Erie, Pa.; Florence E. Wallace, administratrix of said Jacob R. Wallace, deceased, assignor, by mesne assignments, to Modern Tool Company, same place. Filed May 15, 1900. Serial No. 16,820. (No model.)

Claim.—1. In a die, the combination of a carrier; a head mounted on said carrier; chasers carried by said head; cams for moving said chasers to their work, and for locking said chasers in their set position, said cam-surfaces being arranged in the line of strain on said chasers; means for automatically moving said cam-surfaces to release said chasers from their set positions at a predetermined point; said means being arranged to operate after being brought into action independently of the movement of the head; and springs operating independently of the cams arranged to open said chasers when released by the cam.



2. In a die, the combination with a carrier A; the head B slidingly mounted thereon and having guides therein; chasers carried by said guides; the cam-ring D arranged to have rotative movement on the head and having the cam-surfaces *d* arranged in line with the strain on the chasers; a spring mechanism operating independently of the cams for opening said chasers when released by the cam; means for locking the cam in the set position; and means for releasing the said locking mechanism when the head D is moved away from the shank or carrier A.

3. In a die, the combination with the carrier, A; the head, B, slidingly mounted thereon and having the guides for the chaser-block; the blocks, F, mounted in said guides; chasers arranged in said block; the cam-ring, D, arranged to have rotative movement with the axis of the head as a center, having the cam-surfaces, *d*, arranged in line with the strain on the chasers; a spring mechanism for opening said blocks when released by the cam; said spring mechanism being independent of the cam; means for locking the cam in a set position; and means for releasing said locking mechanism when the head, B, is moved away from the shank or carrier, A.

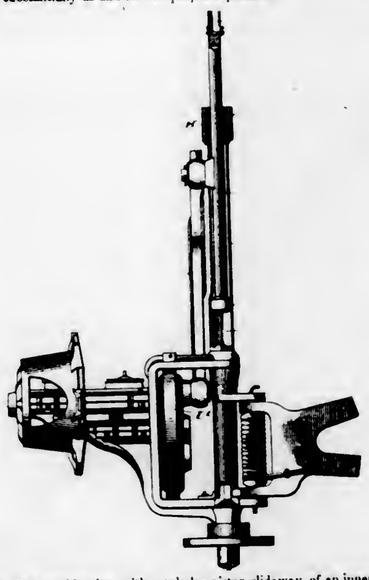
4. In a die, the combination of the shank, A; the head, B; mounted thereon, having the openings, b^3 and b^4 therethrough; circumferential grooves, *b*, therein; and the guides, B', therein; the blocks, F, arranged in the guides, B', said blocks being provided with the opening, f^2, and slot, f^4; the spring, H, arranged in the opening, b^3; the spring, f^5, being arranged in the opening, f^2; the cam-ring, D, having the cam-surfaces, *d*, therein; a spring d^2, arranged in the circumferential slot, *b*, and tensioned between the cam-ring and the head to rotate the cam-ring in a direction to open the die; a groove-and-lug mechanism arranged between the cam-ring and the shank and arranged to be brought out of engagement by an axial movement of the head on the shank.

5. In a die, the combination of the shank, A; the head, B, mounted thereon, having the openings, b^3 and b^4, therethrough; circumferential grooves, *b*, therein; the guides, B', therein; the block, F, arranged in the guides, B', said blocks being provided with the openings, f^2, and slot, f^4; the spring, H, arranged in the opening, b^3; the spring, f^5, arranged in the opening, f^2; the cam-ring, D, having the cam-surfaces, *d*, thereon; a spring, d^2, arranged in the circumferential slot, *b*, and tensioned between the cam-ring and the head to rotate the cam-ring in a direction to open the die; a groove-block arranged on said cam; means for adjusting said block; a lug on the shank adapted to register and enter said groove when the cam is moved to a set position, and to be thrown out of said groove by an axial movement of the head relatively to the shank.

6. In a die, the combination of a carrier; a head mounted on said carrier; chasers carried by the head; the cam-ring, D, having the slot, d^4, and a groove, d^3, therein; the adjusting-block, D', arranged in the groove, d^3; the set-screw, D^3, passing through the groove, D^4, into the block, D', and having the groove d^1, therein; the lug, *a*, fixed on the carrier and arranged to enter the groove, d^1, when brought into register therewith; and means for moving said cam-ring away from said lug, *a*, and by said lug, *a*, to disengage the chaser.

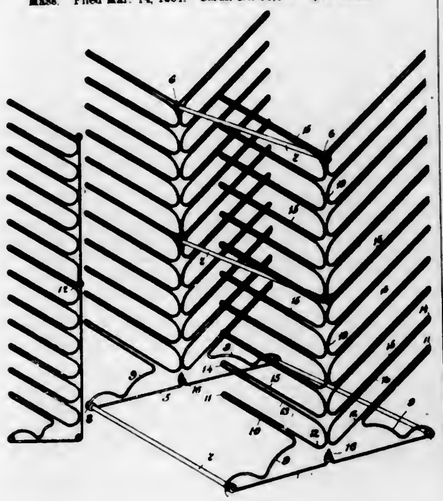
680,449. MEANS FOR MOUNTING AND LUBRICATING PISTONS. HARRISON WOODMANSEE, Freeport, Ill. Filed June 26, 1901. Serial No. 66,056. (No model.)

Claim.—1. The combination, with a piston-slideway, of a piston vertically mounted therein and provided with an oil-receptacle, in the upper end thereof, having a vertical gateway sunk into the outer surface of the same and furnished with an oil-duct opening thereinto from the oil-receptacle, and a vertically-slidable collar, on the piston, provided with a gate working in the vertical gateway, on the oil-receptacle, to alternately open and close the oil-duct therein, at each reciprocation of the piston, substantially as and for the purpose specified.



2. The combination, with a tubular piston-slideway, of an inner piston-slideway seated in the upper end portion thereof and having a circular bearing therein concentric with, and of less diameter than, the bore of said tubular piston-slideway, a piston vertically mounted in the inner piston-slideway, and provided with an oil-receptacle, in the upper end thereof, having a vertical gateway sunk into the outer surface of the same and furnished with an oil-duct opening thereinto from the oil-receptacle, and a vertically-slidable collar, on the piston, provided with a gate working in the vertical gateway, on the oil-receptacle, to alternately open and close the oil-duct therein, at each reciprocation of the piston, substantially as and for the purpose specified.

680,450. VEILING DISPLAY-STAND. EMILIE S. AIKEN, Boston, Mass. Filed Mar. 14, 1901. Serial No. 51,105. (No model.)

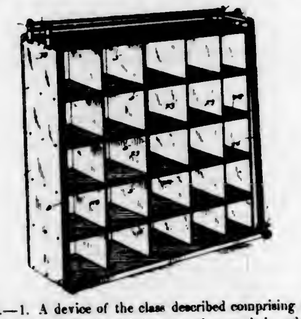


Claim.—1. As an article of manufacture, a display-stand comprising two end sections fastened together, each of said end sections formed of a single piece of wire bent to form a base, a standard, and a series of loops, said loops projecting from said standard, the base, standard, and loops of each of said end sections lying in one plane, one loop of one section forming with the corresponding loop of the other section a shelf, substantially as described for the purpose specified.

2. As an article of manufacture, a display-stand comprising two end sections fastened together by stay-rods, each of said end sections formed of a single piece of wire bent to form a base, a standard, a series of loops, and eyes to receive the ends of said stay-rods, said loops projecting upwardly from said standard upon opposite sides thereof, the base, standard, loops, and eyes of each of said end sections lying in one plane, substantially as described for the purpose specified.

3. As an article of manufacture, a display-stand comprising two end sections fastened together by stay-rods, each of said end sections formed of a single piece of wire bent to form a base, a standard, a series of loops, and eyes to receive the ends of said stay-rods, said loops projecting upwardly from said standard upon opposite sides thereof, the base, standard, loops, and eyes of each of said end sections lying in one plane, one loop of one section forming with the corresponding loop of the other section a shelf, substantially as described for the purpose specified.

680,451. FOLDING PIGEONHOLES. MORRIS S. BROADT, Bloomsburg, Pa. Filed Sept. 21, 1900. Serial No. 30,735. (No model.)



Claim.—1. A device of the class described comprising a plurality of shelves, said shelves having fabric connections at their ends and additional fabric connections at points between their ends to form partitions, and supporting-standards pivoted upon the lowermost shelf to fold and permit the fabric connections to collapse, and having connection with the uppermost shelf to support it when erect for holding the shelves spaced.

2. A device of the class described comprising a plurality of shelves, said shelves having fabric connections at their ends and additional fabric connections at points between their ends, and supporting-standards connected with the uppermost and lowermost shelves for holding the shelves spaced, said standards being adapted to fold to permit the shelves to lie in close relation and collapse the fabric portions.

3. A device of the class described comprising a plurality of shelves having fabric connections, and spreaders pivoted to a lower shelf and having slidable connections with an upper shelf to support the latter.

4. A device of the class described comprising a plurality of shelves having flexible connections, and spreaders pivoted to a lower shelf and having slidable connections with an upper shelf to support the latter and adapted to fold against the lower shelf to permit the shelves to lie in close relation.

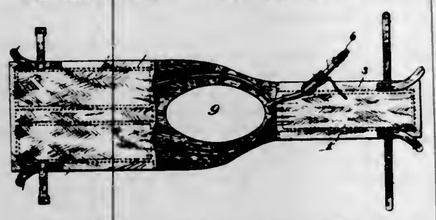
5. A device of the class described comprising a plurality of shelves having flexible connections, spaced rods carried by an upper shelf and spreaders pivoted to a lower shelf and having their upper ends turned rearwardly and disposed against the under sides of their respective rods to support the rods and therewith the shelf to which they are connected.

6. A device of the class described comprising a plurality of shelves having flexible connections, rods disposed longitudinally of and connected to an upper shelf and lying in different planes thereabove, spreaders pivoted to a lower shelf and having their upper ends bent rearwardly and lying against the under sides of their respective rods to hold the rods and therewith the shelf connected therewith, elevated, said spreaders being slidable with respect to the rods to permit movement of the shelves into close proximity, and means for holding the spreaders against pivotal movement.

7. A device of the class described comprising a plurality of shelves having grooved faces, fabric sections having edges disposed in said grooves,

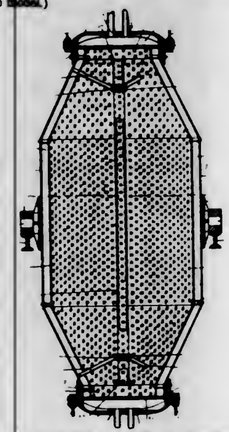
straps engaged with said edges and lying in the grooves, and means for holding the shelves spaced.

680,452. LIFE-PRESERVER. GEORGE C. BURSEN, Milwaukee, Wis. Filed Nov. 21, 1900. Serial No. 37,273. (No model.)



Claim.—A life-preserver designed to be worn beneath an outer garment, and comprising in its construction an outer protecting-casing of cloth or other suitable material provided with attaching edges or flanges, said casing being also provided with an aperture through which the head of the wearer is adapted to be passed, a plurality of inflatable bags or sacks secured within the outer casing so as to be protected thereby, means for inflating the bags without removing the same from the casing, and means located outside the casing for holding the bags in an inflated condition, substantially as described.

680,453. APPARATUS FOR TREATING CALCIUM HYDRATE. MANSFIELD J. FRENCH, Syracuse, N. Y. Filed Dec. 28, 1900. Serial No. 41,334. (No model.)



Claim.—1. An apparatus for treating calcium hydrate comprising a receptacle having its opposite ends provided with openings for receiving and discharging the material, said receptacle consisting of outer and inner shells, the inner shell being perforated and of less diameter than the outer shell for forming a space or passage from end to end and entirely around the inner shell, perforated transverse walls across the open ends of the receptacle and having some of their perforations communicating with the space between the outer and inner shells, and closures for the end openings having passages for the steam, water or hot air.

2. An apparatus for treating calcium hydrate comprising a receptacle having its opposite ends provided with openings for receiving and discharging the material, said receptacle consisting of outer and inner shells, the inner shell being perforated and of less diameter than the outer shell for forming a space or passage from end to end and entirely around the inner shell, perforated transverse walls across the open ends of the receptacle and having some of its perforations communicating with the space between the outer and inner shells, closures for the end openings of the receptacle, said closures having their intermediate portions separated from the transverse perforated walls for forming distributing-chambers which communicate with each other through the space between the outer and inner shells, a substantially central lengthwise-perforated tube removably supported within the inner shell, and conduits communicating with the distributing-chambers.

3. An apparatus for treating calcium hydrate comprising a support, a receptacle having its intermediate portion provided with trunnions journaled on the support, the opposite ends of said receptacle being provided with openings for receiving and discharging the material, said receptacle consisting of outer and inner shells, the inner shell being perforated and formed of less diameter than the outer shell, closures for the end openings of the receptacle, transverse perforated walls interposed between the closures and the adjacent faces of the receptacle each of said closures being provided with steam, water or hot-air passages, and a substantially central lengthwise-perforated conduit removably supported within the receptacle between the transverse perforated walls.

680,454. ADJUSTABLE STILT. THOMAS B. GARRETSON, Oskaloosa, Iowa. Filed Dec. 18, 1900. Serial No. 40,273. (No model.)



Claim.—A stilt, comprising a standard, laterally-projecting studs carried by the standard, and a step, having an attaching-plate projecting above and below the step, the upper portion of the plate having one or more keyhole-slots for the interchangeable reception of the studs, and a bottom bifurcation for the interchangeable reception of the studs.

680,455. TIRE-HEATER. JACOB GOSEL, Toledo, Ohio. Filed May 21, 1900. Serial No. 17,403. (No model.)



Claim.—1. In a tire-heater, a bench or table, a tire-cover having an annular chamber, a series of openings through the wall of the annular chamber, a burner for each of said openings, and a swiveled support for each of said burners, whereby they may be projected into and withdrawn from said opening.

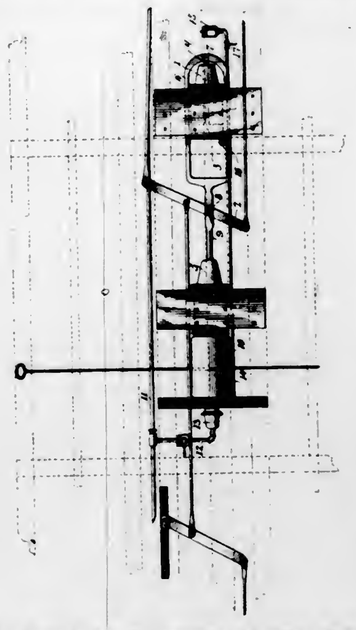
2. In a tire-heater, a table, radial ribs or flanges on the top of the table for the support of the tire, a removable tire-cover substantially of inverted-U shape in cross-section, and having openings through its wall, and a series of burners adapted to project their flame into and through said openings.

3. In a tire-heater, a bench or table, a tire-cover having an annular chamber, a draft-vent in the top, and a series of openings through the walls of said chamber, and a swiveled burner for each of said openings, whereby the flames may be projected tangentially into the annular chamber, and produce a continuous circuit of flame therein.

680,456. AIR-BRAKE. MAURICE HICKEY and FORTUNATUS G. KELLOGG, Tacoma, Wash. Filed Feb. 2, 1901. Serial No. 45,754. (No model.)

Claim.—1. In a braking apparatus, the combination with a braking-cylinder, train-pipe connections and an exhaust-pipe, of an auxiliary cylinder adapted to assist the main cylinder, and means connecting the exhaust-pipe of the main cylinder with the said auxiliary cylinder, whereby the exhaust will be utilized in the auxiliary cylinder for further holding the brakes, substantially as described.

2. In a braking system, the combination with a braking-cylinder and an exhaust-pipe, of an auxiliary cylinder connected with the braking mechanism so as to assist the main cylinder, and means for conducting the exhaust into said auxiliary cylinder for operating the same, substantially as described.



3. In a braking system, the combination of a braking-cylinder, a train-pipe for supplying pressure to the same, a triple valve for controlling the admission of pressure to the cylinder and the exhaust therefrom, a retainer-pipe leading from said cylinder, an auxiliary cylinder adapted to assist the main cylinder, a branch pipe connecting the retainer-pipe to the auxiliary cylinder, so that when the pressure in the main cylinder is exhausted the pressure of the exhaust will be applied in the auxiliary cylinder and means for maintaining a suitable pressure in the retainer-pipe, substantially as described.

4. Means for utilizing the exhaust from an ordinary braking system, comprising an auxiliary cylinder, means connecting the auxiliary cylinder with the main cylinder of the system, and means for conducting the exhaust from the main cylinder into said auxiliary cylinder for holding the brakes while the pressure is being renewed in the braking system, substantially as described.

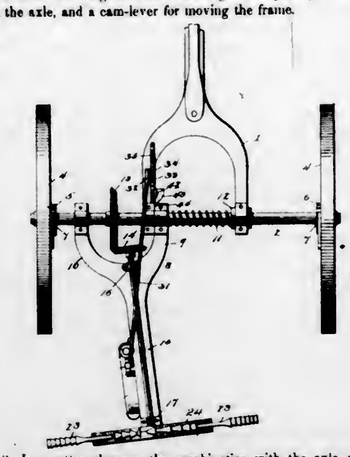
5. A mechanism for utilizing the exhaust of ordinary braking systems, comprising an auxiliary cylinder, means connecting the piston of said cylinder with the main braking-lever, a branch pipe connected with the retainer-pipe of said system for introducing the exhaust into the said auxiliary cylinder, and means for holding a suitable pressure in the retaining-pipe, substantially as described.

6. In a braking system, the combination with a main cylinder, and train-pipe connections, of a retainer-pipe adapted to conduct the exhaust therefrom, an auxiliary cylinder arranged in tandem with the main cylinder, a yoke surrounding the auxiliary cylinder and connecting its piston-rod with the braking-lever of the braking apparatus, a branch pipe connecting the retainer-valve for holding a suitable pressure in said pipe, the structure being such that when the pressure in the main cylinder of the apparatus is exhausted its force will be applied in the auxiliary cylinder to assist in maintaining a suitable pressure upon the brakes, while the pressure in the auxiliary reservoirs is being renewed or increased, substantially as described.

680,457. COTTON-CHOPPER. AARON L. HOCKETT, Mastodon, Miss. Filed Dec. 14, 1899. Serial No. 740,277. (No model.)

Claim.—1. In a cotton-chopper, the combination with the axle and supporting main frame, of a frame projecting rearward from the axle at an angle thereto, a shaft supported in bearings on said frame, a chopping-wheel provided with peripheral blades or hoes arranged in groups or series, with spaces between the groups or series, and gearing for driving said shaft.

2. In a cotton-chopper, the combination with the axle and main frame, of a frame extending rearward from the axle and having its front end bifurcated, a shaft supported in bearings on said frame, a chopping-wheel mounted on the rear end of the shaft, gearing for driving said shaft, and means for throwing said shaft out of gear comprising a coil-spring around the axle, and a cam-lever for moving the frame.



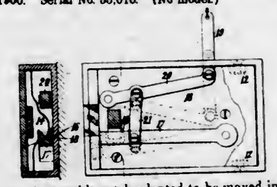
3. In a cotton-chopper, the combination with the axle and main frame, of a frame extending rearward from the axle and bifurcated at the front end, a shaft supported on said frame, a chopping-wheel provided with radially-projecting hoes arranged in groups, means for driving said shaft, and means for adjusting the chopping-wheel vertically.

4. In a cotton-chopper, the combination with the axle, of a frame bifurcated at its forward end, and extending rearward at an angle, gearing located between the arms of the frame, a shaft supported in bearings on said frame, a chopping-wheel mounted on the rear end of the shaft and provided with groups of hoes, a feed-wheel located in front of the chopping-wheel, and means for adjusting the chopping-wheel vertically.

5. In a cotton-chopper, the combination with the axle and main frame, of a rear frame supported at its front end upon the axle, a shaft on said frame, a chopping-wheel at the rear end of said shaft, a feed-wheel supported by a bracket in front of the chopping-wheel, and means for adjusting the chopping-wheel comprising a slotted sleeve, a vertical shaft within the sleeve provided with a series of depressions, a toothed cam adapted to engage said vertical shaft and an operating-lever and connecting-rod for operating said cam.

6. In a cotton-chopper, the combination with an axle and main frame, of a rear frame, a shaft on said rear frame, a chopping-wheel at the rear end of the shaft, gearing for driving said shaft, a bracket suspended from the rear frame and carrying a feed-wheel, means for adjusting the rear frame vertically, and a guide-pin projecting into an opening in said bracket.

680,458. DOOR-CLOSING APPARATUS. OLIVER H. KINGSLAND, New York, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed Oct. 31, 1900. Serial No. 35,010. (No model.)



Claim.—1. A movable catch adapted to be moved into the path of a self-closing sliding door, a movable support on which said catch is movably mounted and means to hold said catch in position and releasable to allow said catch to move out of the path of said door under the influence of said door.

2. A manually-operated catch adapted to be moved into the path of a self-closing sliding door, a movable support on which said catch is movably mounted, and means to hold said catch in position and releasable to allow said catch to move out of the path of said door under the influence of said door.

3. A movable bolt adapted to be moved into the path of a self-clo-

ing door, a movable support in which said bolt is guided and means to hold said support in position and allow said bolt to move out of the path of said door.

4. A manually-operated bolt adapted to be moved into the path of a self-closing door, a movable support in which said bolt is guided and means to hold said support in position and releasable to allow said support to move said bolt out of the path of said door.

5. A movable bolt adapted to be moved into the path of a self-closing door, a pivoted support in which said bolt is guided and means acting upon said support to hold said bolt in the path of said door and releasable to allow said bolt to move out of the path of said door.

6. A sliding bolt capable of being manually moved into the path of a self-closing door, and a device to be connected with a thermal releasing means to releasably hold said bolt in such path and to allow said door, on the action of said releasing means, to move said bolt from such path.

7. A catch adapted to be extended across the line of travel of a self-closing sliding door, and capable of being manually withdrawn out of such line of travel; a movable support for said catch, and a retainer to be connected with a thermal releasing means for releasably holding such catch in such path, said retainer being mounted to move out of contact with said support to allow said door to move said catch out of such line of travel.

8. A manually-operated catch adapted to be moved into the line of travel of a self-closing sliding door, a pivoted support upon which said catch is movably mounted and means releasable by excessive heat to hold said support in position.

9. A manually-operated bolt adapted to be moved across the line of travel of a self-closing door, a pivoted support on which said bolt is guided and a retainer to releasably hold said support in position to be connected with a thermal device to release said support in case of an excessive rise of temperature.

10. A pivoted device to hold open a self-closing door by moving across the path of said door, a pivoted retainer to releasably hold such device in operative position, and coacting means on such device and on said retainer, to cause the pressure of said door to tend to disengage said retainer and such device.

11. A catch adapted to move across the path of a self-closing door, a movable support on which said catch is movably mounted, a retainer and engaging means on said support and retainer to releasably hold said support in operative position to cause the pressure of said door to tend to disengage said support and said retainer and thereby allow said catch to move out of the path of said door.

12. A manually-operated bolt adapted to move into the path of a self-closing door, a movable support in which said bolt is movable, a retainer engaging said support to releasably hold the same in operative position, the engaging faces of said retainer and support being slanting so that the pressure of said door tends to disengage said retainer and said support and move said bolt out of the path of said door.

13. A manually-operated bolt adapted to move into the path of a self-closing door, a pivoted support having suitable guides for said bolt and being formed with a slanting member, a pivoted retainer having a slanting portion to engage said slanting member on the support, a lever connected to said retainer to be connected with a thermal device to allow said bolt to move out of the path of said door in case of excessive rise of temperature.

14. A lock adapted to be supported adjacent a self-closing door comprising a pivoted front plate in which is supported a manually-operated bolt adapted to be moved into the path of said door, said front plate having a slanting member, a retainer pivoted to the back of said lock having a slanting portion to engage said slanting member of the front plate, a lever pivoted to the back of said lock connected to said pivoted retainer by a link attached to said lever near its pivot, and a bar pivoted to the free end of said lever to be attached to means for releasably holding said retainer in operative position.

15. A movable stop adapted to be moved into the path of a self-closing sliding door, a retainer releasably holding said stop in position and means to hold said retainer in operative position and to release said retainer to allow said stop to move out of the path of said door under the impulse of said door.

16. A self-closing door, a pivoted device one portion of which projects when the device is in operative position into the line of travel of the door, a retainer for holding said device in said position, means for releasably supporting said retainer, the bearing-surfaces between said device and said retainer being inclined to cause upon the breaking or weakening of the supporting means the said surfaces to be forced apart by the pressure of the door and the device released from the retainer.

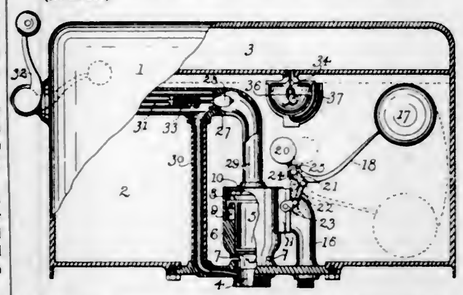
17. A securing device adapted to maintain a self-closing door in open position, said securing device consisting of the casing having means pivoted thereto to project when the plate is maintained in operative position into the line of travel of the door, a retainer engaging said pivoted means, means arranged to be connected with a thermal device for holding said retainer in engagement with said pivoted means and means whereby upon the action of the thermal device the door itself releases the pivoted means from the retainer.

18. A bolt adapted to be moved into the path of a self-closing door, and means releasably holding said bolt in said path, such means being adapted to be connected to a thermal device whereby said bolt is allowed to move from the path of said door in case of an excessive rise of temperature.

19. A movable support adapted to be mounted adjacent a self-closing door, a manually-operated bolt mounted in said support and adapted to be moved into the path of said door, so as to hold said door in open position, and means releasably holding said support in operative position to be connected with a thermal device whereby said support is allowed to move in case of excessive rise of temperature so as to allow said bolt to move from the path of said door, the pressure of said door tending to release said support from said means.

20. The combination with a self-closing door, of a sliding bolt capable of being manually moved in the path in which it slides and a device for holding it in that path, releasable by heat for permitting the movement of the bolt out of that path.

680,459. WATER-CLOSET FLUSHING APPARATUS. GEORGE H. MILLER, Bloomington, Ill. Filed Mar. 26, 1900. Serial No. 10,304. (No model.)



Claim.—1. In a water-closet flushing mechanism, the combination with the flush-tank formed with a flush-opening and the plug for opening and closing said opening, of the cylinder located in said tank above and coincident with the flush-opening and connected directly with the main and the piston located in said cylinder for raising said plug and admitting water under direct pressure from the main into said cylinder from whence it will escape and engage or come in contact with the water of the tank in proximity to said opening and be discharged therewith through said opening.

2. A flushing apparatus comprising a tank with water-compartment normally in direct communication with the water-supply main, the flush-opening formed with an internal cylinder located directly over and attached to said opening, the upper end of the cylinder closed having slotted openings near the lower end for the escape of water from the tank into the flush-opening, the by-pass chambers on opposite sides through which the water from the main is discharged into the flush-opening of said tank, the vertically-movable stopper or valve coinciding with the said flush-opening located within said cylinder, the piston secured to the upper end thereof dividing the cylinder into expanding compartments, of means for alternately admitting water from the main into the expanding compartments of said cylinder to open and close the flush-opening and the water from the main discharging together with the water of the tank through the flush-opening, substantially as described.

3. A flushing apparatus comprising a pressure-tank with water-compartment normally in direct communication with the water-main, and a separate air-compartment, the means for separating the said compartments by an air-valve connecting said water and air compartments, a tube and a float in said air-valve adapted to close the communication between said compartments by the rise of water in the water-compartment and entering said tube, raising the float and closing the valve and to be opened by reason of the superior pressure in the water-compartment 2 being released during the flushing operation, the flush-opening and expanding cylinder with plug and pistons for discharging water from tank and main directly into and through the flush-opening, substantially as described.

4. A direct-pressure flushing mechanism comprising a water-tank with separated air-compartments, the water-compartment normally in direct connection with the water-supply, the air-valve connecting said compartments with float and inlet-tube to said valve, to control the expanding force to the water discharging from the tank at the start of the flushing operation, and means for releasing the pressure and discharging the water from the main and water-compartment into the flush-opening, and unseating the air-valve between said compartments by reason of the greater pressure in the air-compartment 3 forcing open the said valve, substantially as described.

5. The combination of the direct-pressure and flush tank, for flushing water-closets, formed with separate compartments, with the float air-valve between said compartments, and flush-opening, the cylinder located in said tank closed at the upper end, with slotted openings near the lower end, the by-pass chambers on opposite sides of said cylinder, the piston and stopper within said cylinder forming expanding compartments, the oscillating weight and float-ball, the alternating valves connected to said weight and ball for operating said valve to admit water alternately from the main into the cylinder-compartments expanding the piston for elevating and automatically lowering the stopper, opening and closing the flush-openings, of means for starting the flush and releasing the pressure on the piston in the upper cylinder-compartment to raise the stopper and opening the flushing-valve, substantially as described.

6. In a flushing-tank mechanism for flushing water-closets, by direct pressure of the main, of the character described, with separate compartments and float air-valve between them, the cylinder and stopper with piston in the expanding compartments, means to admit water from the main, a cylinder-valve, the by-pass chambers on opposite sides of said valve through which the water of the main is discharged with the water of the tank into the flush-opening in said tank, the alternating valves with oscillating weight and float, the self-closing release-valve and pipe from same to upper end of cylinder and waste-pipe attached connecting the upper expanding compartment of cylinder with flush-openings, of means for operating said valve to start the flush, substantially as set forth.

7. In a direct-flushing mechanism for the flushing of water-closets, the combination of the tank of separate compartments formed with a flush-opening and cylinder attached to said opening having slotted openings at the lower end and closed at the upper end, and by-pass chambers on opposite sides of said cylinder through which the water is directly discharged from the main supply-pipe into the flush-opening with the water in said tank, the alternating valves attached to cylinder with oscillatory weight and float-ball adapted to alternately admit the water from the main to the expanding compartments of the cylinder, expanding the piston and causing the stopper to rise and fall opening and closing the flush-opening, the self-closing release-valve with release and waste pipe attached, the shaft with crank or hand wheel opening the release-valve releasing the pressure in upper expanding compartment of the cylinder, elevating the stopper and starting the operation of flushing the closet-bowl, the floated air-valve and casing communicating between the water and air compartments of the tank, substantially as set forth and described

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680,460. RAILROAD-TIE. FRANK MINGLER, Leetonia, Ohio. Filed Apr. 17, 1901. Serial No. 56,281. (No model.)



Claim.—1. In a railroad-tie, the tubular tie-body provided at the top side with a longitudinal guiding-slot and in the sides thereof immediately above the plane of its floor with a plurality of transversely-alined key-openings, rail-holding dogs of the same cross-sectional shape as the tie-body and slidably fitting therein, said rail-holding dogs being provided in their sides with retaining-grooves slidably interlocking with the side edges of the slot, and also provided above the plane of the tie-body with terminal rail-engaging lips, said dogs being further provided in their bases with key-receiving notches, and locking-keys engaging the transversely-alined openings of the tie-body and extending through the notches of said dogs.

2. In a railroad-tie, the tubular tie-body provided in the top thereof with a longitudinal guiding-slot, rail-holding dogs of the same cross-sectional area as the body and slidably registering therein, said dogs projecting above the top of the body and provided in the sides thereof with retaining-grooves interlocking with the side edges of the slot, and locking devices engaging the tie-body and said dogs.

3. In a railroad-tie, the tubular tie-body provided with a longitudinal guiding-slot, rail-holding dogs slidably registering within the body and projecting through the slot thereof, separate spacing-dogs also slidably registering within the body, and locking devices associated with all of the dogs excepting the spacing-dogs.

680,461. GLOBE. FRANK E. MITCHELL, Oshkosh, Wis. Filed Mar. 7, 1901. Serial No. 50,266. (No model.)

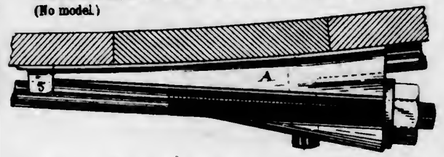


Claim.—1. A support for a globe comprising a laterally-extending arm, a meridian-ring swiveled to said arm, and suspending-cords connected to the arms, and diverging upward and connected to an overhead support, substantially as described.

2. A support for a globe comprising a laterally-extending arm, a meridian-ring swiveled to said arm, and two suspending-cords connected to the outer ends of the arm, and diverging upward and connected to an overhead support, substantially as described.

3. A globe-support, comprising a meridian-ring for supporting the axes of the globe, a laterally-extending arm pivotally secured at its center to the periphery of the meridian-ring, cords detachably secured to the outer free end of the said arm and extending therefrom upwardly in divergent lines, a pulley for supporting each of said cords, a single cord secured to the upper ends of the two cords after they have passed through the said pulleys, a pulley for supporting the single cord and a counterbalance-weight at the end of the single cord, the structure being such that the meridian-ring and globe may be raised and lowered and maintained at different heights and the globe may be turned by turning the meridian-ring on its pivotal support or the globe may be turned about its axis within the meridian-ring, substantially as described.

680,462. LUG USED IN COUPLING, TIGHTENING, AND FASTENING METAL HOOPS OR RODS ABOUT CASKS, TANKS, &c. GEORGE MUNDY, Hilo, Hawaii. Filed Feb. 21, 1901. Serial No. 48,302. (No model.)



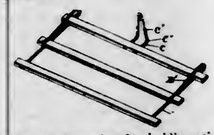
Claim.—1. The lug for locking the ends of a rod or hoop for tanks, the same having one end constructed to fasten both ends of the hoop, said end having a right-angled seat for one end of the hoop formed with a groove 2 open on the inside of the lug its full length and hole 3 extending outward through the lug, and a longitudinal lengthwise inclined groove on the outside of the lug overlapping the hole 3 at the top and having flange 4 at its outside, substantially as described.

2. The lug for locking together the ends of a rod or hoop having a substantially right-angled seat formed on its inner side at one end with an open groove lengthwise and a hole through the lug at right angles to said groove, and a channel lengthwise of the lug on its outside and across said hole above the same, and a lip 5 on the lug at its other end, in combination with the hoop B having one end bent at right angles and engaged in said right-angled seat and pressed against the tank, and the opposite end of the hoop lying in said channel and secured by a nut, substantially as described.

680,463. FLY-PAPER BRACKET. FRANK H. PLAISTRIDGE, Los Angeles, Cal. Filed Mar. 5, 1901. Serial No. 49,957. (No model.)

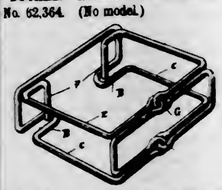
Claim.—1. A fly-paper-holding bracket, comprising a horizontal platform to hold the paper; springs to removably secure the paper thereon; and means to support the same on the wall.

2. A fly-paper-holding bracket, comprising the longitudinal platform-strips A; transverse connecting-wires B, to secure said strips to said wires, being bent at their rear ends upwardly and forwardly, the projecting end bearing against the central strip and the supporting-wire C, secured to the rear strip and bent upwardly at right angles to the platform, substantially as shown and described.



3. The herein-described bracket for holding sticky fly-paper, comprising a plurality of longitudinal strips forming the bracket-platform; resilient wires to connect these strips extending through the strips and being bent forward and downward, the projecting ends resting against the central strip and adapted to hold the paper on the platform; and a wire loop projecting from the rear strip and bent at right angles to hold the platform level, as shown and described.

680,464. BUCKLE. ROBERT C. POOL, Tyler, Tex. Filed May 29, 1901. Serial No. 62,364. (No model.)



Claim.—1. A buckle comprising a frame formed at its respective ends with loops, and spring-tongues formed with inwardly-extending inserting portions, substantially as described.

2. A buckle comprising a frame formed at its respective ends with loops, spring-tongues formed with inwardly-extending engaging ends, and keepers to receive said engaging ends, substantially as described.

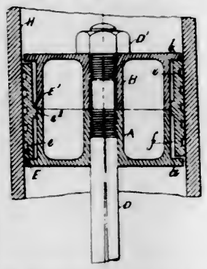
3. A buckle comprising a frame formed at its respective ends with loops, and outwardly and laterally movable spring-tongues, substantially as described.

4. A buckle comprising a frame formed at its respective ends with loops, and spring-tongues extending from one of said loops and formed adjacent to the other loop with inwardly-extending engaging ends disposed transversely of the said loop, substantially as described.

5. A buckle comprising a frame formed at its respective ends with loops, and spring-tongues extending from one of said loops and in substantially the same plane as the outer bars of the loop and formed with inwardly-extending engaging ends, substantially as described.

6. A buckle comprising a frame formed at its respective ends with loops, and with eyes or keepers in the same plane as said frame, and spring-tongues extending from one of said loops and in substantially the same plane as the outer bars of the loops and formed with inwardly-extending engaging ends extending into said keepers, substantially as described.

680,465. PISTON. GEORGE H. REYNOLDS, Mansfield Depot, Conn. Filed Oct. 19, 1900. Serial No. 33,564. (No model.)

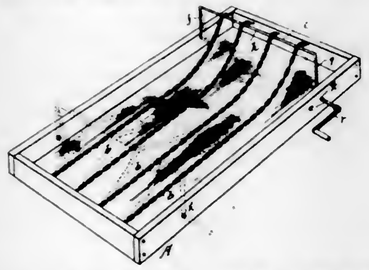


Claim.—1. The combination of a threaded piston-rod, a body and a follower screwed upon said rod, a nut on said rod locking the follower and body together in a fluid-tight manner, flanges on the ends of the piston forming a recess upon the surface thereof, and a continuous-sleeve packing in said recess with a clearance between itself and either one of said flanges, the external diameter of said packing being larger than the diameter of the said flanges.

2. The combination with the cylinder of an engine, pump or the like, of a piston whose body and follower have each an annular flange located at the ends of the piston, the said flanges being smaller in diameter than the internal diameter of the cylinder, a circumferential recess on the piston between the flanges, a continuous-sleeve packing in the recess having an internal diameter larger than the diameter of the piston between the flanges, and an external diameter greater than the said flanges, an annular projection formed on the inner surface of the continuous-sleeve packing centrally located between its ends, and clearance between the end faces of the said packing-ring and the flanges of the piston.

3. The combination with a cylinder H, of a piston-rod D, a piston screwed on said rod, annular flanges *a* and *b* on the ends of the piston forming a recess upon the surface thereof, a continuous-sleeve packing E in said recess with a clearance between itself and either one of said flanges, circumferential grooves *e* on the sleeve-packing, an annular bearing between said packing and the piston located centrally between the ends of the sleeve-packing.

680,466. CLEANER FOR BOLTING-SIEVES. ISAAC L. SHERK, Ann Arbor, Mich. Filed May 28, 1900. Serial No. 18,191. (No model.)



Claim.—1. In combination with a bolting-sieve, a flexible scraper attached at its ends to the sieve-frame and adapted to rest upon the screen-surface of the sieve, a crank removably journaled in the sieve-frame and extending under said scraper, and means for turning said crank to different angular positions, whereby a variable portion of the scraper is lifted from the screen-surface, substantially as described and for the purpose set forth.

2. In combination with a bolting-sieve, a flexible scraper attached at its ends to the sieve-frame and adapted to rest upon the screen-surface of the sieve, a crank journaled in the sieve-frame and extending under said scraper and means for turning said crank to different angular positions, whereby a variable portion of the scraper is lifted from the screen-surface, substantially as described and for the purpose set forth.

3. In combination with a bolting-sieve, a flexible scraper secured at its ends to the screen-frame and adapted to rest by its weight upon the screen of said sieve, a double crank bearing at opposite sides of said sieve and extending under said scraper, said crank being adapted to be inserted or removed from its bearings by bending a radial portion inward, substantially as described.

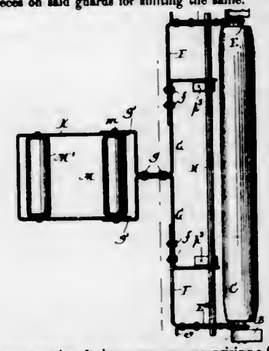
4. In combination with a bolting-sieve, a flexible scraper secured at its ends to the screen-frame and adapted to rest by its weight upon the screen of said sieve, a double crank bearing at opposite sides of said sieve and extending under said scraper, said crank being provided with a coupling end, and being adapted to be inserted or removed from its bearing by bending a radial portion inward, and means for turning said crank adapted to engage with the coupling end from the outside, substantially as and for the purpose described.

680,467. GRASS-CATCHER FOR LAWN-MOWERS. WILLIAM H. SHOEMAKER, Chicago, Ill. Filed Apr. 4, 1900. Serial No. 11,430. (No model.)

Claim.—1. A grass-catcher for lawn-mowers, comprising a rigid frame, a grass holder or receptacle attached thereto, and hooks mounted on said rigid frame and laterally adjustable with reference to said frame for engaging the journals of the trail-wheel of the lawn-mower.

2. A grass-catcher for lawn-mowers, comprising a rigid frame, a grass holder or receptacle attached thereto, hooks detachably mounted on said rigid frame and laterally adjustable with reference thereto for engaging the journals of the trail-wheel of a lawn-mower, and means for rigidly securing said hooks to said frame in various adjusted positions.

3. A grass-catcher for lawn-mowers, comprising a frame, a grass holder or receptacle attached thereto, hooks mounted on said frame for engaging the journal of the trail-wheel of the lawn-mower, guards for holding said hooks in engagement with said journals, said guards permanently but movably secured to said frame by a slot-and-pin connection and handpieces on said guards for shifting the same.



4. A grass-catcher for lawn-mowers, comprising a frame having one or more supporting-rollers, an independent grass holder or receptacle removably supported on said frame and extending rearwardly beyond the same, and upturned hooks provided on the forward end of said grass holder or receptacle for detachably engaging a portion of said frame.

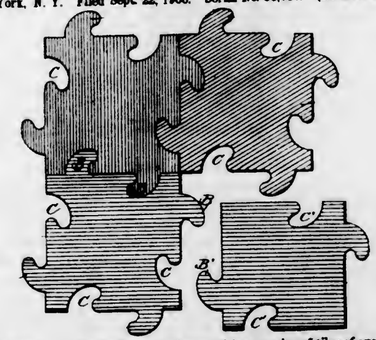
5. A grass-catcher for lawn-mowers, comprising a frame having front and rear transverse portions, and an independent grass holder or receptacle removably supported on said rear portion and having one or more forwardly-projecting upturned hooks for detachably engaging said front portion of the frame.

6. A grass-catcher for lawn-mowers comprising a frame having adjustable end bars provided with means for connecting it to the lawn-mower, the rear part of said frame having a rigid and a hinged section each provided with a supporting wheel or roller.

7. A grass-catcher for lawn-mowers, comprising a frame, means for connecting it to a lawn-mower, and having at its rear a short pivoted portion provided with a supporting-roller, a grass holder or receptacle supported on said frame and said pivoted portion and extending rearwardly beyond the latter, and hooks provided at the forward end of said receptacle for detachably engaging said frame.

8. In a grass-catcher for lawn-mowers, the combination with a frame provided with hooks for detachably securing said frame to the trail-wheel of a lawn-mower, of an independent grass holder or receptacle removably supported on said frame, said receptacle having a bottom arranged to rest on said frame, sides and end secured to said bottom and foldable thereon, and hooks for detachably securing said receptacle to said frame, substantially as described.

680,468. TILE FLOOR, WALL, &c. JOSEPH K. SIERER, New York, N. Y. Filed Sept. 22, 1900. Serial No. 30,787. (No model.)

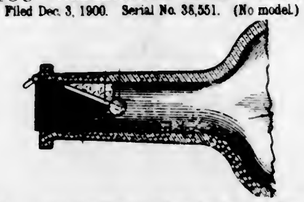


Claim.—1. A tile floor or wall comprising a series of tiles of exactly similar shape and size, each tile being provided on each of its abutting sides or edges with a tongue and a recess, the tongue and recess on each side of each individual tile being of exactly similar shape and size, the said tongues and recesses being of such shape that the tongues of one tile exactly fit into the correspondingly-shaped recesses of adjacent tiles and form an interlocking connection on all abutting sides of each tile.

2. A tile floor or wall comprising a series of tiles of exactly similar shape and size, each tile being provided on each of its abutting sides or edges with a hook-shaped tongue and a hook-shaped recess, the tongue and recess on each side of each individual tile being of exactly similar shape and size, whereby the tongues of one tile exactly fit into the correspondingly-shaped recesses of adjacent tiles and form an interlocking connection on all abutting sides of each tile.

3. A tile floor or wall comprising a series of square-shaped tiles, said tiles being exactly similar both as to shape and size, each tile being provided on each of its four abutting sides or edges with a tongue and recess, the tongue and recess on each side of each individual tile being of exactly similar shape and size, whereby the tongues of one tile will exactly fit into the correspondingly-shaped recesses of adjacent tiles and form an interlocking connection on all four sides of each tile.

680,469. CORK-EXTRACTOR. GEORGE A. SMITH, Alberni, Canada. Filed Dec. 3, 1900. Serial No. 38,551. (No model.)



Claim.—1. In combination with the neck of an ordinary bottle and its cork; a slit in the cork extending from the center of the under side of the cork to the outside, about two-thirds of the length of the cork up; a flexible strip in such slit secured at the under side of the cork to a piece which will not draw through the slit; a quarter-twist in the strip where it comes out of the side of the cork, which will enable the strip to lie flat between the cork and the inside of the bottle-neck, where it passes upward to the mouth of the bottle; a key attached to the strip at its upper end, adjacent to the mouth of the bottle, adapted to be rotated to wind the strip upon the shank of the key and itself.

2. In combination with the neck of an ordinary bottle and its cork; a slit in the cork extending from the center of the under side of the cork to the outside about two-thirds of the length of the cork up; a wire within such slit secured at the under side to a piece which will not draw through the cork; a key attached to the upper end of the wire adjacent to the mouth of the bottle, adapted to be manually rotated to wind the wire on the shank thereof.

3. The combination with the bottle-neck, and the cork B, said cork having a slit in one side, extended from the bottom, part way its length; of the flexible strip 3, said strip comprising the lower end, bent to slip edgewise into the cord-slit, and having a head or enlargement 4 at the lower end, the upper end of the said strip being bent at right angles to the lower end, and in a plane to lie flatwise against the outside of the cork, said upper end extending above the cork, and the twisting-key 6, all being arranged substantially as shown and for the purposes described.

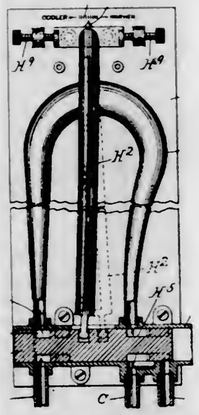
680,470. RETORT-RADIATOR. OSCAR C. TRUKENMILLER, Mansfield, Ohio. Filed May 17, 1901. Serial No. 60,769. (No model.)



Claim.—In a radiator, the combination of a drum having one end closed, a flue-section connected centrally through said closed end and pro-

jecting diagonally into said drum and terminating near the opposite end at one side, a removable closure for the open end of said drum, a flue-section connected centrally through said removable closure and projecting diagonally into said drum and terminating near the opposite end at one side and diametrically opposite to the inner terminal of said first-mentioned diagonally-disposed flue-section, whereby the smoke and products of combustion are carried to the remotest parts of said drum, and the outside flue connections maintained centrally of the drum, substantially as shown and described.

680,471. **HEAT-REGULATING DEVICE.** CHARLES G. ARMSTRONG, Chicago, Ill., assignor, by direct and mesne assignments, to James E. Hog, Rahway, N. J. Filed Sept. 2, 1898. Serial No. 690,062. (No model.)



Claim.—1. A temperature-regulating device for heating systems, comprising a controlling and regulating device for connecting the radiator with a source of air-supply or an exhaust device, said controlling and regulating device responsive to variations in temperature in the apartment to be heated, and adapted for regulating the admission of air into the radiator when the radiator is connected with the source of air-supply and for producing an intermittent or step-by-step admission of the air into the radiator.

2. A temperature-regulating device for heating systems, comprising a controlling and regulating device for connecting the radiator with a source of air-supply and an exhaust device, said controlling and regulating device responsive to variations in temperature in the apartments to be heated, and responsive to the flow of air passing to the radiator when the radiator is connected with the source of air-supply and adapted to produce an intermittent or step-by-step admission of the air.

3. A temperature-regulating device for heating systems, comprising a source of air-supply and an exhaust device, suitable connections leading from the radiator to said source of air supply and exhaust, a thermostatic device associated with these connections and adapted to control said connections in response to variations in temperature in the apartment to be heated, and to produce an intermittent or step-by-step admission to said radiator when connected with the source of air-supply.

4. A temperature-regulating device for heating systems, comprising a source of air-supply and an exhaust device, suitable connections leading from the radiator to said source of air supply and exhaust, a thermostatic device associated with these connections and adapted to control said connections in response to variations in temperature in the apartment to be heated, a regulating device associated with said thermostatic device and adapted to modify its action so as to produce an intermittent admission of the air into said radiator.

5. A temperature-regulating device for heating systems, comprising a source of air-supply and an exhaust device, suitable connections leading from the radiator to said source of air-supply and exhaust device, a thermostatic device associated with these connections and adapted to control said connections in response to variations in temperature in the apartment to be heated, said thermostat located in proximity to a portion of the connection leading from the source of air-supply to the radiator whereby it is affected by the passage of the air so as to act to check said passage before the temperature in the apartment is varied the proper amount.

6. A temperature-regulating device for heating systems, comprising a source of air-supply and an exhaust device, suitable connections leading from the radiator to said source of air-supply and exhaust device, suitable valve mechanism for controlling said connections, a thermostatic device adapted to operate said valve mechanism in response to variations in temperature in the apartment to be heated, said thermostat associated with the connection to the radiator so that the passage of material through said connection adjacent to the thermostatic device affects the thermostatic device and causes it to act upon said valve mechanism before the temperature in the apartment is reduced the proper amount.

7. A temperature-regulating device for heating systems, comprising a controlling device for connecting the radiator with a source of air-supply or an exhaust device, said controlling device responsive to variations in temperature in the apartment to be heated, and comprising automatic means for controlling intermittently or step by step the exhaust or the admission of the air, so as to prevent too great variation in the area of active heating-surface of the radiator.

8. A temperature-regulating device for heating systems, comprising a device for automatically varying the effective heating area of the heater, a controller responsive to variations in temperature in the apartment to be heated, and means comprised in said controlling device for regulating the action of the device for automatically varying the effective area of the heater, said means producing an intermittent or step-by-step action of such device.

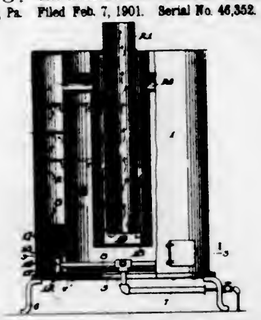
9. A temperature-regulating device for heating systems, comprising a controlling device for connecting the radiator with a source of air-supply and an exhaust device, said controlling device responsive to variations in temperature in the apartment to be heated, and adapted to regulate the admission of air into the radiator when the radiator is connected with a source of air-supply and to automatically or by a step-by-step action vary the application of air to the radiator.

10. A temperature-regulating device for heating systems, comprising a device for automatically varying the effective heating area of the heater, a controller responsive to variations in temperature in the apartment to be heated, and means associated with said controller for regulating the action of the device for automatically varying the effective area of the heater, said means adapted to produce a varying or step-by-step action of such device.

680,472. **PROCESS OF DYEING WITH SULFUR DYES.** MAX BECKE and ALBERT BEIL, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vorm. Meister, Lucius & Brüning, same place. Filed May 4, 1900. Serial No. 15,532. (No model.)

Claim.—The herein-described process of dyeing with sulfur dyestuffs, which consists in transforming the dyestuffs by reduction into leuco compounds, dyeing with them and developing the dyestuff by oxidation, substantially as set forth.

680,473. **GAS BURNER AND HEATER.** HAMILTON K. BOYD, Kittanning, Pa. Filed Feb. 7, 1901. Serial No. 46,352. (No model.)

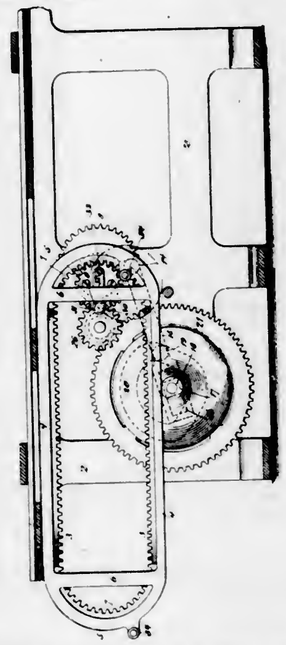


Claim.—1. In a heater, the combination of an inner and outer product-chamber, flues connecting said product-chambers, a pipe extending downwardly into said inner product-chamber, a suitable gas-inlet, an annular burner connected to said gas-inlet, an annular base, and means connecting said annular base and the annular burner together, and an asbestos lining arranged in said outer product-chamber, substantially as described.

2. In a heater, the combination of an inner and outer product-chamber, deflectors arranged in said product-chambers, flues connecting said product-chambers, a pipe extending downwardly to a short distance from the lower end of said inner product-chamber, a suitable gas-inlet, an annular burner connected to said gas-inlet, an annular base, means connecting said annular base and the annular burner together, and an asbestos lining arranged in said outer product-chamber, substantially as described.

3. In a heater, the combination of an inner and outer product-chamber, deflectors spirally arranged in said outer product-chamber, flues connecting said product-chamber, a pipe extending outwardly to a short distance from the lower end of said inner product-chamber, a suitable gas-inlet, an annular burner connected to said gas-inlet, an annular base, means connecting said annular burner and base together, substantially as described.

680,474. **MECHANICAL MOVEMENT.** CHARLES P. COTTRELL, Westerly, R. I., assignor to C. B. Cottrell & Sons Co., Jersey City, N. J., Stonington, Conn., and New York, N. Y. Filed Apr. 22, 1899. Serial No. 714,015. (No model.)



Claim.—1. The combination of a bed or member, means for reciprocating the same, means for reversing its direction of travel, and additional mechanism disconnected from said reversing means for insuring proper coöperation between said bed and said reversing means, said additional mechanisms comprising a cam having a fixed axis of rotation and a device at each end of the bed or member for coöperating with said cam during the time of operation of the said reversing means.

2. The combination of a bed or member, means for reciprocating the same, means for reversing its direction of travel, additional mechanism for insuring proper coöperation between said bed and said reversing means, said additional mechanism comprising a pair of cams revolving on a fixed axis and projections of different lengths arranged at the ends of the bed or member for coöperating with said cams during the times of operation of the said reversing means.

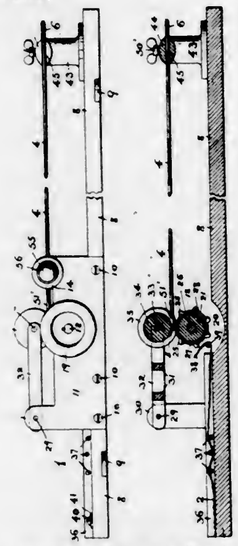
3. The combination of a bed or member, means for reciprocating the same, a revolving crank, a bearer at each end of the bed or member adapted to coöperate with said crank, a cam mounted on a fixed axis and to revolve in a vertical plane, and a horizontal projection at each end of the bed or member for coöperating with said cam during the action of the crank and bearer.

4. The combination of a reciprocating bed or member, means for reversing the same and arranged to act on one side thereof, and additional mechanism adapted to coöperate with said reversing means and arranged to act on the opposite side of said bed or member and comprising a pair of cams mounted upon a fixed horizontal axis, and horizontal projections at the ends of the bed or member adapted to coöperate with said cams during the times of action of the reversing means.

5. The combination of a reciprocating bed or member, a revolving crank, a bearer, a pair of cams mounted on a fixed horizontal axis, and horizontal projections of unequal length at the ends of the bed or member adapted to coöperate with said cams while the crank is coacting with the bearer to effect the reversal of the bed or member.

6. The combination of a reciprocating bed or member, means for reversing the same, horizontal projections of different lengths at the ends of said bed, a pair of vertically-disposed cams arranged side by side and attached to a similarly-disposed disk, gears 38 and 42 for rotating said disk and came about a fixed axis of motion, the shaft 43, and means for turning said shaft.

680,475. **MACHINE FOR THREADING TAPE INTO EDGINGS.** TIMOTHY A. CURTIS, Newark, N. J. Filed May 11, 1901. Serial No. 59,790. (No model.)



Claim.—1. In a machine for inserting ribbon in lace, the combination, with a needle, of a lace-feeding roll, shoes on said roll with which the point of said needle is in sliding engagement, said shoes being constructed to alternately raise and lower the point of the needle, and means on said roll for feeding the meshes of the lace upon said needle and causing the lace to be gathered on the needle, substantially as and for the purposes set forth.

2. In a machine for inserting ribbon in lace, the combination, with a needle, of a lace-feeding roll, shoes on said roll with which the point of said needle is in sliding engagement, said shoes being constructed to alternately raise and lower the point of the needle, and sprockets on said roll adapted to enter the meshes of said lace and feed the said lace upon the needle and to be gathered on said needle, substantially as and for the purposes set forth.

3. In a machine for inserting ribbon in lace, the combination, with a needle, of a lace-feeding roll, and sprockets on said roll adapted to enter the meshes of said lace, said sprockets being provided with shoes having curved surfaces with which the "pick-up" end of the needle is brought in sliding engagement to cause said end of the needle to enter the meshes of the lace and gather the same upon the needle, substantially as and for the purposes set forth.

4. In a machine for inserting ribbon in lace, the combination, with a needle, of a lower feed-roll, shoes on said roll with which the point of said needle is in sliding engagement, said shoes being constructed to alternately raise and lower the point of the needle, and an upper feed-roll bearing upon the said lower roll, said upper roll being provided with an annular groove, and means on said lower roll extending into the groove in said upper roll for feeding the meshes of the lace upon said needles and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

5. In a machine for inserting ribbon in lace, the combination, with a needle, of a lower feed-roll, shoes on said roll with which the point of said needle is in sliding engagement, said shoes being constructed to alternately raise and lower the point of the needle, and an upper feed-roll bearing upon the said lower roll, said upper roll being provided with an annular groove, and sprockets on said lower roll extending into the groove in said upper roll and adapted to enter the meshes of the lace and feed the lace upon the needle and to be gathered on said needle, substantially as and for the purposes set forth.

6. In a machine for inserting ribbon in lace, the combination, with a needle, of a lower feed-roll, and an upper feed-roll bearing upon the said lower roll, said upper roll being provided with an annular groove, and sprockets on said lower roll extending into the groove in said upper

roll, said sprockets being provided with shoes having curved surfaces with which the "pick-up" end of the needle is brought in sliding engagement to cause said end of the needle to enter the meshes of the lace and gather the same upon the needle, substantially as and for the purposes set forth.

7. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a second support having bearings, a lower feed-roll rotatively arranged in one of said bearings, and a frame pivotally connected with a spindle in another of said bearings, an upper feed-roll in said frame, provided with an annular groove, and means on said lower roll extending into the groove in said upper roll for feeding the meshes of the lace upon said needle and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

8. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a second support having bearings, a lower feed-roll rotatively arranged in one of said bearings, and a frame pivotally connected with a spindle in another of said bearings, an upper feed-roll in said frame, provided with an annular groove, and sprockets on said lower roll extending into the groove in said upper roll and adapted to enter the meshes of said lace and feed the lace upon the needle and to be gathered on said needle, substantially as and for the purposes set forth.

9. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a second support having bearings, a lower feed-roll rotatively arranged in one of said bearings, and a frame pivotally connected with a spindle in another of said bearings, an upper feed-roll in said frame, provided with an annular groove, and sprockets on said lower roll extending into the groove in said upper roll, said sprockets being provided with shoes having curved surfaces with which the "pick-up" end of the needle is brought in sliding engagement to cause said end of the needle to enter the meshes of the lace and gather the same upon the needle, substantially as and for the purposes set forth.

10. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a lace-guide and a lace-feeding roll on said base, shoes on said roll with which the point of said needle is in sliding engagement, said shoes being constructed to alternately raise and lower the point of the needle, and means on said roll for feeding the meshes of the lace upon said needle and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

11. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a lace-guide and a lace-feeding roll on said base, shoes on said roll with which the point of said needle is in sliding engagement, said shoes being constructed to alternately raise and lower the point of the needle, and sprockets on said roll adapted to enter the meshes of said lace and feed the lace upon the needle and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

12. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a lace-guide and a lace-feeding roll on said base, and sprockets on said roll adapted to enter the meshes of said lace, said sprockets being provided with shoes having curved surfaces with which the "pick-up" end of the needle is brought in sliding engagement to cause said end of the needle to enter the meshes of the lace and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

13. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a lace-guide on said base, a second support having bearings, a lower feed-roll rotatively arranged in one of said bearings, and a frame pivotally connected with a spindle in another of said bearings, an upper feed-roll in said frame, provided with an annular groove, and means on said lower roll extending into the groove in said upper roll for feeding the meshes of the lace upon said needle and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

14. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a lace-guide on said base, a second support having bearings, a lower feed-roll rotatively arranged in one of said bearings, and a frame pivotally connected with a spindle in another of said bearings, an upper feed-roll in said frame, provided with an annular groove, and sprockets on said lower roll extending into the groove in said upper roll and adapted to enter the meshes of said lace and feed the lace upon the needle and causing the lace to be gathered upon the needle, substantially as and for the purposes set forth.

15. In a machine for inserting ribbon in lace, the combination, with a base provided with a support, and a needle in said support, of a lace-guide on said base, a second support having bearings, a lower feed-roll rotatively arranged in one of said bearings, and a frame pivotally connected with a spindle in another of said bearings, an upper feed-roll in said frame, provided with an annular groove, and sprockets on said lower roll extending into the groove in said upper roll, said sprockets being provided with shoes having curved surfaces with which the "pick-up" end of the needle is brought in sliding engagement to cause said end of the needle to enter the meshes of the lace and gather the same upon the needle, substantially as and for the purposes set forth.

16. In a machine for inserting ribbon in lace, the combination, with a lace-feeding roll, and shoes on said roll, of a needle having its pointed end in sliding engagement with said shoes, said shoes being constructed to alternately raise and lower the point of said needle to thereby gather the lace upon said needle, substantially as and for the purposes set forth.

17. In a machine for inserting ribbon in lace, the combination, with a base, of a support provided with a pair of holding-jaws, a needle detachably secured near the back end between said jaws, means on said base for feeding and gathering lace upon said needle, a second support on said base, having a bearing, and a holding-dog slidably arranged in said bearing provided with holding-jaws adapted to grasp the gathering end of the needle, substantially as and for the purposes set forth.

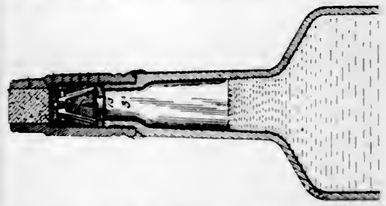
18. In a machine for inserting ribbon in lace, the combination, with a needle, and means for feeding and gathering lace upon said needle, of a support having a bearing, a holding-dog slidably arranged in said bearing, provided with holding-jaws, and means for fixing said jaws about the needle, substantially as and for the purposes set forth.

19. In a machine for inserting ribbon in lace, the combination, with a needle, and means for feeding and gathering lace upon said needle, of a support having a bearing, a holding-dog slidingly arranged in said bearing, provided with holding-jaws, means for fixing said jaws about the needle, and a set-screw in said support for securing said dog in its adjustable positions, substantially as and for the purposes set forth.

20. In a machine for inserting ribbon in lace, the combination, with a feeding-roll, having feeding-sprockets arranged in pairs with a space between them, and shoes 27 between said sprockets provided with curved surfaces 28, of a gathering-needle having a curved "pick-up" end in sliding engagement with said curved surfaces of said shoes, substantially as and for the purposes set forth.

21. In a machine for inserting ribbon in lace, a lace-feeding roll, shoes on said roll, and means coöperating with said shoes for picking up and gathering the lace, substantially as and for the purposes set forth.

680,476. BOTTLE STOPPER AND SEAL. JAMES H. DENNEAD, Westpoint, Va., assignor of one-half to Harold E. Stanford, New York, N. Y. Filed Feb. 21, 1901. Serial No. 48,257. (No model.)



Claim.—1. A bottle-stopper, comprising an open-ended tubular cap, the outer end portion of which has an inner marginal shoulder, a hollow substantially conical valve-chamber inserted from the inner end of the cap, and having its smaller end closed and provided with a laterally-enlarged head fitted against the annular shoulder, there being lateral perforations formed through the sides of the chamber adjacent to the inner side of the head, and the latter having perforations formed through the projected portion thereof and between the exterior of the valve-chamber and the outer edge of the marginal flange, a valve-seat inserted through the inner end of the cap and lying against the inner end of the valve-chamber, and a gravity-valve freely movable within the valve-chamber and normally supported upon and closing the seat.

2. A bottle, having an external marginal shoulder upon the neck thereof, an open-ended tubular cap embracing the bottle-neck and supported upon the marginal shoulder, a frangible seal connecting the cap to the bottle, an inner marginal shoulder within the cap and adjacent to the outer end thereof, a substantially conical and hollow valve-chamber inserted from the inner end of the cap, and having an enlarged bead lying against the inner shoulder, and provided with marginal notches extending beyond the shoulder, the inner side of the chamber being grooved longitudinally, and having lateral discharge-openings formed through the sides thereof adjacent to the inner side of the head, a substantially conical gravity-valve within the valve-chamber, and a disk-like valve-seat having a central opening and supported upon the outer end of the bottle-neck.

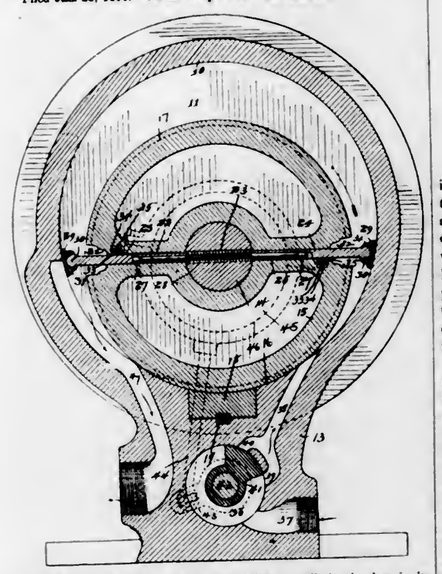
680,477. WRISTBAND. VITOLD DROSNES, New York, N. Y. Filed June 14, 1901. Serial No. 64,486. (No model.)



Claim.—1. A wristband, consisting of a main portion provided with a buckle at one end and an opposite insertion end, a transverse slot near the buckle end, and an auxiliary strap attached to the outside of the main portion and provided with a buckle near the buckle of the main portion, and also with an opposite insertion end, the insertion end of the main portion being passed through the said slot for buckling, substantially as set forth.

2. A wristband, consisting of a wide main portion provided with a buckle at one end and an opposite insertion end, and an auxiliary strap attached to the main portion and provided with a buckle at one end and having an opposite insertion end, transverse slots in the main portion, near the buckle end of the same, said slots serving for the passage of the insertion ends of the main portion and auxiliary strap for connecting the same respectively with the buckles of auxiliary strap and main portion, substantially as set forth.

680,478. ROTARY ENGINE. PETER ENGLISH, Benton Harbor, Mich., and LUKE COONEY, Jr., Chicago, Ill., assignors of three-fourths to Paul E. Berger, Chicago, Ill., and Francis W. Gridley, Syracuse, N. Y. Filed Jan. 23, 1899. Serial No. 703,049. (No model.)



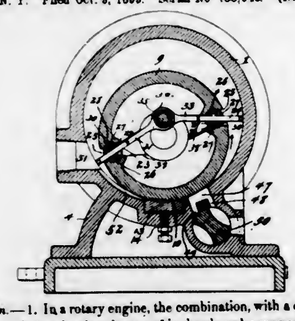
Claim.—1. A rotary engine, comprising a cylinder having in its inner face a depression or recess of smaller radius and less length than the cylinder proper, an eccentric cylindrical piston inclosed in said cylinder and having a body portion of a radius conforming to the depression or recess and reduced ends to bear upon the true cylindrical face of the cylinder, an abutment-block located in said depression or recess, and radially-movable wings or vanes mounted in the drum or piston and having a width at their outer extremities greater than the length of the depression or recess, substantially as described.

2. A rotary engine, comprising a cylinder having in its inner face a depression or recess of smaller radius and less length than the cylinder proper, an eccentric cylindrical piston inclosed in said cylinder and having a body portion of a radius conforming to the depression or recess and reduced ends to bear upon the true cylindrical face of the cylinder, an abutment-block located in said depression or recess, means for adjusting said abutment-block toward the piston, and radially-movable wings or vanes mounted in the drum or piston and having a width at their outer extremities greater than the length of the depression or recess, substantially as described.

3. A rotary engine, comprising a cylinder and a rotating piston mounted therein, one of the cylinder-heads being provided with a threaded recess, an annulus located and fitting within the cylinder, bearing upon one end of the piston and provided with a threaded hub to engage the recess of the head and with peripheral gear-teeth, and a shaft extending through the head, provided at its inner end with pins to engage the gear-teeth of the annulus and having its outer end provided with means whereby it may be rotated, substantially as described.

4. A rotary engine comprising a cylinder having in its inner face a depression or recess of smaller radius and less length than the cylinder proper, an eccentric cylindrical piston inclosed in said cylinder and having a body portion of a radius conforming to the depression or recess and reduced ends to bear upon the true cylindrical face of the cylinder, an abutment-block located in said depression or recess and wings or vanes mounted in the drum or piston and having a width at their outer extremities greater than the length of the depression or recess, substantially as described.

680,479. ROTARY ENGINE. PETER ENGLISH, Benton Harbor, Mich., and LUKE COONEY, Jr., Chicago, Ill., assignors of three-fourths to Paul E. Berger, Chicago Ridge, Ill., and Francis W. Gridley, Syracuse, N. Y. Filed Oct. 9, 1899. Serial No. 733,040. (No model.)



Claim.—1. In a rotary engine, the combination, with a cylinder having an eccentric bearing-box in one of its heads and a supporting-arm extending from said box inward toward the center of the cylinder, of a main shaft in line with said bearing-box and extending through the other head of the cylinder into the interior thereof, a drum secured on and concentric with said main shaft and bearing, and having a hollow interior and a hollow trunnion adapted to run within the bearing-box, a fixed shaft supported by the arm of the bearing-box and extending through the hollow trunnion into the interior of the drum, and wings or vanes pivotally mounted on said fixed shaft extending through the slots in the drum and bearing against the inner face of the cylinder substantially as described.

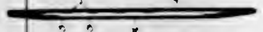
2. In a rotary engine, the combination, with a cylinder having in one of its heads an externally-closed eccentric bearing-box communicating with the interior of the cylinder, and a fixed shaft concentric with the cylinder and extending into the interior thereof, said shaft being provided with wings or vanes pivotally mounted thereon and bearing against the inner face of the cylinder, of a main shaft extending through the other head of the cylinder a short distance into the interior thereof, said shaft being eccentric relatively to the cylinder and concentric with the bearing-box, and a drum closed at one end to form a hub whereby it is secured to the end of the main shaft, having a hollow interior to receive the fixed shaft and provided with a hollow open trunnion at its opposite end supported within the bearing-box, said drum being concentric with the main shaft and bearing-box and eccentric relatively to the cylinder, and provided with slots through which the wings or vanes extend substantially as described.

3. In a rotary engine, of the character described, the combination, with a cylinder having a fixed concentric shaft, wings or vanes having hubs encircling said shaft and rollers interposed between said hubs and shaft, said cylinder having also an eccentric externally-closed bearing-box in one of its heads, of a correspondingly eccentric main shaft extending through the other head, a hollow drum secured at one end to said shaft and concentric therewith and having at its other end a hollow trunnion through which the fixed shaft passes, and rollers interposed between said trunnion and the bearing-box, said drum having slots through which the wings or vanes pass, substantially as described.

4. In a rotary engine, the combination, with a cylinder having in its inner face a depression or recess of smaller radius and less length than

the cylinder proper, of an eccentric hollow drum inclosed in said cylinder and having a body portion of a radius conforming to the depression or recess, and reduced ends to bear upon the true cylindrical face of the cylinder, an abutment-block located in said depression or recess, a fixed shaft concentric with the cylinder and extending into the interior of the hollow drum, and wings or vanes pivotally mounted on said fixed shaft, extending through slots in the drum and having at their outer ends a width greater than the length of the depression or recess in the cylinder substantially, as described.

680,480. ENVELOP. ALBERT C. ERNST, Newcastle, Pa. Filed Apr. 13, 1901. Serial No. 55,658. (No model.)



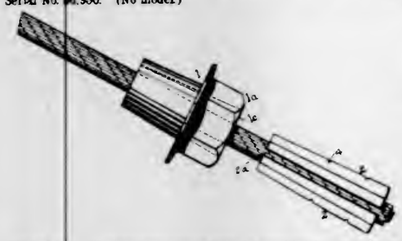
Claim.—1. As a new article of manufacture, an envelop adapted for addressing and use more than one time, and to this end having a series of rows of perforations extending through the front and back of the envelop transversely to the length thereof, the spaces between the rows of perforations having indicating inscriptions to designate where the address is to be placed, and the inner face of the envelop being gummed adjacent to each row of perforations whereby it may be resealed after being opened at either of the lines of perforations, substantially as described.

2. The herein-described envelop adapted for resealing, readdressing and reuse, comprising front and back portions having lines of perforations which extend transversely to the envelop and are spaced apart and arranged adjacent to one end of said envelop, the envelop adapted to be addressed upon each reuse between the end and the next adjacent line of perforations, and gummed surfaces along the lines of perforations whereby the envelop may be resealed at the end which has been opened, substantially as described.

3. As a new article of manufacture, an envelop adapted for resealing, readdressing on the same side and reuse and having a line of perforations extending transversely to the length of the envelop through the front and back thereof, the space between the line of perforations and the adjacent end of the envelop being adapted to receive the address, the inner faces of the back and front portions of the envelop being gummed below the line of perforations whereby the envelop may be resealed after opening at the line of perforations, substantially as described.

4. An envelop adapted for resealing, readdressing on the same side, and reuse, consisting of an envelop-blank which is folded and originally sealed in the ordinary manner and opened at the end, the front and back portions of said envelop provided with rows of perforations extending therethrough transversely to the length of the envelop, the space between the end line of perforations and the adjacent ends of the envelop adapted to receive the address, and the inner faces of the front and back portions being gummed along the perforations whereby the envelop may be resealed at the end after being opened, substantially as described.

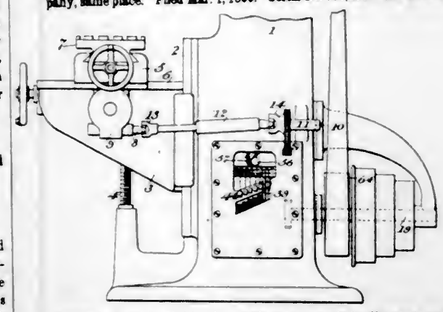
680,481. ROPE-CLAMP. LEMUEL FURMAN, Bay City, Mich., assignor of one-half to Charles Glave, same place. Filed Apr. 22, 1901. Serial No. 56,930. (No model.)



Claim.—1. A rope-clamp comprising in combination a polygonal nut having a flange at its base and having a cylindrical shell projecting below the flange; an opening extending through said nut and shell, having two flat parallel sides of decreasing width, and two converging sides of substantially V-section; a pair of tapered keys having inner faces cylindrically concaved and outer faces of V-section adapted to slidably engage the converging sides of the opening.

2. A rope-clamp comprising in combination a polygonal nut having a flange at its base provided with openings 1^a and having a cylindrical shell projecting below the flange; an opening extending through said nut and shell, having two flat parallel sides of decreasing width, and two converging sides of substantially V-section; a pair of tapered keys having inner faces cylindrically concaved and outer faces of V-section adapted to slidably engage the converging sides of the opening.

680,482. MILLING-MACHINE. CHARLES R. GABRIEL, Providence, R. I., assignor to the Brown and Sharpe Manufacturing Company, same place. Filed Mar. 1, 1899. Serial No. 707,298. (No model.)



Claim.—1. The combination with two oppositely-disposed cone-gears, of a laterally-adjustable intermediate gear for connecting any two corresponding gears of said cone-gears, and means for positioning said intermediate gear and securing said gear in its adjusted position.

2. The combination with two oppositely-disposed cone-gears, of an intermediate gear for connecting any two corresponding gears of said cone-gears, a pivotally-mounted and laterally-movable arm on which said gear is mounted, and means for holding said arm against pivotal or lateral movement in each of its adjusted positions.

3. The combination with two oppositely-disposed cone-gears, of an intermediate gear for connecting any two corresponding gears of said cone-gears, an arm on which said gear is mounted, a series of lugs arranged to be engaged by said arm, and means for securing said arm to any of said lugs.

4. The combination with two oppositely-disposed cone-gears, of an intermediate gear for connecting any two corresponding gears of said cone-gears, an arm on which said gear is mounted, a series of overlapping lugs arranged to be engaged by said arm, and means for securing said arm to any of said lugs.

5. The combination with a driving-shaft, of a cone-gear secured thereto, a driven shaft, a cone-gear secured thereto, an intermediate gear for connecting any two corresponding steps of said cone-gears, a pivotally-mounted and laterally-movable arm carrying said intermediate gear, and means for securing said arm in its adjusted positions, substantially as described.

6. The combination with a driving-shaft, of a cone-gear secured thereto, a driven shaft, a cone-gear secured thereto, an intermediate gear for connecting any two corresponding steps of said cone-gears, an arm carrying said intermediate gear, a laterally-sliding link to which said arm is pivoted, and means for securing said arm in its adjusted positions, substantially as described.

7. The combination with a driving-shaft, of a cone-gear secured thereto, a driven shaft, a cone-gear secured thereto, an intermediate gear for connecting any two corresponding steps of said cone-gears, a laterally-movable arm carrying said intermediate gear, a catch on said arm, and a series of shoulders arranged to be engaged by said catch, substantially as described.

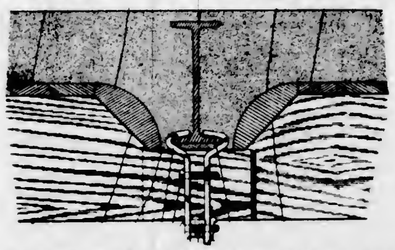
8. The combination with a driving-shaft, of a cone-gear secured thereto, a driven shaft, a cone-gear secured thereto, an intermediate gear for connecting any two corresponding steps of said cone-gears, a laterally-movable arm carrying said intermediate gear, a recess in said arm, a series of lugs having surfaces for engaging said recess-shoulders on said lugs, and a catch on said arm for engaging said shoulders, substantially as described.

9. The combination with a driving-shaft, of a cone-gear mounted thereon, a driven shaft, a cone-gear mounted thereon, means for throwing any two corresponding steps of said gears into action, a longitudinally-movable quill-gear, gears on said driven shaft arranged to be engaged by the gears of said quill-gear, and a shaft driven by said quill-gear, substantially as described.

10. The combination with a driving-shaft, of a cone-gear secured thereto, a driven shaft, a cone-gear secured thereto, an intermediate gear for connecting any two corresponding steps of said cone-gears, a longitudinally-movable quill-gear, gears on the driven shaft arranged to be engaged by the gears of the quill-gear, and a shaft driven by the quill-gear, substantially as described.

680,483. APPARATUS FOR USE IN LAYING FLOORS. EVERETT N. GARMEY, New York, N. Y. Filed Jan. 26, 1901. Serial No. 44,796. (No model.)

Claim.—1. In an apparatus of the kind described, the combination of the supporting-timbers having reduced ends, and the separable hangers for carrying the timbers, the said hangers having opposed pairs of arms adapted to engage an I-beam, a supporting means for carrying the timber ends, and a removable pin to carry the supporting device.

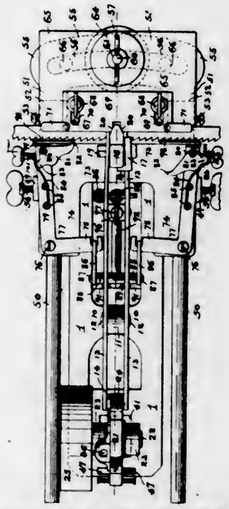


2. An apparatus of the kind described, comprising hangers adapted to be suspended from I-beams, timbers having relatively thick middle portions and reduced ends, the said timbers being beveled from their middle portions to the ends, a flat flooring supported on the body portion of the timbers, and forming-plates arranged between the reduced ends of the timbers and the flat flooring.

3. In an apparatus of the kind described, the hanger comprising opposed pairs of arms, each pair being separably connected together and provided with top hooks to engage an I-beam, and a cross-bar supported by and connecting the two pairs of arms.

4. In an apparatus of the kind described, the hanger comprising opposed pairs of arms, each pair of arms having means for engagement with an I-beam and cross-pins connecting them, and a cross-bar connecting the opposed pairs of arms and supported on the pins thereof, one end of the cross-bar having a hook to engage the pin of the aforesaid arms.

680,484. APPARATUS FOR SETTING SAW-TEETH. JOSEPH GOTTSMANN, Newark, N. J. Filed Mar. 14, 1901. Serial No. 51,066. (No model.)



Claim.—1. In a saw-set, the combination, with the bed, and anvil, of a vibratory hammer, means for actuating said hammer, and a saw-supporting table, adjustable longitudinally toward or from the anvil, and means for feeding each alternate saw-tooth above said anvil, consisting, essentially, of a dog adapted to engage said saw-teeth, mechanism on said bed for actuating said dog, and means connected with said dog-actuating mechanism and said vibratory hammer, substantially as and for the purposes set forth.

2. In a saw-set, the combination, with the bed, and anvil, of a vibratory hammer, means for actuating said hammer, a saw-supporting table, adjustable longitudinally toward or from the anvil, and means on said table for retaining a saw-blade in position, consisting of an adjustable gage 69, having slotted portions and screws for securing said gage in its adjusted positions upon said table, and means for feeding each alternate saw-tooth above said anvil, consisting, essentially, of a dog adapted to engage said saw-teeth, mechanism on said bed for actuating said dog, and means connected with said dog-actuating mechanism and said vibratory hammer, substantially as and for the purposes set forth.

3. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, a saw-supporting table on which the saw is to be arranged, and means for feeding each alternate saw-tooth above said anvil, consisting, of a spring-actuated dog arranged to be forced in engagement with a saw-tooth and also to be disengaged therefrom, mechanism on said bed for actuating said dog, and an adjusting means connected with said dog-actuating mechanism and said vibratory hammer for actuating said dog-actuating mechanism and also regulating the throw of said dog, substantially as and for the purposes set forth.

4. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, a saw-supporting table on which the saw is to be arranged, and means for feeding each alternate saw-tooth above said anvil, consisting, essentially, of a bell-crank 89 pivotally arranged upon said bed of the machine, a pair of bell-cranks 77, connecting-links between said bell-cranks 77 and 89, and a spring-actuated dog 81 on each bell-crank 77 arranged to be forced in engagement with a saw-tooth and also to be disengaged therefrom, and a means of adjustment for regulating the throw of each dog, substantially as and for the purposes set forth.

5. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, a saw-supporting table on which the saw is to be arranged, and means for feeding each alternate saw-tooth above said anvil, consisting, essentially, of a bell-crank 89 pivotally arranged upon said bed of the machine, a pair of bell-cranks 77, connecting-links between said bell-cranks 77 and 89, a spring-actuated dog 81 on each bell-crank 77 arranged to be forced in engagement with a saw-tooth and also to be disengaged therefrom, and an adjusting-screw connecting said bell-crank 89 with the hammer for regulating the throw of each dog, substantially as and for the purposes set forth.

6. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, a saw-supporting table on which the saw is to be arranged, a supporting-frame, means for feeding each alternate saw-tooth above said anvil, consisting, of a system of pivotally-arranged bell-cranks, a spring-actuated dog 81 pivotally arranged on one of said bell-cranks, a guide slidably and adjustably arranged along the edge of said frame, against which said dog is brought during a part of its movement, substantially as and for the purposes set forth.

7. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, a saw-supporting table on which the saw is to be arranged, a supporting-frame, means for feeding each alternate saw-tooth above said anvil, consisting, of a system of pivotally-arranged bell-cranks, a spring-actuated dog 81 pivotally arranged on one of said bell-cranks, a guide slidably and adjustably arranged along the edge of said frame, and means for adjusting said guide, consisting, of a flange 99 on said guide, a screw-threaded lug 100, and an adjusting-screw 101 arranged in bearings on the under surface of said frame and turning in said lug 100, substantially as and for the purposes set forth.

8. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, guides on said bed, guide-rods adjustably arranged in said guides, and a saw-supporting means connected with said guide-rods, substantially as and for the purposes set forth.

9. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, guides on said bed, guide-rods adjustably arranged in said guides, a yoke-support secured to said guide-rods, and a saw-supporting table adjustably arranged upon said yoke-support, substantially as and for the purposes set forth.

10. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, means for actuating said hammer, guides on said bed, guide-rods adjustably arranged in said guides, a yoke-support secured to said guide-rods, provided with a slotted member 55, a support 57 on said member 55, a screw-threaded mandrel-carrier connected with said support 57, a saw-supporting table on said support 57, and means on said mandrel-carrier for securing said table in position, substantially as and for the purposes set forth.

11. In a saw-set, the combination, with the bed and anvil, of a vibratory hammer, a yoke-support, having a curved slot, connected with said bed, means for actuating said hammer, a hollow cone-shaped support 57, having a post slidably arranged in said slot, and means on said post for securing said cone-shaped support in its adjustable position on said yoke-support, a mandrel-carrier connected with said support, and a mandrel 64 on said mandrel-carrier, substantially as and for the purposes set forth.

12. In a saw-set, the combination, with the bed, provided with a pair of holding-jaws 5 and 6, and guides connected with said bed, of an anvil arranged and held in position between said jaws, guide-rods adjustably arranged in said guides a yoke-support, having a curved slot, secured to said guide-rods, and a vibratory hammer, a hollow cone-shaped

support 57 having a post slidably arranged in said slot, means on said post for securing said cone-shaped support in its adjustable position upon said yoke-support, a mandrel-carrier connected with said cone-shaped support, and a mandrel on said mandrel-carrier, substantially as and for the purposes set forth.

13. In a saw-set, the combination, with the bed, provided with a pair of holding-jaws 5 and 6, of an anvil arranged and held in position between said jaws, a saw-supporting table, a vibratory hammer, a supporting-frame 73 secured upon said jaw 6, bell-cranks pivotally arranged upon said frame 73, and spring-actuated dogs 81 pivotally arranged upon said bell-cranks, and a connecting means between said bell-cranks, and the vibratory hammer adapted to actuate said bell-cranks and force the dogs, in engagement with a saw-tooth, substantially as and for the purposes set forth.

14. In a saw-set, the combination, with the bed, provided with a pair of holding-jaws 5 and 6, of an anvil arranged and held in position between said jaws, a saw-supporting table, a vibratory hammer, a supporting-frame 73 secured upon said jaw 6, and means on said frame 73 for feeding each alternate saw-tooth above said anvil, consisting, essentially, of a bell-crank 89 pivotally arranged upon said bed of the machine, a pair of bell-cranks 77 pivotally arranged on said frame 73, connecting-links between said bell-cranks 77 and 89, and a spring-actuated dog 81 on each bell-crank 77 arranged to be forced in engagement with a saw-tooth and also to be disengaged therefrom, substantially as and for the purposes set forth.

15. In a saw-set, the combination, with the bed, provided with a pair of holding-jaws 5 and 6, of an anvil arranged and held in position between said jaws, a saw-supporting table, a vibratory hammer, a supporting-frame 73 secured upon said jaw 6, and means on said frame 73 for feeding each alternate saw-tooth above said anvil, consisting, essentially, of a bell-crank 89 pivotally arranged upon said bed of the machine, a pair of bell-cranks 77 pivotally arranged on said frame 73, connecting-links between said bell-cranks 77 and 89, a spring-actuated dog 81 on each bell-crank 77 arranged to be forced in engagement with a saw-tooth and also to be disengaged therefrom, and an adjusting-screw connecting said bell-crank 89 with the hammer for regulating the throw of each dog, substantially as and for the purposes set forth

16. In a saw-set, the combination, with the bed, an anvil, and a vibratory hammer, of means for actuating said hammer, comprising, a shaft, a chambered ratchet-wheel on said shaft having ratchet-teeth adapted to engage a trip-pin on the hammer-arm, a disk 29 within said chambered ratchet-wheel, loosely arranged on said shaft, tooth-like steps within the chambered portion of said ratchet-wheel, and means on said disk in slidable engagement with said tooth-like steps for actuating the said shaft and the ratchet-wheel on said shaft, substantially as and for the purposes set forth.

17. In a saw-set, the combination, with the bed, an anvil, and a vibratory hammer, of means for actuating said hammer, comprising, a shaft, a chambered ratchet-wheel on said shaft having ratchet-teeth adapted to engage a trip-pin on the hammer-arm, a disk 29 within said chambered ratchet-wheel, loosely arranged on said shaft, tooth-like steps within the chambered portion of said ratchet-wheel, and means on said disk in slidable engagement with said tooth-like steps for actuating the said shaft and the ratchet-wheel on said shaft, consisting, essentially, of a spring-actuated stud in a socket in said disk 29, a flange on said disk, and a receiving-socket for a handle on said flange, substantially as and for the purposes set forth.

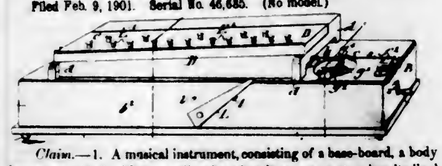
18. In a saw-set, the combination, with the bed, and anvil, of an upright on said bed, a vibratory hammer fulcrumed on a pivotal pin on said post, means for actuating said hammer, a saw-supporting table, and means for feeding each alternate saw-tooth above the said anvil, consisting, essentially, of dogs adapted to engage said saw-teeth, a system of bell-cranks with which said dogs are pivotally connected, and means connected with said hammer and said bell-cranks for actuating said bell-cranks, substantially as and for the purposes set forth.

19. In a saw-set, the combination, with the bed, and anvil, of an upright on said bed, a vibratory hammer fulcrumed on a pivotal pin on said post, means for actuating said hammer, a saw-supporting table, and means for feeding each alternate saw-tooth above said anvil, consisting, essentially, of dogs adapted to engage said saw-teeth, a system of bell-cranks with which said dogs are pivotally connected, and an adjusting means connected with said hammer, and said bell-cranks for actuating said bell-cranks, and also regulating the throw of said dogs, substantially as and for the purposes set forth.

20. In a saw-set, the combination, with the bed, and anvil, of an upright on said bed, a vibratory hammer fulcrumed on a pivotal pin on said post, means for actuating said hammer, a saw-supporting table, means for feeding the saw-teeth above the anvil, a system of bell-cranks for actuating said saw-tooth-feeding means, a nut on said hammer, and an adjusting-screw connected with said bell-cranks and the nut connected with said hammer, substantially as and for the purposes set forth.

680,485. MUSICAL INSTRUMENT. WILLIAM F. HOCHSPEIER, Jersey City, N. J., assignor of one-half to Abraham Hirsch, same place.

Filed Feb. 9, 1901. Serial No. 46,685. (No model.)



Claim.—1. A musical instrument, consisting of a base-board, a body thereon provided with a sounding-board at its upper part, a longitudinal fret-board provided with transverse frets, a string or strings stretched longitudinally above said fret-board, a keyboard provided with keys, transverse spring-actuated key-levers actuated by said keys, said key-levers being provided above the strings with grippers, a picker-wheel rotatably supported on the base and provided with a plurality of yielding pickers adapted to sound the strings, and means for imparting rotary motion to the picker-wheel, and a retaining-tongue adapted to engage the pickers, so as to set them to tension before they strike the strings, substantially as set forth.

2. In a musical instrument, the combination of a base-board, a body, a sounding-board supported by said body, strings stretched on the sounding-board, a picker-wheel provided with yielding pickers adapted to sound the strings, means for rotating said picker-wheel, and a retaining-tongue adapted to engage the ends of the pickers so as to set them to tension before they engage the strings, substantially as set forth.

3. In a musical instrument, a base-board, a body supported on the same, strings stretched on said body, a picker-wheel supported on the base-board, pickers carried by said picker-wheel and adapted to sound the strings, a retaining-tongue located on said body, and means for altering the distance between the strings and retaining-tongue and the axis of the picker-wheel, for controlling the volume of sound to be produced, substantially as set forth.

4. In a musical instrument, a base-board, a body supported on the same, a sounding-board on said body, a longitudinal fret-board provided with transverse frets, a string or strings stretched longitudinally above said fret-board, a keyboard provided with keys, transverse spring-actuated key-levers below said keys, said key-levers being provided with grippers above the frets, a picker-wheel provided with a plurality of yielding pickers, means for imparting rotary motion to the picker-wheel, and means for raising said body from the base-board so as to regulate the expression, substantially as set forth.

5. In a musical instrument, the combination of a base-board, a body supported on the same, a sounding-board supported by said body, a fret-board supported on the sounding-board, strings applied to the sounding-board and stretched across the fret-board, a keyboard, keys guided on the same, key-levers actuated by the keys and adapted to engage the strings, a picker-wheel, means for rotating the same, a cam-lever fulcrumed to the front wall of the body and adapted to engage the base-board so as to raise or lower the body, and stop-pins for said cam-lever on the front wall of the body, substantially as set forth.

6. In a musical instrument, the combination, with strings, and means for supporting the same, of a picker-wheel provided with yielding pickers adapted to engage and sound the strings, means for rotating said picker-wheel, and means adapted to engage said pickers and set them to tension before they engage the strings, substantially as set forth.

7. In a musical instrument, the combination, with a string, and means for supporting the same, of a fret-board adjacent said string, a shaft journaled in suitable bearings, a picker-wheel mounted on said shaft, a plurality of yielding pickers attached to said wheel and adapted to sound the string, a hand-crank attached to said shaft, a keyboard, a plurality of spring-actuated keys mounted in said keyboard, and grippers engaged by said keys for pressing the strings upon the fret-board, substantially as set forth.

8. In a musical instrument, the combination, with strings, and means for supporting the same, of a picker-wheel provided with pickers adapted to sound the strings, means for rotating said picker-wheel, and a retaining-tongue adapted to engage the pickers and set them to tension for causing the same to snap against and past the strings, substantially as set forth.

680,486. DETACHABLE TIRE. HERBERT E. IRWIN, Galesburg, Ill. Filed July 14, 1900. Serial No. 23,628. (No model.)

Claim.—1. The combination with a wheel-rim provided with a peripheral groove, which is undercut at its sides, of a tire-casing provided with marginal lips or flanges, each of said flanges having on its outside a bead and having on its inside a surface *e* which is opposite said bead and recedes with relation to the inner surface of the outer casing, proper, and having also on its inside, and beyond the surface *e*, a surface *e'*, said surfaces *e* and *e'* being adapted and arranged for reciprocal engagement so that when the parts are assembled in normal relations, the surfaces *e'* will be in engagement and the surfaces *e* will leave between them a substantially V-shaped space, and so that when the surfaces *e* are brought together the surfaces *e'* will be separated, allowing the beads to disengage from the overhanging flanges of the rim, substantially as described.



2. The combination with a wheel-rim provided with a peripheral groove which is undercut at its sides, of a split tire-casing provided with marginal lips or flanges, each of said flanges having on the outside a bead adapted to enter the undercut portion of said groove and having on its inside, opposite said bead, a surface which recedes with relation to the inner surfaces of the outer casing proper, so that when the parts are in normal relations a substantially V-shaped space will be left between said surfaces, said lips or flanges having beyond said surfaces other surfaces that are in engagement with each other when the parts are in normal relations, an inflated inner tube, and a stiff, endless band entirely separate from the casing, interposed between said casing and the inner tube and spanning the substantially V-shaped space aforesaid, substantially as described.

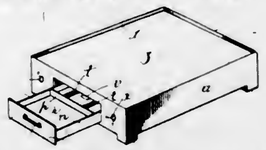
3. The combination with a wheel-rim provided with a peripheral groove which is undercut at its sides, of a tire-casing split around its inner side and provided with peripheral flanges adjacent to said split, having beads thereon fitting into the undercut portions of said groove, the opposing edges of the casing being oppositely inclined or curved, the inner inflatable tube, and a stiff endless band interposed between said tube and the split in the casing, substantially as described.

4. The combination with a wheel rim provided with a peripheral groove which is undercut at its sides, of a tire-casing split around its inner side and provided with flanges adjacent to said split, having beads thereon fitting into the undercut portions of said groove, metallic reinforcing-bands on said flanges, and a transverse dam or projection in said groove, the flanges being provided with corresponding transverse notches adapted and arranged to receive said dam or projection, substantially as described.

5. The combination with a wheel-rim provided with a peripheral groove which is undercut at its sides, of a tire-casing split around its inner side and provided with peripheral flanges adjacent to said split, having beads thereon fitting into the undercut portions of said groove, the opposing edges of the casing being oppositely inclined or curved, and metallic reinforcing-bands on said flanges, substantially as described.

6. The combination with a wheel-rim provided with a peripheral groove which is undercut at its sides, of a tire-casing split around its inner side and provided with peripheral flanges adjacent to said split, having beads thereon fitting into the undercut portions of said groove, and metallic reinforcing-bands on said flanges formed in longitudinal sections, substantially as described.

680,487. MORTAR-BOARD. JOHN W. KINSARE, Chicago, Ill. Filed Mar. 13, 1901. Serial No. 50,909. (No model.)



Claim.—1. In a mortar-board, the combination of a wooden rectangular framework; a continuous sheet of metal extending across said framework to form the bottom of a heating-oven, said sheet of metal resting upon the side walls of said framework, thence extending downward along the inner faces of the walls of the framework and across said framework; a second continuous sheet of metal extending substantially straight across said framework and forming both a top to the oven, and a receptacle for mortar, said last-mentioned sheet having flanges turned up along the edges thereof to retain the mortar in position; and a fuel-drawer sliding upon the first-mentioned sheet, for heating said upper sheet of metal.

2. In a mortar-board, the combination of a wooden rectangular framework raised upon legs or standards; a sheet-metal bottom floor extending across said framework near the bottom thereof, and having side portions protecting the inner surfaces of said wooden framework said bottom floor also having laterally-projecting flanges resting upon the upper edges of said framework and perforations in the bottom floor for admitting air within said framework; a fuel-drawer sliding within guides upon said bottom floor; said drawer having apertures in the bottom thereof for admitting air thereinto; and a top floor extending across said frame for receiving the mortar.

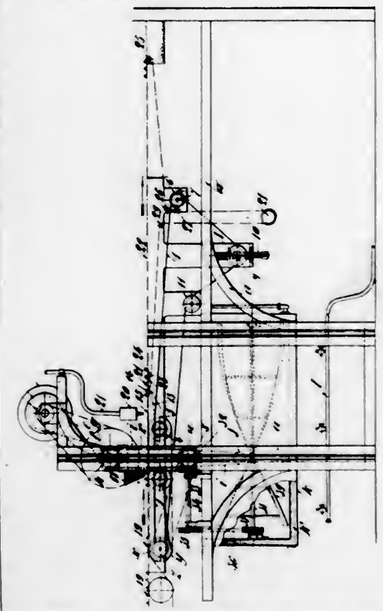
680,488. AUTOMATIC FIREARM. RUDOLF H. KJELLMAN and GUSTAF L. ANDERSON, Stockholm, Sweden, assignors to Aktiebolaget Automatgevär, same place. Filed Jan. 17, 1901. Serial No. 43,590. (No model.)



Claim.—1. In an automatic firearm, the combination with the barrel, the frame, the recoiling-receiver therein, the breech-bolt, and the magazine in and partaking of the recoiling movement of the receiver, of the yielding lugs on the sides of the receiver and engaging apertures in the magazine below the breech-bolt, the frame having recesses and elevations at its sides situated so as to act on said lugs and cause them to protrude more or less into the magazine, in the different positions of the receiver in the frame, substantially as and for the purposes set forth.

2. In an automatic firearm, the combination with the barrel, the frame, the recoiling-receiver therein, the breech-bolt, and the magazine in and partaking of the recoiling movement of the receiver, of the lugs 12, secured to the respective sides of the receiver by springs 11, the said springs tending to move said lugs laterally outward, and means carried by the frame for pressing said lugs inward through apertures in the magazine, said means being so positioned as to press in the said lugs at the moment when the uppermost cartridge in the magazine is about to be inserted in the barrel, substantially as set forth.

680,489. MACHINE FOR MANUFACTURING CHOCOLATE. ERNEST P. F. MAGNIEN, Amiens, France. Filed Nov. 20, 1900. Serial No. 37,164. (No model.)



Claim.—1. In apparatus for manufacturing chocolate and like sweetmeats, the combination of suitable guide-rollers, an endless gauze apron trained over said rollers, and means for supplying jets of chocolate or other coating to the kernels on the apron, substantially as set forth.

2. In apparatus for manufacturing chocolate and like sweetmeats, the combination of suitable guide-rollers, an endless gauze apron trained over said rollers, a dripping device above the apron, and means for cooling the sweetmeats, substantially as set forth.

3. In apparatus for manufacturing chocolate and like sweetmeats, the combination of a suitably mounted and guided endless gauze apron,

a dripping device above the apron, and a paper band leading from the discharge end of the apron, substantially as set forth.

4. In apparatus for manufacturing chocolate and like sweetmeats, the combination of a suitably mounted and guided ganze apron, a dripping device, a cooling device, both the dripping and the cooling devices being arranged above the said apron, and a paper band leading from the discharge end of the apron, substantially as set forth.

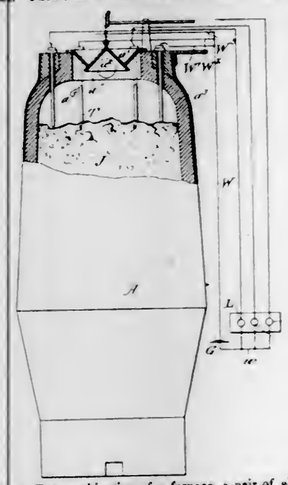
5. In apparatus for manufacturing chocolate and like sweetmeats, the combination of suitably-mounted guide-rollers, an endless ganze apron trained over said rollers, means for supplying jets of chocolate onto the kernels on the apron, a paper band leading from the discharge end of the apron, and means for cooling the sweetmeats, substantially as set forth.

6. In apparatus for manufacturing chocolate and like sweetmeats, the combination of two troughs, and an endless belt hung loosely in the lower trough and adapted to convey coating material to the upper trough, substantially as set forth.

7. In apparatus for manufacturing chocolate and like sweetmeats, the combination of two troughs located one above the other, and an endless belt extending into the lower trough and working against the edge of the upper trough for conveying coating material to the upper trough, substantially as set forth

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680,490. APPARATUS FOR INDICATING THE LEVEL OF CHARGES IN FURNACES. THOMAS H. MARTIN, Cleveland, Ohio, assignor of two-thirds to Frederick L. Grommer and Albert T. De Forest, same place. Filed Mar. 2, 1901. Serial No. 49,531. (No model.)



Claim.—1. The combination of a furnace, a pair of electric terminals in the interior thereof, an electric circuit leading from said terminals and including a source of current and a signal the same being arranged so that the circuit is closed by the conductive charge in the furnace bridging from one of said terminals to the other, substantially as described.

2. The combination of a furnace having an opening near its throat, a pair of insulated rods mounted therein, an electric circuit including a source of current and a signal connected to said rods and arranged so that the circuit is closed when the conductive charge bridges said rods, substantially as described.

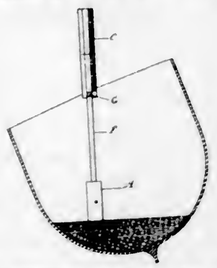
3. The combination with a blast-furnace, of a plurality of electrodes extending thereinto and arranged approximately regularly around the upper part thereof, electric circuits leading therefrom including a source of current, and signals whereby the approximate general level of the load across the furnace may be determined, substantially as described.

4. The combination with a blast-furnace having at its upper end a central charge-opening, a plurality of rods arranged around said charge-opening and projecting downward into the interior, means for insulating said rods from the metallic part of the furnace, a series of signals, and a source of current, and suitable electric connections whereby when the conductive charge bridges pairs of electrodes the signal is operated.

5. The combination of a blast-furnace, a plurality of insulated rods extending thereinto and arranged approximately regularly thereabout, a source of current, a system of branch conductors from said source leading to alternate members of said rods, electric signals on said branches, the intermediate rods being connected with the other side of the source of current, substantially as described.

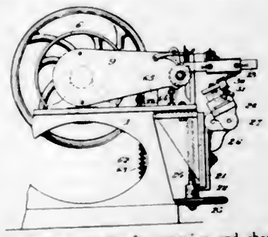
6. In combination with a blast-furnace having openings near its top, pipes mounted in said openings, projecting rods carried in said pipes respectively, insulated packing around said rods, electric circuits, said rods forming terminals for the same, and electric signals in said circuits, substantially as described.

680,491. DEPTH-INDICATOR FOR VESSELS. CHRISTIAN MEHLER, Brooklyn, N. Y. Filed Sept. 1, 1900. Serial No. 28,779. (No model.)



Claim.—In combination, the hull of a vessel and indicator means for the depth of water in the hold, said indicator means being pivotally supported to swing laterally to indicate the depth of water when the vessel is not on an even keel, substantially as described.

680,492. KNIFE-SHARPENING DEVICE. JOSEPH E. MENNESSIER, Paris, France. Filed Mar. 9, 1901. Serial No. 50,421. (No model.)



Claim.—1. In an apparatus for recessing and sharpening knives employed in distilleries and sugar manufactories, the combination with a suitable frame of a file-holding bar, means for reciprocating and at the same time angularly moving said file-holding bar, a support adapted to receive and hold the knife to be acted upon, means for automatically and intermittently feeding the knife-support, and a movable ball supporting said knife-holder, substantially as and for the purpose set forth.

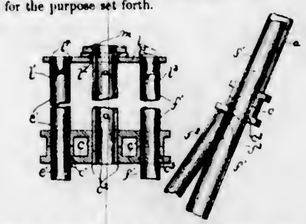
2. In an apparatus of the character described, the combination of the file-holding case, the cam 10 and the disk plate 11, a drive-shaft 4 carrying said cam and disk plate, the file-holding bar, and a suitable connection between the latter and the drive-shaft comprising a link 12, a lever 14 and a spring 17, substantially as set forth.

3. In an apparatus of the character described, the combination with the file-holding case and a support adapted to hold the knife, of devices for automatically feeding the knife-support, comprising a lever 38, actuated by the rod 41, mounted on the file-bar 13, a pin 40 adapted to be engaged by said rod 41, a pawl 39 on the lever 38, a ratchet 35 adapted to be engaged by said pawl, a lug 36, a link 44 engaged at each revolution of the ratchet by said lug, and a pawl on said link 44 adapted to engage the grooves in the knives, substantially as set forth.

4. In an apparatus of the character described, the combination of a frame, a vertically-removable carriage 22 operating in a guide-slot in said frame, a support 28, carried by said carriage, means carried by said support for securing the knife, a file-holding bar, means for reciprocating and at the same time angularly moving said file holding bar, means for automatically and intermittently feeding the said support 28, and a movable ball supporting said knife-holder substantially as described and for the purpose set forth.

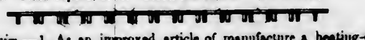
680,493. BICYCLE-FORK. ALFRED J. MEUNIER, Cleveland, Ohio. Filed Apr. 9, 1900. Serial No. 12,157. (No model.)

Claim.—1. A front fork for a bicycle, comprising two fork sides secured together by two crown-plates, one of said crown-plates being provided with two vertical openings which allow it to slip down on the upper ends of the said fork sides, and the other crown-plate having two lugs formed on its under side, said lugs being adapted to fit into the upper ends of the respective fork sides, a fork-stem rigidly mounted between said crown-plates, curved bracing-rods extending upwardly from the lower end of each of the said fork sides to a point immediately below the said lower crown-plate and means for securing each of the said bracing-rods to each of the said fork sides, comprising a plate provided with two upwardly and divergently projecting members adapted to fit into the lower ends of the respective fork sides and bracing-rods, substantially as described and for the purpose set forth.



2. A fork for bicycles and similar vehicles, comprising two curved fork sides e' and f', oppositely-curved bracing-rods e^2 and f^2 rigidly secured to said fork sides, a crown-plate adapted to fit on the ends of said fork sides and abut against the upper ends of the respective bracing-rods, a crown-plate provided with hollow lugs l' and l^3 adapted to fit into the top of the respective fork sides and a fork-stem rigidly secured between the said crown-plates, substantially as described and for the purpose set forth.

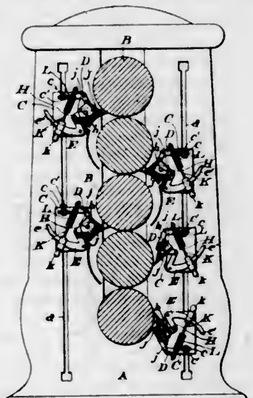
680,494. HEATING-DIAPHRAGM. JOSEPH MEYER, Bondhill, Ohio. Filed Sept. 8, 1900. Serial No. 29,375. (No model.)



Claim.—1. As an improved article of manufacture a heating-diaphragm comprising a metallic body portion and supports, the said supports being formed by parallel slits in the body portion forming strips, said strips being divided transversely and bent at substantially right angles to the body portion.

2. As an improved article of manufacture a heating-diaphragm comprising a metallic body portion and supports, the said supports being formed by parallel slits in the body portion forming strips, said strips being divided transversely and bent at substantially right angles to the body portion and in opposite directions, as set forth.

680,495. CALENDERING-MACHINE. WALTER T. MILES, Lawrence, Mass. Filed Feb. 9, 1901. Serial No. 46,636. (No model.)

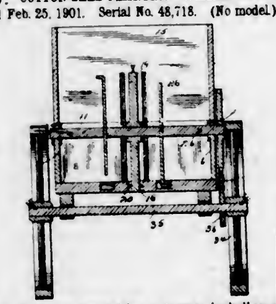


Claim.—1. In a calendering-machine, the combination of the end frames, a doctor, head or end blocks provided with trunnions, the doctor being rotatively adjustable upon the trunnions of the said blocks, and pivotal connections supporting the said head or end blocks upon the said frames of the machine, substantially as described.

2. In a calendering-machine, the combination of the end frames, a doctor, head or end blocks provided with trunnions, the doctor being rotatively adjustable upon the said trunnions, the bent levers having fulcrums supported upon the said end frames of the machine, the said levers being pivotally connected with the said head or end blocks, and spring-rods each pivotally connected with one of the levers at the ends of the doctor and possessing a detachable connection with the remaining lever at the same end, substantially as described.

3. In a calendering-machine, the combination of the end frames, a doctor, head or end blocks provided with trunnions, the doctor being rotatively adjustable upon the trunnions of the said blocks, the plates C, means for securing the said plates at different heights upon the said end frames, bent levers pivotally connected with the said head or end blocks and with the said plates C, and adjustable spring-rods each pivotally connected with one of the levers at the ends of the doctor and possessing a detachable and adjustable connection with the remaining lever at the same end of the doctor whereby the effect of the spring upon the levers and doctor may be increased or diminished, substantially as described.

680,496. COTTON-SEED PLANTER. WILLIAM C. MILLS, Rowlett, Tex. Filed Feb. 25, 1901. Serial No. 48,718. (No model.)



Claim.—1. A planter comprising a hopper including a lower section provided with bearings at its upper edge, an upper section hinged to the lower section and adapted to close the bearings, the lower section having a central longitudinal slot and grooves at the sides thereof, and a feed-wheel having a shaft mounted in said bearings and provided with agitating-arms passed radially therethrough, certain of the arms having laterally-bent ends disposed for movement through the grooves, and the remaining agitating-arms being each bent within the shaft to form two members lying at an angle to each other and diverging in the direction of the feed-wheel.

2. A planter comprising a hopper having supporting-wheels and an axle rotatable therewith, said hopper including upper and lower hinged sections, the lower section having bearings in its upper edge adapted to be covered by the upper hopper-section, said hopper having a central longitudinal slot provided with a spring-tongue at one end and longitudinal grooves at the sides of the slot, a shaft removably mounted in the bearings, an angular feed-wheel fixed upon the shaft and disposed in the slot to engage and depress the tongue with its corner portions, agitating-arms engaged with the shaft, and additional agitating-arms engaged with the shaft and disposed to pass with their ends through the grooves, and connections between the shaft and axle for rotating the shaft.

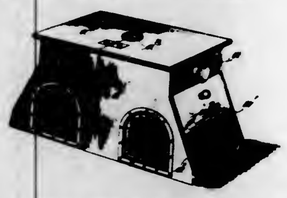
680,497. TOOL-HANDLE. CHARLES F. MUELLER, Elizabeth, N. J. Filed Mar. 16, 1901. Serial No. 51,460. (No model.)



Claim.—1. The combination, with a tool-handle provided with a tapering end portion of polygonal cross-section and having a polygonal socket, of a tool having a tang of corresponding cross-section seated in said socket and projecting out of the same, the shank of said tool being of larger diameter than said tang, and a ferrule of tapering polygonal shape at its interior seated on said end portion of the handle, the tapering sides of said ferrule extending beyond the end of said handle into engagement with the tang of the tool, substantially as set forth.

2. The combination with a tool-handle provided with a tapering end portion of polygonal cross-section and having a polygonal socket, of a tool having a tang of corresponding cross-section seated in said socket and projecting out of the same, the shank of said tool being of larger diameter than said tang, and a ferrule of tapering polygonal shape at its interior seated on said end portion of the handle, and tapering sides of said ferrule extending beyond the end of said handle into engagement with the tang of the tool, and said ferrule embracing at its outer end the shank of the tool, substantially as set forth.

680,498. EGG-TESTER. CHARLES D. MCKENZIE, Sabina, Ohio. Filed Apr. 4, 1901. Serial No. 54,327. (No model.)



Claim.—1. An egg-tester consisting of a bottomless chamber, a lamp supported within said chamber, and a shield inclosing said lamp having an aperture for light-rays, said chamber having a sight-opening in proper alinement with the aperture in said shield, and a lower opening for insertion of the hand; substantially as described.

2. An egg-tester consisting of a bottomless chamber, a lamp supported within said chamber, and a shield inclosing said lamp having an aperture for light-rays, said chamber having a sight-opening in proper alinement with the aperture in said shield, and a lower opening having an inwardly-extending flexible sleeve for encircling the wrist so as to exclude the light through said opening; substantially as described.

3. In an egg-tester, a cabinet or casing of oblong form approximating the form of a frustum of a pyramid having two sides thereof substantially of the form of a trapezoid, a light within the cabinet, and an opaque shield inclosing the light and having an aperture for light-rays; said cabinet having a sight-opening in the end wall in proper alinement with said aperture in the shield, and openings for insertion of the hands in the lower portions of said trapezoidal sides, substantially as described.

4. In an egg-tester, a cabinet or casing of oblong form approximating the form of a frustum of a pyramid having two sides thereof substantially of the form of a trapezoid, a light within the cabinet, and also an opaque shield therein inclosing the light and having an aperture for light-rays; said cabinet having a sight-opening in the end wall in proper alinement with said aperture in the shield, and openings provided with flexible inwardly-extending sleeves for the insertion of the hands in the lower portions of said trapezoidal sides, substantially as described.

5. In an egg-tester, a cabinet or chamber of oblong form approximating the form of a frustum of a pyramid having two sides thereof substantially of the form of a trapezoid, a light within said chamber, and an opaque shield inclosing the light having oppositely-disposed apertures for light-rays; said chamber having sight-openings in the ends thereof substantially in line with the apertures in said shield, and openings in the lower portions of said trapezoidal sides having covers consisting of flexible sleeves extending within the casing and having distensible inner ends for the insertion of the hands; substantially as described.

6. In an egg-tester, a bottomless cabinet or casing having its side walls downwardly increasing in length to form an end extension of the cabinet, a light supported within the cabinet, a shield inclosing the light and having an aperture for light-rays, said cabinet having a sight-opening in the upper portion of its end wall, and openings for insertion of the hands in the lower extended portions of the side walls; substantially as described.

7. In an egg-tester, a bottomless cabinet or casing having its side walls downwardly increasing in length to form an end extension of the cabinet, a light supported within the cabinet, a shield inclosing the light and having an aperture for light-rays, said cabinet having a sight-opening in the upper portion of its end wall, and openings provided with flexible inwardly-extending sleeves for insertion of the hands, in the lower extended portions of the side walls; substantially as described.

8. In an egg-tester, a bottomless cabinet or casing having its side walls downwardly increasing in length to form an end extension of the cabinet, a light supported within the cabinet, a shield inclosing the light and having an aperture for light-rays, said cabinet having a sight-opening in the upper portion of its end wall, and a door beneath the same, and openings for insertion of the hands in the lower extended portions of the side walls; substantially as described.

9. In an egg-tester, a cabinet or casing having an open bottom and downwardly increasing in length to form a lower end extension, a light within the casing, and a shield inclosing said light having an aperture for light-rays, an opening in the lower inclined end of the casing and a removable cover therefor, a sight-opening in said end above said cover, openings in the sides of said casing for insertion of the hands, and distensible sleeves covering said openings; substantially as described.

10. In an egg-tester, a cabinet or chamber having a vent-opening in its top, a lamp located beneath said vent-opening, a support therefor, and an apertured shield resting on the lower portion of said lamp and inclosing the burner thereof, the upper end of said shield fitting tightly said vent-opening, whereby said lamp is maintained in position; substantially as described.

11. In an egg-tester, a cabinet or chamber having a portion of its top removable, and having a vent-opening in said top formed partly in the removable and partly in the stationary portions thereof, a lamp within the chamber supported beneath said vent-opening, and a shield resting on the lower portion of said lamp and inclosing the burner, said shield having its upper end tightly fitted in said vent-opening; substantially as described.

680,499. DEVICE FOR DRAWING EFFERVESCENT LIQUIDS. JOHN NAGELDINGER, New York, N. Y. Filed Jan. 25, 1901. Serial No. 44,655. (No model.)



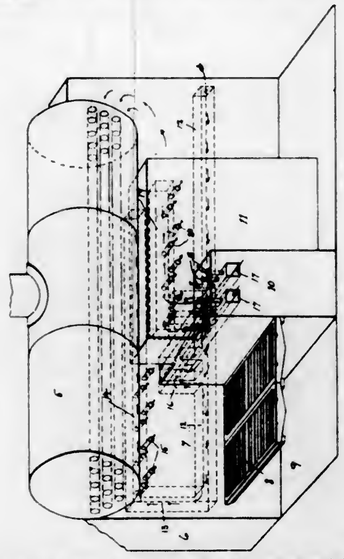
Claim.—1. The combination of a pressure-relief chamber having a discharge-nozzle at its lower end, a socket for supporting said chamber at its upper end, said socket being provided with a liquid-supply channel and a pressure-relief channel, a valved supply-pipe connected with said supply-channel, a spring-actuated pressure-relief valve retained normally in position for closing the pressure-relief channel, a valve-chamber for said pressure-relief valve, provided with a pressure-relief tube, a spring-actuated liquid-discharge valve, the spindle of which is connected with the spindle of the pressure-relief valve, a sliding casing guided on the chamber of the pressure-relief valve, and connected with the upper end of the spindle of the pressure-relief valve, and means for operating successively the supply-valve and the pressure-relief and discharge valves, substantially as set forth.

2. The combination of a pressure-relief chamber having a discharge-nozzle at its lower end, a socket for supporting said chamber at its upper end, said socket being provided with a liquid-supply channel and a pressure-relief channel, a valved supply-pipe connected with said supply-channel, a spring-actuated pressure-relief valve retained normally in position for closing the pressure-relief channel a valve-chamber for said pressure-relief valve provided with a pressure-relief pipe, a spring-actuated discharge-valve, the spindle of which is connected with the spindle of the pressure-relief valve, a sliding casing on the chamber of the pressure-relief valve, a stationary handle on the supporting-socket, a movable handle connected with the sliding casing, and a fulcrumed handle for opening and closing the valved supply-channel, substantially as set forth.

3. The combination of a pressure-relief chamber having a discharge-nozzle at its lower end, a socket for supporting said chamber at its upper end, said socket being provided with a liquid-supply channel and a pressure-relief channel, a valved supply-pipe connected with said supply-channel, a spring-actuated pressure-relief valve retained normally in position for closing the pressure-relief channel a valve-chamber for said pressure-relief valve, provided with a pressure-relief tube, a spring-actuated liquid-discharge valve, a casing or sleeve attached to the stem of the pressure-relief valve and adapted to guide the spindle of the discharge-valve, a sliding casing guided on the chamber of the pressure-relief valve, and connected with the upper end of the spindle of the pressure-relief valve, and means for operating successively the supply-valve and the pressure-relief and discharge valves, substantially as set forth.

680,500. FUEL-SAVING AND SMOKE-CONSUMING DEVICE FOR FURNACES. JOHN J. QUINN, New York, N. Y., assignor to the Economy Furnace Company, same place. Filed Dec. 31, 1900. Serial No. 41,623. (No model.)

Claim.—1. A boiler-furnace provided with a transverse bridge-wall arranged rearwardly of the grate, and a longitudinal bridge-wall arranged over and rearwardly of the transverse bridge-wall, and higher than said transverse bridge-wall, the side walls of the furnace and the bridge-walls being provided with communicating air-passages which open into the furnace-chamber over the grate, and over the transverse bridge-wall and through the sides of the longitudinal bridge-wall, substantially as shown and described.



2. A boiler-furnace comprising side walls, a transverse bridge-wall arranged rearwardly of the grate, a longitudinal bridge-wall arranged over and rearwardly of the transverse bridge-wall, and air-passages extending longitudinally through the side walls of the furnace and open rearwardly, said air-passages being in communication at the front end of the furnace with upwardly-directed passages and with horizontal passages arranged over the first-named passages, said last-named passages being in communication with the furnace-chamber over the grate, and said first-named passages in the side walls being in communication with transverse passages in the transverse bridge-wall which open upwardly into the furnace, and said passages in the transverse bridge-wall being also in communication with longitudinal passages in the longitudinal bridge-wall which open outwardly through the sides of the longitudinal bridge-wall into the furnace, substantially as shown and described.

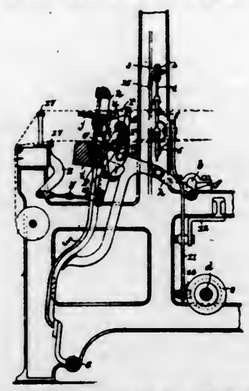
3. A furnace comprising side walls 6, a transverse bridge-wall 10, and a longitudinal bridge-wall 11, higher than the transverse bridge-wall, and air ports or passages arranged in the side walls of the furnace, and in both bridge-walls, said air ports or passages being in communication, and supplemental air ports or passages extending inwardly through the side walls of the furnace and upwardly through the transverse bridge-wall, and outwardly through the sides of the longitudinal bridge-wall, said first-named air ports or passages being in communication, substantially as shown and described.

680,501. NUT-LOCK. NAPOLEON B. RIDDLE, Riddle, La. Filed June 10, 1901. Serial No. 63,884. (No model.)



Claim.—In a nut-lock, the combination of a bolt having its threaded end provided with a series of short grooves, a nut fitting upon said end, means carried by the nut to engage the grooves one at a time to lock the nut, and a cap or cover to fit over the end of the bolt and surround the nut comprising a top plate provided with a central opening and a recess, said recess adapted to fit over the locking means of the nut, two oppositely-arranged sides carried by the plate said sides projecting beyond the top plate the thickness of the nut, and two oppositely-arranged sides carried by the top plate and provided each with interned projecting spring ends said ends extending beyond the lower side of the nut and holding the cap in place.

680,502. GAUGE-LOOM. THOMAS A. ROBINSON, Paterson, N. J. Filed Mar. 13, 1901. Serial No. 50,917. (No model.)



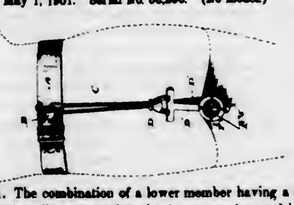
Claim.—1. In a loom, the combination, with the frame, of an oscillatory batten, the warp being adapted to be arranged in two sets, a laterally-movable reed, elevatory devices carried by said batten, adapted to engage one set of the threads, and also adapted to assume their lowermost positions at one of the limits of motion of the batten, and said reed being disposed adjacent said limit of motion of the batten, warp-securing means arranged on the side of the batten adjacent the other limit of motion thereof, and means for introducing the filler, substantially as described.

2. In a loom, the combination, with the frame, of an oscillatory batten, the warp being adapted to be arranged in two sets, a laterally-movable reed, vertically-oscillatory needles carried by said batten, adapted to receive one set of said threads, and also adapted to assume their lowermost positions at one of the limits of motion of the batten, and said reed being disposed adjacent said limit of motion of the batten, warp-securing means arranged on the side of the batten adjacent the other limit of motion thereof, means for actuating the needles, means for actuating the reed, and means for introducing the filler, substantially as described.

3. In a loom, the combination, with the frame and with an oscillatory batten structure, of a plurality of rock-shafts mounted on said batten structure, a series of needles carried by each rock-shaft, a link having eccentric connection with each shaft, a crank carried by one of the shafts, a lever fulcrumed in said batten structure and having a slot-and-pin connection with the crank, and operative connection between said lever and the frame, substantially as described.

4. In a loom, the combination, with a frame and with means for advancing the warp, the thread being adapted to be maintained in two sets, of a laterally-movable reed adapted to engage in common both sets of threads in one portion thereof, a bar or other similar device adapted to engage in common both sets of threads in another portion thereof, a series of needles engaging one of said sets of threads at points intermediate the reed and the bar, means for moving said reed alternately in each direction, means, also, for elevating said series of needles to move one set of threads past the other and back again at periods alternating with the lateral movements of the reed, and means for introducing the weft-thread or filler through the shed each time the same is produced, substantially as described.

680,503. HOSE-SUPPORTER. EDWARD G. SHIFFER, Evansville, Ind. Filed May 1, 1901. Serial No. 58,296. (No model.)



Claim.—1. The combination of a lower member having a stud, an upper member pivotally connected to the lower member and having a flexible orcelastic keeper having an opening adapted to be expanded by and for engaging the stud and securing the hose or other material and a clamp secured upon the elastic keeper for holding the said elastic keeper.

2. The combination of a band, a cord connected to the band, a sleeve carried by the cord, and a clasp secured to the sleeve and composed of a

lower member having a securing-stud, and an upper member hinged to the lower member and having an apertured flexible keeper to receive and retain the stud and a clamp secured upon the elastic keeper for holding the said elastic keeper.

3. The combination of a lower member, a securing-stud carried by the lower member, an upper member hinged to said lower member and formed with an opening, an apertured keeper of flexible or elastic material above said opening, and a clamping-ring for holding the elastic keeper in place.

4. A hose-supporter, consisting of the band, the cord for engaging the band carrying a sleeve, the clasp having its lower member secured to the sleeve, said member having a stud, the upper member hinged to a cross-bar on the lower member and having a flexible apertured keeper to receive the stud on the lower member to secure the stocking.

5. The combination of the cross-piece having the hooks, the plate connected with the cross-piece and carrying the stud, the upper member having the cross-piece hinged to the hooks, the elastic piece carried by the hinged member and having an opening to receive the stud, and the ring for securing the elastic piece.

6. The combination of the lower member carrying the securing-stud, the upper member having the opening covered by the elastic piece formed with an opening to receive the stud, and the ring around the outer edge of the opening in the upper member for securing the elastic piece.

7. The combination of the lower plate having a head or enlargement at its lower end carrying a stud, an upper plate having a similar enlargement formed with an opening, a flat elastic piece secured over and entirely surrounding the said opening and having a securing-opening to receive the stud.

680,504. **HOSE.** HARRY H. SHEPARD and FRANK H. FISH, Bristol, R. I. Filed Oct. 31, 1900. Serial No. 34,998. (No model.)



Claim.—1. As an article of manufacture, a hose composed of a plurality of sections, the plies of textile material in the adjacent ends of every two sections forming a series of receding steps, in combination with a complemental splicing-piece, secured to said steps of both sections by vulcanization, substantially as described.

2. In combination a plurality of hose-sections, each containing an inner rubber tube upon which is superposed plies of textile material so disposed that the end of each succeeding ply recedes farther from the end of said inner tube, and a divergent splicing-piece so disposed as to overlap the plies of the two sections and secured thereto by vulcanization, substantially as described.

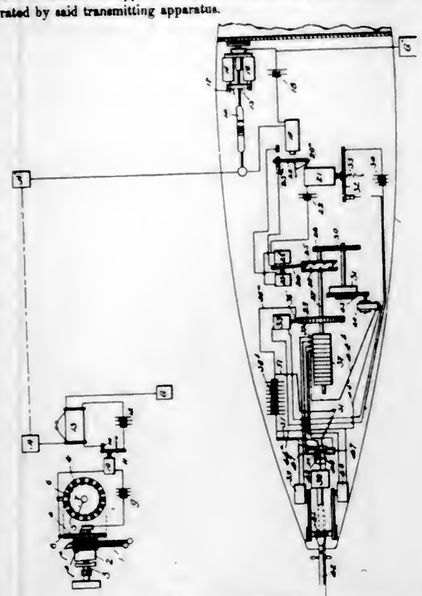
3. In combination, two vulcanized hose ends, each having the general outline of the frustum of a cone and a splicing-piece filling the space between the sides of said frusta and vulcanized thereto, substantially as described.

680,505. **AUTOTORPEDO.** HARRY SHOEMAKER, Philadelphia, Pa., assignor to Gustave P. Gehring and Marie V. Gehring, same place. Filed Feb. 1, 1901. Serial No. 45,585. (No model.)

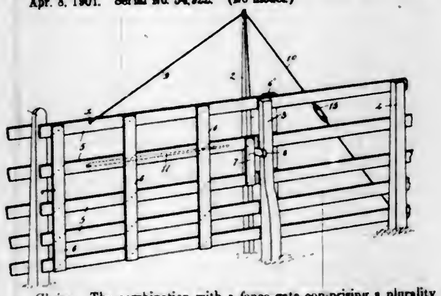
Claim.—1. In combination with a transmitting-station of a wireless-telegraph system, comprising a keyboard, a cylinder and commutator adapted to be stopped by one of the keys of said keyboard, means for rotating the commutator and cylinder, an induction or spark coil placed in open circuit when the commutator is stopped, and air and ground plates connected with said coil; a torpedo containing a receiving apparatus of a wireless-telegraph system adapted to be operated by said transmitting-station to propel the torpedo and operate it as desired.

2. In combination with a transmitting-station of a wireless-telegraph system, consisting of a keyboard, a cylinder and commutator adapted to be stopped by one of the keys of said keyboard, means for revolving the cylinder and commutator, an induction or spark coil placed in open circuit when the commutator is stopped, and air and ground plates connected to said coil; a torpedo consisting of an outer casing divided into a front and a rear chamber, said rear chamber containing a receiving-station of the system, said receiving-station comprising air and ground plates, a coherer, and an electromagnet in circuit; said electromagnet causing to be operated proper mechanisms of the torpedo.

3. In combination with a transmitting-station, comprising a commutator adapted to be revolved, means to stop said commutator, and a coil-circuit operated by said commutator, and adapted to be held open when the commutator is stopped, a torpedo having a receiving apparatus operated by said transmitting apparatus.



680,506. **FARM-GATE.** GEORGE L. SMITH, Carson, Iowa. Filed Apr. 8, 1901. Serial No. 54,922. (No model.)



Claim.—The combination with a fence-gate comprising a plurality of horizontal rails united by means of a plurality of vertical rails, of a strip extending vertically from one gate-rail to another and serving as a keeper, a fence-post, a mast positioned adjacent said fence-post, a supporting-bar secured to said mast intermediate of its ends and also secured to said fence-post, said vertical positioned keeper working upon one side against said supporting-bar, a rod extending from near the outer upper end of said gate and secured to the upper end of said mast, said rod being directed downward from said mast and being securely anchored, said rod being severed near the anchored end, and a turnbuckle uniting the severed ends so that said mast may be inclined to change its vertical position, all arranged substantially as and for the purpose set forth.

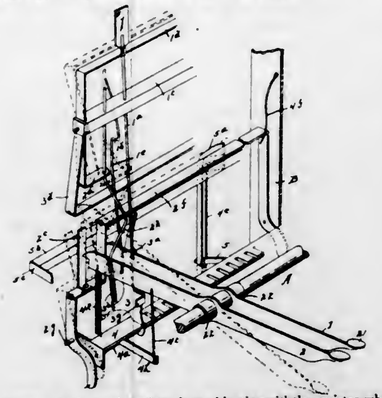
680,507. **TRELLIS OR HOLDING-RACK FOR VEGETABLES.** WILLIAM H. THOMAS, Jenkintown, Pa. Filed May 9, 1901. Serial No. 59,450. (No model.)



Claim.—1. The combination with a trellis provided with loops or staples, stakes slidably mounted in said loops or staples and provided at one end with an arrow-point and at the other end with an apertured head, and a fastening device for supporting the stake in elevated position when not in use, substantially as set forth.

2. A trellis consisting of hinged frames, in combination with staples secured at the lower ends of the trellis and a turn-hook secured above said staples, of anchor-stakes mounted to slide within the said staples and provided with an arrow-point at one end and an apertured head at the other end, the distance between said arrow-point and apertured head being less than the distance between the free ends of the hooks and the staples when in one position, and greater when the hook is turned in the opposite direction, said stakes being mounted to slide in said staples, substantially as set forth.

680,508. **CASH-REGISTER.** FRIEDUS M. WALKER, Detroit, Mich. Filed May 11, 1900. Serial No. 16,280. (No model.)



Claim.—1. In a cash-register, in combination with the register-wheel, a pawl normally out of actuating contact with said wheel, a tablet-lifting rod and lever therefor, a guide on the lever adapted to engage the pawl I swing it into position to engage the registering-wheel, a readjusting-lever, and means intermediate the readjusting-lever and the pawl, whereby the pawl is actuated by the readjusting-lever, substantially as described.

2. In a cash-register, the combination of a registering-wheel, a registering-wheel-actuating pawl, a lever and indicating-tablet, said lever being adapted to actuate said indicating-tablet to bring said tablet into view, and at the same time to bring into operative position the registering-wheel-actuating pawl, a readjusting-lever, and means intermediate said readjusting-lever and said pawl, whereby the readjusting-lever actuates the registering-wheel, substantially as described.

3. In a cash-register, the combination of an indicator-actuating lever, a bar arranged to engage and hold the indicator in its exposed position, a knock-off bar adapted to contact said indicator and push it from the bar which holds it in its exposed position, a readjusting-lever, means actuated by the readjusting-lever for actuating the knock-off bar, substantially as described.

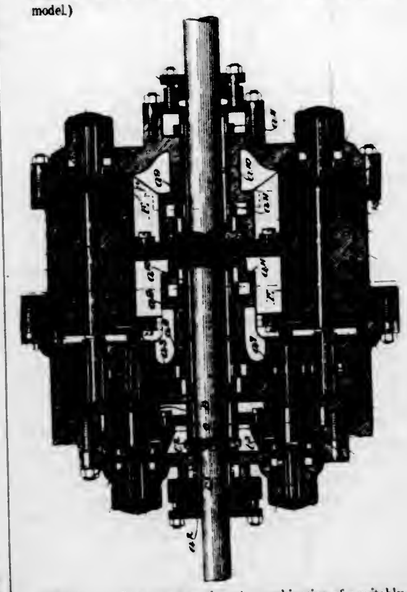
4. In a cash-register, in combination with a tablet and its lifting-rod, means for supporting the tablet in its elevated position, a knock-off bar, a readjusting-lever, and means intermediate the readjusting-lever and the knock-off bar for actuating the same, a stirrup adapted to engage the readjusting-lever after it has actuated the knock-off bar, and prevent its return movement, substantially as described.

5. In a cash-register, in combination with the tablet and tablet-actuating lever, a drawer, a detent comprising one branch extending from a rock-shaft and adapted to engage with the drawer to lock said drawer, a rock-plate extending from the same rock-shaft and arranged to engage over the tablet-actuating lever, a readjusting-lever, a second rock-shaft, a link connecting the second rock-shaft and the readjusting-lever, an arm extending from the second rock-shaft, a link engaging with said arm and adapted to extend into the path of the plate which lies over the tablet-actuating lever, and adapted to be drawn out of said path by the readjusting-lever, whereby the readjusting-lever must be actuated and release the drawer before the tablet-actuating lever can be actuated to expose the tablet, substantially as described.

6. In a cash-register, the combination of a tablet, a tablet-actuating lever, a tablet-rod connected therewith, a spring-holding hook also connected therewith, a register-wheel, a register-wheel-actuating pawl, and a guide for the register-wheel-actuating pawl also connected with said tablet-actuating lever, substantially as described.

7. A bearing for key-levers consisting of a short tube strung through a hole in the key-lever, and a short piece of tubing closely engaging over the first tube at each side of the lever, leaving the lever free to swing on the inner tube and between the ends of the outer tubes, substantially as described.

680,509. **ROTARY ENGINE.** EDWARD C. WARREN, Chicago, Ill. Filed Jan. 22, 1900. Renewed Feb. 5, 1901. Serial No. 46,153. (No model.)



Claim.—1. In a rotary engine, the combination of a suitably-ported cylinder, one or more abutments, a rotary shaft and a hollow cylindric piston which is made in two sections, one of which is provided internally with a web which is forged integral with the said shaft, and the other of said sections being formed with an end web which is bolted to the said web on the other section.

2. In a rotary engine, the combination of a ported cylinder, suitable abutments, a rotary shaft, and a hollow cylindric piston composed of a couple of telescoping sections and provided internally with a web which is formed integral with the said shaft.

3. In a rotary engine, the combination of a ported casing, one or more abutments, a rotary shaft, and a hollow cylindric piston composed of a couple of telescoping sections, each section being provided internally with a web, and one of said webs being formed integral with the said shaft.

4. The combination of a cylinder, suitable rotary abutments, a rotary shaft, a piston composed of two telescoping sections and provided internally with a web which is formed integral with the said shaft, pinions on the abutment-shafts, and an annular ring which is secured to one end of the said piston and which is provided with teeth adapted to engage the said pinions.

5. The combination of a cylinder and one or more abutments, a rotary shaft, a high-pressure piston keyed to said shaft and a second piston which is provided peripherally with flanges which divide the interior of the cylinder into intermediate and low pressure chambers, the said second piston being made in two sections, one of which is provided internally with a web formed integral with the said shaft.

6. A rotary engine comprising a cylindric or drum-like piston which is provided peripherally with annular flanges, rotary abutments arranged to extend between said flanges, pinions on the abutment-shafts, an annular ring which is secured to one end of said piston and provided with teeth adapted to engage said pinions, and a cylinder or casing which incloses the piston and abutments and also the said gearing.

7. In a rotary engine, and in combination with oppositely-arranged rotary abutments, a hollow cylindric piston which is provided peripherally with annular flanges and which is composed of a couple of sections, one of which is provided internally with a web formed integral with the shaft, a cylinder having heads provided with bosses which extend into the piston and form bearings for the shaft, pinions on the abutment-shafts, and an annular ring secured to one end of said piston and provided with teeth which engage the said pinions, the said ring and pinions being inclosed by the said cylinder.

8. In a rotary engine, the combination of oppositely-arranged rotary abutments, a rotary shaft, a cylindric piston provided internally with a web formed integral with the shaft, pinions on the abutment-shafts, an

annular ring secured to one end of said piston and provided with teeth which engage said pinions, and a cylinder or casing having inwardly-extending bosses which form bearings for the shaft and which are provided with bushings and oil-rings, substantially as described.

9. A compound rotary engine comprising a high-pressure chamber and inclosed piston, a second piston having flanges which divide the interior of the cylinder or casing into intermediate and low pressure chambers, suitable abutments coöperating with said pistons, the said cylinder or casing having space between its inner surface and the ends of the pistons, a rotary shaft upon which said pistons are mounted, and a thrust-bearing which prevents end movement on the part of said shaft.

10. The combination of oppositely-arranged rotary abutments, a rotary shaft, a piston keyed upon said shaft, a second piston having an internal web which is formed integral with said shaft, a casing having space between its inner surface and the ends of said pistons, and a thrust-bearing for the hub of said keyed piston, substantially as and for the purpose set forth.

11. The combination of a rotary shaft, a high-pressure piston mounted thereon, a second piston which is also mounted upon said shaft and which is flanged to divide the interior of the casing into intermediate and low pressure chambers, suitable abutments coöperating with said pistons, and means for supplying motive fluid.

12. The combination of a cylinder, one or more abutments, a rotary shaft, a high-pressure piston keyed to said shaft, and a combined intermediate and low pressure piston having a web formed integral with said shaft, substantially as set forth.

13. The combination of a combined intermediate and low pressure piston composed of a couple of telescoping sections which are bolted together and one of which is formed integral with the rotary shaft, a high-pressure piston keyed to said shaft, oppositely-arranged rotary abutments, and a cylinder or casing provided with suitable ports and passages.

14. The combination of a shaft having a tapered portion, a piston locked upon said tapered portion by a nut screwed upon said shaft, a thrust-bearing for the hub of said piston, a second piston having a web formed integral with said shaft, suitable abutments coöperating with said pistons, and a suitable cylinder or casing having ports and passages for admitting and exhausting the motive fluid.

15. A rotary engine comprising a flanged piston, rotary abutments coöperating with said piston, each abutment being composed of a plurality of sections having interlocking end portions, and a cylinder or casing having suitable ports or passages.

16. A rotary engine comprising a piston which is flanged and which is composed of two sections, rotary abutments arranged to coöperate with said piston, a casing adapted to inclose said piston and abutments, each abutment being made in two sections which have interlocking end portions, and the said casing being provided internally with webs which extend between the said sections, substantially as described.

17. A rotary engine comprising a flanged piston made in sections, a shaft upon which said piston is mounted, rotary abutments coöperating with said piston, each abutment being composed of sections which are mounted upon a shaft and which are provided with interlocking end portions, a gear carried by the piston-shaft and arranged to engage pinions on the abutment-shafts, the said pinions having hub portions which interlock with the end portions of said abutments, and a casing adapted to inclose the piston and abutments and also the said gearing, and having webs which extend between the said abutment-sections, substantially as described.

18. A rotary engine comprising a piston provided with end flanges and also with an intermediate flange, a casing or cylinder having webs which are located opposite the said intermediate flange, rotary abutments coöperating with said piston, each abutment being made in sections which are separated by said webs and which have interlocking end portions, pinions having hubs which interlock with the ends of the abutments and which are gear-connected with the piston-shaft, the said piston being made in sections, and removable rings being arranged opposite the end flanges of the piston, substantially as and for the purpose set forth.

19. The combination of a rotary piston made in sections, and a rotary abutment composed of sections having interlocking end portions, substantially as described.

20. In a rotary engine, and in combination with a suitable piston and cylinder, a rotary abutment-shaft having a shoulder, a pinion mounted upon said shaft, an abutment composed of interlocking sections which are arranged upon said shaft, the said pinion also interlocking with the said abutment, and a nut for tightening the pinion and abutment against the said shoulder on the shaft.

21. The combination of a combined intermediate and low pressure piston, a cylinder inclosing said piston and having heads, a high-pressure piston arranged to a recess formed in one of said cylinder-heads, a supplemental head for inclosing said high-pressure piston, both pistons being mounted upon a single shaft and suitable abutments being provided and arranged to coöperate with said pistons.

22. The combination, in a compound rotary engine, of a shaft, a piston mounted thereon, a cylinder inclosing said piston and provided with heads, a second piston mounted upon said shaft and arranged in a recess formed in one of said cylinder-heads, a supplemental head for inclosing said second piston, and oppositely-arranged rotary abutments.

23. The combination, in a compound rotary engine, of a combined intermediate and low pressure piston having a web which is formed integral with the shaft, a cylinder inclosing said piston and provided with heads, a high-pressure piston keyed to said shaft and arranged within a recess formed in one of said cylinder-heads, a supplemental head for inclosing said high-pressure piston, and suitable abutments arranged to coöperate with said pistons.

24. A compound-multiple expansion rotary engine comprising a plurality of pistons which are mounted upon a single shaft, suitable abutments coöperating with said pistons, a casing or cylinder having space between its inner surface and the ends of the said pistons, and a thrust-bearing for the hub of one piston, substantially as and for the purpose described.

25. In a rotary engine, the combination of a piston made in two sections and provided with a web which is formed integral with the piston-shaft, a second piston which is keyed to said shaft, rotary abutments which are gear-connected with said piston-shaft, a casing adapted to inclose the piston and abutments and also the said gearing and having space between its inner surface and the ends of the pistons and also between its inner surface and the abutments, and a thrust-bearing which prevents end movement on the part of said shaft, substantially as described.

26. In a rotary engine, and in combination with a cylinder and suitable abutments, a piston having annular flanges formed upon its periphery, piston-heads arranged between the flanges, pins extended through the flanges and piston-heads, an annular toothed ring which is bolted to one end of the piston, and spur-gearing for connecting said toothed ring with the said abutments, substantially as and for the purpose set forth.

27. In a compound rotary engine, the combination of an annular high-pressure piston having annular peripheral flanges, a toothed ring secured to one end of said piston, rotary abutments arranged to coöperate with said piston, pinions having hub portions which interlock with the said abutments, the said pinions being arranged to engage said toothed ring on the piston, a shoulder on the abutment-shaft, a nut for clamping the pinion and abutment against said shoulder, and a casing or cylinder having space between its inner surface and the ends of the piston and also between its inner surface and the rotary abutments, substantially as and for the purpose described.

28. In a reversible compound multiple-expansion fluid-motor, the combination of a piston-shaft, a high-pressure piston mounted upon said shaft, a combined intermediate and low pressure piston which is also mounted upon said shaft and which is provided with flanges which divide the interior of the casing into annular compartments, oppositely-arranged rotary abutments which coöperate with said piston and which are gear-connected with said piston-shaft, the said casing being provided with suitable ports or passages and a reversing-valve being provided for reversing the order of admission and exhaust, substantially as described.

29. In a reversible compound multiple-expansion rotary engine, a throttling and reversing device consisting of a valve-casing, a plurality of rotary valves adapted to control the passages in said casing and having pressure-spaces at their larger ends to keep them seated, means for connecting the valves for simultaneous adjustment, and means for connecting the passages in the valve-casing with the ports and passages in the engine-casing.

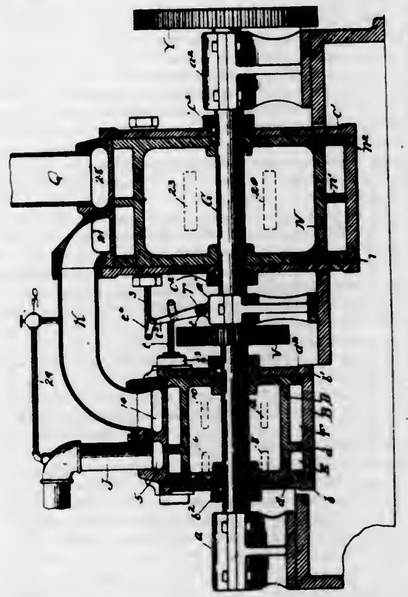
30. In a compound reversible rotary engine, and in combination with an engine-casing and suitable pistons, a throttling and reversing device consisting of a valve-casing, a plurality of rotary plug-valves for controlling the passages in the valve-casing, each valve having two oppositely-arranged recesses, pressure spaces for keeping the valves seated, means for connecting the valves for simultaneous adjustment, and means for connecting the passages in the valve-casing with the ports and passages in the engine-casing.

31. In a compound reversible rotary engine, and in combination with an engine-casing and suitable pistons, a valve-casing, a plurality of rotary valves adapted to control the passages in said valve-casing, one of said valves being provided with an independently-adjustable valve by which the high-pressure piston can be rendered neutral and live steam permitted to enter the intermediate-pressure chamber, means for connecting the said rotary valves for simultaneous adjustment, and means for connecting the passages in the valve-casing with the ports and passages in the engine-casing.

32. In a compound reversible rotary engine, and in combination with an engine-casing and suitable pistons, a valve-casing, a plurality of rotary plug-valves connected for simultaneous adjustment and adapted for controlling the passages in said valve-casing, one of said valves being provided with a supplemental rotary valve by which the high-pressure piston can be rendered neutral and live steam admitted directly to the intermediate-pressure chamber, and means for connecting the passages in the valve-casing with the ports and passages in the engine-casing.

33. In a compound reversible rotary engine, and in combination with an engine-casing and suitable pistons, a valve-casing having an opening or passage at each end and a plurality of passages at each side, rotary plug-valves for controlling said passages in the valve-casing, each valve being provided with a couple of recesses, means for connecting said valves for simultaneous adjustment, a supplemental rotary valve arranged within one of said rotary plug-valves and adjustable independently for the purpose of rendering the high-pressure piston neutral and admitting live steam directly to the intermediate-pressure chamber, means for connecting one of said openings in the valve-casing with a source of fluid-pressure, means for connecting the other end opening of the valve-casing with an exhaust-passage, and means for connecting the lateral or side passages of said valve-casing with the ports and passages in the engine-casing.

680,510. **ROTARY ENGINE.** EDWARD C. WARREN, Chicago, Ill. Filed Jan. 31, 1900. Renewed Feb. 5, 1901. Serial No. 46,154. (No model.)



Claim.—1. A compound rotary engine comprising a casing and cylindric piston which rotates concentrically with said casing and which is provided with a plurality of annular flanges which divide the interior of the casing into a plurality of annular compartments or piston-chambers, each compartment being provided with a plurality of piston projections which alternate with those of the adjacent or next compartment; and rotary abutments arranged at opposite sides of the piston, and which are of a diameter to extend and rotate between the flanges of the latter, and which are provided with a plurality of peripheral notches or cavities adapted to receive the projections on the piston during the rotation of the latter; the said casing being provided with suitable ports or passages for admitting and exhausting steam from one compartment to another, the said passages or ports being arranged so as to admit the steam at opposite or substantially opposite points for the purpose of balancing the pressure upon the piston, and such casing being also provided with suitable steam spaces or cavities for maintaining pressure upon the said rotary abutments, substantially as and for the purpose described.

2. A compound rotary engine comprising a suitable cylinder or casing, an annular cylindric or drum-like piston which rotates concentrically within said casing and which is peripherally flanged intermediate of its ends in such manner as to divide the interior of the casing into a plurality of annular compartments, each compartment being provided with a plurality of projections and the projections of one compartment alternating with those of the adjacent or next compartment; one or more rotary abutments provided with peripheral notches adapted to receive the said projections on the rotary piston and arranged to coöperate with said piston; and suitable ports or passages whereby the steam may be admitted and exhausted from one compartment of the piston-chamber to another.

3. A compound rotary engine, comprising a suitable cylinder or casing, a cylindric piston which rotates concentrically within said casing and which is provided with a peripheral flange at a point intermediate of its ends, the said flange serving to divide the interior of the casing into two compartments, a rotary abutment for each compartment, a horseshoe-shaped ring arranged between said abutments and opposite to or in line with said flange, and suitable ports or passages for admitting and exhausting the steam from one compartment to another.

4. A compound multiple-expansion rotary engine, comprising high, intermediate and low pressure piston-chambers, the said chambers having suitable supply and exhaust ports; concentric rotary pistons mounted to rotate in unison upon a shaft and inclosed and operating within said piston-chambers, the piston D being provided with end flanges d' d^2 and also with a flange d which is arranged adjacent to the flange d', for the purpose stated; rotary abutments coöperating with said pistons; the steam being primarily admitted to the high-pressure chamber wherein it operates to revolve the inclosed piston without expanding; the exhaust from the said high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber.

5. A compound multiple-expansion rotary engine comprising high, intermediate and low pressure piston-chambers; said chambers having suitable supply and exhaust ports; rotary pistons D and N mounted to rotate in unison upon a single shaft G and inclosed and operating within said piston-chambers and provided respectively with flanges d d' d^2 and n n' n^2 for the purpose described; suitable abutments coöperating with said pistons; the steam being primarily admitted to the high-pressure chamber E and allowed to pass through the latter without expanding; the exhaust from the said high-pressure chamber being received by and expanded within the intermediate-pressure chamber F and the exhaust from the latter being received by and expanded within the low-pressure chamber.

6. A compound rotary engine comprising high, intermediate and low pressure piston-chambers; pistons D and N rotating in unison upon a single shaft within said chambers and provided respectively with flanges d, d', d^2 and n, n', n^2, substantially as and for the purpose set forth; and suitable inlet and outlet ports for admitting and exhausting steam to and from the said chambers; and suitable abutments coöperating with said pistons; the steam being primarily admitted to the high-pressure chamber and exhausted therefrom to the intermediate-pressure chamber or chambers, and the exhaust from the latter being conveyed to the low-pressure chamber; and the said low-pressure chamber being provided with one or more live-steam openings, whereby the pressure in such chamber may be augmented by a direct admission of steam at full boiler-pressure, and whereby said chamber may be made to serve as a high-pressure chamber.

7. A compound rotary engine comprising in combination the casing B providing a piston-chamber; a piston D rotating concentrically within said chamber and provided with one or more piston projections and also with flanges d, d', d^2 for the purpose set forth; a cylindric rotary abutment provided with one or more recesses adapted to receive the said piston projection or projections during the rotation of the piston; and suitable inlet and outlet ports for admitting and exhausting steam to and from the said piston-chamber.

8. A compound double-expansion rotary engine, comprising high, intermediate and low pressure piston-chambers; rotary pistons inclosed within the said chambers and rotating in unison upon a single shaft; suitable abutments coöperating with said pistons; suitable inlet and outlet ports for admitting and exhausting the steam to and from the said chambers; an inlet-pipe leading to the high-pressure chamber; an exhaust-pipe leading from the intermediate-pressure chamber to the low-pressure chamber; and a valve-controlled by-pass 29 leading from the said inlet-pipe to the said exhaust-pipe, whereby the said low-pressure chamber may be made to serve as a high-pressure chamber; the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding, the exhaust from the high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber.

9. A rotary engine comprising in combination the casing C providing a piston-chamber; the piston N provided with flanges n n' n^2 and rotating concentrically within said chamber and provided with eight piston projections; a couple of cylindric rotary abutments located at opposite sides of the said piston, each abutment being provided with a couple of recesses adapted to receive the said piston projections during the rotation of the piston; the said abutments having a rolling or frictionless contact with the said piston; and the said casing being provided with suitable inlet and outlet ports for admitting and exhausting the steam to and from the said piston-chamber.

10. A reversible rotary engine comprising in combination the casing C adapted to provide a piston-chamber; a piston N provided with flanges n n' n^2 and rotating concentrically within said chamber and provided with one or more piston projections, such as shown; one or more rotary abutments provided with recesses adapted to receive the said piston projection or projections; the abutment shaft or shafts being gear-connected with the piston-shaft; and one or more piston-valves for controlling the supply and exhaust ports, whereby the engine may be reversed at will.

11. A compound double-expansion reversible rotary engine, comprising in combination high, intermediate and low pressure piston-chambers; the rotary flanged pistons D and N inclosed within said chambers and constructed substantially as shown and described; suitable abutments coöperating with said pistons; suitable supply and exhaust ports for the piston-chambers, the steam being primarily admitted to the high-pressure chamber E wherein it operates to rotate the inclosed piston without expanding; the exhaust from said high-pressure chamber being received and expanded within the intermediate-pressure chamber F, which is larger than said high-pressure chamber, and the exhaust from the chamber F being received and expanded within the low-pressure chamber; suitable valves for controlling the said supply and exhaust ports; and means for operating said valves for the purpose of reversing the engine.

12. A compound reversible rotary engine, comprising the two cylinder-casings and pistons rotating therein; rotary abutments arranged at either side of each piston; a valve-chamber adjacent to each abutment-chamber; a reciprocating piston-valve in each valve-chamber; the casing having suitable ports or ducts which serve to connect the valve-chamber with the piston-chamber at opposite points so as to balance the pressure upon the pistons; a rock-shaft provided with crank-arms having suitable connection with the rods or stems of the four piston-valves, and a hand-lever for rocking the said shaft.

13. In a reversible rotary engine, the casing inclosing a rotary piston; the rotary abutments coöperating with said piston; the casing having suitable ports for admitting and exhausting steam to and from the piston-chamber; a couple of reciprocating piston-valves for controlling said ports; a rock-shaft provided with crank-arms, links for connecting the said arms with the stems or rods of the said valves, and a hand-lever for rocking said shaft.

14. A reversible rotary engine comprising a casing providing a piston-chamber; a piston rotating therein; one or more abutments coöperating with said piston; the casing having suitable ports for admitting and exhausting steam to and from the said piston-chamber, the steam being admitted at opposite sides of the piston so as to balance the pressure upon the latter; a couple of reciprocating piston-valves for controlling the said ports; a rock-shaft having suitable connection with the stems or rods of said valves; and means for rocking said shaft for the purpose of shifting the valves and thereby reversing the engine.

15. A compound double-expansion rotary engine, comprising a couple of rotary pistons mounted to rotate in unison upon a rotary shaft, a couple of cylinder-casings inclosing the said pistons, one of said pistons being flanged so as to divide the interior of the casing into high and intermediate pressure piston-chambers, and the other of the said two cylinder-casings being adapted to provide a low-pressure piston-chamber; rotary abutments arranged at each side of the said pistons and provided with recesses adapted to receive the piston projections, suitable inlet and exhaust ports for admitting and exhausting the steam to and from the piston-chambers, the steam being admitted to each piston-chamber at opposite points so as to balance the pressure upon the rotary pistons, and the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding; the exhaust from the said high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and finally expanded within the low-pressure chamber.

16. A compound double-expansion rotary engine, comprising a couple of cylindric or drum-like rotary pistons keyed to a rotary shaft and arranged to rotate within a couple of cylinder-casings, one of said pistons being flanged so as to divide the interior of the casing into high and intermediate pressure piston-chambers; rotary abutments coöperating with said pistons and arranged in the same plane as the piston-shaft, said abutments being recessed so as to permit the piston projections to pass, suitable supply and exhaust ports for admitting and exhausting the steam to and from the piston-chambers, the steam being admitted to each piston-chamber at opposite points so as to balance the pressure upon the inclosed pistons, and the steam being primarily admitted to the high-pressure compartment wherein it operates to rotate the inclosed piston without expanding; the exhaust from the said high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and finally expanded within the low-pressure chamber; and the said piston-shaft being gear-connected with the said rotary abutments whereby the latter will have a rolling contact with the former.

17. A compound double-expansion rotary engine, comprising a couple of cylindric or drum-like rotary pistons mounted to rotate in unison upon a horizontal rotary shaft, a casing inclosing each piston, one of said pistons being flanged so as to divide the interior of one casing into high and intermediate pressure piston-chambers, rotary abutments arranged at each side of the said pistons and in the same plane as the piston-shaft, horseshoe-shaped rings arranged upon the abutment-shafts opposite to the piston-flanges, steam-spaces back of the abutments and rings for the purpose of keeping the said abutments in contact with the pistons, the said abutments being provided with notches or recesses adapted to receive the piston projections during the rotation of the pistons, and the said abutments being gear-connected with the piston-shaft whereby the former will have a rolling contact with the said piston; suitable supply and exhaust ports for admitting and exhausting steam to and from the piston-chambers, the steam being admitted at opposite points so as to balance the pressure upon the pistons, and the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding; the exhaust from the said high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber.

18. In a rotary engine, a casing adapted to provide a piston-chamber, a cylindric or drum-like piston rotating within said chamber and provided with one or more piston projections, and the said piston being also provided with a flange which serves to divide the piston-chamber into two compartments; one or more rotary abutments provided with one or more recesses or notches adapted to receive the said piston projection or projections, the said abutment or abutments having a rolling contact with the said piston, and one or more horseshoe-shaped rings loosely mounted upon the abutment shaft or shafts and arranged opposite the said piston-flange; and the said casing being provided with suitable inlet and outlet ports for admitting and exhausting the steam to and from the piston-chamber, and said casing being also provided with one or more pressure spaces or cavities for balancing the pressure upon the said abutment or abutments and keeping the latter in contact with the said piston.

19. In a rotary engine, a casing adapted to provide a piston-chamber, a cylindric or drum-like piston rotating concentrically within said chamber and provided with four oppositely-arranged piston projections, the said piston being also provided with three peripheral flanges which serve to divide the piston-chamber into two compartments; a couple of rotary shafts arranged at opposite sides of the piston and gear-connected with the piston-shaft, two rotary abutments keyed to each of said rotary shafts, the two abutments on one shaft being arranged to project respectively within one and the other of the said two compartments at one side of the piston, and the two abutments on the other shaft being arranged in a similar manner on the opposite side of the said piston; each abutment being provided with a couple of recesses adapted to receive the said piston projections, and the said abutments having a rolling contact with the piston; three horseshoe-shaped rings loosely mounted upon each abutment-shaft, the said rings being arranged opposite the piston-flanges, and the cylinder-casing being provided with pressure chambers or cavities whereby the said abutments are kept in contact with the rotary piston.

20. In a compound rotary engine, a cylinder-casing and a piston rotating concentrically therein, the said piston being flanged so as to divide the interior of the casing into two compartments, and the said piston being also provided with piston projections whereof those of one compartment alternate with those of the other compartment; two or more rotary abutments provided with recesses adapted to receive the said piston projections during the rotation of the piston, one or more horseshoe-shaped rings arranged upon the abutment shaft or shafts opposite the piston flange or flanges, and one or more pressure spaces or cavities for keeping the said abutments in contact with the piston; one or more inlet-ports for admitting steam to one of said two compartments, ports or ducts for conveying the exhaust from such compartment to the other compartment, and suitable ports or ducts for exhausting from the latter.

21. In a compound rotary engine, a cylinder-casing and a piston rotating concentrically therein; the said piston being flanged so as to divide the interior of the casing into two compartments, and the piston being also provided with piston projections, preferably four in each compartment, and those of one compartment alternating with those of the other compartment; a couple of rotary shafts arranged at opposite sides of the piston and gear-connected with the piston-shaft, two cylindric abutments keyed to each rotary shaft in such manner as to provide each compartment with two oppositely-arranged rotary abutments, and horseshoe-shaped rings loosely mounted upon the abutment-shafts and arranged opposite the piston flange or flanges, the cylinder-casing being provided with pressure spaces or cavities for keeping the abutments in contact with the piston; and the said casing being also provided with ducts or ports whereby the steam will be primarily admitted to one of said compartments wherein it will operate to rotate the inclosed piston without expanding, and whereby the exhaust from such compartment will be received and expanded within the other of the said two compartments.

22. In a reversible rotary engine, a casing adapted to provide a piston-chamber, a cylindric or drum-like piston rotating concentrically within the said chamber and provided with a plurality of piston projections, a couple of abutments arranged at either side of the said piston and provided with recesses adapted to receive the said piston projections, the said abutments being gear-connected with the piston-shaft, and the said casing being provided with suitable inlet and outlet ports for admitting and exhausting steam to and from the piston-chamber, the steam being admitted at opposite points so as to balance the pressure upon the piston; a couple of piston-valves arranged for reciprocation in suitable valve-chambers and adapted to control the admission and exhaust ports, and means for operating said valves whereby the engine may be reversed at will.

23. In a reversible rotary engine, a casing adapted to provide a piston-chamber, a cylindric piston rotating concentrically in said chamber and provided with piston projections, rotary abutments arranged at either side of the piston and provided with recesses adapted to receive the piston projections, a couple of valve-chambers formed within the cylinder-casing, each valve-chamber having one or more ports leading to and communicating with the piston-chamber at a point immediately above the adjacent abutment, and each valve-chamber having one or more ports leading to and communicating with the piston-chamber at a point immediately below the said abutment; the opposite ends of each valve-chamber being connected by means of one or more ports or ducts, and each valve-chamber being provided with supply and exhaust ports or ducts; a piston-valve in each valve-chamber adapted to control the said ports or ducts, and means for shifting or reciprocating said valves for the purpose of reversing the engine.

24. In a reversible rotary engine, a casing adapted to provide a piston-chamber, a cylindric piston rotating concentrically therein and provided with piston projections, rotary abutments arranged at either side of the piston and provided with recesses adapted to receive the piston projections, a valve-chamber formed in the casing above each abutment, a duct or passage above each valve-chamber serving to connect the opposite ends of such chamber, an exhaust duct or passage connecting the said valve-chambers, a supply duct or passage also connecting the two valve-chambers, an inlet for the said supply-duct and an outlet for the said exhaust-duct, one or more ports or ducts leading from each valve-chamber to and communicating with the piston-chamber at a point immediately above the adjacent abutment, and one or more ducts or ports leading from each valve-chamber to and communicating with the piston-chamber at a point immediately below the adjacent abutment; a piston-valve in each valve-chamber, and means for shifting the said valves for the purpose of reversing the engine.

25. In a compound reversible rotary engine, a cylinder-casing and a piston rotating concentrically therein; the said piston being flanged so as to divide the interior of the casing into two compartments, and being also provided with a plurality of piston projections whereof those of one compartment alternate with those of the other compartment; a couple of rotary abutments arranged at opposite sides of the piston and having recesses adapted to receive the piston projections; suitable ports for admitting and exhausting steam to and from one of said compartments, suitable ports for conveying such exhaust to the other compartment, exhaust-ports for the latter, a couple of piston-valves for the purpose of reversing the engine.

26. In a compound reversible rotary engine, a cylinder-casing and a piston rotating concentrically therein; the said piston being flanged so as to divide the interior of the casing into two compartments, and being also provided with a plurality of piston projections whereof those of one compartment alternate with those of the other compartment; rotary abutments arranged at either side of said piston and having recesses adapted to receive the piston projections, a valve-chamber adjacent to each abutment, and a duct or passage connecting the opposite ends of each valve-chamber; each valve-chamber having a couple of ports leading to and opening into the two compartments at points immediately above the adjacent abutment, and each valve-chamber having a couple of ports or ducts leading to and opening into the said two compartments at points immediately below the adjacent abutment; an admission-port for each valve-chamber, and an exhaust-port for each valve-chamber; a piston-valve inclosed within each valve-chamber, each valve consisting of a piston-rod with a plurality of disks or heads, and means for shifting the valves for the purpose of reversing the engine; the steam being primarily admitted to one compartment wherein it operates to rotate the inclosed piston without expanding, and the exhaust from such compartment being received and expanded within the other of the said two compartments.

27. A compound double-expansion rotary engine, comprising high, intermediate and low pressure piston-chambers, pistons rotating concentrically within said chambers, rotary abutments coöperating with said pistons, a plurality of valve-chambers having ports or ducts leading to and communicating with the piston-chambers, piston-valves in said valve-chambers adapted to control the admission and exhaust of steam to and from the piston-chambers, ports or ducts for primarily admitting steam to such valve-chambers, and ports or ducts for permitting the exhaust to escape from said valve-chambers; the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding, the exhaust from said high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber; and means for simultaneously shifting the said valves for the purpose of reversing the order of admission and exhaust to and from the piston-chamber, whereby the engine may be reversed at will.

28. A compound double-expansion reversible rotary engine, comprising high, intermediate and low pressure piston-chambers, pistons rotating concentrically within said chambers, rotary abutments coöperating with said pistons, a couple of valve-chambers adjacent to the high and intermediate pressure chambers and having suitable ports or ducts leading to the said piston-chambers, and a three-disked piston-valve in each valve-chamber; a couple of valve-chambers adjacent to the low-pressure chamber and having suitable ports or ducts leading to the latter, and a two-disked piston-valve in each of said valve-chambers; the steam being first admitted to the valve-chambers adjacent to the high and intermediate pressure chambers, and from the latter admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding; the exhaust from the high-pressure chamber being allowed to escape back into the said adjacent valve-chambers, and from the latter permitted to pass into and expand within the intermediate-pressure chamber; the exhaust from the low-pressure chamber being also conducted back to the adjacent valve-chambers, and from the latter allowed to escape into the valve-chambers adjacent to the low-pressure chamber; the steam thus entering the valve-chambers adjacent to the low-pressure chamber being then received and expanded within the said low-pressure chamber, the exhaust from the latter being then conducted back to such adjacent valve-chambers, and from the latter permitted to escape from the engine; and means for simultaneously shifting the said reversing-valves for the purpose of reversing the engine.

29. In a reversible rotary engine, a casing adapted to provide a piston-chamber, a piston rotating therein, a couple of oppositely-arranged abutments coöperating with said piston, the casing being provided with ports or ducts for admitting and exhausting steam to and from the said piston-chamber, the steam being admitted at opposite points so as to balance the pressure upon the piston, a couple of reciprocating piston-valves adapted to control the said ports, a rock-shaft provided with crank-arms having suitable connection with the stems or rods of said valves, and a hand-lever for rocking said shaft for the purpose of reversing the engine.

30. A compound reversible rotary engine, comprising the two cylinder-casings and pistons rotating therein; suitable abutments coöperating with said pistons, the casings being provided with suitable ports for admitting and exhausting steam to and from the piston-chambers, piston-valves adapted to control the said ports, a rock-shaft provided with crank-arms having suitable connection with the stems or rods of said valves, and means for rocking said shaft for the purpose of reversing the order of admission and exhaust and thereby reversing the engine.

31. In a reversible rotary engine, a casing providing a piston-chamber, a piston rotating concentrically within said piston-chamber and provided with piston projections, rotary abutments arranged at either side of the piston and provided with recesses adapted to receive the said piston projections, a couple of valve-chambers each provided with a port leading to and opening into the piston-chamber at a point immediately above the adjacent abutment, and each valve-chamber having a port leading to and opening into the piston-chamber at a point immediately below the adjacent abutment; a two-disked piston-valve in each valve-chamber, a balancing port or duct for connecting the opposite ends of each valve-chamber, a port or duct connecting one valve-chamber with the other valve-chamber, a port or duct connecting the balancing port or duct of one valve-chamber with the balancing port or duct of the other valve-chamber, a supply-passage opening into the duct which serves to connect the two valve-chambers, an exhaust-passage leading from the duct which serves to connect the two balancing ports or ducts, and means for shifting the said valves for the purpose of reversing the engine.

32. In a compound reversible rotary engine comprising a plurality of piston-chambers, a reversing-valve chamber having its end portions connected by a duct or passage and provided with supply and exhaust ports; the said valve-chamber having a pair of ports or ducts leading to one piston-chamber, and having also a pair of ducts or ports leading to the next or adjacent piston-chamber; a three-disked reciprocating piston-valve inclosed in said valve-chamber and adapted to control the said ports, and means for shifting the said valve for the purpose of reversing the engine.

33. A compound double-expansion rotary engine, comprising high, intermediate and low pressure piston-chambers, pistons rotating concentrically within said chambers and provided with piston projections, the

piston projections in the high-pressure chamber alternating with those in the intermediate-pressure chamber, and the piston projections in the latter chamber alternating with those of the low-pressure chamber; rotary abutments provided with recesses adapted to receive the said piston projections, suitable supply and exhaust ports for admitting and exhausting steam to and from the said piston-chambers, the steam being admitted to each chamber at opposite points so as to balance the pressure upon the inclosed piston; and the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding, the exhaust from the high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber.

34. A compound double-expansion rotary engine, comprising the high, intermediate and low pressure piston-chambers, pistons rotating concentrically therein and provided with piston projections, four of such projections in each chamber, the piston projections of the high-pressure chamber alternating with those of the intermediate-pressure chamber, and the piston projections of the latter alternating with those of the low-pressure chamber; rotary abutments arranged at either side of said pistons and provided with recesses adapted to receive the said piston projections, inlet and outlet ports adjacent to said abutments for admitting and exhausting steam to and from the said chambers, the steam being admitted at opposite points so as to balance the pressure upon the pistons; and the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding, the exhaust from the high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber.

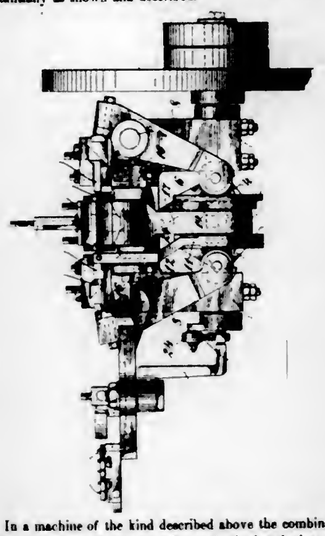
35. A compound double-expansion rotary engine, comprising two cylinder-casings, a cylindric piston rotating concentrically within each casing, each piston being provided with three flanges serving to divide the interior of each casing into two compartments, the two compartments in one casing serving as high and intermediate pressure chambers, and the compartments in the other chamber combining to serve as a low-pressure chamber; rotary abutments arranged at either side of said pistons and provided with recesses adapted to receive the piston projections, the piston projections of the high-pressure chamber alternating with those of the intermediate-pressure chamber, and those of the latter alternating with those of the low-pressure chamber; three or more horseshoe-shaped rings loosely mounted upon each abutment-shaft opposite to the piston-flanges, steam spaces or cavities back of the abutments and rings, pressure being maintained in such spaces or cavities by the steam carried in the abutment-recesses, and such pressure serving to balance the pressure upon the said abutments and rings and also to keep the former in contact with the pistons; the said casing being provided with suitable ports for admitting and exhausting steam to and from the said piston-chambers, such admission being at opposite points so as to balance the pressure upon the pistons; the steam being primarily admitted to the high-pressure chamber wherein it operates to rotate the inclosed piston without expanding, the exhaust from the high-pressure chamber being received and expanded within the intermediate-pressure chamber, and the exhaust from the latter being received and expanded within the low-pressure chamber.

680,511. WIRE-NAIL-MAKING MACHINE. JAKOB WIRKSTRÖM, Kiew, Russia. Filed Nov. 21, 1900. Serial No. 37,234. (No model.)

Claim.—1. A machine for simultaneously cutting and forming two nails without any loss of material out of a wire fed into said machine, comprising a main shaft, fixed to said shaft two disks with lateral projections, two two-armed levers moving the stamps for forming the heads of the nails being actuated by said lateral projections; a mechanism for feeding the wire into the machine, for cutting it into the required lengths and for holding it during the formation of the heads and points; a stationary knife of peculiar form for forming the points and severing the two nails and an oscillating one of the same form arranged opposite the same, said knife being moved by means of a two-armed lever which is acted upon by a cam on the main shaft; and means for ejecting the ready nails; substantially as hereinbefore shown and described.

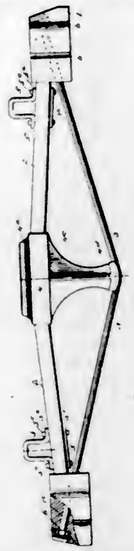
2. In a machine of the kind described above the combination with the main shaft carrying two disks operating the nail-head-shaping stamps and another disk operating the cutter of two pairs of disks arranged opposite each other, transverse conical grooves of different widths being provided on the circumference of said disks, one of these pairs of disks being fixed to the machine-frame, a double-armed lever carrying the other pair of disks, an eccentric on the main shaft in contact with the other arm of said lever, substantially as shown and described.

3. In a machine of the kind described above the combination with nail-head-shaping, wire feeding, cutting and gripping devices of a separating and sharpening device comprising a knife fastened to the frame of the machine, a double-armed lever, another knife fastened to the shorter end of said lever opposite the fixed knife, a disk fastened to the main shaft, a cam on said disk being in contact with the longer arm of said lever, substantially as shown and described.



4. In a machine of the kind described above the combination with nail-head-shaping, wire feeding, cutting and gripping devices of a separating and sharpening device comprising two symmetrically-built knives, said knives being placed opposite each other and their sides inverted, each of these knives having the shape of a parallelepiped, the base being trapezium-shaped, a shoulder protruding on one side of said trapezium, the surface of said shoulder being composed of two triangles inclined in opposite directions, one of these triangles having its point at the end of the base of the other one, substantially as shown and described.

680,512. CAR-BOLSTER. CHARLES H. WILLIAMS, Jr., and GILBERT P. RITTER, Chicago, Ill.; said Williams assignor to said Ritter. Filed June 17, 1901. Serial No. 64,873. (No model.)



Claim.—1. A trussed metal bolster comprised of a plurality of independent compression and tension members, the tension and compression members having their axes in different vertical planes, and means for connecting said members, substantially as and for the purposes specified.

2. A trussed metal bolster, comprised of a plurality of independent compression and tension members having their axes arranged in alternating planes, and means for connecting said members, substantially as and for the purposes specified.

3. A trussed metal bolster comprised of a plurality of independent compression and tension members, the tension and compression members being unequal in number and arranged alternately, and means for connecting said members, substantially as and for the purposes specified.

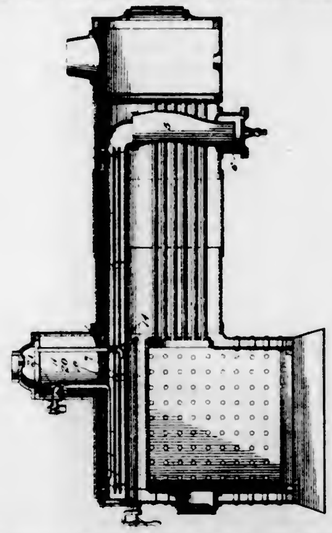
4. A trussed metal bolster, comprised of a plurality of independent tubular compression and tension members, a strut, and end caps, said end caps provided with sockets for the reception of the compression members and passages for the tension members located intermediate of the sockets, substantially as specified.

5. The combination in a trussed metal bolster, of a plurality of compression and tension members, an end cap therefor provided with a channel for the reception of the nuts on the ends of the tension members, and an end plate for closing the nut-channel of the end cap, substantially as and for the purposes specified.

6. The combination with a trussed metal bolster having a plurality of tubular compression members, of a side bearing, and a clamp-plate for confining the side bearing to the compression members of the bolster, substantially as and for the purposes specified.

7. The combination with a trussed metal bolster having a plurality of compression members, of a side bearing provided on its under surface with one or more dowel-pins, and a clamp-plate for confining the side bearing to the compression members of the bolster, substantially as and for the purposes specified.

680,513. FEED-WATER HEATER. ALEXANDER WIRTH, Parsons, Kans. Filed Apr 23, 1900. Serial No. 14,013. (No model.)



Claim.—1. A feed-water heater comprising a shell located in the steam-space of the boiler and provided with a large water and sediment conductor or outlet, extending down below the water-line and having its mouth in position to discharge the sediment or impurities into the mud-drum and being of a size relatively to the shell to permit the free and unrestricted discharge therethrough of all the feed-water after heating, by gravity and without back pressure, means for delivering the feed-water to the interior of the shell, and means for delivering steam to the interior of the shell.

2. A feed-water heater comprising a closed shell located in the steam-space of the boiler and provided with a large water-discharging conductor opening below the water-line and of a size to permit the free and unrestricted discharge of the feed-water, after heating, by gravity and without back pressure, means for introducing steam from the steam-space into the lower part of the shell, and independent means for introducing the feed-water into the upper part of the sh

3. A feed-water heater comprising a shell located in the steam-spa. of the boiler and provided with a water-discharging conductor or outlet of approximately the same size and water capacity as the shell itself and opening below the water-line, and permitting the free and unrestricted discharge therethrough of all the feed-water after heating, by gravity and without back pressure, means for delivering the feed-water to the interior of the shell, and means for delivering steam to the interior of the shell.

4. A feed-water heater comprising a shell located in the steam-space of the boiler and having one end closed and provided at its other end with a large water conductor or outlet, opening below the water line and of a size relatively to the shell to permit the free and unrestricted discharge therethrough of all the feed-water, after heating, by gravity and without back pressure, means for delivering feed-water into the shell adjacent the closed end thereof, and means for delivering steam in the shell.

5. A feed-water heater comprising a closed water-heating shell located in the steam-space of the boiler and adapted for the free discharge of the water therefrom, of a water-pipe adapted to deliver feed-water to the interior of the shell, a steam-pipe extending from the steam-space into the shell and adapted to deliver steam thereinto, a valve in said pipe for regulating or cutting off the flow of the steam to the shell and means for controlling said valve from the exterior of the boiler.

6. A feed-water heater comprising a closed water-heating shell located in the steam-space of the boiler and adapted for the free discharge of the water therefrom, of a water-pipe adapted to deliver feed-water to the interior of the shell, a steam-pipe extending from the steam-space into the shell and adapted to deliver the steam thereto, a valve in said pipe for regulating or cutting off the flow of the steam to the interior of the shell, a crank for turning the valve, a lever on the boiler-head, and a reach-rod connecting the lever with the crank, whereby the valve can be controlled from the exterior of the boiler.

7. The combination with a steam-boiler, of an inclosed feed-water heater located in the steam-space of the boiler and having a large discharge outlet permitting the free and unrestricted discharge of the heated water, and a plate extending along the heater inside the same and above its bottom, which is provided with perforations adapted to divide the feed-water into sprays or streams to facilitate the heating thereof.

8. The combination with a steam-boiler, of an inclosed feed-water heater located in the steam-space of the boiler and having a free discharge-outlet, a perforated plate extending along the heater, inside the same, and means for initially introducing the feed-water on the perforated plate at the end farthest away from the outlet, whereby the water will be broken up into sprays or streams and given the greatest possible time for heating before discharging through the outlet.

9. The combination with a steam-boiler, of an inclosed feed-water heater located in the steam-space of the boiler and having a large discharge-outlet permitting the free and unrestricted discharge of the heated water, of a perforated plate extending along the heater inside the same, means for introducing steam into the heater below said plate, and means for introducing feed-water into the heater, above the plate.

10. A feed-water heater comprising a closed shell located in the steam-space of the boiler above the water-line, said shell being provided with a delivery-mouth opening below the water-line, a feed-water pipe for delivering water to the interior of the shell, which extends up into the steam-dome, a vent in the shell of the heater and a vent in the feed-water pipe in the dome, said vents being adapted to admit the steam to the interior of the heater and feed-water pipe for the purpose of equalizing the steam-pressure in the heater and permit the exit, by gravity, of the water from the heater.

11. The combination with a steam-boiler, of a feed-water heater located in the steam-space thereof and provided with a free and unrestricted outlet at one end which extends below the water-line, a removable cap at the other end of the heater, a perforated plate extending along the heater and inside the same, a steam-supply pipe entering the heater and extending into the steam-dome, a water-supply pipe entering the heater, and a vent in the heate

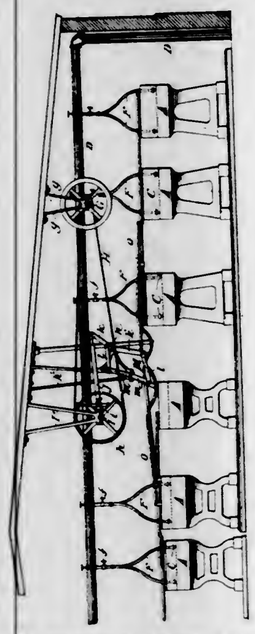
12. A feed-water heater comprising a closed shell located in the steam-space of the boiler and having one end opening out through the boiler-head and its other end provided with a large water conductor or outlet, opening below the water-line and of a size relatively to the shell to permit the free and unrestricted discharge therethrough of all the feed-water, after heating, by gravity and without back pressure, and a removable cap closing the open end of the shell on the boiler-head, the same permitting access to the interior of the shell when removed therefror

13. The combination with a steam-boiler, of a feed-water heater located in the steam-space of the boiler and which has one end opening out through the boiler-head and its other end provided with a large water discharge or conductor inside the boiler which permits the free and unrestricted discharge of the heated water, and a removable cap closing the end which opens out through the boiler-head which permits of access to the interior of the heater.

14. A feed-water heater comprising a shell located in the steam-space of the boiler and provided with a water discharge conductor or

outlet leading from the extreme lowest portion of the shell and of a size relatively to the shell to permit the free and unrestricted discharge therethrough of all the feed-water after heating, by gravity and without back pressure, whereby the water in the shell is compelled to pass out through said conductor, means for delivering the feed-water to the interior of the shell, and means for delivering steam to the interior of the shell.

680,514. CLEANER FOR PAPER-PULP SCREENS. GEORGE S. WITHAM, Madison, Me. Filed May 25, 1901. Serial No. 61,831. (No model.)



Claim.—1. The combination of the screens, the scrapers, and water-discharge pipes discharging at the ends of the scrapers in line with the flow of the pulp.

2. The combination of the scrapers, and water-discharge pipes carried by and moving with the scrapers and discharging at the ends of the scrapers in line with the flow of the pulp.

3. The combination of the screens, the scrapers, the water-discharge pipes mounted on the scrapers, and discharging at the front ends of the scrapers in line with the flow of the pulp and means for operating the scrapers.

4. The combination of the screens, the scrapers, and means for moving the scrapers transversely across the screens at right angles to the direction in which the pulp flows.

5. The combination of the screens, a series of scrapers, moving transversely across the screens, and another series of scrapers moving transversely across the screens but operated to move in one direction, while the first-mentioned set are moving in the opposite direction.

6. The combination of the screens, the scrapers, the water-discharge pipes carried thereby, and means for moving the scrapers and the water-discharge pipes transversely across the screens.

7. The combination of a series of screens, scrapers therefor, water-discharge pipes movable simultaneously with the scrapers, and means for moving the scrapers and water-discharge pipes simultaneously from a common driving-shaft.

8. The combination of a series of screens, a water-supply pipe, branch pipes connected therewith, and extending longitudinally over the screens, a series of scrapers, water-discharge pipes carried thereby, and flexible connections between these water-discharge pipes and the branch pipes of the main supply-pipe.

680,515. CALL-SIGNAL. FRANK M. WOOD, Chicago, Ill. Filed Apr. 18, 1901. Serial No. 56,511. (No model.)

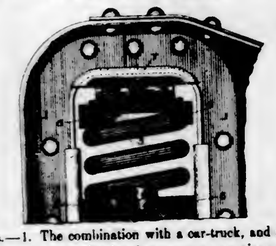
Claim.—1. A call-signal, comprising an inner dial, an outer reversely-arranged dial, a rotatable spindle projected centrally through the dials, a toothed buzzer-disk carried by and movable with the inner end of the spindle, an elastically-yieldable buzzer device loosely mounted upon the inner dial with its free portion in frictional engagement with the toothed portion of the buzzer-disk, a pointer or index carried by the inner end of the spindle and in cooperative relation to the inner dial, and an operating device constructed for application to the outer end of the spindle.



2. A call-signal for rooms, comprising a time-dial for the interior of the room, a reversely-arranged time-dial for the outer side of the room, a rotatable spindle projected centrally through the dials, a peripherally-toothed buzzer-disk carried by and movable with the inner end of the spindle, a spring buzzer device having one end carried by the inner dial with its opposite free end in frictional engagement with the toothed periphery of the buzzer-disk, a pointer or index carried by the inner end of the spindle and in cooperative relation to the inner dial, and removable operating means constructed for application to the outer end of the spindle and for cooperation with the outer dial, there being a fixed relation between the pointer or index and the operating means when the latter is applied to the spindle.

3. A call-signal, comprising opposite dials having corresponding central openings, the outer dial having a marginal flange surrounding the central opening thereof and upon the outer side, a rotatable spindle projected through the openings of the dials, and having a lateral projection upon its outer end and within the flange upon the outer dial, a peripherally-toothed buzzer-disk fixed to the inner end portion of the spindle and at the outer side of the inner dial, a spring buzzer-finger having one end carried by the inner dial and its free end in frictional engagement with the toothed periphery of the buzzer-disk, a radial pointer or index carried by the inner end of the spindle and in cooperative relation to the inner dial, and an operating crank-handle having a socket for the detachable reception of the outer end of the spindle, said socket having a lateral notch for the reception of the projection on the spindle, the projection and the pointer having a predetermined relation.

680,516. CAR-TRUCK. EDWIN S. WOODS, Chicago, Ill. Filed Apr. 22, 1901. Serial No. 56,913. (No model.)



Claim.—1. The combination with a car-truck, and an axle-box, of a supporting-spring, a spring-bearing cap, a crown-piece attached to the truck-frame, and a pair of twin rollers interposed between the bearing-cap and the crown-piece and adapted to afford independent lateral movement to the axle-box, substantially as set forth.

2. The combination with a car-truck, and an axle-box, of a supporting-spring, a spring-bearing cap, a crown-piece attached to the truck-frame, and a pair of twin rollers interposed between the bearing-cap and the crown-piece in a central zone of a less area than the supporting-spring, and adapted to afford independent lateral movement to the axle-box, substantially as set forth.

3. The combination with a car-truck, and an axle-box, of a supporting-spring, a spring-bearing cap, a crown-piece attached to the truck-frame, and a pair of twin rollers interposed between the bearing-cap and the crown-piece and adapted to afford independent lateral movement to the axle-box, the opposed faces of the bearing-cap and crown-piece being formed with curved or dished recesses forming tracks for the rollers and individual thereto, substantially as set forth.

4. The combination with a car-truck, and an axle-box, of a supporting-spring, a spring-bearing cap, a crown-piece attached to the truck-frame, and a pair of twin rollers interposed between the bearing-cap and the crown-piece in a central zone of a less area than the supporting-spring, the opposed faces of the bearing-cap and crown-piece being formed with curved or dished recesses forming tracks for the rollers and individual thereto, substantially as set forth.

5. The combination with a car-truck, and an axle-box, of a supporting-spring, a spring-bearing cap, a crown-piece attached to the truck-frame, and a pair of twin rollers interposed between the bearing-cap and the crown-piece and adapted to afford independent lateral movement to the axle-box, the opposed faces of the bearing-cap and crown-piece being formed with curved or dished recesses forming tracks for the rollers, and having end stop flanges or ribs, substantially as set forth.

6. The combination with a car-truck, and an axle-box, of a supporting-spring, a spring-bearing cap, a crown-piece attached to the truck-frame, and a pair of twin rollers interposed between the bearing-cap and the crown-piece in a central zone of a less area than the supporting-spring, the opposed faces of the bearing-cap and crown-piece being formed with curved or dished recesses forming tracks for the rollers and having end stop flanges or ribs, substantially as set forth.

680,517. IMPLEMENT FOR EXTRACTING BUNGS, &c. CHAS. R. BARRETT and ELWOOD C. PHILLIPS, Chicago, Ill. Filed Apr. 24, 1901. Serial No. 57,167. (No model.)



Claim.—1. In an implement for extracting bungs of the character herein described, an integrally-formed extractor-blade comprising a triangular-shaped penetrating-point, a flattened attaching-head widened laterally to constitute impact-shoulders, and an elongated shank forming an intermediate connection between said point and head, in combination with a guide-shank, means for attaching one end of said shank in a central manner to the attaching-head of the extractor-blade, and an impact-head sliding on said shank and adapted to impact against the lateral impact-shoulders of the aforesaid attaching-head, substantially as set forth.

2. In an implement for extracting bungs of the character herein described, an integrally-formed extractor-blade comprising a triangular-shaped penetrating-point, a flattened attaching-head widened laterally to constitute impact-shoulders, and an elongated shank forming an intermediate connection between said point and head, in combination with a guide-shank, means for attaching one end of said shank in a central manner to the attaching-head of the extractor-blade, an impact hub or handle secured to the opposite end of said shank, and an impact-head sliding on said shank and adapted to impact against the lateral impact-shoulders of the aforesaid attaching-head and against the impact hub or handle, substantially as set forth.

680,518. STOPPER. PATRICK F. CASSIDY, Boston, Mass. Filed Nov. 3, 1900. Serial No. 35,345. (No model.)



Claim.—1. The combination with a vessel having a charging-opening in one of its walls, of a stopper, and a holding device therefor, the latter by its tension holding said stopper in said opening, and being itself held by friction when the stopper is removed from said opening, as set forth.

2. The combination with a vessel having a charging-opening in one of its walls, of a stopper, and a holding device therefor secured at one end to said stopper and extended through said opening, its other end being free, said device, when the stopper is removed from said opening, being in frictional engagement with the inner side of said wall, as set forth.

3. The combination with a vessel having a charging-opening in one of its walls, of a stopper, and a holding device therefor consisting of a spring-wire secured to the stopper at one end, the inner portion of said spring-wire being in frictional engagement with the inner side of said wall when the stopper is removed from said opening, as set forth.

4. The combination with a vessel having a charging-opening in one of its walls, of a stopper, and a holding device therefor consisting of a spring-wire secured to the stopper at one end, the inner portion of said spring-wire being formed to clear said opening and in frictional engagement with the inner side of said wall when said stopper is removed from said opening, as set forth.

5. The combination with a vessel having a smooth opening and a surrounding seat, of a stopper designed to fit in said opening and bear on said seat, and a holding device consisting of a spring-wire secured at one end to the stopper and extended through said opening, the inner portion of said wire being in frictional engagement with the inner side of said wall when the stopper is removed from said opening, as set forth.

6. The combination with a vessel having a charging-opening in one of its walls, of a stopper and a holding device therefor, comprising a spring-wire secured to the stopper and projecting downwardly through said opening, and bent to form a horizontal flat portion adapted to bear against the wall of the vessel and terminating in a curve having a greater radius than that of the opening in the vessel, as set forth.

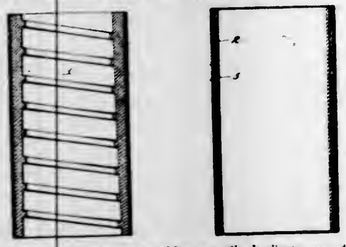
680,519. SOLDERING-IRON. GEORGE A. DENIS, Philadelphia, Pa. Filed Oct. 4, 1900. Serial No. 31,999. (No model.)



Claim.—In a soldering-iron, a reservoir, a pipe leading from the reservoir, pipes merging into a filtering-cavity at one end connected to

the first-named pipe, a filtering agent in the filtering-cavity, a burner into the sides of which the second-named pipes are tapped, a stuffing-box threaded into the end of the burner, conveying a needle-valve threaded in the stuffing-box, a generator-cap suspended below the burner and having a lug with a circular opening fitting over the stuffing-box whereby the pan is suspended and suitable supports and connections for the head, as and for the purpose described.

680,520. PROCESS OF MAKING METALLIC DUPLICATE PHONOGRAPH-RECORDS. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Aug. 18, 1900. Serial No. 27,237. (No specimens.)



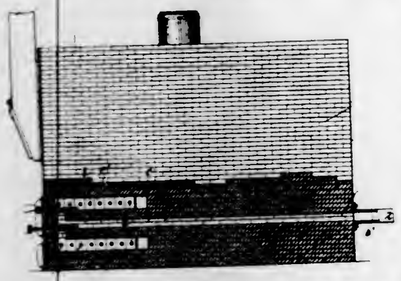
Claim.—1. A process of making metallic duplicate records which consists in depositing a metallic film on an original phonograph-record, in depositing on said film a different metal to form a matrix, in removing the original record, in depositing upon said film a coating of the same metal as the matrix, and in finally removing the matrix from the deposited metal by an electrolytic action, substantially as set forth.

2. A process of making metallic duplicate records which consists in coating an original phonograph-record with a metallic film, in depositing a metal matrix on said film, in removing the record from the matrix so secured, in depositing a metal on the film or record surface of the matrix, in protecting the last-mentioned metallic deposit, and in separating the matrix from the deposited metal by an electrolytic action, substantially as set forth.

3. A process of making metallic duplicate records which consists in depositing a metallic film on an original phonographic record, in depositing a different metal upon said film to form a matrix, in removing the record from said matrix, in depositing upon the film a coating of the same metal as the matrix, in protecting said deposited coating, and in dissolving the matrix electrolytically, substantially as set forth.

4. A process of making metallic duplicate records which consists in depositing a metallic film on an original record, in depositing a different metal on said film to form a matrix, in removing the original record from said matrix, in placing a protective coating on the matrix, in electrodepositing a metal upon the record-surface of the matrix, in removing the protective coating, in applying a protective coating to the metal deposited on the film, and in dissolving the matrix electrolytically, substantially as set forth.

680,521. FURNACE. ALPHONSE L. FOY, Brooklyn, N. Y. Filed May 16, 1901. Serial No. 60,491. (No model.)



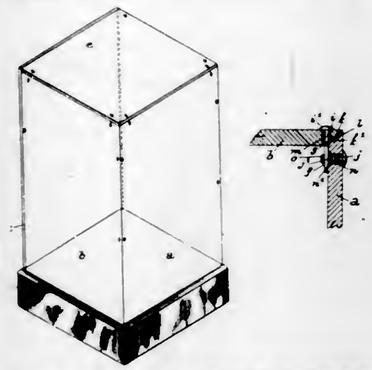
Claim.—In a furnace, the combination with the side walls having horizontal main air-passages formed therein, and extending the length of said walls, and with vertical air-passages at the forward ends of said main passages, and communicating therewith, of a grate located in the forward end of said walls, auxiliary flues located in said side walls above and below said main flues and above and below said grate, the forward ends of said auxiliary flues communicating with said vertical flues or passages, a bridge-wall connecting said side walls, and having flues therein above and below said grate and communicating with the rear ends of said auxiliary flues, and dampers located in said vertical flues whereby any or all of the air passing through the main flues may be directed above or below said grate, substantially as described.

680,522. MANUFACTURE OF FELT. ANTENORE FURAI, Biella, Italy, assignor to Alfredo Balada, same place. Filed Feb. 1, 1900. Serial No. 3,633. (No specimens.)

Claim.—1. The process of rendering vegetable fiber such as kapok or ceiba capable of felting, which consists in treating the fiber first with a bath containing mercury, and then with a bath of substances capable of developing chromic acid, and in then drying the same.

2. The process of rendering vegetable fiber such as kapok or ceiba capable of felting, which consists in treating the fiber first with a bath containing mercury, and then with a bath of substances capable of developing chromic acid to which have been added disintegrating and roughening agents substantially as specified, and in then drying the same.

680,523. GLASS SHOW-CASE. FRANCIS X. GANTER, Baltimore, Md. Filed July 2, 1900. Renewed Feb. 28, 1901. Serial No. 49,296. (No model.)

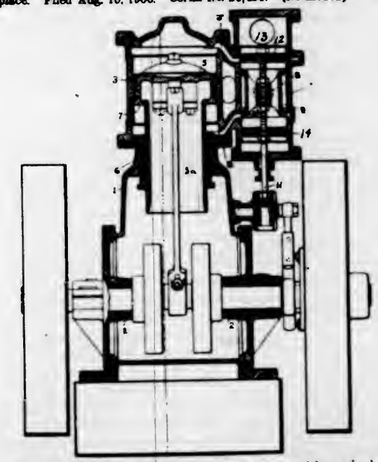


Claim.—1. In a glass show-case, the combination of two glass plates forming an angle and in contact, and each glass plate near the angle part having a hole which is reamed out on the inner surface of the plate; two sockets, *i*, *j*, closed at one end by a head—said sockets fitting loosely in said holes with their closed heads on the outside and one having an expanded rim edge, *j*³, partly filling the said reamed-out part of the hole it occupies; a metal plate, *f*, having a single bolt-hole enlarged on one side and provided with a screw-threaded shank which is entered into one of said sockets—the side of the plate having the enlarged part of the hole being in contact with the inside surface of one glass plate and over the said reamed-out hole; and a screw, *o*, entered through the bolt-hole of the metal plate and into the socket having the expanded rim edge, said screw having a rounded head projecting at the side of the plate where the bolt-hole is smallest, as set forth.

2. In a glass show-case, the combination of two glass plates forming an angle and in contact, and each plate provided along the contact-joint with a groove; a packing-strip which takes in the grooves on both plates; two metal sockets, *i*, *j*, closed at one end by a head and fitting loosely in holes in said glass plates with their heads on the outside and one of said sockets having an expanded rim edge on the inner side of the glass plate; a metal plate, *f*, having a single bolt-hole enlarged on one side and provided with a screw-threaded shank which is entered into one of said sockets—the side of the plate having the enlarged part of the hole being in contact with the inside surface of one glass plate and adjacent said expanded socket edge; and a screw connecting the metal plate with said expanded socket, whereby the dust-proof joints of the glass plates are securely fastened but are permitted a limited movement to avoid liability of cracking the glass plates.

3. In a glass show-case, the combination of two glass plates in contact and forming a corner of the show-case, and each glass plate near the corner being provided with a hole; two sockets, each of which is inserted in one of said holes; a plate having a screw-threaded shank in one of said sockets and provided with a bolt-hole; and a screw inserted through and having limited lateral movement in said bolt-hole and entered in the other socket, whereby the glass plates are securely fastened together but are permitted a limited movement to avoid liability of cracking the glass plates, as set forth.

680,524. STEAM-ENGINE. MICHAEL GARLAND and DAVID LUNGAIR, Bay City, Mich., assignors to the M. Garland Company, same place. Filed Aug. 10, 1900. Serial No. 26,456. (No model.)



Claim.—In a single-acting compound engine comprising a single cylinder, a piston having an enlarged upper end fitting the cylinder and a downwardly-extending hollow trunk of less diameter than the cylinder; the combination of an inclosed crank-space communicating with the lower end of the trunk, a connecting-rod secured in the trunk at its upper end, and means for admitting and discharging steam from the cylinder, comprising a hollow cylindrical valve mounted on the valve-stem for opening and closing the port of the high-pressure end of the cylinder; a flat disk valve adjustably secured to the valve-stem above the cylindrical valve for opening and closing the port of the low-pressure end of the cylinder, substantially as described.

680,525. DROP-HAMMER. PAUL HANZER and JEAN CHEVALIER, Petit Ivry, France. Filed Apr. 23, 1900. Serial No. 13,871. (No model.)



Claim.—1. In a drop-hammer, the combination with a main frame, a hammer, its stem, and a rotatable roller in said main frame for lifting the hammer, the peripbery of said lifting-roller being normally adjacent to said stem, of a swinging bearing-frame for a pressure-roller, means for operating said frame and a pressure-roller in said frame and adapted to bear on and press said stem up to the lifting-roller when said bearing-frame is shifted, substantially as set forth.

2. In a drop-hammer, the combination with the main frame, the hammer, its stem, and a rotatable lifting-roller mounted in said main frame with its peripbery adjacent to one face of said stem, of a bearing-frame mounted to swing radially about the axis of said lifting-roller, means for operating said bearing-frame, and a pressure-roller carried by said bearing-frame and adapted to be pressed against said stem by the swinging of said frame, substantially as set forth.

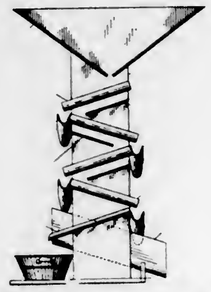
3. In a drop-hammer, the combination with the main frame, the guide-rollers thereon, the hammer, its stem, and the driven lifting-rollers, said rollers having their peripheries adjacent to one face of said stem, of the swinging bearing-frames, means for operating them simultaneously, and the pressure-rollers mounted in the respective bearing-frames, substantially as set forth.

4. In a drop-hammer, the combination with the main frame, the hammer, its stem, the guides on the main frame for said stem, and the upper and lower lifting-rollers, mounted in the frame, of the swinging bearing-frames *f* and *j*, in the main frame, the pressure-rollers *i* and *e*, mounted in the respective swinging frames, the rod *o* connecting the latter frames, the spring *s*, which upholds said frames and pressure-rollers, and the lever for operating the rod *o*, substantially as set forth.

5. In a drop-hammer, the combination with a main frame, a hammer, and its stem, of two pairs of rollers, one pair above the other, and each pair comprising a rotating lifting-roller at one side of the hammer-stem, and a pressure-roller at the opposite side, gearing connecting the rotating lifting-rollers, and means for causing the pressure-rollers to press simultaneously on the hammer-stem and force it into frictional contact with the lifting-rollers, substantially as set forth.

6. In a drop-hammer, the combination with a main supporting-frame, and a hammer provided with an upright stem, of four rollers situated at the respective angles of a rectangle, two of the superposed rollers at one side of said stem being rotating lifting-rollers, and the two opposite superposed rollers being pressure-rollers, and means for simultaneously drawing down the pressure-rollers obliquely toward the hammer-stem so that they bear forcibly thereon, substantially as set forth.

680,526. SAMPLING APPARATUS. HERBERT E. T. HAULTAIN, Salmo, Canada. Filed Nov. 22, 1900. Serial No. 37,394. (No model.)



Claim.—1. A sampling apparatus comprising two sets of inclined spaced sampling-troughs in combination with a mixing-board located between the sets and adapted to receive material passing between the sampling-troughs of the upper set and discharge it upon the lower set near their upper ends, substantially as and for the purpose specified.

2. A sampling apparatus comprising two sets of inclined spaced sampling-troughs, in combination with a mixing-board located between the sets and adapted to receive material passing between the sampling-troughs of the upper set and discharge it upon the lower set near their upper ends, a discharge-trough located below the lower ends of each set of sampling-troughs; and a sample-discharge trough located below the lower set, substantially as and for the purpose specified.

3. A sampling apparatus comprising two sets of inclined spaced sampling-troughs in combination with a mixing-board located between the sets and adapted to receive material passing between the sampling-troughs of the upper set and discharge it upon the lower set near their upper ends; a discharge-trough located below the lower ends of each set of sampling-troughs both discharge-troughs being adapted to empty at the same side of the apparatus; a general discharge-trough located below the ends of the aforesaid discharge-troughs, and a sample-discharge trough located below the lower set of sampling-troughs, substantially as and for the purpose specified.

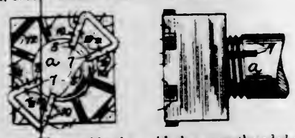
4. A sampling apparatus comprising two sets of inclined spaced sampling-troughs, in combination with a mixing-board located between the sets and adapted to receive material passing between the sampling-troughs of the upper set and discharge it upon the lower set near their upper ends, and a hopper arranged to discharge upon the upper set of sampling-troughs, substantially as and for the purpose specified.

5. A sampling apparatus comprising two sets of spaced sampling-

troughs inclined in opposite directions in combination with a mixing-board located between the sets and adapted to receive material passing between the sampling-troughs of the upper set and discharge it upon the lower set near their upper ends, substantially as and for the purpose specified.

6. A sampling apparatus comprising two sets of spaced sampling-troughs inclined in opposite directions in combination with a mixing-board located between the sets and adapted to receive material passing between the sampling-troughs of the upper set and discharge it upon the lower set near their upper ends, a discharge-trough located below the lower ends of each set of sampling-troughs; and a sample-discharge trough located below the lower set, substantially as and for the purpose specified.

680,527. **NUT-LOCK.** HENRY HEATHORNE, Newark, Ohio. Filed May 31, 1901. Serial No. 62,570. (No model.)

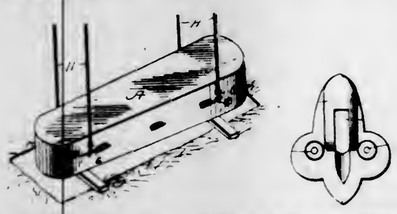


Claim.—1. The combination, with the screw-threaded portion of a bolt-shank or stud provided with a pair of grooves which extend longitudinally of the bolt or stud and are arranged a suitable distance apart circumferentially of the bolt or stud, and a nut engaging the said threaded portion of the bolt-shank or stud and provided, in one end thereof, with several radially-arranged grooves spaced equidistantly circumferentially of the nut and having such arrangement, relative to the grooves in the bolt-shank or stud, as to render any two adjacent grooves in the nut capable of registering with the different grooves, respectively, in the bolt or stud upon the proper circumferential adjustment of the nut, of a fastening device having two members engaging the different grooves, respectively, in the bolt or stud and engaging the grooves in the nut which register with the said grooves in the bolt or stud.

2. The combination, with the screw-threaded portion of a bolt-shank or stud provided with two pairs of grooves which extend longitudinally of the bolt or stud and are arranged a suitable distance apart circumferentially of the bolt or stud, with the grooves of each pair of grooves parallel, and the nut engaging the said threaded portion of the bolt-shank or stud and provided, in one end thereof, with as many radially-arranged grooves as there are grooves in the bolt-shank or stud, with the grooves of the nut having such arrangement relative to the grooves in the bolt-shank or stud as to render the grooves in the nut capable of registering with the grooves in the bolt or stud upon a proper circumferential adjustment of the nut, of a fastening device having members engaging the grooves of one of the pairs of grooves in the bolt or stud and engaging grooves in the nut, and another fastening device engaging the grooves of the other pair of grooves in the bolt and engaging grooves in the nut.

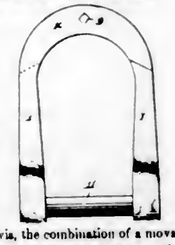
3. The combination of the screw-threaded portion of a bolt-shank or stud, and a square nut mounted upon the said screw-threaded portion of the bolt-shank or stud and provided in one end thereof with a series of eight radially-arranged grooves spaced equidistantly circumferentially of the bolt or stud and having such arrangement that each corner of the nut shall be between two adjacent grooves of the said series of grooves, of a fastening device extending between and engaging adjacent grooves in the nut and extending into the bolt or stud, and the two grooves adjacent to, but at opposite sides, respectively, of each corner of the nut being connected at their outer ends by another groove formed in the nut and arranged to be engaged by the central portion of the fastening device when the latter is placed in engagement with the said connected grooves.

680,528. **DEVICE FOR LOWERING COFFINS INTO GRAVES.** JOHN HERWIG, Baltimore, Md. Filed Feb. 15, 1901. Serial No. 47,491. (No model.)



Claim.—As an article of manufacture, a device of this character consisting of a plate made from a single casting, said plate being the same thickness throughout and being provided with an abutment or rounded projection from the body thereof as if embossed, so as to provide a socket or cavity in the plate below the same, said plate having an opening therethrough in the body of the abutment, and a guide channel or groove the same width as said opening inclining from the lower edge of the plate to the mouth of the opening therein, said channel being adapted to guide a hook into and out of the opening, and means to secure the plate to a coffin or casket.

680,529. **CLEVIS.** ELMER T. HIBEY, East Palestine, Ohio. Filed Feb. 1, 1901. Serial No. 45,568. (No model.)



Claim.—In a clevis, the combination of a movable jaw having a recess and an opening formed therein, a shaft secured in said recess, a lug formed on said shaft, a stationary jaw having formed therein an annular recess, a lug adapted to engage in said opening of the movable jaw, a spring secured in said recess, and a tubular portion adapted to encircle said shaft, substantially as described.

680,530. **WINDMILL.** LEWIS E. JONES, Milford, Ill. Filed July 20, 1899. Serial No. 724,537. (No model.)



Claim.—1. In a windmill having vertical feathering-blades, a resisting means arranged within the wind-vane of said windmill, a lever pivotally mounted in said wind-vane, one end of said resisting means having adjustable connections with said lever, the other end of the said resisting means having connection with the said wind-vane, shifting bars having adjustable pivotal connection with said lever, the said shifting bars extending on either side of the main frame, the other ends of said shifting bars having diametrically opposite pivotal connection with a slidably-mounted coupling, links having pivotal connection with the said sliding coupling, said links extending into the said wind-wheel and having pivotal connection with crank-rods, which crank-rods are pivotally mounted in the said wind-wheel and being in the same vertical plane as the vertical feathering-blades of the said wind-wheel, and a movable ring arranged in juxtaposition to the feathering-blades of said wind-wheel, said movable ring having pivotal connection with each of said vertical feathering-blades, and also having pivotal connection with the crank-rods, all adapted in their operation to automatically regulate the speed and power of the windmill.

2. In a windmill having vertical feathering-blades, a wind-vane connected with said blades, a resisting means arranged within the said wind-vane, a pivotally-mounted lever arranged within the said wind-vane, an adjustable connection between said lever and the blades, a block mounted upon said lever and having direct connection with the resisting means, and manually-operated cables connected with said block and guided to the base of the windmill.

3. In a windmill the combination of vertical feathering-blades, a wind-vane, a resisting means arranged within said wind-vane, a pivotally-mounted lever connected with said resisting means manually-operated devices extending from the base of the tower up to said lever and means for adjusting the point of application of the resisting means upon the lever mounted in the wind-vane frame.

4. In a windmill, the combination of vertical feathering-blades, a wind-vane connected with said blades, a pivotally-mounted lever arranged in the wind-vane, a sleeve adjustably mounted on said lever, means for holding said sleeve and consequently the lever at its proper adjustment, a sliding coupling mounted on the frame of the windmill and having a longitudinal and rotary movement, and an adjustable means connecting the sliding coupling and lever.

5. In a windmill, the combination of vertical feathering-blades, a wind-vane connected with said blades, a pivotally-mounted lever arranged within the wind-vane, adjustable connection between said lever and the blades, an adjustable sleeve mounted upon said lever to give the lever a proper incline, cables connected to said lever, and means for operating said cables to adjust the sleeve upon the lever.

6. In a windmill, the combination of a framework, vertical feathering-blades, a wind-vane connected with said blades, a pivotally-mounted lever arranged within the frame of the wind-vane, means for adjusting said lever consisting of a spring-actuated sleeve adjustably mounted on the lever, a sliding coupling arranged on the frame of the windmill and having longitudinal and rotary movement, and mechanism for giving rotary movement to the said coupling as the wind-wheel rotates.

7. In combination, a windmill comprising a framework, a wind-wheel consisting of a central hub, spokes radiating therefrom, a movable ring secured to said spokes, another ring secured to the outer ends of said spokes, a series of feathering-blades arranged radially upon said framework, the lower ends of said feathering-blades having pivotal connections with said ring, said blades being provided with slots for the passage of said outer ring, a movable ring arranged in juxtaposition to said outer ring, and having pivotal connections with the edge of each of the blades, crank-rods extending from said hub and having pivotal bearings in said inner and outer rings, cranks arranged on the outer ends of said crank-rods and pivotally connected with said movable ring whereby when a pivotal movement is imparted to said crank-rods, a rotary movement is imparted to the movable ring, the movable ring imparting a simultaneous pivotal movement to each of said blades, a framework connected with the axle of said wheel, a wind-vane carried by said frame and connected with said blades, a pivotally-mounted lever arranged within the wind-vane, adjustable connection between said lever and the blades, an adjustable sleeve mounted upon the lever to give the lever a proper incline, cables connected with said lever, and means for operating the cables to adjust the sleeve upon the lever.

680,531. **HAT-CLEANING PAD.** JOSEPH KRIBBS, Brooklyn, N. Y., assignor of one-half to Edmund A. Dickerson, same place. Filed May 28, 1901. Serial No. 62,232. (No model.)

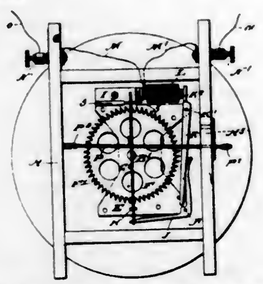


Claim.—1. As an improved article of manufacture, a hat-cleaning pad consisting of a felt body containing shellac and soda, whereby the felt body is rendered more resilient and flexible, for the purpose set forth.

2. As an improved article of manufacture, a hat-cleaning pad consisting of a felt body in which are incorporated shellac and sal-soda, the face of the body being provided with a nap, for the purpose described.

680,532. **SECONDARY ELECTRIC CLOCK.** FIDELIS LUCKING, Detroit City, Minn. Filed Feb. 8, 1901. Serial No. 46,519. (No model.)

Claim.—1. In an electric clock, the combination, with the clock-spindle and a toothed wheel thereon, of an actuating member having a pawl movable toward and from the periphery of the wheel to drive the same, the said member being itself movable toward and from the plane of the wheel, a spring for pressing said member toward the wheel, and electromagnetic mechanism for imparting a reciprocating motion to the actuating member.



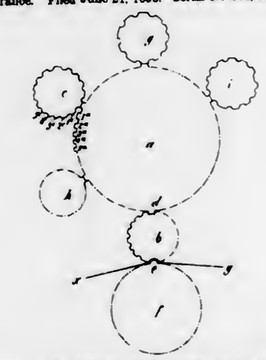
2. In an electric clock, the combination, with the clock-spindle and a toothed wheel thereon, of an actuating member having a pawl movable toward and from the periphery of the wheel to drive the same, the said member being itself movable toward and from the plane of the wheel, and having a projection with an angular slot, the casing having an angular slot with one member in alinement with the corresponding member of the slot of the projection when the actuating member is in its active position, and a releasing-lever swiveled to the casing and arranged to extend through the alining slots of the said projection and of the casing.

3. In an electric clock, the combination with the clock-spindle and a toothed wheel thereon, of an actuating member arranged to slide rectilinearly in the direction of a diameter of said wheel and also capable of moving toward and from the plane of said wheel, said actuating member carrying a pawl to drive the wheel, an electromagnet, an armature therefor, and an operative connection between the armature and the actuating member.

4. In an electric clock, the combination with the clock-spindle and a toothed wheel thereon, of an actuating member having a pawl movable toward and from the periphery of the wheel to drive the same, the said member being itself movable toward and from the plane of the wheel, means for shifting said member away from the plane of the wheel, and electromagnetic mechanism for imparting a reciprocating motion to the actuating member.

5. In an electric clock, the combination with the clock-spindle and a toothed wheel thereon, of an actuating member having a pawl movable toward and from the periphery of the wheel to drive the same, the said member being itself movable toward and from the plane of the wheel, a releasing-lever arranged to engage the actuating member and to throw it out of the active position, and electromagnetic mechanism for imparting a reciprocating motion to the actuating member.

680,533. **MACHINE FOR SIMULTANEOUSLY PRINTING AND EMBOSSING PAPER.** ERNEST E. MARINIER and EUGÈNE L. NAVOIT, Paris, France. Filed June 21, 1898. Serial No. 684,105. (No model.)



Claim.—1. A machine for simultaneously printing and embossing paper and other material comprising an embossing-cylinder, provided with relief and intaglio portions, a pressure-roller, a main intaglio and relief ink-receiving cylinder which turns in contact with a corresponding embossing-cylinder and receives colors either in its recesses or on the relief parts, and during its rotation transports them to the corresponding parts of the embossing-cylinder, so that the latter in conjunction with a

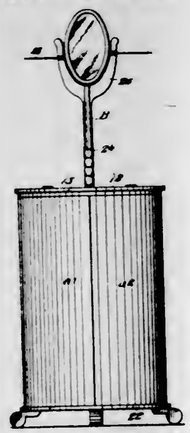
corresponding pressure-roller applies the colors to the material and at the same time embosses it, at the single operation, substantially as described.

2. In an apparatus as described, the combination with a printing and embossing roller, of a receiving-roller having relief and intaglio portions corresponding respectively with the intaglio and relief portions of the embossing-roller, the latter and the receiving-roller being arranged to rotate relatively to each other and to coöperate as set forth whereby the raised and recessed portions of the receiving-roller will transfer color respectively to the corresponding depressed and raised portions of the printing and embossing roller, independent color-applying rollers arranged to rotate in contact with and adapted to transfer different colors to the receiving-roller, and a pressure-roller arranged to coöperate with the printing and embossing roller, and having raised portions corresponding with the depressions of said printing-roller and depressed portions corresponding with the raised portions of same.

3. In an apparatus as described a central ink-collecting roller provided with a design in intaglio and relief on its circumference, a printing and embossing cylinder in contact therewith and having the design correspondingly in relief and intaglio, a pressure-roller in contact with the printing and embossing roller and having the design correspondingly in intaglio and relief, a series of color-supply rollers about the circumference of the ink-collecting cylinder each color-supply roller having that portion of the design which is to appear in its respective color formed in relief on its circumference and a series of color-feeding rollers for each color-supply roller substantially as described.

4. In an apparatus as described, the combination with an embossing-roller, of a collecting-roller having embossed portions corresponding with the recessed portions of the embossing-roller and depressed portions corresponding with the raised portions of the roller, the latter and roller arranged to rotate relatively to each other and to coöperate as set forth whereby the raised portions of roller will transfer colors to the depressed portions of roller, independent color-applying rollers arranged to rotate in contact with and adapted to transfer different colors to the raised portions of the collecting-roller, a supplementary roller arranged to coöperate with the roller and having portions adapted to come in contact with the raised portions of said roller, color-applying rollers adapted to transfer colors to the portions of said supplementary roller which come in contact with the raised portions of roller, and a roller arranged to coöperate with roller and having raised portions correspoonding with the depressions of said roller and depressed portions corresponding with the raised portions of the latter roller.

680,534. WASHSTAND. ISAAC MASON, Brooklyn, N. Y. Filed Mar. 15, 1901. Serial No. 51,332. (No model.)

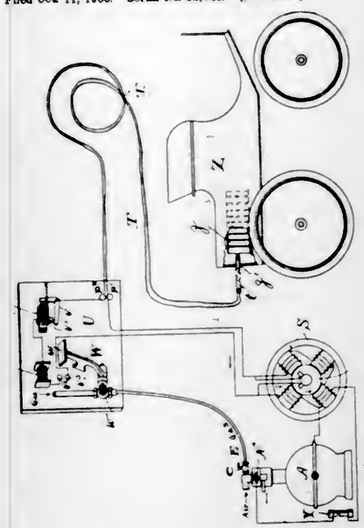


Claim.—1. A washstand, comprising a hollow body, consisting of a stationary section and hinged door-sections, the stationary section having an interior shelf projecting into the door-sections, an upper partition secured to the stationary section and against which the hinged door-sections close, said partition being provided with an opening, and a cover extended over said partition, substantially as specified.

2. A washstand comprising a hollow circular body, which body comprises a stationary body-section and two hinged or door sections, shelves secured to the door or hinged sections at their inner faces, a shelf secured within the body-section, projecting beyond the same and into the hinged or door sections when the latter are closed, a hinged cover at the top of the body-section, and a partition beneath the said cover, which is attached to the body-section and extends out to the hinged or door sections when the latter are closed, the said partition being provided with an opening to receive a receptacle, as set forth.

3. A washstand consisting of a cylindrical hollow body, comprising a semicircular fixed section and two hinged or door sections, a shelf secured within the body-section, extending beyond the same and into the door or hinged sections when the latter are closed, the extended portion of the shelf approximating a triangular formation, shelves attached to the door or hinged sections at the top and at the bottom, the top and bottom shelves representing in plan view a quarter of a circle, and intermediate shelves secured to the door or hinged sections near their centers, which shelves substantially conform to the shape of the extension of the shelf in the body-section, as and for the purpose specified.

680,535. APPARATUS FOR CHARGING STORAGE BATTERIES OF AUTOMOBILE VEHICLES. JOSEPH B. MERIAM, Cleveland, Ohio. Filed Oct. 11, 1900. Serial No. 32,741. (No model.)



Claim.—1. The combination of an explosive-engine, a dynamo connected therewith so as to drive the engine or be driven by it, an automobile vehicle containing a storage battery, and electric connections leading from the dynamo to terminals separably connected to the storage battery, whereby the simple connection of said terminals allows the residual current in the battery to speed up the engine to the proper amount to start it to drive the dynamo.

2. An automobile vehicle carrying a storage battery and one member of an electric jack connected with said battery and constituting terminals thereof, combined with an automatic charging plant consisting of an explosive-engine and a dynamo connected therewith and electric connections leading from the dynamo to the other member of said electric jack, said two members of the jack being separable, said arrangement operating when the two parts of the jack are in engagement to allow the residual current in the battery to operate the dynamo as a motor to speed up the engine to the proper point to allow it to operate the dynamo as a dynamo to recharge the battery.

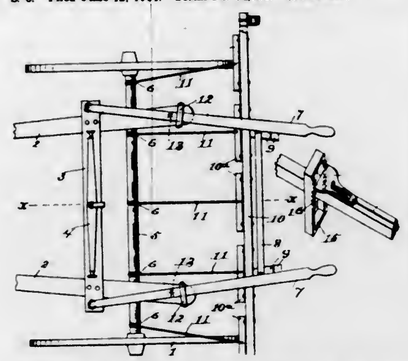
3. An explosive-engine, a dynamo connected therewith so as to drive the engine or be driven by it, an automobile vehicle containing a storage battery, and electric connections leading from the dynamo to terminals separably connected to the storage battery, whereby the simple connection of said terminals allows the residual current in the battery to speed up the engine to the proper amount to start it to drive the dynamo, combined with an electric-circuit breaker in the circuit from the dynamo adapted to open the circuit when the battery is sufficiently charged.

4. The combination of an explosive-engine, a dynamo connected therewith so as to drive the engine or be driven by it, an automobile vehicle containing a storage battery, and electric connections leading from the dynamo to terminals separably connected to the storage battery, whereby the simple connection of said terminals allows the residual current in the battery to speed up the engine to the proper amount to start it to drive the dynamo, and an automatically-operated device adapted to shut off the fuel-supply when the battery is sufficiently charged.

5. The combination of an explosive-engine, a dynamo connected therewith so as to drive the engine or be driven by it, an automobile vehicle containing a storage battery, and electric connections leading from the dynamo to terminals separably connected to the storage battery, whereby the simple connection of said terminals allows the residual current in the battery to speed up the engine to the proper amount to start it to drive the dynamo, the ignition in said engine being controlled by a sparking device receiving its current by means of a shunt around a portion of the field-winding of said dynamo.

6. In a charging plant, the combination of an explosive-engine, a dynamo connected therewith and adapted to be driven thereby, a sparking device for said engine, and a shunt around a portion of the field of the dynamo for supplying current to said sparking device.

680,536. COTTON-CHOPPER. THOMAS T. MILBURN, Columbia, S. C. Filed June 12, 1901. Serial No. 64,260. (No model.)



Claim.—1. In a sulky cotton-chopper, the combination with the pivoted hand-levers, the hangers secured to and depending from the levers, the straps through which the levers work, and the spiral springs interposed between the levers and the sulky-shafts, of the cutter-bar secured to the hangers, a series of cutters attached to the bar, and a rod fixed to each cutter and pivoted to the sulky-axle.

2. In a sulky cotton-chopper, the combination with the sulky-axle having a series of circular grooves, the hand-levers pivoted to the sulky-shafts, the guide-straps secured to the shafts and through which the levers work and are thereby limited in movement, and the spiral springs interposed between the shafts and the levers and in front of the straps, of the cutter-bar hung from the free end of the levers, a series of cutters secured at intervals to the cutter-bar, and rods having one end attached to the cutters and the other end working in the said axle-grooves.

3. The combination, with a cotton-chopper having pivoted hand-levers, and the cutters hung from the levers, of means to control the movement of said levers and cutters, comprising the spiral springs, the strap or guide having a notched or toothed edge, and a spring-controlled dog to engage said edge.

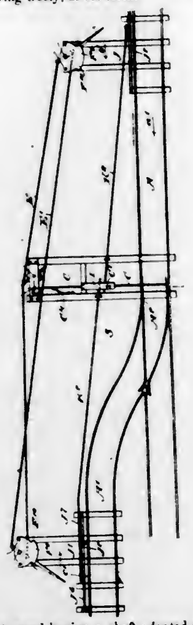
680,537. RAILROAD-SWITCH. GEORGE MOORE, Ellsworth, Iowa. Filed Feb. 20, 1901. Serial No. 48,099. (No model.)

Claim.—1. A railroad-switch provided with a switch-stand having mechanism for opening and closing the switch, a locking device comprising a spring-plate having apertures for engaging a pin on said mechanism for locking the switch in position, means actuated by a device on the train for moving said plate out of engagement with the pin to unlock the switch, and a device carried on the train for operating the switch-stand mechanism to open or close the switch, as set forth.

2. A railroad-switch provided with a switch-stand having a mechanism for operating the switch and for giving danger or safety signals, a lock for locking the switch rails in position, an operating device for the lock to unlock it and arranged for engagement by a device on the train, shafts located on opposite sides of the switch-rails and connected with the switch-stand mechanism for actuating the switch-rails, a lever on each of said shafts, means for locking the lever to the shaft during a part of its movement, and devices on the train and arranged to actuate said levers after the switch is unlocked, as set forth.

3. A railroad-switch having a shaft connected with the switch-stand for actuating the switch-rails, a lever fulcrumed thereon and standing at a right angle to the shaft, a locking device for locking the lever to the shaft during part of the movement of the latter, and a spring for returning the lever to an active position, as set forth.

4. A railroad-switch having a shaft connected with the switch-stand mechanism for actuating the switch-rails, a lever fulcrumed on said shaft, a spring pressing said lever, and dogs engaging the lever on opposite sides and arranged to unlock during part of the movement of the lever, to permit the lever to swing freely, as set forth.



5. A switch-stand having a shaft adapted to be oscillated and carrying segmental gear-wheels of different diameters, a signal and switch-rail shaft having a fixed and a loose gear-wheel in mesh with said segmental gear-wheels, and a signal and switch controlled by said fixed and loose gear-wheels, as set forth.

6. A switch-stand having a shaft adapted to be turned and carrying segmental gear-wheels of different diameters, a signal and switch-rail shaft having a fixed and a loose gear-wheel in mesh with said segmental gear-wheels, a signal on said signal and switch-rail shaft, and a connection between said loose gear-wheel and the switch-rails, as set forth.

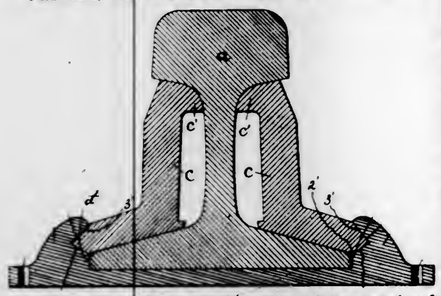
7. A switch-stand having a shaft adapted to be turned and carrying segmental gear-wheels of different diameters, a signal and switch-rail shaft having a fixed and loose gear-wheel in mesh with said segmental gear-wheels, a signal on said signal and switch-rail shaft, a connection between said loose gear-wheel and the switch-rails, and a lock on said connection for locking the switch-rails in either an open or closed position, as set forth.

8. A railroad-switch having a locking device for the switch-rail-operating mechanism, said locking device comprising a spring-plate having apertures for engaging a pin on said mechanism, a wedge-shaped block for engaging said plate and moving the latter out of engagement with said pin, and a spring-pressed lever arranged alongside the rails and adapted to be engaged by a device on the train, to impart movement to the lever, said lever having connection with said wedge-shaped block, as set forth.

9. A railroad-switch having a locking device for switch-rail-operating mechanism, and means for actuating the locking device, the said means comprising a lever arranged alongside the rails and adapted to be engaged by a device on the train, the said lever being pivoted at one end and having a depending pin at the other end, a spring coiled on said pin and resting on a fixed support and engaging the lower side of said lever, inclined bars connected with the ends of the lever, a bell-crank lever connected by a link with the said lever, and means connected with the bell-crank lever for actuating the locking device, as set forth.

10. A railroad-switch provided with a switch-stand having mechanism for opening and closing the switch, a locking device for locking the switch in position, a device on the train for operating said locking device to unlock the switch, a lever connected with the switch opening and closing mechanism, and a device on the train for engaging the lever to operate the said mechanism, the said device comprising a loop mounted to swing and adapted to be projected from the side of the train to engage the said lever, as set forth.

680,538. RAIL-JOINT. WILLIAM J. MCCRORY, Rochester, Pa. Filed Jan. 2, 1901. Serial No. 41,397. (No model.)



Claim.—1. A rail-joint comprising rails, angle-bars formed to fit inwardly between the heads and feet of the rails, a tie-bar arranged transversely of and beneath the plane of the rails and provided with transversely-grooved end clamps receiving the outer edges of the opposite angle-bars, said tie-bar formed with a depressed rail-receiving seat having edge walls abutting against the longitudinal rail edges, said angle-bar outer edges and said grooves arranged above said edge walls of said seat, substantially as described.

2. A rail-joint comprising rails, similar angle-bars formed to engage the heads and feet of the rails and permit inward wedging movement of their lower portions toward the webs of the rails, the lower outer edges of the angle-bars projecting outwardly beyond and above the planes of the side edges of the rail-feet and formed with inclines at their end portions, tie-bars provided with depressed transverse rail-receiving seats holding the rails against independent lateral play, the opposite ends of the tie-bars having upwardly-projecting clamps formed at their upper portions above the outer edges of the rail-feet with inclined grooves receiving said edges of the angle-bars, substantially as described.

3. A rail-joint comprising the rails, similar angle-bars wedged inwardly between the heads and feet of the rails, a tie-bar formed with the intermediate depressed rail-receiving seat having edge walls engaging the outer edges of the rail-feet to hold the rail against lateral play and provided above said walls with upwardly-projecting end clamps interlocking with the outer edges of the angle-bars above the outer edges of the rail-feet and forcing said bars inwardly, substantially as described.

4. A rail-joint comprising angle-bars having heads at their upper edges formed to fit and rock on the under sides of the rail-heads and outwardly-projected flanges at their lower ends to fit on the rail-feet and project outwardly above and beyond the outer edges of said feet, the inner lower portions of said angle-bars out of contact with the rail-webs, whereby the angle-bars can be forced inwardly to wedge between the rail heads and feet, and tie-bars having end clamps projected up at the outer edges of the rail-feet and formed at their inner faces with double-faced inclined grooves receiving the lower outer edges of the angle-bars, substantially as described.

5. A rail-joint comprising the angle-bars formed to wedge inwardly between the rail heads and feet and leave spaces between their inner portions and the rail-webs, the lower flanges of said bars projecting outwardly above and beyond the outer edges of the rail-feet and having double-end inclines, and tie-bars having upwardly-projecting end clamps abutting against said rail-feet edges and above the same having double-faced inclined grooves receiving said inclined edges of said angle-bars, substantially as described.

6. A rail-joint comprising angle-bars having rounded top edges to fit and rock on the under sides of the rail-heads and bottom flanges fitting the rail-feet to move inwardly and cause said bars to wedge between the rail heads and feet, the outer edges of said bars located above the outer edges of the rail-feet and at each end portion having differently arranged and inclined faces, and the tie-bars having the upwardly-projected end clamps having inclines at their inner faces corresponding to and registering with said inclined portions of the angle-bar edges, whereby the lower portions of the angle-bars are driven inwardly by said tie-bars, said angle-bars rocking at their upper edges on the rail-heads, substantially as described.

7. A rail-joint comprising angle-bars fitting and wedging between the rail heads and feet and having portions of their projected lower outer edges V-shaped in cross-section, the two flat faces of each V-shaped portion inclined longitudinal of the angle-bar, and tie-bars having upwardly-projected end clamps, each clamp at its inner face having an inclined transverse V-shaped groove corresponding to and receiving a V-shaped portion of the angle-bar edge, substantially as described.

8. A rail-joint having angle-bars formed to wedge inwardly of the rails between the heads and feet thereof and each having a flat longitudinally-inclined face also inclined upwardly and outwardly transversely of the angle-bars and another longitudinally and transversely inclined flat face, in combination with a tie-bar having upwardly-projected end clamps interlocking with said angle-bars, each clamp formed with an inclined flat face abutting against and corresponding to said first-named face of the angle-bar to force the angle-bar up against the rail-heads, and with another inclined face abutting against and corresponding to said last-named face of the angle-bar to force said bar inwardly of the rail, substantially as described.

9. A rail-joint comprising angle-bars formed to wedge inwardly of the rails between and abutting against the head and feet thereof, each angle-bar having a longitudinally-inclined face at its lower outer edge, said face also inclined upwardly and outwardly transversely of said bar, and another and differently transversely and longitudinally inclined face, and a tie-bar having upwardly-projecting end clamps overlapping said lower outer edges of the angle-bars and formed at their inner faces with corresponding faces abutting against said faces of the angle-bars to force said angle-bars up against the rail-heads and wedge the same inwardly between the rail heads and feet, substantially as described.

10. A rail-joint comprising angle-bars formed to move and wedge inwardly between the rail heads and feet, each angle-bar having the end portions of its lower outer edge formed with differently-inclined wedge-faces, and tie-bars having upwardly-projecting end clamps, the face of each clamp grooved to receive said edges of the angle-bars and formed with corresponding differently-inclined wedge-faces abutting against said faces of the angle-bars, substantially as described.

11. A rail-joint comprising rails, the angle-bars wedging inwardly between the rail heads and feet and having portions of their outer lower edges formed V-shaped in cross-section, the flat faces of said edges inclining longitudinally at different degrees, and a tie-bar having the upwardly-projected end clamps, each at its inner face having a V-shaped transverse groove receiving the edge of an angle-bar, the flat faces of said groove differently inclined to abut against the corresponding angle-bar faces, for the purposes described.

680,539. BENCH-VISE. GEORGE W. NORTON, Philadelphia, Pa. Filed Mar. 11, 1901. Serial No. 50,663. (No model.)



Claim.—1. A bench-vise, comprising a movable jaw adapted to work against a relatively stationary surface forming a fixed jaw, a screw mounted to turn in the movable jaw, a fixed nut in which the screw works to operate the movable jaw, two slide-bars rigidly attached to the movable jaw and projecting transversely therefrom in parallelism with each other, a cross-bar connecting the opposite ends of the slide-bars rigidly together, and guide-bars having transversely-disposed slotted lugs projecting outwardly therefrom, whereby the guide-bars may be fastened to the bench and adjusted toward and from the slide-bars, the guide-bars bearing respectively against the outer side edges of the slide-bars to hold the movable jaw properly in place.

2. A bench-vise, comprising a movable jaw adapted to work against a relatively stationary surface forming a fixed jaw, slide-bars attached to the movable jaw, and comprising wooden body portions with metallic rails set into the surface thereof, for the purpose specified, guides on which said metallic rails run, and means for operating the movable jaw.

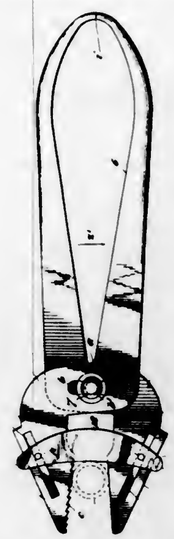
680,540. PLIERS. JOHN L. OGLE, Maitland, Mo. Filed Mar. 19, 1901. Serial No. 51,868. (No model.)

Claim.—1. In pliers, the combination with two handle-limbs, and a tapered jaw on each limb, of a pivot-bolt loosely connecting the handle-limbs near the jaws, and a yoke-piece slidable on the jaws and adapted to control their opening or closing adjustment.

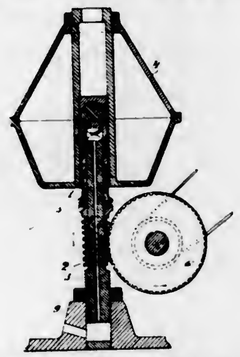
2. In pliers, the combination with two handle-limbs each having an offset thereon, and a pivot-bolt loosely connecting the lapped limbs through said offsets, of a tapered jaw on each offset, and a yoke-piece held to slide on the jaws and adapted to control their opening-and-closing movement.

3. In pliers, the combination with two handle-limbs, each having an offset thereon and lapped at said offsets, one of said limbs being transversely slotted through its offset portion, and the other limb perforated opposite the slot, of a pivot-bolt loosely connecting the handle-limbs through the slot and perforation, a tapered jaw extended from each offset portion of a handle-limb, one of said jaws having a toothed inner edge, and a yoke-piece held to slide on the jaws and adapted to control their opening-and-closing movement.

4. In pliers, the combination with two handle-limbs, having lapped and pivoted engagement through oppositely-projecting offsets thereon, and a tapered jaw extended from each offset portion of a handle-limb, one of said jaws having a toothed inner edge, of a yoke-piece comprising two plates connected at their ends by spacing cross-bars, and two pusher-studs projected from the plate into grooves formed in the side faces of the jaws.



680,541. AUTOMATIC SHAFT-COUPLING DEVICE. OLOF OHLSON, Södertelje, Sweden. Filed Sept. 24, 1900. Serial No. 30,945. (No model.)

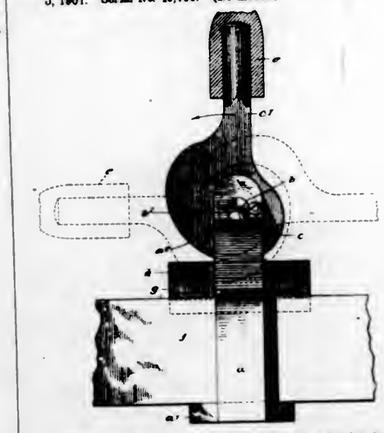


Claim.—1. The combination with a rotatable part, a rotatable and longitudinally-slidable shaft alined axially with said part, and means for coupling said shaft to said part for driving when the shaft is pressed into contact with said rotatable part, of means for simultaneously rotating said shaft and moving it longitudinally into coupling contact with said rotatable part.

2. The combination with a rotatable part, a rotatable and longitudinally-slidable shaft alined axially with said part and having on it a steep-pitched screw-thread, and means for coupling said shaft to said part for driving when the shaft is pressed into contact with said rotatable part, of a rotating worm-wheel, the teeth of which engage the screw-thread on said slidable shaft, whereby the rotation of said wheel imparts rotation to said shaft about its axis, and simultaneously slides said shaft longitudinally.

3. The combination with a centrifugal drum, its shaft, and the rotatable shaft 2, alined with the drum-shaft, slidable endwise, and provided with oblique screw-threads, of the wheel 6, provided with oblique teeth engaging said screw-threads for driving, and the rubber coupling device 5, for coupling the two shafts together, substantially as set forth.

680,542. PRESS. JOHN S. PETER, Fort Worth, Tex. Filed Mar. 5, 1901. Serial No. 49,760. (No model.)



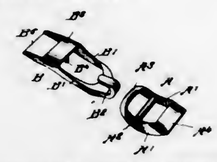
Claim.—A tie-plate press, comprising a yoke having bearings at its upper portion, a shaft mounted in the bearings, and a cam carried on the shaft and having a steadily-increasing radius somewhat in the form of a spiral, the cam working with the yoke in the manner explained.

680,543. PROCESS OF PRODUCING PIPERIDIN. WILHELM PIP, Darmstadt, Germany, assignor to The Firm of E. Merck, same place. Filed Jan. 12, 1899. Serial No. 701,979. (No specimens.)

Claim.—1. The process herein described of producing piperidin from pyridin, consisting in dissolving the pyridin in such a quantity of pure acid that at least three equivalents of acid are used to one of pyridin, and passing an electric current through the solution with the aid of suitable electrodes, substantially as set forth.

2. The process herein described of producing piperidin from pyridin consisting in dissolving the pyridin in such a quantity of pure acid that at least three equivalents of acid are used to one of pyridin, putting this solution of pyridin in the cathodic cell of an electrolytic apparatus, separated from the anodic cell by a diaphragm of pure material, and passing a current of electricity through the solution with the aid of suitable electrodes, substantially as set forth.

680,544. CRUPPER-BUCKLE. JAMES T. PRICE, Lincoln, Ill., assignor of one-half to John C. McReynolds, same place. Filed Mar. 29, 1901. Serial No. 53,545. (No model.)

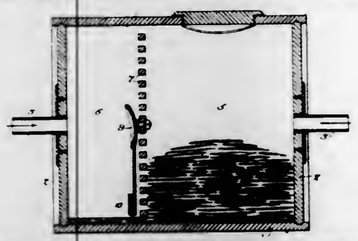


Claim.—1. A crupper-buckle, comprising a crupper part and a billet part, the crupper part comprising side bars, a cross-bar for connection with the crupper, a hook-bar forward of the cross-bar, and a top cross-plate rearward of the cross-bar, said billet part comprising side bars terminating at one end in a hook for engagement with said hook-bar, a top cross-plate carrying a stud for engagement with the billet, and a bottom cross-plate over which passes the billet to said stud, as set forth.

2. A crupper-buckle, comprising a billet part and a crupper part, said billet part terminating in a hook, and said crupper part being provided with a cross-bar upon which said crupper part is secured, and provided also with a hook-bar for engaging the hook of the billet part, thus enabling said crupper part to swing in directions independent of the direction of its said cross-bar.

3. A two-part crupper-buckle, comprising the part A, provided with the pivotal cross-bar A^2 for permanent attachment to the crupper, in combination with the billet part B, comprising the side bars B', a plate B^3 connecting said side bars, a long stud B^1 integral with said plate B^3, a cross-plate B^3, and a hook B^4 for engaging the D-shaped part A, substantially as described.

680,545. LEATHER-STUFFING MACHINE. GEORGE A. RHOADS, Wilmington, Del. Filed Dec. 5, 1899. Serial No. 739,294. (No model.)

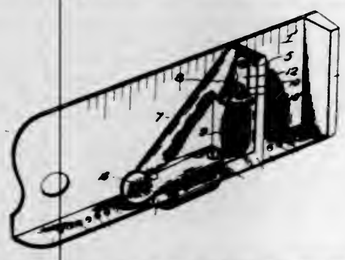


Claim.—1. A leather-stuffing wheel or drum having a hollow trunnion or pipe for introducing a hot-air blast at the center of the drum, and an open-work partition crossing the drum some distance from the head, whereby the leather contained in the drum is held away from the hollow trunnion or pipe, and the hot air is permitted to fill the chamber between the partition and the head of the drum before reaching the leather, substantially as specified.

2. A leather-stuffing wheel or drum having a hollow trunnion or pipe for the introduction of a hot-air blast, an open-work partition crossing the drum some distance from the head, whereby the leather is held away from said trunnion or pipe, and a deflector interposed in the path of the hot air entering the drum, whereby said hot air is caused to enter and fill the chamber between the partition and the head of the drum before reaching the leather, substantially as specified.

3. A leather-stuffing wheel or drum having a hollow trunnion or pipe for the introduction of hot air into the drum, and a deflector interposed in the path of the blast from said trunnion or pipe and having a pivot in line with the axis of the drum and a depending weight whereby it is normally maintained in vertical position, substantially as specified.

680,546. PRINTER'S COMPOSING-STICK. HARRY B. ROUSE, Chicago, Ill. Filed March 23, 1900. Serial No. 9,922. (No model.)



Claim.—1. The combination with the body of a composing-stick provided with seats, of a knee provided with a self-centering and wear-compensating dog having a conical end to engage said seats.

2. The combination with the body of a composing-stick provided with seats, of a knee provided with a spring-actuated self-centering and wear-compensating conical dog to engage said seats.

3. The combination with the body of a composing-stick provided with seats, of a knee provided with a dog having an eccentric axial adjustment, and means for locking it in adjustment to engage said seats.

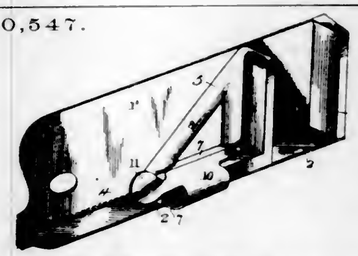
4. The combination with the body of a composing-stick provided with seats, of a knee provided with an eccentrically-mounted spring-actuated dog to engage said seats.

5. The combination with the body of a composing-stick provided with seats, of a knee provided with an eccentrically-mounted tapering dog to engage said seats, and means for locking said dog in its axial adjustment.

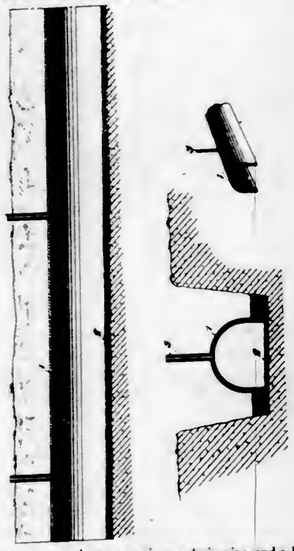
680,547. PRINTER'S COMPOSING-STICK. HARRY B. ROUSE, Chicago, Ill. Original application filed Mar. 23, 1900, Serial No. 9,922. Divided and this application filed Sept. 20, 1900. Serial No. 30,575. (No model.)

Claim.—In a printer's composing-stick, the combination of a body comprising a base, side and end walls, and a bar interposed between said base and side wall and formed with seats, and a knee provided with a dog to engage said seats, substantially as described.

680,547.



680,548. DRAIN. JAMES F. SIKES, Palma Sola, Fla. Filed May 8, 1901. Serial No. 59,249. (No model.)



Claim.—1. An open-bottom continuous drain-pipe, and a bed of filter material on which the pipe rests, substantially as specified.

2. An open-bottom continuous drain-pipe, a bed of filter material on which the pipe rests, and air-tubes leading upward from the drain, substantially as specified.

680,549. MUSHROOM-BULLET. THOMAS C. SMITH, Bridgeport, Conn., assignor to the Union Metallic Cartridge Company, same place. Filed May 15, 1901. Serial No. 60,302. (No model.)



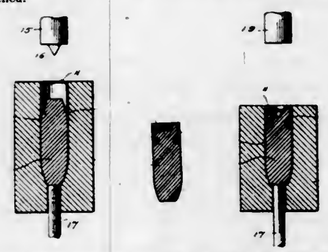
Claim.—1. A mushroom-bullet consisting of a slug having a cover extending over its lower end, the cover being secured to the slug by having its upper edge turned into the metal of the slug.

2. A mushroom-bullet consisting of a slug having a cover extending over the lower end thereof, the base of the cover being perforated and a portion of the metal of the cover turned into the base of the slug.

3. A mushroom-bullet consisting of a slug having a cover extending over its lower end, the edge of the cover being turned into the metal of the slug and the base of the cover being perforated and a portion of the metal of the cover turned into the base of the slug.

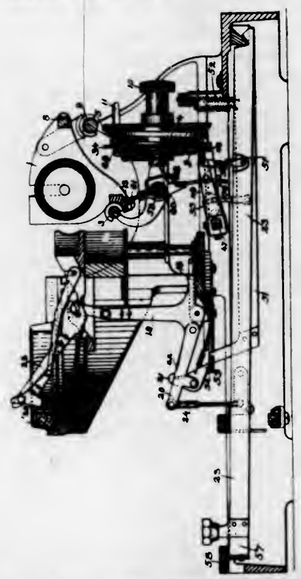
680,550. METHOD OF MAKING PARTLY-COVERED BULLETS. THOMAS C. SMITH, Bridgeport, Conn., assignor to the Union Metallic Cartridge Company, same place. Filed May 15, 1901. Serial No. 60,303. (No specimens.)

Claim.—1. The herein-described method of making partly-covered bullets which consists in providing a slug with a tapering end and a cover having its edge turned inward to engage the taper of the slug and then subjecting the cover and slug to the action of dies, whereby the slug is forced into the cover and the edge of the cover is turned into the slug and clenched.



2. The herein-described method of making partly-covered bullets which consists in providing a slug with a tapering end and a cover having its edge turned inward to engage the taper of the slug, then forcing the slug into the cover and clenching the edge of the cover within the slug and driving a portion of the base of the cover into the slug and clenching it therein.

680,551. TYPE-WRITER. ANDREW W. STRIGER, Boston, Mass., assignor, by mesne assignments, to Augustus L. Hoffman, Frederic S. Converse, and Frederic J. Leach, trustees, Lyons, N. Y. Filed Aug. 20, 1900. Serial No. 27,424. (No model.)



Claim.—1. In a type-writer, a notched disk connected with the spring-drum, combined with a spring-positioned guard having portions adapted to cover shallow or deep parts of the notch in the disk in certain positions of the guard and a notch in the guard that may register with the deep part of the notch in the disk, substantially as described.

2. In a type-writer, the combination with a feed-drum having a disk with a notched edge, of a movable arm positioned by the edge of the disk, a pivoted controller-bar normally depressed by connections with the arm and springs attached to the bar to force the arm into the notch to remove the tension of the drum on its carriage and at the same time to lift the bar into position to unlatch pawls connecting the keys to the type-levers, substantially as described.

3. In a type-writer, a carriage adjustably connected with a feed-drum, a rack on the carriage registering with a stop, and means controlled by a surface on the feed-drum for interlocking the stop with the said rack, substantially as described.

4. In a type-writer, a carriage adjustably connected with a feed-drum, a rack on the carriage and stops controlled by a surface on the feed-drum to stop the carriage, combined with means controlled by the operator to restore the parts to normal condition, substantially as described.

5. In a type-writer, a rock-shaft, an arm attached thereto extending into contact with the edge of a notched disk on the tension device for the carriage, a connection from the arm to a stop pivoted on some part of the machine fixed as to the feeding motion of the carriage, a rack on the carriage in the path of the stop, springs having connections with the rock-shaft to hold the arm to the disk so that when the arm enters the notch to arrest the drum the stop will contact with the rack to position the carriage and a releasing-lever connected with the rock-shaft to restore the parts, substantially as described.

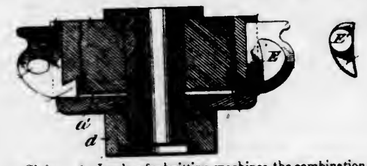
6. In a type-writer, the combination with a feed-drum, a disk on the drum having a notch in its edge and a spring-positioned guard for the notch, of a rock-shaft, an arm fast with the shaft in contact with the edge of the disk, resilient connections to position the arm to stop the drum and a key in the manual having connections adapted to pull the arm out of the notch so the guard may resume its normal position permitting rotation of the drum, substantially as described.

7. In a movable member for unlatching the keys of type-writers, levers having pivot-bearings, combined with a controller-bar shaped to contact with the key-pawls, substantially as described.

8. In a type-writer, devices for locking the carriage at a determinate point of its travel, combined with means for preventing the keys from operating the type-bars without intefering with the usual motion of the said keys, substantially as described.

9. In a type-writer, the combination with means for stopping the carriage at some definite point, of a suitably-operated controller-bar, to disconnect the keys from the type-operating mechanism, substantially as described.

680,552. BUR FOR KNITTING-MACHINES. ERNEST TOMPKINS, Troy, N. Y. Filed Mar. 22, 1901. Serial No. 52,296. (No model.)



Claim.—1. In a bur for knitting-machines, the combination of blades having openings in them; with detachable and interchangeable blocks each having a projection on one side formed in one piece therewith and adapted to fit into the opening in a blade and thereby hold the block in place, substantially as described.

2. In a bur, the combination of blades having openings in them; with blocks each grooved in its outer edge and formed with a projection on one side adapted to fit into and fill the opening in a blade, and thereby retain the block in position between two adjoining blades, the block and projection being formed of one piece of metal for the purpose and substantially as described.

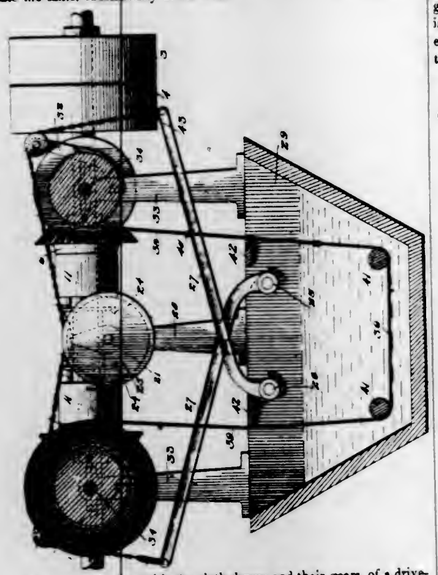
3. In a backing-bur, the combination of the body provided with grooves in its periphery, and a series of removable blades fitted in said grooves, said blades having openings in them; with the blocks each of a thickness equal to the space between adjoining blades and having a curved and grooved outer face and a lateral projection on one side formed in one piece therewith and adapted to fit and fill the opening in a blade, and to retain the block in place between adjoining blades, substantially as described.

680,553. REVERSING APPARATUS FOR DYE-VATS, &c. JOHN T. TRAVIS, Paterson, N. J., assignor of one-half to Norval Bradley, same place. Filed May 15, 1901. Serial No. 60,339. (No model.)

Claim.—1. In combination with the cloth-drums and their gears, of a drive-shaft provided with gears meshing with those aforesaid and adapted to alternately rotate them in opposite directions, clutch mechanism actuated by the drive-shaft, a shipper-head for actuating the clutch mechanism, a rock-shaft, a shipper-lug fixed to said shaft to reciprocate the shipper-head alternately in opposite directions, clutch mechanism actuated by the shipper-head for locking the second-named gear-wheels alternately to the drive-shaft, reversing-levers connected to the rock-shaft, and trips for alternately engaging said reversing-levers to actuate the same, substantially as set forth.

2. In combination with the cloth-drums and their gears, of a drive-shaft provided with gears meshing with those aforesaid and adapted to alternately rotate them in opposite directions, clutch mechanism actuated by the drive-shaft, a shipper-head for actuating the clutch mechanism, a rock-shaft, a shipper-lug fixed to said shaft to reciprocate the shipper-head alternately in opposite directions, clutch mechanism actuated by the

shipper-head for locking the second-named gear-wheels alternately to the drive-shaft, reversing-levers flexibly and yieldingly connected to the said rock-shaft, and tripe for alternately engaging said reversing-levers to actuate the same, substantially as set forth.



3. In combination with the cloth-drums and their gears, of a drive-shaft provided with gears meshing with those aforesaid and adapted to alternately rotate them in opposite directions, clutch mechanism actuated by the drive-shaft, a shipper-head for actuating the clutch mechanism, said shipper-head provided at its ends with side flanges having stops at their lower ends, a rock-shaft, a shipper-lug fixed to said shaft to reciprocate the shipper-head alternately in opposite directions, clutch mechanism actuated by the shipper-head for locking the second-named gear-wheels alternately to the drive-shaft, reversing-levers connected to the rock-shaft, and tripe for alternately engaging said reversing-levers to actuate the same, substantially as set forth.

680,554. METHOD OF BINDING BOOKS. JOHN N. WARD, Jacksonville, Ill. Filed May 14, 1901. Serial No. 60,199. (No model.)

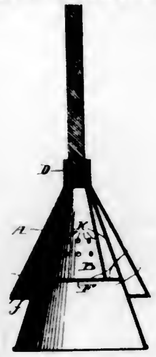


Claim.—1. The herein-described method of binding individual leaves into a book, consisting of first trimming the back edges of the sheets to present a flat surface, second, applying some adhesive substance to said surface and letting it become hard and dry to form a tablet; third, separating said tablet into sections and stitching said sections end to end along the edge adjacent the glued side; fourth, stitching said sections together into a book form, and fifth, gluing a strip of fabric on the outer edge of said tablet-sections, substantially as described.

2. The herein-described method of binding individual sheets into a book, consisting of first trimming the back edges of the sheets to present a flat surface; second, applying some adhesive substance to said surface and letting it become hard and dry to form a tablet; third, separating said tablet into sections and stitching said sections from end to end along the edge adjacent to the glued side; fourth, sewing said new sections to bands, cords or tapes; fifth, gluing a strip of fabric on the outer edge of said tablet-sections; sixth, gluing or pasting the adjoining sections together near the sewed edge, all substantially as described.

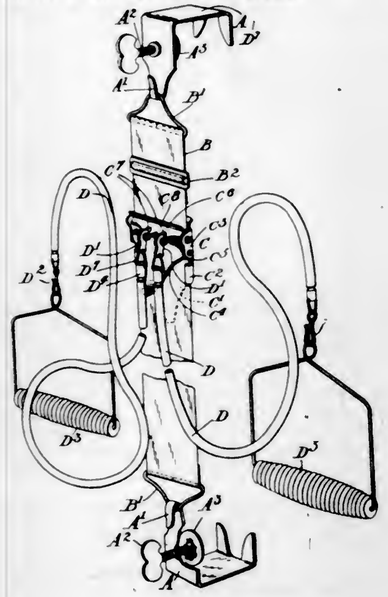
3. The herein-described method of binding individual leaves into a book, consisting of first trimming the back edges of the sheets to present a flat surface so as to make each leaf a separate sheet; second, applying some adhesive substance to the surface of the back edge of said sheets and letting it become hard and dry to form a tablet; third, separating said tablet into thin sections and stitching said sections from end to end along the edge adjacent the glued side; fourth, sewing a series of these glued sections to bands, cords or tapes side by side to be rounded and backed; fifth, gluing a strip of fabric on the outer edge of said tablet-section; sixth, pasting or gluing each section to the adjoining section adjacent to the sewed edge, for uniting the sections together in one continuous series through the book to add strength to the binding, substantially as described.

680,555. CLOTHES-POUNDER. SAMUEL WESTERVELT, Bloomfield, N. J. Filed Dec. 15, 1900. Serial No. 40,032. (No model.)



Claim.—A clothes-washer, comprising a handle, a plurality of cones secured to the lower end thereof and arranged one within the other, the intermediate cone being extended below the lower edges of the other cones, a plate arranged in said cone at the lower end of the innermost cone, and closing said innermost cone and the space between said cone and said intermediate cone, and perforated in line with said innermost cone and said space, and an annular plate closing the lower end of the outermost cone and perforated, said cones communicating with each other through the medium of perforations formed in the walls of the inner cones, substantially as described.

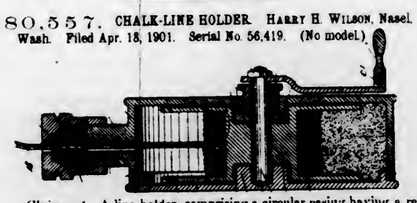
680,556. EXERCISER. HENRY W. WIELAND, London, England, assignor to John Charles Wray, Lambeth, London county, England. Filed Sept. 25, 1900. Serial No. 31,042. (No model.)



Claim.—1. In an athletic exerciser, the combination with a stretched band B, of an adjustable friction grip comprising a back plate C, a gripping-plate C^3 pivoted to the back plate, a bar C^5 pivoted to the back plate and between which bar and the back plate the said band passes, elastic cords attached to the bar C^5, a gripping edge C^6 on said bar adapted to grip the band when the pull on the cords is in a certain direction, as specified.

2. In an athletic exerciser, the combination with a band, of a back plate, a bar C^5 pivoted to the back plate and having a gripping edge adapted to grip the band as described, said band passing between said bar and back plate, an elastic cord, and means for attaching the cord to the bar comprising a socket D^4 having a shoulder D^5, a ring D^3 encircling the cord and lying within the socket, and a connection between the socket and the bar C^5.

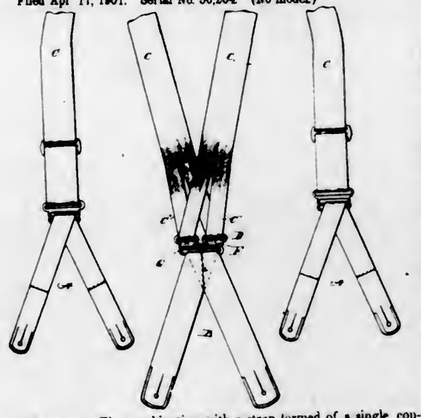
680,557. CHALK-LINE HOLDER. HARRY H. WILSON, Nasel, Wash. Filed Apr. 18, 1901. Serial No. 56,419. (No model.)



Claim.—1. A line-holder, comprising a circular casing having a removable side wall, central bosses on the inner faces of the casing side walls, one of said bosses having a central socket and the other boss a central perforation, a packing-box on the centrally-perforated side wall, a reel in the casing, having a central barrel and radial flanges at its ends, said barrel being cupped in its ends to receive the bosses, a spindle extended through the packing-box, the perforation in the side wall and into the socket, said spindle being secured in a central perforation in the reel-barrel, a crank-handle on the outer end of the spindle, and a line-clamping device on the peripheral wall of the casing.

2. In a line-holder of the character described, the line-clamping device, comprising a threaded nipple projected from the peripheral wall of the holder-casing, a cap-nut screwed upon the nipple and having the inner portion of its bore rendered coniform, and an elastic packing in the cap-nut, said nipple, packing and head wall of the nut being perforated for passage of a marking-line therethrough.

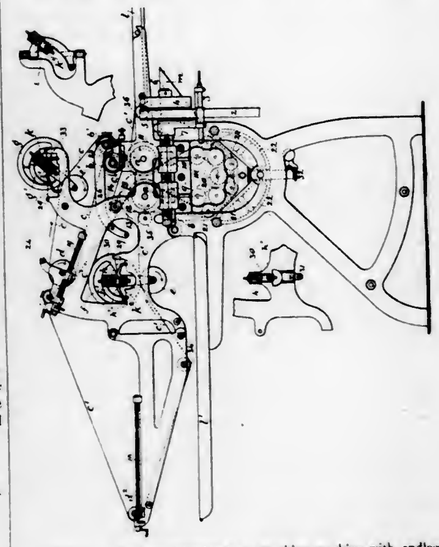
680,558. SUSPENDERS. GEORGE E. ADAMS, New Britain, Conn. Filed Apr 17, 1901. Serial No. 56,264. (No model.)



Claim.—1. The combination with a strap formed of a single continuous length of integrally-woven webbing constituting both shoulder-straps and separated into two branches intermediate of its ends, and a back suspender-end, of a metallic connection between said strap and said suspender-end, said connection having three loop elements, the said back suspender-end being secured in one of said loop elements, and the said branches of the strap passing each through one respectively of the remaining pair of said loop elements, said pair of loop elements being arranged above and in a line parallel to said first-named loop elements and each of the loops of said pair of loop elements being closed against movement of said strap branches from one to the other of said pair of loop elements; substantially as described.

2. In suspenders for nether garments, the combination with front and back suspender-ends and a metallic connection carried by the back suspender-end and having loop elements at the top both formed with open sides through which the webbing may be passed into the said elements, said open sides being closed by the webbing of the back suspender-end in assembling of the parts, of shoulder-straps formed of a single integral length of woven webbing extending from one front suspender-end to the other, an intermediate portion of said webbing being woven in two longitudinal strands one of which is inserted through the open side of each of said loop elements and is adapted to slide therein to equalize the strain on the shoulder-straps; substantially as described.

680,559. STARCHING-MACHINE. WILLIAM J. ASHER, Willimantic, Conn. Filed Dec. 26, 1899. Renewed Jan. 15, 1901. Serial No. 43,389. (No model.)



Claim.—1. The combination in a starching-machine with endless aprons, of means operated automatically by the movement of the aprons for changing the direction of the movement of the aprons and guiding the same into the proper path, substantially as set forth.

2. The combination in a starching-machine with the endless aprons, of rollers over which the aprons pass, swinging pivots at one end of the rollers and movable frames at the other ends of the rollers, and means operated automatically by the aprons in their lateral travel for swinging the said rollers on their pivots to change the alinement of the rollers with reference to the aprons, so as to cause them to travel back into the direct path, substantially as set forth.

3. The combination in a starching-machine with the endless aprons, of rollers over which the aprons pass, swinging pivots at one end of the rollers and movable frames at the other ends of the rollers and guide-cams above and adjacent to the said rollers and with which the edges of the aprons automatically come in contact, and means operated by the guide-cams for swinging the rollers out of alinement to change the path of the aprons, substantially as set forth.

4. In a starching-machine, the combination with one endless apron, of the roller e, a pivot-bearing at one end of the said roller, a frame k^2 to the lower end of which the roller is journaled at the other end, the shafts h and h', the bearing-block 30 for one end of the shafts, a similar bearing-block in the frame k^2 at the other end of said shafts, a guide-cam f on the shaft h and a guide-cam f' on the shaft h' at opposite sides of the machine, and means actuated by the movement of the apron and cams for swinging the frame k^2, the roller and cams to change the alinement of the roller e and shift the apron, substantially as set forth.

5. In a starching-machine, the combination with one endless apron, of a roller e, a pivot-bearing at one end of the said roller, a frame k^2 to the lower end of which the roller is journaled at the other end, the shafts h and h', the bearing-block 30 for one end of the shafts, a similar bearing-block in the frame k^2 at the other end of said shafts, a guide-cam f on the shaft h and a guide-cam f' on the shaft h' at opposite sides of the

machine, the gears 27 and 28 on the shafts h h' and a device 29, such as a chain connected to and passing around the shaft h' with the free ends fixed to the frame of the machine the frame h^2 being provided with arms having forked ends straddling a portion of the frame made as slideways whereby the frame and parts are swung at one end of the shafts to change the alinement of the roller e and alter the direction of travel of the apron, substantially as set forth.

6. In a starching-machine, the combination with endless aprons receiving the goods and means for starching the same, of means for separating the path of the aprons and means for removing the surplus starch from one apron, and means for returning the said apron for it to take up the surplus starch from the collars, cuffs, or similar articles, substantially as set forth.

7. In a starching-machine, the combination with the endless aprons and the series of rollers around which the same pass in starching the goods, of a roller 15 around which the upper apron passes, adjustable rubber squeezing-rollers between which the upper apron is passed to remove therefrom the surplus starch, a roller d under which both aprons thereafter pass so that the upper apron removes from the starched goods the surplus starch, substantially as set forth.

8. In a starching-machine, the combination with the endless aprons, and the rollers mounted in bearings for conveying and delivering the starched goods to the rear of the machine, of devices forming a second set of bearings for one of the rollers whereby said roller may be shifted from one position to another to alter the relation of the aprons for changing the direction of the travel of the starched goods at the pleasure of the operator, so that the said goods may be delivered either at the rear or at the front of the machine, substantially as set forth.

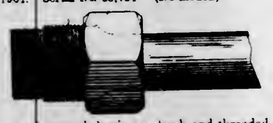
9. In a starching-machine, the combination with the endless aprons, of the stretch-rollers d d^2, and a movable roller d', frames carrying the same and screws for adjusting the position of the said frames and rollers, and jaws 24 upon the adjustable frames of the roller d' for receiving the shaft of the roller d' so as to change the direction of travel of the starched goods, substantially as set forth.

10. The combination in a starching-machine with the endless aprons, of the stretch-rollers d d^2, and a movable roller d', frames supporting the same and screws for moving the said frames and rollers to tighten and adjust the positions of the aprons, and jaws 24 upon the frames of the rollers d d' for receiving the shaft of the roller d' in a position above the roller d so as to divert the path of the starched goods to the front of the machine instead of to the rear, substantially as set forth.

11. In a starching-machine, the combination with the endless aprons, of the spreading and evening roller 15 having spiral ribs upon the surface thereof in opposite directions from the center and means for causing the said roller to travel at a different speed from that of the apron passing over the same, substantially as set forth.

12. In a starching-machine, the combination with the endless aprons and the vat for hot starch material, of a series of staggered spaced-apart rollers within the vat and out of contact with one another and between which the endless aprons pass, the main roller a at the exit of the aprons and a main roller a at the inlet of the aprons, the said roller a' having spiral ribs on the surface thereof in opposite directions from the center toward the ends, substantially as and for the purposes set forth.

680,560. **WRENCH.** JOSHUA B. BARNES, Springfield, Ill. Filed June 8, 1901. Serial No. 63,751. (No model.)



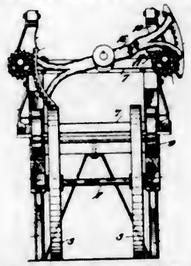
Claim.—1. A wrench having a shank and threaded end, an oppositely-threaded part in rear of the threaded end and a movable nut on said oppositely-threaded part, substantially as described.

2. A wrench comprising a shank, a lower threaded end, an enlarged portion in rear of the same having threads extending in the opposite direction and a nut threaded upon the enlarged portion and adapted to operate, substantially as described.

680,561. **TRUCK.** JACOB L. BARRICK, Wellington, Ohio. Filed Jan. 5, 1901. Serial No. 42,192. (No model.)

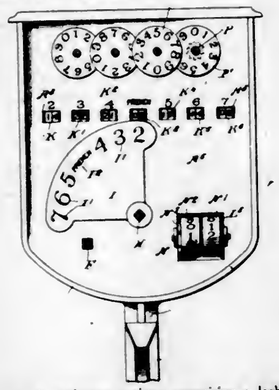
Claim.—1. In a truck, a wheel-supported deck, the said deck having upper side bars mounted to swing relatively to the lower side bars of said deck, and means for simultaneously swinging both of said upper side bars, substantially as specified.

2. A truck, comprising a truck-frame, wheels on which said frame is mounted, an upper deck consisting of lower side bars connected at their ends by cross-bars, upper side bars, corner-posts to which the ends of the upper side bars are connected, the lower ends of said posts having pivotal connection with the lower frame of the upper deck, pinions on the upper ones of said connections, and connected and swinging racks engaging with said pinions, one rack engaging at the inner side of its pinion while the other rack engages at the outer side of its pinion, substantially as specified.



3. A truck, comprising a wheel-supported lower frame, an upper deck arranged at an incline relatively to the lower frame, the said upper deck consisting of lower side rails connected at the ends, posts having pivotal connection to swing relatively to the said lower side rails, upper side rails connecting with the posts of a side, pinions on the pintles of the upper posts, segment-racks engaging one with the inner side of its pinion and the other with the outer side of its pinion, a bar connecting said racks, and a pivotal connection between said bar and an upper cross-bar of the upper deck, substantially as specified.

680,562. **REGISTER.** HOWARD H. BREEDEN, Millville, N. J., assignor of one-third to Charles R. Neal, same place. Filed Apr. 5, 1901. Serial No. 54,461. (No model.)



Claim.—1. A pool-room register, comprising a locking-lever for locking the triangle of the pool-table in place on the register, a push-bar for releasing said lever, and numeral-wheels adapted to be actuated from said lever, to indicate the number of games played by a party of players, as set forth.

2. A pool-room register, comprising a locking device for locking the triangle of the pool-table in place on the register, a manually-actuated releasing device for said locking device, a plurality of sets of numeral-wheels, a manually-controlled indicator, for indicating the number of players in the game, and an arm moving with the indicator and adapted to be actuated by said locking device when released, to actuate a corresponding set of numeral-wheels, as set forth.

3. A pool-room register, comprising an indicator for indicating the number of players in a game, sets of numeral-wheels each indicating the number of games for a certain number of players, a sliding arm controlled by said indicator, for actuating a set of numeral-wheels according to the number of players in the game, and a device for actuating said means, as set forth.

4. A pool-room register, provided with independent sets of number-wheels, for indicating the number of games played by parties having a greater or a less number of persons in a party, an indicator for indicating the number of persons in a party, an arm moving with the indicator to the corresponding set of number-wheels and slidable toward and from the indicator, and an actuating-lever for said arm, as set forth.

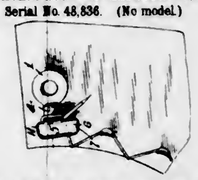
5. A pool-room indicator, comprising a support for a triangle, a spring-pressed lever for locking said triangle in position on said support, an arm mounted to slide and to turn, and adapted to be engaged by said lever, an indicator-plate adapted to be turned and slidably carrying said arm, and sets of number-wheels and actuating mechanism therefor, and adapted to be actuated by said arm, as set forth.

6. A pool-room indicator, comprising a support for a triangle, a spring-pressed lever for locking said triangle in position on said support, an arm mounted to slide and to turn, and adapted to be engaged by said lever, an indicator-plate adapted to be turned and slidably carrying said arm, sets of number-wheels and actuating mechanism therefor, and a releasing device for said lever, as set forth.

7. A pool-room indicator, comprising a support for a triangle, a spring-pressed lever for locking said triangle in position on said support, an arm mounted to slide and to turn, and adapted to be engaged by said lever, an indicator-plate adapted to be turned and slidably carrying said arm, sets of number-wheels and actuating mechanism therefor, a releasing device for said lever, and a single set of number-wheels adapted to be actuated directly by said lever when released to indicate the number of games played by one party of players, as set forth.

8. A pool-room register, provided with a support for a triangle, a spring-pressed locking-lever for locking said triangle in position on the support, a locking-hook for the lever, a releasing device engaging with said hook, and a grand-total registering device actuated by said lever, as set forth.

680,563. **HOLDFAST.** HOWARD N. BROWN, Boston, Mass. Filed Feb. 25, 1901. Serial No. 48,836. (No model.)



Claim.—1. A rigid retaining-stud comprising a flat base-plate having means for securing the same in place, a narrow integral neck portion extending from a point on the periphery of the plate upwardly at an angle and an integral head at the upper end of the neck deflected downwardly in a reverse direction to the angle of the neck, said head having a laterally-extending portion, substantially as described.

2. A sheet-metal retaining-stud comprising a base, a neck extending at an angle thereto at one edge of the same, a head extending from the neck and bent downward toward the base, said head having a lateral extension, a lip at the end of the lateral extension, and a lip at the edge of the head opposite the neck, substantially as described.

680,564. **SQUIB.** TIMOTHY F. CLARKE, St. Clair, Pa. Filed Apr. 2, 1900. Serial No. 11,174. (No model.)



Claim.—1. As a new article of manufacture, a squib having a transparent and combustible shell and provided with a flameless igniter, as set forth.

2. As a new article of manufacture, a squib having a transparent and combustible shell and provided with a solid flameless igniter, as set forth.

3. As a new article of manufacture, a squib having a transparent and combustible shell and provided with a solid flameless igniter integral with the shell, as set forth.

4. As a new article of manufacture, a squib comprising a shell and a solid integral igniter, the whole being combustible but flameless, as set forth.

5. As a new article of manufacture, a squib having a transparent shell and provided with a solid flameless igniter having a teat projecting into the shell, as set forth.

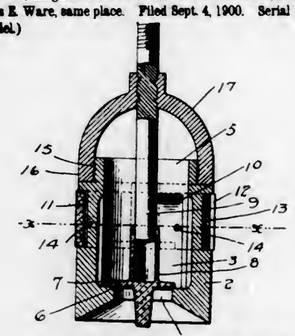
6. A squib having a shell, an igniter at one end thereof, and a teat extending from the igniter into the shell and surrounded by the charge therein, as set forth.

7. A squib, comprising a transparent shell, and a solid igniter in the form of a point extending integrally from one end of the shell, the shell and igniter being formed of gelatin and saltpeter, as set forth.

8. A squib, comprising a shell of transparent and combustible material, an igniter in the form of a point extending integrally from one end of the shell and made of the same material as the shell, and a teat extending from the inner end of the igniter into the shell, as set forth.

9. As a new article of manufacture, a squib comprising a shell having a solid igniter integral therewith, the igniter having a teat projecting into the shell, the shell and igniter being formed of gelatin and saltpeter, as specified.

680,565. **PUMP BUCKET OR PISTON.** FRED D. CLINGER, Owatonna, Minn., assignor of three-fourths to Oliver N. Olson, Willis Sperry, and Silas E. Ware, same place. Filed Sept. 4, 1900. Serial No. 28,868. (No model.)



Claim.—1. The combination with a pump-piston having a chamber provided with a water-outlet opening and an unobstructed inlet-opening, of a guide-rod, a vertically-movable valve adapted to close said inlet-opening and telescope with the said guide-rod to present the unobstructed inlet-opening to the free passage of water, said chamber being provided with water-channels extending above and below the limit of the upstroke of said valve to present a cross-sectional area around the edge of the valve for the free flow of water entering the unobstructed inlet-opening.

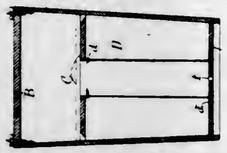
2. A pump-bucket, comprising a cylinder having a chamber provided with unobstructed inlet and outlet openings, a guide-rod depending within said chamber above the inlet-opening, a valve vertically movable within the walls of said cylinder and normally closing the inlet-opening, said valve having a hollow upwardly-projecting stem to telescope with said guide-rod and water-channels provided in the walls of said cylinder and extending above and below the limit of the upstroke of said valve to provide a cross-sectional area around the edge of the valve for the free flow of water passing through the unobstructed inlet-opening.

3. In a pump-bucket, the combination with the cylinder having a water-chamber provided with unobstructed inlet and discharge openings, of a valve fitting said chamber and adapted to close said inlet-opening, said valve slidable vertically within the chamber above said opening, vertical water-channels provided in the walls of said chamber to form a cross-sectional area for the free flow of water past the edge of the valve and extending above and below the limit of the upstroke of said valve, an annular groove provided in the outer surface of said cylinder, sectional packing-rings fitting closely therein, and ports leading from the water-channels into said annular groove above the limit of the upstroke of said valve.

4. A pump piston or bucket comprising a hollow cylinder 2, having an unobstructed water-inlet opening 4 in its lower end and open at the top, said cylinder having a reduced threaded end, in combination with the threaded ring 16 fitting said reduced end and having its outer periphery flush with the surface of the cylinder, a yoke 17 integral with said ring 16, a guide and attachment rod 9, secured in said yoke and concentric with said cylinder, the valve 7 normally seated in said opening 4 and smaller than the inner diameter of said cylinder, said valve having the sleeve telescoping upon the lower end of said rod 9, vertical water-channels provided in the inner wall of said cylinder, said cylinder having a

packing-groove, and a suitable packing provided therein, substantially as described.

680,566. PACKAGE FOR SHIPPING SHELL-FISH, &c. FRANK W. COLLINS, Rockland, Me. Filed Dec. 5, 1900. Serial No. 38,719. (No model.)



Claim.—The herein-described package for shipping shell-fish, consisting of a downwardly-tapering vessel provided with an annular groove in its bottom, a cover therefor, a horizontal diaphragm having a central opening and other openings adjacent to its outer edges, and a cylindrical chamber provided with a bead near its top and a flange at the bottom, said flange being adapted to fit in the annular groove of the bottom of the vessel and the bead to form a rest to support the diaphragm whose central opening surrounds the upper end of the tube; whereby the space above the diaphragm communicates with the interior of the tube to form an ice-compartment and the space below the diaphragm and around the tube forms a storage-chamber.

680,567. TROLLEY-WHEEL. WILLIAM C. COTTRELL, Asbury Park, N. J., assignor of one-half to Houston Fields, Freehold, N. J. Filed Nov. 22, 1900. Serial No. 37,332. (No model.)

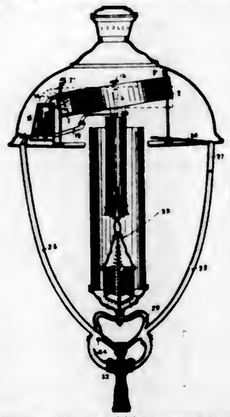


Claim.—1. A wheel comprising inner and outer sections independently revoluble, and annular plates secured to the side faces of one section and projecting beyond the same into engagement with the side faces of the other section to hold the two sections engaged, said plates having annular projections extending inwardly between the sections of the wheel to form a bearing-surface for the one upon the other.

2. A wheel, comprising inner and outer sections independently revoluble, annular plates secured to the side faces of one section and projecting beyond the same into engagement with the side faces of the other section to hold the two sections engaged, said plates having annular projections extending inwardly between the sections to form a bearing-surface, and bearing-balls arranged to run on said surface.

680,568. GAS-LAMP LIGHTING OR EXTINGUISHING APPARATUS. VITTORIO CROLLAT, Turin, Italy. Filed Mar. 1, 1900. Serial No. 6,963. (No model.)

Claim.—1. The combination with a gas-lamp having a main burner and a lighting-burner, of connections for supplying gas to said burners, a receptacle mounted to rock and a body movable in said receptacle to shift the center of gravity and thereby rock the receptacle and means for controlling the supply of gas to the main burner by the movements of the rocking member.



2. A gas lighting and extinguishing apparatus comprising a burner, means for lighting the burner, a pipe for supplying gas to the burner and means for controlling the passage of gas from the supply-pipe to the burner, said controlling means including a cut-off, a member movable to positions to open and close the cut-off, said member resisting and remaining unmoved under the normal working gas-pressure, a gas-pressure in excess of the normal serving to move the said member to one of said positions and a gas-pressure below the normal serving to bring the said member to the other of said positions.

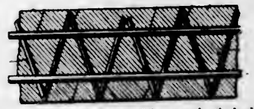
3. Means for controlling the flow of gas to gas-burners, comprising a tilting controlling member carrying a shifting body, and a burner-passage, controlled by the tilting member, the said member moving in one direction by a gas-pressure in excess of the normal and returning under a gas-pressure reduced below the normal, the normal gas-pressure serving to maintain the tilting member in the position given to it by the excessive pressure.

4. Gas-lamp-controlling devices, and means in connection therewith, for controlling the said devices, said means including a comparted tilting receiver adapted to contain liquid, one of the compartments being in communication with the gas-supply and an excess of gas-pressure serving to displace the liquid in said compartment, and thereby tilt the receiver from its normal position, the said receiver returning to its initial position under a reduction of the pressure below the normal.

5. The combination with a gas-lamp, of a tilting member, a movable body therein, a bell in connection with said tilting member, a cup into which said bell dips to seal the same, and connections leading from said cup to the gas-supply and the lamp respectively said bell controlling the communication of the supply and lamp connections, the tilting member operating by a variation of pressure in the gas-supply.

6. The combination in a gas-lamp of a main and an igniting burner, controlling devices including a cup, a partition dividing the cup into compartments, a connection between one of said compartments and the gas-supply and between said compartments and the igniting-burner, connections between the other compartment and the main burner, a bell having a liquid seal in the cup and controlling the communication between the two compartments of the cup, and means movable by an excessive pressure of gas for changing the depth of the bell's immersion in its seal and establishing communication between the compartments of the cup.

680,569. MANUFACTURE OF VEHICLE-TIRES. FREDERICK G. DAVIS, Chicago, Ill. Filed Sept. 11, 1900. Serial No. 29,736. (No model.)

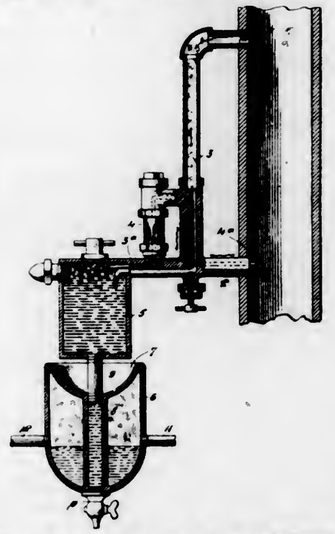


Claim.—1. A vehicle-tire comprising an elastic body or strip having a longitudinal retaining-band, and one or more cross stays or supports for said band, formed of a metallic strip extended back and forth in the elastic strip and having weakened portions at or near its sides to permit longitudinal compression of the elastic strip.

2. A vehicle-tire comprising an elastic body or strip having a longitudinal retaining-band and one or more cross stays or supports for said band, formed of a strip of wire bent to extend back and forth in the strip and beneath the band, said strip having its sides or corners weakened to permit longitudinal compression of the elastic strip.

3. A vehicle-tire comprising a rim having a channel therein, an elastic body or strip in said rim, one or more cross-stays, formed of a metallic strip extended back and forth in the elastic strip and having weakened portions at or near its sides to permit longitudinal compression of the elastic strip and means for securing said strip in said rim.

680,570. LUBRICATOR AND HEATER. THOMAS DIXON, McKeesport, Pa., assignor of one-half to Jacob H. Albig and John W. Albig, same place. Filed Jan. 19, 1901. Serial No. 43,891. (No model.)



Claim.—1. The combination with an oil-cup or lubricator, of a heater arranged below the same and having a central chamber communicating with the cup, the said heater consisting of a closed cylinder having a concaved top, substantially as specified.

2. The combination with an oil or lubricator cup, of a heater consisting of a closed cylinder, a tube extended through said cylinder and communicating with the interior of the cup, an inlet-pipe leading into said heater, and an outlet-pipe leading from said heater, the said two pipes being arranged some distance above the bottom of the heater, whereby water may be maintained in the heater, substantially as specified.

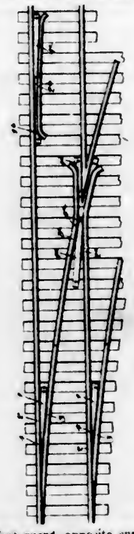
3. The combination with an oil or lubricator cup, of a heater, consisting of a closed cylinder having a concaved top arranged underneath the cup, a tube extended centrally through said heater and communicating with the interior of the cup, a valve arranged at the lower portion of said tube, and steam inlet and outlet pipes for said heater, substantially as specified.

4. The combination with a cup for containing a lubricant, of a heater arranged underneath the cup, and consisting of a closed cylinder having a central chamber communicating with the cup, and means for causing a circulation of a heating medium through said cylinder, substantially as specified.

680,571. RAILWAY FOOT-GUARD. WILLIAM DRISCOLL, Brockville, Canada. Filed Nov. 12, 1900. Serial No. 36,284. (No model.)

Claim.—1. A railway foot-guard, having a yieldable plate terminally supported upon fixed bearing-surfaces, and upwardly bowed at its intermediate portion to occupy a position in the path of wheel-flanges, one end of the plate being fixed against longitudinal movement, and the opposite free end having its upper side beveled downwardly and outwardly into a chisel cutting edge, the under flat side of which being slidably supported upon the adjacent bearing-surface, whereby the chisel-edged terminal is adapted to take under any accumulation of foreign matter upon said surface, when the free end of the guard is thrust forwardly by the pressure of wheel-flanges upon the upwardly-bowed intermediate portion thereof.

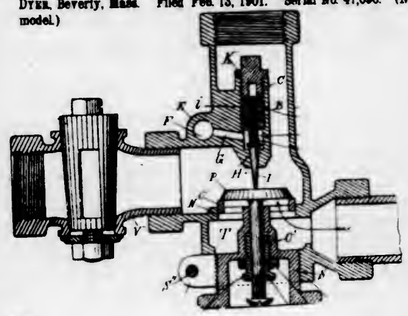
2. As a new article of manufacture, a foot-guard for railway-tracks, consisting in an elongated metallic spring-plate, which has the greater part of its intermediate portion bowed in a continuous arch, with its opposite longitudinal edges converged from the heel to the toe thereof, the heel terminal of the guard being formed into a fixed attaching end having an outer terminal spike-notch and an inner spike-opening, and the opposite toe terminal being formed into a slidable support, having its upper side beveled downwardly and outwardly into a chisel edge, the beveled portion being upon the convex side of the intermediate bowed part of the guard.



3. In a railway foot-guard, opposite supports, an upwardly-bowed spring guard-plate having its terminals bearing upon the respective supports, one terminal being freely slidable and the opposite terminal being fixed to the adjacent support, the fixed end of the plate having spaced inner and outer openings, a fastening driven through the outer opening into the support and fixedly securing the plate thereto, and a vertically-adjustable fastening driven through the inner opening and into the support, the plate inclining upwardly and inwardly from the outer fastening, and the head of the inner fastening being normally located above that of the outer fastening, and in engagement with the upper side of the upwardly-inclined portion of the plate, said inner opening loosely receiving the inner fastening, whereby the adjacent portion of the plate is free to fall and rise upon the fastening as a guide.

4. A railway foot-guard having an upwardly-bowed yielding plate, terminally arranged upon fixed bearing-surfaces, and having upwardly-concaved portions upon opposite sides of the upwardly-bowed intermediate portion, one of said upwardly-concaved portions of the plate having longitudinally-spaced spike-openings, and front and rear spikes respectively engaging said openings, the front spike being headed to bear upon the upper surface of the plate to vary the normal interval between the same and the surface of the fixed support, substantially as specified.

680,572. VAPORIZER FOR EXPLOSIVE-ENGINES. GEORGE F. DYER, Beverly, Mass. Filed Feb. 13, 1901. Serial No. 47,090. (No model.)

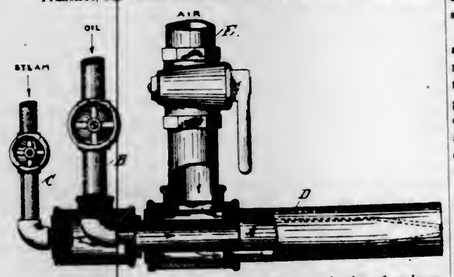


Claim.—1. In a vaporizer for explosive-engines, the combination with a shell in communication with the engine and provided with a pair of air-inlets and a mixing-chamber, of a valve-shell arranged in said mixing-chamber, in communication with a source of hydrocarbon-supply, and provided with a valve-seat, a plug for closing the top of said valve-shell, a spring-actuated valve operating through said valve-shell and engaging the seat thereof, an air-inlet valve engaging said spring-actuated valve for operating the same, an adjustable valve-seat for said air-inlet valve, a hub connected to said adjustable valve-seat, a sleeve integral with said hub for adjusting said air-inlet-valve seat, and a sleeve adjustably secured within said hub for limiting the movement of said air-inlet valve.

2. In a vaporizer for explosive-engines, a shell provided with air-inlets and a mixing-chamber, said shell in communication with the engine, a regulating-valve mounted in one of the said air-inlets, a valve-shell projecting in said mixing-chamber and communicating by a port with a source of hydrocarbon-supply, said valve-shell being interiorly screw-threaded, a plug for closing the top of said shell and having in its lower end a recess, a guide-nut secured within the said valve-shell, a valve-stem arranged in said valve-shell and operating through said nut and in said recess of the plug, a valve formed integral with the lower end of said shell and operating through the bottom of the latter, a spring mounted upon said stem between said valve and said guide-nut, an air-inlet valve, a stem suitably connected thereto, an adjustable valve-seat for said air-inlet valve, a hub formed integral with said valve-seat and adapted to have the valve-stem of the air-inlet valve operated therethrough, means formed integral with said hub for adjusting said valve-seat for the air-inlet valve, and means adjustably secured within said hub and engaged by the valve-stem of the air-inlet valve for limiting the movement of the latter, substantially as herein shown and described and for the purpose specified.

3. In a vaporizer for explosive-engines, a shell provided with air-inlets and a mixing-chamber, said shell in communication with the engine, a regulating-valve mounted in one of the said air-inlets, a valve-shell projecting in said mixing-chamber and communicating by a port with a source of hydrocarbon-supply, said valve-shell being interiorly screw-threaded, a plug for closing the top of said shell and having in its lower end a recess, a guide-nut secured within the said valve-shell, a valve-stem arranged in said valve-shell and operating through said nut and in said recess of the plug, a valve formed integral with the lower end of said shell and operating through the bottom of the latter, a spring mounted upon said stem between said valve and said guide-nut, an air-inlet valve, a stem suitably connected thereto, an adjustable valve-seat for said air-inlet valve, a hub formed integral with said valve-seat and adapted to have the valve-stem of the air-inlet valve operated therethrough, means formed integral with said hub for adjusting said valve-seat for the air-inlet valve, means adjustably secured within said hub and engaged by the valve-stem of the air-inlet valve for limiting the movement of the latter, and means for securing said adjustable valve-seat in position when adjusted.

680,573. **HYDROCARBON-BURNER.** JOSEPH EASTWOOD, San Francisco, Cal. Filed Dec. 28, 1900. Serial No. 41,377. (No model.)

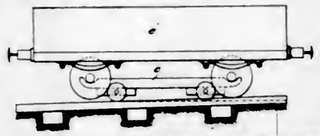


Claim.—1. In a hydrocarbon-burner, the combination of an inner tube open at its rear end, an oil-supply nozzle directed axially into the extreme rear open end of said tube, of a size to leave a passage between the same and the walls of the tube, a chamber connected to the rear end of said tube, a steam-supply entering said chamber directly in rear of said oil-nozzle and in line therewith, a tube surrounding said inner tube and connecting at its rear with an air-supply, said surrounding tube being so disposed as to deliver air into the mingled oil and steam as they issue from the inner tube, substantially as described.

2. In a hydrocarbon-burner, the combination of an inner tube open at its rear end, a chamber connected to the rear end of said tube, an oil-nozzle connected with an oil-supply and projecting axially into and terminating in the extreme rear open end of said tube, of a size to leave a passage between the same and the walls of the tube, a steam-nozzle entering said chamber axially in rear of and in line with said oil-nozzle, a chamber surrounding said inner tube at the rear, an air-supply connected therewith, and an outer tube connected to said surrounding chamber and surrounding said inner tube, substantially as described.

3. In a hydrocarbon-burner, the combination of an inner tube open at both ends, a chamber secured to and surrounding the rear open end of said tube, an oil-pipe entering said chamber and having a nozzle extending longitudinally into the rear end of said tube, of a size to leave a passage between the same and the walls of the tube, a steam-pipe having a nozzle extending into the rear end of said chamber directly behind and in line with said oil-nozzle, an outer tube surrounding said inner tube, a second chamber surrounding and secured to said tube and separated from said first-mentioned chamber with which second chamber said outer tube connects, and an air-supply pipe connecting with said second chamber, substantially as described.

680,574. **TRANSFER-TABLE.** REINHOLD EBEN, Paderborn, Germany. Filed June 3, 1901. Serial No. 63,770. (No model.)



Claim.—1. In an arrangement for transferring vehicles from a broad-gage track to a narrow-gage track and vice versa without the necessity of breaking the rails of the broad-gage track, the combination of a narrow-gage track laid between the rails of said broad-gage track at the point where the crossing is to be made, tread-plates at the points where the rails of the narrow-gage track cross the broad-gage rail arranged at a sufficient distance from the latter to permit of the passage of the flanged wheels of the broad-gage vehicles, and means for carrying said broad-gage vehicles upon the narrow-gage track and for transporting them on said track over the broad gage rails, without concussion, or damage to said broad-gage rails, substantially as set forth.

2. In an arrangement for transferring vehicles from a broad-gage track to a narrow-gage track, and vice versa, without the necessity of breaking the rails of said broad-gage track, in which the narrow-gage track is laid between the rails of the broad-gage track and only rises above the level of said track at the point where it crosses the track, the combination of a tread-plate within the track at the end of the narrow-gage rail which forms the inner rail of the curve, the top of which plate is on a level with the top of the rail of the broad-gage track, and which is so mounted as to leave a space through which the flanged wheel of the broad-gage vehicle can pass, a guide-rail beside the inner rail of said curve of the narrow-gage track outside the broad-gage track, and a tread-plate at each side of the broad-gage rail where the outer rail of the curve of the narrow-gage track crosses the broad-gage track, leaving a sufficient space for the passage of the flanged wheels of the broad-gage vehicles, substantially as set forth.

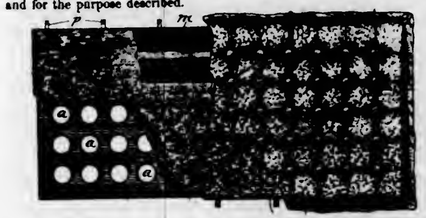
3. In an arrangement for transferring vehicles from a broad-gage to a narrow-gage track and vice versa without the necessity of breaking the rails of the broad-gage track, the combination of a narrow-gage track between the rails of the broad-gage track curved so as to cross said broad-gage track, and adapted to permit of the passage of a narrow-gage vehicle without serious concussions to the crossed rail of the broad-gage track, and a narrow-gage trolley-car adapted to transport the broad-gage vehicle, the flanges of the wheels of said trolley-car being very broad, substantially as and for the purpose set forth.

4. In an arrangement for transporting vehicles from a broad-gage track to a narrow-gage track and vice versa without the necessity of a break in the rails of said broad-gage track, the combination of tread-plates at the points where said narrow-gage track crosses said broad-gage track, and of a transporting trolley-car mounted upon wheels, the flanges of which have a large bearing-surface or tread substantially as and for the purpose set forth.

680,575. **UPHOLSTERER'S TUFTING-TABLE.** CHARLES S. ELLIS, Chicago, Ill., assignor to the Doan & Gates Company, same place. Filed Dec. 11, 1899. Serial No. 739,976. (No model.)

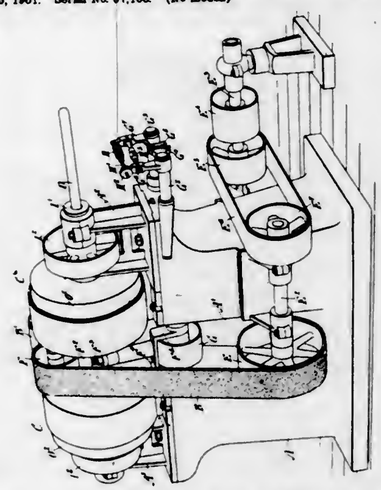
Claim.—1. In an upholsterer's tufting-table, the combination of a top board with side and end boards fixedly attached thereto and extending downwardly therefrom at a substantial right angle to the top board, all perforated with apertures and countersunk around the said apertures on the under side of the top board and on the inner sides of the side and end boards, all substantially as described.

2. In an upholsterer's tufting-table, the combination of a top board having side and end boards fixedly attached thereto and extending downwardly therefrom, all perforated at intervals with apertures substantially circular in form, and countersunk around the said apertures on the under side of the top board and on the inner sides of the side and end boards, holes, p', on the side and end boards adapted to receive retaining-pins, and retaining-pins p adapted to be thrust into them, all substantially as and for the purpose described.



3. In an upholsterer's tufting-table, a perforated board being countersunk around the apertures therein upon the under side thereof, with the side and end pieces also perforated and countersunk around the apertures therein upon the inner sides thereof, and means for fastening the fabric thereto to form tufts, all substantially as described and for the purpose specified.

680,576. **POLISHING-MACHINE.** GEORGE A. ESSICH, Defiance, Ohio, assignor to The Defiance Machine Works, same place. Filed Apr. 23, 1901. Serial No. 57,108. (No model.)



Claim.—1. A polishing-machine having a feeding device for the work, and comprising a revoluble member, arms pivoted at one end to the said member, revoluble feed-rolls journaled in the free ends of said arms, and a gearing for rotating said rolls independent of said revoluble member, as set forth.

2. A polishing-machine having a feeding device for the work, and comprising a revoluble member, arms pivoted at one end to the said member, revoluble feed-rolls journaled in the free ends of said arms, a gearing for rotating said rolls independent of said revoluble member, and spring-pressed means engaging the pivoted arms to hold said rolls in frictional contact with the work and feeding it forward at the same time, as set forth.

3. A polishing-machine, having a feeding device, comprising a revoluble member, arms pivoted at their inner ends to said member, revoluble feed-rolls mounted in the free ends of the arms, gearing for rotating said rolls independently of said revoluble member, sliding and spring-pressed arms engaging the said pivoted arms, and means for causing the said sliding arms to move in unison, as set forth.

4. A polishing-machine having a feeding device for the work, and comprising a revoluble member, arms pivoted thereon, revoluble feed-rolls journaled in said arms, and a gearing for rotating said rolls independent of said revoluble member, said gearing comprising a driven master gear-wheel, a pair of gear-wheels in mesh with said master gear-wheel at opposite sides thereof, said pair of gear-wheels being mounted to rotate loosely on the pivots for said arms, pinions on said pair of gear-wheels, and roller-pinions on the shafts of said feed-rolls and geared with said first-named pinions by intermediate gear-wheels, as set forth.

5. A polishing-machine having a feeding device for the work, and comprising a revoluble member, arms pivoted thereon, revoluble feed-rolls journaled in said arms, a gearing for rotating said rolls independent of said revoluble member, and spring-pressed means for holding said rolls in frictional contact with the work and feeding it forward at the same time, said means comprising friction-rollers on said arms, and spring-pressed inclines movable on said revoluble member, as set forth.

6. A polishing-machine having a feeding device for the work, and comprising a revoluble member, arms pivoted thereon, revoluble feed-rolls journaled in said arms, a gearing for rotating said rolls independent of said revoluble member, and spring-pressed means for holding said rolls in frictional contact with the work and feeding it forward at the same time, said means comprising friction-rollers on said arms, spring-pressed inclines movable on said revoluble member, and means connecting said inclines with each other so that movement given to one incline is transmitted to the other incline but in an opposite direction, as set forth.

7. A polishing-machine having a feeding device for the work, and comprising a revoluble member, arms pivoted thereon, revoluble feed-rolls journaled in said arms, a gearing for rotating said rolls independent of said revoluble member, spring-pressed means for holding said rolls in frictional contact with the work and feeding it forward at the same time, said means comprising friction-rollers on said arms, spring-pressed inclines movable on said revoluble member, a gear-wheel rotating centrally and loosely on said revoluble member, and racks on said inclines and in mesh with said last-named gear-wheel, as set forth.

8. A polishing-machine, having oppositely-disposed polishing-belts, driven pulleys over which pass said belts, adjusting-pulleys over which said belts also pass, parallel rock-shafts, supports for the adjusting-pulleys carried by said shafts, and means whereby the shafts will simultaneously be rocked, as set forth.

9. A polishing-machine having a polishing-belt, a driven pulley over which passes said belt, an adjusting-pulley over which passes the belt, an intermediate pulley over which passes one run of the belt, a support for said adjusting-pulley, a rock-shaft on which said support is secured and on which turns loosely said intermediate pulley, and means for rocking said shaft and moving the working portion of the run of the belt toward or from the belt, as set forth.

10. A polishing-machine having oppositely-disposed traveling polishing-belts, driven pulleys over which pass said belts, adjusting-pulleys over which pass said belts, intermediate pulleys over which pass adjacent runs of said belts, supports for said adjusting-pulleys, rock-shafts on which said supports are secured and on which turn loosely said intermediate pulleys, and means for rocking said shafts and moving the adjacent runs of the belts toward or from the work, as set forth.

11. A polishing-machine having oppositely-disposed traveling polishing-belts, driven pulleys over which pass said belts, adjusting-pulleys over which pass said belts, intermediate pulleys over which pass adjacent runs of said belts, supports for said adjusting-pulleys, rock-shafts on which said supports are secured and on which turn loosely said intermediate pulleys, and means for rocking said shafts and moving the adjacent runs of belts toward or from the work, said means comprising arms on said shafts, and a yielding adjustable connection between said arms, as set forth.

12. A polishing-machine having oppositely-disposed traveling polishing-belts, driven pulleys over which pass said belts, intermediate pulleys over which pass adjacent runs of said belts, supports for said adjusting-pulleys, rock-shafts on which said supports are secured and on which turn loosely said intermediate pulleys, and means for rocking said shafts and moving the adjacent runs of the belts toward or from the work, said means comprising arms on said shafts, a yielding adjustable connection between said arms, and an adjustable link connecting the arms with each other, as set forth.

13. A polishing-machine having oppositely-disposed traveling polishing-belts, driven pulleys over which pass said belts, adjusting-pulleys over which pass said belts, intermediate pulleys over which pass adjacent runs of said belts, supports for said adjusting-pulleys, rock-shafts on which said supports are secured and on which turn loosely said intermediate pulleys, and means for rocking said shafts and moving the adjacent runs of the belts toward or from the work, a gearing for connecting said shafts with each other to rock the same in unison, arms secured on said rock-shafts, and an adjustable yielding connection between said arms, as set forth.

14. A polishing-machine having oppositely-disposed traveling polishing-belts, driven pulleys over which pass said belts, adjusting-pulleys over which pass said belts, intermediate pulleys over which pass adjacent runs of said belts, supports for said adjusting-pulleys, rock-shafts on which said supports are secured and on which turn loosely said intermediate

pulleys, means for rocking said shafts and moving the adjacent runs of the belts toward or from the work, a gearing for connecting said shafts with each other to rock the same in unison, arms secured on said rock-shafts, and an adjustable yielding connection between said arms, said connection comprising a spring secured to one of the arms, and a rod adjustable on the other arm and connected with said spring, as set forth.

15. A polishing-machine having a polishing-belt, a driven pulley over which passes said belt, an adjusting-pulley over which passes the belt, an intermediate pulley over which passes one run of the belt, a support for said adjusting-pulley, a rock-shaft on which said support is secured and on which turns loosely said intermediate pulley, and means for rocking said shaft and moving the working portion of the run of the belt toward or from the belt, said support being adjustable in the direction of its length to tighten the belt, as set forth.

16. A polishing-machine, comprising oppositely-disposed polishing-belts between which pass the work, positively-actuated feeding devices in axial alinement on opposite sides of said belts, one of said devices serving to feed the unfinished work to and between the belts, and the other device receiving the finished work and discharging it from the machine, each of said feeding devices comprising driven rolls, pivoted arms in which the rolls are journaled, a driven revoluble member on which the arms are pivoted, and a gearing driven independently of said member and connected with said rolls, to rotate the same in unison, as set forth.

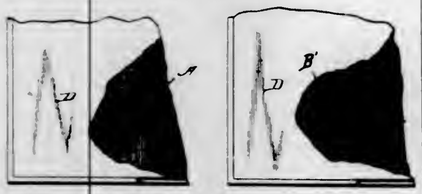
17. In a polishing-machine, oppositely-disposed polishing-belts, driven pulleys over which the belts pass, adjusting-pulleys over which said belts also pass, parallel rock-shafts geared together, supports for the adjusting-pulleys carried by the said shafts, and an adjustable connection between the said shafts, as set forth.

18. In a polishing-machine, oppositely-disposed polishing-belts, driven pulleys over which the belts pass, adjusting-pulleys over which said belts also pass, parallel rock-shafts geared together, supports for the adjusting-pulleys carried by the said rock-shafts, arms projecting from said shafts, and yielding and adjustable connection between the said arms, as set forth.

19. In a polishing-machine, a revolable member, arms pivoted to the said member, revoluble rollers mounted in the said arms, means for operating the feed-rollers independently of said revolable member, sliding and spring-pressed racks provided with inclines engaging the said arms, and a loose gear-wheel meshing with said racks, as set forth.

20. In a polishing-machine, a revolable member, arms pivoted at one end to said member and provided with friction-rollers, revoluble feed-rollers mounted in the free ends of the arms, means for operating the feed-rollers independently of the revolable member, sliding racks provided with inclines engaging the friction-rollers of the arms, a spring connected with one end of each rack, and a loose gear-wheel meshing with said racks, as set forth.

680,577. PRINTER'S BLANKET. ARTHUR C. FERGUSON, Brooklyn, N. Y. Filed Jan. 10, 1900. Serial No. 994. (No model.)



Claim.—1. A bed or surface for the platens of printing-presses, the same comprising two or more sheets of wire-gauze laid one upon the other, with the wires of one sheet crossing the intermediate spaces of the other sheet, and an outer sheet of elastic material, substantially as described.

2. A bed or surface for the platens of printing-presses, the same comprising two or more sheets of wire-gauze laid one upon the other, with the wires of one sheet disposed at an angle to those of the other sheet, and an outer sheet of elastic material, substantially as described.

3. A bed or surface for the platens of printing-presses, the same comprising two or more sheets of wire-gauze laid one upon the other, with the wires of one sheet disposed at an angle to those of the other, an outer sheet of elastic material, and means for fastening all of said sheets together, substantially as described.

4. A bed or surface for the platens of printing-presses, the same comprising two or more sheets of wire-gauze laid one upon the other, with the wires of one sheet disposed at an angle to those of the other, an outer sheet of elastic material grooved in its upper surface at the edges, and fastening devices lying in said grooves for securing all of said sheets together, substantially as described.

5. A bed or surface for the platens of printing-presses, the same comprising two or more sheets of wire-gauze laid one upon the other, with the wires of one sheet disposed at an angle to those of the other, an outer sheet of elastic material grooved in its upper surface at the edges, and stitching passing through the bottom of the grooves for securing all of said sheets together, substantially as described.

6. A bed or surface for the platens of printing-presses, the same comprising a wire-gauze material, and an outer elastic material, the latter being grooved in its outer surface near the edges, and a stitching lying in the bottom of the grooves for securing the parts together, substantially as described.

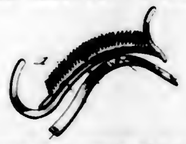
7. An impression member constituted by a multiplicity of elongated rectilinear, horizontally-separated elements contacting with each other at only such points as are unsupported by elements below, and a bridging-plate thereon.

8. An impression member constituted by a plurality of sets of reticulated wires adapted by their superposition to resiliently yield under pressure, and a bridging-plate thereon.

9. A make-ready comprising an elastic member and a member formed of wires arranged in a plurality of plies one of which plies is located to bring its wires between the vertical planes occupied by the wires of another ply.

10. A make-ready comprising an elastic member and a member formed of wires arranged in a plurality of plies one of which plies intersects the spaces between the wires of the other ply.

680,578. MUSTACHE-GUARD. THOMAS FERRY, Wilmington, Del. Filed Nov. 28, 1900. Serial No. 38,067. (No model.)



Claim.—A mustache-guard, consisting of an arched or bow-shaped body portion provided with a longitudinal groove on its upper surface, and with upwardly and rearwardly projecting teeth, and having its ends formed with upwardly and rearwardly curved prongs, and an elastic tape or cord having eyelets at its ends to engage said prongs, and a ring for connecting the intermediate portion of said tape to the body portion of the guard, substantially as set forth.

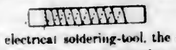
680,579. PROCESS OF MAKING ARTIFICIAL LEATHER. ALBERT R. FOSS and LEMUEL W. LITCH, Lynn, Mass., assignors to the Fosslitch Leather Co., same place. Filed Dec. 16, 1899. Serial No. 740,534. (No specimens.)



Claim.—1. The herein-described process of making artificial leather which consists in softening pieces of fibrous leather and raising or opening out the fibers on their surfaces, and then pressing together the pieces so prepared.

2. The herein-described process of making artificial leather which consists in "beating" pieces of leather sufficiently to soften the same and lift or open out the surface fibers yet substantially conserving their structure, and then pressing together the pieces so prepared.

680,580. SOLDERING-TOOL. FRÉDÉRIC FOUCHER, Paris, France. Filed Sept. 15, 1900. Serial No. 30,190. (No model.)



Claim.—1. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting with said bit for connecting the same to a tool-handle, and an electrothermic block for heating the said bit, inclosed in the said casing and separated by the latter from said bit.

2. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting with said bit for connecting the same to a tool-handle, and an insulated electrothermic block for heating the said bit, inclosed in the said casing and separated by the latter from said bit.

3. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting with said bit for connecting the same to a tool-handle, and an insulated incombustible electrothermic block for heating the said bit, inclosed in the said casing and separated by the latter from said bit.

4. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting with said bit for connecting the same to a tool-handle, an electrothermic block for heating the said bit, inclosed in the said casing and separated by the latter from said bit, and wire connections attached to said block and insulated from said means.

5. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting with said bit for connecting the same to a tool-handle, an insulated electrothermic block for heating the said bit, inclosed in the said casing and separated by the latter from said bit, and wire connections attached to said block and insulated from said means.

6. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting therewith for connecting the same to a tool-handle, and an electrothermic block mounted at each side of said bit for heating the same, inclosed in the said casing and separated by the latter from said bit.

7. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting with the bit for connecting the same to a tool-handle, and a separate series of suitably-connected electrothermic blocks for heating the bit, inclosed within said casing and separated by the latter from said bit.

8. In an electrical soldering-tool, the combination with a soldering-bit, of a heating conducting-casing contacting with the bit for connecting the same to a tool-handle, and a separate series of suitably-connected, insulated electrothermic blocks for heating the bit, inclosed within said casing and separated by the latter from said bit.

9. In an electrical soldering-tool, the combination with a soldering-bit, of a heat-conducting casing contacting therewith for connecting the same to a tool-handle, and a series of electrothermic blocks mounted in the said casing, separated by the latter from said bit and adapted to heat the latter.

10. In an electrical soldering-tool, the combination with a soldering-bit, of a pair of heat-conducting casings contacting with the said bit for connecting the same to a tool-handle, and a series of electrothermic blocks for heating the said bit, inclosed in the said casings and separated by the latter from the said bit.

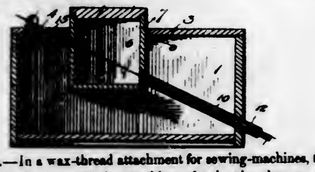
680,581. COMBINATION WAGON-BODY. CHARLES GABEL, Andrew, Iowa. Filed June 5, 1900. Serial No. 19,143. (No model.)



Claim.—1. In a wagon-body, the combination of detachable, folding and adjustable side and front boards, each comprising two parts hinged together, and means for locking the hinges and side-boards together, substantially as shown and described.

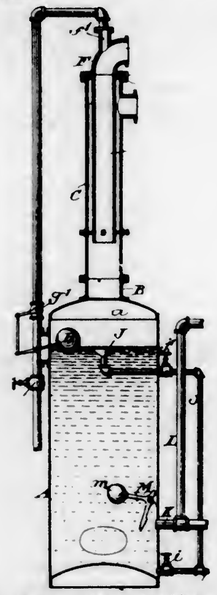
2. The combination with a wagon-body, having an extended tail-gate, of detachable, adjustable and folding front and side boards, stays supporting the said boards, the said stays adapted to support cross-pieces, and means for locking the front and side boards, substantially as shown and described.

680,582. THREAD-WAXING ATTACHMENT FOR SEWING-MACHINES. PETER GRANT, Marquette, Mich. Filed Apr. 22, 1901. Serial No. 56,975. (No model.)



Claim.—In a wax-thread attachment for sewing-machines, the combination with the frame of the machine, of a heating box or chamber mounted horizontally thereon and having a removable top or cover, a wax-pot mounted within said chamber and having a mouth extending to the exterior through an opening in said top or cover, a cap or cover for closing said mouth, an inclined waxing-tube communicating at one end with the waxing-pot and extending to the exterior through the wall of the heating-chamber at its outer end, a nib in the outer end of the tube and having a groove for the passage of the thread, and a flexible stripper in the outer end of the tube to prevent the escape of wax from the tube, substantially as described.

680,583. COMBINED STEAM-CONDENSER AND OIL-SEPARATOR. PAUL H. GRIMM, Glencove, N. Y., assignor of one-half to Munson H. Treadwell, New York, N. Y. Filed Oct. 27, 1900. Serial No. 34,539. (No model.)



Claim.—1. A steam-condenser comprising a tank, a steam-outlet pipe extended upwardly therefrom having a free opening to the exterior and an interior mixing-pipe located within the steam-outlet pipe, the said interior mixing-pipe having a steam-inlet and a feed-water inlet at its upper end, substantially as set forth.

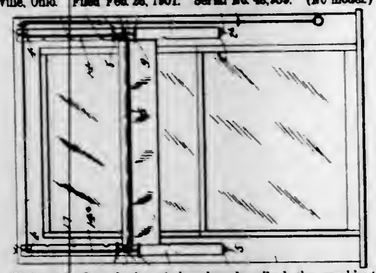
2. A steam-condenser comprising a tank, a steam-outlet pipe extended upwardly therefrom and having an open communication with the exterior at or near its upper end and a mixing-pipe located within the steam-outlet pipe and having a steam-inlet and a feed-water inlet at its upper end, the lower end of the said mixing-pipe being located above the high-water level in the tank, substantially as set forth.

3. A steam-condenser comprising a tank, a steam-outlet pipe extended upwardly therefrom and having an opening communicating with

the exterior at or near its upper end, a mixing-pipe located within the steam-outlet pipe and a coupling communicating with the mixing-pipe, and having steam and feed-water inlets therein, substantially as set forth.

4. In a steam-condenser, a tank, a steam-outlet pipe extended upwardly therefrom and having an opening communicating with the exterior at or near its upper end, and a mixing-pipe located within the steam-outlet pipe with its lower or discharge end spaced a distance above the lower end of the steam-outlet pipe, substantially as set forth.

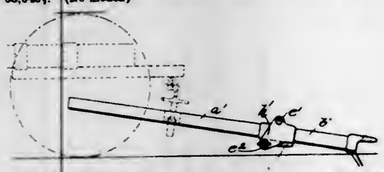
680,584. **CURTAIN-FIXTURE.** JACOB A. HAHNBACK, Zanesville, Ohio. Filed Feb. 26, 1901. Serial No. 48,959. (No model.)



Claim.—1. In a device of the class described, the combination of keepers seated in a casing, and flat spring-guides pivoted at their upper ends and having on their lower ends tongues with adjacent notched shoulders, which tongues fit into said keepers with the notched shoulders bearing against the sides thereof, substantially as described.

2. In a device of the class described, the combination of keepers seated in a casing, flat spring-guides pivoted at their upper ends and having on their lower ends tongues with adjacent notched shoulders, which tongues fit into said keepers with the notched shoulders bearing against the sides thereof, and brackets adapted to support a curtain-roller and slidingly mounted on said guides, substantially as described.

680,585. **FIELD-CARRIAGE FOR QUICK-FIRING GUNS.** KONRAD HAUSSNER, Eisenach, Germany. Filed Oct. 15, 1900. Serial No. 33,040. (No model.)



Claim.—1. The combination with a gun-carriage, of a complete trail therefor having a pintle-eye whereby it may be limbered, an extension-piece suitably connected to said trail and provided with a pintle-eye whereby the carriage with the extended trail may also be limbered, means connected to the trail and extension-piece to permit of the folding of the latter, and means for securing the extension-piece rigidly to the trail whereby the upward element or component of the recoil during firing is reduced.

2. The combination with a gun-carriage, of a complete trail therefor having a pintle-eye whereby it may be limbered, an extension-piece hinged to said trail and provided with a pintle-eye whereby the carriage with the extended trail may also be limbered, and means for securing the extension-piece rigidly to the trail whereby the upward element or component of the recoil during firing is reduced.

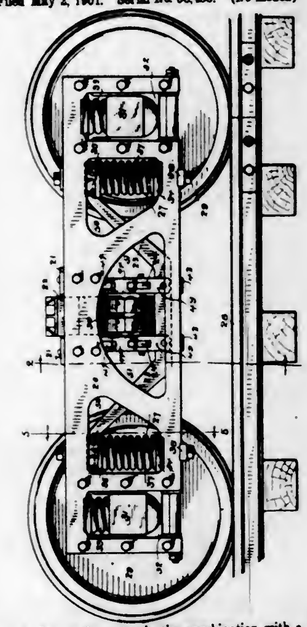
680,586. **TOOL FOR PAPER-HANGERS OR OTHER MECHANICS.** IRVING L. HAWKINS, Windsor, N. Y. Filed Oct. 3, 1900. Serial No. 31,859. (No model.)



Claim.—1. In a paper-hanger's tool, a brush having a longitudinal recess in its back at one end, a pivoted blade arranged in the recess with its back next to the bottom of the recess, said blade being provided with a handle at one end, and a spring for normally holding the blade in the recess, as set forth.

2. In a paper-hanger's tool, a brush having a longitudinal recess in its back at one end, and a depression or cavity at the inner end of the recess, a blade pivoted in the recess with its back normally resting on the bottom of the recess, said blade being provided with a handle at one end, and a spring in the recess and bearing against the handle of the blade, as set forth.

680,587. **RAILWAY-TRUCK.** NATHAN H. HEPT, Bridgeport, Conn. Filed May 2, 1901. Serial No. 58,455. (No model.)



Claim.—1. In a railway-truck, the combination with a bolster, a transom and side frames, of primary equalizing-bars carried by the side frames, secondary equalizing-bars pivotally connected to the outer ends of the primary equalizing-bars, the inner ends of said secondary equalizing-bars being pivotally connected to the transom, elliptical springs upon which the bolster rests and a spring-plank upon which the elliptical springs rest and the ends of which are pivotally suspended from the mid-lengths of the secondary equalizing-bars.

2. In a railway-truck, the combination with a bolster, a transom and side frames, of primary equalizing-bars the ends of which rest upon equalizing-bar springs which themselves rest upon the side frames, secondary equalizing-bars pivotally connected to the outer ends of the primary equalizing-bars, the inner ends of said secondary equalizing-bars being pivotally connected to the transom, elliptical springs upon which the bolster rests and a spring-plank upon which the elliptical springs rest and the ends of which are pivotally suspended from the mid-lengths of the secondary equalizing-bars.

3. In a railway-truck, the combination with a bolster, a transom and side frames, of secondary equalizing-bars pivotally connected at their outer ends to the primary equalizing-bars, swing-links by which the inner ends of the secondary equalizing-bars are connected to the transom, elliptical springs supporting the bolster, a spring-plank supporting the elliptical springs and swing-links by which the ends of the spring-plank are connected to the mid-lengths of the secondary equalizing-bars.

4. In a railway-truck, the combination with a bolster, a transom and side frames having longitudinal recesses 26, of primary equalizing-bars lying in said recesses, springs upon which the ends of said primary equalizing-bars rest and which themselves rest upon the side frames, secondary equalizing-bars pivotally connected to the primary equalizing-bars, the inner ends of said secondary equalizing-bars being pivotally connected to the transom, a spring-plank, elliptical springs supported by the spring-plank and themselves supporting the bolster and swing-links by which the ends of the spring-plank are connected to the mid-length of the secondary equalizing-bars.

5. The side frames 20 comprising side plates having corresponding central recesses 51 and on opposite sides thereof corresponding recesses 32 and 50 and between said side plates a longitudinal recess 26, substantially as shown, for the purpose specified.

6. In a railway-truck, the combination with side frames comprising side plates having recesses 50 and between said side plates longitudinal recesses 26, of primary equalizing-bars lying in recesses 26, the ends of said equalizing-bars resting upon equalizing-bar springs lying in recesses 50 and supported by the side frames.

7. In a railway-truck, the combination with side frames comprising side plates having recesses 50 and cups 34 resting upon the side frames at the bottoms of the recesses and between said side plates longitudinal recesses 26, of primary equalizing-bars lying in recesses 26, the ends of said bars being provided with heads carrying inverted cups 35, and equalizing-bar springs resting upon cups 34 and carrying cups 35 and the primary equalizing-bars.

8. In a railway-truck, the combination with a transom and primary equalizing-bars, of a bolster, elliptical springs by which it is supported, a spring-plank upon which the elliptical springs rest, and secondary equalizing-bars whose inner ends are pivotally connected to the transom, whose outer ends are pivotally connected to the primary equalizing-bars and from whose mid-lengths the spring-plank, elliptical springs and bolster are pivotally suspended.

9. In a railway-truck, the combination with a transom and primary equalizing-bars, of a bolster, elliptical springs by which it is supported, a spring-plank having at its ends cross-heads upon which the elliptical springs rest, secondary equalizing-bars whose outer ends are pivotally connected to the primary equalizing-bars, swing-links connecting the inner ends of the secondary equalizing-bars with the transom and other swing-links connecting the cross-heads on the spring-plank with the mid-lengths of the secondary equalizing-bars.

10. In a railway-truck, the combination with a transom, a bolster within the transom but free to move independently thereof, and elliptical springs supporting the ends of the bolster, of primary equalizing-bars, a spring-plank which supports the elliptical springs and secondary equalizing-bars whose outer ends are pivotally connected to the primary equalizing-bars, whose inner ends are pivotally suspended from the transom and from whose mid-lengths the ends of the spring-plank are pivotally suspended.

11. In a railway-truck, the combination with side frames, a transom, two primary equalizing-bars and four primary equalizing-bar springs intermediate said equalizing-bars and the side frames, of a bolster, four elliptical springs upon which the bolster rests, a spring-plank upon which the elliptical springs rest, and four secondary equalizing-bars whose inner ends are pivotally connected to the transom, whose outer ends are pivotally connected to the primary equalizing-bars and from whose mid-lengths the spring-plank, elliptical springs and bolster are pivotally suspended.

12. In a railway-truck, the combination with side frames, axles, springs intermediate the side frames and the axles, primary equalizing-bars and springs intermediate the primary equalizing-bars and the side frames, of a transom, a bolster, elliptical springs by which the bolster is supported, a spring-plank upon which the elliptical springs rest, and secondary equalizing-bars whose inner ends are pivotally connected to the transom, whose outer ends are pivotally connected to the primary equalizing-bars and from whose mid-lengths the spring-plank, elliptical springs and bolster are pivotally suspended, said three sets of springs being in pairs and each spring carrying an equal share of the weight.

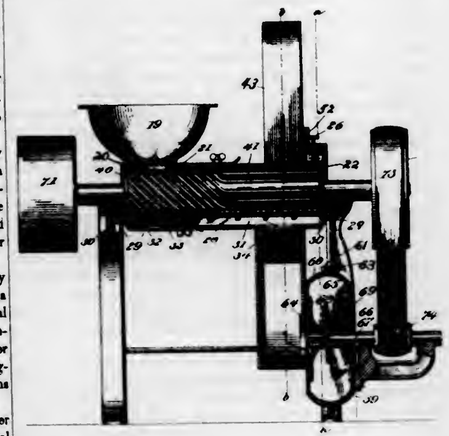
13. In a railway-truck, the combination with a transom and a spring-plank, of secondary equalizing-bars from whose mid-lengths the ends of the spring-plank are pivotally suspended, and primary equalizing-bars to which the outer ends of the secondary equalizing-bars are pivotally connected, the inner ends of said secondary equalizing-bars being pivotally suspended from the transom.

14. In a railway-truck, the combination with a transom and a spring-plank, of secondary equalizing-bars, swing-links intermediate the mid-lengths of the secondary equalizing-bars and the ends of the spring-plank, other swing-links intermediate the inner ends of the secondary equalizing-bars and the transom, and primary equalizing-bars to which the outer ends of the secondary equalizing-bars are pivotally connected.

15. In a railway-truck, the combination with a transom, a bolster, a spring-plank and elliptical springs intermediate the bolster and the spring-plank, of secondary equalizing-bars from whose mid-lengths the ends of the spring-plank are pivotally suspended and primary equalizing-bars to which the outer ends of the secondary equalizing-bars are pivotally connected, the inner ends of said secondary equalizing-bars being pivotally suspended from the transom.

16. In a railway-truck, the combination with a transom and a spring-plank, of secondary equalizing-bars from whose mid-lengths the ends of the spring-plank are pivotally suspended, primary equalizing-bars to which the outer ends of the secondary equalizing-bars are pivotally connected, the inner ends of said secondary equalizing-bars being pivotally suspended from the transom, side frames, and coil-springs intermediate the ends of the primary equalizing-bars and the side frames.

680,588. **MACHINE FOR HULLING COFFEE, &c.** CONSTANTINE A. HEGE, Salem, N. C., assignor to C. A. Hege & Co., same place. Filed Sept. 26, 1899. Serial No. 731,729. (No model.)



Claim.—1. In a machine for hulling coffee and other purposes, the combination with the casing having a feed-opening at one end and a discharge-opening at the other end, and a ribbed hulling-cylinder within said casing, of a slide-valve controlling the discharge-opening, said valve having an upwardly-inclined deflector for directing the course of the material passing through the discharge-opening, substantially as described.

2. In a machine for hulling coffee and other purposes, the combination with the casing having a feed-opening at one end and a discharge-opening at the other end, and a ribbed hulling-cylinder within said casing, of a regulating-valve to the discharge-opening, and a trough for receiving the discharged material, a portion of said trough next to said valve being open for the inspection of the material passing through the same to determine the adjustment of the valve to the discharge-opening, substantially as described.

3. In a machine for hulling coffee and other purposes, the combination with the casing formed with a feed-opening at one end and a discharge-opening at the other end, and a ribbed hulling-cylinder within said casing, of a regulating-valve to the discharge-opening provided with an inclined deflector, and a trough provided with an inclined bottom for receiving and delivering the material passing through said discharge-opening, substantially as described.

4. In a machine for hulling coffee and other purposes, the combination with the casing having a feed-opening at one end and a discharge-opening at the other end, and a ribbed hulling-cylinder within said casing, of a trough leading to said discharge-opening, a slide-valve having a deflector for controlling and directing the passage of material through said discharge-opening in the trough and provided with a rib, and means bearing against said rib for holding the valve to its adjustment, substantially as described.

5. In a machine for hulling coffee and other purposes, the combination with the casing having a screen-bottom, of the ribbed hulling-cylinder within said casing, the ribbed concaves on opposite sides of said ribbed cylinder, and means for moving said concaves to and from said cylinder, substantially as described.

6. In a machine for hulling coffee and other purposes, the combination with the casing having an open bottom, and inwardly-extending ledges, of the ribbed hulling-cylinder within said casing, the concave screen extending across the open bottom and formed with flanges resting upon the said ledges, and the ribbed concaves fitting on opposite sides of said ribbed cylinder and extending over the flanges of said screen, substantially as described.

7. In a machine for hulling coffee and other purposes, the combination with a casing having a screen-bottom and provided with a feed-opening at one end and a discharge-opening at the other end, and an exhaust-chamber beneath the screen-bottom of the casing, of a separator located at the discharge end of the casing and in communication with the dis-

charge-opening thereof and also with the opening in the discharge end of the exhaust-chamber whereby said separator will receive the hulls from the discharge-opening of the casing and the chaff from the exhaust-chamber without the hulls of the discharge-opening of the casing passing through the exhaust-chamber, and a fan in communication with the separator for creating an air-current therein, substantially as described.

8. In a machine for hulling coffee and for other purposes, the combination with the casing having a screen-bottom and provided with a feed-opening at one end and a discharge-opening at the other end, an exhaust-chamber beneath the screen-bottom, and a ribbed hulling-cylinder within the casing, of a separator-leg open at its lower end and provided with a partition and having a lateral extension in communication with the discharge end of the exhaust-chamber, an extension below said discharge end and in communication with the fan, means for delivering the material from the discharge-opening in the casing and into the separator-leg between its partition and outer wall, and a fan for creating an air-current through the separator-leg, substantially as described.

9. In a machine for hulling coffee and other purposes, the combination with the casing of the hulling-cylinder having a screen-bottom, an exhaust-chamber beneath the screen-bottom, the casing and the exhaust-chamber having discharge-openings at the same end, of the separator-leg open at its lower end and provided with a vertical partition terminating below the upper end of the leg, said leg having a lateral extension formed with an opening registering with an opening in the exhaust-chamber, means for collecting the material from the discharge-opening of the casing and delivering it into the separator at one side of its partition, and a fan communicating with a portion of the separator-leg below its lateral extension, substantially as described.

10. In a machine for hulling coffee and other purposes, the combination with the hulling-cylinder casing having a screen-bottom and an exhaust-chamber beneath the screen-bottom, the casing and exhaust-chamber having discharge-openings at the same end, of the separator-leg having a portion located to one side of the casing and extending above and below the same and provided with a lateral extension lying beneath the exhaust-chamber having an opening registering with the discharge-opening of the said chamber, a fan communicating with said leg, and means for detachably supporting said leg in position, substantially as described.

11. In a machine for hulling coffee and other purposes, the combination with the hulling-cylinder casing and the exhaust-chamber both provided with discharge-openings at the same end, of the separator-leg open at its lower end and provided with a vertical partition terminating below the top of the leg and having a lateral extension communicating with the discharge-opening of the exhaust-chamber, a trough leading from the discharge-opening in the casing, a throat leading from said trough and opening into the side of the separator-leg back of the partition therein, and a fan for creating an air-current through the leg, substantially as described.

12. In a machine for hulling coffee and other purposes, the combination with the casing of the hulling-cylinder, and the exhaust-chamber, of the separator-leg, the fan-casing having one portion thereof formed as a part of one of the legs of the machine and the other portion made separate therefrom and having a flange entering the side of the separator-leg, substantially as described

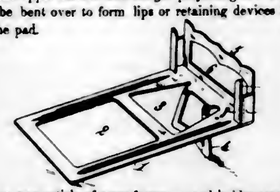
13. In a machine for hulling coffee and other purposes, the combination with the casing of the hulling-cylinder and the exhaust-chamber and the legs for supporting the same, of the separator-leg communicating with the exhaust-chamber and the casing, and the fan for creating an air-current through the separator and exhaust-chamber, said fan comprising a casing having a portion thereof formed as a part of one of the legs, said portion having a convex inner face, the other portion of the casing being provided with a flange engaging the separator-leg, a rotating shaft having two rings fixing against the inside of the casing, one of said rings being dished to conform to the convex face of the casing, and both of said rings having the fan-blades connected thereto, substantially as described.

680,589. **PAD-HOLDER.** EDWARD A. HEINLE, Philadelphia, Pa. Filed June 1, 1901. Serial No. 62,726. (No model.)

Claim.—1. A pad-holder comprising a base, sides secured thereto having inwardly-extending flanges thereon adapted to enter corresponding slits in the sides of the pad, and bendable retaining devices for the pad secured to said sides and located above the pad.

2. A pad-holder comprising a base, a back or head piece at one end thereof, sides formed on said back or head piece having inwardly-extending flanges thereon adapted to enter corresponding slits in the sides of the pad, and bendable retaining devices for the pad secured to said sides, and located above the pad.

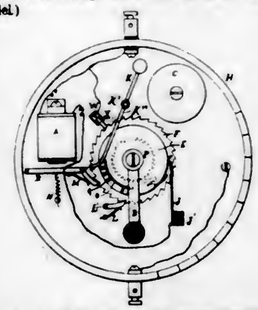
3. A pad-holder comprising a base, a back or head piece at one end thereof, and sides formed on said back or head piece having inwardly-extending flanges thereon adapted to enter corresponding slits in the sides of the pad, the upper ends of said flanges projecting above said sides and adapted to be bent over to form lips or retaining devices for the upper surface of the pad.



4. As a new article of manufacture, a pad-holder comprising a base, an integral back or head piece at one end thereof, and integral sides extending inwardly from said back and lying at right angles thereto and to said base, the said sides being provided with inwardly-extending flanges adapted to enter slits in the side edges of the pad and the upper ends of said flanges projecting above said sides and adapted to be bent over to form lips or engaging portions for the upper surface of the pad.

5. As a new article of manufacture, a pad-holder made in a single piece from sheet metal, bent upwardly at one end to form a base and a back or head piece, the said base having an integral leg or support for one end, the ends of said back or head piece being bent inwardly to form sides which lie at right angles to said back and to said base, the said sides being bent inwardly to form flanges which enter slits in the side edges of the pad and said flanges extending upwardly above said sides and adapted to be bent over to form lips or engaging portions for the upper surface of the pad.

680,590. **ELECTRICAL SIGNALING APPARATUS.** FELIX B. HERZOG and SCHUYLER S. WHEELER, New York, N. Y.; said Wheeler assignor to said Herzog. Filed Jan. 25, 1886. Serial No. 189,668. (No model.)



Claim.—1. An electric step-by-step motor, a wheel driven thereby, circuit connections, normally through the wheel thereof and two or more insulated points thereon, each arranged and adapted to control an effect at the receiving-station, substantially as described.

2. An electric step-by-step motor, a wheel driven thereby, circuit connections, normally through the wheel thereof, and three or more insulated points thereon, each arranged and adapted to control an effect at the receiving-station together with a pointer driven by the wheel and indications on a coöperating index, said indications equaling in number the number of steps on the wheel between two of the spots, substantially as described.

3. A series of signal-transmitters each comprising a magnet and a device driven thereby step by step and bearing insulated points; a circuit-terminal in position to be passed by those points during the step-by-step movement, additional points of contact in alinement with the terminal, the insulated points and the additional points each corresponding to a step-by-step unit of motion of the driven device, and the said insulated points being arranged to form groups of the uninsulated points by marking the divisions between two or more of such groups.

4. A signal-transmitter comprising a step-by-step wheel, circuit-controlling devices moved thereby and a magnet controlling an armature and adjuncts adapted to control the operation of the wheel; the whole so adjusted that the wheel and the circuit are controlled at the deënergization of the magnet.

5. A signaling instrument comprising a moving shaft, bearing step-by-step signal-controlling and step-by-step signal-receiving elements, substantially as described.

6. A signaling instrument comprising a bell, a hammer normally out of range of the bell, an armature, and a guide, adapted at some part of the operation of the instrument from a distant point to push the hammer into an operative position with respect to the armature, substantially as described.

7. A signal-transmitter comprising a step-by-step wheel coöperating during the manual act of setting the signal with a click and ratchet-wheel, and a circuit-interrupting wheel all on the same shaft.

8. A signal-transmitter comprising a movable device, a magnet controlling the motion of the same and circuit-controlling parts comprising means for interrupting the circuit conditions several times, the relative adjustment and arrangement of the parts being such that a separate energization of the magnet is required to produce each of the circuit interruptions and to complete the operation of the transmitter.

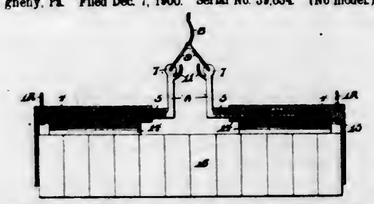
9. A signal-transmitter including movable devices, a magnet controlling the same and being intermittingly controllable from a second station; and signal-producing parts adapted to divide the entire signal into two or more portions and arranged to be separately controllable by way of the magnet.

10. A signal-transmitter adapted to produce a signal which controls two or more different effects at the receiving-station, a magnet controlling the transmitter so that it cannot operate until the energization of the magnet from the receiving-station, and two or more parts adapted to produce one of the effects at the receiving-station.

11. A signal-transmitter comprising a movable device, a magnet for controlling its motion by means of successive energizations and signal-producing parts including several elements fixed with reference to each other, and additional signal-producing parts; together with means for varying their relative positions.

12. A signal-transmitter comprising a step-by-step wheel, a magnet and adjuncts controlling the step-by-step motion through successive energizations produced outside of the transmitter; and signal-controlling parts including two or more elements fixed with relation to each other; together with means for producing a variable signal without the coöperation of the last-named parts.

680,591. **HAND BRICK-CARRIER.** GEORGE J. J. HOELSCHE, Allegheny, Pa. Filed Dec. 7, 1900. Serial No. 39,034. (No model.)



Claim.—1. In a brick-carrier, the combination of two L-shaped clamps having arranged therein two oppositely-inclined screw-threaded openings, two oppositely-screw-threaded rods carrying upwardly-extending portions, and tongs engaging said upwardly-extending portions, substantially as described.

2. In a brick-carrier, the combination of two L-shaped clamps having arranged therein two oppositely-inclined screw-threaded openings, two oppositely-screw-threaded rods carrying upwardly-extending portions, tongs engaging said upwardly-extending portions, and handles arranged on each of said L-shaped clamps.

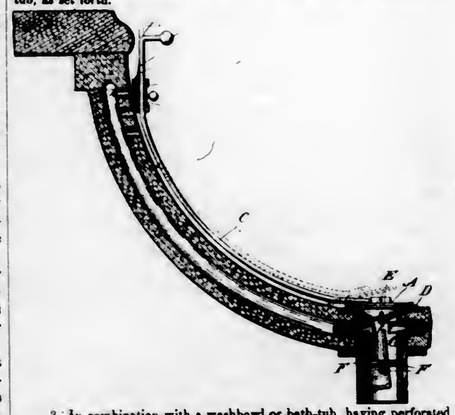
3. In a brick-carrier, the combination of two L-shaped clamps having arranged therein two oppositely-inclined screw-threaded openings, two oppositely-screw-threaded rods carrying upwardly-extending portions, tongs engaging said upwardly-extending portions, handles arranged on each of said L-shaped clamps, and shields arranged to the under face of said L-shaped clamps.

4. In a brick-carrier, the combination of two L-shaped clamps having arranged therein two oppositely-inclined screw-threaded openings, two oppositely-screw-threaded rods carrying upwardly-extending portions, said upwardly-extending portions terminating in apertured lugs, tongs engaging said upwardly-extending portions, handles arranged on each of said L-shaped clamps, and shields arranged to the under face of said L-shaped clamps, substantially as set forth.

680,592. **WASTE-VALVE FOR WASHBOWLS, BATH-TUBS, &c.** JOHN A. HOLLENBERGER, Hagerstown, Md. Filed Dec. 26, 1900. Serial No. 41,114. (No model.)

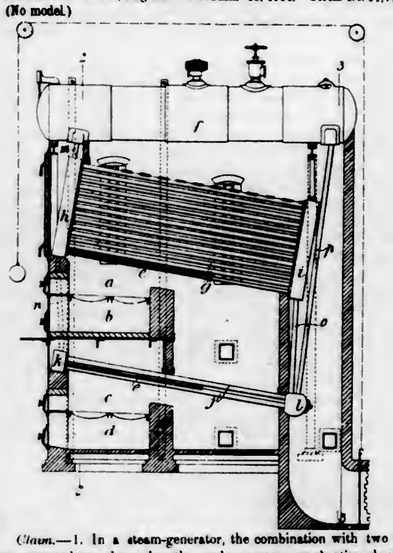
Claim.—1. In combination with a washbowl or bath-tub having a waste-outlet passage-way with cross-pieces therein, a plug, a flexible rod secured to said plug and means for holding the rod to the bowl or tub, and a hook secured to the plug and designed to engage said cross-pieces in the waste-outlet, as set forth.

2. In a washbowl or bath-tub attachment, the combination with the tub or bowl having perforated overflow-apertures, a plate, a wire passing through said plate and the perforations of the overflow and nuts for securing the plate to the bowl, the plug and rod secured thereto, the boxing and spring S to hold the rod to the plate and means for holding the plug so as to have a limited play over the waste passage-way of the bowl or tub, as set forth.



3. In combination with a washbowl or bath-tub, having perforated overflow passage-way, a slotted plate with rod-retaining means secured thereto, the rod and plug, and a threaded wire the ends of which project outward through said perforations and extend through the slots in said plate, and the nuts held on said threaded ends, as set forth.

680,593. **STEAM-GENERATOR.** WILLIAM HORNSBY and DAVID ROBERTS, Grantham, England. Filed Mar 18, 1901. Serial No. 51,716. (No model.)



Claim.—1. In a steam-generator, the combination with two furnaces arranged one above the other and a common combustion-chamber communicating with both furnaces, of a boiler comprising a steam-drum, a water-tube section located above the upper furnace and connected with the steam-drum and a water-tube section interposed between said furnaces, connections extending therefrom to the upper water-tube section from said lower tube-section directly to the steam-drum, substantially as described.

2. In a steam-generator, the combination with two furnaces arranged one above the other and a common combustion-chamber communicating with both furnaces, and a deflecting-plate above each furnace extending from the front thereof to the combustion-chamber, of a boiler comprising a steam-drum, a water-tube section located above the upper furnace and connected with the steam-drum, a water-tube section located above the lower furnace, connections from said lower water-tube section to the up-

per water-tube section and direct connections from said lower water-tube section to the steam-drum, said water-tube sections extending rearwardly into and over the combustion-chamber, substantially as described.

3. In a steam-generator, the combination with two furnaces, arranged one above the other and a common combustion-chamber communicating with both furnaces, of a boiler comprising a steam-drum an upper water-tube section located above the upper furnace, said section being divided horizontally into two parts and connected with the steam-drum, a superheater arranged between the two parts of the upper water-tube section and connected with the steam-drum, a lower water-tube section interposed between the two furnaces, connections extending therefrom to the upper water-tube sections and direct connections extending from said lower water-tube section to the steam-drum, substantially as described.

4. In a steam-generator, the combination with a furnace and combustion-chamber, of a boiler comprising a steam-drum, a water-tube section formed in two horizontal parts and connected to the steam-drum and a superheater interposed between the parts of the water-tube section and connected with the steam-drum, substantially as described.

680,594. DUST-PROOF SLEEVE FOR WATCH-PENDANTS.

CHARLES H. HOWARD, Greenriver, Wyo. Filed Feb. 4, 1901. Serial No. 45,936. (No model.)



Claim.—1. In a dust-proof sleeve for watch-pendants, a pendant, a stem extending through the pendant, a shoe surrounding the stem having a resilient portion and a cuff surrounding the shoe also having a resilient portion, said shoe and cuff having engaging shoulders and a sleeve in threaded engagement with the pendant and partially inclosing the shoe and cuff and having an internal shoulder against which the shoulders of the cuff and shoe abut and provided with means to hold the cuff and shoe in place.

2. In a dust-proof sleeve for watch-pendants, a pendant, a stem extending through the pendant, a shoe surrounding the stem having a resilient portion and a cuff surrounding the shoe also having a resilient portion, said shoe and cuff having engaging shoulders and a sleeve in threaded engagement with the pendant and partially inclosing the shoe and cuff and having an internal shoulder against which the shoulders of the cuff and shoe abut and having a lip swaged over the shoulder of the cuff.

3. In a dust-proof sleeve for watch-pendants, a tubular stem-engaging shoe having a resilient portion and a tubular cuff surrounding the shoe having engaging shoulders and the cuff having a resilient portion and a sleeve surrounding the shoe and cuff and having a part swaged over one of the shoulders.

4. A tubular stem-engaging shoe, a cuff surrounding the shoe, and having a resilient portion, a sleeve to which the shoe and cuff are rigidly connected, and a second cuff having a resilient stem-engaging portion.

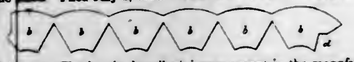
5. A stem-engaging shoe, a cuff surrounding the shoe and engaging the same, said parts having engaging shoulders, a sleeve having a shoulder to support both the shoe and cuff, and a lip on the sleeve swaged over the shoulder of the cuff.

6. A stem-engaging shoe, a cuff surrounding the shoe, said parts having engaging tapered beveled engaging shoulders, a sleeve having shoulders in different planes, one of which supports the shoe and cuff and the other having a lip swaged over the shoulder of the cuff.

7. A pendant, a stem passing through said pendant, a shoe surrounding and frictionally engaging the stem, a cuff surrounding the shoe and frictionally engaging the stem, said shoe and cuff having engaging shoulders, a sleeve in the pendant having two shoulders one of which supports the shoe and cuff and the other having a lip swaged over the cuff, and a second stem-engaging cuff rigidly connected with the sleeve.

680,595. MANUFACTURE OF HOLLOW BLOOMS FOR PRODUCING TUBES, HOLLOW SHAFTING, AXLES, &c., FROM COMMON PUDDLED IRON OR OTHER METALS.

JOHN G. ISHAW, Birmingham, England, assignor of two-thirds to Frederick Billing and Francis Billing, same place. Filed July 2, 1901. Serial No. 66,859. (No model.)

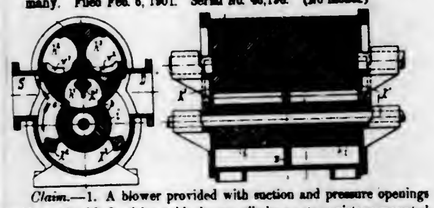


Claim.—1. The herein-described improvement in the manufacture of hollow blooms for producing tubes and the like, consisting in forming a bar of puddled iron, or other metal, of which the tube, or the like is to be formed, with longitudinal segmental projections, connected by a backing or thin belt of the metal, and bending the bar and bringing the segmental projections together so as to form the hollow bloom, substantially as described.

2. The herein-described improvement in the manufacture of hollow blooms for producing tubes and the like, consisting in forming a bar of puddled iron, or other metal, of which the tube or the like is to be formed, with longitudinal segmental projections connected by a backing or thin belt of metal, bending the said bar and bringing the segmental projections together so as to form a hollow bloom, and then heating the said bloom to a sufficient temperature to weld the abutting projections, substantially as described.

680,596. ROTARY BLOWER.

CARL H. JARSEN, Leipsic, Germany. Filed Feb. 6, 1901. Serial No. 46,198. (No model.)



Claim.—1. A blower provided with suction and pressure openings or sides and with fixed inner blocks or cylinders, rotary pistons mounted in said blocks, a rotary drum having chambers into which the pistons are made to enter, and covers provided with recesses or conduits with which the drum-chambers are made to communicate so that a drum-chamber leaving the pressure side, and advancing toward the suction side of the blower, is connected for the time being with the drum-chamber leaving and shut off from the suction side, whereby the compressed air from the first said chamber enters the second said chamber and is returned to the pressure side, noise at the suction side being thereby prevented, all substantially as set forth.

2. A blower comprising a shell with upper and lower cylinder-shaped portions, the outlines or peripheries of which cut or extend partly into one another, end covers for the lower portion, blocks or bearings extended from these covers inwardly toward one another, a rotary shaft provided with pistons and having its bearings in said blocks, recessed covers for the upper shell portion, and a rotary drum provided with chambers made to communicate with said recesses and into which the pistons are made to enter, substantially as described.

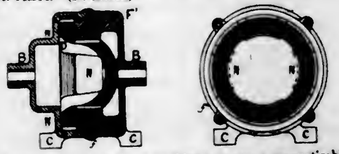
3. A blower shell or casing combined with a chambered rotary drum and rotary pistons made to enter the drum-chambers, and fixed blocks or cylinders forming a bearing for the pistons and having a concave portion or face made to fit the drum and close the chambers, said shell having recesses or conduits for establishing communication from one chamber to another, substantially as described.

4. A blower having a suction and pressure side or opening and inner cylinders or blocks, pistons made to rotate about the blocks, a drum chambered for the entry of the pistons, and covers having conduits or channels for establishing communication between a drum-chamber passing from the pressure to the suction side and a chamber closed against the suction so as to charge or supply the latter with compressed air for conducting the same to the pressure space and prevent the occurrence of noise, substantially as described.

5. A blower shell or casing combined with a chambered and grooved rotary drum and rotary pistons made to enter the drum-chambers, and fixed blocks or cylinders forming a bearing for the pistons and having a concave portion or face made to fit the drum and close the chambers, said shell having recesses or conduits for establishing communication from one chamber to another, and a guide-flange *z* for entering the groove in the drum, substantially as described.

680,597. DYNAMO-ELECTRIC MACHINE AND ELECTRIC MOTOR.

HENRY F. JOEL, London, England. Filed May 21, 1901. Serial No. 61,231. (No model.)



Claim.—1. In a dynamo machine or motor a magnetizable and divisible field circuit or core, carrying radiating field-poles, in combination with a previously-molded single and sinuous ring-coil, adapted to receive said poles when poles and frame are united, and to pass between and partially embrace in succession by alternating curves in planes tangential to the ring-coil, a considerable periphery of said poles, to magnetize said poles with successively equal and opposite polarities on alternate sides of said sinuous coil.

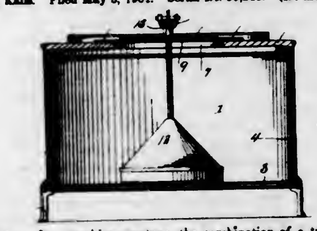
2. In combination in a dynamo machine or motor, a divided external magnetizable circuit or case adapted to support and inclose an internal armature field-poles radiating from said external case to central axis; and a previously-molded and sinuous ring-coil, partially embracing by alternating curves in a plane tangential to the ring-coil, a considerable periphery of the said poles, radiating through said ring-coil, in order to magnetize said poles with successively equal and opposite polarities on alternate sides of said sinuous coil.

3. In combination in a dynamo machine or motor an external magnetizable circuit or case divided in the plane of rotation of an internally-supported and inclosed armature, each half of said case carrying a moiety of radial poles, adapted to interspace and overlap when the parted case is closed and a single and sinuous ring-coil previously molded so as to receive into its sinuous curves, and to partially embrace in a plane tangential to the ring-coil, the said poles when the said parted case is closed.

4. In a dynamo machine or motor a four-pole single continuous and sinuous field ring-coil, having successive waves or curves, alternately in planes perpendicular to one another and tangential to the ring-coil in combination with radial field-poles situated in the plane of rotation of the armature.

680,598. WASHING-MACHINE.

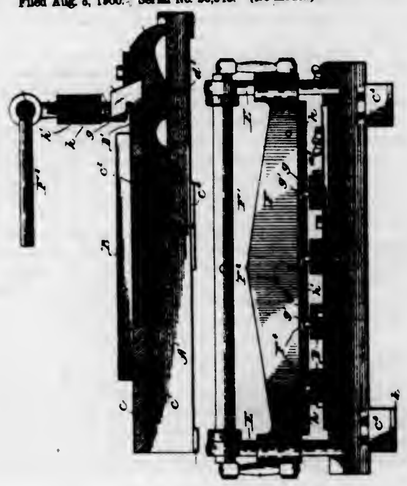
ARTHUR W. JONES, Washington, Kans. Filed May 8, 1901. Serial No. 59,211. (No model.)



Claim.—In a washing-machine, the combination of a tub, a cover hinged to the tub provided with a slot to receive the plunger-rod and with ways adjacent to said slot, a slide having a slotted opening moving in said ways over the slot in the cover, a second slide above the first slide moving in said ways and provided with a bearing to receive the plunger-rod, a link pivoted to the tub near the bottom, a handle pivoted to the link, pivotal connections between the handle and the plunger-shaft, and a universal joint between the link and the handle, substantially as set forth.

680,599. PUNCH.

HARVEY P. JONES and HARRY S. JONES, Chicago, Ill., assignors to Jones Perpetual Ledger Company, of Illinois. Filed Aug. 8, 1900. Serial No. 26,313. (No model.)



Claim.—1. In a portable punching-machine, the combination of a platform comprising downwardly-swinging hinged sections, a female die connected with one of said sections, a reciprocating male die coacting therewith, and a movable guide or gage secured to the upper surface of said platform and extending across the junction of said sections, substantially as and for the purpose set forth.

2. In a punching-machine having a suitable base provided with inclined retaining-shoulders and having also a plurality of adjustably-supported reciprocating male dies and a suitable platform, a plurality of adjustably-supported separate integrally-formed combined guide and female die receiving said male die and provided with upwardly-convergent surfaces engaged by said retaining-shoulders, each combined guide and die being provided with a horizontal recess, the lower wall of which is flush with the upper surface of said platform, substantially as and for the purpose set forth.

3. In a punching-machine, the combination of a wooden platform comprising two downwardly-swinging sections, one of said sections being cut away at its upper front portion, a metallic die-block base supported on the recessed portion of the front section and having the surface flush with the top surface of the platform and provided also with upwardly-convergent retaining-shoulders, an integrally-formed combined guide and female die adjustably supported by said base and provided with upwardly-convergent surfaces engaged by said retaining-shoulders and having a horizontal slot in its rear portion, the lower wall whereof is flush with the adjacent surface of said base, and a reciprocating male die supported from said base and received by said combined guide and die, substantially as and for the purpose set forth.

680,600. NECKTIE-CLASP.

RUEL A. JONES, Stanford, Ky. Filed Nov. 21, 1900. Serial No. 37,194. (No model.)



Claim.—1. As an improved article of manufacture, the herein-described necktie-clasp, composed of two plates fitted face to face and provided midway between their ends with coincident notches which jointly form a recess to receive the shank of the button at the back of the neck, one of said plates being provided with lugs overlapping the other plate, and one of said lugs being located at the base of said button-notch whereby to prevent any twisting of said plates, the outer ends of the plates being normally sprung apart forming jaws suitably roughened to aid in securing the tie-sections between them, the outwardly-extending projections near the outer ends of the clasp and the slides fitted over said plates and arranged to compress the outer ends of the clasp and to be limited in their outward movements by the projections upon the outer sides of the clasp when upon the tie-sections, all substantially as set forth.

2. As an improved article of manufacture a necktie-clasp composed of two spring-plates having interlocking portions at their middles, notched at such point to receive the shank of the back collar-button and having their ends sprung normally apart and provided on their outer sides at such ends with projections, and slides for compressing such ends, the projections being arranged to stop the slides when the ends are held apart by an interposed necktie-section and to permit the passage of such slides when the said ends are pressed directly together all substantially as set forth.

680,601. FILLING-REPLENISHING LOOM.

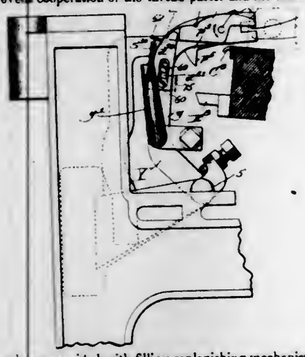
JOHN J. LANE and LOUIS A. AUMANN, Chicopee, Mass., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Filed June 6, 1901. Serial No. 63,433. (No model.)

Claim.—1. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter, bodily movable by or through the operation of the controlling means into position to part the filling-thread in use, a device to normally actuate the thread-parter when so positioned, and independent means to positively prevent such actuation of the thread-parter if the shuttle is improperly boxed.

2. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a shuttle-feeler, a thread-parter movable therewith into position to part the filling-thread in use upon a change of filling, an actuating device for the thread-parter, and means operative independently of the said shuttle-feeler to prevent actuation of the thread-parter when the shuttle is improperly boxed.

3. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-

parter, bodily movable by or through the operation of the controlling means into position to part the filling-thread in use, the lay, main and auxiliary actuators thereon, the former being adapted to normally actuate the thread-parter when placed in operative position, and independent, normally inoperative means rendered operative by or through the shuttle when improperly boxed, to be engaged by the auxiliary actuator and moved to prevent coöperation of the thread-parter and the main actuator.



4. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a shuttle-feeler, a thread-parter mounted thereon and bodily movable by or through the operation of the controlling means into position to part the filling-thread in use, an actuator to normally effect the operation of the thread-parter when so positioned, and independent means actuated by engagement with the tip of the shuttle to positively retract the shuttle-feeler and move the thread-parter away from the filling-thread if the shuttle is not fully and properly boxed.

5. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a shuttle-feeler, fixed or movable thread-parting blades bodily movable therewith by or through the operation of the controlling means to receive between them the filling-thread in use, the lay, a main actuator thereon to close the blades when so positioned, to part the thread, an auxiliary feeler mounted adjacent said blades and adapted to be moved by the shuttle if not properly boxed, a dog adapted to be operatively positioned by such movement of the auxiliary feeler, and an auxiliary actuator on the lay and extended forward beyond the main actuator, to engage the dog when in abnormal position, to thereby bodily retract the parting-blades and prevent coöperation of the main actuator therewith.

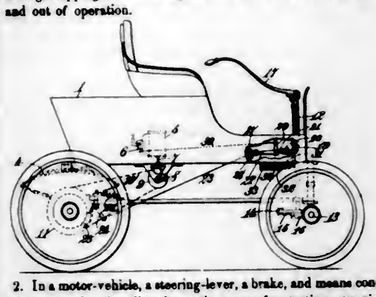
6. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a shuttle-feeler, a thread-parter mounted thereon, and bodily movable by or through the operation of the controlling means into position to part the filling-thread in use, an actuator to normally effect the operation of the thread-parter when so positioned, and independent means to effect bodily retraction of the thread-parter beyond the thread-path if the shuttle-feeler fails to detect an improper boxing of the shuttle.

7. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a shuttle-feeler to prevent the actuation of said mechanism if the shuttle is improperly boxed for a change of filling, a thread-parter bodily movable with the shuttle-feeler into position to part the thread of the filling-carrier to be ejected from the shuttle, a device to normally actuate the thread-parter when so operatively positioned, and independent means adapted to be operated by the shuttle if the latter is not fully boxed to bodily retract the thread-parter beyond the path of the thread, to thereby prevent parting of the latter when the filling in the shuttle is not changed.

8. In a loom provided with filling-replenishing mechanism, controlling means therefor, including a pivotally-mounted dog, a shuttle adapted to carry a supply of filling, the lay, a bunter thereon to engage and move the dog when operatively positioned, to effect actuation of the filling-replenishing mechanism, an elongated safety-deflector on the bunter, and a shuttle-feeler, operatively connected with the dog, to prevent movement of the latter into operative position when the shuttle is improperly boxed, the safety-deflector at such time engaging the end of the dog and positively deflecting it out of the path of the bunter.

680,602. MOTOR-VEHICLE. CHARLES A. LIEB, New York, N. Y. Filed May 23, 1900. Serial No. 17,711. (No model.)

Claim.—1. In a motor-vehicle, steering mechanism, a brake, and means controlled by said mechanism, and acting directly upon the motor for starting, stopping and reversing the same and for throwing said brake into and out of operation.



2. In a motor-vehicle, a steering-lever, a brake, and means controlled by said lever and acting directly on the motor for starting, stopping and reversing the same and for throwing said brake into and out of operation.

3. In a motor-vehicle, a steering-lever, a normally-applied brake, means controlled by said lever and acting directly on the motor for starting, stopping and reversing the same, and means controlled by said lever for releasing the brake when the motor is started in one direction or the other.

4. In a motor-vehicle, a brake, a rotary steering-post, an operating-lever pivoted thereto, a rod or bar pivoted to said lever and adapted to be actuated thereby, a controlling-valve for the motor, and connections between said brake and controlling-valve and said rod or bar, whereby said brake and controlling-valve are actuated by the movement of said rod or bar.

5. In a motor-vehicle, a rotary steering-post, an operating-lever pivoted thereto, a rod or bar pivoted to said lever and adapted to be actuated thereby, a segmental lug or plate on said rod, a crank-arm connected to the controlling-valve of said motor, a lever having a crank-arm thereon, and a rod connecting the crank-arm on said lever with the crank-arm on said valve, the said lever being provided with a yoke or fork between the branches of which said lug or plate is located.

6. In a motor-vehicle, steering mechanism, means controlled by said mechanism and acting directly upon the motor for starting, stopping and reversing the same, a brake, and means for automatically stopping said motor and applying said brake when pressure upon said steering mechanism is relieved.

7. In a motor-vehicle, a steering-lever, means controlled by said lever and acting directly upon the motor for starting, stopping and reversing the same, a brake, and means for automatically stopping said motor and applying said brake when pressure upon said steering-lever is relieved.

8. In a motor-vehicle, a steering-lever, means controlled by said lever and acting directly upon the motor for starting, stopping and reversing the same, and a spring for automatically stopping said motor when pressure upon said steering-lever is relieved.

9. In a motor-vehicle, a steering-lever, means controlled by said lever and acting directly upon the motor for starting, stopping and reversing the same, a brake, and springs for automatically stopping said motor and applying said brake when pressure upon said steering-lever is relieved.

10. In a motor-vehicle, a pivotally-mounted operating-lever for the motor, and a pair of springs acting upon said lever for resisting its movements in opposite directions and automatically throwing said motor out of operation when pressure upon said operating-lever is relieved.

11. In a motor-vehicle, a pivotally-mounted operating-lever for the motor, a brake, a spring for normally maintaining said brake in operative position, and a pair of springs acting upon said lever for resisting its movements in opposite directions and automatically throwing said motor out of operation and permitting said brake to be applied when pressure upon said operating-lever is relieved.

12. In a motor-vehicle, a pivotally-mounted operating-lever for the motor, a rod or bar connected thereto and adapted to be actuated thereby, a lug on said rod or bar, a pair of springs acting upon opposite sides of said lug, and connections between said rod or bar and the controlling-valve of the motor, whereby said motor is automatically thrown out of operation when pressure upon said operating-lever is relieved.

13. In a motor-vehicle, a pivotally-mounted operating-lever for the motor, a rod or bar connected thereto and adapted to be actuated thereby, a lug on said rod or bar, a brake, a spring for normally maintaining said brake in operative position, a pair of springs acting upon opposite sides of said lug, connections between said rod or bar and the controlling-valve of the motor, and connections between said rod or bar and said brake, whereby said motor is automatically thrown out of operation and said brake is applied when pressure upon said operating-lever is relieved.

680,603. PROCESS OF MAKING SODIUM SULFID AND LITHOPONE. IRBE P. LIHME, Cleveland, Ohio, assignor to the Grasselli Chemical Company, same place. Filed Nov. 21, 1900. Serial No. 37,237. (No specimens.)

Claim.—The process of making sodium sulfid and lithopone, which consists in bringing together solutions of zinc sulfate, barium sulfid and sodium sulfate, in suitable proportions to precipitate lithopone and produce sodium sulfid in solution, substantially as described.

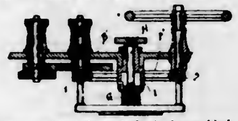
680,604. PROCESS OF WORKING LEATHER. WILLI LIEBAUER, Berlin, Germany, assignor to Leonhard Friedländer, same place. Filed June 10, 1899. Serial No. 720,071. (Specimens.)

Claim.—The method of treating leather, which consists in immersing the same for a suitable length of time in a solution of resin in a bisulfid of carbon or in a solution of resin in a hydrocarbon capable of dissolving the resin, for the purpose set forth.

680,605. PROCESS OF PREPARING HIDES FOR THE MANUFACTURE OF LEATHER. WILLI LIEBAUER, Berlin, Germany, assignor to Leonhard Friedländer, same place. Filed June 10, 1899. Serial No 720,070. (Specimens.)

Claim.—The method of treating hides and skins, previously prepared for tanning in the usual manner, which consists in immersing the same for a suitable length of time in a solution of resin in bisulfid of carbon, or in a solution of resin in a hydrocarbon capable of dissolving the resin, for the purpose set forth.

680,606. ENGINE-LATHE. WILLIAM LODGE, Cincinnati, Ohio, assignor to the Lodge & Shipley Machine Tool Company, same place. Filed May 6, 1901. Serial No. 58,990. (No model.)



Claim.—1. In an engine-lathe, a lathe-bed provided with a rack, a sliding carriage mounted upon the bed, provided with a depending apron, driving devices supported thereon engaging the rack, a longitudinal rail supported on the bed in the line of carriage travel, and a bracket formed with a tread engaging said rail, the said bracket being bolted to the apron at a position horizontally opposite said rail, thereby forming a lateral brace between the bed and lower end of the depending apron, substantially as specified.

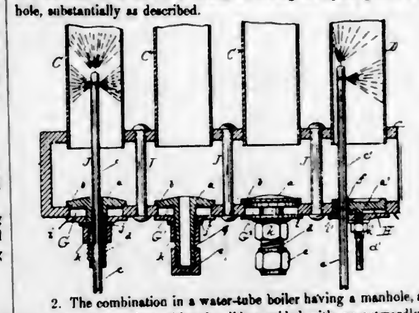
2. In an engine-lathe, a lathe-bed, a rack, a sliding carriage on the bed, an apron, driving devices supported thereon engaging the rack, a longitudinal rail supported on the lathe-bed in the line of travel of the carriage, and an L-shaped bracket formed with a tread engaging the rail having a vertically-extending leaf in which the inner ends of one or more of the apron-driving devices are journaled, and having a horizontally-extended limb secured to the apron, substantially as specified.

3. In an engine-lathe, a lathe-bed provided with a rack, a sliding carriage mounted thereon, an apron, driving mechanism supported on the apron engaging the rack, a longitudinal rail on the lathe-bed in the line of carriage travel, and a bracket formed with a tread engaging the rail and extending upwardly to form a bearing for one or more of the driving devices carried by the apron, substantially as specified.

4. In an engine-lathe, the combination of a lathe-bed provided with a rack, a sliding carriage mounted on said bed, an apron, the driving-gear G journaled within the apron, a longitudinal rail supported on the bed in the line of carriage travel, a bracket formed with a tread engaging the rail, the bracket extending upwardly substantially parallel with the side of the lathe-bed, and having a bearing or bearings for one or more of the apron-driving devices, and a pinion G fixed within the hub of the gear-wheel F to turn therewith, and means for extending the said pinion from the hub into engagement with the rack and into engagement with the bearing formed in the bracket, and to be retracted and housed within the hub of the gear F, whereby the driving devices of the apron may be thrown out of driving relation with the rack when the said carriage is being propelled by the lead-screw, substantially as specified.

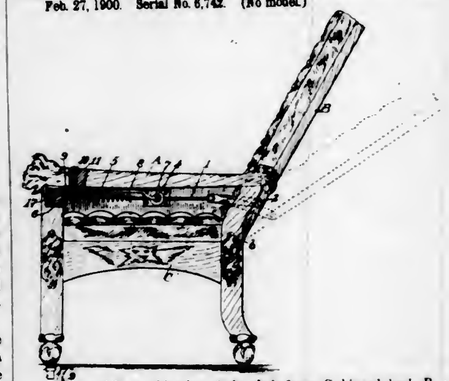
680,607. BOILER-LOCKING LID. WILHELM LUIB, Cassel, Germany. Filed Aug. 8, 1899. Serial No. 726,572. (No model.)

Claim.—1. In a water-tube boiler, the combination with a water-box having a manhole in its outer wall and a water-tube in its inner wall in line with the manhole, of a lid for the manhole having an opening through which to introduce a flush-pipe through the lid and water-box and into the water-tube, and means for closing the opening in the manhole, substantially as described.



2. The combination in a water-tube boiler having a manhole, and a water-tube in line therewith, of a lid provided with an outwardly-projecting threaded tubular extension through which to introduce a flush-pipe into the water-tube, a clamp-plate on said extension bearing on the outside of the wall of the manhole, a packing-washer on the extension outside of the clamp-plate, a nut on the extension outside of the packing-washer and a screw-cap for closing the end of the extension, substantially as described.

680,608. CHAIR. JOSEPH A. MANAHAN, New York, N. Y. Filed Feb. 27, 1900. Serial No. 6,742. (No model.)



Claim.—The combination of the chair-frame C, hinged back B, a tension-spring 5 connected to the chair-frame, a three-part tension-rod 1, the rear-end part being pivotally connected to the chair-back, a lap-joint connection between the rear-end part and the middle part, and a screw-clamp to admit of their relative adjustment, and a pivotal connection between the middle part and the forward-end part, a socket-ring 14 on the latter, and a set-screw therefor, by means of which the tension-rod is connected to the tension-spring, a guide-bracket through which the tension-rod passes and by which it is guided, a friction-clutch 7 in said guide, an adjustable arm 8 operating said clutch, a push-button pivotally connected at one end of the arm 8, and a spring 9 for maintaining the push-button in an elevated position, substantially as set forth.

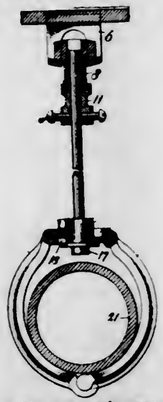
680,609. PIPE-HANGER. JOSEPH MARQUARDT, New York, N. Y. Filed Oct. 12, 1900. Serial No. 32,839. (No model.)

Claim.—1. A hanger comprising two interlocking parts, one of which is provided with a loop having a slot therein, said slot being closed at each end, and the other of which is provided with a head constructed to enter into engagement through said closed slot and to engage the inner face of said loop, substantially as set forth.

2. A hanger comprising a supporting part and a suspending part, the supporting part having a loop with a slot therein, said slot being closed at each end, and the suspending part having a head constructed to enter into engagement through said closed slot and to engage the inner face of said loop, substantially as set forth.

3. A hanger comprising a supporting part and a suspending part, the supporting part having a loop with a slot therein and the suspending part having a head constructed to enter into engagement through said slot and to engage the inner face of said loop, and means for adjusting the length of the suspending part, substantially as set forth.

4. A holder comprising two interlocking arms overlapping at their upper ends and perforated at their overlapping parts and provided with slots in the walls of the perforations, and a rotatable key constructed to enter the perforations and having a projection constructed to pass through the slots, substantially as set forth.



5. A hanger comprising a supporting part, a suspending part supported thereon, a rotatable key on the suspending part and two interlocking arms overlapping at their upper ends and perforated at their overlapping parts and provided with slots in the walls of the perforation, said rotatable key being constructed to enter the perforations and having a projection constructed to successively enter and pass through the slots, substantially as set forth.

6. A hanger comprising a supporting part having a loop with a slot therein, said loop made up of two overlapping slotted pieces each having means for engaging opposed ledges or shoulders, and a suspending part having a head constructed to enter into engagement through said slot and to engage said loop, the overlapping pieces being constructed so as to be locked together by the presence of the suspending part in the slot and the loose engagement of the head thereof with the loop, substantially as set forth.

7. A hanger comprising a supporting part having a loop with a slot therein, said loop made up of two overlapping slotted pieces each having a hook thereon, and a suspending part having a head constructed to enter into engagement through said slot and to engage said loop, the overlapping pieces being constructed so as to be locked together by the presence of the suspending part in the slot and the loose engagement of the head thereof with the loop, and means for adjusting the length of the suspending part, substantially as set forth.

8. A hanger comprising a supporting part having a loop therein with a slot in such loop, the slot being closed at both ends and elongated at one side of such loop, and a suspending part having a T-head constructed to enter the closed slot and engage the loop, said T-head having side projections of rounded cross-section and said loop being rounded, substantially as set forth.

9. A hanger comprising a supporting part having a loop therein, with a slot in such loop, the slot being closed at both ends and elongated at one side of such loop, and a suspending part having a T-head constructed to enter the closed slot and engage the loop, said T-head having side projections of rounded cross-section and said loop being rounded, and a suspending-rod adjustably secured to said T-head, substantially as set forth.

10. A hanger comprising a supporting part consisting of a base and a loop including a part bearing at a distance from the base, such loop having a slot formed therein at such bearing and such slot extending on one side toward the base and beyond the bearing, and a suspending part having a T-head narrower than the slot and longer than the width of the slot and of such length as to be capable of entering the slot at the side where the slot is extended toward the base, substantially as set forth.

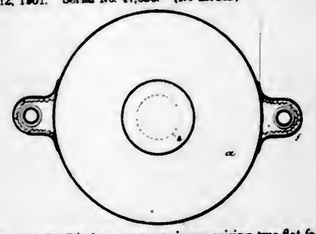
11. A hanger comprising a supporting part consisting of a base and a loop including a part bearing at a distance from the base, such loop having a slot formed therein at such bearing and such slot extending on one side toward the base and beyond the bearing, and a suspending part having a T-head of rounded cross-section and longitudinal section, such T-head being narrower than the slot and longer than the width of the slot and of such length as to be capable of entering the slot at the side where the slot is extended toward the base, substantially as set forth.

12. A hanger comprising a supporting part consisting of a base and a loop including a part bearing at a distance from the base, such loop having a slot formed therein at such bearing and such slot extending at one side toward the base and beyond the bearing, such base and loop made up of two overlapping slotted pieces 5, 5, each having a hook 6 thereon, and a suspending part having a T-head 8 of rounded cross-section and longitudinal section, such T-head being narrower than the slot and longer than the width of the slot and of such length as to be capable of entering the slot at the side where the slot is extended toward the base, and such T-head interlocking the two slotted pieces together, substantially as set forth.

13. A hanger comprising a supporting part, a suspending part supported free to turn thereon and having an adjustable rod, a rotatable key on said rod, and two arms adapted to hold a pipe and interlocking at one end of each arm and overlapping at the other end of each arm, said key engaging said overlapping portions of said arms, substantially as set forth.

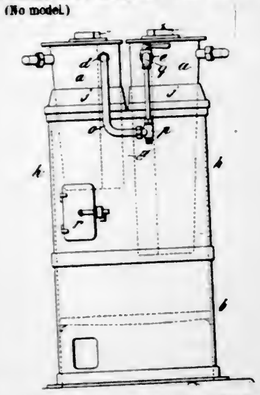
14. A hanger comprising a part adapted to be secured to a support, such part having a depending rod, the key 16 thereon having the projection 20, and the arms 14 and 15 interlocking at their lower ends and having overlapping perforated upper ends, with slots 18 and 19 in the walls of such perforations, substantially as set forth.

680,610. ICE OR WATER BAG. CHRISTIAN W. MEINECKE, Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Filed Feb. 12, 1901. Serial No. 47,023. (No model.)



Claim.—A flexible bag or reservoir comprising two flat faces of the same size and shape and united at their edges by a continuously-plaited and centrally and inwardly folding side wall extending entirely around the edge of the bag, one of said faces being provided at its center with a filling-orifice, and laterally-projecting tabs secured to said bag, all constructed and arranged substantially as and for the purposes specified.

680,611. APPARATUS FOR SUPPLYING HOT LIQUIDS. EDWARD W. PARRIS, London, England. Filed Oct. 20, 1900. Serial No. 33,772. (No model.)



Claim.—1. In an apparatus for supplying hot liquids, the combination of a series of vertical sections so shaped that when fitted together, they form a cylindrical vessel having a vertical central passage, of a chimney connected with said central passage, of a cylindrical chamber surrounding the lower parts of said series of vertical sections, of means for supporting said section loosely but smoke-tight in place, of detachable pipes for connecting one section to another, and an inlet and outlet pipe for the entrance of the cold liquid and escape of the hot liquid, substantially as and for the purpose set forth.

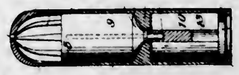
2. In apparatus for supplying hot liquids the combination of a series of closed vertical sections, so shaped that when connected together they form a cylindrical vessel having a vertical central passage and spaces between the contiguous sections, of a displacement-chamber communicating at its lower end with the heating-chamber of each section, of an inlet-opening at the upper part of each displacement-chamber, of an outlet-opening at the upper part of each section, of a pipe connecting the said inlet-opening with the said outlet-opening of the contiguous sections, of an inlet for cold liquid on the inlet-section of the apparatus, of an outlet for hot liquid on the outlet-section of the apparatus, of a cock connected with the said cold-liquid inlet, of a cock on the said hot-liquid outlet and situated vertically over the said inlet-cock, of means for connecting the plugs of said cocks together, of a furnace located beneath said sections, of a furnace-floor in said cylindrical casing and of a flue-pipe connected to the top of said casing for the purpose specified.

3. In an apparatus for supplying hot liquids, the combination of a cylindrical casing, a perforated plate mounted on the top thereof, a series of closed sections extending through said plate and forming a cylindrical vessel, and a flanged collar surrounding each of said sections, and engaging said plate to form a smoke-tight joint.

4. In apparatus for supplying hot liquids the combination of a series of closed vertical sections, so shaped that when connected together they form a cylindrical vessel having a vertical central passage and spaces between the contiguous sections, of a displacement-chamber communicating at its lower end with the heating-chamber of each section, of an inlet-opening at the upper part of each displacement-chamber, of an outlet-opening at the upper part of each section, of a pipe connecting the said inlet-opening with the said outlet-opening of the contiguous sections, of an inlet for cold liquid on the inlet-section of the apparatus, of an outlet for hot liquid on the outlet-section of the apparatus, of a cock connected with the said cold-liquid inlet, of a cock on the said hot-liquid outlet and situated vertically over the said inlet-cock, of means for connecting the plugs of said cocks together and of an opening in the top of each section closed by a screw-cap for the purpose specified.

5. In apparatus for supplying hot liquids the combination of a series of closed vertical sections, so shaped that when connected together they form a cylindrical vessel having a vertical central passage and spaces between the contiguous sections, of a displacement-chamber communicating at its lower end with the heating-chamber of each section, of an inlet-opening at the upper part of each displacement-chamber, of an outlet-opening at the upper part of each section, of a pipe connecting the said inlet-opening with the said outlet-opening of the contiguous sections, of an inlet for cold liquid on the inlet-section of the apparatus, of an outlet for hot liquid on the outlet-section of the apparatus, of means for simultaneously opening and closing said inlet and outlet; of a furnace located beneath said sections, of a furnace-door in said cylindrical casing and of a flue-pipe connected to the top of said casing for the purpose specified.

680,612. MATCH SAFE OR BOX. BENJAMIN F. PARKER, East Nashville, Tenn. Filed June 6, 1901. Serial No. 63,439. (No model.)



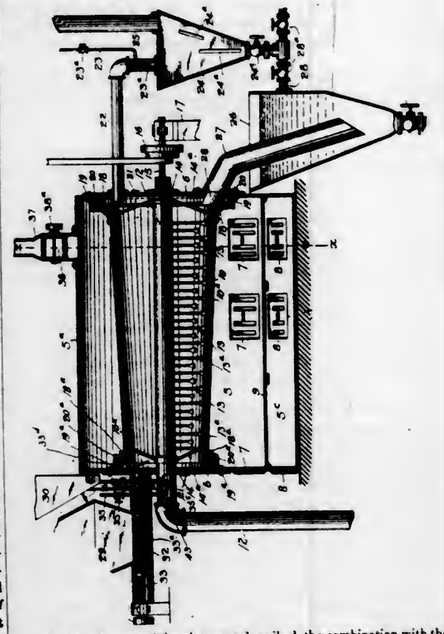
Claim.—1. In a match-safe, the combination with a casing provided with a centrally-perforated partition funnel-shaped on its upper side, of a centrally-perforated dome-shaped cap fitted on the upper end of the casing and provided interiorly with vertical grooves converging at the central perforation therein, and an ejector-rod arranged to reciprocate in the perforation in the partition, substantially as described.

2. In a match-safe, the combination with a cylindrical casing having a centrally-perforated dome-shaped cap fitted on one end and an inwardly-flanged collar fitted on the opposite end, said casing being provided intermediate its ends with a centrally-perforated partition funnel-shaped on its upper side, of an ejector-rod arranged to reciprocate in the perforation in the partition and provided at its lower end with a combined circular weight and guide arranged to fit the interior of the casing and freely move therein, substantially as described.

680,613. ORE ROASTING AND DESULFURIZING FURNACE. AMOS S. PARTRIDGE, St. Louis, Mo. Filed Feb. 18, 1899. Serial No. 706,067. (No model.)

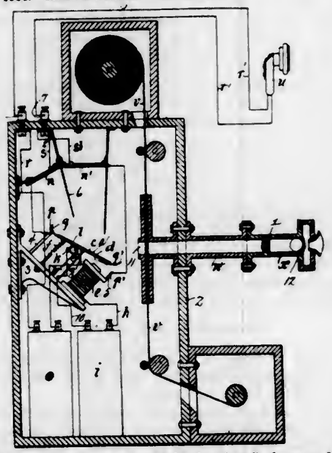
Claim.—1. In a furnace of the character described, the combination of a revoluble retort having open ends adjacent to the end walls of the furnace, a packing between the end walls and retort, an air-conducting pipe within the retort, blowpipes projecting from and having communication with the interior of said pipe, spiders carried by said retort and rotatably mounted on said air-pipe, means for rotating said retort, and means for feeding ore into the retort.

2. In a furnace of the character described, the combination with the end walls of the furnace, of flanges projecting inwardly therefrom, a revoluble conical retort, annular wings carried by said retort and positioned within said flanges, packing-rings arranged between said flanges and wings, and a chute located at the discharge end of said retort, substantially as described.



3. In a furnace of the character described, the combination with the furnace-walls, of a revoluble retort, retort-supporting flanges projecting inwardly from the walls of the furnace, annular wings surrounding said retort and positioned within said flanges, packing-rings between said flanges and wings, a discharge-pipe leading from the wall of the furnace at the discharge end of said retort, and a chute providing a slideway from the discharge end of the retort to said spout, substantially as described.

680,614. PHOTOPHONOGRAPH-PHOTOPHONE OR SIMILAR DEVICE. JOSEPH POLIAKOFF, Charlottenburg, Germany. Filed July 17, 1900. Serial No. 23,921. (No model.)



Claim.—1. In instruments of the class described, means for producing sound-modified light, devices for vibrating a reflected ray of such, and means arranged to receive said rays to affect an electric current, substantially as set forth.

2. In instruments of the class described, the combination with photo-

electric cells, of devices for vibrating a ray of sound-modified light to one and then to another of said cells, substantially as set forth.

3. In instruments of the class described, the combination with photo-electric cells, of a light-screen between the cells and devices for vibrating a ray of sound-modified light from one cell to another, substantially as set forth.

4. In instruments of the class described the combination with selenium-cells connected in a telephone-circuit of a vibrating mirror, whereby a reflected ray of sound-modified light is sent alternately to one cell and to the other.

5. In instruments of the class described the combination with two selenium-cells connected in a telephone-circuit of a vibrating mirror and a vibrating lever carrying the armature of an electric interrupter and the said mirror.

6. In instruments of the class described, the combination with photo-electric cells arranged to be successively connected to a telephone-circuit, devices for vibrating sound-modified light-rays first to one cell and then to another, and means for cutting out of circuit those cells on which the sound-modified rays of light do not fall.

7. In instruments of the class described, the combination with photo-electric cells arranged to be successively connected to a telephone-circuit, of a screen between adjacent cells, a vibrating mirror a circuit-breaker connected thereto, whereby a reflected ray of sound-modified light is sent to and current simultaneously sent through the cells, substantially as set forth.

8. In instruments of the class described the combination with a pair of selenium-cells connected in a telephone-circuit, contacts electrically connected to said cells, a conductive electrically-vibrated lever adapted to close circuit through either of the said contacts, a selenium-cell and the telephone-circuit an electrical connection between said lever and a source of current and a mirror carried by said lever, substantially as set forth.

9. In instruments of the class described, the combination with photo-electric cells arranged to be successively connected to a telephone-circuit, a screen between adjacent cells, an electrically-vibrated circuit-breaker and a mirror arranged to direct current through and sound-modified light successively to said cells, substantially as set forth.

10. In instruments of the class described, the combination with a pair of selenium-cells arranged to be alternately connected to a telephone-circuit, of a pair of contacts each electrically connected to a cell, a conductive vibrating lever arranged to alternately close circuit through one contact, cell and telephone-circuit, electrical connections between said lever and a source of electric supply, a mirror and an armature on said lever, a solenoid opposite the armature, an independent circuit for said solenoid and a circuit-breaker included in the solenoid-circuit and carried by said vibrating lever, substantially as and for the purpose set forth.

11. In instruments of the class described, in combination, a lens, a vibrating mirror at its focus, a mechanically-moved positive photographic record of sound-modified light-waves moving across the path of light focused from said lens to the mirror, a pair of selenium-cells arranged to alternately receive light-impressions from said vibrating mirror to said cells included in parallel in a telephone-circuit, substantially as set forth.

12. In instruments of the class described in combination, a lens, a vibrating mirror at its focus, a positive photographic sound-record mechanically moved across the path of light between the lens and mirror, a pair of selenium-cells included in a telephone-circuit and arranged to alternately receive the focused light from said mirror, screens for said cells to shield them from all light but that reflected from said mirror to the respective cells, and means for placing only that cell in circuit, which is affected by the reflected ray from the mirror, substantially as set forth.

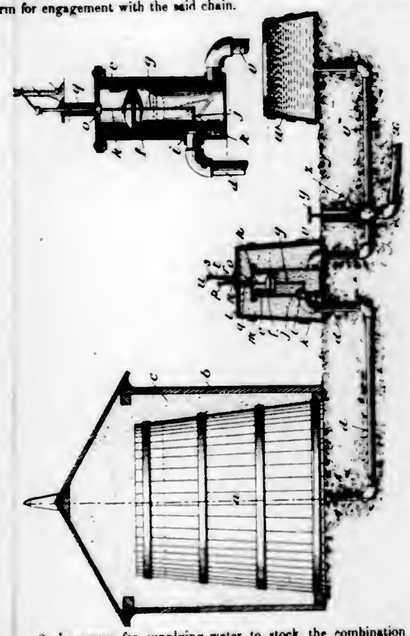
13. In instruments of the class described, in combination, a photo-electric cell included in a telephone-circuit, a moving photographic sound-record, and means for passing light through said record to the cell, substantially as set forth.

14. In instruments of the class described in combination, a photo-electric cell included in a telephone-circuit, a moving positive photographic sound-record, and means for passing uniformly-vibrating light through said sound-record and focusing it on the cell, substantially as set forth.

680,615. **AUTOMATIC MEANS FOR SUPPLYING WATER TO STOCK.** FRANCIS W. POWERS, West Lafayette, Ind. Filed Mar. 15, 1901. Serial No. 51,367. (No model.)

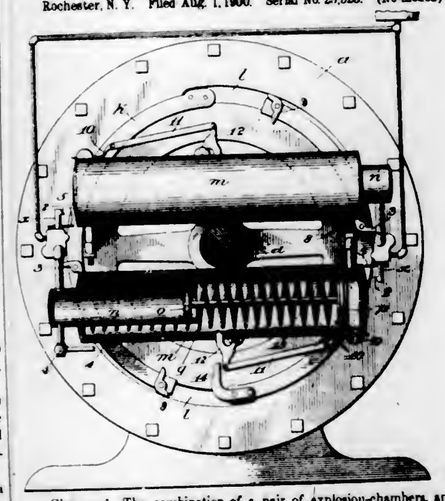
Claim.—1. In means for supplying water to stock, the combination of a chamber, pipes connected thereto, a pivoted valve adapted to close one of said pipes, a float connected to said valve, a rod connected to said float, a weighted chain connected to said rod and a hooked arm for engagement with said chain.

2. In means for supplying water to stock, the combination of a chamber, a covering or casing of non-conducting material surrounding the said chamber, pipes connected thereto, a pivoted valve adapted to close one of the said pipes, a float connected to the said valve, a rod connected to the said float, a weighted chain connected to the said rod and a hooked arm for engagement with the said chain.



3. In means for supplying water to stock, the combination of a reservoir, a covering or casing of non-conducting material surrounding said reservoir, a water-tank, connections between said reservoir and tank, a chamber located in said connections, means located in said chamber for automatically controlling the flow of water from said reservoir to said tank, means for preventing the operation of said automatic means, comprising a weighted chain, engaging said automatic means, and means for causing the contents of said chamber and tank to run to waste when said automatic controlling means is secured against movement.

680,616. **MULTIPLE-CYLINDER EXPLOSIVE-ENGINE.** WILLIAM J. PUGH, Davenport, Iowa, assignor of one-half to Thomas R. Levis, Rochester, N. Y. Filed Aug. 1, 1900. Serial No. 25,525. (No model.)



Claim.—1. The combination of a pair of explosion-chambers, an air-compressor having an air-cylinder communicating with one explosion-chamber, and a motor-cylinder communicating with the exhaust of the other explosion-chamber, for the purpose and substantially as described.

2. In a gas-engine, the combination of a pair of explosion-chambers, and an air-compressing device having a motor-cylinder communicating with the exhaust of one explosion-chamber and an air-cylinder communicating with the inlet of the other explosion-chamber, said air-compressing device being operated by the exhaust-gases, substantially as described.

3. The combination of a pair of explosion-chambers and an air-compressor, with means for conducting the exhaust-gases alternately from the explosion-chambers into the compressor to operate the latter, and means for conducting air from the compressor into the explosion-chambers alternately, for the purpose and substantially as described.

4. The combination of a pair of explosion-chambers, an air-compressor, means whereby the exhaust-gases from the explosion-chamber alternately are conducted to the compressor, and means for conducting air from the air-compressor alternately to the explosion-chambers and an oil-supply communicating with the air-inlets to the explosion-chamber.

5. In a gas-engine, the combination of a pair of exploding-chambers, an air-compressing device having its motor-cylinder communicating with the exhaust of one exploding-chamber and its air-cylinder communicating with the inlet of the other exploding-chamber and adapted to be operated by the exhaust-gases, with an oil-supply communicating with the outlet of the air-compressor whereby the compressed air carries a supply of oil into the exploding-chamber as it enters the latter.

6. The combination of a pair of exploding-chambers, a pair of air-compressing cylinders respectively communicating with the exploding-chambers, means for admitting the exhaust-gases from the exploding-chambers into the motor-cylinder of the respective air-compressor, and means for conducting the compressed air from the air-cylinder of the compressor into the other exploding-chamber, substantially as described.

7. The combination of a pair of exploding-chambers, a pair of air-compressing cylinders, and means whereby exhaust-gases from each exploding-chamber are utilized to compress air to supply the explosive mixture to the other exploding-chamber, for the purpose and substantially as described.

8. The combination of a pair of exploding-chambers, a pair of air-compressing cylinders, means whereby exhaust-gases from each exploding-chamber are utilized to compress air to supply the explosive mixture to the other exploding-chamber, and an oil-supply interposed between the air-compressing chamber and the exploding-chamber.

9. The combination of a pair of exploding-chambers, the pistons therein, a pair of air-compressors respectively communicating with the exhaust of one exploding-chamber at one end and the inlet of the opposite exploding-chamber at the other end whereby the exhaust-gases of one exploding-chamber are utilized to compress air into the other exploding-chamber, substantially as described.

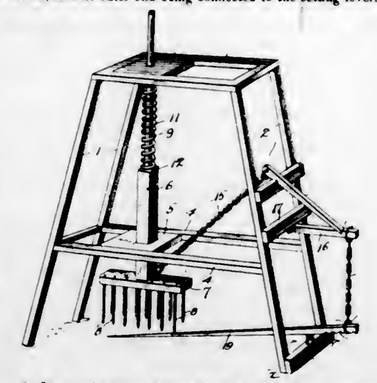
10. In a gas-engine, the combination of a pair of exploding-chambers, an air-compressing device communicating with the exhaust of one exploding-chamber and with the inlet of the other exploding-chamber and adapted to be operated by the exhaust-gases, and means for permitting the escape of the exhaust-gases from the cylinder after it has effectively compressed the air.

11. The combination of a pair of exploding-chambers, the pistons therein, a pair of air-compressors respectively communicating with the exhausts of opposite exploding-chambers at one end and the inlet of the opposite exploding-chambers at the other end whereby the exhaust-gases of one exploding-chamber are utilized to compress air into the other exploding-chamber; with means for admitting the exhaust-gases alternately into the air-compressors, and means for permitting the exhaust-gases to escape from said compressors after they have effected the compression therein, substantially as described.

12. The combination of the exploding-chamber, its inlet and exhaust ports, the cylinder communicating with the exhaust-port, a smaller cylinder within the former cylinder, the pistons in said cylinders, and means for admitting the exhaust-gases from the exploding-chamber into said larger chamber to actuate the pistons therein to compress air in the smaller cylinder, and means for allowing the exhaust-gases to escape from said larger cylinder after they have effected the compression of the air.

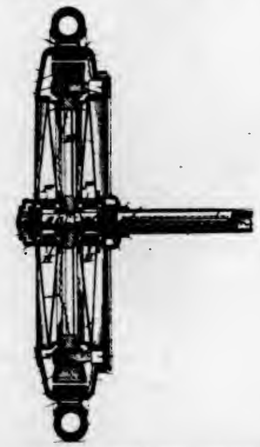
680,617. **ANIMAL-TRAP.** WALKER QUESENBERRY, Phillips, Va., assignor of one-half to Thomas Quesenberry, same place. Filed May 18, 1901. Serial No. 60,918. (No model.)

Claim.—1. An animal-trap, comprising a frame, a vertically-movable spring-actuated impaling device, a trigger fulcrumed intermediate of its ends upon the frame, a connection between the inner end of the trigger and the impaling device for holding the latter elevated against the tension of the spring, a setting-lever fulcrumed upon the frame and below the trigger and also limited in its upward swing, the upper face of the setting-lever having a seat constructed for the removable reception of the outer free end of the trigger, and a trip-lever fulcrumed intermediate of its ends upon the frame and below the setting-lever, the inner end of the trip-lever being located below the impaling device and in line therewith, and its outer end being connected to the setting-lever.



2. In an animal-trap, the combination with a frame comprising corner uprights and connecting cross-bars, of upper and lower guides, an impaling-stem slidably mounted in the guides, a coiled spring embracing the stem and bearing in opposite directions against the frame and the stem to force the latter downwardly, a cross-head upon the lower end of the stem and provided with impaling-pins, a pair of cross-bars upon the front of the frame, a trigger having its intermediate portion loosely fulcrumed in a notch formed in the top of the upper cross-bar, there being a connection between the inner end of the trigger and the impaling device to hold the latter elevated against the tension of the spring, a setting-lever fulcrumed at its inner end to the under side of the lower cross-bar, the latter forming a stop to limit the upward movement of said lever, there being a notch formed in the top of the outer portion of the lever and constructed for the detachable reception of the outer free end of the trigger, a trip lever fulcrumed upon the frame with its inner end portion lying alined below the impaling device, and a flexible connection having opposite terminal rings respectively embracing the outer free ends of the setting-lever and the trip-lever, the under side of the latter having a plurality of seats for the adjustable reception of the adjacent ring.

680,618. **ELECTRIC AUTOMOBILE-MOTOR.** CHARLES RICHTER and RICHARD T. ESCHLER, Camden, N. J. Filed Jan. 15, 1901. Serial No. 43,298. (No model.)



Claim.—1. An electric automobile-motor constructed in the form of a wheel, both the field-magnets and the armature being located in the rim of the wheel, the armature moving with the rim, and the field-magnet being held stationary substantially as and for the purpose described.

2. An electric automobile motor-wheel consisting of an enlarged hollow rim or casing for containing both the field-magnets and the arma-

ture, the rim being provided with spokes to form a wheel and bearing the armature on the inside at its outer periphery, and a relatively-fixed spider or frame arranged in the center of the wheel and carrying the field-magnets substantially as and for the purpose described.

3. An electric automobile motor-wheel consisting of an enlarged hollow rim or casing containing both the field-magnets and the armature, the rim being provided with spokes to form a wheel and bearing the armature on the inside of its periphery, a fixed spider or frame for the field-magnets, and a brake applied to the rim of the wheel outside of the spokes to relieve torsional strain on the latter as described.

4. An electric automobile-wheel having a motor-rim containing both the field-magnets and revolving armature, said rim being enlarged upon one side to form both a recess to receive the commutator, and an external bearing for a strap-brake, a commutator located in said recess, and an external strap-brake surrounding said enlargement substantially as shown and described.

5. An electric automobile motor-wheel having an enlarged rim casing, an armature arranged within and attached to said rim, a fixed field-magnet also arranged within said rim, and an attached spider or frame for the field-magnet having grooves on its sides receiving the edges of the rotating rim substantially as and for the purpose described.

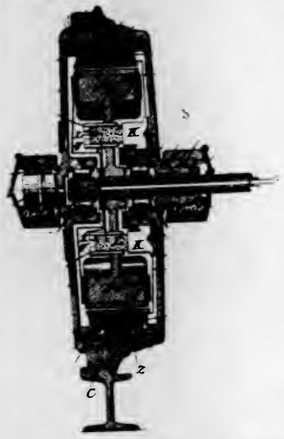
6. An electric automobile motor-wheel consisting of an enlarged rim-casing with two sets of spokes and two hubs with ball-bearings, an armature arranged within and fixed to the rim, a field-magnet also arranged within the rim, and a spider or frame arranged centrally within the wheel and rigidly connecting the field-magnet to the axle substantially as described.

7. An automobile motor-wheel comprising an outer tire, a hollow rim made in two sections and bolted together to form both a seat for the tire and a casing for the motor mechanism, and the armature, field-magnet, and commutator arranged within said casing substantially as and for the purpose described.

8. The combination in an electric automobile, of a running-wheel having its motor mechanism within it, and an axle having an articulated joint in the same, and electric wires entering the wheel through said articulated joint to permit a steering-wheel to be also a motor-wheel substantially as described.

9. An automobile motor-wheel having an enlarged two-part hollow rim one part carrying the armature and commutator, and the other part being free of electrical connections, and a central stationary spider-frame carrying on its outer periphery the field-magnet also located in the rim substantially as and for the purpose described.

680,619. ELECTRIC TRACTION-MOTOR. CHARLES RICHTER and RICHARD T. ESCHLER, Camden, N. J. Filed Jan. 15, 1901. Serial No. 43,295. (No model.)



Claim.—1. An electric traction-motor having its casing constructed as a car-wheel of two side plates, said plates being formed with peripheral flanges connected together with a joint opening on the outer periphery, and a tire arranged outside of and covering said joint substantially as described.

2. An electric traction-motor having its casing constructed as a car-wheel of two side plates, said plates being formed with peripheral flanges having shoulders on the outer periphery, and a tire located between said shoulders and covering the joint between the peripheral flanges substantially as described.

3. An electric traction-motor having its case constructed as a car-wheel, an armature connected to and rotating therewith, a central axle and a centrally-arranged field-magnet mounted on the said axle, and roller-bearings arranged between the said axle and the rotating car-wheel substantially as described.

4. An electric traction-motor having its case constructed as a car-wheel with inwardly-projecting hub-flanges, an armature connected to the periphery of the wheel and rotating therewith, a central axle and centrally-arranged field-magnet mounted thereon, and roller-bearings arranged between the axle and the inwardly-projecting hub-flanges of the wheel substantially as described.

5. An electric traction-motor having its case constructed as a car-wheel with inwardly-projecting hub-flanges, an armature connected to the periphery of the wheel and rotating therewith, a central axle with field-magnet mounted thereon, a commutator-shell with commutator-plates mounted on the outer periphery of one of the inwardly-projecting hub-flanges, and roller-bearings arranged between said hub-flanges and the axle substantially as and for the purpose described.

6. An electric traction-motor having its case constructed as a car-wheel with an outwardly-projecting hub on each side, and an independent bearing-box on each side upon said hub, said hub and the bearings of the boxes being connected together against end thrust by interlocking grooves and collars substantially as described.

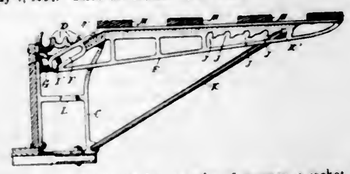
7. An electric traction-motor having its case constructed as a car-wheel bearing an armature on the inside, and having a central field-magnet and an axle rigidly attached thereto, said axle having outside of the motor-case springs for cushioning the torque substantially as described.

8. An electric traction-motor having its case constructed as a car-wheel bearing an armature on the inside and having a central field-magnet, combined with an axle fixed to the field-magnet and having one or more rigid arms and one or more springs interposed between said arm or arms and a stationary member of the truck substantially as described.

9. The combination of two car-wheels constructed as electric motors with fixed central field-magnets, independent axles rigidly secured to said field-magnets and alined with and approaching each other in the middle, a rigid coupling connecting the two adjacent ends of said axles said coupling having one or more arms and one or more springs connecting said arm or arms to a stationary member of the car-truck substantially as and for the purpose described.

10. An electric traction-motor having its case constructed as a car-wheel bearing an armature on the inside, a central field-magnet and axle rigidly attached thereto, said field-magnet being provided with a slight yielding motion against an elastic resistance to cushion the torque and avoid the jerk in starting the car-wheel to rotating substantially as described.

680,620. ADJUSTABLE WAGON-RACK. ISAAC ROBBINS, Grand Rapids, Mich., assignor to Harrison Wagon Company, same place. Filed May 7, 1901. Serial No. 59,093. (No model.)



Claim.—1. A frame having a series of recesses, a socket in the frame, an arm, a pin on the arm to engage the recesses, a lug on the arm to engage the socket, and a hook on the lug to engage the frame and prevent vertical movement of the arm, substantially as described.

2. A frame having a series of recesses, an arm having a slot, a pin on the arm to engage the recesses, and a bolt rotatively adjustable in the frame and having a hook adapted to pass through the slot and engage the side of the frame, substantially as described.

3. A frame having a series of recesses, a bolt in the frame, a stop on the frame, an arm, a pin on the arm to engage the recesses, a slot in the arm to engage the bolt, and a lug on the arm to engage the stop, substantially as described.

4. A frame having recesses, a bolt in the frame, a socket in the frame, an arm, a pin in the arm to engage the recesses, a slot in the arm to receive and traverse the bolt, and a lug on the arm to engage the socket, substantially as described.

5. A frame having a series of recesses, a bolt in the frame, a stop on the frame, a socket in the frame, an arm, a pin on the arm to engage the recesses, a slot in the arm to receive and traverse the bolt, and a lug on the arm to engage the stop and socket, substantially as described.

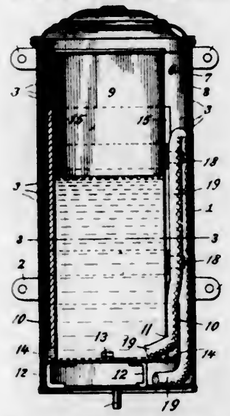
6. A frame having a series of recesses, a bolt in the frame, an arm having a series of recesses and also having a slot to receive and traverse the bolt, a pin on the arm to engage the recesses in the frame, and a pivoted brace to engage the recesses in the arm, substantially as described.

7. A frame having a series of recesses, a stop on the frame, a bolt in the frame, an arm having a series of recesses, a pin on the arm to engage the recesses in the frame, a slot in the arm to receive the bolt, a lug on the arm to engage the stop, and a brace pivoted to the frame and engaging the recesses in the arm, substantially as described.

8. A frame having a series of recesses and a socket, a bolt in the frame, an arm having a series of recesses, a pin on the arm to engage the recesses in the frame, a slot in the arm to receive the bolt, a lug on the arm to engage the socket, and a brace pivoted to the frame and engaging the recesses in the arm, substantially as described.

9. The combination of a frame having recesses a stop and a socket; a bolt in the frame, an arm having a series of recesses a pin a slot and a lug; and a brace pivoted to the frame at one end, and engaging the recesses in the arm at the other end, substantially as described.

680,621. DISINFECTING DEVICE. JAMES D. ROCKWELL, New York, N. Y. Filed May 13, 1901. Serial No. 60,110. (No model.)



Claim.—1. In a disinfector for urinals and the like, the combination of the reservoir 9 having a tight top and an apertured bottom; the sealing-pan 10 in which the apertured bottom of the reservoir is contained; a wick 15 of capillary material wrapped around the reservoir 9 and extending downward within the sealing-pan 10 and movable bands 16, 16'; by which the wick 15 is confined in position on the reservoir 9, substantially as set forth.

2. The combination of the reservoir 9; the wick 15 applied to the outside of said reservoir; the vertically-adjustable band 16 encircling the wick on the reservoir; and the siphon-wick 19 supported adjustably by the band 16, substantially as set forth.

3. The combination of the reservoir 9; the capillary wick 15 applied to the outside of said reservoir; the vertically-adjustable band 16 encircling said wick having an aperture 17 near one end and with the other end passed through said aperture and bent to form an eye 18; and the siphon-wick 19 passed through the eye 18 to support it in position, substantially as set forth.

4. The combination of the reservoir 9 having a tight top and an apertured bottom and an outturned bottom flange 14; the sealing-pan 10 in which the lower end of the reservoir is contained, having catches 13 engaging with the flange 14; and a capillary wick 15 confined on the outside of the reservoir 9 and extending downward within the sealing-pan 10, substantially as set forth.

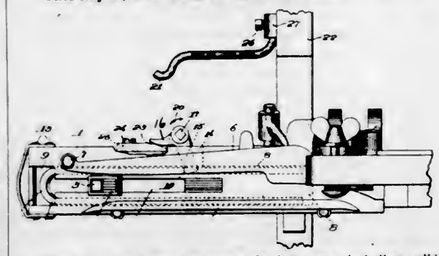
680,622. LOOM-PICKER. FRANK M. ROGERS and ALPHEUS A. BLAKENEY, Franklinville, Md. Filed Mar. 30, 1901. Serial No. 53,701. (No model.)

Claim.—1. A picker-staff, having a hole, a longitudinally-slotted picker, a T-headed bolt extending through said hole and slot, the branches of the head being bent inward, a washer between the head and the picker, having beveled faces engaged by the bent branches, and a second washer surrounding the bolt, situated between the picker and staff and countersunk in said staff.

2. A picker-staff having a hole, a longitudinally-slotted picker, a T-headed bolt extending through said hole and the slot in the picker, the branches of the head being bent inward, and a washer between the head and picker, having beveled faces engaged by the bent branches.



680,623. SHUTTLE-CHECKING MEANS FOR LOOMS. CHARLES F. ROPER, Hopedale, Mass., assignor to Draper Company, same place. Filed May 20, 1901. Serial No. 61,019. (No model.)



Claim.—1. In a loom, picking mechanism, means, including a slide member, to take up the momentum of the shuttle and stop the latter in a substantially definite place, and a setting instrumentality to positively return said means to initial position after each stoppage of the shuttle.

2. In a loom, the lay, a picker, a longitudinally-slidable shuttle-check carried by the lay and arranged to take up the momentum of the shuttle transmitted through the picker stopping the shuttle at a substantially definite place, and means to return the shuttle-check to initial position after each stoppage of the shuttle.

3. In a loom, the lay having a shuttle-box, a picker, a horizontally-slidable momentum-absorbing shuttle-check carried by the lay to coöperate with the picker and stop the shuttle at a substantially definite place in the shuttle-box, and means to set the shuttle-check in initial position after the inward stroke of the picker.

4. In a loom, the lay, a picker, a movable shuttle-check mounted to slide longitudinally on the lay and having a part in the path of the picker, the momentum of the shuttle being transmitted by the picker to the shuttle-check, sliding the latter outward and stopping the shuttle at a substantially definite place, and means to engage the shuttle-check and return it to initial position.

5. In a loom, the lay, a picker, a U-shaped shuttle-check mounted on the lay to slide in a substantially horizontal path and having its closed outer end in the path of the picker, to take up the momentum transmitted from the shuttle through the picker and stop the shuttle at a substantially definite place, and means to engage and slide the shuttle-check inward to initial position after the inward stroke of the picker.

6. In a loom, a picker, a longitudinally-movable sliding check in its path and adapted to take up and be slid outward by impact of the shuttle on the picker, thereby stopping the shuttle at a substantially definite place,

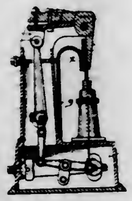
and means to engage and slide the check inward to initial position after the inward stroke of the picker.

7. Shuttle-checking means for looms, comprising a sliding momentum-absorbing member movable in parallelism to the shuttle-path, an impact member interposed between the momentum-absorbing member and the shuttle, to transmit the momentum of the latter to said absorbing member, leaving the shuttle at rest in a substantially definite place, and a device to return the absorbing member to initial position after its movement due to the transmitted momentum of the shuttle.

8. In a loom, a picker, the lay, a longitudinally-slidable check thereon having a part located beyond and in the path of the picker when moved outward by impact of the shuttle, the momentum of the shuttle and picker being transmitted by the latter to the check, sliding the latter outward while the shuttle and picker are brought to rest at a substantially definite place, and means operated by or through the backward beat of the lay to return the check to initial position.

9. In a loom, picking mechanism, means, including a slide member, to take up the momentum of the shuttle and stop the latter in a substantially definite place, a device to limit outward movement of the slide member, and a setting instrumentality to positively return said member to initial position.

680,624. **BEADING-MACHINE.** SIMON ROSS, Cincinnati, Ohio, assignor to the Ross, Moyer Manufacturing Company, same place. Filed Mar. 25, 1901. Serial No. 52,719. (No model.)



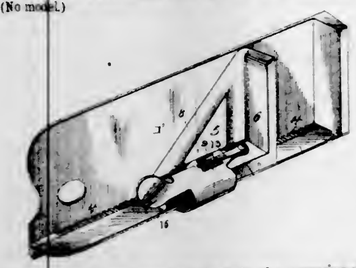
Claim.—1. In a beading-machine, a frame, a vibratory jaw and an anvil-jaw, means for actuating the vibratory jaw, a spring-standard attached to said frame having a looped free end forming an elastic support for the anvil-jaw, substantially as specified.

2. In a beading-machine, a vibratory jaw and an anvil-jaw, means for actuating the vibratory jaw, a spring-standard attached to the machine-frame having a looped free end supporting the anvil-jaw, and an adjusting device in the machine-frame for the spring-standard, substantially as specified.

3. In a beading-machine, a vibratory jaw and an anvil-jaw, means for actuating the vibratory jaw, a spring-standard attached to the machine-frame having a looped free end supporting the anvil-jaw, an adjusting device in the frame of the machine engaging the shank of the spring-standard at a point substantially opposite the position of the anvil-jaw on the free looped end of the standard, substantially as specified.

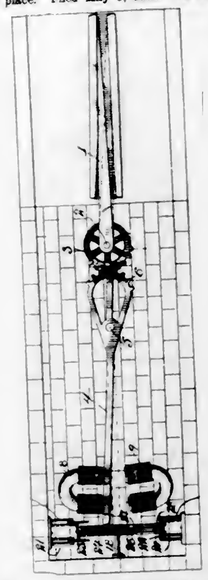
4. In a beading-machine, the combination of a spring-jaw standard secured at one end to the frame of the machine, and having its free end of loop form, a jaw-plate attached to the free end of said loop, an adjusting device in the frame engaging the shank of the spring-standard, a vibratory jaw journaled upon a center and mounted upon an adjusting-plate in rear of said center, and means for adjusting the said vibratory jaw upon its supporting-plate, substantially as specified.

680,625. **PRINTER'S COMPOSING-STICK.** HARRY B. ROUSE, Chicago, Ill. Original application filed Mar. 23, 1900, Serial No. 9,922. Divided and this application filed Sept. 20, 1900. Serial No. 30,574. (No model.)



Claim.—The combination with the body of a composing-stick provided upon the inner face of its side wall with a longitudinal row of tapered seats, of a knee having an arm to bear upon said side wall, said arm being formed with a longitudinal recess opening through the base thereof and communicating at one end with a comparatively wide transverse recess also opening through the base of the arm, a flat rectangular dog working in said transverse recess and provided upon its outer edge with a plurality of integral tapered teeth to engage said seats, a shank movable within the longitudinal recess and integrally connected at one end to the dog and pivoted at its opposite end to the arm, a spring mounted upon the inner side of the arm of the knee and pressing upon the inner face of the dog to force said dog outward, and a fastening independent of the dog for securing the knee to the said side wall of the stick, substantially as described.

680,626. **ELECTRICAL SWITCH-OPERATING MECHANISM.** CLIFTON B. RUSSELL, Marlboro, Mass., assignor of one-half to Herbert E. Ryder, same place. Filed May 3, 1901. Serial No. 58,567. (No model.)



Claim.—1. In a railroad, the combination of a switch, lever mechanism for operating said switch, connected to the switch-shaft and disposed in a horizontal plane, a free vibrating armature formed on said lever mechanism, electromagnets located upon opposite sides of the armature, and electrical means for exciting either magnet to throw the switch, whereby the armature is entirely withdrawn from one magnet to the other alternately.

2. In a railroad, the combination of a switch, a rocking shaft therefor, a gear upon the shaft, a pivoted lever having a gear meshing with the switch-shaft gear, and an armature upon the opposite end, electromagnets upon opposite sides of the armature and electrical means for exciting either magnet to throw the switch.

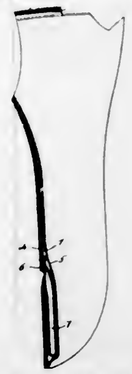
3. In a railroad, the combination of a switch, lever mechaniam for operating said switch, a vibrating armature formed on said lever mechanism, electromagnets located upon opposite sides of the armature, line-wires connecting the magnets, a rolling weight-operated time-switch for alternately connecting each magnet, and means for exciting the magnets to throw the switch.

4. In a railroad, the combination of a switch, lever mechanism for operating said switch, a vibrating armature formed on said lever mechanism, electromagnets located upon opposite sides of the armature, means for exciting the magnets to throw the switch, a retarding-block secured to the switch-shaft, and a yielding retarder for holding the switch in either position.

680,627. **POCKET-SUPPORT.** WILLIAM SHAPIRO, Brooklyn, N. Y. Filed Oct. 25, 1900. Serial No. 34,382. (No model.)

Claim.—1. A jacket or coat comprising cloth and lining and a pocket-suspender which extends around the shoulder of the wearer to support the weight of the pocket independent of the material of the garment, and provided with an opening, and a pocket connected to said suspender and having its mouth register with the said opening.

2. A pocket-suspender interposed between the lining and cloth of a garment, provided with a loop through which extends the shoulder of the wearer for supporting the suspender, and further provided with an opening, and a pocket connected to said suspender and having its mouth register with the said opening.



3. A pocket-suspender interposed between the lining and material of a garment and provided with a loop surrounding the shoulder of the wearer of the garment, and a pocket connected to said suspender.

4. A pocket-suspender interposed between the lining and cloth of a garment, extending from the edge of the latter to around the shoulder of the wearer and provided near its lower end with an opening, and a pocket attached to the said suspender and having its mouth registering with the said opening.

680,628. **KNOCKDOWN BOX.** BOLIVAR N. SYKES, Harrellsville, N. C., assignor of one-half to John T. Williams, same place. Filed Mar. 6, 1901. Serial No. 50,017. (No model.)



Claim.—1. A knockdown box composed of the base having a bottom board and a frame secured thereon and composed of end bars and side bars, the latter being spaced from the edges of the bottom board forming sockets for the lower edges of the side sections, the side sections fitted at their lower edges to said sockets and provided on their outer faces near their upper and lower edges with shoulders, the lower shoulders resting upon the side bars of the base-frame, the ends pivoted at their upper and lower edges with outwardly-projected lugs, the lower lugs being engaged with the end bars of the base-frame, the top frame fitting over the sides and ends and resting upon the upper shoulders of the sides and beneath the upper lugs of the ends, the top, and the fastening-straps arranged to extend over the top and held at their ends to the top frame substantially as set forth.

2. The combination of the base having a bottom and a rim-frame, and socketed between the sides of said rim-frame and the bottom, the sides fitting at their lower ends in said sockets and provided with means resting on the rim-frame, the ends resting upon the base and provided with means engaging with the base, the top frame fitting over the upper edges of the sides and ends, and means on the sides and ends for locking the rim-frame from movement either up or down substantially as set forth.

3. A knockdown box comprising the base, the sides and ends thereon, the top frame separate from the top and fitted over the upper edges of the sides and ends and outwardly-projecting means on the sides and ends for holding the top frame from movement up or down substantially as set forth.

4. The combination in a knockdown box of the sides, the ends, the top frame fitted over the upper edges of the sides and ends, the top, and the fastening strap or straps extended over the top and held at its ends to the top frame substantially as set forth.

5. The combination of the base the frame thereon, the sides, the ends provided with lugs engaged with the base-frame, lugs on the ends for overlapping the top frame, the top frame, the top and the fastening strap or straps carried by the top frame substantially as set forth.

6. The combination with the base having a bottom and a frame thereon spaced apart at its sides from the side edges of the bottom forming sockets for the sides, of the sides fitting at their lower edges in said sockets and provided with shoulders resting on the base-frame, and the ends provided with lugs engaged with the base-frame, substantially as set forth.

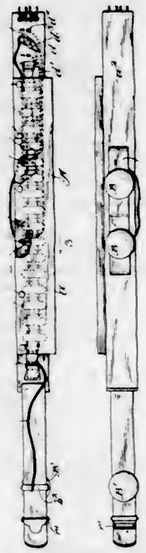
7. The combination in a knockdown box with the sides and ends, of the top frame fitting over and held to said sides and ends, the top, and the fastening strap or straps slidable at their ends along the top frame substantially as set forth.

8. A knockdown box comprising the base, the sides, the ends, the top frame arranged to fit over the upper ends of the sides and ends, means on the sides and ends for holding such top frame from movement vertically in either direction when the sides and ends are adjusted to position for use, the top, and the fastening-strap extending over the top and top frame and bent at its ends beneath the top frame whereby it will be held thereto and can be slid along the top frame into and out of position to secure the top substantially as set forth.

9. The combination of the base having the bottom board and the frame secured thereon and provided between said board and frame with sockets for the lower edges of the sides, the sides fitting in said sockets and shouldered to rest upon the base-frame, the ends provided on their inner sides with upright cleats forming supports for the top, lugs on the ends engaging with the base-frame, lugs at the upper edges of the ends for engagement with the top frame, the shoulders on the sides forming supports for the top frame, the top, and the fastening strap or straps substantially as set forth.

10. A knockdown box comprising the base, the sides and ends provided near their upper edges with outwardly-projecting portions, and the rim-frame fitted over the upper edges of the sides and ends, the outwardly-projecting portions on such parts being arranged some to overlie and some to underlie the top frame whereby the latter will be held from displacement up or down substantially as set forth.

680,629. **ELECTRIC BELT.** JAMES TRUSSELL, Chicago, Ill., assignor of one-half to John H. Couril, same place. Filed Dec. 8, 1900. Serial No. 39,142. (No model.)

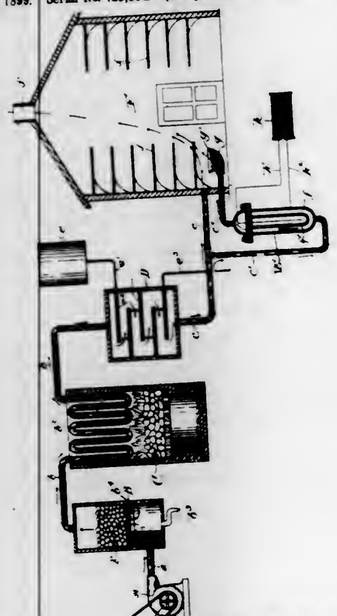


Claim.—1. The combination with a belt, of a battery secured at its ends to the belt, a series of binding-posts located near one end of the battery, an electric connection uniting one of said posts with the end of the battery adjacent thereto and electric connections detachably uniting the other posts with the battery between its ends, electrodes secured on the belt and having electric connection with the battery between its ends, a switch-cap having electric connection with the said electrodes and battery between its ends and adapted to engage the said binding-posts, and

another electrode electrically connected to the end of the battery opposite the said posts, substantially as described.

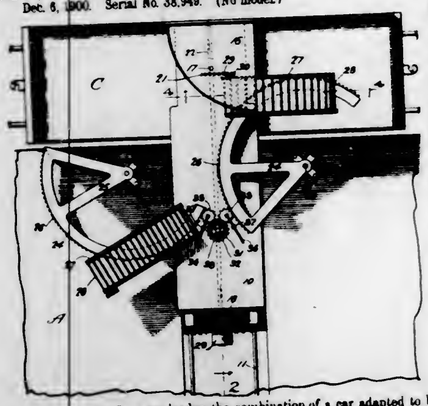
2. In a battery for electric belts, a cell comprising a piece of zinc cast with wire hooks therein, a piece of copper enveloping the said zinc piece and having perforations and an extension with openings to receive the hooks of the zinc piece, and a piece of cloth or absorbent material located between the copper and zinc, substantially as described.

680,630. **PROCESS OF CURING AND DRYING FISH.** NELSON J. WILLIAMS, Malden, and WALTER S. HILL, Winthrop, Mass. Filed Aug. 1, 1899. Serial No. 725,814. (No specimens.)



Claim.—The improved process of drying and curing fish, which consists in salting the fish, dehydrating and sterilizing air, ozonating said air, and exposing the moist salted fish to a constantly-renewing current of the said ozonated and sterilized air, until the required degree of drying and curing has been secured, substantially as and for the purposes set forth.

680,631. **CAR-LOADER.** JOHN E. YOUNG, Trinidad, Colo. Filed Dec. 6, 1900. Serial No. 38,949. (No model.)



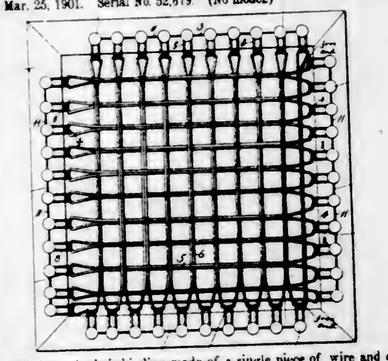
Claim.—1. In a car-loader, the combination of a car adapted to be moved into and out of a railway-car or the like and provided at one end with a reversible chute adapted to discharge toward either end of the railway-car at will and pivoted conveyers on fixed supports and adapted to be disposed in the ends of the railway-car and to be moved outward therefrom, said conveyers being adapted to convey the material discharged from the reversible chute to the ends of the car, substantially as described.

2. The combination in a car-loader, of a longitudinally-movable car adapted to be run into and out of a railway-car, a power mechaniam carried by said movable car, and including a gear, horizontally-disposed segment-frames having vertical axes and disposed on opposite sides of said movable car, said segment-frames being adapted to be swung successively into and out of the opposite ends of the railway-car, through a door in the side of the latter, and conveyers mounted on said segment-frames, each of said conveyers having an actuating-gear adapted to engage with the power-gear of the movable car, substantially as described.

3. In a car-loader, the combination of a platform, a longitudinally-movable car adapted to run into and out of a railway-car, a reversible chute pivoted on and carried by the outer end of said longitudinally-movable car and conveyers on pivoted frames mounted on opposite sides of the longitudinally-movable car whereby said conveyers may be swung into and run out of a railway-car and disposed in the ends thereof, in position to receive material from said reversible chute, substantially as described.

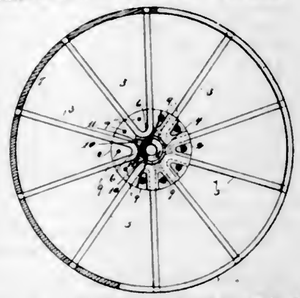
4. In a car-loader, the combination of a car adapted to be run into and out of a railway-car or the like, a reversible chute carried by said movable car and adapted to discharge alternately toward the ends of the railway-car, pivoted frames disposed on opposite sides of the movable car, having vertical axes and adapted to be swung successively into and out of the opposite ends of the railway-car, through a door, in the side of the latter and conveyers carried by said pivoted frames, coacting successively with the reversible chute to convey material to the ends of the car, substantially as described.

680,632. **CHAIR-SEAT.** CHARLES ACKER, Rushville, Ill. Filed Mar. 25, 1901. Serial No. 52,679. (No model.)



Claim.—A chair-binding made of a single piece of wire and comprising pairs of superimposed eyes, hooks having shanks consisting of two sides each of which is integral with one of said superimposed eyes, and intervening lengths connecting said pairs of eyes, substantially as described.

680,633. **METAL WHEEL.** DANIEL J. C. ARBOLD, New London, Ohio. Filed Dec. 8, 1900. Serial No. 39,241. (No model.)

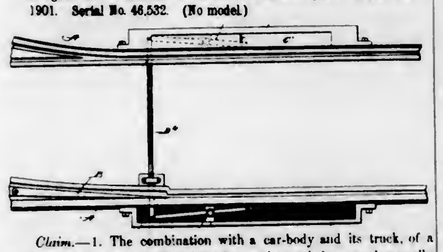


Claim.—1. The combination with a central tapered cast-metal hub provided with lugs upon its periphery, of sheet-metal disks sleeved thereon, and provided with annular flanges arranged to bear upon the central portion, radially-arranged recesses in the meeting faces of the flanges, spokes secured in said recesses, and recesses in which said lugs are inclosed, substantially as described.

2. The combination with a central cast-metal hub portion, of sheet-metal disks sleeved thereon, spokes arranged in pairs and each pair consisting of a continuous bent rod, secured between said disks, recesses in the meeting faces of said disks in which said pairs of spokes are inclosed at their inner ends, flanges upon said disks arranged to engage said central hub, lugs upon the central hub inclosed in said recesses in said disks, and means for securing the disks together, and to the central hub, substantially as described.

3. In a metal wheel, the combination with a central cast-metal hub, of a detachable sheet-metal hub, comprising sheet-metal disks provided with flanges and sleeved upon the central hub, spokes arranged in pairs, each pair consisting of one integral rod of oval section centrally bent, and inclosed between said disks at the point of bending, lugs upon the central hub engaging said disks, and a metal rim in which the extremities of the spokes are riveted, the said spoke extremities being reduced in one direction and the openings in the rim being countersunk to receive them.

680,634. **RAILWAY-SWITCH.** SAMUEL W. BAKER, Atlanta, Ga., assignor of one-third to Charles J. Haden, same place. Filed Feb. 8, 1901. Serial No. 46,532. (No model.)



Claim.—1. The combination with a car-body and its truck, of a switch-operating bar centrally pivoted upon the truck-frame and normally having its upper arm approximately vertical, a pivoted arm depending from the car-body and engaging said upper arm to slide freely thereon as the relative height of the car-body changes and to swing it when itself swung from side to side, and means operable from the platform to swing the depending arm.

2. The combination with a car-body and its truck, of a switch-operating bar centrally pivoted upon the truck-frame and having its upper end portion approximately vertical, a bell-crank lever pivoted upon the car-body and normally having one arm in sliding-engagement with said upper end portion and its opposite end portion carried forward and extended up through the car-platform.

3. The combination with the car-body and its truck, of the switch-actuating bent bar pivoted upon the truck-frame and normally having its upper end portion approximately vertical, the bell-crank lever pivoted upon the car-body with its horizontal arm extending forward to the platform and its vertical arm provided with grooved rollers engaging said upper end portion and a spring tending to hold the movable parts in normal position.

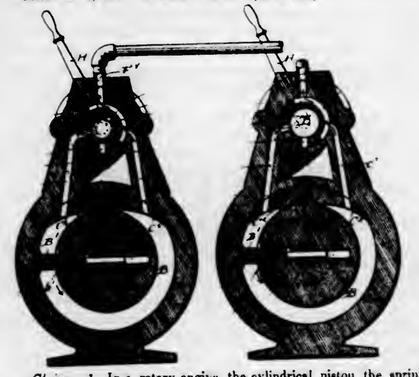
4. The combination with a car-body and its truck, of a switch-operating bar centrally pivoted upon the truck and having its upper end portion vertical, a brush-carrying bar pivoted upon the truck-frame and having a gear-segment at its upper end, a second gear-segment engaging the first, pivoted to the truck-frame and having an upwardly-extending arm alongside said upper end portion, a pivoted arm depending from the car-body and provided with grooved rollers engaging both said upper end portion and said upwardly-extending arm, and means operable from the platform to swing said depending arm.

5. The combination with a car-body and its truck, of a switch-operating bar pivotally supported on the truck-frame to swing toward the road-bed, a normally-elevated track-cleaning device mounted in front of said bar, a foot-actuated member borne by the car-body, and devices operatively connecting said member to said bar and said device while permitting relative vertical motion of the car-body.

6. The combination with a switch-rail, of a transversely-sliding bar arranged to push the switch-rail by its own longitudinal movement, a lever centrally pivoted to swing horizontally and having one end engaging said bar, a member depressible by suitable devices carried by passing cars and provided with an inclined projection to force the opposite end of the lever aside as it descends, and a spring offering yielding resistance to the depression.

7. The combination with a main rail and a switch-rail swinging to and from the inner side of the same, of a downwardly-open casing located upon the outer side of the rail and having at each end an incline, bars pivoted near the ends of the casing, respectively, and closing the casing above, a spring resisting depression of the central ends of said bars, a lever below the bars, centrally pivoted to swing horizontally, a wedge-like projection upon one of the bars acting when that bar is depressed to force the swinging of the lever, and a bar attached to one end of said lever, passing through the main rail, and acting upon the switch-rail to swing it.

680,635. **ROTARY ENGINE.** JOHN T. BOOTES, Wilmington, Del. Filed Mar. 6, 1901. Serial No. 50,010. (No model.)

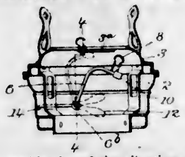


Claim.—1. In a rotary engine, the cylindrical piston, the spring-pressed packing-bar having a bearing against the peripheral surface of said piston, the cam approaches to said bar, the radial spring-pressed fin working in a slot of said piston, the spring-pressed end packing for said fin, the spring-pressed lateral packing for said fin, said fin having a bracing T-form head provided with an outer convex surface concentric with that of the piston, the heads of the cylinder having annular grooves therein, the spring-pressed washers in said grooves, and the expansion-rings working in said grooves, and having a pin connection with the piston, whereby they rotate therewith, substantially as specified.

2. In a reversible engine, the valve-chamber, the steam-passages connecting said chamber and the cylinder, a hollow cylindrical throttle and reversing-valve working in said chamber, and having ports in its peripheral wall arranged to be brought into and out of register with said passages, said valve having a peripheral passage arranged to connect either of said steam-passages with the low-pressure cylinder, the hollow cylindrical valve working in said reversing-valve, and having ports in the peripheral wall arranged to be brought in register with the peripheral ports of said reversing-valve, substantially as specified.

3. In a compound reversible rotary engine, the high and low pressure cylinders having each a cylindrical piston, a spring-pressed packing-bar, having a bearing against the peripheral surface of said piston, cam approaches to said bar, and a radial spring-pressed fin working in a slot of said piston, the valve-chamber for the high-pressure cylinder, the steam-passages connecting said chamber and the cylinder, a hollow cylindrical throttle and reversing-valve working in said chamber, and having ports in its peripheral wall arranged to be brought into and out of register with said passages, said valve having a peripheral passage arranged to connect either of said steam-passages with the low-pressure cylinder, the valve-chamber of the low-pressure cylinder, the steam-passages connecting said chamber and cylinder, and a reversing-valve in said chamber, substantially as specified.

680,636. **DEVICE FOR LIGHTING LAMPS BY ELECTRICITY.** HENRY M. BRIGHAM and SVEND M. MEYER, New York, N. Y. Original application filed Feb. 5, 1898, Serial No. 669,237. Divided and this application filed Oct. 26, 1898. Serial No. 694,603. (No model.)

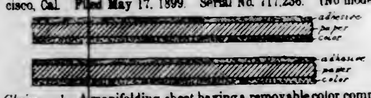


Claim.—1. The combination of the vibrating arm 6 mounted by an insulating-bushing 13 in the shell of the burner, the cap 10 carried by the vibrating arm 6 and insulated therefrom, the incandescing coil 8, connected at one end to the arm 6 and at the other to the insulated cap

10 carried thereby, contact-plates 6^a and 14^b, one attached to the vibrating arm 6 and the other to an insulated conductor 14 connected with one pole of a suitable source of electricity and a contact-surface (as the lamp-cone 3) connected with the other pole of the source of electricity and in position to receive contact of the insulated cap 10 when the coil 8 is thrown by the vibrating arm 6 into proximity to the lamp-wick, as explained.

2. The combination of the vibrating insulated arm 6 having an insulated metal cap 10 at one end, the incandescing coil 8 connected at one end to the arm 6 and at the other end to the insulated cap 10 carried thereby, the lamp-cone 3 covering the vibrating arm 6 and having an aperture 3^a through which the coil is projected by the upward movement of the arm, and a suitable source of electricity having one pole connected to the insulated arm 6 and the other pole to the cone 3 with which the insulated cap 10 contacts, as explained.

680,637. MANIFOLDING-SHEET. HORACE P. BROWN, San Francisco, Cal. Filed May 17, 1899. Serial No. 717,236. (No model.)



Claim.—1. A manifolding-sheet having a removable color compound upon the one side and provided upon its other exposed side with an adhesive substance adapted to receive and retain a color compound when the same is applied thereto by pressure; substantially as described.

2. A manifolding-sheet having upon the one side thereof a removable color compound which is not a marking or transferable compound and upon the other side a film or coating of an adhesive substance adapted to remove to itself the said color compound when the same is applied thereto by pressure, substantially as described.

3. In manifolding-sheets, the combination of two sheets, the one being provided with a continuous surface composed of a removable color compound, and the other with a continuous surface composed of an adhesive substance adapted to remove the color compound from the other sheet when the said surfaces are superimposed, and pressure is applied thereto, substantially as described.

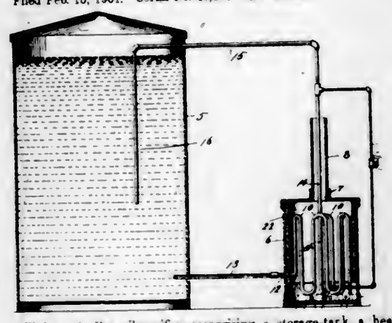
4. As a new article of manufacture, a manifolding-sheet having a continuous surface composed of a color-film which cannot be transferred by pressure to the surface of ordinary paper, but which can be transferred by pressure to a paper provided with a prepared surface; substantially as described.

680,638. DISAPPEARING AND SAFETY HITCHING-POST. CHARLES BUTCHER, Cambridge, Mass. Filed Mar. 22, 1901. Serial No. 52,412. (No model.)



Claim.—In a hitching-post, the combination with a tube constructed to be embedded vertically in the ground, of a tubular post vertically movable in the tube, two weights arranged one above the other in the tubular post, guide-rods fixed to one of said weights and slidably connected with the other weight, a spring disposed between said weights, a centrally-perforated cap fixed in the upper end of the tubular post, and a hitching-chain loosely passing through the cap and upper weight and attached to the lower weight, substantially as described.

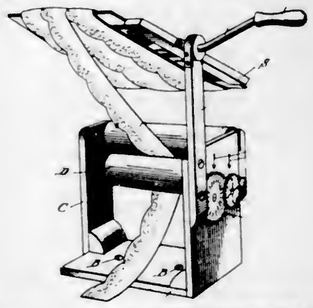
680,639. OIL-PURIFIER. GEORGE F. CARTER, Corsicana, Tex. Filed Feb. 13, 1901. Serial No. 47,171. (No model.)



Claim.—1. An oil-purifier comprising a storage-tank, a heating-drum, a pipe-coil comprising vertical portions connected alternately at opposite ends and disposed adjacent to the sides of the drum, one end of said coil being connected with the tank adjacent to its bottom and the other end of the coil being passed upwardly from the drum and connected with the tank at a higher point, and a fuel-feed pipe connected above the coil and between it and the tank and disposed to discharge into the drum below the coil therein.

2. An oil-purifier comprising a storage-tank, a heating-drum including a cylindrical body portion and a central vertical stack, a coil in the body portion, a pipe leading from the lower end of the tank to the lower end of the coil, a pipe leading from the upper end of the coil through the stack and connected to the upper end of the tank, a burner in the body below the coil, and a pipe connected with the pipe passed through the stack at a point above the stack and leading downwardly and vertically to the burner.

680,640. MEASURING-MACHINE. CHARLES B. CARVER, Elk Rapids, Mich. Filed Feb. 12, 1901. Serial No. 47,043. (No model.)



Claim.—1. In a measuring-machine, the combination of a support, a measuring-roller mounted therein, a yieldingly-mounted pressure-roller normally in contact with the measuring-roller, an indicator actuated by the measuring-roller, a shaft mounted in said support and having a handle and a transversely-extending head, a loop having its legs positioned in said head, and a clamp carried by said head, substantially as described.

2. In a measuring-machine, the combination of a support, a measuring-roller mounted therein, an indicator actuated by said measuring-roller, a pressure-roller mounted in said support and normally in contact with the measuring-roller, a shaft mounted in said support and provided with a crank-handle and a transversely-extending head, and spring-clamps carried by said head, having the movable jaws thereof connected to move simultaneously, substantially as described.

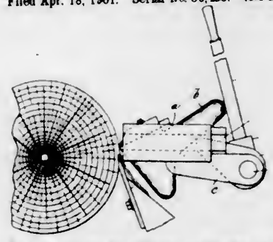
680,641. BALL-BEARING FOR WHEELS, &c. JOHN J. CLARKE, Washington, D. C., assignor of two-thirds to William J. Hendricks, same place, and Edward Y. Brady, Muncie, Ind. Filed Oct. 18, 1900. Serial No. 33,473. (No model.)

Claim.—1. In a ball-bearing, the combination with a housing or socket-piece provided with an elongated bearing-plate having a concave under face and with interior straight flat side walls and arc-shaped end walls, ball-bearings contained within said housing and having a running contact with said elongated bearing-plate, and a wheel or disk-roller arranged in said housing in contact with said ball-bearings and held therein by the arc-shaped end walls which extend below the horizontal diameter of said wheel or disk-roller, substantially as described.



2. In a ball-bearing, the combination with a supporting-wheel or disk-roller, and a socket-piece, of an elongated bearing-plate having a concaved and diagonally-grooved under face directed toward the uppermost peripheral portion of the wheel or disk-roller and a convexed upper side spaced apart from the socket-piece, and antifriction-balls surrounding said elongated bearing-plate and providing antifriction-bearings for the uppermost portion of the supporting wheel or disk, substantially as described.

680,642. VENEER-CUTTING MACHINE. HENRY H. COX, Painesville, Ohio. Filed Apr. 18, 1901. Serial No. 56,433. (No model.)

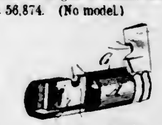


Claim.—1. In a veneer-cutting machine, adjustment-blocks, a longitudinal shaft having bearing connections with said blocks, transverse channels in the inner faces of said blocks, a presser-bar having ledges on the ends thereof, said ledges adapted to slide in the channels in the adjustment-blocks, and suitable connections between said presser-bar and the longitudinal shaft, whereby said presser-bar can be made to slide backward and forward in the said channels, substantially as described and for the purpose set forth.

2. In a veneer-cutting machine, adjustment-blocks, a longitudinal shaft journaled in brackets attached to said blocks, transverse channels in the inner faces of said blocks, a presser-bar, ledges on the ends of said presser-bar, said ledges adapted to slide in the channels in the adjustment-blocks, connecting-rods pivotally connected with the presser-bar, eccentrics rigidly attached to the said horizontal shaft and registering in openings in the connecting-rods and suitable means for oscillating the shaft, substantially as specified.

3. In a veneer-cutting machine, adjustment-blocks, a longitudinal shaft journaled in brackets attached to said blocks, transverse channels in the inner faces of said blocks, a presser-bar, ledges on the ends of said presser-bar, said ledges adapted to slide in the channels in the adjustment-blocks, connecting-rods pivotally connected with the presser-bar in a plane with the ledges, eccentrics rigidly attached to the said longitudinal shaft and registering in openings in the outer ends of the connecting-rods, and a hand-lever rigidly attached to the longitudinal shaft, whereby said shaft may be oscillated, substantially as and for the purpose set forth.

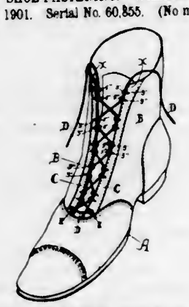
680,643. CAP-CRIMPING TOOL. HARRY COGEN, Goldfield, Colo., assignor of one-half to Angus G. Adam, same place. Filed Apr. 22, 1901. Serial No. 56,874. (No model.)



Claim.—1. A device for use in crimping caps upon fuses, the same consisting of a knife-handle provided in its opposite sections with grooves to receive the cap and having within its blade-recess a separate seat-plate secured to the inner face of one of the handle-sections and provided with a notch registering with the cap-grooves in the handle-sections, such seat-plate projecting at its grooved portion beyond the grooves of the handle-sections and the crimping-blade secured in said handle and arranged to be adjusted in close relation to the seat-plate and having in its edge a notch arranged when the blade is partially closed to complete with the notch in the seat-plate approximately a circle to fit around the cap, substantially as set forth.

2. A device for use in crimping caps on fuses comprising a handle, a blade pivoted thereto and having a semicircular crimping-notch, and a separate seat-plate secured within the blade-recess of the handle, and arranged to oppose the blade and provided with a notch arranged to combine with that in the blade to form a circle around the cap, substantially as set forth.

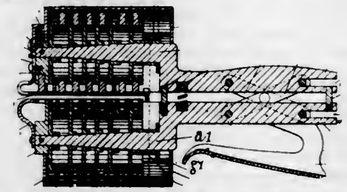
680,644. SHOE-FASTENING. WILLIAM P. COOK, Richmond, Ind. Filed May 18, 1901. Serial No. 60,855. (No model.)



Claim.—1. As a new article of manufacture, a shoe-fastening comprising separated closed eyelets having a single yoke connecting them, and independent, separated fastening-prongs.

2. As a new article of manufacture, a shoe-fastening made from a single piece of wire having its intermediate portion formed into separated closed eyelets having a single yoke connecting them, and its ends formed into independent, separated fastening-prongs.

680,645. MEANS FOR LIMITING TRANSFER PRIVILEGES. WILLIAM H. COOLEY, Brockport, N. Y. Filed May 10, 1900. Serial No. 16,200. (No model.)



Claim.—1. Two or more series of marking-characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby each one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle in the next series of lower denomination have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein advances the next series of higher denomination one step in a cycle of its marking characters, means whereby all of the characters standing for each different relation between the several steps in the cycles of the marking characters in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

2. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby each

one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein advances the next series of higher denomination one step in a cycle of its marking characters, means whereby all of the characters standing for each different relation between the several steps in the cycles of the marking characters in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby, at the time of such operation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

4. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby each one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein advances the next series of higher denomination one step in a cycle of its marking characters, means whereby, at the time of the operation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

5. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby each one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle in the next series of lower denomination have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein until the next series of higher denomination has been advanced one step in a cycle of its marking characters, means whereby all of the characters standing for each different relation between the several steps in the cycles of the marking characters in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, means whereby, at the time of such operation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

6. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby each one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein until the next series of higher denomination has been advanced one step in a cycle of its marking characters, means whereby all of the characters standing for each different relation between the several steps in the cycles of the marking characters in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, means whereby, at the time of such operation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

7. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby each one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein until the next series of higher denomination has been advanced one step in a cycle of its marking characters, means whereby all of the characters standing for each different relation between the several steps in the cycles of the marking characters in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, means whereby, at the time of such operation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

8. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby each one of such series may be moved only progressively or forward so as to bring the marking characters in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the marking characters therein, and only after all the marking characters in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the marking characters therein until the next series of higher denomination has been advanced one step in a cycle of its marking characters, means whereby, at the time of the operation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace, from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to such mechanism coöperating therewith to displace from the plane of the ticket such portions thereof.

9. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

10. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

11. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced. .

12. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means

whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

13. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöpe ating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, and means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies.

14. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced

15. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch in each series is in operative relation to its corresponding die.

16. Two or more series of punches with their corresponding dies, means for supporting each series of punches and their corresponding dies whereby the punches of each series may be brought into operative relation with their corresponding dies *seriatim*, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination,

means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch in each series is in operative relation to its corresponding die.

17. Two concentrically-arranged wheels each carrying characters representing progressive values, a complete cycle of the characters on a first one of such wheels standing for a step in the cycle of the characters on the second wheel, the angular advance between the steps in the cycle of the characters on the first wheel less than that between the steps in the cycle of the characters on the second wheel, means carried by the first wheel and engaging the second wheel whereby the angular motion necessary to move the first one of such wheels from the last step in one cycle to the first step in the next succeeding cycle of its characters imparts to the second one of such wheels the different and greater angular motion necessary to move such second wheel from one step to the next in the cycle of the characters thereon.

18. Two concentrically-arranged wheels each carrying characters representing progressive values, a complete cycle of the characters on a first one of such wheels standing for a step in the cycle of the characters on the second wheel, the angular advance between the steps in the cycle of the characters on the first wheel greater than that between the steps in the cycle of the characters on the second wheel, means carried by the first wheel and engaging the second wheel whereby the angular motion necessary to move the first one of such wheels from the last step in one cycle to the first step in the next succeeding cycle of its characters imparts to the second one of such wheels the different and lesser motion necessary to move such second wheel from one step to the next in the cycle of the characters thereon.

19. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, and means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperative punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies.

20. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

21. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch in each series is in proper alinement with its corresponding die.

22. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch in each series is in proper alinement with its corresponding die.

23. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies.

24. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch in each series is in proper alinement with its corresponding die.

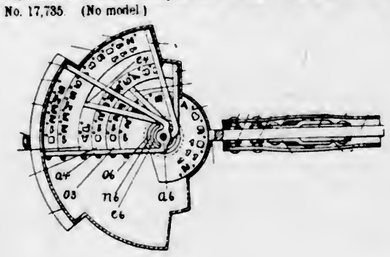
25. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch in each series is in proper alinement with its corresponding die.

26. Two or more series of punches with their corresponding dies, means for supporting such punches and dies whereby each punch and its corresponding die in each series may be brought into proper alinement at the time they are operated, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

27. Two wheels each carrying characters representing progressive values, a complete cycle of the characters in a first one of such wheels standing for a step in a cycle of the characters on the second wheel, an operating-pawl carried by and articulating with such first wheel, a ratchet on such second wheel arranged to be engaged by such pawl, and a cam for guiding such pawl, such cam coöperating with such pawl to impart to such second wheel angular motions varying according to the conformations of the operating-surfaces of the teeth on such ratchet engaged by such pawl.

680,646. MEANS FOR LIMITING TRANSFER PRIVILEGES.

WILLIAM H. COOLEY, Brockport, N. Y. Filed May 23, 1900. Serial No. 17,735. (No model.)



Claim.—1. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

2. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

3. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such punches and dies is inoperative except when the punches and dies in each series occupy an operative position standing for some one relation between the several steps in the cycles of such punches and dies.

4. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means whereby the movement of one or more of such series, except the last,

from a last step to a first step in a cycle of the coöperating punches and dies therein advances the next series of higher denomination one step in a cycle of its coöperating punches and dies, and means whereby the mechanism for actuating such punches and dies is inoperative except when the punches and dies in each series occupy an operative position standing for some one relation between the several steps in the cycles of such punches and dies.

5. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperative punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, and means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies.

6. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced.

7. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, means whereby all of the punches and dies standing for each different relation between the several steps in the cycles the punches and dies in such different series may be operated simultaneously, or nearly so, to indicate the step to which each series has been advanced, and means whereby the mechanism for actuating such punches and dies is inoperative except when the punches and dies in each series occupy an operative position standing for some one relation between the several steps in the cycles of such punches and dies.

8. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby the coöperating punches and dies in each one of such series may be moved only progressively or forward so as to bring the coöperating punches and dies in such series into operative position only in regular progressive order throughout each cycle in such series, means whereby one or more of such series, except the first, can be advanced one step only in a cycle of the coöperating punches and dies therein, and only after all the punches and dies in a complete cycle, in the next series of lower denomination, have been brought into operative position, means for preventing the movement of one or more of such series, except the last, from a last step to a first step in a cycle of the coöperating punches and dies therein until the next series of higher denomination has been advanced one step in a cycle of its coöperating punches and dies, and means whereby all of the punches and dies standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be actuated simultaneously, or nearly so.

9. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, and means whereby each reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last establishes an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination.

10. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last establishes an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, and means whereby all of the punches and dies that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be actuated simultaneously, or nearly so.

11. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last establishes an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the punches and dies that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be actuated simultaneously, or nearly so, and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch or its corresponding die in each series, standing for some one relation between the several steps in the cycles of the punches and dies in such different series, is in operative relation to its actuating mechanism.

12. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last establishes an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby by the mechanism for actuating such punches and dies is inoperative except when a punch or its corresponding die in each series, standing for some one relation between the several steps in the cycles of the punches and dies in such different series, is in operative relation to its actuating mechanism.

13. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last until an operative relation has been established between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch or its corresponding die in each series, standing for some one relation between the several steps in the cycles of the punches and dies in such different series, is in operative relation to its actuating mechanism.

14. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last establishes an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the punches and dies that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the punches and dies in such different series may be actuated simultaneously, or nearly so.

15. Two or more series of punches with their corresponding dies, means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last until an operative relation has been established between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch or its corresponding die in each series, standing for some one relation between the several steps in the cycles of the punches and dies in such different series, is in operative relation to its actuating mechanism.

16. Two or more series of punches with their corresponding dies means for supporting the dies of each series in rigid and permanent alinement with their corresponding punches, such punches and dies arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series except the last standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the coöperating punches and dies standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the coöperating punches and dies and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the coöperating punches and dies and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last until an operative relation has been established between the coöperating punches and dies and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination and means whereby the mechanism for actuating such punches and dies is inoperative except when a punch or its corresponding die in each series, standing for some one relation between the several steps in the cycles of the punches and dies in such different series, is in operative relation to its actuating mechanism.

17. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, establishes an operative relation between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the marking characters that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the marking characters in such different series may be actuated simultaneously, or nearly so, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to its actuating mechanism.

18. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in

one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, establishes an operative relation between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the marking characters that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the marking characters in such different series may be actuated simultaneously, or nearly so, and means whereby at the time of such actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters.

19. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, establishes an operative relation between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the marking characters that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the marking characters in such different series may be actuated simultaneously, or nearly so, means whereby at the time of such actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to its actuating mechanism.

20. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means whereby each reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the first, establishes an operative relation between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby at the time of the actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to its actuating mechanism.

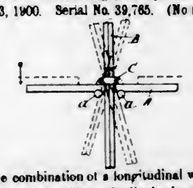
21. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, until an operative relation has been established between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the marking characters that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the marking characters in such different series may be actuated simultaneously, or nearly so, and means whereby at the time of such actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters.

22. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, until an operative relation has been established between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby all of the marking characters that are in operative relation with their actuating mechanism standing for each different relation between the several steps in the cycles of the marking characters in such different series may be actuated simultaneously, or nearly so, and means whereby at the time of such actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters.

23. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, until an operative relation has been established between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby at the time of such actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to its actuating mechanism.

24. Two or more series of marking characters arranged to give indications of progressive values in one or more cycles in each series, a complete cycle in each one of such series, except the last, standing for a step in a cycle of the next series of higher denomination, means whereby an operative relation may be established between the marking characters standing for each step in each cycle in each one of such series and a suitable actuating mechanism only in regular progressive order throughout each cycle in such series, and by advances of one step at a time only in one or more of such series except the first, and only after an operative relation has been established between all the marking characters and the actuating mechanism therefor standing for a complete cycle in the next series of lower denomination, means for preventing a reëstablishment of an operative relation between the marking characters and the actuating mechanism therefor standing for a first step in a cycle of one or more of such series except the last, until an operative relation has been established between the marking characters and the actuating mechanism therefor standing for the next succeeding step in a cycle of the next series of higher denomination, means whereby at the time of the actuation of such characters, there is opposed to each one of such characters mechanism coöperating therewith to displace from the plane of a ticket portions thereof conforming in outline to such characters, and means whereby the mechanism for actuating such characters is inoperative except when a character in each one of such series is in operative relation to its actuating mechanism.

680,647. **WIRE FENCE.** EVAN W. CORNELL, Adrian, Mich., assignor of one-half to J. Wallace Page, same place. Filed Mar. 30, 1899. Renewed Dec. 13, 1900. Serial No. 39,765. (No model.)



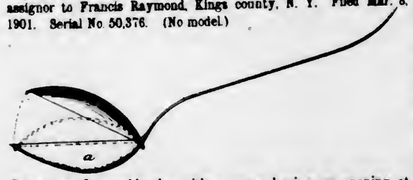
Claim.—1. The combination of a longitudinal wire or strand, a vertical wire or strand crossing said longitudinal wire and having an outwardly-projecting reduced or acuminated portion forming a corner, and a staple embracing said intersecting strands at their junction, said staple being embedded in the corner of said vertical strand.

2. In a fabric, the combination of a longitudinal and a transverse strand, said transverse strand being angular and having an outwardly-projecting corner, a staple uniting said strands at their point of junction, the arc of said staple being embedded in the corner of said transverse strand.

3. In a fabric, the combination of the longitudinal and transverse strands, said transverse strand being malleable and of polygonal formation and presenting an outwardly-projecting corner, and the tying-staple embracing said strands at their junction, said staple being embedded in the corner of said malleable strand.

4. In a fabric, the combination of the longitudinal and transverse strands, said transverse strand being triangular, one face of said triangular strand bearing against said longitudinal strand and one of the corners thereof projecting outwardly, an embracing-staple tying said strands at their points of junction, said staple having its embracing portion embedded in the corner of said triangular strand.

680,648. **SOUP-SPOON.** JESSE A. CRANDALL, Brooklyn, N. Y., assignor to Francis Raymond, Kings county, N. Y. Filed Mar. 5, 1901. Serial No. 50,376. (No model.)



Claim.—1. In combination with a spoon having an opening at each end of its bowl, in the longitudinal center of the bowl, the opening at the point of the bowl being located a little below the upper edge thereof, of a cover provided with an opening at one side and adapted to fit down over the spoon-bowl, and provided with a tongue at each end, one of said tongues being adapted to engage in the opening at the end of the bowl near the handle and the other being adapted to be sprung into the opening at the point of the bowl, the interior bevel of the spoon-bowl serving to assist in guiding this latter tongue into its opening.

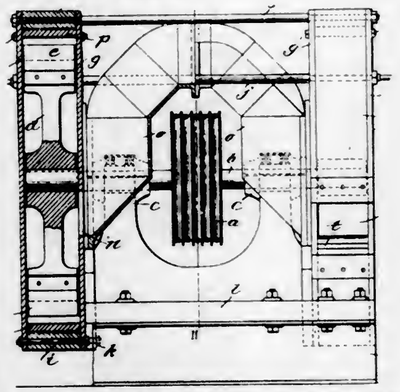
2. In combination, a spoon having an opening formed within its bowl near the point thereof, a cover-plate adapted to fit down over the bowl and provided with an opening at one side and a tongue at its outer end adapted to spring into and out of the opening in the end of the bowl, and means for detachably locking the inner end of the cover-plate to the bowl where the handle joins the same.

680,649. **UNION-COUPLING.** HERBERT S. CROMBIE, Woburn, Mass., assignor to the Jefferson Manufacturing Company, same place. Filed Feb. 25, 1901. Serial No. 48,832. (No model.)



Claim.—A pipe-coupling comprising the member A, having a convex or rounded end face *a*, the opposing member B, having a concave end face corresponding with the face *a* and formed with an annular recess *b* closed at its side next the bore by the flange *k*, the metallic packing-ring *c* secured in said recess wholly exterior to the bore of the member B and having a concave face engaging the convex face of the member A, and means for coupling the coupling members together constructed to permit them to move independently of each other in the arc of a circle.

680,650. **CRUSHING OR PULVERIZING MACHINE.** CORNELIS F. DELPOS, Pretoria, South African Republic. Filed Nov. 23, 1900. Serial No. 37,529. (No model.)



Claim.—In a crushing and pulverizing machine, two drums each consisting of a ring having an opening and circular end plates fitted against the rings, tie-bolts passing through the end plates and rings of both drums to thereby rigidly unite the same, a second series of bolts passing through the end plates and ring of each drum, a plurality of segments in the drum bearing against the inner surfaces of the rings, having undulatory working surfaces, wedges fitted against the segments and secured to the rings, a shaft extending centrally through said plates, radial arms in the drums, on the ends of the shaft, detachable hammer-heads secured to said arms, a driving member on said shaft between the drums, a hopper between said drums and located over said driving member, said hopper having supply-spouts leading to openings in the inner plates of said drums, a bearing-frame for said shaft, a base-piece rigidly connected with the bearing-frame and bolted to the inner of said circular end plates, and discharge-chutes leading from the openings in said rings, substantially as described.

680,651. **PLOW.** JOHN I. DE WITT, Bluffton, Ind. Filed Apr. 5, 1901. Serial No. 54,490. (No model.)

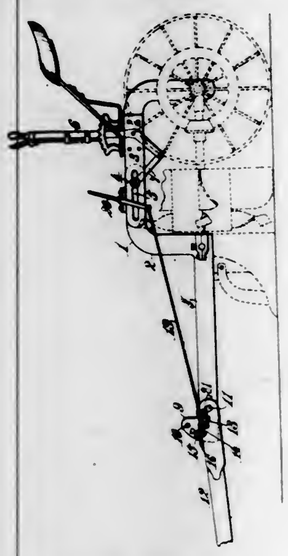
Claim.—1. The combination with a plow-beam and a vertically-movable tongue pivoted thereto, of a lever fulcrumed on said tongue, a locking-bolt actuated thereby, coöperating locking means for said bolt secured to said beam, and operating means for said lever.

2. The combination with a plow-beam and a tongue pivoted thereto and capable of vertical movement thereon, of a lever fulcrumed on said tongue, a locking-bolt pivoted thereto and adapted to be actuated thereby, a vertically-disposed plate secured to said beam and having openings therein into which said bolt is adapted to be introduced, and means for operating said lever.

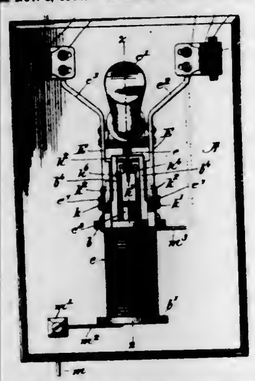
3. The combination with a plow-beam and a tongue pivoted thereto and capable of vertical movement thereon, of a segmental plate provided with a series of openings secured in vertical position to the front end of said beam, a lever fulcrumed on said tongue, a locking-bolt pivoted to one arm of said lever and adapted to be thrown into engagement with one or the other of said openings, a spring for normally holding said locking-bolt in its retracted position, and operating means for said lever.

4. The combination with a plow-beam and a tongue pivoted thereto, of a segmental plate secured to said beam, provided with a series of openings and lying between the branches of the bifurcated rear end of said tongue, a bell-crank lever fulcrumed upon said tongue, a locking-bolt pivoted to one arm of said lever and adapted to be introduced into one of said openings, a bearing-plate through which said locking-bolt passes, a spring attached to said bolt and engaging said bearing-plate for normally holding said bolt in its retracted position, and operating means for said lever.

5. The combination with a plow-beam and a tongue pivoted thereto, of a segmental plate secured to said beam, provided with a series of openings and lying between the branches of the bifurcated rear end of said tongue, a bell-crank lever fulcrumed upon said tongue, a locking-bolt pivoted to one arm of said lever and adapted to be introduced into one of said openings, a bearing-plate through which said locking-bolt passes, a spring attached to said bolt and engaging said bearing-plate for normally holding said bolt in its retracted position, an operating-lever fulcrumed upon said beam at the rear of said bell-crank lever, and a pitman connecting one arm of said operating-lever with the rear arm of said bell-crank lever.



680,652. CIRCUIT-BREAKER. LEONARD L. ELDEN, Boston, Mass. Filed Nov. 8, 1897. Serial No. 657,752. (No model.)



Claim.—1. An automatic circuit-breaker, comprising a break-lever, means normally holding it in contact position, and automatic tripping mechanism to trip said holding means, said tripping mechanism including a trip, a gravity device to engage said trip, a dog normally sustaining said gravity device, and a solenoid to release said gravity device and permit it to fall into engagement with said trip, and means preventing the reengagement of said lever by said holding means during the continuance of the disturbance which caused it to be tripped, substantially as described.

2. An automatic circuit-breaker, comprising contacts, a break-lever, a detent for said lever, and tripping mechanism for said detent, including a solenoid, and an armature, means independent of the armature for varying the resistance of said armature without affecting in any way the position of the armature, substantially as described.

3. A circuit-breaker, in combination with a dynamo, contacts and connections normally making proper field and line circuits for the latter, and other contacts and short-circuit connections for the dynamo normally broken by said breaker, the break-lever of said circuit-breaker serving to break said first-mentioned connections and thereby make said other connections, the latter when made short-circuiting the dynamo-fields, substantially as described.

4. An automatic circuit-breaker, comprising a break-lever, a solenoid, an armature actuated by said solenoid, and a dog pivoted above said armature, the latter having a catch to engage said dog, and said dog being provided with a weight adjustable thereon to counterbalance said armature, a detent normally engaging said lever and holding it in closed position, and tripping mechanism in the path of said armature and connected with and to trip said detent, substantially as described.

5. An automatic circuit-breaker, comprising a break-lever, a solenoid, an armature actuated by said solenoid, and a dog pivoted above said armature, the latter having a spring-catch to engage said dog and said dog being provided with a weight adjustable thereon to counterbalance said armature, a detent normally engaging said lever and holding it in closed position, and tripping mechanism in the path of said armature and connected with and to trip said detent, whereby upon a predetermined excitation of said solenoid, said armature will be withdrawn from said dog and permitted to fall in contact with said tripping mechanism, substantially as described.

6. An automatic circuit-breaker, comprising a break-lever, a solenoid, an armature actuated by said solenoid, and a dog pivoted above said armature, the latter having a spring-catch to engage said dog, and said dog being provided with a weight adjustable thereon to counterbalance said armature, a detent normally engaging said lever and holding it in closed position, and tripping mechanism in the path of said armature and connected with and to trip said detent, whereby upon a predetermined excitation of said solenoid, said armature will be withdrawn from said dog and permitted to fall in contact with said tripping mechanism, said lever having means tending to restore said armature to its engaged position with said dog, substantially as described.

7. A circuit-breaker, comprising a break-lever, automatic actuating mechanism therefor, separated contacts adapted to be opened and closed by said break-lever, a resistance device between said contacts, a main circuit including said actuating mechanism and normally made by the closing of said lever with said contacts, a second circuit normally broken, and means closing said second circuit by the full opening movement of said lever, said resistance preventing destructive sparking at said contacts by the opening movement of said lever while the lever is moving from closed position to fully-open position, substantially as described.

8. Tripping apparatus for automatic circuit-breakers comprising the combination with two or more automatic circuit-breakers and their circuits, of means responding to the opening of any one of the automatic circuit-breakers and operating to positively trip the other or others, substantially as described.

9. A plurality of circuit-breakers, each provided with its own independently-movable lever having their releasing devices coupled together by insulated sections whereby electrical action in one produces corresponding mechanical action in all, substantially as described.

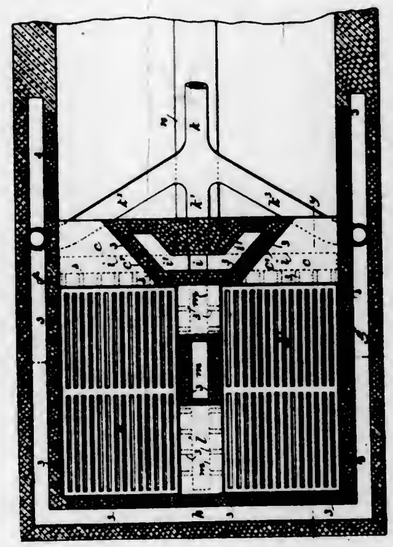
10. The combination with a constant-current circuit, of a break in said circuit, and automatic break-operating means corresponding instantly to the initial rise in potential in the circuit due to a break or other accident therein, substantially as described.

11. The combination with a constant-current circuit, of a break in said circuit, and a shunt across and in direct, uninterrupted connection with said circuit and including the break, said break being responsive to said shunt for cutting out the said circuit, substantially as described.

12. The combination with a constant-current circuit, of a circuit-breaker in said circuit, short-circuit connections from the terminals of said circuit to said circuit-breaker and normally broken thereat, and automatic means to operate said circuit-breaker responsive to rise in potential in the circuit due to a break or other accident therein, said short-circuit connections being closed by the said automatic operation of the circuit-breaker, substantially as described.

680,653. FURNACE. GEORGE S. GALLAGHER, New York, N. Y., assignor, by mesne assignments, to Leavitt J. Hunt, same place. Filed Jan. 21, 1901. Serial No. 44,063. (No model.)

Claim.—1. The combination in a furnace adapted for the consumption of smoke and gases, with the side and front walls and the bridge-wall having flues and injector-nozzles connecting said flues with the combustion-chamber, of a center wall extending from the bridge-wall forward to the front wall, a bridge-wall extension extending centrally from the top of the bridge-wall up to the under side of the boiler, said central wall and bridge-wall extension having flues therein and injector-nozzles connecting the flues with the combustion-chamber and the passage-way between the side walls and the bridge-wall extension and rearward of the bridge-wall, and means substantially as shown and described, for supplying air under pressure to the said flues to be passed through the injector-nozzles into the combustion-chamber, substantially as and for the purposes set forth.

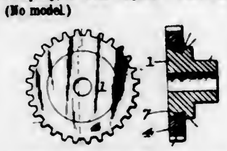


2. The combination in a furnace adapted for the consumption of smoke and gases, with the side and front walls, and the bridge-wall having flues and injector-nozzles connecting said flues with the combustion-chamber, of one or more walls extending from the bridge wall to the front wall and intermediate to the side walls, an extension of the bridge-wall therefrom up to the boiler, said central or intermediate wall and the bridge-wall extension having flues and injector-nozzles connecting the same to the combustion-chamber, the bridge-wall extension being of tapering form narrowest next to the combustion-chamber along the front edge of the bridge-wall and widest along the rear edge of the bridge-wall distant from the combustion-chamber and in effect narrowing the passage-ways between the same and the side walls of the furnace, a main air-pipe, a wall along which the main air-pipe is supported exposed, branches from the main pipe to the said flues, whereby air under pressure is forced through the flues and the injector-nozzles into the combustion-chamber to commingle with the smoke and gases to form a perfect combustion, substantially as set forth.

3. The combination in a furnace adapted for the consumption of smoke and gases with the main side and front walls and the bridge-wall extending between the same and having flues and injector-nozzles connecting said flues with the combustion-chamber which they surround, of a center wall of similar character to the main and bridge walls and extending from the bridge-wall forward to the front wall and dividing both the fire-chamber and ash-pit and having a flue longitudinally of the same opening from and agreeing substantially in height with the flue of the bridge-wall, and injector-nozzles in the center wall connecting the flue therein with the portions of the divided combustion-chamber on each side of said center wall, substantially as and for the purposes set forth.

4. The combination in a furnace adapted for the consumption of smoke and gases with the side and front walls and the bridge-wall having flues and injector-nozzles and connecting said flues with the combustion-chamber which they surround, of a bridge-wall extension extending centrally from the top of the bridge-wall up to the under side of the boiler, the said bridge-wall extension being of tapering form narrowest next to the combustion-chamber along the front edge of the bridge-wall and widest along the rear edge of the bridge-wall distant from the combustion-chamber and in effect narrowing the passage-ways between the same and the side walls of the furnace, the said bridge-wall extension having flues therein and injector-nozzles connecting the flues upon the opposite tapering sides of the said extension with the combustion-chamber and the passage-ways between the side walls and the bridge-wall extension, substantially as and for the purposes set forth.

680,654. RUBBER GEARING. GEORGE W. GOMBER, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed June 6, 1900. Serial No. 19,279. (No model.)

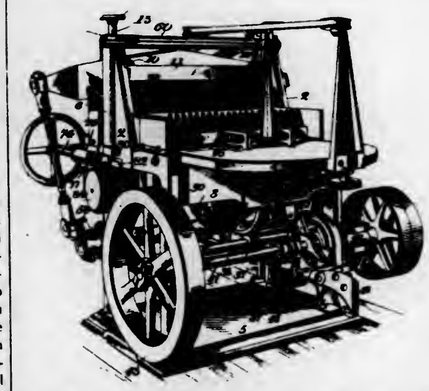


Claim.—1. A gear-wheel comprising a central core having a peripheral groove with a laterally-inclined bottom and a non-resonant rim fitting said groove, as set forth.

2. A gear-wheel comprising a central core having a peripheral groove with a laterally-inclined bottom, a non-resonant rim fitting said groove and means to lock the rim in place carried by the flange of the wheel on one side of said groove as set forth.

3. A gear-wheel comprising a central core having a peripheral groove with a laterally-inclined bottom, a non-resonant rim fitting said groove and spurs to lock the rim in place carried by the flange of the wheel on one side of said groove as set forth.

680,655. PAPER-CUTTING MACHINE. NIEL GRAY, Jr., Oswego, N. Y., assignor to Oswego Machine Works, same place. Filed May 18, 1900. Serial No. 17,125. (No model.)



Claim.—1. The combination in a paper-cutting machine of a clamp having brackets at each end thereof, springs arranged to be compressed by the descent of said clamp, and means for lowering said clamp to the paper and to automatically release the pressure thereon, whereby the springs may return the clamp to its raised position.

2. The combination, in a paper-cutting machine, of a clamp, means for lowering said clamp to the paper, brackets projecting from said clamp, and springs arranged in pockets in the frame for returning said clamp to its raised position.

3. The combination, in a paper-cutting machine, of a frame having vertical pockets therein, springs arranged in said pockets, a clamp, brackets projecting from said clamp and engaging said springs, rack-bars secured to said clamp, a shaft, pinions fast on said shaft and engaging said rack-bars, and means for rotating said shaft.

4. The combination, in a paper-cutting machine, of a frame having pockets formed therein, rods arranged in said pockets, springs surrounding said rods, means for adjusting the tension of the springs, a clamp, brackets projecting from said clamp and engaging said springs, and means for lowering said clamp to the paper.

5. The combination, in a paper-cutting machine, of a frame having slotted pockets formed therein, springs arranged in said pockets, a clamp, brackets projecting from said clamp and engaging said springs, rack-bars secured to said clamp, and working in the slots of the pockets, a shaft, pinions fast on said shaft and engaging said rack-bars, and means for automatically connecting said shaft with the driving power.

6. The combination, in a paper-cutting machine, of a hand operating device for lowering the clamp to the paper comprising a pivoted bracket, a worm-shaft having a reduced end journaled to said bracket, a barrel fixed to the frame, and a spring-held plunger having a socket to receive the reduced end of the worm-shaft.

7. The combination, in a paper-cutting machine, of a hand operating device for lowering the clamp to the paper, consisting of a pivoted bracket, means for limiting the movement of the bracket, a worm-shaft journaled in the bracket, and having a reduced end, a barrel fixed to the frame, a socketed plunger having a stem arranged in said barrel, a spring pressing against said plunger, and a knob for said stem.

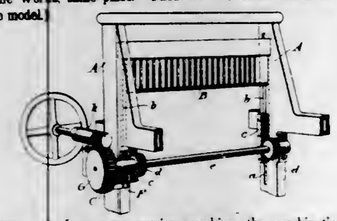
8. A friction device for exerting pressure on the clamps of paper-cutting machines, consisting of a sleeve having screw-threads at one end and a flange at the other end, a flanged disk having perforations around its periphery, a gear-ring arranged between said disk and the flange of said ring-gear, a tightening-nut run on said sleeve, a locking-ring having a slotted projection secured to the inner face of said nut, and a bolt for locking said nut in its adjusted position.

9. The combination, in a paper-cutting machine, of a clamp, rack-bars connected to said clamp, a shaft, pinions engaging said rack-bars, a gear-wheel on said shaft, a counter-shaft carrying a friction device having a ring-gear engaging said gear-wheel, a clutch for coupling said last-named shaft to the power, a longitudinal shaft, rock levers or arms on said longitudinal shaft, shifter-rods connected to said arms, a gear-wheel and knockers on said wheel for engaging said shifter-rods.

10. The combination, in a paper-cutting machine, of a main shaft, a gear-wheel loosely mounted on said shaft, a clutch arranged on said shaft, a shaft arranged longitudinal of and journaled in bearings on the frame of the machine, means for connecting said shaft and the clutch, a lever or arm projecting from said shaft, a shifter-rod connected at one end to said lever or arm for turning said shaft on its axis, a crank-shaft, and a gear-wheel having a cam-faced knocker fixed on the crank-shaft for imparting a longitudinal movement to the shifter-rod.

11. A shifter-rod consisting of a sleeve, a rod having a longitudinal groove and recesses at the ends of said groove, a bolt for securing said sleeve and rod together, and a roller journaled in the end of said rod.

680,656. **HAND CLAMPING DEVICE FOR PAPER-CUTTING MACHINES.** NIEL GRAY, Jr., Oswego, N. Y., assignor to Oswego Machine Works, same place. Filed Oct. 12, 1900. Serial No. 32,359. (No model.)



Claim.—1. In a paper-cutting machine, the combination with a clamp and a shaft for operating the clamp, of a worm-gear loosely mounted on said shaft, a worm engaging said gear, and means for coupling said gear and shaft, whereby the rotation of the worm rotates the shaft.

2. In a paper-cutting machine, the combination with a clamp, and a shaft for operating said clamp, of a worm-gear loosely mounted on said shaft, a worm meshing with said worm-gear, and dog-levers for engaging said gear secured to said shaft, whereby said shaft may be rotated by said worm.

3. In a paper-cutting machine, the combination with a clamp, and a shaft for operating said clamp, of a worm-gear loosely mounted on said shaft, a worm meshing with said worm-gear, and means for automatically coupling said worm-gear and shaft upon rotation of said worm.

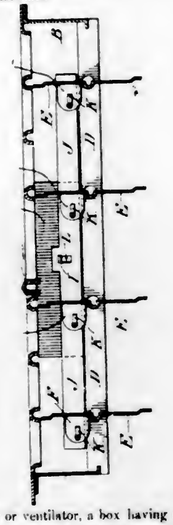
4. In a paper-cutting machine, the combination with a clamp, and a shaft for operating said clamp, of a worm-gear loosely mounted on said shaft, means for coupling said gear and shaft, a worm for operating said gear, and means for limiting the rotation of said worm-wheel.

5. In a paper-cutting machine, the combination with a clamp, of a shaft for operating said clamp, dog-levers secured to said shaft, a worm-gear loosely mounted on said shaft, lugs projecting from said worm-gear into the path of said dog-levers, and a worm for operating said worm-gear.

6. The combination with the clamp-shaft of a paper-cutting machine, of a worm-gear having a recessed untoothed portion on its periphery, loosely mounted on said shaft, a worm engaging said worm-gear, and means for stopping the motion of said worm-gear at a predetermined point in its rotation, whereby the gear is always held in mesh with the worm.

680,657. **REGISTER, VENTILATOR, OR THE LIKE.** HOWARD S. HART, New Britain, Conn., assignor to the Hart & Cooley Company, same place. Filed Apr. 13, 1901. Serial No. 55,626. (No model.)

Claim.—1. In a register or ventilator, a box having an inwardly-projecting bearing for the register-slats and the operating-bar, an operating-bar supported upon said bearing, slats pivoted in said bearing, and means intermediate of said bar and said slats for transmitting motion from the operating-bar to said slats.



2. In a register or ventilator, a box having an inwardly-projecting hollow bearing for the register-slats and the operating-bar, an operating-bar supported upon said bearing, slats pivoted in said bearing, and means for transmitting motion from the operating-bar to said slats.

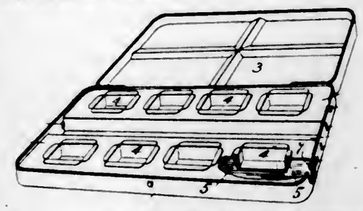
3. In a register or ventilator, a box having an inwardly-projecting hollow bearing for the register-slats and the operating-bar, an operating-bar supported upon said bearing, slats pivoted in said bearing, and means intermediate said bar and said slats for transmitting motion from the operating-bar to said slats.

4. In a register or ventilator, a box having an inwardly-projecting bearing for the register-slats and the operating-bar, an operating-bar supported upon said bearing, slats pivoted in said bearing, and a bar pivoted to said slats a slot in the intermediate bar and a pin on the operating-bar projecting into said slot.

5. In a register or ventilator, a box having an inwardly-projecting bearing for the register-slats and the operating-bar, an operating-bar supported upon said bearing, slats pivoted in said bearing, and means intermediate of said bar and said slats for transmitting motion from the operating-bar to said slats, and means to frictionally resist the movement of the operating-bar relatively to its bearing-support.

6. In a register or ventilator, a box having an inwardly-projecting bearing for the register-slats and the operating-bar, an operating-bar supported upon said bearing, slats pivoted in said bearing, and means intermediate of said bar and said slats for transmitting motion from the former to the latter, an operating-handle carried by the operating-bar the free end of said handle overstanding and being supported upon the top of said box.

680,658. **COLOR-BOX.** CORNELIUS C. HASTINGS, Springfield, Mass., assignor to Milton Bradley Company, same place. Filed June 6, 1901. Serial No. 63,446. (No model.)



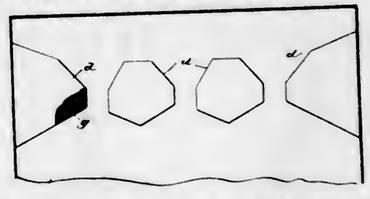
Claim.—1. A device for holding water-colors for transportation or use comprising a box having an upstanding border surrounding the bottom thereof, one or more color-pan receivers removably retained in said box by engagement with said border, openings in said receivers for receiving therein several of said pans, and means on the border of said openings for holding said pans against accidental displacement, substantially as described.

2. A device for holding water-colors for transportation or use comprising a box having an upstanding border surrounding the bottom thereof, one or more color-pan receivers removably retained in said box by engagement with said border, openings in said receivers for receiving therein several of said pans, and pending flexible borders around said openings engaging said pans and holding the same against accidental displacement substantially as described.

3. A device for holding water-colors for transportation or use comprising a box having an upstanding border surrounding the bottom thereof, two color-pan receivers removably retained in said box in separated relations, against the side borders thereof, by engagement with the end borders of the box, thereby forming an implement-holding recess between said receivers, substantially as described.

4. A device for holding water-colors for transportation and use comprising a box having an upstanding border surrounding the bottom thereof, one or more color-pan receivers having pan-receiving openings therein, removably retained in said box by engagement with said border, one or more color-pans of decreasing dimensions from the border to the bottom thereof, horizontally-extending flanges on said border, and pending flexible borders around said openings engaging the sides and ends of said pans, and retaining the same against accidental displacement, substantially as described.

680,659. **DISPLAY-BOX.** FRANCIS A. HOBLE, Boston, Mass. Filed Aug. 3, 1900. Serial No. 25,735. (No model.)



Claim.—1. A display-box for neckties having an irregularly-shaped projection permanently secured thereto, and a correspondingly-shaped post or holder, the inner walls of which entirely surround and are permanently secured to the sides of said projection.

2. A display-box for neckties having a series of irregularly-shaped lugs or projections, permanently attached to its bottom, and a series of correspondingly-shaped tubular holders for the neckties fitted over and permanently secured to the lugs or projections.

3. As an article of manufacture, a pasteboard box having a series of irregular-shaped lugs or projections rising from its bottom, and a corresponding series of tubular holders, each holder having the same contour as its lug and fitted over and fixedly secured to the same.

4. As an article of manufacture, a pasteboard display-box having a series of holders for supporting the articles exhibited, each holder having in its base an irregular-shaped recess, and a corresponding series of projections fast on the bottom of the box, said projections fitting the recesses in the holders and securing them in place.

5. As an article of manufacture, a pasteboard display-box having a series of tubular holders for supporting neckties, and a corresponding series of projections permanently secured to the box-bottom, and fitting the inner walls of the tubular holders, said holders being permanently secured to the sides of the projections, and each having an outside covering of suitable material which is folded over the lower edges thereof, and secured between the inner walls of said holders and the projections.

6. As an article of manufacture, a pasteboard display-box for neckties having a series of tubular holders, a series of projections permanently secured to the box-bottom and fitting the inner wall of the tubular holders, the end projections of the series abutting the side walls of the box, and the central holders of the series having their walls entirely surrounding and secured to the sides of the corresponding projections, and the end holders being cut away at their lower ends on that side adjacent the abutting box side to rest upon the projection, the remaining sides of the said holders surrounding and being secured to the sides of the corresponding projection.

680,660. **STAND FOR SEWING-MACHINES.** EDWARD M. HUE, New York, N. Y., assignor of one-half to the Dunlap Machinery Company, same place. Filed Mar. 21, 1901. Serial No. 52,174. (No model.)

Claim.—1. A stand for sewing-machines consisting of a base, an upright pillar supported on said base, a sliding standard guided in said pillar and adapted to support the sewing-machine, a treadle, a bracket for the same, a fly-wheel, means for supporting the same on the pillar, a pitman connecting the treadle with the fly-wheel, a universal link between the treadle and pitman, and a link between the pitman and fly-wheel, substantially as set forth.



2. A stand for sewing-machines, consisting of a base an upright tubular pillar supported on said base, a short shaft projecting from said pillar, a sliding standard guided in said pillar and adapted to support the sewing-machine, a treadle, a bracket for said treadle, means for attaching said bracket to the base of the stand, a fly-wheel supported on the short shaft of the pillar, a pitman connecting the treadle with the fly-wheel, a universal link between the treadle and pitman and a link between the pitman and fly-wheel, substantially as set forth.

3. A stand for sewing-machines consisting of a base, an upright pillar supported on said base, a sliding standard guided in said pillar and adapted to support the sewing-machine, a treadle, a bracket for the same, said treadle and bracket being detachable from the stand and from each other, a fly-wheel, means for supporting the same on the pillar, a pitman connecting the treadle with the fly-wheel, a universal link between the treadle and pitman, and a link between the pitman and fly-wheel, substantially as set forth.

680,661. **SELF-OPENING UMBRELLA.** CHARLES J. HUNT, Dayton, Ohio, assignor of one-half to Joseph P. Cleal, same place. Filed Jan. 18, 1901. Serial No. 43,789. (No model.)



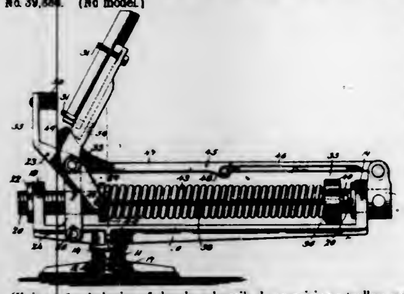
Claim.—1. In a self-opening umbrella, the combination, with the tubular stick A, sleeve or runner B, braces C and ribs D, of the coiled spring E located within the stick A, and having its lower end fixedly secured therein, and the cord F connected at one end to the upper end of said spring within the stick A and passing thence upwardly through the stick and outwardly over the sheave G and thence downwardly and having its lower end connected to the sleeve or runner B, substantially as described.

2. In a self-opening umbrella, the combination, with the tubular stick A provided near its lower end with a spring-catch H and near its upper end with the collar *b* and above the latter with the support G′ carrying the sheave or pulley G, the sleeve or runner E sliding upon said stick and provided at its lower end with the shoulder *a* adapted to coöperate with the spring-catch H and at its upper end with the spring-catch I adapted to coöperate with the collar *b* upon the stick A, the braces C, and the ribs D, of the contractile coiled spring E located within the stick A and having its lower end secured therein, and the cord F connected at one

end to the upper end of the spring E and passing thence upwardly through the stick A and outwardly over the sheave or pulley G and thence downwardly and having its lower end connected to the sleeve B, substantially as described.

3. In a self-opening umbrella, the combination, with the tubular stick A provided near its lower end with the spring-catch H and near its upper end with the collar *b* and rubber cushioning-ring *c* and above said collar with the support G' carrying the sheave G, the sleeve or runner B sliding upon said stick A and provided at its lower end with the shoulder *a* and at its upper end with the spring-catch I adapted to coöperate with the collar *b*, the braces C, and the ribs D, of the coiled contractile spring located within the stick A and having its lower end secured therein, and the cord F connected at one end to the upper end of said spring and passing thence upwardly through said stick and outwardly over the sheave G, and thence downwardly and having its lower end connected to the sleeve B substantially as described.

680,662. TROLLEY-STAND. EDWARD J. KELLEY, Baltimore, Md., assignor to S. Fred Johnson, Norfolk, Va. Filed Dec. 14, 1900. Serial No. 39,886. (No model.)



Claim.—1. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining-spring disposed to move the arm both pivotally and bodily and means for holding the arm normally against bodily movement, said means being adapted for movement from operative position by pivotal movement of the arm under the influence of said spring.

2. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining-spring disposed to move the arm pivotally into operative position and bodily out of operative position, and means for holding the arm normally against bodily movement, said means being adapted for movement from operative position by pivotal movement of the arm under the influence of said spring.

3. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining-spring disposed to move the arm both pivotally and bodily and means for holding the arm normally against bodily movement, said means being adapted for movement from operative position by pivotal movement of the arm under the influence of said spring and being adapted for movement into operative position by pivotal movement of the arm in an opposite direction.

4. A device of the class described comprising a pivoted arm, a spring-carrying bar having a stop, a collar mounted slidably on the bar and having an annular seat concentric with the bar, a helical spring disposed upon the bar and with its ends in the seat and against the bar-stop respectively whereby tilting and binding of the collar will be prevented, and connections between the collar and arm, for holding the arm yieldably against pivotal movement.

5. A device of the class described comprising a base-plate, a support pivoted on the plate, a trolley-arm pivoted to the support and adapted for bodily movement therewith, a retaining-spring connected with the arm for holding it yieldably in operative position, and a breakable support for holding the trolley-arm support against pivotal movement under the influence of said spring.

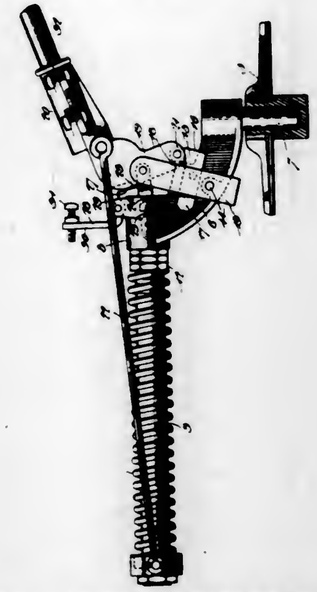
6. A device of the class described comprising a base-plate, a support pivoted on the plate, a trolley-arm pivoted on the support and adapted for bodily movement therewith, a spring connected with the trolley-arm for holding it yieldably in operative position and for moving the support pivotally at times to release the tension of the spring, and a brace for the pivoted support for holding it against movement, said brace being adapted for movement into and out of operative position as the arm is pivotally moved in opposite directions.

7. A device of the class described comprising a base-plate a support pivoted to the plate, a movable brace for holding the support normally against pivotal movement, a trolley-arm pivoted to the support and adapted for bodily movement therewith, a spring connected with the trolley-arm for holding it normally in operative position, the pull of the spring being in opposition to said brace, and means in the path of pivotal movement of the arm under the influence of the spring, for moving the brace to inoperative position to release the tension of the spring.

8. A device of the class described comprising a base-plate, a support pivoted to the base-plate, an arm pivoted to the support and adapted for bodily movement therewith, a spring connected with the arm for holding it yieldably in operative position, and a hinged brace for the support adapted to hold the support against the tendency of said spring to prevent bodily movement of the arm, said support having a projection in the path of pivotal movement of the arm under the influence of the spring for engagement by the arm to move it to inoperative position, and said support being adapted for engagement by the arm when moved in an opposite direction to move the brace to operative position.

9. A device of the class described comprising a pivoted base-plate having a spring-supporting bar mounted therein and provided with a stop, a spring upon the bar and resting at one end against the stop, a collar upon the bar against the opposite end of the spring, a support pivoted to the plate, an arm pivoted to the support, connections between the arm and collar for holding the arm yieldably in operative position, and a knuckle-brace pivoted to the brace-plate and to the pivoted support for holding the support against movement under the influence of the spring and to hold the spring under tension, said brace having a projection in the path of movement of the arm under the influence of the spring for engagement by the arm to break the knuckle to release the tension of the spring, and said arm being adapted to lie upon a member of the brace when the spring is released, for moving the brace into operative position.

680,663. TROLLEY-STAND. EDWARD J. KELLEY, Norfolk, Va. Filed May 18, 1901. Serial No. 60,914. (No model.)



Claim.—1. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining tension means disposed to move the arm into and out of operative position, and means for holding the arm normally against one movement out of operative position, said latter means being operated by the other movement of the arm to permit the tension means to move the arm from operative position.

2. A device of the class set forth comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining tension means disposed to move the arm into and out of operative position, and locking means interposed between a portion of the arm and the tension means and provided with a projecting portion which is engaged by the arm to automatically unlock the same, said locking means holding the arm normally against one movement out of operative position and actuated by another movement of the arm to permit the tension means to move the arm from operative position.

3. A device of the class described comprising a trolley-arm mounted for bodily movement, a sustaining tension means disposed to move the arm into and out of operative position, and locking mechanism interposed between the arm and the tension means and including devices for shifting the fulcrum for movement of the arm.

4. A device of the class described comprising a trolley-arm mounted for bodily movement, a sustaining tension means disposed to move the arm into and out of operative position, and devices for shifting the fulcrum for movement of the arm.

5. A device of the class described comprising a trolley-arm mounted for bodily movement, a sustaining tension means disposed to move the arm into and out of operative position, a connection between the arm and tension means, and locking mechanism interposed between the arm and the tension means and including devices for shifting the fulcrum for movement of the arm and a change of leverage to obtain a greater purchase in the operation of resetting the arm.

6. A device of the class set forth comprising a trolley-arm mounted for bodily movement, a sustaining tension means disposed to move the arm into and out of operative position, and locking means interposed between the arm and tension means to permit a step-by-step operation of the said tension means when manually resetting the arm.

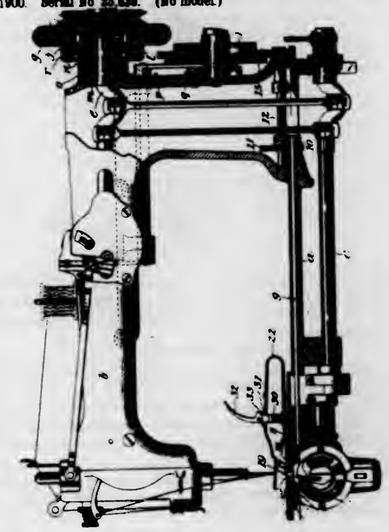
7. A device of the class set forth comprising a trolley-arm mounted for bodily movement, a sustaining-spring disposed to move the arm into and out of operative position, and locking means interposed between the arm and spring to permit a step-by-step operation of the said spring to restore the latter to its normal tension when manually resetting the arm, the said locking means including a projecting member which is adapted to be struck by a portion of the arm when the latter slips from the wire to automatically disengage the said locking means.

8. A device of the class set forth comprising a trolley-arm mounted for bodily movement, a notched catch-bar movably connected to said arm, a sustaining-spring disposed to move the arm into and out of operative position, and a latch to engage said catch-bar having a projecting portion adapted to be struck by the arm.

9. A device of the class set forth comprising a trolley-arm mounted for bodily movement, a yoke pivotally supporting said arm, a sustaining-spring disposed to move the arm into and out of operative position, a casting for holding the arm provided with a stop-abutment, and locking means interposed between the yoke and arm and the spring.

10. A device of the class set forth comprising a trolley-arm mounted for bodily movement and having a sustaining tension device connected thereto, a support for the arm having a stop-abutment, means for pivotally holding the arm, a fulcrum device mounted in the lower terminal of the arm, gravitating fulcrum-bars attached to said support, and locking means interposed between the arm and the said tension device therefor.

680,664. FEED MECHANISM FOR SEWING-MACHINES. DONALD NOBLE, London, England, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Original application filed Apr. 4, 1900, Serial No. 11,495. Divided and this application filed July 14, 1900. Serial No. 23,638. (No model.)



Claim.—1. In an eyelet-sewing machine, the combination of stitch-forming mechanism, means for horizontally vibrating the needle-bar, a suitably-journaled feed-disk, a counting mechanism and stop-motion arranged at the end of the machine opposite the feed-disk, a gear-wheel secured to the under side of said feed-disk, a gear-wheel carried by said counting mechanism, and a shaft geared with said feed-disk gear and the gear carried by said counting mechanism, whereby movement is communicated from said counting mechanism to said feed-disk and whereby the number of stitches to be made may be varied in accordance with the size of the eyelet or thickness of thread employed, substantially as described.

2. In an eyelet-sewing machine, the combination of stitch-forming mechanism, means for vibrating the needle-bar in a horizontal plane, a feed-disk, means for rotating said disk, a turn-table secured to said disk coöperating with it to support the cloth and adapted to turn freely around it, and a latch by means of which said turn-table and feed-disk are locked together as against independent movement, substantially as set forth.

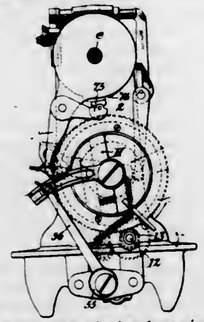
3. In an eyelet-sewing machine, the combination of stitch-forming mechanism, means for vibrating the needle-bar in a horizontal plane, a feed-disk, a plate within which said disk is journaled, means for rotating said disk, a turn-table journaled upon said disk and coöperating with it to support the cloth, a cloth-clamp carried by said turn-table, a notched washer interposed between the under side of said feed-disk and the plate within which said disk is journaled, said washer being fast with said disk as to rotary movement, and a latch carried by said turn-table and adapted to engage said notched washer, whereby said turn-table and feed-disk are locked together, substantially as set forth.

4. In a sewing-machine, the combination of stitch-forming mechanism, a feed-disk, means for rotating said feed-disk, a turn-table secured to said disk coöperating with it to support the cloth and adapted to turn freely around it, and a latch by means of which said turn-table and feed disk are locked together as against independent movement.

5. In a sewing-machine, the combination of stitch-forming mechanism, a feed-disk, means for rotating said feed-disk, a turn-table journaled upon said disk and with it serving to support the cloth, a cloth-clamp carried by said turn-table, and means to lock the turn-table and feed-disk against independent movement.

6. In a sewing-machine, the combination of stitch-forming mechanism, a feed-disk, a plate within which said disk is journaled, means for rotating said disk, a turn-table journaled upon said disk and with it serving to support the cloth, a cloth-clamp carried by said turn-table, a notched washer interposed between the under side of said feed-disk and the plate within which said disk is journaled, and a latch carried by said turn-table and adapted to engage said notched washer.

680,665. STOPPING MECHANISM FOR SEWING-MACHINES. DONALD NOBLE, London, England, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Original application filed Apr. 4, 1900, Serial No. 11,495. Divided and this application filed Aug. 16, 1900. Serial No. 27,111. (No model.)

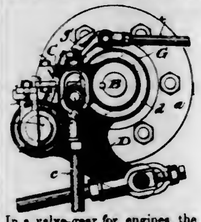


Claim.—1. A stopping mechanism for sewing-machines, comprising a stopping-disk, a brake-lever, and an emergency lever or dog carried by said brake-lever and interposed between said brake-lever and stopping-disk, whereby the machine may be brought to a stop irrespective of the state of completion of its cycle of movements, combined with means for forming stitches and means for controlling the number of stitches to be made, substantially as described.

2. In an automatic stop-motion mechanism, the combination of stitch-counting mechanism, a stop-motion mechanism including a brake-lever, and an emergency lever or dog carried by said brake-lever and interposed between said brake-lever and counting mechanism, whereby the machine may be brought to a stop irrespective of the completion of the full cycle of movements, substantially as set forth.

3. In an automatic stop-motion mechanism, the combination of stitch-counting mechanism, a stopping-disk, a stop-motion mechanism including a brake-lever, and an emergency-dog carried by the said brake-lever and interposed between said brake-lever and counting mechanism, whereby the machine will be free to run when the nose of said dog is projected toward the stopping-disk, and will be brought to a stop when the nose of said dog is withdrawn from said stopping-disk, substantially as set forth.

680,666. **VALVE-GEAR FOR ENGINES.** BRUNO V. NORDBERG, Milwaukee, Wis., assignor to Nordberg Manufacturing Company, same place. Filed June 28, 1894. Serial No. 515,928. (No model.)



Claim.—1. In a valve-gear for engines, the combination with the valve-stem, of a valve-closing lever fixed thereon and formed on the under side with a seat in a plane radial to the valve-stem, an adjustable trip-block secured to said seat by a bolt passing transversely through said lever and always accessible on the upper side thereof whatever the position of the valve-gear may be, a valve-opening lever, a rocking pin journaled in said valve-opening lever and provided at one end with an upwardly-projecting arm the free end of which is movable into and out of the path of the valve-closing lever and at the opposite end with a bar passing through a recess in the sleeve of the rocking pin, and a knock-off plate adapted to engage said bar and to disengage the valve closing and opening levers, substantially as and for the purposes described.

2. In a valve-gear for engines, the combination with the valve-stem, of a valve-closing lever fixed thereon, a valve-opening lever, a rocking pin journaled in said opening-lever and having at one end an upwardly-extending arm and at the other end a bar passing through a recess in the sleeve of the rocking pin, adjustable trip-blocks secured respectively to the upper end of said arm and the under side of the valve-closing lever by bolts, one end of each of which bolts is constantly exposed and accessible, and a knock-off plate adapted to engage said bar and to disengage the valve closing and opening levers, substantially as and for the purposes described.

3. In a valve-gear for engines, the combination with the valve-stem, of the valve-closing lever fixed thereon, and the valve-opening lever provided with a rocking pin between the valve-stem and wrist-plate connection, said rocking pin being provided with an upwardly-extending arm formed at its upper end with a trip-block seat, and a removable and adjustable trip-block secured to said seat by a bolt one end of which is constantly exposed and accessible, the free end of said arm carrying the adjustable block being movable into and out of the path of the valve-closing lever, substantially as and for the purposes described.

4. In a valve-gear for engines, the combination with the valve-stem, of a valve-closing lever fixed thereon and formed on the under side with a seat in a plane radial to the valve-stem, a trip-block secured to said seat by a bolt one end of which is always exposed and accessible, a valve-opening lever provided with a rocking pin between the valve-stem and wrist-plate connection, said rocking pin being provided with an upwardly-extending arm formed at its upper end with a trip-block seat, and a removable and adjustable trip-block secured to said seat by a bolt one end of which is constantly exposed and accessible, substantially as and for the purposes described.

5. In valve-gear for engines the combination with the valve-stem, of a valve-opening lever formed with a sleeve parallel with said stem, a rocking pin journaled in said sleeve and provided at one end with a trip-arm and at the opposite end with a bar which projects through, and is limited in movement by a radial recess in said sleeve, a knock-off plate and a spring pressing said bar toward said knock-off plate, substantially as and for the purposes set forth.

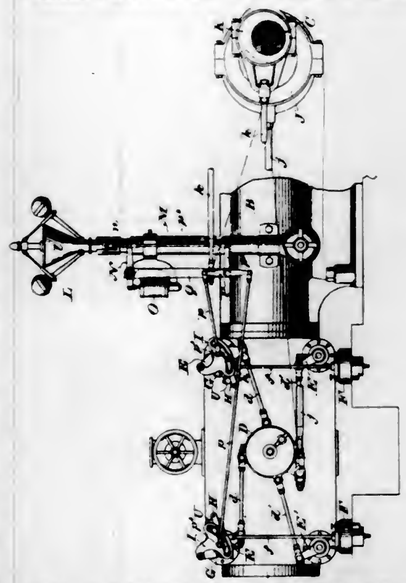
6. In a valve-gear for engines the combination with a valve-stem and bonnet, of a valve-closing lever fixed on said stem and provided with a trip-block, a valve-opening lever formed at one end with a hub which is loosely mounted so as to turn on said bonnet and with a parallel sleeve, a rocking pin journaled in said sleeve and provided at one end with a bar and at the other with an arm carrying a trip-block at its end, a knock-off plate loosely mounted so as to turn on said bonnet and a spring pressing said bar toward said plate substantially as and for the purposes set forth.

7. In a valve gear for engines the combination with the valve-stem and bonnet provided with bearings therefor, of an elbow-shaped valve-opening lever formed at one end with a hub which is loosely mounted so as to turn upon said bonnet and at its elbow with a sleeve parallel with said hub, a rocking pin journaled in said sleeve and provided at one end with a bar projecting radially therefrom and at the other end with an offset arm formed at the end with a seat, a trip-block secured to said seat, a valve-closing lever fixed upon the outer end of said stem next to the valve-opening lever and formed at the end on the under side with a seat, a trip-block secured to said seat, a knock-off plate loosely mounted so as to turn upon said bonnet on the opposite side of the valve-opening lever from the valve-closing lever and formed on its periphery with a seat to which a cam-block is secured, and a spring pressing the bar of said rocking pin toward said knock-off plate, substantially as and for the purposes set forth.

8. In valve-gear for engines the combination with the valve-stem, of a valve-closing lever fixed thereon, an independently-movable valve-opening lever, an arm pivotally connected with the valve-opening lever and movable at its free end into and out of the path of the valve-closing lever, said arm and said valve-closing lever being formed on the end and side respectively with seats in planes which are parallel with each other when the trip-blocks are in engaging position, and trip-blocks secured to said seats by bolts which are constantly exposed and accessible at one end, substantially as and for the purposes set forth.

9. In valve-gear for engines the combination with the valve-stem, of a valve-closing lever fixed thereon and pivoted to its actuating connecting-rod by a pin projecting therefrom on one side and an independently-movable valve-opening lever provided with a projection on one side in the path of the projecting end of said pin, substantially as and for the purposes set forth.

680,667. **VALVE-GEAR FOR ENGINES.** BRUNO V. NORDBERG, Milwaukee, Wis., assignor to Nordberg Manufacturing Company, of Wisconsin. Filed Nov. 15, 1897. Serial No. 658,581. (No model.)



Claim.—1. In valve-gear for engines the combination with valve-operating arms provided with latch-blocks, of tripping mechanism comprising a cam pivoted to one of said arms, and an an eccentric connected with said cam, substantially as and for the purposes set forth.

2. In valve-gear for engines the combination with valve-operating arms provided with latch-blocks, one of which is movable into and out of range with the other, and an eccentric connected with the arm having the latch-block movably connected therewith, of tripping mechanism comprising a cam pivoted to the arm having the movable latch-block, and a releasing-eccentric connected with said cam, substantially as and for the purposes set forth.

3. In valve-gear for engines the combination with valve-operating arms, of tripping mechanism comprising a cam pivoted to one of said arms, an eccentric connected with said cam, and a governor arranged to regulate the connection between said eccentric and cam, substantially as and for the purposes set forth.

4. In valve-gear for engines the combination with valve-operating arms provided with latch-blocks and an eccentric connected with one of said arms for opening the valve, of a cam carried by the valve-opening arm for disengaging said latch-blocks, another eccentric connected with said cam for releasing the valve, and a governor for regulating the connection between said cam and the releasing-eccentric, substantially as and for the purposes set forth.

5. In valve-gear for engines the combination with a valve-opening arm provided with a trip-arm pivoted thereto, of a releasing-cam pivoted to said valve-opening arm and having a bearing which engages the trip-arm and consists of two arcs described from the pivot of the cam with different radii and connected by an incline or offset, substantially as and for the purposes set forth.

6. In valve-gear for engines the combination with valve-operating arms provided with latch-blocks, one of which is movable into and out of range with the other and is provided with a trip-arm, of a cam pivoted to the arm having the movable latch-block, and provided with a bearing composed of two arcs of different radii concentric with the pivot connection between said cam and arm and connected by an incline or offset which is adapted by engagement with said trip-arm to throw the latch-block connected therewith out of engagement with the latch-block of the other arm, substantially as and for the purposes set forth.

7. In valve-gear for engines the combination with valve-operating arms, of a trip-arm pivoted to one of said arms, a cam pivoted to said arm at a distance from the axis on which it turns, and adapted to engage with said trip-arm, and an eccentric connected with said cam at a distance from its pivot equal to the distance of said pivot from the axis of said arm, substantially as and for the purposes set forth.

8. In valve-gear for engines the combination with a valve-operating arm, of a trip-arm pivoted thereto, a cam also pivoted to said valve-operating arm at a distance from the axis on which the latter turns and adapted to engage with said trip-arm, and an eccentric having an adjustable connection with said cam for varying the point of cut-off, substantially as and for the purposes set forth.

9. In valve-gear for engines the combination with a valve-operating arm, of a trip-arm pivoted thereto, a cam also pivoted to said valve-operating arm and adapted to engage with said trip-arm, a lever-arm connected with said cam and carried by a movable support, an eccentric connected with said lever-support, and means for adjusting said lever-arm to vary the point of cut-off, substantially as and for the purposes set forth.

10. In valve-gear for engines the combination with a valve-operating arm, of a trip-arm pivoted thereto, a cam also pivoted to said valve-operating arm and adapted to engage with said trip-arm, a lever-arm connected with said cam and carried by a movable support, an eccentric connected with said movable support, and a governor connected with said lever-arm for automatically varying the point of cut-off, substantially as and for the purposes set forth.

11. In valve-gear for engines the combination with valve-operating arms, of trip-arms pivoted thereto, cams also pivoted to said valve-operating arms and adapted to engage said trip-arms, a three-armed lever having two of its arms connected with said cams, and carried by a jointed parallelogram, of which the third arm of said lever constitutes a side, an eccentric connected with said parallelogram and means for adjusting said parallelogram to vary the point of cut-off, substantially as and for the purposes set forth.

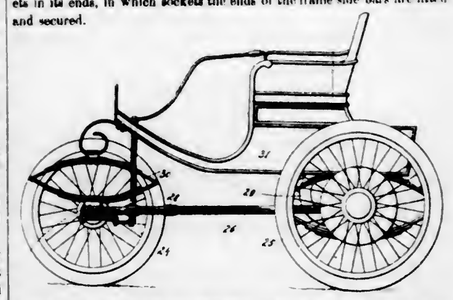
12. In valve-gear for engines the combination with a valve-operating arm, of a latch-arm pivoted thereto, a cam also pivoted to said valve-operating arm, and formed with a slot which has an offset between two arc-shaped portions each concentric with the pivot connection between said cam and valve-operating arm, and a trip-arm yieldingly connected with said latch-arm and having a crank-pin or projection engaging the slot in the valve-operating arm, substantially as and for the purposes set forth.

13. In valve-gear for engines the combination with valve-operating arms provided with latch-blocks, one of which is movable into and out of range with the other, of a trip-arm yieldingly connected with the movable latch-block and having an unyielding actuating or adjusting connection, substantially as and for the purposes set forth.

680,668. **AUTOMOBILE VEHICLE.** ALDEN E. OSBORN, New York, N. Y. Filed Sept. 6, 1900. Serial No. 29,170. (No model.)

Claim.—1. An automobile vehicle having a long axle, a short axle, a duplex frame comprising upper and lower sections disposed respectively above and below the long axle and fastened thereto, each section being connected in rear of the long axle by curved extensions and connections extending between the upper and lower sections at each side of the vehicle and to which the short axle is fastened.

2. A vehicle having frame side bars, and an axle formed with sockets in its ends, in which sockets the ends of the frame side bars are fitted and secured.



3. In a vehicle, an axle provided with a tapering socket in each end, and frame side bars having tapering ends fitting in the sockets of the axle, and means for securing the ends of the frame in said sockets, substantially as described.

4. A vehicle having a duplex frame formed of upper and lower sections, each section having its bars connected in rear of the rear axle, connections extending between the front ends of the sections at each side of the frame, and an axle fastened rigidly to the connections and forming a part of the frame.

5. A vehicle, a support, an arm or extension projecting from the support and formed with a slot or recess therein, a spring-holder having a stud fitting in the slot or recess, and means for securing said stud in the said recess or slot.

6. A vehicle having a frame, a stationary axle fastened thereto and having an arm or extension projected beyond the frame, and a spring-holder carried on the arm or extension.

7. In a vehicle, means for removably joining two parts thereof, comprising a bar having one end connected to one part and having near its other end a member formed with wedge-shaped or diagonal ears, a guideway fastened to the other part and receiving the said ears, and means for forcing and holding the ears into the guideway.

8. A vehicle having a bar serving removably to carry a seat or other part, the bar having an enlargement, two socket-pieces fastened to the vehicle and into which the bar is extended, the enlargement bearing into one socket-piece, and means at the other socket-piece for holding the bar engaged therewith.

9. In a vehicle, the combination with the front and rear seats, of bars having one end secured to the front seat, and provided near their other ends with wedge-shaped ears, socket-pieces on the rear seat and with which the ends of the bars engage, diagonal guideways also on the rear seat and with which the said ears engage, and nuts on the ends of the bars, substantially as described.

10. In a vehicle, the combination of a frame, a short axle having at its ends means for fixedly securing it to the frame, a shell, a pin passing through the shell and axle at the center of length thereof, ball-bearings between the shell and axle, a wheel having its hub mounted on the shell, and ball-bearings between the shell and hub, substantially as described.

11. In a vehicle, the combination with an axle adapted to have its ends fixedly secured to a frame, and provided with a cavity at the center of length, a stub-shaft mounted to turn in the cavity of the axle, a shell, a pin passing through the shell and stub-shaft, and a wheel having its hub mounted on the shell, substantially as described.

12. In a vehicle, the combination with frame-bars, of an axle provided at its ends with sockets in which the ends of the frame-bars are secured, a shell mounted on the axle to oscillate on a transverse axis, and a wheel having its hub mounted on the shell, substantially as described.

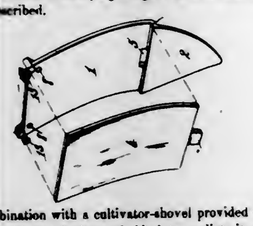
13. In a vehicle, the combination of an axle provided with an arm having a keyhole-slot, a spring-holder, provided with a projection fitting in said slot, and means for locking the projection in the slot, substantially as described.

14. In a vehicle, the combination with a long axle having a wheel at each end, frame-bars having one end secured to the said axle and converging toward each other at their other ends, a short axle having sockets at its ends in which the ends of the said converging bars are secured, a shell mounted to turn on an axis transverse to the axle, and a wheel having its hub mounted on the shell, substantially as described.

680,669. **CULTIVATOR-SHOVEL.** WILLIAM R. OYLER, Akron, Ohio, assignor to the Oyler Plow Company, same place. Filed Dec. 5, 1900. Serial No. 38,808. (No model.)

Claim.—1. The combination with a cultivator-shovel provided with

a transverse shoulder or rabbet on its forward side intermediate its body portion and point, said shoulder or rabbet being provided with a slot, of a glass front or face shaped to conform to the configuration of the body of the shovel and provided at its lower edge with a depending tongue fitted in said slot, and means for clasping the glass front or face to the shovel, substantially as described.

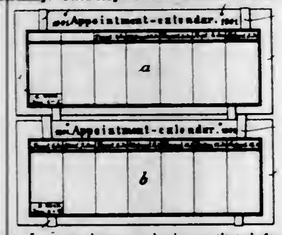


2. The combination with a cultivator-shovel provided with a transverse shoulder or rabbet on its forward side intermediate its body portion and point, said shoulder or rabbet being provided with a slot, of a glass front or face shaped to conform to the configuration of the body of the shovel and provided at its lower edge with a depending tongue fitted in said slot, and clips adjustably attached to the rear side of the upper corners of the body of the shovel and each provided with claws arranged to clasp the upper and side edges of the glass front or face, substantially as described.

3. The combination with a cultivator-shovel provided with a transverse shoulder or rabbet on its forward side intermediate its body portion and point, said shoulder or rabbet being provided with a slot, of a glass front or face shaped to conform to the configuration of the body of the shovel and provided at its lower edge with a depending tongue fitted in said slot, clips arranged at the upper corners of the body of the shovel and each comprising a flat plate seated against the rear side of the shovel and provided with an elongated slot and provided at its end with upwardly-bent claws terminating in overhanging flanges arranged to grip the top and side edges of the glass front or face, headed bolts seated flush in countersunk bolt-holes in the shovel and projecting through the slots in the clips, and nuts screwed over the rear ends of the bolts, substantially as shown and described.

4. A cultivator-shovel consisting of a metallic body portion and point, said shovel being bent intermediate its body portion and point to form a transverse shoulder or rabbet, and said shoulder or offset being provided with a slot, in combination with a glass front or face shaped to conform and fitted to the face of the body of the shovel and resting at its lower edge against said shoulder or rabbet and provided with a depending toogue fitted in said slot, and means for clasping the upper end of said front or face to the shovel, substantially as described.

680,670. APPOINTMENT-CALENDAR. EMIL F. RÖNNEBERG, Leipsic, Germany. Filed May 23, 1901. Serial No. 61,596. (No model.)

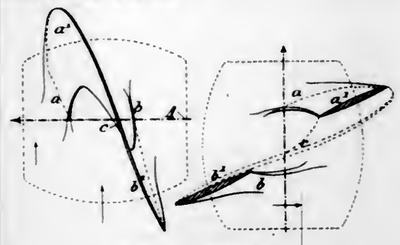


Claim.—1. In an appointment-calendar constituted of two parts, two blocks or pads of sheets affixed to said parts, said sheets being marked out in equal spaces of time, which alternate on the respective blocks or pads, and means for connecting the respective parts together, so that their position may be reversed, substantially as described.

2. In an appointment-calendar constituted of two parts, two blocks or pads of sheets affixed to said parts, said sheets being marked out in equal spaces of time, which alternate on the respective blocks or pads, and means for connecting the respective parts together consisting of bands slung around the respective parts, said bands being secured to the faces of the said parts, substantially as described.

680,671. SCREW-PROPELLER. FRANCIS W. BREWSTER, London, England, assignor to the Myers' Screw Propeller Syndicate, Limited, Manchester, England. Filed May 2, 1901. Serial No. 58,446. (No model.)

Claim.—In screw-propellers for navigable vessels, a propeller-blade made in the form of a severed loop having its leading and following loop-limbs set and attached to the propeller-boss in helical continuity, the leading limb being set and connected to the boss in advance, relatively to the line of the propeller-shaft, of the following limb so that such loop-limbs will rotate and pass through the water in parallel planes without the one blanketing the other, as set forth.



680,672. KNIT MITTEN. WILLIAM W. BURSON, Chicago, Ill., assignor to himself, Ralph Emerson, and William A. Talcott, same place. Filed Sept. 27, 1880. Serial No. 17,952. (No specimens.)



Claim.—1. The improved method of widening in knitting tubular fabric on a machine having two parallel rows of needles, which consists in throwing an additional needle into action and forming a widening stitch-loop thereon at the end of one of the rows of stitches, catching the thread between such new loop and the last previous stitch in the same row by a needle in the opposite row to form a supplemental loop, and knitting such widening stitch-loop and supplemental loop in a succeeding course, substantially as described.

2. The improved method of narrowing in knitting tubular work on a machine having two parallel rows of needles, which consists in throwing out of action a needle bearing an end loop or stitch, causing the thread to knit back and forth around the fabric tubularwise without knitting such stitch, dropping such stitch from the needle on a succeeding course, and subsequently catching up such stitch by hand, substantially as set forth.

3. The improved method of giving an elastic top finish to the fabric in knitting plain tubular work on a machine having two rows of needles, which consists in knitting a portion of the fabric plain with all the needles in regular order, and then knitting another portion of the fabric of elastic ribbed work continuous therewith, by knitting the needles in sections or sets, leaving intermediate sections unknit for one or more rounds, and then knitting the remaining sections in the same way, omitting those knit before, substantially as described.

4. The improved method of knitting a mitten, which consists in setting up stitches on two rows of needles for the tip end of the hand part, knitting around tubularwise, widening as required by knitting an additional needle at the end of one of the rows, and each time of widening catching the thread by a needle in the opposite row between such added needle and the one next preceding it in the same row, stopping work on the hand part after the latter has been knitted to the base of the thumb, setting up and knitting a thumb on adjacent needles in the same rows of needles, then uniting the hand and thumb parts by knitting around both thereof tubularwise, then knitting the wrist, narrowing the same by leaving end stitches idle and unknit while knitting around the remainder, afterward dropping such idle stitches from their needles, and closing them by hand, substantially as set forth.

5. The improved method of knitting a mitten, which consists in setting up stitches on two rows of needles for the tip end of the hand part, knitting around tubularwise, widening as required by knitting an additional needle at the end of one of the rows, and each time of widening catching the thread by a needle in the opposite row between such added needle and the one next preceding it in the same row, stopping work on the hand part after the latter has been knitted to the base of the thumb, setting up and knitting a thumb on adjacent needles in the same rows of needles, then uniting the hand and thumb parts by knitting around both thereof tubularwise, then knitting the wrist, narrowing the same by leaving end

stitches idle and unknit while knitting around the remainder, afterward dropping such idle stitches from their needles, and closing them by hand, and then knitting the top of the wrist tubular with elastic ribs which are continuous with the remainder of the wrist on the same needles by knitting on alternate sections of said needles in successive rounds, substantially as set forth.

6. The improved knit mitten formed with a widened tip on its hand portion, a narrowed wrist portion, and an elastic top finish continuous with the latter and formed of elastic ribs consisting of sections pertaining to one course and alternating with sections pertaining to a succeeding course, substantially as described.

7. A widened seamless knit fabric having the eyelet-hole at each widening closed by means of a loop caught up from the course in which the widening-loop is formed between the widening-stitch and the next preceding stitch and knit in a subsequent course, substantially as described.

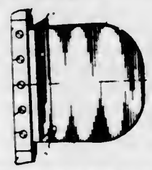
8. A narrowed seamless knit fabric having the narrowings produced by dropped stitches, with one or more courses intervening between successive narrowings, and with the said dropped stitches hand-caught, substantially as described.

9. The improved mitten having a seamless tip and widened hand portion, a seamless-shaped thumb part, a narrowed upper hand portion, and an elastic wrist portion continuous with an adjoining portion of plain fabric and consisting of separated sections of loops knit in one course and alternating sections of loops knit in another course, substantially as described.

10. The improved seamless machine-knit mitten, having the opposite sides of its hand portion united at the tip thereof by a starting course, widenings along the edge of the hand having the eyelet-holes closed by means of a loop drawn up next adjacent the widening-loop at each place of widening, a seamless thumb knit to the said hand portion, and the upper part of the hand narrowed by dropped stitches and having the said dropped stitches hand-caught, substantially as described.

11. The improved seamless machine-knit mitten, having the opposite sides of its hand portion united at the tip thereof by a starting course, widenings along the edge of the hand having the eyelet-holes closed by means of a loop drawn up next adjacent the widening-loop at each place of widening, a seamless thumb knit to the said hand portion, and the upper part of the hand narrowed by dropped stitches and having the said dropped stitches hand-caught, and an elastic wrist portion composed of alternating sections of loops forming portions of successive courses, substantially as described.

680,673. BLIND FOR THE EYES OF ANIMALS. ERNST DIEDRICH, Hamburg, Germany. Filed Mar. 23, 1900. Renewed May 17, 1901. Serial No. 60,756. (No model.)



Claim.—1. The combination in blinds for the eyes of animals, of a large blind of transparent material and a small blind of opaque material standing angularly at the rear of the large blind, substantially as set forth.

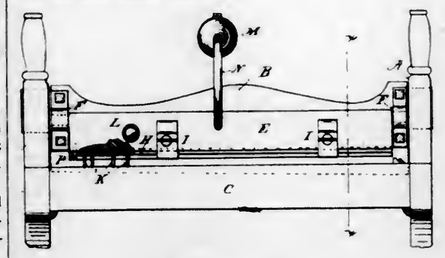
2. The combination in interchangeable blinkers for the eyes of animals, of a large blinker of transparent material, a small blinker of opaque material standing angularly at the rear of the large blinker and of means for securing these blinkers interchangeably to the cheek-straps of the horse's bridle, substantially as set forth.

680,674. PRICKING-MACHINE. JULIUS FRANCK, St. Louis, Mo. Filed Mar. 12, 1900. Serial No. 8,273. (No model.)

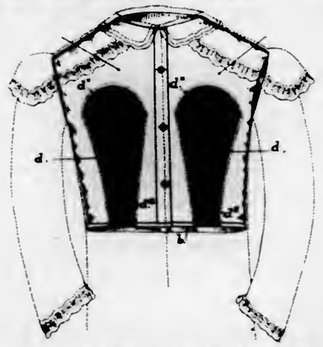
Claim.—1. The combination with a shear or other machine having a vertically-movable head and opposing bed, of a swing-bar mounted on said head, a perforated strip secured to said bar, prick-pins variably mounted in said strip, means to hold said pins opposite said bed, and means to swing said bar upward automatically to direct said pins away from the bed.

2. The combination with a shear or other machine having a vertically-movable head, and opposing bed having grooves or depressions, of a rotatable bar mounted in bearings on said head, pins carried on one face of said bar, a handle to hold the bar and pins downward to operative position, and a weight to throw them out of said position when the handle is released.

3. The combination with a vertically-movable head and opposing bed, of a swing-bar mounted on said head, having a slotted hook in its outer face, clamps opposite said hook, a perforated strip held by said hook and clamps, prick-pins loosely mounted in said strip, having their heads secured in a middle groove in said bar, and means to secure said bar in upper and lower position respectively.



680,675. WAIST-LINING. JESSE NEWBAUER, San Francisco, Cal. Filed June 5, 1900. Serial No. 19,177. (No model.)



Claim.—A waist-lining for ladies' wear consisting of the back, sides, and front sections of inelastic material meeting over the shoulders and under the armpits; and the inserted sections of elastic material in the front, said elastic sections having enlarged upper portions of curvilinear outline circumscribing the breasts with their greatest horizontal diameters opposite the armpits, and contracted lower portions continuing downwardly from the breast to the bottom of the waist.

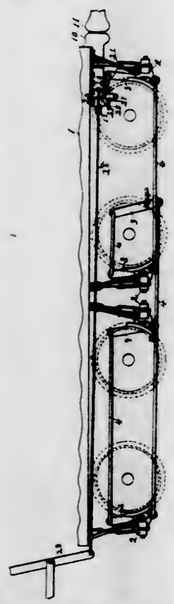
680,676. COUPLING-BRAKE. JOHN T. SMITH, Pierce City, Mo. Filed Aug. 26, 1899. Renewed Dec. 28, 1900. Serial No. 41,416. (No model.)

Claim.—1. A coupling-brake consisting of the combination with the brake mechanism of a draw-head, secured to the body of the tender, having a cross-head near its open end, a coupling-hook rod extending through said draw-head, a coupling-hook mounted on said rod, a collar mounted on said rod within said draw-head, a power-spring arranged on said rod between said collar and said cross-head, and a link connecting said collar with the brake mechanism, substantially as set forth.

2. A coupling-brake consisting of the combination with the brake mechanism of a draw-head, secured to the body of the tender, and having a cross-head near its open end, a coupling-hook rod extending through said draw-head, a coupling-hook mounted on said rod, a collar mounted on said rod and secured thereon by a key passing through said rod, a depending perforated lug on said collar, a link connecting said lug with the brake mechanism, and the power-spring arranged on said rod, between said collar and said cross-head, whereby the pull and slack of the train on the coupling will operate the release, and apply the brakes, substantially as set forth.

3. In a coupling-brake the combination with a draw-head secured to the body of the car, and leaving the cross-head near its open end, a coupling-hook rod mounted in said draw-head, a coupling-hook mounted on said rod, a collar mounted on said rod in the draw-head, a power-spring arranged on said rod between said collar, and said cross-head, a sleeve on said collar provided with a depending perforated lug, a link connected with said lug, a rock-shaft provided with a crank-arm mounted on the draw-head, a bar secured upon said rock-shaft connecting with

said link, and a rod connected with said crank-arm, and with a lever in the engine-cab, substantially as and for the purpose set forth.



4. In a coupling-brake the combination with the brake mechanism, a draw-head, having a cross-head near its open end, a coupling-hook rod extending through and arranged to slide longitudinally in said draw-head, and a coupling-hook mounted on said rod; of a collar fixedly mounted on said rod within the draw-head, a power-spring arranged upon said rod, between said collar and said cross-head, and a link connecting said collar with the brake mechanism, substantially as set forth.

5. In a coupling-brake the combination with the brake mechanism, the draw-head, the coupling-hook rod extending through, and arranged to slide longitudinally in the draw-head, and a coupling-hook mounted on said rod, of a collar fixedly mounted on said rod, a sleeve on said collar provided with a depending perforated lug, a rock-shaft mounted on said draw-head, a toggle connected with said shaft and with said lug, and a link connecting said collar with the brake mechanism; substantially as and for the purpose set forth.

6. A coupling-brake consisting of the combination with the brake mechanism, and a draw-head having a cross-head at its inner end, of a coupling-hook rod provided with coupling-hooks, extending longitudinally under the car, a forward collar mounted on said rod, arranged to bear against the head of the coupling-book, a collar mounted on said rod within the draw-head arranged to bear against said cross-head of the draw-head, an external collar mounted on said rod, connected with said internal rear collar, a power-spring mounted on said rod between said collars within the draw-head, and links connecting said forward collar, and said external rear collar with the brake mechanism, substantially as set forth.

7. A coupling-brake consisting of the combination with the brake mechanism, and a draw-head of a coupling-hook rod, provided with coupling-hooks at its end, arranged to slide longitudinally through the draw-head, a collar mounted on said rod within the draw-head, an external collar mounted on said rod connected with said internal collar, a power-spring mounted within the draw-head, having a fixed bearing at its forward end, and arranged to be compressed by said internal collar upon a pull upon the coupling, and a link connecting said external collar with the brake mechanism, substantially as set forth.

8. In a coupling-brake the combination with the draw-head, and the coupling-hook rod, arranged to slide longitudinally through said draw-head, and provided with coupling-hooks at its ends, a collar mounted on said rod within the draw-head, a collar mounted on said rod to the rear of the draw-head, connected by a sleeve with said internal collar, and ring fixedly mounted on said rod, and arranged to bear against said external collar upon a pull upon said coupling-rod, substantially as set forth.

9. The combination with the brake mechanism and a car-coupling consisting of a coupling-rod extending the length of the car, and provided with coupling-hooks on its ends, of a sleeve loosely mounted on said rod, and provided with collars at its ends, a link connecting one of said collars with the brake mechanism, a power-spring mounted on said coupling-rod and arranged to bear against one of said collars to control and operate the brakes; and a ring fixedly mounted on said rod, cooperating with said collars and sleeves, substantially as set forth.

10. The combination with the brake mechanism and a car-coupling, consisting of a coupling-rod extending the length of the car, and provided with coupling-hooks at its end, of a collar loosely mounted on said rod, adjacent to the coupling-hook head, and a link connecting said collar with the brake mechanism, and a power-spring mounted on said coupling-rod and arranged to bear against said collar to control and operate the brakes; substantially as and for the purpose set forth.

11. The combination with the draw-heads of a railroad-car, and a car-coupling consisting of a coupling-rod, extending the length of the car, provided with coupling-hooks at its ends, and arranged to slide longitudinally through the draw-heads, of a collar loosely mounted on said rod, adjacent to the coupling-hook heads, a brake-link connected with said collar, a collar loosely mounted on said rod within the draw-head, at its rear end, an external collar on said rod, connected with said internal collar, a ring fixed on said rod adjacent to said external collar, a brake-link connected with said external collar, and a power-spring arranged on said rod, between said internal collars, substantially as and for the purpose set forth.

12. In a coupling-brake, the combination with a draw-head, a coupling-rod provided with coupling-hooks at its end, a collar loosely mounted on said rod, within the inner end of the draw-head, a sleeve on said collar extending beyond the draw-head, a fixed stop on said rod to limit the movement of said sleeve thereon, a brake-link connected with said sleeve, a collar loosely mounted on said rod, adjacent to, the coupling-hook head, and provided with a depending perforated lug, an underhanging step on said lug, brake-link connected with said collar, and a power-spring arranged on said rod between said collars, of a ring on said rod adjacent to said rear inner collar, a forwardly-extending hook, on said ring, a rocking lever mounted in said perforated lug, and in a hanging bracket at the side of the car, a bell-crank on said rocking lever, arranged to be seated on said step, a hook on said bell-crank, arranged to be engaged by said rear hook, when the power-spring is compressed, a tension-spring on said lever to retain said bell-crank on said shelf and an arm on said lever for operating the same, substantially as set forth.

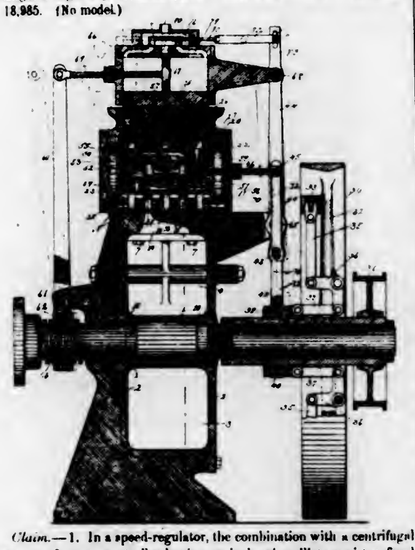
13. In a coupling-brake the combination with a coupling-rod, provided with a coupling-hook at its end, and a power-spring arranged upon said rod, of a collar on said rod at one end of said spring provided with a depending perforated lug, an underhanging step on said lug, a rocking lever mounted at one end in said lug and at its other end in a hanging bracket at the side of the car, a bell-crank on said lever, provided with a hook, and arranged to be seated on said step, a tension-spring on said lever to retain said bell-crank in its seat, means for operating said lever, a ring on said rod at the other end of the spring, and a forwardly-extending hook on said ring, arranged to engage said bell-crank hook to lock said spring under compression, substantially as set forth.

14. In a coupling-brake a coupling-rod extending under the car, and provided with a coupling-hook at its end, a collar on said rod provided with a depending perforated lug, an underhanging step on said lug, a rocking lever mounted at one end in said lug, and at its other end in a hanging bracket at the side of the car, a bell-crank on said lever, provided with a hook, and arranged to be seated on said step, a tension-spring on said lever to retain said bell-crank on its seat, and means for operating said lever, in combination with the brake mechanism, a link connecting said collar with the brake mechanism, and a power-spring mounted on said coupling-rod and bearing against said collar for controlling and operating the brakes; substantially as set forth.

15. In a coupling-brake the combination with the brake mechanism, the draw-head of a coupling-rod provided with a coupling-hook at its end, arranged to operate in the draw-head, of collars loosely mounted on said rod connected each independently with the brake mechanism, a power-spring mounted on said rod between said collars, and arranged to be compressed between the same, and by its expansion to set the brakes, and a ring fixedly mounted on said coupling-rod and arranged to operate one of said collars to compress the spring in one direction; substantially as set forth.

16. In a coupling-brake the combination with the brake mechanism, the draw-head, and a coupling-rod, provided with a coupling-hook on its end, arranged to operate in the draw-head, of a collar on said rod, a link connecting said collar with the brake mechanism, a power-spring on said rod, bearing against said collar, and arranged by its expansion to set the brakes, and a hand brake-lever pivotally mounted on the under side of the car, connected with said link, and with hand brake mechanism, to compress the spring, and release the brake, substantially as set forth.

680,677. SPEED-REGULATOR. JOHN STURGESS, Troy, N. Y., assignor, by direct and mesne assignments, to the Sturgess Governor Engineering Company, same place. Filed June 4, 1900. Serial No. 18,985. (No model.)



Claim.—1. In a speed-regulator, the combination with a centrifugal governor; of a gate-controller having an inclosed oscillatory piston fixed upon a rock-shaft; means for connecting such rock-shaft with the supply-gate, or the like, means for providing fluid-pressure; a relatively large valve for distributing the fluid-pressure to the gate-controller; and a relatively small valve, operated by the centrifugal governor, for actuating the larger valve, substantially as described.

2. In a speed-regulator, the combination with a piston-inclosure provided with an inner cylindrical surface; a rock-shaft projected through one end of the inclosure with its axial line coincident with the axial line of the cylindrical surface; a rock-lever piston, consisting of a piston-blade radially secured to the shaft and oscillatory in the inclosure; a stationary partition radial to the shaft which together with the radial piston divides the interior of the inclosure into two chambers each having an opening for receiving and discharging fluid; and means for operatively connecting the shaft with a supply-gate, or the like; of a fluid-pressure-supply pipe; valve mechanism with ports and connections between such supply-pipe and the chamber-openings, whereby fluid under pressure may be admitted alternately on opposite sides of the leaf-piston to rock the shaft; a centrifugal governor; and operating connections between the valve mechanism and governor, substantially as described.

3. A speed-regulator for water-wheels, and the like, consisting of a gate-controller adapted to be operated by fluid-pressure; a relatively large valve for admitting fluid under pressure to said controller; a relatively small valve contained within and supported by the larger valve and arranged to cause the fluid-pressure to communicate to the larger valve movements identical with those of the smaller valve; a centrifugal governor and actuating connections between such governor and such small valve, substantially as described.

4. In a speed-regulator, the combination with a centrifugal governor; of a controller for water-wheel gates, and the like, operated by fluid under pressure; a valve inclosure having an inlet for fluid-pressure and exhaust and distributing ports leading from and to the controller; a relatively large piston-valve, movable in such inclosure for controlling such ports and having an inner pressure-chamber open to the fluid-pressure and fluid-passages leading from the inner pressure-chamber to the ends of the valve inclosure respectively; and a relatively small piston-valve within the larger valve operated by the centrifugal governor for controlling the fluid-passages leading from the inner pressure-chamber to the ends of the inclosure of the large valve, whereby the fluid-pressure forces the larger to follow the movements of the smaller valve, substantially as described.

5. In a speed-regulator, the combination with a centrifugal governor; a controller for water-wheel gates, and the like, operated by fluid under pressure; a valve for distributing such pressure to the gate-controller; and a valve-actuating and governor-actuated lever having a shiftable fulcrum; of a controller-actuated cut-off mechanism for closing the distributing-valve independently of the movements of the governor, whereby the movement of the gate-controller serves to close the distributing-valve before the speed of the governor is appreciably affected, substantially as described.

6. In a speed-regulator, the combination with a centrifugal governor; a controller for water-wheel gates, and the like, operated by fluid under pressure; a valve for distributing such pressure to the gate-controller; and a valve-actuating and governor-actuated lever having a shiftable fulcrum; of controller-actuated cut-off and returning mechanisms for inclosing the distributing-valve and returning the valve-lever and shiftable fulcrum to their normal positions, consisting of a contractible and expansible connection between such lever and the gate-controller; and means for expanding and contracting such connection, substantially as described.

7. In a speed-regulator, the combination with a centrifugal governor; a controller for water-wheel gates, and the like, operated by fluid under pressure; a valve for distributing such pressure to the gate-controller; valve-operating mechanism and a connection between said mechanism and the governor; of controller-actuated mechanism; connections between said controller-actuated and valve-operating mechanisms having an expansible and contractible link; means for expanding and contracting said link by fluid-pressure; a controlling-valve for said fluid-pressure and mechanism whereby said valve is opened by the movement of the controller-actuated mechanism and closed by the expansion or contraction of the link, substantially as described.

8. In a speed-regulator, the combination with a centrifugal governor, a controller for water-wheel gates and the like, operated by fluid under pressure; a valve for distributing such pressure to the gate-controller; of connections between the governor and valve; connections between the controller and valve comprising in part a piston and cylinder, pivotally secured, one to the remaining part of the connections on the controller side and the other to that on the valve side; means for supplying fluid-pressure to such cylinder; a cut-off valve for regulating the pressure in such cylinder; a link connecting such cut-off valve with some part of the connection on the valve side of the piston and cylinder which has a rate of travel differing from that of the pivotal connection between that part and the piston and cylinder, substantially as described.

9. In a speed-regulator, the combination with a centrifugal governor, a controller for water-wheel gates, and the like, operated by fluid under pressure; and a valve for distributing such pressure to the gate-controller; of a reciprocal fulcrum-lever; and pivotal connections between the lever and the governor, controller and valve, respectively, substantially as described.

10. In a speed-regulator, the combination with a centrifugal governor, a controller for water-wheel gates, and the like, operated by fluid under pressure; and a valve for distributing such pressure to the gate-controller; of a triple fulcrum-lever; an expansible and contractible connection between the lever and controller; means for expanding and contracting such connection; and pivotal connections between the lever and the governor and valve, respectively, substantially as described.

11. In a speed-regulator, the combination with a centrifugal governor, a controller for water-wheel gates, and the like, operated by fluid under pressure; a valve for distributing such pressure to the gate-controller; connections between the valve and governor for opening the valve; connections between the valve and controller for closing the valve independently of the position of the governor and retaining the valve in a closed position during the movements of the governor in resuming its normal position having an expansible and contractible link comprising a fluid-filled cylinder and piston and means for positively operating the piston by fluid under pressure, substantially as described.

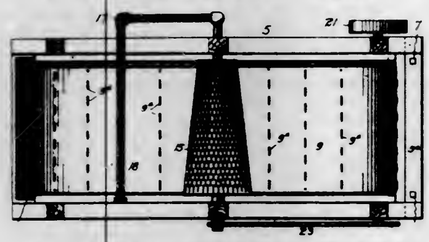
12. In a speed-regulator, and in combination a centrifugal governor; a gate-controller operated by fluid under pressure; a valve for distributing the pressure to the controller; connections between the governor and gate for opening the valve; and connections between the controller and gate for closing the valve, having a contractible and expansible link consisting of a fluid-filled cylinder and a piston operated in such cylinder by fluid under pressure, a cut-off valve for distributing the fluid-pressure to the piston, and means for operating the cut-off valve at a varying rate of speed, substantially as described.

13. In a speed-regulator, the combination with a centrifugal governor; a controller for water-wheel gates, and the like, operated by fluid under pressure and having an inclosed oscillatory leaf-piston radially fixed upon a rock-shaft which together with a stationary partition radial to the shaft divides the interior of the piston-inclosure into two chambers, each having an opening for receiving and discharging fluid under pressure; means for operatively connecting the shaft with a supply-gate or the like; a relatively large valve for distributing the fluid-pressure to the piston; a relatively small valve contained within and supported by the larger valve for distributing fluid-pressure to the larger valve; a lever connected with the governor to be actuated thereby and connected with the smaller valve to actuate both valves; a cut-off lever connected with the valve; another lever having an actuating connection with the gate-

controller; an expansible and contractible connection between the controller-actuated lever and the cut-off lever; and means for expanding and contracting such connection at a varying rate of speed, substantially as described.

14. In a speed-regulator, the combination with mechanism for controlling the supply to a fluid-operated motor, and means for causing movement of said motor at abnormal speed to induce action of said mechanism; of an expansible and contractible link, for inducing inaction of said mechanism, comprising a fluid-filled cylinder, piston and rod, movable as a rigid element in response to the movement of said mechanism and expansible or contractible during the return of the motor to normal speed; and means for positively expanding and contracting said link by fluid under pressure, substantially as described.

680,678. **CONCENTRATOR.** GEORGE W. THORNBURGH, Denver, Colo. Filed Dec. 27, 1900. Serial No. 41,257. (No model.)



Claim.—1. The combination with a suitable frame, of an endless concentrating belt or apron mounted to travel thereon, and provided with broken, transverse riffles, formed by passing a device substantially of the construction described, back and forth through the apron.

2. The combination with a suitable frame, of an endless concentrating belt or apron mounted upon the frame and provided with broken transverse riffles formed by passing a device substantially of the construction described, back and forth through the apron, the sections or parts of any two adjacent riffles being staggered.

3. The combination with a suitable frame, of an endless concentrating belt or apron mounted to travel thereon, and provided with broken transverse riffles formed by passing a cord of suitable size back and forth through the apron.

4. The combination with a suitable frame, of an endless concentrating belt or apron suitably mounted to travel thereon and provided with broken transverse riffles formed by passing a device substantially of the construction described, of any suitable size back and forth through the apron, the parts or sections of the riffles being staggered whereby the parts of one riffle are opposite the spaces between the parts of an adjacent riffle.

5. The combination with a suitable frame, and rollers journaled thereon, of an endless traveling apron mounted on the rollers and provided with broken riffles formed by passing a device, substantially of the construction described, back and forth through the apron, its concentrating-surface being longitudinally inclined, means for adjusting the frame to regulate the inclination of the apron, a water-tank underneath the apron, through which the latter passes, and in which the concentrates are deposited, a stand-pipe for supplying water to the machine, and two perforated branch pipes leading therefrom and extending respectively above and below the apron, as and for the purpose set forth.

6. The combination with an endless traveling concentrating belt or apron provided with broken riffles formed by passing a device substantially of the construction described, back and forth through the apron, and means for supplying wash-water thereto, of a conical, rotary screen located above the apron, extending transversely thereof, and a perforated water-pipe passing axially through the screen which is journaled on said pipe.

REISSUES.

11,926. **STAGE ILLUSION APPARATUS.** MORGAN A. SHERWOOD, Washington, D. C. Filed Jan. 22, 1901. Serial No. 44,233. Original No. 661,426, dated Nov. 6, 1900.

Claim.—1. An apparatus for producing fire and flame illusion, consisting of fixed parts which are illuminated and appear more or less incandescent, flexible and movable parts arranged adjacent and adapted to simulate flame, means for illuminating such parts, and a blast-producing agent, substantially as shown and described.

2. An apparatus for producing fire and flame illusion, consisting of fixed parts representing combustible material, lights arranged therewith for illumination and production of apparent incandescence, flexible streamers arranged behind such fixtures, lamps for illuminating said streamers, and a blast-producing agent, substantially as shown and described.



3. An apparatus for producing fire and flame illusion, consisting of fixed portions representing wooden logs, means for illuminating and producing apparent incandescence of such logs, vertically movable or extensible streamers composed of thin, light flexible material, arranged behind the logs, lamps for illuminating said streamers, and a blast-producing agent, substantially as shown and described.

4. An apparatus for producing fire and flame illusion, consisting of a supporting-frame, a series of imitation fire-logs, and flame-simulating devices, a blast-producing agent, a fireback comprising a suitable rigid backing, a filling including reflecting material having interspersed lamps, and a front through which the filling appears, the said fireback being arranged in front of the logs and constructed as described, a series of red lamps arranged in front of and below the fireback, and one or more smoke-producing devices, located below the fireback, as specified.

5. An apparatus for producing fire and flame illusion, consisting of fixed objects and lights illuminating them so that they have the appearance of combustible material in a state of incandescence, one or more streamers arranged along with said material, a blast-producing agent, and a vertically-movable device or trap for supporting and gradually lowering a person impersonating one being burned, substantially as shown and described.

6. An apparatus for producing fire and flame illusion, consisting of one or more streamers attached to a frame, a blast-producing agent, a vertically-movable trap located behind such streamers, and adapted to descend below them, and means for controlling said trap, to permit its gradual descent, as shown and described.

7. In an apparatus for producing flame illusion, the combination, with a blast-producing agent, of a streamer consisting of thin fabric, a roller on which the streamer is wound, and a support or holder for said roller, substantially as shown and described.

8. A portable apparatus for producing flame illusion, consisting of a hood open on its upper side, a flexible air-pipe connected with the apex of the hood, one or more colored streamers secured to said frame, and a series of red lamps attached to the frame and arranged in rear of said streamers, as shown and described.

9. A portable apparatus for producing flame illusion consisting of a frame, one or more colored streamers, and means for extending and retracting them, one or more colored lamps secured to the frame adjacent to and behind said streamers, a blast-producing agent connected with the frame, and flexible connections between the frame and the blast-operating agent, substantially as shown and described.

10. An apparatus for producing a flame effect, consisting of flame-simulating agencies, a blast-producing agent, a spark-distributer consisting of a rotatable box arranged over the point of blast discharge, and having perforated and imperforate sides, substantially as shown and described.

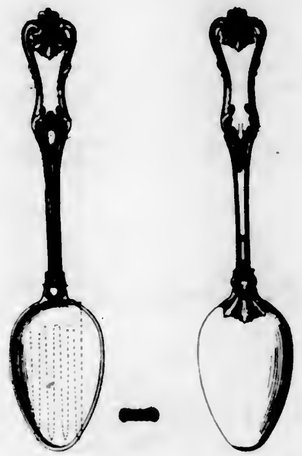
DESIGNS.

84,916. **BADGE OR SIMILAR ARTICLE.** AUGUST J. MESSLER, Buffalo, N. Y. Filed July 2, 1901. Serial No. 66,915. Term of patent 3½ years.



Claim.—The design for a badge or similar article, substantially as shown and described.

84,917. **HANDLE FOR SPOONS OR SIMILAR ARTICLES.** FRANK W. SMITH, Gardner, Mass. Filed June 25, 1901. Serial No. 66,014. Term of patent 14 years.



Claim.—The design for a handle for spoons or similar articles as herein shown and described.

84,918. **CUP.** HAROLD L. WHEELER, Buffalo, N. Y. Filed June 6, 1901. Serial No. 63,480. Term of patent 7 years.



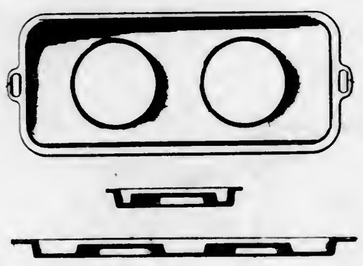
Claim.—The design for a cup, as herein shown and described.

84,919. **MILK-BOTTLE.** CHARLES T. NIGHTINGALE, Chicago, Ill., assignor of one-half to The Empire Bottle & Supply Co., New York, N. Y. Filed May 15, 1901. Serial No. 60,408. Term of patent 7 years.



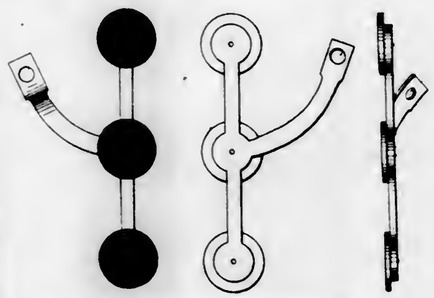
Claim.—The design for a milk-bottle as herein shown and described.

84,920. **TRAY.** CHARLES P. BEISEL, Wilkesbarre, Pa. Filed July 9, 1901. Serial No. 67,677. Term of patent 3½ years.



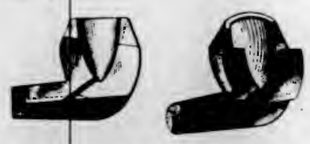
Claim.—The design for a tray, as herein shown and described.

84,921. **NOSE-GUARD FOR EYEGLASSES.** EDMUND A. INSKEEP, Chicago, Ill. Filed July 3, 1901. Serial No. 67,040. Term of patent 7 years.



Claim.—The design for a nose-guard for eyeglasses, as herein shown and described.

34,922. SECTION FOR SEPARABLE TOBACCO-PIPES. THOMAS MORGAN, Buffalo, N. Y. Filed Mar. 12, 1901. Serial No. 50,890. Term of patent 7 years.



Claim.—The design for a section of a separable tobacco-pipe, substantially as herein shown and described.

34,923. COMB. CHARLES F. FILOR, Trenton, N. J. Filed June 19, 1901. Serial No. 65,206. Term of patent 7 years.



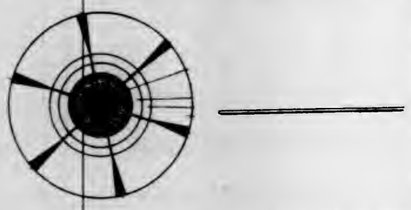
Claim.—The design for a comb, as herein shown and described.

34,924. RULE. EZRA L. ESTES, Shawnee, Okla. Filed May 22, 1901. Serial No. 61,459. Term of patent 14 years.



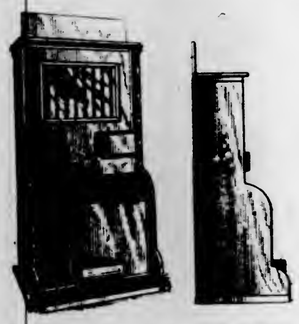
Claim.—The design for a rule, herein shown and described.

34,925. CALENDAR-BASE. GEORGE L. BARRETT, Springfield, Ohio. Filed Nov. 27, 1900. Serial No. 37,932. Term of patent 7 years.



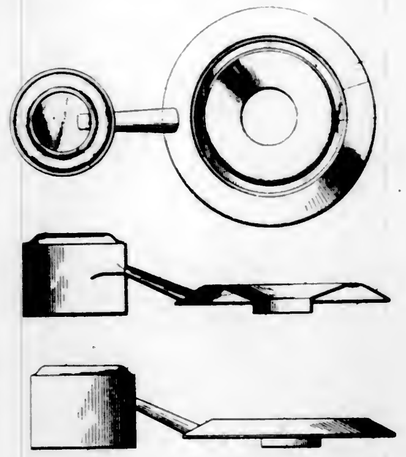
Claim.—The design for a calendar-base, substantially as herein shown and described.

34,926. CASE FOR VENDING-MACHINES. CLEMENT V. FLOYD, Kansas City, Mo. Filed July 8, 1901. Serial No. 67,551. Term of patent 3½ years.



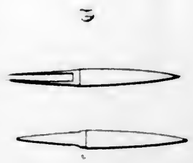
Claim.—The design for a case for a vending-machine, as herein shown and described.

34,927. ANT-TRAP. THOMAS J. WILSON, Stephenville, Tex. Filed July 8, 1901. Serial No. 67,554. Term of patent 7 years.



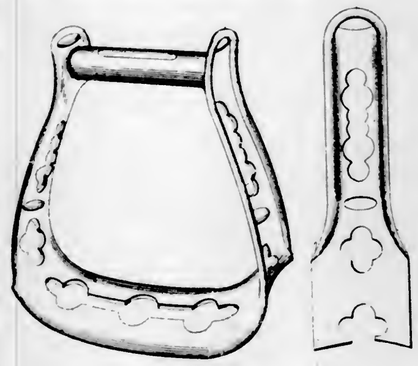
Claim.—The design for an ant-trap as herein shown and described.

34,928. TAILOR'S PICK. LEOPOLD SIMANDY, Colorado Springs, Colo. Filed June 19, 1901. Serial No. 65,208. Term of patent 14 years.



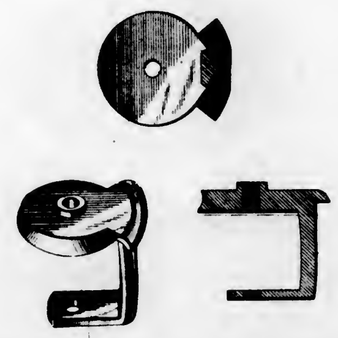
Claim.—The design for a tailor's pick as herein shown and described.

34,929. STIRRUP. PAUL GSCHWEND, Canton, Ohio. Filed July 12, 1901. Serial No. 68,114. Term of patent 14 years.



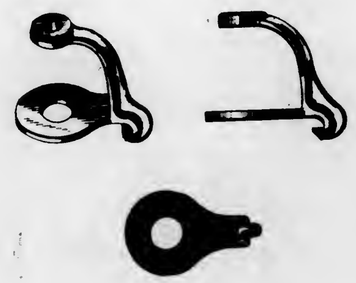
Claim.—The design for a stirrup herein shown and described.

34,930. WHIFFLETREE-CLIP MEMBER. WASHINGTON I. WOLVERTON, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed July 3, 1901. Serial No. 67,041. Term of patent 14 years.



Claim.—The design for whiffletree-clip member substantially as herein shown and described.

34,931. WHIFFLETREE-CLIP MEMBER. WASHINGTON I. WOLVERTON, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed July 3, 1901. Serial No. 67,042. Term of patent 14 years.



Claim.—The design for whiffletree-clip member substantially as herein shown and described.

34,932. PNEUMATIC TIRE. ISAAC S. MCGIEHAN, New York, N. Y. Filed Apr. 9, 1901. Serial No. 55,114. Term of patent 7 years.

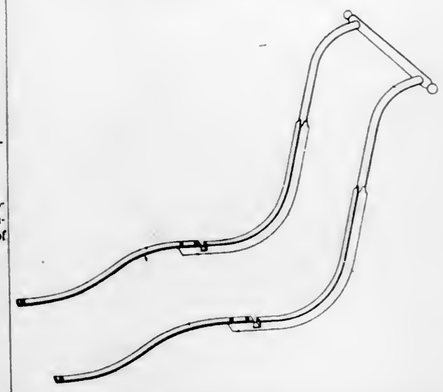


34,932.



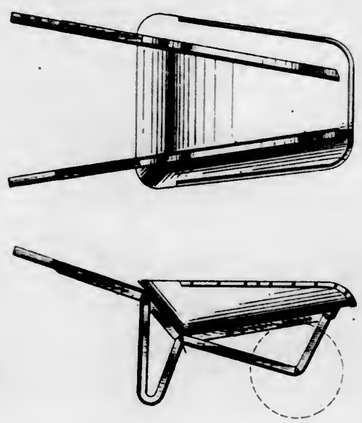
Claim.—The design for a pneumatic tire, as herein shown and described.

34,933. PROPELLING-FRAME FOR CHILDREN'S CARRIAGES. OTTO W. SIEBERT, West Gardner, Mass., assignor to Bay State Metal Wheel Company, East Templeton, Mass. Filed June 17, 1901. Serial No. 64,959. Term of patent 14 years.



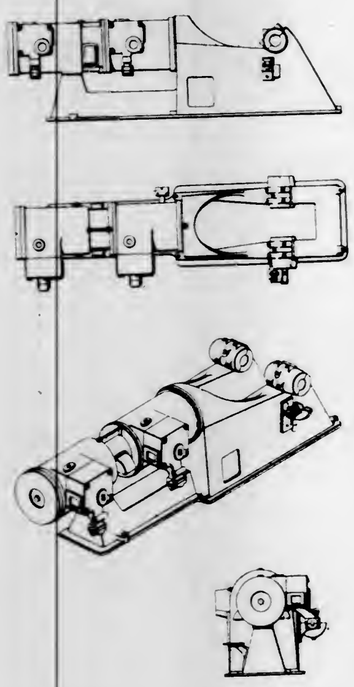
Claim.—The design for a propelling-frame for children's carriages substantially as shown and described.

34,934. WHEELBARROW. FRANK J. COOPER, Toledo, Ohio. Filed July 12, 1901. Serial No. 68,115. Term of patent 7 years.



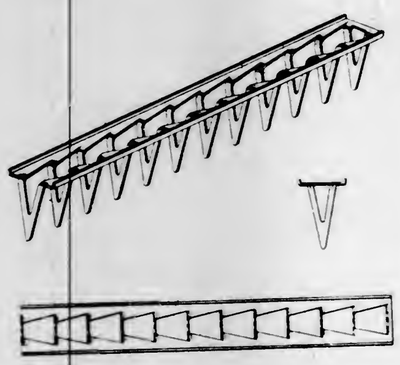
Claim.—The design for a wheelbarrow substantially as herein shown and described.

34,935. GAS-ENGINE FRAME OR CASING. HARRY J. SMITH, Buffalo, N. Y., assignor to the Alberger Company, same place. Filed July 21, 1901. Serial No 66,914. Term of patent 7 years.



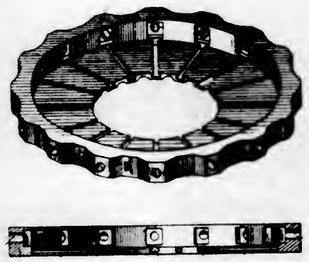
Claim.—The design for a gas-engine frame or casing, substantially as herein shown and described.

34,936. RAKE-HEAD. EDMUND T. PARTYKA, Buffalo, N. Y., assignor of one-half to Charles H. Kellogg, same place. Filed July 8, 1901. Serial No. 67,349. Term of patent 14 years.



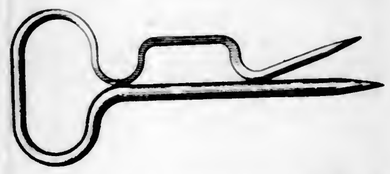
Claim.—The design for a rake-head, substantially as shown and described.

34,937. BED-PLATE FOR TIRE-SETTING MACHINES. HENRY T. HENDERSON, Keokuk, Iowa. Filed July 10, 1901. Serial No. 67,796. Term of patent 7 years.



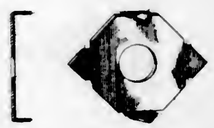
Claim.—The design for a bed-plate for a tire-setting machine as herein shown and described.

34,938. COTTER-PIN. VICTOR HENDERSON, Rosendale, Minn. Filed July 13, 1901. Serial No. 68,270. Term of patent 3½ years.



Claim.—The design for a cotter-pin, substantially as herein shown and described.

34,939. NUT-LOCK WASHER. COLUMBUS W. TAYLOR, Huntington, W. Va. Filed June 3, 1901. Serial No. 63,038. Term of patent 7 years.



Claim.—The design for a nut-lock washer, as herein shown and described.

34,940. ROPE-COUPLING. JAMES L. FRAZIER, Peoria, Ill. Filed June 10, 1901. Serial No. 64,045. Term of patent 14 years.



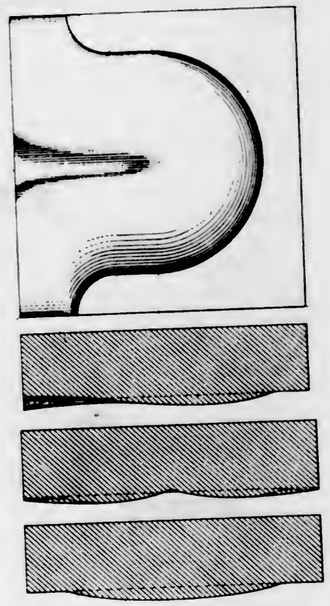
Claim.—The design for a rope-coupling as herein described and shown.

34,941. AX AND SAW-SET. JOSEPH STANFORD, Plumerville, Ark. Filed July 12, 1901. Serial No. 68,113. Term of patent 14 years.



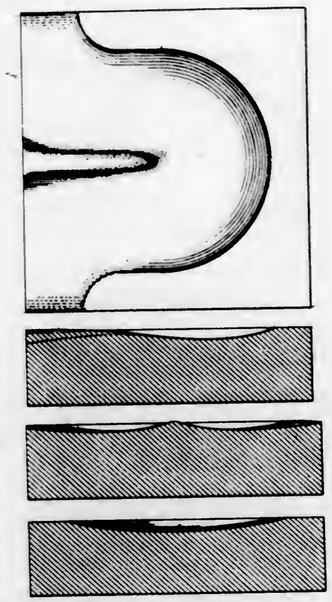
Claim.—The design for an ax and saw-set, as herein shown and described.

34,942. VENEER-PRESSING MEMBER. FRED A. DENNETT, Sheboygan, Wis. Filed Mar. 28, 1901. Serial No. 53,369. Term of patent 14 years.



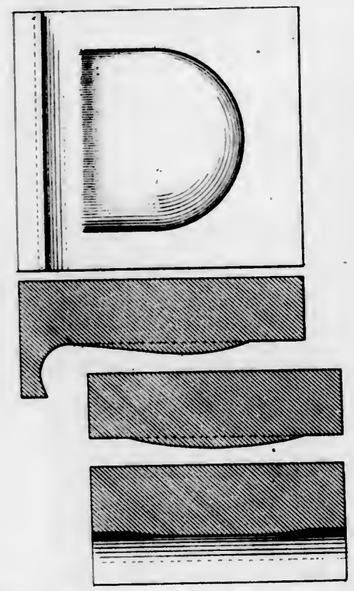
Claim.—The design for a veneer-pressing member, substantially as shown and described.

34,943. VENEER-PRESSING MEMBER. FRED A. DENNETT, Sheboygan, Wis. Filed Mar. 28, 1901. Serial No. 53,370. Term of patent 14 years.



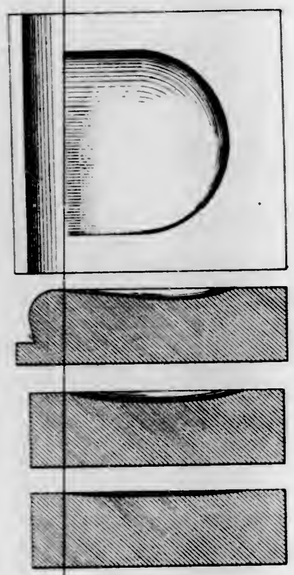
Claim.—The design for a veneer-pressing member, substantially as shown and described.

34,944. VENEER-PRESSING MEMBER. FRED A. DENNETT, Sheboygan, Wis. Filed Mar. 28, 1901. Serial No. 53,371. Term of patent 14 years.



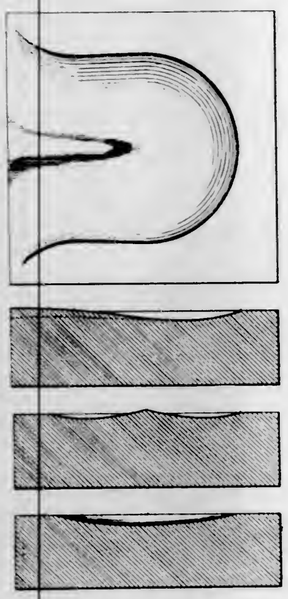
Claim.—The design for a veneer-pressing member, substantially as shown and described.

34,945. VENEER-PRESSING MEMBER. FRED A. DENNETT, Sheboygan, Wis. Filed Mar. 28, 1901. Serial No. 53,372. Term of patent 14 years.



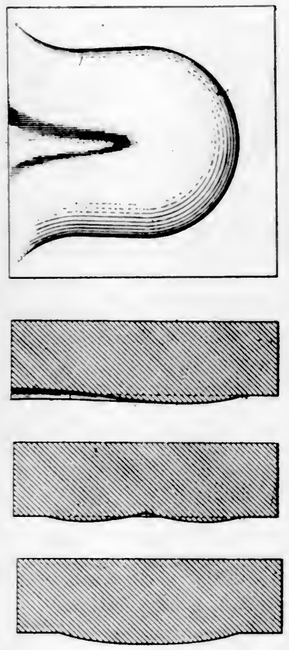
Claim.—The design for a veneer-pressing member, substantially as shown and described.

34,946. VENEER-PRESSING MEMBER. FRED A. DENNETT, Sheboygan, Wis. Filed Mar. 28, 1901. Serial No. 53,373. Term of patent 14 years.



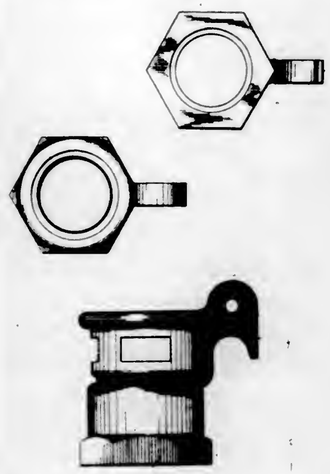
Claim.—The design for a veneer-pressing member substantially as shown and described

34,947. VENEER-PRESSING MEMBER. FRED A. DENNETT, Sheboygan, Wis. Filed Mar. 28, 1901. Serial No. 53,374. Term of patent 14 years.



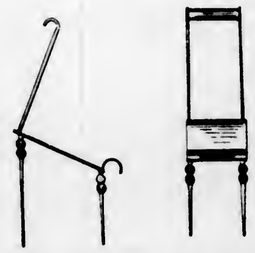
Claim.—The design for a veneer-pressing member substantially as shown and described.

34,948. CASING FOR FLOAT-VALVES. TIMOTHY STERRETT, Davenport, Iowa. Filed Apr. 1, 1901. Serial No. 53,960. Term of patent 14 years.



Claim.—The design for a casing for float-valves, as herein shown and described.

34,949. CHAIR. MARY GUYOT, Chicago, Ill. Filed July 12, 1901. Serial No. 68,117. Term of patent 7 years.



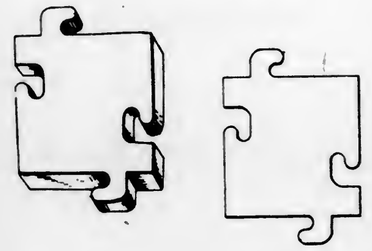
Claim.—The design for a chair, as herein shown and described.

34,950. STOVE. JAPHET S. VAN BUREN, Albany, N. Y. Filed July 3, 1901. Serial No. 67,089. Term of patent 7 years.



Claim.—The design for a stove, as herein shown and described.

34,951. TILE. JOSEPH K. SIEBER, New York, N. Y. Filed June 5, 1901. Serial No. 63,315. Term of patent 14 years.



Claim.—The design for a tile, as herein shown and described.

34,952. KNIT FABRIC. DAVID W. WATSON, Syracuse, N. Y., assignor to Eugene West, same place. Filed July 9, 1901. Serial No. 67,679. Term of patent 7 years.



Claim.—The design for knit fabric substantially as herein described and shown.

TRADE-MARKS

REGISTERED AUGUST 13, 1901.

36,878. BROWN COTTON SHEETINGS. LIVIERATO BROS., New York, N. Y. Filed July 15, 1901.



Essential feature.—The representation of the head of Menelek II, wearing a triple crown above a nubia, the face being bearded and represented in profile. Used since March 17, 1899.

36,879. CERTAIN NAMED GLASS. DURYEA & POTTER, New York, N. Y. Filed June 8, 1901.

ATHOS

Essential feature.—The word "ATHOS." Used since May 1, 1901.

36,880. SILVERWARE AND TABLEWARE. REED & BARTON, Taunton, Mass. Filed July 5, 1901.

Les Cinq Fleurs

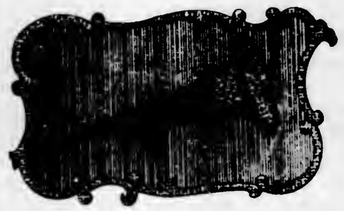
Essential feature.—The words "LES CINQ FLEURS." Used since July 25, 1900.

36,881. GAME-BOARDS. EDGAR F. CARSON, South Bend, Ind. Filed June 15, 1901.

CROLARD

Essential feature.—The word "CROLARD." Used since November, 1898.

36,882. AMPLIFYING-HORNS. ALBERT S. MARTEN, Newark, N. J. Filed May 27, 1901.



Essential feature.—A panel-like field of red bordered by ornamental scrolls of contrasting color and the picture or representation of an amplifying-horn diagonally displayed on said field. Used since January, 1901.

36,883. PASTE, MUCILAGE, GLUE, AND INK. SANFORD MFG. CO., Chicago, Ill. Filed Apr. 1, 1901.

LIBRARY

Essential feature.—The word "LIBRARY." Used since 1890.

36,884. CERTAIN NAMED TOILET POWDERS. SPECIALTY MFG. CO., Philadelphia, Pa. Filed July 3, 1901.

SINE-QUA-NON

Essential feature.—The words "SINE QUA NON." Used since March, 1901.

36,885. PROPRIETARY MEDICINE. FREDERICK F. FANNING, Providence, R. I. Filed June 27, 1901.

UNG. PISAL. CO.

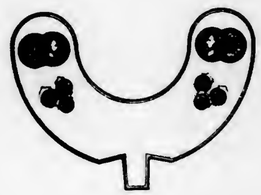
Essential feature.—The words "UNG. PISAL. CO." Used since September 1, 1899.

36,886. MEDICINAL PREPARATIONS FOR INTERNAL USE. LERKEN CHEMICAL COMPANY, Dayton, Ohio. Filed June 10, 1901.

LERKEN

Essential feature.—The word "LERKEN." Used since January 1, 1901.

36,887. CURAÇAO. E. CUSENIER FILS AINÉ & CIE, Paris, Ornans, Charenton and Marseilles, France; Mulhouse, Germany, and Brussels, Belgium. Filed Jan. 26, 1894.



Essential feature.—The representation of certain heraldic devices, each heraldic device consisting of a shield inclosed by a circle and arranged in two sets of three each, each set being in the form of an inverted pyramid and each pyramid being placed on each side of a crescent-shaped figure, and facsimiles of medals which are placed on each side of the said crescent-shaped figure. Used since 1867.

36,888. OLIVES. FRANCIS H. LEGGETT & CO., New York, N. Y. Filed Apr. 25, 1901.

DUHAVAN

Essential feature.—The word "DUHAVEN." Used since March 6, 1901.

36,889. CANNED GOODS. CATTON, BELL & CO., San Francisco, Cal. Filed May 23, 1899.



Essential feature.—The representation of a St. Andrew's cross and the letters "C B CO." Used since February, 1899.

36,890. WHEAT-FLOUR. THE MATTIE MITCHELL CO., Cleveland, Ohio. Filed July 18, 1901.

WHEATOLA

Essential feature.—The word "WHEATOLA." Used since July 1, 1901.

36,891. FOOD FOR STOCK AND OTHER ANIMALS. THE MOLASSINE COMPANY, LD., London, England. Filed July 3, 1901.

MOLASSINE

Essential feature.—The word "MOLASSINE." Used since August 2, 1900.

36,892. WHITE LEAD, SALTPETER, BRIMSTONE ROLL, AND FLOWERS OF SULFUR. BRANDRAM BROTHERS & CO., LD., London, England. Filed June 17, 1901.

B.B

Essential feature.—The letters "B. B." Used since August 13, 1835.

36,893. WOODEN PULLEYS. CHUMP'S MANUFACTURING COMPANY, West Bay City, Mich. Filed July 10, 1901.



Essential feature.—The representation of a maple-leaf. Used since July 1, 1901.

36,894. AXES, ADZES, BUSH-HOOKS, AND MACHETES. THE COLLINS COMPANY, Collinsville, Conn. Filed June 27, 1901.

EBONITE

Essential feature.—The word "EBONITE." Used since June, 1901.

86,895. FILTERS AND FILTRATION SYSTEMS. WILLIAM M. DOHERTY, Newark, N. J. Filed June 26, 1901.

FEDERAL

Essential feature.—The word "FEDERAL." Used since January 1, 1901.

86,896. SHOT-SHELLS AND CARTRIDGES. WINCHESTER REPEATING ARMS CO., New Haven, Conn. Filed Apr. 15, 1901.

AUTOMATIC

Essential feature.—The word "AUTOMATIC." Used since January 1, 1898.

THE NORRIS PETERS CO. PHOTO LITH WASHINGTON D.C.

LABELS

REGISTERED AUGUST 13, 1901.

8,585.—*Title:* "IN A SPHERE OF ITS OWN." (For Pianos.) GEO. P. BENT, Chicago, Ill. Filed July 10, 1901.

8,586.—*Title:* "EGYPTIAN PYRAMID PUZZLE." (For Puzzles.) HERMANN KANTOROWICZ, New York, N. Y. Filed July 18, 1901.

8,587.—*Title:* "THE PROPHYLACTIC TOOTH BRUSH." (For Tooth-Brushes.) FLORENCE MFG. CO., Florence, Mass. Filed July 17, 1901.

8,588.—*Title:* "HAZEL RUM." (For a Toilet Preparation.) RA TOILET CO., Dayton, Ohio. Filed July 20, 1901.

8,589.—*Title:* "ANTISEPTINE." (For an Antiseptic.) JOHN ADOLPH LENTZ, Phœnix, Ariz. Ter. Filed July 20, 1901.

8,590.—*Title:* "SANITAIRE." (For Disinfectants.) CLARK-HUTCHINSON CHEMICAL CO., Cleveland, Ohio. Filed July 20, 1901.

8,591.—*Title:* "WILSON'S ABSORBENT." (For a Liniment.) W. H. WILSON, Hatboro, Pa. Filed July 8, 1901.

8,592.—*Title:* "RYEOLINE." (For a Vegetable-Compound Oil.) WILLIAM BUSCH, Brooklyn, N. Y. Filed July 17, 1901.

8,593.—*Title:* "DANIEL'S PASSIFLORA KOKO-KOLO SYRUP." (For a Syrup.) JOHN B. DANIEL, Atlanta, Ga. Filed June 15, 1901.

8,594.—*Title:* "MOTHER'S." (For Corn-Starch.) WELLINGTON MANUFACTURING CO., Philadelphia, Pa. Filed June 22, 1901.

8,595.—*Title:* "ALPHA." (For Baking-Powder.) WILLIAM G. ARPE, St. Louis, Mo. Filed July 18, 1901.

8,596.—*Title:* "ROYAL PALM BRAND FANCY PINEAPPLES." (For Pineapples.) FLORIDA FANCY PINEAPPLE ASSOCIATION, St. Petersburg, Fla. Filed July 1, 1901.

8,597.—*Title:* "OSCEOLA BRAND FANCY PINEAPPLES." (For Pineapples.) FLORIDA FANCY PINEAPPLE ASSOCIATION, St. Petersburg, Fla. Filed July 1, 1901.

8,598.—*Title:* "NOURISHING STOUT." (For Porter.) FRANK JONES BREWING COMPANY, LIMITED, London, England, and Boston, Mass. Filed January 15, 1901.

8,599.—*Title:* "INDIA PALE ALE." (For Ale.) FRANK JONES BREWING COMPANY, LIMITED, London, England, and Boston Mass. Filed January 15, 1901.

8,600.—*Title:* "HOMESTEAD." (For Ale.) FRANK JONES BREWING COMPANY, LIMITED, London, England, and Boston, Mass. Filed January 15, 1901.

8,601.—*Title:* "I AM A BUFFALO." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed July 22, 1901.

8,602.—*Title:* "LOCKPORT CIGARS." (For Cigars.) SAMUEL LICHTENSTEIN, Chicago, Ill. Filed July 3, 1901.

PRINTS

REGISTERED AUGUST 13, 1901.

384.—*Title:* "FITZU." (For Shoes.) SEITER & KAPPES, New York, N. Y. Filed July 23, 1901.

385.—*Title:* "OLD CHARLOTTE." (For Whisky.) THE HENRY M. RUBEL CO., Cincinnati, Ohio. Filed June 28, 1901.

386.—*Title:* "I. W. HARPER BOURBON." (For Whisky.) BERNHEIM BROS., Louisville, Ky. Filed July 17, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

CAREY *v.* THE NEW HOME SEWING MACHINE COMPANY.

Decided June 11, 1901.

1. TRADE-MARKS—INTERFERENCE IN FACT—"NATIONAL"—"NEW NATIONAL."

Held that there is an interference in fact between the mark "National" and the mark "New National," since the prefix "*New*" would merely convey the idea that it was an improved model or new machine put on the market by the same company.

2. TRADE-MARKS—CLASS OF MERCHANDISE.

Held that the machines sold by the parties belong to "the same class of merchandise" within the meaning of the trade-mark law, although they contain certain specific differences. They are both sewing-machines and belong to the same class of sewing-machines.

APPEAL from Examiner of Trade-Marks.

SEWING-MACHINES.

Application of Ella J. Carey filed December 8, 1900, No. 62,248. Application of The New Home Sewing Machine Company filed February 9, 1892, No. 41,113.

Mr. Clayton E. Emig for Carey.

Mr. Charles F. Dane for The New Home Sewing Machine Company.

ALLEN, *Commissioner:*

This is an appeal by Carey from the decision of the Examiner of Trade-Marks denying her motion to dissolve the above-entitled interference.

The issue is as follows:

The word "National" or the words "New National" for sewing-machines, other than wax-thread sewing-machines, and the accessories pertaining thereto.

The mark of The New Home Sewing Machine Company consists of the word "National," and Carey's consists of the words "New National," both marks being applied to sewing-machines. The motion for dissolution was brought upon the ground that there is no interference in fact.

The appellant calls attention to certain specific differences between the machines sold by the parties; but such differences are immaterial to the question now under consideration. The question is not as to the identity of the machines, but is whether or not they belong to "the same class of merchandise" within the meaning of the trade-mark law. This they undoubtedly do, even admitting the differences referred to, since they are not only both sewing-machines, but belong to the same class of sewing-machines.

The marks themselves are substantially the same, since the prefix "new" used by Carey does not change the essential feature of the mark, which is the word "National." A person familiar with The New Home Sewing Machine Company's "National" machine would probably, upon having his attention called to Carey's "New National" machine, assume that it was an improved model or *new* machine put on the market by The New Home Sewing Machine Company. The marks are therefore so similar "as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers," and therefore both parties are not entitled to registration.

There is an interference in fact, and therefore the decision of the Examiner of Trade-Marks is affirmed.

EX PARTE HAHN.

Decided July 2, 1901.

1. RECONSIDERATION OF APPLICATION—MERE REQUEST INSUFFICIENT.

A mere request for reconsideration without distinctly and specifically pointing out the supposed errors in the Examiner's action is not sufficient to entitle the applicant to such reconsideration.

2. SAME—EXPLANATION BY APPLICANT OF SUPPOSED ERRORS IN EXAMINER'S ACTION.

The requirement that the applicant point out the supposed errors in the Examiner's action before the case is placed in condition for appeal is reasonable and just and is necessary to a proper disposition of the work of the Office.

3. EXAMINATION OF APPLICATION—EXPLANATION BY APPLICANT AND EXAMINER.

The prosecution of a case before the Primary Examiner is not a mere matter of form, but is intended to finally dispose of the case upon its merits, and therefore the efforts of both the applicant and the Examiner should be directed to a thorough understanding of each other's positions.

ON petition.

WOOD-SAWING MACHINES.

Application of Jakob Hahn filed June 27, 1900, No. 21,750.

Mr. B. Singer for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing a request for reconsideration of the above-entitled case.

The record shows that the claim in this case was rejected by the Examiner on August 17, 1900, and on April 15, 1901, the applicant filed a communication saying merely—

Applicant asks for reconsideration of above case.

The Examiner replied that this mere request was not a compliance with Rule 69 and refused to re-

consider the case, and it is from this action that the present petition is taken.

Section 4903 of the Revised Statutes provides that if after a claim has been rejected—

the applicant persists in his claim for a patent with or without altering his specifications, the Commissioner shall order a reexamination of the case.

This statute does not define what may be considered a proper persistence in the claim, and it is because of its general terms that the petitioner argues that a mere request for reconsideration is sufficient to entitle him to the benefits conferred by it. Under the authority of section 483 of the Revised Statutes, however, the Commissioner, with the approval of the Secretary of the Interior, has established Rule 69, which does define what will be considered a proper persistence in a claim, and which provides, among other things, that in order to be entitled to reconsideration the applicant—

* * * must distinctly and specifically point out the supposed errors in the Examiner's action. The mere allegation that the Examiner has erred will not be received as a proper reason for such reconsideration.

This requirement is not inconsistent with the statute and has the force of law. It might with equal propriety be argued that the requirement that the request for reconsideration be in writing is inconsistent with the statute, because it does not contain this specific requirement.

The requirement that the applicant point out the supposed errors in the Examiner's action is reasonable and just and is necessary to a proper disposition of the work of the Office. It is not sufficient, as suggested by the petitioner, that he will point out the errors in the Examiner's action on appeal to the Examiners-in-Chief. The prosecution of a case before the Primary Examiner is not a mere matter of form, but is intended to finally dispose of the case upon its merits when possible. It seems obvious that the only way in which the applicant and the Examiner can properly reach an agreement or come to an issue is by thoroughly understanding each other's positions and that the efforts of both should be directed to that end.

While in some cases by reason of many previous actions the understanding may be so complete that a mere request for reconsideration would be held sufficient to warrant the Examiner in making his action final, such cases are rare, and in most cases such request is insufficient. (*Ex parte Appel*, 84 O. G., 1145; *ex parte Henderson*, 91 O. G., 228.)

An examination of the facts of the present case shows that it is not one in which the mere request for reconsideration is sufficient.

The petition is denied.

EX PARTE BRODERICK.

Decided June 22, 1901.

1. REQUEST FOR RECONSIDERATION—COMPLIANCE WITH RULE 69.
   Where the claim of an application has been rejected by the Examiner and a request is made that the claim be reconsidered as a "matter of form," *Held* that such a request is not a proper compliance with the provisions of Rule 69.
2. SAME—SAME.
   It is necessary that a request for a reconsideration be accompanied with a statement distinctly and specifically pointing out the supposed error in the Examiner's action; otherwise the reëxamination would necessarily be merely a repetition of the first action on the claim.
3. SAME—EXAMINATION OF CLAIMS—NOT A MERE FORMAL PROCEEDING.
   The examination of claims is not a mere formal proceeding, but is essentially an examination into the merits of the case.

ON petition.

COMBINED BLIND AND LOOP.

Application of Thomas Broderick filed June 21, 1899. No. 721,343.

Messrs. H. C. Evert & Co. for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition that an order be issued—

requiring the Examiner to give a reconsideration to the claim now in the case, and in event of a second rejection that he * * * make of record in the case his reasons for rejection in addition to the references of record, and his admissions as to the advancement of the art by applicant's invention.

It appears from the record in this case that after several actions an amendment was filed on March 23, 1900, directing the cancellation of the claims in the case and substituting a claim in lieu thereof.

On April 2, 1901, this claim was rejected on the "references and for the reasons of record."

From the record it appears that the Examiner has in the several previous actions given very fully his reasons for rejecting the claims, and his letter of April 2 therefore complies with the provisions of Rule 65.

On April 11, 1901, the petitioner filed a paper in which the Examiner is requested to make in his final action in this case statements covering six points categorically enumerated. It is then stated that a reconsideration of the claim is requested as a "matter of form."

There is no warrant in the rules or decisions for such a series of requests as embodied in this paper. Under Rule 65 the petitioner is entitled to the reconsideration of a claim under rejection. Rule 69 provides that—

in order to be entitled to the reconsideration provided for in Rules 65 and 67, the applicant must make request therefor in writing, and he must distinctly and specifically point out the supposed errors in the Examiner's action. The mere allegation that the Examiner has erred will not be received as a proper reason for such reconsideration.

The petitioner has not complied with this rule. This rule is necessary in order that an application may receive an intelligent reëxamination, as is provided for in the statutes; otherwise the reëxamination would necessarily be merely a repetition of the first action on the claim and would indeed be a matter of form. The examination of claims in an application for a patent is not a matter of form, but is essentially an examination of the merits of the case.

The petition is denied.

EX PARTE EDWIN C. BURT COMPANY.

Decided July 11, 1901.

1. TRADE-MARK—"BURT" FOR BOOTS AND SHOES—SURNAME.
   The word "Burt" is refused registration as a trade-mark for boots and shoes on the ground that it is a surname. Neither the statute nor the decisions interpreting the same warrant the registration of an acknowledged surname as a trade-mark.

2. SAME—SAME—SAME.
   As prior to 1881 no one could exclusively appropriate a surname as a trade-mark, *Held* that the word "Burt," an acknowledged surname and the salient feature of applicant's name, cannot be registered as a trade-mark when applied to the products of the Edwin C. Burt Company notwithstanding its use prior to March 3, 1881. (*Ex parte Gale Mfg. Co.*, 85 O. G., 1907.)
3. SAME—CONSTRUCTION OF STATUTE—FOREIGN REGISTRATION.
   Neither the statute nor the decisions interpreting the same warrant the registration of a trade-name which is not a lawful trade-mark for the purpose of obtaining registration in a foreign country. (Citing *ex parte Buffalo Pitts Co.*, 89 O. G., 2069.)
4. SAME—TECHNICAL TRADE-MARK—UNFAIR COMPETITION.
   If the appellant has a right to protection under the law of "unfair competition" in its use of the word "Burt," said right does not make a technical trade-mark of the word "Burt." In order that the word "Burt" may constitute a lawful or technical trade-mark, it must be evident that the word "Burt" was from the very beginning the exclusive property of the appellant or its predecessors. That this is not so is self-evident. In the very nature of things a surname is not capable of being the exclusive property of but *one* person bearing that name.

ON appeal.

TRADE-MARK FOR BOOTS AND SHOES.

Application for registration filed April 10, 1901, No. 63,099.

Miss Edith J. Griswold for the applicant.

MOORE, *Acting Commissioner:*

This is an appeal from the refusal of the Examiner of Trade-Marks to register the word "Burt" as a trade-mark for boots and shoes.

The reasons for the appeal as stated by the appellant are:

1. The Examiner erred in refusing to register the word "Burt" used as a trade-mark since 1860 by applicant and its predecessors.
2. The Examiner erred in ignoring the trade-mark act of August 5, 1882, as applied to this case.
3. The Examiner erred in holding that the Commissioner's decisions in *ex parte Gale Mfg. Co.* (85 O. G., 1907) and *ex parte Buffalo Pitts* (89 O. G., 2069) are authority for refusing registration of this particular mark.

The appellant states that the word "Burt" has been used by it and its predecessors as a trade-mark for boots and shoes since about the year 1860 and that it was adopted at that time because since the year "1843 the name 'Burt' began a process of forcing itself into the minds of the public as a designation for shoes put upon the market by a certain establishment." The fact is well-known, and it is admitted by the appellant, that it is the successor of one Edwin C. Burt, the founder of the business carried on by it. The word "Burt" is the salient feature of the name of the appellant company.

The appellant states that "dealers throughout the whole world now recognize that honestly to fill orders for 'Burt shoes' they must obtain them from the applicant in this case or its lawful agent," and it is therefore contended that "the surname 'Burt' has risen above the plane of its fellows and has become, when applied to shoes, an arbitrary mark."

The appellant states that the registration of this name "Burt" as a trade-mark is not asked by it as "seeking to obtain a trade-mark by registration." The reasons why the appellant now asks registration of the word "Burt" as a trade-mark are stated by it as follows:

As is well known, in *most* foreign countries trade-mark rights are conditional on, and determined by, registration, and applicant now deems it proper to assert its right in certain foreign countries, but in ten of the principal countries, home registration is first required.

It is urged by the appellant that, inasmuch as our registration laws are for the very purpose of allowing citizens to protect their foreign interests, to deny it the privilege of registration when the same is necessary to protect its foreign business "will be in exact opposition to the 1882 trade-mark act."

This case now before me presents the same question considered by the Commissioner in *ex parte Gale Manufacturing Co.* (85 O. G., 1907) as to whether or not a surname was a lawful trade-mark prior to the year 1881. It was held that it was not a lawful trade-mark, citing *Amoskeag Manufacturing Co.* v. *Spear et al.* (2 Sandf., 599) and *Brown Chemical Co.* v. *Meyer*, (55 O. G., 287.) In the case last cited the Supreme Court of the United States, speaking through Mr. Justice Brown, said:

It is hardly necessary to say that an ordinary surname cannot be appropriated as a trade-mark by any one person as against others of the same name who are using it for a legitimate purpose, although cases are not wanting of injunction issued to restrain the use even of one's own name where a fraud upon another is manifestly intended.

That a surname is not a lawful trade-mark or that it cannot be the exclusive property of any one person as against all other persons of that name is conclusive. This is the law now and was the law prior to March 3, 1881. There is a difference between a technical trade-mark and the right one has to the use of a certain name on the ground of unfair competition where fraud is shown to exist on the part of the infringer. In order that a party can have property in a trade-mark, he must have the exclusive undisputed right to the use of that mark as against the whole world, whether fraud is shown to exist by the infringer or not.

In the cases where the name of a party has been used by another party though of the same name on the same class of goods it is settled that fraud must be shown in order to warrant protection on the ground of "unfair competition in trade."

As is well stated by Hopkins in the first sentence of paragraph 15, page 27, in his book on *The Law of Unfair Trade:*

It can hardly be doubted that at its inception the doctrine of unfair competition was devised to protect the public, rather than to recognize any vested right in the complainant.

And farther on, page 29, it is stated:

It is very clear that equity intervenes in the protection from fraud of both the complainant whose business is or may be injured by the unfair and fraudulent competition, and the public who are the consumers of his merchandise. (*Lawrence Mfg. Co.* v. *Tennessee Mfg. Co.*, 138 U. S., 537.)

A technical trade-mark is essentially a vested right. A proper name is not a technical trade-mark for the very reason that in the nature of things it never was and never can be a vested right. It belongs equally to all persons bearing that name. This doctrine was as well settled prior to 1881 as it is at the present time.

The appellant cites the decision of the United States Supreme Court in *Singer Manufacturing Co.* v. *June Manufacturing Co.* (163 U. S., 169) and

urges that in this decision the Court has recognized the word or name "Singer" as a lawful trade-mark and that said decision should be used exclusively to determine the point at issue.

I do not find anything in said decision that warrants the conclusion that the "Supreme Court acknowledges that a name *may* be a trade-mark."

After discussing the right of parties to the use of their own name the following statement is made:

This fact is fully recognized by the well-settled doctrine which holds that although "every one has the absolute right to use his own name honestly in his own business, even though he may thereby incidentally interfere with and injure the business of another having the same name." In such case the inconvenience or loss to which those having a common right are subjected is *damnum absque injuria*. But although he may thus use his name, he cannot resort to any artifice or do any act calculated to mislead the public as to the identity of the business firm or establishment, or of the article produced by them, and thus produce injury to the other beyond that which results from the similarity of name.

In the case of *ex parte Buffalo Pitts* (89 O. G., 2069) registration was asked for the same reasons urged by the appellant in this case. The question was fully discussed at that time by the Commissioner, and I fully agree with his conclusion.

If the appellant has a right to a protection under the law of "unfair competition" in its use of the word "Burt," said right does not make a technical trade-mark of the word "Burt." In order that the word "Burt" may constitute a lawful or technical trade-mark, it must be evident that the word "Burt" was always from the very beginning the exclusive and undisputed property of the appellant or its predecessors.

That this is not so is self-evident. In the very nature of things, inasmuch as "Burt" is an acknowledged surname, it is not capable of being the exclusive property of but *one* person bearing that name.

The dilemma that the appellant is now in is due to the unfortunate selection by it of the surname as a trade-mark when its business was founded. The name "Burt" was not in itself a vested right in Edwin C. Burt as against all other Burts when he first adopted it as a trade-mark. This being true, the name "Burt" does not now become a lawful and technical trade-mark because of any right that Burt or his successors may have or the public may have as against the fraudulent use of the name by others in connection with the making and sale of the same class of goods which have become so well known in connection with the appellant's name. I am convinced that neither the statutes nor the decisions interpreting the same warrant the registration of an acknowledged surname as a trade-mark. I appreciate the importance of and the necessity for the registration of certain trade-names as trade-marks. This has arisen of late years in connection with the great increase of trade between the citizens of this country and those of foreign countries.

Inasmuch as the present law does not provide for or permit of such a registration as is asked for in this case, relief can only be had by means of a revision of the act authorizing the registration of trade-marks.

The decision of the Examiner is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

STAPLETON *v.* KINNEY.

Decided June 7, 1901.

1. INTERFERENCE—PRIORITY OF INVENTION—DECISION AFFIRMED.
Where S. conceived the invention in April, 1897, but did not reduce it to practice until November, 1899, and in the meantime devoted his energies to perfecting a machine for easily and economically applying the invention, whereas K. conceived in October, 1898, and reduced the invention to practice in April, 1899, *Held* that K. is to be regarded as the first inventor, and therefore the decision of the Commissioner of Patents is affirmed.
2. SAME—DILIGENCE—WORK ON AUXILIARY INVENTION.
Where S. had a conception of an improved retaining device for rubber tires and could have applied it to practical use at any time by means then well known in the art, although such means was crude and imperfect, but instead of so doing he devoted his time for more than two years to devising a simple and economical machine for applying the retaining device, *Held* that he did not exercise diligence in regard to the retaining device.
3. SAME—SAME—SAME.
Although in some instances a device may be dependent for its practical use upon the invention of further or additional mechanical appliances, notwithstanding the fact that the two devices may be regarded as patentably distinct and separate in the Patent Office and in such case a pause in the perfection of one would be excused by due diligence in the completion of the other, *Held* that this is not such a case.

Mr. Charles W. Stapleton for the appellant.
Messrs. Peirce & Fisher for the appellee.

SHEPARD, *J.*:

This is an appeal from the decision of the Commissioner of Patents in an interference proceeding involving priority of invention of an improved rubber tire for the wheels of vehicles. The issue is in the following words:

A tire for vehicles comprising an annular channel, an annular elastic body compressed in the direction of its length and molded with a continuous closed chamber throughout its length, and a retaining-ring embedded within and filling said chamber and having its ends joined together, said ring consisting of a central web having solid thickened edges, said thickened edges extending both above and below the plane of said web and thus forming channels on both sides of the ring to receive the compressed rubber of the body, and hold the ring against lateral displacement.

Kinney filed his application for patent January 16, 1899, and was followed by Stapleton on the 23d day of the following June.

We agree with the tribunals of the Patent Office that the following facts are fairly established by the evidence:

Stapleton conceived the invention of the issue and disclosed it to others about April 1, 1897, and reduced it to actual practice about November 1, 1899. Kinney conceived and disclosed it about October 15, 1898, made and put in use upon a vehicle, a full set of tires embodying the improvement about April 1, 1899.

Stapleton, though first to conceive, did not enter the Office, even, until more than two months after Kinney had begun the manufacture and sale of the improved tires; hence the burden of showing due diligence was cast upon him. In determining this issue it is of importance to know what was the state of the art in which the invention is an improvement, and some of its conditions will be briefly stated.

Rubber tires had been in use upon vehicles for some years, and many different forms of construction had been experimented with. Two only of the special devices used for retaining the rubber tire in the flange on the wheel-rim need be described, because they were greatly superior to all others and, besides, have near relation to the improvement of the issue. One of these consisted of two round steel wires inserted in the tires parallel with each other and a short distance apart; the sizes of wire and separating distances varying with the width of the tire. The other was a flat steel band with straight edges likewise inserted in an aperture in the tire.

The rubber sections were cut in the desired lengths and the retaining wires or bands inserted. The ends of the latter were then fastened by riveting, brazing, or electric welding, and the inclosing rubber ends were brought together and cemented. It was soon discovered that the retaining-wires of the first construction had a tendency, especially under hard usage, to cut down through the inclosing rubber tire thereby gradually destroying it as well as reducing the constriction. They seem, however, to have worked better than the flat band, that had been devised to remedy their defects in this respect, because the lateral cutting of its straight edges was more rapidly destructive of the tire.

The improvement of the issue is a practical combination of the two earlier devices. The two round wires are joined together by a flat band varying in width with that of the tire. It is claimed for the improved retaining device, that joining the wires in this manner prevents the downward wear, while their operation in rounding the edges of the band prevents the dangerous lateral cutting. The first method of applying the rubber tire was to fasten the ends as above described. It was then stretched and pushed over the edge of the flange until it dropped into its proper place therein. This construction and application were attended with two difficulties that operated against the commercial use of the tire. First, there was the danger of severing the connections of the retaining wires or band under the strain of the necessary stretching; second, the tire was often too loose when forced to its place in the flange.

Efforts were early made by manufacturers to devise a better means for applying the tires to wheels. Stapleton, who is a skilled patent attorney, had been a practical mechanic in early life. He testified that throughout 1897, and until October 15, 1898, he had been—

president and manager of the American Rubber Tire Co., and actively engaged in looking after its business, also practicing law. During this time I looked after not only the business features of the company, but the mechanical as well; in fact, did substantially all of the mechanical part of the work so far as designing and devising tools, machinery and tires are concerned.

Again he said:

I was never satisfied with the method of first making the tire into a hoop and stretching it over the flange, and since about January, 1897, I began to evolve a plan to apply them by drawing them up within the steel flange. That had never been done, so far as I know, until the fall of 1897, when the Rubber Tire Wheel Co., Morgan and Wright, and myself, all working to reach that end, accomplished it about the same time by different tools or the use of different tools. This system, however, was not perfected so that it could be said to be thoroughly practicable, until late in 1898.

It appears from testimony on behalf of Kinney that the Morgan and Wright method of bringing the retaining-wires and rubber tires together in the channels of the wheel-rims, was practiced in the shops of the Calumet Rubber Tire Co. in January, 1897. The ends of the wires were clamped and the rubber was compressed and forced back a short distance to a point on each side where it was firmly held by a vise. The tire was then brought around the wheel in the channel and the wires were drawn until the desired tension was had. The ends were fastened by threaded sleeves. The clamps were then removed and the rubber was driven back to meet over the joint, by striking against the wall or with a heavy mallet. In February, 1897, an improvement was made in the clamping system and the wires were joined by brazing instead of screwing together as before. Many tires were thus applied and sold to customers. Kinney subsequently worked upon and had made a device for clamping the tires and reducing the compression of the rubber after fastening the retaining-wires.

It may be assumed that the retaining-band of the issue was harder to stretch over the flange of the rim in the old way than the other devices had been, and that it was of very great importance to devise an effective way to fasten it in the channel. Kinney discovered the improvement and filed his application for a patent before securing a satisfactory device for the purpose. He subsequently manufactured tires with the improved bands, and applied them to the wheels as he had applied the others in January and February, 1897. It was shown that some other factories used the Morgan and Wright process, or others of their own adaptation, in applying rubber tires in 1897, 1898, and early in 1899.

We come now to consider the special grounds offered by Stapleton in excuse of his apparent delay in reducing to practice his conception of the improvement in, or before, April, 1897.

It must be remembered that he was fully informed of the state of the art, and alive to the defects of all the retaining devices then in use. He appreciated the increasing demand for rubber tires of ready application and was pecuniarily interested in supplying it. Not only an educated and skilled mechanic, he was also a competent and experienced patent attorney; and hence was aware of the importance of diligence in reducing conception to practice either actual or constructive. He had ample time, money and agencies for experimentation and there was no reasonable obstacle in the way of procuring the manufacture of the new band to order.

His sole excuse, then, is found in his own sworn statement as a witness as follows:

I do not mean to be understood that any fairly skilful mechanic familiar with rubber tires could not, if given time and opportunity, have devised a machine for making the joint in the channel and drawing up this rubber; in fact I could have done so myself, I believe, at almost any stage of the proceeding, but the problem was to get some machine or system of doing this economically, so that the general public, or the small dealers could afford the appliances for doing the work themselves. As the system has been conducted the application has been con-

fined to a few large places, and wheels and tires had to be transported long distances, while there was a constantly-increasing demand, not only by the small dealers but their patrons for the application of these tires at their own homes or places of business, and the great expanse of the Grant and Goodyear system was a great drawback. I was trying to overcome this by devising tools so inexpensive and a system so simple that it did not require an expert to use them, and that the ordinary and small carriage-dealers could afford to have them.

This was followed by the admission that he had heard of the Morgan and Wright method of joining the tires in the channels, in the fall of 1897, but had not seen one of their devices before the fall of 1898. The contention of Stapleton, upon the foregoing and other explanatory evidence, is fairly presented in the following proposition on his brief:

It is not claimed that Stapleton during the two years was constantly experimenting with this "wire band." On the contrary, it is frankly admitted that the invention itself—that is, the "wire band"—was completely invented when first thought of, but it is insisted that during this time Stapleton was, as diligently as the law requires, engaged in perfecting practical devices which were accessory and absolutely essential to the usefulness of the principal device, which, without some such accessory device, was of no commercial value whatever—was as steam without an engine, the sewing-machine needle without the mechanism to run it, a telegraph-line without recording devices.

We are unable to concur in this proposition. It is hardly necessary to say that the invention was not complete with even the clearest conception of the practical advantages and usefulness of the new form of retaining-band, without, the construction of at least one complete tire capable of test by use. Whether, considering the state of the art, that would be sufficient without the actual test need not be considered. The improved tire was an invention separate and distinct from the means sought for its simple and ready application to the wheel and, in that sense, was complete without the successful attainment of the latter end. It is no doubt true, and may be conceded, that Stapleton worked with reasonable diligence to obtain a simple and economical device for applying the new tire, and that he has succeeded in producing one of great utility as well as of patentable novelty. But the utility and commercial value of the improved tire did not necessarily depend upon that attainment. In that respect there was no practical difference between it and the earlier tires for the displacement of which it had been devised. There were other methods and devices in operation, as we have seen, which, though crude and cumbersome, had nevertheless proved sufficient to extend the use of, and give commercial value to the former tires; and these had been successfully used by Kinney with the improved tire. Now it is true that one may make an original discovery, or conceive a distinct and valuable improvement in an art, dependent for its practical demonstration or operative use upon the invention of further or additional mechanical appliances. Notwithstanding the two devices, in such case, could be regarded as patentably distinct and separate in the Patent Office, it might well be that pause in the perfection of the one would be excused by due diligence in the completion of the other as its accessory. (*Chapman* v. *Candee & Taylor*, S. C.; C. D., 1872, 190; 2 O. G., 245.) That was an interference proceeding involving the invention of a device for forging wrench-heads that had formerly been forged by hand. It comprised certain dies and auxiliary machinery. Chapman was the first to conceive. His rival made the first application and received a patent, but never made or operated the invention. Chapman's first results were unsatisfactory and he pursued the discovery of operative means with diligence. Finally, by continuous labor and experiment and the expenditure of more than $5,000, he completed a machine that operated with complete success. In holding Chapman entitled to the benefit of his prior conception, Mr. Commissioner Leggett said:

Though the invention, in a narrow sense, was complete upon the completion of the dies, yet the dies were totally valueless until machinery could be constructed of the proper strength and form to use them. Whether such machinery to work dies of large size was practicable was uncertain. Upon the determination of this point depended the question as to whether the dies were worth patenting; hence the time spent in constructing the machinery was used in such experimental tests as were wise and proper before applying for a patent.

It has also been held that under certain conditions some indulgence might be extended to an inventor who delayed a particular feature of a complicated machine while diligently engaged in developing another part of the same machine calculated to materially increase its usefulness and value. (*McCormick* v. *Cleal*, 83 O. G., 1514; 12 App. D. C., 335, 341; S. C.; *Christensen* v. *Ellis*, 94 O. G., 2561.)

We think it sufficiently clear, without further discussion, from the history of the art and the facts of the case at bar, as heretofore stated, that the conditions of diligence upon which it turns are essentially different from those upon which the foregoing decisions were expressly rested.

Moreover, as has been repeatedly stated, it is impossible to measure diligence by any fixed standard. Each case must be determined by its own particular circumstances.

Considering the special circumstances of the case at bar, we are of the opinion that Stapleton's efforts to invent machinery for the simpler, cheaper and more effective application of the improved tire, cannot be accepted as due diligence in completing its invention. Grant that some measure of indulgence might justly be extended him, under ordinary circumstances, in respect of the matter of actual construction and test of commercial value, yet, the well-known conditions of the art and the wide-extended trade in rubber tires, subject to similar difficulty and expense in application, made it incumbent upon him to, at least, seek constructive reduction by filing an application for a patent. Why he did not do this much remains unexplained. His conduct in both respects is in marked contrast with that of Kinney who conceived the invention in October, 1898, filed his application for patent in January, 1899, and commenced manufacture for the trade in the following April.

For the reasons given, the decision of the Commissioner of Patents will be affirmed, and the proceedings in this court will be certified to him as required by law. It is so ordered.

Patents No. 680,679 to 681,175.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 8 TUESDAY, AUGUST 20, 1901. Price—$5 per year.

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Patents	497	No. 680,679 to No. 681,175, inclusive.
Designs	35	No. 34,953 to No. 34,987, inclusive.
Trade-Marks	54	No. 36,897 to No. 36,950, inclusive.
Labels	22	No. 8,603 to No. 8,624, inclusive.
Prints	None.	
Reissues	3	No. 11,927 to No. 11,929, inclusive.
Total issue	611	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2		Nevada		
Alaska Territory			New Hampshire	3	
Arizona Territory			New Jersey	19	
Arkansas	1		New Mexico Territ'y		
California	15		New York	70	30
Colorado	4	1	North Carolina	4	
Connecticut	21		North Dakota		
Delaware	1		Ohio	36	2
District of Columbia	3		Oklahoma Territ'y		
Florida	2		Oregon	4	
Georgia	4		Pennsylvania	70	10
Idaho			Rhode Island	10	
Illinois	50	3	South Carolina	1	
Indian Territory	1		South Dakota	1	
Indiana	17	1	Tennessee	6	1
Iowa	13	3	Texas	8	2
Kansas	1		Utah	2	
Kentucky	7		Vermont	1	
Louisiana	1	1	Virginia	3	5
Maine	4	1	Washington	1	
Maryland	3	1	West Virginia	3	
Massachusetts	42	4	Wisconsin	9	1
Michigan	8	2	Wyoming		
Minnesota	13	1	U. S. Army		
Mississippi	1	1	U. S. Navy		
Missouri	8	3			
Montana			Total to citizens of the United States	480	65
Nebraska	7	2			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Japan		
Austria-Hungary	1		Mexico		
Barbadoes			Netherlands		
Belgium	1		New South Wales		
Brazil			New Zealand		
British Guiana			Norway		
Canada	2		Queensland		
Cape Colony			Russia		
China			Scotland	4	6
Colombia			South African Republic		
Cuba			South Australia		
Denmark			Spain		
Egypt			Sweden		
England	16	2	Switzerland	3	
Finland			Turkey in Asia		
France	10	2	Victoria		
Germany	14	1	Western Australia		
India					
Ireland			Total to citizens of foreign countries	52	11
Italy	1				
Haiti					

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 9, 1901.

SIR: The Secretary of the Interior has ordered that Harrison Ringler, of Milton, Pa., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 12, 1901.

SIR: The Secretary of the Interior has ordered that William H. Sherrod, of Columbia, Tenn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 13, 1901.

SIR: The Secretary of the Interior has ordered that John S. Ganster, of Paducah, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 13, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Aug. 2	July 25	51
106	II. Farm Stock, Products, etc.	July 29	Aug. 1	173
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 22	July 25	97
281	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 18	July 22	243
93	XXI. Textiles, etc.	July 17	July 17	183
90	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	July 15	Aug. 1	221
122	XXIV. Sewing-Machines, Apparel and Toilet.	July 15	July 31	192
346	I. Tillage and Fences.	July 15	July 30	128
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 15	July 27	144
253	X. Carriages and Wagons.	July 15	July 25	91
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 15	July 25	187
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 15	July 25	149
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 15	July 15	190
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 13	July 30	222
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	July 13	July 30	75
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	July 13	July 19	281
	Between one and two months.			
307	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 11	July 20	213
250	VIII. Furniture, Beds, Store Furniture, etc.	July 10	July 17	454
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	July 8	July 11	300
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 6	July 29	181
240	VII. Velocipedes, Games, and Toys.	July 1	July 10	259
358	XII. Mechanical Engineering, Store-Service, etc.	June 29	July 18	289
218	XVII. Printing, Type-Writing Machines, and Linotyping.	June 24	July 24	248
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 22	July 11	302
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 21	July 20	220
248	XVIII. Steam-Engineering, etc.	June 21	June 24	330
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 18	July 25	180
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 17	July 27	170
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	June 15	July 24	261
	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 12	July 12	306
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	June 10	July 8	261
102	XIX. Stoves and Furnaces.	June 5	June 20	488
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 4	July 2	287
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	June 3	June 28	340
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	June 1	June 13	433
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 27	July 11	167
	Total number of applications awaiting action			8,279

Applications Under Examination—Continued.

Under one month.				
*Designs	Aug. 6	Aug. 6	65
†Trade-Marks	July 30	Aug. 6	49
‡Labels and Prints	Aug. 9	Aug. 9	11

Protection of Patent and Trade-Mark Rights in Cuba, Isle of Pines, and the Island of Guam under the Military Authority of the United States

No. 160.

HEADQUARTERS DEPARTMENT OF CUBA.
Havana, June 13, 1901.

Under instructions from the Secretary of War, the Military Governor of Cuba directs the publication of the following order:

1. The rights of property in patents, copyrights and trade-marks, duly acquired in Cuba, the Isle of Pines, and the Island of Guam, pursuant to the provisions of Spanish law and existing in one or all of said Islands on April 11, 1899, shall continue unimpaired for the period for which they were granted, and the owner or owners thereof shall be protected and their rights therein maintained: *Provided*, that the original or a duly certified copy of the patent, or of the certificate of registration of the trade-mark, or copyright, is filed in the office of the Governor of the Island wherein such protection is desired. The certificates of registration of trade-marks issued prior to April 11, 1899, by a Spanish Provincial Registry, or the National Registry of Spain at Madrid, or the International Registry at the Bureau of the Union for the Protection of Industrial Property, at Berne, Switzerland, shall receive such recognition and credence as were accorded them in said islands under Spanish sovereignty; and an original certificate or duly-certified copy thereof shall be received and filed in the office of the Governor of the Island for all purposes connected with this order, without further or other certification.

2. The rights of property in patents, including design patents, granted by the United States, and in trade-marks, prints and labels, duly registered in the United States Patent Office, and in copyrights duly registered in the office of the Librarian of Congress, shall be maintained and protected by the Government of Civil Affairs in the Islands above named: *Provided*, that a duly-certified copy of the patent, or of the certificate of registration of the copyright, trade-mark, print or label is filed in the office of the Governor of the Island wherein such protection is desired.

3. An infringement of the rights protected by compliance with the provisions of this order shall subject the person, firm, association or corporation guilty of such infringement to the civil and penal liabilities created and imposed by such of the laws of Spain relating to said matters as remain in force in said Islands.

4. Such provisions of existing orders as are in conflict with this order are hereby revoked.

EDWARD CARPENTER,
1st. Lieut., Artillery Corps, Aid-de-Camp.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. *Payment in advance.* No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 5, 1901.

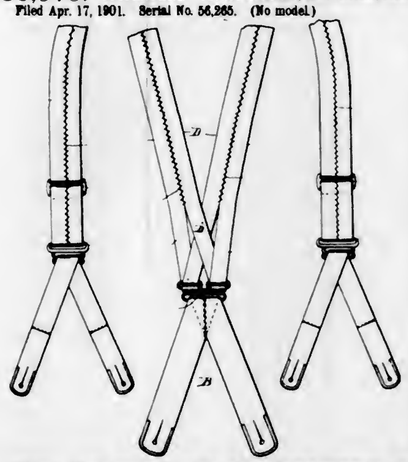
Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

PATENTS

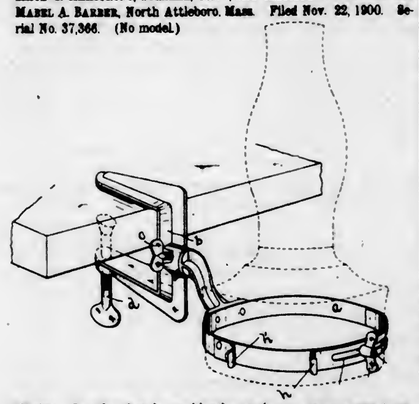
GRANTED AUGUST 20, 1901.

680,679. **SUSPENDERS.** GEORGE K. ADAMS, New Britain, Conn. Filed Apr. 17, 1901. Serial No. 56,265. (No model.)



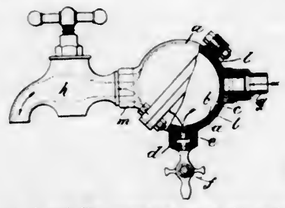
Claim.—As an improved article of manufacture suspenders for nether garments embodying a shoulder-strap formed of independent single lengths of webbing secured together edgewise to form a single strap save at a short central point, at which point the two lengths of webbing are separate and formed into independent loops, the inner web of each loop being passed through the opening between the webs whereby the loops are interlaced to hold the parts in position, a front suspender-end adjustably connected with each end of the shoulder-strap and a back suspender-end having a connection at the upper end provided with separate openings arranged in alinement and through which openings the loops of webbing pass, so as to slide therein; substantially as described.

680,680. **TRANSFERABLE CLAMP LAMP-BRACKET.** FREDERICK S. ARMSTRONG, Franklin, Conn., and MATILDA C. WEAVER and MABEL A. BARBER, North Attleboro, Mass. Filed Nov. 22, 1900. Serial No. 37,366. (No model.)



Claim.—In a bracket, in combination, a clamp, a lamp-support consisting of a flexible band and means for securing together the overlapping ends of said band, and an arm secured to said band and swiveled in the said bracket; the said flexible band being formed with radially-projecting finger-rests *h*, *h'*, substantially as specified.

680,681. **FILTER FOR PURIFYING WATER.** AUGUSTE F. AVEZARD, Jr., and JULES E. CLERC, Paris, France. Filed Sept. 25, 1900. Serial No. 31,048. (No model.)



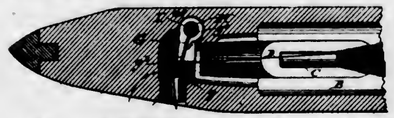
Claim.—1. A cock-filter comprising a very thin-walled spherical filtering-body *b* located in a metallic spherical shell *a* with a narrow passage between the two, said shell carrying horizontally and diametrically opposed mouthpieces for entrance and discharge of non-filtered water, substantially as described above.

2. A cock-filter comprising a very thin-walled spherical filtering-body *b* in communication with the exterior air by means of a mouthpiece *d* made integrally with it and disposed vertically on its lower side and arranged to be closed by means of a cock, substantially as described.

3. A cock-filter comprising a very thin-walled spherical filtering-body *b* in communication with the exterior air by means of a vertically-located mouthpiece *d* contained within a spherical metallic shell *a* with a small space between the two, carrying two horizontal and diametrically opposed mouthpieces for admission and discharge of non-filtered water, the metallic spherical shell *a* being in sections of which the junction is oblique in reference to the three mouthpieces for admission and discharge of non-filtered water and for discharge of filtered water, substantially as described above.

4. A cock-filter comprising a thin-walled spherical filtering-body *b* in communication with the exterior air by means of a vertically-located mouthpiece *d*, a metallic shell *a* in sections joined obliquely in reference to the mouthpieces for admission and discharge of water, a cock *f* for discharge of filtered water, and a pack-ring *e*, substantially as described above.

680,682. **TENSION DEVICE FOR LOOM-SHUTTLES.** ALFRED BALDWIN, Goffs Falls, N. H. Filed Jan. 30, 1900. Renewed Apr. 2, 1901. Serial No. 54,074. (No model.)



Claim.—1. An automatic tension device for loom-shuttles, comprising a curved friction-plate having a base provided with a perforation, a tension-lever provided with a perforation for the passage of yarn and having a cylindrical portion at one end and the other end suitably curved for contact with the curved portion of said friction-plate, a tube or bushing upon which the cylindrical portion of said lever is mounted, a retaining-screw passing through said bushing and the perforation in the base of said friction-plate and into the shuttle-body, and a suitable spring for normally holding the tension-lever in contact with the friction-plate.

2. A tension device for loom-shuttles, comprising a friction-plate, a tension-lever, a tube upon which said tension-lever is pivoted, a helical

spring upon said tube and connected at one end to said lever and at the other end to an adjustable washer mounted upon a retaining-screw between the head thereof and the top of said tube, the said washer, and said retaining-screw passing through said washer and tube and threaded to the shuttle-body.

3. A loom-shuttle body having in the toe of its bobbin-chamber a horizontal recess in which one end of the shuttle-eye terminates, a stationary plate having one end curved and adjacent to said eye, a horizontally-movable spring-actuated tension-lever having a limited movement within said recess, said lever being adapted to press the filling-thread against the curved portion of said stationary plate and having a perforation through which said filling-thread passes before entering the shuttle-eye, a screw for pivoting the tension-lever to said shuttle-body, a suitable spring adapted to press the lever against the stationary plate, and means for adjusting said spring, substantially for the purpose set forth.

4. In an automatic tension device for loom-shuttles, means whereby any undue strain upon the filling-thread will separate the tension-lever from its friction-plate, thus removing all mechanical tension, said means comprising a horizontally-movable friction-plate, and a spring-actuated tension-lever having a perforation through which the thread passes to its position between said friction-plate and lever, whereby said lever is separated from its friction-plate.

5. A loom-shuttle body provided with an automatic tension device and having near its eye a lateral bridge for limiting the movement of the spring-actuated tension-lever, and having above said bridge at one end thereof a lateral projection adapted to partially hide the spring and pivotal screw of the tension-lever, whereby the liability to entanglement of the yarn or thread with the spring and pivot of said tension-lever may be avoided.

6. In a loom-shuttle, an automatic tension device comprising a friction-plate, and a spring-pressed lever to sustain and guide at its free end next said plate the yarn between the bobbin and the usual thread-delivery eye of the shuttle-body, increase of strain on the yarn leaving the bobbin acting only on the free end of the lever around which the yarn passes and turning the lever and taking with it the yarn, thus removing the yarn from contact with the friction-plate, the said lever supporting the yarn in all positions of the lever and under the varying tensions of the yarn and guiding the same to the delivery-eye.

7. In a loom-shuttle, a plate against which the yarn about to leave the shuttle may be borne frictionally, a spring-controlled lever sustaining and guiding the yarn between the bobbin and the usual thread-delivery eye of the shuttle-body, strain on the yarn in excess of the normal tension desired acting only on the free end of the lever and turning said lever away from said plate taking with it the yarn so that it is entirely free from contact with said plate, the said lever supporting the yarn in all positions of the lever and under the varying tensions of the yarn and guiding the same to the delivery-eye.

8. In a loom-shuttle, a plate against which the yarn may be pressed, a spring-pressed lever to sustain and guide the yarn between the bobbin and the usual delivery-eye of the shuttle-body, said lever holding the yarn pressed against said plate whenever the shuttle is in the shuttle-box, variations in strain on the yarn as the shuttle is being moved to deliver the yarn acting to turn said lever and positively carry the yarn away from said plate, and guide the same to the delivery-eye.

680,683. **COAL-MINING MACHINE.** ALBERT BALL, Claremont, N. H., assignor to the Sullivan Machinery Company, same place and Chicago, Ill. Filed Aug. 21, 1897. Serial No. 649,014. (No model.)

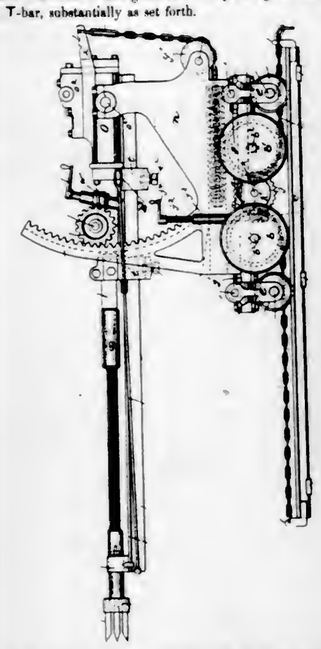
Claim.—1. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a balance-spring, a chain connected to said cutter-bar and operating mechanism and to said spring, said chain engaging a wheel on said frame, substantially as set forth.

2. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a balance-spring, a chain connected to said cutter-bar and operating mechanism and to said spring, and an eccentric wheel on the frame with which said chain engages, substantially as set forth.

3. In a mining-machine, the combination with a suitable frame, of a cutter-bar mounted to swing in a vertical plane, mechanism for operating said cutter-bar, a balance-spring, connections between said spring and cutter-bar and means for maintaining the tension of said spring uniform at all positions of the cutter-bar.

4. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a lever having notches therein extending out from said cutter-bar and operating mechanism, a balance-spring, a chain connected to said lever and spring, and an eccentric wheel with which said chain engages, substantially as set forth.

5. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a T-bar extending out from said frame, a guide having a groove adapted to engage the upper flanges of said T-bar, a bolt forming one of the sides of said groove, whereby said guide may be secured to said T-bar, substantially as set forth.



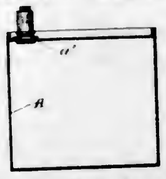
6. The combination of a suitable truck-frame, two independent sets of wheels mounted therein, swinging hangers suspended from said frame carrying one set of said wheels, said hangers being adapted to elevate the other set of wheels, projections on said hangers, said frame having seats formed therein with which said projections engage, substantially as set forth.

7. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a lever having notches therein and extending out from said cutter-bar and operating mechanism, a balance-spring and a chain connected to said lever and spring.

8. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a supporting-bar for the cutter-bar, and means for adjustably clamping said supporting-bar to said cutter-bar-operating means so as to permit longitudinal adjustment of said supporting-bar.

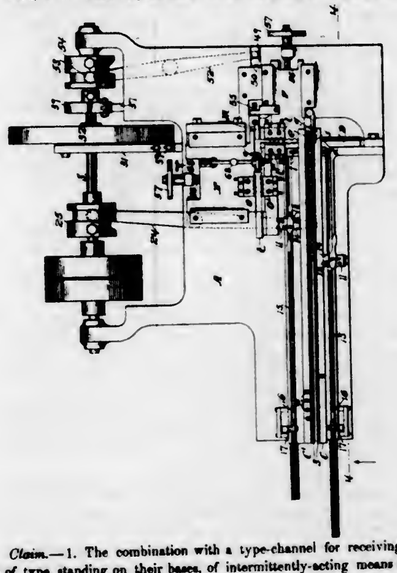
9. In a mining-machine, the combination with a suitable frame, of a reciprocating cutter-bar and its operating mechanism mounted to swing in a vertical plane, a supporting-bar for the cutter-bar, means for adjustably clamping said supporting-bar to said cutter-bar-operating mechanism, so as to permit longitudinal adjustment of said supporting-bar, and removable truss-rods connected to said supporting-bar.

680,684. **PACKAGE.** ROBERT P. BEATTY, Cleveland, Ohio. Filed Mar. 23, 1901. Serial No. 52,500. (No model.)



Claim.—The combination with a package provided with an opening surrounded by elastic material, of a spout provided with a flange of greater diameter than that of said opening and incapable of passing through same, and two flanges located respectively upon opposite sides of said first-named flange of diameter greater than that of said opening and such as to render them each capable of passing therethrough.

680,685. **TYPE-DRESSING MACHINE.** LINN B. BENTON, Milwaukee, Wis., assignor to American Type Founders Company, New York, N. Y. Filed May 23, 1896. Serial No. 592,699. (No model.)



Claim.—1. The combination with a type-channel for receiving a line of type standing on their bases, of intermittently-acting means for pushing the line of type through the channel, a reciprocating pusher engaging the bases of the type during the feeding movement to secure the vertical position of the type, and means for raising and lowering the pusher, to withdraw it from the type during its return movement, substantially as described.

2. The combination with means for advancing a line of type sidewise of the type and lengthwise, of the line of a type-carrier arranged below the plane of movement of the type, a movable abutment against which the end type of the line is fed above the carrier at the end of the movement of the type in the direction of the movement of the line of type, and means for withdrawing said abutment to permit said end type to fall onto the carrier transversely to the direction in which the line of type is advanced by the advancing means, substantially as described.

3. The combination with means for advancing a line of type sidewise of the type and lengthwise of the line intermittently, of a type-carrier arranged below the plane of movement of the type, a movable abutment against which the end type of the line is fed above the carrier at the end of the movement of the type in the direction of the movement of the line of type, means for withdrawing said abutment to permit said end type to fall onto the carrier transversely to the direction in which the line of type is advanced by the advancing means, and means for holding the other type when the abutment is withdrawn, substantially as described.

4. The combination with means for advancing a line of type, of a type-carrier arranged below the plane of movement of the type, a movable abutment against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, a finger acting to hold the second type when the abutment is withdrawn, and a hammer for detaching the end type from the second type, substantially as described.

5. The combination with a type-channel for receiving a line of type standing on their bases, of means for advancing the line of type sidewise of the type and lengthwise of the line, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, and means for withdrawing said abutment to permit said end type to fall onto the carrier, substantially as described.

6. The combination with a type-channel for receiving a line of type standing on their bases, of intermittently-acting means for pushing the type through the channel, a pusher engaging the bases of the type near the end of the channel to secure the vertical position of the type, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, and means for holding the other type when the abutment is withdrawn, substantially as described.

7. The combination with a type-channel for receiving a line of type standing on their bases, of means for advancing the line of type sidewise of the type and lengthwise of the line, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier at the end of the movement of the type in the direction of movement of the line of type, means for withdrawing said abutment to permit said end type to fall endwise of the type onto the carrier, and means for holding the other type when the abutment is withdrawn, substantially as described.

8. The combination with a type-channel for receiving a line of type standing on their bases, of means for advancing the line of type sidewise of the type and endwise of the line, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier at the end of the movement of the type in the direction of the movement of the line of type, means for withdrawing said abutment to permit said end type to fall endwise of the type onto the carrier, and a finger for holding the second type against the wall of the type-channel when the abutment is withdrawn, substantially as described.

9. The combination with a type-channel for receiving a line of type standing on their bases, of means for advancing the line of type, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, a finger holding the second type against the wall of the type-channel when the abutment is withdrawn, and a hammer for detaching the end type from the second type while the latter is held by the finger, substantially as described.

10. The combination with a type-channel for receiving a line of type standing on their bases, of intermittently-acting means for pushing the type through the channel, a pusher engaging the bases of the type near the end of the channel to secure the vertical position of the type, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, and means for holding the other type when the abutment is withdrawn, substantially as described.

11. The combination with a type-channel for receiving a line of type standing on their bases, of intermittently-acting means for pushing the type through the channel, a pusher engaging the bases of the type near the end of the channel to secure the vertical position of the type, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, and a finger holding the second type against the wall of the type-channel when the abutment is withdrawn, substantially as described.

12. The combination with a type-channel for receiving a line of type standing on their bases, of intermittently-acting means for pushing the type through the channel, a pusher engaging the bases of the type near the end of the channel to secure the vertical position of the type, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall onto the carrier, a finger holding the second type against the wall of the type-channel when the abutment is withdrawn, and a hammer for detaching the end type from the second type while the latter is held by the finger, substantially as described.

13. The combination with a type-channel for receiving a line of type standing on their bases, of means for advancing the line of type sidewise of the type and lengthwise of the line, a type-carrier arranged below the plane of the channel, a movable abutment opposite the end of the channel against which the end type of the line is fed above the carrier, means for withdrawing said abutment to permit said end type to fall endwise of the type onto the carrier, cheek-pieces and cutters between which the type are carried by the type-carrier, and an adjustable carriage on which one of said cheek-pieces and cutters and the abutment are mounted, whereby the abutment is adjusted toward or from the line of type with the type-dressing devices for different type-bodies, substantially as described.

14. The combination with a type-channel, of one or more feeding-fingers entering the channel and mounted to move transversely to the channel for withdrawal from the latter, said channel and finger or fingers being constructed to permit the feeding finger or fingers to be moved transversely to the channel at any point in the latter for withdrawal, and actuating connections for said fingers detachable therefrom at any point in the movement of the latter, whereby the feeding finger or fingers may

be withdrawn from the channel and moved by hand rearward of the channel at any point in the movement of the fingers and independently of the actuating connections.

15. The combination with a type-channel having its opposite side walls slotted opposite the type-receiving space, of two sets of feeding-fingers entering the channel through the slots from opposite sides at different points longitudinally of the movement of the fingers and mounted to move transversely to the channel in the slots for withdrawal from the latter, substantially as described.

16. The combination with a type-channel, of two sets of feeding-fingers entering the channel and mounted to move transversely to the channel for withdrawal from the latter, and detachable actuating connections for said fingers whereby either set may be moved rearward of the channel by hand and independently of the other set, substantially as described.

17. The combination with a type-channel having its side wall slotted opposite the type-receiving space, of a carrier having a feeding-finger entering the channel through the slot and said feeding-finger being mounted to move transversely to the channel in the slot for withdrawal from the latter, a rack-bar on the carrier extending longitudinally of the channel, and a pawl actuating the rack-bar on movement in one direction to feed the type and sliding over the rack on the return movement, substantially as described.

18. The combination with a type-channel, of devices for pushing the type through the channel, a spring for actuating said devices for the feeding movement, connections between said spring and feeding devices whereby the spring moves the feeding devices on its release but is returned to operative position independently of the feeding devices, and means for releasing said spring intermittently and returning the spring to operative position after the feeding movement, substantially as described.

19. The combination with a type-channel, of a carrier having devices for pushing the type through the channel, a rack-bar on the carrier extending longitudinally of the channel, a pawl actuating the rack on movement in one direction to feed the type and sliding over the rack on the return movement, a spring actuating the pawl for the type-feeding movement, and means for releasing said spring intermittently and returning the spring and pawl to normal position, substantially as described.

20. Carrier 11 having the feeding-fingers *a* mounted to slide thereon, and cam-lever 13 and spring 12 for actuating said fingers, substantially as described.

21. Carrier 11 carrying feeding devices and having rack 15 attached thereto, in combination with pawl 16 engaging the rack, spring-pressed bar 17 carrying the pawl, bar 22, and means for reciprocating bar 22 to release the spring for the feeding movement and return it to normal position, substantially as described.

22. A type-channel formed of the side bars C, C having longitudinal slots 10 in combination with feeding-fingers *a* entering said slots and movable transversely to and longitudinally of the channel, substantially as described.

23. The combination with a type-channel for receiving a line of type standing on their bases, and means for advancing the type in the channel, of reciprocating pusher *b* below the type-channel and adapted to engage the bases of the type near the end of the channel to secure the vertical position of the type, and means for moving the pusher transversely to the type-channel to move it into and out of position to engage with the bases of the type, substantially as described.

24. The combination with a type-channel for receiving a line of type standing on their bases, and means for advancing the type in the channel, of pusher *b* below the type-channel and vertically-moving plate 27 carrying said pusher, reciprocating carrier 26 for said plate, and means for moving said plate 27 vertically in said carrier to raise the pusher for movement in one direction and lower it during movement in the opposite direction, substantially as described.

25. The combination with a type-channel for receiving a line of type standing on their bases, and means for advancing the type in the channel, of pusher *b* below the type-channel and vertically-moving spring-pressed plate 27, reciprocating carrier 26, dog *c* on said carrier engaging the plate 27 to move it against the spring-pressure, and means for actuating the dog, substantially as described.

26. The combination with a type-channel for receiving a line of type standing on their bases, and means for advancing the type in the channel, of pusher *b* below the type-channel and vertically-moving spring-pressed plate 27, reciprocating carrier 26, dog *c* on said carrier engaging the plate 27 to move it against the spring-pressure, and lugs 29, 30 for actuating the dog during the movement of the carrier, substantially as described.

27. The combination with pusher *b*, and vertically-moving spring-pressed plate 27, of reciprocating carrier 26, dog *c* on said carrier engaging the plate 27 to move it against the spring-pressure, pin 4 on the dog and notches on the carrier to hold the dog in its extreme positions, and lugs 29, 30 engaged by the pin for actuating the dog in opposite directions, substantially as described.

28. The combination with a type-channel and spring-pressed devices for advancing the type through the channel, of reciprocating bar 23 for releasing the spring for the feeding movement and returning the spring to operative position, pusher *b* below the type-channel carried by said bar, and means for raising the pusher for the feeding movement of bar 23 and lowering it for the return movement, substantially as described.

29. The combination with a type-channel and means for advancing type in the channel, of type-abutment *e*, reciprocating longitudinally of the channel and finger *f* for holding the second type when the end type is released by the abutment, substantially as described.

30. The combination with a type-channel, of type-abutment *e* reciprocating longitudinally of the channel, means for feeding type against the abutment, and pusher *b* engaging the base of the type to secure their erect position, substantially as described.

31. The combination with reciprocating type-abutment *e*, of finger *f* for holding the second type when the end type is released by the abutment, and hammer *g* arranged to strike the end type, substantially as described.

32. The combination with reciprocating type-abutment *e*, of means for feeding type against the abutment, pusher *b* engaging the base of the type to secure their erect position, and hammer *g* arranged to strike the end type, substantially as described.

33. The combination with reciprocating type-abutment *e*, of hammer *g* arranged to strike the end type, substantially as described.

34. The combination with reciprocating type-abutment *e*, of means for feeding type against the abutment, pusher *b* engaging the base of the type to secure their erect position, finger *f* for holding the second type when the end type is released by the abutment, and hammer *g* arranged to strike the end type, substantially as described.

35. The combination with a type-channel and reciprocating abutment *e* opposite the end of the channel and reciprocating longitudinally of the channel, of ledge *i* below the end of the type-channel, substantially as described.

36. The combination with a type-channel and reciprocating abutment opposite the end of the channel and reciprocating longitudinally of the channel, of ledge *i* below the end of the type-channel, and type-carrier *d* below the ledge, substantially as described.

37. In a type-dressing machine, the combination with the dressing-cutters, of a type-channel below the cutters adapted to receive type standing on their bases and having grooves in its side walls extending downwardly from the cutters, substantially as described.

38. The combination with type-dressing cutters, of type-smoothing cheek-pieces adapted to receive between them type standing on their bases and having grooves extending downwardly from the cutters, substantially as described.

39. The combination with type-dressing cutters, of type-smoothing cheek-pieces adapted to receive type between them standing on their bases and having grooves extending downwardly from the cutters, said grooves being inclined from top to bottom in the direction of movement of the type, substantially as described.

40. The combination with cheek-pieces *k*, *k'*, cutters *l*, *l'* and abutment *e*, of adjustable carriage E carrying the cheek-piece *k*, said carriage carrying also both the cutter *l* and abutment *e*, substantially as described.

41. The combination with cheek-pieces *k*, *k'*, cutters *l*, *l'*, spring-pressed pusher *m* and pusher-stop 55, and abutment *e*, of adjustable carriage E carrying the cheek-piece *k*, cutter *l*, pusher-stop 55 and abutment *e*, substantially as described.

42. The combination with cheek-pieces *k*, *k'*, cutters *l*, *l'*, spring-pressed pusher *m* and pusher-stop 55, of adjustable carriage E carrying the cheek-piece *k*, cutter *l*, and pusher-stop 55, substantially as described.

43. The combination with cheek-pieces *n*, *n'*, cutters *o*, *o'*, and top roller *q*, of adjustable carriage F carrying the cheek-piece *n*, cutter *o*, and roller *q*, substantially as described.

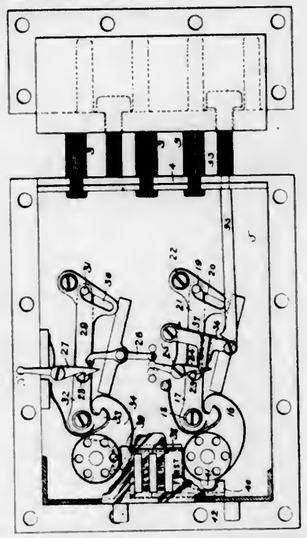
44. The combination with adjustable base-cutter *p*, of top roller *q* carried by adjustable carriage F and adjustable independently of the carriage, substantially as described.

680,686. **SAFE BOLTWORK MECHANISM.** CHARLES A. BERRY, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Apr. 22, 1901. Serial No. 56,967. (No model.)

Claim.—1. In an automatic bolt-operating mechanism the combination of devices for throwing the bolts, primary and reserve mechanisms for withdrawing the bolts, a series of fastening mechanisms adapted to release the unlocking mechanisms by the action of time mechanism and means for preventing the setting up of the primary unlocking mechanism until the reserve unlocking mechanism shall have been set up.

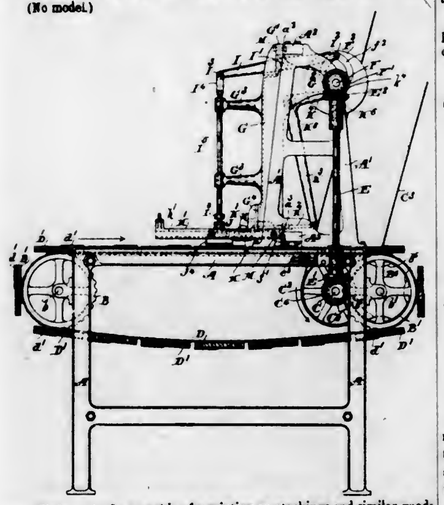
2. In an automatic bolt-operating mechanism the combination of devices for throwing the bolts, primary and reserve mechanism for withdrawing the bolts, fastening mechanisms adapted to release the unlocking mechanisms by the action of time mechanism, and an indicator for visually indicating the position of the reserve unlocking mechanism.

3. In an automatic bolt-operating mechanism the combination of devices for throwing the bolts, primary and reserve bolt-unlocking devices, fastening mechanisms adapted to release the unlocking mechanisms by the action of time mechanism, and an indicator for visually indicating the position of the reserve unlocking mechanism and for obstructing the setting up of the primary unlocking mechanism until the reserve unlocking mechanism shall have been set up.



4. In an automatic bolt-operating mechanism, the combination of automatic devices for throwing the bolts, primary and reserve devices for withdrawing the bolts, fastening devices for holding the unlocking devices against operation until released by time mechanism, and a sliding plate actuated by the movements of the reserve unlocking device and adapted to prevent the attachment of the setting-up wrench to the primary unlocking mechanism until the reserve unlocking mechanism shall have been set up.

680,687. **MACHINE FOR PRINTING STOCKINGS, &c.** ROBERT C. BLOOD, Philadelphia, Pa. Filed May 20, 1899. Serial No. 717,538. (No model.)

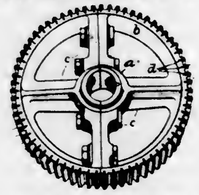


Claim.—1. In a machine for printing on stockings and similar goods the combination of endless feed-chains carrying a series of flat platforms, means for feeding the chains and platforms forward with an intermittent movement whereby each platform is brought in succession beneath the printing-head, means for locking the chains and platform in position during the intervals of their movements, gages on each platform to regulate the position of the work thereon, a reciprocating printing-head arranged to operate on the work when on a platform beneath it and means for operating the printing-head during the dwell in the movement of the work-holding platforms.

2. In a machine for printing on stockings and similar articles, the combination with shafts as *b* and *b'*, feed-wheels, as B and B', mounted thereon and endless feed-chains carrying a series of platforms supported on said wheels, of a gear-wheel as B^3 and a stop-disk as B^4 secured on one of the shafts, said disk having a series of segmental facets, as b^4 b^5 &c., a driving-shaft C, a segmental gear-wheel C^3 secured thereto and adapted to intermittently engage and operate gear B^3, a stop-disk C^4 also secured to shaft C and adapted to engage and interlock with the facets of the stop-disk B^4 at and during the time the gear C^3 is disengaged from gear B^3, a reciprocating printing-head, as J, and means operated by the driving-shaft for operating said printing-head during the dwell in the movement of the platforms.

3. In a machine for printing on stockings and similar articles, the combination with a series of platforms adapted to support the articles to be printed and means for intermittently moving said platforms to bring them in turn to the position where the printing is effected, of a frame-standard G extending above the level of the platforms, a longitudinally-movable rod, as I^3, supported on the standard G, a printing-head J supported on rod I^3, means for reciprocating the rod and head to print the goods and to elevate the head after printing, a horizontal guide H' secured to standard G, an ink-box movable on said guide, an inking-roller supported on said box and means for reciprocating said box and roller on the guide during the time when the printing-head is in its uppermost position and for the purpose of inking the type in said head.

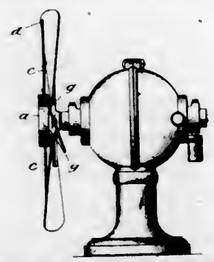
680,688. **GEAR-WHEEL.** GEORGE H. BOYD and THOMAS D. WEST, Sharpsville, Pa. Filed July 26, 1899. Serial No. 725,126. (No model.)



Claim.—1. A cast-metal gear or toothed product having metal plates which are embedded within the teeth and extend widthwise between the sides of the teeth and are arranged centrally between the faces of the teeth, the teeth being chilled or hardened contiguous to the said plates.

2. As a new article of manufacture, a cast-metal gear or toothed product having its teeth chilled or hardened centrally between the faces of the teeth and decreasing in hardness toward the said faces.

680,689. **DEVICE FOR DISTRIBUTING ODORS.** CHARLES T. BRADSHAW, Philadelphia, Pa. Filed Aug. 28, 1900. Serial No. 28,327. (No model.)



Claim.—1. In a device for distributing odors, the combination of a revolving closed reservoir, adapted to hold the odorous liquid, one or more tubes connected with said reservoir, small openings provided in said tubes adjacent their free ends, and wicks passing through said tubes and into the reservoir, substantially as described.

2. In combination with a revolving fan, a receptacle or reservoir adapted to hold an odorous liquid, means for securing said reservoir to the fan so as to revolve therewith, one or more radially-disposed tubes extending from said reservoir having reduced outer ends, a small spray-

ing-opening provided in each of said reduced ends, and wicks provided in said tubes and entering the reservoir, substantially as described.

3. The combination with a revolving fan, of a reservoir adapted to hold an odorous liquid, means for securing said reservoir to the fan, so as to revolve therewith, hollow tubes extending from the reservoir to a point near the ends of the fan-blades and in close proximity to said blades, having their ends curved and reduced at the points, a spraying-opening formed in the said reduced ends, and a wick or feeding medium provided in said tubes extending within the reservoir, substantially as described.

4. The combination with a revolving fan, of a reservoir, *a*, having a cone-shaped face for centering the same on the fan-shaft, two or more compartments formed in said reservoir, a hollow tube extending from each compartment to a point near the ends of the fan-blades, an atomizer formed in the end of each tube, and wicks extending from the reservoir to the end of each tube, substantially as described.

680,690. NUT-LOCK. JOHN W. BRANNON, Marquand, Ohio. Filed Jan. 17, 1901. Serial No. 43,618. (No model.)



Claim.—A nut-lock comprising a bar adapted to engage and prevent the rotation of the nuts of a railroad-rail, a tie-rod having one end connected to said bar and adapted to engage and project under the base of the rail and having its other end provided with an upward extension, and a cam pivoted to said upper extension and adapted to engage the edge of the rail, substantially as set forth.

680,691. SHEET-STEEL PULLEY. ADOLPH E. BRION, New York, N. Y. Filed Nov. 5, 1900. Serial No. 35,461. (No model.)



Claim.—1. A sheet-steel pulley having a hub-piece and spokes formed integrally, as set forth and described, in combination with a U-shaped rim the inwardly-projecting flanges whereof and the ends of the spokes abut and are united together, substantially as shown and described.

2. In a sheet-steel pulley, spokes formed integral with a hub-piece and radiating from each end thereof, in combination with a rim to which said spokes extend, and to which they are united at each edge of the rim.

3. In a sheet-steel pulley, a hub-piece and spokes formed integral therewith, the hub-piece from which the spokes radiate being divided, in combination with a rim against the edges of which the ends of said spokes abut and to which they are united, substantially as shown and described.

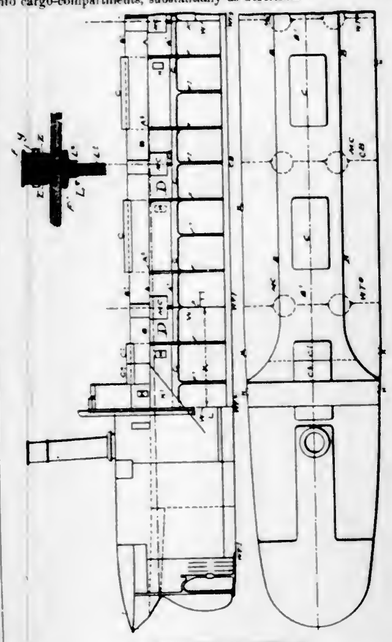
4. In a sheet-steel pulley, U-shaped rim-sections; means for separably connecting the rim-sections; spokes formed integral with hub-pieces, and united to the inwardly-projecting flanges of the rim at each edge thereof, as set forth; a bushing, and means for holding the pulley upon a shaft, the whole combined and arranged substantially as shown and described.

680,692. CARGO-STEAMER. HENRY BURRELL, Glasgow, Scotland. Filed Sept. 6, 1899. Serial No. 729,654. (No model.)

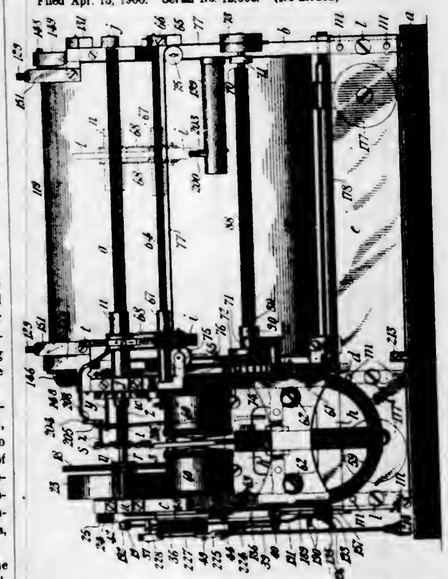
Claim.—1. In a vessel of the character described, the combination with the hatches C; of stringers running longitudinally of the vessel, and spaced at a distance equal to the width of said hatches, vertical struts or pillars F, F' supporting said stringers, cargo-boards L', stretching transversely of the vessel between the struts F and cargo-boards L stretching longitudinally of the vessel beneath and above said stringers between the struts F, F', substantially as described.

2. In a vessel of the character described, the combination with a plurality of hatchways disposed longitudinally of the vessel; of stringers G, G, running longitudinally of the vessel, and spaced at a distance equal to the width of said hatches, I-shaped struts F forming the four corners of said hatchways, cargo boards L' running transversely of the vessel between said struts F forming the ends of said hatchways, vertically-disposed struts F', supporting said stringers G, G, and cargo-boards L connecting said struts or pillars F, F', forming the sides of said hatchways, substantially as described.

3. In a vessel of the character described, the combination with the vertically-disposed I-shaped struts or pillars F, F', made of two channel-beams bolted together by the bolt *y*, strips of planking *z*, *z*, bolted in the channels of said beams, and held in position by said bolt *y*, leaving a recess large enough to admit the end of a board in said channel, and a pair of angle-irons L^2, L^2, secured to one of the flat sides of said struts, forming a recess or channel large enough to admit the end of a board between them, said recess being adapted to hold the board at right angles to said first-mentioned recess; of a plurality of removable cargo-boards adapted to have their ends inserted in said recesses, thereby dividing the vessel up into cargo-compartments, substantially as described.



680,693. PRINTING-TELEGRAPH. JOHN BURRY, Fort Lee, N. J. Filed Apr. 13, 1900. Serial No. 12,660. (No model.)



Claim.—1. The combination of a rotary carrier provided with a circular row of type, driving mechanism for rotating said carrier, means for arresting said carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting said carrier to move about its axis independently of said driving mechanism, a member connected to said carrier to rotate the same, said member being provided with working parts whose number is equal to the number of said positions, and a pivoted member having a working part pivoted on said pivoted member on an axis parallel to that of the type-carrier and adapted to engage with the said working parts of the first-named member to rotate said carrier in each direction about its axis independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

2. The combination of a rotatory carrier provided with a circular row of type, driving mechanism for rotating said carrier about its axis, means for arresting said carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting said carrier to move about its axis independently of said driving mechanism, a toothed wheel or pinion connected to said carrier to rotate the same, the teeth or working parts of said wheel or pinion equaling in number the said positions, and a pivoted arm having a working part pivoted on said arm on an axis parallel to that of said type-carrier and adapted to engage with said wheel or pinion to rotate the same in both directions about its axis independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

3. The combination of a rotatory carrier provided with a circular row of type, driving mechanism for rotating said carrier about its axis, means for arresting said carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting said carrier to move about its axis independently of said driving mechanism, a star-wheel connected to said carrier to rotate the same, the teeth of said wheel equaling said positions in number, a pivoted arm having a working part pivoted on said arm on an axis parallel to that of said type-carrier and adapted to engage with the teeth of said wheel to rotate the type-carrier in both directions independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

4. The combination of a carrier movable about an axis and provided with a circular row of type, driving and arresting means for moving said carrier about said axis and for arresting it in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a returning spring member for permitting said carrier to move about said axis independently of said driving means, a member connected with said carrier to rotate the same and having working parts equal in number to said positions, and a pivoted member pivoted on said member on an axis parallel with that of the said type-carrier and adapted to engage with said working parts to rotate the first-named member and type-carrier independently of said driving means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

5. The combination of a carrier movable about an axis and provided with a circular row of type, driving and arresting means for moving said carrier about said axis and for arresting it in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a returning spring member for permitting said carrier to move about said axis independently of said driving means, a toothed wheel or pinion connected to said carrier to rotate the same, the engaging parts of said wheel or pinion being equal in number to said positions, and a pivoted arm pivoted on said arm on an axis parallel with that of said type-carrier and adapted to engage with said wheel or pinion to rotate the type-carrier independently to bring to the printing-point type in said row that are not brought thereto or stopped thereat when said carrier is arrested by said arresting means, substantially as described

6. The combination of a carrier movable about an axis and provided with a circular row of type, driving and arresting means for moving said carrier about said axis and for arresting said carrier in given positions the number of which is an exact divisor of the type-spaces in said row, a yielding connection between said carrier and said means, a star-wheel connected to the carrier to rotate the same the teeth of said wheel equaling said positions in number, and an arm provided with a V-shaped engaging part having a compound motion whereby it moves into engagement with any two teeth of said wheel and rotates the carrier in either direction to bring to and lock at the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

7. The combination of a carrier movable about an axis and provided with a circular row of type, driving and arresting means for moving said carrier about said axis and for arresting it in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member between said carrier and said means, a star-wheel connected to the carrier to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm provided with a V-shaped engaging part having a compound motion into engagement with any two teeth of said wheel whereby it rotates the carrier in either direction to bring to and to lock at the printing-point type in said row that are not brought to said point or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

8. The combination of a rotatory carrier provided with a circular row of type, power driving mechanism for rotating said carrier progressively in one direction, an escapement mechanism constructed to arrest said carrier in giving positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection between said mechanisms and said carrier to permit of independent rotation of the carrier about its axis, a star-wheel connected to said carrier to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm provided with a V-shaped engaging part having a compound motion into engagement with any two teeth of said wheel to rotate the carrier in either direction independently of said driving mechanism to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said escapement mechanism, substantially as described.

9. The combination of a rotatory carrier provided with a circular row of type, power driving mechanism for rotating said carrier progressively in one direction, an escapement mechanism constructed to arrest said carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, a connection having a spring member between said mechanisms and said carriers, a star-wheel connected to said carrier to rotate the same independently of said driving mechanism, the teeth of said wheel being equal to said positions in number, and an arm provided with a V-shaped engaging part having a compound motion into engagement with any two teeth of said wheel to rotate the carrier in either direction independently of the said driving mechanism to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said escapement mechanism, substantially as described.

10. The combination of a rotatory carrier provided with a circular row of type, power driving mechanism for rotating said carrier progressively in one direction, an escape-wheel rigidly connected with a rotating part of said mechanism and having teeth the number of which is an exact divisor of the number of type-spaces in said row, yielding connections between said carrier and said escape-wheel, a star-wheel connected to said carrier to rotate the same, the teeth of said star and escape wheels being equal in number, and an arm provided with a V-shaped operating part having a compound motion into engagement with any two teeth of the star-wheel to rotate the carrier in either direction independently of said driving mechanism to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said escape-wheel, substantially as described.

11. The combination of a rotatory carrier provided with a circular row of type, power driving mechanism for rotating said carrier progressively in one direction, an escape-wheel rigidly connected with a rotating part of said mechanism and having teeth the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member between said carrier and said scape-wheel, a star-wheel connected to said carrier to rotate the same, the teeth of said star and scape wheels being equal in number, and an arm provided with a V-shaped operating part having a compound motion into engagement with any two teeth of said star-wheel to rotate the carrier in either direction independently of the driving mechanism to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said scape-wheel, substantially as described.

12. The combination of a rotatory shaft, a carrier movable along and rotating with said shaft, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and arresting it and the carrier in given positions less in number than the type-spaces in said row, and supplemental means for rotating said shaft and carrier independently of said driving means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the said shaft and carrier are arrested by said arresting means, substantially as described.

13. The combination of a rotatory shaft, a carrier movable along and rotating with said shaft, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and carrier and for arresting them in given positions the number of which is an exact divisor of the number of type-spaces in said row, and supplemental means for rotating said shaft and carrier independently of said driving means to bring to the printing-point type in said row that are not brought

thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

14. The combination of a rotatory shaft, a carrier movable along and rotating with said shaft, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and carrier and for arresting them in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection between said shaft and said means, a member connected to said shaft to rotate the same, said member being provided with engaging parts equal in number to said positions, and a member movable into engagement with said engaging parts of the first-named member to rotate said shaft and carrier independently of said driving means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

15. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, and driving and arresting means for rotating said shaft and carrier and for arresting them in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection between said shaft and said means, a toothed wheel or pinion connected to said shaft to rotate it and the carrier, said wheel or pinion having teeth or engaging parts equal in number to said positions, and an arm movable into engagement with said wheel or pinion parts to rotate the shaft and carrier independently of said driving and arresting means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

16. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and carrier and for arresting them in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection between said shaft and said means, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to said spaces, and an arm movable into engagement with the teeth of said wheel to rotate the shaft and carrier to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

17. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft and carrier progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions whose number is an exact divisor of the number of type-spaces in said row of type, a yielding connection for permitting said shaft and carrier to rotate independently of said driving mechanism, and means for rotating said shaft and carrier independently of said driving mechanism to bring to the printing-point type in said row that are not stopped thereat or brought thereto when the shaft and carrier are arrested by the normal action of the escapement mechanism, substantially as described.

18. The combination of a rotatory shaft, a carrier movable along said shaft for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting the shaft and carrier to rotate independently of said driving mechanism, a member connected to said shaft, said member being provided with engaging parts equal in number to said positions, and a member movable into engagement with said part of said first-named member to rotate the shaft and carrier independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

19. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft and carrier progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting the shaft and carrier to rotate independently of said driving mechanism, a toothed wheel or pinion connected to said shaft to rotate the same, the engaging parts of said wheel or pinion being equal in number to said positions, and an arm movable into engagement with said wheel or pinion parts to rotate the shaft and carrier independently of said power mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

20. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft and carrier progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting the shaft and carrier to rotate independently of said power mechanism, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm movable into engagement with said wheel to rotate the carrier independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

21. The combination of a rotatory shaft, a carrier movable along the same and rotating therewith, said carrier being provided with a circular row of type, driving means for rotating said shaft and carrier, means for arresting said shaft and carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, and means for rotating said shaft and carrier in each direction independently of said driving means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

22. The combination of a rotatory shaft, a carrier movable along the same and rotating therewith, said carrier being provided with a circular row of type, driving mechanism for rotating said shaft and carrier, means for arresting said shaft and carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting said shaft and carrier to rotate independently of said driving mechanism, a member connected to said shaft to rotate the same, said member being provided with engaging parts whose number is equal to the number of said positions, and a member having a compound motion and movable into engagement with said parts of the first-named member to rotate said shaft and carrier in each direction independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

23. The combination of a rotatory shaft, a carrier movable along the same and rotating therewith, said carrier being provided with a circular row of type, driving mechanism for rotating said shaft, means for arresting said shaft and carrier in positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection for permitting said shaft and carrier to rotate independently of said driving mechanism, a toothed wheel or pinion connected to said shaft to rotate the same, the engaging parts of said wheel or pinion equaling said positions in number, and an arm having a compound motion and movable into engagement with said wheel or pinion parts to rotate the shaft and carrier in both directions independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by the arresting means, substantially as described.

24. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving mechanism for rotating said shaft, means for arresting said shaft and carrier in given positions the number of which is an exact divisor of that of the type-spaces in said row, a yielding connection for permitting said shaft to rotate independently of said driving mechanism, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to the number of said positions, and an arm having a compound motion and movable into engagement with said teeth of said wheel to rotate said shaft in both directions independently of said driving mechanism to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

25. The combination of a rotatory shaft, a carrier movable along the same and rotating therewith, said carries having a circular row of type thereon, driving and arresting means for rotating said shaft and for arresting it and said carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member for permitting said shaft to rotate independently of said driving mechanism, and means for rotating said shaft and carrier to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

26. The combination of a rotatory shaft, a carrier movable along the same and rotating therewith, said carrier having a circular row of type thereon, driving and arresting means for rotating said shaft and for arresting it in given positions whose number is an exact divisor of the number of type-spaces in said row, connections having a returning spring member for permitting said shaft to rotate independently of said driving mechanism, and means for rotating said shaft and carrier to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

27. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and for arresting it and the carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a returning spring member for permitting said shaft to rotate independently of said driving and arresting means, a member connected with said shaft to rotate the same and having engaging parts equal in number to said positions, and a member movable into engagement with said engaging parts to rotate the shaft and carrier independently of said means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

28. The combination of a rotatory shaft, a carrier movable along said shaft for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and for arresting it and the carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, connections having a returning spring member for permitting the shaft to rotate independently of said means, a toothed wheel or pinion connected to said shaft to rotate the same, the engaging parts of said wheel or pinion being equal in number to said positions, and an arm movable into engagement with said wheel or pinion to rotate the shaft and carrier independently of said means to bring to the printing-point type in said row that are not brought thereto or stopped thereat when said shaft and carrier are arrested by said arresting means, substantially as described.

29. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and for arresting it and the carrier in given positions whose number is an exact divisor of the number of type-spaces in said row, connections having a returning spring member for permitting said carrier to be rotated independently of said means, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm movable into engagement with said teeth to rotate the shaft and carrier independently of said driving means to bring to the printing-type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

30. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, a circular row of type on said carrier, power driving mechanism for rotating said carrier progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions the number of which is an exact divisor of the number of type spaces in said row, connections having a spring member for permitting the shaft and carrier to rotate independently of said driving and escapement mechanisms, and means for rotating said shaft and carrier independently as stated to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

31. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said carrier progressively in one direction, an escapement mechanism constructed to arrest said carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member for permitting rotation of said shaft independently of said mechanisms, a member connected to said shaft to rotate the same, said member being provided with engaging parts equal in number to said positions, and a member movable into engagement with said parts to rotate the shaft and carrier independently of said mechanisms to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

32. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions the number of which is an exact divisor of the number or type-spaces in said row, connections having a spring member for permitting the shaft to rotate independently of said mechanisms, a toothed wheel or pinion connected to said shaft to rotate the same, the engaging parts of said wheel or pinion being equal in number to said positions, and an arm movable into engagement with said wheel or pinion to rotate the shaft and carrier independently of said mechanisms to bring to the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

33. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member for permitting said shaft to rotate independently of said mechanisms, a star-wheel connected to said shaft, the teeth of said wheel equaling the number of said positions, and an arm movable into engagement with said wheel to rotate said shaft and carrier independently of said mechanisms to bring to the printing-point type in said row that are not brought thereto when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

34. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and for arresting it and the carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, a yielding connection between said shaft and said means, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm provided with a V-shaped operating part having a compound motion whereby it moves into engagement with any two teeth of said star-wheel to rotate the shaft and carrier in either direction to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the carrier is arrested by said arresting means, substantially as described.

35. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, driving and arresting means for rotating said shaft and for arresting it and the carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member between said shaft and said means, a star-wheel connected to the shaft to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm provided with a V-shaped operating part having compound motion into engagement with any two teeth of said wheel to rotate the shaft and carrier in either direction to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said arresting means, substantially as described.

36. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member for permitting the shaft to rotate independently of said mechanisms and said shaft, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm provided with a V-shaped operating part having a compound motion into engagement with any two teeth of said wheel to rotate the shaft and carrier in either direction independently of said mechanisms to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by the escapement mechanism, substantially as described.

37. The combination of a rotatory shaft, a carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, power driving mechanism for rotating said shaft progressively in one direction, an escapement mechanism constructed to arrest said shaft and carrier in given positions the number of which is an exact divisor of the number of type-spaces in said row, connections having a spring member between said shaft and mechanisms, a star-wheel connected to said shaft to rotate the same, the teeth of said wheel being equal in number to said positions, and an arm provided with a V-shaped operating part having compound motion into engagement with any two teeth of said wheel to rotate the shaft and carrier in either direction independently of said mechanisms to bring to and to lock at the printing-point type in said row that are not brought thereto or stopped thereat when the shaft and carrier are arrested by said escapement mechanism, substantially as described.

38. The combination of a type-wheel, an escape-wheel, the axes of said wheels being in line with each other and the number of teeth on said escape-wheel being less than the number of type-spaces in a circular row of type on said type-wheel, a toothed wheel or pinion connected to the type-wheel, pins projecting from said escape-wheel and one of the other of said wheels, said pins overlapping each other, and springs coacting with said pins to keep them and said wheels in given relations with each other, with means coacting with said toothed wheel or pinion to turn the same and the type-wheel independently of said escape-wheel, substantially as described.

39. The combination of a type-wheel, an escapement-wheel, the axes of said wheels being in line with each other and the number of teeth on said escapement-wheel being less than the number of type-spaces in a circular row of type on said type-wheel, a toothed wheel or pinion between said wheels and connected to the type-wheel to rotate the same, pins projecting from said toothed wheels toward the other and overlapping, springs coacting with said pins to keep them and said wheels in given relations with each other, and means coacting with the toothed wheel or pinion to rotate the same and the type-wheel independently of said escapement-wheel, substantially as described.

40. The combination of a type-wheel, an escapement-wheel, the axes of said wheels being in line with each other and the number of teeth on the escape-wheel being an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, a toothed wheel or pinion on the same axis as and connected to the type-wheel to rotate the same, pins projecting from said escape-wheel and one of the other wheels, said pins overlapping each other, springs coacting with said pins to keep the same and said wheels in given relation with each other, and an arm provided with a V-shaped operating part having a compound motion into engagement with any two adjacent teeth or engaging parts of said toothed wheel or pinion to turn said type-wheel in either direction independently of said escape-wheel, and to lock said type-wheel, substantially as described.

41. The combination of a type-wheel, an escapement-wheel, the axes of said wheels being in line and the number of teeth on said escapement-wheel being an exact divisor of the number of type-spaces in a circular row of type on the type-wheel, a toothed wheel or pinion on the same axis as and between said wheels and connected with the type-wheel to rotate the same, pins projecting from said toothed wheels and overlapping, springs coacting with said pins to keep said wheels in given relations with each other, and an arm provided with a V-shaped operating part having compound motion into engagement with said toothed wheel or pinion to rotate the type-wheel independently of said escapement-wheel, and to lock said type-wheel, substantially as described.

42. The combination of a rotatory shaft, a type-wheel movable along said shaft for letter-spacing and rotating therewith, an escapement-wheel having its axis in line with that of said shaft, the teeth of said escapement-wheel being an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, a toothed wheel or pinion fast on said shaft adjacent said scape-wheel, the engaging or operating parts of said wheel or pinion being equal in number to said scape-wheel teeth, overlapping pins projecting from said scape and toothed wheels or pinion toward the other wheel, springs coacting with said pins to keep said wheels in given relation with each other, and means coacting with said toothed wheel or pinion to rotate the same and the type-wheel independently of said escape-wheel, substantially as described.

43. The combination of a rotatory shaft, a type-wheel movable along said shaft for letter-spacing and rotating therewith, an escapement-wheel having its axis in line with that of said shaft, the teeth of said escapement-wheel being in number an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, a toothed wheel or pinion fast on said shaft adjacent said scape-wheel and having the same number of engaging or operating parts, overlapping pins projecting from said toothed wheel or pinion and scape-wheel, springs coacting with said pins to keep said wheels in given relations with each other, and an arm provided with a V-shaped operating part having compound motion into engagement with any two of said operating parts of the toothed wheel or pinion to rotate the same and the type-wheel independently of said scape-wheel and to lock them, substantially as described.

44. The combination of a rotatory shaft, a type-wheel movable along said shaft for letter-spacing and rotating therewith, an escapement-wheel having its axis in line with that of said shaft, the teeth of said escapement-wheel being in number an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, a star-wheel fast on said shaft adjacent said scape-wheel, the teeth of said scape and star wheels being equal in number, overlapping pins projecting from said star and scape wheels toward the other thereof, springs coacting with said pins to keep said wheels in given relation with each other, and an arm provided with a V-shaped operating part having compound motion into engagement with any two of the teeth of said star-wheel to rotate it and the type-wheel in either direction independently of said scape-wheel, substantially as described.

45. The combination of a power-driven rotatory type-carrier with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, a yielding connection between the power-driver and the carrier, a pinion or toothed wheel connected to and rotating said carrier and having working parts or teeth less in number than said spaces, a shifter, a pivoted arm to which said shifter is pivoted and by which the shifter is moved into engagement with said working parts to rotate the carrier independently of said driving and escapement mechanisms, electromagnetically-operated means for moving said arm and shifter, and polarized electromagnets in an independent circuit for actuating said escapement mechanism, substantially as described.

46. The combination of a power driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member between the driving devices and the carrier, a toothed wheel or pinion connected to rotate the carrier and having working parts less in number than said type-spaces, a shifter, a pivoted arm to which said shifter is pivoted and by which the shifter is moved into engagement with said working parts to rotate the carrier independently of the driving and escapement mechanism, electromagnetically-operated means for moving said arm and shifter, and polarized electromagnets in an independent circuit for actuating said escapement mechanism, substantially as described.

47. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, a yielding connection between the power devices and the carrier, a star-wheel connected to rotate said carrier, the teeth of said wheel being less in number than the said type-spaces, a shifter provided with a V-shaped working part movable in two directions into engagement with any two of the teeth of said wheel to rotate said carrier independently of said driving devices and to lock the carrier against motion, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for actuating said escapement mechanism, substantially as described.

48. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member between the driver devices and the carrier, a star-wheel connected to rotate said carrier, the teeth of said star-wheel being less in number than said type-spaces, a shifter provided with a V-shaped working part movable in two directions into engagement with any two teeth of said wheel to rotate the carrier independently of said driving devices and to lock the carrier against rotatory motion, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

49. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, a yielding connection between the power devices and the carrier, a toothed wheel or pinion connected to rotate said carrier and having working parts less in number than said type-spaces, a shifter movable in two directions into engagement with said working parts to rotate the carrier independently of said driving devices, a switch device for causing said shifter to move in one of said directions, quick-acting polarized electromagnets, means operated thereby for governing said switch, a sluggish electromagnet in the same circuit as said polarized magnets, means operated by said sluggish magnet for moving said shifter in the other of said directions, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

50. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member between said driving devices and said carrier, a toothed wheel or pinion connected to rotate the carrier and having working parts less in number than said type-spaces, a shifter movable in two directions into engagement with said working parts to rotate the carrier independently of said driving devices, a switch device for causing said shifter to move in one of said directions, quick-acting polarized electromagnets, means operated thereby for governing said switch, a sluggish electromagnet in the same circuit as said polarized magnets, means operated by said sluggish magnet for moving said shifter in the other of said directions, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

51. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, a yielding connection between said driving devices and said carrier, a star-wheel connected to rotate said carrier, the teeth of said wheel being less in number than the type-spaces in said row, a shifter provided with a V-shaped working part movable in two directions into engagement with the teeth of said wheel to rotate the carrier independently of said driving devices and to lock it against rotation, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

52. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member between said driving devices and the carrier, a star-wheel connected to rotate said carrier, the teeth of said wheel being less in number than said type-spaces, a shifter provided with a V-shaped working part movable in two directions into engagement with said teeth to rotate the carrier independently of said driving devices and to lock the carrier against rotation, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

53. The combination of a rotatory power-driven shaft, a type-carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, escapement mechanism for arresting said shaft and carrier in given positions less in number than the type-spaces in said row, a yielding connection between said shaft and said escapement mechanism, a toothed wheel or pinion fast on said shaft, the teeth or working parts thereof being less in number than said type-spaces, a shifter movable in two directions into engagement with said teeth or working parts to rotate said shaft and carrier independently of said driving devices and escapement mechanism, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

54. The combination of a power-driven rotatory shaft, a type-carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, escapement mechanism for arresting said shaft and carrier in given positions less in number than said type-spaces, connections having a returning spring member between the shaft and escapement mechanism, a toothed wheel or pinion fast on said shaft, the teeth or working parts thereof being less in number than said type-spaces, a shifter movable in two directions into engagement with said teeth or working parts to rotate said shaft and carrier independently of said driving devices and escapement mechanism, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

55. The combination of a power-driven rotatory shaft, a type-carrier movable along said shaft for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, escapement mechanism for arresting said shaft and carrier in given positions less in number than the type-spaces in said row, a yielding connection between said shaft and driving and escapement mechanism, a star-wheel connected to rotate said shaft and carrier, the teeth of said wheel being less in number than said type-spaces, a shifter provided with a V-shaped working part movable in two directions into engagement with said teeth to rotate the shaft and carrier independently of said driving and escapement mechanism and to lock the carrier against rotation, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for actuating said escapement mechanism, substantially as described.

56. The combination of a power-driven rotatory shaft, a type-carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, escapement mechanism for arresting said shaft and carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member between the shaft and the driving and escapement mechanism, a star-wheel connected to rotate said shaft and carrier, the teeth of the star-wheel being less in number than the type-spaces in said row, a shifter provided with a V-shaped working part movable in two directions into and out of engagement with said teeth to rotate the shaft and carrier independently of said driving and escapement mechanism and to lock the carrier against rotation, electromagnetically-operated means for so moving said shifter, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

57. The combination of a power-driven rotatory shaft, a type-carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, escapement mechanism for arresting said shaft and carrier in given positions less in number than the type-spaces in said row, a yielding connection between said shaft and said driving and escapement mechanism, a star-wheel connected to rotate said shaft, the teeth of said wheel being less in number than said type-spaces, a shifter provided with a V-shaped working part movable in two directions into and out of engagement with said teeth to rotate said shaft and carrier independently of said driving and escapement mechanism and to lock the carrier against rotation, a switch device for causing said shifter to move in one of said directions, quick-acting electromagnets, means operated thereby for governing said switch, a sluggish electromagnet in circuit with said polarized magnets, means operated by said sluggish magnet for moving said shifter in the other of said directions, and polarized electromagnets in an independent circuit for operating said escapement mechanism, substantially as described.

58. The combination of a power-driven rotatory shaft, a type-carrier movable along the same for letter-spacing and rotating therewith, said carrier being provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, connections having a returning spring member between the driving and escapement mechanism and said shaft, a star-wheel connected to rotate said shaft and carrier, the teeth of said wheel being less in number than said type-spaces, a shifter provided with a V-shaped working part movable in two directions into engagement with said teeth to rotate said shaft and carrier independently of said driving and escape mechanism and to lock the carrier against rotation, a switch device for causing said shifter to move in one of said directions, quick-acting electromagnets, means operated thereby for governing said switch, a sluggish magnet in circuit with said quick-acting magnets, means operated by the sluggish magnet for moving said shifter in the other of said directions, and polarized electromagnets in an independent circuit for operating the said escapement mechanism, substantially as described.

59. The combination of a type-wheel, a toothed wheel or pinion connected therewith to rotate the same, the number of teeth or working parts on said wheel or pinion being less in number than the type-spaces in a circular row of type on said type-wheel, an arm movable into and out of engagement with said toothed wheel or pinion to turn the same and the type-wheel, said arm also being arranged to move circumferentially of the wheel or pinion, and switch devices for controlling said circumferential motion, whereby the arm turns the toothed wheel or pinion and the type-wheel, substantially as described.

60. The combination of a type-wheel having a circular row of type, a toothed wheel or pinion connected to and rotating said type-wheel, the number of teeth or working parts of said toothed wheel or pinion being less in number than the type-spaces in said row, an arm movable into and out of engagement with said toothed wheel or pinion to turn the same and the type-wheel, said arm being arranged also to move circumferentially of the wheel or pinion, a tongue pivotally connected with said arm and resting in a slot therein, and a fixed guide engaging with said slotted part of the arm and with the tongue, substantially as described.

61. The combination of a type-wheel having a circular row of type, a star-wheel connected to and adapted to rotate said type-wheel, the number of teeth of said star-wheel being a divisor of the number of type-spaces in said row, an arm provided with a V-shaped working part having a compound motion into and out of engagement with any two of said teeth to turn the type-wheel in either direction, and switch devices for controlling said compound motion, substantially as described.

62. The combination of a type-wheel having a circular row of type, a star-wheel connected to and adapted to turn said type-wheel, the number of teeth of said star-wheel being an exact divisor of the number of type-spaces in said row, an arm provided with a V-shaped working part having a compound motion into and out of engagement with any two of said teeth of said star-wheel to turn the type-wheel in either direction, a slot in said arm, a tongue in said slot, and a guide coacting with said slot and tongue to move said V-shaped part in the plane of the star-wheel, substantially as described.

63. The combination of a rotatory shaft, a type-wheel movable along the same for letter-spacing and rotating therewith, a toothed wheel or pinion fast on said shaft, the number of teeth or working parts on said wheel or pinion being an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, an arm movable in two directions into and out of engagement with said toothed wheel or pinion to rotate the shaft and type-wheel, and switch devices for controlling the motion of said arm in one of said directions, substantially as described.

64. The combination of a rotatory shaft, a type-wheel movable along the same for letter-spacing and rotating therewith, a toothed wheel or pinion fast on said shaft, the number of teeth or working parts on said wheel or pinion being an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, an arm movable in two directions into and out of engagement with said teeth or working parts, a slot in said arm, a tongue in said slot, and a fixed guide for coaction with the said slot and tongue, substantially as described.

65. The combination of a rotatory shaft, a type-wheel movable along the same for letter-spacing and rotating therewith, a star-wheel fast on said shaft, the number of teeth of said star-wheel being an exact divisor of the number of type-spaces in a circular row of type on said type-wheel, an arm provided with a V-shaped working part movable in two directions into and out of engagement with any two teeth of the star-wheel to turn the same and the shaft in either direction and to lock them, and switch devices for controlling one of said motions, substantially as described.

66. The combination of a rotatory shaft, a type-wheel movable along said shaft for letter-spacing and rotating therewith, a star-wheel fast on said shaft, the number of teeth of said star-wheel being an exact divisor of the

number of type-spaces in a circular row of type on said type-wheel, an arm provided with a V-shaped working part movable in two directions into and out of engagement with any two teeth of said star-wheel to turn the same and the shaft in either direction, a slot in said arm, a tongue in said slot, and a fixed guide coacting with said slot and tongue, substantially as described.

67. The combination of an escapement-controlled type-wheel, a rotatory shaft, a gear loose on said shaft and geared with the escapement-wheel, a helical spring loosely surrounding said shaft exactly at one end where it frictionally grips a round part of said shaft, a connection between the other end of said spring and said gear for rotating the latter, and electromagnetically-operated means for turning said shaft and putting said spring under tension, substantially as described.

68. The combination of an escapement-controlled type-wheel, a rotatory shaft, a gear loose on said shaft and geared with the escapement-wheel, a helical spring loosely surrounding said shaft except at one end where it frictionally grips a round part of said shaft, a connection between the other end of said spring and said gear for rotating the latter, a fly-wheel fast on said shaft, and electromagnetically-operated means for turning said shaft to put said spring under tension, substantially as described.

69. The combination of an escapement-controlled type-wheel, a rotatory shaft, a gear loose on said shaft and geared with the escapement-wheel, a helical spring loosely surrounding said shaft except at one end where it frictionally grips said shaft at a round part thereof, a connection between the other end of said spring and said gear for rotating the latter, said spring being wound to open its coils as it is put under tension thereby increasing its diameter, and means for rotating said shaft to put said spring under tension, substantially as described.

70. The combination of a rotatory shaft, a helical spring loosely surrounding said shaft except at one end where it frictionally grips said shaft at a round portion thereof, an escapement for restraining said spring from running down and releasing it from time to time, and electromagnetically-operated means for turning said shaft progressively and so winding said spring, substantially as described.

71. The combination of a type-wheel, means for moving it axially for letter-spacing, a platen-bar, a pivoted frame carrying said bar, a bifurcated arm on said frame, a tooth on one prong or part of said bifurcated arm, a screw for drawing said prongs or parts of the bifurcated arm toward each other, a ratchet-wheel with which said tooth engages, and means for rotating said ratchet-wheel in a step-by-step manner, substantially as described.

72. The combination of a type-wheel, means for moving it axially for letter-spacing, a platen-bar, a pivoted frame carrying said bar, a pronged or bifurcated arm on said frame, a tooth on one prong of said arm, a screw for drawing said prongs toward each other, a ratchet-wheel with which said tooth engages, means for rotating said ratchet-wheel step by step, and an adjustable stop for said tooth as it is operated by said ratchet-wheel, substantially as described.

73. The combination of a power-driven rotatory type-carrier provided with a circular row of type, electromagnetically-operated escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, a circuit in which the electromagnets of said escapement are included, electromagnetically-operated supplemental or type-positioning mechanism constructed to rotate said carrier independently of said driving devices, a second circuit including the electromagnets for said positioning mechanism, a striking-platen, a printing-electromagnet for operating said platen, a circuit-controller, and connections from said controller operated only by the joint action of magnets in both of said circuits for throwing said printing-magnet into circuit to operate the platen, substantially as described.

74. The combination of a power-driven rotatory shaft, a type-carrier movable along the same for letter-spacing and rotating therewith, a circular row of type on said carrier, electromagnetically-operated escapement mechanism for arresting said shaft and carrier in given positions less in number than the type-spaces in said row, a circuit including the electromagnets of said escapement mechanism, electromagnetically-operated supplemental or type-positioning means constructed to rotate the shaft and carrier independently of said driving and escapement mechanism, a second circuit including the magnets of said positioning means, a striking-platen, a printing-magnet for operating said platen, and a circuit-controller operated only by the joint action of magnets in both said circuits for throwing said printing-magnet into circuit to operate said platen, substantially as described.

75. The combination of a power-driven rotatory type-carrier provided with a circular row of type, electromagnetically-operated escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, a circuit including the escape-magnets, electromagnetically-operated type-positioning mechanism constructed to rotate said carrier independently of the power driving devices, a second circuit including the electromagnets of said positioning mechanism, a striking-platen, a printing-magnet, and connections for operating said platen, two movable arms carrying coacting contacts, an electromagnet in circuit with said escape-magnets, and connections operated by the joint action of the last-named magnet and a magnet in said second circuit for throwing said printing-magnet into circuit to operate the platen, substantially as described.

76. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, escape-magnets as 60, a magnet 47, a circuit including said magnets, type-positioning mechanism constructed to rotate said carrier independently of said power devices, polarized magnets 177 and magnet 34 for operating said positioning mechanism, a second circuit including magnets 34 and 177, a circuit-controller, a striking-platen, a printing-magnet for actuating the platen, and connections operated by magnets 34 and 47 jointly for operating said controller to throw the printing-magnet into circuit to operate said platen, substantially as described.

77. The combination of a power-driven rotatory type-carrier provided with a circular row of type, escapement mechanism for arresting said carrier in given positions less in number than the type-spaces in said row, escape-magnets as 60, a magnet 47, a circuit including said magnets, type-positioning mechanism constructed to rotate said carrier independently of said power, magnet 34 and polarized magnets as 177 for operating said positioning mechanism, an independent circuit in which magnets 34 and 177 are included, a striking-platen, a printing-magnet for operating said platen, two movable contact-carriers, and means operated by magnets 34 and 47 jointly for operating said carriers to throw the printing-magnet into circuit to operate the platen, substantially as described.

78. The combination of a rotatory type-carrier, power driving mechanism therefor, an escapement mechanism for arresting said carrier, escape-magnets 60, magnet 47, a circuit including said magnets, a magnet 34 in an independent circuit, a centering mechanism operated by magnets 34, a platen, a printing-magnet for causing relative motion of the type-carrier and platen to take impressions, a circuit-controller, and means operated by magnets 34 and 47 jointly for throwing said printing-magnet into circuit, substantially as described.

79. The combination of a rotatory type-carrier, power driving mechanism therefor, an escapement mechanism for controlling the rotation of said carrier, escape-magnets, magnet 47, a circuit including said magnets, type-carrier-centering mechanism, magnet 34 for operating the centering mechanism, a separate circuit in which magnet 34 is included, a platen, a printing-magnet for causing relative motion of said platen and said carrier to take impressions, two movable contact-carriers, and connections between one of said carriers and magnet 47 and the other carrier and magnet 34 whereby the printing-magnet is thrown into a circuit only by the joint action of magnets 34 and 47, substantially as described.

80. The combination of a rotatory type-carrier, a platen, a printing-magnet for causing relative motion of said platen and carrier to take impressions, independent circuits each having an electromagnet, means for controlling the circuit through the printing-magnet, and means actuated only by all of said electromagnets (except the printing-magnet) for causing said controlling means to throw said printing-magnet into circuit to cause the taking of impressions, whereby the energizing of less than the whole number of said magnets in said circuits fails to operate said controlling means to cause the printing-magnet to be thrown into circuit, substantially as described.

81. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for beginning a new line, an arm or projection connected to and rotating with said carrier, a rocking stop-arm normally out of the path of said rotating arm, and means actuated by the returning carrier or a part reciprocating therewith for moving said stop-arm into the path of the rotating arm or projection, substantially as described.

82. The combination of a rotating type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for the beginning of a new line, an arm or projection connected to and rotating with the carrier, a rocking stop-arm normally out of the path of the said rotating arm or projection, and a cam operated by the returning type-carrier or a part reciprocating therewith and moving the said stop-arm into the path of the rotating arm or projection to arrest the same and the rotating carrier at unison, substantially as described.

83. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for the beginning of a new line, an arm or projection connected to and rotating with said carrier, a rocking stop-arm normally out of the path of said rotating arm or projection, and a spring-arm extending into the path of said returning type-carrier or a part moving therewith and having a cam portion adjacent said stop-arm and moved into the path thereof, whereby the stop-arm is moved into the path of said rotating arm or projection to arrest the same and the type-carrier at unison, substantially as described.

84. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for the beginning of a new line, an arm or projection connected to and rotating with said carrier, a rocking spring-arm having its working part normally out of the path of said rotating arm or projection, and means actuated by the returning carrier or a part moving therewith for moving said spring-arm to bring its working part into the path of said rotating arm or projection, whereby the carrier is arrested at unison, substantially as described.

85. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for the beginning of a new line, an arm or projection connected to and rotating with said carrier, a rocking spring-arm having its working part normally out of the path of said rotating arm or projection, and a cam operated by the returning type-carrier or a part connected to or moving therewith and moving the said stop-arm into the path of the rotating arm or projection to arrest the same and the rotating carrier at unison, substantially as described.

86. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for the beginning of a new line, an arm or projection to and rotating with the carrier, a rocking spring-arm having its working part normally out of the path of said rotating arm or projection, and a spring-arm extending into the path of said returning type-carrier or a part connected to and moving therewith and having a cam portion adjacent said rocking arm and movable into the path thereof, whereby the rocking arm is moved into the path of said rotating arm or projection to arrest the same and the type-carrier at unison, substantially as described.

87. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial position for the beginning of a new line, an escapement-wheel connected to and rotating with said carrier, a pin on said wheel, a rocking stop-arm normally out of the path of said pin, and means actuated by the returning type-carrier or a part connected to and moving therewith for moving said stop-arm into the path of said pin, substantially as described.

88. The combination of a rotatory type-carrier, mechanism for moving the same step by step for letter-spacing, means for releasing said carrier from the control of said mechanism, means for returning said released carrier automatically to an initial positon for the beginning of a new line, an escapement-wheel connected to and rotating with said carrier, a pin on said escape-wheel, a rocking stop-arm normally out of the path of said pin, and a cam operated by the returning type-carrier or a part connected to and moving therewith and moving said rocking stop-arm with the path of said pin, substantially as described.

89. In a unison mechanism, the combination of a rotating member and a rocking stop member normally out of the path of said rotating member, with a type-carrier rotating with said rotating member and also moving to and fro for printing lines across a page, and means for moving said rocking member into the path of the rotating member when the carrier reaches one limit of its to-and-fro motion to arrest the rotating member and the carrier at unison, substantially as described.

90. The combination of a shaft, a type-carrier movable along the same for letter-spacing, letter-spacing mechanism, a returning-spring against the force of which said mechanism advances said carrier, two electromagnets in different circuits, a release mechanism for freeing the type-carrier from the control of said letter-spacing mechanism, a lever connected to said release mechanism, movable arms actuated by said magnets, and a catch carried by one of said arms for coaction with said lever and held out of operative position by the other of said arms when the latter is in its normal position, whereby the movement of the catch-carrying arm first does not and the movement of the other arm first does move said catch into position to operate said lever and release mechanism, substantially as described.

91. The combination of a shaft, a type-carrier movable along the same for letter-spacing, letter-spacing mechanism, a returning-spring against the force of which said mechanism advances said carrier, two electromagnets in different circuits, a rock-shaft provided with releasing-arms for freeing the carrier from the control of said spacing mechanism, a lever on said shaft, movable arms actuated by said magnets, and a catch carried by one of said arms for coaction with said lever and held out of operative position by the other of said arms when the latter is in its normal position, whereby the movement of the catch-carrying arm first does not and the movement of the other arm first does move said catch into position to operate said lever and release mechanism, substantially as described.

92. The combination of a shaft, a type-carrier movable along the same for letter-spacing, letter-spacing mechanism, a returning-spring against the force of which said mechanism advances said carrier, two electromagnets in different circuits, a release mechanism for freeing the type-carrier from the control of said letter-spacing mechanism, a lever connected to said release mechanism, movable arms actuated by said magnets, and a catch carried by one of said arms for coaction with said lever and held out of operative position by the other of said arms when the latter is in its normal position, whereby the movement of the catch-carrying arm first does not and the movement of the other arm first does move said catch into position to operate said lever and release mechanism, substantially as described.

93. The combination of a shaft, a type-carrier movable along the same for letter-spacing, letter-spacing mechanism, a returning-spring against the force of which said mechanism advances said carrier, two electromagnets in different circuits, a rock-shaft provided with releasing-arms for freeing the carrier from the control of said spacing mechanism, a lever on said shaft, movable arms actuated by said magnets, and a catch carried by one of said arms for coaction with said lever and held out of operative position by the other of said arms when the latter is in its normal position, whereby the movement of the catch-carrying arm first does not and the movement of the other arm first does move said catch into position to operate said lever and release mechanism, with a vibratory platen, a printing-magnet for operating said platen, a circuit-controller, means actuated by said two magnets first named for throwing said printing-magnet into circuit to operate the platen, and means controlled by said lever for preventing the operation of the platen at the time the carrier is released, substantially as described.

94. The combination of a rotatory type-carrier, mechanism for advancing the same step by step for letter-spacing, a returning-spring against the force of which said carrier is moved by said mechanism, two electromagnets in different circuits, a release mechanism for freeing the type-carrier from the control of said letter-spacing mechanism, a lever connected with and operating said release mechanism, a movable arm actuated by one of said magnets, a catch carried by said arm and arranged to operate said lever, a spring-arm operated by the other of said magnets and connected with said catch to hold the same normally in an inoperative position, a stop for said spring-arm, a platen, a printing-electromagnet for actuating said printing-magnet into circuit, and devices for releasing said spring-arm from said stop, said devices being operated by said printing-magnet, substantially as described.

95. The combination of a spring-driven rotatory type-carrier moved step by step for letter-spacing against the force of a returning-spring, means for releasing said carrier to be returned by said spring, a roll of paper, means for keeping the paper from said roll under tension, an escapement mechanism for controlling the unwinding of the paper, a platen, a printing-magnet and means for causing relative motion of type-carrier and platen for taking impressions, two electromagnets in different circuits, means operated by the joint action of said two magnets for throwing said printing-magnet into circuit to cause the taking of impressions, and means actuated by said two magnets when energized in a given order for operating said release and escapement mechanisms and preventing relative impression-taking motion of said platen and carrier, substantially as described.

96. The combination of a spring-driven rotatory type-carrier moved step by step for letter-spacing against the force of a returning-spring, means for releasing said carrier to be returned by said spring, a roll of paper, means for keeping the paper from said roll under tension, an escapement mechanism for controlling the unwinding of the paper, a platen, a printing-magnet and means for causing relative motion of type-carrier and platen for taking impressions, two electromagnets in different circuits, means operated by the joint action of said two magnets for throwing said printing-magnet into circuit to cause the taking of impressions, and means actuated by said two magnets when energized in a given order for operating said release and escapement mechanisms and preventing relative impression-taking motion of said platen and carrier, with spring-winding means actuated by said two magnets, substantially as described.

97. The combination of a shaft, a rotatory type-wheel movable endwise of the shaft, a second journaled shaft parallel with the first-named shaft, a carrier movable along but not rotatable independently of said second-named shaft, an ink-roller borne by said carrier, and means for lock-

ing the second-named shaft and said carrier in any position to which they may be turned, whereby the pressure of the inker on the type-wheel may be varied, substantially as described.

98. The combination of a shaft, a rotatory type-wheel movable along said shaft, a second journaled shaft parallel with the first, an L-shaped carrier connected at its angle with the second shaft and embracing the hub of the type-wheel at its ends to move the same along the first-named shaft said carrier not being rotatable independently of said second shaft, an ink-roller borne by said carrier, and means for locking said second shaft and said carrier in any position to which they may be turned, substantially as described.

99. The combination of a shaft, a rotatory type-wheel movable along the same, a second journaled shaft parallel with the first, a carrier movable along the second shaft, an ink-roller borne by said carrier, a pair of arms forming part of said carrier provided with forked ends which bear against the ends of the type-wheel hub and limit the motion of said carrier transverse to the first shaft, and means for locking said second shaft and carrier in any position to which they may be turned, substantially as described.

100. The combination of a journaled shaft, a type-wheel movable also and rotating with said shaft, a second shaft journaled parallel with the first shaft, means for locking the second shaft against turning, a carrier movable along said second shaft and moving the type-wheel along the first shaft, an ink-roller journaled on said carrier, and means for moving said carrier along its shaft step by step, substantially as described.

101. The combination of a type-wheel, means for rotating the same, means for moving the type-wheel step by step for letter-spacing, an ink-roller moving with said wheel, and a stationary ink-feeder with which said roller coacts when the type-wheel and roller are in a given letter-space position, said roller and feeder being separated in all other letter-space positions of the type-wheel and ink-roller, substantially as described.

102. The combination of a type-wheel, means for rotating the same, means for moving the type-wheel for letter-spacing in a step-by-step manner, an ink-roller moving with said wheel during letter-spacing, and means for supplying ink to said roller while the type-wheel and roller are in a given letter-space position, said roller and feeder being separated in all other letter-space positions of the type-wheel and ink-roller, substantially as described.

103. The combination of a type-wheel, means for rotating the same, means for moving the type-wheel for letter-spacing, an ink-roller moving with the type-wheel, a stationary ink-reservoir, and a flexible capillary feed device coacting with the ink-roller in a particular letter-space position of the type-wheel to supply ink thereto from said reservoir, substantially as described.

104. In a page-printing telegraph-receiver, the combination of a rotatory type-carrier, means operated electromagnetically by one circuit for moving said carrier step by step for letter-spacing, and an electromagnetically-operated printing mechanism deriving its energy from another or independent circuit, whereby the carrier may be moved for spacing in any position thereof relative to its axis by the use of the first-named circuit, substantially as described.

105. The combination of a rotatory type-carrier, driving mechanism for rotating it, escapement mechanism for arresting said carrier, letter-space feed mechanism for moving said carrier step by step, polarized electromagnets and armature for actuating said escapement mechanism, said magnets being in one circuit, and an electromagnet in a second independent circuit for operating said letter-space feed mechanism, substantially as described.

106. The combination of a rotatory type-carrier, driving mechanism for rotating it, escapement mechanism for arresting said carrier, letter-space feed mechanism for moving said carrier step by step, polarized electromagnets and armature for actuating said escapement mechanism, said magnets being in one circuit, and an electromagnet in a second independent circuit for operating said letter-space feed mechanism, with a printing-magnet, a platen, an electromagnet in the first-named circuit, and connections operated only by the joint action of the last-named magnet and the said magnet in said second circuit for throwing the printing-magnet into circuit, substantially as described.

107. The combination of a round pin or stud, with a spring coiled thereon and held by friction and having projecting ends or arms, whereby the relative positions of the said ends and pin or stud may be varied by pressing on one or the other of said ends to open the coils of the spring and so reduce the friction, substantially as described.

108. The combination of a round pin or stud, a spring coiled thereon and held in place by friction and having projecting ends or arms, whereby the relative positions of the said ends and pin or stud may be varied by pressing on one or the other of said ends to open the coils of the spring and so reduce the friction, an electromagnet, an armature-lever therefor, and a spring connecting said lever and one of said projecting ends or arms, substantially as described.

680,694. MANUFACTURE OF ALLOYS OF IRON OR STEEL.

HENRI V. CHAVOT and ALBERT HOZARA, Paris, France. Original application filed May 9, 1899, Serial No. 716,115. Divided and this application filed Apr. 30, 1900. Serial No. 14,987. (No specimens.)

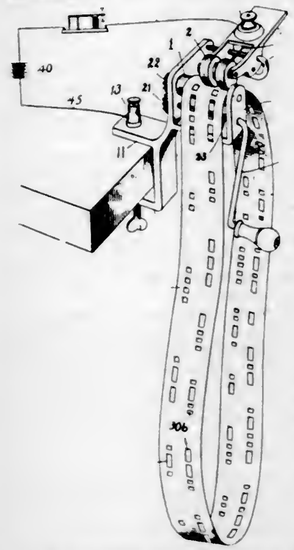
Claim.—1. The hereinbefore-described method of forming alloys of iron or steel, which consists in decarburizing a charge of iron until a sample hammered into a thin plate and cooled will bend to a required angle without cracking at the bend, adding to the mass ferrosilicon and ferromanganese, depositing a quantity of ferrochromium and aluminium in small pieces in the ingot mold or molds, and pouring the charge into such mold or molds.

2. The hereinbefore-described method of forming alloys of iron or steel which consists in decarburizing a charge of iron until a sample hammered into a thin plate and cooled will bend to a required angle without cracking at the bend, placing a pulverulent mixture of aluminium and ferrochromium in the proportions of two hundred and fifty (250) grams of aluminium, and from two hundred and fifty (250) to seven hundred and fifty (750) grams of ferrochromium to each one thousand (1,000) kilograms of the charge in the bottom of the ingot mold or molds and pouring the charge into such mold or molds.

3. The hereinbefore-described method of forming alloys of iron or steel which consists in decarburizing a charge of iron, placing a pulverulent mixture of aluminium and ferrochromium in the bottom of the mold or molds, and pouring the charge into the mold or molds so prepared.

680,695. TRANSMITTER FOR EDUCATIONAL PURPOSES.

CHARLES S. COMINS, Quincy, Mass. Filed Mar. 26, 1900. Serial No. 10,223. (No model.)



Claim.—1. In a transmitting device, the combination with the perforated endless tape, of the cylindrical members for feeding the same, one of which is a conductor and the other of which is formed with an annular groove, a contact-finger located in said groove, a fixed support for one of said members, and a movable support for the other member, whereby said endless tape can be applied to and removed from between said members, substantially as described.

2. In a transmitting device, the combination of the endless tape having the two rows of perforations therein at equal distances from the respective edges thereof; means for feeding said tape; a metallic support for the tape forming one terminal of an electric circuit; and a contact-finger forming the other terminal of said circuit and raised and lowered into engagement with one of said rows of perforations; whereby the said tape can be removed and replaced with its other row of perforations in engagement with said finger, substantially as described.

3. In a transmitting device, the combination of the endless tape having the two rows of perforations; the metallic cylinder supporting and feeding said tape and connected with an electric circuit; the pivoted clip carrying said roll and elastically pressing the same toward said cylinder and connected with the circuit; and the contact-finger held by said clip in said annular groove and pressed into engagement with the perforations of the tape; whereby the depression of the clip raises the roll and finger away from the tape and permits the latter to be moved to present its other row of perforations into correspondence with the contact-finger, substantially as described.

4. In a transmitter for educational purposes, the combination of the endless tape having telegraphic characters perforated therein, said tape being formed of non-conducting material; a conducting-body supporting said tape and forming part of an electric circuit; means for feeding said tape over said body; a spring-finger forming part of said circuit and pressed against said tape over said body; and a resiliently-impressed, grooved roll located over said tape and body and receiving said spring-finger in its groove, substantially as described.

5. The combination in an educational transmitter, of a tape having a plurality of rows of perforated characters therein, and a transmitter therefor adapted to coöperate with any one of said rows of characters, substantially as described.

6. The combination in an educational transmitter, of a tape having its extremities permanently affixed together and formed with a plurality of rows of perforated characters therein, and a transmitter therefor adapted to coöperate with any one of said rows of characters, substantially as described.

7. In a transmitter for educational purposes, the combination of the endless tape having a plurality of rows of Morse characters perforated therein; means for feeding said tape; an electric conducting element located beneath said tape and made one terminal of an electric circuit; a transmitter in said circuit; and an elastically-pressed tongue made another terminal of said circuit and transmitter and normally pressing against said conducting element, and adjustable to any one of said rows of perforated characters, substantially as set forth.

8. In an educational appliance, the metal roller revolubly supported and having means for its rotation, the tape having a plurality of rows of Morse characters perforated therein, said rows extending longitudinally along said tape, the pressure-roll elastically pressed upon said roller and adapted for longitudinal adjustment along said roller, and the spring-tongue pressed against said roller and similarly adjustable, whereby the characters in any of said rows can be transmitted to a telegraphic sounder, substantially as set forth.

9. In an educational appliance, the combination of the frame having means for its attachment to a table, the binding-post carried by said frame, the metal roller revolubly supported by said frame and having means for its rotation, the yoke-rods rigidly projecting from said frame, the pressure member slidably and revolubly mounted on one of said yoke-rods, the pressure-roll carried by said member, the spring coacting with the other of said yoke-rods and adapted to elastically press said roll upon said roller, the spring-tongue carried by said member and elastically pressed against said roller, said tongue being insulated from said member, and the binding screw and nut connected with said tongue, substantially as set forth.

10. In an educational appliance, the combination with the sounder and an electric circuit, of the frame adapted to be clamped to a suitable support, the metal roller revolubly held by said frame, the crank-handle adapted for rotating said roller, the endless tape having the plurality of rows of Morse characters perforated therein, the pressure-roll pressed against said roller, and the tongue pressing against said roller and insulated from other parts of the device and adjustable into coöperation with any one of said rows of characters, said tongue and frame being connected with opposite poles of said circuit, substantially as set forth.

680,696. BOILER.

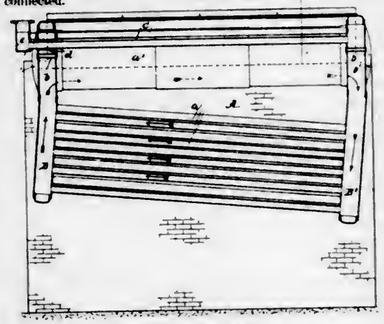
BENJAMIN D. COPPAGE, Wilmington, Del., assignor to the Edgmoor Iron Company, of Delaware. Filed Jan. 21, 1901. Serial No. 44,051. (No model.)

Claim.—1. In a steam-boiler of the character described, a plurality of tubes within the furnace-chamber, above the water-level and traversing the furnace-chamber, the interior of one end of said tubes being in connection with the steam-space in the furnace, the other end in connection with the discharge and means to compensate for expansion and contraction of said tubes.

2. In a steam-boiler of the character described, a plurality of tubes within the furnace-chamber above the water-level and traversing the furnace-chamber, the inlet ends of said tubes being in connection with the steam-space in the furnace, the discharge end of said tubes terminating in a movable chamber.

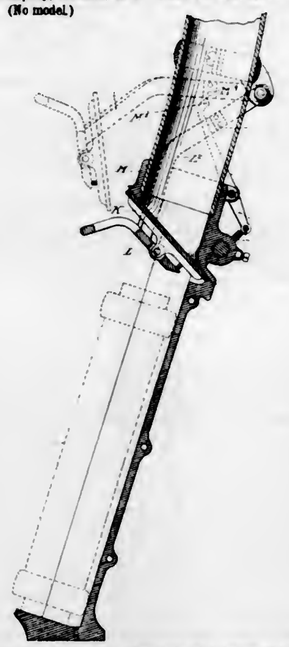
3. In a steam-boiler of the character described, a header in communication with the steam-space in said furnace, a plurality of tubes opening into said header, above the water-level, said tubes traversing the furnace-chamber, and a movable chamber into which said tubes discharge.

4. In a steam-boiler of the character described, headers in communication with the steam-space, a plurality of tubes opening into one of the headers above the water-line, said tubes traversing the length of said boiler, and conduits through the opposite header through which said tubes pass, and a discharge-chamber with which the outlet end of said tubes are connected.



680,697. PNEUMATIC-DESPATCH-TUBE APPARATUS.

JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Nov. 27, 1899. Serial No. 738,329. (No model.)



Claim.—1. In a pneumatic-despatch-tube system, a carrier-transmission tube, an inlet to said tube for the carrier, a valve closing said inlet, supporting means for said valve, and a bearing for said supporting means adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily.

2. In a pneumatic-despatch-tube system, a carrier-transmission tube, an inlet to said tube for the carrier, a valve closing said inlet, supporting means for said valve, a bearing for said supporting means adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily, and means for holding said valve open.

3. In a pneumatic-despatch-tube system, a carrier-transmission tube, an inlet to said tube for the carrier, a valve closing said inlet, supporting means for said valve, a bearing for said supporting means adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily, means for holding said valve open, and means for releasing said valve-holding means to allow the valve to close.

4. In a pneumatic-despatch-tube system, a series of carrier-transmission tubes, an inlet for each tube, a valve for each inlet, means for

holding one of said valves open for the insertion of a carrier, means for releasing said valve to allow it to close upon the opening of another valve to insert a carrier into another tube, supporting means for each of said valves, and a bearing for said supporting means adapted to receive the pressure on the valve upon the closing of the valve and thereby allow it to close easily.

5. In a pneumatic-despatch-tube system, a carrier-transmitting tube, an inlet to said tube for the carrier, a pivoted valve, supporting means for said valve, and a bearing for said supporting means located above said inlet and adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily.

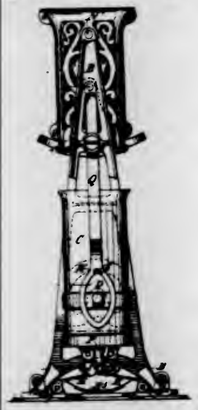
6. In a pneumatic-despatch-tube system, a carrier-transmitting tube, an inlet to said tube for the carrier, a pivoted valve, supporting means for said valve, a bearing for said supporting means located above said inlet and adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily, and means for holding said valve open.

7. In a pneumatic-despatch-tube system, a carrier-transmitting tube, an inlet to said tube for the carrier, a pivoted valve, supporting means for said valve, and a bearing for said supporting means adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily and located above said inlet on the opposite side of the tube from the valve.

8. In a pneumatic-despatch-tube system, a carrier-transmitting tube, an inlet to said tube for the carrier, a pivoted valve, supporting means for said valve, a bearing for said supporting means adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily and located above said inlet on the opposite side of the tube from the valve, and means for holding said valve open.

9. In a pneumatic-despatch-tube system, a carrier-transmitting tube, an inlet to said tube for the carrier, a pivoted valve, supporting means for said valve, a bearing for said supporting means adapted to receive the pressure on said valve upon the closing of said valve and thereby allow the valve to close easily and located above said inlet on the opposite side of the tube from the valve, and a handle pivoted to said valve for operating the same.

680,698. **PNEUMATIC-DESPATCH APPARATUS.** JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Nov. 27, 1899. Serial No. 738,330. (No model.)



Claim.—1. A distributer for cash or parcel carriers comprising a receiver for carriers pivoted at a point which is above its center of gravity when empty but below it when loaded so as to be capable of tilting with the load, means for starting the receiver, devices in the path of the incoming carriers for releasing and actuating the starting means whereby the receiver may be tilted sufficiently to discharge the carrier, a device located adjacent to said receiver and normally out of the path of the traveling carrier, connecting mechanism between said device and said receiver for moving said device into the path of the traveling carrier to retain the carrier during the movement of the receiver to discharge another carrier and adapted upon the movement of the receiver to its normal position to move said device out of the path of the traveling carrier and allow the same to enter the receiver.

2. A distributer for cash or parcel carriers comprising a receiver pivoted at a point which is above its center of gravity when empty but below it when loaded so as to be capable of tilting when loaded, two starting devices for the receiver, a releasing and actuating device for each starting device, the said releasing and starting devices being in the path of the incoming carriers and differently formed to be actuated by correspondingly-formed carriers, a device located adjacent to said receiver and normally out of the path of the traveling carrier, and connecting mechanism between said device and said receiver for moving said device into the path of the traveling carrier to retain the carrier during the movement of the receiver to discharge another carrier and adapted upon the movement of the receiver to its normal position to move said device out of the path of the traveling carrier and allow the same to enter the receiver.

3. A distributer for cash or parcel carriers comprising a tilting receiver, spring-held pivoted latch-plates below the receiver, a trip-rod extended through the bottom of the receiver and engaging with one of the latch-plates, a plate in the receiver below the plane of the top of the trip-rod, a trip-rod extended from said plate and engaging with the other of said latch-plates, an angle-lever for engaging with one of the latch-plates and actuated by the first-named trip-rod, an angle-lever for engaging with the other latch-plate and operated by the second-named trip-rod, a guard, a lever for operating said guard, means on the receiver engaging said lever and adapted upon the movement of the receiver to move the guard to retain a carrier during the discharge of another carrier from the receiver.

4. In a cash or parcel carrier distributer, a receiver, provided with independently-actuating mechanisms, one of said mechanisms adapted to be actuated by one form of carrier and the other mechanism adapted to be actuated by another form of carrier to move the receiver in different directions, means for holding the receiver normally in position to receive the carriers, means whereby one form of carrier will release and move the receiver in one direction to deliver a carrier and another form of carrier will release and move the receiver in another direction to deliver a carrier, a device located adjacent to said receiver and normally out of the path of the traveling carrier, and connecting mechanism between said device and said receiver for moving said device into the path of the traveling carrier to retain the carrier during the movement of the receiver to discharge another carrier and adapted upon the movement of the receiver to its normal position to move said device out of the path of the traveling carrier and allow the same to enter the receiver.

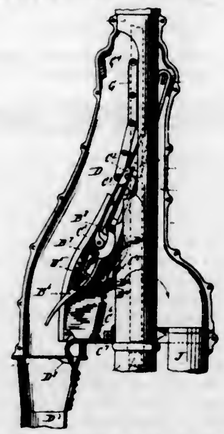
5. In a cash or parcel carrier distributer, a tilting receiver provided with independent actuating mechanisms, one of said mechanisms adapted to be actuated by one form of carrier and the other mechanism adapted to be actuated by another form of carrier to move the receiver in different directions, means for holding the receiver normally in position to receive the carriers, means whereby one form of carrier will release and tilt the receiver in one direction to deliver a carrier and another form of carrier will release and tilt the receiver in another direction to deliver a carrier, a device located adjacent to said receiver and normally out of the path of the traveling carrier, and connecting mechanism between said device and said receiver for moving said device into the path of the traveling carrier to retain the carrier during the movement of the receiver to discharge another carrier and adapted upon the movement of the receiver to its normal position to move said device out of the path of the traveling carrier and allow the same to enter the receiver.

680,699. **PNEUMATIC-DESPATCH APPARATUS.** JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Nov. 27, 1899. Serial No. 738,331. (No model.)

Claim.—1. In a pneumatic-despatch apparatus, an inlet and an outlet for the carrier, a switch-lever for guiding the carrier to the outlet, means for holding said lever out of its switching position, means for moving said lever into its switching position, mechanism actuated by the traveling carrier for releasing said switch-lever to allow it to move into its switching position, and means for cushioning the carrier and retarding its travel before it is diverted by said switching-lever to the outlet.

2. In a pneumatic-despatch apparatus, an inlet and an outlet for the carrier, a switch-lever for guiding the carrier to the outlet, means for holding said lever out of its switching position, means for moving said lever into its switching position, mechanism actuated by the traveling carrier for releasing said switch-lever to allow it to move into its switching position, mechanism located in the outlet and actuated by the traveling carrier for returning the switch-lever to its normal position, and means for cushioning the carrier and retarding its travel before it is diverted by said switching-lever to the outlet.

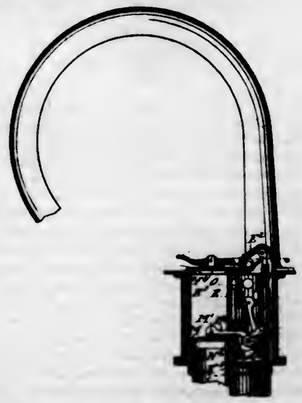
3. In a pneumatic-despatch apparatus, an inlet and an outlet for the carrier, a switch-lever for guiding the carrier to the outlet, means for holding said lever out of its switching position, means for moving said lever into its switching position, mechanism actuated by the traveling carrier for releasing said switch-lever to allow it to move into its switching position, a lever located in the outlet and actuated by the traveling carrier for returning the switch-lever to its normal position, and a yielding connection between said lever and the switch-lever.



4. In a pneumatic-despatch apparatus, an outlet for the carrier, a pivoted valve for closing said outlet, means for holding said valve closed, mechanism located adjacent to said valve and in the path of the traveling carrier and actuated thereby to move said valve-holding means and thereby allow said valve to open, and means for automatically closing said valve after the carrier has been discharged.

5. In a pneumatic-despatch apparatus, an inlet and an outlet for the carrier, a switch-lever for guiding the carrier to the outlet, means for holding said lever out of its switching position, means for moving said lever into its switching position, mechanism actuated by the traveling carrier for releasing said switch-lever to allow it to move to its switching position, means for cushioning said carrier and retarding its travel before it is diverted by said switching-lever to the outlet, a valve normally closing said outlet, means for holding said valve closed, mechanism located adjacent to said valve and in the path of the traveling carrier and actuated thereby to move said valve-holding means and thereby allow the valve to open, and means for automatically closing said valve after the carrier has been discharged.

680,700. **PNEUMATIC-DESPATCH-TUBE APPARATUS.** JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Jan. 18, 1900. Serial No. 1,975. (No model.)



Claim.—1. In a pneumatic-despatch-tube apparatus, a series of transmission-tubes, a return-tube, an inclosure forming a communication between said transmission and return tubes, and means for closing the ends of the transmission-tubes.

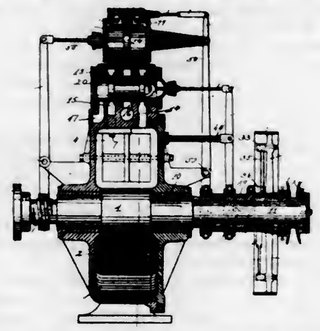
2. In a pneumatic-despatch-tube apparatus, a series of transmission-tubes, a return-tube, an inclosure forming a communication between said transmission and return tubes, valves for closing the ends of the transmission-tubes, and means for closing said openings.

3. In a pneumatic-despatch-tube apparatus, a series of transmission-tubes, a return-tube, an inclosure forming a communication between said transmission and return tubes, valves for closing the ends of the transmission-tubes, and mechanism for holding one of the transmission-tube valves open at a time.

4. In a pneumatic-despatch-tube apparatus, a series of transmission-tubes, a return-tube, an inclosure forming a communication between said transmission and return tubes, valves for closing the ends of the transmission-tubes, openings in said inclosure in alinement with said transmission-tubes, valves for closing said openings, and mechanism for holding one of the transmission-tube valves open at a time.

5. In a pneumatic-despatch-tube apparatus, a series of transmission-tubes, a return-tube, an inclosure forming a communication between said transmission and return tubes, valves for closing the ends of the transmission-tubes, openings in said inclosure in alinement with said transmission-tubes, valves for closing said openings, mechanism for holding one of the transmission-tube valves open at a time, and mechanism coöperating with all of said transmission-tube valves whereby the opening of one of said transmission-tube valves will close the other transmission-tube valves.

680,701. **SPEED-REGULATOR.** FRANK C. CURTIS, Troy, N. Y., assignor to the Sturgess Governor Engineering Company, same place. Filed Jan. 16, 1901. Serial No. 43,465. (No model.)



Claim.—1. In a speed-regulator, the combination with a governor for controlling the supply to a fluid-operated motor; of a variable-gear connection between said motor and governor; and means for automatically varying said gear at certain times to vary the rotary speed of the governor in accordance with, and in advance of, a governor-induced variation in speed of said motor.

2. In a speed-regulator, the combination with a governor for controlling the supply to a fluid-operated motor; of a variable-gear connection between said motor and governor; means for automatically varying said gear at certain times to vary the rotary speed of the governor in accordance with, and in advance of, a governor-induced variation in speed of said motor; and means for afterward automatically varying said gear to vary the speed of the governor simultaneously with, and in opposition to, the variation so induced in the speed of said motor.

3. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor which operates said governor; of means for automatically varying the rotary speed of said governor in advance of and in accordance with a variation in speed of said motor induced by said governor; and means to automatically counteract the function of said motor to afterward vary the speed of said governor in accordance with the variation so induced in the speed of said motor.

4. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor which operates said governor; of means for automatically imparting to said governor at certain times a variation in its rotary speed in accordance with, and in advance of, a governor-induced variation in the speed of said motor; and means for afterward neutralizing the function of said motor to vary the speed of said governor as the speed of said motor is gradually restored to its normal relation to that of said governor.

5. In a speed-regulator, the combination with a gate or the like controlling the supply to a fluid-operated motor; of a centrifugal governor; a variable-gear connection between said motor and governor; gate-operating mechanism controlled by said governor; an expansible and contractible link connecting said gate-operating mechanism with a movable

member of said variable gear; and means for automatically contracting and expanding said link at certain times.

6. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a variable cone-gear for transmitting motion from said motor to said governor; and means for automatically varying said cone-gear to vary the rotary speed of the governor in accordance with, and in advance of, a governor-induced variation in speed of said motor.

7. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a variable cone-gear for transmitting motion from said motor to said governor; means for automatically varying said cone-gear to vary the rotary speed of the governor in accordance with, and in advance of, a governor-induced variation in speed of said motor; and means for afterward automatically varying said cone-gear simultaneously with, and in opposition to, the variation so induced in the speed of said motor.

8. In a speed-regulator, the combination with gate or the like for controlling the supply to a fluid-operated motor; of a centrifugal governor; a variable-gear connection between said motor and governor; gate-operating mechanism controlled by said governor; an expansible and contractible link connection between an adjustable member of said variable gear and the gate-operating mechanism; and means for expanding and contracting said link at certain times.

9. In a speed-regulator, the combination with a gate or the like controlling the supply to a fluid-operated motor; of a centrifugal governor; a variable-gear connection between said motor and governor; gate-operating mechanism controlled by said governor; an expansible and contractible link connection between an adjustable member of said variable gear and the gate-operating mechanism, and comprising a fluid-filled cylinder, piston and rod movable as a rigid element in response to the movements of the gate-operating mechanism, and contractible and expansible to restore the adjustable member of the variable gear to its normal position; and means for positively expanding and contracting said link by fluid under pressure.

10. In a speed-regulator, the combination with a gate or the like controlling the supply to a fluid-operated motor; a fluid-operated gate-controller, and a valve for regulating the fluid-supply to said controller; of a centrifugal governor connected with said valve, a variable-gear connection between said motor and governor; an expansible and contractible link connection between an adjustable member of said variable gear and said gate-controller; and means for automatically expanding and contracting said link at certain times.

11. In a speed-regulator, the combination with a gate or the like controlling the supply to a fluid-operated motor; a fluid-operated gate-controller; and a valve for regulating the fluid-supply to said controller; of a centrifugal governor connected with said valve; a variable-gear connection between said motor and governor; a fluid-filled cylinder and piston connected one with the gate-controller and the other with an adjustable member of said variable gear; and means forsupplying fluid under pressure at certain times to the several sides of said piston.

680,702. CHALK-HOLDER. SHUBAEL T. DAY and DELIA S. HALL, Denison, Iowa. Filed Feb. 8, 1901. Serial No. 46,483. (No model.)



Claim.—1. A device of the character described consisting of a trough-like receptacle having interned flanges along the lower edges of its front and back, a wire sieve secured upon said flanges and extending from one end of the receptacle nearly to the other so as to leave an opening, and a door hinged within the receptacle and adapted to close over said opening; combined with a drawer beneath the receptacle, all as and for the purpose set forth.

2. A device of the character described consisting of a trough-like receptacle whose back is adapted to be secured along the lower edge of a blackboard and whose bottom is a fine-wire sieve; combined with a drawer having outward-projecting flanges at its ends, and interned cleats depending from the ends of said receptacle for supporting the flanges of the drawer, all as and for the purpose set forth.

3. In a device of the character described, the combination with a receptacle, a fine-wire sieve forming the bottom thereof and extending from one end nearly to the other so as to leave an opening, and a hinged door closing said opening; of cleats depending from the ends of the receptacle, a drawer having flanges engaging said cleats, and a handle on the drawer, all as and for the purpose set forth.

680,703. TOY. CHARLES S. DEVANEY, Brooklyn, N. Y. Filed Apr. 25, 1901. Serial No. 57,407. (No model.)

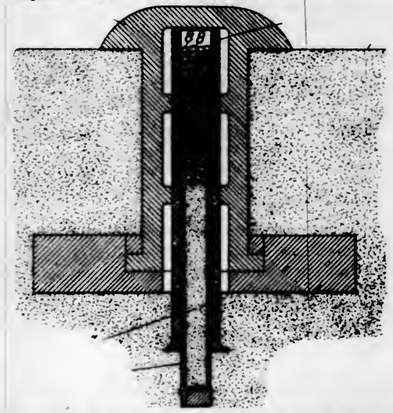


Claim.—1. An improved toy of the class described, comprising a flat body portion consisting of a disk or plate provided with a chamber and with two inclosing plates arranged at opposite faces of said disk or plate and having openings communicating with said chamber, and a flexible operating device connected with said body portion.

2. An improved toy of the class described, comprising a flat body portion consisting of a disk or plate provided with a chamber and with inclosing plates arranged at opposite faces of said disk or plate and provided with registering openings communicating with said chamber, said inclosing plates being formed of metal and provided with integral prongs constituting securing means for the same, and a flexible operating device connected with said disk or plate.

3. An improved toy of the class described, comprising a body portion consisting of a disk or plate provided with a chamber and with two inclosing plates arranged at opposite faces of said disk or plate and having openings communicating with said chamber, a flexible operating device, and a swivel interposed between said flexible operating device and said body portion.

680,704. ELECTRIC-TRACTION ROAD. LÉON DION, Boston, Mass., assignor to the Electrical Safety Traction Company, of West Virginia. Filed Nov. 24, 1900. Serial No. 37,622. (No model.)



Claim.—1. In an electric-traction road, an unexposed feeder, an exposed conductor, and a member adapted to be moved by magnetic attraction to connect said feeder and exposed conductor, said member comprising numerous small free spherical magnetic bodies collectively adapted to act as the connector but individually incapable of so acting.

2. In an electric-traction road, an unexposed feeder, an exposed sectional conductor and a series of pockets interposed between said feeder and conductor and each having a conductive top, a vertically-elongated lower conductive member, an insulating part between said conductive top and lower member, and a connecting member laterally confined in said pocket and vertically movable in sliding contact with said lower conductive part, said connecting member comprising numerous free magnetic bodies collectively adapted to connect the said conductive top and lower member to complete the electric connection between the feeder and exposed conductor, but individually incapable of so acting.

3. In an electric-traction road, an unexposed feeder, an exposed conductor, a laterally-confining container interposed between said feeder and conductor and having a lower conductive part connected with the feeder and an upper insulating part, and a connecting member inclosed in and laterally confined by said container and adapted to be lifted by magnetic attraction to connect the exposed conductor and the conductive part of the container, said member comprising numerous free magnetic bodies collectively capable of acting as the connector but individually incapable of so acting.

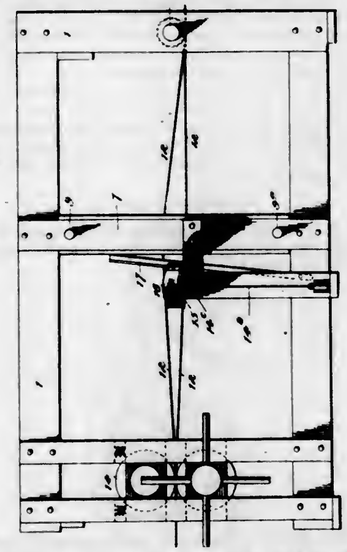
4. In an electric-traction road, an unexposed feeder, an exposed conductor, a conductive tube connected with the feeder, an insulating-tube projecting above said conductive tube toward the exposed conductor, and a connecting member confined in the receptacle made by said tubes and adapted to be lifted by magnetic attraction to connect the conductive tube with the exposed conductor, said member comprising numerous free magnetic bodies collectively capable of acting as the connector but individually incapable of so acting.

5. In an electric-traction road, an unexposed feeder, an exposed conductor, an upright tubular receptacle interposed between said feeder and conductor and comprising a lower conductive part connected with the feeder, and an upper insulating part, and a connecting member contained in said receptacle and adapted to be lifted by magnetic attraction to connect the exposed conductor with the conductive part of the receptacle, said member comprising numerous small free spherical magnetic bodies or shot collectively capable of acting as the connector but individually incapable of so acting.

6. In an electric-traction road, an unexposed feeder, an exposed sectional conductor, and a series of pockets interposed between said feeder and conductor and each having a conductive upper member, a conductive lower member, and a connecting member comprising numerous free magnetic bodies collectively adapted to connect said conductive upper and lower members when lifted by magnetic attraction, but individually incapable of so acting, the said connecting member being confined in permanent contact with the lower conductive member.

7. In an electric-traction road, an unexposed feeder, an exposed sectional conductor, and a series of pockets interposed between said feeder and conductor and each having a conductive upper member, a vertically-elongated conductive lower member and a connecting member vertically movable in sliding contact with said lower conductive part and confined in permanent contact therewith, said connecting member comprising numerous free magnetic bodies collectively adapted to connect said conductive upper and lower members when lifted by magnetic attraction but individually incapable of so acting.

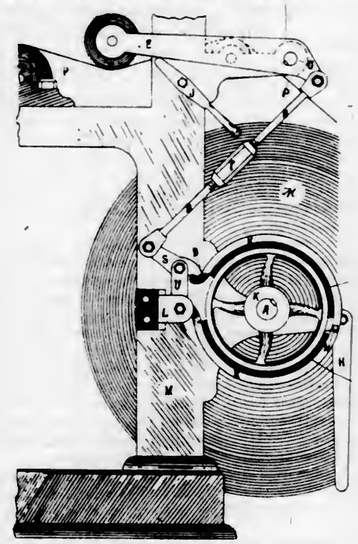
680,705. WEAVING-MACHINE. DAVID S. HARHART, De Land, Fla. Filed Mar. 11, 1901. Serial No. 50,582. (No model.)



Claim.—1. In a machine of the character described, the combination of interacting heddles, each having perforations or holes, through which are passed the weaving threads or wires, a chute or race arranged laterally of said heddles, shuttles contained therein and having connected thereto a weighted line or cord passed over a pulley hung in said chute, at its outer end, a pivoted lay, and opposed compression-rolls, substantially as set forth.

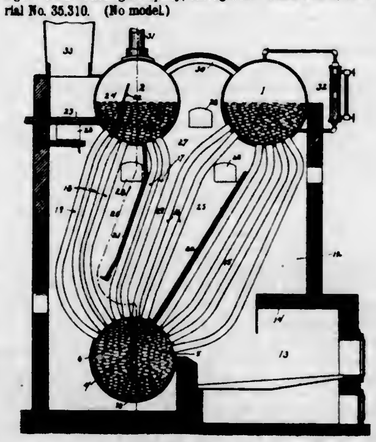
2. In a machine of the character described, the combination of interacting heddles, each having perforations or holes through which are passed the weaving threads or wires, and a chute or trough open at one side and provided at its opposite inner side, with an overhanging ledge, a shuttle arranged in said chute and having attached thereto a weighted cord or line passed over a pulley hung in said chute or trough, at its outer end, said chute being arranged laterally of said heddles, a pivoted lay and opposed compression-rolls, substantially as set forth.

680,706. AUTOMATIC BRAKE. ERI A. EDMUNDS, Brooklyn, N. Y. Filed Mar. 16, 1901. Serial No. 51,537. (No model.)



Claim.—The combination with the paper-roll shaft and its friction-wheel, the brake-shoe applied to such wheel, a lever for acting upon the brake-shoe, a vibrating stanchion to support said lever, a bracket to support the aforesaid vibrating stanchion and the stationary end of the brake-shoe, rolls over which the web of paper passes, a vertically-moving roll actuated by the said web, arms working in unison supported by the shaft to which they are secured, a lever to raise and support the arms when necessary, connecting-rods and adjusting sleeve-nut for varying the tension of the web and compensating for the wear of the brake-shoe, substantially as specified.

680,707. STEAM-BOILER. FRANK M. FABER, Riverside, Ill., assignor to the Stirling Company, Chicago, Ill. Filed Nov. 3, 1900. Serial No. 35,310. (No model.)



Claim.—1. In a water-tube boiler, the combination of two elevated steam and water drums and a lower mud-drum, pipes connecting the front steam and water drum with the mud-drum, and pipes connecting the rear

steam and water drum with the mud-drum, said pipes being so arranged as to establish two independent cycles of circulation.

2. In a water-tube boiler, the combination of two elevated steam and water drums and a lower double-compartment mud-drum, pipes connecting the front steam and water drum with the front compartment of the mud-drum, and pipes connecting the rear steam and water drum with the rear compartment of the mud-drum, so arranged as to establish two independent cycles of circulation.

3. In a water-tube boiler, the combination of two elevated steam and water drums and a lower mud-drum, pipes connecting the front steam and water drum with the mud-drum, pipes connecting the rear steam and water drum with the mud-drum, and baffle-walls so arranged as to establish two independent cycles of circulation.

4. In a water-tube boiler, the combination of two elevated steam and water drums, a mud-drum, uptake and downtake water-circulating tubes arranged to connect the mud-drum and the front steam and water drum, uptake and downtake tubes connecting the mud-drum and the rear steam and water drum, and baffle-walls extending longitudinally of said tubes between the uptake and downtake tubes connected with the front upper drum and between the uptake and downtake tubes connected with the rear upper drum, respectively.

5. In a water-tube boiler, the combination of two elevated steam and water drums, and a mud-drum, uptake and downtake tubes connecting the mud-drum and the front steam and water drum, and uptake and downtake tubes connecting the mud-drum and the rear steam and water drum, baffle-walls so arranged as to establish two distinct cycles of circulation, and pipe connecting the steam-spaces of the elevated steam and water drums.

6. In a water-tube boiler, the combination of two elevated steam and water drums, and a mud-drum, uptake and downtake tubes connecting the mud-drum and the front steam and water drum, and uptake and downtake tubes connecting the mud-drum and the rear steam and water drum, and baffle-walls so arranged as to establish two distinct cycles of circulation, the rear steam and water drum having a partition forming a feed-water space, and pipes extending therefrom into the mud-drum.

7. In a water-tube boiler, a mud-drum, having water-circulating tubes leading upwardly therefrom, said drum having a partition extending downwardly from the top thereof, and said partition being hinged so as to swing.

8. In a water-tube boiler, the combination of two elevated steam and water drums, a lower double-compartment mud-drum, uptake and downtake circulating-pipes between the front compartment and the front steam and water drum, uptake and downtake pipes between the rear compartment and the rear steam and water drum, a fire-chamber in front of the uptake-pipes leading to the front steam and water drum, a baffle-wall back of said uptake-pipes and in front of the downtake-pipes communicating with said front compartment, and a baffle-wall extending downwardly from the rear steam and water drum back of the uptake-pipes leading into that drum and in front of the downtake-pipes leading from said drum.

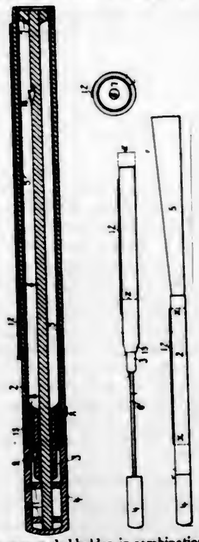
9. In a water-tube boiler, the combination of two elevated steam and water drums, a lower mud-drum, uptake and downtake circulating-pipes between the mud-drum and the front steam and water drum, uptake and downtake pipes between the mud-drum and the rear steam and water drum, a fire-chamber in front of the uptake-pipes leading to the front steam and water drum, a baffle-wall back of said uptake-pipes and in front of the downtake-pipes communicating with said front compartment, and a baffle-wall extending downwardly from the rear steam and water drum back of the uptake-pipes leading into that drum and in front of the downtake-pipes leading from said drum, and enlarged spaces back of said baffle-walls to give access to said tubes.

10. In a water-tube boiler, the combination of two elevated steam and water drums, a lower mud-drum, uptake and downtake circulating-pipes between the mud-drum and the front steam and water drum, uptake and downtake pipes between the mud-drum and the rear steam and water drum, a fire-chamber in front of the uptake-pipes leading to the front steam and water drum, a baffle-wall back of said uptake-pipes and in front of the downtake-pipes communicating with said front compartment, and a baffle-wall extending downwardly from the rear steam and water drum back of the uptake-pipes leading into that drum and in front of the downtake-pipes leading from said drum, enlarged spaces back of said baffle-walls to give access to said tubes, and an enlarged space between the downtake-tubes leading from the front steam and water drum and uptake-tubes leading into the rear steam and water drum.

11. In a water-tube boiler, the combination of two elevated steam and water drums and a lower mud-drum, uptake and downtake pipes connecting the front steam and water drum with the mud-drum, and uptake and downtake pipes connecting the rear steam and water drum with the mud-drum, the pipes of both sets being so arranged as to leave an enlarged space between the uptake and downtake pipes.

12. In a water-tube boiler, the combination of two elevated steam and water drums and a lower mud-drum, uptake and downtake pipes connecting the front steam and water drum with the mud-drum, uptake and downtake pipes connecting the rear steam and water drum with the mud-drum, and baffle-walls between the uptake and downtake pipes of the two sets, said pipes being so arranged as to leave an enlarged space back of said baffle-walls.

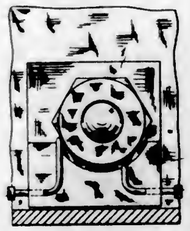
680,708. CIGARETTE-FORMER. THOMAS F. FOLEY, Clinton, Iowa. Filed July 1, 1899. Serial No. 722,546. (No model.)



Claim.—1. An open-ended holder, in combination with a scoop slidably held within said holder, a latching-sleeve secured to said scoop and adapted to be detachably secured to said holder, and a plunger working within said scoop and provided with a latch, said plunger being adapted to be detachably secured to said latching-sleeve.

2. In a cigarette-former, the combination of the following instrumentalities, to wit: the open-ended holder 2, provided with the shoulder 13, in combination with the scoop 5, the latching-sleeve 3 secured to said scoop 5, the latch 9 within said sleeve 3 and the plunger 6 passing through said latching-sleeve and provided with the latch 10, said plunger being provided with the head 7.

680,709. MEANS FOR LOCKING NUTS AND BOLT-HEADS. LOUIS GOCHT, Chemnitz, Germany. Filed Apr. 9, 1901. Serial No. 55,096. (No model.)



Claim.—1. The combination with a nut or bolt-head, of a washer having a raised or widened portion partly surrounding the nut or bolt-head, said raised or widened portion being provided with grooves, and pins adapted to be driven into said grooves, and abutting against the side of the nut or bolt-head so that one of them locks same against revolution, substantially as described.

2. The combination with a nut or bolt-head, of a washer having a raised or widened portion partly surrounding the nut or bolt-head, said raised or widened portion being provided with curved grooves, and pins adapted to be driven into said grooves, the ends of said pins abutting against the side of the nut or bolt-head so that one of them locks same against revolution, substantially as described.

3. The combination with a nut or bolt-head, of a washer having a raised or widened portion partly surrounding the nut or bolt-head, said raised or widened portion being provided with grooves, terminating at one end before reaching the edges of the washer, but continued thereto in the form of holes, and pins adapted to be driven through said holes into the grooves, the ends of said pins abutting against the side of the nut or bolt-head so that one of them locks same against revolution, substantially as described.

4. The combination with a nut or bolt-head, of a washer having a raised or widened portion partly surrounding the nut or bolt-head, said raised or widened portion being provided with two grooves, terminating at one end before reaching the edges of the washer, but continued thereto in the form of holes, and terminating at the other end unsymmetrically with regard to the bolt-hole, and two pins adapted to be driven through said holes into the grooves, the ends of said pins abutting against the side of the nut or bolt-head, so that one of them locks same against revolution, substantially as described.

680,710. SASH-PULLEY FRAME. HENRY HARIG, Cincinnati, Ohio. Filed Aug. 7, 1900. Serial No. 26,185. (No model.)

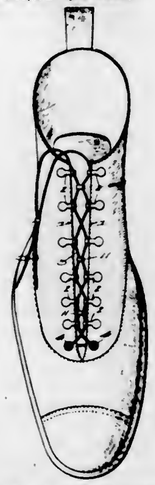


Claim.—1. The combination with the weight-box and stile of a window-frame of a pulley-frame having a vertical flange secured to the sides of the weight-channel, and a horizontal flange secured adjacent to the bottom of the headpiece substantially as and for the purpose set forth.

2. The combination with the weight-box stile and headpiece of a window-frame, of a pulley-frame having a vertical and a horizontal flange, the vertical flange being provided with means whereby it may be fastened to the edges of the sides of the weight-box in the rear of the stile, and the horizontal flange being provided with means whereby it may be fastened to the under side of the headpiece of the window-frame; a pulley mounted in the pulley-frame so as to project out beyond the stile; and a slot in the headpiece adapted to receive the pulley, substantially as and for the purpose set forth.

3. The combination of pulley A; casing B; vertical flange C provided with projections c'; horizontal flange D; flange b^2 connecting the casing B with the vertical and horizontal flanges; and slot c^2 in flange C to permit the passage of pulley A, substantially as and for the purpose set forth.

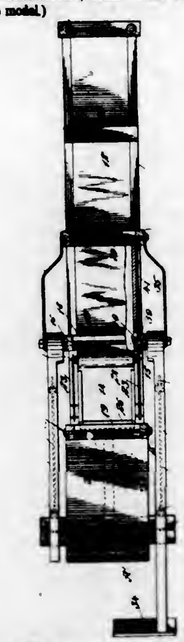
680,711. FASTENING DEVICE. ELIHUE M. HENDREE, Roswell, Ga., assignor of one-half to William S. Gufford, Atlanta, Ga. Filed Apr. 10, 1901. Serial No. 55,234. (No model.)



Claim.—1. In a fastening device, the combination with two members to be fastened, and a series of eyelets secured in pairs thereto, and projecting over the edges thereof, of a lacing-cord reeved through said eyelets and crossed between each alternate pair of eyelets, and flattened links through which the uncrossed portions of the cord are passed having means for clasping an ornament, said links being loosely held by the cords.

2. In a fastening device, the combination with two members to be fastened, and series of eyelets secured to the adjacent edges thereof in pairs, of a lacing-cord reeved through said eyelets and crossed between each alternate pair of eyelets, eye-links embracing the uncrossed portions of the cord intermediate the crossed portions thereof having lips for clasping an ornament, the end portions of the lacing-cord being provided with stops, and a terminal eye-link embracing the end portions of the lacing-cord between the stops and the end eyelets.

680,712. BALING-PRESS. ELDRIDGE T. HILL and THOMAS J. HIGHTOWER, Murfreesboro, Tenn. Filed Sept. 5, 1900. Serial No. 29,029. (No model.)



Claim.—1. A baling-press comprising a body provided with a baling-chamber having a top opening to receive the material, a plunger arranged to move in said baling-chamber, a platform located at the top of the body in advance of said opening, an operating-lever fulcrumed on the body at the rear of the baling-chamber and projecting forwardly and upwardly above the said platform, and an operative connection extending forwardly from the lever to the plunger.

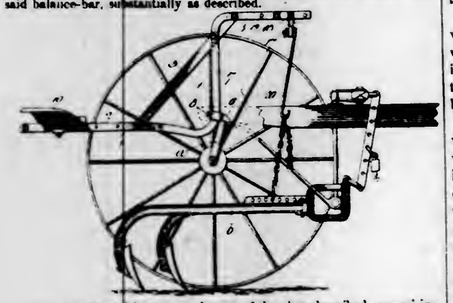
2. A baling-press comprising a body provided with a baling-chamber having a top opening to receive the material, a plunger arranged to move in said baling-chamber, a platform located at the top of the body in advance of said opening, operating-levers fulcrumed near the bottom of the body at opposite sides thereof, and extending adjacent to the platform, a cross-bar connecting the front ends of said levers and extending over the platform, said cross-bar forming an operating-handle, and an operative connection between said levers and the plunger.

680,718. ATTACHMENT FOR SULKY-CULTIVATORS. LINUS HOLCOMB, Amboy, Ill., assignor of one-half to Oscar F. Gillett, same place. Filed June 12, 1901. Serial No. 64,296. (No model.)

Claim.—1. In a sulky-cultivator, the combination of a counterbalancing seat-supporting bar, a balance-bar connected thereto, and connections between said balance-bar and the cultivator-beams, whereby the latter may be caused to balance each other, and whereby the weight of the cultivator-beams and their attached plows may be counterbalanced by that of the driver, substantially as described.

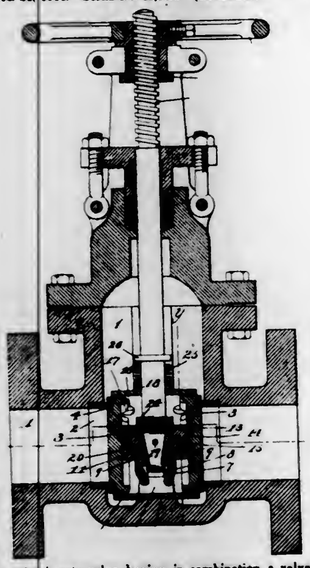
2. An attachment for sulky-cultivators, comprising a seat-supporting bar having means whereby it may be fulcrumed on and readily detached from the axle of a sulky-cultivator, and connections for the attachment of the cultivator-beams to the said seat-supporting bar, substantially as described.

3. A sulky-cultivator attachment of the class described, comprising a seat-supporting bar having means to engage and fulcrum said seat-supporting bar on the axle of a cultivator, a seat adjustable on one end of said seat-supporting bar, a balance-bar adjustable on the opposite end of said seat-supporting bar and means to connect the cultivator-beams to the said balance-bar, substantially as described.



4. A sulky-cultivator attachment of the class described, comprising a seat-supporting bar formed with a rearwardly-extending arm, an angularly-disposed central portion, and an elevated forwardly-extending arm, clip-hooks on the said angularly-disposed portion of said bar, and adjustable thereon, for the purpose set forth, a seat adjustable on the rearwardly-extending arm, a balance-bar and a link to connect the same to the forwardly-extending arm, said link being adjustable on said forwardly-extending arm, substantially as described.

680,714. **GATE-VALVE.** EUGENE D. JEFFERSON, Lowell, Mass. Filed Dec. 28, 1900. Serial No. 41,382. (No model.)



Claim.—1. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, pivotally-mounted valves arranged to slide in said carrier, and valve-actuating mechanism operating first to positively withdraw said valves from their seats and then to lift said carrier and valves from between the valve-openings, substantially as described.

2. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, valves slidingly mounted in said carrier, a longitudinally-movable spindle, a valve-actuating wedge-block carried by said spindle and provided with dovetail guides, valve-blocks interposed between said wedge-block and the valves and pivotally connected with the valves, a stop on said spindle normally out of contact with said carrier, arranged to engage and lift the carrier when the valves have been withdrawn from their seats, and means for moving the spindle, substantially as described.

3. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, pivotally-mounted valves arranged to slide in said carrier, mechanism for actuating the valves in the carrier and for moving the carrier in the valve-chamber, and means to prevent movement of the carrier when the valves are in contact with the valve-seats, substantially as described.

4. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, pivotally-mounted valves arranged to slide in said carrier, mechanism for actuating the valves in the carrier and for moving the carrier in the valve-chamber and means to prevent movement of the valves when the carrier is withdrawn from between the valve-seats, substantially as described.

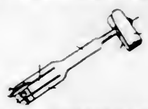
5. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, pivotally-mounted valves arranged to slide in said carrier, a spindle longitudinally movable in the chamber and in the carrier, mechanism connected with said spindle for positively actuating the valves in the carrier, a stop for limiting the relative movement of carrier and spindle in one direction, a spring acting normally to prevent relative movement in the other direction, and means to actuate the spindle, substantially as described.

6. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, valves slidingly mounted in said carrier, a wedge-block movable in said carrier, valve-blocks interposed between said wedge-block and the valves, connections between said valve-blocks and the valves, links for supporting the valve-blocks pivotally connected at one end to the carrier and at the other to the valve-blocks, means for actuating the valves in the carrier, and means for moving the carrier in the valve-chamber, substantially as described.

7. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, valve-blocks carried thereby, valves pivotally connected to said blocks, means for actuating said valve-blocks and for moving the carrier, and means to prevent movement of said carrier when the valves are in contact with their seat, substantially as described.

8. A gate-valve, having, in combination, a valve-chamber provided with valve-seats, a carrier movable in said chamber, valves carried thereby, pivotally-supported valve-blocks for actuating said valves, means for actuating said blocks and for moving said carrier, and means to prevent movement of said carrier when the valves are in contact with their seats, substantially as described.

680,715. **CUFF-HOLDER.** JOSEPH JUNGBAUER, St. Paul, Minn. Filed Apr. 29, 1901. Serial No. 57,879. (No model.)



Claim.—1. A cuff-holder, consisting of a bar having a spring-tongue on one end, a turning button attached to said tongue, and an indented sleeve in which the button is journaled and adapted to be engaged.

2. In a cuff-holder, the combination of a bar having an opening, of a spring-tongue integral with the bar and extending into the opening, a turning button attached to the tongue, and means by which the button is adapted to be engaged when turned longitudinally or laterally.

3. In a cuff-holder the combination of a bar, having an opening at one end, a turning button the shank of which is in spring engagement with said bar and a sleeve over the shank indented to engage and hold the button in lateral or longitudinal position.

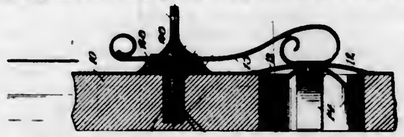
4. In a cuff-holder, the combination of a bar, a rigid sleeve secured to the end thereof, a button, the shank of which is adapted to rotate in the sleeve, and a spring-tongue on the bar in engagement with said shank; said sleeve having means to hold the button against rotation.

5. A cuff-holder, consisting of a bar having an opening in its end, a slotted tongue integral with the bar and projecting into said opening, an indented sleeve carried by said bar, and a button having a shank passing through said sleeve and the slot of said shank and in spring engagement with said tongue; said button being adapted to rotate and to be held by said indentations when in longitudinal or lateral position.

6. A cuff-holder, consisting of a skeleton frame, having a spring-tongue within, a sleeve carried by said frame, a button having a shank passing through said sleeve and in spring engagement with said tongue; said sleeve being indented to hold the button from rotation when in lateral or longitudinal position.

680,716. **THIMBLE-LID HOLDER.** HERMAN KLIPS, Larned, Kans. Filed June 12, 1900. Serial No. 20,100. (No model.)

Claim.—1. In a device of the class described, the combination with a flue-cap, of a lock comprising a plug secured to the wall of a chimney and having a projection on its exposed face, a retaining-arm adapted to bear against the cap and have a portion in engagement with the projection of the plug to prevent lateral displacement of the same, and means for securing the arm to the plug and in engagement with said projection.

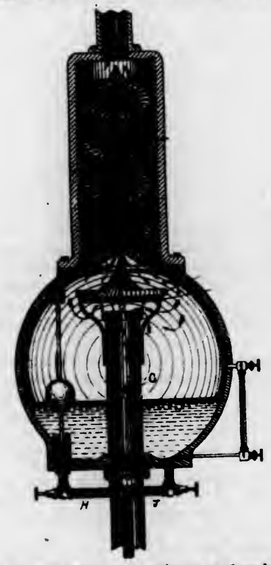


2. In a device of the class described, the combination with a flue-cap, of a lock comprising a plug secured in the chimney-wall and provided with a groove in its face, a spring, one end of which fits within the groove in the plug and the other bears against the flue-cap, and means for securing the spring in said groove.

3. In a device of the class described, the combination with a flue-cap, of a lock comprising a spring-arm, one portion of which is bent backwardly and arranged to bear against the cap, said arm having a pair of oppositely-projecting arms also arranged to bear against the cap, a plug secured to the chimney contiguous to the flue-opening, and a clamp-screw secured in said plug and clamping the spring-arm in place thereon.

4. In a device of the class described, the combination with a plug comprising a hollow screw-threaded shank having an enlarged head, the face of which is provided with a groove, said shank being adapted to be inserted in a chimney-wall with the head arranged against the exterior face thereof and adjacent to a flue-opening, of an arm arranged to bear at one end against the cap of said flue-opening and having its opposite end fitted in the groove of the plug-head, and a clamp-screw arranged in the screw-threaded shank and adapted to engage the arm.

680,717. **VERTICAL STEAM-SEPARATOR.** WILLIAM D. LABADIE, South Bend, Ind., assignor of one-half to Joseph G. Duck, Milwaukee, Wis. Filed Jan. 7, 1901. Serial No. 42,435. (No model.)



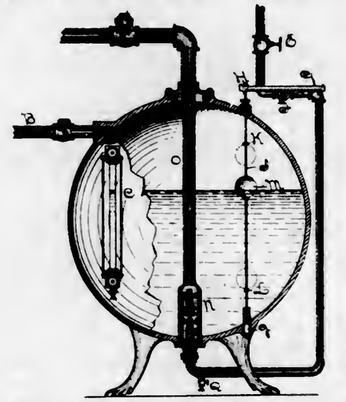
Claim.—1. A chamber for receiving the water of condensation, a steam-supply pipe connected thereto, a latticed spiral placed inside of the supply-pipe and a hood provided with perforations near its outer edge, combined with pipes connected with said perforations, a vertical discharge-pipe and a float-valve, substantially as shown and described.

2. In a separator, a vertical supply-pipe provided with a corrugated inner surface, a double spiral placed inside of said spiral pipe and a corrugated perforated cone placed at the lower end of the supply-pipe, combined with pipes connected to the cone, and which pipes conduct the water of condensation downwardly, a vertical discharge-pipe over the top of which the cone is placed, and a float-valve, substantially as specified.

3. In a steam-separator, a chamber for receiving the water of condensation, a steam-supply pipe connected thereto and having a corrugated inner surface, a spiral within the supply-pipe, a cone to catch the water of condensation, discharge-pipes connected to the cone, and a vertically-operated float-valve, substantially as described.

4. In a steam-separator, a chamber for receiving the water of condensation, a steam-supply pipe connected to the upper end of the chamber and having a corrugated inner surface and a double spiral located therein, a vertical discharge-pipe connected with the lower end of said chamber, and extending upward into the same, and supporting a cone for deflecting steam, and pipes connected with the cone for discharging the water of condensation.

680,718. **EJECTOR FOR STEAM-TRAPS.** WILLIAM D. LABADIE, South Bend, Ind., assignor of one-half to Joseph G. Duck, Milwaukee, Wis. Filed Dec. 19, 1900. Serial No. 40,459. (No model.)



Claim.—1. A trap, a pipe connected thereto for conveying the water of condensation to the trap, a steam-pipe connected to the trap, an injector connected to the steam-pipe, and a pipe connected to the injector for carrying away the water of condensation, combined with a rod, or wire, provided with collars, a vertically-moving float placed upon the rod or wire, and a tilting lever connected to a valve in the steam-pipe, and which valve is operated by the rise and fall of the float, substantially as shown.

2. The trap, the pipe B connected thereto, the steam-pipe D, provided with the valve E, an injector placed in the lower part of the trap, and connected to the lower end of the steam-pipe, and the pipe O connected to the injector for carrying away the water of condensation, combined with a vertically-moving rod or wire, collars K L secured to the wire, a float placed upon the rod or wire and which rises and falls between the two collars, a tilting weighted lever connected to the upper end of the rod or wire and to the valve F in the steam-pipe, substantially as specified.

3. In an ejector for steam-traps, a chamber to receive the water of condensation, a steam-pipe connected to the chamber, an injector connected to the steam-pipe, and a pipe connected to the injector for ejecting the water of condensation, combined with a float, a valve operated by said float which controls the admission of the steam to the ejector, and means for holding said valve in an open or closed position for a predetermined time.

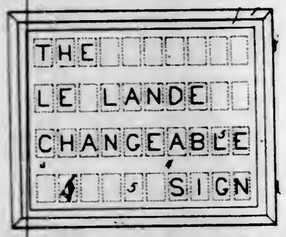
680,719. **PROCESS OF MANUFACTURING ARTIFICIAL HORSE-HAIR.** FRIEDRICH LEHNER, Zurich, Switzerland, assignor to Vereinigte Kunstseide-Fabriken, A. G., Frankfort-on-the-Main, Germany. Filed Oct. 13, 1900. Serial No. 32,945. (No specimens.)

Claim.—The process of preparing artificial horsehair which consists in drawing a plurality of threads from a bath of cellulose or cellulose derivative and uniting such threads while they are yet capable of merging into a single thread.

680,720. **SIGN.** LESTER B. LE LANDE, Los Angeles, Cal. Filed Nov. 7, 1900. Serial No. 35,753. (No model.)

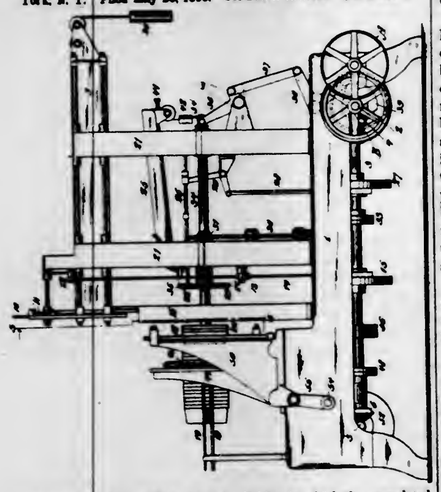
Claim.—1. A changeable sign, comprising a frame, a glass therein, a mat arranged at the inner side of the glass and having openings, letter, character or figure blocks corresponding in thickness to the mat and in shape and size to the openings thereof and arranged in said openings and

against the inner side of the glass, and a suitable backing arranged in rear of the mat and blocks therein.



2. A changeable sign comprising a frame, a glass therein, a mat arranged in the frame at the inner side of the glass and having openings the walls of which are beveled, letter, character or figure blocks corresponding in thickness to the mat and in shape and size to the openings thereof and having correspondingly-beveled edges; said blocks being removably arranged in the openings of the mat, and a suitable backing held in the frame in rear of the mat and blocks therein.

680,721. **BASKET-MAKING MACHINE.** SYLVANUS D. LOCKE, Brooklyn, N. Y., assignor to the Horton Basket Machine Company, New York, N. Y. Filed May 20, 1899. Serial No. 717,632. (No model.)



Claim.—1. The combination of a holder in which the completed baskets are carried, a plunger or former, mechanism for partially folding the blanks about the former, and means whereby the partially-folded blanks and the former are caused to enter the previously-completed basket to thereby complete the forming or bending of the blanks.

2. The combination of a holder in which the completed baskets are carried, a plunger or former, mechanism for partially folding the blanks about the former, means whereby the partially-folded blanks and the former are caused to enter the previously-completed basket to thereby complete the forming or bending of the blanks, and mechanism for applying the bands.

3. The combination of a holder in which the completed baskets are carried, a plunger or former, mechanism for partially folding the blanks about the former, means whereby the partially-folded blanks and the former are caused to enter the previously-completed basket to thereby complete the forming or bending of the blanks, mechanism for applying the bands, and nailing mechanism.

4. The combination of a stationary holder in which the completed baskets are carried or nested, a reciprocating former or plunger adapted to enter the previously-formed basket and mechanism for applying the blanks to the former and partially folding them thereon, the final folding being completed by the entrance into the previously-formed basket.

5. The combination of a stationary holder in which the completed baskets are carried or nested, a reciprocating former or plunger adapted to enter the previously-formed basket, mechanism for applying the blanks to the former and partially folding them thereon, the final folding being completed by the entrance into the previously-formed basket, and mechanism for applying the bands.

6. The combination of a stationary holder in which the completed baskets are carried or nested, a reciprocating former or plunger adapted to enter the previously-formed basket, mechanism for applying the blanks to the former and partially folding them thereon, the final folding being completed by the entrance into the previously-formed basket, mechanism for applying the bands, and nailing mechanism.

7. The combination of a reciprocating plunger or former, means for holding blanks or veneers in the path of the plunger, a folder, as the edges of a hole formed in a plate of the blank-holding means, for folding the blanks toward the sides of the plunger as the plunger passes through said opening, and a basket holder or rack for holding the baskets nested with the last-made basket of the nest in position to receive the blanks carried forward by the plunger and to act as a mold to cause said blanks to complete the shaping of the basket.

8. The combination of a reciprocating plunger or former, means for holding blanks or veneers in the path of the plunger, a folder, as the edges of a hole formed in a plate of the blank-holding means, for folding the blanks toward the sides of the plunger as the plunger passes through said opening, a basket holder or rack for holding the baskets nested with the last-made basket of the nest in position to receive the blanks carried forward by the plunger and to act as a mold to cause said blanks to complete the shaping of the basket, means for applying a binding-band to the edges of the sides of the blanks, and means for nailing or stapling said band at the sides of the blank to complete the basket, the basket thus completed being, upon the withdrawal of the plunger, added to the nest of baskets to act as a mold for the succeeding basket.

9. The combination of a reciprocating plunger or former, means for holding blanks or veneers in the path of the plunger, a folder, as the edges of a hole formed in a plate of the blank-holding means, for folding the blanks toward the sides of the plunger as the plunger passes through said opening, a basket holder or rack for holding the baskets nested with the last-made basket of the nest in position to receive the blanks carried forward by the plunger and to act as a mold to cause said blanks to complete the shaping of the basket, means for applying a binding-band to the plunger in such position as to be inside of the edges of the blanks folded against the plunger, with the end of the band extending from one side of the plunger, means for folding this extending end of the band around the basket at its edges and over the inside portion of the band, and means for securing, as by nails or staples, the band to the sides of the basket, the basket thus completed being, upon the withdrawal of the plunger, added to the nest of baskets to act as a mold for the succeeding basket.

10. The combination of a hopper for holding the blanks, mechanism for discharging two blanks at a time therefrom, and means for causing the two blanks to assume an angular relation with reference to each other and holding them in such position.

11. The combination of a hopper for holding the blanks, mechanism for discharging two blanks at a time therefrom, means for causing the two blanks to assume an angular relation with reference to each other and holding them in such position, a former or plunger, and means for folding such blanks about the former.

12. The combination of a hopper for holding the blanks, mechanism for discharging two blanks at a time therefrom, means for causing the two blanks to assume an angular relation with reference to each other and holding them in such position, a former or plunger, means for folding such blanks about the former, band-applying mechanism and nailing mechanism.

13. The combination of a hopper for holding the blanks, mechanism for discharging two blanks at a time therefrom, means for causing the two blanks to assume an angular relation with reference to each other and holding them in such position, a former or plunger, means for partially folding such blanks about the former, a mold for completing the formation of the blanks on the former, band-applying mechanism and nailing mechanism.

14. The combination of the hopper for holding the blanks, a blank-discharge pusher having two projections thereon of different lengths, one adapted to discharge the outermost blank and the other the adjacent blank from the hopper, means for separating the two blanks so discharged and means for causing them to assume an angular relation to each other.

15. The combination of the hopper for holding the blanks, a blank-discharge pusher having two projections thereon of different lengths, one adapted to discharge the outermost blank and the other the adjacent blank from the hopper, means for separating the two blanks so discharged, means for causing them to assume an angular relation to each other, a former or plunger, means for folding the blanks about the former, band-applying mechanism and nailing mechanism.

16. The combination of a hopper for holding the blanks, means for discharging two blanks at a time from the hopper, and guide-pins for causing the two blanks to assume an angular relation to each other.

17. The combination of a hopper for holding the blanks, a pusher for discharging two of the blanks from the hopper, one in advance of the other, a separator operated to act between the two discharged blanks, a vertical chute having side flanges down either side of which the two blanks fall, stop-pins projecting from the front and rear walls of the chute for arresting one end of each of the blanks and pins for guiding and holding the other ends of the blanks to cause the blanks to assume opposite angular positions.

18. The combination of a hopper for holding the blanks, a chute at the discharge end of the hopper, a blank-discharging device for conveying two blanks at a time from the hopper into the chute, means, as stop and guide pins, for causing the two blanks to assume reverse angular positions opposite openings in the front and rear walls of the chute, and a plunger or former operated to pass through said openings in the chute, carry the blanks from the chute and cause them to be folded against the side of the plunger during their exit through the opening of the front wall.

19. The combination of a hopper for holding the blanks, a chute at the discharge end of the hopper, a blank-discharging device for conveying two blanks at a time from the hopper into the chute, means, as stop and guide pins, for causing the two blanks to assume reverse angular positions opposite openings in the front and rear walls of the chute, said openings having in their upper parts lateral slots extending entirely through one side of the chute, and a plunger carrying a band, the end of which extends from its side, the plunger being operated to pass through the openings of the chute to carry the blanks therefrom and fold the blanks against the sides of the plunger, the extending end of the band passing through the lateral slots of the chutes.

20. The combination of a hopper for holding the blanks or veneers, a vertical rectangular chute arranged at the discharge end of the hopper, a pusher for discharging two blanks at a time from the hopper into the chute, stop and guide pins in the chute for causing the two blanks to assume reverse angular positions, a plunger operated to carry the blank through a hole in the front wall of the chute, and a vertically-moving bar or finger for guiding the front blank into position onto the guide-pins and operated to move out of the path of the blanks when they are acted upon by the plunger.

21. The combination of a hopper for holding the blanks or veneers on edge and provided with means for forcing the blanks toward one of its ends, a vertically-reciprocated pusher provided with two sets of discharging-pins arranged to discharge two blanks from the hopper, the front one in advance of the second one, means for moving and holding the pusher away from the blanks during the ascent of the pusher, a chute down which the blanks drop as discharged from the hopper, means for causing a separation of the blanks in the chute and a plunger actuated to force the blanks out of the chute through a hole formed in its front wall.

22. The combination of a hopper for holding the wood blanks or veneers on edge and provided with means for forcing the blanks toward one of its ends, a vertically-reciprocated pusher provided with two sets of discharging-pins arranged to discharge two blanks from the hopper, the front one in advance of the second one, means for moving and holding the pusher away from the blanks during the ascent of the pusher, a chute down which the blanks drop as discharged from the hopper, a separator operated to act between the two discharge-blanks, a vertical chute having side flanges down either side of which the two blanks fall, stop-pins projecting from the front and rear walls of the chute for arresting one end of each of the blanks and pins for guiding and holding the other ends of the blanks to cause the blanks to assume opposite angular positions.

23. The combination of a hopper for holding the wood blanks or veneers on edge and provided with means for forcing the blanks toward one of its ends, a vertically-reciprocated pusher provided with two sets of discharging-pins arranged to discharge two blanks from the hopper, the front one in advance of the second one, means for moving and holding the pusher away from the blanks during the ascent of the pusher, a chute down which the blanks drop as discharged from the hopper, a separator operated to act between the two discharged blanks, a vertical chute having side flanges down either side of which the two blanks fall, stop-pins projecting from the front and rear walls of the chute for arresting one end of each of the blanks, pins for guiding and holding the other ends of the blanks to cause the blanks to assume opposite angular positions, means for actuating the pusher embracing a pivoted lever, and a cam-slotted slide connected to the lever and arranged to act on the separator to cause it to bear against the rear of the front blank and allow the second blank to pass over its edge when the two blanks are pushed down by the pusher into the field of action of the separator.

24. The combination of a hopper for holding the blanks, a chute at the discharge end of the hopper, a blank-discharging device for conveying two blanks at a time from the hopper into the chute, means, as stop and guide pins for causing the two blanks to assume reverse angular positions opposite openings in the front and rear walls of the chute, said openings having from their upper parts lateral slots extending entirely through one side of the chute, a plunger carrying a binding-band, the end of which extends from its side, said plunger being operated to pass through the openings of the chute to carry the blanks therefrom and fold the blanks against the sides of the plunger, said extending end of the band passing through the lateral slots of the chutes, means for applying a band to the rear end of the plunger, and clamping and gripping jaws on the plunger for holding the band thereon.

25. The combination of a hopper for holding the blanks or veneers, a vertical rectangular chute arranged at the discharge end of the hopper, a pusher for discharging two blanks at a time from the hopper into the chute, a separator for separating the two fed blanks as they enter the chute, stop and guide pins in the chute for causing the two blanks to assume reverse angular positions, a plunger operated to carry the blank through a hole in the front wall of the chute, a vertically-moving bar or finger for guiding the front blank into position onto the guide-pins and operated to move out of the path of the blanks when they are acted upon by the plunger, and means for applying a band to the plunger wound around its rear end with the end of the band extending from the side of the plunger.

26. The combination of a hopper for holding blanks or veneers, a vertical rectangular chute arranged at the discharge end of the hopper, a pusher for discharging two blanks at a time from the hopper into the chute, stop and guide pins in the chute for causing the two blanks to assume reverse angular positions, a plunger operated to carry the blank through a hole in the front wall of the chute, and a vertically-moving bar or finger for guiding the front blank into position onto the guide-pins and operated to move out of the path of the blanks when they are acted upon by the plunger, a basket holder or rack holding baskets previously formed into the last one of which the blanks carried forward by the plunger are inserted, and a folding device for wrapping the extended end of the band around the sides of the basket on the plunger.

27. The combination of a hopper for holding the blanks, a chute at the discharge end of the hopper, a blank-discharging device for conveying two blanks at a time from the hopper into the chute, means, as stop and guide pins, for causing the two blanks to assume reverse angular positions opposite openings in the front and rear walls of the chute, said openings having from their upper parts lateral slots extending entirely through one side of the chute, a plunger carrying a binding-band, the end of which extends from its side, said plunger being operated to pass through the openings of the chute to carry the blanks therefrom and fold the blanks against the sides of the plunger, said extending end of the band passing through the lateral slots of the chutes, a basket holder or rack for holding baskets previously formed into the last one of which the blanks carried forward by the plunger are inserted, and a folding device for wrapping the extending end of the band around the sides of the basket on the plunger, and a nailing or stapling device for driving nails or staples through the band and sides of the basket.

28. The combination of a band bender or winder to which the band is delivered and upon which it is wound, a former or plunger, and means for transferring the wound end of the band from the winder to the former.

29. The combination of a band bender or winder, to which the band is delivered and upon which it is wound, a former or plunger, means for transferring the wound end of the band from the winder to the former, and means for then applying the basket-blanks to the former.

30. The combination of a band bender or winder to which the band is delivered and upon which it is wound, a former or plunger, means for transferring the wound end of the band from the winder to the former, means for then applying the basket-blanks to the former, and nailing mechanism.

31. The combination of a band-hopper, means for discharging a band therefrom, a winder to which one end of the discharged band is delivered and upon which one end of the band is wound, a former or plunger, means for transferring the wound end of the band to the plunger, means for then applying the basket-blanks to the plunger, mechanism for then winding the free or unwound end of the band about the outer edges of the blanks.

32. The combination of a band-hopper, means for discharging a band therefrom, a winder to which one end of the discharged band is delivered and upon which one end of the band is wound, a former or plunger, means for transferring the woand end of the band to the plunger, means for then applying the basket-blanks to the plunger, mechanism for then winding the free or unwound end of the band about the outer edges of the blanks, and nailing mechanism.

33. The combination of a band-hopper, a folder or winder for bending the band into shape corresponding to the shape of the basket to be formed, a pusher for discharging a band from the hopper and presenting its end to the folder, and a reciprocating plunger actuated to take the band from the folder.

34. The combination of a band-hopper, a folder for bending the band into shape comprising a series of pins and a cramping-jaw extending from a sliding rear plate through a longitudinally stationary front plate, a pusher for discharging a band from the hopper and presenting its end to the cramping-jaw of the folder, means for intermittently rotating the folder, and a

reciprocating plunger provided with a cramping-jaw and a gripping-jaw, said plunger being actuated to depress the pins and cramping-jaw of the folder within the face of the front plate and so cause the band to be transferred from the pins to the plunger with the end transferred to the cramping-jaw of the plunger and also to cause the gripping-jaw of the plunger to move over the band to hold the free part of the band against the plunger.

35. The combination of a hopper for holding the blanks, means for discharging two blanks at a time from the hopper, means, as guide-pins, for causing the two blanks to assume reverse angular positions, a band-hopper, a folder for bending the band into shape corresponding to the shape of the basket to be formed, a pusher for discharging a band from the hopper and presenting its end to the folder, a reciprocating plunger actuated to take the band from the folder and then to act on the two blanks to cause them to be folded against the sides of the plunger over the part of the band held on the plunger.

36. A band-fed hopper curved or bent at its delivery end to form a continuous band-holding chamber curved at one end and in which the bands may lie with their flat or side faces in contact and means for pushing the bands forward therein whereby the bands standing on edge in the straight part of the hopper are gradually turned to a position at right angles, or substantially so, in combination with means for discharging the bands from the end of the curved band-holding chamber.

37. A band-fed hopper curved or bent at its delivery end to form a continuous band-holding chamber curved at one end and in which the bands may lie with their flat or side faces in contact, means for pushing the bands forward therein whereby the bands standing on edge in the straight part of the hopper are gradually turned to a position at right angles, or substantially so, in combination with means for discharging the bands from the end of the curved band-holding chamber, means for applying the band and basket blanks to a former, and nailing mechanism.

38. A band-fed hopper reduced in width to less than the length of the bands and curved or bent at its delivery end, and means for pushing the bands forward therein whereby the bands standing on edge in the straight part of the hopper are gradually turned to a position at right angles, or substantially so, in combination with means for discharging the bands from the hopper.

39. The combination with a band-holder, in which the bands are placed on edge side by side, curved at its front or discharge end, a pusher or feeder in the hopper for pressing the bands along the hopper and around its curve causing them to assume horizontal flatwise positions in the lower end of the hopper, a pusher for discharging the bands one at a time from the hopper onto a table projecting from the front thereof and a spring-actuated roller for holding one end of the band onto the table.

40. The combination with a band-holder, in which the bands are placed on edge side by side, curved at its front or discharge end, a pusher or feeder in the hopper for pressing the bands along the hopper and around its curve causing them to assume horizontal flatwise positions in the lower end of the hopper, a pusher for discharging the bands one at a time from the hopper onto a table projecting from the front thereof, a spring-actuated roller for holding one end of the band onto the table, a folding or winding device having a clamping-jaw situated at the corner of the table and into which the end of the band is pushed by the pusher, and means for rotating the winding device to cause the band to be wound one turn around it.

41. The combination with a band-holder, in which the bands are placed on edge side by side, curved at its front or discharge end, a pusher or feeder in the hopper for pressing the bands along the hopper and around its curve causing them to assume horizontal flatwise positions in the lower end of the hopper, a pusher for discharging the bands one at a time from the hopper, the forward front end of the bottom of the hopper and rectangular bend being cut away at one side to allow of a free separation of the bands at their ends which are opposite the ends under the control of feeding mechanism.

42. The combination with a band-holder, in which the bands are placed on edge side by side, curved at its front or discharge end, a pusher or feeder in the hopper for pressing the bands along the hopper and around its curve causing them to assume horizontal flatwise positions in the lower end of the hopper, a pusher for discharging the bands one at a time from the hopper onto a table projecting from the front thereof, a spring-actuated roller for holding one end of the band onto the table, a folding or winding device having a clamping-jaw situated at the corner of the table and into which the end of the band is pushed by the pusher, means for rotating the winding device to cause the band to be wound one turn around it, and a reciprocating plunger actuated to back up against the folding or winding device and to receive the folded band on its end from such folding or winding device.

43. The combination of a hopper for holding the blanks, a chute at the discharge end of the hopper, a blank-discharging device for conveying two blanks at a time from the hopper into the chute, means, as stop and guide pins, for causing the two blanks to assume reverse diagonal positions opposite openings in the front and rear walls of the chute, said openings having from their upper parts lateral slots extending entirely through one side of the chute, in combination with a band-holder in which the bands are placed on edge side by side, curved at its front or discharge end, a pusher or feeder in the hopper for pressing the bands along the hopper and around its curve causing them to assume horizontal flatwise positions in the lower end of the hopper, a pusher for discharging the bands one at a time from the hopper, the forward front end of the bottom of the hopper and rectangular bend being cut away at one side to allow of a free separation of the bands at their ends which are opposite the ends under the control of feeding mechanism, and a reciprocating plunger actuated to back up against the folding or winding device to receive the folded band on its end from such folding or winding device with the free end of the band projecting from its side and then to move forward and pass through the openings of the chute and carry the blanks therefrom and fold them against the sides of the plunger with the edges of the blanks over the band on the plunger.

44. The combination with a basket holder or rack, for holding a series of baskets nested in it, a plunger then in the last-formed basket of the series and which then has a binding-band extending from one side of it, of folding-fingers arranged to then bear on the binding-band, and means for causing such fingers to travel around the basket to fold the band closely to the sides thereof.

45. The combination with a basket holder or rack, for holding a series of baskets nested in it, a plunger then in the last-formed basket of the series which has a binding-band extending from one side of it, of folding-fingers then arranged to bear on the binding-band and caused to travel around the basket to fold the band closely to the sides thereof, a series of nailing or stapling devices carried by a sliding head of the machine and held in inoperative position when the folding-fingers are in action and moved forward into position to drive nails or staples through the band folded on the basket, means for actuating the folding-fingers and means for actuating the sliding head and nailing or stapling devices carried thereby.

46. The combination of an annular band-winder having laterally-projecting winding-arms and an annular nailer mechanism through or into the central opening of which the winding-arms extend.

47. The combination of an annular band-winder having laterally-projecting winding-arms and a laterally-movable annular nailer mechanism through or into the central opening of which the winding-arms extend.

48. The combination of a basket-holding rack, a plunger having in one of its positions basket-blanks formed on it and held in the rack and a band then carried by the plunger extending from one side, a series of folding-fingers then surrounding the basket and projecting from the face of a rotatable plate or ring, means for rotating the fingers around the basket, and a series of nailing or stapling devices arranged in a sliding head and surrounding the projecting folding-fingers, and means for moving the head to bring the nailing or stapling devices into and out of operative positions and means for actuating the nailing or stapling devices when in operative position.

49. The combination of a band-hopper, means for discharging the bands therefrom edgewise one at a time, a band-winder having a gripping-jaw into which one end of a discharged band enters as it leaves the hopper, a plunger or former having a corresponding gripper-jaw, means for moving the plunger axially to force back the winder and thereby transfer the part of the band wound thereupon to the plunger with its end in the gripping-jaw of the plunger, and means for at the time of such transference of the band, operating the band-discharging devices whereby as the wound band leaves the winder the end of another band from the hopper follows into the gripping-jaw of the winder, substantially as set forth.

50. The combination of a holder for a completed basket, a former and mechanism for bringing the former into the basket, whereby the completed basket acts as a form or mold to bend into proper shape the blanks applied to the former.

51. The combination of a stationary holder for a completed basket, a reciprocating former, and mechanism for bringing the former into the basket, whereby the completed basket acts as a form or mold to bend into proper shape the blanks applied to the former.

52. The combination of a holder for a completed basket, a former, mechanism for applying the blanks to the former and mechanism for bringing the former with the blanks into the basket, whereby the completed basket acts as a form or mold to bend the blanks into proper shape about the former.

53. The combination of a holder for a completed basket, a former, mechanism for applying the blanks to the former, mechanism for bringing the former with the blanks into the basket, whereby the completed basket acts as a form or mold to bend the blanks into proper shape about the former, band-applying mechanism and nailing mechanism.

54. A receptacle or chute having a stop or projection against which the edge of a blank delivered to the chute strikes and about which it rocks, and other stops or projections which arrest the rocking movement of the blank and hold it in the desired position.

55. A receptacle or chute having two series of stops or projections arranged in different parallel planes, each series having a stop upon which the edge of one of two blanks delivered to the chute strikes and about which it rocks and other stops which arrest the blank and hold it in the desired position, whereby the blanks delivered to the chute may be arranged one across the other.

56. A band-hopper curved at one end and cut away or narrower at the curved end than at the other end or part of the hopper whereby the angular position of the band at the delivery end of the hopper is changed from that which it occupied at the opposite end and the free end of the bands at the delivery end permitted to separate, and means for discharging the band as required at the delivery end of the hopper.

57. A band-hopper curved at its delivery end to form a continuous band-holding chamber curved at one end and in which the bands may lie with their flat or side faces in contact, means for advancing the bands in the hopper toward the delivery end and means for discharging the bands one by one as required from the curved delivery end of the hopper.

58. The combination of a non-rotary former, means for folding the blanks about it, and a rotary winder for winding the band around the edges of the folded blanks.

59. The combination of a non-rotary former, means for folding the blanks about it, a rotary winder for winding the band around the edges of the folded blanks, and nailing mechanism.

60. The combination of a non-rotary former, mechanism whereby one end of the band is disposed around the sides of the former, mechanism for applying the blanks to the former and bending them into proper shape and a rotary winder for winding the free end of the band around the outside edges of the folded blanks.

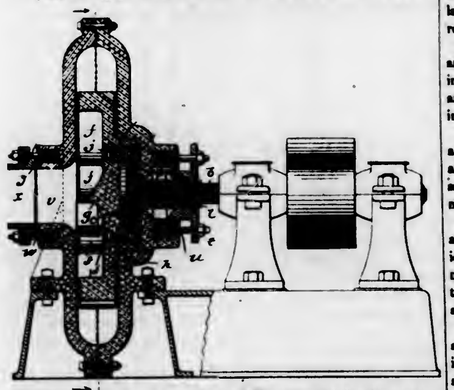
61. The combination of a non-rotary former, mechanism whereby one end of the band is disposed around the sides of the former, mechanism for applying the blanks to the former and bending them into proper shape, a rotary winder for winding the free end of the band around the outside edges of the folded blanks, and nailing mechanism.

62. The combination of a hopper adapted to hold basket-blanks arranged parallel with their flat faces contiguous, means for discharging two blanks so arranged from said hopper, and means for causing the blanks to assume the angular position with reference to each other in which they are to be bent up to form the basket.

63. The combination of a hopper adapted to hold basket-blanks arranged parallel with their flat faces contiguous, means for discharging two blanks so arranged from said hopper, means for separating the two blanks, and means for causing the blanks to assume the angular position with reference to each other in which they are to be bent up to form the basket.

64. The combination of a hopper adapted to hold basket-blanks arranged parallel with their flat faces contiguous, means for discharging two blanks so arranged from said hopper, means for causing the blanks to assume the angular position with reference to each other in which they are to be bent up to form the basket and a former about which the blanks are bent or folded.

680,722. ROTARY PUMP. MAX MAURAN, Niagara Falls, N. Y., assignor, by mesne assignments, to Castner Electrolytic Alkali Company, of Virginia. Filed July 21, 1900. Serial No. 24,362. (No model.)



Claim.—1. In a rotary non-corrodible pump and for the purposes explained, the combination of an earthenware chamber consisting of detachable sections, a rotary shaft entering the said chamber and provided with an enlarged end or head, a non-corrodible sleeve carried by the shaft, a packing device surrounding the said sleeve, an earthenware disk provided with wings and secured to the face of the said shaft-head, and a layer of protective material extending from the said sleeve to the said disk and protecting the said shaft-head.

2. In a rotary non-corrodible pump and for the purposes explained, the combination of a chamber consisting of detachable sections, a rotary shaft provided with an enlarged end or head, a non-corrodible sleeve carried by the shaft, a packing device surrounding the said sleeve, a disk provided with wings and secured to the said shaft-head, and a layer of protective material extending from the said sleeve to the said disk and protecting the said shaft-head.

3. In a rotary non-corrodible pump and for the purposes explained, the rotary shaft having a disk or head at its end, earthenware wings carried by the said disk or head, and a protective coating protecting the portions of the shaft from exposure to the liquid, the said wings being secured to the disk or head by bolts embedded in the said protective coatings.

680,728. DEPURATOR. RUTH J. MAURER, La Crosse, Wis. Filed Apr. 24, 1901. Serial No. 57,314. (No model.)



Claim.—1. In a depurator, the combination of a receiver with an open bottom and a closed top, a rigid inlet-tube connecting with the center of the closed top of the body and having its terminal projected below the plane of the latter, and an outlet-tube eccentrically connected to and terminating at said top of the body, whereby the outflow of the applied liquid will not interfere with the inflow.

2. In a depurator, the combination of a receiver with an open bottom and a closed top, a rigid inlet-tube connecting with the center of the closed top of the body and having its terminal projected below the plane of the latter, and an outlet-tube eccentrically connected to and terminating at said top of the body, and a pair of bars extending across the lower open end of the receiver.

680,724. DUPLEX CENTERING-MACHINE. FLEMING W. MOFFETT and JAMES MCCARTHY, Chicago Heights, and WILLIAM W. HOLMES, Chicago, Ill., assignors to the O. & C. Company, Chicago, Ill. Filed Jan. 23, 1899. Serial No. 703,173. (No model.)

Claim.—1. In a centering-machine, the combination with oppositely-placed head-stocks each provided with a drill, of feed mechanism therefor, and a driving mechanism common to both drills and the feed mechanism thereof, substantially as and for the purposes specified.

2. In a centering-machine the combination with coöperating driving and feeding mechanisms, of a head-stock, a drill-spindle having an enlarged working head, and a spindle-carrying sleeve having a reduced body reciprocally mounted in the head-stock, substantially as described.

3. In a centering-machine the combination with coöperating driving and feeding mechanisms, of a head-stock, a drill-spindle, a spindle-carrying sleeve having a reduced body reciprocally mounted in the head-stock, and an adjustable clamping-ring for connecting said sleeve with the feeding mechanism, substantially as described.

4. In a duplex centering-machine, the combination with oppositely-arranged head-stocks and drill-spindles, of interposed chucks, driving mechanism common to both of said drills, feed mechanism common to both of said drills, and means for actuating the feed mechanism from the driving mechanism of the drills, substantially as and for the purposes specified.

5. In a duplex centering-machine the combination with driving mechanism, head-stocks and drill-spindles, of drill-feeding mechanism automatically coöperating with said driving mechanism and comprising oppositely-moving pitman-rods in communication with said drill-spindles for simultaneously reciprocating said spindles in opposite directions, substantially as described.

6. In a duplex centering-machine the combination with driving mechanism, head-stocks and drill-spindles, of drill-feeding mechanism automatically coöperating with said driving mechanism and comprising oppositely-arranged pitman-rods in communication with said spindles, and cams upon a common supporting-shaft for reciprocating said spindles and pitman-rods in reverse directions, substantially as described.

7. In a duplex centering-machine, the combination with oppositely-arranged head-stocks and drill-spindles, of driving mechanism which actuates both of said drill-spindles, feed mechanism for said drill-spindles, and a worm-and-gear mechanism which actuates the feed mechanism from the drill-driving mechanism, substantially as and for the purposes specified.

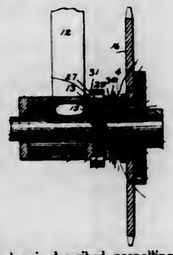


8. In a duplex centering-machine the combination with drill-spindles and driving mechanism therefor, of drill-feeding mechanism comprising oppositely-arranged pitman-rods in communication with said spindles, cams for simultaneously throwing said rods in reverse directions, a worm-gear for driving the cams, and a clutch for maintaining said cams and gear normally in operative relation, substantially as described.

9. In a duplex centering-machine the combination with drill-spindles and driving mechanism therefor, of drill-feeding mechanism comprising oppositely-arranged pitman-rods in communication with said spindles, cams for simultaneously throwing said rods in reverse directions, a worm-gear for driving the cams, a clutch for maintaining said cams and gear normally in operative relation, a lever for disengaging said clutch, and a rock-shaft for controlling said lever, substantially as described.

10. In a duplex centering-machine the combination with head-stocks and drill-spindles, of pivoted levers for actuating the drill-spindles, oppositely-moving adjustable pitman-rods, and means for simultaneously operating said pitman-rods, substantially as described.

680,725. **PROPELLING MECHANISM FOR BICYCLES.** PATRICK G. MCCOLLAM, Benton, Conn. Filed Oct. 20, 1900. Serial No. 33,669. (No model.)

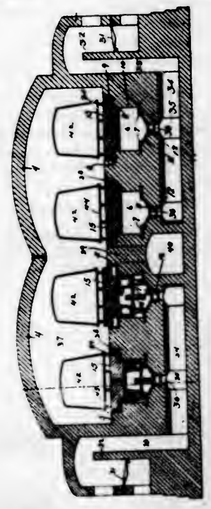


Claim.—1. The herein-described propelling mechanism for bicycles and similar vehicles the frames of which are provided with a crank-hanger, comprising a hub loosely mounted on the pedal-shaft and provided at its outer end with an annular gear, a sprocket-wheel loosely mounted on the said hub, a circular casing secured to the pedal-crank and provided at its perimeter with an internal gear, a pinion connected with the sprocket-wheel and meshing with the internal gear of said casing, and with the gear on said hub, a clutch flange or disk secured to the pedal-shaft, spring-operated clutch-plugs mounted in the inner end of said hub and adapted to engage with said clutch flange or disk, and a movable clutch-band mounted on the crank-hanger and adapted to force said clutch-plugs outwardly, substantially as shown and described.

2. The herein-described propelling mechanism for bicycles and similar vehicles the frames of which are provided with a crank-hanger, comprising a hub loosely mounted on the pedal-shaft and provided at its outer end with an annular gear, a sprocket-wheel loosely mounted on the said hub, a circular casing secured to the pedal-crank and provided at its perimeter with an internal gear, a pinion connected with the sprocket-wheel and meshing with the internal gear of said casing, and with the gear on said hub, a clutch flange or disk secured to the pedal-shaft, spring-operated clutch-plugs mounted in the inner end of said hub and adapted to engage with said clutch flange or disk, and a movable clutch-band mounted on the crank-hanger and adapted to force said clutch-plugs outwardly, said clutch-plugs being provided with radial extensions which pass through slits formed in said hub and which are adapted to be engaged by said band, substantially as shown and described.

3. The herein-described propelling mechanism for bicycles and similar vehicles the frames of which are provided with a crank-hanger, comprising a hub loosely mounted on the pedal-shaft and provided at its outer end with an annular gear, a sprocket-wheel loosely mounted on the said hub, a circular casing secured to the pedal-crank and provided at its perimeter with an internal gear, a pinion connected with the sprocket-wheel and meshing with the internal gear of said casing, and with the gear on said hub, a clutch flange or disk secured to the pedal-shaft, spring-operated clutch-plugs mounted in the inner end of said hub and adapted to engage with said clutch flange or disk, and a movable clutch-band mounted on the crank-hanger and adapted to force said clutch-plugs outwardly, said clutch-plugs being provided with radial extensions which pass through slits formed in said hub and which are adapted to be engaged by said band, and a device mounted in one of the frame-rods of the vehicle for operating said band, substantially as shown and described.

680,726. **HEATING-FURNACE.** WILLIAM S. MCKENNA, Mineralridge, Ohio, assignor of one-half to Henry Whiteley, Wilmington, Del. Filed Apr. 13, 1901. Serial No. 55,662. (No model.)



Claim.—1. A heating-furnace having a recess extending along its hearth provided with an immovable track and with a ledge or seat at each side above the track but below the hearth, in combination with a truck moving on said track, a movable furnace-bottom adapted to be supported on said truck, the upper portion of which projects laterally over said ledges or seats, and means for vertically adjusting said bottom, substantially as set forth.

2. A heating-furnace having a recess extending along its hearth provided at each side with a horizontal ledge or seat below the hearth-face, in combination with a movable furnace-bottom adapted to enter said recess, the upper portion of which projects laterally over said ledges or seats, means for raising said furnace-bottom from its seats and means for moving it longitudinally, substantially as set forth.

3. A heating-furnace having a recess extending along its hearth provided with an immovable track, a horizontal ledge or seat at each side above the track and below the hearth-face, in combination with a truck traveling on said track, a movable furnace-bottom adapted to be carried by the truck and projecting laterally over said ledges or seats, means for adjusting said furnace-bottom vertically on the truck and means for moving the truck longitudinally, substantially as set forth.

4. A heating-furnace having a recess extending along its hearth and provided with a horizontal ledge or seat at each side below the hearth-face, in combination with a movable furnace-bottom narrower than said recess and projecting laterally over said ledges or seats, means for adjusting said furnace-bottom vertically, and means for moving said furnace-bottom longitudinally, substantially as set forth.

5. A heating-furnace having a recess extending along its hearth provided with a track, a track extending in line therewith beyond the furnace, a truck traveling on said track, a pulley and a sprocket or driving wheel at opposite ends of the furnace and track, endless chain or rope connections passing around said pulley and wheel and connected to opposite ends of the truck, power connections for driving such sprocket, a movable furnace-bottom adapted to be carried by the truck and means for vertically adjusting said furnace-bottom thereon, substantially as set forth.

6. A heating-furnace having a recess extending along its hearth and provided with a track that extends beyond the furnace at ope end, a furnace-bottom fitting into said recess, a truck on said track provided with means for lowering the furnace-bottom into the recess and raising it therefrom, a pulley and a sprocket or driving wheel journaled adjacent to the respective ends of the track, endless chain or rope connections passing around said pulley and wheel and connected to opposite ends of the truck, power connections for driving such sprocket or driving wheel, and an inclosed passage extending through the furnace below the furnace-recess for the passage of the chain, substantially as set forth.

7. A heating-furnace having a recess extending along its hearth provided with a track, a track extending in line therewith beyond the furnace, a truck traveling on said track, a pulley and a sprocket or driving wheel at opposite ends of the furnace and track, endless chain or rope connections passing around said pulley and wheel and connected to opposite ends of the truck, power connections for driving such sprocket, a movable furnace-bottom adapted to be carried by the truck, means for vertically adjusting it thereon, and ledges or seats in the furnace-recess upon which the furnace-bottom is adapted to rest, substantially as set forth.

8. A heating-furnace having a recess extending along its hearth, a casting forming the bottom of said recess and having a track thereon, and provided with a hollow passage below the recess, a truck traveling on said track and adapted to carry a movable furnace-bottom, a track in line with the furnace-track at one end thereof, a pulley and sprocket or driving wheel at opposite ends of such track and furnace respectively and a chain connected to both ends of the track and passing around such pulley and driving-wheel and through the passage in said casting, substantially as set forth.

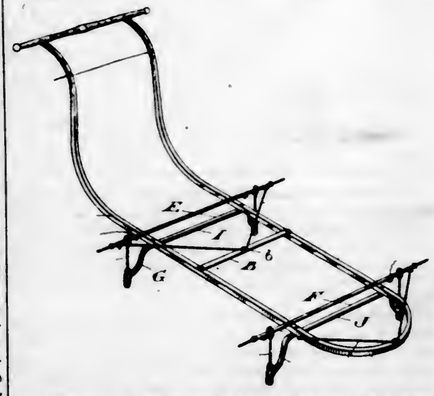
9. A heating-furnace having a recess extending along its hearth provided with a track, in combination with a truck and a movable furnace-bottom adapted to be carried thereon, means on the truck for adjusting the bottom vertically, a longitudinal shaft engaging with said adjusting means, a power-driven shaft at one end of the furnace and a flexible shaft driven thereby and adapted to engage with said longitudinal shaft, substantially as and for the purpose set forth.

10. A heating-furnace having a recess extending along its hearth provided with a track, a truck traveling on said track and a movable furnace-bottom adapted to be carried by the truck, a track in line with the furnace-track, a pulley and driving-wheel at the respective ends of the furnace and said track, and a rope connected to the truck and passing around said pulley and driving-wheel and under said truck, a power-driven shaft on which the driving-wheel is mounted, means for reversing said shaft and a clutch connection between the driving-wheel and said shaft, substantially as set forth.

11. A heating-furnace having two or more recesses extending along its hearth provided with tracks having trucks moving on said tracks, furnace-bottom sections adapted to be carried on the trucks and means for vertically adjusting said sections, said furnace having fire-chambers at the sides thereof, a tunnel thereunder and central downtake-flues between said recesses and communicating with said tunnel, substantially as set forth.

12. A heating-furnace having two or more recesses extending along its hearth provided with tracks having trucks moving on said tracks, furnace-bottom sections adapted to be carried on the trucks and means for vertically adjusting said sections, said furnace having fire-chambers at the sides thereof, a tunnel thereunder, flues leading from the same to the recesses and ports leading from the recesses through the hearth, and central downtake-flues between said recesses and communicating with said tunnel.

680,727. **RUNNING-GEAR FOR BABY-CARRIAGES.** DANIEL REILLY, Bradford, Canada. Filed Oct. 8, 1900. Serial No. 32,424. (No model.)



Claim.—1. A running-gear for baby-carriages comprising a frame; an axle connected therewith in any suitable manner; a second axle; a brace extending forwardly from the said axle and pivotally connected to the frame at a point within the central fore-and-aft vertical plane of the gear; and means independent of the brace for supporting the frame from the said axle so that it may move transversely to the axle, substantially as and for the purpose specified.

2. A running-gear for a baby-carriage comprising a frame; an axle connected therewith in any suitable manner; a second axle; a brace extending forwardly from the said axle and pivotally connected to the frame at a point within the central fore-and-aft vertical plane of the gear; and means independent of the brace for supporting the frame from the said axle so that it may move transversely to the axle but tends normally to maintain a central position, substantially as and for the purpose specified.

3. A running-gear for a baby-carriage, comprising a frame; an axle connected therewith in any suitable manner; a second axle; pivoted links suspending the frame from the said axle; and a brace extending forwardly from the said axle and pivotally connected to the frame, substantially as and for the purpose specified.

4. A running-gear for a baby-carriage, comprising a frame; an axle connected therewith in any suitable manner; a second axle; downwardly-extending arms connected to the said frame; pivoted links connecting the said arms with the axle; and a brace extending forwardly from the said axle and pivotally connected to the frame, substantially as and for the purpose specified.

5. A running-gear for a baby-carriage, comprising a frame; an axle connected therewith in any suitable manner; a second axle above the frame; downwardly-extending, vertically-slotted arms, connected to the said frame; links pivoted on the axle and shaped normally to engage the upper ends of the said slots and also when the frame is lifted to move down the slot to permit the axle to rest on the said frame; and a brace extending forwardly from the said axle and pivotally connected to the frame, substantially as and for the purpose specified.

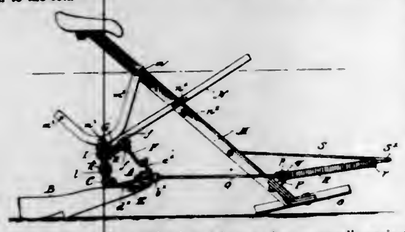
6. A running-gear for a baby-carriage, comprising a frame; two axles, means for supporting the frame from the said axles so that it may move transversely thereto but tends normally to maintain a central position; and a brace extending forwardly from each axle and pivotally connected to the frame, substantially as and for the purpose specified.

7. A running-gear for a baby-carriage, comprising a frame; an axle connected therewith in any suitable manner; a second axle; means for supporting the frame from the said axle so that it may move transversely to the axle; a brace extending forwardly from the said axle and pivotally connected to the frame; and stops connected to the said axle and adapted to engage the frame to limit the side motion of the latter relative to the axle, substantially as and for the purpose specified.

680,728. **HARROW.** CORNELIA R. B. HENDRYX, Millington, N. J., administratrix of FREDERICK HENDRYX, deceased. Filed Nov. 14, 1900. Serial No. 36,764. (No model.)

Claim.—1. In a harrow, the combination of the gang-bar, rearwardly-

projecting teeth secured thereto, a bar arranged in rear of the gang-bar and rigidly connected thereto, a rocking bar arranged above said rear bar, hinge connections respectively between the rocking bar and the gang-bar and said rear bar, and a lever for rocking the rocking bar, to thereby adjust the relation of the parts and change the angular relation of the teeth to the soil.



2. In a harrow, the combination of the gang-bar, rearwardly-projecting teeth attached thereto, a second bar arranged in rear of the gang-bar and rigidly connected therewith, a third and rocking bar flexibly connected respectively with the gang-bar and the rear bar rigidly connected with the gang-bar, a seat-standard supported upon the rocking bar by pivotally-connected supports, and a hand-lever connected with the rocking bar.

3. In a harrow, the combination of two gang-bars arranged in line respectively on opposite sides of the central draft-line of the machine, rearwardly-projecting teeth secured to the gang-bars, a bar in rear of and connected to each gang-bar, a bar arranged in rear of the gang-bars and disposed across the central draft-line, and hinge connections connecting said bar and the respective gang-bars at or about midway of the length of the latter, whereby the gang-bars and the gangs of teeth carried thereby may rock transversely to the line of draft.

4. In a harrow, the combination of two gang-bars arranged in line respectively on opposite sides of the central draft-line of the machine, rearwardly-projecting teeth secured to the gang-bars, a bar in rear of and connected to each gang-bar, a bar arranged in rear of the gang-bars and disposed across the central draft-line, hinge connections connecting said bar and the respective gang-bars at or about midway of the length of the latter, whereby the gang-bars and the gangs of teeth carried thereby may rock transversely, and means for rocking said rear bar to vary the angular relation of the teeth to the soil.

5. In a harrow, the combination of two gang-bars arranged in line on opposite sides of the central draft-line of the machine, rearwardly-projecting teeth secured thereto, a bar arranged over the teeth in rear of each gang-bar and rigidly attached to said gang-bar, a bar arranged above the respective gang-bars and the bars rigidly connected therewith, and hinge connections between said bar and the respective gang-bars and bars rigidly connected thereto.

6. In a harrow the combination of two gang-bars arranged in line on opposite sides of the central draft-line of the machine, a bar arranged in rear of each gang-bar and rigidly connected thereto, a rocking bar arranged across the central draft-line, hinge connections between its opposite ends and the gang-bar and its rigidly connected bar, and a lever for rocking the rocking bar to change the angular relation of the teeth to the soil.

7. In a harrow, the combination of two gang-bars arranged in line on opposite sides of the central draft-line of the machine, a bar arranged in rear of each gang-bar and rigidly connected thereto, a rocking bar arranged across the central draft-line, hinge connections between its opposite ends and the gang-bar and its rigidly-connected bar, a lever for rocking the rocking bar to change the angular relation of the teeth to the soil, a seat-standard and pivotally-connected supports connecting the seat-standard and the rocking bar.

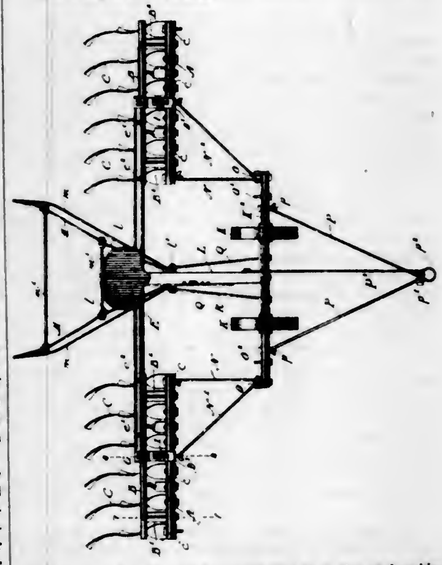
8. In a harrow the combination of the gang-bars A A arranged in line on opposite sides of the central draft-line of the machine, rearwardly-projecting teeth secured thereto, a bar C lying above the teeth in rear of each gang-bar and rigidly connected to the gang-bar, the rocking bar I, hinge connections between its ends and the bars A C upon which said bars may rock transversely to the line of draft, means for rocking the bar I to vary the angular relation of the teeth to the soil, and means whereby at will the bars A C may be held from rocking transversely on said hinge connections.

9. In a harrow the combination of the gang-bars A, the bars C rigidly connected therewith, the rocking bar I and means for rocking it, hinge connections between the ends of the bar I and the bars A C at or about their middles, an inclined seat-standard supported at or near its rear upper end on the bar I and having draft devices connected with its forward lower end, straight draft-links connecting the inner ends of the two bars A with the draft devices and oblique draft-links connected with the bars A at or about in line with their hinge connections and with the draft devices at their forward ends.

10. In a harrow the combination of a harrow-frame comprising transverse frame-bars C, C, two gang-bars rocking transversely to the line of draft and arranged in line on opposite sides of the central draft-line, an inclined seat-standard having draft devices connected with its forward lower end and supported at its rear upper end upon the harrow-frame, draft-links connecting the inner ends of the gang-bars with said draft devices and obliquely-arranged draft-links extending from said draft devices and connected with the transversely-rocking gang-bars at or about their middle.

11. In a harrow the combination of the gang-bars A, the rearwardly-projecting teeth secured thereto, the intermediate clod-crushers also secured thereto, the bars C arranged in rear of the gang-bars above the teeth and rigidly connected to the gang-bars, the bar I arranged above the bars C, the plates G H embracing the bar I, the eyebolt K passing through said plates and bar, the eyebolts L passing through the bars C, the rod secured to the ends of the projecting plates G H at one end and at its opposite end engaging a plate bolted to the gang-bar A.

680,729. HARROW. CORNELIA R. B. NISHWITZ, Millington, N. J., administratrix of Frederick Nishwitz, deceased. Filed Nov. 16, 1900. Serial No. 36,765. (No model.)



Claim.—1. In a harrow, the combination of an elongated rocking bar disposed on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line, means for rocking the bar to vary the angular relation of the teeth to the soil, and detachable adjustable connections between the bar and the two gangs of teeth whereby the inner ends of gangs may be set close together or may be separated by a space equal, or substantially equal, to the length of each gang.

2. In a harrow the combination of an elongated rocking bar disposed equally on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line with a space between them equal, or substantially equal, to the length of each gang, and means for rocking the bar to vary the angular relation of the teeth to the soil.

3. In a harrow the combination of an elongated rocking bar disposed equally on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line with a space between them equal, or substantially equal, to the length of each gang, means for rocking the bar to vary the angular relation of the teeth to the soil, draft devices, a seat-standard connected with the draft devices at its lower forward end and pivotally supported upon the rocking bar at its rear upper end.

4. In a harrow the combination of an elongated rocking bar disposed equally on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line with a space between them equal, or substantially equal, to the length of each gang, means for rocking the bar to vary the angular relation of the teeth to the soil, draft devices, a seat-standard connected with the draft devices at its lower forward end and pivotally supported upon the rocking bar at its rear upper end, and rods or draft connections connecting the two gangs of teeth with the draft devices.

5. In a harrow the combination of the bar E disposed equally on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line by hinge connections upon which the gangs may rock transversely to the line of draft, the wheels K K, the draft-axle upon which they are mounted, the draft-rods as P P connected with the axle and the draft-rods as N N' connecting the axle and the gangs of teeth.

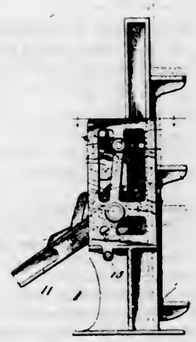
6. In a harrow the combination of the bar E disposed equally on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line by hinge connections upon which the gangs may rock transversely to the line of draft, the wheels K K, the draft-axle upon which they are mounted, the draft-rods as P P connected with the axle, the draft-rods as N N' connecting the axle and the gangs of teeth, a seat-standard connected at its lower front end with the axle K' and pivotally supported at its upper rear end upon the bar E.

7. In a harrow the combination of the bar E disposed equally on opposite sides of the central draft-line, two gangs of teeth respectively connected with said bar on opposite sides of the draft-line by hinge connections upon which the gangs may rock transversely to the line of draft, the wheels K K, the draft-axle upon which they are mounted, the draft-rods as P P connected with the axle, the draft-rods as N N' connecting the axle and the gangs of teeth, a seat-standard connected at its lower front end with the axle K' and pivotally supported at its upper rear end upon the bar E, and a lever connected with the bar E by means of which it may be rocked to change the angular relation of the teeth to the soil.

8. In a harrow the combination of the gang-bars A B, the rearwardly-extending harrow-teeth, the bar E, hinge connections between the bar E and the respective gang-bars A B, and means for shifting the hinge connection upon the bar E to vary the distance apart of the inner ends of the two gangs of teeth.

9. In a harrow the combination of the gang-bars A B, the rearwardly-extending harrow-teeth, the bar E, hinge connections between the bar E and the respective gang-bars A B, means for shifting the hinge connection upon the bar E to vary the distance apart of the inner ends of the two gangs of teeth, the wheels and axle arranged forward of the gangs, the draft-rods connecting the gangs with the axle, the two draft-rods for each gang being connected at a common point to the axle and to the center and inner end respectively of the gang of teeth.

680,730. LIFTING-JACK. WILLIAM H. OLIVER, Chicago, Ill. Filed Aug. 9, 1900. Serial No. 26,372. (No model.)



Claim.—1. In a lifting-jack the combination of a frame having a vertical slot in the side thereof, guide-lugs at the top of the frame adjacent to said slotted side, a standard inserted in said frame and having vertical ribs engaging between said slotted side of the frame and guide-lugs for guiding it, a guide secured to or near the lower end of said standard and resting against the outer side of said frame, a step secured to said

standard at or near its lower end and means for raising said standard, substantially as set forth.

2. In a lifting-jack the combination of a standard having a rack, a pinion engaging with said rack, a ratchet-wheel operatively connected to said pinion, a pawl engaging said ratchet-wheel, a holding-dog adapted to engage said ratchet-wheel, means for actuating said pawl to rotate said ratchet and means for disengaging said holding-dog by the movement of said standard, substantially as set forth.

3. In a lifting-jack the combination of a standard, means for lifting said standard and a trip operated by said standard for throwing said lifting means out of action, substantially as set forth.

4. In a lifting-jack the combination of a standard having a rack, a pinion engaging said rack, means for rotating said pinion for lifting said standard and a trip carried by said standard for throwing said lifting means out of action, substantially as set forth.

5. In a lifting-jack the combination of a standard having a rack, a pinion engaging said rack, means for rotating said pinion, a holding-dog for preventing retrograde movement of said pinion, and a trip actuated by the movement of said standard for disengaging said holding-dog, substantially as set forth.

6. In a lifting-jack the combination of a standard, a ratchet-wheel operatively connected therewith, a pawl engaging with said ratchet-wheel for rotating the same, a dog for preventing retrograde movement of said ratchet-wheel, means for holding said dog out of engagement when the standard is to be lowered and means in connection with said pawl for causing the reëngagement of said dog as said pawl is oscillated, substantially as set forth.

7. In a lifting-jack the combination of a standard, a ratchet-wheel operatively connected therewith, a holding-dog for preventing retrograde movement of said ratchet-wheel, a pawl engaging with said ratchet-wheel, a weight for holding said dog out of engagement and means in connection with said pawl for temporarily lifting said weight and permitting said dog to reëngage as the pawl is oscillated, substantially as set forth.

8. In a lifting-jack the combination of a standard, a ratchet-wheel operatively connected therewith, a holding-dog for preventing the retrograde movement of said ratchet-wheel, a pawl for rotating said ratchet-wheel; a weight, for holding said holding-dog out of engagement, having a cam and means in connection with said pawl for engagement with said cam and lifting said weight when the pawl is moving in one direction and lifting said pawl out of engagement with the ratchet when the pawl is moved in the opposite direction, substantially as set forth.

9. In a lifting-jack the combination of a standard, a ratchet operatively connected therewith, a holding-dog for preventing retrograde movement of said ratchet, a pawl for rotating said ratchet; a weight, for holding said holding-dog out of engagement, having a cam, a lug projecting from said pawl and adapted to engage under said cam and lift said weight when the pawl is moved in one direction and to ride over said cam and lift said pawl when the pawl is moving in the opposite direction substantially as set forth.

10. In a lifting-jack the combination of a standard, a ratchet operatively connected therewith, a holding-dog for preventing retrograde movement of said ratchet, a pawl for rotating said ratchet, a weight for holding said dog out of engagement, means in connection with said pawl for lifting the weight when the pawl is moved in one direction and lifting said pawl when it is moved in the opposite direction, and a catch for holding said weight normally elevated, substantially as set forth.

11. In a lifting-jack the combination of a standard, an operating-lever, means for lifting said standard by the oscillation of said lifting means, means for changing said lifting-operating means to gradually-lowering means, and means in connection with said lever for shifting said changing means back into normal position when the lever is elevated, substantially as set forth.

12. In a lifting-jack the combination of a standard, a ratchet having operative connection therewith, a holding-dog for preventing retrograde movement of said ratchet, a pawl for rotating said ratchet, a shiftable device for holding said dog out of engagement, an operating-lever for oscillating said pawl and means in connection with said operating-lever for throwing said shiftable device back to its normal inactive position, substantially as set forth.

13. In a lifting-jack the combination of a standard, a ratchet operatively connected therewith, a holding-dog for preventing retrograde movement of said ratchet, a pawl for rotating said ratchet, a lever for actuating said pawl, a weight for holding said dog out of engagement, means for alternately lifting said weight and pawl by the oscillation of said lever, a catch for holding said weight aloof and means on said lever for causing said weight to engage said catch when the lever is raised, substantially as set forth.

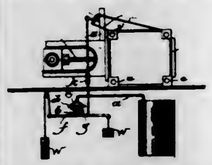
14. In a lifting-jack the combination of a standard, a ratchet, operatively connected therewith, a dog for holding said ratchet against retrograde movement, having the incline 21°, a pawl for rotating said ratchet adapt-

ed to engage said incline for lifting itself and the dog out of engagement, substantially as set forth.

15. In a lifting-jack the combination of a standard, an operating-lever, means for lifting said standard, by the oscillation of said lever, comprising a disengageable member, a dog for holding said standard from descending while said disengageable member is out of engagement and means for holding said dog out of engagement while said disengageable member is in engagement, substantially as set forth.

16. In a lifting-jack the combination of a standard, an operating-lever, means for lifting said standard by the oscillation of said lever, comprising a ratchet, a pawl operatively connected with said lever for turning said ratchet and a dog for holding said ratchet against retrograde movement while the pawl is disengaged therefrom; and means for causing said ratchet and dog to alternately engage and disengage by the oscillation of said lever, substantially as set forth.

680,731. STEAM-ENGINE. RALPH J. PATTERSON, Woburn, Mass. Filed July 19, 1900. Serial No. 24,123. (No model.)



Claim.—1. In a compound engine, a high-pressure cylinder, a cut-off for said high-pressure cylinder, means controlled by the speed of the engine for governing said cut-off, a low-pressure cylinder, a cut-off for said low-pressure cylinder, and means independent from the controlling means for the cut-off for the high-pressure cylinder to lengthen or shorten the cut-off for the low-pressure cylinder subsequently to the corresponding movement of the cut-off for the high-pressure cylinder.

2. In a compound engine, comprising high and low pressure cylinders, a speed-regulator comprising a cut-off for the high-pressure cylinder, a centrifugal governor for controlling the said cut-off, a cut-off for the low-pressure cylinder, and means operated by variations in receiver-pressure to lengthen the cut-off for the low-pressure cylinder when the speed of the engine falls and to shorten said cut-off when the speed of the engine increases.

3. In a compound engine, comprising a high and low pressure cylinder, means to equalize the work done by the said two cylinders, said means comprising a cut-off for the low-pressure cylinder, and means controlled by the variations in receiver-pressure due to the amount of steam exhausted from the high-pressure cylinder for lengthening the cut-off for the low-pressure cylinder when the speed of the engine tends to slacken and for shortening the said cut-off when the engine tends to increase its speed.

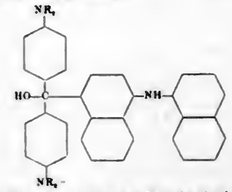
4. In a multiple-cylinder engine, a series of cylinders and receivers, a cut-off for each of said cylinders, means to control said cut-offs, the controlling means for the low-pressure cylinder of any pair of cylinders being operated solely by variations in the receiver-pressure between said pair of cylinders, whereby the cut-off of said low-pressure cylinder is lengthened when the speed of the engine falls and shortened when the speed of the engine increases, such movement being subsequent to the corresponding movement of the cut-off for the high-pressure cylinder.

5. In a compound engine, a high-pressure cylinder, a cut-off therefor, a ball-governor controlling said cut-off, a low-pressure cylinder, a cut-off for said low-pressure cylinder, and a receiver between said cylinders, a diaphragm-piston, connecting means between the diaphragm-piston and cut-off for the low-pressure cylinder, said diaphragm being operated by variations of pressure in the receiver, and means to exert a constant pressure on said diaphragm-piston in opposition to the receiver-pressure.

6. In a compound engine, a high-pressure cylinder, a low-pressure cylinder, and a receiver between the same, a cut-off for the high-pressure cylinder, means governed by the speed of the engine to control the said cut-off, a cut-off for the low-pressure cylinder, and means governed solely by the variations in pressure of the receiver to control the last-named cut-off, whereby the cut-off for the low-pressure cylinder is shortened or lengthened subsequently to a corresponding movement of the cut-off for the high-pressure cylinder.

680,732. BLUE ACID DYE. HEINRICH POLIKER, Berlin, Germany, assignor to Actien-Gesellschaft für Anilin Fabrikation, same place. Filed May 14, 1901. Serial No. 60,230. (No specimens.)

Claim.—The new acid dyestuff of the diphenylnaphthylmethane series, said dyestuff being a sulfonic acid of the condensation product obtained from tetraalkyldiamidobenzophenone and alpha-dinaphthylamin represented by the following formula:



R meaning an alkyl group, said dyestuff forming in the dry state an indigo-blue powder, soluble in alcohol and very easily soluble in water to clear-blue solutions; the aqueous solutions remaining unchanged by the addition of sodium carbonate and assuming a violet-red color on addition of caustic-soda lye; the dyestuff dissolving in concentrated sulfuric acid to a red solution, which on dilution with water becomes gradually brown, greenish brown, green and finally clear blue, the dyestuff producing on wool clear-blue shades.

680,733. PROCESS OF MAKING WATERPROOF FABRIC AND PRODUCT THEREOF. ALFRED M. POSENER, London, and FREDERICK W. CLERKE, Tottenham, England, assignors to the "H. L." Syndicate, Limited, county of Middlesex, England. Filed Sept. 13, 1900. Serial No. 29,959. (No specimens.)

Claim.—1. The process of making waterproof fabric, which consists in subjecting a suitable base to the action of an aqueous mixture, drying the same, subjecting said dried base to the action of an oily mixture, drying the same and finally polishing the product, substantially as described.

2. The process of making waterproof fabric, which consists in subjecting a canvas base to the action of an aqueous mixture containing coloring materials and Irish moss, drying said base, subjecting it to the action of a mixture containing oil, resin, coloring-matter and a drier, drying said material, and finally polishing said material, substantially as described.

3. The process of making waterproof fabric, which consists in subjecting a suitable base to the action of an aqueous mixture containing coloring-matter and Irish moss in the proportions specified, drying the same, repeatedly subjecting the dried base to the action of a composition containing boiled oil, resin, coloring-matter and a drier combined in the proportions specified, drying said base after each application of said second mixture, moistening and polishing said base, treating said base with the thin mixture containing oil, coloring-matter and a drier mixed in the proportions specified, and finally drying said base, substantially as described.

4. As a new article of manufacture, a waterproof fabric obtained by subjecting a suitable canvas base to the action of an aqueous mixture containing coloring-matter and Irish moss, and afterward to the action of a mixture containing boiled oil, resin, coloring-matter and a drier, substantially as described.

680,734. PROCESS OF MAKING WATERPROOF FABRIC AND PRODUCT THEREOF. ALFRED M. POSENER, London, and FREDERICK W. CLERKE, Tottenham, England, assignors to the "H. L." Syndicate, Limited, county of Middlesex, England. Filed Sept. 13, 1900. Serial No. 29,960. (No specimens.)

Claim.—1. The process of making waterproof fabric, which consists in subjecting a woven base to the action of an aqueous mixture containing waterproofing material, drying said base, subjecting said dried base to the action of an oily mixture, and drying said base, substantially as described.

2. The process of making waterproof fabric, which consists in subjecting a woven base to the action of an aqueous solution containing glue, coloring material and silicate of soda, drying said base, subjecting it to the action of a mixture containing boiled oil and coloring material, and finally drying said base, substantially as described.

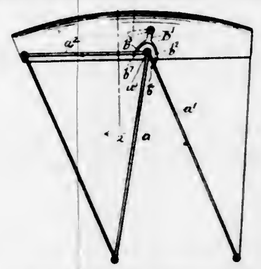
3. The process of making waterproof fabric, which consists in subjecting a woven base to the action of an aqueous solution containing glue, coloring material and silicate of soda combined in the proportions specified, drying said base, subjecting it to the action of a solution containing boiled oil and coloring material combined in the proportions specified and finally drying said base, substantially as described.

4. The process of making waterproof fabric, which consists in subjecting a suitable woven base to the action of an aqueous waterproofing solution containing glue, coloring material and silicate of soda combined in the proportions specified, drying said base, subjecting it to pressure, subjecting it to the action of a mixture composed of boiled oil and coloring material combined in the proportions specified, and finally drying said base, substantially as described.

5. In the process of making waterproof material, the step which consists in subjecting a suitable woven base to the action of aqueous waterproofing solution containing glue, coloring material and silicate of soda, substantially as described.

6. As a new article of manufacture, a waterproof fabric obtained by subjecting a suitable woven base to the action of a solution containing glue, coloring material and silicate of soda, and afterward subjecting said base to the action of a mixture containing boiled oil and coloring material substantially as described.

680,735. RELEASING DEVICE FOR BUGGY-TOPS. JOHN T. PROUTY, Paddock, Nebr. Filed Dec. 26, 1900. Serial No. 41,037. (No model.)

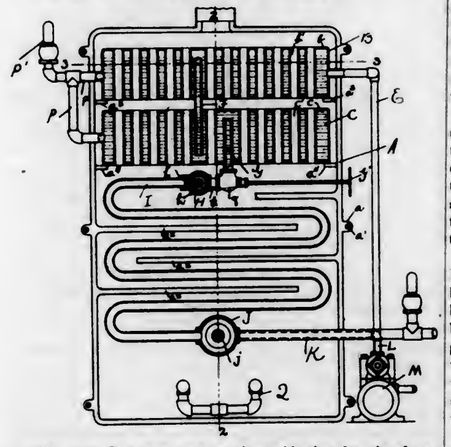


Claim.—1. In a buggy-top, the combination with the frame and braces thereof, of a release device comprising a rotatable rod mounted on the frame and having a yoke at each end adapted to release the braces when moved in opposite directions.

2. In a buggy-top, the combination with the frame and braces, of a release device comprising a rod rotatably mounted in the frame, a yoke at each end of the rod composed of two legs, one pair of legs adapted to release the outside braces and the other the inside braces when the rod is oppositely rotated.

3. A release device for buggy-tops comprising a through-rod mounted in the frame, a yoke at each end of the rod composed of a depending portion and two bowed legs provided with lateral pins.

680,736. STEAM-GENERATOR. GEORGE E. RIBLET, Erie, Pa. Filed Dec. 24, 1900. Serial No. 40,929. (No model.)



Claim.—1. In a steam-generator, the combination of a series of connected water-chambers arranged to give a passage of water in reverse direction to the passage of gases; and means for directing the gases by said chambers.

2. In a steam-generator, the combination of the water-chambers, B and C; flues arranged in the said chambers; a connection between the said chambers; an outlet from the chamber, C; an intake connected to the chamber, B; and means for directing heated gases by the said chambers, first in contact with the chamber, C, and then after passing the chamber, C, with the chamber, B.

3. In a steam-generator, the combination of the water-chambers, B and C; flues arranged in the said chambers; a connection between the said chambers preventing a circulation from the chamber, C, to the chamber, B; an intake connected to the chamber, B; and means for directing heated gases by the said chambers, first in contact with the chamber, C, and then after passing the chamber, C, with the chamber, B.

4. In a steam-generator, the combination of a series of water-chambers; a steam-pipe leading from one of the said chambers; and means for directing the heated gases by the said steam-pipe, then by the chamber connected with the said steam-pipe, and then by the companion water-chamber,

5. In a steam-generator, the combination of the water-chambers, B and C; a steam-pipe leading from the chamber, C, said steam-pipe being arranged in loops or coils; a case inclosing the said steam-pipes; deflectors arranged between the said loops or coils; and means for supplying the heated gases of said generator by the outgoing steam-pipe, then by the said deflectors along said steam-pipes and by the said water-chambers.

6. In a steam-generator, the combination of a water-chamber; a steam-chamber; means for subjecting the water in the water-chamber to a greater pressure than that of the steam-chamber; means for subjecting the water in the water-chamber to a higher temperature than is sufficient to convert it into steam at the pressure maintained in the steam-chamber; and a connection between the said water-chamber and the said steam-chamber.

7. In a steam-generator, the combination of a water-chamber; a steam-chamber; means for subjecting the water in the water-chamber to a greater pressure than that maintained in the steam-chamber; means for subjecting the water in the water-chamber to a higher temperature than is sufficient to convert it into steam at the pressure maintained in the steam-chamber, but not sufficiently high to convert it into steam at the pressure maintained in the water-chamber; and a connection between the water-chamber and the said steam-chamber.

8. In a steam-generator, the combination of a water-chamber; a steam-chamber; means for subjecting the water in the water-chamber to a greater pressure than that of the steam-chamber; means for subjecting the water in the water-chamber to a higher temperature than is sufficient to convert it into steam at the pressure maintained in the steam-chamber; and a jet connection between the said water-chamber and the said steam-chamber.

9. In a steam-generator, the combination of a water-chamber; a steam-chamber; means for subjecting the water in the water-chamber to a greater pressure than that of the steam-chamber; means for subjecting the water in the water-chamber to a higher temperature than is sufficient to convert it into steam at the pressure maintained in the steam-chamber; and a steam-chamber composed of a series of pipes.

10. In a steam-generator, the combination of a water-chamber; a steam-chamber; connections between said chambers; means for maintaining a greater pressure in the water-chamber than in the steam-chamber; means for heating the water in the water-chamber to a higher temperature than is sufficient to convert the water into steam at the pressure maintained in the steam-chamber; and means for carrying the supply of heat, first by the said steam-chamber and then by the said water-chamber.

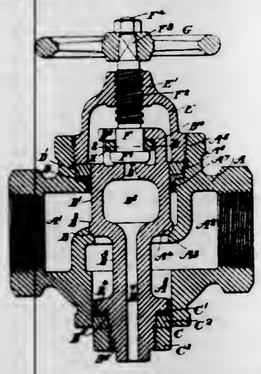
11. In a steam-generator, the combination of a water-chamber; a steam-chamber; of connections between the said chambers; means for maintaining a greater pressure in the water-chamber than in the steam-chamber; means for heating the water in the water-chamber to a greater temperature than is sufficient to convert the water into steam at the pressure maintained in the steam-chamber; and means for conveying heat by the steam-chamber in a reverse direction to the passage of steam through the said chamber and then by the said water-chamber.

12. In a steam-generator, the combination of the water-chambers, B and C; and connections between the said chambers, said connections being arranged to prevent a circulation from the chamber, C, to the chamber, B; a steaming-chamber; connections between the steaming-chamber and the chamber, C; and means for subjecting the chamber, C, to a greater pressure than to the steaming-chamber; means for heating the water in the chamber, C, to a higher temperature than is sufficient to convert it into steam at the pressure maintained in the steaming-chamber, said heating means being passed first by the steaming-chamber, then by the chamber, C, and then by the chamber, B.

13. In a steam-generator, the combination of the case, A, having the deflectors, a^2, therein; the chambers, B and C, arranged in the said case, the said chambers being formed of the shells, b and c, respectively, and having therein the flues, b' and c', respectively; the pipe, F, connecting the upper end of the chamber, B, with the lower end of the chamber, C; the inlet-pipe, E, connected with the chamber, B; the outlet-pipe, G, connected with the chamber, C; the manifold, H, connected with the pipe, G; the pipes I, connected with the manifold, H, said pipes having coils or loops passing by the deflectors, a^2, the passage between the

said pipes and manifold being provided with the jet-opening, *k*, the manifold, J, into which the pipes, I, pass; the outlet-pipe, K; the pipe, L, connected with the steam-supply and steam-pump, M, said pump being arranged to produce a greater pressure at its outlet than is contained in the pipe, I, said pump connected with the intake-pipe, E; and means for supplying heat to the said case.

680,737. **VALVE.** LOUIS SCHUTTE, Philadelphia, Pa. Filed June 8, 1900. Serial No. 19,520. (No model.)



Claim.—1. In a valve, a casing having chambers, as A' A^3, connected by a valve-seated port, as A^4, a cylinder, as A^5, situated below the valve-seat of greater area than its narrower portion and a cylinder situated above said seat of less area than its broader portion, in combination with a valve, as B, adapted to seat itself on the valve-seat, a piston, as C, attached to the valve and moving in the lower cylinder, a piston, as B', also attached to the valve and moving in the upper cylinder and means for actuating said valve.

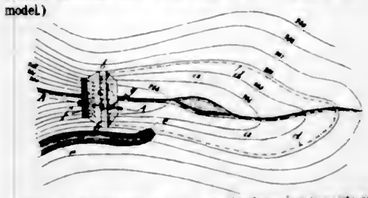
2. In a valve, a casing having chambers, as A' A^3, connected by a valve-seated port, as A^4, a cylinder, as A^5, situated below the valve-seat of greater area than its narrower portion and a cylinder situated above said seat of less area than its broader portion, in combination with a valve, as B, adapted to seat itself on the valve-seat, a piston, as C, attached to the valve and moving in the lower cylinder, a piston, as B', also attached to the valve and moving in the upper cylinder, an opening, as B' B^4 B^5, through the pistons and valve, and means for actuating said valve.

3. In a valve, a casing having cylinders, as A^5 and D D', of equal diameters and arranged in line with each other and a valve-seated port, as A^4 situated between said cylinders, the valve-seat being in its smaller diameter narrower than the lower cylinder and in its larger diameter larger than the upper cylinder, in combination with a valve, as B, adapted to seat itself on the seat of port, A^4, and having attached to it pistons C and B' of equal diameter moving in the cylinders aforesaid.

4. A valve-casing, as A, having two chambers connected by a valve-seated port, as A^4, an opening, as A^7, above and in line with the port of a diameter not less than the greater diameter of the valve-seat, and a cylindrical opening, as A^5, below the seat of a diameter less than the greater and more than the lesser diameters of said seat, in combination with a valve, as B, adapted to seat itself on the seat in the casing and to pass through opening A^7, a piston-head, as B', secured to the lower face of the valve and of less than the narrowest diameter of the seat, a piston, as B', secured to the upper face of the valve and of less diameter than opening A^7, cylinder-packing, as D D', and means for securing it in opening A^7 and around piston B' after said piston is in place and piston-packing, as C' C^2, and means for securing it to piston-head B^4 and in cylinder A^5 after said cylinder-head is in place.

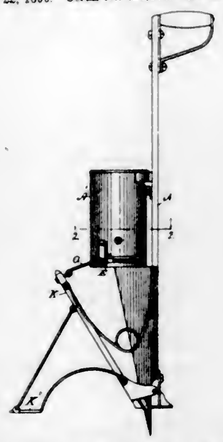
5. A valve-casing, as A, having two chambers connected by a valve-seated port, as A^4, an opening, as A^7, above and in line with the port of a diameter not less than the greater diameter of the valve-seat, and a cylindrical opening, as A^5, below the seat of a diameter less than the greater and more than the lesser diameters of said seat, in combination with a valve, as B, adapted to seat itself on the seat in the casing and to pass through opening A^7, a piston-head, as B^4, secured to the lower face of the valve and of less than the narrowest diameter of the seat, a piston, as B', secured to the upper face of the valve and of a diameter equal to that of cylindrical opening A^5, cylinder-packing, as D D', and means for securing it in opening A^7 and around piston B' after said pistoo is in place and piston-packing, as C' C^2, and means for securing it to piston-head B^4 and in cylinder A^5 after said cylinder-head is in place.

680,738. **MEANS FOR DAMMING TORRENTS.** GIULIO SERRALANETTI, Castenaso, Italy. Filed June 12, 1900. Serial No. 20,044. (No model.)



Claim.—The combination in means for damming torrents of a dike across in a torrential valley adapted to form a storage-reservoir, a block at the foot of the external slope of the dike consisting of a layer of stones inclosed in a wire casing, a vertical pit *g* adapted to draw off the waters, a coodnit *h* connected with said pit and adapted to deliver its waters below the dike, a lateral canal *e* around the dike, an outflow-channel *l* adapted to empty the reservoir and means for opening and closing said channel *l*, substantially as described.

680,739. **CORN-PLANTER.** GEORGE S. SHEFFIELD, Burroak, Mich., assignor to the Sheffield Manufacturing Company, same place. Filed July 22, 1899. Serial No. 724,872. (No model.)



Claim.—1. In a planter, the combination of disks with feed-pockets formed therein, supported on a suitable pivot; a disk of sheet metal G, with its center depressed having a slot G'', thereio and a slot G', for allowing seeds to pass; a broad, flat lever E, with a pawl at its outer end arranged in the slot G'', and engage the central pivot whereby the metal disk G, can be oscillated by the actuating of the lever, so that the parts can be easily assembled coacting for the purpose specified.

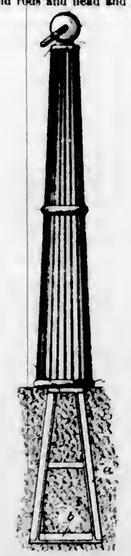
2. In a planter, the combination with a seed-hopper having a slot in one side; a perforated disk to gather the seeds; a sheet-metal disk in the bottom thereof perforated for the passage of the seed and having a slot through the body thereof; a pivot through the center thereof; a lever arranged in the slot in the said sheet-metal disk and said slot in the side of the hopper and engaging the said pivot at the center whereby the said sheet-metal disk is oscillated and so that the parts can be easily assembled, as specified.

680,740. **POST.** JAMES W. SNEDEKER, Adrian, Mich., assignor to Alanson M. Keeney, William H. Shearson, and Sherman S. Withington, same place. Filed Oct. 29, 1900. Serial No. 34,836. (No model.)

Claim.—1. In a post, the combination of a series of rods having hooked ends, a head or abutment around which said rods are arranged and with which said hooked ends engage to prevent longitudinal withdrawal of the rods and a surrounding band clamping said rods to said head.

2. In a post, the combination of a circular series of rods, a head or abutment around which said rods are arranged having peripheral grooves forming seats for said rods, a clamping-band surrounding said rods and head and detents on said rods engaging with said head to prevent longitudinal withdrawal of the rods.

3. In a post, a circular series of rods having inwardly-bent ends, a head or abutment around which the ends of said rods are arranged, said head being recessed in its periphery to receive said bent ends, and a clamping-band surrounding said rods and head and securing them together.



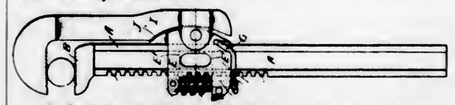
680,741. **VELOCIPEDE DRIVING MECHANISM.** ROBERT B STARBUCK, Matteon, Ill. Filed Dec. 26, 1900. Serial No. 41,146. (No model.)



Claim.—A velocipede comprising a body consisting of spaced longitudinal sills and connecting cross-pieces, pillow-blocks secured to the under sides of the sills and having a crank-shaft mounted therein and provided with driving-wheels at its ends, a seat mounted upon the sills above the crank-shaft, pillow-blocks mounted upon the sills in advance of the seat, a second shaft mounted in the last-named pillow-blocks, a hand-lever comprising spaced uprights pivotally mounted upon the second shaft and having spacing cross-pieces of which the uppermost cross-piece projects laterally beyond the uprights to form handles, a shaft engaged with the lower ends of the uprights below the sills, and a connecting-rod connected at its rear end with the crank of the crank-shaft and having its forward end bifurcated to form spaced arms mounted upon the shaft at the lower ends of the uprights and lying with the arms against the inner faces of the uprights to prevent inward displacement thereof.

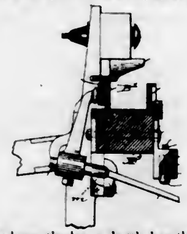
680,742. **SPANNER OR PIPE-WRENCH.** DAVID STEWART, Govan, Scotland. Filed Mar. 15, 1901. Serial No. 51,256. (No model.)

Claim.—1. A spanner or pipe-wrench consisting of a main bar or hand-grip of channel form in cross-section, having the usual smooth or serrated gripping-head, and the outer surface of one of its flanges formed with teeth, a sliding bracket or sleeve embracing the said bar and having projections upon it which slide between the flanges thereof, a spindle pivoted at its upper end in jaws in the said sleeve, a worm loosely centered on said spindle, a clamping device consisting of a looped wire pivoted on the sleeve and embracing the lower end of the worm-spindle, a spring bearing on the under side of the looped wire to retain it upon the end of the spindle, and an outer gripping-head pivoted on the sliding sleeve, and having its gripping-head normally held away from the head on the main bar substantially as described.



2. A spanner or pipe-wrench having a main bar or hand-grip provided with the usual gripping-head and teeth on one of its surfaces, and a sliding sleeve embracing the main bar and carrying a pivoted spindle upon which is loosely centered the worm engaging the teeth upon the main bar, in combination with a clamping device consisting of a looped wire pivoted on said sleeve and adapted to engage the lower end of the worm-spindle substantially as and for the purpose set forth.

680,743. **LOOM.** EDWARD S. STIMPSON, Hopedale, Mass., assignor to Draper Company, same place. Filed May 2, 1901. Serial No. 58,480. (No model.)

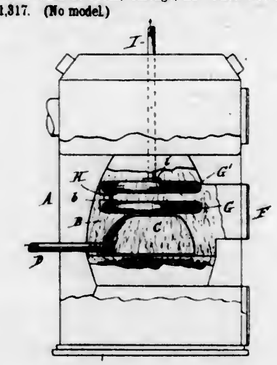


Claim.—1. In a loom, the lay, a shuttle-box thereon, a binder, and means, including a plurality of successively-acting springs, to exert a cumulative force upon the binder when thrown out by impact of the entering shuttle, to accelerate the return of the binder to position to check the shuttle.

2. In a loom, the lay, a shuttle-box thereon, a binder, and means, including a plurality of independent and successively-acting springs, to exert a cumulative force upon the binder when thrown out by the entering shuttle, to accelerate the return of the binder, and a device to regulate the time of operation of one of the springs.

3. In a loom, the lay, a shuttle-box thereon having a binder, a spring-controlled rock-shaft mounted on the lay and having a finger in engagement with the binder, to resist outward movement of the binder, and an auxiliary spring to act upon the binder and accelerate its return when thrown out by impact of the entering shuttle.

680,744. **HOT-WATER HEATING ATTACHMENT FOR FURNACES.** FRANK D. STOLL, Chicago, Ill. Filed Dec. 28, 1900. Serial No. 41,317. (No model.)

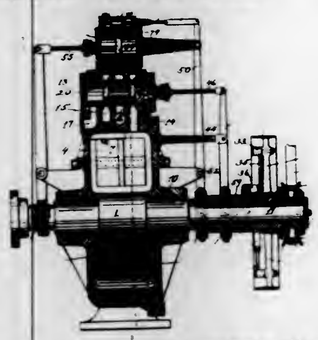


Claim.—1. The combination with a furnace having a fire-pot and a combustion-chamber forming an upward extension of the fire-pot space or chamber; of a water-heating attachment comprising a double-walled shell formed substantially as a truncated cone having a central passage opening at its top and bottom and also laterally open opposite the door or fuel-supply passage of the furnace, said substantially trunco conical shell being constructed with a water-chamber having inlet and outlet connections, and being suspended within the combustion-chamber at a point over the fire-pot space, and having its greatest extent of external circumferential area of surface less than the corresponding area of the wall of the combustion-chamber so as to provide between the said shell and the wall of the combustion-chamber an annular space or passage which extends upwardly from the space within the fire-pot and merges into the upper portion of the combustion-chamber which is above the shell and with which the upper end of the central passage of the shell communicates.

2. The combination with a furnace having a combustion-chamber arranged over the fire-pot; of a water-heating attachment C formed substantially as a hollow truncated cone and supported within and free from the wall of the chamber by pipes D and I; the hollow water-heating attachment being formed with a horizontally-segmental water-chamber partially subdivided by a partition and having a central passage which is laterally open opposite the furnace-door or fuel-supply passage; said water-heating attachment having its sides, top and bottom exposed within the combustion-chamber.

3. The combination with the combustion-chamber of a furnace, of an inclosed water-heating attachment formed substantially as a hollow, truncated cone having a water-chamber formed between its inner and outer walls, and open through its side which is opposite the furnace-door; and one or more superposed hollow water-heating coils connecting with the water-chamber of said attachment and each constructed with inner and outer connected hollow members, adapted for coupling and circulation substantially as described.

680,745. **SPEED-REGULATOR.** JOHN STURGESS, Troy, N. Y., assignor to the Sturgess Governor Engineering Company, same place. Filed Jan. 18, 1901. Serial No. 43,466. (No model.)



Claim.—1. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a variable pulley-and-belt driving mechanism for said governor adapted to transmit motion thereto from said motor, and means for automatically varying said pulley-and-belt mechanism at certain times to vary the rotary speed of the governor relatively to that of said motor.

2. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a variable pulley-and-belt mechanism for transmitting motion from said motor to said governor; and means for automatically causing said mechanism to vary the speed of said governor in accordance with, and in advance of, a governor-induced variation in the speed of said motor.

3. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a variable pulley-and-belt mechanism for transmitting motion from said motor to said governor; means for automatically causing said mechanism to vary the speed of said governor in accordance with, and in advance of, a governor-induced variation in the speed of said motor; and means for afterward automatically varying said mechanism to counteract the function of said motor to vary the speed of the governor in accordance with the variation so induced in the speed of said motor.

4. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a variable pulley-and-belt mechanism for transmitting motion from said motor to said governor; means for automatically causing said mechanism to vary the speed of said governor in accordance with, and in advance of, a governor-induced variation in the speed of said motor; and means for afterward neutralizing the function of said motor to gradually vary the speed of the governor while the speed of said motor is gradually restored to its normal relation to that of the governor.

5. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of a belt, and pulley of variable effective diameter, for transmitting motion from said motor to said governor; and means for automatically varying the effective diameter of said pulley at certain times.

6. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of mechanism for transmitting motion from said motor to said governor, comprising a belt and a belt pulley having a pair of beveled disks one movable toward and from the other; and means for moving one of said disks toward and from the other to vary the effective diameter of said belt-pulley at certain times.

7. In a speed-regulator, the combination with a centrifugal governor for controlling the supply to a fluid-operated motor; of mechanism for transmitting motion from said motor to said governor comprising a pair of beveled disks one movable toward and from the other, a plurality of similarly-beveled belt-pulley segments interposed between said beveled disks, means for moving one of said disks toward and from the other; and a belt engageable with said pulley-segments, substantially as described.

8. In a speed-regulator, the combination with a rotary sleeve, and a centrifugal governor mounted upon said sleeve for controlling the supply to a fluid-operated motor; of a variable gear mounted upon said sleeve adapted to transmit motion from said motor to said sleeve and governor; and means for automatically causing said variable gear to vary at certain times the rotary speed of the governor relatively to that of said motor.

9. In a speed-regulator, the combination with a rotary sleeve, and a centrifugal governor mounted upon said sleeve for controlling the supply to a fluid-operated motor; of a pair of beveled disks mounted upon said sleeve to rotate therewith, one being fixed and the other movable longitudinally, upon said sleeve; a plurality of similarly-beveled belt-pulley segments interposed between said disks and connected to rotate therewith; means for automatically moving one of said disks toward and from the other at certain times; and a belt driven by said motor and engageable with said pulley-segments, substantially as described.

10. In a speed-regulator, the combination with a gate or the like for controlling the supply to a fluid-operated motor; of a centrifugal governor; variable pulley-and-belt gear for transmitting motion from said motor to said governor; gate-operating mechanism controlled by said governor; an expansible and contractible link connection between said controller and an adjustable member of said gear; and means for expanding and contracting said link at certain times.

11. In a speed-regulator, the combination with a gate or the like controlling the supply to a fluid-operated motor; a fluid-operated gate-controller; and a valve for regulating the fluid-supply to said controller; of a centrifugal governor connected with said valve; mechanism for transmitting motion from said motor to said governor, comprising in part a belt-pulley having an adjustable beveled member for varying its effective diameter; an expansible and contractible link connecting said adjustable member with the gate-controller; and means for expanding and contracting said link at certain times.

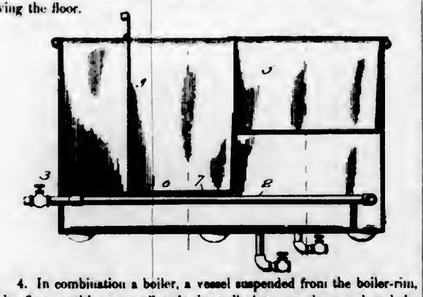
12. In a speed-regulator, the combination with a gate or the like controlling the supply to a fluid-operated motor; a fluid-operated gate-controller; and a valve for regulating the fluid-supply to said controller; of a centrifugal governor connected with said valve; mechanism for transmitting motion from said motor to said governor, comprising in part a belt-pulley having an adjustable beveled member for varying its effective diameter; a fluid-filled cylinder and piston connected, one with the gate-controller, and the other with said adjustable pulley-member; and means for supplying fluid under pressure at certain times to the several sides of said piston.

680,746. **COOKING APPARATUS.** THOMAS L. TREMBLAY, Rochester, N. Y. Filed June 14, 1901. Serial No. 64,537. (No model.)

Claim.—1. In combination a boiler, a vessel suspended from the boiler-rim, and a floor-partition extending horizontally between the vessel and the boiler-walls, said partition being situated above the bottom of the boiler and provided with a vertical flange bearing against the vessel to hold said partition in place.

2. In combination a boiler, a vessel suspended from the boiler-rim, and a floor-partition extending horizontally between the vessel and the boiler-walls, said partition being situated above the bottom of the boiler and provided with a vertical flange bearing against the vessel to hold said partition in place, said flange being perforated.

3. In combination a boiler, a vessel suspended from the boiler-rim, and a floor-partition extending horizontally between the vessel and the boiler-walls, said partition being situated above the bottom of the boiler, and a vertical partition suspended from the boiler-rim in the compartment having the floor.

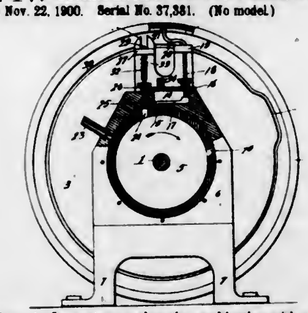


4. In combination a boiler, a vessel suspended from the boiler-rim, and a floor-partition extending horizontally between the vessel and the boiler-walls, said partition being situated above the bottom of the boiler, and a vertical partition suspended from the boiler-rim in the compartment having the floor, said vertical partition being perforated for free circulation of water.

5. In combination a boiler, a vessel suspended from the boiler-rim, and a floor-partition extending horizontally between the vessel and the boiler-walls, said partition being situated above the bottom of the boiler, and a vertical partition suspended from the boiler-rim in the compartment having the floor, said vertical partition being adjustably supported on the boiler-rim.

6. In combination a boiler, a vessel suspended from the boiler-rim, and a floor-partition extending horizontally between the vessel and the boiler-walls, said partition being situated above the bottom of the boiler and removable, and the vessel being adjustable on the rim of the boiler.

680,747. **ROTARY ENGINE.** JOSEPH L. WALKER, Columbus, Ky. Filed Nov. 22, 1900. Serial No. 37,381. (No model.)



Claim.—1. In a rotary engine, the combination with a shaft, of a flanged or rimmed combined fly and belt wheel mounted thereon, a rotary-piston casing located within the flange or rim of the wheel, a rotary piston mounted upon the shaft and within the casing, a steam-inlet valve, an adjustable back-pressure abutment, and stems for the valve and the abutment, respectively, the adjacent face of the wheel and the inner side of the rim thereof having stem-operating cam-faces.

2. In a rotary engine, the combination with a shaft, of opposite rotary pistons mounted thereon, casings for the respective pistons, a combined fly and belt wheel mounted upon the shaft and between the pistons, inlet-valves and back-pressure abutments for the respective pistons, and wheel-operated trip mechanisms for the valves and abutments.

3. In a rotary engine, the combination with a shaft, of opposite rotary pistons mounted thereon, casings for the pistons, a combined fly and belt wheel mounted upon the shaft, located between the pistons, and having an oppositely-projecting marginal rim or flange, inlet-valves and back-pressure abutments for the respective pistons, stems for the valves and the abutments, and stem-operating cam-faces upon the opposite sides of the wheel and also upon the opposite inner side portions of the rim or flange of the wheel.

4. In a rotary engine, the combination with a shaft, of a fly-wheel mounted thereon, and having cam-faces upon one side thereof, and also upon the inner side of the marginal rim of the wheel, a rotary piston mounted upon the shaft, a casing therefor, an inlet-valve having a crank-stem in operative relation to the cam-face upon the rim of the wheel, and a back-pressure abutment having a stem in operative relation with the cam-face upon the side of the wheel.

5. In a rotary engine, the combination with a shaft, of a flanged fly-wheel mounted thereon, and having a marginal face-groove provided with a laterally and outwardly deflected portion, and a marginal groove formed in the inner face of the flange and having a laterally-deflected portion, an inlet-valve which rocks at substantially right angles to the plane of the wheel, and provided with a rocking stem, having a crank-arm, the extremity of which is received within the groove of the flange, and a back-pressure abutment which works in a plane substantially parallel to that of the wheel, and has an endwise-slidable stem, provided with a lateral arm having its outer end received within the face-groove of the wheel.

6. In a rotary engine, the combination with a shaft, of a fly-wheel mounted thereon, and having a marginal rim or flange, one face of the wheel having a substantially concentric cam, and the inner side of the flange or rim having a marginal cam-face, a rotary piston mounted upon the shaft, and having a casing, an inlet-valve, a back-pressure abutment, an outwardly-projecting stem for the valve, and having a terminal lateral crank-arm, which is provided with a lateral pin or projection working in frictional engagement with the cam-face of the flange of the wheel, an outwardly-projecting endwise-slidable abutment-stem, having a lateral terminal arm working in frictional engagement with the cam, lateral guides supported beyond the casing and having openings loosely receiving the respective stems, the guide for the abutment-stem having an outwardly-directed extension provided with a longitudinal slot slidably receiving the arm of said abutment-stem.

7. In a rotary engine, a rotary shaft, a rotary piston therefor a fly-wheel also mounted upon the shaft, and having a marginal rim or flange projected across the rotary piston, and provided on its inner side with a cam, an inlet-valve for the piston, an outwardly-projected valve-stem, having a crank-arm, and a terminal pin or projection in frictional engagement with the cam.

8. In a rotary engine, the combination with a rotary shaft, of a combined belt and fly wheel mounted thereon, and provided upon opposite sides with cams, opposite rotary pistons mounted upon the shaft and upon opposite sides of the wheel, casings for the respective pistons, laterally-offset legs supporting the casings and straddling the flange of the wheel, inlet-valves, and back-pressure abutments for the respective pistons, and valve and abutment stems in direct frictional engagement with the adjacent cams of the wheel.

680,748. **GRAIN-TUBE CONNECTION.** JOHN E. WELLING, Cynthiana, Ky., assignor to Walter C. Renaker, same place. Filed Apr. 9, 1901. Serial No. 55,091. (No model.)



Claim.—1. In combination with a grain-tube consisting of a wire coil, and a cup, a coupling applied to said cup and formed with offstanding lugs to make screw-thread connection with the grain-tube by passing between adjacent turns or coils thereof, substantially as set forth.

2. In combination with a grain-tube consisting of a wire coil, and a cup, a coupling applied to the cup and having offstanding lugs of hook form to engage with the grain-tube by a screw-thread connection, substantially as set forth.

3. In combination with a grain-tube consisting of a wire coil, and a cup, a coupling separate from the cup and adapted to be fitted thereto and formed with offstanding lugs to make screw-thread connection with elements of the grain-tube, the latter serving in conjunction with the cup and coupling to hold the latter in place, substantially as set forth.

4. In combination with a grain-tube consisting of a wire coil, and a cup, a coupling for connecting the grain-tube and cup and having portions separated by cuts from the body and bent to provide engaging lugs, substantially as set forth.

5. In combination with a cup having an inner shoulder, and a grain-tube consisting of a wire coil, a coupling having an outer flange at its upper end to engage with the inner shoulder of the cup and having offstanding lugs to make screw-thread connection with the grain-tube, which latter normally exerts an upward pressure against the lower end of the cup to hold the parts in engagement, substantially as set forth.

680,749. **SASH-FASTENER.** OTIS WILLIAMS, St. Johnsville, N. Y. Filed June 3, 1901. Serial No. 62,927. (No model.)

Claim.—1. A sash holder and fastener comprising a horizontal movable and spring-actuated bar located upon the window sill or frame and extending across the same, and upright pivoted locking-levers engaging with the ends of the bar and adapted to engage notches or sockets upon the sash, substantially as and for the purpose set forth.

2. A sash holder and fastener, comprising a horizontally-movable and spring-actuated bar located upon the window sill or frame and having slotted or bifurcated ends, and pivoted locking-levers engaging the slotted or bifurcated ends of the bar and provided at their upper ends with pawls to engage notches or sockets on the window-sash, substantially as and for the purpose described.



680,750. JAR-COVER. HANS J. WIETHERLICH, Omaha, Nebr., assignor of one-half to Michael Nittler, same place. Filed Dec. 15, 1900. Serial No. 39,991. (No model.)



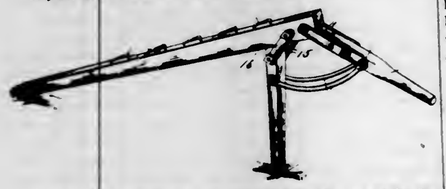
Claim.—1. The combination with the neck of a receptacle; of a cap, an elastic ring secured to the cap, a disk mounted below the ring, having an inclined flange adapted to contact with said ring and spread the same laterally, studs on the disk adapted to engage the ring and prevent revolution of the disk therein, and means for adjusting the disk from or toward the cap.

2. The combination with the neck of a receptacle; of a cap, an elastic ring secured to the cap, a disk mounted below the ring, having an inclined flange adapted to engage the ring and spread the same laterally, strengthening-ribs upon the disk, studs at the ends of said ribs adapted to engage the ring and prevent revolution of the disk therein, and means for adjusting the disk from or toward the cap.

3. The combination with the neck of a receptacle having a thread thereon; of a cap adapted to engage said thread, a recessed portion at the center of the cap and extending into the neck, an elastic ring inclosing said recessed portion, a concavo-convex disk below the ring, having an inclined flange adapted to contact with the ring and spread the same laterally, ribs upon the disk, studs at the ends of the ribs adapted to engage the ring and prevent the disk from revolving therein, a bolt secured to the disk and extending through the recessed portion, a nut mounted thereon and within the recessed portion, and a bail to said nut.

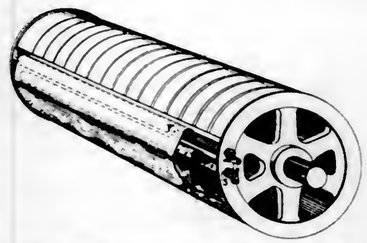
4. A closure for jars and similar receptacles comprising a cap, having an annular flange, a recessed portion at the center thereof, an elastic ring inclosing the recessed portion and extending therefrom, a concavo-convex disk, having an inclined annular flange adapted to contact with the inner wall of the ring and spread said ring laterally, ribs upon the disk, studs on the disk adapted to engage the ring and prevent the disk from revolving therein, a bolt extending from the disk and into the recessed portion of the cap, a nut mounted upon the bolt, and a bail pivoted to said nut.

680,751. WAGON-JACK. JOB W. ALLGOOD, Jersey, Ga. Filed May 21, 1901. Serial No. 61,246. (No model.)



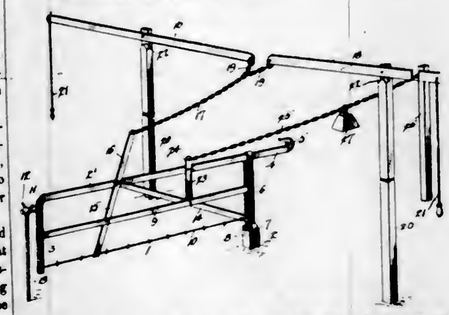
Claim.—In a wagon-jack, the combination with a supporting-bar having axle-supporting steps or shoulders, of an operating-lever pivotally connected to said supporting-bar, a supporting-leg connected by pivotal links to the supporting-bar and having its upper end beveled or chamfered to form a shoulder for engagement with the lower side of the supporting-bar, and thrust-links pivotally connected at their opposite ends to the operating-lever and to the supporting-leg at a point beneath the point of attachment of the pivotal links to the supporting-leg, substantially as described.

680,752. LITHOGRAPHIC-PRESS BLANKET. HORACE G. BENDER, Akron, Ohio. Filed Nov. 4, 1899. Serial No. 736,744. (No model.)



Claim.—The combination of an impression-cylinder, with a rubber blanket wrapped about the cylinder, and a separate cover of fabric stretched over said blanket, and coated with materials which will prevent oil, acid, and the like deleterious matter in the ink or paint in which the printing is done from reaching the rubber blanket, whereby the said blanket is protected and its life prolonged.

680,753. GATE. BENJAMIN F. BERKLEY, Acton, Tex. Filed May 7, 1901. Serial No. 59,150. (No model.)



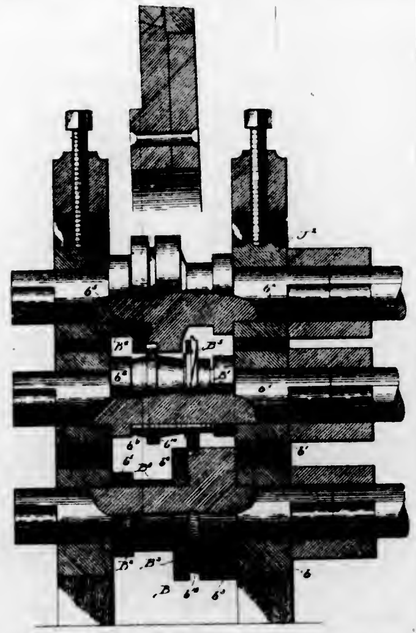
Claim.—1. The combination of a gate pivoted at its bottom and provided with a rearwardly-extending arm and having an upwardly-extending arm located between its ends and projecting from the top of the gate, a post located in rear of the gate, a flexible connection extending from the post to the gate at a point between the ends thereof and provided between its ends with a weight, operating-levers fulcrumed at opposite sides of the gate, and a flexible connection extending from the levers to the upwardly-extending arm of the gate, substantially as described.

2. The combination with a short post or support, of a gate comprising the top bar having its rear end extended to form an arm, the front bar connected at its upper end to the top bar, the rear end bar provided with two sides having their lower ends forked and pivoted to the short post or support, an intermediate horizontal bar connecting the end bars, the inclined brace 14 extending upward from the rear end of the gate, the bar 15 extending above the gate to form an arm, the barbed wire located at the bottom of the gate, and the short vertical bar 23, a flexible connection extending rearward from the short bar 23 and provided with a weight, and operating mechanism connected with the upwardly-extending arm, substantially as described.

680,754. MACHINE FOR ROLLING HORSESHOE-BLANKS. GEORGE BIRD, Jr., East Chicago, Ind. Filed Dec. 8, 1900. Serial No. 39,219. (No model.)

Claim.—1. In a machine for rolling horseshoe-blanks, the combination of a roll provided with an annular portion forming a part of the bottom of a groove and having an annular shoulder forming one side of the groove, a ring removably mounted on the roll provided with an annular portion forming the remaining part of the bottom of the groove, and having an annular shoulder forming the remaining side of the groove, substantially as described.

2. In a machine for rolling horseshoe-blanks, the combination of a roll provided with an annular portion forming a part of the bottom of a groove and having an annular shoulder forming one side of the groove, a ring removably mounted on the roll and provided with an annular portion forming the remaining part of the bottom of the groove, and having an integral annular shoulder forming the remaining side of the groove, and a roll adjacent to the groove-bearing roll having an annular flange rotatable therewith which extends between the shoulders, substantially as described.



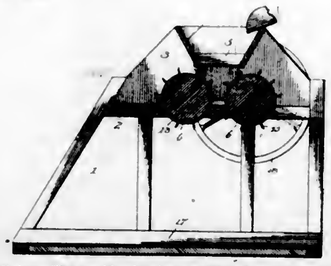
3. In a machine for rolling horseshoe-blanks, the combination of a roll provided with an integral annular portion forming a part of the bottom of a groove and having an integral annular shoulder forming one side of the groove, a ring removably mounted on the roll and provided with an annular portion forming the remaining part of the bottom of the groove, an annular shoulder on the ring forming the remaining side of the groove, and a nut in threaded engagement with the roll for holding the removable ring in place, substantially as described.

4. In a machine for rolling horseshoe-blanks, the combination of an arbor provided with a threaded portion and with an annular portion forming a part of the bottom of a groove and having an annular shoulder forming one side of the groove, a ring removably mounted on the arbor provided with an annular portion forming the remaining part of the bottom of the groove and having an integral annular shoulder forming the remaining side of the groove, a ring-nut engaging with the threaded portion of the arbor, and hollow washers interposed between the removable ring and the ring-nut and forming in combination with the ring-nut the means for holding the removable ring in operative position, substantially as described.

5. In a machine of the class described, the combination of a roll provided with an annular portion forming a part of the bottom of a groove and having an annular shoulder forming one side of the groove, a ring removably mounted on the roll provided with an annular portion forming the remaining part of the bottom of the groove and having an integral annular shoulder forming the remaining side of the groove, a roll mounted adjacent to the groove-bearing roll having an annular flange rotatable therewith extending between such annular shoulders and provided with a creasing-ring formed in two pieces riveted together, and a roll mounted adjacent to such flanged roll provided with a removable and an integral annular shoulder forming the sides of a groove which meshes with the creasing-ring, substantially as described.

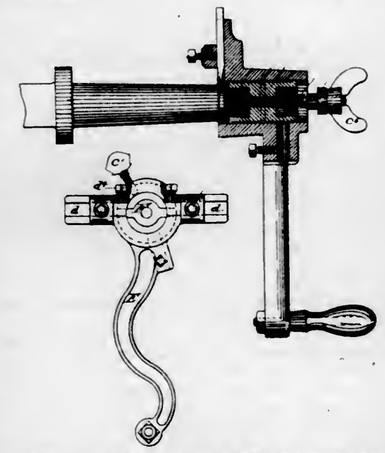
6. In a machine for rolling horseshoe-blanks, the combination of a roll provided with an annular portion forming a part of the bottom of a groove and having an annular shoulder forming one side of the groove, a plurality of rings adapted to be alternately mounted upon the roll, each provided with an annular portion of a different width for forming the remaining part of the bottom of the groove and having an annular shoulder for forming the remaining side of the groove, whereby each ring may when desired be used in combination with the groove-bottom and shoulder portion of the roll to form a groove of a different size, substantially as described.

680,755. MACHINE FOR CRUSHING AND CUTTING CORN. JOHN S. BLOOM, Winthrop, Iowa. Filed June 19, 1900. Serial No. 20,862. (No model.)



Claim.—The combination in a machine for cutting corn-ears into pieces, of a hopper, a transverse grinding-partition in the lower end of the hopper, a pair of rollers each provided with longitudinal radial blades presenting peripheral cutting edges, each blade having an L flange or base, whereby it is secured to the perimeter of the roller, said base covering the interval between the blades, and abutting against, and aiding to support the next blade, and the equal engaging gear-wheels whereby the rollers are caused to revolve with their opposing blades always in register.

680,756. PORTABLE AXLE TURNING AND THREADING DEVICE. ED F. BOND, Athens, Ga., assignor to the North American Manufacturing Co., Bogart, Ga. Filed Mar. 12, 1900. Serial No. 8,280. (No model.)



Claim.—1. A hollow body provided with a tool-carrying arm, means for rotating same, a sleeve fitting within said body and adapted to be secured to the axle-tenon and means for feeding said body along said sleeve consisting of a lead-screw adapted to be set in the outer end of said sleeve, a shackle therefor secured to said body and a feed-nut on said lead-screw for the purpose specified.

2. A hollow body provided with a tool-holding arm and means for rotating same, a sleeve recessed in its end and screw-threaded in said recess to receive the axle-tenon, screw-threads in the periphery of said sleeve, and a chaser adapted to seat in said body and project into and engage the said peripheral screw-threads.

680,757. CLAMP FOR LEATHER-STRETCHING MACHINES. ROY L. BRAUCHT, Minneapolis, Minn.; Katie D. Braucht, as guardian of said Roy L. Braucht, minor, assignor to the W. S. Nott Company. Filed June 15, 1900. Serial No. 20,390. (No model.)

Claim.—1. A leather-holder, comprising a laterally-adjustable bead having a portion of its upper surface corrugated or suitably roughened to

adapt it to constitute a gripping-jaw, a cam-block eccentrically mounted thereon and having its face correspondingly corrugated or roughened to adapt it to coöperate with said jaw in gripping and holding leather under tension, means for operating said block, a spring for holding the block normally out of engaging position, and means for pivotally connecting said head to a stretching-machine, substantially as set forth.

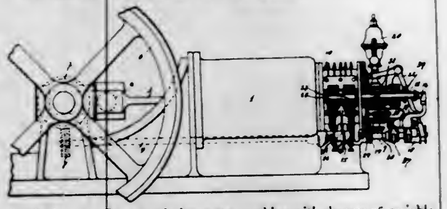


2. A leather-holder, comprising a head or plate having a face adapted to constitute a gripping-jaw and provided with brackets which overhang such jaw, a cam-block eccentrically pivoted between said brackets and having its face corrugated or roughened to adapt it to coöperate with said fixed jaw in gripping and holding leather under tension, means for operating said block, and a coupling-bar to which said head is connected, substantially as set forth.

3. A leather-holder, comprising a head or plate having a face adapted to constitute a gripping-jaw and provided with brackets which overhang such jaw, a cam-block eccentrically pivoted between said brackets and having its face corrugated or roughened to adapt it to coöperate with said fixed jaw in gripping and holding leather under tension, means for operating said block, a spring for holding the block normally out of engaging position, and a coupling-bar to which said head is connected, substantially as set forth.

4. In a leather-stretching machine, the combination with a bed-piece having a transverse rib provided with an opening, one of the side walls of which is beveled, of a coupling-bar provided with ratchet-teeth adapted to engage such wall, a wedge-block for locking the same in engagement, and a leather-holder connected to said coupling-bar, substantially as set forth.

680,758. **SPEED-REGULATOR FOR EXPLOSIVE-ENGINES.** JEAN BERLIER, Brussels, and EMILE MARIUS, Uccle, Belgium. Filed Oct. 10, 1899. Serial No. 733,192. (No model.)



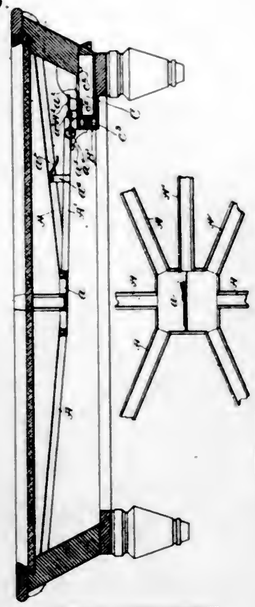
Claim.—1. In an explosion-motor working with charges of variable volume but with invariable compression, the combination with the main cylinder and piston, of a chamber in the rear of said cylinder, a movable auxiliary piston interposed between the cylinder and chamber, a communication between the cylinder and chamber, a valve controlling the said communication, the said valve being arranged to remain open during the whole of the suction-stroke, a governor operated from a moving part of the engine and means operated from said governor for varying the point of closing of the valve in the compression-stroke and thereby to regulate the volume of charge in the compression-chamber, substantially as described.

2. In an explosion-motor working with charges of variable volume but with invariable compression, the combination with the main cylinder and piston, of a chamber 10 in rear of said cylinder, a movable auxiliary piston 11 interposed between the cylinder and chamber, a valve in said auxiliary piston arranged to remain open during the whole of the suction-stroke, a governor operated from a moving part of the engine, and means operated from said governor for varying the point of closing of the valve in the compression-stroke and thereby to regulate the volume of charge in the compression-chamber, substantially as described.

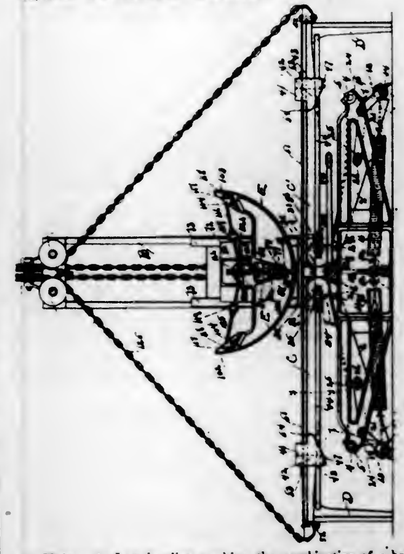
680,759. **POOL-TABLE.** FREDERICK H. BRIGGS, Boston, Mass. Filed Aug. 5, 1899. Serial No. 726,237. (No model.)

Claim.—In a pool-table the combination of a receptacle; guide-ways connecting said receptacle with the pockets of the table; and means for automatically separating the cue-ball from the other balls, substantially as described.

680,759.



680,760. **BENDING-MACHINE.** GEORGE W. BUGBEE, Delhi, Ohio, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Filed Feb. 25, 1901. Serial No. 48,778. (No model.)



Claim.—1. In a bending-machine, the combination of a bending-lever for bending the stock, a fulcrum therefor, and a way, with the fulcrum movable along the way and the way yielding to the force of the fulcrum bodily with its parts maintained in similar relation to each other, substantially as described.

2. In a bending-machine, the combination of a swingable bending-arm, with an end-pressure agency yielding to the end pressure of the stock, mounted on, moving with, and slidable with relation to the bending-arm, and a rod and tripping mechanism for the end-pressure agency.

3. In a bending-machine, the combination of a main frame or bed, a standard therefor, a form carried by the standard, two bending-arms located below the form, means in connection with the outer ends of said arms to swing the same, a master-strap extending from one arm to the other, with yielding non-bendable spring-pressed tracks below the arms serving to hold the inner ends of the arms, and to thrust the arms toward the form, substantially as described.

4. In a bending-machine, the combination of the two arms supported at their inner ends by rollers on yielding non-bendable tracks substantially as described.

5. In a bending-machine, the combination of two arms supported at their inner ends by rollers on yielding non-bendable tracks, with an end-pressure device for the stock yieldable to end pressure of the stock, with a rod and tripping mechanism for the end-pressure device for relieving the end pressure on the stock at about the limit of movement of the bending-arm in bending the stock, substantially as described.

6. In a bending-machine, the combination of a frame, with a form supported therefrom, and a pair of bending-arms located under the form, a master-strap extending from one arm to the other, with means for connecting with the outer ends of the arms to swing the same, yielding non-bendable tracks below the arms for supporting the inner ends of the arms, a tension device for the tracks, and means acting in connection therewith and movable with relation to the tracks for compensating for the changing position of the tracks while yielding, substantially as described.

7. In a bending-machine, the combination of a frame, with a form supported therefrom, and a pair of bending-arms located under the form, a master-strap extending from one arm to the other, with means for connecting with the outer ends of the arms for swinging the same, with yielding non-bendable spring-pressed pivoted tracks below the arms for supporting the inner ends of the arms, heels for the tracks, and a compensating device movable along the heels and connecting with the spring for the track for compensating for the changing position of the tracks, substantially as described.

8. In a bending-machine, the combination of a yielding way, a swinging bending-arm movable along the same and forming a side-pressure agency for the stock, and an end-pressure agency for the stock mounted on and moving with the swinging arm and yieldable to the end pressure of the stock for moving the same longitudinally of the swinging arm, with a rod and tripping mechanism for the end-pressure device for relieving the end pressure on the stock at about the limit of movement of the bending-arm in bending the stock, substantially as described.

9. In a bending-machine, the combination of a yielding way, a supplemental way therefor, with a swinging bending-arm movable along the ways, and an end-pressing agency for the stock mounted on and moving with the swinging bending-arm, with the end-pressing agency arranged to be moved longitudinally of the swinging arm by the end pressure of the stock and arranged for further longitudinal movement of the end-pressing agency and release of the end pressure on the stock by the movement of the bending-arm along the supplemental way, substantially as described.

10. In a bending-machine, the combination of a bending-lever, a support therefor, and a track, with a raised portion for the track, an abutment for the bending-lever, with the support of the lever movable along the track while the latter yields, and a connection in addition to the lever between the support and the abutment, substantially as described.

11. In a bending-machine, the combination of a bending-lever, a fulcrum therefor, a pivoted yielding track, with the fulcrum movable along the track, a heel for the track, and a spring exerting pressure against the heel, substantially as described.

12. In a bending-machine, the combination of a bending-lever, a fulcrum therefor, a pivoted yielding track, with the fulcrum movable along the track, a heel for the track, and a spring exerting pressure against the heel, with an abutment for the bending-lever adapted to be moved by the end pressure of the stock.

13. In a bending-machine, the combination of a bending-lever, a fulcrum therefor, an abutment for the bending-lever, a connection between the abutment and the fulcrum slidable with relation to the lever, with a yielding pivoted track and with the fulcrum movable along the track, substantially as described.

14. In a bending-machine, the combination of a bending-arm, a support for one end of the arm upon which the arm is permitted to swing, an abutment for the arm, with a connection between the abutment and the support, and a spring for forcing the abutment toward said supported end of the arm and permitting the abutment to yield to end pressure of the stock, substantially as described.

15. In a bending-machine, the combination of a bending-arm, a support for one end of the arm upon which the arm is permitted to swing, an abutment for the arm, with a connection between the abutment and the support, and a spring for forcing the abutment toward the said supported end of the arm and permitting the abutment to yield to end pressure of the stock, with means for adjusting the connection, substantially as described.

16. In a bending-machine, the combination of a bending-arm, a support therefor, an abutment for the bending-arm, a connection between the abutment and the support slidable with relation to the arm, a pivoted yielding track, with the support movable along the track, a heel for the track, and a spring exerting pressure against the heel, substantially as described.

17. In a bending-machine, the combination of a pair of bending-arms, wheels for their inner ends, pivoted yielding tracks for wheels, with the wheels movable along the tracks, and a pressure device for the tracks for acting against the pressure of the wheels, substantially as described.

18. In a bending-machine, the combination of a pair of bending-arms, wheels for their inner ends, pivoted yielding tracks for the wheels, heels for the tracks, and a tension device for the heels movable along the same, substantially as described.

19. In a bending-machine, the combination of a pair of bending-arms, wheels for their inner ends, pivoted tracks for the wheels, heels for the tracks, a tension device for the heels, with wheels between the tension device and the heels movable along the heels, substantially as described.

20. In a bending-machine, the combination of a frame, a pair of bending-arms, pivoted yielding tracks therefor, with the arms movable along the tracks, heels for the tracks, a tension device for a heel slidable along the heel, and a connection between the tension device and the track pivoted with relation to the frame, substantially as described.

21. In a bending-machine, the combination of a pair of bending-arms, wheels for their inner ends, abutments for the arms, connections between the abutments and the wheels, pivoted yielding tracks for the wheels, heels for the tracks, a tension device for the heels, and wheels between the tension device and the heels moving along the heels, substantially as described.

22. In a bending-machine, the combination of a pair of bending-arms, wheels for their inner ends, abutments for the arms, connections between the abutments and the wheels, and springs between the wheels and the arms, pivoted yielding tracks for the wheels, heels for the tracks, a tension device for the heels, and wheels between the tension device and the heels, substantially as described.

23. In a bending-machine, the combination of a pair of bending-arms, wheels for their inner ends, abutments for the arms, connections between the abutments and the wheels, and springs operatively interposed between the wheels and the arms, with tracks for the arms, substantially as described.

24. In a bending-machine, the combination of a bending-lever, a support therefor, a yielding track, a supplemental track adjustable thereon, an end-pressure agency for the stock, a connection between the end-pressure agency and the support, all constructed and arranged to relieve the end pressure on the stock when the support rides upon the supplemental track, substantially as described.

25. In a bending-machine, the combination of a bending-lever, a support therefor, a yielding track, a supplemental track adjustable thereon, an end-pressure agency for the stock, a connection between the end-pressure agency and the support, with a pressure device operatively interposed between the bending-lever and the support, constructed and arranged to relieve the end pressure on the stock when the support rides upon the supplemental track, substantially as described.

26. In a bending-machine, the combination of a bending-arm, an end-pressure device therefor constructed and arranged to be moved by the end pressure of the stock, an inclined way, a rod between the end-pressure device and the inclined way slidable with relation to the arm, with the inclined way arranged for causing the sliding of the rod.

27. In a bending-machine, the combination of a swinging bending-arm, an end-pressure agency for the end of the stock mounted on and moving with the arm, with a connection from the end-pressure agency, and tripping mechanism for moving the connection at about the limit of movement of the bending-arm in bending the stock for relieving the end pressure of the end-pressure agency on the stock, substantially as described.

28. In a bending-machine, the combination of a bending-arm, a track, with the bending-arm movable along the track when bending the stock, an end-pressure agency for the stock mounted on and moving with the bending-arm, tripping mechanism adjustable on the track, a rod in addition to the bending-arm between the end-pressure agency and the tripping mechanism actuated by the tripping mechanism at about the end of movement of the bending-arm in bending the stock, constructed and arranged to relieve the end pressure on the stock when the rod is actuated by the tripping mechanism, substantially as described.

29. In a bending-machine, the combination of a bending-arm, a slidable support therefor, a yielding end-pressure agency for the stock, a connection between the end-pressure agency and the support, and a spring operatively interposed between the support and the bending-arm, substantially as described.

30. In a bending-machine, the combination of a bending-arm, a slidable support therefor, a yielding end-pressure agency for the stock, a connection between the end-pressure agency and the slidable support, with means for adjusting the connection, and a spring operatively interposed between the slidable support and the bending-arm, substantially as described.

31. In a bending-machine, the combination of a frame, a slide therefor, for supporting a form, a gear journaled thereon, a screw-shaft taking through the gear, a rock-shaft, and an eccentric connection between the rock-shaft and the screw-shaft for raising and lowering the form-slide, with a shaft for the slide for adjusting the latter to position with relation to the frame, substantially as described.

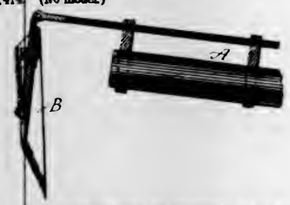
32. A form for a bending-machine comprising a middle section and two outer sections, with slides between the latter and the middle section, a rock-shaft journaled in the middle section, a pair of eccentrics on the rock-shaft, and links connecting each eccentric with one of the end sections, substantially as described.

33. A form for a bending-machine comprising a middle section and two outer sections, with slides between the latter and the middle section, a rock-shaft journaled in the middle section, a pair of eccentrics on the rock-shaft, and links connecting each eccentric with one of the end sections, with means for adjusting the links, substantially as described.

34. In a bending-machine, the combination of a frame, a form-slide therefor, a screw-shaft for adjusting the slide with relation to the frame, a rock-shaft, an eccentric connection between the rock-shaft and the screw-shaft, a form for the slide comprising a middle section and two end sections, a rock-shaft on the middle section, a pair of eccentrics on the rock-shaft, and links for connecting each eccentric with one of the end sections, substantially as described.

35. In a bending-machine, the combination of a frame, a form-slide therefor, a screw-shaft for adjusting the slide on the frame, a sleeve for the slide, an adjusting-shaft for the screw-shaft taking through the sleeve, a rock-shaft, an eccentric connection between the rock-shaft and the screw-shaft, a form supported by the sleeve comprising a middle section and two end sections, a rock-shaft for the middle section, with a pair of eccentrics on the rock-shaft, and links connecting each eccentric with one of the end sections, substantially as described.

680,761. **PNEUMATIC STRAW-STACKER.** CHARLES W. BURTON and EDWARD M. BURTON, Royal Center, Ind. Filed June 13, 1901. Serial No. 64,414. (No model.)



Claim.—1. A concaved deflector for pneumatic straw-stackers, provided with an angular enlargement on its concaved face, substantially as set forth.

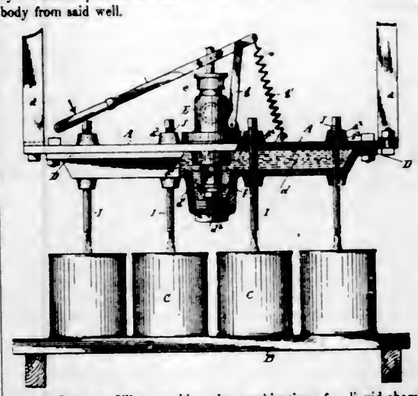
2. A concaved deflector for pneumatic straw-stackers, provided with an angular enlargement on its concaved face, said enlargement decreasing in width from its top to its bottom, substantially as set forth.

3. The combination with a supporting-rod having a hinged extension, of a deflector pivoted to said hinged extension to rotate about the vertical axis, substantially as set forth.

680,762. **CAN-FILLING MACHINE.** FRED R. CATON, San Jose, Cal., assignor to Caton's Foundry and Machine Company, same place. Filed Apr. 4, 1901. Serial No. 54,392. (No model.)

Claim.—1. In a can-filling machine, the combination of a liquid-chamber having a communication with the source of liquid-supply, a valve for opening and closing said communication, delivery-pipes issuing from said chamber, a displacing-body, adapted to enter and to withdraw from said chamber, and a lever connected with both valve and displacing-body, and adapted, by one operation, to open the valve, and to enter the displacing-body into the chamber, and, by a second operation, to close the valve and withdraw said displacing-body from the chamber.

2. In a can-filling machine, the combination of a liquid-chamber having a communication with the source of liquid-supply, and a well in said chamber, a valve for opening and closing said communication, delivery-pipes issuing from said chamber, a displacing-body, adapted to enter and to withdraw from the well in said chamber, and a lever connected with both valve and displacing-body, and adapted, by one operation, to open the valve, and to enter the displacing-body into the chamber-well, and, by a second operation to close the valve and withdraw said displacing-body from said well.



3. In a can-filling machine, the combination of a liquid-chamber, suitable delivery-pipes issuing from said chamber, and a valve adapted to control the communication of said chamber with the source of liquid-supply, and by its opening movement to enter and remain in said chamber as a displacing-body during the flow of the liquid, and to withdraw therefrom by its closing movement in cutting off the supply, whereby the level of the liquid is reduced below that of the chamber-outlets.

4. In a can-filling machine, the combination of a liquid-chamber, suitable delivery-pipes issuing from said chamber, a well in the chamber in communication therewith, and a valve adapted to control the communication of said chamber with the source of liquid-supply, and by its opening movement to enter and remain in the well as a displacing-body, during the flow of the liquid, and to withdraw therefrom on its closing movement in cutting off the supply, whereby sufficient liquid is allowed to flow into the well to reduce its level below that of the chamber-outlets.

5. In a can-filling machine, the combination of the table with its underlying chamber having a well, suitable delivery-pipes issuing from said chamber, the valve-casing having communication with the liquid-supply and the vertically-movable ported piston-valve seated in the casing in the vertical plane of the chamber-well, and adapted when moved down, to open the communication for the liquid to the chamber, and to enter and remain in the well as a displacer while said communication is open, and to withdraw from the well upon rising to its seat in closing the liquid communication, whereby the level of the liquid in the chamber is reduced below that of its outlets.

6. In a can-filling machine, the combination of the table with its underlying chamber having a well, suitable delivery-pipes issuing from said chamber, the valve-casing having communication with the liquid-supply and the vertically-movable ported piston-valve seated in the casing in the vertical plane of the chamber-well, and adapted when moved down, to open the communication for the liquid to the chamber, and to enter and remain in the well as a displacer while said communication is open, and to withdraw from the well upon rising to its seat in closing the liquid communication, whereby the level of the liquid in the chamber is reduced below that of its outlets, and a removable bottom for the well, to permit the removal of the valve therethrough when required.

7. In a can-filling machine having a liquid-chamber, a delivery-pipe issuing therefrom and an adjustable plug in line with the entrance to said pipe and adapted by the approach of its base thereto to regulate the capacity of said entrance, said plug having an air-passage through it.

8. In a can-filling machine having a liquid-chamber, a delivery-pipe issuing therefrom and an adjustable plug in line with the entrance to said pipe and adapted by the approach of its base thereto to regulate the capacity of said entrance, said plug having an air-passage through it, and having also a point entering said entrance and carrying the inner end of said air-passage below the level of said entrance.

9. In a can-filling machine having a liquid-chamber, a delivery-pipe issuing therefrom with its entrance end above the general top of the chamber whereby when the supply is cut off the chamber is left full, and an adjustable plug in line with the entrance to said pipe and adapted by the approach of its base thereto to regulate the capacity of said entrance, said plug having an air-passage through it.

10. In a can-filling machine having a liquid-chamber, a delivery-pipe issuing therefrom with its entrance end above the general top of the chamber whereby when the supply is cut off the chamber is left full, and an adjustable plug in line with the entrance to said pipe and adapted by the approach of its base thereto to regulate the capacity of said entrance, said plug having an air-passage through it, and having also a point entering said entrance and carrying the inner end of said air-passage below the level of said entrance.

11. In a can-filling machine, the combination of the table having the underlying chamber with a controllable communication with the liquid-supply, and a socket extending upwardly from the lower surface of said table, a delivery-pipe rising from below through the floor of the chamber and freely entering the socket thereof, and an adjustable plug seated in the table in line with the entrance to said pipe and adapted by the approach of its base thereto to regulate the capacity of said entrance, said plug having an air-passage through it.

12. In a can-filling machine, the combination of the table having the underlying chamber with a controllable communication with the liquid-supply, and a socket extending upwardly from the lower surface of said table, a delivery-pipe rising from below through the floor of the chamber and freely entering the socket thereof, and an adjustable plug seated in the table in line with the entrance to said pipe and adapted by the approach of its base thereto to regulate the capacity of said entrance, said plug having an air-passage through it, and having also a point entering said entrance and carrying the inner end of said air-passage below the level of said entrance.

13. In a can-filling machine, the combination of a liquid-chamber, having a controllable communication with the liquid-supply, a delivery-pipe issuing from said chamber from a point above its general top, an adjustable plug in line with the entrance to said pipe and adapted by the approach of its base to said pipe to control the capacity of its entrance, said plug having an air-passage through it and a point entering the pipe to carry the end of said passage below the level of the pipe-entrance, and a displacing-body adapted to enter and remain in the liquid-chamber during the flow of the liquid, and to withdraw therefrom when the flow ceases, in order to reduce the level of the liquid in the chamber below that of the delivery-pipe entrance.

14. In a can-filling machine, the combination of a liquid-chamber having a well in communication therewith, and a communication with the liquid-supply, a delivery-pipe issuing from said chamber from a point above the general plane of its top, an adjustable plug in line with the entrance to said pipe and adapted by the approach of its base to said pipe to control the capacity of its entrance, said plug having an air-passage through it and a point entering the pipe to carry the end of said passage below the level of the pipe-entrance, and a valve adapted to control the communication of the chamber with the liquid-supply and by its opening movement to enter and remain in the chamber-well, as a displacing-body, during the flow of the liquid and to withdraw therefrom on its closing movement in cutting off the supply, whereby sufficient liquid is allowed to flow into the well to reduce its level below that of the delivery-pipe entrance.

15. In a can-filling machine, the combination of the table having the liquid-chamber with its well, the vertically-movable displacer-valve adapted to control the liquid-supply and to enter and withdraw from the well, said valve having the side ports, the discharge-pipes from the liquid-chamber, the adjustable air-vent plugs for controlling the entrance to said pipes and the protecting-flange on the under side of the table to guard the discharge-pipes from the direct flow of the liquid from the valve-ports.

680,763. **SPRING-CLASP.** EFFIE M. CHADSEY, Durango, Colo. Filed Jan. 15, 1901. Serial No. 43,386. (No model.)

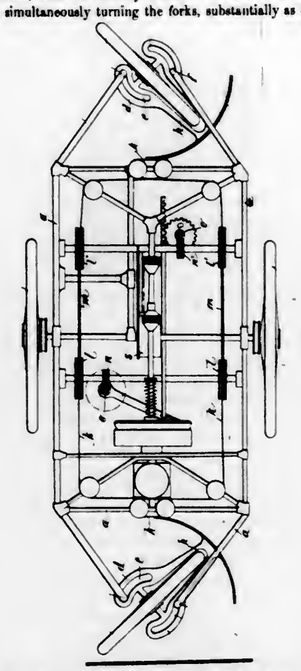


Claim.—1. The combination with a broad supporting-base having an aperture in the center thereof; of outwardly-bowed spring-arms at opposite ends of the base and extending over the latter; and knobs at the free ends of the arms adapted to interlock when said arms are pressed toward each other.

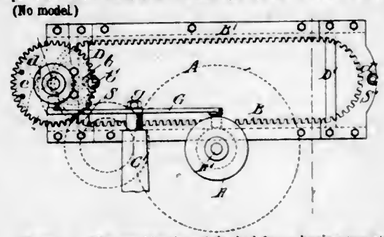
2. The combination with a shoe; of a clasp having a base provided with an aperture therein; a rivet extending through said aperture and a portion of the shoe whereby the clasp is secured in position thereon; outwardly-bowed spring-arms at opposite ends of the base; and knobs at the ends of the arms adapted to interlock when said arms are pressed toward each other.

680,764. **STEERING-GEAR FOR MOTOR-VEHICLES.** HENRY R. M. CORNEY, Baugé, France. Filed Mar. 16, 1901. Serial No. 51,434. (No model.)

Claim.—In a motor-vehicle, the combination with the frame, of steering-wheels arranged at the front and rear of said frame, rotary forks connected to the axles of said wheels and having pin-and-slot connections with the frame, sectors carried by said forks and chains acting upon said sectors for simultaneously turning the forks, substantially as described.



680,765. **MECHANICAL MOVEMENT.** CHARLES P. COTTRELL, Stonington, Conn., assignor to C. B. Cottrell & Sons Company, same place and New York, N. Y. Filed Apr. 9, 1897. Serial No. 631,364. (No model.)



Claim.—1. The combination of the bed-frame having two straight racks and curved end racks and vertical guides, a main driving-gear adapted to mesh alternately with said straight racks and carrying an eccentrically-arranged toothed gear, a crank-pin or roller and a cam, and a pin or roller at each end of the bed-frame to act with said cam.

2. In a mechanical movement for converting rotary into reciprocating rectilinear motion, the combination of a reciprocating rack-frame, two straight toothed racks on said frame, two toothed sectors on said frame beyond the ends of the racks, a toothed driving-wheel for gearing with the racks, a toothed gear attached eccentrically to the driving-wheel for engaging with the sectors, a cam on the driving-wheel, and rollers on the rack-frame against which said cam acts to confine the sector to the said gear, substantially as herein described.

3. In a mechanical movement for converting rotary into reciprocating rectilinear motion, the combination of a reciprocating rack-frame, two straight toothed racks on said frame, two toothed sectors on said frame beyond the ends of the racks, a toothed driving-wheel for gearing with the racks, a toothed gear attached eccentrically to the driving-wheel for engaging with the sectors, two guides on said frame located near the ends of the racks and approximately perpendicular thereto, a roller carried by the driving-wheel for running against said guides, a cam on the driving-wheel, and rollers on the frame against which said cam acts, substantially as herein described.

680,766. GRAVE-VAULT. JOHN M. CRIGLER, Saybrook, Ill. Filed Apr. 4, 1901. Serial No. 54,356. (No model.)



Claim.—1. A grave-vault made of composite material, and having a lining, the cover of the latter having a key embedded in the roof or cover of the vault, whereby the cover of the lining is prevented from collapsing by the roof or cover of the vault, substantially as described.

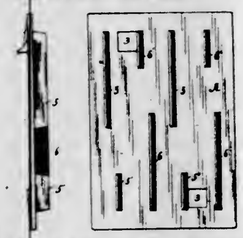
2. A grave-vault made of composite material and having rabbets in the upper edges of its side and end walls, an inner cover having its side and end edges fitted in said rabbets, and an arched cover or roof made of composite material, formed and applied while plastic over the said inner cover, and united to the sides and ends of the vault, substantially as described.

3. A grave-vault made of composite material, and having a lining in its bottom, and side and end walls, a former placed on said side and end walls, and over which said lining is extended, the said vault having a cover or roof made of composite material and formed and applied while plastic over said lining and united thereto and to the side and end walls of the vault, substantially as described.

4. The method of making a grave-vault consisting in forming the floor, side and end walls thereof of composite material while plastic around a removable core-box, lining the said vault and extending the lining thereof over the same, and forming the roof or cover of the vault of the material while plastic over the said lining, substantially as described.

5. The method of making a grave-vault, consisting in forming the floor, side and end walls thereof of composite material, while the same is plastic, around a removable core-box, lining the said vault, extending the lining thereof over the same, forming the roof or cover of the vault of composite material while the same is plastic over said lining and uniting the cover of the lining to the said composite cover or roof of the vault, so that said cover of said lining is supported by said composite cover of said vault, substantially as described.

680,767. TIE-PLATE. ERNEST DEL MANZO, Milwaukee, Wis., assignor to Wisconsin Malleable Iron Company, same place. Filed June 1, 1901. Serial No. 62,755. (No model.)

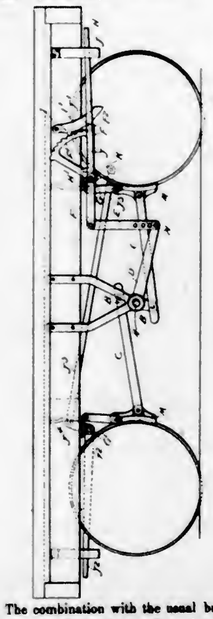


Claim.—1. A tie-plate, comprising an integral metal plate having on its under surface two series of long, high, thin, parallel, elongated ribs, one series extending from near one edge to beyond the middle transverse line of the plate, and the other series extending from near the opposite edge of the plate to beyond the middle transverse line of the plate, the two series overlapping each other at their inner ends at the middle portion of the plate, and similar elongated but shorter ribs supplemental to said long ribs in the spaces at the ends of the long ribs but separated a distance therefrom.

2. A tie-plate, comprising an integral metal plate having on its under surface two series of long, high, thin, parallel, elongated ribs, one series extending from near one edge to beyond the middle transverse line of the plate, and the other series extending from near the opposite edge of the plate to beyond the middle transverse line of the plate, the two series overlapping each other at their inner ends at the middle portion of the plate, and similar elongated but shorter ribs supplemental to said long ribs in the spaces at the ends of the long ribs but separated a distance therefrom, the ribs being severally in non-alinement endwise with every other rib on the plate.

3. A tie-plate, comprising an integral metal plate having on its under surface two series of long, high, thin, parallel elongated ribs, one series extending from near one edge to beyond the middle transverse line of the plate, and the other series extending from near the opposite edge of the plate to beyond the middle transverse line of the plate, the two series overlapping each other at their inner ends at the middle portion of the plate.

680,768. BRAKE MECHANISM FOR RAILWAY OR OTHER WAGONS. JOHN K. EWART, Glasgow, Scotland. Filed June 3, 1901. Serial No. 62,950. (No model.)



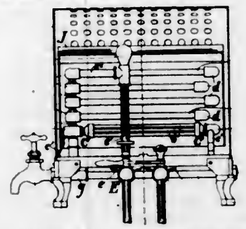
Claim.—1. The combination with the usual brake mechanism for railway and other wagons, of a toothed quadrant-lever on the usual hand-lever shaft, adapted to be engaged in one direction by said lever to apply the brakes, the lever being arranged when moved in the opposite direction to release a locking-pawl from the teeth of the quadrant substantially as described.

2. In brake mechanism for railway and other wagons, the combination with the usual brake-blocks, push-rods and short actuating-levers, of a quadrant-lever toothed at one end and centered loosely on a transverse shaft or stud, and operatively connected with the push-rods, a hand-lever, keyed upon the quadrant-lever shaft, adapted when moved in one direction to engage with a heel upon the quadrant to apply the brakes, and when moved in the opposite direction to release from engagement with the ratchet-teeth of the quadrant a pawl arranged to automatically lock the brakes on, substantially as described.

680,769. WATER-HEATER. WILLIAM B. FOLGER, Cincinnati, Ohio. Filed May 31, 1895. Serial No. 551,090. (No model.)

Claim.—1. In a heater of the character described, the combination of the burner, the lower water-coil formed in clusters, the pipes connected at opposite ends to common unions or return-bends which compel the water to travel in a sinuous path from its initial to its terminal union, a series of coils of larger pipes arranged above the cluster-coils, a pipe to supply water from the main or other source of supply to the initial pipe of the upper coil, a gas-supply for the burner, and regulating-cocks interposed between the water and gas supply and the water-coils and burner, substantially as shown and described.

2. The combination of the upper series of coils of tubes with the lower coil formed of clusters of smaller tubes connected to common unions at each end and with a burner below the lower coil, whereby the water received from the upper series of coils is divided by the tubes and subjected to a high degree of heat by the flame passing between and around the clusters, substantially as shown and described.

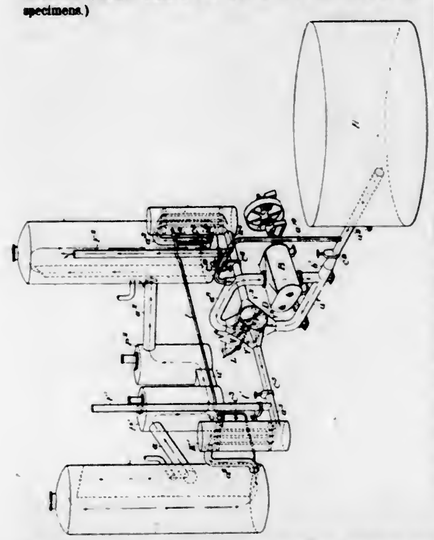


3. The combination in a water-heater of the heating-pipes arranged in series one above the other, the connected manifolds or returns for the ends of the pipes, each manifold at one end of each series having a screw-threaded neck at one end and a screw-threaded nipple at the opposite end to connect the manifolds and support the pipes, substantially as shown and described.

4. The combination in a water-heater of a series of heating-coils arranged one above the other, the water-supply pipe connected to the top coil of the series, and the air-chamber connected to the top of the supply-pipe above the branch leading to the top coil, substantially as shown and described.

5. The combination of the heating-coils, a water-supply leading thereto, a valve interposed in the water-supply pipe to turn the water on or off from the coils, a supplemental regulating-valve arranged in the plug of the main valve to regulate the quantity of water passing to the coils without moving the main valve, a gas-burner beneath the coils, a gas-supply pipe leading to the burner, a valve in the gas-supply pipe and connections between the gas-valve and the main valve of the water-pipe by which the gas-valve and the main water-valve may simultaneously be opened and closed, and the supplemental valve may be regulated independently, substantially as shown and described.

680,770. METHOD OF MANUFACTURING GAS. JOHN R. FEE, Philadelphia, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed Dec. 9, 1899. Renewed Jan. 22, 1901. Serial No. 44,302. (No specimens.)



Claim.—1. The hereinbefore-described method of producing gas which consists in circulating a quantity of gas produced, heating the same before it enters the producers, cooling the gas as it passes from the producers and then imparting additional heat to the cooling device by passing a quantity of the generated gas through the producing device and burning it in the cooling device and thereby rendering the latter capable of being employed as a heating device.

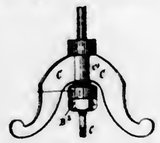
2. The hereinbefore-described method of securing and maintaining the requisite heat in a gas-producing plant, which consists in periodically interrupting the production of gas and heating a quantity of produced gas in one portion of the system, passing the same thence through a producing device, thereby imparting heat to the producing device; then burning it in another heating device, thereby heating the latter, substantially as described.

3. The hereinbefore-described process of restoring heat to a heating-stove of a gas-producing plant and at the same time maintaining a high temperature in the producing portion of the plant, which consists in periodically interrupting the production of gas and heating produced gas, passing the heated produced gas through the producing portion of the plant, passing the gas thence to a stove to be heated, and burning it within said stove, substantially as and for the purpose described.

4. The hereinbefore-described process of manufacturing gas which consists in circulating a portion of the gas produced together with steam through a heating device, thereby imparting a high temperature thereto, passing the mixture of heated gas and steam into a producing-chamber, generating gas in the producing-chamber then cooling the circulating and generated gases as they pass from the producer, withdrawing from circulation a portion of the gas and continuing the circulation of the remainder; then discontinuing the supply of steam, circulating a portion of the gas previously generated through the heating device and the producing device, burning it in conjunction with air in the device previously employed as a cooling device, thereby heating the same for the purpose of rendering it a heating device and thereafter circulating gas and steam through the apparatus in the reverse direction and producing additional gas.

5. The hereinbefore-described method of operating a gas plant which consists in generating gas by passing heated gas and steam into a producing portion of the plant, thereby producing gas and gradually abstracting heat from the heating portion, then interrupting the production of gas and continuing a circulation of gas but at a diminished rate and discontinuing the supply of steam, burning the diminished quantity of gas circulated, for the purpose of imparting heat to the system and then ceasing the combustion of gas and renewing the generation of gas by the circulation of gas through the heating portion of the system into and through the producing portion and supplying steam thereto.

680,771. STAND. HENRY H. FULLER, Syracuse, N. Y. Filed Apr. 2, 1896. Serial No. 585,908. (No model.)

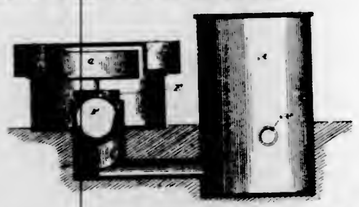


Claim.—1. In a stand, the combination of a post or rod, clamping-heads having sockets in their adjacent faces, one of the clamping-heads being fixed to the post or rod and the other being movable lengthwise thereof, a nut adjustable on the post or rod for forcing the movable head toward the fixed head, and branch pieces or legs having their adjacent ends provided with laterally-projecting shoulders at corresponding sides, and with tapering extensions at the upper and lower ends of said shoulders arranged in the sockets and formed concentric with the post or rod, said adjacent ends being provided with upright engaging faces for engaging said shoulders, substantially as and for the purpose specified.

2. In a stand, the combination of a post or rod, clamping-heads secured to the post or rod and provided with sockets in their adjacent faces, a nut adjustable lengthwise of the post or rod for forcing one of the clamping-heads toward the other, and branch pieces or legs having their adjacent ends provided with tapering extensions arranged in the sockets, upright faces at corresponding sides, and laterally-projecting shoulders at their opposite sides for engaging the post or rod, said shoulders being formed concentric with the post or rod and being provided with upright faces for engaging the former faces, substantially as and for the purpose specified.

3. In a stand, the combination of a post or rod, clamping-heads secured to the post or rod and provided with tapering sockets in their adjacent faces, a nut adjustable lengthwise of the post or rod for forcing one of the clamping-heads toward the other, and branch pieces or legs having their adjacent ends provided with tapering extensions arranged in the sockets, upright concave edge faces for engaging the post or rod, upright faces at corresponding sides, and laterally-projecting shoulders at their opposite sides formed with upright faces for engaging the former faces, substantially as described.

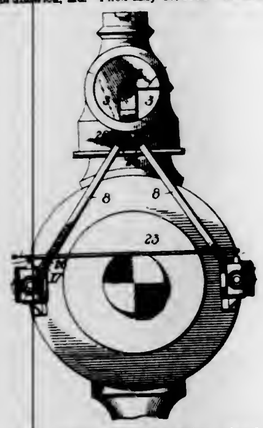
680,772. WATERING-TROUGH. LANE GIST, Lake City, Iowa. Filed Dec. 31, 1900. Serial No. 41,726. (No model.)



Claim.—1. An automatic watering device, comprising a receiving-tank, and a discharge-tank, and the pipes connecting the said tanks, the annular trough arranged upon the top of the discharge-tank and having a central raised portion provided with openings, a float arranged in the discharge-tank and adapted to move up and down with the central raised portion of the annular trough, and the valve connected to said float, substantially as shown and described.

2. In an automatic watering device, the combination with the receiving and discharge tanks, and pipes connecting the same, of the annular water-trough arranged upon the discharge-tank, and having a central raised portion provided with openings, the float arranged within the discharge-tank and adapted to operate in the central raised portion, the valve-seat located in the upper end of the pipe leading into the discharge-tank, and the valve adapted to coact with the said seat, substantially as shown and described.

680,773. SIGNAL ATTACHMENT FOR HEADLIGHTS. AMOS B. HALLER, Brunswick, Md. Filed May 10, 1901. Serial No. 59,620. (No model.)



Claim.—1. In combination with a light, a signal, consisting of a marker, having several different-colored transparencies permanently attached thereto, and a means for operating the transparencies, a tube connecting the marker with the casing of the light, a reflector located in the light-casing and adapted to send the rays of light through the tube into the marker.

2. In combination with a light, a signal, consisting of a plurality of markers, each having several different-colored transparencies, and a means for changing the transparencies of the markers simultaneously, a tube leading to each marker and connected with the casing of the light, a reflector located in the light-casing, and adapted to send the rays of light through the tubes into the markers.

3. In combination with a light, a signal, consisting of a marker having several different-colored transparencies, a tube connecting the marker with the casing of the light, a reflector located in the light-casing and adapted to send the rays of light through the tube into the marker, and a means for changing the transparencies in the markers and a means for cutting off the light from the markers.

4. In combination with a light, a signal, consisting of a plurality of markers each having several different-colored transparencies, a tube leading to each marker, and connecting with the casing of the light, a reflector located in the light-casing and adapted to send the rays of light through the tubes into the marker, a connection connecting the different-colored transparencies of the markers, and a connection extending therefrom and adapted to operate the transparencies in the markers.

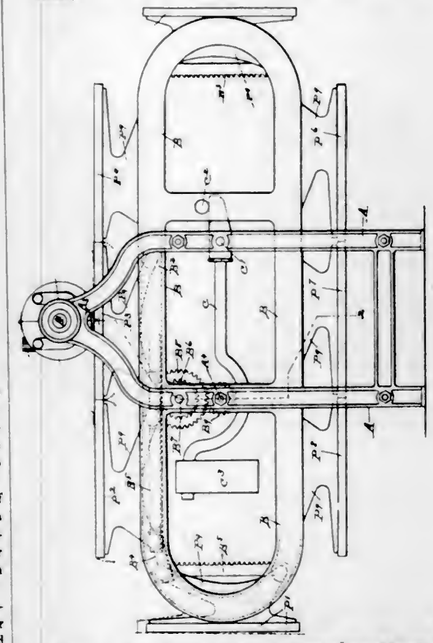
5. In combination with a light, a signal consisting of a plurality of markers, each having several different-colored transparencies, a tube leading to each marker and connecting with the casing of the light, a reflector located in the light-casing and adapted to send the rays of light through the tubes into the markers and a means for changing the transparencies of the markers simultaneously, and a means for cutting the light off from the markers simultaneously.

6. In a device of the character as described, a marker consisting of a casing, having light-openings, a shaft passing through the top of the casing, glass bearings located on top of the casing and receiving and supporting the shaft, a frame supported by the shaft and being located within the casing, said frame carrying transparencies and a means for rotating said shaft.

7. In a device of the character as described, means for sending the rays of light from a source to a marker, consisting of a tube connecting the light-casing with the marker, a reflector mounted upon a shaft within the light-casing, said shaft extending to one side through the casing and a means located on the outer side of the casing and adapted to prevent the shaft and the reflector from rotating.

8. In combination with a light, a signal, consisting of a plurality of markers, a shaft journaled in the top of each marker, a frame fixed to each shaft and located within the marker, said frames carrying transparencies, and light cut-offs, a tube connecting each marker with the light-casing a reflector located within the light-casing and adapted to send the rays of light through the tubes into the markers, a lever attached to the upper end of one of the shafts, a bell-crank lever attached to the upper end of the other shaft, a rod connecting said lever with one of the ends of the bell-crank lever, a rod connecting the other end of the bell-crank lever and extending to a distant point.

680,774. STARCHING-MACHINE. WENDELL HESS, Jr., Troy, N. Y., assignor to the International Machinery Co., same place. Filed Mar. 13, 1899. Renewed Mar. 13, 1901. Serial No. 51,731. (No model.)



Claim.—1. In a starching-machine, the combination with a charging-roll, and means for imparting to the roll a comparatively high rate of peripheral speed, of an endless belt provided with a plurality of individual fabric-carriers successively coöperative with the charging-roll; and means for imparting to the belt a comparatively low rate of peripheral speed, and substantially as described.

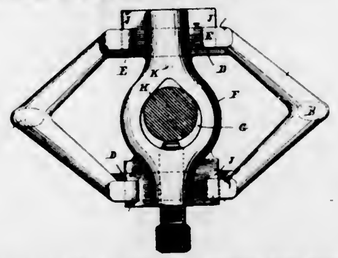
2. In a starching-machine, the combination with a charging-roll, having a smooth surface, and means for imparting to the roll a comparatively high rate of peripheral speed; of an endless belt having a plurality of carrier-platforms severally provided with a yielding surface and successively coöperative with the charging-roll; and means for imparting to the belt a comparatively low rate of speed, substantially as described.

3. In a starching-machine, the combination with a charging-roll, and means for imparting to the roll a comparatively high rate of peripheral speed; of an endless belt; a plurality of individual fabric carriers secured to and movable with the belt and coöperative with the charging-roll; means for imparting to the belt a comparatively low rate of speed; and means for producing a yielding pressure between the roll and the several fabric-carriers, substantially as described.

4. In a starching-machine, the combination with a charging-roll rotary in stationary bearings; of a tilting frame; an endless belt supported by the tilting frame; a plurality of fabric-carriers secured to the belt and movable with the belt and frame into coöperative engagement, successively, with the charging-roll; and means for imparting a tilting pressure to the movable frame, whereby pressure is obtained between the carriers successively and the charging-roll, substantially as described.

5. In a starching-machine, the combination with a charging-roll, and means for imparting to the roll a comparatively high rate of peripheral speed; of an endless belt having a plurality of carrier-platforms flexibly connected together and successively coöperative with the charging-roll; said platforms being provided with projecting elastic end portions adapted to abut one upon another as said platforms are successively presented to the charging-roll; and means for imparting to the belt a comparatively low rate of speed, substantially as and for the purpose set forth.

680,775. LATHE-DOG. KARL G. HOLST, Waterbury, Conn. Filed May 11, 1901. Serial No. 59,825. (No model.)

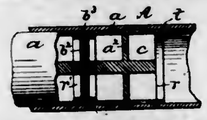


Claim.—1. A lathe-dog comprising a bifurcated frame having two inwardly-disposed engaging arms, transverse dovetail guides in the face of said frame and a transverse adjustable holding member mounted in said dovetail guides with means for clamping the stock in said holder, substantially as described.

2. The combination in a lathe-dog of the class described, the same comprising a suitable frame with a central opening therethrough and forwardly-disposed arms located at the opposite extremities of said frame, guides located in the face of said frame, a movable member bearing web-like ways adjustably mounted in said guides with a screw for clamping the stock in said member.

3. The combination in a lathe-dog, of a frame having a central opening therethrough, parallel sides and forwardly-disposed arms deflected from the opposite extremities of said frame, inwardly-disposed lugs situated in said parallel side portions forming guides, and a transverse stock-clamping member bearing lateral ways adjustably mounted in the guides of said frame, substantially as described.

680,776. PNEUMATIC TIRE. WILLIAM E. HOYLE, Providence, R. I., assignor to Rudolph F. Morse and Samuel H. Boardman, same place. Filed Dec. 8, 1900. Serial No. 39,119. (No model.)



Claim.—1. A pneumatic or wheel tire, the same comprising a plain outer tube of rubber and a series of short cylindrical cellular sections of rubber mounted within and snugly filling said tube, the said sections having small independent air-tight cells or pockets therein, substantially as shown and described and for the purpose set forth.

2. The yielding tubular core-section *a* hereinbefore described, provided interiorly with transverse and longitudinal partitions a^2, *r*, arranged to form air-spaces *c*, and having the ends of the rim extending beyond the partitions, substantially as described and for the purpose set forth.

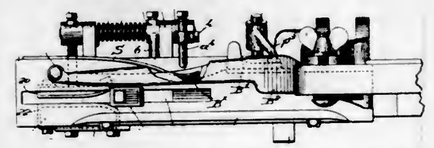
3. In a resilient or pneumatic tire for vehicle-wheels, the combination with the rubber tube or cover *t*, of a series of connected rubber sections forming the center cores, each provided with independent air-pockets, and a corresponding series of enlarged annular connected rubber sections surrounding said center sections, also having independent air-pockets and mounted within said tube, substantially as described.

680,777. METHOD OF PREPARING MATERIALS FOR PURIFYING GAS. JOHN P. IMART, New York, N. Y. Filed Mar. 19, 1901. Serial No. 51,931. (No specimens.)

Claim.—1. The process of preparing a material for purifying gas which consists in mixing together an iron ore containing ferrous oxid, water, and ammonium chlorid, substantially as described.

2. The process of preparing a material for purifying gas which consists in mixing together an iron ore containing ferrous oxid, water, ammonium chlorid, and lime, substantially as described.

680,778. LOOM. OSCAR JANELLE, Manchester, N. H., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filed May 14, 1901. Serial No. 60,233. (No model.)

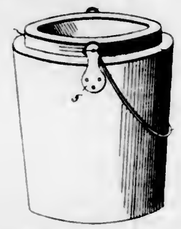


Claim.—1. In a loom, the lay, a shuttle-box thereon, a spring-controlled binder thrown out by impact of the entering shuttle, the picker, a picker-check comprising a fixed and a yielding buffer, between which the picker passes when struck by the entering shuttle, and means actuated by movement of the yielding buffer to engage and accelerate the return of the binder to position to prevent rebound of the shuttle.

2. In a loom, the lay, a shuttle-box thereon, a binder, the picker, a spring-controlled rock-shaft on the lay and having a finger to coöperate with and resist outward movement of the binder, a second rock-shaft also mounted on the lay and having an arm to coöperate with the binder, and means operated by shuttle-induced movement of the picker to rock the second rock-shaft and bring the arm thereof into engagement with the binder, to accelerate the return of the latter to position to coöperate with the shuttle.

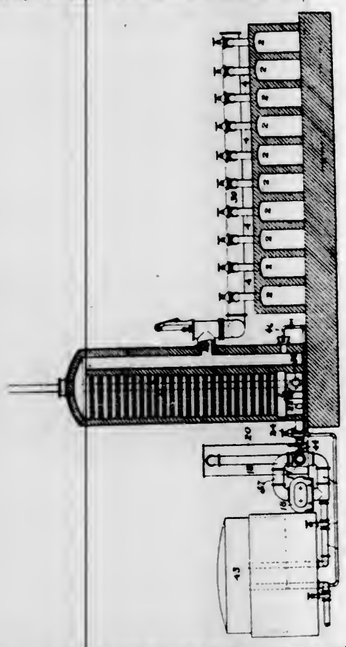
3. In a loom, the lay, a shuttle-box thereon, a binder, the picker, a picker-check having a buffer movable by engagement with the picker, a pivotally-mounted arm on the lay and normally inoperative, and connections between the buffer and arm to move the latter toward and to engage the binder to accelerate its inward movement into checking position for the shuttle.

680,779. MILK-PAIL. JOHN H. KING, Garrity, Ala. Filed Nov. 8, 1900. Serial No. 35,847. (No model.)



Claim.—In a non-spillable milk-pail, the combination of a pail or vessel, a bowl removably suspended therein and provided with a port or opening and a depending flange, a cap engaging said flange and forming therewith a chamber, said cap having a bottom opening, an open-work frame formed of radial upwardly-bent strands extending across said opening, a supporting-pin connected to the center of said frame and projecting upwardly therefrom, a strainer removably mounted in said port and comprising a flanged ring and a perforate conical cap, said ring-flange adapted to frictionally engage the wall of the port; and a valve arranged in said chamber and supported by said pin and open-work frame, said valve comprising a flanged ring and a conical imperforate cap, the latter receiving the supporting-pin and adapted to seat within and to close said strainer when the pail is overturned, substantially as described.

680,780. **PROCESS OF MANUFACTURING COKE.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Apr. 21, 1900. Serial No. 13,708. (No specimens.)



Claim.—1. The hereinbefore-described process of manufacturing coke, which consists in circulating heated gases through the coking-ovens, cooling the gases as they come from the coking-ovens, reheating the gases, or a portion thereof, and continuing the operation.

2. The hereinbefore-described process of manufacturing coke, which consists in passing heated gases across a bed of coal to be coked, thereby generating additional gases, then cooling the gases, thereafter reheating a portion of the same, and continuing the process.

3. The hereinbefore-described process of manufacturing coke, which consists in subjecting coal to the action of heated gases, thereafter cooling the gases, then reheating the gases, or a portion thereof, repeating the operation, and periodically reversing the direction of circulation of the gases.

4. The hereinbefore-described process of manufacturing coke which consists in passing heated gases across the coal to be coked, vaporizing hydrocarbons thereby and gradually reducing the coal to coke, cooling the gases, generating steam by the heat extracted therefrom, and utilizing the steam for forcing a circulation of the gases, substantially as described.

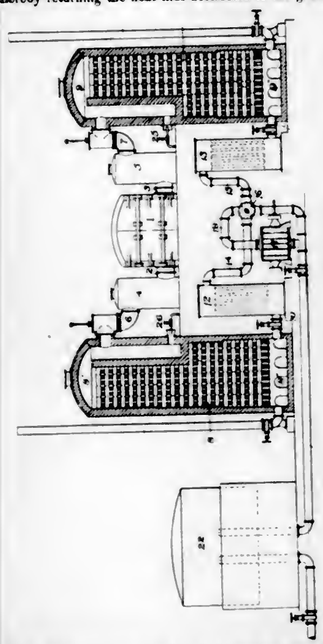
5. The hereinbefore-described process of manufacturing coke, which consists in passing heated gases across the material to be coked, generating gaseous hydrocarbons thereby, cooling the gases, reheating a portion thereof, and passing them again across the material to be coked, utilizing a portion of the excess gases for imparting heat to the heating devices by combustion.

6. The hereinbefore-described method of manufacturing coke, which consists in heating a portion of the hydrocarbons developed during the process of coking, passing such heated hydrocarbons across the material being coked, thereby generating additional hydrocarbons, extracting heat from the hydrocarbons as they pass from the coking-ovens and storing such heat, and subsequently utilizing the heat so stored in reheating the gases to be passed through the coking-ovens.

7. The hereinbefore-described process of utilizing the hydrocarbons developed in the process of coking coal, which consists in passing more or less of the hydrocarbons through a continuous circuit alternately heating and cooling the same, substantially as described.

680,781. **METHOD OF MAINTAINING SPECIFIC ATMOSPHERES AND TEMPERATURES.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Apr. 25, 1900. Serial No. 14,304. (No specimens.)

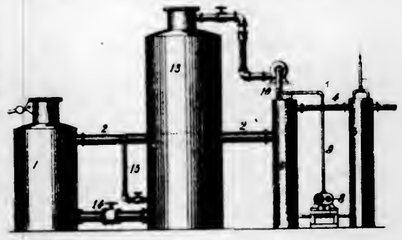
Claim.—1. The hereinbefore-described method of maintaining a high temperature which consists in continuously circulating a gaseous fluid through a closed circuit, heating the gaseous fluid at a point in the circuit before it enters the region where the temperature is to be maintained, abstracting heat from the gaseous fluid after it passes from that region, storing up such heat in such position as to be returned to the gaseous fluid when the direction of circulation of the fluid is reversed, and periodically reversing the direction of the circulation of the gaseous fluid through the circuit, thereby returning the heat thus abstracted to the gaseous fluid.



2. The method of conveying heat to a heating-chamber which consists in passing a gaseous fluid through a heating-stove into the heating-chamber, thence into a cooling-stove and thence again into a heating-stove and continuing the process until the temperature of the heating-stove has fallen below a predetermined degree and the temperature of the cooling-stove has risen above a predetermined degree and then reversing the process, thereby conveying more or less of the heat stored in the former cooling-stove into the heating-chamber and back into the former heating-stove.

3. The hereinbefore-described process of regulating the transmission of heat by means of gaseous fluid from one chamber to another which consists in passing the gas into the cool end of one chamber and out at its hot end into the hot end of the second chamber and out at its cool end and thence back into the cool end of the first-named chamber and in increasing the speed circulation of the gas for diminishing the temperature of the circulating medium passing from the first chamber to the second and decreasing the speed of circulation for increasing the temperature in passing from the first to the second chamber.

680,782. **PROCESS OF MANUFACTURING GAS.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Oct. 5, 1900. Serial No. 32,115. (No specimens.)



Claim.—1. The hereinbefore-described process of manufacturing gas which consists in heating a quantity of gas, transmitting the same to the gas-producer thereby augmenting the volume of gas, passing the augmented volume of gas through a steam-generator thereby conserving a portion of the heat thereof, conducting a portion of the augmented volume of gas to a holder or consuming apparatus circulating the remainder thereof to the heating device whereby it is reheated and continuously repeating the said operation.

2. The hereinbefore-described process of manufacturing gas which consists in heating a portion of the gas produced, passing the same through a producer thereby augmenting the volume of gas product therein conserving a portion of the heat of the augmented volume of gas by generating steam thereby, further conserving the heat of the gas by heating water thereby, drawing off a portion of the volume of gas approximately equivalent in amount to that added to it in the producer, reheating the remainder thereof and repeating the process.

3. The hereinbefore-described process of manufacturing water-gas which consists in raising a determinable amount of gas to a producing temperature, passing the same when so heated through the producer, generating steam by the sensible heat of the gas thus circulated, withdrawing a determinable amount of the augmented volume of gas from circulation, reheating the remainder thereof and continuing its circulation through the producer, and adding thereto a determinable amount of the steam thus generated.

4. The hereinbefore-described process of manufacturing water-gas which consists in passing into the producer a heated volume of gas and a determinable amount of steam for making gas thereby increasing the volume of gas, passing the augmented volume of gas through a steam-generator thereby partially cooling the same, withdrawing a determinable amount of the gas and reheating the remainder thereof and causing the reheated gas to again traverse the producer.

5. The hereinbefore-described process of manufacturing water-gas which consists in passing into the producer a heated volume of gas and a determinable amount of steam for making gas, thereby increasing the volume of gas passing the augmented volume of gas through a steam-generator thereby partially cooling the same, withdrawing a determinable amount of the gas, passing the same through a condenser thereby further cooling the same, and heating water, reheating the remainder of the gas causing the reheated gas to again traverse the producer and simultaneously transferring heated water to the steam-generator.

680,783. **MANUFACTURE OF COKE.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Oct. 5, 1900. Serial No. 32,116. (No specimens.)



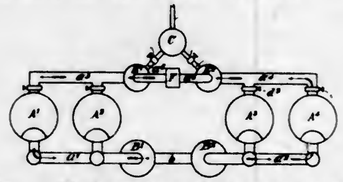
Claim.—1. The process of manufacturing coke which consists in heating a quantity of gas, passing the same through one or more coking-chambers above the charge of coal, thereby forming additional gas by distilling and converting the coal into coke, passing the gas thus formed through a fixing-chamber and causing a portion of the gas thus formed to be reheated and to retraverse the same circuit.

2. The process of manufacturing coke which consists in conveying the necessary heat into the coking-chamber by a current of externally-heated gas above the charge of coal and employing a portion of the gas thus produced to continuously act as a heat-carrier for continuing the process.

3. The process of manufacturing coke which consists in conveying the necessary heat into the coking-chamber by a current of externally-heated gas above the charge of coal and employing a portion of the gas thus produced to continuously act as a heat-carrier for continuing the process, thereby gradually coking the contents of the coking-chamber from the top toward the bottom.

4. The process of treating coal in the manufacture of coke which consists in conveying the necessary heat into the coking-chamber by a current of externally-heated gas above the charge of coal, employing a portion of the gas thus produced to continuously act as a heat-carrier for continuing the process, and withdrawing and utilizing the remainder of the gas.

680,784. **PROCESS OF MANUFACTURING GAS.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Nov. 12, 1900. Serial No. 36,256. (No specimens.)



Claim.—1. The hereinbefore-described method of manufacturing gas, which consists in forcing heated gas and steam downward through a coke-containing producer and upward through a coal-containing producer, thereby generating water-gas in the first and distilled gas in the second producer, thereby consuming coke in the first-named producer and producing coke in the second-named producer, and periodically reversing the direction of circulation therethrough.

2. The hereinbefore-described method of manufacturing gas which consists in forcing heated gas and steam downward through one producer containing coke, and upward through a second producer containing coal, consuming the coke in the first-named producer in the formation of water-gas, transforming coal into coke in the second-named producer by the formation of distilled gas.

3. The method of manufacturing gas which consists in forcing heated gas and steam downward and upward, respectively, through two connected producers and generating water-gas in one and distilled gas in the other, and periodically reversing the direction of circulation.

4. The hereinbefore-described process of manufacturing gas which consists in heating a portion thereof to a high temperature, transmitting the same through a producer, artificially cooling the gas to a minimum temperature, conserving the heat thus artificially withdrawn, withdrawing a volume of gas approximately equal to that being developed in the producer, reheating the balance to a maximum temperature and repeating the cycle.

5. The hereinbefore-described process of manufacturing gas which consists in alternately raising to a maximum temperature and cooling to a minimum temperature a determined volume of the produced gas, and circulating the same through the producer at its maximum temperature and into the heater at its minimum temperature.

6. The hereinbefore-described process of producing gas, which consists in circulating a predetermined amount of gas through a heating apparatus, delivering the same to a producer, simultaneously supplying steam to the producer, generating in the producer additional gas, cooling the gas as it passes from the producer, conserving the heat thus abstracted from the gas, forcing a portion thereof to repeat the before-described circulation, and consuming a portion of the gas to reheat the circulating portion.

7. The hereinbefore-described process of generating gas, which consists in heating a portion thereof and circulating the same through a producer and cooling devices, thereby alternately raising the same to a maximum temperature and cooling it to a minimum temperature, and utilizing a portion thereof to develop heat and storing such heat at one point while previously similarly stored heat is being utilized at another point for raising gas to its maximum temperature.

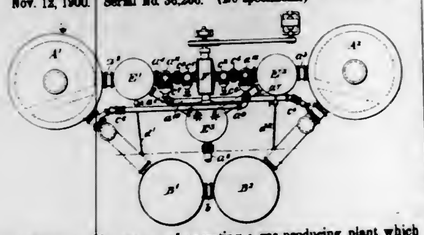
8. The method of conveying heat by means of gaseous fluids, which consists in alternately raising to a maximum temperature and cooling to a minimum temperature a determinate volume of gaseous fluid, by circulating the same through a heating device, thereby giving to it its maximum

temperature, delivering the same to the apparatus to be heated, then positively cooling the gas, thereafter reheating it, and repeating the cycle.

9. The method of conveying heat by means of gaseous fluids through a closed system, and conserving heat in the system, which consists in circulating the volume of gas through the system, heating the gas at one point, utilizing a portion of the heat at another point, cooling the gas at a third point, conserving the heat thus abstracted from the gas at the third point, passing the cooled gas to the heating-point, and continuing the circulation.

10. The method of conveying heat by means of gaseous fluids through a closed system and conserving heat in the system, which consists in circulating the volume of gas through the system, heating the gas at one point, utilizing a portion of the heat at another point, cooling the gas at a third point, conserving the heat thus abstracted from the gas at the third point, passing the cooled gas to the heating-point and continuing the circulation, and periodically reversing the direction of the circulation of the gas and coincidently reversing the position of the heating and cooling points.

680,785. **METHOD OF PRODUCING GAS.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Nov. 12, 1900. Serial No. 36,266. (No specimens.)



Claim.—1. The process of operating a gas-producing plant which consists in manufacturing gas by circulating gas through a heating device and into the producer, thence through a heat-absorbing device, thereafter heating the heat-absorbing device by forcing air through the heating device and into the producer, thereby forming producer-gas, delivering the producer-gas to the heat-absorbing device and burning it therein.

2. The process of operating a gas-producing plant which consists in manufacturing gas by circulating gas through a heating device and into the producer, thence through a heat-absorbing device, thereafter heating the heat-absorbing device by forcing air through the heating device and into the producer, thereby forming producer-gas, delivering the producer-gas to the heat-absorbing device and burning it therein, and then using the heat-absorbing device as a heating device and circulating gas through the producer in the opposite direction and cooling the gas from the producer in the device previously used as a heating device.

3. The hereinbefore-described process of manufacturing gas which consists in circulating gas through a heating-stove and through a producer, passing the gas from the producer through a second stove, continuing the process until the first stove has partially cooled, thereupon supplying additional heat to the system by forcing a supply of air directly into the second stove and simultaneously forcing a supply of air through the first stove into the producer and delivering produced gas therefrom, to the second stove and burning the same in conjunction with the said air.

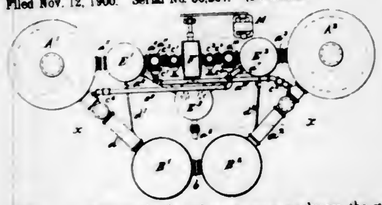
4. The hereinbefore-described process of manufacturing gas which consists in circulating gas through a heating-stove into the producer, passing the gas delivered from the producer through a second stove until the first stove has partially cooled, thereupon forcing air into the producer then passing the gas produced thereby into the second stove and forcing additional air directly into the second stove, burning the air and gas thus delivered to the second stove, and delivering the products of combustion to the atmosphere.

5. The hereinbefore-described process of manufacturing gas which consists in forcing a circulation through heating devices and producing devices in opposite direction alternately and in supplying the heat necessary to restore the heating devices to their requisite temperature by delivering thereto, for combustion, gas produced in the system during the intervals between the productive operation of the plant.

6. The hereinbefore-described process of generating water-gas which consists in forcing a circulation of gas through a heating device into the producer and simultaneously supplying the necessary steam to the producer and thereafter restoring the heating device to its proper temperature by generating producer-gas within the system and burning the same within the heating device.

7. The hereinbefore-described process of generating water-gas which consists in forcing a circulation of gas through a heating device, the producer and a heat-absorbing device in series, until the heating device has partially cooled, thereafter raising the heat-absorbing device to the proper temperature to act as a heating device by forcing air through the producer thereby generating producer-gas and burning the same in the heat-absorbing device and thereafter forcing a circulation of gas in the opposite direction through the system thereby utilizing the heat-absorbing device as a heating device and the heating device as a heat-absorbing device.

680,786. **APPARATUS FOR PRODUCING GAS.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Nov. 12, 1900. Serial No. 36,267. (No model.)



Claim.—1. The combination of one or more producers, the stoves, the connection between said stoves and producers, the economizers and connections, including said economizers in series with the said stoves, the connections a^{10}, a^9, leading from between the stoves to the connections between stoves and the producers and the fan F, for forcing circulation in either direction, the valves c^3 and c^4, located between the stoves upon opposite sides of said fan and means for forcing air through the connections a^9 and a^{10}, at will.

2. The combination of one or more producers, two stoves for heating air or gas supplied thereto, economizers connected in closed series with both said stoves and said producer or producers, and means for supplying air for the production of producer-gas and for its combustion in said stoves alternately, substantially as described.

3. The combination of two stoves, connected with each other, two economizers inserted in the connection between the two stoves, a fan or equivalent means for forcing a circulation from one stove to the other, a valve on each side of said fan for closing the connection between the stoves, an air-inlet valve upon each side of said fan whereby air may be admitted into the connections between the stoves, pipes leading from said connection to the opposite side of said stoves, substantially as and for the purpose described.

4. The combination of one or more producers, two stoves respectively connected with the said producer, means for forcing a circulation through said stoves and producer in alternate directions, means for forcing air through one of said stoves into said producer and for causing the gas thus produced to enter the other stove, and means for simultaneously forcing air into the last-named stove independently of the producer, for the combustion of said gas.

5. The combination of two stoves, a producer, means for forcing a circulation through the same in series, and means for heating the stoves, consisting of means for supplying air through one of the stoves to the producer and forcing gas thereby produced into the other stove, a connection from a point between the two stoves to the last-named stove for supplying the air for supporting the combustion of said gas therein.

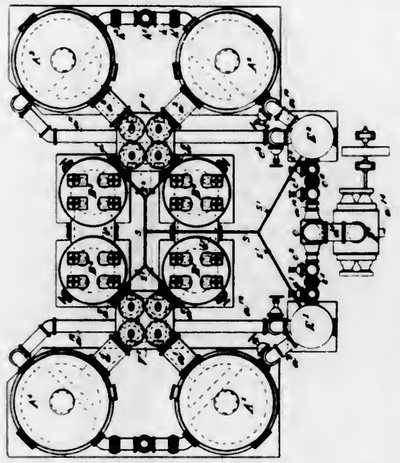
680,787. **GAS-MANUFACTURING SYSTEM.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Nov. 12, 1900. Serial No. 36,268. (No model.)

Claim.—1. The combination of four producers, four heating-stoves, valve connections between two of the producers and two of the heating-stoves, valve connections between the remaining two producers and the remaining two heating-stoves, connections between the two first-named producers and the two remaining producers, respectively, and means for causing a circulation of gas from either of the first-named heating-stoves through either of the two thus-connected producers and into either of the remaining stoves.

2. The combination of four heating-stoves arranged in pairs, four producers arranged in pairs, the individual producers of each pair being connnected with the others at their bottom, valve-connections between each pair of stoves and each pair of producers, and connections whereby each pair of producers may be connected with each other independently of the producers.

3. The combination of four producers arranged in pairs, four stoves arranged in pairs, means for connecting either stove of each pair with either stove of the other pair through two of the producers, and means for connecting either stove of either pair with either stove of the other pair.

4. The combination of four producers arranged in pairs, four stoves arranged in pairs, means for connecting either stove of each pair with either stove of the other pair through two of the producers, means for directly connecting either stove of either pair with either stove of the other pair, and means for causing a circulation of gas in either direction through the stoves and producers thus connected.



5. The combination of four stoves arranged in pairs, two producers through which a connection may be made from either stove of either pair to either stove of the other pair, and means for causing a circulation of gas from one stove through the producers to the other stove and back to the first-named stove.

6. The combination of four stoves arranged in pairs, two producers through which a connection may be made from either stove of either pair to either stove of the other pair, means for causing a circulation of gas from one stove through the producers to the other stove and back to the first-named stove, and one or more economizers or steam-generators located in the circuit between the two stoves thus connected with the producers.

7. The combination of four stoves arranged in pairs, two producers through which either stove of either pair may be connected with either stove of the other pair, one or more economizers through which the stoves of the respective pairs may be connected with each other, a fan or equivalent device for causing a circulation of gas through the producers, and means for reversing the direction of such circulation.

8. The combination of two producers, two or more heating-stoves, means for connecting the same with each other through the producers, connections between the two stoves independently of the producers, valves included in the last-named connections whereby air may be admitted thereto, and means for forcing air into either stove and thence into a corresponding producer.

9. In a gas-producing plant, a producer and a stove and an interposed valve comprising two chambers respectively connected with the stove and the producer, a valve-disk within each of said openings, and a chamber common to both openings, the entrance to which is controlled by said valve-disks.

10. In a gas-generating plant, the combination of two producers and two or more heating-stoves arranged to be connected in series therewith, a fan for causing a circulation of gas therethrough, means for driving the fan in a given direction, and a device for reversing the direction of flow produced by the fan, consisting of a two-way valve, and means for causing the inlet and the outlet openings thereof to be reversed at will

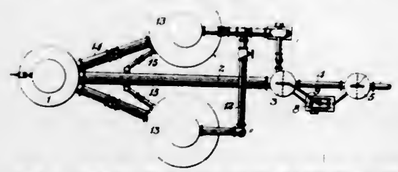
11. The combination of four stoves arranged in pairs and four producers arranged in pairs, and connections whereby either stove of either pair may be connected to either pair of producers and that pair of producers connected to either of the other pair of stoves.

12. The combination of four stoves arranged in pairs and four producers arranged in pairs, connections whereby either stove of either pair may be connected to either pair of producers and that pair of producers to either of the other pair of stoves, and means whereby a circulation may be established through the series thus connected.

13. The combination of four stoves arranged in pairs and four producers arranged in pairs, connections whereby either stove of either pair may be connected to either pair of producers and that pair of producers to either of the other pair of stoves, means whereby a circulation may be established through the series thus connected, and means whereby this circulation may be reversed.

14. In a gas-producing plant the combination of a producer, two stoves connected in a closed series therewith, a fan or other device for causing a flow of air or gas through the producer and through the two stoves in series and openings into the connections leading from the producer to the respective stoves and valves for controlling these openings whereby air may be admitted to and products of combustion discharged from the closed system.

680,788. **APPARATUS FOR THE MANUFACTURE OF GAS.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Nov. 12, 1900. Serial No. 36,269. (No model.)



Claim.—1. The combination of a gas-producer, two stoves for heating gas to be delivered to the producer, a gas-cooling device, consisting of a steam-generator, means for connecting the producer and the steam-generator in closed series with the two stoves alternately, means for forcing a current of gas from the producer through the steam-generator and thence into the stove connected in series, and a gas-outlet from the system, substantially as described.

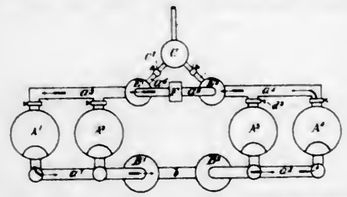
2. The combination of a gas-producer, two stoves for heating gas to be delivered to the producer, a steam-generator, means for connecting the hot end of either stove with the producer, means for connecting the steam-generator with the cold end of the stove, thus connected with the remaining end of the producer, means for heating the stove, not thus connected, by the combustion of gas produced in the system, and a gas-outlet from the system.

3. The combination of a gas-producer, a steam-generator, two stoves for heating gas to be delivered to the producer, means for connecting the steam-generator and the producer in closed series with the two stoves alternately, the steam-generator being connected with the cold end of the stove, and a fan or equivalent device for forcing gas to circulate through said series, an outlet from the system, a condenser located therein, and means for conveying heated water from the condenser to the steam-generator, substantially as described.

4. The combination of a gas-producer, a stove for heating gas to be delivered thereto, means for circulating a portion of the produced gas through the stove and into the producer, means for cooling the gas located between the outlet of the producer and the cold end of the stove, and thereby storing heat extracted from the gas, and means for returning more or less of the heat thus extracted to the producer, and means for withdrawing from the system the portion of the gas not circulated.

5. In an apparatus for the manufacture of gas, the combination of a producer, a steam-generator, a stove or superheater, a connection from the producer to the steam-generator, whereby heat carried by the gas from the producer is stored, means for conveying the heat thus stored back to the producer, a passage from the steam-generator to the stove or superheater, a connection from the stove to the producer, means for circulating gases through the closed system thus formed, and a gas-outtake from the system.

680,789. **APPARATUS FOR THE MANUFACTURE OF GAS.** WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Nov. 14, 1900. Serial No. 36,443. (No model.)



Claim.—1. The combination of two stoves, and a producer connected in series, one stove giving off heat to a circulating gas and the other stove traversed by gas received from the producer and absorbing sen-

sible heat therefrom, and a connection from one stove to the other through which gas passes from the heat-absorbing stove to the heating stove.

2. The combination of two stoves, a producer, means for causing each stove to act alternately as a gas-heating device and as a gas-cooling device, and a connection between the stoves through which gas passes from one stove to the other independently of the producer.

3. The combination of two producers connected together at their lower ends, two stoves each having one end connected with a corresponding producer at its upper end, and gas connections from one stove to the other stove, whereby gas passes from one stove to the other independently of the producers.

4. The combination of two producers connected with each other at their lower ends, two stoves respectively connected with the respective producers at the upper end, gas connections leading from one stove to the other stove, and a steam-generator within the circuit of such gas connections.

5. In a gas-producing plant, the combination of two producers, a connection between the two, a set of stoves connected with one of the producers, a set of stoves connected with the other of the producers, connections from one set of stoves to the other set, and means for circulating gas through the two producers and one stove of each set in series.

6. In a gas-producing plant, the combination of two producers, a connection between the two, a set of stoves connected with one of the producers, a set of stoves connected with the other of the producers, connections from one set of stoves to the other set, means for circulating gas through the two producers and one stove of each set in series, and means for reversing the direction of such circulation.

7. In a gas-producing plant, the combination of two producers connected with each other at their lower ends, connections from the upper end of one producer to the upper end of the other producer, and means for circulating gas and steam through said producers in series in opposite directions alternately.

8. In a gas-producing system, the combination of two connected producers, two stoves, one connected with each of said producers connections between the stoves, a steam-generator, and a fan or equivalent device for forcing a circulation through said producers and stoves and their intermediate connections, in alternate directions.

9. In a gas-producing plant, the combination of a producer, two stoves connected in series therewith, two steam-generators, a fan located between the two steam-generators, and connections from the stoves to the steam-generators, substantially as described.

10. In a gas-producing plant, the combination of a producer, two stoves, a fan or equivalent device, one or more steam-generators, connections from one stove through the steam-generators and fan to the other stove, a scrubber, connections from the steam-generators to said scrubber, and an outlet from the said scrubber, substantially as described.

11. In a gas-producing plant, the combination of two producers connected with each other, stoves connected with the respective producers, a steam-generator and a connection between the stoves through the steam-generator, and means for supplying steam from the steam-generator to said producers.

12. In a gas-producing plant, the combination of two producers connected with each other, two stoves, means for connecting one or the other stove with one of said producers at will, two additional stoves, means for connecting one or the other of said additional stoves with the other producer at will, connections from the first two stoves to the other two stoves, and means for causing a circulation of gas in either direction through the two producers, each stove of either set and either stove of the other set of stoves.

13. The combination of two producers connected with each other at their ends, two stoves respectively connected with the producers, at opposite ends of the producers, gas connections leading from one stove to the other, and a steam-generator within the circuit of such gas connections.

14. In an apparatus for producing gas, means for raising a portion of the gas to a desired temperature, means for lowering the gas to a minimum temperature, and means for regulating the volume of gas circulating through the heating device, the producing device and the cooling device and thereby regulating the amount of heat energy, transmitted into the producing device.

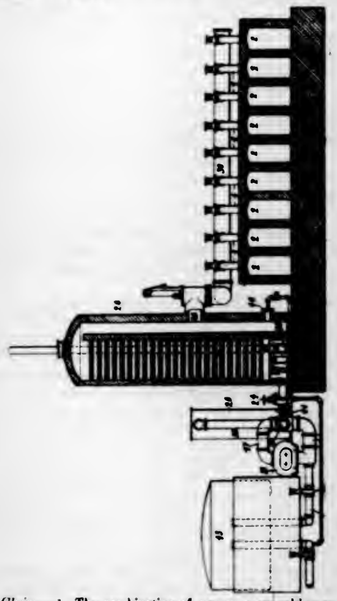
680,790. APPARATUS FOR THE MANUFACTURE OF COKE. WILLIAM J. KNOX, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Feb. 16, 1900. Renewed Nov. 14, 1900. Serial No. 36,515. (No model.)

Claim.—1. The combination of a superheater, one or more coking-chambers, an inlet and an outlet to each chamber at its upper part, a fixing-chamber connected with the outlet of the coking chamber or chambers and means for continuously circulating gas through the heating-chamber, the coking chamber or chambers in contact with the coal and coke and through the fixing-chamber.

2. The combination of a superheater, one or more coking-chambers, an inlet or outlet to each chamber at its upper part, a fixing-chamber connected with the outlet of the coking chamber or chambers, means for continuously circulating gas through the heating-chamber and the coking chamber or chambers in contact with the coal and coke and through the fixing-chamber, and means for withdrawing and utilizing a regulable amount of the gas.



680,791. APPARATUS FOR MANUFACTURING COKE AND GAS. WILLIAM J. KNOX, Edgewood Park, Pa., assignor to George Westinghouse, Pittsburg, Pa. Original application filed Apr. 21, 1900, Serial No. 13,706. Divided and this application filed Mar. 9, 1901. Serial No. 50,416. (No model.)



Claim.—1. The combination of one or more coking-ovens, means for passing a heated fluid-carrier through the coking-ovens, means for cooling the fluid-carrier as it passes from the coking-ovens and means for reheating a regulable amount of the fluid-carrier for retransmission therethrough.

2. The combination of one or more coking-ovens, means for passing a heated fluid-carrier through the coking-ovens, means for cooling the fluid-carrier as it passes from the coking-ovens, means for reheating a regulable amount thereof for retransmission therethrough and a gas-holder for receiving a portion of the fluid-carrier not so transmitted.

3. The combination of one or more coking-ovens, two sets of two or more stoves, one set being adapted to be connected with one side of the coking-ovens and the other set with the other side, means for causing a circulation of air or gas through either stove of one set into the coking-ovens and from the coking-ovens through either stove of the other set and vice versa.

4. The combination of one or more coking-ovens, two sets of two or more stoves, one set being adapted to be connected with one side of the coking-ovens and the other set with the other side, means for causing a circulation of air or gas through either stove of one set into the coking-ovens and from the coking-ovens through either stove of the other set and vice versa, and one or more boilers or economizers connected in the circulating-path of the air or gas.

5. The combination of one or more coking-ovens, two sets of two or more stoves, one set being adapted to be connected with one side of the coking-ovens and the other set with the other side, means for causing a circulation of air or gas through either stove of one set into the coking-ovens and from the coking-ovens through either stove of the other set and vice versa, and means for withdrawing from the system a regulable amount of the gas generated in the coking-ovens.

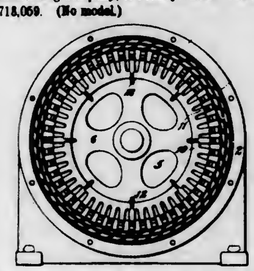
6. The combination of a plurality of coking-ovens, means for connecting them in parallel, means for causing a circulation of air or gas therethrough in alternate directions at will and means for heating the air or gas delivered thereto and for abstracting heat from the air or gas issuing therefrom.

7. The combination of a plurality of coking-ovens, means for connecting them in parallel, means for causing a circulation of air or gas therethrough in alternate directions at will, means for heating the air or gas delivered thereto and for abstracting heat from the air or gas issuing therefrom, exterior connections between the respective sides of the coking-ovens and means for causing circulation through such exterior connections in alternate directions.

8. The combination with a coking-oven, of a symmetrical system of heating and cooling devices on opposite sides thereof and means for utilizing the systems alternately for heating and for cooling purposes, substantially as described.

9. A coking system provided with suitable stoves and boilers symmetrically disposed upon opposite sides of a coking-oven, in combination with means for circulating air or gas alternately in opposite directions through the system.

680,792. ALTERNATING-CURRENT INDUCTION-MOTOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania. Filed May 24, 1899. Serial No. 718,059. (No model.)



Claim.—1. In an induction-motor, a secondary member comprising a frame, a slotted, laminated core supported thereby, conducting-bars located in the core-slots and projecting beyond the ends of the same, resistance-rings of large cross-sectional area, and substantially radial arms interposed between said rings and the corresponding ends of the conducting-bars said arms constituting the sole connection between the ring and the frame.

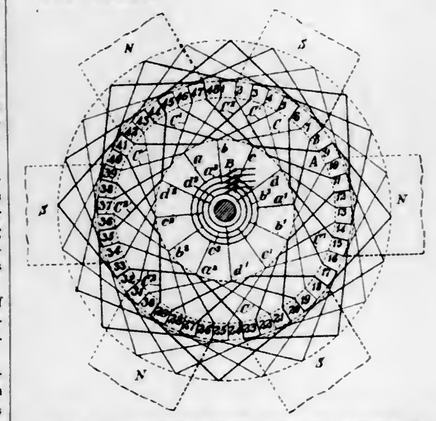
2. In an induction-motor, a secondary member comprising a slotted core, conducting-bars located in the core-slots and projecting beyond the ends of the same, an end ring of comparatively large cross-section and resistance bars or arms interposed between said ring and the corresponding ends of the conducting-bars and constituting the sole means for supporting said ring.

3. In an induction-motor, a secondary member comprising a slotted core, conducting-bars located in the core-slots and projecting beyond the ends of the same, rings having large heat-storing capacity, and comparatively high resistance connections between said rings and the corresponding ends of the conducting-bars, said connections constituting the sole supporting means for said rings.

4. In an induction-motor, a secondary member comprising a slotted core, bar-conductors located in the core-slots, conducting-rings of large heat-storing capacity respectively provided with arms equal in number to the bar-conductors and fastened thereto, said arms constituting the sole supporting means for said rings.

5. An induction-motor comprising a primary member having a distributed winding and a secondary member having a slotted core, bar-conductors located in the core-slots, resistance-rings of large heat-storing capacity and conducting-arms between bar-conductors and the resistance-rings and constituting the sole supporting means for said rings, all constructed and operating to store heat when running at low speeds and to dissipate such heat when running at relatively high speeds.

680,793. DYNAMO-ELECTRIC GENERATOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania. Filed June 28, 1900. Serial No. 22,003. (No model.)



Claim.—1. An alternating-current dynamo-electric generator having an armature provided with a plurality of independent, closed coil-windings uniformly distributed around a single core and connected in parallel to the distributing circuit or circuits.

2. An alternating-current dynamo-electric generator having an armature provided with a plurality of closed coil-windings uniformly distributed around a single core and symmetrically-disposed leads for connecting said windings together in parallel at the distributing-circuit terminals.

3. An alternating-current dynamo-electric generator having a plurality of armature-windings uniformly distributed around a single core, each of which is closed upon itself and all of which are connected together in parallel at the distributing-circuit terminals.

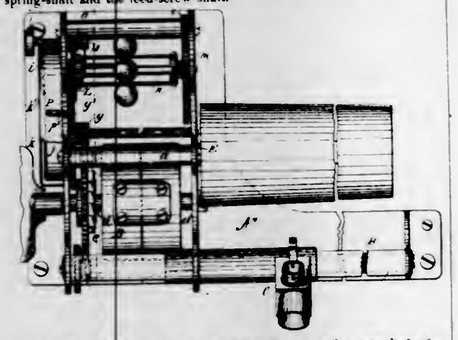
4. An alternating-current dynamo-electric generator having an armature provided with a plurality of symmetrically-distributed, closed coil-windings and with means for connecting to the terminals in parallel such points in the several windings as have substantially the same relation to the poles of the magnetic field of the machine.

5. A polyphase dynamo-electric generator having a plurality of closed coil-windings symmetrically disposed and a plurality of terminals to which said windings are connected in parallel.

680,794. COMBINED GRAPHOPHONE AND MOTOR. THOMAS H. MACDONALD, Bridgeport, Conn., assignor to the American Graphophone Company, of West Virginia. Filed Sept. 16, 1897. Serial No. 651,912. (No model.)

Claim.—1. In a graphophone the combination of a frame having two upright plates secured to a suitable base, a motor-spring having its shaft journaled in said plates, a mandrel-shaft having bearing at one end only where it is journaled in said plates said shaft projecting from and lying outside of the plates at its outer end, a feed-screw shaft separate from the mandrel-shaft journaled in the frame, and gearing connecting the spring-shaft with the mandrel-shaft and with the feed-screw shaft.

2. In a graphophone the combination of a frame consisting of upright plates rigidly secured together, of a motor-spring mounted on a shaft journaled in said plates, a mandrel-shaft journaled at one end only in said plates and at its other end projecting bodily therefrom, a mandrel on the projecting end of said shaft, a feed-screw shaft separate from the mandrel-shaft journaled in said plates, driving connections between the spring-shaft and the mandrel-shaft, and other driving connections between the spring-shaft and the feed-screw shaft.



3. The combination with the mandrel-shaft and screw-shaft of a graphophone, of a motor, one line of connections from said motor for driving said mandrel, and separate connections for driving said feed-screw, substantially as described.

4. The combination with the mandrel-shaft and screw-shaft of a graphophone, of a spring-motor, connections between the main shaft of said motor and the mandrel, and separate connections from said main shaft to said screw-shaft, substantially as described.

5. The combination with the mandrel-shaft and screw-shaft journaled in suitable bearings, of a spring-motor, a belt and pulleys for driving said mandrel-shaft from one of the arbors of said motor, and separate driving connections between the main shaft of the motor and said screw-shaft, substantially as described.

6. The combination of a base with frame-plates secured thereto, a motor-spring between two of said plates and having its shaft journaled therein, a mandrel-shaft lying outside of said plates but having one end journaled therein, a screw-shaft journaled in said frame-plates, one line of connections from the spring-shaft to the mandrel-shaft and separate connections from the spring-shaft to the screw-shaft, substantially as described.

7. The combination with frame-plates secured to a suitable base, of a motor-spring between two of said plates and having its shaft journaled therein, a mandrel-shaft journaled in said plates but projecting bodily therefrom, a belt and pulleys through which motion is communicated from the spring-shaft to the mandrel-shaft, a screw-shaft also journaled in said frame-plates and separate driving connections between the spring-shaft and the screw-shaft, substantially as described.

680,795. **STRAP-COIL FOR ELECTRICAL MACHINES.** JOHN P. MALLETT, Pittsburg, Pa., assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania. Filed Oct. 17, 1899. Serial No. 733,899. (No model.)



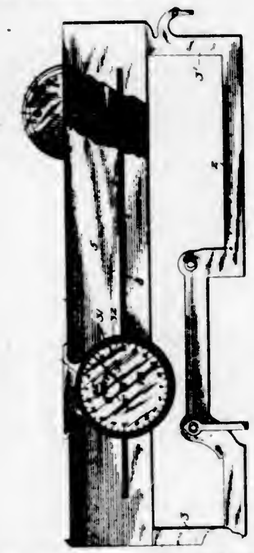
Claim.—1. A strap-coil for electrical machines having two long and four short sides and composed of a plurality of complete side-by-side turns without joints, the long side portions of the turns being disposed edgewise in radial planes and separately insulated.

2. A strap-coil for electrical machines comprising a plurality of complete side-by-side turns without joints and separately insulated, each of said turns having an offset bend at each end in a plane substantially perpendicular to a plane including the sides of the coil.

3. A strap-coil for electrical machines comprising a plurality of separately-insulated, complete, side-by-side turns without joints, each of which has a semi-annular edgewise bend of small radius at each end.

680,796. **COMPUTING-SCALE.** CASSIUS M. MERRILL, Louisville, Ky. Filed Dec. 6, 1900. Serial No. 38,952. (No model.)

Claim.—1. In a computing-scale, a chambered scale-beam forming an inclosing casing, a poise, an inclined member upon the interior of said beam, indicating mechanism carried by the poise and influenced by the movements of the inclined member, and setting mechanism for the inclined member, substantially as set forth.



2. In a computing-scale, the combination of a chambered scale-beam, a poise slidably mounted on the beam and carrying an indicator, a frame or carriage on the interior of said beam and connected to the poise and provided with gearing for operating said indicator, an inclined member on the interior of the beam and coacting with the indicator-operating mechanism, and setting mechanism for varying the inclination of said inclined member, substantially as set forth.

3. In a computing-scale, the combination of a chambered scale-beam having a slot therein, a poise sliding on the beam and comprising a front plate carrying a dial, a back plate, a hanger supporting said back and front pieces, and a base-connecting bridge-piece, an inclined bar in the beam, a carriage upon the interior of the beam and movable with the poise, said carriage-carrying-operating mechanism having members extending through said slot and provided with hands coöperating with the dial, and setting mechanism acting on said inclined bar, substantially as set forth.

4. In a computing-scale, a scale-beam, a poise provided with indicating mechanism, an inclined member coöperating therewith, and setting mechanism for said member, the same comprising a price-per-pound dial carrying indicators representing cents, a second dial actuating the same and carrying indicators to represent fractions of a cent, and means for operating the inclined member and actuating said dials, substantially as set forth.

5. In a computing-scale, a scale-beam, a poise provided with indicating mechanism, an inclined member coöperating therewith, and setting mechanism for said bar, the same comprising a price-per-pound dial carrying indicators representing cents, and having teeth, a toothed wheel engaging said teeth, a second dial carrying indicators to represent fractions of a cent and provided with contact devices for operating said wheel, and means for operating the inclined bar and actuating said dials, substantially as set forth.

6. In a computing-scale, the combination of a chambered scale-beam having inclosing walls forming a casing and provided with a longitudinal slot, a poise slidably mounted thereon, an indicator carried by the poise, operating mechanism on the interior of the beam and connected with the indicator through said slot, said operating mechanism including an inclined member, and setting mechanism for said inclined member, substantially as described.

7. In a computing-scale, the combination, with a scale-beam, of an inclined member pivoted thereto, a poise having an indicator-operating member traversing said beam and adapted to lie coaxially with the center of the pivot of said inclined member when the poise is at zero, a counterbalancing device coöperating with the pivoted end of the inclined member, and means for setting said inclined member, substantially as described.

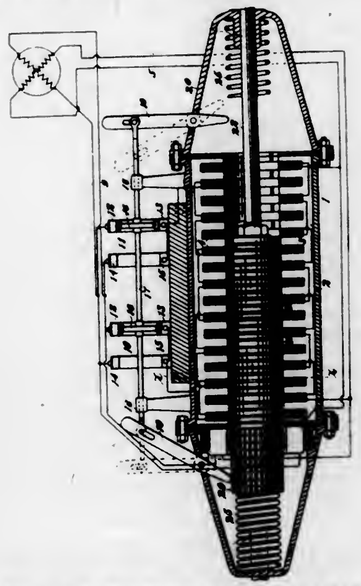
8. In a computing-scale, the combination, with a scale-beam, of an inclined member pivoted thereto, a poise having an indicator-operating member traversing said beam and adapted to lie coaxially with the center of the pivot of said inclined member when the poise is at zero, a pivoted pendulum movably connected with the pivoted end of the inclined member and acting as a counterbalance therefor, and means for setting said inclined member, substantially as described.

9. In a computing-scale, a scale-beam, a poise movable thereon, computing mechanism, an inclined member pivotally connected at one end to the beam and influencing said computing mechanism, and a counterbalance for said inclined member, substantially as described.

10. In a computing-scale, a scale-beam, a poise movable thereon, computing mechanism, an inclined member pivotally connected at one end to the beam and influencing said computing mechanism, and a pivoted counterbalance jointed to the pivoted end of said inclined member, substantially as described.

11. In a computing-scale, a scale-beam, a poise mounted thereon, a dial carried by the poise, hands coöperating with the dial, an inclined bar, an indicator-actuating mechanism influenced by the bar and comprising a rack-bar, a pair of spaced gears meshing therewith, a pinion between said gears and meshing with one of them, a spring for positively retracting said rack-bar and gears, and means driven by the pinion for operating the handles, substantially as described.

680,797. **ELECTROMAGNETIC MOTOR OR RECIPROCATING ENGINE.** RALPH D. MERSHON, New York, N. Y., assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania. Filed Nov. 2, 1899. Serial No. 735,603. (No model.)

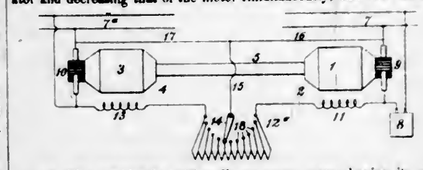


Claim.—1. An electric engine for operating drills or similar devices, comprising means for producing a longitudinally-progressive magnetic field, a plunger actuated by said field and serving to reverse it, and electromagnetic means for effecting a partial rotation of said plunger, substantially as described.

2. In an electric engine for operating drills or similar devices, the combination with means for producing a longitudinally-progressive magnetic field, of a plunger actuated by said field, means actuated by the plunger for reversing the field, and means for producing a rotary magnetic field in the path of movement of the plunger, substantially as described.

680,798. **MECHANISM FOR GENERATING VARIABLE ELECTROMOTIVE FORCE.** JAMES R. MILLER, Edgewood Park, Pa., assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania. Filed Mar. 1, 1900. Serial No. 7,007. (No model.)

Claim.—1. Means for producing a variable electromotive force comprising an electric motor driven from an approximately constant-potential circuit, a generator mechanically connected to and driven by said motor, and means for increasing the field-magnet strength of the generator and decreasing that of the motor simultaneously, and vice versa.



2. The combination with a direct-current motor having its armature connected to a source of approximately constant potential, of a generator having its armature mechanically connected to that of the motor, and means for inversely varying the resistance of the field-magnet circuits of said machines.

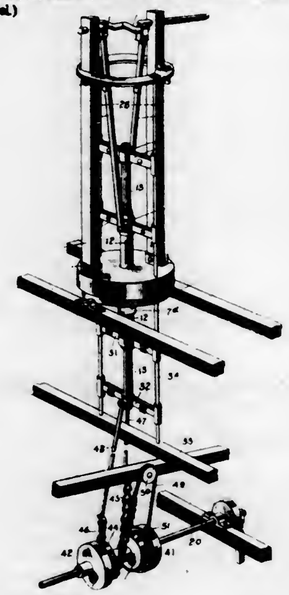
3. The combination with a generator and a motor having their armatures mechanically connected together, of means for supplying the motor-armature with energy at an approximately constant potential, a variable resistance connected in circuit with the field-magnets of both machines, and means for adjusting such resistance so as to cut the same progressively out of the circuit of one field-magnet winding and into the circuit of the other.

4. The combination with a generator and a motor having their armatures mechanically connected together, and having their field-magnet windings electrically connected in opposition through complementary portions of a variable resistance, means for supplying at least one of said field-magnet windings with exciting-current independently of the generator and means for adjusting the resistance so as to inversely vary the excitation of the two field-magnet windings.

5. The combination with two armatures mechanically connected together one of which receives and the other of which generates electrical energy, of separate field-magnets for said armatures the windings of which are connected in series through a resistance, and a bridge across said circuit embodying a switch-arm for transferring more or less of said resistance from one field-magnet circuit to the other.

6. The combination with two armatures mechanically connected together one of which is operated by electrical energy and the other of which generates such energy, of separate field-magnets for said armatures having windings connected in series through a resistance, and a bridge across the circuit of said windings comprising a switch-arm for progressively transferring said resistance from one field-magnet circuit to the other.

680,799. **POWER-TRANSMITTING DEVICE FOR WINDMILLS.** ARCH B. MORSE, Baraboo, Wis. Filed Nov. 10, 1900. Serial No. 36,081. (No model.)



Claim.—1. In a device of the class described, the combination of a tower, a rotary frame mounted in the tower at the upper portion thereof, a horizontal wind-wheel shaft journaled in suitable bearings of the rotary frame at the top thereof, the vertically-reciprocating connecting-rods located beneath the wind-wheel shaft, guides mounted on the rotary frame, swiveled cross-heads secured to the connecting-rods and connected with the guides, and the pitmen pivoted at their lower ends to the cross-heads and extending upward therefrom to the wind-wheel shaft, and connected therewith, substantially as described.

2. In a device of the class described, the combination of a tower, a rotary frame mounted on the tower, a wind-wheel shaft, the upper and lower guides mounted respectively on the rotary frame and the tower, the vertically-reciprocating connecting-rods provided at their lower ends with rigid cross-heads arranged on the lower guides, the swiveled cross-heads connected with the upper ends of the rods and arranged on the upper guides, and pitmen for connecting the upper cross-heads with the wind-wheel shaft, substantially as described.

3. In a device of the class described, the combination of a tower, a rotary frame, a wind-wheel shaft, upper and lower guide-rods mounted respectively on the rotary frame and on the tower, reciprocating connecting-rods, the upper and lower cross-heads provided at their ends with sleeves receiving the guide-rods, the lower cross-heads being fixed to the connecting-rods and the upper cross-heads being swiveled to the same, and pitmen for connecting the upper cross-heads with the wind wheel shaft, substantially as described.

4. In a device of the class described, the combination of a tower, a rotary frame, a wind-wheel shaft, upper and lower guides, the tubular concentric connecting-rods, the lower cross-heads fixed to the lower portions of the connecting-rods and arranged on the lower guides, the swiveled cross-heads secured to upper portions of the connecting-rods and arranged on the upper guides, and pitmen for connecting the upper cross-heads with the wind-wheel shaft, substantially as described.

5. In a device of the class described, the combination of a tower, a rotary frame mounted thereon, a horizontal wind-wheel shaft, the upper and lower guides mounted respectively on the rotary frame and the tower, the vertically-reciprocating connecting-rods provided at their lower ends with rigid cross-heads arranged on the lower guides, the swiveled cross-heads connected with the upper ends of the rods and with the upper guides, pitmen connecting the upper cross-heads with the wind-wheel shaft, a lower horizontal shaft, a pair of clutches mounted on the lower horizontal shaft and provided with wheels and adapted to alternately engage and rotate the said lower horizontal shaft, a guide, and a flexible connection arranged on the guide and engaging the wheels and connected with the lower cross-heads, substantially as described.

6. In a device of the class described, the combination of a tower, a rotary frame, a wind-wheel shaft journaled on the rotary frame, a lower horizontal shaft journaled on the tower, vertically-reciprocating connecting-rods, swiveled cross-heads connected with the upper ends of the rods and guided on the rotary frame, lower cross-heads fixed to the lower portions of the rods, and guided on the tower, pitmen connecting the upper cross-heads with the wind-wheel shaft, and means for connecting the lower cross-heads with the horizontal shaft for rotating the latter, substantially as described.

7. In a device of the class described, the combination of a tower, a rotary frame, a wind-wheel shaft journaled on the rotary frame, a lower shaft supported by the tower, vertically-reciprocating rods, upper cross-heads swiveled to the rods, pitmen connecting the upper cross-heads with the wind-wheel shaft, clutches mounted on the lower shaft and provided with wheels and adapted to alternately engage the said lower shaft, to impart a continuous forward rotation to the same, lower cross-heads fixed to the said rods, and flexible devices connected with the cross-heads and engaging the wheels of the clutches, substantially as described.

680,800. **SNAP-HOOK.** WILLIAM H. MÜNCHMEYER, Scott, W. Va. Filed Mar. 27, 1901. Serial No. 53,089. (No model.)



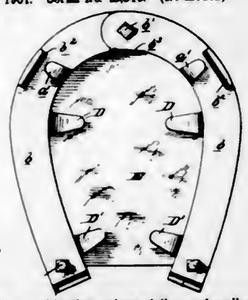
Claim.—1. In a snap-hook, the combination of the hook having a hollow shank, a sliding bolt therein, a projecting button on said bolt, a slot in said shank in which the button may slide, a rotatable sleeve surrounding said shank and provided with a slot for the passage of the bolt-button, the end of said sleeve being cut off obliquely to act as a wedge against said button on rotating said sleeve, substantially as described.

2. In a snap-hook, the combination of the hook having a hollow shank, a snap-bolt in the hollow of said shank, a spring in said hollow behind the bolt, a slot in said shank, a push-button attached to said bolt and movable in said slot, a rotatable sleeve surrounding the shank and provided with a slot for the passage of the push-button, said sleeve having an oblique end which wedges against the push-button to lock the bolt on turning said sleeve, substantially as described.

3. In a snap-hook, the combination of the hook provided with a hollow shank, a spring-pressed snap-bolt in the hollow of said shank, provided with a push-button capable of sliding in a slot in said shank, a rotatable sleeve upon said shank provided with a slot to accommodate said push-button, the end of said sleeve being oblique to act as a wedge against the push-button on turning said sleeve; a transverse slot in said sleeve and a pin in said slot secured to the shank, whereby the sleeve may be guided on being turned, substantially as described.

4. The combination of a hollow shank having a hook at one end and an eye at the other, a bolt capable of sliding in said hollow shank and press against the end of the hook, a push-button on said bolt, a slot in said shank to accommodate the button, with a sleeve capable of rotation, mounted on said shank, and having a slot to accommodate the push-button, the end of said sleeve being made oblique to act as a wedge against the push-button on being turned to lock the bolt into closed position, substantially as described.

680,801. **HORSESHOE.** HUGH M. MCCRELLEY, Berea, Ohio. Filed Jan. 15, 1901. Serial No. 43,318. (No model.)

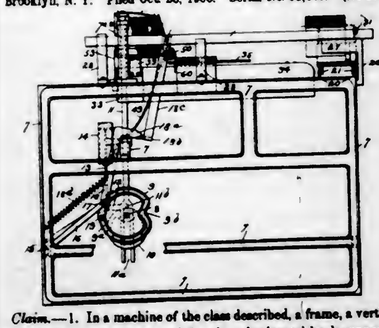


Claim.—1. In combination substantially as described a holding-plate adapted to be secured to the hoof of an animal and constitute a relatively permanent fixture, a shoe comprising two members pivotally secured together and means for detachably securing the shoe to the holding-plate comprising engaging fingers on the shoe and plate, and locking-bolts adapted to pass through registering screw-threaded apertures in the holding-plate and shoe, substantially as described.

2. In combination substantially as described, a holding-plate adapted to be secured to the hoof of an animal, a shoe comprising two members pivotally secured together, means for detachably connecting the shoe to the holding-plate, and means on the plate and the respective members of the shoe adapted to operate conjointly in supporting a pad.

3. In combination with a horseshoe, of a supporting-plate therefor adapted to be secured to the hoof of an animal, means for securing the shoe to the plate, and oppositely-disposed projecting flanges on the shoe and plate adapted to cooperate in supporting a pad, substantially as described.

680,802. **BOOKBINDING-MACHINE.** JACKSON MCCLELLAN, Brooklyn, N. Y. Filed Oct. 20, 1900. Serial No. 33,670. (No model.)



Claim.—1. In a machine of the class described, a frame, a vertically-movable shaft or support mounted therein, a horizontal book-support connected therewith, an inclined track or way supported at one end of the frame, a book-carriage mounted thereon and automatically movable thereon, means for limiting the movement of said carriage, devices for removing the books therefrom successively onto the book-support, a book back or cover support mounted above and connected with the book-support and vertically movable therewith, tables supported in a horizontal plane and between which the book-support moves, and devices for removing a book back or cover from the support thereof, and placing it on said tables, substantially as shown and described.

2. In a machine of the class described, a frame, a vertically-movable book-support mounted therein, tables supported in a horizontal position and between which the book-support moves, means for placing a book on the support and moving it beneath said tables, a book back or cover support mounted above and connected with the book-support, and vertically movable therewith, and devices for removing a book back or cover from said support, and placing the same on said tables, substantially as shown and described.

3. In a machine of the class described, a vertically-movable book-support, a book-carriage movable transversely thereof, means for removing a book from said carriage and placing it on said support, tables mounted horizontally and between which the book-support moves, a vertically-movable book back or cover support mounted above and connected with the book-support, and devices for removing a book back or cover from said support, and placing the same on said tables, substantially as shown and described.

4. In a machine of the class described, a vertically-movable book support, means for placing a book thereon, tables supported horizontally and between which the book-support moves, a support for book backs or covers mounted above and connected with the book-support, tubular arms pivotally connected with the opposite corners of said book back or cover support, and provided with suction cups and tubes connected with said arms, an air-pump with which said tubes are connected, and means for raising and lowering said tubular arms as the book-support is raised and lowered so as to cause said suction-cups to engage with a book back or cover on said support and to lower the same onto said tables, substantially as shown and described.

5. A machine of the class described, comprising a frame, a horizontal main shaft mounted therein, a vertically-movable shaft or support connected with the main shaft, a book-support connected with said vertically-movable shaft or support and held in a horizontal position longitudinally of the frame, tables supported horizontally and between which the book-support moves, an inclined track or way arranged transversely at one end of the frame, a book-carriage mounted thereon, devices for successively removing the books from said carriage and placing the same on said support, a book back or cover support mounted above and connected with the book-support and vertically movable therewith, and devices for removing a back or cover therefrom and placing the same on said tables, substantially as shown and described.

6. In a machine of the class described, a frame, a vertically-movable book-support, devices for placing a book thereon, a support for book backs or covers mounted above and vertically movable with the said book-support, means for supporting book backs or covers thereon, and for automatically moving the same forwardly, tables supported horizontally between which the book-support moves, and devices for removing a back or cover from the support thereof, and placing the same on said tables, substantially as shown and described.

7. In a machine of the class described, a frame, a vertically-movable book-support mounted therein, means for placing a book thereon, tables arranged horizontally and between which the book-support moves, a book back or cover support mounted above and connected with the book-support, and provided at its front edge with a transverse lip, and a sliding bar arranged transversely thereof and between which and said lip the book backs or covers are placed, and means for removing a back or cover from said support, and placing it on said tables, consisting of blocks pivotally connected with the opposite front corners thereof, tubular arms connected with said blocks, and provided with suction-cups, an angular arm also connected with one of said blocks at one end, and provided at the opposite end with a roller which moves on a horizontal support, a weighted cord connected with said angular arm and operating to draw it in one direction, and means for forcing air through and withdrawing the same from said tubular arms, substantially as shown and described.

8. In a machine of the class described, a vertically-movable book-support, devices for placing a book thereon, tables supported in a horizontal position and between which the book-support moves, a book back or cover support mounted above and connected with the book-support, a stationary track or way 37ª at one side of said book back or cover support, blocks 45 connected with the front corners of said book back or cover support, tubular arms 47 connected with said blocks and provided with suction-cups 48, an angular arm 50 connected with one of said blocks, and provided with a roller adapted to bear on said stationary track or way 37ª, a weighted cord connected with said angular arm, and means for forcing air through and removing it from the tubular arms 47, substantially as shown and described.

9. In a machine of the class described, a frame, a horizontal main shaft mounted therein, a vertically-movable shaft or support operated thereby, a vertically-movable book-support connected with said shaft or support, tables arranged in a horizontal position and between which the book-support moves, devices for automatically placing a book on said book-support, a vertically-movable book back or cover support mounted above and connected with the book-support, means for automatically feeding the book backs or covers forwardly, and devices for automatically removing one of said book backs or covers from the support thereof, and placing the same on said tables, substantially as shown and described.

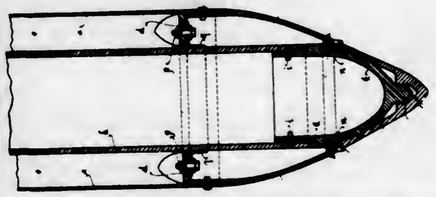
10. A machine of the class described, comprising a frame, a power-shaft mounted horizontally therein, a vertically-movable shaft or support operated by the power-shaft, a horizontal and vertically-movable book-support connected therewith, an inclined track or way arranged transversely at one end of the frame, a book-carriage mounted thereon, devices for removing a book from said carriage onto said support, tables supported horizontally and between which the book-support moves, a book back or cover support mounted above and connected with the book-support, means for feeding the book backs or covers forwardly on said support, and devices for removing said book backs or covers automatically and successively from said support and depositing the same on said tables, substantially as shown and described.

11. A machine of the class described, comprising a frame, a power-shaft mounted therein, a vertically-movable shaft or support operated by the power-shaft, a horizontally and vertically movable book-support connected therewith, an inclined track or way arranged transversely at one end of the frame, a book-carriage mounted thereon and adapted to move upwardly thereover, means for operating said book-carriage, devices for removing a book from said carriage onto said support, tables supported horizontally over the frame and between which the book-support moves, a book back or cover support mounted above and connected with the book-support, means for feeding the book backs or covers forwardly on their support, and devices for removing said book backs or covers automatically and successively from said support and depositing the same from said tables, substantially as shown and described.

12. A machine of the class described, comprising a frame, a power-shaft mounted therein, a vertically-movable shaft or support operated by the power-shaft, a horizontal and vertically-movable book-support connected therewith, a transversely-inclined track or way at one end of the frame, a book-carriage mounted thereon, a longitudinally-movable bar mounted over the frame and operated by the power-shaft for passing a book from said carriage and placing it on said support, tables supported above the frame, and between which the book-support moves, a book back or cover support mounted above the frame and connected with said book-support, and means for removing the book backs or covers successively from their support and placing the same on said tables, substantially as shown and described.

13. In a machine of the class described, a vertically-movable book-support, a vertically-movable book back or cover support connected therewith and arranged thereover, tables supported in front of said book back or cover support, and devices for removing the book backs or covers from said support, and placing the same on said tables, substantially as shown and described.

680,803. **CONSTRUCTION OF FOUNDATIONS.** JULIUS NAGY, Nuremberg, Germany, assignor to Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg A. G., same place. Filed Apr. 19, 1901. Serial No. 56,504. (No model.)



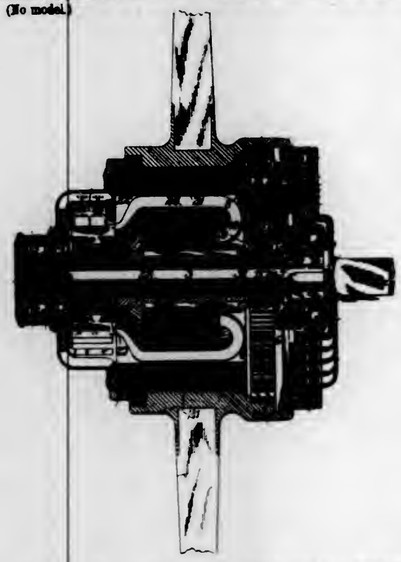
Claim.—1. In a pile, an inner cylindrical body, an outer cylindrical body adapted to encircle the inner body, and having its lower end of substantially truncated-cone shape and a pile-shoe removably seated on said truncated end of the outer body, substantially as described.

2. In a pile, an inner cylindrical body, an outer cylindrical body adapted to encircle the inner body and having its lower end of substantially truncated-cone shape and a pile-shoe removably seated on said trun-

cated end of the outer body, said inner body having an angular flange forming a seat for said removable shoe, substantially as described.

3. In a pile, a central tubular body, a piece *k* closing the lower end thereof, an outer cylindrical body, a member of substantially truncated conical shape at the lower end of said outer body and a removable shoe having its upper edge adapted to seat removably against said inner body and said truncated member, substantially as described.

680,804. **ELECTRICALLY-PROPELLED VEHICLE.** FREDERICK J. NEWMAN and JOSEPH LEDWINKA, Chicago, Ill., assignors to the Hub Motor Company, of New Jersey. Filed Jan. 18, 1901. Serial No. 43,716. (No model.)



Claim.—1. The combination with a vehicle-axle, of a supporting-wheel the hub of which embodies an electric motor, the parts of which are supported by the wheel independently of the axle, substantially as described.

2. The combination with a vehicle-axle, of a supporting-wheel having a hollow hub serving as an electric-motor field-magnet and an armature supported by the wheel independently of the axle, substantially as described.

3. The combination with a vehicle-axle, of a supporting-wheel having a hub that serves as an electric-motor field-magnet, a hollow shaft loosely mounted on the axle and having its bearings in the hub, an armature keyed upon said hollow shaft, and means for transmitting the rotary motion of the armature to the wheel, substantially as described.

4. The combination with a vehicle-axle, of a supporting-wheel having a hub that serves as an electric-motor field-magnet, a hollow shaft loosely mounted on the axle and having its bearings in the hub and provided with a gear-pinion, an armature mounted on said hollow shaft, and gearing between said gear-pinion and the hub, substantially as described.

5. The combination with a vehicle-axle, of a sleeve removably located on the axle, and a wheel having a hub that embodies an electric motor, the parts of which are supported by the wheel independently of the axle, said sleeve, wheel and motor being removable from the axle as a unit, substantially as described.

6. The combination with a vehicle-axle, of a sleeve removably located on the axle, means for locking said sleeve against rotation, a wheel having a hub that embodies an electric motor and surrounds said sleeve, means on the free end of the axle for holding the hub and its parts in place, a hollow shaft surrounding the sleeve and having its bearings in the hub, and having the motor fastened thereon, substantially as described.

7. The combination with a vehicle-axle, of a sleeve located on and fastened to the axle but longitudinally removable therefrom, a wheel having a hub that embodies an electric motor, means on the free end of the axle to hold the hub and its parts in place, a hollow shaft surrounding the sleeve and having its bearings in the hub, a gear-pinion and a motor-armature keyed to the hollow shaft and gearing between the gear-pinion and the hub, substantially as described.

8. A wheel for an electrically-propelled vehicle having a hub that embodies an electric motor, all the parts of which are supported within and by the hub structure.

9. A wheel for an electrically-propelled vehicle having a hub that embodies an electric motor and a portion of the shell of which constitutes the field-magnet frame or ring, all the other parts of the motor being contained within and supported by said shell.

10. A vehicle-wheel having a hub that embodies an electric motor and gearing between the armature and field-magnet thereof, a portion of the hub-shell constituting the field-magnet frame or ring and all of the other parts being inclosed in and supported by said shell.

11. A vehicle-wheel hub comprising a shell the spoke-supporting part of which constitutes an electric-motor field-magnet frame or ring, in combination with field-magnet pole-pieces and coils, an armature and commutator and gearing between the armature and the hub-shell, all of said parts being inclosed in and supported by said hub-shell.

12. A vehicle-wheel hub embodying an electric motor, the field-magnet frame of which is the spoke-supporting part of the hub-shell and the other parts of which are all inclosed in and supported by the hub-shell.

13. The combination with a vehicle-axle, of a hub-shell embodying an electric-motor field-magnet, an armature rotatably mounted in the hub-shell, a gear-wheel non-rotatably mounted on the axle but longitudinally removable therefrom and gearing between the armature, the hub-shell and said gear-wheel.

14. The combination with a vehicle-axle, of a hub-shell embodying an electric-motor field-magnet, an armature rotatably mounted in the hub-shell, a stationary gear-wheel removably supported on the axle, gearing between said wheel and the hub-shell and armature and means for connecting the hub-shell and the parts supported therein so that they are removable from the axle as a unit.

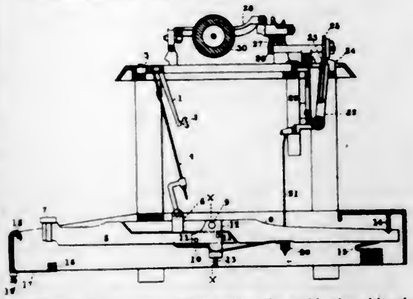
15. The combination with a vehicle-axle, of a wheel-hub shell bodying an electric-motor field-magnet, an armature rotatably mounted in said hub-shell, a pinion rigidly connected to the armature, a stationary gear-wheel and a gear-wheel and pinion journaled in the hub-shell and respectively meshing with the armature-pinion and the stationary gear-wheel.

16. The combination with a vehicle-axle, of a wheel provided with a hub-shell which embodies an electric-motor field-magnet, a shaft journaled in said shell and provided with a gear-wheel and a pinion, a gear-wheel keyed to the axle in position to mesh with said pinion and an armature surrounding the axle but supported by the hub and provided with a driving-pinion that meshes with the rotating gear-wheel.

17. A vehicle-wheel hub having an electric-motor field-magnet and an armature, in combination with an armature-driven pinion, a stationary gear-wheel and intermediate gears that have movements of both rotation and revolution whereby the field-magnet and armature rotate in opposite directions.

18. A vehicle-wheel hub having an electric-motor field-magnet and an armature in combination with an armature-driven pinion, a stationary gear-wheel, intermediate gears respectively in mesh with said pinion and said stationary gear-wheel and means for connecting all of said parts so that they may be mounted upon and removed from an axle as a unit.

680,805. **TYPE-WRITING MACHINE.** JAMES H. O'BRIEN, New York, N. Y., assignor to Wyckoff, Seamans & Benedict, Elmira, N. Y. Filed May 11, 1900. Serial No. 16,303. (No model.)



Claim.—1. In a type-writing machine, the combination with a platen, a type-bar and a lever connected thereto and working upon one fulcrum or support, of means, including a key elastically mounted upon said lever, for regulating the blow of the type.

2. In a type-writing machine, the combination with a type-bar, of a lever connected thereto and working upon one fulcrum or support, and a key elastically mounted upon said lever so that said key may have independent movement bodily with reference to said lever.

3. In a type-writing machine, the combination with a type-bar, of a key-lever working upon one fulcrum or support and divided into two portions, one portion being connected to the type-bar and the other portion bearing a key, said portions being elastically joined, so that the key-bearing portion may have a limited movement relatively to the portion that is connected to the type-bar.

4. In a type-writing machine, the combination with a type-bar, of a key-lever of the second order connected thereto and having an elastic construction between its ends, whereby the forward or key portion of said lever is enabled to yield relatively to the rear or type-bar-operating portion thereof when the key is struck sharply by the finger.

5. In a type-writing machine, the combination with a type-bar, of a key-lever having a single fulcrum, and composed of two parts, to one of which said type-bar is connected, and one of which parts is pivoted to the other, and a spring for maintaining said parts in their normal relation.

6. In a type-writing machine, the combination with a type-bar, of a lever connected thereto, a key-bearing lever pivoted and wholly supported upon one end of said lever, and a spring for maintaining said levers in their normal relation.

7. In a type-writing machine, a key-lever working upon one fulcrum or support and composed of separate sections pivotally connected together and movable substantially as one piece, the adjacent ends of said sections being overlapped and spring-supported.

8. In a type-writing machine, the combination with a platen of a type-bar, a lever connected thereto, a key elastically mounted upon said lever so as to yield relatively to said lever at the initial portion of the key-stroke, and a stop.

9. In a type-writing machine, the combination with a platen of a type-bar, a key-lever working upon one fulcrum or support and so constructed that its key portion may during the printing stroke have a limited yielding advance movement relatively to the remainder thereof, a stop for said key portion of the lever, and means for connecting the other portion of the lever to the type-bar.

10. In a type-writing machine, the combination with a type-bar, of a horizontal key-lever composed of two parts, one of which is pivoted to the other, one only of said parts being fulcrumed upon a fixed part of the machine and the other of said parts being provided with a key, a spring for maintaining said parts in their normal relation, and a connection attached at one end to said fulcrumed part of the lever and at the other end to the type-bar.

11. In a type-writing machine, the combination with a type-bar and a key, of a stop for said key and an elastic connection between the type-bar and the key, the construction and arrangement being such that upon the depression of said key, said elastic connection may expand or yield before said key is arrested by the stop and before the type-impression is made, and such that after the arrest of said key the movement of the type-bar may be aided by the contraction or reaction of said elastic connection.

12. In a type-writing machine, the combination with a platen, a type-bar, and a key, of an elastic connection between the key and the type-bar, and means for arresting the key during the printing stroke of the type-bar and before the type strikes the platen.

13. In a type-writing machine, the combination with a platen, a carriage, escapement devices, a universal bar, a type-bar, and a key, of an elastic connection between the key and the type-bar and universal bar, and a stop for arresting said key before the completion of the printing stroke of the type-bar and corresponding movement of the universal bar.

14. In a type-writing machine, the combination with a platen, a carriage, a universal bar, escapement devices constructed to permit advance movement or "drop" of the carriage upon the initial stroke of the universal bar, a type-bar, and a key, of a lever to which said type-bar is positively connected and which positively operates said universal bar, a key yieldingly connected to said lever so as to move in advance thereof when struck sharply, and a stop for arresting said key independently of said lever.

15. In a type-writing machine, the combination with a type-bar, of a key-lever connected thereto and working upon one fulcrum or support and so constructed that the key portion of said lever may have a limited yielding movement relatively to the portion thereof that is connected to said type-bar, a universal bar operated by the portion of said lever that is connected to said type-bar, escapement devices, and a carriage.

16. In a type-writing machine, the combination with a carriage, escapement mechanism, and a type-bar, of a lever connected to said type-bar and working upon one fulcrum or support, a universal bar operated by said lever and connected to said escapement mechanism, a key-bearing lever pivoted upon one end of said lever, and a spring for maintaining said levers in their normal relation.

17. In a type-writing machine, a key-lever working upon one fulcrum or support and composed of separate sections pivotally connected together and movable substantially as one piece, the adjacent ends of said sections being overlapped, a key arranged upon one of said sections, a type-bar and a universal bar both operated by the other of said sections, an escapement mechanism, and a carriage.

18. In a type-writing machine, the combination with a type-bar, of a horizontal key-lever composed of two parts, one of which is pivoted to the other, one only of said parts being fulcrumed upon a fixed part of the machine and the other of said parts being provided with a key, a spring for maintaining said parts in their normal relation, a connection attached at one end to said fulcrumed part of the lever and at the other end to the type-bar, a universal bar operated by said fulcrumed part of the key-lever, escapement mechanism, and a carriage.

19. In a type-writing machine, the combination with a platen of a type-bar, a key-lever connected thereto and having an elastic construction, between its key and its point of connection to said type-bar so as to enable the key portion of said lever to yield at the initial portion of the key-stroke, when the key is struck sharply by the finger, independently of the portion which is connected to the type-bar, so that the motion of the type-bar is relatively slower than that of the key, a stop for arresting said key portion independently of the remainder of said lever, a universal bar operated by the rear portion of said lever, escapement mechanism, and a carriage.

20. In a type-writing machine, the combination with a platen, a sharp or pointed type, a type-bar, and a key, of means for automatically regulating the force of the type-blow, said regulating means including both a connecting-spring between said type-bar and said key, and means for adjusting the tension of said spring.

21. In a type-writing machine, the combination with a platen, a sharp or pointed type, a type-bar, and a key, of a connecting-spring between said type-bar and said key, means for adjusting the tension of said spring, and means for arresting said key independently of said type-bar.

22. In a type-writing machine, the combination with a platen and a type-bar of lever 5 connected to the type-bar, lever 8, yoke or clasp 12ª, pivot 9, and a spring carried by said yoke or clasp and bearing upon said lever 5.

23 In a type-writing machine, the combination with a platen and a type-bar of lever 5 connected to the type-bar, lever 8, yoke or clasp 12ª, pivot 9, looped spring 10ª, cross-pin 31, screw 13, and link 33 pivoted to lever 5.

24. In a type-writing machine, the combination with a platen and a type-bar of a key-lever yieldingly connected to the type-bar, stop 16, plate 35 carrying said stop, hooked angle-plate 37, 38, constructed to engage the framework of the machine, screw 39 for drawing the plate 35 toward the portion 38 of the plate, and screw 40 for pressing the plate 35 away from the portion 38 and against the framework of the machine.

25. A key-lever for type-writing machines, composed of separate sections, the adjacent ends of which overlap and are connected by a yoke pivoted to one of said sections and fixed to the other, said yoke being provided with a downwardly-directed extension, and a spring arranged in said extension.

26. In a type-writing machine, the combination of a platen, a type-bar, and a key-lever fulcrumed at its rear end and comprising two gaping sections, one arranged edgewise over the other, one of said sections being connected to the type-bar, and the other being elastically mounted and bearing a finger-key, whereby the finger-key portion may move independently of the other portion when the key is struck sharply, so as to relieve the force of the blow on the finger, while at the same time the lever as a whole may vibrate upon its rear fulcrum to cause the type-bar to swing toward the platen.

27. In a type-writing machine, the combination of a platen, a type-bar, a key-lever fulcrumed at its rear end and comprising two united gaping sections, one arranged edgewise over the other, one of said sections being connected to the type-bar, and the other being elastically mounted and bearing a finger-key, and yielding at the initial portion of the key-stroke independently of the other portion when the key is struck sharply so as to relieve the force of the blow on the finger, while at the same time the lever as a whole vibrates upon its rear fulcrum to cause the type-bar to swing toward the platen, and a stop for arresting the key-bearing section of said lever.

28. In a type-writing machine, a key-lever having a gap or slot in the direction of its length and between its ends, said gap or slot dividing the lever into two sections or parts, one section or part being arranged above the other and united thereto, and a yoke or support for preventing sidewise movement of one section or part relatively to the other.

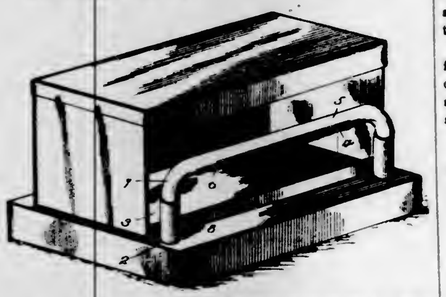
680,806. **SMOKING-PIPE.** CHARLES H. PAGETT, Lafayette, Ind., assignor of one-half to John R. Godman, same place. Filed June 22, 1900. Serial No. 21,217. (No model.)

Claim.—The combination with a pipe having a bowl and a stem, the stem having a bore and the bowl provided with an opening in rear of the center and inclined rearwardly and communicating with said bore

in the stem in rear of the forward extremity of the said bore, of a mouthpiece removably fitted in the bore and having a shank of less diameter than the bore and mainly standing clear of the wall of the latter, the forward end of said shank having a cylindrical head of approximately the same diameter as the bore and forming a straight cleaning-shoulder, the front end of the head being conically recessed to form a circumferential scraping edge at the front extremity of the stem and to provide means for taking up the material removed from the stem-wall by the inward movement of the shank into the said bore, the head on the shank being normally located in advance of the communicating opening between the bowl and bore of the stem.



680,807. APPARATUS FOR AUTOMATICALLY APPLYING GERMICIDES. JOHN R. PENDLETON, Strawn, Tex., assignor of two-thirds to T. R. Hall and R. H. Rhodes, same place. Filed Mar. 16, 1901. Serial No. 51,522. (No model.)



Claim.—1. In apparatus for dispensing an insecticide or kindred medicine, a tank, a trough, a distributer located at a side of the trough to be brushed against by the fowl or stock when feeding and comprising a wick or absorbent material having pendent end portions one end dipping into the medicine to take up the same and the opposite end elevated therefrom to return an excess of medicine, substantially as set forth.

2. In apparatus for dispensing an insecticide or kindred medicine, a trough, a tank for holding a supply of the medicine, and a distributer located at a side of the trough so as to be brushed against by the fowl or animal when feeding, said distributer comprising a tube having bent end portions and having a side opening and wick or absorbent material located in the tube and the bent ends thereof and having a portion protruding through the side opening, one end of the absorbent material dipping into the tank and the other end being elevated therefrom, substantially as set forth.

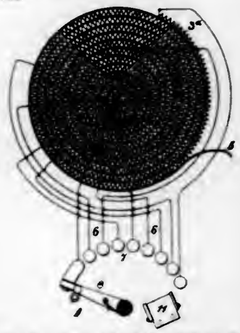
3. In apparatus for dispensing a germicide or kindred medicine, a trough, a tank for holding the medicine, and a distributer at a side of the trough to be brushed against by the fowl or stock when feeding, said distributer comprising a horizontal pipe having a side opening, end pieces composed of telescopic parts, and a wick or absorbent material fitting the horizontal pipe and end extensions and having an end portion dipping into the medicine and an intermediate portion protruding through the opening of the pipe, substantially as set forth.

4. The herein-described apparatus for dispensing an insecticide or kindred medicine, the same consisting of a pan or tank, a cover therefor, a trough mounted upon the cover, tubular extensions projected from the said cover, a horizontal pipe having a side opening and end extensions to make connection with the aforementioned tubular extensions by a slip-joint, and a wick or absorbent material fitted into the horizontal pipe and the end extensions thereof and having one end dipping into the medicine contained in the tank, substantially as set forth.

680,808. RHEOSTAT. THOMAS S. PERKINS, Idlewood, Pa., assignor to the Westinghouse Electric & Manufacturing Company, of Pennsylvania. Filed Sept. 28, 1898. Serial No. 692,065. (No model.)

Claim.—1. A rheostat comprising a helical, flattened coil of wire disposed in spiral form and a spirally-disposed strip of insulating material interposed between adjacent convolutions of the wire helix.

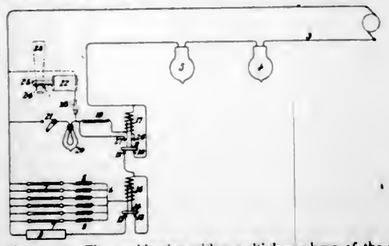
2. A rheostat comprising a spirally-disposed, flattened, helical coil of wire, a spirally-disposed strip of insulating material between adjacent convolutions of the resistance-spiral and a body of cement in which said spirals are embedded.



3. The combination with a helical, flattened coil of wire intercoiled with a strip of insulating material in spiral form and embedded in cement, of a series of contact-pieces connected to said coil at intervals and a movable switch-arm making engagement with said contact-pieces, substantially as described.

4. The combination with a flattened-wire helix intercoiled in spiral form with a strip of insulating fabric and embedded in cement, of a series of contact-pieces severally connected to different points in said coil, a switch-arm coöperating with said contacts and means for controlling said arm, substantially as described.

680,809. SYSTEM OF ELECTRIC LIGHTING ON CONSTANT-CURRENT CIRCUITS. HENRY N. POTTER, Halensee, Germany, assignor to George Westinghouse, Pittsburg, Pa. Filed Oct. 3, 1900. Serial No. 31,831. (No model.)



Claim.—1. The combination with a multiglower-lamp of the class described, of a pilot-lamp in a normally closed shunt thereto, adapted to become luminous when the multiglower-lamp is out of order.

2. The combination with a multiglower-lamp of the class described, of a cut-out for the lamp operated by a rise of voltage in the lamp-circuit, such cut-out operating to break the lamp-circuit when one of the glowers breaks or becomes inoperative for any reason.

3. The combination with a multiglower-lamp of the class described, of a cut-out for the heater of said lamp, and a second cut-out for the entire lamp, the said second cut-out being operated by a rise of voltage in the lamp-circuit.

4. The combination with a multiglower-lamp of the class described, of a high-resistance shunt to the said lamp, and means for breaking the lamp-circuit and throwing the entire current through the shunt when one of the glowers of the lamp breaks or becomes inoperative, for any reason.

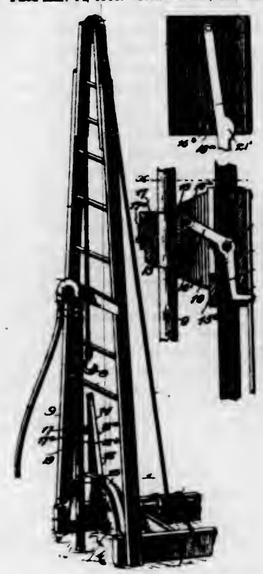
5. The combination with a multiglower-lamp of the class described, of a high-resistance shunt containing an incandescent pilot-lamp, and means for breaking the circuit of the multiglower-lamp and passing the current through the pilot-lamp when one or more of the glowers become inoperative.

6. The combination with a multiglower-lamp of the class described, of a shunt-circuit thereto containing a resistance and an indicating device, means for breaking the circuit of the lamp when one of the glowers becomes inoperative, and means for cutting out the resistance when the cut-out for the lamp is operated.

7. The combination with a multiglower-lamp of the class described, of a variable-resistance shunt including an indicating device, the said shunt containing a cut-out which is operated by a rise of voltage in the lamp-circuit.

8. In a system of electric lighting by multiglower-lamps of the class described on constant-current circuits, a series of such lamps, each having an automatic cut-out operated by a rise of voltage in the lamp-circuit, such cut-out acting to break the circuit of the lamp when one of the glowers breaks or becomes inoperative for any reason.

680,810. WELL-DRILLING MACHINE. SAMUEL J. REED, Onset, Ark. Filed Mar. 14, 1901. Serial No. 51,123. (No model.)



Claim.—1. In a well-drilling machine, the combination with a vertically-reciprocatory carriage, a drive-shaft, a pitman pivotally connecting the drive-shaft to the carriage, a lever pivoted to the carriage and having one end connected to an element of the gripping mechanism and having its other end projecting within the path of movement of the pitman to be engaged thereby and be depressed to release the gripping mechanism from the drill-stock, substantially as set forth.

2. In a well-drilling machine, the combination with a vertically-reciprocatory carriage, a drive-shaft, a pitman pivotally connecting the drive-shaft to the carriage, a lever pivoted to the carriage and having one end connected to an element of the gripping mechanism, and having its other end projecting within the path of movement of the pitman to be engaged thereby and to be depressed to release the gripping mechanism from the drill-stock, said lever being provided with means for holding the end of the lever with which it coacts in a depressed position until the carriage has moved to its lowest point of descent, and means for actuating the gripping mechanism to grip the drilling-stock simultaneously with the disengagement of the pitman from the end of said lever, substantially as set forth.

3. In a well-drilling machine, the combination with a vertically-reciprocatory, spirally-movable carriage, a drive-shaft, a pitman pivotally connecting the drive-shaft to the carriage, a lever pivoted to the carriage and having one end connected to an element of the gripping mechanism and having its other end projecting within the path of movement of the pitman to be engaged thereby and be depressed to release the gripping mechanism from the drill-stock, substantially as set forth.

680,811. SASH-LOCK. JOHN H. REES, Louisville, Ky. Filed Oct. 20, 1900. Serial No. 33,765. (No model.)

Claim.—1. The combination with opposite window-sashes, of a sash-lock carried by one of the sashes, and provided with a locking member, which has opposite operative and inoperative positions, and means for automatically tripping the movable locking member from its inoperative position to its operative position by contact of said means with the other sash, said means being carried solely by the movable locking member and arranged in the path of the closing movement of the said other sash when the movable locking member is in its inoperative position, the said means also being fixed against independent motion in the direction of the operative position of the locking member, and being elastically yieldable in the opposite direction, whereby the said other sash may be opened without interfering with the locking member.

2. A sash-lock, comprising a vertically-swinging latch, which has its locked position at its lowermost limit, and its unlocked position at its uppermost limit, means for detachably holding the latch in its unlocked position, an upwardly and inwardly elastically yieldable sash-engaging trip pivoted to the latch and projected laterally therefrom, and means for locking the trip against independent movement downwardly upon the latch.



3. A lock, comprising a movable locking member, which has its locked and unlocked positions at the opposite limits of its movement, an elastically-yieldable trip pivoted to the latch, and having its outer free end projected laterally beyond the front side thereof in the unlocked position only of the latch, and a stop-shoulder carried by the latch, located between the inner end of the pivotal trip and the free end of the latch, and normally in engagement with said inner end of the trip, whereby the latter is locked against independent motion in one direction and is free to yield in the opposite direction.

4. A sash-lock, comprising a swinging latch, which has its locked and unlocked positions at its opposite limits, and swings through an arc of substantially one hundred and eighty degrees, one end of the latch having a pivotal support, and its opposite free extremity forming the sash-engaging locking part, and a sash-engaging trip pivotally mounted upon the latch intermediate of its ends, said trip being elastically yieldable inwardly and toward the free end of the latch, and interlocked with the latch against independent movement thereon in the opposite direction.

5. In a sash-lock, the combination with a casing having a longitudinal slot in its outer side, of a swinging latch having its inner end pivoted within the casing and substantially midway between its opposite ends, and having a swing through the slot into the opposite end portions of the casing, the locked and unlocked positions of the latch being at opposite limits thereof, the free end of the latch being projected laterally outward through the slot in the locked position thereof, and lying wholly within the casing in its unlocked position, and a sash-engaging trip pivoted upon the latch and normally projected at one side thereof, said trip being elastically yieldable toward the free end of the latch, and interlocked with the latch against independent movement in the opposite direction, the trip being projected laterally outward through the slot of the casing in the unlocked position of the trip, and located between the latch and the back of the casing in the locked position of the latch.

6. A sash-lock, comprising a swinging latch, a pivotal support therefor, said latch having one side recessed about the pivotal support, the inner wall of the recess having a transverse stop-shoulder portion and an outwardly-inclined portion, a trip received within the recess and pivotally mounted upon the pivotal support of the latch, one end of the trip being in engagement with the stop-shoulder in the inoperative position of the latch, and its opposite free end projecting laterally beyond the edge of the latch, and a spring interposed between the free portion of the trip and the inclined shoulder.

7. A sash-lock, comprising a swinging latch, a detachable latch-holding device at the operative limit of the latch, means for disengaging the same, a detachable latch-holding device at the opposite inoperative limit of the latch, and a window-sash-engaging trip carried by the latch and projected into operative position only when the latch is in its inoperative position.

8. In a lock, a movable locking member, a holding device therefor, which is mounted independently of the part to be locked and engaged with the locking member in its locked position only, and means for disengaging the holding device from the locking member, and carried solely by the latter.

9. A sash-lock, comprising a swinging latch, having a notch in its free end, and an open-ended slot opening into said notch, a pivotal latch-holding detent for engagement with the notch, and a slidable pin working in the slot, one end of the pin extending into the notch, and the opposite end having an operating-bead or finger-piece.

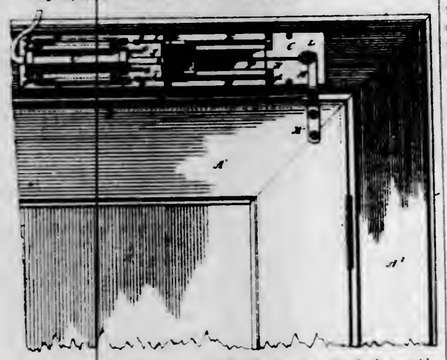
10. In a sash-lock, the combination with a casing, having a longitudinal slot or opening, of a swinging latch having one end pivoted in-

termediate of the ends of the casing, a notch in its free end, and a diagonal slot opening at one end through the outer edge of the latch and at the opposite end into the notch, a latch-holding detent pivoted within the casing and normally in engagement with the notch, and a longitudinally-slidable detent-disengaging pin working in the slot, and having its outer end provided with a finger-piece received within a recess formed in the outer edge of the latch.

11. In a sash-lock, the combination with a casing, of a longitudinally-swinging latch pivoted intermediate of the ends of the casing, a spring-actuated latch-holding detent at one end of the casing, a slidable detent-disengaging device mounted upon the latch, and having an exposed finger-piece, and a yieldable latch-holding device mounted at the opposite end of the casing.

12. In a sash-lock, the combination with a casing, having an intermediate pivot-stud, of a swinging latch mounted upon said stud, and provided in opposite sides with recesses surrounding the stud, a coiled spring received in one of the recesses and connected at opposite ends to the stud and the latch, a trip received within the other recess and pivotally mounted upon the stud, one wall of the recess forming a stop-shoulder in engagement with one end of the trip, a spring interposed between the opposite end of the trip and the adjacent wall of the recess, a latch-holding device at one end of the casing, means for disengaging the detent carried by the latch, and detachable latch-holding means at the opposite end of the casing.

680,812. **DISINFECTING APPARATUS.** MICHAEL SHERIDAN, New York, N. Y., assignor to Wallace Rosenheim, same place. Filed July 13, 1900. Serial No. 23,986. (No model.)



Claim.—1. In an apparatus of the character specified, the combination with an atomizing device of an air-forcing apparatus connected thereto having a recessed portion, a device adapted to engage said recessed portion, means for operating said device to engage the recessed portion and cause the air-forcing apparatus to draw in air, and means for releasing said device and retract the air-forcing apparatus to expel the air therefrom and operate the atomizer, substantially as specified.

2. In an apparatus of the character specified, the combination with an atomizing device, of an air-forcing apparatus connected thereto, a reciprocating carriage, a connecting-section carried thereon; said connecting-section serving to maintain said carriage and air-forcing apparatus normally united, means for actuating said carriage to operate the air-forcing apparatus, and means for breaking the connection between said carriage and air-forcing apparatus whereby to cause the latter to operate the atomizing device, substantially as specified.

3. In an apparatus of the character specified, the combination with an atomizing device, of an air-pump connected thereto having a piston and rod therein, the end of said piston-rod projecting beyond the top of the pump, and provided with a recess, a carriage movably supported adjacent to the top of the pump, a detent pivotally secured thereto adapted to engage the recessed end of the piston-rod, means for operating said carriage to cause the detent to partly withdraw the piston-rod from the pump, means for releasing said detent of its engagement with the recessed end of said piston-rod, and means for retracting said carriage and rod and piston carried by said rod after the same is released from the detent, substantially as specified.

4. In an apparatus of the character specified, the combination with an atomizing device, of an air-pump connected thereto, a piston therein having a rod secured thereto extending through the end of said pump, a recess in its projecting end, guides arranged adjacent to the end of said pump, a carriage supported thereon and adapted to reciprocate toward and from the end of said pump, a detent pivotally supported upon said carriage adapted to engage the recessed end of the piston-rod, means for operating said carriage and detent to partly withdraw the piston-rod from the pump, a device adapted to release said detent of its engagement with the recessed end of the piston-rod, and spring means for retracting said carriage and piston and rod, and reëstablish the connection between the carriage and the end of said piston-rod, substantially as specified.

5. In an apparatus of the character specified the combination with an atomizing device, of an apparatus adapted for securement to a rigid support comprising an air-pump connected to said atomizing device, a piston in said pump having a rod secured thereto extending through the end of said pump, a recess in its projecting end, guides arranged adjacent to the end of said pump, a carriage supported thereon, a detent adapted to engage the recessed end of the piston-rod, and a flexible connection having one end secured to the carriage aforesaid and its other end adapted for securement to a movable support whereby to operate the said carriage and the detent carried thereby to partly withdraw the piston-rod from the pump, a device adapted to release said detent of its engagement with the end of the piston-rod, and coil-springs for retracting said carriage and piston and reëstablish the connection between the carriage and the end of piston-rod, substantially as specified.

6. An apparatus for the purposes specified comprising a base, a cylinder mounted thereon, a piston working therein having a rod secured thereto extending through the end of said cylinder a distended coil-spring surrounding said rod within the cylinder, a recess and guides provided upon the projecting end of said rod, guides arranged adjacent to the end of said cylinder, a block arranged upon the base between said guides having a beveled end, a carriage supported upon said guides, a shaft supported in said carriage having arms at its ends and a detent secured to said shaft intermediate the arms provided upon its under side with a supporting-guide adapted to contact with the block between the guides aforesaid, coil-springs having their ends secured to the base of the cylinder and to the arms of the shaft supported on the carriage, a pulley, and a flexible connection having one end secured to the carriage and its other end passed over the pulley and adapted for securement to a movable support, substantially as specified.

680,813. **AUTOMATIC GAS-IGNITING DEVICE.** ANGELO SIMONINI, Gloucester City, N. J. Filed June 5, 1901. Serial No. 63,306. (No model.)



Claim.—1. A lighter for gases and vapors, comprising in combination a preliminary heater; a secondary heater consisting of rare earths and rhodium; and an igniter containing rare earths and rhodium, the rhodium being present in the igniter in a percentage of substantially two one-hundredths of one per cent.

2. A lighter for gases and vapors, comprising in combination, a preliminary heater; a secondary heater consisting of a body of fibrous material impregnated with a solution containing thorium nitrate ninety-nine per cent., cerium nitrate and rhodium chlorid, the cerium nitrate being present in a greater percentage than the rhodium chlorid; and an igniter consisting of ninety-nine per cent. thorium nitrate, cerium nitrate and rhodium chlorid, the rhodium chlorid being present in a percentage of substantially two one-hundredths of one per cent.

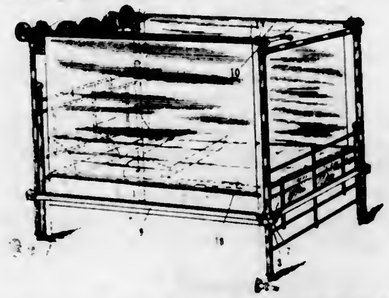
3. A lighter for gases or vapors, comprising in combination, a preliminary heater; and a body of fibrous material in close relation to said heater, said body being treated with a solution consisting of nitrates of rare earths and rhodium chlorid, and the upper portion of the webbing being subsequently treated with a second solution containing the same constituent elements, the rhodium chlorid being present in a greater percentage.

4. A lighter for gases or vapors, comprising in combination, a preliminary heater of platinum-black; and a body of fibrous material in close relation thereto, said body being impregnated with a solution of rare earths and a metal of the platinum group to form an igniter; and a portion of said body being also treated with a second solution to form an intermediate heater, said solution containing the same constituent elements with the metal present in a greater percentage and amounting to substantially two-tenths of one per cent.

5. A lighter for gases or vapors, comprising in combination, a preliminary heater of platinum-black; an igniter comprising a body of fibrous material impregnated with a solution of thorium nitrate ninety-nine per cent., cerium nitrate ninety-eight one-hundredths of one per cent., and rhodium chlorid two one-hundredths of one per cent.; and an intermediate heater formed on the fibrous body with a solution containing ninety-nine per cent. thorium nitrate, and the remaining one per cent. composed of cerium nitrate and rhodium chlorid, the chlorid being present in a quantity amounting to substantially two-tenths of one per cent.

6. A lighter for gases or vapors, comprising in combination, a preliminary heater of platinum-black; an igniter comprising a body of fibrous material surrounding the same, said body being impregnated with a solution of thorium nitrate ninety-nine per cent., cerium nitrate ninety-eight one-hundredths of one per cent., and rhodium chlorid two one-hundredths of one per cent.; and an intermediate heater formed on the upper portion of the fibrous body with a solution containing ninety-nine per cent. thorium nitrate, eight-tenths of one per cent. cerium nitrate, and two-tenths of one per cent. rhodium chlorid, said solution being applied in gradually-decreasing quantity from the upper end of the fibrous body toward the lower end thereof.

680,814. **INVALID'S BED.** PATRICK C. SMITH, Indianapolis, Ind. Filed Dec. 19, 1900. Serial No. 40,355. (No model.)



Claim.—1. A bed attachment consisting of a head-frame and foot-frame, a brace detachably connecting said frames at each side thereof, a pair of shafts, means carried by said frames for supporting said shafts, and a band attached to said shafts.

2. A bed attachment consisting of a head-frame and foot-frame, a brace detachably connecting said frames at each side thereof, a pair of shafts, yokes carried by said frames and adapted to receive said shafts, a band secured to said shafts, gears connecting said shafts, for simultaneous movement, and means for disconnecting said gears to allow independent movement of the shafts.

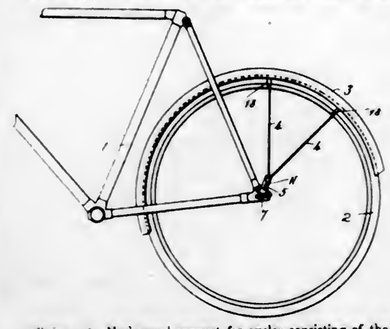
680,815. **SQUARE.** LAROY S. STARRETT, Athol, Mass. Filed Dec. 31, 1900. Serial No. 41,571. (No model.)



Claim.—1. In a separable square, the detachable blades A B in combination with the links C C projecting from one blade and having terminal perforations c and with the eccentric stud D E F occupying the perforations in said links and filling the aperture in the other blade, interposed between them, substantially as set forth.

2. The improved square herein described, comprising the blades A B, the links C C pivoted to and projecting from one of said blades, and the connecting-stud having a cylindrical head and tip occupying perforations in said links, and an intermediate eccentric portion filling a perforation in the other blade, the parts being so located as to be tightened, and loosened for separation, by partial rotation of such stud, substantially as set forth.

680,816. **MUD-GUARD FOR CYCLES.** WILLIAM J. STEVENS, London, HENRY E. HARROLD, Lewisham, and FREDERICK R. BLUEMEL, London, England. Filed Mar. 5, 1900. Serial No. 7,439. (No model.)



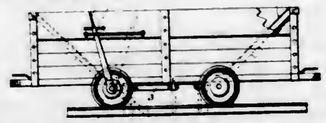
Claim.—1. Mud-guard support for cycles consisting of the combination of spindle attachments, detachable stays adapted to be attached at one end to said attachments and provided at the other end with bent portions, and a bridge-piece adapted to be attached to the mud-guard and possessing open ends provided with slots for the reception of the bent portions of the stay-ends, substantially as described.

2. Mud-guard support for cycles consisting of the combination of adjustable spindle attachments, detachable stays adapted to be attached at one end to said attachments and provided at the other end with bent portions, and a bridge-piece adapted to be attached to the mud-guard and possessing open ends provided with slots for the reception of the bent portions of the stay-ends, substantially as described.

3. Mud-guard support for cycles consisting of the combination of spindle attachments, detachable stays adapted to be attached at one end to said attachments and provided at the other end with bent portions, and a bridge-piece adapted to be attached to the mud-guard and possessing open ends provided with slots for the adjustable reception of the bent portions of the stay-ends, substantially as described.

4. Mud-guard support for cycles consisting of the combination of the plate 20 with the raised slotted portion 14 adapted to be fixed on the spindle, the stays 4, 4 with bent outer ends and with a bent portion at their spindle ends to engage with the slotted portion 14, the bridge-piece 18 with open ends and slots 19, 19 therein for the adjustable reception of the outer ends of the stays, substantially as described.

680,817. **DUMPING-CAR.** JULIUS F. STONE, Columbus, Ohio, and CHARLES C. SHARP, Boomer, W. Va. Filed May 31, 1901. Serial No. 62,522. (No model.)



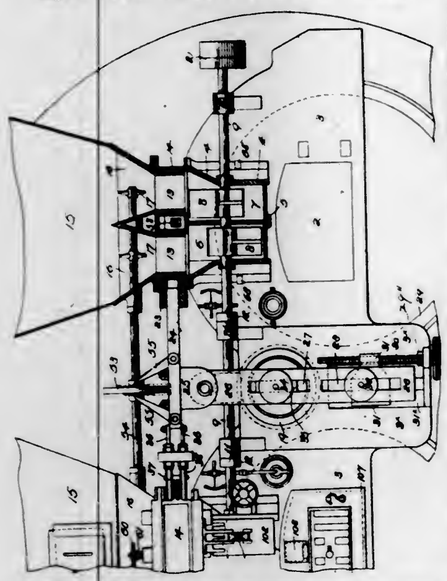
Claim.—1. In combination with a car having its bottom inclined at its ends toward an opening in the bottom of the car between the axles, a door or doors hinged so as to close said opening, a yoke journaled and rockable in a plane approximately at right angles to the direction of movement of the door or doors arranged to close and support said door or doors, and a lever attached to said yoke for operating the same substantially as described.

2. In combination with a car having its bottom inclined at its ends toward an opening in the bottom of the car between the axles, a door or doors hinged so as to close said opening, a rockable yoke-like axle arranged to support and close said door or doors, and a lever attached to said yoke-like axle for operating the same, substantially as described.

3. In combination with a car having its bottom inclined at its ends

toward an opening in the bottom of the car between the axles, a door or doors hinged longitudinally with respect to the car so as to close said opening, a yoke journaled transversely of the car and reaching under the edge of the door or doors when open, and a lever connected with said yoke to operate the same, substantially as described.

680,818. STEAM-GENERATOR. WILLIAM G. STONES, Blackburn, England. Filed Nov. 21, 1898. Serial No. 697,090. (No model.)



Claim.—1. In steam-generator and other furnaces, the combination therewith of one or more slides, or fuel-feed boxes, working at right angles to the boiler-front; a fan-box and fan, or fans, beneath said slides; a fuel-feed hopper above said fan-box and slide or slides; a bed or base plate carrying said fan-box and hopper; a rocking lever with variable fulcrum; means for imparting the motion of said lever to the said slides and controlling the movements of said slide or slides; inclined articulated fuel-distributing plates; means for adjusting and indicating the position of such plates and their supporting-bracket; and a flow and return tube with openings in the return-passage, as set forth.

2. In steam-generator and other furnaces, the combination of one or more slide-boxes; a screw upon the end of each box; a nut on said screw with finger or extension formed with opening a "swivel" or crank engaging with said finger; a rod with pin engaging with fork on said swivel; a bracket carrying said rod; a cross-bar carrying said bracket; a lever suspended from said cross-bar; a fulcrum engaging with said lever; an adjustable bracket or block carrying said fulcrum; a screw for adjusting said block; an eccentrically-mounted block engaging with the upper end of said lever; a wheel carrying said block and driven by any suitable means, as set forth.

3. In steam-generator and other furnaces, the combination of a supporting-bracket; a distributing-plate hinged at an angle thereto; a further distributing-plate hinged to the top edge of said plate, and means for maintaining said plates in proper relation to each other, as set forth.

4. In combination, a supporting bracket or brackets, two sets of inclined articulated distributing-plates; a lever or levers for supporting said bracket, or brackets, and plates; means for effecting the adjustment of said lever or levers; a set of links or rods connected with said plates, a screwed boss through which each of said rods passes; a support or bracket for carrying said boss; and a hand-wheel for operating said boss with, or without, index and pointer, as set forth.

5. In combination, the fuel box and slide, a rocking lever connected to the slide; a fulcrum engaging said lever; a block carrying said fulcrum; a screw for adjusting said block; a pin or stud eccentrically mounted upon a worm-wheel engaging the upper end of said lever; a worm gearing with said worm-wheel; a shaft carrying said worm; and means for driving the said shaft.

6. In combination, a cross-bar, a rocking lever, a fulcrum engaging with said lever, a sliding block carrying said fulcrum, a screw for adjusting said block, a bracket through which said screw passes, a collar for preventing said screw traveling, as set forth.

7. In combination, a cross-bar, a pawl or pawls upon said cross-bar; a shaft above said pawls; a face-ratchet wheel upon said shaft; and a set of agitators on the said shaft situated in the throat or throats of feed-hoppers, as set forth.

8. In combination, a set of bed-plates, and fan-boxes, one plate for each fan-casing, and one for supporting the gearing mechanism, so arranged as to allow for their independent expansion or contraction, as set forth.

9. In combination, a fan-casing with tapered sides, divided by a vertical partition, a frame upon said casing with an opening for inspection of feed, provided with a cover or lid, relief-door, spring and bracket casing for containing the slide-box-operating mechanism, as set forth.

10. The herein-described center motion comprising a lever, a rising-and-falling fulcrum therefor with means for adjusting the same, worm-gearing and an eccentric-pin for connecting the worm-gearing with the lever, substantially as described.

680,819. COPPER ALLOY. BERTRAND S. SUMMERS, Chicago, Ill., assignor to the Western Electric Co., same place. Filed Jan. 4, 1899. Serial No. 701,125. (No specimens.)

Claim.—The herein-described alloy having substantially the properties of pure copper and being capable of being readily cast, the said alloy consisting of approximately one-tenth of one per cent. of magnesium and commercially-pure copper.

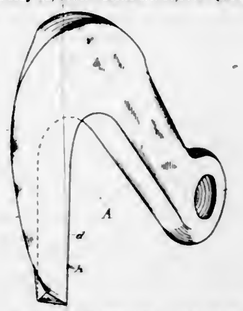
680,820. LUBRICATING DEVICE FOR GAS-ENGINES. GUSTAV A. THODE, Osmond, Nebr. Filed Feb. 3, 1898. Serial No. 669,030. (No model.)

Claim.—In a gas-engine, a cylinder having an internally-grooved annular shoulder at its open end, and having an oil-inlet on top communicating with said groove, a cylindrical piston in the cylinder, packing-rings in the groove at a distance apart, one upon each side of the oil-inlet, whereby oil from the inlet may pass from the inlet to all points between the rings, and power-transmitting mechanism connected with the piston, substantially as described.

680,821. HEN'S NEST. KEAN O. TREMBER, Frankfort, Ky. Filed Oct. 27, 1900. Serial No. 34,631. (No model.)

Claim.—A hen's nest comprising a box consisting of a fixed back having a suspending portion projecting above the top of the box and perforated, fixed sides having their upper forward corners rounded, a bottom projecting beyond the front of the box to form a step, a removable board closing the lower portion of the front of the box and having its lower edge cut away to fit over said projecting bottom, hooks and eyes carried by the ends of the removable front board and sides of the box for securing said front board in position, and a top hinged at its rear edge to the suspending portion of the back, and at its front edge projecting to the front edges of the sides of the box and freely movable upwardly at its front end, substantially as described.

680,822. LOGGING HOOK OR DOG. ANDREW UREN, Seattle, Wash. Filed May 22, 1900. Serial No. 17,577. (No model.)



Claim.—1. A logging-dog provided with a log-entering bill portion having a convex side.

2. A logging-dog provided with a log-entering bill portion having convex sides.

3. A logging-dog provided with a log-entering bill portion having sides which meet in a sharp edge at the rear of the said bill, one of said sides being convex.

4. A logging-dog provided with a log-entering bill portion having convex sides which meet in a sharp edge.

5. A device of the class described having the log-entering bill portion thereof formed with convex side surfaces converging outwardly from the face and meeting in a sharp edge extending upwardly and diverging from said face in a curve from a point adjacent the nose to the head of said bill.

6. A device of the class described having the log-entering bill portion thereof formed with a wide face and convex side surfaces converging outwardly from the edges thereof and meeting in a sharp edge extending upwardly and diverging from said face in a curve from a point adjacent the nose to the head of said bill, and a surface diverging upwardly from the lower edge of said face to form therewith a substantially V-shaped nose.

7. A device of the class described having the bill portion thereof formed with a wide face and convex side surfaces converging outwardly from the side edges thereof and terminated in a sharp edge extending upwardly and diverging from said face in a substantially elliptical curve from a point closely adjacent the nose to the head of said bill, and a smooth surface diverging upwardly from the lower edge of said face to form therewith a substantially V-shaped nose.

680,823. APPARATUS FOR RAISING OR LOWERING SHIPS' BOATS, &c. AXEL WELIN, London, England. Filed May 27, 1901. Serial No. 62,103. (No model.)

Claim.—1. The combination of a davit, a pivot about which the davit can turn, guides for the pivot, a toothed segment at the lower end of the davit, and a rack on which the segment can roll.

2. The combination of a davit, a pivot about which the davit can turn, guides for the pivot, means for controlling the movement of the pivot in the guides, a toothed segment at the lower end of the davit, and a rack on which the segment can roll.

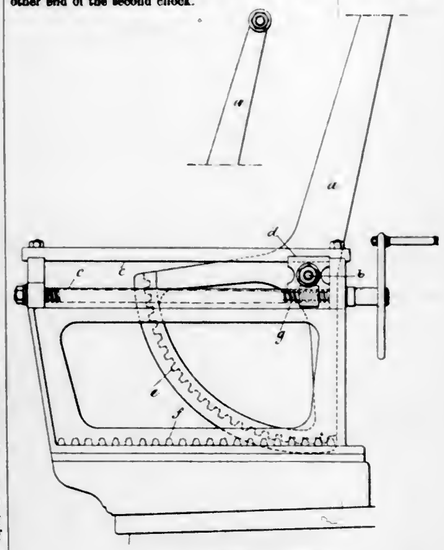
3. The combination of a davit, a pivot about which the davit can turn, a block carrying the pivot, guides for the block, a nut fixed to the block, a screw working in the nut, a toothed segment at the lower end of the davit, and a rack on which the segment can roll.

4. The combination of a davit, means for moving the top of the davit outward, a stationary chock, a second chock supported at one end by the first, and links supporting the other end of the second chock.

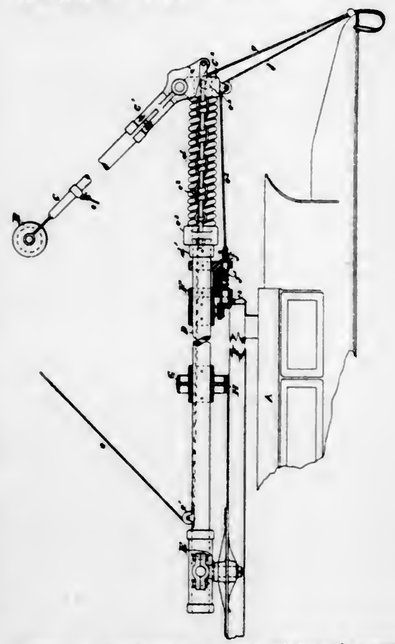
5. The combination of a davit, a pivot about which the davit can turn, guides for the pivot, a toothed segment at the lower end of the davit, a rack on which the segment can roll, a stationary chock, a second chock supported at one end by the first, and links supporting the other end of the second chock.

6. The combination of a davit, a pivot about which the davit can turn, guides for the pivot, means for controlling the movement of the pivot in the guides, a toothed segment at the lower end of the davit, a rack on which the segment can roll, a stationary chock, a second chock supported at one end by the first, and links supporting the other end of the second chock.

7. The combination of a davit, a pivot about which the davit can turn, a block carrying the pivot, guides for the block, a nut fixed to the block, a screw working in the nut, a toothed segment at the lower end of the davit, a rack on which the segment can roll, a stationary chock, a second chock supported at one end by the first, and links supporting the other end of the second chock.



680,824. CONTACT DEVICE FOR ELECTRIC RAILWAYS. GEORGE WESTINGHOUSE, Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, same place. Filed Feb. 28, 1896. Serial No. 581,147. (No model.)



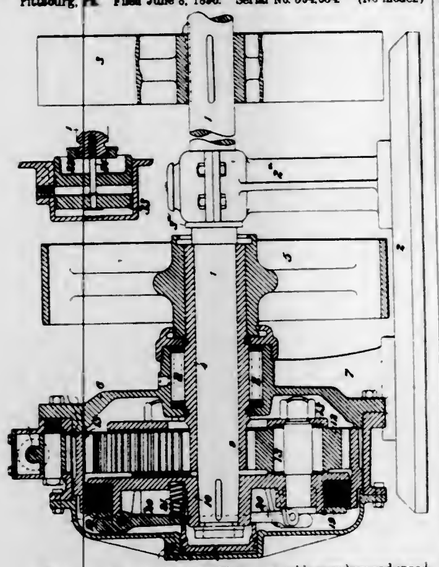
Claim.—1. In combination with a reversible boom the supporting-rollers G and h h, and their respective track-plates, and a locking device for securing the boom in either of two positions.

2. A contact device for electric railways consisting of a cylindrical roller, a frame carrying the same, an arm or support therefor movable in a vertical plane, a spring tending to lift said support, a horizontal boom carrying the support and pivoted at or near the center of the car-roof, a seat for the boom at each end of the car, wheels carried by the boom and riding upon said seat, and depressions in the seat for receiving the wheels.

3. A contact device for electric railways consisting of a cylindrical roller, a frame or fork by which said roller is supported and movable lateral extensions constituting continuations of the contact-surface of said roller.

4. A contact device for electric railways consisting of a cylindrical roller, a cast-metal fork between the arms of which said roller is carried, a shaft extending through the roller and journaled in the arms of said fork and removable extension-pieces constituting prolonged contact-surfaces, substantially as and for the purposes described.

680,825. **SPEED-CHANGING GEARING.** GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed June 8, 1896. Serial No. 594,654. (No model.)



Claim.—1. The combination with two rotatable members and speed-changing gearing intermediate the same, of two sets of clutching devices having springs that act simultaneously to insure rotation of said members at the same speed and means for applying fluid-pressure to said two sets of clutching devices simultaneously to overcome the action of said springs and insure rotation of said members at different speeds.

2. A speed-changing gear comprising two rotatable shafts, gearing connecting said shafts, two sets of adjustable clutching devices having springs for normally holding the respective devices in locking and in releasing positions and means for applying fluid-pressure to simultaneously overcome the action of said springs.

3. The combination with a rotatable shaft, and a sleeve loosely mounted thereon, of a head keyed to said shaft, a pinion on said sleeve, an internally-toothed gear-wheel journaled independently of said shaft and sleeve, intermediate gear-wheels mounted upon said head and meshing with said pinion and said internally-toothed wheel, and means operated by springs for clutching and by fluid-pressure for unclutching said head and said internally-toothed wheel.

4. The combination with a shaft and a sleeve mounted and rotatable thereon, a head rigidly mounted on said shaft, speed-changing gearing between said head and said sleeve, a spring-actuated friction-clutch normally locking said gearing and clutch-releasing means operated by fluid-pressure to overcome the spring action and thereby permit of the rotation of the shaft and sleeve at different speeds.

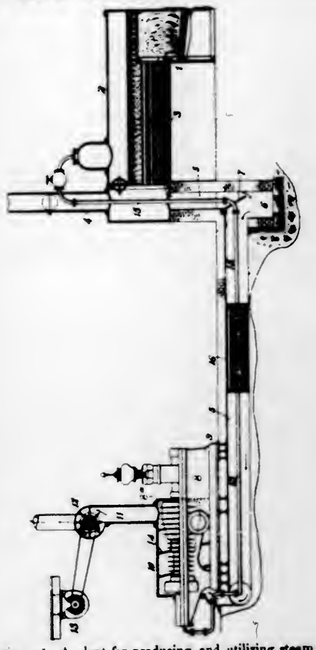
5. The combination with a shaft and a sleeve rotatably mounted thereon and provided with a pinion, of an internally-toothed gear-wheel, a head keyed to said shaft and provided with a plurality of intermediate gear-wheels meshing with said pinion and with said internally-toothed wheel, means actuated by spring and air pressure for locking and releasing said internally-toothed wheel, a friction-clutch between said wheel and the head carrying the intermediate gear-wheels, springs for normally holding the members of the clutch in engagement and air-pressure actuated means whereby said clutch members may be separated when the shaft and sleeve are to be rotated at different speeds.

6. The combination with an annulus provided with internal gear-teeth and external notches, a casing having a circumferential bearing for said annulus and a pivoted locking-dog, of air-cylinders and pistons normally holding said dog out of engagement with said annulus, but movable into the notches therein when the air-pressure is applied, a shaft, bearings therefor, a sleeve on said shaft, having a pinion and provided with roller-bearings, a head keyed to said shaft and provided with a plurality of bearing-studs, gear-wheels mounted on said studs and meshing with the toothed annulus and the sleeve-pinion, a set of annular plates carried by said annulus, a similar set carried by the shaft-head and alternating with the first set, spring-actuated levers normally pressing said plates together, and an air-cylinder and piston for actuating said levers to release the clutch-plates from engagement.

7. The combination with a shaft mounted in suitable bearings, of a rotatable sleeve mounted on said shaft and provided with a pinion, an annulus concentric with said pinion and provided with internal gear-teeth, a casing surrounding said annulus and constituting the sole bearing therefor, a plurality of gear-wheels meshing with said pinion and said annulus, a support for said gear-wheels rigid with the shaft and a friction-clutch between said support and said annulus.

8. The combination with a shaft, and a loose gear-wheel, of a second shaft having a pinion rigid therewith, a plurality of gear-wheels supported from the first-mentioned shaft and gearing with said loose gear-wheel and said pinion, a friction-clutch between the first-named shaft and the loose gear-wheel and means actuated by air-pressure for locking the latter when said shafts are to be rotated at different speeds.

680,826. **MEANS FOR UTILIZING GASEOUS PRODUCTS OF COMBUSTION.** GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Jan. 27, 1899. Serial No. 703,555. (No model.)



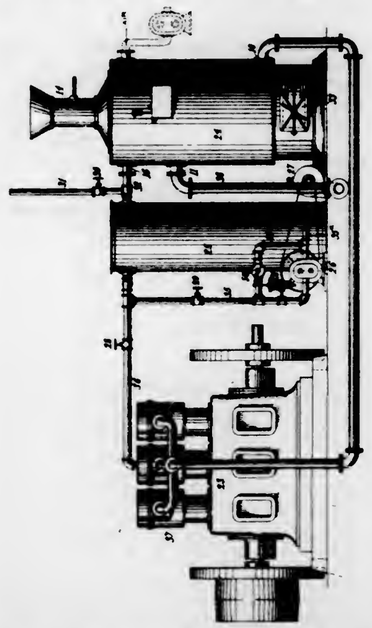
Claim.—1. A plant for producing and utilizing steam, comprising a boiler and its furnace, a steam-engine, a casing surrounding the steam-using portion of the engine and provided with deflecting-ribs, a conduit for the gaseous products of combustion leading from the furnace to the engine-casing, a steam-pipe leading from the boiler to the engine and located in said conduit and an exhaust-flue for the engine-casing provided with an exhaust-fan.

2. A plant for producing and utilizing steam comprising one or more boilers, and one or more furnaces, one or more steam-engines, the steam-using portions of which are provided with a casing or with casings having heat deflecting or retarding means, a pipe for conducting steam from the boiler or boilers to the engine or engines, and a conduit for conducting gaseous products of combustion from the furnace or furnaces to the steam-engine casing or casings, said steam-pipe extending through said conduit to the engine casing or casings.

3. In a steam producing and utilizing plant, a boiler and its furnace, a steam-engine and a casing for the steam-using portion thereof having heat-deflecting devices, a flue or conduit connecting said furnace with said casing, means for causing the gaseous products of combustion to traverse said conduit, a steam-pipe extending through said conduit between the boiler and the engine, and an auxiliary heating-drum located in said conduit.

4. In a steam producing and utilizing plant, a boiler and its furnace, a steam-engine and a casing for the steam-using portion thereof having heat-deflecting devices, a flue or conduit connecting said furnace with said casing, means for causing the gaseous products of combustion to traverse said conduit and a steam-conduit connecting the boiler with the engine and embodying a drum which is subjected to the heat of the gaseous products of combustion.

680,827. **GAS-PRODUCER.** GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Jan. 15, 1901. Serial No. 43,431. (No model.)



Claim.—1. The combination of a gas-engine, a producer, having two passages in its inclosing wall, means for passing the exhaust products of combustion from the engine through one passage and the air-supply of the producer through the other passage, thereby raising the temperature of the air by the heat contained in the exhaust products of combustion, and means for passing the air thus heated upward through the fuel-bed of the producer.

2. The combination of a gas-engine, a producer, means for passing the exhaust products of combustion from the gas-engine into and through a jacket embracing the producer, and means for forcing air into the producer through a jacket adjacent to the first-named jacket.

3. The combination with a gas-engine and the refractory wall surrounding the fuel-chamber of a gas-producer, of an air-jacket surrounding the refractory wall, means for securing an enforced circulation of air through the jacket and into the producer, and means for passing the exhaust from the gas-engine into proximity to the wall of the fuel-chamber.

4. The combination with a gas-engine and producer, of gas-passages embracing the producer, means for passing hot exhaust products from the gas-engine through such passages, and means for transmitting heat therefrom to the air entering the producer.

5. The combination in a gas-producer, of a producing-chamber, an inclosing wall for maintaining a high temperature in the producer, and two open passages surrounding the wall, one for the circulation of hot air into the producer and the other for receiving hot gases.

6. The combination of a gas-engine, a gas-producer, a passage for the exhaust-gas from the engine surrounding the gas-producing chamber, and an air-passage intervening between the exhaust-passage and the gas-producing chamber.

7. The combination with a gas-engine, of a gas-producer having air and gas passages surrounding the fuel-bed, means for passing air in one direction through the air-passages, and means for passing the hot products of combustion from the engine through the gas-passages in the opposite direction.

8. The combination of a gas-engine, a producer for supplying gas for the operation of the engine, air and gas passages enveloping the fuel-bed of the producer, the gas-passages being contiguous to the air-passages, connections from one end of the air-passages to the atmosphere and from the other end thereof to the lower portion of the fuel-bed, and connections from the gas-engine exhaust to one end of the gas-passages, substantially as describe..

9. A gas-producer consisting of a fuel-compartment, a refractory lining therefor, rings embracing the lining constructed with two passages respectively forming continuous air and gas passages whereby hot gases passing through one set of passages impart heat to air passing through the other set of passages.

10. In a gas-producer, the combination of a gas-producing compartment, its wall of refractory material, encircling rings of iron having annular division-walls forming two compartments, radiating lugs extending into the compartments, and an outer shell or covering of refractory or heat-retaining material surrounding said rings.

11. In a gas-producer, the combination with the wall of refractory material, of a shell of cast-iron consisting of superposed rings having vertical division-walls forming each ring into two compartments, and connections from the respective compartments of each ring to the corresponding compartments of the adjacent rings whereby continuous passages are formed therethrough.

12. The combination with the refractory wall of a gas-producer, of heating and heat-imparting passages surrounding the same and constituting, respectively, air and gas passages, the gas-passage surrounding the air-passage.

13. In a gas-producer, the combination of the refractory lining of the producer, a wall encircling the producer provided with two passages, one for extracting heat from hot gases traversing the same and the other for imparting heat to air on its way to the producer, and a third compartment leading from the upper portion of the producer to the outlet thereof whereby heat is extracted from the produced gas and imparted to the entering air, substantially as described.

14. In a gas-producer, the combination of an annular passage for admitting air to the producer, a gas-passage for receiving hot products of combustion for heating the air-passage, means for maintaining a supply of water in the air-passage, and automatic means for regulating the amount of water thus maintained, substantially as described.

15. The combination with a gas-producer and gas-engine and means for passing products of combustion from the gas-engine into heat-radiating relation to the producer, of an incinerator, and means for heating the incinerator by the hot gases from the producer, thereby both cooling the gas and utilizing the heat.

16. The combination with a gas-engine, of a gas-producer, means for supplying gas from the producer to the gas-engine, and means for passing exhaust products of combustion through a jacket surrounding the producer.

680,828. **GAS-PRODUCER.** GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Apr. 25, 1901. Serial No. 57,366. (No model.)



Claim.—1. The combination in a gas-producer, of a producing-chamber, an inclosing wall for maintaining a high temperature within the producer consisting of an inclosing cylindrical space, tubes extending therethrough, thereby forming two passages, connections with the lower ends of the tubes for receiving hot gases, an exit from the upper ends of the tubes, connections with the upper end of the passages outside the tubes for admitting air to said passages, and connections from the lower ends of the air-passages to the bottom of the producer, whereby hot gases pass upward through the tubes and air to be heated passes downward about the same and into the producer.

2. The combination in a gas-producer, of a producing-chamber, a

cylindrical space surrounding the same, tubes extending therethrough, the said tubes forming one set of passages and the space around the tubes forming another set of passages, means for conveying air in a downward direction through one set of passages and into the producing-chamber, and means for conveying hot gases in an upward direction through the other set of passages.

3. The combination in a gas-producer, of a producing-chamber, a cylindrical space inclosing the same, an air-inlet and an outlet leading to and from said space, tubes extending through said space, connections with the lower ends of the tubes for receiving hot gases, a chamber above the ends of the tubes, a steam-coil inclosed therein, exits from said tubes into the last-named chamber, and means for passing hot gases through said tubes.

4. The combination in a gas-producer, of a producing-chamber, a cylindrical space inclosing the same, tubes extending through said space, a hot-gas chamber at the lower end of the said tubes, and a chamber at the upper end thereof, containing a steam-coil, the tubes serving to connect the said chambers, and an injector adapted to inject steam into the space around the tubes, said space being connected to the lower end of the producing-chamber and being adapted to receive air in combination with the steam.

5. The combination in a gas-producer, of a producing-chamber, two sets of passages surrounding the same, one for conveying hot gases in an upward direction and the other for conveying air in a downward direction into the bottom of the producer, a chamber above the hot-gas passages, with which said passages are connected, a steam-coil in the said chamber, terminating in an injector which communicates with the entrance of the air-passages.

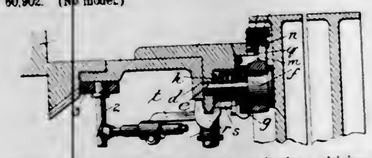
6. The combination in a gas-producer, of a top therefor formed with an annular groove or depression for receiving steam-coils, a cap having a similar groove or reentrant portion adapted to register with the groove or depression in the top of the producer, and a substantially horizontal steam-coil a part of which is located in the said groove or depression, and a part in the reentrant portion of the cap when the latter is in place.

7. In a gas-producer, a producing-chamber, a steam-coil combined therewith, a portion of the said coil being located within the producing-chamber, and an annular chamber surrounding the upper end of the producing-chamber and constituting a separated compartment containing another portion of said coil.

8. In a gas-producer, the combination of a producing-chamber, a cylindrical inclosing space therefor, gas-tubes extending through said space leaving air-passages about them, and an annular air-heating chamber at or near the upper end of the producer, communicating with said air-passages.

9. The combination with a source of hot gases, of a gas-producing chamber, an inclosing heater therefor consisting of passages for hot products of combustion, connections from the heater to a stack, connections from the producing-chamber to a gas-exit and also to the said stack, and means for controlling the openings of said connections respectively, whereby a draft can be secured for the producer through the stack, or by the same device the products of combustion can be carried off from the source of hot gases after traversing the producer-walls.

680,829. **BRAKE MECHANISM FOR KNITTING-MACHINES.** FRANK WILCOMB, Norristown, Pa. Filed May 18, 1901. Serial No. 60,902. (No model.)



Claim.—1. In combination in a brake mechanism, a driving-pulley, a brake-shoe, an eccentric, a strap operated thereby and connected with the brake-shoe, a lever connected with the eccentric and a coiled spring encircling the axis of the eccentric and connected with the lever, substantially as described.

2. In combination in a brake mechanism, a driving-pulley, a brake-shoe, an eccentric and an eccentric-strap connected to the shoe, a lever for operating the eccentric and a trip-lever for controlling the eccentric-lever, said trip-lever having a yielding plunger to be engaged by a part of the machine, substantially as described.

3. In combination in a brake mechanism, a driving-pulley, a brake-shoe to engage the same and means for operating the brake-shoe and a trip device for said means comprising a lever one arm of which is provided with a plunger moving longitudinally thereof and a spring for holding said plunger in normal position, substantially as described.

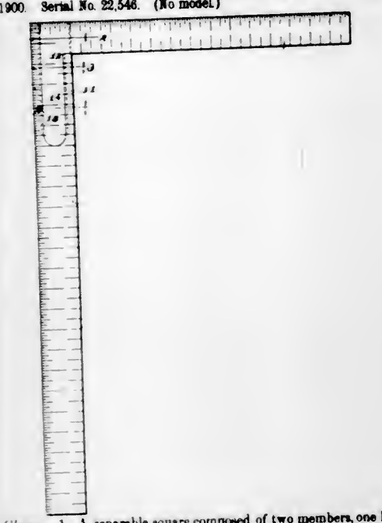
4. In combination in a brake mechanism, a driving-pulley, a brake-shoe to engage the same and means for operating the brake-shoe and a trip device for said means comprising a lever one arm of which is provided with a plunger moving longitudinally thereof and a spring for holding said plunger in normal position, said plunger having a conical head and a pin on the machine to engage said head, substantially as described.

5. In combination in a brake mechanism, a driving-pulley, a brake-shoe, means for operating the brake-shoe including an eccentric and an eccentric-strap, a lever connected with the eccentric, a coiled spring connected with the lever and encircling the axis of the eccentric and means for adjusting the tension of said spring, substantially as described.

6. In combination in a brake mechanism, a driving-pulley, a brake-shoe, means for operating the brake-shoe including an eccentric and an eccentric-strap, a lever connected with the eccentric, a coiled spring connected with the lever and encircling the axis of the eccentric and means for adjusting the tension of said spring, said means including a lever pivoted axially of the eccentric and connected to the spring with means for holding said lever in different positions, substantially as described.

7. In combination in a brake mechanism, a driving-pulley, a brake-shoe arranged to engage the inner side thereof, an eccentric and an eccentric-strap for operating the brake-shoe, said strap being pivoted centrally of the brake-shoe and means for guiding the brake-shoe in its movement, substantially as described.

680,830. **SQUARE.** JAMES A. WRAY, Chicago, Ill. Filed July 5, 1900. Serial No. 22,546. (No model.)



Claim.—1. A separable square composed of two members, one having a channel on one surface, extending longitudinally of said member and formed with grooves along its sides, one side of said channel terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a tongue on one surface adapted to fit in said channel and whose side edges are adapted to fit in said grooves.

2. A separable square composed of two members, one having a beveled side edge on one surface and a channel on the other surface, extending longitudinally of said member and having grooves along its sides, one side of said channel terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a groove on one surface adapted to receive said beveled edge and having a tongue on the other surface adapted to fit in said channel and whose side edges are adapted to fit in the grooves along the sides of said channel.

3. A separable square composed of two members, one having a rabbeted channel on one surface, extending longitudinally of said member, one side of said channel terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a tongue on one surface whose side edges are formed with ribs adapted to fit in the rabbet-grooves along the sides of said channel.

4. A separable square composed of two members, one having a beveled side edge on one surface and a rabbeted channel on the other surface, extending longitudinally of said member, one side of said channel

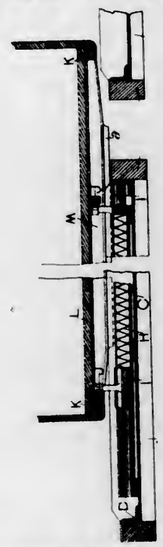
terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a groove on one surface adapted to receive said beveled edge and having a tongue on the other surface whose side edges are formed with ribs adapted to fit in the rabbet-grooves along the sides of said channel.

5. A separable square composed of two members, one having a rabbeted channel on one surface, extending longitudinally of said member, provided with a rounded end and having one side terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a tongue on one surface whose end is rounded and whose side edges are formed with ribs, the rounded end of said tongue adapted to fit in the rounded end of said channel and said ribs adapted to fit in the rabbet-grooves along the sides of said channel.

6. A separable square composed of two members, one having a channel on one surface, extending longitudinally of said member and formed with grooves along its sides, one side of said channel terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a tongue on one surface adapted to fit in said channel and whose side edges are adapted to fit in said grooves, and means for locking the two members against accidental separation.

7. A separable square composed of two members, one having a beveled side edge on one surface and a channel on the other surface, extending longitudinally of said member and having grooves along its sides, one side of said channel terminating at the end of the member in which it is formed and the other side at a point a short distance from said end, and the other member having a groove on one surface adapted to receive said beveled edge and having a tongue on the other surface adapted to fit in said channel and whose side edges are adapted to fit in the grooves along the sides of said channel, and means for locking the two members against accidental separation.

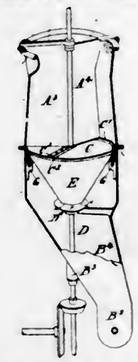
680,831. **MEANS FOR PRESERVING RAILWAY-CARRIAGES FROM INJURY IN CASE OF COLLISION.** EUGÈNE BACHELIER, Sermerieu, France. Filed Oct. 4, 1900. Serial No. 32,013. (No model.)



Claim.—1. In railway-carriages, an arrangement adapted to attenuate the consequences of collisions, consisting of the combination of an undercarriage rendered secure against distortion by a platform of sheet metal and springs, carried by the undercarriage, located in longitudinal tubes, with a carriage-body capable of sliding longitudinally in either direction on the undercarriage and compressing the said springs in such motion, substantially as herein set forth.

2. In railway-carriages, the combination of an undercarriage formed of longitudinal and transverse bars and a platform of sheet-iron connected all round to the bars by angle-iron and strengthened longitudinally by T-irons, longitudinal tubes, slotted along their upper side, fixed in said undercarriage, coiled springs placed in said tubes and pressing at one end against the fixed ends of the tubes, abutments capable of sliding within the tubes against which press the other ends of the springs, said springs being compressed half in one direction and the other half in the contrary direction, plate-springs connecting the abutments together in pairs, and brackets fixed solidly to the frame of the carriage-body against which the clips of the said springs bear, substantially as herein set forth.

680,832. **APPARATUS FOR MIXING FLOUR, &c.** GEORGE S. BAKER, JOSEPH A. BAKER, and WILLIAM K. BAKER, London, England. Filed Dec. 31, 1897. Serial No. 665,223. (No model.)



Claim.—1. In a mixing apparatus, the combination of a hopper, adjustable partitions in the hopper, a rotating cutter-plate forming the bottom of the partitioned portion of the hopper, a device for mixing the materials sheared off by the cutter-blade from the bottoms of the columns of the materials in the hopper, and the conveyer, as set forth.

2. In a mixing apparatus the combination of a hopper a fixed division-plate in the hopper, another division-plate attached to a radial arm pivoted about an axle central with the hopper, a rotary cutter-plate forming the bottom of the partition portion of the hopper, and a device for mixing the materials sheared off by the cutter-blade from the bottoms of the columns of the materials in the hopper, substantially as described.

3. In a mixing apparatus, the combination with the hopper, adapted to contain in separate compartments the materials to be mixed, a cutting apparatus located at the bottom of said hopper for shearing off the bottoms of the columns of materials in said hopper, a chamber or vessel, located below the hopper into which the materials from the hopper are discharged, and a means for mixing the materials discharged from the hopper; substantially as described.

4. In a mixing apparatus the combination with a hopper adapted to contain in separate compartments the materials to be mixed, a cutting apparatus located at the bottom of said hopper for shearing off the bottoms of the columns of materials in said hopper, a chamber or vessel located below the hopper into which the materials from the hopper are discharged, a shaft journaled in the walls of said chamber and capable of rotation therein and mixing-arms attached to the shaft, substantially as described.

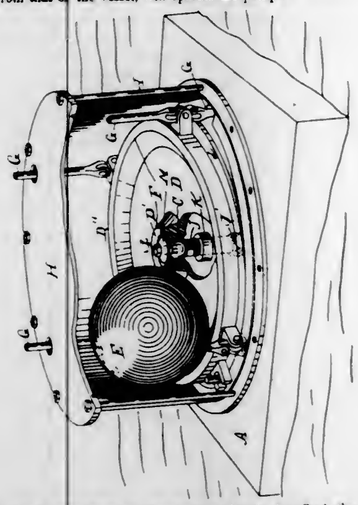
680,833. **WAVE-MOTOR.** HANCOCK BANNING and FRANK C. CAREY, Los Angeles, Cal. Filed Jan. 2, 1901. Serial No. 41,875. (No model.)

Claim.—1. A wave-motor comprising a vessel; a saucer-shaped receptacle, pivotally mounted in the center thereof, and having a central elevated portion; a globular weight in said receptacle, adapted to roll around therein; and means, substantially as shown, to utilize the power generated.

2. The herein-described wave-motor, comprising a floating vessel A, adapted to be tilted about on the waves; the saucer-shaped receptacle D, having ball-supporting rims F in the center and around the rim thereof to form a runway for the ball, the said receptacle being pivotally mounted in said vessel, and having a limited movement therein; a rolling weight E in said receptacle, adapted to roll aroond in the runway therein; said receptacle being operatively connected with pumps in the vessel, whereby the tilting movement of the vessel, caused by the waves, will operate the pumps.

3. A device to utilize the power of the waves, comprising a vessel, adapted to be moored in water, subject to wave motion, and to have a free movement therein; a saucer-shaped receptacle arranged to have a free tilting movement therein, and being provided with a runway for a rolling weight; a spherical rolling weight in said receptacle, adapted to roll around in the runway; connecting-rods pivotally secured to the rim of the receptacle at one end, and pivotally connected with the piston of

a pump at the other end, whereby any movement of the receptacle, different from that of the vessel, will operate the pumps.

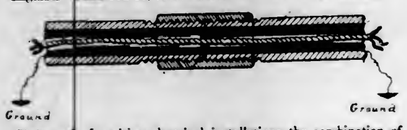


4. In a wave-motor, of the character herein described, the herein-described means to elevate or depress the receptacle, comprising the central pivot-support J, carrying at its upper end the spherical pivot C; the said support being provided with threads to engage the screw-threaded nut K; the nut K rigidly affixed to the frame of the vessel; and the receptacle D being provided with means to engage the pivot in its center, substantially as shown and described.

5. In a wave-motor, of the character herein described, means to permit a tilting motion of the receptacle in the floating frame; and to hold said receptacle in engagement with the supporting-pivot, comprising the pivot C, having a vertical adjustment in the frame, and being provided with a lag-screw L, and washer M on said screw; the receptacle D, having an opening in the center to receive a lag-screw, and having recessed bearings for the washer thereon, substantially as shown and described.

6. In a wave-motor, the herein-described saucer-shaped receptacle pivoted in a floating vessel, and being provided with a central elevated portion, having a ball-bearing rim on its outer and upper face; the said receptacle being also provided with an outer rim on the inner and upper face of which is an edge forming an outer bearing for the ball, the said receptacle having a limited tilting movement therein, and a ball-weight in said receptacle, adapted to roll freely around on the said bearings.

680,834. **HOUSE-WIRING.** FREDERICK BATHURST, Southfields, England. Filed Oct. 30, 1899. Serial No. 735,340. (No model.)



Claim.—1. In wiring electrical installations the combination of a grounded metallic pipe with screwed or like fittings and an insulating-sheath fitting it interiorly, with a bare single or stranded conductor forming one part of the circuit, and a grounded armored conduit or pipe forming the other part thereof as described and shown.

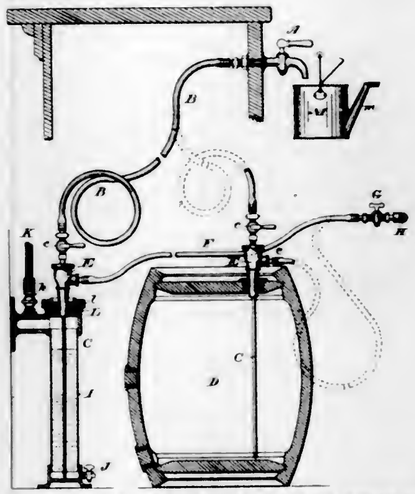
2. The combination of a grounded metallic pipe with an interior insulating-sheath, a conductor within the said sheath, coupling devices for the said pipe, a case connected to the said pipe, an insulating-lining for the interior of the said case and terminals for the said conductor within the said case, the said pipe constituting one part of the electric circuit and the said conductor constituting another part of the same substantially as set forth.

680,835. **NUT-LOCK.** JOSEPH A. BRANDERFER, Palmyra, Pa. Filed July 5, 1900. Serial No. 22,562. (No model.)

Claim.—In a nut-lock the combination with the bolt having a right and left screw-threaded end of different diameters, of the nuts adapted to engage said threaded end, the nuts being provided with semicircular grooves crossing and intersecting each other, and an interchangeable washer having grooves on its opposite sides formed and arranged the same as those of the nuts, whereby the grooves of the nuts and washer form circular openings to permit of a locking-key therein, the washer being also provided with flanges to engage either of the nuts, as may be required, substantially as specified.



680,836. **APPARATUS FOR CLEANSING FAUCETS AND THEIR CONNECTIONS.** RICHARD BIRKHOLZ, Milwaukee, Wis., assignor to Liquid Carbonic Acid Mfg. Co., Chicago, Ill. Filed June 1, 1900. Serial No. 18,719. (No model.)



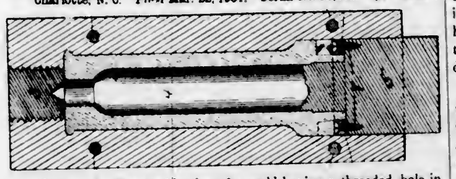
Claim.—1. The combination with liquid-dispensing apparatus comprising a pipe or tube having a flexible connection with a faucet, and a sealing device having a flexible connection with a compressed-gas supply for securing said pipe by a fluid-tight joint in a barrel, of a receptacle for a cleansing liquid to which said pipe and its sealing device are adapted to be transferred from the barrel without disturbing their connections with said faucet and with the gas-supply, said receptacle having a permanent valve-controlled water-supply connection, substantially as and for the purposes set forth.

2. The combination with liquid-dispensing apparatus comprising a pipe having a flexible connection with a faucet and a hollow tapered plug having a flexible connection with a compressed-gas supply for sealing said pipe in the bung-hole of a barrel and supplying gas under pressure thereto, of a receptacle for a cleansing liquid having a permanent valve-controlled water-supply connection and an opening in the top in which said pipe and plug are adapted to be secured without disturbing their connections with said faucet and gas-supply, substantially as and for the purposes set forth.

6. The combination with liquid-dispensing apparatus comprising a pipe having a flexible connection with a faucet, and a tapered plug having a flexible connection with a compressed-gas supply and adapted to secure and seal said pipe in the bung-hole of a barrel, of a fixed receptacle for a cleansing liquid having a permanent valve-controlled water-supply connection, an opening in the top to receive said pipe and plug, and a valve-controlled waste opening or connection at or near the bottom, substantially as and for the purposes set forth.

4. The combination with liquid-dispensing apparatus comprising a faucet, a tapping-pipe having a valve-controlled hose connection with said faucet, a compressed-gas supply, and a tapered plug having a valve-controlled hose connection with said gas-supply and adapted to secure and seal said pipe in the bung-hole of a barrel, of a metallic receptacle having a valve-controlled water-supply connection and a wooden top with an opening corresponding with the bung-hole of a barrel and adapted to receive said pipe and plug, substantially as and for the purposes set forth.

680,837. **MOLD FOR FIBROUS ARTICLES.** MORTIMER A. BLAND, Charlotte, N. C. Filed Mar. 22, 1901. Serial No. 52,371. (No model.)



Claim.—1. The combination of a mold having a threaded hole in one end, a block screwed in said hole and having a conical socket, and a plunger adapted to be forced into the mold and having a beveled or sharpened end to enter the socket in the block.

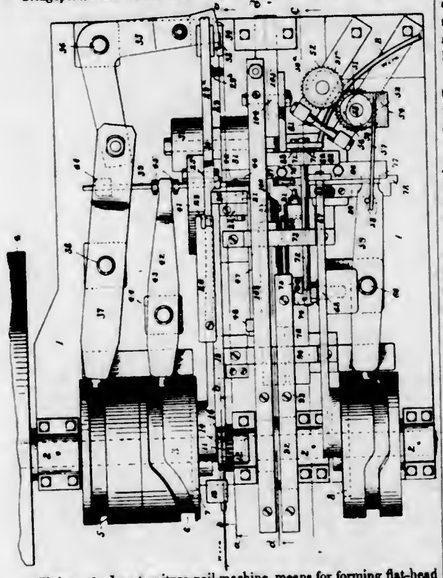
2. In a mold, the combination of a cored block, a plug screwed into one end of the block and having a conical socket therein, a plunger having an enlarged head to fit into the outer end of the block and a sharpened end to enter and center in the socket in the plug, and a toothed ring removably secured to the enlarged head of the plunger.

680,838. **INCUBATOR FOR FISH.** HENRY BOURGEOIS, Tourouvre, France. Filed May 10, 1901. Serial No. 59,702. (No model.)



Claim.—A fish-incubator consisting of a tank containing a movable grid, a movable vertical plate half the area of which is perforated and arranged so as to cause a flow of water, first through the grid, and then by reversing the movable vertical plate aforesaid, in a horizontal direction, substantially as described and illustrated herein and for the purpose set forth.

680,839. **FURNITURE-NAIL MACHINERY.** RICHARD A. BREUL, Bridgeport, Conn. Filed May 14, 1900. Serial No. 16,586. (No model.)



Claim.—1. In a furniture-nail machine, means for forming flat-head blanks from round metal, consisting of cutting-dies, a double-acting carrier for simultaneously forwarding two different blanks, and dies to properly shape said blanks, substantially as described.

2. In a furniture-nail machine the combination with a die through which a metal rod is successively advanced, a cutting-blade for severing blanks from said rod and arranged to hold and convey them forward into line with a plunger whereby they are removed, a carrier to receive said blanks by the action of said plunger.

3. In a furniture-nail machine, the combination with mechanism for cutting off head-blanks from a round metal rod, of means to shape them into flat disks with a central cavity, mechanism for finally forming said head-blanks into cup shape, a double-acting carrier for simultaneously transferring the blanks from said cutting mechanism to the disk-shaping dies, and also from said latter dies to the cupping and finishing dies.

4. In a furniture-nail machine, the combination with shank-wire-feeding mechanism, wire guiding and cutting-off devices, of dies to point the blank, a transporter operating between the dies and having spring-actuated jaws to receive the wire and hold the nail-shank cut therefrom and transfer the same sidewise from the shank-forming jaws into line with head-blank-supplying mechanism.

5. In a furniture-nail machine, the combination of a die, of an inclosed blade for slicing thin blanks from a metal rod, a plunger to insert the blanks into a carrier, a carrier to shift said blanks to head-blank-forming dies, means for centering and shaping said blanks, substantially as described.

6. In a furniture-nail machine, a die and cutter for cutting nail-head blanks from a metal rod, a stationary stop against which such blanks are brought by the cutter, a plunger to push the blanks into the jaws of a carrier and a spring-stop behind said jaws, substantially as described.

7. In a furniture-nail machine, a blank-feeding plunger to engage the faces of the nail-head blanks, a carrier to shift the blanks, jaws in the carrier to receive and hold the blanks and a spring behind the jaws to properly aline the blanks therein.

8. In a furniture-nail machine, the combination of wire-feeding and head-blank-cutting mechanism, of means for placing the blanks against a fixed stop, a carrier to receive and transfer the blanks, a plunger to shove the blanks into the carrier, a shaping-die and a punch having a teat to provide a central cavity in said blank.

9. In a furniture-nail machine, a carrier comprising jaws having semicircular openings corresponding to the diameter of the blanks, a shaping-die, a punch to push the blanks from the carrier into the die and to press them and provide them with a central cavity, a loose plug forming the bottom of the die and arranged to force the prepared blanks out of the die back into the carrier.

10. In a furniture-nail machine, the combination with a die to receive and engage nail-head blanks, of a punch to press the blanks against the bottom and sides of the die and to produce a conical cavity therein, a movable bottom in said die to push out the blanks acted upon, a carrier to receive the blanks and to bring them into line with heading-dies and also into engagement with that part of the nail-shanks to be inclosed by the head-blank.

11. In a furniture-nail machine, the combination in a carrier, of means to receive and deliver nail-head blanks into line of action of a centering punch and die, and separate means to receive them from said centering-die and deliver them into line of action of the head-forming dies.

12. In a furniture-nail machine, a blank-carrier having self-closing jaws to receive a plain nail-head blank, a second set of self-closing jaws to receive an indented and compressed blank, means for reciprocating said carrier, and punches and dies to receive and operate upon said blanks, substantially as described.

13. In a furniture-nail machine, the combination with a carrier, of a blank-shaping punch held in a punch-holder loosely fitted into a slide, a die against which said punch operates, a spring forcing against the holder to cause the punch to shift a nail-head blank from the carrier into said die in combination with dies to engage and shape a head-blank around the headed part of a shank.

14. In a furniture-nail machine, the combination with a blank-cutting die and a carrier, of a blank-shaping punch and die, a slide carrying said punch, means for normally holding said punch in an extended position to yieldably engage and force a blank from the carrier.

15. In a nail-machine the combination with wire-feeding mechanism, of a die to receive a wire, a blade to sever head-blanks from the wire, a stop against which said blanks are placed, a plunger in line with the blank for moving the same, a reciprocating carrier bearing jaws to retain the blank, a die to receive the blanks from the jaws, means for forcing the blank from said jaws into the die, and a punch to center and shape said blank.

16. The combination in a furniture-nail machine, of means for forwarding prepared head-blanks and pointing-nail shanks into line with the head-attaching die, a punch, a spring-actuated plate within the punch to engage the shank and insert its head into the cavity of the head-blank and arranged to hold the nail parts in position for the swaging operation.

17. In a furniture-nail machine, the combination of nail-shank-forming mechanism, a reciprocating transporter to grasp and carry a nail-shank into line with heading-dies, a die to receive a head-blank, a movable die to receive the shank and operative connections for uniting it to the head-blank, and means for ejecting the completed nail.

18. In a furniture-nail machine, a transporter to hold the nail-shank

during its forming, to carry it along to the heading-dies and into line of engagement with the recess in a head-blank, and means for placing the shank-head therein by shifting said shank laterally while yet in the transporter.

19. In a furniture-nail machine, a transporter to receive a wire end, to hold it while a nail-shank is cut and made therefrom, a shifting device for moving the nail laterally while in transit in the transporter, a hollow punch to receive said nail and unite it to a head-blank in a heading-die and means for ejecting the completed nail.

20. A pair of nail-pointing jaws to simultaneously cut wire lengths and hold the same for heading, a central recess in said jaws for the passage of a transporter to receive the wire end and remove the nail.

21. In a wire-nail machine, a pair of geared wire-feed rolls, one of which is provided with a spring-actuated jaw for feeding the required length of wire by yielding friction.

22. In a wire-nail machine, the combination of a pair of geared wire-feed rolls one of which is provided with a spring-actuated jaw for feeding predetermined lengths of wire, a pair of nail-pointing jaws to simultaneously sever wire lengths, a central recess in said jaws, a transporter to operate in said recess and remove and deliver the wire nail.

23. The combination with suitable wire-feed mechanism and a pair of coacting nail-blank-pointing jaws, of mechanism for deflecting and for severing the feed-wire from the nail-shank being formed within said jaws, a header for producing a head on said shank and independent means within the jaws for holding and removing the nail therefrom, substantially as described.

24. The combination in a furniture-nail machine, of jaws to sever and point a shank, means to head it while in said jaws, a transporter to hold and transfer it, means for sliding it in the jaws of the transporter, head-blank-feeding mechanism, a carrier to receive the blank, a punch and die to center and shape the blank, and means for uniting this to the shank to form a completed nail.

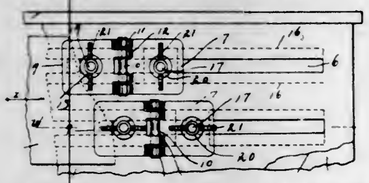
25. The combination with wire-feeding, and shank-forming mechanism, of a transporter to hold and deliver said shank, mechanism for severing a head-blank, means for retaining and placing the blank in a carrier, a die and punch to receive, center and shape the blank, means for uniting the nail parts and dies for shaping and completing the nail.

26. In a nail-forming machine the combination with suitable feeding and cutting mechanism for producing shank and head blanks, a carrier to receive the head-blanks, a transporter to receive the shanks, jaws and dies to shape said blanks and dies to unite the two blanks into a completed nail.

27. In a furniture-nail machine the combination with a sliding carrier, of a push-bar to deposit plain head-blanks in jaws of said carrier, a second push-bar parallel with the first one to deposit prepared head-blanks into a second pair of jaws of the carrier, substantially as shown and described.

28. In a furniture-nail machine, punches on two connected slides for respectively shaping and centering and for swaging and finishing nail-heads, dies to conform to said punches located in a yieldingly-fastened die-holder, in combination with a slide forcing the reverse side of the die-holder simultaneously with the movement of the punches and dies.

680,840. **LEATHER-STRETCHING DEVICE.** JOHN CALDWELL, Minneapolis, Minn., assignor to the W. S. Nott Company, same place. Filed Dec. 22, 1900. Serial No. 40,714. (No model.)



Claim.—1. The combination with a stretcher-head having guide-slots extending longitudinally of the stretcher-frame, of a series of independently-slidable leather-holders thereon guided by said slots, and a series of locking devices carried by the holders and adapted to lock them to the head, substantially as set forth.

2. The combination with a stretcher-head having slots extending longitudinally of the stretcher-frame and serrations or like irregularities of surface, of a series of independently-slidable leather-holders thereon guided by said slots, and a series of locking devices carried by the holders and adapted to engage such serrations and lock the holders to the head, substantially as set forth.

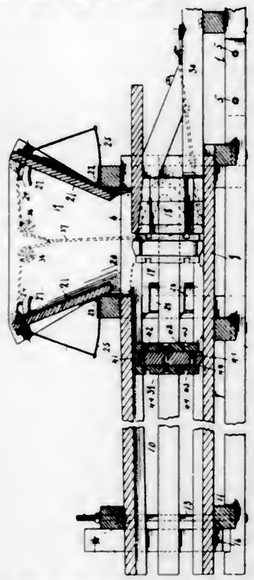
3. The combination with the head of a stretcher-frame provided with guide-slots extending parallel with the frame sides and serrations or like irregularities of surface, of a series of leather-holders thereon independently slidable in said slots but having no lateral movement, and means for separately locking such holders to the head, substantially as set forth.

4. In a stretching-machine, the combination with a stretcher-head having guide-slots extending parallel with the direction of tension of the machine, of a series of independent leather-holders slidable along and guided by said slots, and locking devices carried by the holders for independently and successively locking them on the head, substantially as set forth.

5. In a leather-stretching machine, the combination with a stretcher-head provided with a series of parallel guide-slots extending in the direction of movement of the stretching mechanism, a corresponding series of movable independent holders arranged to engage an end of a body of leather at right angles to its axis and provided with means for connecting them independently in said guide-slots to control the direction of their movements, and means for locking selected holders of the series in succession to the head, substantially as set forth.

6. In a leather-stretching machine, the combination with a stretcher-head, of a series of independent holders supported thereon in engagement with the end of a piece of leather and arranged to be moved independently of said head by the leather in the direction it is moved by the stretching mechanism, guides on said head for controlling such movements of the holders, and means for locking selected holders of the series to the fixed head and unlocking them at will, substantially as set forth.

680,841. **BALING-PRESS.** ROBERT E. CHAPMAN, Cherokee, Tex. Filed Apr. 24, 1901. Serial No. 57,286. (No model.)



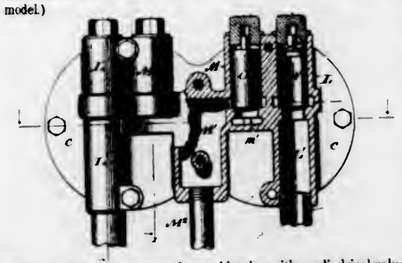
Claim.—1. The combination of a press-box having a feed-opening on its upper side, and vertical side boards extending above and on opposite sides of said opening, condensing-boards hinged at their lower sides on said press-box, said condensing-boards being disposed on opposite sides of said feed-opening and between said side boards and having yokes on their outer sides, the ends of which yokes operate in curved slots with which said side-boards are provided, spring arms projecting outwardly from the press-box, connections between said condensing-boards and said spring-arms, the latter serving to normally open said condensing-boards outwardly from each other, a reciprocating plunger and connections between said plunger and said condensing-boards, substantially as described.

2. The combination of a press-box having a feed-opening on its upper side, and pivoted condensing-boards above and on opposite sides of said feed-opening, said condensing-boards having inwardly-projecting downturned teeth on their inner sides, and means to operate said condensing-boards, substantially as described.

3. In a baling-press, the combination of a press-box, a plunger-rod extending therefrom, guides for said plunger-rod, said guides being on extended sills with which the press-box is provided, a frame on said extended sills, a vertically-disposed power-shaft in bearings in said frame, said power-shaft having a sweep-lever and sprocket-wheels, a vertically-disposed crank-shaft in bearings in said frame, said crank-shaft having sprocket-wheels, endless sprocket-chains connecting the sprocket-wheels of the crank and power shafts respectively, and a pitman connected to said plunger and to the crank of said crank-shaft substantially as described.

4. The combination of a press-box having a feed-opening on its upper side, pivoted condensing-boards above and on opposite sides of said feed-opening, springs to normally move said condensing-boards outwardly from each other, a reciprocating plunger, bell-crank levers on the sides of the press-box, cords connecting each of said levers to both of said condensing-boards, guides for said cords, and connections between said plunger and said levers, whereby said condensing-boards are moved toward each other on the outstrokes of the plunger, substantially as described.

680,842. **VALVE FOR COMPRESSORS.** NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed July 18, 1898. Serial No. 686,266. (No model.)

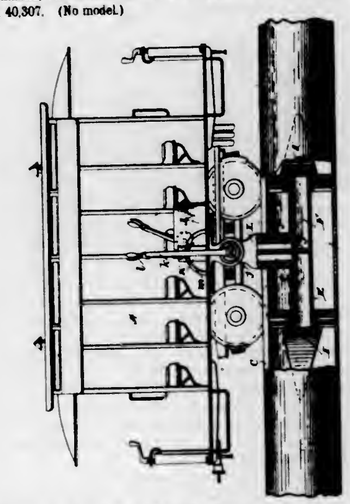


Claim.—1. In a compressor the combination with a cylindrical valve-chamber, of a hollow imperforate cylindrical suction-valve closed at both ends and loosely fitting and nearly filling said chamber, substantially as and for the purposes set forth.

2. In a compressor the combination with a cylinder having a cylindrical valve-chamber communicating through a port above the valve-seat with the interior of the cylinder and below said seat with an inlet passage or opening, of a hollow imperforate cylindrical suction-valve closed at both ends and loosely fitting and nearly filling said chamber, substantially as and for the purposes set forth.

3. In a compressor the combination of a cylinder provided with cylindrical valve-chambers and interchangeable hollow imperforate cylindrical section and discharge valves closed at both ends, the suction-valve chamber being nearly filled by the valve contained therein, substantially as and for the purposes set forth.

680,843. **PNEUMATIC-RAILWAY SYSTEM.** CHARLES COMSTOCK, Richmond, Va. Filed Mar. 18, 1898. Renewed Dec. 18, 1900. Serial No. 40,307. (No model.)



Claim.—1. A pneumatic-railway system comprising a propelling-tube, a piston therein having two heads, a hollow tube connecting them, a standard projecting from the hollow tube and having communication with the propelling-tube at opposite ends of the piston, a vehicle connected with the standard and having a pump and an engine, and a valve mechanism situated between the propelling-tube and the engine adapted to admit air to either end of the piston and to exhaust air from the opposite end of the piston, substantially as described.

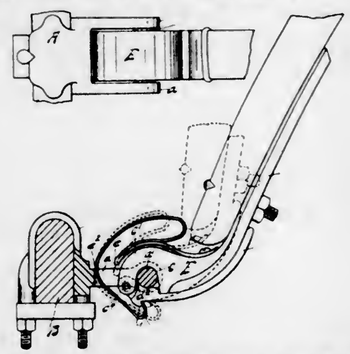
2. A pneumatic system comprising a propelling-tube, and movable balls adapted to move in and out of said tube for dividing it into sections, substantially as described.

3. A pneumatic system comprising a propelling-tube, provided with laterally-projecting pockets, and balls situated in said pockets and adapted to move across and close said tube, substantially as described.

4. A railway system comprising a propelling-tube having a longitudinal slot, a piston therein having passage-ways communicating at opposite ends thereof with the propelling-tube, a standard projecting from the piston through the said slot and having passage-ways in communication with the piston passage-ways, a pressure-producing device in communication with the standard passage-ways, and a valve situated between the piston and the pressure-producing device, said valve having a passage-way adapted to be thrown into communication with either of said standard passage-ways, and passage-ways adapted to be thrown in communication respectively with the atmosphere, substantially as described.

5. A railway system comprising a propelling-tube having a longitudinal slot, a piston within the tube having communication therewith, a standard connected with the piston and having a passage-way in communication with the piston communication, a valve-seat having passages in communication respectively with the atmosphere and with said propelling-tube, and a pressure-producing device in communication with said valve-seat, and a valve having a passage-way adapted to be thrown into communication respectively with either the tube passage-way or the atmospheric passage-way substantially as and for the purpose described.

680,844. **THILL-COUPLING.** JOHN L. CURLEY, Hamilton, Ohio. Filed Jan. 7, 1901. Serial No. 42,283. (No model.)



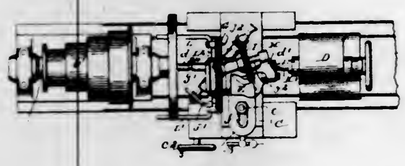
Claim.—1. In a thill-coupling the combination of a thill-iron with a divided eye having a rigid and a swinging member, the swinging member hinged at the forward end of the rigid member and having a downwardly-projecting hook, a spring secured upon top of the rigid member curved forward carried down beneath the rigid member and terminating in a hook which engages the hook upon the swinging member so that in inserting the thill in a clip the forward curve of the spring contacts the clip and carries the swinging member back to its closed position, substantially as shown and described.

2. In a thill-coupling, the combination of a thill-iron with a divided eye consisting of a rigid and a swinging member, the swinging member hinged to the forward end of the rigid member and having a downward-projecting hook, a spring secured upon top of the rigid member following the contour of said member to a point in front of it there bent back upon itself curved forward and downward to a point beneath said member and terminating in a hook which engages the hook upon the swinging member so that in inserting the thill in a clip the forward curve contacts the clip and throws the swinging member to its closed position and that when the shaft is raised the spring takes up wear in the eyes of the clip to prevent rattling, substantially as shown and described.

3. In a thill-coupling the combination of a thill-iron with a divided eye having a rigid and a swinging member, the rigid member supporting a journal-pin, the swinging member having at its forward end an elongated hole for engaging said pin and an upwardly-projecting wedge and upon the under side a downwardly-projecting hook, a spring secured upon top of the rigid member curved forward carried down beneath the

rigid member and terminating in a hook which engages the hook upon the swinging member so that the spring keeps the wedge in contact with the pin of the clip even when it becomes worn, substantially as shown and described.

680,845. CENTER-GRINDER ATTACHMENT FOR LATHES. HERMAN DOCK, Philadelphia, Pa. Filed Mar. 15, 1901. Serial No. 51,279. (No model.)



Claim.—1. In a lathe-center-grinding machine, in combination, a main driving-wheel, power-transmitting projections cooperating with the driver, a grinding-wheel disposed between said projections and operative connection between the driver and the grinding-wheel for actuating the latter and means to vary the angular position of the grinding-wheel.

2. In combination with the face or drive plate of a lathe, of a driver for a center-grinding attachment, power-transmitting projections connecting the driver and face or drive plate, a grinding-wheel disposed between said projections and operative connection between the driver and the grinding-wheel for actuating the latter and means to vary the angular position of the grinding-wheel.

3. In a lathe-center-grinding machine, in combination with the grinding-wheel and a revoluble spindle for the same, of a bearing for said spindle, said bearing being supported so as to be movable to vary the angular position of the grinding-wheel with reference to the center to be ground, a spindle-driving wheel upon the spindle, a driving-wheel for said spindle-driving wheel, means to drive said last-mentioned wheel and means to maintain a constant distance between the two wheels at all positions of the spindle.

4. In a lathe-center-grinding machine, in combination with the grinding-wheel and a revoluble spindle for the same, of a bearing for said spindle said bearing being supported so as to be movable to vary the angular position of the grinding-wheel with reference to the center to be ground, a spindle-driving wheel upon the spindle, a driving-wheel for said spindle-driving wheel, means to drive said last-mentioned wheel and connection between said wheels, a swinging hanger for the shaft of the wheel driving the spindle-driving wheel, a cam upon said hanger and a projection upon the spindle-bearing adapted in its movement to swing said hanger and maintain a constant distance between the two wheels.

5. In a lathe-center-grinding machine, in combination with the grinding-wheel and a revoluble spindle for the same, of a bearing for said spindle said bearing being supported so as to be movable to vary the angular position of the grinding-wheel with reference to the center to be ground, a spindle-driving wheel upon the spindle, a driving-wheel for said spindle-driving wheel, means to drive said last-mentioned wheel and connection between said wheels, a swinging hanger for the shaft of the wheel driving the spindle-driving wheel, a cam upon said hanger and a projection upon the spindle adapted in its movement to swing said hanger and maintain a constant distance between the two wheels, said wheel driving the spindle-driving wheel being splined upon its shaft.

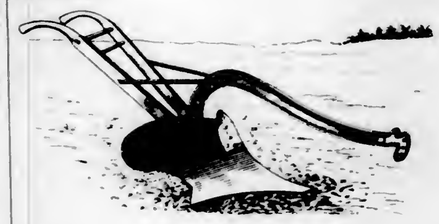
6. In a lathe-center-grinding machine, in combination with the grinding-wheel and a revoluble spindle for the same, of a bearing for said spindle, a support having a groove in which the bearing is movable and guided, a spindle-driving wheel upon the spindle, a driving-wheel for said spindle-driving wheel, means to drive said last-mentioned wheel and connection between said wheels, a swinging hanger for the shaft of the wheel driving the spindle-driving wheel, a cam upon said hanger and a projection upon the spindle-support adapted in its movement to swing said hanger and maintain a constant distance between the two wheels.

680,846. PLOW ATTACHMENT. WILLIAM M. DOWNEN, St. John, Cal. Filed Apr. 30, 1901. Serial No. 58,166. (No model.)

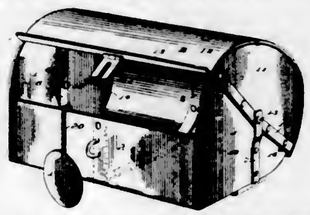
Claim.—1. A plow attachment comprising a wing, or supplemental moldboard adapted to be attached to a plow-moldboard, and having a brace-block on its rear side to bear against the face of the plow-moldboard, substantially as described.

2. In combination with a plow, a wing or supplemental moldboard bolted to the plow-moldboard and a wedge-like block secured between the opposing sides of the plow-moldboard and the supplemental moldboard to brace and sustain the latter in position, substantially as described.

680,846.



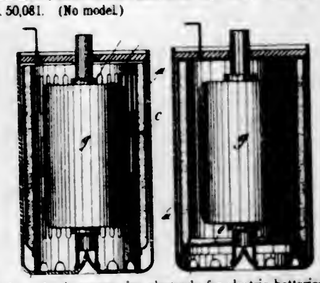
680,847. MAIL-BOX. PRESTON B. ENGLAR, Taneytown, Md. Filed Feb. 8, 1901. Serial No. 46,465. (No model.)



Claim.—1. A mail-box comprising ends, front, bottom and rear, the latter curved in the arc of a circle, a central brace extending continuously around from the upper edge of the front, along the bottom and back to the upper edge of the latter and a fastening device secured to the front and brace, the brace thus having the combined function of bracing the parts of the box and supporting the fastening device.

2. A mail-box comprising ends, front, bottom and rear, the latter curved in the arc of a circle, a central brace extending continuously around from the upper edge of the front, along the bottom and back to the upper edge of the latter, a fastening device secured to the front and brace, the brace thus having the combined function of bracing the parts of the box and supporting the fastening device, and a balanced cover pivoted to the ends of the box and provided with a catch adapted to automatically engage the fastening device when the cover is closed and to serve as a handle by which to raise the cover.

680,848. ZINC ELECTRODE FOR ELECTRIC BATTERIES. WILHELM ERNT, Halle-on-the-Saale, Germany. Filed Mar. 6, 1901. Serial No. 50,081. (No model.)



Claim.—1. A porous zinc electrode for electric batteries consisting of a zinc cylinder, a spongy-zinc-amalgam filling applied to the side of said cylinder in mass, and a perforate retaining medium of zinc holding the amalgam to the zinc cylinder, as explained.

2. An electric cell comprising a zinc cylinder, an amalgam of zinc-filings and mercury applied to the surface of said zinc cylinder, a perforated zinc retaining-wall for holding the amalgam to the zinc cylinder, a suitable container in which the electrode thus produced is introduced, an electrolyte which, under the action of an electric current will convert the amalgam into spongy zinc, and a cooperating electrode also introduced into said cell, substantially as set forth.

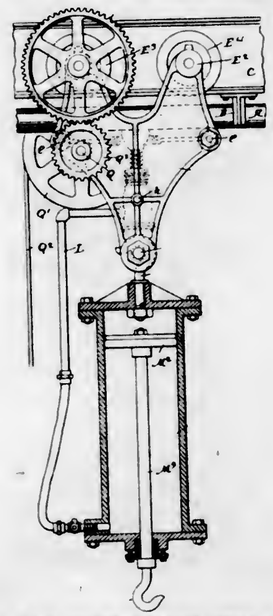
3. An electric cell containing a suitable container; an electrode composed of a zinc cylinder, an amalgam of zinc-filings and mercury applied to the surface of said zinc cylinder, and a concentric perforated zinc cylinder holding the amalgam to the cylinder first named; an electrolyte composed of ammonium chlorid, chlorid of calcium, barium peroxid, chlorid of barium, hydrogen peroxid and water, together with a suitable substance reducing the electrolyte to a jelly-like mass.

4. An electrode for electric batteries comprising a body of zinc, a spongy zinc amalgam applied thereto, in substantially the manner described, and a retaining structure of zinc conforming to the body of zinc, securing the spongy zinc amalgam thereto, and having openings permitting access of the electrolyte to the spongy zinc amalgam.

5. An electrode for electric batteries comprising two concentric zinc supporting-cylinders, and a spongy zinc amalgam filling the annular space between said cylinders; the cylinder nearest the other electrode of the battery, being apertured to give the electrolyte access to the spongy zinc amalgam.

6. An electric battery containing as one of its elements a zinc electrode composed of a zinc support, an amalgam of zinc-filings and mercury secured thereon, and an electrolyte in the presence of which under galvanic action converts the zinc amalgam into spongy zinc, substantially as set forth.

680,849. APPARATUS FOR SUPPLYING COMPRESSED AIR TO MOVABLE MOTORS AND HOISTS. WILLIAM M. FARRAR, Hoboken, N. J. Filed Sept. 12, 1900. Serial No. 29,771. (No model.)

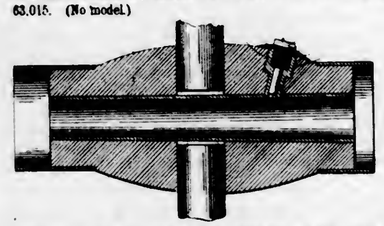


Claim.—1. In an apparatus for supplying compressed air to movable motors and hoists, the herein-described conduit consisting of slotted pipes of circular section coupled end to end so as to form a continuous air-tight main closed except for a slot running throughout its entire length and having its extreme ends closed by means of caps or plugs, a pipe entering through one of the caps or plugs for supplying air to the conduit, a flexible strip adapted to normally close the slot in the conduit, said strip being coterminal with the conduit and having its ends securely fastened to the caps or plugs at the extreme ends, substantially as and for the purpose specified.

2. In combination, an I-beam acting as a supporting-track, a pipe attached to the lower edge of the I-beam, said pipe having a slot, a carriage having wheels traveling on the I-beam, a box carrying a wheel projecting into the slot, a valve-strip normally closing the slot, lifted by the wheel, antifriction-wheels carried by the box, a pipe depending from the box, a chamber with which the pipe communicates, a suitable packing-ring for the pipe, for yielding and holding the wheel in the slot and for regulating the tension on the packing-ring, a motor supported by the carriage and means for supplying the fluid from the pipe to the motor.

3. In an apparatus for supplying compressed air to movable motors and hoists, in combination with a main of the character described, a track located above and adapted to support said main, a carriage adapted to be suspended from wheels running on said track, independent means for causing said carriage to travel along the track, a box flexibly connected with said carriage and adapted to travel in air-tight contact with said main, a housing located below said box and secured rigidly to said carriage, a stuffing-box located in the upper end of said housing, a tube secured to said box and passing through and adapted to reciprocate vertically in said stuffing-box, a chamber formed within the interior of said housing with which the lower end of said tube communicates, a check-valve secured upon the lower end of said tube within said chamber, spring-pressure adapted to be exerted against the lower surface of said box, means for adjusting the tension of said spring, a motor adapted to be suspended from the carriage, and pipes leading from the chamber within the said housing and communicating with the said motor for conveying the compressed air thereto, substantially as described and for the purpose specified.

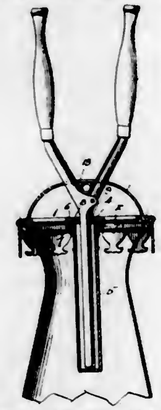
680,850. LUBRICATOR ATTACHMENT FOR WHEEL-HUBS. WILLIAM P. FERGUSON, Colorado, Tex. Filed June 3, 1901. Serial No. 63,015. (No model.)



Claim.—1. In a device of the class described, a plug fitting through the hub transversely of the axle-bearing and having the outer end projecting and formed with means for attaching a wrench or other operative implement and with a longitudinal aperture through the plug, a plate fitting the hub closely around said plug and with an aperture engaging said wrench-receiving means, and a closure for said aperture in said plug, substantially as shown and described.

2. In a device of the class described, a plug having a square or oblong outer end and screw-threaded exteriorly and interiorly at its upper part, and having a hollow cylindrical portion forming its lower part, a stud having a screw-threaded upper part and a cylindrical lower part and adapted to engage the interior of said plug, and a plate fitting said hub closely around said plug and having an aperture engaging said square or oblong projection on said plug, substantially as shown and described.

680,851. CURLING-IRON HEATER. ANNIE FIRTH, South Attleboro, Mass. Filed Apr. 12, 1901. Serial No. 55,530. (No model.)



Claim.—1. A curling-iron heater comprising a perforate plate having a depending heating-chamber accessible through the center of said plate, and an arcuate holder disposed over the plate and provided with a central elongated slot.

2. A curling-iron heater having a support with an opening therethrough, a depending chamber attached to said support, and a slotted holder above the support whereby the iron may be centrally disposed and held in positive heating position.

3. A curling-iron heater having a support with an opening therethrough, and a slotted holder above the support whereby the iron may

be centrally disposed and held in positive position in relation to the heating means.

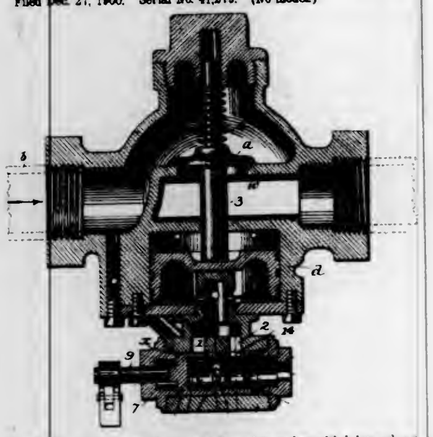
4. A curling-iron heater having a support with an opening therethrough and also supplied with a plurality of perforations, a disk centrally applied to the upper portion of the plate and also having a central opening therein and ears passed through the said plate, a depending heating-chamber having an upper flanged end applied to the under side of the said plate and held in place by the said ears which are bent over the periphery thereof, and a holder above the plate.

5. A curling-iron heater having a support with an opening therethrough, a depending heating-chamber applied to the under side of the plate, and a holder above the plate having terminal tongues and projections engaging the plate.

6. A curling-iron heater having a support with an opening therethrough, and a slotted holder above the plate having terminal tongues with projections on opposite sides thereof to engage the said plate to provide a fastening without solder.

7. A curling-iron heater having a support with an opening therethrough and also supplied with a plurality of perforations, a disk centrally applied to the upper portion of the plate and also having a central opening therein and ears passed through the plate, a depending heating-chamber having an upper flanged end applied to the under side of the said plate and held in place by the said ears which are bent over the periphery thereof, and a holder above the plate having terminal tongues and projections engaging the plate, whereby the use of solder or like fastening means that is affected by heat is avoided.

680,852. **VALVE DEVICE.** ROBERT F. FOSTER, Brooklyn, N. Y., assignor to Hamilton-Foster Fog-Signal Company, Ridgefield, Conn. Filed Dec. 27, 1900. Serial No. 41,279. (No model.)



Claim.—1. The combination of the valve-casing with inlet and outlet ports, a valve and bearings for the ends of the same on the heads of said casing, said valve being hollow and cylindrical, with a transverse partition and two independent chambers, and radial ports communicating with said chambers and arranged to communicate alternately with the inlet and outlet ports of the casing on the rocking of the valve and with a port communicating with the exhaust-port of the casing, substantially as set forth.

2. The combination of the valve-casing with inlet and outlets ports, a valve and bearings for the ends of the same on the heads of said casing, said valve being hollow and cylindrical, with a transverse partition and two independent chambers, radial ports communicating with said chambers and arranged to communicate alternately with the inlet and outlet ports of the casing on the rocking of the valve, and a stem extending centrally from one end of the valve and provided with an operating-arm, substantially as set forth.

3. The combination of the valve-casing with inlet and outlet ports, a valve and bearings for the ends of the same on said casing, said valve being cylindrical with two independent chambers, radial ports communicating with said chambers and arranged to communicate alternately with the inlet and outlet ports of the casing on the rocking of the valve, and a stem extending centrally from one end of the valve and provided with an operating-arm, and with a counterweighted arm, substantially as set forth.

4. The combination of the valve-casing with inlet and outlet ports, a valve and bearings for the ends of the same in said casing, said valve being hollow and cylindrical with a transverse partition and two independent chambers, radial ports communicating with said chambers and arranged to communicate alternately with the inlet and outlet ports of the casing on the rocking of the valve, and a stem extending centrally from one end of the valve and provided with a pivoted operating-arm, substantially as set forth.

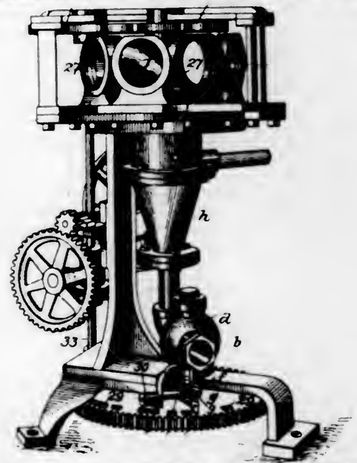
5. The valve device consisting of a hollow cylindrical valve, a casing in which said valve turns, inlet and outlet ports in said casing, the said valve having chambers with radial inlet and outlet ports, and a partition between the same, substantially as set forth.

6. The valve device consisting of a hollow cylindrical valve, a casing in which said valve turns, inlet and outlet ports in said casing, the said valve having chambers with radial inlet and outlet ports, and a partition between the same with balance-ports opposite said inlet and outlet ports, substantially as set forth.

7. The combination of a conduit for fluid under pressure, a valve controlling the same, a piston for shifting said valve and piston-cylinder, and a valve for controlling the flow of fluid to and from the cylinder, the same being cylindrical, hollow, closed at one end, and provided with a cross-partition and with radial ports on opposite sides of the partition, the port between the partition and open end being the exhaust-port, substantially as set forth

8. The combination of the casing *f*, cylindrical valve *e*, spindle extending from one end and arm pivoted to said spindle at one side of a plane extending through the axis of the latter, substantially as set forth.

680,853. **APPARATUS FOR SIGNALING.** ROBERT F. FOSTER, Brooklyn, N. Y., assignor to Hamilton-Foster Fog-Signal Company, Ridgefield, Conn. Filed Feb. 1, 1901. Serial No. 45,618. (No model.)



Claim.—1. The combination in a signaling device, of a sound-director, means whereby sounds constituting signals may be projected therefrom, the sounds projected in one direction being different in character from those projected in another direction, and devices whereby during the sounding of each signal all the sounds constituting such signal are caused to be projected from the sound-director in the same direction, substantially as set forth.

2. The combination of a signaling device, of a sound-director mounted to revolve, means for arresting its movement with its mouth opposite different stations, and means for projecting sound-signals of different character through said director according to its different positions, substantially as set forth.

3. The combination in a signaling device, of a sound-director and means for moving it step by step to project signal sounds in different directions each signal indicating one point of the compass, substantially as set forth.

4. The combination in a signaling device, of a sound-director, means for moving it step by step to project signal sounds in different directions each signal indicating one point of the compass, and a series of trumpets radiating to different points of the compass with their inner ends in position to coincide with the mouth of the sound-director, substantially as set forth.

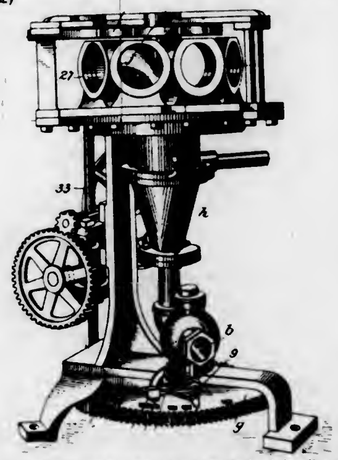
5. The combination in a signaling device, of a sound-director supported to turn to different points of the compass, intermittent gears for turning the director with a step-by-step movement, a signal-plate, and connections whereby the signals are given while the director is at rest, substantially as set forth.

6. The combination in a signaling device, of a sound-director supported to turn to different points of the compass, intermittent gears for turning the director with a step-by-step movement, a signal-plate, means for rotating it continuously, and connections whereby the signals are given while the director is at rest, substantially as set forth.

7. In a signaling device, a sound-director, a sound-producer, a control-valve for the sound-producer, a signal-plate for operating the said valve to give different signals indicating different points of the compass, and means for turning the director rapidly with an intermittent motion and arresting it during the sounding of each signal, substantially as set forth.

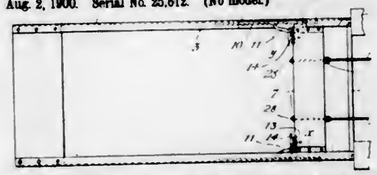
8. The combination in a signaling device, of a sound-director mounted to rotate, a sound-producer, signal-plate for controlling the sound-producer, shaft, spur-gearing connecting it with the signal-plate, and intermittent gearing connecting it with the sound-producer, to move the director step by step and hold it stationary during the sounding of each signal, substantially as set forth.

680,854. **METHOD OF SIGNALING.** ROBERT F. FOSTER, Brooklyn, N. Y., assignor to Hamilton-Foster Fog-Signal Company, Ridgefield, Conn. Original application filed Feb. 1, 1901, Serial No. 45,618. Divided and this application filed Mar. 15, 1901. Serial No. 51,333. (No model.)



Claim.—The method substantially as set forth of signaling to indicate the direction to which a signal is projected, the same consisting in projecting sound-waves varying in character according to the points of the compass directly and unvaryingly toward each compass-point during the sounding of each signal.

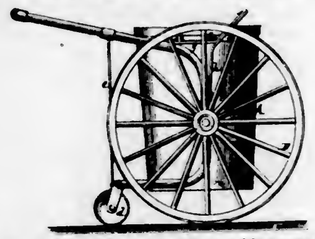
680,855. **FRAME FOR STRETCHING LEATHER.** FREDERICK H. GEORGE, Minneapolis, Minn., assignor to W. S. Nott Company. Filed Aug. 2, 1900. Serial No. 25,612. (No model.)



Claim.—1. A leather-stretching frame, consisting of metal side rails of channel-bar form, a cross-bar connecting one of the ends thereof, a stationary stretcher-head connecting the other end, a movable stretcher-head having upper and lower flanges at its ends extending within the channels of said rails for guiding its movements and having means for connecting it to a stretching-machine, rows of ratchet-teeth provided in the channels of the side rails, dogs carried by the movable head for engaging said teeth to prevent backward movement of the head, and springs for actuating the dogs, substantially as set forth.

2. A leather-stretching frame, consisting of metal side rails of channel-bar form, a cross-bar connecting one of the ends thereof, a stationary stretcher-head connecting the upper end, a movable stretcher-head having upper and lower flanges at its ends extending within the channels of said rails for guiding its movements and having means for connecting it to a stretching-machine, rows of ratchet-teeth provided in the channels of the side rails, dogs pivoted to studs on the movable head and having handles for operating them, and springs engaging said handles for holding the dogs normally in engagement with said teeth, substantially as set forth.

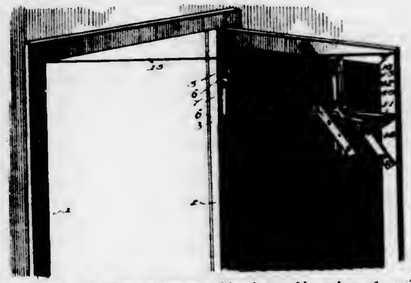
680,856. **STREET-SWEEPER'S CART.** FREDERICK HABERMAN, New York, N. Y., assignor to National Enameling & Stamping Company, same place. Filed May 14, 1901. Serial No. 60,185. (No model.)



Claim.—1. A street-sweeper's cart, comprising supporting-wheels, a frame comprising a central member on each side pivotally connected with one of the supporting-wheels, a short lower member integral with the frame and extending at an angle from the lower end of the central member, a long upper member approximately parallel with the lower member and forming a handle, a trundle-wheel carried by the lower members, a connection between the upper and lower members, can-supporting arms located at the upper members, and lifting-arms projecting at an upward angle from the supporting-arms.

2. A street-sweeper's cart, comprising supporting-wheels, a frame comprising a central member on each side pivotally connected with one of the supporting-wheels, a short lower member integral with the frame and extending rearwardly from the lower end of the central member, a long upper member approximately parallel with the lower member and forming a handle, a ground-engaging projection carried by the lower members at their free ends, can-supporting arms located adjacent to the junction of the upper members with the central member, and lifting-arms projecting at an upward angle from the supporting-arms.

680,857. **COMBINED DOOR-CLOSER AND FLY-SCARE.** JAMES E. HADLEY, Cedarbluffs, Nebr. Filed Jan. 4, 1901. Serial No. 42,070. (No model.)



Claim.—1. The combination, with a door and its casing; of a spring-controlled revoluble drum located at one point on the door, a scare-shaft located at a different point on the door, a flexible strip secured at its ends to the drum and casing respectively and passed around the scare-shaft, and a scare connected with the scare-shaft.

2. The combination, with a door and its casing; of brackets, located at one point on the door, a fixed drum-shaft secured to the brackets, a drum revoluble about the drum-shaft, a scare-shaft, located at a different point on the door, a flexible strip secured at its ends to the drum and casing respectively and wound upon the scare-shaft, a scare connected with the scare-shaft and means for holding the strip normally wound upon the drum.

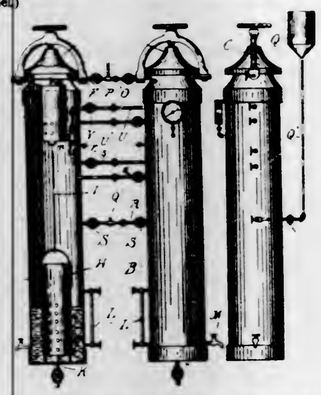
3. The combination, with a door and its casing; of brackets, located at one point on the door, a fixed drum-shaft secured between the brackets, caps upon the drum-shaft, a hollow drum revoluble upon the caps, a spring

encircling the drum-shaft and secured at its ends respectively to the drum and drum-shaft, a frame located at a different point on the door, a scare-shaft journaled therein, a scare connected with the scare-shaft, and a flexible strip secured at its ends to the drum and casing respectively and wound upon the scare-shaft.

4. The combination, with a door and its casing; of a spring-controlled revoluble drum, located at one point on the door, a scare-shaft, located at a different point on the door, fan-blades thereto, and a flexible strip secured at its ends to the drum and door-casing, said strip being wound upon the scare-shaft.

5. The combination, with a door and its casing; of brackets, located at one point of the door, a fixed drum-shaft secured to the brackets, caps upon the shaft, a hollow drum revoluble upon the caps, a spring encircling the drum-shaft and secured at its ends respectively to the drum and drum-shaft, a frame located at a different point on the door, a scare-shaft journaled therein, blades extending from the scare-shaft, a striker-arm to the scare-shaft, a hammer thereon, a bell in the path of the hammer, and a flexible strip secured at its ends to the drum and casing respectively and wound upon the scare-shaft, for operating both scare and bell simultaneously.

680,858. **ACETYLENE-GAS GENERATOR.** MILTON A. HAMILTON, Detroit, Mich. Filed Sept. 11, 1899. Serial No. 730,137. (No model.)



Claim.—1. The combination of a tank or vessel, a carbid-receptacle therein, a water-supply thereto, and a gas-exit therefrom, a second tank to which said exit connects, a connection from said second tank to the main supply, a pressure-controlling valve in the first tank, and a connection from said second tank to said valve.

2. The combination of two tanks each having carbid-receptacles water-supply connections and gas-exits, a pressure-controlling valve in each tank for its exit-pipe, cross connections from the opposite tank to each pressure-controlling valve and shut-off valves for the various pipes.

3. In an acetylene-gas generator comprising two tanks, carbid-receptacles in both tanks, controlled water-supply to both tanks, gas-exit pipes from both tanks and valve-controlled gas connections whereby either tank may be used as a generator and the other tank as a condensing and enriching receptacle for the gas.

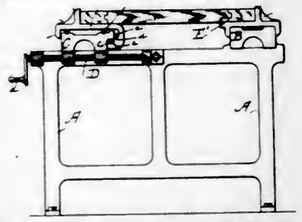
4. In an acetylene-gas generator, the combination of two tanks or vessels, a carbid-receptacle in each, a water-supply thereto, and gas-exits therefrom to a common main, a pressure-controlling valve in each tank having an exit leading to the other tank and a cross connection from each tank to said valve to actuate the pressure-controlling valves.

680,859. **CLAMPING APPARATUS.** ANTON HASSLER and JOHN T. WATTERS, Oakland, Cal. Filed Nov. 10, 1898. Serial No. 696,072. (No model.)

Claim.—1. In a machine for clamping doors and the like, the combination of parallel clamping-jaws suitably supported, and means for adjusting the distance between them, one of said jaws being freely movable longitudinally of its support, substantially as described.

2. In a machine for clamping doors and the like, the combination of parallel clamping-jaws suitably supported, and means for moving one of said jaws toward or from the other; one of said jaws being freely movable longitudinally on its support, substantially as described.

3. In a machine for clamping doors and the like, the combination with parallel clamping-jaws suitably supported, means for adjusting the distance between them, one of said jaws being freely movable longitudinally on its support, and antifriction devices interposed between the adjustable jaw and its support, substantially as described.



4. In a machine for clamping doors and the like, the combination with parallel clamping-jaws suitably supported, means for moving one of said jaws toward and from the other, one of said jaws being freely movable longitudinally on its support and antifriction devices interposed between the adjustable jaw and its support, substantially as described.

5. In a machine for clamping doors and the like, the combination with parallel supporting-rails, and means for adjusting the distance between them, of work-seats mounted on said rails and carrying clamping-jaws, one of said work-seats being freely movable longitudinally on its supporting-rail, substantially as described.

6. In a machine for clamping doors and the like, the combination with two parallel supporting-rails, and means for moving one of said rails toward and from the other, of parallel clamping work-seats mounted on said rails, one of said work-seats being freely movable longitudinally on its supporting-rail, substantially as described.

7. In a machine for clamping doors and the like, the combination with two parallel supporting-rails, and means for adjusting the distance between them, of parallel clamping work-seats mounted on said rails, one of said work-seats being freely movable longitudinally on its support, and antifriction devices interposed between the adjustable work-seat and its supporting-rail, substantially as described.

8. In a machine for clamping doors and the like, the combination with two parallel supporting-rails, and means for moving one of said rails toward and from the other, of parallel clamping work-seats mounted on said rails, one of said work-seats being freely movable longitudinally on its supporting-rail, and antifriction devices interposed between the adjustable work-seat and its supporting-rail, substantially as described.

9. In a machine for clamping doors and the like, the combination of parallel clamping-jaws suitably supported, means for adjusting the distance between them, one of said jaws being freely movable longitudinally on its support, and guides connecting the adjustable jaw with its support, substantially as described.

10. In a machine for clamping doors and the like, the combination of parallel clamping-jaws, means for adjusting the distance between them, an angle-plate fixed to one of said jaws, a longitudinally-movable angle-plate mounted thereon, and antifriction devices interposed between said angle-plates, substantially as described.

11. In a machine for clamping doors and the like, the combination of clamping-jaws, means for varying the distance between them, an angle-plate fixed to one of said jaws, a longitudinally-movable angle-plate mounted thereon, antifriction devices interposed between said plates, and guides connecting the said plates, substantially as described.

680,860. **PROCESS OF MANUFACTURING PACKING FOR FLANGES AND STUFFING-BOXES.** LEOPOLD HAUBLEINER, Vienna, Austria-Hungary, assignor to Isidor Landauer and Ferdinand Bloch, same place. Filed Apr. 11, 1901. Serial No. 55,432. (No specimens.)

Claim.—The process, which consists in forming upon an annular mold a deposit of a metal softer than iron, removing the deposit from the periphery of the mold, stripping the metallic sheath thus obtained from said mold and filling the sheath with a packing material, for the purpose set forth.

680,861. **NUT-LOCK.** JOHN J. HEATON, West Burlington, Iowa. Filed Apr. 18, 1901. Serial No. 56,399. (No model.)

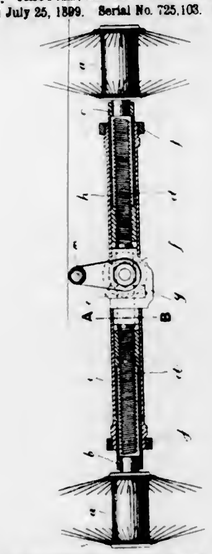


Claim.—1. A nut-lock device consisting of a rod or stout piece of wire, comprising a straight main stem bent at its ends to form approximately semicircular right-angularly-projecting hooks or clasps, substantially as described.

2. A nut-lock device for connecting and holding against retrograde rotation two nuts, one having a right and the other a left hand thread, the same consisting of a rod or wire having a main stem adapted to interlock with the nuts, said stem being provided at each end with a semicircular hook or clasp to partially encompass the part or parts to which the said nuts are applied, substantially as described.

3. In a nut-lock, the combination with right and left threaded members, of right and left threaded nuts thereon provided with slots, and a nut-locking device consisting of a rod or wire formed with a main stem to engage the slots in the nuts, and end clasps to embrace the said right and left threaded members to which the nuts are applied, substantially as described.

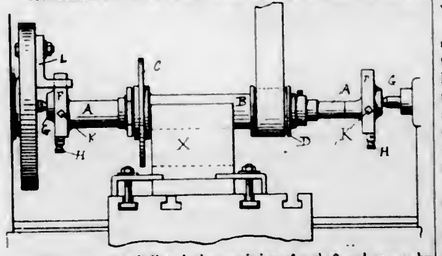
680,862. **TRICYCLE, &c.** JOHN T. M. HITCOCK, Birmingham, England. Filed July 25, 1899. Serial No. 725,103. (No model.)



Claim.—1. In combination, the lug *g*, the sleeves or guides *h*, *i*, connected therewith, the non-rotating hollow axles *b*, *c*, movable in the sleeve and carrying the wheels to rotate independently, the screwed spindle journaled in the lug and the gearing for turning the screwed spindle, part of the gearing being supported on the lug, substantially as described.

2. In combination, the guides *h*, *i*, the lug, of substantially U shape located between the inner ends of the guides, the axles moving in the guides, the screw engaging the axles and the gearing carried by the U-shaped lug for turning the screw, one of the gears being located in the cavity of the U and being connected with the screw, substantially as described.

680,863. **GRINDING DEVICE.** HENRY W. HONEYMAN, Pawtucket, R. I., assignor to Granger Foundry & Machine Company, Providence, R. I. Filed Dec. 31, 1900. Serial No. 41,645. (No model.)



Claim.—1. A grinding device consisting of a shaft and means by which circular motion eccentric to the center of the shaft is imparted to it, an emery-wheel mounted to rotate upon the shaft and means to rotate the wheel independently of the eccentric motion of the shaft.

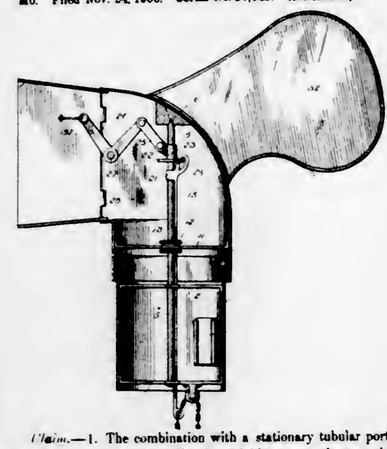
2. A grinding device consisting of a shaft, pieces having recesses for lathe-centers which are adjustable across the shaft to give the shaft when mounted in a lathe a circular motion more or less eccentric to its center, an emery-wheel mounted upon the shaft, and means for rotating the emery-wheel upon the shaft.

680,864. **FUEL COMPOUND.** DANIEL JONES, Canton, Minn. Filed June 18, 1901. Serial No. 65,051. (No specimens.)

Claim.—1. A fuel compound, consisting of dry black earth, dry gramineous matter, fat, rosin, and petroleum.

2. A fuel compound, consisting of dry black earth, twelve tablespoonfuls; dry gramineous matter, ten table-spoonfuls; fat, one table-spoonful; rosin, one table-spoonful, and petroleum, seven table-spoonfuls.

680,865. **COWL.** ADOLPH JORDAN and FRED SCHINGEL, St. Louis, Mo. Filed Nov. 24, 1900. Serial No. 37,645. (No model.)



Claim.—1. The combination with a stationary tubular portion; of an upright secured therein; a head revolubly supported upon said standard, and extending over the upper end of the stationary portion; a cylinder having an upwardly-projecting annular flange secured within the head and depending into the upper end of the stationary portion; a grooved collar on said standard; wings located at the inlet of the head; a movable sleeve on said standard; connections between said wings and sleeve; and a rod extending through the collar for moving the sleeve.

2. The combination with a stationary tubular portion; of an upright secured therein and extending therefrom, a revoluble head bearing upon the upright and having an inlet, a sleeve slidably mounted upon the uprights, wings hinged to the sides of the inlet, a lever fulcrumed within the head, a link connection between one end of said lever and the sliding sleeve, rods connecting the remaining end of the lever and each of the wings, and means for sliding the sleeve upon the upright.

3. The combination with a stationary tubular portion; of an upright secured therein and extending therefrom, a revoluble head bearing upon the upright and having an inlet, a sleeve slidably mounted upon the upright, wings hinged to the sides of the inlet, flanges at opposite edges of said wings, a bell-crank lever fulcrumed within the head, a link connection between said lever and the sliding sleeve, rods connecting the lever with the wings, and means for sliding the sleeve upon the upright.

4. The combination with a stationary tubular portion; of an upright secured therein and extending therefrom, a revoluble head mounted upon the upright and inclosing the end of the stationary portion, an inlet to the head, wings hinged at opposite sides thereof, flanges to the wings adapted to overlap when swung toward each other, a sliding rod within the head, a sliding sleeve upon the upright, an annular flange thereto adapted to be engaged by the end of said rod, connecting means between the sleeve and wings, whereby said wings are swung upon their hinges when motion is imparted to the sleeve, and a vane to the head.

5. The combination with a stationary tubular portion; of braces therein, an upright secured thereto and extending from the stationary portion, a revoluble head mounted upon the upright and having an inlet, wings hinged to opposite sides of the inlet, flanges at the edges thereof adapted to overlap when swung toward each other, a vane to the head, a bell-crank lever fulcrumed within the head, rods connecting said lever with the wings, a sleeve slidably mounted upon the upright, an annular flange thereto, a link connection between the sleeve and the bell-crank lever, a sliding rod, and a hooked end thereto adapted to contact with the flange of the sleeve.

6. The combination with a stationary tubular portion having braces therein; of an upright secured to the braces and extending from said stationary portion, a revoluble head mounted upon the upright and inclosing the upper end of the stationary portion, an inlet to the head, a fan, wings hinged to opposite sides of the inlet, a bell-crank lever fulcrumed within the head, rods connecting said lever with the wings, a sleeve slidably mounted upon the upright, a flange thereto, a link connection between said sleeve and the bell-crank lever, a collar secured to the upright and having an annular groove therein, a brace within the head and lying within said groove, a rod slidably mounted within the collar, a booked end thereto adapted to engage the flange of the sleeve, a pulley upon one of the braces, and chains extending from the rod and one of them being supported upon said pulley.

680,866. PIPE-CUTTER. ALBERT KATSKI, Erie, Pa. Filed June 5, 1900. Serial No. 19,157. (No model.)



Claim.—1. In a pipe-cutter, the combination of a fixed cutter-head; a movable cutter-head arranged to move in relation to said cutter-head; a screw-head rigidly connected to said cutter-head arranged opposite said fixed head and having a guide-opening therein; a sliding nut in said guide-opening of the screw-head; means for locking said nut in position; and a screw operating in said nut upon said sliding head.

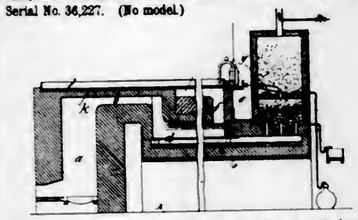
2. In a pipe-cutter, the combination of a fixed cutter-head; a movable cutter-head arranged to move in relation to said cutter-head; a screw-head rigidly connected to said cutter-head arranged opposite said fixed head and having a guide-opening therein; a sliding nut in said guide-opening of the screw-head; a ratchet mechanism arranged to allow forward movement of said nut for locking said nut against a return movement; and a screw operating in said nut upon said sliding head.

3. In a pipe-cutter, the combination of a fixed cutter-head; a movable cutter-head arranged to move in relation to said cutter-head; a screw-head rigidly connected to said cutter-head arranged opposite said fixed head and having a guide-opening therein; a sliding nut arranged in said guide-opening of the screw-head; a ratchet mechanism arranged to allow forward movement of said nut and for locking said nut against a return movement; a key mechanism arranged to be brought in the path of the sliding nut to lock said nut permanently in position or to be moved out of the path of said nut to allow a sliding movement of said nut; and a screw in said nut arranged to operate upon said movable head.

4. In a pipe-cutter, the combination with the head, A, having the guide, A′, thereon; a movable head, B, arranged to move the guide, A′; a screw-head, A^2, secured to the guide, A′; a sliding nut, C, arranged in the head, A^2, having the ratchet-teeth, *c*, thereon; the pawl, D, pivoted in the head, A^3; and the screw, E, operating in said nut upon said movable head, B.

5. In a pipe-cutter, the combination with the head, A, having the guide, A′, thereon; a movable head, B, arranged to move on the guide, A′; a screw-head, A^2, rigidly secured to the guide, A′ and having a guide-opening therein; a sliding nut, C, arranged in said guide-opening of the head, A^2, and having the ratchet-teeth, *c*, thereon; the pawl, D, pivoted in the head, A^3; the screw, E, operating in said nut upon said movable head, B; and the key, *a*′, having the notch, a^2, therein arranged to operate upon the nut, C, as described.

680,867. APPARATUS FOR CONCENTRATING SULFURIC ACID. JACQUES L. KESSLER, Clermont-Ferrand, France. Filed Nov. 12, 1900. Serial No. 36,227. (No model.)



Claim.—1. An apparatus for the concentration of sulfuric acid, comprising a furnace, a concentrating-trough with radiating plates over it, a tower opening into the said trough and a concentrating-pan with discharge-pipes to the tower, and a conduit for the products of combustion from the furnace to the surface of said plates over the concentrating-trough and thence to the concentrating-pan, substantially as described.

2. An apparatus for the concentration of sulfuric acid, comprising a furnace, a concentrating-trough, plates over the surface of the concentrating-trough, a tower opening into the said trough, and a conduit for the products of combustion from the furnace to the surface of the said plates, substantially as described.

3. An apparatus for the concentration of sulfuric acid, comprising a furnace, a concentrating-trough, plates over the surface of the concentrating-trough, a conduit for the products of combustion from the furnace and an arch over the plates to project the products of combustion down onto the surface of the plates, and a tower opening into said trough, substantially as and for the purpose described.

4. An apparatus for the concentration of sulfuric acid, comprising a furnace, a concentrating-trough with radiating plates over it, a tower in two superposed and communicating compartments, the lower one opening into the said trough and a conduit for the products of combustion from the furnace to the surface of the plates over the concentrating-trough, substantially as described.

5. An apparatus for the concentration of sulfuric acid, comprising a furnace, a concentrating-trough, having plates over its surface, a tower over one end of the said trough and having openings into the trough, a concentrating-pan having discharge-pipes opening into the tower, and a conduit from the furnace to the space over the said plates and thence to the concentrating-pans, all substantially as described.

6. An apparatus for the concentration of sulfuric acid, comprising a furnace, a concentrating-trough having radiating plates over it and having an outlet with a gate or valve, a tower opening to said trough, a concentrating-pan, a siphon to regulate the flow from the pan to the tower and a conduit for the products of combustion from the furnace to the radiating surface over the concentrating-trough and thence to the pan.

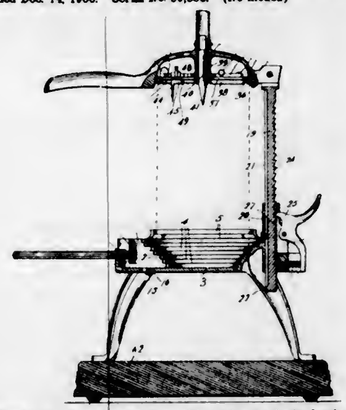
680,868. SOLE AND HEEL FOR BOOTS OR SHOES. TOM LEADBEATER, Leeds, England. Filed Dec. 14, 1900. Serial No. 39,896. (No model.)



Claim.—1. In a boot and shoe the combination of an upper lasted to the inner sole, a middle sole fixed to said inner sole, said middle sole having a portion of its fore part removed and a rabbet formed in the recessed portion of said fore part to form a projecting ledge, a central longitudinal grooved recess formed in the opposite surface of the said sole to the rabbet, and a detachable and removable outer sole adapted to slide into position on the middle sole and provided with a projecting rim, inturned flange, and a central longitudinal projection, all arranged to fit into the said recesses and to inclose the projecting ledge of the said sole, substantially as set forth and as illustrated.

2. In a boot and shoe the combination of an upper lasted to the inner sole, a middle sole fixed to said inner sole, said middle sole having a portion of its fore part removed and a rabbet formed in the recessed portion of said fore part to form a projecting ledge, a detachable and removable outer sole adapted to slide into position on the middle sole and provided with a projecting rim, inturned flange, all arranged to fit into the said recesses and to inclose the projecting ledge of the said sole, a heel-retaining block provided with a recess and projecting ledge as described and fixed near the rear of the said middle sole, a detachable and removable heel adapted to slide into position on the middle sole and having a projecting rim and inturned flange adapted to fit into the said recess and to inclose the projecting ledge of said heel-retaining block and the means described for retaining the detachable and removable sole and heel in position, all substantially as herein described and as illustrated.

680,869. CAN-OPENER. EDMUND S. LEFLER, Jonesboro, Ill. Filed Dec. 14, 1900. Serial No. 39,858. (No model.)



Claim.—1. A can-opener, comprising a base or body, having a plurality of concentric superposed can-seats increasing in diameter upwardly, and provided with a slot or opening formed through one side of the combined seats, a slidable clamp mounted in the slot or opening and having its inner side constructed to form continuations of the respective seats, means for forcing the clamp inwardly, and a cutting device supported above the seats.

2. A can-opener, comprising a base or body, having a plurality of concentric can-seats increasing in diameter upwardly, and provided with a slot or opening in one side of the combined seats, a slidable clamp mounted in the slot or opening and having its inner side constructed to form continuations of the respective seats, and a handled cam mounted upon the body or base outwardly from the slidable clamp and having its convex face frictionally engaging the outer side of the clamp to force the latter inwardly, and a cutting device supported above the seats.

3. A can-opener, comprising a base or body, having a central depression the walls of which diverge upwardly, and are provided with a plurality of superposed ledges forming can-seats which increase in diameter upwardly, one side of the body having a slot or opening formed through the combined seats, a slidable clamp mounted in the slot or opening, and having its inner side provided with notches or shoulders forming continuations of the respective seats, the base of the clamp being extended outwardly and provided with an upstanding stud or pin, a clamping-lever fulcrumed upon the base outwardly from the clamp, and having a cam-head at its inner end and projecting above and below the lever, the convex side of the cam-head frictionally engaging the outer side of the slidable clamp, and the concave side of the head frictionally engaging the stud or pin at its inner side, and a cutting device supported above the can-seats.

4. In a can-opener, the combination with a base, having a can-seat, of a tubular casing carried at one side of the base, and having a detachable stud or pin projected into the interior thereof, a longitudinally-adjustable standard slidably mounted in the casing and projected through the top thereof, and having one side provided with a longitudinal groove receiving the inner end of the detachable stud and terminating adjacent to the lower end of the standard in a stop-shoulder, a standard-adjusting device mounted upon the casing, and a cutting device carried by the upper end portion of the standard.

5. In a can-opener, the combination with a base or body, having a can-seat, of a vertical tubular casing carried by the base, an adjustable standard slidably mounted in the casing and projected above the same, one side of the standard having ratchet-teeth, a ratchet-dog mounted upon the casing and cooperating with the teeth of the standard, said dog having an upper finger-piece, and a lower tailpiece, a spring interposed between the tailpiece and the casing, and a cutting device carried by the upper portion of the standard.

6. In a can-opener, the combination with a base or body forming a can-seat, of a vertically-adjustable frame supported above the base, and having a vertically-disposed pin rotatably mounted thereon and projected in opposite directions above and below the frame, the lower end of the pin being pointed, a cutting device carried by the pin, and an operating crank-handle fitted to the upper end of the pin.

7. In a can-opener, the combination with a base or body forming a can-support, of a standard rising from the base, a skeleton or open frame hinged to the standard and swinging vertically, an upwardly-arched brace or bridge spanning the upper side of the frame and provided with a central opening, a circular rotatable head mounted within the frame, a pin rotatable in the opening in the brace, projecting above and below the latter, having its lower end pointed, and its intermediate portion fixedly carrying the rotatable head, a crank-arm connected to the upper projecting end of the pin, and a cutting-knife carried by the head.

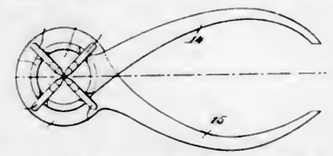
8. In a can-opener, a rotatable cutter-head, having a knife blade, which is adjustable radially upon the head, and a spring-actuated latch pivoted upon the head, and having an adjustable engagement with the knife-blade to fixedly hold the latter.

9. In a can-opener, the combination with a rotatable head, of a cutting-knife, which is radially adjustable upon the head, and is provided with a lateral stud or projection, and a spring-actuated swinging latch mounted upon the head, and having a plurality of notches for the adjustable reception of the stud of the knife.

10. In a can-opener, a rotatable cutter-head, having a radial slot, a cutting-knife which is adjustably slidable longitudinally of the under side of the slot, a finger-piece which is connected through the slot to the knife-blade, and a spring-actuated swinging latch which is mounted upon the head and has an adjustable engagement with the finger-piece.

11. In a can-opener, the combination with a base, having a plurality of concentric can-seats, of a vertically-adjustable standard rising from the base, an open frame hinged to the upper portion of the standard and swinging vertically, a handle at the outer free side of the frame, a bowed brace spanning the upper side of the frame and having a central opening, a rotatable head mounted within the frame, and provided with a radial slot, a pin rotatable in the opening in the brace and projected above and below the latter, the lower end of the pin being pointed, and its intermediate portion fixedly carrying the head, an operating crank-handle fitted to the upper projected end of the pin, a knife-blade adjustably slidable longitudinally of the under side of the radial slot, a finger-piece upon the upper side of the head and connected through the slot to the knife-blade, and a swinging spring-actuated latch mounted upon the head and having an adjustable engagement with the finger-piece.

680,870. DEVICE FOR ATTACHING RUBBER WASHERS TO BOTTLE-STOPPERS. FREDERICK LEU, Collegepoint, N. Y., assignor to Max C. Rosenfeld, Boston, Mass. Filed June 3, 1901. Serial No. 62,986. (No model.)



Claim.—1. A device for attaching rubber washers to bottle-stoppers, having, in combination, a plurality of stretching members pivoted at their outer ends and having their inner ends arranged substantially parallel with their pivots, in position to enter the hole in the washer and means for swinging said members on their pivots to stretch the washer, substantially as described.

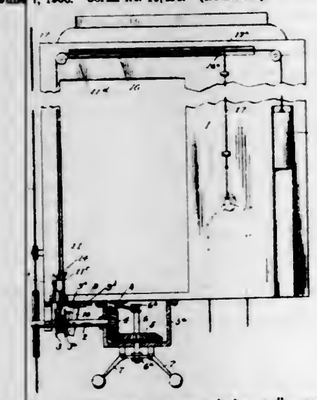
2. A device for attaching rubber washers to bottle-stoppers, having, in combination, a base, a plurality of stretching members pivoted at their outer ends to said base and extending inward toward a common center, the inner ends of said members being disposed at an angle to the main portions and arranged to enter the hole in the washer, a cam rotatably mounted on said base engaging the stretching members and means for rotating the cam to swing said members on their pivots to stretch the washer, substantially as described.

3. A device for attaching rubber washers to bottle-stoppers, having, in combination, a base, a plurality of stretching members mounted thereon, a cam rotatably mounted on said base engaging the stretching members, and means for rotating the cam to actuate said members to stretch the washer, substantially as described.

4. A hand-tool for attaching rubber washers to bottle-stoppers, having, in combination, a base, a plurality of stretching members mounted thereon, a cam rotatably mounted on said base engaging the stretching

members and handles projecting from said base and cam arranged to be grasped by the hand of an operator, substantially as described.

680,871. **ELEVATOR.** WILLIAM P. LEONARD, Columbus, Ohio. Filed June 7, 1900. Serial No. 19,438. (No model.)



Claim.—1. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the door, and a preponderating weight on the car to open the same adapted to be automatically brought into action when the car stops opposite the door.

2. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the same, a preponderating weight on the car to open the same, means for automatically causing said weight to open the door when the car arrives and stops opposite the door, and means for automatically restoring said weight to its operative position when the car moves from the door.

3. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the door, a preponderating weight on the car to open the door, means for automatically causing said weight to open the door, when the car arrives and stops opposite the door, and means on the car for automatically restoring said weight to its operative position when the car moves from the door.

4. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a latch for said door and a weight to close the door, a preponderating weight on the car to open the door, means for automatically causing said weight to release said latch and open said door when the car arrives and stops opposite the door

5. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a latch for the door and a weight to close the door, a preponderating weight on the car to open the door, means for automatically causing said weight to release said latch and open said door when the car arrives and stops opposite the door, and means for automatically restoring said weight to its operative position.

6. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the door, and a preponderating weight on the car for opening said door, a weight-elevating, and a weight-releasing mechanism on the car adapted to be operated by the motion and cessation of motion, respectively, of the car.

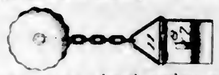
7. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the door, and a preponderating weight for opening the door, a mechanism for elevating said preponderating weight operated by the motion of the car, and a mechanism for releasing said weight operated by the cessation of motion of said car.

8. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the door, a preponderating weight for opening the door and holding the same open, means operated by the operation of the motor-controller for releasing the door from the preponderating weight.

9. In combination, an elevator shaft or well, a car to move therein, a door to said shaft, a weight to close the door, a preponderating weight for opening the door and holding the same open, means for automatically winding up said preponderating weight, means for automatically releasing said preponderating weight when the car arrives and stops opposite the door, and means operated by the operation of the motor-controller for releasing the door from the preponderating weight.

680,872. **SKIRT-SUPPORTER.** DAVID A. LEVY, St. Louis, Mo. Filed Feb. 23, 1901. Serial No. 48,568. (No model.)

Claim.—1. In a garment-supporter, a clasp composed of cooperating members hinged at one end, one of said members having an inner lug, the other member having an opening about opposite said lug, a link having bent ends, one of said ends being pivotally engaged with the aforementioned lug, and a cam upon the other bent end and adapted for cooperation with the members to force them together, substantially as specified.



2. In a garment-supporter, pivoted members, one of the members having an inner lug and the other an opening, a link having pivotal connection with said lug at one end and having its opposite end portion passing through the opening of the other member, a cam fitted to the projecting end of the link, and a spring mounted upon the link and adapted to force the members of the clasp apart at their free ends, substantially as specified.

680,873. **HAT-PIN.** CHARLES W. LORD, Providence, R. I., assignor of one-half to Ora E. Case, same place. Filed June 1, 1901. Serial No. 62,750. (No model.)

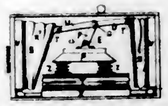


Claim.—1. In a hat-pin head, the combination with a body member of a spiral spring resting upon the body-base, means intermediate the base and top of the body for retaining the spring, a cap fixed to the upper end of the spring provided with a threaded opening, and an ornamental top provided with a threaded projection adapted to engage in the threaded opening of the cap, as and for the purpose set forth.

2. In a hat-pin head, the combination with a body member of a spiral spring whose lower coils are of greater diameter than its upper resting upon the body-base, a washer intermediate the base and top of the body and fixed to the latter provided with an opening into which the spring fits, a cap fixed to the upper end of the spring, and an ornamental top engageable with the cap, as and for the purpose set forth.

3. In a hat-pin head, the combination with a body member provided with an inturned upper flange, of a spiral spring mounted in the body member, a conical cap attached to the top of the spring and whose base is inclosed by the inturned flange, and an ornamental top engageable with the cap, as and for the purpose set forth.

680,874. **FOG-HORN.** LLEWELLYN D. LOTHROP, Gloucester, Mass. Filed Nov. 18, 1899. Renewed June 17, 1901. Serial No. 64,933. (No model.)



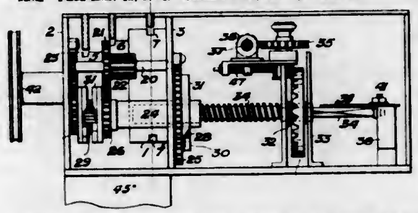
Claim.—1. In a fog-horn signaling apparatus, an oblong rectangular box having secured to the interior thereof a vertical bellows at each end and a horizontal exhaust-tank at the bottom having an air-tube to the fog-horn on the outside of the box below the operating hand-lever, the said air-tube having a flexible section, whereby the screw-threaded connections with the fog-horn may be brought into true line in the act of coupling the same, substantially as shown and described.

2. A fog-horn signaling apparatus consisting of an oblong box having a vertical bellows secured to each end thereof and a horizontal exhaust-tank secured centrally to the bottom thereof and air-pipes connecting the bellows, exhaust-tank and fog-horn, and a folding hand-lever, a rock-shaft and connected actuating devices arranged between the bellows above the exhaust-tank, as shown and described.

3. In a fog-horn signal, the bellows provided with front and back blocks having rectangular grooves formed around their edges and the leathers of the bellows secured against the opposite sides of the said grooves by rectangular strips of metal forced into said grooves, whereby two parallel joints are formed between the leathers and blocks, as shown and described.

4. In a fog-horn signaling apparatus, the bellows provided with thick back blocks having the air-passages formed in the said blocks and the air-tubes connecting the same provided at each end with external screw-threads, whereby the metal screw-threads will serve to cut corresponding screw-threads within said air-passages in coupling the same together, and the air-tube leading to the fog-horn provided with a flexible section whereby the screw-thread connection of the fog-horn may be brought into line to couple the same substantially as described.

680,875. **COIN-CONTROLLED MECHANISM FOR PREPAYMENT METERS.** WILLIAM W. MARLAND and EDWARD LARGE, Oldham, England. Filed Mar. 12, 1901. Serial No. 50,786. (No model.)



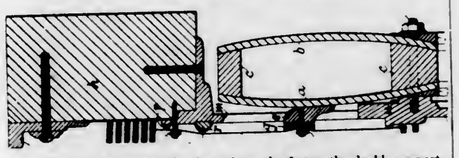
Claim.—1. The combination with a meter having a valve, and a device for opening said valve, of a casing having a series of coin-receiving slots, a shaft with means for turning the same, a series of rings mounted on said shaft, means for coupling said shaft and rings by a coin, means interposed between each ring and said valve-opening device for operating the latter, said valve being adapted to be coupled to either of said rings to turn in unison with the same.

2. The combination with a gas-meter having a valve and a device for opening the same, of a series of rings having openings adapted to receive coins of different sizes, means interposed between the rings and said device for operating the latter, and a shaft with means for operating the same, said shaft having a series of openings proportioned to and in alinement with the openings in the ring, whereby a coin of the proper size may be made to couple said shaft to either of said rings, each of said rings through said interposed mechanism giving said valve a different movement in an equal movement of the shaft, substantially as described.

3. In prepayment meters, a slotted stepped casing, a stepped bush within the casing having a cavity in each step, rings surrounding such bosses having slots, a hollow screw-threaded shaft, gear-wheels and means interposed between the wheels and rings for imparting the motion of each ring to the said shaft, a screw-threaded rod screwing into said shaft at one end and having a square portion at the other end, a bush and gear-wheel with square opening in the bush through which the square portion of the said rod passes, a stud on such rod, a slotted and pivoted lever with which such stud engages, and means for allowing the rotation of the gear-wheels in one direction only, substantially as and for the purposes set forth.

4. In combination a gas-meter having a valve, a pivoted device for operating the latter, a series of rings, a shifting device for giving said device variant movement for equal movements of the rings, a shaft common to all the rings and supporting the same, a series of coin-pockets in said shaft, one for each ring, each ring having a coin-slot corresponding to and adapted to aline with its coacting slot, said shaft being adapted to be coupled to either of said rings by the insertion of a proper coin, and means for rotating the shaft.

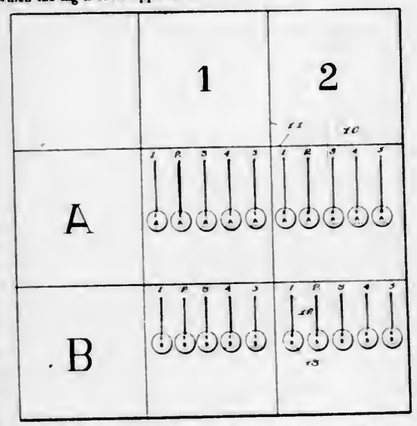
680,876. **PIANOFORTE.** ANTON MEDLIK, Dresden, Germany. Filed Jan. 17, 1899. Serial No. 702,434. (No model.)



Claim.—In combination in a piano, the frame, the double supporting-bars and the pressing-strips, the double sounding-board screwed as a complete body to the piano-frame from behind, and which is made to communicate with the strings by the double supporting-bars and pressing-strips whereby, when the presser-strips are removed from the sound-board, it can be taken out to the rear without the necessity of detaching the strings at another place.

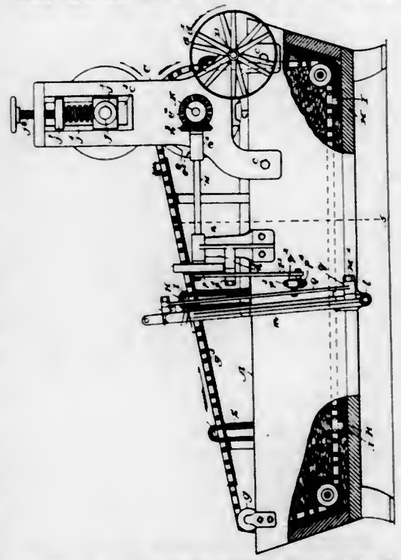
680,877. **DYER'S IDENTIFICATION-TAG APPARATUS.** CHARLES MORGAN, Des Moines, Iowa. Filed Jan. 21, 1901. Serial No. 44,102. (No model.)

Claim.—1. An identification-tag apparatus, comprising in combination, a board having its surface divided into squares, a series of consecutive indicating-marks at the top of the board, one mark for each column of squares, a second series of consecutive indicating-marks at one side of the board, one for each row of squares, a series of pins or hooks in each of the remaining squares on the board, and a number of tags to be suspended from the pins or hooks and three indicating-marks on each tag, the first corresponding to one of the marks at the top of one of the vertical columns, and the second corresponding to one of the marks at the end of one of the horizontal columns, and the third designating the pin or hook in the square to which it belongs and also designating the number of articles to which the tag is to be applied.



2. An identification-tag apparatus comprising in combination a board having its surface divided into squares, indicating-marks on the board for each square, a series of hooks in each square, a series of tags for each square, indicating-marks on each tag for ascertaining the square to which it belongs, and an additional indicating-mark for the tags of each square to determine both the hook on which they belong and the number of articles to which the tags in any particular square are to be applied.

680,878. **SKEIN-WASHING MACHINE.** ROBERT E. MURPHY, Lowell, Mass. Filed July 6, 1900. Serial No. 22,737. (No model.)



Claim.—1. In a skein-washing machine, the combination of a suitable tank, squeeze-rolls, two parallel endless chains, running at opposite ends of said rolls, at right angles with the axis of said rolls, skein-supporting sticks, carried by said chains at equal intervals at right angles to

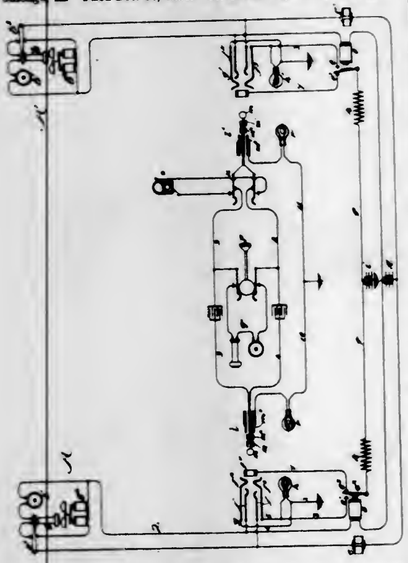
said chains, and positive means of varying the distance apart of said rolls at regular intervals of time, to allow said sticks to pass between said rolls.

2. The combination, in a skein-washing machine, of a suitable tank, stands, supported thereon, a lower squeeze-roll, journaled in stationary bearings in said stands, an upper squeeze-roll, parallel with said lower squeeze-roll, journal-boxes, movable toward and from said fixed bearings and supporting said upper squeeze-roll, cams, rotary with said lower squeeze-roll, to move said journal-boxes away from said fixed bearings, two parallel endless chains, running at opposite ends of said rolls at right angles thereto, and skein-supporting sticks, carried by said chains, parallel with said rolls.

3. The combination, in a skein-washing machine, of a suitable tank, the squeeze-rolls, two parallel endless chains, running at opposite ends of said squeeze-rolls, a skein-supporting stick, carried by said chains parallel with the axes of said squeeze-rolls, a movable guide, arranged parallel with said stick, means of causing a lateral reciprocating intermittent movement of said guide, equal in speed with the movement of said stick, a carriage, traveling on said guide, a shifting rod, supported by said carriage, means for reciprocating said carriage, to thrust said rod through the skein supported on said stick during the movement of said guide with said stick and means for increasing the interval between said rod and stick.

4. The combination, in a skein-washing machine, of a suitable tank, the squeeze-rolls, two parallel endless chains, running at opposite ends of said squeeze-rolls, a skein-supporting stick, carried by said chains parallel with the axes of said squeeze-rolls, a movable guide, arranged parallel with said stick, means of causing a lateral reciprocating intermittent movement of said guide, equal in speed with the movement of said stick, a carriage, traveling on said guide, a shifting rod supported by said carriage, means for reciprocating said carriage, to thrust said rod through the skeins supported on said stick during the movement of said guide with said stick, means for increasing the interval between said rod and stick, and means of subsequently withdrawing said rod from said skeins.

680,879. TELEPHONE-EXCHANGE APPARATUS. FRANK R. McBERTY, Evanston, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,574. (No model.)



Claim.—1. The combination with a telephone-line, of a continuously-acting source of current in the line and a telephone-switch controlling the flow of current, a relay in the line-circuit responsive to currents therein, a local circuit including a source of current and a subsidiary line-signal controlled by switch-contacts of the relay closed when said relay is excited, and a clearing-out signal in a separate local circuit controlled by another switch-contact of the same relay and closed when the relay is inert, substantially as set forth.

2. The combination with a telephone-line, of a continuously-acting source of current in the line and a telephone-switch at the substation controlling the current, a relay in the line-circuit responding to currents therein, a line signal-lamp and a clearing-out signal-lamp, and switch-contacts in the relay adapted to close a circuit from a source of current alternately through the line-signal and through the clearing-out signal, as the relay is excited or inert, substantially as described.

3. The combination with a telephone-line, of a continuously-acting source of current in the line and a telephone-switch at the substation controlling the current, a relay in the line responding to currents therein, a line signal-lamp, a circuit including the said lamp, and switch-contacts adapted to close the circuit when the relay is excited, means for interrupting the current through the lamp when connection is made with the line, a clearing-out signal-lamp included in another circuit, and switch-contacts in the relay adapted to close the latter circuit when the relay is unexcited, substantially as described.

4. The combination with a telephone-line, and means for producing current in the line during the use of the telephone, of a relay included in the line adapted to respond to currents therein, a spring-jack connected with the line, a line signal-lamp associated with the spring-jack in a circuit controlled by the relay, to be closed when the relay is excited, means for interrupting the current through the lamp when a connecting-plug is inserted in the spring-jack, a clearing-out signal-lamp associated with a connecting-plug in a circuit normally open at two points, means for closing said circuit at one point when the connecting-plug is inserted into the spring-jack, and switch-contacts in the relay adapted to close the other break in the circuit when the relay is inert, substantially as described.

5. The combination with a telephone-line, of a relay in the line responding to currents therein, a line signal-lamp, and a local circuit therethrough controlled by the relay, a clearing-out signal-lamp, and means for temporarily connecting the clearing-out signal-lamp in a local circuit controlled by the same relay, said means consisting of a conductor terminating in the connecting-plug for making connection with the line, substantially as described.

6. The combination with a telephone-line provided with a switch at its substation adapted to close the line while the telephone is in use, of a source of current and a relay included in the line, a spring-jack connected with the line, and a line signal-lamp associated with the spring-jack, the line-signal being included in a local circuit controlled by the relay, to be closed when the relay is excited, and having its terminals connected with normally separated contact-pieces in the spring-jack, a connecting-plug adapted to fit the spring-jack having contact-pieces constructed to connect the said contact-pieces in the spring-jack together, a clearing-out signal-lamp associated with the connecting-plug in a circuit normally terminating in a contact-piece in the plug and in a registering contact-piece in the spring-jack, the continuity of the local circuit to the said registering contact being also controlled by the relay, substantially as described

7. The combination with a telephone-line having a relay responsive to currents in the line, of a subsidiary signal in the circuit controlled by the relay, a spring-jack for the line and a plug and plug-circuit for making connection therewith, a second subsidiary signal and an independent local circuit for said last-mentioned signal, controlled by an independent switch-contact of the aforesaid line-relay, said local circuit of the last-mentioned signal being completed in making connection with the line, substantially as set forth.

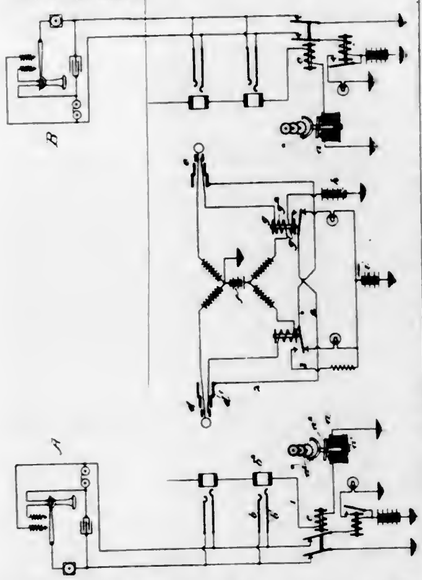
8. The combination with a telephone-line, a continuously-acting source of current therein at the central office, and a telephone-switch for controlling the current at the substation, a relay in the path of current in the line, a local circuit controlled by the relay and a line-signal therein, a spring-jack for the line and a plug for making connection therewith, a normally broken short circuit of the line-signal independent of the switch-contacts of the relay, and switch-contacts controlling the short circuit, closed by the plug when in the spring-jack, substantially as described.

9. The combination with a telephone-line, a continuously-acting source of current in the line at the central office, and a telephone-switch controlling the line-circuit at the substation, a relay in the line responsive to current therein, a local circuit controlled by the relay, and a line-signal in the local circuit, a normally open short circuit of the line-signal independent of the switch-contacts of the relay, and means for closing the shunt when the connecting-plug is inserted in the spring-jack of the line, a clearing-out signal associated with the connecting-plug, and means for controlling it in response to changes in the current strength of the line, the circuit through said clearing-out signal being completed through registering contacts of the spring-jack and plug when connection is made with the line, substantially as described.

10. The combination with a telephone-line, of a source of current and a relay included in the line at the central office, a switch at the substation adapted to close the circuit through said relay in the use of the telephone, a subsidiary signal in a local circuit adapted to be closed by the relay when excited, a spring-jack for the line and a plug and plug-circuit for making connection therewith, a switch actuated in making connection with the line, adapted to deprive the subsidiary signal of current, a disconnect-signal associated with the plug-circuit, and a local circuit for said disconnect-signal, established in registering contacts of the plug and spring-jack, and

controlled by the switch-contacts of the relay, said circuit being closed by the said line-relay when inert, substantially as set forth.

680,880. CONNECTION-REGISTER FOR TELEPHONE-EXCHANGES. FRANK R. McBERTY, Evanston, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,578. (No model.)



Claim.—1. The combination with two telephone-lines extending from substations to a central office, of means at the central office for uniting the lines in response to a call from one of them, a polarized connection-register responsive for the registration of a connection to two successive oppositely-directed current impulses, a supervisory relay at the central office controlled through the agency of a switch at the called station, a circuit including said connection-register established upon connection at the central office with the calling-line, said register-circuit being controlled by the supervisory relay of the called line, a source of current adapted to establish the required initial current impulse to actuate said register, normally connected in said circuit by way of the normal resting contact of the relay-armature, and a second source of current adapted to establish in said circuit the required final current impulse, said second source of current being connected by way of the front contact of said relay when the relay is energized, as set forth.

2. The combination with two telephone-lines extending from substations to a central office, of means at the central office for uniting the lines in response to a call from one of them, a polarized connection-register associated with the calling-line, responsive for the registration of a connection to two successive oppositely-directed current impulses, a circuit including said register, means, controlled by connection with the calling-line at the central office for establishing in said register-circuit the required initial current impulse, and means, controlled through the agency of a switch at the called station, for establishing in said register-circuit the final oppositely-directed current impulse, whereby the connection is automatically registered when the called subscriber answers the call, as set forth.

3. The combination with two telephone-lines extending from substations to a central office, of spring-jacks for the lines at the central office and a pair of plugs and their plug-circuit for uniting the lines in response to a call from one of them, a polarized connection-register responsive for the registration of a call to two successive oppositely-directed current impulses, a circuit including said register established by the insertion of the answering-plug into the spring-jack of the calling-line, and a source of current in said circuit adapted normally to maintain therein current in a given direction, and means, controlled through the agency of a switch at the called station, for establishing in the register-circuit the required final oppositely-directed current impulse, as set forth.

4. The combination with two telephone-lines extending from substations to a central office, of spring-jacks for the lines at the central office and a pair of plugs and their plug-circuit for uniting the lines in response to a call from one of them, a polarized connection-register responsive for the registration of a call to two successive oppositely-directed current impulses, a circuit including said register established by the insertion of the answering-plug into the spring-jack of the calling-line, and a source of current in said circuit adapted normally to maintain therein current in a given direction, means, controlled through the agency of a switch at the called station, for establishing in the register-circuit the required final oppositely-directed current impulse, and means for thereupon rendering the register-circuit independent of the called line, as set forth.

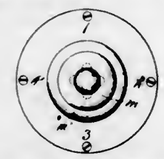
5. The combination with two telephone-lines and means at a central office for uniting them, of a connection-register associated with one of the lines and a polarized electromagnet for operating said register, a circuit including said polarized magnet and a responsive device c, a source of current in the register-circuit adapted to affect said responsive device but not suitable to operate the connection-register, and means controlled through the agency of a switch at the substation of the called line for establishing in the register-circuit a current impulse of definite direction adapted to operate the register, substantially as set forth.

6. The combination with two telephone-lines extending from substations to a central office, of means at the central office for uniting the lines, a polarized electromagnet and a connection-registering train operated by the armature thereof, said registering-train requiring two successively-opposite movements of said armature to complete a registration, means for positioning the armature normally at one side, a circuit including said electromagnet, a relay controlled through the agency of a switch at the called station, controlling said circuit, a branch from said circuit controlled by said relay, a retaining-winding g' for the relay and a source of current h included in said branch circuit, whereby when the relay is operated a suitably-directed current impulse to throw the armature of the polarized electromagnet to the opposite side, is produced in the registering-circuit and the circuit is simultaneously rendered independent of the called line, substantially as set forth.

7. The combination with telephone-lines and switches at the stations thereof for determining the flow of current in the lines in the use of the telephones, spring-jacks for the lines, plugs and a plug-circuit for uniting them, and normal grounded extensions of each line, of an electromagnetic switch for each line, controlling the said grounded extensions, a polarized connection-register, a local circuit including the magnet of the switch together with the polarized connection-register, said local circuit comprising a portion terminating in a contact-piece of the spring-jack including said magnet and register and a portion terminating in a registering-contact portion of the plug, and a switch in said last-mentioned portion adapted to apply current of either polarity in said portion; whereby the switch-magnet is excited during connection with the line, while the register may be operated at will, substantially as described.

8. The combination with a telephone-line extending from a substation to a central office, of a spring-jack for the line at the central office adapted for the insertion of a connecting-plug therein, said spring-jack having a contact-piece b^2, call-indicating apparatus for the line at the central office and a cut-off relay c controlling the connection of said indicating apparatus with the line and adapted to respond indifferently to current of either polarity, a branch circuit l from said contact-piece b^2 of the spring-jack, including the magnet of the cut-off relay, a polarized connection-register included in said branch circuit, responsive for the registration of a call to two successive oppositely-directed current impulses, a connecting-plug adapted to be inserted in the spring-jack of the line, oppositely-directed sources of current, and means for alternately connecting said sources of current with the plug and so with the contact-piece b^2 of the jack, whereby the connection-register is operated, substantially as set forth.

680,881. SELECTIVE CALLING-KEY FOR PARTY-LINES. FRANK R. McBERTY, Evanston, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Jan. 6, 1900. Serial No. 632. (No model.)



Claim.—1. The combination with the double sets of contact-springs $f' f^2 f^3 f^4$, of the centrally-placed standard or axis and the lever pivotally mounted on said standard, said lever carrying radial arms or wedges $h' h^2 h^3 h^4$, one for each set of springs; whereby the contacts of said sets of springs may be changed on tilting the lever, substantially as and for the purpose specified.

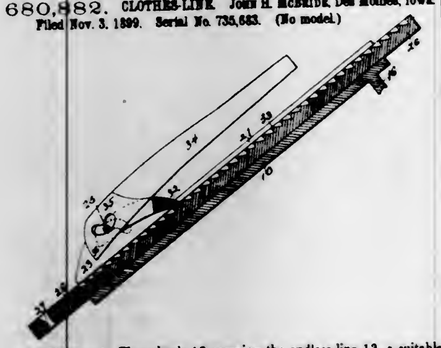
2. The combination with the pivoted lever *g'*, of two or more radial arms or wedges mounted thereon at right angles to one another, and sets of contact-springs, one for each of the said arms, said sets of springs being arranged about the axis or support of the said lever, the arm or wedge of a particular set of springs being adapted to be forced between the members of such set to wedge the same apart and change the contacts thereof on tilting the lever in the proper direction.

3. The combination with a number of sets of contact-springs arranged around a central standard, of an operating-lever pivotally mounted on said standard and adapted to be tilted angularly in different directions to actuate any desired set of contact-springs, a convex plate *m'* through which the handle of the lever is passed, having an opening in which said lever may be moved to and fro, and a convex escutcheon *m* carried by the lever and fitting over said opening in the convex plate, substantially as set forth.

4. The selective calling-key consisting of vertically-placed switch-springs grouped about an axis or standard, in combination with wedges of insulating material adapted to be moved by a common lever, the center of pressure or greatest resistance of the springs to the wedges when thrust between them being above the pivotal bearing of the support for the wedges; whereby the resistance of the springs of any set when a wedge is forced between the same aids in keeping the support for the wedges against its bearing, substantially as and for the purpose specified.

5. The pivoted operating-lever with four radial arms therefrom at right angles to each other and to the lever, carrying-wedges, in combination with the four sets of switch-springs, one adapted to be operated by each wedge, and the central standard *g* supporting the lever at the center of the four arms, whereby two wedge-arms in alinement with one another rotate as a shaft between the corresponding switch-springs while a wedge at right angles thereto is thrust between the springs to operate them, substantially as set forth.

680,882. CLOTHES-LINE. JOHN H. MCBRIDE, Des Moines, Iowa. Filed Nov. 3, 1899. Serial No. 735,653. (No model.)



Claim.—1. The wheels 12 carrying the endless line 13, a suitable pin mounted on the line 13, a member or arm 11 carrying one of the wheels 12 and suitably supported, a member or arm 10 carrying the other wheel 12, and a ratchet-bar carrying the member or arm 10 and suitably supported, and a pawl-and-ratchet mechanism connecting the arm 10 and the ratchet-bar.

2. In a device of the class described, the member longitudinally grooved and provided with flanges overlapping the groove therein, a wheel pivotally mounted on said member, the ratchet-bar mounted for movement longitudinally in the groove of said member, the lever pivoted on said member and the detent pivoted on said member and engaging the ratchet-bar.

3. In a device of the class described, a member provided with a pin 16, a ratchet-bar slidingly connected with said member, a lever pivoted on said member, and a detent pivoted on said member and engaging said ratchet-bar.

4. The clothes-line comprising the hanger member longitudinally grooved, the ratchet-bar slidingly mounted in said groove, lugs on the member within the groove thereof, shoulders on the ratchet-bar adapted for engagement with said lugs to limit and determine the relative movements of the bar and member in one direction, a lever pivoted on said member and adapted for engagement with the ratchet-bar, a detent pivoted on said member and adapted for engagement with the ratchet-bar, means for attaching a clothes-line to the member and another hanger to which the clothes-line also is attached.

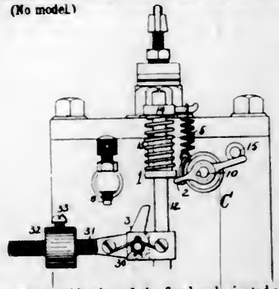
5. In a device of the class described the member longitudinally grooved and provided with flanges overlapping the groove therein, a wheel pivotally mounted on said member, a ratchet-bar mounted for movement longitudinally in the groove of said member, the lever pivoted on said member, the detent pivoted on said member and engaging the ratchet-bar, the member 11 offset in its body portion, the wheel on said member 11 and having its periphery adjacent the offset portion thereof, the endless line on the wheels and the pins on the line.

680,883. SKIRT AND WAIST SUPPORTER. JAMES C. MCDONALD, Davenport, Iowa. Filed Sept. 8, 1900. Serial No. 29,456. (No model.)



Claim.—The combination of a belt made of a single piece of freely-flexible material adapted to be separately connected at the front and having studs projecting outwardly from opposite sides of the center of the back portion, the said studs having extra-long shanks, a waist for application over the said belt and provided with a fabric-reinforce extending longitudinally of the waist-line of the waist across the center of the back and permanently secured to the inner side of the back, said reinforce being freely bendable and movable with the material of the waist and having therein and in adjacent portions of the waist on opposite sides of the center metal-bound openings for passage therethrough of the studs on the back of the belt, and a skirt having sockets on the inner side of the upper portion thereof at the back to removably engage said projected studs.

680,884. SPARKING IGNITER FOR EXPLOSIVE-ENGINES. RALPH L. PALMER, Mianus, Conn. Filed May 24, 1901. Serial No. 61,795. (No model.)



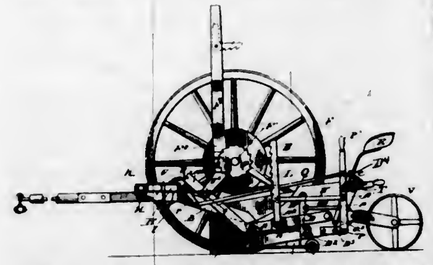
Claim.—The combination of the fixed and pivoted contacts of the electric igniting device of a gas-engine and a spring-arm on the pivoted contact with a reciprocating rod, a sleeve bearing on said spring-arm and a spring to bear on the sleeve to tend to keep the contacts separated, a spring-actuated catch-lever pivoted to the reciprocating rod, and normally adapted to contact with said sleeve and an adjustable weight on the said lever, all substantially as and for the purpose described.

680,885. OAR. PETER J. POOL, Toledo, Ohio. Filed Dec. 6, 1900. Serial No. 38,930. (No model.)



Claim.—A metallic oar the loom of which is tubular and air-tight, substantially as described.

680,886. WHEELED SCRAPER. CHARLES RATH, Los Angeles, Cal. Filed Sept. 24, 1900. Serial No. 30,976. (No model.)



Claim.—1. In a wheeled scraper, the combination with the main frame composed of the side pieces united at the front by a fore frame and at the rear by the rigid rear frame, the cranked axle pivotally connected with the side frames whereby when the axle is turned the side frames will be raised or lowered and the ground-wheels journaled on the axle, of the scoop-body carried between the side frames, the draft-rigging movably mounted on the fore frame, arms moving with the axle, flexible connections between the arms and draft-rigging whereby the axle may be turned to raise the scoop and a lock for holding the scoop in raised position; substantially as described.

2. In a wheeled scraper, the combination with the main frame, the cranked axle pivotally connected therewith whereby when turned it will raise or lower the main frame, the scoop carried by the main frame and capable of an independent tilting motion to dump with catches for holding it in normal position and a lock for holding the axle in normal position with the scoop raised, of a draft-rigging movable toward and from the scoop and a flexible connection extending back from said draft-rigging for rotating the axle to raise the scoop; substantially as described.

3. In a wheeled scraper, the combination with the main frame, and the scoop carried thereby, of the cranked axle pivotally connected with the main frame, the frame rigidly attached to said axle, the rearwardly-extending arms on said frame having the lock for holding the axle in adjusted position, the downwardly-extending arms also rigid with the axle, the independently-movable draft-rigging and flexible connections, between the draft-rigging and downwardly-extending arms; substantially as described.

4. In a wheeled scraper, the combination with the main frame consisting of the side and rear frames and fore frame pivoted to the side frames, the scoop carried by the main frame and the cranked axle pivotally connected with the main frame, of the arms rigid with the axle for turning the same to elevate the scoop, the draft-rigging movably mounted on the fore frame and the flexible connections between the draft-rigging and arms on the axle; substantially as described.

5. In a wheeled scraper, the combination with the scoop, cranked axle, movable draft-rigging connected with the axle for rotating the same to raise the scoop, the hook for holding the draft-rigging against independent movement and ground-wheels, of gears rotating in unison with the ground-wheels, racks connected with the scoop and adapted to mesh with the gears, the control-lever, a trip for the draft-rigging hook and connections between said lever and hook-trip and rack-bars; substantially as described.

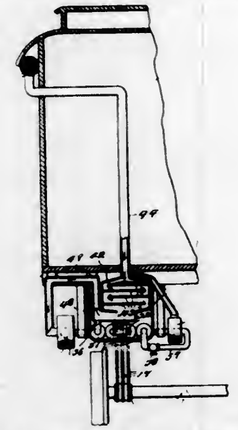
6. In a wheeled scraper, the combination with the scoop, ground-wheels, draft-rigging and elevating mechanism for the scoop operated by the draft-rigging, of an auxiliary elevating mechanism for the scoop comprising gears rotated in unison with the ground-wheels, rack-bars carried by the scoop and movable into and out of mesh with the gears, a manually-controlled rack-bar connected with said rack-bars for controlling the engagement and a lock for holding the scoop in its elevated position; substantially as described.

7. In a wheeled scraper, the combination with the side frames united at the rear and having the upward extensions at the front, the cranked axle pivotally supported by said upward extensions, the ground-wheels and the scoop supported between the side frames, of the rearwardly-extending arms rigidly connected with the axle, the lock operating through said arms to hold the axle in adjusted position, the gears on the ground-wheels the rack-bars on the side frames and means for moving said rack-bars into and out of mesh with the gear-wheels; substantially as described.

8. In a wheeled scraper, the combination with the side frames, the tail-gate rigidly connecting the rear ends of said frames and the side pieces connected with said tail-gate and side frames, of the axle, the scoop-body pivotally supported between the side frames, a lock for holding the scoop-body against tilting and an elevating mechanism for the frames; substantially as described.

9. In a wheeled scraper, the combination with the main frame, ground-wheels and elevating mechanism for the main frame, of the scoop carried by the main frame and having a tilting body, a roller journaled beneath the rear edge of said body and catches for holding said body against tilting with means for releasing the catches; substantially as described.

680,887. VENTILATING APPARATUS. WILLIAM H. R. REYNOLDS, Houston, Tex. Filed Mar. 14, 1901. Serial No. 51,130. (No model.)



Claim.—1. In a car-ventilating apparatus, the combination with one of the axles of a car, of a cooling-tank, having an air-inlet, an air-outlet, and internal baffle-plates, a water-inlet in the top, and a water-outlet at the bottom, a counter-shaft in operative relation to the axle, a rotary blower and a rotary pump mounted upon and driven by the shaft, a pair of branch pipes constructed to respectively take the discharge from the pump in its opposite directions of rotation and in communication with the water-inlet of the cooling-tank, a return-pipe from the water-outlet to the pump, an air-pipe from the air-outlet to the blower, a pair of branch pipes connected to the blower and constructed to respectively take the discharge thereof in its opposite directions of rotation, valves for the branch pipes, means for simultaneously opening the valve of one pipe and closing the valve of the other pipe, and a main distributer-pipe connected to the branch pipes.

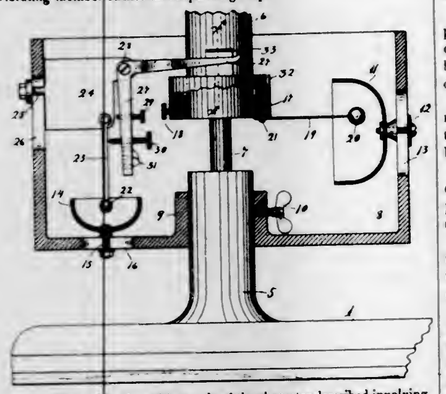
2. In a car-ventilating apparatus, the combination with one of the axles of a car, of a cooling-tank located below the car-floor, and provided with internal baffle-plates, a combined air and water inlet at the top of the tank, a compartment water-tank hung from the bottom of the car, a water-discharge pipe leading from the bottom of the cooling-tank to one end of the water-tank, a counter-shaft located below and projected at opposite sides of the cooling-tank and also in operative relation to the car-axle, a rotary blower mounted upon and driven by one end of the shaft, and a rotary pump mounted upon and driven by the opposite end of the shaft, a water-pipe connecting the opposite end of the water-tank to the pump, a pair of branch pipes leading from the pump to the combined air and water inlet of the cooling-tank, and constructed to respectively take the discharge in the opposite directions of the operation of the pump, an air-pipe from the cooling-tank to the blower, a pair of branch pipes leading from the blower and constructed to respectively take the discharge therefrom in the opposite directions of rotation thereof, valves for the branch pipes, means for simultaneously opening one valve and closing the other, and a main distributer-pipe connected to the branch pipes.

680,888. WEIGHING-SCALE. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 23, 1901. Serial No. 45,175. (No model.)

Claim.—1. The combination with a moving part of a weighing-scale, of a spring member carried thereby, and an alarm device comprising a bell and a hammer, one of which parts is relatively fixed, and the other of which is carried by the said spring member and is thrown into action by momentum, substantially as described.

2. The combination with a vibrating part of a weighing-scale, of a spring-stem carried thereby, and provided at its free end with a bell hammer or clapper, and a bell located for cooperation with the said hammer and arranged to be struck thereby under the action of momentum, substantially as described.

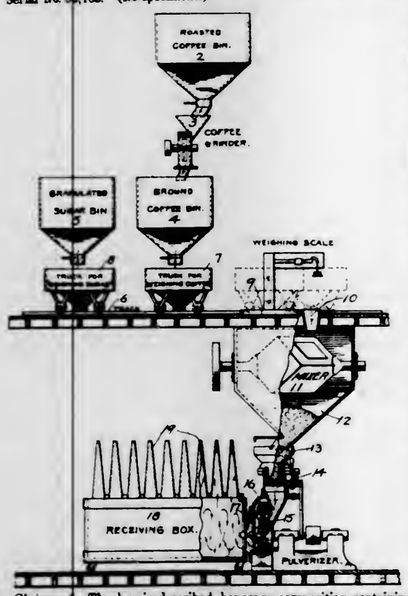
3. The combination with a vibrating part of a weighing-scale, and a stop limiting the extreme movement thereof, a spring-stem carried by said vibrating member, and an alarm device comprising a hammer and a bell, one of which parts is relatively fixed, and the other of which is carried at the free end of said spring-arm and is adapted to be thrown against said coöperating fixed member under the action of momentum, when said vibrating member strikes its coöperating stop.



4. The combination with a scale of the character described involving the relatively fixed sleeve 5 and the movable sleeve 6, of the spring-stem 19 carried by said sleeve 6 and provided at its free end with the hammer 20, and the relatively fixed bell 11 arranged to be struck by said hammer 20 when said sleeve 6 strikes said sleeve 5, substantially as described.

5. The combination with a scale, of a fixed bell and a relatively movable hammer, an actuating device for said hammer, and an overpoising-weight, gravity-held on a vertically-movable part of said scale, normally adding its weight to the other load, and adapted to be thrown upon and supported by said hammer-actuating device, upon the downward movement of the loaded end of the scale-beam, substantially as described.

680,889. **COFFEE COMPOUND AND PROCESS OF MAKING SAME.** JOSEPH M. SCHUTZ, Minneapolis, Minn., assignor of one-half to Charles G. Hawley, same place and Chicago, Ill. Filed Nov. 12, 1900. Serial No. 36,182. (No specimens.)



Claim.—1. The herein-described beverage composition containing pulverulent bean material and pulverulent absorbent material in substantially the proportions named, thoroughly admixed, and the particles of absorbent material containing the major portion of the original oils of said bean material, substantially as described.

2. The herein-described coffee composition containing impalpable roasted coffee tissue and impalpable sugar thoroughly admixed, and the particles of sugar holding in absorption the major portion of the coffee-oils, substantially as described.

3. The herein-described beverage composition containing impalpably pulverulent and thoroughly-admixed bean material, absorbent material, desiccated milk, and carbonate of lime, the particles of absorbent material being impregnated with the oils of the bean material, substantially as described.

4. The herein-described beverage composition containing impalpable roasted bean material admixed with impalpable sugar and desiccated milk, the particles of sugar being impregnated with the major portion of the bean-oils, substantially as described.

5. The herein-described composition containing impalpable admixed coffee, sugar, and carbonate of lime, and the particles of sugar being impregnated with the major portion of the coffee-oils, substantially as described.

6. A coffee composition containing an impalpably pulverulent mixture of coffee and absorbent material, the latter containing the major portion of the oil of the coffee separated during pulverization, substantially as described.

7. The herein-described beverage composition containing roasted bean material in a separated condition, the liquid principles thereof being held in a suitable absorbent material admixed with said bean material, and the mass being in a condition of impalpable subdivision, substantially as described.

8. The process of manufacturing the beverage composition of bean material that consists in mixing a suitable absorbent material with the roasted bean material, breaking the particles thereof by attritional forces, separating the liquid principles from said bean material by forces tending to project the particles, causing the absorption of the major portion of the said liquid principles by said absorbent material, and continuing the operation of said forces until the mixture is reduced to a dry, impalpable powder, substantially as described.

9. The process of manufacturing a composition of coffee or the like, that consists in mixing a suitable absorbent material with the coffee material, and then subjecting the mixture to the operation of reductional and centrifugal forces within a limited space, and thereby causing the separation of the solid and liquid principles of the coffee and the absorption of the major portion of the said liquid principles by said absorbent material during the process of reduction, to impalpability, as and for the purpose specified.

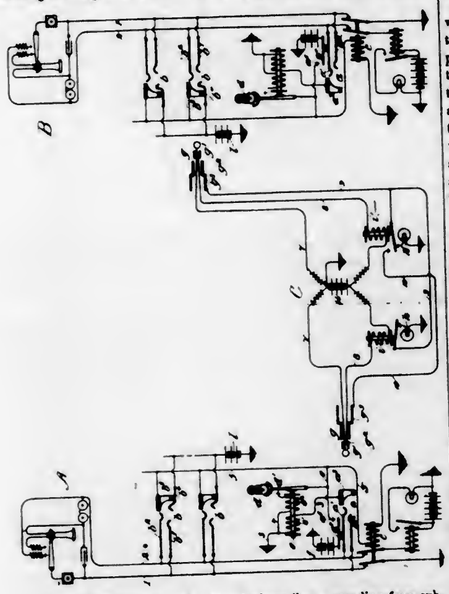
10. The process of manufacturing a composition of coffee or the like, that consists in mixing a suitable absorbent material with the coffee material, and then subjecting the mixture to the operation of reductional and centrifugal forces within a limited space, and thereby causing the separation of the solid and liquid principles of the coffee and the absorption of the major portion of the said liquid principles by said absorbent material during the process of reduction to impalpability, and driving cool air through said limited space, as and for the purpose specified.

11. The herein-described process of manufacturing coffee composition that consists in mixing a major portion of roasted coffee with a minor portion of absorbent material, pulverizing the mixture, and simultaneously and continuously extracting the coffee-oils from the cellular tissue and absorbing the same in said absorbent material until the mixture is reduced to impalpability, substantially, as described.

680,890. **CONNECTION-COUNTER FOR TELEPHONE-EXCHANGES.** CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 26, 1899. Serial No. 741,572. (No model.)

Claim.—1. The combination with two telephone-lines united for communication through a plug-circuit, of a service-meter associated with one of the lines, a supervisory relay responsive to current in the other line determined by a telephone-switch at the station of said line, a local battery-circuit connected with a local contact-piece of the spring-jack of the called line, closed through a registering contact-piece of the plug in said spring-jack, and having two branches adapted to be closed alternately by the supervisory relay, a supervisory signal-lamp being contained in one of said branches, and the other of said branches being continued through a winding of the service-meter of the other line by means of registering contacts of the answering-jack and answering-plug, as described.

2. The combination with two telephone-lines extending from substations to a central office, of spring-jacks for the lines at the central office, a pair of plugs and their plug-circuit for uniting the lines in response to a call from one of the lines, an electromagnetic connection-register associated with the calling-line, a supervisory relay in one of the conductors of the plug-circuit, controlled by the flow of current in the called line, a source of current connected with a contact of the spring-jack of the called line, a conductor 9 forming a part of the plug-circuit and adapted to be connected with said source of current when the connecting-plug is inserted in the spring-jack of the called line, an armature for the said supervisory relay connected with said conductor 9, a back contact for the said armature connected through a signal k with a return-conductor leading to the said source of current, a front contact for the said armature, and a return-circuit from said front contact to the source of current, including the magnet of said connection-register, substantially as set forth.



3. The combination with two telephone-lines extending from substations to a central office, of spring-jacks for the lines at the central office, an answering spring-jack and a line spring-jack for each line, a pair of plugs and their plug-circuit for connecting the lines together from the answering-jack of the calling-line to a line-jack of the called line, a connection-register included in a grounded branch from a contact a^3 of the answering-jack of the called line, a supervisory relay included in a conductor of a cord-circuit and controlled by the flow of current in the called line, an armature for said relay, a grounded source of current connected with a contact of the line spring-jack of the called line and adapted to be connected with the armature of said relay when the connecting-plug is inserted in said line-jack, a supervisory signal k' included in a grounded conductor from the back contact of said supervisory relay, and a conductor 10 connecting the front contact of said supervisory relay with a contact of the answering-plug and so with said contact a^3, substantially as and for the purpose set forth.

680,891. **AUTOMOBILE.** WILLIAM C. SMITH, Medford, Mass. Filed Feb. 27, 1901. Serial No. 49,053. (No model.)



Claim.—1. In an automobile, a suitable running-gear including a propelling-wheel and a steering mechanism, a power-shaft connected with and adapted to revolve faster than the propelling-wheel, a propelling-wheel-lifting device, and a suitable carriage-body adapted to the conveyance of persons or goods.

2. In an automobile, a suitable running-gear including a propelling-wheel and a steering mechanism, a power-shaft connected with and arranged to run faster than the propelling-wheel, a suitable carriage-body, and a propelling-wheel-lifting device adapted to be controllable by an operator in the body.

3. In an automobile, a suitable running-gear including a propelling-wheel and steering mechanism, a power-shaft connected with and arranged to run faster than the propelling-wheel, a suitable carriage-body, a propelling-wheel-lifting device adapted to be controlled by an operator in the body, said device comprising a longitudinally-swinging arm pivoted in the running-gear near the propelling-wheel, said arm having a shoe at its lower extremity, and to which arm, when in a substantially vertical position, the weight is adapted to be transferred from the propelling-wheel, thus freeing the latter from the road-surface.

4. In an automobile, a suitable running-gear including a propelling-wheel and steering mechanism, a power-shaft connected with and arranged to run faster than the propelling-wheel, a suitable carriage-body, a propelling-wheel-lifting device adapted to be controllable by an operator in the body, said device comprising a longitudinally-swinging arm pivoted in the running-gear near the propelling-wheel, said arm extending downwardly and beyond the propelling-wheel periphery, whereby, when in a substantially vertical position the arm acts as a support instead of the propelling-wheel, and a forwardly-extending rod pivoted at its rear extremity to said arm and at its forward extremity to a handle-bar, said bar being bail-shaped and pivoted at either extremity to the extremities of a rod connecting the steering axle-knuckles provided in said steering mechanism.

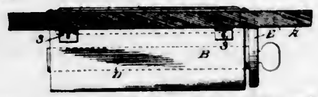
5. In an automobile, a suitable running-gear including a steering mechanism and a propelling-wheel provided with a toothed elastic tire, a power-shaft connected with and arranged to run faster than the propelling-wheel, a propelling-wheel-lifting device, a suitable carriage-body, and a toothed driving-gear in peripheral contact with said tire.

6. In an automobile, a suitable running-gear including a steering mechanism and a propelling-wheel provided with a toothed elastic tire, a power-shaft connected with and arranged to run faster than the propelling-wheel, a propelling-wheel-lifting device, a suitable carriage-body, a toothed driving-gear in peripheral contact with said tire, and said driving-gear adapted to compress the tire, whereby a number of teeth are in contact at the same time.

7. In an automobile, a suitable running-gear including a steering mechanism and a propelling-wheel provided with a toothed elastic tire, a power-shaft connected with and arranged to run faster than the propelling-wheel, a propelling-wheel-lifting device, a suitable carriage-body, a toothed driving-gear in peripheral contact with said tire, and said driving-gear adapted to compress the said tire with a variable pressure, being automatically governed by the weight or load in the body and by the grade of the road-bed.

8. In an automobile, a suitable running-gear including a steering mechanism and a propelling-wheel, a power-shaft connected with and adapted to run faster than the propelling-wheel, a propelling-wheel-lifting device, a suitable carriage-body adapted to the conveyance of persons or goods, said running-gear provided with straight tubular axles, diagonally-arranged straight leaf-springs bolted near the ends of the axles and to a rectangular frame adapted to support the body, a power-shaft bearing bolted to said frame, a power-shaft adapted to run in said bearing and provided with toothed gears at each end thereof, toothed pneumatic tires on the propelling-wheels adapted to mesh with said gears, the teeth of the tires being formed transversely in their peripheries, the teeth being thick durable portions in the tire-tube, and the intermediate portions being thin and resilient, all substantially as and for the purposes set forth.

680,892. **TRUNK.** WILLIAM M. SWAIL and WILLIAM M. DOUGHERTY, St. Joseph, Mo. Filed Dec. 15, 1900. Serial No. 39,997. (No model.)



Claim.—1. A trunk or other shipping-receptacle, provided with a movable shipping tag or label containing a series of prearranged addresses and so constructed and arranged that its operating mechanism is wholly within the trunk or receptacle, whereby unauthorized or surreptitious changing of the tag or label is prevented without first having had access to the interior.

2. A trunk having an opening therethrough, transparent means for covering this opening, rollers located within the trunk, a flexible strip removably connected with and carried over the rollers and means for applying friction to, and locking the rollers against reverse movement.

3. A trunk having an opening therein, a box containing a series of rollers, a flexible strip carried upon said rollers, across the opening in the trunk and means within the trunk for applying friction to the rollers and locking them against reverse movement.

4. A trunk having an opening therein, a box secured beneath the opening, rollers journaled in the box, a flexible strip carried over the rollers and means within the trunk for turning the rollers, applying friction thereto and locking them against reverse movement.

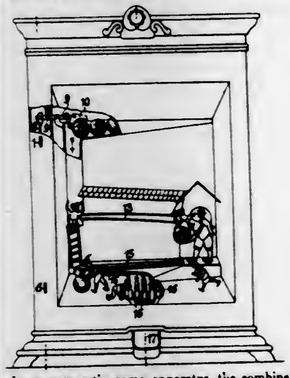
5. A trunk having an opening therein, rollers within the trunk and adjacent to the opening and a strip carried by the rollers and containing various addresses in prearranged order and means within the trunk for turning the rollers and exhibiting said prearranged addresses successively.

6. The combination with a shipping-case having solid and hollow rollers journaled therein, said hollow rollers having longitudinal slits therein and the box having open slots leading from the hollow rollers to the edge of the box, of a flexible strip containing addresses, the ends of the strip doubled together, a rod passed into this doubled portion for locking the ends of the strip in the rollers, the slots in the box being designed to facilitate this assemblage of parts.

7. The combination with a shipping-case and rollers journaled therein, said rollers having notched wheels thereon, of a flexible strip carried over the rollers and containing addresses thereon in prearranged order, of a locking device adapted to simultaneously enter notches in the two wheels to lock the rollers against reverse movement and to bear on the peripheries of said wheels to prevent too great freedom of movement when turning forward, and means for releasing said locking device.

8. A shipping-case having an address-sheet inclosed therein adapted to bear a series of inscriptions to be successively disclosed to the exterior.

680,893. **GAME APPARATUS.** MAX A. STELZER, Hanaulitz, Germany. Filed June 2, 1900. Serial No. 18,840. (No model.)



Claim.—In an automatic game apparatus, the combination with a casing, of an upper inclined trough for containing balls, a detent at the foot of said trough, a ball-track below said trough inclined in an opposite direction thereto, a movably-jointed doll arranged at the foot of said track to be actuated by balls rolling therefrom, a second inclined ball-track below the first-mentioned track and below said doll, movable figures arranged in said second inclined track, said inclined trough, inclined tracks, figures and detent being all contained within said casing, means for operating said detent from outside the casing, and a ball-receptacle outside of the casing communicating with the second inclined track at the foot thereof through an opening in the casing, substantially as herein described.

680,894. **PROCESS OF MAKING INDIGO FROM INDIGO-LEUCO COMPOUNDS.** ARMAND J. STIEGELMANN, Ludwigshafen, Germany, assignor to Badische Anilin & Soda Fabrik, same place. Filed May 21, 1901. Serial No. 61,275. (No specimens.)

Claim.—1. The process for the production of indigo from an indigo-leuco compound by causing the latter to react with sulfur, substantially as described.

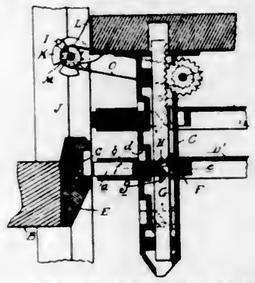
2. The process for the production of indigo from an indigo-leuco compound by causing the latter to react with sulfur in the presence of textile material, substantially as described.

3. The process for the production of indigo from an indigo-leuco compound in the presence of textile material by impregnating the textile material with sulfur and causing the sulfur to react with an indigo-leuco compound, substantially as described.

4. The process for the production of indigo from an indigo-leuco compound in the presence of textile material which consists in impregnating part of the said textile material with sulfur and causing the said sulfur to react with an indigo-leuco compound, substantially as described.

5. The process for the production of indigo from an indigo-leuco compound in the presence of textile material which consists in printing the textile material with a mixture of an indigo-leuco compound and sulfur and causing the sulfur to react with the indigo-leuco compound, substantially as described.

680,895. **ELEVATOR ATTACHMENT.** EDGAR P. STODDARD, Detroit, Mich. Filed Nov. 9, 1900. Serial No. 35,973. (No model.)



Claim.—1. In an elevator, the combination with the car, of a hatch-cover, means for alternatively locking the same to the car or to the landing, and an actuating member for said locking means permanently carried by the car, said member being movable in the same direction as said locking means in its locking and unlocking movement.

2. In an elevator, the combination with the car, of a hatch-cover, a carrying-support for said cover depending from said car, means carried by said cover for alternatively locking the same to said depending support or the landing, a laterally-movable member permanently carried by said support, having a vertical coupling engagement with said locking means, and mechanism for actuating said member and thereby operating said locking means.

3. In an elevator, the combination with the car, of a hatch-cover, a carrying-support therefor depending from the car within the area of said cover and vertically engaging an aperture in the latter, means carried by said cover for laterally engaging said carrying-support or the landing, alternatively, to lock the cover to either one or the other, and an actuating device for said locking means adapted to be withdrawn within said carrying-support when the latter engages or is withdrawn from the aperture in said cover.

4. In an elevator, the combination with the car, of a plurality of hatch-covers carried thereby, means for locking each of said covers alternatively to the car or to their respective landings, an actuating member for each of said locking means and movable in the same direction as the locking means in its locking and unlocking movements, and a common actuating mechanism for said actuating members.

5. In an elevator, the combination with the car, of a plurality of covers, a carrying-support therefor depending from the car, means for locking said covers in different positions to said carrying-support or alternatively to their respective landings, and a common actuating mechanism permanently carried by said car adapted to successively actuate the locking means of said covers by a substantially horizontal movement.

6. In an elevator, the combination with the car, of a hatch-cover, a carrying-support therefor depending from the car, a plurality of laterally-movable bolts for locking said cover to its landing, or alternatively to said carrying-support mechanism carried by the car for simultaneously operating all of said bolts and a single stationary coöperating member for actuating said mechanism in timed relation to the movement of the car.

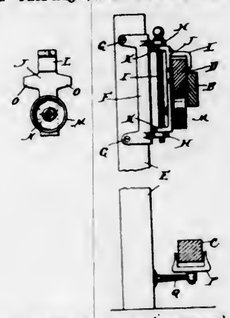
7. In an elevator, the combination with the car, of a hatch-cover, a support therefor on the car, a laterally-slidable member carried by said support and adapted to engage or disengage the cover therefrom, and means for actuating said member in timed relation to the movement of the car.

8. In an elevator, the combination with the car, of a plurality of hatch-covers, a carrying-support for said covers on the car, a plurality of laterally-slidable members carried by said support and adapted to respectively engage or disengage said covers therefrom and a common mechanism for successively actuating said slidable members.

9. In an elevator, the combination with the car, of a plurality of hatch-covers, a hollow carrying-support therefor depending from the car, a plurality of members laterally slidable in said depending support and adapted to respectively engage or disengage said covers therefrom, a vertically-slidable bar within said standard having a cam engagement with said laterally-slidable members adapted to successively operate the same in the vertical movement of the bar, and means for actuating said vertical bar in timed relation to the movement of the car.

10. In an elevator, the combination with a car and a series of hatch-covers carried thereby, of mechanism carried by the car for successively depositing said covers at their respective landings, in the upward movement of the car, and for reëngaging them with the car in the downward movement thereof, and a series of stationary members for coöperating with said mechanism, to successively actuate the same, the engaging portions of said stationary members being in vertical alinement.

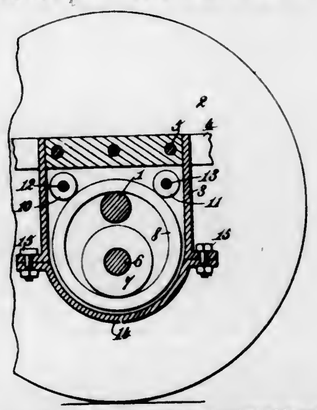
680,896. **GATE AND HINGE THEREFOR.** JOHN G. SUTTON, Pontiac, Mich. Filed Aug. 9, 1900. Serial No. 26,354. (No model.)



Claim.—1. A hinge having a stationary member embracing the corner of a post and having lugs, a hinged member comprising a plate having projections O, and lugs, a pivotal pin run through apertures of the lugs of the stationary and hinged members, a bracket formed with the hinged member having a depending end, a roller mounted on a stud of the hinged member and in combination therewith, a gate having a top rail, a guide-rail secured to the top rail with its edge projecting above the edge of the top rail, the said guide-rail being of such width as to extend above the plane of the depending end of the bracket when its lower edge rests on the periphery of the roller, and said top rail having its lower edge depending at the side of the roller, as and for the purpose described.

2. A hinge having a stationary member embracing the corner of a post and having lugs, a hinged member comprising a plate having projections O, and lugs, a pivotal pin run through apertures of the lugs of the stationary and hinged members, a bracket formed with the hinged member having a depending end, a roller mounted on a stud of the hinged member, and in combination therewith, a gate having a top rail, a guide-rail secured to the top rail, with its edges projecting above the edge of the top rail, the said guide-rail being of such width as to extend above the plane of the end of the depending end of the bracket when its lower edge rests on the periphery of the roller and said top rail having its lower edge depending at the side of the roller and a pivotally-mounted clutch for embracing the bottom rail of the gate, substantially as described.

680,897. **JOURNAL-BEARING.** PETER SWEENEY, New York, N. Y. Filed Sept. 10, 1900. Serial No. 29,566. (No model.)

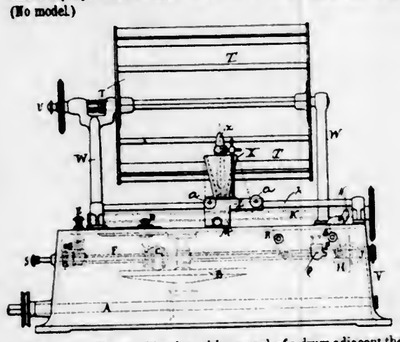


Claim.—1. In combination with an axle, a journal-box mounted thereon, an annulus or bearing-ring surrounding said axle and supported thereon, and antifriction-rollers located upon opposite sides of the axle and bearing against the periphery of the annulus or bearing-ring, said rollers being arranged so as to aid in sustaining the load.

2. In combination with an axle, a journal-box mounted thereon, a roller journaled in the journal-box, an annulus or bearing-ring surrounding said axle and roller and bearing against the periphery of each, and antifriction-rollers located upon opposite sides of the axle and bearing against the periphery of the annulus or bearing-ring, said rollers being arranged so as to aid in sustaining the load.

3. In combination with an axle, a journal-box mounted thereon, a roller journaled in the journal-box, an annulus or bearing-ring surrounding said axle and roller and bearing against the periphery of each, an antifriction-roller located on each side of the axle and bearing upon the inner face of the ring, and antifriction-rollers disposed outside the ring and bearing against the periphery thereof upon opposite sides of the axle and aiding in sustaining the load.

680,898. **MACHINE FOR IMPREGNATING THREAD WITH VIRUS.** ONÉSIME THOMAS, Verdun, France, assignor to the Pasteur Vaccine Company, Paris, France. Filed Mar. 27, 1900. Serial No. 10,394. (No model.)



Claim.—1. The combination with a vessel, of a drum adjacent thereto, means for moving the vessel parallel with the drum, and means for removing surplus liquid from a thread drawn through the vessel and wound upon the drum.

2. The combination with a drum, of a carriage movable parallel therewith, a vessel on said carriage, a screw for imparting movement to the carriage, a constantly-driven shaft, and gearing connecting said shaft with the screw and also with the drum.

3. The combination with a drum, of a carriage movable parallel therewith, a vessel on said carriage, a screw for imparting movement to the carriage, a constantly-driven shaft, gearing connecting said shaft with the screw and also with the drum, and means for automatically disconnecting the screw and stopping the shaft when the carriage reaches the end of its travel.

4. The combination with a drum, of a carriage movable parallel therewith, a vessel on said carriage, a screw for imparting movement to the carriage, a constantly-driven shaft, an intermediate shaft geared to the screw and also to the drum, means for automatically disconnecting the screw and stopping the intermediate shaft when the carriage reaches the end of its travel, and means for permitting the intermediate shaft to rotate the drum without actuating the screw.

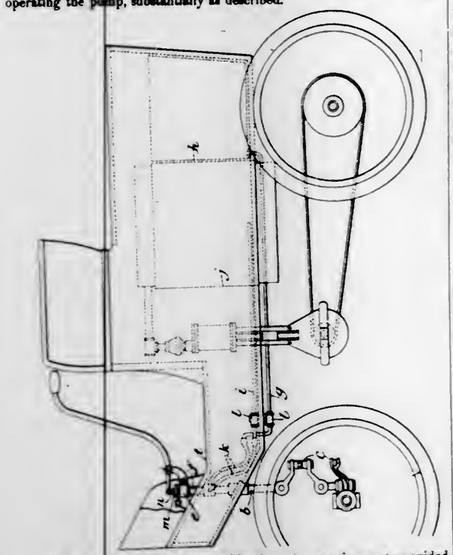
5. The combination with a shaft A, of a friction-disk B geared thereto, a shaft F having a friction-wheel C longitudinally movable thereon over said disk, a clutch H splined on said shaft F, a sleeve I loose on the same shaft and adapted to be engaged by the clutch, a bearing Q having lugs to engage with the clutch, a spring for opening the clutch and engaging it with said lugs, a lever P connected with said clutch, a detent N for locking said lever, a screw K geared to the sleeve I, a carriage L engaged by said screw and adapted to trip the detent N, a rock-shaft carrying an arm R lying in the path of the carriage, said rock-shaft being connected by an arm with the lever P, a drum T parallel with said screw and geared to the shaft F, and a vessel mounted on said carriage.

680,899. **AUTOMOBILE.** ALFRED THOMPSON, Toledo, Ohio, assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Filed Jan. 7, 1901. Serial No. 42,280. (No model.)

Claim.—1. In an automobile, the combination of a steering-post provided with a pump, means connecting said pump with a suitable source of supply, and a steering-handle for rotating the steering-post and operating the pump, substantially as described.

2. In an automobile, the combination of a steering-post provided

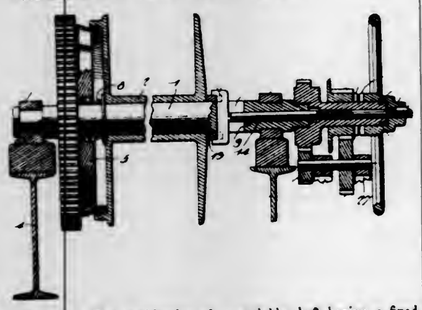
with a pump, a supply and a delivery pipe communicating with said pump, and a steering-handle pivoted to the steering-post for rotating same and operating the pump, substantially as described.



3. In an automobile, the combination of a steering-post provided with a pump rotatable therewith, supply and delivery pipes communicating with the pump and having flexible sections adjacent thereto, and a steering-handle operatively connected with said steering-post and pump, substantially as described.

4. In an automobile, the combination with a steering-post having a pump-barrel formed integral therewith, a supply-pipe and a delivery-pipe communicating with said pump-barrel each provided with a flexible section adjacent thereto, a steering-handle operatively connected with the steering-post and with the pump-plunger, and a packing for said pump-plunger upon the top of the steering-post, substantially as described.

680,900. FRICTION-CLUTCH. EDWARD TURNEY, Portland, Oreg. Filed Jan. 12, 1901. Serial No. 43,047. (No model.)

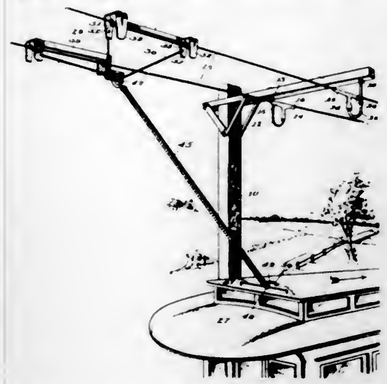


Claim.—1. The combination of a revoluble shaft having a fixed clutch member, an endwise-movable, loose clutch member on said shaft, a traveling or pressure screw, adapted when moved endwise to operate said loose clutch member, means to rotate said pressure-screw, independently of said shaft, and to permit said pressure-screw to be revolved by said shaft, means to retard the rotation of and to release said pressure-screw, and a differential gear, including a clutch, to communicate rotary motion of said shaft to said pressure-screw and accelerate the rotation of the latter, substantially as described.

2. The combination of a revoluble shaft having a fixed clutch member, an endwise-movable loose clutch member on said shaft, a sleeve-nut fast with said shaft, an endwise-movable pressure-screw engaged by said sleeve-nut and adapted to operate said endwise-movable loose clutch member, a wheel revoluble with said sleeve-nut, means to retard the rotation of said wheel and a differential gear including a clutch, to connect said wheel to said shaft and rotate said wheel and said pressure-screw at a higher rate of speed than said shaft, substantially as described.

3. The combination of a revoluble shaft having a fixed clutch member, an endwise-movable loose clutch member on said shaft, a sleeve-nut fast with said shaft, an endwise-movable pressure-screw engaged by said sleeve-nut and adapted to operate said endwise-movable loose clutch member, a wheel revoluble with said sleeve-nut, a differential gear, including a clutch, to connect said wheel to said shaft, and communicate power from the latter to the former and rotate said wheel and said pressure-screw at a higher rate of speed than said shaft, a brake for said wheel, and means to operate said brake and said differential-gear clutch, substantially as described.

680,901. SIGNALING DEVICE FOR CARS. WILLIAM W. WARD and JOHN KEAN, Fairmont, Minn. Filed May 15, 1901. Serial No. 60,367. (No model.)



Claim.—1. In a system of the class described, a trolley comprising spaced pairs of arms, a slotted towing-plate arranged centrally between and insulated from said arms, and a towing device connected to said slotted towing-plate and capable of movement from end to end thereof, whereby the trolley may be towed from its forward end in both directions of travel, substantially as specified.

2. In a system of the class described, a trolley including a spider having its arms electrically connected in pairs and provided with wheels to engage and collect a current from separate conductors, and a towing device including a head slidably connected to the spider for movement from end to end thereof said towing device being hollow and having conductor-wires passed therethrough and through the head and engaged with their respective pairs of spider-arms.

3. In a system of the class described, a trolley comprising spaced pairs of arms, each pair having a connecting-web at their inner ends and insulating-plates disposed thereagainst, a connecting or towing plate disposed between the webs and having a slotted portion projecting therebelow, collector-wheels carried by the arms for engagement with conductors, and a towing device slidably connected with the slot of the towing-plate for movement from end to end thereof and having conductors attached to the webs of the arms.

4. The combination, in a two-wire system of the class described, of a trolley comprising two oppositely-disposed pairs of arms forming a spider, a towing-plate situated between the two pairs of arms, insulating-plates provided between the arms and the sides of the towing-plate, a pair of wheel-supporting frames carried by each of the spider-arms, and collector-wheels supported in said frame, substantially as specified.

5. The combination with a trolley comprising a spider having collector-wheels for engagement upon conductors and a slotted towing-plate, of a helical towing-spring having at each of its ends, heads comprising hollow stems engaged in the ends of the spring and terminal eyes with which are engaged rings slidably engaged with the slot of the towing-plate at one end and with a towing-bar at the other end, and conductors passed through the stems of the heads and the helical spring, said conductors at one end being electrically connected with separate collector-wheels.

6. A system of the class described, comprising a hanger including a head having laterally-extending arms, said arms having passages formed downwardly therethrough, insulating-blocks disposed in said passages, binding-posts upon the sides of the head and insulated therefrom, and conductors passed through the insulating-blocks and engaged with the binding-posts to permit of attachment of loop-wires thereto.

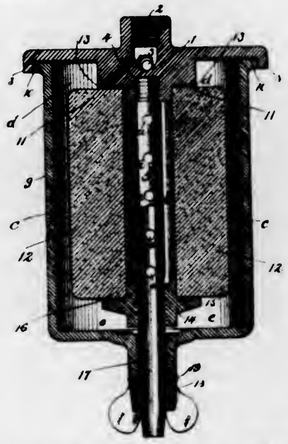
7. A hanger for a system of the class described, comprising a head having insulating-supports adapted to receive conductor-wires, and binding-posts carried by and insulated from the head for attachment of the conductors, said binding-posts being adapted to receive loop-wires.

8. A hanger for a system of the class described, having insulating-supports to receive sections of a trolley-wire and having an intervening bearing portion to support a trolley in its passage from one section to the other, said hanger having binding-posts insulated therefrom and adapted to receive the ends of the conductor-sections and to receive loop-wires.

9. In a system of the class described, a trolley comprising a spider having wheel-supporting frames, each of such frames including two members recessed to receive the trunnions of a wheel, and said members having integral downwardly-extending portions adapted to straddle a conducting-wire with which the wheel is engaged, substantially as specified.

10. In a system of the class described, a trolley comprising a spider having wheel-supporting frames, each of such frames including two members recessed to receive the trunnions of a wheel, a wheel having ball-bearing surfaces, ball-bearings between such surfaces and the frame members, each of said members having integral downwardly-extending portions adapted to straddle a conducting-wire with which the wheel is engaged, substantially as specified.

680,902. FILTER. ROBERT T. WEAVER, New York, N. Y., assignor to the General Engineering Company, of New Jersey. Filed Apr. 26, 1901. Serial No. 57,547. (No model.)



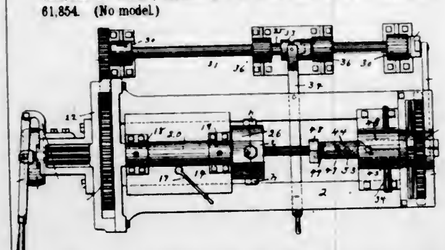
Claim.—1. In a filter, the combination of a casing, a cap or cover, having an internally-screw-threaded socket for engagement with a faucet, and ports communicating with the socket and the inside of the filter, and another screw-threaded socket on the cap for receiving a perforated pipe, filtering material in the casing, a perforated pipe passing through the filtering material and casing, screwed into the socket in the cap, a nut having flanges screwed onto the lower end of the pipe to hold the filtering material in place, and another nut screwed onto this end of the pipe to hold the casing in place.

2. In a filter, the combination with a casing, a cap or cover having a screw-threaded socket for engagement with a faucet, and ports substantially at right angles to and communicating with the socket and also with the inside of the filter, the casing also having another socket to receive a perforated pipe, a downwardly-projecting rim or flange on the cap fitting over the top of the casing, the cap and casing being detachably connected, of a filtering material in the casing, having an opening therein larger than the perforated pipe, a perforated pipe passing through the casing and the filtering-block, a flanged nut on the lower end of the pipe to hold the filtering material in place, and another nut on the pipe to hold the casing in place.

3. In a filter, the combination of a casing and a cap, the two being detachably connected together, the cap having two screw-threaded sockets on opposite sides, one of the sockets adapted to fit on a faucet and the other to receive a screw-threaded pipe, the cap also having therein ports communicating with the faucet-socket on the inside of the filter, filtering material in the casing, having an opening therein larger than the diameter of the perforated pipe, so as to leave a passage or channel between the filtering material and the pipe when the parts are assembled, the outside of the filtering material being smaller than the inside of the casing, so as to leave another passage between the two, a perforated pipe passing through the casing and cylinder and screw-threaded into its socket in the cap, a flanged nut on the lower end of the pipe to hold the filtering material in position, and another nut on the same end of the pipe to hold the casing in position.

4. In a filter, the combination of the cap, 1, having sockets 2, 4 and ports 3, 3, a flange, 8, on the cap, a casing, 9, detachably fitted to the cap under the flange, and having a water-tight connection, the filtering material 12, the perforated pipe 5, screw-threaded to the under side of the cap and passing through the filtering material, the nut 14, having a flange, 15, screwed onto the lower end of the perforated pipe, the gaskets or washers 13, 16, between the filtering material and the cap 1, and nuts 14, 15 to make water-tight connections between the parts, the thumb-nut 18 on the lower end of the perforated pipe 5 to hold the casing in place, and a washer, 19, between the thumb-nut and casing to make a water-tight joint between the casing and the perforated pipe, all the parts arranged and fitted substantially as shown and described.

680,903. MACHINE FOR PRODUCING TWIST-DRILLS. CHARLES D. WILEY, Pittsburg, Pa. Filed May 25, 1901. Serial No. 61,854. (No model.)



Claim.—1. In a machine for making twist-drills, the combination of a carriage, a mandrel connected to said carriage, means to rotate said mandrel simultaneously the same is carried longitudinally by the carriage, a tail-stock adapted to be held stationary during the twisting operation, and means to impart to said tail-stock a reciprocatory rotary movement from and toward the mandrel after the completion of the twisting operation for the purpose of truing and straightening the drill.

2. In a machine for making twist-drills, the combination of a longitudinally movable and rotatable mandrel or hollow shaft, a tail-stock in exact axial alinement therewith, the said tail-stock being adapted to be held stationary during the twisting operation and to be given a rotary reciprocatory movement from and toward the hollow shaft or mandrel after the completion of the twisting operation.

3. In a machine for making twist-drills, the combination of a frame or table, a mandrel or hollow shaft supported in one end of said frame and adapted to be revolved and moved longitudinally simultaneously, a tail-stock supported on the opposite end of said frame in exact alinement with said hollow shaft or mandrel and adapted to be held stationary during the twisting operation and to be given a rotary reciprocatory movement from and toward the hollow shaft after the completion of the twisting operation.

4. In a machine for making twist-drills, the combination of a frame or table, a mandrel or hollow shaft supported in one end of said frame adapted to be revolved and moved longitudinally simultaneously, a tail-stock at the opposite end of said frame in exact alinement with said hollow shaft, and provided with a chuck to receive one end of the drill-blank, rolls or dies supported in the outer end of said hollow shaft, and means within said hollow shaft to hold the point of the drill-blank during the twisting operation.

5. In a machine for making twist-drills, the combination of a frame, a mandrel or hollow shaft supported in one end thereof, the outer end of which terminates in a head or housing, rolls or dies supported in said head, a tail-stock supported in the opposite end of said frame, means within said hollow shaft to hold the point of the drill-blank inserted in said hollow shaft, means connected with said tail-stock to loosely grasp the opposite end of the drill-blank, means to revolve the said hollow shaft, and means to simultaneously carry said shaft longitudinally toward the tail-stock whereby the dies or rolls are caused to travel spirally and longitudinally over the blank to form the twist thereon.

6. In a machine for making twist-drills, the combination of a carriage, a mandrel or hollow shaft mounted on said carriage, means to move the carriage longitudinally, means to rotate or revolve the mandrel or hollow shaft simultaneously with the movement of the carriage, a tail-stock supported in the end of the frame opposite to the carriage, means to re-

volve said tail-stock, means within the hollow shaft or mandrel to firmly hold the point end of the drill-blank, and means connected with the tail-stock to loosely grasp the opposite end of the drill-blank, in combination with means to hold the tail-stock stationary during the twisting operation.

7. In a machine for making twist-drills, the combination of a frame, a carriage mounted thereon, a hollow shaft or mandrel supported on said carriage, means to simultaneously revolve the hollow shaft and move the carriage longitudinally, a tail-stock mounted on the frame in direct alinement with the mandrel the inner end of the same having a chuck for the reception of one end of the drill-blank and the exterior surface thereof having a spiral groove with a pitch corresponding with that of the drill, means to engage in said groove during the revolution of said tail-stock, and means to revolve said tail-stock, in combination with means to hold said tail-stock stationary doring the twisting operation.

8. In a machine for making twist-drills, the combination of a carriage, means to move the same longitudinally, means to disengage the same and its actuating-screw, a mandrel or hollow shaft mounted in said carriage, means to revolve the same thereon simultaneously with the movement of said carriage, the said hollow shaft or mandrel having a head or housing, rolls mounted in said housings, a tail-stock the inner end of which is provided with a chuck for the reception of one end of the blank and the exterior surface thereof a spiral groove corresponding in pitch with that of the drill, a guide pin or screw, means to hold said tail-stock stationary during the twisting operation, in combination with means to revolve the same.

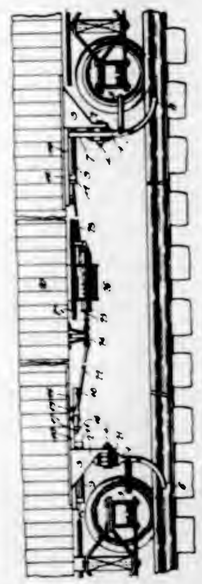
9. In a machine for making twist-drills, the combination of a longitudinally-disposed screw, threaded to produce the required pitch in the drill, a carriage connected to said screw and adapted to be moved thereby, a hollow shaft or mandrel mounted on said carriage the outer end of which is provided with a housing in which is mounted twist-forming dies or rolls, a horizontally-disposed shaft or rod inserted within said hollow shaft or mandrel the inner end thereof being adapted to hold the point end of the drill-blank and prevent revolution of the same during the twisting operation, means to simultaneously revolve the said hollow shaft and the said screw, means to withdraw the drill-holding device from engagement with the point of the drill, a tail-stock having a chuck on the inner end for the reception of one end of the blank and having on the exterior surface thereof a spirally-disposed groove of a pitch corresponding with the pitch of the drill and a guide pin or screw engaging therein, in combination with means to revolve said tail-stock after the completion of the twisting operation.

10. In a machine for making twist-drills, the combination of a frame, a longitudinally-disposed screw correspondingly pitched or threaded with the reqoired pitch of the drill, a carriage connected thereto by a sectional feed-nut, means to engage and disengage said feed-nut with said screw, a revolnble hollow shaft or mandrel mounted on said carriage the outer end thereof being provided with twist-forming dies or rolls, a tail-stock mounted on the frame in direct alinement with the said hollow shaft or mandrel, a counter-shaft one end of which is provided with a gear-wheel adapted to mesh with and transmit power from a gear-wheel which revolves the said hollow shaft or mandrel, an adjustable crank-arm mounted on the opposite end of said counter-shaft, a clutch mechanism mounted on said counter-shaft intermediate the said gear-wheel and the said crank-arm, a segmental rack connected to said crank-shaft and adapted to be oscillated thereby, a gear-wheel spliced upon the outer end of the tail-stock and adapted to mesh with said segmental rack whereby power is transmitted to said tail-stock, in combination with a horizontally-disposed shaft or rod inserted within said hollow shaft or mandrel the inner end of which is provided with a slot to receive the point end of the drill-blank and the opposite end connected with a lever adapted to hold said shaft in engagement with the point of the drill and to disengage the same therefrom.

11. In a machine for making twist-drills, the combination of a carriage, means to move the same longitudinally, a hollow shaft or mandrel provided with removable bushing, and adapted to be rotated simultaneously with the movement of the carriage and having on its outer end twist-forming dies or rolls, a tail-stock having a chuck for one end of the drill-blank and a spirally-disposed groove of a pitch corresponding with the pitch of the drill, a guide pin or screw engaging in said groove, means to rotate said tail-stock, in combination within means with the hollow shaft or mandrel to hold the point end of the drill-blank against rotation doring the twisting operation.

680,904. **CAR-BRAKE.** HARRY WISE, San Antonio, Tex., assignor of three-fourths to Henry Boerner, same place. Filed Dec. 29, 1900. Serial No. 41,532. (No model.)

Claim.—1. In a device of the class described, the combination of a pair of gripping or clutch levers provided with arms arranged to receive the rim of a car-wheel and the head of a rail and adapted to engage simultaneously the wheel and the rail, whereby the former will be locked on the latter, and means for operating the levers, substantially as described.



2. In a device of the class described, the combination of a pair of levers provided with approximately U-shaped arms arranged to engage a wheel within the rim and adapted to engage a rail under the head thereof, whereby the wheel will be securely held on the rail, and means for locking the levers, substantially as described.

3. In a device of the class described, the combination of a pair of levers provided with depending and horizontal arms, the depending arms being arranged to engage the opposite sides of a rail beneath the head thereof, and the horizontal arms being arranged to engage the opposite sides of a wheel within the rim of the same, whereby the wheel will be securely locked on the rail, and means for operating the levers, substantially as described.

4. In a device of the class described, the combination of a pair of levers fulcrumed between their ends and provided at their lower portions with arms arranged to engage the opposite sides of a wheel and a rail, a reciprocating slide provided with diverging guides connected with the upper portions of the levers, and means for operating the slides, substantially as described.

5. In a device of the class described, the combination of a pair of levers fulcrumed between their ends and provided at their upper terminals with recesses, and a reciprocating slide provided with divergent guides arranged in the said recesses and adapted to actuate the levers, substantially as described.

6. In a device of the class described, the combination of a pair of levers, arranged to swing transversely of the rails, a hanger or bracket supporting the levers, and a slide reciprocating longitudinally of the rails and provided with divergent guides connected with the levers and adapted to actuate the same, substantially as described.

7. In a device of the class described, the combination with a car, of levers arranged in pairs at opposite sides thereof, the slides located at opposite sides of the car and provided with reversely-arranged divergent guides, a transverse lever connecting the slides, and means for operating the lever, substantially as described.

680,905. **NON-REFILLABLE BOTTLE.** FRANCIS A. WOODS, Chicago, Ill., assignor, by direct and mesne assignments, to Woods Non-Refillable Bottle Co., same place. Filed Mar. 21, 1898. Serial No. 674,656. (No model.)

Claim.—1. Valve mechanism, comprising a valve-chamber provided with an ingress and an egress opening and at the ingress-opening with a valve-seat, a hollow tapering tilting valve seating at its base against said seat and operating when tilted to unseal said ingress, a shifting weight within said valve and a spring attached to the under side of the valve-base and to a rigid part connected with the valve-seat, substantially as described.



3. Valve mechanism, comprising a valve-chamber provided with an ingress and an egress opening and at the ingress-opening with a valve-seat, a hollow conical tilting valve seating at its base against said seat and operating when tilted to unseal said ingress, a ball within said valve, and means for tiltably holding the valve-base in proper relation with the valve-seat, substantially as set forth.

4. Valve mechanism, comprising a valve-chamber provided with an ingress and an egress opening and at the ingress-opening with a valve-seat, a hollow conical valve seating at its base against said seat, a ball within said valve, and a spring attached to the under surface of the valve-base and to a rigid part connected with the valve-seat, substantially as described.

5. In a non-refillable bottle, the combination with the bottle-neck, of a valve-seat toward the base thereof, a hollow conical tilting valve seating at its base against said seat and operating when tilted to unseal the passage at the valve-seat, a ball within said valve, and means for tiltably holding said valve-base in proper relation with the valve-seat, substantially as and for the purpose set forth.

6. In a non-refillable bottle, the combination with the bottle-neck, of a valve-seat toward the base thereof, a hollow conical valve seating at its base against said seat with apex upturned, a ball within said valve, and a spring attached to the valve-base and to the valve-seat, substantially as set forth.

7. In a non-refillable bottle, the combination with the bottle-neck, of a valve-seat toward the base thereof, a hollow tapering valve seating at its base against said valve-seat, a shifting weight within the valve, and a shifting ring-like lock device encircling the tapering portion of said valve, substantially as set forth.

8. In a non-refillable bottle, the combination with the bottle-neck, of a valve-seat toward the base thereof, a hollow tapering valve seating at its base against said valve-seat and operating when tilted to unseal the passage at the valve-seat, a shifting weight within the valve, means for tiltably holding the valve in contact with the valve seat and a guard device located with a small clearance above said valve and serving to limit its longitudinal movement, substantially as set forth.

9. In a non-refillable bottle, the combination with the bottle-neck of a valve-seat toward the base thereof, a hollow conical valve seating at its base against said valve-seat, means for maintaining the valve in correct relation with its seat, a shifting weight within the valve, a valve-guard above said valve, and means connected with the valve and in communication with the interior of the valve to be acted upon by the air from within to change the normal condition of the valve when the air-pressure on the exterior of the valve is reduced by an effort to refill the bottle through the creation of a vacuum, substantially as and for the purpose set forth.

10. A non-refillable-bottle neck, comprising two longitudinal sections joined together and having their junction-surfaces shaped to afford longitudinal grooves to receive the cementing and fluxing material, substantially as and for the purpose set forth.

11. In a non-refillable-bottle neck, the combination of two or more permanently-joined longitudinal neck-sections provided on their inner surfaces with integrally-formed raised valve-guard portions, and a separately-formed valve-guard device interlockingly joined to said integrally-formed portions, substantially as and for the purpose set forth.

12. In a non-refillable-bottle neck, the combination of two permanently-joined longitudinal neck-sections each provided on its inner surface with an integrally-formed half-annular flange and longitudinal bosses flanking said flange provided with recesses, and a separately-formed guard device, comprising a stem provided with disks fitting the recesses in said flanges, substantially as and for the purpose set forth.

13. In a non-refillable bottle, the combination of a body portion, a neck attached thereto provided with a valve-chamber and toward its base with a valve-seat, a valve within said chamber, valve-leather cemented to the valve-base by means of a cement susceptible to heat or acid, and a spring attached to the valve-leather and to a part connected with the valve-seat, substantially as and for the purpose set forth.

14. Valve mechanism, comprising, in combination, a valve-chamber provided with an ingress and an egress opening and at the ingress-opening with a valve-seat, a hollow tilting valve seating at its base against said valve-seat and operating when tilted to unseal said ingress, a shifting weight within the valve for tilting the latter, and means for tiltably holding the valve-base in contact with its seat, substantially as and for the purpose set forth.

680,906. **COUNTERBALANCED AND JOINTED SUSPENSION-BRIDGE.** FERDINAND J. ARNODIN, Châteauneuf, France. Filed June 18, 1901. Serial No. 64,972. (No model.)



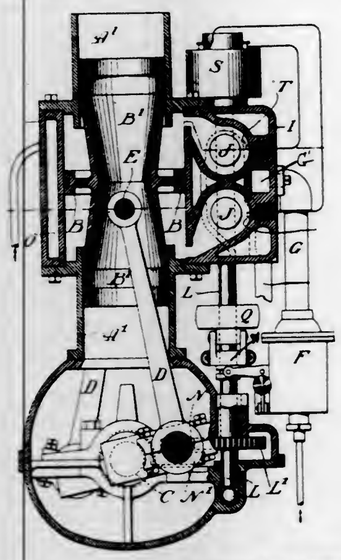
Claim.—1. In a bridge the combination of a pier *a b* erected on one bank, girders or beams *c d* jointed at one of their ends *c* to one side of the pier at some distance from the top thereof, girders or beams *e f* mounted on the pier in the same manner as those first mentioned at the same height but on the other side, cables or connections *g h* proceeding from different points in the length of the girders *c d* and *e f* above mentioned to the top of the pier, and a counterweight arranged below the free end *f* of the girders *e f* secondly mentioned and connected to the said end substantially as and for the purpose set forth.

2. In a bridge, the combination with one part of a bridge comprising a pier *a b* erected on one bank, girders *c d* jointed at one of their ends *c* to one side of the pier at some distance from the top thereof, girders or beams *e f* mounted on the pier in the same manner as those first mentioned at the same height but on the other side, cables or connections *g h* proceeding from different points in the length of the above-mentioned girders *c d* and *e f* respectively to the top of the pier and a counterweight arranged below the free end *f* of the girders *e f* secondly mentioned and connected to the said end *f*, of a second bridge part jointed at one end to the free end *d* of the first-mentioned girders and means for supporting same on the other bank.

3. In a bridge, the combination with one part of a bridge comprising a pier *a b* erected on one bank, girders *c d* jointed at one of their ends *c* to one side of the pier at some distance from the top thereof, girders or beams *e f* mounted on the pier in the same manner as those first mentioned at the same height but on the other side, cables or connections *g h* proceeding from different points in the length of the girders *c d* and *e f* to the top of the pier and a counterweight arranged below the free end *f* of the girders *e f* secondly mentioned and connected to the said end of a second bridge part consisting of a bay 3 jointed at one end to the free end *d* of the first-mentioned girders and supported at the other end by a support erected on the other bank substantially as described and shown and for the purpose set forth.

4. In a bridge, the combination with one part of a bridge comprising a pier *a b* erected on one bank, girders *c d* jointed at one of their ends *c* to one side of the pier at some distance from the top thereof, girders *e f* mounted on the pier in the same manner as those first mentioned at the same height but on the opposite side, cables or connections *g h* proceeding from different points in the length of the above-mentioned girders *c d* and *e f* to the top of the pier, a counterweight arranged below the free end *f* of the girders *e f* secondly mentioned and connected to the said end and a second bridge part consisting of a bay 3 jointed at one end to the free end *f* of the girders *e f* and also supported at the other end by means of a joint connection to a support on the other bank, of the said support on the latter bank constructed like that on the first bank substantially as described and shown and for the purpose set forth.

680,907. MULTIPLE-CYLINDER EXPLOSIVE-ENGINE. ARTHUR F. BARDWELL, Mount Vernon, N. Y. Filed Nov. 3, 1900. Serial No. 35,334. (No model.)



Claim.—1. In a gas-engine in combination, a cylinder, a piston movable therein, tapered tubular extensions at each end of said piston forming a contracted but open air-passage, bearings in said cylinder for said tubular extensions, and suitable admission and exhaust valves for each end of the cylinder.

2. In a gas-engine, in combination, a cylinder, an annular piston therein, tubular extensions of cylindrical form projecting from said cylinder, and tubular extensions of tapered form projecting from said piston and a contracted but open air-passage through said piston and its extensions.

3. In a gas-engine in combination, a cylinder, an annular piston movable therein, tubular extensions at each end of said piston in communication with each other through said piston and open to the air at all times, bearings in said cylinder for said tubular extensions, and admission and exhaust valves for each end of said cylinder.

4. In a gas-engine in combination, a piston, a tubular extension at each end thereof, and an air-passage through said piston and said extensions, said passage being open to the air at all times.

5. In a gas-engine, in combination, a cylinder, an annular piston movable therein, tubular extensions of cylindrical form projecting from said cylinder and tubular extensions of tapered form projecting from said cylinder, and a contracted but open air-passage through said piston and its extensions, and a connecting-rod one end of which projects in and is secured within said passage.

6. In a double acting four-cycle gas-engine, an annular piston having a tapered annular piston extension of tubular form, and means within said piston extension comprising a connecting-rod connection.

7. In a double-acting four-cycle gas-engine, an annular cylinder, a piston, a tubular extension on each end of said piston, a uniformly-open air-passage through said piston and tubular extension, a bearing for said tubular extension, admission and exhaust valves and means for actuating the same.

8. In a gas-engine in combination, a plurality of cylinders, an annular piston in each of said cylinders, tubular extensions at each end of each of said pistons, and an air-passage through each of said tubular extensions, said air-passages being in communication with each other.

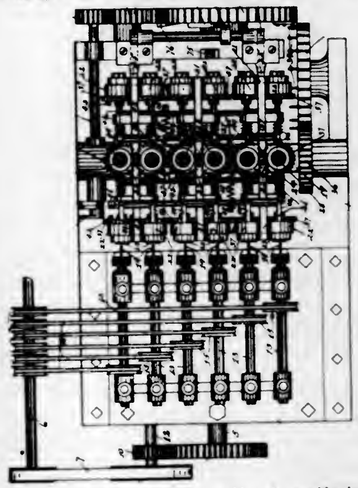
680,908. MAUSOLEUM. CHARLES G. BLAKE, Chicago, Ill. Filed Feb. 4, 1901. Serial No. 46,492. (No model.)

Claim.—1. The wall of a mausoleum or like structure provided between two courses or blocks of stone in such wall with a ventilating-opening extending obliquely downward from the inner to the outer face of the wall, such opening being formed partially by a recess in the course or block of stone above the horizontal joint between said courses or blocks and partially by a recess in the course or block of stone below said joint.

2. The wall of a mausoleum or like structure provided between two courses or blocks of stone in said wall with a ventilating-opening extending obliquely downward from the inner to the outer face of the wall and formed by recesses in the courses or blocks above and below the joint between said courses or blocks, the courses or blocks being provided at the inner end of the inclined bottom surface of the recess therein with a ledge extending across the said opening.



680,909. BUTTON-DRILLING MACHINE. HARVEY CHALMERS, Amsterdam, N. Y., assignor to Harvey Chalmers & Son, same place. Filed Apr. 4, 1901. Serial No. 54,247. (No model.)



Claim.—1. In a button-drilling machine, the combination with a drill and means for rotating the same; of a rotary head opposed to said drill; a plurality of button-chucks located in different angular positions about the periphery of said head; each with its axis radial to the head; means for imparting to said head intermittent, partial rotary movements corresponding in amplitude with the angular distance between said chucks; means for maintaining the head at certain times in a stationary position with one of said chucks opposite, and eccentrically disposed to, said drill; means for imparting to said chuck, when so disposed and while the head is maintained stationary, intermittent, partial rotary movements; and means for causing reciprocating movements between said drill and head, alternating with said intermittent, partial rotary movements of said chuck.

2. In a button-drilling machine, the combination with a plurality of drills and means for rotating the same; of a rotary head; a plurality of series of button-chucks located in different angular positions about the periphery of the head, the chucks in each series corresponding in number with said drills, and being arranged longitudinally of the axis of said head with the axis of each chuck radial thereto; means for imparting to said head intermittent, partial rotary movements; means for maintaining the head stationary at certain times with a series of said chucks opposite, and severally eccentrically disposed to, said drills respectively; means for imparting to said chucks intermittent, partial rotary movements while the head is stationary, and means for causing reciprocating movements between said head and drills.

3. In a button-working machine, the combination with a plurality of button-working tools, of a like plurality of button-chucks separately rotatively mounted upon a support opposite the respective drills; and mechanism directly interconnecting said chucks whereby independent rotation is prevented; and means for imparting rotative movements simultaneously to all of said chucks, each on its own axis.

4. In a button-working machine, the combination with a plurality of button-working tools; of a like plurality of button-chucks separately rotatively mounted upon a support opposite said tools; intermeshing gears fixed upon the several chucks; and means for imparting rotative movements to one of said gears and chucks, whereby all are operated.

5. In a button-drilling machine, the combination with a plurality of drills and means for rotating the same; of a like plurality of button-chucks separately rotatively mounted upon a support opposite the respective drills and directly interconnected to rotate in unison; means for imparting to one of said chucks intermittent, partial rotary movements whereby all are similarly operated; and means for causing reciprocating movements between said chucks and drills alternating with the intermittent, partial rotary movements of the chucks.

6. In a button-drilling machine, the combination with a plurality of drills and means for rotating the same; of a like plurality of button-chucks separately rotatively mounted upon a support opposite the respective drills; gears on the several chucks intermeshing with one another in series; means for imparting to one of said chucks and toothed gears intermittent, partial rotary movements, whereby all are simultaneously operated; and means for causing reciprocating movements between said chucks and drills alternating with the intermittent, partial rotary movements of the chucks.

7. In a button-drilling machine, the combination with a plurality of drills and means for rotating the same; of a rotary head opposite said drills; a plurality of sets of button-chucks individually rotatively mounted upon said head, the members of each set of chucks being adapted to be brought opposite the respective drills by rotative movement of the head, and being interconnected to rotate in unison; means for imparting to said head intermittent, partial rotary movements whereby the several sets of chucks are successively brought opposite said drills; means for imparting to one of said chucks in each series, when opposite the drills, intermittent, partial rotary movements; and means for causing reciprocating movements between said drills and head, alternating with the intermittent, partial rotary movements of said chucks.

8. In a button-drilling machine, the combination with a drill and means for rotating the same; of a button-chuck rotatively supported opposite said drill; a gear on said chuck; means for positively imparting to said chuck and gear intermittent, partial rotary movements of definite amplitude; a dog engageable with said gear to prevent rotative displacement thereof; means for positively holding said dog out of engagement with said gear during its positively-imparted partial rotary movements and releasing said dog and forcing the same into engagement with said gear at the end of each such movement; and means for causing reciprocating movements between said drill and chuck, alternating with said intermittent, partial rotary movements of the chuck, substantially as described.

9. In a button-drilling machine, the combination with a plurality of drills and means for rotating the same; of a like plurality of button-chucks each separately rotatively mounted upon a support, opposite and eccentric to one of said drills; gears on the respective chucks intermeshing with one another in series; a plurality of dogs engageable with a like plurality of said gears respectively; means for simultaneously disengaging said dogs from their respective gears and imparting partial rotary movements to one of said gears and thereby to all of said chucks; and means for causing reciprocating movements between said drills and chucks alternating with the partial rotary movements of the chucks, substantially as described.

10. In a button-working machine, the combination with a button-working tool, a flat feed-tray provided with an aperture adapted to receive a button-disk placed therein by hand; and a valve adapted to close said aperture; of a button-chuck located beneath said feed-tray; means for moving said chuck into and out of line with the aperture in the feed-tray and toward and from said tool; means for expanding the chuck when in line with said aperture and for contracting the chuck when presented to said tool; and means for opening said valve when the chuck is in line, and closing the same when the chuck is out of line, with said aperture.

11. In a button-working machine, the combination with a button-working tool; a rotary head opposite said tool, a flat feed-tray above said head provided with an aperture adapted to receive a button-disk placed therein by hand; of a plurality of button-chucks mounted upon said head and adapted by rotation of the head to be successively brought into axial line with said aperture and successively presented to said tool; a valve for closing said aperture; means for imparting to said head intermittent, partial rotary movements, and means for operating said valve in the intervals between successive movements of the head.

12. In a button-working machine, the combination with a series of button-working tools; a rotary head opposite said tools; and a flat feed-tray supported above said head and provided with a series of apertures adapted to receive buttons placed therein by hand; and a valve for said apertures; of a series of chucks arranged on said head parallel with the axial line thereof and adapted to be brought by rotation of the head opposite the respective apertures in the feed-tray and opposite the respective tools; means for imparting intermittent partial rotary movements to said head; and means for operating said valve to both open and close the same while the chucks remain beneath their respective apertures, substantially as described.

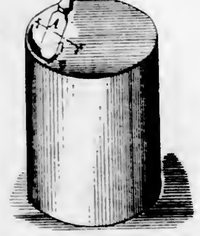
13. In a button-drilling machine, a button-chuck comprising expansible and contractible jaw members; and, within said jaw members, a core having a disk-supporting face provided with a drill-receiving recess and means for positively supporting said core centrally of the jaw members and on all sides free from contact therewith.

14. In a button-drilling machine, a button-chuck comprising expansible and contractible jaw members; and, within said jaw members, a core having a disk-supporting face provided with a plurality of drill-receiving recesses disposed about the center thereof and means for positively supporting said core centrally of the jaw members and on all sides free from contact therewith.

15. In a button-drilling machine, a button-chuck comprising expansible and contractible jaw members and on all sides free from contact therewith; and, centrally supported within said jaw members, a core having a disk-supporting face provided with a plurality of drill-receiving recesses disposed about the center thereof; in combination with a rotary drill; and means for bringing said drill into engagement with portions of a chuck-supported disk opposite the several core-recesses successively.

16. In a button-drilling machine, a button-chuck comprising in combination expansible and contractible jaw members; a core within said jaw members having a disk-supporting face provided with a plurality of drill-receiving recesses disposed about the center thereof; and a plurality of radial, sliding connections between said core and the respective jaw members, said connections occupying different radial and transverse planes.

680,910. CAN-OPENER. JOHN L. CONNER, Washington, D. C. Filed June 4, 1901. Serial No. 63,085. (No model.)



Claim.—1. As an article of manufacture a tool comprising a blade having a cutting edge said blade having its point turned substantially at right angles to the width of said blade and the cutting edge thereof and adapted to penetrate the can or other article to be severed.

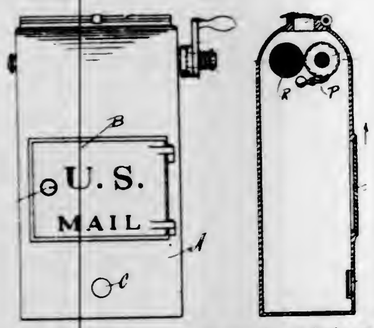
2. As an article of manufacture, a can-opener including a blade provided with a cutting edge, and an extension of the point of the blade standing at about right angles to the width of the blade and having a pointed extremity lying substantially in the longitudinal central plane of the blade.

3. A can-opener or like device including a blade having cutting edges on opposite sides, said blade having its point turned substantially at right angles to the cutting edges and with its extremity lying interior to said edges.

4. A can-opener or like device including a blade having a cutting edge and having a surface back of the edge inclined, said blade having its point turned to lie in a plane substantially at right angles to said edge, and having its extremity lying interior to said edge.

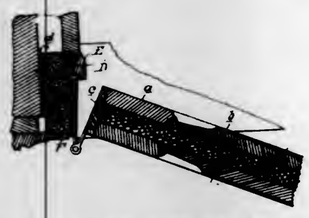
5. A can-opener or like device comprising a blade essentially flat upon one side and having the opposite side diverging from the central portion toward the edges said edges being sharpened, and an extension of the point of the blade, lying substantially at right angles to said edges, having its sides tapering to a point and beveled or sharpened, and having its base portion joining the cutting edges of the blade by cutting edges which diverge from said base, and a handle portion for the device.

680,911. **LETTER-BOX.** JOHN E. COSTELLO, Providence, R. I. Filed Nov. 1, 1900. Serial No. 35,122. (No model.)



Claim.—In a letter-box the combination of a case having an opening in its top, a pair of rolls placed just under said opening and having bearings in the sides of the case, a ratchet-wheel on one of the rolls just inside the box with a pawl, a crank held on the shaft of one of said rolls just outside of the case, a ratchet-wheel fast on said crank, a ratchet-wheel fast on said shaft, a spring on the shaft outside of the crank to press the two ratchet-wheels outside the box together, substantially as described.

680,912. **FIRE-RESISTING DOOR AND DOOR-FRAME.** ALPHONSE DU MAS, Detroit, Mich. Filed Feb. 26, 1900. Serial No. 6,518. (No model.)



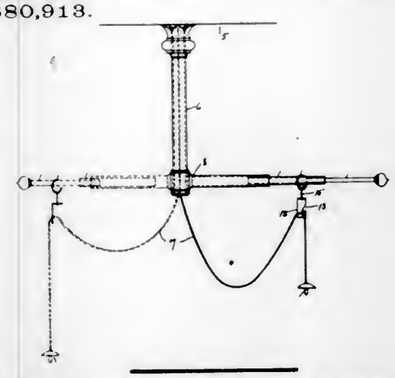
Claim.—1. A fire-resisting structure comprising a core of non-combustible fireproof material and a facing of finishing material, said core being composed of a body of finely-divided compressible material and a binding mineral cement.

2. A fire-resisting structure comprising a core of fireproof material, composed of a body of finely-divided fibrous compressible material and a binding mineral cement, said core having glue-adhering surfaces; and a facing of finishing material glued to said core.

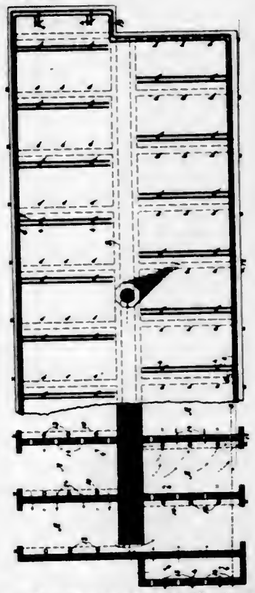
3. A fireproof structure comprising a single-piece core of non-combustible fireproof material, composed of a body of finely-divided compressible material and a binding mineral cement, and a plurality of facings of finishing material secured to said core.

4. A fireproof structure comprising a core of non-combustible fireproof material and facings of finishing material secured thereto, said core being composed of a body of finely-divided compressible and elastic material and a binding mineral cement whereby the resulting substance is of a penetrable tenacious nature adapted to recieve and hold nails or screws.

680,913.



680,914. **BRICK-KILN.** GEORGE F. GRAY, HARRY H. GRAY, and RICHARD SOUTH, San Francisco, Cal. Filed Apr. 8, 1901. Serial No. 54,848. (No model.)



Claim.—1. The combination in a brick-kiln of two parallel series of chambers, an intermediate longitudinally-disposed smoke-flue, and a chimney with which it connects, passages connecting with said flue and formed beneath each of the chambers upon the side most distant from that at which the heat enters, damper-controlled openings leading through the floor of the chambers into said passages, open combustion-chambers between the interior structure and the walls of the chamber, and oil-burners located in said combustion-chambers.

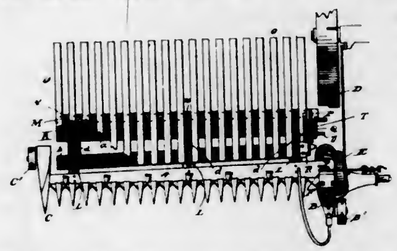
2. The combination in a brick-kiln of two parallel series of burning-chambers, with an intermediate smoke-flue and chimney with which it is connected, passages connecting with said flue beneath the sides of the chamber most distant from that at which the heat enters, and damper-controlled openings through the floor of the chamber connecting with said passages, combustion-chambers between the interior structure and the walls of the chamber, one or more pipes by which liquid hydrocarbon is delivered into said combustion-chamber, and burners therefor connected with said pipes upon the side opposite to the discharge-openings.

3. The combination in a brick-kiln of two parallel series of chambers, with an intermediate smoke-flue and a chimney with which it connects, passages beneath the floor of the kiln connecting with said flue, with damper-controlled openings through the floor upon the side most distant from the heat, and passages through the walls by which heat from one chamber is admitted to the next, and a preliminary heating-chamber located outside of the first of the series, with communicating passages thereto, said chamber adapted to contain a central structure of burned bricks, one or more oil-supply pipes and burners therefor, an open combustion-chamber between the central structure and the walls of the chamber, and air-inlet openings in the sides of said chamber.

4. The combination in a brick-kiln of two parallel series of chambers with an intermediate smoke-flue and chimney with which it is connected, passages through which heat is conducted from one chamber to the next, and passages beneath the floors of the chamber connecting with the smoke-flue having damper-controlled openings leading into said passages upon the side most distant from the heat-inlets, oil-conducting pipes and burners, open combustion-chambers formed within the chambers, a tunnel connecting the end chamber of the first series with the corresponding end chamber of the second series, said tunnel having a structure composed of previously-burned brick, occupying the lower portion, and serving as a heat-retainer whereby the heat may be transmitted from one side to the other of the kiln without loss.

5. The combination in a brick-kiln of two parallel series of burning-chambers with intermediate smoke-flue and chimney with which it is connected, damper-controlled passages between the chambers through which the heat is successively transmitted, open combustion-chambers formed in each of the burning-chambers, oil-burners and supply-pipes leading into a combustion-chamber, supplemental passages beneath the floors of the chambers connecting with a smoke-flue and having openings through the floors connecting therewith, tunnels connecting the end chambers of the kiln, said tunnels having a heat-retaining centrally-located structure extending therethrough and supplemental chambers exterior to the first chamber of each series, said supplemental chambers being formed with a central heating mass of burned bricks and having oil-burners and supply-pipes located in the open combustion-chambers around said structure and air-inlet openings thereto.

680,915. **MANUALLY-OPERATED ATTACHMENT FOR MOWERS.** HENRY GREEN, Pekin, Ill., assignor to the Acme Harvester Company, same place. Filed May 25, 1900. Serial No. 17,999. (No model.)



Claim.—1. A manually-operated grain-carrier for mowing-machines, consisting of a platform hinged to the finger-bar of a mower, a table hinged to said platform consisting of a series of slats projecting forward across the platform to near the finger-bar and the rear ends thereof projecting rearwardly from said platform, substantially as described and shown and for the purposes set forth and means for operating the said carrier.

2. A manually-operated grain-carrier for mowing-machines consisting of a platform hinged to the finger-bar of a mower, a table hinged to the said platform, consisting of a series of slats arranged in fixed relation to one another and extending forward across the platform to near the finger-bar, whereby the grain is caught thereon and kept clear of said platform, and when raised at an angle rearwardly the grain will slide off said table upon the ground and means for operating the said platform and table.

3. A manually-operated grain-carrier consisting of a platform, or frame K, hinged to the finger-bar of a mower, a bar M hinged to said platform K, a series of slats secured to said bar M and projecting forward across the said platform K and rearwardly therefrom, and means on the said platform for raising the same at an angle upward and rearward to receive grain from the sickle-bar and afterward tilting it at an opposite direction to deliver the load.

4. A manually-operated grain-carrier for mowers consisting of a frame K, hinged to the finger-bar of the mower, a bar M, hinged to the frame K, a series of slats O secured to the bar M, a post P secured to one end of the said bar, a lever Q pivoted to the frame K substantially as shown, an arm T having pivotal connection with the said post and lever and arranged whereby a movement of the lever in one direction will raise the carrier to catch the grain from the sickle-bar, and an opposite movement will cause the grain to be delivered at the rear of the mower upon the ground.

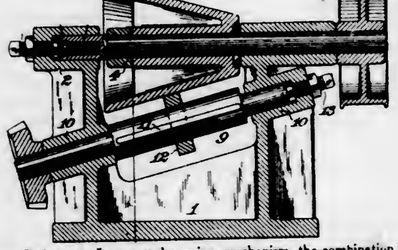
5. The combination with the finger-bar of a mower, of the frame K composed of the bars *a* and *b* hinged to said finger-bar, the bar M hinged to said frame K, the slats O secured to said bar M at right angles thereto and projecting forward across the frame K to near the finger-bar, the post P on the bar M, the lever Q on the frame K, the arm, or link, T between the said post and lever and the stud S on the lower end of said lever all arranged substantially as and for the purposes set forth.

6. A manually-operated grain-carrier for mowers comprising a platform hinged to the rear of the finger-bar of a mower, a series of slats, or fingers, O supported on a suitable carrier, the latter having hinged connection with the said platform, said slats projecting forward across the platform, and projecting rearwardly to bear upon the ground when delivering grain, an operating foot-lever mechanism for the carrier consisting of a lever Q pivotally secured to the forward edge of the platform adjacent to the finger-bar, a post P secured to the slat-carrying portion and a connection T between the lever and post, the same adapted to tilt the slats in one direction or the other according to the direction of movement of the said lever for the purposes herein set forth and described.

7. A manually-operated grain-carrier for mowers comprising a platform hinged to the rear of the finger-bar of a mower, a series of slats, or fingers O supported on a suitable carrier, the latter having hinged connection with the said platform, said slats projecting forward across the platform, and projecting rearwardly to bear upon the ground when delivering grain, an operating foot-lever mechanism for the carrier consisting of a lever Q pivotally secured to the forward edge of the platform adjacent to the finger-bar, a post P secured to the slat-carrier portion, a connection T between the lever and the post the same adapted to tilt the slats in one direction or the other according to the direction of movement of the said lever for the purpose set forth, and a stud S on the lower end of the said lever O for engaging the under side of the platform for assisting in operating it as described.

8. In a manually-operated grain-carrier for mowing-machines, the combination of the bars *a*, *b*, and *d* forming a platform; the latter hinged to the finger-bar of a mower, a table consisting of the slats O at right angles to the platform, a bar M, to which said slats are secured, lever Q on the platform, the post P on the bar M, the rod T connecting said lever and post, a stop S on the said lever Q, and a stop U on said lever for engaging a fixed portion on the finger-bar for limiting the movement of the lever and carrier, all arranged substantially as herein set forth and for the purposes described.

680,916. **SPEED-VARYING MECHANISM.** WILLIAM S. HALSEY, Pittsburg, Pa. Filed Sept. 22, 1899. Serial No. 731,270. (No model.)



Claim.—1. In a speed-varying mechanism, the combination of a driving-shaft, a driven shaft, a driving-wheel mounted loosely on the driving-shaft, a driven wheel rotatable with and movable longitudinally on the driven shaft, in contact with the driving-wheel, means for imposing rotative pressure upon the driving-wheel through the contact of helical inclines, and means for moving the driven wheel relatively to the axis of the driving-shaft.

2. In a speed-varying mechanism, the combination of a driving-shaft, a frictional driving-wheel mounted loosely thereon, a driven shaft, a frictional driven wheel, rotatable therewith and movable thereon in contact with the driving-wheel, a pressure-imposing device comprising helical inclines on the driving-wheel and on an abutting member fixed to the driving-shaft, and means for moving the driven wheel toward and from the axis of the driving-shaft.

3. In a speed-varying mechanism, the combination of a driving-shaft, a frictional driving-wheel mounted loosely thereon, a collar fixed on the driving-shaft and provided with a helical incline adapted to abut against a corresponding incline on the driving-wheel, a driven shaft, a frictional driven wheel rotatable therewith and movable thereon in contact with the driving-wheel, and means for moving the driven wheel toward and from the axis of the driving-shaft.

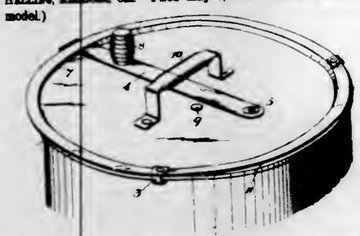
680,918. **INCANDESCENT-ELECTRIC-LIGHT SUPPORT.** HARRY GILFATRIK, Springfield, Vt. Filed Dec. 27, 1900. Serial No. 41,208. (No model.)

Claim.—1. An electric-light apparatus, comprising a tube adapted to be suspended from the ceiling and through which the electric-light wires are passed, a cross-head mounted on the lower end of said tube and adapted to turn thereon and provided with separate tubular arms, telescopic supports mounted in said arms and adjustable therein, and hangers suspended from said supports and adapted to be adjusted thereon and on said arms, said hangers being provided with devices for suspending the electric-light wires therefrom, substantially as shown and described.

2. An apparatus of the class described, provided with telescopic arms or supports and hangers suspended therefrom, said hangers consisting of rings through which said arms or supports are passed, and angular plates suspended from said rings and provided with notches or recesses in the sides thereof, substantially as shown and described.

4. In a speed-varying mechanism, the combination of a driving-shaft, a conical frictional driving-wheel mounted loosely thereon and having a helical incline on one end of its hub, a collar fixed to the driving-shaft, and having a helical incline adapted to abut against that of the driving-wheel, a driven shaft journaled at an angle with the driving-shaft, a frictional driven wheel fitted to traverse on a longitudinal feather on the driven shaft and having its periphery in contact with that of the driving-wheel, and a pivoted shifting-lever for effecting the longitudinal movement of the driven wheel.

680,917. **COVER FOR POTS, KETTLES, &c.** CHARLES H. S. HELLING, Alameda, Cal. Filed May 6, 1901. Serial No. 58,853. (No model.)



Claim.—1. A cover consisting of a body or disk portion having downwardly-projecting members upon its periphery of such length as to permit the cover to move horizontally to expose a pouring-opening, a lever pivoted on said disk an eccentric thereof, and movable in a plane parallel therewith, the outer end of said lever projecting beyond the periphery of said disk and located at one side of a line drawn diametrically across the cover and the said members disposed upon the opposite side of said line, said lever provided with a downward extension.

2. A cover consisting of a circular body or disk portion having downwardly-projecting members upon its periphery, a lever eccentrically pivoted upon said disk, said lever having its outer end extending beyond the periphery of the disk and located at one side of a line drawn diametrically across the cover and said member located upon the opposite side of said line, said lever having a downward projection on said outer end, and a guide upon said disk whereby the oscillation of the lever is limited.

3. The combination with a kettle or like receptacle of a cover having projecting members thereon adapted to engage the outer edge of the kettle in such manner as to form a segmental opening between the wall of the kettle and the shorter portion of the periphery of the cover between said members, a lever pivoted on said cover and eccentrically thereof and having its free end located upon one side of a line drawn diametrically across the cover and said members disposed upon the other side of said line, guides on said cover in which said lever is movable, a stop by which the movement of the lever is regulated, said lever having its outer end provided with a downward extension which is adapted to engage the side of the kettle opposite to the first-named members when the lever is oscillated, and whereby said cover is locked upon the kettle.

680,918. **TRACTION-ENGINE.** JOHN E. HENRIE, Saratoga, Cal. Filed Jan. 11, 1901. Serial No. 42,861. (No model.)

Claim.—1. A traction-engine having the driving mechanism mounted and supported upon the shaft of the drivers, a smaller wheel in front and in rear of each driver, and an endless track carried upon the drivers and these smaller wheels, and upon which they are supported.

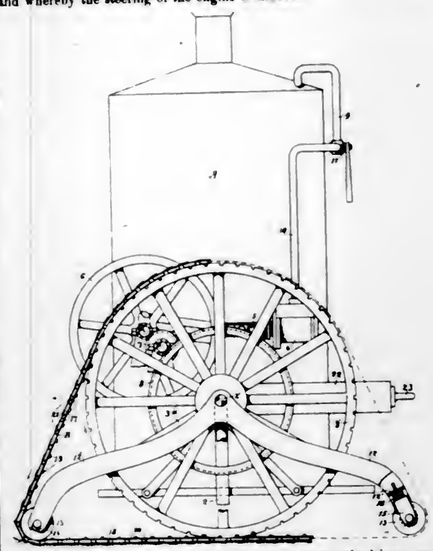
2. A traction-engine having two main drivers, the axle of these drivers having a dropped portion upon which the driving mechanism is mounted and supported, each of said drivers being made with their rims circumferentially divided and supported upon a double set of spokes in the hub, a smaller wheel in front and in rear of each of said drivers, and an endless track carried thereon, and means by which this track is kept from displacement.

3. In a traction-engine, an endless self-laying track consisting of transverse sections, springs interposed between these sections, and means whereby these sections are held together.

4. In a traction-engine, an endless self-laying track, consisting of transverse sections, springs interposed between these sections, plates upon the bottom of these sections, which plates are adapted to overlap one another and cover the interstices between the sections and means by which the sections are held together.

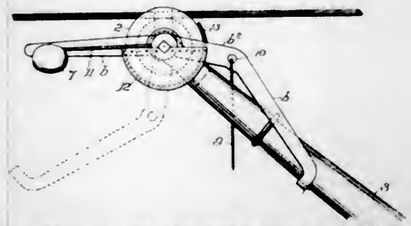
5. In a traction-engine, an endless self-laying track comprising transverse sections, means by which these sections are united and held upon cables, springs between these sections by which the sections are separated, and plates upon the bottom of the sections adapted to cover the interstices between the sections.

6. In a traction-engine, two main drivers having their axle provided with a dropped portion on which is supported the driving mechanism, consisting of a boiler and cylinders by which each driver may be operated independently, a steam-pipe leading from the boiler and having a branch extending to each cylinder, a two-way cock at the junction of these pipes whereby the admission of steam to the cylinders is controlled and whereby the steering of the engine is effected.



7. The combination in a traction-engine of two main drivers, upon the axle of which the driving mechanism is mounted and supported, means by which these drivers are driven in unison or independently, and by which means the steering is effected, a small wheel in front and in rear of each driver carried adjustably in brackets pivoted upon the axle of the drivers, endless belts or tracks carried upon the drivers and wheels upon each side of the engine, each of said tracks consisting of transverse sections, having perforated longitudinal projections upon one side, endless cables extending through these perforations, springs between the sections and overlapping plates upon the bottom of the sections, circumferential grooves and transverse depressions in the drivers, and small wheels in which the cables and projections on the sections are respectively adapted to rest and by which the tracks are held in position upon the drivers and wheels.

680,919. **TROLLEY-GUIDE.** GEORGE F. HEUSNER, Portland, Oreg. Filed Dec. 13, 1900. Serial No. 39,661. (No model.)



Claim.—1. A trolley-guide consisting of two arms fixedly attached to the ends of the trolley-wheel axle, said arms outwardly divergent from the periphery of the wheel, a guard portion on each of these arms extending from the axle to the ends of the arms, an angular extension to one of these arms, whereby the downward swing of the outer end of the arms is limited, and whereby the arms are raised into a vertical position, and a guard extending beneath these arms and inclosing the under part of the trolley-wheel.

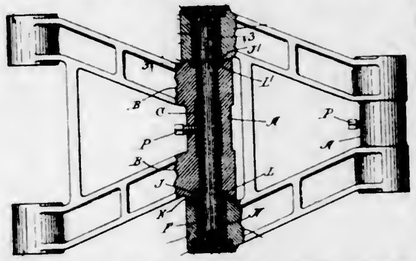
2. The combination with a trolley-pole, of a trolley-guide consisting of outwardly-divergent arms upon the axle of the trolley-wheel, one of said arms having an extension adapted to bear against the under side of the trolley-pole to prevent deflection of the arms, and a trolley-cord attached to said extension at a point between the axle and the lower end of the extension.

3. The combination with a trolley-pole, of a trolley-guide consisting of two outwardly-divergent arms upon the ends of the trolley-wheel axle, one of said arms extended at one side of the axle and adapted to engage the trolley-pole, weights upon the outer ends of the arms, upon the opposite side of the axle, and a trolley-cord connected with said extension at a point between the axle and the lower end of the extension.

4. The combination with a trolley-pole carrying a sheave of a guide consisting of two outwardly-divergent arms secured upon the outer ends of the axle of the sheave, one of said arms having an extension in the line of the pole, the lower end of this extension adapted to bear against the under side of the pole, a point of attachment for the trolley-cord intermediate of the axle and the lower end of the extension, and weights upon the outer ends of the arms whereby the arms are ordinarily kept below the line of the wire.

5. A trolley-guide consisting of two arms fixedly attached to the ends of the trolley-wheel axle, said arms outwardly divergent from the periphery of the wheel, weights upon the outer ends of these arms, an extension to one of these arms, the lower end of this extension bent approximately parallel to the line of the axle, a point of attachment for the trolley-cord intermediate of the axle and the end of this extension and a shield upon the arms, inclosing the under part of the wheel and having a tongue portion extending between the forks of the harp.

680,920. **CHAIN-BELT CONNECTION.** GEORGE L. HOLMES, Chicago, Ill. Filed May 13, 1901. Serial No. 60,006. (No model.)



Claim.—1. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, and at least one set of the bearing-surfaces of such link and pin guarded by a circuitous passage-way at one end and closed at the other.

2. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, and at least one set of the bearing-surfaces of such link and pin guarded by a circuitous passage-way at one end and closed at the other, and packing interposed in such passage-way.

3. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, and at least one set of the bearing-surfaces of such link and pin guarded by a circuitous passage-way at one end and closed at the other, and an oil-supply at the latter end of such bearing-surfaces.

4. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, and at least one set of the bearing-surfaces of such link and pin guarded by a circuitous passage-way at one end and closed at the other, an oil-supply at the latter end of such bearing-surfaces, and means for forcing such oil along the bearing-surfaces toward the first-mentioned end.

5. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, a projection on one link and a recess to receive same in the other, whereby at least one set of the bearing-surfaces of such link and pin are guarded by a circuitous passage-way at one end, means for closing such surfaces at the other end, and packing interposed in such passage-way.

6. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, a projection on one link and a recess to receive same in the other, whereby at least one set of the bearing-surfaces of such link and pin are guarded by a circuitous passage-way at one end, means for closing such surfaces at the other end, and an oil-supply at the latter end of such bearing-surfaces.

7. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pins loose in one link, a projection on one link and a recess to receive same in the other, whereby at least one set of the bearing-surfaces of such link and pin are guarded by a circuitous passage-way at one end, means for closing such surfaces at the other end, and an oil-supply at the latter end of such bearing-surfaces, and means for forcing such oil along the bearing-surfaces toward the first-mentioned end.

8. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, a projection on one link and a recess to receive same in the other, whereby at least one set of the bearing-surfaces of such link and pin are guarded by a circuitous passage-way at one end, means for closing such surfaces at the other end, an oil-supply at the latter end of such bearing-surfaces, and means for forcing such oil along the bearing-surfaces toward the first-mentioned end.

9. In a chain-link connection, the combination of two links with a pin to connect their associated ends, a bushing in one link, said pin loose in such bushing, a projection on said bushing and a recess in the other link to receive such projection, at least one set of the bearing-surfaces of such link and pin being thus guarded by a circuitous passage-way at one end.

10. In a chain-link connection, the combination of two links with a pin to connect their associated ends, a bushing in one link, said pin loose in such bushing, a projection on said bushing and a recess in the other link to receive such projection, at least one set of the bearing-surfaces of such link and pin being thus guarded by a circuitous passage-way at one end, and packing interposed in such passage-way.

11. In a chain-link connection, the combination of two links with a pin to connect their associated ends, a bushing in one link, said pin loose in such bushing, a projection on said bushing and a recess in the other link to receive such projection, at least one set of the bearing-surfaces of such link and pin being thus guarded by a circuitous passage-way at one end, and an oil-supply at the latter end of such bearing-surfaces.

12. In a chain-link connection, the combination of two links with a pin to connect their associated ends, a bushing in one link, said pin loose in such bushing, a projection on said bushing and a recess in the other link to receive such projection, at least one set of the bearing-surfaces of such link and pin being thus guarded by a circuitous passage-way at one end, an oil-supply at the latter end of such bearing-surfaces, and means for forcing such oil along the bearing-surfaces toward the first-mentioned end.

13. In a chain-link connection, the combination of two links with a connecting device to join their associated ends, said connecting device loose in one link, and at least one set of the bearing-surfaces of such link and connecting device being guarded by a circuitous passage-way at one end.

14. In a chain-link connection, the combination of two links with a connecting device to join their associated ends, said connecting device loose in one link, and at least one set of the bearing-surfaces of such link and connecting device being guarded by a circuitous passage-way at one end, and packing interposed in such passage-way.

15. In a chain-link connection, the combination of two links with a connecting device to join their associated ends, said connecting device loose in one link, and at least one set of the bearing-surfaces of such link and connecting device being guarded by a circuitous passage-way at one end, and an oil-supply at the other end of such bearing-surfaces.

16. In a chain-link connection, the combination of two links with a connecting device to join their associated ends, said connecting device loose in one link, and at least one set of the bearing-surfaces of such link and connecting device being guarded by a circuitous passage-way at one end, and oil-supply at the other end of such bearing-surfaces, and means for forcing oil from such end along the bearing-surfaces toward the first-mentioned end.

17. In a chain-link connection, the combination of a central link with a pin secured therein and projecting at both sides thereof, a second link having two parts, one on each side of the central link, bushings, one on each part of such second link, and recesses in the central link to receive the projecting parts of said bushings.

18. In a chain-link connection, the combination of a central link with a pin secured therein and projecting at both sides thereof, a second link having two parts, one on each side of the central link, bushings, one on each part of such second link, recesses in the central link to receive the projecting parts of said bushings, and packing in said recesses at the ends of the bushings.

19. In a chain-link connection, the combination of a central link with a pin secured therein and projecting at both sides thereof, a second link having two parts, one on each side of the central link, bushings, one on each part of such second link, recesses in the central link to receive the projecting parts of said bushings, and oil-supply devices at the outer ends of the pins.

20. In a chain-link connection, the combination of a central link with a pin secured therein and projecting at both sides thereof, a second link having two parts, one on each side of the central link, bushings, one on each part of such second link, recesses in the central link to receive the projecting parts of said bushings, oil-supply devices at the outer ends of the pins, and means for forcing oil inwardly along the ends of the pins toward the packing.

21. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, the bearing-surfaces of such link and pin provided at one end with an oil-supply, which tends to direct the oil from that end along the bearing-surfaces and out at the other end of such bearing-surfaces.

22. In a chain-link connection, the combination of two links with a pin to connect their associated ends, said pin loose in one link, the bearing-surfaces of such link and pin provided at one end with an oil-supply, which tends to direct the oil from that end along the bearing-surfaces and out at the other end of such bearing-surfaces, and packing at such exit end.

23. In a chain-link connection, the combination of two links with a connection device to connect their associated ends, said connection device loose in one link, the bearing-surfaces of such link and connection device provided at one end with an oil-supply, which tends to cause the oil to flow along such bearing-surfaces toward the other end thereof.

24. In a chain-link connection, the combination of two links with a connection device to connect their associated ends, said connection device loose in one link, the bearing-surfaces of such link and connection device provided at one end with an oil-supply, which tends to cause the oil to flow along such bearing-surfaces toward the other end thereof, and a packing device near such exit end.

25. In a chain-link connection, the combination of two links, one having a bushing, with a pin to connect the associated ends of said links, said pin loose in the bushing, the bearing-surfaces of such bushing and pin provided with an oil-supply at one end, whereby the oil is passed along such bearing-surfaces toward the other end.

26. In a chain-link connection, the combination of two links, one having a bushing, with a pin to connect the associated ends of said links, said pin loose in the bushing, the bearing-surfaces of such bushing and pin provided with an oil-supply at one end, whereby the oil is passed along such bearing-surfaces toward the other end, and packing near such exit end.

27. In a chain-link connection, the combination of a central link with a pin tight thereon and projecting at each side thereof, a second link having two parts, one on each side of the central link, oil devices at the ends of the pin, whereby oil is caused to flow inwardly between the bearing-surfaces of the pin and the outer link toward the inner end of such bearing-surfaces.

28. In a chain-link connection, the combination of a central link with a pin tight thereon and projecting at each side thereof, a second link having two parts, one on each side of the central link, oil devices at the ends of the pin, whereby oil is caused to flow inwardly between the bearing-surfaces of the pin and the outer link toward the inner end of such bearing-surfaces, and packing disposed near the inner ends of such bearing-surfaces.

29. In a chain-link connection, the combination of two links with a connecting device to join their associated ends, said connecting device loose in one link, and at least one set of the bearing-surfaces of such link and connecting device being guarded by a circuitous passage-way at one end, with a cup-shaped packing in such passage-way.

30. In a chain-link connection, the combination of two links with a connecting-pin to join their associated ends, one link provided with at least one part through which the pin passes and which projects into an enlarged recess on the other link, so that the shearing effect is thrown upon the pin and not upon such projecting part.

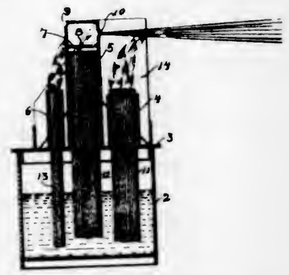
31. In a chain-link connection, the combination of two links with a connecting-pin to join their associated ends, one link provided with at least one part through which the pin passes and which projects into an enlarged recess on the other link, so that the shearing effect is thrown upon the pin and not upon such projecting part, said connecting-pin loose in one link, and the bearing-surfaces of such link and pin being guarded by a circuitous passage-way at one end.

32. In a chain-link connection, the combination of two links with a connecting-pin to join their associated ends, one link provided with at least one part through which the pin passes and which projects into an enlarged recess on the other link, so that the shearing effect is thrown upon the pin and not upon such projecting part, said connecting-pin loose in one link, and the bearing-surfaces of such link and pin being guarded by a circuitous passage-way at one end, and a cup-shaped packing about such projecting part and in such circuitous passage.

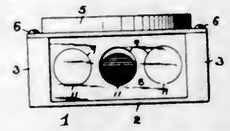
680,921. **JEWELER'S BLAST-LAMP.** EDWIN S. HOUGHTON, Brainerd, Minn. Filed June 13, 1901. Serial No. 64,366. (No model.)

Claim.—1. The combination, with the reservoir 2, of the cap 3 arranged thereon and provided with the three tubes 4, 5 and 6, the tube 5 being arranged between the tubes 4 and 6 and provided at its upper end with the diaphragm 7 having the orifice 8, the dome 9 arranged above said diaphragm and provided with the orifice 10 in its side wall above the tube 4, and suitable wicks arranged in said tubes 4, 5 and 6, for the purpose set forth.

2. The combination, with the reservoir 2, of the cap 3 arranged thereon and provided with the three tubes 4, 5 and 6, the tube 5 being arranged between the tubes 4 and 6 and provided at its upper end with the diaphragm 7 having the orifice 8, the dome 9 arranged above said diaphragm and provided with the orifice 10 in its side wall above the tube 4, suitable wicks arranged in said tubes, and the shield 14 having parallel side walls extending above the tube 14 and substantially to the top of the tube 5, as and for the purpose set forth.



680,922. **OUTLET-BOX.** HENRY ILL, Newark, N. J. Filed June 11, 1901. Serial No. 64,057. (No model.)



Claim.—1. An outlet-box for electric wires or other fixtures, said box being provided with one or more normally-closed openings, each opening having a closing device, integrally connected with the main body of the box by means of a weakened portion, whereby said closing device can be bent at an angle to provide a partial opening, and can be finally broken away at said weakened portion to form a complete opening, substantially as and for the purposes set forth.

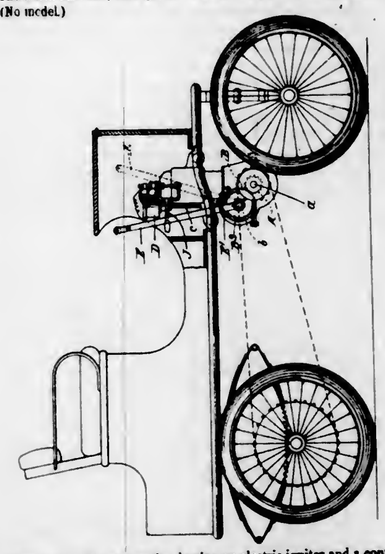
2. An outlet-box for electric wires or other fixtures, said box being provided with a side having cut portion 9, and a closing-disk in the opening formed by said cut portion, said disk being integrally connected by means of a weakened portion 11 with the main body portion of the side, the said weakened portion 11 being adapted to be bent, whereby said closing-disk can be arranged at an angle to form a partial opening, and said weakened portion being capable of being broken away to form a complete opening, substantially as and for the purposes set forth.

3. An outlet-box for electric wires or other fixtures, consisting, essentially, of a base and posts, sheet-metal sides arranged between said posts and forming with the base the body of said box, one or more of said sides being provided with one or more normally-closed openings, and each opening having a closing device connected with the main body of the side by means of a weakened portion, the said weakened portion being adapted to be bent, whereby said closing device can be arranged at an angle to form a partial opening, and said weakened portion being capable of being broken away, substantially as and for the purposes set forth.

4. An outlet-box for electric wires or other fixtures, consisting, essentially, of a base and posts, sheet-metal sides arranged between said posts and forming with the base the body of said box, one or more of said sides being provided with one or more normally-closed openings, and each opening having a closing device integrally connected with the main body of the side by means of a weakened portion, whereby the closing device can be bent at an angle, and can be finally broken away at said weakened portion to form a complete opening, substantially as and for the purposes set forth.

5. An outlet-box for electric wires or other fixtures, consisting, essentially, of a base and posts, sheet-metal sides arranged between said posts and forming with the base the body of said box, each side having a series of cut portions 9, and a closing-disk in the opening formed by each cut portion, each disk being integrally connected by means of a weakened portion 11 with the main body portion of the side, the said weakened portion 11 being adapted to be bent, whereby said closing-disk can be arranged at an angle to form a partial opening, and said weakened portion being capable of being broken away to form a complete opening, substantially as and for the purposes set forth.

680,923. **STARTING DEVICE FOR EXPLOSIVE-ENGINES.** THOMAS B. JEFFERY, Chicago, Ill. Filed Mar. 8, 1900. Serial No. 7,795. (No model.)



Claim.—1. In a gas-engine having an electric igniter and a controller for the same operating in uniform time relation with the engine's movements, an adjustable contact-piece in such controller whose position within its range of adjustment determines the time of ignition in the cycle of the engine's movements; a starting device, and connections by which the same in its starting movement adjusts said contact-piece to a position causing delayed ignition.

2. In a gas-engine having an electric igniter, a rotary controlling mechanism actuated by the engine to open and close the igniting circuits in uniform time relation with the engine's movements; a contact-piece in said controlling mechanism, movable in the path of rotation of the rotating parts to vary the point in the cycle of the engine's movements at which ignition occurs; a starting device comprising a lever and connections therefrom to actuate the engine crank-shaft, and an element connected with the adjustable contact-piece and extending into the path of the crank-actuating movement of the lever and actuated by such movement in a direction to cause the contact-piece to be moved to position postponing the ignition until after the close of the compressing stroke of the piston.

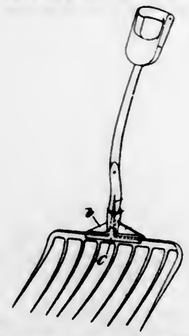
3. In a gas-engine having an electric igniter and a controller for the same operating in uniform time relation with the engine's movements, an adjustable contact-piece in such controller whose position within its range of adjustment determines the time of ignition in the cycle of the engine's movements; a starting device comprising a clutch connection with the shaft of the motor-train, by which alternate movements in opposite directions of the starting device gives step-by-step actuation in continuous direction to the crank-shaft, an element of the starting device having such alternating movement, and an element by which the contact-piece is moved, extended into the path of the shaft-actuating movement of said element of the starting device, and actuated by said movement to adjust the contact-piece to position postponing the sparking until after the close of the compressing stroke of the piston.

4. In a gas-engine having an electric igniter and a controller for the same operating in uniform time relation with the engine's movements, an adjustable contact-piece in such controller whose position within its range of adjustment determines the time of ignition in the cycle of the engine's movements; a starting-lever, and a pawl-and-ratchet connection by which such lever actuates the engine crank-shaft when the lever is moved in one direction, and which permits the return of the lever or the continuous motion of the crank-shaft in that direction; a second lever having an arm extended in the path of the crank-actuating movement of the starting-lever; and connections from said second lever to the adjustable contact-piece, arranged to cause the movement derived by said second lever from the starting-lever to adjust the contact-piece to position for delayed ignition.

5. In a gas-engine having an electric igniter and a controller for the same operating in uniform time relation with the engine's movements, an adjustable contact-piece in such controller whose position within its range of adjustment determines the time of ignition in the cycle of the engine's movements; a starting-device comprising a clutch connection with the shaft of the motor-train, by which alternate movements in opposite directions of the starting device gives step-by-step actuation in continuous direction to the crank-shaft, an element of the starting device having such alternating movement, and an element by which the contact-piece is moved, extended into the path of the shaft-actuating movement of said element of the starting device, and actuated by said movement to adjust the contact-piece, said starting-device element at the end of its withdrawing or non-actuating movement being out of the path of movement of the contact-piece-moving element, whereby the latter is free to be moved throughout its entire range of adjustment when the starting-lever is returned to initial position.

6. In a gas-engine, in combination with the crank-shaft, a parallel shaft, *b*, a power-communicating train in which both said shafts are revolved; a ratchet-wheel on said parallel shaft, and a starting-lever fulcrumed concentric therewith, having a pawl engaging said ratchet-wheel to rotate said shaft; a shaft, *c*, extending upward at right angles with the shaft *b*, and an igniter-controlling mechanism located at the upper end of and operated by said shaft.

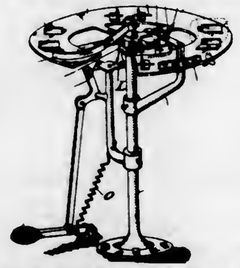
680,924. **CASTING.** JOHN H. KELLEY, Philadelphia, Pa. Filed May 20, 1901. Serial No. 61,088. (No model.)



Claim.—1. A casting of the class described having a socket, a clamp at the lower end, integrally connected with the socket, and ribs at both sides of the socket integrally connected with the socket, substantially as described.

2. A casting of the class described, having a socket adapted to receive a handle, a clamp at the lower end integrally connected with the socket, ribs at both sides of the socket integrally connected with the socket, flanges on the inside of the socket to support the lower end of the handle, and an opening to accommodate the shank of the head of an implement, substantially as described.

680,925. **CAN-HOLDING DEVICE.** JOHN F. KIELEY, San Jose, Cal. Filed June 25, 1900. Serial No. 21,569. (No model.)



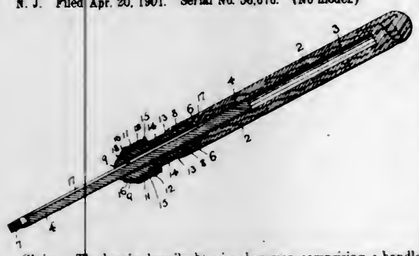
Claim.—1. In a device of the class described, the combination with a rotary horizontal disk, of a series of cradles on said disk for the reception of the cans, means for automatically unloading said cans, means for rotating said disk a predetermined distance, and means for automatically adjusting said cans on said cradles, said cradles being adjustable in size, substantially as set forth.

2. In a device of the class described, the combination with a rotary horizontal disk, of a series of cradles on said disk for the reception of the cans, the distance between the jaws of said cradles being adjustable

for the purpose of accommodating cans of various sizes, substantially as set forth.

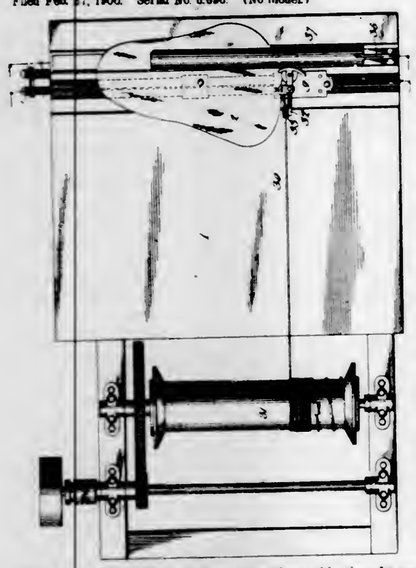
3. In a device of the class described, the combination with a rotary horizontal disk, of a series of cradles on said disk for the reception of the cans, said cradles being formed of a plurality of independent cleats secured separately to the upper face of said disk, for the purpose set forth.

680,926. TUNING-HAMMER. WILLIAM KLINDER, Parkview, N. J. Filed Apr. 20, 1901. Serial No. 56,676. (No model.)



Claim.—The herein-described tuning-hammer, comprising, a handle having a tubular portion, a ferrule 6 in the forward end of said tubular portion having a part of the ferrule extending from the end of said handle, a sleeve 8 on said ferrule 6, a slitted cone-shaped head on said sleeve provided with a screw-thread, a cone-shaped nut on said head and the screw-thread thereof, and a shank provided with a key-head, said shank being slidably arranged in said ferrule 6 and in the tubular portion of the handle, the said shank being provided with a longitudinally-extending groove, and a pin secured in said slitted cone-shaped head, having its free end extending into said groove in the shank to prevent turning of the said shank, substantially as and for the purposes set forth.

680,927. LEATHER-WORKING MACHINE. STEPHEN R. KROM, Plainfield, N. J., assignor to Payerweather and Ladew, New York, N. Y. Filed Feb. 27, 1900. Serial No. 6,696. (No model.)



Claim.—1. In a leather-working machine, the combination of means for rotating the blank, a knife movably mounted so as to be capable of changing its cutting direction while in operation, and means for causing the knife and leather to bear against each other with yielding pressure, said knife being stationary with reference to the rotary movement of the blank.

2. In a leather-working machine, the combination of means for rotating the blank, a knife bearing against the edge of the blank and so as to feed toward the center on which the blank rotates, the knife being mounted movably so as to be capable of changing its cutting direction while in operation, said knife being stationary with reference to the rotary movement of the blank.

3. In a leather-working machine, the combination of a center of rotation for a blank, means for rotating such blank on said center, a knife-carriage movable to and from said center, a knife movably mounted on said carriage, and means for automatically adjusting the knife on the carriage to the contour of the blank so as to cut a continuous strip therefrom.

4. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife movably mounted on said carriage, and means connected with the knife and adapted to bear against the edge of the blank in advance of the knife, and thereby regulate the cutting direction thereof.

5. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife-block pivotally mounted on said carriage, said knife-block having a bearing-point adapted to press against the edge of the blank in advance of the knife to regulate the cutting direction of the knife.

6. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife-block pivotally mounted on said carriage, said knife-block having a bearing-point adapted to press against the edge of the blank in advance of the knife to regulate the cutting direction of the knife, and means for keeping the blank flat on the table as it approaches the knife.

7. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife-block pivotally mounted on said carriage, said knife-block having a bearing-point adapted to press against the edge of the blank in advance of the knife to regulate the cutting direction of the knife, and upper and lower rollers between which the sheet may travel, for keeping the blank flat on the table as it approaches the knife.

8. In a leather-working machine, a pivoted knife-block provided with a knife and having an arm projecting in advance of the knife, said arm having a bearing-point adapted to bear against the edge of a rotating blank to guide the knife.

9. In a leather-working machine, a pivoted knife-block provided with a knife, and having an arm projecting in advance of the knife, said arm having a bearing-point adapted to bear against the edge of a rotating blank to guide the knife, and a cord and weight adapted to hold said bearing-point against the edge of said blank.

10. In a leather-working-machine, the combination of a knife-carriage, a knife-block provided with a knife and pivoted on said carriage and having a guiding-arm adapted to bear against the edge of the blank in advance of the knife, said knife-block having also an arm 32 and roller 33.

11. In a leather-working machine, the combination of the winding-drum 31, table 1 having the channel 4, knife-carriage 9 movable in said channel, knife-block 20 having guide-wheel 25 and knife 19, and pivot-block 5.

12. In a leather-working machine, the combination of a table, means for rotating a blank thereon about a central point, a knife adapted to cut along the margin of said blank, two series of rollers adapted to bear against the upper and lower sides of the blank and hold it in proper position for the knife, the rollers of each series being mounted for independent rotation.

13. In a leather-working machine, the combination of a table, means for rotating a blank thereon about a central point, a knife adapted to cut along the margin of said blank, two series of rollers adapted to bear against the upper and lower sides of the blank and hold it in proper position for the knife, the rollers of each series being mounted for independent rotation, and an arm carrying the upper series of rollers and movable so as to withdraw said rollers from operating position.

680,928. GRATING OR SCREEN FOR PHOTOMECHANICAL PRINTING PROCESSES. MAX LEVY, Philadelphia, Pa. Filed Dec. 11, 1900. Serial No. 39,547. (No model.)



Claim.—1. A grating or screen for use in the production of half-tone photomechanical engravings made up of lined plates of different sizes, the smaller plate having beveled edges, strips with beveled edges cemented to the larger plate and to the beveled edges of the smaller plate.

2. A grating or screen for use in the production of half-tone photomechanical engravings, consisting of lined plates of different dimensions the smaller plate being centered upon the larger plate and provided with beveled edges, strips with beveled or undercut edges which are cemented to the projecting portions of the larger plate and to the beveled edges of the smaller plate, substantially as shown.

3. A grating or screen for the purpose set forth, made up of lined glass plates of different dimensions, the smaller plate having beveled edges, connecting and bordering strips of less thickness than the smaller plate, said strips being cemented to the projecting portions of the larger plate and to the beveled edges of the smaller plate whereby the plates are hermetically sealed and retained one upon the other.

680,929. BELT-BUCKLE. ISAAC LEWENTHAL, New York, N. Y. Filed Mar. 9, 1901. Serial No. 50,419. (No model.)

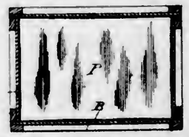


Claim.—1. In a buckle comprising separate sections having abutting edges, the combination of an interlocking fastening device having a separate part secured to each of said sections, and a stop on one of the sections adjacent its abutting edge located between the terminal of said edge and the fastener and adapted to be engaged by the abutting edge of the other section.

2. In a buckle comprising separate sections having abutting edges, of a fastening device comprising separate parts secured to said sections above the center of said edges, and a stop located on one of said sections below said center adjacent said section's abutting edge and adapted to be engaged by the abutting edge of the other section.

3. The combination with the separable buckle-sections, of the two-part fastener comprising the eye 4, having the bar 6, and the hook having the shank 9, and tongue 10, and the stop 11 having the shank 12 at the section edge and enlarged head 13.

680,930. PACKING-BOX. CHARLES W. LEWIS, New York, N. Y. Filed May 11, 1900. Serial No. 16,299. (No model.)



Claim.—A knockdown packing-box composed of panels each panel consisting of paper backed by wood, the combined paper and wood being secured to a marginal frame and the paper loose from the wood throughout the central portion of the panel, whereby the lining is constructed and arranged to constitute an additional intact wall in case of breakage in the wood portion of the wall, substantially as set forth.

680,931. BRACE. POTTER F. MAINES, Philadelphia, Pa. Filed Apr. 5, 1901. Serial No. 54,427. (No model.)



Claim.—The combination of the tool-carrying stock, an operating-handle having a head loosely fitting on the upper stock-spindle, a recess, 10, formed on the under face of the head, an annular recess formed in the stock adjacent to the head, a split ring adapted to said recess, a rectangular lever extending between the two sections of the ring having its upper end extending in the recess, 10, and a removable wedge, 12, having an inclined wall adapted to bear against the lever and tilt the same when the handle is operated in one direction, substantially as described.

680,932. INCANDESCENT-LAMP SOCKET. NORMAN MARSHALL, Newton, Mass. Original application filed Aug. 8, 1900, Serial No. 26,284. Divided and this application filed Mar. 18, 1901. Serial No. 51,661. (No model.)



Claim.—1. A metallic shell for incandescent-lamp sockets formed in two separable parts, one of said parts having irregular holes through its wall, shouldered studs expanded within said holes and having their ends turned over to clamp the wall between the turned-over ends and the shoulders, screws threaded in said studs, and the other part having bayonet-joint slots for engaging said screws.

2. A metallic shell for incandescent-lamp sockets comprising a cylindrical part A, irregular holes a^2 in the part A shouldered studs a' expanded within said holes and having the end turned over to clamp the wall between the shoulder a^2 and turned-over end a^4, screws a threaded in said studs, and a cap B having bayonet-joint slots b for engaging screws a.

3. In a socket for incandescent lamps the combination with an insulating-base provided with grooves extending longitudinally thereof, of a metallic shell having a cylindrical part A and cap B, inwardly-projecting studs secured in the wall of the part A arranged to register with said grooves, screws threaded in said studs, and bayonet-joint slots in said cap for engaging said screws.

4. A metallic shell for incandescent-lamp sockets formed in two separable parts, one of said parts having irregular holes through its wall, studs expanded within said holes, screws threaded in said studs, and the other part having slots for engaging said screws.

5. A metallic shell for incandescent-lamp sockets formed in two separable parts of thin material, one of said parts having internally-screw-threaded studs secured in its wall, screws threaded in said studs, and the other part having slots for engaging said screws.

680,933. COMBINED MATCH-HOLDER AND ASH-RECEIVER. FRANK J. MERE, Newark, N. J. Filed Nov. 28, 1900. Serial No. 37,964. (No model.)



Claim.—1. The herein-described combined match-holder and ash-receiver, consisting, essentially, of a base or stand provided with a neck, a match holder at one side of said base or stand, an ash-receiver adapted to be arranged on said base or stand, and means on the under side of said ash-receiver and in the neck of the said base or stand for separably connecting said ash-receiver and said base or stand, substantially as and for the purposes set forth.

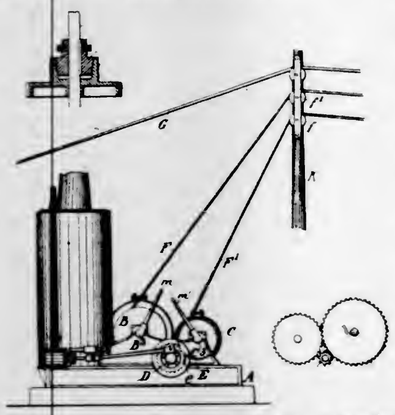
2. The herein-described combined match-holder and ash-receiver, consisting, essentially, of a base or stand, having a neck provided with an opening 4 having a straight edge 6, a match-holder at one side of said base or stand, and an ash-receiver on said base or stand, provided with a downwardly-extending projection having a flat side 13, adapted to be fitted in said opening 4 for separably connecting said ash-receiver and said base or stand, substantially as and for the purposes set forth.

3. The herein-described combined match-holder and ash-receiver, consisting, essentially, of a stand, a downwardly-extending wall 7 within said stand, a connecting base-plate 8, and an upwardly-extending wall 9, all forming a part of said stand and producing a match-holder, and an ash-receiver on said stand, substantially as and for the purposes set forth.

4. The herein-described combined match-holder and ash-receiver, consisting, essentially, of a stand, a downwardly-extending wall 7 within said stand, a connecting base-plate 8, and an upwardly-extending wall 9, all forming a part of said stand and producing a match-holder, a neck on said stand provided with an opening 4 having a straight edge 6, and an ash-receiver on said stand, provided with a downwardly-extending projection having a flat side 13, adapted to be fitted in said opening 4 for separately connecting said ash-receiver and said stand, substantially as and for the purposes set forth.

5. The herein-described combined match-holder and ash-receiver, consisting, essentially, of a stand, a downwardly-extending wall 7 within said stand, a connecting base-plate 8, and an upwardly-extending wall 9, all forming a part of said stand and producing a match-holder, a neck on said stand provided with an opening 4 having a straight edge 6, and an ash-receiver on said stand, provided with a downwardly-extending projection having a flat side 13, adapted to be fitted in said opening 4 for separately connecting said ash-receiver and said stand, and an outwardly-extending arm 14 on said ash-receiver, having a concave surface, all arranged, substantially as and for the purposes set forth.

680,934. HOISTING AND CONVEYING DEVICE. THOMAS S. MILLER, South Orange, N. J., and JOSEPH H. DICKINSON, Atlanta, Ga. Filed June 19, 1900. Serial No. 20,796. (No model.)



Claim.—1. In a hoisting-engine in combination two drum-shafts, two drums loosely mounted on said shafts, two intermeshing gears secured one to each drum-shaft and approximately proportioned in diameters to the diameters of the drums, driving devices adapted to connect each gear with its drum, a power-shaft, a pinion thereon intermeshing with the gear on one of the drum-shafts, a gear secured to the drum upon the other shaft, an intermeshing gear loosely mounted upon the power-shaft, and friction devices for turning said gear from the power-shaft, said last train of gears being adapted to turn the drum oppositely and at a higher speed than its other driving device, substantially as described.

2. In a hoisting-engine in combination, two drum-shafts, two drums loosely mounted one on each of said shafts, a brake upon each drum, two intermeshing gears secured one to each drum-shaft and approximately proportioned in diameters to the diameters of the drums, friction devices adapted to connect each gear with its drum, a power-shaft, a pinion thereon intermeshing with the gear on one of the drum-shafts, a gear secured to the drum upon the other shaft, an intermeshing gear loosely mounted on the power-shaft, and friction devices for turning said gear from the power-shaft, said last train of gears being adapted to turn the drum oppositely and at a higher speed than its other driving device, substantially as described.

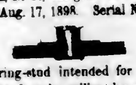
3. In a hoisting-engine, two drums, a power-shaft, a separate set of driving mechanisms from the power-shaft to each drum, means for connecting or disconnecting either set of driving mechanisms, and means for connecting both drums.

4. In a hoisting-engine the combination with two drums, a power-shaft, separate sets of gears at opposite ends of the drums adapted respectively to connect the power-shaft with different drums, means for throwing each set of gears into or out of action at will, and gears adapted to directly connect the drums.

5. In a hoisting-engine, two drums, a power-shaft, a separate set of driving mechanisms from the power-shaft to each drum, means for connecting or disconnecting either set of driving mechanisms, means for connecting both drums, and a brake for each drum.

6. In a hoisting-engine in combination, two drum-shafts, two drums loosely mounted one on each of said shafts, two intermeshing gears secured one on each drum-shaft, means for connecting each drum to turn with its shaft, a power-shaft, a pinion fixed on the power-shaft and meshing with the said gear upon one of the drum-shafts, a gear fixed to the drum upon the other drum-shaft, a pinion loose upon the power-shaft and meshing with the last-mentioned gear, and means for connecting said loose pinion to turn with the power-shaft when desired.

680,935. FASTENING DEVICE FOR GLOVES, &c. WILLIAM B. MURPHY, New York, N. Y., assignor to Lucius N. Littauer, Gloversville, N. Y. Filed Aug. 17, 1898. Serial No. 688,773. (No model.)



Claim.—1. A spring-stud intended for engagement with a rigid socket, consisting of a head made resilient by vertical slits, a flanged base integral with the lower end of the head, a centrally-located interior tube integral with the upper end of the head and depending therefrom, said tube operating as a support for the resilient head.

2. A stud intended for engagement with a rigid socket, said stud consisting of a head made resilient by vertical slits, a flanged base at the lower end of the head, a centrally-located interior tube integral with the upper end of the head, depending therefrom and projecting below the under side of the fabric to which the stud may be attached, said tube operating as a support for the resilient head.

3. A spring-stud consisting of a head, made resilient by vertical slits, a centrally-located interior tube integral with the upper end of the head, and depending therefrom, in combination with a flanged eyelet adapted to enter the centrally-located interior tube and to be expanded within the same to attach the stud to the fabric.

4. A stud member for separable fasteners having a base-flange, outwardly-bowed resilient sections extending therefrom to form a head and an internal attaching-stem formed integral with and depending from the top of said head; substantially as described.

5. A stud member for separable fasteners having a base-flange, outwardly-bowed resilient sections extending upwardly therefrom to form a head and a tubular internal attaching-stem formed integral with and depending from the top of said head, the lower end of said stem being contracted; substantially as described.

6. A spring-stud consisting of a head, made resilient by vertical slits, a centrally-located interior tube integral with the upper end of the head depending therefrom, and means for securing the centrally-located interior tube to the fabric; substantially as described.

680,936. BRISTLE-PROBANG. RICHARD P. MCCULLY, Brooklyn, N. Y. Filed Dec. 27, 1899. Serial No. 741,771. (No model.)



Claim.—1. A bristle-head for a bristle-probang comprising, a plurality of bristles arranged substantially in line and secured at their ends, and a bushing within the end of said bristle-head.

2. In a bristle-probang, a hollow stem, an operating-rod passing through and coöperating with said stem, and a bristle-head detachably held by said stem and operating-rod.

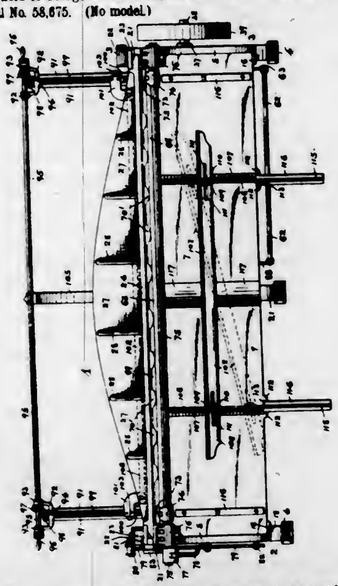
3. In a bristle-probang, a flexible hollow stem, an operating-rod passing through and coöperating with said stem, and a bristle-head detachably held by said stem and operating-rod.

4. In a bristle-probang, a flexible hollow stem, an operating-rod cooperating with said stem, a bristle-head detachably held at opposite ends by said stem and operating-rod, an operating-handle at the rear end of said tubular stem, and an operating-handle at the rear of said operating-rod, and means for securing together the last-named operating-handle and said operating-rod.

5. A dismemberable bristle-probang comprising a bristle-head having bushings at each end thereof, an operating-rod passing through said bushings, a socket carried by said operating-rod and detachably engaging one end of said bristle-head, a tubular stem surrounding a portion of said operating-rod and carrying a socket at one end to detachably engage the other end of said bristle-head, and means whereby said operating-rod may be moved within said tubular stem.

6. A dismemberable bristle-probang consisting in the combination and of the following parts, a bristle-head having metallic tubes inserted in the ends to form bushings for the dilating-rod, a dilating-rod having a thimble at the head end thereof to receive and detachably hold one end of the head, a tubular flexible stem made from spring-wire wound spirally, and having a thimble at one end to receive and detachably hold the other end of the head, a tubular handle fixed to the other end of the flexible stem and a socket-piece provided with a set-screw to detachably hold the dilating-rod in the flexible stem and the ends of the bristle-head in the thimbles, substantially as specified.

680,937. POWER-SHEARS. GEORGE A. OHL, Sr., GEORGE A. OHL, Jr., FREDERICK W. TERBRAAK, and AUGUST A. BERGHOF, Newark, N. J., assignors to George A. Ohl & Co., of New Jersey. Filed May 4, 1901. Serial No. 58,675. (No model.)



Claim.—1. In a machine for cutting sheet metal, the combination, with a bed or table and standards comprising guide members, of a knife-head and cutter, mechanism for causing a reciprocatory motion of said knife-head and cutter, a clamping-leaf and mechanism for actuating said clamping-leaf, said knife-head-operating mechanism and the clamping-leaf-operating mechanism being arranged to operate the said clamping-leaf and the knife-head and cutter consecutively without removing the metal sheet, substantially as and for the purposes set forth.

2. In a machine for cutting sheet metal, the combination, with a bed or table, and standards, comprising, a pair of combined footpieces and guide members, said guide members having vertical guides 21 and 70, a knife-head movably arranged in said guides 21, a cutter on said knife-head, and mechanism for causing a reciprocatory motion of said knife-head and cutter, a clamping-leaf movably arranged in said guides 70, and mechanism for actuating said clamping-leaf, said knife-head-operating mechanism and the clamping-leaf-actuating mechanism being arranged to operate the said clamping-leaf and the knife-head and cutter consecutively without removing the metal sheet, substantially as and for the purposes set forth.

3. In a machine for cutting sheet metal, the combination, with a bed or table and standards comprising, a pair of combined footpieces and guide members, of a knife-head and cutter, and mechanism for causing a reciprocatory motion of said knife-head and cutter, consisting, essentially, of downwardly-extending arms having perforated ears, pivotal pins in said ears, a shaft, eccentrics on said shaft, and links between said eccentrics and said pivotal pins, substantially as and for the purposes set forth.

4. In a machine for cutting sheet metal, the combination, with a bed or table and standards, comprising, a pair of combined footpieces and guide members, said guide members having vertical guides 21, a knife-head movably arranged in said guides, a cutter on said knife-head, and mechanism for causing a reciprocatory motion of said knife-head and cutter, consisting, essentially, of downwardly-extending arms having perforated ears, pivotal pins in said ears, a shaft rotatably arranged in bearings in said footpieces, eccentrics on said shaft, and links between said eccentrics and said pivotal pins, substantially as and for the purposes set forth.

5. In a machine for cutting sheet metal, the combination, with supporting-standards, and a bed or table thereon, of a knife-head and cutter, and mechanism for causing a reciprocatory motion of said knife-head and cutter, consisting, essentially, of a main driving-shaft 38 rotatably arranged in bearings in said standards, a second shaft 35 rotatably arranged in bearings in said standards, an actuating means on said shaft 35 connected with said knife-head, a gear on said shaft 35 in mesh with said pinion on said shaft 38, said gear having a recessed hub, a clutch-disk on said shaft 35 having a chambered portion, a spring-actuated holding-dog in the chambered portion of said clutch-disk, and means for releasing said holding-dog and causing it to engage with said recessed hub of the gear on said shaft 35, substantially as and for the purpose set forth.

6. In a machine for cutting sheet metal, the combination, with supporting-standards and a bed or table thereon, of a knife-head and cutter, and mechanism for causing a reciprocatory motion of said knife-head and cutter, consisting, essentially, of a main driving-shaft 38 rotatably arranged in bearings in said standards, a pinion 40 on said shaft 38, a second shaft 35 rotatably arranged in bearings in said standards, an actuating means on said shaft 35 connected with said knife-head, a gear on said shaft 35 in mesh with said pinion 40, having a recessed hub, a clutch-disk on said shaft 35 having a chambered portion, a spring-actuated holding-dog in the chambered portion of said clutch-disk, and means for releasing said holding-dog and causing it to engage with said recessed hub of the gear on said shaft 35, consisting, of a bearing 54, provided with a guide 55, a sliding sector above said bearing 54, normally in holding engagement with said holding-dog, a guide-arm on said sector arranged in said guide 55, and a treadle with which said guide-arm is connected for withdrawing said sector from its holding engagement with said holding-dog, substantially as and for the purposes set forth.

7. In a machine for cutting sheet metal, the combination, with supporting-standards, and a bed or table thereon, of a knife-head and cutter, and mechanism for causing a reciprocatory motion of said knife-head and cutter, a shaft on which the said knife-head-operating mechanism is arranged, a brake-pulley on said shaft having a reduced peripheral edge, and a brake-shoe connected with one of said standards and adapted to engage the braking-surface of said pulley when the knife-head is at the top of its stroke, substantially as and for the purposes set forth.

8. In a machine for cutting sheet metal, the combination, with supporting-standards, and a bed or table thereon, of a knife-head and cutter, and mechanism for causing a reciprocatory motion of said knife-head and cutter, a shaft on which the said knife-head-operating mechanism is arranged, a brake-pulley 85 on said shaft, provided with a partial peripheral braking-surface 86, a bracket on one of said standards having a brake-shoe-receiving portion, and a brake-shoe adjustably arranged in said receiving portion, adapted to engage said braking-surface 86 of said pulley when the knife-head is at the top of its stroke, substantially as and for the purposes set forth.

9. In a machine for cutting sheet metal, the combination, with a bed or table, and standards, comprising, a pair of combined footpieces and guide members, said guide members having vertical guides 21, a knife-head movably arranged in said guides, a cutter on said knife-head, and mechanism for causing a reciprocatory motion of said knife-head and cutter, consisting, essentially, of downwardly-extending arms having perforated ears, pivotal pins in said ears, a shaft 35 rotatably arranged in bearings in said footpieces, eccentrics on said shaft 35, and links between said eccentrics and said pivotal pins, a main driving-shaft 38 rotatably arranged in bearings in said footpieces, a pinion 40 on said shaft 38, a gear on said shaft 35 in mesh with said pinion, having a recessed hub, a clutch-disk on said shaft 35 having a chambered portion, a spring-actuated holding-dog in the chambered portion of said clutch-disk, and means for releasing said holding-dog and causing it to engage with said recessed hub of the gear on said shaft 35, substantially as and for the purposes set forth.

10. In a machine for cutting sheet metal, the combination, with a bed or plate and standards, comprising, a pair of combined footpieces and guide members, said guide members having vertical guides 21, a knife-head movably arranged in said guides, a cutter on said knife-head, and mechanism for causing a reciprocatory motion of said knife-head and cutter, consisting, essentially, of downwardly-extending arms having perforated ears, pivotal pins in said ears, a shaft 35 rotatably arranged in bearings in said footpieces, eccentrics on said shaft 35, and links between said eccentrics and said pivotal pins, a main driving-shaft 38 rotatably arranged in bearings in said footpieces, a pinion 40 on said shaft 38, a gear on said shaft 35 in mesh with said pinion, having a recessed hub, a clutch-disk on said shaft 35 having a chambered portion, a spring-actu-

ated holding-dog in the chambered portion of said clutch-disk, and means for releasing said holding-dog and causing it to engage with said recessed hub of the gear on said shaft 35, consisting, of a bearing 54, provided with a guide 55, a sliding sector above said bearing 54 and in normal engagement with said holding-dog, a guide-arm on said sector arranged in said guide 55, and a treadle with which said guide-arm is connected for withdrawing said sector from its holding engagement with said holding-dog, substantially as and for the purposes set forth.

11. In a machine for cutting sheet metal, the combination, with a bed or plate and standards, comprising, guide members, of a knife-head and cutter, a shaft 35, and mechanism for causing a reciprocatory motion of said knife-head and cutter, bearings 76 connected with said guide members, a shaft 75 in said bearings, and a clamping-leaf suspended from said shaft 75, and means for causing a reciprocatory motion of said clamping-leaf, consisting, essentially, of a crank-arm 77 on said shaft 75, a spring-actuated lever pivoted to one of said standards, a connecting-link between said crank-arm 77 and said lever, and means on said shaft 35 for causing an oscillatory motion of said lever, substantially as and for the purposes set forth.

12. In a machine for cutting sheet metal, the combination, with a bed or plate and standards, comprising, guide members, of a knife-head and cutter, a shaft 35, and mechanism for causing a reciprocatory motion of said knife-head and cutter, bearings 76 connected with said guide members, a shaft 75 in said bearings, and a clamping-leaf suspended from said shaft 75, and means for causing a reciprocatory motion of said clamping-leaf, consisting, essentially, of a crank-arm 77 on said shaft 75, a spring-actuated lever pivoted to one of said standards, a connecting-link between said crank-arm 77 and said lever, a roller 84 on said lever, and a cam on said shaft in sliding engagement with said roller for causing an oscillatory motion of said lever and the parts connected therewith, substantially as and for the purposes set forth.

13. In a machine for cutting sheet metal, the combination, with a bed or table and standards, comprising, a pair of combined footpieces and guide members, said guide members having vertical guides 21, a knife-head movably arranged in said guides, a cutter on said knife-head, a shaft 35, and mechanism for causing a reciprocatory motion of said knife-head and cutter, vertical guides 70 in said guide members, bearings 76 connected with said guide members, a shaft 75 in said bearings 76, cranks 74 on said shaft, and a link 73 connected with each crank 74, a clamping-leaf suspended from said links, having its ends slidably arranged in said guides 70, and means for causing a reciprocatory motion of said clamping-leaf, consisting, essentially, of a crank-arm 77 on said shaft 75, a spring-actuated lever pivoted to one of said footpieces, a connecting-link between said crank-arm 77 and said lever, and means on said shaft 35 for causing an oscillatory motion of said lever, substantially as and for the purposes set forth.

14. In a machine for cutting sheet metal, the combination, with a bed or table and standards, comprising, a pair of combined footpieces and guide members, said guide members having vertical guides 21, a knife-head movably arranged in said guides, a cutter on said knife-head, a shaft 35, and mechanism for causing a reciprocatory motion of said knife-head and cutter, vertical guides 70 in said guide members, bearings 76 connected with said guide members, a shaft 75 in said bearings 76, cranks 74 on said shaft, and a link 73 connected with each crank 74, a clamping-leaf suspended from said links, having its ends slidably arranged in said guides 70, and means for causing a reciprocatory motion of said clamping-leaf, consisting, essentially, of a crank-arm 77 on said shaft 75, a spring-actuated lever pivoted to one of said footpieces, a connecting-link between said crank-arm 77 and said lever, a roller 84 on said lever, and a cam on said shaft in sliding engagement with said roller for causing an oscillatory motion of said lever and the parts connected with said lever, substantially as and for the purposes set forth.

15. In a machine for cutting sheet metal, the combination, with standards having supporting-ribs and inwardly-extending flanges at one end, of a cutting or shearing table, adjustably arranged on said supporting-ribs, and a means of adjustment connected with said inwardly-extending flanges and said table, substantially as and for the purposes set forth.

16. In a machine for cutting sheet metal, the combination, with a pair of standards having supporting-ribs 6, and inwardly-extending holding-flanges 16, a cutting or shearing table 7 arranged on said ribs 6, and a means of adjustment connected with said flanges and said table, consisting, of a set of adjusting-screws 18 and cap-screws 17, all arranged, substantially as and for the purposes set forth.

17. In a machine for cutting sheet metal, the combination, with a pair of standards having supporting-ribs 6, and inwardly-extending holding-flanges 16, a cutting or shearing table 7 arranged on said ribs 6, and a means of adjustment connected with said flanges and said table, consisting, of a set of adjusting-screws 18 and cap-screws 17, and cap-screws 14 arranged in slots in the sides of said standards and screwed into the sides of said table 7, substantially as and for the purposes set forth.

18. In a machine for cutting sheet metal, the combination, with a pair of standards, of a reciprocating knife-head and cutter, a rearwardly-extending rib 27 on said knife-head, rearwardly-extending guides 91 secured to said knife-head and moving up and down with the same, brackets at the free ends of said guides, bearings 93 and 94 connected with said brackets, a shaft 95 in said bearings 93 and means for turning said shaft, screws 99 between said guides 91 rotatively arranged in said bearings 94, and bevel-gears on said shaft 95 and on said screws 99, a nut movably arranged on each screw 99, a bracket 101 on each nut, and a gage-strip 102 connected with the said brackets 101, substantially as and for the purposes set forth.

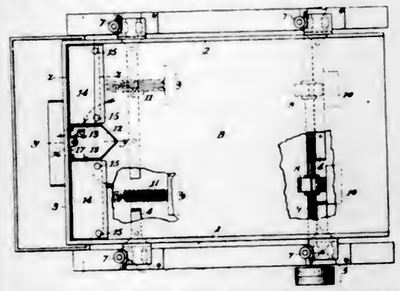
19. In a machine for cutting sheet metal, a cutting bed or table having grooves 106, a guide-plate 108 arranged over said grooves, and a depression 117 in said table for the insertion of the hand beneath the metal sheet while upon the bed or table, substantially as and for the purposes set forth.

20. In a machine for cutting sheet metal, a cutting bed or table having grooves 106, a guide-plate 108 arranged over said grooves, receiving-sockets 102 connected with the front edge of said bed or table, and grooved bars 114 removably connected with said sockets, the grooves in said bars 114 being in alinement with the grooves in the bed or table for the reception of the guide-plate 108 above said bars 114, substantially as and for the purposes set forth.

21. In a machine for cutting sheet metal, the combination, with the cutting table or bed, of a clamping-leaf for holding the metal down upon said table or bed, a lever 79 pivotally connected with the machine-frame, means connected with said lever and said clamping-leaf for actuating the latter, and a spring attached to said lever 79 and a portion of the machine-frame, said spring causing the said clamping-leaf to automatically adjust itself to varying thicknesses of metal to be cut, substantially as and for the purposes set forth.

22. In a machine for cutting sheet metal, the combination, with the cutting table or bed, of a reciprocating knife-head and cutter, a shaft 35, and means between said shaft 35 and said knife-head for actuating the latter, a clutch-disk on said shaft, provided with a chambered portion, a clutch-dog slidably arranged in said chambered portion, a gear on said shaft, said gear having a recessed hub with which said clutch-dog can be brought in holding engagement, and means for holding said clutch-dog normally away from said hub, consisting, essentially, of a bearing 54 provided with a guide 55, a sliding sector above said bearing, a guide-arm on said sector arranged in said guide 55, an upwardly-extending projection on said bearing 54, having a chambered portion, and a spring in said chambered portion bearing against the side of said sector, and under normal conditions forcing the end of the clutch-dog away from sliding contact with the adjacent face of the hub of said gear-wheel, substantially as and for the purposes set forth.

680,938. CONCENTRATOR. ALMARIN B. PAUL, San Francisco, Cal. Filed Mar. 13, 1901. Serial No. 50,972. (No model.)



Claim.—1. In a concentrating apparatus, the combination of an inclined table having the lower end and sides closed, one or more closed chambers formed at the closed end of the table with a discharge therefrom through said end, slots formed in the sides of said chamber parallel with the sides of the table, plates extending between the sides of the chamber and the sides of the table and covering said slots, and a means for producing a longitudinal concussive movement of the table.

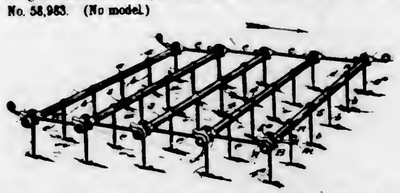
2. In a concentrating apparatus, the combination of an inclined table having closed ends and sides, one or more chambers formed in the lower end with the sides parallel with the sides of the table, a discharge-slot from said chamber through the end of the table, and a gate by which said slot is controlled, slots made in the lower sides of the chamber, transverse to the line of movement of the table, plates extending between the sides of the chamber and the sides of the table above the slots, means for adjusting said plates and means for producing a longitudinal concussive movement of the table.

3. The combination in a concentrating apparatus of a longitudinally-movable table having inclined bottom, closed sides and lower end, with one or more chambers located at the lower end having controlled discharge-opening and slots opening into the lower part transversely of the line of movement of the table, plates above said slots, extending from the sides of the chamber to the sides of the table, a frame composed of longitudinal side timbers between which the table is suspended, plates projecting from the table above the frame-timbers having contact-surfaces formed upon the front ends, elastic buffers fixed upon the frame-timbers in the line of movement of the plates, and means for retracting the table and moving it suddenly forward, so that it will produce a concussive movement between the contact-plates and the buffers.

4. The combination in a concentrator of a longitudinally-movable inclined table closed at the sides and lower end having a chamber with slotted sides and controlled discharge-opening, plates covering the side slots of the chamber, straps or plates extending across the bottom of the table and upturned at the sides of the table with projecting flanges, a frame upon which said flanges are movable and by which the table is guided, elastic buffers fixed upon the frame in the line of travel of the plates, and contact segments or surfaces carried by the plates adapted to strike the buffers, retracting-cams, tappets or blocks upon the table against which they act and springs by which the table is given a sudden forward movement when the cams release it.

5. The combination in a concentrator of an inclined longitudinally-reciprocating concussion-table, having closed sides and lower end, a closed chamber at said end, with a discharge and a controlling-gate therefor, inlet-openings on the sides of the chamber at right angles with the line of oscillation of the table, plates of greater width than the length of said openings extending above them to the sides of the table, and means for adjusting and closing the admission-spaces beneath said plates.

680,939. FLEXIBLE HARROW. STALEY D. POOLE, Moline, Ill., assignor to Deere & Company, same place. Filed May 6, 1901. Serial No. 58,983. (No model.)



Claim.—1. A flexible harrow comprising suitable bars having teeth, links connecting the bars and movably engaging the same, and retaining devices detachably seated upon said bars and partially receiving the ends of contiguous links, said devices being constructed to permit the teeth to assume different positions according to the direction of travel of the harrow, substantially as described.

2. A flexible harrow comprising suitable bars having teeth, links connecting the bars and hooked at the ends to movably engage the latter, and devices retaining the links in place upon the bars and constructed to permit the teeth to assume a slanting or a vertical position according to the direction of travel of the harrow, substantially as described.

3. A flexible harrow comprising suitable bars having teeth, links connecting the bars and each hooked at the ends to movably engage the latter, and retaining devices for the links fastened upon the bars and constructed with sockets partially receiving the hooks and permitting flexibility between the bars, substantially as described.

4. A flexible harrow comprising suitable bars having teeth, links connecting the bars and having hooks at the ends passing around the bars reversely, and a retaining device at each end of each of the bars and constructed of duplicate sockets partially receiving said hooks and terminating at opposite sides of the bars with a horizontally-extended portion and an upturned portion, substantially as described.

5. The combination with the harrow-bars, of the retaining devices secured in place thereon at near each end, and the connecting-links having hooks engaging the bars and movably held in place by said retaining devices, substantially as described.

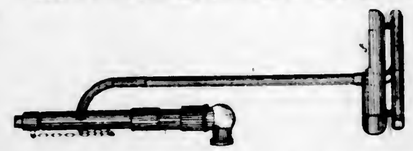
6. The combination with the harrow-bars having teeth, of the retaining devices held in place each by means of one of the teeth, and the connecting-links having hooks loosely engaging the bars, and held in place by said retaining devices, substantially as described.

7. The combination with the harrow-bars having teeth, of the retaining devices on said bars each constructed of two sockets, one of which terminates at one end on one side of its bar with a horizontal extension, and the other of which at the like end terminates with an upturned extension disposed on the other side of the bar, and connecting-links having hooks engaging the bars and passing through the sockets, substantially as described.

8. The combination with the harrow-bars, of the retaining devices each constructed with the sockets and the intermediate connecting portion provided with holes, the links between the bars and having hooks passing around the bars and through the sockets, and a harrow-tooth passing through one of the openings of each socket and secured in any suitable way, substantially as described.

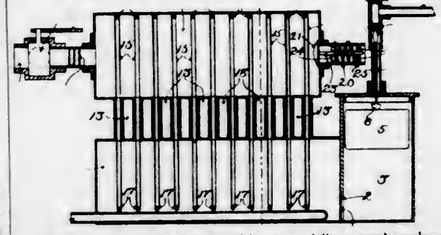
9. A flexible harrow comprising suitable bars having teeth, links connecting the bars and movably engaging the same, and adjustable devices retaining the links in place upon the bars, and constructed with abutments arranged at different angles and permitting the harrow-teeth to assume different positions according to the direction of travel of the harrow, substantially as described.

680,940. CURLING-IRON HEATER. EDWARD T. ROSENHEIMER, Pelham, N. Y. Filed June 29, 1901. Serial No. 66,516. (No model.)



Claim.—In a curling-iron heater, the combination of an illuminating-burner adapted to be fitted to a gas-bracket, with a heating-burner, a divided pipe for removably connecting the burners, and means for closing either the illuminating-burner or the upper branch of said pipe, substantially as specified.

680,941. CARBURETER. ALLAN C. SARGENT, Graniteville, Mass. Filed Apr. 16, 1901. Serial No. 56,099. (No model.)



Claim.—1. A carbureter comprising, essentially, a gasolene-chamber, a vapor-chamber above the same having an air-inlet at one end thereof and a carbureted-air outlet at the other end thereof, wick-tubes of considerable length extending vertically between said chambers, and wicks extending through said wick-tubes into said chambers and extending across the entire width of the vapor-chamber to form a series of transverse diaphragms through which the air must penetrate on its way from the inlet to the outlet.

2. A carbureter comprising, essentially, a gasolene-chamber, a vapor-chamber above the same having an air-inlet at one end thereof and a carbureted-air outlet at the other end thereof, wick-tubes connecting said chambers, rods in both chambers in line with the respective wick-tubes, and endless wicks extended respectively through the respective wick-tubes and supported by the rods in line therewith, the said wicks extending across the entire width of the vapor-chamber to form a series of double transverse diaphragms through which the air must penetrate on its way from the inlet to the outlet.

3. A carbureter comprising, essentially, a gasolene-chamber, a vapor-chamber above the same having at one end thereof an air-inlet provided with a normally-closed spring-actuated valve and at the other end thereof having a carbureted-air outlet, wick-tubes of considerable length extending vertically between said chambers, and wicks extending through said wick-tubes into said chambers and extending across the entire width of the vapor-chamber to form a series of transverse diaphragms through which the air must penetrate on its way from the inlet to the outlet.

4. A carbureter comprising, essentially, a separate float-chamber, a submerged opening between the same and the gasolene-chamber, a float in said float-chamber, a valve for admitting gasolene operated by the float, a gasolene-chamber, a vapor-chamber above the same having an air-inlet at one end thereof and a carbureted-air outlet at the other end thereof, wick-tubes of considerable length extending vertically between said chambers,

and wicks extending through said wick-tubes into said chambers and extending across the entire width of the vapor-chamber to form a series of transverse diaphragms through which the air must penetrate on its way from the inlet to the outlet.

680,942. **PENHOLDER AND BLOTTER ATTACHMENT.** FREDERICK A. SCHLUETER, Newark, N. J. Filed Jan. 17, 1901. Serial No. 43,575. (No model.)



Claim.—1. In a penholder, the combination, with the staff and ferrule of the holder, of a blotter attachment secured to said ferrule and extending at an angle from the side of the ferrule, and in a forward direction, so as to bring the blotter in approximate alinement with the pen, substantially as and for the purposes set forth.

2. In a penholder, the combination, with the staff and ferrule of the holder, of a blotter attachment adjustably connected with said ferrule and extending at an angle from the side of the ferrule, and in a forward direction, so as to bring the blotter in approximate alinement with the pen, substantially as and for the purposes set forth.

3. In a penholder, the combination, with the staff and ferrule of the holder, of a blotter attachment detachably connected with said ferrule and extending at an angle from the side of the ferrule, and in a forward direction, so as to bring the blotter in approximate alinement with the pen, substantially as and for the purposes set forth.

4. In a penholder, the combination, with the staff and ferrule of the holder, of a blotter attachment pivotally and detachably connected with said ferrule and extending at an angle from the side of the ferrule, and in a forward direction, so as to bring the blotter in approximate alinement with the pen, substantially as and for the purposes set forth.

5. In a penholder, the combination, with the holder, of an embracing tube or clasp on said holder, and a blotter attachment pivotally secured to said embracing tube or clasp, substantially as and for the purposes set forth.

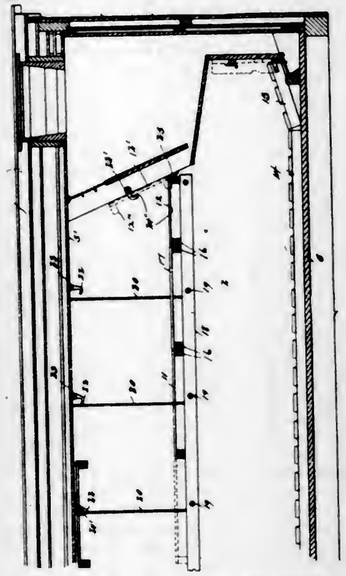
6. In a penholder, the combination, with the holder, of an embracing tube or clasp on said holder, an adjustably-arranged blotter attachment, and a means of pivotal connection between said blotter attachment and the said embracing tube or clasp, substantially as and for the purposes set forth.

7. In a blotter attachment for penholders, an arm or stem, adapted to be secured to the ferrule of the penholder, and a blotting-pad rotatably connected with said arm or stem, said arm or stem extending at an angle from the side of the ferrule, and in a forward direction, so as to bring the blotter in approximate alinement with the pen, substantially as and for the purposes set forth.

8. The herein-described blotter attachment for penholders, comprising an embracing tube or clasp, adapted to be arranged on the penholder, an ear or lug on said embracing tube or clasp, an arm pivotally connected with said ear or lug, a pin on the free end of said arm, a roller on said pin, means for retaining said roller in its position on said pin, and a blotting roll or pad on said roller, substantially as and for the purposes set forth.

680,943. **DOUBLE-DECK CAR.** WILLIAM H. SHARP, Chicago, Ill., assignor to Armour & Company, same place. Filed Apr. 15, 1901. Serial No. 55,964. (No model.)

Claim.—1. An attachment for cars, a double-deck apparatus comprising horizontal longitudinally-extending supporting-bars arranged at opposite sides of the car and upon both sides of the side openings thereof, a series of rack-sections adapted to be supported upon said bars, each comprising longitudinal stringers arranged to extend transversely from one support to another, and a series of cross-slats secured to said longitudinal stringers, a series of guide-rods extending from said supporting-bars vertically up and secured to the ceiling of the car, a pair for each individual rack-section, with which pairs of guide-rods the respective rack-sections are slidingly engaged, a suspension-hook mounted upon the ceiling of the car vertically above each rack-section, a catch-plate adapted to engage and hold the rack-section in proximity to the ceiling, and a similar rack-section located opposite the side-door openings of the car provided with parts arranged to project laterally to overlap the side margins of said openings and engage said horizontal supporting-bars at each side thereof, a vertical guide-rod located at each of the several corners of said rack-sections and extending from the supporting-bar upwardly to the ceiling of the car, and means for holding said rack-section in elevated position, substantially as described.

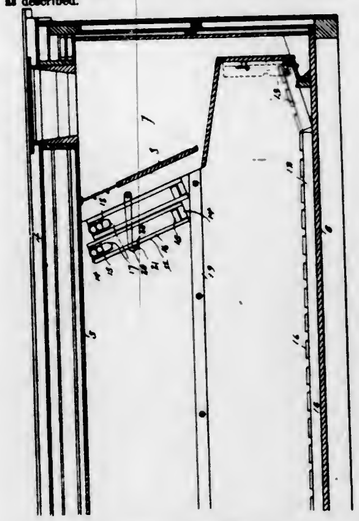


2. As an attachment for cars, a double-deck apparatus comprising horizontal longitudinally-extending supporting-bars arranged at opposite sides of the car and upon both sides of the side openings thereof, a series of rack-sections adapted to be supported upon said bars, each comprising longitudinal stringers arranged to extend transversely from one support to another, and a series of cross-slats secured to said longitudinal stringers, a series of guide-rods extending from said supporting-bars vertically up and secured to the ceiling of the car, a pair for each individual rack-section, with which pairs of guide-rods the respective rack-sections are slidingly engaged, a suspension-hook mounted upon the ceiling of the car vertically above each rack-section, a catch-plate mounted upon each rack-section, with which its corresponding suspension-hook is adapted to engage and whereby the rack-section is held in proximity to the ceiling, and a similar rack-section located opposite the side-door openings of the car, of sufficiently greater width than the width of said openings to overlap the side margin of said openings, and rest upon said horizontal supporting-bars at each side of the door, a vertical guide-rod located at each one of the four corners of said rack-section and extending from the supporting-bar upwardly to the ceiling of the car, and an angle-plate secured upon each corner of said rack-section and operatively engaged with the respective guide-rod, substantially as described.

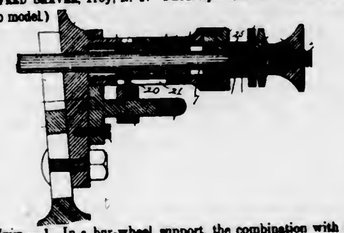
680,944. **DOUBLE-DECK CAR.** WILLIAM H. SHARP, Chicago, Ill., assignor to Armour & Company, same place. Filed Apr. 15, 1901. Serial No. 55,966. (No model.)

Claim.—1. As a new article of manufacture, an attachment for freight-cars comprising a pair of laterally opposite, horizontal and longitudinally-extending supporting-bars secured to the respective side walls of the car at points intermediate the height of the latter, the upper edges of which form supporting-ledges, a series of rack-sections each consisting of two or more stringer members arranged to extend transversely of the car, and a series of cross-slats secured to said fingers, said rack-sections being arranged to nest together in pairs with their stringers faced inwardly so as to occupy a minimum amount of space, and a supporting-hook secured to the end wall and adapted to extend through and hold in collapsed position a plurality of pairs of such nested rack-sections, substantially as described.

2. As a new article of manufacture, an attachment for freight-cars comprising a pair of laterally opposite, horizontal and longitudinally-extending supporting-bars secured to the respective side walls of the car at points intermediate the height of the latter, the upper edges of which form supporting-ledges, a series of rack-sections, each consisting of a pair of stringer members arranged to extend from one ledge to the other, and a series of cross-slats secured across said stringers, means uniting said sections in pairs, comprising elongated links encircling pintle portions upon the contiguous edges of said rack-sections whereby said rack-sections may be nested together with their stringer members facing inwardly so as to occupy a minimum amount of space, and means for holding said sections in stored position, comprising a hook pivoted to an upright support at the end of a pair of supporting-ledges, said hook being adapted to extend through interstices of the base of the nest-sections and engaging a catch-plate mounted upon the outer face of the most remote section, substantially as described.



680,945. **BUR-WHEEL SUPPORT FOR KNITTING-MACHINES.** ALFRED SHAVER, Troy, N. Y. Filed Apr. 4, 1901. Serial No. 54,239. (No model.)



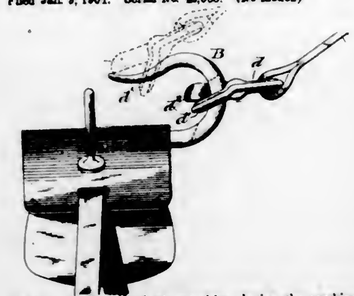
Claim.—1. In a bur-wheel support, the combination with the upright stand provided with bearings; of the bur-wheel-spindle-supporting shaft supported in said bearings; a stud projecting laterally from, and supported in fixed relation to said stand; and a connection between said stud and shaft whereby rotary movement of said shaft is prevented.

2. In a bur-wheel support, the combination with the upright stand; of a bur-wheel-spindle-supporting shaft reciprocatory longitudinally in bearings on said stand; a stud parallel with said shaft supported in fixed relation to said stand; a sleeve fitting and capable of reciprocating movements upon said stud; and a connection between said sleeve and shaft, whereby said sleeve accompanies said shaft in its reciprocating movements and prevents rotary movement of the shaft.

3. In a bur-wheel support, the combination with the upright stand; of a bur-wheel-spindle-supporting shaft mounted in bearings on said stand; a stud-supporting frame rotatively mounted upon said stand concentric with said shaft; a stud projecting from said frame; means for securing said frame in adjusted positions upon said stand, and a connection between said shaft and stud whereby said shaft is caused to partake of the rotative movements of said frame, and rotative movement of the shaft independently of said frame is prevented, substantially as described.

4. In a bur-wheel support, the combination with the upright stand; the bur-wheel-spindle-supporting shaft reciprocatory in bearings on said stand; the shaft-inclosing barrel, and end cap for said barrel apertured to receive said shaft; of a shaft-controlling spring located within said barrel with one end bearing upon an offset on said shaft; a washer located within said barrel in engagement with the other end of said spring; and screw-operated adjusting mechanism connecting with said washer through apertures in said end cap for varying the force of said spring, substantially as described.

680,946. **CHECKREIN-SECURER.** LORD O. SNELL, Athens, Pa. Filed Jan. 9, 1901. Serial No. 42,685. (No model.)



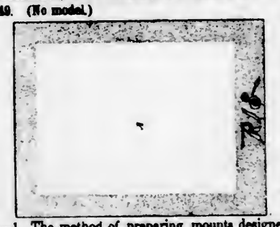
Claim.—1. In a checkrein-attaching device, the combination with a hook having an elongated opening in the bend thereof, of a device for connection with a checkrein having means pivotally attached thereto for engaging said hook, and a tongue or retainer rigid with said device and projecting through the opening above said means and abutting the upper end wall of the opening, substantially as described.

2. In a checkrein-attaching device, the combination with a hook having an elongated opening in the bend thereof, and the checkrein, of an eye having a loosely-connected member engaging the hook, and a rigid member projecting through the opening above the loose member and adapted to abut the upper end wall of said opening, said loose and rigid members having a pivotal movement relative to each other, substantially as described.

3. A checkrein-attaching device comprising a relatively stationary member for attachment to a saddle and having a slot therein, a second member consisting of two pivotally-connected parts, one of which is adapted to slip over or embrace said stationary member and the other to connect with the checkrein, and a tongue projecting from the last-mentioned part through said slot and overlying the part which embraces said stationary member, whereby disconnection of said members is prevented in use, substantially as described.

4. The combination, with the check-hook having an opening in its forward portion, of the checkrein-attaching device consisting of an eye for attachment to a checkrein having a tongue extending beyond its rearward portion, and an eye pivotally secured to said first-mentioned eye and located beneath said tongue; the latter eye engaging said check-hook, and the tongue projecting through the opening therein, and the said eyes being covered with a yieldable stiffening material constructed to permit a slight movement of the tongue relative to the hook-engaging eye; substantially as described.

680,947. **METHOD OF MAKING PHOTOGRAPHIC MOUNTS.** PAUL J. STUPARICH, San Francisco, Cal. Filed Feb. 15, 1901. Serial No. 47,449. (No model.)



Claim.—1. The method of preparing mounts designed for the reception of photographs, consisting in sinking into and wholly below the flat surface of the card words, lines, or characters, and then imprinting a tint upon the surface over and surrounding said marks or characters and without disturbance or alteration of said sunken words, lines or characters and leaving said sunken portion untinted.

2. The method of preparing card-mounts for the reception of photographs consisting in first indenting or sinking into the surface of the card words, lines or characters, then applying the tint over the surface occupied by such characters, by means of a plain tint-plate having the central portion cut out, and the remaining peripheral portion carrying the tint to be applied over the portion carrying the untinted characters.

680,948. HORSESHOE. OLIVER F. TRANSUE, Alliance, Ohio. Filed Apr. 23, 1901. Serial No. 57,060. (No model.)

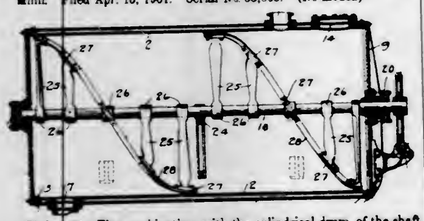


Claim.—1. A horseshoe composed of a plate, with flanges having vertically-parallel faces descending respectively from the outer and inner parts of said plate, said flanges being provided with notches along their respective lower edges, substantially as specified.

2. A horseshoe composed of a plate, with flanges having vertically-parallel faces descending respectively from the outer and inner parts of said plate, said outer flange being provided with notches along its lower edge, substantially as specified.

3. A horseshoe composed of a plate, with flanges having vertically-parallel faces descending respectively from the outer and inner parts of said plate, said inner flange being provided with notches along its lower edge, substantially as specified.

680,949. CRYSTALLIZER. CLAUDE A. P. TURNER, Minneapolis, Minn. Filed Apr. 15, 1901. Serial No. 55,863. (No model.)

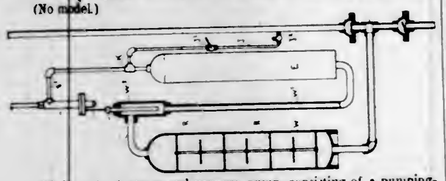


Claim.—1. The combination, with the cylindrical drum, of the shaft 18, mounted in bearings in said drum and extending through the center thereof, the series of diagonally-arranged mixer-arms secured upon said shaft, and the spiral scraper-bar secured upon said arms and arranged with its flat side toward the shaft to move edgewise through the material as said shaft is rotated, for the purpose set forth.

2. The combination, with the cylindrical drum, of a rotatable shaft extending centrally through said drum, a series of cast-metal propeller-blade arms secured upon said shaft and arranged diagonally thereto, and a spiral scraper-bar secured upon said arms and arranged with its flat side toward the shaft to move edgewise through the material, for the purpose set forth.

3. The combination, with the cylindrical drum, of the rotatable shaft extending centrally through said drum, oppositely-arranged series of propeller-blade arms secured upon said shaft and located in the opposite parts of said drum, and the spiral scrapers 28 secured upon said propeller-blade arms and arranged with its flat side toward the shaft to move edgewise through the material as said shaft is rotated.

680,950. STEAM AND VACUUM PUMP. ADDISON G. WATERHOUSE, Springfield township, Pa. Filed Aug. 17, 1900. Serial No. 27,232. (No model.)



Claim.—1. A steam and vacuum pump, consisting of a pumping-tank; a passage provided with a check-valve, leading from a source of supply to the pumping-tank; a passage provided with a check-valve, leading from the pumping-tank to a place of discharge or delivery; a condensing-water pipe for conducting a limited volume of water, under pressure, to the upper part of the pumping-tank; a steam-pipe leading from a source of steam-supply to the pumping-tank; an automatic steam-valve as described, placed in the steam-pipe; a pressure-tube leading from the pumping-tank to one compartment of the steam-valve, and a valve actuated by a float, or means by which a pressure will be transmitted from the tank to a part of the steam-valve, whereby steam will be let onto and shut off from the pumping-tank to accord with extreme rise and fall of water therein, substantially as and for the purposes set forth.

2. A steam and vacuum pump, consisting of a pumping-tank having passages and valves as described, whereby water is drawn from a source of supply to the pumping-tank, and then forced therefrom to a place of delivery; and by which a limited volume of condensing-water is conducted under pressure, to the pumping-tank; and also by which steam is conducted from a source of steam-supply to the pumping-tank; and an automatic steam-valve, as described, placed in the steam-pipe, provided with a pressure-tube leading from the pumping-tank to one compartment of the steam-valve; the valve and tube possessing the elements and mechanism described, whereby steam is let onto and shut off from the pumping-tank, to accord with the extreme rise and fall of water therein, substantially as described.

3. A steam and vacuum pump, consisting of a pumping-tank; a passage provided with a check-valve leading from a source of supply to the pumping-tank; a passage provided with a check-valve leading from the pumping-tank to a place of delivery; a condensing-water pipe, leading from a source from which water may be secured under pressure to the pumping-tank; a steam-pipe leading from a source of steam-supply to the pumping-tank; an automatic steam-valve placed in the steam-pipe, consisting of a shell divided into two closed compartments, by a flexible diaphragm, or movable piston; one compartment having a valve-seated inlet-passage, and an outlet-passage; the inlet-passage being closed by a valve supported by the flexible diaphragm or movable piston backed up by a spring or lever in a way adapted for keeping the valve closed on its seat; the other compartment having a tube leading therefrom to the pumping-tank, provided with the elements or mechanism as described for transmitting a pressure from the tank to that part of the valve, substantially as and for the purposes set forth.

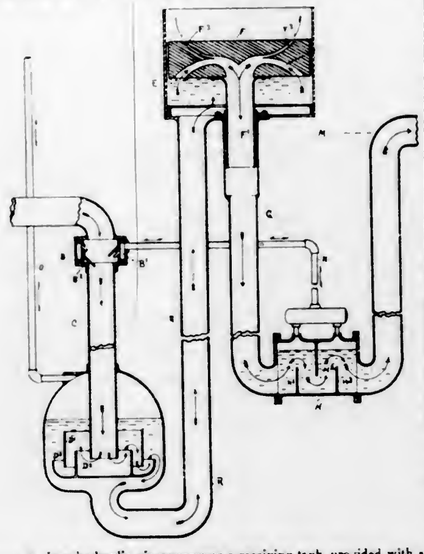
4. The automatic steam-valve, consisting of two outer shells, having a flexible diaphragm clamped between them, whereby two separate closed compartments are formed; one compartment being provided with a valve-seated steam-inlet, and a steam-outlet, the inlet being closed by a valve backed up by the flexible diaphragm, so that the valve will be opened and closed with the movement of the diaphragm; the other compartment being provided with an expansion-spring or means by which the diaphragm is bulged in the direction for closing the valve and also with a tube or passage through which a pressure can be transmitted to this compartment, whereby a pressure created in the compartment containing the valve will bulge the diaphragm in a way to cause the valve to open, while a counterbalancing pressure transmitted to the other compartment will allow the spring or other means employed to bulge the diaphragm in a way to close the valve, substantially as set forth.

5. In a steam and vacuum pump, the combination of a pumping-tank, having a supplementary extension, or a supplementary tank, with a passage having a check-valve, leading from a source of supply to the supplementary part of the pumping-tank, and a passage having a check-valve leading from such supplementary part, to a place of delivery; a condensing-water pipe for conducting a limited volume of water under pressure to the pumping-tank; a steam-pipe leading from a source of steam-supply to the pumping-tank; an automatic steam-valve placed in the steam-pipe; a tube leading from the pumping-tank or from the supplementary part thereof to a part of the steam-valve, with the means or elements for transmitting a pressure from the pumping-tank to a part of the steam-valve when the surface of the water in the pumping-tank or in the supplementary part thereof, falls to any predetermined level; whereby the heated water alternates between the pumping-tank and the supplementary part thereof, while the cold water is drawn into and forced from the supplementary part, substantially as and for the purposes set forth.

6. In a steam and vacuum pump; the combination of a pumping-tank, having a supplementary extension; with baffle-plates, or means for preventing the circulation of water, within the supplementary extension; a passage, provided with a check-valve, leading from a source of supply, to the supplementary part of the pumping-tank, and a passage leading therefrom to a place of delivery, being also provided with a check-valve; a condensing-water pipe, adapted for conducting a limited volume of water under pressure to the pumping-tank; a steam-pipe leading from a source of steam-supply to the pumping-tank; an automatic steam-valve placed in the steam-pipe; a tube leading from the pumping-tank, or its supplementary extension, to a part of the steam-valve, with the means and elements for transmitting a pressure from the pumping-tank to a part of the steam-valve, when the surface of the water in the pumping-tank, or in the supplementary part thereof; falls to a predetermined level; substantially as and for the purposes set forth.

680,951. HYDRAULIC AIR-COMPRESSOR. ADDISON G. WATERHOUSE, Springfield township, Pa. Filed Jan. 31, 1901. Serial No. 45,425. (No model.)

Claim.—1. In a hydraulic air-compressing apparatus, a stand-pipe or conductor leading from a level from which a supply of water can be secured, and extending to a lower level; having at its upper end a tank or receptacle for descending water, containing a float, adapted to rise and fall with the surface of the water in the tank and carry with it a system of passages or apertures through which the descending water will pass and draw air with it; for the purposes set forth.



2. In a hydraulic air-compressor a receiving-tank provided with a stand-pipe or conductor located beneath and adapted for conducting a descending body of water from the receiving-tank; a movable float placed in the receiving-tank, provided with a telescoping tube, extending down into the stand-pipe; with water-passages leading through the submerged part of the float to the telescoping tube, and air-passages leading through the float from above its submerged part to the telescoping tube; substantially as and for the purposes set forth.

3. In a hydraulic air-compressing apparatus having a stand-pipe or passage through which water descends and draws air with it; a tank surrounding the open end of the stand-pipe into which water enters on its way down the pipe; a movable float buoyed upon the surface of the water within the tank and supporting-tubes or passages through which air is drawn into the water; substantially as described.

4. A hydraulic air-compressor consisting of a stand-pipe or conductor through which water descends under pressure due to gravitation, and means for restraining the flow of the water at or near the lower level through which it moves; a float adapted to move with the surface of the water at the upper end of the stand-pipe and support tubes or passages through which air is drawn by the descending movement of the water; and an air-collector placed at or near the lower level through which the water descends; substantially as set forth.

5. A hydraulic air-compressor, consisting of a stand-pipe, forming a continuous and uninterrupted passage, through which water can flow from a higher to a lower level, with means for producing a back pressure, to the water within the stand-pipe; means at the upper extreme of the stand-pipe for causing the descending water to draw into it, its complement of air; a pipe, or passage, leading to the stand-pipe at a level between its upper and lower extreme; through which a sufficient amount of air, under pressure, can enter the descending water, to compensate for the shrinkage of the air descending from a higher level; or from the upper extreme of the stand-pipe; an air-collector placed at the lower extreme of the stand-pipe, and an air-pipe, for conducting compressed air from the collector; substantially as and for the purposes set forth.

6. The combination of two or more hydraulic air-compressors, forming a contributing and final compressor; each having a stand-pipe, forming a continuous and uninterrupted passage for the flow of water from a higher to a lower level; each stand-pipe being provided with means for producing a back pressure, to the water while descending it, and means at their upper extremes for causing the descending water to draw air in with it, and carry the same down with it, through its uninterrupted passage; each stand-pipe being provided at its lower extreme with an air-collector, for separating the air from the water; the contributing compressor, or compressors, having an air-pipe, leading from their air-collectors, to the stand-pipe of the final compressor, at the lowest level at which the air, owing to its pressure, can freely enter the water and air descending the stand-pipe of the final compressor; and an air-pipe leading from the collector of the final compressor, through which the air drawn in, and compressed by the contributing and final compressor, is conducted away for use; substantially as and for the purposes set forth.

7. The combination of two or more air-compressors as described, consisting of one or more compressors, used for contributing air to a final compressor; by means of an air pipe, or pipes, leading from the collector of the contributing compressor, or compressors, to the stand-pipe of the final compressor; whereby sufficient air is introduced into the water and air descending the final compressor, to compensate for the contraction of the air carried down by such water; and approximately maintain a constant volume of air in such water, during all parts of its descent; substantially as described and for the purposes set forth.

8. The combination of a series of two or more air-compressors; each separate compressor, having a stand-pipe, through which water has an unobstructed flow, from its head down to the lowest level below that of its tail-race and into a well or passage, leading up to its tail-race; each stand-pipe being provided at its upper extreme, with means for causing the descending water to draw in air and carry the same down with it; and at its lower extreme, with an air-collector, for separating the air from the water; and each compressor having an air-pipe, leading from its air-collector to the stand-pipe of another compressor; at the lowest level at which the air will enter; all being constructed in the order whereby air from the compressor having the least compressing force, will have its compressed air conducted to the stand-pipe of another compressor, having the next higher compressing force, from where its air together with the air from the first compressor, will in a like manner be conducted to a third compressor, and so on; until the air collected by all of the compressors, is conducted to a final one, whereby it is further compressed and conducted therefrom for use; substantially as described and for the purposes set forth.

9. The combination of a plurality of hydraulic air-compressors, each having a passage through which water flows, at or near a uniform speed, from a penstock, or source of supply down to a lower level; and then upward to a tail-race, or place of discharge; the upper extreme of each passage being provided with means for causing the descending water, to draw in air, and carry it down with the water; and the lower extreme, or level of each passage, being provided with an air-collector; adapted for separating the air from the water, and holding it, under pressure; with air-pipes successively connecting the air-collector of one compressor, to the passage of another compressor, through which water and air descend; whereby the air from each compressor, will enter a succeeding compressor, under the greatest pressure at which it can enter, and to an extent in volume which will compensate for the contraction of the air being carried down each compressor; and whereby the air drawn in by all of the compressors, will be collected by and conducted from a final compressor; substantially as described.

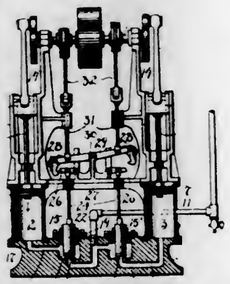
10. In a hydraulic air-compressor; consisting of a stand-pipe, or conductor; through which a mixture of water and air can have an uninterrupted passage, from a source of supply at which water enters, and draws air in with it, to the lower extreme of the stand-pipe, where it is provided with an air-collector, adapted for separating the air from the water, and retaining the air under pressure, while the water passes through and upward, to a higher level, at which it is discharged into a tail-race; in combination with an air-pipe, leading from the air-collector, through which the air is conducted, under pressure; to where it is used for performing work, and from which work, it is returned, under a reduced pressure, through one or more pipes, leading from such work, to the stand-pipe, at the lowest level, or levels, at which the returning air can; owing to the pressure under which it returns, enter with the water and air descending the stand-pipe; substantially as and for the purposes set forth.

11. In a hydraulic air-compressor, having an air-collector, for separating the air from the water; placed at the lower extreme of a stand-pipe; a riffle-cup, placed within and concentric to the collector, and formed with a closed bottom; located below the lower extreme of the stand-pipe; with cylindrical sides, of greater diameter than the stand-pipe, and extending above its lower extreme; substantially as described.

680,952. COW-MILKING APPARATUS. FREDRICK O. A. WEBER, Cleveland, Ohio. Filed Feb. 25, 1901. Serial No. 48,702. (No model.)

Claim.—1. In a milking apparatus, the combination of a pressure and vacuum pump, a milk-receiving vessel having air-line connections with said pump, teat-cups for the cow and milk connections leading from said teat-cups to said vessel, self-seating valves in said milk connections adapted to close against the pressure from said pump, and a discharge-

opening for said vessel provided with a self-closing valve adapted to close when vacuum is on from said pump, substantially as described.

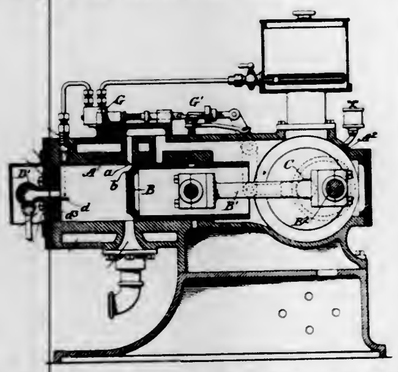


2. In a milking apparatus, the combination of a vacuum and pressure pump, a milk-receiving vessel, teat connections to said vessel, air connections between said pump and vessel, and an air-strainer in the line of said air connections, substantially as described.

3. In a milking apparatus, the vacuum and air-pressure pump in combination with a set of teat-cups for the cow having air and milk pipe connections with said pump, a milk-receiving vessel open to said line of pipe connections, and interchangeable air and milk controlling members for said teat-cups, substantially as described.

4. In a milking apparatus, a combined vacuum and pressure pump, a milk receiving and discharging vessel having pipe connection with said pump, and a plurality of teat-cups and pipe connections therefor leading separately and independently from said vessel and having automatic controlling-valves to open and close said teat-pipe connections when suction and pressure is alternately on from said pump, substantially as described.

680,953. **EXPLOSIVE-ENGINE.** CARL W. WEISS, New York, N. Y. Filed Apr. 24, 1899. Serial No. 714,201. (No model.)

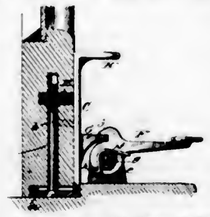


Claim.—1. In an explosive-engine, the combination of a cylinder, a separate, tubular igniter secured to the exterior of the cylinder-head closed at its outer end and having an integral lip or ledge at its inner open end projecting into the cylinder, means for discharging oil against the said lip or ledge, and means for introducing into the cylinder a current of air, whereby the lip or ledge of the igniter is maintained always at a vaporizing temperature without raising the temperature of the head, substantially as shown and described.

2. In an explosive-engine, the combination with the cylinder provided with a centrally-apertured head, of a tubular igniter, passed through said aperture, and provided with a flange bolted to and insulated from, the outer side of said head, the closed outer end of the igniter being enlarged and its inner end terminating in a longitudinally-projecting vaporizing lip or ledge within the cylinder, means for discharging oil against said lip, and means for introducing a current of air into the cylinder, substantially as described.

3. In an explosive-engine, a combined igniter and vaporizer, comprising a tube provided with a closed bulbous or enlarged outer end, an annular attaching-flange between its ends, and a longitudinally-extending vaporizing lip at its inner end, substantially as described.

680,954. **KEEPER-PLATE FOR FASTENERS OF SASHES.** ORIS WILLIAMS, St. Johnsville, N. Y. Filed June 17, 1901. Serial No. 64,875. (No model.)



Claim.—1. A keeper-plate for window-sashes and means for adjusting the plate upon the sash, consisting of an adjusting-screw and nut, said nut engaging a mortise in the sash and the adjusting screw-rod extending up through the lower rail of the sash and engaging the nut, substantially as and for the purpose set forth.

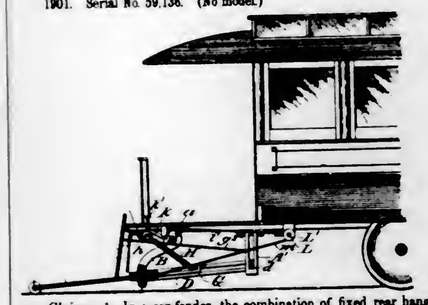
2. A keeper-plate for window-sashes provided at its upper end with a sash-lift, and means for adjusting the height of the plate to adapt it to the latch or bolt, comprising a horizontal nut engaging the sash-rail and a vertical screw-rod engaging the nut, substantially as and for the purpose specified.

3. A keeper-plate for window-sashes having a horizontal flange at its lower end to extend under the sash-rail, and means for adjusting the plate, consisting of a nut and screw-rod, substantially as and for the purpose described.

4. A keeper-plate for window-sashes and means for adjustably connecting the plate to the sash, consisting of a stationary nut seated in a mortise in the sash-rail, an adjusting screw-rod extending up through the mortise in the rail and engaging the nut, substantially as and for the purpose set forth.

5. A keeper-plate having at its lower and upper ends respectively a horizontal flange to extend under the sash-rail and a lift, and means for adjusting the plate consisting of a nut and screw-rod engaging the same, substantially as and for the purpose described.

680,955. **CAR-FENDER.** JEFFERSON D. WIRTH, New Orleans, La., assignor of one-half to David G. Baldwin, same place. Filed May 7, 1901. Serial No. 59,136. (No model.)



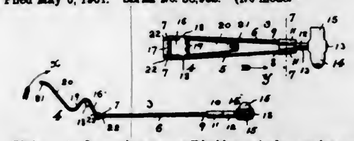
Claim.—1. In a car-fender, the combination of fixed rear hangers having vertical slots, pivotally-supported front hangers, guides attached to the lower ends of the front hangers, slotted bars engaging the guides and the rear hangers, a fender having side bars embraced by the guides and rollers which engage the slotted bars, springs for projecting the fender connected thereto and to the car-platform, means for retracting the fender and holding it retracted against the action of the spring, trips located above and below the platform for releasing the retracting and holding means, substantially as shown and for the purpose set forth.

2. In a car-fender, the combination with rear hangers having vertical slots, pivotally-supported front hangers, slotted bars attached to the hangers to have a vertical movement at their rear ends, the front ends of the bars being susceptible of an upward movement with the hangers, of a fender which engages the slotted bars and guides carried by the front hangers, a trip-frame which depends from the car-platform, and means for projecting the fender when the trip is actuated, substantially as shown and for the purpose set forth.

3. In a car-fender, the combination of fixed rear hangers, pivoted front hangers, slotted guide-bars carried by the hangers, a main fender having outer side bars which movably engage a fixture carried by the front hangers, rollers which engage the slotted bars, track-rollers at the front of the fender, bars which extend rear of the fender-frame, springs attached to said bars and to the under side of the car-body, a shaft having a drum and a ratchet-wheel, a flexible connection between the drum and fender, a pawl adapted to engage the ratchet-wheel and trips for throwing the pawl out of engagement with the ratchet-wheel, substantially as shown.

4. The combination with a fender which is located beneath the platform of the car and maintained thereunder to be susceptible of being raised by pressure on the under side thereof, springs attached to rearward-projecting arms carried by the fender and to the under side of the platform near its forward end, means for holding the fender against the action of the springs, trips for releasing the holding means, of a supplemental fender pivoted to the frame of the main fender, flexible connections attached to the supplemental fender and to a fixture so that the supplemental fender will be swung on its pivot when the main fender is projected, substantially as set forth.

680,956. **CUFF-HOLDER.** GEORGE R. ADAMS, Irvington, N. J. Filed May 6, 1901. Serial No. 58,962. (No model.)



Claim.—1. In a clasp or cuff-holder, a body portion comprising spring side arms, and a connecting member 7, a lever connected with said member 7, so as to be arranged between said arms, said lever, when in its normally-closed position, having its main body 16 extending toward the point of attachment of the cuff-holder to a garment, and in a direction directly beneath the plane of said side arms, an upwardly-projecting holding member 19 connected with said body, extending between said side arms for the engagement of said holding member 19 in the buttonhole of the cuff, and a forwardly-extending lever-arm 20 connected with said holding member 19, arranged directly above the plane of said side arms, projecting in a direction toward the said point of attachment of the holder to the garment, and means on said lever located at a point away from the pivotal connection of said side arms and lever, said means coöperating with said side arms to retain said lever in said normally-closed position with relation to said body, substantially as and for the purposes set forth.

2. In a clasp or cuff-holder, a body portion comprising spring side arms, and a connecting member 7, a lever pivotally connected with said member 7 so as to be arranged between said arms, said lever, when in its normally-closed position, having its main body 16 extending toward the point of attachment of the cuff-holder to a garment, and in a direction directly beneath the plane of said side arms, an upwardly-projecting holding member 19 connected with said body, extending between said side arms for the engagement of said holding member 19 in the buttonhole of the cuff, and a forwardly-extending lever-arm 20 connected with said holding member 19, arranged directly above the plane of said side arms, projecting in a direction toward the said point of attachment of the holder to the garment, and a pair of bearing-lugs on said lever located at points away from the pivotal connection of said side arms and lever, said bearing-lugs being adapted to be brought in sliding engagement with said side arms and coöperating with said arms to retain said lever in said normally-closed position with relation to said body, substantially as and for the purposes set forth.

3. In a clasp or cuff-holder, a body portion comprising spring side arms, and a connecting member 7, a lever pivotally connected with said member 7 so as to be arranged between said arms, said lever, when in its normally-closed position, having its main body 16 extending toward the point of attachment of the cuff-holder to a garment, and in a direction directly beneath the plane of said side arms, an upwardly-projecting holding member 19 connected with said body, extending between said side arms for the engagement of said holding member 19 in the buttonhole of the cuff, and a forwardly-extending lever-arm 20 connected with said holding member 19, arranged directly above the plane of said side arms, projecting in a direction toward the said point of attachment of the holder to the garment, and means on said lever located at a point away from the pivotal connection of said side arms and lever, said means cooperating with said side arms to retain said lever in said normally-closed position with relation to said body, and a stop on said lever at the point of its pivotal connection with said spring side arms to limit the pivotal movement of said lever, substantially as and for the purposes set forth.

4. In a clasp or cuff-holder, a body portion comprising spring side arms, and a connecting member 7, a lever pivotally connected with said member 7 so as to be arranged between said arms, said lever, when in its normally-closed position, having its main body 16 extending toward the point of attachment of the cuff-holder to a garment, and in a direction directly beneath the plane of said side arms, an upwardly-projecting holding member 19 connected with said body, extending between said side arms for the engagement of said holding member 19 in the buttonhole of the cuff, and a forwardly-extending lever-arm 20 connected with said holding member 19, arranged directly above the plane of said side arms, projecting in a direction toward the said point of attachment of the holder to the garment, and means on said lever located at a point away from the pivotal connection of said side arms and lever, said means coöperating with said side arms to retain said lever in said normally-closed position with relation to said body, substantially as and for the purposes set forth.

5. In a cuff-holder, a body portion made from a continuous piece of spring-wire bent to form side arms and a connecting member, a lever pivoted to said member having a holding means located at a point away from the pivotal connection of said lever and said connecting member, said holding means being adapted to be brought in sliding engagement with said side arms and coöperating with said arms to cause a holding contact between said lever and the body portion, and a member 10 provided with a pair of loops in which the free ends of said side arms are secured, and a holding-clasp pivotally connected with another loop on said member 10, substantially as and for the purposes set forth.

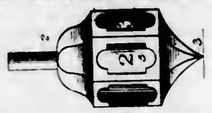
6. The herein-described cuff-holder or clasp, consisting, essentially, of spring side arms 5 and 6, and a connecting member 7, a lever pivotally arranged upon said member 7, said lever comprising a body 16, and a loop for pivotally attaching said body 16 to said member 7, a holding member 19 and a clamping lever-arm 20 connected with said member 19, and a stop on said loop adapted to be brought in holding engagement with portions of said spring-arms to limit the pivotal movement of said lever, said lever, when in its normally-closed position, having said main body 16 extending toward the point of attachment of the cuff-holder to a garment, and in a direction directly beneath the plane of said side arms, and said holding member 19 extending in an upward direction between said side arms for the arrangement of said member in the buttonhole of the cuff, and the said clamping lever-arm being arranged directly above the plane of the said side arms and extending in a direction toward the said point of attachment of the holder to the garment, substantially as and for the purposes set forth.

7. In combination, with a body portion, comprising, a pair of spring side arms, and a holding-lever, a member 10, provided with loops 11 in which the free ends of said side arms are arranged and held, and a holding-clasp pivotally connected with another loop of said member 10, substantially as and for the purposes set forth.

8. A cuff-holder consisting, essentially, of a body portion made from a continuous piece of wire, bent to form side arms and a connecting member, a lever pivoted to said member, and a plate provided with loops embracing the free ends of said side arms, and a holding-clasp pivotally connected with said plate, substantially as and for the purposes set forth.

9. In a clasp or cuff-holder, a body portion made from a continuous piece of spring-wire bent to form side arms and a connecting member, a lever pivoted to said member, a holding member on said lever lying in a plane, substantially at right angles to the plane of said side arms, and a clamping lever-arm connected with said holding member of the lever and extending downward toward the said arms, the said holding member of the said lever extending above the said side arms, when the lever is closed, forming an open space between the clamping lever-arm and the spring side arms, and a pair of bearing-lugs on said lever, said bearing-lugs being adapted to be brought in sliding engagement with the said side arms and coöperating with said arms to retain said lever in its normally-closed position, substantially as and for the purposes set forth.

680,957. **TOP.** ABRAM C. RACKUS, Whiteplains, N. Y. Filed Sept. 27, 1900. Renewed May 23, 1901. Serial No. 61,631. (No model.)



Claim.—1. A top or spinning toy, comprising a multisided outer shell formed with observation-openings, an inner shell having a series of pockets and a series of characters adapted to be exposed at said observation-openings, and a ball upon the interior shell adapted to seat in either one of said pockets, substantially as set forth.

2. A top or spinning toy, comprising an outer shell having a plurality of angular sides formed with observation-openings, an inner shell having centering projections connecting it to the outer shell and provided upon its interior with a series of pockets and upon its exterior with char-

acters equal in number to the observation-openings and pockets, and a loose ball in said inner shell adapted to seat in either one of said pockets, substantially as set forth.

680,958. DISTILLATION COFFEE-POT. WILLIAM A BARRINGTON, Louisville, Ky. Filed Nov. 10, 1900. Serial No. 36,089. (No model.)

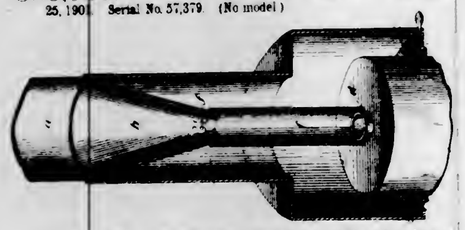


Claim.—1. A distillation coffee-pot comprising a body portion having a pouring-spout and an imperforate cover forming the upper wall of a condensing-chamber, the lower wall of which is provided with a filling-orifice and with means for closing the same, substantially as and for the purposes specified.

2. A distillation coffee-pot comprising a body portion having a pouring-spout and an imperforate cover forming the upper wall of a condensing-chamber, the lower wall of which is secured to the upper wall and provided with a filling-opening and a closure therefor, and a filling-tube supported in the top of the cover, directed toward and ending near the center thereof and contracted at its inner end; substantially as and for the purpose specified.

3. A distillation coffee-pot comprising a body portion having a pouring-spout and an imperforate cover having a condensing-chamber therein, the lower wall of which is provided with a filling-orifice and with means for closing the same, substantially as for the purpose specified.

680,959. STOVE-HOOD. JOHN E. BELL, Casky, Ky. Filed Apr. 25, 1901. Serial No. 57,379. (No model.)

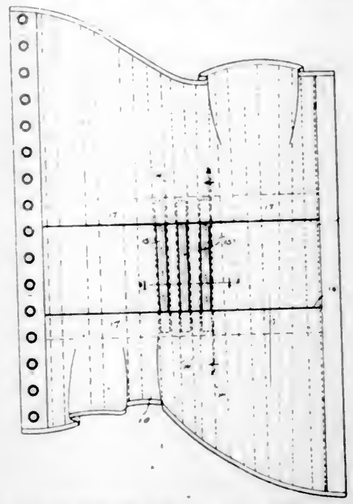


Claim.—The combination with a stovepipe consisting of sections *a*, *b* and *c*, the section *b* being in the form of a hollow truncated cone and provided with perforations near its lower end, and the section *c* being of less diameter than the sections *a* and *b* and connected to the lower end of the section *b* at a point below the perforations therein, of a hood which projects downwardly below the lower end of the section *c* and is provided with a pipe which surrounds a portion of the section *c*, and section *b* being connected at its upper end to the lower end of the section *a*, substantially as set forth.

680,960. CORSET. ISAAC W. BIRDSEY, Bridgeport, Conn., assignor to Birdsey, Somers and Company, same place. Filed May 3, 1901. Serial No. 58,600. (No model.)

Claim.—1. A corset having stay-pockets closed at the bottom and with their open ends facing each other, said pockets being formed by means of transverse folds in the corset-body which consists of a single ply of material, substantially as shown, for the purpose specified.

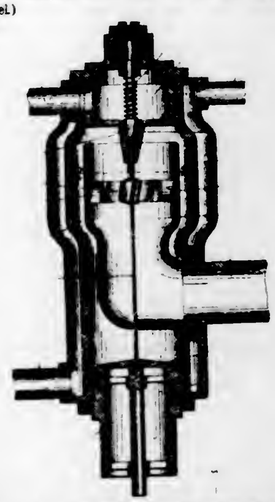
2. A corset provided with corresponding series of auxiliary stay-pockets formed by means of transverse folds in a body consisting of a single ply of material, turned inward toward each other, and with principal stay-pockets formed by vertical strips, said transverse folds being secured in place by the lines of stitching which attach the vertical strips.



3. A corset comprising a single-ply body and principal stay-pockets formed by stitching strips to the body, said body having transverse folds turned inward toward each other and secured by the lines of stitching which attach the strips, whereby auxiliary stay-pockets are formed which are adapted to receive removable auxiliary stays.

4. A corset having stay-pockets closed at the bottom and with their open ends facing each other, said pockets being formed by means of transverse folds on the inner side of the corset-body which consists of a single ply of material, substantially as shown, for the purpose specified.

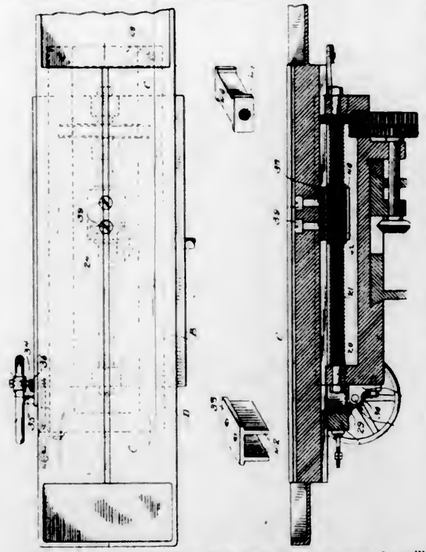
680,961. CARBURETER FOR EXPLOSIVE-ENGINES. HERBERT H. BUFFUM, Abington, Mass. Filed Mar. 8, 1901. Serial No. 50,283. (No model.)



Claim.—1. In a carbureter, a mixing-chamber, an air-inlet and a fuel-inlet thereto, a draft-rotated fan in said chamber, and a stationary annular grid adjacent to the periphery of the fan.

2. In a carbureter, a mixing-chamber, an air-inlet and a fuel-inlet thereto, a draft-rotated fan in said chamber, having inclined blades, and a stationary annular grid surrounding the fan and composed of blades inclined in the same direction as the blades of the fan, the fan and grid presenting free blade ends to each other.

680,962. CARRIAGE-LOWERING ATTACHMENT FOR MILLING-MACHINES. JAMES F. CRUDGINTON, Bridgeport, Conn. Filed Oct. 25, 1900. Serial No. 34,346. (No model.)



Claim.—1. The combination with the table and carriage of a milling-machine, the plane of the under side of the carriage being parallel with the plane of the machine and the plane of the top of the table being inclined to the plane of the machine, of a wedge of substantially the dimensions longitudinally and transversely of the table and having an upper surface parallel with the under surface of the carriage and an under surface parallel with the upper surface of the table, and means for moving said wedge so that the carriage may be lowered and raised without change of parallelism.

2. The combination with the table and carriage of a milling-machine and a worm carried by the table, of a bracket secured to the under side of the table, a nut engaged by the worm and held in position by the bracket, and a wedge intermediate the carriage and table and of substantially the same size longitudinally and transversely as the carriage whereby the carriage and bracket may be lowered and raised without change of parallelism independently of the worm and nut.

3. The combination with the table and carriage of a milling-machine, of a wedge of substantially the same size longitudinally and transversely as the carriage and lying between the table and the carriage by which the latter is supported rigidly, a rack upon said wedge, a pinion mounted upon the carriage and meshing with the rack and means for operating the pinion whereby the wedge may be moved in either direction to raise or lower the carriage.

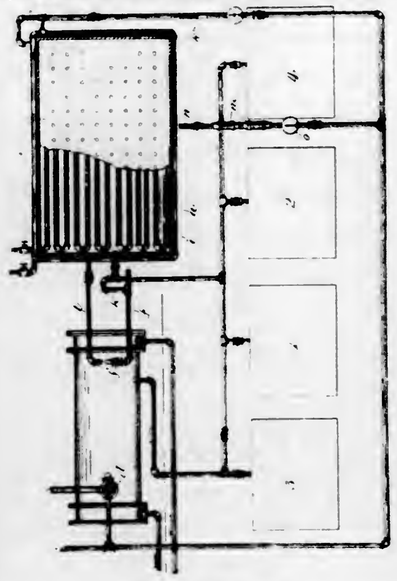
4. The combination with the table and carriage of a milling-machine, of a wedge intermediate said carriage and table and provided with a rack, a pinion mounted upon the carriage and meshing with the rack, means for operating the pinion whereby the wedge may be moved in either direction to lower and raise the carriage and an adjustable stop to limit the forward movement of the wedge in use, substantially as described.

5. The combination with the table and carriage of a milling-machine, of a wedge intermediate said carriage and table and provided with a rack, a pinion mounted upon the carriage and meshing with the rack, means for operating the pinion whereby the wedge may be moved in either direction to lower and raise the carriage and means for yieldingly locking the wedge in its extreme forward position, whereby the table is retained in operative position in use.

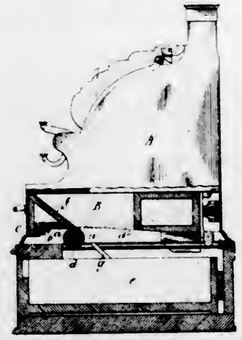
680,963. PROCESS OF EXTRACTING WOOL FAT. HARRIET F. CUTTER, East Lyme, Conn., executrix of Frederick W. Robinson, deceased. Filed Mar. 26, 1898. Renewed Feb. 2, 1901. Serial No. 45,743. (No specimens.)

Claim.—1. The process of treating wool for the removal of grease and naphtha which consists in subjecting the wool in a tank under heat to vacuum action applied successively or alternately at different points and then admitting pulsations of dry steam to drive out the naphtha, all substantially as described and for the purposes set forth.

2. The process of treating wool which consists in removing the natural grease in large part by baths of naphtha; then boiling the wool in naphtha in a vacuum; then subjecting the wool to vacuum action applied successively or alternately at different points, and then under heat and in a vacuum subjecting the wool to comparatively dry steam, all substantially as described and for the purposes set forth.



680,964. TILL. FRANCIS DAY, Brixton, England. Filed Apr. 25, 1900. Serial No. 14,343. (No model.)



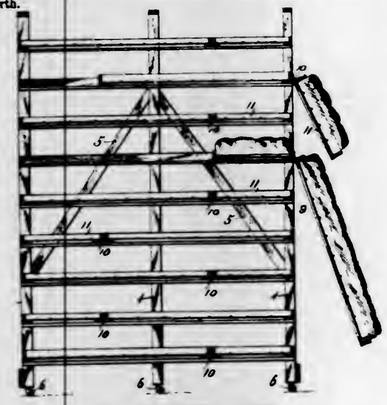
Claim.—1. In a money-till the combination with the till-drawer of a flexible bottom therefor, and means whereby said bottom is moved when said drawer is opened or closed, substantially as described.

2. In a money-till, the combination with the till-drawer of a flexible bottom therefor, a roller cooperating with said bottom and designed to move the same, and means whereby the movement of the drawer operates said roller substantially as described.

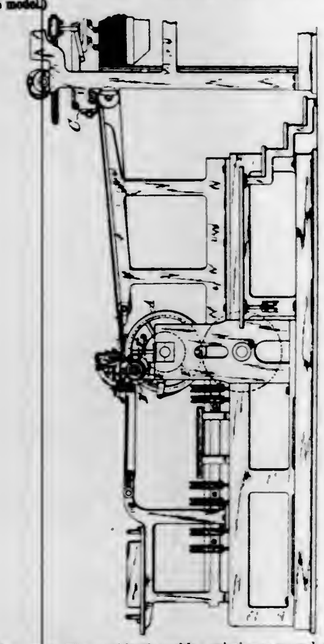
680,965. DISPLAY-RACK FOR MATTRESSES, &c. GEORGE E. DISTELHURST, Berwick, Pa. Filed Aug. 16, 1900. Serial No. 27,003. (No model.)

Claim.—In a display-rack for mattresses, a suitable supporting-frame open upon each side and provided with tracks or supporting-rails extending entirely through said frame, in combination with a pair of mattress-holding racks of unequal size loosely hinged together and adapted to rest upon said tracks whereby the racks may be entered upon or withdrawn from said tracks from either side of the frame and the short or long rack extended downward to display the short or long section of the mattress

carried thereby as desired, all substantially as specified and for the purpose set forth.



680,966. FEED-GAGE FOR PRINTING-PRESSES. TALBOT C. DEXTER, Pearl River, N. Y. Filed May 7, 1900. Serial No. 15,729. (No model.)



Claim.—1. The combination with a printing-press and mechanisms automatically supplying the paper to said press, of feed-gages supported movably back and forth between the gripping line of the press and registering-line on the delivery of the paper and vertically at the ends of its travel, mechanism actuating said feed-gages and timed to arrest the paper in transit at the registering-line, and subsequently release the paper, and mechanism moving the released paper to the gripping-line of the press as set forth.

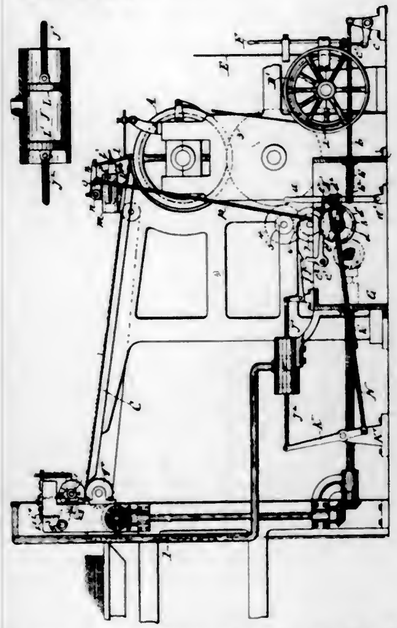
2. The combination with a printing-press and feed-fingers, of longitudinally-movable feed-gages over said fingers, vertical guides on said gages, paper-depressing plates sliding in said guides and having their paper-engaging portions extending beyond the faces of the gages, and mechanism actuating said gages and plates.

3. The combination, with a printing-press and feed-fingers, of longitudinally-movable feed-gages over said fingers, vertical guides on said gages, paper-depressing plates sliding in said guides and having their paper-engaging portions extending beyond the faces of the gages, friction-pads attached to the lower ends of said plates, and mechanism actuating said gages and plates as set forth.

4. The combination with a printing-press, a rock-shaft parallel with the axis of the impression-cylinder and sleeves fastened transversely to said shaft, of stems mounted longitudinally movable in said sleeves, feed-gages attached to said stems, tappets secured to the stems adjustably lengthwise thereof, vertically-movable paper-depressors carried on the gages, a rock-shaft disposed at right angles to the gage-stems, arms fastened to said rock-shaft and operating with their free ends between the aforesaid tappets, and fingers extending from said arms and imparting vertical movement to the paper-depressors as set forth.

5. The combination with a printing-press, a rock-shaft parallel with the axis of the impression-cylinder and sleeves fastened transversely to said rock-shaft, of stems mounted longitudinally movable in said sleeves, feed-gages attached to said stems, vertically-movable sheet-depressors connected to said gages, springs forcing the sheet-depressors downward, heels projecting from said depressors, a rock-shaft disposed at right angles to the aforesaid gage-stems, arms fastened to said rock-shaft and transmitting longitudinal motion to the gage-stems, and fingers extending from said arms and lifting the sheet-depressors by engagement with the heels thereof as set forth and shown.

680,967. AUTOMATIC PROTECTOR FOR PRINTING-PRESSES. TALBOT C. DEXTER, Pearl River, N. Y. Filed Sept. 11, 1900. Serial No. 29,632. (No model.)



Claim.—1. The combination with a paper-feeder and its actuating mechanism, of a stop mechanism controlling said actuating mechanism, a pneumatic tripper controlling the stop mechanism, a valve controlling said tripper, and an instrument disposed to be actuated by the paper passing from the feeder and governing the said valve.

2. The combination with a printing-press, an automatic paper-feeder, actuating mechanisms operating said press and feeder, and a stop mechanism controlling said actuating mechanism, of a lever controlling the stop mechanism, a tripper controlling said lever, a cylinder, a piston in said cylinder operating the tripper and actuated by vacuum in the cylinder, a valve controlling said vacuum, and an instrument disposed to be actuated by the paper passing from the feeder and governing said valve as set forth.

3. The combination with a printing-press, a paper-feeder supplying paper to said press, mechanisms operating said press and feeder, and a stop mechanism controlling said actuating mechanisms, of a pneumatic tripper controlling the stop mechanism, a valve controlling said tripper, and an instrument disposed to be actuated by the paper passing from the feeder and governing the valve as set forth.

4. The combination with a printing-press, its actuating mechanism and automatic paper-feeder delivering the paper to said press, of a paper-calipering member sustained movably in the direction of the travel of the paper from the feeder and in position to partake motion by frictional contact with excessive thickness of the paper in transit, stop mechanism controlling the actuating mechanism of the press, and a pneumatic tripper controlling the stop mechanism and governed by the aforesaid movement of the calipering member as set forth.

5. The combination with a printing-press, an automatic paper-feeder and mechanisms actuating said press and feeder in common, of a paper-calipering member pivotally supported in position to be turned by frictional contact with paper of excessive thickness advancing from the feeder, stop mechanism controlling the movement of both the press and feeder, and a pneumatic tripper controlling the stop mechanism and governed by the turning of the calipering member as set forth.

6. The combination with a printing-press, an automatic paper-feeder, and mechanisms actuating said press and feeder, of a stop mechanism controlling said actuating mechanism, a tripper controlling the stop mechanism, a cylinder, a piston in said cylinder connected to the tripper, an air-conducting pipe extending from the cylinder, a valve for governing the air-passage through said pipe, a paper-calipering member pivotally supported in position to be turned by frictional contact with paper of excessive thickness advancing from the feeder, and a lever actuated by the turning member and governing the aforesaid valve.

7. The combination with a printing-press, an automatic paper-feeder and mechanisms actuating said press and feeder, of a stop mechanism controlling said actuating mechanism, a tripper controlling the stop mechanism, a cylinder, a piston in said cylinder connected to the tripper, means for exhausting the air from one end of the cylinder, a valve for controlling the exhaust, a paper-calipering member pivotally supported in position to be turned by frictional contact with paper of excessive thickness advancing from the feeder, and a lever actuated by the turning member and governing the aforesaid valve as set forth.

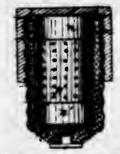
8. The combination with a printing-press, an automatic paper-feeder and mechanisms actuating said press and feeder, of a stop mechanism controlling said actuating mechanisms, a lever controlling said stop mechanism, an arm extending vertically from the pivoted end of said lever, a bell-crank having one of its arms provided with means for engaging and releasing the arm of the aforesaid controlling-lever, a cylinder, a piston in said cylinder connected to the other arm of the aforesaid bell-crank and normally in one end of the cylinder, means for exhausting the air from the cylinder at the rear of the piston and thereby draw said piston from its normal position, a valve for controlling the exhaust, a paper-calipering roller supported in position to be turned by frictional contact with paper of excessive thickness advancing from the feeder, and a lever actuated by the turning roller and governing the aforesaid valve as set forth.

9. The combination with a printing-press, an automatic paper-feeder and mechanisms actuating said press and feeder, of a stop mechanism controlling said actuating mechanism, a tripper controlling the stop mechanism, a cylinder, a piston in one end of said cylinder connected to the tripper, a piston in the opposite end of the cylinder, a lever connected to the last-named piston, a reciprocating rod connected to said lever, means for actuating said rod, a pipe extending from the cylinder at a point between the pistons, a paper-calipering member pivotally supported in position to be turned by frictional contact with paper of excessive thickness advancing from the feeder, a lever actuated by the turning member, and a valve carried by said lever to and from the mouth of the aforesaid pipe as set forth.

10. The combination with a printing-press, automatic paper-feeder, mechanisms actuating said press and feeder in common, and the belt-shifting lever for starting and stopping said mechanisms, of an automatic belt-shifting lever, a horizontal shaft receiving motion from the aforesaid actuating mechanism, a spring forcing the automatic lever in a direction to stop the actuating mechanism, a cam on the aforesaid horizontal shaft forcing said automatic lever in opposition to the spring, a rock-arm movable to and from a position to retain the automatic lever in the cam-forced position, a tripper adapted to lock the rock-arm out of its retaining position, a cylinder, a piston in said cylinder connected to the tripper, means for exhausting air from the cylinder and thereby move the piston, a valve for controlling the exhaust, and a paper-calipering member disposed to be actuated by excessive thickness of paper advancing from the feeder and governing the aforesaid valve as set forth.

11. The combination with a printing-press, automatic paper-feeder, mechanisms actuating said press and feeder in common, a lever controlling said mechanisms, a spring forcing said lever in one direction, a rotary cam forcing said lever in the opposite direction, a rock-arm movable to a position to retain the said lever in its cam-forced position, a cam throwing said rock-arm from its retaining position, a tripper adapted to lock the rock-arm out of its retaining position, a cylinder, a piston in said cylinder connected to the tripper, means for producing a vacuum in the cylinder back of the piston and thereby move said piston, a paper-calipering member pivotally supported in position to be turned by frictional contact with paper of excessive thickness advancing from the feeder, and a lever actuated by the turning member and governing the aforesaid valve as set forth.

680,968. ELECTRIC FUSE OR CUT-OUT. LOUIS W. DOWNES, Providence, R. I. Filed May 2, 1901. Serial No. 58,487. (No model.)



Claim.—1. An electric fuse or cut-out comprising an inclosing casing, external contacts on said casing for engagement with suitable line-terminals, and internal contacts on the casing electrically connected with the external contacts respectively, a fuse-link, an inclosing sheath therefor removably inserted in the casing, contacts on the sheath connected by the fuse-link and adapted to engage the internal contacts on the inclosing casing to complete the circuit through the fuse-link.

2. In an electric fuse or cut-out, an inclosing casing having a removable cap or cover, external contacts on said casing for engagement with suitable line-terminals, and internal contacts on the casing electrically connected with the external contacts respectively, a fuse-link, an inclosing sheath therefor removably inserted in the casing, contacts on the sheath connected by the fuse-link and adapted to engage the internal contacts on the inclosing casing to complete the circuit through the fuse-link.

3. In an electric fuse or cut-out, an inclosing casing comprising a metallic shell or sleeve constituting an external contact, an insulating or non-conducting lining for the sleeve closed at one end, a second external contact on said closed end of the lining, a removable cover for closing the open end of the sleeve, an internal contact on and removable with the cover and adapted to make electrical connection with the metallic shell when the cover is in place, and a second internal contact electrically connected with the second external contact.

4. In an electric fuse or cut-out, an inclosing casing comprising a metallic shell or sleeve constituting an external contact, an insulating or non-conducting lining for the sleeve closed at one end, a second external contact on said closed end, an internal contact electrically connected therewith, a removable metallic cover for closing the open end of the sleeve having an external covering of insulating or non-conducting material and adapted when in place to electrically engage the metallic shell and form a second internal contact.

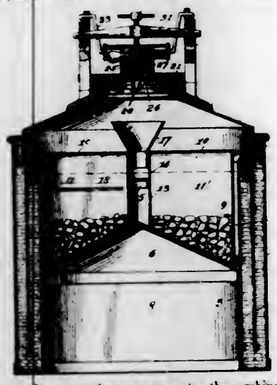
5. In an electric fuse or cut-out, an inclosing casing comprising a metallic shell or sleeve constituting an external contact, an insulating or non-conducting lining for the sleeve closed at one end, a second external contact on said closed end of the lining, a removable metallic cover screw-threaded to electrically engage a screw-threaded part of the sleeve for closing the open end of the same, said cover having an external covering of insulating or non-conducting material and forming a second internal contact.

6. In an electric fuse or cut-out, a fuse-link, an inclosing sheath for the fuse-link, contacts on the opposite ends of said sheath between which the fuse-link is connected, a casing in which the sheath containing the fuse-link is removably inclosed said casing comprising a cup-like part having a contact at its closed end against which the contact on one end of the sheath bears and a cover for closing the open end of said cup-like part having a contact thereon bearing against the contact on the other end of the sheath.

7. In an electric fuse or cut-out, an inclosing sheath of insulating or non-conducting material for the fuse-link, metallic caps closing the opposite ends of the sheath and between which the fuse-link is conductively connected, a casing in which the sheath is removably inclosed, said casing comprising a cup-like part and a removable cover for closing the open end of said part, a contact-plate in the closed end of the cup-like part against which the metallic cap at one end of the sheath bears, and a contact-plate on the under side of the cover against which the cap at the other end of the sheath bears, thereby completing the circuit through the fuse.

8. In an electric fuse or cut-out, a fuse-link, a perforated tubular inclosing sheath of non-conducting material, metallic caps closing the opposite ends of the perforated sheath and conductively connected by the fuse-link, a casing in which the sheath is removably inclosed comprising a cup-like part in which the sheath closely fits and a removable cover for closing the open end of said part, a contact-plate in the closed end of the cup-like part against which the metallic cap at one end of the sheath bears, and a contact-plate on the under side of the cover against which the cap at the other end of the sheath bears, thereby completing the circuit through the fuse.

680,969. **ACETYLENE-GAS GENERATOR.** ALFRED C. EISTEIN, St. Louis, Mo. Filed June 15, 1900. Serial No. 20,628. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a tank, a carbid-receptacle centrally positioned in said tank and separated from the walls of said tank to provide a water-well, a water-seal bell arranged to inclose said carbid-receptacle and seated in the water in said water-well, said water-seal bell being free from connection to said carbid-receptacle, and a cover supported by means outside of the generator surmounting said bell through means of which it is held depressed, substantially as described.

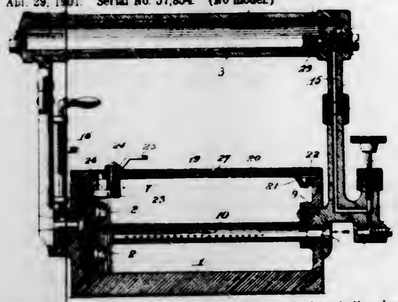
2. In an acetylene-gas generator, the combination with water and gas pipes, a gasket-seal cover immovably fixed to said pipes and provided with water and gas passage-ways, a water-seal bell having an open upper end and adapted to be connected to said cover, and a water-tank in which said water-seal bell is removably located, substantially as described.

3. In an acetylene-gas generator, the combination of a double-walled water-tank, a carbid-container centrally located in said tank, a water-seal bell removably mounted in said tank and having an open upper end, a gasket-seal cover immovably supported and provided with passage-ways for water and gas, and means for clamping said water-seal bell to said cover when the bell is slipped thereunder, substantially as described.

4. In an acetylene-gas generator, the combination of a water-tank, a carbid-container centrally located in said tank, a water-seal bell removably mounted in said tank and having an open upper end, slotted standards carried by said bell, a gasket-seal cover immovably supported and provided with passage-ways for water and gas therethrough, and a clamping cross-bar and screw having connection with said standards and cover and adapted to draw the open upper end of said water-seal bell to said cover, substantially as described.

5. In a gas-generator, the combination of an upper carbid-container having a central water-feed tube with a closed bottom and a series of intercommunicating compartments, said feed-tube being provided with communication into one of said compartments, one of said compartments being provided with an aperture at the bottom thereof, and a lower carbid-container having a series of intercommunicating compartments and a central water-feed tube into which the water is received from the said aperture in the upper container, substantially as described.

680,970. **SAD-IRON.** GEORGE R. FORD, St. Louis, Mo. Filed Apr. 29, 1901. Serial No. 57,854. (No model.)



Claim.—1. In a sad-iron, the combination of a body, a hollow handle, a removable tank adapted to fit within the handle and provided with an automatically-closing valve, and means carried by the handle for engaging and opening said valve when the tank is inserted, substantially as set forth.

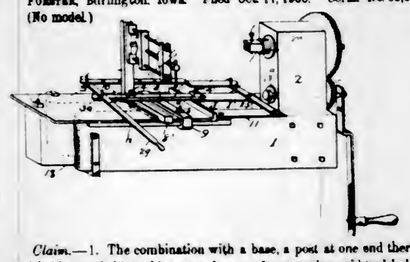
2. In a sad-iron, the combination of a body, a hollow handle, a tank adapted to fit within the handle and which is provided with an automatically-closing valve, and a stem on the handle adapted to open the valve when the tank is inserted into the handle, substantially as set forth.

3. In a sad-iron, the combination of a body, a hollow handle, a tank provided with an automatically-closing valve and which is adapted to be inserted into the hollow handle, a stem carried by the handle and which is adapted to open said valve when the tank is placed in position in the handle, and a spring for throwing the tank outwardly when it is released and permitting the valve to close, substantially as set forth.

4. In a sad-iron, the combination of a body, a hollow handle, a tank provided with an automatically-closing valve and which is adapted to fit within the handle, means for opening the valve when the tank is inserted in the handle, and a spring for throwing the tank outwardly when the tank is released, substantially as set forth.

5. In a sad-iron, the combination of a body, a hollow handle, a tank provided with an automatically-closing valve, a stem carried by the handle and which is adapted to open the valve when the tank is inserted into the handle, a spring for throwing the tank outwardly when released, a bail for holding the tank to its inner position, and a pin-and-groove connection between the handle and tank to insure the engagement of said stem against said valve, substantially as set forth.

680,971. **SCREW-THREAD-CUTTING MACHINE.** FRIEDRICH W. FÖRSTER, Burlington, Iowa. Filed Oct. 17, 1900. Serial No. 33,369. (No model.)



Claim.—1. The combination with a base, a post at one end thereof, a tool-holder carried by said post and means for operating said tool-holder, of a platform movably mounted on the base, a work-holder disposed horizontally over the platform, a post for supporting said work-holder, an arm projecting from said last-mentioned post and lying on the platform, a clamp for securing said arm in place on the platform and means for moving the platform to feed the work to the tool.

2. In a screw-thread-cutting machine, the combination with a base, a fixed standard at one end thereof, a tool-holder mounted in said standard and means for rotating said tool-holder, of a platform movable longitudinally on the base, a bar disposed on the platform, means for adjustably securing said bar to the platform, a work-holder, an arm at the base of the work-holder and disposed between the platform and said adjustable bar, an arm projecting laterally from the base adjacent to the fixed standard, a link pivoted at one end to said arm and a lever pivoted between its ends to the adjustable bar and pivotally connected at its end to said link.

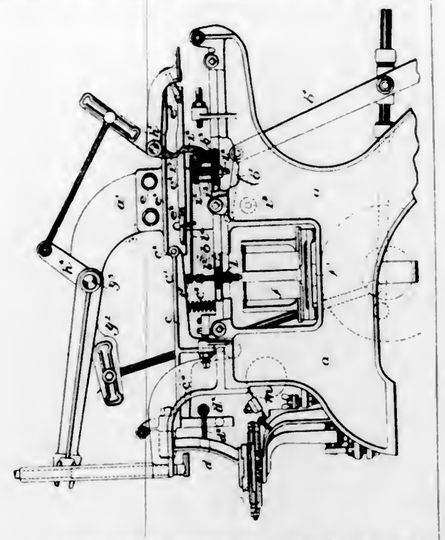
680,972. **BOTTLE-LABELING MACHINE.** CHARLES S. GOODING, Brookline, and FRED HAUSMANN, Boston, Mass., assignors, by direct and mesne assignments, to the Siegel Labeling Machine Company, Boston, Mass. Filed June 24, 1897. Serial No. 642,174. (No model.)

Claim.—1. A labeling-machine comprising a holder for a pile of labels, a reciprocatory label-carrier adapted to pick up a label and carry it into position to be placed on a bottle, a printing device, and mechanism for operating said printing device and said label-carrier whereby the top label in the label-holder is printed and then carried into position for the bottle.

2. A labeling-machine having wipers for wiping a label on a bottle, a label-carrier, a holder in which a pile of labels is placed with the labels face downward, printing mechanism supported independently of the label-carrier adapted to print the top label of the pile while it is in the holder, and means for operating said label-carrier and said printing mechanism whereby the label is first printed and then carried into position to be placed on a bottle.

3. A labeling-machine comprising a carriage having label-carrying shoes, a holder for a pile of labels, printing mechanism on said carriage, means for moving said carriage to bring the printing mechanism over the labels in the holder, and means for operating said printing mechanism.

4. A labeling-machine comprising a holder for a pile of labels, a carriage, a printing device mounted on said carriage, a spring-hammer for operating the said device, and means for actuating said spring-hammer.



5. A labeling machine comprising mechanism for pasting a label, a label-box, means for conveying a label from said box in position to be wiped upon a bottle, provisions for effecting the placing of the label on the bottle, and printing mechanism constructed and arranged to print each label prior to its removal from the said label-box.

6. A labeling-machine comprising a bottle-support, wiping mechanism for wiping a label upon the curved periphery of a bottle, a label-holder adapted to receive a pile of labels, a reciprocatory mechanism for transferring said labels one by one into position whereby they may be wiped on the bottle, and means independent of said reciprocating transferring mechanism for printing said labels.

7. A labeling-machine comprising a bottle-support, wiping mechanism for wiping a label upon the curved periphery of a bottle, a label-holder adapted to receive a pile of labels, a reciprocatory mechanism for transferring said labels one by one into position whereby they may be wiped on the bottle, and means independent of the bottle-support for printing said labels prior to their attachment to the bottles.

680,973. **BREECH-LOADING FIREARM.** KARL GRAVES, Kokomo, Ind., assignor of one-half to Abraham Myers, Cincinnati, Ohio. Filed Mar. 9, 1901. Serial No. 50,492. (No model.)

Claim.—1. In a firearm, the combination of a breech-block having a pivot-pin provided with a cam-groove, a sleeve arranged on the pin and adapted to oscillate, a breech-block having a curved face forming a continuation of the adjacent face of the pin, said breech-block being also provided with a stop, and an extractor carried by the sleeve and engaging the cam-groove and arranged, when extended, to be supported by the curved face of the breech-block and to engage the stop, substantially as described.

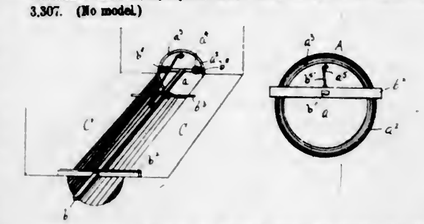
2. In a firearm, the combination of a breech-block provided at opposite sides with curved faces and having stop-shoulders at the bottoms of the same, a pin extending from the breech-block, a sleeve mounted on the pin and adapted to oscillate in either direction, an extractor carried by the sleeve and arranged to be supported by the curved faces of the breech-block and adapted to engage the said shoulders, and means for reciprocating the extractor when the sleeve is oscillated, substantially as described.

3. In a firearm, the combination of a breech-block provided at opposite sides with curved faces and having shoulders at the bottoms thereof and provided at the tops of the same with beveled faces, a pin mounted on the breech-block and having its side faces forming continuations of the said curved faces, a sleeve mounted on the pin and adapted to oscillate in either direction, and a reciprocating extractor carried by the sleeve and supported when extended by the curved faces of the breech-block and adapted to engage the said shoulders and arranged to be moved inward by the beveled faces, substantially as described.

680,973.



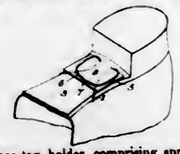
680,974. **AUTOMATIC FLUSHER FOR SEWERS OR DRAINS.** PATRICK J. HEALEY, Hydepark, Mass. Filed Jan. 30, 1900. Serial No. 3,307. (No model.)



Claim.—1. In a machine for flushing sewers and drains, the combination of a bulkhead, consisting of a solid core having on its outer periphery an air-tight hollow tube provided with a valve for the purpose of inflating the tube with air and a holding device comprising a T-shaped bar with one or more cross-bars, said bar being attached to the core of the bulkhead at a point above the center of the core in such a manner as to allow the bulkhead to swing in one direction and having a hook which engages with an eyelet in the core and which when engaged holds the bulkhead stationary in a position perpendicular to the said bar, substantially as described.

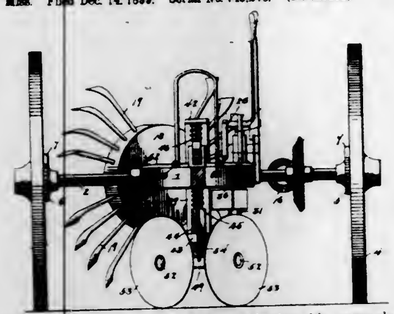
2. In a machine for flushing sewers and drains, the combination of a bulkhead, A, consisting of a solid core, a, surrounded by a hollow tube, a^2, with a valve a^3; and a holding device comprising a T-shaped bar, B, with sliding cross-bars, b^2, and b^3, said bar, B, being attached to the core, a, by eyelets a^4 a^4, which are placed in a horizontal line above the center of a, and having a hook, b^4, adapted to engage with the eyelet a^4 and hold the bulkhead in a fixed position perpendicular to the bar B, substantially as described.

680,975. **SHOE-TAG HOLDER.** HENRY A. HILDRETH, Auburn, Me. Filed Jan. 15, 1900. Serial No. 1,415. (No model.)



Claim.—A shoe-tag holder, comprising spring-clips to engage the projecting edge of a shoe-sole and a tag-holder secured to the edge clips having spring tag-holding loops to grip and hold a shoe-tag, substantially as described.

680,976. COTTON-CHOPPER. AARON L. HOCKETT, Mastodon, Miss. Filed Dec. 14, 1899. Serial No. 740,278. (No model.)



Claim.—1. In a cotton-chopper, the combination with a rotary chopping-wheel set at an inclination or obliquely to the line of draft, and a pair of reversely-disposed rotary scrapers arranged in front of the chopping-wheel and set at forwardly-convergent angles, substantially as described.

2. In a cotton-chopper, the combination of a rotary chopping-wheel set obliquely to the line of draft, a pair of reversely-disposed rotary scrapers arranged in front of the chopping-wheel and set at forwardly-convergent angles, and a vertically and laterally adjustable support for said wheels, substantially as described.

680,977. PROCESS OF TREATING WOOL-GREASE. JOHN HOPKINSON, Bradford, England. Original application filed Dec. 28, 1897, Serial No. 664,069. Divided and this application filed Nov. 14, 1899. Serial No. 736,970. (No specimens.)

Claim.—1. The process of treating wool-grease and other like greases containing unsaponifiable matter, which consists in subjecting the grease to the action of caustic-alkali solution, thereby partially saponifying, adding salt, skimming off the raw lanolin, adding ethyl or methyl alcohol and a solvent of fat alcohols insoluble in aqueous solution of ethyl or methyl alcohol, allowing the mixture to subside into two layers and distilling each layer separately whereby the solvents are distilled off and fat alcohols are obtained from the one and soap-stuff from the other, which latter can be finished into a valuable soap in the ordinary manner.

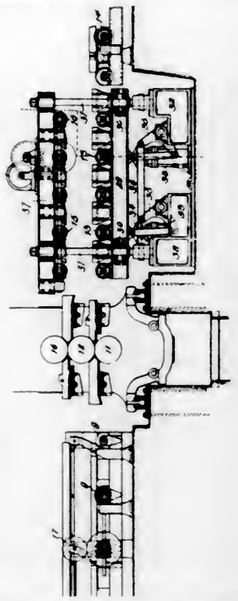
2. The process of treating wool-grease and other like greases containing unsaponifiable matter, which consists in subjecting the grease to the action of caustic alkali, ethyl or methyl alcohol, and a solvent of fat alcohols insoluble in alcohol, and allowing the mixture to separate into two layers, distilling off the solvents from each layer whereby a mixture of raw lanolin and fat alcohols admirable as a lubricant is obtained in one case and a soap-stuff in the other.

3. The process of treating wool-grease and other like greases containing unsaponifiable matter, which consists in partially saponifying with caustic alkali and heat, adding spirits and coal-tar benzol whereby it is divided into two layers on standing, separating these two layers and distilling off the solvents, whereby the fatty alcohols and a good soap-stuff are separately obtained.

680,978. ROLLING-MILL. SIGMUND V. HUBER, Pittsburg, Pa. Filed June 18, 1900. Serial No. 20,669. (No model.)

Claim.—1. In an apparatus for rolling plates or bars, the combination of a continuous blooming-train consisting of two or more stands of rolls, a continuous roughing-train consisting of edging and reducing rolls, a three-high mill, the roughing-train and three-high mill being arranged in tandem with the blooming-train, a two-high finishing-mill having its rolls arranged with their axes in or approximately in line with the axes of the rolls of the three-high mill and a transfer mechanism in front of the three-high mill for shifting the article from a position in line with the three-high mill to a feed position in front of a two-high mill, whereby the article can be fed continuously through the several rolls, substantially as set forth.

2. In an apparatus for rolling plates or bars, the combination of a blooming-train consisting of two or more stands of rolls, a continuous roughing-train consisting of edging and reducing rolls, a clutch mechanism connecting one of the stands of edging-rolls with its driving mechanism, whereby the edging-rolls can be rotated at a higher speed than its driving mechanism, a three-high mill, the roughing-train and three-high mill being arranged in tandem with the blooming-train, a two-high finishing-mill having its rolls arranged with their axes in or approximately in line with the axes of the rolls of the three-high mill, and a transfer mechanism in front of the three-high mill for shifting the article from a position in line with the three-high mill to a feed position in front of the two-high mill, substantially as set forth.



3. In an apparatus for rolling plates or bars, the combination of a three-high mill, feeding and receiving tables arranged one above the other in front of said mill, a feed-table having a section formed of loosely-mounted rolls in the rear of said mill, means for raising said section, a series of positively-driven rolls arranged in the plane of bite of the middle and upper rolls of the three-high mill, a two-high finishing-mill arranged with their axes in or approximately in line with the axes of the three-high mill and means for laterally transferring the article from the receiving-table in front of the three-high mill to a feeding position in front of the two-high mill, substantially as set forth.

680,979. CORNSTALK-LOADER. OLAUS B. JACOBS, Roland, Iowa. Filed Apr. 24, 1900. Serial No. 14,182. (No model.)

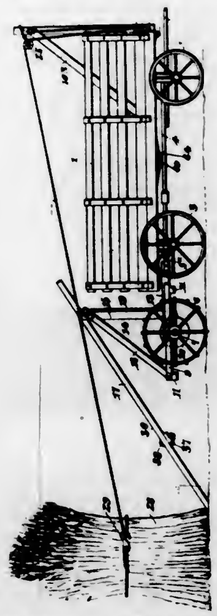
Claim.—1. A loader comprising a traveling support and an incline having its delivery end located at or adjacent to the top thereof, and its opposite end resting upon the ground, said incline being loosely mounted to have free lateral movement both horizontally and vertically to facilitate its movement over the ground and to permit it to swing toward the opposite sides of the rack for presentation to the shocks, said mounting of the incline comprising a double pivotal connection, the pivots of which are separate.

2. In a loader, the combination with a support, of a loading-incline composed of a series of bars each having a double pivotal connection with the support in a manner to permit of their vertical and horizontal movement, the pivots of said connection being separate and means for maintaining the parallel relation of said bars.

3. A loader comprising a loading-truck having means of attachment to a rack, an incline-supporting frame upstanding from the truck, and a loosely-mounted incline having its upper end supported at the top of the upstanding frame and its lower end resting upon the ground, the loose mounting of the incline serving to permit its free lateral movement both horizontally and vertically.

4. In a loader, the combination with a loading-truck, of an incline-supporting frame carried by the truck and extending thereabove, an incline supported by the frame and having its opposite end arranged to rest upon the ground, and hauling mechanism carried by the truck and designed to elevate a shock or the like upon the incline.

5. In a loader, the combination with a loading-truck comprising a truck-frame, a pair of wheels, and an incline-supporting frame carried by the truck, of a vertically and horizontally movable incline carried by the incline-supporting frame, a drum operatively connected with the wheels of the truck, and a cable wound upon the drum and designed for attachment to a shock or the like for the purpose of elevating the latter upon the incline.



6. In a loader, the combination with a truck comprising a frame and wheels, of an incline-supporting frame carried by the truck, an incline loosely connected at its upper end to the incline-supporting frame, and having its lower end resting upon the ground, a drum, a hauling-cable wound upon the drum, and clutch mechanism for operatively connecting the drum with the wheels.

7. In a loader, the combination with an incline-supporting frame and an incline carried by the frame and having its lower end resting upon the ground, a drum, a hauling-cable wound upon the drum, clutch mechanism arranged to throw the drum into or out of operation, and a shifter arranged to operate the clutch mechanism and having a bearing in a fixed part.

8. In a loader, the combination with an inclined support and an incline connected to the support at one end and having its lower end arranged to rest upon the ground, of a shaft, a drum mounted upon the shaft and having a clutch member, a movable clutch member slidable upon the shaft, a shifter engaging the movable clutch member and provided with a supporting-crank having a bearing in a fixed part, and means for oscillating the shifter.

9. In a loader, the combination with a support and a loading-incline carried thereby, of a shaft, a drum mounted loosely upon the shaft and having a clutch member, a movable clutch member slidable upon the shaft, a fixed bearing-bracket, a shifter engaging the movable clutch member and having a supporting-crank engaging the bearing-bracket, and a shifter-actuating shaft provided with a crank at one end engaging the shifter.

10. In a loader, the combination with a traveling support, of a loading-incline having its discharge end located in proximity to the top of the rack at its rear end, a standard extending above the rack at its front end, a drum located below the rack adjacent to its rear end, suitable pulleys located upon the rack and standard, and a hauling-cable wound upon the drum and passed around said pulleys.

11. In a loader, the combination with a rack, and pulleys, of a loading-truck detachably connected to said rack, a loading-incline supported by the truck and having its discharge end adjacent to the top of the rack, hauling mechanism carried by the truck, and a cable operated by the hauling mechanism and passed around the pulleys upon the rack.

12. The combination with a support, of a loading-incline having a double pivotal connection therewith the pivots of said connection being separate.

13. The combination with a support, of a loading-incline comprising a series of connected bars each having a double pivotal connection with the support the pivots of said connection being separate.

14. In a loading-incline, the combination with a support, of a series of bars each having a double pivotal connection with the support, and a cross-bar connected to the several bars of the incline to compel their movement in unison.

15. The combination with a support, of a loading-incline, a guard-rail bracket carried by the support, a swinging guard-rail bracket carried by the incline, and a guard-rail pivotally connected to each of said brackets.

16. The combination with a support, of a relatively movable loading-incline, and guard-rails carried by the support and incline jointly.

17. The combination with a support, of a loading-incline capable of relative movement, guard-rails carried jointly by the support and incline, and means for maintaining the guard-rails in parallel relation with the incline.

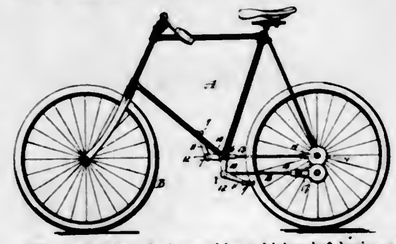
18. The combination with a support, of a loading-incline, means for permitting horizontal and vertical movement of the incline with respect to its support, guard-rails located in a higher plane than the incline and carried jointly by the incline and support, and means for maintaining the parallel relation between the guard-rails and incline during the various movements of the latter.

19. The combination with a support, and a loading-incline having a double pivotal connection therewith, of guard-rails likewise having a double pivotal connection with the support, and means intermediate of the incline and guard-rails for maintaining them in parallelism during the movements of the incline.

20. The combination with a support, of a loading-incline comprising a series of bars, each having a double pivotal connection with the support, guard-rails likewise having a double pivotal connection with the support, and means for maintaining the several bars and guard-rails in parallelism.

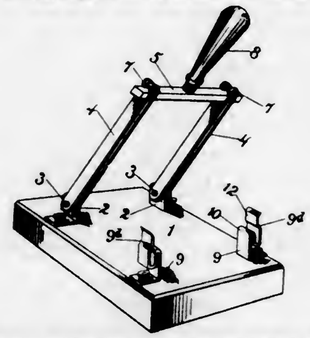
21. The combination with a support, of a loading-incline movable with respect thereto, a guard-rail disposed in a plane above the incline and having pivotal connection with the support, and a swinging guard-rail bracket carried by the incline and having pivotal connection with the guard-rail.

680,980. BICYCLE. HANS G. JOHNSON, Waukon, Iowa. Filed Dec. 16, 1896. Serial No. 615,891. (No model.)



Claim.—A riding-wheel comprising a driving-shaft having cranks, a driven shaft having a crank, a pitman connecting a crank of the driving-shaft with the crank on the driven shaft, a casing mounted eccentrically on the driven shaft, a hub mounted loosely on the driven shaft, a pinion secured to the hub within the casing, a lantern-frame journaled to the casing and meshing with the pinion around which it rotates in the casing having a pitman connected with the other crank of the driving-shaft, as set forth.

680,981. ELECTRIC SWITCH. MONTGOMERY H. JOHNSON, Utica, N. Y. Filed May 27, 1901. Serial No. 62,035. (No model.)



Claim.—1. The combination in an electric switch of the blade and a contact-post having the U-shaped spring portion with a main contact-face

and the projecting arm portion with the supplementary contact-face, substantially as set forth.

2. The combination in an electric switch of a switch-blade having two contact-points, a contact-post having the main and supplementary contact-faces adapted to engage the said two contact-points of the blade respectively and successively, the plate being arranged to pass the supplementary contact-face in opening and closing, substantially as set forth.

3. The combination in an electric switch of the two-part switch-blade and the contact-post 9 having the contacts 10 and 11 arranged to engage the inner surfaces of the blade parts and the supplementary contact 12 arranged to engage the outer surface of the switch-blade, substantially as set forth.

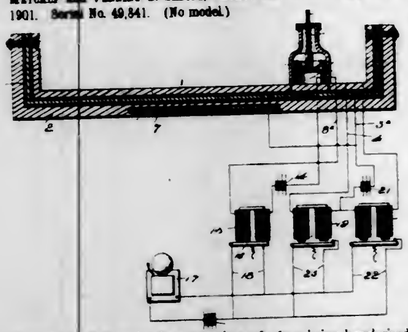
4. The combination with a switch-blade having the doubled end and the recess 6 therein, the yoke received in said recess 6 and the bolt 7 received in the doubled end of said switch-blade and passing the side of said yoke, substantially as set forth.

5. The combination in an electric switch of the contact-post formed of a single piece and having the base portion, the post portion with a contact-face, the U-shaped spring portion with a contact-face and the projecting arm portion with a contact-face, substantially as set forth.

6. The combination in an electric switch of the movable switch-blade and a contact-post formed of a single piece having a base portion and upright-post portion carrying the inverted-U-shaped portion with contact-surfaces on each side and a stop for limiting the closing of the switch-blade, substantially as set forth.

7. A hinged post having a base, an upright portion, an inverted-U-shaped portion and a two-part switch-blade, the parts engaging on either side of said U-shaped portion, and a bolt passing through the said parts of the switch-blade and through said U-shaped portion, combined, substantially as set forth.

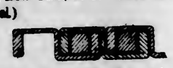
680,982. **BURGLAR-PROOF DEVICE FOR SAFES.** ABRAHAM T MITCALF and VERNING D. SIMONS, Battlecreek, Mich. Filed Mar. 5, 1901. Serial No. 49,841. (No model.)



Claim.—1. In a device for preventing safes from being burglarized, an auxiliary casing composed of a series of plates insulated from each other, an insulated plate embedded in the outer plate, these plates being connected with open circuits, and a device connected with a closed circuit; the open circuits being adapted when closed to cause an alarm, and the device connected with the closed circuit being adapted to cause an alarm when operated to open the closed circuit.

2. In combination with a safe, of an auxiliary casing adapted to cover one side thereof, consisting of a series of metallic plates and sheets of insulation secured together, a spring-actuated switch connected to the inner side of the inner plate, a plate surrounded by insulation embedded in the body of the outside plate, a closed circuit connected with the switch, an open circuit connected with the inner plate and the central plate, another open circuit connected with the central plate and the outer plate, and another circuit connected with the embedded plate and the outer plate; and a bell-circuit adapted to be closed when the switch's closed circuit is opened and when the plates' open circuits are either one or all closed.

680,983. **FLEXIBLE METALLIC TUBING.** CHARLES RUDOLPH, Paris, France, assignor to Charles T. Schoen, Philadelphia, Pa., and James B. Brady, New York, N. Y. Filed Mar. 12, 1900. Serial No. 8,357. (No model.)



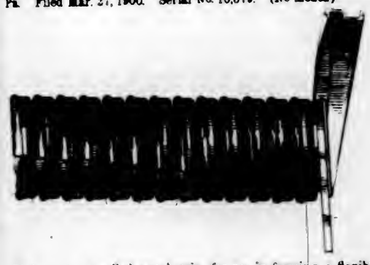
Claim.—1. A rolled metal strip, for use in forming flexible tubes by spirally winding said strip, provided with integral, homogeneous, thickened flanges, substantially as described.

2. A flexible tube, comprising a metal strip the edges of which are integrally and homogeneously thickened to form reinforced flanges, said flanges interlocking with interposed packing, substantially as described.

3. In a flexible metallic tube formed by winding in a spiral manner a corrugated (profiled) metallic band, the combination with the corrugated metallic band of outer edges having greater thickness than the body of the band, substantially as described.

4. In a flexible metallic tube formed by winding in a spiral manner a corrugated metallic band, a laminated band for forming the said tube having its outer edges of greater thickness than the body of the band, substantially as described.

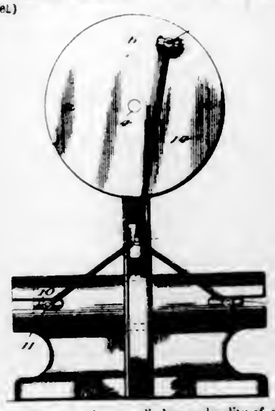
680,984. **FLEXIBLE TUBE.** CHARLES T. SCHOEN, Philadelphia, Pa. Filed Mar. 27, 1900. Serial No. 10,379. (No model.)



Claim.—1. A rolled-metal strip, for use in forming a flexible tube by spirally winding said strip, provided with integral, homogeneous, thickened flanges of greatest thickness at the corners or angles *d*, substantially as described.

2. A flexible tube, comprising a spirally-wound metal strip, the edges of which are integrally and homogeneously thickened to form reinforced flanges and having their greatest thickness at the corners or angles, said flanges interlocking with interposed packing, substantially as described.

680,985. **MULTIPLE-PISTON EXPLOSIVE-ENGINE.** WILLIAM S. SHARPNECK, Chicago, Ill., assignor of two-thirds to John D. Ross and Everett W. Brooks, same place. Filed Dec. 13, 1900. Serial No. 39,751. (No model.)



Claim.—1. In an engine, a cylinder, a plurality of pistons therein, a shaft, intermediate connections between said shaft and pistons; the parts being so arranged that the pistons have two movements in each direction for each revolution of said crank-shaft, substantially as described.

2. In an engine, a cylinder, a plurality of pistons therein, a shaft, and a toggle interposed between said pistons and shaft, substantially as described.

3. In an engine, a cylinder, a plurality of pistons therein, a shaft, a toggle connecting said pistons, and a connection between said toggle and shaft, substantially as described.

4. In an engine, a cylinder, a plurality of pistons therein, a shaft, a toggle connecting said pistons, a connection between said toggle and shaft, and means for guiding the movement of the toggle and insuring equal movement of the pistons, substantially as described.

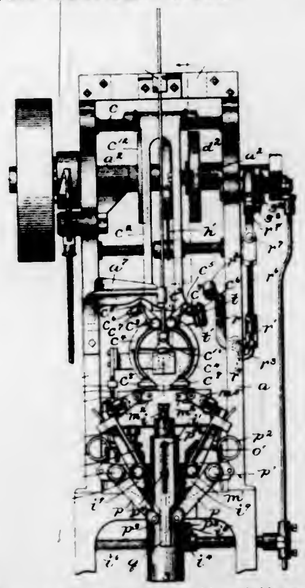
5. In an engine, a cylinder, a plurality of pistons working therein and having a toggle connecting them, a shaft, a rod connecting said shaft and the central pivot of the toggle, and a guide for the said central pivot, substantially as described.

6. In an engine, a cylinder, a plurality of pistons working therein, a toggle comprising two parts pivotally connected with said pistons, a shaft, a rod connecting said shaft and said toggle, the central pivot of the toggle projecting therefrom, and columns or standards provided with guides for said central pivot, substantially as described.

7. In an engine, a suitably-supported cylinder, a plurality of pistons working therein, a toggle connecting said pistons, a shaft and rod connecting it with said toggle, the central pivot of the toggle projecting therefrom and having a slide-block secured thereto; and a column or standard having a guide for said slide-block, substantially as described.

8. In an engine, a suitably-supported cylinder having slots therein, a plurality of pistons working in said cylinder and having pivots projecting through said slots, a toggle comprising two arms connected with said pivots and a central pivot connecting said two arms, a shaft and a rod connecting said shaft with said central pivot, columns or standards supporting said crank-shaft, and guides in said columns for the central pivot of said toggle, substantially as described.

680,986. **LABELING-MACHINE.** RUDOLPH F. STAHL, Boston, Mass., assignor to the Bottlers Machinery Company, same place. Filed Oct. 22, 1898. Serial No. 694,268. (No model.)



Claim.—1. A labeling-machine comprising suitable mechanism for gumming and presenting a lable, spring-tensioned separable wipers adapted to wipe the label on a bottle or can, and means supplemental to said springs for causing said wipers to wipe the ends of a label greater in length than one-half the circumference of the bottle.

2. A labeling-machine including wipers, means for operating the wipers, and auxiliary means for imparting an additional movement to the wipers toward each other.

3. A labeling-machine including wipers, springs bearing against said wipers, and means supplemental to the bottle or can for increasing the tension of said springs as the bottle or can passes between said wipers.

4. A labeling-machine, comprising wipers, movable toward and from each other, supports for said wipers, levers mounted independently of said supports, springs carried by said levers and bearing upon said wipers, and mechanism for actuating said levers.

5. A labeling-machine comprising wipers, movable toward and from each other, arms supporting said wipers, levers, springs on said levers bearing against said arms, and mechanism for actuating said levers.

6. A labeling-machine comprising a cam, label-wipers, and devices actuated by their engagement with said cam for moving said wipers toward each other.

7. A labeling-machine comprising a cam, label-wipers, and spring tensional or yielding devices actuated by their engagement with said cam for moving said wipers toward each other.

8. A labeling-machine comprising movable supports, non-rotary wipers, and universal joints between the wipers and the supports.

9. A labeling-machine comprising movable supports, non-rotary wipers, universal joints between the wipers and the supports, and springs for yieldingly positioning the wipers.

10. A labeling-machine comprising movable supports, non-rotary wipers, universal joints between the wipers and the supports, springs for yieldingly positioning said wipers, and stops for limiting the movements of said wipers.

11. A labeling-machine comprising supports, wipers pivotally supported on said supports to swing longitudinally of the bottle being labeled, and springs between said supports and said wipers.

12. A labeling-machine comprising flat non-rotary label-wipers, pivotal arms supporting said wipers, a gimbal-joint between each wiper and its support, and stops for limiting the inward movement of said arms.

13. A labeling-machine comprising label-wipers, pivotal arms supporting said wipers, and stop-bars having flat faces to engage the edges of the arms and limit the inward movement of said arms, said bars being adjustable in an arc about the pivots of said arms to preserve the parallelism of said flat faces with the said edges of the arms.

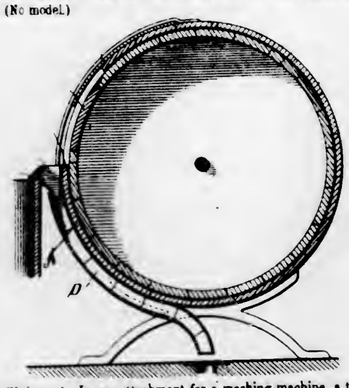
14. A labeling-machine comprising a lower rest or plunger, a tubular bar for said rest or plunger in which the latter is movable, a spring in said bar for cushioning said rest or plunger, a tubular guide for said bar, and means for positively reciprocating said tubular bar.

15. A labeling-machine comprising pasting means, a label-box, a type-bar, and mechanism for causing said type-bar to intermittingly engage the labels in the label-box, said mechanism including a pinion, and a gear segment.

16. A labeling-machine comprising pasting means, a label-box, a type-bar, and mechanism for causing said type-bar to intermittingly engage the labels in the label-box, including an eccentric, an eccentric-strap mediately connected to the type-bar, and mechanism for rotating said eccentric.

17. A labeling-machine comprising a frame, pasting means, a label box or bolder, a label-carrier, a power-shaft for actuating said carrier, and printing mechanism for printing the labels including a type-bar pivoted to said frame, and operative connections between said type-bar and said power-shaft.

680,987. **ATTACHMENT FOR WASHING-MACHINES.** GEORGE A. STEINER, Salt Lake City, Utah. Filed Oct. 22, 1900. Serial No. 33,964. (No model.)



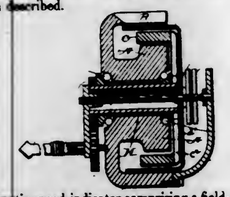
Claim.—1. In an attachment for a washing-machine, a trough attached to the opening in the outer casing and having an annular projection near the top of its outer side, and means connected with the bottom of the trough for conveying away the surplus suds, substantially as shown and described.

2. In an attachment for washing-machines, a trough attached to the opening in the outer casing and provided with an angular projection near the top of its outer side, the top of the angular projection being inclined downwardly and the bottom disposed in a horizontal plane, and a pipe connected to the trough for conveying away the suds.

680,988. **MAGNETIC SPEED-INDICATOR.** SIMON B. STORER, Syracuse, N. Y. Filed Mar. 14, 1900. Serial No. 8,648. (No model.)

Claim.—1. A magnetic speed-indicator comprising a field-magnet, a movable armature and a movable low-resistance part both mounted to be cut by the same lines of force of the common field, one of the movable elements being revoluble and acting to drag along the other element which

is oscillatory, and a mechanical biasing device for the oscillatory element, substantially as described.



2. A magnetic speed-indicator comprising a field-magnet having concentric poles, a movable armature and movable low-resistance part within its field, one of the movable elements being revoluble, and the other being oscillatory but biased to a normal position of rest, substantially as described.

3. A magnetic speed-indicator comprising a field-magnet having concentric annular poles and a movable cylindrical armature and a movable cylindrical low-resistance part both within its field, one of the movable elements being revoluble and the other being oscillatory but biased to a normal position of rest, substantially as described.

4. A magnetic speed-indicator comprising a field-magnet having concentric annular poles and a movable cylindrical toothed armature and a movable cylindrical low-resistance part both within its field, one of the movable elements being revoluble and the other being oscillatory but biased to a normal position of rest, substantially as described.

5. A magnetic speed-indicator comprising a field-magnet having concentric poles, a movable armature and movable low-resistance part within its field, a hollow rotary shaft for supporting one of the movable elements and an oscillatory spindle within the hollow shaft biased to a normal position of rest and supporting the other movable elements, substantially as described.

6. A magnetic speed-indicator comprising a field-magnet having concentric poles, a movable armature and movable low-resistance part within its field, a hollow rotary shaft for supporting one of the movable elements, ball-bearings for supporting the shaft, an oscillatory spindle within the hollow shaft supporting the other movable elements, and a spring or springs for giving the spindle a bias to a normal position of rest, substantially as described.

7. A magnetic speed-indicator comprising a field-magnet having concentric poles, and an oscillatory armature biased to a normal position of rest, and a revoluble low-resistance part both moving within its field, substantially as described.

8. A magnetic speed-indicator comprising a field-magnet having concentric annular poles and an oscillatory cylindrical armature biased to a normal position of rest and a revoluble low-resistance cylindrical part both moving within its field, substantially as described.

9. A magnetic speed-indicator comprising a field-magnet, having an oscillatory armature mechanically biased to a normal position of rest and a revoluble low-resistance part which acts to drag along the oscillatory armature, both parts mounted to move in the common field of the magnet, substantially as described.

10. A magnetic speed-indicator comprising a field-magnet having an oscillatory armature mechanically biased to a normal position of rest and a revoluble low-resistance part to drag along the armature, both moving within its common field and a stationary electrical shield in juxtaposition to the armature, substantially as described.

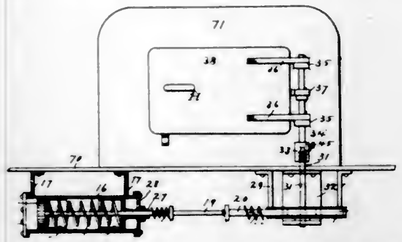
11. A magnetic speed-indicator comprising a field-magnet, a movable armature and a movable low-resistance part, one of the movable elements being revoluble and acting inductively upon the other element which is oscillatory but mechanically biased to a normal position of rest to drag it along, substantially as described.

12. A magnetic speed-indicator comprising a field-magnet, having an oscillatory armature mechanically biased to a normal position of rest and a revoluble low-resistance part acting inductively upon the armature to drag it along, substantially as described.

680,989. **DEVICE FOR OPENING OR CLOSING FURNACE-DOORS.** HENRY H. THOELE and CHARLES W. H. MOELLER, Florence, Ala. Filed June 25, 1900. Serial No. 21,543. (No model.)

Claim.—1. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle passing through and secured to the hinges of said door, a lug on said pintle for contacting with the door, a spring-coupling, the pintle being adjustably secured in one end of said coupling, a vertical shaft secured in the other end of said coupling, and a motor for actuating said shaft, substantially as described.

2. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the hinges of said door, a spring-coupling, the pintle being secured to one end of the coupling, a shaft secured to the other end of the coupling, a gear-wheel on said shaft, a rack-bar engaging said gear-wheel, and a motor for operating said rack-bar, substantially as described.



3. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the hinges of said door, a spring-coupling, the pintle being secured to the coupling, a shaft also secured to the coupling, a gear-wheel on said shaft, a rack-bar engaging said gear-wheel, a cylinder, a piston, a piston-rod connected to the rack-bar and an adjustable spring within said cylinder surrounding the piston-rod, substantially as described.

4. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the hinges of said door, a lug on said pintle for contacting with the furnace-door, a spring-coupling, the pintle being secured to the coupling, a shaft also secured to the coupling, a gear-wheel on said shaft, a rack-bar engaging said gear-wheel, a cylinder, a piston, a piston-rod connecting to the rack-bar, and an adjustable spring within said cylinder surrounding the piston-rod as described and shown.

5. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the door-hinges, a cylinder, a piston, a piston-rod for operating the pintle, a spring within the cylinder, thimbles for supporting said spring, means for adjusting one of said thimbles, and means for admitting a motor fluid to said cylinder, substantially as described.

6. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the door-hinges, a cylinder, one skeleton or open head on said cylinder, a piston, a piston-rod for operating the pintle, a spring within the cylinder, thimbles for supporting said spring, means for adjusting one of said thimbles, and means for admitting a motor fluid to said cylinder substantially as described

7. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the hinges of said door, a spring-coupling, the pintle being secured to the coupling, a shaft also secured to the coupling, a gear-wheel on said shaft, a rack-bar engaging said gear-wheel, a cylinder, an operating-valve consisting of three ports, a plug within said valve having an elongated passage or groove connecting with said cylinder, a piston, a piston-rod connected to the rack-bar and an adjustable spring within said cylinder surrounding the piston-rod, as shown and described.

8. In mechanism for opening and closing furnace-doors, comprising a hinged door, a pintle secured to the hinges of said door, a lug on said pintle for contacting with the furnace-door, a coupling, the pintle secured to the coupling, a shaft also secured to the coupling, a gear-wheel on said shaft, a rack for engaging said gear-wheel, a cylinder, an operating-valve, a plug within said valve, an adjusting-screw for taking up the wear of said plug in said valve, a piston, a piston-rod connecting to the rack-bar for the purpose, substantially as shown and described.

680,990. **ROTARY BRUSH.** JAMES E. COMPTON, Lynn, Mass. Filed Apr. 27, 1901. Serial No. 57,667. (No model.)



Claim.—1. In a rotary brush, a holder, a series of semicircular flanges upon the periphery thereof, a series of U-shaped wires, a series of clamp-plates each of said plates consisting of a semi-annular ring with semicircular grooves in the periphery thereof, and means for attaching said clamp-plates to said holder, substantially as described.

2. In a rotary brush, a holder, a series of semicircular flanges upon the periphery thereof, a series of U-shaped wires, a series of clamp-plates, each of said plates consisting of a semi-annular ring with semicircular grooves in the periphery thereof, means for attaching said clamp-plates to said holder, and a packing of soft material interposed between said U-shaped wires and said flanges, substantially as described.

680,991. **SCREW-NUT.** WILLIAM H. CROSBY, Buffalo, N. Y., assignor to the Crosby Company, same place. Filed May 15, 1901. Serial No. 60,324. (No model.)



Claim.—1. A screw-nut pressed from an integral blank of sheet metal and having its screw-threaded base portion upset for thickening the same, substantially as set forth.

2. A screw-nut pressed from an integral blank of sheet metal and provided at its crown with an inwardly-turned cap-lip and having its screw-threaded base portion thickened by upsetting the same between suitable dies, substantially as set forth.

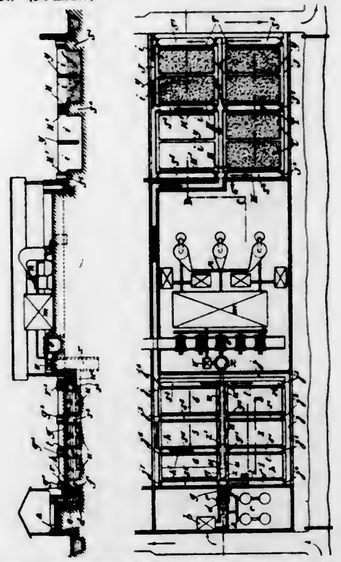
3. A screw-nut pressed from an integral blank of sheet metal and provided at its crown with an inwardly-turned cap-lip, the capped crown portion of the nut being stamped of less thickness and its base portion upset to a greater thickness than that of the blank, substantially as set forth.

4. A nut-blank pressed from an integral plate of sheet metal, and consisting of a ring provided at one end with an inwardly-turned cap-lip and at its opposite end with a projecting rim and having the portion thereof adjacent to said rim upset to a greater thickness than that of the plate from which the nut-blank is pressed, substantially as set forth.

5. The herein-described method of making an integral sheet-metal nut-blank, which consists in stamping a flat plate or blank approximately to the form of a cup, then forming an opening in the bottom of the cup, and then thickening the wall of the perforated cup by upsetting the same between suitably-shaped dies, substantially as set forth.

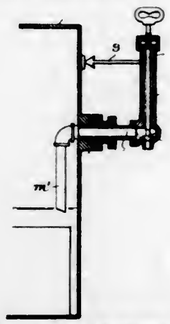
6. The herein-described method of making an integral, sheet-metal cap-nut, which consists in stamping a flat blank approximately to the form of a cup, then forming in the bottom of the cup an opening of smaller diameter than the bore of the completed nut, and finally thickening the wall of the perforated cup by upsetting the same between suitable dies and at the same time turning the perforated end of the cup inwardly to form the cap-flange of the nut, substantially as set forth.

680,992. **APPARATUS FOR PURIFYING WATER.** JULES DELATTRE, Dorignies-Flers, France. Filed June 20, 1900. Serial No. 20,937. (No model.)



Claim.—In an apparatus for the purifying of impure waters containing fatty matters, the combination with an elevating-pump for sending the waters into an elevated channel wherein they are to have added to them a suitable reagent and with a series of settling-tanks for the reception of deposits and the decantation of the water, of a filter constituted by a series of tanks *i* each divided into two compartments by a partition *y* which extends not quite to their bottoms and separated one from another by walls 8^a, $8'$, 8^2, which present in their upper parts grooves T, movable planks H H′ of different heights fitted to said grooves to form distribution-gutters, a feeding-channel G between said settling-tanks and filters, an evacuation-channel J for said filters, and gates G^a, G′ and J^a J′ for opening and closing communication between the filters and the said feeding-channel and evacuation-channel respectively, substantially as herein described.

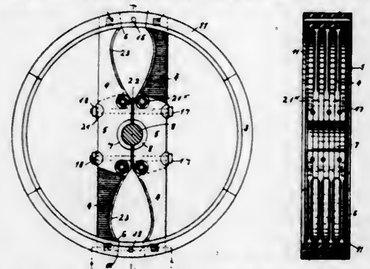
680,993. **GAGE-COCK FOR STEAM-BOILERS.** RICHARD J. FLINN, West Roxbury, Mass. Filed May 28, 1900. Serial No. 18,220. (No model.)



Claim.—1. An apparatus of the character specified, comprising a reservoir and a movable conduit having an inlet communicating with the interior of the reservoir, and an outlet outside of the reservoir, said inlet being adjustable toward and from the bottom of the reservoir and adapted to receive the liquid or gaseous contents of the reservoir, a valve for controlling the said outlet and means whereby the valve may be operated and the position of the inlet varied, independently or together, by one hand.

2. An apparatus of the character described, comprising a reservoir and a movable conduit having an inlet communicating with the interior of the reservoir, an outlet outside the reservoir, said inlet being adjustable toward and from the bottom of the reservoir and adapted to receive either the liquid or the gaseous contents of the reservoir, an indicator whereby the observer may determine the height of the liquid-level, a valve for controlling the said outlet and means whereby the valve may be operated and the position of the inlet varied, independently or together, by one hand.

680,994. **WOOD PULLEY.** FREDERICK W. GURNEY, Roan Mountain, Tenn. Filed July 24, 1899. Serial No. 724,884. (No model.)



Claim. 1. A pulley comprising a rim and two series of oppositely-projecting alternating wooden spoke-arms, each arm being secured at one end only to the rim and terminating at its other end beyond the center of the pulley, and being also provided at its inner side or edge with a cut-away, whereby the pulley may be centered upon a cylindrical support.

2. A pulley comprising a rim and two series of oppositely-projecting alternating wooden spoke-arms, each arm being at one end built into the rim and extending crosswise of and terminating just past the center of the pulley, and having at its side a centering cut-away or notch, and all of the oppositely-projecting alternating butt-ends overlapping at the center of the pulley and being arranged in contact face to face, and with their notches or cut-aways all in line axially of the pulley, and the entire series of arms thus constructed and arranged forming a practically solid pulley-hub.

3. A pulley comprising a rim built up of a series of similar layers, and a series of oppositely-projecting wooden slats, each terminating at one end in a head and at the other end in a butt and being of the same thickness as a rim layer, each head being built into the rim as if it were part

of a layer, and all of the butts overlapping and terminating centrally of the pulley and so constructed as to form the pulley-hub.

4. In a pulley, the combination with a rim, of sets of oppositely-projecting wooden slats terminating in overlapping hub portions and extending crosswise of the pulley, on one side of the axial line thereof; other sets of oppositely-projecting slats terminating in overlapping hub portions and extending crosswise of the pulley, on the opposite side of the axial line thereof; a clearance-space being left between the two sets of slats at their hub portions when they are clamped upon a cylindrical support; and means for clamping the hub portions upon a cylindrical support.

5. In a pulley, the combination with a rim of a diametrical cross-bar comprising half portions arranged upon opposite sides of the center of the pulley, and each half portion consisting of a series of oppositely-projecting alternating slats, the outer ends of which are built into the rim, and the inner butt-ends of which overlap and extend past the center of the pulley, said butt-ends being provided with notches or cut-aways upon their inner edges or sides and at the center of the pulley, and means for binding the opposite series of notched butts upon a cylindrical support.

6. In a pulley, the combination with a rim of a series of oppositely-projecting alternating wooden slats built into the rim and terminating in overlapping centering-butts having notches or cut-aways in their side edges, the slats being cut away at their outer portions, as at 23, to increase their flexibility, and means for binding the butts upon a cylindrical support.

7. In a pulley, the combination with a rim, of a series of oppositely-projecting alternating wooden slats fixed only at the points of union with the rim, each slat extending at its free end beyond the axial line of the pulley, overlapping the adjoining slat, and provided with a centering cut-away, and means for applying compression to the slats at their free ends in a direction about crosswise of their length, whereby the free ends are forced toward the pulley-axis, and caused to grip their common cylindrical support.

8. A split pulley, each half of which is constructed with a series of oppositely-projecting alternating wooden slats, each of which terminates at its inner end in a hub-butt, and at its outer end is joined to the rim at about the point of union of the half-rims.

9. A split pulley constructed with duplicate halves, each half comprising a rim portion and a series of oppositely-projecting alternating wooden slats terminating about centrally of the pulley in a solid half-hub formed by notches cut in the side edges of the terminal portions of said slats.

10. A pulley comprising a rim and two equipoised sets of oppositely-projecting alternating wooden centering-slats, each set having the same number of slats, one set extending across the pulley upon one side of its axis, and the other set extending across the pulley upon the other side of its axis, and each set of slats having a series of alined notches formed in their side edges.

11. A split pulley each half whereof comprises a rim portion and a series of oppositely-projecting wooden slats which extend crosswise of the pulley, each slat terminating at one end in a hub-butt and at the other end being joined to the rim, and the slats extending alternately from the hub to opposite portions of the rim, there being more slats extending in one direction than in the other; the construction being such that when the half-pulleys are united the portion of one of the halves having the fewer slats may be placed next the portion of the other half having the greater number of slats, whereby a running balance is secured.

12. In a pulley, the combination with a rim, of sets of alternate wooden slats arranged on opposite sides of the pulley-axis, each slat joined at one end to the rim and terminating at the other end in a centering-butt, plates 19, having ears 21 for confining the butts, and bolts 17 co-operating with the plates to clamp the butts upon a cylindrical support.

13. In a pulley, the combination with a rim, of sets of alternate wooden slats arranged on opposite sides of the pulley-axis, each slat being joined to the rim and provided with a centering portion, the slats having matching bolt-grooves cut in their sides, plates 19, and bolts 17 passing between the slats within said grooves and cooperating with the plates to clamp the slats upon a cylindrical support.

14. In a pulley, a set of parallel slats built into the rim at their outer ends and extending crosswise inwardly from one side of the rim and terminating at their inner ends about centrally of the pulley in hub-butts, a second set of parallel slats also built into the rim at their outer ends and extending crosswise inwardly from the opposite side of the rim and alternating with the first set of slats and terminating at their inner ends about centrally of the pulley in hub-butts, the hub-butts of both alternating sets overlapping and contacting face-wise and constructed to form an elongated half-hub.

680,995. COIN-CARRIER. WILLIAM HENRY and GEORGE O. HERRMANN, Indianapolis, Ind., assignors to Lee R. Lindley, Anderson, Ind. Filed July 24, 1899. Serial No. 725,006. (No model.)

Claim.—1. A coin-carrier consisting of a card having two adjacent corners folded toward each other to form a pointed pocket and a flap opposite the mouth of the pocket to fold over said folded corners, substantially as described.



2. A coin-carrier consisting of a card having the adjacent corners of one end folded toward each other to form a pointed pocket, a slot through said card into which the point of the pocket is inserted and a flap opposite the mouth of the pocket to fold over said folded corners, substantially as specified.

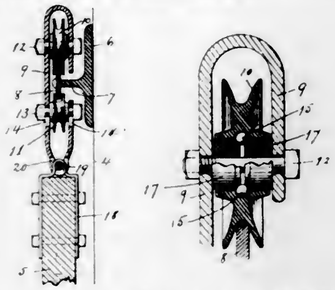
3. A coin-carrier consisting of a card having the adjacent corners of one end folded toward each other to form a pointed pocket, said folded corners also having their corners folded in, and a flap opposite the mouth of the pocket to fold over said folded corners, substantially as specified.

4. A coin-carrier consisting of a card having the adjacent corners of one end folded toward each other to form a pointed pocket, said folded corners also having the corners folded in, said pointed pocket being folded onto itself approximately midway of the length of said pocket, a slot in the card through which the point is inserted and a flap opposite the mouth of the pocket to fold over said folded side of the pocket, substantially as described.

5. A creased or folded coin-card, having a V-shaped pocket opening toward the crease, and having its open end adjacent to said crease, substantially as specified.

6. A creased or folded coin-card, having a V-shaped pocket formed by triangular flaps or folds, substantially as specified.

680,996. DOOR-HANGER. ARTHUR S. HOOK, Ottawa, Ill. Filed Jan. 26, 1901. Serial No. 44,822. (No model.)

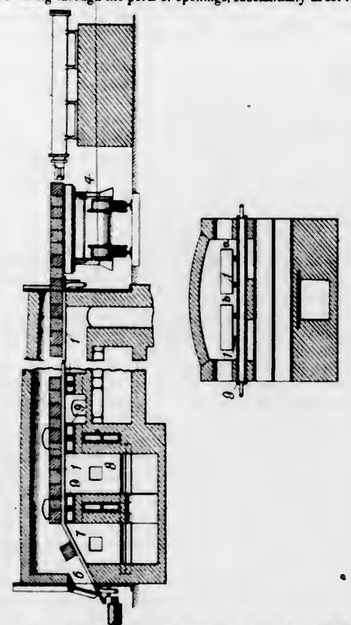


Claim.—1. The combination in a door-hanger of frame 9, roller 10, a single series of balls moving in a race formed centrally in the roller, independent, disconnected cones at opposite sides of the balls, and an axial bolt upon which the cones are slidingly fitted and confined by the frame, substantially as specified.

2. The door-hanger the frame whereof is bent upward at the lower end, and such bent lower end is made to support both a guiding device engaging the track, and a pivot of the hinge by which the door is supported from the hanger, substantially as specified.

680,997. HEATING-FURNACE. ALEXANDER LAUGHLIN, Sewickley, and JOSEF REULEAUX, Wilkinsburg, Pa.; said Reuleaux assignor to said Laughlin. Filed Feb. 15, 1901. Serial No. 47,453. (No model.)

Claim.—1. A continuous heating-furnace having in combination, a discharge-opening at or near the rear end of the furnace, bloom or ingot supports extending from the front end of the furnace to a point adjacent to the discharge-opening, bearings for the bloom or ingot supports constructed to hold the supports above the bottom of the furnace, means for shifting the blooms or ingots to a point near the discharge-opening, and ports or openings for the admission of heating-gases arranged near the rear end of the furnace and under the path of movement of the blooms or ingots along the supports, and extending forward beyond the point to which the blooms or ingots are moved by the shifting mechanism, whereby the line of blooms or ingots will serve to deflect a portion of the heating-gases entering through the ports or openings, substantially as set forth.



2. A continuous heating-furnace having in combination, a discharge-opening at or near the rear end of the furnace, bloom or ingot supports extending from the front end of the furnace toward the rear end thereof, means for shifting the blooms or ingots along the supports, means for effecting the automatic movement of the blooms or ingots from such supports through the discharge-opening of the furnace, means for applying heat to the upper sides of the blooms, or ingots, &c., while moving through the furnace, and means for applying heat directly to the under sides of the blooms or ingots while being shifted along the supports and during their automatic movement, substantially as set forth.

3. A continuous heating-furnace having in combination, openings adjacent to its ends for charging and discharging blooms or ingots, two or more ports or openings for the introduction of heating-gases into the furnace, arranged one in front of the other and adjacent to the opening for the discharge of blooms or ingots from the furnace, and an open-topped flue or passage extending from one of the ports or openings underneath the bloom or ingot line of travel toward the front end of the furnace and adapted to be covered by the row or rows of blooms or ingots being heated, substantially as set forth.

4. A continuous heating-furnace having in combination, openings adjacent to its ends for charging and discharging blooms or ingots, bloom or ingot supports extending from the front end of the furnace to a point adjacent to the discharge-opening, bearings for the bloom or ingot supports constructed to raise the bloom or ingot supports above the bottom of the furnace, means for shifting the blooms or ingots to a point adjacent to the discharge-opening and two or more ports or openings for the introduction of heating-gases into the furnace arranged one in front of the other adjacent to the opening for the discharge of blooms or ingots from the furnace and extending forward beyond the point to which the blooms or ingots are moved by the shifting mechanism, whereby a portion of the heating-gases entering through the inlet ports or openings is caused to flow forward under the line of blooms or ingots, substantially as set forth.

5. A continuous heating-furnace having in combination, openings for charging and discharging blooms or ingots, main bloom or ingot supports extending from the front end of the furnace toward the rear end thereof, inclined supports extending from the main supports to the discharge-opening, ports or openings for the introduction of heating-gases arranged below the inclined supports and auxiliary ports or openings for the introduction of heating-gases arranged in front of the other ports or openings and extending forward below the main bloom or ingot supports, substantially as set forth.

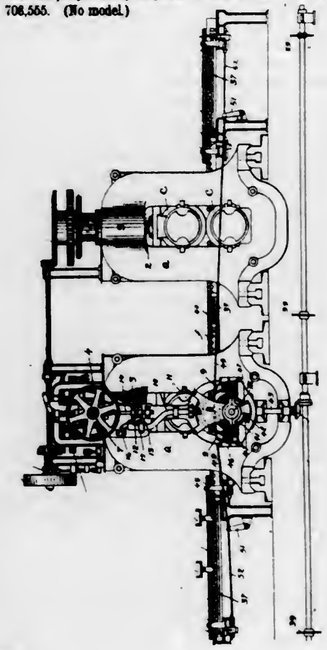
6. A continuous heating-furnace, having in combination openings for charging and discharging blooms or ingots, a port or opening near its rear end for the admission of heating-gases into the furnace, bloom or ingot supports arranged above the bottom of the furnace and extending from the charging-opening to a point beyond the front wall of the port or opening for the admission of gases, thereby forming an open-topped flue adapted to be closed by a continuous line of blooms or ingots resting on the supports, said flue extending from the inlet-port toward the front of the furnace, and means for shifting the blooms or ingots along the supports, substantially as set forth.

7. A continuous heating-furnace having in combination, openings for charging and discharging blooms or ingots, bloom or ingot supports extending from the front end of the furnace toward the rear end thereof, means for shifting the blooms or ingots along said supports to a point adjacent to the discharge-opening, two fire-chambers located below the path of movement of the blooms or ingots, one of said chambers arranged forward from a plane passing through the point to which the blooms or ingots are shifted by the shifting means, and the other chamber in the rear of the first chamber, substantially as set forth.

8. A continuous heating-furnace, having in combination, a heating-chamber, bloom or ingot supports raised above the bottom of the heating-chamber and extending along the heating-chamber from the front end of the furnace toward the rear end thereof, means for pushing the blooms or ingots along said supports and a fire-chamber located below the plane of the bloom or ingot supports and connected to the heating-chamber in front and in the rear of the point to which the blooms or ingots are shifted by the pushing means, that the heating-gases will flow from the fire-chamber above and below the line of blooms or ingots resting on the bloom or ingot supports, substantially as set forth.

9. A continuous heating-furnace, having in combination, bloom or ingot supports extending from the front end of the furnace toward the rear end thereof and raised above the bottom of the furnace, means for moving the blooms or ingots along said supports to a point from which the blooms or ingots can be removed from the furnace, and a fire-chamber located below the plane of the bloom or ingot supports and extending forwardly from a vertical plane passing through the point to which the blooms or ingots are moved by the shifting mechanism, substantially as set forth.

680,998. AUTOMATIC SHEET-METAL-ROLLING MILL. EDWIN NORTON, Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Filed Mar. 10, 1899. Serial No. 708,565. (No model.)



Claim.—1. In an automatic reversible rolling-mill, the combination of two stands of rolls arranged tandem or one in front of the other, each provided with a feed-table and connected by a conveyer between the two stands of rolls, with mechanism for reversing the two stands of rolls and driving both stands of rolls in unison first in one direction and then in the other, and means for adjusting both stands of rolls in proper proportion, whereby the metal being rolled receives four passes or actions at each reversal, substantially as specified.

2. In an automatic reversible rolling-mill, the combination of two stands of rolls arranged tandem or one in front of the other, each provided with a feed-table and connected by a conveyer between the two stands of rolls with mechanism for reversing the two stands of rolls and driving both stands of rolls in unison first in one direction and then in the other, and mechanism for automatically reversing the two feed-tables and the connecting feed-table, and means for adjusting both stands of rolls in proper proportion, whereby the metal being rolled receives four passes or actions at each reversal, substantially as specified.

3. The combination with the rolls and their feed-table, of a bar feeding or delivering device above the feed-table for feeding or delivering a series of bars on the feed-table in line with each other one after another with a space between them to allow for their elongation in rolling, and mechanism for automatically reversing the rolls and feed-table, and laterally-movable side gages to center and true the bars or sheets on the feed-table, substantially as specified.

4. The combination with the rolls and their feed-table, of a bar feeding or delivering device above the feed-table for feeding or delivering a series of bars on the feed-table with a space between them to allow for their elongation in rolling, and a series of movable gates or stops to regulate the distance between the bars, substantially as specified.

5. The combination with the rolls and their feed-table, of a bar feeding or delivering device above the feed-table for feeding or delivering a series of bars on the feed-table with a space between them to allow for their elongation in rolling, a series of movable gates or stops to regulate the distance between the bars, and laterally-movable side gages for centering and truing the sheets on the feed-table, substantially as specified.

6. The combination with the rolls and their feed-table, of a bar feeding or delivering device above the feed-table for feeding or delivering a series of bars on the feed-table with a space between them to allow for their elongation in rolling, and laterally-movable side gages to center and true the bars or sheets on the feed-table and mechanism for automatically reversing the rolls and feed-table and mechanism for automatically operating said side gages, substantially as specified.

7. The combination with the rolls and their feed-tables, of bar feeding or delivering devices above the feed-table for spacing the bars upon the bed of the feed-table for the first pass between the rolls, and gages for squaring and truing the bars or sheets after the first pass, so that at each succeeding pass between the rolls the bars or sheets will be delivered central and true to the bite of the rolls, substantially as specified.

8. In an automatic reversible rolling-mill, the combination with two stands of automatically-reversing rolls, of feed-tables adapted to deliver the bars or sheets to the bite of the rolls in each direction, and devices for gaging or squaring the metal bars or sheets upon the bed of the feed-tables between the passes, whereby the rolling of the bars or sheets is caused to proceed rapidly, substantially as specified.

9. In an automatic reversible rolling-mill, the combination with two stands of reversing-rolls, of reversible feed-tables for conveying the heated bars or sheets to each of the stands of rolls in both directions, and mechanism for automatically setting down or adjusting the feed-screws of each of the stands of rolls in cooperative relation one to the other to give the proper reduction to the metal at each pass of the bars or sheets between each stand of rolls, substantially as specified.

10. In an automatic reversible rolling-mill, the combination with two or more reversing stands of rolls and feed-tables, gears connecting the driven rolls of each stand, and a reversing device or mechanism adapted to take its power from a shaft revolving continuously in one direction and impart to each stand of rolls motion first in one direction and then in the opposite direction, and means for automatically adjusting both stands of rolls in proper proportion, substantially as specified.

11. In an automatic reversible rolling-mill, the combination with two reversing stands of rolls with feed-tables operating in unison therewith, with a reversing device, and mechanism for driving the rolls and feed-tables first in one direction and then in the other, and means for automatically adjusting both stands of rolls in proper proportion, substantially as specified.

12. In an automatic reversible rolling-mill, the combination with two reversing stands of rolls, of mechanism for driving and reversing the two stands of rolls in unison, feed-screws for setting the rolls of each stand closer together, and mechanism for automatically turning the feed-screws at the reversal of the mill, substantially as specified.

13. In an automatic reversible rolling-mill, the combination with two reversing stands of rolls, of mechanism for driving and reversing the two stands of rolls in unison, feed-screws for setting the rolls of each stand closer together, and mechanism for automatically turning the feed-screws at the reversal of the mill, said feed-screw-turning mechanism operating to turn the feed-screws of the second pair of rolls a greater extent than that of the first pair, substantially as specified.

14. The combination with two stands of rolls, of feed-tables furnished with laterally-movable side gages for centering and truing the bars or sheets on the feed-tables, a series of movable gates or stops for regulating the spacing of the bars, and mechanism for automatically operating said side gages, and mechanism for automatically operating said movable gates or stops, substantially as specified.

15. The combination with two stands of rolls, of feed-tables furnished with laterally-movable side gages, a series of movable gates or stops for regulating the spacing of the bars or sheets on the feed-table, and a pair of bar feeding or delivering devices consisting each of a rocking or tilting box having slots or openings on its opposite sides for delivering one bar when tilted to one side and another bar when tilted to the opposite side, substantially as specified.

16. The combination with the rolls and a feed-table, of a bar feeding or delivering device consisting of a rocking or tilting box having slots or openings in its opposite sides for the discharge of the bars as the box is tilted first to one side and then to the other, substantially as specified.

17. The combination with the rolls and a feed-table, of two tilting boxes having slots for the discharge of the bars as the boxes are tilted, substantially as specified.

18. The combination with the rolls and a feed-table, of two tilting boxes having slots for the discharge of the bars as the boxes are tilted, and movable stops or gates to aid in spacing the bars on the feed-table, substantially as specified.

19. The combination with the rolls and feed-table of a rolling-mill, of a series of movable stops adapted to be projected into the path of the bars or sheets on the feed-table to space them and true their front edges parallel with the rolls, so that they will properly enter the rolls at proper distances apart to allow for their elongation in rolling, substantially as specified.

20. The combination with the rolls and feed-table of movable stops on both sides of the rolls adapted to project into the path of the bar or sheet on the feed-table to true its front edge parallel with the rolls before entering the rolls in either direction, substantially as specified.

680,999. VACUUM-SEALING CAN. EDWIN NORTON, Maywood, Ill., assignor to the Automatic Vacuum Canning Company, Chicago, Ill. Filed Nov. 3, 1900. Serial No. 35,317. (No model.)



Claim.—The combined vacuum seal and double-seam sheet-metal preserving-can comprising a can-body having a seaming-flange at its upper end forming also a smooth seat or bearing for a packing, and a cover having a packing and a guide-flange and hermetically sealed and secured to said can-body by a vacuum or atmospheric-pressure seal, said cover being inwardly curved or collapsed and having also a seaming rim or flange folded into a double seam with said seaming-flange on the can-body; whereby the packed joint uniting the cover and can-body is adapted to resist internal pressure generated in the sealed can by subsequent cooking of its contents, substantially as specified.

681,000. MACHINE FOR SOLDERING BAIL-EARS ON BODIES OF CANS OR OTHER VESSELS. HORATIO N. NORTON, Maywood, Ill., assignor, by mesne assignments, to the American Can Company, Jersey City, N. J. Filed Oct. 22, 1900. Serial No. 33,927. (No model.)

Claim.—1. In a machine for soldering bail-ears upon body-blanks of sheet-metal cans, pails or vessels, the combination with a rotary table or carrier furnished with a series of body-blank holders, and a series of rotating soldering-tools mounted on said table, substantially as specified.

2. In a machine for soldering bail-ears upon body-blanks of sheet-metal cans, pails or vessels, the combination with a rotary table or carrier furnished with a series of body-blank holders, a series of rotating soldering-tools mounted on said table, and a series of ear holding or clamping rods inside the soldering-tools, substantially as specified.

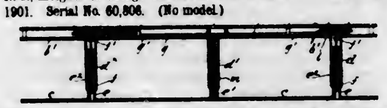
3. In a machine for soldering bail-ears upon body-blanks of sheet-metal cans, pails or vessels, the combination with a rotary table or carrier furnished with a series of body-blank holders, a series of rotating soldering-tools mounted on said table, a series of ear holding or clamping rods inside the soldering-tools, and inclined cams or tracks for raising and lowering said soldering-tools and ear-holding rods, substantially as specified.

4. In a machine for soldering bail-ears upon body-blanks of sheet-metal cans, pails or vessels, the combination with a rotary table or carrier furnished with a series of body-blank holders, a series of rotating soldering-tools mounted on said table, a series of ear holding or clamping rods inside the soldering-tools, inclined cams or tracks for raising and lowering said soldering-tools and ear-holding rods, a stationary gear, and gears on the shafts of said soldering-tools engaging said stationary gear, substantially as specified.

5. In a machine for soldering bail-ears upon body-blanks of sheet-metal cans, pails or vessels, the combination with a rotary table or carrier furnished with a series of body-blank holders, a series of rotating soldering-tools mounted on said table, a series of ear holding or clamping rods inside the soldering-tools, inclined cams or tracks for raising and lowering said soldering-tools and ear-holding rods, a stationary gear, gears on the shafts of said soldering-tools engaging said stationary gear, an annular heating-chamber, and a series of burners for heating said soldering-tools, substantially as specified.

6. In a machine for soldering bail-ears upon body-blanks of sheet-metal cans, pails or vessels, the combination with a rotary table or carrier furnished with a series of body-blank holders, a series of rotating soldering-tools mounted on said table, a series of ear holding or clamping rods inside the soldering-tools, inclined cams or tracks for raising and lowering said soldering-tools and ear-holding rods, a stationary gear, gears on the shafts of said soldering-tools engaging said stationary gear, an annular heating-chamber, a series of burners for heating said soldering-tools, and a cooling-pipe furnished with a series of nozzles for projecting blasts of air against the soldered seams, substantially as specified.

681,001. PERPETUAL LEDGER. ANTHONY PAGLIUGHI, Fort Lee, N. J., assignor to George McKibbin, New York, N. Y. Filed May 18, 1901. Serial No. 60,806. (No model.)

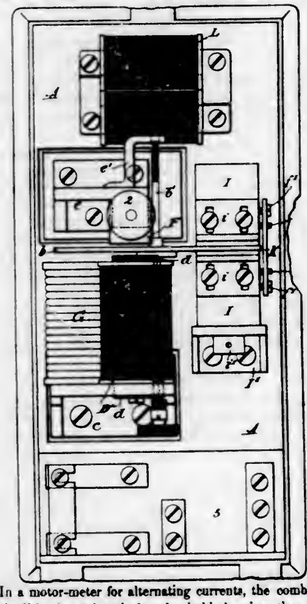


Claim.—1. A binder provided with telescoping tubes, racks formed within one set of said tubes, hooks passing through the other set of said tubes, and a slide to which the hooks are connected, substantially as specified.

2. A binder composed of a pair of rails, telescoping tubes connected thereto, a slide, hooks yieldingly connected to the slide and projecting through one set of tubes, and racks formed on the other set of tubes, substantially as specified.

681,002. MOTOR-METER FOR ALTERNATING CURRENTS. ALBERT PELOUX, Geneva, Switzerland, assignor to Société pour l'Exploitation de Compteurs Électriques, Rittener & Co., same place. Filed Mar. 8, 1901. Serial No. 50,346. (No model.)

Claim.—1. In a motor-meter for alternating currents, the combination with a revoluble disk of metal, a shaft and suitable bearings therefor, of a pair of shunt-coils having cores and a yoke common to the cores of both of said coils, an armature completing the magnetic circuit of said shunt-coil cores, a series coil placed between the said shunt-coils, a core within said series coil which is independent of the magnetic circuit of the shunt-coil cores, and means for varying the position of the said armature in relation to the said disk and coils, substantially as specified.



2. In a motor-meter for alternating currents, the combination with a revoluble disk of metal, a shaft and suitable bearings therefor, of a pair of shunt-coils and a self-induction coil both in series in the shunted circuit, cores within said shunt-coils, a yoke integral with said cores, an armature to complete the magnetic circuit of the shunt-coil cores, a series coil placed between the said shunt-coils and having a core independent of the said magnetic circuit of the shunt-coil cores, all of the said coils being on one side of the disk and the said armature on the other side of the disk, and means for varying the positions of the said armature in relation to the said disk and coils, substantially as specified.

3. In a motor-meter for alternating currents, the combination with a revoluble disk of metal, a shaft and suitable bearings therefor, of a pair of shunt-coils and a self-induction coil both in series in the shunted circuit, cores within said shunt-coils, a yoke integral with said cores, an armature to complete the magnetic circuit of the shunt-coil cores, a series coil placed between the said shunt-coils and having a core independent of the said magnetic circuit of the shunt-coil cores all of the said coils being on one side of the disk, and the said armature on the other side of the disk, means for varying the positions of the said armature in relation to the said disk and coils, a permanent magnet between whose poles the outer portion of the said disk passes, and means for regulating the magnetic reluctance of said magnet, substantially as specified.

4. In a motor-meter for alternating currents, the combination with a revoluble disk of metal, a shaft and suitable bearings therefor, of a pair of shunt-coils and a self-induction coil both in series in the shunted circuit, cores within said shunt-coils, a yoke integral with said cores, an armature to complete the magnetic circuit of the shunt-coil cores, a series coil placed between the said shunt-coils and having a core independent of the said magnetic circuit of the shunt-coil cores, all of the said coils being on one side of the disk, and the said armature on the other side of the disk, means for varying the positions of the said armature in relation to the said disk and coils, a permanent magnet between whose poles the outer portion of the said disk passes, and a plate extending across the poles of said magnet on the edge face thereof and adapted to be adjusted to vary the magnetic reluctance of said magnet, substantially as set forth.

681,003. SCREEN FOR PHOTOGRAPHIC LENSES. MILES A. SEED, Woodland, Mo. Filed Apr. 1, 1901. Serial No. 53,807. (No model.)

Claim.—1. The herein-described screen for photographic lenses, the same comprising the combination with an apertured casing rotatably adjustable with respect to the lens-tube, and a screen-plate mounted in said frame and transversely adjustable the aperture therein, substantially as described.



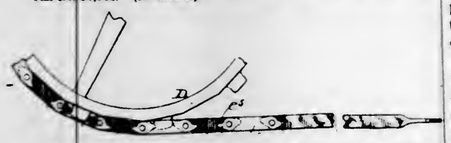
2. The combination with an apertured casing rotatably adjustable with respect to the lens-tube, and a screen-plate entirely covering the aperture in said casing, a portion of said screen-plate being coated with a color-pigment, said screen-plate being adjustable transverse said aperture, substantially as described.

3. The combination with an apertured casing, of a collar arranged thereon around the aperture in the casing, a yielding tongue provided on the collar for holding the casing in rotatably-adjusted positions on the lens-tube, and a screen-plate mounted in slides in the casing and adjustable transverse the aperture therein, substantially as described.

4. The combination with a lens-tube, of a casing coöperating therewith, strips of soft material in the casing, and a color-screen arranged within said strips of soft material and adjustable transversely the lens-tube, substantially as described.

5. The combination with a lens-tube, of an open-ended casing provided with slots *b*, a flange C, a tongue *c*, and a screen mounted in the casing and adjustable transversely the openings therein, substantially as described.

681,004. NEEDLE-LOOM. HALCYON SKINNER and FRANK H. CONNOLLY, Yonkers, N. Y.; Albert L. Skinner and Charles E. Skinner executors of said Halcyon Skinner, deceased. Filed Nov. 28, 1900. Serial No. 37,961. (No model.)

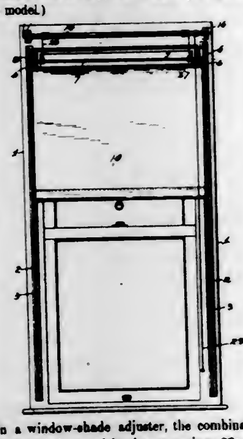


Claim.—1. A weft-inserting needle for needle-looms, flexible in one direction from a straight line and inflexible in the opposite direction, substantially as set forth.

2. A weft-inserting needle for needle-looms being flexible in one direction only from a straight line and inflexible in all other directions, substantially as set forth.

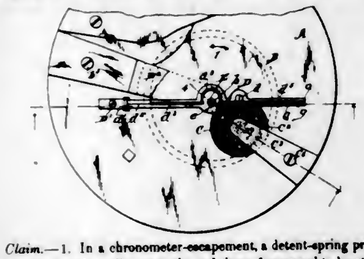
3. A weft-inserting needle for needle-looms comprising a plurality of links so connected that the needle will be flexible in one direction from a straight line and inflexible in the opposite direction, substantially as set forth.

681,005. AUTOMATIC DROP-FIXTURE FOR SHADES. HERBERT M. STURGIS, Kansas City, Mo. Filed Apr. 30, 1900. Serial No. 14,952. (No model.)



Claim.—In a window-shade adjuster, the combination of a roller supported above the window and having two rings 28ª fixed thereon, a string for rotating said roller, pawls for holding the roller when not being rotated by the string, a cord 28 connected to each of said rings 28ª, the two cords being of equal length a vertical guide-strip secured to each side of the window-frame and extending the whole length of the same and having a slot therein, brackets 4 operating in said slots, a rod 7 removably carried by said brackets and having two clips 27 fixed thereon in vertical alinement with the rings 28ª, the lower ends of the cords 28 being connected to the said clips, and a shade-roller supported by the said brackets 4 below the rod 7.

681,006. CHRONOMETER-ESCAPEMENT. JOHAN F. THIM, Chicago, Ill. Filed Mar. 20, 1901. Serial No. 52,118. (No model.)



Claim.—1. In a chronometer-escapement, a detent-spring provided with a spring portion adjacent to the end thereof arranged to be attached to the plate of the chronometer, means for securing a secondary spring to the free end of the detent-spring, a curved portion, arranged to extend around the balance-arbor of the chronometer, between the spring portion of the detent-spring and the point of attachment of the secondary spring thereto, a locking-jewel mounted on the detent-spring between the curved portion thereof and the point of attachment of the secondary spring thereto, and a secondary spring attached at one end thereof to the free end of the detent-spring; substantially as described.

2. A detent-spring comprising a part arranged to be attached to a plate of a chronometer, a spring portion adjacent to such attachable part, a curved part arranged to extend around a balance-arbor and a body part arranged to have attached thereto a locking-jewel for an escape-wheel and a secondary spring for an unlocking-jewel, in combination with a secondary spring attached at one end thereof to the free end of the detent-spring and extending to the curved portion of such detent-spring, and a locking-jewel, whereby when an unlocking-jewel, of an escapement whereof the detent-spring, the locking-jewel and the secondary spring are elements, lifts the secondary spring in one direction, carrying therewith the detent-spring, the fulcrum of such secondary spring is at the spring end of the detent-spring, and when such unlocking-jewel lifts the secondary spring in the other direction the fulcrum of the secondary spring is at the other end of the detent-spring; substantially as described.

3. In a chronometer-escapement, a detent-spring, attachable at one end to a chronometer-plate and provided with a spring portion adjacent to the attachable end and a body part adjacent to the spring portion, the attachable portion, the spring portion and the body portion of the spring being integral, in combination with a locking-jewel mounted on the body portion of the detent-spring for an escape-wheel, and a secondary spring attached at one end thereof to the free end of the detent-spring, the secondary spring extending along the detent-spring so that the end thereof operated on by the unlocking-jewel of the escapement is between the locking-jewel and the spring portion of the detent-spring; substantially as described.

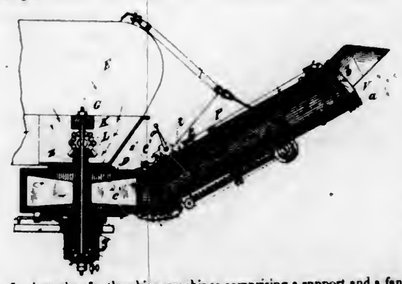
681,007. STACKER FOR THRESHING-MACHINES. EDGAR P. WATROUS and LEROY VAN BENSCHOTEN, Groton, N. Y., assignors to Conger Manufacturing Company, same place. Filed Jan. 30, 1901. Serial No. 45,224. (No model.)

Claim.—1. A stacker for threshing-machines comprising a fan-case, a hanger suspended from a portion of the machine above the fan-case, and a revoluble fan carried by the hanger.

2. A stacker for threshing-machines comprising a sleeve having a vertical opening or bearing, a fan-case provided with a depending hub journaled in said bearing, and a revoluble fan suspended from a portion of the machine above the case.

3. A stacker for threshing-machines comprising a horizontal bearing and a raised surface surrounding the bearing for forming an oil-cup, a fan-case revolubly mounted on the bearing, a hanger secured to the machine above the bearing, and a revoluble fan carried by the hanger.

4. A stacker for threshing-machines comprising a sleeve having a vertical opening enlarged at its intermediate portion for forming separated bearings and an interposed oil-pocket, a fan-case having a central hub journaled in said bearings, a hanger secured to the machine above the case and extended downwardly through said case and a fan mounted on the hanger.



5. A stacker for threshing-machines comprising a support and a fan-case journaled on the support, one of said parts having a circular toothed rack and the other being provided with a latch for the purpose described, a fan, and means above the case and connected to the fan for rotating the same.

6. A stacker for threshing-machines comprising a support having a circular toothed rack, a fan-case journaled on the support and provided with spring-actuated means for engaging the rack and holding the same in its adjusted position, a shaft extending through the case and driven from its upper end and a fan secured to the shaft.

7. A stacker for threshing-machines comprising a sleeve having a vertical opening enlarged at its intermediate portion for forming separated vertical bearing-faces and an interposed oil-pocket, said sleeve being also provided, with an oil-cup in its upper face and with peripheral teeth, a fan-shaft extending through the opening and provided with a fan, driving means connected to the upper end of the shaft, a fan-case resting on the upper face of the sleeve and provided with a hub depending into the opening and engaged with said vertical bearing-faces of the support, and a latch on the case for engaging said peripheral teeth.

8. A stacker for threshing-machines comprising a frame having separated upper and lower bearings, a fan-case interposed between said bearings and journaled thereon, a revoluble fan in said case and means above the upper bearing for rotating the fan.

9. A stacker for threshing-machines comprising a frame having separated upper and lower bearings, a fan-case interposed between said bearings and journaled thereon, a revoluble shaft extending through the case and provided with a fan, and movable means for holding the case in its adjusted position and for permitting its revoluble movement.

10. A stacker for threshing-machines comprising a bearing, a revoluble tubular shaft mounted on the bearing, a fan secured to the shaft, bearing means connected to the shaft above the fan, and a revoluble fan-case inclosing the fan.

11. A stacker for threshing-machines comprising a bearing, a revoluble upright shaft mounted on said bearing, a fan secured to the shaft, and a case inclosing the fan and provided with inlet and discharge openings, the fan-shaft extending through said openings and driven from its upper end.

12. A stacker for threshing-machines comprising a fixed bearing and an upright revoluble tube, balls interposed between the bearing and the adjacent end face of the tube, for the purpose described, a fan secured to the tube, a case inclosing the fan and provided with inlet and discharge openings and means connected to the upper end of the tube for rotating the same.

13. In a stacker for threshing-machines, a fan-case, a revoluble tubular fan-shaft and a fan mounted on the shaft in combination with a fixed hanger-rod having a bearing engaged with the lower end face of the tubular shaft for the purpose set forth.

14. In a stacker for threshing-machines, a fan-case, a revoluble tubular fan-shaft and a fan mounted on the shaft in combination with a fixed hanger-rod passed through the shaft and provided with a bearing engaged with the lower end of the shaft for the purpose described.

15. In a stacker for threshing-machines, a fan-case, a revoluble tubular fan-shaft and a fan on the shaft, in combination with a fixed hanger-rod passed through the shaft and provided with a bearing engaged with the lower end of the shaft for the purpose described, and means connected to the upper end of the shaft for rotating the same.

16. In combination with the frame and fan-case of a threshing-machine, a hanger-rod suspended from the frame and having its lower end provided with an adjustable bearing, a tubular fan-shaft encircling the rod and supported on said bearing, a fan secured to the shaft, and means for rotating the shaft.

17. In a stacker for threshing-machines the combination with a support having a vertical opening, of a fan-case provided with a hollow hub journaled in the opening, a bearing at the lower end of the opening, a tubular shaft mounted on said bearing and extending upwardly through the hub and fan-case, a fan secured to the shaft, and means connected to the upper end of the shaft for rotating said shaft.

18. In a stacker for threshing-machines the combination with a support having a vertical opening, of a fan-case provided with a hollow hub journaled in the opening, a bearing at the lower end of the opening, a tubular shaft mounted on said bearing and extending upwardly through the hub and case, said hub being formed with internal oil-chambers surrounding the shaft, a fan secured to the shaft, and means connected to the shaft above the case for revolving the shaft.

19. In a stacker for threshing-machines, the combination with a support, of a fan-case journaled on the support and provided with openings in its upper and lower walls, a tubular shaft extending through said openings, a hanger-rod extending through the shaft and provided with an adjustable bearing at its lower end for supporting the shaft, and means connected to the upper end of the shaft for rotating the same.

20. A stacker for threshing-machines comprising a fan-case having inlet and discharge openings, a tilting chute hinged to the case, and an elbow consisting of overlapping split sections connecting the case and chute and having their meeting ends turned outwardly and hinged to a common axis and a flexible stop also connecting the adjacent portions of the case and chute.

21. A stacker for threshing-machines comprising a fan-case having inlet and discharge openings, a tilting chute hinged to the case, an elbow consisting of split sections telescoping with each other and having their meeting ends mounted on the hinge-pin, the hinge being extended to conceal said meeting ends.

22. A stacker for threshing-machines comprising a fan-case having inlet and discharge openings, a tilting chute, a hinge connecting the case and chute and provided with a recess and a hinge-pin, and an elbow consisting of a series of split sections connecting said case and chute and having their meeting ends mounted on said pin within the recess of the hinge and concealed thereby.

23. In a stacker the herein-described elbow-section consisting of a split band having their meeting ends provided with separated substantially parallel ears and annular flanges projecting in opposite directions from the opposite edges of the band for the purpose set forth.

24. In a stacker, the herein-described elbow-section consisting of a split band having separated ears and annular flanges projecting in opposite directions from the opposite edges of the band for the purpose set forth, one of said flanges being provided with laterally-projecting stop-shoulders for the purpose described.

25. A stacker for threshing-machines comprising a fan-case and a tilting chute having their adjacent edges provided with flanges, a hinge connecting the case and chute, one of the hinge-sections being provided with a recess for receiving and partially inclosing the other section, an elbow consisting of a series of split bands telescoping with each other and connecting said chute and case, said bands having their meeting ends provided with ears projecting into the recess between the ends of the hinge-sections and concealed thereby and having oppositely-projecting flanges for limiting the expansion of the elbow.

26. In a stacker for threshing-machines, a tilting chute composed of telescoping sections, an arm pivoted to one of said sections and provided with a roller-bearing for the adjacent section.

27. In a stacker for threshing-machines, a tilting chute composed of telescoping sections, an arm pivoted to one of said sections and provided with a roller bearing for the adjacent section, and a movable chain or belt connected to the latter section for the purpose described.

28. In a stacker for threshing-machines, a tilting chute composed of telescoping sections, an arm having one end mounted on the lower face of one of the sections and provided with a sprocket and its other end provided with a roller-bearing engaging the lower face of the adjacent section, and means connected to the sprocket and roller-shaft and to the latter section of the chute for moving said latter section and a roller carried by the inner end of the movable section and engaged with the lower face of said arm for the purpose described.

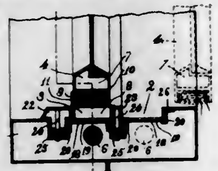
29. The combination with the frame of a threshing-machine, of a tilting chute, a drum revolubly mounted on the chute, means for controlling the movement of the drum, a roller-bearing for the chute, a bail pivotally connected to the axis of the roller, and a cable connected to the bail and to said drum for raising and lowering the chute.

30. The combination with the frame of a threshing-machine, of a tilting chute having its free end provided with a revoluble band, means for rotating said band, and a hood pivotally connected to the band and provided with ears projecting beyond its pivot and connected to said means whereby the hood may be rotated or tilted by the same means.

31. The combination with the frame of a threshing-machine, of a tilting chute having its free ends provided with a revoluble band, a hood

pivotally mounted on the band and provided with opposite depending ears, a pulley on the chute, and cords having corresponding ends secured to said ears and their opposite ends passed around opposite faces of the pulley for the purpose specified.

681,008. WINDOW. JOHN C. WELLER, Chicago, Ill., assignor to Harry C. Farwell, same place. Filed Mar. 25, 1901. Serial No. 52,771. (No model.)



Claim.—1. In a window, the combination with a frame provided with guide-grooves bordered by yielding stops of shoes movable in said grooves, and sashes mounted on said shoes, said yielding stops being adapted normally to press against said shoes to form weatherproof joints.

2. In a window, the combination with a frame provided with grooves having yielding side walls adapted to normally contract said grooves in width at their mouths, of sashes movable in said guide-grooves, said sashes being adapted to force said yielding walls outwardly to form weatherproof joints between said frame and said sashes.

3. In a window, the combination with a frame and sashes movable therein, of yielding guide-strips on said frame engaging said sashes and guiding same, said guide-strips being adapted to normally press against said sashes to form weather-tight joints between said frame and said sashes.

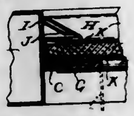
4. In a window, the combination with a frame provided with guide-grooves, shoes movable in said guide-grooves, sashes pivotally mounted on said shoes, and means for locking said sashes rigid with said shoes, of yielding strips bordering said guide-grooves and normally pressing against the sides of said shoes to form weather-tight joints, and packing between said shoes and said sashes to form weather-tight joints.

5. In a window, the combination with a frame provided with guide-grooves, of shoes movable in said guide-grooves, sashes mounted on said shoes, said sashes and shoes being capable of lateral movement with relation to each other, and a packing of yielding material interposed between said sashes and said shoes for forcing the latter laterally outward with relation to said sashes, thereby forcing said shoes into said guide-grooves.

6. In a window, the combination with a frame provided with guide-grooves, of shoes movable in said guide-grooves, sashes pivotally mounted on said shoes, said sashes and shoes being laterally movable with relation to each other, and a packing of yielding material interposed between said sashes and said shoes for forcing the latter laterally outward with relation to said sashes, thereby forcing said shoes into said guide-grooves.

7. In a window, the combination with a frame provided with guide-grooves, of shoes movable in said guide-grooves, sashes pivotally mounted on said shoes, said sashes and shoes being laterally movable with relation to each other, and a packing of yielding material carried by said sashes and engaging said shoes to form a weather-tight joint between the same, said packing being adapted to force said shoes laterally outward with relation to said sashes and into said grooves.

681,009. WINDOW-SASH. JOHN C. WELLER, Chicago, Ill., assignor to Harry C Farwell, same place. Filed Apr. 10, 1901. Serial No. 55,149. (No model.)



Claim.—1. In a window, the combination with a sash provided with inwardly-extending flanges on its inner edges, of devices adapted each to receive one of the edges of the glass pane, each of said devices being provided with flanges adapted to pass inwardly of the inner edges of said flanges of said sash and adapted to be bent over upon and engage said flanges to secure said glass pane in said sash.

2. In a window, the combination with a sash provided with inwardly-extending flanges, of flexible strips adapted to receive the glass pane, and flanges on said strips adapted to be bent over upon and engage the flanges of said sash to secure said pane within said sash.

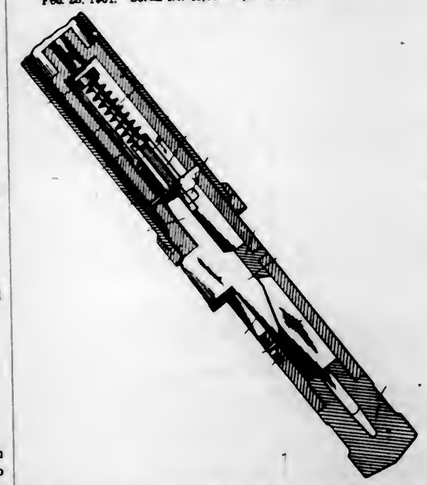
3. In a window, the combination with a sash provided with inwardly-extending flanges, of sheet-metal strips each having a flange on one edge bent over upon itself and bent to form an acute angle with the body of the strip and provided on its other edge with a perpendicular flange the outer portion of which is cut to form lips at intervals, said strips being adapted to be slipped over the edges of the glass pane and said lips being adapted to be bent over upon and engage the flanges of said sash to secure said pane within said sash, substantially as described.

681,010. VAGINAL SYRINGE. FRANK Y. WILSOFF, New York, N. Y. Filed May 31, 1901. Serial No. 62,467. (No model.)



Claim.—A vaginal syringe provided with a nozzle containing a rotatable wheel, and with perforations around said wheel that slant in opposite directions, substantially as specified.

681,011. ROCK-DRILL. OTTO G. WORSLEY, Newark, Ill. Filed Feb. 23, 1901. Serial No. 48,600. (No model.)

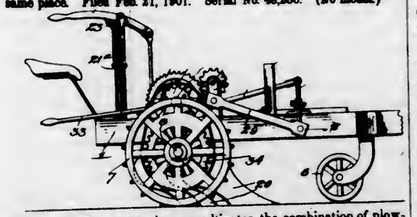


Claim.—1. In a rock-drill, in combination, a chambered stock having a lateral aperture, a cutter housed within the chamber and projecting through the aperture, and having a bearing against the top wall of the aperture, against the wall of the stock opposite the aperture, and against the wall of the stock below the aperture.

2. In a rock-drill, in combination, a chambered stock having a lateral aperture, a cutter housed within the stock-chamber and adapted to project therefrom, and having a shoulder for seating against the top wall of the lateral aperture and upwardly and downwardly projecting stems, a spring for drawing the cutter upwardly, and a boss within the stock for forcing it outwardly when moved by the spring.

3. In a rock-drill, in combination, a chambered stock having a lateral aperture, a cutter housed within the chamber and projecting through the aperture, and a slide for closing the passage between the lower wall of the aperture and the lower edge of the cutter when the cutter is in its retracted position.

681,012. WHEELED PLOW OR CULTIVATOR. JAMES R. BABCOCK, Fort Pierre, S. D., assignor of one-fourth to Telesphar Paradis, same place. Filed Feb. 21, 1901. Serial No. 48,256. (No model.)



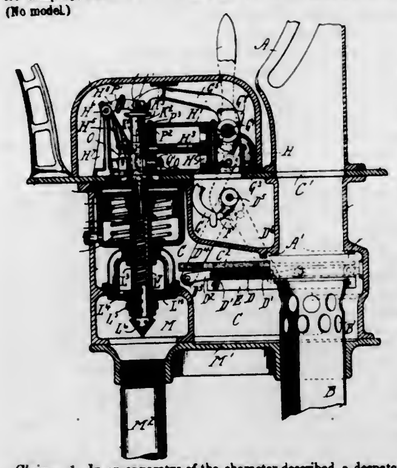
Claim.—1. In a gang plow or cultivator, the combination of plow-shovels, pitman-rods connected thereto, a crank-shaft for operating the pitman-rods, drive-gears having ratchets, traction-wheels carrying pawls to engage said ratchets, and gearing between the drive-gears and pitman-rods, substantially as set forth.

2. In a gang plow or cultivator, the combination of a wheel-supported frame provided with longitudinal guide-bars, a crank-shaft geared with the supporting-wheels, cross-heads mounted to slide on said guide-bars, pitmen connecting the cross-heads with the crank-shaft, and shovels having their standards connected to the cross-heads, substantially as set forth.

3. In a gang plow or cultivator, the combination of a wheel-supported frame provided with longitudinal hinged guide-bars, a crank-shaft geared with the supporting-wheels, cross-heads mounted to slide on said guide-bars, pitmen connecting the cross-heads with the crank-shaft, shovels having their standards connected to the cross-heads, and means for elevating the said hinged guide-bars, substantially as set forth.

4. In combination, a main frame and a suitably-mounted gang of plows, and means for forcing them successively forward with respect to the main frame, substantially as described.

681,013. PNEUMATIC-DESPATCH-TUBE APPARATUS. MARTIN BARRI, Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Filed Aug. 25, 1900. Serial No. 28,006. (No model.)



Claim.—1. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism operated by compressed air for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, mechanism operated by compressed air to actuate said valve-holding means to release said air-supply-controlling valve to allow it to close, and means for regulating the movement of said releasing mechanism.

2. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism operated by compressed air for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, mechanism operated by compressed air to actuate said valve-holding means to release said air-supply-controlling valve to allow it to close, and adjustable means for regulating the movement of said releasing mechanism.

3. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, a cylinder for receiving compressed air when the air-supply-controlling valve is open, a piston movable in said cylinder and provided with a piston-rod extending beyond the cylinder, mechanism for releasing said air-supply-controlling valve to allow it to close and operated by the movement of said piston driven by the compressed air admitted to said cylinder, an opening in said cylinder through which the air from the cylinder is forced by the movement of the piston in one direction to release the air-supply-controlling valve, and an air-inlet valve adapted to open and admit air into the cylinder upon the movement of the piston in the opposite direction upon the closing of the air-supply-controlling valve.

4. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, a cylinder for receiving compressed air when the air-supply-controlling valve is open, a piston movable in said cylinder and provided with a piston-rod extending beyond the cylinder, mechanism for releasing said air-supply-controlling valve to allow it to close and operated by the movement of said piston driven by the compressed air admitted to said cylinder, an opening in said cylinder through which the air from the cylinder is forced by the movement of the piston in one direction to release the air-supply-controlling valve, means for adjusting said opening, and an air-inlet valve adapted to open and admit air into the cylinder upon the movement of the piston in the opposite direction upon the closing of the air-supply-controlling valve.

5. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve upon the closing of the despatch-tube valve, means for holding said air-supply-controlling valve open, a cylinder, a piston in said cylinder operated by compressed air, mechanism operated by the movement of said piston for releasing said air-supply-controlling valve to allow it to close, and means for regulating the movement of said piston in said cylinder.

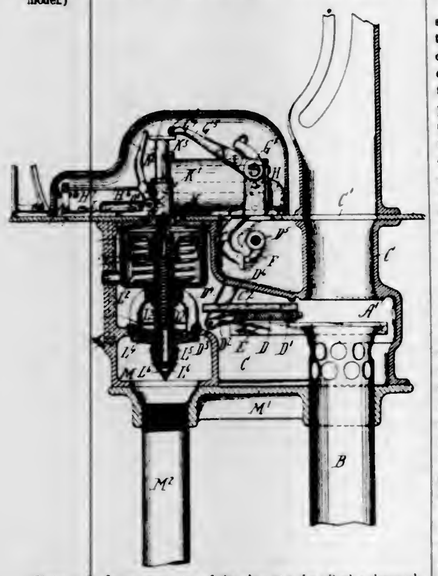
6. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air, mechanism operated by the movement of said piston for moving said catch to release said air-supply-controlling valve to allow it to close, and a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement to release said air-supply-controlling valve.

7. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air, mechanism operated by the movement of said piston for moving said catch to release said air-supply-controlling valve to allow it to close, a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement to release said air-supply-controlling valve, and means for varying the area of said vent thereby regulating the movement of said piston.

8. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of a carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a spring-catch for holding said air-supply-controlling valve open, a piston operated by compressed air, mechanism operated by the movement of said piston for moving said spring-catch to release said air-supply-controlling valve to allow it to close, and a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement to release said air-supply-controlling valve.

9. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air, mechanism operated by the movement of said piston for moving said catch to release said air-supply-controlling valve to allow it to close, a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement to release said air-supply-controlling valve, means for varying the area of said vent thereby regulating the movement of said piston, and an air-inlet valve adapted to open to admit air into said cylinder upon the movement of the piston in the opposite direction upon the closing of said air-supply-controlling valve.

681,014. PNEUMATIC-DESPATCH APPARATUS. MARTIN BARRI, Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Filed May 9, 1901. Serial No. 59,435. (No model.)



Claim.—1. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, a cylinder for receiving compressed air when the air-supply-controlling valve is open, a piston movable in said cylinder and provided with a piston-rod extending beyond the cylinder, mechanism for releasing said air-supply-controlling valve to allow it to close and operated by the movement of said piston driven by the compressed air admitted to said cylinder, an opening in said cylinder through which air from the cylinder is forced by the movement of the piston as it moves in one direction to release the air-supply-controlling valve, and an air-inlet valve to said cylinder opened by the movement of the piston to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve.

2. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, a cylinder for receiving compressed air when the air-supply-controlling valve is open, a piston movable in said cylinder and provided with a piston-rod extending beyond the cylinder, mechanism for releasing said air-supply-controlling valve to allow it to close and operated by the movement of said piston driven by the compressed air admitted to said cylinder, an opening in said cylinder through which air from the cylinder is forced by the movement of the piston as it moves in one direction to release the air-supply-controlling valve, means for adjusting said opening, and an air-inlet valve to said cylinder opened by the movement of the piston to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve.

3. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve upon the closing of the despatch-tube valve, means for holding said air-supply-controlling valve open, a cylinder, a piston in said cylinder operated by compressed air in both directions, mechanism operated by the movement of said piston in one direction for releasing said air-supply-controlling valve to allow it to close, means for regulating the movement of said piston to operate said releasing mechanism, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve.

4. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air for opening said air-supply-controlling valve upon the closing of the despatch-tube valve, means for holding said air-supply-controlling valve open, a cylinder, a piston in said cylinder operated by compressed air in both directions, mechanism operated by the movement of said piston in one direction for releasing said air-supply-controlling valve to allow it to close, means for regulating the movement of said piston to operate said releasing mechanism, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve and adapted to be closed upon the return of the piston to its normal position.

5. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air in both directions, mechanism operated by the movement of said piston in one direction for moving said catch to release said air-supply-controlling valve to allow it to close, a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement in one direction to release said air-supply-controlling valve, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve.

6. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air in both directions, mechanism operated by the movement of said piston in one direction for moving said catch to release said air-supply-controlling valve to allow it to close, a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement in one direction to release said air-supply-controlling valve, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve and adapted to be closed upon the return of the piston to its normal position.

7. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air in both directions, mechanism operated by the movement of said piston in one direction for moving said catch to release said air-supply-controlling valve to allow it to close, a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement in one direction to release said air-supply-controlling valve, means for varying the area of said vent thereby regulating the movement of said piston, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve and adapted to be closed upon the return of the piston to its normal position.

8. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, a valve controlling the supply of compressed air, mechanism operated by compressed air for opening said air-supply-controlling valve, a catch for holding said air-supply-controlling valve open, a piston operated by compressed air in both directions, mechanism operated by the movement of said piston in one direction for moving said catch to release said air-supply-controlling valve to allow it to close, a cylinder in which said piston is located and provided with an air-vent for controlling the escape of air in front of the piston during its movement in one direction to release said air-supply-controlling valve, means for varying the area of said vent thereby regulating the movement of said piston, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve and adapted to be closed upon the return of the piston to its normal position.

9. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism operated by compressed air for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, mechanism operated in one direction by compressed air for releasing said air-supply-controlling valve to allow it to close and operated in the opposite direction by compressed air for returning it to its normal position upon the closing of the air-supply-controlling valve, means for regulating the movement of said mechanism to release said air-supply-controlling valve, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve.

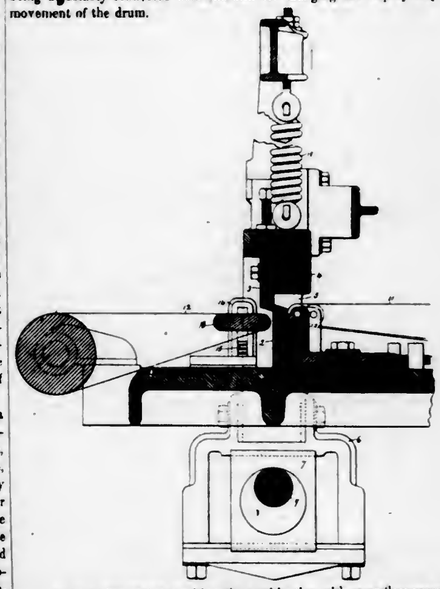
10. In an apparatus of the character described, a despatch-tube, a source of compressed air, a valve normally open for closing the despatch-tube after the insertion of the carrier, mechanism for closing said valve, a valve controlling the supply of compressed air to the despatch-tube, means for holding said valve normally closed, mechanism operated by compressed air for opening said air-supply-controlling valve, means for holding said air-supply-controlling valve open, mechanism operated in one direction by compressed air for releasing said air-supply-controlling valve to allow it to close and operated in the opposite direction by compressed air for returning it to its normal position upon the closing of the air-supply-controlling valve, means for regulating the movement of said mechanism to release said air-supply-controlling valve, and an air-inlet valve to said cylinder opened by the movement of said piston in one direction to admit compressed air into the cylinder to move the piston in the opposite direction upon the closing of the air-supply-controlling valve and adapted to be closed upon the return of the piston to its normal position.

681,015. BIAS-CUTTING MACHINE. FRANK H. BREWSTER, Derby, Conn., assignor to Birmingham Iron Foundry, same place. Filed Mar. 5, 1901. Serial No. 49,917. (No model.)

Claim.—1. In a bias-cutting machine, the combination with an endless apron, of a step-by-step mechanism for moving the said apron step by step, and spacing mechanism combined with the step-by-step mechanism to impart a long movement to the apron at regular intervals, the said long movement of the apron being longer than its step-by-step movement, and virtually effecting the counting of the bias strips upon the apron in groups of predetermined numbers, whereby the strips are counted in groups kept distinct from each other and each containing the same number of strips.

2. In a bias-cutting machine, the combination with an endless apron, of an apron-driving drum, a step-by-step mechanism for driving the said drum in step-by-step rotation, and a spacing mechanism operating before the completion of every revolution of the drum to move the same through a longer arc than its step-by-step movement for the purpose of finishing the revolution of the drum and imparting a long movement to the apron whereby the bias strips upon the apron are virtually counted in groups of predetermined numbers.

3. In a bias-cutting machine, the combination with an endless apron, of an apron-driving drum, a step-by-step mechanism for driving the drum including an eccentric, and a spacing mechanism for finishing the movement of the drum with a long step, including a disk, the said eccentric being adjustably connected with the disk for changing the step-by-step movement of the drum.

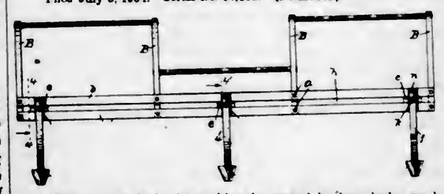


4. In a bias-cutting machine, the combination with an endless apron, of an apron-driving drum, a ratchet-wheel for imparting step-by-step movement to the drum, a pawl for the said wheel, a swinging lever carrying the said pawl, a spacing-disk provided with a hub to which the ratchet-wheel is secured, and mounted upon the shaft of the said drum, a pawl coacting with the said disk, a lever carrying the said pawl, and means for operating the said levers.

5. In a bias-cutting machine, the combination with an endless apron, of an apron-driving drum, a slotted disk connected with the main shaft of the machine, an eccentric adjustably connected with the said disk, a step-by-step ratchet connected with the said drum, which it actuates in step-by-step rotation, a pawl coacting with the said ratchet, and connected with the said eccentric by which it is operated, a spacing-disk rigidly connected with the said step-by-step ratchet, a spacing-pawl coacting with the said spacing-disk and adjustable connection between the said spacing-pawl and the said slotted disk.

6. In a bias-cutting machine, the combination with an endless delivery-apron, of an apron-driving drum, a spacing-disk having a long hub, and mounted upon the shaft of the said drum, a spacing-pawl for coaction with the said spacing-disk, a lever by which the said pawl is carried, a ratchet-wheel mounted upon the hub of the spacing-disk, a pawl coacting therewith, a lever carrying the said pawl, a slotted disk mounted upon the main shaft of the machine, a connecting-rod adjustably connected with the said disk through its slot and connected with the lever carrying the spacing-pawl, and an eccentric adjustably connected with the said slotted disk and connected with the lever carrying the pawl of the ratchet-disk.

681,016. GROUND-MARKER. ADELBERT A. CLARK, Marion, N. Y. Filed July 5, 1901. Serial No. 67,162. (No model.)



Claim.—1. A device for marking the ground, having a body, standards secured to the body, hand-rails of different elevation carried by the standards, and marking-teeth secured to the body, substantially as and for the purpose set forth.

2. A ground-marker having a body formed of members or sections, standards secured to said sections or members respectively to hold them relatively in place, extreme and mean hand-rails held by the standards at different elevations, and teeth for marking the ground, carried by the body, substantially as shown and described.

3. A ground-marker having a body formed of two parallel sections, standards occupying vertical planes, secured to each of said sections and dividing the distance between the extreme ends of the body into three parts, hand-rails held by the standards to span each of said three spaces between the standards, the said rails crossing the two outer spaces being at the same level and above the rail spanning the intermediate space, and marking-teeth carried by the body, substantially as shown and described.

681,017. SAFETY ATTACHMENT FOR WATCHES. SIMON COHEN, Erie, Pa. Filed May 29, 1901. Serial No. 62,313. (No model.)



Claim.—1. A safety attachment for watches, consisting of a watch-chain swivel provided with a hook, the shank of which is pivoted in the longer curved arm of the swivel.

2. A safety attachment for watches, consisting of a watch-chain swivel provided with a hook corresponding in shape with the longer curved arm of the swivel and pivoted therein.

3. A safety attachment for watches, consisting of a watch-chain swivel provided with a hook corresponding in shape with the longer curved arm of the swivel and pivoted to and sheathable within such arm.

681,018. PILOT-LIGHT. CHARLES D. CROCKER, Hartford, Conn. Filed Apr. 20, 1901. Serial No. 56,715. (No model.)



Claim.—1. A pilot-light consisting of a body having a closed chamber provided with air-inlet and flame-emission ports; a burner within said chamber; and laterally-projecting, covered wings for protecting the flame as it issues through the port from the burner.

2. A pilot-light consisting of a body having a central chamber provided with air-admission and flame-emission ports, laterally-projecting, covered wings integral with the body, and serving to protect the flame; and a burner located within the central chamber of said structure.

3. A pilot-light consisting of an integral casting having a chamber provided with air-inlet and flame-outlet ports; a burner within the chamber; and a pair of covered wings projecting from the chamber, and serving to inclose and protect the flame against the action of drafts.

4. A pilot-light consisting of a casting having laterally-projecting covered wings integral therewith, and also having a central closed chamber provided with ports for the admission of air and other ports for the passage of flame, and a burner within said central chamber.

5. A pilot-light consisting of a casting having a central chamber and a pair of laterally-projecting, covered wings integral with the casting and projecting from one side of said chamber, the wall of said chamber being perforated to form air-inlet and flame-outlet ports; and a burner within the chamber.

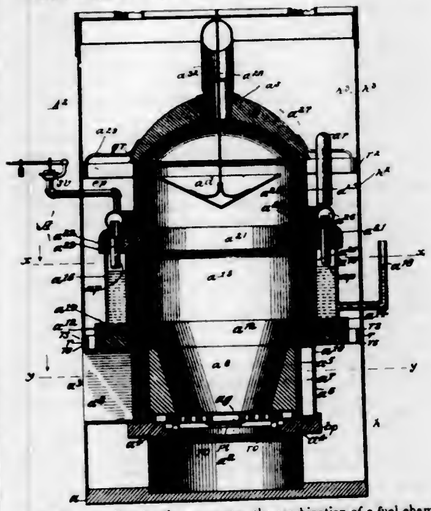
6. A pilot-light consisting of a burner having a central chamber provided with air-admission ports, and with an opening for the passage of flame; means for supplying fuel to said chamber; laterally-projecting side wings flanking the flame-passage; and a hood projecting from the chamber and uniting said wings.

7. A pilot-light consisting of a burner having a central chamber having air and flame ports; a tip having a passage for the admission of fuel to said chamber; wings, in a passage between which the flame issues, said wings projecting laterally from the chamber; and a top uniting said wings and covering said flame-passage.

8. The combination, with gas-supply means, of a pilot-light consisting of a body having a central chamber in communication with said gas-supply means, said chamber having air-admission and flame-emission ports; a pair of covered wings projecting laterally from each side of the chamber; and a burner, the gas from which is ignited by said pilot-light.

9. A pilot-light consisting of a chambered body provided with air-supply and flame-emission ports; laterally-projecting, covered wings on and integral with said body; a tip for the supply of gas within the chamber of the body; and a screw closing the top of said chamber.

681,019. HEATING APPARATUS. AMOS FISHER, Crestline, Ohio. Filed Feb. 9, 1899. Serial No. 705,075. (No model.)



Claim.—1. In a heating apparatus, the combination of a fuel-chamber section; a water-section which is mounted upon the fuel-chamber section; a covering-ring which rests upon the water-section, and which is provided with downwardly-extending steam-receiving pipes; and a steam-section which rests upon the covering-ring of the water-section, and which, by means of the steam-receiving pipes, has communication with such water-section; substantially as shown and described.

2. In an air-heating apparatus, a fuel-chamber section which at its upper extremity has an outwardly-extending peripheral projection; a water-section which rests upon such peripheral projection; a solid covering-ring which is grooved above and below, and which has upwardly and downwardly projecting steam-conducting pipes; and the described annular, transversely-circular, steam chamber or conduit which is provided with a series of superposed arch-like steam-loops or radiating branches, and which rests upon the solid covering-ring of the water-section; in combination; as set forth.

3. In an air-heating apparatus, the combination of a fire-pot or fuel-chamber section which has a broad, overhanging, peripheral projection; a water-section which rests upon a peripheral projection of the fuel-chamber section; a covering-ring which by its bottom grooves is received upon the inner and the outer wall of the water-section; an annular combustion-chamber section which rests in a groove in the covering-ring; and a horizontally-arranged steam chamber or passage which also rests upon the covering-ring, and which is in communication with the water-section.

4. The fire-pot or fuel-chamber section, resting upon the ash-pit section, and having the horizontally-extending air-warming chamber a^7, and the ring or plate a^{12}, provided with top recess a^{14}; the water-section a^{15}, resting in the recess a^{14}, of the covering and supporting plate a^{12}, and having the described supply-pipe a^{16}; the grooved covering-ring a^{21}, having the vertically-placed steam-pipes ap, and supporting the cylinder a^{25}, and the encircling steam-distributing chamber or passage a^{26}, which also is mounted upon the ring a^{21}; in combination.

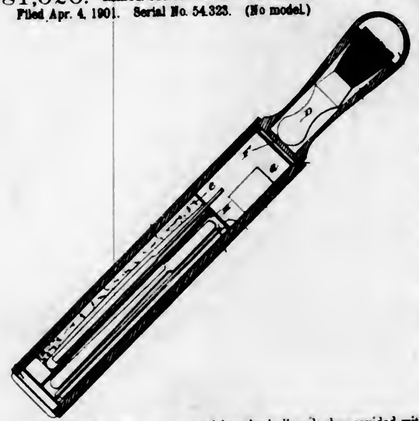
5. In a heating apparatus, the combination with the combustion-chamber; of a surmounting dome or cap which is composed of a thick, metallic, hollowed and rounded cone; and a vertically-adjustable deflector which is supported, centrally, within the upper portion of the combustion-chamber, and is of inverted conical form, to adapt it to deflect and to direct laterally outward and upward, the ascending currents of smoke and other volatile products of combustion.

6. In a heating apparatus, the combination with the combustion-chamber; of a surmounting dome or cap which is of rounded conical form, and of a thickness several times greater than that of the contiguous body of the combustion-chamber, and which at its top is provided with a central smoke-discharge opening; and a deflector, of inverted conical form, supported centrally within the combustion-chamber, at a short distance below the escape or smoke-discharge opening, and provided upon its supporting-rod with means of adjustability, up or down; substantially as described and shown.

7. In a heating apparatus, the combination of the water-section a^{15}; the covering-ring a^{21}; the steam-chamber a^{26}, resting upon the covering-ring; the steam-pipes ap, mounted in the covering-ring, and projecting into the water-section, and into the steam-chamber; and the series of steam loops or arches ar, resting at each end upon the steam-chamber; substantially as and for the purposes specified.

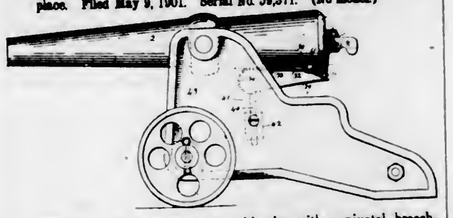
8. The combination with the water-section, resting upon the fuel-chamber section; of the covering-ring a^{21}, carrying the perpendicular steam-pipes ap; the combustion-chamber and dome sections a^{28} and a^{27}; and the steam-section a^{26}, encircling the combustion-chamber section, resting upon the covering-ring, and having the series of superposed steam-loops or radiating-arches ar; substantially as shown and described.

681,020. RAZOR-STROP. ERNEST E. GERTH, Union City, Ind. Filed Apr. 4, 1901. Serial No. 54,323. (No model.)



Claim.—The razor-strop comprising the hollow body provided with one or more stropping-surfaces and open at its outer end, a hollow handle formed integral with the body at the inner end thereof, and open at its outer end; said handle being of a shape and size to receive a shaving-brush, a dome-shaped cap detachably secured on the outer end of the handle, a transverse partition interposed between and separating the interiors of the hollow body and hollow handle, the removable drawer occupying the interior of the hollow body and having the soap-box at its inner end, and compartments, between the soap-box and its outer end, for the reception of a razor and other toilet articles, and a removable device for normally closing the outer end of the body and retaining the drawer therein, as specified.

681,021. BREECH-LOADING CANNON. CHARLES H. GRIFFITH, New Haven, Conn., assignor to Winchester Repeating Arms Co., same place. Filed May 9, 1901. Serial No. 59,371. (No model.)



Claim.—1. In a cannon, the combination with a pivotal breech-block carrier formed with a hub-opening and with a hammer-clearance slot leading downward therefrom through the lower edge of the carrier, of a breech-block placed against the inner face of the said carrier and provided with a hub extending rearwardly through the said hub-opening thereof, a handle located upon the projecting rear end of the said hub, and a swinging hammer entering the slot in the carrier, and having the same pivotal center as the carrier.

2. In a cannon, the combination with a pivotal breech-block carrier formed with a hub-opening and with a hammer-clearance slot leading downward therefrom through the lower edge of the carrier which is formed with two forwardly-projecting arms for the reception of the pivot upon which the carrier swings, of a breech-block placed against the inner face of the said carrier and provided with a hub extending rearwardly through the said opening, and a hammer entering the said slot and having the same pivotal center as the carrier.

3. In a cannon, the combination with a breech-block carrier formed with a circular hub-opening and with a hammer-clearance slot leading downward therefrom through the lower edge of the carrier, of a breech-block formed with a firing-opening provided with a hub extending rearwardly through the said hub-opening, also formed with a clearance-opening exposing the said firing-opening; and a hammer having the same pivotal center as the said carrier, entering the slot therein, and also entering the said clearance-opening in the hub of the breech-block.

4. In a cannon, the combination with a breech-block carrier formed with a hub-opening and with a hammer-clearance slot leading downward therefrom, of a breech-block formed with a hub extending rearwardly through the said hub-opening, the said block being formed with a firing-opening, and the said hub being formed with a clearance-opening exposing the said firing-opening, a safety-shoulder located at the bottom of the said clearance-opening adjacent to the said firing-opening and constituting a fender for the hammer except when the breech-block is in its closed position, and a hammer having the same pivotal center as the said carrier and entering the slot therein, and also entering the clearance-opening in the said hub of the breech-block.

5. In a cannon, the combination with a breech-block carrier having a central opening, of a breech-block provided with a hub projecting rearwardly through the said opening, a hammer, and a pin constituting the pivot for both the breech-block carrier and the hammer.

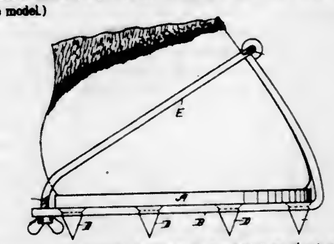
6. In a cannon, the combination with the barrel thereof, of a breech-block carrier, a breech-block carried thereby, a hammer, a pin constituting the pivot for both the breech-block carrier and the hammer, and a hammer-spring engaging with the pin for holding the same in place in the barrel of the cannon.

7. In a cannon, the combination with the barrel thereof, the same having an open groove formed in its lower face at its rear end, of a pivotal breech-block carrier, a breech-block carried thereby, a hammer, a pin constituting the pivot for both the breech-block carrier and the hammer, and a hammer-spring engaging with the pin for holding the same in the said groove in the barrel.

8. In a cannon, the combination with the barrel thereof, of a breech-block carrier, a hammer, a pin on which both the said carrier and hammer swing, the said pin being located in the lower face of the said barrel, and a spring engaging with the said pin to hold it in place in the barrel of the cannon, and engaging with the hammer to hold the same in its cocked position, and to throw it into its firing position.

9. In a cannon, the combination with a barrel having a breech-block slot and a locking-recess, of a pivotal breech-block carrier formed with a central opening and with a hammer-slot, a breech-block formed with a hub projecting rearwardly through the central opening of the breech-block carrier, and furnished with a handle, a hammer mounted upon the same pivot as the breech-block carrier, and entering the said slot therein, and a spring coacting with the said hammer to hold it in its cocked position and to throw it into its firing position.

681,022. OVERSHOE FOR HORSES. SAMUEL HENDERSON and WINSTON TAYLOR, Dayton, Ohio. Filed Apr. 29, 1901. Serial No. 57,906. (No model.)

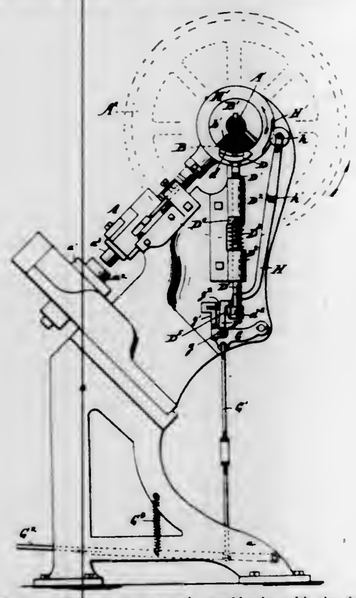


Claim.—1. An overshoe for horses, stamped from sheet metal and adapted to fit against the usual horseshoe, the said overshoe having two upwardly-extending bars adapted to fit against the front of the hoof, the said bars having eyes formed in their upper ends, a metallic clamping band or strap passing through said eyes and extending obliquely on each side of the hoof, the ends of said clamping band or strap being screw-threaded and passed through openings in the heel of said overshoe, the ends of said band lying between the heels of the horseshoe proper, and tightening-nuts securing the ends of said band, substantially as shown and described.

2. In an overshoe for horses, the combination with a metallic overshoe adapted to be placed below the usual horseshoe, a series of ice-creepers loosely mounted in said overshoe and maintained in position by the usual horseshoe which rests against the upper ends thereof, bars extending from said overshoe, a metallic band secured to the upper ends of said bars and to the rear of said overshoe at points between the heels or rearward pro-

jections of the horseshoe proper, and means for tightening said metallic band, as herein shown and described.

681,023. **POWER-PRESS.** JOHN G. HOPKINS, Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Filed Oct. 22, 1900. Serial No. 33,969. (No model.)



Claim.—1. In a power-press, the combination with the driving-shaft and power-pulley, of a clutch-pin, a movable lock for holding the clutch-pin retracted, a movable cam segment or block to automatically withdraw the clutch-pin, a clutch treadle or lever, a connection between the same and said movable cam segment or block, a safety-trip in said connection, and a cam and lever for automatically retracting said safety-trip, substantially as specified.

2. The combination with a clutch-collar and spring clutch-pin, of a lock for holding the clutch-pin withdrawn, a movable cam segment or block to automatically withdraw the clutch-pin, mechanism for retracting said lock provided with an automatically-operated safety-trip, substantially as specified.

3. The combination with the clutch having a clutch-pin and its operating mechanism, including a movable lock for holding the clutch-pin retracted, a movable cam segment or block to automatically withdraw the clutch-pin, of an automatic safety-trip, substantially as specified.

4. The combination with clutch having a clutch-pin, of a movable lock for holding the clutch disengaged, a movable cam segment or block to automatically withdraw the clutch-pin, mechanism for operating said lock provided with a safety-trip, and automatic mechanism for operating and holding said safety-trip retracted, substantially as specified.

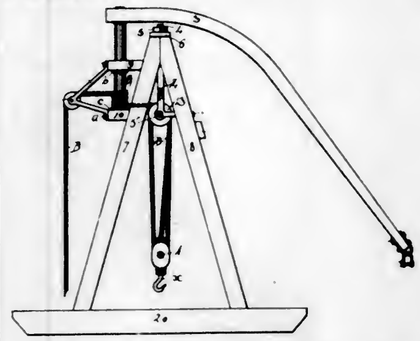
5. The combination with a clutch-collar and spring clutch-pin B, having projection b^2, of movable lock C, having projection C^2, cam segment or block D having operating stem or rod D', safety-trip F, lever H and cam H', substantially as specified.

6. The combination with a clutch-collar and spring clutch-pin B, having projection b^2, of movable lock C, having projection C^2, cam segment or block D having operating stem or rod D', safety-trip F, lever H, cam H', connecting-lever G, link G', and treadle or lever G^2, substantially as specified.

7. The combination with a clutch-collar and spring clutch-pin B, having projection b^2, of movable lock C, having projection C^2, cam segment or block D having operating stem or rod D', safety-trip F, lever H, cam H', connecting-lever G, link G', said connecting-lever G having arm g' and spring g^2, substantially as specified.

681,024. **STUMP-PULLER.** DAVID HOWELL, Omaha, Nebr. Filed Mar. 1, 1901. Serial No. 49,473. (No model.)

Claim.— In a stump-puller of the character described, the combination with two runners, of two standards exteoding upward from each runner, all of said standards being united above at a common point, a brace-bar extending laterally from two of said standards, a spool revolubly secured within said brace-bar, a bracket extending from said brace-bar, a sheave within said bracket, a sweep curving downward from said spool, a hanger secured to said standards, a pulley secured within said hanger, and a rope passing over said hanger-pulley, winding about said spool and finally passing over said bracket-sheave, all arranged substantially as and for the purpose set forth.



681,025. **SAFETY DEVICE FOR AUTOMOTOR-VEHICLES.** VICTOR HUBERTI, Berlin, Germany. Filed Mar. 29, 1901. Serial No. 53,444. (No model.)



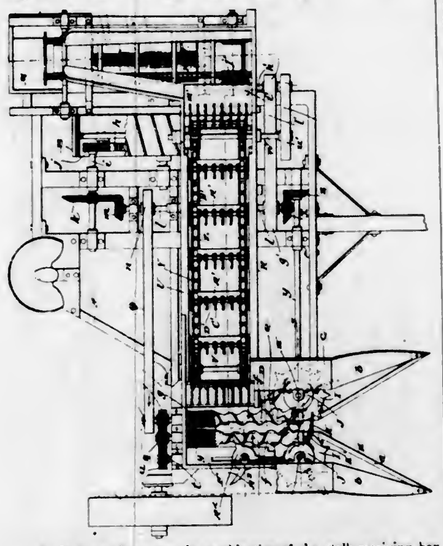
Claim.—1. A safety device for vehicles, the same consisting of a frame suitably supported on the vehicle, an elastic transport-roller provided with exterior flexible slanting ribs converging at the mid-length of the roller, means for revolving said roller, and a receiving-net behind the said roller, substantially as set forth.

2. A safety device for vehicles, the same consisting of a frame adapted to be supported on a vehicle, an elastic transport-roller journaled at the front end of the frame, said transport-roller being provided with exterior flexible slanting ribs converging at the mid-length of said roller, means for revolving the transport-roller, a guide-roller suitably supported behind, at the top of, and in contact with the transport-roller, and a receiving-net supported on the frame behind the said rollers, substantially as set forth.

3. A safety device for vehicles, the same consisting of a frame adapted to be supported on a vehicle, an elastic transport-roller journaled in the front end of said frame, said roller being provided with exterior flexible slanting ribs converging at the mid-length of the roller, end rollers at a short distance beyond the ends of and arranged on the shaft of the transport-roller, means for revolving said rollers, and a receiving-net behind the transport-roller, substantially as set forth.

681,026. **CORN-HARVESTER.** CHARLES A. KLITZKE, Reedsburg, Wis. Filed Mar. 21, 1901. Serial No. 52,210. (No model.)

Claim.—1. A corn-harvester mounted on wheels whereby it is adapted to traverse a field of corn, and comprising a stalk-receiving box having a slot in its bottom open at its forward end, a stripping-roll arranged in said box, a complementary appliance arranged adjacent to the stripping-roll and adapted in conjunction therewith to remove ears of corn from the stalks, means for feeding the stalks to the stripping-roll and its complementary appliance, a trough arranged in a plane above the stripping-roll and its complementary appliance, and at the opposite side of the machine, and open at its bottom and rear end, the inclined casing interposed between the stripping-roll and its complementary appliance and the trough, and having the lower portion of its bottom wall dished and arranged below the bottom wall of the stalk-receiving box, and also arranged in the same crosswise plane as the stripping-roll and its complementary appliance, an endless carrier arranged in said casing for conveying the ears of corn direct from the stripping-roll and complementary appliance to the trough, husking or shucking mechanism disposed below the bottomless trough, and means for moving the ears in said trough.



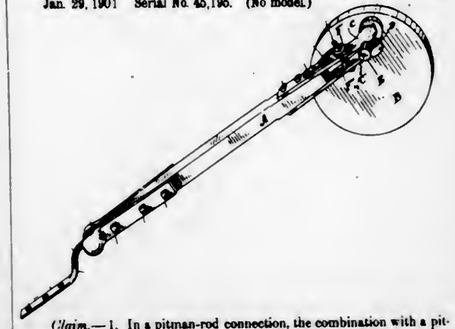
2. In a corn-harvester, the combination of the stalk-receiving box having a slot in its bottom, open at its forward end, and also having a flaring mouth communicating with said slot, a stripping-roll arranged in said box, a complementary appliance arranged adjacent to the stripping-roll and adapted in conjunction therewith to remove ears of corn from the stalks, a trough arranged in a plane above the stripping-roll and its complementary appliance, and at the opposite side of the machine, and open at its bottom and rear end, the inclined casing interposed between the stripping-roll and its complementary appliance and the trough, and having the lower portion of its bottom wall dished and arranged below the bottom wall of the stalk-receiving box, and also arranged in the same crosswise plane as the stripping-roll and its complementary appliance, an endless carrier arranged in said casing for conveying the ears of corn direct from the stripping-roll and complementary appliance to the trough, husking mechanism disposed below the bottomless trough, means for moving the ears in said trough, a horizontally-disposed toothed wheel mounted at one side of the slot in the bottom of the stalk-receiving box, a cylinder arranged above said toothed wheel, upright forks pivotally connected to the cylinder, and springs backing the forks and operating to normally hold them in an extended position with reference to the cylinder.

3. In a corn-harvester, the combination with the stalk-receiving box having a slot in its bottom, open at its forward end, and also having a flaring mouth communicating with said slot; of one or more stripping-rolls arranged in the box, one or more horizontally-disposed toothed wheels mounted at the side or sides of the slot, and a cylinder or cylinders arranged above the toothed wheel or wheels; upright forks pivotally connected to the cylinder or cylinders, and springs backing the forks and operating to normally hold them in an extended position with reference to the cylinder or cylinders; the said toothed wheels and forks of the cylinders being adapted, when rotated, to force or feed cornstalks rearwardly in the box.

4. In a corn-harvester, the combination with the stalk-receiving box having a slot in its bottom, open at its forward end, and also having a flaring mouth communicating with said slot; of stripping-rolls arranged in the box and disposed at opposite sides of the longitudinal center of the slot, horizontally-disposed toothed wheels arranged at opposite sides of the forward portion of the slot, upright cylinders disposed above the toothed wheels, upright forks pivotally connected to the cylinders, and springs backing said forks and operating to normally hold them in an extended position with reference to the cylinders.

5. In a corn-harvester, the combination with the stalk-receiving box having a slot in its bottom, open at its forward end, and also having a flaring mouth communicating with said slot; of stripping-rolls arranged in the box and disposed at opposite sides of the longitudinal center of the slot, horizontally-disposed toothed wheels arranged at opposite sides of the forward portion of the slot, upright cylinders disposed above said toothed wheels and carrying upright radially-extending forks, a horizontally-disposed wheel provided with radial arms and arranged in rear of one toothed wheel and the cylinder above the same, and also arranged adjacent to the upper edge of the outer side wall of the box, and suitable means for rotating the toothed wheels, the cylinders, and the wheel having arms.

681,027. **PITMAN-ROD.** LEWIS T. LAKE, Royerton, Ind. Filed Jan. 29, 1901. Serial No. 45,195. (No model.)



Claim.—1. In a pitman-rod connection, the combination with a pitman-rod and pitman-wheel, of spring-arms extending from one end of the rod each arm provided with an enlarged head the head being provided with transverse grooves and a centrally-arranged hollowed-out portion, a wrist-pin extending from the pitman-wheel adapted to pass between the enlarged portion of the arms and provided with a spherical enlargement adapted to fit in the hollowed portion of the arms the pin extending beyond the arms, a flange on the pin adapted to bear against the side of the enlargements on the arms and against the side of the pitman-wheel, and means for holding the arms together.

2. In a pitman-rod connection, the combination with a pitman-rod, of spring-arms extending from the sides of one end of the rod each arm provided with an enlarged end open at the top and a cut-out portion in the enlargement, a cutter-blade head adapted to be secured to the top of the cutter-blade, the rear end of the head being curved upwardly and then horizontally terminating in a ball which is adapted to fit within the cut-out portion of the arms the cutter-blade head and rod being arranged in parallel lines, and means for holding the arms together.

3. In a pitman-rod connection, the combination with a pitman-rod, of spring-arms extending from the sides of one end of the rod each arm provided with an enlarged end and a cut-out portion in the enlargement, the two cut-out portions leaving an opening in the top, each cut-out portion formed with a shoulder on its lower portion, a cutter-blade head adapted to be secured to the top of the cutter-blade, an upwardly-curved portion on the cutter-blade head terminating in a horizontal portion, a ball on the end of the horizontal portion adapted to fit within the cut-out portion, the upwardly-curved portion of the cutter-blade head adapted to bear against the shoulders on the arms when in its lowermost position, the cutter-blade head and pitman-rod being arranged in parallel lines and means for holding the arms together.

681,028. **LINK CUFF-BUTTON.** EMIL A. LEHMANN, Brooklyn, N. Y. Filed Jan. 30, 1901. Serial No. 45,278. (No model.)

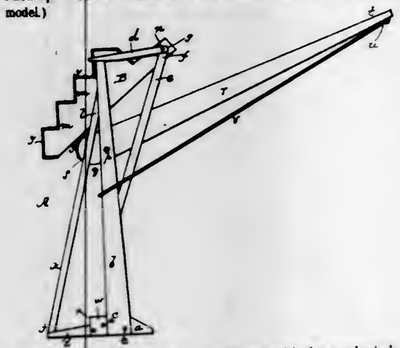


Claim.—1. A link-button for cuffs, consisting of two separable members, one member being composed of a head, and a tubular shank on said head, provided with a longitudinal slot having an enlargement, and the other member of a head, and a shank provided with a stud for engaging the tubular shank at said enlargement, said tubular shank having spring tension tending to normally close said slot to a width less than the diameter of said stud, substantially as set forth.

2. A link-button for cuffs, consisting of two separable members, one member being composed of a head, and a curved tubular shank on said head, provided at its convex side with a longitudinal slot having an enlargement and the other member of a head and a shank correspondingly curved and provided at its convex side with a stud for engaging

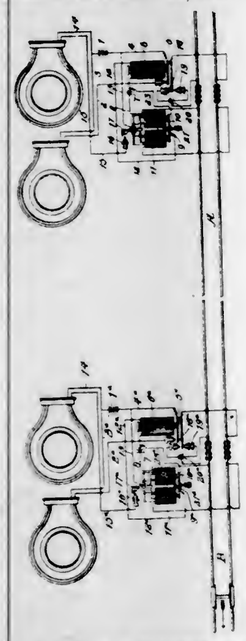
the tubular shank at said enlargement, said tubular shank having spring tension tending to normally close said slot to a width less than the diameter of said stud, substantially as set forth.

681,029. LIFTING-JACK. WILLIAM R. MOORE, Eden, N. Y. Filed Apr. 17, 1899. Renewed May 29, 1901. Serial No. 62,361. (No model.)



Claim.—In a lifting-jack, the combination with the standards *b*, *b*, provided with the base-block *a*, and plates *w*, *w*, secured to said base-block; of the bifurcated inclined bar *k*, the inclined bars *d*, *d*, and *e*, *e*, adjustable stepped bar B, located between the upper ends of the standards *b*, *b*, and pivotally secured to the bars *e*, *e*, and provided with the sheathing as at *y*, the hand-lever *r*, having its contacting end pivotally secured to, and between the standards *b*, *b*, and sheathing secured to its contacting end to contact with the under side of the adjustable bar B, and the wire loop *v*, having one end secured to the free end of the lever *r*, and its opposite end embracing the standards *b*, *b*, all arranged for joint operation, substantially as shown and described.

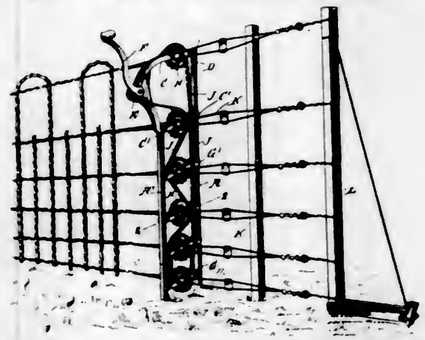
681,030. RAILWAY SIGNALING. FRANK MCBRIEN, Newark, N. J., assignor to the Union Switch & Signal Company, Swissvale, Pa. Filed Dec. 3, 1900. Serial No. 38,507. (No model.)



Claim.—1. In a railway signaling system, the combination of a series of insulated track-sections, home and distant signals for each section, relays having polarized and neutral armatures included in the track-circuits and controlling the signals, a relay controlling the home signals and controlled by the neutral relay in the track-circuit, and a circuit-changer at each section controlled by the home signal and controlling the track-circuit of the preceding section, substantially as set forth.

2. In a railway signaling system, the combination of a series of insulated track-sections, home and distant signals for each section, relays included in the track-circuits, the polarized relay controlling the distant signals, relays controlling the home signals, circuits without batteries and a normally-opened circuit including said relays, and normally-closed branches shunting the batteries of said circuits and controlled by the neutral relays included in the track-circuits, and circuit-changers controlling the circuits of preceding track-circuits and controlled by the home signals, substantially as set forth.

681,031. WIRE-FENCE MACHINE. JOHN M. BARBER, St. Charles, Ill. Filed May 17, 1901. Serial No. 60,714. (No model.)



Claim.—1. A wire-fence machine, comprising two uprights of unequal length, a connecting member extending from the top of one upright to the top of the other, and provided with an outward bend, a driving-wheel journaled in said member at the bend thereof, cross-arms connecting the two uprights at intervals, guide-wheels journaled in said cross-arms and in said connecting member, said guide-wheels being all located in vertical alinement and provided with apertures for the passage of wires, and a driving connection extending in contact with the driving-wheel and the guide-wheels.

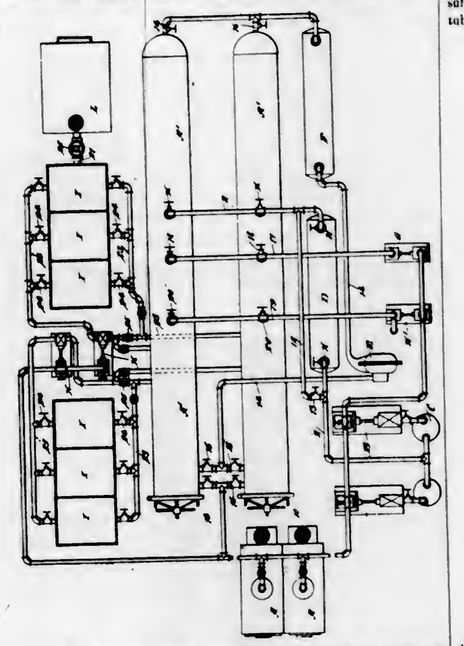
2. The combination of the uprights, the cross-arms each made of two sections arranged to clamp the uprights between them and provided with centrally-located bearings and with projections at one side of the bearings, the latter being spaced from each other, twisting-wheels having hubs journaled in said bearings while the bodies of the wheels extend between mating bearings, a driving-wheel journaled in the frame, and a chain engaging the driving-wheel and the twisting-wheels, the two runs of said chain passing on opposite sides of the projections on the sections of the connecting-arms.

681,032. METHOD OF PRESERVING WOOD. ANDRIEW BEVIER, New York, N. Y., assignor, by mesne assignments, to Everaley Childs, Sayville, N. Y. Filed Nov. 1, 1899. Serial No. 735,482. (No specimens.)

Claim.—1. The herein-described method for the treatment of wood, which consists in subjecting the wood to the action of a mixture of creosote-oil and resin, heating the wood thus treated, and subjecting it to hydraulic pressure, cooling the product thus obtained rendering the antiseptic material viscous and hardening the wood, further hardening the wood by forcing or producing therein while heated, a metallic resinate in sufficient quantities to provide an exterior coating, and finally permitting the product thus obtained to cool, producing thereon a hard elastic outer surface.

2. The herein-described method for the treatment of lumber to preserve it against decay, increase its hardness and sterilize it, thereby killing all living matter, which method consists in removing the moisture, introducing into the wood an antiseptic mixture of creosote-oil with resin in such proportion that the wood is hermetically sealed, and with another antiseptic of the nature of formaldehyde, and finally treating the product with a metallic resinate as described.

3. The herein-described method for the treatment of lumber to preserve it against decay, increase its hardness and sterilize it, thereby killing all living matter, which method consists in removing the moisture, introducing into the wood an antiseptic mixture of the nature of creosote-oil with resin in such proportion that the wood is hermetically sealed, supplying to the mixture such antiseptic qualities as formaldehyde may possess, in quantities that may be necessary, also treating the wood with resinate of lime in combination with a material imparting to it the property of being readily incorporated with the antiseptic mixture injected into the wood, whereby dense resinous timber is rendered as above stated.



4. The process of treating wood which consists in first subjecting it within a suitable vessel to a dry heat of about 212° Fahrenheit, then increasing the temperature and pressure whereby the native gums and resins are melted and the wood is rendered highly receptive of impregnating liquids, and then in the same heat and same vessel while the wood is in this highly-receptive condition and the gums and resins in a melted condition, impregnating the same under pressure with a preservative mixture containing creosote substantially as described.

5. The herein-described process for preserving wood, which consists in treating it with a mixture of creosote, resin and formaldehyde, and then applying a calcium compound thereto.

6. The herein-described process for preserving wood, which consists in treating it with a mixture of creosote, resin and formaldehyde, and then applying resinate of lime thereto.

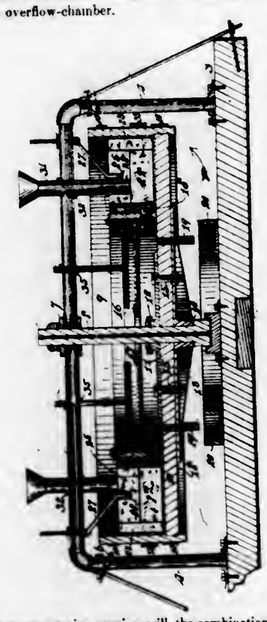
7. The herein-described method for the treatment of lumber to preserve it against decay, increase its hardness and sterilize it, thereby killing all living matter, which method consists in removing the moisture, introducing into the wood an antiseptic mixture of the nature of creosote-oil with resin in such proportions that the wood is hermetically sealed, supplying to the mixture such antiseptic qualities as formaldehyde may possess, in quantities that may be necessary, also treating the wood with resinate of lime.

8. The method of preserving lumber which consists in freeing it from moisture, then impregnating it with a preservative, and thereupon treating it with resinate of lime.

9. The method of preserving lumber, which consists in freeing it from moisture, then impregnating it with a preservative, and thereupon treating it with resinate of lime in combination with a material imparting to it the property of being readily incorporated with the said preservative.

681,033. ARRASTRE OR SCOURING-MILL. AMOS R. BLACK, near Lamar, Colo. Filed Apr. 5, 1900. Serial No. 11,719. (No model.)

Claim.—1. In an arrastre or scouring-mill, the combination with an outer rotary tub and an inner tub therein which is of less height than the outer tub, said tubs defining a scouring-chamber between them and said inner tub providing an overflow-chamber into which the pulp discharges from the scouring-chamber, of horizontal and vertical scouring-surfaces in the scouring-chamber and rotating with the tubs, stationary drags or mullers resting on and bearing against the scouring-surfaces, and stationary feed-pipes adapted to deliver the material directly onto the horizontal scouring-surface immediately in front of the drags or mullers, whereby the pulp is made to travel in cycles in the scouring-chamber and be continually resubjected to the scouring action until the particles are reduced sufficiently fine to be carried off by the pulp discharging over the inner tub into the overflow-chamber.



2. In an arrastre or scouring-mill, the combination with a rotary tub having a horizontal scouring-track and a vertical scouring-surface, both movable therewith, of stationary drags or mullers resting on the track and bearing on the vertical scouring-surface, said mullers being provided with overhanging or undercut ends, and stationary feed-pipes having their delivery-mouths located directly above the scouring-track and immediately adjacent the undercut or overhanging ends of the drags or mullers, whereby said pipes are adapted to discharge the material directly onto the scouring-track, below the surface of the pulp, in such position that it cannot escape from under the overhanging ends of the drags.

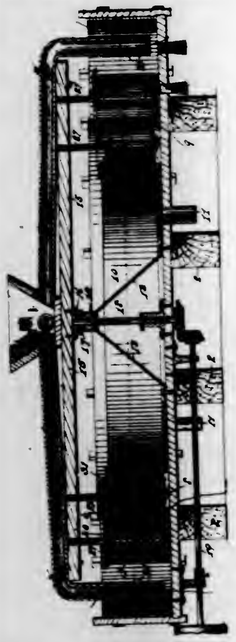
3. In an arrastre or scouring-mill, the combination with an outer rotary tub and an inner tub therein which is of less height than the outer tub, said tubs defining a scouring-chamber between them and said inner tub providing an overflow-chamber into which the pulp discharges from the scouring-chamber, of horizontal and vertical scouring-surfaces in the scouring-chamber and rotating with the tubs, stationary drags or mullers resting on and bearing against the scouring-surfaces, stationary feed-pipes adapted to deliver the material directly onto the horizontal scouring-surface immediately in front of the drags or mullers, whereby the pulp is made to travel in cycles in the scouring-chamber and be continually resubjected to the scouring action until the particles are reduced sufficiently fine to be carried off by the pulp discharging over the inner tub into the overflow-chamber, of an amalgamating-surface in the inner tub and secured to the sides thereof and located below the upper edge of the same, whereby said surface is adapted to receive the cataractically-discharging pulp issuing from said upper edge, and means for injecting jets of fluid into the pulp as it passes over the amalgamating-surfaces, whereby the fine float gold is brought into contact with said surface.

4. In an arrastre, or scouring-mill, the combination with a rotary tub having a horizontal scouring-track and a vertical scouring-surface, both movable therewith, of stationary drags or mullers resting on the track and bearing on the vertical scouring-surface, and stationary vertically-adjustable feed-pipes having their delivery-mouths located directly above the scouring-track and immediately adjacent the ends of the drags or mullers, whereby said pipes are adapted to discharge the material directly onto the scouring-track, below the surface of the pulp, in such position that it cannot escape from passing under the drags.

5. In an arrastre or scouring-mill, the combination with a rotary tub having an inner overflow-chamber and an outer scouring-chamber,

of a mercury surface in said overflow-chamber, and means for forcing jets into the sheet of pulp as its passes over the mercury surface after discharging from the scouring-chamber into the overflow-chamber, whereby fine particles of gold in suspension in the pulp are forced into contact with the mercury surface.

681,034. AMALGAMATOR. AMOS R. BLACK, near Lamar, Colo. Filed Apr. 5, 1900. Serial No. 11,720. (No model.)



Claim.—1. In a wet-process amalgamator, the combination with a tub, of amalgamated plates therein, and perforated feed-pipes located between the plates and adapted to move between them which are adapted to feed material to be amalgamated to the plates in hydraulic jets under the surface of the pulp in which said pipes move.

2. In a wet-process amalgamator, the combination with a stationary tub, and vertical concentric stationary amalgamator-plates therein, of feed-pipes adapted to rotate between said plates, said pipes having perforations, whereby the material to be amalgamated is fed to the plates in hydraulic jets under the surface of the pulp in which the said pipes move.

3. In a wet-process amalgamator, the combination with a tub, of separated vertical stationary amalgamated plates in said tub, and a perforated feed-pipe movable between the amalgamated plates in the tub, whereby the material to be amalgamated is fed to the plates in hydraulic jets under the surface of the pulp in which the feed-pipe moves.

4. In a wet-process amalgamator, the combination with a tub and separated stationary amalgamated plates therein, of amalgamated plates located between the stationary plates and adapted to rotate between and in relation to them, a perforated feed-pipe movable between the stationary plates in the pulp in the tub, whereby the material to be amalgamated is fed to the plates under the surface of the pulp in which the feed-pipe moves.

5. In a wet-process amalgamator, the combination with a stationary tub and circular vertical stationary concentric amalgamated plates therein, of perforated pipes rotating between the plates, adapted to feed the pulp in hydraulic jets under the pulp-surface in the pulp-chamber.

6. In a wet-process amalgamator, the combination with a pulp-chamber, having a central discharge, and amalgamated plates in the pulp-chamber, which are arranged and adapted for over and under flow of the pulp to produce a current thereover, of means for feeding the pulp to the plates, and means for introducing fluid-jets in the pulp between the plates and toward them.

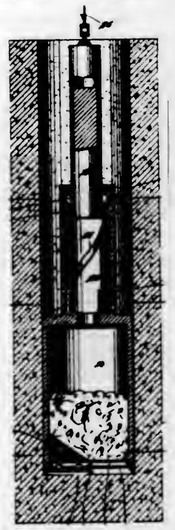
7. In a wet-process amalgamator, the combination with a pulp-chamber and amalgamated plates therein, of means for feeding pulp to the plates, means for producing distinct and independent or different currents in the pulp along or against the amalgamated plates, and means for directing fluid-jets in the pulp toward the said plates whereby fine gold is made to contact with the amalgamated plates.

8. In a wet-process amalgamator, the combination with a pulp-chamber and amalgamated plates therein, of a feeder adapted to deliver the pulp below the liquid-surface in the space between the plates and in jets directed toward said plates, said plates and feeder being relatively movable whereby an independent and distinct current is produced in the pulp against said plates.

9. In a wet-process amalgamator, the combination with a pulp-chamber and amalgamated plates therein, of a conduit intermediate the plates adapted to project currents against the plates, below the surface of the pulp, said plates and conduit being relatively movable, and said conduit also creating by its movement distinct and independent currents in the pulp.

10. In a wet-process amalgamator, the combination of a pulp-chamber and amalgamated plates therein, and fluid-conduits intermediate the plates adapted to project fluid-currents against the plates, below the surface of the pulp, said plates and conduits being relatively movable.

681,035. DRILL. THEDE P. BLAKE, Lamar, Nebr. Filed July 20, 1900. Renewed July 2, 1901. Serial No. 66,899. (No model.)

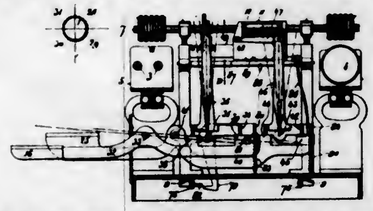


Claim.—1. A drill, comprising a hollow body forming a bucket, a bit or bits at the lower end thereof, a sleeve carried rigidly on top of the body and formed with an internal thread at the base of which is a lug spaced therefrom, the sleeve also having an interior switch-rib, and a plunger working vertically in the sleeve and provided with a lug adapted to ride on the thread within the sleeve and to engage the rib or lug at the base thereof, the switch-rib serving to turn the plunger on its upward movement to recover its engagement with the thread.

2. A drill having a hollow body forming a bucket, a sleeve rigidly carried on top thereof, the sleeve having a spiral thread therein, and also having a rib at the lower end of the thread, the rib being spaced from the thread and the sleeve still further having a switch-rib in its interior, and a plunger provided with a lug adapted to bear on the thread in the sleeve as the plunger moves downward, said lug engaging the rib at the base of the thread to impart a turning movement to the body, the switch-rib serving to turn the plunger as it moves upward to reengage the lug with the thread, and a bit or bits at the lower end of the body, for the purpose specified.

681,036. TYPE-WRITING MACHINE. HUBERT BUBA, Mollkirch, Germany. Filed Jan. 18, 1901. Serial No. 43,788. (No model.)

Claim.—1. A type-writing machine, comprising type-barrels fixedly attached to a spindle capable of sliding freely in its bearings, a screw-threaded sleeve sliding on the said spindle and guided by a groove in the latter, a collar fixedly attached to the spindle, a carriage sliding parallelly to the said spindle and carrying along with it the screw-threaded sleeve, a carriage sliding parallelly to the spindle and carrying along with it a finger engaged in the screw-thread of the sleeve, and mechanisms operated by keys to displace respectively the said collar and the two carriages.

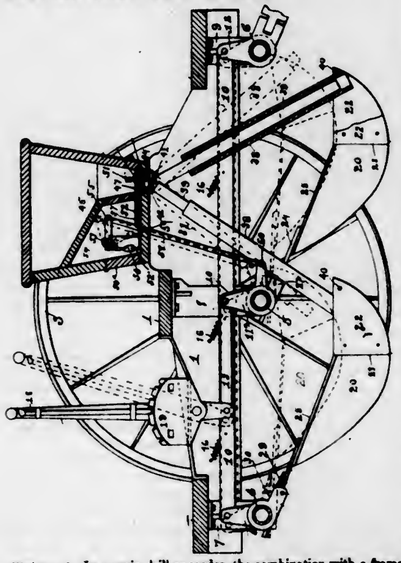


2. In a type-writing machine barrels provided with type arranged in sets or fields, a device for shifting the type-field of the barrels, comprising a sliding carriage 48, forming a cage in which is engaged a sleeve 11 provided with a screw-thread engaged on a finger carried by another carriage, the said sleeve being free to slide on the spindle 7, which carries the barrels, and carrying the said spindle around with it when it revolves.

3. In a type-writing machine movable type-barrels, a carriage, a screw-threaded sleeve held to move with the carriage, mechanisms for displacing or shifting longitudinally the barrels and the carriage of the screw-threaded sleeve, comprising projections of different heights formed on the key-levers, and an oscillating frame against which the said projections can abut, whereby each lever holds the frame in a fixed position when it is operated and leaves the said frame free when it is abandoned by the operator, as hereinbefore described.

4. In a type-writing machine, a barrel mounted to revolve and to move up and down, key-levers, a device allowing the use of a part of the stroke of the corresponding key-levers to cause the barrels to turn without moving down, and the use of another part of the stroke of the said levers to move the barrels down without the latter being able to turn, the said device comprising a crank connected to each key-lever, a pitman or link pivoted or jointed to the crank-pin and of the same length as the said crank, and an abutment stopping the pitman or link when its axis is parallel to that of the crank, whereby the mechanism coöperating with the pitman or link remains motionless after the latter has come against the abutment, while the type-barrels can then be moved down by means of a rod provided with a slideway, as hereinbefore described.

681,037. GRAIN-DRILL. THOMAS CARNEY, Dayton, Ohio. Filed Oct. 24, 1900. Serial No. 34,141. (No model.)



Claim.—1. In a grain-drill or seeder, the combination with a frame, of two gangs of drill-shoes mounted therein, one of said gangs being in the rear of the other and adapted to cut furrows within the space between the furrows cut by the forward gang, the point of attachment of the shoes of the rearward gang being approximately in a vertical line with the rearward ends of the shoes of the forward gang so that no portion of the shoes of the rearward gang will be in line with the shoes of the forward gang, a common operative means for simultaneously raising or lowering the said gangs, and connecting mechanism between the gangs by means of which the said simultaneous movements are effected.

2. In a grain-drill or seeder, the combination with a frame, gangs of drill-shoes mounted therein, the rearward gangs of said drill-shoes being arranged to cut furrows within the space between the furrows cut by the forward gang, the point of attachment of the shoes of the rearward gang being approximately in a vertical line with the rearward ends of the shoes of the forward gang so that no portion of the shoes of the rearward gang will be in line with the shoes of the forward gang, a common pivotal connection between said gangs, an operating-lever, and a connection between said operating-lever and said gangs whereby the gangs may be operated simultaneously from said operating-lever, to raise or lower them.

3. In a grain-drill or seeder, the combination with a frame, of gangs of drill-shoes mounted in said frame, the rearward gang being arranged to cut furrows between the furrows cut by the forward gang, a gang of furrow-covers consisting of blades arranged in the rear of the rearward gang of drill-shoes and adapted to cover the furrows cut by both gangs of drill-shoes, an operating-lever common to said gangs, and connections between said operating-lever and said gangs whereby the said gangs may be elevated or lowered simultaneously.

4. In a grain-drill or seeder, the combination with a frame, of gangs of drill-shoes, the rearward gang being arranged to cut furrows or drills between the furrows or drills cut by the forward gang, a gang of covering-blades arranged in the rear of the rearward gang of drill-shoes, the said covering-blades being adapted to cover the furrows made by both gangs of shoes from each side and to leave a depression on each side of each furrow, a common connection between said gangs, an operating-lever, and connecting mechanism between said operating-lever and said gangs whereby the gangs may be simultaneously elevated or lowered.

5. In a grain-drill or seeder, the combination with gangs of drill-shoes, the shoes of the rearward gang being arranged to cut furrows or drills between the furrows or drills cut by the forward gang, a reciprocating bar to which said gangs are connected, an operating-lever common to said gangs, a connection between said operating-lever and said gangs, and a series of telescopic feed-tubes connected to said drill-shoes.

6. In a grain-drill or seeder, the combination with a frame, of gangs of drill-shoes mounted therein, the rearward gang being arranged to cut furrows between the furrows cut by the forward gang, a gang of covering-blades arranged in the rear of the rearward gang of drill-shoes and adapted to cover the furrows made by both gangs of drill-shoes, a reciprocating bar connecting said gangs, an operating-lever common to all of said gangs, a connecting-bar through which movement is transmitted to said gangs simultaneously, and a series of telescopic feed-tubes adapted to deliver seed to the furrows.

7. In a grain-drill, the combination of drill-shoes, a series of telescopic feed-tubes connected to said drill-shoes, a seed-receptacle with openings therein below which said telescopic tubes are connected, a stationary bar arranged above the openings within the seed-receptacle and having two seed-openings therein for each opening in the seed-receptacle, a vibrating plate or bar movable between the openings in the seed-receptacle and the said stationary bar, the said vibrating feed-bar having openings therein which receive the seed or grain from the openings in the stationary bar, and from which the seed or grain is forced laterally into the openings in the bottom of the seed-receptacle during both movements of said vibrating bar.

8. In a grain-drill or seeder, the combination of drill-shoes arranged in gangs, a series of telescopic feed-tubes connected to said shoes, a seed box or hopper having openings in the bottom thereof below which the said telescopic feed-tubes are connected, a stationary feed-plate having openings therein and arranged above the openings in the seedbox, a vibrating feed-bar arranged to move back and forth between the openings in the seedbox and the openings in the stationary feed-plate, the said vibrating feed-bar having openings therein which receive the grain through the openings in the stationary feed-plate and from which the grain is forced laterally into the openings in the grain-box during both movements of said vibrating feed-bar, a series of sliding plates or cut-offs movable between the openings in the said stationary feed-plate and the openings in the vibrating bar, and means for simultaneously sliding said plates or cut-offs to control the feed of grain.

9. In a grain-drill or seeder, the combination with drill-shoes, of a series of telescopic feed-tubes connected to said drill-shoes, a seed box or hopper having openings in the bottom thereof below which the telescopic feed-tubes are connected, a stationary plate having a series of openings therein which occupy positions above the openings in the seedbox, a vibrating feed-bar movable longitudinally between the openings in the bottom of the seedbox and the openings in the stationary feed-plate, the

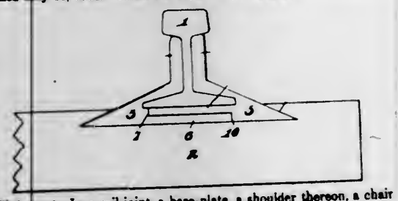
said vibrating feed-bar having openings therein which register with the openings in the bottom of the seedbox and with the openings in the stationary feed-plate, the openings in said vibrating feed-bar being adapted to receive the grain through the openings in the stationary feed-plate and to force said grain laterally into the openings in the bottom of the seedbox during both movements of said feed-bar, and means for varying the movements of said vibrating feed-bar whereby the discharge of grain into the openings in the bottom of the seedbox may be regulated.

10. In a grain-drill or seeder, the combination with drill-shoes, of a series of telescopic feed-tubes connected to said drill-shoes, a seed box or hopper having grain-openings in the bottom thereof below which the telescopic feed-tubes are connected, a stationary feed-plate having two openings therein arranged above each opening in the bottom of the seedbox, a vibrating feed-bar with openings therein to receive the grain and force it into the openings in the bottom of the seedbox, means for regulating the movements of said vibrating feed-bar, a series of slides or cut-offs movable between the stationary feed-plate and the vibrating feed-bar to cut off the discharge of grain, and means for shifting said slides or cut-offs to close or open the feed-openings.

11. In a grain-drill or seeder, the combination with a seed box or hopper, having a series of grain-openings therein, of a series of telescopic feed-tubes arranged below the openings in said seedbox, a stationary feed-plate with openings therein arranged above the openings in the seedbox, a vibrating feed-plate movable between the openings in said feed-plate and the openings in the seedbox, a series of slides or cut-offs adapted to cut off the feed of grain through said openings, an oscillating bar, connecting-arms between said oscillating bar and said slides or cut-offs, and means for operating said oscillating bar to simultaneously move the slides or cut-offs to open or close the grain-openings.

12. In a grain-drill or seeder, the combination of gangs of drill-shoes, a connection between said gangs, a series of telescopic feed-tubes connected to the drill-shoes, a seed box or hopper with openings therein below which the said telescopic feed-tubes are connected, a series of slides or cut-offs arranged above the openings in said feed-box, an oscillating bar to which said slides or cut-offs are connected, a connection between said oscillating bar and the gangs of drill-shoes, and means for actuating the gangs of drill-shoes and the said oscillating bar to simultaneously elevate the drill-shoes and to cut off the feed of grain to the telescopic tubes, or to lower the drill-shoes and permit the feed of grain to said telescopic feed-tubes.

681,038. **RAIL-JOINT.** WILLIAM L. CASAMAR, Beaverfalls, Pa. Filed May 16, 1901. Serial No. 60,497. (No model.)



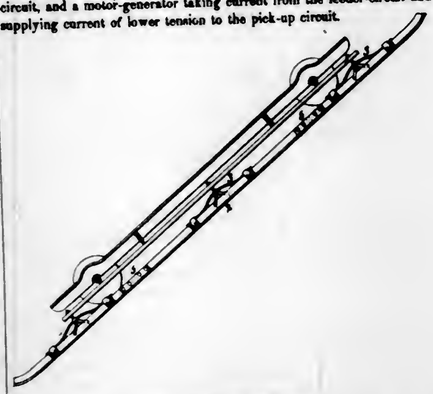
Claim.—1. In a rail-joint, a base-plate, a shoulder thereon, a chair carried by said base-plate, a fish-plate carried by said chair, in combination with a fish-plate, a chair carried thereby, an inwardly-extending plate carried by said chair, a shoulder beneath said plate, the said plates adapted to be arranged one above the other and engage the said shoulders, substantially as described.

2. In a rail-joint, a base-plate, a shoulder thereon, a wedge-shaped chair carried by said base-plate, a fish-plate carried by said chair, the said base-plate adapted to lie in engagement with the tie, in combination with a fish-plate, a wedge-shaped chair carried thereby, an inwardly-extending plate carried by said chair, a shoulder beneath said plate adapted to abut against the said first-named base-plate, the second named base-plate adapted to abut against the first-named shoulder, the said second-named base-plate adapted to engage the rail-base, and a tie having a wedge-shaped recess therein to receive said chair-sections, substantially as described.

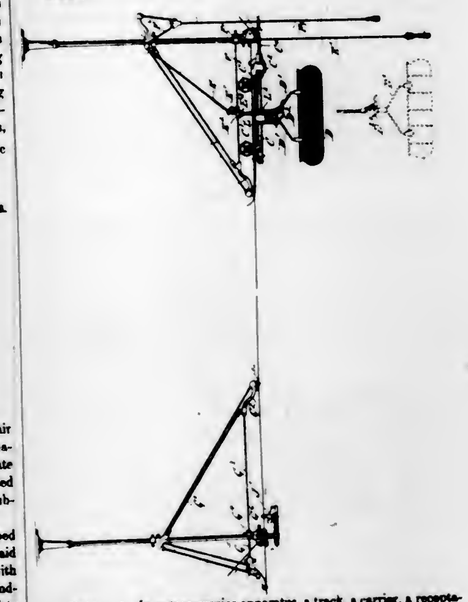
681,039. **ELECTRIC RAILWAY.** WILLIAM CHAPMAN, Washington, D. C., assignor to the Electro-Magnetic Traction Company, of West Virginia. Filed May 29, 1896. Serial No. 593,607. (No model.)

Claim.—1. In an electromagnetic-railway system having pick-up and feeder circuits, the combination with traveling and stationary contacts and automatic switches for completing the feeder-circuit through said contacts, of a motor-generator taking current from the feeder-circuit and supplying current of lower tension directly to the pick-up circuit.

2. A system of distribution for electric railways comprising pick-up and feeder circuits, traveling and stationary contacts and automatic switches for the pick-up and feeder circuits, a battery for primarily supplying current to the pick-up circuit, means for cutting the same into and out of circuit, and a motor-generator taking current from the feeder-circuit and supplying current of lower tension to the pick-up circuit.



681,040. **STORE-SERVICE APPARATUS.** JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Dec. 20, 1899. Serial No. 740,964. (No model.)



Claim.—1. In a store-service apparatus, a track, a carrier, a receptacle detachably connected to said carrier, mechanism located permanently at the end of the track for lowering and raising said receptacle and means for retaining the carrier at the station when the receptacle is detached therefrom, and adapted to be removed from engagement with the carrier upon the attachment of the receptacle to the carrier.

2. In a store-service apparatus, a track, a carrier, a receptacle detachably connected to said carrier, means for retaining the carrier at the station when the receptacle is detached therefrom, mechanism located permanently at the end of the track for lowering and raising said receptacle and means for releasing the retaining device by the attachment of the receptacle to the carrier.

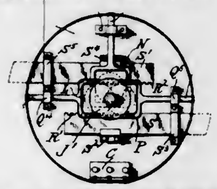
3. In a store-service apparatus, a track, a carrier, a receptacle detachably connected to said carrier, and a retaining-bar adapted to be lowered between the wheels of the carrier for retaining the carrier at the station upon the detachment of the receptacle from the carrier.

4. In a store-service apparatus, a track, a carrier, a receptacle detachably connected to said carrier, a retaining-bar adapted to be lowered between the wheels of the carrier for retaining the carrier at the station upon the detachment of the receptacle from the carrier and adapted to be raised from between the wheels of the carrier upon the attachment of the receptacle to the carrier to allow the travel of the carrier from the station.

5. In a store-service apparatus, a track, a carrier adapted to travel on said track, a fixed catch at the end of the track, a pivoted catch on the carrier for engaging with the fixed catch, and means on the carrier for holding the pivoted catch in engagement with the fixed catch, and means for despatching the carrier and adapted to act on said holding means to release the pivoted catch to allow the despatch of the carrier.

6. In a store-service apparatus, a track, a carrier adapted to travel on said track, a fixed catch at the end of the track, a pivoted catch on the carrier for engaging with the fixed catch, a spring-operated catch on the carrier for holding the pivoted catch in engagement with the fixed catch, and a propelling cord for releasing the pivoted catch to allow the despatch of the carrier.

681,041. **PNEUMATIC-DESPATCH-TUBE CARRIER.** JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Oct. 3, 1900. Serial No. 32,328. (No model.)



Claim.—1. In a device of the character described, a carrier, a cover for said carrier, one or more bolts for locking said cover to the shell of said carrier, an arm on the exterior of the cover and movable within the circumference of the carrier-shell for operating said bolts to unlock and lock the cover, and means operated and moved by said arm beyond the circumference of the carrier-shell for preventing the introduction of the carrier into the tube when the cover is open.

2. In a device of the character described, a carrier, a cover for said carrier, one or more bolts for locking said cover to the shell of the carrier, an arm for operating said bolts and mounted concentrically on said cover, to lock and unlock said cover, and means operated by said arm for preventing the introduction of the carrier into the tube when the cover is open.

3. In a device of the character described, a carrier, a cover for said carrier, one or more bolts for locking said cover to the shell of the carrier, a concentric shaft carrying one or more eccentrics to operate said bolts, and an arm on the exterior of the cover and movable within the circumference of the carrier-shell and secured to said shaft and having its axis concentric with the cover.

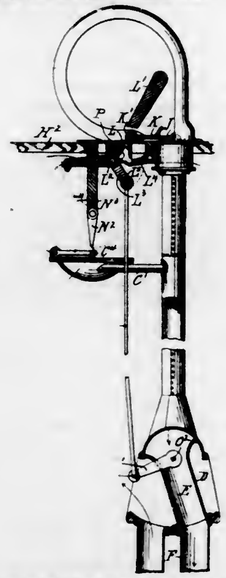
4. In a device of the character described, a carrier, a cover for said carrier, one or more bolts for locking said cover to the shell of the carrier, a concentric shaft carrying one or more eccentrics to operate said bolts, an arm secured to said shaft and having its axis concentric with the cover, and one or more slides operated by said arm for preventing the introduction of the carrier into the tube when the cover is open.

5. In a device of the character described, a carrier, a cover for said carrier, mechanism for locking said cover to the shell of the carrier, an arm on the exterior of the cover and movable within the circumference of the carrier for operating said locking mechanism to lock and unlock the cover, and means operated and moved by said arm beyond the circumference of the carrier for preventing introduction of the carrier into the tube when the cover is open.

681,042. **PNEUMATIC-DESPATCH-TUBE APPARATUS.** FREDERICK C. CUTTING, Rochester, N. Y., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Filed Dec. 3, 1900. Serial No. 38,595. (No model.)

Claim.—1. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve for closing the open end of the transmission-tube, a compressed-air tube, mechanism for establishing communication between the compressed-air tube and the transmission-tube, a device for locking said valve during the transmission of the carrier, mechanism actuated by pressure in the transmission-tube for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube.

2. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve for closing the open end of the transmission-tube, a compressed-air tube, mechanism for establishing communication between the compressed-air tube and the transmission-tube, a device for locking said valve during the transmission of the carrier, mechanism actuated by pressure in the transmission-tube for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube and adapted to be released upon the discharge of the carrier, and automatic means for breaking the communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube.



3. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve normally closing the open end of said transmission-tube, a compressed-air tube, a switching-tube for establishing communication between the transmission-tube and the compressed-air tube or the suction-tube, mechanism for operating said switching-tube, a device for locking said valve during the transmission of the carrier by compressed air, and mechanism actuated by pressure in the transmission-tube for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube.

4. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve normally closing the open end of said transmission-tube, a compressed-air tube, a switching-tube for establishing communication between the transmission-tube and the compressed-air tube or the suction-tube, mechanism for operating said switching-tube, a device for locking said valve during the transmission of the carrier by compressed air, mechanism actuated by pressure in the transmission-tube for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube, and automatic means for breaking communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube.

5. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve normally closing the open end of said transmission-tube, a compressed-air tube, a switching-tube for establishing communication between the transmission-tube and the compressed-air tube or the suction-tube, mechanism for operating said switching-tube, a device for locking said valve during the transmission of the carrier by compressed air, mechanism actuated by pressure in the transmission-tube for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube, and means for breaking communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube.

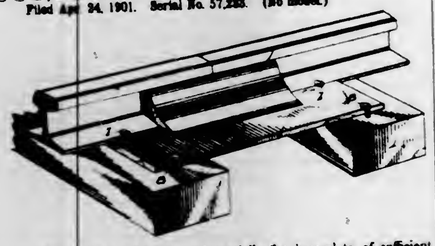
6. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve for closing the open end of the transmission-tube, a compressed-air tube, a device for locking said valve during the transmission of the carrier by compressed air, mechanism for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube while the carrier is in transit, and means for breaking communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube.

7. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve for closing the open end of the transmission-tube, a compressed-air tube, a device for locking said valve during the transmission of the carrier by compressed air, mechanism for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube while the carrier is in transit, and automatic means for breaking communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube.

8. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve for closing the open end of the transmission-tube, a compressed-air tube, a device for locking said valve during the transmission of the carrier by compressed air, mechanism for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube while the carrier is in transit, and means for breaking communication between the suction-tube and the transmission-tube and for establishing communication between the compressed-air tube and the transmission-tube.

9. In a pneumatic-despatch-tube apparatus, a transmission-tube, a suction-tube normally in communication with said transmission-tube, a valve for closing the open end of the transmission-tube, a compressed-air tube, a device for locking said valve during the transmission of the carrier by compressed air, mechanism for holding in position the mechanism which establishes communication between the compressed-air tube and the transmission-tube while the carrier is in transit, automatic means for breaking communication between the compressed-air tube and the transmission-tube and for establishing communication between the suction-tube and the transmission-tube, and manually-operated means for breaking communication between the suction-tube and the transmission-tube and for establishing communication between the compressed-air tube and the transmission-tube.

681,043. RAIL-JOINT. LAWRENCE C. CYPHERS, Pittsburg, Pa. Filed Apr. 24, 1901. Serial No. 57,283. (No model.)



Claim.—In a rail-joint, a substantially flat base-plate, of sufficient length to extend over two cross-ties, fish-plates made integral with said base-plate, the base-plate and fish-plates being recessed to receive the base and web of the rails, the said base-plate having apertures formed therein to receive spikes which are adapted to engage the base of the rail, spikes secured to the ends of the base-plate, the said fish-plates being adapted to engage the under face of the tread of the rail, substantially as described.

681,044. FRYING-PAN. FERNAND R. DEULIN, Jeannette, Pa. Filed May 31, 1901. Serial No. 62,657. (No model.)



Claim.—1. In a device of the character described, the combination of a pan, an exterior outwardly-extending flange secured thereto, a segmental portion carried by the upper edge of said pan, a rim adapted to be seated against said segmental portion and having a groove therein to receive said flange, a U-shaped handle secured to said rim, and an adjusting-screw secured to the forward ends of said handle, substantially as described.

2. In a device of the character described, the combination of a pan, a flange secured to the periphery near the upper edge of said pan, a segmental portion made integral with the upper edge of said pan, a rim adapted to be seated against said segmental portion and having a groove therein to receive said flange, a U-shaped handle connected to said rim, and means connected near the ends of said handle for adjusting the rim and handle, substantially as described.

681,045. AIR-BRAKE. GEORGE W. EDGINGTON, Coalville, Utah. Filed Nov. 21, 1900. Serial No. 37,196. (No model.)

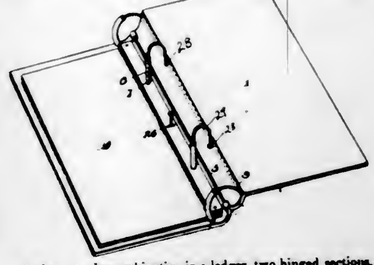


Claim.—1. An air-brake having a train-pipe secured to a car-body, an air-discharge valve on the train-pipe and normally closed, a cam-lever pivoted at one end and adapted to engage the valve to open it when moved from its normal position, and a fixed arm with which the cam lever is loosely connected, substantially as described.

2. An air-brake having a train-pipe secured to a car-body, an air-discharge valve on said train-pipe and normally closed, and a device controlled by the car-truck, to open said valve and allow escape of air from the train-pipe to set the brake, said device comprising a cam-lever fulcrumed at one end on said valve-body and adapted to lift the valve off its seat, and an arm fixed to the car-truck and having an elongated opening through which extends the arm of said cam-lever, as set forth.

3. In an air-brake, the combination with a train-pipe, a valve-casing thereon, and a spring-pressed valve in said casing, of a cam-lever pivoted at one end to the valve-casing and adapted when swung out of its normal position to engage the valve to raise it from its seat, and an arm having one end secured to a fixed support and provided in its other end with an elongated opening through which the lever arm of the cam-lever loosely passes, substantially as described.

681,046. LEDGER OR ACCOUNT-BOOK. HARRY ELIKOFF, Pittsburg, Pa. Filed Aug. 16, 1900. Serial No. 24,986. (No model.)



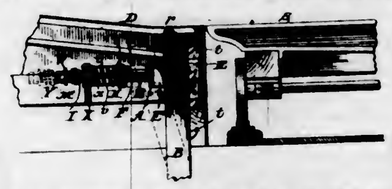
Claim.—1. In combination in a ledger, two hinged sections, upright standards secured in one of said sections, locking-plates adapted to engage said standards, and hooks attached to the other hinged section and adapted to engage said standards, substantially as set forth.

2. In a ledger of the character described, the combination of two hinged sections, two standards secured to one of said sections, spring-pressed locking-bars adapted to normally engage said standards, and swiveled hooks arranged in the other hinged section and adapted to engage in the upper portions of said standards, substantially as set forth.

3. In a ledger of the character described, the combination of two hinged sections, hollow notched standards arranged in one of said sections, perforated plates forming a casing carrying locking bars adapted to engage said standards, swiveled hooks arranged upon the other hinged section, and suitable guides secured at each end of said hinged sections, all parts being arranged and operating substantially as shown and herein specified.

681,047. SAWMILL LOG-TURNER. WILLIAM N. ELLIOTT, Memphis, Tenn. Filed Mar. 6, 1901. Serial No. 50,013. (No model.)

Claim.—1. A log-turning device comprising a vertically and horizontally moving "nigger-bar," a cross-head closely embracing the same, stationary guides for controlling the movement of the cross-head, a rod connected to the cross-head, a fixed plate loosely supporting the other end of the rod, two coil-springs embracing the rod on opposite sides of the fixed plate, and two bearings for the opposite ends of the springs as described.



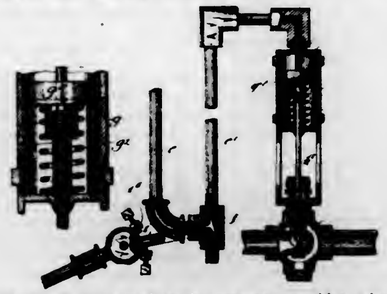
2. In a log-turning device as described, a sliding closely-fitting cross-head for the "nigger-bar" having a rod with two coil-springs on it, a fixed plate between said springs, two end bearings for the opposite ends of the springs, and several rods *v* extending through the forward plate to the fixed plate to hold the plate and guide it on the rod substantially as shown and described.

3. The combination of the "nigger-bar" and its retaining cross-head, closely fitting the same, the attached rod with double-acting springs, said rod being screw-threaded and provided with adjusting-nuts for adjusting the "nigger-bar" to the saw substantially as described.

4. The combination with the "nigger-bar" having projecting teeth *t*; of a retaining cross-head having slot *u* and bearing-shoulders E E' curved to permit the change in the inclination of the "nigger-bar" in the cross-head and still cause it to be closely held, and double-acting springs for rendering the cross-head cushioned in both directions substantially as described.

5. The combination with the "nigger-bar;" of a sliding cross-head embracing the "nigger-bar" and having a rod extended from said cross-head, a fixed plate through which the rod freely slides, a stationary coil-spring with retaining-plate and rods connecting the same to the fixed plate, and a second coil-spring arranged on the opposite side of the fixed plate and sliding with the rod substantially as described.

681,048. AUTOMATIC STARTING APPARATUS. GEORGE V. ELLIS, New York, N. Y., assignor to Teresa F. Kenney, same place. Filed Jan. 30, 1901. Serial No. 45,336. (No model.)



Claim.—1. An automatic starting apparatus, comprising a pipe, a valve commanding the same, a cylinder, a piston working therein and having connection with the valve to actuate it, a device tending to move the valve into open position, and means for applying a fluid-pressure to the piston so as to move the valve against the tendency of said device, for the purpose specified.

2. An automatic starting apparatus, having a cylinder, a piston therein, a piston-rod connected with the piston and adapted to transmit the movement thereof to a valve, a device tending to push the piston in one direction, and means for applying fluid-pressure to the piston to hold it against the tendency of the said device.

3. An automatic starting apparatus, having a cylinder, a piston working therein, a piston-rod connected with the cylinder and adapted to transmit the movement thereof, a device tending to move the piston in one direction, means serving to apply fluid-pressure to the piston to move it against the tendency of the said device, and a three-way cock for commanding the said means and comprising a drain-orifice to open the cylinder to the atmosphere upon the cutting off of the fluid-supply.

4. An apparatus, comprising a pipe, a valve commanding the same, a cylinder, a piston working therein, a rod establishing communication between the valve and piston, a device tending to actuate the piston to hold the valve open, a pipe for conveying fluid under pressure to the cylinder to move the piston against the tendency of the said device and seat the valve, and a three-way cock commanding said pipe and having a drain-orifice for opening the cylinder to the atmosphere upon the closing of the pipe to the fluid-supply.

5. The combination of two pivotally-connected members adapted to transmit the movement of a float, and means for limiting the independent movement of one member on the other, for the purpose specified.

6. The combination of two members, one of which is provided with a disk at one end and the other section with a casing loosely inclosing the disk, a pivot joining the disk and casing, and means carried by the casing and adapted to limit the movement of the casing on the disk.

7. The combination of two members, one of which is provided with a disk and the other with a casing arranged loosely thereon, a pivot connecting the disk and casing, lips projecting out from the casing at opposite sides of the first-named member for limiting the movement of the casing on the disk.

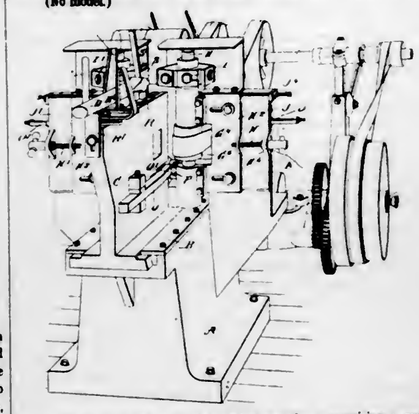
8. The combination with a cylinder, and a piston and its rod, of a sleeve fastened to one end of the cylinder and projected into the the cylinder around the rod, and a part moving in time with the piston and engaging the end of the sleeve to seal the same when the piston is at the end of its stroke.

9. In an automatic starting apparatus, a valve, a cylinder, a piston in the cylinder and operatively connected with the valve, means for controlling the admission of a fluid to the cylinder to cause the piston to hold the valve closed, and means for moving the piston in an opposite direction to that which it is moved by the fluid-pressure when the cylinder is relieved of fluid-pressure, as and for the purpose set forth.

10. In an automatic starting apparatus, a valve, a cylinder connected with a fluid-supply, a spring-pressed piston in the cylinder and operatively connected with the valve, and means for relieving the cylinder of fluid-pressure, as set forth.

11. In an automatic starting apparatus, a valve, a cylinder, a spring-pressed piston in the cylinder and having its stem connected with the valve, a supply-pipe for supplying a fluid to the cylinder, said pipe having a drain-outlet, and a three-way valve in said pipe, substantially as described.

681,049. AUTOMATIC SPOKE FACING AND TAPERING MACHINE. GEORGE A. ENSIGN, Defiance, Ohio, assignor to The Defiance Machine Works, same place. Filed Mar. 16, 1901. Serial No. 51,436. (No model.)



Claim.—1. A facing and tapering machine, comprising a reciprocating carriage for supporting the article to be treated, cutter-heads for engaging the article on opposite sides, springs for moving said saddles toward each other, and means for moving said saddles outwardly at the time the carriage is at the end of its forward or working stroke, said means comprising rock-shafts, one for each saddle, each rock-shaft having two crank-arms, one for engaging the saddles, and revoluble cams engaging the other crank-arm, as set forth.

2. A facing and tapering machine, comprising a reciprocating carriage for supporting the article to be treated, cutter-heads for engaging the article on opposite sides, springs for moving said saddles toward each other, and means for moving said saddles outwardly at the time the carriage is at the end of its forward or working stroke, said means comprising rock-shafts, one for each saddle, each rock-shaft having two crank-arms, one for engaging the saddles and revoluble cams engaging the other crank-arm, and a driven shaft carrying said cams and having an operative connection with said carriage, as set forth.

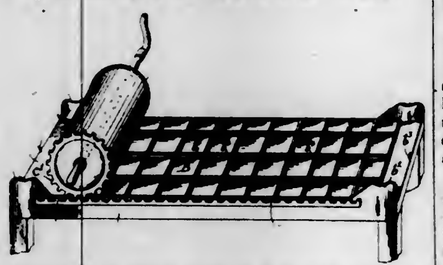
3. In a facing and tapering machine, the combination with a fixed bed, a carriage adapted to slide therein, and rotary cutters arranged on

the sides of the carriage-way, of holding devices attached to the upper side of the carriage, and comprising two fixed vertical pins or supports spaced apart on one side, and the spring-support arranged on the opposite side intermediately of the fixed pins, the same consisting of a spring whose free end is adjacent to the space designed for receiving the article to be treated, substantially as shown and described.

4. A woodworking-machine having a spoke-support on a carriage, and comprising a front rest for engaging the tenon and the adjacent shoulder thereof, a guide on the top of the tenon, a rear rest for the outer end of the spoke, a pin at one side of the spoke, and a spring-arm on the other side of the spoke, as set forth.

5. A woodworking-machine having a spoke-support on a carriage, and comprising a front rest for engaging the tenon and the adjacent shoulder thereof, a guide on the top of the tenon, a rear rest for the outer end of the spoke, a fixed pin at one side of the spoke, a spring-arm on the other side of the spoke, and a transversely-adjustable gage for engaging one side of the spoke between said pin and said front rest, as set forth.

681,050. **UPHOLSTERY APPARATUS.** ALFRED FRESCHL, Chicago, Ill. Filed Sept. 25, 1899. Serial No. 731,580. (No model.)



Claim.—1. An apparatus for marking covers of tufted pads comprising a base or platen provided with markers arranged in enlargement of the pattern to be reproduced.

2. An apparatus for marking covers of tufted cushions comprising a base or platen, marking means on the platen arranged in pattern and to provide for the fullness of material in the tufts of the cushion.

3. An apparatus for positioning tuft-pits in covers of tufted pads comprising a platen or base having markers arranged in the same pattern upon a larger scale with the tuft-pits of the finished cushion.

4. In an upholstery apparatus, the combination of a platen, creasers on the platen to mark a cover to indicate the lines upon which it is to be plaited to produce the tufts, and a roller adapted to rotate over the face of the platen.

5. In an upholstery apparatus, in combination a platen, means upon the platen to mark a cover to indicate the locations of the tuft-pits in the finished article, and means to press the cover upon the marking means.

6. In an upholstery-machine, the combination of a platen provided with channels, and markers disposed in said channels, with means to press the cloth upon the markers.

7. In an upholstery-machine, the combination of a platen provided with removable markers corresponding in pattern with the tufts to be produced and means to provide pressure upon the cloth.

8. In an upholstery-machine, the combination of a platen provided with channels to receive markers, a suitable pressure device, and means to vary the arrangement of the markers

9. As a new article of manufacture, an upholstery-marker consisting of a platen and marking edges or strips arranged thereon in the pattern to be reproduced in the upholstered article.

10. In an upholstery-machine, the combination of a pressure device, and platen provided with interchangeable markers to impress the location of the tuft-pits of the finished article in any one of a plurality of patterns.

11. In an upholstery apparatus, the combination of a roller and a platen provided with creasers adapted to mark the cloth with the pattern to be upholstered, and means to vary the pattern.

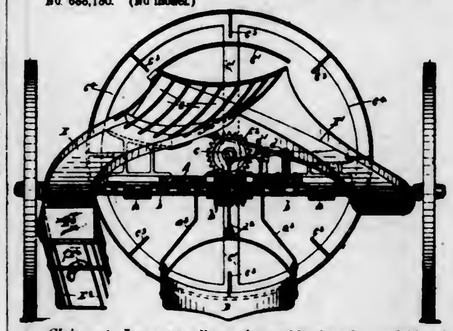
12. In an upholstery apparatus, a platen provided with risers, a roller traversing said platen and adapted to be elevated by said risers, and means to mark the cloth.

13. In an upholstery apparatus, a platen provided with retaining devices to hold the material, a roller traversing the face of the platen, means to mark the cloth, and risers to raise the roller off the platen.

14. In an upholstery apparatus, the combination with a platen having channels, of markers adapted to said channels.

15. In an upholstery apparatus, the combination of a platen provided with channels representing various patterns, removable markers adapted to said channels, and an impression device.

681,051. **POTATO-DIGGER.** PAUL GEISEL, Rochester, N. Y., assignor to Charles Chaverist, Chicago, Ill. Filed Aug. 9, 1898. Serial No. 688,180. (No model.)



Claim.—1. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute having one extremity arranged within the screen and formed with perforations and its opposite extremity discharging beyond the screen, and spring-arms arranged above the perforations of the chute, substantially as and for the purpose described.

2. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute having one extremity arranged within the screen and formed with perforations and its opposite extremity discharging beyond the screen, and a second chute having one extremity supported beneath the perforations of the first chute and its opposite extremity arranged at an angle with the first chute and discharging beyond the screen, substantially as and for the purpose set forth.

3. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute having one extremity arranged within the screen and its opposite extremity discharging beyond the screen, and a chute extending from front to rear for receiving the discharge from the first chute, substantially as and for the purpose described.

4. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute having one extremity arranged within the screen and formed with perforations and its opposite extremity discharging beyond the screen, spring-arms arranged above the perforations of the chute, and a second chute having one extremity arranged beneath the perforations of the first chute and discharging beyond the screen, substantially as and for the purpose specified.

5. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute having one extremity arranged within the screen and formed with perforations and its opposite extremity discharging beyond the screen, a second chute having one extremity arranged beneath the perforations of the first chute and discharging beyond the screen, and a third chute extending from front to rear and arranged at one side of the screen for receiving the discharge from the first chute, substantially as and for the purpose set forth.

6. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute having one extremity arranged within the screen and formed with perforations and its opposite extremity discharging beyond the screen, spring-arms arranged above the perforations of the chute, a second chute having one extremity arranged beneath the perforations of the first chute and discharging beyond the screen, and a third chute extending from front to rear and arranged at one side of the screen for receiving the discharge from the first chute, substantially as and for the purpose described.

7. In a potato-digger, the combination of a revoluble substantially cylindrical screen provided with teeth projecting from its inner face, a plow discharging into the screen, a chute having one extremity arranged within the screen and its opposite extremity discharging beyond the screen, and spring-arms arranged above the first extremity of the chute in proximity to the teeth of the screen, substantially as and for the purpose set forth.

8. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute extending from front to rear, a receptacle movable along said chute, and a second chute having one extremity arranged within the screen and its opposite extremity discharging beyond the screen into the receptacle, substantially as and for the purpose described.

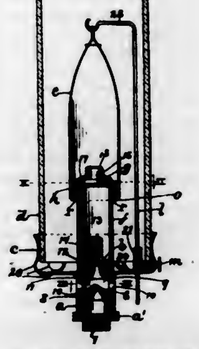
9. In a potato-digger, the combination of a frame, a supporting-wheel, a revoluble screen actuated by the supporting-wheel and having its axis arranged substantially parallel with the line of draft, a plow discharging into the screen, and diverging chutes having their adjacent extremities arranged within the screen and their opposite extremities discharging beyond opposite sides of the screen, substantially as described.

10. In a potato-digger, the combination of a revoluble substantially cylindrical screen, a plow discharging into the screen, a chute extending from front to rear, a receptacle movable along said chute, a second chute having one extremity arranged within the screen and formed with perforations, and its opposite extremity discharging beyond the screen into the receptacle, and a third chute having one extremity arranged beneath the perforations of the first chute and discharging beyond the screen, substantially as and for the purpose specified.

11. In a potato-digger, the combination of a frame, a revoluble substantially cylindrical screen supported by the frame, a plow discharging into the screen, a receptacle detachably supported by the frame means for conducting the potatoes from the screen to the receptacle, and a catch for normally holding the receptacle in position, said catch being automatically forced from its operative position when the predetermined amount of potatoes is within the receptacle, substantially as and for the purpose set forth.

12. In a potato-digger, the combination of a frame, a revoluble substantially cylindrical screen supported by the frame, a plow discharging into the screen, a chute extending from front to rear and arranged at one side of the screen, a receptacle detachably supported by said chute, means for conducting the potatoes from the screen to the receptacle, and a catch for normally holding the receptacle in position, said catch being automatically forced from its operative position when the predetermined amount of potatoes is within the receptacle, substantially as and for the purpose set forth.

681,052. **GAS-BURNER.** JOHN HARRIS, Cleveland, Ohio, assignor, by mesne assignments, to Atlantic Acetylene Burner Company, Jersey City, N. J. Filed June 22, 1900. Serial No. 21,136. (No model.)



Claim.—1. A gas-burner having the following: a mixing-chamber; a discharge port or outlet; a screen arranged between the said outlet and the mixing-chamber; means for supplying air and gas to the said chamber, and the aforesaid port or outlet having its inner end gradually enlarged annularly toward the screen.

2. A gas-burner having the following: an upright mixing-chamber; a discharge port or outlet above and centrally of the mixing-chamber; a screen arranged between the said outlet and the mixing-chamber; means for supplying air and gas to the said chamber from below and centrally of the lower end of the chamber, and the aforesaid port or outlet having its inner end enlarged next over the screen.

3. A gas-burner having the following: a mixing-chamber; a discharge port or outlet at one end and centrally of the said chamber; a screen arranged between the said outlet and the mixing-chamber; means for supplying air and gas at and centrally of the opposite end of the said chamber, and the aforesaid port or outlet having its inner end enlarged next to the screen.

4. A gas-burner having the following: a mixing-chamber, a discharge port or outlet, a screen arranged between the said outlet and the mixing-chamber, means for supplying air and gas to the said chamber, and the aforesaid port or outlet having its inner end gradually enlarged toward the screen and being reduced in size at its outer or discharging extremity.

5. A gas-burner having the following: an upright mixing-chamber having an inlet in and centrally of its bottom, a screen arranged transversely of the upper end of the chamber, and an upright discharge port or outlet formed centrally of the said end of the mixing-chamber above the screen, which port is enlarged at its lower end next above the screen and is reduced in size at its upper end, substantially as and for the purpose set forth.

6. A gas-burner having the following: an upright mixing-chamber having an inlet in and centrally of its bottom and an annular downward extension around the inlet, a screen arranged transversely of the upper end of the chamber, and an upright discharge port or outlet formed centrally of the aforesaid chamber above the screen and reduced in size at its outer or discharging extremity.

7. A gas-burner having the following: an upright mixing-chamber, means for supplying air and gas to the said chamber, a screen arranged transversely of the upper end of the chamber, and an upright discharge port or outlet formed above the screen and provided at its outer and discharging extremity with an internal annular flange having its lower or inner side flaring inwardly, substantially as and for the purpose set forth.

8. A gas-burner comprising the following: an upright tube wherein gas and air are commingled, which tube is reduced in cross-section at its upper end to form an outlet, a screen arranged within and transversely of the said tube below the aforesaid outlet, and means for conducting air and gas into the aforesaid tobe below the screen, substantially as and for the purpose set forth.

9. An upright gas-burner having the following: an upwardly-discharging outlet formed in the burner's upper end and reduced in size at its outer extremity, a mixing-chamber formed below and in open relation with the said outlet, an air-receiving chamber arranged below the mixing-chamber, a port or passage-way formed in the top wall of the air-receiving chamber and in the bottom of the mixing-chamber and establishing communication between the said chambers, air-supply holes or inlets in the surrounding wall or walls of the said air-receiving chamber, and a gas-supply passage-way terminating, at its upper end, in an orifice formed in the bottom of the aforesaid air-receiving chamber.

10. An upright gas-burner having the following: an upwardly-discharging outlet formed in the burner's upper end and reduced in size at its outer extremity, a mixing-chamber formed below and in open relation with the said outlet, an air-receiving chamber arranged below the mixing-chamber, a port formed within the top wall of the air-receiving chamber and in the bottom of the mixing-chamber and establishing communication between the said chambers and having its lower end flaring downwardly, and a gas-supply passage-way terminating, at its upper end, in an orifice formed in the bottom of the said air-receiving chamber centrally of and below the aforesaid port.

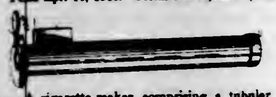
11. An upright gas-burner having the following: an upwardly-discharging outlet formed in the burner's upper end and reduced in size at its outer extremity, a mixing-chamber formed below and in open relation with the said outlet, an air-receiving chamber arranged below the mixing-chamber, a port or passage-way formed in the top wall of the air-receiving chamber and in the bottom of the mixing-chamber and establishing open relation between the said chambers, air-supply holes or inlets in the surrounding wall or walls of the said air-receiving chamber, a gas-supply passage-way arranged below the air-receiving chamber, and the bottom of the air-receiving chamber being conical and provided with a centrally-located orifice in open relation with the gas-supply passage-way, substantially as and for the purpose set forth.

12. An upright gas-burner having the following: an outlet at its upper end, a mixing-chamber formed below and in open relation with the said outlet, an air-receiving chamber arranged below the mixing-chamber and provided with a conical bottom, a port or passage-way formed in and centrally of the top wall of the air-receiving chamber and in the bottom of the mixing-chamber, which port or passage-way establishes open relation between the said chambers and has its lower end flaring downwardly, a plurality of lateral air-holes or air-inlets leading to the air-receiving chamber below the aforesaid port, which air-supply holes or inlets are arranged opposite to the apex of the aforesaid conical bottom, a gas-supply passage-way below the air-receiving chamber, and an orifice formed in and centrally of the conical bottom of the air-receiving chamber and in open relation with the gas-supply passage-way.

13. A gas-burner consisting of the following: the gas-supply tube *a* screw-threaded internally at its lower end, having the external flange *a'*, screw-threaded externally above the said flange, and having the conical upper end 6 provided with the centrally-located orifice 8; the air-receiving tube *b* screwed onto the gas-supply tube and having the chamber 9, lateral air-inlets 10, an upwardly-leading port or passage-way 12, the external shoulder 11 and external screw-threads above the said shoulder, and the tube *f* screwed onto the aforesaid air-receiving tube and having

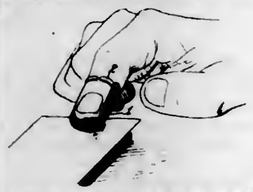
the mixing-chamber 13, the internal screen *g*, and the discharge port or outlet 16 enlarged at the inner end and reduced in size at the outer extremity, all arranged substantially as shown, for the purpose specified.

681,053. CIGARETTE-MAKER. HENRY H. HARRISON, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,323. (No model.)



Claim.—A cigarette-maker, comprising a tubular body portion, a charging-tube capable of slidably fitting within the body portion, the charging-tube having a longitudinally-extending slot therein, and a closure-plate having a contracted neck pivotally mounted on one end of the body portion, the closure-plate being capable of fitting within the charging-tube and the slot of said tube receiving the contracted neck of the closure-plate, for the purpose specified.

681,054. DEVICE OR IMPLEMENT FOR FACILITATING THE COUNTING OF MONEY OR THE LIKE. RINALDO V. HAWLEY, Atlanta, Ga., assignor of two-thirds to W. Woods White, same place, and Richard Sylvester, Washington, D. C. Filed July 12, 1901. Serial No. 68,089. (No model.)

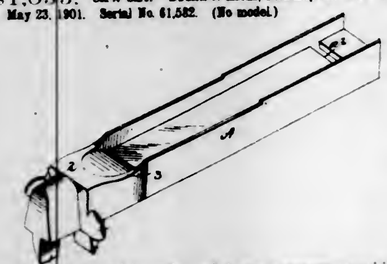


Claim.—1. A device to facilitate counting money and the like, consisting of a thimble adapted to fit upon the finger and provided with an orifice, and a selecting and cushioning element having its body disposed against the interior surface of the thimble, a neck passing through and engaging the walls of the orifice therein, and a selecting-head exposed in said orifice, substantially as described.

2. A device to facilitate counting money and the like, consisting of a thimble adapted to fit the finger and provided with an orifice opening laterally of the thimble, and a note-selecting element exposed in said orifice, substantially as described.

3. In a device to facilitate counting money and the like, the combination with a semithimble provided with an orifice and with yielding retaining means, of a frictional note-selecting element exposed in said orifice, substantially as described.

681,055. SAW-SET. EDGAR J. HICKS, Indianapolis, Ind. Filed May 23, 1901. Serial No. 61,582. (No model.)



Claim.—1. A tool for setting and shaping saw-teeth, comprising a block having a point tapering and narrowing toward its end and with a convex top surface, a portion behind said point somewhat convex in longitudinal section, and a depression behind this portion, with sides formed to serve as rests extending rearward therefrom, substantially as set forth.

2. A saw-set comprising a block having suitable securing parts, with sides for a rest for the saw, and an anvil formed with a narrowing downwardly-tapered point with convex top, and a portion behind said point substantially straight transversely but convex longitudinally, substantially as set forth.

3. A saw-set comprising a block formed with rests for the saw and having an anvil with a tapered convex top at its point, a flat portion behind said tapered portion, and a depression behind said flat portion, substantially as set forth.

681,056. REFRIGERATING AND TAPPING BOX. JOSEPH IRR, Jr., Cleveland, Ohio. Filed Feb. 18, 1901. Serial No. 47,729. (No model.)



Claim.—1. A cabinet having a lateral opening for the insertion of the receptacle to be tapped, a faucet-support at a proper elevation, an opening beneath and in front of the faucet-support, and a compartment behind the faucet-support, said parts being so arranged that the receptacle may be inserted into the cabinet and the projecting tap-tube inserted into it, and the whole shoved back into position, combined with a removable drip-pan for covering such opening, substantially as described.

2. The combination of a cabinet having a lateral opening for the insertion of a beer-keg, a faucet-support at a proper elevation, there being a vertical opening beneath said faucet-support, and a connecting horizontal opening in front of said vertical opening, whereby the keg may be inserted through the lateral opening into the cabinet and the tap-tube inserted when the keg is beneath the horizontal opening and then the keg may be shoved into place, the tap-tube passing through the vertical opening, and a removable drip-pan for covering said vertical and horizontal openings, substantially as described.

3. A cabinet having a lateral opening for the insertion of a beer-keg, a vertical faucet-board held at proper elevation, there being a vertical opening directly beneath said faucet-board and a horizontal opening into the base of the cabinet connecting therewith, and there being a compartment at the rear of said vertical opening for the reception of the cooling-pipes, &c., combined with a removable drip-pan adapted to cover said vertical and horizontal openings which pan comprises a disk-like receptacle having a vertical plate rising from the back thereof, and vertical plates at the ends, said back plate adapted to cover the vertical opening and the end plates adapted to engage the end walls or partitions of the cabinet, substantially as described.

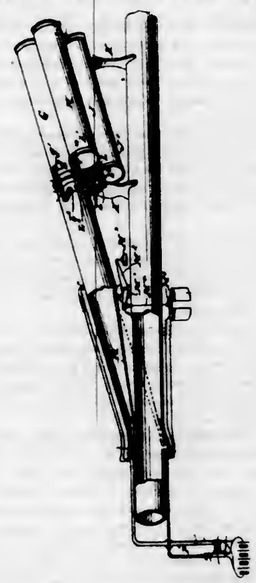
4. A cabinet having a lower space for the reception of a beer-keg, a door leading thereinto, a horizontal member of the cabinet crossing just above said door and defining the door-opening, a vertical faucet-board supported at the rear and above said door and in front of the back of the cabinet whereby an ice-compartment is provided, there being a vertical opening beneath the faucet-board leading into said ice-compartment, and a horizontal opening leading into the keg-compartment, said two openings connecting, combined with a removable drip-pan adapted to cover said vertical and horizontal openings, a faucet supported by said faucet-board, a cooling-pipe connected therewith, and an ice-pan in the compartment behind the same, the removal of said drip-pan allowing the insertion of the tapped keg and also the insertion of the cooling-ice, substantially as described.

681,057. DELIVERY-SWITCH. CHARLES M. JOHNSON, New York, N. Y. Filed Sept. 22, 1893. Serial No. 486,176. (No model.)

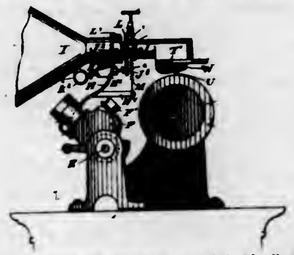
Claim.—1. In a pneumatic despatch-tube system, a main tube, a branch tube connected therewith, a switch normally closing said branch tube, a shaft on which said switch is mounted, a lever fast on said shaft, a weight on one end of said lever for holding the switch in position to close said branch tube, an electric circuit for operating said switch, a helix included in said circuit, an iron core for said helix carried by the opposite end of said lever, a circuit-closer controlled by the operator for closing said circuit and thereby moving and retaining said switch in position to divert the carrier from the main tube into the branch tube, and means operated by the diverted carrier for breaking said circuit and thereby releasing said switch which returns to its normal position to close said branch tube by the action of said weight.

2. In a pneumatic-despatch-tube system, an air-cushioning device located out of the line of travel of the main air-current for receiving and discharging the carriers consisting of two or more chambers suitably mounted and adapted to be rotated, means for holding one of the chambers of said cushioning device normally in position to receive a carrier and adapted to be actuated by the said carrier to release the said chamber from its normal position, and means as the weight of the carrier for revolving the said cushioning device to permit the discharge of the said carrier and to bring another chamber into position to receive the next carrier.

3. In a pneumatic-despatch-tube system, an air-cushioning device located out of the line of travel of the main air-current for receiving and discharging the carriers, means for holding said device normally in position to receive a carrier and arranged to be actuated by the movement of said carrier entering said device to release said air-cushioning device from its normal position and thereby permit the discharge of the carrier.



681,058. PHONOGRAPH-REPRODUCER. EDWARD KARLOW, New York, N. Y., assignor of one-half to Charles F. Schippell, same place. Filed July 19, 1900. Serial No. 24,186. (No model.)



Claim.—1. A phonograph-reproducer, provided with a diaphragm, an arm having one end loosely connected with the diaphragm and provided at its other end with a foot and between its ends with a reproducing-point, and a hinge connecting the foot of the arm with the body of the reproducer, said hinge consisting of rubber secured to oppositely-arranged supports and to which the foot of the arm is secured between the said supports, as set forth.

2. A phonograph-reproducer, provided with a diaphragm, an arm having one end loosely connected with the diaphragm and provided at its other end with a foot and between its ends with a reproducing-point, and two elastic plates secured to oppositely-arranged supports carried by the body of the reproducer, said plates extending inwardly toward each other from their supports and to which the foot of the arm is secured between said supports, as and for the purpose set forth.

3. The combination of a phonograph-reproducer, a support to which said reproducer is pivoted, a spring one end of which is attached to the support, a bar to which the other end of the spring is secured, and a screw passing through said bar and arranged to engage the pivoted reproducer.

4. The combination of a phonograph-reproducer, a support to which said reproducer is pivoted, springs each having one end attached to the support, an arched bar or hoop to the ends of which are secured the other ends of the springs, and a screw passing through the central portion of said hoop and arranged to engage the reproducer.

5. A phonograph attachment, provided with a support having an attaching-socket, a reproducer pivotally connected with said support, and a holding device movably secured to the support, and arranged to keep the reproducer in a raised position.

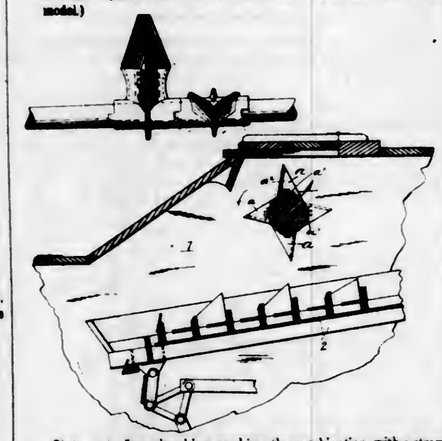
6. A phonograph attachment, provided with a support having an attaching-socket and lugs arranged adjacent to said socket, and a reproducer carried by the said support on the side opposite to that on which the lugs are arranged.

681,059. PROCESS OF GENERATING CHLORIN AND TREATING ORES WITH SAME. EDWARD D. KENDALL, Brooklyn, N. Y., assignor to Edward D. Kendall and Edward H. Dickerson, Stovall, N. C. Filed Apr. 12, 1901. Serial No. 55,443. (No specimens.)

Claim.—1. The process of treating ores containing precious metals, which consists in subjecting them to the action of the acid salt herein described, having the formula $Na_2SO_4.2H_2SO_4$, and a chlorin-containing body, substantially as described.

2. The process of treating ores containing precious metals, which consists in treating them with the acid salt having the formula $Na_2SO_4.2H_2SO_4$ and chlorid of lime and water, in a closed receptacle, substantially as described.

681,060. PICKER FOR THRESHING-MACHINES. FRANK F. LANDIS, Waynesboro, Pa. Filed May 5, 1899. Serial No. 715,712. (No model.)



Claim.—1. In a threshing-machine, the combination, with a straw-carrier, of a picker located above said straw-carrier to act upon the straw carried thereby, comprising a cylinder having mounted thereon teeth of pyramidal form arranged with a narrow edge forward in the direction of rotation, substantially as set forth.

2. In a threshing-machine, the combination, with a straw-carrier, of a picker located above said straw-carrier, comprising a shaft having teeth mounted thereon formed with triangular bases and narrow advancing edges and flaring sides, substantially as set forth.

3. In a threshing-machine, the combination, with a straw-carrier, of a picker of the character described, comprising a shaft armed with teeth formed with narrow advance edges and rearwardly-flaring sides, said advance edges being set on a tangent, substantially as set forth.

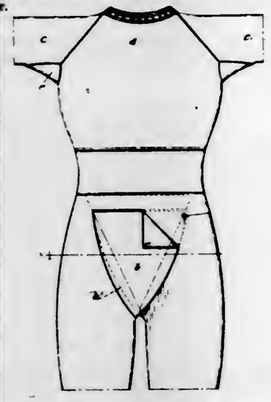
4. In a threshing-machine, the combination, with a straw-carrier, of a picker located above the straw carrier, comprising a cylinder and teeth formed with flaring sides mounted thereon, said teeth being arranged in different longitudinal and circumferential lines, substantially as set forth.

5. A picker for threshing-machines, of the character described, comprising a shaft and teeth extending out therefrom, said teeth being each of pyramidal form and formed with a narrow advance edge and sides extending back therefrom at an angle in opposite directions, said advance edge being set to extend tangentially, substantially as set forth.

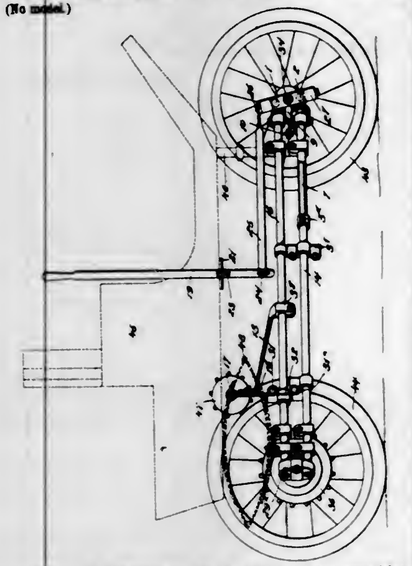
681,061. GARMENT. JEREMIAH C. LAUTENBACHER, Schuylkill Haven, Pa., assignor to Hannah A. Lautenbacher, same place. Filed Apr. 17, 1901. Serial No. 56,225. (No model.)

Claim.—A garment having at each of its front and rear sides at the crotch, two overlapping flaps extending into close proximity to the waist and separate from the body of the garment at opposite edges, one flap being separate at its upper portion from the body of the garment and provided with means for removably fastening it thereto at said upper por-

tion, the legs of the garment being separate at the point in or under the crotch, and the separate edges normally meeting or approximately meeting each other.



681,062. RUNNING-GEAR FOR HORSELESS CARRIAGES. GILBERT J. LOOMIS, Westfield, Mass. Filed Oct. 24, 1900. Serial No. 34,136. (No model.)



Claim.—1. A running-gear for horseless carriages, comprising a front section and a rear section carrying at their adjacent ends buffer-plates having inclined members in engagement with each other, and a longitudinal pivot passing through said members.

2. A running-gear for horseless carriages, provided at each side of the forward part of its frame with upright heads, steering-knuckles having upper and lower members above and below said heads respectively, one member being extended to form an arm, axles or bolts connecting the upper and lower members of each knuckle through the corresponding head and journaled in each head, front-wheel axles carried by the central upright members of said knuckles to swing therewith, and means connected with the arm of the knuckle for turning the knuckles on their pivots.

3. In a running-gear for vehicles, a front section having at each side a head, knuckles having parallel members between which the heads of the front section are pivoted, one of the parallel members being extended to form an arm, axles secured to the vertical members of the knuckles, an arm secured to the vertical member of each knuckle, a cross-bar connecting the arms, and means connected with the arms of the knuckle for swinging the same, as set forth.

4. A running-gear for vehicles, provided at its front part with an upper and a lower cross-rod, heads connecting the ends of the cross-rods, steering-knuckles, each having parallel members of unequal length between which the connecting-heads of the said rods are arranged and to which heads the knuckles are pivoted, an axle carried by the vertical member of each knuckle, an arm secured to the vertical member of each knuckle, a cross-bar connecting the arms, and means for turning the knuckles on their pivots.

5. A running-gear for horseless carriages, provided at its front part with an upper cross-rod and a lower cross-rod located in advance thereof, connections or heads for the ends of said rods, wheel-carrying steering members pivoted to said heads, and provided with wheel-axles at a height or level between those of the said two cross-rods and means for turning the steering members.

6. A running-gear for horseless carriages, comprising a wheeled front section and a wheeled rear section having an axle, boxes surrounding said axle, and parallel upper and lower reach members connected with the said boxes above and below the axle, those members which are connected with different boxes, converging toward the front section of the running-gear.

7 A running-gear for horseless carriages, comprising a wheeled front section and a wheeled rear section having reach members converging toward the front section, braces inclined upward and rearward from said reach members, brackets or hangers secured to said braces, and a counter-shaft journaled in said brackets.

8. A running-gear for horseless carriages, comprising a wheeled front section and a wheeled rear section having reach members converging toward the front section, braces inclined upward and rearward from said reach members, brackets or hangers secured to said braces, a cross-rod connecting the reach members and having said brackets secured to it, and a counter-shaft journaled in said brackets.

9. A running-gear for horseless carriages, comprising a wheeled front section and a wheeled rear section having an axle, boxes surrounding said axle adjacent to each wheel and provided with sockets above and below the axle, parallel upper and lower reach members connected with said sockets, those members which are connected with different boxes converging toward the front section of the running-gear, cross-rods connecting said converging reach members, braces extending upward and rearward from the upper reach members, brackets or hangers secured to said braces and to said cross-rods, and a counter-shaft journaled in said brackets.

10. A running-gear for horseless carriages, comprising a wheeled rear section having superposed reach members converging toward their front ends, clips embracing said reach members, a buffer-plate adjacent to the clips, connecting-bolts passed through the said plate and through the clips, and a wheeled front section connected with said buffer-plate.

11. A running-gear for horseless carriages, comprising a wheeled rear section having reach members converging toward their front ends, a cross-rod extending from one reach member to the other, and located in a plane different from that of the reach members, connected clips disposed at an angle to each other and embracing respectively the cross-rod and the adjacent reach member, and a wheeled front section connected with the front ends of the reach members.

12. A running-gear for horseless carriages, provided with alining transverse sleeves at its rear portion, wheel-carrying axles fitted into said sleeves, boxes loosely mounted on the axles between the wheels and said sleeves, bearing-balls interposed between the axles and said boxes, and reach members extending from said boxes to the front part of the running-gear.

13. A running-gear for horseless carriages, provided with reach members extending forwardly from the rear axle, and clips embracing the reach members adjacent to the axle and extending at an angle to the reach members, said clips being adapted for connection with the supporting-springs of the carriage-body.

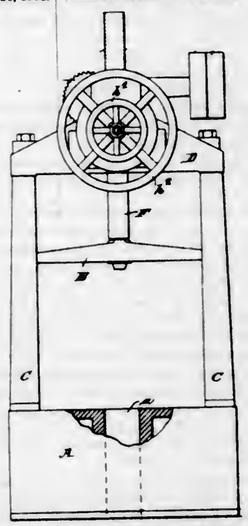
14. A running-gear for horseless carriages, provided with a frame having adjacent members, mating clips embracing said members, and a connecting-bolt extending from the clip embracing one member to the mating clip embracing the other member.

15. A running-gear for horseless carriages, provided with a transverse sleeve at its rear portion, a wheel-carrying axle or shaft surrounded by said sleeve, bearing-boxes loosely mounted on the shaft and adjustable lengthwise thereof toward and from the said sleeve, a plurality of sets of bearing-balls interposed between each box and the shaft, and reach members extending from said boxes to the front part of the running-gear.

16. A running-gear for horseless carriages, comprising a front section and a rear section having at their adjacent ends buffers each of which has approximately parallel end members secured to the respective section, and a central member substantially parallel to that of the other section, and a longitudinal pivot connecting said central member.

17. A running-gear for horseless carriages, comprising a front section and a rear section having at their adjacent ends buffers each of which has approximately parallel end members secured to the respective section, and an inclined central member substantially parallel to that of the other section, and an inclined longitudinal pivot connecting said central member.

681,063. POWER-PRESS. HENRY M. LUCAS, Cleveland, Ohio. Filed Feb. 20, 1901. Serial No. 48,144. (No model.)



Claim.—1. In a power-press, in combination, a ram, power mechanism adapted to drive the same to its work by a continuous onward pressure, a friction-clutch included within said power mechanism, and non-locking hand mechanism for varying the engagement of the clutch, substantially as described.

2. In a power-press, in combination, a friction-clutch, a hand mechanism for accurately controlling the power transmitted thereby, mechanism for delivering power to the friction-clutch, a longitudinally-movable non-rotatable ram adapted to deliver a continuous pressure, and mechanism connecting said clutch with said ram to give it a continuous onward movement, substantially as described.

3. In a power-press, in combination, a friction-clutch, means for transmitting power therethrough, a suitably-guided ram, means for operating the same by such transmitted power in a continuous onward movement, said clutch having an inclined male face and a coöperating female face, a hand-wheel adapted to force said two faces together, and means tending to hold said two faces apart, substantially as described.

4. In a power-press, in combination, a spindle, a ram, connecting mechanism between the two, a wheel adapted to be continuously driven, said wheel carrying a conically-bored face, a correspondingly-inclined member coöperating with said conically-bored face to form a friction-clutch, said coöperating member being secured to said spindle, a hand-wheel movable on said spindle, there being coöperating inclined faces between said hand-wheel and said coöperating clutch member, substantially as described.

5. In a power-press, in combination, a spindle, a ram, connecting mechanism between the two, a wheel adapted to be continuously driven, said wheel carrying a conically-bored face, a correspondingly-inclined member coöperating with said conically-bored face to form a friction-clutch, said coöperating member being secured to said spindle, a hand-wheel movable on said spindle, there being coöperating inclined faces between said hand-wheel and said clutch member, and a spring connecting said hand-wheel with said spindle to allow limited rotative movement thereof, substantially as described.

6. In a power-press, in combination, a friction-clutch, means for transmitting power therethrough, a ram adapted to be operated by said power and driven to its work in a continuous onward direction, a hand-wheel having a cam or inclined connection with one of the clutch members, said connection being steep enough to prevent the clutch self-locking whereby the hand-wheel not only governs the force of pressure transmitted but keeps the operator apprised thereof, substantially as described.

7. In a power-press, in combination, a friction-clutch, means for transmitting power therethrough, a ram adapted to be operated by said power and driven to its work in a continuous onward direction, a hand-wheel having a cam or inclined connection with one of the clutch members, said connection being steep enough to prevent the clutch self-locking whereby the hand-wheel not only governs the force of pressure transmitted but keeps the operator apprised thereof, and a spring operating to maintain the clutch disengaged unless the operator is holding the hand-wheel, substantially as described.

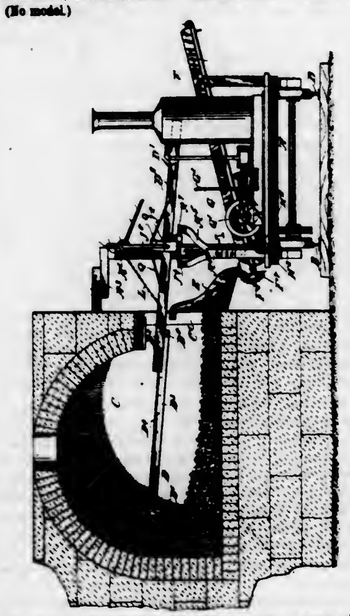
8. In a power-press, in combination, a rigid open frame, a ram properly carried thereby, means carried near the lower end of the ram and engaging the frame for guiding said lower end, mechanism engaging the ram near its upper end for driving it, said mechanism including a friction-clutch, and hand means for governing the force of contact between the members of said clutch whereby the force of the pressure of the ram may be varied, substantially as described.

9. In a power-press, the combination with a pair of standards, a housing at the upper end thereof, a ram movable through said housing, a cross-head carried by said ram near the lower end and guided by said standards, a spindle journaled in said housing, there being a rack on said ram, gearing connecting said spindle with said rack, a clutch member on said spindle rotatable with it, a coöperating clutch member journaled loosely upon the spindle, means for driving continuously said loosely-journaled member, and a hand-wheel capable of a limited movement on the spindle, and means whereby such limited movement of the hand-wheel causes the engagement of said clutch members, substantially as described.

10. In a power-press, in combination, a spindle, a ram connected therewith so as to be driven thereby, a hand-wheel adapted to rotate said spindle to bring the ram to the work, power mechanism adapted to drive said spindle or be free therefrom, and a second hand-wheel adapted to connect the power mechanism with said spindle, substantially as described.

11. In a power-press, in combination, a spindle, a ram, means for operating said ram connecting with the same, a worm-wheel adapted to be continuously driven, said worm-wheel having a conically-bored face, a disk coöperating therewith to complete a clutch, a hub carried thereby taking around said spindle, said hub having an inclined face at its extremity, a hand-wheel loose on said spindle and having an inclined face coöperating with the first, a second hand-wheel rigid on said spindle, and a spring normally controlling said loose hand-wheel, substantially as described.

681,064. DRAWING-MACHINE FOR COKE-OVENS. RICHARD D. MARTIN, Alderson, Ind. Ter. Filed Sept. 27, 1900. Serial No. 31,299. (No model.)



Claim.—1. A drawing-machine having a scraper, provided with a scraper beam and blade having a reciprocating movement, a shaft on which said scraper is fulcrumed to swing up and down, a second shaft on which the first-mentioned shaft is mounted to swing in a horizontal plane, a main or driven shaft on which the said second shaft is mounted to swing in a vertical plane, and gearing between the said shafts for the purpose set forth.

2. A drawing-machine having a scraper, comprising a scraper-guideway, a scraper-beam mounted to slide thereon, a scraper-blade hung on said beam, a horizontally-arranged shaft on which said guideway is fulcrumed to swing up and down, means for actuating the scraper-beam from said shaft, a vertical shaft on which one end of said horizontal shaft is fulcrumed, whereby the said horizontal shaft and the guideway may be swung laterally, gearing between the said shafts, and a shaft arranged to drive the said vertical shaft and on which the latter is mounted to swing as set forth.

3. A drawing-machine having a scraper, comprising a scraper-guideway, a scraper-beam mounted to slide thereon, a scraper-blade hung on said beam and having a limited swinging motion, a vertical shaft on which said scraper is mounted to swing laterally, the said shaft being fulcrumed at one end and detachably held at the other end, means for rotating the said shaft, and means for imparting a reciprocating movement to the scraper-beam from said shaft, as set forth.

4. A drawing-machine, comprising a scraper, a horizontally-arranged shaft on which said scraper is fulcrumed to swing up and down, a vertically-arranged shaft mounted to swing up and down and carrying the said fulcrum-shaft of the scraper, a driving connection between the shafts, and means for driving the said vertically-arranged shaft, as set forth.

5. A drawing-machine having a scraper, a vertically-arranged shaft on which said scraper is mounted to swing laterally, the said scraper being also mounted to swing up and down and provided with a scraper beam and blade, means for actuating the scraper-beam from said shaft, and a shaft arranged to drive the said vertically-arranged shaft and on which the lower end of the latter is fulcrumed as set forth.

6. A drawing-machine, having a scraper comprising a scraper-guideway mounted to swing up and down, a scraper-beam mounted to slide on said guideway, a scraper-blade hung on said beam, a vertically-arranged shaft on which said guideway is mounted to swing laterally, means for laterally swinging the guideway on said shaft, means for driving the scraper-beam from said shaft, a shaft geared with the vertically-arranged shaft and on which one end of the latter is fulcrumed, the other end of said vertically-arranged shaft being detachably supported, so that the said shaft can be swung on its fulcrum, as set forth.

7. A drawing-machine having a scraper comprising a scraper-guideway, a scraper-beam mounted to slide thereon, a scraper-blade hung on said beam, said guideway being mounted to swing up and down, means for adjusting the inclination of the guideway, a shaft on which said guideway is mounted to swing laterally, a shaft gearing with the first-mentioned shaft and on which the lower end of the latter shaft is fulcrumed, the upper end of said shaft being journaled in a bearing arranged to be opened to disengage the shaft, whereby said shaft may be swung on its fulcrum to move the guideway and the scraper-beam bodily, and means for imparting a reciprocating movement to the scraper-beam, as set forth.

8. A drawing-machine comprising a car, an engine thereon, a scraper mounted on the car and adapted to be set in motion from the said engine to draw the material out of the oven, an elevator on said car and upon which passes the material drawn by the scraper out of the oven, and means for actuating the elevator on the return or inward stroke of the scraper, the said means comprising a shaft connected with the elevator to drive the same and provided with a spur-wheel, and a second shaft provided with a spur-wheel mounted to rotate loosely on the shaft and in mesh with the first-mentioned spur-wheel, and means for locking said spur-wheel to the said second shaft when the latter is rotated in one direction, as set forth.

9. A drawing-machine, comprising a car, an engine thereon, a scraper mounted on the car and adapted to be set in motion from the said engine to draw the material out of the oven, an elevator on said car and upon which passes the material drawn by the scraper out of the oven, a chute leading from the oven-door casing to said elevator, and means for removably connecting the said chute with the oven-door casing as set forth.

10. A drawing-machine having a scraper comprising a scraper-guideway, a scraper-beam mounted to slide thereon, a scraper-blade hung on said beam, an endless chain mounted to travel in a forward and backward direction and arranged in said guideway and directly connected with the scraper-beam, a shaft on which the scraper-guideway is fulcrumed to swing up and down, means for operating the endless chain from said shaft, a second shaft geared with the first-mentioned shaft and on which one end of said first-mentioned shaft is fulcrumed, a main or driven shaft geared with the said second shaft and on which the latter is mounted to swing, and means for moving the scraper-beam manually in an outward direction, for the purpose set forth.

11. A drawing-machine comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which the latter is mounted to swing as a fulcrum, means for swinging the said first-mentioned shaft and with it the scraper, a locking device for said means, and a driven shaft geared with the said second shaft and on which the latter is mounted to swing, as set forth.

12. A drawing-machine, comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from the said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which the latter is mounted to swing as a fulcrum, and a main or driven shaft geared with the said second shaft and on which the latter is mounted to swing as a fulcrum, as set forth.

13. A drawing-machine, comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from the said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which the latter is mounted to swing as a fulcrum, a main or driven shaft geared with the said second shaft and on which the latter is mounted to swing as a fulcrum, and means for limiting the swinging motion of the said second shaft, as set forth.

14. A drawing-machine, comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which the latter is mounted to swing as a fulcrum, and means for manually swinging the said second shaft and with it the scraper, as set forth.

15. A drawing-machine, comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which the latter is mounted to swing as a fulcrum, means for manually swinging the said second shaft and with it the scraper, and a locking device for the said means, as set forth.

16. A drawing-machine, comprising a scraper-beam, a guideway on which said beam is mounted to slide, a shaft on which the scraper-guideway is fulcrumed, means for actuating the scraper-beam from the said shaft, to reciprocate the same, a second shaft geared with and standing at an angle to the first-named shaft and on which the latter is mounted to swing as a fulcrum, to move the said scraper-guideway and scraper in a horizontal plane, means for swinging the first mentioned shaft on the second shaft and means for rotating the said second shaft in a forward and backward direction, as set forth.

17. A drawing-machine, comprising a scraper proper, a guideway for said scraper, a shaft on which the guideway is fulcrumed, to move up and down, means for actuating the scraper from the said shaft, a second shaft geared with and standing at an angle to the first-mentioned shaft and on which the latter is mounted to swing as a fulcrum, means for swinging the said shaft on said fulcrum, means for moving the scraper-guideway on its fulcrum to raise and lower the scraper proper, and means for rotating the second shaft in a forward and back direction as set forth.

18. A drawing-machine having a scraper, comprising a scraper-guideway, a scraper-beam mounted to slide thereon, a scraper-blade hung on said beam, an endless chain mounted to travel in a forward and backward direction, and arranged in the said guideway and directly connected with the said scraper-beam, means, substantially as described, for imparting a forward and backward traveling motion to the said chain, said chain having non-active sections, and a driven sprocket-wheel for engaging the said chain, as set forth.

19. A drawing-machine having a scraper, comprising a scraper-guideway, a scraper-beam mounted to slide thereon, a scraper-blade hung on said beam, an endless chain mounted to travel in a forward and backward direction, and arranged in the said guideway and directly connected with the said scraper-beam, means, substantially as described, for imparting a forward and backward traveling motion to the said chain, said chain having non-active sections, a driven sprocket-wheel for engaging the said chain, and a lever on the guideway, for moving the said scraper-beam manually, and moving the non-active sections out of mesh with the sprocket-wheel, as set forth.

20. A drawing-machine, comprising a scraper, a shaft on which the scraper is fulcrumed, means for rotating said shaft, means for actuating the scraper from said shaft, a chain connected with the scraper at one side of the shaft, a pulley carrying the said chain, a handle on the said pulley for turning the latter, and a locking device for said handle, as set forth.

21. A drawing-machine having a scraper mounted to swing, a chain connected with the scraper at one side of its fulcrum, a pulley carrying the said chain, a handle on the said pulley, for turning the latter, and a locking device for said handle, said locking device comprising a hand-lever, a pawl and a notched segment, and a key for insertion in the notched segment, to limit the swinging motion of the handle, as set forth.

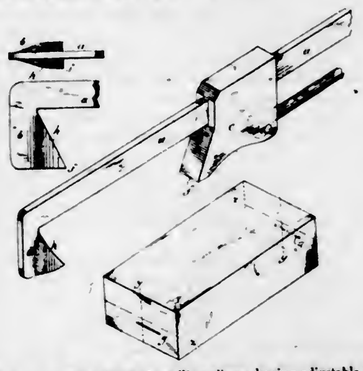
22. A drawing-machine comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which one end of said first-named shaft is mounted to swing, a block in which the outer end of said first-named shaft is journaled an arm supporting said block and having a vertical member connected at its lower end to said block and a horizontal member mounted loosely at its end on the said second shaft, means for moving the said block to impart a swinging motion to the said first-named shaft and the scraper, and a locking device for the said means, as set forth.

23. A drawing-machine comprising a scraper, a shaft on which the scraper is fulcrumed, means for actuating the scraper from said shaft, a second shaft geared with and standing at an angle to the first-named shaft and on which one end of said first-named shaft is mounted to swing, a block in which the other end of said first-named shaft is journaled, an arm supporting said block and having a vertical member connected to the block and a horizontal member mounted loosely at its end on the said second shaft, means for moving the said block to impart a swinging motion to the said first-named shaft and the scraper, a pulley mounted to turn on the horizontal member of the said arm, and a chain connected with the scraper at one side of its fulcrum and carried by the said pulley, as set forth.

24. A drawing-machine, comprising a scraper-guideway, a scraper-beam mounted to slide on said guideway, a horizontally-arranged shaft on which the scraper-guideway is fulcrumed to swing up and down, means for reciprocating the scraper-beam from said shaft, a vertically-arranged shaft to which the first-mentioned shaft is geared and on which it is mounted to swing, a longitudinally-extending shaft geared with the said vertically-arranged shaft, and having a step fulcrumed thereon, and in which the said vertically-arranged shaft is set, and means for driving the said longitudinally-extending shaft, as set forth.

25. In a drawing-machine, a car, an engine thereon, a shaft extending longitudinally of the car and journaled in bearings carried thereby, the said shaft being driven from the engine-shaft, a vertically-arranged shaft set at its lower end in a step fulcrumed loosely on the first-mentioned shaft, a bearing in which the upper end of said shaft is removably secured, so that said shaft can be swung up and down on its fulcrum, gearing between the said shafts, a scraper having a guideway and a scraper-beam mounted to slide on said guideway, a shaft on which the scraper-guideway is fulcrumed to swing up and down, the latter shaft being mounted at one end to swing on the vertically-arranged shaft and geared thereto, means for reciprocating the scraper-beam from the shaft on which the guideway is fulcrumed, an elevator on said car, and means for actuating the elevator on the return or inward stroke of the scraper, as set forth.

681,065. MILL APPLIANCE. ELMER E. R. MEARS, Munhall, Pa., assignor of one-half to Georgie M. Houpt, Marsfield, Ohio. Filed May 3, 1901. Serial No. 58,629. (No model.)



Claim.—1. The gripper of a mill appliance having adjustable jaws provided with long horizontal contact edges substantially as described.

2. The gripper of a mill appliance having adjustable jaws provided with long horizontal contact edges which are made integral with the jaws substantially as described.

3. The gripper of a mill appliance having adjustable jaws provided with long horizontal contact edges and having their opposed faces sloping upwardly and outwardly from their respective edges as and for the purpose described.

4. The gripper of a mill appliance having adjustable jaws provided with long horizontal contact edges and opposed, sloping faces, the movable jaw also having a curved indentation in its lower surface substantially as set forth.

681,066. FLOWER-POT. HENRY MILLINGAR, Merchantville, N. J. Filed May 8, 1901. Serial No. 59,323. (No model.)

Claim.—As an improved article of manufacture, the flower-pot composed of two thin flexible sheets, having a square central portion and trapezoidal wings or end portions, which increase in width from the middle outward, their side edges being overlapped and secured together as shown and described.

681,066.



681,067. CONNECTION-PIECE FOR PNEUMATIC-TIRE VALVES. JAMES F. MORRISSEY, Springfield, Mass., assignor to Erastus H. Parker, same place. Filed June 18, 1901. Serial No. 65,009. (No model.)



Claim.—1. A connection-piece of the character described consisting of relatively rotatable barrel, and tubular stem members, the barrel member being constructed of cup form with an axial shouldered opening through its base, and the stem member being shouldered, engaging in the seat formed by said shouldered opening and having its extremity protruding within the chamber of the barrel, the packing-washer fitted in the base of the barrel, and closely surrounding the protruding portion of the stem, the flange or enlargement provided to the end portion of the stem member within the chamber, and a plug for closing the end opening in the cup-shaped barrel having a nipple extension and an axial passage therethrough.

2. In a connection-piece of the character described, the combination with the cup-shaped member or barrel having an axial opening through its base, of the tubular stem member extended through said opening and centrally beyond the base, a packing-washer surrounding the portion of the stem within the barrel adjacent the base, a clamping-washer set with a tight fit to the internal wall of the barrel, and against the washer, means for preventing the endwise withdrawal of the stem member, and means for closing the upper end of the barrel having an axial passage therethrough.

3. In a connection-piece, the combination with the cup-shaped member or barrel having an axial opening through its base, of the tubular stem member extended through said opening and protruding centrally within the barrel, a washer at the base of the barrel surrounding closely the stem, a washer fitted about the inner end portion of the stem, and affixed thereto, and free relatively to the inner wall of the barrel, and the plug immovably secured in the open end of the barrel, and having an axial extension, through which and the plug proper is an endwise passage.

4. In a connection-piece, the combination with the cup-shaped member or barrel having an axial opening through its base, of the tubular stem member extended through said opening and protruding centrally within the barrel, a washer at the base of the barrel surrounding closely the stem, a washer fitted about the inner end portion of the stem, slightly below the end of the latter, the end portion of the stem being upset to engage over the face of the washer, and the plug having a driving fit in the open end of the barrel and having an axial tubular extension which is externally screw-threaded.

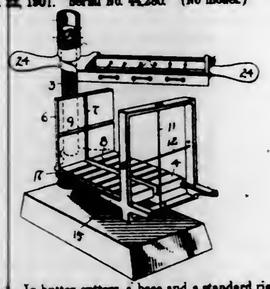
5. In a connection-piece, the combination with the cup-shaped member or barrel having an axial opening through its base, and having its wall at its orifice flaring as shown, of the tubular stem member extended through said opening in the base and protruding centrally within the barrel, a packing-washer surrounding the portion of the stem adjacent the base of the barrel, a metallic washer secured as one to the inner end portion of the stem, and the plug, tapered and firmly driven into said flaring orifice, and having the axially-passaged nipple extension.

6. In a connection-piece, the combination with the cup-shaped member or barrel having an axial opening through its base, and having its wall at its orifice flaring as shown, of the tubular stem member extended through said opening in the base and protruding centrally within the barrel, a packing-washer surrounding the portion of the stem adjacent the base of the barrel, a metallic clamping-washer next to the packing-washer, a metallic washer secured as one to the inner end portion of the stem, and the plug.

tapered and firmly driven into said flaring orifice, and having the axially-passaged nipple extension.

7. In a connection-piece, the combination with the cup-shaped casing or barrel having through its base the axial opening made of different diameters whereby the seat *e* is produced, and having its internal wall at its orifice flaring as at *b*, of the tubular stem member B having its end portion reduced as at *f* forming shoulder *h*, and again reduced as at *g* forming shoulder *i*, said end portion being entered within the barrel, the shoulder *h* seating at the rest *e*, and the most reduced portion *g* protruding centrally within the chamber of the barrel, the packing-washer D fitted about the portion *g* of the stem adjacent the shoulder *i*, the metallic clamping-washer next to the packing-washer and free of the stem, the metallic washer F closely fitted about the inner portion of the stem below the extreme end thereof and free of the inner wall of the barrel, the extreme end of the stem being outwardly turned or upset upon the face of said washer F, and the tapered axially-passaged plug G driven tightly into the flaring orifice of the barrel, and having the externally-screw-threaded tubular nipple extension *c*, substantially as described and shown.

681,068. BUTTER-CUTTER. WILLIAM H. NOACK, Cleveland, Ohio. Filed Jan. 22, 1901. Serial No. 44,280. (No model.)



Claim.—1. In butter-cutters, a base and a standard rigid therewith, a butter-receiving platform having a flat upright back rigid therewith at its rear in front of and apart from said standard, a cutter-frame slidably supported on said standard, and the said standard and cutter-frame constructed so that the said frame may slide down over said upright back and rotate horizontally at the top of the standard, substantially as described.

2. The butter-cutter described comprising a base and a standard thereon, a platform above the base and a cutter-frame having a sliding and rotatable connection with said standard, substantially as described.

3. The base and the single cylindrical standard thereon and the outer frame supported on said standard, said standard and frame constructed to permit the frame to slide up and down within fixed vertical lines and to rotate at the top of the standard, substantially as described.

4. In a butter-cutter, a cutter-frame having a series of wires stretched across the same from side to side and a sleeve at one end of said frame, in combination with a fixed standard on which said sleeve is adapted to slide up and down, and a horizontally-arranged platform to which said cutter-frame works, said frame being mounted to rotate on said standard at its top, substantially as described.

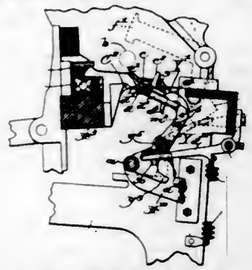
5. In butter-cutters, a butter-receiving platform slotted from front to rear and having guideways in its side edges, in combination with a cutter-frame embracing said platform slidably supported in said guideways and having transversely-disposed cutter-wires, said cutter-frame having elongated sliding portions in said guideways and the sides thereof connected across the bottom beneath said platform, substantially as described.

6. In butter-cutters, a fixed base and standard and a platform for receiving the butter slotted from front to rear and having a series of parallel channels across its top at right angles to said slot and an upright back rigid with said platform and grooved on its face, in combination with the slidable butter-cutter supported on said platform and adapted to rest at the rear thereof, and a cutter-frame movable up and down on said standard and over said slidable cutter, substantially as described.

7. A butter-cutting machine having a platform for the butter slotted one way and grooved guides in its side edges, in combination with a cutter-frame having runners 15 at its opposite sides running in said guides and so constructed as to withdraw and support the cutter-frame outside the said platform, substantially as described.

681,069. THREAD-PARTING MECHANISM FOR LOOMS. JAMES H. NORTHROP, Tustin, Cal., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filed Apr. 29, 1901. Serial No. 57,891. (No model.)

Claim.—1. In a loom provided with filling-replenishing mechanism, means operative upon change of filling to part the filling adjacent the cloth and the shuttle, respectively, controlling means for the replenishing mechanism, and a holder for the cut piece of filling, movable by or through the operation of the controlling means into position to engage the filling between the parting means, said holder including two jaws having their opposed faces roughened, one of said jaws being movable longitudinally upon the other, and means to effect intermittent relative longitudinal movement of the jaws, to thereby work the piece of filling between them toward the outer ends of the jaws.



2. In a loom provided with filling-replenishing mechanism, means operative upon change of filling to part the filling adjacent the cloth and the shuttle, respectively, two jaws bodily movable into position to engage the filling between said parting means, said jaws being provided with longitudinal series of barbs upon their opposed faces, the barbs on one jaw alternating with those upon the other jaws, one of the jaws being longitudinally movable upon the other, a spring to maintain it in normal position, and means to intermittingly move the jaw against the action of the spring when the jaws are moved into position to engage the filling.

3. In a loom provided with filling-replenishing mechanism, means operative upon change of filling to part the filling adjacent the cloth and the shuttle, respectively, two jaws bodily movable into position to engage the filling between said parting means, holding barbs on the inner face of one jaw, retracting-barbs on the opposed face of the other jaw, one of the jaws being movable longitudinally of the other jaw, to work a piece of filling therebetween toward the bases of the jaws, and means to intermittingly effect relative reciprocating movement of the jaws.

4. In a loom provided with filling-replenishing mechanism, the lay, a swinging support, a filling-parter and a filling-holder mounted thereon, means operative upon change of filling to swing the support and bring the parter and holder into position to engage the filling between the shuttle and the cloth, the parter including blades operated by or through the lay, the holder including two jaws one of which is movable longitudinally of the other, barbs on the opposed faces of the jaws, a heel on one jaw, to be engaged by the lay, to move the jaw in one direction, and a spring to return the jaw to normal position, the relative movement of the jaws acting to rub a piece of filling from the mouth of the jaws toward the bases thereof.

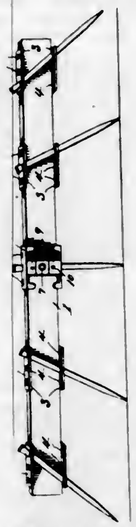
5. In apparatus of the class described, filling-parting means, and a holder to engage the filling adjacent said means, the holder comprising two jaws, one of which is longitudinally movable upon the other, alternating and longitudinally-arranged series of barbs upon the opposed faces of the jaws, and a spring to retain the jaws in normal position, the filling passing between the jaws when the latter are in operative position, relative longitudinal movement of the jaws operating to gradually rub a piece of filling therebetween toward the bases of the jaws.

6. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, two thread-parters to act upon the filling of the filling-carrier to be ejected adjacent the cloth and the shuttle respectively, a filling-holder movable by or through the operation of said controlling means into position to engage the filling between the thread-parters, said holder comprising two jaws one of which is longitudinally movable relative to the other, and provided with a flaring mouth to receive the filling, a series of barbs on the opposed faces of the jaws, and means to effect relative longitudinal movement of the jaws to thereby gradually work a piece of filling held therebetween toward the bases of the jaws to be discharged therefrom.

681,070. HARROW. WILLIAM L. ORAM, Kingston, Tenn. Filed Dec. 20, 1900. Serial No. 40,550. (No model.)

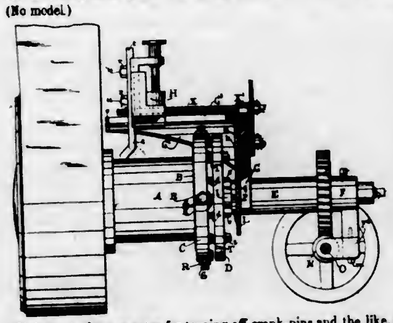
Claim.—1. In a harrow or similar implement, the combination of a tooth-supporting beam, a clip adjustably secured thereon having a plurality of tooth-receiving perforations in the upper and lower members thereof, and means securing the teeth in the clip and the clip to the beam.

2. In a harrow or other implement, the combination of a tooth-beam, a tooth-receiving clip supported thereon, and a plurality of tooth-receiving openings or perforations in the upper and lower members of said clip, whereby the teeth may be inclined to the left or the right in said clip, as may be desired.



3. In a harrow or other implement, a tooth-beam, a tooth-clip composed of upper and lower members and a back member, means detachably securing said members together, a plurality of tooth-receiving openings in said upper and lower members and a set-screw passing through said back member and reacting against said tooth-beam.

681,071. MACHINE FOR TURNING OFF CRANK-PINS, &c. CHARLES F. OWEN, Chicago, Ill., assignor to Charles W. Brown and Benton L. Clover, same place. Filed July 19, 1899. Serial No. 724,352. (No model.)



Claim.—1. In apparatus for turning off crank-pins and the like, the combination with a revoluble tool-carrier and with a support therefor, of a centering-stud longitudinally movable through said support and adjustable devices independent of said centering-stud for centering the support in the absence of a lathe-center or the like in the end of the pin to be operated upon.

2. In apparatus for turning off crank-pins and the like, the combination with a revoluble tool-carrier and with a support therefor, of a screw-threaded centering-stud longitudinally movable through said support and radially-movable screw-threaded adjustable devices for independently centering said support.

3. In apparatus for turning off crank-pins and the like, the combination with a revoluble tool-carrier and with a support therefor, of means at one end only of said support for carrying the same in operative position upon the outer end of the crank-pin to be operated upon and for adjusting the support bodily in radial direction when in operative position upon the crank-pin.

4. In apparatus for turning off crank-pins and the like, the combination with a revoluble tool-carrier and with a support therefor, of means at one end only of said support for carrying the same in operative position entirely upon the outer end of the crank-pin to be operated upon and for adjusting the support bodily in radial direction when in operative position upon the crank-pin, and means for axially adjusting said support when in operative position.

5. In apparatus for turning off crank-pins and the like, the combination with a support and with a revoluble tool-carrier and operating means therefor carried by said support, of means at one end only of said support for carrying the same in operative position entirely upon the outer end of the crank-pin to be operated upon, means for centering said support and means for axially adjusting said support when in operative position.

6. In apparatus of the character described, the combination with a chucking-head and with a supplemental head secured to said chucking-head and having a support projected therefrom, of means for adjustably securing said chucking-head to the part to be operated upon, and a revoluble tool-carrier and operating means therefor carried by said support.

7. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of means for adjustably securing said chucking-head to the part to be operated upon, means for axially adjusting said supplemental head and said support, and a revoluble tool-carrier and operating means therefor carried by said support.

8. In apparatus for turning off crank-pins and the like, the combination with a revoluble tool-carrier and with a support therefor, of means for adjustably securing said support upon the crank-pin to be operated upon comprising radially-movable adjusting-screws and independent radially-movable clamping-screws.

9. In apparatus for turning off crank-pins and the like, the combination with a revoluble tool-carrier and with a support therefor, of a chucking-head for carrying said support upon the outer end of the crank-pin to be operated upon, said chucking-head being provided with radially-movable adjusting-screws and with radially-movable clamping-screws threaded through said adjusting-screws.

10. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of means for centering said chucking-head and independent means for centering said supplemental head and support, and a revoluble tool-carrier and operating means therefor carried by said support.

11. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of means for centering said chucking-head, means for axially adjusting said supplemental head and support, and a revoluble tool-carrier and operating means therefor carried by said support.

12. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of means for centering said chucking-head, independent means for centering said supplemental head and said support, means for axially adjusting said supplemental head and said support, and a revoluble tool-carrier and operating means therefor carried by said support.

13. In apparatus for turning off crank-pins and the like, the combination with a chucking-head and with a supplemental head having a support projected therefrom, means for adjustably securing said heads and said support in operative position entirely upon the outer end of the crank-pin to be operated upon, means for axially adjusting said supplemental head and said support, and a revoluble tool-carrier and operating means therefor carried by said support.

14. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of adjustable connections between said heads, radially-movable screws for centering said chucking-head, longitudinal adjustable screws for axially adjusting said supplemental head and said support, and a revoluble tool-carrier and operating means therefor carried by said support.

15. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of adjustable connections between said heads, means for clamping said chucking-head to the outer end of the part to be operated upon, means for centering said supplemental head and said support, means for axially adjusting said supplemental head and said support, and a revoluble tool-carrier and operating means therefor carried by said support.

16. In apparatus of the character described, the combination with a chucking-head and with a supplemental head having a support projected therefrom, of adjustable connections between said heads, adjusting and clamping screws for adjustably clamping said chucking-head to the outer end of the part to be operated upon, a centering-stud longitudinally adjustable through said supplemental head and said support for centering said parts, and screws longitudinally adjustable through said supplemental head for axially aligning said head and said support, and a revoluble tool-carrier and operating means therefor carried by said support.

17. In apparatus of the character described, the combination with a support, of a revoluble tool-carrier journaled on said support and provided with ways, a tool-post mounted on said ways, a feed-shaft for said tool-post, a gear fixed on said support and an interchangeable train of gearing between said gear and said feed-shaft.

18. In apparatus of the character described, the combination with a support provided at its inner end with means for carrying the same in operative position entirely upon the outer end of the part to be operated upon, of a revoluble tool-carrier and operating means therefor carried by said support, said tool-carrier being provided with suitable ways and a movable tool-post, a feed-screw for said tool-post, a gear fixed to said support and an interchangeable train of gears intermediate said support and said feed-screw.

681,072. **SLEIGH-BRAKE.** AUGUST C. PATHER, Sanborn, Wis. Filed Apr. 17, 1901. Serial No. 56,218. (No model.)



Claim.—1. A sleigh-brake, comprising brake rods or pins carried in vertical passages in the sleigh-runners and movable to engage the surface directly under the runners, levers connected at their outer ends to the brake rods or pins, the inner ends of the levers being heavier than the outer ends to normally hold the brake rods or pins in inactive position, and means connected with said inner ends of the levers to move the same to apply the brakes.

2. The combination with a sleigh and the runners having vertical openings extending through the runners, of brake rods or pins movable vertically in said openings to engage the surface beneath the runners, brake-levers fulcrumed on a fixed support and each having an outer arm connected with the respective brake rod or pin, a brake-chain connected with the inner arms of said levers and passing over a pulley and means for operating the brake-chain.

3. A sleigh-brake, comprising a tube or casing fitted in the sleigh-runner and opening at the top and bottom of the runner, a brake rod or pin mounted in said tube or casing and movable vertically to engage the surface beneath the runner, a transversely-extending brake-lever fulcrumed at one side of its center and having its outer or short arm connected with the said brake rod or pin, the inner or long arm of the lever being heavier than the short arm, to normally hold the brake rod or pin in inactive position, and means connected with the long arm for moving the lever to apply the brake.

4. A sleigh-brake, comprising a brake rod or pin carried in a passage in the sleigh-runner and movable vertically to engage the surface directly under the runner, the upper end of the passage through the runner being contracted and the rod or pin having a reduced end extending through the said contracted end of the passage.

5. The combination with a sleigh-runner, of a tube or casing fitted in an opening in the runner and opening at the top and bottom of the runner, the upper end of said tube being contracted, a brake rod or pin mounted in said tube or casing and having its upper end reduced and extending through the contracted end of the tube, a brake-lever connected with the reduced end of the pin or rod, and means for actuating the lever, to apply the brake.

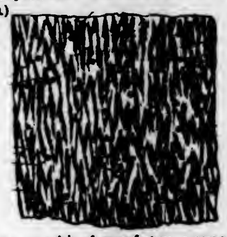
6. The combination with a sleigh, and the runners having vertical openings, of brake rods or pins movable in said openings in the runners, transversely-extending brake-levers having their outer ends connected with the brake rods or pins, a brake-chain connected with the inner ends of said levers and passing over a pulley, a rod connected at its rear end with the said chain, a lever connected with the forward end of the rod, and a hand-lever connected with the last-mentioned lever.

681,073. **SUSPENDER-END.** LEWIS E. PEASE, New York, N. Y. Filed Feb 14, 1901. Serial No. 47,242. (No model.)



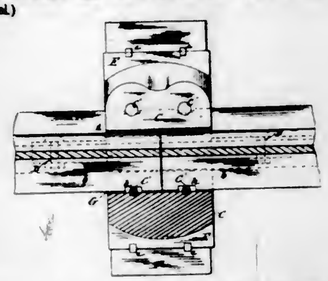
Claim.—As a new article of manufacture, a suspender-end, consisting of two pieces having enlarged ends overlying one another, the inner piece being provided with buttonholes in its enlarged ends, and keys or spacers having openings larger than the buttonholes of the said inner piece and arranged between the enlarged ends of the said pieces, the several pieces being secured together along their edges, forming a pocket at each terminal of the suspender-end as set forth.

681,074. **CREPE PAPER.** JOHN L. PERKINS, Holyoke, and CHARLES E. POPE, South Hadley, Mass., assignors to the Japanese Tissue Mills, Holyoke, Mass. Filed Mar. 23, 1901. Serial No. 53,344. (No specimens.)



Claim.—As a new article of manufacture, a crape paper having a multiplicity of crystal-like mineral particles incorporated therein, and which, by reason of the crimping of the paper, are exposed at different angles to emit successions of coruscations either when the paper is viewed from different points, or is moved.

681,075. **RAILWAY-JOINT.** GEORGE T. PERKINS and MILTON HILL, Cleveland, Minn. Filed Apr. 27, 1901. Serial No. 57,788. (No model.)



Claim.—1. In railway-rail joints, the combination with the rails having elongated bolt holes or slots through their web portions and elongated notches in their bases, of the combined fish-plates and rail-supports, comprising the plates B, B, and the abutments C, C, the latter being formed with notches or recesses G G to receive the bases of the rails, and with spike-holes *c*, *c*, substantially as described.

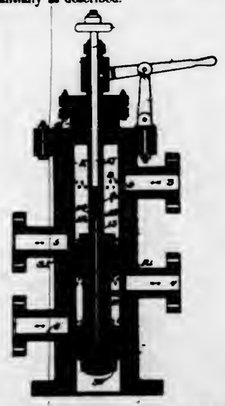
2. In railway-rail joints, the combination with the rails having elongated bolt-holes in their webs, and elongated notches in their bases, of the recessed tie, and the combined rail chair and joint or joint connection, comprising the fish-plates B, B, and the abutments C, C, formed integral therewith, said abutments being formed with vertical holes through which spikes pass into the tie and through the rail-notches substantially as described.

681,076. **HYDRAULIC VALVE FOR PRESSES.** DAVID W. PORTER, Sewickley, Pa. Filed Jan. 17, 1901. Serial No. 43,805. (No model.)

Claim.—1. In combination with a working barrel or cylinder provided with rows of openings, a valve-body arranged therein and provided with a valve-head near each end, a split ring arranged in each valve-head, a packing arranged in each of said valve-heads around the split rings, means for admitting pressure from the interior of the cylinder to the back of the split rings, a stem connected to said valve-body, and means operative within the stem for regulating the pressure on the packing-rings, substantially as described.

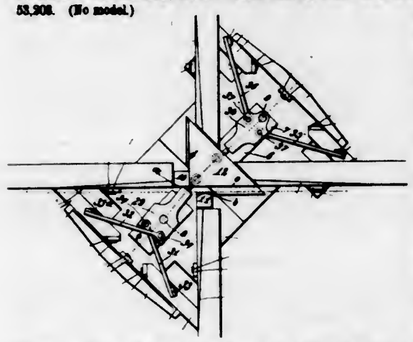
2. In combination with the valve-casing having inlet and discharge ports, of a working barrel or cylinder within the valve-casing and provided with ports opposite the inlet and discharge ports of the valve-casing, a by-pass arranged within the valve-casing and commencicating with the interior of the working barrel or cylinder above and below the valve-body, a series of leather packing-rings arranged upon the valve-body, means for admitting the pressure through the valve-body to the back of said rings, a drain-port in the valve-body for relieving the pressure on said rings, and means connected to the valve-body for operating the same, substantially as described.

3. In combination, a valve-casing having inlet and discharge ports, a working barrel or cylinder within the valve-casing and provided with ports opposite the inlet and discharge ports of the valve-casing, a valve-body within the working barrel or cylinder with a valve-head on each end, and a by-pass arranged within the valve-casing and communicating with the interior of the working barrel at each end of the valve-body, a hollow stem connected to the valve-body and provided with inlet-ports extending through the walls thereof, a valve-rod threaded into said stem for opening and closing said ports, a central port within the valve-body communicating with the hollow stem, lateral ports in the valve-heads communicating with the central port in the valve-body, a split ring arranged in each valve-head, a series of flexible packing-rings arranged on said split rings, and means connected to the hollow stem for operating the valve-body, substantially as described.



4. In combination, a working barrel or cylinder provided with openings, a valve-body arranged therein and provided with a valve-head near each end, a split ring arranged in each valve-head, flexible packing-rings on said split rings, means for admitting pressure from the interior of the cylinder to the back of the split rings to expand the flexible packing-rings, a drain-port in the valve-body for relieving said pressure, a stem connected to said valve-body, and means operative within the stem for regulating the pressure on the packing-rings, substantially as described.

681,077. **RAILWAY-CROSSING FROG.** ISTHME POULIN, Jr., St. Germain de Grantham, Canada. Filed Mar. 28, 1901. Serial No. 53,208. (No model.)

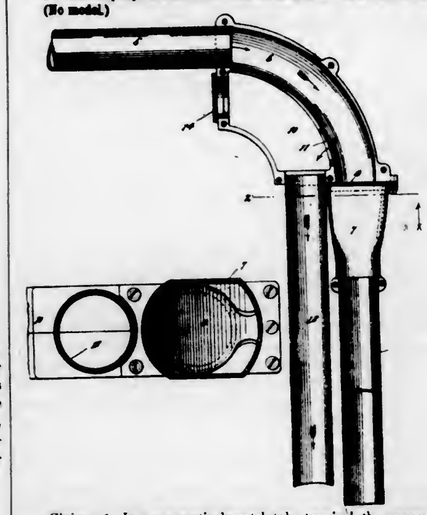


Claim.—1. In a railway-crossing frog, the combination of wheel-actuated bars hung to vibrate on horizontal axes and arranged in pairs and with the bars of one pair disposed in the same vertical plane, limiting-posts in the planes of the respective pairs of bars, a shiftable tread-bearing element in active relation to one pair of bars and one limiting-post, actuators disposed on opposite sides of the tread-bearing element, and connections between the actuators and the bars of opposite pairs, substantially as described.

2. In a railway-crossing frog, the combination of limiting-posts having their active faces disposed in planes intersecting at an angle corresponding to the position of crossing track-rails, a shiftable element having its active edges disposed correspondingly to the edges of the posts and arranged to be shifted with respect to said posts for the formation of a gap or space between one edge and one post, wheel-actuated bars arranged in pairs in alinement with said posts, and means operatively connecting said bars with the shiftable element, substantially as and for the purposes described.

3. In a railway-crossing frog, the combination of two pairs of wheel-actuated pivoted bars disposed at an angle one to the other, a shiftable tread-bearing element arranged in operative relation to the bars of one pair, inwardly-extending arms on the bars of the opposite pairs, evener-levers each hung between the bars of opposite pairs and having operative connection with the arms of said bars, and the actuators independently pivoted to the shiftable tread-bearing element and each linked to the arms of opposite pairs of wheel-actuated bars, substantially as and for the purposes described.

681,078. **PNEUMATIC-TUBE TERMINAL.** WILLIAM H. SHEPARD, New York, N. Y., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Mar. 3, 1899. Serial No. 707,623. (No model.)

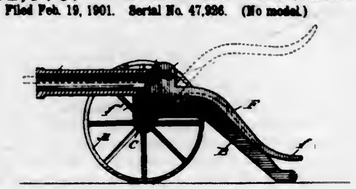


Claim.—1. In a pneumatic-despatch-tube terminal, the pneumatic tube through which the carrier passes leading to the terminal, a receiving-tube connected with said carrier-tube, a discharge-tube connected with said receiving-tube, a valve interposed between said receiving-tube and said discharge-tube, a box located adjacent to said receiving-tube and separated from the same by a common wall in which is a port connecting the interior of said receiving-tube with the interior of said box, and an exhaust-tube connected with said box.

2. In a pneumatic-despatch-tube terminal, the pneumatic tube through which the carrier passes leading to the terminal, a receiving-tube connected with said carrier-tube, a funnel-shaped discharge-tube connected at its larger end with said receiving-tube, a valve interposed between said receiving-tube and said discharge-tube and opening into the latter tube, a box located adjacent to said receiving-tube and communicating with the same, and an exhaust-tube connected with said box.

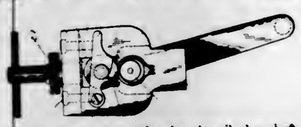
3. In a pneumatic-despatch-tube terminal, a receiving-tube, a box located alongside of said tube and separated from the same by a common wall in which is a port connecting the interior of said tube with the interior of said box, and said box having an opening in each end, an exhaust-tube connected with one or the other of said openings in the ends of the box, a cap adapted to close one or the other of said openings in the ends of the box, and a valve controlling the outlet end of said receiving-tube.

681,079. **TOY CANNON.** ROBERT L. SHORT, Clifton Park, Ohio. Filed Feb. 19, 1901. Serial No. 47,926. (No model.)



Claim.—In a toy match-cannon, the combination with suitable supporting means, a muzzle thereon open at its rear end, and a firing-lever pivoted in the open end of the muzzle comprising an elongated operating portion, a rounded or enlarged portion projecting therefrom adapted to work in said open end of the muzzle to limit the insertion of a match thereinto, and a lug adjacent said enlarged portion adapted when the lever is lowered to extend into the muzzle and operate in opposition to a portion of the upper surface of the bore thereof, substantially as and for the purpose described.

681,080. JEWELER'S TOOL. EDWIN A. SIMONDS, Somerville, Mass., assignor to Ripley-Howland Manufacturing Company, Boston, Mass. Filed Mar. 14, 1901. Serial No. 51,064. (No model.)



Claim.—1. In an apparatus of the class described, a shaft mounted in fixed bearings and an eccentric smooth-surfaced roll supported thereon, said roll adapted to have a ring slipped over the same, a parallel shaft mounted in movable bearings, a coöperating roll secured to the end of the last-named shaft, said roll having a working face to fit the exterior of the ring, and means to rotate said shafts in unison, the eccentricity of the smooth-surfaced roll being approximately equal to the difference in thickness of the ring at points directly opposite and adjacent to the setting, whereby as the shafts are rotated the distance between the adjacent surfaces of the rolls varies.

2. In an apparatus of the class described, a shaft mounted in fixed bearings and supporting at one end outside the bearings an eccentric smooth-surfaced roll, said roll adapted to have a ring slipped over the same and the eccentricity of the roll being approximately equal to the difference in thickness of the ring at points directly opposite and adjacent the setting, a parallel shaft mounted in movable bearings, a coöperating roll detachably secured to said last-named shaft, said detachable roll having a working face to fit the exterior of the ring, means to rotate said shafts, and adjusting devices to vary at will the distance between the shafts, said adjusting devices operating to constantly maintain said shafts in parallelism.

3. In an apparatus of the class described, a frame, a pair of rolls mounted therein, one of said rolls being adjustable, means to rotate said rolls, said adjustable roll being mounted in a single movable bearing-block extending the length of the frame, a screw operating in said frame and impinging at its end against the said bearing-block near one end thereof, a second screw engaging a screw-threaded socket in the other end of said bearing-block, said last-named screw being held against longitudinal movement, and means to turn the screws, whereby the movable bearing-block is moved bodily to vary the distance between the rolls.

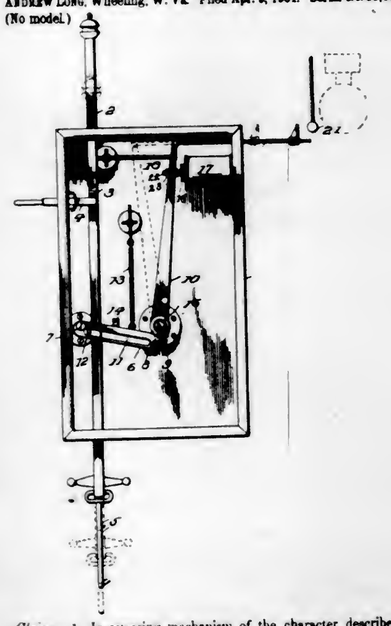
4. In an apparatus of the class described, a frame, a pair of shafts mounted therein for rotation, said shafts carrying rolls at their ends and outside the frame, one of said rolls being adapted to have a finger-ring slipped over the same, and the other roll being shaped to fit the contour of the exterior of the ring, one of said shafts being mounted in a movable bearing block, means to rotate said shafts, a pair of feed-screws mounted in said frame and engaging said movable bearing-block, one of said screws being mounted in the frame for longitudinal movement, and impinging at its end against said bearing-block, and the other of said feed-screws being held against longitudinal movement, and engaging a screw-threaded socket in the said bearing-block, and means to turn said screws, whereby the distance between the rolls may be varied, said screws operating to constantly maintain the shafts in parallelism.

5. In an apparatus of the class described, a pair of shafts, means to turn the same, coöperating rolls mounted thereon, one of said shafts being mounted in a movable bearing-block, a pair of right and left feed-screws mounted in said frame, one of said screws being mounted in the frame for longitudinal movement, and bearing at its end against the movable bearing-block, and the other of said screws being held against longitodinal movement and engaging a screw-threaded socket in the said movable bearing-block, and means to simultaneously turn said screws in the same direction, whereby the distance between the coöperating rolls may be varied, and the faces of the rolls preserved in constant parallelism.

6. In an apparatus of the class described, a frame, a pair of parallel shafts mounted therein, said shafts carrying coöperating rolls, one of said shafts being supported in a movable bearing-block, a pair of right and left feed-screws mounted in said frame, one of said screws being mounted for longitudinal movement and bearing at its end against the movable bearing-block, the other of said screws being held against longitudinal movement and engaging a screw-threaded socket in the bearing-block, gears at the upper ends of said screws, and means to rotate said gears in the same direction, whereby the distance between the rolls may be adjusted at will and the parallelism of the faces of the rolls preserved.

7. In an apparatus of the class described, a pair of rolls having the contiguous portions of their faces parallel, one of said rolls having an eccentric face the eccentricity of said face being approximately equal to the difference in the thickness of the ring at points directly opposite and adjacent the setting, means to rotate said rolls in unison and adjusting devices for varying at will the distance between the working faces of said rolls, said adjusting devices operating to maintain the operative portions of the faces of the rolls in parallelism.

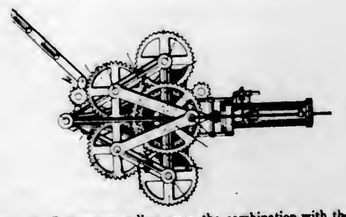
681,081. ENGINE-HOUSE APPLIANCE. DANIEL T. SPRING and ANDREW LONG, Wheeling, W. Va. Filed Apr. 9, 1901. Serial No. 55,092. (No model.)



Claim.—1. In releasing mechanism of the character described, a releasing-bar provided with an offstanding part, a pivoted holding-arm having a longitudinal slot to receive the projecting part of the releasing-bar, and an actuating-lever having a pin or stop for engagement with the holding-arm to normally hold it in a given position, substantially as set forth.

2. In releasing mechanism of the character described, a releasing-bar, an arm for holding the releasing-bar in a given position, an actuating-lever for securing the said arm in a normal position, an electromagnet and armature for holding the actuating-lever in a given position, and an operating-rod adapted to move the actuating-lever by receiving the impact of a gong-hammer, substantially as set forth.

681,082. COTTON-PRESS. WILLIAM M. THOMAS, Chicago, Ill., assignor to the Thomas Cotton Company, same place. Filed Feb. 20, 1900. Renewed July 12, 1901. Serial No. 68,107. (No model.)



Claim.—1. In a cotton-baling press, the combination with the stationary and movable bale-forming rollers, of mechanism for revolving said rollers including a clutch for disconnecting one of said rollers without stopping the others, pressure devices for exerting a pressure on said movable rollers in a direction toward the stationary roller, a controlling device for releasing said pressure devices and an automatic device operated by the movement of said movable rollers away from the stationary roller for operating said controlling device and clutch to effect the discharge of the finished bale, substantially as described.

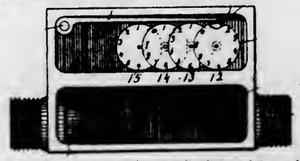
2. In a cotton-baling press, the combination with a stationary roller and movable rollers, mechanism for driving all of said rollers including a clutch for disconnecting one of said rollers without stopping the movement of the others, fluid-pressure devices operatively connected with said movable rollers, a controlling-valve therefor and automatic devices operatively connected with said movable rollers for operating said clutch and said controlling-valve to effect the automatic discharge of the finished bale, substantially as described.

3. In a cotton-baling press, the combination with the stationary roller and movable rollers, of means for imparting rotary motion to all of said rollers including a clutch for disconnecting one of said rollers from its driving mechanism without stopping the other rollers, fluid-pressure devices operatively connected with said movable rollers, a controlling device therefor, means for operating said clutch and a stop-bar provided with adjustable stops for effecting the operation of said controlling-valve and clutch, substantially as described.

4. In a cotton-baling press, the combination with the stationary roller and movable rollers, of means for imparting rotary motion to all of said rollers including a clutch for disconnecting one of said rollers from its driving mechanism without stopping the other rollers, fluid-pressure devices operatively connected with said movable rollers, a fluid-pressure device for operating said clutch, a valve controlling said fluid-pressure devices and said fluid-pressure clutch-operating device and a stop-bar operatively connected with said movable rollers and provided with adjustable stops for moving said controlling-valve, substantially as described.

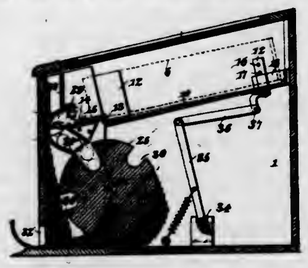
5. In a cotton-baling press, the combination with the stationary roller and movable rollers, of means for imparting rotary motion to all of said rollers including a clutch for disconnecting one of said rollers from its driving mechanism without stopping the other rollers, fluid-pressure devices operatively connected with said movable rollers, a fluid-pressure clutch-controlling device, a controlling-valve for controlling the supply of fluid to said fluid-pressure devices and said fluid-pressure clutch-operating device, an operating-lever connected to said valve, a stop-rod operatively connected with said movable rollers and provided with adjustable stops for engaging said lever, substantially as described.

681,083. WATER-METER. LEVI P. TREADWELL, Danbury, Conn. Filed Apr. 29, 1901. Serial No. 58,042. (No model.)



Claim.—In water-meters, a chamber having an inlet and an outlet passage for water; a valve hung to swing against the face of the inlet-passage; clockwork adapted to register time, and a lever connected with the valve and having a tooth to engage a toothed wheel of the clockwork, substantially as described whereby the opening of the valve much or little will cause the registry of the full time of the opening.

681,084. COIN-CONTROLLED VENDING-MACHINE. WILLIAM TRIBBLE, Alton, Ill., assignor of one-fourth to Harvey J. Bailey, same place. Filed Mar. 3, 1900. Serial No. 7,243. (No model.)



Claim.—1. In a coin-controlled vending-machine, a package or box holder, delivery mechanism including a delivering device for the individual articles, and agitating mechanism for said package-holder, said two mechanisms being operatively connected by the coin, substantially as set forth.

2. In a coin-controlled vending-machine, the casing, a package-holder loosely supported within the casing, delivery mechanism including a delivering device for the individual articles, and agitating mechanism for said package-holder, said two mechanisms being operatively connected by the coin, substantially as set forth.

3. In a coin-controlled vending-machine, the casing, a vibratory package-holder supported to reciprocate within the casing, delivery mechanism including a delivery device for the individual articles, and agitating mechanism for said package-holder, said two mechanisms being operatively connected by the coin, substantially as set forth.

4. In a coin-controlled vending-machine, the casing, the vibratory package-holder adapted to support the original package and work the articles out of one end thereof, delivery mechanism including a delivering device for the individual articles, conveying means for directing the articles singly to said delivering device, and agitating mechanism for said package-holder, said two mechanisms being operatively connected by the coin, substantially as set forth.

5. In a coin-controlled vending-machine, the casing, a vibratory holder slidably mounted within the casing and adapted to support the original package and work the articles out of one end thereof, delivery mechanism including a delivering device for the individual articles, conveying means for directing the articles singly to said delivering device, and agitating mechanism for said package-holder, said two mechanisms being operatively connected by the coin, substantially as set forth.

6. In a coin-controlled vending-machine, the casing, the vibratory holder supported to reciprocate at an inclination within the casing and adapted to support the original package and work the articles out of one end thereof, delivery mechanism including a delivery device for the individual articles, conveying means for directing the articles singly to said delivering device, and agitating mechanism for said package-holder, said two mechanisms being operatively connected by the coin, substantially as set forth.

7. In a coin-controlled vending-machine, the casing, a vibratory package-holder mounted within the casing, delivery mechanism including a delivering device for the individual articles, a conveyer or chute leading to said delivering device and having a contracted throat for receiving the individual articles from the package carried by the holder, means for causing the articles to pass singly through said throat and enter the mouth of said conveyer or chute, and a normally idly operative agitating mechanism connected with the holder and adapted to be operatively connected with the delivery mechanism by the coin.

8. In a coin-controlled vending-machine, the casing, a shaking holder for the original package mounted within the casing and provided with a feeding device, a delivery mechanism including a delivering device for the individual articles and having a chute leading to said delivering device and provided with a contracted mouth adjoining the feeding device of the holder, and an agitating mechanism operatively connected with the holder and with the delivery mechanism, substantially as set forth.

9. In a coin-controlled vending-machine, the casing, the shaking holder for the original package mounted within the casing and carrying beyond the seat for the package a feeding-rib, delivery mechanism including a delivering device for the individual articles, a conveying-chute leading to said delivering device and having an arresting-ledge coöperating with the feeding-rib of the holder to provide a contracted throat for the passage of the individual articles into the mouth of the conveying-chute, and agitating mechanism operatively associated with the holder and also operatively connected with the delivery mechanism by the coin, substantially as set forth

10. In a coin-controlled vending-machine, the shaking holder for the original package provided at one end with a feed-lip having an upstanding feeding-rib, the delivery mechanism including a delivering device for the individual articles, a conveying-chute leading to said delivering device and having a receiving-shelf supporting the feed-lip of the holder, and an arresting-ledge disposed above the plane of said feeding-rib, and in advance thereof, and agitating mechanism operatively associated with said holder and also operatively connected with the delivery mechanism by the coin, substantially as set forth.

11. In a coin-controlled vending-machine, the casing, a vibrating holder for the original package suitably supported at an inclination within the casing and provided at one end thereof with a feed-lip having at its upper side an upstanding feeding-rib, delivery mechanism including a delivering device for the individual articles, a conveying-chute leading to said delivering device, said conveying-chute having at the upper end of one wall a receiving-shelf slidably supporting the feed-lip of the holder, and at the upper end of the other wall an upright abutment-head lying opposite the discharging end of the package and provided at or near its lower edge with an arresting-ledge disposed above and in advance of the

said feeding-rib, and agitating mechanism operatively associated with the holder and also operatively connected with the delivery mechanism by the coin, substantially as set forth.

12. In a coin-controlled vending-machine, the casing a shaking holder for the original package supported within the casing and essentially comprising a platform provided with a plurality of upstanding retaining-arms engaging at the sides of the package or box, and at one end with a rest-shoulder for the forward or discharging end of the package, delivery mechanism for the individual articles, and agitating mechanism operatively associated with the holder and also operatively connected with the said delivery mechanism by the coin, substantially as set forth.

13. In a coin-controlled vending-machine, the casing, a shaking vibratory package-holder mounted within the casing and essentially comprising a platform provided with a plurality of upstanding retaining-arms for the package or box, and at one end with a rest-shoulder for the discharging end of the package or box, said holder being further provided with supporting projections slidably sustained within the casing, and with fastening means for the package or box, delivery mechanism including a delivering device for the individual articles, and agitating mechanism operatively associated with the holder and also operatively connected with said delivery mechanism by the coin, substantially as set forth.

14. In a coin-controlled vending-machine, the casing, a vibratory holder for the original package mounted within the casing, agitating mechanism including a rock-shaft operatively connected with said holder, and a tappet device associated with said rock-shaft, and delivery mechanism including a delivering device for the individual articles, operatively connected with said tappet device, said agitating and delivery mechanisms being operatively connected by the coin, substantially as set forth.

15. In a coin-controlled vending-machine, the casing, the vibratory holder for the original package mounted within the casing, agitating mechanism including a rock-shaft carrying a swinging arm connected with said holder, a vibrating lever provided with a shouldered free end, and an operating-shaft carrying a ratchet tappet-disk engaging the shouldered end of said vibrating lever, and delivery mechanism including a delivering device for the individual articles and operatively connected with said agitating mechanism by the coin, substantially as set forth.

16. In a coin-controlled vending-machine, the casing, the holder for the package or box, agitating mechanism for the holder or box, a delivering mechanism including a delivery-drum for the individual articles, a ratchet feed device for the delivery-drum, a coin-engaged lever connected with said ratchet feed device, and a coin-engaging member cooperating with said coin-engaged lever and operatively connected with said agitating mechanism, substantially as set forth.

17. In a coin-controlled vending-machine, the casing, a holder for the original package mounted within the casing, agitating mechanism for the holder, a delivery mechanism including an intermittently-rotating delivery drum or wheel for the individual articles, a rotating feeding device for said drum or wheel, a swinging coin-engaged lever having an operative connection with the dog of said ratchet feeding device, and a reciprocatory coin-engaged member operatively connected with the agitating mechanism and adapted to carry a coin against said coin-engaged lever, substantially as set forth.

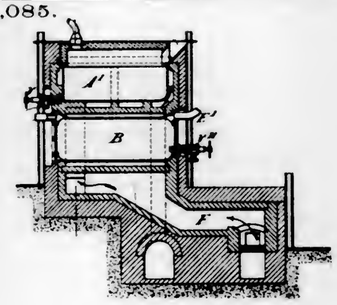
18. In a coin-controlled vending-machine, the casing, a holder for the original package mounted within the casing, agitating mechanism for said holder, a delivery mechanism including an intermittently-rotating delivery drum or wheel for the individual articles, the shaft of which carries a ratchet-wheel, an actuating-dog cooperating with the teeth of said ratchet-wheel, a swinging coin-engaged lever having a link connection with said dog, a slideway in communication with coin feeding and discharging chutes, and receiving therein one end of said coin-engaged lever, and a plunger slidably working within said slideway and having an operating connection with said agitating mechanism, substantially as set forth.

19. In a coin-controlled vending-machine, the casing, a holder for the original package mounted within the casing, agitating mechanism for said holder, a delivery mechanism including an intermittently-rotated drum or wheel for the individual articles, a coin-engaged lever for actuating the drum or wheel, an open slideway in communication with coin feeding and discharging chutes and adapted to receive therein one end of said lever, and a coin-engaging plunger slidably working in the slideway and having an operative connection with the agitating mechanism, substantially as set forth.

681,085. METHOD OF MAKING NITRIC ACID. CARL UEBEL, Aachen, Germany, assignor to Chemische Fabrik Rhenania, same place. Filed Mar. 5, 1901. Serial No. 49,906. (No specimens.)

Claim.—A process of making nitric acid, consisting in partly decomposing a nitrate and sulfuric acid at a suitable temperature, and then subjecting the partly-decomposed mixture to bisulfate of a greater temperature than that employed for the first reaction.

681,085.



681,086. FASTENER FOR GLOVES, &c. JAMES V. WASHBURN, Waterbury, Conn., assignor to the Consolidated Fastener Company, Portland, Me. Filed Aug. 1, 1900. Serial No. 25,502. (No model.)



Claim.—1. In a stud-and-socket fastening device for wearing-apparel, the combination with the flexible material, of a skeleton spring-stud with arms radiating from a common center cupped up to shape with the free ends of the said arms in the same plane, an attaching part with side portions, a receiving-angle and an open center with the skeleton spring-stud received within the open center, a convex foundation-disk received within the attaching part over the arms of the stud part and a centrally-arranged support in the form of a ring received down into the attaching part with the flexible material intervening and the free edge of the attaching part turned inwardly over the flexible material and the centrally-arranged support, substantially as set forth.

2. In a stud-and-socket fastening device for wearing-apparel, the combination with the flexible material, of an attaching part and spring-stud of radiating arms, a ring forming a centrally-arranged support within which the flexible material is visible, received with the flexible material into and the parts held by the overturned edge of the attaching part, and means for causing the flexible material within the ring to be raised to present a flexible-material surface on one side of the stud member, substantially as set forth.

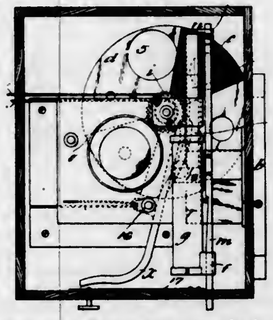
3. In a stud-and-socket fastening device for wearing-apparel, the combination with the flexible material, of an attaching part and spring-stud of radiating arms, a ring forming a centrally-arranged support within which the flexible material is visible, received with the flexible material into and the parts held by the overturned edge of the attaching part, an inner foundation-disk for causing the flexible material within the ring to be raised to present a flexible-material surface on one side of the stud member, substantially as set forth.

4. In a stud-and-socket fastening device for wearing-apparel, the combination with the flexible material, of a skeleton spring-stud with arms radiating from a common center cupped up to shape, an attaching part with side portions a receiving-angle and an open center, with the skeleton spring-stud received within the open center, and a centrally-arranged support in the form of a ring received down into the attaching part with the flexible material intervening and the free edge of the attaching part turned inwardly over the flexible material and the centrally-arranged support, substantially as set forth.

681,087. APPLIANCE FOR ADJUSTING AND WORKING SHUTTERS AND DIAPHRAGMS OF PHOTOGRAPHIC CAMERAS. ALFRED WATKINS, Hereford, England. Filed Oct. 2, 1900. Serial No. 31,763. (Model.)

Claim.—1. The combination with a diaphragm and shutter mechanism of a photographic camera, of an adjustable slide provided with graduations for various plate speeds, connected to the diaphragm mechanism and mounted in suitable relation to a scale for indicating the diaphragm values, and an adjustable slide provided with graduations for light values, connected to the shutter mechanism and mounted in suitable relation to a scale for indicating various times of exposure.

2. In an apparatus for adjusting and working the shutters and diaphragms of photographic cameras, an adjustable slide provided with graduations for various plate speeds and mounted in suitable relation to a scale for indicating the diaphragm values, an adjustable slide provided with graduations for light values mounted in suitable relation to a scale for indicating various times of exposure, a diaphragm connected to the first-named slide, shutters connected to the last-mentioned slide, and a spring-actuated means for operating the said shutters.



3. In an apparatus for adjusting and working the shutters and diaphragms of photographic cameras, an adjusting-slide provided with graduations and mounted in suitable relation to a scale for indicating the diaphragm values, an adjustable slide provided with graduations mounted in suitable relation to a scale for indicating various times of exposure, a diaphragm connected to the first-named slide, shutters connected to the last-mentioned slide, and means for operating the said shutters.

4. The combination with the diaphragm and shutters of a photographic camera, of means for setting and indicating the position of the diaphragm over the lens-opening, means for indicating the light values, means for setting the shutters, and means for operating the shutters thereby opening and closing the lens-openings.

5. The combination with the diaphragm and shutters of a photographic camera, of means for setting and indicating the position of the diaphragm over the lens-opening, means for indicating the light values, means for setting the shutters, and a spring-actuated means for operating the shutters thereby opening and closing the lens-openings.

6. The combination with the diaphragm and shutters of a photographic camera, of means for setting and indicating the position of the diaphragm over the lens-opening, means for setting the shutters, means for locking the shutters in their set position, and means for releasing said shutters, causing their operation thereby opening and closing the lens-opening.

7. The combination of a diaphragm and shutters of a photographic camera, of means for setting and indicating the position of the diaphragm over the lens-opening, means for indicating the light views, means for setting the shutters, means for locking the shutters in their set position, and means to permit of the operation of said shutters when released according to the light values.

8. In an apparatus for operating the diaphragm and shutters of a photographic camera, a pair of spring-actuated shutters for closing and opening the lens-opening according to the light values, means for locking the said shutters in the desired position, and means for operating said shutters according to the light values when the said shutters are released.

9. The combination with the diaphragm and shutters of a photographic camera, of means for setting the diaphragm in the desired position, means for setting the shutters in the desired position, a spring-actuated means for operating the said shutters, and a means for operating the shutters according to the light values.

10. The combination with the diaphragm and shutters of a photographic camera, of means for simultaneously setting and indicating the position of the diaphragm over the lens-opening of the camera, means for indicating the light values, means for setting the shutters according to the light values, a spring-actuated means for operating said shutters thereby opening and closing the lens-opening, and means for causing the operation of the said shutters according to the light values.

681,088. CLASP. JAMES N. WATT and JOSEPH A. WHITE, Pendleton, Oreg. Filed May 1, 1901. Serial No. 58,308. (No model.)

Claim.—1. A clasp, comprising a pair of jaws pivotally connected together, a cam for actuating said jaws, a lever for actuating said cam, said lever being provided with a pawl for adjusting said cam.

2. A clasp, comprising a body portion, jaws carried thereby, a cam mounted in the body portion and working against one of the jaws, a hanger movably mounted on the body portion, and an adjustable connection between the cam and the hanger.

3. A clasp, comprising a body, jaws mounted thereon, a disk mounted in the body and having a cam working against one of the jaws and also having a toothed portion, a hanger movably mounted on the body, and a pawl carried by the hanger and adjustably engaged with the teeth of the disk.



4. A clasp having a body portion with a curved guide-surface thereon, such surface terminating at its ends in shoulders, jaws on the body portion, a cam working against one of said jaws, and a hanger mounted on the body portion and connected with the cam to actuate it, the hanger having a part running on the guide-surface of the body portion and engageable with the shoulders thereof to limit the movement of the hanger.

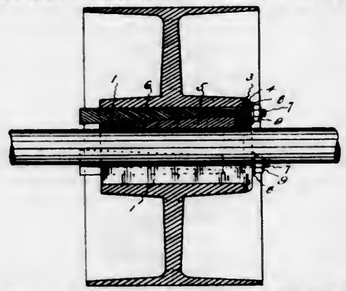
681,089. TIRE-REPAIRING TOOL. JOHN I. WHITE, Piedmont, W. Va., assignor of one-half to J. S. Helferstay, same place. Filed Feb. 6, 1901. Serial No. 46,227. (No model.)



Claim.—1. A repair-tool for the purpose specified, comprising a shank having a handhold, said handhold being formed with a socket, a nut threaded on the shank, an anvil slidable on the shank, a plunger removably fitted to the shank, and a pusher member normally held in said socket, and adapted to be removably connected to the shank.

2. A repair-tool for the purpose described, comprising a shank having a handhold provided with a socket, said shank having threaded portions of different diameters and an intermediate smooth surface, a plunger having a cutting edge, and internally threaded to fit the threads of the less diameter on the shank, an anvil slidable on the smooth surface, and having an internal diameter greater than that of the threaded portion of larger diameter, and a pusher member detachably held in said socket, internally threaded to fit the lesser threaded portion of the shank.

681,090. SHAFT AND PULLEY COUPLING. TILMAN WHITE, Jacksonville, Fla. Filed May 22, 1901. Serial No. 61,392. (No model.)



Claim.—1. A coupling consisting of a segmental shell, each segment of the shell having a wedge adapted to bear inwardly, and a wedge adapted to bear outwardly, and means for drawing one of the wedges in each segment longitudinally whereby the wedges are caused to expand or contract radially, substantially as specified.

2. A coupling consisting of a segmental shell, each segment having a longitudinal mortise, an inwardly-facing wedge and an outwardly-facing wedge located in each mortise, and means for moving one of the wedges

in each segment longitudinally and causing the wedges to expand radially, substantially as specified.

3. A coupling consisting of a segmental shell, each segment having a wedge with longitudinally-extending teeth on its inner face and a wedge with longitudinally-extending teeth on its outer face, and means for moving one of the wedges in each segment longitudinally and causing the wedges to expand radially, substantially as specified.

4. A coupling consisting of a segmental shell, each segment having a longitudinal mortise and a section of a flange with a perforation through the flange, a wedge with longitudinally-extending teeth on its inner face and a wedge with longitudinally-extending teeth on its outer face loosely held in the mortise in each segment, each outer wedge having a threaded shank extending through the perforation in the flange of its segment, and a nut turning on the threaded shank of each outer wedge for causing the outer wedges to move longitudinally and expand and contract radially, substantially as specified.

681,091. **WAD FOR CARTRIDGES.** CHARLES E. ADAMSON, Muncie, Ind. Filed Apr. 11, 1901. Serial No. 56,405. (No model.)



Claim.—1. A lubricating compound for gun-wads consisting of a fusible and a non-combustible material compounded together so as to become hard in its normal condition.

2. A lubricating-wad for cartridges consisting of a non-combustible and a fusible lubricant compounded so as to become hard in its normal condition.

681,092. **EYEGLASSES.** OTTO P. BAILER, Memphis, Tenn. Filed May 10, 1901. Serial No. 59,585. (No model.)

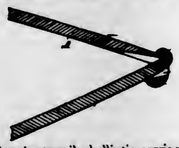


Claim.—1. The combination in an eyeglass of the bow-spring, the post having a base-plate and provided at the opposite sides thereof with flanges having slots and also having notches in the base-plate in line with said slots, the fastening-screw having a non-circular head and seated between the flanges of the post and the locking-plate having a main portion fitting between the flanges of the post and provided with an opening receiving the head of the screw, said locking-plate having the end arms bent within the slots of the flanges and the notches of the base-plate and clenched beneath the said plate substantially as shown and described.

2. The combination in an eyeglass of the post having flanges and a seat for the screw between said flanges, the screw having a non-circular head arranged to lie between the said flanges, and the locking-plate having its main portion lying between the said flanges and provided with an opening to receive said head and arms bent into engagement with the post substantially as set forth.

3. The combination with the post having the slotted flanges and the screw having its head non-circular and arranged to lie between said flanges, of the locking-plate having its main portion formed to lie between said flanges and having an opening to receive the head of the screw and provided at the ends of the main portion with arms fitting in the slots of the flanges and bent into locking connection with the post substantially as shown and described.

681,093. **CARRIAGE-SPRING.** SAMUEL R. BAILEY, Amesbury, Mass. Filed May 10, 1901. Serial No. 59,546. (No model.)



Claim.—The herein-described elliptic carriage-spring comprising an upper and a lower member, one of said members having hook-shaped ends adapted to receive the ends of the other member, and the latter provided at its ends with shanks terminating in hook-shaped heads, said shanks passing through apertures in the said hook-shaped ends and the hook-shaped head engaging the ends of the apertured member, whereby the hooked ends of each member engage and interlock with the ends of the other member, thereby providing a duplex connection between the springs at each end of the latter, substantially as described.

681,094. **CARRIAGE-SPRING.** SAMUEL R. BAILEY, Amesbury, Mass. Filed May 10, 1901. Serial No. 59,547. (No model.)

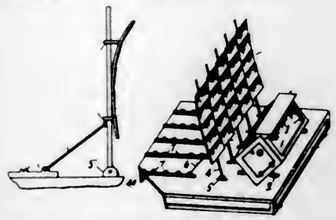


Claim.—1. The herein-described elliptic carriage-spring, consisting of an upper and a lower member, one of said members having hooked ends engaging the straight ends of the other members, in combination with socket-pieces inclosing the ends of said members, said socket-pieces being connected to one of the members and having closed ends, and inwardly-projecting pins on the ends of the socket-pieces, the sides of the member unconnected to the socket-pieces being provided with recesses into which said pins project, substantially as specified.

2. The herein-described elliptic carriage-spring consisting of an upper and a lower member, one of said members having hooked ends engaging the straight ends of the other members, in combination with socket-pieces inclosing the ends of the members and having closed ends, said socket-pieces being connected to one of said members and loosely interlocked with the other member and each provided with a lubricant-cavity, and a fibrous material disposed in said cavity, substantially as and for the purpose specified.

3. The herein-described elliptic carriage-spring consisting of an upper and a lower member, one of said members having hooked ends engaging the straight ends of the other members, in combination with socket-pieces inclosing the ends of the members and having closed ends, said socket-pieces being provided with lubricant-cavities, and the said hooked ends of one of the members being perforated, and wicks arranged in said cavities and fitted in said perforations, substantially as and for the purpose specified.

681,095. **SOLAR OVEN AND COOKER.** MILTON M. BAKER, San Francisco, Cal., assignor to the Sunshine Water Heater Co., same place. Filed Aug. 27, 1900. Serial No. 28,223. (No model.)



Claim.—1. A solar cooker having a confined air-space, means for preventing the conduction of heat from said air-space, said air-space being open on one side to the solar rays, a second confined air-space, a longitudinal plate for broiling or frying forming one side of the inclosure of said latter space, a conduit from the first space to the second, and a movable shutter for closing said conduit, substantially as described.

2. A solar cooker having a cooking-chamber, a confined air-space around said cooking-chamber, said air-space being open on one side to the solar rays, a second confined air-space, a longitudinal plate for broiling or frying forming one side of the inclosure of said latter space, a conduit from the first air-space to the second, and a movable shutter for closing said conduit, substantially as described.

3. A solar oven having its rear portion formed in an arc of a circle and having a circular bearing in which said rear portion is movably mounted, a cylindrical cooking-chamber removably mounted in said oven, and a confined air-space around said cooking-chamber, said air-space being open on one side to the solar rays, substantially as described.

4. A solar oven having its rear portion formed in an arc of a circle and having a circular bearing in which said rear portion is movably mounted, a cylindrical casing in said oven, a cylindrical cooking-chamber removably mounted in said casing, and a confined air-space around said casing, said air-space being open on one side to the solar rays, substantially as described.

5. In a device of the character described, the combination of a cooker having a cooking-chamber, a confined air-space around said chamber, said air-space on one side being exposed to the solar rays, a standard in which

said cooker is revolubly mounted, and a second chamber connected with the first chamber in the line of the axis of revolution of said first chamber, and means for closing the connection between the two chambers when desired, substantially as described.

6. The combination of a cooker having a baking-chamber, an air-space around said chamber, a suitable packing around said air-space of non-conducting material, said air-space on one side being exposed to the solar rays and provided on said side with a sheet of glass to prevent the escape of the heated air, a standard or pedestal on which said cooker is revolubly mounted, a second chamber arranged at the end of the first chamber and having a conduit connected therewith in line with the axis of the revolution of the cooker, and suitable means for connecting said conduit with said baking-chamber, to maintain the latter stationary during the revolution of the cooker, substantially as described.

681,096. **PROCESS OF MAKING CARBIDS.** HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed Mar. 27, 1901. Serial No. 53,137. (No specimens.)

Claim.—1. The process of making carbids which consists in exposing a metallic compound in a molten bath to the action of a carbid the base of which has greater affinity for the negative constituent of the compound employed.

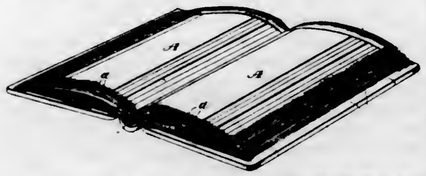
2. The process of making metallic carbids which consists in exposing a molten bath containing a metallic compound to the action of a metallic carbid the base of which has a greater affinity for the negative constituent of the metallic compound employed.

3. The process of making metallic carbids which consists in exposing a molten bath containing a metallic haloid compound to the action of a carbid the carbon constituent of which has greater affinity for the metallic base of the haloid compound.

4. The process of making metallic carbids which consists in exposing a molten bath containing a metallic fluorid to the action of calcium carbid.

5. The process of making magnesium carbid which consists in exposing a molten bath containing magnesium fluorid to the action of calcium carbid.

681,097. **FIREPROOF BOOK.** CHARLES M. BOWMAN, Lebanon, Pa. Filed Mar. 22, 1900. Serial No. 9,797. (No model.)



Claim.—1. As an article of manufacture, a book having one or more of the outer edges only of its leaves made proof against injury by fire, substantially as and for the purpose described.

2. As an article of manufacture, a book having the outer edges only of its leaves treated to render them fireproof, substantially as and for the purpose described.

3. As an article of manufacture, a book having the outer edges only of its leaves rendered fireproof, and a cover having a layer of fireproof material to extend over and cover the outer leaves, when the book is closed, substantially as and for the purpose described.

4. As an article of manufacture, a book having the outer edges only of its leaves rendered fireproof, and a fireproof cover, to cover the inner or back edges of the leaves, and extend over and rest in close contact with the outer leaves of the book, when the latter is closed, substantially as and for the purpose described.

681,098. **TOOL-RACK.** ROBERT S. BROWN, New Britain, Conn., assignor to the New Britain Machine Company, same place. Filed Oct. 31, 1900. Serial No. 35,033. (No model.)

Claim.—1. A metallic tool-rack comprising a series of vertical tubes or bars with threaded upper ends; a tray having a solid bottom constituting a part thereof, and sockets with smooth inner walls for the reception of said tubes or bars; and a top tray having a solid bottom and threaded sockets in which the threaded upper ends of said bars are inserted.

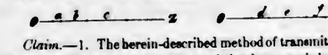
2. A metallic tool-rack comprising a series of metal tubes or bars having threaded upper ends; a tray having a solid bottom and sockets at its corners for the reception of said tubes or bars; means passing through the sockets and serving to clamp the tray to said tubes or bars; and a top tray having a solid bottom and internally-threaded, downwardly-projecting bosses for the reception of the threaded ends of said tubes or bars.



3. A metallic tool-rack comprising a series of vertical tubes or bars having threaded upper ends; a rectangular tray having tubular bosses at its corners for the reception of said tubes or bars; a top tray having downwardly-extending internally-threaded bosses at its corners into which the threaded ends of said tubes or bars are inserted, said top tray also having lateral extensions on one of its sides and a projection on each of its rear corners; and a tool rail or support passing over said corner projections and secured to the lateral extensions of said tray.

4. The herein-described tool-rack consisting of a frame composed of four tubes having threaded upper ends; a top tray having a solid bottom and in threaded engagement with the upper ends of said tubes, said top tray having projections; a tool rail or support secured to the tray and spaced apart therefrom by said projections; and a second tray adjustably secured to the tubes below said top tray.

681,099. **METHOD BY WHICH SEVERAL TELEGRAPHIC MESSAGES CAN BE TRANSMITTED AT THE SAME TIME THROUGH ONE CONDUCTOR OR BY WIRELESS TELEGRAPHY.** ANDERS BULL, Cologne, Germany. Filed May 8, 1900. Renewed July 1, 1901. Serial No. 66,770. (No specimens.)



Claim.—1. The herein-described method of transmitting several telegraphic messages simultaneously, consisting in transmitting and receiving each sign by means of series, each series consisting of a predetermined number of short impulses following one another at different intervals of time, and the intervals between the successive identical series being greater than the length of one of said series; the several messages simultaneously transmitted being transmitted by distinct or different series so that only the messages transmitted by the proper predetermined series will be received at the desired station, all substantially as and for the purpose set forth.

2. The herein-described method of simultaneously transmitting several telegraphic messages, consisting in transmitting and receiving each sign by means of series, each of which series consists of a predetermined number of short impulses following one another at different intervals of time; each message being transmitted by signs of a peculiar and distinct series, the intervals between successive identical series being so proportioned to the length of one of such series as to prevent confusion thereof, whereby only the message transmitted by the proper predetermined series will be received or recorded at the desired station, the action of the receiver at such station not being interfered with by the arrival or passage of series of other forms simultaneously transmitted, all substantially as and for the purpose set forth.

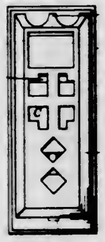
681,100. **DISINFECTANT-HOLDER.** DANIEL N. CALKINS, Rochester, N. Y., assignor to Rochester Germicide Co., same place. Filed Sept. 15, 1900. Serial No. 30,143. (No model.)

Claim.—1. The combination with a suitable casing, of a cup mounted in the lower end thereof, an inverted liquid-receptacle opening into said cup, absorptive material in said cup, a delivery tube and spout adjacent said cup, and a flexible means for conducting the contents of said cup to either said tube or spout as desired, substantially as described.

2. The combination with a suitable casing, of a cup mounted in the lower end thereof, an inverted liquid-receptacle opening into said cup, absorptive material in said cup, a delivery-tube adjacent said cup, a plate mounted in the bottom of said cup, a metallic flexible strip secured to said plate, and a wick supported by said flexible strip for conducting the contents of said cup to said delivery-tube, substantially as described.

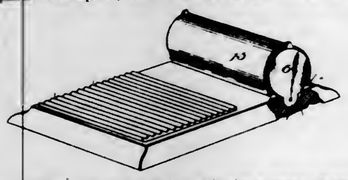
3. The combination with the inverted liquid-receptacle, of the cup, the perforated metal faced with absorptive material and provided with the

wings, the receiver and the siphon communicating between the cup and the receiver, as and for the purposes set forth.



4. The combination with an inverted liquid-receptacle, of a cup, a perforated plate, provided with wings, faced with absorptive material, a delivery-tube adjacent said cup, a flexible metallic strip mounted in said cup, and a wick supported by said flexible strip for conducting the contents of said cup to said delivery-tube, substantially as described.

681,101. **PASTE-APPLYING DEVICE.** PATRICK F. CASSIDY, Boston, Mass., assignor to Boston Bottle Wiring and Labeling Company, same place. Filed Apr. 16, 1901. Serial No. 56,046. (No model.)



Claim.—1. The combination with the bed having transverse grooves on its upper surface, and a chamber near one end, of the paste-holder, a roller fitted in an opening in the bottom of such holder and designed to rest in said chamber when not in use, and means on said roller for coacting with said grooves when the holder and roller are moved over the bed, substantially as set forth.

2. The combination with the bed having transverse grooves on its upper surface, and a chamber near one end, of the paste holder, a roller fitted in an opening in the bottom of such holder and designed to rest in said chamber when not in use, means for holding said roller out of contact with the walls of said chamber when located therein, and means on said roller for coacting with the grooves of said bed when the paste-holder is moved over the latter, substantially as set forth.

3. The combination with the bed having transverse grooves on its upper surface and a chamber near one end, of the paste-holder, a roller fitted in an opening in the bottom of such holder and designed to rest in said chamber when not in use, stops carried by said holder for engaging said bed and holding the roller out of contact with the walls of the chamber when located therein, and means on said roller for coacting with the grooves of the bed when the paste-holder is moved over the latter, substantially as set forth.

4. In a paste-applying device, a horizontally-disposed cylindrical reservoir formed with a longitudinal charging-opening in its top and a corresponding outlet-opening in its bottom, a paste-applying roller fitted in said outlet-opening, a metallic cover of substantially the same shape as, but of slightly less normal cross-sectional area than, the reservoir on which it is designed to clamp, and means for locking the cover as against lateral displacement, as set forth.

5. In a paste-applying device, a horizontally-disposed cylindrical reservoir formed with a longitudinal charging-opening in its top and a corresponding outlet-opening in its bottom, a paste-applying roller fitted in said outlet-opening, a metallic cover of substantially the same shape as, but of slightly less normal cross-sectional area than, the reservoir over which it is designed to clamp, said cover having depending portions extending below the reservoir and paralleling said roller, and means for locking the cover as against lateral displacement, substantially as set forth.

6. In a paste-applying device, a reservoir, a paste-applying roller below the bottom thereof, and guards on each side of and paralleling said roller, as set forth.

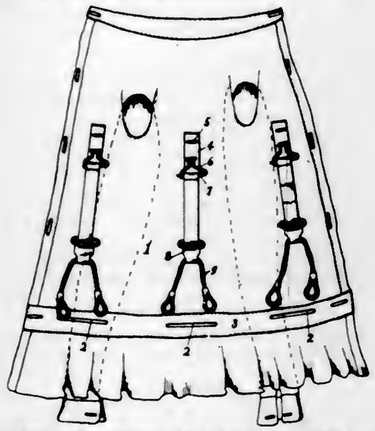
7. In a paste-applying device, a reservoir, a paste-applying roller below the bottom thereof, and a cover for said reservoir having vertical portions projecting below the bottom of said reservoir and held away from the roller to form parallel guards on opposite sides thereof, as set forth.

8. In a paste-applying device, a cylindrical reservoir having a charging-opening, a paste-applying roller below the bottom of such reservoir, a cover conforming to, but of slightly less normal cross-sectional area than, said reservoir having depending vertical portions extending below said reservoir paralleling said roller on opposite sides thereof to form guards therefor, as set forth.

9. In a paste-applying device, a paste-reservoir having an opening in its top and a longitudinal slot in its bottom, ears depending from said reservoir, a paste-distributing roller journaled in said ears and designed to project into said paste-reservoir through said slot, and a cover for said opening clamping said reservoir and having vertical portions extending below the reservoir and paralleling said roller on opposite sides thereof, as set forth.

10. In a paste-applying device, a reservoir having an opening in its bottom, a paste-applying roller fitted in said opening, and deflectors in said reservoir near the ends thereof set at an angle to such ends, as and for purpose set forth.

681,102. **SUSPENDER ATTACHMENT FOR WAISTS OR SHIRTS.** PETER A. CROTT, St. Louis, Mo. Filed Sept. 17, 1900. Serial No. 30,210. (No model.)



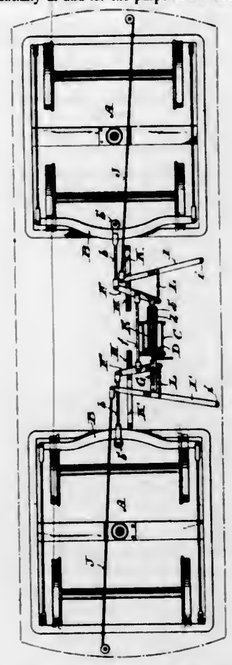
Claim.—The combination with a waist or shirt having a series of apertures about the waist-line thereof, of a tape, the upper end of which is secured on the inside of the shirt or waist above the waist-line, a series of apertures in the tape near the upper end of the same and a catch secured to the lower end of the tape adapted to engage said apertures, and the cords 9 which cooperate with the apertures in the shirt or waist.

681,103. **BRAKE-LEVER SYSTEM FOR RAILWAY-CARS.** NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed Dec. 3, 1898. Serial No. 696,134. (No model.)

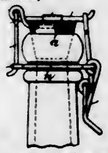
Claim.—1. In a brake-lever system for railway-cars, the combination with the brake-cylinder and piston, of a pair of levers connected with each other by a rod and each connected with the brakes of one of the car-trucks, one lever having an operating connection with said piston and the other a shifting fulcrum movable parallel with the rod connecting said levers, stops for limiting the movement of said levers whereby the brakes of one truck may be applied if the connection with the brakes of the other truck is broken, and a lever having a hand operating connection and a flexible or jointed connection with said lever, which has a shifting fulcrum, substantially as and for the purposes set forth.

2. In a brake-lever system for railway-cars the combination with the brake-cylinder and piston, of a pair of levers connected with each other by a rod and each connected with the brakes of one of the car-trucks, one lever having an operating connection with said piston and the other a fulcrum-bearing, stops for limiting the movement of said levers, whereby the brakes of one truck may be applied if the connection with the brakes of the other truck is broken, two levers each having a hand operating connection and a flexible or jointed connection with one of said pair of levers, whereby a power application of the brakes may be made without shifting the hand-operated levers, substantially as and for the purposes set forth.

3. In a brake-lever system for railway-cars the combination of a pair of levers connected with each other by a rod and each having a connection with the brakes of one car-truck, stops for limiting the movement of said levers, whereby the brakes of either truck may be applied if the connection with the brakes of the other truck is broken, two levers each having a hand operating connection and a connection with each of said pairs of levers on the opposite side of the connecting-rod from the brake connection, substantially as and for the purposes set forth.



681,104. **BOTTLE-CLOSING DEVICE WITH CORK STOPPER.** HANS P. H. CLASEN, Flensburg, Germany. Filed June 28, 1900. Serial No. 25,893. (No model.)

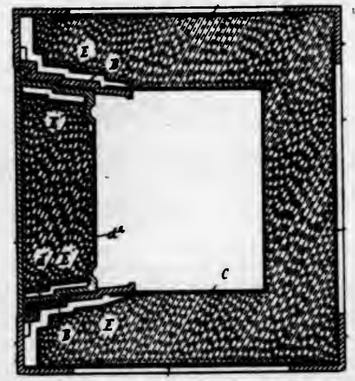


Claim.—1. A bottle-closing device provided with a wire bent to form two parallel bars, adapted to lie across the top of a stopper and connected together at one end, eyes at the opposite ends of said bars whereby they may be pivotally secured to the bottle, and two bars extending backward from and in continuation of the wire of the eyes, below and parallel with the outer parallel bars and pointed, whereby the stopper may be impaled thereon, substantially as described.

2. A bottle-closing device provided with a wire bent to form two parallel bars, adapted to lie across the top of a stopper and connected together at one end, eyes at the opposite ends of said bars whereby they may be pivotally secured to the bottle, and two bars extending backward from and in continuation of the wire of the eyes, below and parallel with the outer parallel bars and pointed whereby the stopper may be impaled thereon, in combination with a supporting-strap secured about the bottle and provided with eyes, and a rear strap linked in the eyes of the parallel bars and slidably secured in the eyes of the securing-strap, substantially as described.

3. A bottle-closing device provided with a wire bent to form two parallel bars, adapted to lie across the top of a stopper and connected together at one end, eyes at the opposite ends of said bars whereby they may be pivotally secured to the bottle, and two bars extending backward from and in continuation of the wire of the eyes, below and parallel with the outer parallel bars and pointed whereby the stopper may be impaled thereon, in combination with a supporting-strap secured about the bottle and provided with eyes, a rear strap linked in the eyes of the parallel bars and slidably secured in the eyes of the securing-strap, and a thin metal plate secured to the first-mentioned parallel bars and adapted to rest on top of the stopper, substantially as described.

681,105. **FIREPROOF SAFE.** WILLIAM CORRY, Cincinnati, Ohio. Filed June 15, 1901. Serial No. 64,651. (No model.)



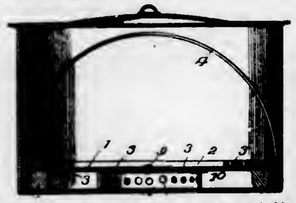
Claim.—1. A fireproof safe having a space left between the cement filling and the door-jamb, to allow of an expansion in the cement in setting without affecting the jamb.

2. A fireproof safe within the door of which a space is left between the fireproof filling and the casting forming the periphery, for an expansion in the cement in setting.

3. In a fireproof safe a sheet of material between and secured to the inner and outer shell thereof adjacent to the door-jamb and surrounding the same to keep the fireproof filling back from the door-jamb so that the filling in setting may expand without affecting the jamb.

4. A fireproof safe between the door-jamb and fireproof filling of which and within the door of which between the periphery of the door and the fireproof filling spaces are left for the expansion of the filling in setting.

681,106. **STEAMER.** SADIE H COUP, Akron, Ohio. Filed May 6, 1901. Serial No. 59,006. (No model.)



Claim.—A steam cooking appliance consisting of a holder adapted to be placed in a boiler and comprising a perforated bottom with an upstanding rim, supporting-feet depending from the lower side of the bottom, a bail-shaped handle pivotally connected with the rim, and a combined damper and supplemental support for the bottom of the holder, pivotally united to the lower side of the bottom and provided with openings adapted to be moved into and out of alinement with corresponding openings in the bottom, said damper and supplemental support having a pendent rim provided with circulation-openings, substantially as and for the purpose set forth.

681,107. **ELECTRIC FURNACE.** ALFRED H. COWLES, Cleveland, Ohio, assignor to the Electric Smelting and Aluminum Co., same place. Original application filed July 20, 1896, Serial No. 557,172. Divided and this application filed Nov. 24, 1899. Renewed July 22, 1901. Serial No. 69,315. (No model.)

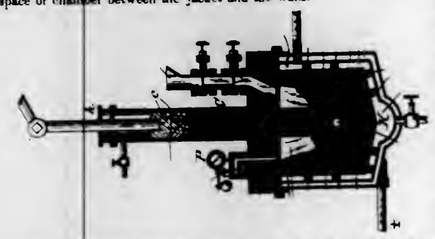
Claim.—1. An electric furnace having a wall permeable to vapors and gases, and a condensing-chamber outside of said permeable wall.

2. An electric furnace having a closed furnace-chamber the walls of which are permeable to vapors and gases, and a condensing-chamber outside of the said walls.

3. An electric furnace having furnace-chamber walls and hearth permeable to vapors and gases, and a condensing-chamber surrounding the exterior of said walls and hearth.

4. The combination, with a porous furnace-chamber wall permeable to vapors and gases, of a water-jacket surrounding the exterior of said wall to form a condensing-chamber between the wall and the jacket.

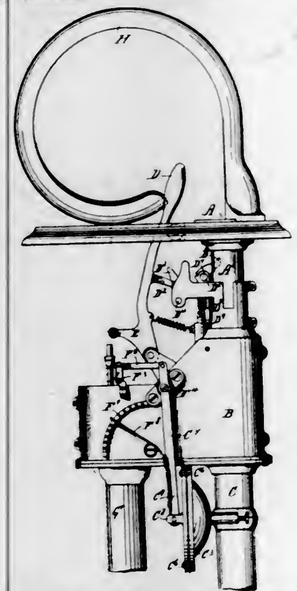
5. The combination, with an electric furnace, the furnace-chamber walls of which are composed of carbon permeable to vapors and gases, of a cooling-jacket outside of the walls, and means for electrically connecting the jacket with the exterior of the said walls to form a condensing space or chamber between the jacket and the walls.



6. In an electric furnace the combination, with the porous carbon forming the furnace-chamber and enabling the gases to pass therefrom to the exterior surface of the chamber, of a cooling-jacket covering the exterior of said chamber, and a condensing space or chamber between the jacket and the said exterior surface.

7. The combination, with the porous-walled furnace-chamber having a condensing-chamber surrounding it, and a compacted carbon top provided with a feed-hopper, of a gas-tight pipe attached to the said top, and the electrode passing through said top and working in said pipe.

681,108. PNEUMATIC-DESPATCH-TUBE APPARATUS. JAMES T. COWLEY, Lowell, Mass., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Dec. 21, 1899. Serial No. 741,112. (No model.)



Claim.—1. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for operating the inlet-valve to close the inlet to the transmission-tube and for subsequently opening the air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close the valve at the outlet end of the tube after a carrier has passed said valve to cause an increase of pressure within the transmission-tube, means for holding said air-inlet valve open at the despatch end of the tube, and means operated by the increased pressure in the transmission-tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve.

2. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for operating the inlet-valve to close the inlet to the transmission-tube and for subsequently opening the air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close the valve at the outlet end of the tube after a carrier has passed said valve to cause an increase of pressure within the transmission-tube, means for holding said air-inlet valve open at the despatching end of the tube, and means operated by the increased pressure in the transmission-tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of the air-inlet valve.

3. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet respectively after the insertion and discharge of the carriers, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, a lever for operating the inlet-valve to close the inlet to the transmission-tube and for subsequently opening the air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close the valve at the outlet end of the tube after a carrier has passed said valve to cause an increase of pressure within the transmission-tube, a catch for holding said air-inlet valve open at the despatching end of the tube, a flexible diaphragm to which said catch is connected on one side and having its opposite side exposed to the pressure in the tube and adapted when actuated by the increased pressure in the tube to operate said catch and thereby release and permit the closing of the air-inlet valve.

4. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for said inlet and outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for operating the inlet-valve to close the inlet to the transmission-tube and for subsequently opening the air-inlet valve, mechanism connected to said valves controlling said inlet and outlet and adapted to allow the insertion of carriers at the inlet end without closing the valve and to be operated by the traveling carriers at the outlet end of the line to close the valve controlling said outlet to cause an increase of pressure within the transmission-tube, means for holding said air-inlet valve open at the despatching end of the tube, and means operated by the increased pressure in the transmission-tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve.

5. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve located in the path of the compressed air from the air-inlet to the transmission-tube and adapted to be operated by mechanism to close the inlet to the transmission-tube, a valve normally closing said air-inlet, mechanism for operating the inlet-valve to close the inlet to the transmission-tube and for subsequently opening the air-inlet valve, a valve for closing the outlet of the transmission-tube, mechanism in the path of the traveling carriers adapted to be operated thereby to close the valve at the outlet end of the tube after a carrier has passed said valve to cause an increase of pressure within the transmission-tube, means for holding said air-inlet valve open at the despatching end of the tube, and means operated by the increased pressure in the tube for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of the air-inlet valve.

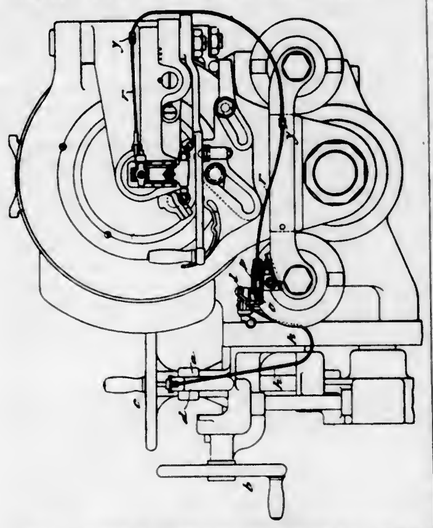
6. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for closing the inlet to the transmission-tube and for opening the air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve of the transmission-tube after a carrier has passed said valve, means for holding said air-inlet valve open at the despatching end of the transmission-tube, means for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve, and means for releasing the air-pressure within the transmission-tube to allow the valves controlling the inlet and outlet of the transmission-tube to open.

7. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for closing the inlet to the transmission-tube and for opening said air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve of the transmission-tube after a carrier has passed said valve, means for holding said air-inlet valve open at the despatching end of the transmission-tube, means for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve, and means consisting of a valve controlling an exhaust-opening in communication with the transmission-tube and operated by air-pressure from the source of compressed air to operate said valve to open the exhaust to allow the valves controlling the inlet and outlet of the transmission-tube to open.

8. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for closing the inlet to the transmission-tube and for opening said air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve of the transmission-tube after a carrier has passed said valve, means for holding said air-inlet valve open at the despatching end of the transmission-tube, means for actuating said air-inlet-valve-holding means for releasing the same and thereby permitting the closing of said air-inlet valve, means consisting of a valve controlling an exhaust-opening in communication with the transmission-tube and operated by air-pressure from the source of compressed air to operate said valve to open the exhaust to allow the valves controlling the inlet and outlet of the transmission-tube to open, and a spring for operating the valve controlling the exhaust to close said opening.

9. In a pneumatic-despatch-tube apparatus, a carrier transmission-tube having an inlet and an outlet for the carriers, valves for closing said inlet and said outlet, a source of compressed air, an air-inlet for said compressed air to the transmission-tube, a valve normally closing said air-inlet, mechanism for opening said air-inlet valve, mechanism in the path of the traveling carriers adapted to be operated thereby to close said outlet-valve after the carrier has passed said valve, a catch for holding said air-inlet valve open at the despatching end of the transmission-tube, a flexible diaphragm to which said catch is connected on one side and having its opposite side exposed to the pressure in the transmission-tube and adapted when actuated by the pressure in said tube to operate said catch and thereby release and permit the closing of the air-inlet valve, and means for regulating the admission of air-pressure from the tube to the diaphragm.

681,109. PERCUSSION FIRING-GEAR FOR BREECH-LOADING ORDNANCE. ARTHUR T. DAWSON and GEORGE T. BUCKHAM, Westminster, England, assignors to Vickers, Sons & Maxim, Limited, Sheffield, England. Filed Apr. 6, 1901. Serial No. 54,663. (No model.)



Claim.—Percussion firing-gear for a breech-loading gun comprising a pistol-grip with spring trigger-lever attached thereto, one end of a flexible wire extending through a guide-tube to a bell-crank to one arm of which the wire is attached, its other arm being provided with a stud, a spring-urged slide having a flange engaged by the said stud, another flexible wire the one end of which is attached to the said slide, and which extends through a guide-tube and has its other end attached to the spring-sear of the firing-gear on the gun-breech substantially as described.

681,110. DISPLAY-MOUNT. SHERMAN F. DENTON, Wellesley, Mass. Filed Apr. 20, 1901. Serial No. 56,759. (No model.)



Claim.—1. In a display-mount for entomological and natural-history specimens, the combination with a boxing or frame; of specimen-supporting means comprising shelf portions having a space or interval between them through which the body portion or relatively thick parts of the specimen depends; and a transparent top plate or cover for said boxing between which and said shelf portions the wings or relatively thin parts of the specimen are pressed and held, so as to keep them in extended position and suspend the body portion of the specimen pendent within the boxing.

2. In a display-mount for entomological and natural-history specimens, the combination with a boxing or frame; of specimen-supporting means comprising transparent shelf portions having a space or interval between them through which the body portion or relatively thick parts of the specimen depends; and a transparent top plate or cover for said boxing between which and said transparent shelf portions the wings or relatively thin parts of the specimen are pressed and held so as to keep them in extended position and suspend the body portion of the specimen pendent within the boxing.

3. In a display-mount for entomological and natural-history specimens, the combination with a boxing or frame; of specimen-supporting means comprising transparent shelf portions having a space or interval between them through which the body portion or relatively thick parts of the specimen depends; a transparent top plate or cover for said boxing between which and said transparent shelf portions the wings or relatively thin parts of the specimen are pressed and held so as to keep them in extended position and suspend the body portion of the specimen pendent within the boxing; and a transparent bottom plate for said boxing.

4. In a display-mount for entomological and natural-history specimens, the combination with a suitable boxing or frame; of independent supporting strips or shelves, spaced from one another, carried by said boxing; and a transparent top plate or cover for said boxing between which and said supporting-shelves portions of the specimen are held.

5. In a display-mount for entomological and natural-history specimens, the combination with a suitable boxing or frame; of independent transparent supporting strips or shelves spaced from one another carried by said boxing; and a transparent top plate or cover for said boxing between which and said transparent supporting-shelves portions of the specimen are held.

6. In a display-mount for entomological and natural-history specimens, the combination with a suitable boxing or frame; of independent transparent supporting strips or shelves spaced from one another carried by said boxing; a transparent top plate or cover between which and said transparent supporting-shelves portions of the specimen are held; and a transparent bottom plate for said boxing.

7. In a display-mount for entomological and natural-history specimens, the combination with a suitable boxing or frame; of independent transparent supporting strips or shelves, spaced from one another, carried by said boxing; a transparent top plate or cover between which and said transparent supporting-shelves portions of the specimen are held; a transparent bottom plate for said boxing; and a binding and sealing strip to inclose and seal said boxing.

8. A display-mount for entomological and natural-history specimens, comprising a closed boxing or frame having an independent transparent top plate; and supporting strips or shelves arranged beneath said top plate upon which the relatively thin portions of the specimen are disposed and between which the relatively thick portions of the specimen are suspended.

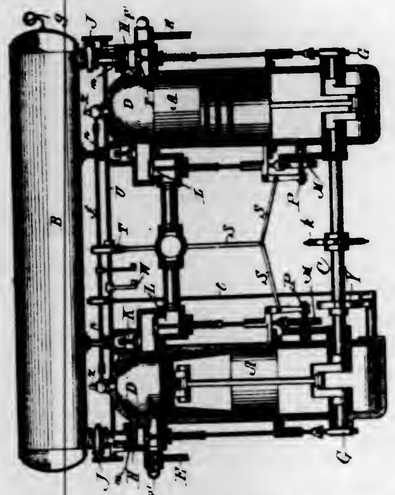
9. A display-mount for entomological and natural-history specimens, comprising a closed boxing or frame having an independent transparent top plate; and transparent, spaced, supporting strips or shelves arranged beneath said top plate upon which the relatively thin portions of the specimen are disposed and between which the relatively thick portions of the specimen are suspended.

10. A display-mount for entomological and natural-history specimens, comprising a closed boxing or frame having an independent transparent top plate and a transparent bottom; and transparent, spaced, supporting strips or shelves arranged beneath said top plate upon which the relatively thin portions of the specimen are disposed and between which the relatively thick portions of the specimen are suspended.

681,111. SELF-STARTING EXPLOSIVE-ENGINE. EDWARD N. DICKERSON, Stovall, N. C. Filed Nov. 5, 1900. Serial No. 35,457. (No model.)

Claim.—1. An explosion-motor comprising a storage-chamber, a

cylinder having an explosion-chamber, a plurality of connections uniting said parts, each including a valve and one of the valves being manually operable, a cock controlling the explosion-chamber, hand-operable means for actuating said cock, a piston in said cylinder, a shaft driven by said piston, and mechanism governed by said hand-operable means for stopping said shaft.



2. An explosion-motor comprising a storage-chamber, a cylinder having an explosion-chamber, a connection uniting said parts, having a valve, an exhaust-valve for the said explosion-chamber, mechanism for causing the exhaust-valve to operate at each second revolution of the engine or at each revolution of said engine at the will of the operator, a cock controlling the explosion-chamber, hand-operable means for actuating said cock, a piston in said cylinder, a shaft driven by said piston, and mechanism governed by said hand-operable means for stopping said shaft.

3. An explosion-motor including an exhaust-valve and a cam for operating the same, said cam having diametrically opposite lugs one of which is fixed and the other of which is movable.

4. An explosion-motor including a cylinder provided with supply and exhaust valves, a cam for actuating the exhaust-valve, said cam having fixed and movable lugs, and mechanism for simultaneously operating the movable lug and the supply-valve.

5. An explosion-motor including a cylinder having a valve, a piston in said cylinder, a shaft driven by said piston, a wheel connected with said shaft, having a notch, and manually-controlled means for operating said lever and valve in unison, said lever being arranged to enter said notch.

6. The combination in an explosion-engine of a wheel Y provided with notches N, a lever *a* engaging with said notches at the will of the operator, and mechanism for simultaneously operating the petcocks of the engine when the lever *a* is thrown into operation on the surface of the wheel Y, substantially as described.

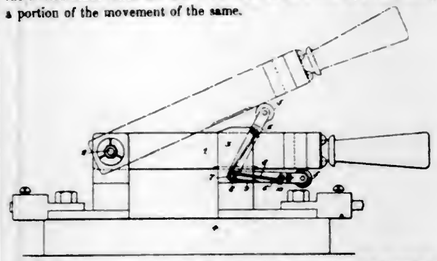
7. An explosion-motor including a cylinder having an exhaust-valve, means including a rotary cam for opening said valve, said cam having diametrically opposite valve-opening members one of which is normally ineffective and is movably mounted, and manually-operable means for putting said movable valve-opening member into its effective position.

8. An explosion-motor including a cylinder having a piston, a shaft operable by said piston, a wheel connected with the shaft, having a notch, a lever having a portion to enter said notch, a rock-arm movable independently of the lever and having a pin to engage said lever, and a yielding connection uniting the rock-arm and lever.

681,112. **CARBON BREAK FOR ELECTRIC SWITCHES.** HENRY D'OLIER, Jr., Philadelphia, Pa. Filed May 13, 1901. Serial No. 60,031. (No model.)

Claim.—1. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips carried by a suitable base; of a support pivoted to said structure, a carbon member carried by said support, and means for holding said carbon member in contact with the switch-blade when the latter is in engagement with the clips and during a portion of the movement of the same.

2. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips carried by a suitable base; of a support pivoted between said clips, a carbon member carried by said support, and means for holding said carbon member in engagement with the switch-blade when the latter is in contact with the clips and during a portion of the movement of the same.



3. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips carried by a suitable base; of supporting-arms pivoted to said structure, a carbon roller carried by the outer end of said supporting-arms and revoluble therein, and a spring interposed between said supporting-arms and the base and serving to maintain the carbon roller in contact with the switch-blade when the latter is in engagement with the clips and during a portion of the movement of the same.

4. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips carried by a suitable base; of supporting-arms pivoted between said clips, a carbon roller carried by the outer end of said supporting-arms and revoluble therein, and a spring coiled around the pivot of said arms and serving to maintain the carbon roller in contact with the switch-blade when the latter is in engagement with the clips and during a portion of the movement of the same.

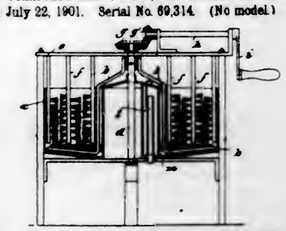
5. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips; of a support pivoted between the clips and extending in a direction forward of the same, a carbon contact carried by said support, and means for maintaining said contact in engagement with the switch-blade when the latter is in contact with the clips and during a portion of the movement of the same.

6. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips; of a support pivoted between the clips, a carbon member carried by said support, means for maintaining said member in contact with the switch-blade when the latter is in engagement with the clips and during a portion of the movement of the same, and means for limiting the movement of the carbon-member support.

7. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips; of a pair of arms pivoted to said clips and arranged between the same, a carbon roller carried by said arms, a spring carried by the pivot-pin of the arms and serving to maintain the carbon in contact with the switch-blade when the latter is in engagement with the clips and during a portion of its movement, and a pin carried by said arms around which the spring is passed, said pin also serving to limit the upward movement of the carbon-supporting arms.

8. The combination with an electric switch of the character described, having the usual switch-blade and contact-clips; of a carbon member in engagement with said blade, and supporting-arms carried by the clips for holding said carbon, the ends of said arms being bent at an angle to their main portion whereby the time of contact of the carbon member with the blade is increased and a wide separation between said blade and the contact-clips insured before the blade leaves said carbon member, substantially as described.

681,113. **MACHINE FOR WASHING PLATES OR OTHER DISHES.** JOHANNES DUNNER, Berne, Switzerland. Filed June 12, 1899. Renewed July 22, 1901. Serial No. 69,314. (No model.)



Claim.—1. In a device of the character described, the combination of a receptacle for hot water, a rotary frame having a plurality of brackets adapted to support the dishes in a vertical position, arranged in series of two each and substantially radial to its axis, and a single diametric line of brushes through which the dishes have to pass in revolution, whereby the latter are cleansed on both sides, substantially as described.

2. In a device of the character described, the combination of a receptacle for hot water, the support *e* at top thereof, a vertical shaft *d* in said support, a rotary frame *b* rigid on said shaft and having a plurality of radially-disposed brackets *c* arranged in series of two each, adapted to support the dishes in a vertical position, a series of stationary brushes, arranged in a single diametrical line with respect to the receptacle through which the dishes have to pass in revolution, the shaft *b* transversely mounted on support *e*, said shaft served at one end with a crank *i*, and bevel-gearing adapted to transmit motion from said shaft *h* to the vertical shaft *d* as and for the purpose set forth.

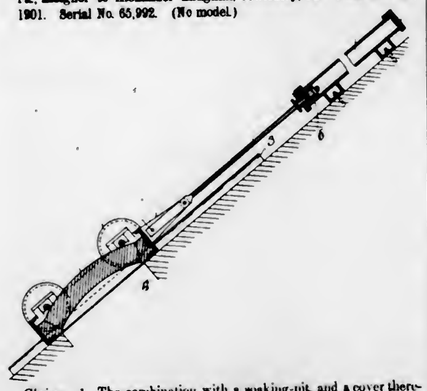
3. In a device of the character described, the combination of a receptacle for hot water, having a divided portion with outlets, as described, a rotary frame having a plurality of brackets adapted to support the dishes in a vertical position, arranged in series of two each and substantially radial to the axis of the frame, and a cross-bar *e* on top of the receptacle and a series of stationary brushes *f* depending therefrom through which the dishes have to pass in revolution, whereby the latter are thoroughly cleansed on both sides, substantially as described.

681,114. **COLLAR.** JOSEPH DUNNING, Rutherford, N. J. Filed Apr. 16, 1901. Serial No. 56,103. (No model.)



Claim.—A standing collar having tabs provided with buttonholes to receive the front collar-button of a shirt and having portions extending below the tabs with their adjacent edges diverging downwardly, said downwardly-extending portions having fingers extending toward each other and formed to overlap, said fingers having buttonholes and adapted to lie over a necktie passed around the collar and between the diverging edges.

681,115. **SOAKING-PIT COVER.** LOUIS H. GORDON, Allegheny, Pa., assignor to Alexander Laughlin, Sewickley, Pa. Filed June 25, 1901. Serial No. 65,992. (No model.)



Claim.—1. The combination with a soaking-pit, and a cover therefor, of means for moving the cover comprising a shifting rod, and means for connecting said rod to the cover at any one of a plurality of points, as set forth.

2. The combination with a soaking-pit, and a cover therefor, of means for operating the cover comprising a longitudinally-movable rod, a bracket extending from the cover, and means for connecting the rod to the bracket at one of a plurality of points, substantially as set forth.

3. The combination with a soaking-pit, and a cover therefor, of means for actuating the cover comprising a piston having its rod formed with a plurality of holes, a bracket extending from the cover having parallel sides between which the end of the rod is designed to fit, and a removable bolt for uniting the rod to the bracket at any one of a plurality of points, substantially as set forth.

681,116. **POWER-TRANSMITTING DEVICE.** FREEMAN GRANT, Stonington, Me. Filed Oct. 25, 1900. Serial No. 34,349. (No model.)



Claim.—1. In a device of the class described, the combination with the reciprocating rod and shaft, of a frame comprising side portions having guideways, pawls pivotally mounted in the guideways, the pawls at opposite sides of the frame being disposed oppositely, and a ratchet-wheel fixed upon the shaft and lying with its periphery in operative relation to the pawls.

2. In a device of the class described, the combination with the reciprocating rod and shaft, of a frame comprising side portions adjustable toward and away from each other, pawls pivoted upon the side plates and adjustable therewith, and a ratchet removably disposed upon the shaft inoperative relation to the pawls, said shaft being adapted to receive ratchets of different diameters interchangeably.

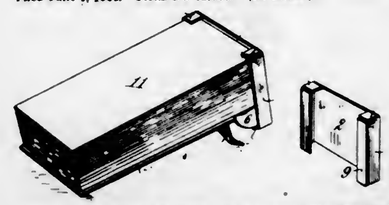
3. In a device of the class described, the combination with the reciprocating rod and shaft, a ratchet removably engaged with the shaft to permit of substitution of a ratchet of different diameter, and a frame fixed to the rod, said frame comprising side plates disposed in pairs, and pawls pivoted between the pairs of plates in operative relation to the ratchets oppositely, said pairs of side plates being adjustable toward and away from each other to engage their pawls with ratchets of different diameters.

681,117. **PROCESS OF DYEING THIOSULFATE COLORS.** ARTHUR G. GREEN, Heaton Moor, and ALEXANDER MEYENBERG, Manchester, England, assignors to the Clayton Aniline Company, Limited, Clayton, Manchester, England. Filed Feb. 2, 1901. Serial No. 45,710. (No specimens.)

Claim.—1. The new and improved process of dyeing, such process consisting in first rendering soluble thiosulfate colors free from sulfids, polysulfids or free sulfur, then effecting the dyeing by conversion of the coloring-matter, by solution in aqueous neutral sodium sulfite, into its soluble sulfite compound, and reducing the latter in the dye-bath by means of an alkaline reducing agent.

2. The new and improved process of dyeing, such process consisting in first rendering a thiosulfate color soluble by means of sodium sulfite, then effecting the dyeing by conversion of the coloring-matter, by solution in aqueous neutral sodium sulfite, into its soluble sulfite compound and reducing the latter in the dye-bath by means of glucose and an alkali.

681,118. **PAD-HOLDER.** EDWARD A. HENKLE, Philadelphia, Pa. Filed June 1, 1901. Serial No. 62,726. (No model.)



Claim.—1. A pad-holder comprising a support, and a back or headpiece slidingly mounted thereon, the said back or headpiece being formed in one piece and having integral sides formed with inwardly-extending flanges adapted to fit within slits or kerfs in the pad and having a retaining device for the upper surface of the pad, as and for the purpose set forth.

2. A pad-holder comprising a support having open guide-slots in the side thereof and a back or headpiece having sides formed with inwardly-extending flanges the said sides adapted to embrace the ends of said support and said flanges adapted to fit within said slots and within slits or kerfs in the pad, the said back or headpiece being further provided

with retaining devices for the upper surface of the pad, as and for the purpose set forth.

3. A pad-holder comprising a support having guide-slots in the sides thereof and a back or headpiece having sides formed with inwardly-extending flanges adapted to fit within said slots and within slits or kerfs in the pad, said back or headpiece being further provided with retaining devices for the upper surface of the pad and with a projection adapted to engage a correlative part on said support for limiting the upward movement thereof, as and for the purpose set forth.

4. A pad-holder comprising a support having guide-slots in the sides thereof, and a back or headpiece having sides thereon formed with inwardly-extending flanges adapted to fit within said slots and within slits or kerfs in the side edges of the pad, the said sides being extended upwardly beyond said flanges and adapted to be bent over to form retaining devices for the upper surface of the pad, as and for the purpose set forth.

5. A pad-holder comprising a support of sheet metal having an integral leg and having downwardly-extending flanges thereon provided with slots which intersect the support between said flanges, and a back or headpiece having sides thereon formed with inwardly-extending flanges adapted to fit within said slots and within slits or kerfs in the side edges of the pad, the said sides being extended above said flanges and adapted to be bent over to form retaining devices for the upper surface of the pad and the lower ends of the flanges on said sides being bent to form projections adapted to engage the lower edges of the flanges on said support, as and for the purpose set forth.

681,119. TROLLEY-SWITCH. WALTER P. HINER, Portsmouth, Va., assignor of one-half to Albert N. Palmer, Norfolk, Va. Filed Oct. 20, 1900. Serial No. 33,757. (No model.)



Claim.—1. In a trolley system, the combination with main and branch line trolley-wires, of a trolley comprising a wheel for contact with the wire and retainers held yieldably in their operative positions transversely of the wheel and above the wire, and a turnout-switch connecting the branch wire with the main wire, said switch comprising a plate having a main-line section attached to one end and a branch-line section attached to its opposite end, and a second plate disposed divergingly from the first plate, means for holding the plates yieldably in contact at their converging ends, the second plate having a contacting portion leading downwardly from the line-wire which is attached to the first plate, to receive the trolley-wheel and guide it from said line-wire, and the first plate having a cam portion for engagement between the retainers to separate them and permit downward movement of the trolley-wheel from the line-wire.

2. In a trolley system, the combination with a trolley-wheel having retainers disposed to lie normally at the opposite side of a wire to hold the wheel in place thereon and means for holding the retainers yieldably in operative position, of main and branch line wires having a connecting turnout-switch, one member of the switch having a section of the main wire attached at one end and the branch wire attached at its opposite end, and a second member of the switch having a main-line section attached at one end and its opposite end disposed to receive the trolley-wheel from the first main-line section, and means carried by the switch for engagement with the retainers for moving them to inoperative positions to permit the trolley-wheel to pass from the main-line wire that is attached to the first plate.

3. In a trolley system, a trolley comprising an arm, a head pivoted to the arm for operative movement in a vertical plane transversely of a trolley-wire, and a wheel carried by the head.

4. A trolley comprising an arm, a head pivoted to the arm for operative movement in a vertical plane transversely of a trolley-wire, a wheel carried by the head for engagement with the wire, and means for holding the head yieldably against pivotal movement.

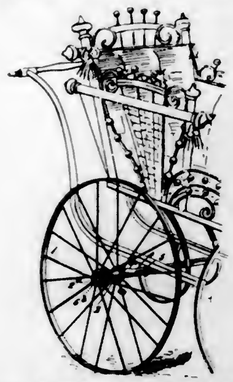
5. A trolley comprising an arm, a head pivoted to the arm for movement in a plane at an angle to the direction of progress of the trolley, said head extending above and below the end of the arm, a wheel mounted in the upper end of the head for contact with a wire, a guide-bar connected with the arm and slidably engaged with the head, and springs sustained by the guide-bar and disposed to hold the head yieldably against pivotal movement.

6. A trolley comprising an arm having a head adapted for lateral tilting movement on the arm, a trolley-wheel rotatably mounted in the head and adapted for bodily tilting movement therewith, retaining-arms pivoted on the side faces of the head and having their upper ends projected inwardly and provided with means for bridging a wire above the trolley-wheel, the lower portions of the arms lying normally divergent, means for holding the arms yieldably in their operative positions, and means for retracting the arms to release the wire.

7. A trolley comprising an arm having a head adapted for lateral tilting movement on the arm, a trolley-wheel mounted in the head and adapted for bodily tilting movement therewith, retaining-arms pivoted at the sides of the head, rollers carried by the arms and adapted to lie in mutual peripheral contact above and transversely of the trolley-wheel, the lower portions of the arms lying divergent, means for holding the arms yieldably with the rollers in operative positions, and means for moving the arms against said holding means.

8. A trolley comprising an arm having an upper rearwardly-directed end provided with a spindle, a head pivotally mounted upon the spindle for movement at an angle to the direction of progress of the trolley, said head extending above and below the rearwardly-directed portion of the arm and having its upper portion bifurcated, a trolley-wheel disposed between the bifurcations of the head, retainers mounted upon the head for movement into and out of position above and transversely of the wheel, a guide-bar slidably engaged with the lower end of the head, springs disposed between the bar and head to hold the latter yieldably in a predetermined relation to the bar, and means connected with the bar and trolley-arm for holding the bar in fixed relation to the arm.

681,120. WHEEL-AXLE. WILLIAM HOERGER, Faribault, Minn. Filed Nov. 30, 1900. Serial No. 38,209. (No model.)



Claim.—1. As an improvement in vehicle-axles, the combination with the wheel-hub and the axle, said axle having a threadless spindle,

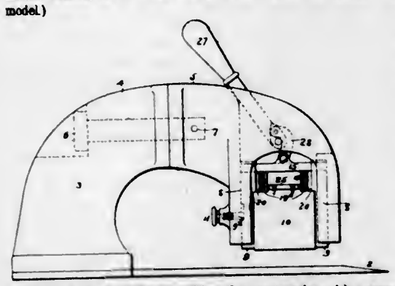
said spindle having a longitudinally-extending surface in a plane inside of its bearing-surface, and a detent held upon the axle having its locking portion adjacent the inner end of the spindle, and a key insertible through the wheel-hub from the front end and to engage the longitudinal seat in the spindle, whereby to lie in a plane inside the bearing-surface of the spindle, said key having its outer end formed with a member adapted to overlap the outer hub and spindle ends, and its inner end formed to automatically interlock with the detent on the axle, all being arranged substantially as shown and for the purposes described.

2. The combination with the wheel and the axle, said axle having a spindle end of less length than the hub and non-threaded; of a detent detachably held on the axle with its locking end held adjacent the inner end of the axle-spindle and a key insertible through the hub, having its outer end formed to project over the outer end of the wheel-hub, and its inner end constructed to automatically engage and interlock with the locking end of the detent, substantially in the manner shown and described.

3. The combination with the wheel-hub and the axle, said axle having a spindle formed with a longitudinally-extending flat key-receiving portion; of a flat spring member 4, said member having its inner end turned up and slotted, and the key 6, having a pendent cap member 6^b, and an upturned locking-flange, all being arranged substantially as shown and described.

4. As an improvement in vehicle-wheels, the combination with the wheel having its hub provided on the inner end with an outwardly-extending annular rim; of the axle 3, having a spindle 3^a, provided with a flat surface 3^c, said axle having an inclined surface 3^d, merging with the surface 3^c; of the spring-plate 4, detachably held on the axle with its free end resting on the inclined axle-surface 3^d, said free end terminating in a slotted upturned lip 4^a, and the key 6, adapted to seat in the axle-spindle surface 3^c, said key having a lip 6^a, to interlock with the lip 4^a, and a cap-plate 6^b, the interlocking members 4^a and 6^a, being disposed in a plane under the hub-rim, all being arranged substantially as shown and described.

681,121. PERFORATING-MACHINE. WILLIAM H. HUDSON, Mount Vernon, N. Y. Filed Dec. 20, 1900. Serial No. 40,552. (No model.)



Claim.—1. In a marking-machine, the combination with a support and a vessel for coloring-matter, of a series of needles constructed to take fluid from said vessel, means for passing the needles through the material and means for discharging coloring-matter from said needles while they are being withdrawn from the material.

2. In a marking-machine, the combination with a vessel to contain coloring-matter and having a series of openings in its bottom, of a movable device, a series of needles carried by said movable device and passing through the vessel and movable through the openings in the bottom thereof, each of said needles being constructed and adapted to convey coloring-matter from the vessel and discharge it in the perforations made in the material by said needles, when the latter are being withdrawn therefrom.

3. In a marking-machine, the combination with a vessel to contain coloring-matter and having a series of holes in its bottom, of a series of needles passing through said vessel and movable through the holes in the bottom thereof, means for operating said needles to puncture the material and convey coloring-matter from the vessel to the material when the needles are being withdrawn.

4. In a marking-machine, the combination with a vessel to contain coloring-matter and having a series of openings in its bottom, of a platen or plunger mounted within the upper portion of said vessel, a series of tubular needles depending from said platen or plunger and passing through the vessel and movable through the openings in the bottom thereof and means for moving said needles to puncture the material and to convey coloring-matter from said vessel to the material when said needles are being withdrawn.

5. In a machine for marking paper or fabric, the combination with a vessel to contain coloring-matter and having a series of openings through its bottom, of a series of needles movable through said vessel and corresponding in number to the openings in the bottom and means within the vessel for controlling the passage of the coloring-matter into and out of each of said needles.

6. In a machine for marking paper or fabric, the combination with a vessel to contain coloring-matter and having a series of openings through its bottom, of a series of needles mounted in and movable through said vessel and corresponding in number to the openings in the bottom of the vessel, each needle constructed to convey coloring-matter from the vessel to the material to be operated upon and a traveling presser-bar for depressing the needles through and independently of the vessel.

7. In a machine for marking paper or fabric, the combination with a vessel to contain coloring-matter and having a series of openings through its bottom, of a platen mounted to move within the upper portion of said vessel, a series of hollow needles mounted in and depending from said platen through the vessel, the needles being constructed to take in and convey coloring-matter to the material to be operated upon, means for depressing the platen and its attached needles and means for forcing the coloring-matter through the open ends of said needles when they are being withdrawn from the material.

8. In a machine for marking paper or fabric, the combination with a vessel containing coloring-matter and having a series of openings through its bottom, of a platen mounted to move in said vessel, a series of hollow needles mounted in and depending from said platen and corresponding in number to the openings in the bottom of the vessel, each needle being provided with a valve-opening, a valve-plate for closing said valve-openings and a presser-bar for depressing the platen and moving the valve-plate out of engagement with the valve-openings.

9. In a machine for marking paper or fabric, the combination with a vessel containing coloring-matter and having a series of openings through its bottom, of a platen suspended in the open end of said vessel and provided with upwardly-extending arms or posts, needles secured in and depending from said platen and corresponding in number with the openings in the bottom of the vessel, each needle constructed to convey coloring-matter from the vessel to the material to be operated upon and a presser-bar for engaging and exerting pressure upon the upper ends of said posts whereby the platen and its attached needles are depressed.

10. In a machine for marking paper or fabric, the combination with a vessel containing coloring-matter and having a series of openings through its bottom, of a platen suspended within said vessel and provided with upwardly-projecting posts, a series of hollow needles mounted in openings formed in said platen, each needle being provided between its ends with a valve-opening, plungers mounted in the open upper ends of said needles, a presser-bar movably supported by the vessel and provided with depending arms carrying at their lower ends a valve-plate for closing the needle-valve openings and means for raising and normally supporting the platen.

11. In a marking-machine, the combination with a stationary support, of a vessel-supporting frame adjustably mounted on said fixed support and perforating and marking devices supported by the adjustable frame.

12. In a marking-machine, the combination with an arm or supporting-frame comprising two sections, one of said sections being fixed while the other section is movably supported by the stationary section

13. In a marking-machine, the combination with a base, and a supporting arm or frame secured to said base, of a vessel removably supported in said arm or frame and above the base and means for lowering said vessel upon the material to be operated upon whereby said vessel will act as a presser foot or clamp.

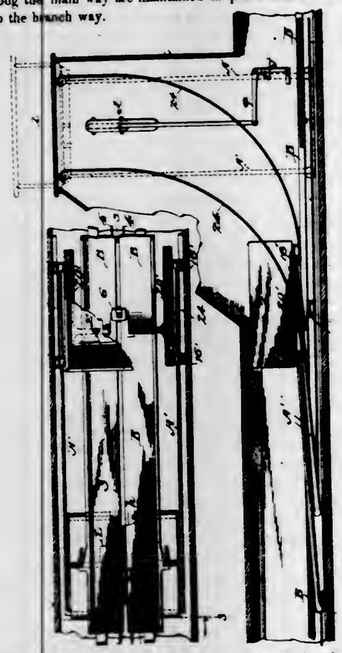
14. In a marking-machine, the combination with a vessel to contain coloring-matter, of a series of tubular needles movable through said vessel, each needle having a hole above its bottom, of means for opening and closing the said holes in the needles to control the entrance of coloring-matter into the needles and the discharge of coloring-matter from said needles.

681,122. DINING-ROOM SERVICE APPARATUS. JUDSON B. HURD, Washington, D. C. Filed Dec. 29, 1900. Serial No. 41,546. (No model.)

Claim.—1. In a carrier apparatus, a main way with a branch way leading up therefrom to a station above, a carrier adapted to be propelled along said main way and branch way, and a propelling medium along the main way; in combination with a depositing device connecting the propelling medium with the carrier and adapted to control and graduate the speed of the carrier as it is moved up the branch way, whereby the carrier is caused to approach its resting-place at the station at a gradually-retarded speed.

2. In a carrier apparatus the combination of a main way with a branch way leading up therefrom to a station above, a carrier adapted to be propelled along the main way and to be deflected therefrom and be propelled along the branch way, a propelling medium along the main way,

a depositing device connecting the propelling medium with the carrier as it passes up the branch way and adapted to control and graduate the speed of the carrier at a gradually-retarded speed; with means whereby the lines of the carrier that are parallel with the main way as the carrier passes along the main way are maintained in parallelism as the carrier moves up the branch way.

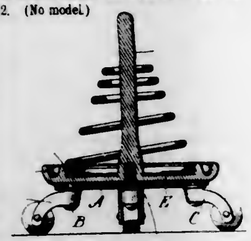


3. In a carrier apparatus of the character described, a dust-proof shaft or housing for the horizontal way and elevator, in combination with means for elevating the carrier from the horizontal way to a station above; and means whereby the speed of the carrier is gradually retarded as it approaches the station above.

4. In a carrier apparatus of the character described, the combination of a main horizontal way, a branch way leading up from it to a station above, a carrier adapted to be propelled along the horizontal way and up and down the branch way, and a propelling medium, with means for maintaining the carrier in an upright position while on the horizontal way and in moving up and down and in changing from one direction to another, and means by which the carrier is caused to approach the station at a gradually-reduced speed.

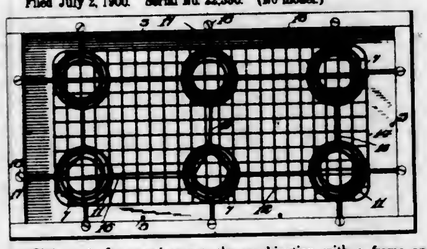
5. In a carrier apparatus of the character described, the combination of a main horizontal way, a branch way leading up from it to a station above, a carrier adapted to be propelled along the horizontal way and up and down the branch way, and a propelling medium, with means for maintaining the carrier in an upright position while on the horizontal way and in moving up and down and in changing from one direction to another, and means connecting the carrier with the propelling medium by which the carrier is caused to approach the station at a gradually-reduced speed and to leave it at a gradually-accelerated speed.

681,123. CASTER. LOUIS H. KENNEDY, Dunn, N. C., assignor of one-half to J. H. Ballance, same place. Filed Mar 29, 1901. Serial No. 52,912. (No model.)



Claim.—In combination with the grooved plate having an annular bead on its upper face, and a central recess in its under face, a caster-carrying plate with pin or lug at the central portion thereof, which lug is seated in said recess in the grooved plate, a pintle integral with said grooved plate located over said lug, and a coiled spring the lower end of which is adapted to snugly fit within and against said bead, as set forth.

681,124. SPRING-SEAT. MICHAEL LALLY, North Lawrence, Ohio. Filed July 2, 1900. Serial No. 22,330. (No model.)

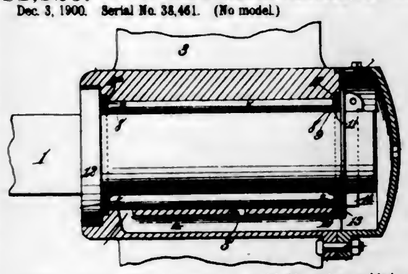


Claim.—1. In a spring-seat, the combination with a frame and spring-support, of a series of springs secured upon the support, an open-work upholstery-frame mounted upon the springs, and a single wire strand connecting all of the springs to the upholstery-supporting frame and to each other, said single strand extending between the springs in both longitudinal and transverse directions with respect to the frame.

2. In a spring-seat, the combination with a seat-frame and a spring-supporting plate carried thereby, of a series of springs secured upon the supporting-plate, an open-work, inherently-resilient upholstery-frame mounted upon the springs, a wire strand serving to connect the upholstery-frame to the springs, and flexible restraining devices secured at one end to the seat-frame and provided at their opposite ends with engaging devices detachably engaging the edge of the upholstery-frame and the adjacent convolution of each spring.

3. In a spring-seat, the combination with a seat-frame, and a spring-supporting plate carried thereby, of a series of springs secured upon the supporting-plate, an open-work, inherently-resilient upholstery supporting-frame mounted upon the springs, a wire strand serving to connect the upholstery-frame to the springs and to connect said springs against relative lateral movement, and flexible restraining devices secured at one end to the seat-frame and provided at their opposite ends with hooks engaging the edge of the upholstery-frame and the uppermost convolution of each spring.

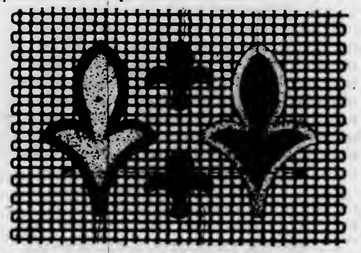
681,125. WHEEL. JOHN K. LIGHTFOOT, Cumberland, Md. Filed Dec. 3, 1900. Serial No. 38,461. (No model.)



Claim.—In a wheel, the combination with the axle provided with a collar and the hub provided at its opposite ends with annular grooves or rabbets formed concentrically with the bore of the hub, of cylindrical rollers disposed between the axle and the inner wall of the hub and each provided at its opposite ends with conical extensions, the bases of said extensions being of less diameter than the diameter of the rollers whereby shoulders are formed on the ends of the rollers about said conical extensions, collars loosely surrounding the axle and tightly fitted in the said grooves and rabbets and held therein by friction, said collars being provided on their inner faces with annular grooves V-shaped in cross-section, the said conical extensions on the rollers resting and loosely traveling in said grooves, a key passing transversely through the axle, and a washer arranged between said key and the adjacent collar, substantially as described.

681,126. WOVEN FABRIC. JAMES LIVINGSTON, Philadelphia, Pa. Filed Mar. 7, 1901. Serial No. 50,188. (No specimens.)

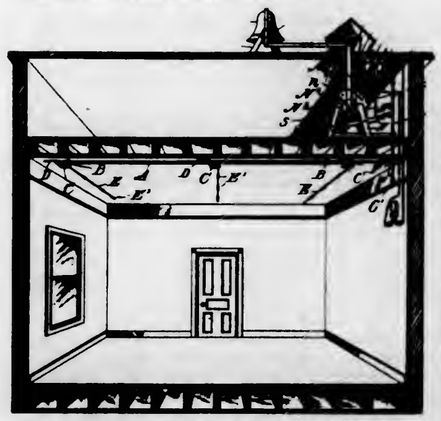
Claim.—1. A fabric composed of interwoven warp and weft threads and having chenille figures separated from each other by an intervening open or lace-like ground, the figures being formed by tufts of chenille yarn disposed at intervals upon one of said threads.



2. A fabric composed of interwoven warp and weft threads and having chenille figures separated from each other by an intervening open or lace-like ground, the figures being formed by tufts of chenille yarn disposed at intervals upon said weft-threads, substantially as specified.

3. An open-work or gauze fabric composed of interwoven warp and weft threads and having chenille figures thereon, the warp-threads being twisted between the weft-threads and the latter threads having tufts or bunches of chenille yarn at intervals thereon, which form the chenille figures, substantially as specified.

681,127. FIRE-ALARM SYSTEM. CHARLES E. LOMBARD, East Wilton, Me., assignor of one half to James Walker, same place. Filed Mar. 14, 1901. Serial No. 51,164. (No model.)



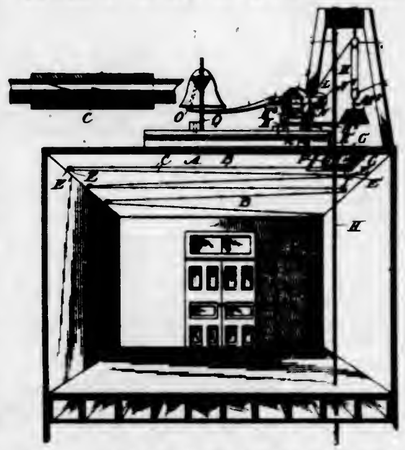
Claim.—1. An automatic fire-alarm, consisting of a longitudinally-movable bar held to the ceiling of a room, spring-actuated levers engaging said bar, wires with fusible connections designed to hold said levers normally under tension, a spring-actuated cable, and signal-operating mechanism actuated thereby, a fixed clamping-block and a pivoted clamping-jaw, and connections between the latter and said spring-actuated bar for holding said cable normally under tension, and between said clamping-jaws, as set forth.

2. An automatic fire-alarm system, comprising in combination with the spring-actuated bar, the wires with fusible couplings designed to hold said bar under tension of its springs, a spring-actuated cable and signal-operating mechanism actuated thereby, a fixed clamping-jaw, a movable clamping-jaw pivoted near one end, a lever H pivoted to a stationary pin, a link having pivotal connections with said lever, and movable clamping-jaw, and cable connections between said spring-actuated bar and lever, as set forth.

3. In combination with the spring-actuated cable, the clamping-jaws and means for holding the same normally under tension of its springs, a drum, a weighted rope winding about the latter, a ratchet-wheel rotating with said drum, a pivoted pawl engaging at one end the teeth of said ratchet-wheel, its other end apertured to receive said cable, a stop on the cable adapted to contact with the apertured end of said pawl, to tilt the same, and alarm-operating mechanism which is actuated as the drum rotates, as set forth.

4. In combination with the spring-actuated cable, and means for holding the same under tension of its spring, and for releasing same, a drum, a weighted rope winding about the latter, a ratchet-wheel rotating with said drum, a pivoted pawl, one end of which engages the teeth of said ratchet-wheel, its other end apertured to receive said cable, a knot on the cable designed to trip against said pawl, a series of pins held to the face of said ratchet-wheel, a pivoted lever, one end of which is disposed in the path of said pins, and a circuit-closer actuated by said lever as it tilts upon its pivot, as set forth.

681,128. AUTOMATIC FIRE-ALARM. CHARLES E. LOMBARD, East Wilton, Me. Filed May 9, 1901. Serial No. 59,505. (No model.)



Claim.—1. An automatic fire-alarm system, comprising a wire and tension-spring secured thereto, a sounding-alarm mechanism which is actuated as said cable is moved under the tension of said spring, a stationary clamping-jaw, a pivoted clamping-jaw which is spring-actuated, a series of wires with fusible connections, said line of wires being connected at one end to said pivoted clamping-jaw, and its other stationary, said jaws designed to normally hold the cable so that the spring secured thereto will be under tension, as set forth.

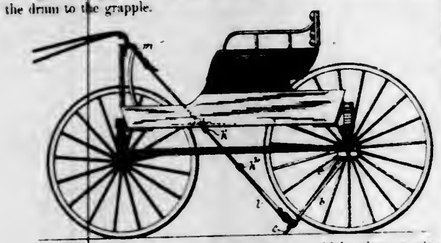
2. An automatic fire-alarm, consisting in combination with a wire, a spring secured at one end to said wire, at its other end to a stationary object, a sounding-alarm mechanism designed to be sounded as said wire is actuated under the influence of the spring secured thereto, a stationary clamping-jaw, a spring-actuated clamping-jaw adapted to coöperate with said stationary jaw to hold the wire so that the spring secured thereto will be under tension, a series of wires with fusible connections forming a line, one end of which is secured to a stationary object, thence passed about pulleys, and onto pivoted elbows and its other end secured to the end of said pivoted clamping-jaw, as set forth.

3. An automatic fire-alarm, comprising in combination with a cable, a spring secured at one end to the latter its other end secured to a stationary object, a trip on said cable, a sounding-alarm and means for actuating same as the cable is actuated longitudinally under the tension of said spring, a line made up of a series of wires with fusible couplings, one end of said line being secured to a stationary object, alternately-arranged pulleys about which said line passes, and onto the pivoted elbows a stationary clamping-jaw and a pivoted clamping-jaw and spring secured at one end to said pivoted jaw, its other end to a stationary object, said jaws adapted to engage a recess in said wire, one end of said line of wires secured to the end of the pivoted clamping-jaw and normally holding said lever so that the spring secured thereto will be under tension, as set forth.

4. In combination with the drum a ratchet-wheel secured thereto, a pivoted pawl engaging the teeth of said ratchet-wheel, a spring-actuated wire, means for normally holding same so that the spring secured thereto will be under tension, a trip carried by the wire and designed to contact with and release said pawl from the ratchet-wheel, a cord secured to and winding about said drum, a weight secured to the other end of said cord, pulleys over which the cord passes, a crank secured to and rotating with said drum, a counterbalance-weight secured to said crank, a bell, a link connection between said crank and the tongue of the bell, as set forth.

681,129. HITCHING-POST. JAMES M. MATTHEWS, San Antonio, Tex. Filed Dec. 4, 1900. Serial No. 38,715. (No model.)

Claim.—1. In a hitching device, a yoke pivoted to a vehicle, a drum carried by the yoke, a grapple comprising a wire bent to form a loop and having diverging ends to engage the reins, and a flexible connection from the drum to the grapple.

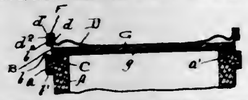


2. In a hitching device, a yoke pivoted to a vehicle, plates on the bottom of the vehicle-bed, said plates having apertures, a strip connected to the yoke and run through the aperture of one of the plates, stops on the strap adapted to engage the plate and a grapple on the strap for engaging the reins.

3. In a hitching device, a yoke, a strap attached to the yoke, a plate having lugs and an opening fitted on the bottom of the vehicle-body, a grapple on the end of the strap and stops on the strap, substantially as described.

4. In a hitching device for horses, a yoke pivoted to the vehicle and having its ends converged and adapted to engage the mud-bed, plates having apertures fitted on the button 99 of vehicle-body, a strap connected to yoke and, operating through said plate, means for connecting the strap to the reins and stops on the strap for engaging the plate, as and for the purpose described.

681,130. VACUUM-SEALING JAR. EDWIN NORTON, Maywood, Ill., assignor to the Automatic Vacuum Canning Company, Chicago, Ill. Filed Nov. 3, 1900. Serial No. 35,318. (No model.)



Claim.—1. The vacuum-sealing preserving-jar comprising in combination a jar having an external shoulder, a seaming-ring having an internal shoulder, a packing between said shoulders, an inturned flange at the lower edge of said seaming-ring compressing said packing and locking and hermetically sealing said ring to said jar, a flange at the upper edge of said ring, a cover having a flange or shoulder, a packing thereon and a seaming-rim and a double seam formed by folds in said rim of the cover and said flange at the upper edge of the seaming-ring, substantially as specified.

2. The combination with a jar, of a seaming-ring hermetically sealed and secured to the said jar, a cover, a packing between the cover and seaming-ring, said cover being hermetically sealed and secured to said seaming-ring by a vacuum or atmospheric-pressure seal collapsing or inwardly curving said cover and a double seam locking and securing the cover to the seaming-ring and firmly compressing and confining the packing between the cover and ring, substantially as specified.

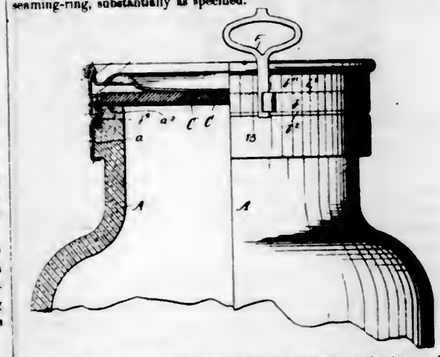
3. The vacuum-sealed preserving-jar comprising in combination jar A having shoulder *a*, packing C, seaming-ring B having shoulder *b*, flanges b' and b^2, and cover D having flange or shoulder *d*, rim d', packing F and double seam d^2 uniting said cover and ring, substantially as specified.

4. The vacuum-sealed preserving-jar comprising in combination jar A having shoulder *a*, packing C, seaming-ring B having shoulder *b*, flanges b' and b^2, and cover D having flange or shoulder *d*, rim d', packing F and double seam d^2 uniting said cover and ring, and a protecting-disk between the jar and cover, substantially as specified.

5. The vacuum-sealed preserving-jar comprising a jar A, seaming-ring B hermetically sealed and secured to said jar by a packed joint, a cover D having a packed joint between it and the seaming-ring and hermetically sealed and secured thereto by a vacuum or atmospheric-pressure seal and a double seam additionally securing together the cover and seaming-ring and confining the packing between the same, substantially as specified.

681,131. VACUUM-SEALING KEY-OPENING PRESERVING-JAR. EDWIN NORTON, Maywood, Ill., assignor to the Automatic Vacuum Canning Company, Chicago, Ill. Filed Nov. 3, 1900. Serial No. 35,319. (No model.)

Claim.—1. The combined slip-cover and vacuum-sealing key-opening jar, consisting in the combination with a glass or earthenware jar A having an external shoulder *a* at its neck, of a sheet-metal seaming-ring B, having a tongued tearing-strip *b*, and an internal upright fold b^3 projecting above the lower score of the tearing-strip, and provided with an inturned flange b^5 at its lower edge securing the same to the jar, a sheet-metal cover D having inner and outer flanges d' d^3, and an annular channel *d* between, furnished with a packing-ring d^3, said seaming-ring having at its upper edge a flange, turn or roll mechanically secured or united to said cover, and said seaming-ring having a slip-cover flange portion b^{11} projecting above the upper score of the tearing-strip and adapted to tightly fit, when the tearing-strip is removed, said upright fold b^3 of the seaming-ring, substantially as specified.



2. The combination with a jar having an external shoulder at its neck, with a sheet-metal seaming-ring furnished with a tongued tearing-strip, and provided with an internal upright fold having a smooth upper edge projecting above the lower score of the tearing-strip, said seaming-ring having a flange at its lower edge securing the same to the jar, and a slip-cover flange portion b^{11} projecting above the upper score of the tearing-strip, and a sheet-metal cover having a packing-ring and mechanically seamed or secured to said upper portion b^{11} of the seaming-ring, and forming, when the tearing-strip is removed, a slip-cover fitting said upright fold b^3 of the seaming-ring, substantially as specified.

3. The combination with a jar having an external shoulder at its neck, of a seaming-ring furnished with a tongued tearing-strip and an internal shoulder, and provided with an inturned flange at its lower edge securing the same to the jar, and with a flange or roll at its upper edge, of a sheet-metal cover having an annular groove and a packing-ring therein to adapt the same to be seamed and secured to the seaming-ring by a vacuum or atmospheric-pressure seal, substantially as specified.

4. The combination with a jar having an external shoulder at its neck, of a seaming-ring furnished with a tongued tearing-strip and an internal shoulder, and provided with an inturned flange at its lower edge securing the same to the jar, and with a flange or roll at its upper edge, of a sheet-metal cover having an annular groove and a packing-ring therein to adapt the same to be seamed and secured to the seaming-ring by a vacuum or atmospheric-pressure seal, said cover having its outer flange mechanically seamed or crimped to the flange or roll on the seaming-ring, substantially as specified.

5. The combination with a jar having an external shoulder at its neck, of a seaming-ring furnished with a tongued tearing-strip and an internal shoulder, and provided with an inturned flange at its lower edge securing the same to the jar, and with a flange or roll at its upper edge, of a sheet-metal cover having an annular groove and a packing-ring therein to adapt the same to be seamed and secured to the seaming-ring by a vacuum or atmospheric-pressure seal, said cover having its outer flange mechanically seamed or crimped to the flange or roll on the seaming-ring, and said seaming-ring having a slip-cover flange portion b^{11} above the upper score of the tearing-strip and forming with the cover, when the tearing-strip is removed, a slip-cover fitting the portion of the seaming-ring attached to the jar, substantially as specified.

6. The combination with a glass or earthenware jar, of a cover and seaming-ring furnished with a tongued tearing-strip for opening the jar, said seaming-ring being hermetically sealed and secured to the jar, and said cover being hermetically sealed and secured to the seaming-ring, substantially as specified.

7. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, and provided with a tongued tearing-strip above its internal shoulder, substantially as specified

8. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, provided with a tongued tearing-strip above its internal shoulder and a packing-ring inserted between said seaming-ring and jar, substantially as specified.

9. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, provided with a tongued tearing-strip above its internal shoulder said sheet-metal ring having at its lower edge an inturned flange locking the same to the jar, substantially as specified.

10. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, provided with a tongued tearing-strip above its internal shoulder and a packing-ring inserted between said seaming-ring and jar, said sheet-metal ring having at its lower edge an inturned flange locking the same to the jar, substantially as specified.

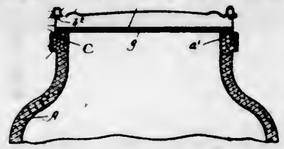
11. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, and provided with a tongued tearing-strip, said sheet-metal ring having a flange or roll at its upper edge, and a sheet-metal cover having inner and outer flanges embracing said flange or roll on the upper edge of the ring, substantially as specified.

12. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, and provided with a tongued tearing-strip, said sheet-metal ring having a flange or roll at its upper edge, and a sheet-metal cover having inner and outer flanges embracing said flange or roll on the upper edge of the ring, and the outer flange on the cover being turned or crimped under the flange or roll at the upper edge of the seaming-ring, substantially as specified.

13. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, provided with a tongued tearing-strip said sheet-metal ring having at its lower edge an inturned flange locking the same to the jar, said sheet-metal ring having a flange or roll at its upper edge, and a sheet-metal cover having inner and outer flanges embracing said flange or roll on the upper edge of the ring, substantially as specified.

14. The combination with a jar having an external shoulder at its neck or top, of a sheet-metal ring having an internal shoulder and secured to said jar, provided with a tongued tearing-strip, a packing-ring inserted between said seaming-ring and jar, said sheet-metal ring having a flange or roll at its upper edge, a sheet-metal cover having inner and outer flanges embracing said flange or roll on the upper edge of the ring, and the outer flange on the cover being turned or crimped under the flange or roll at the upper edge of the seaming-ring, substantially as specified.

681,132. VACUUM-SEALING PRESERVING-JAR. EDWIN NORTON, Maywood, Ill., assignor to the Automatic Vacuum Canning Company, Chicago, Ill. Filed Nov. 3, 1900. Serial No. 35,320. (No model.)

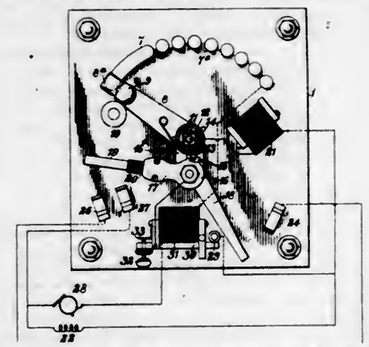


Claim.—1. The combination with a jar having an external shoulder at its neck or top of a sheet-metal seaming-ring hermetically sealed and secured to the jar, and a cover hermetically sealed and secured to the seaming-ring, said cover being hermetically sealed and secured to the seaming-ring by a vacuum or atmospheric-pressure seal collapsing or inwardly curving the cover and also by a mechanical or frictional fit joint, substantially as specified.

2. The combination with a jar having an external shoulder on its neck or top, of a sheet-metal seaming-ring having an internal shoulder, a packing fitting between said shoulders, an inturned flange on the lower edge of the seaming-ring locking the same to the jar, compressing the packing and hermetically sealing the ring to the jar, a cover having a packing-seat and packing and a flange on the upper edge of the seaming-ring forming a smooth shoulder for compressing the packing between the cover and the ring, substantially as specified.

3. The combination with a jar having an external shoulder on its neck of a seaming-ring having an internal shoulder, a packing between said shoulders on the jar and ring, an inturned flange at the lower edge of the seaming-ring locking the same to the jar, compressing the packing and hermetically sealing the ring to the jar, a roll on the upper edge of the seaming-ring, a tight frictional fit cover having inner and outer flanges embracing said roll on the seaming-ring, and a packing between the cover and seaming-ring, the outer flange of the cover having a roll or shoulder at its lower edge to enable it to be pried off against the shoulder on the ring and jar, substantially as specified.

681,133. STARTING APPARATUS FOR ELECTRIC MOTORS. THOMAS S. PERKINS, Idlewood, Pa. Original application filed Sept. 23, 1898, Serial No. 692,065. Divided and this application filed June 19, 1901. Serial No. 65,172. (No model.)



Claim.—1. In a starting device for electric motors, the combination with a subdivided resistance, of a switch-arm, a spring tending to move said arm to and retain it in its initial position, a series of stationary contact-pieces in position to be engaged by said arm for cutting the subdivisions into and out of circuit successively, the first of said series of contact-pieces being of materially-greater length than the others, a double-pole line-switch the movable member of which is geared to said switch-arm so as to close the motor-circuit before said arm leaves the long contact-piece, and an electromagnet serving, when energized, to hold the switch-arm in its full-on position and the line-switch closed.

2. The combination with an electric motor having a shunt field-magnet winding, of a starting resistance, a resistance-varying switch comprising a long contact-piece, a series of short contact-pieces and a coöperating contact-arm operated by hand to cut the resistance out of circuit progressively and by a spring in the opposite direction, a double-pole line-switch having its movable member geared to said switch-arm whereby the line-switch is closed by the forward movement of said arm and during its engagement with the long contact-piece, an electromagnet for holding the line-switch closed and the resistance-switch arm in the minimum resistance position, and means for automatically short-circuiting said magnet when the armature is subjected to an overload current.

3. The combination with an electric motor having a shunt field-magnet winding, of a starting resistance, a resistance-varying switch comprising a series of stationary contacts and a coöperating contact-arm operated by hand to cut the resistance out of circuit progressively and by a spring in the opposite direction, a double-pole line-switch having its movable member geared to the resistance-switch to affect the closing of the motor-circuit by the initial forward movement of the resistance-switch arm, an

electromagnet for holding the line-switch closed and the resistance-switch arm in the minimum resistance position, and a circuit-closing device actuated by an excessive flow of current to the armature to short-circuit the holding-magnet.

681,134. **WAGON-BED.** GEORGE H. PETERSON, Nemaha county, Nebr. Filed June 12, 1901. Serial No. 64,305. (No model.)



Claim.—1. A wagon-bed, comprising in its construction side pieces, longitudinal strips forming the bottom of said bed, means for removably supporting said side pieces in their vertical position, and means for taking up wear between said bottom strips, comprising a beam extending transversely thereof and formed with elongated slots intermediate its length, bolts passed through said apertures and secured to said longitudinal strips, and means for retaining said longitudinal strips in a given relation to each other, substantially as described.

2. A wagon, comprising in its construction a bed having a bottom and sides, a bolster supporting the same, means for taking up wear in the bottom, and means for removably securing each of the said sides, comprising an arm pivotally secured to each end of said bolster and provided with a hooked portion at its upper end and adapted to support said sides, a brace pivotally secured to said bolster and adapted to support said arm, and locking means for securing said arm and said brace together, the construction being such that when said brace is disengaged from said arm, the arm may be swung from its vertical to a horizontal plane, and the said side may be readily removed.

3. A wagon-bed, comprising in its construction a bottom, sides, means for supporting the sides in a vertical position, and means for taking up wear between said bottom and sides, comprising angle-irons secured transversely of said bed and extending beyond the sides thereof and formed with apertures in their ends, strap-irons secured to said sides and extending beyond the lower edge thereof and each formed with ratchet-teeth upon said extension, such extension being adapted to be passed through the apertare in one end of one of said angle-irons, a casting formed with ratchet-teeth adapted to engage the teeth of said extension of one of the strap-irons, and means for securing said casting to said angle-iron, substantially as described.

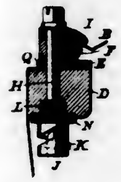
4. The combination with a wagon provided with a bed and supporting-bolsters, of means for dismantling said bed for removing the same from the running-gears and means for retaining the same in position when the parts are assembled, comprising pivoted arms carried by the ends of said bolsters, adapted to engage the sides of said bed for supporting the same in a vertical position, or be swung out of engagement therewith, means carried by said bolsters for supporting said arms, means for receiving the strains upon said supports, transverse beams adjustably secured to the bottom of said bed, strap-irons carried by said sides and adapted to engage said transverse beams, and means for bracing said strap-irons, substantially as described.

681,135. **HOISTING APPARATUS.** WESLEY A. PETREE, Mizpah, N. C. Filed May 8, 1901. Serial No. 59,263. (No model.)



Claim.—An apparatus for hoisting meats, &c., comprising two double pulleys having grooves of two different diameters therein, a yoke and spindle carried by each, on which the pulley is journaled, guard members integral with said yokes and adjacent to the grooves in said pulleys, each of said yokes having an angled portion projecting over the contracted grooved portion of the pulley, the hook on the yoke, a ring secured to a stationary beam engaged by said hook, a rope anchored at one end to said beam and passed about the two pulleys similarly constructed, and a stationary hook suspended from said beam on which the meat or other substance or article being hoisted may be transferred, as shown and described.

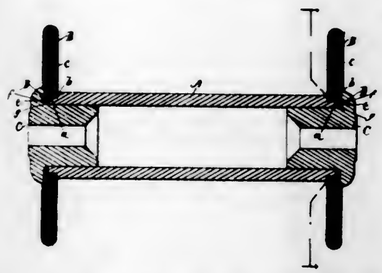
681,136. **FASTENER FOR CASKET-COVERS.** WILLIAM H. PIDRICK, Rochester, N. Y., assignor to the National Casket Company, Oneida, N. Y. Filed Apr. 7, 1900. Serial No. 12,088. (No model.)



Claim.—1. The combination of the frame D, the stem provided with the hook and pin, and the movable cam-piece having a spiral cam-surface provided with a limiting-shoulder and with a threaded extension.

2. The combination of the frame D, the stem provided with the hook and pin, the movable cam-piece having a spiral cam-surface provided with a limiting-shoulder and with a threaded extension, and the fixed nut.

681,137. **SPOOL.** GEORGE T. PITTS, Fall River, Mass., assignor to U. S. Bobbin and Shuttle Company, Providence, R. I. Filed June 5, 1900. Serial No. 19,173. (No model.)



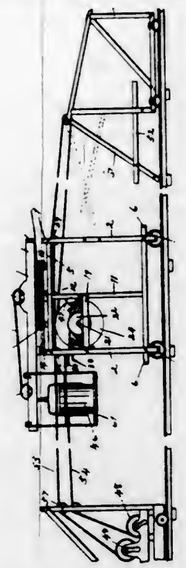
Claim.—The combination of the wooden barrel A, the wooden plug C, and the spirally-wound paper head B, forming an annular chamber e between them, and the ring of glue D filling the said chamber, the end g of the barrel, the surface f of the plug, and a portion of the bore b of the head being made to abut against the ring of glue, substantially as described.

681,138. **HOISTING AND CONVEYING APPARATUS.** JOSEPH L. POTTER, Indianapolis, Ind. Filed Jan. 13, 1900. Serial No. 1,321. (No model.)

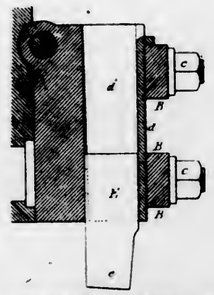
Claim.—1. The combination in a hoisting and conveying apparatus of a longitudinally-open car; a horizontal arm mounted on said car, and provided with a platform adapted to support the bucket and the operator from one of its extended ends; means for operating the bucket; and hoisting and draft cables operated from a power-house at a distance.

2. The combination of a hollow longitudinally-open hoisting and conveying car; a pivoted arm mounted thereon having a platform for the operator, and guide-wheels for the bucket-hoisting cables; means for hoisting and lowering the bucket; and a pair of operating-cables actuated from a power-house at a distance.

3. A hoisting and conveying apparatus for sewer-trench construction consisting of a hollow car provided with a pivoted arm carrying the suspended bucket and the operator upon one extended end thereof; means for operating said bucket and for securing the same in its suspended position; and a pair of operating-cables actuated from a power-station at a distance.



681,139. **TOOL-HOLDER FOR METAL-WORKING MACHINES.** JAMES QUIGLEY, Philadelphia, Pa. Filed Apr. 13, 1901. Serial No. 55,765. (No model.)



Claim.—1. As a new article of manufacture, a tool-holder for securing tools to the heads of metal-working machines, said tool-holder having a front plate and side flanges forming a cavity for the reception of a tool and so shaped that it can be clamped to the head of a metal-working machine, one end of each side flange being deeper than the other end, substantially as and for the purpose described.

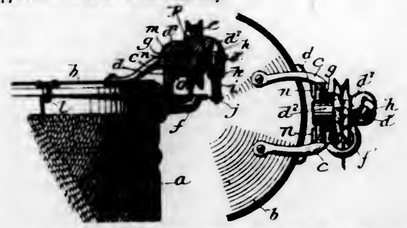
2. The combination in means for securing a short tool to the head of a metal-working machine, of a head, two clamp-plates, one mounted above the other, a tool-holder of a length to be clamped by the two plates, said holder having side flanges for the reception of a tool, and means for securing the clamp-plates, tool-holder and tool to the head, substantially as described.

3. The combination of a head, clamp-plates, means for securing the clamp-plates to the head, a tool, a tool-holder fitting over the tool, the said tool-holder being shaped to bear only against the tool at its lower end, and against the head at its upper end, substantially as described.

4. As a new article of manufacture, a tool-holder for securing short tools to the head of a metal-working machine, said holder consisting of a face-plate and two flanges forming a cavity for the tool, and a projection on the holder arranged to engage one of the clamp-plates by which the holder is secured to the head, substantially as described.

681,140. **TENSION DEVICE FOR TWINE OR CORD.** CHARLES A. A. RAND, Chicago, Ill. Filed Dec. 22, 1900. Serial No. 40,748. (No model.)

Claim.—1. In a tension device for twine, cord, or the like the combination of a sheave or wheel, a bearing for said wheel divided longitudinally into sections, a resilient body adapted to react between the sections of said bearing, a guide-eye to lead the twine to the wheel and a guide-eye to determine the direction of the twine as it is drawn from the wheel, the location of said guide-eyes causing the tension of the twine to oppose the action of the resilient body.



2. In a tension device for twine, cord, or the like the combination of a sheave or wheel, an expansible trunnion, on which the said wheel is journaled, a resilient body adapted to expand said trunnion, a guide-eye to lead the twine to the wheel, and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eyes so located that the tension on the twine will oppose the action of the resilient body.

3. In a tension device for twine, cord, or the like the combination of a sheave or wheel, a trunnion, on which the said wheel is journaled, longitudinally divided into sections, a spring adapted to react between the sections of the said trunnion, a guide-eye to lead the twine to the wheel and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eyes so located that the tension of the twine will oppose the action of the spring.

4. In a tension device for twine, cord, or the like the combination of a sheave or wheel adapted to engage the twine, a trunnion, on which the said wheel is journaled, longitudinally divided into a movable section and a relatively rigid section, a spring adapted to react between the sections of the said trunnion, means for adjusting the tension on said spring, a guide-eye to lead the twine to the wheel, and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eyes so located that the tension on the twine shall oppose the action of the said spring.

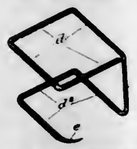
5. In a tension device for twine, cord, or the like the combination of a sheave or wheel having a zigzag V-shaped groove in its periphery, a trunnion on which the said wheel is journaled, longitudinally divided into a movable section d^2 and a relatively rigid section d', the movable section d^2 having a projection extending to one side and beneath the rigid section d', a bolt or rod seated in the end of the rigid section d' and extending through the slot or hole in the said projection of the movable section d^2, a spring encircling the bolt and adapted to react between the nut of said bolt and the said projection of the movable section d^2, a guide-eye to lead the twine to the wheel and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eye so located that the tension on the twine may oppose the action of the said spring, all combined substantially as described.

6. In a tension device for twine, cord, or the like the combination of a can, a projection at one side forming a trunnion, a sheave or wheel journaled thereon, a guide-eye to lead the twine to the wheel, a guide-eye to determine the direction of the twine as it is drawn from the wheel, said trunnion being longitudinally divided into sections, and a spring adapted to react between the said trunnion-sections.

7. In a tension device for twine, cord, or the like the combination of a can having a hinged lid, a projection at one side thereof forming a trunnion, a sheave or wheel journaled thereon, a guide-eye to lead the twine to the wheel, a guide-eye to determine the direction of the twine as it is drawn from the wheel, said trunnion being longitudinally divided into sections, a bearing for the hinge of the lid formed in the rigid section of said trunnion, and a spring adapted to react between the said trunnion-sections.

8. The combination with a can having a hinged lid and a bail-like hinge, of a tension device comprising a projection at one side of the can forming a trunnion, a sheave or wheel journaled thereon, a guide-eye to lead the twine to the wheel, a guide-eye to determine the direction of the twine as it is drawn from the wheel, said trunnion being longitudinally divided into sections, a bearing for the pintle of the bail-like hinge formed in the rigid section, a toe-piece or fulcrum formed on one end of the movable section adapted to overlie the said bearing and hold the pintle in place, and a spring on the opposite side of the wheel from the hinge adapted to react between the said sections of the trunnion, all combined substantially as described.

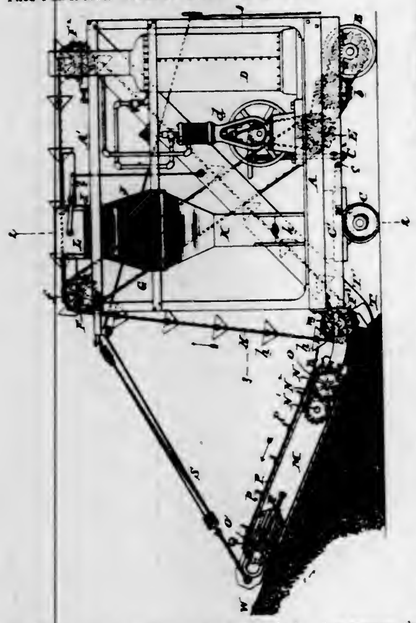
681,141. DRESS-SHIELD FASTENER. CHARLES A. SEE, Chicago, Ill. Filed June 3, 1901. Serial No. 63,885. (No model.)



Claim.—1. A dress-shield fastener comprising a wire bent to form a rectangular head portion and a foot portion forming three sides of a rectangular figure, and having its free end pointed and deflected inwardly and toward the head portion, and a stem uniting the head and foot portions and holding them in parallelism, substantially as described.

2. A dress-shield fastener comprising a wire bent to form a rectangular head portion and a foot portion forming three sides of a rectangular figure, the foot portion being somewhat smaller in outlines than the head portion, and a stem uniting the head and foot portions and holding them in parallelism, substantially as described.

681,142. MACHINE FOR LOADING COAL, &c. HENRY J. SKITS, Philadelphia, Pa., assignor of one-half to Albert L. Barnes, same place. Filed Feb. 5, 1901. Serial No. 46,116. (No model.)



Claim.—1. In a machine for loading coal, &c., into wagons, the combination of a main frame, one or more laterally-projecting chutes at an elevation for discharging the material beyond the machine directly into wagons, an elevator having buckets, guides for causing the elevator to pass close to the ground and also above and over the higher end of the chutes, an adjustable frame carrying an endless raking device for feeding the coal, &c., into the elevator, power devices on the main frame for operating both the elevator and raking device, a shaft N' on the raking-device frame and geared to the raking device, and a sprocket-chain-and-wheel transmission between the shaft of the elevator and shaft N'.

2. In a machine for loading coal, &c., into wagons, the combination of a main frame, one or more inclined chutes at an elevation for discharging into wagons and provided with screens in their floors, closed refuse-receiving compartments under the screens and carried by the main frame, having doors at their lower parts, an elevator having buckets, guides for causing the elevator to pass close to the ground and also above and over horizontally the higher end of the chutes, an adjustable raking device for feeding the coal, &c., into the elevator, and power devices on the main frame for operating both the elevator and raking devices.

3. In a machine for loading coal, &c., into wagons, the combination of a main frame adapted to be supported on wheels, one or more chutes at an elevation for discharging into wagons, fixed to and carried wholly by the main frame and its wheels so as to move with it as a unit, an elevator having buckets, guides for causing the elevator to pass close to the ground and also above and horizontally rearward over the higher end of the chutes, an adjustable endless raking device for feeding the coal, &c., into the elevator, having a rotation so as to cause its lower part to move toward the elevator, supporting and steering wheels upon which the main frame is supported, and power devices on the main frame for operating both the elevator and raking device and also the supporting-wheels to propel the main frame.

4. In a machine for loading coal, &c., into wagons, the combination of a main frame adapted to be supported on wheels, one or more chutes at an elevation for discharging into wagons, fixed to and carried wholly by the main frame and its wheels so as to move with it as a unit, an elevator having buckets, guides for causing the elevator to pass close to the ground and also above and horizontally rearward over the higher end of the chutes, an adjustable raking endless device for feeding the coal, &c., into the elevator, having a rotation so as to cause its lower part to move toward the elevator, supporting and steering wheels upon which the main frame is supported, power devices on the main frame for operating both the elevator and raking device and also the supporting-wheels independently to propel the main frame, and means for independently connecting or disconnecting the power devices with the supporting-wheels whereby the apparatus may be steered or remain at rest while the elevator and raking devices may be operated alone.

5. In a machine for loading coal, &c., into wagons, the combination of a main frame adapted to be supported on wheels, one or more chutes at an elevation for discharging into wagons, fixed to and carried wholly by the main frame and its wheels so as to move with it as a unit, an elevator having buckets, guides for causing the elevator to pass close to the ground and also above and horizontally rearward over the higher end of the chutes, an adjustable endless raking device for feeding the coal, &c., into the elevator having a rotation so as to cause its lower part to move toward the elevator, supporting and steering wheels upon which the main frame is supported, power devices on the main frame for operating both the elevator and raking device and also the supporting-wheels independently to propel the main frame, and clutch devices for throwing the power off of the elevator and raking devices on the one hand and supporting-wheels on the other or either of them separately.

6. In a machine for loading coal, &c., the combination of a vehicle on wheels, guide-wheels F^2 at the lower forward part of the vehicle, guide-wheels f at the forward upper part of the vehicle, guide-wheels F^2 at the upper rear part of the vehicle, an endless chain of elevator-buckets guided about said guide-wheels so as to pass vertically upward and then horizontally rearward, an endless adjustable scraper hinged to the forward lower part of the vehicle and having its under surface movable toward the elevator, power devices for operating the elevator and scraper, a horizontal guide over which the horizontal portion of the elevator moves the coal provided with an aperture through which the coal falls, an oblique chute having its upper end extending under the opening in the guide and the lower end projecting beyond the vehicle, and a gate to control the coal in the chute.

7. In a machine for loading coal, &c., into wagons, the combination of a main frame, one or more laterally-projecting chutes at an elevation, an elevator having centrally-supported buckets for lifting the coal, &c., from the ground, said buckets being adapted to receive the coal on one side of the said buckets and discharge it on the other side thereof into the chutes, a pivoted boom projecting from the main frame in front of the lower end of the elevator, an endless traveling scraper or raking device carried on the boom and having its under part adapted to move toward the elevator, means to adjust the obliquity of the boom, and power devices for operating both the elevator and the scraper or raking devices.

8. In a machine for loading coal, &c., into wagons, the combination of a main frame, two oppositely and laterally projecting chutes at an elevation, separate gates in each chute to control the discharge of the coal, &c., an elevator having buckets for lifting the coal, &c., from the ground and moving horizontally rearward for discharging it into the chutes, a pivoted boom projecting from the main frame in front of the lower end of the elevator, an endless traveling scraper or raking device carried on the boom and having its under part movable toward the elevator, means to adjust the obliquity of the boom, power devices for operating both the elevator and the scraper or raking devices, and power devices for propelling the main frame and its connecting apparatus.

9. In a machine for loading coal, &c., the combination of a vehicle on wheels, guide-wheels F^2 at the lower forward part of the vehicle, guide-wheeels f at the forward upper part of the vehicle, guide-wheels F^2 at the upper rear part of the vehicle, an endless chain of elevator-buckets guided about said guide-wheels so as to pass vertically upward and then horizontally rearward, an endless adjustable scraper hinged to the forward lower part of the vehicle and having its under surface movable toward the elevator, power devices for operating the elevator and scraper, a horizontal guide over which the horizontal portion of the elevator moves the coal provided with an aperture through which the coal falls, an oblique chute having its upper end extending under the opening in the guide and the lower end projecting beyond the vehicle, a gate to control the coal in the chute, a screen in the chute between the gate and lower end over which the coal passes and a compartment below the screen for receiving the screenings.

10. In a machine for loading coal, &c., the combination of a vehicle having steering-wheels at one end and two independent driving-wheels at the other end, power devices and transmission-gearing for operating either or both of the driving-wheels, an elevator having a vertical and a horizontal portion, the former being arranged at the end of the vehicle adjacent to the steering-wheels, a laterally-extending chute having its upper end arranged under the horizontal portion of the elevator and its lower end projecting beyond the vehicle, and a pivoted scraper of approximately the same width as the elevator pivoted to the end of the vehicle adjacent to the elevator and steering-wheels and having its under portion movable toward the elevator, and power devices for operating the elevator and scraper.

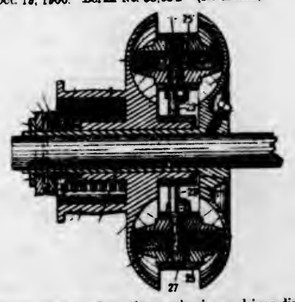
681,143. SHOE-NAIL. CHARLES E. SLOCOMB, Boston, Mass., assignor to Albert W. W. Miller, South Orange, N. J. Filed May 27, 1901. Serial No. 62,114. (No model.)



Claim.—1. A shoe-nail having a tapering diamond-shaped end portion *b*, and a penetrating diamond point formed by the four faces of said portion turned toward the axis of the nail at an increased angle.

2. A shoe-nail having a tapering diamond-shaped end portion *b*, and a penetrating diamond point formed by the four faces of said portion turned toward the axis of the nail at an increased angle, and by the edges forming the more acute angles of the portion *b* also turned toward said axis.

681,144. SPEED-VARYING PULLEY. FRED W. SPACKE, Indianapolis, Ind., assignor to Speed Changing Pulley Company, same place. Filed Oct. 19, 1900. Serial No. 33,654. (No model.)



Claim.—1. In a speed-varying mechanism, a driven disk, a driving-disk, a friction-wheel mounted between and coöperating with said disks, means arranged about the axis of the disks for supporting said friction-wheel upon on external axis at an angle to its own axis and the axis of the disks, and means for swinging said friction-wheel upon its external axis.

2. In a speed-varying mechanism, a driven disk, a driving-disk, a pair of friction-wheels mounted between said disks upon opposite sides of the axis thereof, means arranged about the axis of said disks for supporting said friction-wheels each upon an external axis at an angle to its own axis and the axis of the disks, and intermediate connections between said friction-wheels for swinging them simultaneously in opposite directions upon their external axes.

3. In a speed-varying mechanism, a driven disk adapted to receive and be secured to a driven shaft, a driving-disk, intermediate connections between said disks allowing a relative rotation but normally preventing a separation, a friction-wheel mounted between and coöperating with said disks, means supported upon the connection between the disks for supporting said friction-wheel upon an external axis at an angle to its own axis and the axis of the disks, and means for swinging said friction-wheel upon its external axis.

4. In a speed-varying mechanism, a driven disk adapted to receive and be secured to a driven shaft, a driving-disk, intermediate connections between said disks allowing a relative rotation but preventing a separation, a pair of friction-wheels mounted between said disks upon the opposite sides of the axis thereof, means supported upon the connection between said disks for supporting said friction-wheels each upon an external axis at an angle to its own axis and the axis of the disks, and intermediate connections between said friction-wheels for swinging them simultaneously in opposite directions upon their external axes.

5. In a speed-varying mechanism, a driven disk provided with an axial sleeve, a driving-disk revolubly mounted upon said sleeve, a friction-wheel mounted between and coöperating with said disks, means supported upon said sleeve for supporting said friction-wheel upon an external axis at an angle to its own axis and the axis of the disks, and means for swinging said friction-wheel upon its external axis.

6. In speed-varying mechanism, a driven disk provided with an axial sleeve a driving-disk, revolubly mounted upon said sleeve, a supporting-spider pivotally mounted about said sleeve, a pair of friction-wheels supported upon said spider upon opposite sides of the axis of the disks and each upon an external axis at an angle to its own axis and to the axis of the disks, and intermediate connections between said friction-wheels for swinging them simultaneously in opposite directions upon their external axes.

7. A speed-varying pulley consisting of the following elements; a driven disk provided with an axial sleeve, a driving-disk revolubly mounted upon said sleeve, a pulley carried by said driving-disk, a support pivotally mounted about said sleeve between the disks, a friction-wheel mounted upon said support upon an external axis at an angle to its own axis and to the axis of the disks, and means for swinging said friction-wheel upon its external axis.

8. A speed-varying pulley consisting of the following parts, a driven disk provided with an axialsleeve, a driving-disk revolubly mounted upon said sleeve, a pulley carried by said driving-disk, a supporting-spider pivotally mounted about said sleeve, a pair of friction-wheels mounted upon said spider each upon an external axis at an angle to its own axis and the axis of the disks, and intermediate connections between said friction-wheels for swinging them simultaneously in opposite directions upon their external axes.

9. A speed-varying pulley consisting of the following parts; a driven disk provided with an axial sleeve, a driving-disk revolubly mounted on said sleeve, said sleeve projecting through the driving-disk, a thrust-bearing carried by the projecting end of said sleeve, a spring mounted between said bearing and the driving-disk so as to force the disks together, a spider mounted between said disks and pivoted about said sleeve, a pair of friction-wheels supported upon said spider each upon an external axis at an angle to its own axis and the axis of the disks, and intermediate connections between said friction-wheels for swinging them simultaneously in opposite directions upon their external axes.

10. A self-contained speed-varying pulley consisting of a driving element and a driven element, one supported upon the other and revoluble thereon, intermediate gearing supported upon and between said elements and forming a driving connection therebetween, and means for shifting said intermediate gearing with relation to the driving and driven elements.

11. A self-contained speed-varying pulley, consisting of a driving element and a driven element, one supported upon the other and revolubly mounted thereon and one of said elements being adapted to receive a shaft, an intermediate gearing supported upon and between said elements and forming a driving connection therebetween, and means for shifting said intermediate gearing with relation to the driving and driven elements.

12. The combination with a governor, of a driven disk adapted to receive and be secured to the driving-shaft of said governor, a driving-disk, connections between said disks allowing a relative rotation thereof but normally preventing a separation, a friction-wheel mounted between said disks upon an external axis at an angle to its own axis and the axis of the disks, and means for swinging said friction-wheel about its external axis.

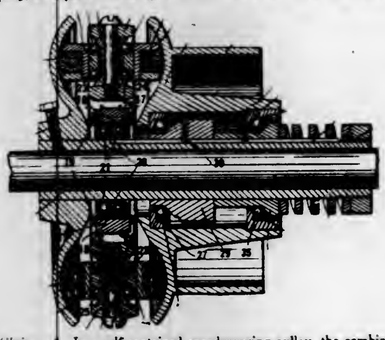
13. The combination with a governor, of a driven disk provided with an external sleeve adapted to receive and be secured to the driving-shaft of said governor, a driving-disk revolubly mounted on said sleeve, a driving-pulley carried by said driving-disk, a spider mounted between said disks and pivoted about said sleeve, a pair of friction-wheels carried by said spider each upon an external axis at an angle to its own axis and the axis of the disks, and means for swinging said friction-wheels simultaneously in opposite directions about their external axes.

14. A speed-varying pulley consisting of the following parts; a driven disk provided with an axial sleeve, a driving-disk revolubly mounted thereon, a spider mounted between said disks and pivoted about said sleeve, two pairs of oppositely-extending arms forming part of said spider, a yoke pivotally mounted between each pair of arms, a friction-wheel carried by each of said yokes in position to coöperate with said disks, and intermediate connections between said yokes for simultaneously swinging them in opposite directions about their axes.

15. A speed-varying pulley consisting of the following parts, a driven disk provided with an axial sleeve, a driving-disk revolubly mounted thereon, a spring for yieldingly urging said disks together, a spider mounted between said disks and pivoted about said sleeve, two pairs of oppositely-extending arms forming part of said spider, a yoke pivotally mounted between each pair of arms, a friction-wheel carried by each of said yokes in position to cooperate with said disks, and intermediate connections between said yokes for simultaneously swinging them in opposite directions about their axes.

16. The combination with a governor and the driving-shaft thereof, of a self-contained speed-varying pulley consisting of a driving element and a driven element one supported upon the other and revoluble thereon, means carried by the driven element for attachment to said driving-shaft, intermediate gearing supported upon and between said elements and forming a driving connection therebetween, and means for shifting said intermediate gearing with relation to the driving and driven elements.

681,145. **SELF-CONTAINED SPEED-VARYING PULLEY.** FRED W. SPACER, Indianapolis, Ind., assignor to Speed Changing Pulley Company, same place. Filed Apr. 24, 1901. Serial No. 57,193. (No model.)



Claim.—1. In a self-contained speed-varying pulley, the combination with a disk provided with an axial sleeve, of a second disk surrounding said sleeve, a pair of ball-races, facing in the same direction, carried by said second disk, a pair of cones coöperating with said races, suitable balls mounted between said races and cones, a transmission-wheel mounted between the two disks, and a spring engaging one of said cones and the axial sleeve and normally urging the said cones into engagement with their coöperating balls and drawing the two disks into engagement with the transmission-wheel.

2. In a self-contained speed-varying pulley, the combination with a pair of coöperating disks one revolubly mounted upon the other, of a frame supported between said disks, a yoke supported in said frame and revoluble about an axis at right angles to the axis of the disk, an axle carried by the yoke at an angle to the axis of said yoke, a sleeve or bushing rotatably mounted upon said axle, and a transmission-wheel mounted upon said bushing and axially movable thereon.

3. In a speed-varying mechanism, the combination with a pair of coöperating disks, of a yoke mounted between said disks, of an axle carried by said yoke, and a transmission-wheel revoluble and axially movable upon said axle.

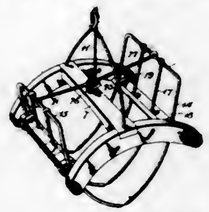
4. In a speed-varying mechanism, the combination with a pair of coöperating disks, of a yoke mounted therebetween, an axle carried by said yoke, a bushing revolubly mounted upon said axle, and a transmission-wheel mounted upon said bushing and axially movable thereon.

5. In a speed-varying mechanism, the combination with a pair of coöperating disks, of a yoke mounted between said disks, a transmission-wheel mounted between the arms of the yoke, a bushing mounted in said wheel and axially movable therein, a pair of ball-races carried by said bushing, a pair of cones coöperating therewith, balls mounted between said races and cones, and a bolt passing through the cones and the arms of the yoke.

6. In a self-contained speed-varying pulley, the combination with a disk provided with an axial sleeve, of a second disk surrounding said sleeve, a pair of ball-races, facing in the same direction, carried by said second disk, a pair of independent cones each coöperating with one of said races and contacting at their adjacent ends, suitable balls mounted between said races and cones, a transmission-wheel mounted between the two disks, and a spring engaging the outer cone and the axial sleeve and normally urging said cones into engagement with their coöperating balls and drawing the two disks into engagement with the transmission-wheel.

7. In a self-contained speed-varying pulley, the combination with a disk provided with an axial sleeve, of a second disk surrounding said sleeve, a pair of ball-races, facing in the same direction, carried by said second disk, a pair of cones mounted upon the sleeve and coöperating with said races, suitable balls mounted between said races and cones, a collar axially movable upon the sleeve between the two disks, a frame surrounding said collar, balls mounted between said collar and frame, a yoke pivotally mounted upon said frame, a transmission-wheel mounted in said yoke, a bushing mounted in said transmission-wheel and axially movable therein, an axle carried by said yoke, and a ball-bearing between said axle and bushing.

681,146. **HAY-FORK.** FRANCIS M. STANDLEY, Lagrande, Oreg. Filed May 3, 1901. Serial No. 58,611. (No model.)



Claim.—1. A device of the class described comprising a frame including spaced plates and a connecting-beam, a bail connected with the frame, a guide-rod connected with the bail and with the cross-beam, forked members pivoted in the frame, and toggle-links pivoted to the fork members and slidably connected with the guide-rod at their inner ends.

2. A device of the class described comprising a frame including spaced plates and a connecting cross-beam, a bail connected with the frame, a guide-rod connected with the bail and the cross-beam, forked members pivoted between the plates and projecting above the cross-beam, toggle-links pivoted at their outer ends to the fork members, and a pivot-pin connecting the inner ends of the links, said pin having a flattened head bent around the guide-rod and slidably connecting the links therewith.

3. A device of the class described comprising a frame including spaced arcuate plates and a connecting cross-beam, a bail having its ends engaged through the beam and the plates and having an eye at its central portion, a guide-rod engaged through the eye of the bail and with the cross-beam, fork members each including outside tines and a connecting-web and inside tines having their ends bent around the web, spacing-bars connected to the tines and a pivot-bar connected to the spacing-bar and pivotally mounted in the arcuate plates of the frame, toggle-links pivotally connected to the webs of the fork members, and a pivot connecting the inner ends of the links and including an eye slidably engaged with the guide-rod.

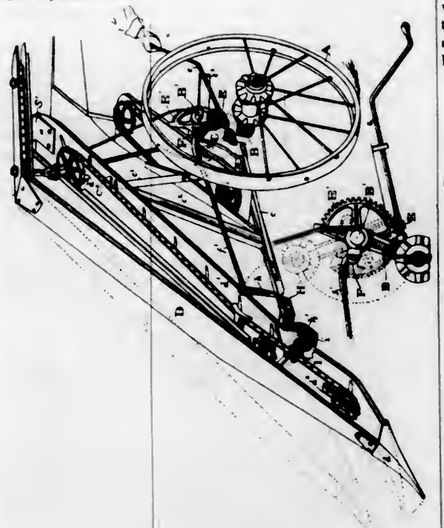
681,147. **CORN-HARVESTER.** JOHN A. STONE, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed May 7, 1900. Serial No. 15,866. (No model.)

Claim.—1. In a corn-harvester, the combination with the frame of the machine and its supporting-wheel, of a gathering device pivotally connected to the frame so as to rise and fall at its forward end, means for raising and lowering the frame on the supporting-wheel, and means for concurrently raising and lowering the front end of the gathering device in opposition to the movement of the frame.

2. In a corn-harvester, the combination with the frame of the machine and its supporting-wheel, of an arm pivotally connected to the frame and carrying the axle of the supporting-wheel, a gathering device pivoted to the frame so as to rise and fall at its forward end, means for adjusting the wheel-carrying arm so as to raise and lower the frame on the wheel, and a link connecting the gathering device with said arm so as to raise and lower the front end of the gathering device concurrently with and in opposition to the elevation or depression of the frame.

3. In a corn-harvester, the combination with the frame of the machine and its supporting-wheel, of an arm pivotally connected to the frame and carrying the axle, said arm having a gear-segment attached thereto, a gathering device pivoted to the frame so as to rise and fall at its forward end, a hand crank-shaft mounted on the machine-frame and having a worm meshing with the gear-segment on the axle-carrying arm, a rock-shaft mounted on the frame and having an arm connected to the gathering device, and a link connecting the axle-carrying arm with an arm on the rock-shaft, whereby when the machine-frame is raised or lowered on the supporting-wheel the front end of the gathering device is concurrently raised or lowered in the opposite direction.

681,147.



681,148. **BRUSH.** NELSON STOW, Binghamton, N. Y. Filed Apr. 20, 1901. Serial No. 56,778. (No model.)



Claim.—1. A brush of the class set forth comprising a brush-body, a ferrule of equal diameter throughout its length fitted over the butt-end of said brush-body, and an elongated metallic tubular handle of conical form which primarily has the joint extending longitudinally thereof open and closed by insertion through the brush-body, said handle having its reduced end inserted from the lower end of the brush-body upwardly through the latter.

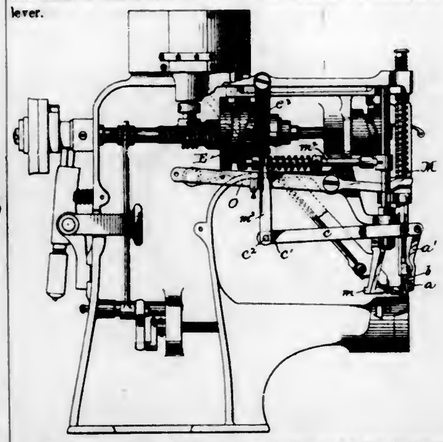
2. A paint-brush having a tubular metallic handle, said handle having the joint thereof open when inserted in the brush.

3. A paint-brush having a tubular metallic handle with a spirally-arranged joint, said joint being open when the handle is inserted in the brush and closed when disposed in applied position.

681,149. **THREAD-CUTTING DEVICE FOR SEWING-MACHINES.** JOHN J. SULLIVAN, Ipswich, Mass. Filed July 23, 1898. Serial No. 687,076. (No model.)

Claim.—1. In a sewing-machine, the combination with a presser-foot provided with a thread-receiving slit, as b^3, of two separated or spaced shear thread-cutters mounted on said foot and each adapted to make a separate cut through a thread extending in said slit from one cutter to the other, so as to cut out a piece of thread, and means for actuating said thread-cutters.

2. In a sewing-machine, the combination with a presser-foot provided with a thread-receiving slit, as b^3, of two separated or spaced shear thread-cutters, a cutter-lever pivotally attached to said foot and by which said blades or thread-cutters are carried, and means for operating said lever.

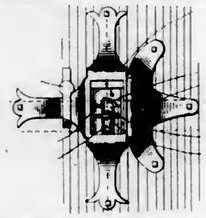


3. The combination with a sewing-machine presser-foot having the cutting parts b^4, b^3 and a thread-slit b^3, of the cutter-lever a' pivotally attached to said foot, the separated blades or cutters a, a, carried by said lever, the bar or link c, the lever m^3 and a cam for operating said lever m^3.

4. In a sewing-machine, the combination with the stitch-forming mechanism thereof, of two separated or spaced thread-cutting devices adapted to cut out a length or piece of thread, said thread-cutting devices each comprising a cutting-blade and an opposing cutting device, positive guiding means for directing the needle-thread to said cutting devices, and means for operating said blades.

5. In a sewing-machine, the combination with the stitch-forming mechanism thereof, of two separated or spaced thread-cutting devices adapted to cut out a length or piece of thread, said thread-cutting devices each comprising a cutting-blade and an opposing cutting device, positive guiding means for directing the needle-thread to said cutting devices, and automatic means for operating said blades.

681,150. **CAR-DOOR FASTENER.** WALTER H. SWANK, Dixon, Ill. Filed Feb. 14, 1901. Serial No. 47,250. (No model.)

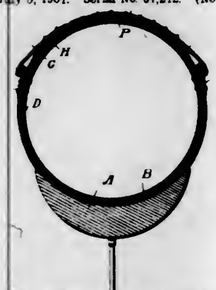


Claim.—1. A car-door lock comprising a casing having transverse openings therethrough and a slotted projection formed thereupon, a latch-bolt adapted to pass through the openings and having a slot for alinement with the slot of the exterior portion to receive a seal in conjunction therewith, said latch-bolt having also a notched portion to lie within the casing, a spring-pressed bolt in the casing for engagement with the notched portion to prevent withdrawal of the latch-bolt, a slotted cover-plate for the casing, a knob having a stem passed through the slot of the plate and secured to the spring-pressed bolt to move it against the tendency of the spring, and a closing-plate pivoted to the stem of the knob and adapted to hang therefrom and close the slot of the plate, said pivoted plate having a cam-face lying against the bottom of the casing for swinging the plate laterally when moved with the knob in the direction of the bottom of the casing.

2. A car-door lock comprising a casing having transverse openings therethrough and a slotted projection formed thereupon, a latch-bolt adapted to pass through the openings and having a slot for alinement with the slot of the exterior portion to receive a seal in conjunction therewith, said latch-bolt having also a notched portion to lie within the casing, guide-ways removably mounted within the casing, a spring-pressed bolt in the

casing for engagement with the notched portion to prevent withdrawal of the latch-bolt, a spring interposed between the bolt and the bottom of the casing, a slotted cover-plate for the casing, a knob having a stem passed through the slot of the plate and secured to the spring-pressed bolt to move it against the tendency of the spring, and a closing-plate pivoted to the stem of the knob.

681,151. TIRE FOR VEHICLES. FRANK THEODORE, Greenville, S. C. Filed July 5, 1901. Serial No. 67,212. (No model.)



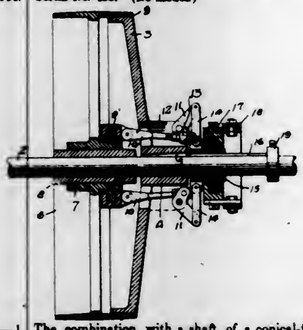
Claim.—1. In a pneumatic tire, the combination with the rubber inner and outer tires, annular rings upon each side of said outer tire, rivets passing through said rings and outer tire at regular intervals, and an overturned edge upon each of said rings; of a steel tire covering said outer tire, and overturned edges upon said steel tire adapted to interlock with the edges of said rings, substantially as described.

2. In a pneumatic tire, the combination with an inner tube, an outer casing composed of a layer of rubber, and a layer of canvas upon each side thereof, and an annular ring secured upon each side of said outer casing, provided with an overhanging locking edge; of a steel tire adapted to cover said tire, and an overhanging edge upon said tire adapted to interlock with said locking edges upon the annular ring, substantially as described.

3. In a pneumatic tire, the combination with the inner and outer tires; annular rings secured to said outer tire, and locking devices carried by said rings; of a steel tire adapted to cover said outer tire, longitudinal ridges upon said steel tire, and means carried by said steel tire for interlocking with the locking devices of said rings, substantially as described.

4. In a pneumatic tire, the combination with an inner tube, an outer casing divided longitudinally along its crown, the edges of the divided portion being adapted to overlap, said tire being composed of a layer of rubber, and a layer of canvas upon each side thereof, and an annular ring secured upon each side of said outer casing, provided with an overhanging locking edge; of a steel tire adapted to cover said outer casing, and locking devices carried thereby adapted to interlock with said rings, substantially as described.

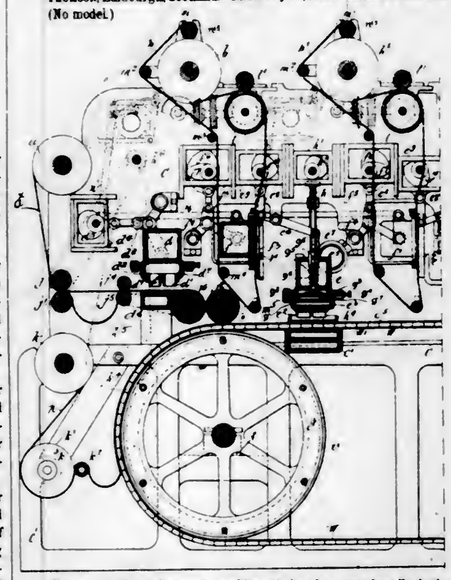
681,152. CONE FRICTION-CLUTCH. EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed Jan. 5, 1900. Serial No. 435. (No model.)



Claim.—1. The combination, with a shaft, of a conical-faced pulley having a hub 4 secured on said shaft, wings or lugs 12 provided on said hub, a belt-pulley 6 having an internal cone-face to fit said conical-faced pulley and a hub 7 to slide freely on said shaft, a slip-ring provided on said hub 7, bell-cranks 11 pivotally mounted on said wings, draft-rods 10 pivotally connecting the short arms of said bell-cranks with said slip-ring, a shifting collar 15 slidably arranged on said shaft, and links 14 pivotally connecting said collar 15 and the long arms of said bell-cranks, substantially as described.

2. The combination, with a shaft, of a conical-faced pulley having a hub 4 secured on said shaft, wings or lugs 12 provided on said hub, a belt-pulley having an internal cone-face to fit said conical-faced pulley and a hub 7 to slide freely on said shaft, a slip-ring provided on said hub 7, bell-cranks 11 pivotally mounted on said wings, draft-rods 10 pivotally connected to said slip-ring and adjustably connected to the short arms of said bell-cranks, a shifting collar 15 slidably arranged on said shaft, links 14 pivotally connecting said collar 15 and the long arms of said bell-cranks, a second slip-ring provided on said collar 15 and an operating-lever 18 connected with said second slip-ring, substantially as described.

681,153. MANUFACTURE OF INLAID LINOLEUM. DAVID E. THOMSON, Edinburgh, Scotland. Filed July 13, 1896. Serial No. 599,019. (No model.)



Claim.—1. In a linoleum-machine of the character described, the combination with means carrying a primary sheet, the hollow beam or head provided on its lower face with the perforating means or cutters, and suitable means for moving said head to and from the primary sheet; of a movable belt located within the hollow head for removing the cut pieces from the head, substantially as shown and described.

2. In a linoleum-machine, the combination of the traveling table c^2, means for perforating a primary sheet and feeding same onto said table, a movable table, and the oscillating knives for cutting the pattern-pieces and then depositing them on the perforated primary sheet, substantially as shown and described.

3. In a linoleum-machine, the combination of the traveling table c^2, means for perforating a primary sheet and feeding same onto said table, means for feeding a secondary sheet, a movable table having a soft-metal facing, the guard-plates located in front of said table, and the oscillating cutting-knives for cutting the pattern-pieces, substantially as shown and described.

4. In a linoleum-machine of the character described, the oscillating knives, and the spring-actuated plungers carried by the cutting-knives to push the cut pieces from the knives when the knives are moving in a vertical direction, substantially as shown and described.

5. In a linoleum-machine of the character described, the combination of the traveling table, the oscillating knives for cutting pattern-pieces from a secondary sheet and depositing them on a primary perforated sheet, and the pattern-plate A^4 adapted to be operated to press on the traveling table when the cutting-knives are oscillating, and a cam for operating said pattern-plate and a spring for returning it to normal position, substantially as shown and described.

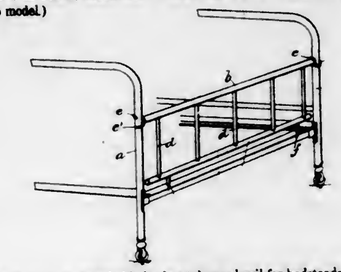
6. In a linoleum-machine, the combination of the traveling table, drums over which said table passes, suitable means in connection with said table for moving it, a spur-wheel also carried by said drum and having

means in connection therewith for locking it after the table has been moved the required distance, substantially as shown and described.

7. In a linoleum-machine, the combination of means for feeding a primary sheet, of a vertically-sliding beam or head provided on its lower face with the perforating or cutting means for cutting the primary sheet, and means for feeding a secondary sheet and cutting pattern-pieces therefrom and depositing said pattern-pieces on the primary sheet; substantially as described.

8. The combination with the cutting-table *f* and guide-rollers *l*, *l'* of the ratchet-wheel on one of said rollers, lever l^3 having a suitable fulcrum, the lever l^4 pivoted to the upper end of lever l^3, the weighted member l^5 provided with a cam-slot in which a stud on one end of the lever l^4 works, a pawl pivoted to the top of the member l^5 and engaging the ratchet-wheel on the guide-roller *l*, a cam pivoted between the lever l^4 and member l^5 to limit the movement of said member, a ratchet-wheel secured on the shaft of said cam and controlled by a pawl pivoted on the lever l^4, and a lever l^7 connecting the said cutting-table and lever l^3, substantially as described.

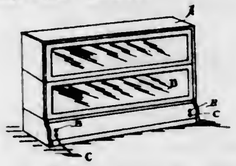
681,154. DETACHABLE GUARD-RAIL FOR BEDSTEADS. HENRY A. TOBEY, Toledo, Ohio. Filed May 7, 1900. Serial No. 15,864. (No model.)



Claim.—1. A detachable horizontal guard-rail for bedsteads in combination with the vertical posts, said guard-rail provided at both ends with an open clip having fingers curved in opposite directions around the post but not extending to a point beyond its center, the said fingers separated sufficiently to form a space between them for the insertion of the post, and having the corresponding fingers of each clip in the same relative position with respect to their respective posts, whereby the guard-rail is adapted to be connected to and removed from the posts by a half-revolution of the said rail, substantially as described.

2. A detachable guard-rail for bedsteads in combination with the vertical posts and the bottom bed-rail, said guard-rail provided at both ends with an open clip having its arms diagonally opposite and encircling a post in opposite directions and extending to a point not beyond its center, thereby leaving a space between the arms for the insertion of the post, a frame portion connected to said guard-rail and means for connecting said frame portion to said bottom bed-rail, substantially as described.

681,155. LOCKING DEVICE. FRED W. TOBEY, Cincinnati, Ohio, assignor to the Globe-Wernicke Company, same place. Filed May 13, 1901. Serial No. 60,066. (No model.)

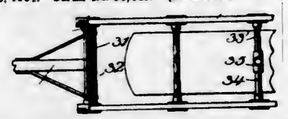


Claim.—1. In a case for books or other articles comprising a series of independent crates or sections, each crate or section provided with an independent door, such sections being placed one above the other, and each section being provided with an independent locking device arranged to be operated by the locking mechanism, a horizontal rod placed in the base below such sections operatively connected with the locking mechanism and having a longitudinal movement, a spring adapted to throw the said rod outwardly for unlocking the cases, and a suitable lock adapted to retain the said rod in the case when the doors are closed and engaged with the locking mechanism, substantially as described.

2. In combination with a series of cases, a series of rods J and J', one for each section, a lever K for each section its front end provided with means for engaging with a clip or catch and its rear end adapted to engage with the longitudinal rods in its section, a vertically-moving rod G, a bell-crank pivoted to the said rod G at one end, a horizontal rod C, connected to the other end of said bell-crank for actuating said rods, a spring F adapted to throw the rod C outwardly when said rod C is released from the bolt of the lock, a lock provided with a bolt adapted to engage with the horizontally-moving rod C when said rod C is pushed into the case, substantially as described.

3. In a sectional bookcase provided with a series of independent sections, a locking device for each independent section, a suitable connection with the locking device of each section, a connecting mechanism between the locking device of each section, a horizontal, longitudinally-movable operating-rod for each locking device, a lock cooperating with said rod and adapted to simultaneously lock all the locking devices in a series of sections, and a spring adapted to disengage the lock of each individual section simultaneously, substantially as described.

681,156. HAND-SLED. ARTHUR A. TOWNER, Smyrna, N. Y. Filed Apr. 18, 1901. Serial No. 56,440. (No model.)

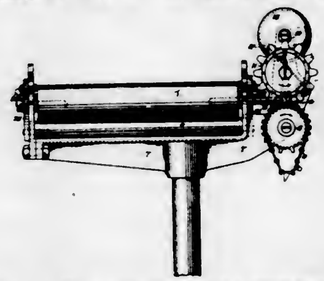


Claim.—1. A sled formed of pipe-sections and connections and including two sides comprising upper and lower members, socket-pieces having sockets disposed at acute angles to each other and in which the forward ends of the upper and lower members are received, the sockets of each side having a connecting web provided with a perforation, a bar pivotally engaged in the perforations of the webs, a tongue connected with the bar, braces connecting the sides and a top mounted upon and connected to the braces.

2. A sled formed of pipe-sections and connections and including two sides each comprising upper and lower members and socket-pieces in which the front ends of said upper and lower members are received, said socket-pieces having alining perforations and inwardly-directed sockets, a pipe-section engaged with the inwardly-directed sockets, a bar pivotally engaged with the alining perforations, and a tongue connected with the bar for pivotal movement and adapted to rest upon the adjacent pipe-sections.

3. A sled comprising sides including pipe-sections and connections, said sides having connecting cross-braces, one of said cross-braces including a four-way connection and nipples engaged therewith and with the sides, to form a bearing for a pivot or pin-bolt.

681,157. WARP-MEASURING MACHINE. GEORGE W. WALKER, Philadelphia, Pa. Filed Oct. 4, 1900. Serial No. 32,034. (No model.)



Claim.—1. The combination of the draft or measuring roll, a frame for supporting said roll, a worm-wheel, a worm carried by the measuring-roll and adapted to mesh with said worm-wheel, mechanism comprising a rotatable dial-wheel and fixed pointer for indicating the amount of warp delivered by the measuring-roll, a chain-wheel mounted on the spindle of the worm-wheel, and a movable chain carried by said chain-wheel and having means for operating the dial-wheel, the movement of said chain being controlled by the worm-wheel, substantially as described.

2. The combination in a measuring device of the character described, comprising the measuring and tension rolls, a frame in which said rolls are supported, a worm and a worm-wheel controlled by the movement of the measuring-roll, a dial or indicator wheel, a chain-wheel mounted on the spindle of the worm-wheel and operated thereby, and a chain carried by said chain-wheel adapted to move the dial-wheel at certain intervals, substantially as described.

3. The combination in a measuring device of the character described, of the measuring-roll, a worm-wheel, a worm carried by said measuring-roll for operating the worm-wheel, a chain-wheel mounted on the spindle of the worm-wheel, a chain carrried thereby, a dial or indicator wheel, and a projection carried by the chain and adapted to move said dial-wheel at regular intervals.

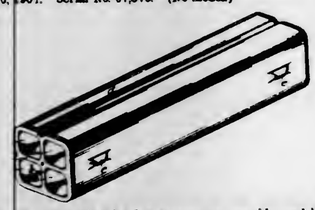
4. The combination in a measuring device of the character described, of the measuring-roll, a worm-wheel, a worm carried by said roll and meshing with the worm-wheel, a gong, a spring-controlled hammer for said gong, a loose sleeve having a portion cut away to permit the hammer to lie against the gong, an arm carried by said loose sleeve, and a chain-wheel and chain carried thereby, said chain having a projection adapted to engage the arm of the loose sleeve whereby the hammer may be raised from its position against the gong, said hammer when released striking the gong by the action of its spring, substantially as described.

5. The combination in a measuring device of the character described, of the measuring or draft roll, a worm and a worm-wheel operated thereby, a dial or indicator wheel, a chain-wheel carried by the spindle of the worm-wheel, a chain carried thereby and serving to move the dial-wheel at regular intervals, and means for preventing the accidental movement of the dial-wheel, or movement of said wheel greater than one tooth at a time.

6. The combination in a measuring device of the character described, comprising the measuring and tension rolls, a frame in which said rolls are supported, a worm carried by the measuring-roll, a worm-wheel operated thereby, a dial or indicator wheel, a chain-wheel mounted on the spindle of the worm-wheel and operated thereby, a chain carried by said chain-wheel adapted to move the dial-wheel at certain intervals, a gong carried by the frame, a hammer for said gong and means operated by said chain for moving said hammer to strike the gong at certain intervals.

7. The combination in a measuring device of the character described, comprising the measuring and tension rolls, a frame in which said rolls are supported, a worm carried by the measuring-roll, a worm-wheel operated thereby, a dial or indicator wheel, a chain-wheel mounted on the spindle of the worm-wheel and operated thereby, a gong carried by the frame, a hammer carried by said gong, means controlling the movement of said hammer, and a chain carried by the chain-wheel, said chain having projections adapted to engage the dial-wheel and the hammer controlling means whereby these parts may be operated successively, substantially as described.

681,158. CONDUIT. CHAS. A. WARNER, Philadelphia, Pa. Filed July 6, 1901. Serial No. 67,376. (No model.)



Claim.—1. A conduit having grooves on two sides and lugs on the other two sides, said lugs being shaped to enter grooves in the adjoining conduit-sections, substantially as described.

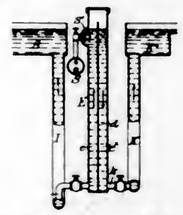
2. A conduit quadrangular in cross-section having in one side and in the top a longitudinal groove and having at the other side and at the bottom one or more lugs arranged to enter the grooves of adjoining conduits, substantially as described.

3. A conduit quadrangular in cross-section and divided into compartments, two longitudinal grooves extending the full length of the conduit on two sides and short lugs on the other two sides, one near each end, said lugs being shaped to enter the grooves of adjoining conduits, substantially as described.

4. A conduit quadrangular in cross-section having two longitudinal grooves and lugs, and having longitudinal ribs at two or more corners, the other corners being beveled, substantially as described.

681,159. APPARATUS FOR HEATING AND STERILIZING FLUIDS. ADDISON G. WATERHOUSE and JOHN S. FORBES, Philadelphia, Pa., assignors to said Forbes. Filed Feb. 24, 1900. Serial No. 6,381. (No model.)

Claim.—1. The process of sterilizing fluids whereby the fluid under treatment has its temperature first gradually raised in a heat-exchange by heat supplied to it from outflowing hot fluid, the said temperature being finally brought, by means of heat-conductors within the said exchange placed near the surface of the fluid, to a point at which the said fluid will be caused to expand sufficiently to cause it to flow over a weir in said heat-exchange placed at a height above the level of the source of fluid-supply, substantially as described.

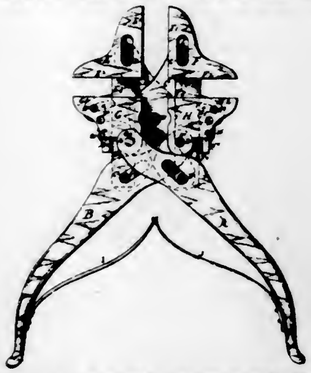


2. The method of imparting heat to a fluid, the same consisting in subjecting it to preliminary heating within a heat-exchange and then further raising its temperature by conducting heat therethrough at a point near the normal level of the fluid and below the level of its source of supply, substantially as described.

3. The process of sterilizing fluids whereby, after a portion of fluid has been gradually heated to a certain point, the said fluid is further heated to a degree sufficient to destroy germ life and to cause it to flow over a weir by heat supplied from heat-conductors extending through the fluid at a point near the surface of said fluid, substantially as described.

4. The process of sterilizing fluid, the same consisting in gradually heating said fluid to a certain extent in one compartment of a heat-exchange, supplying further heat from conductors placed within and just below the normal surface of the fluid thereby causing said fluid to enter the second compartment of the said exchange, and cooling the sterilized fluid.

681,160. PLIERS OR KINDRED TOOL. HERMAN G. WEIDEMANN, New York, N. Y. Filed Jan. 9, 1901. Serial No. 42,653. (No model.)



Claim.—1. In a pair of pliers, end jaws in combination with side jaws, equipped to insure parallel movements of each set, and with a single pair of operating-handles, all arranged for joint operation substantially as herein specified.

2. In a pair of pliers, end jaws in combination with side jaws all equipped to insure parallel movements, and with a single pair of operating-handles, slotted and crossed, all arranged to serve substantially as herein specified.

3. In a pair of pliers, end jaws in combination with side jaws, carried on slides, all equipped to insure parallel movements, and with a single pair of operating-handles, slotted and crossed, with circular bearings at the operating ends of the handles and corresponding recesses in the slides, all arranged for joint operation, substantially as herein specified.

4. A pair of pliers having a plurality of parallel-moving jaws actuated by two sets of levers, the primary set, serving as handles, being independent of each other and working on independent movable fulcrums, substantially as herein specified.

5. In a pair of pliers with parallel-moving jaws actuated by two sets of levers, the primary set independent of each other, working on independent movable fulcrums, with a secondary set of levers working in slots in the portions carrying the end jaws and rising in said slots as the tool is closed, all substantially as herein specified.

6. In a pair of pliers, end jaws and side jaws, each pair of jaws having parallel motions, in combination with secondary levers having side wings, mechanical connection between such wings and side jaws, and a single pair of operating-handles, all arranged substantially as herein specified.

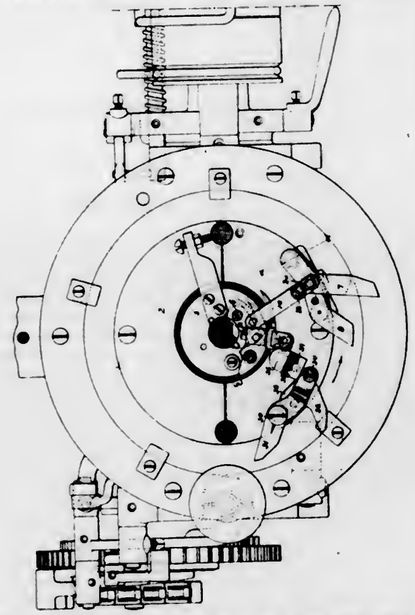
7. In a pair of pliers, end jaws and side jaws, each pair of jaws having parallel motions, in combination with secondary levers having side wings, mechanical connection between such wings and side jaws, and provisions for changing the adjustment of such connections so as to vary the opening of the side jaws relatively to the end jaws, all substantially as herein specified.

8. A pair of pliers having parallel-moving jaws actuated by two sets of levers, the primary levers fastened to movable centers, and working on movable fulcrums, arranged to automatically shift the fulcrums and increase the length of the levers, adapted to serve substantially as herein specified.

9. In a pair of pliers having parallel-moving jaws, the combination of movable fulcrums and centers and variable levers with secondary levers with lateral terminals, slotted, such secondary levers being engaged through slots at one terminal and pivoted at the other terminals by means of pins C^{n} D^{n}, combined as shown, so that each of said pins performs the triple functions of a fulcrum for a primary lever, a pivot for two secondary levers and a means for controlling directly a tongue of the parallel end jaws, all adapted to serve substantially as herein specified.

10. In a pair of pliers having parallel-moving jaws, moving centers, shifting fulcrums and variable primary levers working in conjunction with sets of secondary levers, of toothed racks and corresponding toothed surfaces, arranged to mesh automatically when the jaws come into action, and to disengage automatically upon the opening of the handles, all adapted to serve substantially as herein specified.

681,161. CIRCULAR RIB-KNITTING MACHINE. LOUIS N. D. WILLIAMS, Ashbourne, and HARRY SWINGLEHURST, Philadelphia, Pa., assignors to Robert W. Scott, Philadelphia, and Louis N. D. Williams, Ashbourne, Pa. Filed Feb. 8, 1901. Serial No. 46,555. (No model.)



Claim.—1. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members pivotally mounted upon the cylinder-cam ring by means of depending studs adapted to openings in said cam-ring, substantially as specified.

2. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members having depending pivot studs or shafts one of said members overlapping the other so as to retain it vertically in place, substantially as specified.

3. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members having depending pivot studs or shafts; one of which is shouldered, and a retainer engaging with said shouldered stud or shaft to prevent vertical displacement thereof, substantially as specified.

4. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members having depending pivot studs or shafts, and friction-brake devices acting upon said pivot studs or shafts, substantially as specified.

5. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members having depending pivot studs or shaft, one of which is shouldered and friction-brake devices bearing upon said studs or shafts, that which engages with the shouldered shaft also preventing vertical displacement thereof, substantially as specified.

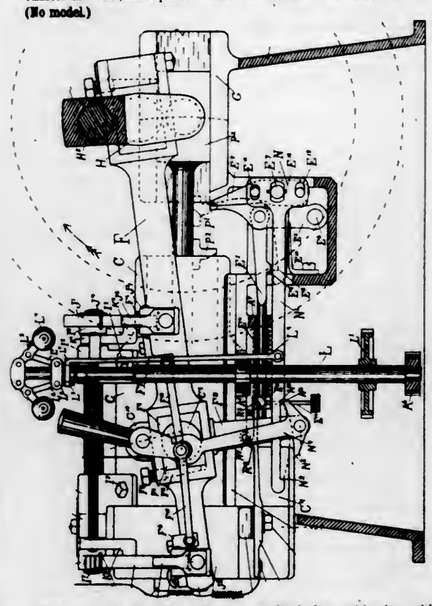
6. In a cam-changing device for knitting-machines, the combination of the cam, lever mechanism comprising primary and secondary members, and a connection between one of said members and the cam, said connection being adjustable so as to vary the relation of lever member and cam, substantially as specified.

7. In a cam-changing device for knitting-machines, the combination of the cam, lever mechanism for operating the same, a connecting rod or link having at one end a longitudinal slot, and at the other end a vertical pin connection with the cam, a plate or block having a clamp-screw adapted to the slot in the link, and a vertical pin connection with the lever independent of said clamp-screw.

8. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members, and a pivotal connection between said members comprising a pin on one member and an eccentric on the other member whereby the pivotal connection can be shifted, substantially as specified.

9. In a cam-changing device for knitting-machines, lever mechanism comprising primary and secondary members one arranged above the other, a pin or pivot in the top member, and an opening for the reception of the same in the lower member whereby said pivotal connection is covered and protected by said upper member, substantially as specified.

681,162. GAS OR OTHER EXPLOSIVE ENGINE. ANDREW C. WOLFE, Denver, Colo., assignor of two-thirds to Frank Dillingham and Charles K. Wolfe, same place. Filed Dec. 17, 1900. Serial No. 40,181. (No model.)



Claim.—1. In an engine of the class specified, the combination, with a piston and piston-rod having a straight-line movement, of a double-crank connection revolubly mounted in a fulcrum-rod for bodily oscillatory movement, one end of the said double crank being journaled in the said piston-rod, and the opposite end having engagement with the rotative member of the engine, and moving in an elliptical path.

2. In an engine of the class specified, the combination, with a guide and a reciprocatory piston-rod, of a double crank, one end of which is journaled in the said piston-rod, and the opposite end of which travels in a radial raceway in the rotative member; and a fulcrum-rod journaled at one end upon the center of the said double crank, and pivoted at the other end upon a stationary part of the engine.

3. In an engine of the class specified, the combination, with a piston-rod reciprocating in a guide, of a rotary member provided with a radial raceway; a fulcrum-rod pivoted upon a stationary part of the engine, and a double crank, the center bearing of which is journaled in the free end of the said fulcrum-rod, and having one of its ends journaled in the outer end of the said piston-rod, and its opposite end journaled in a block slidably mounted in the said raceway.

4. In an engine of the class specified, the combination, with a reciprocatory member comprising a piston and piston-rod, of a rotative member comprising a shaft, balance-wheel and substantially radial raceway; an oscillating member pivoted upon a stationary part of the engine; and a lever connection from said reciprocatory member to said rotative member, and fulcrumed in said oscillating member.

5. In an invention of the class specified, the combination, with reciprocatory, rotative and oscillatory members, of a double crank mounted for bodily movement across the path of movement of the said reciprocatory member; an admission-valve; and valve-operating connections from said oscillatory member to the said admission-valve.

6. In an engine of the class specified, the combination, with reciprocatory and rotative members, of a double crank journaled in an oscillatory member, and connecting said reciprocatory and rotative members; and valve-operating connections from oppositely-moving parts of said oscillatory member, to an admission-valve.

7. In an engine of the class specified, the combination, with reciprocating and rotative members, of a lever connection from said reciprocating to said rotative members; an oscillating lever in which said lever connection is fulcrumed; valve-operating connections from oppositely-moving parts of said oscillating member to an admission-valve; and reversing means for placing either of said valve-operating connections in operative relation to said admission-valve.

8. In an engine of the class specified, the combination, with reciprocatory, rotative and oscillatory members, of a double crank journaled in said oscillatory member, and connecting said reciprocatory and said rotative members; and an exhaust-valve, opened by the extreme outward movement of said reciprocatory member.

9. In an engine of the class specified, the combination, with reciprocatory, rotative and oscillatory members, of a double crank mounted for rotation in said oscillatory member, and engaging at its end portions with said reciprocatory and rotative members; an exhaust-valve opened by said reciprocatory member; and a pawl for retaining said exhaust-valve open.

10. In an engine of the class specified, the combination, with reciprocatory, rotative and oscillatory members, of a double crank revolubly mounted in said oscillatory member, and connecting said reciprocatory member with said rotative member; a spring-actuated exhaust-valve, opened by the extreme outward movement of said reciprocatory member; a pawl for retaining said exhaust-valve open; and a tripping device, operated by said oscillatory member, to throw out the pawl, and allow the said valve to close.

11. In an engine of the class specified, the combination, with reciprocatory and rotative members, of a double crank revolubly mounted in an oscillatory member, and connecting said reciprocatory and rotative members; valve-operating fingers mounted upon oppositely-moving parts of said oscillatory member; a rock-shaft operatively connected with an admission-valve; and yielding means for throwing said fingers into operative position to engage with said rock-shaft.

12. In an engine of the class specified, the combination, with reciprocatory and oscillatory members, of a double-crank connection from said reciprocatory member to a rotative member, the said double crank being journaled in said oscillatory member; and governor-controlled connections from said oscillatory member to an admission-valve.

13. In an engine of the class specified, the combination, with a reciprocating piston and piston-rod, and a rotary shaft and fly-wheel, of a double crank mounted for bodily oscillatory movement in a fulcrum-rod, and connecting the said piston-rod with the said fly-wheel; yieldingly-supported fingers mounted upon said fulcrum-rod; a governor and connections in operative engagement with the said fingers, to change the same to or from their operative position; and connections from the operative position of the said fingers to an admission-valve.

14. In an engine of the class specified, the combination, with a fulcrum-rod guiding a double-crank connection from a reciprocating piston-rod to a rotative member, of a spring-actuated exhaust-valve, opened by the outward movement of the said piston-rod, and retained open by a pawl; operative connections from said fulcrum-rod to detach said pawl; two oppositely-moving connections upon said fulcrum-rod for actuating an admission-valve; and a reversing-lever in position and adapted to throw one or the other of said connections out of operative position.

15. In an engine of the class specified, the combination, with an oscillating lever, actuated by the connection from the reciprocatory to the rotative members, of yielding fingers mounted upon oppositely-moving parts of said oscillating lever; a reverse-lever having connections whereby one of the said fingers is thrown out of operative position; a governor in operative connection with the finger left in operative position; and connecting means from the operative position of said finger to an admission-valve.

16. In an engine of the class specified, the combination, with an oscillating lever, actuated by the connection from the reciprocatory to the rotative members, of a spring-closed exhaust-valve; a lever connected with said exhaust-valve, and engaged by the piston-rod, to open the valve; a pawl to retain said valve open; and a trip-plate in engagement with said pawl, in position and adapted to be actuated by the said oscillating member, to disengage the said pawl.

17. In an engine of the class specified, the combination, with an oscillating lever, actuated by the connection from the reciprocatory to the rotative members, of an exhaust-valve opened by the piston-rod; a pawl to retain said valve open; a trip connection, whereby the movement of the said oscillating lever allows the closure of the said valve; and connection from the governor to the said trip connection, whereby the governor controls the closing of the said exhaust-valve.

18. In an engine of the class specified, the combination, with a spring-actuated exhaust-valve opened by the outward movement of the piston, of a pawl, for retaining the said valve open; governor-controlled tripping means for disengaging the said pawl; and reversible means upon an oscillating member, whereby the said tripping means may be operated at opposite oscillations of the said oscillating member.

19. In an engine of the class specified, the combination, with an exhaust-valve, closed by reversible means upon an oscillating member in conjunction with governor-controlled tripping means, of an admission-valve and valve-operating connections, operating in connection with reversible, governor-controlled means mounted upon oppositely-moving parts of said oscillating member.

20. In an engine of the class specified, the combination, with an admission-valve, of a rock-shaft operatively connected with said valve; levers upon the opposite ends of said rock-shaft having engaging faces in position and adapted to be acted upon by reciprocating fingers having opposite movement; and knock-off cams upon the said levers, for disengaging the said fingers.

681,163. GUN-CLEANER. CHARLES M. WOODMAN, Chicago, Ill. Filed Apr. 2, 1900. Serial No. 11,140. (No model.)



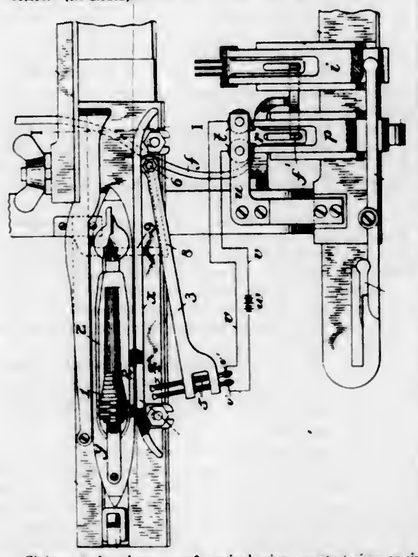
Claim.—1. A cleaner for tubular bodies comprising a screw-threaded cleaner-rod, a bushing adapted to frictionally engage the mouth of the bore of a tubular body, an apertured disk secured in either end of said bushing encircling said rod, an apertured disk having screw-threaded engagement with said rod and sliding and rotative engagement with said bushing between said end disks and means within the bushing locking said interior disk against rotation only when said rod is moved toward said tubular body.

2. A cleaner for tubular bodies comprising a screw-threaded cleaner-rod, a bushing adapted to frictionally engage the mouth of the bore of a tubular body, an apertured disk encircling said rod secured in the outer end of said bushing, an apertured disk encircling said rod, secured in the inner end of said bushing, an apertured disk having screw-threaded engagement with said rod and rotative, sliding engagement in said bushing and means on said interior disk and inner end disk to lock said interior disk against rotation when said rod is moved toward said tubular body.

3. A cleaner for tubular bodies comprising a screw-threaded cleaner-rod, a bushing adapted to frictionally engage the mouth of the bore of said tubular bodies, an apertured disk encircling said rod secured in the outer end of said bushing, an apertured disk encircling said rod secured in the inner end of said bushing, an apertured disk having screw-threaded engagement with said rod and sliding, and rotary engagement with said bushing and a lug on the face of said interior disk adapted to engage a lug on said inner end disk and lock said interior disk from rotating, when said rod is moved toward said tubular body.

4. A cleaner for tubular bodies comprising a screw-threaded cleaning-rod, an exteriorly-tapered bushing adapted to frictionally engage the mouth of the bore of a tubular body, an apertured disk encircling said rod secured in the outer end of said bushing, an apertured disk encircling said rod secured in the inner end of said bushing, an apertured disk having screw-threaded engagement with said rod and sliding, and rotary engagement with said bushing, and a lug on the face of said interior disk adapted to engage a lug on said inner end disk and lock said interior disk from rotating, when said rod is moved toward said tubular body.

681,164. WEFT REPLENISHING AND CONTROLLING MECHANISM FOR LOOMS. WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC E. KIP, Montclair, N. J. Filed Mar. 28, 1901. Serial No. 53,253. (No model.)



Claim.—1. In a loom, a weft-carrier having a contact-piece or circuit-closer which is normally covered by the weft or filling in the carrier, an electrically-controlled weft or filling changing or supplying mechanism, a two-poled feeler forming terminals at a break in the controlling electric circuit and both poles adapted to impinge directly on the weft in the carrier over the said contact-piece, and a yielding guide in which said feelers are mounted, whereby the controlling-circuit is closed when said contact-piece is uncovered by exhaustion of the weft or filling.

2. In a loom, a weft-carrier having a contact-piece or circuit-closer which is normally covered by the weft or filling in the carrier, the lay, an electrically-controlled weft or filling changing or supplying mechanism, and a two-poled feeler mounted on the lay and forming terminals at a break in the controlling electric circuit, said feeler being adapted to contact with said contact-piece and close the controlling-circuit when the weft or filling in the carrier is exhausted to a predetermined extent.

3. In a loom, a weft-carrier having a metallic contact-piece or circuit-closer which is normally covered by the weft or filling in the carrier, the lay, an electrically-controlled weft or filling changing or supplying mechanism, a two-poled feeler pivotally mounted on the lay, its poles forming terminals at a break in the electric controlling-circuit and adapted to contact with said contact-piece and close the controlling-circuit when the weft or filling in the carrier is exhausted to a predetermined extent, and means for operating said feeler.

4. In a loom, a shuttle having an aperture or way and a metallic contact-piece or circuit-closer which is normally covered by the weft or filling in the shuttle, the lay, an electrically-controlled weft or filling changing or supplying mechanism, a two-poled feeler movably mounted on the lay and adapted to move into and out of the running shuttle through an aperture or way in the side of the latter, said feeler forming terminals at a break in the normally open controlling-circuit which contact with said circuit-closer when the weft or filling in the shuttle is exhausted to a predetermined extent, and means for operating said feeler.

5. In a loom, a shuttle having a metallic contact-piece or circuit-closer which is normally covered by the weft or filling in the shuttle, an electrically-controlled weft or filling changing or supplying mechanism, a feeler composed of two poles or terminals of the controlling electric circuit adapted to enter the running shuttle and contact with the circuit-closer therein when the weft or filling therein is exhausted to a predetermined extent, and a buffer adapted to enter the shuttle and impinge on the weft therein and feel off the feeler.

6. In a loom, a shuttle having an aperture or way and a metallic contact-piece or circuit-closer which is normally covered by the weft or filling in the shuttle, the lay, an electrically-controlled weft or filling changing or supplying mechanism, a feeler-arm pivotally mounted on the lay, a two-poled feeler carried by said arm and forming terminals of the controlling electric circuit at a break therein, said feeler being adapted to enter the running shuttle at an aperture or way therein and contact with said circuit-closer when the weft or filling therein is exhausted to a predetermined extent, a spring which tends to cause said feeler to enter the shuttle, and a dagger on the loom adapted to withdraw said feeler at the picking-point.

7. In a loom, the combination with the vibrating lay, the shuttle-boxes thereon, an electrically-controlled weft or filling changing or supplying mechanism, and the running shuttle provided with an aperture or way 2 in its side for the entry of a feeler, and with a metallic circuit-closer or contact-piece which is normally covered by the weft or filling therein, of the feeler-arm 3, mounted pivotally on the lay so as to move horizontally, a spring which tends to move said arm toward the shuttle-box, a dagger on the loom-frame adapted to move said arm away from the shuttle-box when the lay recedes, and the feeler, formed of two cushioned metallic terminals of the controlling-circuit carried by said arm 3, and adapted to enter the weft-carrier and contact with the circuit-closure thereof when the latter is exposed by the exhaustion of the weft, thereby closing the controlling-circuit.

8. In a loom, the combination with the vibrating lay, the shuttle-boxes thereon, a running shuttle having an aperture or way in its side for the entry of a feeler, and an electrically-controlled weft or filling changing or supplying mechanism, of a bobbin or weft-holder 2 in said shuttle, said bobbin being provided with a sleeve of metal 1 in position to be covered by the weft on the bobbin, a two-pole feeler adapted to enter the shuttle and contact with said sleeve 1, said feeler comprising two cushioned terminals of the open controlling-circuit at a break in the same, and a yielding guide in which said feelers are mounted.

9. In a loom, a lay, means to move it, a shuttle with a weft or filling holder therein provided with circuit-closing means, a yielding, spring-cushioned guide and electric-circuit terminals slidable in said guide and adapted to yield by contact with the filling on the filling-holder at the movement of the lay.

10. In a loom, a lay, means to move it, a shuttle with a weft or filling holder therein provided with circuit-closing means, a yielding, spring-cushioned guide, electric-circuit terminals slidable therein and adapted to yield by contact with the filling on the filling-holder at the movement of the lay, and means independent of the terminals for pressing back said guide.

11. In a loom, a lay, means to move it, a shuttle with a weft or filling holder therein provided with circuit-closing means, filling-changing mechanism, a yielding, spring-cushioned guide, electric-circuit terminals slidable therein and adapted to yield by contact with the filling on the filling-holder at the movement of the lay, and means independent of the terminals for pressing back said guide.

12. In a loom, a shuttle having a contact-piece or circuit-closer which is normally covered by the weft or filling in the shuttle, a two-pole feeler forming terminals at a break in an electric circuit and both poles adapted to impinge directly on the weft in the shuttle over said contact-piece, the said circuit, and a yielding guide in which said feelers are mounted, whereby the circuit is closed when said contact-piece is uncovered by exhaustion of the weft or filling.

13. In a loom, a shuttle having a contact-piece or circuit-closer which is normally covered by the weft or filling in the shuttle, an electric circuit, a two-pole feeler mounted on the lay and forming terminals at a break in said circuit, said feeler being adapted to contact with said contact-piece and close said circuit when the weft or filling in the shuttle is exhausted to a predetermined extent.

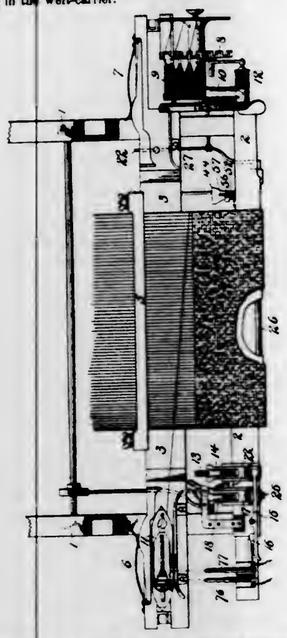
14. In a loom, a shuttle having a metallic contact-piece or circuit-closer which is normally covered by the weft or filling, an electric circuit, a feeler composed of two poles or terminals of the said circuit adapted to enter the running shuttle and contact with the circuit-closer therein when the weft or filling therein is exhausted to a predetermined extent, and a buffer adapted to enter the shuttle and feed off the feeler by impinging on the weft therein.

681,165. WEFT CONTROLLING AND REPLENISHING MECHANISM FOR LOOMS. WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC E. KIP, Montclair, N. J. Filed May 15, 1901. Serial No. 60,274. (No model.)

Claim.—1. In a loom, the shuttle having an aperture or way, a metal part or plate, and a movable circuit-closer, a weft-holder having a metallic part normally in electrical connection with said metal part or plate on the shuttle, and an electromechanical weft-replenishing mechanism, in combination with the controlling-circuit of said mechanism having a two-pole electromechanical feeler the terminals of which impinge respectively on said metal part or plate and said movable circuit-closer, substantially as set forth.

2. A loom having an electrically-controlled weft-replenishing mechanism, a two-pole feeler constituting the terminals of the controlling-circuit of said mechanism, and a shuttle or weft-carrier having a movable circuit-closer in the path of one of said terminals and mounted on the

shuttle, said circuit-closer being limited in its movement and positioned by the filling in the weft-carrier.



3. In a loom, an electrically-controlled weft-replenishing mechanism, a two-pole feeler constituting yielding terminals of the controlling-circuit of said mechanism, a shuttle-box having an aperture or way, a shuttle having an aperture or way, a movable, spring circuit-closer carried by the shuttle for one of said terminals to impinge upon, and a metal part for the other terminal to impinge upon, and a weft-holder in said shuttle having a contact-piece normally in electrical connection with the said metal part on the shuttle and protected from contact with said movable circuit-closer by the filling on said holder.

4. In a loom, the shuttle having an aperture or way in its side, a metal part 66 and a movable spring circuit-closer 70 having a protuberance 80, and the weft-holder having a metal thimble or part 69, in combination with an electrically-controlled weft-replenishing mechanism, and the two-poled feeler constituting terminals of the circuit controlling said mechanism.

5. A loom having a weft-replenishing mechanism and means situated under the lay for automatically holding the thread from the discarded weft-holder until after the next succeeding pick, substantially as and for the purpose specified.

6. A loom having a weft-replenishing mechanism and means under the lay for automatically seizing and holding the thread from the discarded weft-holder until after the next succeeding pick, said means comprising a gripper the jaws of which are opened through the operation of said replenishing mechanism, and which are closed automatically by a spring, substantially as set forth.

7. A loom having a weft-replenishing mechanism, means for severing the thread connecting the selvage with the discarded weft-holder, and means for seizing and holding said severed thread until after the next pick of the loom.

8. A loom having a weft-replenishing mechanism, and means for severing the weft-thread of the outgoing weft-holder and the weft end from the incoming holder, at successive picks of the loom, said severing mechanism comprising a pivoted blade on the lay, an inclined, sliding dagger on the lay which actuates said blade, a dagger-lever which impinges on said sliding dagger, and means for shifting said dagger-lever into and out of operative position.

9. In a loom, the combination with the lay, the blade 39 mounted pivotally thereon, the spring which holds said blade in its normal erect position, the operating-lever of said blade, and the inclined sliding dagger coupled to said lever, of the stirrup-lever 46, its stirrup and spring, the dagger-lever 43, supported on said stirrup and two notches 44 in its end, the spring of said dagger-lever, means for elevating said stirrup-lever in order to depress the notched end of the dagger-lever, and a detent device for holding said dagger-lever when depressed, substantially as set forth.

10. In a loom, the combination with the rock-shaft 26 and cam-arm 27 thereon, both forming a part of a weft-replenishing mechanism, of the lay, and rod 34, slidably mounted in the lay over the arm 27, and adapted to be lifted by said arm, so situated as to be under the shuttle at the replenishing side of the loom if the shuttle shall not be fairly in place in its box.

11. In a loom, the combination with an electrically-controlled weft-replenishing mechanism, and a feeler which forms one of the terminals of the controlling-circuit, of a shuttle having an aperture or way for the entry of said feeler, and an intermediate spring circuit-closer adapted to be impinged upon by said feeler and to close the controlling-circuit in the shuttle when the weft is sufficiently exhausted, said circuit-closer having its contact portion set out of line laterally with that face of the circuit-closer which bears on the weft in the shuttle.

12. In a loom, the combination with an electrically-controlled weft-replenishing mechanism, and a yielding feeler which forms one of the terminals of the controlling-circuit, of a shuttle having an aperture or way for the entry of said feeler, an elongated movable circuit-closer in the path of said feeler and between it and the weft in the shuttle, whereby said weft serves to hold the circuit open normally but permits it to be closed by substantial exhaustion, and cooperating circuit-closing means in the shuttle.

13. In a loom, the combination with a weft-replenishing mechanism, of the controlling electric circuit thereof provided with telescopically-constructed terminals, and a shuttle containing circuit-closing means adapted to close the circuit through said terminals when the weft of the shuttle is substantially exhausted.

14. In a loom, an electromechanically-actuated weft-replenishing mechanism, the terminals of the circuit of which are yieldingly and telescopically constructed, in combination with a shuttle carrying two metal contacts adapted to be impinged upon, respectively, by said yielding terminals at the vibratory movement of the lay, one of said contacts being movable and held, normally, out of contact with the other by the weft in the shuttle.

15. In a loom, the combination with an electric circuit containing a magnet, a two-pole feeler constituting the terminals of the circuit thereof, and a shuttle having a movable circuit-closer mounted on the shuttle and in the path of one of said terminals, said circuit-closer being limited in its movement by the filling in the shuttle.

16. In a loom, the combination with an electric circuit containing a magnet, a two-pole feeler constituting yielding terminals of the controlling-circuit thereof, a shuttle-box having an aperture or way, a shuttle having an aperture or way, a movable spring circuit-closer carried by the shuttle for one of said terminals to impinge upon, and a metal part for the other terminals to impinge upon.

17. In a loom, the combination with an electric circuit including a generator and magnet, of a shuttle provided with a weft-holder having circuit-closing means, and provided also with a yieldingly-sustained conductor or circuit-closing piece, means exterior of said shuttle adapted in the operation of the loom to press against said circuit-closing piece, said circuit-closing piece having its free end directed toward the butt-end of the weft-holder, said circuit being held inoperative by the presence and made operative by the substantial absence of the weft or filling in the shuttle.

18. In a loom, an electrically-controlled weft-replenishing mechanism, a shuttle having a weft-holder to contain weft and provided with circuit-changing means, said shuttle also having a yieldingly-sustained conductor or circuit-closing piece, means exterior of said shuttle adapted in the operation of the loom to press against said circuit-closing piece, said circuit-closing piece having its free end directed toward the butt-end of the weft-holder, said circuit being held inoperative by the presence and made operative by the substantial absence of the weft or filling in the shuttle.

19. In a loom, the combination with a weft-replenishing mechanism, an electric circuit including a generator and electromagnet, a terminal of said circuit constituting a feeler, of a shuttle, having an aperture in its side for the entry of said feeler, and a yieldingly-sustained conductor or circuit-closing piece which extends lengthwise of the shuttle across said aperture, the free end of said circuit-closer being directed toward that end of the shuttle where the bolding devices for the bobbin or filling-holder are situated.

20. In a loom, the combination with an electric circuit and a two-pole feeler constituting yielding terminals of said circuit, a shuttle-box having an aperture, a shuttle having an aperture, a movable, spring circuit-closer carried by the shuttle for one of said terminals to impinge upon, and a metal part for the other terminal to impinge upon, and a weft-holder in said shuttle having a contact-piece normally in electric connection with the said metal part on the shuttle, and protected from contact with said movable circuit-closer by the filling in the shuttle.

21. In a loom, the combination with an electric circuit and a feeler which forms one of the terminals of the controlling-circuit, of a shuttle having an aperture or way for the entry of said feeler, and an intermediate spring circuit-closer adapted to be impinged upon by said feeler and to close the controlling-circuit in the shuttle when the weft is sufficiently exhausted, said circuit-closer having its contact portion set out of line laterally with that face of the circuit-closer which bears on the weft in the shuttle.

22. In a loom, the combination with an electric circuit and a feeler which forms one of the terminals of the controlling-circuit, of a shuttle having an aperture or way for the entry of said feeler, an elongated movable circuit-closer in the path of said feeler and between it and the weft in the shuttle, whereby said weft serves to hold the circuit open normally but permits it to be closed by substantial exhaustion, and cooperating circuit-closing means in the shuttle.

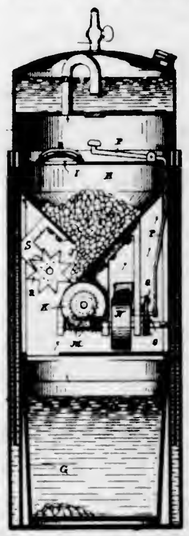
23. In a loom, the combination with an electric circuit including a magnet and generator, the terminals of said circuit being telescopically and yieldingly sustained, and a shuttle containing circuit-closing means adapted to close the circuit through said terminals when the weft of the shuttle is substantially exhausted.

24. In a loom, the combination with an electric circuit, including a generator and electromagnet, a terminal of said circuit constituting a feeler, of a shuttle provided with a yieldingly-sustained conductor or circuit-closing piece to be impinged upon by the said feeler in the operation of the loom, said circuit-closer having its free end, where the contact is made, directed toward that end of the shuttle where the bobbin-holding devices are mounted.

25. In a loom, the combination with an electric circuit, including a generator and electromagnet, a terminal of said circuit constituting a feeler, of a shuttle having an aperture in its side for the entry of said feeler and a yieldingly-sustained conductor or circuit-closing piece which extends lengthwise of the shuttle across said aperture, the free end of said circuit-closer being directed toward that end of the shuttle where the holding devices for the bobbin or filling-holder are situated.

26. In a loom, the combination with an electric circuit, including a generator and electromagnet, a terminal of said circuit constituting a feeler, of a shuttle provided with a yieldingly-sustained conductor or circuit-closing piece to be impinged upon by the said feeler in the operation of the loom, said circuit-closer having its free end, where the contact is made, directed toward the butt of the weft-holder in the shuttle, and the said weft-holder provided with a contact-piece.

681,166. ACETYLENE-GAS GENERATOR. GEORGE W. COLLIN, Bridgeport, Conn. Filed Sept. 19, 1900. Serial No. 30,500. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of carbid-feed mechanism comprising a hopper bearing a chute, a serrated-faced feed-drum at the mouth of said chute, means for driving said drum, connections for automatically starting and stopping said driving mechanism, and a toothed regulator meshing with the serrations of the feed-drum to operate upon and cut out given charges of lump carbid from the chute of the hopper, and links in which said regulator is yieldably mounted to permit the same to rise, substantially as described.

2. In a carbid-feeding mechanism for gas-machines, the combination with a hopper, of a serrated-faced feed-drum at the mouth of said hopper, means for driving the drum to feed the carbid, connections between said driving mechanism and an expansible gas-receiving bell comprising a part of said machine, whereby said driving mechanism is started and stopped automatically by the movement of the bell, a rotatable toothed regulator meshing with the serrations of the feed-drum and loosely mounted in the line of travel of said carbid in a manner to retard its flow, and means to permit said regulator to rise and allow the carbid to pass thereunder.

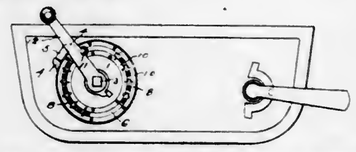
3. A carbid-feed mechanism for a gas-machine, comprising a hopper having a chute, a serrated-faced drum at the mouth of said chute, means for automatically operating said drum to feed uniform quantities of carbid from said chute, a toothed regulator meshing with said feed-drum and adapted to cut out given quantities of bulk carbid from the hopper, and links in which said regulator is yieldably mounted, to permit carbid to pass thereunder, substantially as described.

4. A carbid-feed mechanism for gas-machines comprising a hopper adapted to retain rough carbid and having an exit-opening therefrom, a feed-drum at said opening with serrations therein to feed the carbid from the hopper, a toothed regulator having pockets to operate in conjunction with the serrations of the drum and cut out quantities of the serrations for the carbid, swinging links in which said regulator is mounted to permit the regulator to be raised from the drum by the reception of an excessive charge of carbid.

5. In an acetylene-gas machine, the combination with the generating-chamber, an expansible bell covering the same, a carbid-hopper located under said bell and provided with an opening, a serrated feed-drum at the mouth of said opening adapted to receive the carbid from the chute and discharge it in the generating-chamber, means for operating said cylinder, mechanism for automatically starting and stopping said means by the movement of the bell before mentioned, a toothed carbid-regulator at the mouth of the opening over the chute, meshing with and adapted to operate in conjunction with the feeding-drum to cut out and deposit the carbid in uniform charges, and means as shown for affording an outward yieldable movement of said regulator when the carbid passes under it.

6. In a carbid-feeding device for acetylene-gas machines, the combination with a hopper adapted to contain lump carbid and having a suitable chute, of a pair of serrated-faced drums comprising a driver and driven wheel adapted to operate in conjunction with each other in a manner to separate charges of carbid from the bulk and deposit them into the generator, and links in which said driven wheel is yieldably mounted to permit the two wheels to separate and allow the carbid to pass thereonder.

681,167. ELECTRICAL CONTROLLER ATTACHMENT. GUY L. FAIRBROTHER and ALBERT H. MATHEWSON, Thompsonville, Conn.; said Fairbrother assignor to said Mathewson. Filed Apr. 19, 1901. Serial No. 56,527. (No model.)



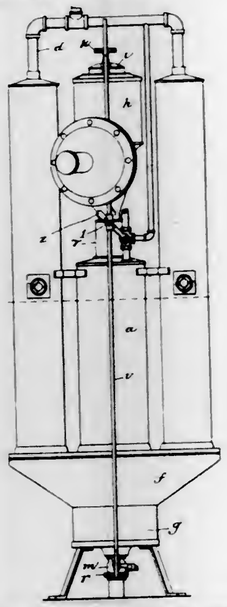
Claim.—1. An attachment for an electric controller consisting of a plate, swinging lugs supported by the plate in the path of a part of the controller-operating handle, and means attached to the handle for pushing the lugs out of the path of the handle, substantially as specified.

2. An attachment for an electric controller consisting of a plate with an annular recess, oscillating lugs supported by the plate in the recess so that they normally project into the path of a part of the controller-operating handle, and means attached to the handle for oscillating the lugs out of the path of the handle, substantially as specified.

3. An attachment for an electric controller consisting of a plate with a central perforation and projecting feet, swinging lugs annularly arranged upon the plate in the path of a part of the controller-operating handle, and means attached to the handle for pushing the lugs out of the path of the handle, substantially as specified.

4. An attachment for an electric controller consisting of a plate with an annular recess, swinging lugs supported by the plate in the recess, rings for retaining the lugs in position, and a spring-plunger carried by the handle for pressing the lugs out of the path of the handle, substantially as specified.

681,168. ACETYLENE-GAS GENERATOR. BENJAMIN J. GRAHAM, AXEL C. BUHLL, and HERBERT L. SALISBURY, Springfield, Mass. Filed Mar. 6, 1901. Serial No. 50,052. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a generating-chamber, a carbid-holder, a closure for said carbid-holder, a fastening for said closure, a gas-outlet valve for the generating-chamber, said valve having a handle, a cleaning-outlet for the generating-chamber, a valve for said cleaning-outlet, a fastening device associated with the said latter valve, and a vertically-reciprocating common locking-rod having locking engagement respectively with the fastening for said closure and the fastening device for the cleaning-outlet valve, said rod also having an operative engagement with the handle of the outlet-valve whereby the rod will be actuated from said handle.

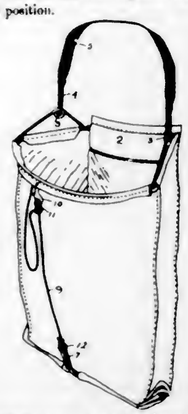
2. In an acetylene-gas generator, a carbid-holder, a generating-chamber, a passage for the carbid from said holder to said chamber, a diaphragm-chamber in communication with said passage, a flexible diaphragm located in the chamber therefor, a cut-off slide in said carbid-passage and having an operative connection with the diaphragm, an agitator-lever hung below the slide, and means on the latter for forcing the end of the lever upward in said passage, when the slide is withdrawn, substantially as described.

3. In an acetylene-gas generator, a carbid-holder, a generating-chamber, a carbid-passage between the holder and said chamber, a diaphragm-chamber in communication with said passage, a flexible diaphragm located in said chamber, a cut-off slide in the carbid-passage and having an operative connection with said diaphragm, an adjustable spring-pressure device associated with said diaphragm, an agitator supported beneath said slide, and means, carried by the slide, for moving the agitator into and out of the passage-way above the slide.

4. In an acetylene-gas generator, the combination with the generating-chamber, of a relief-chamber located outside of the generating-chamber, a connection from the bottom of the relief-chamber to the generating-chamber, at or near the bottom of the latter; the carbid-holder, a passage from the latter leading down into the generating-chamber, a cut-off slide in said passage, a pressure-actuated diaphragm connected with said cut-off slide for moving the latter in one direction, a spring bearing on said diaphragm for moving said slide in the opposite direction, and a passage between the generating-chamber and the chamber containing said diaphragm whereby the pressure of gas in said generating-chamber will operate to close said valve, substantially as described.

681,169. FRUIT-PICKER'S SACK. ALEXANDER HAMILTON, Alhambra, Cal. Filed Jan. 8, 1901. Serial No. 42,567. (No model.)

Claim.—1. In a fruit-picker's sack, the combination of a sack having an open mouth with a frame adapted to hold said mouth open; and an open bottom having a hinged frame affixed to the edges of the walls of the bottom; a locking-tongue rotatably mounted on the front part of said bottom frame, adapted to pass over and then under the back part of said frame and lock the front and back together; and means to hold said tongue in its locked position.

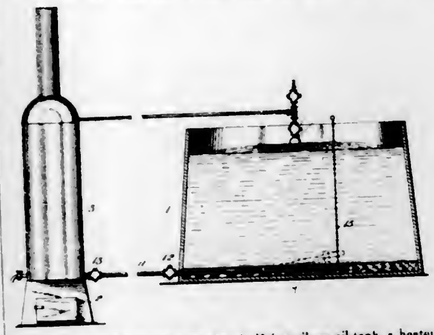


2. In a fruit-picker's sack, the combination of a sack having a mouth with the back wall extending above the front; a frame affixed to the edges of the walls forming said mouth, having eyes in the sides thereof; adjustable cords in said eyes affixed to a shoulder-strap; a shoulder-strap; an open bottom having a hinged frame affixed to the edges of the walls forming said bottom; a locking-tongue rotatably mounted on the front part of said frame, adapted to pass over and then under the back member of said frame and lock them together, and means to hold said tongue in its locked position.

3. In a fruit-picker's sack, having an open mouth and an open bottom, a hinged frame adapted to be fastened to the walls forming the bottom; a locking-tongue on one of the members of said bottom frame adapted to pass over and then under the other member and lock them together; and means to hold said tongue in its locked position.

4. In a fruit-picker's sack, having both the top and bottom open, the combination of a frame adapted to be fastened to the walls forming the mouth thereof, and keep said mouth open; a hinged frame adapted to be fastened to the walls forming the bottom thereof; a locking-tongue on one of the members of said bottom frame adapted to pass over and then under the other member and to lock the two members together and thereby close the bottom of the sack, and means to hold said tongue in its locked position, and to vary the holding capacity of said sack, substantially as described herein.

681,170. CLARIFYING APPARATUS. CHARLES R. HUDSON, Warren, Ind. Filed Dec. 13, 1900. Serial No. 39,645. (No model.)



Claim.—1. In an apparatus for clarifying oil, an oil-tank, a heater, a pipe extended from said heater over the oil-tank, a column-nozzle connecting with said pipe, a spray-nozzle connecting with said pipe, and a pipe leading from the lower portion of the tank to the heater, substantially as specified.

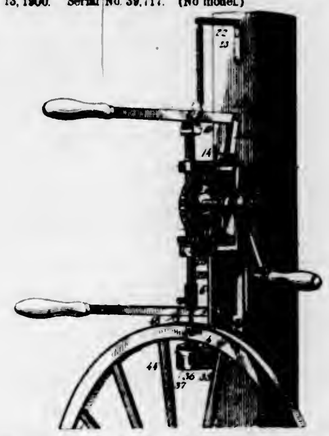
2. An apparatus for clarifying oil, comprising an oil-tank, a heater, a pipe leading from the upper portion of said heater and adapted to discharge into the tank, and a pipe leading from the lower portion of the tank to the heater, the said pipe having a swinging connection within the tank, substantially as specified.

3. An apparatus for clarifying oil, comprising an oil-tank, a heater, a pipe leading from the upper portion of said heater over the tank, a tube mounted to rotate on the end of said pipe, a column-nozzle on one end of said tube, a spray-nozzle on the other end of said tube, and means for conducting a liquid from said tank to the heater, substantially as specified.

4. An apparatus for clarifying oil, comprising an oil-tank, a heater, a boiler on the heater, a pipe leading from the dome of said boiler over the tank, a spray-nozzle on said pipe, a column-nozzle on said pipe, and a a valve-controlled pipe leading from the lower portion of the tank to the boiler, substantially as specified.

5. An apparatus for clarifying oil, comprising an oil-tank, a boiler, a pipe leading from the lower portion of the tank to the lower portion of the boiler, a swinging section on said pipe within the tank, a chain or the like extended from said swinging section upward through the tank, and a pipe leading from the upper portion of the boiler to the upper portion of the tank, substantially as specified.

681,171. WHEELWRIGHT-MACHINE. MICHAEL L. KNUPP, Toledo, Ill., assignor to Lenna May Knupp, Thomasboro, Ill. Filed Dec. 13, 1900. Serial No. 39,717. (No model.)



Claim.—1. In a wheelwright-machine, in combination, a frame embodying a horizontally-extending table or wheel-rest, a gear-housing located beneath said table, a horizontal driving-shaft, a vertical counter-shaft geared thereto and driven thereby, a drill-shaft geared to the counter-shaft, means for feeding the drill-shaft up and down, a wheel located beneath and in axial alinement with the drill-shaft and geared to and actuated by the counter-shaft, and a nut wrench or holder detachably associated with said wheel, and adapted to form a support for a vehicle-wheel, substantially as and for the purpose specified.

2. In a wheelwright-machine, in combination, a frame embodying a horizontal extension forming a table or rest for a vehicle-wheel, a rotatable wheel located beneath the table, means for driving said wheel, a nut holder or wrench detachably associated with said wheel, and a bolt-gripping lever having a loose pivotal connection with the machine-frame so that it may be lifted and swung laterally to one side in a substantially horizontal plane, substantially in the manner and for the purpose specified.

681,172. AUTOMATIC CUT-OFF VALVE. MATTHEW KOENIG, New York, N. Y., assignor of one-third to Otto Schroder, Borough of Bronx, New York, N. Y. Filed Apr. 8, 1901. Serial No. 54,778. (No model.)



Claim.—1. The combination, in an automatically-closing valve, of a valve casing or shell provided with a main fluid-channel, a pressure-chamber formed in an interior sleeve within said valve-casing, a main valve sliding in said pressure-chamber and adapted to close the main fluid-channel, an inlet-port of less area than the main valve from the main fluid-channel behind the main valve into said pressure-chamber, an outlet-port from said pressure-chamber discharging beyond the main valve, a secondary piston-valve controlling said inlet and outlet ports and provided with an operating-stem extending through a lateral opening in the valve-casing, substantially as described.

2. The combination, in an automatically-closing valve, of a valve casing or shell provided with a main fluid-channel, a pressure-chamber formed in an interior sleeve within said valve-casing, a main valve sliding in said pressure-chamber and adapted to close the main fluid-channel, an inlet-port of less area than the main valve from the main fluid-channel behind the main valve into said pressure-chamber, an outlet-port from said pressure-chamber discharging beyond the main valve, a secondary piston-valve controlling said inlet and outlet ports and provided with an operating-stem extending through a lateral opening in the valve-casing, such lateral opening being provided with a flexible covering over said valve-stem, substantially as described.

3. The combination, in an automatically-closing valve, of a valve casing or shell provided with a main fluid-channel, a pressure-chamber formed in an interior sleeve within said valve-casing, a main valve sliding in said pressure-chamber and adapted to close the main fluid-channel, an inlet-port of less area than the main valve from the main fluid-channel behind the main valve into said pressure-chamber, an outlet-port from said pressure-chamber discharging beyond the main valve, a secondary piston-valve controlling said inlet and outlet ports and provided with an operating-stem extending through a lateral opening in the valve-casing, such lateral opening being provided with a flexible covering composed of an elastic disk over said valve-stem, substantially as described.

4. The combination, in an automatically-closing valve, of a valve casing or shell provided with a main fluid-channel, a pressure-chamber formed in an interior sleeve within said valve-casing, a main valve sliding in said pressure-chamber and adapted to close the main fluid-channel, an inlet-port of less area than the main valve from the main fluid-channel behind the main valve into said pressure-chamber, an outlet-port from said pressure-chamber discharging beyond the main valve, a secondary piston-valve controlling said inlet and outlet ports and provided with an operating-stem extending through a lateral opening in the valve-casing, such lateral opening being provided with a flexible covering composed of an elastic disk over said valve-stem, held in place by a threaded collar, substantially as described.

5. The combination, in an automatically-closing valve, of a valve casing or shell provided with a main fluid-channel, a pressure-chamber formed in an interior sleeve within said valve-casing, a main valve sliding in said pressure-chamber and adapted to close the main fluid-channel, an inlet-port of less area than the main valve from the main fluid-channel behind the main valve into said pressure-chamber, an outlet-port from said pressure-chamber discharging through a channel in said valve-casing into the main fluid-channel beyond the main valve, a secondary piston-valve controlling said inlet and outlet ports and provided with an operating-stem extending through a lateral opening in the valve-casing, such lateral opening being provided with a flexible covering composed of an elastic disk over said valve-stem, held in place by a threaded collar, substantially as described.

6. The combination, with a valve casing or shell, provided with main and secondary discharge-channels of a detachable nosepiece, adapted to be screwed into said valve-casing, and provided with a main discharge-channel, corresponding with the main discharge-channel of the valve-casing, and also provided with a secondary discharge-channel connecting with the secondary discharge-channel of the valve-casing and also with the main channel of the nosepiece at all points of relative rotation of the casing and nosepiece, substantially as described.

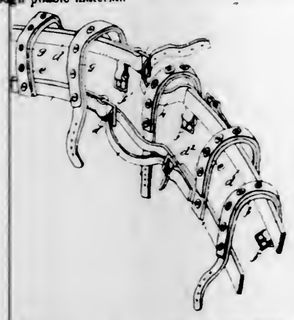
7. The combination, with a valve casing or shell, provided with main and secondary discharge-channels, of a detachable nosepiece, adapted to be screwed into said valve-casing, and provided with a main discharge-channel, corresponding with the main discharge-channel of the valve-casing, and also provided with a secondary channel formed by an annular groove connecting with the secondary discharge-channel of the valve-casing and also with the main channel of the nosepiece, through a discharge-duct, at all points of relative rotation of the casing and nosepiece, substantially as described.

681,173. DETACHABLE TRACTION-STRAP. HIRAM P. MAXIM and ARTHUR F. BARDWELL, Hartford, Conn., assignors, by mesne assignments, to the Columbia and Electric Vehicle Company, Jersey City, N. J. Filed Dec. 29, 1897. Serial No. 664,176. (No model.)

Claim.—1. A detachable traction device including a number of cross members composed of tough pliable material, with means for connecting the several members and means for attachment of the same to a wheel or like part.

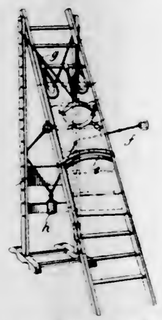
2. In a detachable traction device provided with means for attach-

ment to a wheel or like part, lengthwise members and crosswise members connected with each other, that part of the device forming the tread being composed of tough pliable material.



3. In a detachable traction device provided with means for attachment to a wheel or like part, lengthwise members, and crosswise members extending between the lengthwise members, secured thereto, and composed of tough pliable material.

681,174. APPARATUS FOR THE TREATMENT OF CURVATURE, &c. KATHARINA WEGNER and ERNST REPKE, Berlin, Germany. Filed Aug. 30, 1899. Renewed May 17, 1901. Serial No. 60,765. (No model.)



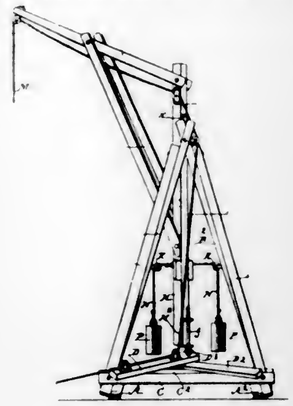
Claim.—In an orthopedic appliance applicable also for muscular exercise the combination with a portable upright, of a ladder adapted to be attached to the upright at various angles, a board for supporting the body adapted to be hooked onto the rungs of the ladder at various heights, a head-strap and an elastic breast-band for suspending the body, exercises for the various muscles, said exercises in connection with a counterweight and handles for employing same, substantially as described and shown and for the purposes indicated.

681,175. PORTABLE STRAW-STACKER. ISAAC N. CONDRA, Seymour, Iowa. Filed June 4, 1901. Serial No. 63,127. (No model.)

Claim.—1. In a straw-stacker, a portable frame, a post having a crane-arm bolted to its top end portion, stay-pieces bolted to the central part of the post and the central part of the arm, a metal strap fixed to the lower end of the post and its end extended at right angles and provided with coinciding pin-holes, a pin swiveled to the frame and extended upward through said pin-holes, a hinge member fixed to the top of the frame and two hinge members fixed to the top end portion of the post, a pintle extended down through the perforations in the hinge members and an elbow-shaped plate pivoted to the post to engage the head of the pintle, all arranged and combined to operate in the manner set forth for the purposes stated.

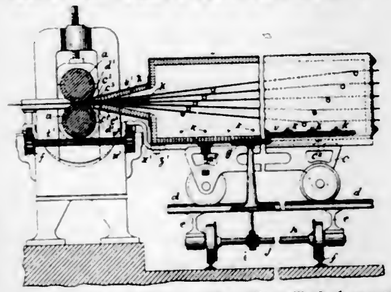
2. In a hay-stacker, a frame having fixed hooks on its uprights, a post, having a fixed crane-arm at its top, pivoted at its lower end to the center of a cross-bar fixed to the frame, ropes fixed to the post and weights fixed to the ends of the ropes, arranged and combined to operate in the manner set forth for the purposes stated.

3. A portable hay-stacker comprising a portable frame, a post pivotally connected with the center of a cross-bar at the lower end of the frame and detachably hinged to the top of the frame, a crane-arm fixed to the top of the post, ropes fixed to the post and weights fixed to the ends of the ropes, hooks fixed to the uprights of the frame for connecting the ropes and weights with the frame, pulleys attached to the crane-arm, the post and the frame and a rope extended over said pulleys, all arranged and combined to operate in the manner set forth for the purposes stated.



REISSUES.

11,927. APPARATUS FOR HOT-ROLLING METAL TO THIN GAGES. THOMAS V. ALLIN, Bridgeport, Conn. Filed Apr. 27, 1901. Serial No. 57,532. Original No. 641,428, dated Jan. 16, 1900.



Claim.—1. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, and edge-guides for directing the strips through the rolls, the furnace being adjustable back and forth at right angles to the rolls, and controlled in said adjustment by tracks or guides substantially as described.

2. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and edge-guides, for directing the strips through the rolls, the furnace being adjustable laterally and parallel with the axes of the rolls and controlled in said adjustment by tracks or guides, substantially as described.

3. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and edge-guides for directing the strips through the rolls, the furnace being adjustable both at right angles to, and parallel with the axes of the rolls and controlled in said adjustments by tracks or guides substantially as described.

4. The combination of a rolling-mill, a furnace for heating strips or bars while being fed into the rolls, and an air-excluding feedway for the strips extending from the body of the furnace to close proximity with the rolls and thereby adapted to continue the application of hot gases and flame to the point of reduction and between the rolls, also to exclude air from the passing strips or bars, also to keep them hot, and also to heat the rolls, substantially as described.

5. The combination with a rolling-mill, of a furnace adapted to heat strips, or bars while being fed into the rolls, the feedway prolongation of said furnace extending to or into the gap between the rolls, and the edge-guides for controlling the alinement of the strips, said furnace and feedway being mounted on a truck or guides and thereon movable up to and away from the rolls substantially as described.

6. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, and the feedway prolongation of said furnace extending to or into the gap between the rolls, the furnace being adjustable laterally and parallel with the axes of the rolls on trucks or guides substantially as described.

7. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, and the feedway prolongation of said furnace extending to or into the gap between the rolls, the furnace being mounted on a truck or guides and thereon movable up to and away from the rolls and also back and forth laterally to the rolls substantially as described.

8. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls, of the feedway prolongation of said furnace extending to or into the gap between the rolls, and guide attachments to the mouth of said feedway, substantially as described.

9. The combination with the mouth extremity of the feedway prolongation of the furnace, and with the rolls, of the tapered edge-guides for the strips or bars detachably connected with the sides of said feedway, and intermediate means of adjustment, substantially as described.

10. The combination with the inlet-opening in one end of the furnace for the strips or bars, of the horizontally-moving door for access to the furnace having the separating and guiding slots in the opening and closing edge, substantially as described.

11. The combination with the inlet-opening in one end of the furnace for the strips or bars, of the door having the separating and guiding slots, and the detachable and adjustable edge-guides, located relatively to said slots for guiding the strips and sustaining the wear of the strips substantially as described.

12. The combination with a furnace adapted to heat strips or bars while being fed into the rolls, of the cross-guides for separating the strips or bars, removably inserted in holes in the sides of the furnace substantially as described.

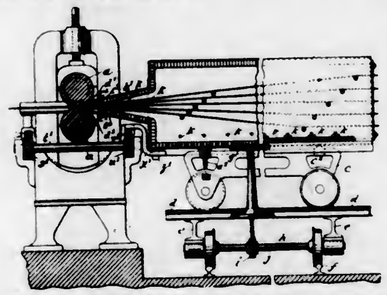
13. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and being movable laterally to the rolls, and a discharging-guide for the rolled product coupled with the furnace coincidently with the feeding-guide and movable laterally in unison therewith, substantially as described.

14. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and being movable laterally to said rolls, the discharging-guide for the rolled product, the laterally-sliding support for said guide, the laterally-sliding bar coupled to said furnace, and the gear connecting said bars for synchronous action, substantially as described.

15. The combination with a rolling-mill, of a furnace adapted to heat strips or bars while being fed into the rolls and being removable laterally to said rolls, and also forward and backward thereto, the discharge-guide for the rolled product, the laterally-sliding support for said guide, the laterally-sliding bar coupled to said furnace, and the gear connecting said bars for synchronous action, the connecting devices of said bar with the furnace being adapted for automatic connection and disconnection through moving the furnace up to and away from the rolls, substantially as described.

16. The combination with the rolls and the guide extension of the furnace, of the metallic guide-pieces in the mouth of said extension having grooves for gases substantially as described.

11,928. HOT-ROLLING METAL TO THIN GAGES. THOMAS V. ALLIN, Bridgeport, Conn. Filed July 26, 1901. Serial No. 69,734. Original No. 641,428, dated Jan. 16, 1900.



Claim.—1. The method of hot-rolling metal plates or strips to thin gages consisting in piling them into a pack, fastening the same together, and then heating the pack preparatory to rolling the same, as set forth.

2. The method of hot-rolling metal plates or strips to thin gages, consisting in piling them into a pack, fastening the same together at the end of the pack that first enters the rolls, and then heating the pack, all preparatory in rolling the same, as set forth.

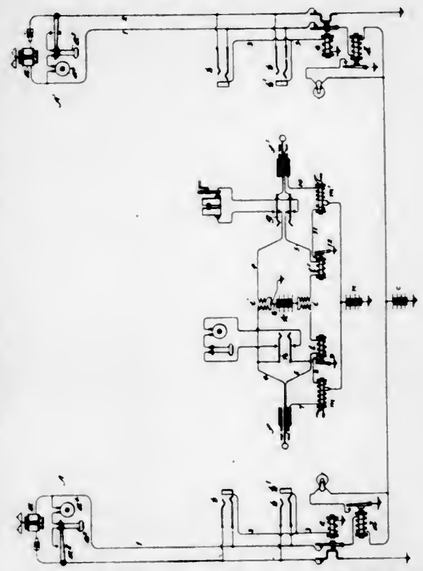
3. The method of hot-rolling metal plates or strips to thin gages, having an approximate width required in the finished product, consisting in piling them into a pack, fastening them together, heating the same, and then rolling the pack in the same longitudinal direction of feed as in the prior production of said plates or strips, as set forth.

4. The method of hot-rolling metal plates or strips to thin gages, consisting in piling them into a pack with one plate or strip in advance of another to graduate or taper the end of said pack to facilitate its entry between the rolls in the operation of reduction, fastening the plates or strips together to prevent displacement, and then passing the same between rolls, as set forth.

5. The method of hot-rolling metal plates or strips to thin gages, consisting in piling them into a pack and fastening the same together by a suitable expedient to facilitate handling of the pack, and prevent the displacement of the plates or strips, and then passing the same between rolls, as set forth.

6. The method of hot-rolling metal which consists in heating strips or bars while being fed into the rolls and protecting said strips or bars from air while passing from the furnace and entering the rolls by an envelop of hot gases and flame, as set forth.

11,929. SUPERVISORY SIGNAL FOR TELEPHONE-SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, of Illinois. Filed July 23, 1901. Serial No. 69,450. Original No. 676,517, dated June 18, 1901.



Claim.—1. The combination with telephone-lines having means at their substations for changing the resistance of the line in the use of the telephone, of a supervisory signal with an actuating-magnet having differential windings, each of said windings being in a closed circuit with a source of current, the current through one of said windings being controlled by the said means for changing the resistance of the line, as described.

2. The combination with telephone-lines having means at the stations thereof for diminishing the resistance in the line in the use of the telephone, of a plug and plug-circuit for making connection with a line, a supervisory signal associated with the line, having two windings, a local circuit closed in switch-contacts brought together in making connection with a line, including one of said windings of the supervisory signal, the other winding of the signal being in the circuit of current determined by the diminished resistance of the line in the use of the telephone, said windings of the signal being equal and differentially disposed with respect to the currents in them; whereby the signal is displayed only during connection of the plug with the line, while the telephone of the line is in use, as described.

3. The combination with telephone-lines, each provided at its station with a switch and circuit connections for reducing the resistance of the line during the use of the telephone, and at the central station with a spring-jack, of plugs and a plug-circuit for uniting lines, a source of current connected with the plug-circuit, and a relay in the circuit to each plug, responsive to current in the corresponding line; a supervisory signal with two windings for each plug, a local circuit including one of the windings together with a source of current and registering contacts of the plug and spring-jack adapted to complete the local circuit, and a second circuit for each signal including the other winding thereof, said last-mentioned circuit of each supervisory signal being controlled by the relay in the circuit to the corresponding plug, substantially as described.

4. The combination with a telephone-line, spring-jacks forming multiple terminals thereof, test-contacts for the spring-jacks, and a local circuit of which said contacts form normally open terminals, plugs and a plug-circuit for making connection with the line, a relay in the plug-circuit, and means for operating the relay in response to changes of line resistance, of an electromagnetic instrument having an actuating-magnet with two windings, a local-circuit conductor adapted to be brought into connection with the said test-circuit of the line when connection is made with the line including one of said windings, and another circuit including the other winding of said electromagnetic instrument controlled by switch-contacts of the relay; whereby the action of the said instrument is made dependent on the connection of the plug with the line and on the condition of the relay, while the potential of the test-circuit is made independent of the action of the relay, as described.

5. The combination with telephone-lines having switches and circuit connections at their stations for reducing the resistance of the lines during the use of the telephones, spring-jacks connected in multiple with each line, plugs and a plug-circuit for uniting lines, a source of current in a bridge of the plug-circuit, and a relay in the plug-circuit in the path of current to each line; of a supervisory signal for each plug having a magnet with two windings, a local circuit including one of said windings, together with a source of current, made up in part of a conductor terminating in a contact-piece of the corresponding plug, and a conductor terminating in normally open test-contacts of the spring-jacks of each line, and including a device having resistance permanently associated with the line, and a local circuit including the other winding of each supervisory signal, said last-mentioned circuit being controlled by the relay responsive to current in the same line, as described.

6. The combination of a series of main telephone-circuits, converging from substations to a central station; switching devices at the said central station for connecting the said circuits in pairs for intercommunication between their respective substations; and a current-changing device at the several substations of said main circuits; with a supervisory signal, and a differentially-wound actuating-electromagnet therefor, associated with the said switching devices; the two windings of said magnet (when the said switch devices are in use) being, one, in a circuit whose current is practically constant, and the other in a circuit whose current is variable, and controlled by the operation of the current-changing device of the appropriate substation whose circuit is united with another through the said switch devices; substantially as described.

DESIGNS.

34,952. BACK FOR BRUSHES OR SIMILAR ARTICLES. THEODORE W. FOSTER, Providence, R. I. Filed July 19, 1901. Serial No. 68,980. Term of patent 7 years.



Claim.—The design for the back of a brush or similar article, as herein shown and described.

34,954. COVER FOR TOILET-BOXES OR SIMILAR ARTICLES. THEODORE W. FOSTER, Providence, R. I. Filed July 19, 1901. Serial No. 68,981. Term of patent 7 years.



Claim.—The design for the cover of toilet-boxes or similar articles, as herein shown and described.

34,955. BOTTLE-STOPPLE. FREDERICK B. THATCHER, Providence, R. I. Filed Mar. 9, 1901. Serial No. 50,520. Term of patent 14 years.



Claim.—The design for a bottle-stopple as herein shown and described.

34,956. BOTTLE. CHARLES H. HESS, Zanesville, Ohio, assignor to the Kearns-Gorsuch Bottle Company, same place. Filed July 26, 1901. Serial No. 69,854. Term of patent 7 years.



Claim.—The design for a bottle as herein shown and described.

34,957. BOTTLE. CHARLES H. HESS, Zanesville, Ohio, assignor to the Kearns-Gorsuch Bottle Company, same place. Filed July 26, 1901. Serial No. 69,855. Term of patent 7 years.



Claim.—The design for a bottle as herein shown and described.

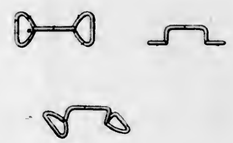
34,958. SOUVENIR-PLATE. MAX TONNEMANN, Brooklyn, N. Y. Filed July 27, 1901. Serial No. 69,993. Term of patent 14 years.



Claim.—The design for a souvenir-plate, as herein shown and described.

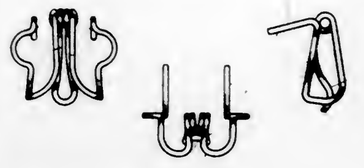
34,959. WITHDRAWN

34,960. EYE FOR GARMENT-HOOKS. JOHN W. GRANGER, Philadelphia, Pa. Filed June 1, 1901. Serial No. 62,812. Term of patent 14 years.



Claim.—The design for an eye for garment-hooks, substantially as shown and described.

34,961. NECKTIE-FASTENER. OTTO KRAUS, New York, N. Y. Filed July 3, 1901. Serial No. 67,043. Term of patent 7 years.



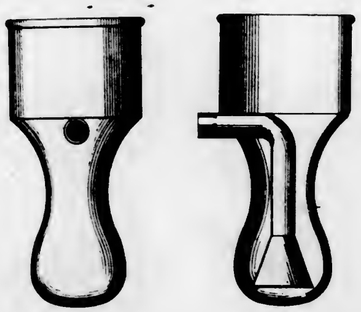
Claim.—The design for a necktie-fastener as herein shown and described.

34,962. SLIDE-BUCKLE. ALFRED M. ZIEGLER, Boston, Mass. Filed July 17, 1901. Serial No. 68,704. Term of patent 14 years.



Claim.—The design for a slide-buckle as herein shown and described.

34,963. SOUND-CONCENTRATOR. MILLER REESE HUTCHISON, New York, N. Y. Filed July 19, 1901. Serial No. 68,985. Term of patent 14 years.



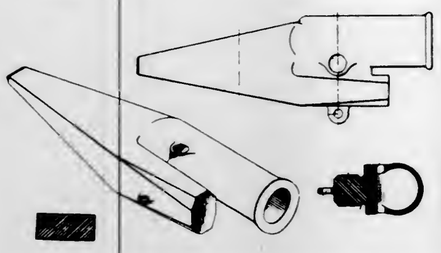
Claim.—The design for a sound-concentrator as herein shown and described.

34,964. ELECTROTHERAPEUTIC DEVICE. BENJAMIN G. STAUFFER, Harrisburg, Pa. Filed June 3, 1901. Serial No. 63,039. Term of patent 7 years.



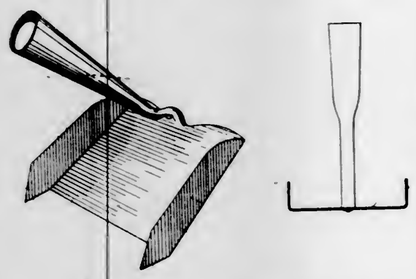
Claim.—The design for an electrotherapeutic device, as herein shown and described.

34,965. ANCHOR FOR DRILLING-MACHINES. ISAAC WANTLING, Peoria, Ill. Filed July 6, 1901. Serial No. 67,373. Term of patent 14 years.



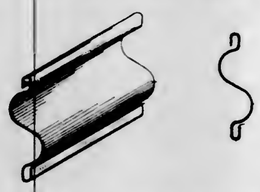
Claim.—The design for an anchor for drilling-machines as herein shown and described.

34,966. HOE. GEORGE MAURER, Frankenlust township, Mich. Filed May 24, 1901. Serial No. 61,813. Term of patent 7 years.



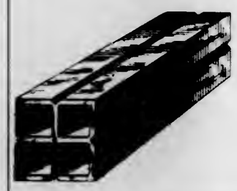
Claim.—The design for a hoe, as shown and described.

34,967. SHUTTER-SLAT. JAMES G. WILSON, New York, N. Y. Filed July 18, 1901. Serial No. 68,853. Term of patent 14 years.



Claim.—The design for a shutter-slat, substantially as shown and described.

34,968. CONDUIT-SECTION. JOHN T. MCROY, Chicago, Ill. Filed Dec. 27, 1900. Serial No. 41,291. Term of patent 14 years.



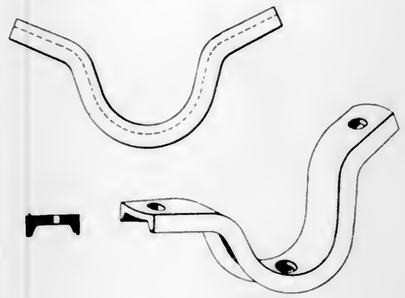
Claim.—The design for a conduit-section, substantially as shown and described.

34,969. BRIDLE-BIT. JOHN G. RIDINGS, Amarillo, Tex. assignor of two-thirds to Claude D. Jackson, same place, and August Buermann, Newark, N. J. Filed Apr. 15, 1901. Serial No. 56,015. Term of patent 7 years.



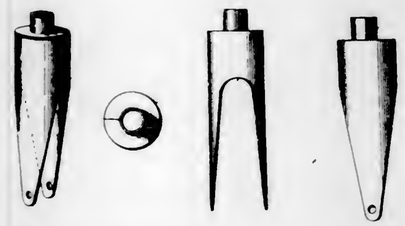
Claim.—The design for a bridle-bit, substantially as shown and described.

34,970. YOKE-PLATE. EMIL EIFFELDT, Davenport, Iowa. Filed July 11, 1901. Serial No. 67,929. Term of patent 14 years.



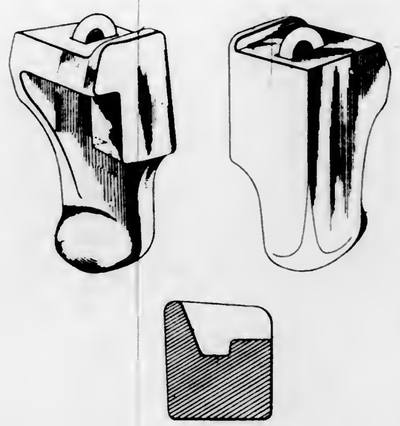
Claim.—The design for a yoke-plate as herein shown and described.

34,971. SPOKE-SOCKET. CHARLES L. RECTOR, Haymarket, Va. Filed Feb. 23, 1901. Serial No. 48,618. Term of patent 7 years.



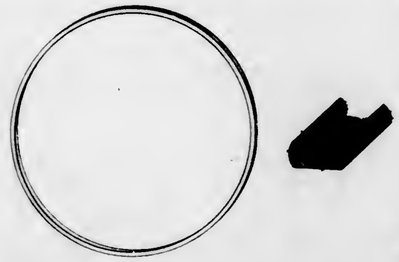
Claim.—The design for a spoke-socket, substantially as shown and described.

34,972. LOCKING-BLOCK FOR CAR-COUPLINGS. JAMES TIMMS, Columbus, Ohio. Filed June 26, 1901. Serial No. 66,012. Term of patent 14 years.



Claim.—The design for a locking-block for car-couplings herein shown and described.

34,973. VEHICLE-TIRE CHANNEL-RIM. JOHN O. WEBB, Springfield, Ohio, assignor to the Victor Rubber Company, same place. Filed Apr. 18, 1901. Serial No. 56,524. Term of patent 14 years.



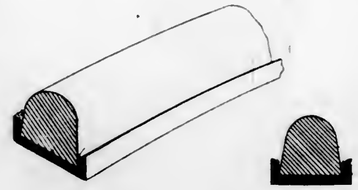
Claim.—The design for a vehicle-tire channel-rim, substantially as herein shown and described.

34,974. CARRIAGE TIRE AND RIM. WOODBURN LANGMUIR, New York, N. Y. Filed June 19, 1899. Serial No. 721,142. Term of patent 7 years.



Claim.—The design for a carriage tire and rim, substantially as herein shown and described.

34,975. CARRIAGE TIRE AND RIM. WOODBURN LANGMUIR, New York, N. Y. Filed June 19, 1899. Serial No. 721,144. Term of patent 7 years.



Claim.—The design for a carriage tire and rim, substantially as herein shown and described

34,976. BATH-TUB LEG. ALMON G. WARD and GEORGE E. DAY, Warren, Ohio. Filed Feb. 28, 1901. Serial No. 49,360. Term of patent 14 years.



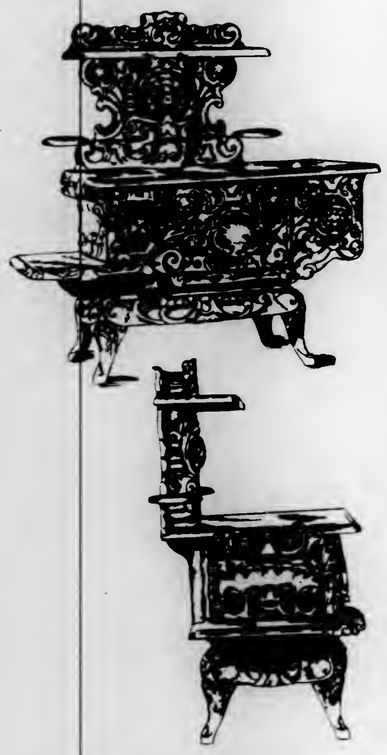
Claim.—The design for a bath-tub leg, as herein shown and described.

34,977. GAS-STOVE. MATTHEW GRISWOLD, Jr., Erie, Pa. Filed July 19, 1901. Serial No. 68,983. Term of patent 7 years.



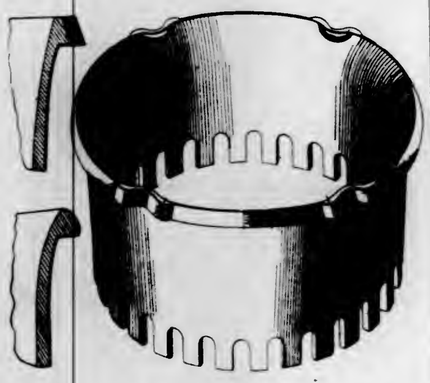
Claim.—The design for a gas-stove substantially as shown and described.

34,978. STOVE. WILLIAM H. CRIBBEN, Chicago, Ill. Filed July 18, 1901. Serial No. 68,854. Term of patent 7 years.



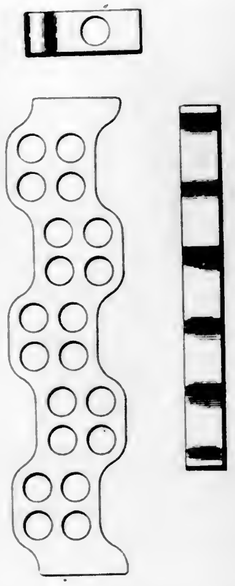
Claim.—The design for a stove or range, substantially as shown and described.

34,979. FIRE-POT FOR STOVES. ARTHUR B. CLUMER, Rochester, N. Y., assignor to Sill Stove Works, same place. Filed July 15, 1901. Serial No. 68,426. Term of patent 14 years.



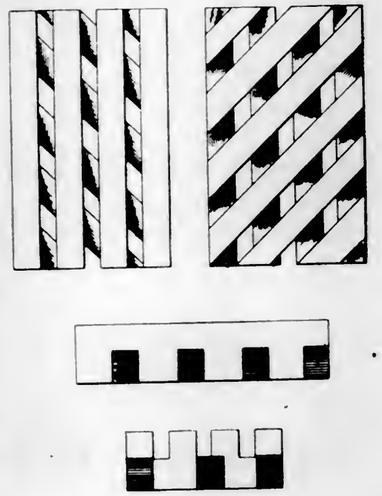
Claim.—The design for a fire-pot for stoves substantially as herein shown and described.

34,980. HEADER FOR SECTIONAL STEAM-GENERATORS. CAMPBELL P. HIGGINS, Roselle, N. J. Filed Jan. 2, 1901. Serial No. 41,912. Term of patent 14 years.



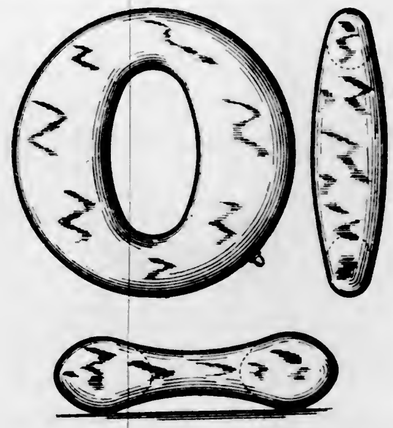
Claim.—The design for a header for sectional steam-generators, as herein shown and described.

34,981. FIRE-KINDLER. EDWIN POLLARD, Shiden, England. Filed May 18, 1901. Serial No. 60,939. Term of patent 14 years.



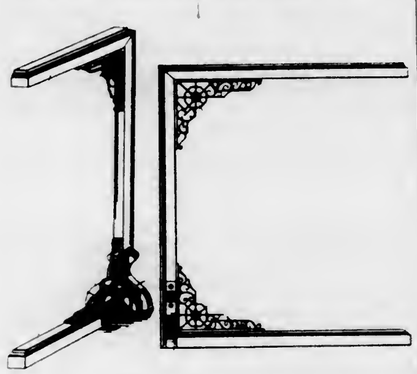
Claim.—The design for a kindling-block as shown and described.

34,982. CUSHION. CHRISTIAN WILLIAM MEINECKE, Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Filed May 29, 1901. Serial No. 62,438. Term of patent 14 years.



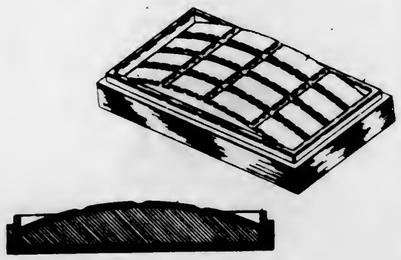
Claim.—The design for a cushion substantially as herein shown and described.

34,983. COUCH-RACK. HALLET B. SHEETS, Remington, Ind. Filed June 20, 1901. Serial No. 65,362. Term of patent 14 years.



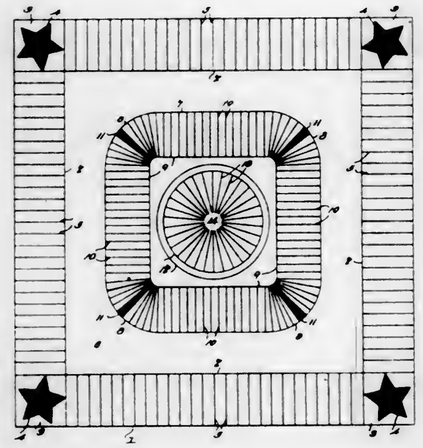
Claim.—The design for a couch-rack, as herein shown and described.

34,984. JEWEL-TRAY. LOUIS H. SADLER, Attleboro, Mass., assignor to The Firm of F. H. Sadler & Company, same place. Filed July 19, 1901. Serial No. 68,987. Term of patent 7 years.



Claim.—The design for a jewel-tray, as herein shown and described.

34,985. GAME-BOARD. LUCY H. GAINES, Chattanooga, Tenn. Filed July 18, 1901. Serial No. 68,852. Term of patent 14 years.



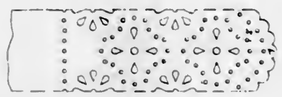
Claim.—The design for a game-board, as herein shown and described.

34,986. SHELF-PAPER. WILLIAM F. SIEGNER, Philadelphia, Pa., assignor to Herrman Dienelt, same place. Filed July 29, 1901. Serial No. 70,186. Term of patent 3½ years.



Claim.—The design for shelf-paper substantially as described and as shown in the accompanying drawing.

34,987. SHELF-PAPER. WILLIAM F. SIEGNER, Philadelphia, Pa., assignor to Herrman Dienelt, same place. Filed July 29, 1901. Serial No. 70,187. Term of patent 3½ years.



Claim.—The design for shelf-paper, substantially as described and as shown in the accompanying drawing.

TRADE-MARKS

REGISTERED AUGUST 20, 1901.

36,897. CORSETS, CORSET-WAISTS, BUST-SUPPORTERS, AND STAYS. CLASSIC CORSET COMPANY, Chicago, Ill. Filed July 12, 1901.



Essential feature.—A representation of the Venus de Milo. Used since January 1, 1901.

36,898. SUSPENDERS AND BRACES. CHARLES L. VAN DOREN, New York, N. Y. Filed Apr. 13, 1901.

OUTASITE

Essential feature.—The word "OUTASITE." Used since March 10, 1901.

36,899. CERTAIN NAMED STIFFENING MATERIALS. WARREN FEATHERBONE CO., Three Oaks, Mich. Filed July 22, 1901.

COLLARBONE

Essential feature.—The word "COLLARBONE." Used since February 1, 1901.

36,900. SHOES. MCRAE & BEVILL, Memphis, Tenn. Filed July 10, 1901.



Essential feature.—A scrolled shield bearing the letter "U." Used since November 21, 1900.

36,901. SHOES. FELIX EMILE MENTROT, Galveston, Tex. Filed June 10, 1901.



Essential feature.—The words "SURF-ACE VALUE," the representation of a heart, and the illustration of a number of persons in the act of bathing. Used since May 5, 1901.

36,902. SHOES. SMALTZ-GOODWIN COMPANY, Philadelphia, Pa. Filed June 24, 1901.

Autohav

Essential feature.—The word "AUTOHAV." Used since June 19, 1901.

36,903. SPOOL-COTTON OR COTTON THREAD. J. & P. COATS, LIMITED, Paisley, Scotland. Filed July 23, 1901.



Essential feature.—A monogram formed by the letters "J P C." Used since April 28, 1869.

36,904. SPOOL-COTTON OR COTTON THREAD. J. & P. COATS, LIMITED, Paisley, Scotland. Filed July 23, 1901.



Essential feature.—The representation of a letter. Used since September 8, 1896.

36,905. SPOOL-COTTON OR COTTON THREAD. J. & P. COATS, LIMITED, Paisley, Scotland. Filed July 23, 1901.



Essential feature.—The representation of a bear. Used since August 1, 1867.

36,906. SPOOL-COTTON OR COTTON THREAD. J. & P. COATS, LIMITED, Paisley, Scotland. Filed July 23, 1901.



Essential feature.—The representation of a chain. Used since January 1, 1869.

36,907. SPOOL-COTTON OR COTTON THREAD. CLARK AND COMPY., LIMITED, Paisley, Scotland. Filed July 23, 1901.

ATLAS

Essential feature.—The word "ATLAS." Used since October 1, 1872.

36,908. SPOOL-COTTON OR COTTON THREAD. CLARK AND COMPY., LIMITED, Paisley, Scotland. Filed July 23, 1901.



Essential feature.—A representation of the mythological figure Atlas. Used since October 1, 1872.

36,909. WOVEN FABRIC FOR SHADES, SCREENS, AND CURTAINS. ASEL CLARENCE HOUSE, South Butler, N. Y. Filed July 17, 1901.

Vudor

Essential feature.—The word "VUDOR." Used since January 15, 1901.

36,910. PLATINUM PRINTING-OUT PAPER FOR PHOTOGRAPHIC PURPOSES. EASTMAN KODAK CO., Rochester, N. Y. Filed July 22, 1901.

WD

Essential feature.—The letters "W D." Used since June 6, 1901.

36,911. PAPER. WILLIAM MANN COMPANY, Philadelphia, Pa. Filed July 23, 1901.

AMWELL.

Essential feature.—The word "AMWELL." Used since July 1, 1901.

36,912. PAPER. WILLIAM MANN COMPANY, Philadelphia, Pa. Filed July 23, 1901.

SHEN-KING.

Essential feature.—The hyphenated word "SHEN-KING." Used since July 1, 1901.

36,913. CERTAIN NAMED TOILET PREPARATIONS. OCTORINE CHEMICAL CO., Chicago, Ill. Filed May 13, 1901.

OCTORINE

Essential feature.—The word "OCTORINE." Used since August, 1900.

36,914. FACIAL PREPARATIONS. ELIZABETH LIVERGOOD & IDA V. KALBAUGH, A FIRM, Uniontown, Pa. Filed May 8, 1901.

VIDICI

Essential feature.—The word "VIDICI." Used since April 1, 1901.

36,915. HAIR-DYES. LOUIS ALEXANDER, A FIRM, London, England. Filed Oct. 1, 1900.

SHADEINE

Essential feature.—The word "SHADEINE." Used since December, 1892.

36,916. HAIR-RESTORERS. EDWARD L. HOFFMAN, Buffalo, N. Y. Filed July 15, 1901.



Essential feature.—The representation of an elephant. Used since July 1, 1901.

36,917. HAIR-TONIC. MARY E. MULLEN, Columbus, Ohio. Filed July 10, 1901.



Essential feature.—The pictured representation of the registrant, showing her head and a portion of her body, with her hair hanging loosely over her shoulders and a portion of the body. Used since May 1, 1899.

36,918. MEDICINE FOR THE CURE OF RHEUMATISM. THE T-RHEUMATIC CURE CO., Huntington, Ind. Filed June 4, 1901.



Essential feature.—The representation of a cone, with the capital letter "T" on the base thereof. Used since January 11, 1901.

36,919. PILLS. THE DR. WILSON COMPANY, Baltimore, Md. Filed June 13, 1901.

BLUE PILLS FOR BLUE PEOPLE

Essential feature.—The words "BLUE PILLS FOR BLUE PEOPLE." Used since June 4, 1901.

36,920. RESOLVENT. POTTER DRUG & CHEMICAL CORPORATION, Boston, Mass. Filed July 5, 1901.

CUTICURA

Essential feature.—The word "CUTICURA." Used since March, 1878.

36,921. OINTMENT. POTTER DRUG & CHEMICAL CORPORATION, Boston, Mass. Filed July 5, 1901.

CUTICURA

Essential feature.—The word "CUTICURA." Used since March, 1878.

36,922. LINIMENT. CHARLES A. ROBINS, La Crosse, Wis. Filed May 24, 1901.

CROWN



Essential feature.—The word "CROWN" and the representation of a crown. Used since April 23, 1901.

36,923. CERTAIN NAMED SANITARY APPLIANCES. DAISEY PAUL SOMERHILL, New York, N. Y. Filed July 26, 1901.

JASMINE

Essential feature.—The word "JASMINE." Used since June 25, 1901.

36,924. SOAP. WASH A. LONE SOAP CO., Omaha, Nebr. Filed July 16, 1901.

WASH-A-LONE

Essential feature.—The word or expression "WASH-A-LONE." Used since February 1, 1897.

36,925. CERTAIN NAMED BEVERAGES. AKTIENBRAUEREI SUR LÖWENBRAU IN MÜNCHEN, Munich, Germany. Filed Jan. 8, 1901.



Essential feature.—The representation of an heraldic lion rampant. Used since 1886.

36,926. MINERAL WATER. THOMAS F. GOODE, Buffalo Lithia Springs, Va. Filed July 18, 1901.



Essential feature.—The representation of the two draped female figures, one seated and the other standing, the standing figure holding a bottle in extended arms. Used since May 1, 1899.

36,927. CIGARS AND TOBACCO. WM. A. STICKNEY CIGAR CO., St. Louis, Mo. Filed Apr. 27, 1901.



Essential feature.—The word "SECURITY." Used since 1893.

36,928. CORN, FLOUR, MEAL, BREAD, BRAN, ROLLED OATS, SEMOLINA, AND POLLARD. W. VERNON & SONS, Liverpool, England. Filed July 15, 1901.

MILLENNIUM

Essential feature.—The word "MILLENIUM." Used since January 23, 1892.

36,929. BISCUITS. LA MANUFACTURE DIJONNAISE DES BISCUITS PERNOT, Dijon, France. Filed July 15, 1901.

PERNOT SORBET

Essential feature.—The words "PERNOT SORBET," surrounded by a scrollwork. Used since May 31, 1901.

36,930. BISCUITS. LA MANUFACTURE DIJONNAISE DES BISCUITS PERNOT, Dijon, France. Filed July 15, 1901.

SORBET

Essential feature.—The word "SORBET." Used since May 23, 1901.

36,931. BAKING-POWDER. NEW CENTURY BAKING POWDER CO., Sandy Hill, N. Y. Filed July 22, 1901.

NEW CENTURY.

Essential feature.—The words "NEW CENTURY." Used since January 1, 1901.

36,932. BAKING-POWDER. BLACK HAWK COFFEE & SPICE CO., Waterloo, Iowa. Filed June 4, 1901.



BLACK HAWK.

Essential feature.—The words "BLACK HAWK" and the representation of the Indian chief Black Hawk. Used since May 1, 1900.

36,933. SPICES. BLACK HAWK COFFEE & SPICE CO., Waterloo, Iowa. Filed June 4, 1901.



BLACK HAWK.

Essential feature.—The words "BLACK HAWK" and the representation of the Indian chief Black Hawk. Used since May 1, 1900.

36,934. COFFEE AND TEA. BLACK HAWK COFFEE & SPICE CO., Waterloo, Iowa. Filed June 4, 1901.



BLACK HAWK.

Essential feature.—The words "BLACK HAWK" and the representation of the Indian chief Black Hawk. Used since May 1, 1900.

36,935. COFFEE. G. ARBUCKLE & CO., New York, N. Y. Filed July 18, 1901.

E.G.C

PANAJABAL

Essential feature.—The letters "E. G. C." and the word "PANAJABAL." Used since May, 1901.

36,936. SEED OILS, LARD, SYRUP, AND HONEY. ASPEGREN & CO., New York, N. Y. Filed June 7, 1901.

RUBY

Essential feature.—The word "RUBY." Used since October, 1899.

36,937. LARD, SYRUP, AND HONEY. ASPEGREN & CO., New York, N. Y. Filed June 7, 1901.

VERA

Essential feature.—The word "VERA." Used since January, 1901.

36,938. OILS, LARD, SYRUP, DRIED AND CANNED FRUITS, AND HONEY. ASPEGREN & CO., New York, N. Y. Filed June 7, 1901.

LUX

Essential feature.—The word "LUX." Used since December, 1900.

36,939. OILS, LARD, SYRUP, DRIED AND CANNED FRUITS, AND HONEY. ASPEGREN & Co., New York, N.Y. Filed June 7, 1901.

LUCY

Essential feature.—The word "LUCY." Used since October, 1899.

36,940. SEED OILS, LARD, SYRUP, DRIED AND CANNED FRUITS, AND HONEY. ASPEGREN & Co., New York, N.Y. Filed June 7, 1901.

AMBRA

Essential feature.—The word "AMBRA." Used since January, 1901.

36,941. SEED OILS, LARD, SYRUP, DRIED AND CANNED FRUITS, AND HONEY. ASPEGREN & Co., New York, N.Y. Filed June 7, 1901.

AMBROSIA

Essential feature.—The word "AMBROSIA." Used since May, 1900.

36,942. CERTAIN NAMED GROCERS' SUPPLIES. THE SMITH BROS. CO., LTD., New Orleans, La. Filed July 12, 1901.

UWANTA

Essential feature.—The word "UWANTA." Used since March 1, 1900.

36,943. CERTAIN NAMED PROVISIONS. PASS PACKING COMPANY, Pass Christian, Miss. Filed July 17, 1901.

LIVE OAK

Essential feature.—The words "LIVE OAK." Used since September 5, 1899.

36,944. GLUE. EUGENE R. NICE, Philadelphia, Pa. Filed June 19, 1901.



Essential feature.—A monogram consisting of the letters "U G," a map of the United States, and the representation of "Uncle Sam." Used since May 28, 1901.

36,945. MATCHES. ATLANTIC MATCH CO., Philadelphia, Pa. Filed July 23, 1901.

CENTURY.

Essential feature.—The word "CENTURY." Used since February 14, 1901.

36,946. MATCHES. ATLANTIC MATCH CO., Philadelphia, Pa. Filed July 23, 1901.

DAYLIGHT.

Essential feature.—The word "DAYLIGHT." Used since February 18, 1901.

36,947. MATCHES. ATLANTIC MATCH CO., Philadelphia, Pa. Filed July 23, 1901.

CLIMAX

Essential feature.—The word "CLIMAX." Used since March 30, 1901.

36,948. HARNESS AND SADDLERY. ISAAC SICHEL, San Antonio, Tex. Filed July 25, 1901.

SHY-N

Essential feature.—The word and the letter "SHY-N." Used since March 1, 1901.

36,949. RUBBER PACKING, TUBING, AND HOSE. THE COMBINATION RUBBER AND BELTING COMPANY, New York, N. Y., and Bloomfield, N. J. Filed July 19, 1901.

GOLDEN SPRAY

Essential feature.—The words "GOLDEN SPRAY." Used since May 15, 1901

36,950. SEWING-MACHINES. ILLINOIS SEWING MACHINE COMPANY, Chicago, Ill. Filed May 28, 1901.

FREE

Essential feature.—The word "FREE." Used since December 18, 1900.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED AUGUST 20, 1901.

8,603.—*Title:* "MEDALLION." (For Satin and Velvet Ribbons.) E. MOSES & Co., New York, N. Y. Filed June 28, 1901.

8,604.—*Title:* "DR. JENSEN'S CATARRH TREATMENT." (For a Medicine for Catarrh.) J. C. NELSON & Co., Manistee, Mich. Filed July 20, 1901.

8,605.—*Title:* "ROCKY MOUNTAIN SAGE BITTERS." (For a Medicine.) M. ROSENFIELD & Co., Cripplecreek, Colo. Filed July 24, 1901.

8,606.—*Title:* "RED FOX ALE." (For Ale.) MASSACHUSETTS BREWERIES Co., Boston, Mass. Filed July 29, 1901.

8,607.—*Title:* "GEORGIA WATERMELON WINE." (For Wine.) FRANCIS E. FREY, Lovettsville, Va. Filed July 27, 1901.

8,608.—*Title:* "GEORGIA WATERMELON GIN." (For Gin.) FRANCIS E. FREY, Lovettsville, Va. Filed July 27, 1901.

8,609.—*Title:* "GEORGIA WATERMELON BRANDY." (For Brandy.) FRANCIS E. FREY, Lovettsville, Va. Filed July 27, 1901.

8,610.—*Title:* "GEORGIA WATERMELON WHISKEY." (For Whisky.) FRANCIS E. FREY, Lovettsville, Va. Filed July 27, 1901.

8,611.—*Title:* "MY MAMMY." (For Whisky.) THE HENRY M. RUBEL Co., Cincinnati, Ohio. Filed July 24, 1901.

8,612.—*Title:* "RAINBOW COCKTAIL MANHATTAN." (For Manhattan Cocktails.) C. F. SULLIVAN & Co., Boston, Mass. Filed July 26, 1901.

8,613.—*Title:* "MANPURYA." (For Tea.) MILLIKEN, TOMLINSON Co., Portland, Me. Filed July 25, 1901.

8,614.—*Title:* "F. J. DARLINGTON'S CHARCOAL CHEWING GUM." (For Chewing-Gum.) FRANCIS J. DARLINGTON, Pittsburg, Pa. Filed July 25, 1901.

8,615.—*Title:* "SHELL BORDER." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed July 22, 1901.

8,616.—*Title:* "FLOR DE CASTILLO." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed July 25, 1901.

8,617.—*Title:* "FLOR DE CASTILLO." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed July 25, 1901.

8,618.—*Title:* "JANITA." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed July 25, 1901.

8,619.—*Title:* "PILLSBURY'S FLAKED WHEAT FOOD." (For Wheat-Food.) THE PILLSBURY-WASHBURN FLOUR MILLS COMPANY, LIMITED, Minneapolis, Minn. Filed July 27, 1901.

8,620.—*Title:* "FORCE." (For Cereal Food Products.) EDWARD ELSWORTH, Buffalo, N. Y. Filed June 22, 1901.

8,621.—*Title:* "GOLD LEAF LARD." (For Lard.) HENRY KRUG PACKING Co., St. Joseph, Mo. Filed April 23, 1901.

8,622.—*Title:* "LILY BRAND LEAF LARD." (For Lard.) HENRY KRUG PACKING Co., St. Joseph, Mo. Filed April 23, 1901.

8,623.—*Title:* "HENRY F. MILLER'S ENAMEL AND PAINT ERASER." (For an Enamel and Paint Eraser.) HENRY F. MILLER, Philadelphia, Pa. Filed July 25, 1901.

8,624.—*Title:* "YELLOW LABEL STOVE POLISH." (For a Stove-Polish.) OMAHA STOVE REPAIR WORKS, Omaha, Nebr. Filed July 19, 1901.

PRINTS

REGISTERED AUGUST 20, 1901.

(None.)

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BRODERICK & BASCOM ROPE COMPANY *v.* LESCHEN & SONS ROPE COMPANY.

Decided May 25, 1901.

1. TRADE-MARKS—INTERFERENCE IN FACT—DIFFERENCE IN COLOR.

Where one party states that it uses an orange-colored strand in the rope and the other party uses a red strand, but each describes the essential feature of his mark as consisting broadly in a "streak of distinctive color produced in or applied to a wire rope," *Held* that there is an interference in fact.

2. SAME—REGISTRABLE MARK—STATEMENT SUFFICIENTLY DEFINITE.

Where it is contended that an issue covering broadly a streak of distinctive color applied to a wire rope is too broad and indefinite to be the subject-matter of a lawful trade-mark, *Held* that the authorities support the Examiner's holding that it is registrable.

3. SAME—NO APPEAL FROM FAVORABLE DECISION.

Held, further, that there is no appeal from a favorable decision by the Examiner of Trade-Marks as to the registrability of a trade-mark, and his action will not be reviewed and reversed except in a clear case.

APPEAL on motion.

TRADE-MARK FOR WIRE ROPE.

Application of the Broderick & Bascom Rope Company filed October 31, 1900, No. 62,034. Certificate of registration issued to A. Leschen & Sons Rope Company December 4, 1900, No. 35,552.

Messrs. Higdon & Longan and *Mr. R. P. Hains* for Broderick & Bascom Rope Company.

Messrs. Knight Bros. for Leschen & Sons Rope Company.

ALLEN, *Commissioner:*

This is an appeal by the Broderick & Bascom Rope Company from the decision of the Examiner of Trade-Marks denying its motion to dissolve the above-entitled interference.

The grounds of appeal are that the Examiner erred in holding that there is an interference in fact and that there was no irregularity in the declaration.

The issue is—

the streak of distinctive color produced in or applied to a wire rope, for wire ropes.

In each application the mark is said to be for wire rope, and in each the essential features are described in the words of the issue. As drawn, therefore, there is obviously an interference in fact between the two applications, since they could not both be registered without registering two marks for the same thing. In the appellant's application reference is made particularly to the use of an orange-colored strand in the rope and to the fact that such color is used entirely, whereas in A. Leschen & Sons Rope Company's application reference is made particularly to a red strand, which, it is claimed, is the only color used by that company. It is claimed that the marks are specifically different and distinguishable and that each case should be construed as limited to the applicant's particular mark, and when so limited there is no interference in fact.

This contention is, however, not well founded. Neither party has limited itself to the particular color used, and even if it had it could hardly be held that they did not, in effect, cover the same mark, since they would differ merely in the color of the mark. It is well settled that a mere difference in color does not make a mark registrable.

The principal contention on behalf of the appellant is "that the issue is too broad and indefinite to be the subject-matter of a lawful trade-mark." The Examiner was of a different opinion, however, and by analogy to the practice relating to patents there is no appeal from a favorable action by him on a question of this kind. The authority of the Commissioner to consider such matters is recognized; but it is not believed to be proper practice to review and reverse a favorable decision on the question of the registrability of a trade-mark any more than to take such action as to a favorable decision in a patent case. This will be done only in a clear case.

The applicant's brief and the Examiner's decision have, however, been considered, and it is held that the circumstances do not warrant a reversal of the Examiner's action. The authories support his statement that the mark is a lawful trade-mark and is sufficiently definite.

No irregularity in the declaration of the interference is seen.

The decision of the Examiner of Trade-Marks refusing to dissolve the interference is affirmed.

SHEPPARD *v.* WEBB.

Decided June 25, 1901.

1. INTERFERENCE—BURDEN OF PROOF.

Where in so far as the Office records go one party appears to be the first inventor of the combination in controversy, *Held* that the burden of establishing a different state of facts should be placed upon his opponent.

2. SAME—SAME—EARLIER APPLICATION DISCLOSING INVENTION.

Where a prior pending application of one party fully discloses the issue in controversy and the claims of the issue could have been made therein, if desired, instead of claims to another form, *Held* that such application is an Office record showing that he was in possession of the invention at that time, and therefore he is entitled to the benefit of its date in determining upon whom the burden of proof shall rest.

3. SAME—SAME—DIVISIONAL APPLICATION—DIFFERENCE IN STRUCTURE.

Where the application in interference is not, strictly speaking, a division of a previous application, since the devices disclosed contain specific differences in structure, but both embody the combination in controversy, *Held* that the applicant is entitled to the date of the original case under Rule 116.

APPEAL on motion.

COTTON-PRESS.

Application of John L. Sheppard filed March 31, 1900, No. 11,002. Application of Samuel J. Webb filed June 19, 1900, No. 20,888.

Mr. Henry A. Seymour for Sheppard.

Messrs. Foster & Freeman for Webb.

ALLEN, *Commissioner:*

This is an appeal by Sheppard from the decision of the Primary Examiner denying his motion to shift the burden of proof.

Sheppard was originally made the senior party to this interference; but in his preliminary statement Webb stated that his prior application, Serial No. 2,321, filed January 22, 1900, disclosed the invention in controversy, and upon an inspection of that application the Examiner concluded that this statement was true. Webb was thereupon made the senior party, and Sheppard filed his present motion to shift the burden of proof on the ground that Webb is not entitled to the benefit of the date of that earlier case.

It is clear from an inspection of the case and is practically admitted by all parties that the combination of the present issue is fully disclosed in Webb's original application and that the present application is not, strictly speaking, a division of the original application within the meaning of that term as construed in the decisions of this Office. The original application disclosed two forms of presses, the object of each being to compress the bale in two directions, and as filed it included broad claims covering both forms and specific claims to one form. In the specific form claimed the displacing-plates were adapted to be "bodily" moved into or out of operative position, whereas in the other form (illustrated in Figure 5) the plates were hinged, as set forth in the present issue. The form shown in Fig. 5, while including the hinged plates and other features set forth in the interference issue, differs in many details from the construction disclosed in the present case.

If the same specific form were shown in the present case as in Fig. 5 of the original case, Webb would undoubtedly be entitled to the benefit of the date of that original case under Rule 116 in this interference.

The question for determination is whether or not the fact that in the present application Webb has made changes in the construction and arrangement of parts not included in the issue can deprive him of that benefit in so far as the features of the issue are concerned. The continuity of the two applications is beyond question, since both are still pending.

Since Fig. 5 shows the combination in controversy, it is clear that a successful machine made in strict conformity to that disclosure would be a reduction to practice of the present issue, notwithstanding the fact that it would not embody all of the specific features disclosed in Webb's present case. Such differences are not regarded as affecting the question when a machine introduced in evidence is being considered, and it would seem that the same thing should be true in reference to a disclosure in an application.

Webb could have claimed the present combination in his original application instead of claiming the other form of the device, if he had so desired, and he did, in fact, make claims broad enough to cover both forms. His original case was an application clearly illustrating and describing the invention in controversy, and therefore under Rule 116 he should have the benefit of its date. It proves that he was in possession of the invention at its date and must be regarded as a constructive reduction to practice of the invention. (*Bundy* v. *Rumbarger*, 92 O. G., 2002.)

In so far as the Office records go, Webb seems to be the first inventor of the combination in controversy, and therefore the burden of proof should be upon Sheppard to establish a different state of facts.

Sheppard suggests that the construction disclosed in Fig. 5 of Webb's original application is inoperative; but it is not understood that he urges that question for decision at this time. An inspection of that disclosure fails to reveal any such vital defect as would render the device inoperative; but in the absence of a full argument it is not intended to finally dispose of that question.

The decision of the Primary Examiner is affirmed.

EX PARTE S. HECHT & SON.

Decided June 21, 1901.

1. TRADE-MARK—WORD-SYMBOL AND REPRESENTATION OF IVY—ALTERNATIVE.

Where applicants sought to register the word-symbol "Ivy" or the representation of ivy and showed in their drawing only a single ivy-leaf, *Held* that there was no objection to registering the mark as claimed by applicants.

2. SAME—SAME—SAME.

Held that inasmuch as ivy is commonly known only by its leaves to persons not skilled in botany, ivy-leaves though shown singly would indicate to the mind the ivy-plant and not necessarily the leaves only of the ivy-plant.

3. SAME RULE AS TO ALTERNATIVE FORMS.

No arbitrary rule can be laid down to cover all cases where alternative forms are sought to be registered. (*Ex parte Taylor and Lockett*, 93 O. G., 2531.) It is a mere matter of judgment whether or not the word-symbol and the representation would convey to the mind of the ordinary purchaser the same thing.

ON appeal.

TRADE-MARK FOR CUTLERY.

Application for registration filed March 11, 1901, No. 62,871.

Messrs. Briesen & Knauth for the applicant.

MOORE, *Assistant Commissioner:*

This is an appeal from the refusal of the Examiner of Trade-Marks to register as a trade-mark for cutlery the arbitrary word "Ivy" or the representation of ivy as embodied in a single leaf.

The Examiner holds that the representation shown—namely, a single leaf and the word "Ivy"—are not true alternatives.

The appellant argues that the decision in *ex parte Taylor and Lockett* (93 O. G., 2531) is controlling in this case. In that case the head portion of the conventional rabbit and the word "Rabbit" were held to be true alternatives, and therefore properly registrable as such. It is contended by the appellant that to refuse to register the word "Ivy" and the representation of a single ivy-leaf as indicative of such would virtually operate to change the construction of the existing law as laid down in the decision of *Taylor and Lockett, supra.*

I do not so view this case. As was stated in the case above cited:

> No arbitrary rule can be laid down to cover all cases where alternative forms are sought to be registered.

It is a mere matter of judgment as to whether or not the word-symbol and the representation would convey to the mind of the ordinary purchaser the same thing. It was evidently the conclusion of the Commissioner in deciding this question in the above-stated case that the head of a rabbit would convey to the mind of an ordinary purchaser that it was in fact a rabbit which was shown in the picture. This would be evident to any one, whether skilled in zoölogy or not. So, too, in the case of *Hutchinson et al.* v. *Blumberg* (51 Fed. Rep., 829) referred to by him. A "star" is a star whatever may be its number of points. Here the appellant shows a single leaf and claims that it is a true alternative of the word-symbol "ivy."

The appellant argues that the representation of the word-symbol need only be enough "to indicate the existence of those features which every mind instinctively supplies." This proposition is well illustrated in the case of the representation of a rabbit-head. In that case enough was shown to indicate the existence of those features which every mind instinctively supplies. This, to my mind, was the reason that the representation of a rabbit's head and the word "Rabbit" were held by Commissioner Duell to be properly the alternatives of each other, such as would warrant their common registration.

I am not prepared to hold that the representation of a single ivy-leaf would not indicate to the purchaser's mind the simple word ivy. Ivy is commonly known only by its leaves to persons not skilled in the science of botany. So, too, though possibly in a more general way, are certain other plants, among which are lettuce, tobacco, grass, and ferns. The leaves, though shown singly, of the last-mentioned plants would indicate to the mind the plants themselves and not necessarily the leaves only of such plants.

I think the same reasoning applies with sufficient force, though perhaps it is not so potent, to the representation of a single ivy-leaf as indicative of ivy, inasmuch as the leaf is the common means of identifying the ivy-plant.

The decision of the Examiner is reversed.

EX PARTE PEATS.

Decided July 11, 1901.

TRADE-MARK—"YALE" FOR BELT-SUPPORTERS—GEOGRAPHICAL WORD—PROPER NAME.

Held that the word "Yale" having a geographical significance and being a more or less common surname is not such an arbitrary word as would make it the sole property of any one individual, and its registration as a trade-mark should be refused.

ON appeal.

TRADE-MARK FOR BELT-SUPPORTERS.

Application of Alfred H. Peats for registration filed May 17, 1901, No. 63,404.

Mr. C. V. Edwards for the applicant.

MOORE, *Acting Commissioner:*

This is an appeal from the refusal of the Examiner of Trade-Marks to register the word "Yale" as a trade-mark for belt-supporters.

The word "Yale" is not an arbitrary word. It is true that to many people it would signify the great university at New Haven, Conn., named in honor of the historic personage Elihu Yale. The word "Yale" has, however, a geographical significance and is also a more or less common surname. Each of these facts has been shown to be true by the Examiner. It is clear, then, that the word "Yale" is not such an arbitrary word as would make it the sole property of any one individual.

The word "Yale" corresponds in all respects to the word "Bowdoin," which was refused registration as a trade-mark for coffee by Mr. Commissioner Duell in *ex parte Shaw, Hammond, and Carney*, (68 MS. Dec., 229.)

The petitioner argues that—

> almost universally to speak of an article as a Yale lock, or a Yale radiator, or Yale terne-plate, would be to indicate that the article had something to do with carefully-made mechanism.

This argument that the word "Yale" has a special significance in that the articles to which it refers are carefully-made pieces of mechanism sets forth another ground for refusing registration—that of its having a descriptive significance.

The decision of the Examiner is affirmed.

EX PARTE JOHNS.

Decided June 22, 1901.

1. AMENDMENT TO DRAWING—WHEN IMPROPER.

Where it appears that an addition sought to be made to certain figures of a drawing is not to correct what was unintentionally omitted from the drawing as originally filed or is not to correct a mere error on the part of the draftsman, but, on the other hand, seeks to add to these figures an unessential feature purposely omitted from them when originally filed, *Held* that such an addition to the drawing should not be permitted.

2. SAME—SAME.

Where an addition sought to be made to certain figures of the drawing would only serve the purpose of allowing in the same application a certain claim drawn to specifically cover an avowedly different form of invention from another specific form of the same generic invention already covered by a specific claim, *Held* that said addition to the figures of the drawing should not be permitted.

ON petition.

EASEL-BACK.

Application of Henry W. Johns filed January 19, 1900, No. 1,997.

Mr. A. Parker-Smith for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition from the action of the Examiner refusing to allow certain figures of the drawing to be amended in order to overcome an objection that certain claims cover specifically different forms of invention.

The drawing consists of nine figures. Claim 4 is held by the Examiner to be generic to all the figures, claim 5 to be specific to Figs. 1 to 6, and claim 6 to be specific to Figs. 7 to 9. This holding is correct.

The invention is an improvement in an easel. The wire leg is prevented from being removed from the easel by means of bent portions in the upper part of said leg.

In the specification this construction is described, referring to Figs. 1 to 6, as follows:

The upper end of the wire is bent substantially at right angles, so as to form a second projection 7 above the plate 2, which prevents the wire from being entirely withdrawn from the socket in the plate 2.

It is seen, therefore, that the "second projection 7" is formed on the wire used in the construction shown in Figs. 1 to 6 for a definite purpose. In describing the construction shown in Figs. 7 to 9 the petitioner states that—

* * * the right-angular terminal of the upper end of the brace is dispensed with and the end of the brace lies wholly within the socket of the plate.

The single projection 8 in the construction shown in Figs. 7 to 9 performs the function of the two projections 8 and 7 in Figs. 1 to 6—that of preventing the withdrawal of the leg from the easel.

It is therefore seen that the petitioner distinctly states that the modified form of construction shown in Figs. 7 to 9 was invented by him for the avowed purpose of avoiding the necessity of forming the upper hook 7 on the wire leg necessary to the construction shown in Figs. 1 to 6.

It does not appear that the bent portion 7 was unintentionally left off of the construction shown in Figs. 7 to 9, or that its absence is due to a mere error on the part of the draftsman. To allow its addition to the construction shown in Figs. 7 to 9 would serve no useful purpose, would correct no obvious error. On the other hand, to add the same would only serve the purpose of allowing in the same application a certain claim drawn to specifically cover an avowedly different form of invention from another specific form of the same generic invention already covered by a specific claim.

This would be contrary to the well-settled practice laid down in *ex parte Eagle*, (C. D., 1870, 137.)

The petition is denied.

EX PARTE MCDONALD.

Decided July 11, 1901.

DIVISION—APPARATUS FOR PURIFYING WATER—STERILIZING APPARATUS.

Held that division was properly required between claims covering a filtering mechanism and claims covering a sterilizing apparatus, since the two are entirely independent of each other in structure and operation. Each performs its function without modifying the functions of the other, and each has been given a distinct place in the arts and in the classification of the Office.

ON petition.

APPARATUS FOR PURIFYING WATER.

Application of Joseph H. McDonald filed December 21, 1900, No. 40,683.

Mr. Joseph L. Atkins for the applicant.

MOORE, *Acting Commissioner:*

This is a petition from the action of the Examiner requiring division in the above-entitled case.

The claims are held by the Examiner to cover two independent inventions. The inventions are stated to be a filtering mechanism, covered by claims 1, 2, 3, 4, 5, 6, 7, and 10, and a sterilizing device, covered by claims 8, 9, and 11.

It appears from an examination of this case that these two mechanisms are entirely independent of each other both in structure and in operation. Each may be used independently and each performs its functions without modifying in any degree the function of the other.

Sterilizing apparatus is classified in Division XIX, and apparatus for purifying water by mechanical filtration is classified in Division IV. These two apparatus having been given a distinct place in the arts by the inventor and manufacturer and also by this Office in its scheme of classification, division was properly required. (*Ex parte Wilkerson*, 87 O. G., 513; *ex parte Roby*, 92 O. G., 1035.)

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

SCOTT *v.* SCOTT.

Decided June 7, 1901.

1. INTERFERENCE—PRIORITY—CONFLICTING TESTIMONY—DECISION AFFIRMED.

Where the testimony is conflicting and unsatisfactory, but supports the senior party's allegation of reduction to practice in 1897, as well as it does that of the junior party two years later, *Held* that the decision of the Commissioner in favor of the senior party should be affirmed.

2. SAME—SAME—PRESUMPTION AS TO PRIORITY.

Where the junior party admits that his efforts in the field of invention had been superinduced by a knowledge of a different invention by the senior party upon the same lines embodying the germ of the one in controversy and the question arises which of them was the inventor, *Held* that the presumption is in favor of the senior party.

3. SAME—FAILURE TO ASSERT CLAIM TO INVENTION—ESTOPPEL.

Where the senior party informed the junior party that he had applied for a patent on the invention and the junior party made no protest and signified neither by word nor by act that the invention was his own, *Held* that it was then, if ever, he should have spoken.

4. SAME—IRRELEVANT TESTIMONY CONDEMNED.

The complication of the record by testimony which is irrelevant, immaterial, and utterly useless for the elucidation of the substantial issue between the parties and by useless and irrelevant controversies between counsel condemned.

Messrs. Edison Bros. for the appellant.

Messrs. Howson & Howson and *Mr. R. T. Frazier* for the appellee.

MORRIS, *J.:*

This is an appeal from the decision of the Acting Commissioner of Patents in an interference case, wherein the subject-matter of controversy is an improvement in the construction of thimbles for shoelasts. The issue is defined in the following three counts:

1. A thimble or lining for the spindle-socket of a shoe-last having at intermediate points in its length, and at diametrically opposite points, integral spurs or prongs the stems of which are adapted to extend into the bore of the thimble when it is being inserted in a socket to hold the points of said spurs inside of the outer face or surface of the thimble.

2. A thimble or lining for the spindle-socket of a last comprising a section of light metal tubing having at its upper end a flange adapted to conform accurately to the top surface of a last about the spindle-socket, and having in its tubular body portion spurs adapted to engage with the last surrounding the spindle-socket.

3. A thimble for the spindle-socket of a shoe-last, having integral spurs or prongs adapted to engage with the side walls of said socket at points above the lower end of the thimble.

In reference to the parties to this contest and the nature of the controversy, the Examiner of Interferences has this to say, which appears from the record:

The parties to this interference had the same name, the only difference being in the spelling of the middle name of Emerson, the junior party spelling it with one "m," while the senior party spells it with two "m's." The record discloses that they are relatives, the senior party being uncle to the junior party. In order to avoid confusion in the consideration of the case, they will hereafter be referred to as uncle and nephew. From the testimony presented, it would seem that the question to be determined is one of originality rather than one of priority of invention.

The uncle, Scott senior, is the senior party to the interference, having been the first to come to the Patent Office, where he filed his application on May 10, 1898. In his preliminary statement he claims to have conceived the invention in question about December 25, 1893, at which time also he states that he exhibited a paper model and made disclosure of it to others. He alleges that he made a metal thimble containing the improvement about October 1, 1897; that, about the middle of October, 1898, a thimble embodying the invention was first placed in a last and the last used; that, during the month of December, 1898, a machine was made to construct such thimbles, and such thimbles were then actually made; and that there has been no use of the invention further than to test the availability of a few of the thimbles mentioned.

The nephew, Scott junior, filed his application in the Patent Office on February 11, 1899, which was about nine months after the uncle's application. He filed three statements, one of them before the uncle's statement was filed, and two of them after that time, and presumably after the contents of the uncle's preliminary statement had become known to him. In his preliminary statement first filed he alleged that he had conceived the inventions set forth in the first and third counts of the issue, explained them to others, and made drawings and a model of them, between the years 1886 and 1889; that about a month thereafter the same had been successfully tested; that he has since continued to use them, but that he had not manufactured any for use and sale; that he had conceived the invention of the second count of the issue about October 27, 1897; that about the same day he had made drawings of it, explained it to others, made a model, and successfully tested it; that about January 4, 1898, the improvement was successfully tested and operated; and that he had since then continued to use it, but had not manufactured it for use and sale.

The second statement, which he calls a supplemental statement, differs from the first only in an allegation that, on January 4, 1898, all three of the improvements in the several counts mentioned, were jointly and successfully operated and tested, while the first statement confined such test and operation of January 4, 1898, to the specific invention of the second count of the issue.

The third statement, which is designated as an amended preliminary statement, changes the date of the conception, explanation, and successful test of the invention of the second count from October 27, 1897, to September 27, 1897.

Testimony was taken; and upon this testimony the Examiner of Interferences decided in favor of the nephew, Scott junior. This decision was reversed by the Board of Examiners-in-Chief, who awarded judgment of priority of invention to the uncle, Scott senior; and the decision of the Board was affirmed by the Commissioner of Patents.

From the decision of the Commissioner the nephew, John Emerson Scott junior, has appealed to this court.

A great part of the testimony in this case is irrelevant, immaterial, and utterly useless for the elucidation of the substantial issue between the parties. This is especially true of the testimony in rebuttal, which might well have been wholly omitted from the record. A large part of the examination of the witnesses is devoted to an explanation of the contract relations between the senior applicant in the cause, the uncle, and Mr. J. Leslie Rodgers, who had first entered into combination with the uncle to exploit his invention, and who had afterward transferred his assistance to the nephew, without any sufficient cause for the transfer apparent on the record; but these contract relations and the controversies growing out of them are all collateral matters, wholly independent of the issues here involved and serving to throw little or no light on these issues.

Then the record is further complicated with useless and irrelevant controversies between counsel, and explanations and recriminations that serve no useful purpose. Moreover, the contest is a family controversy: it is between uncle and nephew: the intimation is that either one has pirated the invention of the other: and the only substantial witnesses are members of the respective families of the parties and relatives of each other—on the side of the uncle, his sister-in-law and her husband; on the side of the nephew, his father and one of his brothers. The result is that the testimony is re-

markably conflicting, and the matter of controversy is left in the greatest obscurity. And yet it would appear that it ought not to have been difficult to throw a more satisfactory light on the subject.

As stated, there are three counts in the issue. With reference to two of these, those numbered 1 and 2, we can have no hesitation in affirming the decision of the Patent Office which awards judgment of priority of invention to John Emmerson Scott, the uncle and the senior applicant in the cause. The testimony of the nephew wholly fails to show any conception by him of the subject-matter of these two counts, or of either of them, at any time before the filing of his application. In fact, we understand that the invention of count numbered 1 of the issue has been virtually conceded to the uncle. We will dismiss both these counts from further consideration.

Count numbered 3, which is more general than count No. 1, and which may be said to embrace it, as a generic does a specific invention, may be regarded as the only thing here in controversy. It is for a thimble with spurs in the sides adapted to engage with the side walls of the spindle-socket of the last, while count 1 requires these spurs to be at diametrically opposite points, and to extend within the bore of the thimble.

After a minute and elaborate investigation of the junior applicant's testimony and numerous exhibits filed by him, the Board of Examiners of the Patent Office came to the conclusion, in which we concur, that in no one of his models and exhibits, except one designated as "Exhibit No. 11," was the invention of the third count of the issue embodied. It is unnecessary for us to go over that ground again. We are entirely satisfied with the analysis of the record made by the Board, in consequence of which this conclusion was reached. But the junior applicant's "Exhibit No. 11" does embody the invention in controversy; and it is sufficiently proved that this exhibit was made and shown, and the invention therefore disclosed by him in July of 1895.

But it is proved with at least equal or greater sufficiency that the senior applicant had the same invention in 1893, and that he reduced it to practice in September of 1897, while it would seem that the junior applicant had never reduced it to practice before the filing of his application. Assuming, therefore, that the testimony of the parties, other than the applicants themselves, is entitled to equal credit on both sides—and we find no reason to refuse it to them—we find that the uncle's conception of the invention antedated that of the nephew by about two years. And, as there is no question here of undue delay or want of due diligence, it is very plain to us that there is no apparent error in the award of judgment of priority of invention to the senior applicant.

Then again, the circumstances and conduct of the parties, as evidenced by the record, all tend to warrant the same conclusion. The germ of the invention beyond question belonged to the uncle, and not to the nephew. The latter admits that his own efforts in the field of invention had been superinduced by a knowledge of his uncle's device; and, indeed, the conceded fact that the uncle filed a caveat in 1890 for an invention, which, although not that of the issue, yet led up to it, is sufficient to raise a presumption, not very strong, it is true, but yet a presumption, in favor of the uncle's priority. More important, however, is the fact that, when in May of 1898 the uncle informed the nephew that he had applied for a patent on the invention, yet the nephew made no protest, and signified neither by word nor by act that the invention was his own. Then, if ever, he should have spoken. He seeks to excuse his silence on two grounds—one, that he relied on his uncle's assurances to make the matter all right with him; and the other, that he feared that his uncle, who was foreman over him in the shop in which both were employed, would discharge him in the event that he complained. Both excuses are unsatisfactory. The record discloses no just ground for the apprehension that he would be discharged: he was not discharged when he made his application in this case. And if his reliance on his uncle's assurance that he would make things all right with him, was a factor in inducing him to remain silent in May of 1898, it is not apparent why it should not have been equally potent in February of 1899, when he filed his application, and when, so far as the record shows, nothing had happened in the meantime to shake his reliance. It is not difficult to find a motive in the record for the change of attitude; but it is not made apparent to us that the change was warranted by any change in the uncle's course of conduct.

We have not deemed it necessary to analyze at any length the great mass of testimony in this case. This has been satisfactorily done by the tribunals of the Patent Office. We think that the case can be properly disposed of on the salient facts which we have noted.

It is our conclusion that there was no error in the decision of the Commissioner of Patents in the premises, whereby he awarded judgment of priority of invention on all the counts of the issue to the senior applicant, John Emmerson Scott, the uncle; and that this decision should be affirmed.

The clerk of the court will certify this opinion, and the proceedings in this court in the premises, to the Commissioner of Patents according to law.

Patents No. 681,176 to 681,668.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 9 TUESDAY, AUGUST 27, 1901. Price—$5 per year.

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Patents	493	No. 681,176 to No. 681,668, inclusive.
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Trade-Marks	40	No. 36,951 to No. 36,990, inclusive.
Labels	9	No. 8,625 to No. 8,638, inclusive.
Prints	3	No. 887 to No. 889, inclusive.
Reissues	None.	
Total issue	575	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	----	Nevada	----	----
Alaska Territory	----	----	New Hampshire	1	----
Arizona Territory	2	----	New Jersey	18	----
Arkansas	----	1	New Mexico Territ'y	----	----
California	14	1	New York	69	12
Colorado	3	----	North Carolina	4	1
Connecticut	18	1	North Dakota	----	----
Delaware	4	----	Ohio	34	1
District of Columbia	2	1	Oklahoma Territ'y	2	----
Florida	1	1	Oregon	3	----
Georgia	1	----	Pennsylvania	58	3
Idaho	----	----	Rhode Island	5	----
Illinois	40	2	South Carolina	1	2
Indian Territory	2	----	South Dakota	3	----
Indiana	15	----	Tennessee	----	----
Iowa	13	----	Texas	9	2
Kansas	6	----	Utah	2	----
Kentucky	1	1	Vermont	1	----
Louisiana	1	----	Virginia	4	1
Maine	1	1	Washington	7	2
Maryland	12	----	West Virginia	3	1
Massachusetts	41	2	Wisconsin	14	1
Michigan	13	2	Wyoming	----	----
Minnesota	8	----	U. S. Army	1	----
Mississippi	2	3	U. S. Navy	----	----
Missouri	20	1			
Montana	1	----	Total to citizens of the United States	466	43
Nebraska	4	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Jamaica	----	----
Australia	----	----	Japan	----	----
Austria-Hungary	3	----	Mexico	----	----
Barbadoes	----	----	Netherlands	----	----
Belgium	1	----	New South Wales	----	----
Brazil	----	----	New Zealand	----	----
British Guiana	----	----	Norway	1	----
Canada	7	----	Queensland	----	----
Cape Colony	----	----	Russia	----	----
China	----	----	Scotland	1	----
Colombia	----	----	South African Republic	----	----
Cuba	----	1	South Australia	----	----
Denmark	1	----	Spain	----	----
Egypt	----	----	Sweden	----	----
England	21	4	Switzerland	1	----
Finland	----	----	Turkey in Asia	----	----
France	2	4	Victoria	----	----
Germany	17	--	Western Australia	----	----
India	----	----			
Ireland	1	----	Total to citizens of foreign countries	57	9
Italy	1	----			
Haiti	----	----			

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication

Amendments to Allowed Applications.

Hereafter all amendments proposed to allowed applications and all petitions and requests relating thereto shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action. (Order 629 amended October 15, 1898.)

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 10, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action: New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc.	Aug. 7	Aug. 8	158
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Aug. 5	Aug. 6	32
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	July 26	July 30	93
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 23	Aug. 2	102
246	I. Tillage and Fences	July 22	Aug. 6	151
128	XXIV. Sewing-Machines, Apparel, and Toilet.	July 22	Aug. 2	191
90	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	July 22	Aug. 1	226
147	XXII. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 22	July 26	141
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 22	July 23	169
281	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 22	July 22	234
98	XXI. Textiles, etc	July 22	July 22	159
250	VIII. Furniture, Beds, Store Furniture, etc.	July 20	July 24	441
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	July 20	July 22	339
	Between one and two months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 19	Aug. 5	187
258	X. Carriages and Wagons	July 17	July 25	102
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 16	July 24	246
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 15	July 25	224
196	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 13	Aug. 6	254
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 13	Aug. 5	196
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt. Surgery.	July 8	July 23	279
340	VII. Velocipedes, Games, and Toys.	July 2	July 10	233
265	XII. Mechanical Engineering, Store-Service, etc.	June 29	July 19	330
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	June 27	July 10	247
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 26	July 11	306
215	XVII. Printing, Type-Writing Machines, and Linotyping.	June 24	July 24	244
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 21	July 22	220
248	XVIII. Steam-Engineering, etc	June 21	July 5	339
	Between two and three months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 18	July 25	211
190	IX. Hydraulics, Fire-Extinguishers, etc.	June 17	July 27	187
102	XIX. Stoves and Furnaces	June 17	July 12	446
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	June 15	July 17	253
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	June 12	July 12	293
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	June 8	June 13	449
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	June 5	July 8	316
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 4	July 2	280
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 27	July 11	188

Total number of applications awaiting action.....8,425

Applications Under Examination—Continued.

Under one month.			
*Designs	Aug. 10	Aug. 17	52
†Trade-Marks	Aug. 10	Aug. 16	40
‡Labels and Prints	Aug. 17	Aug. 19	4

No Hearings by Commissioner or Assistant Commissioner during July and August, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 3, 1901.

Notice is hereby given that there will be no cases placed upon the docket to be heard by either the Commissioner or the Assistant Commissioner during the months of July and August, 1901.

F. I. ALLEN,
Commissioner.

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

Protection of Patent and Trade-Mark Rights in Cuba, Isle of Pines, and the Island of Guam under the Military Authority of the United States

No. 160.

HEADQUARTERS DEPARTMENT OF CUBA.
Havana, June 13, 1901.

Under instructions from the Secretary of War, the Military Governor of Cuba directs the publication of the following order:

1. The rights of property in patents, copyrights and trade-marks, duly acquired in Cuba, the Isle of Pines, and the Island of Guam, pursuant to the provisions of Spanish law and existing in one or all of said Islands on April 11, 1899, shall continue unimpaired for the period for which they were granted, and the owner or owners thereof shall be protected and their rights therein maintained: *Provided*, that the original or a duly certified copy of the patent, or of the certificate of registration of the trade-mark, or copyright, is filed in the office of the Governor of the Island wherein such protection is desired. The certificates of registration of trade-marks issued prior to April 11, 1899, by a Spanish Provincial Registry, or the National Registry of Spain at Madrid, or the International Registry at the Bureau of the Union for the Protection of Industrial Property, at Berne, Switzerland, shall receive such recognition and credence as were accorded them in said islands under Spanish sovereignty; and an original certificate or duly-certified copy thereof shall be received and filed in the office of the Governor of the Island for all purposes connected with this order, without further or other certification.

2. The rights of property in patents, including design patents, granted by the United States, and in trade-marks, prints and labels, duly registered in the United States Patent Office, and in copyrights duly registered in the office of the Librarian of Congress, shall be maintained and protected by the Government of Civil Affairs in the Islands above named: *Provided*, that a duly-certified copy of the patent, or of the certificate of registration of the copyright, trade-mark, print or label is filed in the office of the Governor of the Island wherein such protection is desired.

3. An infringement of the rights protected by compliance with the provisions of this order shall subject the person, firm, association or corporation guilty of such infringement to the civil and penal liabilities created and imposed by such of the laws of Spain relating to said matters as remain in force in said Islands.

4. Such provisions of existing orders as are in conflict with this order are hereby revoked.

EDWARD CARPENTER,
1st. Lieut., Artillery Corps, Aid-de-Camp.

PATENTS

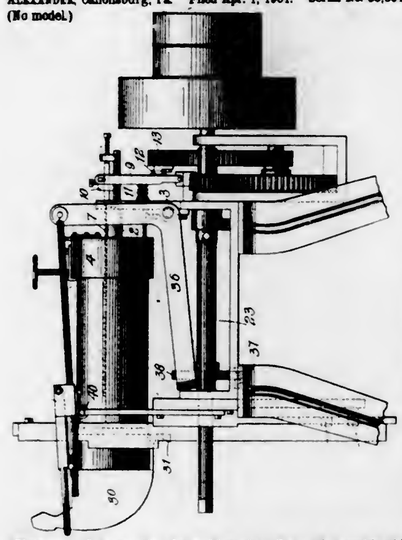
GRANTED AUGUST 27, 1901.

681,176. HUSKING-PEG. RILEY ALBAUGH, Mount Gilead, Ohio. Filed Jan. 25, 1901. Serial No. 44,751. (No model.)



Claim.—The herein-described husking-peg comprising a body composed of spaced sides having offstanding projections at diagonally opposite points, a claw extended from the lower offstanding projection, a blade pivoted to the body to fold into the space formed between the sides thereof, and a strap attached at its ends to the body and adapted to receive the fingers of the hand, substantially as set forth.

681,177. MACHINE FOR MAKING PIPE-ELBOWS. URBANA D. ALEXANDER, Canonsburg, Pa. Filed Apr. 1, 1901. Serial No. 53,804. (No model.)



Claim.—1. In a machine for making pipe-elbows, the combination of a shifting head, means for imparting a step-by-step movement to said head adapted to be secured to the blank to be operated on, bending and holding jaws, a tipping-head and means for effecting a step-by-step angular movement to said head, substantially as set forth.

2. In a machine for making pipe-elbows, the combination of a supporting-shaft, a toothed bar movably mounted on said shaft, a head movably mounted on the shaft, a pawl movably mounted on the head and adapted to engage the toothed bar, and means for reciprocating the latter, bending and holding jaws, a tipping-head adapted to be secured to the blank to be operated on and means for effecting a step-by-step angular movement to said head, substantially as set forth.

3. In a machine for making pipe-elbows, the combination of a head adapted to receive the end of an elbow-blank, a pulling-plate secured to the head having its outer edge curved, a yoke adapted to engage the curved edge of the plate at a point outside of the axis of the head, and means for reciprocating the yoke, substantially as set forth.

4. In a machine for making pipe-elbows, the combination of a head adapted to receive the end of an elbow-blank, a pulling-plate secured to the head and having its outer edge curved, a reciprocating bar or frame, a yoke pivotally connected to the bar or frame, and adapted to engage the curved edge of the plate at a point outside of the axis of the head, and means for reciprocating the bar or frame, substantially as set forth.

5. In a machine for making pipe-elbows, the combination of crimping or grooving jaws or plates, one of said jaws being provided with a holding or retaining shoulder, means for effecting a step-by-step movement of the blank between said jaws, a tipping or closing head engaging one end of the blank, and means for effecting a step-by-step angular movement to said head, substantially as set forth.

681,178. NON-REFILLABLE BOTTLE. WILLIAM V. K. AYRES, Newark, N. J. Filed June 1, 1901. Serial No. 62,759. (No model.)



Claim.—1. In a non-refillable bottle, the combination with the bottle-neck having an annular groove, of an expansible funnel having an opening at its lower end, a ball-valve adapted to seat in the said opening, an expansible frame arranged in the upper end of the funnel, and a wire depending from said frame and upon which the valve slides, substantially as described.

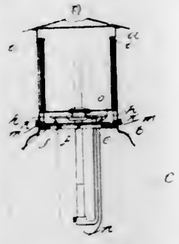
2. In a non-refillable bottle, the combination with the bottle-neck having an annular groove, of a rubber funnel having a circular opening at its lower end, and a curved wire arranged beneath the said opening, the upper end of the said funnel having an annular grooved bead, an open spring-ring located in the said grooved bead, the cross-strips, the wire connecting the cross-strips, a curved wire beneath the central opening and the ball-valve adapted to seat in the said central opening and slide upon the depending wire, substantially as described.

681,179. ELECTRIC-ARC LAMP. FRANCIS B RADT, Chicago, Ill. Filed Feb. 26, 1901. Serial No. 48,732. (No model.)

Claim.—1. In an arc-lamp, the combination with a globe therefor, of a ring engaging the upper edge portion of the globe, the said ring being provided with passages extending through the same in a vertical direction, the said passages being capped at their lower portions, rods *h*, *h* passing through the ring and provided with enlarged ends *g*, *g*, and means whereby the said rods *h*, *h* may be permitted vertical movement and limited in their vertical movement, substantially as described.

2. In an arc-lamp, the combination with a globe therefor, of a ring engaging the upper edge portion of the globe, the said ring being provided with passages extending through the same in a vertical direction, the said passages being capped at their lower portions, rods *h*, *h* passing through the ring and provided with enlarged ends *g*, *g*, rods *i*, *i* having telescopic engagement with the rods *h*, *h*, means whereby the telescoping rods may have their relative longitudinal movement limited, and means for limiting

the downward movement of both pairs of telescoping rods, substantially as described.



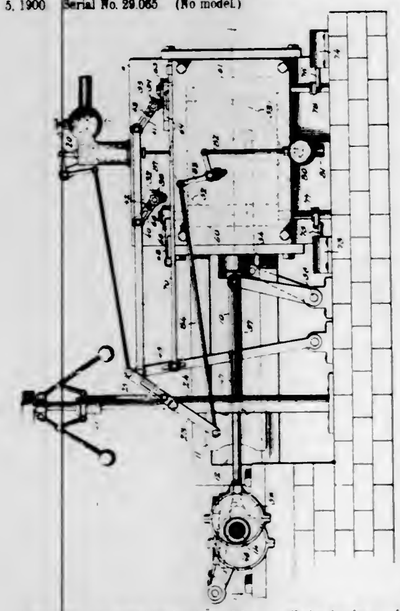
3. In an inclosed-arc lamp, the combination with a gas-cap, of an arc-inclosing globe, a bifurcated spring-clamp having its tongues engaging the upper portion of the said globe, and means coacting with the spring-clamp for preventing the lateral displacement of the globe, substantially as described.

4. In an inclosed-arc lamp, the combination with a gas-cap, of an arc-inclosing globe, a bifurcated spring-clamp having its tongues engaging the upper portion of the said globe, and a nose located opposite the spring-clamp for engaging the globe, and in cooperation with the spring-clamp serving to prevent the lateral displacement of the globe, substantially as described.

5. In an inclosed-arc lamp, the combination with a gas-cap, of an arc-inclosing globe, a spring-clamp engaging the arc-inclosing globe to engage the same with the gas-cap, and means for fastening the spring-clamp in position that permits a change in the angular position of the clamp with respect to the globe, substantially as described.

6. In an inclosed-arc lamp, the combination with a gas-cap, of an arc-inclosing globe, a spring-clamp engaging the arc-inclosing globe to engage the same with the gas-cap, a pivotal mounting for the spring-clamp that permits of the angular adjustment of the said clamp with respect to the globe, and means whereby this angular adjustmeot of the spring-clamp may be preserved, substantially as described.

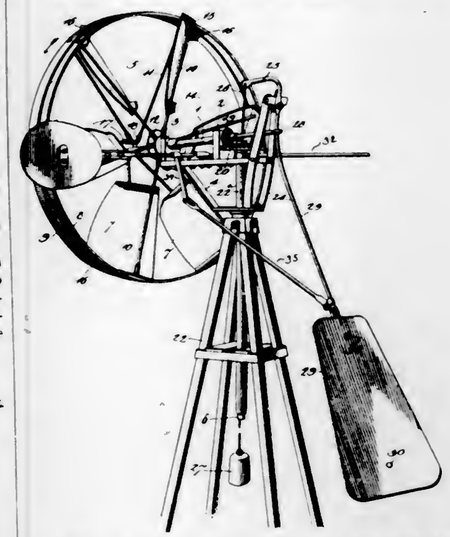
681,180. **ENGINE.** JOSEPH C. BAKER, Warren, Tex. Filed Sept. 5, 1900. Serial No. 29,065. (No model.)



Claim.—1. A steam-engine comprising a cylinder having a piston therein, a steam-chest for live steam having ports communicating with the ends of the cylinder, valves adapted to open and close said ports alternately, exhaust-ports for the cylinder, an exhaust-passage, a valve adapted to communicate the exhaust-passage with the exhaust-ports alternately, a chest communicating with the exhaust-passage, and valved ports communicating the last-named chest with the ends of the cylinder, said last-named valves being adapted for operation alternately and in advance of the valve of the live-steam chest.

2. A steam-engine comprising a cylinder having a piston therein, a steam-chest for live steam, valved ports connecting said chest with opposite ends of the cylinder and adapted for alternate operation, exhaust-ports for the cylinder, an exhaust-passage, a valve for communicating the exhaust-passage with the exhaust-ports alternately, a chest connected with the exhaust-passage, valved ports leading from the last-named chest to the ends of the cylinder to supply exhaust-steam thereto alternately, a relief-valve, a governor connected with the relief-valve for operating it, and means for opening the live-steam feed-ports subsequent to the opening of the exhaust-steam feed-ports.

681,181. **WINDMILL.** WILLIAM H. BALDWIN, Ainsworth, Nebr. Filed Feb. 11, 1901. Serial No. 46,914. (No model.)



Claim.—1. In a windmill, the combination of a wind-wheel shaft having a vertical gear, a rotary frame receiving the wind-wheel shaft and provided with a bearing, a side blade or vane arranged to prevent the wind-wheel from swinging horizontally out of the wind, a horizontal gear-wheel meshing with the vertical gear, a shaft 32 arranged in the said bearing and carrying the side blade or vane, and means for partially rotating the shaft 32, substantially as described.

2. In a windmill, the combination of a rotary frame, a wind-wheel shaft arranged horizontally and journaled in suitable bearings of the rotary frame, a wind-wheel mounted on the shaft and having pivoted blades, gearing connected with the wind-wheel shaft, a lever connected with the pivoted blades of the wind-wheel and provided with a blade arranged to be operated on by the wind, means connected with the lever for holding the blades of the wind-wheel normally in position to be acted on by the wind, and a movable side blade or vane, arranged to prevent the wind-wheel from creeping around the gearing and connected with the said lever, whereby it is turned edgewise to the wind when the windmill is thrown out of the same, substantially as described.

3. In a windmill, the combination of a rotary frame, a horizontal wind-wheel shaft mounted thereon and provided with a vertical gear, a wind-wheel, a horizontal gear-wheel meshing with the vertical gear, a side blade or vane movably mounted at one side of the rotary frame and arranged to prevent the wind-wheel from creeping around the horizontal gear-wheel, and governing mechaniam connected with the side blade or vane and arranged to turn the same edgewise to the wind when the windmill is thrown out of operation, substantially as described.

4. In a windmill, the combination of a rotary frame, a horizontal wind-wheel shaft mounted on the frame, a wind-wheel provided with pivoted blades, the vertical gear mounted on the wind-wheel shaft, the horizontal gear-wheel meshing with the vertical gear, the side blade or vane arranged at one side of the rotary frame and arranged to prevent the wind-wheel from creeping around the horizontal gear-wheel, and a governing device connected with the pivoted blades of the wind-wheel and having a blade and adapted to operate the side blade or vane to turn the same edgewise to the wind when the pivoted blades of the wind-wheel are opened, substantially as described.

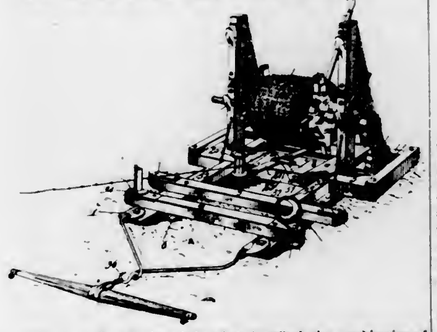
5. In a windmill, the combination of a rotary frame, a horizontal wind-wheel shaft, a gear-wheel mounted on the shaft and arranged vertically, a wind-wheel also mounted on the shaft, a horizontal gear-wheel meshing with the vertical gear-wheel, a horizontal rod adjustably mounted on the frame and capable of longitudinal movement, a side blade or vane mounted on the rod and adapted to be moved inward and outward, and arranged to prevent the wind-wheel from creeping around the gear-wheel, and a lever having a blade and connected with the rod and with the wind-wheel, substantially as described.

6. In a windmill, the combination of a rotary frame, a horizontal wind-wheel shaft, a wind-wheel, gearing connected with the shaft, a rod slidingly mounted on the frame and provided with an arm and having a side blade to prevent the wind-wheel from creeping around the gearing, and a lever having a blade arranged to face the wind, said lever being connected with the wind-wheel and with the arm of the rod, substantially as described.

7. In a windmill, the combination of a rotary frame, a wind-wheel having pivoted blades, a horizontal wind-wheel shaft, gearing connected with the shaft, a rod journaled on the frame and provided with a blade arranged at one side of the frame to prevent the wind-wheel from creeping around the gearing, a governing-blade arranged to face the wind and connected with the pivoted blades and with the rod, and means for holding the blades normally closed, substantially as described.

8. In a windmill, the combination of a rotary frame, a horizontal tubular wind-wheel shaft, a wind-wheel having pivoted blades, a rod extending through the tubular shaft and connected with the pivoted blades, gearing connected with the wind-wheel shaft, an upright lever having a blade and connected with the rod, said lever being adapted to be moved inward, a rod extending from one side of the frame and provided with a blade to prevent the wind-wheel from creeping around the gearing, and having an arm connected with the lever, and means connected with the lever for holding the blades normally closed, substantially as described.

681,182. **REEL-CARRIER.** WILLIAM M. BARGER, Webster City, Iowa. Filed Aug. 29, 1900. Serial No. 28,467. (No model.)



Claim.—1. In a device of the class described, the combination of opposite longitudinal sills, front, intermediate and rear cross-bars connecting the sills, the ends of the intermediate and rear cross-bars extending at opposite sides of the sills, end bars connecting the adjacent ends of the intermediate and end cross-bars, a transverse shaft mounted in the end bars, opposite wheels mounted upon the shaft and located between the adjacent end bars and sills, a reel-carrying windlass mounted in front of the shaft, a sprocket-wheel carried by the windlass, a sprocket-wheel upon the shaft, and a sprocket-chain connecting the two sprocket-wheels.

2. In a device of the class described, the combination with a frame, of a reel-carrying windlass mounted thereon, opposite pivot-pins rising from the frame, a lever removably mounted upon one of the pins, a plate connecting the pins and extending across the upper side of the lever, removable fastenings holding the plate in place, and a wire-engaging guide carried by the forward end of the lever.

3. In a device of the class described, the combination with a frame, and a reel-carrying windlass mounted thereon, of a reel-engaging head mounted upon the windlass, and having a concentric series of wire-engaging lugs projected laterally upon the outer face thereof.

4. A reel-engaging head, having a radial series of sockets formed in its peripheral edge, a cylindrical hub extended at the outer side of the head, and a concentric series of wire-engaging hooked lugs located between the hub and the sockets.

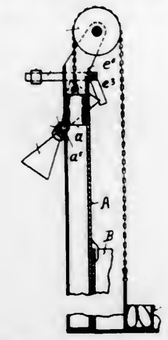
681,183. **GAS-FITTING.** IRA F. BESSEY and WESLEY A. BLACK, Brooklyn, N. Y. Filed Nov. 28, 1900. Serial No. 37,987. (No model.)



Claim.—1. A gas fitting or fixture provided with a transverse valve-casing having at one end a collar or rim in the opposite sides of which are two notches or recesses, and a valve mounted in said valve-casing and provided with a transversely-movable spring-operated plug which, in the operation of the valve, is adapted to enter said notches or recesses, substantially as shown and described.

2. A gas fitting or fixture provided with a transverse valve-casing having at one end a collar or rim in the opposite sides of which are two notches or recesses, and a valve mounted in said valve-casing and provided with a transversely-movable spring-operated plug which, in the operation of the valve, is adapted to enter said notches or recesses, said collar or rim being also provided with a groove which extends from the notches or recesses on one side to those on the other, substantially as shown and described.

681,184. **AUTOMATIC EGG-BOILER.** CHARLES H. BLANCHARD, Batavia, Ohio. Filed Apr. 8, 1901. Serial No. 54,824. (No model.)



Claim.—1. In an egg-boiler the combination of an egg-receptacle, a weight to be carried downward in its path by gravity, a pulley, a cord passing over the pulley and connected at one end to the weight and at the other to the receptacle, a shaft journaled near the path of the weight and having a trigger to retain the weight against the action of gravity, a timepiece upon the shaft consisting of closed vessels connected by a contracted neck and containing a substance to flow from one to the other of said vessels at a fixed rate, and a latch to hold the timepiece at an angle to the vertical and the trigger in engagement with the weight, substantially as shown and described.

2. In an egg-boiler the combination of a vertical hollow column, a weight to slide therein, a pulley journaled at the upper end of the column, a shaft journaled upon the side of the column and having a trigger to project underneath the weight to hold it raised, a timepiece consisting of two closed vessels connected by a contracted neck secured to the shaft in a position such that when the trigger is in the path of the weight the timepiece is at an angle to the vertical, a substance within the timepiece which will flow from one to the other of the vessels at a uniform rate of speed, a latch to engage the timepiece and hold it at the angle to the vertical while the greater weight of the flowing substance is in the upper vessel, an egg-receptacle and a cord passing over the pulley and connected at one end to the weight and at the other to the egg-receptacle, substantially as shown and described.

3. In an egg-boiler the combination of a hollow column, a weight to be carried downward in the column by the action of gravity, a pulley journaled above the weight, an egg-receptacle, a cord passing over the pulley and connected at one end to the weight and at the other to the pulley, a shaft journaled upon the side of the column, a trigger upon the shaft to project beneath the weight, a timepiece consisting of two closed vessels connected by a contracted neck and containing a substance which will flow from one of said vessels to the other at a uniform rate secured upon the shaft in a position such that when the timepiece is at an angle to the vertical the trigger projects beneath the weight, a latch to hold the

timepiece at the angle to the vertical while the upper end is the heavier, an arm to rest upon the upper end of the timepiece while it is in said position and a weight to be fixed at various points upon said arm, substantially as shown and described.

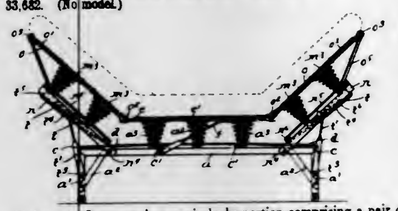
681,185. **TELEGRAPHER'S FINGER-GUARD.** IRA H. BLESSING, Albany, N. Y. Filed Nov. 14, 1900. Serial No. 36,431. (No model.)



Claim.—1. A finger-guard for telegraphers consisting of a body carried on the finger, a portion of said body projecting outwardly and arranged to lie on or overlap the telegraph-key in order that the downstroke of the key shall be made by the pressure of the projection on the key substantially as described.

2. As a new article of manufacture a finger-guard for telegraphers consisting of a body carried on the finger, a portion thereof projecting outwardly and arranged to overlap the telegraph-key substantially as described.

681,186. **COUCH.** WILLIAM S. BOWIE, Boston, Mass., assignor of one-half to George T. Horan, same place. Filed Oct. 20, 1900. Serial 33,682. (No model.)



Claim.—1. In a couch, a main body portion comprising a pair of longitudinal upright side frames bearing springs, cross-bars rigidly connecting said side frames together, longitudinal supporting-bars bearing springs connected at their ends to said cross-bars and means for stiffening the row of springs borne by each upright side frame consisting of a flat bar *e* passing beneath the uppermost convolution of each spring of the row and a flat bar *e'* located above all of the springs of the row and rigidly connected to said bar *e*, substantially as described.

2. In a couch, a main body portion comprising a pair of longitudinal upright side frames bearing springs, cross-bars rigidly connecting said side frames together, longitudinal supporting-bars bearing springs connected at their ends to said cross-bars and means for stiffening the row of springs borne by each upright side frame consisting of a flat bar *e* passing beneath the uppermost convolution of each spring of the row and a flat bar *e'* located above all of the springs of the row and rigidly connected to said bar *e*, and diagonal side bars *f* connecting the stiffening-bars *e*, *e'*, with the upright side frames, substantially as described.

3. In a couch, a frame bearing a number of rows of springs, pus stiffening-bars *e*, *e'* connecting the springs of each outside row together, said bar *e* passing beneath the uppermost convolution of each spring of the row, and said bar *e'* located above all of the springs of the row and rigidly connected to said bar *e*, and an end piece pivotally connected to said frame bearing a number of rows of springs, and stiffening-bars *o*, *o'* connecting the springs of each outside row together, said bar *o* passing beneath the uppermost convolution of each spring of the row, and said bar *o'* located above all the springs of the row and rigidly connected to the bar *o*, and said bar *o* being pivotally connected to the bar *e*, substantially as described.

4. In a couch, a main body portion bearing springs, an end piece pivotally connected thereto, a sliding frame bearing springs borne by said pivoted end piece, and means for moving said spring-bearing frame as the end piece bearing it is moved up and down, substantially as described.

5. In a couch, a main body bearing a number of rows of springs, stiffening-bars connecting the springs of the outside rows together, an end piece pivotally connected to said main body portion, a sliding frame carried by it bearing a number of rows of springs, stiffening-bars connecting the springs of the outside rows together, which are pivotally connected to the aforesaid stiffening-bars, substantially as described.

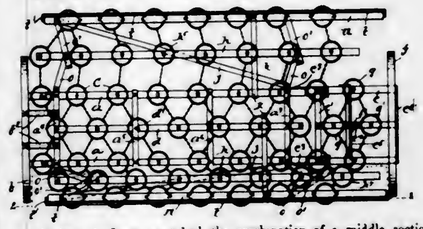
6. In a couch, a main body bearing a number of rows of springs, stiffening-bars connecting the springs of the outside rows together, and an end piece pivotally connected to said main body portion, a sliding frame carried by it bearing a number of rows of springs, stiffening-bars connecting the springs of the outside rows together, which are connected with the sliding frame and which are also pivotally connected to the aforesaid stiffening-bars, substantially as described.

7. In a couch, a main body portion, an end piece pivotally connected thereto having notched side bars, a bail-shaped locking device for holding said end piece in an inclined position, and a spring-acting tongue for holding said locking device in continuous engagement with said notched side bars provided with means for manipulating it, and having a bar f^4 overlying said locking device for removing it from engagement with the notches of said side bars, substantially as described.

8. A spring-bottom for furniture having a number of spiral springs, and a stiffening-bar for said springs consisting of a bar passing beneath the uppermost convolution of each spring of a row and another bar located above all of the springs of said row and rigidly connected to the aforesaid bar, substantially as described.

9. In a couch, a frame bearing a number of rows of springs, and stiffening-bars *e*, *e'*, connecting the springs of each outside row together, said bar *e* passing beneath the uppermost convolution of each spring of the row, and said bar *e'* located above all of the springs of the row and rigidly connected to said bar *e*, substantially as described.

681,187. **COUCH-BED.** WILLIAM S. BOWIE, Boston, Mass., assignor of one-half to George T. Horan, same place. Filed Oct. 29, 1900. Serial No. 34,776. (No model.)



Claim.—1. In a couch-bed, the combination of a middle section comprising rigidly-connected longitudinal upright frames bearing springs and having legs or supports, and a pair of longitudinal upright side frames disposed at each side of said middle section and loosely connected thereto, the frames of each pair being loosely connected together and the outside frame of each pair having legs or supports, substantially as described.

2. In a couch-bed, the combination of a middle section comprising rigidly-connected longitudinal upright frames bearing springs and having legs or supports, a spring-supporting frame located between said upright frames and rigidly secured thereto, and a pair of longitudinal upright spring-bearing side frames disposed at each side of said middle section and loosely connected thereto, the frames of each pair being loosely connected together, and the outside frame of each pair having legs or supports, substantially as described.

3. In a couch-bed, the combination of a middle section comprising longitudinal upright frames bearing springs and having legs or supports, cross-bars connecting said frames together, a longitudinal spring-supporting bar secured to said cross-bars between said upright frames, and a pair of longitudinal upright side frames bearing springs located at each side of said middle section and loosely connected to said middle section, the frames of each pair being loosely connected together and the outside frame of each pair having legs or supports, substantially as described.

4. In a couch-bed, the combination of a middle section comprising two longitudinal upright frames each composed of a top cord, a bottom cord, and upright end pieces which extend below the bottom cord and form legs, a row of springs secured to the top cord of each frame, a spring-supporting frame located between said upright frames and rigidly secured thereto, and a pair of longitudinal upright spring-bearing side frames located at each side of said middle section and loosely connected together, the frames of each pair being loosely connected together, substantially as described.

5. In a couch-bed, the combination of a middle section comprising longitudinal upright spring-bearing frames rigidly connected together, a spring-supporting frame located between said upright frames and rigidly secured thereto, and a pair of longitudinal upright spring-bearing side frames located at each side of said middle section and loosely connected thereto, the frames of each pair being loosely connected together, each spring-bearing side frame comprising a top cord and a bottom cord rigidly connected together, and springs secured to and projecting from said top cord, substantially as described.

6. In a couch-bed, the combination of a middle section comprising longitudinal upright spring-bearing frames rigidly connected together, a spring-supporting frame located between said upright frames and rigidly connected thereto, and a pair of longitudinal upright spring-bearing side frames located at each side of said middle section and loosely connected thereto, the frames of each pair being loosely connected together, each spring-bearing side frame comprising a top cord and a bottom cord rigidly connected together, springs secured to and projecting upwardly from said top cord, the outermost side frame of each pair having upright end pieces which extend below the bottom cord and form legs, substantially as described.

7. In a couch-bed, the combination of a middle section comprising a pair of longitudinal upright frames, each composed of a top cord, a bottom cord and upright braces joining said cords, a row of springs secured to the top cord of each upright frame, a spring-supporting frame located between said upright frames and rigidly secured thereto, head and foot pieces connected to the ends of said upright frames, and upright side frames at each side of said middle section loosely connected together and also loosely connected to said middle section and springs borne by them, substantially as described.

8. In a couch-bed, a middle section comprising longitudinal upright spring-bearing frames rigidly secured together, a pair of longitudinal upright spring-bearing side frames located at each side of and loosely connected to said middle section, and a guide-bar at each side of said middle section loosely connected at one end to said middle section and at the other end to the outermost side frame, substantially as described.

9. In a couch-bed, a middle section and extensible side sections, and a mattress made the full width of the extended bed, and means for holding down the sides of said mattress when the apparatus is closed up consisting of a longitudinal bar upturned at each end and pivotally connected to the opposite ends of the side sections, and means for locking said bar down, substantially as described.

10. In a couch-bed, a middle section, and extensible side sections, at opposite sides thereof, each having a bottom cord, a mattress made the full width of the extended bed, and a bail-shaped locking device at each side of the bed, pivoted to the side sections having straps attached to it provided with hooks which engage the bottom cord of the side section, substantially as described.

11. In a couch-bed, a middle section and extensible side sections, at opposite sides thereof, each having a bottom cord and a mattress made the full width of the extended bed, and means at each side of the bed for holding down the sides of said mattress when the apparatus is closed up consisting of a longitudinal bar upturned at each end and pivotally connected to the opposite ends of the side section and straps attached to said bar having hooks at their ends adapted to engage one of the cords of the side section to lock said bar down, substantially as described.

12. The main body portion having a pivoted headpiece provided with spiral springs *g*, *g*, and with notched side bars, the bail-shaped locking device for said pivoted headpiece, a connection between said locking device and spiral springs *g*, *g*, for holding the locking device in engagement with the notched side bars, and means for disengaging said locking device, substantially as described.

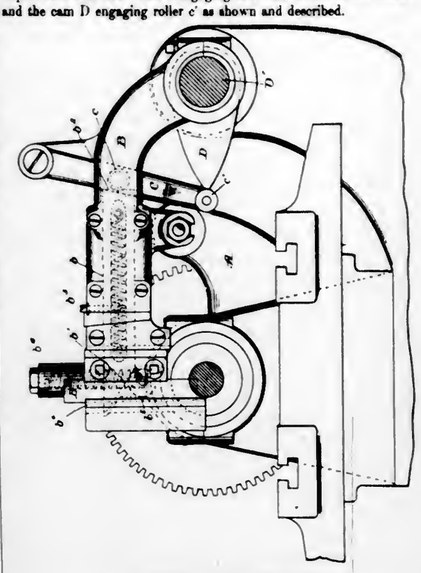
13. The main body portion having a pivoted headpiece provided with spiral springs *g*, *g*, and with notched side bars, the bail-shaped locking device including the cross-bar e^3, for said pivoted headpiece, a connection between said locking device and spiral springs *g*, *g*, for holding the locking device in engagement with the notched side bars, and a chain connecting said cross-bar e^3 with a cross-bar of the headpiece, substantially as described.

681,188. **ATTACHMENT FOR AUTOMATIC LATHES.** JOHN P. BROPHY, Cleveland, Ohio, assignor to the Cleveland Machine Screw Company, same place. Filed Aug. 2, 1900. Serial No. 25,647. (No model.)

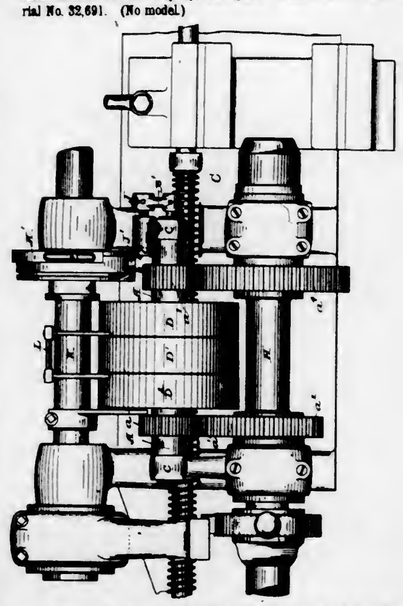
Claim.—1. In an attachment for automatic lathes, the combination of a stationary support, a reciprocable cutting-off tool mounted in said support, the direction of reciprocation being transverse relatively to the axis of rotation of the lathe head-stock, a reciprocable wedge adapted to engage said tool to effect one reciprocating stroke thereof, a spring for effecting the other stroke thereof, a cam for effecting one reciprocating stroke of the wedge and a spring for effecting the other stroke of said wedge.

2. In an attachment for automatic lathes, the combination of a stationary support, a reciprocable cutting-off tool mounted in said support, the direction of reciprocation being transverse relatively to the axis of rotation of the lathe head-stock, a reciprocating wedge located tranversely of and adapted to engage the said tool, a spring connected with the latter adapted to maintain such engagement, a second spring connected with said wedge to effect one reciprocal stroke thereof, a lever adapted to engage said wedge and to effect the other reciprocal stroke thereof, and a cam engaging said lever and adapted to oscillate same, whereby the reciprocation of said wedge and tool may be effected.

3. In an automatic lathe attachment, the combination of the support B, the spring-actuated bar B' provided with the wedge *b'*, the spring-actuated tool B^3 provided with the roller b^3 engaging said bar the lever C provided with the roller *c* engaging said bar, and with the roller *c'*, and the cam D engaging roller *c'* as shown and described.



681,189. **SPEED-CHANGING DEVICE FOR AUTOMATIC LATHES.** JOHN P. BROPHY, Cleveland, Ohio, assignor to the Cleveland Machine Screw Company, same place. Filed Oct. 11, 1900. Serial No. 32,691. (No model.)



Claim.—1. In an automatic lathe, a head-stock speed-changing device comprising in its construction the combination of a driving-spindle, driving-pulleys mounted so as to be coaxial with said spindle, two of such pulleys provided with connecting differential gearing, clutch mechanism, one member of such gearing being connected with one member of said

clutch mechanism, and means for throwing said clutch member into and out of engagement with the other whereby said differential gearing may be rendered operative or inoperative.

2. In an automatic lathe, a head-stock speed-changing device comprising in its construction, the combination of a hollow spindle, two clutch members mounted upon said spindle, one of which is rotatively fixed and the other of which when disengaged from the first, is capable of rotation on said spindle, two pulleys mounted upon the latter and connected with each other through the medium of differential gearing, one element of such gearing being secured to said rotatable clutch member, and means for connecting and disconnecting said clutch members, one pulley being fixed to and the other rotatable upon said spindle.

3. In an automatic lathe, a speed-changing device comprising in its construction a hollow driving-spindle, two clutch members mounted upon said spindle one of which is rotatively fixed but longitudinally movable and the other of which when disengaged from the first, is capable of rotation on said spindle, two pulleys mounted upon the latter and connected with each other through the medium of differential gearing, one element of such gearing being secured to said rotatable clutch member, a shifting rod in said spindle connected with said rotatively-fixed clutch member, and a rotatable cam-drum for engaging said rod, whereby the latter may be actuated to cause said clutch members to engage or disengage and the differential gearing rendered operative or inoperative.

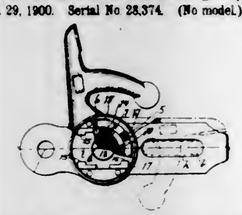
4. In an automatic lathe, the combination of a live-spindle, a driving-spindle, three pulleys mounted upon the latter, two of such pulleys connected with each other through the medium of speed-reducing means, and clutch mechanism for rendering such speed-reducing means operative or inoperative whereby one of such pulleys may be caused to drive said spindle direct or the other caused to drive the first through the medium of such gearing, such driving-spindle connected with said live-spindle by gearing, the third pulley being independent of the remaining two pulleys and connected with the said spindle by gearing.

5. In an automatic lathe, the combination of a live-spindle, a driving-spindle, three pulleys mounted upon the latter, a belt and driving means for driving said three pulleys in the same direction, two of the latter connected with each other through the medium of speed-reducing means, and clutch mechanism for rendering such speed-reducing means operative or inoperative whereby one of such pulleys may be caused to drive said spindle direct or the other caused to drive the first through the medium of such gearing, such driving-spindle being connected with said live-spindle by gearing, the third pulley being independent of the remaining two and connected with said live-spindle by gearing having a number of elements such as to produce a rotation of said live-spindle opposite that produced by said remaining two pulleys.

681,190. METHOD OF TREATING DISINTEGRATED SLATE MIXTURE FOR THE MANUFACTURE OF ARTICLES. WILLIAM C. BROUGHTON, Gloucester, England. Filed Mar. 3, 1900. Serial No. 7,235. (No specimens.)

Claim.—The improved process of treating powdered slate comprising the combination therewith of a disintegrated mixture of whiting and sand, and a suitable varnish, the whole being impregnated with steam and afterward pressed to the required shape and heated, substantially as described and for the purposes set forth.

681,191. SEAL-LOCK. HIRAM R. BROWER, Quaker Farms, Conn., assignor to Wood's Car Seal and Manufacturing Company, Chicago, Ill. Filed Aug. 29, 1900. Serial No. 28,374. (No model.)

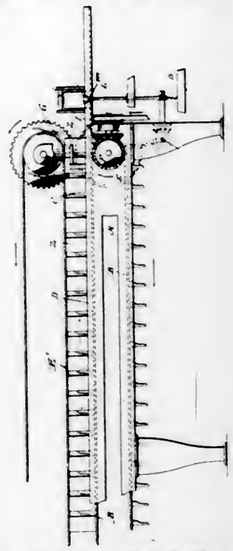


Claim.—1. The hook consisting of the socket-hub having the slot and the notch in the bottom, said notch in the bottom extended up the side of the socket, and the shank having the disk head adapted for connection with the hub by being inserted through the slot and notch and placed flatwise on the inside of the bottom of the hub with the shank extending through the notch in the side of the hub.

2. The combination of the hook consisting of the cup-shaped hub having the perforated slotted and notched bottom, the shank having the perforated disk head adapted for connection with the hub through said slotted and notched bottom, the pivot-stud and the hasp, said hub and shank secured in connection with each other by the pivot-stud attached to the hasp, and also secured to said hasp by said stud.

3. In a seal-lock of the character herein described, the combination with a hasp and a hook pivoted on said hasp, of a seal-holder in which the seal is not removable intact when the lock is shut, a seal-breaker and means operated by the hub of the hook to actuate said breaker by the opening of the hook and automatically break the seal prior to the release of the hasp, also means to prevent false engagement of the hook so as to open without breaking the seal, said latter means consisting of the notches or recesses in the bottom of the hook-socket intermediate of the ratchet-teeth of said bottom, and the notches in the flange of the cam-ring intermediate of the teeth of said ring, together with the notches and inclines on the upper side of the cam-ring, and adapted to permit opening the hook only when the notches or recesses in the bottom of the hook-socket register with the hooks of the cam-ring, and the notches of the cam-ring register with the hooks in the bottom of the hook-socket.

681,192. MARKING-MACHINE. LOUIS S. BURBANK, Worcester, Mass., assignor, by mesne assignments, to the Natural Food Company, Niagara Falls, N. Y. Filed Nov. 19, 1900. Serial No. 37,032. (No model.)



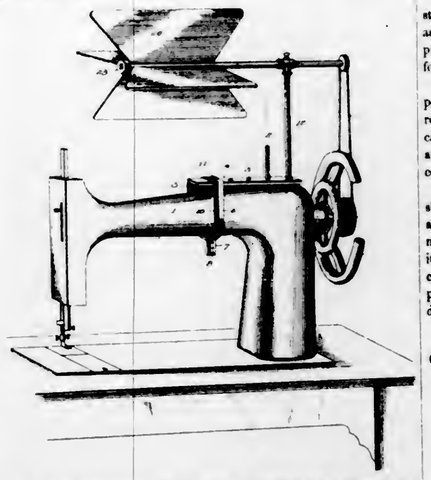
Claim.—1. The combination with the endless package-carrier and its edge fingers, of the bridge-board, the lateral friction device, the slotted slideway, and its marking device, the spring-retracted lever and the trip-gearing in connection therewith, and intermittently operated by the fingers of the endless package-carrier, substantially as specified.

2. In a marking-machine, the combination with the endless carrier and its fingers, of the trip-lever, its retracting-spring, and actuating mechanism for said trip-lever operated intermittently by said fingers, substantially as specified.

681,193. FAN ATTACHMENT FOR SEWING-MACHINES. NICHOLAS W. CRABB, Richmond, Va., assignor to the American Automatic Fan Company, same place. Filed Nov. 8, 1900. Serial No. 35,864. (No model.)

Claim.—1. The combination with a base-plate having a series of threaded apertures therein; of an adjustable clip for securing the base-plate upon a sewing-machine arm, means extending into one of said apertures for detachably securing the clip to the base-plate, a standard detachably secured within one of the apertures, a sleeve upon the standard, a tube slidably mounted within the sleeve, means for locking the tube in said sleeve, a rod revolnble within the tube, a pulley at one end of the rod, and a fan secured to the remaining end of said rod.

2. The combination with a base-plate having a series of threaded apertures therein; of an adjustable clip for securing the base-plate, means extending into one of the threaded apertures whereby the clip is detachably secured to the base-plate, a standard detachably secured within one of the apertures, a sleeve thereon, a tube adjustably secured within the sleeve, a rod revolnble therein, a pulley at one end of the rod, a hnb detachably secured to the remaining end of the rod, and fan-blades extending from said hub.

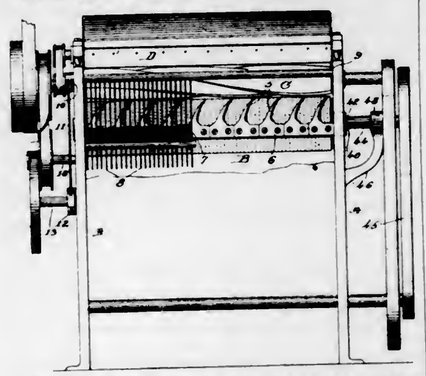


3. In an attachment of the character described, a fan comprising a nub having intersecting longitudinally-extending slots therein, interlocking fan-blades within the slots and extending therefrom, threads upon the slotted end of the hub, and a nut engaging the threads and adapted to bind said end together.

4. In an attachment of the character described, the combination with a standard; of a sleeve thereto, a tube adjustably secured within the sleeve, a rod revoluble within the tube, a pulley at one end of the rod, a hub adapted to be engaged at one end by the remaining end of the rod, said hub having longitudinally-extending intersecting slots therein, interlocking fan-blades within said slots and extending therefrom, threads upon the slotted end of the hub, and a nut engaging the threads and adapted to bind said end together and prevent displacement of the fan-blades.

5. A fan attachment for sewing-machines comprising a base-plate having an aperture therein adapted to receive the spool-spindle of the arm of a sewing-machine, a clip adapted to clasp said arm to secure the base-plate thereto, a standard upon the base-plate, a revolnble rod upon the standard and a fan secured to said rod.

681,194. ROLLER COTTON-GIN. DANIEL S. CHAPIN, Milford, Mass., assignor of one-half to Ephraim L. Wires, same place. Filed Aug. 13, 1900. Serial No. 26,675. (No model.)



Claim.—1. In a cotton-gin, a gin-roller, a coöperating rotary stripper having shoulders arranged on its periphery, a grid upon which the cotton is deposited and a series of vibrating curved fingers coöperating therewith to feed the cotton to the roll.

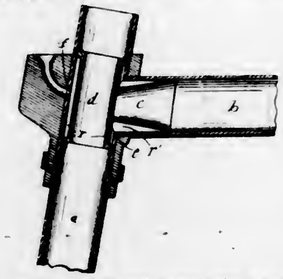
2. In a cotton-gin, a gin-roller having on its surface a series of points serving as fiber-catching means, a coöperating rotary stripper having spirally-arranged shoulders on its periphery, a grid and a series of vibrating curved fingers coöperating therewith to feed the cotton to the roll.

3. In a cotton-gin, a gin-roller, means to rotate the same, a rotary stripper coöperating therewith, a grid upon which the cotton is deposited as it is fed to the roller, a shaft supporting a series of curved fingers which project through said grid, and means operated directly by the stripper for oscillating the said fingers.

4. In a cotton-gin, a gin-roller having on its surface a plurality of points serving as fiber-catching means, and means to drive the roller, said roller being detachably connected to its driving-shaft, whereby the roller can be reversed, combined with a grid upon which the cotton is deposited, and a series of curved vibrating fingers coöperating therewith to feed the cotton to the roll.

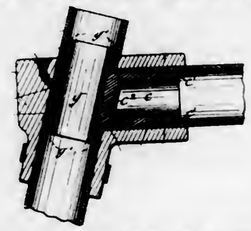
5. In a cotton-gin, a gin-roller having a series of points projecting slightly beyond its surface and serving as fiber-catching means, a coöperating stripper provided with spirally-arranged shoulders on its periphery, means to rotate the roller and stripper, the roller being detachable from its rotating means whereby it may be reversed, a grid upon which the cotton is deposited as it is fed to the gin, a series of curved fingers suspended above and projecting through said grid, and reducing-gearing driven directly by the stripper to vibrate said fingers.

681,195. METHOD OF UNITING TUBULAR METALLIC FRAMES. ERVING D. CLARK, Syracuse, N. Y. Filed Sept. 27, 1900. Serial No. 31,227. (No model.)



Claim.—The method of uniting metal tubes at an angle to each other by cutting in the side of one tube an aperture of the same diameter as the other tube, forming a core with a circumferential mold-cavity between its ends and inserting said core into the first tube, then inserting into the end of the other tube a core fitted with its inner end tightly to the tube and having its outer end protruding and of less diameter, then applying flux to said ends of the tube and core protruding therefrom and inserting said ends into the aforesaid aperture and abutting the end of the core against the recessed side of the other core, then cutting in the side of the first tube an orifice communicating with the mold-cavity in the inclosed core and then casting through said orifice molten metal as set forth.

681,196. TUBULAR METALLIC FRAME. ERVING D. CLARK, Syracuse, N. Y. Filed Nov. 5, 1900. Serial No. 35,459. (No model.)



Claim.—1. In a tubular metallic frame the combination of a tube disposed to extend laterally from the side of another tube and provided with a key-seat extending laterally from the interior of the tube and remote from the end thereof, and a core inserted in said tube and formed in one piece with a key anchored in the key-seat and with a brace tying the two tubes rigidly together.

2. In a tubular metallic frame, the combination of a tube disposed to extend laterally from the side of another tube and provided in its side with an orifice located remote from the end of the tube to form a positive lock, a tubular dam inserted in said lateral tube and extending beyond the aforesaid orifice and of smaller diameter to form around the said dam a

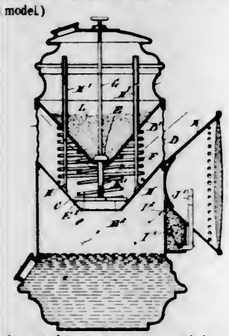
cavity extending lengthwise thereof, the outer end of said dam formed with a transverse wall closing the interior of the dam, and the inner end of said dam formed flaring to close the inner end of the aforesaid cavity, and a metallic core inserted into the said cavity and formed in one piece with a lug filling the orifice in the side of the tube and with a brace tying the tubes rigidly together.

3. In a tubular metallic frame, the combination of a tube disposed to extend laterally from the side of another tube and provided in its side with an orifice located remote from the end of the tube to form a positive lock, and a core in said lateral tube formed in one piece with a lug filling said orifice and with a sleeve on its outer end embracing the companion tubes as set forth.

4. In a tubular metallic frame, the combination of a tube disposed to extend laterally from the side of another tube, a tubular dam inserted in said lateral tube and of smaller diameter to form around said dam a cavity extending lengthwise thereof, the inner end of said dam formed flaring to close the cavity thereat and the outer end of the dam formed with a transverse wall closing the interior of the dam, and a core inserted into the aforesaid cavity and formed at its outer end with a transverse extension tying the tubes rigidly together.

5. In a tubular metallic frame, the combination of a tube disposed to extend radially from the side of another tube and provided with an orifice in its side, and two cores formed in one piece and inserted into the respective tubes and one of said cores formed with an integral lug filling the aforesaid orifice as set forth.

681,197. **ACETYLENE-GAS LAMP.** WILLIAM F. COOPER, Meriden, Conn. Filed Oct. 27, 1898. Renewed Jan. 21, 1901. Serial No. 44,157. (No model.)



Claim.—1. An acetylene-gas generator consisting of two main parts, the lower one of which forms the water-reservoir and the upper one of which forms the carbid-holder, and a flexible-fabric connection between the sides of the two, forming an expansive gas-chamber.

2. An acetylene-gas generator, comprising a water-reservoir in the base, a carbid-holder in the top, a flexible-fabric connection between the two, forming an expansive gas-chamber, and a tension-spring between the water-reservoir and carbid-holder acting to compress or reduce the gas-chamber.

3. An acetylene-gas generator having a water-reservoir in the base, a carbid-holder in the top, a flexible-fabric connection between the two, forming an expansive gas-chamber, a spring acting to compress or reduce the gas-chamber, and means by which the compression of the gas-chamber causes the feeding of a fresh supply of carbid.

4. An acetylene-gas generator having a water-reservoir in its base, a carbid-holder in its top, a valve in the latter adapted to discharge the carbid into the water, and an annular conical flange in the water-reservoir above the water-level and projecting downwardly, whereby splashing of water upon the carbid-holder or the feeding mechanism is prevented.

5. In an acetylene-gas generator having a carbid holding and feeding mechanism located in the top of the water-reservoir, a protector consisting of a conical flange attached to the side walls of the water-reservoir and extending downwardly, the point of the cone being open and the whole being above the water.

6. An acetylene-gas generator having a water-reservoir in its base, a carbid-holder in its top, a flexible-fabric connection between the two forming an expansible and compressible gas-chamber, a spring acting to compress this chamber, and a valve in the bottom of the carbid-holder adapted to be engaged and raised by the compression of the gas-chamber and thus to furnish a new charge of carbid.

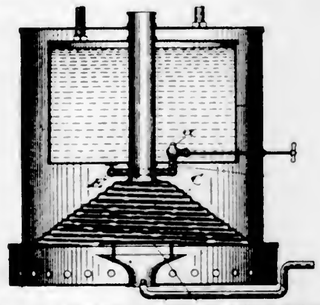
7. An acetylene-gas generator having a water-reservoir in its base, a carbid-holder in its top, a flexible-fabric connection between the two forming an expansible and compressible gas-chamber, a spring acting to compress this chamber, a valve in the bottom of the carbid-holder adapted to be engaged and raised by the compression of the gas-chamber and thus to furnish a new charge of carbid, and a spring of less force than the other spring acting upon said valve, to close it.

8. An acetylene-gas generator having a water-reservoir in its base, a carbid-holder in its top, a flexible-fabric connection between the two, forming an expansible and compressible gas-chamber, a spring acting to compress this chamber, a valve in the bottom of the carbid-holder adapted to be engaged and raised by the compression of the gas-chamber and thus to furnish a new charge of carbid, and an adjustable rod passing into the carbid-holder and adapted to be engaged with the valve, to lock it.

9. An acetylene-gas generator having a water-reservoir in its base, a carbid-holder in its top, a flexible-fabric connection between the two, forming an expansible and compressible gas-chamber, guides connecting the carbid-holder and water-reservoir, a spring acting to compress the gas-chamber, a valve in the bottom of the carbid-holder adapted to be engaged and raised by the compression of the gas-chamber and thus to furnish a new charge of carbid, and a spring of less force than the other spring and acting upon said valve to close it.

10. An acetylene-gas generator constructed in sections separated one from the other and one of which forms the water-reservoir and the other the carbid-holder, and a flexible-fabric connection between the two forming an expansive gas-chamber.

681,198. **FLASH-BOILER.** WILLARD H. COUN, Toronto, Canada, assignor to George F. Atwood, West Chazey, N. Y., and Elmar A. Messenger, Boston, Mass. Filed Sept. 22, 1900. Serial No. 30,799. (No model.)



Claim.—1. In a boiler the combination of a shell; an inclined heating-plate connected with the shell; a flue connected with the upper part of said inclined heating-plate and leading the products of combustion or waste heat therefrom; a water-tank having an outlet through which small quantities of water may be permitted to drop on the heating-plate; and means for highly heating the said plate, substantially as and for the purpose specified.

2. In a boiler the combination of a shell; an inclined horizontally-corrugated heating-plate connected with the shell; a flue connected with the upper part of said inclined heating-plate and leading the products of combustion or waste heat therefrom; a water-tank having an outlet through which small quantities of water may be permitted to drop on the heating-plate; and means for highly heating the said plate, substantially as and for the purpose specified.

3. In a boiler the combination of a shell; a flue; an inclined heating-plate shaped as the frustum of a cone and connected with the shell and with the flue; a water-tank situated within the boiler and having an outlet through which small quantities of water may be permitted to drop on the heating-plate; and means for highly heating the said plate, substantially as and for the purpose specified.

4. In a boiler the combination of a shell; an inclined horizontally-corrugated heating-plate shaped as the frustum of a cone and connected with the shell; a flue connected with the upper part of said inclined heating-plate and leading the products of combustion or waste heat therefrom; a water-tank having an outlet through which small quantities of water may be permitted to drop on the heating-plate; and means for highly heating the said plate, substantially as and for the purpose specified.

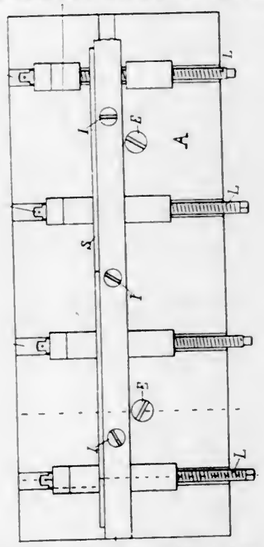
5. In a boiler the combination of a shell; an inclined heating-plate shaped as the frustum of a cone and connected with the shell; a flue connected with the upper part of said inclined heating-plate and leading the products of combustion or waste heat therefrom; helical corrugations being formed in the heating-plate to form one or more water-channels; a water-tank having an outlet through which small quantities of water may be permitted to drop on the heating-plate; and means for highly heating the said plate, substantially as and for the purpose specified.

6. In a boiler the combination of a shell; a flue; an inclined heating-plate shaped as the frustum of a cone and connected with the shell and with the flue; a water-tank situated within said boiler; and a perforated ring located over the upper part of the heating-plate and connected with the water-tank, substantially as and for the purpose specified.

7. In a boiler the combination of a shell; a flue; a heating-plate connected with the shell and the flue; a water-tank within the boiler surrounding the flue and provided with an outlet through which small quantities of water may be permitted to drop on the heating-plate; and means for highly heating the said plate, substantially as and for the purpose specified.

8. In a boiler the combination of a shell; a flue; a heating-plate connected with the shell and the flue; and shaped as the frustum of a cone; a water-tank within the boiler surrounding the flue; a perforated ring located over the upper part of the heating-plate and connected with the water-tank; and means for highly heating the said plate, substantially as and for the purpose specified.

681,199. **WORK-HOLDER.** MERRILL C. CRANE, New Bedford, Mass. Filed Aug. 11, 1900. Serial No. 26,633. (No model.)



Claim.—1. In a work-holder, the combination, with a T-piece having opposite work-engaging surfaces, of a platen having transverse slots; oppositely-disposed jaws movable in the slots; and clamping-screws to operate the jaws.

2. In a work-holder, the combination, with a platen having a longitudinal slot, of a T-piece secured therein; a series of transverse slots extending upon opposite sides of said T-piece; oppositely-disposed clamping-jaws mounted in the transverse slots; and means for operating the said clamping-jaws.

3. In a work-holder, the combination, with a platen, of a fixed longitudinal T-piece, having opposite work-engaging surfaces; oppositely-disposed clamping-jaws, mounted for transverse movement; and means for operating the said clamping-jaws.

4. In a work-holder, the combination, with a platen, of a fixed longitudinal strip having oppositely-disposed work-holding surfaces; a series of duplex opposing clamps, in position and adapted to be simultaneously impinged against either or both of the said surfaces, or interposed work; and means for operating the said clamps.

5. In a work-holder, the combination, with a platen having a fixed longitudinal strip, provided with oppositely-disposed work-engaging surfaces; of duplex opposing clamps mounted in transverse slots in the platen; and means for impinging the clamps against work placed against either or both of said work-supporting surfaces of the strip.

6. In a work-holder, the combination, of a platen having a longitudinal T-slot; a longitudinal strip having oppositely-disposed work-holding surfaces, secured to the said platen; cross T-slots in the platen at right angles to said strip; duplex, oppositely-disposed clamping members in each cross-slot; and a clamping-screw for drawing the said clamping members together.

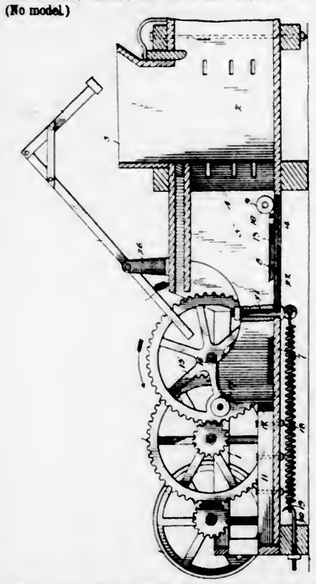
7. In a work-holder, the combination, with a platen, of a longitudinal strip, having opposite, parallel, work-engaging surfaces; and transverse clamps supported in position, and adapted to simultaneously impinge work against both sides of said strip.

8. In a work-holder, the combination, with a platen, of a longitudinal strip, having opposite work-engaging surfaces; duplex, oppositely-disposed clamping-jaws, supported in position and adapted for transverse movement; and clamping-screws for simultaneously impinging said jaws against the opposite sides of said strip, or work interposed at one or both sides thereof.

9. In a work-holder, the combination, with a platen having a central strip embodying opposite work-engaging surfaces, of a series of independent duplex clamps, mounted for transverse movement upon opposite sides of said work-engaging surfaces; and means for closing the said duplex clamps.

10. In a work-holder, the combination, with a platen having a series of cross-slots, of a series of duplex, opposing, clamps, mounted in the said slots for free transverse movement independent of the closing means; clamping-screws for closing the clamps, and a fixed longitudinal strip, having opposite work-engaging surfaces, intermediate the opposing members of the said duplex clamps.

681,200. **BALING-PRESS.** LABAN H. CULBERTSON and WILLIAM KIRKPATRICK, Dexter, Mo. Filed Mar. 27, 1901. Serial No. 53,111. (No model.)

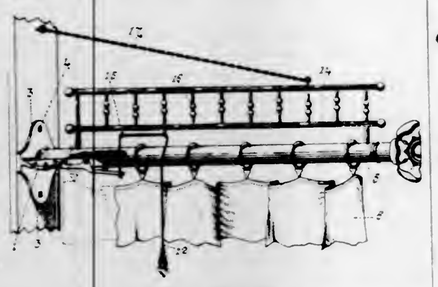


Claim.—In a baling-press, the combination with the floor of the frame thereof, which is provided with a longitudinal slot, of a plunger, having a plunger-rod slidably mounted upon the floor and over the slot therein, a headed projection carried by the plunger-rod and working in the slot in the floor, the head of the projection lying at the under side of the floor and forming a stop for engagement therewith to prevent upward displacement of the plunger-rod, and a rebounding-spring connected at opposite ends to the headed projection and a part of the frame, the spring also lying below the floor.

681,201. **CURTAIN-FIXTURE.** GEORGIANNA E. CURTIS, Auburn, N. Y. Filed May 9, 1901. Serial No. 59,532. (No model.)

Claim.—In a curtain-fixture the pole 5, having on its inner end a pivot-bolt, on its outer end a half ornament, on its upper side a grille-bar having screw-eyes on the under side thereof, on its under side near the inner end a mortise having a locking-bolt, a hole 13, a cord passing from said locking-bolt through said hole and said screw-eyes of said grille-bar, and a guy chain or cord between the jamb of the opening and the grille-bar, combined with a notched plate 1, having flanges 3, 3, constructed

substantially in the manner and for the purpose herein shown and described.



681,202. TELESCOPIC MOUNTING FOR GUNS. HENRY L. DE ZENG, Jr., Buffalo, N. Y., assignor to Cataract Tool and Optical Company, same place. Filed Dec. 15, 1900. Serial No. 40,044. (No model.)



Claim.—1. The combination with a gun-telescope, of a carriage capable of horizontal transverse adjustment on the gun, and a support which receives the telescope and which is connected by a vertical pivot with said carriage, substantially as set forth.

2. The combination with a gun-telescope, of a carriage capable of horizontal transverse adjustment on the gun and also of a rotary adjustment in a vertical plane fore and aft of the gun, and a support which receives the telescope and which is connected by a vertical pivot with said carriage, so that the telescope can be turned in a horizontal plane, substantially as set forth.

3. The combination with a gun and a telescope, of a bracket secured to the gun and provided with a cylindrical shank which projects horizontal laterally from the gun, a tubular carriage which is capable of sliding lengthwise and also turning fore and aft thereon, and a collar which supports the telescope and which is connected with the carriage by a vertical pivot, substantially as set forth.

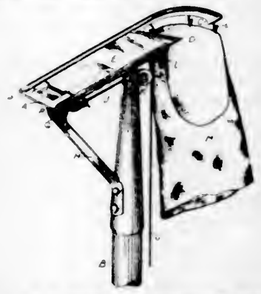
4 The combination with a gun and a telescope, of a bracket secured to the gun and provided with a cylindrical shank which projects horizontal laterally from the gun, a tubular carriage which is capable of sliding lengthwise on said shank and also turning fore and aft thereon, a supporting-collar which receives the telescope and a vertical pivot-screw which is arranged on the supporting-collar and which engages with a screw-threaded opening in said carriage, substantially as set forth.

5. The combination with a gun and a telescope, of a bracket secured to the gun and provided with a cylindrical shank which projects horizontal laterally from the gun, a tubular carriage which is capable of sliding lengthwise on said shank and also turning fore and aft thereon, an adjusting-screw whereby the carriage is moved lengthwise on the shank, and a supporting-collar which receives the telescope and which is connected with the carriage by a vertical pivot, substantially as set forth.

6. The combination with a gun and a telescope, of a bracket secured to the gun and provided with a cylindrical shank which projects horizontal laterally from the gun, a tubular carriage which is capable of sliding lengthwise on said shank and also turning fore and aft thereon, a supporting-collar which receives the telescope and which is connected by a vertical pivot with the carriage, an adjusting-screw working in a threaded opening in the shank and provided with a head which engages with an inwardly-facing shoulder on the carriage, and a finger-piece bearing against the outer end of the carriage and secured to the head of the adjusting-screw, substantially as set forth.

7. The combination with a gun and a telescope, of a supporting-collar which receives the rear part of the telescope and which is provided with a depending cylindrical shank, a supporting-sleeve in which said shank is capable of sliding vertically and turning horizontally, a supporting-plate carrying the supporting-sleeve and connected with the gun by a horizontal pivot, a supporting-collar which receives the front part of the telescope, a carriage which is connected with said front supporting-collar by a vertical pivot, and a bracket upon which said carriage is capable of sliding horizontally toward and from the gun and also turning fore and aft of the gun, substantially as set forth.

681,203. FRUIT-GATHERER. CHARLES J. EDDY, Seattle, Wash. Filed Nov. 27, 1899. Serial No. 738,437. (No model.)



Claim.—1. In an implement of the character described, the combination with a handle or staff, and a headpiece arranged directly transverse to said handle and having a projecting hooked end with a cutting edge therein: of a spring and cord actuated blade sliding transversely to said handle in guideways formed on said headpiece, substantially as set forth.

2. In an implement of the character described, the combination with a handle or staff B, and a headpiece A arranged directly transverse to said handle and having a projecting hooked end with a cutting edge C therein; of a blade E sliding transversely to said handle in guideways P formed on said headpiece, a spring H and a line or cord J for operating said blade.

681,204. COMBINED WAGON BOX AND RACK. ROBERT B ELLIOTT, Sugarridge, Ohio. Filed Sept. 24, 1900. Serial No. 30,953. (No model.)



Claim.—In the herein-described wagon-body, a bed, a series of cross-pieces secured upon the under side thereof and having mitered ends, sides hinged to said bed and adapted to swing outwardly, standards secured to the sides having mitered lower ends to contact the mitered outer ends of the cross-pieces when the sides are extended, and flanges or braces carried by the said lower ends of the standards adapted to contact the lower sides of the cross-pieces when the sides are extended.

681,205. CAN-OPENER. CHARLES FARRELL, Cairo, Ill. Filed Apr. 2, 1901. Serial No. 54,054. (No model.)



Claim.—In a can-opener, the combination with a table or like support, of a spring-pressed plunger extending through the top of the table and having its upper end curved downward, a treadle below the table with which the plunger is connected, and a circular cutter beveled to form a puncturing-point and inclined cutting edges, and having diametrically opposite openings, and adjusting means for said cutter comprising a bolt extending through said openings, and a nut on the threaded end of the bolt, the bolt-head bearing against one side of the cutter and the nut against the opposite side thereof.

681,206. COMB. IRVING E. FOLTZ, Rockford, Ill. Filed July 19, 1900. Serial No. 24,162. (No model.)



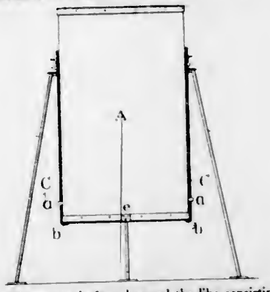
Claim.—The combination with a comb, of a hair guard and burnisher comprising a channeled body portion adapted to receive the back of the comb lengthwise therein, the longitudinal edges of said body portion being curved and disposed upon opposite sides of the comb so as to overhang the teeth thereof at the base.

681,207. TRANSOM LIFTER AND LOCK. JACOB FOSTER, Altoona, Pa. Filed May 4, 1901. Serial No. 58,693. (No model.)



Claim.—A transom lifter and lock comprising a vertically-sliding hand-rod having reduced portions and having its upper end bent at right angles to its stem, a bell-crank lever fulcrumed to the stile of the door with its arms directed upward and the outer one pivotally secured to the upper end of the hand-rod, a transom-rod having its outer end lapped over the upper end of the inner arm of the bell-crank lever and its inner end bent at right angles to its stem and formed with a collar, a screw-eye on the bent portion, fastenings to hold these parts in pivotal connection, a fastening-bolt to pivotally secure the lapped joints together, and a holding and locking bracket for the hand-rod formed with a keyhole-slot through which the hand-rod passes and with which the reduced portions thereof engage to lock the device, substantially as specified.

681,208. ASH-CAN. ROBERT FRANK, Newport, R. I. Filed Jan. 11, 1897. Serial No. 618,891. (No model.)

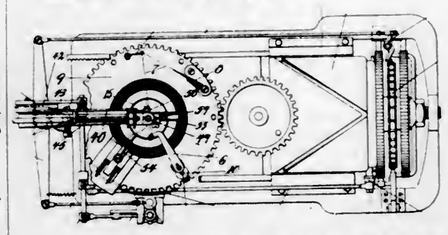


Claim.—1. A receptacle for ashes and the like consisting in a cylinder having a bottom hinged thereto, and means for locking said bottom in place, said means consisting of a latch located on the outside of said receptacle, and means whereby said latch may be operated located near the top of said receptacle, whereby said receptacle is rendered capable of being inclosed in a bag, the bottom of said bag covering the bottom of said receptacle and said latch may then be operated from near the top of said receptacle to deposit the contents of said receptacle in said bag, as described.

2. A garbage-can having a hinged bottom and means for locking said bottom in place, said means consisting in a latch located on the outside thereof and means whereby said latch may be operated located near the top of said can, in combination with a stand, said can being provided with means for supporting it upon said stand above the level of the floor, whereby a bag may be slipped under said can, attached to said stand and the contents of said can then be dumped into said bag, as and for the purposes described.

3. A refuse-can having hinged flaps closing its lower end, and provided with one or more latches therefor, each latch consisting of a rod extending from the bottom to a point near the top of said can, its lower end forming a latch and its upper end a supporting arm and handle, whereby said latch may be operated and said can may be lifted and supported, all as set forth.

681,209. KNITTING-MACHINE. EMIL J. FRANCK, Collingdale, Pa. Filed Oct. 16, 1900. Serial No. 33,409. (No model.)



Claim.—1. A knitting-machine provided with a carrier for an extra thread and with truly-circular paths or guides for constraining this carrier to lay its thread clear of the needles and for causing it to lay its thread onto some of the needles, substantially as described.

2. In a knitting-machine a carrier for an extra thread pivoted to a revolving part of the machine, and eccentric and concentric truly-circular guides for turning said carrier on said pivot to position it, substantially as described.

3. In a knitting-machine an extra thread-carrier pivoted to a rotating part of the machine, a bobbin and its thread-guide applied to said moving part, a crank-arm connected with the carrier and provided with a roller, eccentric and concentric truly-circular paths or guides, and means for shifting the roller from guide to guide, substantially as described.

4. In a knitting-machine the combination of a needle-cylinder, a rotating part, a thread-guide pivoted to the moving part, two guides of which each is truly circular and of which one is eccentric and the other concentric in respect to the needle-cylinder, a crank-arm connected with the pivot of the carrier, and means for causing said crank-arm to travel on one or the other of the guides, substantially as described.

5. In a knitting-machine a thread-carrier pivoted to a rotating part, two truly-circular paths or guides arranged eccentrically in respect to each other, a crank-arm connected with the carrier and provided with a roller adapted to travel on each of said paths or guides, a shipper adapted to position said roller, and means for moving the shipper, substantially as described.

6. In a knitting-machine the combination of take-up mechanism, extra-thread mechanism comprising a thread-carrier pivoted to a rotating part of the machine and paths or guides for positioning the carrier, and means for bringing one of said mechanisms into and throwing the other out of action, substantially as described.

7. In a knitting-machine nested tubes movable in respect to each other and of which one is flattened to provide a thread-space between the tubes and of which one is longitudinally slotted for the passage of a thread, substantially as described.

8. In a knitting-machine the combination of nested tubes movable in respect to each other and having a space between them and of which one is longitudinally slotted with a knife arranged to traverse the space between the tubes, substantially as described.

9. In a knitting-machine the combination of nested tubes having a space between them through which a thread may pass, a knife arranged to traverse said space, and a thread-holding device arranged to coöperate with the knife in cutting and holding a thread, substantially as described.

10. In a knitting-machine nested tubes having a thread-space between them, a knife working in said space, a thread-holding device coöperating with the knife, and a tappet rod and arm for operating the knife, substantially as described.

11. In a knitting-machine nested tubes having a thread-space between them and of which one is slotted longitudinally and movable, a knife arranged to work in the space between the tubes, a thread-holding device coöperating with the knife, a tappet-rod for the knife, and a take-up arm provided with a tappet-arm and connected with the movable tube, substantially as described.

12. In a knitting-machine a part adapted to rotate around the needles, a thread-carrier connected with said part, and means comprising two truly-circular guides arranged eccentrically in respect to each other for positioning the thread-carrier to cause it to lay its thread clear of the needles or onto some of them, substantially as described.

13. In a knitting-machine nested tubes through one of which the main thread may pass and between which the extra thread may be accommodated, and means for adjusting said tubes to separate said threads or permit them to travel together, substantially as described.

681,210. DRAFT OR BUFFING RIGGING. RICHARD D. GALLAGHER, Jr., New York, N. Y., assignor to Standard Coupler Company, same place. Original application filed Apr. 8, 1901, Serial No. 54,900. Divided and this application filed July 1, 1901. Serial No. 66,727. (No model.)



Claim.—1. In an apparatus of the character specified, the combination of the following instrumentalities, to wit; a pressure-transmitting member, an incline moving therewith, a wedge-block adapted to be displaced transversely by said incline, a follower coöperating with the wedge-block and adapted to be displaced thereby in a direction opposite to the direction of movement of the pressure-transmitting member and a spring for resisting the movement of the follower, as set forth.

2. In an apparatus of the character specified, the combination of the following instrumentalities, to wit: a spring, a follower working against said spring, an incline moving with said follower, a transversely-movable wedge-block coöperating with the incline to displace the follower against the tension of the spring, a transverse guide for the wedge-block, a pressure-transmitting member movable in line with the line of spring compression and an incline moved by the pressure-transmitting member and coöperating with the wedge-block to displace the same transversely; substantially as described.

3. In an apparatus of the character specified, the combination with followers, stops for holding said followers against outward movement while permitting them to move inwardly, and a spring confined between said followers, of an incline moving with one of said followers, a transversely-displaceable wedge-block coöperating with said incline, a pressure-transmitting member and an incline moving therewith and coöperating with the wedge-block to displace the same transversely against the tension of the spring exerted through the follower and incline moving therewith; substantially as described.

4. In a draft-rigging the combination with the followers having inclines on their outer sides, a spring confined between the followers and transversely-movable wedge-blocks coöperating with said inclines, of a pressure-transmitting member, inclines moving therewith and coöperating with the wedge-blocks, and guides with which the wedge-blocks coöperate in their transverse movement; substantially as described.

5. In a draft-rigging, the combination with the followers having inclines on their outer sides, a spring confined between the followers, and transversely-movable wedge-blocks coöperating with said inclines, of a pressure-transmitting member, inclines moving therewith and coöperating with the wedge-blocks and guides formed by inwardly-movable cross-plates with which the wedge-blocks coöperate in their transverse movement; substantially as described.

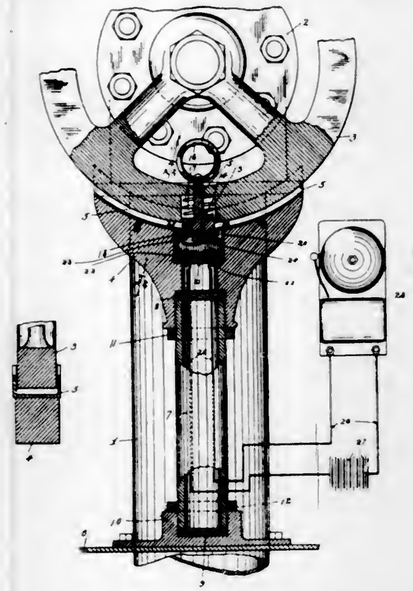
6. In a draft-rigging, the combination with the spring, the longitudinally-movable follower against which the spring abuts, an incline on said follower, and a pressure-transmitting member movable longitudinally or in the direction of movement of the follower and having an incline at an angle to the incline on the follower, of a transversely-movable wedge-block interposed between said inclines whereby the longitudinal movement of said pressure-transmitting member or follower will impart an opposite movement to the other member; substantially as described.

7. In a draft-rigging, the combination with the oppositely-located followers, the spring interposed between said followers, and the inclines on the outer sides of said followers, of the wedge-blocks coöperating with said inclines, the inwardly-movable cross-plates against which said blocks work, the pressure-transmitting member inclosing said followers, spring and cross plates and inclines on said pressure-transmitting member coöperating with the wedge-blocks; substantially as described.

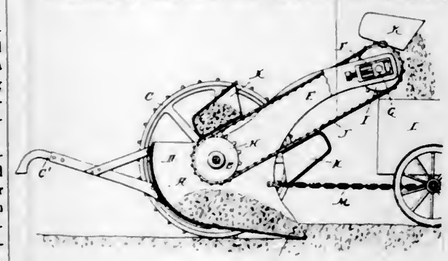
681,211. ELECTRIC DETECTOR FOR VALVES. CHARLES B. GARRETT, Minneapolis, Minn., assignor of one-half to Martin Dyke, same place. Filed Mar 20, 1900. Serial No. 9,369. (No model.)

Claim.—1. The combination with a hand-wheel for moving a valve, and an adjacent relatively-fixed support, of a spring-pressed and finger-released lock for locking said hand-wheel to said support, an electric alarm or enunciator having circuit connections to a pair of electrodes or contacts adapted to make and break the circuit, one of which electrodes is normally held in one of its extreme positions and is released by the releasing movement of said lock to actuate said alarm, substantially as described.

2. The combination with the hand-wheel 3 actuating a valve and provided with the recess 13, of the spring-pressed lock-plunger working in said recess 13 and provided with a projecting finger-piece, the head or support 4 having the recess 20 and flanged segmental upper surface 5, a recess in said section 5 normally receiving said lock-plunger 14, and the electrical alarm or enunciator comprising the electrodes 23 and 24, the latter having or being subject to a projection 25 which is pressed by the said lock 14, said parts operating substantially as described.



681,212. CART SHOVEL AND SCRAPER. ADAM GEHRINGER, Philadelphia, Pa. Filed Dec. 27, 1900. Serial No. 41,253. (No model.)

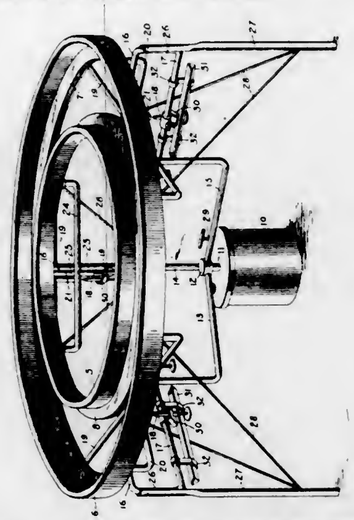


Claim.—1. In an apparatus of the character described, two traction-wheels secured to a common axle, a shovel or scraper pivoted upon said axle, sprocket-wheels secured upon said axle, an extension extending upward and forward from the sides of the shovel or scraper, sprocket-wheels journaled in the forward end of said extension, continuous link-belts adapted to pass around the first and last named sprocket-wheels, buckets adapted to be carried by said link-belts, a vehicle adapted to be secured to said shovel, the rear end of said vehicle adapted to lie beneath the end of the forwardly-extending extension, handles secured to the rear end of the shovel, substantially as and for the purpose specified.

2. In combination, a cart shovel and scraper, two traction-wheels C, a shaft B, the ends of which are secured to the traction-wheels, a shovel or scraper A, the sides D of which are pivoted between the two wheels and upon the shaft B, two sprocket-wheels H journaled upon the shaft B between the two sides of the scraper, an extension E extending upward and forward from the sides E, two sprocket-wheels I journaled in the forward ends of said extension, an endless belt J adapted to pass over the sprocket-wheels H and I, buckets secured to and adapted to travel with the belt J, a cart adapted to be secured to the shovel and furnish power for the same, and also to furnish a receptacle into which the material excavated is adapted to be deposited, handles secured to the rear end of the shovel for the purpose of guiding the same, substantially as described and for the purpose specified.

3. In a scraping or excavating device, a pair of traction-wheels, an axle, upon the ends of which the said traction-wheels are secured, a shovel or scoop pivoted between said traction-wheels upon the axle thereof, said scoop consisting of a nose which is adapted to scrape or dig into the earth, said nose being flared on each side so as to operate in front of the traction-wheels, the rear end of the scoop being formed concentric with the axle, an elevating apparatus adapted to be driven by the traction-wheels for the purpose of removing the earth or other material accumulated in the scoop and depositing it in a suitable receptacle adapted to travel in front of the apparatus, and handles secured to the rear end of the scoop for the purpose of guiding and regulating the depth of the cut, substantially as described and for the purpose specified.

681,213. TIRE-HEATER. SILAS GLEASEN, Fort Collins, Colo. Filed Nov. 6, 1900. Serial No. 35,656. (No model.)



Claim.—1. A device of the class described comprising concentric annular burners disposed to discharge toward each other, fuel-supply pipes disposed to bridge the interval between the burners to receive a tire, gas-supply pipes connected with the burners, and mixers carried by the gas-supply pipes and disposed to receive from the fuel-pipes, said fuel-pipes being adapted to receive the flames from the burners.

2. A device of the class described comprising concentric annular burners disposed to discharge toward each other and separated by an interspace, mixers connected with the burners, and fuel-supply pipes leading to the mixers, said supply-pipes being disposed to bridge the interspace between the burners to support a tire in position to deflect the flames from the burners to the pipes.

3. A device of the class described comprising concentric annular burners separated by an interspace, a reservoir, fuel-supply pipes leading from the reservoir and disposed against the under sides of the burners and bridging the interspace to form supports for a tire, valves for the pipes, and gas-feed pipes connected with the burners and having depending mixing-pipes disposed to receive gas from the valves.

4. A device of the class described comprising hollow rings disposed concentrically in a common horizontal plane, said rings having flanges at their lower edges through which are formed discharge-openings, a reservoir, pipes leading from the reservoir and arranged to support the rings, said pipes being disposed to bridge the interspace between the rings to form a support to sustain a tire between the rings, supporting-legs connected with said pipes, and gas-supply pipes connected with the rings and having mixing-tubes, the first-named pipes having valves disposed to discharge to the mixing-pipes.

681,214. PEDAL. CHARLES GLOVER, New Britain, Conn. Filed Aug. 16, 1899. Serial No. 727,463. (No model.)



Claim.—1. In a pedal whose tread is supported wholly at one end, means for attaching the tread to the supporting member, comprising a plurality of projections, some of which act as rivets, the others being bent to approximately a right angle and acting as braces.

2. In a pedal, a tread, a supporting member therefor, means for attaching the tread thereto comprising a series of projections integral with the tread and entering and secured in openings in the supporting member, and means for bracing said tread comprising a second series of projections also integral with the tread but having lines of separation therefrom, said series bearing against the supporting member below the first series of projections.

3. In a pedal in combination, a supporting member having a flange part way around its periphery and holes formed as regular intervals through the flange, a tread, a series of projections integral with the inner end thereof entering the holes in the flange and fastened thereto, and a second series of projections formed integrally on the tread and having lines of separation therefrom, said second series acting as braces for the tread.

4. In a tread for pedals, a supporting-strip formed integrally therewith extending between the side plates, a slot through one of the side plates in line with the supporting-strip and in the plane of the top thereof, and a slot through the supporting-strip, substantially as described

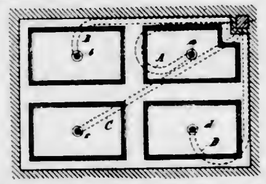
5. In a pedal, a tread of curved cross-section formed from sheet metal, and having a supporting-strip offset above the bottom of the tread and arranged crosswise thereof, and slotted to permit of adjustably securing the toe-clip thereto.

6. In a pedal in combination, a supporting member, and a tread having two or more series of projections at its inner end and integral therewith, one series forming the connecting means between the tread and the supporting member and the other series acting directly as braces.

7. In a pedal, a supporting member having a series of transverse openings, combined with a sheet-metal tread having a series of projections within the plane of its body secured in said openings, and a second series of projections respectively interposed between the projections of the first series and standing out of the plane of said body so as to act as braces to maintain the relative position of the two members.

8. In a pedal, a supporting member having a series of transverse openings, combined with a transversely-curved sheet-metal tread having a series of projections within the plane of its body secured in said openings, and a second series of projections standing out of the plane of said body and in contact with only the outer face of the supporting member so as to act as braces to maintain the relative position of the two members.

681,215. APPARATUS FOR EQUALIZING AIR-CURRENTS. RICHARD GOLL, Frankfort-on-the-Main, Germany. Filed Dec. 29, 1897. Serial No. 664,360. (No model.)



Claim.—The combination with a chamber having a suitable outlet through which air is to be passed from the chamber, of a plurality of passages from points at different distances from the outlet, the passages from points nearer the outlet being bent to a greater or less extent to increase their length to equal that of the passage from the most distant point to the outlet, the latter passage being substantially straight.

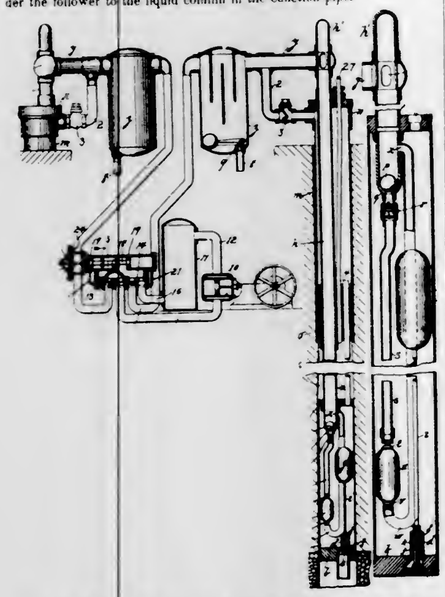
681,216. PNEUMATIC LIQUID-RAISING APPARATUS. EDWARD GRAY, Bradford, Pa., assignor of one-half to Philo C. Blaisdell, same place. Filed Mar. 23, 1900. Serial No. 9,854. (No model.)

Claim.—1. In a fluid-raising apparatus, the combination of a receiver for limited charges of the liquid to be raised, means for automatically controlling the supply of said charges, an eduction-pipe, means for successively expelling the liquid charges therethrough by compressed air acting under the liquid in said eduction-pipe, and a follower in said pipe between the air column and the liquid column.

2. In a fluid-raising apparatus, the combination of a receiver for the liquid to be raised, means for supplying the liquid thereto in limited charges, means for automatically controlling the supply of said charges, an eduction-pipe, means for successively expelling the liquid charges therethrough by compressed air acting under the liquid in said eduction-pipe, and a follower in said pipe between the air column and the liquid column.

3. In fluid-raising apparatus, the combination of a receiver for the

liquid to be raised, means for supplying the liquid thereto in limited charges, an eduction-pipe for the liquid, a follower therein, means for transferring the liquid from the receiver into the eduction-pipe above the follower by pneumatic pressure, and means for applying pneumatic ejecting force under the follower to the liquid column in the eduction-pipe.



4. In fluid-raising apparatus, the combination of a receiver for the liquid to be raised, means for supplying the liquid thereto in limited quantities, an eduction-pipe, means for successively expelling the liquid charges therethrough by pneumatic pressure applied under the liquid column, part of which means comprises a pneumatic chamber in connection with the service of compressed air and affording ejecting force by expansive action of its contents after the supply is shut off, and a follower in said eduction-pipe between the air column and the liquid column.

5. In fluid-raising apparatus, the combination of a receiver for limited charges of the liquid to be raised, means for supplying the liquid thereto in limited quantities, an eduction-pipe, means for successively expelling the liquid charges therethrough by pneumatic pressure applied under the liquid column, part of which means comprises a pneumatic chamber in connection with the main source of compressed air and affording ejecting force by expansive action of its contents after the supply of air is shut off, a compressor for supplying the pneumatic pressure, means for automatically connecting the eduction-exhaust with the suction side of the compressor when the supply is shut off, and the follower between the air column and the liquid column in the ejector-pipe.

6. In fluid-raising apparatus, the combination in each of a plurality of wells or other sources of the liquid to be raised, of a receiver for limited charges of the liquid to be raised, an eduction-pipe, means for successively expelling the liquid charges therethrough by pneumatic pressure acting under the liquid in said pipes to be ejected, a part of which means comprises a pneumatic chamber in connection with the main source of supply of compressed air and affording the ejecting force by expansive action of its contents after the supply of air is shut off, a follower between the air column and the liquid column in the eduction-pipe, a compressor supplying pneumatic pressure, alike to the plurality of wells or sources, and a controlling-valve for the apparatus of said wells, automatically actuated by air of the charging-supply when maximum pressure is reached to shut off such supply, and open the exhaust of the supplied well or wells and admit the supply and close the exhaust of the other well or wells alternately.

7. In fluid-raising apparatus, the combination of a receiver for the liquid to be raised, means for supplying the liquid thereto in limited charges, an eduction-pipe for the liquid, a follower therein, means for transferring the liquid into the eduction-pipe above the follower by pneumatic pressure, means for applying pneumatic ejecting force under the follower to the liquid column in the eduction-pipe, said means consisting of a compressor, an expansion-chamber, a connection between said compressor and expansion-chamber, with a receiving and separating chamber in said connection, and with a check-valve in the connection between the receiving and separating chamber and the expansion-chamber.

8. In fluid-raising apparatus, the combination of a receiver for the liquid to be raised, means for supplying the liquid thereto in limited charges, an eduction-pipe for the liquid, a follower therein, and means for transferring the liquid into the eduction-pipe above the follower and for applying pneumatic ejecting force under the follower to the liquid column in the eduction-pipe, said means consisting of the pipe in the receiving-chamber connected into the eduction-pipe above the follower and having the upturned lower end, the extension of the eduction-pipe below the follower and the duplex float-valve intermediate of the open ends of the said extension and pipe, said receiver being subject to pneumatic compression and suction alternately.

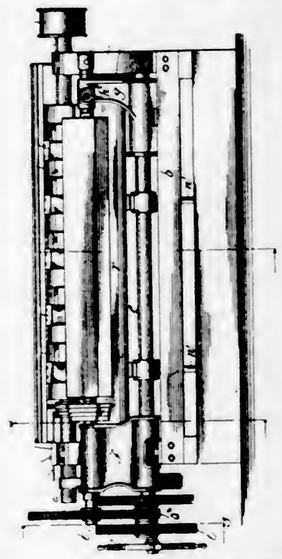
9. The combination with the eduction-pipe, the follower in said pipe, seat for the follower, and the extension of the pipe below the seat, of the check-valve under the seat to retain a cushion for the follower above the seat.

681,217. BASE FOR STANDING LAMPS. WILLIAM E. HAWKINS, New York, N. Y. Filed Dec. 13, 1900. Serial No. 39,726. (No model.)



Claim.—A base for standing lamps consisting as herein described of an integral casting having a body with downwardly-projecting marginal flanges, a hollow horizontal rib extending from one of the side flanges to the center, a hollow vertical boss connected therewith, forming a continuous passage-way through such horizontal rib and to the top of such hollow boss, screw-threads tapped in the outer end of the horizontal passage-way and the upper end of the vertical boss for couplings of the supply-pipe and burner-stand respectively.

681,218. MACHINE FOR CUTTING CROSS-TIES. CONSTANTINE A. HEGE, Salem, N. C. Filed Dec. 18, 1900. Serial No. 40,270. (No model.)



Claim.—1. In a cross-tie-cutting machine, the combination with a series of cutters revolving in fixed relation to their axis of rotation and having their cutting edges a uniform radial distance from such axis, of a log-carrier movable toward and from the cutters, means for rotating the log carried thereby when in operative juxtaposition to the cutters, whereby the entire series of cutters acts uniformly upon the sides of the log throughout its length, a series of formers determining the size or cross-section to which the logs are to be cut, and means whereby either of the formers may be thrown into active operation to cause the log to be cut to the corresponding cross-section.

2. In a cross-tie-cutting machine, the combination with a series of cutters revolving in fixed relation to their axis of rotation and having their

cutting edges a uniform radial distance from such axis, of a swinging counterbalanced log-carrier having chucks to receive and hold a log, manually-operated mechanism for swinging the log-carrier toward and from the cutters, means for rotating the log mounted in the log-carrier when in operative juxtaposition to the cutters whereby the entire series of cutters acts uniformly upon the sides of the log throughout its length, a series of formers determining the size or cross-section to which the logs are to be cut, and means whereby either of the formers may be thrown into active operation to cause the log to be cut to a corresponding cross-section.

3. In a cross-tie-cutting machine, the combination with a series of cutters revolving in fixed relation to their axis of rotation and having their cutting edges a uniform radial distance from such axis, of a log-carrier movable toward and from the cutters, chucks on the log-carrier to receive and hold a log, means whereby the chucks are rotated when the log is in operative juxtaposition to the cutters, whereby the entire series of cutters acts uniformly upon the sides of the log throughout its length, a series of formers determining the size or cross-section to which the log is to be cut and mounted axially in line with the axis of said chucks to rotate therewith, and means whereby either of the formers may be thrown into active operation to cause the log to be cut to the corresponding cross-section.

4. In a cross-tie-cutting machine, the combination with a series of cutters revolving in fixed relation to their axis of rotation and having their cutting edges a uniform radial distance from such axis, of a log-carrier movable toward and from the cutters and comprising a tail-stock with its chuck, a head-stock, its rotating spindle and chuck, means for rotating said spindle when the log is in operative juxtaposition to the cutters, whereby the entire series of cutters acts uniformly upon the sides of the log throughout its length, a series of formers mounted upon and rotating with said spindle and determining the size and cross-section to which the logs are to be cut, an abutment-ring rotatable on the cutter-shaft, and means whereby said ring and either of the formers are brought opposite each other to thereby cause the log to be cut to the cross-section corresponding to said former.

5. In a cross-tie-cutting machine, the combination with a series of cutters revolving in fixed relation to their axis of rotation and having their cutting edges a uniform radial distance from such axis, a swinging counterbalanced log-carrier and mechanism manually operated to swing it toward and from the cutters, its tail-stock with its chuck, a head-stock, its rotating spindle and chuck, means for rotating said spindle when the log is in operative juxtaposition to the cutters, whereby the entire series of cutters acts uniformly upon the sides of the log throughout its length, a series of formers mounted upon and rotating with said spindle and determining the size or cross-section to which the logs are to be cut, an abutment-ring rotatable on the cutter-shaft, and means whereby said ring and either of the formers are brought opposite each other to thereby cause the log to be cut to the cross-section corresponding to said former.

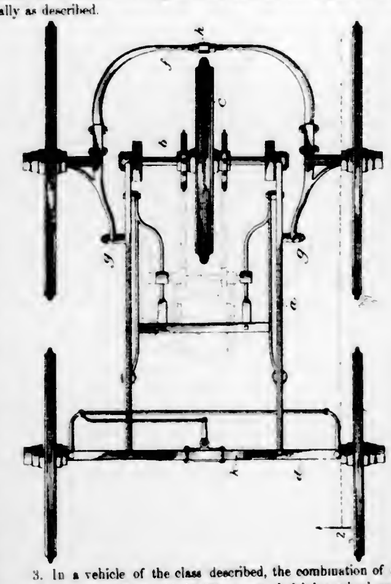
6. In a cross-tie-cutting machine, the combination with a series of cutters revolving in fixed relation to their axis of rotation and having their cutting edges a uniform radial distance from such axis, of a log-carrier movable toward and from the cutters and comprising a tail-stock with its chuck, a head-stock, its rotating spindle and chuck, means for rotating said spindle when the log is in operative juxtaposition to the cutters, whereby the entire series of cutters acts uniformly upon the sides of the log throughout its length, a series of formers mounted upon and rotating with said spindle and determining the size or cross-section to which the logs are to be cut, an abutment-ring rotatable on the cutter-shaft and movable longitudinally thereon, and means for moving the ring opposite either of the formers to thereby cause the log to be cut to a cross-section corresponding to said former.

7. In a cross-tie-cutting machine, the combination of a series of rotating cutters, and the swinging log-carrier comprising a rock-shaft, a head-stock at one end thereof, a tail-stock at the other end thereof, a key fitted in the shaft and having beveled outer edges, a slot in the hub of the tail-stock greater in width than said key and set-screws angularly arranged and passing through the hub of the tail-stock and bearing on the beveled edges of the key.

681,219. MOTOR-VEHICLE. BORN C. HICKS, Chicago, Ill., assignor to the Hicks Motor Cycle Company, same place. Filed Oct. 22, 1900. Serial No. 33,934. (No model.)

Claim.—1. In a vehicle of the class described, the combination of a main frame, a central driving-wheel pivotally mounted therein, a front axle carrying steering-wheels secured to the front portion of the frame, and a two-part axle carrying two side supporting-wheels outside of the central driving-wheel and pivotally secured to the main frame at a point forward of the axis of the driving-wheel, substantially as described.

2. In a vehicle of the class described, the combination of a main frame, a driving-axle provided with a central driving-wheel rotatably mounted at or near the rear portion of the main frame, a front axle carrying supporting guiding-wheels secured to the main frame at or near the front portion, a two-part axle pivotally secured to the main frame at a point forward of the driving-axle and provided with two side supporting-wheels mounted in alinement with and outside of the central driving-wheel, and a union connecting the two-part rear axle together, substantially as described.



3. In a vehicle of the class described, the combination of a main frame, a driving-axle provided with a central driving-wheel rotatably mounted in the main frame at or near the rear portion, a front axle secured to the main frame at or near the front portion and provided with two supporting guiding-wheels, a two-part rear axle pivotally secured together and subtantially U-shaped in plan view pivotally secured to the main frame at a point forward of the driving-axle and provided with two side supporting-wheels outside of and substantially in alinement with the central driving-wheel, substantially as described.

4. In a vehicle of the class described, the combination of a main frame, a driving-axle provided with a central driving-wheel rotatably mounted in the main frame at or near the rear portion, a front axle secured to the main frame and provided with two supporting steering-wheels, a two-part U-shaped rear axle pivotally secured together and to the main frame at a point forward of the driving-axle, the axis of the two-part axle being in the same vertical plane in alinement with and above the axis of the driving-axle and provided with two outside supporting-wheels, substantially as described.

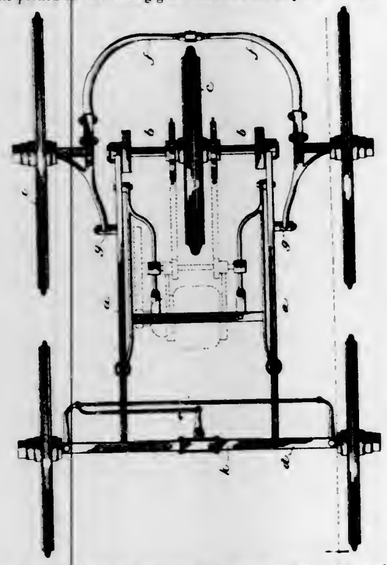
5. In a vehicle of the class described, the combination of a main frame, a driving-axle provided with a single central driving-wheel rotatably mounted in the main frame at or near the rear portion, a front axle provided with steering-wheels secured to the main frame at or near the front portion, a substantially U-shaped rear axle pivotally secured to the main frame at a point forward of the driving-axle, a wagon-body, and side supporting-springs for the wagon-body longitudinally arranged and adjustably mounted upon the side portions of the U-shaped supporting rear axle, substantially as described.

6. In a vehicle of the class described, the combination of a running-gear, two side supporting elliptical springs adjustably mounted upon such running-gear, a wagon-body, and links pivotally connected to the upper portion of the side supporting-springs and the wagon-body to pivotally and yieldingly hold such body in position, and means for adjusting the springs forward and backward, substantially as described.

7. In a vehicle of the class described, the combination of a main frame carrying the traction-wheel, a substantially U-shaped rear supporting-axle pivotally secured to the main frame, an elliptical spring mounted at each side and upon the side portions of the U-shaped rear axle, a wagon-body, and links pivotally connecting the upper portion of the side springs and the lower portion of the body together, substantially as described.

681,220. MOTOR-VEHICLE. BORN C. HICKS, Chicago, Ill., assignor to the Hicks Motor Cycle Company, same place. Filed Oct. 22, 1900. Serial No. 33,935. (No model.)

Claim.—1. In a vehicle of the class described, a running-gear frame comprising two pivotally-connected independently-movable portions, a body portion supported thereon made in two parts, one part forming the seat proper and the other the bottom portion and each being independently and yieldingly mounted at one end upon a different independently-movable portion of the running-gear frame, substantially as described.



2. In a vehicle of the class described, the combination of a running-gear frame comprising two independently-movable portions, a body portion formed in two parts, one the seat part and the other a bottom part, and spring mechanism independently and yieldingly supporting the two parts each upon a different independently-movable portion of the running-gear frame, substantially as described.

3. In a vehicle of the class described, the combination of a running-gear, a body portion made in two parts—a seat part and a bottom portion inclosed in and by the seat part, spring mechanisms independently and yieldingly supporting the two parts of the body portion upon the running-gear, and antifriction roller or ball mechanism between the two parts of the body portion to minimize the development of frictional force, substantially as described.

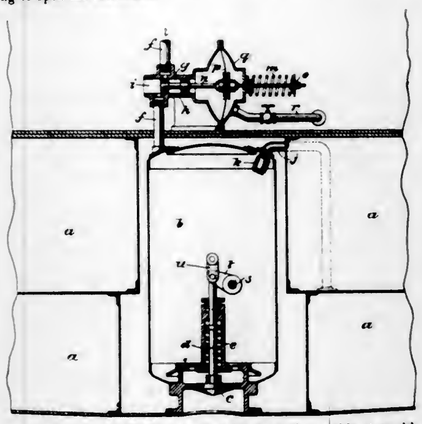
4. In a vehicle of the class described, the combination of a running-gear composed of a main frame carrying a central traction-wheel and supporting steering-wheels, a supplementary frame carrying rear supporting-wheels pivotally secured to the main frame, a body portion formed in two parts—one a bottom portion yieldingly supported upon the main frame, and the other containing the seat proper inclosing the bottom portion and yieldingly supported upon the supplementary frame, substantially as described.

5. In a vehicle of the class described, the combination of a running-gear formed of a main frame carrying a central traction driving-wheel and a front steering-wheel, a supplementary frame pivotally secured to the main frame and carrying the rear side supporting-wheels, and a body portion made in two parts, one a seat portion yieldingly supported upon the supplementary frame and the other a bottom portion made in two parts inclosed by the seat portion and spanning the central driving-wheel yieldingly supported upon the main frame, substantially as described.

6. In a vehicle of the class described, the combination of a running-gear formed of a main frame carrying a central traction driving-wheel and a front steering-wheel, a supplementary frame pivotally secured to the main frame and carrying the rear side supporting-wheels, a body portion made in two parts—one a seat portion yieldingly supported upon the supplementary frame and the other a bottom portion made in two parts inclosed by the seat portion and spanning the central driving-wheel yieldingly supported upon the main frame, and antifriction-bearings interposed between the two parts of the body portion, substantially as described.

681,221. SUBMARINE BOAT. JOHN P. HOLLAND, Newark, N. J., assignor to Electric Boat Company, of New Jersey. Filed Sept. 27, 1900. Serial No. 31,221. (No model.)

Claim.—1. In a submarine or submergeable boat, the combination with a water-ballast tank having a valve-controlled outlet to the water of submergence, and an inlet for a compressed aeriform fluid, of a valve controlling said fluid-inlet, a spring tending to close said fluid-valve, and a diaphragm, open to pressure from the water of submergence and tending to open the fluid-valve.



2. In a submarine or submergeable boat, the combination with a tight water-ballast tank having a valve-controlled outlet to the water of submergence, and an inlet for a compressed aeriform fluid, of a valve-chamber *h* open at *i* to the interior of the boat, and connected at opposite sides with the fluid-inlet, a balanced valve *g* in said chamber, its stem *n*, a spring *m*, tending to hold the valve *g* closed, the casing *q*, open to the water of submergence, and the diaphragm *p*, operating said valve in said casing.

3. In a submarine or submergeable boat, the combination with the main water-ballast tanks, of the tank *b*, a pipe controlled by a check-valve and connecting the tank *b* with a main tank for filling the former, a valve *c* in the bottom of the tank *b*, and open to the water of submergence, and means, automatically controlled by the pressure of the water of submergence, for forcing the water from the tank *b* at a predetermined depth of submergence.

4. In a submarine or submergeable boat, the combination with a water-ballast tank having a valve-controlled outlet to the water of submergence, said valve opening from pressure within said tank, of means for opening said valve by hand, and automatic means, controlled by the pressure of the water of submergence for admitting an aeriform fluid to said tank for expelling the contained water.

5. In a submarine or submergeable boat, the combination with a water-ballast tank having a valve-controlled outlet to the water of submergence, said valve opening outwardly, of automatic means, controlled by the pressure of the water of submergence for admitting an aeriform fluid to said tank for expelling the contained water.

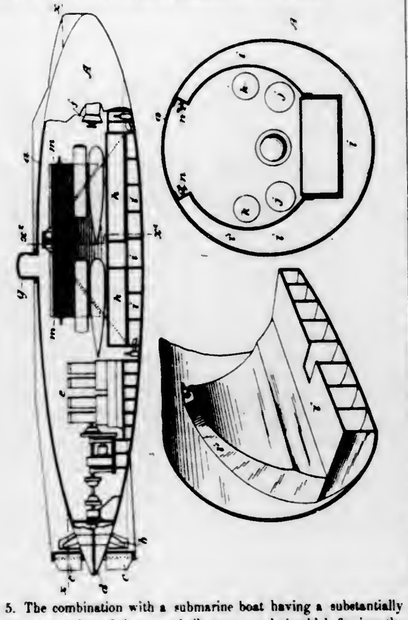
681,222. SUBMARINE VESSEL. JOHN P. HOLLAND, Newark, N. J., assignor to Electric Boat Company, of New Jersey. Filed Oct. 3, 1900. Serial No. 31,875. (No model.)

Claim.—1. A submarine vessel having its storage batteries or accumulators, water-ballast tank or receptacle, air-tanks, spare torpedoes, and their compensation-tanks grouped symmetrically together in the central section of the vessel, the ballast-tank normally closed to the water of flotation, wholly below the water-line, and extending under the accumulators and up along either side of the boat, substantially as and for the purpose specified.

2. A submarine vessel having a water-ballast receptacle which is of a horseshoe shape in cross-section and fitting into the body of the boat at the central section thereof, said tank being closed normally against the water of flotation and having air-cocks at its most elevated portions, substantially as and for the purpose set forth.

3. A submarine vessel having a horseshoe-shaped water-ballast receptacle *i*, the upwardly-extending portions of which are tapered upward and at its fore and aft ends, and provided with air-cocks at its most elevated portions, substantially as set forth.

4. The combination with a submarine boat having a substantially circular cross-section at its central part, of a water-ballast receptacle *i*, which fits into said boat and is of horseshoe shape in cross-section, the accumulators *h*, between the said upright portions *i'* of said ballast-receptacle, and the air-tanks and compensation-tanks mounted adjacent to said portions *i'* of the ballast-receptacle, substantially as set forth.



5. The combination with a submarine boat having a substantially circular cross-section, of the water-ballast receptacle *i*, which fits into the boat and is of horseshoe shape in cross-section with its fore and aft ends tapered upward, and the tanks *m*, at the sides of the boat and adjacent to the respective tapered ends of the said ballast-receptacle, substantially as set forth.

681,223. LOCK FOR ADJUSTABLE BACK-FRAMES OF ACCOUNT-BOOKS, LEDGERS, &c. ANDREW D. HULQUEST, Chicago, Ill. Filed May 9, 1901. Serial No. 59,388. (No model.)



Claim.—1. The combination in expansible back-frames for books with the transversely-adjustable parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates and projecting toward the other, a bolt secured to the opposite plate and movable longitudinally in said casing, and a gravity-operated device in said casing for engaging and locking said bolt.

2. The combination in expansible back-frames for books with the transversely-adjustable parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates and projecting toward the other, a bolt secured to the opposite plate, and an unattached confined gravity-operated device in said casing for engaging and locking said bolt.

3. The combination in expansible back-frames for books with the transversely-adjustable parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates, a bolt, secured to the opposite plate and movable longitudinally in said casing, and an obliquely-movable gravity-operated device in said casing for engaging and locking said bolt.

4. The combination in expansible back-frames for books with the transversely-adjustable parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates, a bolt secured to the opposite plate and movable longitudinally in said casing, and an obliquely-movable and unattached confined gravity-operated device in said casing for engaging and locking said bolt.

5. The combination in books having expansible back-frames with the transversely-adjustabe parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates a bolt having one of its sides serrated which is secured to the opposite plate and is movable longitudinally in said casing, and a gravity-operated device provided with serrations which is movably confined in said casing and adapted to engage said bolt as and for the purpose set forth.

6. The combination in books having expansible back-frames with parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates, a bolt secured to the opposite plate and having one of its sides serrated and movable longitudinally in said casing, of a gravity-operated device having serrations and movably confined in said casing in a plane oblique to that of said bolt, which it is adapted to engage, as and for the purpose set forth.

7. The combination in books having expansible back-frames with the parallel plates to which the rear edges of the respective covers are connected, and which are adjustable to the same transverse plane, of a casing attached to one of said plates having a longitudinal guideway therein, and having a guideway arranged in an oblique plane to and communicating with said longitudinal guideway, a bolt secured to the opposite plate and movable in the longitudinal guideway of said casing, and a gravity-operated device movable freely in said oblique guideway and adapted to engage said bolt, as and for the purpose set forth.

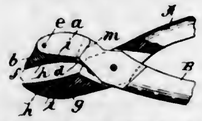
8. The combination in books having expansible back-frames with parallel plates to which the rear edges of the covers are respectively connected, of a case attached to one of said plates, and having a longitudinal guideway therein, an oblique guideway communicating therewith, a bolt secured to the opposite plate and movable in said longitudinal guideway, a gravity-operated device movable lengthwise in said oblique guideway, and a set-screw tapped into said oblique guideway and adapted to engage said gravity-operated device, as and for the purpose set forth.

9. The combination in books having expansible back-frames with the parallel plates to which the rear edges of the covers are respectively connected, of a casing attached to one of said plates, a bolt secured to the opposite plate having a stop-lug projecting from its free end which enters a restricted opening in said casing and is movable longitudinally in the same, and a gravity-operated device in said casing for engaging said bolt, as and for the purpose set forth.

10. The combination in books having expansible back-frames, with the parallel plates to which the rear edges of the covers are respectively connected, and which are adjustable in the same transverse plane, of a casing attached to one of said plates having a longitudinal guideway the opening of which at the end of the casing adjacent to the opposite plate is less in dimension than the portion within said casing, and having an oblique guideway communicating with said longitudinal guideway, a bolt secured to the opposite plate and entering said casing through said restricted opening, and having its side adjacent to said oblique guideway serrated and having its free end provided with a lateral stop-lug, and a freely-movable gravity-operated dog reciprocal in said oblique guideway and having serrations which are adapted to engage the serrations of said bolt, as and for the purpose set forth.

11. The combination with books having expansible back-frames, with the parallel plates to which the rear edges of the covers are respectively connected, and which are adjustable in the same transverse plane, of a casing attached to one of said plates having a longitudinal guideway the opening of which at the end of the casing adjacent to the opposite plate is less in dimension than the portion within said casing, and having an oblique guideway communicating with said longitudinal guideway, a bolt secured to the opposite plate and entering said casing through said restricted opening, and having its side serrated and having its free end provided with a lateral stop-lug, a freely-operated dog reciprocal in said oblique guideway and having serrations which are adapted to engage the serrations of said bolt, and a set-screw tapped into said casing and adapted to engage said dog, as and for the purpose set forth.

681,224. DENTAL FORCEPS. ABRAM H. JACOB, Larned, Kans. Filed Apr. 22, 1901. Serial No. 56,927. (No model.)



Claim.—1. An improved dental forceps having an adjustable beak with a longitudinal slot in its outer edge, the jaw end of the corresponding member of the instrument fitting within the said slot, a pivotal pin passing through the parallel portions of the beak and the outer end of the said jaw end, substantially as described.

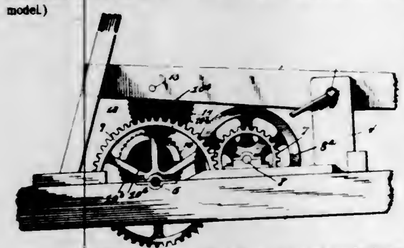
2. An improved dental forceps comprising a member thereof hav-

ing a jaw end, a separate beak intermediately pivoted to the outer end of the said jaw end of the member, the inner end of the pivoted beak and the said jaw end having engaging shoulders for the purpose of limiting the movement of the adjustable beak, substantially as described.

3. A dental forceps having the jaw or beak end thereof provided with a rubber cushion stopping at a point inside of their extremities, substantially as described.

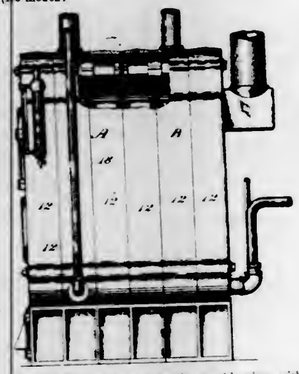
4. An improved dental forceps comprising a member thereof provided with a jaw end having a reduced portion *a* constituting shoulders *m*, and an adjustable beak pivoted near its outer end to the outer end of the portion *a*, the inner end of the adjustable beak adapted to engage the said shoulders for the purpose of limiting the movement of the beak, substantially as described.

681,225. GEARING FOR WELL-DRILLING APPARATUS. JOHN H. JAMISON, Woonsocket, S. D. Filed Jan. 3, 1900. Serial No. 736. (No model.)



Claim.—The combination of a base-frame, a pair of standards supported on the base-frame, a pin extending across the standards, a walking-beam mounted on the pin, a driving-shaft mounted in bearings on the base-frame beneath the rear end of the walking-beam, a driven shaft also mounted in bearings on the base-frame between the standards and the driving-shaft, a large gear-wheel mounted on the driving-shaft, a pinion mounted on the driven shaft, a balance-wheel also mounted on the driven shaft, the roller-pin secured to the rear end of the walking-beam over the driving-shaft, and a pair of combined friction and positive gear cylindrical rollers mounted on the driving-shaft and roller-pin respectively and adjustable with relation to each other to adjust the movement of the walking-beam, each of said rollers being formed integral with a plain disk, with a projecting rim mounted close to the driving-shaft and roller-pin respectively, with shouldered flanges having frictional peripheries, and with depressed teeth between the offset flanges.

681,226. COMBINED STEAM AND HOT-WATER HEATER. FRANK J. JOHNSON, Hartford, Conn. Filed Apr. 20, 1901. Serial No. 56,726. (No model.)



Claim.—1. In a heating apparatus, the combination, with a boiler, of closed nipples for dividing said boiler into sections, one of said sections to be utilized for generating steam for a steam-heating system, and the other of said sections as a means for supplying hot water to a hot-water heating system.

2. The combination, with a boiler composed of separate sections, of closed nipples for dividing said sections so that one part of the boiler may be utilized as a steam-heater and the other part of said boiler as a hot-water heater.

3. In an apparatus of the class specified, the combination, with a boiler composed of sections or manifolds, of means for uniting said manifolds; and closed push-nipples for separating a part of said manifolds from another part thereof.

4. The combination, with a boiler composed of tubular sections or manifolds, each of said manifolds having a series of openings, of means for connecting one manifold with another manifold, to permit a circulation of the heating agent; and closed push-nipples for dividing off one set of manifolds from another set, whereby the boiler is separated into sections, one of which may be employed as a steam-heater and the other as a hot-water heater.

5. The combination, with a boiler composed of manifolds perforated at different points to permit a circulation of the heating agent, of open nipples inserted in said perforation; and means located between two opposing open nipples for dividing said boiler into sections, whereby one part of the boiler may be utilized as a steam-heater and the other part thereof as a hot-water heater.

6. The combination, with a boiler composed of sets of manifolds, of means for uniting said manifolds; means for connecting the manifolds to afford a circulation of the heating agent; and closed nipples for dividing one set of manifolds from another set, so that the sections of the boiler may be utilized for different purposes.

7. The combination, with a boiler composed of sections, of closed nipples for uniting said sections; means for separating one section from another section, and supply and return pipes connected with each section.

8. The combination, with a boiler composed of tubular manifolds, of a set of nipples for connecting these manifolds at different points; and a set of "blind" nipples for dividing the boiler into sections, one section to be employed as a hot-water heater and the other section as a steam-heater; and supply and return pipes for both sections.

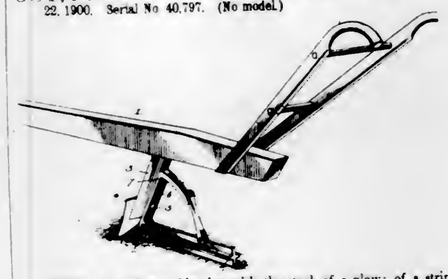
9. The combination, with a boiler composed of manifolds, of open nipples uniting certain of said manifolds at different points; and closed or "blind" nipples dividing one set of manifolds from another set of manifolds.

10. In a combined steam and hot-water boiler the combination, with manifolds having openings at their upper ends and other openings in their lower ends; of "push-nipples" connecting one manifold with another, and located in said openings; and "push-nipples" having diaphragms located in the openings of two adjacent manifolds, and serving to separate one set of manifolds from another set, thereby to divide the boiler into sections for utilization as steam and hot-water heaters.

11. The combination, with a series of vertical manifolds, of hollow nipples uniting some of said manifolds; and partitions between one set of manifolds and another set of manifolds for dividing the boiler into sections, said partitions being located between opposing hollow nipples.

12. In an apparatus of the class specified, the combination, with a boiler composed of tubular sections, each section having an opening for the passage of water, of a partition adapted to be located between the opposing openings, substantially as specified.

681,227. PLOW. JAMES W. JOHNSON, Savage, S. C. Filed Dec 22, 1900. Serial No. 40,797. (No model.)



Claim.—1. The combination with the stock of a plow; of a strip adjustably secured thereto, a runner hinged to the lower end of the strip, laterally-extending flanges to said runner, a slotted arm extending from the strip and a link hinged to the runner and adjustably secured within the slot of the arm.

2. The combination with the stock of a plow; of a heel-pin extending therefrom, a strip having a longitudinally-extending slot therein adapted to receive said pin, a runner hinged to the lower end of the strip, laterally-extending flanges projecting from opposite sides of said runner, a slotted arm extending from the strip and a link hinged at one end to the runner and adjustably secured at its opposite end within the slot of the arm.

3. As a new article of manufacture, a runner attachment for plows comprising a slotted strip, a slotted curved arm extending from one end thereof, a runner hinged to the lower end of said strip, laterally-extending flanges upon opposite sides of the runner and lying in the same horizontal plane, and a link hinged to the upper edge of the runner and adjustably secured to the slotted arm.

681,228. COMBINED CAR-REPLACER AND WHEEL-SHOE. JAKE JONES, Washington, Ind. Filed Apr. 20, 1901. Serial No. 56,679. (No model.)

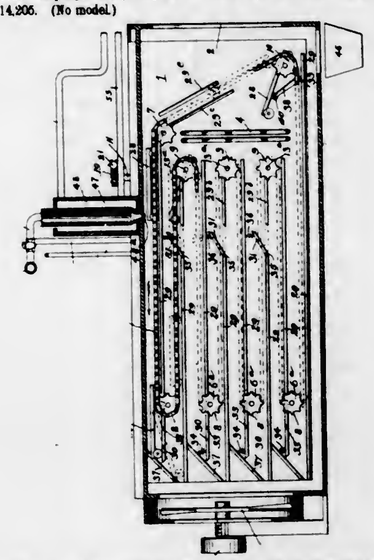


Claim.—1. A combined car-replacer and wheel-shoe consisting of a body having a flanged convex side, and a flanged concave side provided with ribs engaging the wheel-tread and with a groove for the wheel-flange.

2. A combined car-replacer and wheel-shoe consisting of a body one side of which is convex and is provided with a longitudinal flange, and the other side of which is concave and is provided with longitudinal flanges of different heights.

3. A car-wheel shoe having an outer tread-surface flanged to engage the rail, and having an inner surface conforming to the wheel tread and flange, flanges at the inner surface to flank the wheel, and chains connecting the shoe at opposite ends with the truck or car-body.

681,229. APPARATUS FOR MAKING GLUE. LOVELL L. KELSEY, Guilford, Conn., assignor, by direct and mesne assignments, to Federal Glue Company, Jersey City, N. J. Filed Apr. 25, 1900. Serial No. 14,205. (No model.)



Claim.—1. An apparatus of the class described, comprising a holder into which the stock is introduced in liquid form, means for reducing the stock in the holder to jelly-like or semimobile consistency and without previous independent "jellying" of the stock, said stock being discharged from said holder by the pressure of the incoming stock, and means for minutely subdividing the stock issuing from the holder into permanent form, substantially as and for the purpose set forth.

2. An apparatus of the class described, embodying a vessel provided with a plurally-apertured outlet, means for feeding stock to said vessel in fluid form and simultaneously forcing the same through said apertured outlet, and means for reducing the stock to proper consistency while in the vessel and without previous independent jellying of the stock; the stock being discharged from said vessel in minutely-subdivided and permanent form.

3. An apparatus of the class described, comprising a vessel provided with a plurally-apertured outlet, means for keeping the stock at proper consistency while in the vessel and without previous independent "jellying" of the stock, and means for feeding the stock to said vessel in fluid form and simultaneously forcing the same through said apertured outlet.

4. In an apparatus of the class described, a jacket, means for maintaining a predetermined temperature therein, an apertured holder arranged within said jacket, and means for feeding liquid stock to said holder under pressure whereby the stock issues from said holder in permanent subdivided form and of jelly-like consistency.

5. In an apparatus of the class described, a holder provided with an inlet-end portion and a transversely-contracted and laterally-flared outlet-end portion having a plurality of perforations formed therein, and means for passing a mass of stock through said holder whereby the stock issues from said holder in strips or pencils of jelly-like consistency.

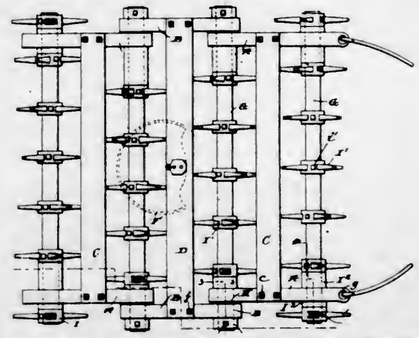
6. In an apparatus of the class described, a holder provided with an inlet-end portion and a transversely-contracted and laterally-flared exit-end portion having a plurality of perforations formed therein, and means for passing a mass of glue-stock therethrough whereby said glue-stock issues from said holder in strips or pencils of jelly-like consistency, substantially as described.

7. An apparatus of the class described, comprising a vessel provided with a plurally-apertured outlet, means for feeding glue-stock to said vessel and simultaneously forcing the same through said apertured outlet, and means for altering the consistency of the glue-stock during its passage through said vessel whereby it issues from said apertured outlet in permanent subdivided form.

8. In an apparatus of the class described, a holder provided with an inlet-end portion and a transversely-contracted and laterally-flared exit-end portion having a plurality of perforations formed therein, a jacket surrounding said holder, means for maintaining predetermined thermal conditions in said jacket, and means for passing a mass of liquid glue-stock through said holder, whereby said glue-stock issues from said holder in strips or pencils of jelly-like consistency, substantially as described.

9. An apparatus of the class described, comprising means for maintaining a continuous feed of the mobile stock, separator means through which the stock is fed and whereby the stock is minutely subdivided in mass, and means for altering the consistency of the stock during its passage through the separator means whereby the stock issues from the separator means in permanent subdivided form.

681,230. HARROW. JOHN M. KILLOUGH, Waco, Tex. Filed Apr. 25, 1901. Serial No. 57,470. (No model.)

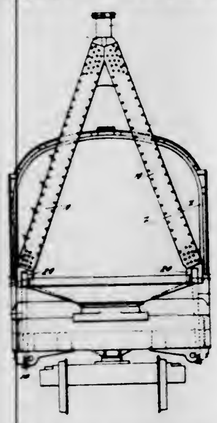


Claim.—1. In a harrow of the type described, the combination of the forward and rear side bars having transversely-disposed apertures, links arranged parallel to said side bars and having transversely-disposed apertures arranged coincident with the inner apertures of the side bars, transverse shafts journaled in the outer transverse apertures of the side bars and extending outwardly beyond said bars, transverse shafts journaled in the alined apertures of the side bars and links and extending outwardly beyond the same, teeth on the portions of the shafts between the side bars and links, and detachable means on the extended portions of the shafts for holding the side bars and links thereon.

2. The harrow described comprising the forward and rear side bars having transversely-disposed apertures, links arranged parallel to said side bars and having transversely-disposed apertures arranged coincident with the inner apertures of the side bars, transverse shafts journaled in the outer apertures of the side bars and extending outwardly beyond the same, transverse shafts journaled in the alined apertures of the side bars and links and extending outwardly beyond the same; said shafts being tubular, toothed wheels detachably secured on the shaft at intervals between the side bars and the links of the frame, and so arranged that the wheels of

each shaft are in alinement with the spaces between the wheels on the adjacent shaft or shafts, collars interposed between the side bars and links and the toothed wheels adjacent thereto, and means detachably secured on the outwardly-extending end portions of the shafts for securing the side bars and links thereon.

681,231. EXCAVATOR. GEORGE W. KING and HARRY J. BARNHART, Marion, Ohio, assignors to the Marion Steam Shovel Company, same place. Filed July 1, 1901. Serial No. 66,682. (No model.)



Claim.—1. An A-frame for excavators and the like, each leg whereof is composed of parallel channel-bars having their flanges extending in the same direction inward toward the central line of the frame, and front and back plates riveted to the flanges of the channel-bars, substantially as described.

2. An A-frame for excavators and the like, comprising leg portions each composed of two parallel channel-bars having their flanges extending in the same direction inward toward the central line of the frame, front and back plates riveted to the flanges of the channel-bars, and a head-casting riveted to the outer channel-bars and to the front and back plates, substantially as described.

3. An A-frame for excavators and the like, comprising leg portions each composed of two parallel channel-bars having their flanges extending in the same direction inward toward the central line of the frame, and front and back plates riveted to the flanges of the channel-bars, the inner channel-bars being provided with apertures whereby access may be had to the inner ends of the rivets of the outer channel-bars, substantially as described.

4. In an excavator, the combination, with a boom and a tie-rod having an integral yoke, of an A-frame provided with a hollow journal, a retaining-collar mounted on the journal above the yoke, and a plurality of pins extending through the collar and the wall of the journal, terminating within said journal and there provided with retaining devices, substantially as described.

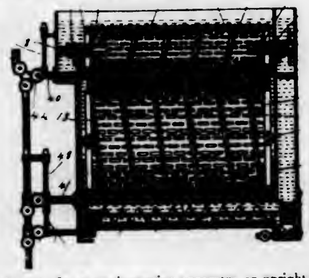
5. In an excavator, the combination, with a car or body provided with socket-pieces, of an A-frame each leg whereof is provided with parallel lugs having rounded terminal bearing-surfaces to rest on the corresponding socket-piece, a transverse pin connecting the lugs, and a U-bolt passing over said pin between said lugs and adjustably connected with the body, substantially as described.

6. In an excavator of the character described, an A-frame provided with foot-castings having each a pair of terminal lugs connected by a bridge-piece or lift, substantially as described.

7. In an excavator, the combination, with a body provided with socket-pieces, of an A-frame each leg whereof is provided with two parallel terminal lugs having rounded bearing-surfaces to rest on the socket-pieces, and a transverse pin connecting said lugs, said body being provided with a jack-support casting on each side, and a U-bolt on each side passing over the pin between the lugs, extending down through the jack-support casting and provided with nuts on the under side thereof, substantially as described.

8. In an excavator, the combination, with a body having socket-pieces provided with lateral flanges, of an A-frame each leg whereof is provided at its lower end with parallel lugs having rounded lower ends to bear upon the socket-pieces, each pair of lugs being connected by a pin, and a U-bolt passing over each pin between the corresponding pair of lugs and adjustably secured to the body at its lower end, substantially as described.

681,232. AMALGAMATOR. ERNEST J. KIRK, Fort Wayne, Ind. Filed May 13, 1901. Serial No. 59,953. (No model.)



Claim.—1. In an amalgamating apparatus, an upright tank having a laterally-extended chamber on one end thereof; a pair of cylinders revolubly mounted one above the other in said tank; a driving-chain operatively connecting said cylinders; a pair of mercury-receptacles in cooperative relation with the said cylinders respectively as shown; a screw conveyer rotatably mounted in the bottom of said tank and dipping into a body of mercury therein; an inclined chain conveyer arranged in said chamber and adapted to discharge the ore from the machine; and means for actuating said screw conveyer and said conveyer-chain.

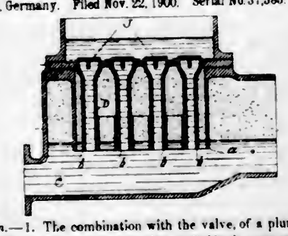
2. An amalgamator consisting of an upright tank; two mercury-coated cylinders rotatably mounted in said tank in vertical alinement; mercury-receptacles into which the said cylinders continuously dip; a mercury-coated driving-chain connecting the said cylinders and also dipping into one of said receptacles; means for rotating said cylinders; and means for discharging the ore from the tank.

3. In an amalgamator a stationary tank; a pair of metallic mercury-coated horizontal cylinders rotatably mounted therein in vertical alinement; an endless driving-chain connecting said cylinders; means for continuously coating the surfaces of said cylinders and said chain with mercury; and means for discharging the ore from the machine.

4. The combination in an amalgamator of a containing-tank; a pair of horizontal and vertically-alined cylinders whose perimeters are perforated as shown for the purpose specified, rotatably mounted in said tank; an open-link driving-chain connecting said cylinders; means for continuously coating said cylinders and said chain with mercury during their rotation.

5. An upright tank having upon one end a chambered extension; a pair of hollow perforated cylinders rotatably mounted in said tank in vertical alinement; an open-linked driving-chain connecting said cylinders; mercury-receptacles into which the said cylinders and said chain continuously dip during their rotation; a mercury-coated screw conveyer revolubly mounted in the bottom of said tank and adapted to feed the ore-pulp continuously forward into said chambered extension; a mercury-receptacle in said bottom into which the said conveyer continuously dips; an inclined conveyer arranged in said extension and adapted to deliver the ore from the said screw conveyer to its discharge; means for rotating the said cylinders and the said conveyers; and means for supplying mercury to the said machine, and discharging it therefrom without interfering with the operation of the machine.

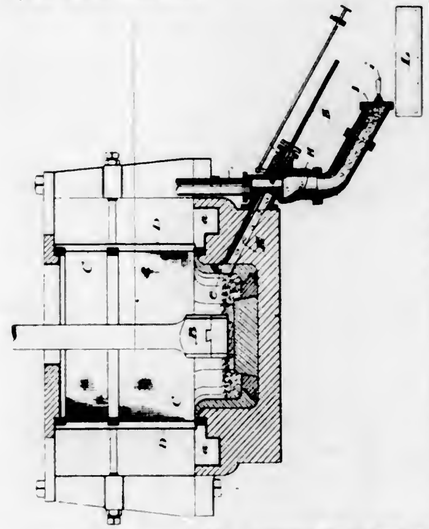
681,233. SUCTION-VALVE FOR PUMPS. JOHANN KLEIN, Frankenthal, Germany. Filed Nov. 22, 1900. Serial No. 37,383. (No model.)



Claim.—1. The combination with the valve, of a plurality of separated tubes leading thereto and serving to divide the water passing to the valve into a number of small streams, the space between the tubes constituting an air-chamber adjacent to the valve, substantially as described.

2. The combination with the valve-seat provided with a plurality of valve-controlled passages, of a plurality of separated tubes leading to said passages and serving to divide the water passing thereto into a number of isolated parallel streams, and a cylinder surrounding said tubes and constituting the outer wall of an air-chamber formed by the spaces between the tubes, substantially as described.

681,234. ORE-CRUSHER. CHARLES H. KRAUSE, Southlake Linden, and HENRY C. KRAUSE, Point Mills, Mich. Filed Mar. 11, 1901. Serial No. 50,624. (No model.)



Claim.—1. In an ore-crusher the combination with a stamp and mortar for crushing the ore and a screen through which the crushed ore is discharged by the splash from the stamp, of an auxiliary discharge for free metal too large to pass through the screen, consisting of a conduit leading downwardly out of said mortar and a water-supply connection leading into said conduit and adapted to produce an upward current through the same, substantially as described.

2. In an ore-crusher the combination with a stamp and mortar for crushing the ore and a screen through which the crushed ore is discharged by the splash from the stamp, of an auxiliary discharge for free metal too large to pass through the screen, consisting of a conduit leading out of said mortar inside of the screen, an injector connection for forcing water through said conduit into said receptacle, and a valve for closing said conduit below the injector connection, substantially as described.

3. In an ore-crusher, the combination with the receptacle in which ore is crushed, of a descending discharge-conduit leading out of said receptacle and provided with a trap at its lower end, and a water-injection connection with said conduit above said trap, substantially as described.

4. In an ore-crusher, the combination with the receptacle in which ore is crushed, of a descending discharge-conduit leading out of said receptacle and provided with two valves for closing a portion of the lower part of said conduit and a water-supply connection leading into said conduit above said valves, substantially as described.

5. In an ore-crusher, the combination with the receptacle in which ore is crushed, of a descending discharge-conduit leading out of said receptacle and provided with a valve, a water supply connection leading into said conduit above said valve, and a rod movable axially through the upper part of said conduit for clearing the same, substantially as described.

6. In an ore-crusher, the combination with a stamp and mortar, and a screen surrounding the mortar, of a descending discharge-conduit leading out of the mortar and provided with valves which are arranged to cut off a portion of said conduit, and a water-supply connection leading into said conduit above said valves and arranged to produce an upward current of water through said conduit into said mortar, substantially as described.

681,235. COMBINED TABLE, CHAIR, AND STOOL. BENOIT S. LEVEEN, Albany, N. Y. Filed June 23, 1900. Serial No. 21,336. (No model.)

Claim.—1. In an article of the character described, the combination with a suitable support, of a box-like body carried by said support, having a hinged end and top, braces for holding said top raised, each of said braces comprising two members pivoted at their respective ends to said swinging top and the body and pivoted together at their opposing ends, and locking devices carried by the opposing ends of said brace members and coacting with each other and holding the brace members in alinement, substantially as described.



2. In an article of the character described, the combination of a standard threaded at its upper end, a removable collar positioned upon said threaded end, folding arms carried by said collar, a seat portion resting upon said arms and perforated to receive the threaded end of the standard which projects therethrough, and a clamping-nut upon said projecting end of the standard, substantially as described.

681,236. PROCESS OF PRESERVING MEAT. WILHELM MANASSE and RICHARD ISLENFELD, Berlin, Germany. Filed May 9, 1901. Serial No. 59,408. (No specimens.)

Claim.—1. The herein-described process of preserving meat consisting of cooking the meat, immersing the cooked meat in diluted acid, then removing it from the acid and placing it in a gelatinous liquid and then adding a substance to neutralize the acid.

2. The herein-described process of preserving meat consisting in cooking the meat, immersing the cooked meat in diluted hydrochloric acid, taking it out of the acid and placing it in a gelatinous liquid to which a substance is added to neutralize the acid and then sterilizing the product.

3. The herein-described process of preserving meat, consisting in cooking the meat, immersing the cooked meat in a solution of two parts of hydrochloric acid to one thousand parts of water, removing it from the acid solution and placing it in a gelatinous liquid to which has been added a substance adapted to neutralize the acid and then sterilizing the product.

4. The herein-described process of preserving meat consisting in cooking the meat, immersing the same in diluted hydrochloric acid, removing it from the acid and placing it in a gelatinous liquid previously clarified with albumen and mixed with a substance adapted to neutralize the acid and then sterilizing the product.

5. The herein-described process of preserving meat consisting in cooking the meat, immersing the same in diluted hydrochloric acid, removing it from the acid and placing it in a gelatinous liquid previously clarified with albumen and mixed with bicarbonate of sodium and sterilizing the product substantially as described.

681,237. QUICK-TURNING VEHICLE-GEAR. BUCK MASON, Trenton, Mo. Filed May 10, 1900. Serial No. 16,206. (No model.)



Claim.—1. In a vehicle running-gear having front and rear axles rigidly connected by a reach-bar, the combination with the front axle, of stub-axles having spindles thereon, arms arranged at an angle to the spindles of the stub-axles, bolts passed loosely through the ends of the front axle and engaging the said arms and serving to rigidly connect said arms to the stub-axles, and also pivoting said stub-axles to the ends of the front axle, a laterally-rockable lever pivoted upon the reach-bar, and rods connecting the said lever to the arms on the stub-axles.

2. In a vehicle running-gear, the combination with an axle of the vehicle, of stub-axles having spindles thereon, arms on the stub-axles, bolts passed loosely through the ends of the axle and arranged to engage the arms to rigidly connect said arms to the stub-axles, the said bolts also pivoting said stub-axles to the ends of the axle, a laterally-rockable lever, and connections between the said lever and the arms on the stub-axles.

3. In a vehicle running-gear, the combination with two main axles held in parallel planes by a reach-bar and diagonal braces, two laterally-rockable stub-axles, having spindles, on the forward main axle, and having flanges adapted to embrace the ends of said main axle and pivoted thereon, rock-arms connected with the stub-axle spindles at an angle thereto, and bolts rigidly securing the said arms to the stub-axles, the said bolts also forming the pivotal connection between the flanges of the stub-axles and the ends of the main axle, of a lever-plate pivoted upon the reach-bar or forward main axle, lateral arms on the lever, and link-bars pivoted at their ends upon the ends of the rock-arms and upon the respective arms of the lever-plate, the said lever and its arms being so arranged that a rocking movement of said lever-plate will so move the link-bars as to give the stub-axle spindle toward which the vehicle-gear turns a greater inclination from the main axle than the other stub-axle spindle receives.

4. A vehicle running-gear, comprising a front axle and a rear axle, a reach-bar connecting said axles, diagonal braces extending from the reach-bar to the front and rear axles, stops on the front axle arranged to bear against the inner sides of the ends of the braces, stub-axles having spindles thereon and held to rock laterally on the ends of the front axle, a laterally-rockable lever having a body portion pivoted upon the reach-bar at or near the front axle, and arms on the lever and connected with the stub-axles for rocking the stub-axles by the movement of the lever.

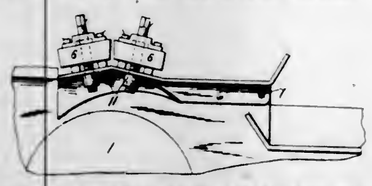
5. In a vehicle running-gear, the combination with a front axle and a rear axle, both rigidly connected in parallel planes by a reach-bar, of laterally-rockable stub-spindles on the forward axle, arms located at an angle to the stub-spindles, bolts for securing the arms to the stub-spindles, the said bolts each having an angular formation at one end fitting corresponding perforations in the arms and in the inner end of the corresponding stub-spindle, the bodies of the bolts extending loosely through the ends of the main axle and forming the pivotal connections between the stub-axles and the said main axle, a laterally-rockable lever pivoted upon the reach-bar, and rods connecting the said lever with the free ends of said arms for rocking the stub-axles by the movement of the lever.

6. In a vehicle running-gear, the combination with a front axle, and a rear axle both rigidly connected in parallel planes by a reach-bar, of a stub-axle on each end of the front axle, said stub-axles being pivoted to rock laterally, a pivoted lever-plate extending forward and rearward of the axle and having arms at its ends, a fixed rock-arm on the pivot-bolt of each stub-axle, and arranged at an angle to the stub-axle spindles, the said rock-arms extending in opposite directions, and connecting-rods between the ends of the rock-arms and the arms of the pivoted lever plate.

7. In a vehicle running-gear, the combination with the front axle of stub-axles having spindles thereon, rock-arms arranged at an angle to the spindles of the stub-axles and extending in opposite directions, bolts arranged to turn loosely in the ends of the front axle and rigidly connecting said arms to the stub-axles and also pivoting said stub-axles to the ends of the front axle, a pivoted lever provided with arms, and rods connecting the said lever with the free ends of said rock-arms.

8. In a vehicle running-gear, the combination with the front main axle, and laterally-rockable stub-axles at the ends of the front main axle and having spindles, of a lever having a body portion pivoted at a point adjacent to the front axle, the ends of the body portion extending respectively forward and rearward of the front axle, arms on the ends of the lever, rock-arms connected with the stub-axles and link-bars connecting the arms of the lever with the arms of the stub-axles.

681,238. THRESHING-MACHINE. GEORGE F. MESSINGER, Tatamy, Pa. Filed Aug. 14, 1900. Serial No. 26,845. (No model.)



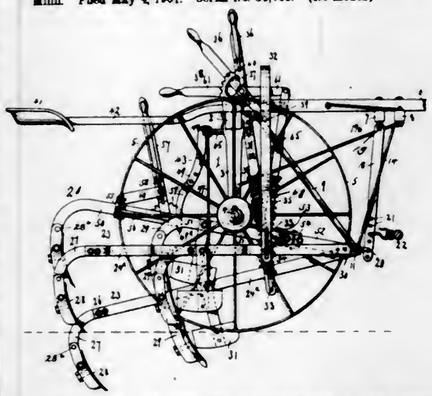
Claim.—1. In a threshing-machine, a toothed cylinder, and a concave block; in combination with a top or casing interposed between the cylinder and the block, and provided with openings through which the teeth of the block are projected, and screws in the ends of the block engaging bosses of the sides of the machine for adjusting the block and the teeth independent of the top or casing.

2. In a threshing-machine, a toothed cylinder, and a concave block; in combination with an automatically-movable casing interposed between the cylinder and the block and provided with openings through which the teeth of the block are projected, and means for adjusting the block and the teeth independent of the casing.

3. In a threshing-machine, a metal top or casing extending over the cylinder, provided with tooth-openings, and hinged at one end to the body of the machine; in combination with a concave block above said top, separate therefrom, and having teeth adjustable through said openings, whereby the top may rise independent of the block.

4. In a threshing-machine, a cylinder, a concave block provided with perforations and with teeth having shanks extending through said perforations, and means for adjustably securing the block to the machine at both ends thereof; in combination with a metal top or casing separate from the block, hinged to the machine, covering the cylinder, and above which the block is supported independent of the top or casing.

681,239. SULKY-CULTIVATOR. ANTON METZEL, Wheatland, Minn. Filed May 4, 1901. Serial No. 58,785. (No model.)



Claim.—1. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to raise and lower said cultivator-frames, and shifting-levers fulcrumed to said sulky-frame and connected to said cultivator-frames, the latter having vertical lost motion on said shifting-levers, substantially as described.

2. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to raise and lower said cultivator-frames, and shifting-levers fulcrumed to said sulky-frame, said shifting-levers having slots 48 engaged by bars of said cultivator-frames, whereby the latter are adapted to play vertically in said shifting-levers, substantially as described.

3. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to raise and lower said cultivator-frames, and shifting-levers 43 fulcrumed to said sulky-frame, each of said shifting-levers having an arm 47 connected to one of said cultivator-frames and an arm 49 provided with a foot-support 49ª, substantially as described.

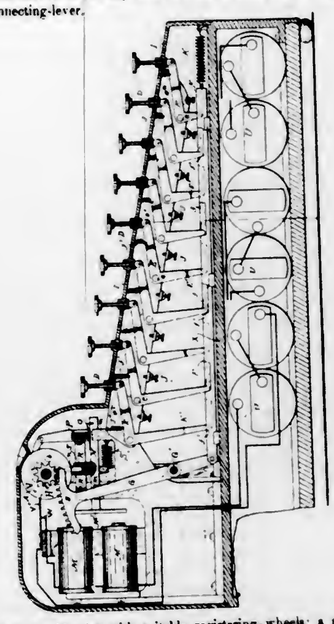
4. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to shift said cultivator-frames laterally and a centrally-disposed cultivator-frame having laterally-shiftable side bars, substantially as described.

5. In a sulky-cultivator, the combination of a sulky-frame, cultivator-frames flexibly connected thereto, means to shift said cultivator-frames laterally, and a centrally-disposed cultivator-frame having a central bar, laterally-shiftable side bars having their front ends flexibly connected thereto, a slidable clip on said central bar, and links connecting said clip to said laterally-shiftable side bars, substantially as described.

6. In a sulky-cultivator, the combination of a sulky-frame, a cultivator-frame flexibly connected thereto, a lever, mounted on said sulky-frame, a link connecting said lever to said cultivator-frame, the latter having vertical lost motion on said link, and a spring on said link bearing on and depressing said cultivator-frame, substantially as described.

681,240. ADDING-MACHINE. ALFRED J. MEYER, Milwaukee, Wis., assignor of one-fourth to Alvin W. Krahn, same place. Filed Oct. 13, 1900. Serial No. 33,017. (No model.)

Claim.—1. The combination with suitable registering-wheels; a series of elbow-levers having alined pivotal fulcrums, with offset overlapping arms of equal length, and other arms graduated in length throughout the series; alined keys secured to the ends of the offset arms; a sliding bar adapted to be engaged and independently actuated by each of said levers; a connecting-lever, having arms of unequal length, with its shorter arm attached to said sliding bar; and motion-transmitting gearing connecting the longer arm of said lever with a registering-wheel, whereby the motion of the key-lever and bar is multiplied or increased by the connecting-lever.



2. The combination with suitable registering-wheels; a series of elbow-levers having alined pivotal fulcrums with offset overlapping arms of equal length throughout the series; equalizing-springs attached to the arms of said levers at unequal distances from the fulcrums, and connected with fixed points of support; and motion transmitting and multiplying mechanism connecting said graduated arms with one of the registering-wheels.

3. The combination with a series of registering-wheels; a series of differentiated actuating-levers and motion-transmitting connections for each wheel; trip mechanism for advancing said registering-wheels step by step; means for setting the trip mechanism of one registering-wheel from an adjacent wheel; and trip-holding devices supported by the trip mechanism in a position to be engaged and held by the motion-transmitting connections when the trip is set, and said connections are out of normal position of rest.

4. The combination with suitable registering-wheels; a series of levers, each provided with an arm differing in length from those of any other lever in the series; suitable connections for communicating motion from any one of said levers to the registering-wheels; and means for applying a resistance to the movement of the levers, in reverse ratio to the length of the arms, whereby the pressure required to actuate the levers is equalized.

5. The combination with a series of registering-wheels; a series of keys for each wheel; means for communicating motion from any of the keys to its corresponding registering-wheel; independently-actuated trip mechanisms for advancing said registering-wheels step by step; means for setting the trip mechanism of one registering-wheel from an adjacent wheel, and means, controlled by the keys, for holding said trip mechanism and releasing the same on completion of the key-stroke in two directions.

6. The combination with a series of registering-wheels; a series of primary actuating connections for each wheel; trip mechanism for additionally advancing said wheels step by step; means, controlled by one wheel, for setting the trip mechanism of an adjacent wheel; and means controlled by the primary actuating connections of all the wheels for preventing the release of said trip mechanism until said primary connections are all substantially in normal position.

7. The combination with a series of registering-wheels; a series of primary actuating connections for each wheel; trip mechanisms for additionally advancing said wheels step by step; electromagnetic means for setting said trip mechanisms; means, controlled by one registering-wheel, for closing an electric circuit through an electromagnet pertaining to the trip mechanism of an adjacent wheel; and means controlled by said primary actuating connections, for regulating the movement of the trip mechanisms in one direction.

8. The combination with a series of registering-wheels; a series of counting-wheels, arranged to communicate motion in one direction to the registering-wheels; a graduated series of levers for each counting-wheel; a movable bar for each series of levers, and adapted to be actuated by any one of said levers; and a connecting-lever secured to said movable bar, and having motion-transmitting connections with the counting-wheel.

9. The combination with a series of registering-wheels; a series of counting-wheels, arranged to communicate motion in one direction to the registering-wheels; a graduated series of levers for each counting-wheel; a sliding bar for each series of levers, and adapted to be actuated by any one of said levers; and a connecting-lever secured to said sliding bar, and having gear connections with the counting-wheel; together with a series of trip mechanisms adapted to advance the respective registering-wheels step by step; means for setting the trip mechanisms for one wheel from an adjacent wheel, and means, controlled by the connecting-levers, for regulating the movement of the trip mechanisms.

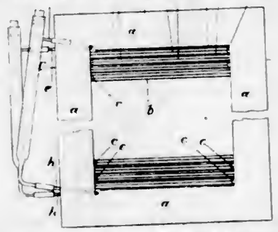
10. The combination with registering-wheels, adapted to be actuated independently; of electromagnetic mechanism for communicating movement from one wheel to another, at predetermined-distance intervals, and means for limiting such movement to the intervals between the independent wheel movements.

11. The combination with registering-wheels adapted to be actuated independently; of means for mechanically actuating said wheels either simultaneously or separately; electromagnetic mechanism for communicating movement from one wheel to another at predetermined-distance intervals; and means for limiting such movement to the intervals between the independent wheel movement.

12. The combination with registering-wheels adapted to be actuated independently; of means for actuating the same, either simultaneously or separately; a trip mechanism for advancing said registering-wheels step by step; electromagnetic means, controlled by one registering-wheel, for setting the trip mechanism of an adjacent wheel, together with means for releasing the trip mechanism.

13. The combination with registering-wheels, of means for mannally actuating the same; ratchet-wheels connected with the registering-wheels; a spring-retracted bar, provided with a spring-actuated pawl adapted to engage the ratchet of each wheel; an elastic catch secured to said bar; a latch-bar arranged transversely of the pawl-supporting bars in the path of the catches, and provided with notches, adapted, when in registry with said catches, to permit the passage of the latter in either direction; means, controlled by one registry-wheel, for actuating the pawl-supporting bar of an adjacent wheel against the tension of its retraction-spring; and means for shifting the latch-bar to retain or release the catches.

681,241. PROCESS OF UTILIZING WASTE SULFITE LIQUOR AND PRODUCT THEREFROM. ALEXANDER MITSCHERLICH, Freiburg, Germany. Filed July 28, 1893. Serial No. 481,763. (No specimens.)



Claim.—1. The process for the purification of spent sulfite liquors from the manufacture of wood-pulp and for the separation of a tanning and adhesive agent therefrom by first treating said liquor with lime and a suitable precipitant for removing any iron present therein and submitting the resultant liquid to a process of dialysis, the undialyzed portion on evaporation yielding a non-hygroscopic body of adhesive and tanning properties while the dialyzed portion yields a fermentable hygroscopic body.

2. The process for the purification of spent sulfite liquors from the manufacture of wood-pulp and for the separation therefrom of a tanning and adhesive agent by first treating the liquor with an excess of lime and a precipitant for any iron contained in the liquor, submitting said liquor

to dialysis, evaporating the undialyzed or non-diffusible liquid and converting the same into combinations with alkalies and alkali earths, the dialyzed or diffusible fermentable liquid being evaporated and treated in any suitable manner, substantially as described.

3. The process for the purification of spent sulfite liquor from the manufacture of wood-pulp and for the separation therefrom of a tanning and adhesive agent by a treatment with lime and subsequent dialysis, precipitating the lime from the undialyzed or non-diffusible liquid and evaporating the same to a suitable consistence, whereby this portion of the liquor acquires tanning properties, while the diffusible portion may be submitted to a process of fermentation, substantially as described.

4. The process for the purification of spent sulfite liquors from the manufacture of wood-pulp and for the separation therefrom of a tanning and adhesive agent by treating the liquor with lime and a precipitant substantially as described, and then passing the resultant liquid through the septum of a dialyzer together with a current of water flowing through the septum in a direction opposite to that of the said liquid and recovering the undialyzed, non-diffusible liquid, substantially as described.

5. As a new article of manufacture, an agglutinant or adhesive agent obtained from spent sulfite liquors resulting from the manufacture of wood-pulp by a treatment with lime and subsequent dialysis, the said agglutinant or adhesive agent showing tanning properties after removal of its alkaline base.

6. As a new article of manufacture, a tanning agent obtained from spent sulfite liquors resulting from the manufacture of wood-pulp by a treatment with lime and dialysis and subsequent removal of the alkaline base of the undialyzed or non-diffusible portion of the liquid by any suitable chemical agent, substantially as described.

681,242. **LINING FOR PULP-DIGESTERS.** ROBERT MORGENSEN, Ashland, Wis. Filed Dec. 26, 1900. Serial No. 41,112. (No model.)



Claim.—1. In combination, a digester-shell having a dome portion and a basin portion, a sheet-lead lining in the dome and another sheet-lead lining in the basin, these linings being extended from the respective necks of the shell approximately to the points where the concaved parts of the dome and the basin respectively terminate and merge into the vertical part of the shell, another lead lining covering the shell between the dome-lining and the basin-lining and being connected thereto at its respective upper and lower edges, this intermediate connecting-lining being more expansible than the dome and the basin linings and all three linings being expansible independently of the shell, and protective tiling covering all said linings, substantially as and for the purposes set forth.

2. In combination a digester-shell, a lead lining in the dome thereof and another lead lining in the basin thereof, these linings being separated from each other and being expansible independently of the shell, a series of lead cases fused together and to the aforesaid linings and covering the shell intermediate the linings, all said cases forming a self-supporting non-attached ribbed shell within the digester-shell, and acid-resisting material within said cases.

3. A tile for pulp-digesters having a backing of lead and a recess around its front or inner corners, for the purpose set forth.

4. A tile for pulp-digesters having a lead backing which extends over upon and partially incases its side edges, the front or inner corner of the tile beyond the extended edges of the lead being cut away or recessed, for the purposes set forth.

5. A lining for pulp-digesters consisting of a lead backing or lining, a series of lead cases fastened thereto and fused together, a series of tiles fitted into said lead cases and recessed around their inner or front corners to form channels coincident with the fused joints of the lead cases, and a cement filling in said channels, for the purposes set forth.

6. A lining for pulp-digesters, consisting of a continuous framework of lead and a series of tiles carried thereby and secured to each other by cement, the cement lying between the joints of the tiles and against the lead, whereby the cement serves not only to secure the tiles together but also to prevent the lead being squeezed out at the joints.

7. A pulp-digester lining consisting of a lead backing or lining, a series of abutting lead cases fused thereto and to each other, and a series of recessed tiles fitted in these cases and joined together by cement.

8. A digester-shell having a self-supporting non-attached lead lining provided with ribs of lead forming shallow trays, recessed tiles fitting in said trays, and a seal of cement in the channels formed by said recesses, this cement connecting the tiles together and protecting the edges of the ribs.

9. A pulp-digester shell, in combination with a sheet-lead lining fitted in its crown and charging-neck and bent down upon the face of the neck, said lining being otherwise unattached to the shell and being therefore expansible independently thereof, and a series of lead-backed tiles fused thereon and extending up into the neck.

10. In combination with a digester-shell, of a lining therefor consisting of an outer stratum of tiles next to the shell and an inner or protective stratum of tiles lying against said outer stratum, the shell and the strata of tiles being independently expansible and contractible.

11. In combination with a digester-shell, of a lining therefor consisting of two unconnected strata of tiles, the joints between the tiles of the inner strata being slightly flexible, in order that this strata may become slightly wavy when expanded from within.

12. In combination with a digester-shell, of a lining therefor consisting of two unconnected abutting strata of tiles having numerous joints, these joints being sufficiently flexible to allow the strata to become slightly wavy in turn as they are expanded by heat from within.

13. In combination with a digester-shell, of a lining consisting of two independent strata, abutting against each other, and the inner strata being made up of numerous tiles having their adjacent edges abutting against each other near their backs and their adjacent edges connected together at their front or inner faces by a comparatively elastic sealing substance, for the purposes set forth.

681,243. **APPARATUS FOR MAKING BOILER-COILS.** SAMUEL D. MOTT, Passaic, N. J., assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Filed Dec. 4, 1900. Serial No. 38,698. (No model.)



Claim.—1. An apparatus of the kind described, comprising a mandrel and a series of alternating guide-disks and disk-collars mounted on the mandrel so as to turn therewith, the disks having grooved faces with side extensions leading toward the collars.

2. In an apparatus of the kind described, the guide-disks having a grooved face, each complete disk formed of two half-disks, and each half-disk having a lateral groove curving toward the center and merging into the main groove of the face.

3. An apparatus of the kind described, comprising a supporting-mandrel and a series of disks and disk-collars held to slide on and turn with the mandrel, each disk having a grooved face and being formed of two half-disks and each half-disk having a grooved guideway curving from the main groove of the face toward the center of the half-disk.

4. An apparatus of the kind described, comprising a mandrel and a series of alternating guide-disks and disk-collars mounted on the mandrel so as to turn therewith, the disks having grooved faces with side extensions leading toward the collars and being separable centrally in a plane perpendicular to their axes.

681,244. **WATER-CIRCULATOR FOR BOILERS.** SAMUEL D. MOTT, Passaic, N. J., assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Filed Dec. 4, 1900. Serial No. 38,703. (No model.)



Claim.—1. The combination with a boiler, of an internal spiral way open at top and bottom and supported within the boiler so as to provide a space between the way and the boiler-bottom.

2. The combination with a boiler, of an internal circulating apparatus comprising a shell open at opposite ends and supported so that its ends are free from contact with the boiler, and a spiral way extending through the shell.

3. The combination with a flue-boiler, of a vertically-arranged open-ended shell supported within it so as to leave a space between the shell and the boiler-bottom, and a spiral way traversing the shell from end to end.

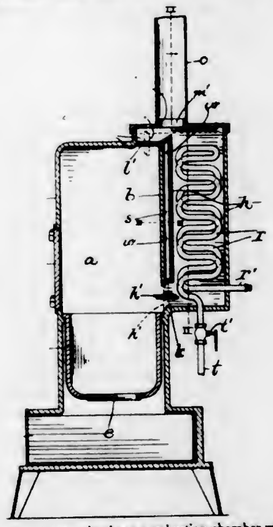
4. The combination with a boiler having vertical flues or tubes, of a spiral way arranged within the boiler and supported on the said tubes.

5. The combination with a boiler having vertical tubes, of the shell contained within the boiler and of less diameter than the boiler, said shell being open at top and bottom, and a spiral way extending through the internal shell from end to end, the walls of the said way fitting the boiler-tubes so as to support the said internal structure, substantially as described.

6. The combination with a boiler, of a vertically-arranged spiral way therein, said way being formed of a series of plates split from the center to one edge and superposed with the split edge of one plate brought adjacent to the split edge of the next so as to form practically a continuous plate.

7. The herein-described circulating apparatus comprising a spiral way formed of a shell open at top and bottom, and a series of radially-split plates within the shell, said plates being spaced apart and spread at their split portions so as to meet and form a continuous way.

681,245. **HEATING-STOVE AND ATTACHMENT.** ALEXANDER MUIR, Cleveland, Ohio. Filed Jan. 7, 1901. Serial No. 42,357. (No model.)



Claim.—1. A stove having a combustion-chamber which is formed within the casing of the stove, and having, also, the following: a drum *h* arranged or formed at one side of the said casing and, in the main, below the top of the stove and extending downwardly to near the fire-pot; a water-conducting pipe-line extending through the drum; a duct connecting the lower end of the chamber of the drum with the combustion-chamber; a damper controlling communication through the said duct; a duct leading from the combustion-chamber upwardly from the top of the stove next to the drum; a damper for controlling communication through the last-mentioned duct; a cover *m* forming the top of the last-mentioned duct and the top of the drum, which cover has an aperture *m'* in open relation with the last-mentioned duct and the chamber of the drum, and the smoke-flue extending from the said aperture, substantially as and for the purpose set forth.

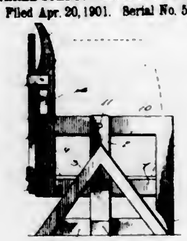
2. A stove having a combustion-chamber which is formed within the casing of the stove, and having, also, the following: a drum arranged or formed at one side of the said casing and, in the main, below the top of the stove and extending downwardly to near the fire-pot; a water-conducting pipe-line extending through the drum; a duct connecting the lower end of the chamber of the drum with the combustion-chamber; a damper controlling communication through the said duct; a duct leading from the combustion-chamber at the top of the stove; a smoke-flue in open relation with the last-mentioned duct and with the upper end of the chamber of the drum; a damper controlling communication through the last-mentioned duct; and the arrangement of the drum relative to the casing of the stove being such that an air-space *s* is formed between the opposing walls of the said drum and the said casing, substantially as and for the purpose set forth.

3. A stove having a combustion-chamber; the casing inclosing the said chamber; a drum arranged or formed at one side of the said casing and, in the main, below the top of the stove and extending downwardly to near the fire-pot; a water-conducting pipe-line extending through the drum; a duct connecting the lower end of the chamber of the drum with the combustion-chamber; a damper controlling communication through the said duct; a duct leading from the combustion-chamber at the top of the stove; a smoke-flue in open relation with the last-mentioned duct and with the upper end of the chamber of the drum; a damper controlling communication through the last-mentioned duct; and a layer of fireproof material between the drum and the casing of the stove, substantially as and for the purpose set forth.

4. A stove having a combustion-chamber; a casing inclosing the said chamber; a drum *h* arranged or formed at one side of the stove-casing and largely below the top of the stove, and separated from the stove-casing to form an air-space *s* between the opposing walls of the drum and the stove-casing; a water-conducting pipe-line extending through the said drum; a duct connecting the lower end of the chamber of the drum with the combustion-chamber; a damper controlling communication through the said duct; a duct leading from the combustion-chamber at the top of the stove; a smoke-flue in open relation with the last-mentioned duct and with the upper end of the chamber of the drum; a damper controlling communication through the last-mentioned duct, and fireproof material lining or covering the opposing side walls of the aforesaid air-space.

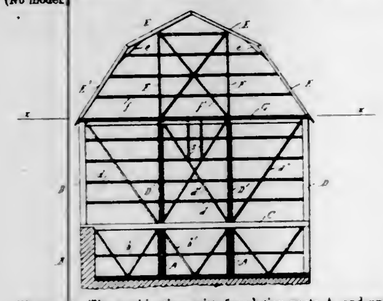
5. A stove having a combustion-chamber formed within its casing and having, also, the following: a drum *h* arranged or formed at one side of and extending up and down the said casing substantially below the top of the stove; a water-conducting pipe-line arranged at an elevation below the stove-top and extending through the drum; a duct connecting the lower end of the chamber of the drum with the combustion-chamber; a damper controlling communication through the said duct; a duct leading from the aforesaid combustion-chamber at the top of the stove contiguous to and adjoining the upper end of the drum, the smoke-flue in open relation with the last-mentioned duct and with the upper end of the chamber of the drum at the junction of the said chamber and duct, and a damper controlling communication through the last-mentioned duct, substantially as and for the purpose set forth.

681,246. **BARREL-STAND.** RUFUS E. MCCLARY and THOMAS S. GRAY, Dodd, Tex. Filed Apr. 20, 1901. Serial No. 56,802. (No model.)



Claim.—A barrel-stand comprising a base and standards rising therefrom, in combination with a tilting frame consisting of parallel handle-bars, parallel bars projecting at right angles from the handle-bars, and pivotally secured to the standards at one side of the longitudinal center of said projecting bars, uprights provided with feet and secured to the ends of the projecting bars, stops on the handle-bars adapted to abut against the standards, a floor supported by cross-bars between the handle-bars and said uprights, and means for locking the tilting frame in horizontal position.

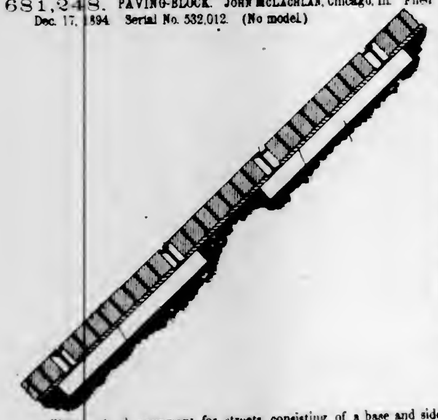
681,247. **FRAME BUILDING.** NEIL T. MCCLEER and LAWRENCE N. MCCLEER, Gregory, Mich. Filed May 8, 1901. Serial No. 59,215. (No model.)



Claim.—1. The combination, with foundation-posts A, and upright posts D, D' and I', all formed of sawed boards, the lower posts being formed of more boards than those above them; of floor-beams C at the tops of the posts A, diagonal braces between all the said posts, roof-rafters supported by the said posts, and horizontal intermediate beams between all the said posts and the roof-rafters, substantially as set forth.

2. The combination, with the upright posts J, J' of an intermediate frame; of roof-rafters E, E' arranged at an angle to each other, diagonal braces *j* between the bottom ends of the posts J' and the top ends of the outer posts J, diagonal braces *k* between the tops of the posts J' and the hip-angles of the said rafters, diagonal braces *j'* between the bottom ends of the outer posts J and the middle parts of the upper roof-rafters E, and horizontal beams between the upper parts of the posts J and J', leaving a clear space under the apex of the roof, substantially as described and shown.

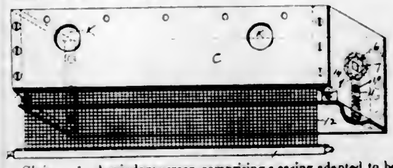
681,248. **PAVING-BLOCK.** JOHN MCLACHLAN, Chicago, Ill. Filed Dec. 17, 1894. Serial No. 532,012. (No model.)



Claim.—1. A pavement for streets, consisting of a base and side supports, a series of blocks of highly-compressed fibrous material, the fiber in its natural arrangement and charged with moisture-proof substance, said blocks compressed before being associated together and given a permanent set so as to remain compressed without confining devices, and a holding device for holding said blocks in a fixed relation to each other, so that their upper surfaces form a substantially level pavement, said holding device having no tendency to compress the blocks when the holding device and blocks are brought together, substantially as described.

2. A pavement for streets, consisting of a suitable base and side supports, a series of compressed oil-saturated blocks, said blocks consisting of highly-compressed fibrous material, the fiber in its natural arrangement, the softer or albuminous materials being forced from the wood and the fibers being given a permanent set so that the blocks retain their density and shape without retaining devices, a holding device for holding the blocks in a fixed relation to each other, said holding device having no tendency to compress the blocks when the holding device and blocks are brought together.

681,249. **WINDOW-SCREEN.** THOMAS J. NEVINS, St. Louis, Mo. Filed Jan. 5, 1901. Serial No. 42,181. (No model.)



Claim.—1. A window-screen comprising a casing adapted to be secured to the sash, a spring-actuated roller mounted in said casing, a screen mounted on said roller and passed through the casing, a tubular bar at the outer end of the screen, the outer corners of the casing being recessed to receive the ends of the bar, whereby the outer face of the latter will be flush with the casing when the sash is closed, and spring-actuated latch-rods for securing said bar to the window-frame, substantially as set forth.

2. A window-screen comprising a casing, a hollow roller mounted therein, a stem projecting from one end of the roller, a block having a socket serving as a bearing for one end of the stem, a spindle forming a part of the stem and projecting through the end of the roller, a coiled spring encircling the stem and having one end secured thereto and one end secured to the block, a ratchet-disk coupled to the spindle, a spring-actuated pawl, coöperating with the ratchet-disk, a screen secured at one end to the roller, a tubular bar at the outer end of the screen, spring-actuated latch-rods projecting from the opposite ends of the tubular bar, and means for winding the ratchet-disk from the outside of the casing, substantially as set forth.

681,250. **CHANGING-BAG FOR CAMERAS.** MAGNUS NEILL, London, England. Filed Dec. 2, 1899. Serial No. 739,024. (No model.)



Claim.—1. A changing device for flat films and plates comprising a plain bag of opaque flexible material twice as long as it is wide, said bag having one-half of one side open and a frame secured to the edges of said open side, said bag being ordinarily folded over but being designed to be spread out or unfolded in changing the plates, substantially as described.

2. A changing device for flat films and plates comprising a plain bag of opaque material having both ends closed light-tight, said bag being twice as long as it is wide and having one-half of one side open, a frame secured to the edges of said open half, said bag being also ordinarily folded over and forming two compartments but being designed to be unfolded for changing the plates and films, and tapes attached to the plates and films and passing through a light-tight slot in the end of the bag for drawing the plates from one compartment to the other, substantially as described.

3. A changing device for flat films and plates comprising a plain bag of opaque material having both ends closed light-tight, said bag being twice as long as it is wide and having one-half of one side open, a frame secured to the edges of said open half, said bag being also ordinarily folded over and forming two compartments but being designed to be unfolded for changing the plates and films, a rupturable connection between each film and the bag for holding all but the film to be changed against movement, and tapes attached to the plates and films and passing through a light-tight slot in the end of the bag for drawing the plates from one compartment to the other, substantially as described.

681,251. **WIRE-STRETCHER.** ANTON NIOS, Merrill, Iowa. Filed Mar. 29, 1901. Serial No. 53,419. (No model.)

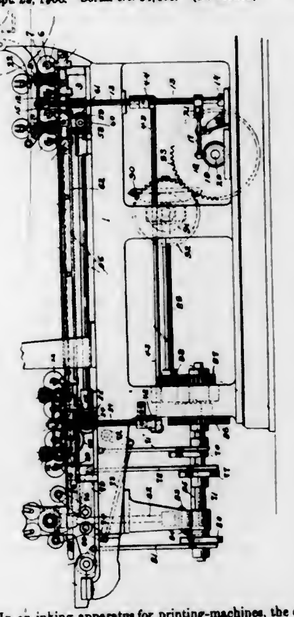
Claim.—1. In a wire-stretcher, a lever-bar provided with studs for twisting the wire, and a transverse recess in the lever-bar between and in the rear of the studs.

2. In a wire-stretcher, a lever provided with a semicircular bend, studs projecting from the lever at each side of the bend, the end of said lever being bent at right angles to form a handle.



3. In a device of the class described, a lever having a recess formed therein, tapering studs projecting from the lever at each side of the recess and arranged obliquely with relation to the length of the lever, substantially as and for the purpose set forth.

681,252. **INKING MECHANISM FOR PRINTING-PRESSES.** THOMAS M. NORTH, New York, N. Y., assignor to Robert Hoe, same place. Filed Sept. 29, 1900. Serial No. 31,476. (No model.)



Claim.—1. In an inking apparatus for printing-machines, the combination with a reciprocating bed, an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rollers, a set of form-rollers, rider-rolls in contact with the form-rollers, means for vibrating the rider-rolls of both the form and distributing rollers, means for positively driving the rider-rolls of the form-rollers at a surface speed corresponding to the speed of the bed, a rack secured to the bed, gears driven by the rack, a shaft lying along and above the top of one side of the frame and extending from said gears to the distributing-rollers, and gears between the shaft and the riders of the distributing-rollers, the gears which drive the shaft being arranged to impart to it a movement which enables the distributing-rollers to be driven at the speed of the ink-table, substantially as described.

2. In an inking apparatus for printing-machines, the combination with a reciprocating bed, an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rollers, a set of form-rollers, rider-rolls in contact with the form-rollers, means for vibrating the rider-rolls of both the form and distributing rollers, means for positively driving the rider-rolls of the form-rollers at a surface speed corresponding to the speed of the bed, gears driven from the bed, a shaft lying along and above the top of one side of the frame and extending from said gears to the distributing-rolls, and gears between the shaft and the riders of the distributing-rollers, whereby the shaft drives the riders, the gears which drive the shaft being arranged to impart to it movement which enables the distributing-rollers to be driven at the speed of the ink-table, substantially as described.

3. In an inking apparatus for printing-machines, the combination with a reciprocating bed, of an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rollers, a set of form-rollers, rider-rolls in contact with the form-rollers, means for positively driving the rider-rolls of the form-rollers at a surface speed corresponding to the speed of the bed, a rack secured to the bed, gears driven by the rack, a shaft lying along and above the top of one side of the frame and extending from said gears to the distributing-rollers, and gears between the shaft and the riders of the distributing-rollers, the gears which drive the shaft being arranged to impart to it a movement which enables the distributing-rollers to be driven at the speed of the ink-table, substantially as described.

4. In an inking apparatus for printing-machines, the combination with a reciprocating bed, of an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rollers, a set of form-rollers, rider-rolls in contact with the form-rollers, means for vibrating the rider-rolls of both the form and distributing rollers, means for positively driving the rider-rolls of the form-rollers at a surface speed corresponding to the speed of the bed, a rack secured to the bed, gears driven by the rack, a shaft lying along and above the top of one side of the frame and extending from said gears to the distributing-rollers, and gears between the shaft and the riders of the distributing-rollers, the gears which drive the shaft being arranged to impart to it a movement which enables the distributing-rollers to be driven at the speed of the ink-table, substantially as described.

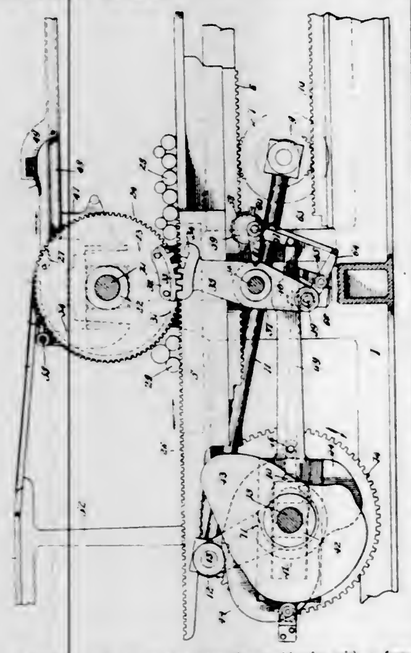
5. In an inking apparatus for printing-machines, the combination with a reciprocating bed, of an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rollers, a set of form-rollers, rider-rolls in contact with the form-rollers, means for positively driving the riders of the form-rollers at a surface speed corresponding to the speed of the bed, a rack on the bed, a gear driven by said rack, a bevel-gear operated by said gear, a shaft extending along and above the top of one side of the frame having a bevel-gear which meshes with the before-mentioned bevel-gear, and gearing including a set of intermeshing bevel-gears, one of which is carried by the shaft between the rider-rolls of the distributing-rollers and the shaft, whereby the shaft drives said rider-rolls, the gears which drive the shaft being arranged to impart to it a movement which enables the distributing-rollers to be driven at the speed of the ink-table, substantially as described.

6. In an inking apparatus for printing-machines, the combination with a reciprocating bed, of an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rollers, a set of form-rollers, rider-rolls in contact with the form-rollers, means for vibrating the rider-rolls of both the form and distributing rollers, means for positively driving the riders of the form-rollers at a surface speed corresponding to the speed of the bed, a rack on the bed, a gear driven by said rack, a bevel-gear operated by said gear, a shaft extending along and above the top of one side of the frame having a bevel-gear which meshes with the before-mentioned bevel-gear, and gearing including a set of intermeshing bevel-gears, one of which is carried by the shaft between the rider-rolls of the distributing-rollers and the shaft, whereby the shaft drives said rider-rolls, the gears which drive the shaft being arranged to impart to it a movement which enables the distributing-rollers to be driven at the speed of the ink-table, substantially as described.

7. In an inking apparatus for printing-machines, the combination with a reciprocating bed, of an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rolls, a set of form-rollers, rider-rolls in contact with the form-rollers, means for positively driving the riders of the form-rollers at a surface speed corresponding to the speed of the bed, a rack on the bed, a shaft extending along the top of one side of the frame, gearing including a pair of intermeshing bevel-gears, one of which is carried by the shaft between the rack and the shaft, a bevel-gear mounted on the shaft, a second bevel-gear driven by said gear, a pinion driven by said second bevel-gear, and trains of gearing leading from said pinion to the rider-rolls of the distributing-rollers, substantially as described.

8. In an inking apparatus for printing-machines, the combination with a reciprocating bed, of an ink-table moving therewith, a set of distributing-rollers coöperating with the ink-table, rider-rolls in contact with the distributing-rolls, a set of form-rollers, rider-rolls in contact with the form-rollers, means for vibrating the rider-rolls of both the form and distributing rollers, means for positively driving the riders of the form-rollers at a surface speed corresponding to the speed of the bed, a rack on the bed, a shaft extending along the top of one side of the frame, gearing including a pair of intermeshing bevel-gears, one of which is carried by the shaft between the rack and the shaft, a bevel-gear mounted on the shaft, a second bevel-gear driven by said gear, a pinion driven by said second bevel-gear, and trains of gearing leading from said pinion to the rider-rolls of the distributing-rollers, substantially as described.

681,253. PRINTING-MACHINE. THOMAS M. NORTH, New York, N. Y., assignor to Robert Hoe, same place. Filed Sept. 29, 1900. Serial No. 31,477. (No model.)



Claim.—1. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during its printing movement, stopping mechanism, and means for giving the cylinder a reverse movement back to the sheet-taking point after the printing operation is completed, substantially as described.

2. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during its printing movement, stopping mechanism, and means whereby the stopping mechanism gives the cylinder a reverse movement back to the sheet-taking point after the printing operation is completed, substantially as described.

3. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during its printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, and means for giving the cylinder a reverse movement from the stopping-point back to the feed-board, substantially as described.

4. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, and means whereby the stopping mechanism gives the cylinder a reverse movement from the stopping-point back to the feed-board, substantially as described.

5. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during its printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, a front delivery mechanism, means for giving the cylinder a reverse movement back to the sheet-taking point after the printing operation is completed, substantially as described.

6. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, stopping mechanism, a front delivery mechanism, and means whereby the stopping mechanism gives the cylinder a reverse movement back to the sheet-taking point after the printing operation is completed, substantially as described.

7. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, a front delivery mechanism, and means for giving the cylinder a reverse movement from the stopping-point back to the feed-board, substantially as described.

8. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, a front delivery mechanism, and means whereby the stopping mechanism gives the cylinder a reverse movement from the stopping-point back to the feed-board, substantially as described.

9. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during its printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, and means for giving the cylinder a reverse movement from the stopping-point back to the feed-board, and means for raising and lowering the feed-board, substantially as described.

10. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during its printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, means whereby the stopping mechanism gives the cylinder a reverse movement from the stopping-point back to the feed-board, and means for raising and lowering the feed-board, substantially as described.

11. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, a front delivery mechanism, means for giving the cylinder a reverse movement from the stopping-point back to the feed-board, and means for raising and lowering the feed-board, substantially as described.

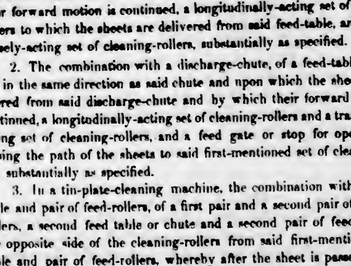
12. In a printing-machine, the combination with a form-carrier, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, stopping mechanism, a feed-board arranged back of the point where the cylinder is stopped, a front delivery mechanism, means whereby the stopping mechanism gives the cylinder a reverse movement from the stopping-point back to the feed-board, and means for raising and lowering the feed-board, substantially as described.

13. In a printing-machine, the combination with a reciprocating bed, of a cylinder having an impression-surface of such a length with respect to the form-carrying surface of the carrier that the cylinder after taking the sheet is required to make more than a complete revolution during the printing movement, a crank mechanism for driving the bed, racks on the bed, cooperating segments on the cylinder, a pivoted feed-board, means for raising the feed-board, a front delivery mechanism, stopping mechanism, including a pivoted arm and a gab-hook for operating it, a cam mechanism for operating the gab-hook, said mechanism being constructed to cause the hook to impart to said arm a movement which will bring the cylinder to a stop and thereafter give it a reverse movement back to the sheet-taking point, means for disconnecting the gab-hook from the arm, a safety device for preventing the operation of the disconnecting means except at specified times, and a locking mechanism for holding the arm stationary and disconnecting the gab-hook, substantially as described.

681,254. GYRATOR. WINSLOW P. NORTHWAY, Minneapolis, Minn. Filed Jan. 28, 1901. Serial No. 44,988. (No model.)

Claim.—1. The combination with a supporting base or frame, and a superposed gyrating body, of an intermediate slide supporting the latter on the former, and guides therefor extending in directions at right angles to each other on the gyrator and base, substantially as set forth.

2. The combination with a supporting base or frame, and a superposed gyrating body, of centrally-located means for gyrating the body, guides arranged at right angles to each other, and a slide operated therein by the gyrating body for controlling the movements of such body, substantially as set forth.



3. The combination with a supporting base or frame, and a superposed gyrating body, the former having guides on its upper surface and the latter having guides at its under surface at right angles to the guides on the base, of an intermediate slide engaging said guides, for the purpose set forth.

4. The combination with a gyrating body having guides at its under surface, of a slide engaging said guides and supported on other guides extending at right angles to the former guides, substantially as set forth.

5. The combination with a gyrating body having guides at its under surface, and underlying independent guides extending at right angles thereto, of an intermediate slide operated by the gyrating body and operatively engaging such guides, substantially as set forth.

6. The combination with a gyrating body having guides at its under surface, and underlying independent guides extending at right angles thereto, of an intermediate slide operated by the gyrating body and operatively engaging such guides, and ball or roller bearings for said slide in said guides, substantially as set forth.

7. The combination with a gyratory body having guideways at its under surface, of a supporting-frame, guideways thereon arranged at right angles to the said guideways, intermediate slides secured together at right angles to one another, and ball-bearings between said slides and guideways, and a shaft and crank-pin for imparting gyratory motion to said body, substantially as set forth.

8. In a gyrator, a supporting base or frame, a gyratory body and means for gyrating it, a slide intermediate the base and gyratory body and supporting the latter on the former, and straight-line guides on said base and body engaged by said slide, the guides on the base extending at angles to those on said body, substantially as set forth.

9. In a gyrator, a supporting base or frame, a gyratory body and means for gyrating it, parallel guides extending on the base, parallel guides provided on the bottom of the gyrating body and extending at angles to the former guides, and intermediate connected sliding devices engaging both of said sets of guides and adapted to be actuated by the gyratory body, for the purpose set forth.

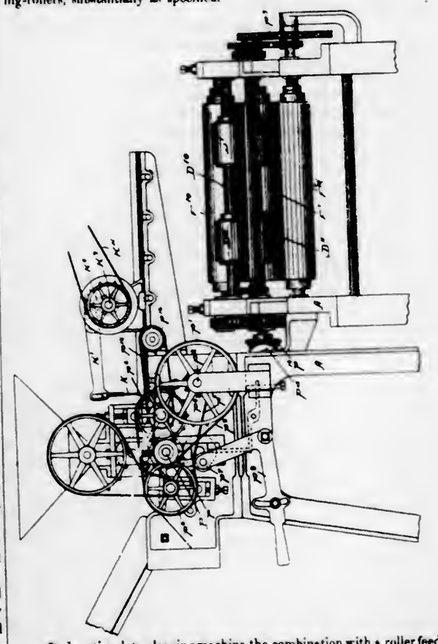
681,255. APPARATUS FOR MANUFACTURING TIN-PLATE. HORATIO N. NORTON, Oakpark, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Filed Dec. 2, 1895. Serial No. 570,826. (No model.)

Claim.—1. The combination with an inclined discharge-chute, of a feed-table extending in the same direction as the discharge-chute upon which the sheets are delivered from said discharge-chute and by which their forward motion is continued, a longitudinally-acting set of cleaning-rollers to which the sheets are delivered from said feed-table, and a transversely-acting set of cleaning-rollers, substantially as specified.

2. The combination with a discharge-chute, of a feed-table extending in the same direction as said chute and upon which the sheets are delivered from said discharge-chute and by which their forward motion is continued, a longitudinally-acting set of cleaning-rollers and a transversely-acting set of cleaning-rollers, and a feed gate or stop for opening and closing the path of the sheets to said first-mentioned set of cleaning-rollers, substantially as specified.

3. In a tin-plate-cleaning machine, the combination with the feed-table and pair of feed-rollers, of a first pair and a second pair of cleaning-rollers, a second feed table or chute and a second pair of feed-rollers at the opposite side of the cleaning-rollers from said first-mentioned feed-table and pair of feed-rollers, whereby after the sheet is passed forward through the first pair of cleaning-rollers it is returned or passed backward through the second pair of cleaning-rollers, and a feed gate or stop for opening and closing the path of the sheets to said first-mentioned pair of feed-rollers, substantially as specified.

4. In a tin-plate-cleaning machine, the combination with the feed-table and pair of feed-rollers, of a first pair and second pair of cleaning-rollers, a second feed table or chute and a second pair of feed-rollers at the opposite side of the cleaning-rollers from said first-mentioned feed-table and pair of feed-rollers, whereby after the sheet is passed forward through the first pair of cleaning-rollers it is returned or passed backward through the second pair of cleaning-rollers, a transversely-arranged feed-table and a pair of feed-rollers, and a transversely-arranged set of cleaning-rollers, substantially as specified.



5. In a tin-plate-cleaning machine the combination with a roller feed-table, of a chute extending at an angle to the feed-table to deliver the sheets upon the same, a pair of feed-rollers, a first pair and a second pair of cleaning-rollers, a second feed table or chute and a second pair of feed-rollers at the opposite side of the cleaning-rollers from said first-mentioned feed-table and pair of feed-rollers, whereby after the sheet is passed forward through the first pair of cleaning-rollers it is returned or passed backward through the second pair of cleaning-rollers, a feed-hopper and means for automatically feeding regular and uniform quantities of the bran or cleaning material to said set of cleaning-rollers, and means for returning the bran from the collecting-hopper to the feed-hopper, substantially as specified.

6. In a tin-plate-cleaning machine, the combination with a set of cleaning-rollers, of a pair of feed-rollers and a feed-table D, furnished with a series of revolving rollers *d d*, and a chute extending at an angle thereto for delivering the sheets upon the feed-table, substantially as specified.

7. In a tin-plate-cleaning machine, the combination with a set of cleaning-rollers, of a pair of feed-rollers and a feed-table D, furnished with a series of revolving rollers *d d*, and an automatically-operated feed stop or gate, and a chute extending at an angle thereto for delivering the sheets upon the feed-table, substantially as specified.

8. In a tin-plate-cleaning machine, the combination with a set of cleaning-rollers, of a pair of feed-rollers and a feed-table D, furnished with a series of revolving rollers *d d*, and an automatically-operated feed stop or gate, and a chute extending at an angle thereto for delivering the sheets upon the feed-table, a feed-hopper for the bran or cleaning material, and a device for feeding the bran or cleaning material regularly and uniformly to the cleaning-rollers, substantially as specified.

9. In a tin-plate-cleaning machine, the combination with a set of cleaning-rollers, of a pair of feed-rollers and feed-table D, furnished with a series of revolving rollers *d d*, and an automatically-operated feed stop or gate, and a chute extending at an angle thereto for delivering the sheets upon the feed-table, a feed-hopper for the bran or cleaning material, and a device for feeding the bran or cleaning material regularly and uniformly to the cleaning-rollers, consisting of a revolving roller closing the feed-orifice of the hopper and provided with a channel or receptacle, substantially as specified.

10. The combination with cleaning-rollers of a feed-table therefor, a discharge-chute extending at an angle thereto along which and the feed-table the sheets pass to the rolls without reversing their direction of movement, and a movable stop or gate to square the sheets in respect to the cleaning-rollers, substantially as specified.

11. In a tin-plate-cleaning machine, the combination with a set of three longitudinally-acting cleaning-rollers F, F', F², between which the sheet passes first forward and then backward, with a transversely-acting set of three cleaning-rollers F¹⁰, F¹¹, F¹² between which the sheet passes first forward and then backward, and feed-rollers and feed tables or chutes for passing the sheets forward and backward through both of said sets of cleaning-rollers, substantially as specified.

12. The combination with a tinning mechanism, of cleaning-rollers for cleaning the sheets by a rubbing action, feed-rollers having a slower surface speed than the cleaning-rollers, means for supplying bran or cleaning material to the cleaning-rollers, and means for delivering the hot sheets issuing from the tinning mechanism to the cleaning-rollers; whereby the sheets are rubbed clean while they are still hot and before the oil upon their surface becomes congealed, substantially as specified.

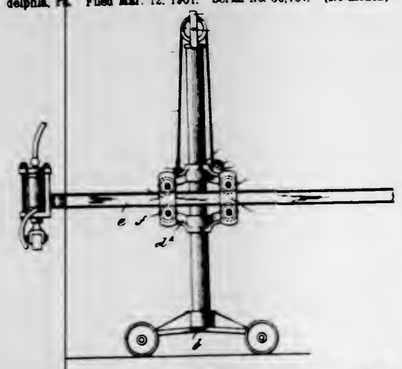
13. The combination with a tinning mechanism of cleaning-rollers for cleaning the sheets by a rubbing action, means for supplying bran or cleaning material to the cleaning-rollers, and means for delivering the hot sheets issuing from the tinning mechanism directly to the cleaning-rollers; and feed-rollers having a different surface speed from the cleaning-rollers for causing the sheets to pass between the cleaning-rollers at a different surface speed from the cleaning-rollers to produce the rubbing action of the cleaning-rollers upon the sheets; whereby the sheets are rubbed clean while they are still hot and before the oil upon their surface becomes congealed, substantially as specified.

14. In a tin-plate-cleaning machine, the combination with cleaning-rollers, of a roller feed-table for the sheets, a chute extending at an angle thereto for delivering the sheets upon the same in the direction they are fed forward thereby, and a movable stop or gate for closing the path of the sheets to the cleaning-rollers at intervals and straightening the position of the sheets so that they will pass properly between the rollers, substantially as specified.

15. In a tin-plate-cleaning machine, the combination with cleaning-rollers, of a roller feed-table for the sheets, a chute extending at an angle thereto for delivering the sheets to the feed-table in the direction they are fed forward thereby, and a movable stop or gate for closing the path of the sheets to the cleaning-rollers at intervals and straightening their position so that they will pass properly between the rollers, and a pair of feed-rollers between said stop or gate and the cleaning-rollers and revolving at a different surface speed from that of the cleaning-rollers, substantially as specified.

16. In a tin-plate-cleaning machine, the combination with the cleaning-rollers, of a feed-hopper for the bran or cleaning material, a conveyer mechanism for continuously returning the bran or cleaning material to the feed-hopper, a roller feed-table for the sheets and a movable stop or gate to adjust the position of the sheets and cause them to pass properly between the rollers, feed-rollers, and a chute for delivering the sheets upon the feed-rollers, substantially as specified.

681,256. STONE-DRESSING MACHINE. SAMUEL OLDHAM, Philadelphia, Pa. Filed Mar. 12, 1901. Serial No. 50,787. (No model.)

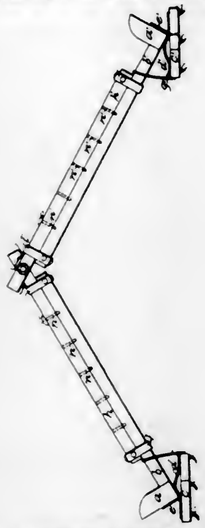


Claim.—1. In a machine of the character described, a cylindrical standard, a carriage arranged tangentially to the periphery of the standard, a sleeve surrounding but wholly disconnected from the standard and free to slide up and down and to turn thereon, said sleeve carrying said carriage, means for supporting the carriage and sleeve from the top of said standard, a beam having two points of support in the carriage and adapted to slide therein in a plane to one side of the central axis of the standard, and an impact-tool carried at one end of said beam, substantially as and for the purposes described.

2. In a machine of the character described, a cylindrical standard, a sleeve surrounding but wholly disconnected from the standard and free to slide up or down and to turn thereon, a carriage arranged tangentially to the standard and projecting from said sleeve, means for supporting the sleeve and carriage from the top of the standard, said means constituting the mechanism for elevating or depressing the carriage in a vertical plane, a single beam having two points of support in the carriage and adapted to slide therein in a plane to one side of the central axis of the standard and an impact-tool carried at one end of said beam, substantially as and for the purposes described.

3. In a machine of the character described, a cylindrical standard, an I-beam constituting the support for an impact-tool, a sleeve surrounding but wholly disconnected from the standard and free to slide up or down and to turn upon said standard, a carriage arranged tangentially to the standard and projecting from said sleeve, said carriage provided with two sets of channeled rollers, each set arranged to one side of the central axis of the standard and both sets arranged in a plane to one side of the said axis, each set of rollers constituting a support for the I-beam adapted to be guided by the sets of rollers and to slide in said carriage, substantially as and for the purposes described.

681,257. CARPET-STRETCHER. ANDREW PARROTT, Sumner, Iowa. Filed May 13, 1901. Serial No. 59,980. (No model.)

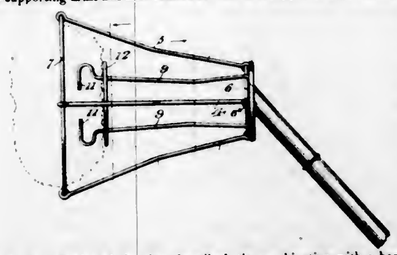


Claim.—A carpet-stretcher consisting of two two-part rods whose sections are adjustable lengthwise upon each other, a bolt pivotally connecting the inner ends of said rods, a series of perforations extending through the upper into the lower sections of said rods, pins for holding said sections together, cross-bars at the outer ends of said rods, pads having their under surfaces studded with outwardly-curved brads, hinges connecting said pads with said cross-bars, loops fastened to said pads and arranged to limit the vertical movement of said rods, springs attached to said cross-bars and bearing against the upper surfaces of said pads, and rotatable thumb-pieces on the upper surfaces of the inner ends of said rods, all substantially as shown and described.

681,258. WINDOW-WASHER. FREDERICK R. POLLARD, Lebanon, N. H. Filed Feb. 9, 1901. Serial No. 46,696. (No model.)

Claim.—1. In a device of the class described, a base having provision for the attachment of a handle thereto; in combination with a series of outwardly-flaring hoop-supporting arms, a hoop carried by the outer extremities of said arms and forming a mop-holding basket and mop-gripping means contained within the hoop-supporting arms.

2. In a device of the class described, the combination with a base having provision for the attachment of a handle; of a series of hoop-supporting arms connected therewith, a mop-holding hoop connecting the outer extremities of said arms, and mop-gripping arms located within the hoop-supporting arms and also connected with and supported by the base.

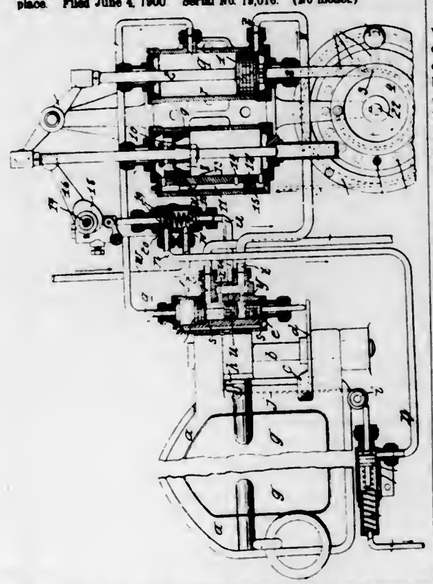


3. In a device of the class described, the combination with a base having provision for the attachment of a suitable handle; of a series of hoop-supporting arms connected to the base, a mop-holding hoop connecting the outer extremities of said arms, a series of mop-gripping arms arranged within the hoop-supporting arms and having a normal outward divergence, and a slide-ring mounted for longitudinal movement on said gripping-arms and embracing the same.

4. In a device of the class described, the combination with a base having provision for the attachment of a suitable handle; of hoop-supporting arms connected therewith and bent intermediate their ends to provide widely-flaring outer portions, a mop-holding hoop connecting the outer extremities of said arms, mop-gripping arms connected with the base and having hooked extremities, and a slide-ring embracing said gripping-arms and adapted to hold the hooked extremities thereof in engagement with the mop.

5. In a device of the class described, the combination with a base having provision for the attachment of a suitable handle; of a series of hoop-supporting arms, a mop-holding hoop connecting the outer extremities thereof, a series of mop-gripping arms having hooked extremities, a slide-ring for operating said gripping-arms, and a coupling or anchoring ring engaging all of the arms and serving to secure the same to the base.

681,259. DRAFT-REGULATING APPARATUS FOR FURNACES OF STATIONARY BOILERS. CHARLES POLIC and JOHANN ZIMMERMANN, Vienna, Austria-Hungary, assignors to the Actien-Gesellschaft zur Verwerthung der Österr. und Ungar. Patents Th. Langer, same place. Filed June 4, 1900. Serial No. 19,016. (No model.)



Claim.—1. In a draft-regulator, a steam-distributer set in operation by the furnace-door, a steam-cylinder steam-connected to the distributer, a piston in said cylinder arranged to operate a damper, means for braking the steam-piston after steam-supply thereto has been cut off, said distributer arranged to cut off the steam-supply to the steam-cylinder when its piston has nearly completed its travel, substantially as set forth.

2. In a draft-regulator, a steam-distributer set in operation by the furnace-door, a steam-cylinder steam-connected to said distributer at one end, a second steam connection from the steam-cylinder to the distributer arranged to be opened when the steam-piston has accomplished part of its travel, a brake-cylinder, its piston, a pivoted lever connected at one end to the steam-piston and at the other to the brake-piston, and a damper operated by the steam-piston, substantially as set forth.

3. In a draft-regulator, a steam-distributer and differential piston-valve operatively located therein to cut off the steam-supply, means operated from the furnace to displace the differential valve, a steam-cylinder, a steam connection between one end thereof and the steam-distributer at a point below the differential valve, and a steam connection between said cylinder intermediate its ends and the steam-distributer at a point above the differential valve and a damper operated by the steam-piston, substantially as set forth.

4. In a draft-regulator, a steam-distributer comprising a suitable casing, a differential piston-valve therein comprising two connected pistons of different sizes, one of them controlling a steam-inlet port, a piston in said casing arranged to displace the differential valve, a steam by-pass connecting both ends of the casing and a branch passage connecting the by-pass with the interior of the casing intermediate the pistons of the differential valve and arranged to be closed by one of them; in combination with a steam-cylinder and its piston steam-supplied through the distributer, and a steam connection from said steam-cylinder to the differential valve, substantially as set forth.

5. In a draft-regulator, a steam-distributer comprising a suitable casing, a differential piston-valve therein comprising two connected pistons of different sizes, one of them controlling a steam-inlet port, a piston arranged to start the opening of the differential valve, a steam by-pass connecting the top and bottom of said casing, a steam-chamber, passages connecting it with the interior of the casing above and below one of the pistons of the differential valve, an exhaust, said exhaust and one of the passages between the steam-chamber and interior of the casing capable of being closed by the differential valve, and steam inlets and outlets, substantially as set forth.

6. In a draft-regulator, a steam-distributer, a steam-cylinder supplied therefrom, and provided with a steam-outlet intermediate its ends, a piston and rod, a damper operatively connected to one end of said rod and a brake-cylinder, its piston and rod, a pivoted lever connecting the rods of the brake and steam pistons, a steam-cut-off valve, a tappet to operate said valve actuated by the brake piston-rod, substantially as set forth.

7. In a draft-regulator, a steam-distributer, a steam-piston contained within a steam-circuit from and to the distributer, a piston and rod in the cylinder operatively connected to a damper, a brake-cylinder adapted to contain a liquid, a piston provided with a valve normally closed when braking, its piston-rod, the steam and brake piston-rods operatively connected, a by-pass connecting the ends of the brake-cylinder, said by-pass having constricted passages near its ends one smaller than the other, and a passage intermediate the constricted portions to communicate with the interior of the brake-cylinder arranged to be closed by the brake-piston when near the limit of its braking stroke, substantially as set forth.

8. In a draft-regulator, a steam-distributer, a steam-piston contained within a steam-circuit from and to the distributer, a piston and its rod in the cylinder operatively connected to a damper, a brake-cylinder adapted to contain a liquid, a piston provided with a valve normally closed when braking, its piston-rod, a pivoted lever connecting the ends of the steam and brake piston-rods, a by-pass connecting the ends of the brake-cylinder, means near the ends of the by-pass for constricting and regulating the degree of constricture in said by-pass, the free passage being smaller near the end of the braking stroke, a port intermediate the constricted portions of the by-pass communicating with the interior of the cylinder arranged to be closed by the braking-piston when near the limit of its braking stroke, substantially as set forth.

9. In a draft-regulator, the combination with a furnace-door flap, an actuating device comprising a steam-cylinder, a spring-retracted piston therein and its piston-rod operatively connected to actuate the furnace-door flap; of a spring-retained steam-cut-off valve, a steam-distributer connected thereto and steam-actuated devices supplied from the distributer for actuating the steam-cut-off valve, substantially as set forth.

10. In a draft-regulator, the combination with a furnace-door, a flap mounted on trunnions thereon, a steam-cylinder, a spring-retracted piston and rod therein, said rod operatively connected to the flap; of a spring-retained steam-cut-off valve, a steam-distributer, a steam-actuated piston arranged to actuate a damper, a braking-piston connected to the steam-actuated piston, a cam, its actuating-lever operated by the braking-piston to operate the steam-cut-off valve, substantially as set forth.

11. In a draft-regulator, the combination with a steam-cylinder, its

piston and rod and means for supplying steam to said cylinder, a pulley, a flexible connection between the pulley and rod, a pulley provided with a handle connected to a damper, a spindle fixed thereto, the first-mentioned pulley loose on said spindle and means for adjusting and connecting the loose pulley to the one operating the damper, thereby adjusting the degree of closure of the latter, substantially as set forth.

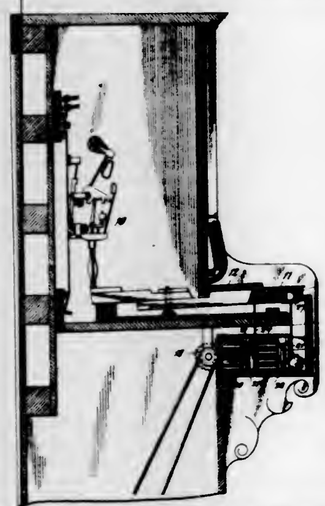
12. In a draft-regulator, the combination with a furnace-door and a rod, a cam carried thereby; of a steam-distributer comprising a suitable casing, a differential valve therein consisting of two connected pistons of different sizes, a piston and its rod below the differential valve arranged to be cammed by the cam on the furnace-door to start the differential valve, a steam by-pass connecting the end of the distributer, a port intermediate the ends of the by-pass to connect it intermediate the pistons of the valve, a steam-chamber and two ports connecting it with the valve-chamber, an exhaust-port intermediate the pistons of said valve, one of the pistons of the valve arranged to control the exhaust-port, one of the ports to the steam-chamber and the one to the by-pass, and a steam piston and cylinder to actuate a damper operatively included in a steam-circuit from and to the distributer, substantially as set forth.

681,260. WRENCH. OLIVER R. PORTIOUS, Wauseon, Ohio. Filed Apr. 22, 1901. Serial No. 56,904. (No model.)



Claim.—A wrench comprising a handle; a fixed jaw thereon; a movable jaw slidingly mounted thereon; a spring-pressed thumb-piece pivotally connected to the sliding jaw and provided with fork-arms which embrace the wrench-handle; and an adjusting-screw carried by the forked thumb-piece and having a swivel engagement therewith and a threaded engagement with the handle of the wrench.

681,261. AUTOMATIC PIANO. TIMOTHY B. POWERS, New York, N. Y., assignor, by direct and mesne assignments, to the Magnetic Piano Company, of New Jersey. Filed Apr. 13, 1899. Serial No. 712,866. (No model.)



Claim.—1. In an automatic attachment for pianos, the combination with a piano-action of an electromagnet, means for closing circuit electrically to energize the electromagnet, an armature for said electromagnet, links pivoted to said armature and to a support relatively stationary to said electromagnet, the pivotal connection of said links upon said support being on the opposite side of the armature to which is the electromagnet, said links being of such length and so arranged that said armature shall be held always out of contact with the poles of said electromagnet, and a connecting-rod pivoted to the piano-action and to an extension of one of said links on the opposite side of its point of support to which is the armature, substantially as specified.

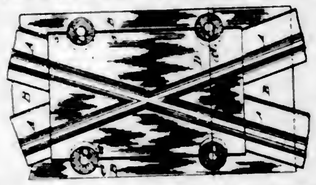
2. In an automatic attachment for pianos, the combination with a piano-action of an electromagnet, means for closing circuit electrically to energize the electromagnet, an armature for said electromagnet, links pivoted to said armature and to a support relatively stationary to said electromagnet, the pivotal connection of said links upon the support being upon the opposite side of the armature to which is the electromagnet, and a connecting-rod pivoted to the piano-action and to an extension of one of said links on the opposite side of its point of support to which is the armature, the point of connection of the connecting-rod with the extension of the link being so located that the direction of a straight line drawn through the said point of connection and through the pivotal connection of the link upon its support, will approach more nearly to the direction of the line of pull of the connecting-rod, than will the direction of a straight line drawn through the said pivotal connection of the link upon the support and the pivotal connection of the link with the armature, substantially as specified.

3. In an automatic attachment for pianos, the combination with a piano-action of an electromagnet, means for closing circuit electrically to energize the electromagnet, an armature for said electromagnet, links pivoted to said armature and to a support relatively stationary to said electromagnet, the pivotal connection of said links upon the support being upon the opposite side of the armature to which is the electromagnet, and a connecting-rod pivoted to the piano-action and to an extension of one of said links on the opposite side of its point of support to which is the armature, the said extension being upwardly curved substantially as shown and for the purpose set forth.

4. In an automatic attachment for pianos, the combination with a piano-action, of a finger-key, adapted, under pressure, to operate said action, and having a recess in its under side, the mouth of said recess being contracted, an electromagnet, means for closing circuit electrically to energize said electromagnet, an armature therefor, a connecting-rod between said armature and said finger-key, said connecting-rod having its lower end secured to said armature and its upper end arranged to enter the recess in said finger-key and having a head adapted to engage the said contracted mouth when said connecting-rod is depressed, but to be received within the recess, upon the independent depression of the finger-key, whereby the said connecting-rod shall not at such times partake of such movement.

5. In an automatic attachment for pianos, the combination with a piano-action and a finger-key, adapted, under pressure, to operate said action, of an electromagnet, means for closing circuit electrically to energize said electromagnet, an armature therefor, a connecting-rod between said armature and said finger-key, a recess in said finger-key, a plate partially covering such recess, an orifice in said plate through which said connecting-rod is adapted to pass freely, and a head on the end of the connecting-rod of such size that it will not pass through said orifice, substantially as specified.

681,262. RAILWAY-TRACK STRUCTURE. WILLIAM E. PRINDLE, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 3, 1900. Serial No. 38,433. (No model.)



Claim.—1. In a railway-track structure of the class described, the combination with a central body provided with a pocket, and a wear-plate seated in said pocket, of fastening members seated in said body and adapted to be moved into and out of fastening engagement with the edge portions of said plate without unseating them.

2. In a railway-track structure of the class described, the combination with a body portion securing the rail members of the structure, and provided with a pocket in its surface, of a wear-plate seated in said pocket, and fastening members seated in the said body portion and arranged to be moved to engage edge portions of the said plate, together with means for normally securing such engagement but which can be removed to permit disengagement.

3. In a railway-track structure of the class described, the combination with a body portion which secures the rail members of the structure and which is provided with a pocket, of a wear-plate seated in the said pocket, and fastening members rotatively seated in said body and engaging opposite edge portions of the said plate.

4. In a railway-track structure, the combination with a body portion having a pocket therein, and a wear-plate seated in said pocket, of fastening members seated in said body and engaging said plate to prevent both lateral and vertical movement thereof, and means whereby said members may be moved to free said plate without unseating them.

5. In a railway-track structure, the combination with a body portion having a pocket therein, and a wear-plate seated in said pocket, of vertical fastening members rotatively seated in the walls of the said pocket and having head portions arranged to engage the said plate, at opposite sides thereof.

6. In a railway-track structure, the combination with a body portion having a pocket therein, of a wear-plate removably seated in said pocket, and fastening members rotatably seated in the walls of said pocket and having head portions rotatable into and out of lateral engagement with the said plate.

7. In a railway-track structure, the combination with a body portion having a pocket therein, of a wear-plate removably seated in said pocket, and fastening devices having bearings in the bottom and side walls of said pockets, and provided with extended heads, said plate and body portion having registering surface-pockets to receive the said heads.

8. In a railway-track structure, the combination with a body portion having a pocket therein, of a wear-plate removably seated in said pocket, fastening devices having bearings in the bottom and side walls of said pockets, and provided with extended heads adapted to be moved to engage said plate, said plate and body portions having registering surface-pockets to receive the said heads, and retaining material, such as spelter, filling said pockets around the said heads.

9. In a railway-track structure, the combination with a body portion provided with a pocket whose bottom wall is formed with slotted bolt-seats, of a wear-plate in said pocket, and vertical bolts seated in the lateral walls of said pockets and having headed lower ends rotatively engaging said seats and headed upper ends engaging said plate.

10. In a railway-track structure, the combination with a body portion provided with a pocket having in its bottom undercut recesses or depressions adapted to receive bolt-heads, and open slots leading into the undercut portion of said recesses or depressions, of a wear-plate seated in said pocket, and rotatable bolts having headed lower ends seated in said recesses or depressions, and headed upper ends engaging said plate, said plate and body having registering pockets to receive said headed upper ends.

11. In a railway-track structure, the combination with a body portion having a pocket therein, provided with bearings for fastening members in its bottom and lateral walls, a plate seated in said pocket, and fastening members for said plate rotatively seated in said bearings and secured against removal by the said plate.

12. In a railway-track structure, the combination with a body portion having a pocket therein, a plate seated in said pocket rotatable fastening members seated in open bearings in the walls of said pocket and secured against removal by the said plate, and means for normally securing said members against rotation.

13. In a railway-track structure, the combination with a body portion having a pocket therein, a plate seated in said pocket, and fastening members rotatively seated in said body portion and having heads at their upper ends, said body portion and plate having registering pockets to receive the said heads, the pockets of the plate having their bottom walls inclined.

14. In a railway-track structure, the combination of a body portion having a pocket therein, a plate seated in said pocket, rotatable headed fastening members seated in said body portion and engaging said plate, and spelter or like retaining material which fills said pocket around the plate, and also surrounds the heads of the said bolts.

15. In a railway-track structure, the combination with a body portion having a pocket therein, a wear-plate seated in said pocket, releasable fastening devices for the said plate, a wedge seated between the bottom of said plate and the bottom of the pocket, and means whereby said wedge may be moved to thereby loosen said plate in its seat.

16. In a railway-track structure, the combination with a body portion having a pocket therein, a wear-plate seated therein, a plate-lifting member in said pocket upon which the plate is seated, and means for moving said member from the surface of the structure.

17. In a railway-track structure, the combination with a body portion having a pocket therein, and a wear-plate removably seated and secured in said pocket, of a pair of wedges seated underneath the said plate with abutted heads, and a vertical aperture in said plate through which a suitable tool may be introduced between said heads for the purpose of separating the wedges and thus loosening the plate in its seat.

681,263. CANDLE-LAMP. THOMAS C. RICHARDS, Winsted, Conn. Filed May 17, 1901. Serial No. 60,739. (No model.)

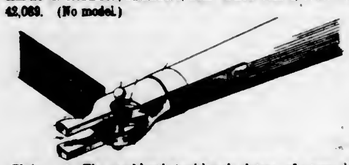
Claim.—1. In a candle-lamp, the combination with an inner tube having an outwardly-projecting lug, of an outer removable tube having a notch in its upper edge to engage the lug on the inner tube, and devices detachably secured to the inner tube for pressing the outer tube against said lugs and locking the outer tube in place, substantially as set forth.



2. In a candle-lamp, the combination with an inner tube provided with a lug and an outer removable tube having a bearing against said lug, of a ferrule secured to the lower end of the inner tube and having a shoulder engaging and forming a seat for the adjacent end of the outer tube and a spring-clamp carrying a fixed screw adapted to pass through the ferrule and engage the inner tube to secure the parts rigidly together.

3. In a candle-lamp the combination with an inner tube having an outwardly-projecting lug and an outer ornamental tube having a notch in its upper end to engage said lug, of a ferrule embracing the lower ends of both tubes and bearing against the outer tube for holding it in contact with the lug, and a spring-clamp carrying a fixed screw the latter adapted to pass through the ferrule and enter the lower end of the inner tube, substantially as set forth.

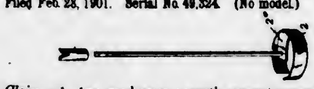
681,264. SINGLETREE-HOOK AND TRACE-SECURING DEVICE. HENRY C. ROBINSON, Jacksboro, Tex. Filed Jan. 4, 1901. Serial No. 42,069. (No model.)



Claim.—1. The combination with a singletree, of a trace-hook comprising parallel arms formed with vertically-alined recesses, and a clip secured to the singletree and extending opposite the recesses in the arms in position to confine the end fastening of a trace within said recesses.

2. The combination with a singletree; of a band encircling the end thereof and formed with an offset; a strip of resilient metal supported within said offset and bent upon itself to form a clip; and a trace-hook secured to the end of the singletree and longitudinally slotted to form parallel arms, said arms being provided with vertically-alined recesses.

681,265. MANTLE-SUPPORT. THOS. RODERICK, Columbus, Ohio. Filed Feb. 28, 1901. Serial No. 49,324. (No model.)



Claim.—1. In a gas-burner, a mantle-support comprising a rod constructed at its upper end to support a mantle, a spring attached to said rod to slidably bear against the inner side of the burner-tube, whereby the rod is adjustable vertically with a direct movement thereof, and is held in adjusted position in said tube, substantially as described.

2. A mantle-support for a gas-burner comprising in combination, a rod, a spring 2 of cylindric form having an inwardly and radially extend-

ing tongue 2ª to which the rod is attached, said spring 2 adapted to slidably bear upon the inner side of the burner-tube whereby the rod is adjustable vertically with a direct movement thereof, and is held in adjusted position in said tube, substantially as described.

3. In a gas-burner, a vertically-adjustable mantle-support located centrally in the burner-tube, said support comprising a rod constructed at its upper end to sustain a mantle, combined with a spring to frictionally hold said rod in any position to which it is adjustable in said burner-tube, the rod being adjustable with a direct vertical movement thereof, substantially as described.

4. In a gas-burner, the combination with a burner-tube, a foraminous tip therefor, a central opening for the movement of a mantle-supporting rod in said tip, a mantle-supporting rod extending through the central opening in the tip, a spring to frictionally hold said rod in any position to which it is adjustable in said burner-tube, substantially as described.

681,265. MEAT-TENDERER. ROSANA ROOP, Montgomery, W. Va. Filed Apr. 17, 1901. Serial No. 56,260. (No model.)



Claim.—1. The combination with a meat-tenderer embodying tendering rolls, of a rotatable condiment-holder having provision whereby it is operated simultaneously with the operation of the tenderer.

2. The combination with a meat-tenderer embodying toothed rolls, of a rotatable condiment-holder geared to one of the rolls for simultaneous operation therewith.

3. The combination with a meat-tenderer embodying rotatable tendering-rolls, of a condiment-holder geared to one of the rolls for simultaneous operation therewith and comprising a plurality of separate condiment-compartments.

4. The combination with a meat-tenderer embodying tendering-rolls, of a detachably-mounted rotatable condiment-holder adapted to be actuated simultaneously with the machine.

5. The combination with a meat-tenderer embodying tendering-rolls, of a detachably-mounted rotary condiment-holder geared to the machine for simultaneous operation therewith, the said condiment-holder comprising a detachable driving-head.

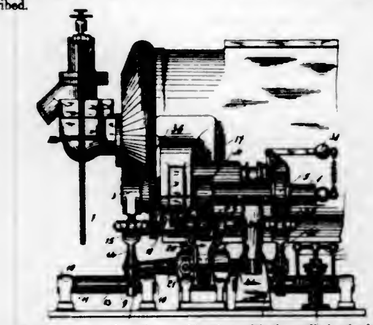
6. The combination with a meat-tenderer comprising geared tendering-rolls, of a detachably-mounted condiment-holder, and a driving-head having an interlocked engagement with one end of the condiment-holder and provided with means whereby it may be placed in gear with one of the tendering-rolls.

7. The combination with a meat-tenderer embodying tendering-rolls, of a rotary condiment-holder detachably mounted thereon and comprising an internal web or partition dividing the holder into separate compartments, and a grooved driving-head adapted to interlock with the condiment-holder and to be driven by the machine simultaneously with the operation of the meat-tendering mechanism.

681,267. FUEL-FEED DEVICE FOR EXPLOSIVE-ENGINES. ADOLPH SAURER, Arbon, Switzerland. Filed Jan. 24, 1900. Serial No. 2,679. (No model.)

Claim.—1. In a gas-engine, the combination with the cylinder its inlet and exhaust valves, a pump for hydrocarbon and a separate lever to operate each of said valves and pump, of a cam-shaft driven from a moving part, cams thereon to actuate each lever, tappets interposed between the cams and the levers that actuate the pump and the inlet-valve, a governor suitably driven, mechanism connected therewith to control the extent of closing of the exhaust-valve and mechanism to cause the tappets to remain idle, substantially as described.

2. In a gas-engine, the combination with the cylinder its inlet and exhaust valves, a pump for hydrocarbon and a separate lever to operate each of said valves and the pump, of a cam-shaft driven from a moving part, cams thereon to actuate each lever, swinging tappets interposed between the ends of the levers that actuate the pump and inlet-valve and their actuating-cams, a governor driven from said cam-shaft, mechanism connected thereto to prevent closure of the exhaust-valve and simultaneously to swing the tappets to cause them to run idle, substantially as described.



3. In a gas-engine, the combination with the cylinder its inlet and exhaust valves, a pump for hydrocarbon and a separate lever to operate each of said valves and the pump, of a cam-shaft driven from a moving part, cams thereon to actuate each of said levers, depending pivoted tappets between the ends of the levers that actuate the pump and inlet-valve, and their actuating-cams; a governor driven from the cam-shaft and arranged to control the movement of the lever controlling the exhaust-valve, and devices connected with said lever and the tappets arranged to move them out of engagement with the ends of the levers when acted upon by their respective cams, substantially as described.

4. In a gas-engine, the combination with the exhaust-valve, its operating-lever and a stepped tappet thereon, of a cam for moving the lever, a yoke arranged to be moved into the path of the tappet, a cam-shaft, a governor driven therefrom, a bell-crank moved by the governor and connected to said yoke to move it into engagement with the stepped tappet, as set forth.

5. In a gas-engine, the combination with the cylinder, its inlet and exhaust valves and a separate lever to operate each of said valves; of a cam-shaft, a pump for hydrocarbon and a lever to operate it, all of said levers actuated from the cam-shaft, and mechanism connected to and operated by the lever operating the exhaust-valve and arranged intermediate the cam-shaft and the inlet-valve and pump-actuating levers, to cause the latter to remain temporarily idle, substantially as set forth.

6. In a gas-engine, the combination with the cylinder, its inlet and exhaust valves, and a separate lever to operate each of said valves; of a cam-shaft, a governor and shaft driven from the cam-shaft, a rock-shaft and a pump for hydrocarbon driven by the rock-shaft, a hinged yoke moved by the governor and controlling the lever actuating the exhaust-valve, tappets moved from the exhaust-valve lever interposed between the inlet-valve lever and rock-shaft and the cam-shaft and arranged to be moved into and out of operative relation to cause the pump and inlet-valve to remain temporarily idle, substantially as set forth.

7. In a gas-engine, the combination with the cylinder, its inlet and exhaust valves and a separate lever to operate each of said valves; of a cam-shaft driven from a moving part to operate the levers, a governor and its shaft geared to and driven from said cam-shaft, a bell-crank lever operated by the governor, a yoke connected to the bell-crank lever and straddling the lever operating the exhaust-valve, and tappets on the lever and the yoke cooperating to control the closure of the exhaust-valve, substantially as set forth.

681,268. LAMP-SOCKET. DUNY A. SCHUTT, Peru, Ind. Filed July 11, 1900. Serial No. 23,218. (No model.)



Claim.—1. In a lamp-socket, the combination of upper and lower base members of insulating material, a contacting ring on the lower base, provided with a current-terminal embedded in the bases, a threaded center post having a base inserted in the lower side of the lower base, a connecting-screw passing centrally through the center post and base into a contact-spring, a contact-spring so connected and in electrical connection with the screw, an upper contact provided with a connecting-terminal embedded in the upper base, and a turning stem and tumbler mounted in bearing-recesses formed in the meeting faces of the base members and adapted to establish electrical communication between the upper terminal and the contact-spring, substantially as set forth.

2. In a lamp-socket, the combination of upper and lower base members of insulating material, a contacting ring on the lower base provided with a current-terminal embedded in the bases, a threaded center post having a base inserted in the lower side of the lower base, a connecting-screw passing centrally through the center post and base into a contact-spring, a contact-spring so connected and in electrical connection with the screw, an upper contact provided with a connecting-terminal embedded in the upper base, a turning stem and tumbler mounted in bearing-recesses formed in the meeting faces of the base members and adapted to establish electrical communication between the upper terminal and the contact-spring, and connecting-screws passing through both base members into the contacting ring and holding the parts together, substantially as set forth.

3. In a lamp-socket, the combination of a base member of insulating material, a threaded center post having a base inserted in the lower side of the base member, a screw passing centrally through the center post and base into a contact-spring, and a contact-spring so connected and in electrical connection with the screw, and a flat contact-spring bowed over and forming a flat elastic contact-face for a rotatable tumbler, substantially as set forth.

4. In a lamp-socket provided with one or more base members of insulating material provided with sockets having screw-slots and surrounding overlapping shells; a holding device for the shells consisting of an elongated flat retaining-nut adapted to be inserted in the socket in the base, and a screw passing through bayonet-joint openings in the shell and through the slot, and tapped into the retaining-nut, whereby the shells and bases are firmly connected, substantially as set forth.

5. In a lamp-socket, the combination of an upper base member of insulating material provided with oppositely-disposed vertical sockets on the sides having lateral screw-slots of less width, a lower base member of insulating material, surrounding overlapping shells provided with bayonet-joint openings, flat retaining-nuts mounted in the sockets, and securing-screws passing through the shells and slots and tapped into the retaining-nuts, substantially as set forth.

6. In a lamp-socket, the combination of an upper base member, of insulating material provided with oppositely-disposed vertical sockets in the sides having lateral screw-slots of less width, a lower base member of insulating material provided with corresponding oppositely-disposed closed vertical sockets adapted to form extensions of the upper sockets, surrounding overlapping shells provided with bayonet-joint openings, flat retaining-nuts mounted in the sockets, and securing-screws passing through the shells and slot and tapped into the retaining-nuts, substantially as set forth.

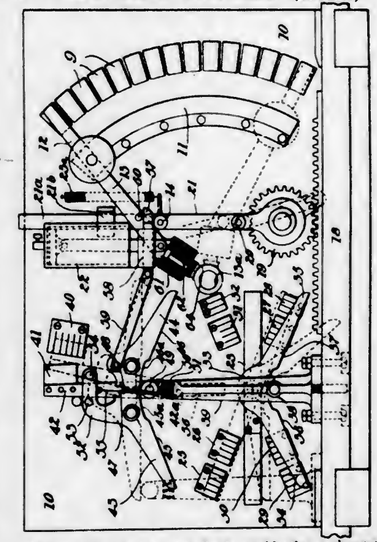
7. In a lamp-socket, the combination of upper and lower base members of insulating material, a contacting ring on the lower base provided with a current-terminal embedded in the bases, a threaded center post having a square base inserted in the lower side of the lower base, a connecting-screw passing centrally through the center post and base into a contact-spring, a contact-spring so connected and in electrical connection with the screw, an upper contact provided with a connecting-terminal embedded in the upper base, a turning stem and tumbler mounted in bearing-recesses formed in the meeting faces of the base members and adapted to establish electrical communication between the upper terminal and the contact-spring, surrounding upper and lower overlapping shells, holding devices for the shells consisting of elongated flat retaining-nuts adapted to be inserted in sockets in the base members, and screws passing through bayonet-joint openings in the shells and tapped into the retaining-nuts, substantially as set forth.

8. In a lamp-socket, the combination of upper and lower base members of insulating material, a contacting ring on the lower base provided with a current-terminal, embedded in the bases, a threaded center post having a square base inserted in the lower side of the lower base, a connecting-screw passing centrally through the center post and base into a contact-spring, a contact-spring so connected and in electrical connection with the screw, an upper contact provided with a connecting-terminal embedded in the upper base, a turning stem and tumbler mounted in bearing-recesses formed in the meeting faces of the base members and adapted to establish electrical communication between the upper terminal and the contact-spring, surrounding upper and lower overlapping shells, an internal insulating-lining for the upper shell consisting of a cap-shaped disk of fiber conforming to the inner surface of the shell and held therein, by retaining-lugs passing through the fiber and bent over, an inner lining for the lower shell of insulating material, holding devices for the shells consisting of elongated flat retaining-nuts adapted to be inserted in sockets in the base members, and screws passing through bayonet-joint openings in the shells and tapped into the retaining-nuts, substantially as set forth.

9. In a lamp-socket, the combination of upper and lower base members of insulating material, a contacting ring on the lower base provided with a current-terminal embedded in the bases, a threaded center post having a square base inserted in the lower side of the lower base, a connecting-screw passing centrally through the center post and base into a contact-spring, a contact-spring so connected and in electrical connection with the screw, an upper contact provided with a connecting-terminal embedded in the upper base, a turning stem and tumbler mounted in bearing-recesses formed in the meeting faces of the base members, and adapted to establish electrical communication between the upper terminal and the contact-spring, surrounding upper and lower overlapping shells, an internal insulating-lining for the upper shell consisting of a cap-shaped disk of fiber conforming to the inner surface of the shell and held therein, by retaining-lugs passing through the fiber and bent over, an inner lining for the lower shell of insulating material, holding devices for the shells consisting of elongated flat retaining-nuts adapted to be inserted in sockets in the base members, and screws passing through bayonet-joint openings in the shells and tapped into retaining-nuts, substantially as set forth.

10. In a lamp-socket of the class described, an internal insulating-lining for the cap consisting of a cap-shaped disk of fiber conforming to the inner surface of the cap and holding-lugs passing through the fiber and bent over, substantially as set forth.

681,269. MOTOR-CONTROLLER. RUSSELL W. SCOTT, New York, N. Y. Filed Dec. 19, 1900. Serial No. 40,349. (No model.)



Claim.—1. In a motor-controller in combination, a rheostat in the motor-circuit, including a series of terminals and resistances between the same, a switch in said circuit including a pivoted arm carrying a contact-piece adapted to move over said series of terminals to cut out the resistances of said rheostat, a dash-pot to control the speed of movement of said arm, a lock to prevent the forward movement of said switch, and means including a solenoid carried by said arm and having a core adapted to engage a stationary series of teeth, and a connection from the motor-circuit through said solenoid to automatically unlock the same when the motor-circuit is closed.

2. In a motor-controller in combination, a rheostat in the motor-circuit including a series of terminals and resistances between the same, a switch in said circuit including a pivoted arm carrying a contact-piece adapted to move forward over said series of terminals by gravity to cut out the resistances of said rheostat, a dash-pot to control the speed of movement of said arm, a lock to prevent the forward movement of said switch, and means including a solenoid carried by said arm and having a core adapted to engage a stationary series of teeth, and a connection from the motor-circuit through said solenoid to automatically unlock the same, when the motor-circuit is closed.

3 In a motor-controller in combination, a rheostat in the motor-circuit, a switch also in said motor-circuit and adapted to automatically move

over the same and cut out resistances therein, a lock adapted to hold said switch from passing over said rheostat, a plurality of cams having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said cams, and a connection therefrom to said lock to release the same when one of said cams is moved.

4. In a motor-controller in combination, a rheostat in the motor-circuit, a contact-piece in said circuit adapted to pass over the same, a movable rack, a connection from the same including a rotatable wheel meshing with said rack and a link attached thereto and to a movable stop engaging said arm to cause said contact-piece to move over said rheostat and cut out the resistances thereof on a movement of said rack in either direction.

5. In a motor-controller in combination, a rheostat in the motor-circuit, a contact-piece in said circuit adapted to pass over the same and carried by a pivoted arm adapted to fall by gravity when released, a dash-pot to control the speed of movement of said arm, a movable rack, a connection from the same to said pivoted arm to release the same and cause said arm to fall and move said contact-piece over said rheostat to cut out the resistances thereof on a movement of said rack in either direction.

6. In combination, a car, a device for moving the same including a motor, a rheostat in the motor-circuit, a switch adapted to automatically move over said rheostat and cut out resistances thereof, a main switch, a reversing-switch and reversing connections also in said motor-circuit, controlling means extending to said car and connections therefrom to said main and reversing switches adapted to close said reversing-switch and then said main switch, a stop for said rheostat-switch movable independently thereof and adapted to control the position of said rheostat-switch on said rheostat, and a connection between said controlling means and stop for moving the latter.

7. In combination, a car, a device for moving the same including a motor, a rheostat in the motor-circuit, a pivoted arm carrying a switch also in the motor-circuit adapted to fall by gravity and move said switch over said rheostat and cut out resistances thereof, means for retarding the fall of said switch-arm, a main switch, a reversing-switch and reversing connections also in said motor-circuit, controlling means extending to said car and connections therefrom to said main and reversing switches to close said reversing-switch and then said main switch, a stop for said arm movable independently of and away from the same and adapted to control the position of said rheostat-switch on said rheostat, and a connection between said controlling means and stop for moving the latter to the desired position.

8. In combination, a car, a device for moving the same including a motor, a rheostat in the motor-circuit, a switch adapted to automatically move over the same and cut out resistances thereof, a main switch, a reversing-switch and reversing connections also in said motor-circuit, controlling means extending to said car and connections therefrom to said main and reversing switches including a reciprocating rack adapted to close said reversing-switch and then said main switch, a stop for said rheostat-switch movable independently thereof and adapted to control the position of said rheostat-switch on said rheostat, and a connection between said rack and stop for moving the latter on a movement of said rack in either direction.

9. In a motor-controller in combination, a motor, a rheostat in the motor-circuit, a switch adapted to move over the same to cut out the resistances thereof, a reversing-switch also in said motor-circuit, a main switch adapted to open and close said circuit, a reciprocating rack and connections from the same to said three switches to close said reversing-switch and then close said main switch and move said rheostat-switch forward to decrease the resistance of the motor-circuit, on a movement of the rack in either direction.

10. In a motor-controller in combination, a motor, a rheostat in the motor-circuit, a switch adapted to move over the same to cut out the resistances thereof, a reversing-switch also in said motor-circuit, a main switch adapted to open and close said circuit, a reciprocating rack and mechanical connections from the same to said three switches to close said reversing-switch and then close said main switch and move said rheostat-switch forward to decrease the resistance of the motor-circuit on a movement of the rack in either direction.

11. In an elevator mechanism in combination, a car adapted to be raised and lowered in suitable guideways, hoisting means to raise said car including an electric motor, a rheostat including a series of resistances in the motor-circuit, a switch adapted to move over said rheostat and cut out the resistances thereof thereby decreasing the resistance of said circuit and increasing the speed of the motor, a reversing-switch also in said motor-circuit, a rack adapted to move in either direction, and mechanical connections from the same to said switches to close said reversing-switch and then move said rheostat-switch forward to decrease the resistance of the motor-circuit on a movement of said rack in either direction.

12. In a motor-controller in combination, a rheostat in the motor-circuit, a switch in said circuit adapted to travel over said rheostat and cut out the resistances therein, and means to automatically lock said switch in any position in its traverse when the motor-circuit is opened.

13. In a motor-controller in combination, a rheostat in the motor-circuit, a pivoted switch-arm having a contact-piece in said circuit adapted to travel over said rheostat and cut out the resistances therein, and means including a solenoid carried by said arm, a core for said solenoid and an electrical connection from said motor-circuit through said solenoid whereby said switch is automatically locked in any position in its traverse when the motor-circuit is opened.

14. In a motor-controller in combination, a rheostat in the motor-circuit, a pivoted switch-arm having a contact-piece in said circuit adapted to travel over said rheostat and cut out the resistances therein, and means including a solenoid carried by said arm, a core for said solenoid having a tooth adapted to engage a stationary series of teeth and an electrical connection from said motor-circuit through said solenoid whereby said switch is automatically locked in any position in its traverse when the motor-circuit is opened.

15. In a motor-controller in combination, a switch in the motor-circuit including a terminal and a movable contact-piece, means to move said contact-piece to close said switch including a plurality of cams having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said cams and a connection between said cams and contact-piece whereby it is moved toward said terminal when either of said cams is moved.

16. In a motor-controller in combination, a switch in the motor-circuit including a terminal and a movable contact-piece, means to move said contact-piece to close said switch including a plurality of pivoted arms having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said pivoted arms, and a connection between said pivoted arms and contact-piece whereby it is moved toward said terminal when either of said arms is moved.

17. In a motor-controller in combination, a switch in the motor-circuit including a terminal, a movable contact-piece and an arm carrying the same, means to move said arm to close said switch including a plurality of cams having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said cams, and a connection between said cams and contact-piece whereby it is moved toward said terminal when either of said cams is moved.

18. In a motor-controller in combination, a switch in the motor-circuit including a terminal and a movable contact-piece, means to move said contact-piece to close and open said switch including a plurality of cams having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said cams, and a connection between said cams and contact-piece whereby it is moved toward said terminal when either of said cams is moved, and a spring adapted to snap open said switch before the contact-piece leaves the terminal.

19. In a motor-controller in combination, a switch in the motor-circuit adapted to open and close said circuit and including a terminal, a pivoted arm and a contact-piece carried by said arm and adapted to make electrical connection with said terminal, means to move said arm, to open and close said switch, including a plurality of pivoted arms carrying intermeshing gears and having faces which make an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said pivoted arms, a connection between said pivoted arms and contact-piece including a projection from one of said pivoted arms which engages said first arm whereby the latter is moved toward said terminal when either of said cams is moved, and a spring adapted to snap said switch open after the contact-piece has been moved a short distance toward the open position.

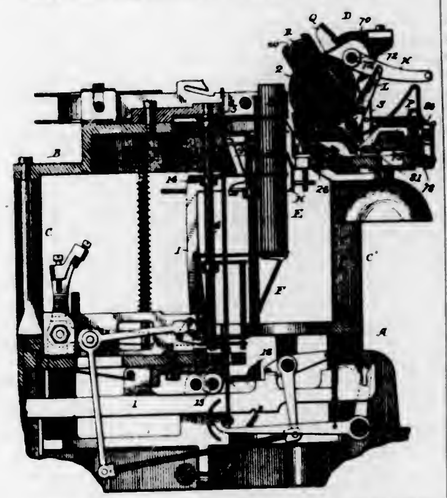
20. In a motor-controller in combination, a switch in the motor-circuit including a terminal and a movable contact-piece, means to move said contact-piece to close said switch including a plurality of cams having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said cams, a connection between said cams and contact-piece whereby it is moved toward said terminal when either of said cams is moved, a reversing-switch also in the motor-circuit, and means to automatically close said reversing-switch before the other switch is closed.

21. In a motor-controller in combination, a switch in the motor-circuit including a terminal and a movable contact-piece, means to move said contact-piece to close said switch including a cam having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike the same and move said cam and switch in one direction or the other to reverse the motor connection.

22. In a motor-controller in combination, a switch in the motor-circuit including a terminal and a movable contact-piece, means to move said contact-piece to close said switch including a plurality of cams having faces making an angle with each other, an operating part located between said faces and movable in either direction to strike and move one of said cams, a connection between said cams and contact-piece whereby it is moved toward said terminal when either of said cams is moved, a rheostat in the motor-circuit, a contact-piece also in said circuit and adapted to move over said rheostat, and means connecting with the aforesaid operating part and adapted to cause said rheostat and contact-piece to move forward over the same to cut out the resistances thereof after said switch has been closed.

23. In an elevator mechanism in combination, a car, hoisting mechanism for the same including an electric motor, a reversing-switch and connections in said motor-circuit to reverse the direction of rotation of the armature of said motor, a second switch also in said motor-circuit adapted to open and close said circuit, a rheostat also in said motor-circuit, a pivoted arm carrying a contact-piece and adapted to automatically move over said rheostat to cut out the resistances thereof, a reciprocating rack, a toothed wheel meshing with said rack, a link between said toothed wheel and pivoted arm whereby said contact-piece is caused to move forward over said rheostat on a rotation of said wheel in either direction, a pair of pivoted arms having sloping faces, and a connection between said arms and main switch whereby the same may be closed or opened by a movement of either arm, an operating part located between said faces and reciprocated by said rack to contact with and move said sloping arms, and a connection from said rack to said reversing-switch to close the same before said main switch is closed and on a movement of said rack in either direction.

681,270. TYPE-WRITING MACHINE. William S. Shirk, Anderson, Ind. Filed Nov. 4, 1899. Serial No. 735,764. (No model.)



Claim.—1. The combination with the platen and keys of a type-writer, of an oscillating type-wheel supporting a series of parallel type-bars, means for maintaining the type-wheel normally with all the bars at one side of the printing position, and means for swinging the type-wheel to bring the different type to printing position by the actions of the keys, substantially as set forth.

2. The combination with the platen and keys of a type-writer, of an oscillating type-wheel provided with a series of parallel type-bars, a hammer for striking said bars, means for maintaining the type-wheel normally with all the bars at one side of the printing position, and means for swinging the type-wheel to bring the different type to printing position by the actions of the keys, substantially as set forth.

3. The combination with the platen-roll and type-wheel, means for maintaining the latter normally at one side of the printing position, and a striker-bar carried with the type-wheel, of a gage having a series of shoulders arranged at the opposite side of said position, substantially as set forth.

4. The combination with the platen-roll and type-wheel, means for maintaining the latter normally at one side of the printing position, and a striker-bar carried with the type-wheel, of a gage having shoulders in series and arranged at the opposite side of said position, substantially as set forth.

5. The combination with the platen-roll and vertically-adjustable and oscillating type-wheel, means for carrying the latter normally to one side of the printing position, and a striker-bar carried with the type-wheel, of a gage having shoulders in series and arranged at the opposite side of said position, and means for carrying the gage to and from the axis of the type-wheel, all arranged to permit the bar to operate with all of said shoulders, substantially as set forth.

6. The combination with the oscillating and vertically-movable type-wheel and striker-bar carried therewith, of a gage with shoulders in different position, and means for moving the gage to and from the axis of the type-wheel, substantially as set forth.

7. The combination with the oscillating type-wheel of a type-writer and with the keys, of a bar moving with said wheel and independent series of stops for limiting and defining the oscillation of the type-wheel, and means whereby to bring either series into operative position to coöperate with said bar, substantially as set forth.

8. The combination with the oscillating type-wheel of a type-writer and with the keys, of a gage provided with two series of stops, one beyond the other, and means for shifting the gage to bring either series into operative position, substantially as set forth.

9. The combination with the oscillating and vertically-moving type-wheel and striker-bar and keys of a type-writer, of a gage provided with different series of stops, and means connected with the keys whereby to move the gage inward and outward, substantially as set forth.

10. The combination with the oscillating type-wheel and its striker-bar, a gage having stops in different positions, and operating-keys, of an inclined blade 15 for operating the type-wheel, and means for imparting a movement of one extent thereto from one section of the keys, and a more extended movement thereto from the remaining keys, substantially as set forth.

11. The combination with the oscillating type-wheel and gage having series of stops arranged in different positions, of keys, a wheel-operating blade 15, and connections whereby the blade is moved to a limited extent from some of the keys to bring the wheel into operative connection with one series of stops, and other connections operated from the remaining keys to impart a more extended movement to the blade to bring the type-wheel into operation with the other series of stops, substantially as set forth.

12. The combination with the oscillating type-wheel, keys, gage and operating-blade 15, of levers I I′ and means for operating them from different sections of the keys, and connections whereby to impart a shorter movement to the blade 15 from the lever I′, substantially as set forth.

13. The combination with the oscillating and vertically-moving type-wheel, of a gage provided with shoulders in different positions, a vertically-moving striker-bar for engaging said shoulders, and an operating-blade 15 engaging said bar and inclined substantially as and for the purposes set forth.

14. The combination with the blade 15 and lever I carrying the same, of keys, and means for operating the lever from a portion of the keys, a lever I′ operated from the other portion of the keys, and a lever between the lever I′ and the blade 15 for imparting a reduced movement to the latter, substantially as set forth.

15. The combination with the oscillating and vertically-movable type-wheel and striker-bar, of an inclined operating-blade and fingers 16, 17 extending from the striker-bar for engaging the blade, substantially as set forth.

16. The combination of the oscillating type-wheel having a series of type-bars and a hammer pivoted at one side of the axis of the wheel to swing in a horizontal plane, substantially as set forth.

17. The combination of the type-wheel, hammer and platen-carriage of a type-writing machine, of a rack on the carriage, a pinion engaging the same, and connected with a ratchet-wheel, detent-arm engaging the ratchet-wheel and supported to vibrate and slide on its fulcrum, and pawl also engaging the ratchet-wheel and connected to release the ratchet at the instant the hammer completes its action, substantially as set forth.

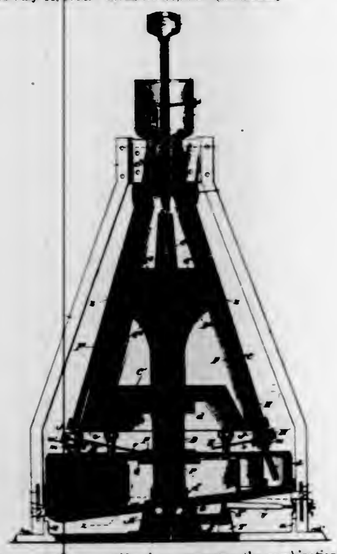
18. The combination of the type-wheel, hammer and platen-carriage of a type-writing machine, of a rack on the carriage, a pinion engaging the same, and connected with a ratchet-wheel, detent-arm engaging the ratchet-wheel, and pawl also engaging the ratchet-wheel, a key-operated lever 21 carrying the detent-arm, and shaft carrying the hammer and connected with the lever 21, and arm carried by the hammer-shaft arranged to make contact with the pawl, substantially as set forth.

19. The combination of the platen-roll carriage, platen-roll, its shaft, arms hanging on said shaft, clamp-plate carried by the arms, and provided with pins, and cam edges on the carriage, substantially as set forth.

20. The combination of the platen-roll carriage, platen-roll, its shaft, arms hanging on said shaft, clamp-plate carried by the arms and provided with pins, cam edges on the carriage, a roller R, springs for carrying it toward the platen-roll, and cam edges on the said arms for lifting the roller R when the clamp-plate is carried from the platen-roll, substantially as set forth.

21. The combination with the platen-carriage, of a yoke P, a stop 78 carried thereby and adapted to engage a stop on the platform, a spring 80 and a hand-lever and connections for shifting the stop 78 out of engaging position with the stop 77, substantially as set forth.

681,271. ORE-CONCENTRATOR. PHILIP H. SHUR, Ouray, Colo. Filed July 11, 1900. Serial No. 23,214. (No model.)



Claim.—1. In a centrifugal ore-separator, the combination with a casing having collecting-passages in the sides thereof, discharge-tubes in said passages formed with lateral openings, tubes provided with openings adapted to register with the openings in the discharge-tubes working in said discharge-tubes, mechanism for adjusting said interior tubes, and means for actuating said mechanism during the movement of the machine, substantially as described.

2. In a centrifugal ore-separator, the combination with a casing having a discharge-tube provided with an opening, of a tube adjustably secured therein provided with an opening adapted to register with the opening of the discharge-tube, means for adjusting the interior tube consisting of a threaded coupling and a suitable threaded member stationarily supported, and means for moving the coupling to effect its adjustment during the operation of the machine, substantially as described.

3. In a centrifugal ore-separator, the combination with a casing, of a discharge-tube therein provided with a lateral opening, a tube for regulating the discharge provided with an opening adapted to register with the opening of the discharge-tube, means for adjusting said regulating-tube, a bracket, a sleeve loosely connected therewith, a connection between said regulating means and said sleeve and a screw for adjusting said sleeve, substantially as described.

4. In a centrifugal ore-separator, the combination with a supporting shaft and casing, of a discharge-tube in the casing, means for varying the size of the discharge and means for actuating said varying means, comprising a sleeve mounted on the shaft, having an inclined slot, a pin on the sleeve entering the slot, a crank connection between the sleeve and said adjusting means, and means for elevating the sleeve to cause the same to rotate on the shaft, substantially as described.

5. In a centrifugal ore-separator, the combination with a separator-casing, of means for rotating the same, separated discharge-tubes disposed around the casing, and running in the same general direction as the axis of rotation thereof provided with lateral inlet-openings, a main water-supply pipe secured to and projecting into the casing and adapted to rotate therewith, and means for conducting water from the main supply-pipe to the several discharge-tubes, substantially as described.

6. In a centrifugal ore-separator, the combination with a separator-casing, of means for rotating the same, discharge-tubes disposed at separated points around the casing and running in the same general direction as the axis of rotation, a main water-supply pipe secured to and adapted to rotate with a portion of the separator, and independent sources leading from the main supply to each of the discharge-tubes, substantially as described.

7. In a centrifugal ore-separator, the combination with a separator-casing, of means for rotating the same, discharge-tubes running in the same general direction as the axis of rotation, a main water-supply pipe secured to and adapted to rotate with a portion of the separator, and an inclined waterway leading from the main water-supply to the discharge-tubes, substantially as described.

8. In a centrifugal separator, the combination with a spindle, having a hollow upper end, a channeled table carried by the spindle, a conical-shaped casing having independent channels formed in its sides communicating with the respective channels in the table, a water-supply pipe entering the hollow spindle and extending to the outside of the casing and connecting the tubes in the casing into which the water-channels discharge, substantially as described.

9. In a centrifugal separator the combination with a casing having a discharge-tube provided with a lateral opening, of a tube inserted in the discharge-tube having an opening adapted to register with the first-mentioned opening, and means whereby one of said tubes may be moved to vary the size of the discharge-opening, substantially as described.

10. In a centrifugal separator, the combination with a casing having a discharge-tube provided with a lateral opening, of a tube inserted in the discharge-tube having an opening adapted to register with the first-mentioned opening, and means for rotating one of said tubes to vary the size of the discharge-opening.

11. In a centrifugal separator, the combination with a casing having a discharge-tube provided with a lateral opening, of a tube inserted in the discharge-tube having an opening adapted to register with the first-mentioned opening, and means for adjusting one of said tubes vertically to vary the size of the discharge-opening, substantially as described.

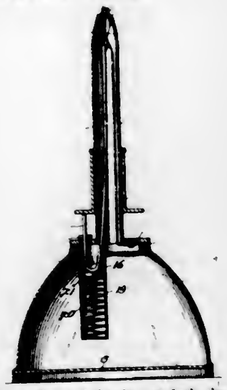
12. In a centrifugal separator, the combination with a casing having a discharge-tube provided with a lateral opening, of a tube inserted in the discharge-tube having an opening adapted to register with the first-mentioned opening, and means for rotating and vertically adjusting one of said tubes to vary the size of the discharge-opening, substantially as described.

13. In a centrifugal separator, the combination with a casing, of a discharge-tube therein, a clamp for the discharge-tube having a flange thereon, a tube within the discharge-tube, a clamp on the inner tube, a flange connection between the clamp, a link connecting the clamp with the inner tube, a collar with which the opposite end of the link is connected and means for adjusting the collar to rotate the said inner tube, substantially as described.

14. In a centrifugal separator, the combination with a frame and a separating-casing, of a spindle carrying the casing, a collar on the spindle, having a pin thereon, an inclined shoulder on the spindle with which the pin engages, a pivoted yoke for moving the collar, means for moving the yoke, and an adjustable discharge-regulator actuated by the movement of the collar, substantially as described.

15. In a centrifugal separator, the combination with a casing, of a spindle therefor, a collar on the spindle, discharge-tubes for the casing, tubes entering said discharge-tubes, connections between one of the tubes and the collar, and means adapted to engage an inclined way on the collar for rotating the same independently of the spindle, substantially as described.

681,272. OIL-CAN. CHARLES E. SIDES, Norfolk, Va. Filed Apr. 29, 1901. Serial No. 57,979. (No model.)



Claim.—1. In an oil-can of the class set forth, the combination of a body having a spout with an upper reduced end to provide the maximum outflow means, a short auxiliary nozzle normally projected through said outflow end of the spout and adjustable longitudinally of the latter, and a spring-actuated rod extending downwardly through spout and secured at its upper end to said auxiliary nozzle.

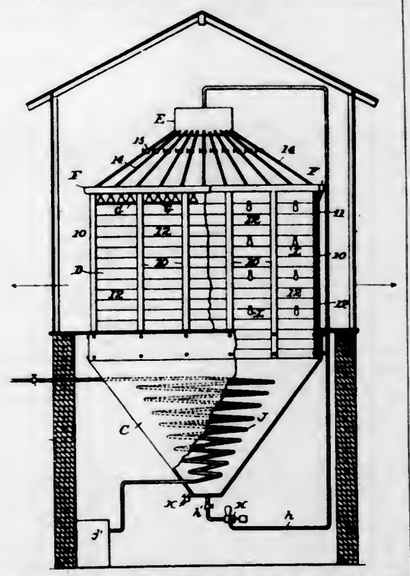
2. In an oil-can of the class set forth, the combination of a body having a spout with an open outflow end, a spring-actuated auxiliary nozzle movably mounted in the said outflow end of the spout, and a stationary wire having a free end located in the said auxiliary nozzle to clear the same and prevent clogging thereof.

3. In an oil-can of the class set forth, the combination of a body having a spout, a spring-actuated rod extending upwardly through the spout and having a lower portion thereof projecting upwardly through the body and exteriorly exposed, an auxiliary nozzle secured on the upper end of the said rod and normally located in the outflow end of the spout, and exteriorly-located sliding means on the spout engaging the exteriorly-exposed portion of the rod.

4. In an oil-can of the class set forth, the combination of a body having a spout, a spring-actuated rod extending upwardly through the spout and having a lower portion thereof exteriorly exposed, slidable means on the spout for engaging said exteriorly-exposed portion of the rod, an auxiliary nozzle on the upper end of the rod and normally located in the outflow end of the spout, and a stationary wire having a free end located in said nozzle to prevent clogging of the latter.

5. In an oil-can of the class set forth, the combination of a body having a spout, a cylinder having a spring therein, a rod extending upwardly through the spout, the lower portion of the rod being located in the cylinder and provided with a pressure-head bearing on the said spring, an auxiliary nozzle secured on the upper end of the rod and normally located in the outflow end of the spout, and exteriorly-located means on the spout for operating the rod.

681,273. PROCESS OF BLEACHING OILS. JOHN C. W. STANLEY, London, England, assignor to the Cotton Seed Oil Syndicate, Limited, same place. Filed July 28, 1900. Serial No. 25,175. (No specimens.)

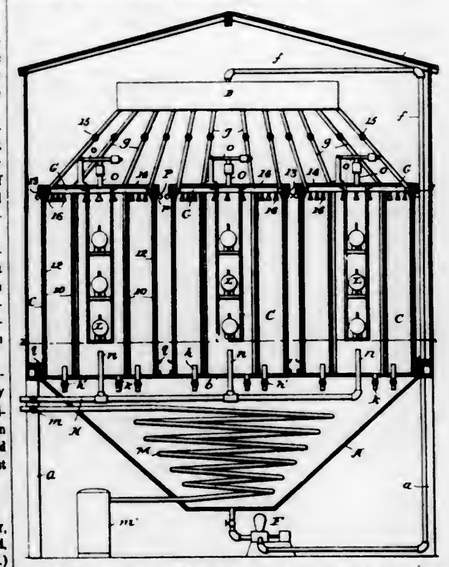


Claim.—1. The within-described improvement in bleaching oils consisting in causing the same to repeatedly traverse in thin films under the action of artificial light, substantially as described.

2. The within-described improvement in bleaching oils consisting in causing the same at an artificial temperature to repeatedly traverse in thin films under the action of artificial light, substantially as set forth.

681,274. APPARATUS FOR BLEACHING OLEAGINOUS MATTERS. JOHN C. W. STANLEY, London, England. Filed Feb. 26, 1901. Serial No. 48,936. (No model.)

Claim.—1. The combination, in an apparatus for bleaching oleaginous matter, of transparent plates, means for conveying the oleaginous matter to said plates to flow in thin films over the plates, and means for directing light through said plates, substantially as described.



2. The combination, in an apparatus for bleaching oleaginous matter, of means for varying the temperature of the matter, transparent plates, means for conveying the matter to the plates to flow in thin films over the plates, and means for directing light through said plates, substantially as set forth.

3. The combination, in an apparatus for bleaching oleaginous matter, of vertically-supported transparent surfaces, means to discharge the matter on the upper portions of the transparent surfaces in thin films, and means for producing artificial light, in close proximity to such surfaces, substantially as set forth.

4. In an apparatus for bleaching oleaginous matter, the combination of a closed chamber having vertical transparent walls, means for conveying the matter to the interior of the chamber to flow in thin films over the transparent walls, and means for producing artificial light within the chamber, substantially as set forth.

5. In an apparatus for bleaching oleaginous matter, the combination of a closed chamber having vertical transparent walls, means for conveying the matter to the interior of the chamber to flow in thin films over the transparent walls, means for producing artificial light within the chamber, and means for cooling said transparent walls externally, substantially as set forth.

6. In an apparatus for bleaching oleaginous matter, the combination of a closed chamber having vertical transparent walls, means for conveying the matter to the interior of the chamber to flow in thin films over the transparent walls, means for producing artificial light within the chamber, and means for introducing air under pressure into said chamber, substantially as set forth.

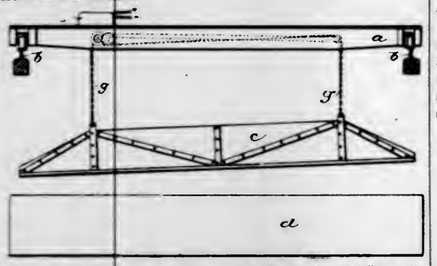
7. In an apparatus for bleaching oleaginous matter, the combination of a tank to contain the matter to be bleached, transparent plates supported above the tank, means for conveying the matter from the tank and delivering it to flow in thin films over the transparent surfaces back to the tank, means to vary the temperature of the matter within the tank, and means for directing light through said plates, substantially as set forth.

681,275. CRANE FOR PICKLING-TANKS, &c. RALPH C. STIEFEL, Ellwood City, and JOHN B. NICHOLSON, Pittsburg, Pa., assignors to the Standard Seamless Tube Company, of Pennsylvania. Filed June 12, 1900. Renewed June 10, 1901. Serial No. 63,975. (No model.)

Claim.—1. In a hoisting and lowering apparatus for cranes and the like, in combination the device of two or more coöperating hoisting connections and means for actuating the said connections unequally, and inclining the crate at an intermediate position when partly elevated, and restoring the said crate to a horizontal position at the highest and lowest positions, substantially as set forth.

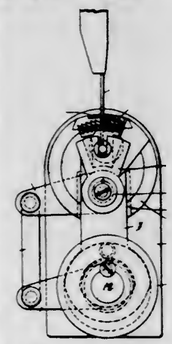
2. In combination with a crate or carrier and a crane for hoisting

and transporting it, hoisting mechanism and connections therefrom adapted to be secured to two or more points of the said crate, including means for elevating one portion of the crate more rapidly than other portions at one part of the movement and more slowly at another part of the movement, substantially as set forth.



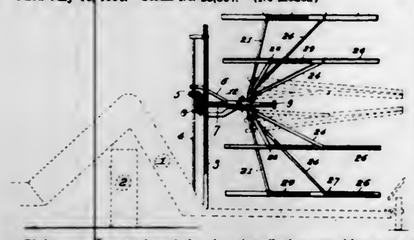
3. In combination with a horizontal pickling-tank, a pickling-crate therefor, power-actuated mechanism for immersing the crate horizontally in the said tank and elevating it at an inclination, a movable crane, said mechanism being mounted on the said crane, substantially as set forth.

681,276. FEEDING MECHANISM FOR SHOE-SEWING MACHINES. CHARLES VAN DER STRAETEN, Brussels, Belgium. Filed Dec. 4, 1899. Serial No. 739,141. (No model.)



Claim.—The combination with sewing mechanism comprising a needle adapted to be reciprocated longitudinally, of a work-feed comprising a pivoted bell-crank lever, a friction-plate constituted by a segment of a circle and carried by one arm of said lever, the said feed-plate having an inclined surface, a slide carrying this bell-crank lever, and adapted to be reciprocated parallel with the needle, a cam-shaft, a cam thereon for actuating this slide, a rod united with the other arm of the bell-crank lever, a crank adapted to communicate by means of this rod an oscillating movement to the bell-crank lever, a sleeve surrounding the cam-shaft carrying said crank and an appropriate cam for giving the necessary oscillating movement to the sleeve surrounding the cam-shaft.

681,277. BINDER-REEL. CHARLES W. SWITZER, Atwater, Ill. Filed July 16, 1900. Serial No. 23,807. (No model.)

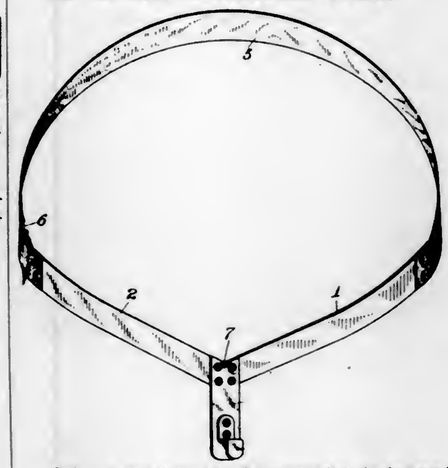


Claim.—1. In a device of the class described, a rotatably-arranged shaft, a short shaft-section hinged to the first-mentioned shaft, a hub arranged to slide upon the shaft and the hinged section, so as to cover the joint when the shafts are in line, pairs of swinging bars carried by the hub, and a slat pivotally connected to each pair of swinging bars, substantially as specified.

2. In a device of the class described, a rotatably-arranged shaft, a hub sliding upon said shaft, pairs of swinging bars pivotally connected to said hub, and a slat pivotally connected to each pair of swinging bars, substantially as specified.

3. In a device of the class described, a rotatably-arranged shaft, a short shaft-section hinged to the first-mentioned shaft, a hub arranged to slide upon the shaft and the hinged section, means whereby said hub is locked upon the shaft, pairs of swinging bars carried by the hub, and a slat pivotally connected to each pair of swinging bars, substantially as specified.

681,278. WAIST-EXTENDER. HENRY H. TAYLOR, Bridgeport, Conn. Filed June 21, 1901. Serial No. 65,500. (No model.)



Claim.—1. In a device of the character described, the sheet-metal bands secured at an angle to a vertical depending plate, the downwardly-opening hook secured to the lower extremity of said plate, the belt secured to one of said bands, and the buckle secured to the other band, substantially as set forth.

2. A device of the character described, comprising the two sheet-metal bands disposed at an angle to each other and permanently secured to the vertical depending plate which latter has fastened at its lower end the downwardly-opening hook and is provided with means for engaging a stud of a corset-fastener, the buckle secured to one of said bands, and the belt having one end secured to the other of said bands and adapted to engage with said buckle, substantially as set forth.

3. The combination of the vertical depending plate having secured at its lower end the downwardly-opening hook and having a notch in its upper end, the sheet-metal bands secured at an angle to each other to the upper side portions of said plate, the buckle attached to one of said bands, and the belt attached to the other band and having its free end adapted to engage with said buckle, substantially as set forth.

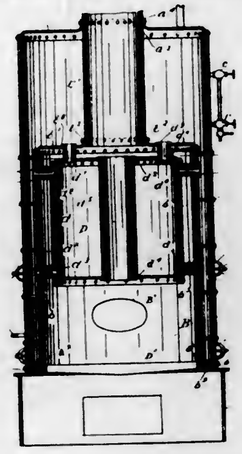
681,279. CUFF-HOLDER. WILLIAM THURMAN, Newkirk, Okla. Filed Apr. 24, 1901. Serial No. 57,212. (No model.)



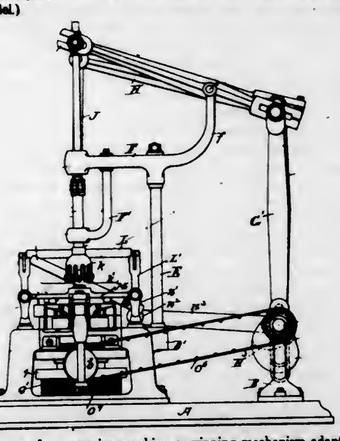
Claim.—A cuff-holder comprising a single piece of resilient wire bent to form a loop and diverging arms, the loop being offset from the plane of said arms, inwardly-projecting overlapping bends in said arms, constituting clamps to engage the shirt-sleeve, a loop at the end of one of said arms and a head at the end of the other arm for connecting said arms detachably.

681,280. STEAM-BOILER. WILLIAM T. URIE, Kansas City, Mo. Filed Nov. 28, 1900. Serial No. 38,084. (No model.)

Claim.—The combination in a steam-generating vertical boiler with the outer shell and the head thereof of an inner concentric shell having a head and a combustion-chamber therein and an annular space between said outer and inner shells for the water and a chamber for water between the heads of said shells communicating with the space between said shells, a ring closing the said annular space at the lower ends of said outer and inner shells, a smoke-flue connected with the head of the inner shell and extending through the head of the outer shell a drum for holding water within the combustion-chamber of the inner shell around which drum the smoke and gases circulate water-supply tubes connected with the inner shell and the sides of said drum separate water-tubes connected with the head of said inner shell and the top of said drum, and a smoke-flue extending through said drum in the direction of and in a vertical line with the smoke-flue in the head of said inner shell substantially as described.



681,281. MACHINE FOR WRAPPING CHOCOLATE DROPS OR THE LIKE. JOHN WALKER, Boston, Mass., assignor to the Walter M. Lowney Company, same place. Filed June 16, 1900. Serial No. 20,631. (No model.)



Claim.—1. In a covering-machine, a gripping mechanism adapted to be opened and closed and means for opening and closing it, a throat mechanism and means for opening and closing it and means for rotating one of said mechanisms with respect to the other, in combination with mechanism for positively delivering the covering material for the core to said gripping and throat mechanisms and mechanism for starting the folding operation, as and for the purposes set forth.

2. In a covering-machine a rotary gripping mechanism and means whereby it is opened and closed, and a stationary throat mechanism and means whereby it is opened and closed, and a feeding mechanism adapted to feed the core or other article to be covered positively to said gripping and throat mechanisms and mechanism for starting the folding operation, as and for the purposes described.

3. In a machine for covering a core with paper or the like, means of the kind described for creasing the paper, means for gripping the core and paper, and a throat mechanism for closing the paper about the core, said throat mechanism and said gripping mechanism being rotated the one with respect to the other and both having a movement substantially in line with their axes, as set forth.

4. In a machine for covering a core with paper or the like, mechanism for gripping the core and paper and a throat mechanism for closing the paper about the core, said throat mechanism and said gripping mechanism being rotated the one with respect to the other and a creasing mechanism and means substantially as described for separating said throat and gripping mechanisms and said creasing mechanism as set forth.

5. In a machine for covering a core with paper or the like, means for gripping the core and paper and a throat mechanism for closing the paper about the core, said throat mechanism and said gripping mechanism being rotated one with respect to the other and both having a movement substantially in line with their axes, in combination with a plaiting and creasing mechanism and a plunger located axially of said plaiting and creasing mechanism said throat and gripping mechanism, whereby the core is fed down through the axis of said mechanisms, as and for the purposes set forth.

6. In combination with a covering mechanism of the kind described, a paper-roll, a paper and core feed consisting of a drawing-frame adapted to reciprocate above said covering mechanism to grasp and draw a strip of paper over said covering mechanism, an indicator to locate the position of the core on said sheet before it has been drawn over said covering mechanism, in combination with a knife adapted to cut a sheet of paper from said strip.

7. In combination with a covering mechanism and an indicator to locate the position to place the core, a paper-sheet feed consisting of a drawing-frame adapted to reciprocate across said covering mechanism to grasp and withdraw said paper sheet over said covering mechanism, in combination with a hinged paper-lifter located to feed the edge of the paper to said drawing-frame and adapted to engage said drawing-frame and lift the edge of the paper within the path of said drawing-frame and then to retire and leave a smooth surface over which the sheet and its core are carried, as and for the purposes set forth.

8. In combination with a covering mechanism a paper-roll and a reciprocating drawing-frame to feed paper to said covering mechanism, a paper-lifter adapted to engage with and lift the edge of the paper into the path of said drawing-frame, said paper-lifter carrying a part adapted to engage with said drawing-frame when approaching its forward position and be operated thereby, and a knife located in front of the edge of said paper-lifter adapted to cut the paper on a line with the edge of said paper-lifter, and means whereby said knife is operated, as and for the purposes set forth.

9. In combination with a covering mechanism of the kind described and means for feeding the paper thereto, two concentric plungers, the outer plunger being provided with means for plaiting said paper, the inner plunger being adapted to drive the core with its paper cover through the covering mechanism, as and for the purposes set forth.

10. In a core-covering machine a covering mechanism having a series of standards projecting upwardly therefrom each standard carrying a creasing-finger, a paper-feed adapted to feed a strip of paper carrying a core over said standards, and a plunger adapted to carry said core and said paper through said covering mechanism, said plunger being provided with a series of wire fingers each located to pass down between one pair of said standards, as and for the purposes set forth.

11. In a covering-machine in combination with means for giving to the paper a preliminary crease and means for feeding the core to be covered and the paper thereto, a gripping mechanism and a throat mechanism consisting of a pair of throat-fingers angular in shape and supported at one end to oscillate toward and from each other and located one slightly above the other as described, gripping-fingers and means whereby said gripping-fingers and said throat-fingers are rotated the one with respect to the other, and said gripping and throat mechanism and said preliminary-creasing mechanism are caused to reciprocate one with respect to the other.

12. In a covering-machine in combination with gripping mechanism and means for creasing the paper and means for feeding the core to be covered and the paper thereto, a throat mechanism consisting of a pair of throat-fingers angular in shape and each pivotally supported near one end and adapted to gather together the paper about said core and hold it, and means whereby said gripping mechanism and said throat mechanism are rotated with respect to each other, and both are given a movement to draw said paper from said creasing means, as set forth.

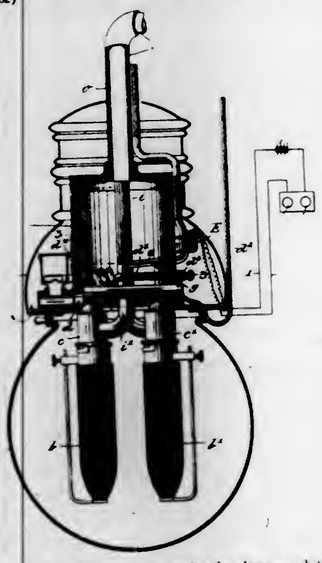
13. In a machine for covering a core a gripping mechanism and means for feeding said core and a sheet of paper thereto, a throat mech-

anism consisting of a pair of throat-fingers mounted in a vertically-moving sleeve above said gripping mechanism, mechanism whereby said gripping mechanism and said throat mechanism are rotated one with respect to the other, in combination with a cam whereby said sleeve is given a vertical movement, as and for the purposes set forth.

14. In a covering-machine a sleeve, a series of shafts located therein, each shaft carrying a gripping-finger at its upper end and a horizontally-extending arm at its lower end, one of said arms having an extension, and said arms being suitably connected, whereby the movement of one arm will cause a corresponding movement of each of the others, in combination with a cam adapted to engage said extension of one of said arms and operate all of said gripping-fingers toward and from each other, and means whereby said cam and said sleeve are rotated one with respect to the other, as and for the purposes set forth.

15. In a paper-feeding mechanism in combination with a paper-roll, a reciprocating drawing-frame having one or more arms each provided with a spring-clip normally closed and an angle-lever, one end of which is adapted to engage said spring-clip, its other portion being in the form of a vertical cross-bar, two stops, one located near each end of the stroke of the drawing-frame and each adapted when in contact with said cross-bar to open said clip against the force of its spring and immediately release it when said contact is broken, whereby each clip is normally closed except during its instant of engagement with said stop, as and for the purposes set forth.

681,282. HYDROCARBON-VAPOR-BURNING LAMP. ALBERT R. WARNER, Philadelphia, Pa. Filed June 26, 1900. Serial No. 21,610. (No model.)



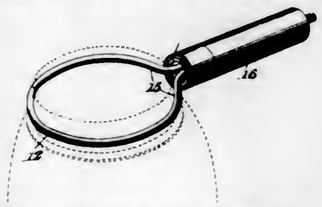
Claim.—1. In a hydrocarbon-vapor-burning lamp, a substantially air-tight receptacle, a series of burners comprising burner-bodies, a vaporizing-coil and an expanding-chamber contained within the air-tight receptacle, said coil and chamber being located above the burners and arranged to be heated thereby, said coil communicating at one end with the oil-supply pipe and at its other end discharging into said expanding-chamber, said expanding-chamber being arranged to discharge into the burner-bodies, and an air-inlet tube leading from the exterior of the receptacle to each burner-body and entering said burner-body adjacent to the communication of the expanding-chamber with said burner-body, substantially as and for the purposes described.

2. In a hydrocarbon-vapor-burning lamp, a substantially air-tight chamber, comprising an upper receptacle and a lower globe, an exhaust-tube provided with a heat non-conducting covering leading from the upper receptacle and arranged to receive and conduct the exhaust-gases from the lamp, a series of burner-bodies contained within the globe and below the receptacle and exhaust, a burner supported by each burner-body, and an air-inlet pipe for each burner-body traversing the interior of the upper receptacle and in open communication at one end with the exterior of the receptacle, said air-inlet pipe arranged to enter the burner-body, substantially as and for the purposes described.

3. In a hydrocarbon-vapor-burning lamp, a chamber supporting a globe and provided with an offtake, a vaporizing-tube, a vapor-expanding chamber having the burner-body connected therewith and located within said globe, a gas-jet tube located adjacent to said vaporizing-tube, and the latter dividing the flame issuing from said gas-jet tube, and air-inlet pipes connected with said burner-body and mounted in stuffing-boxes in the top of said chamber, substantially as and for the purposes described.

4. In a hydrocarbon-vapor-burning lamp, an exhaust-chamber provided with an offtake and supporting a globe, a vaporizing-tube and a vapor-expanding chamber located in said exhaust-chamber, said vapor-expanding chamber supporting burner-bodies, air-supply tubes connected to the burner-bodies and said bodies provided with vertical pipes made tapering at their lower extremities and within which bodies and below said pipes are located a series of superposed open-ended hoods for permitting of more complete commingling of air with the vapors issuing from said vapor-expanding chamber, substantially as and for the purposes described.

681,288. WRENCH OR HOLDER. JEFFERSON W. WATSON, Charlton, Iowa. Filed Jan. 11, 1901. Serial No. 43,135. (No model.)



Claim.—1. In an article of the class described, the combination with a clamping element having side arms provided with convergent ends and a screw-threaded shank, of a handle rotatably mounted upon the shank and engaging the convergent ends, said handle being provided with a screw-threaded portion, which is rotatable therewith and engages the screw-threads of the shank, whereby upon the rotation of the handle the arms will be brought together or separated.

2. In an article of the class described, the combination with a clamping element, having arms provided with convergent resilient end portions and an integral screw-threaded shank, of a handle rotatably mounted upon the shank and engaging the convergent end portions, said handle being provided with a screw-threaded portion that is rotatable therewith and engages the screw-threads of the shank, whereby upon the rotation of said handle the arms will be brought together or separated.

3. In an article of the class described, the combination with a loop, having convergent end portions joined to form a shank, said shank being provided with a screw-threaded portion, of a hollow handle rotatably mounted upon the shank and engaging the convergent end portions of the loop, said handle being provided with a screw-threaded portion that is rotatable therewith and engages the screw-threads of the shank, whereby upon the rotation of said handle the loop will be contracted or expanded.

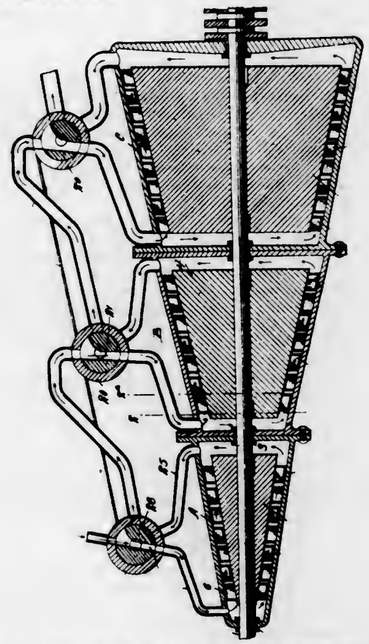
4. In an article of the class described, the combination with a resilient loop having end portions joined to form an integral shank, the end of which is screw-threaded, of a hollow handle mounted upon the said shank, and provided at one end with a screw-threaded portion that is rotatable therewith and engages the screw-threads of the shank, said handle having a tapered portion at its opposite end which engages the converging end portions of the loop, whereby by rotating said handle the loop will be contracted or expanded.

5. In an article of the class described, the combination with a resilient loop having converging end portions joined to form a shank, the end of which is screw-threaded, of a hollow handle mounted upon the shank and having one end bearing against the converging portions of the loop, the other end being provided with an angular socket and an angular nut fitting in the socket, whereby it is rotatable with the handle, said nut being threaded upon the screw-threaded end of the shank.

681,284. STEAM-TURBINE. WILLIAM L. WEBSTER, New York, N. Y. Filed Jan. 14, 1901. Serial No. 43,234. (No model.)

Claim.—1. In a steam-engine of the character described, the combination of the hub having an annular undercut groove therein, the series of flat blades generally rectangular in form and each having a dovetail projection from one end, and the rhomboidal filler-pieces, beveled at their ends, and lying in the undercut groove between the flat blades, and means for securing the extreme filler-piece to the hub so that all the blades and fillers are held in place, substantially as described.

2. In a steam-engine of the character described, the frusto-conical casing having annular undercut grooves in its inner face, a series of blades each having a dovetail tongue projecting into the groove in said casing, a series of rhomboidal filler-pieces between such blades each having beveled ends, and means for holding the extreme filler-piece to the casing, substantially as described.



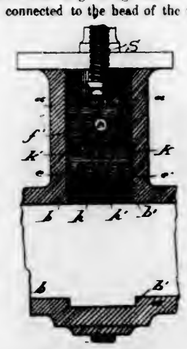
3. In a steam-engine of the character described, a frusto-conical hub having an annular undercut groove in its outer surface, a series of flat and approximately rectangular blades having dovetailed ends which enter said groove, with shoulders resting on the hub above the groove, a series of rhomboidal filler-pieces with beveled ends resting in the grooves between the blades, the final blade being mutilated so as to enter the groove without turning, and means for securing the final blade and filler-piece, all combined substantially as described.

4. In a steam-engine of the character described, a series of frusto-conical casings arranged end to end and each having supply and exhaust ports, and inwardly-projecting blades, the casings arranged end to end and increasing in diameter as described, a supply and exhaust valve connected to each of the casings in the series, the exhaust-passage of the first cone connected to the supply of the second cone, and so on, a single shaft extending through all the cones, and frusto-conical hubs equal in number to the casings, each having outwardly-extending blades arranged in annular series, all combined substantially as described.

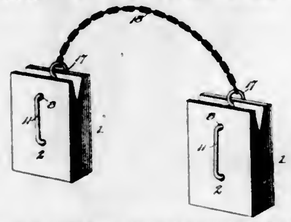
681,285. STOP-VALVE. CLEMENS WERNER, CARL MALTHER, and FRITZ BARNER, Leipsic, Germany. Filed Nov. 7, 1900. Serial No. 35,763. (No model.)

Claim.—1. In a straightway stop-valve, the combination with the valve casing or chamber formed with a valve-seat, of oppositely-disposed valve-disks formed with inclined inner faces approaching each other at their lower ends and terminating in reversely-inclined projections *h h'*, and laterally-extending projections *i i'*, formed with inclined slots, a lifting-wedge between the inclines of the valve-disks formed at its lower end with upwardly-curved lateral extensions to engage the inclined projections *h h'*, a pin *f* projected through said slots and wedge, and means connected to the wedge to raise and lower the same with the valves, substantially as specified.

2. In a straightway stop-valve, the combination of a valve-casing formed with a vertical chamber into which the valve lifts, oppositely-disposed valves formed to close the passage through the casing and having inclined inner faces approaching each other at their lower ends, and projections *i i'* formed with inclined slots *h, h'*, a lifting and locking wedge disposed between the inclines of the valve-disks and formed with lateral extensions at its lower end to engage the lower ends of the inclined surfaces of the valves, a pin projected through the said slots and wedge, and a threaded valve-stem extending through the vertical chamber and having its lower end connected to the head of the wedge, substantially as specified.



681,286. SHOE-FASTENER. ELMER T. WILLHOIT, Woodriff, Mo. Filed Apr. 1, 1901. Serial No. 53,952. (No model.)



Claim.—1. A shoe-clamp comprising a plate beveled at its upper end and recessed on its inner face to form a projection, a second plate also beveled at its upper end, and a spring bent to form a cross-rod extending through registering openings in said plates, clamping-arms terminating in hooks one of which engages one of said plates while the other extends through an opening in the other plate.

2. A shoe-clamp comprising a plate beveled at its upper end and recessed on its inner face to form a projection and a flange extending around three sides of the plate, a second plate also beveled at its upper end, and a spring bent to form a cross-rod extending through registering openings in the plates, and clamping-arms, terminating in hooks, one of which engages one of the plates, while the other extends through an opening in the other plate to impinge against said projection.

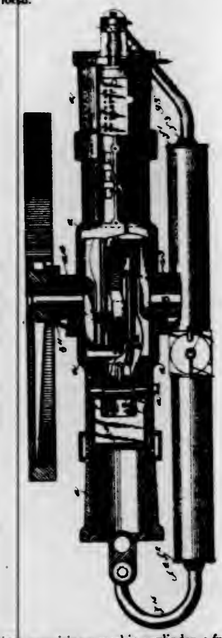
681,287. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. WILLIAM O. WORTH, Chicago, Ill., assignor of two-thirds to William R. Donaldson, Louisville, Ky., and Henry W. Kellogg, Battlecreek, Mich. Filed June 19, 1899. Serial No. 721,078. (No model.)

Claim.—1. An engine comprising a working cylinder, an air-valve cylinder, an air-valve within said air-valve cylinder, a main shaft, a suitable gearing connecting the main shaft with the air-valve for operating the latter, a fly-ball speed-governor mounted on the said air-valve, a cam loosely mounted on said air-valve, a fuel-inlet subsidiary valve for the working cylinder operated by said cam, a connection between said cam and said speed-governor for changing the travel of the fuel-inlet subsidiary valve, and a multiport valve between the subsidiary valve and the fuel-supply, connected to a moving part of the engine, substantially as set forth.

2. An engine comprising a main shaft, a working cylinder, an air-valve, a fuel-valve, a port between said fuel-valve and cylinder, and internal and external shaft, suitable gearing for connecting one of said shafts to the main shaft, a compound cam adapted to operate the said fuel-valve, one element of the said cam fixed to the external shaft, one element fixed to the internal shaft, and a speed-governor attached to both members of said shaft, substantially as set forth.

3. An engine comprising a working cylinder, an air-valve cylinder, a rotary air-valve within said air-valve cylinder, a suitable gear for rotating said air-valve, a speed-governor connected with the said air-valve, a valve-shaft extending through the said air-valve, connections between the valve-shaft and speed-governor, whereby the latter may cause an angular movement of the valve-shaft relatively to the air-valve, a valve-casing having a port opening into the said working cylinder, and a com-

pound cam for operating the said valve, one element of the said cam fixed to the said air-valve, and one element fixed to the said valve-shaft, substantially as set forth.



4. An engine comprising a working cylinder, a fuel-supply connected with the said cylinder, a multiport valve between the said working cylinder and fuel-supply, a casing for said valve, a port in the said casing communicating with the said cylinder, a port in said casing communicating with the said fuel-supply, a port in said casing opening into the atmosphere and a subsidiary valve intermediate of the multiport valve and the working cylinder, substantially as set forth.

5. An engine comprising a working cylinder, a fuel-supply connected with the said cylinder, a multiport valve between said cylinder and fuel-supply, a casing for said valve, ports in the casing of the said valve communicating with the said cylinder and fuel-supply, a subsidiary valve intermediate of the said multiport valve and cylinder, a compound shaft, gearing for revolving said shaft, a compound cam, separate elements of said cam fixed to the separate members of the said compound shaft, connections between the said cam and subsidiary valve for operating the latter, and a speed-governor for varying the position of the cam, said governor having separate members thereof fixed to separate members of the said shaft, substantially as set forth.

6. An engine comprising a working cylinder, a multiport valve, a casing for said valve-ports in the casing of the said valve opening to the fuel-supply, to the atmosphere and to the subsidiary valve, a subsidiary valve intermediate of the said cylinder and the multiport valve, a spring for holding said subsidiary valve closed, a valve-shaft, a means for rotating said shaft, a two-part cam on said shaft, one element fixed to the said shaft the other element independently supported in position, the stem of the said subsidiary valve within the path of the said cam, and a speed-governor carried by the said valve-shaft and connected with the independently-supported element of the said cam, whereby the said cam may be extended or contracted for varying the time said subsidiary valve remains open, substantially as set forth.

7. An engine comprising a main shaft, a working cylinder, a subsidiary valve, a port between said valve and cylinder, a rotary air-valve, suitable gearing for connecting said air-valve with the main shaft, an internal shaft within said air-valve, a compound cam adapted to operate the said subsidiary valve, one element of said valve fixed to the said internal shaft, one element fixed to the said air-valve, connections between the cam on the said air-valve and the said subsidiary valve, and a speed-governor bodily carried by the said air-valve, the movable member thereof fixed to the internal shaft, whereby the relative position of the cam members may be adjustably varied, substantially as set forth.

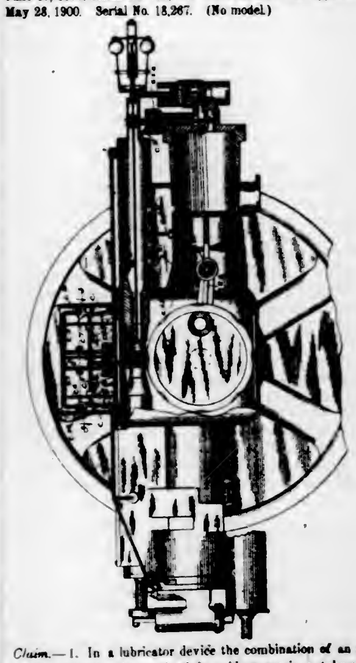
8. An engine comprising a working cylinder, an air-valve cylinder, a subsidiary valve, a hollow rotary air-valve within the said air-valve cylinder, an internal shaft within said air-valve, a suitable gearing for rotating said air-valve, connections between said air-valve and said subsidiary valve, a governor bodily mounted upon said air-valve and rotating therewith, the reciprocating member of the governor attached to the said internal shaft, and a two-part extendable cam for operating said subsidiary valve, one of the elements thereof attached to the air-valve, the other element attached to the internal shaft, whereby the relative position of the members of the two-part cam are adapted to be changed by the said governor, substantially as set forth.

9. An engine comprising a working cylinder, a rotary air-valve having its axis parallel with that of the said working cylinder, suitable gearing for rotating said air-valve, a governor attached to said air-valve, a cam-shaft attached to said governor, a two-part cam, one of the elements thereof fixed to the said air-valve and the other element to the said valve-shaft, a valve for the working cylinder held on its seat by a spring, the stem thereof extending into the path of the said two-part cam, whereby the said valve is adapted to be held open by the revolution of the said cam, substantially as set forth.

10. An engine comprising a working cylinder, a hollow shaft associated therewith, a compound cam, a valve actuated by said cam, a speed-governor mounted upon said hollow shaft, a valve-shaft extending through said hollow shaft, a cross-arm attached to one end thereof, each end of the said cross-arm loosely connected to the respective momentum devices of the said governor, whereby the relative rotary position of the said valve-shaft and hollow shaft may be varied, and an element of the said cam attached to the said valve-shaft and adapted to actuate said valve, substantially as set forth.

11. The combination of a cylinder, a piston in the said cylinder, a fuel-supply, a multiport valve between the said fuel-supply and the said cylinder, a subsidiary valve between the said multiport valve and the said cylinder, connections between the said valve and the moving parts of the engine, an igniter and a governor connected to the said subsidiary valve and the said igniter, and adapted to control the time and extent of the movement of the said subsidiary valve and of the said igniter, whereby the quantity or quality of fuel within the cylinder, and the time of its ignition is determined, substantially as set forth.

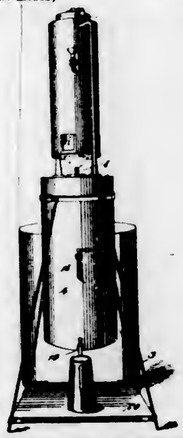
681,288. **AUTOMATIC LUBRICATOR.** WILLIAM O. WORTH, Chicago, Ill., assignor of two-thirds to William R. Donaldson, same place, and Henry W. Kellogg, Battlecreek, Mich. Original application filed June 19, 1899. Serial No. 721,078. Divided and this application filed May 28, 1900. Serial No. 18,267. (No model.)



Claim.—1. In a lubricator device the combination of an oil-reservoir, a disk adapted to be revolved in said reservoir, a tube extending from said reservoir, and a scraper having one end bearing against the side face of said disk, and the other end within the said tube, substantially as set forth.

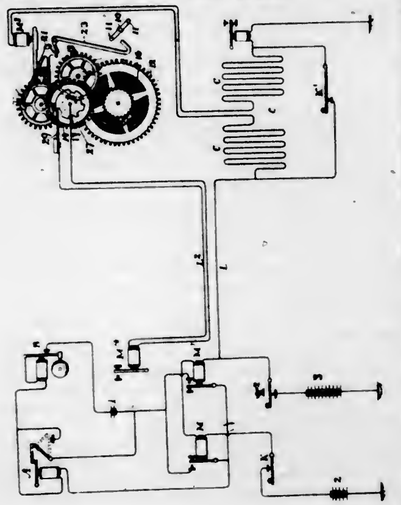
2 A lubricating device comprising an oil-reservoir, a series of tubes extending from said reservoir to bearings to be lubricated, a disk adapted to be revolved within said reservoir, a series of scrapers bearing upon the sides of said disk for transferring the oil from the said disk to said tubes, the radial point of contact of each scraper corresponding with the quantity of oil required in a given time for the respective bearings, substantially as set forth.

681,289. **APPARATUS FOR RENDERING WATER PURE AND PALATABLE.** JOHN S. WRIGHTNOUR, Oil City, Pa. Filed Feb. 19, 1900. Serial No. 5,726. (No model.)



Claim.—An apparatus for rendering water pure and palatable, comprising a reservoir having a partition dividing it into two compartments, means communicating with one of said compartments for conducting cold air thereto, means forming a valved communication between the two compartments, a boiler, and means establishing communication between the boiler and the second compartment of the said reservoir to permit the vapor of water to pass into said second compartment so as to be condensed and aerated in the manner specified.

681,290. **BURGLAR-ALARM.** JAMES B. YEAKLE, Baltimore, Md. Filed June 2, 1900. Serial No. 19,684. (No model.)

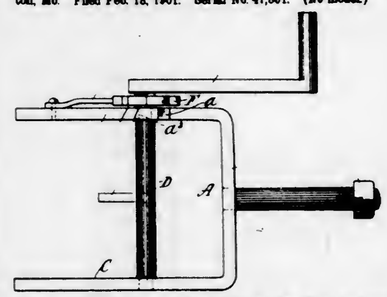


Claim.—1. In a protective telegraph system the combination with the main protective circuit having devices at the central office responsive to the operation of proper circuit-closing devices at the point to be protected, of a transmitting device at the point to be protected for sending a signal to the central office, a detent for releasing the actuating power of said transmitter, a time-train controlling said detent and adapted to release the transmitter periodically and a magnet operating also on said detent and responsive to changes in the electrical condition on the main protective circuit produced at the central office.

2. In an electric protective system having a normally closed charged circuit connecting the point to be protected with the central office, a signal-controlling magnet located at the point to be protected and included in said circuit said magnet constituting the artificial resistance adapted to be shunted by the automatic protective devices, in combination with a key at the central office controlling the action of said magnet.

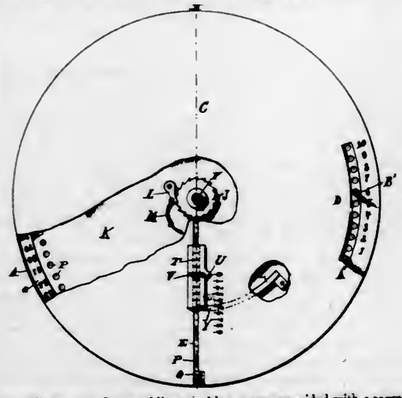
3. In a protective telegraph system the combination with the main protective circuit, of an auxiliary test-signal circuit, a transmitter for sending the signal over said test-signal circuit to the central office, a time-train controlling said transmitter and a magnet responsive to changes in electrical condition on the main protective circuit produced at the central office for controlling said transmitter.

681,291. **ROPE OR WIRE STRETCHER.** JOHN W. ADGLE, Smithton, Mo. Filed Feb. 18, 1901. Serial No. 47,861. (No model.)



Claim.—In an implement of the character described, the combination with a frame, having side arms, one of which is provided with a bearing, a cross-bar integral with said arms, a bolt secured centrally in the cross-bar, the other or opposite arm having an inclined slot or opening therein, of a winding-drum having a spindle at one end, and a peripheral groove at the other end whereby to engage the inclined opening to journal the drum in said arms, a shoulder on said drum, a ratchet-wheel mounted on the end of the drum and abutting against said shoulder, a space between said wheel and slotted arm to prevent frictional engagement with said arm, and a pin secured to the central portion of said drum, substantially as specified.

681,292. **ADDING-MACHINE.** ARTHUR R. BALL, Melvern, Kans. Filed May 27, 1901. Serial No. 62,008. (No model.)



Claim.—1. In an adding-machine, a case provided with a segmental slot, and a contiguous column of figures, numbered consecutively from

"1" upward, a counting-wheel journaled therein, and provided with a circular series of equidistant perforations in the circular plane of said slot, means to rotate said counting-wheel, and a removable pin to engage one of the holes registering with said slot to limit the movement of the wheel by contact with the end of said slot, substantially as described.

2. In an adding-machine, a case provided with a segmental slot, and a contiguous column of figures, numbered consecutively from "1" upward, and with a slot to expose the totals, a counting-wheel journaled therein, and provided with a circular series of equidistant perforations in the circular plane of said slot, and with a parallel series of consecutive numbers to successively appear as totals through the slot mentioned for that purpose, means to rotate said counting-wheel, and a removable pin to engage one of the perforations registering with said segmental slot to limit the movement of the wheel by contact with the end of said slot, substantially as described.

3. In an adding-machine, a circular case having its top or face plate provided with a segmental slot, and a contiguous column of figures consecutively running from "1" upward, and a slot for exposing totals, a shaft journaled centrally of the case, a counting-wheel journaled thereon and provided with a circular series of holes all of which are adapted to register with said slot, and with a circular series of numbers progressing consecutively from "0" upward, one opposite each hole and adapted to successively appear through the totalization-slot, a spring-actuated pawl carried by the counting-wheel, a ratchet-wheel keyed to the shaft and engaged by said pawl, and a spring within the casing for rotating the counting-wheel and secured at its opposite ends to the shaft and the case, substantially as described.

4. In an adding-machine, a circular case having its top or face plate provided with a segmental slot, and a contiguous column of figures consecutively running from "1" upward, and a slot for exposing totals, a shaft journaled centrally of the case, a counting-wheel journaled thereon and provided with a circular series of holes all of which are adapted to register with said slot, and with a circular series of numbers progressing consecutively from "0" upward, one opposite each hole and adapted to successively appear through the totalization-slot, a spring-actuated pawl carried by the counting-wheel, a ratchet-wheel keyed to the shaft and engaged by said pawl, a traveling indicator, mounted in a radial slot and formed with a depending rack-bar, a cam carried by the counting-wheel to successively engage said rack-bar teeth, and impart one step to the traveling indicator with each revolution, and a spring within the case for rotating the counting-wheel and secured at its opposite ends to the shaft and the case, substantially as described.

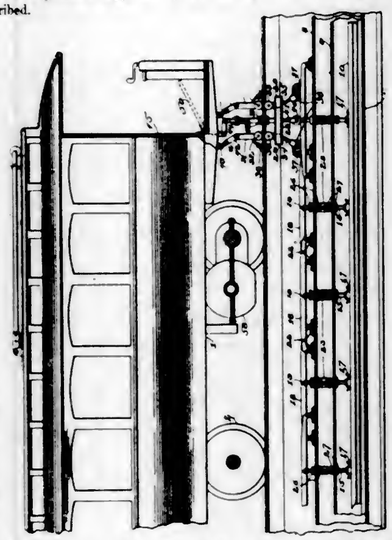
5. In an adding-machine, a circular case having its top or face plate provided with a segmental slot, and a contiguous column of figures consecutively running from "1" upward, and a slot for exposing totals, a shaft journaled centrally of the case, a counting-wheel journaled thereon and provided with a circular series of holes all of which are adapted to register with said slot, and with a circular series of numbers progressing consecutively from "0" upward, one opposite each hole and adapted to successively appear through the totalization-slot, a spring-actuated pawl carried by the counting-wheel, a ratchet-wheel keyed to the shaft and engaged by said pawl, a traveling indicator, mounted in a radial slot and formed with a depending rack-bar, a cam carried by the counting-wheel to successively engage said rack-bar teeth and impart one step to the traveling indicator with each revolution, a concentric tail portion for the cam to limit the movement of the traveling indicator, and a spring within the case for rotating the counting-wheel and secured at its opposite ends to the shaft and case, substantially as described.

681,293. **ELECTRIC SYSTEM FOR RAILWAYS.** DANIEL S BERGIN, Chicago, Ill. Filed May 23, 1901. Serial No. 61,575. (No model.)

Claim.—1. In a system of the class described, the combination with a main conduit, of an inner conduit, a charged conductor located within the latter, a series of movable contact-studs in operative proximity to, but normally out of contact with said conductor, a series of independent movable rail-sections for actuating said studs, a traveling depressor in positive engagement with the slot-rail for successively depressing said rail-sections, and a traveling contact supported by said depressor but having an independent vertical movement, substantially as described.

2. In a system of the class described, the combination with a main conduit of an inner conduit, a charged conductor located within said inner conduit, a series of vertically-movable contact-studs in operative proximity to, but normally out of contact with said conductor, independent rail-sections located in the outer conduit for actuating said studs, said rail-sections being placed alternately upon opposite sides but parallel with the vertical plane of the conduit-slot, a traveling depressor having wheels for engaging the slot-rails, said wheels being located above and below said slot-rails respectively, and a traveling contact supported by, but insulated from said depressor, substantially as described.

3. The combination with a main conduit, of an inner conduit, a charged conductor therein, movable contact-studs in operative proximity to said conductor, means for normally holding said studs out of contact with said conductor, independent rail-sections in the outer conduit for actuating said studs, a traveling depressor having wheels for engaging the slot-rails, whereby a constant relation with said slot-rails is maintained, means for permitting said depressor to conform to the track curves, and a traveling contact supported by said rail-depressor, substantially as described.



4. In a system of the class described, the combination with the vertically-movable rail-sections, of a traveling depressor having front and rear wheels for depressing said rail-sections, wheels above and below the slot-rails for engaging the latter, means for insulating said depressor-wheels from said slot-rail wheels, and a traveling contact located between said depressor-wheels, substantially as specified.

5. In a device of the class described, the combination with the outer and inner conduits of contact-studs arranged to pass through the top plates of said conduits, said studs being provided with washers of yielding non-absorbent material located above and below said top plates, substantially as described.

6. In a device of the class described the combination of the movable rail-sections for causing contact with the charged conductor, of the depressor consisting of a main frame, end sections jointed thereto, the same being made in whole or in part of insulating material, members rigidly connected therewith provided with wheels for engaging the slot-rails, and rollers for engaging said rail-sections, substantially as described.

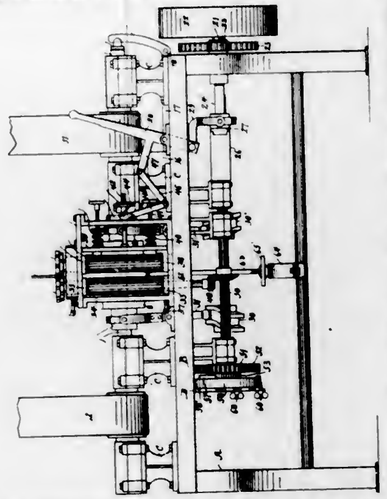
681,294. **DISK CUTTING AND BORING MACHINE.** HERBERT BLISS, Sheboygan, Wis. Filed July 14, 1900. Serial No. 23,579. (No model.)

Claim.—1. In combination, a shaft provided with a terminal axial socket, a bit adjustable endwise in the socket, clamping-blocks in elongated slots in the shell of the shaft, a sleeve on the shaft, and screws turning through the sleeve against the blocks forcing them against the bit.

2. In combination, a shaft provided with a terminal axial socket, a bit loose in the socket, a sleeve on the shaft, a crown-toothed cutting device on the sleeve, and means securing the bit to the sleeve holding the sleeve with its cutting device and the bit to coincident reciprocable movement on the shaft.

3. In combination, a rotatable shaft, a non-movable clamping member rotatably loose on the end of the shaft, a bit reciprocable endwise in the end of the shaft and through the clamping member, a sleeve reciprocable endwise on the shaft, a crown-toothed cutting device fixed on the sleeve, and means securing the sleeve and the bit to each other and to revolution with the shaft and providing for concurrent reciprocation of the saw and the bit past the clamping member.

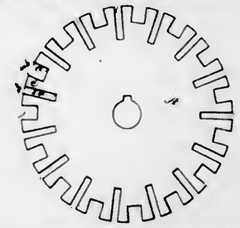
In combination, a rotatable shaft having an annular shoulder and a reduced terminal portion, a terminal flanged collar turning by screw-thread on the reduced portion of the shaft, a radiating clamping member loose on and about the collar between the flange of the collar and the shoulder of the shaft, and a packing-ring also on and about the collar and with the clamping member substantially filling the space between the flange of the collar and the shoulder on the shaft holding the clamping member to movement with the shaft endwise.



5. In combination a rotatable shaft a bit reciprocable in and rotatable with the shaft, and a bit-clearer fitted about the bit and entering the pod thereof and secured loosely to the shaft, adapted to clear the pod of the bit of chips.

6. The combination of a bit-holding member, a bit provided with spiral pods or grooves reciprocable endwise in the bit-holding member, and a bit-clearer secured loosely to the bit-holding member and entering the pod or pods, adapted as the bit is reciprocated to clear the bit of chips.

681,295. **DYNAMO-ELECTRIC MACHINE.** JOHN B. BLOOD, Newburyport, Mass. Filed Mar. 18, 1901. Serial No. 51,577. (No model.)



Claim.—1. An armature-core having slots to receive the inductor-sections, the slots which receive the same inductor-section varying in dimensions from each other, as and for the purpose set forth.

2. An armature-core having slots to receive the inductor-sections, adjacent slots varying in dimensions from each other, a slot of one dimension adapted to receive one limb of an inductor-section and a slot of another dimension adapted to receive the limb of the same inductor-section, as and for the purpose set forth.

3. An armature-core having slots to receive the inductor-sections, the slots which receive the same inductor-section being of the same transverse area but of differing linear dimensions, as and for the purpose set forth.

4. An armature-core having slots to receive the inductor-sections, adjacent slots being of the same area but of differing linear dimensions, as and for the purpose set forth.

5. The combination with an armature-core having slots to receive the inductor-sections, alternate slots being of the same linear dimensions and the dimensions of the intermediate slots differing therefrom, of inductor-sections, one limb of each section being arranged in a slot of one dimension and the other limb thereof arranged to be received in a slot of a differing dimension, as and for the purpose set forth.

6. An armature-core having slots arranged in pairs, each pair of slots receiving respectively the two limbs of the same inductor-section, the slots of each pair differing from each other in linear dimensions but of the same transverse area, as and for the purpose set forth.

7. An armature-core having slots to receive the inductor-sections, each alternate slot being half the depth and double the width of the next adjacent slots, as and for the purpose set forth.

8. The combination with an armature-core having slots, each alternate slot being half the depth and double the width of the next adjacent slot, of a coil or inductor section having one of the limbs thereof received in a slot of one dimension and the other received in a slot of a different dimension, as and for the purpose set forth.

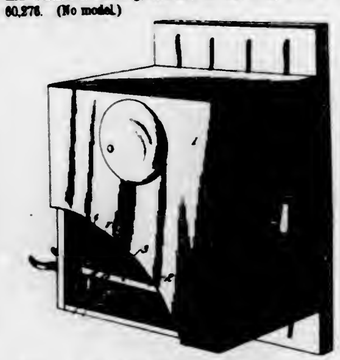
9. An armature-core having slots, eachalternate slot being half the depth and double the width of the next adjacent slot, in combination with a coil or inductor section having the active limbs thereof of dimensions corresponding to adjacent slots of the core, as and for the purpose set forth.

10. An armature-coil or inductor-section having one of the limbs thereof one-half the thickness and double the width of the other limb, as and for the purpose set forth.

11. An armature coil or winding having its active limbs of the same cross-sectional area but of different linear dimensions, as and for the purpose set forth.

12. An armature coil or winding having its active limbs of differing dimensions, as and for the purpose set forth.

681,296. **TELEPHONE-RECEIVER-SUPPORT LOCK.** ADDINGTON L. BRINCKLE, Philadelphia, Pa., assignor of one-half to Benjamin C. Fox and William O. McClurg, Chester, Pa. Filed May 15, 1901. Serial No. 60,276. (No model.)



Claim.—1. In a telephone-receiver-support lock, the combination of a receiver-support, a latch secured adjacent to the support and means for holding the latch in locking engagement with the receiver-support independent of the use of the line at other stations.

2. In a telephone-receiver-support lock, the combination of a receiver-support, a latch secured adjacent to the support and means whereby the support is automatically locked when depressed independent of the use of the line at other stations.

3. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support and means for holding the latch in locking engagement with the receiver-support independent of the use of the line at other stations.

4. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support and means whereby the support is automatically locked when depressed independent of the use of the line at other stations.

5. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support, a recess in the inner side of the latch adapted to receive the support when the support is depressed and means for throwing the latch in locking engagement with the support independent of the use of the line at other stations.

6. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support, a spring bearing against the outer edge of said latch, a recess in the upper inner edge of the latch, said latch being cam-shaped below the recess, a bracket-plate secured on the opposite side of the receiver-support, an aperture in the vertical face of said plate, a friction-plate adjacent to the bracket-plate and key-operated means whereby the support is released when locked in a depressed position substantially as described.

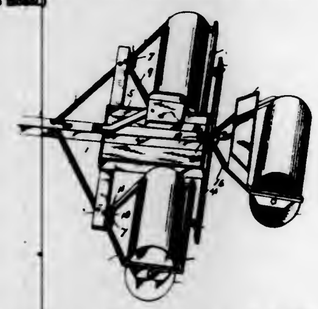
7. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support, the free

end of said latch being semicircular in shape, a recess in the inner side of the latch, and means for normally holding the latch in the path of the support whereby the support will be automatically locked in said recess when said support is depressed substantially as described.

8. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support, means for holding the latch in locking engagement with the receiver-support, and key-operated means whereby the support is released from said locking engagement at the will of the user.

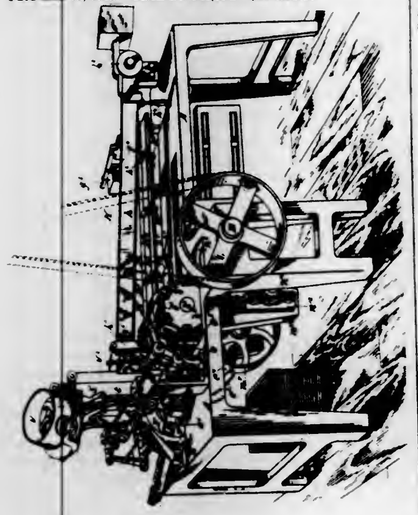
9. In a telephone-receiver-support lock, the combination of a receiver-support, a latch pivotally secured adjacent to the support, means whereby the support is automatically locked when depressed, and key-operated means for releasing the support from its locking engagement with said latch at the will of the user.

681,297. LAND-ROLLER. FREDRICK A. BROCKMAN, Plainview, Oreg. Filed Jan. 11, 1900. Renewed Jan. 10, 1901. Serial No. 42,814. (No model.)



Claim.—In a land-roller, the combination with the draft-tongue; of the forward and rearward cross-bars secured thereto, the diagonal forward cross-braces secured at their forward ends to the tongue and at their rear ends to the forward cross-bar and provided with downwardly-extending lugs, a hook-plate secured to the rear end of the tongue and provided with an upwardly-extending lug, two alined land-rollers and a trailing rear roller, yoke-frames in which the land-rollers are journaled, castings having apertures to receive the aforesaid lugs, fastening means secured to said lugs, bolts connecting said castings with the yoke-frames, bars connecting the rear ends of the forward yoke-frames, and links connecting the bars to the rear cross-bar, substantially as and for the purpose set forth.

681,298. CARTRIDGE-MACHINE. PAUL BUTLER, Lowell, Mass. Filed Mar. 13, 1895. Serial No. 541,554. (No model.)



Claim.—1. The combination of the blank-carrier and means for advancing the same, with means for supplying cylindrical blanks and corresponding cup-shaped blanks thereto, at different points in its movement, and dies for reducing the end of the cylindrical blank before it arrives at the point of supply of the cup-shaped blank, and means for subsequently inserting the said reduced cylindrical blank into the cup shaped blank, and actuating mechanism therefor, substantially as described.

2. The combination of a carrier for the heads and bodies consisting of a wheel having a series of laterally open cavities on its periphery each adapted to hold a head and body independently fed thereto, and an intermittent feed mechanism for said carrier, with means for inserting the body in each cavity into the head in the same cavity at each stationary period of said carrier, substantially as described.

3. The combination with a carrier for the heads and bodies having an intermittent feed and adapted to carry a number of said heads and bodies, of a reducing-die for the inner end of the body, means for inserting said reduced inner end into a corresponding head, an expanding-die for the outer end of the body, and a reciprocating die-carrier adapted to operate during the periods between the intermittent feed movements of said carrier for the heads and bodies, substantially as described.

4. The combination with a carrier for the heads and bodies having an intermittent feed movement, with a reciprocating die-carrier; a stationary reducing-die; a coöperating reducing-die on said die-carrier; and an ejector for removing the reduced body-blank from the stationary die, substantially as described.

5. The combination with a carrier for the blanks comprising a rotatable disk mounted on a horizontal shaft and provided with laterally open recesses on its periphery and having an intermittent feed movement, of a wad-carrier adjacent to said disk and also having an intermittent feed movement around a horizontal axis, whereby the wads are successively brought opposite the ends of the blanks contained in said recesses, and means for transferring the wad from said wad-carrier into the said blank, substantially as described.

6. The combination of the blank-carrier and means for supplying the same with a tubular body, and metallic cup or base-piece, with the wad-carrier and means for transferring the wad from said wad-carrier into the tubular body in the blank-carrier, and a punch for forcing said wad to the base of said tubular body, substantially as described.

7. The combination with a carrier for the heads and bodies, of means for inserting the body in the head, a wad-carrier, and a device for inserting the wad into the body and head thus assembled, as described.

8. The combination of means for assembling the head and body of a cartridge-shell, with a wad-carrier having winding devices for forming wads of strips of paper fed thereto, and an ejector for removing the wads from said winding devices and inserting them into the body portion of the shell, as described.

9. The combination with a carrier for the heads and bodies having an intermittent feed movement, of devices operating at the periods when said carrier is stationary to assemble said heads and bodies, a wad-carrier also having an intermittent feed movement and adapted to carry the wads consecutively to a position in line with one of the bodies in its carrier, and an ejector for disengaging the wad from the wad-carrier and inserting it into the said body, as set forth.

10. The combination with a carrier for the heads and bodies having an intermittent feed movement, of devices operating at the periods when said carrier is stationary to assemble said heads and bodies, a wad-carrier also having an intermittent feed movement and adapted to carry the wads consecutively to a position in line with one of the bodies in its carrier; an ejector for disengaging the wad from the wad-carrier and inserting it into the said body, and a punch for forcing the wad thus inserted into the base of the tubular body, as described.

11. The combination with a movable carrier for the heads and bodies of a cartridge-shell, of a reducing-die for the inner end of said bodies, an expanding-die and actuator for expanding the mouth or outer ends of said bodies, a wad-carrier and ejector for transferring the wads from said carrier to the shells, and a compressor for compressing the wad in the shell, said devices being arranged to operate substantially simultaneously upon different shells, as set forth.

12. The herein-described blank-carrier comprising a wheel or disk having transverse recesses each adapted to contain a blank or one part thereof, as the body; a hub for said disk having a flanged sleeve screw-threaded and longitudinally adjustable thereon; a supplemental wheel or disk mounted on said sleeve, and having corresponding transverse recesses in line with those of the other wheel also adapted to contain a blank or a portion thereof, as the head; means for preventing independent rotary movement of said wheels, and means for clamping said sleeve when adjusted, substantially as described.

13. The web-feeding mechanism comprising a pair of feed-rolls; means for pressing the feed-rolls together; and means controlled by the edge of the web for varying the pressure near one end relative to that near the other end of the feed-rolls, substantially as and for the purpose described.

14. The combination of the web-feed rolls with a weighted lever or equivalent for pressing the rolls together near one end thereof, a toggle-joint controlling the pressure of said lever and itself governed by the edge of the web being fed, substantially as and for the purpose described.

15. In a device for feeding a web of paper, consisting of feed-rolls between which said web is fed, the herein-described compensating feeding mechanism consisting of a weight or spring adapted to hold the end of the upper roll in contact with the lower roll, a lever adapted to counteract the force of said weight and relieve the pressure thereof upon said upper roll, and an actuator for said lever in contact with the edge of the web, as and for the purpose described.

16. The combination with a strip-feeding device, of a winding-spindle adapted to receive the strip from said device, an intermittingly-fed carrier for said spindle, a device for giving a rotary impulse to the spindle during the forward movement of the carrier, and means for rotating said spindle while the carrier is stationary to completely wind the strip thereon, substantially as described.

17. The herein-described wad-making mechanism comprising a transversely-slotted thimble, a slotted spindle free to rotate within said thimble, an intermittingly-fed carrier for said thimble, feed mechanism for feeding a strip of paper edgewise into both said slots, a device for giving a momentary rotary impulse to said spindle during the feed movement of said carrier, and means for rotating said spindle while said carrier is stationary, until said strip is completely wound into the thimble, substantially as described.

18. A wad-making device consisting of a series of wad-winders each comprising a slotted spindle provided with a pulley and mounted to rotate within a slotted thimble but normally stationary with relation thereto; a carrier for the said spindles and thimbles; intermittent feed mechanism for the said carrier; and an actuating-wheel at a point to which the said spindles are successively carried by the intermittent movements of the said carrier; said wheel being adapted to engage and rotate the pulley on the slotted spindle, substantially as described.

19. The herein-described wad-making mechanism, comprising a transversely-slotted thimble or cylinder, the bore of which is equal to the diameter of the wad to be made; a spindle also having a transverse slot and within and concentric with said thimble and adapted to rotate therein; an automatic feeding device for feeding a strip of paper edgewise into said slots; a carrier for the wad-making device; means for bringing the slot in the spindle into alinement with that in the thimble when the said wad-making device is in position to have the paper strip fed thereto; and an independent rotating device for said spindle normally disconnected therefrom but adapted to coöperate therewith after the paper strip has been thus fed and the spindle advanced a predetermined distance by said carrier, substantially as described.

20. The herein-described wad-making mechanism comprising a transversely-slotted thimble and winding-spindle also having a transverse slot; and mounted to rotate within said spindle; a carrier for said thimble and spindle having intermittent feed mechanism; a cam-head connected with said spindle, a cam-plate engaging said cam-head when the said carrier has reached a predetermined position, the coöperation of said cam-head and cam-plate thus bringing the slot in the spindle into line with that in the thimble, and feed mechanism for feeding a strip of paper edgewise into said slots, substantially as described.

21. The herein-described wad-making mechanism comprising a transversely-slotted thimble and a winding-spindle also having a transverse slot, and mounted to rotate within said spindle; a carrier for said thimble and spindle having intermittent feed mechanism; a cam-head connected with said spindle, a cam-plate engaging said cam-head when the said carrier has reached a predetermined position, the coöperation of said cam-head and cam-plate thus bringing the slot in the spindle into line with that in the thimble, feed mechanism for feeding a strip of paper edgewise into said slots, and a secondary engaging portion of the said cam-plate adapted by its engagement with the cam-head to partially rotate the said spindle at the next movement of the said carrier, substantially as described.

22. Wad-making mechanism, which comprises a support for a web of paper; feed-rolls for feeding the said web of paper; a shear substantially parallel to the axis of the web-support to cut a narrow strip from the end of the web; a transversely-slotted thimble or cylinder the bore of which is equal to the diameter of the wad to be made; a spindle within and concentric with said thimble and having a transverse slot to correspond with the slot of the thimble; and means for inserting the strip cut from the end of the web into the slots in said thimble and spindle, substantially as described.

23. The combination of the slotted winding-spindle and means for rotating the same, and the relatively stationary slotted thimble; with feed-rolls for a web of paper of the width required for the length of the strip which is to be wound, said feed-rolls being mounted transversely to the axis of said spindle; a cutter to cut a strip from the paper fed thereto; feeding mechanism adapted to operate upon the strip thus cut for feeding same to said thimble and spindle; a traveling carrier for said thimble and spindle; a cam connected with said spindle; and a cam-plate coöperating therewith during the travel of the carrier for bringing the slot in the spindle into line with that in the thimble, to permit the feed of the paper strip thereto, substantially as described

24. A wad-making device comprising a wad-winder consisting of a slotted spindle provided with a pulley and mounted to rotate within a slotted thimble but normally stationary with relation thereto; a carrier for said wad-winder; and an independently-driven actuating-wheel adapted at a certain period in the travel of said carrier to engage and rotate the pulley on the said slotted spindle, substantially as described.

25. In combination with devices for assembling the heads and bodies of cartridge-shells, a wad-carrier comprising a thimble or recess for the wad, an ejector for ejecting the wad from said thimble, and feed mechanism, whereby the head and body assembled are positioned to receive the wad when thus ejected, as set forth.

26. The wad-carrier consisting of a disk or wheel having on its periphery a series of thimbles each adapted to hold a wad, and intermittent feed mechanism for said disk, in combination with a carrier for the heads and bodies also having intermittent feed mechanism, and arranged to bring, at each step, one of said bodies into position to receive the wad when ejected from its thimble, and an ejector for thus ejecting the wad, substantially as set forth.

27. The wad-making device consisting of a traveling carrier, a thimble or cup rigid with relation thereto, a spindle within said thimble and concentric therewith, and having a bearing in said carrier, a wheel or roller secured to said spindle for rotating the same in said bearing, an ejector comprising a plunger sleeved upon the said spindle and capable of longitudinal movement with relation thereto, means for preventing independent rotation of said spindle and plunger; a cam connected to said plunger; a cam-plate coöperating therewith to produce a rotary movement of the spindle; and means for pushing said plunger from its normal position behind the thimble into the said thimble, substantially as and for the purpose described.

28. The herein-described feeding device for the heads consisting of a hopper adapted to feed the shells head down into a chamber having an inclined floor, an opening in the wall of said chamber at the lowermost part thereof, a reciprocating gate for said opening having a slot which permits the passage of heads therethrough one only at a time, and walls connected to said gate at the sides of said slot and pivotally connected to the walls of a chute leading to the carrier into which the heads are to be fed, substantially as and for the purpose described.

29. In a machine for assembling cartridge-shells, the combination with an intermittingly-fed carrier for the heads of said shells comprising a rotatable disk having transverse recesses along the periphery thereof, of a vertical chute for said heads extending toward the periphery of said wheel, the lower end of said chute terminating at a point the distance of which from the bottom of any given recess is substantially equal to the diameter of a head, an opening in the side of said chute of such width as to admit the passage therethrough of a head, and a yielding spring-actuated gate adapted to close said opening, substantially as and for the purpose described.

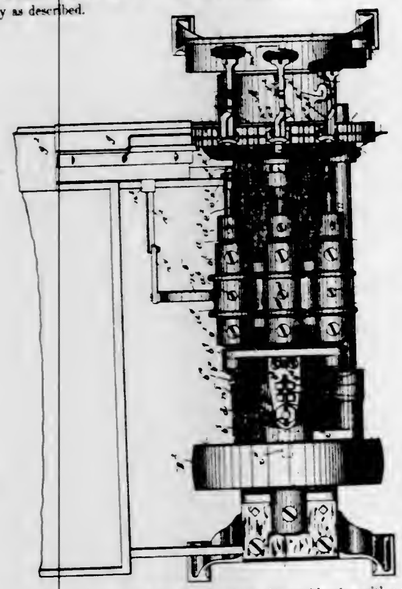
681,299. CARTRIDGE-SHELL-TRIMMING MACHINE. PAUL BUTLER, Lowell, Mass. Filed Oct. 28, 1895. Serial No. 567,156. (No model.)

Claim.—1. In a cartridge-shell-finishing machine, the combination with the driving-shaft, of a rotatable carrier for the shells, means for automatically feeding shells to said carrier, a reciprocating tool-carriage movable in a direction parallel to said shaft toward and from said carrier, a tool or gang of tools mounted on said carriage and adapted to be advanced thereby to a position to operate on the shells in said carrier, and connecting mechanism between said shaft and said shell-carrier and tool-carriage respectively for producing an intermittent feed movement of said carrier and reciprocating movement of said carriage, substantially as described.

2. In a cartridge-shell-finishing machine, the combination with a reciprocating tool-carriage, of a rotating shell-carrier, comprising a wheel or disk mounted on a horizontal axis and having transverse recesses along its periphery, a feed-chute for the shells inclined toward the periphery of said carrier, mechanism for intermittingly rotating said carrier during the reciprocation of said carriage and holding devices adapted to hold the shells while said carrier is stationary and release them prior to the next movement thereof, substantially as described.

3. In a cartridge-shell-finishing machine, the combination with a driving-shaft, of a tool or tools having a reciprocating movement parallel to said shaft; a carrier for the shells consisting of a disk coaxial with said shaft and having recesses on its periphery and so positioned with relation to the tools that shells carried in said recesses are in a position to be operated upon by said tools at one extremity of their reciprocating move-

ment; an intermittent feed mechanism for said carrier; devices for holding shells in the recesses of the carrier when said carrier is stationary and releasing said shells before the next feed movement of the carrier, and one or more cams carried by said shaft to operate said devices, substantially as described.



4. In a cartridge-shell-finishing machine, the combination with a reciprocating finishing-tool; of a carrier adapted to bring the shells successively to a proper position to be operated upon by said tool; an intermittent feed mechanism for said carrier cooperating with said reciprocating tool; and a centering and locking device connected with said tool and adapted to engage said carrier during the forward movement of said tool, substantially as described.

5. In a cartridge-shell-finishing machine, having reciprocating tools, the combination with a carrier for the shells consisting of a rotating disk having recesses on the periphery thereof, and intermittent feed mechanism; of a brush movable transversely across the periphery of said carrier; and means for moving said brush when said carrier is stationary between successive feed movements thereof, as and for the purpose described.

6. In a cartridge-shell-finishing machine having a carrier for the shells and reciprocating tools adapted to approach and recede from said carrier during the operation of the machine, the means for reciprocating said tools consisting of a cam projection connected therewith and cooperating with a cam-groove on the shaft of the machine, and a device for adjusting the position of said cam projection to vary the limit of movement of said tools, as and for the purpose described.

7. In a cartridge-shell-finishing machine, the combination with the main driving-shaft, of the carrier for the shells, loosely mounted on said shaft and free to rotate independently thereof, a reciprocating tool-carriage movable in a direction parallel to said shaft and adapted to move a finishing-tool to and from the shells supported in the said carrier during the operation of the machine; a rotating tool mounted in a bearing on said tool-carriage; and means for longitudinally adjusting said tool in said bearing, substantially as described.

8. The combination with a carrier for cartridge-shells consisting of a rotary disk having recesses on the periphery thereof and provided with intermittent feed mechanism, of a holding device for the shells consisting of a pivotally-supported lever having a clamp at one end thereof normally held above the said carrier to permit the movement thereof, and a cam cooperating with the carrier feed mechanism adapted to engage the end of said lever opposite the said clamp and by rocking said lever to cause said clamp to engage a shell in said carrier, said cam being arranged to operate between successive feed movements of the carrier, substantially as described.

9. A cartridge-shell-finishing machine consisting of a reciprocating tool-carriage sleeved upon the main shaft of the machine; a cam-groove extending around said shaft and engaging a cam projection from said carriage to produce a reciprocating movement thereof; a carrier for the shells consisting of a disk having recesses in its periphery, said carrier also having a bearing on said shaft; feed mechanism operated by said shaft to produce intermittent rotary movement of said carrier; and a locking or centering device for said carrier consisting of a projection from said carriage adapted during the forward movement thereof to enter a recess in said carrier, substantially as described.

10. The combination with the reciprocating tool-carriage, of a carrier for the shells consisting of a rotary disk mounted on a horizontal axis and having recesses in the periphery thereof, a ratchet connected with the said disk, a pawl adapted to engage said ratchet; a cam for actuating said pawl having a gradually-inclined surface; and a retarding device for said carrier, substantially as described.

11. In a machine for operating on cartridge-shells, the combination with the driving-shaft, of a rotatable carrier having a bearing on said shaft, a reciprocating tool-carriage sleeved upon said shaft and longitudinally movable with relation thereto, a cam carried by said shaft for producing a reciprocating movement of said tool-carriage toward and from said carrier, and connecting mechanism between said shaft and the carrier for producing an intermittent rotation of said carrier, substantially as described.

12. The combination with the horizontal driving-shaft mounted in supports at or near the ends of the supporting-frame, and the reciprocating tool-carriage movable in a direction parallel to said shaft, of the rotatable carrier for said shells mounted on said shaft and provided with intermittent feed mechanism, holding devices adapted to engage the shells in said carrier, said devices being mounted on one of the supports for said shaft, and a cam-wheel mounted on said shaft and adapted to engage and operate said holding devices, substantially as described.

13. In a machine for operating on cartridge-shells, the combination with the driving-shaft provided with a driving-pulley, of a rotatable carrier for the shells coaxial with said shaft, and a cam on said pulley adapted to cooperate with said carrier to produce rotation thereof, substantially as described.

14. The combination with a horizontal driving-shaft mounted in supports at or near the ends of the supporting-frame, of the rotatable carrier for said shells mounted on a horizontal axis, a tool-carriage movable in a direction parallel to said shaft, a track for said carriage on the supporting-frame of the machine, means for producing a reciprocating movement of said carriage along said track from the rotation of said driving-shaft, and feed mechanism also cooperating with said shaft to produce an intermittent rotary movement of said carrier, substantially as described.

15. In a machine for operating upon cartridge-shells, the combination with an intermittingly-fed carrier for the shells, of a holding device adapted to cooperate with said carrier to hold the shells therein, said holding device comprising a pivoted arm extending over the carrier, a cam for moving said arm with relation to said carrier, and a cam-roll adjustably connected to said arm, substantially as described.

681,300. MACHINE FOR PACKING ARTICLES INTO BOXES.

PAUL BUTLER, Lowell, Mass. Filed Jan. 9, 1899. Serial No. 701,658. (No model.)

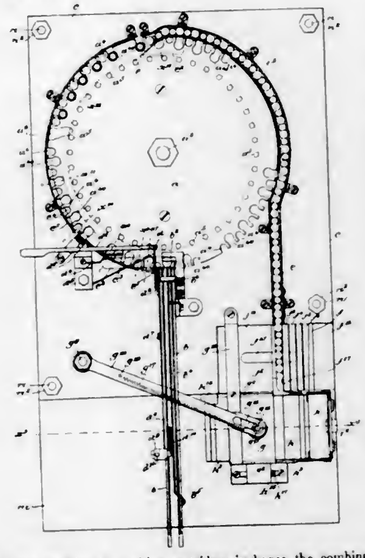
Claim.—1. In an apparatus for packing articles in boxes, the combination with means for arranging in the shape of the box a sufficient number of such articles standing on end to fill the box; of a receiver for the articles thus arranged; means for moving said articles laterally into said receiver; means for presenting a box to said receiver to take the articles therefrom; and connecting mechanism whereby the several parts are arranged to operate consecutively, substantially as described.

2. In a machine for packing articles into boxes, a feeding device for supplying the articles to the machine; means for arranging the articles to fit the box or package; a receiver or forwarding device; devices for inserting the articles thus arranged into said receiver and for transferring the articles from said receiver to a box; a box-feeding device; and connecting mechanism whereby said parts are caused to operate consecutively, as set forth.

3. In a machine for packing cartridges in boxes, the combination with means for arranging the cartridges in parallel lines with the flanged end of one adjacent to the bullet end of the next; of a box-feeding device; means for inserting the cartridges thus arranged into a box presented by said feeding device and connecting mechanism whereby said instrumentalities are caused to cooperate, substantially as described.

4. In an apparatus for packing articles in boxes, the combination with means for arranging the said articles, of a transferring device to act upon the articles when properly arranged, a receiver for the articles to which they are transferred by said transferring device; means for presenting a box to receive the said articles and connecting mechanism whereby said instrumentalities are caused to cooperate, substantially as described.

5. In a machine for packing articles in boxes, the combination with means for arranging the articles to fit the box, of a transferring device to act upon the articles so arranged, a forwarding device to receive the articles from the transferring device, means for presenting the box to the said forwarding device to receive the articles therefrom and connecting mechanism whereby said instrumentalities are caused to cooperate, substantially as described.



6. In a machine for packing cartridges in boxes, the combination with a feeding device for said cartridges, of an arranging device adapted to receive the cartridges therefrom and to invert alternate cartridges so that the bullet end of one will be adjacent to the flanged end of another, a supplemental arranging device to arrange the cartridges in lines, means for transferring the cartridges thus arranged into boxes automatically fed to the machine and connecting mechanism whereby said instrumentalities are caused to cooperate, substantially as described.

7. In a machine for packing cartridges in boxes, the combination with an arranging device adapted to receive cartridges uniformly fed thereto and to carry said cartridges forward, of means for inverting alternate cartridges during such forward movement, a supplemental arranging device comprising a traveling member having a series of channels to receive the cartridges from said main arranging device, means for intermittingly feeding said member until each channel contains a line of cartridges, a transferring device for the cartridges thus arranged, a forwarding device to receive the cartridges from said transferring device, a feed-chute for presenting empty boxes to said forwarding device to receive cartridges therefrom and connecting mechanism whereby said instrumentalities are caused to cooperate, substantially as described

8. In a machine for packing cartridges in boxes, the combination with an arranging device adapted to receive cartridges uniformly fed thereto and to carry said cartridges forward, means for inverting alternate cartridges during such forward movement, a supplemental arranging device comprising a traveling member having a series of channels each adapted to receive part of the cartridges from said main arranging device as they are carried forward, means for intermittingly feeding said member until each channel contains a line of cartridges, and means for transferring the cartridges from said arranging device into a box, substantially as described.

9. In a machine for packing cartridges in boxes, the combination with an arranging device adapted to receive cartridges uniformly fed thereto and to carry said cartridges forward, of means for inverting alternate cartridges during such forward movement, a supplemental arranging device comprising a traveling member having a series of channels to consecutively receive the cartridges from said main arranging device, means for intermittingly feeding said member until each channel contains a line of cartridges, a feeding device for empty boxes, and means for transferring the cartridges from said supplemental arranging member into a box presented by said feeding device, substantially as described.

10. A machine for packing cartridges in boxes, comprising a traveling carrier to receive cartridges uniformly fed thereto; recesses formed in said carrier to receive and support some of the cartridges presented thereto; other recesses to receive others of the cartridges and to cause them to travel along a fixed support adjacent to the carrier; a shoulder or engaging portion of said fixed support inclined from the direction of movement of the carrier to engage the end of the cartridges and tip the same sidewise; a channel to receive the opposite end of the cartridges in the further movement of the carrier, and an inclined surface to engage the cartridges and lift one end thereof, the other end resting in said channel; means for arranging the cartridges carried forward in said recesses in lines; and means for transferring the cartridges thus arranged to a box suitably fed to the machine, substantially as described.

11. In a machine for packing cartridges in boxes, a main arranging device comprising a continuously-traveling carrier, recesses in said carrier to receive cartridges, said recesses being arranged in groups separated from each other by a space greater than the space between adjacent recesses in any one group, a supplemental arranging device having channels each adapted to contain a number of cartridges equal to a number contained in a single group of recesses in the carrier, means for feeding said supplemental arranging device to successively move the channels therein to a position to receive cartridges from the main arranging device, means for transferring cartridges from said supplemental arranging device to an empty box, and connecting mechanism whereby all of said instrumentalities are caused to cooperate, substantially as described.

12. In a machine for packing cartridges into boxes, the combination with a carrier provided with recesses to receive cartridges, of a clearing device to eject the cartridges from said recesses in the travel of the carrier, a guideway to receive cartridges thus ejected, a movable member provided with a series of parallel channels arranged to be consecutively moved into line with said guideway to receive cartridges therefrom, and means for transferring the cartridges from all of said channels at once to an empty box, substantially as described.

13. In a machine for packing cartridges into boxes, the combination with a carrier adapted to receive the cartridges fed to the machine, of a clearing device to eject the cartridges from the carrier in the travel thereof, a traveling member having a series of parallel channels adapted to be consecutively moved into position to receive said cartridges, means for actuating said member, and means for transferring the cartridges from said channels to a box, substantially as described.

14. In a machine for packing cartridges into boxes, the combination with a carrier provided with recesses to receive cartridges, of a clearing device to eject the cartridges from said recesses in the travel of the carrier, a guideway to receive cartridges thus ejected, a series of parallel channels arranged to be consecutively moved into line with said guideway to receive cartridges therefrom, a forwarding device comprising a traveling member adjacent to the ends of said channels and having a recess adapted to receive the contents of all of said channels, means for transferring the cartridges from said channels to said recess, and a feed-chute for empty boxes adjacent to the said forwarding device whereby a box in said chute will receive cartridges from said forwarding device in the movement thereof, substantially as described.

15. In a machine for packing cartridges into boxes, an arranging device comprising a member having parallel channels, means for intermittingly feeding said member to bring said channels consecutively to a position to receive cartridges and for restoring the same to its initial position, a transferring device having fingers to engage the cartridges at both ends of each channel, a forwarding device adjacent to said arranging device and having one or more recesses each adapted to receive the contents of all the channels, intermittent feed mechanism for said forwarding device, and means for moving the transferring device from the channels to the forwarding device prior to the return movement of said arranging device and prior to the feed movement of the forwarding device, and for moving the transferring device in the opposite direction after a feed movement of the forwarding device and prior to the first feed movement of the arranging device, substantially as described.

16. In a machine for packing cartridges into boxes, the combination with a carrier having recesses to receive cartridges, of a feed-chute leading toward said carrier, a controlling device held in normal position by the cartridges in said chute, and means for moving said controlling device to arrest the carrier when not so held, substantially as described.

17. The combination with the carrier *a* provided with recesses a^4 and a^{10}, and with openings a^5, of the chute *b*, the stop *d* arranged to cooperate with the openings a^5, the supporting-lever d^8 for said stop, and the tongue d^{10} cooperating with said supporting-lever and adapted to be held in normal position by the cartridges in the chute, substantially as described.

18. The combination with the carrier *a* provided with the recesses a^4 and a^{10}, of the support *c* below said carrier to support the cartridges in the recesses a^{10}, a tipping device to act on the cartridges moved along said support by said carrier, and means for lifting the bullet end of the cartridge so tipped during the continued forward movement of the carrier until said cartridge rests on its flanged end on said support *c*, substantially as described.

19. The combination with the carrier provided with marginal recesses having a main portion of larger diameter than that of the flanged end of the cartridge and a passage leading from said main portion to the margin of the carrier, the width of said passage being less than the diameter of the flanged end of the cartridge but greater than the diameter of the body portion thereof, of a support for the cartridges below said carrier; means for tipping the cartridge on its side with its body portion lying in said passage and its flange portion in said recess and means for subsequently lifting said body portion until the cartridge rests upon its flanged end on said support, substantially as described.

20. The combination with the carrier provided with marginal recesses having a main portion of larger diameter than that of the flanged end of the cartridge and a passage leading from said main portion to the margin of the carrier, the width of said passage being less than the diameter of the flanged end of the cartridge but greater than the diameter of the body portion thereof; of a support for the cartridges below said carrier; means for inverting the cartridges in said recesses during the travel of the carrier; a cartridge-chute leading toward the margin of the carrier to supply cartridges to said recesses; and a guard for the cartridges in said chute, the distance between said guard and the end of said chute being substantially equal to the diameter of the body portion of the cartridge; substantially as and for the purpose described.

21. The combination with the carrier provided with marginal recesses each having a main portion of larger diameter than that of the flanged end of the cartridge, and a passage leading from said main portion to the margin of the carrier, the width of said passage being less than the diameter of the flanged end of the cartridge but greater than the diameter of the body portion thereof; of a support for the cartridge below said carrier, means for inverting the cartridge in said recess during the travel of the carrier, a cartridge-chute leading toward the margin of the carrier to supply cartridges to said recesses; a stop for the cartridges in said chute, the distance between said stop and the end of said chute being substantially equal to the diameter of the body portion of the cartridge; and means for inserting the cartridge into the body of the recess after it has been carried past said stop, substantially as described.

22. In a machine for packing cartridges into boxes, a traveling carrier to receive cartridges uniformly fed thereto; means for inverting certain of the cartridges as they are forwarded by said carrier, the other cartridges remaining as presented to the carrier; and a clearing device to eject all the cartridges from said carrier, substantially as described.

23. In a machine for packing cartridges into boxes, a traveling carrier to receive cartridges uniformly fed thereto; means for inverting certain of the cartridges as they are forwarded by said carrier; an independent support for the inverted cartridges, the non-inverted cartridges being supported by the carrier; a clearing device to act on all of the cartridges in the carrier; and a supplemental clearing device for those cartridges which are inverted and supported on said independent support, substantially as described.

24. In a machine for packing cartridges in boxes, the combination with a carrier to receive cartridges fed thereto; of a traveling member having parallel passages to receive cartridges from the carrier; means for advancing said traveling member to successively bring said passages to a position to receive the cartridges; and a spring-support, stationary with relation to said traveling member and parrallel to said passages, to prevent the cartridges from tipping over as they are moved into said passages, substantially as described.

25. In a machine for packing cartridges into boxes, the combination with arranging devices to arrange a number of cartridges in shape to fit a box; of a forwarding device to receive the cartridges thus arranged and forward the same to the box; means for transferring the cartridges from the arranging device to the forwarding device; feed mechanism for said forwarding device and means for locking said forwarding device stationary at the end of each feed movement, substantially as described.

26. In a machine for packing cartridges into boxes, the combination with arranging devices to arrange a number of cartridges in such shape as to fit a box; of a forwarding device to receive the cartridges thus arranged and forward the same to the box; means for transferring the cartridges from the arranging device to the forwarding device; feed mechanism for said forwarding device, means for locking said forwarding device stationary at the end of each feed movement; and means for frictionally retarding said forwarding device when not so locked, substantially as described.

27. In a machine for packing cartridges into boxes, the combination with means for arranging said cartridges to fit the boxes; of a transferring device to receive the cartridges thus arranged; said transferring device comprising a traveling member provided with open-ended recesses into which the cartridges are pushed after being arranged; guards adjacent to said member to prevent the cartridges from leaving the recesses in the travel thereof; a box-chute adjacent to the path of said recesses; and means for yieldingly supporting a box in said chute in position to receive cartridges projecting from the recesses in said traveling member, substantially as described.

28. In a machine for packing cartridges into boxes, the combination with means for arranging the cartridges to fit the boxes, of a forwarding device comprising a rotatable member having one or more recesses adapted to receive the cartridges arranged for insertion into a box, the said recesses being of such depth that the cartridges project therefrom, and a box-chute adjacent to said member adapted to present a box in such position that the projecting cartridges will engage the inner walt thereof, substantially as described.

29. In a machine for packing cartridges into boxes, the combination with means for arranging the cartridges to fit the boxes, of a forwarding device comprising a rotatable member having one or more recesses adapted to receive the cartridges arranged for insertion into a box, the said recesses being of such depth that the cartridges project therefrom, a box-chute following the periphery of said member and terminating below the same, the distance between the supporting-wall of said chute and the periphery of said member being substantially equal to the depth of the box, and means for yieldingly supporting the box in position to be engaged by the projecting cartridges and carried along thereby until the cartridges settle into the box by force of gravity, substantially as described.

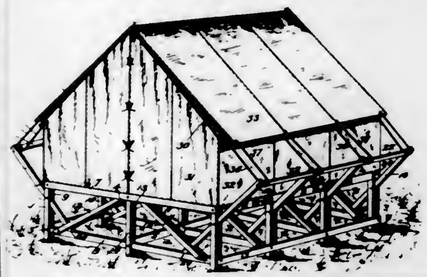
30. In a machine for packing articles into boxes, a supplemental arranging device comprising a member having convergent walls and being adapted to receive a predetermined number of articles arranged in parallel lines; and means for pushing the lines of articles endwise from said member to compact the articles through the action of the convergent walls, as set forth.

31. A receptacle for lines or columns of cartridges having converging side walls, combined with traveling means for engaging both ends of each line or column of cartridges to slide said columns endwise from the said receptacle, and to thereby condense or compact the articles for insertion into a package, substantially as described.

32. In a machine for packing articles into boxes, the combination with a receiver substantially equal in size to the box to be filled; a receptacle for lines or columns of articles, the walls of which receptacle converge toward the walls of said receiver; and means for sliding said columns endwise from the receptacle, the converging walls condensing or compacting the articles as they enter the receiver, substantially as described.

33. In an apparatus for packing cartridges, the combination with a receptacle having convergent walls and longitudinal division-strips; of traveling members movable parallel to said division-strips and adapted respectively to engage opposite ends of the lines or columns of cartridges therein, substantially as described.

681,301. TENT. JOHN M. CORSON, U. S. Army. Filed Jan. 31, 1900. Renewed Apr. 4, 1901. Serial No. 54,354. (No model.)



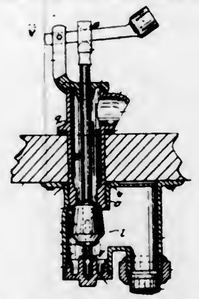
Claim.—1. In a tent of the character described, the combination with the compartment-sections; of braces removably connected thereto and adapted to be inclosed therein when the tent is knocked down for storage or transportation, substantially as and for the purpose set forth.

2. In a tent of the character described, the combination of the compartment-sections each of which consists of the upper and lower board or strip and end posts secured to the opposite sides of the strips at their ends and spaced apart to form, in conjunction with the upper and lower boards, compartments, and braces for removably connecting said sections to form the foundation of the tent, said braces, when the tent is knocked down for storage or transportation, adapted to be inclosed within the compartments, substantially as and for the purpose set forth

3. In a tent, the combination with its foundation supported above the ground and consisting of knockdown sections; of a floor supported upon said foundation, outriggers connected by braces, a tent-covering, flies, and guys connecting the tent-covering and flies with the outrigger-braces, substantially as and for the purpose set forth.

4. In a tent, the combination with the top and flies of the tent-covering; of outriggers, braces connecting the outriggers and provided on their inner sides with double hooks, and guys fastened to the top of the tent-covering and flies and passed around said outrigger-braces and engaged with said hooks, substantially as and for the purpose set forth.

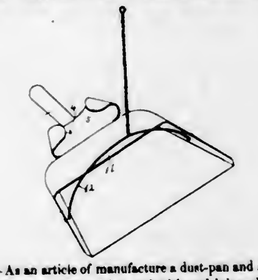
681,302. FLUSH-TANK VALVE. JOHN DENTON, Paterson, N. J. Filed Dec. 31, 1900. Serial No. 41,581. (No model.)



Claim.—1. In a flushing apparatus, the combination of a tank, a supply-pipe, a hollow thimble penetrating one of the walls of said tank and having an apertured enlargement adapted to take against one side of said wall, a valve-casing screwed onto the other end of said thimble and adapted to engage the other side of said wall, said pipe being connected with said valve-casing, a plug removably secured in said valve-casing in alinement with the thimble, a valve-stem penetrating said thimble, and a valve controlling the communication between the thimble and the valve-casing and disposed on the end of said valve-stem which is inclosed by the casing, substantially as described.

2. In a flushing apparatus, the combination of a tank, a supply-pipe a hollow thimble penetrating one of the walls of said tank and having an apertured enlargement adapted to take against one side of said wall, a valve-casing screwed on the other end of said thimble and adapted to engage the other side of said wall, said pipe being connected with said valve-casing, a plug removably secured in said valve-casing in alinement with the thimble, a valve-stem penetrating said thimble, an elastic valve controlling communication between the thimble and the valve-casing and disposed on the end of said valve-stem which is inclosed by the casing, said valve-stem having an abutment against which the valve takes, and a headed screw tapped into said end of the valve-stem and adapted for adjusting the valve, said screw being guided in the plug, substantially as described.

681,303. COMBINED DUST-PAN AND BROOM-HOLDER. JOHN V. DILLE, Kansas City, Mo., assignor of one-half to Henry G. Helfinger, same place. Filed Mar 7, 1899. Serial No. 708,093. (No model.)



Claim.—As an article of manufacture a dust-pan and a broom-holder consisting of a flat plate formed integral with and lying above and to the rear of said dust-pan, and inturned lateral wings on said plate to receive and hold the broom, substantially as set forth.

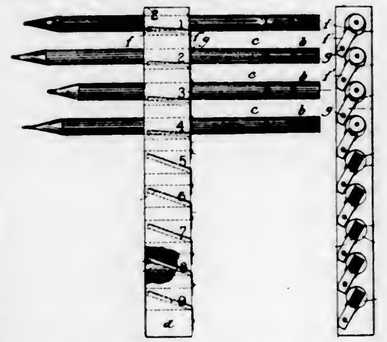
681,304. METALLIC BEAM. GEORGE H FELT, New York, N. Y., assignor, by mesne assignments, to The Metallic Web Company, of New York. Filed Mar. 14, 1900. Serial No. 8,571. (No model.)

Claim.—1. A beam or pillar comprised of channel-bars placed together with their flanges outward and an angle-iron placed between said flanges and secured thereto, substantially as described.

2. A beam or pillar comprised of channel-bars placed together with their flanges outward and an angle-iron placed between said flanges and secured thereto, said angle-iron being formed with a web between its flanges, substantially as described.

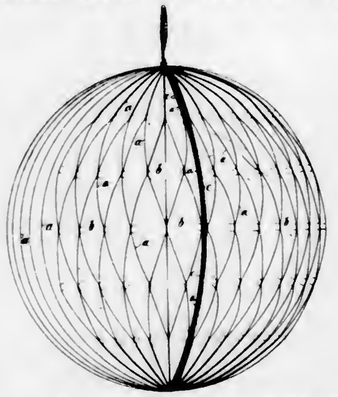


681,305. PEN OR PENCIL HOLDER. SAMUEL FORRESTER, Allegheny, Pa. Filed June 8, 1900. Serial No. 19,538. (No model.)



Claim.—A pencil or pen holder consisting of a bar having a series of sockets and a spring-tongue extending in each of said sockets, said spring-tongue being fixed to the bar and having free ends extending within the sockets; substantially as described.

681,306. FLY-CATCHER. SIEGFRIED FRENKEL, Halle-on-the-Saale, Germany. Filed Jan 31, 1900. Serial No. 3,462. (No model.)

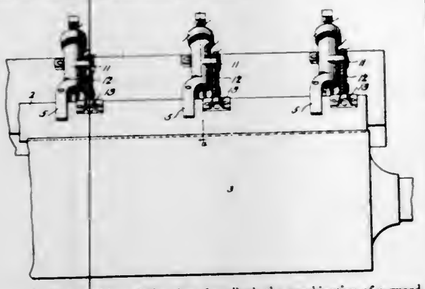


Claim.—A fly-ball for attracting flies and for keeping them away from bright or other surfaces to be protected from their exudations, comprising the combination with a folding disk, of a series of sheets of tissue-paper, folded together so as to fit the folds of the pliable disk, the surfaces of the first and of the last sheet of tissue-paper being attached to the said folding disk, which may be folded together into any desired shape, the edges of the sheets of tissue-paper being pasted together at alternating points, substantially as described.

681,307. PAPER-MAKING MACHINE. JOHN H. GATELY, Bellows Falls, Vt. Filed Feb. 8, 1901. Serial No. 46,568. (No model.)

Claim.—1. In a machine of the class described, the combination of a couch-roller, a doctor-blade, a guard-board, a casing on the latter having a guard-finger bearing on the doctor-blade, an adjustable connection between the doctor-blade and an element of the casing, an element in the latter engaging the doctor-blade and pressing the same against the couch-

roller, a compression-spring for said element, and means to vary the tension of said spring, substantially as described.



2. In a machine of the class described, the combination of a guard-board, a couch-roller, a doctor-blade, an adjustable connection between the guard-board and doctor-blade, to limit the downward movement of the latter, and springs to maintain the doctor-blade in operative relation to the couch-roller, substantially as described.

3. In a machine of the class described, the combination of an upper couch-roller, a doctor-blade, means to adjust the same toward and from the upper couch-roller and limit the downward movement of the doctor-blade, springs to maintain the doctor-blade in operative relation to the upper couch-roller, and means to vary the tension of said springs, substantially as described.

4. In a machine of the class described, the combination of a guard-board, a couch-roller, a doctor-blade, a casing on the guard-board having a guide-finger bearing on the doctor-blade, an adjusting-screw connecting an element of the casing and an element of the doctor-blade, a movable element carried by said casing and bearing on the doctor-blade, a compression-spring bearing on said movable element, and means to vary the tension of said spring, substantially as described.

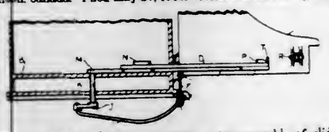
681,308. ARTIFICIAL FISHING-BAIT. PHILIP GEEN, Richmond, England. Filed Nov. 12, 1900. Serial No. 36,233. (No model.)



Claim.—1. In improvements in artificial fishing-baits, the combination with an undulating body having an upwardly-set and angular tail end; of the hook-shank bent into a circular eye and to form two parallel spring parts, and a catch upon the bait, said catch having a flanged top beneath which the parallel portions of the hook-shank take and are normally held, substantially as specified.

2. In improvements in artificial fishing-baits the combination of an undulated body having a downwardly and sidewise inclined tail portion; with a spring-shank which is passed through the line-attaching swivel and bent into an eye, the ends of said shank being brought alongside one soother in an approximate parallel position and a catch on said body, said catch having a flanged top beneath which said parallel ends of the shank are normally held, substantially as specified.

681,309. STOVE RANGE OR THE LIKE. CHARLES GENTLE, Hamilton, Canada. Filed May 27, 1901. Serial No. 62,091. (No model.)



Claim.—1. In a cook-stove, an oven, a tray capable of sliding in the oven, a pin on the under side of the tray, lugs on the side of the stove near to the opening and lower part of the oven-door, a push-bar with button-head, an arm pivotally connected to said lugs and to said push-bar, a crank resting on said oven-floor and beneath said tray, a slot in said crank to receive the pin of the tray, a shank extending downward from the slotted crank, a lower crank secured to the lower end of said shank and pivotally connected to the inner end of said push-bar, substantially as described and set forth.

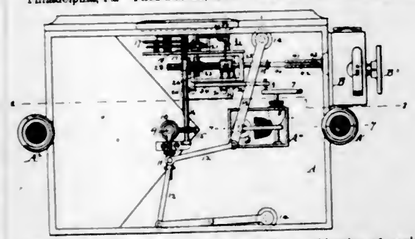
2. In a cook-stove, an oven, a tray capable of sliding in the oven, a pin on the under side of the tray, a cam on the tray, an oven-door, a roller or incline on the inner side of the door for said cam to engage, lugs on the side of the stove near to the opening and lower part of the door, a push-bar with button-head, an arm pivotally connected to said lugs and to said push-bar, a crank on the oven-floor, a slot in said crank to receive said pin, a shank extending downward from the slotted crank, a lower crank secured to the lower end of said shank, and pivotally connected to the end of said push-bar, substantially as described and set forth.

681,310. VEHICLE-TIRE. JOHN GLENN, St. Louis, Mo. Filed Jan. 5, 1901. Serial No. 42,151. (No model.)



Claim.—The combination with a wheel-rim, of a tire having laterally-projecting ribs provided at intervals with notches, and independent retaining-rings applied to the sides of the wheel-rim and having grooves adapted to receive the ribs of said tire and having tenons adapted to enter the notches in said ribs, substantially as described.

681,311. PREPAYMENT GAS-METER. EBENEZER F. GRIFFITHS, Philadelphia, Pa. Filed Dec. 29, 1900. Serial No. 41,447. (No model.)



Claim.—1. In a prepayment gas-meter, the combination of a valve to control the flow of gas through the meter, valve-actuating mechanism operated by the meter-registering power devices for closing said valve, a hand-operated device for operating the valve-actuating mechanism for opening the valve, and a coin-freed mechanism for unlocking the hand-operated device consisting of a disk adapted to be rotated by hand, a movable footpiece adapted to arrest a coin in passing through the receiver, a gravity-actuated locking-plate for locking the disk against rotation connected to and moved by the movable footpiece, and a coin-discharging mechanism for forcing the coin against the footpiece adapted to be operated by the hand and controlled by the disk and locking-plate in performing the operation of discharging the coin.

2. In a prepayment gas-meter, a coin-freed mechanism for setting the meter for delivering gas consisting of a knob adapted to be rotated and provided with a ratchet-wheel having a long ratchet-tooth, in combination with a pawl to hold the ratchet-wheel against backward rotation, a disk and spur-wheel loosely journaled concentric with the ratchet-wheel and connected therewith by a slot and pin whereby the ratchet-wheel may have a small advance movement over the disk, a reciprocating locking-plate adapted to act by gravity when depressed to lock the disk, a pivoted lever for reciprocating the locking-plate provided with a foot adapted to arrest the deposition of a coin, a discharging-lever for forcing the coin past the foot and thereby liberating the disk, and connecting devices for operating the discharging-lever from the knob and ratchet-wheel.

3. In a prepayment gas-meter, a coin-freed mechanism for setting the meter for delivering gas consisting of a knob adapted to be rotated and provided with a ratchet-wheel having a long ratchet-tooth, in combination with a pawl to hold the ratchet-wheel against backward rotation, a disk and spur-wheel loosely journaled concentric with the ratchet-wheel and connected therewith by a slot and pin whereby the ratchet-wheel may have a small advance movement over the disk, a reciprocating locking-plate adapted to act by gravity when depressed to lock the disk, a pivoted lever for reciprocating the locking-plate provided with a foot adapted to arrest the deposition of a coin, a discharging-lever for forcing the coin past the foot and thereby liberating the disk, connecting devices for operating the discharging-lever from the knob and ratchet-wheel, a driven shaft for operating the gas-valve-controlling devices of the meter, a removable pinion carried by said shaft to rotate it, an intermediate gear between said pinion and the spur-wheel, and an adjustable support for the intermediate gear for adjusting it about the axis of the spur-wheel to enable pinions of different sizes to be employed on the driven shaft.

4. In a prepayment-meter, the combination of a hand-driven shaft extending through the meter-case to the interior thereof, a shaft within the meter having rotary and longitudinal motion for operating the gas-valve-controlling devices of the meter, a loose connecting-rod jointed at one end with one of the said shafts and connected at the other end with the other of said shafts by a loose sliding joint, a gas-valve-controlling mechanism operated by one of said shafts, and a coin-freed hand mechanism for operating the other of said shafts.

5. In a prepayment-meter, the combination of a gas-valve to control the flow of gas through the meter, with a controlling device for said valve operated by the meter consisting of a fixed bearing, a worm-wheel journaled in said bearing and held against longitudinal movement, a worm meshing with the worm-wheel, means for driving the worm by the meter, a screw-threaded spindle working in the hub of the worm-wheel as a nut, a collar carried by the spindle and moved longitudinally by the rotation of worm-wheel, a lever mechanism to operate the gas-valve, and means operated by the collar and spindle to operate the lever mechanism.

6. In a prepayment-meter, the combination of a gas-valve to control the flow of gas through the meter, with a controlling device for said valve operated by the meter consisting of a fixed bearing, a worm-wheel journaled in said bearing and held against longitudinal movement, meter-registering mechanism, a worm meshing with the worm-wheel, means for driving the worm by the meter-registering mechanism, a friction power-transmitting connection between the worm and the meter-registering mechanism, a screw-threaded spindle working in the hub of the worm-wheel as a nut, a lever mechanism to operate the gas-valve, and means operated by the spindle to operate the lever mechanism.

7. In a prepayment-meter, the combination of a gas-valve to control the flow of gas through the meter, with a controlling device for said valve operated by the meter consisting of a fixed bearing, a worm-wheel journaled in said bearing and held against longitudinal movement, a worm meshing with the worm-wheel, means for driving the worm by the meter, a screw-threaded spindle working in the hub of the worm-wheel as a nut, a collar carried by the spindle and moved longitudinally by the rotation of the worm-wheel and provided with two pins, a lever mechanism to operate the gas-valve, a pivoted lever having slot 35 provided with the notch 37 in which the pins travel, and operating devices for the gas-valve actuated by the pivoted lever.

8. In a prepayment-meter, the combination of the registering mechanism driven by the meter, a frame secured to the registering mechanism, a gear-wheel journaled in a fixed bearing on the frame so as to be held against longitudinal movement, a screw-threaded spindle working in the hub of the gear-wheel as a nut, a gas-controlling valve, a slotted pivoted lever for operating the valve, means carried by the screw-threaded spindle working in the slot of the pivoted lever for oscillating it, and gearing for directly operating the gear-wheel of the screw-threaded spindle from the registering mechanism.

9. In a prepayment-meter, the combination of the registering mechanism driven by the meter, a frame secured to the registering mechanism, a gear-wheel journaled in a fixed bearing on the frame so as to be held against longitudinal movement, a screw-threaded spindle working in the hub of the gear-wheel as a nut, a gas-controlling valve, a slotted pivoted lever for operating the valve, means carried by the screw-threaded spindle working in the slot of the pivoted lever for oscillating it, hand-operated coin-controlled devices for rotating the screw-threaded spindle for opening the valve upon depositing the coin, and gearing for directly operating the gear-wheel of the screw-threaded spindle from the registering mechanism.

10. In a prepayment-meter, the combination of the registering mechanism driven by the meter, a frame secured to the registering mechanism, a gear-wheel journaled in a fixed bearing on the frame so as to be held against longitudinal movement, a screw-threaded spindle working in the hub of the gear-wheel as a nut, a gas-controlling valve, a slotted pivoted lever for operating the valve, means carried by the screw-threaded spindle working in the slot of the pivoted lever for oscillating it, gearing for directly operating the gear-wheel of the screw-threaded spindle from the registering mechanism, a hand-operated shaft extending through the meter-case in approximate alinement with the screw-threaded spindle, and a loose intermediate connecting-bar making a sliding and jointed connection between the hand-operated shaft and spindle whereby the spindle may move longitudinally relatively to the shaft but rotated positively with it.

11. In a prepayment-meter, the combination of a gas-valve to control the flow of gas through the meter, with a controlling device for said valve operated by the meter consisting of a fixed bearing, a worm-wheel journaled in said bearing and held against longitudinal movement, meter-registering mechanism, a worm meshing with the worm-wheel and driven by the meter-registering mechanism, a friction power-transmitting connection between the worm and the meter-registering mechanism, a screw-threaded spindle working in the hub of the worm-wheel as a nut, a lever mechanism to operate the gas-valve, means operated by the spindle to operate the lever mechanism, hand-operated coin-controlled devices for rotating the screw-threaded spindle for opening the valve upon depositing the coin, and connecting power-transmitting connections between the hand-operated devices and spindle whereby the latter may have longitudinal reciprocating motion relatively to the hand-operated device while being rotated.

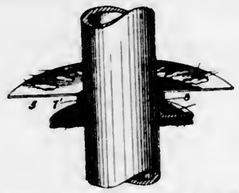
12. In a prepayment-meter, the combination of the meter-registering devices, a gas-control valve, means for automatically controlling the valve, friction-driven power-transmitting devices for driving the valve-controlling means from the meter-registering devices for closing the valve, and hand-operated coin-controlled devices for operating the valve-controlling means for opening the said valve, whereby the meter-registering devices are at all times positively in gear with the valve-controlling means.

13. In a prepayment-meter, the combination of the meter-registering devices, a gas-control valve, means for automatically controlling the valve, friction-driven power-transmitting devices for driving the valve-controlling means from the meter-registering devices for closing the valve, hand-operated coin-controlled devices for operating the valve-controlling means for opening the said valve, whereby the meter-registering devices are at all times positively in gear with the valve-controlling means, and a common support for the meter-registering devices, the valve-controlling means and the friction-driven power-transmitting devices.

14. In a prepayment-meter, the combination of a gas-valve to control the flow of gas through the meter, with a controlling device for said valve operated by the meter consisting of a fixed bearing, a worm-wheel journaled in said bearing and held against longitudinal movement, a worm meshing with the worm-wheel and driven by the meter, a screw-threaded spindle working in the hub of the worm-wheel as a nut, a collar carried by the spindle and moved longitudinally by the rotation of worm-wheel, a lever mechanism to operate the gas-valve, means operated by the collar and spindle to operate the lever mechanism, and a sliding pointer carried by the collar and extending through the face of the dial of the registering devices for indicating the condition of the meter.

15. In a prepayment-meter, the combination of a gas-valve, automatic valve-controlling means operated by the meter and having two traveling pins 31, means for operating the automatic valve-controlling means actuated by the meter, a pivoted slotted lever 34 having a slot 35 at one side of its pivot and with one wall of the slot notched as at 37, and means for operating the gas-valve by said pivoted lever.

681,312. COMBINED PIPE COLLAR AND FLANGE. JAMES H. GROMER, Hartford, Conn. Filed Mar. 6, 1901. Serial No. 50,026. (No model.)



Claim.—1. A pipe collar and flange having a plate adapted to be secured to a support; a thimble projecting from the under side of said plate; and a flange projecting from the thimble beneath the plate, whereby a groove is formed between the flange and plate for the reception of plaster.

2. A pipe collar and flange consisting of a plate adapted to be secured to a support, and a flange of less dimensions than the plate and so supported at a distance therefrom and parallel thereto that a groove for the reception of plaster will be formed between said flange and the side of the plate.

3. A device for receiving pipes composed of top plates each having a section of a thimble, and, projecting from each thimble-section, a flange of less diameter than the top plates, each of said flanges being parallel with the top plate, whereby a groove is formed between the flanges and the under side of the plate for the reception of plaster.

4. A device for receiving pipes composed of a top plate, a flange of less diameter than said top plate and parallel thereto, whereby a groove is formed between the flange and under side of the plate for the reception of plaster, and a thimble uniting said plate and flange.

5. A pipe collar and flange comprising a top plate adapted to be se-

cured to a support; a thimble depending from the top plate; a flange laterally projecting from the thimble and having an inturned portion; and a washer located between the flange and said inturned portion.

6. A sectional device for receiving pipes having semithimble-shaped portions and, projecting from said thimble-shaped portions, lateral flanges having, when the sections are placed in position, a seat for a washer through which the pipe passes.

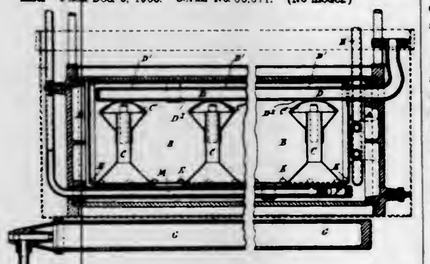
7. A device for receiving pipes comprising plates and flanges each united by a section of a thimble; a washer through which the pipe passes secured to the flanges; and an ornamental plate provided with means whereby it may be attached to the flanges.

681,313. GARMENT-CLASP. MYRON B. HAMMOND, Bridgeport, Conn. Filed Feb. 6, 1901. Serial No. 46,302. (No model.)



Claim.—In a garment-clasp, the combination of a jaw having at its rear end a pivoted frame carrying a stirrup, and provided with an opening having two widths, and a tongue extending through the greater width, with the jaw having a neck projecting through the lesser width of said opening and provided with shoulder portions at the top of said neck and having the rearwardly-extending tailpiece terminating in a hook, said tongue serving to confine the jaws in pivoted relation, substantially as and for the purpose set forth.

681,314. REFRIGERATING APPARATUS. WILLIAM W. HARRIS, London, England, assignor to Paul Pfleiderer, Middlesex county, England. Filed Dec. 6, 1900. Serial No. 38,871. (No model.)



Claim.—1. In a combined separator and absorber the combination of a horizontal cylindrical outer chamber, an inner chamber within and communicating at the bottom with it, a series of vertical pipes in the inner chamber opening into the lower part of the outer chamber, hoods above the pipes and a pipe leading from the top of the inner chamber.

2. In a combined separator and absorber the combination of a horizontal cylindrical outer chamber, an inner chamber within and communicating at the bottom with it, a series of vertical pipes in the form of inverted funnels in the inner chamber opening into the lower part of the outer chamber, hoods above the pipes and a pipe leading from the top of the inner chamber.

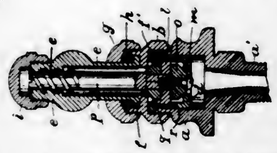
3. In a combined separator and absorber the combination of a horizontal cylindrical outer chamber, an inner chamber within and communicating at the bottom with it, a series of vertical pipes in the inner chamber opening into the lower part of the outer chamber, hoods above the pipes and a perforated gas-collecting pipe at the top of the inner chamber extending from end to end of it one end of which is led to the outside.

4. In a combined separator and absorber the combination of a horizontal cylindrical outer chamber, an inner chamber within and communicating at the bottom with it, a series of vertical pipes in the form of inverted funnels in the inner chamber opening into the lower part of the outer chamber, hoods above the pipes and a perforated gas-collecting pipe at the top of the inner chamber extending from end to end of it one end of which is led to the outside.

5. In a combined separator and absorber an outer casing consisting of a cylindrical body externally coned and internally screw-threaded at the end and a cover having in it an annular recess to receive the end of the body the inner wall of which is cylindrical and screw-threaded and the outer wall is conical, an annular groove for calking being cut around the junction of the body and end.

6. The combination of a combined separator and absorber, a source of heat, a valve controlling the same, a spring actuating the valve to close it, and a hermetically-sealed Bourdon tube exposed to the heat of the separator and absorber but not opening into it and controlling the valve.

681,315. COMPRESSION SWING BASIN-COCK. EDWARD G. HEDGES, Newark, N. J. Filed Oct. 17, 1900. Serial No. 33,335. (No model.)



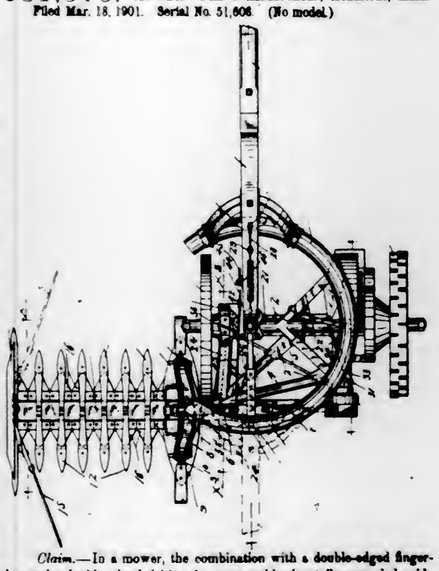
Claim.—1. A compression-cock having a standard with opposed valve-seats, a valve-plug fitted between the seats and provided with valve-stem having a screw-thread, a swing arm or nozzle having a nut fitted to the said thread to reciprocate the stem, a projection upon the valve-stem, as the cross-bar *l*, and stops to restrict the movements of such projection and limit the opposite movements of the valve-stem and arm, as and for the purpose set forth.

2. A compression-cock comprising a standard supporting opposed valve-seats, a double valve-plug fitted between the seats and having valve-stem with guide inside the standard, and an end with screw-thread projected above the standard, and the nozzle having shank swiveled upon the standard about the valve-stem, and with nut fitted to such thread to press the plug upon the opposite valve-seats as the nozzle is turned in opposite directions.

3. A compression-cock having a standard with valve-seat and compressible valve-plug inside the same, and a valve-stem extended to the top of the standard and provided with means for turning such stem to adjust the valve in relation to the seat, means to hold the stem and valve-plug normally from rotation, and a swing lever or nozzle, with suitable connections for reciprocating the valve-stem in the standard, substantially as herein set forth.

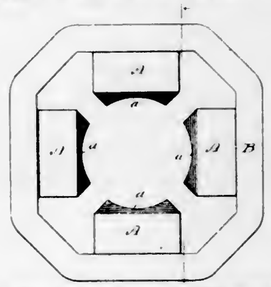
4. A compression-cock comprising a standard containing opposed valve-seats and having the flat ground seat *c* recessed in its top and the standard provided around such seat with screw-thread as described, the swing arm or nozzle with shank having a nut in the top and collar *f* upon the bottom fitted to the recessed and ground seat *c*, the coupling-cap *g* fitted to the shank and threaded upon the standard, a valve-plug fitted between the seats and having a non-rotatable valve-stem extended through the joint of the standard and shank into the upper part of the shank, and provided with thread fitted to the nut in the shank, the whole arranged and operated as and for the purpose set forth.

681,316. MOWER. NILS S. HINDBJORGEN, Hendricks, Minn. Filed Mar. 18, 1901. Serial No. 51,608. (No model.)



Claim.—In a mower, the combination with a double-edged finger-bar and a double-edged sickle, of a segmental horizontally-extended guide secured on the mower frame, a reversible pole pivoted to the mower-frame at the axial center of said guide, and a keeper-bracket on said pole embracing and working on said guide and disconnectable therefrom, by a movement into the space between the ends thereof, substantially as described.

681,317. CORE AND POLE-PIECE FOR FIELD-MAGNETS OF DYNAMOS OR MOTORS. ROBERT HIRSCH, Milwaukee, Wis., assignor of one-half to William B. Voth, same place. Filed Oct. 19, 1899. Renewed June 29, 1901. Serial No. 66,526. (No model.)



Claim.—1. Cores and pole-pieces for the field-magnets of dynamo-electric machines and motors, having faces of an area not less than two-thirds of the circumferential area of the armature, and a cross-sectional area greater than that of their faces, substantially as and for the purposes set forth.

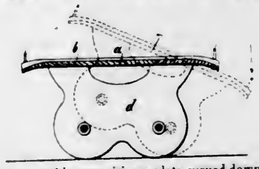
2. Cores and pole-pieces for the field-magnets of dynamo-electric machines and motors, having faces of an area not less than two-thirds of the circumferential area of the armature, and extended on the sides beyond their faces so as to increase their cross-sectional area, substantially as and for the purposes set forth.

3. Cores and pole-pieces for the field-magnets of dynamo-electric machines and motors, having faces of an area not less than two-thirds of the circumferential area of the armature and extended on the sides and ends beyond their faces so as to increase their area in cross-section, substantially as and for the purposes set forth.

4. Cores and pole-pieces for the field-magnets of dynamo-electric machines and motors, having curved faces of an area not less than two-thirds of the circumferential area of the armature, and extended on the sides so as to increase their area in cross-section, their sides being beveled next to their curved faces, substantially as and for the purposes set forth.

5. Cores and pole-pieces for the field-magnets of dynamo-electric machines and motors, having curved faces of an area not less than two-thirds of the circumferential area of the armature, and extended on the sides and ends beyond said faces so as to increase their area in cross-section, the sides and ends being beveled next to the curved faces, substantially as and for the purposes set forth.

681,318. PAY-TABLE. CARL HIRSCHFELD, Nordhausen, Germany. Filed Apr. 23, 1901. Serial No. 57,152. (No model.)



Claim.—A pay-table comprising a plate curved downward and contracted at its ends, ledges or rims at the longitudinal edges of said plate and two curved tilting edges for two different axes, to facilitate the tilting of the said plate, so that the contents of the plate may be removed from either end, substantially as and for the purposes set forth.

681,319. LINE-GUIDE. ELLSWORTH A. HOLCOMB, Waterloo, Iowa. Filed Nov. 5, 1900. Serial No. 35,590. (No model.)



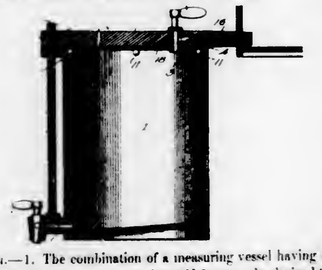
Claim.—1. A line-guide comprising frames having the ends of their arms revolubly mounted about the ends of a pivot-bolt, said frames provided with apertures having open ends oppositely arranged, and having flanges on their inner sides adapted to close the open ends of said apertures, and a roller revolubly mounted on said pivot-bolt, all substantially as shown and described.

2. A line-guide comprising frames having the ends of their arms revolubly mounted about the ends of a pivot-bolt, said frames provided with apertures having open ends oppositely arranged, and having flanges on their inner sides adapted to close the open ends of said apertures, one of said frames being provided with a stud adapted to engage with a hole in the other frame, springs adapted to keep the said frames in engagement with each other, and a roller revolubly mounted on said pivot-bolt, all substantially as shown and described.

3. A line-guide comprising in combination a pivot-bolt, a roller revolubly mounted thereon, frames having the ends of their arms revolubly mounted on said pivot-bolt, said frames provided with apertures having open ends oppositely arranged and having flanges on their inner sides adapted to close the open ends of said apertures, one of said frames being provided with a stud adapted to engage with a hole in the other frame, all substantially as shown and described.

4. A line-guide comprising a pivot-bolt frames having arms revolubly mounted on said pivot-bolt and provided with apertures having open ends oppositely arranged and having flanges on their inner sides adapted to close the open ends of said apertures, springs attached to the pivot-bolt and to the arms of said frames adapted to keep said frames in engagement with each other, and a roller revolubly mounted on said pivot-bolt between the ends of the arms of said frames, all substantially as shown and described.

681,320. MEASURING-FAUCET. HIRAM Q. HOOD, Carthage, Mo. Filed May 14, 1901. Serial No. 60,170. (No model.)

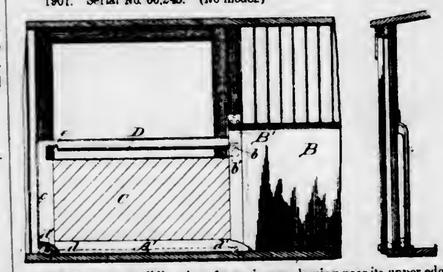


Claim.—1. The combination of a measuring vessel having a draw-off faucet and a gage-tube connected to said faucet to be drained thereby, said vessel having an ear 9 provided with an opening in which the upper end of the gage-tube is secured, a detachable cover on said vessel, said cover having a faucet, and provided with an opening to register with that in the said ear, and a locking-plug in said registering openings, substantially as described.

2. The combination of the measuring vessel having the draw-off faucet and the gage-tube, the measuring vessel having the ear 9 provided with an opening in which the upper end of the gage-tube is disposed, the detachable cover, said cover and said measuring vessel having a slidable connection and said cover having an opening to register with that in which the gage-tube is disposed, a locking-plug in said opening, the said cover being further provided with a tubular portion adapted to be fitted in a hole in a cask and provided with a faucet-plug, substantially as described

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681,321. GRAIN-CAR DOOR. JACOB D. HOOVER, Winchester, Va., assignor of one-half to George H. Kinzel, same place. Filed June 27, 1901. Serial No. 66,245. (No model.)



Claim.—1. A sliding door for grain-cars, having near its upper edge a longitudinal slot with upward recesses, rollers carried by the door adjacent to the lower corners thereof, a roller mounted so as to engage the slot

and enter the recesses thereof when the door is opened or closed, and recesses into which the rollers at the lower portion of the gate drop when the door is closed, substantially as shown.

2. The combination with a car-door frame having a roller, of a grain-door having rollers which extend beyond the bottom of the grain-door, the upper portion of the door having a longitudinal recess with upward extensions at its ends, substantially as shown to provide an automatic lock for the door.

3. The combination with a door-frame having a housing or guide-way for a grain-door and a roller carried thereby, of a grain-door having rollers which extend below its lower edge and are adjacent to the ends of the grain-door, said grain-door having therethrough near its upper edge a longitudinal slot with upwardly-extending notches, and recesses in the floor of the car-body into which the rollers at the lower edge of the door may enter when the door is closed and locked, substantially as set forth.

4. A sliding door for a grain-car, having a longitudinal slot the ends of which extend upward, rollers carried by the door said rollers being loosely mounted on journals, recesses in the path of the door, a flanged sill between the door-frame, a supporting-roller which intersects the slot in the upper portion of the door, and a housing or casing into which the grain-door may slide when moved past the doorway of the car.

681,322. BOX. FRANK H. HOUGHLAND, St. Louis, Mo. Filed Dec. 15, 1900. Serial No. 39,976. (No model.)

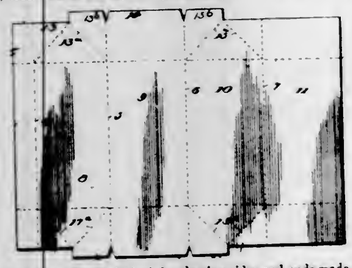


Claim.—1. A blank box having at its ends foldable parts adapted to form opposing pockets, and a locking-sheet adapted to be inserted into said pockets by bending the same and forcing said sheet down upon the box end and thereby closing the box, substantially as described.

2. A blank box having at its ends foldable parts adapted to form opposing pockets, and a locking-sheet adapted to have its ends inserted in said pockets by bending the sheet, and by forcing said pockets and the inclosed locking-sheet down upon the box end and thereby closing the box, substantially as described.

3. A blank box having at its ends foldable parts adapted to form opposing pockets, and a plain-faced locking-sheet adapted to be inserted in both of said pockets and to close the box by the mere act of such insertion, substantially as described.

681,323. BOX. FRANK H. HOUGHLAND, St. Louis, Mo. Filed Dec. 15, 1900. Serial No. 39,977. (No model.)



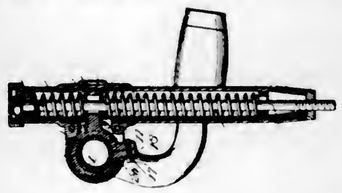
Claim.—1. A folded blank box having sides and ends made from a single blank having the parts of the ends of two sides toward the center of the blank and the whole of one side extending beyond the main outlines of the blank, the shorter ends being adapted and arranged to form a pocket to be entered by said extensions.

2. A blank for a folded blank box having the inner parts of the ends of two sides and the whole of one side extending beyond the main outlines of the blank to form a pocket and entering-tongue to close the box.

681,324. DETERGENT COMPOSITION. ARTHUR Y. HUBBELL, Newdorp, N. Y., assignor to the Hubbell Manufacturing Co., New York, N. Y. Filed May 23, 1901. Serial No. 61,665. (No specimens.)

Claim.—As a new article of manufacture a cake of soap composed of soap, silica and curled hair in substantially the proportions of one hundred parts of soap, one hundred and fifty parts of silica and six parts of curled hair, substantially as described.

681,325. HANDLE-BAR. JOHN HULLT, Hood River, Oreg. Filed May 28, 1901. Serial No. 62,279. (No model.)



Claim.—1. In a spring handle-bar, a stem having a side opening, and offstanding lugs at the ends of the said opening and in line therewith, a compensating spring within the stem, a bearing-clamp composed of similar parts, fastenings for securing said parts together and to the said stem by passing through the offstanding lugs thereof, and a handle-bar mounted in the bearing-clamp and having a projecting part to enter the stem and coöperate with the compensating spring, substantially as and for the purpose set forth.

2. In a spring handle-bar, a stem, a compensating spring, a handle-bar having its middle portion reinforced, a clamp-collar fitted upon the handle-bar and having a projecting part for coöperation with the compensating spring, the ends of the clamp-collar being cone-shaped, and a bearing-clamp composed of similar parts, each consisting of a cup and a jaw, the jaws embracing opposite sides of the stem and the cups being halved at their meeting edges and embracing the ends of the clamp-collar and handle-bar reinforcement and grooved to provide raceways in conjunction with the cone-shaped ends of the clamp-collar for the reception of balls, substantially as set forth.

681,326. MEANS FOR SECURING CHANNELS OR GUIDEWAYS OF FIRE-RESISTING BLINDS OR DOORS. WILLIAM R. KINNEAR, Columbus, Ohio. Filed June 22, 1901. Serial No. 65,625. (No model.)



Claim.—1. Means for securing blind or door channels or ways in place comprising headed spurs adapted to engage opposite channels or ways, combined with an extensible bar between the heads of such spurs, substantially as described.

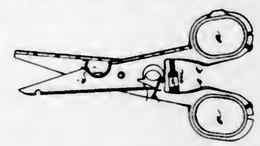
2. Means for securing blind or door channels or ways in place, comprising headed spurs adapted to engage opposite channels or ways, combined with an extensible bar between the heads of such spurs consisting of a pipe or tube adapted to fit the head of one spur and a screw to engage the head of the opposite spur, substantially as described.

3. Means for securing blind or door channels or ways in place, comprising headed spurs adapted to engage opposite channels or ways, combined with an extensible bar between the heads of such spurs consisting of a pipe or tube adapted to fit the head of one spur, a screw shaped to engage the head of the opposite spur, and a nut on said screw, substantially as described.

4. In means for fastening blind or door channels or guideways in place, a spur having a head adapted to receive either end of a bar shaped differently at opposite ends, substantially as described.

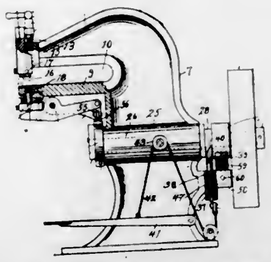
5. Means for securing blind or door channels or ways in place at opposite sides of a door or window opening consisting of spurs adapted to engage such channels or ways and the brick or other framework of the window or door opening, and means extending between the channels or ways to lock said spurs from movement, substantially as described.

681,327. SCISSORS. FRIEDRICH W. KLEVER, Jr., Solingen, Germany. Filed Oct. 16, 1900. Serial No. 33,206. (No model.)



Claim.—Buttonhole-scissors having notched blades, a scale concentric to the scissors-pivot on one blade, a cut-away section and pointer on the other blade, and an adjustable stop between the rear ends of the blades, substantially as specified.

681,328. COMBINED PUNCHING AND RIVETING MACHINE. FRANK KOSAL and ANDREW J. KRAFT, Milwaukee, Wis. Filed Apr. 11, 1901. Serial No. 55,328. (No model.)



Claim.—1. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, an adjustable jaw fitted to one of said arms, a movable jaw fitted to the other of said arms, and means for removably fitting different forms of pins to the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of pins adapted to be forced through the openings formed in one of the arms.

2. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, the outer holes being out of line with the inner hole, an adjustable jaw fitted to one of said arms, a movable jaw fitted to the other of said arms, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

3. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a hole and with a recess intersecting said hole, an adjustable jaw fitted to one of said arms, a movable jaw fitted to the other of said arms, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

4. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with holes and with recesses intersecting said holes, an adjustable jaw fitted to one of said arms, a movable jaw fitted to the other of said arms, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

5. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, the outer holes being out of line with the inner hole, and said arm also provided with recesses intersecting the outer holes, and with a recess intersecting the inner hole, an adjustable jaw fitted to one of said arms, a movable jaw fitted to the other of said arms, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of pins adapted to be forced through the openings formed in one of the arms.

6. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, an adjustable jaw fitted to one of the arms, a spring-pressed movable jaw fitted to the other of said arms, a lever adapted to act against the movable jaw, means for operating the lever, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

7. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, an adjustable jaw fitted to one of the arms, a movable jaw fitted to one of the arms, a lever engaging the movable jaw, a rotatable shaft, an eccentric carried by said shaft, an eccentric-strap surrounding the eccentric, a connection between the eccentric-strap and the lever, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

8. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, an adjustable jaw fitted to one of the arms, a movable jaw fitted to the other of said arms, a lever engaging the movable jaw, a rotatable shaft, an eccentric carried by said shaft, an eccentric-strap surrounding the eccentric, an arm extending from the eccentric-strap, a link pivotally connected at one end to the arm and at its other end to the lever, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

9. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, an adjustable jaw fitted to one of said arms, a movable jaw fitted to the other of said arms, a lever engaging the movable jaw, means for operating the lever, means for adjusting the throw of said lever, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

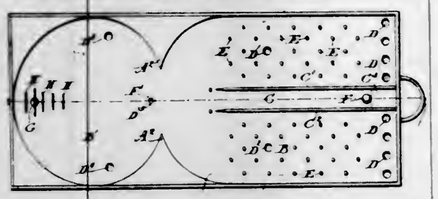
10. The combination of a standard having parallel arms projecting therefrom with a space therebetween to form a mouth, one of said arms provided with a series of holes therethrough, an adjustable jaw fitted to one of the arms, a movable jaw fitted to the other of said arms, a lever engaging the movable jaw, a rotatable shaft, an eccentric carried by said shaft, an eccentric-strap surrounding the eccentric, an arm adjustably connected to the eccentric-strap, a link pivotally connected at one end to the arm and at its other end to the lever, and pins carried by the respective jaws, the pins of one set being in alinement with the pins of the other set, and one set of the pins adapted to be forced through the openings formed in one of the arms.

681,329. METHOD OF MAKING SECONDARY-BATTERY PLATES. BERTHOLD KUETTNER, London, England. Filed Oct. 26, 1900. Serial No. 34,367. (No specimens.)

Claim.—1. In a method of making secondary-battery plates, mixing lead oxids with a solution of a soluble silicate to form a paste, making the paste into a plate and dipping the plate in a dilute solution of an ammonium salt, substantially as herein described.

2. A method of making secondary-battery plates, consisting in mixing lead oxids with a solution of a soluble silicate to form a paste, making the said paste into the form of a plate, dipping the plate into a dilute solution of an ammonium salt, removing it and placing it in a second solution of greater strength and afterward forming the plate, substantially as herein described.

681,330. GAME-TABLE. HENRY F. W. LOTZ, Philadelphia, Pa. Filed Sept. 15, 1900. Serial No. 30,125. (No model.)



Claim.—1. A game comprising an inclined board or table provided at one end with partially-closed curved sides and at the opposite end with a centrally-located guideway for a ball and with an opening to receive the ball, a lever fulcrumed below the table having one of its ends arranged below said opening and means controlled by a ball for locking and unlocking said lever.

2. A game comprising an inclined table partially divided into two compartments, uprights in one of said compartments forming a centrally-located guideway for a ball, pockets arranged in one or both of said compartments, a series of pins arranged on either side of said uprights, a curved compartment provided with an opening which is in alinement with said guideway, a series of arches in close proximity to said opening and in alinement with the guideway, a lever fulcrumed below the table one end of which is provided with a figure arranged below said opening and means as shown controlled by a ball for locking and unlocking the lever.

3. A game comprising an inclined table having at one end a guideway to receive a ball and a series of pockets arranged on either side of said guideway, a series of pins arranged on either side of the guideway, pockets arranged between the pins, a compartment formed by the curved sides of the table provided at the bottom with an opening to receive a ball, a series of arches arranged about said opening, a lever fulcrumed below the table having one end provided with a figure which is arranged directly below said opening a catch arranged upon the opposite side of said lever a spring-actuated latch adapted to engage the catch and hold it in its normal position, and a trough arranged below the table to receive and deliver the ball to the starting-point.

4. A game comprising an inclined table having sides curved at one end and straight at the other end and so constructed as to partially divide the table into two compartments, a chute or guideway in one of the compartments adapted to receive and guide a ball, a series of pockets arranged at the end of the table on either side of said chute, a series of pins arranged on either side of the chute, pockets arranged between said pins, a circular compartment provided with an opening for a ball, arches arranged above and about said opening, pockets arranged within said circular compartment, a pivoted lever arranged below the table having at one end a figurehead located directly below said opening a catch arranged upon the opposite side of said lever, a spring-actuated latch adapted to engage the catch, a trough arranged below the table to return the ball to its starting-point said trough being provided at one end with a guide to cause the ball to act upon said lever, substantially as specified.

681,331. COMBINATION MASSAGE-ROLLER AND EXERCISER. GEORGE W. MILKMAN, New York, N. Y., assignor to Charles E. Kilbourne, Fairhaven, Vt. Filed May 2, 1900. Serial No. 15,220. (No model.)

Claim.—1. As an improvement in massage or exercising devices of the class set forth, a handle member comprising an inner cross-piece forming a handhold and carrying positively in predetermined fixed relative arrangement an outwardly-projecting frame embodying an outer cross-piece upon which are mounted rollers, said outer cross member and its rollers constituting an outer handle or handhold, and said inner cross-piece or handhold being provided with means for attachment or connection with the body of a massage or exercising device.

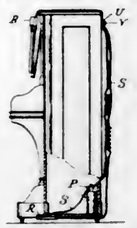
2. As an improvement in massage or exercising devices of the class set forth, a handle member, comprising an inner cross-piece constituting a handhold and provided with means of attachment to or connection with the body of a massage or exercising device, a substantially rigid frame projecting from said inner attachment cross-piece and embodying side members and an outer cross member, and rollers revolubly mounted upon said outer cross member between said side members, for the purpose set forth.

3. The herein-described massage or exercising device, comprising a main or body portion consisting of side members carrying a longitudinally-arranged series of transversely-mounted rollers, and a detachable handle embodying a cross-piece adapted to serve as a handhold and provided with means for attachment or connection with said body portion, and a substantially rigid frame projecting from said cross-piece and carrying rollers adapted to serve as an individual handhold, for the purpose set forth.



4. A massage or exercising device of the class described, comprising a main or body portion consisting of sets of transversely-mounted rollers: in combination with elastic side members connected at their ends at each end of the main or body portion; and a detachable handle embodying a cross-piece adapted to serve as a handhold and provided with means for attachment or connection with the connected ends of said elastic side members at the end of the main or body portion, and provided with a substantially rigid frame projecting from said cross-piece and carrying rollers adapted to serve as an individual handhold, for the purpose set forth.

681,332. MUSIC-LEAF TURNER. WILLIAM V. MORROW, Los Angeles, Cal., assignor of one-half to Pio Taminelli, Santa Maria, Cal. Filed May 23, 1900. Serial No. 17,754. (No model.)

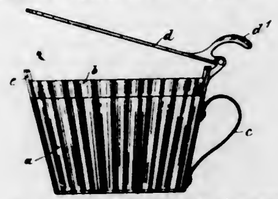


Claim.—1. A music-leaf-turning mechanism, comprising a casing; electromagnets, and an armature adapted to be actuated thereby, mounted in said casing; a detent affixed to said armature, adapted to catch and hold the arm of a leaf-turning post rotatively mounted, partly within and partly without said casing; a leaf-turning post said post having an arm adapted to be held by said detent against rotation till released, and a bar exterior the casing, adapted to afford attachment thereto for the leaf-holding mechanism; means to attach leaf-music to said bar; a spring affixed to the leaf-turning post, adapted to cause the rotation thereof from right to left; wires connecting said electromagnets to a battery and also to a circuit maker and breaker, and the wires connecting battery to the circuit-maker; a battery, and a circuit maker and breaker.

2. The herein-described music-leaf-turning device, comprising casing C; electromagnets D and armature D' mounted therein; detent E affixed to armature D'; post G, rotatably mounted in casing C, and projecting therethrough, having arm F and bar I affixed thereto; spring H adapted to cause the rotation of post G from right to left; means to attach music to bar I; wires S adapted to connect magnet D with battery P and also to circuit maker and breaker R, and also to connect battery P with breaker R; and battery P and circuit maker and breaker R.

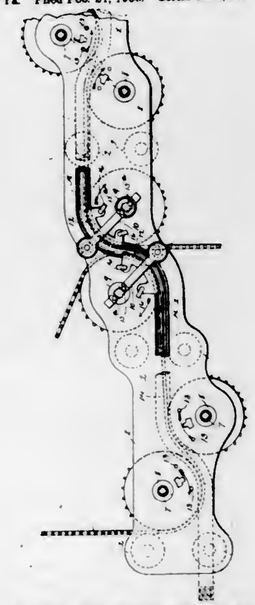
3. A music-leaf-turning mechanism, comprising a casing; electromagnets, and an armature adapted to be actuated thereby, mounted in said casing; a detent affixed to said armature, adapted to catch and hold the arm of a leaf-turning post rotatively mounted, partly within and partly without said casing; a leaf-turning post said post having an arm adapted to be held by said detent against rotation till released, and a bar exterior the casing, adapted to afford attachment thereto for the leaf-holding mechanism; means to attach leaf-music to said bar; a spring affixed to the leaf-turning post, adapted to cause the rotation thereof from right to left; wires connecting said electromagnets to a battery and also to a circuit maker and breaker, and wires connecting the battery to the circuit-maker; a battery, and a circuit maker and breaker.

681,333. SPITTING-POT. JOHN F. T. MJOEN, Christiania, Norway. Filed Nov. 2, 1900. Serial No. 35,219. (No model.)



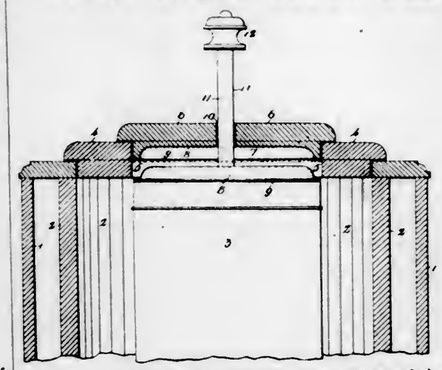
Claim.—In a spitting-pot the combination of an outer casing *a* of zinc, aluminium or the like and an inner receptacle of combustible material but proof against leakage, said casing having a hinged cover *d* and a lug *e* for the cover in order to form a space between the upper edge of the casing *a* and the cover *d* so that the receptacle *b* may be removed from the casing and also when used may completely cover the internal surface of the outer casing, substantially as set forth.

681,334. PIPE-BENDING MACHINE. CHARLES R. MCKIBBEN, Pittsburg, Pa. Filed Feb. 21, 1900. Serial No. 6,015. (No model.)



Claim.—In a device of the character described, the combination with the bed-plate, the foundation-plate, and the shafts journaled in said plates, of the dies removably secured to the bed-plate, the sockets engaging the upper ends of the shafts, the bending-levers adjustably secured in said sockets, the bending-wheels journaled in the outer ends of said levers, the removable pins engaging said sockets and levers for securing the latter in the adjusted position, sprocket-wheels mounted on said shafts, and a pair of drive-chains for operating the shafts, one of said chains engaging the sprockets on one-half the shafts and the other chain engaging the sprockets of the remaining shafts whereby the pipe may be bent first at the two central shafts and operated upon toward each end, substantially as described and shown.

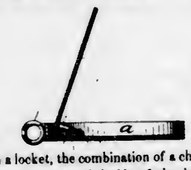
681,335. COVER FOR ICE-CREAM CABINETS. CHARLES NELSON, St. Louis, Mo. Filed July 2, 1900. Serial No. 22,352. (No model.)



Claim.—1. A cover for ice-cream cabinets, comprising a reducing-cover 4, having an opening 5, a smaller cover 6, adapted to be received by said opening of the reducing-cover, the lower surface of which is provided with a circular hollowed-out portion 7, a metallic lid 8, having a lower flanged portion 9, the lower flat circular portion of which is adapted to rest upon the upper edge of the ordinary ice-cream can when the circular cover 6, is placed in a position to cover the opening 5, formed in the reducing-cover 4, the medial portion of said lid corresponding in shape to the hollowed-out portion 7, of the smaller cover, a rod 11, the lower end of which is secured to the lid about its medial portion, and adapted to freely pass through an opening formed in the cover 6, and a knob 12, secured to the upper end of said rod, and adapted to be grasped by the hand of the operator for removing said cover 6, as and for the purpose described.

2. An ice-cream cabinet, comprising an outer casing, an ice-chamber surrounded by said casing, a reducing-cover provided with a large central opening fitting over said ice-chamber, a can fitting in said ice-chamber, a smaller cover provided with a small central opening and also with flanges and a hollowed-out or domed portion, said cover fitting in the central opening of the reducing-cover, a metallic lid fitting upon said can and having a domed portion to fit in the hollowed-out portion of the cover, and a handle slidably mounted in the opening of the cover and secured to the can's cover.

681,336. MADALLION-LOCKET. DAVID D. NEVINS, Providence, R. I., assignor to The Bassett Jewelry Co., of New Jersey. Filed Jan. 31, 1901. Serial No. 45,438. (No model.)

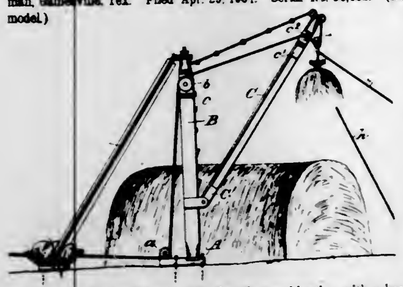


Claim.—1. In a locket, the combination of a chambered body for receiving the object, a cover seated inside of the body, and a concealed shiftable fulcrum inside of the body and having a hinge connection respectively with the base of the body and the inner side of the cover, said fulcrum being located contiguous to but removed from the periphery of the cover whereby an inward pressure upon the edge portion of the latter adjacent the hinge effects a displacement of the cover from its seat and an outward tilting thereof.

2. In a locket, the combination with a chambered body, of a cover seated inside of the body, a link foldable within the body and having a

pivotal connection respectively with the base of the body and the inner side of the cover, to provide a shiftable fulcrum for the latter the pivotal connections of the link being arranged at different distances from the periphery of the cover, whereby an inward pressure upon the edge portion of the cover adjacent to the link effects a displacement of the cover from its seat and an outward tilting thereof.

681,337. HAY STACKING AND LOADING DEVICE. ROBERT J. NICHOLS, Thackerville, Ind. Ter., assignor of one-half to Abner J. Chapman, Gainesville, Tex. Filed Apr. 29, 1901. Serial No. 58,032. (No model.)

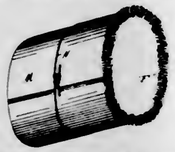


Claim.—1. In a hay-stacking device, the combination with a hay-fork, of a crane comprising a turning mast, stays for the same, a boom made up of T-iron the ends thereof below the flange having filling-pieces, substantially as shown.

2. In a hay-stacking device a crane consisting of a mast, its boom and braces, the boom and the braces being made up of T-iron, plates secured to the ends of the boom and the braces, and a fork connected to the end of the boom, substantially as shown.

3. In a hay-stacking device a crane consisting of a mast, a boom pivoted to the mast, a chain between the end of the boom and the top of the mast, braces which engage the mast and anchors, a hay-fork connected to the end of the boom, a rope suitably guided for raising the fork, a guide-rope, and a releasing-rope attached to the fork, substantially as shown.

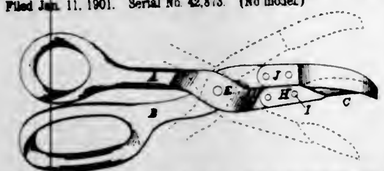
681,338. ETHER-INHALER. GUSTAV OTTO, Jersey City, N. J. Filed Nov. 3, 1900. Serial No. 35,307. (No model.)



Claim.—1. In an ether-inhaler tube, the combination with a number of superimposed sheets of paper, having the coinciding edges fringed at one end, means for holding the sheets together and a tape secured to said united sheets for holding them on an inhaling-frame, substantially as herein shown and described.

2. In an ether-inhaler, the combination with a tubular frame having alternate longitudinal slots and bars, of a strip of fabric passed successively over the several bars and through the frame and an inhaler-tube surrounding the frame, which tube is composed of a number of superimposed sheets of paper having fringed edges at one end and a fastening means passed around the tube to hold it in place on the frame, substantially as herein shown and described.

681,339. PINEAPPLE-EYE SNIP. JOHN F. PACK, Rochester, N. Y. Filed Jan. 11, 1901. Serial No. 42,873. (No model.)

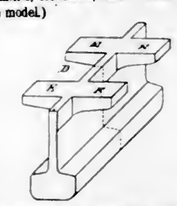


Claim.—1. A pineapple-eye snip comprising a pair of handles having a hollow cutter and spoon attached thereto, the said spoon adapted to be operated within said hollow cutter, substantially as described.

2. In a pineapple-eye snip, the combination with a pair of handles having a hollow cutter and spoon attached thereto, of a cutting edge provided on said cutter, the said spoon adapted to be moved past said cutting edge and into said hollow cutter, substantially as described.

3. In a pineapple-eye snip, the combination with a pair of pivoted handles, of a hollow oval-shaped cutter provided with a cutting edge, and an oval-shaped spoon mounted on said handles, the said spoon adapted to move within said hollow cutter in proximity to said cutting edge, substantially as described.

681,340. MANUFACTURE OF SHOVELS. ALEXANDER PARK and CHARLES DURNING, Cleveland, Ohio. Filed Mar. 29, 1901. Serial No. 53,518. (No model.)



Claim.—1. The method of forming shovels from flanged rails or beams, which consists in cutting away oppositely-disposed portions of the flanges, so as to leave relatively narrow arms at the sides of the rail and portions of the web projecting laterally of said arms, extending the arms in an upward direction, and extending or reducing the web of the rail, substantially as described.

2. The method of forming a series of shovels from flanged rails or beams which consists in first cutting away oppositely-disposed portions of the flanges of the rail so as to leave a plurality of alined relatively narrow arms at the sides thereof, extending the arms in an upward direction into substantially parallel planes, extending or reducing the web of the rail, and finally sawing the rail in sections at points intermediate the respective series of flanges, substantially as herein shown and described.

681,341. MAGNETIC DEVICE FOR RESTORING AND AIDING HEARING. SAMUEL G. PAYN, Jr., Bath on Hudson, N. Y. Filed Jan. 17, 1901. Serial No. 43,604. (No model.)



Claim.—1. An ear appliance for the purposes set forth comprising a permanent tubular magnet and means upon or in connection with the same for detachably inserting the same in the ear.

2. An ear appliance for the purposes set forth comprising a permanently paramagnetic metallic tube, and a holder conforming to the shape of the ear and adapted to be inserted into and to remain in the ear, the said tube being fitted into the inner end of the said holder and rigidly secured thereto.

3. An ear appliance for the purposes set forth comprising two tubular magnets of opposite polarity and holders attached to the said tubular magnets and adapted to fit respectively in the ears.

681,342. CAR-TRUCK. EDGAR PECKHAM, Kingston, N. Y. Filed June 6, 1901. Serial No. 63,352. (No model.)

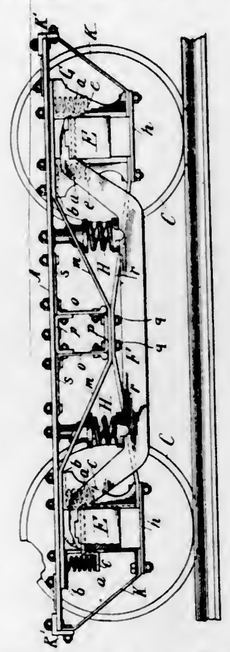
Claim.—1. In a car-truck, in combination with the usual wheels, journal-boxes, top frame of the truck, and equalizer-bars carrying equalizer-springs which support the truck-frame upon such equalizer-bars, a set or sets of auxiliary springs supporting the ends of the truck-frame upon the journal-boxes.

2. In a car-truck, in combination, with the usual wheels, journal-boxes and top frame, and equalizer-bars carrying equalizer-springs which support the truck-frame upon such equalizer-bars, a set or sets of auxiliary springs between the ends of the truck-frame and points of support connected with the journal-boxes.

3. In a car-truck, in combination, with the usual wheels, journal-boxes, top frame, and equalizer-bars carrying equalizer-springs which support the truck-frame upon such equalizer-bars, a set or sets of auxiliary springs located between the ends of the truck-frame, and lugs projecting from saddles resting on the journal-boxes.

4. In combination, in a car-truck, the journal-boxes E E, top bar A, equalizer-bars F F, equalizer-springs H H between said bar A and said equalizer-bars, pedestals G G, saddles e e, lugs c c projecting from said saddles, and supporting-springs for the truck-frame located upon said lugs.

5. In combination, with the usual truck-frame, journal-boxes, equalizer-bars and equalizer-springs, of the "Master Car-Builders'" truck, a set or sets of auxiliary springs located between the ends of the truck-frame and points of support in connection with the journal-boxes, whereby end oscillation or tilting of the truck-frame relatively to the journal-boxes is prevented.



6. In combination, in a truck with the usual top frame, wheels, axles, pedestals and journal-boxes, an equalizer-bar made up of two spaced members F F, and braces *m*, *r* located between the members of the equalizer-bar, substantially as described.

7. In combination, in a truck with the usual top frame, wheels, axles, pedestals and journal-boxes, an equalizer-bar made up of two spaced members F F, braces *m*, *r* located between the members of the equalizer-bar, and the connecting-pieces *h* extending across the bottoms of the pedestals, substantially as described.

8. In combination, in a truck, with a top frame, wheels, axles, pedestals and journal-boxes, an equalizer-bar made up of two spaced members F F, braces *m*, *r* located between the members of the equalizer-bar, angle-iron transoms *o o*, and connecting-pieces *p p* therefor, of which the upper one is connected to the truck-frame and the lower one to said braces, substantially as described.

9. A truck comprising a top frame, angle-iron transoms *o o*, gussets *s s*, and diagonal braces *m*, *r*, substantially as described.

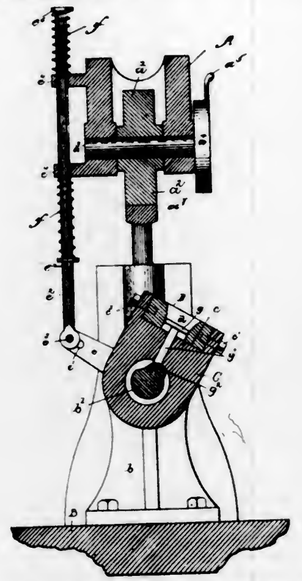
681,343. PROCESS OF MANUFACTURING IRON COLUMNS. RODOLPHE RAU, Schiltigheim, Germany. Filed May 25, 1900. Serial No. 17,927. (No specimens.)



Claim.—1. The process of manufacturing iron columns which consists in casting an iron sheath around a malleable-iron tube as a core, and passing a current of saturated steam through such tube during the casting operation, as and for the purpose set forth.

2. The process of manufacturing iron columns which consists in casting an iron sheath around a malleable-iron tube as a core, and passing a current of saturated steam and air through such tube during the casting operation, as and for the purpose set forth.

681,344. HEEL OR SOLE MOLDING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, of New Jersey. Filed Feb. 4, 1890. Serial No. 339,165. (No model.)



Claim.—1. In a machine for forming soles heels, &c., the combination with a reciprocating former, of an oscillating work-support connected with said reciprocating head and operated directly thereby, said former and work-support being loosely connected so as to admit of a further movement of said former after the work-support has been brought to its operative position.

2. In a machine for forming soles, heels, &c., the combination with a reciprocating head, of forming-tools rotatably mounted thereon, a work-support oscillating in operative relation to said reciprocating head, and a yielding connection between said head and work-support whereby the latter may be rocked to and from an operative position when said head is reciprocated and further movement of said head is permitted after said work-support has been brought to an operative position.

3. In a machine for forming soles, heels, &c., the combination with a reciprocating head, of a rotary tool-carrier mounted thereon, a plurality of forming-tools on said head, an oscillating work-support mounted in operative relation to said head, and a yielding connection between said head and work-support whereby said work-support is rocked to and from an operative position when said head is reciprocated and forther movement of said head and its forming-tools is permitted after the work-support has been brought to its operative position.

4. In a machine for forming soles, heels, &c., the combination with a reciprocating head A carrying one or more tools of the character specified, of a rock-shaft *e'*, a work-support D carried thereby, a rocker-arm *e* on said rock-shaft, a rod e^2 connected with said rocker-arm, and a yielding connection between said reciprocating head and said rod, whereby said head A is reciprocated and further movement of said head A is permitted after the said work-support has been brought to its operative position.

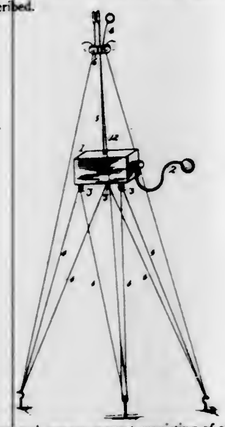
681,345. SUPPORT FOR PHOTOGRAPHIC CAMERAS. ADDISON T. SAUNDERS, Akron, Ohio. Filed June 14, 1900. Serial No. 20,316. (No model.)

Claim.—1. An improved camera-support consisting of cords adapted to be connected with a camera, and arranged to be secured to separate fixed objects, in combination with a means to be operated by hand to draw said camera upward to render said secured cords taut, substantially as shown and described.

2. An improved camera-support consisting of cords connected with the camera and arranged to be secured to fixed objects in combination with an elastic cord to draw said camera upward to render said cords taut, substantially as shown and described.

3. An improved camera-support consisting of cords connected with

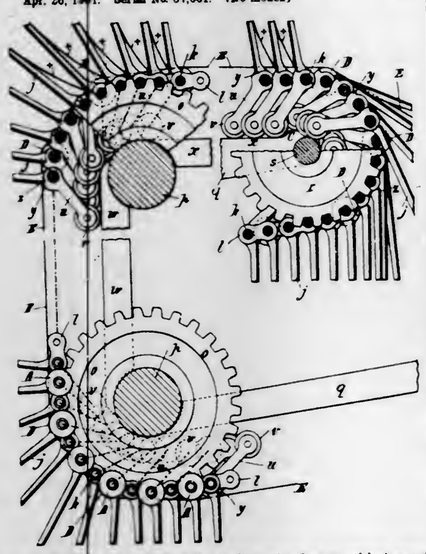
the camera and arranged to be secured to fixed objects, a cord to draw said camera upward, and auxiliary cords arranged to be connected with said several fixed objects, and held in connection with said camera-drawing cord and to be simultaneously drawn taut therewith, substantially as shown and described.



4. An improved camera-support consisting of cords connected with the camera and arranged to be secured to fixed objects and an elastic cord to draw said camera upward, in combination with auxiliary cords arranged to be connected with said fixed objects, united above said camera and provided with elastic cords adapted to be held in connection with the camera-drawing cord, and to be simultaneously drawn upward therewith, substantially as shown and described.

5. An improved camera-support consisting of cords adapted to be connected with a camera, and arranged to be secured to fixed objects in combination with elastic means to be operated by hand to draw said camera upward to render said cords taut, substantially as shown and described.

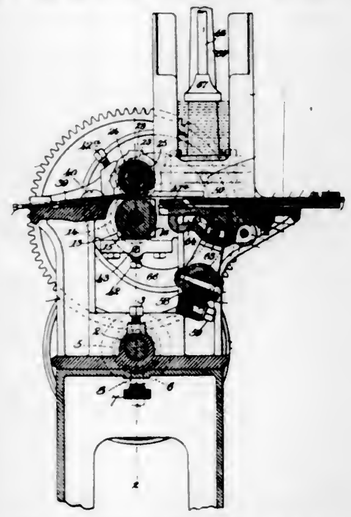
681,346. APPARATUS FOR DRYING PRINTED OR VARNISHED METAL SHEETS. HERMANN G. SCHUMANN, London, England. Filed Apr. 26, 1901. Serial No. 57,601. (No model.)



Claim.—1. In apparatus for drying printed or varnished metal sheets, in combination, a chamber having narrow slot-like apertures respectively for the inlet of the wet metal sheets and for the outlet of the dried sheets, means of internally heating the chamber, means of receiving the wet sheets from the printing-machine and delivering them into the chamber, means of indrawing the wet sheets and supporting the same in a face-up position, means of lifting the sheets and gradually turning them into a vertically-inclined face-up-and-forward position, supporting them in such position and traversing them slowly from end to end of the chamber, and, at the end of such traverse, causing them successively when dry to resume their face-up position, means of delivering them in such position from the chamber through its exit-slot, and means of actuating the traversing mechanism, as set forth.

2. In apparatus for drying printed or varnished metal sheets, in combination, a chamber, *a*, having a narrow slot-like sheet-inlet aperture, *d*, and a like sheet-exit aperture, *h*, a band, *f*, for indrawing the wet sheets onto a supporting-table, *g*; an arrangement of pipes, *e*, for heating the chamber; an articulated series of coacting arms, *u*, *j*, pivotally mounted on rods, *k*, connected by chains, *l*, *m*, supported and traversed by toothed wheels, *o*, *r*, for traversing the sheets through the chamber; bearers and guiding-surfaces, *p*, *w*, *z*, *C*, *s*, adapted to cause the arms, *u*, to cause the arms, *j*, successively to turn from a non-operative pendent position to a horizontally-inclined position and from such position to a vertically-inclined position and to retain such position while traversing the chamber end and then to trip the arms, *j*, so as to free the next following sheet; a plurality of bands, E, supported by and traveling at the same rate as the rods for stopping and supporting the sheets and guiding them in their delivery; means of actuating the sheet-carrying devices and slowly traversing the same through the chamber in a continuous cycle; means of guiding the sheets in their traverse through the chamber; and means of delivering the dried sheets in a face-up position through the chamber exit-slot, as set forth.

681,347. LEATHER-SKIVING MACHINE. JACOB R. SCOTT, Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Filed Sept. 21, 1900. Serial No. 30,680. (No model.)



Claim.—1. A leather-skiving machine, having, in combination, a die, a pressure-roller and means for moving the pressure-roller endwise, substantially as described.

2. A leather-skiving machine, having, in combination, a die-roller, an endwise-movable pressure-roller, means for rotating the die and pressure rollers, and means for moving the pressure-roller endwise during such rotation, substantially as described.

3. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller and means actuated by the die-roller for moving the pressure-roller endwise, substantially as described.

4. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller and means for moving the pressure-roller endwise, comprising a cam on the die-roller and a lever actuated by the cam engaging the feed-roller, substantially as described.

5. A leather-skiving machine, having, in combination, a die, a pressure-roller, and means for imparting a relative endwise movement to the die and roller, substantially as described.

6. A leather-skiving machine, having, in combination, a die, a pressure-roller provided with a yielding surface and means for imparting a relative endwise movement to the die and roller, substantially as described.

7. A leather-skiving machine, having, in combination, a die, a pressure-roller, means for relatively actuating the die and roller to cause the roller to travel over the die, and means for imparting a relative endwise movement to the die and roller during such travel, substantially as described.

8. A leather-skiving machine, having, in combination, a die, means for forcing a blank into the die and means for bending the blank before it enters the die, substantially as described.

9. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller for forcing a blank into the die of the die-roller, and means for bending the blank to adapt it to conform to the die before it enters the bite of the rollers, substantially as described.

10. A leather-skiving machine, having, in combination, a die, a pressure-roller, means for moving the pressure-roller endwise to bend the blank into the die, and means for bending the blank to adapt it to conform to the die prior to the action of the pressure-roller substantially as described.

11. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller, a feed-slide provided with a blank-carrier having a discharge-opening of less width than the blank and means for actuating the feed-slide, substantially as described.

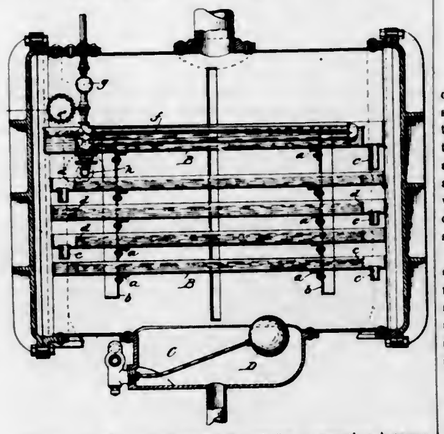
12. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller, a support for the forward end of a pile of blanks movable toward and from the bottom of the pile, a feed-slide for feeding the bottom blank over the support into the bite of the rollers and means for actuating the slide and support, substantially as described.

13. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller, a hopper, a support for the forward end of a pile of blanks in the hopper movable toward and from the bottom of the pile, a feed-slide for feeding the bottom blank over the support into the bite of the rollers, means for adjusting the support toward and from the bottom of the pile, and means for actuating the slide and support, substantially as described.

14. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller, a feed-slide provided with a blank-carrier, fitting the rear portion of the blank forming a guide for the blank in passing from the carrier to the rollers and means for actuating the slide to move the carrier in proximity to the rollers, substantially as described.

15. A leather-skiving machine, having, in combination, a die-roller, a pressure-roller, a feed-slide provided with a carrier for receiving and supporting a blank, a support for the front portion of the blank, means for actuating the slide to move the carrier in proximity to the rollers, and means for moving the support from the path of the slide, substantially as described.

681,348. ICE-MAKING APPARATUS. THOMAS SHIPLEY, York, Pa. Filed May 21, 1901. Serial No. 61,238. (No model.)

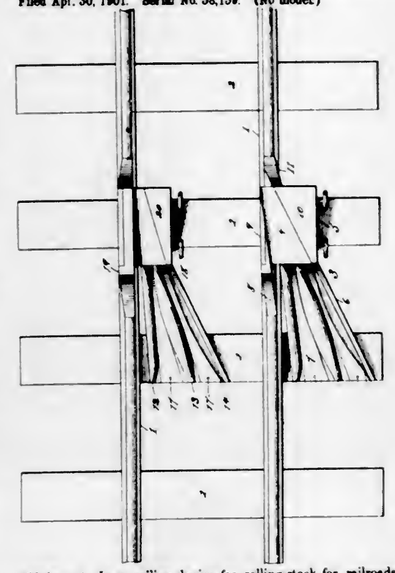


Claim.—1. The combination of the reboiler; connections between said reboiler and a source of water-supply, and means whereby the water-supply is caused to circulate in thin layers within the reboiler; a steam-heater within the reboiler, arranged to have contact with the circulating water; means for creating and maintaining a vacuum in the reboiler; a draw-off pump connected to the water-outlet of the reboiler and means for automatically regulating the speed of the draw-off pump and the feed of water to the reboiler, substantially as hereinbefore set forth.

2. The reboiler provided with a series of superposed shallow pans from one to the other of which the entering water passes, an inlet for water-supply, a steam-coil located in one of the pans and means for supplying steam thereto, in combination with means for creating and maintaining a vacuum in said reboiler, a draw-off pump connected to the water-outlet of the reboiler and means for automatically regulating the speed of the draw-off pump, substantially as and for the purposes hereinbefore set forth.

3. In a distilling apparatus for ice-making machinery, the combination of the condenser; the condense-water reservoir; the reboiler connected to said reservoir and provided with a series of shallow circulating-pans; means for creating and maintaining a vacuum in the reboiler; means for automatically regulating the speed of the draw-off pump controlled by the water at the outlet end of the reboiler; and means for automatically regulating the feed of water to the reboiler, located outside of the reboiler and between it and the condense-water reservoir, as and for the purposes hereinbefore set forth.

681,349. WRECKING-FROG. EZRA SMYTH, Greencastle, Ind. Filed Apr. 30, 1901. Serial No. 58,159. (No model.)



Claim.—1. In a railing device for rolling-stock for railroads, the combination of an outside wrecking-frog, an inclined plane, a series of ribs secured thereon, a tapered inclined rib adapted to rest upon the top of the rail, an inside wrecking-frog on inclined plane, a series of ribs secured thereon, a rib inclined at both ends adapted to rest on top of the rail parallel with said rail, and independent from said ribs on the inclined plane and considerably above the same, spurs on the under side of said frogs, a vertical wall engaging one side of the rail, a movable plate engaging the other side thereof, and means for adjusting said plate substantially as described.

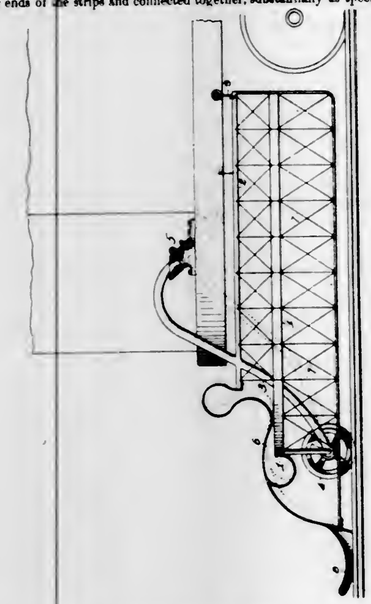
2. In a wrecking-frog, the combination of the horizontal platform extending from the top of the rail an inclined plane formed thereto, a series of rounded ribs tapered at both ends secured on said inclined plane, a vertical wall secured on said platform and engaging one side of the rail, a movable plate engaging the other side thereof and means for adjusting said plate, and means for holding the frog in position, substantially as described.

681,350. STREET-CAR FENDER. CHAS. T. STOELTING, St. Louis, Mo. Filed May 6, 1901. Serial No. 58,903. (No model.)

Claim.—1. A car-fender having a frame, rods supporting said frame, wheels mounted upon the ends of said rods, means carried by the car for adjustably supporting the rods, a plurality of parallel strips carried by the frame, and means to prevent an object from passing beneath the fender carried upon the lower ends of the strips.

2. A car-fender, comprising a frame, a pair of rods connected to and adapted to support said frame, sockets for receiving the upper ends of said rods and allowing the rods to be adjustably held therein, wheels carried by the lower ends of said rods and adapted to fit upon the car-tracks, and a series of parallel spring-strips carried by the frame and having their lower ends in line with the track.

3. A car-fender of the class described, having a frame, rods supporting said frame, wheels mounted upon the lower ends of said rods, sockets mounted upon the car-body for supporting the rods, a plurality of bent spring-stripe located parallel to each other across the front of the fender, a suitable network connecting each strip and located across the side of the frame, and means for adjusting the angle, rubber tips formed on the front lower ends of the strips and connected together, substantially as specified.



681,351. DRIVING AND BRAKING GEAR. GEORGE F. STURGESS, Leicester, England, assignor of three-fourths to Alfred Edwin Hitchcock, John Parsons, and Charles Edward Hare, same place. Filed Nov. 19, 1900. Serial No. 37,060. (No model.)



Claim.—1. In a coil-clutch mechanism, the combination with a driver, a friction-drum rotatable in either direction, of an inert coil arranged to frictionally engage said drum to either drive or brake the same, means to apply a yielding primary or initial pressure directly against the recoil action of the coil to obtain a shockless transmission of power, said means being operative to apply the primary pressure against the recoil action to drive the drum on movement of the driver in one direction and operative to apply said pressure to brake the drum on movement of the driver in the opposite direction.

2. In a coil-clutch mechanism, the combination with the driver, a friction-drum independently rotatable in either direction, of a friction-coil, means to move or expand the coil at both ends into engagement with the friction-drum to drive the same upon the application of pressure directly against the recoil action of the coil by movement of the driver in one direction and to expand the coil at both ends into engagement with the friction-drum to brake the same by movement of the driver in the opposite direction so that the recoil action of the coil may free the coil upon stoppage of the pressure thereon by the driver.

3. In brake mechanism of the character described, the combination with a rotatable drum of the primary spring-coil brake, means connected to the spring to initially expand the coil to apply the primary spring-coil brake, and a secondary brake comprising a retarded brake-disk, a fixed support having the said retarded brake-disk yieldingly held therein for the purpose of reducing the shock when the brake is applied under excessive brake-pressure, substantially as herein described.

4. In a driving and braking gear, the combination of an operating member, a drum rotatable independently of said operating member, a coil-clutch interposed between the operating member and the drum, means carried by the operating member to initially expand the coil against its recoil action upon rotation of said member in one direction into engagement with the drum for driving said drum, and to expand the coil into engagement with the drum upon rotation of said member in the opposite direction to brake said drum.

5. In a driving and braking gear, the combination of an operating member, a drum rotatable independently of said operating member, a coil-clutch interposed between the operating member to initially expand the coil against its recoil action upon rotation of said member in one direction into engagement with the drum for driving said drum, and to expand the coil into engagement with the drum upon rotation of said member in the opposite direction to brake said drum, and a brake-disk in operative connection with the coil to assist in braking the drum upon excessive brake-pressure.

6. In a driving and braking gear, the combination of an operating member or sprocket-wheel, a drum rotatable independently thereof, a coil-clutch interposed between the operating member and drum and a cross-link pivotally connected to each end of the coil the angular movement of which link opens the spring into frictional engagement with the drum, and devices operative on movement of the driver in one direction to actuate the link and open the spring into engagement with the drum to drive the same and operative on movement of the driver in the opposite direction to actuate the link and open the spring into engagement with the drum to brake the same.

7. In a driving and braking gear, the combination of an operating member, a member rotatable independently thereof, a coil-clutch interposed between said members, a cross-link connected to the ends of said coil to expand the same against its recoil action on angular movement of said cross-link, a roller-clutch in operative engagement to the cross-link, and means to move or turn said link to initially expand said coil-clutch.

8. In a driving and braking gear, the combination of an operating member, a member rotatable independently thereof provided with serrations or notches, a coil-clutch interposed between said members, a cross-link connected to the ends of said coil to expand the same against its recoil action on angular movement of said cross-link, a roller-clutch in operative engagement to the cross-link and adapted to engage the serrations or notches, and means to move or turn said link to initially expand said coil-clutch.

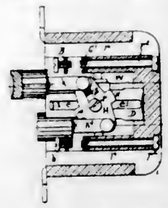
9. In a driving and braking gear, an operating member, a member or drum rotatable independent of said member, a coil-clutch interposed between said members, a strip-clutch embraced by a coil of said coil-clutch, and means to expand the coil and move the strip-clutch to force the coil into frictional engagement with the drum.

10. In a driving and braking gear, an operating member, a member or drum rotatable independent of said member, a coil-clutch interposed between said members, a strip-clutch embraced by a coil of said coil-clutch, and a cross-link connected to the coil and engaging the strip-clutch to expand the coil and move the strip-clutch to force the coil into frictional engagement with the drum.

681,352. HEATER FOR ELECTROLYTIC INCANDESCENT LAMPS. JAMES SWINBURNE, Westminster, England, assignor to the Electric Resistance & Heating Company, Limited, London, England. Filed Jan. 8, 1901. Serial No. 42,562. (No model.)

Claim.—A resistance-heater for an electrolytic incandescent lamp consisting of a conducting material such as carbon mixed with non-conducting material such as kaolin formed into the desired shape and vitrified or glazed substantially as and for the purpose set forth.

681,353. ELECTRIC SWITCH. GEORGE B. THOMAS, Hartford Conn., assignor to The Perkins Electric Switch Manufacturing Company, same place. Filed Mar. 5, 1901. Serial No. 49,874. (No model.)



Claim.—1. An electric switch in which are combined a case with fixed contacts, a frame, a contact-carrying slide guided in the frame, a single spring to act on the slide, an oscillating catch-lever to hold the slide, while the lever is oscillated to tension the spring, and then to release the slide by the further oscillation of the lever.

2. An electric switch in which are combined a case having fixed contacts, a frame, a contact-carrying slide guided in the frame and having two lugs with a spring to act upon the slide, an oscillating lever having two catches to coöperate with the said lugs to hold the slide while the lever is being oscillated to tension the spring and then to release the slide.

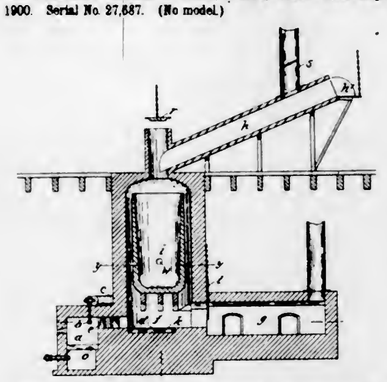
3. An electric switch in which are combined a frame, an oscillating catch-lever and a spring adapted to be tensioned by the lever and a slide to be held and released by the catch-lever while the latter tensions the spring, the said slide having front and back plates with lugs guided by the frame.

4. In an electric switch, the combination of a frame having guide-slots on one side and a guide-bar on the other side with a contact-carrying slide having front and back plates, one plate being provided with lugs guided in the slots and the other plate having lugs guided on the rod of the frame, substantially as described.

5. In an electric switch, the combination of a frame with a slide having lugs guided by the frame, an oscillating lever having catches to engage with said lugs and a spring to be tensioned by the lever and to act on the slide.

6. An electric switch having a receptacle with insulating pillars and contacts mounted thereon and with apertures *r* in the walls of the receptacle behind the pillars and leading from the back to the front of the receptacle, substantially as described.

681,354. COMBINED ORE HEATING, ROASTING, AND SMELTING FURNACE. SAMUEL M. TRAFF, Seattle, Wash. Filed Aug. 22, 1900. Serial No. 27,587. (No model.)



Claim.—1. A smelting-furnace comprising a combustion-chamber, a stationary crucible located therein with its top open and its sides free from the walls of the combustion-chamber, a passage-way leading from the crucible and terminating in a tap-hole, and a forehearth connected with said passage-way and entirely located within the combustion-chamber, substantially as described.

2. A smelting-furnace comprising a combustion-chamber, a crucible located therein with its top open and its sides free from the walls of the combustion-chamber, an inclined ore and heating chamber connecting with the combustion-chamber directly over the crucible, a furnace-stack leading from the inclined flue, a roasting-chamber in communication with the combustion-chamber and a second stack leading therefrom, substantially as described.

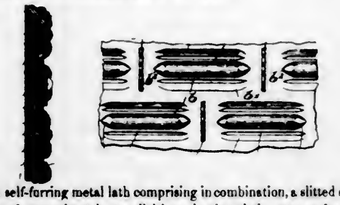
3. A smelting-furnace comprising a combustion-chamber, a crucible located therein with its top open and its sides free from the walls of the combustion-chamber, a steam-pipe located beneath the floor of the combustion-chamber, a carbureting-chamber connected therewith, and a burner within the combustion-chamber and connected with the carbureter, substantially as described.

4. A smelting-furnace comprising a combustion-chamber, a crucible located therein with its top open and its sides free from the walls of the combustion-chamber, a flue of less diameter than the crucible leading from the combustion-chamber centrally above the crucible, and an ore-heating chamber discharging through the side of the flue, substantially as described.

5. A smelting-chamber comprising a combustion-chamber, a crucible located therein with its sides free from the walls of the combustion-chamber, and a forehearth connected with the crucible and contained within the combustion-chamber with its contents protected from contact with the furnace-gases, substantially as described.

681,355. METALLIC LATH. GEORGE A. TURNBULL, Chicago, Ill. Filed Dec. 26, 1900. Serial No. 41,064. (No model.)

Claim.—1. A self-furring metallic lath comprising in combination, a slitted sheet, flanges on the rear side thereof approximately parallel with and out of the plane of the sheet from which said lath is formed and converging flanges on the opposite side of the sheet.



2. A self-furring metal lath comprising in combination, a slitted sheet, a plurality of approximately parallel keys having their outer surfaces cylindrically curved and projecting beyond the plane of the sheet, a flange extending laterally from each key and out of the plane of and approximately parallel with the rear surface of the sheet and adapted to afford together with the rear surface of the sheet a holding-surface for the clench, and a supplemental key intermediate of said keys.

3. A self-furring metal lath comprising a slitted sheet, a plurality of keys projecting between the slits on one side of the sheet and beyond the plane thereof, said keys being straight longitudinally and curved transversely, a flange extending laterally on each side of each key and approximately parallel with the sheet, converging flanges on the opposite side of the sheet and a supplemental key intermediate of the first-named keys.

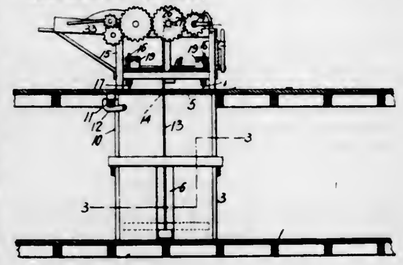
4. As an article of manufacture, a metallic lath comprising a sheet of metal provided with a plurality of pairs of parallel longitudinal slits, the metal between the slits of each pair being forced outwardly beyond the plane of the sheet and forming longitudinally-straight keys which are cylindrically convex laterally, an approximately flat flange on each edge of each key and approximately parallel with the sheet and out of the plane thereof and flanges on the sheet on each side of each key which converge in front of the same.

5. As an article of manufacture, a sheet-metal lath provided with a plurality of pairs of parallel slits, said pairs being arranged staggering and approximately parallel with each other, the metal between each pair of slits being forced outwardly beyond the plane of the sheet forming a longitudinally-straight but transversely-concave key, integral flanges on each side of each key approximately parallel with the sheet and out of the plane thereof and flanges on the sheet adjacent to each key directed obliquely from the key and converging on the front side of the sheet together with flanges on the key adapted to form a triple or compound clench when plastering material is applied thereto.

6. As an article of manufacture, a sheet-metal lath provided with a plurality of pairs of parallel slits, the metal between each pair of slits being forced outwardly beyond the plane of the sheet forming a transversely-concave key having pointed ends, integral flanges on each side of each key approximately parallel with the sheet, flanges on the sheet adjacent to each key directed obliquely from the key and converging on the opposite side therefrom and together with the flanges on the key forming a triple or compound clench after the plastering material is applied thereto.

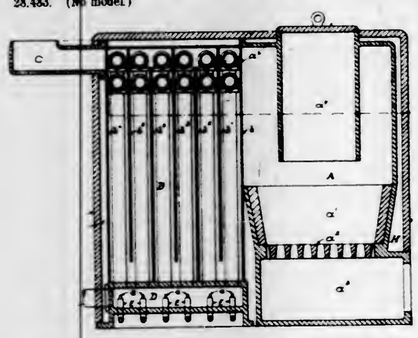
7. As an article of manufacture, a sheet-metal lath provided with a plurality of pairs of parallel slits, the metal between each pair of slits being forced outwardly beyond the plane of the sheet forming a key which is cylindrically concave transversely, flanges on each side of each key approximately parallel with the sheet, converging flanges on the opposite side of the sheet adjacent to each key, said slits being dilated intermediate of the ends and supplemental cylindrically-concave keys formed between the ends of adjacent keys.

681,356. BALING-PRESS. JACOB P. WALKER, Havre de Grace, Md., assignor to M. Barratt Walker, Baltimore, Md. Filed Feb. 2, 1901. Serial No. 45,794. (No model.)



Claim.—In a baling-press, the combination, with upper and lower supporting-platforms, said upper platform having an opening, of a baling-chamber extending between the platforms and in line with said opening and adapted to be filled through said opening, a door for closing the opening, a follower in the baling-chamber, draft ropes or cables connected to the follower and extending upwardly through the upper platform, and power mechanism adapted to be connected to said ropes or cables to draw the plunger upward so as to compress the material between the door and follower, said power mechanism being adapted to rest upon the door and by its weight to hold the door closed, and being movable toward and from the door, substantially as described.

681,357. APPARATUS FOR PREHEATING AND MOISTENING COMPRESSED AIR. WILLIAM O WEBBER, Boston, Mass., assignor to Walter C. Carr, New York, N. Y. Filed Aug. 29, 1900. Serial No. 28,483. (No model.)



Claim.—1. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of chambers adapted to be heated at different temperatures, air-circulating pipes extending through said chambers, and a moistening apparatus operatively arranged to discharge into each of said circulating-pipes, substantially as described.

2. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of chambers arranged at successive points nearer to said furnace, air-circulating pipes extending through said chambers, and a moistening apparatus consisting of a series of discharge-nozzles, each of which opens into a circulating-pipe, substantially as described.

3. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of heating-chambers arranged at successive points nearer to said furnace, air-circulating pipes extending through said chambers, and a moistening apparatus consisting of discharge-nozzles, each of which opens into a circulating-pipe and are arranged in series at successive points nearer to the furnace, substantially as described.

4. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of heating-chambers composed of sections progressively arranged at successive points nearer said furnace and operatively connected alternately at their top and bottom, air circulating pipes in each of said chambers, and a moistening apparatus consisting of a series of discharge-nozzles arranged relative to said pipes at successive points nearer to the furnace, substantially as described.

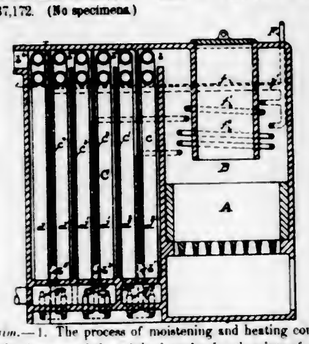
5. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace, of a series of heating-chambers operatively connected thereto, consisting of air-chambers connected by circulation-tubes interposed between diaphragms extended alternately in opposite directions and a moistening apparatus operatively arranged to discharge into each of said chambers, substantially as described.

6. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of heating-chambers operatively connected thereto, consisting of sectional air-chambers connected by circulation-tubes operatively connecting the inlet and outlet sections of the air-chambers, and a moistening apparatus operatively arranged to discharge into each of said chambers, substantially as described.

7. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of heating-chambers, operatively connected thereto, consisting of air-chambers connected by circulation-tubes, and a moistening apparatus consisting of spray-nozzles operatively arranged to discharge into each of said chambers, and operatively connected to a supply-conduit passing through the furnace, substantially as described.

8. In an apparatus for the progressive moistening and heating of compressed air, the combination with a compressed-air passage, of a furnace having a series of heating-chambers connected thereto, consisting of a plurality of sectional air-chambers connected by tubes operatively connecting the inlet and outlet sections of the air-chambers, and a moistening apparatus consisting of spray-nozzles, operatively connected to discharge into the inlet side of each of said chambers, substantially as described.

681,358. PROCESS OF PREHEATING AND MOISTENING COMPRESSED AIR, &c. WILLIAM O. WEBBER, Boston, Mass., assignor to Walter C. Carr, New York, N. Y. Filed Nov. 20, 1900. Serial No. 37,172. (No specimens.)



Claim.—1. The process of moistening and heating compressed air or other fixed gas consisting of the introduction thereinto of moisture and simultaneously increasing the temperature thereof, followed by the further introduction of moisture and a simultaneous increase of temperature of the compressed air or other fixed gas, without permitting free expansion of the compressed air or other fixed gas or a reduction of the temperature thereof, substantially as described.

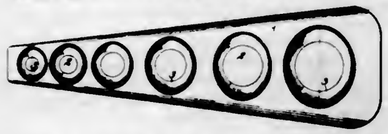
2. The process of moistening and heating compressed air or other fixed gases, consisting in the introduction of moisture thereinto and simultaneously increasing the temperature of the compressed air or other fixed gas, followed by the progressive introduction of further heated moisture simultaneous with a progressive increasing temperature of the compressed air or other fixed gas, said simultaneous moistening and heating being immediately successive, substantially as described.

3. The process of moistening and heating compressed air or other fixed gases, consisting in the introduction of moisture thereinto, and simultaneously increasing the temperature of said compressed air or other fixed gas, followed by the progressive introduction of further moisture at increasing temperatures, simultaneous with a progressive proportional increase of temperature of the compressed air or other fixed gas, without permitting free expansion of the compressed air or other fixed gas or a reduction of the temperature thereof, substantially as described.

4. The process of moistening and heating compressed air or other fixed gas consisting in the introduction of moisture thereinto and simultaneously increasing the temperature of said compressed air or other fixed gas, followed by the introduction of further moisture simultaneously with an increase of temperature of the compressed air or other fixed gas, said simultaneous moistening and heating being immediately successive and carried on progressively and by progressive stages, substantially as described.

681,359. WITHDRAWN.

681,360. CORNER-ROUNDING WOODWORKING-TOOL. BENJAMIN WOOD, Kansas City, Kans., assignor to Charles F. Bartholomees, Kansas City, Mo. Filed June 1, 1901. Serial No. 62,744. (No model.)



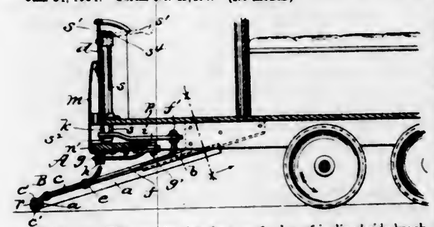
Claim.—1. A corner-rounding woodworking-tool, comprising a metallic plate of curved form in at least one direction, and provided with a hole having oppositely-located cutting edges and beveled or flared on its convex side.

2. A corner-rounding woodworking-tool, comprising a metallic plate of curved form, having an approximately circular hole and beveled or flared around said hole on its convex side.

3. A corner-rounding woodworking-tool, comprising a curved plate, provided with an approximately circular hole whose diameter is about equal to the radius of the inner side of the plate, said plate being beveled or flared outwardly from said hole on its convex side, substantially as described.

4. A corner-rounding woodworking-tool, comprising a metallic plate of curved form, and having a plurality of approximately circular holes, and beveled or flared outwardly from said holes on its convex side, substantially as described.

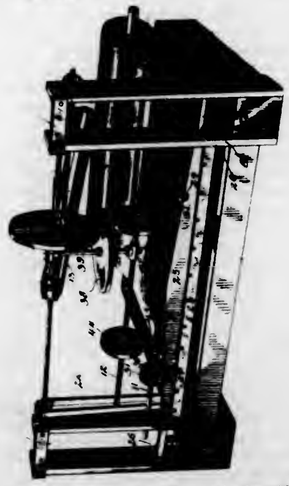
681,361. CAR-FENDER. JOHN B. WOOD, Cranston, R. I. Filed Jan. 31, 1901. Serial No. 45,497. (No model.)



Claim.—1. The combination, in a car-fender, of inclined side brackets or hangers secured to the under side of the car-platform, the endwise-movable fender base or frame B supported by and slidably mounted in said brackets, a vertically-mounted operating-spindle located contiguous to the rear side of the dashboard of the car and extending through the car-platform, and a connection uniting the said frame and spindle members; constructed and arranged whereby upon simply manipulating the spindle the fender-frame is projected beyond the end of the car or retracted to its limit or normal position beneath the platform, substantially as shown and described.

2. The combination with the supported endwise-movable fender-base B having a central rearward extension *f*, of the mounted actuating-spindle *s*, located contiguous to the dashboard, having a horizontal arm s^2 secured thereto beneath the car-platform, and a link or connection *i* jointed to and uniting the said members *f* and s^2 substantially as described.

681,362. CUTTING ATTACHMENT FOR VENEER-MACHINES. WILLIAM W. WOOD, Tacoma, Wash. Filed Sept. 5, 1900. Serial No. 29,082. (No model.)



Claim.—1. In a veneer-machine, the combination with a platform, of a stripping-knife mounted thereon, a cutting-knife also mounted upon the platform, an endless feed device mounted above and adjacent to the platform with its under side traveling from the stripping-knife to the cutting-knife, the space between the under side of the feed device and the platform being for the reception of and also forming a guide for the strip of veneer as it comes from the stripping-knife, and means for driving the feed device from the periphery of the log from which the veneer is being stripped.

2. In a veneer-machine, the combination with a platform, of a stripping-knife mounted transversely of one end thereof, a vertically-reciprocatory cutting-knife mounted at the opposite end of the platform, an endless feed device mounted above and adjacent to the platform and located between the two knives, the under side of the feed device traveling from the stripping-knife to the cutting-knife, the space between the under side of the feed device and the platform being for the reception of and also forming a guide for the veneer as it comes from the stripping-knife, a guard carried by the platform and overhanging the stripping-knife and the adjacent end of the feed device, and means for driving the feed device from the periphery of the log from which the veneer is being stripped.

3. In a cutting attachment for veneer-stripping machines, the combination of a cutting-knife, and a peripherally-contacting frictional log-engaging driving device therefor, comprising a frame having opposite rollers or pulleys, and an endless belt traveling over the pulleys or rollers, one side of the belt at a point between the opposite pulleys or rollers being disposed transversely across and arranged for frictional contact with the peripheral edge of the log from which the veneer is being stripped, whereby the feed device is driven from and at a uniform speed with respect to the log, the log-engaging portion of the belt being flexible to conform to the peripheral edge of the log, whereby the maximum frictional contact between the log and the belt is had.

4. A device of the class described, comprising a platform, opposite uprights rising therefrom, a vertically-reciprocating cutting-knife mounted upon the uprights, a drive-shaft also mounted upon the uprights, a feed device mounted upon the platform and operating toward the knife, and a vertically-swinging peripherally-contacting log-engaging driving device pivotally connected to the drive-shaft and extending above the platform.

5. A device of the class described, comprising a platform, opposite uprights rising therefrom, a cutting-knife mounted to reciprocate vertically upon the uprights, a feed device traveling toward the knife and over the platform, a drive-shaft supported above the feed device and upon the uprights, an operative connection between the shaft and the feed device, and a vertically-swinging peripherally-contacting log-engaging frictional driving device, having its upper end pivotally connected to the drive-shaft and inclining downwardly therefrom across the feed device.

6. In a cutting attachment for veneer-stripping machines, the combination with a cutting-knife, of a drive-shaft in operative relation thereto, and a peripherally-contacting frictional log-engaging driving device connected to the shaft, and comprising a frame pivotally supported at one end only upon the shaft, and having opposite terminal rollers, one of which is fixed to the shaft, and an endless belt traveling over the rollers, an intermediate portion of the under side of the belt and adjacent to the outer free end of the frame being disposed transversely across and arranged for frictional contact with the peripheral edge of the log from which the veneer is being stripped, whereby the feed device is driven from and at a uniform speed with respect to the log, the log-engaging portion of the belt being flexible to conform to the peripheral edge of the log, whereby the maximum frictional contact between the log and the belt is had.

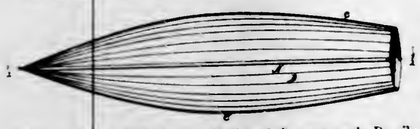
7. In a device of the class described, the combination with a cutting-knife, of a feed device for feeding veneer to the knife, a drive-shaft in operative relation to the feed device, an intermediate shaft operatively connected to the knife, opposite friction-disks carried by the respective shafts and also adjustable longitudinally thereof, and an intermediate friction-disk having its opposite flat faces in frictional engagement with the peripheral edges of the other friction-disks.

8. In a device of the class described, the combination with a cutting-knife, of a feed device, a drive-shaft, an intermediate shaft, opposite friction-disks mounted upon the respective shafts and also adjustable longitudinally thereon, adjusting-rods connected to said disks, and provided with means for adjustably moving the rods longitudinally, a fixed shaft, having opposite boxes embracing the respective drive and intermediate shafts, a friction-disk mounted loosely upon the fixed shaft and having its opposite flat faces in frictional engagement with the respective other disks, and an operative connection between the intermediate shaft and the knife.

9. A device of the class described, comprising a platform, standards rising from the outer end thereof, a vertically-reciprocating knife mounted between the standards, an upper drive-shaft, a lower knife-operating shaft, and an intermediate shaft, all of which shafts are mounted upon the standards, an endless feed-apron traveling over the platform and toward the knife, an operative connection between the drive-shaft and the apron, a log-engaging drive connection between the drive-shaft and the log from which the veneer is to be stripped, an adjustable operative connection between the drive-shaft and the intermediate shaft, and an operative connection between the latter and the knife-shaft.

10. In a veneer-machine, the combination with means for rotatably supporting a log from which veneer is to be stripped, and a stripping-knife, of a feed device to convey the veneer from the knife, and means for driving the feed device at a constant rate with respect to the rotation of the log, and comprising an endless flexible belt disposed transversely across the location of the log and mounted for frictional engagement with the periphery of the log, there being means to automatically force the belt laterally toward and maintain the same in frictional contact with the log as it decreases in diameter.

681,363. BOAT. ARTHUR E. CHAMBERS, Kalamazoo, Mich., assignor to the Western Novelty Company, same place. Filed Mar. 26, 1900. Serial No. 10,218. (No model.)



Claim.—1. In a boat, the combination of the center strip D; ribs C; a skin made up of strips of sheet metal extending longitudinally of the boat, varied in width to give the proper contour to the boat and having their edges joined together by a double seam, and secured to the ribs by suitable clench-nails embraced underneath the seam; and a suitable keel grooved to embrace the center seam of the boat, as specified.

2. In a boat, the combination of a framework; the skin or shell made up of longitudinal strips of sheet metal suitably conformed to the boat, the edges of which are joined by a double seam, suitable fasteners connecting the skin and framework which are embraced by the seams.

3. In a boat, the combination of a sheet metal shell or skin, the upper edge of which is folded on itself and retained between suitable rails *e*, *e*, as specified.

681,364. CONCRETE FLOOR. CONSTANT ELIET, Lorient, France, assignor to himself and Gustave Louis Mouchel, London, England. Filed Nov. 18, 1900. Serial No. 36,704. (No model.)



Claim.—1. In a concrete floor, the combination of a concrete body, curved metal tension-bars embedded in said concrete body, and arranged with their concave sides facing upward at the center of said body, and with their concave sides facing downward over the supports of said body, and curved metal compression-bars embedded in said concrete body and arranged with their concave sides facing downward at the center of said body and with their concave sides facing upward over the supports of said body, substantially as set forth.

2. In a concrete floor, the combination of a concrete body, metal tension-bars embedded in and connecting the parts of said body which are subjected to tensile strains, metal compression-bars embedded in connecting the parts of said body which are subjected to compression strains, and horizontal metal shear-bars embedded in the parts of said body which are subjected to shearing strains, substantially as set forth.

3. In a concrete floor, the combination of a concrete body, straight horizontal metal tension-bars embedded in the lower stratum of said body, curved metal compression-bars embedded in the upper stratum of said body and arranged with their concave sides facing downward between the supports of said body, straight horizontal metal shear-bars embedded in the upper stratum of said body, straight horizontal metal shear-bars embedded in the lower stratum of said body and straight vertical metal shear-bars embedded in said body, substantially as set forth.

4. In a concrete floor, the combination of metal tension-bars embedded in the upper stratum of said body over the supports thereof, metal compression-bars embedded in the lower stratum of said body over the supports thereof, horizontal metal shear-bars embedded in the upper stratum of said body, and horizontal metal shear-bars embedded in the lower stratum of said body, substantially as set forth.

5. In a concrete floor, the combination of longitudinal metal tension-bars embedded in said body, longitudinal metal compression-bars embedded in said body, vertical metal shear-bars embedded in said body and transverse bars embedded in said body, substantially as set forth.

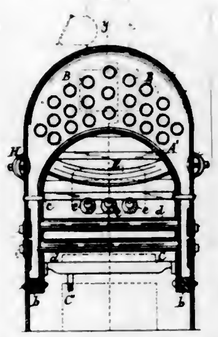
6. In a concrete floor, the combination of a concrete body, curved longitudinal metal tension-bars embedded in said body and arranged with their concave sides facing downward between the supports of said body and curved longitudinal metal compression-bars embedded in said body and arranged with their concave sides facing upward between the supports of said body, substantially as set forth.

7. In a concrete floor, the combination of a concrete body, curved metal tension-bars embedded in the upper stratum of said body and arranged with a downwardly-facing concave curvature from near the highest central point of said body to near the central points of the ends of said body, curved metal compression-bars embedded in the lower stratum of said body and arranged with an upwardly-facing concave curve from near the lowest central point of said body to near the central points of the ends of said body, and a support arranged centrally under said body, whereby said body is rendered a cantaliver carried by said support, substantially as set forth.

8. In a concrete floor, the combination of supports carrying said floor, a concrete body arranged over each support and having embedded in it curved metal tension-bars and curved metal compression-bars forming a cantaliver, concrete bodies arranged between the aforesaid bodies, means for connecting the metal tension-bars of each body with the corresponding metal tension-bars of the adjacent bodies, means for connecting the metal compression-bars of each body with the corresponding metal compression-bars of the adjacent bodies, and cement filling up the space between adjacent bodies and around the aforesaid means for connecting the metal bars of adjacent bodies, substantially as set forth.

9. In a concrete floor, the combination of a concrete body, metal tension-bars embedded in said body, metal compression-bars embedded in said body, horizontal metal shear-bars embedded in said body and vertical metal shear-bars embedded in said body and projecting with retaining ends beyond the surface of said body, substantially as set forth.

681,365. STEAM-BOILER. DAVID FITZGIBBONS, Oswego, N. Y., assignor to Fitzgibbons Boiler Co., same place. Filed July 28, 1898. Serial No. 687,148. (No model.)



Claim.—1. In a boiler, the combination of an inverted-U-shaped boiler having fire-tubes extending horizontally and longitudinally therein, straight water-tubes extending transversely connecting water-legs on each side, a bent water-tube at the rear end of the boiler above, the straight tubes at that end, secured to the inner shell on each side substantially at right angles to connect the legs together, and extending across the mouth of the fire-flue.

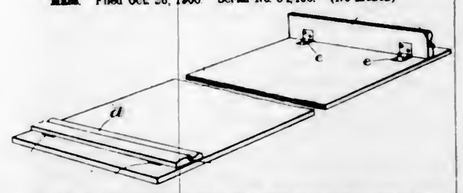
2. In combination in a boiler having depending water-legs on each side, straight water-tubes at each end extending transversely between the legs, a curved water-tube connecting the curved inverted walls of the shell, arranged toward the rear of the fire-box, above one pair of the straight tubes and adjacent to the outlet-flue, hand-holes in the outer shell opposite the ends of the water-tubes, and plugs for closing said hand-holes.

3. In a boiler, the combination of an inverted-U-shaped boiler having fire-tubes extending horizontally and longitudinally therein, straight water-tubes extending transversely and communicating with the lower ends of the legs of the boiler, and a bent water-tube near one end of the boiler above the straight water-tubes and connecting the curved inner sides of the legs together, a vertical baffle-plate below the bent tube, and an inclined baffle-plate between the upper edge of the vertical baffle-plate and the end plate of the boiler, as set forth.

4. In a boiler, the combination of an inverted-U-shaped boiler having fire-tubes extending horizontally and longitudinally therein, straight water-tubes extending transversely and communicating with the lower ends of the legs of the boiler, and a bent water-tube near one end of the boiler above the straight water-tubes and connecting the curved inner sides of the legs together, a vertical baffle-plate below the bent tube, an inclined baffle-plate between the upper edge of the vertical baffle-plate and the end plate of the boiler, and continuous ribs on the upper side of the inclined plate, substantially as described and shown.

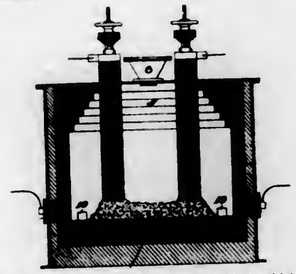
5. In a boiler, the combination of an inverted-U-shaped boiler having fire-tubes extending horizontally and longitudinally therein, straight water-tubes extending transversely and communicating with the lower ends of the legs of the boiler, and a bent water-tube near one end of the boiler above the straight water-tubes and connecting the curved inner sides of the legs together, a vertical baffle-plate below the bent tube, an inclined baffle-plate between the upper edge of the vertical baffle-plate and the end plate of the boiler, ribs on the inclined plate, and air-holes in the inclined plate below the bent tube, substantially as described and shown.

681,366. EXTENSION-TABLE. CHARLES W. FULLER, Chelsea, Mass. Filed Oct. 26, 1900. Serial No. 34,460. (No model.)



Claim.—An extension-table leaf having foldable skirt-pieces hinged directly to its under side so as to either lie flat against the same or stand at an angle thereto with longitudinal edges engaged therewith.

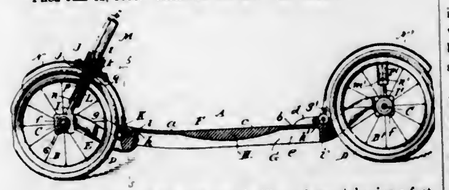
681,367. REDUCTION OF ORES OR COMPOUNDS. HUGH A. IRVINE, Niagara Falls, N. Y. Filed Nov. 15, 1898. Serial No. 696,543. (No specimens.)



Claim.—1. The method hereinbefore described, which consists in interposing between electric conductors a temporary conducting heap or mass, placing next to the same charge material having fusible mineral constituents and containing a reducing agent, passing a current through the intermediate mass, producing a fused body of mineral slag, and then continuing the passage of the current through such slag, and maintaining next to the slag a body of the charge material to be reduced by the heat generated by the passage of the current.

2. The method hereinbefore described, which consists in interposing between electric conductors a temporary conducting heap or mass of granular carbon, surrounding the same with charge material having fusible mineral constituents and containing a reducing agent, passing a current through the intermediate mass, producing a fused body of mineral slag, and then continuing the passage of the current through such slag and maintaining next to the slag a body of the charge material to be reduced by the heat generated by the passage of the current.

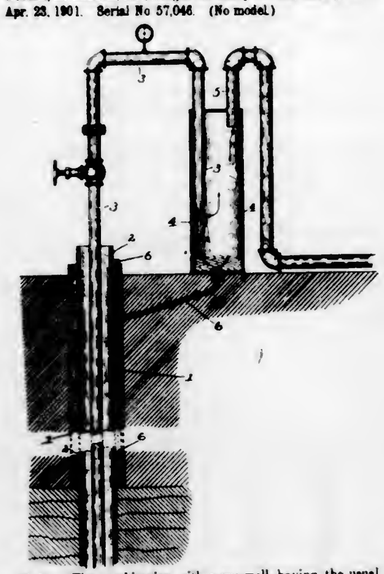
681,368. ROLLER-SKATE. WILLIAM J. KENT, Brooklyn, N. Y. Filed Jan. 12, 1898. Serial No. 666,403. (No model.)



Claim.—1. For roller-skates and the like, a frame A having a footpiece F, having a toe-plate *a*, heel-plate *b*, and narrow instep *c* between said plates, said frame having wheel-forks at the ends of said footpiece, two ribs on the bottom of said footpiece extending between said forks, and a thickening H on the bottom of said footpiece between said ribs and throughout the length of said instep, and overlapping said toe and heel plates.

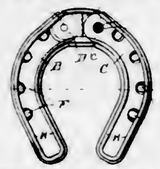
2. In roller-skates and the like, the wheels, in combination with a frame having wheel-forks carrying the wheels, and having upwardly-projecting bolders I' on one of said forks, of a mud-guard for one of the wheels consisting of a plate over the wheel having wings formed into socket-pieces I' receiving and fixed to said bolders.

681,369. GAS, OIL, AND WATER SEPARATOR. FRANK P. NOURSE, Alexandria, Ind., assignor to Harry V. Otis, same place. Filed Apr. 23, 1901. Serial No. 57,046. (No model.)



Claim.—The combination with a gas-well having the usual outer and inner casings and gas-discharging pipe, of a separating-tank into which said pipe leads, a gas-pipe through which the gas may pass off from said tank, and a liquid-discharging pipe connected to the bottom of said separating-tank and leading thence between the outer and inner well-casings and down into said space a distance sufficiently below the water-line therein that the water-pressure will exceed the gas-pressure and thus prevent the escape of gas through said liquid-discharging pipe, substantially as set forth.

681,370. HORSESHOE. ROBERT W. PADDEN, Kansas City, Mo. Filed Dec. 22, 1899. Serial No. 741,286. (No model.)



Claim.—1. A horseshoe comprising a central toe member, a clamping member disposed opposite and rigidly secured thereto and provided with two projections extending toward the toe member, and two side members pivoted one to each of said projections on the clamping member, substantially as described.

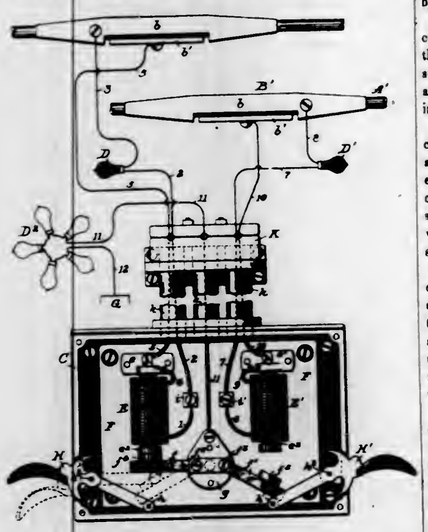
2. A horseshoe comprising a central toe member, a clamping member disposed opposite and rigidly secured thereto and provided with two projections extending toward the toe member, the said projections being each provided with a screw-threaded opening, a screw in each of said openings and extending through the toe member, and two side members pivoted one to each of said projections, substantially as described.

3. A horseshoe comprising a central toe member, a clamping member disposed opposite and rigidly secured thereto, two side members secured pivotally one at each end of and between the toe and clamping members, and a resilient pad secured upon the bottom sides of the toe and side members, substantially as described.

4. A horseshoe comprising a central toe member, a clamping member disposed opposite and rigidly secured thereto, two side members secured pivotally one at each end of and between the toe and clamping members, the toe and side members being provided on their inner and outer sides with downwardly-extending parallel walls forming a channel on the under sides thereof, and a resilient pad located in the said channel, substantially as described.

5. A horseshoe comprising a central toe member, a clamping member disposed opposite and rigidly secured thereto, two side members secured pivotally one at each end of and between the toe and clamping members, the toe and side members being provided on their inner and outer sides with downwardly-extending converging side walls forming a dovetail channel on the under side thereof, and a resilient pad located in the said channel, substantially as described.

681,371. **SIGNALING APPARATUS.** GWYNNE E. PAINTER, Baltimore, Md. Filed Jan. 26, 1901. Serial No. 44,928. (No model.)



Claim.—1. In a station signaling apparatus, the combination of a normally open electric circuit, a signaling device in said circuit, a manually-operable switch for independently closing said circuit and thereby operating said signaling device, means whereby said switch will be automatically moved from its closed to its open position by an interruption in the current of said circuit, and means whereby said current will be automatically interrupted by a passing car and the circuit again restored in condition to be closed by said switch, substantially as described.

2. In a station signaling apparatus, the combination of a normally open electric circuit, a signaling device in said circuit, a manually-operable switch for independently closing said circuit, said switch consisting of an electromagnet having its coil and core in said circuit and an armature adapted to be moved into contact with the core of said magnet for closing said circuit and to assume a position away from said core when released thereby, and means adapted to be operated by a passing car for interrupting the current through said magnet and again restoring the circuit in condition to be closed by said switch, substantially as described.

3. In a station signaling apparatus, the combination of a normally closed electric circuit, of a shunt-circuit connected thereto, a signaling device in said shunt-circuit, a manually-operable switch for independently closing the circuit through said signaling device, means whereby said switch will be moved from its closed to its open position by an interruption in the current of said shunt-circuit, and means operated by a passing car for automatically interrupting said current and again restoring the circuit in condition to be closed by said switch, substantially as described.

4. In a station signaling apparatus, the combination of a normally open electric circuit, a signaling device in said circuit, an electromagnet in said circuit, an armature adapted to independently close the circuit when moved into contact with said magnet and to assume a position away from said magnet when released thereby, manually-operable means for moving said armature, and independent means adapted to be operated by a passing car for automatically interrupting the current through said magnet and again restoring the circuit in condition to be closed by said armature, substantially as described.

5. In a station signaling apparatus, the combination of a normally closed electric circuit, a shunt-circuit containing a signaling device, a device for maintaining the two circuits in normally closed connection, said device being adapted to be operated by a passing car to interrupt the current through said shunt-circuit and again restore the normal connection, a normally open manually-operable switch for independently closing said shunt-circuit, and means whereby said switch will be automatically opened by an interruption in the current of said shunt-circuit, substantially as described.

6. In a station signaling apparatus, the combination with the power-circuit of an electric railway, of a shunt-circuit connected thereto, a manually-operable switch for independently closing said shunt-circuit, a signaling device in said shunt-circuit, means whereby said switch will be opened by an interruption of the current of said shunt-circuit, and means operated by a passing car for interrupting said current between said switch and said power-circuit and again restoring the circuit in condition to be closed by said switch, substantially as described.

7. In a station signaling apparatus, the combination with the power-circuit of an electric railway, of a normally open shunt-circuit connected thereto, a signaling device in said shunt-circuit, a manually-operable switch for independently closing the circuit through said signaling device, and means whereby said switch will be automatically opened by a passing car, substantially as described.

8. In a station signaling apparatus, the combination with the power-circuit of an electric railway, of a normally open shunt-circuit containing a signaling device, a device connecting the two circuits adapted to be operated by a passing car to interrupt the current through said shunt-circuit, a normally open manually-operable switch for independently closing said shunt-circuit and thereby operating said signaling device, and means whereby said switch will be opened by an interruption in the current of said shunt-circuit, substantially as described.

9. In a station signaling apparatus, the combination with the power-circuit of an electric railway, of a shunt-circuit, a signaling device in said shunt-circuit, a device connecting the two circuits and normally maintaining them in closed connection, said device being adapted to be operated by a passing car to interrupt the current of said shunt-circuit, a manually-operable switch for independently closing said shunt-circuit, and means whereby said switch will be opened by the operation of said current-interrupting device, substantially as described.

10. In a station signaling apparatus, the combination of separate open circuits including distinctive signaling devices, separate manually-operable switches for independently closing said circuits through a common ground connection, and independent means adapted to be operated by a passing car for automatically causing said switches to move from their closed to their open positions, substantially as described.

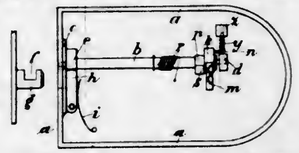
11. In a station signaling apparatus, the combination with the power-circuit of an electric railway, of a normally open shunt-circuit connected thereto, a signaling device in said shunt-circuit adapted to give a signal when said circuit is closed, a normally open manually-operable switch for independently closing said circuit and thereby operating said signaling device, and means operated by a passing car whereby said switch will be automatically moved from its closed to its open position, substantially as described.

12. In a station signaling apparatus, the combination with the power-circuit of an electric railway, of separate normally open shunt-circuits connected thereto each containing a signaling device, separate manually-operable switches for independently closing said circuits through a common ground connection, and means whereby said switches will be opened by a passing car, substantially as described.

13. In a station signaling apparatus, the combination with a trolley-wire, of a shunt-circuit connected thereto, a signaling device in said shunt-circuit, a normally open manually-operable switch adapted to close said circuit and thereby operate said signaling device, an electromagnet in said circuit for holding said switch to its closed position, an insulated contact adapted to be engaged by a passing trolley, and a connection from said contact to a terminal of said magnet, whereby said magnet will be short-circuited by a passing trolley, substantially as described.

681,372. **LOCK.** AXEL PETERSEN, Hellerup, Denmark. Filed Jan. 2, 1901. Serial No. 41,773. (No model.)

Claim.—1. In combination in a lock, the lock-case, a spindle *b* journaled therein, having a locking-head thereon, a wheel loose on the spindle having teeth to be engaged by a correspondingly-formed key, said wheel having two pins *n* and *o*, a bracket fixed to the lock-case to engage the pin *n*, a lug *s* fixed to the spindle *b* and upon which the said pin *o* bears, a spring for turning the spindle in one direction, a movable spring-pressed arm *h* held by the lock-casing and arranged to obstruct the motion of the head *e* when the lock is open, and the gudgeon *g* having a notch *f* to receive the head *e*, said spring-pressed arm *h* being in the path of the gudgeon to be moved aside thereby, substantially as described.



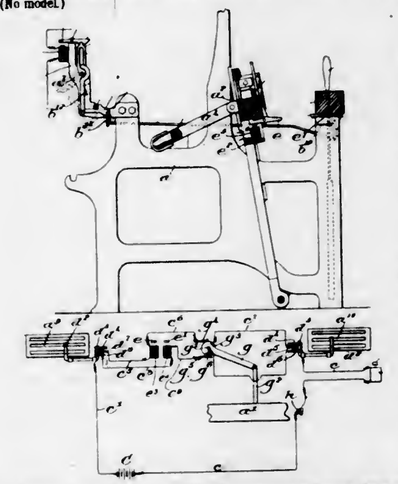
2. In combination in a lock, a spindle, means for turning the said spindle through the action of a key and means for holding the said spindle so that the same may yield upon the insertion of an improperly-formed key, substantially as described.

3. In combination in a lock-casing, a spindle, a locking-head connected therewith, a wheel on said spindle having teeth to receive a key and a yielding bearing for the said spindle, substantially as described.

4. In combination, the lock-case, a spindle therein, a locking-head actuated by the spindle, a yielding bearing for the spindle, a bracket 2 on the lock-case, a lug on the spindle to be moved adjacent to the said bracket when the spindle is displaced and means on the spindle by which it may be turned by the key, substantially as described.

5. In combination in a lock with the lock-casing, a locking bolt or head, a spindle, a wheel loose thereon arranged to be turned by a key, said wheel having the pins *n* and *o*, an arm on the spindle to be engaged by one of said pins and a part on the casing to contact with the other pin, substantially as described.

681,373. **PROTECTOR MECHANISM FOR LOOMS.** LEONARD M. PHELPS, Pittsfield, Mass., assignor, by mesne assignments, to Draper Company, Hopedale, Mass. Filed Jan. 3, 1899. Serial No. 700,874. (No model.)



Claim.—1. In a loom, a movably-mounted whip-roll, a dog disposed normally in the path of and to directly engage the whip-roll to restrain the free movement thereof, and means automatically operable by one of the parts of the loom to effect the movement of said dog out of the path of movement of the whip-roll.

2. In a loom, a movably-mounted whip-roll, a dog disposed normally in the path of and to directly engage the whip-roll, and electrically-controlled means governed by one of the parts of the loom for effecting the movement of said dog out of the path of movement of the whip-roll.

3. In a loom, a movably-mounted whip-roll, a dog disposed normally in the path of and to directly engage the whip-roll, means automatically operable by one of the parts of the loom to effect the movement of the dog out of the path of the whip-roll, thereby to release the same, a shipper-lever, and connections other than said means between the shipper-lever and the dog for freeing said lever when the dog operates to release the whip-roll.

4. In a loom, a movably-mounted whip-roll, a dog located to engage the same, a link jointed to the dog, a plate shiftably supported by the framework and loosely connected to said link, a latch in position to engage the plate and to normally hold the same against operation, and means controlled by a moving member of the loom for automatically tripping said latch.

5. In a loom, a lay and its shuttle-boxes, a whip-roll movably mounted, a dog located to engage and hold the movably-mounted roll in its normal position, an electric circuit, a knock-off lever and said dog controlled by said circuit, means governed by the improper placing of the shuttle relatively to said boxes, for closing the circuit thereby to effect the release of the said dog and whip-roll and the knock-off lever, and means cooperative with said dog for also controlling the action of said knock-off lever.

6. In a loom, a lay, shuttle-binders, and an electric circuit, make-and-break devices therein operable by said shuttle-binders, a dagger, an electromagnet controlling the same, said electromagnet being operated by said make-and-break devices, connections between said dagger and the stopping mechanism of the loom whereby by said operation of the dagger, the loom is automatically stopped, a movably-mounted whip-roll, a dog located to normally engage and hold the whip-roll in its backward position, means governed by said electric circuit for securing the dog in its effective position, and operative connections between the dog and the stop mechanism.

7. In a loom, a lay, shuttle-binders, an electric circuit, make-and-break devices therein operated by said shuttle-binders, two daggers, electromagnets for controlling the same, said electromagnets being operated by said make-and-break devices, and means adapted to be operated by said daggers to act upon the stopping mechanism of the loom, whereby upon operation of one of said daggers the loom is automatically stopped on the forward movement of the lay, and upon operation of the other of said daggers the loom is stopped on the backward movement of the lay, substantially as described.

8. In a loom; a lay; shifting or drop shuttle-boxes; shuttle-binders, a whip-roll; means, including dogs, normally maintaining said whip-roll in back position, a trip for said dogs; an electric circuit, having make-and-break devices controlled by the position of said shuttle-binders, and a releasing device for said trip operated by said electric circuit, substantially as described.

9. In a loom; a whip-roll, dogs normally maintaining said whip-roll in backward position; electrical means for tripping said dogs when the loom works improperly, a shipper-lever, and mechanical connections independent of said means and between said dogs and said shipper-lever, whereby the tripping of said dogs automatically operates said shipper-lever to stop the loom, substantially as described.

10. In a loom, a lay and its shuttle-boxes, an electric circuit including an electromagnet, a knock-off lever operated by said electromagnet, devices for rendering the electromagnet operative to stop the loom when a shuttle fails to box, and a make-and-break device independent of the shuttle and means to operate it to suspend the operative connection of said devices during the passage of a shuttle between the boxes.

11. In a loom, a lay, shifting shuttle-boxes, an electric circuit including an electromagnet, a knock-off lever operated through said electromagnet devices to render the electromagnet operative to stop the loom when a shuttle is in each box on a level with the race, and means to suspend the operative connection of said devices during the time the shuttle-boxes are being changed.

12. In a loom, a lay and its shuttle-boxes, an electric circuit including an electromagnet, stopping means operated by said electromagnet on an improper position of a shuttle, and a make-and-break device operative by movement of the lay to render the electromagnet inoperative during a portion of the movement of the lay.

681,374. **MICROPHONE AND TELEPHONE INSTALLATION.** LEPA POLINKOWSKY, Berlin, Germany, assignor to Siemens & Halske Aktiengesellschaft, same place. Filed Apr. 3, 1901. Serial No. 54,142. (No model.)

Claim.—1. In a central-energy telephone system, the combination, with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil and means for barring the receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, a transmitter in each branch circuit, and the primary windings of the respective induction-coils included in the corresponding branch circuits and arranged to coact with the corresponding secondaries.

2. In a central-energy telephone system, the combination, with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil and means for barring the receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, the branch circuits being in parallel with their respective sets of devices, a transmitter in each branch

circuit, and the primary windings of the respective induction-coils included in the corresponding branch circuits and arranged to coact with the corresponding secondaries.



3. In a central-energy telephone system, the combination, with a main talking-circuit connecting substations, a source of continuous current bridging the main talking-circuit intermediate the substations, a pair of choking-coils included in said bridge, one at each side of said source, a plurality of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil and means for barring the receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, a transmitter in each branch circuit, and the primary windings of the respective induction-coils included in the corresponding branch circuits and arranged to coact with the corresponding secondaries.

4. In a central-energy telephone system, the combination, with a main talking-circuit connecting substations, a source of continuous current bridging the main talking-circuit intermediate the substations, a pair of choking-coils included in said bridge, one at each side of said source, a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil and means for barring the receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, the branch circuits being in parallel with their respective sets of devices, a transmitter in each branch circuit, and the primary windings of the respective induction-coils included in the corresponding branch circuits and arranged to coact with the corresponding secondaries.

5. In a central-energy telephone system, the combination, with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil and means for barring the receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, a transmitter in each branch circuit, the primaries of the respective induction-coils included in the corresponding branch circuits and arranged to coact with the corresponding secondaries, and means in each branch circuit for barring the said branch against alternating currents.

6. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit and a plurality of sets of devices included in the main talking-circuit, one set at each substation, each set comprising the secondary of an induction-coil, a telephone-receiver and means for barring said receiver against continuous currents, of a local circuit branching from the main talking-circuit at each substation, each local circuit having two parallel branches, a primary winding of the respective induction-coil included in each local circuit, in one of the parallel branches thereof, and arranged to coact with its corresponding secondary, the other parallel branch serving as a shunt to said primary winding, means for barring each local circuit against alternating currents, and a transmitter included in each local circuit.

7. In a central-energy telephone system, the combination, with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the main talking-circuit, one set at each substation, each set comprising the secondary of an induction-coil, a telephone-receiver and means for barring said receiver against continuous currents, of a local circuit branching from the main talking-circuit at each substation, each local circuit having two parallel branches, a primary winding of the respective induction-coil included in each local circuit and arranged to coact with its corresponding secondary, means for barring each local circuit against alternating currents, a transmitter included in one of the parallel branches of the respective local circuit, and means for opposing the flow of current through the other parallel branch of each local circuit.

8. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the main talking-circuit, one set at each substation, each set comprising the secondary of an induction-coil, a telephone-receiver and means for barring said receiver against continuous currents, of a local circuit branching from the main talking-circuit at each substation, each local circuit having two parallel branches, a primary winding of the respective induction-coil included in each local circuit and arranged to coact with its corresponding secondary, means for barring each local circuit against alternating currents, a transmitter included in one of the parallel branches of the respective local circuit, and means for opposing the flow of continuous current through the other parallel branch of each local circuit.

9. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit and a plurality of sets of devices included in the main talking-circuit, one set at each substation, each set comprising the secondary of an induction-coil, a telephone-receiver and means for barring said receiver against continuous currents, of a local circuit branching from the main talking-circuit at each substation, each local circuit having two parallel branches, a primary winding of the respective induction-coil included in each local circuit and arranged to coact with its corresponding secondary, means for barring each local circuit against alternating currents, a transmitter included in one of the parallel branches of the respective local circuit, and means for preventing the flow of continuous current through the other parallel branch of each local circuit.

10. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit and a plurality of sets of devices included in the main talking-circuit, one set at each substation, each set comprising the secondary of an induction-coil, a telephone-receiver and means for barring said receiver against continuous currents, of a local circuit branching from the main talking-circuit at each substation, each local circuit having two parallel branches, a primary winding of the respective induction-coil included in each local circuit and arranged to coact with its corresponding secondary, means for barring each local circuit against alternating currents, a transmitter included in one of the parallel branches of the respective local circuit, and a condenser in the other parallel branch of each local circuit.

11. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

12. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, means for barring the branches against alternating currents, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

13. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, said branches being in parallel with their respective sets of devices, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

14. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation said branches being in parallel with their respective sets of devices, means for barring the branches against alternating currents, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

15. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, a primary of the respective induction in each branch circuit and arranged to coact with its corresponding secondary, means for preventing the flow of continuous current through the primary of the induction-coil, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

16. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, means for barring the branches against alternating currents, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, means for preventing the flow of continuous current through the primary of the induction-coil, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

17. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, said branches being in parallel with their respective sets of devices, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, means for preventing the flow of continuous current through the primary of the induction-coils, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

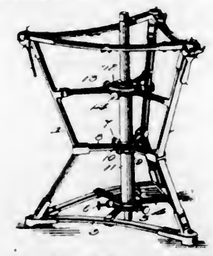
18. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, said branches being in parallel with their respective sets of devices, means for barring said branches against alternating currents, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, means for preventing the flow of continuous current through the primary of the induction-coils, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

19. In a central-energy telephone system, the combination with a main talking-circuit connecting substations, a central source of energy for energizing said circuit, and a plurality of sets of devices included in the talking-circuit, one set at each substation, each set comprising a telephone-receiver, the secondary winding of an induction-coil, and means for barring said receiver against continuous currents, of a branch circuit from the main talking-circuit at each substation, said branches being in parallel with their respective sets of devices, means for barring said branches against alternating currents, a primary of the respective induction-coil in each branch circuit and arranged to coact with its corresponding secondary, a condenser in series with each primary winding, and transmitters in parallel with the corresponding primaries of the respective induction-coils.

681,375. MEANS FOR ALINING DRILLS. WILSON REED, Norfolk, Va. Filed Oct. 24, 1900. Serial No. 34,211. (No model.)

Claim.—1. A means for alining drills comprising a frame of double-tripod form, having triangular ends, a drill-holder, and braces whereby the drill-holder is held adjustably within the frame.

2. A means for alining drills comprising a frame of double-tripod form having triangular ends, a brace having a ring and secured to the frame, a drill-holder extending through and pivoted in the ring, and means whereby the drill-holder is held adjustably in the frame.



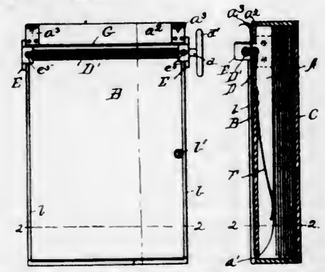
3. A means for alining drills comprising a frame of double-tripod form having triangular ends, a brace having a ring formed with a socket-groove, a drill-holder extending through the ring and having a rounded flange fitting in the socket-groove, and means whereby the drill-holder is held adjustably in the frame.

4. A means for alining drills comprising a frame of double-tripod form having triangular ends, a central brace having a ring formed with a socket-groove, a drill-holder extending through the ring and having a rounded flange fitting in the socket-groove, end braces having rings surrounding the drill-holder and secured to the frame, and set-screws working in the rings of the end braces whereby the drill-holder is held adjustably in the frame.

5. A means for alining drills, comprising a frame of double-tripod form having triangular ends, a drill-holder, braces whereby the drill-holder is held adjustable within the frame, pointed studs located at the corners of one of the end frames, and yokes, each having a pair of curved prongs and a handle and pivoted to the said corners.

6. The combination with a skeleton frame having triangular ends; of rings therein, arms connecting the rings with the sides of the frame, set-screws within the end rings, a tube pivoted within the intermediate ring and extending into the end rings, a rod projecting from the ends of the tube, pointed studs at one end of the frame, a yoke hinged to the frame adjacent to each stud, a handle to the yoke, and outwardly-curved prongs extending therefrom.

681,376. WRITING-TABLET. WILSON E. RHODES, Corry, Pa., assignor of one-half to F. M. Rowe, same place. Filed Jan. 15, 1900. Serial No. 1,472. (No model.)



Claim.—1. In a writing-tablet, the combination of a writing-board; guide, a^3 of less width than the board, arranged to deflect the writing material from the plane of the writing-board; and a cutting-blade arranged at right angles to the writing-board and sufficiently above the writing-board to allow the passage of material beneath it, said cutting-blade being so arranged relatively to the board and guide, a^3, that the writing material in its forward movement first passes said cutting-blade, said cutting-blade having its cutting edge along its top.

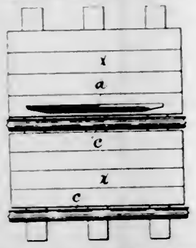
2. In a writing-tablet, the combination of a receptacle for the writing material; a hinged writing-board forming the cover for said receptacle; means for holding the writing material on said board from a backward movement under ordinary writing pressure; and a spring-tensioning device secured to the under side of the board and in the path of the writing material as it is drawn from the receptacle onto the board when the board is in position for a cover for said receptacle, said tensioning device being arranged to be carried out of contact with the paper in the receptacle when the cover is moved to its open position.

3. In a writing-tablet, the combination of a receptacle, A, adapted to hold the writing material; the hinged cover, B, for said receptacle, said cover forming a writing-board having an opening at one edge through

which paper may be drawn from the receptacle onto the board; means for securing paper on the board and a spring secured to the under side of said writing-board and in the path of the writing material when said board is in position to close the receptacle, and arranged to be carried out of contact with the writing material when the said cover is open.

4. In a writing-tablet, the combination of the receptacle A; the cover, B, forming a writing-board thereon; the spring, F, arranged under the board, B; the feed-rolls, D D', arranged to operate upon material in the plane of the writing-board; thumb-wheel, d', for actuating the drive-roll, D; the cutting edge, G, arranged adjacent to said rolls, and a sufficient distance between it and the writing-board to permit the passage of writing material between it and the board, said blade having its cutting edge arranged along its top; and the guide, a^2 for upwardly deflecting the end of the paper, said guide being of less width than the width of the board for the purpose described.

681,377. RAILWAY SIGNALING. JOSEPH ROTH and WILLIAM HELMER, London, England, assignors of one-third to Georg Maetzold, same place. Filed Mar. 2, 1901. Serial No. 49,541. (No model.)



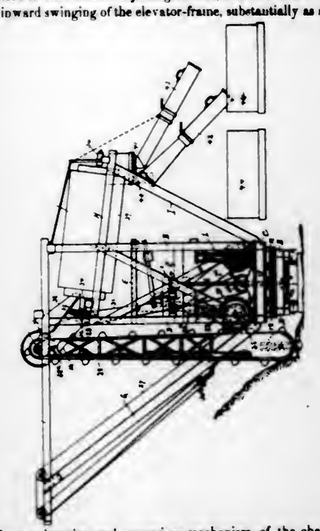
Claim.—1. The improved apparatus for railway signaling, consisting of the combination of one or two fixed signaling-bars such as *a* and *b* and a movable signaling-bar such as *d*, the latter arranged to slide upon suitable guides parallel with the track-rails *c*, the said bar *d* when actuated by and from a station, level crossing, or signal-cabin, or and by suitable weights or levers, being placed in such a position as to collide with a lever 1 upon the locomotive of a passing train, such lever actuating an arm *d* previously placed by the driver in a suitable position within the slot 5 of a lever 6, the deflection of lever 6 operating to shut off the motive power and stop the train, or and to excite the mechanical, electrical or other sonorous signal, in use substantially as and for the purposes herein described and shown.

2. The improved apparatus for automatically actuating home or distant signals upon a railway, by and from the actual presence of a train within a station, consisting of the combination of a locking-bar *v*, placed within the station near to a track-rail *c*, and supported upon springs such as 14, the said bar being adapted to be depressed by the track-wheels of a train, the rise and fall of such bar actuating a lever *w* adapted to impart a pull upon a wire, cord, chain, rope or the like *l*, for operating a distant semaphore, or for placing a distant signaling-bar *d* in a position to operate in concert with fixed bars *a* or *b* or both, for deflecting a lever 1 upon the locomotive of a passing train, the said lever 1 by its deflection actuating an arm 4, previously placed by the driver in a suitable position within the slot 5 of a vertical lever 6, the deflection of lever 6 operating to shut off the motive power and stop the train, or and to excite the steam, mechanical, electrical or other sonorous signal, substantially as and for the purposes herein described and shown.

681,378. PORTABLE ELEVATING-MACHINE. RANKIN L. SHOEMAKER, New Cumberstown, and FREEMAN R. WILLSON, Jr., Columbus, Ohio, assignors to the Jeffrey Manufacturing Company, Columbus, Ohio. Filed Jan. 12, 1901. Serial No. 43,045. (No model.)

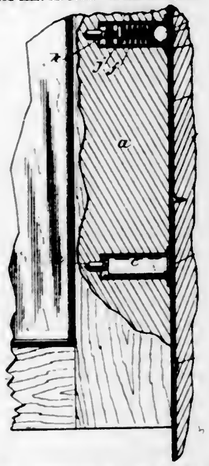
Claim.—1. In an elevating and screening mechanism of the character described, the combination of the wheeled truck-frame, the main frame horizontally adjustable on the truck-frame, the outward-swinging elevator suspended at its upper end from the main frame, the screening mechanism, the power devices on the main frame, power-transmitting devices connecting the power devices with the elevator-chains and with the screening devices, means for detachably connecting the power devices to the elevator-adjusting devices, reversible power-transmitting devices for detachably connecting the power devices to the truck-wheels, and reversible power-transmitting devices for detachably connecting the power devices to the means by which the main frame is adjusted axially, substantially as set forth.

2. In a portable elevating and screening mechanism, the combination of the wheeled truck-frame, the main frame thereon, the outward-swinging elevator suspended at its upper end from the main frame, the screening mechanism, the power devices on the main frame, the power-transmitting devices connecting the power devices with the elevator-chains and with the screening devices, means for detachably connecting the power devices to the elevator-adjusting devices, and means for controlling at will the inward swinging of the elevator-frame, substantially as set forth.



3. In an elevating and screening mechanism, of the character described, the combination of the wheeled truck-frame, the main frame thereon, the outward-swinging elevator extended at its upper end from the main frame, the screening mechanism, the power devices on the main frame, power-transmitting devices connecting the power devices with the elevator-chains and with the screening devices, the horizontally and vertically adjustable chutes, one for the tailings of the screen and one for the material which passes radially from the screen, and means for adjusting the screening mechanism bodily horizontally relatively to the truck-frame, substantially as set forth.

681,379. SASH-HOLDING DEVICE. ARTHUR G. TIDD, Northampton, Mass. Filed Mar. 22, 1900. Serial No. 9,647. (No model.)

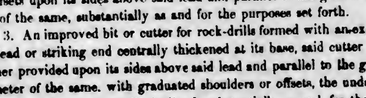


Claim.—1. The combination in a sash-holding device of a cylindrical outer shell adapted to set into a cylindrical recess in a sash or casing and threaded at its inner portion, a threaded part adapted to engage said thread on the outer shell, means projecting from said second threaded part to engage the material into which the device sets and prevent rotation of said second threaded part, a spring and ball arranged within the device and means to rotate the outer threaded part whereby the inner threaded part may thus be forced outwardly or inwardly by reason of the rotation of said outer part, substantially as shown.

2. The combination of a cylindrical shell, a threaded plug in the inner end thereof, the head of the plug being other than round and projecting beyond the end of the shell, whereby the shell may be turned while in place and the plug remain at rest, a ball in the open end and a spring, bearing against the plug and arranged to force the ball outwardly.

3. In combination with a spur-provided recessed part or concave-headed tack adapted to be affixed to a sash or casing, a cylindrical outer shell capable of being turned, threaded to an inner member fixed in a casing or sash, the outer end of said shell being turned inwardly, a ball in said shell protruding from said inwardly-turned end, adapted to enter said recessed part, and a spring to thrust said ball outward, the tension of said spring and the consequent force of contact between said ball and recessed part being regulated by said threaded members, substantially as described.

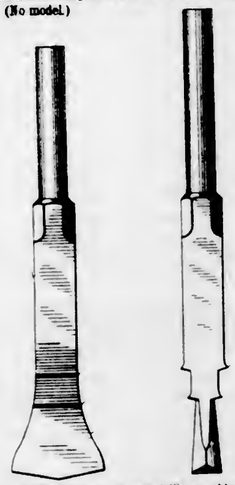
681,380. ADJUSTABLE DEVICE FOR HANGING PICTURES. EMERSON P. TURNER, Norwich, Conn. Filed May 13, 1901. Serial No. 59,924. (No model.)



Claim.—1. In a picture-support, in combination, a transversely-slotted plate, a short plate seated in said slot and formed with a tapped extension as set forth, a screw mounted in said tapped extension, and a link hinged in the end of the said screw.

2. In combination with a hook adapted to be secured to a wall, and a plate adapted to be secured to a picture-frame, or other article, means for adjusting the positions of the said plates relatively to the said hooks, consisting of slidable plates *c*, screws *d* and links *e*, all substantially as specified.

681,381. CUTTER FOR ROCK-DRILLS. JACOB WALLACE D. FRANK IRWIN, and JOSEPH H. SMITH, Plymouth, Ohio, assignors to the Wallwinith Manufacturing Co., of Ohio. Filed Nov. 12, 1900. Serial No. 36,194. (No model.)

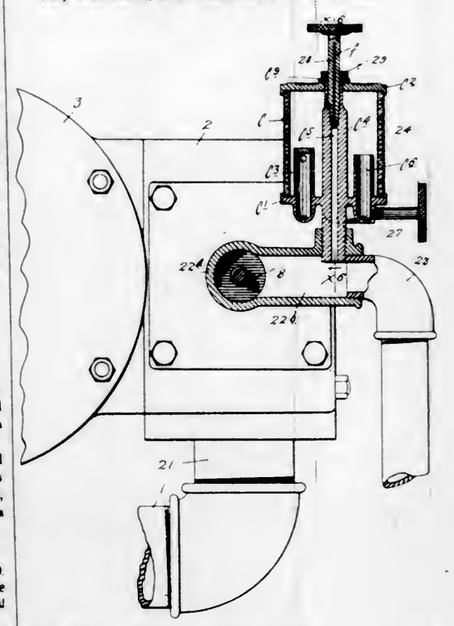


Claim.—1. A bit or cutter for rock-drills provided at its lower end with a lead of greater width than thickness and provided above the wider sides of the lead with graduated shoulders to bevel the wider sides of the hole, formed by the lead, downwardly and inwardly for a splitting-wedge; substantially as described.

2. An improved bit or cutter for rock-drills formed with an expanding striking end or lead and further provided with graduated shoulders or offsets upon its sides above said lead and parallel to the greater diameter of the same, substantially as and for the purposes set forth.

3. An improved bit or cutter for rock-drills formed with an expanding lead or striking end centrally thickened at its base, said cutter being further provided upon its sides above said lead and parallel to the greater diameter of the same, with graduated shoulders or offsets, the under surfaces of which are upwardly inclined, substantially as and for the purpose set forth.

681,382. FEED-CUP FOR EXPLOSIVE-ENGINES. EMIL WESTMAN, Minneapolis, Minn., assignor to the Enterprise Machine Company, same place, (partnership composed of William Kampff and N. G. Sampson.) Filed Nov. 2, 1900. Serial No. 35,208. (No model.)



Claim.—1. A feed-cup for explosive-engines, having an inlet for receiving the gasolene or other hydrocarbon, from the pump or other source, an overflow-outlet from a point above the bottom of the cup, a discharge or engine-feed passage which, at some point between its receiving and delivery ends, rises above the liquid-level in the cup and delivers to the engine below the bottom of said cup, and which discharge-passage is provided with an air-inlet, whereby any siphon action from said passage is prevented and a portion of air enters with the hydrocarbon oil, substantially as described.

2. A feed-cup for explosive-engines having an inlet for receiving the gasolene or other hydrocarbon oil from the pump or other source, an overflow-outlet from a point above the bottom of the cup, a discharge or engine-feed passage, which, at some point between its receiving and delivery ends, rises above the liquid-level in the cup and delivers to the engine, below the bottom of said cup, and a needle-valve seated in said discharge-passage, for controlling the same, and provided with an axial air-inlet duct, substantially as and for the purposes set forth.

3. In an explosive-engine, the combination with the normal feed devices for the gas or oil, of a gravity-feed starting cell or cup normally charged from said main feed devices and provided with a hand-valve, substantially as and for the purposes set forth.

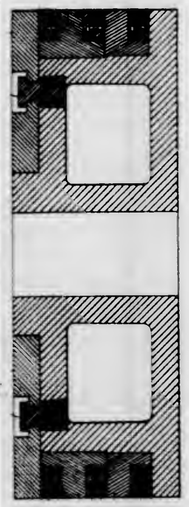
4. A feed-cup for explosive-engines, having an inlet for the oil or gas, an overflow-outlet from a point above the bottom of the cup, a discharge-passage for the normal feed to the engine, and a starting cell or cup below the oil-level within said main feed-cup, and equipped with a hand-valve controlling the delivery-passage therefrom, substantially as and for the purposes set forth.

5. The feed-cup 24, having the oil or gas inlet c^3, the overflow-outlet c^4, the discharge-head c^5 provided with the discharge-passage c^6 rising from below to a point above the liquid-level in the cup, the needle-valve seated in said head for controlling said normal feed-passage, and having the air-inlet as described, and the starting-cup c^7 submerged within the main cup 24 and having the valve discharge-passage tapping the main feed-passage from the cup, substantially as and for the purposes set forth.

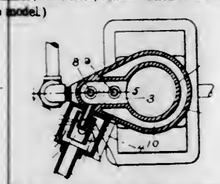
681,383. PISTON-PACKING. WILLIAM H. ALLISON, San Francisco, Cal. Filed Apr. 29, 1901. Serial No. 58,058. (No model.)

Claim.—In an apparatus of the character described, the combination with the piston-head, of the spacing ring therein having a recess, the floating ring in said recess composed of two sections bolted together, and

the snap-ring having a shoulder and supported in said recess, substantially as described.



681,384. INCANDESCENT IGNITING-TUBE FOR GAS-ENGINES. SVEN J. ANDERSON, Waltham, Mass. Filed Jan. 22, 1901. Serial No. 44,321. (No model.)



Claim.—1. In an explosive-engine the combination of the casing of the engine, a combustion-chamber therein, an exhaust-conduit, a hollow igniting-thimble in said conduit open to the combustion-chamber, a casing surrounding said conduit and separated therefrom by a space, which receives the exhaust from said conduit, and an exhaust-outlet from said casing.

2. In an explosive-engine the combination of the main casing of the engine, a combustion-chamber therein, a hollow igniting-thimble open to the combustion-chamber, and an exhaust-conduit having an outer branch surrounding the igniting-thimble, and an inner bent branch or elbow connecting with the exhaust-passage of the engine-casing, said thimble and exhaust-pipe being external removable attachments to the main engine-casing.

681,385. SASH-CORD FASTENER. JAMES C. BARR and VIRGIL E. BARR, Amanda, Ohio. Filed June 25, 1901. Serial No. 65,985. (No model.)



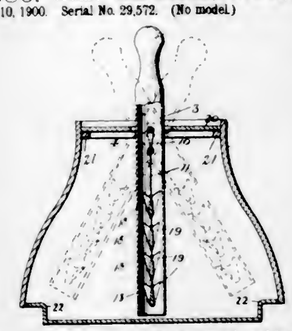
Claim.—1. As a new article of manufacture, a sash-cord-fastener socket for window-sashes, consisting of a split spring tubular socket having its outer end closed and provided with a diametric slot, which terminates in a longitudinal slot or bifurcation in the socket.

2. As a new article of manufacture, a sash-cord-fastener socket for window-sashes, consisting of a longitudinally-split tubular socket having an open inner end and provided at its outer end with opposite inwardly-directed ears, which terminate short of each other to form a diametric slot, there being a longitudinal notch formed in the outer end of the socket at that end of the last-mentioned slot which is opposite the longitudinal split of the socket.

3. A sash-cord fastener, consisting of a socket having its outer end provided with a diametric slot terminating at one end in a longitudinal notch in one side of the socket, and cord-engaging fastening having a shank, provided at opposite longitudinal edges with staggered bendable ears, a reduced neck at its normally lower end, an enlarged head at the outer end of the neck and in substantially the plane of the shank, and spurs struck from the shank, lying upon the inner side thereof, and inclined outwardly and downwardly toward the head, the latter being adapted to be entered into the socket through the end slot thereof.

4. As a new article of manufacture, a sash-cord-fastener socket, formed from a single blank which is bent into a longitudinally-split spring tubular socket, one end edge of the blank having projected ears which are bent laterally inward in opposite directions across one end of the socket and terminated short of each other to form a diametric slot, the adjacent end edge of the socket being provided with a longitudinal notch located diametrically opposite the longitudinal split of the socket and at the adjacent end of the diametric end slot.

681,386. CHURN. GOMER G. BETNON, Des Moines, Iowa. Filed Sept. 10, 1900. Serial No. 29,572. (No model.)



Claim.—1. In a churn, a body having an enlarged lower end, a lid-section, a stationary shaft 4 having an arm 10 and a dasher provided with a series of V-shaped apertures extending through its lower end, combined with a series of blades placed in said apertures and a series of links connecting said blades and arm, said blades being so mounted that the upper edges thereof will swing back and forth in their apertures, substantially as specified and for the purpose set forth.

2. In a churn, a body, a lid-section having a central opening provided with lateral recesses, a dasher extending through said opening a stationary shaft on which said dasher is pivoted and having its end shaped to be received by said lateral recesses and also having a downwardly-extending arm, a series of blades movably disposed in suitable openings provided in the lower end of said dasher and a link 11 connecting said arm and blades whereby the blades will be rocked as the dasher is moved back and forth, all substantially as specified and for the purpose set forth.

681,387. COMBINED SPECULUM AND MEDICINE-DISTRIBUTER. MARTIN BOHLIG, St. Paul, Minn. Filed Dec. 2, 1899. Serial No. 738,983. (No model.)



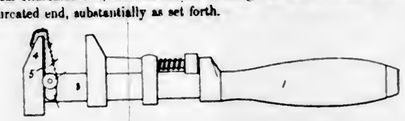
Claim.—1. In a device of the class described, the combination of a medicine-distributer, consisting of a chamber, an outlet-tube leading from the bottom of said chamber from the front end thereof, an air-bulb, a tube leading from said air-bulb through the bottom of said chamber, and a speculum having detachable support upon said tube and projecting beyond the end of said medicine-receptacle.

2. In a device of the class described, the combination of a medicine-distributer, consisting of a chamber, an outlet-tube leading from the bottom of said chamber from the front end thereof, an air-bulb, and a tube leading from said air-bulb through the bottom of said chamber, and extending substantially to the top thereof and provided with a downwardly-bent end, and a cylindrical speculum inclosing said distributer.

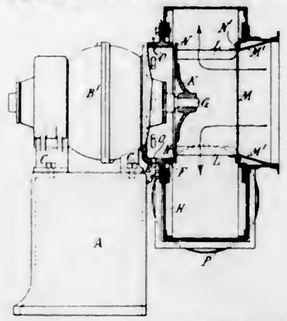
681,388. DETACHABLE ALLIGATOR-JAW FOR WRENCHES. HARRY B. CLARK, Derry Station, Pa. Filed June 13, 1900. Serial No. 20,107. (No model.)

Claim.—The combination with a wrench, having a jaw provided with a smooth under surface, of a wedge-shaped member having its top surface on a horizontal plane and provided with teeth arranged to engage the smooth under surface of said wrench-jaw, the lower face of said wedge-shaped member being inclined and provided with teeth arranged to en-

gage a pipe or the like, said member having a forward hook-like end and a rear bifurcated end, and a set-screw working in one of the arms of said bifurcated end, substantially as set forth.



681,389. CENTRIFUGAL FAN. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Dec. 19, 1899. Serial No. 740,874. (No model.)



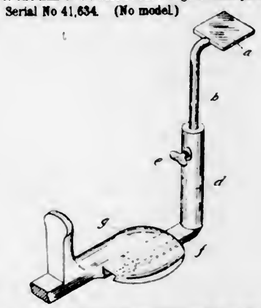
Claim.—1. The combination of a rotating fan, a motor for driving it, and a connecting-casing between said fan and said motor supporting one of said members from the other, said casing having ventilating-openings to permit the circulation of air through said casing.

2. The combination of a motor, a rotating fan, a casing for the fan, a driving-shaft for the fan connected to said motor, and an intermediate connecting-casing between said motor and said fan-casing and supporting one of said members from the other, having ventilating-openings to permit the circulation of air therethrough.

3. The combination of a motor, a shell inclosing said motor, a rotating fan, a casing for said fan, and an intermediate connecting-casing between said motor-shell and said fan-casing and supporting one of said members from the other having ventilating-openings to permit the circulation of air therethrough.

4. The combination of a motor, a shell inclosing said motor, a centrifugal fan rotated by said motor and having its inner end closed, a casing for said fan, and an intermediate casing connecting said fan-casing to said shell and supporting said casing from said shell and having ventilating-openings to permit circulation of air therethrough.

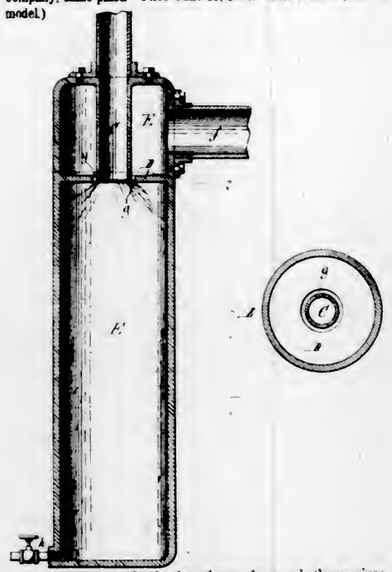
681,390. PIANO-PEDAL. JAMES A. ELWELL, Seattle, Wash., assignor of one-half to Charles P. Cartwright, same place. Filed Dec. 31, 1900. Serial No. 41,634. (No model.)



Claim.—1. In a device of the character described, the combination with a pedal having a groove or channel formed therein, and a vertically-movable foot-sustaining treadle, of a hollow post having an arm adapted to engage with the said groove in the pedal.

2. In a device of the character described, the combination with a piano-pedal and a vertically-adjustable supplemental pedal *a* having a rod or shank *b* integral therewith, of the hollow post *d* with an arm *f* at approximately right angles thereto adapted to be inserted in a corresponding groove in the aforesaid piano-pedal so as to be adjustable longitudinally thereof and the said groove.

681,391. MUFFLER FOR GAS OR OTHER ENGINES. JESS B. FENNER, Buffalo, N. Y., assignor to the J. W. Ruger Manufacturing Company, same place. Filed June 15, 1901. Serial No. 64,625. (No model.)



Claim.—1. A muffler for the exhaust of gas and other engines, consisting of a case having a diaphragm which divides the same into an expansion-chamber and an exit-chamber and which is provided with an opening, and an inlet-tube for the engine-exhaust having its delivery end arranged in said opening and separated from the edge thereof by an intervening exit-passage, substantially as set forth.

2. A muffler for the exhaust of gas and other engines, consisting of a case having a diaphragm which divides the same into an expansion-chamber and an exit-chamber and which is provided centrally with a circular opening, and an inlet-tube for the exhaust which extends through said exit-chamber into said diaphragm-opening and which is smaller in diameter than said opening, leaving an annular exit-passage around the delivery end of the inlet-tube, substantially as set forth.

681,392. PISTOL-HOLDER. LAKE E. FUGATE, Seattle, Wash. Filed Feb. 4, 1901. Serial No. 45,992. (No model.)



Claim.—1. In a device of the character described, in combination with a pistol having a stud projecting from the stock thereof, of a hanger for attaching the pistol to a person's clothing consisting of a plate of metal folded twice, once inwardly to form a suspension-hook, and once outwardly with a slot therein having a hook-shaped end to receive and support the said stud, substantially as and for the purposes described.

2. In a holder of the character described, in combination with a pistol, of suspending devices, which devices comprise a stud extension to the pistol hammer-butt pin formed with two collars thereon, and a hanger for attaching the pistol to a person's clothing consisting of a plate of metal folded to form a suspension-hook, another folded at right angles to the aforementioned fold with a slot having a hook-shaped end for the reception of the said stud, and a depression in the main portion of the plate

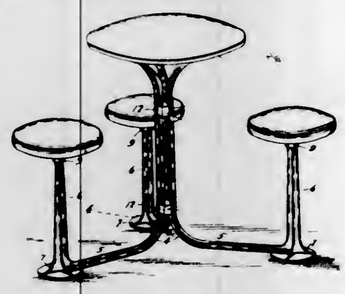
to the rear of and adjacent to the mouth of the said slot, substantially as and for the purposes described.

681,393. **BREASTPIN OR THE LIKE.** GEORGE A. HAWVER, Jackson, Ohio. Filed Mar. 6, 1901. Serial No. 50,088. (No model.)



Claim.—In a brooch or breastpin or the like, the combination with the body portion provided with lugs projecting rearwardly therefrom, one of said lugs being longitudinally and transversely slotted, of a resilient pin pivoted to the opposite lug and passing through one of said slots, and a hook-shaped member rotatably mounted in said transverse slot, the pivotal center of said hook being at one side of said longitudinal slot, a curved projection carried by said hook-shaped member, adapted to retain said pin in said slot, and a projection also provided upon said hook-shaped member, and extending across said longitudinal slot in both the open and closed positions of said hook-shaped member, substantially as described.

681,394. **COMBINATION TABLE AND STOOL.** ISAIAH W. HILE, Sunbury, Pa. Filed Feb. 25, 1901. Serial No. 48,844. (No model.)



Claim.—1. In a device of the class set forth, the combination of a plurality of independent standards closely arranged at the center and provided with lower outwardly-extending members, means for separably connecting the said standards, seat-uprights at a distance from said standards and connected to said members, and seats rotatably and removably mounted on the upper ends of the uprights.

2. In a device of the class set forth, the combination of a plurality of detachably-tied standards having radially-extending members, seat uprights connected to said members, a table-top secured to the upper extremities of the standards, and seats rotatably mounted on the upper ends of the uprights.

3. In a device of the class set forth, the combination of a plurality of detachably-tied standards having lower horizontal radially-extending members, seat-uprights connected to said members, a table-top detachably secured to the upper extremities of the standards, and seats rotatably and removably mounted on the upper ends of the said uprights.

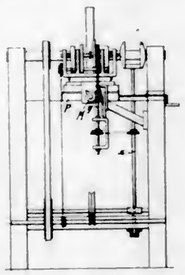
4. In a device of the character set forth, the combination of a plurality of detachably-tied standards having lower members, seat-uprights connected to said members, a portion of said standards having lateral enlargements and a part ears or lugs to fit between said enlargements, bolts removably mounted in and extending transversely through said enlargements and ears or lugs, a table-top removably mounted on said standards, and seats removably and rotatably mounted on said uprights.

681,395. **HARROW.** ROBERT R. HODGOOD, Dexter, Miss. Filed July 23, 1900. Serial No. 24,500. (No model.)

Claim.—In a side harrow the combination of a beam, a clevis and a handle connected to said beam, said beam being also provided with a pair of openings for reception of bolts intermediate of its length, a center bar secured to the beam by means of the bolt near the handle, and at an angle to the beam, recesses provided in the forward edge of the bar, teeth fitting in said recesses, plates fitting upon the front and rear sides of the bars, said plates being adapted to be clamped tightly against the bar to hold the teeth in said recesses, a brace secured to the upper side of the beam by means of a bolt in the forward opening of the beam and to the under side of the bar, and another brace secured to the under side of the beam by the same bolt and to the under side of the bar by means of the lower ends of the bolt that secures the beam and the bar together.



681,396. **MACHINE FOR GRINDING FACETS ON GLASSES FOR SPECTACLES.** MAX JUNGNICKEL, Rathenow, Germany. Filed Sept. 25, 1899. Serial No. 731,652. (No model.)

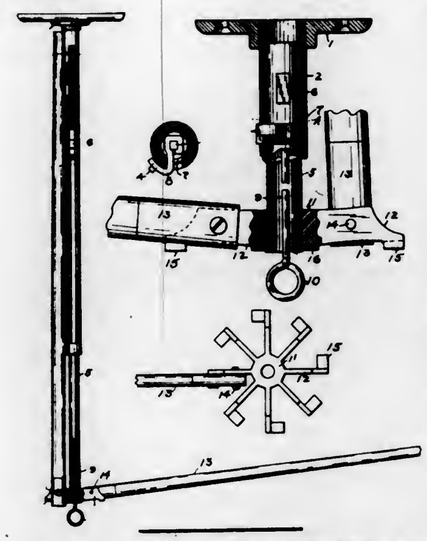


Claim.—In a machine for grinding facets to optical glasses the combination with a traveling carriage and a rocking frame and former mounted thereon of a vertically-rotatable frame for the support of the rocking frame, a scale on the traveling carriage whereby the rotatable frame may be set at any desired angle to the grindstone substantially as described.

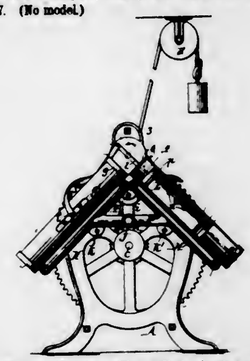
681,397. **CLOTHES-DRIER.** JOHN B. JUNKER, Indianapolis, Ind., assignor of one-half to Frederick Kremp, same place. Filed Mar. 15, 1901. Serial No. 51,323. (No model.)

Claim.—A clothes-drier including a bracket that may be secured to the ceiling of a kitchen or laundry, a tube secured vertically to said bracket with a longitudinal slot in it, stops on said tube near said slot, a smaller tube that telescopes in said slotted tube with an opening in it, a rod extending into said smaller tube with a handle at its lower end, a finger secured to said rod that extends through the opening in the smaller tube and into position to engage or disengage the stops on the slotted tube, and means secured to the smaller tube upon which the clothes may be hung.

681,397.

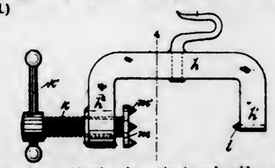


681,398. **AIR-PUMP.** NICHOLAS MEYERS, Buffalo, N. Y., assignor to Peter C. Meyers, same place. Filed Dec. 29, 1900. Serial No. 41,527. (No model.)



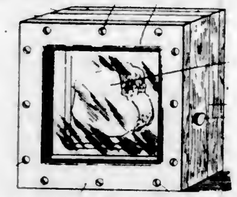
Claim.—The combination with a cylinder having an air-inlet at its middle and air-outlet valves at opposite ends, of a hollow reciprocating plunger arranged in the cylinder and closely engaging the bore of the same, piston-valves facing seats at opposite ends of the plunger and arranged in close contact with the bore of the cylinder, and a rigid connection between said piston-valves which extends through said plunger, whereby the valves are held frictionally in place in the cylinder until engaged by the plunger and each piston-valve is positively moved toward its seat on the plunger while the other piston-valve is moved away from its seat, substantially as set forth.

681,399. **COMBINED CHOCK AND GUIDE.** FRANK MILLER, New London, Conn., assignor of two-thirds to Frank V. Chappell and Thomas R. Hickey, same place. Filed May 6, 1901. Serial No. 58,915. (No model.)



Claim.—In combination, in a chock and guide, a bar A, a hook swiveled on said bar, and means for removably clamping said bar to a hatch-coaming consisting of a fixed jaw and a coöperating screw-controlled movable jaw, all substantially as described.

681,400. **BOX FOR PRESERVING SPECIMENS.** WILLIAM MCCARTY, Chicago, Ill. Filed May 27, 1901. Serial No. 62,116. (No model.)



Claim.—1. A box or case of the character specified, comprising in combination a marginal frame, the same consisting of an intermediate edge frame and a pair of face-frames secured to the outer faces of said intermediate frame and along their inner edges overhanging the inner edge of the latter, said inner edges of the face-frames having a pair of integral inwardly-extending lips, a cement lining filling the channel formed by the inner surfaces of the intermediate and face frames, and a pair of parallel-disposed transparent plates having their edges embedded in said cement lining and their outer surfaces contacting said lips of the face-frames, substantially as described.

2. A box or case of the character specified, comprising in combination a marginal frame, the same consisting of an intermediate edge frame formed in two parallel juxtaposed sections, and a pair of face-frames secured to the outer faces of said sections and of a width greater than the width of said intermediate frame, a cement lining formed in sections corresponding to the sections of the intermediate frame and filling the channel formed by the inner surfaces of the latter and the face-frames, a gasket of rubber or the like disposed between the meeting faces of said cement sections, and a pair of parallel-disposed transparent plates having their edges embedded in the sections of cement lining, substantially as described.

3. A box or case of the character specified, comprising in combination a marginal frame, the same consisting of an intermediate edge frame formed in two parallel juxtaposed sections, and a pair of face-frames secured to the outer faces of said sections and of a width greater than the width of said intermediate frame and having a pair of integral inwardly-extending lips, a cement lining formed in sections corresponding to the sections of the intermediate frame and filling the channel formed by the inner surfaces of the latter and the face-frames, a gasket of rubber or the like disposed between the meeting faces of said cement sections, and a pair of parallel-disposed transparent plates having their edges embedded in the sections of said cement lining and their outer surfaces contacting said lips of the face-frames, substantially as described.

4. A box or case of the character specified, comprising in combination a marginal frame having an undercut recess or channel in and coextensive with its inner wall or edge, a lining of liquid-proof cement filling said channel, a pair of parallel-disposed transparent plates having their margins set in said cement lining and forming the faces of the case, and a filling-tube passing through one side member of said frame and its lining and communicating with the space between the plates, said case being constructed in two sections whose meeting faces are in a plane parallel with and between the face-plates of the case, and means for uniting said sections in a liquid-tight manner, substantially as described.

681,401. **LAMP-WICK.** HESTER SARAFIAN, New York, N. Y. Filed Oct. 16, 1899. Serial No. 733,784. (No model.)



Claim.—1. The combination of the wick proper, the incombustible tip therefor, and the wire-gauze cap provided with longitudinal wires sundry of which extend along the sides and top of the tip and along the upper end of the wick proper, while the other longitudinal wires extend only along the sides of the wick proper and of the tip, leaving the upper edge of the tip partially uncovered, the lower ends of the longitudinal wires being fastened to the wick proper.

2. The combination of the wick proper, the incombustible tip therefor, and the wire-gauze cap provided with longitudinal wires sundry of which extend along the sides and top of the tip and along the upper end of the wick proper, while the other longitudinal wires extend only along the sides of the wick proper and of the tip, leaving the upper edge of the

tip partially uncovered, the lower ends of the longitudinal wires extending first inward toward each other and into the body of the wick proper, and then outward in opposite directions within said wick, the terminals or points of the wires lying between the vertical side members of the U-shaped wires.

3. The combination of the wick proper, the incombustible tip in contact at its central portion with the entire top surface of the wick and having downward extensions on opposite sides in engagement with the side surfaces of the wick, and the wire-gauze cap secured to the wick and engaging the side surfaces of the tip, including the extensions thereof, and the upper end of the wick, while leaving the end surfaces of the tip and wick exposed.

681,402. BUCKLE. JOHN C. SMITH, Massapeag, Conn. Filed June 15, 1901. Serial No. 64,707. (No model.)



Claim.—1. In a buckle, a frame and oppositely-extending tongues coaxially mounted and attached to the side bars of the buckle-frame, substantially as set forth.

2. In a buckle, a frame and a tongue having members adapted to be pressed inward and having pivotal connection with the buckle-frame, substantially as set forth.

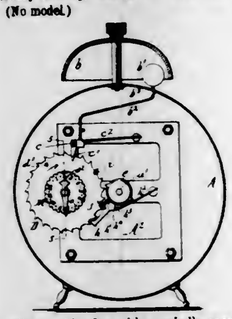
3. In a buckle, a frame and a tongue of approximately V form, the side members being adapted to be pressed inward and adapted to be pivotally connected to the side bars of the buckle-frame, substantially as set forth.

4. In a buckle, a frame and a tongue of approximately V form having the end portions of its side members bent outwardly to form journals and pivotal connection with the buckle-frame, substantially as set forth.

5. In a buckle, a frame, and a tongue of approximately V form having the end portions of its side members outwardly bent and the terminals of the bent ends reduced to form journals and having shoulders at the inner ends of the reduced parts, substantially as set forth.

6. In combination, a buckle-frame, and oppositely-extending tongues of approximately V form, the members of one tongue terminating in eyes and the members of the other tongue having outwardly-extending end portions which pass through the eyes of the first-mentioned tongue and enter openings of the buckle-frame, substantially as specified.

681,403. ALARM-CLOCK. CLAES A. SVENSON, Buffalo, N. Y., assignor to Henry Baethig, same place. Filed Nov. 26, 1900. Serial No. 37,731. (No model.)



Claim.—1. The combination with a spindle operated by the clock or watch movement, of a loose trip-wheel which is turned intermittently from said spindle and provided with a pin or projection, a return device which tends to turn said trip-wheel backwardly, a stop arranged to limit the backward movement of said wheel, and a hammer arranged to be tripped by the pin of said trip-wheel, substantially as set forth.

2. The combination with a spindle operated by the clock or watch movement, of a loose trip-wheel which is turned intermittently from said spindle and provided with a pin or projection, a return-spring which tends to turn said trip-wheel backwardly, a movable stop capable of rotary adjustment and arranged to limit the backward movement of said wheel, and a hammer arranged to be tripped by the pin of said trip-wheel, substantially as set forth.

3. The combination with a spindle operated by the clock or watch movement, of a toothed trip-wheel actuated intermittently from said spindle and provided with a main trip-pin and a supplemental trip-pin, a spring which tends to turn said trip-wheel backwardly, a detent-pawl engaging with said trip-wheel and arranged to be moved into an inoperative position by said supplemental trip-pin, a return device for moving said pawl into engagement with said trip-wheel, a stop capable of rotary adjustment and arranged to limit the backward movement of said trip-wheel, and a hammer arranged to be tripped by the main pin of said trip-wheel, substantially as set forth.

4. The combination with a spindle operated by the clock or watch movement, of a loose trip-wheel which is turned intermittently from said spindle and provided with a trip-pin and a stop, a hammer arranged to be engaged by said trip-pin, a return-spring which tends to turn said trip-wheel backwardly, a setting-wheel provided with a stop arranged to intercept the stop of the trip-wheel, and means for locking said setting-wheel against rotation, substantially as set forth.

5. The combination with a spindle operated by the clock or watch movement, of a loose trip-wheel which is turned intermittently from said spindle and provided with a trip-pin and a stop, a hammer arranged to be engaged by said trip-pin, a return-spring which tends to turn said trip-wheel backwardly, a setting-wheel provided with a stop arranged to intercept the stop of the trip-wheel and having an annular series of locking-notches, and a catch engaging in one of said notches, substantially as set forth.

6. The combination with a spindle operated by the clock or watch movement, of a loose trip-wheel which is turned intermittently from said spindle and provided with a trip-pin and a stop, a hammer arranged to be actuated by said trip-pin, a setting-wheel capable of sliding lengthwise on its arbor and having an annular series of notches and a stop which stands in the path of the stop of said trip-wheel, a catch secured to the arbor of the setting-wheel and engaging with a notch of said wheel, and a spring which tends to turn said trip-wheel backwardly and which is arranged to hold said setting-wheel in engagement with said catch, substantially as set forth.

7. The combination with a spindle operated by the clock or watch movement, of a loose trip-wheel which is turned intermittently from said spindle and provided with main and supplemental trip-pins, and a hollow hub having a stop, said trip-wheel being capable of sliding lengthwise on its arbor, a hammer arranged to be actuated by the main pin of said trip-wheel, a detent-pawl engaging with said trip-wheel and arranged to be moved into an inoperative position by the supplemental pin of said trip-wheel, an arm secured to the arbor of said trip-wheel and provided with a locking-pin, a setting-wheel mounted loosely on said arbor between said arm and the hub of said trip-wheel and provided with a stop-pin which stands in the path of the stop on said hub, and with an annular series of notches adapted to receive said locking-pin, and a spiral spring arranged in said hub and interposed between a flange or shoulder of said wheel-hub and a stationary part of the clock, and secured at one end to said hub and at its opposite end to said stationary part, substantially as set forth.

8. The combination with a spindle operated by the clock or watch movement and having a toothed wheel or pinion, of a hammer having a trip-finger, a toothed trip-wheel actuated by said pinion and capable of sliding on its arbor for moving into and out of engagement with said pinion, said trip-wheel having a projection arranged to trip the finger of said hammer, and a spring which tends to hold said trip-wheel in its operative position, substantially as set forth.

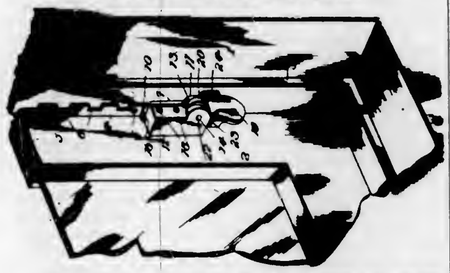
9. The combination with a spindle operated by the clock or watch movement and having a toothed wheel or pinion, of a hammer having a trip-finger, a toothed trip-wheel actuated by said pinion and capable of sliding on its arbor for moving into and out of engagement with said pinion, said trip-wheel having a projection arranged to trip the finger of said hammer, a spring which tends to hold said trip-wheel in its operative position, and a catch for holding said wheel in its inoperative position, substantially as set forth.

10. The combination with a minute-spindle of a clock or watch and an actuating-wheel secured to said spindle and having actuating-teeth and return-pins, of a trip-wheel arranged to be actuated by said teeth and provided with main and supplemental trip-pins, a return-spring which tends to turn said trip-wheel backwardly, a stop capable of rotary adjustment and arranged to limit the backward movement of said trip-wheel, a detent-pawl engaging with said trip-wheel and arranged to be engaged by said supplemental trip-pin and said return-pins, and a hammer arranged to be actuated by the main trip-pin of said trip-wheel, substantially as set forth.

11. The combination with the minute-spindle of a clock or watch and an actuating-wheel secured to said spindle and having actuating-teeth and return-pins, of a trip-wheel arranged to be actuated by said teeth and provided with main and supplemental trip-pins, a return-spring which tends to turn said trip-wheel backwardly, a stop capable of rotary adjustment and arranged to limit the backward movement of said trip-wheel, a detent-pawl engaging with said trip-wheel and arranged to be engaged by said supplemental trip-pin and said return-pins, a stop arranged on said actuating-wheel to limit the forward movement of said pawl, and a hammer arranged to be actuated by the main pin of said trip-wheel, substantially as set forth.

12. The combination with the minute-spindle of a clock or watch and an actuating-wheel secured to said spindle and having actuating-teeth and return-pins, of a trip-wheel arranged to be actuated by said teeth and provided with main and supplemental trip-pins, a return-spring which tends to turn said trip-wheel backwardly, a stop capable of rotary adjustment and arranged to limit the backward movement of said trip-wheel, a detent-pawl engaging with said trip-wheel and arranged to be engaged by said supplemental trip-pin and provided on its back with a V-shaped nose, a spring bearing against said nose, and a hammer actuated by the main pin of said trip-wheel, substantially as set forth.

681,404. SASH-FASTENER. BENJAMIN B. BARBER, Baltimore, Md. Filed Feb. 27, 1901. Serial No. 49,116. (No model.)



Claim.—1. In a window-fastener, the combination with a notched bar, a plate secured below the same, a projection integral with one edge of the plate, of a plate secured to a sash, and a dog pivoted to said member adapted to engage the projection on said plate and the notches in said bar and coöperating cams formed on the respective plates.

2. In a window-fastener, the combination with a notched bar, a plate secured beneath the same, a projection integral with one edge thereof, a lug having a cam-wall integral with said plate, of another plate, a cam-groove formed in the same adapted to engage the cam-lug on said plate, a dog pivoted to the second-named plate and an L-shaped projection integral with the top of said dog.

681,405. UMBRELLA-TIP RETAINER. JAMES I. BEALMEAR, Baltimore, Md. Filed Nov. 5, 1900. Serial No. 35,502. (No model.)



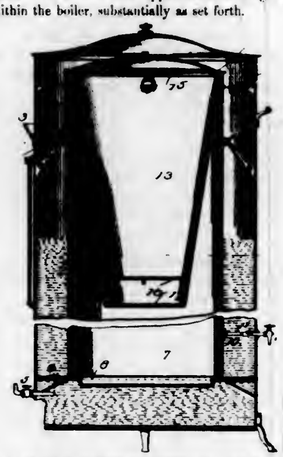
Claim.—1. A retainer for the tips of umbrella-ribs consisting of a ring formed from coiled wire and a link curved to conform to the circle of the ring, of uniform diameter and provided with a plurality of teeth having a uniform projection from the walls of the link forming shoulders facing toward the center from both ends of said link, whereby they are adapted to project between and be interlocked with a plurality of the coils of the ring.

2. A retainer for the tips of umbrella-ribs consisting of a ring formed from coiled wire and a link having the form of a segment of the circle of the ring, of uniform diameter, its walls formed with teeth from end to end of uniform projection forming shoulders facing toward the center from both ends of said link, whereby they are adapted to project between the coils of the ring in positive engagement therewith, the coils and the teeth supplemented by solder to reinforce the engagement of the coils with the teeth.

681,406. BOUILLON-BOILER. HARRY A. CHAVOUS, Lima, Ohio. Filed Jan. 28, 1901. Serial No. 45,100. (No model.)

Claim.—1. In a device of the character described, a boiler, a ring removably fitted in the lower portion of the boiler and constituting a support, a reservoir having a depressed bottom and supported within the boiler upon the said ring with the depressed portion of its bottom snugly fitting within said ring, and another ring removably fitted within the upper portion of the boiler and receiving the upper end of the reservoir for bracing the latter laterally, substantially as set forth.

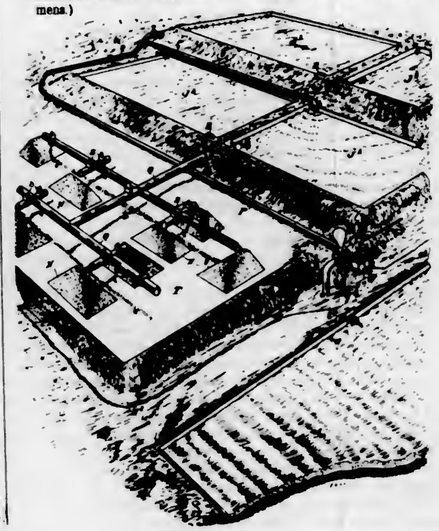
2. In a device of the character described, a boiler, a perforated ring removably fitted within the boiler a short distance above the bottom thereof, a reservoir resting upon the said ring and having a depressed bottom fitted within the opening of the ring, a second ring removably fitted within the upper portion of the boiler and encircling the upper end of the reservoir, and means intermediate of the upper and lower rings for holding the reservoir within the boiler, substantially as set forth.



3. In a device of the character described, a boiler, a perforated ring removably fitted within the boiler a short distance from its bottom, a reservoir supported upon said ring and having its bottom depressed and fitting within said ring, a foraminous ring removably fitted within the upper portion of the boiler and encircling the reservoir, interlocking means between the reservoir and boiler and located between the upper and lower rings, a sectional pipe communicating with the reservoir and extending through the boiler and provided at its outer end with a cock, and a vat suspended within the reservoir and having a screen at its lower end and a perforated support a short distance above the screen, substantially as specified.

4. In a device of the character described, a boiler, a reservoir supported within the boiler and spaced from the bottom and sides thereof, spurs at the sides of the reservoir and inclining upwardly and outwardly, and links pivoted to the inner sides of the boiler and inclining upwardly and inwardly and adapted to make detachable connection with the oppositely-inclined spurs, substantially as set forth.

681,407. PROCESS OF OBTAINING SALT. PERCIE H. COWARD, San Francisco, Cal. Filed June 27, 1900. Serial No. 21,858. (No specimens.)

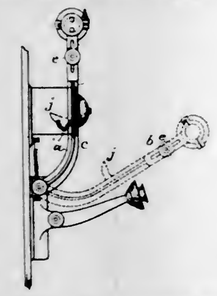


Claim.—1. The herein-described process of obtaining salt, which comprises the following steps; crystallizing the salt from brine, flushing the salt to wash it after crystallization, and transferring it by such flushing operation, substantially as described.

2. The herein-described process of obtaining salt, consisting in concentrating brine, crystallizing the salt, removing the mother-liquor and draining the salt, flushing the drained salt with a practically-saturated brine, conveying the salt and flushing-brine and permitting the flushing-brine to drain off, substantially as described.

3. The herein-described continuous process of obtaining salt, consisting in concentrating a body-brine then crystallizing the salt from a portion of the brine, then removing the mother-liquid from and draining the crystallized salt, then directing a flushing stream of concentrated brine on the salt thereby simultaneously washing and conveying the salt from the place where it was crystallized, and finally causing the flushing-brine to drain off into the body of brine, substantially as described.

681,408. ADJUSTABLE ARM FOR SUPPORTING TELEPHONE-RECEIVERS. EDWARD M. COX and WALTER REED, Portland, Oreg. Filed Nov. 20, 1900. Serial No. 37,139. (No model.)



Claim.—1. The combination with a telephone instrument provided with a projecting switch-arm, a pivoted receiver-supporting lever consisting of an inner and outer member, the outer member being slotted, a fastening device passing through said slot and secured in the inner member, and a cam-shaped lug on said inner member, said lug engaging and holding down the switch-arm of the telephone when the receiver-supporting arm is thrown up against the telephone, substantially as described.

2. The combination with a telephone instrument provided with a projecting switch-arm, a pivoted receiver-supporting lever consisting of an inner and outer member, the outer member being slotted, a fastening device passing through said slot and secured in the inner member, and a lug projecting from the inner member, said lug being beveled on its engaging face and merging into a flat surface or seat portion which is adapted to engage the switch when the receiver-supporting lever is thrown up against the telephone, substantially as described.

3. The combination with a telephone instrument provided with a switch-arm, a pivoted receiver-supporting lever, a clamp on the outer end of said lever for securing a receiver, said clamp consisting of a section having a seat therein and laterally-projecting flanges, and a second section having a seat which registers with the seat in the first-named section and laterally-projecting flanges one of which is turned in and adapted to clamp one of the flanges of the first-named section, means for locking the two sections together, and means on the lever for engaging the switch when the said lever is thrown up against the telephone, substantially as described.

4. The combination with a telephone instrument provided with a switch-arm, a pivoted receiver-supporting lever composed of two members, one of said members being adjustable with relation to the other, means for securing said members together, a clamp on the outer end of said lever for securing a receiver, said clamp consisting of a section having a seat therein and laterally-projecting flanges, and a second section having a seat which registers with the seat in the first-named section and laterally-projecting flanges one of which is turned in and adapted to clamp one of the flanges of the first-named section, means for locking the two sections together, and means on the lever for engaging the switch when the said lever is thrown up against the telephone, substantially as described.

5. The combination with a telephone instrument provided with a switch-arm, a pivoted receiver-supporting lever composed of two members, one of said members being adjustable with relation to the other, means for securing said members together, a clamp on the outer end of said lever for securing a receiver, said clamp consisting of a section having a seat therein and laterally-projecting flanges, and a second section having a seat which registers with the seat in the first-named section and laterally-projecting flanges one of which is turned in and adapted to clamp one of the flanges of the first-named section, means for locking the two sections together, and a lug projecting from the lever for engaging and holding down the switch when said lever is thrown toward the telephone, said lug being beveled on its engaging face and provided on its under side with a flat surface to form a seat to rest on the switch, substantially as described.

6. The combination with a telephone instrument provided with a switch-arm, a pivoted receiver-supporting lever consisting of an inner and outer member, the outer member being slotted, a fastening device passing through said slot and secured in the inner member, said outer member being divided, a ball-and-socket joint at the junction of said divided ends, a sectional clamp for holding the receiver at the end of said outer member, and a cam-shaped lug projecting from the inner member which is adapted to engage and hold down the switch when the lever is thrown toward the telephone, substantially as described.

7. The combination with a telephone instrument provided with a switch-arm, a lever composed of an inner and outer member, a slot and-pin connection between said members for lengthening and shortening said lever, a clamp-arm connected to the outer member of the lever by a ball-and-socket joint a two-part clamp at the outer end of said arm for holding a receiver, a lug on the inner member, said lug being beveled and having a flattened portion to form a seat which is adapted to engage and hold down the switch-arm when the lever is thrown in a vertical position, substantially as described.

8. An attachment for a telephone instrument to hold the receiver thereof, comprising a lever composed of an inner and outer member, means for extensibly securing the latter to the former, a two-part clamp attached to the outer member, a ball-and-socket joint between the clamp and the outer connection between the members of said lever, a lug projecting from the lever which is adapted to engage the switch of the telephone when said lever is thrown up in a vertical position, and means for jointly pivoting and holding the lever to the telephone, substantially as described.

681,409. INDEX-CABINET. RICHARDSON W. DICKERSON, Sioux Falls, S. D. Filed May 25, 1901. Serial No. 61,906. (No model.)

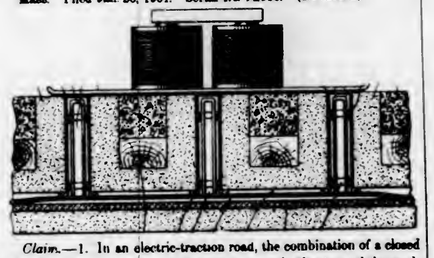


Claim.—1. In a device of the class set forth, the combination of a cabinet open at the front and having a door to close the same, the upper portion of one end of the cabinet near the one front edge being formed with a vertical slot, and said edge having letters thereon adjacent to said slot, a series of carriers movably attached at their lower ends within the lower portion of the cabinet, the upper end of each carrier from the one in front being projected vertically a greater distance than the one in advance, and a combined index and holder slidingly mounted in the said slot.

2. In a device of the class set forth, the combination of a cabinet open at one side, the upper portion of the one edge of the latter side having letters thereon, a combined index and holder slidingly mounted in one end of the cabinet and having a portion movable over the said letters, and a plurality of carriers movably connected at their lower ends within the lower portion of the cabinet and gradually increasing in length from the front toward the rear one.

3. In a device of the class set forth, the combination of a cabinet open at one side, a plurality of carriers pivotally mounted therein to move outward and inward through the said open side, the one edge portion of the latter side having a series of letters thereon, the upper end of each carrier from the one in front being projected vertically a greater distance than the one in advance, and a combined index and holder movably mounted in the end of the cabinet adjacent to the said letters.

681,410. ELECTRIC-TRACTION ROAD. LÉON DION, Boston, Mass. Filed Jan. 28, 1901. Serial No. 44,980. (No model.)

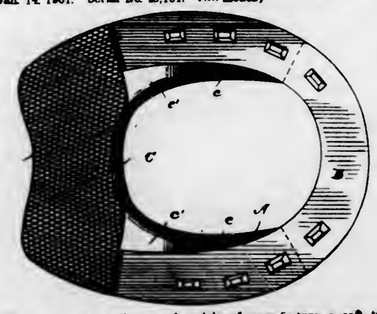


Claim.—1. In an electric-traction road, the combination of a closed conduit having a series of pockets or recesses projecting toward the roadway-surface, a conductor in said circuit, and a series of armature members projecting from said conductor into the pockets and detachably secured to the conductor.

2. In an electric-traction road, the combination of a closed conduit having a series of pockets or recesses projecting toward the roadway-surface, a conductor in said conduit, a series of armature members projecting from said conductor into the pockets and detachably secured to the conductor, and removable closers for the upper ends of said pockets.

3. In an electric-traction road, the combination of the cross-ties, the car-supporting rails resting thereon, a closed conduit laid beneath the ties and having a series of pockets or recesses projecting upwardly between the ties and a conductor in said conduit having armature members projecting into said pockets.

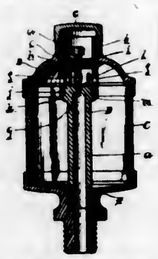
681,411. SOFT-TREAD HORSESHOE. CHARLES P. DRYDEN, Chicago, Ill., assignor of one-half to George B. Dryden, same place. Filed Jan. 14, 1901. Serial No. 43,181. (No model.)



Claim.—1. As an improved article of manufacture, a soft-tread horseshoe comprising in combination a three-quarter metallic toe member, a rubber heel member comprising a main heel-pad substantially thicker than the three-quarter metallic portion and extending transversely between the rear ends of the two arms of the metallic toe portion, integral forwardly-extending tapering arms arranged to underlie the rear portions of the toe member and terminating at their forward ends at points intermediate of the length of said toe member, reinforcing-ribs extending from the main body of the heel-pad forwardly along the inner sides of said underlying arms and inside of the respective ends of the toe member, said heel-pad being made flexible throughout and provided along the median longitudinal line of the shoe in both its upper and lower sides with grooves whereby its thickness is reduced and provided also with a textile-fabric backing or foundation incorporated with the body of the pad, as and for the purpose set forth.

2. As an improved article of manufacture, a soft-tread horseshoe comprising in combination a three-quarter metallic toe member, a rubber heel member comprising a main heel-pad substantially thicker than the three-quarter metallic portion and extending transversely between the rear ends of the two arms of the metallic toe portion, integral forwardly-extending tapering arms arranged to underlie the rear portions of the toe member and terminating at their forward ends at points intermediate of the length of said toe member, reinforcing-ribs extending from the main body of the heel-pad forwardly along the inner sides of said underlying arms and inside of the respective ends of the toe member, said heel-pad being made flexible throughout and provided along the median longitudinal line of the shoe in its base side with a groove whereby its thickness is reduced and provided also with a textile-fabric backing or foundation incorporated with the body of the pad, as and for the purpose set forth.

681,412. LUBRICATOR. GEORGE B. ESSEX, Detroit, Mich., assignor to the G. B. Essex Brass Company, same place. Filed Jan. 30, 1901. Serial No. 45,287. (No model.)



Claim.—1. In a lubricator, the combination with the cup, of a central feed-tube in the cup, open at both ends, and the lower end secured in the bottom of the cup and communicating with the outlet from the cup, and the upper end secured in the top of the cup and extending through it and constituting the fill-opening, an opening or openings in the wall of said feed-tube through which the upper portion of said feed-tube communicates with the interior of the cup, a restricted feed-opening in said feed-tube below the aforesaid opening or openings, a regulating screw-valve for the restricted feed-opening secured in position above the same within the upper portion of the feed-tube and a cap on the upper end of the feed-tube.

2. In a lubricator, the combination with a cup composed of upper and lower heads, and a cylindrical glass case interposed between the same, of a feed-tube centrally secured in said heads and connecting the parts of the cup together, a restricted feed-opening in the center of the tube through which the portion of the feed-tube above the lubricant communicates with the lower portion thereof leading to the outlet of the cup, a regulating screw-valve held in position in the feed-tube above said restricted opening, and an opening or openings in the walls of said feed-tube above the restricted opening therein, said feed-tube extending through the upper head of the cup and forming the fill-opening for the same.

3. In a lubricator, the combination with the cup composed of lower and upper heads A, B, and intervening glass case C, of an open-ended feed-tube in said cup, centrally secured in said heads, and clamping the parts together, said feed-tube composed of a lower section *a* secured to and communicating with the bottom outlet of the cup, and an upper section *b* secured to the upper end of the lower section and having a screw-threaded upper end engaging in a screw-threaded aperture in the upper head and extending through the same and forming the fill-opening for the cup, the lower section formed with the head *m* having a restricted feed-opening *g*, and the upper section having openings *f* and a regulating screw-valve *h* secured in position centrally of the tube above the feed-opening, and the screw-cap *e* closing the upper end of said upper section.

681,413. NUT-LOCK. JACOB F. FISHER, New York, N. Y. Filed June 12, 1901. Serial No. 64,238. (No model.)



Claim.—1. An improved nut-lock, comprising a detachable pin carried by the nut and projecting through a bore formed at one side of the same, the bolt being formed to receive the pin in locking engagement, and detachable means for locking the pin in operative position, said means consisting of a plate which is received in a transverse channel formed in one face of the nut.

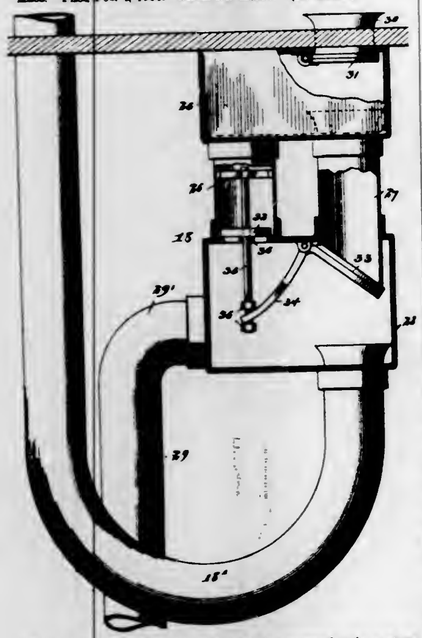
2. An improved nut-lock, comprising a pin which is carried by the nut and projects through a bore formed at one side of the same, the bore being countersunk at its upper end and said pin being provided with a head which fits in said countersunk upper end, the bolt being provided with a longitudinal groove which is formed to receive the pin in locking engagement, and detachable means for locking the pin in operative position, said means consisting of a wedge-shaped plate which is received in a transverse channel formed in one face of the nut.

3. An improved nut-lock, comprising a pin which is carried by the nut and projects through a bore formed at one side of the same, the bore being countersunk at its upper end and said pin being provided with a head which fits in said countersunk upper end, the bolt being provided with a longitudinal groove which is formed to receive the pin in locking engagement, and detachable means for locking the pin in operative posi-

tion, said means consisting of a wedge-shaped dovetailed plate which is received in a transverse similar channel formed at the same side of the nut as said bore and above the same.

4. An improved nut-lock, comprising a detachable pin carried by the nut and projecting through a bore formed at one side of the nut, and detachable means for locking the pin in operative engagement with the bolt, said means consisting of a plate which is received in a transverse channel formed in one face of the nut.

681,414. **PNEUMATIC-DESPATCH-TUBE SYSTEM.** EDMOND A. FORDYCE, Chicago, Ill., assignor to Arthur S. Temple, trustee, Boston, Mass. Filed Feb. 4, 1901. Serial No. 45,967. (No model.)

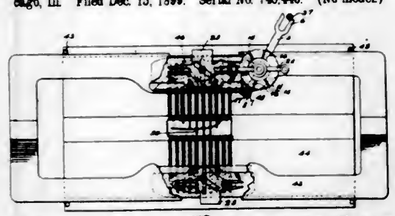


Claim.—1. A sending-terminal for use in pneumatic-tube systems, comprising in combination a sealing-chamber communicating at its lower end with the air-pressure and carrier-sending tubes of the system, through which sealing-chamber the propelling air-current normally passes, a second sealing-chamber located above and communicating with the top of said first-named sealing-chamber by twin passages, connected valves normally closing said passages and permitting the insertion of a carrier into and through the upper sealing-chamber without effect upon the air-current, said carrier acting later to open said connected valves and thereby shunt the propelling-current up through the upper sealing-chamber and in rear of the carrier being transmitted, substantially as described.

2. A sending-terminal for use in pneumatic-tube systems, comprising in combination upper and lower sealing-chambers, tube-sections connecting said chambers near their opposite ends, a valved receiver in the top of the upper chamber and in alinement with one of said connecting tube-sections, a pressure-tube and a carrier-conveying tube communicating with the bottom of the lower sealing-chamber and in alinement with said connecting-tubes, and connected valves normally closing the communication of said tube sections with the lower sealing-chamber, said valves normally tending to confine the passage of the propelling air-current to and through the lower sealing-chamber, but, on being opened by the impact of the carrier, acting to shunt the air-current up through the upper sealing-chamber and in rear of the carrier, substantially as described.

3. The herein-described sending-terminal for pneumatic-tube systems, the same comprising the upper and lower sealing-chambers 25 and 28 respectively, the latter being connected through its bottom wall with the air-pressure and carrier-sending tubes of the system, a valved receiver in the top of the upper chamber, connecting-tubes 26 and 27 between said sealing-chambers, the receiver, connecting-tube 27, and carrier sending tube being all located in vertical alinement, and the connected valves 32 and 33 normally closing the lower ends of tube-sections 26 and 27 respectively, whereby the normal passage of the propelling-current, when the terminal is idle, is through the lower chamber 28, but on the passage of a carrier through said terminal the air-current is shunted so as to flow through the upper chamber 25 and become effective on the rear of the carrier, substantially as described.

681,415. **KNITTING-MACHINE.** EDWARD D. FRIEDLANDER, Chicago, Ill. Filed Dec. 15, 1899. Serial No. 740,446. (No model.)



Claim.—1. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and short and long latched needles actuated by the cam mechanism, substantially as described.

2. In a knitting-machine, the combination with cam mechanism having a movable V cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and long and short latched needles actuated by the cam mechanism, substantially as described.

3. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, and a detent having a portion adapted for engagement with the said notches and brought into engagement with a part coöperating with said cam-block, when the last aforesaid portion engages a deep notch, substantially as described.

4. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, said detent being manually adjustable to be placed within and withdrawn from the path of said arm, and a detent having a portion adapted for engagement with said notches and brought into engagement with a part coöperating with said cam-block when the last aforesaid portion engages a deep notch, substantially as described.

5. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and long and short latched needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam plate 11 actuated by the ratchet, and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, and a detent having a portion adapted for engagement with the said notches and brought into engagement with a part coöperating with said cam-block when the last-aforesaid portion engages a deep notch, substantially as described.

6. In a knitting-machine, the combination with cam mechanism having a movable V cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, and a detent having a portion adapted for engagement with said notches and brought into engagement with a part coöperating with said cam-block when the last-aforesaid portion engages a deep notch, substantially as described.

7. In a knitting-machine, the combination with cam mechanism having a movable V cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and long and short latched needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, and a detent having a portion adapted for engagement with said notches and brought into engagement with a part coöperating with said cam-block when the last aforesaid portion engages a deep notch, substantially as described.

8. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and long and short latched needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, said detent being manually adjustable to be placed within and withdrawn from the path of said arm, and a detent having a portion adapted for engagement with said notches and brought into engagement with a part coöperating with said cam-block when the last-aforesaid portion engages a deep notch, substantially as described.

9. In a knitting-machine, the combination with cam mechanism having a V cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, said detent being manually adjustable to be placed within and withdrawn from the path of said arm, and a detent having a portion adapted for engagement with said notches and brought into engagement with a part coöperating with said cam-block, when the last-aforesaid portion engages a deep notch, substantially as described.

10. In a knitting-machine, the combination with cam mechanism having a movable V cam-block for actuating the needles, of a reciprocating carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing the cam-block to assume an intermediate position, and needles actuated by the cam mechanism, the said third device comprising a swinging arm 5, a pawl carried thereby, a ratchet operated by the pawl, a cam-plate 11 actuated by the ratchet and provided with shallow and deep notches, a detent brought into engagement with the swinging arm by the carriage in its travel, said detent being manually adjustable to be placed within and withdrawn from the path of said arm, and a detent having a portion adapted for engagement with said notches and brought into engagement with a part coöperating with said cam-block, when the last-aforesaid portion engages a deep notch, substantially as described.

11. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a movable carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device adapted, in coöperation with said cam-block, to cause the said cam to assume an intermediate position, and needles of equal length actuated by the cam mechanism, substantially as described.

12. In a knitting-machine, the combination with cam mechanism having a movable cam-block for actuating the needles, of a movable carriage supporting the cam-block, a device for moving the cam to a closed position when the carriage reaches one end of its travel, a second device for opening the cam when the carriage reaches the other end of its travel, a third device for intermittently causing said cam-block to assume an intermediate position, and needles of equal length actuated by the cam mechanism, substantially as described.

13. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and means for controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, substantially as described.

14. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and automatic means for intermittently controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, substantially as described.

15. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and automatic means for intermittently controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, said means comprising a lock-bar 25 and a cam-actuated detent, substantially as described.

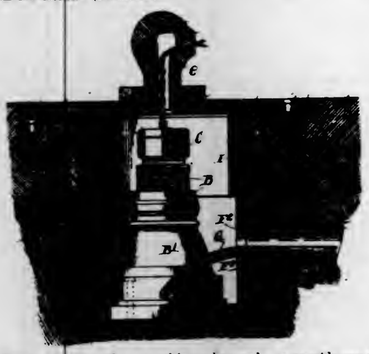
16. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and automatic means for intermittently controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, said means comprising a lock-bar 25, stops 45 and 49, a detent 23, and a cam-block for controlling the position of said detent, substantially as described.

17. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and automatic means for intermittently controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, said means comprising a lock-bar 25, stops 45 and 49, a detent 23, a cam-block for controlling the position of said detent, and ratchet mechanism for shifting said cam, substantially as described.

18. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and automatic means for intermittently controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, said means comprising a lock-bar 25, stops 45 and 49, a detent 23, a cam-block for controlling the position of said detent, ratchet mechanism for shifting said cam, and a post 37 adapted to actuate said ratchet mechanism, substantially as described.

19. In a knitting-machine, the combination with a needle-bed, of short and long latched needles, cam mechanism provided with a cam-slot for engaging said needles and effecting their travel, means adapted to open or close said cam-slot when the cam mechanism has reached the extent of its travel in either direction, and automatic means for intermittently controlling the operation of the aforesaid means to prevent the cam-slot from being fully opened, thereby to cause the long-latched needles to form stitches, said means comprising a lock-bar 25, stops 45 and 49, a detent 23, a cam-block for controlling the position of said detent, ratchet mechanism for shifting said cam, a post 37 adapted to actuate said ratchet mechanism, and means coöperatively associating said post with said ratchet mechanism, substantially as described.

681,416. OUTLET FOR ELECTRIC CONDUCTORS. JOHN H. GOEBEL and CHARLES M. WILKES, Chicago, Ill. Filed Dec. 17, 1900. Serial No. 40,188. (No model.)



Claim.—1. An outlet comprising a box and a removable cover for said box provided with a nozzle rising above its upper surface and forming a passage for conductors, said cover having a detachable, water-tight connection with the box.

2. An outlet comprising a box-body, a removable cover therefor, means affording water-tight connection of the cover with the body, constructed to permit adjustment of the cover with respect to the body, and a nozzle for the passage of conductors secured to said cover and communicating with the interior of the box.

3. An outlet comprising a box-body, a removable cover for said body provided with an aperture for the passage of conductors, and an intermediate ring between the cover and the body with which said cover has detachable water-tight connection, said ring having screw-threaded and water-tight connection with the body, whereby the cover may be adjusted with respect to said body.

4. An outlet comprising a box, a removable cover which is secured to the box by a detachable water-tight connection and is provided with an aperture for the passage of conductors and a nozzle having a screw-threaded and water-tight connection with the aperture in the cover.

5. An outlet comprising a box, a cover having detachable water-tight connection with the box, and a nozzle rising from the cover provided with a passage for conductors, said box having connected therewith an outwardly-extending flange; located below the level of the cover and adapted for insertion therethrough of screws for securing the box to a support located below the level of the surface of the floor in which the box is placed.

6. An outlet comprising a box-body, a cover for closing said body, a ring which has screw-threaded engagement with the open end of said body, means for removably attaching said cover to said ring, and a nozzle which has detachable connection with said cover and which communicates with the interior of the box.

7. An outlet comprising a box-body, a cover for said body, a ring which has screw-threaded engagement with the open end of said body, means for removably attaching said cover to said ring, a nozzle which has screw-threaded engagement with said cover, and the bore of which communicates with the interior of the box, and a packing-ring between the base of said nozzle and the cover.

8. An outlet comprising a box having a removable cover, and a nozzle adapted for attachment to the cover and having a lateral exit-opening for the passage of conductors therefrom.

9. An outlet comprising a box having a removable cover provided with a screw-threaded aperture, and a nozzle which is screw-threaded at one end to engage the aperture of the cover and is provided near its opposite end with an exit-opening for the passage of a conductor, said opening being provided with a bushing of insulating material.

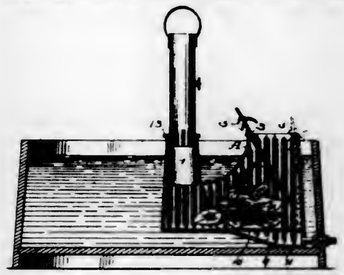
10. The combination with a conduit, of an outlet comprising a box-body, a cover for said body, a ring which has adjustable connection with the body and to which the cover is detachably secured, a socket secured in the box-body and separated by insulating material therefrom, and conductors leading through the conduit to the said socket, said cover being provided with a detachable nozzle for the passage of conductors from the box.

681,417. COLUMN FOR INTERIOR CABINET-WORK. FREDERICK GOLDENBOGEN, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, same place. Filed Feb. 13, 1901. Serial No. 47,113. (No model.)

Claim.—As an improved product, a hollow column for cabinet-work, composed of a series of united veneers comprising the body portion; and a diametrically, interiorly, arranged stay-board; these parts being united and combined substantially as hereinbefore set forth.



681,418. HEATER FOR WATERING-TANKS. AL HAYWARD, Warsaw, Ind. Filed Jan. 7, 1901. Serial No. 42,399. (No model.)

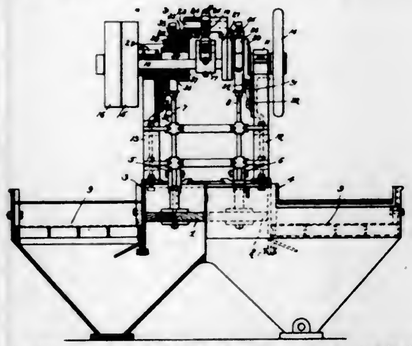


Claim.—1. A tank-heater, comprising a casing having an upward open extension at one end and means for attaching a stack at the open end, and a damper projecting diagonally into said upward open extension and means at the upper end of said damper for adjusting the same.

2. A tank-heater, comprising a casing having an upward extension at one end and means at the other end for attaching a stack, a slide or damper disposed diagonally in the upward extension of the casing and having a series of teeth to engage the upper end of the wall of said upward extension to retain the slide or damper at different adjustments.

3. A tank-heater comprising a hollow elongated casting having corrugated walls, and a fire-chamber, and having a smoke-pipe at one end of said casting, the other end of the casting having an elongated upward extension provided with a damper, and an outlet for ashes communicating with the enlarged end of the casting at the bottom thereof.

681,419. ADJUSTABLE ECCENTRIC OF MINERAL OR ORE WASHING JIGS. CHARLES J. HODGE, Houghton, Mich. Filed May 13, 1899. Serial No. 716,692. (No model.)



Claim.—1. The combination of the plungers, a driving-shaft having supporting-bearings, two eccentrics having eccentric-straps, one eccentric being connected with each of said plungers and eccentric to said shaft, and a crank connected to the shaft and having operative connection with both of said eccentrics, substantially as set forth.

2. The combination of a shaft having a crank, an eccentric-strap having a pitman, an eccentric embraced by said strap and being independent of said shaft and adjustable bodily transversely thereof and a connection between said crank and eccentric, substantially as set forth.

3. The combination of a shaft, a crank thereon, a trunnion adjustable transversely of the shaft, an eccentric on said trunnion, an eccentric-strap embracing said eccentric and having a pitman and a connection between said eccentric and crank, substantially as set forth.

4. The combination of a shaft, a crank thereon, a trunnion having a slot through which said shaft passes and being adjustable transversely of the shaft, an eccentric on said trunnion, an eccentric-strap embracing said eccentric and having a pitman and a connection between said eccentric and crank, substantially as set forth.

5. The combination of a shaft, a crank thereon, an eccentric-strap having a pitman, an eccentric in said strap, a second eccentric arranged in said first eccentric and being adjustably secured thereto and a connection between said eccentrics and crank, substantially as set forth.

6. The combination of a shaft, a crank thereon, an eccentric-strap having a pitman, an eccentric in said strap, a second eccentric arranged in said first eccentric, one of said eccentrics being provided with an annular dovetailed groove and the other with a tightening-bolt engaging in said groove whereby said eccentrics may be rotatably adjusted with reference to each other and a connection between one of said eccentrics and crank, substantially as set forth.

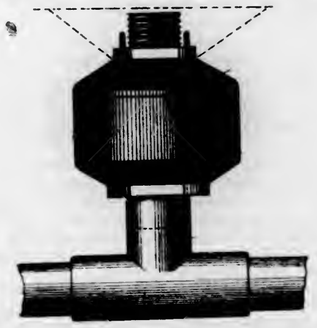
7. The combination of a shaft, a crank thereon, an eccentric-strap having a pitman, an eccentric in said strap, a second eccentric arranged in said first eccentric and having a crank-arm, said eccentrics being adjustably secured together and a link connecting said crank-arm with the crank on said shaft, substantially as set forth.

8. The combination of a shaft, a trunnion having a vertically-elongated passage through which said shaft passes, a support for said trunnion, a bracket secured to said trunnion and being vertically adjustable on said support, an eccentric on said trunnion, an eccentric-strap operated by said eccentric, a crank-arm on said shaft and a connection between said crank-arm and eccentric, substantially as set forth.

9. The combination of a shaft, a trunnion having an elongated passage for said shaft and being provided with the flange 39, an eccentric journaled on said trunnion and abutting against said flange and being provided with the arm 26, a second eccentric journaled on said first eccentric and being adjustably secured thereto, an eccentric-strap having a pitman, embracing said second eccentric, and a crank-arm on said shaft connected with said arm 26, substantially as set forth.

10. The combination of a shaft, a journal-bearing therefor at or near each end thereof, a crank secured to said shaft between said bearings, two trunnions one on each side of said crank and through which trunnions said shaft passes, an eccentric journaled on each of said trunnions, a connection between each of said eccentrics and said crank, an eccentric-strap having a pitman, operated by each of said eccentric-straps, substantially as set forth.

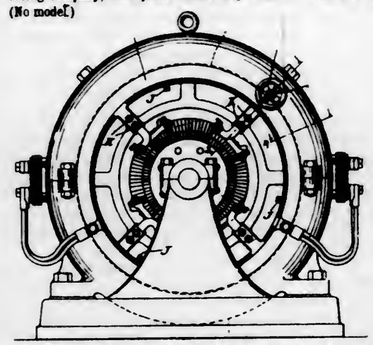
681,420. HYDRANT OR OTHER WATER-PIPE COUPLING. HUGH L. JORDAN, Santa Paula, Cal. Filed May 7, 1901. Serial No. 59,176. (No model.)



Claim.—1. The herein-described hydrant or water-pipe coupling comprising a casing provided with a detachable top having a screw-threaded tubular member, with which a hose is adapted to be connected, said detachable top being also provided with pins which pass therethrough adjacent to said tubular member, and a valve-plate connected with the inner ends thereof and adapted to close said tubular member, substantially as shown and described.

2. The herein-described hydrant or water-pipe coupling comprising a casing provided with a detachable top having a screw-threaded tubular member, with which a hose is adapted to be connected, said detachable top being also provided with pins which pass therethrough adjacent to said tubular member, and a valve-plate connected with the inner ends thereof and adapted to close said tubular member, said pins and valve-plate being adapted to be operated by connecting a hose-coupling with said tubular member, substantially as shown and described.

681,421. SUPPORTING DEVICE FOR BRUSH-HOLDERS. JOHN P. MALLETT, Madison, Wis., assignor to Northern Electrical Manufacturing Company, same place. Filed May 10, 1901. Serial No. 59,559. (No model.)



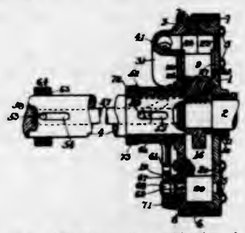
Claim.—1. The combination with the field-magnet frame of a dynamo-electric machine of a brush-holder support extending about the commutator and fitting into a recess in the field-frame, an adjusting device mounted in the field-frame and engaging said brush-holder support so as to vary its position, and means for locking the support in its adjusted position.

2. The combination with the field-magnet frame of a dynamo-electric machine, having a recess extending thereabout, of a brush-holder-supporting ring fitting into said recess, a rack extending along a portion of the periphery of said supporting-ring, and a shaft mounted in the field-frame and carrying a pinion engaging said rack, so that the brush-holding ring may be adjusted.

3. The combination with the field-magnet frame of a dynamo-electric machine, having a recess extending thereabout, of a brush-holder-supporting ring fitting into said recess, a rack extending along a portion of the periphery of said supporting-ring, a shaft mounted in the field-frame and carrying a pinion engaging said rack, so that the brush-holding ring may be adjusted, a continuous groove on the recessed face of the field-frame, and one or more set-screws projecting through the brush-holding ring into said groove.

4. A brush-holding device for dynamo-electric machines, comprising a brush-supporting ring extending around the commutator and fitting into a recess in the field-frame, a rack extending along a portion of the periphery of said brush-supporting ring, a pinion mounted in the recessed face of the field-frame, a shaft to which said pinion is connected mounted in a bearing removably attached to the field-magnet frame, whereby the brush-supporting ring may be adjusted to any desired position.

681,422. FLUID-CLUTCH. MICHAEL J. MILNOR and WILLIAM S. PORTER, Chicago, Ill. Filed Oct. 10, 1900. Serial No. 32,608. (No model.)



Claim.—1. In a fluid-clutch, the combination of revoluble driving and driven parts, a valve arranged to control the movement of the said fluid, mechanism for operating the valve, devices adapted to admit air to supply diminished internal pressure and to prevent the escape of the air so admitted, substantially as described.

2. In a fluid-clutch, the combination of revoluble driving and driven parts, a valve arranged to control the movement of the said fluid, mechanism for operating the valve, devices adapted to admit air to supply diminished internal pressure and to prevent the escape of the air so admitted, the said devices being constructed and arranged to keep the admitted air from actual contact with the working fluid, substantially as described.

3. In a fluid-clutch, the combination of revoluble driving and driven parts, a valve arranged to control the movement of the said fluid, mechanism for operating the valve, devices holding a body of air in confine-

ment and adapted to admit additional air to supply diminished internal pressure and to prevent the escape of the air so confined and admitted, substantially as described.

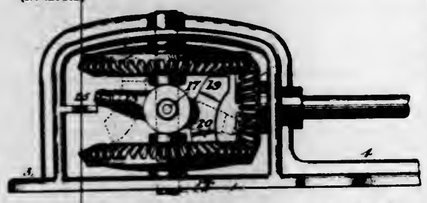
4. In a fluid-clutch, the combination of a casing having one side provided with a fluid-entrance, a lobe possessing a hollow interior, the fluid-entrance opening into the lobe, said lobe interior having air-inlets, valves governing the said air-inlets, pistons fitting the said lobe interior, and springs arranged between the said valves and pistons, substantially as described.

5. In a fluid-clutch, the combination of a casing having one side provided with a fluid-entrance, a lobe possessing legs having hollow tubular open-ended interiors, the fluid-entrance opening into the lobe, screw-plugs closing the open ends of the lobe, apertures formed through the said plugs and eccentrically located, valves governing said apertures and having central holes, pistons fitting the interiors of the said legs, and springs arranged between said pistons and valves within the said legs, substantially as described.

6. In a fluid-clutch, the combination of a casing having one side provided with a hub, a driven shaft secured within the said hub, the said shaft being bored longitudinally and slotted diametrically through the bored portion, the said hub having oppositely-located slots corresponding to one of the slots in the shaft, a geared segment having a sleeve riding said hub and oppositely-inclined slots through the sleeve, a sliding rod occupying the bore of the shaft, pins secured in the said rod and projecting through the slots in the said shaft, hub and sleeve, a second geared segment meshing with the first-mentioned segment, and a valve having its stem secured to the said second segment, substantially as described.

7. In a fluid-clutch, the combination of the casing, a valve within the casing, a valve-stem, a toothed segment 61, a second toothed segment meshing with segment 61 and attached to the said valve-stem, devices adapted to fix the second toothed segment stationary upon the casing thereby securing the said valve in any given position, substantially as described.

681,423. GEARING FOR WASHING-MACHINES. JOHN C. PETERS, Fort Wayne, Ind. Filed July 12, 1900. Serial No. 23,296. (No model.)



Claim.—1. In a gearing for washing-machines, an upright agitator-shaft; oppositely-rotatable gear-wheels loosely mounted upon said shaft and each being provided with an annular track and radial recess or opening for the purpose described; a vertically-tilting detent pivoted upon said shaft and adapted for a holding engagement with the said gear-wheels alternately; a power-shaft, and an actuating-pinion fixed upon the inner end of the power-shaft and in mesh with said gears; and provided upon its inner face with the oppositely-arranged quadrant plates or lugs, for the purpose specified.

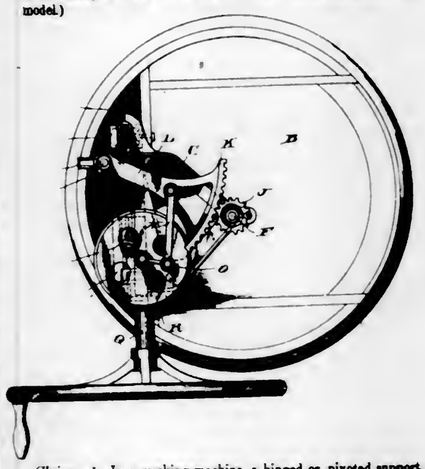
2. An upright rotatable agitator-shaft; a pair of oppositely-rotatable gear-wheels mounted on said shaft; means for actuating said gear-wheels in opposite directions; a horizontal detent pivotally mounted on said shaft intermediate of said gear-wheels and provided upon its rear end with vertical wings adapted to form an interlocking engagement with the said gears alternately for the purpose of reversing the direction of the agitator-shaft; means for alternately throwing said detent into engagement with said wheels; and means for securing said detent in its interlocked position.

3. An upright rotatable agitator-shaft; oppositely-rotatable gear-wheels loosely mounted on said shaft; a power-shaft, an actuating-pinion fixed on the inner end of said power-shaft and in mesh with said gears and provided upon its inner face with opposite radial quadrant plates or lugs; a horizontally-arranged detent pivoted on said upright shaft and provided upon one end with interlocking wings as described and upon its other end with a conical point adapted for an actuating engagement with said plates for the purpose specified.

4. The combination of a vertical agitator-shaft; oppositely-rotatable gear-wheels mounted on said shaft; a power-shaft; an actuating-pinion secured to the inner end of the power-shaft and in mesh with said wheels, and provided upon its inner face with a pair of oppositely-arranged quadrant-plates as shown; and a pivoted detent arranged on said vertical shaft intermediate of the said gear-wheels adapted for a locked engagement with the said wheels alternately, and adapted for a vertical adjustment by an actuating engagement with the said plates as described.

5. The combination of an upright agitator-shaft; oppositely-rotatable gear-wheels mounted on said shaft; means for operating the wheels; a power-shaft; and a horizontally-arranged detent pivotally mounted on the agitator-shaft, and provided upon one end with a conical nose or point, and provided upon its other end with opposite vertical wings adapted to be alternately interlocked with the said gear-wheels as described.

681,424. GEARING FOR WASHING-MACHINES. HARRY SAWYER, Muskegon, Mich. Filed June 27, 1900. Serial No. 21,742. (No model.)



Claim.—1. In a washing-machine, a hinged or pivoted support, a shaft carried by said support, a pinion mounted on said shaft, a lever pivotally mounted at one end on said support and carrying a segment-rack arranged to engage said pinion for actuating the same, a drive-gear also carried by said support, a link pivotally connected at one end eccentrically to such operating-gear and at the other end to said lever, and a drive-shaft arranged in axial alinement with the hinge of said support for actuating said operating-gear, as and for the purpose set forth.

2. In a washing-machine, a hinged or pivoted support, a shaft carried thereby, a pinion mounted on said shaft, a lever pivotally mounted at one end on said support and carrying a segment-rack arranged to engage and operate said pinion, a drive-gear carrying a crank-pin, a link pivotally connected at one end to such pin and at the other end to said lever, and a driving-shaft for said gear, said shaft being arranged in axial alinement with the hinges or pivots of said support, as and for the purpose set forth.

3. In a washing-machine, a support, a shaft carried thereby, a pinion mounted on said shaft, a segment-gear arranged to operate in a plane approximately parallel with the surface of said support and engaging said pinion, an operating-gear also arranged to operate in a plane approximately parallel with the surface of the support, and a link connecting said segment with said operating-gear, and means for actuating said operating-gear, as and for the purpose set forth.

4. In a washing-machine, a hinged or pivoted support, a shaft carried thereby, a pinion mounted on said shaft, a gear-segment carried by said support and meshing with said pinion, an operating-gear also carried by said support, a link pivotally connected at one end to said segment-gear and at the other end eccentrically to said operating-gear, a pinion for actuating said operating-gear, a shaft carrying said pinion, said shaft being arranged in axial alinement with the hinge of said support, and means for rotating said shaft, as and for the purpose set forth.

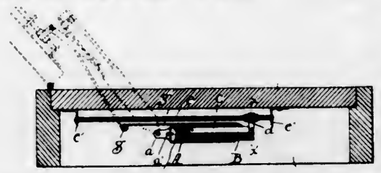
681,425. COMBINED ERASER AND DRIER. JAMES TYRE, Wilmington, Del. Filed May 17, 1900. Serial No. 17,018. (No model.)



Claim.—1. A combined eraser and drier consisting of a compressible rubber casing having perforations formed in its bottom, a sponge secured around the bottom of the casing covering its perforations, a block and normally air-tight filling-tube for the casing substantially as described.

2. A combined eraser and drier consisting of a compressible rubber casing having perforations formed in the bottom thereof, a sponge secured around the bottom of the casing covering the perforations, a wooden block secured to the top of the casing so as to render it rigid, and a threaded cap adapted to screw into the top of the casing, as specified.

681,426. DOOR-CHECK. PYWELL VINCENT, Portland, Me. Filed May 8, 1901. Serial No. 58,855. (No model.)

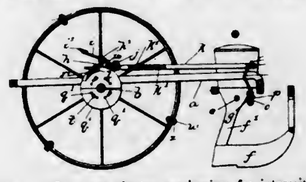


Claim.—1. The herein-described door-check consisting of a cylinder pivoted by one end to the casing, a plunger for said cylinder, a link pivoted to said plunger at a point within the cylinder when the plunger is at its inner position, a guide-rod secured to the door parallel with the cylinder, a sleeve adapted to slide on said rod and pivoted to said link at its outer end and an arm pivoted to the casing between the cylinder and the door and secured to the outer end of the plunger to operate the same.

2. The herein-described door-check consisting of a cylinder pivoted by one end to the casing, a plunger for said cylinder, a link pivoted to said plunger at a point within the cylinder when the plunger is at its inner position, a friction-clamp for holding the link against the plunger, a guide-rod secured to the door parallel with the cylinder, a sleeve adapted to slide on said rod and pivoted to said link at its outer end and an arm pivoted to the casing between the cylinder and the door and secured to the outer end of the plunger to operate the same.

3. The herein-described door-check consisting of a cylinder pivoted by one end to the casing, a plunger for said cylinder having a longitudinal recess in one side, a link normally contained in said recess and pivoted to said plunger at its inner end, a guide-rod secured to the casing parallel with the cylinder, a sleeve adapted to slide on said rod and pivoted to said link at its outer end and an arm pivoted to the casing between the cylinder and the door and secured to the outer end of the plunger to operate the same.

681,427. CORN-PLANTER. EDWIN M. ALEXANDER, Sykesville, Md. Filed June 11, 1901. Serial No. 64,078. (No model.)



Claim.—1. In a corn-planter, mechanism for intermittently dropping the corn, comprising a rigid post; a lever having a sliding fulcrum on said post; a reciprocating rod pivotally connected to said lever, said rod being connected at its forward end to the drop-actuating rock-shaft of the planter, and provided at its rear end with a lug; and a rotating cam-wheel provided with one or more cams arranged to strike said lug to move said rod whereby to rock said shaft.

2. In a corn-planter, the combination with the corn-dropping parts, including a rotating axle and a rock-shaft, of a rigid post; a lever supported on said post so as to slide and rock thereon; a rod pivotally connected between its ends to said lever and supported by the latter; an arm rigidly connected to said rock-shaft and also connected to the forward end of said rod; a cam-wheel rigidly secured to the rotating axle and provided with one or more cams adapted to push said rod forwardly to rock said shaft; and a spring secured to said post and also to said rod, whereby to pull said rod rearwardly.

3. In a corn-planter, the combination with the drop-actuating rock-shaft and the rotating axle, of a vertical port rigidly secured to a stationary part of the planter and extending above the axle, and provided with a slot; a lever loosely mounted in said slot, whereby it is capable of sliding in a direction toward the front and rear of the planter and is also capable of rocking in a vertical plane; a rod supported between its ends by said lever and having its forward end operatively connected to said rock-shaft; and a cam-wheel rigidly secured to the axle and adapted to push on the rear end of said rod whereby to rock said shaft.

4. In a corn-planter, the combination with the drop-actuating rock-shaft and the rotating axle, of a rigid vertical post whose upper end extends horizontally over said axle and is provided with a slot; a lever mounted loosely in said slot and provided at its rear end with a foot-plate by which that end of the lever may be depressed and the forward end thereof raised; a rod pivotally connected to and supported by said lever, said rod being provided at its rear end with a downwardly-projecting lug, and provided at its forward end with a bayonet-slot; an upwardly-extending arm rigidly secured to said rock-shaft and provided with a forked and slotted upper end detachably received in the said bayonet-slot; and a cam-wheel rigidly secured on the axle and underneath the rear end of said rod, and provided with one or more cams adapted to strike said lug whereby to push said rod forwardly.

5. In a corn-planter, the combination with the drop-actuating rock-shaft and the rotating axle, of a reciprocating rod having its forward end operatively connected to said rock-shaft; and a cam-wheel rigidly secured to the axle and provided with a plurality of cams detachably secured to said wheel and adapted to engage the rear end of said rod whereby to push the latter.

6. In a corn-planter, the combination with the drop-actuating rock-shaft and the rotating axle, of a reciprocating rod having its forward end operatively connected to said rock-shaft; a cam-wheel rigidly secured to said axle and provided in its periphery with a plurality of longitudinal slots, and also provided, in its sides, with a plurality of transverse bolt-holes; one or more cams provided with apertured shanks inserted through said slots into the wheel; and bolts passed through said bolt-holes and said shanks, whereby to hold said cams on said wheel.

7. In a corn-planter, mechanism for intermittently dropping the corn, comprising a sliding and rocking foot-lever; a rod pivotally connected to said lever, said rod being also connected to the drop-actuating rock-shaft of the planter, and provided with a lug; and a rotating cam-wheel provided with one or more cams adapted to strike said lug to move the rod and lever, as and for the purpose set forth.

681,428. VALVELESS ROCK-DRILL. ROBERT L. AMBROSE, Tarrytown, N. Y., assignor to Rand Drill Company, New York, N. Y. Filed Nov. 15, 1900. Serial No. 36,633. (No model.)



Claim.—1. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston that during a rearward stroke

of the piston, admission cut-off at the forward end is substantially simultaneous with exhaust-closure at the rear end but is earlier with respect to a full stroke of the piston than the corresponding point of admission cut-off at the rear end during a forward stroke.

2. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that during a rearward stroke of the piston, release at the forward end is substantially simultaneous with admission at the rear end but is earlier with respect to a full stroke of the piston than the corresponding point of release at the rear end during a forward stroke.

3. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston that during a rearward stroke of the piston, admission cut-off and release at the forward end are respectively substantially simultaneous with exhaust-closure and admission at the rear end but are respectively earlier with respect to a full stroke of the piston than the corresponding points of admission cut-off and release at the rear end during a forward stroke.

4. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston that during a rearward stroke of the piston, exhaust-closure at rear end is substantially simultaneous with admission cut-off at the forward end but is prior to exhaust-release thereat.

5. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that during a rearward stroke of the piston, release at the forward end is substantially simultaneous with admission at the rear end but is subsequent to exhaust-closure thereat.

6. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that during a rearward stroke of the piston, exhaust closure and admission at the rear end are respectively substantially simultaneous with admission cut-off and release at the forward end but that exhaust-closure, forward of the piston in its movement in either direction, takes place prior to exhaust-release rearward thereof.

7. In a valveless rock-drill, the combination with a cylinder, having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston that the expansion of working fluid at the forward end of the cylinder takes place while, and only while, the rear end of the cylinder is closed to both admission and exhaust, but that the expansion period is later, with respect to a full stroke of the piston, during a forward stroke than during a rearward stroke.

8. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that the expansion of the working fluid at the rear end of the cylinder takes place while, and only while, the forward end of the cylinder is closed to both admission and exhaust, but that the expansion period is later, with respect to a full stroke of the piston, during a forward stroke than during a rearward stroke.

9. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston that the expansion of working fluid at either end of the cylinder takes place while, and only while, the other end of the cylinder is closed to both admission and exhaust, but that the expansion period is later, with respect to a full stroke of the piston, during a forward stroke than during a rearward stroke.

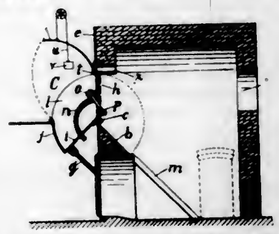
10. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston that the expansion period of a stroke in either direction is substantially equal, but is later with respect to a full stroke of the piston, during a forward stroke than during a stroke in the rearward direction.

11. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that the distance traveled by the piston up to the point of admission cut-off, during a full stroke in either direction, is substantially equal to the distance traveled by the piston during exhaust period in a full stroke in the other direction, but is substantially twice as great during a full stroke in the forward direction, as during a full stroke in the rearward direction.

12. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that the expansion period of a stroke in either direction is substantially equal, the distance traveled by the piston up to the point of admission cut-off, during a full stroke in one direction, being substantially equal to the distance traveled by the piston during exhaust period in a full stroke in the other direction, but substantially twice as great during a full stroke in the forward direction, as during a full stroke in the rearward direction.

13. In a valveless rock-drill, the combination with a cylinder having separate admission and exhaust ports for each end of the cylinder, and a common inlet-port, of a piston, having a reduced central portion and adapted to control the said ports, the said ports being so located with respect to each other and to the piston, that the expansion period of a stroke in either direction is about equal to one-fifth of a full stroke, and that the distance traveled by the piston up to the point of admission cut-off, during a full stroke in one direction, is substantially equal to the distance traveled by the piston during exhaust period in a full stroke in the other direction, but is substantially twice as great during a full stroke in the forward direction, as during a full stroke in the rearward direction.

681,429. DEVICE FOR FEEDING FUEL TO FURNACES. WILLIAM J. BALDWIN, Brooklyn, N. Y. Filed Dec. 24, 1900. Serial No. 40,363. (No model.)



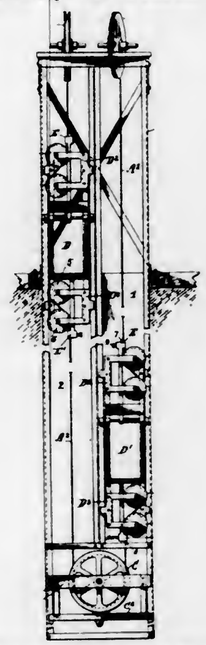
Claim.—1. The combination with a furnace of a shiftable hopper having a wall adapted to close the furnace-opening when the hopper is in the normal position for being filled, and a wall adapted to close said opening when the hopper is in the dumping position, and a hood hinged to the furnace-front and adapted to be lowered while the hopper is moving to said dumping position and close said door-opening, substantially as described.

2. The combination of a hopper having a wall constituting a door for the furnace-opening when the hopper is in the normal position for being filled, a wall constituting a door for said opening when the hopper is in the dumping position, and walls having curved top edges as described, and a curved hood hinged to the furnace-front and adapted to be lowered over the hopper and together with said curved ends close said door-opening in the intermediate positions of said hopper, substantially as described.

3. The combination with a furnace of a hopper having a wall adapted to close the furnace-opening when the hopper is in the normal position for being filled and a wall adapted to close said opening when the hopper is in the dumping position, a hood hinged to the furnace-front and adapted to be lowered and close the said opening while the hopper is moving to the dumping position, a counterpoise for the hood, and means for shifting said hood, substantially as described.

681,430. HOIST MECHANISM FOR MINE-SHAFTS. THOMAS J. BARBOUR, San Francisco, Cal. Filed Dec. 26, 1900. Serial No. 41,124. (No model.)

Claim.—1. In a single-cable hoist apparatus for mine-shafts, the combination with the endless hoisting-cable, of the opposing cable-cages, of devices carried by the cages whereby the endless cable is guided above and below the same, and means whereby the cages may be held locked to or released from the endless cable without requiring the cages to be removed from the cable in order to permit of its position being varied in accordance with the working level of the mine-shaft.



2. In a single-cable hoist apparatus for mining purposes, the combination with the mine-shaft having different levels, of the endless hoisting-cable working therein, of the cages carried thereby, of devices whereby the endless cable is guided above and below the cages, and means whereby the positions of the cages may be varied upon the hoisting-cable by releasing the cable without removing the same from the guide devices.

3. The combination with the endless hoisting-cable, of the cages carried thereby, of clutch mechanisms secured to the cages and by means of which they are attached to the hoisting-cable, and means for operating the clutch mechanisms whereby the positions of the cages may be varied for different working levels.

4. The combination with the hoisting-cable, of the cages carried thereby, of guide-sheaves secured to the cages and through which the hoisting-cable extends, clutch mechanisms carried by the cages and by means of which the cages are locked to the hoisting-cable, and means for operating the clutch mechanisms so as to place the cages in or out of locked engagement with the hoisting-cable in order that the positions of the cages may be changed in accordance with the working levels of a mine-shaft.

5. The combination with the drive mechanism, of the hoisting-cable, the pit-head sheaves over which the cable works, the take-up sheave located within the mine-shaft for taking up of the cable slack, the opposing cages carried by the hoisting-cable, devices for guiding the endless cable above and below the cages, and means whereby the relative positions of the cages may be varied upon the hoisting-cable in accordance with the working levels.

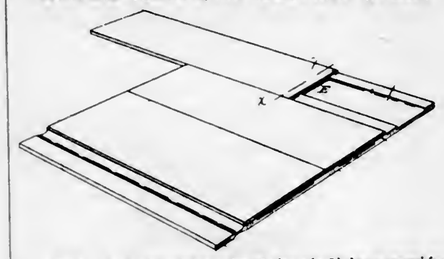
6. The combination with the endless hoisting-cable, of the shaft within which the endless cable works, the cages carried by the said cable, of guide-sheaves secured to the top and bottom portions of the cages and between which the hoisting-cable extends, and of means whereby the relative positions of the cages may be varied upon the hoisting-cable so as to adjust the same to the desired working level of the shaft.

7. In a single-cable hoist apparatus for mining purposes, the combination with the mine-shaft, of the endless hoisting-cable working therein, of the cages carried thereby, one of said cages being detachably secured to the said cable, of devices for guiding the endless cable above and below the said cage, and of means whereby the said cage may be released from the cable without disconnecting the cable from the guiding devices so that the relative positions of the cages may be varied upon the said hoisting-cable in accordance with the working levels of the mine-shaft.

8. In a single-cable hoisting apparatus, the combination with the drive-drum, of the tension-drum, the idler-sheave, the mine-shaft, the pit-head sheaves, the take-up sheave located at the bottom of the shaft, the endless hoisting-cable working over said sheaves and drums, the cages carried by the endless hoisting-cable, and means whereby the positions of the cages may be varied upon the hoisting-cable in accordance with the working level of the mine-shaft.

9. In a single-cable hoisting apparatus, the combination with the mine-shaft, of the endless hoisting-cable working therein, mechanism located outside of the shaft for driving the endless cable, the opposing cages carried by the endless cable, of means for guiding the cable around the cages, and of means carried by the cages wherein the positions thereof may be varied upon the said cable in accordance with the working level of the mine-shaft.

681,431. TRIAL OR DAILY BALANCE SHEET. JAMES BARKER, Detroit, Mich. Filed Oct. 15, 1900. Serial No. 33,102. (No model.)



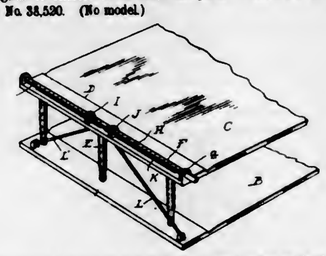
Claim.—1. A trial or balance sheet for loose-leaf ledgers, comprising the leaf-body, a removable writing-surface entirely covering one of its sides, said surface being composed of a single series of abutting and uninterruptedly-extending tablets of uniform thickness, and a detachable connection between each of the tablets and the leaf-body, whereby any one of the tablets may be removed independently of the others.

2. A trial or balance sheet for loose-leaf ledgers, comprising the leaf-body, a removable writing-surface entirely covering one of its sides, said surface being composed of a single series of abutting tablets extending uninterruptedly over said sides and being of uniform thickness, and a sliding connection between each of the tablets and said body permitting the removal of any one of the tablets independently of the others.

3. A trial or balance sheet comprising a body portion, a plurality of abutting tablets of uniform thickness detachably arranged upon one side thereof forming a continuous plane writing-surface, and reinforcing-strips upon the faces of the tablets adjacent the body at the opposite edges of the tablets, substantially as described.

4. A trial or balance sheet for loose-leaf ledgers consisting of the leaf-body, a binding-strip therefor adapted to be connected to the ledger, and a removable writing-surface extending from the strip across the body and entirely covering one side of the latter, said surface being composed of a single series of abutting tablets of uniform thickness, each detachably secured to the body and the series extending uninterruptedly thereover, substantially as described.

681,432. LOOSE-LEAF LEDGER. JAMES BARKER, Detroit, Mich., assignor to Charles F. Backus, same place. Filed Dec. 3, 1900. Serial No. 38,520. (No model.)



Claim.—In a loose-leaf ledger, the combination with the top and bottom covers, clamping members hinged thereto, the upper member having a vertical slot formed therein and extending lengthwise of the member as shown, telescoping posts between the members, bearings upon the ends of the upper member, a shaft swiveled in the bearings and provided with a left and a right hand screw-thread, nuts threaded upon the shaft and extending within the slot in the upper clamping member, ears depending from the nuts and projecting below the slotted member, and diagonally-extending rigid links pivoted to the ears and to the lower clamping member, substantially as shown and described.

681,433. FILTER. ALBERT L. BARON, Brooklyn, N. Y. Filed Dec. 31, 1900. Serial No. 41,752. (No model.)



Claim.—A filter comprising two separable sections, one section exteriorly screw-threaded upon the other section, a perforated diaphragm screw-threaded into one of the sections at its point of union with the other section, the perforated diaphragm being provided with means whereby adjustment and removal may be effected, and filtering material arranged in that section which is nearer the liquid-inlet.

681,434. FRUIT-CAR. THOMAS B. BAYLESS, Lexington, Ky. Filed June 1, 1901. Serial No. 62,777. (No model.)



Claim.—1. A fruit-car having a supplementary flooring supported in a permanent horizontal position between the sides of the car and provided with means for raising and lowering the same, substantially as described.

2. A fruit-car having a supplementary flooring supported in a permanent horizontal position between the sides of the car and adapted to be raised and lowered, and counterbalances therefor, substantially as described.

3. A fruit-car having a supplementary flooring supported in a permanent horizontal position between the sides of the car and provided with means for raising and lowering the same, said flooring comprising independent sections having spaces between them for the passage of air, substantially as described.

4. A fruit-car having a supplementary flooring comprising separate sections each supported in a permanent horizontal position between the sides of the car and provided with means for raising and lowering the same independently, substantially as described.

5. A fruit-car having a supplementary flooring comprising separate sections each supported in a permanent horizontal position between the sides of the car and adapted to be raised and lowered independently, each section being provided with a counterbalance, substantially as described.

6. A fruit-car having a supplementary flooring comprising separate sections having air-passages between them, each section being supported in a permanent horizontal position between the sides of the car, and also each having a counterbalance and adapted to be raised and lowered independently, substantially as described.

7. A fruit-car having a supplementary flooring comprising separate sections each supported in a permanent horizontal position between the sides of the car and provided with means for raising and lowering the same independently, and means for retaining or holding each section in an elevated position at the upper part of the car, substantially as described.

8. A fruit-car having a supplementary flooring comprising separate sections each supported in a permanent horizontal position between the sides of the car and adapted to be raised and lowered independently, each section having a counterbalance, and means for limiting the downward movement of each of said sections, substantially as described.

9. A fruit-car provided interiorly on opposite sides at predetermined points with hollow posts or stanchions, separate trays or sections adapted to be raised and lowered independently between said posts or stanchions, and counterbalances working in the latter, substantially as described.

10. A fruit-car provided interiorly on opposite sides at predetermined points with hollow posts or stanchions each comprising two independent vertical compartments, separate trays or sections supported by and adapted to be raised and lowered between corresponding pairs of said posts or stanchions, and a counterbalance for the said trays or sections working in each of said compartments, substantially as described.

11. A fruit-car provided interiorly on opposite sides at predetermined points with hollow posts or stanchions having slots or openings in their inner sides for a suitable distance from the upper ends thereof, and each comprising two independent vertical compartments, separate trays or sections adapted to be independently raised and lowered in the slots of opposite pairs of said posts or stanchions, and a counterbalance for the said trays or sections working in each of said compartments, substantially as described.

12. A fruit-car provided interiorly on opposite sides at predetermined points with hollow posts or stanchions having slots or openings in their inner sides for a suitable distance from the upper ends thereof, and each comprising independent vertical compartments, rails alongside the vertical edges of said slots or openings, separate trays or sections working in and adapted to be raised and lowered in the slots of opposite pairs of said posts or stanchions, said trays having wheels moving upon said rails, and a counterbalance for the trays working in each of said compartments, substantially as described.

13. A fruit-car provided interiorly on opposite sides at predetermined points with hollow posts or stanchions each closed within for a suitable distance from its lower end by a removable plate, and each also having a central vertical partition dividing it into two separate compartments, a removable frame fiting each post within for the portion thereof above the plate, said frames comprising back plates, together with front plates connected thereto and formed with vertical slots or openings, guide-pulleys mounted at the upper ends of each of said back plates, rails on the inner sides of the front plates alongside the edges of said slots or openings, separate trays or sections working in and adapted to be raised and lowered in the slots or openings of opposite pairs of said front plates, said trays having wheels moving upon said rails, and cords or ropes attached at one end to the trays and provided at their other ends with counterbalances working in the said compartments, substantially as described.

14. A fruit-car provided interiorly on opposite sides at predetermined points with hollow posts or stanchions comprising the frames A formed with the vertical slots or openings, each post or stanchion also having a vertical central partition dividing the same into two compartments, separate trays or sections adapted to be raised and lowered in the slots or openings of opposite pairs of said frames, weights or counterbalances for each tray or section working in said compartments, and deflecting devices for said weights arranged on opposite sides of said partitions just beneath the lower end of each of said frames, substantially as described.

15. A fruit-car having outer walls, inner walls separated therefrom by a suitable space and comprising independent sections separated from each other for their full height, hollow posts or stanchions of depth equaling the space between the outer and inner walls, and of width and height filling the spaces between said independent sections of said inner walls, said posts or stanchions each having slots or openings in their inner sides for a suitable distance from the upper end thereof, and each also comprising two independent vertical compartments, separate trays or sections adapted to be independently raised and lowered in the slots or openings of opposite pairs of posts or stanchions, and counterbalances for the trays or sections working in said compartments, substantially as described.

681,435. SIZING AND METHOD OF TREATING OR PREPARING SAME. CHARLES H. BELLAMY, Philadelphia, Pa., assignor to Mone R. Isaacs, same place. Filed Jan. 30, 1901. Serial No. 45,380. (No specimens.)

Claim.—1. The herein-described method of preparing sizing which consists in combining an arsenate of an alkali metal with animal or vegetable proteids in the presence of water.

2. The herein-described method of enriching animal or vegetable sizing which consists in adding thereto an arsenate of an alkali metal in a pasty condition.

3. The herein-described sizing consisting of an arsenate of an alkali metal and animal or vegetable proteid combined in the proportions and the manner substantially as set forth.

4. The herein-described method of enriching animal or vegetable sizing which consists in adding thereto an arsenate of an alkali metal.

5. The herein-described method of enriching animal or vegetable sizing which consists in adding thereto a magnesium arsenate.

6. The herein-described arsenical paste for enriching sizing, &c., consisting of arsenic and a base combined in the presence of water substantially as set forth.

7. The arsenical paste for enriching sizing, &c., consisting of arsenic, starch and a base combined in the presence of water substantially as set forth.

8. The arsenical paste for enriching sizing, &c., consisting of arsenic acid, a base and water combined in the manner substantially as set forth.

681,436. MANUFACTURE OF CASEIN AND CASEIN GLUE. CHARLES H. BELLAMY, Philadelphia, Pa., assignor to Mone R. Isaacs, same place. Filed Mar. 15, 1901. Serial No. 51,412. (No specimens.)

Claim.—1. The herein-described process of making casein glue which consists in adding to the casein an alkali arsenate.

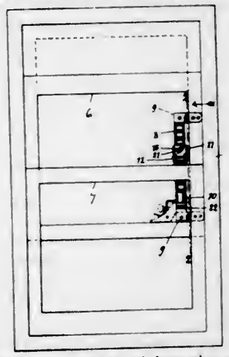
2. The herein-described process of making casein glue, which consists in producing casein from milk by the addition of a vegetable coagulant containing tannic acid, and adding to the casein so produced an alkali arsenate.

3. The herein-described process of making casein glue, which consists in adding to the casein an alkali arsenate in the presence of water.

4. The composition of matter for the production of casein glue, consisting of casein and an alkali arsenate substantially as described.

5. The composition of matter for the production of casein glue consisting of casein and potassium arsenate.

681,437. WINDOW ATTACHMENT. CHARLES A. BERBERICH, Brooklyn, N. Y. Filed Jan. 11, 1901. Serial No. 42,832. (No model.)



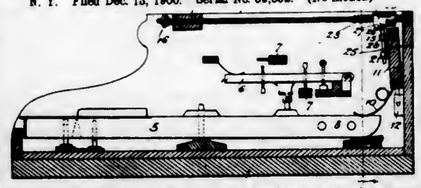
Claim.—1. An attachment for window-sashes, comprising a rack-bar which is angular in cross-section and adapted to be secured to the side of one of the sashes, said rack-bar being provided near its lower end with a cylindrical portion, and with a sleeve or slide which is mounted thereon, and which is provided with a projecting shoe open at the top and provided with a spring-operated catch which is adapted to engage the teeth of the rack-bar, substantially as shown and described.

2. An attachment for window-sashes, comprising a rack-bar, which is angular in cross-section and adapted to be secured to the side of one of the sashes, said rack-bar being provided near its lower end with a cylindrical portion, and with a sleeve or slide which is mounted thereon, and which is provided with a projecting shoe open at the top and provided with a spring-operated catch which is adapted to engage with the teeth of the rack-bar, and a screw which passes loosely through said catch and through one side of the sleeve or slide, and which is adapted to engage the rack-bar, substantially as shown and described.

3. An attachment for a window-sash, comprising a rack-bar which is adapted to be secured to one side of the sash and which is provided near its lower end with a cylindrical portion, and below said cylindrical portion with a notch or recess, and a slide mounted on said rack-bar and provided with a projecting portion or shoe, a spring-operated catch mounted in said projecting portion or shoe and adapted to engage the rack-bar and means for locking the slide to the lower end of the rack-bar, substantially as shown and described.

4. An attachment for window-sashes comprising a rack-bar which is angular in cross-section and adapted to be secured to the side of one of the sashes and said rack-bar being provided near its lower end with a cylindrical portion and with a sleeve or slide which is mounted thereon and which is provided with a projecting shoe, a screw upon the same for locking it upon the rack-bar, the said screw passing through one side of the sleeve or slide and being adapted to engage the teeth of the rack-bar.

681,438. PRACTICE-CLAVIER. AMOS C. BERGMAN, New York, N. Y. Filed Dec. 13, 1900. Serial No. 39,852. (No model.)



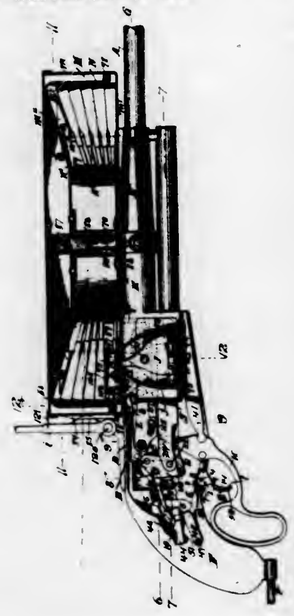
Claim.—1. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement, a rotatable regulating-arm, and connection means between said touch-bar and said regulating-arm comprising a reciprocating pivoted member carried by the latter and having a slidable connection with the former.

2. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement; and means for regulating the same comprising a reciprocating member, a pivoted member carried by the reciprocating member and having a slidable connection with the touch-bar, and devices for operating said reciprocating member comprising a regulating-arm which is operatively connected with said reciprocating member.

3. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement, a rotatable regulating-arm; and connection means between said touch-bar and said regulating-arm comprising a follower threaded upon the regulating-arm, a pivoted arm carried by the follower, and a keeper secured to the touch-bar and embracing said pivoted arm.

4. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement; and means for regulating the same comprising a rotatable longitudinally-immovable regulating-arm, and connection means between such touch-bar and said regulating-arm comprising a follower threaded upon the regulating-arm, and a pivoted arm carried by the follower and slidably connected with the touch-bar.

681,439. MAGAZINE-GUN. HOWARD CARR, San Francisco, Cal., assignor to the San Francisco Arms Company, same place. Filed Sept. 14, 1898. Serial No. 690,901. (No model.)



Claim.—1. The combination with a longitudinally-movable barrel actuated by the recoil, of a breech-block, links connecting said breech-block and barrel, means for returning the barrel to position after recoil, a member engaging the rear link, a lever connected to said member, a swinging hook carried by said lever and adapted to engage a stationary catch to hold the lever during the return movement of the barrel and lifted from the catch for the return of the breech-block, and means for rocking said lever on its pivot to said hook to actuate said member to withdraw the breech-block and for returning the lever to normal position to actuate said member to close the breech when the hook is tripped, substantially as described.

2. The combination with a longitudinally-movable barrel actuated by the recoil, of a breech-block, links connecting said breech-block and barrel, a member connected to the rear link between its pivots, a lever connected at different points to the member and barrel, a recoil-pressure device connected to said lever and a swinging hook carried by said lever and adapted to engage a fixed catch to form a fulcrum for the lever during the return of the barrel and lifted from the catch for the return of the breech-block, substantially as described.

3. The combination with a longitudinally-movable barrel actuated by the recoil, of a breech-block, links connecting said breech-block and barrel, a member having a sliding connection with the rear link and forming a hammer, a lever connected at different points to the member and barrel, a recoil-pressure device connected to said lever, a swinging hook on said lever forming a fulcrum for the lever during a withdrawal of the breech-block and a sear to hold the hammer cocked, two fixed catches adapted to be engaged by the swinging hook, means for lifting the hook from the rear catch for the return of the breech-block, and a trigger and connections for lifting the hook from the other catch for firing the gun, substantially as described.

4. The combination with a longitudinally-movable barrel actuated by the recoil, of a breech-block, links connecting said breech-block and barrel, a member connected to the rear link between its pivots, a lever connected at different points to the member and barrel, a recoil-pressure device connected to said lever, and a swinging hook carried by said lever and adapted to engage a fixed catch to form a fulcrum for the lever during the return of the barrel, and a fulcrum for the hook on which it is rocked by the lever to release it from the catch for the return of the breech-block, substantially as described.

5. The combination with a longitudinally-movable barrel actuated by the recoil, of a breech-block, links connecting said breech-block and barrel, a member having a sliding connection with the rear link and forming a hammer, a lever connected at different points to the member and barrel, a recoil-pressure device connected to said lever, a swinging hook on said lever forming a fulcrum for the lever during the withdrawal of the breech-block and a sear to hold the hammer cocked, two fixed catches adapted to be engaged by the swinging hook, a fulcrum for the hook on which it is rocked by the lever to release it from the catch for the return of the breech-block, and a trigger and connections for tripping the hook from the other catch for firing the gun, substantially as described.

6. The combination with a recoil-operated gun, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward and directly into position to be advanced longitudinally into the barrel and means for automatically rotating said magazine and delivering the cartridges, substantially as described.

7. The combination with a recoil-operated gun, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, means for automatically rotating said magazine and delivering the cartridges, and a stationary cartridge-support to which the cartridge is delivered from the holder in position to be advanced longitudinally from the support into the barrel, substantially as described.

8. The combination with a recoil-operated gun, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, means for automatically rotating said magazine and delivering the cartridges, and side plates within the breech arranged to receive a cartridge from the magazine and support it in position to be advanced from the plates longitudinally into the barrel, substantially as described.

9. The combination with a recoil-operated gun, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, means for automatically rotating said magazine and delivering the cartridges, side plates within the breech above the line of movement of the empty shell arranged to receive a cartridge from the magazine and support it in position to be advanced from the plates longitudinally into the barrel, and a rest for the point of the cartridge below the barrel, substantially as described.

10. The combination with a recoil-operated gun, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, means for automatically rotating said magazine and delivering the cartridges, side plates within the breech above the line of movement of the empty shell arranged to receive the head portion of a cartridge delivered from the magazine and support it in position to be advanced from the plates longitudinally into the barrel, and a rest for the point of the cartridge below the barrel, substantially as described.

11. The combination with a recoil-operated gun, of a magazine above the breech having a horizontally-rotating cartridge-holder and a bottom discharge-opening, means for automatically rotating said cartridge-holder and delivering the cartridges through the discharge-opening, a vertical cartridge-opening through the breech in line with said discharge-opening and the barrel, a support above the line of movement of the empty shell to which the cartridge is delivered from the holder in position to be advanced longitudinally into the barrel, and means for ejecting the empty shell downward, substantially as described.

12. The combination with a recoil-operated gun having a breech-block movable in line with the barrel to open and close the breech, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward and directly into position to be advanced into the barrel by the breech-block, and means for automatically rotating said magazine and delivering the cartridges from the magazine, substantially as described.

13. The combination with a recoil-operated gun having a breech-block movable in line with the barrel to open and close the breech, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, and a cartridge-support to which the cartridge is delivered from the magazine in front of the breech-block, and means for automatically rotating the magazine and delivering the cartridges from the magazine, substantially as described.

14. The combination with a recoil-operated gun having a breech-block movable in line with the barrel to open and close the breech, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, and side plates arranged to receive a cartridge from the magazine and support it in front of the breech-block, and means for automatically rotating the magazine and delivering the cartridges from the magazine, substantially as described.

15. The combination with a breech-block movable in line with the barrel to open and close the breech, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, side plates above the line of movement of the empty shell arranged to receive a cartridge from the magazine and support it in front of the breech-block, and a rest for the point of the cartridge below the barrel, substantially as described.

16. The combination with a breech-block movable in line with the barrel to open and close the breech, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, and spring-plates at opposite sides of the breech-chamber above the line of movement of the empty shell arranged to receive a cartridge from the magazine and support it in front of the breech-block, substantially as described.

17. The combination with a breech-block movable in line with the barrel to open and close the breech, of a magazine above the breech having a horizontally-rotating cartridge-holder from which the cartridges are delivered downward, spring-plates at opposite sides of the breech-chamber above the line of movement of the empty shell arranged to receive a cartridge from the magazine and support it in front of the breech-block, and a rest for the point of the cartridge below the barrel, substantially as described.

18. In a recoil-operated gun, the combination with a longitudinally-movable barrel, of a movable magazine actuated after the barrel is returned to normal position, substantially as described.

19. In a recoil-operated gun, the combination with a longitudinally-movable barrel, of a horizontally-rotating magazine above the breech, and means for advancing the magazine intermittently after the return movement of the barrel, substantially as described.

20. In a recoil-operated gun, the combination with a longitudinally-movable barrel and a breech-block withdrawn to open the breech during the return movement of the barrel, of a horizontally-rotating magazine above the breech, and means for advancing the magazine intermittently for the delivery of a cartridge when the breech is open, substantially as described.

21. In a magazine-gun, the combination with a horizontally-rotating cartridge-holder having a circular series of teeth in its under side, of a pawl engaging said teeth, means for actuating said pawl to advance the cartridge-holder intermittently, a catch engaging said teeth and forming a stop to prevent overthrow of the holder, and a catch engaging said teeth and forming a stop to prevent rebound of the holder, substantially as described.

22. The combination with a horizontally-rotating cartridge-holder, of a lever actuated by a reciprocating member and connected to advance said holder intermittently, and said reciprocating member and lever being arranged to lock the lever in position at the end of its movement, substantially as described.

23. In a magazine-gun, the combination with a magazine having a horizontally-rotating cylindrical cartridge-holder with the cartridges arranged therein in vertical rows, and a bottom discharge-opening, of a table projecting rearward of the holder from the forward side of the discharge-opening above one or more cartridges of the bottom layer rearward of the opening and arranged to support the upper cartridges in one or more vertical rows rearward of the discharge-opening while the bottom layer is fed beneath the table to the discharge-opening, substantially as described.

24. In a magazine-gun, the combination with a magazine having a horizontally-rotating cylindrical cartridge-holder with the cartridges arranged therein in vertical rows, and a bottom discharge-opening, of a table projecting rearward of the holder from the forward side of the discharge-opening and arranged to support the upper cartridges while the bottom layer is fed beneath the table to the discharge-opening, and a follower acting upon the top of the cartridges, substantially as described.

25. In a magazine-gun, the combination with a magazine having a horizontally-rotating cylindrical cartridge-holder with the cartridges arranged therein in vertical rows, and a bottom discharge-opening, of a table projecting rearward of the holder from the forward side of the discharge-opening above one or more cartridges of the bottom layer rearward of the opening and arranged to support the upper cartridges in one or more vertical rows rearward of the discharge-opening while the bottom layer is fed beneath the table to the discharge-opening, and a curved cartridge-guide beneath the table, substantially as described.

26. In a magazine-gun, the combination with a magazine having a horizontally-rotating cylindrical cartridge-holder with the cartridges arranged therein in vertical rows and a bottom discharge-opening, of a table projecting rearward of the holder from the forward side of the discharge-opening and arranged to support the upper cartridges while the bottom layer is fed beneath the table to the discharge-opening, and a spring-pressed curved cartridge-guide beneath the table pressing against the cartridges to secure their delivery through the opening, substantially as described.

27. In a magazine-gun, the combination with a magazine having a rotating cartridge-holder and radially-arranged cartridges therein, and a bottom discharge-opening, of a spring-pressed curved cartridge-guide arranged on the forward side of the discharge-opening in the path of movement of the cartridges and pressing against the cartridges to secure their delivery through the opening, substantially as described.

28. In a cartridge-magazine, a bottom plate having a discharge-opening detachably supported on the gun in a fixed position and a cartridge-carrier intermittently rotated to bring successive cartridges over said opening and having open vertical cartridge-chambers, substantially as described.

29. In a cartridge-magazine, a fixed cylindrical casing having a bottom discharge-opening and a cartridge-carrier inclosed within said casing and intermittently rotated to bring successive cartridges over said opening and having open vertical cartridge-chambers, substantially as described.

30. In a cartridge-magazine, a fixed cylindrical casing having a bottom discharge-opening, and a cartridge-carrier inclosed within said casing and intermittently rotated to bring successive cartridges over said opening and having open vertical cartridge-chambers each adapted to contain a plurality of cartridges, and a guide extending over the discharge-opening and beneath which the cartridges of the bottom layer are fed to the opening, substantially as described.

31. In a cartridge-magazine, a bottom plate having a discharge-opening detachably supported on the gun in a fixed position and a cartridge-carrier inclosed within said casing and intermittently rotated to bring successive cartridges over said opening and having open vertical cartridge-chambers each adapted to contain a plurality of cartridges, and a guide extending over the discharge-opening and beneath which the cartridges of the bottom layer are fed to the opening, substantially as described.

32. A cartridge-magazine including a cylindrical casing adapted to be secured in a fixed position and having a bottom discharge-opening, a cylindrical cartridge-holder within said casing having open vertical cartridge-chambers each adapted to contain a plurality of cartridges and adapted to be rotated within the casing to bring successive cartridges over the discharge-opening, substantially as described.

33. A cartridge-magazine including a cylindrical casing adapted to be secured in a fixed position and having a bottom discharge-opening, a cylindrical cartridge-holder within said casing having open vertical cartridge-chambers each holding a series of cartridges and adapted to be rotated within the casing to bring successive cartridges over the discharge-opening, and a cartridge-guide extending over the discharge-opening, substantially as described.

34. A cartridge-magazine including a cylindrical casing adapted to be secured in a fixed position and having a bottom discharge-opening, a cylindrical cartridge-holder within said casing having open vertical cartridge-chambers each holding a series of cartridges and adapted to be rotated within the casing to bring successive cartridges over the discharge-opening, and a table extending rearward over the discharge-opening above the bottom layer of cartridges and providing space in advance of the opening beneath the table for the holder-actuating devices within the casing, substantially as described.

35. Magazine-casing M having bottom plate m' with discharge-opening 99 adapted to be removably secured in a fixed position on a gun, removable cartridge-holder N within said casing, and removable cover m^2, substantially as described.

36. Magazine-casing M having bottom plate m' with discharge-opening 99 adapted to be removably secured in a fixed position on a gun, vertical cylindrical hub 70, removable rotatable cartridge-holder N on said hub, and removable cover m^2, substantially as described.

37. The combination with vertical support 80, and a magazine mounted on said support, of pivoted sight i having connection 84, 85 with the side of the magazine, substantially as described.

38. The combination with vertical support 80, and a magazine mounted on said support, of pivoted sight i having connection 84, 85 with the side of the magazine, and arm 121 engaging the top of the magazine, substantially as described.

39. A magazine having an outer cylindrical casing with a removable cover and a bottom discharge-opening, and a rotatable cartridge-holder within said casing open at the bottom for the receipt and delivery of cartridges, substantially as described.

40. The combination with the rotating cartridge-holder N, and table 105, of the follower O, substantially as described.

41. The combination with the cartridge-holder N having teeth 98, and pawl 97 for rotating said holder, of spring 108 pressing said pawl into engagement with the teeth and acting as a stop-pawl to prevent overthrow, substantially as described.

42. The combination with the rotating cartridge-holder N, of curved spring-pressed guide 103 above the discharge-opening, substantially as described.

43. The combination with the rotating cartridge-holder N, of curved spring-pressed guide 103 above the discharge-opening, and table 105 extending over the discharge-opening and guide, substantially as described.

44. The combination with the rotating cartridge-holder N, of curved guide 103, arranged on the forward side of the discharge-opening in the path of movement of the cartridges and a spring acting to press said guide toward the cartridges and controlled by the holder-actuating mechanism, substantially as described.

45. The combination with a holder N, of guide 103, holder-actuating lever I, and spring 101 having one end connected to the lever and the other to the guide, substantially as described.

46. The combination with magazine-actuating lever J having fingers 91, 92, of reciprocating leg 93 engaging said fingers to move the lever in opposite directions and passing under the fingers at the end of the lever movement, substantially as described.

47. The combination with the longitudinally-movable barrel, links K, L, hammer e, lever f and link 31, of recoil-spring 38 and its connection to the lever f, stationary catches 10, 11, and sear h pivoted on the lever and engaging the catches and lifted from catch 10 for the return of the breech-block, substantially as described.

48. The combination with the longitudinally-movable barrel, links K, L, hammer e, lever f and link 31, of recoil-spring 38 and its connection to the lever f, stationary catches 10, 11, sear h pivoted on the lever and engaging the catches, and a fulcrum for the sear on which it is rocked by lever f to release it from catch 10, substantially as described.

49. The combination with the longitudinally-movable barrel, links K, L, hammer e, lever f and link 31, of recoil-spring 38 and its connection to the lever f, stationary catches 10, 11, sear h pivoted on the lever and engaging the catches and tripped from catch 10 for the return of the breech-block, and tripper 48 for lifting the sear from catch 11, substantially as described.

50. The combination with the longitudinally-movable barrel, links K, L, hammer e, lever f and link 31, of recoil-spring 38, forward of the lever f and plates g, g' connecting it to the lever, stationary catches 10, 11, sear h pivoted on the lever and engaging the catches for holding and forming a fulcrum for the lever f, a fulcrum for the sear on which it is rocked by the lever f to release it from catch 10, and means for raising the sear from catch 11 to release the lever, substantially as described.

51. The combination with the longitudinally-movable barrel, links K, L, hammer e, lever f and link 31, of recoil-spring 38 and its connection to the lever f, stationary catches 10, 11, sear h pivoted on the lever and engaging the catches, a fulcrum for the sear on which it is rocked by lever f to release it from catch 10, and a spring 45 pressing the sear into engagement with the catches, substantially as described.

52. The combination with a recoil-operated breech movement hav-

ing recoil-spring 38, of a hand-lever H for operating said breech mechanism, head 40 forming an abutment for the recoil-spring, and link 41 connecting said head to the hand-lever, substantially as described.

53. In a recoil-operated gun, the combination with a member connected to the breech-block, of recoil-spring 38, sliding plates *g*, *g'* connected to said member, and spring-rod 35 having head 34 connecting and operating said plates, substantially as described.

54. The combination with a breech-block and extractors carried thereby engaging the opposite sides of the cartridge-shell, of an ejector having an inclined surface and means for actuating said ejector to engage the edge of the rim of the cartridge-shell by said inclined surface as the shell is withdrawn by the breech-block, said inclined surface being arranged to force the rim through the extractors in a line parallel with the holding-surface of the extractors, substantially as described.

55. The combination with a breech-block and extractors *a* on opposite sides of the shell, of ejector *b* having an inclined surface and means for actuating said ejector to engage the top edge of the cartridge-shell rim as the shell is withdrawn by the breech-block, said inclined surface being arranged to force the cartridge downward and out of the extractors in a line parallel with the holding-surface of the extractors, substantially as described.

56. The combination with pivoted ejector *b*, of sliding breech-block C having extractors on opposite sides of the shell and a curved or inclined surface engaging said ejector as the breech-block is withdrawn, said ejector having an inclined surface engaging the edge of the rim of the cartridge-shell as the shell is withdrawn by the breech-block and arranged to force the shell out of the extractors in a line parallel with the holding-surface of the extractors, substantially as described.

57. The combination with a movable breech-block, and means for introducing a cartridge from above, of side plates *s* above the path of movement of the empty shell and arranged to receive the cartridge and hold it in position to be pushed into the barrel by the breech-block, substantially as described.

58. The combination with a movable breech-block, and means for introducing a cartridge from above, of side plates *s* above the path of movement of the empty shell and arranged to receive the cartridge and hold it in position to be pushed into the barrel by the breech-block, and rest 106 for the point of the cartridge, substantially as described.

59. The combination with a movable breech-block, and means for introducing a cartridge from above, of side plates *s* above the path of movement of the empty shell and arranged to receive the cartridge and hold it in position to be pushed into the barrel by the breech-block, and ejector *b* for discharging the empty shell downward, substantially as described.

60. The combination with a tripper, of trigger *l* with pivoted catch 52 having a limited movement thereon, pin 7 for holding the tripper by the trigger, and plate 53 adjustable on the trigger into and out of position to engage said pin, substantially as described.

681,440. GRINDING-MACHINE. ADELBERT R. CLIBE, Plymouth, Ind. Filed Nov. 28, 1900. Serial No. 38,015. (No model.)

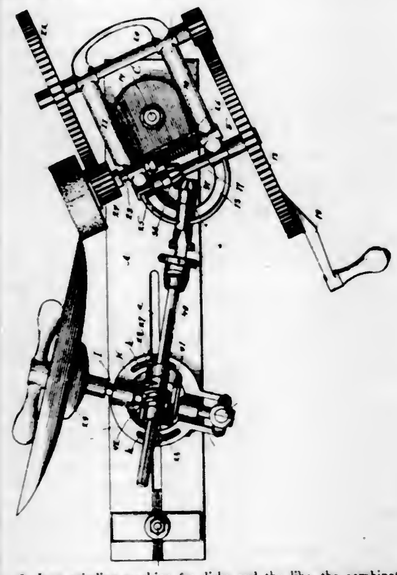
Claim.—1. In a grinding-machine for disks and the like, the combination with a frame, of a grinding-wheel drive-shaft and a revoluble disk-holder mounted on said frame, one of said parts being adjustable in a direction at an angle to said grinding-wheel shaft for accommodating disks of varying sizes, and adjustable geared connections between said shaft and said disk-holder.

2. In a grinding-machine for disks and the like, the combination with a frame, of a grinding-wheel drive-shaft and a revoluble disk-holder mounted on said frame, one of said parts being adjustable in a direction at an angle to said grinding-wheel shaft for accommodating disks of varying sizes, a counter-shaft geared to said grinding-wheel shaft and a gear for revolving said disk-holder, keyed to, but longitudinally movable upon said counter-shaft.

3. In a grinding-machine for disks and the like, the combination with a frame, of a grinding-wheel drive-shaft and a revoluble disk-holder mounted on said frame, one of said parts being longitudinally adjustable in a direction at an angle to said grinding-wheel shaft, one of said parts being rotatably adjustable in a plane at right angles to the grinding-face of said wheel and adjustable, flexible geared connections between said shaft and said revoluble disk-holder.

4. In a grinding-machine for disks and the like, the combination with a frame, of a grinding-wheel shaft and a revoluble disk-holder mounted on said frame, one of said parts being longitudinally adjustable in a direction at an angle to said grinding-wheel shaft for accommodating disks of varying sizes, both of said parts being adjustable in a plane at right angles to the grinding-face of said wheel to accommodate disks of varying pitch and means for rotating said revoluble disk-holder.

5. In a grinding-machine for disks and the like, the combination, with a grinding-wheel and with a drive-shaft therefor, of a revoluble disk-holder, said disk-holder being adjustable longitudinally to and from said grinding-wheel and rotatably adjustable in a plane at right angles to the grinding-face of said wheel, and flexible geared connections between said drive-shaft and said revoluble disk-holder.



6. In a grinding-machine for disks and the like, the combination with a main frame and with a grinding-wheel and drive-shaft therefor mounted on said frame, of a disk-holder support, having a revoluble disk-holder, mounted on said frame so as to be longitudinally adjustable to and from said grinding-wheel and rotatably adjustable in a plane at right angles to the grinding-face of said wheel, and flexible geared connections between said drive-shaft and said revoluble disk-holder.

7. In a grinding-machine for disks and the like, the combination with a main frame, and with a grinding-wheel, and drive-shaft therefor, mounted on said frame, of a disk-holder support, having a revoluble disk-holder, mounted on said frame, a longitudinal slot in said frame, arc-shaped slots in said disk-holder support, and bolts passing through said slots whereby said disk-holder support is longitudinally and rotatably adjustable, and flexible geared connections between said drive-shaft and said revoluble disk-holder.

8. In a grinding-machine for disks and the like, the combination with a main frame, and with a grinding-wheel and drive-shaft therefor mounted on said frame, of a longitudinally and rotatably adjustable disk-holder support, having a revoluble disk-holder, mounted on said frame, a gear-support flexibly mounted on said revoluble disk-holder and having a gear for operating the disk-holder, a counter-shaft, said gear being keyed to, but longitudinally movable upon said counter-shaft, and flexible geared connections between said counter-shaft and said drive-shaft.

9. In a grinding-machine for disks and the like, the combination with a main frame, of a gear-support mounted thereon, a grinding-wheel, and drive-shaft therefor, upon said gear-support, a disk-holder support, having a revoluble disk-holder, also mounted on said frame, means whereby one of said supports is adjustable to and from the other, means whereby each of said supports is rotatably adjustable in a plane at right angles to the grinding-face of said wheel, and flexible geared connections between said drive-shaft and said revoluble disk-holder.

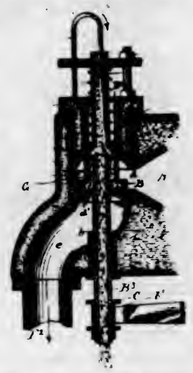
10. In a grinding-machine for disks and the like, the combination with a main frame, of a gear-support mounted thereon, a grinding-wheel and drive-shaft therefor upon said gear-support, a disk-holder support, having a revoluble disk-holder, also mounted on said frame, slot-and-bolt connections between said disk-holder support and said frame, whereby said support is longitudinally adjustable to and from said gear-support and rotatably adjustable in a plane at right angles to the grinding-face of said wheel, and an axial bolt connection between said gear-support and said frame, whereby said support is rotatably adjustable in a plane at right angles to the grinding-face of said wheel, and flexible geared connections between said drive-shaft and said revoluble disk-holder.

11. In a grinding-machine for disks and the like, the combination with a main frame, of an angularly-disposed gear-support mounted thereon, said gear-support provided with a grinding-wheel and a drive-shaft therefor, a disk-holder support also mounted on said frame, a longitudinal slot in said frame, arc-shaped slots in said support, bolt engaging said slots, whereby said disk-holder support may be longitudinally adjusted to and from said disk-support and rotatably adjusted in a plane at right angles to the grinding-face of said wheel, and means for rotating said revoluble disk-support.

12. In a grinding-machine for disks and the like, the combination with a main frame, and a grinding-wheel and drive-shaft therefor, mounted on said frame, of a disk-holder support mounted on said frame and having a disk-holder revolubly mounted on said support, but longitudinally movable therethrough, whereby the disk may be pressed against the grinding-face of said wheel, means for revolving said disk-holder, and means for longitudinally moving the same.

13. In a grinding-machine for disks and the like, the combination with a longitudinally-movable revoluble disk-holder, a longitudinally-movable shaft, a grinding-wheel on said shaft, a spring for pressing said shaft and wheel outwardly against the edge of the disk to be ground, means for longitudinally moving said disk-holder and means for revolving said grinding-wheel shaft and said disk-holder.

681,441. EXHAUST MECHANISM FOR EXPLOSIVE-ENGINES. WILLIAM L. CORSON, San Francisco, Cal., assignor to the Union Gas Engine Co., same place. Filed Oct. 3, 1900. Serial No. 32,327. (No model.)



Claim.—1. The combination with a hollow valve, of a hollow stem extending therefrom, a tubular extension secured to the valve, and of means for causing the free passage of a cooling medium through the tubular extension to the interior of the valve, the hollow stem communicating with the interior of the valve and serving as an outlet for the cooling medium, said stem and tubular extension constituting a passage open to the atmosphere.

2. The combination with a hollow valve, of a hollow open-ended stem extending therefrom and open to the atmosphere, of a tubular extension secured to the valve, means for supplying a cooling medium through the tubular extension to the valve, and of means located within the valve for retarding the outflow of the cooling medium into the hollow stem until a given level has been reached.

3. The combination with the valve-chamber of an explosive-engine, of the valve arranged therein, said valve being provided with a body portion of less diameter than the valve, a hollow sleeve or collar surrounding said valve-body and removably secured within the valve-chamber, means for supplying a cooling medium thereto, a stem extending from the valve, a spring for holding the valve to its seat, devices operated by the movement of the engine for raising or unseating the valve, and of means for maintaining the valve cool during the working of the engine.

4. The combination with the valve-chamber, of an explosive-engine, of the hollow valve arranged therein, said valve being provided with a body portion of less diameter than the valve, a water-jacketed sleeve or collar surrounding said body portion and secured within the valve-chamber, a hollow stem extending from the valve, a spring for holding the valve to its seat, devices actuated by the engine in order to raise or unseat the valve, and of means forming connection between the water-jacketed sleeve and the valve whereby water is supplied to said valve in order to maintain same cool during the working of the engine.

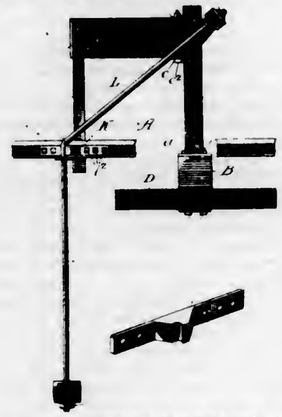
5. The combination with a valve-chamber, of a hollow valve, an open-ended tubular extension on said valve, an opposite open-ended tubular shank constituting with the tubular extension a passage through the valve open to the atmosphere, and means for supplying a cooling medium to said passage, substantially as described.

6. The combination with a valve-chamber, of a hollow valve provided with a through-passage open at opposite ends to the atmosphere, and means for supplying a cooling medium to said passage, substantially as described.

7. The combination with a valve-chamber, of a hollow valve therein, an open-ended tubular extension on one side of said valve, an opposite open-ended tubular stem on the opposite side of the valve and constituting with the tubular extension an open-ended passage through the valve, an overflow-pipe G in said valve in line with said passage, and means for causing a cooling medium to pass through said passage, substantially as described.

8. The combination with a water-jacketed valve-chamber, of a valve therein, a hollow sleeve surrounding said valve and communicating with said water-jacket, a tubular extension projecting from one side of said valve, a tubular stem projecting from the other side of said valve, and constituting together with said tubular extension a through-passage for the valve open to the atmosphere, a pipe connecting with said hollow sleeve and adapted to discharge the cooling water from said sleeve into said through-passage, and means connected with said stem for operating said valve, substantially as described.

681,442. BUMPING-POST. JAMES R. COX, Chicago, Ill. Filed Apr. 3, 1901. Serial No. 54,822. (No model.)



Claim.—1. In a bumping-post for railroad-tracks, the combination of a buffer-head, sustaining-post therefor, anchor-rods fastened to said sustaining-post and extending laterally forward and downward therefrom, braces secured to the track-rails across which the anchor-rods extend, a transversely-extending bar secured to the rails to hold them apart at said braces, and an anchor-block beneath the track-ties to which the anchor-rods are secured, substantially as and for the purpose set forth.

2. In a bumping-post for railroad-tracks, the combination of a sustaining-post, anchored centrally between the tracks, a central, horizontal and forward-extending buffer-head fastened to said post, anchor-rods fastened to said sustaining-post and extending laterally forward and downward therefrom, and brace-rods extending laterally downward from the forward end of the buffer-head, the said anchor-rods and brace-rods being secured at their lower ends in fixed relation to the railroad-ties, substantially as and for the purpose set forth.

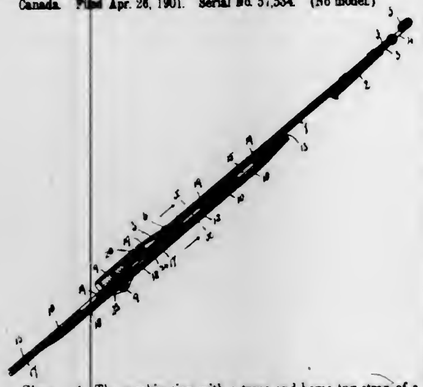
3. In a bumping-post for railroad-tracks, the combination of a buffer-head, sustaining-post therefor, a block secured to the rear upper end portion of the sustaining-post, a shoulder on the post against which the said block bears in the downward direction, anchor-rods fastened to said block and extending laterally forward and downward therefrom and anchored at their lower ends, substantially as and for the purpose set forth.

4. In a bumping-post for railroad-tracks, the combination with a buffer-head and sustaining-post therefor, of anchor-rods for the post extending laterally forward and downward therefrom, and a block formed with an attaching-plate at which it is secured to the post and with perforated inclined and flaring projections to receive the ends of the anchor-rods, substantially as and for the purpose set forth.

5. In a bumping-post for railroad-tracks, the combination with a buffer-head and sustaining-post therefor, of anchor-rods for the post extending laterally forward and downward therefrom, a block formed with an attaching-plate at which it is secured to the post and with perforated in-

clined and flaring projections to receive the ends of the anchor-rods, and a plate secured to the post and forming a shoulder on which the said block may bear in the downward direction, substantially as and for the purpose set forth.

681,443. TRACE-COUPLING. ALEXANDER M. CRAIG, Westport, Canada. Filed Apr. 26, 1901. Serial No. 57,534. (No model.)

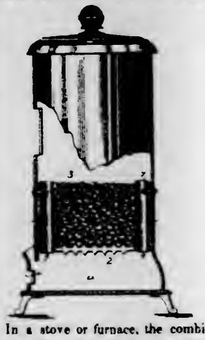


Claim.—1. The combination with a trace and hame tug strap of a harness, of a coupling-plate secured to said strap and having longitudinal slideway-slots, a spring-catch carried by said plate, a coupling-bar secured to the trace and having lugs sliding in said slots and longitudinal indentations engaged by said catch to hold the plate and bar coupled, substantially as set forth.

2. A trace-coupling, comprising a coupling-plate 1, having a finger attachable to a hame-tug strap 3, by rivets and having longitudinal slideway-slots 7, a spring-catch fitting an apertare in said plate, and a coupling-bar 10, having indentations 15 engaged by said spring-catch, to keep said plate and bar coupled at an adjusted sliding position, and having lugs 11, sliding in said slots when the catch is released and the bar pulled or pushed to lengthen and shorten a trace, substantially as set forth.

3. A trace extension-coupling consisting of a coupling-plate attachable to a hame-tug strap and having longitudinal slideway-slots, a coupling-bar attachable to a trace and having lugs sliding in said slots whereby said plate and bar have a sliding connection, said bar provided with longitudinal indentations, and a spring-catch carried by said plate and engaging said indentations to hold the bar at an adjustment to suit the length of trace desired, and to resist the pull of the draft, substantially as set forth.

681,444. STOVE OR FURNACE. LUCIUS H. CURTIS, Salt Lake City, Utah. Filed Feb. 8, 1901. Serial No. 46,565. (No model.)

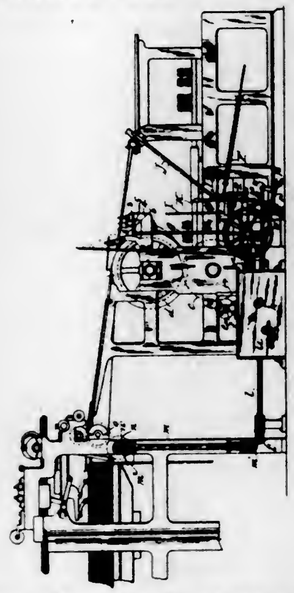


Claim.—1. In a stove or furnace, the combination with the fire-chamber and the ash-pit, of a series of removable devices located inside and constituting a lining for the fire-chamber, means for removably securing said devices in place in said chamber, said devices constructed and adapted to permit the passage of air from the ash-pit, around the fuel in the fire-chamber and above said fuel.

2. The combination with the fire-chamber and ash-pit of a stove or furnace, of a series of independent tubes located within and constituting a lining for the fire-chamber, means for removably securing said tubes in place, each of said tubes in open communication at its lower end with the ash-pit and in open communication at the other end with the fire-chamber above the fuel-space.

3. The combination with the fire-chamber and ash-pit of a stove or furnace, of a series of tubes located inside the fire-chamber and communicating at one end with the ash-pit and at the other end with the fire-chamber above the fuel-space, and removable fastening devices securing said tubes to the inner wall or face of the fire-chamber.

681,445. DEVICE FOR CONTROLLING THE ACTION OF PRINTING-PRESSES. TALBOT C. DEXTER, Pearl River, N. Y. Filed July 9, 1900. Serial No. 22,957. (No model.)



Claim.—1. The combination with a printing-press, automatic paper-feeder, mechanisms actuating said press and feeder in common, and delivering means disposed to receive the paper from the impression-cylinder, of stop mechanism organized to automatically arrest the aforesaid actuating mechanism, detectors normally in the path of the paper to the aforesaid delivering means, and mechanism restraining the stop mechanism and controlled by the detectors as set forth.

2. The combination with a printing-press, automatic paper-feeder, mechanisms actuating said press and feeder in common, and delivering means disposed to receive the paper from the impression-cylinder, of stop mechanism organized to automatically arrest the aforesaid actuating mechanism, detecting-fingers sustained normally in the path of the paper on the aforesaid delivering means, a rock-shaft controlled by the detecting-fingers, and means actuated by the rock-shaft and controlling the stop mechanism as set forth.

3. On a printing-press provided with an automatic paper-feeder and with a fly arranged to receive the paper from the impression-cylinder, the combination with the actuating mechanism of said feeder, of detecting-fingers sustained normally in the path of the paper to the fly and yieldingly independent of each other in direction lengthwise of the fly-fingers, limbs projecting from the heels of the detecting-fingers, a rock-shaft disposed transversely of the fly-fingers, arms projecting from said rock-shaft and in positions to encounter the aforesaid limbs, and thereby limit the action of the rock-shaft, and stop mechanism, for arresting the operation of the feeder and controlled by the action of the aforesaid rock-shaft.

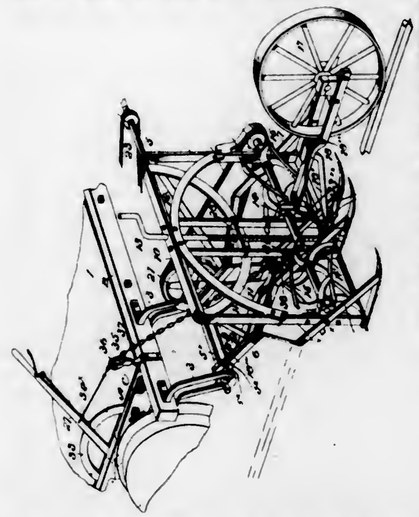
4. On a printing-press provided with an automatic paper-feeder and a fly arranged to receive the paper from the impression-cylinder, the combination, with the actuating mechanism of the feeder, of a bar disposed at right angles to the fly-fingers and parallel to the plane thereof, detecting-fingers pivotally supported on said bar and movable independent of each other in planes parallel with the fly-fingers, means for sustaining said fingers normally in the path of the paper to the fly, limbs projecting from the heels of the detecting-fingers toward one end of the fly, a rock-shaft disposed parallel with the aforesaid bar, arms projecting from said rock-shaft and in positions to encounter the aforesaid limbs, and thereby limit the motion of the rock-shaft, mechanisms actuating said rock-shaft, and stop mechanism for arresting the operation of the feeder and controlled by the actuating mechanism of the aforesaid rock-shaft.

5. On a printing-press provided with a fly arranged to receive the paper from the impression-cylinder, mechanism for automatically supplying the paper to the press, and main actuating mechanisms transmitting motion to said press and paper-supplier in common, the combination of a bar disposed at right angles to the fly-fingers and parallel to the plane thereof, detecting-fingers pivotally supported on said bar and movable independent of each other in planes parallel with the fly-fingers, means for holding said fingers normally in the path of the paper to the fly, limbs projecting from the heels of the detecting-fingers toward one end of the fly, a rock-shaft disposed parallel with the aforesaid bar, arms projecting from said rock-shaft and in positions to encounter the aforesaid limbs and thereby arrest the movement of the rock-shaft, mechanism actuating said rock-shaft, and stop mechanism for arresting the aforesaid main actuating mechanisms and controlled by the actuating mechanism of the aforesaid rock-shaft as set forth.

6. On a printing-press provided with an automatic paper-feeder, a fly arranged to receive the paper from the impression-cylinder, and main actuating mechanism transmitting motion to the press and feeder, the combination of detecting-fingers sustained normally in the path of the paper to the fly and yieldingly to contact with the paper, a rock-shaft controlled by the action of the detecting-fingers, an oscillatory lever actuating said rock-shaft, a rock-arm controlled by said lever, a press and feeder stopping lever controlled intermittently by said rock-arm, and a cam restraining the action of said stopping-lever while released from said rock-arm as set forth.

7. On a printing-press provided with an automatic paper-feeder and a fly arranged to receive the paper from the impression-cylinder, and main actuating mechanism transmitting motion to the press and feeder, the combination of detecting-fingers sustained normally in the path of the paper to the fly and yieldingly to contact with the paper, limbs projecting from the heels of said fingers, a rock-shaft disposed at right angles to the fly-fingers, arms projecting from said rock-shaft and in positions to encounter the aforesaid limbs and thereby limit the motion of the rock-shaft, an oscillatory lever actuating said rock-shaft and limited correspondingly, a rock-arm controlled by said lever, a lever for stopping the main actuating mechanism controlled intermittently by said rock-arm, and a cam restraining the action of said stopping-lever while released from said rock-arm as set forth.

681,446. MOWER. JONATHAN F. ELLSWORTH, Hyannis, Nebr. Filed June 6, 1900. Serial No. 19,286. (No model.)



Claim.—1. In combination with a car to run on a track, a rotary cutter, a cutter-supporting frame, a runner supported by said cutter-supporting frame in position to travel on the ground beside a track-rail, a runner-guiding and cutter-frame-steadying roller to bear on a track-rail, and a roller-support connected with the cutter-supporting frame, the roller-support being supported from the cutter-frame at a point in advance of the roller.

2. In combination with a car to run on a track, a cutter, a cutter-supporting frame, a steadying-roller to bear on a track-rail, an extension of the cutter-supporting frame situated in front of and below the cutter-shaft, and a support for said roller carried by said extension, the roller being at the rear end of its support whereby it is drawn along the rail.

3. In combination with a car to run on a track, a cutter, a cutter-supporting frame, a runner, a steadying-roller to bear on a track-rail, an extension of the cutter-supporting frame situated in front of and below the cutter-shaft, and a support for said roller carried by said extension, the roller being at the rear end of its support whereby it is drawn along the rail, said extension being fixed to the runner.

4. In a machine adapted to run on a track, a rotary cutter, a cutter-supporting frame, a pilot-wheel, a steadying-roller to bear on the side of a track-rail, an extension of the cutter-supporting frame situated in front of and below the cutter-shaft and extending to the front of the cutter, a support for said roller carried by said extension, and a runner, said extension being fixed to the runner and the roller being drawn along the rail.

5. In combination with a car to run on a track, a cutter, a cutter-supporting frame, and a steadying device for said frame, said device being fixed to the said frame in front of the cutter and extended rearwardly of the point of its support on the frame, and adjacent the side of a track-rail, whereby it is adapted to be drawn along in contact with said rail.

6. In combination with a car to run on a track, a mower-supporting frame, a pilot-wheel frame carrying a pilot-wheel in position to run on one of the track-rails, said frames being pivotally supported by the car on a horizontal axis, and a screw screwing through a part of the mower-frame and bearing on the pilot-wheel frame, whereby the mowers can be raised or lowered with respect to the pilot-wheel frame by turning said screw.

7. In combination with a car to run on a track, a mower-supporting frame, a pilot-wheel frame carrying a pilot-wheel in position to run on one of the track-rails, said frames being pivotally supported by the car on a horizontal axis, and a screw screwing through a part of the mower-frame and bearing on the pilot-wheel frame, whereby the mowers can be raised or lowered, said pilot-wheel frame having a supplemental piece situated behind the mower and provided with a socket or groove in which the screw is stepped.

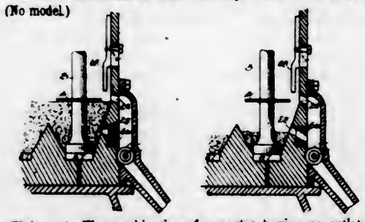
8. In combination with a car to run on a track, mower-supporting frames, hangers mediately fixed to the car, rods fixed in the hangers to pivotally support the mower-frames, and a rotating shaft to drive the mowers, said shaft being supported to turn in a part of said hangers.

9. In combination with a car to run on a track, a detachable supplementary frame fixed to the car, brackets depending therefrom, rods in said brackets, a mower-supporting frame pivotally connected to said rods and thereby to the detachable frame, a segment, a lever adjacent the segment, a flexible mower-frame-raising connection attached to the lever, and a holding-pawl carried by said lever, said segment, lever and coöperating parts being also supported by the detachable frame.

10. In combination with a car to run on a track, a shaft held in brackets supported by the car, a pilot-wheel, a pilot-wheel frame pivotally supported by the car, a mower-supporting frame, mowers and runners supported by said mower-supporting frame, which frame is pivotally supported by the car, and means bearing on the pilot-wheel frame for elevating the mower-supporting frame to lift the runners and mowers.

11. In combination with a car to run on a track, a shaft, brackets supported by the car for holding the shaft, a pilot-wheel, a pilot-wheel frame, a mower-supporting frame, mowers and runners carried by the mower-supporting frame, said frames being pivotally supported concentric to the shaft, a lever fulcrumed on the car for lifting the runners and mowers simultaneously, and means bearing on the pilot-wheel frame and connected with the mower-supporting frame.

681,447. MACHINE FOR MAKING BRONZE-POWDER. MAXIMILIAN J. FUCHS, Stamford, Conn. Filed Apr. 17, 1901. Serial No. 56,235. (No model.)



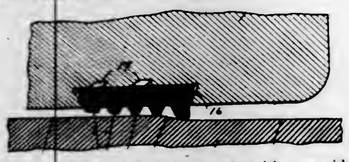
Claim.—1. The combination of a mortar having an outlet for the discharge of the ordinary finished product, and an adjustable shield adapted

to choke or restrict the free delivery of said outlet so that powder of different degrees of fineness may be produced, substantially as described.

2. The combination of a mortar having a plurality of outlets, and a slide or gate for opening and closing the lower outlet so that the machine may be adjusted to produce coarse and fine powder, substantially as described.

3. In a bronze-powder machine, the combination of a mortar having a plurality of outlets one above the other, a shield to choke or restrict the free delivery from the upper outlet, and a slide or gate for opening and closing the lower outlet whereby the machine may be adjusted for the production of more than two grades of powder, substantially as described.

681,448. PROJECTILE. EMIL GATHMANN, Chicago, Ill., assignor to the Gathmann Torpedo Gun Company, same place. Filed Mar. 16, 1899. Serial No. 709,279. (No model.)



Claim.—1. A projectile having a circumferential groove with undercut front and rear walls and supplemental grooves with inclined walls formed in the base or inner face of said main groove, and a compression-band of comparatively soft metal seated within but not normally filling said main and supplemental grooves, said band being adapted to be pressed into engagement with said grooves by the wall of a tapering shell-chamber when the gun is discharged, substantially as described.

2. A projectile having a circumferential groove with undercut front and rear walls and annular inclined supplemental grooves formed in the base of the main groove, and a compression-band of comparatively soft metal seated within but not normally filling said main groove, said band being adapted to be pressed into engagement with said main or supplemental grooves by the wall of a tapering shell-chamber when the gun is discharged, substantially as described.

681,449. RAIL-JOINT. PATRICK E. GAVIN, Rochester, N. Y. Filed Apr. 20, 1901. Serial No. 56,721. (No model.)



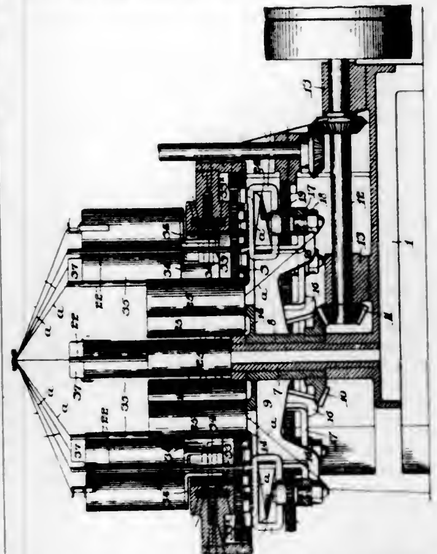
Claim.—In a railway-rail joint the meeting ends of the rails formed with overlapping vertical faces extending diagonally part way across the head portions of the rails and vertical abutting faces extending at right angles from the edges of the bases of the rails to the ends of the diagonal faces, the diagonally-faced portions of the rails being imperforate and maintained intact and clamped together by angular plates extending across the joint and beyond it at opposite sides of the rails and imperforate throughout the length of said joint and bolts passing through the angle-plates and intervening webs of the rails remote from the rail-joint as set forth.

681,450. BRAIDING-MACHINE. ANDREW V. GROUPE, Moore, Pa., assignor of one-half to Lorenz R. Schwertn, Philadelphia, Pa. Filed Dec. 20, 1900. Serial No. 40,500. (No model.)

Claim.—1. In a braiding-machine, the combination with two sets of thread-supplying devices, and means for supporting and rotating them in annular paths, in opposite directions to each other, such paths being concentric to the axis of the machine, of means whereby the threads from one set of devices are guided in an epicycloidal path intersecting the path of the other set of devices, whereby a braiding operation is effected without reciprocating movements.

2. In a braiding-machine, the combination with two sets of thread-supplying devices, and means for supporting and rotating them in annular paths, of a series of guides for the threads from one set of devices, and means whereby the said guides are supported and rotated in an epicycloidal path intersecting at predetermined points the annular path of the other set of devices.

3. In a braiding-machine, the combination with two sets of thread-supplying devices, and means for supporting and rotating them in annular paths, in opposite directions to each other, of a series of thread-guides, means for bodily rotating the series, and means for independently rotating each of said guides during the bodily rotation of said series.



4. In a braiding-machine, the combination with a support, means for rotating the same, a set of thread-supplying devices on said support, a corresponding set of thread-guides on said support, and means for independently rotating said guides during the rotation of said support, of a second set of thread-supplying devices, and means for supporting and rotating the same.

5. In a braiding-machine, the combination with a support, means for rotating the same, a set of thread-supplying devices on said support, a corresponding set of thread-guides on said support, and means for independently rotating said guides during the rotation of said support, of a series of carriers, a set of thread-supplying devices thereon, and means for rotating said carriers in an annular path intersected at predetermined points by the said thread-guides.

6. In a braiding-machine, the combination with a support, means for rotating the same, a set of thread-supplying devices on said support, perforated studs on said support, guides connected with said studs and adapted to receive and guide the threads from said devices, and means for independently rotating the said guides during the rotation of the said support, of a series of carriers, thread-supplying devices thereon, and means whereby the said carriers are rotated in a path intersected at certain points by said guides.

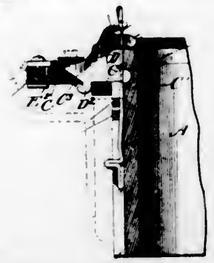
7. In a braiding-machine, the combination with a support, means for rotating the same, a set of thread-supplying devices on said support, perforated studs on said support, pinions on said studs, guides for the threads from said devices, and a gear-ring with which the pinions coact, of a series of carriers, thread-supplying devices thereon, and means whereby the said carriers are rotated in a path intersected at certain points by the said guides.

8. In a braiding-machine, the combination with a support, means for rotating the same, a set of thread-supplying devices on said support, perforated studs on said support, pinions on said studs, guides for the threads from said devices, and a gear-ring with which the pinions coact, of a series of carriers including gear-segments, thread-supplying devices on said carriers, a gear-ring, and gearing coacting therewith and with the said gear-segments.

681,451. PRESSER-BIT FOR KNITTING-MACHINES. EMIL A. HIRNER, Allentown, Pa., assignor to Excelsior Knitting Machine Manufacturing Company, same place. Original application filed Aug. 29, 1896, Serial No. 560,925. Divided and this application filed Dec. 22, 1900. Serial No. 40,801. (No model.)

Claim.—1. A presser-bit having its heel below and in the same vertical line with its throated finger and a hook-shaped bit-retaining tail below and outside of the heel; substantially as specified.

2. A presser-bit having its heel and throated finger substantially in vertical line with each other and having an operating extension and a hook-shaped guiding and bit-retaining tail below said extension; substantially as specified.



3. The combination with a needle-cylinder having a slotted presser-bit-supporting ring, of a presser-bit having its fulcrum located within the outer surface of said cylinder, and provided with an operating extension and an intermediate tail resting in a slot of the ring and serving to guide the bit; substantially as specified.

4. The combination with a needle-cylinder having a slotted presser-bit-supporting ring and an exterior annular groove, of a presser-bit having its pivotal point of support in said groove and having an operating extension with an intermediate hook-shaped tail resting in a slot in the ring; substantially as specified.

5. The combination with a needle-cylinder having a slotted bit-supporting ring and an exterior annular groove, of a presser-bit having a rounded heel located in said groove, an operating extension and an intermediate hook-shaped tail projecting into a slot in said ring, whereby the heel is retained in the groove of the cylinder; substantially as specified.

6. The combination with a needle-cylinder having an exterior annular groove, and a slotted bit-supporting ring secured to the cylinder, of a series of presser-bits each having a bit-retaining tail and each mounted in a slot of the ring, a bit-operating ring mounted on the bit-supporting ring and having a depression and a covering-plate therefor, and means for rotating said bit-operating ring, whereby the bits are retained in the supporting-ring without the use of extraneous devices and are positively operated by the passing covering-plate and depression and positively held at other times in a radially-immovable position; substantially as specified.

7. The combination with a needle-cylinder having an annular groove, of a presser-bit pivotally mounted in said groove and having an operating extension and a guiding-tail, a slotted bed through which the tail of the bit plays, and a ring supported on said slotted bed and having a recess, and means for depressing the operating extension of the bit therein; substantially as specified

8. The combination with a needle-cylinder having an annular groove, of a presser-bit pivotally mounted in said groove and having an operating extension, a slotted bed through which the tail of the bit plays, a ring supported on said slotted bed and having a depressed portion or recess, and a plate on said ring having inclined arms riding over the extension of the presser-bit; substantially as specified.

9. The combination with a needle-cylinder having an annular groove and a cam-cylinder, of a slotted bed mounted on said needle-cylinder, a bit-operating ring supported on said bed, a connection between the cam cylinder and ring, a presser-bit having a rounded heel mounted in said groove, an extension, a tail between said extension and heel working in the slot of said bed, and a plate mounted on said ring and having inclined arms bearing on the extension of the presser-bit; substantially as specified.

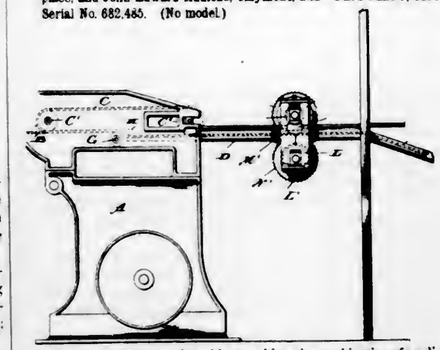
10. The combination of a needle-cylinder, a presser-bit-supporting ring secured thereto, a series of presser-bits each having an operating extension, a bit-operating ring having a cam-like depression, one wall of which is adjustable, and a covering-plate, said operating extension being arranged to pass between the operating-ring and the covering-plate substantially as specified.

11. The combination of a needle-cylinder, a presser-bit-supporting ring secured thereto, a series of presser-bits, each having an operating extension a bit-operating ring having a cam-like depression one wall of which is adjustable, a covering-plate, means for adjusting said wall, and means for securing it in an adjusted position, said operating extension being located above said operating-ring and arranged to pass below said covering-plate substantially as specified.

12. The combination with a series of presser-bits and supporting means therefor, of a bit-operating ring having a cam-like depression and covering-plate, an operating extension projecting from each bit and between said operating-ring and covering-plate, and means for moving said ring, substantially as specified.

13. The combination with a series of presser-bits each having an operating extension and supporting means for said bits, of a bit-operating ring having a cam-like depression, and a surface for holding the operating extensions of the presser-bits in relatively immovable position, and a covering-plate for moving said extensions into the cam-like depression, substantially as specified.

681,452. MATCH-MAKING MACHINE. ALEXANDER KELLEY, Wilmington, Del., assignor of two-thirds to William B. Clerk, same place, and John Edward Addicks, Claymont, Del. Filed June 3, 1898. Serial No. 682,485. (No model.)



Claim.—1. In a match-making machine, the combination of a splint-carrier, and a splint-evening roll provided with a roughened splint-engaging surface; substantially as specified.

2. In a match-making machine, the combination of a splint-carrier adapted to receive and carry splints transversely to the carrier in rows transverse to the carrier, and parallel evening-rolls located upon opposite sides of said carrier to respectively engage the opposite ends of irregularly-held splints, the axis of said rolls being parallel to the face of the carrier and to the rows of splints.

3. In a match-making machine, the combination of a splint-carrier, and evening-rolls located upon opposite sides thereof, one of which is provided with longitudinal grooves or depressions; substantially as specified.

4. In a match-making machine, the combination of a splint-carrier, evening-rolls upon opposite sides of the carrier, one of which is provided with a roughened periphery and the opposite roll with a grooved periphery; substantially as specified.

5. In a match-making machine, the combination of a splint-carrier, and evening mechanism embodying a longitudinally-grooved roll located to engage the ends of irregularly-placed splints; substantially as specified.

6. In a match-making machine, the combination of a carrier composed of chains and bars provided with pintles at opposite ends, guides for said chains, and supporting-guides for said carrier-bars upon which the body of the bar travels; substantially as specified.

7. In a match-making machine, the combination of a carrier composed of chains and bars provided with pintles at opposite ends, guides for said chains engaging the top and sides thereof, and supporting-guides for said carrier-bar upon which the body of the bar travels; substantially as specified.

8. In a match-making machine, the combination of a series of splint-engaging bars, a carrier therefor, means to engage said bars and remove them from the carrier, and means to retain said bars in engagement with said disengaging means and adapted to permit their release from said disengaging means at a point in the travel thereof; substantially as specified.

9. In a match-making machine, the combination of a series of splint-engaging bars, carrier-chains for moving the same, wheels adapted to engage said bars and moving in a path diverging from the path traversed by said chains, spring-fingers extending concentric with the periphery of said wheels and provided with a free end, and means for removing said bars from said wheels; substantially as specified.

10. In a match-making machine, the combination of a series of bars angular in cross-section, the opposing sides of adjacent bars being adapted to receive and engage match-splints, a chain for moving said bars, a rotary device for moving said bars in a path diverging from the path of the chain and provided with portions to engage the sides of the bars and retain them in a fixed relation to said device, and means for disengaging the bars from said rotary device; substantially as specified.

11. In a match-making machine, the combination of a series of bars angular in cross-section, a chain for moving said bars, a rotary bar-engaging device moving in a path diverging from the path traversed by said chain, and means carried by said rotary device to engage the sides of the bars when in contact with said device; substantially as specified.

12. In a match-making machine, the combination of a series of bars angular in cross-section, a carrier-chain for moving said bars, a bar-engag-

ing device moving in a path diverging from the path of the chain, and means carried by said device for maintaining the bars in a relative position to said device during their engagement therewith; substantially as specified.

13. In a match-making machine, the combination with a series of splint-engaging bars angular in cross-section, a carrier-chain for moving said bars, a bar-engaging device traversing a path diverging from the path of the chain, and means independent of the bars and having faces adapted to abut against said bars to retain the bars against movement relative to said device; substantially as specified.

14. In a match-making machine, the combination of a series of bars angular in cross-section, between adjacent ones of which splints are to be held, a carrier-chain for moving said bars, a bar-engaging device traversing a path diverging from the path of the chain, and means engaging said bars to maintain the same in a relative position to said device during their engagement therewith; substantially as specified.

15. In a match-making machine, the combination of a series of bars angular in cross-section and provided with pintles at their opposite ends, a carrier for said bars, and toothed wheels to engage said pintles and disengage the bars from the carrier, said wheels being provided with angular surfaces to retain the bars in their relative position to the wheels as the latter revolve; substantially as specified.

16. In a match-making machine, the combination of a carrier composed of bars, between adjacent ones of which splints are to be held, and chains to move said bars, guides for said chains, and supporting-guides for said carrier-bars extending adjacent to the upper and lower faces thereof; substantially as specified.

17. In a match-making machine, the combination of a carrier composed of chains and bars angular in cross-section, guides for said chains, and supporting-guides for said carrier-bars extending adjacent to the opposite faces of the angular body of said bars; substantially as specified.

18. In a match-making machine, the combination of a series of splint-engaging bars angular in cross-section, between adjacent ones of which splints are to be held, a carrier-chain for said bars movable in a curved path, toothed wheels to engage said bars and remove the same from said carrier, said wheels being provided with polygonal surfaces upon which said bars rest when in engagement with said wheels; substantially as specified.

19. In a match-making machine, the combination of a series of bars, between adjacent ones of which splints are to be held, carrier-chains therefor, wheels adapted to move said bars in a path diverging from the path of the chain, and spring-fingers adapted to engage the lowermost bar after the same has been released from the carrier-chain; substantially as specified.

20. In a match-making machine, the combination of a series of bars, between adjacent ones of which splints are to be held, carrier-chains therefor, wheels adapted to move said bars in a path diverging from the path of the chain, spring-fingers adapted to engage the lowermost bar after the same has been released from the carrier-chain, and means for moving said lowermost bar from engagement with said spring-fingers; substantially as specified.

21. In a match-machine, the combination of a series of splint-engaging bars, between adjacent ones of which splints are held, a chain or carrier therefor, a rotary carrier for disengaging said bars from the latter, and means rotating with said rotary device that engage said bars and prevent the rotation of the same on their axes relative to the carrier when carried by the latter; substantially as specified.

22. In a match-machine, the combination with a series of splint-engaging bars that are angular in cross-section, with pintles at their ends, a chain or carrier for said bars, and toothed wheels to engage said pintles and disengage the bars from the carrier, said wheels having surfaces to engage the bars to prevent the rotation thereof relative to the wheels as the latter revolve; substantially as and for the purpose described.

23. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter, and means whereby the position of the bars relative to said device may be maintained during the time of their engagement therewith; substantially as and for the purpose set forth.

24. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter, and means carried by said device that engage and hold the bars from movement relative thereto, substantially as and for the purpose specified.

25. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter, and means, engaging the sides of the bars, carried by said bar engaging and moving device, substantially as and for the purpose described.

26. In a match-machine, the combination of a splint-carrier, means for feeding splints thereto, a splint-evening roll having a roughened splint-engaging surface, substantially as and for the purpose shown.

27. In a match-machine, the combination of a splint-carrier, means for feeding splints thereto, and rolls on opposite sides of the carrier, one of which has its periphery grooved or fluted, substantially as and for the purpose specified.

28. In a match-machine, the combination of a splint-carrier, means for feeding splints thereto and rolls on opposite sides of the carrier, one of which has a roughened periphery and the other a grooved or fluted periphery, substantially as and for the purpose set forth.

29. In a match-machine, the combination of a splint-carrier, means for feeding splints thereto, and an evener mechanism comprising in part a grooved or fluted roll adapted to engage the ends of irregulary-placed splints; substantially as and for the purpose described.

30. In a match-machine, the combination of a series of splint-engaging bars, a chain or carrier therefor, means for disengaging said bars from the latter that cause them to move in a curved path, and means to hold said bars in engagement with said disengaging means, adapted to permit their release at a certain point in their travel; substantially as and for the purpose specified.

31. In a match-machine, the combination of a series of splint-engaging bars, a chain or carrier therefor, a device to engage with and move said bars from the latter, and means to hold said bars in engagement with said device, adapted to permit their release at a certain point in their travel therewith, substantially as and for the purpose specified.

32. In a match-machine, the combination of a series of splint-engaging bars, carrier-chains therefor, wheels to engage the bars whose peripheries move in paths from which the chains diverge, spring-plates extending concentric with said wheels, having one end free, and means moving the bars from the wheels, substantially as and for the purpose shown.

33. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a bar-engaging device moving in a path diverging from that traveled by the chain, to take the bars from the latter, means whereby the position of the bars relative to said device may be maintained during their engagement therewith, and means for feeding splints into position for engagement by the bar sides; substantially as and for the purpose shown.

34. In a match-machine, the combination of a series of bars, angular in cross-section, the opposing sides of adjacent bars being adapted to engage the splints, a chain for engaging and moving said bars, a rotary bar-engaging device for moving said bars in a path diverging from the path of the chain, to disengage the bars and chain, portions of which device engage the sides of the bars and hold them in a fixed position relative to the device, means for moving the bars from said device into engagement with the chain again, and means for placing splints in the path of the bars as they are moved after such reengagement, substantially as and for the purpose set forth.

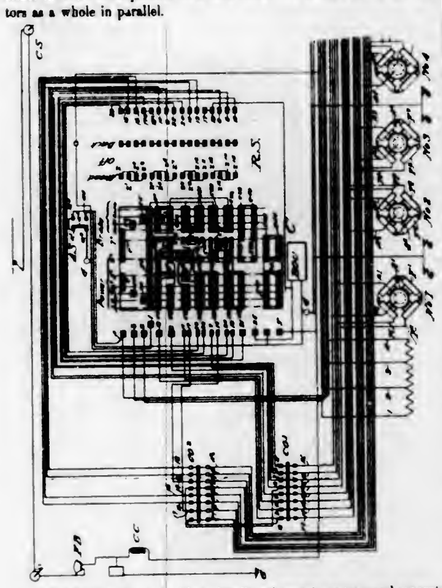
35. In a match-machine, the combination of a splint-carrier, means for feeding splints thereto, dipping mechanism and rolls on opposite sides of said carrier adapted to respectively engage the opposite ends of irregularly-placed splints, substantially as and for the purpose specified.

36. In a match-machine, the combination of a series of splint-engaging bars, between adjacent ones of which splints are to be held, a chain-carrier therefor, means for disengaging said bars from the latter and positively-acting means that engage the bars while being disengaged and control their rotation on their axes, substantially as and for the purpose set forth.

37. In a match-machine, the combination of a series of splint-engaging bars that are angular in cross-section between adjacent ones of which splints are held, a chain or carriage therefor, a rotary carrier device for disengaging said bars from the latter, and means that engage the flat sides of the bars for preventing rotation of said bars on their axes relative to said rotary carrier when carried by the latter, substantially as and for the purpose shown.

681,453. CONTROLLER FOR ELECTRIC-RAILWAY MOTORS. FRANK A. MERRICK and BENNETT W. STULL, Johnstown, Pa., assignors to the Lorain Steel Company, of Pennsylvania. Filed Sept. 23, 1900. Serial No. 31,430. (No model.)

Claim.—1. The combination with a plurality of electric motors, and separate connections leading from the terminals of each of the motor elements, of a single movable contact-carrying member having a plurality of contacts arranged in successive positions of said member to connect the motor elements in groups in which the individual elements of each group are in parallel with each other, to connect certain of the groups either in series or in parallel with each other, and to connect all the motors as a whole in parallel.



2. The combination with a plurality of electric motors, and separate connections leading from the terminals of each of the motor elements, of a single movable contact-carrying member having contacts arranged in different positions of said member to connect the motor elements in groups in which the individual elements of each group are in parallel with each other, to connect said groups all in series, partly in series and partly in parallel, and also to connect the motors as a whole in parallel.

3. The combination with a plurality of electric motors, of a controller therefor having a contact-carrying member provided with a plurality of contacts arranged in different positions of said member to connect the motor armatures and fields in series-parallel groups, then to connect the field groups in parallel with each other and in series with the armature groups, then to connect the armature group in parallel and in series with the series-connected field groups, and finally to connect each armature in series with its corresponding field and all the motors as a whole in parallel.

4. The combination with a plurality of electric motors, and separate connections leading from the terminals of each element of each motor, of a controller having a contact-carrying member provided with contacts arranged to connect the motor armatures and fields in series-parallel groups, to connect all the armature groups in series or in parallel with each other, and all the field groups in series or in parallel with each other, to connect the parallel groups in series with the series groups, and to connect all the motors as a whole in multiple.

5. The combination with four or more electric motors, and separate connections leading from the terminals of each of the motor elements, of a single contact-carrying member having upon one portion of its periphery a set of contacts arranged to connect the motors in series-parallel groups, and also all in parallel, and to effect the change from one connection to the other through suitable intermediate changes, and upon another portion of its periphery a set of contacts arranged to connect the motors in parallel in a closed local circuit to run as generators.

6. The combination with a plurality of electric motors, and separate connections leading from the terminals of each of the motor elements, of a controller-drum having contacts arranged to connect the motor elements in pairs and to connect said pairs in various ways to control the power and speed of the motors, said drum having other contacts brought into operation by a reverse movement of the drum from its off position to connect all the motors in parallel in a closed local circuit to run as generators.

7. The combination with a plurality of electric motors, and separate connections leading from the terminals of each of the motor elements, of a controller-drum having contacts arranged to connect the motor elements in pairs and to connect said pairs in various ways to regulate the power and speed of the motors, said drum having other contacts brought into operation by a reverse movement of the drum from its off position to connect the motors in parallel in a closed local circuit of variable resistance to run as generators, and to vary the said resistance.

8. The combination of a plurality of electric motors, a controller therefor, and separate connections leading from each of the motor elements to fixed contacts of the controller, the latter having coöperating movable contacts arranged to connect corresponding motor elements in pairs, and corresponding pairs either in series or in parallel with each other.

9. The combination of a plurality of electric motors, a controller therefor, and separate connections leading from each of the motor elements to fixed contacts of the controller, the latter having a plurality of movable contacts which coöperate with the fixed contacts in different positions of the switch to connect corresponding motor elements in pairs, and corresponding pairs either in series or in parallel with each other, and also at the high-speed position of the controller to break the connection between the elements of each pair and connect each armature in straight series with its corresponding field.

10. In a controller, a switch mechanism having contacts arranged to connect the armatures and fields of a plurality of motors in groups whose individual elements are in parallel with each other and to connect corresponding groups either in series or in parallel with each other, and other contacts arranged in certain positions of said drum to break the connection between the elements of each group and to connect each of the armatures in straight series with the corresponding field.

11. The combination with four electric motors, and separate circuit connections leading from the terminals of each of the motor elements, of a controller for said motors having a single controlling-drum provided with contacts for connecting one element of each motor in parallel with the corresponding element of a second motor and a reverse-switch having contacts for effecting a similar connection of the remaining elements, said controlling-drum also having contacts and connections for connecting the pairs of similar elements both in series and in parallel with each other and in series with the remaining pairs.

12. The combination with four electric motors, and separate circuit connections leading from the terminals of each of the motor elements, of a controller for said motors having a single controlling-drum provided with contacts for connecting one element of each motor in parallel with the corresponding element of a second motor, and a reverse-switch having contacts for effecting a similar connection of the remaining elements, said controlling-drum also having contacts and connections for connecting the pairs of similar elements both in series and in parallel with each other and in series with the remaining pairs, and for breaking the connections between certain terminals of each group and connecting each armature in series with its field, and all the motors in parallel.

13. The combination with four electric motors, and separate circuit connections leading from the terminals of each of the motor elements, of a controller for said motors having a single controlling-drum provided with contacts for connecting one element of each motor in parallel with the corresponding element of a second motor, and a reverse-switch having contacts for effecting a similar connection of the remaining elements, said controlling-drum also having contacts and connections for connecting the pairs of similar elements both in series and in parallel with each other and in series with the remaining pairs, and other contacts arranged to connect the motors in a closed local circuit to run as generators.

14. The combination of a plurality of electric motors, a controller therefor, and separate connections leading from each of the motor elements to fixed contacts of the controller, the latter having coöperating movable contacts arranged to connect corresponding motor elements in pairs, and corresponding pairs either in series or in parallel with each other together with independent switches arranged to cut out of circuit one element in each pair of elements.

15. The combination with a plurality of electric motors, having each of their elements provided with separate terminal connections, and a controller arranged to connect said elements in pairs and the pairs in different ways to vary the power and speed of the motors, of switches connected in the said separate terminal connections and arranged to break the circuit to one element of each of said pairs.

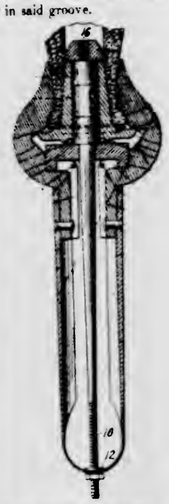
16. In apparatus for the control of electric motors, a cut-out switch having a series of fixed contacts to which are connected both terminals of each element of a pair of motors, a second series of similar contacts connected to the fixed contacts of a controller, and a series of movable contacts each arranged to bridge two opposite fixed contacts, together with an actuating device carrying said movable contacts.

681,454. GLASS-MOLDER'S TOOL. JOHN D. MILLER, Washington, D. C., assignor, by direct and mesne assignments, to the Belle Pre Bottle Company of Washington, D. C., same place. Filed Dec. 11, 1899. Serial No. 739,980. (No model.)

Claim.—1. In a tool of the character described, a revoluble mandrel, a laterally-extending annular flange integral with the base of the mandrel, a groove formed in said flange and a lug extending across said groove.

2. In a tool of the character described, a revoluble mandrel, a laterally-extending annular flange having an inclined upper face, integral

with its base, a groove formed in the upper face of the flange and a lug formed transversely in said groove.



3. In a tool of the character described, a revoluble mandrel, a laterally-extending annular flange having an inclined upper face, a groove in said flange inside the inclined face, a lug formed in the bottom of the groove, extending entirely across and to a point below the top of the groove.

4. A mandrel comprising the main body, an integral annular base-flange having an inclined upper face, an annular groove formed in said flange back of the inclined face, and a lug extending entirely across the groove and to a point below the top of the groove.

5. In a tool of the character described, the combination with the handle, of a mandrel, a base upon which the mandrel is mounted, lugs depending from said base adapted to engage the handle, and a rod to support said mandrel and base.

6. In a tool of the character described, the combination with a handle, grooves or recesses formed in said handle, of a mandrel, a base upon which the mandrel is mounted, lugs depending from said base adapted to engage said grooves or recesses, and a rod connected to the handle to support said mandrel and base.

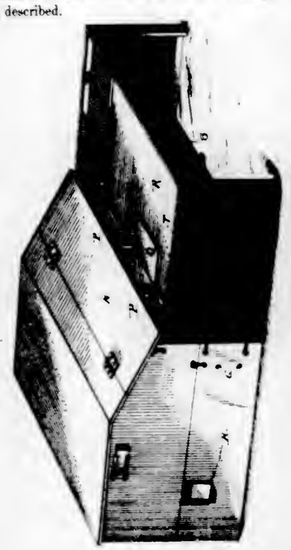
7. In a tool of the character described, the combination with the handle, grooves formed therein, and stops at the end of said grooves, of a mandrel, a base for the same, lugs depending from said base and a rod adjustably secured to the handle to support said base and mandrel.

8. In a tool of the character described, the combination with a handle comprising the jaws, a V-shaped groove formed in the inner face of said jaws and a rounded groove extending upwardly from the first-named groove, grooves formed in the base of the jaws, and a stop extending across the outer end of the last-named grooves, of a supporting-rod adjustably mounted in said handle, a base-plate having depending lugs mounted on said rod, a shaft extending upwardly from said plate and a mandrel journaled on said shaft, and comprising an annular flange having an inclined upper face, an annular groove in the top of the flange back of the inclined face, and a lug extending across and to a point below the top of the groove, and a ball-bearing interposed between the base-plate and mandrel.

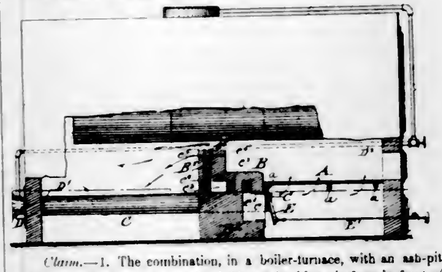
681,455. BROODER. WALLACE H. MCCORMICK, Budd, Ill. Filed Jan. 30, 1900. Serial No. 3,343. (No model.)

Claim.—1. A brooder for chickens, consisting in the combination of two casings hinged together, the lower casing having a floor, a plate beneath the floor supporting two drums, one of the drums encircling the other, the drums projecting up through the floor, the inner drum being closed at the top and open at the bottom through an aperture in the plate supporting the same, the outer drum being closed at the bottom and open at the top, a wire-gauze around the drums, and an air-shaft leading from the outer drum to one side of the casing, the upper casing being divided into two compartments, substantially as shown and described.

2. The combination in a poultry-brooder, of two casings hinged together, the upper casing being divided into two compartments; the lower casing having a floor, a plate secured beneath the floor supporting two drums, one of the drums encircling the other, the inner drum being closed at the top and open at the bottom through an aperture in the plate supporting the same, the outer drum being closed at the bottom and open at the top, a wire-gauze surrounding the drums, and an air-shaft leading from the outer drum to a vent in the side of the lower casing, substantially as shown and described.



681,456. SMOKE-CONSUMING FURNACE. HENRY R. PARSON, Brooklyn, N. Y. Filed Feb. 21, 1900. Renewed Jan. 29, 1901. Serial No. 45,249. (No model.)



Claim.—1. The combination, in a boiler-furnace, with an ash-pit and combustion-chamber, of a fire-bridge, a banking-platform in front of the same, heating-flues arranged in the banking-platform, an inlet-opening connecting said flues with the ash-pit, heating-flues arranged in the fire-bridge and connected with the flues of the banking-platform, outlet-openings in the fire-bridge, and means for opening or closing said inlet-opening, substantially as set forth.

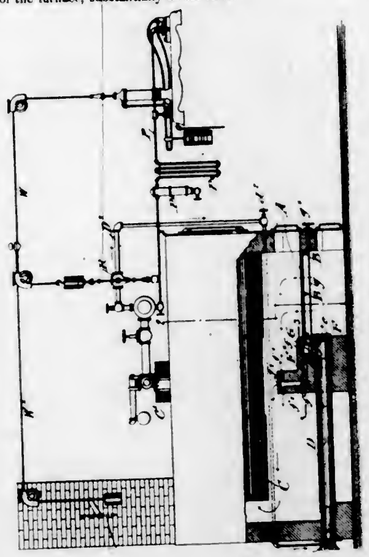
2. The combination, in a boiler-furnace, with an ash-pit and combustion-chamber, of a fire-bridge, a banking-platform in front of the same, circulating-flues in said bridge and platform, an inlet-opening connecting said flues with the ash-pit, and outlet-openings in the top of the fire-bridge, substantially as set forth.

681,457. SMOKE-CONSUMING FURNACE. HENRY R. PARSON, Brooklyn, N. Y. Filed June 30, 1900. Renewed Jan. 29, 1901. Serial No. 45,250. (No model.)

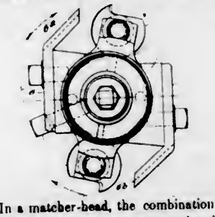
Claim.—1. The combination, with a closed combustion-chamber and ash-pit, of a grate, a banking-platform and fire-bridge, a hot-air-blast pipe extending through the rear wall of the furnace and the base of the fire-bridge and banking-platform into the ash-pit, a steam-blower in said hot-air-blast pipe, a steam-supply pipe connecting the dome of the boiler with the blower, heating-flues in the banking-platform and fire-bridge, outlet-openings in the top of the fire-bridge, for the heated air, an opening in the hot-air-blast pipe communicating with the flue in the banking-platform, and a damper for opening or closing said hot-air-supply opening in the blast-pipe, substantially as set forth.

2. The combination, of a combustion-chamber and ash-pit having

closed doors, a grate in said combustion-chamber, a banking-platform and fire-bridge adjacent to said grate, a hot-air-blast pipe extending through the rear wall of the furnace and through the base of the banking-platform and fire-bridge into the ash-pit, a steam-blower at the rear end of the hot-air-blast pipe, a steam-supply pipe connecting the blower with the dome of the boiler, a regulating-valve in said steam-supply pipe, an automatic regulator for operating the valve, a damper in the chimney of the furnace, also connected with the regulator for being automatically operated jointly with the regulating-valve, flues in the banking-platform and fire-bridge, outlet-openings in the top of the fire-bridge, an opening near the inner end of the hot-air-blast pipe communicating with the end of the hot-air flue in the banking-platform, a damper in said supply-opening of the blast-pipe, and means for opening or closing said damper from the outside of the furnace, substantially as set forth.



681,458. MATCHER-HEAD. WARREN W. PHILBRICK, Seattle, Wash. Filed Aug. 28, 1900. Serial No. 28,276. (No model.)

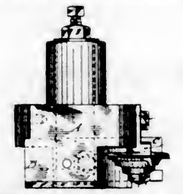


Claim.—1. In a matcher-head, the combination with the body of the head, having a diametrically-extending seat therein, and the bit-carrier fulcrumed in said seat, and having a lug or tooth on its upper face, of the adjusting-ring having a series of graduated notches, any one of which may receive the said lug or tooth, and the adjusting-nut bearing on the said ring.

2. In a matcher-head, the combination with the body of the head, having a diametrically-extending seat for a bit-carrier, a bit-carrier fulcrumed on said seat and having a lug or tooth, an adjusting-ring having a series of graduated notches any one of which may receive the said lug or tooth, and an adjusting-nut bearing upon the upper surface of the said ring and having a reduced portion extending through the ring and seating the same.

681,459. MATCHER-HEAD. WARREN W. PHILBRICK, Seattle, Wash. Filed Nov. 10, 1900. Serial No. 36,041. (No model.)

Claim.—1. In a matcher-head, the body consisting of the upper portion formed with recesses at its ends, and the lower portion cut away or reduced at the ends to form opposite wings, jointing knives or cutters secured to said wings, bit-carriers adjustably secured in said recesses, and cutting-bits secured to said carriers below and partly underneath said upper portion.



2. In a matcher-head, the combination with the body having the bit-seating recesses at its ends, and the lower wings at right angles thereto, of the vertically-adjustable bit-carriers fitted to and secured in said recesses, the circular bits secured to said carriers, and the jointing-knives or cutters secured to the said wings.

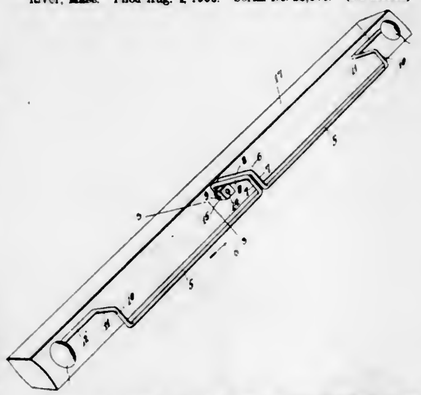
3. In a matcher-head, the combination of the integral body having recesses in the ends of its upper portion, and its lower portion reduced at each end to form the two lateral wings, of the L-shaped bit-carriers adjustably secured in said recesses, and having their horizontal arms formed at the under side with oblique bit-seating faces and integral studs extending at right angles to said faces, and jointing knives or cutters secured to the said wings.

4. In a matcher-head, the body having the oblong upper portion, and the lower opposite wing portions, jointing-knives secured to the ends of said wing portions, the bit-carriers adjustably secured to the ends of said upper portion, and the reversed cutting-bits secured to said carriers and lying partly underneath said upper portion in the plane of said wings.

5. In a matcher-head, the combination with the body having an overhanging upper portion, of bit-carriers adjustably secured to said overhanging portion and formed with depending integral bit-seating studs, and bits seated and secured on said studs, said bits lying partially underneath said overhanging portion.

6. In a matcher-head, the combination with a body portion, of a bit-carrier adjustably secured thereto and formed on its under side with an inclined bit-seating face, an integral bit-stud projecting from the said face at right angles to the plane thereof, and a bit seated and secured on said stud.

681,460. SHUTTLE-GUARD FOR LOOMS. WILLIAM RIOUX, Fall River, Mass. Filed Aug. 4, 1900. Serial No. 25,870. (No model.)



Claim.—In a loom shuttle-guard, the combination with a lay top bar, of a single-piece wire guard provided at a point intermediate of its length with the stiff shank formed by bending said wire upon itself into the upstanding arms 7 located substantially close together, the offstanding arms 8, and the loop 9, the end portions of said wire having the angularly-disposed arms 10, 11, terminating in the eyes 13, whereby a substantially continuous guard is formed and braced at its center, the intermediate guide portions 5 of the guard lying in the same plane and in offstanding relation to the top bar when the eyes 13 and loops 9 are applied thereto, and bolts for individually securing the shank and the end portions of the wire to the top bar, substantially as described.

681,461. ATTACHING-PLUG FOR ELECTRIC WIRES. LUTTRELL H. STUART, Chicago, Ill. Filed May 1, 1901. Serial No. 58,294. (No model.)

Claim.—1. An attaching-plug for electric wires comprising two blocks of non-conducting material, one of which is rotatable relative to the other, and two insulated circuit-conductors extending through both blocks.

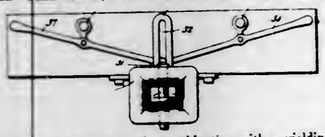


2. An attaching-plug for electric wires comprising two blocks of non-conducting material, one of which is rotatable relative to the other, a connecting-rod passing through both blocks and forming one circuit-conductor, and rods passing through each block and adapted to electrically contact and form the other circuit-conductor.

3. An attaching-plug for electric wires formed of two blocks of non-conducting material one of which is adapted to turn upon a rod extending through both blocks, which rod forms one circuit-conductor, contact-rings on the contiguous faces of the blocks, and conducting-rods connected to the rings and extending through the blocks and forming the other circuit-conductor.

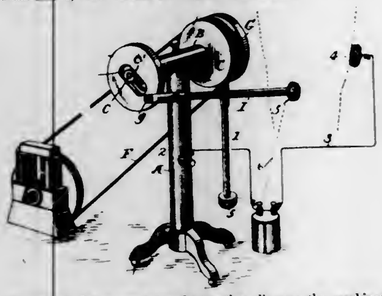
4. An attaching-plug for electric wires comprising a block of non-conducting material having the rod 14 extending therethrough and adapted to engage one socket-terminal, and having a conducting-rod and contact-ring adapted to engage the other socket-terminal, and a wire-carrying block of non-conducting material rotatably mounted on the rod 14, having a conducting-rod and contact-ring adapted to form electric connection with the conducting-rod of the other block.

681,462. **CAR-COUPLING.** ALPHONSE VÉZINA, Hedleyville, Canada. Filed Dec. 10, 1900. Serial No. 39,258. (No model.)



Claim.—In a car-coupler, the combination with a yielding draw-head, and a gravity-pin therein, of a vertically-slotted guide mounted on the draw-head adjacent to the pin, a guide-plate attached to the pin and fitted slidably in the slot of the guide, and uncoupling-levers each having a pivotal and slidable movement on its support and loosely and positively connected with said guide-plate, the slidable movement being in a direction corresponding with that of the yielding draw-head, whereby said draw-head may yield under pressure without disarranging the relative positions of the pin and its operating mechanism or destroying the positive connections of said pin and mechanism, substantially as described.

681,463. **APPARATUS FOR TREATING DISEASES.** HENRY E. WAITE, New York, N. Y., assignor to E. & E. Hanfield, same place. Filed Mar. 8, 1901. Serial No. 50,387. (No model.)



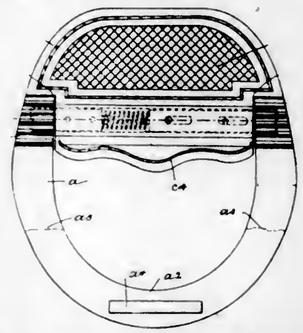
Claim.—1. In an apparatus for treating diseases the combination with a source of electricity, of a mechanical vibrator, so arranged that the flow of electricity and the mechanical vibrations shall be simultaneous, and means for varying the amplitude of said mechanical vibrations, substantially as described.

2. In an apparatus for treating diseases the combination with a source of continuous electric current, of a mechanical vibrator through which the electric current passes, for simultaneously administering electrical and mechanical stimuli, and means for varying the amplitude of the mechanical vibrations produced, substantially as described.

3. In an apparatus for treating diseases the combination with a source of electricity, of a vibrating electrode, for simultaneously administering mechanical and electrical treatment, substantially as described.

4. In an apparatus for treating diseases the combination with a source of continuous electric current, of a vibrating electrode, for simultaneously administering mechanical and electrical treatment, substantially as described.

681,464. **HORSESHOE.** GEORGE L. WARNER, New York, N. Y. Filed Jan. 2, 1901. Serial No. 41,815. (No model.)

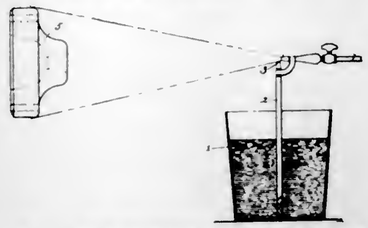


Claim.—1. A horseshoe provided with a detachable pad which is adapted to be secured thereto between the opposite sides thereof, said pad being provided at its forward side and at its forward edge and at the opposite sides with recesses adapted to receive the ends of the sides of the shoe and with transverse bars mounted therein, one of which is movable and spring-operated, said bars being adapted to enter recesses in the sides of the shoe.

2. A horseshoe comprising a front or body portion, separate rear pieces welded thereto and provided with recesses in the sides thereof, and a detachable pad provided with projections adapted to engage the recesses of the shoe, one of the said projections being spring-operated.

3. A horseshoe provided with recesses in the sides thereof and a detachable pad provided with transverse bars mounted therein and adapted to enter the recesses in the sides of the shoe, one of the said bars being movable and spring-operated.

681,465. **GLAZING PORCELAIN.** AUGUST WEBER, Jr., Schenectady, N. Y., assignor to August Weber, Sr., same place. Filed Aug. 13, 1900. Serial No. 26,737. (No model.)



Claim.—1. That improvement in the art of glazing porcelain, and the like, which consists in applying to the surface of a homogeneous highly-absorptive base minute particles of glaze accompanied by moisture, in such limited quantities successively that the moisture is absorbed by the base as rapidly as applied, and the particles of glaze form a stable deposit upon the base at the place of their original application, and afterward fluxing such deposited glaze by heat.

2. That improvement in the art of glazing porcelain, and the like, which consists in directing upon the surface of a homogeneous highly-absorptive base a jet of gaseous fluid containing minute particles of glaze accompanied by moisture, in such quantities as to form a stable deposit upon such surface by absorption by the base of the moisture as rapidly as applied; and afterward fluxing such deposited glaze by heat.

3. That improvement in the art of making porcelain, and the like, which consists in applying to the surface of a homogeneous absorptive green-composition base minute particles of glaze accompanied by moisture, in such quantities as to form a stable deposit upon such surface, and

afterward simultaneously baking the green composition and fluxing such deposited glaze by heat.

4. That improvement in the art of making porcelain, and the like, which consists in molding plastic composition to approximately the desired form; applying to the molded surface of the composition while plastic, minute particles of glaze accompanied by moisture, in such quantities as to form a stable deposit upon such surface, and afterward drying the article and subjecting the same to a high degree of heat, whereby the plastic composition is baked and the glaze simultaneously fluxed, substantially as described.

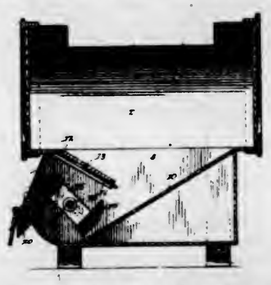
5. That improvement in the art of making porcelain, and the like, which consists in shaping plastic composition to approximately the desired form in a mold, directing upon the molded surface of the green composition a jet of air containing minute particles of liquid glaze, in such quantities as to form a stable deposit of glaze upon such surface; and afterward simultaneously baking the green composition and fluxing the deposited glaze by heat, substantially as described.

6. That improvement in the art of making porcelain, and the like, which consists in shaping plastic composition, depositing upon the surface of the shaped composition, while green, a thin, approximately uniform and stable coating of glaze, and afterward simultaneously firing the green composition and fluxing the deposited glaze.

7. That improvement in the art of glazing porcelain, and the like, which consists in applying to the surface of a homogeneous highly-absorptive base, while at normal temperature, minute particles of glaze accompanied by moisture at normal temperature, and in such quantities as to form a stable deposit upon such surface; and afterward fluxing such deposited glaze.

8. That improvement in the art of making porcelain, and the like, which consists in applying to the surface of a homogeneous absorptive green-composition base at normal temperature, minute particles of glaze accompanied by moisture, at normal temperature, and in such quantities as to form a stable deposit upon such surface, and afterward simultaneously baking the green composition and fluxing such deposited glaze by heat.

681,466. **MECHANICAL SUGAR-BOWL.** JAMES L. WEIR, Chatham, Canada. Filed May 13, 1898. Serial No. 680,609. (No model.)



Claim.—1. A mechanical sugar-bowl comprising a cylindrical receptacle provided with top and bottom openings, a curved cover resting upon the top of the cylindrical receptacle, the narrow oblong lower casing arranged beneath the cylindrical receptacle at the bottom opening thereof and provided with suitable legs and having a spout, a cut-off for regulating the flow of sugar to the spout, and a movable scoop for carrying the sugar to the spout, substantially as described.

2. A mechanical sugar-bowl comprising a receptacle, a lower casing having a spout and provided with a cut-off for controlling the flow of sugar to the spout, said lower casing being provided at its front with an opening and having a lug at the bottom thereof, a removable section covering the said opening and engaged by the said lug, and a movable scoop for carrying the sugar to the spout, substantially as described.

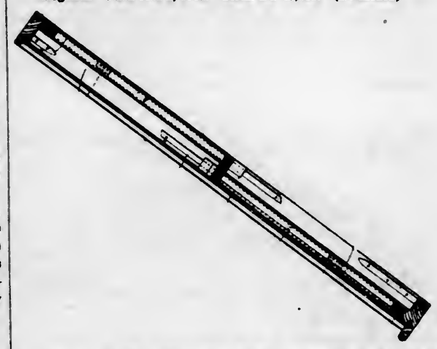
3. A device of the class described comprising an upper receptacle having a bottom opening, a lower casing located beneath the bottom opening and provided at its front with a removable section, a spout extending downward from the front of the lower casing, the incline 10 extending downward and forward from the rear end of the opening of the receptacle, the opposite incline 13 extending downward and rearward from the front of the said opening, a cut-off mounted on the incline 13 and located adjacent to the removable section of the lower casing, and a movable scoop located below the incline 13, substantially as described.

4. A device of the class described comprising a casing having a receptacle and provided with a lower compartment, a spout arranged at the lower compartment and having a hinged shutter, the opposite inclines arranged in the compartment, a cut-off for controlling the flow of the sugar, a shaft located below the cut-off and provided with arms, and scoops mounted on the arms and carried by the shaft, substantially as described.

5. A mechanical sugar-bowl provided with a spout and having a movable scoop adapted to carry sugar to the spout combined with the automatically-closing cover arranged vertically at the lower end of the spout and hinged at its top to the same, and adapted to be opened by the flow of the material, substantially as described.

6. A mechanical sugar-bowl comprising a cylindrical receptacle, the narrow oblong casing arranged beneath the cylindrical receptacle and provided at its front with a removable section, the oppositely-disposed front and rear inclines 13 and 10, a cut-off mounted on the front incline 13 and arranged adjacent to the said removable section, and a movable scoop, substantially as described.

681,467. **WINDOW-FRAME.** ROBERT WELTON, Northampton, England. Filed Jan. 2, 1901. Serial No. 41,865. (No model.)



Claim.—1. The combination with the window-frame, of guide-bars for the upper sash extending from points adjacent to the top of the frame downward adjacent to the center, and pivoted to said frame substantially centrally of their length, a pair of guide-bars for the lower sash extending from points adjacent to the bottom of the frame upward adjacent to the center, and pivoted substantially centrally of their length to said frame, at points below the pivots of the upper-sash guides, and upper and lower sashes adapted to engage said guides, whereby said sashes can be moved up and down on said guides and can be independently swung on the pivots of said guides, substantially as described.

2. The combination with the window-frame, of guide-bars for the upper sash extending from points adjacent to the top of the frame downward adjacent to the center, and pivoted to said frame substantially centrally of their length, a pair of guide-bars for the lower sash extending from points adjacent to the bottom of the frame upward adjacent to the center, and pivoted substantially centrally of their length to said frame, at points below the pivots of the upper-sash guides, and upper and lower sashes adapted to engage said guides, whereby said sashes can be moved up and down on said guides and can be independently swung on the pivots of said guides, said guide-bars and sashes being provided the one with retaining devices engaging the other to hold said sashes at any desired positions on said guide-bars, substantially as described.

3. The combination with a window-frame, of guide-bars for one sash extending from points adjacent to the top downward adjacent to the center and guide-bars for the other sash extending from points adjacent to the bottom upward adjacent to the center, said guide-bars being pivoted to said frame, stationary guide-bars in line with each of said pivoted guide-bars and sashes adapted to engage and slide on said guide-bars, substantially as described.

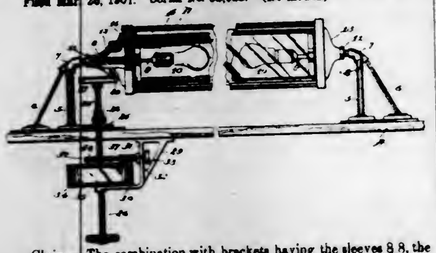
4. The combination with the window-frame, of guide-bars for the upper sash extending from points adjacent to the top of the frame downward adjacent to the center, and pivoted to said frame substantially centrally of their length, a pair of guide-bars for the lower sash extending from points adjacent to the bottom of the frame upward adjacent to the center, and pivoted substantially centrally of their length, to said frame, at points below the pivots of the upper-sash guides, and upper and lower sashes adapted to engage said guides, whereby said sashes can be moved up and down on said guides and can be independently swung on the pivots of said guides, and stationary guide-bars arranged at the top and also at the bottom of said frame in line with the upper and lower sash guides, substantially as described.

5. The combination with the window-frame, of guide-bars for the upper sash extending from points adjacent to the top of the frame downward adjacent to the center, and pivoted to said frame substantially cen-

trally of their length, a pair of guide-bars for the lower sash extending from points adjacent to the bottom of the frame upward adjacent to the center, and pivoted substantially centrally of their length to said frame at points below the pivots of the upper-sash guides, and upper and lower sashes adapted to engage said guides, whereby said sashes can be moved up and down on said guides and can be independently swung on the pivots of said guides, stationary guide-bars arranged at the top and bottom of said frame in line with the upper and lower sash guides, and springs secured to each of said sashes and engaging the guides therefor, to hold the sash in any desired position on said guides, substantially as described.

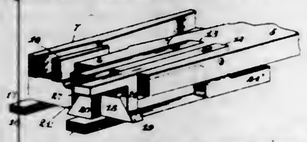
6. The combination with the window-frame, of guide-bars for the upper sash extending from points adjacent to the top of the frame downward adjacent to the center, and pivoted to said frame substantially centrally of their length, a pair of guide-bars for the lower sash extending from points adjacent to the bottom of the frame upward adjacent to the center, and pivoted substantially centrally of their length, to said frame, at points below the pivots of the upper-sash guides, and upper and lower sashes adapted to engage said guides, whereby said sashes can be moved up and down on said guides and can be independently swung on the pivots of said guides, and a locking device for securing the meeting-rails of the upper and lower sashes together to prevent either a swinging or sliding movement of the same, substantially as described.

681,468. SIGN FOR CARS. CHARLES H. WILSON, Lynn, Mass. Filed Mar. 26, 1901. Serial No. 52,925. (No model.)



Claim.—The combination with brackets having the sleeves 8 8, the end pieces 12 and 13 journaled thereon and having the rectangular portions as 14, the angle strips or plates 15 secured to such rectangular portions, the plates 16 secured to such angles, the glass held thereby, said end 12 having the gear 20, of the shaft journaled in a vertical bearing and having the gear 27 meshing with the gear 20, the indicator-frame 35 secured to the shaft and adapted to sustain signs in the vertical position, the disk 36 secured to said shaft, the bracket 29 in which said shaft is journaled, the locking device carried by said bracket and adapted to engage said disk, and the vertical casing 34 mounted on the arm 31 of the bracket and embracing the frame 35 as and for the purpose described.

681,469. RAILWAY-SWITCH. CHARLES H. WILSON, Lynn, Mass. Filed Apr. 16, 1901. Serial No. 56,076. (No model.)



Claim.—The combination with the bed-plate 5 having the openings 12 and 13, and the plates 22 and 23 pivoted in such openings and having the arms 24 and 25 and the cams 26 and 27, of the actuator mounted to move laterally beneath such bed-plate and having the cam 19 and the extension 20 with its cam-face 21, as and for the purpose described.

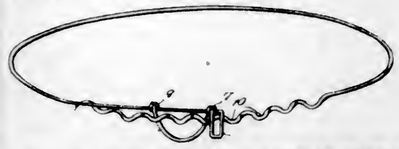
681,470. REMOVABLE JACKET FOR ELECTRIC CABLES. JAMES WOLFF, Chicago, Ill. Filed Aug. 24, 1900. Serial No. 27,931. (No model.)



Claim.—1. A removable jacket for an electric cable, comprising a waterproof covering fastened at its edges and provided with a tongue bridging the joint between said edges, substantially as set forth.

2. A removable jacket for an electric cable, comprising a covering of a woven fabric, having its pores filled with an elastic, waterproof composition, said covering surrounding said cable and joined at its edges and provided with a tongue bridging the joints between the said edges, substantially as set forth.

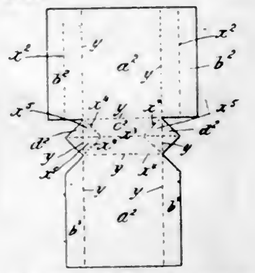
681,471. BALE-TIE. ROBERT ARMATAGE, Attica, Ohio. Filed Feb. 16, 1901. Serial No. 47,640. (No model.)



Claim.—1. A bale-tie consisting of a wire having one end bent upon itself to form spaced loops the adjacent sides of which lie in close relation, and the opposite end of the wire being corrugated and adapted to lie between the sides of the loops and in contact therewith, said corrugated portion having a terminal hook to engage with the wire beyond the loops.

2. A bale-tie consisting of a wire having spaced loops the sides of one of the loops being converged outwardly, said wire having also a corrugated portion for engagement between the loops, and adapted to lie with certain of its corrugations between the convergent sides and in contact therewith, to hold the corrugated portion against outward movement.

681,472. SET-UP AND SECURED COLLAPSIBLE OR KNOCK-DOWN BOX. WILLIAM P. BIRNIE, Springfield, and CHAUNCEY W. GAY, West Springfield, Mass., assignors to United States Automatic Box Machinery Company, Boston, Mass. Filed May 14, 1900. Serial No. 16,657. (No model.)



Claim.—A blank from which to produce a set-up and stuck rectangular box capable of being knocked down, consisting of opposite side sections a^2, a^2, intermediate rectangular bottom section c^2 having at the ends the tongues or stay-sections d^2, d^2, and the edge-forming sections b^2, b^2 formed as sidewise extensions of the one side section a^2, and the stay-sections b^2, b^2 formed as sidewise extensions of the other side section, and having the folding-lines y on which to bend the blank to constitute the rectangular box, and said blank having the special creases as follows: the creases x^2, x^2 extending longitudinally along the middle of the side sections b^2, the crease x^3 extending longitudinally and midway of the bottom and of the said stay-sections d^2, d^2, and the creases x^4, x^4 extending from the corners of the bottom section inwardly within the area of the unrecessed bottom section at angles of forty-five degrees to, and meeting, the creasing-line x^3, substantially as and for the purposes described.

681,473. DRAINER OR COLANDER. ROSA L. BYRNE, Cincinnati, Ohio. Filed Dec. 23, 1897. Serial No. 663,124. (No model.)

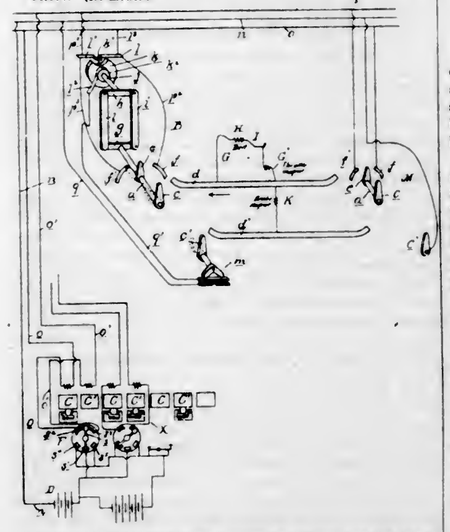


Claim.—1. An article for the purpose described, consisting of a half-circular vessel 5, with a perforated bottom 8 and capable of being supported in a horizontal position, either by its round side or by its flat one, means provided for such alternate support, consisting of hook-shaped

catches 7 on the outside of its round side and holes 18 in its straight one in combination with a second bottom 9 above bottom 8 having also perforations, but of smaller size than the latter, a marginal flange 11 projecting upwardly from bottom 9 and supporting legs 12 below it, all as shown and described.

2. An article for the purpose described, consisting of a half-circular vessel 5, with a perforated bottom 8, and capable of being supported in a horizontal position, either by its round side or by its flat one, means provided for such alternate support, consisting of hook-shaped catches 7 on the outside of its round side and holes 18 in its straight one, in combination with a second bottom 9 above bottom 8, having also perforations, but of smaller size than the latter, a marginal flange 11 projecting upwardly from bottom 9 and supporting legs 12 below it, a loosely-connected handle 13 passing through perforations in bottom 9 and provided with enlargements 14 below the latter for the purpose described.

681,474. ELECTROMAGNETIC SAFETY SYSTEM FOR RAILROADS. CHARLES M. CRONKITE, Lansing, Mich., assignor of one-tenth to James E. Hilliard, same place. Filed Aug. 27, 1900. Serial No. 28,197. (No model.)



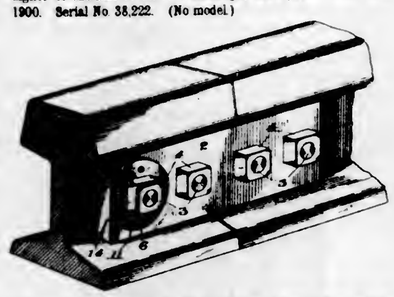
Claim.—1. In an electric safety system for railways, two interspaced series of electromagnetic annunciators corresponding to a single series of signal-points along the track, and means at said signal-points for operating the annunciators of one series by trains moving in one direction along the track, and for operating the corresponding annunciator of the second series by trains moving in the opposite direction, whereby the progressive and relative movement of trains moving in both directions is indicated.

2. In an electric safety system for railways, two interspaced series of electromagnetic annunciators, electric circuits extending progressively therefrom to a series of signal-points along the track, the circuits of adjacent pairs of annunciators of the two series extending to the same signal-point, and circuit-closers at said signal-points adapted to be operated by trains moving in one direction to progressively close the circuits of one series of annunciators and by trains moving in the opposite direction to progressively close the circuits of the other series of annunciators.

3. In an electric safety system for railways, two electromagnetic annunciators at the station, electric lines extending therefrom to a common signal-point along the track, means operated by the passing of a train for closing an electric circuit through the one or the other of said lines, according to the direction of movement of the train, and of thereby operating the corresponding annunciator, and means simultaneously operated for closing an electric circuit through the other line including an electromagnetic device on the moving train.

4. In an electric safety system for railroads, two electromagnetic annunciators at a station, electric lines extending therefrom to a common signal-point along the track, means operated by the passing of a train for closing an electric circuit through the one or the other of said devices, according to the direction of movement of said train, means simultaneously operated for closing a circuit through the other of said lines, including electromagnetic devices on the train one of which is adapted to be operated thereby and means at the station for throwing in a stronger current into said circuit to operate another electromagnetic device on said train, said latter device being adapted to stop the train.

681,475. NUT-LOCK. GEORGE W. DOLLINGER, Altoona, Pa., assignor of one-half to M. P. Brumbaugh, same place. Filed Nov. 30, 1900. Serial No. 38,222. (No model.)

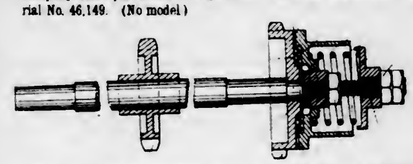


Claim.—1. In a nut-lock, the combination with a bolt and its nut, of a washer mounted upon said bolt and provided with locking-lugs, and a fastener adapted to embrace said nut, said fastener being formed of a single strip having its central portion bent to form a body and its ends bent back upon said body to form resilient arms adapted to engage the locking-lugs for retaining the fastener upon the nut.

2. In a nut-lock, the combination with a bolt and its nut, of a washer mounted upon said bolt and provided with means for rendering the washer incapable of rotation, said washer being also provided with locking-lugs having notches, and a fastener adapted to embrace said nut, said fastener being formed of a single strip having its central portion bent to form a body and its ends bent back upon said body to form resilient arms, said arms terminating in necks adapted to fit within the notches of the locking-lugs, whereby the fastener is retained upon the nut.

3. In a nut-lock, the combination with a bolt and its nut, of a washer mounted thereon and provided with an upturned flange against which the head of the bolt is adapted to rest, a nut-washer also mounted on said bolt and provided with locking-lugs having notches, said washers being each provided with means for rendering the same incapable of rotation, and a fastener adapted to embrace said nut and comprising a body portion, resilient arms bent back upon said body portion and terminating in necks, and engaging clips carried by said necks, said necks being adapted to fit within the notches of the locking-lugs, whereby the fastener is retained upon the nut.

681,476. DRIVING MECHANISM FOR ELEVATORS. MELVIN A. FLAUTT, Waynesboro, Pa., assignor to the Geiser Manufacturing Company, same place. Filed May 4, 1900. Renewed Feb. 5, 1901. Serial No. 46,149. (No model.)



Claim.—1. The combination, with a driving-shaft, and a driving-wheel journaled thereon and provided with a serrated clutch member; of a serrated clutch member which revolves the said shaft and is slidable longitudinally on it, a resonator carried by one of the said clutch members and operating to give an alarm when the slidable clutch member is reciprocated longitudinally, and means for normally holding the said clutch members in driving connection, substantially as set forth.

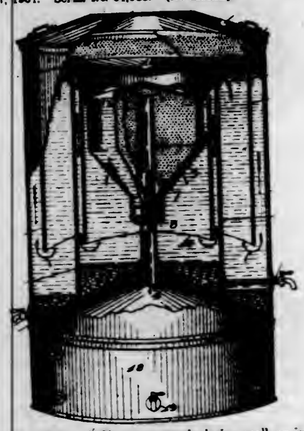
2. The combination, with a driving-shaft provided with a shoulder, and a screw-threaded end portion; of a rectangular block screwed on the said end portion, a driving-wheel provided with a clutch member and journaled on the said shaft between the said shoulder and block, a clutch member slidable longitudinally on the said block and operating to revolve the said shaft, a spring normally holding the said clutch members in driving connection, and means for varying the pressure of the said spring engaging with the said screw-threaded end portion of the shaft, substantially as set forth.

3. The combination, with an elevator provided with a driving-shaft, of a driving-wheel journaled on the said shaft and provided with a serrated clutch member, a serrated clutch member which revolves the said shaft and is slidable longitudinally on it, a resonator carried by the slid-

able clutch member and operating to give an alarm when the slidable clutch member is reciprocated longitudinally, and a spring holding the said clutch members in driving connection until the resistance in the elevator exceeds a prearranged limit, substantially as set forth.

4. The combination, with an elevator provided with a driving-shaft having a shoulder, and a rectangular block secured on the said shaft; of a driving-wheel journaled on the said shaft between the said shoulder and block and provided with a clutch member, a clutch member slidable longitudinally on the said block and provided with a resonator for giving an alarm when the resistance in the elevator exceeds a prearranged limit, a spring normally holding the said clutch mechanism in driving connection, and means for varying the pressure of the said spring, substantially as set forth.

681,477. OIL-FILTER. AUGUST H. FRANKE, St. Louis, Mo. Filed May 27, 1901. Serial No. 61,963. (No model.)



Claim.—1. In an oil-filter, an outer inclosing wall, an inner wall, a filtering-head supported within the inner wall, and a number of deflecting-shields, around which the oil must pass before it reaches the filtering-head, substantially as specified.

2. The improved oil-filter, consisting of an outer wall, a filtering-head, and a number of deflecting-shields within the outer wall and extending below the filtering-head, around which the oil must pass before it reaches the filtering-head, substantially as specified.

3. The improved oil-filter, consisting of an outer wall, an inner wall, a deflecting-shield between the said outer and inner walls, a deflecting-shield within the inner wall, and suitable filtering material supported inside the inner wall above the lower end of the deflecting-shield, the oil being required to pass around the lower ends of the said deflecting-shields before it reaches the filtering material, substantially as specified.

4. In an oil-filter, a bottom attached to an outer wall, an inner wall supported by said bottom, a stand-pipe within said inner wall and supported by said bottom, filtering material interposed between said inner wall and said stand-pipe, and means for withdrawing the precipitated impurities from within the said inner wall, substantially as specified.

5. The improved oil-filter, consisting of an outer and first precipitating-chamber and an inner and second precipitating-chamber, a stand-pipe supporting filtering material within said inner and second precipitating-chamber, a deflecting-shield within said outer and first precipitating-chamber, a deflecting-shield within said inner and second precipitating-chamber, means for withdrawing the precipitated impurities from the inner and second precipitating-chamber, and means for withdrawing the precipitated impurities from the outer and first precipitating-chamber, substantially as specified.

681,478. COMB-CLEANER. GAETANO GIODA, New York, N. Y. Filed May 4, 1901. Serial No. 58,696. (No model.)



Claim.—1. The combination, with a hair-comb having teeth at opposite edges, of a shiftable frame thereon provided with end pieces, and slotted side pieces provided with transverse cleaner strips or strippers that enter between the teeth of the comb, the width of said frame being approximately equal to the width of the main body of the comb, plus the length of the teeth at one side thereof, and said frame being open at the sides of the comb, substantially as set forth.

2. In a cleaning attachment for combs, the combination with a comb having teeth at opposite edges, of a shiftable cleaning attachment thereon composed of end pieces and longitudinally-slotted side pieces having transverse cleaner strips or reeds, the ends of said cleaner-strips being notched and secured to the bent-over sides of the longitudinal side pieces, substantially as set forth.

681,479. SECTIONAL BOOKCASE. REUBEN HATCH, Grand Rapids, Mich. Filed Nov. 27, 1900. Serial No. 37,910. (No model.)



Claim.—1. The combination with the bottom and end pieces of one section of a sectional bookcase, said bottom and end pieces having grooves therein, of a hinged connection between each of said end pieces and said bottom, the same comprising L-shaped strips constituting hinges, the two arms of each of said strips being rigidly connected to each other, one arm of each of said strips lying within a groove in said bottom and secured thereto and the other arm of each of said strips lying within a corresponding groove in one of said end pieces and pivoted thereto.

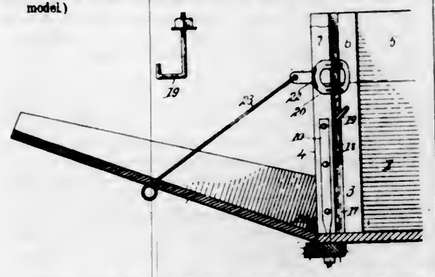
2. The combination with the bottom and end pieces of one section of a sectional bookcase, said bottom having a plurality of grooves in its lower surface, said grooves extending inwardly from the ends of said bottom, and said end pieces having grooves in their inner surfaces extending upwardly from their lower ends and lying in the same planes with the adjacent grooves in said bottom, of a hinged connection between each of said end pieces and said bottom, the same comprising L-shaped strips constituting hinges, one arm of each of said hinges lying within one of the grooves in said bottom and secured thereto and the other arm of each of said hinges lying within one of the grooves in one of said end pieces and pivoted thereto.

3. The combination with the bottom and end pieces of one section of a sectional bookcase, said bottom having a plurality of grooves in its lower surface, said grooves extending inwardly from the ends of said bottom, and said end pieces having grooves in their inner surfaces extending upwardly from their lower ends and lying in the same planes with the adjacent grooves in said bottom, of a hinged connection between each of said end pieces and said bottom, the same comprising L-shaped strips constituting hinges, the horizontal arm of each of said hinges having an opening therein and fitting within one of the grooves in said bottom and the vertical arm of each of said hinges having an opening therein and fitting within one of the grooves in one of said end pieces, a securing device extending through the edge of said bottom piece adjacent to each of said hinges and through the opening in the horizontal member of each of said hinges, and a pivot extending through the edge of each of said end pieces adjacent to each of said hinges and through the opening in the vertical member of each of said hinges.

4. The combination with the bottom and end pieces of one section of a sectional bookcase, said bottom having a plurality of grooves in its lower surface, said grooves extending inwardly from the ends of said bottom, and said end pieces having grooves in their inner surfaces extending upwardly from their lower ends and lying in the same planes with the adjacent grooves in said bottom, of a hinged connection between each of said end pieces and said bottom, the same comprising L-shaped strips constituting hinges, the horizontal arm of each of said hinges being slightly longer than the grooves in said bottom, having a pointed end and provided with an opening, said horizontal arm fitting within one of the grooves in said bottom with the pointed end thereof penetrating the material of said bottom beyond the inner end of said groove, securing means extending through the edge of said bottom adjacent to each of said hinges and through the opening in the horizontal arm thereof, and the vertical arm of each of said hinges having an opening therein and fitting within one of the grooves in each of said end pieces, and a pivot extending through the edge of each of said end pieces adjacent to each of said hinges and through the opening in the vertical arm thereof.

5. In a sectional bookcase, the combination with the vertical end pieces of a plurality of superposed sections, of molding-strips secured to the front edge of each of said end pieces, and having a tongue-and-groove connection therewith, one end of one of said strips being beveled and projecting beyond the end of the end piece to which it is secured and the adjacent end of the adjacent strip being beveled in the opposite direction and overlapping the other strip, whereby the joint between the two adjacent sections is made less prominent, and whereby each of said molding-strips is adapted to interlock with the end pieces of two adjacent sections for preventing lateral displacement of the same.

681,480. SCOOP-BOARD FOR WAGON-BEDS. LYSANDER L. HAWORTH, Decatur, Ill. Filed June 3, 1901. Serial No. 62,823. (No model.)



Claim.—1. A fastening to connect scoop-boards with wagon-beds, comprising a channel-iron adapted to fit in the end-gate groove of the bed, a bracket having corrugations conforming to the ribs of the channel-iron, means for adjusting the bracket crosswise of the channel-iron and an arm on the bracket forming a bearing for a board-supporting rod.

2. A fastening to connect scoop-boards with wagon-beds, comprising a bar adapted to fit in the end-gate groove of the bed, an arm extending downward and sidewise against a side of the bar, means for tightening the arm against the bar, and a bracket on the bar to sustain the scoop-board.

3. A fastening to connect scoop-boards with wagon-beds, comprising a channel-iron bar adapted to fit in the end-gate groove of the bed, a bolt set through the bed and having a cam extension adapted to bear downward and sidewise against a wall of the channel-iron, and a bracket on the channel-iron to sustain the scoop-board.

4. The combination with a wagon-bed and with a scoop-board therefor, of bolts extending from the sides of the bed through the bottom thereof, supports held by the bolts underneath the bed and extended rearward beyond the bed, and a cross-cleat held by the supports in the rear of the bottom of the bed, substantially as described.

5. The combination with a scoop-board and with a cross-cleat projecting beyond the sides of the bed, of clips attachable to the sides of the scoop-board and having stop-fingers to engage the cleat, substantially as described.

6. The combination with a scoop-board and with a cross-cleat projecting beyond the sides of the bed, of extensions on the sides of the scoop-board adapted to engage the extended ends of the cleat.

681,481. AUTOMATIC FIREARM. THOMAS C. JOHNSON, New Haven, Conn., assignor to Winchester Repeating Arms Co., same place. Filed Apr. 26, 1901. Serial No. 57,563. (No model.)

Claim.—1. In a firearm, the combination with a butt-stock having a lateral cartridge-feeding opening, of an outer cartridge-tube located within the said stock and having lateral communication with the said cartridge-feeding opening, and an inner magazine-tube longitudinally movable in the said outer magazine-tube into the outer end of which it is entered, the said inner magazine-tube being made to be grasped by its rear end and drawn rearward until its open forward end stands to the rear of the said cartridge-feeding opening whereby the cartridges may be fed through the said opening into the outer magazine-tube and the inner tube then shoved forward.

2. In a firearm, the combination with a butt-stock having a lateral cartridge-feeding opening, of a metal escutcheon introduced into said opening and shaped to conform to the longitudinal profile of a cartridge, whereby the right presentation of cartridges fed through it into the butt-stock is secured, of an outer magazine-tube located within the said stock and having lateral communication with the inner end of the said escutcheon, and an inner magazine-tube entered into the rear end of the said outer magazine-tube and made to be grasped by its outer end and drawn rearward so that its forward end will stand at a point in rear of the said cartridge-feeding opening whereby cartridges may be fed into the outer magazine-tube and the said inner magazine-tube then shoved forward over the cartridges.

3. In a firearm, the combination with a butt-stock, of a butt-plate applied thereto and formed with a cup-like depression which is received by the stock, of a magazine-tube longitudinally movable within the stock and provided at its outer end with a finger-piece or thumb-button which enters the said depression in the butt-plate when the said tube is in its home position.



4. In a firearm, the combination with a butt-stock having a lateral cartridge-feeding opening, of a butt-plate applied thereto and formed with a cup-like depression, of a fixed outer magazine-tube located within the said butt-stock and having lateral communication with the said feeding-opening, and an inner magazine-tube entered into the said outer tube through the rear end thereof, and provided at its outer end with a finger-piece or thumb-button whereby it may be withdrawn for loading.

5. In a firearm, the combination with the butt-stock and the frame of the arm, of a magazine-tube located within the said butt-stock, and an independently-formed cartridge-feeding chute mounted in the said frame and constituting a continuation of the forward end of the said magazine-tube.

6. In a firearm, the combination with the stock thereof, a magazine-tube located therein and an independent cartridge-feeding chute leading into the frame and constituting a continuation of the said magazine-tube, a frame and a tang carried by the stock, of take-down instrumentalities for securing said frame and tang together whereby the gun may be taken down and reassembled without disturbing the chute in relation to the said tube.

7. In a firearm, the combination with a stock and magazine-tube located therein, an independent cartridge-feeding chute the rear end of which receives the cartridges from the magazine-tube, of a cartridge cut-off mounted in the said chute, and a breech-closure coacting directly with the said cut-off to control the escape of the cartridges from the forward end of the chute.

8. In a firearm, the combination with a butt-stock having a lateral cartridge-feeding opening, of an outer magazine-tube fixed within the butt-stock and having lateral communication with the said opening, an inner magazine-tube entered into the rear end of the said outer magazine-tube through the rear end of the butt-stock, and longitudinally movable to uncover the feeding-opening for the insertion of cartridges into the outer magazine-tube, a tang, a cartridge-feeding chute connected with the tang and forming a continuation of the outer magazine-tube, a cut-off mounted in the said chute, and a breech-closure coacting directly with the cut-off for controlling the escape of cartridges from the forward end of the chute.

9. In a firearm, the combination with the frame, the tang carried by the stock, of take-down instrumentalities connecting the frame and tang, of an independently-formed cartridge-feeding chute connected with the

said tang, and receiving cartridges at its rear end, of a cartridge cut-off mounted in the said chute, and a breech-closure coacting directly with the cut-off to control the escape of cartridges from the forward end of the chute.

10. In a firearm, the combination with a stock, a magazine-tube located therein, a cartridge-feeding chute, of a longitudinally-arranged cut-off pivotally connected at its rear end to the said chute and having its forward end formed with a tooth, and a breech-closure coacting directly with the upper edge of the said cut-off for positively forcing the tooth thereof into the cartridge-passage in the chute.

11. In a firearm, the combination with a stock, a magazine-tube located therein, an independent cartridge-feeding chute provided upon its upper face with two parallel flanges, of a cartridge cut-off located between the said flanges, pivoted thereto by a pivot passing through its rear end, and having its forward end provided with a downwardly-extending tooth which passes through an opening formed in the chute between the forward ends of the said flanges, and a breech closure coacting directly with the said cut-off for positively controlling the escape of the cartridges from the forward end of the chute.

12. In a firearm, the combination with a cartridge-feeding chute, of means for supplying cartridges to the same through the rear end thereof, and a hammer constructed to have the chute pass forward through it.

13. In a firearm, the combination with a cartridge-feeding chute, of a pivotal cartridge cut-off mounted in the said chute, a hammer constructed to have the chute pass forward through it and to swing back and forth over the chute, and a breech-closure coacting with the said cut-off to control the feeding of cartridges from the forward end of the chute, and coacting with the said hammer to cock it.

14. In a firearm, the combination with the breech-block thereof, of a swinging hammer, and an antifriction roller mounted in the upper rear corner of the block and coacting with the upper wall of the receiver of the gun for reducing the friction of the operation of the block under the upward-swerving thrust imparted to the rear end of the block in cocking the hammer.

15. An automatic firearm having a balanced breech-block provided with a forward extension adapted to extend forward under the barrel of the arm.

16. In an automatic firearm, the combination with a balanced breech-block having a balancing extension projecting forward under the barrel of the arm, and means coacting with the said extension but organized independently thereof for manually opening the block.

17. In an automatic firearm, the combination with a breech-block having a balancing extension projecting forward under the barrel of the arm, and means coacting with the forward end of the said extension but organized independently thereof for manually opening the breech-block.

18. In an automatic firearm, the combination with the receiver thereof, of a breech-block, and means carried by the barrel of the gun and coacting with the said breech-block for manually opening the same but not moving therewith when the breech-block is automatically operated.

19. In an automatic firearm, the combination with a breech-block having a balancing extension projecting forward under the barrel of the arm, of a spring-controlled plunger carried by the barrel of the arm and coacting with the forward end of the said extension for manually opening the breech-block.

20. In an automatic firearm, the combination with the receiver, the barrel and the fore-stock thereof, of a breech-block having a balancing extension projecting forward under the barrel into the fore-stock which is chambered for its reception, and means connected with the receiver of the gun for guiding the said extension.

21. In an automatic firearm, the combination with the receiver, the barrel and the fore-stock thereof, of a breech-block having a balancing extension projecting forward into the fore-stock which is chambered for its reception, a tip located at the forward end of the fore-stock and secured to the barrel of the arm, and means mounted in the said tip for manually opening the breech-block.

22. In an automatic firearm, the combination with the receiver, the barrel and the fore-stock thereof, of a breech-block extending forward into the said fore-stock which is chambered for its reception, a tip located at the forward end of the fore-stock and secured to the barrel, and a plunger mounted in the said tip and coacting with the forward end of the said extension of the breech-block for manually opening the same.

23. In an automatic firearm, the combination with the receiver, the barrel and the fore-stock thereof, of a breech-block extending forward under the barrel into the said fore-stock, a tip located at the forward end of the fore-stock and secured to the barrel, a tubular plunger mounted in the tip and coacting with the extension of the breech-block, and a spring located within the plunger for maintaining the same in its normal or forward position in which it remains unmoved when the breech-block is automatically moved rearward by the firing of the arm.

24. In an automatic firearm, the combination with the barrel thereof, of a breech-block having a balancing extension extending forward along the said barrel, and a guide-rod coacting with the said extension which latter is provided for increasing the weight of the block.

25. In an automatic firearm, the combination with a breech-block having a forwardly-projecting balancing extension extending under the barrel of the gun, of an independently-formed guide-rod fixed to the receiver of the arm and coacting with the said extension for guiding the same, and a spring encircling the guide-rod for returning the block to its normal or closed position.

26. In an automatic firearm, the combination with the receiver and barrel thereof, of a breech-block having a forwardly-projecting balancing extension extending under the said barrel, a guide-rod fixed to the said receiver and passing through the said extension and guiding the movement thereof back and forth.

27. In an automatic firearm, the combination with a breech-block having a forwardly-projecting balancing extension, of a guide-rod coacting with the said extension, and a plunger connected with the barrel of the arm and guided by the forward end of the said guide-rod when the plunger is pushed rearwardly for manually opening the block.

28. In an automatic firearm, the combination with a breech-block provided with a forwardly-projecting balancing extension located below the plane of the block proper and comprising two parallel arms and terminating at their forward ends in a body, of a guide-rod secured at its rear end to the receiver of the firearm, and extending forward between the said parallel arms and through the said body.

29. In an automatic firearm, the combination with the receiver, the barrel and the fore-stock thereof, of a breech-block provided with a balancing extension extending forward under the barrel into the said fore-stock, of a guide-rod coacting with the said extension, a spring coacting with the extension for returning the block to its normal position, a plunger connected with the barrel and coacting with the forward end of the extension for opening the same manually, and a spring for maintaining the plunger in its normal position.

30. In a firearm, an ejector having two differentiated ejecting means located one in front of the other of which the forward is the less aggressive in its action of the two.

31. In a firearm, the combination with the receiver thereof, of a breech-block, an extractor carried thereby, and an ejector provided with a spent-shell-ejecting shoulder and with a loaded-cartridge-ejecting shoulder located behind the same.

32. In a firearm, the combination with a swinging hammer and a trigger therefor, of a longitudinally-movable sear.

33. In a firearm, the combination with the hammer and the trigger thereof, of a longitudinally-movable sear, a hammer-spring, and a sear-spring weaker than the hammer-spring which moves the sear bodily rearward against the tension of the said sear-spring.

34. In a firearm, the combination with the hammer and the trigger thereof, of a sear having an elongated pivot-hole permitting the sear to be longitudinally moved.

35. In a firearm, the combination with the hammer and the trigger thereof, of a pivot-pin on which the trigger swings, and a sear hung on the same pivot-pin and having an elongated pivot-hole to permit it to be longitudinally moved.

36. In a firearm, the combination with the hammer thereof, of a trigger provided with a combined stop and operating lug, and a longitudinally-movable sear coacting at its forward end with the hammer, and formed at its rear end with a combined stop and operating finger coacting with the said lug of the trigger.

37. In an automatic gun, the combination with the breech-block thereof, of a hammer automatically cocked by the opening of the breech-block, a trigger, and a sear moved longitudinally forward when the hammer falls so as to clear itself from the trigger, and moved longitudinally rearward when the hammer is again cocked and the trigger is released.

38. In a firearm, the combination with the hammer thereof, of a trigger, a longitudinally-movable sear, and a sear-spring located within the trigger.

39. In a firearm, the combination with a tang provided at the forward end of its upper prong with an upwardly-extending take-down lug, of a take-down screw mounted therein, and a receiver receiving the said lug and the said screw at its upper rear corner.

40. In a firearm, the combination with a tang provided with an upwardly-extending take-down lug, of a receiver receiving the said lug and provided with an internally-threaded take-down bushing, and a take-down screw mounted in the said lug and entering the said bushing.

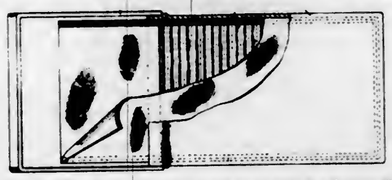
41. In a firearm, the combination with a tang provided at the forward end of its upper prong with an upwardly-extending take-down lug having a circular recess formed in its forward face, of a take-down screw mounted in the said lug, a receiver provided at its rear upper corner with a recess receiving the said lug and formed with a transversely-arranged web or bridge, and a take-down bushing mounted in the said web or bridge and receiving the said bushing which projects rearwardly into the said circular recess.

681,482. **COMPOUND OF SILVER AND GELATOSE AND PROCESS OF MAKING SAME.** ARTHUR LIEBRECHT, Frankfort-on-the-Main, Germany, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed Dec. 21, 1900. Serial No. 40,686. (Specimens.)

Claim.—1. The herein-described process for the manufacture of neutral, soluble silver compounds of high percentage, which consists in neutralizing solutions of gelatoses and combining them with the solution of a salt of silver and then drying them, substantially as set forth.

2. As a new compound the product obtained from gelatose as herein described, being a yellow-white powder, easily soluble in water with a neutral reaction, insoluble in alcohol and acetone, its solution giving no precipitate with hydrochloric acid, a solution of common salt, or hydrogen sulfid.

681,483. **STERILIZED SURGICAL DRESSING.** HENRY C. LOVIE, New York, N. Y. Filed Nov. 2, 1898. Serial No. 695,277. (No model.)

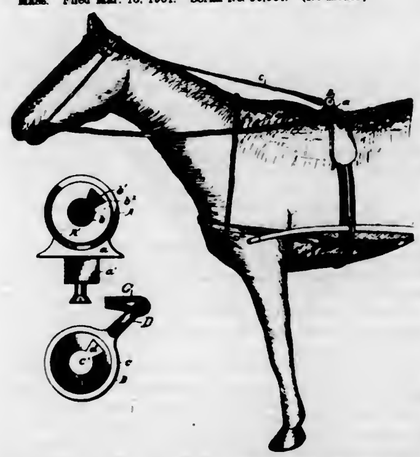


Claim.—The combination, with a suitable container, only accessible or open at one end, of a package comprising a strip of surgical dressings folded transversely in multiple reverse folds from end to end, and a soft, yielding, and flexible body surrounding said folded strip and constituting a covering therefor, each fold or layer having its several edges in close contact with said covering to thus form therewith a seal for the subjacent folds or layers, said package being inclosed in and snugly fitting said container, substantially as described.

681,484. **COMPOSITION OF MATTER.** NELSON B. MAYER, Newark, N. J., assignor to American Rubber Filling Company, New York, N. Y. Filed July 11, 1900. Serial No. 23,182. (No specimens.)

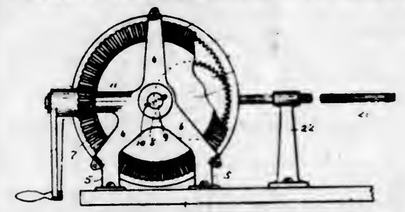
Claim.—A composition of matter for forming the cores or backings of elastic cushions, consisting of thirty parts by weight of glue, fifty parts by weight of glycerin, ten parts by weight of dextrine, and a quantity of vulcanized vegetable oil, as specified.

681,485. **CHECKREIN-CONNECTOR.** JESSE C. MINOR, Ware, Mass. Filed Mar. 13, 1901. Serial No. 50,981. (No model.)



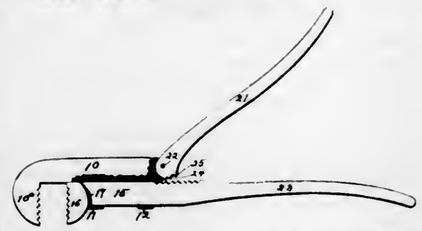
Claim.—In a device of the character described, the combination with a member adapted to be secured to the saddletree, and comprising a cylindrical body, or boss, A', having an axial socket extended from its one end partially through it, having intermediate between its ends, the slot or opening b^3, in a plane at right angles to its axis, and extended from its periphery to the said axial socket, and having through its wall forming one side boundary of the slot, the aperture b' extending radially of said socket, of the member B having an externally-provided part for engagement with the checkrein, and having an endwise-opening circular chamber whereby it may accommodate itself over and about the said boss A', and provided with the concentric stud c', provided intermediate between its ends with the radially-extending lug or key d, said members being arranged for registry and detachable interlocking engagements, substantially as described and shown.

681,486. **MECHANICAL MOVEMENT.** BARTON POULSON, Fort Wayne, Ind. Filed Mar. 26, 1900. Serial No. 10,230. (No model.)



Claim.—In combination with a platform, a bracket consisting of the supports and the three radiating arms having a bearing at the junction of the arms and a sleeve-bearing projecting from one side of the arms at the junction thereof, of a shaft mounted in said bearing, a large wheel carried by said shaft, said wheel provided with a spur-gearing upon the under side of one side of its periphery or flange and a bevel-gearing upon the opposite side under the flange, a casing connected to said arms upon the opposite side of the wheel, a pinion supported by said casing and meshing with the spur-gearing of the wheel, a shaft journaled in said bearing-sleeve, a bevel-pinion carried by said shaft and meshing with said bevel-gearing of the wheel, and a crank to revolve said shaft.

681,487. **WRENCH.** JOHN QUIST, Mystic, Iowa, assignor of one-half to J. H. Stevens, same place. Filed Nov. 9, 1899. Serial No. 736,334. (No model.)



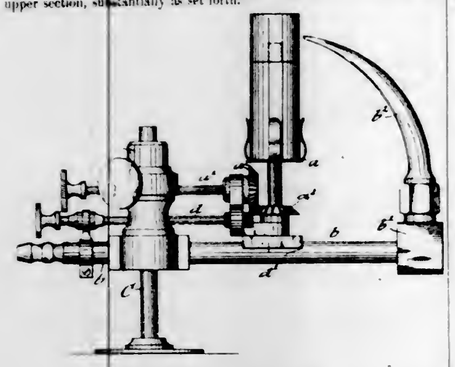
Claim.—The tool, comprising the member 10, the jaw 10^a thereon, the loops formed on the member 10 and projecting therefrom in alinement with the jaw, the member 15 inclosed by and slidingly mounted in both of said loops, the jaw on the member 15 in opposition to the jaw 10^a and formed with shoulders curved to fit curved edges of one of the loops, teeth formed on the inner edge of the member 15 and shaped with right-angled apices, a lever-handle fulcrumed on the member 10, teeth 24, 25 on said lever-handle arranged and so shaped as to engage some two of the teeth on the member 15 at times, the forward end of said lever-handle being curved eccentric to the fulcrum thereof, and a handle formed on and longitudinally extended from the member 15, the handles lying in contact when the tool is closed and having their extremities in divergent planes.

681,488. **PENCIL FOR OXYHYDROGEN-LIGHTS.** FREDERICK SCHWANHAUSSER, Jersey City, N. J., and AUGUST EISER, New York, N. Y. Filed May 1, 1901. Serial No. 58,295. (No model.)

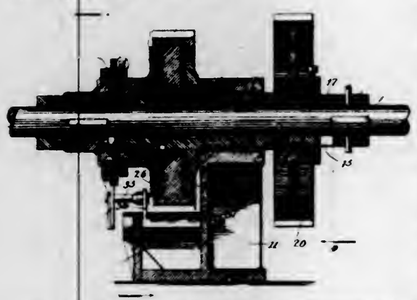
Claim.—1. A pencil for oxyhydrogen-lights, comprising a lower supporting-section, and a detachable upper section supported thereon, each of said sections containing an oxid of a rare earth metal, substantially as set forth.

2. A pencil for oxyhydrogen-lights, comprising a lower supporting-section having at its upper end a projecting pin, and a detachable upper section supported thereon and having a recess for engaging said pin, said upper section containing an oxid of rare earth metal, and said lower sec-

tion containing a less quantity of an oxid of a rare earth metal than the upper section, substantially as set forth.



681,489. **AUTOMATIC BRAKE.** WILLIAM VOSS, Harvey, Ill., assignor to Whiting Foundry Equipment Co., same place. Filed Feb. 23, 1901. Serial No. 48,486. (No model.)



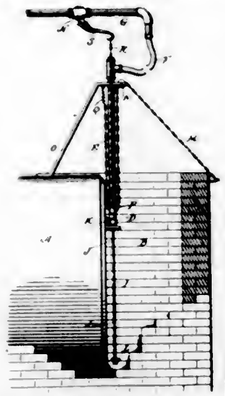
Claim.—1. In apparatus of the class described, in combination with the frame of the machine, a power-shaft, a brake-disk rigidly secured thereto, a load-carrying sleeve splined to the shaft, another brake-disk on said sleeve, a screw connection between said brake-disks, a ratchet-wheel loosely mounted between and adapted to be held by said brake-disks, a pawl adapted to engage said ratchet-wheel, a friction-ring surrounding and actuated by said shaft and engaging said pawl, the resistance of said ring being such that when the shaft is rotated in one direction the pawl is thrown out of engagement with the ratchet-wheel and when it is rotated in the opposite direction said pawl is thrown into engagement with said ratchet.

2. In apparatus of the class described, in combination with the frame of the machine, a power-shaft, a brake-disk rigidly secured thereto, a load-carrying sleeve splined to the shaft, another brake-disk on said sleeve, a screw connection between said brake-disks, a ratchet-wheel loosely mounted between and adapted to be held by said brake-disks, a pawl adapted to engage said ratchet-wheel, a ring surrounding and actuated by said shaft and having an arm engaging said pawls, the resistance of said ring being such that when the shaft is rotated in one direction the pawl is thrown out of engagement with the ratchet-wheel and when it is rotated in the opposite direction said pawl is thrown into engagement with said ratchet.

3. In apparatus of the class described, in combination with the frame of the machine, a power-shaft, a brake-disk rigidly secured thereto, a load-carrying sleeve splined to the shaft, another brake-disk on said sleeve, a screw connection between said brake-disks, a ratchet-wheel loosely mounted between and adapted to be held by said brake-disks, a pawl adapted to engage said ratchet-wheel, a ring surrounding and actuated by said shaft and having an arm engaging said pawl, and means on said ring for adjusting the pressure of said ring about the shaft, substantially as described.

681,490. **FLUE-CLEANER FOR STEAM-BOILER FURNACES.** HELGE WESTERGAARD, Austin, Tex., assignor of one-half to Andrew J. Elker, same place. Filed Mar. 12, 1900. Serial No. 8,392. (No model.)

Claim.—1. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of vertically-disposed pipes extending downwardly therefrom and provided with orifices or openings; means for admitting steam to said manifold; and a guide-plate through which said pipes work, substantially as and for the purpose described.



2. In a flue-cleaner for steam-boilers, the combination of a manifold; a source of steam supply connected therewith; a series of pipes extending downwardly from said manifold and provided with orifices; and a member extending across the rear face of the boiler, through which said pipes pass, said member serving when the orifices are in alinement with the boiler-tubes to maintain and support the manifold and pipes in such position.

3. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of pipes extending downwardly therefrom and provided with orifices; a member extending across the face of the boiler and through which the pipes pass; and means for raising and lowering the manifold and the pipes connected thereto.

4. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of pipes depending therefrom and provided with orifices; a member extending across the face of the boiler and through which said pipes pass; means for raising and lowering said manifold and its depending pipes; and means for automatically admitting steam to the manifold when the parts come to that position where the orifices in the pipes are opposite the boiler-tube openings.

5. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of pipes depending therefrom and provided with orifices; a member extending across the face of the boiler and adapted to arrest and hold the manifold against further downward movement when the orifices in the pipes come opposite the boiler-tube openings; means for raising and lowering said manifold and its pipes; and means for automatically admitting steam to the manifold when said manifold comes to rest upon the member extending across the face of the boiler, substantially as described.

6. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of pipes depending therefrom and provided with orifices; a bar connecting the lower ends of said pipes; and means for lowering and raising the cleaning device thus formed into and out of position before the flues of a boiler-furnace.

7. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of vertically-disposed pipes connected to and extending downwardly therefrom, said pipes being provided with orifices; a cross-bar connecting the lower ends of said pipes; a member extending across the face of the boiler and through which said pipes are passed; and means for lowering and raising the cleaning device thus formed, substantially as and for the purpose described.

8. In a flue-cleaner for steam-boilers, the combination of a vertically-movable cleaning device; means for admitting steam thereto; and a cross bar or member extending across the face of the boiler, said bar being adapted and arranged to support and hold the cleaning device in its operative position in front of the boiler, and to limit its upward vertical movement when the cleaning device is raised out of its operative relation to the boiler-flues.

9. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of vertically-disposed pipes extending downwardly therefrom and provided with orifices; means for connecting the lower ends of said pipes against lateral displacement; an angle-plate extending across the face of the boiler and through which said pipes pass; a flexible connection between said manifold and a source of steam-supply; means for raising and lowering the manifold and its pipes; and means for automatically admitting steam to the manifold when the parts are lowered into operative position, and for shutting off said steam-supply when the parts are elevated and withdrawn from their operative position.

10. In a flue-cleaner for steam-boilers, the combination of a manifold D; a series of vertically-disposed pipes J depending therefrom and having orifices in line with the boiler-tubes when the parts are in operative position; means for connecting the lower ends of said pipes against displacement; an angle-plate extending across the face of the boiler and through which said pipes pass; a source of steam-supply; a flexible connection between said source of supply and the manifold; means for raising and lowering the manifold and its depending pipes; and means for automatically admitting steam to the manifold when the device is lowered into working position and for shutting off the supply of steam when the parts are raised.

11. In a flue-cleaner for steam-boilers, the combination of a manifold; a series of vertically-disposed pipes extending downwardly therefrom; a cross-bar connecting the lower ends of said pipes; an angle-plate K extending across the face of the boiler and through which the pipes are passed; a pipe E extending up from the manifold; a source of steam-supply; a flexible connection between said supply and said pipe E; a bracket; a pulley mounted upon said bracket; a second pulley connected to the cleaning device; a flexible chain or band passing around said pulleys and connected at its inner end to a spring; an automatically-closing valve mounted in the steam-supply passage; a lever operating upon the stem of said valve; and a chain or band connected to the cleaning device and to said lever, said chain being so arranged that as the cleaning device is lowered into position it will, acting through the lever, open the valve and admit steam to the manifold.

12. A flue-cleaner comprising two or more pipes which are substantially parallel to the end boiler-plate, each pipe being in the same plane with a row of flues, and having an orifice opposite the opening of each of such flues, and means for admitting steam to such pipes, substantially as set forth.

13. A flue-cleaner comprising two or more pipes which are substantially parallel to the end boiler-plate, each pipe when in operative position being in line with a row of flue-openings, and having an orifice opposite each of such flue-openings, said pipes being movable in the direction of their length, and means for admitting steam to such pipes, substantially as specified.

14. A flue-cleaner comprising two or more pipes which are substantially parallel to the end boiler-plate, each pipe when in operative position being in line with a row of flue-openings and having an orifice opposite each of such flue-openings, such pipes being movable in the direction of their length, a cross-pipe to which said first-mentioned pipes are secured, and with which they communicate, and means for admitting steam to such cross-pipe, substantially as shown.

15. A flue-cleaner comprising a series of parallel pipes which are parallel to the end boiler-plate, each pipe when in operative position being in line with a row of flue-openings, having an orifice opposite each of such flue-openings, and extending through an opening in the boiler-casing, a cross-pipe connecting said pipes and communicating therewith outside of such casing, and means for admitting steam to said cross-pipe, substantially as described.

16. A flue-cleaner comprising a series of parallel pipes which are parallel to the end boiler-plate, each pipe when in operative position being in line with a row of flue-openings, having an orifice opposite each of such flue-openings, and extending through openings in the boiler-casing, a cross-pipe connecting said pipes and communicating therewith outside of said casing, means for admitting steam to such cross-pipe, and means for moving said parallel pipes in the openings in the boiler-casing, substantially as and for the purpose specified.

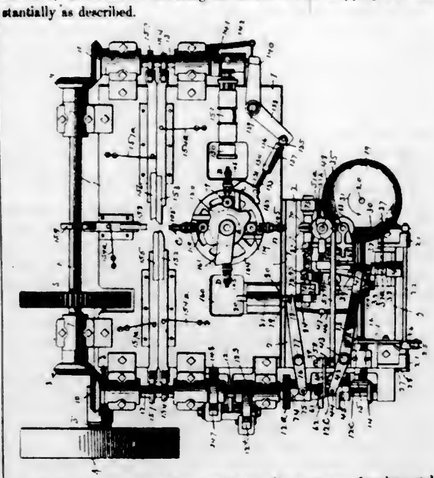
681,491. **FEEDING MECHANISM FOR FEEDING ARTICLES HAVING EYES OR LOOPS.** WILLIAM O. BEMENT, Worcester, Mass., assignor to the Wire Goods Company, same place. Filed Apr. 23, 1900. Serial No. 13,888. (No model.)

Claim.—1. The combination of an oscillating finger, a hopper, means for moving the articles in said hopper against the end of said finger hy which they are strung thereon, means for oscillating said finger and means for mechanically pushing the articles strung on said finger off its free end, substantially as described.

2. The combination of an oscillating finger, means for imparting a rising-and-falling motion to said finger, a hopper, means for rotating said hopper by which the articles held therein are carried against the end of said finger, and strung thereon and a stripper-bar by which the articles strung on said finger are pushed off its free end, substantially as described.

3. The combination with an oscillating finger arranged to carry the articles strung thereon, of a spring by which the free end of said finger is depressed into a hopper, a hopper, means for rotating said hopper, means for raising said finger to a position in alinement with a stud adapted to receive the articles strung on said finger and mechanism for transferring the articles from said finger to said stud, substantially as described.

4. The combination of a hopper, a finger having an oscillating motion by which the end of said finger is alternately depressed into and raised out of said hopper, a stud in alinement with said finger in its raised position, a stripping-bar, a spring by which said stripping-bar is moved toward the end of the finger to transfer the articles strung on said finger to said stud, and means for reversing the motion of said stripping-bar, substantially as described.



5. The combination of an oscillating finger, means for alternately depressing the end of said finger into a hopper, and raising it out of said hopper, a hopper, means for rotating said hopper, a spindle, a series of radial studs carried by said spindle arranged in the plane of said finger, when raised, means for rotating said spindle to bring each of said studs successively into alinement with the end of said finger, and means for transferring the articles strung on said finger upon said studs, substantially as described.

6. The combination of an oscillating finger, means for imparting a rising-and-falling motion to said finger, a stud in alinement with the free end of said finger in its raised position and means for pushing the articles strung upon said finger upon said stud, substantially as described.

7. The combination of an oscillating finger, of a spindle carrying a series of studs, means for raising said finger with its end in alinement with one of said studs, means for transferring the articles held on said finger upon one of said studs, means for rotating said spindle and means for delivering the articles to be fed from said studs, substantially as described.

8. The combination with a rotating spindle and radial studs carried by said spindle, adapted to hold the articles to be fed strung thereon, of means for transferring the articles from said studs, consisting of a pivoted lever having one end arranged to push the articles off said studs as they are successively brought beneath said lever and means for moving said lever, substantially as described.

9. The combination with a rotating spindle and a series of radial studs carried thereby and adapted to hold the articles to be fed suspended thereon, of mechanism for pushing the articles off said studs and consisting of a pivoted lever, a spring by which said lever is moved to push the articles off the ends of said studs, and a cam by which the motion of said lever is reversed, substantially as described.

10. The combination of a rotating spindle, and a radial stud carried thereby adapted to hold the articles to be operated upon suspended thereon, means for feeding the articles upon said radial stud, means for rotating the spindle, whereby said radial stud is carried into alinement with a second receiving-stud, means for transferring an article from said rotating stud to said second receiving-stud, substantially as described.

11. The combination of a pair of rotating spindles, two series of radial arms carried by said spindles, means for imparting an intermittent rotary motion to said spindles by which the studs on each spindle are successively brought into alinement, a pivoted lever by which the articles held on one series of studs are pushed upon the studs of the other series, substantially as described.

12. The combination of a rotating spindle, radial studs carried by said spindle and adapted to hold the articles to be fed suspended thereon, a rocking spindle, a pair of gripping-jaws carried by said rocking spindle, means for opening and closing said jaws in a line parallel with the axis of the rocking spindle and means for rocking said spindle to carry said jaws into the plane of the article suspended on said studs, substantially as described.

13. The combination with a stud for suspending the article to be fed provided with a shoulder by which the article is retained on said stud, of a pair of gripping-jaws, means for carrying said jaws into engagement with the article held on said stud and means for moving said jaws whereby the article is raised to clear said shoulder and removed from said stud, substantially as described.

14. The combination with a stud for holding the article to be fed suspended thereon, of a rocking spindle provided with ways parallel to its axis, gripping-jaws sliding in said ways, means for closing said jaws with a yielding pressure and means for rocking said spindle, whereby the plane of said jaws is varied, substantially as described.

15. The combination with a stud for holding the articles to be fed suspended thereon, of a rocking spindle, a pair of gripping-jaws carried by said spindle in a common plane parallel with the axis of said rocking spindle and eccentrically thereto, and means for rocking said spindle, substantially as described.

16. The combination of a horizontal stud adapted to support articles suspended thereon and held in a vertical plane by gravity, of a pair of gripping-jaws, a rocking spindle carrying said jaws and having its axis in a horizontal plane and at right angles to the faces of said jaws, and means for rocking said spindle to carry said jaws into a vertical plane in position to seize the articles held in said stud, substantially as described.

17. The combination with a rocking spindle provided with ways parallel with its axis, plates sliding in said ways and provided with gripping-jaws, an oscillating lever carried by said spindle and operatively connected to the sliding plates carrying said jaws and means for actuating said oscillating lever to open and close said jaws, substantially as described.

18. The combination with a stud for holding the article to be fed suspended thereon, in a vertical plane, of a pair of gripping-jaws, means for opening said jaws, means for moving the opened jaws into a vertical plane inclosing the article suspended on said stud, means for closing said jaws and means for moving said jaws to carry the article off said stud, substantially as described.

19. The combination of a spindle 110, a pair of levers pivoted on said spindle and provided with chuck-jaws, a sliding cone on said spindle by which levers are rocked, a sliding spindle 117, a fork carried by said spindle 117 and engaging said cone and a cam by which said spindle 117 is moved longitudinally to slide said cone and close the chuck-jaws, substantially as described.

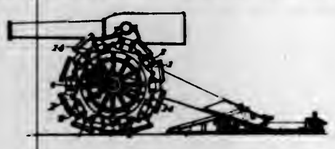
20. The combination with a rotating turret and a spindle held in bearings therein, a pair of chuck-jaws carried by said spindle, a fixed track concentric with said rotating turret, a plate carried by said spindle and sliding on said track to hold said spindle from rotating, said track having a removable section, by which said spindle is allowed to rotate at stated periods in the rotation of said turret, substantially as described.

21. The combination of a rotating turret, radially-sliding spindles carried by said turret, chuck-jaws carried by said spindles, means for imparting an intermittent rotary motion to said turret, a cam acting to push said spindle radially outward and means for imparting a reciprocating motion to said cam corresponding to the intermittent motion of said turret, whereby said cam is moved in one direction to actuate said spindles during the period of rest of said turret and reversed during the intermittent motion of the turret, substantially as described.

22. The combination with a turret having an intermittent rotary motion, of a radial spindle carried by said turret, levers pivotally connected with said spindle and provided with chuck-jaws, a cone capable of sliding on said spindle, means for sliding said cone into engagement with said levers to close said jaws and a spring by which said jaws are opened when released by said sliding cone, substantially as described.

23. The combination with a rotating turret, of parallel radial spindles 110 and 117 carried by said turret, chuck-jaws carried by said spindles 110, sliding cones on spindles 110 by which said jaws are closed, forks carried by spindles 117 engaging said sliding cones, cam-rolls carried by spindles 117, means for imparting an intermittent motion to said turret, whereby said jaws are successively brought into different positions with a period of dwell in each, an oscillating cam with cam-surfaces engaging said cam-rolls at each period of dwell of said jaws and means for actuating said cam, substantially as described.

681,492. MOUNTING FOR ORDNANCE. CRISPINO BONAGENTE, Turin, Italy. Filed Dec. 11, 1900. Serial No. 39,544. (No model.)



Claim.—1. An improved mounting for ordnance, by the use of which ordinary wheel-carriages are enabled to travel over uneven loose roads and take up any firing position without preliminary preparations, said mounting comprising jointed endless rails mounted on the carriage-wheels and a plank for supporting the trail of the gun-carriage during firing, said plank adapted to be suspended by means of eyes, rings and the like, from the front of the gun-carriage when the gun is limbered.

2. In a mounting for ordnance, a sliding track for the trail of the gun-carriage during firing, studs on said track for adjusting its position, and buffers on said track for cushioning the recoil of the gun-carriage, said track being adapted for suspension during traveling below the fore end of said gun-carriage.

3. In a mounting for ordnance, a gun-carriage, longitudinal beams incorporated in said gun-carriage, and a sliding track for receiving the trail of the gun during firing and adapted to be supported on said beams during traveling.

4. A gun-carriage having parallel cheeks on the trail thereof, in combination with a guide-track, said cheeks being adapted to cause the trail to be properly guided in the sliding track.

5. In a mounting for ordnance, wedge-shaped blocks having spurs at the rear to grip the ground and projecting pieces or stops at the top, for increasing the effect of braking.

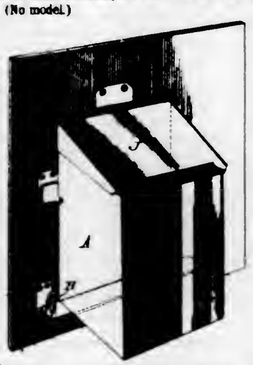
6. In the mounting for ordnance having endless rail on the wheels, a wheel-brake for traveling, comprising flanges secured to the carriage-wheel, brake-shoes for engaging said flanges, and means for adjusting said brake-shoes.

7. A gun-carriage having a sliding track for its trail during firing, and buffers located upon the front and rear portion of said track, engaging said trail on recoil and counter-recoil.

8. A gun-carriage having longitudinal beams the rear extremities of which constitute a trail, and cheeks or shoe-plates located at the tail ends of the said beams and a track in which said trail is adapted to slide.

9. A gun-carriage having wheels thereon, having endless rails, flanges extending inwardly from said wheels, hollow cross-beams suitably supported, brake-blocks attached to one of said cross-beams, and means for actuating one of the latter, the other said cross-beams being fixed.

681,493. GARBAGE-RECEPTACLE. WILLIAM T. CAMERON and WILLIAM A. PURER, Philadelphia, Pa. Filed Feb. 26, 1901. Serial No. 48,942. (No model.)



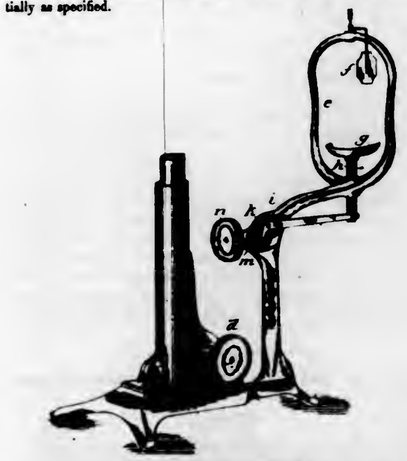
Claim.—1. In a garbage-receptacle, a swinging box, means for axially supporting the same, a stop-cleat on said box and provided with an eye, an eye on the support, and a fastening device, said eyes being coincident and receiving said device.

2. A garbage-receptacle consisting of a swinging box, gudgeons on said box, bearings for said gudgeons adapted to be connected with a support, an eye on said support, a stop-cleat secured to said box and provided with an eye on the end thereof, said eyes being coincident, and a fastening adapted to enter said eyes.

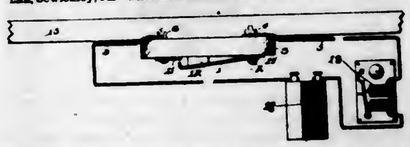
3. A swinging receptacle, bearings therefor, a stop-cleat on said receptacle, an eye in said cleat, an eye on the support for said bearings, said eyes being coincident, and a locking device adapted to enter said eyes, said cleat being located above the eye on said support and adapted to be sustained thereon.

681,494. CHIN-REST FOR OPHTHALMOMETERS. JOHN R. CHAMBERS, Chicago, Ill. Filed June 15, 1901. Serial No. 64,666. (No model.)

Claim.—In an optical instrument, in combination, a support consisting of an upright standard having an arm extending rearwardly at top, a head-frame on the outer end of said arm, a suitable chin-support in the lower part of said head-frame, a vertically-movable sustaining-rod for the chin-support, an adjusting-lever pivoted near the angle of said standard, extending horizontally to engage said rod, and means for adjusting said lever to bring the rod and chin-support to the required height, substantially as specified.

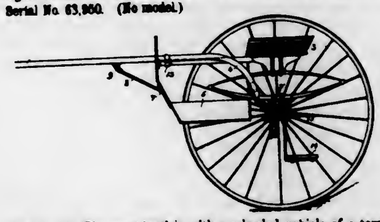


681,495. ELECTRIC SWITCH FOR ALARMS. ISRAEL R. CRAFTLEE, Sewickley, Pa. Filed Mar. 8, 1901. Serial No. 50,375. (No model.)



Claim.—In a device of the character described, an insulating-block, a contact-plate mounted on one end thereof, a nut and bolt for securing said plate, the underneath surface of which is entirely in engagement with said block, a substantially rectangular flat metallic spring-contact plate having an oblong aperture formed therein, a nut and bolt for securing said plate at one end, the other end of said plate being bent at right angles and adapted to engage the said contact-plate, and a block of fusible material located beneath the said aperture in said plate, the said block being larger than said aperture and adapted to rest on said insulating-block substantially as described.

681,496. ROAD-CART. WILLIAM A. COWLEY, Benicia, Cal., assignor to Baker & Hamilton, San Francisco, Cal. Filed June 10, 1901. Serial No. 63,960. (No model.)



Claim.—1. The combination with a wheeled vehicle of a torsional spring having one terminal portion fixedly secured to the bed in an essentially vertical plane, said spring bent at right angles upon said fixed portion to lie in an essentially horizontal line transverse of the bed, said spring again bent to form a lever-arm at an angle to the plane in which said fixed and horizontal portions lie, and loose link connections of the end of this lever with a point of support upon the vehicle.

2. The combination in a two-wheeled vehicle of a bed and springs by which said bed is secured to the shafts, each of said springs having one end secured fixedly to the bed in an essentially vertical plane, said spring bent upon itself to form a horizontal portion, a bearing upon the bed for this horizontal portion, said spring bent again to form a lever-arm at an angle to the plane in which said fixed and horizontal portions lie, and a link pivoted to the end of this arm, said link turnably connected with one of said shafts.

3. The combination in a two-wheeled vehicle, of shafts hinged directly upon the axle, a body having its rear end supported upon said axle, connections of the front end of said body with the shafts, said connections consisting of springs having one end fixedly secured to the body, a horizontal portion turnable in bearings upon said body, an extension of said horizontal portion oppositely disposed to said first-named fixed portion, but at an angle to the plane in which said fixed and horizontal portions lie, links joining said extensions and the shafts, and a footboard fixedly secured to the axle.

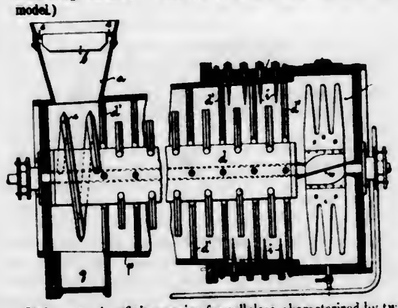
681,497. ANIMAL-TRAP. ELIJAH D. DAVIS, Chicago, Ill. Filed Nov. 19, 1900. Serial No. 36,934. (No model.)



Claim.—1. In an animal-trap, the combination with a casing or box, of a partition dividing it into an entrance-chamber and cage, each having an opening for the ingress of the animal, a door movably mounted on the interior of the casing to close the opening therein, a rod horizontally journaled near the opening in the casing and having at one of its ends a crank, a platform fixed to said rod, a rod pivotally secured to said crank, to engage said door, a spring-actuated shaft journaled in the casing and provided at its inner end with a crank and a connection uniting said crank and door, substantially as described.

2. In an animal-trap, the combination with a casing or box, of a partition dividing it into an entrance-chamber and a cage, each having an opening for the ingress of the animal, a door movably mounted on the interior of the casing to close the opening therein, a rod horizontally journaled in the opening in the casing and having at one of its ends a crank, a platform fixed to said rod, a rod pivotally secured to said crank to engage the door, a spring-actuated shaft journaled in the casing, and provided at its inner end with a crank, a connection uniting said crank and door, a rock-shaft horizontally journaled near the threshold of the opening in the partition and having on one of its ends a weight and at its other end a crank, a platform fixed on said rock-shaft and adapted to close the opening in the partition, a rod pivotally connected at one of its ends to the crank on the rock-shaft and having its other end located near the opening in the casing to engage the door thereof when in its projected position, substantially as described.

681,498. SEPARATOR FOR CELLULOSE. ROBERT DIETRICH, Merseburg, Germany. Filed Sept. 26, 1899. Serial No. 731,721. (No model.)



Claim.—1. A refining-engine for cellulose, characterized by two inclined stone-catching pockets *A A* one at each side of the apparatus a charging-hopper and an oscillating tilter *b* in said hopper so arranged as to direct stones or the like falling upon it sidewise direct into the pockets.

2. In a refining-engine, a casing, a kneading-chamber, a series of removable holders mounted in openings in the walls of said casing, and inwardly-projecting knife-blades upon said holders, said knife-blades being disposed near said kneading-chamber for increasing the disintegrating action.

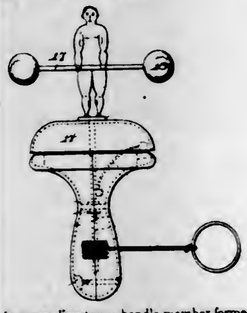
3. In a refining-engine, a casing, a kneading-chamber, holders mounted in the walls of said casing adjacent said kneading-chamber, inwardly-projecting knives mounted upon said holders, and means for removing and replacing said holders.

4. In a refining-engine, a casing, an outlet-pipe, and an adjustable valve in said outlet-pipe adapted to close the lower portion of the latter for the purpose of raising the level of the cellulose materials for the purpose specified.

5. In a refining-engine, a kneading-chamber, a shaft having kneading-arms thereon, said arms being located in said chamber, and a sharp-edged grating or bars for increasing the kneading action.

6. In a refining-engine, a charging-hopper, a shaft under said hopper, a conveyer, screw or worm having sharp edges on the portion of said shaft under said hopper, and beaters attached to the portion of said shaft unoccupied by said worm.

681,499. TOY. MATTHEW DUFFNER, Allegheny, Pa. Filed Apr. 5, 1901. Serial No. 54,434. (No model.)



Claim.—1. In a sounding toy, a handle member formed in two equal sections secured together and provided with an interior shelf, a vertical shaft mounted in said shelf for rotation and held against vertical movement, a bell mounted on the shaft, a weighted device mounted on the shaft, a tapper carried by the shaft, and interior lugs carried by the handle at opposite sides thereof to be engaged by the tapper to actuate the latter and cause it to strike the bell to sound the same as the shaft is rotated, substantially as described.

2. In a sounding toy, a handle member formed in two equal sections adapted to be matched together, means for securing said sections to each other, an interior shelf carried by said sections, a vertical shaft mounted in said shelf, means mounted upon said shaft above and below the shelf to hold the shaft against vertical movement, a bell mounted on the shaft, a weighted device carried by the shaft above the bell, a tapper secured to the shaft, interior lugs carried by the handle for engagement with the tapper to cause the latter to strike the bell as the shaft is rotated, and an operating cord or cable connected to the shaft at its lower end and extending outwardly through the handle whereby rotary movement may be imparted to the shaft, substantially as described.

681,500. PICTURE-HANGING NAIL. WILLIAM EDMUNDSON, Denver, Colo. Filed Dec. 15, 1900. Serial No. 40,015. (No model.)



Claim.—1. In a non-wall-defacing picture-nail, the combination of a steel nail of very small diameter, having a head portion at one end and a sharp point at its opposite end, with an adjustable head portion on said nail comprising a flat, thin ring constructed of a yielding or pliable metal revolubly mounted on said nail adjacent to its head and a pliable washer mounted on said nail adjacent to said adjustable head and ring, substantially as described.

2. In a non-wall defacing picture-hanging nail, the combination of a steel nail having a head portion at one end and a sharp point at its opposite end, with a cap loosely mounted on it adjacent to its head portion, an adjustable head comprising a ring constructed of a yielding and pliable metal mounted loosely and diametrically through its opposite sides on said nail and positioned against said cap and a flexible washer fitted tightly but slidably under pressure on said nail, and adapted to hold said adjustable head and the cap on said nail and to act as a cushion between said adjustable head and a wall when said nail is driven into a wall, substantially as described.

3. In a non-wall-defacing picture-hanging nail, the combination of the nail with an adjustable-head ring of thin, flat, yielding metal revolubly mounted on said nail, substantially as described.

4. In a picture and drapery hanging nail, the combination of the nail, with an adjustable-head ring of thin, flat, yielding metal mounted on said nail and adapted to be vertically or horizontally elongated when operatively driven into a wall, substantially as described.

5. In a picture and drapery hanging nail, the combination of the small, round, steel nail with the adjustable-head ring and the flexible washer, substantially as described.

6. In a picture and drapery hanging nail, the combination of the small, round, steel nail having a head portion at one end and a sharp point at its opposite end, with the adjustable head comprising a round ring composed of a yielding or flexible material mounted on said nail and adapted to be extended longitudinally or vertically, the ornamental cap between said adjustable head and the head portion of said nail, and the flexible washer fitted tightly but slidably under pressure on said nail and adapted to hold said adjustable-head ring and said cap against the head portion of said nail and to act as a cushion between said adjustable head and a wall, substantially as described.

681,501. TIRE-SETTER. OCTAVE GANAS, Wallace, Cal. Filed Dec. 1, 1900. Serial No. 38,345. (No model.)



Claim.—1. The combination, in a tire-setter, of a cylindrical felly-plate having a tenon projecting from the central point of its outer end, and its inner end terminating in a hollow cylinder with spiral screw-threads upon the inside surface thereof adapted to engage and work in the outside screw-threads of the spoke-holder, with a cylindrical spoke-holder having a square or polygonal head and spiral screw-threads upon its exterior surface adapted to engage and work in the inside screw-threads of the felly-plate and an inside circular U-shaped socket, all substantially as set forth.

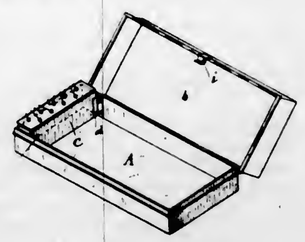
2. The combination, in a tire-setter, of a cylindrical felly-plate having a tenon projecting from the central point of its outer end, and its inner end terminating in a hollow cylinder with spiral screw-threads upon the inside and outside surface thereof, its inside threads being adapted to engage and work in the outside threads of the spoke-holder and its outside screw-threads being adapted to engage and work in the inside threads of the set-nut, with a cylindrical spoke-holder having a square or polygonal head and spiral screw-threads upon its exterior surface adapted to engage and work in the inside screw-threads of the felly-plate and an inside circular U-shaped socket, with a hollow circular spoke-cap having its exterior and interior surface U-shaped and a projecting shoulder or flange on its inner end, with a hollow cylindrical set-nut having spiral screw-threads at its spoke end, on its inside surface adapted to engage and work in the outside screw-threads of the felly-plate and a square or polygonal head at the same end on its outside surface, all substantially as set forth.

3. The combination, in a tire-setter, of the felly-plate A provided with tenon *a*, hollow cylindrical end C, inside spiral threads *e*, outside spiral threads *j*, embracing flaps *h*, of the spoke-holder T provided with spiral threads *l*, socket *o* and head *k'*, of the spoke-cap D provided with shoulder *r*, socket *p*, of the set-nut B provided with inner spiral threads *q*, head *k*, opening and set screw *i*, of the rod F provided with rivet-heads *m*, all arranged and operating substantially as shown and described and for the purposes set forth.

4. The combination, in a tire-setter, of the felly-plate A, the spoke-holder T, the spoke-cap D, the set-nut B, the rod F with rivet-heads *m*, all arranged and operating substantially as shown and described and for the purposes set forth.

681,502. STEAM BAKE-PAN. JESSE HEYNE and JACOB HEYNE, Philadelphia, Pa. Filed Dec. 27, 1900. Serial No. 41,209. (No model.)

Claim.—In a pan of the class described, the combination with the pan proper provided with a cover, of a water-receptacle arranged in the pan proper and having a cover provided with a series of perforations for exhausting the generated steam from said receptacle into the pan proper, and inwardly-extending vertically-disposed guides carried by the pan proper and embracing the water-receptacle to retain the latter against displacement in the pan proper.



681,503. FIREPROOF GRAIN BIN AND FLOOR. OLAV HOFF, Minneapolis, Minn. Filed Apr. 29, 1901. Serial No. 57,872. (No model.)



Claim.—1. A fireproof bin or inclosure having concrete walls, and corner-columns and binding-wires embedded in said walls, which wires are stretched from column to column, to more than their normal lengths, but to less than the limit of their elasticity, substantially as described.

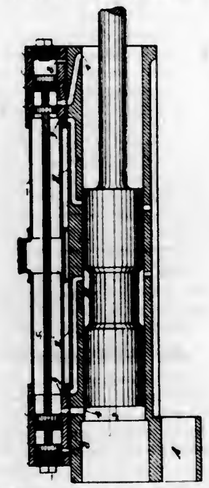
2. A fireproof bin or inclosure having walls of concrete and corner-columns and binding-wires embedded in the said wall, which wires embrace said columns, and are stretched to more than their normal lengths, but to less than the limit of their elasticity, substantially as described.

3. A fireproof bin or inclosure having walls of concrete, corner-columns and binding-wires embedded in said walls, intermediate struts or wire-spacing devices also embedded in said walls, which binding-wires are crossed and embrace said struts, and are stretched to more than their normal lengths, but to less than the limit of their elasticity, substantially as described.

4. A fireproof bin or inclosure having walls of concrete, corner and intermediate columns embedded in said walls, and binding-wires also embedded in said walls, embracing said corner-columns, and crossed to form a double truss embracing said intermediate columns, substantially as described.

5. A grain bin or inclosure having concrete walls, corner-columns embedded in said walls, suitable struts or spacing devices embedded in the intermediate portions of said walls, the wires 6 and 7 embedded in said walls and embracing said corner-columns and struts, which wires 6 are crossed to form a double-acting truss, substantially as described.

681,504. ROCK-DRILL. CHARLEY HULTQUIST, Jerome, Ariz. Filed Apr. 13, 1901. Serial No. 55,645. (No model.)



Claim.—1. The combination in a rock-drill of a cylinder, a drill-piston reciprocable therein, a steam-chest having a valve-chamber at each end and a steam-entrance intermediate of said chambers and common to both chambers, ports connecting each valve-chamber directly with the cylinder, a valve-rod and a double valve at each end thereof, said valves operating in their chambers and controlling the admission of steam to and the exhaust from the cylinder.

2. The combination in a rock-drill of a cylinder and a piston reciprocable therein, a chest extending approximately the same length as the cylinder and having a valve-chamber at each end said chest having a propelling-medium inlet intermediate of the chambers and common to both chambers, separate inlet and exhaust ports for each valve-chamber, connecting directly with the cylinder, a valve-rod operating in the chest and a double valve at each end of said rod, and controlling the admission of the propelling medium to and the exhaust from the cylinder, and connections of the ports for permitting the propelling medium to pass from front to rear of the valves to actuate the valve-rod.

3. In a rock-drill, a steam-chest comprising two valve-chambers, each having separate feed and exhaust ports, one of said chambers of slightly-larger interior diameter than the other, said chest forming a connection between said chambers, and having a steam-inlet common to both chambers, a piston-rod therein and having a double valve at each end, said valves of a diameter corresponding with their respective chambers.

4. The combination in a rock-drill of a cylinder, a piston movable therein, a steam-chest having a chamber at each end of the cylinder, a double valve in each chamber, connections of these valves whereby they are moved in unison, ports connecting said chambers and cylinder, exhaust-ports in each chamber, an opening at one end of each of said chambers, a smaller opening at the other end of each of said chambers, said double valve reciprocable between these respective openings, connections of the latter in each chamber, and means whereby steam is alternately exhausted through said connections by the alternate reciprocations of the piston in the cylinder.

5. The combination in a rock-drill of a cylinder, a piston therein, a steam-chest having two chambers connected by a trunk, one of said chambers of smaller interior diameter than the other, a piston-rod movable in said trunk and having a double valve at each end whereby the admission to and exhaust from the cylinder is controlled, the diameter of said valves corresponding to the diameters of their respective chambers, an opening at the outer end of each of said chambers, a smaller opening at the adjacent end of said chambers, connections of said openings whereby the propelling medium may pass from one side of one of said valves to the other, and a passage leading from each of said last-named connections through which exhaust of propelling medium from said connections may take place.

681,505. QUININ METHYL-DIHYDRAZIN PERCHLORATE AND PROCESS OF MAKING SAME. MAX MEYER, New York, N. Y. Filed Dec. 26, 1900. Serial No. 41,069. (Specimens.)

Claim.—1. As a new chemical compound, homoquinin-methyldihydrazin-perchlorate derived from quinin hydrochlorid, caffein and anti-

pyrin, having the general formula hereinabove given, which forms fine light yellow white auricular crystal needles soluble in water and of bitter taste and which has a melting-point of 120° and an alkaline reaction, substantially as specified.

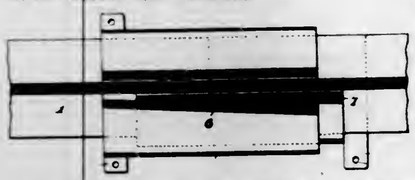
2. The method herein specified of forming a new chemical compound derived from quinin hydrochlorid, caffein and antipyrin consisting in melting a mixture of these substances, cooling and powdering the resultant substance and crystallizing, substantially as specified.

3. The method herein specified of forming homoquinin-methyldihydrazin-perchlorate, consisting in taking molecular proportions of quinin hydrochlorid, caffein and antipyrin, thoroughly mixing the same together, subjecting the same to a high temperature sufficient to flux and cause the mass to become molten, allowing the same to cool, then powdering the mass, dissolving and crystallizing out the new chemical compound and separating and drying the crystals from the remaining liquid, substantially as described.

681,506. **INSOLE.** EDWARD R. ORR, Weymouth, Mass., assignor of four-fifths to M. C. Dizer and Company and Preston Lewis, same place, John B. Hadaway, Brockton, and Edward D. Cox, Boston, Mass. Filed Apr. 11, 1900. Serial No. 12,491. (No model.)

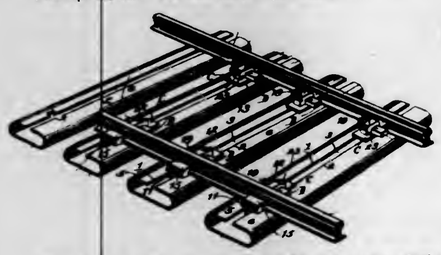
Claim.—As an article of manufacture, an insole comprising a body portion, a lip-forming cord or strip secured to one surface thereof, a layer of reinforcing material cemented to the body portion, carried over the lip-forming cord and secured to the feather, and a finishing-covering cemented to the opposite surface of the body portion, turned over the edge of the feather and against the outer surface of the lip, substantially as described.

681,507. **RAIL-JOINT.** JAMES QUINN, Bagaley, Pa. Filed May 16, 1901. Serial No. 60,469. (No model.)



Claim.—In a rail-joint, the combination with the rails of a fish-plate, a base having apertured lugs, a chair formed integral with said base, a guide extending upwardly from said chair on the other side of said fish-plate, and having a space between itself and the web, a wedge-shaped locking fish-plate, a base made integral therewith and of approximately the same length as the rail-base, a chair, outwardly-extending apertured lugs carried thereby, the said locking fish-plate and base adapted to be secured between the rail-base and chair and guide and web, substantially as described.

681,508. **METALLIC RAILROAD-TIE.** RICHARD RABY, York, Pa. Filed Apr. 22, 1901. Serial No. 56,892. (No model.)



Claim.—1. A railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the sides of said slot, in combination with a rail-fastening device comprising two co-operating jaws adapted to grip the base of a rail on its opposite sides, one of said jaws extending upward through the notches in the tie and being removably connected to the other jaw by a connecting part extending through the interior of the tie beneath the rail.

2. The combination with a railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the side of said slot, of a rail-fastening device comprising a connecting portion arranged within the tie beneath the rail, a jaw at one end of said portion extending upwardly through the notches, a projection at the opposite end extending through the slot, and a cooperating jaw secured to said projection.

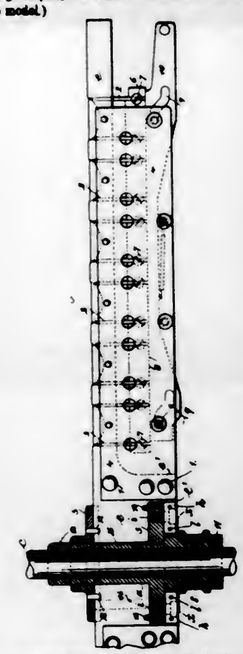
3. The combination with a railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the sides of said slot, of a rail-fastening device comprising a connecting part arranged within the tie beneath the rail and having a jaw at one end extending through the notches, an eye at the opposite end extending through the slot, side flanges below said eye within the tie, a plate having an opening fitting over said eye and having a jaw adapted to grip the rail, and a wedge fitting within the eye above the plate.

4. The combination with a railway-tie comprising a flattened sheet-metal tube, the upper wall of which is adapted to support the rail, of a support within the tie arranged to permit a limited downward movement of the upper wall of the tie relatively to the lower wall.

5. The combination with a railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the side of said slot, of a rail-fastening device comprising a connecting portion arranged within the tie beneath the rail and having a depending foot normally held a short distance above the lower wall of the tie, and jaws at the opposite ends of said connecting portion adapted to grip the rail one of said jaws extending through the notches.

6. The combination with a railway-tie comprising a sheet-metal tube of fastening devices for securing the rail to the tie, and a support secured to one wall of the tie and extending to within a short distance of the opposite wall and normally out of contact with the latter.

681,509. **SIGNATURE-HOLDING ARM FOR BOOK-SEWING MACHINES.** JOHN R. REYNOLDS, Hartford, Conn., assignor to the Smyth Manufacturing Company, same place. Filed May 20, 1901. Serial No. 61,031. (No model.)



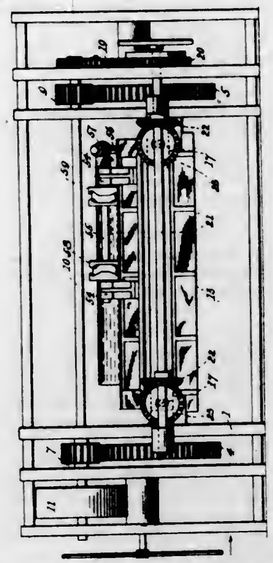
Claim.—1. In a signature-holding arm for book-sewing machines the combination with a head and its disks 3 and 5, of the sheet-holding bar *e* adapted to be received against the head between the disks and having a foot part *e'* extending over and beyond the periphery of the lower disk, and an adjustable device connected to the head and having a flat face adapted to bear against the edge of the foot part for effecting and maintaining the desired position of the sheet-holding bar *e*, substantially as set forth.

2. In a signature-holding arm for book-sewing machines, the combination with the head, its disks 3 and 5, of the sheet-holding bar *e* having a foot part *e'* and adapted to be received against the head between the disks with the foot part extending over and beyond the periphery of the lower disk and rotatable devices having flat faces bearing upon the edge of the foot part of the sheet-holding bar, substantially as and for the purposes set forth.

3. In a signature-holding arm for book-sewing machines, the combination with the head, its disks 3 and 5, of the sheet-holding bars *e* each having a foot part *e'* and adapted to be received against the head between the disks with the foot part extending over and beyond the periphery of the lower disk, and locking-pins 12 passing through the upper disk 3 into the upper edges of the sheet-holding bars and steady-pins 13 rising from the surface of the lower disk 5 and coming at opposite sides of the sheet-holding bars *e* and rotatable devices agreeing in number with the number of the sheet-holding bars and coming against the edges of the foot parts of the sheet-holding bars, substantially as and for the purposes set forth.

4. In a signature-holding arm for book-sewing machines, the combination with the head, its disks 3 and 5, of the sheet-holding bars *e* each having a foot part *e'* and adapted to be received against the head between the disks with the foot part extending over and beyond the periphery of the lower disk, and locking-pins 12 passing through the upper disk 3 into the upper edges of the sheet-holding bars, and steady-pins 13 rising from the surface of the lower disk 5 and coming at opposite sides of the sheet-holding bars *e*, cam-disks agreeing in number with the number of the sheet-holding bars and having peripheral faces coming against the edges of the foot parts of the sheet-holding bars, and screws for securing the cam-disks to and against the under face of the disk 5, substantially as set forth.

681,510. **MACHINE FOR PRODUCING BLANKS.** ALBERT W. ROBINSON, Sharptown, Md. Filed June 11, 1901. Serial No. 64,086. (No model.)



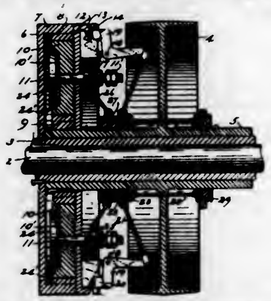
Claim.—1. In a machine for producing blanks to be used in the manufacture of veneer trays, the combination of channeling or grooving knives with means to effect their lateral motion so as to produce zigzag bending channeled lines, substantially as specified.

2. In a machine for producing blanks to be used in the manufacture of veneer trays, the combination of fixed separating-blades, channeling or grooving knives arranged in pairs situated centrally of the separating-blades, and means to effect a lateral movement of the knives of each pair in opposite directions, whereby the veneer is cut into lengths and zigzag bending channeled lines effected substantially as specified.

3. In a machine for producing blanks to be used in the manufacture of veneer trays or packages, the combination of channeling or grooving knives, with means to effect their lateral motion so as to produce zigzag or curved bending channeled or grooved lines, substantially as specified.

681,511. **REVERSIBLE CLUTCH-PULLEY.** LAWRENCE R. ROBINSON, Butler, Pa. Filed Dec. 3, 1900. Serial No. 38,394. (No model.)

Claim.—1. In improved reversing mechanism, the combination of a shaft, a gear fixed thereon, a pulley normally loose on the shaft, a gear fixed to the pulley, gearing interposed between and connecting the said gears of the shaft and pulley, a support on which said interposed gearing is normally free to axially rotate, and means for alternately holding said support against rotation and for holding the interposed gearing against axial rotation on the support, substantially as shown and described.



2. In improved reversing mechanism, the combination of a shaft, a gear fixed thereon, a pulley having an elongated hub normally loose on the shaft, a gear fixed to the pulley-hub, a disk normally loose on the pulley-hub, gearing normally revoluble on said disk, said gearing being interposed between the gears of the shaft and pulley-hub, and means for alternately holding said disk against rotation and for holding said interposed gearing against individual rotation, substantially as shown and described.

3. In improved reversing mechanism, the combination of a shaft, a gear fixed thereon, a pulley having an elongated hub normally loose on the shaft, a gear fixed to the pulley-hub, a disk normally loose on the pulley-hub, gearing carried by and normally revoluble on the disk, said gearing being interposed between the gears of the shaft and pulley, a non-rotatable clutching device for holding said disk against rotation, and mechanism for alternately operating said clutching mechanism and for locking the said interposed gearing against individual rotation, substantially as shown and described.

4. In improved reversing mechanism, the combination of a shaft, a gear fixed thereto, a pulley having an elongated hub normally loose on the shaft, a gear fixed to the pulley-hub, a disk normally loose on the pulley-hub and formed with a peripheral flange, non-rotatable clutching mechanism adapted to engage the flange and hold the disk against rotation, gearing interposed between the said gears of the shaft and pulley-hub, said interposed gearing being carried by and normally revoluble on the disk, and means operating alternately with the said clutching mechanism for holding said interposed gearing against independent rotation, substantially as shown and described.

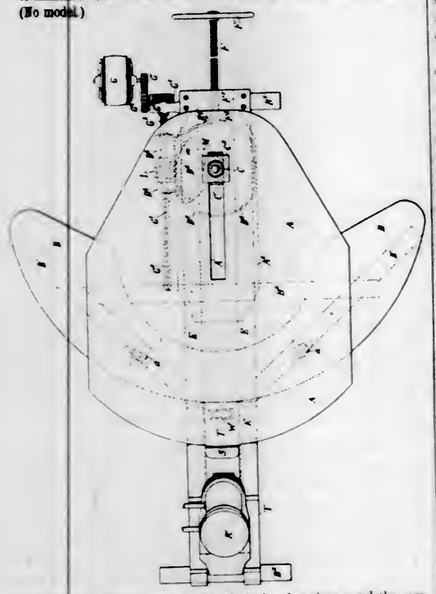
5. In improved reversing mechanism, the combination of a shaft, a gear fixed thereon, a pulley having an elongated hub normally loose on the shaft, a gear fixed to the pulley-hub, a disk normally loose on the pulley-hub and formed with a peripheral flange disposed obliquely to the plane of the disk, a non-rotatable and expansible clutch-ring, means for expanding said ring in the space between the disk and its flange, gearing interposed between the said gears of the shaft and pulley-hub, said interposed gearing being carried by and normally revoluble on said disk, and means operating alternately with said clutching mechanism for holding said interposed gearing against independent rotation, substantially as shown and described.

6. In improved reversing mechanism, the combination of a shaft, a normally loose pulley having an elongated hub, disk 12 normally loose on the pulley-hub and formed with a peripheral flange, a sectional non-rotatable ring within said flange, levers having wedge-shaped extremities adapted to enter between the extremities of the ring-sections and expand the ring so as to clutch the disk-flange, a shifting collar operatively connected to the said levers, and gearing connecting said disk with the shaft and with the pulley, whereby when said disk is free to rotate the pulley and shaft will rotate in like direction, and when the disk is held against rotation the shaft and pulley rotate in reverse directions, substantially as shown and described.

7. In improved reversing mechanism, the combination of a shaft, a gear fixed thereon, a pulley having an elongated hub normally loose on the shaft, a gear fixed on the pulley-hub, a disk normally loose on the pulley-hub, non-rotatable clutching mechanism for holding said disk fixed, gearing normally revoluble on the disk and interposed between the gears of the shaft and pulley, means for locking said interposed gears against independent rotation, and a shifting collar operatively connected to the said gear-locking mechanism and to the said clutch mechanism, and adapt-

ed to actuate the same alternately by reverse movements, substantially as shown and described.

681,512. CIRCULAR-FLANGING MACHINE. THOMAS F. ROWLAND, Jr., Brooklyn, N. Y., assignor to Thomas F. Rowland, Sr., borough of Manhattan, New York, N. Y. Filed Jan. 23, 1901. Serial No. 44,383. (No model.)



Claim.—1. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table, the periphery of which is contiguous said anvil, means for imparting to said table a rotary horizontal movement about the said pivot, and a flanging-hammer coacting with said anvil, whereby protruding portions of a blank of plate metal may be successively flanged between said hammer and anvil along the arc of a circle.

2. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table, the periphery of which is contiguous said anvil, said table having a central longitudinal slot through which the pivot projects, means for moving said pivot along said slot either nearer or farther from the anvil, means for imparting to said table a rotary horizontal movement about said pivot, and a flanging-hammer coacting with said anvil, whereby by adjustment of said pivot in said slot circular flanges having different radii may be made.

3. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table the periphery of which is contiguous to said anvil and which has rolling supports, means for imparting to said table a rotary horizontal movement about said pivot, and a flanging-hammer coacting with said anvil.

4. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table the periphery of which is contiguous said anvil, and the outer portion of which has rolling supports, attached to said table, means for imparting to said table a rotary horizontal movement about said pivot, a flanging-hammer coacting with said anvil, and a base for said anvil in which is located a rolling support for the outer portion of said table, whereby the outer portions of said blank-carrying table may be rotatively supported while under the weight of the blank which is being circularly flanged as herein described.

5. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table the periphery of which is contiguous said anvil, and the outer portion of which has rolling supports, means for imparting to said table a rotary horizontal movement about said pivot, and a flanging-hammer coacting with said anvil, the said hammer and the said anvil being carried on the same base.

6. In a machine for circularly flanging plate metal, the combination of a flanging-hammer, a removable anvil seated in the same base that carries the hammer, a pivoted blank-carrying table the periphery of which is contiguous said anvil, means for imparting to said table a rotary horizontal movement about said pivot, substantially as and for the purposes above set forth.

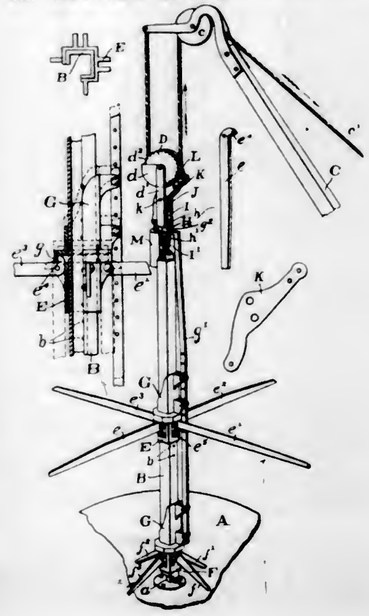
7. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table the periphery of which is contiguous said anvil, and which has a central longitudinal slot, a vertical pivot-shaft which projects through said slot and on which the table rotates horizontally, a sliding carriage which supports said pivot-shaft and in which it is free to rotate, means for moving said carriage and pivot-shaft toward and away from the anvil, means for imparting to said table a rotary horizontal movement around said pivot, and a flanging-hammer coacting with said anvil, substantially as and for the purposes above set forth.

8. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table, the periphery of which is contiguous said anvil and which has a central longitudinal slot, a vertical pivot-shaft which projects through said slot and on which the table rotates horizoutally, the head of said pivot-shaft being rectangular and fitting in said slot, a sliding carriage which supports said pivot-shaft and in which it is free to rotate, means for rotating said pivot-shaft and said table horizontally, tracks upon which said carriage is supported, means for sliding said carriage on said tracks toward and away from said anvil, and a flanging-hammer coacting with said anvil, substantially as and for the purposes above set forth.

9. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table the periphery of which is contiguous said anvil and which has a central longitudinal slot, a vertical pivot-shaft which projects through said slot and on which the table rotates horizontally, the head of said pivot being rectangular and fitting in said slot, a sliding carriage which supports said pivot-shaft and in which the shaft is free to rotate, a toothed quadrant rigidly connected with said pivot-shaft, a worm meshing with the teeth of said quadrant, said worm having bearings connected with said carriage, a shaft passing through the axis of said worm, means for imparting rotary motion to said shaft, tracks upon which said carriage is supported, means for sliding said carriage back and forth on said tracks toward or away from said anvil, and a flanging-hammer coacting with said anvil, substantially as and for the purposes above set forth.

10. In a machine for circularly flanging plate metal, the combination of an anvil, a pivoted blank-carrying table, having a central longitudinal slot, a pivot-shaft C having a head C', the carriage D, the quadrant M, the worm L, the shaft G^3, and means for rotating the same, supporting-tracks for said carriage, means for moving said carriage back and forth on said tracks, supporting-rollers, a supporting-table, and a flanging-hammer, coacting with the anvil, substantially as and for the purposes above set forth.

681,513. CORN-SHOCKER. FRANK A. RITTER, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Feb. 6, 1901. Serial No. 46,177. (No model.)



Claim.—1. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, one or more series of arms pivoted to said post and a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, substantially as described.

2. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, one or more series of arms pivoted to said post, said arms provided with detents and a longitudinally-movable trigger adapted to engage said detents, whereby said arms are locked in radial positions relative to said post, and by longitudinal movement relative thereto to disengage said detents and permit said arms to fold beside said post, substantially as described.

3. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, one or more series of arms pivoted to said post, said arms provided with detents, and a longitudinally-movable trigger provided with one or more collars surrounding said post, each of which is adapted to engage the detents of one of said series of arms, whereby the arms are locked in radial positions relative to said post and by longitudinal movement of said trigger relative thereto to disengage the collars from said detents and permit said arms to fold beside said post, substantially as described.

4. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, a head secured to said post and adapted to be adjusted vertically, arms pivoted to said head, and a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, substantially as described.

5. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, a head secured to said post and adapted to be adjusted vertically, arms pivoted to said head, and a longitudinally-movable trigger adapted to be adjusted to correspond with the adjustment of said head, said trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, substantially as described.

6. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, and automatic means for producing said longitudinal movement, substantially as described.

7. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, and automatic means whereby the retrograde movement of the hoisting mechanism is instrumental in producing said longitudinal movement, substantially as described.

8. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, and mechanism connecting said hoisting device and post whereby the retrograde movement of the hoisting mechanism is instrumental in producing said longitudinal movement, substantially as described.

9. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a sliding connection between said hoisting device and post, automatic means for operating said sliding connection whereby the post and the shock formed thereon are permitted to fall a short distance, and means for engaging said trigger, whereby the momentum of the falling shock and post is instrumental in disengaging said trigger from said arms, substantially as described.

10. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a sliding connection between said hoisting device and post, automatic means for operating said sliding connection whereby the post and the shock formed thereon are permitted to fall a short distance, and a stop adapted to engage said trigger whereby the momentum of the falling shock and post is instrumental in disengaging said trigger from said arms, substantially as described.

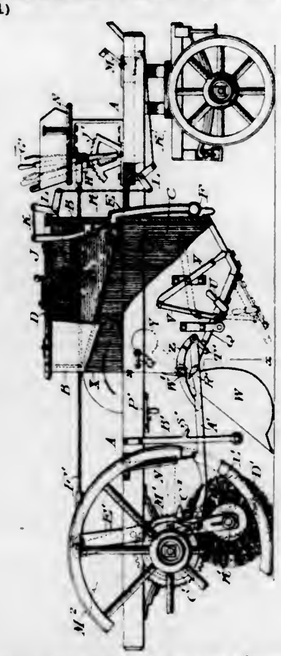
11. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a sliding connection between said hoisting device and post, a tripping device adapted to actuate said sliding connection, a stop-sleeve adapted to produce relative longitudinal movement between said post and trigger whereby said trigger is disengaged from said arms.

12. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a tripping device adapted to be actuated by the retrograde movement of the hoisting mechanism, a sliding bolt connecting said tripping device and post, and a stop-sleeve adapted to produce relative longitudinal movement between said post and trigger whereby said trigger is disengaged from said arms, substantially as described.

13. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a tripping device consisting of the lever K and the locking-link J, a sliding bolt I, and a swivel I', a stop-sleeve H, said longitudinally-movable trigger having the bar g', with the eye g^2, adapted to revolve freely on the stop-sleeve H and to be engaged by the stop h', whereby said trigger may be moved longitudinally relative to said post and thus disengage said arms, substantially as described.

14. In a corn-shocker, in combination with a hoisting device, a pulley provided with ratchet-teeth, a tripping-lever actuated by a spring-actuated pawl engaging said ratchet-teeth, a locking-link pivoted to said tripping-lever, a sliding bolt and means for resetting said tripping-lever, all combined, substantially as described.

681,514. STREET SWEEPER OR CLEANER. OTTO SCHUMANN, Philadelphia, Pa. Filed Feb. 19, 1901. Serial No. 47,910. (No model.)



Claim.—1. In a street-sweeping apparatus, a dirt-receiving box having a closed top and an opening in its rear, a brush, means for operating said brush, and a swinging bucket adapted to oscillate between said brush and opening, in combination with a radial arm connected with the axis of said bucket, a rising and falling bar which is pivotally mounted on the running-gear and connected at one end with said radial arm, and means on the running-gear for raising and lowering the other end of said bar.

2. In a street-sweeping apparatus, a frame provided with running-

gear a dirt-receiving box, a bucket mounted thereon, an arm connected with the axis of said bucket, a bar pivotally attached to said arm, a tappet-wheel on said running-gear adapted to engage with said bar at intervals, and means adapted to hold said bar against said tappet-wheel.

3. In a street-sweeping apparatus, a frame provided with running-gear, a dirt-receiving box, a swinging bucket on said box, an arm connected with said bucket, a bar pivotally attached to said arm, means connected with said running-gear, engaging said bar, whereby the bucket is oscillated to and from said box at intervals, and means adapted to hold said bar against said tappet-wheel.

4. In a street-sweeping apparatus, a frame provided with running-gear, a dirt-receiving box, and a bucket adapted to be oscillated to and from said box, in combination with a lock for the oscillating mechanism of said bucket, and mechanism operated by the running-gear for oscillating said bucket.

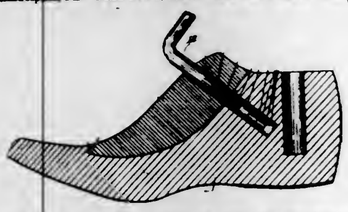
5. In a street-sweeping apparatus, having a frame provided with running-gear, a dirt-receiving box, and a bucket mounted thereon adapted to be oscillated to and from said bucket, an arm connected with said bucket, a bar pivotally attached to said arm, means for operating said bar in opposite directions, and a lock on the apparatus adapted to engage said arm for locking said bar and said bucket in inoperative positions.

6. In a street-sweeping apparatus, a frame, a dirt-receiving box, and an oscillating bucket thereon, the arm Z mounted on said frame, the bar A', the dog R' thereon, said arm being pivotally connected with said bar, the tooth S', the support B' for said tooth, and the spring M' which is adapted to raise said bar, said dog being adapted to engage said tooth.

7. In a street-sweeping apparatus, a frame a rotary brush, a toothed wheel thereon, a toothed wheel on the apparatus operated by the running-gear thereof, said wheels being adapted to mesh, a movable arm forming the bearings for said brush, a lever adapted to be operated by the driver of the apparatus, and a connection for said movable arm and lever in combination with a dirt-receiving box having an inlet-opening in its rear and a bucket mounted on the frame adapted to reciprocate between said brush and opening.

8. In a street-sweeping apparatus, a dirt-receiving box, a gate therefor, means for locking said gate consisting of bolts, a double crank-arm connecting the same, a handle attached to one of said bolts and eyes on said box, and a compound lever for opening said gate.

681,515. **BLOCK-FASTENER FOR SHOE-LASTS.** JOHN E. SCOTT, Philadelphia, Pa. Filed Dec 2, 1899. Serial No. 738,968. (No model.)



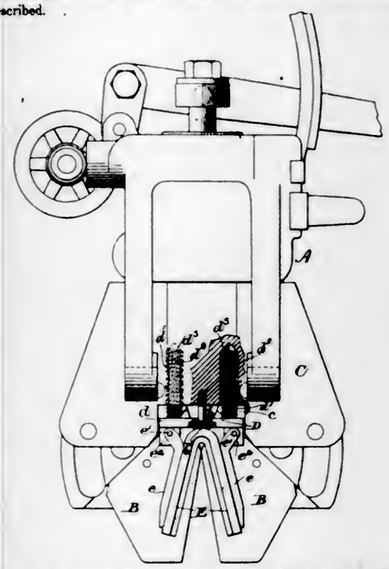
Claim.—1. In a block-fastener for lasts, the combination of the sleeve, the pin, upon which the same is adapted to slide, having the terminal head of somewhat larger diameter than the external diameter of said sleeve, the spring within the latter, and means for limiting the outward movement of said sleeve against the stress of said spring, the said sleeve being adapted to slide freely within the usual holes in the block and last, substantially as and for the purpose set forth.

2. In a device for the purpose recited, the combination of the spring-controlled sleeve, the pin upon which the same is adapted to slide, having a head fitted to and within said sleeve, and the terminal head of somewhat larger diameter than the external diameter of said sleeve, the said sleeve being adapted to slide freely within the usual holes in the block and last, substantially as set forth.

3. The combination of the last-body having the recess therein, the detachable block having the hole therethrough, of substantially the same diameter as that of said recess, and adapted to register with said recess, the pin having the terminal head retained within the latter by friction, and the spring-controlled sleeve adapted to slide on said pin, and projecting normally into the hole in said block, substantially as and for the purpose set forth.

681,516. **LASTING-MACHINE.** THOMAS SHEA, Philadelphia, Pa., assignor to the United Shoe Machinery Company, Paterson, N. J. Filed July 31, 1896. Serial No. 601,163. (No model.)

Claim.—1. In a lasting-machine the combination with a head carrying lasting devices, of a last band or clamp comprising outwardly-diverging pivoted arms, a movable abutment supporting said arms, and a pad secured along the inner faces of said arms; and springs interposed between said abutment and a fixed portion of the head, substantially as described.



2. In a lasting-machine, the combination with a head carrying lasting devices, of a last band or clamp comprising angular outwardly-diverging pivoted arms, a movable abutment supporting said arms, and a pad secured along the inner faces of said arms; springs interposed between said abutment and a fixed portion of the head and a suitably-placed stop to limit the forward motion of said abutment, substantially as described.

3. In a lasting-machine, the combination with a head carrying lasting devices, of a band or clamp comprising, angular outwardly-diverging arms, an abutment supporting said arms mounted on the head, and movable longitudinally thereof and a pad secured along the inner faces of said arms; and suitably-placed springs normally holding the abutment in its forward position.

4. In a lasting-machine, the combination with a head carrying lasting plates or wipers, of a last band or clamp comprising outwardly-diverging arms pivotally mounted on said head, a pad secured along the inner faces of said arms, and means to advance the head toward the end of a last whereby the last band or clamp will be caused to engage and clamp the end of the last, substantially as described.

5. In a lasting-machine, the combination with a last band or clamp, of inwardly-bent and outwardly-inclined arms supporting said last band or clamp, substantially as described.

681,517. **CORN-SHOCKER.** JOSEPH M. SHIVELY, Alfred, Kans., assignor to Deering Harvester Company, Chicago, Ill. Filed Feb. 6, 1901. Serial No. 46,321. (No model.)

Claim.—1. In a corn-shocking machine, the combination with a shock-forming post having pivoted arms, a trigger adapted to engage said arms and to lock them in radial position relative to said post and by longitudinal movement of same, relative to said post, to unlock said arms, and a shock-lifting hoist, of a trigger-pull consisting of the notched bar I' adapted to engage said trigger, a guide upon the arm of said hoist, said notched bar passing upward through said guide, and a catch upon said guide whereby the notched bar may be arrested from downward movement when the hoisting device is permitted to lower the shock-forming post, substantially as described.

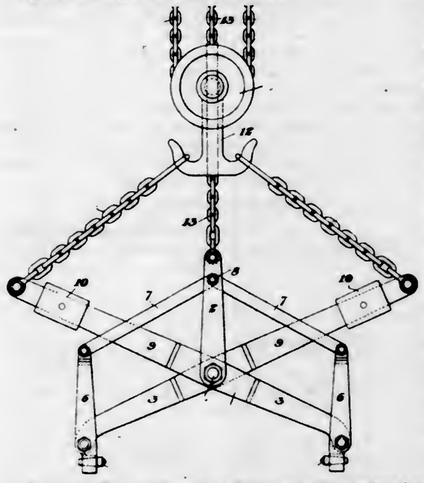
2. In a corn-shocking machine, the combination with a shock-forming post having pivoted arms, a trigger adapted to engage said arms and to lock them in radial position relative to said post and by longitudinal movement of same, relative to said post, to unlock said arms, and a shock-lifting hoist, of a trigger-pull consisting of the notched bar I' adapted to engage said trigger, a guide upon the arm of said hoist, said notched bar passing upward through said guide, and a catch upon said guide whereby the notched bar may be arrested from downward movement when the hoisting device is permitted to lower the shock-forming post, means for moving said catch out of engagement with said notched bar to permit the same to move downward when the shock-forming post is lowered to its position on the table, substantially as described.



3. In a corn-shocking machine, the combination with a shock-forming post having pivoted arms, a trigger adapted to engage said arms and to lock them in radial position relative to said post and by longitudinal movement of same, relative to said post, to unlock said arms, and a shock-lifting device connected to the top of said post by a swivel, of a catch on said shock-lifting device and a trigger-pull extending from said catch downward and surrounding said trigger, whereby the shock-forming post is free to rotate while forming the shock without affecting the position of said trigger-pull relative to said lifting device, substantially as described.

4. In a corn-shocking machine, the combination with a shock-forming post having pivoted arms, a trigger adapted to engage said arms and to lock them in radial position relative to said post and by longitudinal movement of same, relative to said post, to unlock said arms, and a shock-lifting device, of a trigger-pull adapted to move a limited distance longitudinally relative to said trigger and to engage therewith, whereby the trigger is permitted to move downward with the shock-forming post for a little distance and the said trigger then arrested by engagement with the said trigger-pull, whereby the momentum of the descending post and shock is instrumental in setting the arms free, substantially as described.

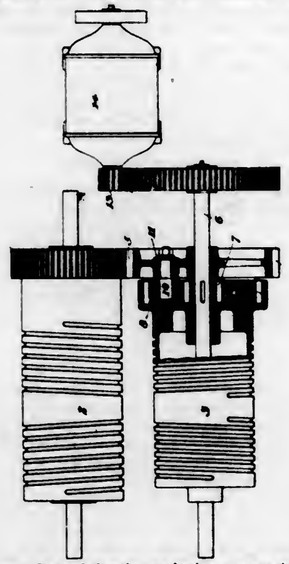
681,518. **TONGS.** RICHARD H. STEVENS, Braddock, Pa. Filed Apr. 13, 1901. Serial No. 55,719. (No model.)



Claim.—1. The combination with tong-levers, of levers pivoted to said tong-levers and provided with bits, and actuating connections for the bit-levers which are independent of the tong-levers; substantially as described.

2. The combination with a tong-support and tong-levers pivoted thereto, of levers pivoted to the tong-levers, bits carried on the pivoted levers, and links connecting the upper portions of the bit-levers to the tong-support; substantially as described.

681,519. **SPEED-CHANGING MECHANISM.** RICHARD H. STEVENS, Braddock, Pa. Filed Apr. 13, 1901. Serial No. 55,720. (No model.)

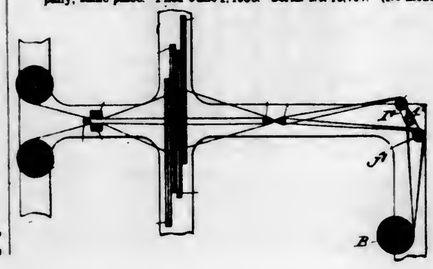


Claim.—1. In speed-changing mechanism, a rotary element, a second rotary element, gearing between them arranged to drive the second rotary element, said gearing including an internal gear, an idler meshing with the internal gear, a pinion on the shaft of the second element intermeshing with the idler, and an independent motor connected to the shaft of the second element, the axes of said elements and gear-wheels being in parallelism; substantially as described.

2. In speed-changing mechanism, a main hoisting-drum, an auxiliary hoisting-drum, gearing between said drums arranged to drive the auxiliary drum, said gearing including an internal gear, an idler meshing with the internal gear, a pinion on the shaft of the auxiliary drum intermeshing with the idler, and an independent motor connected to said auxiliary-drum shaft, the axes of said drums and gear-wheels being in parallelism; substantially as described.

3. In speed-changing mechanism, a main rotary element, an auxiliary rotary element, gearing between them arranged to drive the second element, said gearing including an internal gear, an idler meshing with the internal gear, a pinion on the shaft of the auxiliary element intermeshing with the idler, and a separate connection for driving the second element, the axes of said elements and gear-wheels being in parallelism; substantially as described.

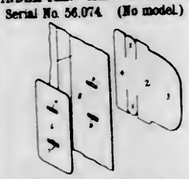
681,520. **WARP-TENSION DEVICE FOR LOOMS.** FREDERICK STOLZENBERG, Shelton, Conn., assignor to Sidney Blumenthal & Company, same place. Filed June 1, 1900. Serial No. 18,707. (No model.)



Claim.—1. In a loom the combination of a warp-beam, shedding mechanism for simultaneously forming two sheds in the warp-threads led from said beam, said sheds having the adjacent sides approximately in a common plane, a tension device for transmitting the strain of the warp-threads in the outer plane of the shed to the threads in the common plane to secure uniform tension on all the threads, said tension device comprising loosely-pivoted arms at the sides of the loom-frame, rolls joining said arms, the warp-threads coming from the beam being divided into two sets each of which passes over and engages one of said rolls.

2. In a loom, means for forming a shed of warp in which the set of warp which forms one portion of the shed is substantially straight, and a warp-tension device comprising a rocking frame carrying a pair of rollers, one of the rollers arranged to engage one set of warp and the other roller arranged to eogage the other set of warp, the rocking movement of the rollers, for letting off on one set of warp and taking up on the other set of warp when the shed is being formed, being under the control of the means for forming the shed, whereby an even tension is imparted to both of the sets of warp, substantially as set forth.

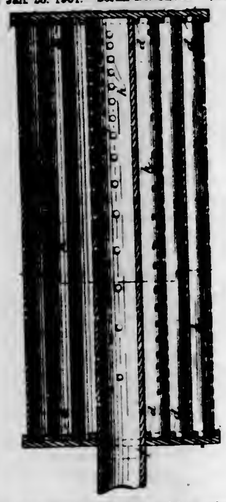
681,521. **INDEX-TAB.** MARY C. TREBEL, Canton, Ohio. Filed Apr. 16, 1901. Serial No. 56,074. (No model.)



Claim.—1. An index-tab for the leaf of a book composed of a projecting part and an engaging part, indexing characters located on said projecting part, tongues cut in opposite sides of said engaging part adapted when bent to pass through slots provided in said leaf, and when straightened to attach said tab to the leaf, substantially as specified.

2. An index-tab for the leaf of a book composed of a projecting part and an engaging part, indexing characters located on said projecting part, tongues cut in opposite sides of said engaging part, a plate provided with slots corresponding with the bases of said tongues, said leaf being provided with similar slots near its edge, said tongues being adapted respectively when bent to pass through said leaf-slots and plate-slots successively, and when straightened to attach said tab and plate to the leaf, substantially as specified.

681,522. **MUFFLING DEVICE.** ALPHA O. VERY, Springfield, Mass. Filed Jan. 25, 1901. Serial No. 44,663. (No model.)



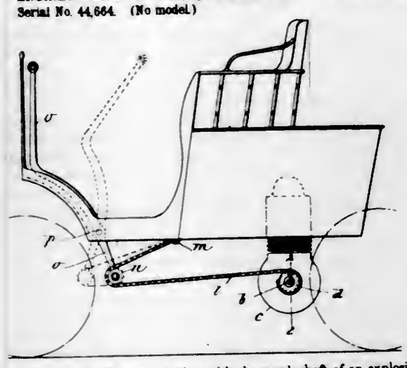
Claim.—1. An exhaust-muffler comprising a plurality of nested concentric cylinders, heads in which the ends of the cylinders are supported, an opening through one of said heads for the admission of exhaust-gases to the innermost cylinder, and a series of exhaust-openings through the walls of the cylinders, the area of said exhaust-openings in each cylinder-wall decreasing progressively from the inner to the outer cylinder, substantially as described.

2. An exhaust-muffler comprising a plurality of nested concentric cylinders, heads in which the ends of the cylinders are supported, an opening through one of said heads for the admission of exhaust-gases to the innermost cylinder, and a series of exhaust-openings through the walls of the cylinders, the area of exhaust-opening in each cylinder increasing from one end of the cylinder to the other in the direction of movement of the exhaust-gases, whereby the greatest area in one cylinder will be opposite the smallest area in the next, substantially as described.

3. An exhaust-muffler comprising a plurality of nested concentric cylinders, heads in which the ends of the cylinders are supported, an opening through one of said heads for the admission of exhaust-gases to the innermost cylinder, and a series of exhaust-openings through the walls of the cylinders, the area of exhaust-opening in each cylinder increasing from one end of the cylinder to the other in the direction of movement of the exhaust-gases, and the total exhaust area of the cylinders decreasing progressively from the central cylinder to the outermost cylinder, substantially as described.

4. In an exhaust-muffler, a plurality of contiguous chambers, exhaust-openings in the walls of the latter whose area increases in the direction of movement of the exhaust, the total area of said opening in each chamber decreasing also in the direction of movement of the exhaust, and an opening in one of said chambers for the admission of the exhaust, substantially as described.

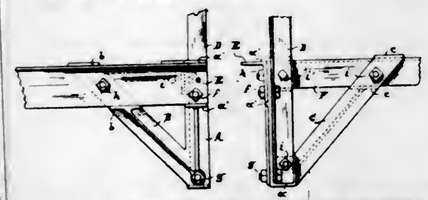
681,523. **STARTING DEVICE FOR INTERNAL-COMBUSTION ENGINES.** ALPHA O. VERY, Springfield, Mass. Filed Jan. 25, 1901. Serial No. 44,664. (No model.)



Claim.—1. The combination with the crank-shaft of an explosion-engine, of a ratchet-drum on said shaft, a flexible member secured by one end to the drum and passing thereabout, and fixedly secured by its opposite end; a pivotally-supported lever engaging said flexible member between its ends, whereby the swinging of the lever will rotate said drum and crank-shaft, in one direction, substantially as described.

2. In a motor-vehicle provided with an explosion-engine, the combination with the crank-shaft of the engine, of a pivotally-supported lever located in proximity to the seat of the vehicle, a spring ratchet-drum on said crank-shaft for rotating it in one direction, a sprocket-chain encircling the drum and attached thereto by one end, and having its opposite end attached to the vehicle, a sprocket-wheel on one end of said lever and engaging said chain, whereby the swinging of said lever will rotate said drum and crank-shaft, substantially as described.

681,524. **BRACKET FOR STRUCTURAL-IRON FRAME CONSTRUCTIONS.** SAMSON D. WRIGHT, Cleveland, Ohio. Filed Nov. 12, 1900. Serial No. 36,206. (No model.)

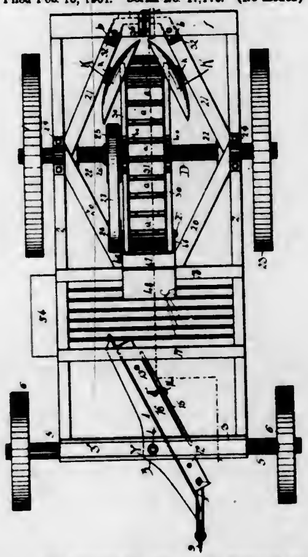


Claim.—1. A corner-bracket for metallic frame constructions comprising the members A B C and a wing e of which the members B C and

e diverge and project in right-angle planes from part A and being provided at the junction and free terminals with lugs affording reception, support and connection for upright, longitudinal and transverse beams, substantially in the manner as and for the purpose set forth.

2. In car-frame constructions the combination with longitudinal, transverse and vertical beams of a corner-bracket comprising the members A, B, C and *e*, a foot-brace being afforded for the vertical beam at the junction of members A, B and C, horizontal braces being formed for the longitudinal and transverse beams by members B C distant from member A, and a joint connection of all the beams being afforded with and by members A and e substantially in the manner as shown and set forth.

681,525. **BEET-HARVESTER.** JOHN YOUNG, California Junction, Iowa. Filed Feb. 13, 1901. Serial No. 47,176. (No model.)



Claim.—1. The combination with a wheel-supported carriage, of a beet-topping knife adjustably held below said carriage at the forward end, said knife being provided with a bulging portion, a pivoted frame adjustably held near the rear end within said carriage, disks within the lower end of said pivoted frame, and an endless elevator working within said pivoted frame, said elevator ending between said cutters.

2. The combination with a wheeled carriage, of a beet-topping knife provided with a bulge and adjustably secured to the forward end of said carriage, said beet-topping knife being set at an angle, a cutter at the forward end of said beet-topping knife, a pivoted frame adjustably held within the rear end of said carriage, disk plows secured to the lower end of said pivoted frame, an endless elevator terminating between said disk plows, and a grate positioned below the upper end of said endless elevator all arranged substantially as and for the purpose set forth.

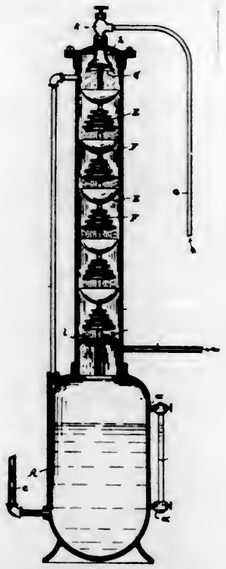
681,526. **LIQUID-CARBONATING APPARATUS.** WILLIAM J. YOUNG, Cleveland, Ohio, assignor, by direct and mesne assignments, to Frank C. Feller and William J. Springborn, same place. Filed Aug. 31, 1900. Serial No. 28,673. (No model.)

Claim.—1. A liquid-carbonating apparatus having a liquid-supply and a gas-supply each normally under constant pressure; and means located entirely within the carbonating-chamber of the apparatus for automatically controlling the entrance of liquid into said apparatus by the variations in pressure within the apparatus, the gas-entrance being free from controlling means other than the pressure within the chamber.

2. A liquid-carbonating apparatus having a liquid-supply and a gas-supply each normally under constant pressure; and a valve located entirely within the carbonating-chamber of the apparatus controlled by the variations in pressure within the apparatus for governing the entrance of liquid into said apparatus.

3. In a carbonating apparatus, a carbonating-chamber; a gas-inlet thereto; a liquid-inlet at the upper end thereof; and means located within said chamber actuated by the liquid and gas pressures respectively for controlling the passage of the liquid through said inlet.

4 In a liquid-carbonating apparatus, a carbonating-chamber; a gas-inlet thereto; a liquid-inlet at the upper end thereof; and a spring-pressed valve located within said chamber actuated by the liquid and gas pressures respectively for controlling the passage of the liquid through said inlet.



5. A liquid-carbonating apparatus having a tank; a carbonating-chamber; a gas-inlet and a liquid-inlet to said chamber, the liquid-inlet being controllable by the variations in pressure within said tank and chamber; and means for retaining the pressure in said chamber in equilibrium with the pressure in the tank.

6. A liquid-carbonating apparatus having a tank; a carbonating-chamber; a gas-inlet and a liquid-inlet to said chamber, the liquid-inlet being controllable by the variations in pressure within said tank and chamber; and a pipe connecting said chamber and tank for holding the pressures therein in equilibrium relatively to each other.

7. In a carbonating apparatus for liquids, a tank and column combined, the said column containing a series of flanged bowls and cones arranged alternately one above the other, an automatically-operating pressure-controlled inlet-valve for the water located above the highest bowl and a gas-inlet below the lowest cone, an auxiliary pressure-equalizing pipe for said column and tank and an outlet from said tank all constructed and arranged substantially as and for the purpose set forth.

8. In a liquid-carbonating apparatus, a carbonating-chamber; a gas-inlet thereto; a liquid-inlet at the upper end thereof; and a valve located within the carbonating-chamber and having a diameter greater than that of the liquid-inlet and adapted to be seated against the periphery thereof, said valve being controlled by the variations in pressure within the apparatus for governing the entrance of liquid into said apparatus.

9. In a liquid-carbonating apparatus, a carbonating-chamber; a gas-inlet thereto; a liquid-inlet at the upper end thereof; and a valve located within the carbonating-chamber, said valve being concavo-convex and of greater diameter than that of the liquid-inlet and adapted to be seated against the periphery thereof, said valve being controlled by the variations in pressure within the apparatus for governing the entrance of liquid into said apparatus.

10 In a liquid-carbonating apparatus, a carbonating-chamber; a gas-inlet thereto; a liquid-inlet at the upper end thereof; an automatically-operating pressure-controlled valve located within the carbonating-chamber adapted to deliver the liquid in annular drippings; and a series of independent atomizing devices each having a plurality of superimposed annular dripping-flanges of varying diameter, adapted to receive and successively pass the liquid through the carbonating-chamber of the apparatus, whereby the liquid will pass through the carbonating-chamber solely in the form of drippings.

11. In a liquid-carbonating apparatus, a carbonating-chamber; a gas-inlet thereto; a liquid-inlet at the upper end thereof; a concavo-convex valve located within the carbonating-chamber and having a diameter greater than that of the liquid-inlet and adapted to be seated against

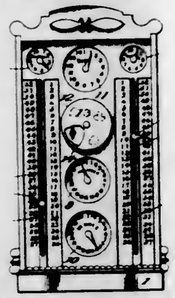
the periphery thereof, said valve being controlled by the variations in pressure within the apparatus for governing the entrance of liquid into said apparatus; and a series of independent atomizing devices, comprising cones and bowls arranged alternately, each having a plurality of superimposed annular dripping-flanges forming annular cup-shaped portions, the drippings from one flange passing directly into the cup of the succeeding flange whereby the liquid will pass through the carbonating-chamber solely in the form of drippings.

681,527. METHOD OF PRODUCING SOFT-METAL CASTINGS. GEORGE H. BRABROOK, Taunton, Mass. Filed Feb. 27, 1901. Serial No. 49,041. (Specimens.)



Claim.—The method of producing a casting of soft metal, which consists in impregnating the inner surface of a porous non-metallic mold with stearic acid and running in the molten metal.

681,528. GAME-COUNTER. THOMAS W. COCHRANE, Rochester, N. Y. Filed Dec. 17, 1900. Serial No. 40,192. (No model.)

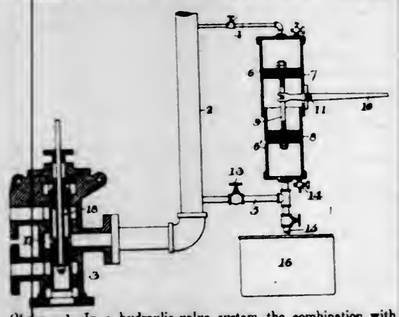


Claim.—1. In a game-counter, a standard having columns of numbers separated by a slot, a pointer movable up and down in the slot, said pointer being reversible and held by a spring, and a way formed in the standard to guide and hold the spring.

2. The game-counter having a series of numbers arranged in columns, pointers to count in connection with said columns, dials for indicating losses, and an indicator for trumps, said dials and indicator being situated between the columns.

3. The game-counter having a series of numbers arranged in columns, pointers to count in connection with said columns, dials for indicating losses, an indicator for trumps, said dials and indicator being situated between the columns, dials to indicate the number of games won, and a dial for indicating the amount bid in the game of pedro or for like purpose, said latter dials being situated above the columns for counting in a particular game.

681,529. LUBRICATING DEVICE. WILLIAM A. CORNELIUS, Homestead, Pa. Filed Oct. 27, 1900. Serial No. 34,573. (No model.)



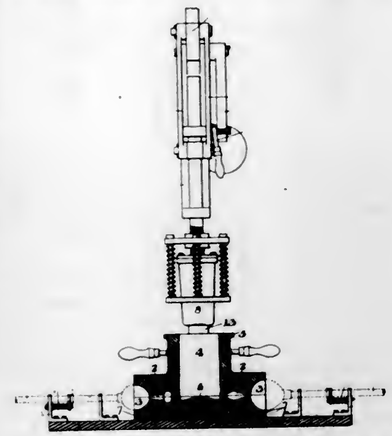
Claim.—1. In a hydraulic-valve system, the combination with a hydraulic valve having a cylinder containing a manually-operated valve, and inlet-ports leading through the cylinder, of a hydraulic-pressure channel leading to said inlet-ports, a lubricating-reservoir having one end portion connected to said channel, an outlet connected to the other end portion of the reservoir, valves in each of said connections, and means for applying pressure to the lubricant to force it through one of said pipes and cause it to deposit in the inlet-ports in the cylinder; substantially as described.

2. In a hydraulic-valve system, the combination with a hydraulic valve, comprising a cylinder with series of side ports and a manually-operated valve arranged to cut off communication between said ports, of a hydraulic-pressure channel leading to the valve, a cylinder arranged to contain lubricant, valved pipes connecting the ends of the cylinder to the pressure-channel, a piston within the cylinder, and means for applying pressure to the piston to force the lubricant through the outlet; substantially as described.

3. In a hydraulic-valve system, the combination with a hydraulic valve, comprising a cylinder with series of side ports and a manually-operated valve arranged to cut off communication between said ports, of a hydraulic-pressure channel leading to the valve, a cylinder arranged to contain lubricant, and containing a piston, a valved outlet-pipe leading therefrom to the pressure-channel, and a valved inlet-pipe leading to the other side of the piston to supply pressure and force out the lubricant; substantially as described.

4. In a hydraulic-valve system, the combination with a hydraulic valve, comprising a cylinder with series of side ports and a manually-operated valve arranged to cut off communication between said ports, of a hydraulic-pressure channel leading to the valve, a cylinder arranged to contain lubricant, and having pipes leading from its ends into the pressure-channel, a piston within the cylinder, and means for unbalancing the piston to enable the pressure to force the lubricant out into the pressure-channel; substantially as described.

681,530. APPARATUS FOR FORMING STEMS ON ARTICLES OF GLASSWARE. GEORGE W. DAVIS, Tiffin, Ohio, and DANIEL C. RIPLEY, Pittsburg, Pa., assignors to the United States Glass Company, Pittsburg, Pa. Filed May 29, 1900. Renewed July 12, 1901. Serial No. 68,108. (No model.)



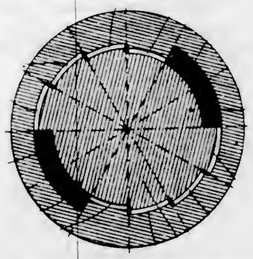
Claim.—1. Apparatus for forming stems on glassware, comprising a mold having a vertical fount-cavity, and a horizontal stem-cavity communicating therewith and having at its outer end an open portion to receive a previously-formed bowl, substantially as described.

2. Apparatus for forming stems on glassware, comprising a mold having a vertical fount-cavity, and a plurality of stem-cavities communicating therewith and having at their outer ends open portions to receive previously-formed bowls, substantially as described.

3. Apparatus for forming stems on glassware, comprising a mold having a vertical fount-cavity, a horizontal stem-cavity communicating therewith and having at its outer end an open portion adapted to receive a bowl, and means adapted to hold and center a blowpipe carrying said bowl; substantially as described.

4. Apparatus for forming stems on glassware, comprising a mold having a vertical fount cavity, and a horizontal stem-cavity communicating therewith and having at its outer end an open portion adapted to receive a bowl, said fount-cavity flaring downwardly; substantially as described.

681,531. BREECH MECHANISM FOR BREECH-LOADING ORDNANCE. ARTHUR T. DAWSON and GEORGE T. BUCKHAM, London, England, assignors to Vickers Sons & Maxim, Limited, Sheffield, England. Filed Feb. 25, 1901. Serial No. 48,735. (No model.)



Claim.—1. In a breech-loading gun, the combination with the breech thereof provided with stepped threads, of a plug having its circumference symmetrically divided into two equal portions, each of said portions divided into a series of sections, two of the said sections having smooth surfaces and the remaining sections provided with stepped threads corresponding with the threads of the breech, means for rotating the plug within the breech to disengage the threads of the latter from the threads of the former, and means operating during the rotation of the breech-plug after the latter has been released from the breech and adapted to cause the retracting of the plug from the breech.

2. In a breech-loading gun, the combination with the breech thereof provided with stepped threads, of a breech-plug mounted therein and having its periphery formed with stepped threads engaging the threads of the breech for locking the plug therein, a carrier engaging said plug for swinging the same to and from the breech, means for rotating the plug within the breech to release the threads of the plug from the threads of the breech, means permitting an extra rotation of the plug after the threads thereof have been released from the threads of the breech, means for causing a cam engagement between the carrier and the plug for retracting the latter from the breech during an extra rotation given to the plug after the threads of the plug and breech are released from their engagement with one another, and means for swinging the carrier and plug to and from the breech.

3. In combination, a breech, a breech-plug having a recess in the rear face thereof, a carrier having recesses on its inner face, inclined offsets carried by said plug and adapted to engage in the recesses of the carrier for connecting the plug thereto, a spring-retracted bolt arranged in the carrier, projections on the forward and lower faces of said bolt, a bracket attached to the breech and provided with an opening and an inclined recess, a cam 13 on the said plug, said cam adapted to engage the projection on the forward face of the bolt for forcing the latter and the projection on the lower face thereof into the opening and recess, respectively, of the bracket, and a lug adapted to engage the projection on the forward face of the bolt for releasing the latter from the bracket and forcing said projection into the recess in the plug.

681,532. DIAPHRAGM FOR ELECTRIC BATTERIES. JOHN L. DORELL, Harlesden, England. Filed Dec. 6, 1897. Serial No. 660,890. (Specimens.)

Claim.—1. As a new article of manufacture, a shaped pot to be baked or fired, and consisting of calcined magnesite, mixed with boracic acid and also with finely-divided carbonizable material, as and for the purpose described.

2. The process herein described of making a porous pot, consisting in reducing calcined magnesite to a fine state of division moistening it with an alcoholic solution of boracic acid, then making into a stiff paste or dough and shaping this to the required form, and drying and baking it, all substantially as described.

3. The process herein described of making a porous pot, consisting in reducing calcined magnesite to a fine state of division, combining finely-divided carbonizable material with it, moistening it with a solution of boracic acid, then making it into a stiff paste or dough, shaping this into the required form and drying and baking it, all substantially as described.

681,533. TWINE-HOLDER. WILLIAM G. BECH, Manitowoc, Wis. Filed Mar. 5, 1901. Serial No. 49,810. (No model.)

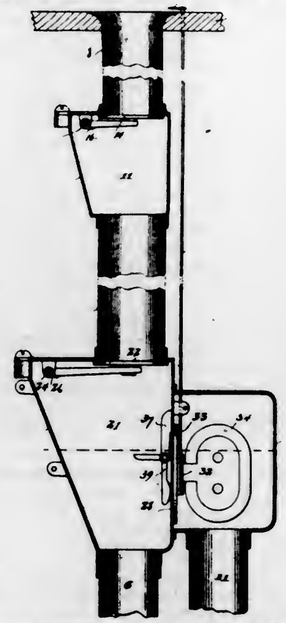
Claim.—1. In a twine-holder of the character described, the combination with a supporting frame or bracket provided with an aperture, of a twine-holding shell having a registering aperture, and a spring connected to the supporting frame or bracket and provided with a toe to project through said apertures and to lock said shell in place and having one of its ends projecting upwardly at the rear of the shell and bearing against the same so that when the shell is released by the withdrawal of the toe from engagement therewith, the end of the spring will force said shell slightly outwardly, substantially as set forth.



2. In a twine-holder of the character described, the combination with a supporting frame or bracket provided with a longitudinal groove, of a spring connected to the lower wall of said groove and having a toe which projects upwardly through an aperture in the wall of said groove, and a shell provided with a hollow rib formed with an opening to receive the toe of said spring, substantially as set forth.

3. In a twine-holder, the combination with a two-part shell, one part having a cord-eye in its abutting end, of a spring-plate secured to the other part of the shell and projecting in front of the cord-eye and having its upper free end spaced apart and divergent from the other part of said shell, whereby the twine is permitted to be withdrawn through the eye in an upward direction and is firmly engaged by said spring-plate when drawn in a lateral direction, substantially as described.

681,534. TERMINAL DEVICE FOR PNEUMATIC-DESPATCH-TUBE SYSTEMS. EDMOND A. FORDYCE, Chicago, Ill., assignor to Arthur S. Temple, trustee, Boston, Mass. Filed July 10, 1901. Serial No. 67,702. (No model.)



Claim.—1. A pneumatic-tube terminal adapted to communicate with two outgoing tubes of the system and also with a pressure-tube from the blower and provided with a double valve controlling the communication between the pressure-tube and the outgoing tubes, and devices automatically operated by the carriers in transit for shifting the current to that tube in which a carrier has been introduced, substantially as described.

2. A pneumatic-tube terminal having a pair of sealing-chambers communicating respectively with a pair of outgoing tubes of the system and also with a pair of tube-sections through which the carriers are introduced, a pressure-chamber, a double valve located in said pressure-chamber

and controlling the flow of the air-current alternately to said sealing-chambers, and devices automatically operated by the carriers in transit for actuating said double valve to simultaneously admit pressure behind a carrier and cut out the other tube, substantially as described.

3. A pneumatic-tube terminal comprising in combination a valve-box divided by a vertical partition into a pair of sealing-chambers which are adapted to communicate respectively with a pair of outgoing tubes of the system, a pair of valve-controlled tube-sections superimposed on said valve-box and communicating respectively with the chambers thereof, a pressure-chamber communicating with the sealing-chambers of the valve-box through openings in the side wall thereof, a double valve hinged between said openings, and valve-operating devices located in the sealing-chambers and disposed in the path of the carriers therethrough and operating when struck by a carrier to shift said valve and admit pressure in rear of the carrier, at the same time cutting off the current from the other tube, substantially as described.

4. A pneumatic-tube terminal comprising in combination a valve-box divided by a vertical partition into two chambers each of which is adapted to communicate through its bottom wall with an outgoing tube of the system and said box having also a pair of openings formed through one of its side walls communicating with said chambers respectively, a casing applied to and covering the apertured side of said valve-box and constituting a pressure-chamber and adapted to be entered by a tube from the blower, a double valve in said pressure-chamber controlling said openings, a pair of valve-controlled tube-sections entering the top of said valve-box, and devices automatically operated by the carriers in transit for actuating said double valve to simultaneously uncover one of said openings for the admission of pressure to the carrier and close the other, substantially as described.

5. A pneumatic-tube terminal, comprising in combination upper and lower valve-boxes, each divided by a vertical partition into a pair of sealing-chambers, a pair of valve-controlled tube-sections entering the tops of the upper sealing-chambers, a pair of valve-controlled tube-sections connecting said upper and lower sealing-chambers, a pressure-chamber communicating with said lower sealing-chambers through openings in the side wall of the latter, a valve hinged between said openings and having two rigidly-united wings controlling the same and so disposed as that the uncovering of one opening simultaneously closes the other, and a pusher device located in each sealing-chamber and engaging the adjacent wing of the valve and automatically actuated by a carrier in its descent to force such member of the valve from its seat and uncover the opening for the admission of air from the pressure-chamber, substantially as described.

6. In a pneumatic terminal, the combination with a valve-box having therein two sealing-chambers in communication with a common pressure-chamber through adjacent openings in a common side wall of the box, of a butterfly-valve having two wings rigidly united at right angles to each other and pivoted between said openings so that the covering of one opening automatically and simultaneously uncovers the other, and means located in said sealing-chambers and tripped by the carriers in transit for actuating said valve, substantially as described.

7. In a pneumatic terminal, the combination with a valve-box having therein two sealing-chambers in communication with a common pressure-chamber and adapted for connection with a pair of outgoing tubes of the system, of a butterfly-valve pivoted to a side wall of the valve-box and controlling the communication between the pressure-chamber and the sealing-chambers, means actuated by the carriers in transit for simultaneously admitting pressure to one sealing-chamber and cutting it off from the other through the operation of said valve, and an indicator connected with the hinge of the valve and serving to show which tube is in communication with the pressure-chamber, substantially as described.

681,535. **DENTAL IMPRESSION-CUP.** JOHN W. FOWLKING, Albia, Iowa. Filed Mar. 16, 1901. Serial No. 51,535. (No model.)



Claim.—1. A dental impression-cup having a stationary outer side wall and an inner side wall mounted to swing toward and from the outer side wall, for the purpose specified.

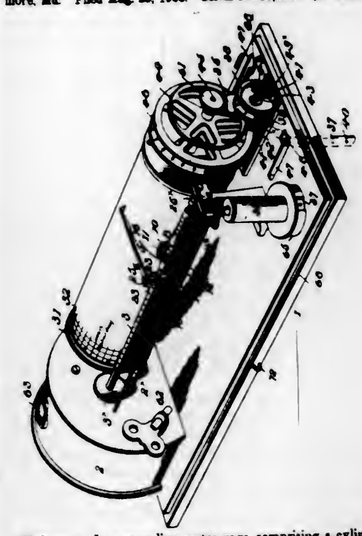
2. A dental impression-cup having a stationary wall, and an oppositely-situated wall mounted to swing with respect to the stationary wall and means for holding said movable wall in a certain position, as set forth.

3. A dental impression-cup having an inward projection, an eye attached thereto, and an inner side wall hung to move freely on the projection, for the purpose specified.

4. A dental cup, having a wall mounted movably with respect to the cup, for the purpose specified, and a member mounted friction-tight on the cup to hold said wall in a certain position.

5. A dental impression-cup provided at opposite sides with inwardly disposed projections, the inner side walls of said cup having movable sections mounted to swing on said projections, the movable sections being provided with upwardly-disposed shanks, for the purpose set forth.

681,536. **RECORDING WATER-GAGE.** JULIUS P. FRIES, Baltimore, Md. Filed Aug. 25, 1900. Serial No. 28,085. (No model.)



Claim.—1. In a recording water-gage comprising a cylinder actuated by a float, a plurality of power-transmitting wheels of different sizes and having different shafts and adapted to be operatively connected in alternation with the float, one of said wheels being adapted to be moved to a situation of rest when the other is in operation, and an adjustable stop for the movable wheel to hold it either in or out of operative connection.

2. In a recording water-gage, a base, a cylinder supported above the base, a float suspended below the base, a counterbalancing-weight, a plurality of intermediate cylinder-driving wheels of different sizes and separately operative, a power-transmitting connection, and pulleys in the base adjacent one of the wheels to guide said connection, said base being slotted for shifting the connection without separating it from the float.

3. In a recording water-gage, a slotted base, a cylinder supported above the base, a float suspended below the base, a counterbalancing-weight, a plurality of intermediate cylinder-driving wheels of different sizes and separately operative, a power-transmitting connection attached to the float and weight, and pulleys in the base-slots adjacent one of the wheels to guide said connection and to permit the connection to be moved from one driving-wheel to another without separation from the float or weight, the inner proximate edges of such slots being situated in planes tangential to one of the wheels.

4. In a recording water-gage, the combination of a pen, a detachable cylinder supporting a record-sheet, devices for moving the pen in contact with and lengthwise the cylinder, a driving-shaft, a clutch comprising a member carried by said shaft to connect the shaft and cylinder, a movable coacting clutch member bearing on the cylinder-head, and a spring for each member, one of the springs 54 being situated within the cylinder and holding the last-named clutch to the cylinder-head, all substantially as set forth, whereby the cylinder can be readily detached, or whereby the cylinder and sheet can be adjusted circumferentially.

5. In a recording water-gage, a cylinder carrying a record-sheet, a pen-stock carrier, a guide-rod for the carrier, a screw for moving the carrier lengthwise the cylinder, a pen-stock carrier extension, a pen-stock, a disk 18 provided with studs arranged transversely to each other, springs on the studs, and screws engaged with the studs to hold the springs one upon the pen-stock and the other upon the carrier extension.

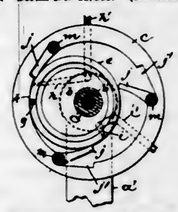
6. In a recording water-gage, the cylinder carrying a record-sheet, the screw-threaded rod, the guide-rod, the pen-stock carrier having an arm 15 freely movable on the guide-rod, the carrier-post 17, the pen-stock mounted on the post, and mechanism for moving the carrier on the rods comprising the swinging arm 16 carrying an open screw-threaded section 11.

7. In a recording water-gage, the cylinder carrying a record-sheet, the screw-threaded rod, the guide-rod, the pen-stock carrier having an arm 15 freely movable on the guide-rod, the carrier-post 17, the pen-stock mounted on the post, mechanism for moving the carrier on the rods comprising the swinging arm 16 carrying an open screw-threaded section 11, said arm being pivoted in the carrier, and the spring to hold the section engaged with the screw-threaded rod.

8. In a recording water-gage, a movable pen-carrier, a motor for uniformly moving the carrier in one direction, a carrier supporting and moving screw, a float, a rotatable cylinder, and power-transmitting connections, all substantially as described, whereby the cylinder is turned by the movements of the float, said screw being situated beside the cylinder and having its thread omitted at 16× at a point immediately opposite the cylinder near its end for automatically disconnecting the carrier from its motor at a predetermined time and bringing said carrier to a state of rest without the arrest of the motor.

9. In a recording water-gage, a float, a cylinder rotated by the float, a movable pen-carrier, a motor for uniformly moving the carrier in one direction, power-transmitting connections between the motor and the carrier, and a device to automatically disconnect the carrier from its motor at a predetermined time to bring said carrier to a state of rest without the arrest of said motor.

681,537. **ROTARY ENGINE.** FREDERICK FUCHS, Elizabeth, N. J. Filed Dec. 29, 1900. Serial No. 41,441. (No model.)



Claim.—1. In a rotary engine, the combination with fixed bearings a, a', and a shaft b, rotatable therein, of a hollow drum fast on said shaft, an inner member made fast to one of said bearings and extending through the adjacent end of the drum into its interior and providing an annular chamber between itself and the drum, the said bearing and inner member having passages formed therein leading to the annular chamber independent of the shaft, substantially as set forth.

2. In a rotary engine, the combination with a rotatable shaft journaled in suitable bearings, of a hollow drum fast on said shaft, and a stationary member loosely surrounding said shaft and extending into the drum and forming between itself and the drum a chamber and having passages leading through itself to said chamber, substantially as set forth.

3. In a rotary engine, the combination with a hollow drum, a solid shaft having the drum fast thereon and having suitable bearings at opposite sides of said drum, and a second member loose on the shaft and extending into the drum, and having inlet and outlet passages in itself, means for holding said second member stationary, and valves or pistons, substantially as set forth.

4. In a rotary engine, the combination with opposite bearings a', a', of a shaft journaled to rotate in said bearings, a hollow drum fast on said shaft between said bearings, a second member bolted to one of the bearings and having a neck entering the end of the drum centrally and an interior head eccentric to the drum, said second member being perforated to provide free passage for the shaft, and the said member and bearing to which it is bolted being perforated to provide inlet and outlet passages to the interior of the drum, and valves on the inner walls of the drum, substantially as set forth.

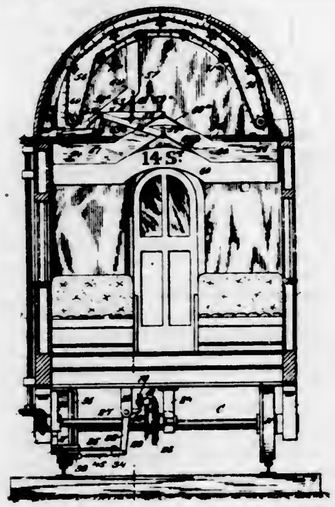
5. In a rotary engine, the combination with opposite bearings a', a', the shaft b, and a drum c, keyed thereon, and an eccentric inner member e, fixed to one of said bearings, of a valve j, longitudinally disposed between said drum and inner member and having an outer arm m', fixed in the same plane with the valve-blade, a pivotal block o, fixed to the opposite bearing a', from the one having the inner member e, and being concentric with said inner member, and a ring l, adapted to turn on said block o, and having an extension l', pivotally joined to the valve-arm m', at a distance from the center of the pivotal block, substantially equal to the radius of the said inner member, substantially as set forth.

681,538. **ANVIL ATTACHMENT.** JAMES H. FULWIDER, Perkins, Okla. Filed May 25, 1901. Serial No. 61,866. (No model.)

Claim.—The combination with an anvil and its block, of a clamping-bar having a hook at its upper end and having its lower end bent laterally to form a pivot-bearing, the bar directly below the hook being squared and slidably engaged with the hardy-hole of the anvil, pins engaged with the anvil-block, a pedal having perforations therethrough and in which are received removably a pin and the laterally-turned lower end of the clamping-bar respectively, and a spring attached to the second pin and to the pedal to hold the latter normally and yieldably with the clamping-hook raised.



681,539. **STATION-INDICATOR.** PAUL P. I FYFE, Concord, N. C. Filed Feb. 23, 1901. Serial No. 48,459. (No model.)



Claim.—1. In a station-indicator for cars and other vehicles, a trip-shoe carried by the car, gearing carried into and out of engagement with an axle of the car by the trip-shoe, a plurality of signs, a plurality of levers with which the signs are connected, a slide operated by the said gearing, an actuating-arm connected with each lever, said arms being normally out of engagement with the slide and having an operative engagement with the said slide when depressed, and means for depressing the said arms, as set forth.

2. In a station-indicator for cars and other vehicles, a trip-shoe carried by the car, gearing carried into and out of operative contact with an axle of the car by the action of the trip-shoe, a sign-supporting device located within the car, which sign-supporting device includes levers having means for carrying the sign, a spring-pressed actuating-arm for each lever and a slide operated by said gearing, and with which the arms have operative engagement when depressed, and means for depressing the actuating-arms through the movement of the slide.

3. In station-indicators for cars or other vehicles, a track upon which the vehicle travels, contact-pins adjacent to the track, a trip-shoe carried by the vehicle and adapted for engagement with the contact-pins, gearing carried into and out of engagement with an axle of the vehicle by the action of the trip-shoe, a sign-supporting device comprising a slide operated by said gearing, levers located within the vehicle, signs carried by said levers, arms connected with said levers and receiving end movement from the slide, a series of rotating fingers arranged for depressing with the actuating-arms, and means for imparting movement to the fingers through the movement of the slide.

4. In a station-indicator for cars or other vehicles, a slide having movement within the car and provided with an offset, means for imparting movement to the slide, a series of pivoted angle-levers within the car signs connected with the members of said levers, spring-pressed actuating-arms connected with opposing members of the angle-levers and normally out of engagement with the slide, the actuating-arms having surfaces adapted to engage with the offset of the slide, and means for depressing the actuating-arms into an engagement with the offset of the slide.

5. In station-indicators for cars and other vehicles, a trip-shoe adapted for engagement with an extension from a track, the said shoe consisting of springs having an interlocking sliding engagement at their meeting ends, the springs presenting a convexed outer face, and guides for the said springs, which guides are adapted for attachment to the body of a car, for the purpose specified.

6. In station-indicators for cars and other vehicles, a trip-shoe consisting of two springs having interlocking sliding engagement, the outer faces of the combined springs being convexed, guides for the outer ends of said springs, which guides are adapted for attachment to the body of a car, a supporting-plate to which the said guides are attached, and projections from the said plate, which limit the movement of the shoe in an outward direction.

7. In station-indicators for cars or other vehicles, the combination, with a track and contact-pins extending upward from the track, of a car or vehicle, a trip-shoe carried by the car or vehicle, the outer face of which shoe is adapted for engagement with the contact-pins on the track, the said trip-shoe consisting of two springs placed at angles to each other and having an interlocking and sliding connection, the outer face of the shoe being more or less convexed, guide-rods with which the outer ends of the springs of the said shoe have movable contact, a display mechanism adapted to be located within the car or vehicle, and means for operating the said display mechanism at the inward movement of the said trip-shoe.

8. In station-indicators for cars or other vehicles, the combination, with a car, a display mechanism located within the said car, friction-wheels secured to the axle of the car, a lever mounted at the bottom portion of the car, a shaft extending from said lever, having friction-wheels arranged for engagement with those on the axle, a trip or lifting lever for the lever carrying the said shaft, a trip-shoe consisting of springs placed at an angle to each other and having interlocking and sliding connection, links pivotally attached to the said springs of the trip-shoe and to the lifting or trip lever, guides for the outer ends of the springs of the trip-shoe, a series of shafts operated from the shaft carrying the upper friction-wheels, and a driving connection between the said series of shafts and the display mechanism in the car, as and for the purpose set forth.

9. In a station-indicator, the combination with a car or other vehicle, friction-wheels secured to the axle of the car or vehicle, a lever fulcrumed at the bottom portion of said vehicle and extending over the axle, a shaft carried by the said lever, friction-wheels secured to the said shaft and arranged for engagement with the friction-wheels on the axle, a shaft driven from the friction-wheel shaft, a support for the driven shaft, a second shaft at an angle to the said driven shaft, said second shaft being provided with a gear meshing with the gear on the driven shaft, a disk attached to the said gear, having a recess at a point in its periphery, a roller on the lever extending over the axle, adapted to travel on the periphery of the said disk and enter the recess therein, a lift-lever for the lever extending over the axle, and a trip-shoe having a spring or yielding contact-face, guides for the said trip-shoe, and link connections between the said trip-shoe and the said lift-lever, for the purpose set forth.

10. In a station-indicator, the combination, with a car or other vehicle, supports located at the upper portion of the said vehicle, a frame attached to the said support, a shaft carried by the said frame, angle-levers pivoted on the said shaft, display-signs connected with the inner ends of the angle-levers, which signs are adapted to rise and to descend with a corresponding movement of the inner members of the said angle-levers, and tension devices connected with the frame and with the said angle-levers, which tension devices are adapted to hold the sign-supporting members of the angle-levers normally in an upper position, of actuating-arms pivotally connected to the forward members of the angle-levers, said actuating-arms being provided with opposing shoulders, a slide mounted upon one of the said supports, the said slide being provided with a rib, means for operating the slide, and a series of fingers rotatably carried by the said frame, which fingers are adapted to consecutively press down the actuating-arms and bring the shoulders thereof at opposite sides of the rib of the slide, for the purpose set forth.

11. In station-indicators, the combination, with a vehicle, supports located at the upper portions of the vehicle, a slide mounted to move upon said support, which slide is provided with a rib upon its upper face, a frame secured to the said supports, a shaft mounted in the said frame, angle-levers fulcrumed upon the said shaft, the inner members of the said angle-levers being longer than the outer members and adapted to occupy a normal horizontal position, tension devices connected with the inner members of the angle-levers of the said frame, serving to restore the angle-levers to their normal position when carried away therefrom, and signs attached to the inner ends of the inner members of the angle-levers, of actuating-arms pivotally attached to the forward members of the angle levers, the actuating-arms being provided with opposing shoulders adapted to receive between them the rib of the said slide, endless belts carried by the said frame, means for rotating the said belts, bars connecting the said belts, and pins carried by said bars, which pins are in different planes and are adapted to engage with the several actuating-arms and force them consecutively in contact with the rib of the said slide, for the purpose described.

12. In station-indicators, the combination, with a car or other vehicle, a support at the upper portion thereof, a frame mounted upon said support, a slide mounted on said support, the slide being provided with a longitudinal rib upon its upper face, a series of guide-teeth located on said slide, and a bar carried by the frame, extending above the said slide, of a series of tension-controlled angle-levers pivotally carried by the said frame, signs connected with the inner members of the angle-levers, which members are adapted to rise and fall, tension-controlled actuating-arms pivotally connected with the forward members of the angle-levers, each actuating-arm being provided with opposing shoulders in its under face, adapted to receive between them the rib on the said slide, each actuating-arm being also provided with a recess at the upper portion of its outer edge, adapted in one position to receive the inner edge of the connecting-plate of the said frame, endless belts carried by the said frame, rods connecting the said belts, and pins carried by said rods, the pins being in different planes and adapted for compressing contact with different actuating-arms, for the purpose set forth.

13. In a station-indicator, the combination with a display mechanism, a slide adapted to operate the said mechanism, the said mechanism comprising angle-levers, signs carried thereby, and actuating-arms adapted for engagement with the slide, a frame, endless belts having guided movement on said frame, bars connecting said belts, and pins arranged in different planes on the said bars and adapted for engagement with different actuating-arms, of a drive-shaft for the said belts mounted in the said frame, ratchet-wheels located at one end of said shaft, having their teeth inclined in opposite directions, opposing and connected dogs adapted one for engagement with each of said ratchet-wheels, a shifting device for the dogs, whereby either one may be brought in position to engage a ratchet-wheel, and a support for the guide and for the dogs, which support is attached to said slide, for the purpose set forth.

14. In a station-indicator, the combination, with a display mechanism, a slide adapted to operate the said mechanism, the said mechanism comprising angle levers, signs carried thereby, and actuating-arms adapted for engagement with the slide, a frame, endless belts having guided movement on said frame, bars connecting the said belts, and pins arranged in different planes on the said bars and adapted for engagement with different actuating-arms, of a drive-shaft for the said belts mounted in the said frame, ratchet-wheels located at one end of the said shaft, having their teeth inclined in opposite directions, opposing and connected dogs adapted one for engagement with each of the said ratchet-wheels, a shifting device for the dogs, whereby either one may be brought in position to engage a ratchet-wheel, and a support for the guide and for the dogs, which support is attached to said slide, opposing and connected detents pivoted on the frame, adapted one for engagement with each of the said ratchet-wheels, and a shifting device for the said detents, whereby either one or the other may be brought into a path for engagement with a ratchet-wheel, the adjustment of the detents corresponding to the adjustment of the said dogs, for the purpose specified.

15. In a station-indicator for cars or other vehicles, the combination with an axle of the car provided with friction-wheels, of a pivoted lever carrying at one end friction-wheels adapted to engage the friction-wheels of the axle, said lever being normally held in such position that the friction-wheels carried thereby will be out of engagement with the wheels of the axle, a trip-shoe, means controlled by the trip-shoe for swinging the lever on its pivot to bring its friction-wheels into engagement with the friction-wheels of the axle, and means for holding the said lever in the position into which it has been moved, as set forth.

16. In a station-indicator for cars and other vehicles, the combination with an axle of the car or vehicle provided with friction-wheels, of a pivoted lever carrying at one end friction-wheels adapted to engage the friction-wheels of the axle, said lever being normally held in such position that the friction-wheels carried thereby will be out of engagement with the friction-wheels of the axle, a trip-shoe, means controlled by the trip-shoe for swinging the lever on its pivot to bring its friction-wheels into engagement with the friction-wheels on the axle, and means controlled by the friction-wheels carried by the lever, for holding the said lever in the position into which it has been moved, as set forth.

17. In a station-indicator for cars and other vehicles, the combination with an axle of the car or vehicle provided with friction-wheels, of a pivoted lever carrying friction-wheels adapted to engage the friction-wheels of the axle, a notched disk for holding the lever in such position that the friction-wheels carried thereby will be held out of engagement with the friction-wheels of the axle, a pivoted lever for disengaging the said lever from the notched disk, a trip-shoe, connections between the said pivoted lever and the trip-shoe, and means for revolving the notched disk from the shaft of the friction-wheels carried by the said lever, as set forth.

18. In a station-indicator for cars and other vehicles, the combination with a slide, and means for operating it, of pivoted levers, signs with which the levers are connected, spring-actuated arms for operating said levers, said arms having operative engagement with the slide when depressed, and means for depressing the arms, said means being controlled by the slide, as set forth.

19. In a station-indicator for cars and other vehicles, the combination with a slide and means for operating it, of pivoted levers, signs with which the levers are connected, spring-actuated arms for operating the said levers, said arms having an operative engagement with the slide when depressed, a series of movable fingers for depressing the said arms, and means for operating the fingers by the movement of the slide, as set forth.

20. In a station-indicator for cars and other vehicles, the combination with pivoted sign-operating levers, spring-pressed arms for operating the said levers, a slide for operating the arms when depressed, and means for operating the slide, of endless belts provided with fingers for engaging the arms to depress them, and means for operating the endless belts by the movement of the slide, as set forth.

21. In a station-indicator for cars and other vehicles, the combination with pivoted sign-operating levers, spring-pressed arms for operating said levers, a slide for operating the arms when depressed, and means for operating the slide, of endless belts provided with fingers for engaging the arms to depress them, ratchet-wheels on one of the shafts of the endless belts, and dogs carried by the slide for engaging the ratchet-wheels, as set forth.

22. In a station-indicator for cars and other vehicles, the combination with pivoted sign-operating levers, spring-pressed arms for operating said levers, a slide for operating the arms when depressed, and means for operating the slide, of endless belts provided with fingers for engaging the arms to depress them, ratchet-wheels on one of the shafts of the endless belts, connected and pivoted dogs for engaging the ratchet-wheels, said dogs being carried by the slide, and means for swinging the dogs on their pivot, as set forth.

23. In a station-indicator, the combination with a slide, and means for operating it, of sign-operating levers, arms for operating the said levers, said arms being normally held out of engagement with the slide and having an operative engagement with the slide when depressed, and means controlled by the slide for depressing the arms, whereby the signs will be moved into and out of range of vision by the movement of said slide, as set forth.

24. In a station-indicator, the combination with a slide provided with projections, and means for operating it, of sign-operating levers, arms for operating the said levers, said arms being normally held out of engagement with the slide, and each having a projection for engaging the projection of the slide, and means controlled by the slide for depressing the arms into engagement with the slide, as set forth.

25. In a station-indicator, the combination with a slide, and a lever mechanism for operating the signs, one member of the lever mechanism being adapted to operatively engage the slide, of endless belts provided with fingers for engaging the member of the lever mechanism to press it into engagement with the slide, and means for operating the endless belts from the slide, as set forth.

26. In a station-indicator, the combination with a slide, and a lever mechanism for operating the signs, one member of the lever mechanism being adapted to operatively engage the slide, of endless belts provided with fingers for engaging the member of the lever mechanism to press it into engagement with the slide, two ratchet-wheels on one of the shafts of the endless belts, the teeth of the ratchet-wheels being disposed in opposite directions, connected and pivoted dogs, a sliding spring-pressed spindle for swinging the dogs on their pivot, and means for locking the spindle, as set forth.

681,540. STATION-INDICATOR. PAUL P. L. PYPE, Concord, N. C.

Filed Feb. 23, 1901. Serial No. 48,460. (No model.)

Claim.—1. In a device for indicating stations, a frame, a support therefor, a series of signs or cards mounted to slide horizontally, a sliding member, pivoted shifting arms having connection one with each sign or card, a series of communicating levers, each lever having connection with one of the shifting arms, and actuating-arms connected with the communicating levers, and each capable of operative contact with the said slide.

2. In a device for indicating stations, a frame, a slide located within the frame, rods below the slide, cards or signs mounted to slide on the rods, shifting arms pivotally connected with the signs or cards, levers arranged to communicate a swinging motion to the shifting arms, actuating-arms connected with the communicating levers and having means for engagement with the slide, and a depressing mechanism for the actuating-arms.



3. In a device for indicating stations, the combination, with a frame, a slide having movement in the frame, the said slide being provided with a longitudinal rib, shifting arms pivoted upon a support carried by the frame, rods located below the said slide, signs or cards having end movement on the said rods, and pins carried by the said cards, which pins enter slots in the lower ends of the shifting arms, of a series of levers mounted upon a support carried by the frame, link connections between the upper ends of the said levers and the upper or pivotal portions of the shifting arms, actuating-arms pivotally attached to the lower ends of the said levers, the said actuating-arms having opposing shoulders adapted to receive between them the rib on the slide, and a rotary mechanism having depressing-points adapted for consecutive engagement with the actuating-arms to depress them and bring their shoulders in position for engagement by the rib of the slide when the said slide is moved, as and for the purpose set forth.

4. In a device for indicating stations, the combination, with a frame, a slide mounted in the said frame, means for actuating the slide, a longitudinal rib produced upon the said slide, guide-teeth likewise located on the slide at a point in front of the rib, rods located below the slide, signs or cards having end movement on the said rods, and shifting arms pivotally supported at their upper ends by the frame and having slots at their lower ends which receive pins carried by the signs or cards, of a series of levers mounted on a support carried by the frame about centrally between their ends, links connecting the upper ends of the levers with the said shifting arms near the pivot-points of the said arms, tension-controlled actuating-arms pivotally attached to the lower portion of the said levers, the said actuating-arms being provided with opposing shoulders adapted to receive between them the rib on the slide, the outer ends of which actuating-arms enter the spaces between the said guide-teeth, endless chains mounted to revolve on the side portions of the frame, rods connecting the said chains, pins arranged in different planes on the said rods, said pins being adapted for consecutive engagement with the actuating-rods to press the same for the purpose described, and means substantially as described for imparting motion to the endless chains for the purpose set forth.

5. In a device for indicating stations, the combination with a frame comprising side bars and connecting-rods, a slide having movement in said frame, which slide is provided with a rib upon its upper face and guide-teeth in front of the said rib, rod-supports located below the said slides, signs or cards having endwise movement on said rods, one independent of the other, shifting arms having sliding and pivotal connection one with each of said signs or cards, and pivotal connection with a connecting-bar of the frame, levers fulcrumed on a connecting-bar of the frame at or near their centers, and links connecting the upper ends of said levers with the shifting arms near a point where they are pivotally connected with the frame, of actuating-arms pivotally attached to the

lower ends of said levers, each actuating-arm being provided with opposing shoulders in its under face, which shoulders are adapted to receive between them the rib on the said slide, the outer ends of said actuating-arms extending between the guide-teeth and having recesses in their upper outer edges, a stop bar or plate connecting the frame, adapted in one position of the actuating-arms to enter the upper forward recesses therein, springs exerting upward tension attached to the actuating-arms and to said levers above their fulcrums, sprocket-wheels located upon the inner faces of the sides of said frame, endless chains carried by the sprocket-wheels of each side section of the frame, bars connecting said chains, fingers attached to said bars, arranged in different planes, which fingers are adapted for consecutive engagement with the actuating-arms and depress said arms, bringing the shoulders of the actuating-arm in position to be engaged by the rib of the said slide, a driving mechanism for said chains, and means substantially as described, for reversing the direction of travel of said chains, as set forth.

681,541. CLOSET-BOWL. FRANCIS X. L. GOSTKOWICKI, New York, N. Y. Filed Oct. 23, 1900. Serial No. 34,006. (No model.)



Claim.—1. A water-closet bowl having an extension-receptacle in direct communication from top to bottom with the interior of the bowl and accessible from the outside so that water supplied to the bowl will also be supplied to said receptacle and so that the hand and forearm of a person seated upon the bowl may be introduced into the receptacle and bowl without rising, enabling the contents of the receptacle being applied directly to the person for hygienic purposes.

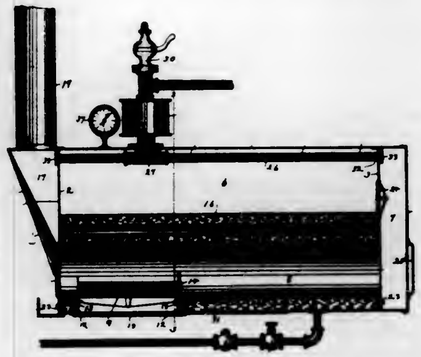
2. A water-closet bowl provided with an extension-receptacle having downwardly-flaring sides and a downwardly-inclined upper edge, the forward portion of said extension-receptacle being in direct communication with the closet-bowl and said extension-receptacle being also a continuation of a side portion of the bowl, the receptacle having its top completely open, and a seat located on the bowl and crossing said extension-receptacle, that portion of the seat crossing the receptacle being recessed at its outer portion to permit the ready passage of the hand and arm into the extension-receptacle and through said extension-receptacle into the bowl, for the purposes set forth.

681,542. PORTABLE BOILER. HARRY H. GRAFF, Pittsburg, Pa. Filed Apr. 18, 1901. Serial No. 56,428. (No model.)

Claim.—1. A steam-boiler comprising a cylindrical shell, a water-chamber and combustion-chamber therein, a stack and steam-collecting chamber connected thereto so as to permit their ready removal without the necessity of cutting rivets or like fastening means, a large flue or pipe extending through the water-chamber to the combustion-chamber, a burner in said flue, and fire-flues extending through the water-chamber from the combustion-chamber to the stack.

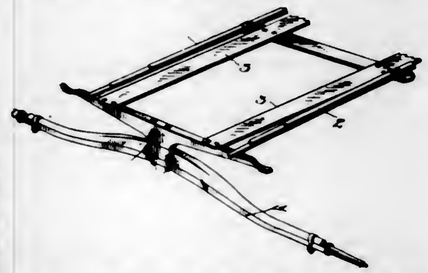
2. A steam-boiler comprising a cylindrical shell, a water-chamber and combustion-chamber therein, a chamber at the front end of the boiler, a stack and steam-collecting chamber connected thereto by means which permit their ready removal without cutting rivets or the like, a large flue or pipe extending through the water-chamber to the combustion-chamber, a burner in said flue, and fire-flues extending through the water-chamber from the combustion-chamber to the chamber at the front end of the boiler.

3. A steam-boiler comprising a cylindrical shell, a water-chamber and combustion-chamber therein, a furnace included within said shell, fire-flues extending through the water-chamber from the combustion-chamber to the stack, and a stack and steam-dome connected to said boiler by means which permit their ready removal without cutting rivets or the like.



4. A steam-boiler comprising a cylindrical shell, a furnace contained within said shell, a stack and steam-collecting chamber connected thereto by means which permit their ready removal without the necessity of cutting rivets or the like, fire-flues and a steam and water space in said boiler, a steam-drying means communicating with the steam-space in the boiler and with the steam-collecting chamber, said steam-drying means being located within the cylindrical shell.

681,543. SPRING-GEAR FOR VEHICLES. WILLIAM R. GRIFFIN, Glens Falls, N. Y. Filed Feb. 28, 1901. Serial No. 49,308. (No model.)



Claim.—The combination with the rear axle of a vehicle, of a stock or head block secured at a point intermediate its ends to said axle and having its ends located in a plane above the axle and free from contact with the axle, and spring-boards and metal side springs secured to said ends, substantially as set forth.

681,544. HORSESHOE. MICHAEL HALLAHAN, New York, N. Y. Filed Jan. 28, 1901. Serial No. 45,049. (No model.)



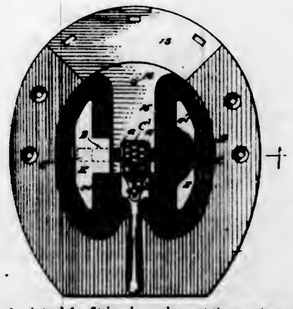
Claim.—1. A horseshoe having a rubber tread portion at the quarters, and a backing on which the quarters are mounted, the said backing having decreased strength at the quarters.

2. A horseshoe in which is comprised a backing and a rubber face or tread portion and tubular nail-receivers in the rubber, said receivers terminating in the rubber short of the backing, the heads of the nail-receivers being formed with countersunk outer surfaces and undercut on the under side.

3. A foot-covering for horses, the same having a leather backing and a facing of rubber, the backing being open at the quarters, and the said open portion being covered by the rubber facing.

4. A foot-covering for horses, the same having a backing of leather weakened at the quarters to permit lateral expansion and contraction, and a facing of rubber carried by the said backing.

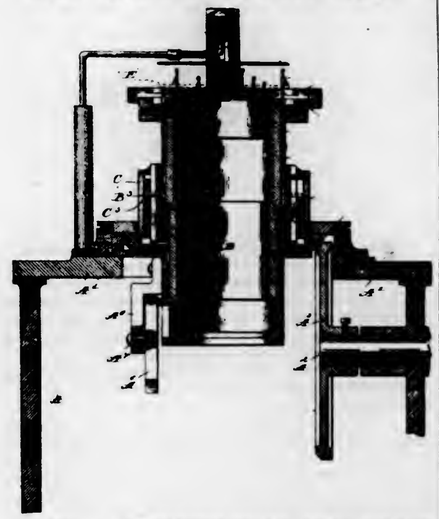
681,545. HORSESHOE-SHAPING DEVICE. MICHAEL HALLAHAN, New York, N. Y. Filed Jan. 28, 1901. Serial No. 45,050. (No model.)



Claim.—1. A tool for fitting horseshoes at the quarters, comprising separate spaced heads having bearing-surfaces respectively fitting the opposite quarters of a horseshoe, and means extending between the said heads for moving the heads toward and from each other, the heads having the bearing-surfaces curved laterally.

2. A horseshoe-shaping device comprising heads for engaging the quarters of a shoe, a spindle engaging the heads by right and left threads, and means for turning the spindle, the heads extending forward and rearward from the point of engagement with the spindle, and having each a bearing-surface curved longitudinally, substantially as described.

681,546. KNITTING-MACHINE. HOWARD E. HARBAUGH, Kenosha, Wis. Filed Feb. 14, 1901. Serial No. 47,373. (No model.)



Claim.—1. A knitting-machine comprising a needle-cylinder having needle-grooves therein; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; means for bodily raising said needle-cylinder; and a plate for leveling the tops of the needles in a plane slightly above the top of the needle-cylinder to receive a transfer-ring.

2. A knitting-machine comprising a needle-cylinder having needle-grooves therein; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; means for bodily raising said needle-cylinder; a plate; and means whereby said plate may be vertically reciprocated for leveling the tops of the needles in a plane slightly above the top of the needle-cylinder, to receive a transfer-ring.

3. A knitting-machine comprising a needle-cylinder having needle-grooves therein; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; means for bodily raising said needle-cylinder; an arm adapted to be swung over said needle-cylinder; and a plate for leveling the tops of the needles in a plane slightly above the top of the needle-cylinder, which plate is slidably mounted on said arm.

4. A knitting-machine comprising a bed-plate; a needle-cylinder having needle-grooves therein; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; a lever for bodily raising said needle-cylinder; an arm pivotally mounted upon the bed-plate, and adapted to be swung over said needle-cylinder; a spring-plunger mounted in said arm; and a plate on said plunger for leveling the tops of the needles in a plane slightly above the top of the needle-cylinder.

5. A knitting-machine comprising a bed-plate; a needle-cylinder having needle-grooves therein; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; a bell-crank lever for bodily raising said needle-cylinder; an arm pivotally mounted on said bed-plate, and adapted to be swung over said needle-cylinder; a plunger mounted in said arm; a spring for holding said plunger elevated; a plate on said plunger, for leveling the tops of the needles in a plane slightly above the top of the needle-cylinder; and means for holding said plate downward against the action of the spring of said plunger.

6. A knitting-machine comprising a bed-plate; a needle-cylinder having needle-grooves therein; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; a bell-crank lever for bodily raising said needle-cylinder; a stud on said lever, for engaging said cylinder; an arm pivotally mounted upon the bed-plate, and adapted to be swung over said needle-cylinder; a plunger mounted in said arm; a spring for holding said plunger elevated; a stud on said plunger for holding it downward against the action of said spring; and a plate for leveling the tops of the needles in a plane slightly above the top of the needle-cylinder.

7. A knitting-machine comprising a bed-plate; a needle-cylinder having needle-grooves therein, and a cam-surface near its lower end; needles free to slide in said grooves; a cam-ring having a ledge for limiting the downward movement of said needles; means adapted to act upon the tops of the needles for leveling said tops; a lever pivotally mounted upon said bed-plate, for vertically moving said needle-cylinder; and a stud on said lever, for engaging the cam-surface in said needle-cylinder.

681,547. PLOW OR CULTIVATOR SHOVEL. WILLIAM F. HARTIG, Evansville, Ind. Filed June 24, 1901. Serial No. 65,815. (No model.)



Claim.—1. A cultivator-shovel comprising a longitudinally-curved blade consisting of two sections twisted substantially upon the longitudinal axis of said blade, so that their operative faces are located in different longitudinally-disposed planes, and pulverizing projections extending outwardly from the opposite side edges of each section.

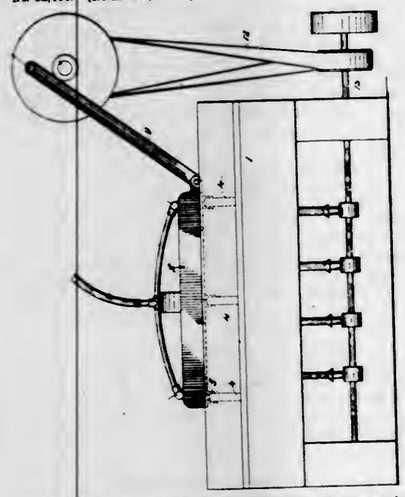
2. A cultivator-shovel comprising a longitudinally-curved blade consisting of two sections joined by a contracted neck, said sections being twisted substantially upon the longitudinal axis of the blade so that their operative faces are located in different longitudinally-disposed planes, and pulverizing projections extending outwardly from the opposite side edges of each section, the projections of said sections being spaced from each other.

3. A cultivator-shovel comprising a longitudinally-curved blade consisting of two sections joined by a contracted neck, said sections being twisted substantially upon the longitudinal axis of the blade so that their operative faces are located in different longitudinally-disposed planes, and pointed pulverizing projections extending outwardly from the opposite side edges of each section, said sections having their outer end portions tapering to a nose and being provided with sharpened end edges, said edges extending from the nose to the points of the pulverizing projections.

4. A cultivator-shovel comprising a longitudinally-curved blade consisting of two sections twisted substantially upon the longitudinal axis of the blade so that their operative faces will be located in different longi-

tudinally-disposed planes, pointed pulverizing projections located upon the opposite side edges of each section, and a contracted neck connecting said section, the side edges of the neck being each in the form of a continuous curve that extends from the point of one projection on one section to the point of the corresponding projection on the other section, the end portion of each section being tapered to a nose and having the end edges sharpened, said edges extending from the nose to the points of the pulverizing projections.

681,548. SCREEN-CLEANER AND STUFF-REGULATOR. ROBERT M. HAWK, Warren Papermills, N. J. Filed Mar. 21, 1901. Serial No. 52,161. (No model.)

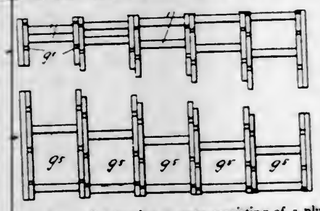


Claim.—1. In a paper-machine, the combination with a screen-box, of a frame, scrapers detachably connected to the frame but movable rigidly therewith, the said scrapers having openings above their lower edges, and means for moving the frame in the box, substantially as specified.

2. The combination with the screen-box of a paper-making machine, of a frame, scrapers carried by said frame, each of said scrapers being provided with openings, water-supply pipes carried by the frame, and means for imparting to-and-fro motion to the frame, substantially as specified.

3. The combination with the screen-box of a paper-making machine, of a frame, channel-irons connected to said frame, scrapers removably engaging in said channel-irons, said scrapers being provided with openings, water-supply pipes carried by the frame, and means for imparting back-and-forth motion to the frame, substantially as specified.

681,549. ROLLER-BEARING. JOHN HOLT, Aston, England. Filed Mar. 12, 1901. Serial No. 50,849. (No model.)



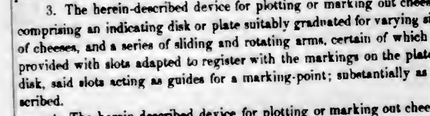
Claim.—1. In a roller-bearing, a cage consisting of a plurality of annular portions certain of which are fastened directly to each other and tie-bars connecting the remaining annular portions.

2. In a roller-bearing, a cage consisting of a plurality of annular portions certain of which are fastened directly to each other and tie-bars connecting the remaining sections and said annular portions consisting of a series of segments.

3. In a roller-bearing, a cage consisting of a plurality of annular portions certain of which are fastened directly to each other and tie-bars connecting the remaining annular portions and said annular portions having radial slots open at the outer ends.

4. In a roller-bearing, a cage consisting of a plurality of annular portions certain of which are fastened directly to each other and tie-bars connecting the remaining annular portions and said annular portions having radial slots open at the outer ends, and end rings fastened to the end annular portions.

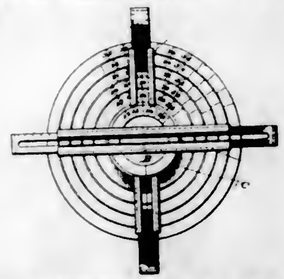
681,550. HORSE-DETACHER. LEON DE WITT HOWARD, Blunt, S. D., assignor of one-half to William W. Waite and Edwin F. Waite, same place. Filed Feb. 26, 1901. Serial No. 48,895. (No model.)



Claim.—1. A horse-detacher, comprising a latch mounted to swing on the pole of a vehicle, a lever pivoted to the vehicle and adapted to engage with the free end of said latch to hold it in its closed position around the evener, and a spring extended from said lever to a fixed portion of the vehicle, substantially as specified.

2. A horse-detacher, comprising a plate secured to the under side of a vehicle-pole, a latch mounted to swing on said plate, an evener, projections on the forward side of said evener for engaging against opposite sides of the front portion of the latch, the said latch having its rear portion inclined upward and rearward and then extended outward, a lever pivoted to the pole and adapted to engage with said extended portion of the latch, and a spring for holding the said lever in its locking position, substantially as specified.

681,551. CHEESE-MARKER. JAMES H. HULSE and FRANK P. WILKIN, Salt Lake City, Utah; said Hulse assignor to said Wilkin. Filed Feb. 5, 1900. Renewed July 22, 1901. Serial No. 69,287. (No model.)



Claim.—1. The herein-described device for plotting or marking out cheeses and the like, comprising an indicating disk or plate, suitably graduated for varying sizes of cheeses, and a series of sliding graduated arms having means to engage the cheese, whereby the latter may be centered; substantially as described.

2. The herein-described device for plotting or marking out cheeses, comprising an indicating disk or plate suitably graduated for varying sizes of cheeses, and a series of sliding and rotating arms, certain of which are provided with means for registering with the gradnations on the disk or plate; substantially as described.

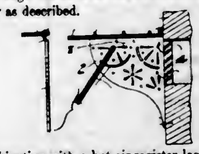
3. The herein-described device for plotting or marking out cheeses, comprising an indicating disk or plate suitably graduated for varying sizes of cheeses, and a series of sliding and rotating arms, certain of which are provided with slots adapted to register with the markings on the plate or disk, said slots acting as guides for a marking-point; substantially as described.

4. The herein-described device for plotting or marking out cheeses, comprising an indicating disk or plate, suitably graduated for varying sizes of cheeses and a series of sliding and rotating arms, certain of which are provided with slots adapted to register with the markings on the plate or disk, said slots acting as guides for a marking-point, one of said arms having also a slotted hinged extension; substantially as described.

5. In combination with a marking-disk having a guiding-flange, a ring, C, rotatable thereon, guides on said ring for a series of sliding arms, said arms being provided with means at their outer ends for engagement with the edge of the cheese, certain of said arms having longitudinal slots adapted to register with the radial markings on the disk or plate; substantially as described.

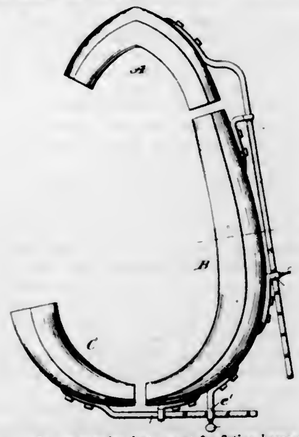
681,552. ATTACHMENT FOR HOT-AIR REGISTERS. MICHAEL IVERSEN, Stoughton, Wis. Filed Mar. 11, 1901. Serial No. 50,693. (No model.)

Claim.—1. In combination with a hot-air register located in a wall, of brackets secured to the wall on the sides of the said register, a shelf supported by said brackets, and a deflector pivoted to said brackets at points near said shelf, said deflector being constructed to be swung back so that its lower edge will contact with the said wall below the said register, substantially as described.



2. In combination with a hot-air register located in a wall, of brackets secured to the wall on the sides of said register, a shelf supported on said brackets, a deflector pivoted to said brackets at points near said shelf, said deflector being constructed to be swung back so that its lower edge would contact with the said wall below said register, and means for adjusting and holding said deflector at intermediate positions to regulate the amount of cold air mixing with the hot air, substantially as described.

681,553. MEASURING INSTRUMENT FOR FITTING HORSE-COLLARS. ALBERT JACQUOT, Wilmington, Del. Filed Jan. 18, 1901. Serial No. 43,796. (No model.)

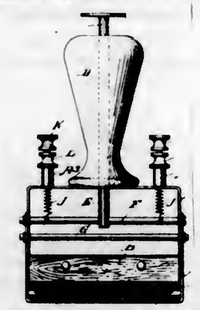


Claim.—1. In a measuring instrument for fitting horse-collars, the combination with a V-shaped top collar-section, of a side collar-section, a scale-rod attached to such top section and extended substantially tangentially to the upper portion of the side collar-section, eyes on the said side section adapted to receive such rod, said eyes being located nearer the top section than the opposite extremity of the bottom section by a distance equal at least to the extreme limit of adjustment on said rod, and a thumb-screw on one of the eyes for clamping the rod, substantially as and for the purpose described.

2. In a measuring instrument for fitting horse-collars, the combination with a V-shaped top collar-section, a side collar-section, and a bottom collar-section, a scale-rod attached to such top section and extended substantially tangentially to the upper portion of the side collar-section, eyes on said side section adapted to receive such rod, and located above the lower extremity of said side section, a scale-rod attached to such bottom section and extended substantially parallel to the minor axis of the instrument, and eyes on said side section adapted to receive such last-mentioned scale-rod, said eyes being located nearer such bottom section than the lateral limits of said side section by a distance equal at least to the extreme limit of adjustment on said rod, substantially as and for the purpose described.

3. In a measuring instrument for fitting horse-collars, the combination with a V-shaped top collar-section, of a single middle collar-section forming substantially a side and half of the bottom of the collar-form, and a bottom collar-section forming substantially half of the bottom of the collar-form, means for supporting said bottom collar-section from said middle collar-section, and for adjusting said bottom section substantially horizontally toward and away from said middle section independently of any vertical movement between such sections and means for adjusting said top section in a line that is oblique to the line of adjustment of the bottom section, substantially as and for the purpose described.

681,554. SELF-INKING RUBBER STAMP. ARTHUR E. JAMIESON, Detroit, Mich. Filed Mar. 26, 1901. Serial No. 52,931. (No model.)



Claim.—1. The combination of the frame, the stamp carried thereby, the inking-pad, a cross rod or bar mounted to slide in the frame and to which the inking-pad is pivoted, a second cross rod or bar connected with the inking-pad and also mounted to slide in the said frame, and means for operating said pad to swing the same.

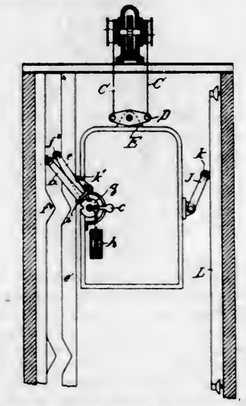
2. The combination of the frame, the stamp carried thereby, the swinging ink-pad having guided movement in said frame, a spring connected with the frame and with the inking-pad to normally hold the latter against the stamp, means for adjusting the tension of said spring, and actuating mechanism for swinging the pad away from the stamp.

3. The combination of the frame having vertical guideways with lateral extensions at the bottom, the stamp carried by the frame, the inking-pad adapted to lie against the stamp, superposed rods connected with said pad and mounted to slide in the guideways of the frame, and means for swinging the pad.

4. The combination of a frame having a handle provided with a longitudinal bore, a stamp carried by the frame, a cross-rod mounted to slide in the frame, a frame carrying an inking-pad and having side members pivoted to the ends of the said cross-rod, an operating-plunger connected with the said cross-rod, and projecting through the handle, and a cross-rod secured to the side members of the inking-pad frame, and also arranged to move in the stamp-frame.

5. The combination of the frame, the stamp carried thereby, the swinging inking-pad having guided movement in the frame, sleeves projecting upward from the frame, nuts at the top of said sleeves, screws working in said nuts, springs connected with said screws and with a cross-bar connected with the inking-pad, and actuating means for swinging the pad against the tension of said springs.

681,555. STEERING MECHANISM FOR GUIDELESS LIFTS. OTTO KAMMERER, Charlottenburg, Germany. Filed May 11, 1900. Serial No. 16,389. (No model.)



Claim.—In a steering mechanism for passenger-lifts, the combination with a switch and a rheostat arranged within the cage of a series of sliding rails corresponding in number to that of the floors, each rail being provided with a nose adapted to cut out the motor, and a sliding rail provided with a series of noses corresponding in number to that of the

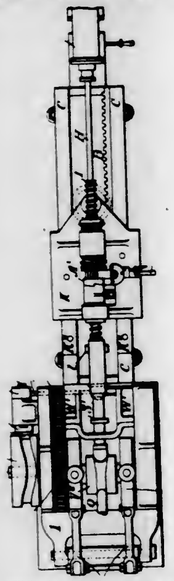
floors, said noses being adapted to insert or cut out the rheostat, substantially as and for the purpose set forth.

681,556. BOTTLE-SPRINKLER. WILLIAM KINGSBURY, Westport, Md. Filed Mar. 26, 1901. Serial No. 53,000. (No model.)



Claim.—The combination of a bottle having a neck with a bore tapering regularly in a straight plane from the upper to the lower extremity thereof, the said tapering bore extending fully through the vertical extent of the neck, a diametrically compressible disk having a central opening therethrough and freely shiftable in the said bore to vary the size of said opening, and a stopper for the neck having its inner end continually clear of and out of contact with the said disk.

681,557. APPARATUS FOR ROLLING TUBES. RICHARD LAYBOURNE, CHARLES W. R. MARSH, and BENJAMIN PRICE, Newport, England. Filed May 20, 1901. Serial No. 61,150. (No model.)



Claim.—1. In apparatus for rolling or swaging metal tubes from hollow ingots step by step in which the rolls or swaging devices are journaled in bearings adapted to be bodily reciprocated along the ingot and having a feed-screw and mandrel adapted to intermittently advance and rotate the hollow ingot on said mandrel—the combination with such feed-screw and mandrel of an inner and outer sleeve which are together adapted to advance and rotate therewith intermittently until only a short portion of the ingot is left unworked, and means to then hold the inner sleeve and prevent same rotating and advancing any farther whereupon the outer sleeve will pass over said inner sleeve and advance the mandrel through the latter and thereby allow the remainder of the ingot to be operated upon step by step by the rolls, substantially as and for the purposes hereinbefore described.

2. In apparatus for rolling or swaging metal tubes from hollow ingots step by step in which the rolls or swaging devices are journaled in housings adapted to be bodily reciprocated along the ingot and having a feed-screw and mandrel adapted to intermittently advance and rotate the hollow ingot on said mandrel—the combination with such feed-screw and mandrel of a sleeve adapted to advance therewith intermittently until only a short portion of the ingot is left unworked and means to then hold the said sleeve and prevent same from advancing any farther whereupon the mandrel will be advanced therethrough and thereby allow the remainder of the ingot to be operated upon step by step by the rolls substantially as and for the purposes hereinbefore described.

3. In apparatus for rolling or swaging metal tubes from hollow ingots step by step in which the rolls or swaging devices are journaled in housings adapted to be bodily reciprocated along the ingot and having a feed-screw and mandrel adapted to intermittently advance and rotate the hollow ingot on said mandrel—the combination with means for advancing and rotating the mandrel and hollow ingot intermittently of means to prevent the metal from flowing backward during the rolling operation and means to allow the whole of the tube to pass unimpeded between the rolls to be acted upon thereby, substantially as and for the purposes hereinbefore described.

4. In apparatus for rolling or swaging metal tubes from hollow ingots step by step—the combination of rolls or swaging devices journaled in housings adapted to be bodily reciprocated along the ingot, a feed-screw adapted to be intermittently advanced and rotated a mandrel carried on said feed-screw, means to intermittently advance and rotate said feed-screw and mandrel with the ingot thereon, means to prevent the metal from flowing backward along the mandrel during the rolling operation, means to allow the whole of the ingot to pass between the rolls to be acted upon thereby, means to extract the mandrel from the rolled tube without removing said mandrel from the machine, means to rotate the feed-screw after the rolling operation has been completed, and means to force the saddle (carrying said feed-screw) in either direction upon the bed during the intervals between the rolling operation, substantially as and for the purposes described.

5. In apparatus for rolling tubes, the combination of a feed-screw, an inner sleeve surrounding said screw and an outer sleeve surrounding said screw, means for operating said screw to advance and rotate said screw and sleeves intermittently, and means for preventing the inner sleeve from rotating and advancing after it has advanced a certain distance.

6. In apparatus for rolling tubes, the combination of the feed-screw and a mandrel, of a sleeve, means for advancing said feed-screw and sleeve intermittently until only a short portion of the ingot is left unworked, and means for preventing the movement of said sleeve at this time, whereby the mandrel will be advanced therethroogh.

7. In apparatus for rolling tubes, the combination with a feed-screw, a sleeve thereon and a mandrel of a fixed stop adapted to partially encircle said mandrel.

8. In apparatus for rolling tubes, the combination of a base carrying a rack, a saddle adapted to slide in said base and carrying a pinion gearing with said rack, a feed-screw and connecting-gearing between said feed-screw and said pinion.

9. In apparatus for rolling tubes, the combination with a base, a saddle movable upon said base, a motor adapted to move said saddle backward and forward upon said base, a feed-screw, a sleeve, a mandrel and mechanism for reversing the movement of the feed-screw as the saddle is moved backward upon said base.

10. In apparatus for rolling tubes, the combination of a base, a saddle, a feed-screw carried by said saddle, mechanism for moving said feed-screw intermittently and mechanism for reversing the movement of said feed-screw during the backward movement of said saddle.

11. In apparatus for rolling tubes, the combination of rolls, a mandrel, means for advancing and rotating the mandrel intermittently, and means for preventing the metal from flowing backward during the rolling operation beyond a certain point.

12. In apparatus for rolling tubes, the combination of a mandrel, means for intermittently advancing and rotating said mandrel including a feed-screw, means for preventing the metal from flowing backward along the mandrel during the rolling operation, and means for extracting the mandrel from the tube without removing said mandrel from the machine.

13. In apparatus for rolling tubes, the combination with a feed-screw, a sleeve fixed thereto having internal screw-threads, a second sleeve provided with external screw-threads at one end and a stop at the other end, and means for rotating said feed-screw, whereby the feed-screw and both sleeves will be moved forward by the rotation of the screw a certain distance, and then the larger sleeve will advance over the smaller sleeve

681,558. THIMBLE-ATTACHER. FRANK A. LEWIS, Omaha, Nebr. Filed Nov. 9, 1900. Serial No. 35,941. (No model.)

Claim.—As a new article of manufacture, a thimble holder and attacher consisting of a button having a convex outer surface provided at the back with an attaching-pin, and thimble clasping and holding arms constructed of a single length of wire the central portion of which is bent into annular form and the end portions into ogee form with their extremities crossed at one side of the annular portion and extended beyond the point of crossing where they are provided with terminal eyes which are connected individually and independently by fasteners to different points of the button, substantially as specified.



681,559. STRETCHER OR LITTER. HERMANN LOEBEN, Brunswick, Germany. Filed Mar. 15, 1901. Serial No. 51,319. (No model.)

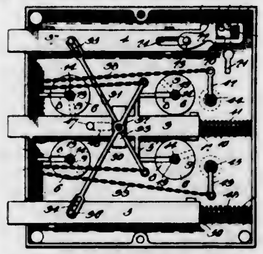


Claim.—1. A portable stretcher or hand-litter characterized by the carrying-arms *a* pivoted to the body of the stretcher which serve as handles being supported against the actual frame by means of springs, with the object of diminishing and absorbing any vertical shocks resulting during the use of the stretcher, substantially as hereinbefore described and shown.

2. A stretcher such as hereinbefore described, characterized by the carrying-arms *a*, which serve as handles, being pivotally mounted on the frame and supported against this latter with a spring action by the insertion of tension or pressure springs respectively, substantially as hereinbefore described and shown.

3. A stretcher such as hereinbefore described, characterized by the yieldingly-mounted pivoted arms *a* being provided with feet or legs *e* which share in the spring action of the carrying-arms *a*, and thus render ineffective the joltings resulting when the stretcher is set down, or when it rests on jolting supports or vehicles, substantially as hereinbefore described and shown.

681,560. LOCK. PETRO MAGARO, No. 3, Steelton, Pa. Filed June 7, 1901. Serial No. 63,600. (No model.)

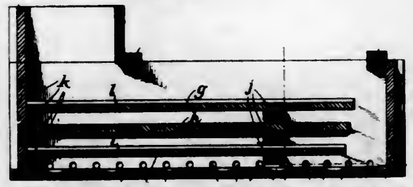


Claim.—1. The combination of a casing, the central bolt having arms, the tumbler-disks provided with slots and located adjacent to the arms, means for operating the tumbler-disks, the upper and lower bolts located at opposite sides of the said bolt, the levers fulcrumed between their ends and connected with the upper and lower bolts and adapted to reciprocate the same, and operating mechanism connected with the levers, substantially as described.

2. The combination of a casing, a central bolt, upper and lower bolts, key-operated mechanism connected with one of the latter, the levers fulcrumed between their ends and connected with the upper and lower bolts and adapted to oscillate the same, spindles, and flexible connections between the spindles and the levers, substantially as described.

3. The combination of a casing, upper and lower bolts, levers fulcrumed between their ends and connected at their outer ends with the bolts and adapted to reciprocate the same, guides arranged at the front of the casing, spindles located at the back of the casing and provided with arms, and flexible connections passing through the guides and extending from the levers to the arms of the spindles, substantially as described.

681,561. FEED-BOX FOR ORE-CONCENTRATORS. JOHN H. MICHELSEN and MILLER L. BOBSLIN, Butte, Mont. Filed Apr. 25, 1901. Serial No. 57,458. (No model.)



Claim.—1. A feed-box rectangular in outline provided with a feed-hopper at one end, a row of discharge-holes near its bottom, a series of grooved shelves of different lengths arranged one above the other, each of said shelves being separated from one of the sides of the box by a space, said spaces being arranged alternately on different sides of the box.

2. A feed-box rectangular in outline provided with a feed-hopper at one end, a row of discharge-holes on one side near the bottom, a series of holes in one end of said box, a plurality of grooved shelves of different lengths arranged one above the other within said box, each of said shelves being spaced from the side of the box at opposite sides to the next adjacent shelf, and a diagonally-grooved bottom for said box, substantially as described.

681,562. DEVICE FOR CLEANING SHIPS' BOTTOMS. JAMES C. MIDDLETON, East Palatka, Fla. Filed Dec. 18, 1900. Serial No. 40,253. (No model.)



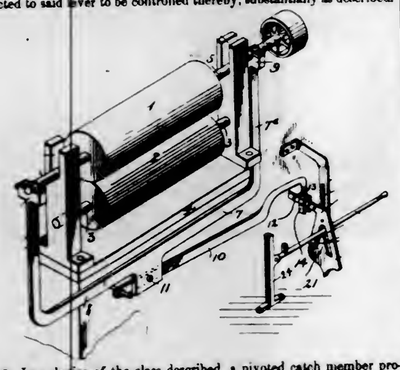
Claim.—1. A device for use in cleaning ships' bottoms, comprising a tube of flexible material closed at the lower end, a transparent material in the wall of the tube at the lower portion, and supporting-frames connected to the tube and each consisting of pivotally-connected sections, substantially as specified.

2. A device for the purpose described, comprising a tube of flexible material, supporting bands or frames at the upper end of said tube, a bag-like device at the lower end of the tube and having arms, clamping-rings for securing the bag-like device to the lower end of the tube, glass arranged in said bag-like device, fastening ropes or cables extending between the upper and lower fastening devices, and frames surrounding the tube and having connection with said ropes or cables, substantially as specified.

3. A device for the purpose described, comprising a tube of flexible material closed at its lower end and designed to support a person in said closed lower end, a sight-glass at the lower portion, supporting rings or clamps at opposite ends of the tube, supporting-frames between said clamping devices, the said supporting-frames surrounding the tube and made in pivotally-connected sections, and ropes or cables connecting with the clamping devices and with said frames and also supporting the device on the hull of a vessel, substantially as specified.

681,563. STOP-MOTION FOR CARDING-MACHINES. WILLIAM H. MORGAN and FRANK A. HANSUM, Ware, Mass. Filed May 20, 1901. Serial No. 61,133. (No model.)

Claim.—1. In a device of the class described, the combination with a pair of rolls and means for driving said rolls, of a yoke connected to one of said rolls, a lever connected to said yoke, a pivoted catch member having a blunt V-shaped tongue thereon, said member being connected to said lever, a lever normally resting on the vertex of said V and means connected to said lever to be controlled thereby, substantially as described.

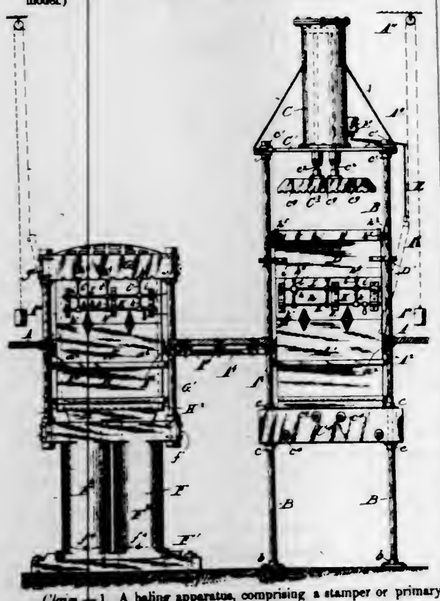


2. In a device of the class described, a pivoted catch member provided with a blunt V-shaped tongue, a lever normally resting on the blunt point of said tongue, means connected to said lever to be controlled thereby and means for operating said catch member to displace said lever, substantially as described.

3. In a device of the class described, the combination with a roll mounted to be transversely displaced, a yoke connected to said roll, a pivoted catch member having a V-shaped tongue thereon, means for connecting said yoke and said catch member, and a stop-motion device having a lever located to be engaged by said tongue, substantially as described.

4. In a device of the class described, the combination with a roll mounted to be displaced transversely, a pivoted catch member having a V-shaped tongue thereon, means for connecting said roll and said catch member, a lever normally supported by said tongue, and means connected to said lever to be controlled thereby, substantially as described.

681,564. COTTON-PRESS. JOHN E. MORRISON and HENRY S. CAMERON, Clarksdale, Miss. Filed Apr. 1, 1901. Serial No. 53,841. (No model.)



Claim.—1. A baling apparatus, comprising a stamper or primary press, a compress, tracks leading from one to the other, and a baling-box mounted on said tracks and adapted to carry the partially-compressed bale from the stamper to the compress; substantially as described.

2. A baling apparatus, comprising a stamper or primary press, a compress, circular tracks leading from one to the other, and a traveling baling-box mounted on said tracks and adapted to carry the partially-compressed bale from the stamper to the compress; substantially as described.

3. A baling apparatus, comprising a stamper or primary press, a compress, tracks leading from one to the other, and a baling-box mounted on said tracks to carry the partially-compressed bale from the stamper to the compress, and provided at its upper portion with a bale-chamber formed of outwardly-movable sides and ends to expose the bale when compressed; substantially as described.

4. A baling apparatus, comprising a stamper or primary press, a compress, tracks leading from one to the other, a baling-box mounted on said tracks to carry the partially-compressed bale from the stamper to the compress, and provided with outwardly-movable doors and ends at its upper end, and rock-shafts mounted on said doors and provided with retaining dogs or fingers to project through slots in the upper edges of the doors and engage the cotton, the stamper having slots registering with said dogs or fingers; substantially as described.

5. In a baling apparatus, a baling-box provided with slotted upper edges, parallel rock-shafts on its opposite sides provided with transverse cotton-retaining fingers or dogs adapted at their inner ends to project through said slots and engage the cotton or material being compressed, and lower rock-shafts provided with locking arms adapted to engage the outer ends of said retaining fingers or dogs; substantially as described.

6. The combination with the four vertical posts or standards, a stationary lower platen connected to said posts, a plate connecting the upper ends of said posts, a platen or tramper-head and mechanism mounted on said plate for reciprocating the tramper-head or platen, of an open-ended charging or accumulating box, closed at its sides, secured at its four corners to said posts below the tramper-head and adapted to be fed at its upper open end when the tramper-head is raised, and a movable baling or press box registering at its upper end with the lower open end of the charging or accumulating box.

7. The combination with the stamper or primary press provided with a stationary open-ended accumulating-box, of a compress, tracks leading from the stamper to the compress, and a traveling baling-box mounted on said tracks to register at its upper end with the said stationary box and provided with a loose bottom; substantially as described.

8. A baling apparatus comprising a stamper composed of four posts, a lower stationary platen mounted on said posts, a steam-cylinder the lower head or base-plate of which connects the upper ends of said posts, a piston on said cylinder and a movable platen connected with said piston, and a hydraulic compress beyond the stamper, tracks leading from the stamper to the compress, said compress being formed of one or more hydraulic cylinders, provided with a ram or rams carrying the lower platen, four posts connected at their lower ends to the cylinder head or heads, and a fixed top platen connecting the upper ends of said posts, and a baling-box mounted to travel on said tracks and provided with a loose bottom to register with the stationary platen of the stamper and the movable platen of the compress; substantially as described.

9. A baling apparatus comprising concentric circular tracks, a steam-stamper and a hydraulic compress located at diametrically opposite points of the tracks, a traveling baling box or boxes mounted on the tracks, a circular flooring within the space inclosed by the inner track and supported from the framing of said stamper and compress, and trap-doors for the annular space between the two tracks; substantially as described.

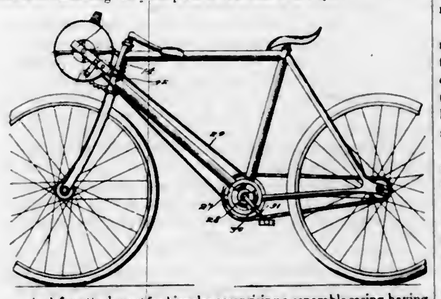
10. The baling-box provided with hinged doors at its upper ends having vertical grooves at the ends of its inner sides, removable end pieces fitting at their ends in said grooves, levers pivoted on the end pieces, oppositely-projecting rods pivoted to each lever at opposite sides of its pivot, and having eyes at their ends, and hooks on the ends of the hinged sides engaged by the eyes on said rods; substantially as described.

681,565. BICYCLE-FAN. ORLANDO B. MCCUBE and CHARLIE MULL, Iola, Kans. Filed Feb. 15, 1901. Serial No. 47,498. (No model.)

Claim.—1. A fan attachment for bicycles comprising a casing including sections divided in a plane including the axis of the casing, straps engaged around the casing to hold the sections from separation, a supporting-bracket connected to one member of the casing, and a fan within the casing and having a drive-shaft journaled in the bracket, said casing having an air-outlet opening.

2. A fan attachment for bicycles comprising a casing, comprising separable sections divided longitudinally of the casing, a support embracing the casing and attached to a section thereof, a fan within the casing and having a shaft journaled in the support, flanges for holding the sections against displacement longitudinally, and straps passed around the casing to hold the sections against separation.

3. A fan attachment for bicycles comprising a casing having openings in its ends and a discharge-opening in its side, a yoke-plate disposed with its arms against the ends of the casing and secured thereto, a fan within the casing having a shaft passed through the openings of the ends of the casing and journaled in the arms of the yoke-plate, a counter-shaft passed through the casing, connections between the counter-shaft and fan-shaft for operating the latter, said counter-shaft having bearings in the arms of the yoke-plate, a drive-pulley carried by the counter-shaft, and means for attaching the yoke-plate to the head of a bicycle.



4. A fan attachment for bicycles comprising a separable casing having openings in its ends and a discharge-opening in its side provided with a spout, a yoke-plate having its arms disposed against and attached to a section of the casing and projecting transversely of the openings of the ends of the casing, a fan-shaft journaled in the arms of the yoke-plate and provided with a fan, a gear upon said shaft, a counter-shaft passed longitudinally through the casing and journaled in the arms of the yoke-plate, a gear upon the counter-shaft meshing with the gear on the fan-shaft, a pulley on the counter-shaft for engagement of a driving-belt and projecting into the casing, and a covering for the inwardly-projecting portion of the pulley, the blades of the fan being cut away to escape the pulley and its covering.

681,566. ADJUSTABLE SPRING-BACK CHAIR. SMITH N. MCCLOUD, Marysville, Ohio, assignor to the Davis Chair Company, same place. Filed Oct. 3, 1900. Serial No. 31,882. (No model.)



Claim.—1. In a chair, the combination with the seat, and the supporting-spider therefor, one of the arms of said spider having an offset, of a back-supporting spring mounted beneath the seat and having a continuous loop portion arranged over said offset, a back-carrying standard connected with the rear portion of the spring, and a tension device mounted on the spider and engaging with the loop portion of the spring.

2. In a chair, the combination with the seat and the supporting-spider therefor, one of the arms of said spider having a depressed offset, of a back-supporting spring mounted beneath the seat and having a loop portion arranged over said offset, a back-carrying standard connected with the rear portion of the spring, and a tension device comprising an adjustable bolt mounted in the seat-supporting spider, and arranged to engage the loop portion of the spring disposed above said offset of the spider-arm.

3. In a chair, the combination with the seat, of a continuous spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion, a standard-holder having a bridle or head engaging the rear portion of the spring-wire frame, and comprising forwardly-diverging longitudinally-grooved arms in which the spring-terminals are housed and concealed, and a back-carrying standard supported upon said holder.

4. In a chair, the combination with the seat, of a spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U or V form, and a standard-carrying holder having a bridle or head conforming in shape to said vertically-yielding portion of the spring, and rigidly joined thereto, said holder also comprising means for receiving and housing both terminals of the spring-wire frame.

5. In a chair, the combination with the seat, of a spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U or V form, a standard-holder having a bridle or head conforming in shape to said rear portion of the spring and rigidly united thereto, said bridle or head having a socket receiving and housing both terminals of the spring-wire frame, and a tiltable back-carrying standard adjustable upon the holder.

6. In a chair, the combination with the seat, of a spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U or V form, and a standard-carrying holder provided with an approximately U or V shaped bridle having in the base portion thereof a socket to receive the terminals of the spring-wire, and also provided with grooved engaging arms receiving the sides of said rear vertically-yielding portion of the spring-frame.

7. In a chair, the combination with the seat, of a spring-frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U form, and a standard-carrying holder provided with an approximately U-shaped bridle receiving the correspondingly-shaped portion of the spring-frame and provided in its base portion with a socket for the terminals of the spring-wire, said bridle also having the divergent arms thereof longitudinally grooved and provided with malleable retaining-ears overhanging the grooves.

8. In a chair, the combination with the chair-seat, and the back-supporting spring, of a standard-holder connected with said spring, and provided at the upper edge thereof with a toothed segment and also with a stop-lug at the rear edge thereof, a back-carrying standard pivotally mounted upon the holder, and a locking device carried by the standard and co-operating with said toothed segment.

9. In a chair, the combination with the seat, and the back-supporting spring, of a standard-holder connected to said spring and provided at its upper edge with a series of locking-notches, a back-carrying standard pivoted upon the holder, a keeper fitted to the standard and having bearings, and a gravity locking-dog pivoted in the bearings of said keeper and having a member lying within the standard and adapted to engage with said notches.

10. In a chair, the combination with the seat, of a standard-holder having a plate provided with a plurality of notches, a tiltable back-carrying standard pivotally mounted upon said plate, a keeper-plate fitted to the standard and provided with bearing-notches, and a single pivotal gravity locking-dog provided at one end with a finger-piece projecting through the keeper-plate, and contiguous to that end with pivot-studs loosely engaging in said bearing-notches, said dog being arranged to move vertically in and out of engagement with said notches.

11. In a chair, the combination of the back-carrying standard provided with a longitudinally-disposed guide-groove, and a slot intersecting said groove, the back-rest, a slide-plate secured to said rest and provided at its inner side with a countersink, and at its outer side with a rib engaging said guide-groove, an adjusting-bolt having its head held within said countersink, and extending through the slot of the standard, and a clamp nut or wheel engaging the said bolt at the rear side of the standard.

681,567. RAILROAD-TRACK. CHARLES H. MCDERMOTT, Duluth, Minn. Filed Apr. 23, 1901. Serial No. 57,130. (No model.)



Claim.—1. The herein-described improvement in railroad-tracks comprising the broad flat sleeper-plates provided at their opposite edges with rows of depending teeth, the rails on said plates, the rail-holding plates and rail-joint plates bolted at one edge to the sleeper-plates and lapped at the other edge upon the bases of the rails, and the tie connections composed of the cross-bars extending beneath the opposite sleeper-plates and the end brackets socketed to receive and bolted to said cross-bars and having flattened portions lapped upon the sleeper and rail-holding plates and secured substantially as set forth.

2. The combination of the sleeper-plates, the cross connection having end brackets provided with portions lapping upon the said plates and

with sockets, and the bar held in said sockets and extending beneath the sleeper-plates substantially as set forth.

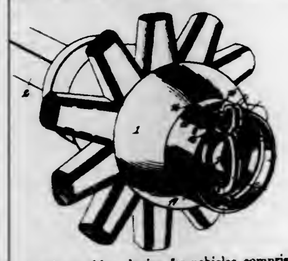
3. The combination of the broad flat sleeper-plate provided with depending teeth or pins and the cross connection composed of the socketed end brackets having portions lapped upon and secured to the sleeper-plates and the bar held in the sockets of the end brackets and extending beneath the sleeper-plates substantially as set forth.

4. In a track substantially as described, the combination, of the sleeper-plates, means for securing the rails thereon, the cross connection having tie-bars, and brackets provided with sockets to fit the said cross-bars, and with top plates to lap upon the sleeper-plates, the cross-bar being extended beyond the socketed portions of the brackets and beneath the top plates thereof, whereby the sleeper-plates will lie between the top plates of the bracket and the extended ends of the cross-bar, substantially as set forth.

681,568. **PROCESS OF MAKING AMMONIUM ICHTHYOL SULFONATE.** ANDREW C. MCLAUGHLIN, Austin, Tex. Filed Apr. 21, 1900. Serial No. 13,706. (No specimens.)

Claim.—The herein-described process of making ichthyol sulfonate of ammonium, which consists in distilling asphaltum, collecting the liquid hydrocarbon in suitable receivers, agitating with strong sulfuric acid the sulfo-hydrocarbons, until the reaction between the two substances is complete; after which reaction the liquid divides itself into a heavy dark-colored portion containing certain sulfonic acids and a lighter-colored portion; the heavy dark-colored portion of the reaction mixture resulting from the second step is neutralized by means of ammonium carbonate; as a result of this neutralization, a black impure ichthyol sulfonate of ammonium separates out, is thoroughly washed with petrolic ether and the washed product is now treated with methyl alcohol and filtered, the methyl-alcohol solution is evaporated and the dissolved ichthyol sulfonate of ammonium is recovered.

681,569. **HUB-ATTACHING DEVICE.** JOHN A. MCNAMARA, Brighton, Wis. Filed May 29, 1901. Serial No. 62,402. (No model.)



Claim.—1. A hub-attaching device for vehicles comprising a plurality of locking-keys, means for retaining the keys in operative relation within the hub, and a lever for holding the keys in locked engagement with a part of the spindle or axle, said lever having engagement with the hub-band to hold it in locked relation.

2. A hub-attaching device for vehicles comprising a plurality of locking-keys, means for retaining the keys in operative position within the hub, and a two-part locking-lever operatively connected with the said keys for holding them in engagement with a groove in the spindle or axle, one part of the lever having locking engagement with the hub-band.

3. A hub-attaching device for vehicles, comprising two segmental locking-keys, a plate for retaining the keys within the hub, said plate having oppositely-disposed slots, eyes carried by the keys and passing through the said slots, and a two-part locking-lever having its members connected with the eyes.

4. A hub-attaching device for vehicles comprising two segmental locking-keys, a plate for retaining the keys within the hub, said plate having oppositely-disposed slots, eyes carried by the keys and passing through the said slots, and a key-locking lever composed of a clamp engaging one of the eyes, and an arm engaging the other eye and having a pivotal connection with the clamp.

5. The combination with a hub having its outer end provided with a chamber, and a hub-band having oppositely-disposed openings, of a pair of segmental locking-keys arranged in the chamber, a plate provided with slotted arms engaging the openings in the hub-band to retain the keys in position within the chamber, eyes carried by the locking-keys and projecting through the slots in the said plate, and a key-operating and locking lever, comprising a clamp connected with one of the eyes and having a lip or toe to engage the edge of the hub-band, and an arm connected with the other eye and having a pivotal connection with the clamp.

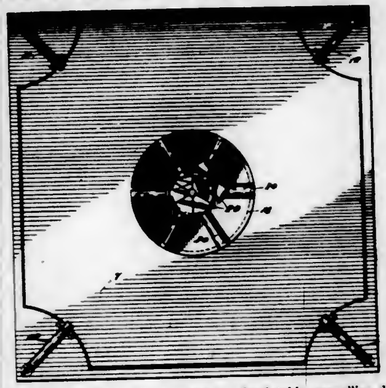
6. The combination with a hub having its outer end provided with a chamber, and a hub-band having oppositely-disposed openings in its sides and a recess in its edge, of a pair of segmental locking-keys arranged in the chamber, a plate provided with slotted arms engaging the openings in the hub-band to retain the keys in position within the chamber, eyes carried by the locking-keys and projecting through the slots in the said plate, and a key-operating and locking lever comprising a clamp connected with one of the eyes and having a lip or toe to engage the recess in the edge of the hub-band, and an arm connected with the other eye and having a pivotal connection with the clamp.

7. The combination with a spindle, of a plurality of locking-keys for the spindle, a plate carrying the keys for retaining them in operative relation within the hub, and a lever bolding the keys in locked engagement with the spindle, said lever having engagement with the hub-band.

8. The combination with a spindle, of a plurality of locking-keys for the spindle, a plate carrying the keys for retaining them in operative relation within the hub-band, said plate having a detachable interlocked engagement with the hub-band, and means for holding the keys in locked engagement with the spindle.

9. The combination of a hub provided with openings in the band thereof, a key-plate, lugs upon the key-plate received within the openings of the hub-band, and spindle-engaging means carried by the key-plate.

681,570. **GAME APPARATUS.** DUNCAN MCRUER, Paula Valley, Ind. Ter. Filed Jan. 7, 1901. Serial No. 42,318. (No model.)



Claim.—1. In a game apparatus, a fixed table, propelling devices on the fixed table, a table mounted to rotate relatively to the fixed table, a turret extended upward from the rotating table, runways communicating with the lower portion of said turret and projecting outward, a table movable vertically in the turret, a rotating table on said vertically-moving table, objects carried by said last-named rotating table, a guide-rod for the table, means for causing a rotary movement of the table on which the objects are mounted, locking-rods for the vertically-movable table and adapted to be released by rolling objects discharged from the propelling devices, and miniature representations of men carried by said rods, substantially as specified.

2. A game, comprising a fixed table, a table mounted to rotate relatively to the fixed table, propelling devices at the corner of the fixed table, a turret extended upward from the rotating table, runways communicating with the lower portion of said turret and projecting outward, a vertically-movable table in the turret, a spring for moving said table upward, a rotating table on the vertically-moving table, means for rotating said rotary table during its upward movement, men carried by said rotating table, vertically-movable locking-rods for the vertically-movable table, locking-lugs at the lower portion of said rods, springs for moving said rods upward, and miniature men carried on the upper ends of said rods, substantially as specified.

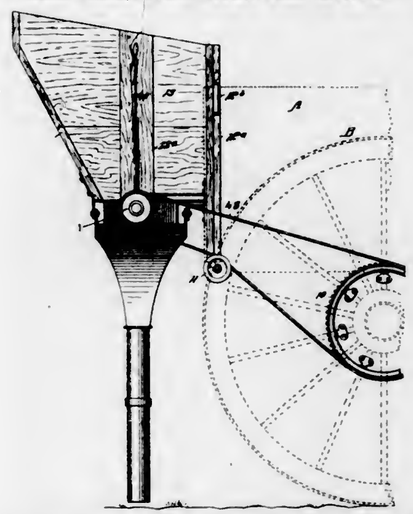
3. A game apparatus, comprising a stationary table, a table mounted to rotate in the stationary table, a turret extended upward from the rotary table, tubular runways communicating with the lower portion of the turret and extended radially therefrom, marble-propelling devices at the corners of the stationary table, a rod extended upward from the rotary table and through the turret, a table movable along said rod, a spring for moving said last-named table upward, a rotating table on the vertically-movable table and operated by a spiral on said rod, men on said rotating table representing various nations, locking-rods for the vertically-movable table, the said locking-rods having lugs for engaging with the upper walls of the tubular runways, springs arranged in the lower portion of the rotary table and engaging with the lower ends of said rods, guides for said rods in the turret, and devices representing men carried on the upper ends of said rods, substantially as specified.

4. A game apparatus, comprising a stationary table, a raised flange or wall extending around said table near its edge, a marble-propelling device at each corner of said stationary table, a table mounted to rotate in the stationary table, a turret extended upward from said rotating table, a series of independently-opening closures at the upper end of said turret, a rod extended upward in the turret and having a spiral upper end, a table engaging with said rod and adapted to be rotated by said spiral, figures representing men carried by said table, locking devices for holding said table downward, the said locking devices being released by contact with marbles driven from the propelling devices, and objects carried by said locking devices which upon an upward movement force the doors or closures open, substantially as specified.

5. A game apparatus, comprising a rotary turret having inlets at its lower end for rolling objects, means for forcing the rolling objects into said openings, objects representing men normally held within said turret, locking devices for holding said objects in their lowermost position, said locking devices being released by the rolling objects, and objects representing men carried by said locking devices, substantially as specified.

6. A game apparatus, comprising a turret mounted to rotate, two series of objects representing men held normally in said turret, locking devices for holding said two series of objects within the turret, and means for releasing said locking devices to permit one series of objects to rise and then permit the other series of objects to rise, substantially as specified.

681,571. **FERTILIZER-DISTRIBUTER.** HARRIS MCVEA, Vaucoville, La. Filed Apr. 16, 1901. Serial No. 56,095. (No model.)



Claim.—1. A fertilizer-distributer, adapted for attachment to the body of a vehicle, comprising a hopper, a delivery-spout pivoted at its upper end to the hopper in the direction of motion of the vehicle and depending thence and arranged to swing laterally or at a right angle to the direction of motion of the vehicle, a distributing-wheel mounted to revolve in an opening in the bottom of the hopper, the distributing-wheel being provided with peripherally-located paddles, and means, substantially as described for regulating the position of the spout.

2. In a fertilizer-distributer, adapted for engagement with a wagon-body, a hopper having an opening in its bottom, a spout pivotally connected with said hopper, an adjusting device for the said spout, a shaft passed through the said hopper, an agitating device carried by the said shaft, a main shaft passed below the hopper, a distributing-wheel secured on the main shaft, which wheel extends through the slot in the bottom of the hopper, T-shaped paddle-blades carried by the said wheel, and a shield located at the bottom of the hopper around the distributing-wheel, which shield enters the said spout for the purpose described.

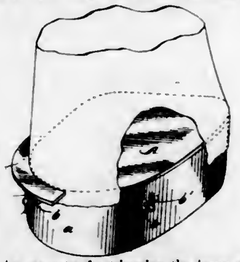
3. In a fertilizer-distributer, a frame adapted for attachment to a wagon-body, hoppers carried by the said frame, having slots in their bottom portions, spouts pivotally connected with the bottom portions of the said hoppers, an agitating-shaft extending through the said hoppers, provided with agitating-arms located within the hoppers, a main shaft located below the hoppers, having driving connection with the agitator-shaft, a distributing-wheel located at the bottom portion of each hopper and secured to the main shaft, distributing-paddles carried by the peripheral portion of the distributing-wheels, means for regulating the outlets of the hoppers, and an adjusting device for the said spouts, consisting of a rod, means for securing said rod in adjusted position, and links connected with the said rod, and with the spouts, for the purpose described.

4. In a fertilizer-distributer, the combination, with a hopper, an agitator located within said hopper, a distributing-wheel extending through the bottom portion of the hopper and through a slot in said bottom portion, T-shaped distributing-paddles secured to the peripheral portion of the distributing-wheel, a shaft attached to said distributing-wheel, a driving connection between the shaft and the agitator, a slide carried by the hopper, adapted to regulate the amount of material distributed, a spout pivotally connected with said hopper, means for adjusting the spout, and a yielding strip crossing the said slot at its rear, which strip serves to prevent leakage of material from the hopper at the rear portion of the slot, as described.

5. In a fertilizer-distributer, substantially as described, a main shaft having a threaded portion, lock-nuts located on the threaded portion of the shaft, a driving-wheel loosely mounted on the shaft and provided with a clutch-section, the teeth of the clutch-section being beveled, a clutch-section mounted to slide upon and turn with the main shaft, the clutch-section being provided with teeth correspondingly shaped to the teeth of the clutch-section of the driving-pulley, a shifting-lever connected with the latter clutch-section, a pawl carried by the shifting-lever, a rack attached to a fixed support, receiving the said pawl, and a spring coiled around the said shaft, engaging with the clutch-section and with the lock-nuts, for the purpose specified.

6. In a fertilizer-distributer, substantially as described the combination of the hopper devices, spouts connected at the upper ends with the hopper devices and adjustable laterally at their lower ends, links connected at their outer ends with the spouts, an operating-rod connected with the inner ends of said links, and guide devices for said rod, substantially as set forth.

681,572. **APPARATUS FOR MARKING AND TRIMMING EDGES OF SKIRTS.** MAX NEWGARDEN, New York, N.Y. Filed Mar. 29, 1900. Renewed Apr. 23, 1901. Serial No. 57,160. (No model.)



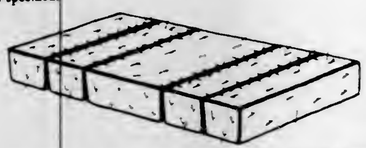
Claim.—1. An apparatus for trimming the lower edges of skirts, comprising a platform having a semicircular front and rounded rear edges, segmental marking-arms mounted upon a supporting-rod and adapted to slide upon the upper end of said supporting-rod, brackets fastened to the semicircular portion of said platform and formed with a cylindrical portion adapted to receive the supporting-rod carrying the marking-arm, and means for suitably adjusting the aforesaid marking-arm, substantially as described.

2. In an apparatus for trimming skirt edges, the combination with a platform having a semicircular front end, of supporting-brackets secured thereto, segmental marking-arms mounted upon supporting arms and rods and adapted to slide upon the supporting-arms of supporting-rods, set-screws mounted upon the said marking-arm and adapted to engage against the said supporting-arms and lock the marking-arms in position against the semicircular end of the said platform, and a set-screw mounted in a supporting-bracket and adapted to regulate the height of the aforesaid marking-arms, substantially as described.

681,573. **MATTRESS.** WILLIAM W. NICHOLS, St. Louis, Mo. Filed Jan. 12, 1901. Serial No. 43,065. (No model.)

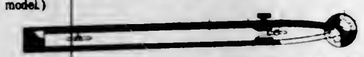
Claim.—1. The herein-described, reversible mattress, consisting of a series of head and foot sections, and a middle section of about double the length of the other said sections, each said section being of trapezoidal form in cross-section, the parallel sides of such trapezoids forming the upper and lower surfaces of the mattress, substantially as specified.

2. The herein-described, reversible mattress, consisting of a series of head and foot sections, and a middle section of about double the length of the other said sections, each said section being of trapezoidal form in cross-section, and being filled with sheets of felt, the parallel sides of such trapezoids forming the upper and lower surfaces of the mattress, substantially as specified.



3. The herein-described reversible mattress, consisting of a series of sections, each said section being of trapezoidal form in cross-section, the parallel sides of such trapezoids forming the upper and lower surfaces of the mattress, substantially as specified.

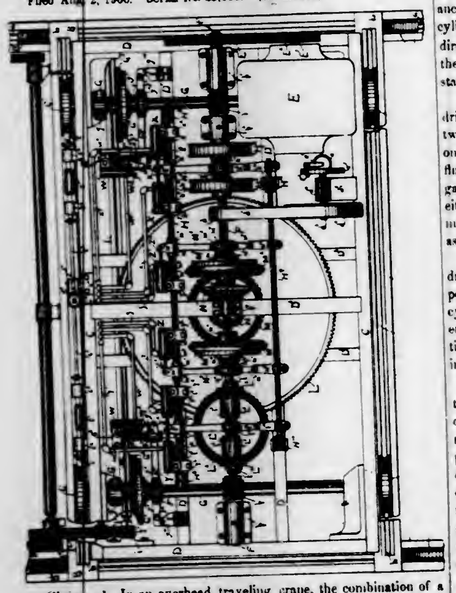
681,574. DOTTING ATTACHMENT FOR PENS. HENRY OETTINGER, New York, N. Y. Filed Apr. 5, 1901. Serial No. 54,472. (No model.)



Claim.—1. A dotting attachment for pens, comprising a casing forming a handle and adapted to receive the pen holder or handle, a roller mounted on the lower end of said casing, a cam-wheel mounted to rotate with said roller, a plate mounted to slide in the casing and operated by the cam-wheel, a fixed jaw on said plate, and a movable jaw on said plate, substantially as specified.

2. A dotting attachment for pens, comprising a casing into which the entire length of the pen holder or handle may be received, the said casing being open at one side, a roller mounted on the lower end of said casing, a cam-wheel on the shaft of said roller, a plate mounted to slide in the casing and engaging with said cam-wheel, and clamping devices on said plate, substantially as specified.

681,575. OVERHEAD TRAVELING CRANE. GEORGE W. PACKER, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Aug. 2, 1900. Serial No. 25,638. (No model.)



Claim.—1. In an overhead traveling crane, the combination of a frame mounted on wheels to travel on a track and having a track thereon, a carriage or traveling support movable on the track of the frame and having an arm or boom suspended therefrom, a motor on the carriage, a power-shaft on the carriage driven from the motor, clutch-actuated pulleys on the power-shaft, an axle or shaft for one pair of the frame-carrying wheels driven from the clutch-actuated pulleys, and fluid-pressure cylinders for engaging and disengaging the clutches of the clutch-actuated pulleys, substantially as described.

2. In an overhead traveling crane, the combination of a frame mounted on wheels to travel on a main track and having a track thereon, a carriage or traveling support movable on the track of the frame and having an arm or boom suspended therefrom, a motor on the carriage, a power-shaft on the carriage driven from the motor, clutch-actuated pulleys on the power-shaft, a counter-shaft on the frame driven from the clutch-actuated pulleys, an axle or shaft on the frame for one pair of the frame-carrying wheels driven from the counter-shaft, and fluid-pressure cylinders for engaging and disengaging the clutches of the clutch-actuated pulleys, substantially as described.

3. In an overhead traveling crane, the combination of a frame mounted on wheels to travel on the main track and having a track thereon, a carriage or traveling support movable on the track of the frame and having an arm or boom suspended therefrom, a motor on the carriage, a power-shaft on the carriage driven from the motor continuously in the same direction, a straight belt and a crossed belt, clutch-actuated pulleys on the power-shaft one for the straight and one for the crossed belt, a counter-shaft driven in opposite directions by the belts, a train of gear operated from the counter-shaft, an axle or shaft for one pair of the frame-carrying wheels driven from the train of gear, and fluid-pressure cylinders for engaging and disengaging the clutches of the clutch-actuated pulleys, substantially as described.

4. In an overhead traveling crane, the combination of a main track, a frame mounted on wheels to travel on the main track and having a track thereon, a carriage or traveling support movable on the track of the frame and having an arm or boom suspended therefrom, a motor on the carriage, a power-shaft on the carriage driven from the motor continuously in one direction, a straight belt and a crossed belt, two clutch-actuated pulleys on the power-shaft, one for the straight and one for the crossed belt, a counter-shaft, two pulleys on the counter-shaft, one for the straight and one for the crossed belt, for driving the counter-shaft in opposite directions, a train of gear operated from the counter-shaft, an axle or shaft for one pair of the frame-carrying wheels driven from the train of gear, and fluid-pressure cylinders for engaging and disengaging the clutches of the clutch-actuated pulleys, substantially as described.

5. In an overhead traveling crane, the combination of a power-shaft driven continuously in one direction, two clutch-actuated pulleys on the power-shaft, a lever common to the clutch of both pulleys, a fixed rod or shaft having movable collars thereon engaging the lever, a coiled resistance-spring on the rod or shaft for each movable collar, and fluid-pressure cylinders having a common piston-rod for moving the lever in opposite directions to engage the clutches of the clutch-actuated pulleys and have the springs operate to return the lever and disengage the clutches, substantially as described.

6. In an overhead traveling crane, the combination of a power-shaft driven continuously in one direction, a straight belt and a crossed belt, two clutch-actuated pulleys on the power-shaft one for the straight and one for the crossed belt, a lever common to the clutch of both pulleys, fluid-pressure cylinders for moving the lever in opposite directions to engage and disengage the clutches of the clutch-actuated pulleys and drive either belt, a counter-shaft driven in opposite directions by the belts, and means for transmitting power from the counter-shaft to travel the crane as a whole in either direction, substantially as described.

7. In an overhead traveling crane, the combination of a power-shaft driven continuously in one direction, two clutch-actuated pulleys on the power-shaft, a lever common to the clutch of both pulleys, fluid-pressure cylinders for moving the lever in opposite directions to engage and disengage the clutches of the pulleys, a fluid-pressure induction and eduction pipe for each cylinder, and a valve-chamber for admitting pressure into and discharging pressure from each pipe, substantially as described.

8. In an overhead traveling crane, the combination of a carriage or traveling support having the arm or boom suspended therefrom, a motor on the carriage or support, a power-shaft on the carriage driven from the motor continuously in one direction, oppositely-pitched worm-gears on the power-shaft, a cross-shaft at each end of the carriage driven in opposite directions from the oppositely-pitched worm-gears, an axle at each end of the carriage having traveling wheels on each axle for moving the carriage, a gear connection between the cross-shaft and the axle at each end of the carriage, a clutch for each cross-shaft gear, and a fluid-pressure cylinder, for operating each clutch to engage and disengage the clutch and travel the carriage in opposite directions, substantially as described.

9. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction and having thereon oppositely-pitched worm-gears, a clutch operating the gear-shaft at each end of the carriage driven in opposite directions by the worm-gears driving the axle of the carriage in opposite directions, a lever for each clutch-gear and a fluid-pressure cylinder for each lever, engaging and disengaging the clutch of its gear to move the carriage in opposite directions, substantially as described.

10. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, oppositely-pitched worm-gears on the power-shaft, a clutch-actuated gear-shaft at each end of the carriage driven from the worm-gear at its end of the carriage, an axle at each end of the carriage driven from the clutch-actuated gear-shaft, a lever for the clutch of each clutch-gear, a fixed rod or shaft having thereon a movable collar engaging the lever, a spring on the rod or shaft engaging the movable collar, and a fluid-pressure cylinder for each lever operating to move the lever and engage and disengage the clutch and have the spring operate to return the lever, substantially as described.

11. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, oppositely-pitched worm-gears on the power-shaft, a clutch-actuated gear-shaft at each end of the carriage driven from the worm-gear at its end of the carriage, an axle at each end of the carriage driven from the clutch-actuated gear-shaft, a lever for the clutch of each clutch-gear, a fluid-pressure cylinder for each lever operating to move the lever and engage and disengage the clutch, an induction and eduction pipe for fluid-pressure to each cylinder, and a valve-chamber for admitting pressure into and discharging pressure from the cylinder-pipe, substantially as described.

12. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two clutch-actuated bevel-pinions on the power-shaft, a bevel-gear engaged by both bevel-pinions, a shaft driven by the bevel-gear and having a pinion thereon, a gear driven from the pinion and having suspended therefrom the turn-table cylinder or tube shaft carrying the arm or boom, for turning the turn-table-suspending cylinder or tube shaft in opposite directions from the engagement of the bevel-pinions, and fluid-pressure cylinders for engaging and disengaging the clutches of the bevel-pinions, substantially as described.

13. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-pinions loosely mounted on the shaft and facing each other, a clutch for each bevel-pinion, a bevel-gear common to both bevel-pinions and driven in opposite directions from the pinions, a gear driven from the bevel-gear and having suspended therefrom the turn-table cylinder or tube shaft carrying the arm or boom, a lever common to both clutches, and fluid-pressure cylinders for moving the lever by fluid-pressure in opposite directions to engage and disengage the clutches and revolve the turn-table-suspending cylinder or tube shaft in opposite directions, substantially as described.

14. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-pinions loosely mounted on the power-shaft and facing each other, a clutch for each pinion engaging its pinion with the power-shaft, a lever common to both clutches, a fixed shaft or rod having thereon loose collars between which the end of the lever extends, a coiled spring on the shaft for each loose collar, fluid-pressure cylinders having a common piston-rod with the end of the lever connected thereto for moving the lever by fluid-pressure in opposite directions, and a gear carrying the turn-table-suspending cylinder or tube shaft of the arm or boom and driven in opposite directions from the bevel-pinions, substantially as described.

15. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-pinions loosely mounted on the shaft and facing each other, a clutch for each bevel-pinion, a lever common to both clutches, a gear having the turn-table-suspending cylinder or tube shaft for the arm or boom carried thereby, fluid-pressure cylinders having a common piston-rod connected with the clutch-lever for moving the lever by fluid-pressure in opposite directions, a fluid-pressure induction and eduction pipe for each cylinder, and a valve-chamber for each pipe admitting pressure into and discharging pressure from each pipe, substantially as described.

16. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-gears loosely mounted on the power-shaft and facing each other, a clutch for each bevel-gear, a bevel-gear common to both of the clutch-gears, and driven in opposite directions by the clutch-gears, an extensible turn-table-suspending cylinder or tube shaft carrying the arm or boom, a screw-threaded-tubular shaft within the extensible turn-table-suspending cylinder or tube shaft and carried by the oppositely-driven bevel-gear, and a fluid-pressure cylinder, for engaging and disengaging the clutches of each bevel-gear by fluid-pressure to cause a rotation of the screw-threaded shaft in opposite direction to advance and recede the movable section of the extensible turn-table-suspending cylinder or tube shaft, substantially as described.

17. In an overhead traveling crane, the combination of a movable carriage or traveling support, a power-shaft on the carriage driven continuously in one direction, two bevel-gears loosely mounted on the shaft and facing each other, a clutch for each bevel-gear, a bevel-gear common to both clutch-gears, and driven in opposite directions by the clutch-gears, an extensible turn-table-suspending cylinder or tube shaft carrying an arm or boom, a screw-threaded shaft carried by the oppositely-driven bevel-gear, a lever for each bevel-gear clutch, a fluid-pressure cylinder for each lever engaging and disengaging the clutch from its gear by fluid-pressure, a fixed shaft or rod having thereon a movable collar engaging with the end of the clutch-lever, and a spring on the shaft-engaging the movable collar, and operating to return the lever, substantially as described.

18. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-gears loosely mounted on the shaft and facing each other, a clutch for each gear, a lever for each clutch, a bevel-gear common to both clutch-gears and driven in opposite directions from the clutch-gears, a screw-threaded shaft carried by the oppositely-driven bevel-gear, an extensible turn-table suspending cylinder or tube shaft having its movable section operated by the rotation of a screw-threaded shaft, a fluid-pressure cylinder for each clutch-lever, an induction and eduction pipe for fluid-pressure for each cylinder, and a valve-chamber for admitting fluid-pressure into and discharging pressure from each pipe to cause the cylinders to engage and disengage their respective clutches, substantially as described.

19. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-pinions loosely mounted on the shaft and facing each other, a clutch for each bevel-pinion, a lever common to both clutches, a gear driven in opposite directions from the rotation of the bevel-pinions and having an extensible turn-table-suspended cylinder or tube shaft for the arm or boom carried thereby, fluid-pressure cylinders having a common piston-rod with the clutch-lever attached thereto, for engaging and disengaging the clutches of the two pinions, two bevel-gears loosely mounted on the power-shaft and facing each other, a clutch for each bevel-gear, a lever for each clutch, a bevel-gear common to both clutch-gears and driven in opposite directions from the clutch-gears, a screw-threaded shaft carried by the oppositely-driven bevel-gear and extending into the fixed section of the suspending turn-table cylinder or tube shaft and operating the extensible section of the suspending cylinder or tube shaft, and a fluid-pressure cylinder for the lever of each bevel-gear clutch to engage and disengage the clutches of the bevel-gears, for the bevel-pinions to act and rotate the suspending shaft or tube bodily and for the bevel-gears to act and move the extension-section of the suspending turn-table cylinder or tube shaft by the engagement and disengagement of the pinions and gears and their clutches, substantially as described.

20. In an overhead traveling crane, the combination of a movable carriage or traveling support having an arm or boom suspended therefrom, a power-shaft on the carriage driven continuously in one direction, two bevel-gears loosely mounted on the shaft and facing each other, a clutch for each bevel-gear, a lever for each clutch, a fluid-pressure cylinder for operating each lever to engage and disengage its clutch, a bevel-gear driven in opposite directions from the clutch-gears, an extensible suspending turn-table cylinder or tube shaft carrying the arm or boom, a screw-threaded shaft carried by the oppositely-driven gear, a fixed gear on the power-shaft, a gear engaged by the fixed gear, and an extensible power-transmitting rod driven from the fixed gears, substantially as described.

21. In an overhead traveling crane, the combination of a carrying head or plate having an annular track thereon, a turn-table gear having an annular track thereon, bearing-balls between the two tracks, and a turn-table-suspending cylinder or tube shaft having a fixed section and an extensible section with the fixed section axially attached to the turn-table gear on the under side thereof and the extensible section vertically slidable in the fixed section and carrying an arm or boom at its lower end, for suspending the arm or boom to be turned or swung into different positions, substantially as described.

22. In an overhead traveling crane, the combination of a head or plate having an annular track thereon, a turn-table gear having an annular track on its under face coinciding with the annular track of the head or plate, ball-bearings between the two tracks, a turn-table-suspending cylinder or tube shaft carried by the gear and having a fixed section and an extensible section, an annular track on the upper face of the turn-table

gear, an annular track on the end face of the gear operating the extensible section of the turn-table-suspending cylinder or tube shaft and balls between the two tracks, for supporting both gears on ball-bearings, substantially as described.

23. In an overhead traveling crane, the combination of a turn-table extensible suspending cylinder or tube shaft carried by ball-bearings, a threaded tube and a nut operated by the threaded tube to move the extensible section of the turn-table cylinder or tube shaft and traveling on ball-bearings, substantially as described.

24. In an overhead traveling crane, the combination of a fixed outer cylinder or tube, an extensible turn-table cylinder or tube shaft, a nut on the extensible section of the turn-table cylinder or tube shaft, a hollow shaft having a screw-thread on its exterior engaging with and operating the nut of the extensible section of the turn-table cylinder or tube shaft, means for revolving the turn-table cylinder or tube shaft in both directions and means for revolving the screw-threaded shaft in both directions, substantially as described.

25. In an overhead traveling crane, the combination of an extensible turn-table-suspending cylinder or tube shaft, a hollow shaft having on its exterior a screw-thread for moving the extensible section of the suspending cylinder or tube shaft, and an extensible power-transmitting rod within the hollow shaft for giving the arm or boom a turning movement, and a rising-and-falling movement, and a reciprocating movement, substantially as described.

26. In an overhead traveling crane, the combination of a revolvable hollow shaft, a rotatable extensible power-transmitting rod or shaft located within the hollow shaft, and a guide or bearing between the two sections of the extensible power-transmitting rod or shaft, substantially as described.

27. In an overhead traveling crane, the combination of a fixed outer cylinder or tube, an extensible turn-table-suspending cylinder or tube shaft mounted on ball-bearings, ball-bearings between the outer fixed cylinder or tube and the fixed section of the extensible suspending cylinder or tube shaft at the lower end, a hollow shaft having on its exterior a screw-thread and mounted on ball-bearings, a nut traveling on the screw-thread of the hollow shaft and fixed to the extensible section of the turn-table cylinder or tube shaft, an extensible power-transmitting rod or shaft in the hollow screw-threaded shaft, means for revolving the turn-table cylinder or tube shaft in opposite directions, means for revolving the hollow screw-threaded shaft in opposite directions, and means for revolving the power-transmitting rod or shaft, for the revolutions to turn or swing, raise and lower and reciprocate an arm or boom, substantially as described.

28. In an overhead traveling crane, the combination of an extensible turn-table-suspending cylinder or tube shaft, a head or support on the lower end of the extensible section of the turn-table cylinder or tube shaft, an arm or boom having side sills or rails carried between rollers on the head or support, and means for reciprocating the arm or boom by traveling the side sills or pieces between the rollers, substantially as described.

29. In an overhead traveling crane, the combination of a suspended head or support, an arm or boom having side rails or sills mounted between rollers on the head or support, a shaft having an exterior screw-thread and mounted on the arm or boom and the head or support, and means for traveling the shaft in opposite directions and giving a reciprocating movement to the arm or boom, substantially as described.

30. In an overhead traveling crane, the combination of a suspended head or support, an arm or boom having side rails or sills mounted between rollers on the head or support, a shaft having a screw-thread on its exterior and mounted in bearings on the arm or boom and on the head or support, a nut or sleeve having a screw-thread engaging the screw-thread of the shaft, two pinions loosely mounted on the nut or sleeve and facing each other, a clutch for each pinion, a rotatable gear common to both pinions, and means for engaging and disengaging the clutches from the pinions to give opposite directions of rotation to the nut or sleeve and reciprocate the arm or boom, substantially as described.

31. In an overhead traveling crane, the combination of an extensible turn-table cylinder or tube shaft, means for revolving the turn-table cylinder or tube shaft, in opposite directions, means for raising and lowering the extensible section of the turn-table cylinder or tube shaft, a head or support on the lower end of the extensible section of the turn-table cylinder or tube, an arm or boom having side sills or rails mounted between rollers on the head or support, a shaft having an exterior screw-thread mounted in bearings on the arm or boom and the head or support, a nut or sleeve having a screw-thread engaging the screw-thread of the shaft, two pinions loosely mounted on the nut or sleeve and facing each other, a clutch for each pinion, means for engaging and disengaging the clutches, a driving-gear common to both pinions, and a power-transmitting rod or shaft rotating the driving-gear continuously in one direction, for giving the arm or boom a turning or swinging movement, a rising-and-falling movement, and a reciprocating movement, substantially as described.

32. In an overhead traveling crane, the combination of a suspended arm or boom, means for horizontally reciprocating the arm or boom, independently of its travel and a pick-up or lifter at one end of the arm or boom adapted to be entered beneath the article to be carried by the arm or boom, substantially as described.

33. In an overhead traveling crane, the combination of a suspended arm or boom, means for horizontally reciprocating the arm or boom independently of its travel, a pick-up or lifter carried at one end of the arm or boom and having a limited drop, and means for suspending the pick-up or lifter to permit the limited drop, substantially as described.

34. In an overhead traveling crane, the combination of a suspended arm or boom, means for reciprocating the arm or boom, a pick-up or lifter at one end of the arm or boom having side fingers, a slide for each finger, a guide for each slide on the end of the arm or boom, cross-shafts and links connecting the pick-up or lifter with the arm or boom through the slides and guides, and a dog or catch for holding the pick-up or lifter in position, substantially as described.

35. In an overhead traveling crane, the combination of a suspended arm or boom, means for reciprocating the arm or boom, a pick-up or lifter at one end of the arm or boom, suspending links carrying the pick-up or lifter and permitting a limited downward movement thereof, and a catch or latch retaining the pick-up or lifter in its raised and dropped positions, substantially as described.

36. In an overhead traveling crane, the combination of a suspended arm or boom, means for reciprocating the arm or boom, a pick-up or lifter at one end of the arm or boom, suspending links carrying the pick-up or lifter and permitting a limited downward movement thereof, a catch or latch retaining the pick-up or lifter in its raised and dropped position, a release arm or lever, and a cord for operating the release arm or lever to disengage the catch or latch, substantially as described.

37. In an overhead traveling crane, the combination of a suspended arm or boom, a pick-up or lifter at one end of the arm or boom having a limited rising-and-falling movement, links carrying the pick-up or lifter from the arm or boom, a latch or catch retaining the pick-up or lifter in its raised and dropped positions, a release-arm for the latch or catch, a cord for the release-arm, rollers between which the release-arm cord runs, and a lever for moving one of the rollers to operate the cord, and disengage the latch or catch of the pick-up or lifter, substantially as described.

38. In an overhead traveling crane, the combination of a suspended arm or boom having a reciprocating movement, a pick-up or lifter at one end of the arm or boom, a rack on the arm or boom, a dog engaging the rack, and a lever for operating the rack for furnishing a resistance to assist in forcing the pick-up or lifter beneath the article to be carried by the arm or boom, substantially as described.

39. In an overhead traveling crane, the combination of a traveling frame mounted on a main track and traveling back and forth thereon, a movable carriage or traveling support mounted and traveling back and forth on the frame and having suspended therefrom an arm or boom, a power-motor on the carriage, a power-shaft on the carriage driven from the motor continuously in one direction, driving-pulleys loosely mounted on the power-shaft, one pulley driving a straight belt and the other a crossed belt for moving the frame in opposite directions, a clutch for each pulley, fluid-pressure cylinders for operating the clutches of the pulleys, oppositely-pitched worm-gears on the power-shaft for moving the carriage in opposite directions, a shaft and gear at each end of the carriage operated from the worm-gear, a clutch for each shaft-gear, a fluid-pressure cylinder for operating each clutch, bevel-pinions loosely mounted on the power-shaft and facing each other for rotating the extensible turn-table cylinder or tube shaft carrying the arm or boom, a clutch for each pinion, fluid-pressure cylinders for moving the clutches, bevel gear-wheels loosely mounted on the power-shaft facing each other for raising and lowering the extensible section of the turn-table cylinder or tube shaft, a clutch for each bevel-gear, fluid-pressure cylinders for moving the clutches, induction and eduction pipes for the several fluid-pressure cylinders, and a valve-chamber for each pipe for operating the several parts by fluid-pressure, substantially as described.

40. In an overhead traveling crane, having a main frame movable in both directions on a track and a carriage or traveling support movable in both directions on the main frame and having suspended therefrom an arm or boom, the combination of fluid-pressure cylinders for operating clutches to engage and disengage the power and give the arm or boom a turning or swinging movement and a rising-and-falling movement and to travel the main frame and the carriage or traveling support, a fluid-pressure reservoir for compressed air, induction and eduction pipes between the fluid-pressure reservoir and the cylinders, and valve-chambers for controlling the admission and discharge of fluid-pressure to and from the cylinders for engaging and disengaging the clutches, substantially as described.

41. In an overhead traveling crane, having a main frame movable in both directions on a track and a carriage or traveling support movable in both directions on the main frame and having suspended therefrom an arm or boom, the combination of fluid-pressure cylinders for operating the clutches to engage and disengage the power in the arm or boom a turning or swinging movement and a rising-and-falling movement and to travel the main frame and the carriage or traveling support, and a fixed rod or shaft having the fluid-pressure cylinders adjustably mounted thereon, substantially as described.

42. In an overhead traveling crane, having a main frame movable in both directions on a track and a carriage or traveling support movable in both directions on the main frame and having suspended therefrom an arm or boom, the combination of a main power-shaft on the carriage or traveling support having a continuous rotation in one direction, clutch connections for the power-shaft to engage and disengage the power and give the arm or boom a turning or swinging movement and a rising-and-falling movement and to travel the main frame and the carriage or traveling support, levers for operating the clutches, fixed rods or shafts for guiding the levers and fluid-pressure cylinders adjustable on their fixed rods or shafts for moving the clutch-levers to engage and disengage the clutches, substantially as described.

43. In an overhead traveling crane, having a main frame movable in both directions on a track and a carriage or traveling support movable in both directions on the main frame and having suspended therefrom an arm or boom, the combination of a counter-shaft transmitting power to travel the frame and longitudinally of which the carriage or traveling support moves and a drop bearing or support for the counter-shaft to be moved out of the way to permit the carriage or traveling support to pass and return to operative position after the passage of the carriage or traveling support, substantially as described.

44. In an overhead traveling crane, having a main frame movable in both directions on a track and a carriage or traveling support movable in both directions on the main frame and having suspended therefrom an arm or boom, the combination of a counter-shaft transmitting power to travel the main frame and longitudinally of which the carriage or traveling support moves, a hanger having a shoe depending from the carriage or traveling support and slidable on the counter-shaft, a drop bearing or support for the counter-shaft engaged by the shoe of the hanger and moved out of the way for the passage of the hanger, links having the drop bearing or support pivotally mounted therein, and rock-shafts mounted on the main frame and having the links connected therewith, substantially as described.

45. In an overhead traveling crane, having a main frame movable in both directions on a track and a carriage or traveling support movable in both directions on the main frame and having suspended therefrom an arm or boom, the combination of a counter-shaft transmitting power to travel the main frame and longitudinally of which the carriage or traveling support moves, a hanger having a shoe depending from the carriage or traveling support and slidable on the counter-shaft, a drop bearing or support for the counter-shaft engaged by the shoe of the hanger and moved out of the way for the passage of the hanger, links having the drop bearing or support pivotally mounted therein, rock-shafts mounted on the main frame and having the links connected therewith, an arm or lever connected with one rock-shaft and a return-spring for the arm or lever, substantially as described.

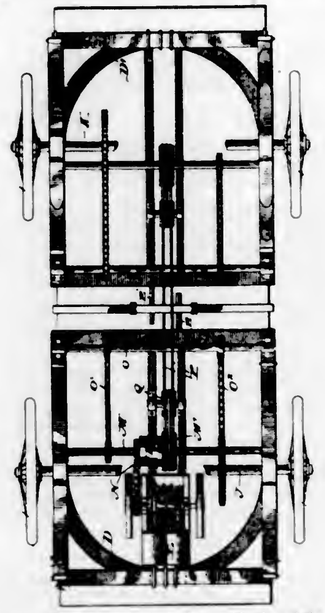
46. In an overhead traveling crane, the combination of a carriage or traveling support having suspended therefrom an arm or boom, provided with means for the arm or boom to have a swinging or turning movement and a rising-and-falling movement, a main power-shaft on the carriage or traveling support having a continuous rotation in the same direction, friction-clutch connections actuated by fluid-pressure for engaging and disengaging the power in operating the arm or boom, substantially as described.

47. In an overhead traveling crane, the combination of a carriage or traveling support having suspended therefrom an arm or boom, provided with means for the arm or boom to have a turning or swinging movement and a rising-and-falling movement, friction-clutches to engage and disengage the power and give the arm or boom the turning or swinging movement and the rising-and-falling movement, levers for operating the clutches, fluid-pressure cylinders having piston-rods to move the levers and operate the clutches, substantially as described.

48. In an overhead traveling crane having a lengthwise-reciprocating movement and a crosswise-reciprocating movement, the combination of a suspended head or support having a rising and a falling movement and a swinging or turning movement given thereto, and having mounted thereon the controlling means of the operating mechanisms for giving the crane as a whole its various movements, substantially as described.

49. In an overhead traveling crane having a lengthwise-reciprocating and crosswise-reciprocating movement, the combination of a suspended head or support, having a rising and a falling movement and a swinging or turning movement given thereto, an arm or boom suspended from the head or support and having the movements of the head or support and an additional horizontal reciprocating movement given thereto, and means mounted on the head or support for controlling the operating mechanisms by which the crane as a whole and the arm or boom are given their various movements, substantially as described.

681,576. MOTOR-CARRIAGE. ALBERT S. PARSONS, Berkeley, Cal. Filed July 7, 1899. Renewed Apr. 25, 1901. Serial No. 57,516. (No model.)



Claim.—1. In a motor-carriage, the combination of the framing having a laterally-disposed guideway provided with upper and lower bars or rails, a guide-carriage movable in said guideway in engagement with said rails from side to side relatively to the frame and provided with the pivoted boxes having horizontal openings, the truck-frames pivotally connected with the framing on opposite sides of the guideway, and studs or pins projecting from the adjacent sides of the truck-frames and entering the openings in their respective pivoted boxes of the guide-carriage substantially as set forth.

2. In a motor-carriage the combination with the independently-pivoted truck-frames provided at their adjacent sides with projecting pins or studs arranged slightly to one side of their respective pivots, and a laterally-movable carriage between said truck-frames having, on opposite sides of its center, portions engaged by the projecting pins or studs of the truck-frames substantially as set forth.

3. In a motor-carriage the combination with the pivoted trucks spaced apart and having the pins or studs projecting from their adjacent sides, of the guideway arranged between said truck-frames and having upper and lower bars or rails, and the carriage fitting said guideway and having rollers engaging the upper and lower rails thereof, and provided with the pivoted boxes having transverse openings receiving the pins or studs of the truck-frames substantially as set forth.

4. In a motor-carriage, the combination of the front and rear trucks having their frames formed of channel metal, the guide-carriage movable laterally between said truck-frames, and the pins or studs engaging said guide-carriage and having their base-plates seated and secured in the channels of the truck-frames substantially as set forth.

5. In a motor-carriage the combination with the front and rear trucks and their wheels, of guide-pulleys and drive-pulleys supported by said trucks, and a cable disposed on said guide and drive pulleys whereby the applied force may be transmitted to drive the wheels of both the trucks substantially as set forth.

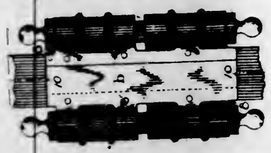
6. In a motor-carriage the combination of the front and rear trucks, the cable for transmitting the motion between said trucks, and pulleys supporting said cable substantially as set forth.

7. In a motor-carriage the combination of the front and rear trucks independently pivoted, the drive-pulleys supported on their respective truck-frames near to the pivotal axes thereof, the traction-pulleys or idlers in

line with their corresponding drive-pulleys and the cable disposed around said pulleys substantially as set forth.

8. In a motor-carriage the combination of the front and rear trucks, the cable drive-pulleys on their respective trucks the traction-pulleys or idlers, and the cable disposed around said drive-pulleys and idlers substantially as set forth.

681,577. SPRING-HINGE. LE DRU R. POMEROY and EDMUND R. ALLYNE, Cleveland, Ohio, assignors to C. S. Van Wagoner, same place. Filed Sept. 12, 1900. Serial No. 29,750. (No model.)

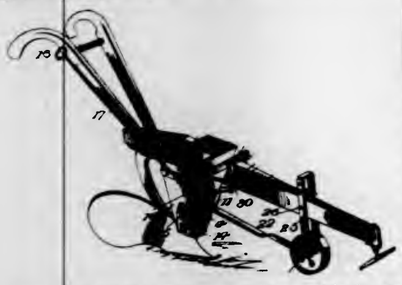


Claim.—1. In a spring-hinge, the combination with a set of hinge-sections having loops on their edges and a pintle uniting said sections, of ball-races each comprising in its construction two horizontally-disposed recessed sections, so arranged with reference to each other as to form an open annular groove, and adapted to be secured between the adjacent ends of the hinge-loops and surround the pintle with the open face of said groove adjacent thereto, and balls in said annular groove whereby the weight of the door is sustained and the pintle relieved from side pressure, substantially as described.

2. In door-hinges, a hinge-section formed of sheet metal and consisting essentially of three portions, a body portion, a series of loops and a strip of metal in one piece, and the said strip of metal secured flatwise on the body portion of the hinge along the edge having the loops and serving as a reinforcement for said edge, substantially as described.

3. In spring door-hinges, a set of hinge-sections formed out of sheet metal and having loops, a tube through said loops serving to unite the sections, ball-races and antifriction-balls between each set of loops, and a band fastened upon said tube opposite each series of balls to take the side pull on the door, substantially as described.

681,578. FERTILIZER-DISTRIBUTER ATTACHMENT FOR PLOWS. JOHN A. REEVES, Goldsboro, N. C. Filed Jan. 22, 1901. Serial No. 44,281. (No model.)



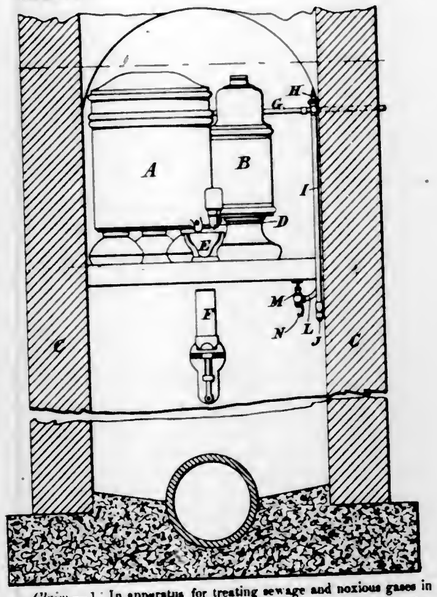
Claim.—1. An attachment for plows and cultivators of the character described, comprising a hopper having its inner side slanting outwardly at its lower end and having the lower end portion of the slanting side inwardly bent, a bottom secured at one end to the bent terminal of the slanting side and formed with a discharge-opening, a compartment below said bottom and having a discharge-opening in its outer side and having its rear wall inclined outwardly and downwardly, a cut-off between the bottom and bent end of the slanting side, and a fastening for connecting said bent end of the slanting side, the adjacent end of the bottom and the cut-off when moved to an adjusted position, substantially as set forth.

2. In an attachment for plows and cultivators of the character described, a hopper having a slanting side terminating in an inwardly-bent end provided with points and having a discharge-opening in its bottom, and an agitator operating through the discharge opening of the bottom to loosen the fertilizer or article to be distributed, substantially as set forth.

3. In combination, a hopper having the lower end portion of a side inwardly bent to overlap the bottom, which latter is provided with a discharge-opening, a cut-off, a bolt passing through the bent end of a side of the hopper and serving to secure the cut-off in an adjusted position, and an agitator mounted upon the said bolt, and means for imparting a vibratory movement to the agitator, substantially as set forth.

4. In an attachment of the character described for a cultivating-plow, a hopper having a slanting side terminating at its lower end in an inwardly-bent portion and having the three remaining sides extended to form a compartment below the bottom of the hopper, the front wall of said lower compartment having a discharge-opening, a plate attached to the lower edges of the extensions of the sides of the hopper, a bolt or kindred fastening connecting the inwardly-bent end of the slanting side of the hopper with the adjacent end of the plate closing the inner side of the lower compartment, and a cut-off for controlling the discharge-opening in the bottom of the hopper and held in the desired position by the said bolt or fastening, substantially as set forth.

681,579. APPARATUS FOR TREATING SEWAGE. ROBERT H. REEVES, London, England. Filed Dec. 29, 1897. Serial No. 664,458. (No model.)



Claim.—1. In apparatus for treating sewage and noxious gases in sewers, the combination of a vessel in which chemicals for the formation of a disinfecting compound are mixed, drip-pots beneath said vessel for receiving the drippings from said vessel, a water-supply pipe and spraying mechanism on the discharge end of said pipe adjacent to said drip-pots.

2. In apparatus for treating sewage and noxious gases in sewers, the combination of a vessel in which chemicals for the formation of a disinfecting compound are mixed, porous drip-pots beneath said vessel into which the compound from said vessel drops, a water-supply pipe whose discharge end is adjacent to said drip-pots and spraying mechanism thereon.

3. In apparatus for treating sewage and noxious gases in sewers, the combination with two vessels, adapted to contain chemicals which when combined produce a disinfecting compound, and each provided with means whereby its contents may be slowly discharged, a mixing vessel located beneath and receiving the discharge from the chemical-containing vessels, porous drip-pots beneath the mixing vessel, a water-supply pipe, a spraying-nozzle on the discharge end thereof, and deflectors in advance of said nozzle for breaking up the spray and discharging the water in the form of mist to the vapors given off from said chemicals.

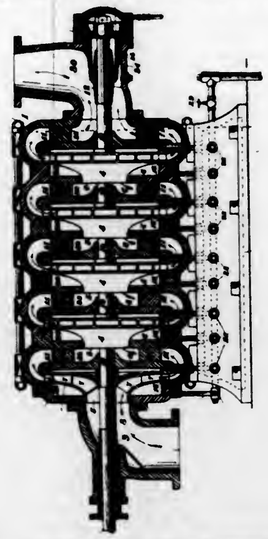
681,580. PROCESS OF HARDENING ARTIFICIAL STONE OR THE LIKE. CARL RENNING, Berlin, Germany. Filed Nov. 1, 1900. Serial No. 35,179. (No specimens.)

Claim.—1. The herein-described process of hardening artificial stone, which consists in subjecting the articles to be treated, while inclosed, to the action of air and steam combined under high pressure, whereby economy of steam is effected and undue condensation of the steam is prevented, substantially as described.

2. The herein-described process of hardening artificial stone and the like which consists in subjecting the articles to be treated, while inclosed, to the action of a neutral gas at high pressure and then admitting steam at still higher pressure, to commingle with said neutral gas.

3. The herein-described process of hardening artificial stone and the like, which consists in subjecting the articles to be treated to the action of compressed air at substantially six atmospheres and admitting steam at a pressure greater than six atmospheres.

681,581. HIGH-PRESSURE ROTARY PUMP. JOHN RICHARDS, San Francisco, Cal. Filed Jan. 21, 1901. Serial No. 44,002. (No model.)



Claim.—1. In a multiple rotary pump, the combination with a series of separate and separable pump-casings having interior chambers bounded peripherally by circular walls, of a driving-shaft passing through all of said chambers in substantially the line of the axes of their peripheral walls, imperforate disk partitions in said chambers surrounding said shaft and dividing each chamber into two waterways in communication by means of an annular peripheral passage formed between the disk edges and the circular wall of the chamber, an impeller on said shaft in one waterway of each chamber, all of said impellers having their suction-inlets central and facing in the same direction, removable annular throat-rings provided with inclined partitions interposed between said impellers at their peripheries and the entrances to the annular peripheral passages, said impellers forming running joints with the entrances to said throat-rings, the other waterway of each chamber forming a direct communication by the shortest path between said peripheral passage and the inlet of the next adjacent impeller, each impeller except the first being supplied from the discharge-waterway of the adjacent preceding chamber.

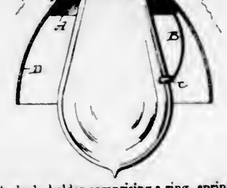
2. In a multiple rotary pump, the combination with a series of separate and separable pump-casings having interior chambers bounded peripherally by circular walls, of a driving-shaft passing through all of said chambers in substantially the line of the axes of their peripheral walls, imperforate disk partitions with rounded edges in said chambers surrounding said shaft and dividing each chamber into two waterways in communication by means of an annular peripheral passage curved in cross-section formed between the disk edges and the circular wall of the chamber, an impeller on said shaft in one waterway of each chamber, all of said impellers having their suction-inlets central and facing in the same direction, said impellers forming running joints with the entrances to the annular peripheral passages, the other waterway of each chamber forming a direct communication by the shortest path between said peripheral passage and the inlet of the next adjacent impeller, each impeller except the first being supplied from the discharge-waterway of the adjacent preceding chamber, and the last discharging centrally to an outlet.

3. In a multiple rotary pump, the combination with a pump-casing containing interior chambers bounded peripherally by curved walls, of a driving-shaft passing through all of said chambers in substantially the line of the axes of their peripheral walls, imperforate disk partitions in said chambers surrounding said shaft and dividing each chamber into two waterways in communication by means of an annular peripheral passage formed between the disk edges and the circular wall of the chamber, an impeller on said shaft in one waterway of each chamber, all of said impellers having their suction-inlets central and facing in the same direction, removable annular throat-rings provided with inclined partitions interposed between said impellers at their peripheries and the entrances to the annular peripheral passages, said impellers forming running joints with the entrances to said throat-rings, the other waterway of each chamber forming a direct communication by the shortest path between said peripheral passage and the inlet of the next adjacent impeller, each impeller except the first being supplied from the discharge-waterway of the adjacent preceding chamber.

4. In a multiple rotary pump, the combination with a series of separate and separable pump-casings having interior chambers bounded peripherally by curved walls, said casings secured together by interlocking detachable ledges, and recessed to receive annular throat-rings, of removable annular throat-rings provided with inclined wedge-shaped partitions, inserted in said recesses and held in place by said ledges, imperforate disk partitions in said chambers dividing each chamber into two waterways in communication by means of an annular peripheral passage formed between the disk edges and the circular wall of the chamber, an impeller in one waterway of each chamber, a common central driving-shaft for all of said impellers, the latter all having their suction-inlets central and facing in the same direction, said impellers forming running joints at their peripheries with the entrances to said annular throat-rings, said entrances leading by inclined passages into the annular peripheral passages; the other waterway of each chamber forming a direct communication by the shortest path between said peripheral passage and the inlet of the next adjacent impeller, each impeller except the first being supplied from the discharge-waterway of the adjacent preceding impeller.

5. In a multiple rotary pump, a series of impellers, set in like position on one shaft and acting successively on this shaft, a hydraulic piston exposed to the maximum or discharge pressure, and a vent-cock 36 whereby this piston can be placed in or out of action, for the purposes substantially as specified.

681,582. SHADE-HOLDER FOR LAMPS. THOMAS C. RICHARDS, Winsted, Conn. Filed May 17, 1901. Serial No. 60,740. (No model.)



Claim.—1. A shade-holder comprising a ring, spring-arms, each secured between its ends to said ring and projecting from both sides thereof, spacing-lugs projecting inwardly from said ring and separate, bendable shade-holding prongs located in a position to be turned over the smaller end of the shade.

2. A shade-holder comprising a ring having spring-arms projecting from both sides thereof, the free ends of the longer arms having elongated curved shoes arranged at right angles to the long axes of the arms.

3. A shade-holder comprising a ring, spring-arms each secured between its ends to said ring and projecting from both sides thereof, spacing-tongues for holding the ring out of contact with the lamp or chimney and separate bendable shade-holding prongs adapted to be turned over the smaller end of the shade.

4. A shade-holder comprising a ring having spring-arms for engaging the lamp or chimney on both sides of the ring, the longer arms each having an elongated curved shoe arranged at right angles to the arms and means engaging the smaller end of the shade for locking the latter in place.

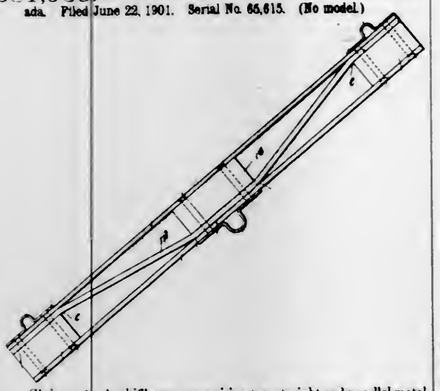
5. A shade-holder comprising a ring having elongated slots therein, spring-arms secured between their ends to the ring with their shorter ends projecting through the slots and bendable prongs adapted to be turned over the smaller end of the shade.

6. A shade-holder comprising a ring, spring-arms secured between their ends to said ring for engaging the lamp or chimney on opposite sides of the ring, spacing-tongues for holding the ring out of contact with the

lamp or chimney, and separate bendable prongs adapted to be turned over the smaller end of the shade.

7. A shade-holder comprising a ring having spring-arms projecting from both sides thereof, the shorter arms having outwardly-projecting thumb or finger pieces.

681,583. WHIFFLETREE. ABRAHAM C. SCARR, Harriston, Canada. Filed June 22, 1901. Serial No. 65,615. (No model.)

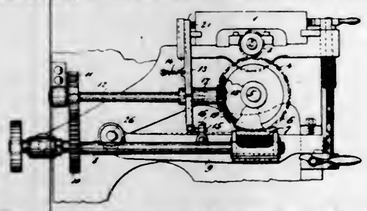


Claim.—1. A whiffletree, comprising two straight and parallel metal bars, an intervening bent truss-bar, two spacing-blocks at respective ends of said bars, a central spacing-block between the truss-bar and one straight bar, and means to secure the bars and spacing-blocks together.

2. A whiffletree, comprising two straight and parallel bars, a truss-bar bent at two points near the center, and also reversely at two points near the ends thereof, a spacing-block near each end of the bent truss-bar intervening it and the front straight bar, a spacing-block between the middle portion of the truss-bar and the rear straight bar, and means to secure the bars and spacing-blocks together.

3. A whiffletree comprising two straight and parallel bars, that are front and rear members of the whiffletree, a truss-bar bent at two points near the center, and also reversely at two points near the ends thereof, a spacing-block near each end of the truss-bar intervening it and the front straight bar, a spacing-block between the middle portion of the truss-bar, a loop-plate near each end of the rear bar, a loop-plate near the center of the rear bar, and means to secure the loop-plates, bars and spacing-blocks together.

681,584. APPARATUS FOR AUTOMATICALLY RETURNING WORK-TABLES OF MILLING-MACHINES. OTTO SCHÖNAUER, Steyr, Austria-Hungary. Filed Mar. 30, 1901. Serial No. 53,708. (No model.)



Claim.—1. In a milling-machine, the combination with the traveling table, and gearing connected thereto; of a swinging shaft mounted beneath said table, gearing upon one end of said swinging shaft adapted to engage said gearing, a second shaft, a clutch carrying a gear adapted to be thrown into operation with said table-gearing, carried upon one end of said shaft, gears upon the opposite ends of both said shafts connecting the same together, a bell-crank lever connected to said clutch and swinging shaft, adapted to be operated by said table to automatically throw said swinging shaft out of operation and said second shaft into operation, and means for restoring said swinging shaft to its initial position, substantially as described.

2. In a milling-machine, the combination with a traveling table, and gearing connected thereto; of a swinging shaft mounted beneath said table, a swinging arm supporting said shaft, a worm-wheel mounted upon one end of said shaft, adapted to engage said gearing, a second shaft, gearing connecting said shafts, a clutch mounted upon said second shaft, a bevel-gear carried by said clutch, adapted to mesh with said gearing, a bell-crank lever, connected at its lower end to said swinging arm, and its opposite end free to be operated, connection between said bell-crank lever and said clutch, and devices carried by said table for operating said bell-crank lever, substantially as described.

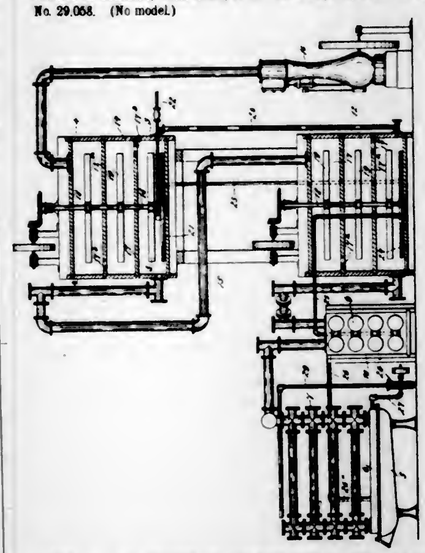
681,585. WEEDER. COLUMBUS W. SNOW, Mentor, Mo. Filed June 13, 1901. Serial No. 64,401. (No model.)



Claim.—1. A sprout-puller consisting of a disk having a flattened peripheral portion and a clamping-jaw projecting laterally thereover, and a lever pivotally connected with the disk and having a smooth and curved upper face disposed to exert a gripping action against the jaw.

2. A sprout-puller consisting of a disk having a flattened peripheral portion, straps secured to the faces of the disk and projecting beyond the flattened edge, a second strap attached to one face of the disk and having its end bent laterally over the flattened portion of the disk, a brace connecting the straps at one side of the disk, and a lever pivoted between the projecting ends of the first-named straps and adapted to lie against the flattened portion of the disk, the adjacent outer end face of the lever being rounded to correspond to the curvature of the disk, and adapted to exert a gripping action against the gripping-jaw formed by the last-named strap.

681,586. APPARATUS FOR PRODUCING BISULFITE LIQUOR. GEORGE A. STEBBINS, Watertown, N. Y. Filed Sept. 5, 1900. Serial No. 29,058. (No model.)



Claim.—1. An apparatus for producing bisulfite liquor, having a sulfurous generator with a pan formed thereon, an absorption-tank, a gas-pipe passing from the generator to the absorption-tank, means for conducting a cooling liquid into contact with the absorption-tank and then into the tank on the sulfur-burner, and a second means for conducting the water from the pan on the burner to the gas-pipe.

2. An apparatus for producing bisulfite liquor, having a sulfur-burner, with a pan thereon, a gas-pipe passing from the sulfur-burner, and means for conducting the water from the pan to the exterior of the gas-pipe.

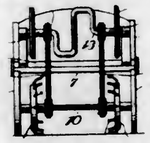
3. An apparatus for making bisulfite liquor, having a sulfur-burner, a gas-pipe leading therefrom, an absorption-tank to which the gas-pipe extends, means for enforcing the circulation of the gas through the gas-pipe and absorption-tank and means for conducting a cooling medium, said means extending continuously from the absorption-tank to various points along the length of the gas-pipe and serving to permit the passage of the cooling medium from the absorption-tank along the gas-pipe to the end thereof adjacent to the sulfur-burner, whereby to gradually cool the gas as it passes from the sulfur-burner to the absorption-tank.

4. An apparatus for producing bisulfite liquor, comprising a sulfur-burner, a gas-pipe passing therefrom, an absorption-tank to which the gas pipe leads, means for enforcing the circulation of the gas through the pipe and absorption tank, a cooling-tank through which a part of the gas-pipe passes, and means for carrying a cooling medium, such means extending through and from the absorption-tank to the cooling-tank, to conduct the cooling medium from the absorption-tank to the cooling-tank, whereby gradually to cool the gas and the solution in the absorption-tank.

5. An apparatus for producing bisulfite liquor, comprising a gas-burner with a water-pan arranged to be heated thereby, a gas-pipe passing from the burner, a part of the pipe being located over the pan, an absorption-tank to which the gas-pipe leads, means for enforcing the circulation of the gas in the pipe and tank, a pipe passing into the absorption-tank and out of the same to conduct water from the absorption-tank to the water-pan on the burner, and means for forcing the water in the pan upward into contact with the part of the gas-pipe which lies over the pan.

6. An apparatus for producing bisulfite liquor, comprising a sulfur-burner with a water-pan thereon, a gas-pipe passing from the burner, a part of the pipe lying over the pan, an absorption-tank to which the gas-pipe passes, means for creating a circulation of gas in the pipe and absorption-tank, a cooling-tank into which part of the gas-pipe projects a pipe for conducting water the pipe passing through the absorption-tank to the cooling-tank, a second pipe passing from the cooling-tank to the pan on the burner, and means for forcing the water from the pan upward into contact with the part of the gas-pipe which lies over the pan.

681,587. SLED. EDWARD F. STUFFLEBEAM, Berdan, Ill. Filed July 5, 1901. Serial No. 67,209. (No model.)



Claim.—1. A sled comprising sides and a connecting-platform, a drive-shaft mounted in bearings between the sides, wheels fixed upon the drive-shaft and having spring-fingers fixed thereto and bent into arc shape, the fingers of one wheel being curved in the direction of the fingers of the opposite wheel, and means for rotating the drive-shaft.

2. The combination with a sled including sides and a connecting-platform, of a drive-shaft mounted between the sides, wheels fixed upon the drive-shaft, arcuate spring-fingers fixed to the wheels, the fingers of one wheel being curved in the direction of the fingers of the other wheel, a crank-shaft journaled in bearings upon the sides of the sled, sprockets on the crank-shaft and drive-shaft, chains connecting the sprockets and fly-wheels on the crank-shaft.

681,588. COLLAR BUTTON OR STUD. WILLIAM SWEENEY, New York, N. Y. Filed Mar. 23, 1901. Serial No. 52,550. (No model.)



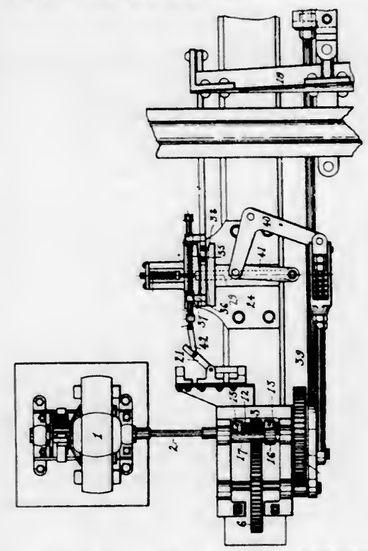
Claim.—1. A separable button, comprising the back, the head, such parts having projections arranged to interlock, the head being provided at its outer side with an inturned flange-like portion, which projects upwardly within the head, and the helical spring whose upper outer coil is held by and above the said inturned flange, substantially as set forth.

2. A separable button having its head provided with a stem and with an inturned edge, and a spring encircling said stem and having its outer coil held by the inturned edge of the head substantially as set forth.

3. In a collar button or stud, the combination, with a back section comprising a plate and a barrel secured to the plate, the barrel being provided with an angled slot comprising a longitudinal member and a horizontal pocket member, the pocket member having a recess in its outer wall at its inner end, of a head provided with a flange extending within the head from its rear edge, a coiled spring located within the head, the outer coil of the spring being held in the head by said flange, the inner coil of the spring being adapted for engagement with the outer end of the barrel, a stem secured to the head and passed through the coils of the spring, the stem being adapted to enter the said barrel, and a pin carried by the stem, adapted to pass down through the entrance member of the slot in the barrel and into the pocket member of said slot while the spring in the head is under tension, as described.

4. A separable button having its head provided on its inner side with a projecting stem and having at its edge a depending portion inturned to form a spring retaining-flange and having a helical spring whose outer coil is held by said retaining-flange, the depending portion of the head operating to incase the spring substantially as set forth.

681,589. RAILWAY SWITCHING APPARATUS. JOHN D. TAYLOR, Buffalo, N. Y., assignor to Taylor Signal Company, same place. Filed Nov. 10, 1900. Serial No. 36,022. (No model.)



Claim.—1. In combination with a motor, a double-acting clutch mechanism and automatic means for reversing the same, mechanism connecting said clutch and said reversing mechanism with a switch-moving mechanism, a switch moving and locking mechanism, and a pole-changing switch mechanism actuated by said locking mechanism, substantially as and for the purposes set forth.

2. In combination with a motor, a railway-switch-operating mechanism, consisting of a train of gearing, a double-acting clutch in rotation with said motor, a gear of said train-gearing engaged by said clutch, and a cam in rotation with said train-gearing for reversing said clutch at the end of each complete revolution of the main shaft of the train of gearing, substantially as and for the purposes set forth.

3. In combination with a motor, a railway-switch operating and locking mechanism, consisting of a train of gearing, a double-acting clutch in rotation with said motor, a gear of said train-gearing engaged by said clutch, and a cam in rotation with said train-gearing for reversing said clutch at the end of each complete revolution of the main shaft of the train-gearing; a switch-locking mechanism; and a pole-changing switch actuated by said locking mechanism, substantially as and for the purposes set forth.

4. In combination with an electrically-operated railway switch mechanism, a pole-changing and switch-locking mechanism, consisting of an electric switch, a locking-bar, a reciprocating lock-bolt, a rod actuating said electric switch, a spring actuating said rod, means for compressing said spring actuated by said locking-bar, and means for releasing said spring actuated by said reciprocating lock-bolt, substantially as and for the purposes set forth.

5. In combination with an electrically-operated railway switch mechanism, consisting of a motor, a train-gearing, and a double-acting clutch mechanism automatically actuated; a pole-changing and switch-locking mechanism consisting of a locking-bar, a reciprocating locking-bolt, an electric switch, a spring-actuated rod for reversing said electric switch and a spring, means for applying the force of said spring to said rod in either direction, means for compressing said spring actuated by said locking-bar, and means for applying the force of said spring to reverse said electric switch immediately after the railway-switch is in place and locked and not before, substantially as and for the purposes set forth.

6. In combination with an electrically-operated railway switch mechanism, a switch-locking mechanism and a pole-changing mechanism consisting of a locking-bar and a reciprocating locking-bolt; an electric switch, a rod actuating said electric switch, a reciprocating frame secured to said rod, flanged sleeves and a helical spring taking over said rod, an angle-bar in engagement with said locking-bar and taking over said sleeves, and a spring-actuated pin engaging said frame and holding the same locked during the entire movement of the railway-switch and until the same is locked by the reciprocating locking-bolt, and means for withdrawing said spring-actuated locking-pin from said frame to permit the throw of the spring actuating said rod connected with said electric switch, substantially as and for the purposes set forth.

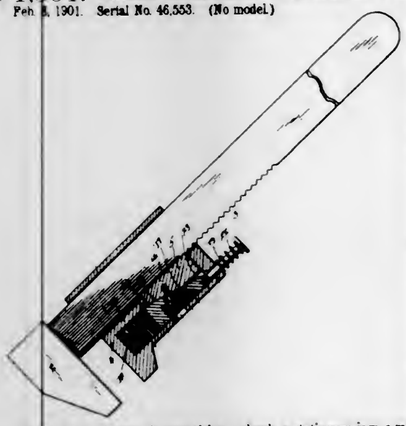
681,590. BURNER FOR INCANDESCENT GAS-LAMPS. WILLIAM TICE, Philadelphia, Pa. Filed May 14, 1901. Serial No. 60,225. (No model.)



Claim.—1. The combination of a tubular burner, a recess in the top thereof, a rod detachably held in said recess, a flexible part at the upper end of said rod constructed to receive and retain the supporting-string of a mantle, the said part being constructed so as to be closed upon said string and made of a material which is deteriorated by the heat to which it is subjected, thereby preventing a second mantle being used with the rod, substantially as described.

2. The combination of a mantle having a non-combustible string across its top, a tubular burner having a top, a recess in said top and a rod detachably secured therein, the same extending through the mantle, a flexible fork at the upper end of the rod adapted to receive the supporting-string of said mantle, the ends of said fork being constructed to be twisted together after the insertion of said string, said ends being of a material deteriorated by the heat to which they are subjected, thereby preventing the use of another mantle after the first has been destroyed, substantially as described.

681,591. WRENCH. MARSHALL D. TILLMAN, Wabash, Ind. Filed Feb. 8, 1901. Serial No. 46,553. (No model.)



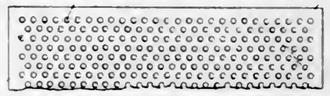
Claim.—1. A wrench comprising a shank, a stationary jaw, a movable jaw, a laterally-movable shank-engaging wedge carried by the movable jaw, the longitudinally-movable wedge, and means for slidingly connecting the longitudinally-movable wedge with the shank-engaging wedge, whereby the latter is positively carried out of engagement with the shank by the former, substantially as described.

2. A wrench comprising a shank, a movable jaw, a laterally-movable shank-engaging wedge, a longitudinally-movable wedge slidingly connected with the shank-engaging wedge and adapted to move the same inward and outward, a spring for actuating the longitudinally-movable wedge to carry the other wedge into engagement with the shank, and a push-pin connected with the longitudinally-movable wedge, substantially as described.

3. A wrench comprising a shank, a movable jaw, a laterally-movable wedge, the longitudinally-movable wedge having a recess and provided with a longitudinal slot, a headed fastening device extending through the slot and mounted on the shank-engaging wedge, and having its head arranged within the said recess whereby the longitudinally-movable wedge is capable of positively moving the other wedge inward and outward, substantially as described.

4. A wrench comprising the toothed shank, the shank-engaging wedge provided with teeth and having a groove, the longitudinally-movable wedge slidingly connected with the shank-engaging wedge, the push-pin extending through one end of the movable jaw and connected with the longitudinally-movable wedge, a coiled spring mounted in the other end of the movable jaw and engaging the said longitudinally-movable wedge, and a spring disposed on the push-pin and engaging the same, substantially as described.

681,592. BLOTTING-PAPER. JOHN J. TINKER, Hyde, England. Filed Apr. 25, 1901. Serial No. 57,494. (No specimens.)



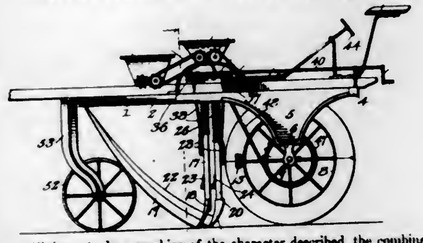
Claim.—Blotting-paper having numerous closely-set perforations, substantially as described.

681,593. NUT-LOCK. WILLIAM H. TIPPIT, Bluffs, Ill., assignor of one-fourth to Harry Oakes, same place. Filed Apr. 12, 1901. Serial No. 55,512. (No model.)



Claim.—The combination with a bolt and nut, of a concavo-convex disk having a central opening to receive the bolt, and provided with means for fastening it thereto to prevent the turning of the disk on the bolt, the entire periphery of the disk being formed with teeth or serrations with which engage the inner corners of the nut.

681,594. AGRICULTURAL MACHINE. DAVID K. UDALL, St. Johns, Ariz. Filed Oct. 25, 1900. Serial No. 34,374. (No model.)



Claim.—1. In a machine of the character described, the combination with a frame and a flanged roller, of grain-tubes depending from the roller directly in advance of the flanges thereof and provided with plows, extended below the roller and other grain-tubes located intermediate of the flanges and out of line with the first-named tubes and provided with drill-shoes likewise extended below the roller.

2. In a machine of the character described, the combination with a frame, a roller, and a series of vertically-movable tubes, springs encircling the tubes and bearing against the frame to urge said tubes downwardly, a regulating-bar disposed to limit the depression of the tubes, and means located above the frame for raising and lowering the bar.

3. In a machine of the character described, the combination with a frame and roller, of a series of grain-tubes provided with guide-loops located intermediate of the ends of the tubes, a spring encircling each tube and bearing against the frame and loop respectively, a regulating-bar passed through the several loops, and operating means for the regulating-bar, said means being located above the frame.

4. In a machine of the character described, the combination with a frame and roller, of a plurality of spring-pressed grain-tubes depending from the frame in advance of the roller, a guide-loop carried by each tube, a regulating-bar passed through the loops of the several tubes, a drum-shaft mounted above the frame, a flexible piece connected to the regulating-bar and drum-shaft, respectively, and means for rotating the drum-shaft to effect the elevation of the regulating-bar and the adjustable limitation of the depression of the several grain-tubes without interfering with their individual yielding when opposed by an unusual obstruction.

5. In a machine of the character described, the combination with a frame and roller, of a distributing-board mounted upon the frame and provided with a plurality of tube-sockets, vertically-adjustable grain-tubes having their upper ends received within the sockets, means for yieldingly supporting the tubes, and a seed-hopper located above the distributing-board to deposit the seeds within the several sockets for delivery through the grain-tubes.

6. In a machine of the character described, the combination with a frame and roller, of a distributing-board mounted upon the frame and provided with a plurality of tube-sockets, vertically-adjustable grain-tubes having their upper ends received and guided within the sockets, guide-loops laterally offset from the tubes between the ends thereof, springs encircling the tubes and bearing at their opposite ends against the frame and guide-loops respectively, a regulating-bar extending through the loops of the grain-tubes, and means located at the extreme rear end of the frame for elevating and depressing the regulating-bar to determine the maximum depression of the grain-tubes.

7. A grain-tube for machines of the character described provided with a broadcast-opening in its wall, a gate-valve hinged at its center at the lower edge of said opening, and a spring disposed between the tube and the exterior end of the gate-valve to normally retain the interior end of said valve in an obstructed position across the tube.

681,595. ENVELOP. NATHAN H. WALCOFF and MOSES EPSTEIN, New York, N. Y. Filed Feb. 11, 1901. Serial No. 46,847. (No model.)

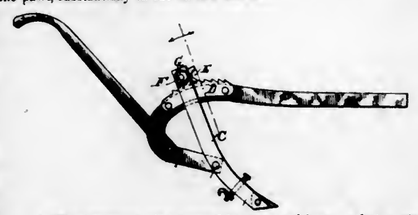


Claim.—1. A new and improved combined letter sheet and envelop formed of a single sheet, having three parts, a central one *a*, an upper one *c*, and a lower one *b*, the upper section having a tongue extension gummed on the rear side, a wire or cord made fast on the fold-line of the said tongue, said part *c*, having end extensions and perforations at the inner end of said extension, the part *a*, having end flaps gummed on the inside that form continuations of the perforated flaps, the lower section *b*, being of a less width than the parts *a* and *c*, whereby when folded up, its edges will lie in a plane inside the end flaps of the parts *a* and *c*, for the purposes specified.

2. A new and improved combined letter sheet and envelop formed of a single sheet, having three parts, foldable upon each other, a central one *a*, an upper one *c*, and a lower one *b*, the upper and central parts having a like width, the central part having the outer edges at the back gummed, the upper part *c*, having a line of perforations *c'*, at each end, said lines of perforations *c' c'*, running parallel with the outer edges and disposed in planes inside of the gummed surfaces of the part *a*, whereby when the part *c*, is folded over *a*, said lines of perforations will come over the body at points inside of the said gummed surfaces, the part *c*, having an extension or flap c^2, gummed on its rear face, and the part *b*, being of a less width than the space between the gummed ends of part *a*, all being arranged as shown and for the purposes described.

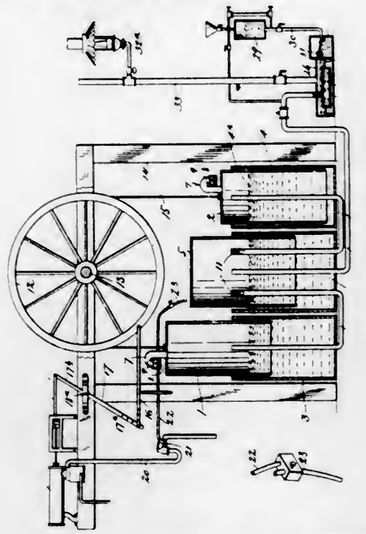
681,596. RATCHET PLOW-STOCK. THOMAS M. WALLACE, Marion, Ala. Filed Apr. 5, 1901. Serial No. 54,457. (No model.)

Claim.—1. The improved plow comprising a beam, a foot or standard pivoted substantially as specified, a ratchet on the beam curved concentrically with the pivot of said foot, and a pawl pivoted to the top of the foot and having a prong which engages the ratchet and a second prong projecting forward over the other, and means for securing and clamping the pawl, substantially as shown and described.



2. The improved plow comprising a curved beam, a foot or standard pivoted to the lower end of the curved portion and formed of two parts which extend upward on both sides of the beam, a ratchet arranged on the beam concentrically with the pivot of the foot, a threaded bolt passing through the upper ends of the foot-bars, a thumb-nut applied to the same, and a pawl pivoted on said bolt and adapted to engage the ratchet, the pawl being forked as shown and adapted to be clamped by the bolt and nut, as and for the purpose specified.

681,597. AIR-PUMP. EDWARD WALTHER, Washington, Iowa. Filed Apr. 23, 1901. Serial No. 57,062. (No model.)



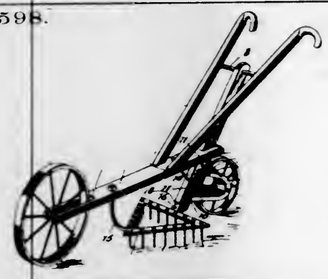
Claim.—In a device of the class described, the combination with pumping-bells mounted in tubs, a storage-bell mounted in a tub and placed intermediate said pumping-bells, U-tubes connecting said pumping-bells and said storage-bell, a grooved wheel journaled on a horizontal axle, a cable passing over said wheel and connected to said pumping-bells, an engine, a lever having one arm connected to said engine, a connecting-rod pivoted to said lever and said wheel, a steam-pipe connected to said engine and provided with a valve, and an adjustable arm connected to said valve and located to be engaged by said storage-bell as it rises to shut off the steam, substantially as described.

681,598. PLOW. JOHN A. WARD, Hubbard, Tex. Filed May 23, 1900. Serial No. 17,726. (No model.)

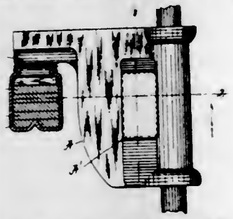
Claim.—1. In a cultivator, the combination with a beam, having a pendent standard, of a toothed frame located in advance of and loosely abutting against the front side of the standard, and a detachable brace connection between the front of the frame and the beam.

2. The combination with a cultivator-beam, having a pendent standard, of a triangular toothed frame located in front of the standard and having its base abutting against the front side thereof, and an upwardly-directed arm carried at the front end or apex of the toothed frame and also connected to the beam.

681,598.



681,599. DROP-BOX PICKER FOR LOOMS. FRANK A. WARDWELL, Methuen, Mass. Filed Feb. 6, 1901. Serial No. 46,209. (No model.)

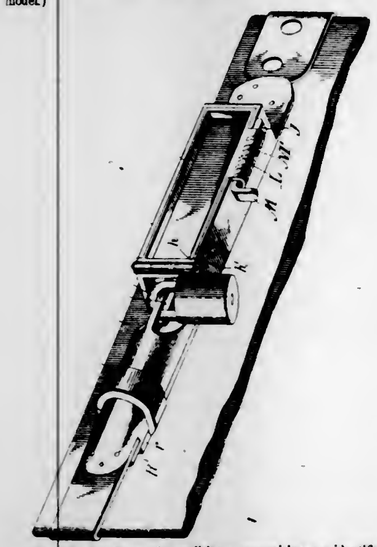


Claim.—1. A drop-box picker for looms consisting of a frame or carrier having a perforation for receiving the picker-staff and having at the ends of such perforation vertical projections A'', A^3 and having a side projection A' and a detachable picker-head secured to the latter, substantially as and for the purpose set forth.

2. In combination, a frame provided with a perforation to receive a picker-staff, a projection formed integral with said frame, a picker-head, a covering of flexible material therefor, and means for attaching said flexible covering to said projection thereby connecting the picker-head thereto.

3. In combination, a frame, a projection formed integral with said frame, a picker-head, a covering of flexible material therefor, and means for attaching said flexible covering to said projection thereby connecting the picker-head thereto.

681,600. MAIL-BAG FASTENER AND TAG-HOLDER. JAMES C. WHALEY, Uniontown, Pa. Filed June 21, 1901. Serial No. 65,333. (No model.)



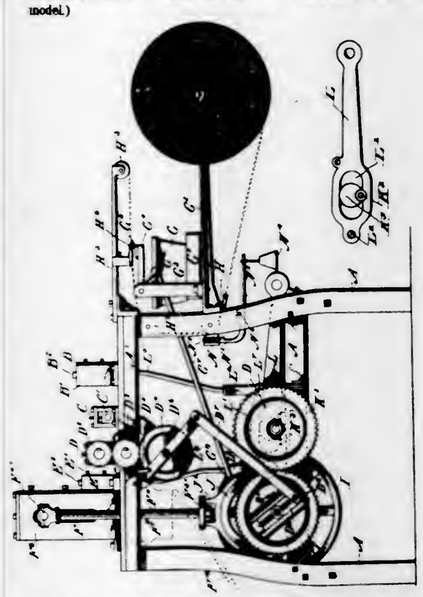
Claim.—1. A fastener for mail-bags, comprising an identification-card receptacle and a keeper mounted on an integral extension thereof, staples fastened to said receptacle and keeper, adapted to be fastened to a mail-bag, a strap fastened to the bag, and a metallic member having an aperture in one end, said member conforming in shape to, and fitting within said keeper, and the aperture therein designed to receive the tongue of a padlock, as set forth.

2. A mail-bag fastener, comprising in combination with the bag, an identification-card receptacle and keeper mounted on an extension thereof, fastened to said bag, an integral guide extension to said keeper, staples fastened to said receptacle and keeper, a strap fastened at one end to the mail-bag, a metallic member fastened to the other end of said strap, said member being flat upon its under surface, and oval-shaped, to conform to the inner wall of said keeper, and fit within the same, the free end of said member being contracted, and having an aperture therein, to receive the tongue of a padlock, and the forward end of the member engaging said receptacle.

3. A mail-bag fasteoer, comprising in combination with the mail-bag and strap fastened thereto, a metallic identification-receptacle with extension and keeper formed thereon, staples fastened to said receptacle and keeper, a metallic member fastened to the end of said strap, and fitting within said keeper, its free end apertured to receive the tongue of a padlock, and inclined, and engaging a recess in the end of said receptacle, as set forth.

4. In combination with the metallic receptacle, a hinged cover mounted thereon, shoulders on the opposite longitudinal edges of said cover, adapted to be seated in recesses in the edges of the receptacle adjacent to the hinged end of the cover, shoulders on the inner walls of the receptacle on which the cover rests, and a spring-actuated bolt on the edge of the cover, and a keeper on the outer face of said receptacle, adapted to receive said bolt, as set forth.

681,601. BOX-TRAY MACHINE. CLAYTON F. WIEST and JACOB L. WIEST, York, Pa. Filed Mar. 21, 1901. Serial No. 53,256. (No model.)



Claim.—1. In a machine of the class described embodying punching, feeding, cutting and forming mechanisms, the combination therewith of a main shaft and a directly-connected counter-shaft provided with a cam, a pivoted, cam-embracing, lever, rods connecting the forming and feeding mechanisms with the main shaft, and rods connecting the punching and cutting mechanisms with said lever the latter being pivoted at one end to the framework and extending beyond the counter-shaft and adapted to embrace a cam thereon, the point of connection of the last-mentioned rods being at opposite sides of said counter-shaft; substantially as specified.

2. In a machine of the class described, the combination with punching devices and cutting devices arranged in the order named, of a lever pivoted at one end and formed with a yoke and an extension beyond said yoke, a shaft carrying a cam located within said yoke, a rod extending from the lever at a point between its yoke and pivot to the said punching devices, and a rod connecting said cutting devices with the extension of said lever; substantially as specified.

3. In a machine of the class described and in combination with a guide-roll for the web, of a tension device comprising a pad arranged to bear against the web on said guide-roll, a support for said pad, and levers for said support pivoted to the frame of the machine, and a weight secured to extensions of said levers; substantially as specified.

4. In a machine of the class described, a folding-box formed in sections, each section comprising a side wall and portions of the end walls, and means for rigidly and adjustably supporting each section upon the bed of the machine; substantially as specified.

5. A folding-box section comprising a side wall and portions of end walls having vertical and transverse slots in combination with seam-pressing rollers and shafts for the same, the former located in the vertical slots and the latter in the horizontal slots of said end walls; substantially as specified.

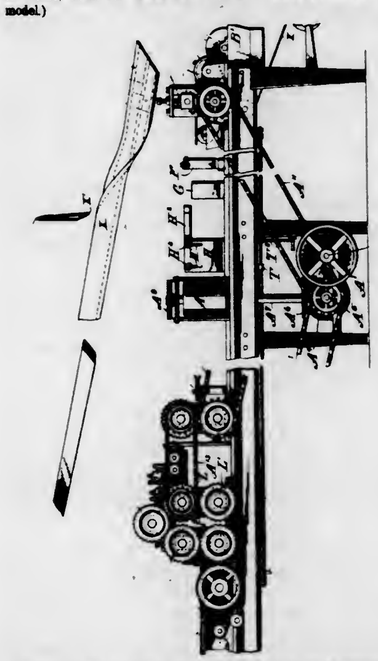
6. A folding-box section comprising a side wall and portions of end walls, the latter having vertical and transverse slots in combination with seam-pressing rollers located in said vertical slots and shafts for the same located and capable of bodily movement in said transverse slots, and springs arranged to bear on each end of each shaft; substantially as specified.

7. A folding-box formed in sections, each of which is provided with transverse shaft F^{12} having folders and fingers F^{13} and recesses F^{13x} for said fingers; substantially as specified.

8. A folding-box section comprising an attaching-bracket, a side wall having recesses for the folder shaft and fingers, strippers working through openings in said wall and an end wall with elongated bearings for a seam-pressing roller; substantially as specified.

9. A folding-box formed of two sections each having a supporting-bracket, a side wall with openings and strippers projecting therethrough and portions of end walls having mounted in recesses therein seam-pressing rollers, shafts for the same mounted in transverse slots, springs carried by each section and bearing on the ends of said shafts, and means for rigidly securing each section to the bed of the machine; substantially as specified.

681,602. BOX-TUBE MACHINE. CLAYTON F. WIEST and JACOB L. WIEST, York, Pa. Filed Mar. 27, 1901. Serial No. 53,084. (No model.)



Claim.—1. In a machine of the class described, and in combination with web-feeding mechanism, liquid-applying mechanism comprising a disk having an undercut groove in its periphery; substantially as specified.

2. A liquid-applying device having an undercut groove in its periphery; substantially as specified.

3. A liquid-applying device having a plain periphery circumferentially grooved with the base of the groove wider than its top and with sharply-defined edges at the opening of the groove; substantially as specified.

4. In a machine of the class described, the combination with scoring-rollers of a liquid-applying disk having an undercut groove in its periphery; substantially as specified.

5. In a machine of the class described, a paste or glue applying disk having a flat side and an opposite convex side, in combination with a guide-roller having an adjustable collar arranged adjacent to the flat side of said disk; substantially as specified.

6. In a machine of the class described, a guide-roller, a paste-applying device and a tension device, both arranged to bear upon said roller or upon the material thereon; substantially as specified.

7. In a machine of the class described, a guide-roller and a coöperating paste or glue applying device and a coöperating resiliently-supported friction device; substantially as specified.

8. In a machine of the class described, an adjustably-mounted paste-applying disk, a guide-roller provided with adjustable collars, adjustably-mounted scoring devices and adjustably-mounted moistening devices; substantially as specified.

9. In a machine of the class described, scoring devices comprising collars with ribs and coacting disks having grooves in combination with moistening devices comprising grooved members to receive the ribs formed by the scoring devices; substantially as specified.

10. In a machine of the class described, a primary folding device comprising a V-shaped frame in combination with a central finger having a front thick edge, an inclined bottom and a rear thin edge; substantially as specified.

11. In a machine of the class described, the combination of a guide-roller, a collar thereon, and a paste or glue applying disk having a flat side adjacent to said collar, and a convex opposite side; substantially as specified.

12. In a machine of the class described, a lap-folding finger tapered lengthwise and having a projection upon one side, the lower surface of which is concaved; substantially as and for the purposes set forth.

13. The combination with a lap-folding finger having a lateral undergrooved projection, of a clamp, one wall of which has a rounded upper edge seated in a terminal portion of the groove of said finger; substantially as specified.

14. The folding-finger H^2 tapered as described and having a rounded end and a lateral projection with a gradually-contracted curved path in the under side of said projection; substantially as specified.

15. In a machine of the class described, the combination of a paste or glue applying device, a guide-roll having adjustable collars, adjustable scoring and moistening devices, a V-shaped former having a vertically-adjustable finger, a vertical compressing-guide, a lap-folding finger mounted for vertical adjustment and having a grooved projection, and vertical feeding-rollers; substantially as specified.

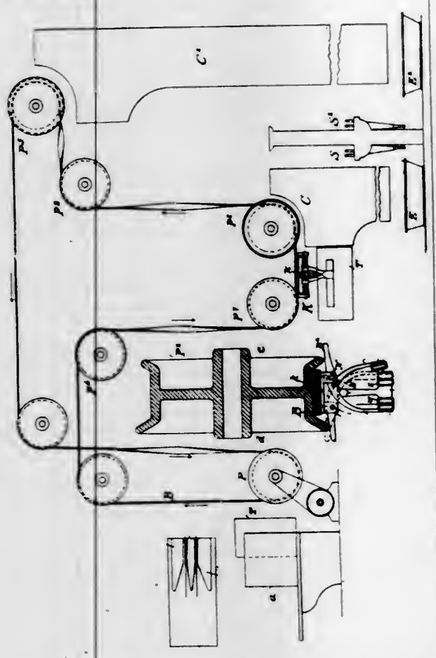
16. In a machine of the class described, the combination of twisting-guide and a guide-roller mounted for vertical and transverse adjustment in relation to the guide; substantially as specified.

681,603. MECHANICAL INTERCOMMUNICATION BETWEEN TELEPHONE-SWITCHBOARDS. GEORGE M. YORKE, New York, N. Y., assignor to American Telephone and Telegraph Company, of New York. Filed Mar. 20, 1901. Serial No. 52,025. (No model.)

Claim.—1. A ticket or paper transfer apparatus, consisting of a traveling endless belt running between sending or distributing and receiving stations; a ticket holder or carrier attached to the said belt and adapted to automatically pick up tickets at the sending-station, and release them at the receiving-station, the said carrier comprising separable jaws, a spring normally closing or holding the said jaws together, and an elbow-lever carrying on one side of its fulcrum the movable member of said jaws, and formed on the other side into an actuating or tripping arm extending laterally near to, but beyond the edge of said belt; and a pulley for the said belt at each of the said stations having a flange crossing the said actuating-arm and adapted to depress the same, and thereupon to separate the jaws for the grasp or release of the tickets; substantially as set forth.

2. The combination in a ticket or paper transfer service apparatus, with a traveling endless belt running between sending and receiving stations; a ticket holder or carrier attached thereto and comprising a clip having jaws normally closed by a spring; of means for automatically opening or separating the said jaws at the sending and receiving stations respectively for the grasp or release of a ticket, said means consisting in a wide-flanged pulley for the said belt at the said sending and receiving points; and a lever on the carrier attached to the movable jaw thereof

and having a tripping-arm extending across the belt beyond the line of the flange of said pulleys and within range thereof to be depressed thereby, as the said carrier passes the said pulleys; substantially as and for the purposes specified



3. In a telephone central station a call-receiving switchboard, a connection-switchboard; a system of apparatus for transferring instruction-tickets from the former switchboard to the latter, comprising a ticket-supporting rack at the said call-receiving switchboard; a ticket-receiving receptacle at the said connection-switchboard; a belt traveling over pulleys between the said switchboards; a carrier or ticket-holder attached to said belt, and comprising jaws held normally closed by spring-pressure, and having a movable member controlled by a lever with an actuating-arm extending laterally across the belt and adapted when pressed to open said jaws; and pulleys at both of the said switchboards, having wide flanges adapted to engage said levers and operate said jaws at said switchboards, and thereby take up tickets from the rack at the first switchboard, and deposit them in the receptacle at the connection-switchboard; substantially as described.

4. In a transfer-service apparatus organized to take up tickets or papers from a single distributing or transmitting station and deliver the same to two receiving-stations, the combination substantially as hereinbefore described, of a belt traveling between the said sending and receiving stations; a pulley therefor at the sending-station having a flange at both sides; a pulley therefor at each receiving-station having a single flange, the said flanges being on opposite sides of their respective pulleys; and a double carrier or ticket-clip attached to said belt and comprising two sets of jaws held normally closed by spring-pressure, and an independent lever controlling the movable jaw of each set, and extending laterally across and within range of the flanges of the said pulleys each on its own side, whereby both sets of jaws may be simultaneously opened by the said double-flange pulley, and each set selectively opened by the said single-flange pulleys, respectively.

5. The combination in a ticket-transfer system and apparatus, of an endless belt traveling over pulleys between a transmitting and two receiving stations; a ticket-carrier or spring-clip attached thereto, and traveling therewith, and having two sets of normally closed jaws, one for each receiving-station; and automatically-operated devices adapted to open the said two sets of jaws simultaneously at the sending-station, and selectively at the two receiving-stations respectively: whereby tickets may be taken up by both sets of jaws at the said sending-station, and delivered by each set of jaws at the appropriate receiving-station only; substantially as and for the purposes set forth.

681,604. FEEDER-CABLE HOLDER FOR ELECTRIC-RAILWAY SYSTEMS. WALTER D. YOUNG, Baltimore, Md. Filed Feb. 1, 1901. Serial No. 45,609. (No model.)



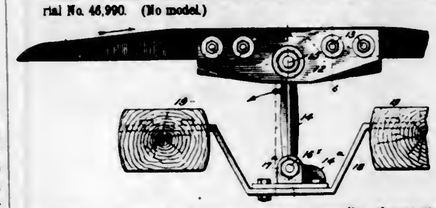
Claim.—1. A cable-holder clamping member, consisting of a base-piece, having a depending portion at one end, and a loop at the other end, said loop terminating at its inner end in a vertical guard member, so located as to leave a space between it and the rail-web.

2. A cable-holder clamping member, consisting of a base-piece, having a depending portion at one end and a loop at one end, arranged to form a socket between the loop and the base-piece, the lower wall of the socket being straight and horizontal, and the upper wall thereof being straight for a portion of its length, and upwardly inclined for the remainder of its length, and said loop terminating in a vertical guard.

3. The combination of a rail, and a pair of cable-holders, each consisting of a base-piece having depending portions at its inner end, and a loop at the outer end on the upper side thereof, the base-pieces being adapted to fit against the under sides of the rail and the loops being adapted to engage the upper faces of the base at opposite sides of the web of the rail, said loops forming sockets, and the end walls of the sockets being separated from the opposite edges of the rail-base to receive cables, and the upper walls of the sockets having angular faces to abut the rail-base, and said loops terminating in vertical guards remotely separated from the opposite faces of said web.

4. As a new article, a clamp-casting, comprising a vertical bottom member, having a bolt-aperture, a horizontal portion, terminating at the outer end in a flange, and cable-receiving socket, and a vertical extension, the upper end of which flares outward, for the purposes described.

681,605. CROSSOVER-SWITCH FOR ELECTRIC-RAILWAY SYSTEMS. WALTER D YOUNG, Baltimore, Md. Filed Feb. 12, 1901. Serial No. 46,990. (No model.)



Claim.—1. In an electric-railway system, a plurality of separated main conductor-rails one of which is shiftable into the horizontal plane of another, and an auxiliary conductor-rail transversely separated from, and parallel with said main conductor-rails, and arranged to span the gap between said main conductor-rails.

2. In an electric-railway system, a main track and a switch, a plurality of separated main conductor-rails, parallel with the rails of the main track, one of said conductor-rails being shiftable into operative and inoperative positions respectively, and being located between the switch-rails, and an auxiliary conductor-rail, transversely separated from and parallel with said main conductor-rails, and arranged to span the gap between the main conductor-rails.

3. In an electric-railway system, a main track and a switch, a plurality of separated main conductor-rails, parallel with the main-track rails, one of said main conductor-rails being fixed and being located in a plane above the main-track rails and the other one being located between the switch-rails, and being shiftable into and out of said plane, and a fixed auxiliary conductor-rail in said plane transversely separated from and parallel with said main conductor-rails and arranged to span the gap between said main conductor-rails.

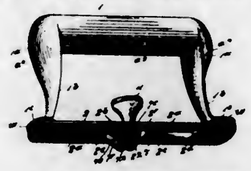
4. In an electric railway system, including two main tracks and a switch connecting them, a plurality of separated main conductor-rails parallel with the main-track rails located in series in proximity respectively, to the inner rails of the main tracks, certain of said main conductor-rails being located between the switch-rails, and shiftable into operative and inoperative positions respectively, and two series of auxiliary conductor-rails located adjacent the outer rails of the main tracks, in parallelism with said main conductor-rails and arranged to span the gaps between the main conductor-rails.

5. In an electric-railway system, a longitudinal conductor-rail, and a bar pivoted to said rail, substantially centrally thereof, and constituting the sole support of said rail.

6. In an electric-railway system, a longitudinal conductor-rail, a bar pivoted to said rail, substantially centrally thereof and constituting the sole support of said rail, and a chair to which said bar is pivoted, said bar having a heel to engage the chair to thereby hold said bar in an upright position.

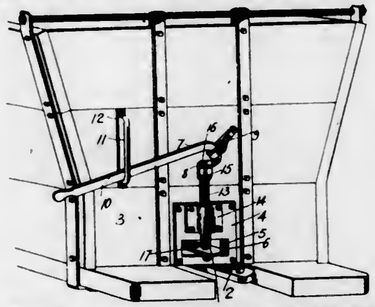
7. A crossover-switch for joining the ends of two adjacent conductor-rail sections, comprising a metal closer normally held out of alinement with the crossover-rails, and out of circuit with the said conductor-rails, said switch being pivotally supported to swing over the crossover-rails and to engage the ends of the adjacent conductor-rail sections, for the purposes described.

681,606. SMOOTHING-IRON HANDLE. AUGUSTUS H. ALLEN, Scranton, Pa. Filed Apr. 8, 1901. Serial No. 54,876. (No model.)



Claim.—In a handle of the character described, the combination with the base, having a longitudinal slot, and laterally-disposed depressions or seats at one end of the slot, and an integral bridge member extended transversely under the slot provided with a pendent lug; of the locking-plate 7, said plate having a shape to seat within the longitudinal slot of the member 2, and having lateral ears to engage the seats in the said member 2, a flat spring for holding the plate 7, interlocked with the member 2, said member 7, having its front end bent downward, then inward to form an interlocking member to oppose the fixedly-held member, the said downwardly-bent portion having laterally-extending shoulders to form stops to engage the under side of the member 2, all being arranged substantially as shown and described.

681,607. CAR-DOOR FASTENER. JOSEPH R. BARLOW, Maybeury, W. Va. Filed June 6, 1901. Serial No. 63,444. (No model.)

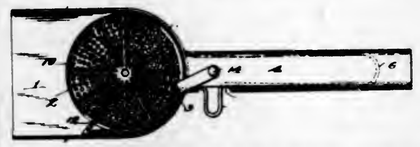


Claim.—In a mining-car, the combination with a fixed bolt-keeper, of a door hinged at its upper end to the sides of the car and provided at its lower end with an opening through which the bolt-keeper projects when the door is in closed position, a bolt connected to said door to slide vertically and to engage with its lower end the said bolt-keeper, a lever pivoted to said door and having a downwardly-curved end which projects through a slot formed in the upper end of the bolt, and a keeper through which the free end of the lever projects and by means of which it is limited in its movement, substantially as set forth.

681,608. COMBINED SCOOP AND SIFTER. GEORGE P. BAUGHMAN, Whatcheer, Iowa. Filed Jan. 3, 1901. Serial No. 41,975. (No model.)

Claim.—1. The combination with a scoop provided with a perforated bottom, of an agitator arranged above the said perforated bottom, a sifting-wheel interposed between said perforated bottom and agitator, and a spring-actuated means carried by the scoop and adapted to simultaneously oscillate said agitator and wheel.

2. A scoop having a perforated bottom, a sifting-wheel mounted upon the same, an agitator mounted upon said sifting-wheel, and means connected to the said agitator and wheel for simultaneously oscillating the same.



3. A scoop provided with a handle and a perforated bottom, a sifting-wheel mounted thereon, a vertically-extending arm connected to said wheel for supporting the same, and means mounted in the handle and extending through the same and said arm near the top thereof for oscillating said wheel.

4. A scoop having a perforated bottom and a hollow handle, a sifting-wheel mounted upon the perforated bottom, an arm formed integral with said wheel, an agitator mounted upon said wheel, a hanger formed integral with said agitator, and means mounted in said handle and connected to said arm and hanger for simultaneously oscillating the said wheel and agitator.

5. A scoop having a perforated bottom and a handle, a sifting-wheel mounted upon the said perforated bottom, an arm connected with said sifting-wheel, an agitator mounted upon said sifting-wheel, a hanger connected to the said agitator and pivotally attached to said handle, and means mounted in the handle and extending through the said arm and hanger for simultaneously oscillating said wheel and agitator.

6. In a scoop, a handle therefor, a perforated bottom, an agitator mounted above the same, a hanger connected to said agitator for suspending the same and pivotally attached to the handle of the scoop, and a spring mounted in the handle of the scoop, extending from one side thereof and projecting through one end thereof and the said hanger for oscillating said agitator.

7. In a scoop, a handle therefor, a perforated bottom, an agitator, a vertically and longitudinally extending hanger for suspending said agitator within said scoop, means for pivotally connecting one end of said hanger to said handle, and means mounted in said handle and extending through one end thereof and said hanger for oscillating said agitator.

8. A scoop having its bottom provided with a series of countersunk perforations, an oscillating sifting-wheel mounted on said bottom, an oscillating agitator suspended in said scoop, and means for oscillating said wheel and agitator simultaneously.

9. A scoop having its bottom provided with a series of countersunk perforations, a sifting-wheel, an arm formed integral therewith, an agitator, a hanger formed integral therewith and pivotally connected to said scoop, and means extending through said arm and hanger for simultaneously operating said wheel and agitator.

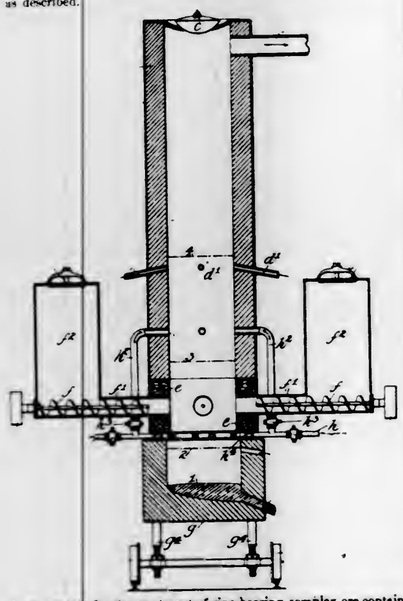
681,609. PROCESS OF TREATING ZINC-BEARING COMPLEX ORES. GUY DE BECHI, Paris, France, assignor to the General Metal Reduction Company, Limited, London, England. Filed Mar. 19, 1900. Serial No. 9,320. (No specimens.)

Claim.—1. A process for the treatment of zinc-bearing complex ore for the recovery of metals, which consists in mixing the complex ore with a chlorid salt of an alkali or an alkaline-earth metal, roasting said mixture of the salt and ore and finally introducing a reducing agent and smelting the mixture, the entire process being carried out in one operation at such a high temperature that part of the metals is evolved as fumes of metallic chlorids and oxids and part is recovered as metal, and condensing the said fumes, substantially as described.

2. A process for the treatment of zinc-bearing complex ore for the recovery of metals, which consists in mixing the complex ore with a chlorid salt of an alkali or an alkaline-earth metal, compressing the mixture of the salt and ore into blocks, roasting said blocks and finally introducing a reducing agent and smelting the mixture, the entire process being carried out in one operation at such a high temperature that part of the metals is evolved as fumes of metallic chlorids and oxids and part is recovered as metal, and condensing the said fumes, substantially as described.

3. A process for the treatment of zinc-bearing complex ore for the recovery of metals, which consists in pulverizing the complex ore, mixing said pulverized ore with a binding material and a chlorid salt of an alkali or an alkaline-earth metal, compressing the said mixture into blocks, roasting said blocks and finally introducing a reducing agent and smelting the mixture, the entire process being carried out in one operation at such a high temperature that part of the metals is evolved as fumes of metallic chlorids and oxids and part is recovered as metal, and condensing the said fumes, substantially as described.

4. A process for the treatment of zinc-bearing complex ore containing zinc and lead, which consists in pulverizing said ore, mixing the pulverized ore with a chlorid salt of an alkali or an alkaline-earth metal, roasting said mixture and finally introducing a reducing agent and smelting the mixture, the entire process being carried out in one operation at such a temperature that fumes of zinc chlorid and oxid are emitted and that metallic lead is recovered, and condensing the said fumes, substantially as described.



5. A process for the treatment of zinc-bearing complex ore containing zinc, copper, lead, and silver, which consists in pulverizing said ore, mixing the pulverized ore with binding material and a chlorid salt of an alkali or an alkaline-earth metal, compressing said mixture into blocks, roasting said blocks and finally introducing a reducing agent and smelting the blocks, the entire process being carried out in one operation at such a temperature that fumes of chlorids and oxids of zinc and copper are evolved and that metallic lead and silver are recovered, and condensing the said fumes, substantially as described.

681,610. **PRINTING-MACHINE.** HENRY F. BECHMAN, Battle-creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed Oct. 26, 1895. Serial No. 567,020. (No model.)

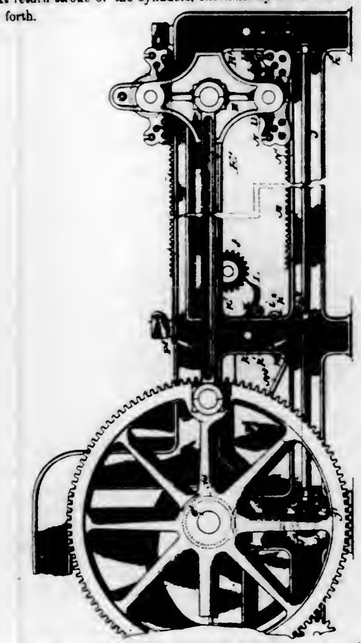
Claim.—1. In a printing-press the combination of a pair of parallel beds, a pair of gripper impression-cylinders adapted to carry sheets across the beds, means for reciprocating these gripper-cylinders respectively over the beds, and mechanism independent of the cylinders for transferring sheets from one impression-cylinder to the other, substantially as described.

2. In a printing-press the combination of a pair of parallel beds, a pair of impression-cylinders, means for reciprocating the cylinders respectively over the beds, and independent mechanisms on the frame of the machine at each end of the press for transferring sheets from one impression-cylinder to the other, and mechanism for cutting sheets from a web and delivering the severed sheets to the reciprocating cylinders, substantially as described.

3. In a printing-press the combination of a pair of type-beds, a pair of reciprocating impression-cylinders, coacting with said beds on both their forward and backward strokes; with independent mechanisms at each end of the press for transferring the sheets from one cylinder to the other, and mechanism for severing sheets from a web and mechanism for feeding the severed sheets into position to be caught by the proper cylinder, substantially as described.

4. In a printing-press the combination of a pair of type-beds arranged one above the other, a gripper-cylinder reciprocating over each bed, and a sheet-transferring device located on the frame of the press at one end thereof and adapted to take sheets from one gripper-cylinder and deliver them to the other cylinder to be perfected, substantially as and for the purpose described.

5. In a printing-press the combination of a pair of beds, a pair of reciprocating gripper-cylinders coacting with said beds, and mechanism for taking a sheet of paper from one cylinder at the end of one stroke of the cylinders, and delivering it to the other cylinder at the end of the next return stroke of the cylinders, substantially as and for the purpose set forth.



6. In a printing-press the combination of a pair of type-beds, a pair of gripper impression-cylinders coacting with said beds, mechanism for reciprocating said cylinders simultaneously, and a transferring mechanism located at one end of the press adapted to receive a sheet from one cylinder and transfer it to the other, substantially as described.

7. In a printing-press the combination of a pair of type-beds, arranged one above the other, a pair of reciprocating impression gripper-cylinders, coacting with said beds, on both their forward and backward strokes; with mechanism for transferring the sheets from one cylinder to the other, substantially as described.

8. In a printing-press the combination of a pair of type-beds, a pair of reciprocating impression-cylinders adapted to present sheets of paper to the types on the beds on both strokes thereover; with mechanisms for transferring sheets from one cylinder to the other at each end of the beds, substantially as described.

9. In a printing-press the combination of a pair of parallel type-beds, a pair of impression-cylinders reciprocating thereover, and a pair of sheet-transfer reels at each end of the beds adapted to take sheets from one cylinder and deliver them to the other to be perfected, substantially as described.

10. In a printing-press the combination of a pair of type-beds, a pair of reciprocating impression-cylinders adapted to present sheets of paper to the types on the beds on both strokes thereover; with mechanisms for transferring sheets from one cylinder to the other at either and both ends of the beds, mechanism for cutting sheets from a web at both ends of the press and feeding them to one of the cylinders, all substantially as and for the purpose described.

11. In a printing-press the combination of a reciprocating impression-cylinder, with a movable type-bed, and mechanism for moving said bed endwise in the intervals between impressions, but holding it stationary during impressions, substantially as and for the purpose described.

12. In a printing-press the combination of a stationary bed, a reciprocating cylinder coacting therewith, a movable bed, a reciprocating cylinder coacting therewith, and mechanism for moving the bed; with mechanism for transferring sheets from one cylinder to the other, substantially as and for the purpose described.

13. In a printing-press the combination of a type-bed, and a coacting reciprocating gripper-cylinder; a loose gear on the cylinder-shaft adapted to control the movements of the grippers; and a longitudinally-movable rack for rotating said gear independently of its travel and movement with the cylinder, substantially as described.

14. The combination of a stationary type-bed, a gripper-cylinder and mechanism for reciprocating the cylinder over the bed; with a loose gear on the cylinder-shaft, a stud on said gear adapted to engage the T-head on the gripper-shaft, and a longitudinally-movable rack adapted to be shifted intermittently to rotate the gear independently of its travel with the cylinder, for the purpose and substantially as described.

15. The combination of a pair of parallel type-beds, a pair of impression gripping-cylinders coacting therewith; mechanism for reciprocating the cylinders over the beds, a pair of transfer gripper-reels at each end of the press adapted to take sheets from one cylinder and transfer them to the other cylinder; loose gears on the cylinder-shafts for controlling the grippers, and the movable racks for operating said gears independently of the cylinders, substantially as described.

16. The combination of a pair of parallel type-beds, a pair of impression gripping-cylinders coacting therewith; mechanism for reciprocating the cylinders over the beds, a pair of transfer gripper-reels at each end of the press adapted to take sheets from one cylinder and transfer them to the other cylinder; loose gears on the cylinder-shafts for controlling the grippers, and the movable racks for operating said gears independently of the cylinders, with web feeding and cutting rolls at each end of the press, and mechanism for presenting the cut sheets in position to be taken by the cylinders, substantially as described.

17. In a printing-press the combination of a pair of type-beds, a pair of reciprocating impression-cylinders adapted to present sheets of paper to the types on the beds on both strokes thereover; with mechanisms for transferring sheets from one cylinder to the other at either and both ends of the beds, and a delivery-cylinder mounted above and moving with the upper cylinder, adapted to remove the perfected sheets therefrom, substantially as described.

18. In a printing-press the combination of a pair of parallel type-beds, a pair of impression-cylinders reciprocating thereover, and a pair of sheet-transfer reels at each end of the beds, adapted to take sheets from one cylinder and deliver them to the other to be perfected, with a delivery-roller mounted above and traveling with the upper cylinder and adapted to take the perfected sheets therefrom, substantially as described.

19. The combination of a pair of parallel type-beds, a pair of impression gripping-cylinders coacting therewith; mechanism for reciprocating the cylinders over the beds, a pair of transfer gripper-reels at each end of the press adapted to take sheets from one cylinder and transfer them to the other cylinder; loose gears on the cylinder-shafts for controlling the grippers, and the movable racks for operating said gears independently of the cylinders, paper feeding and cutting rolls, and guides, for supplying severed sheets in position to be nipped by the lower cylinder and the delivery-roller mounted above and traveling with the upper cylinder adapted to take the perfected sheets therefrom, all substantially as and for the purpose specified.

20. In a printing-press the combination of a pair of parallel type-beds, an impression-cylinder reciprocating over each bed, means for feeding sheets to one cylinder at or near the end of either and both backward and forward strokes, and sheet-transferring devices for taking the imprinted sheets from said cylinder and transferring them to the other cylinder to be perfected thereby, substantially as and for the purpose described.

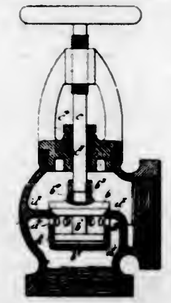
21. In a printing-press the combination of a type-bed, a reciprocating impression-cylinder coacting therewith, provided with grippers adapted to take sheets at both ends of the bed and present them to types on the bed on both the forward and backward strokes thereover; with means for severing sheets from a web of paper at both ends of the bed, and alternately feeding the severed sheets to the cylinder, with mechanism, substantially as described, on the frame of the press at each end of the bed for removing the printed sheets from the cylinder, substantially as described.

22. In a printing-press the combination of a type-bed, a reciprocating impression-cylinder coacting therewith, provided with grippers adapted to take sheets at both ends of the bed and present them to types on the bed on both the forward and backward strokes thereover, with delivery mechanism adapted to catch and partially withdraw the imprinted sheets from the cylinder before it reaches the ends of its strokes, substantially as described.

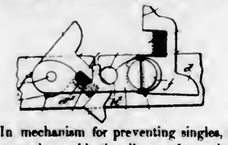
681,611. **CHECK-VALVE.** THOMAS B. BELFIELD, Philadelphia, Pa. Filed May 31, 1901. Serial No. 62,536. (No model.)

Claim.—1. In a check-valve, the combination of a casing divided by a partition into two chambers, a cylinder supported from said partition, a valve-seated opening into said cylinder from one of said chambers, and a series of openings through the sides of the cylinder from the other chamber, with a valve fitting the seated opening and a piston fixed to the valve and operating in the cylinder, and a relatively-restricted passage into the cylinder connecting the space under the piston with one of the chambers of the casing, substantially as described.

2. The combination of a casing having an inlet and an outlet and a removable cover, a partition dividing the interior of the casing into two chambers, a cylinder supported from the partition having a valve-seated opening into it at one end, other openings into the cylinder through the sides thereof, a piston in the cylinder and a valve connected thereto, a rod supported on the casing and constructed to engage the valve whereby said valve may be kept seated when desired, substantially as described.



681,612. **MEANS FOR PREVENTING SINGLES IN ROVING-MACHINES, &c.** THOMAS BENTLEY, Franklin, Mass., assignor of one-half to Draper Company, Portland, Me., and Hopedale, Mass. Filed June 6, 1901. Serial No. 63,414. (No model.)



Claim.—1. In mechanism for preventing singles, the combination with means to move and to guide the slivers, of two detectors pivotally supported at their outer ends to move transversely to the slivers and having their inner ends extended past each other, each detector normally engaging and being maintained inoperative by one of the slivers and having a device to engage and effect breakage of the other sliver when released by breakage of its own sliver.

2. In mechanism for preventing singles, the combination with means to move and to guide the slivers, of two detectors pivotally supported at their outer ends to move transversely to the slivers and having their inner ends extended past each other, each detector normally engaging and being maintained inoperative by the sliver farthest from its fulcrum and having a toothed portion to engage and effect breakage of the other sliver when the detector is released by breakage of its own fulcrum.

3. In mechanism for preventing singles, the combination with means to move and to guide the slivers, of two like detectors pivotally supported at their outer ends to move transversely to the slivers and having their inner ends extended above the slivers and past each other, each detector having a depending foot to normally rest on one sliver, and a toothed portion above the other sliver, release of a detector by breakage of its sliver effecting engagement of the toothed portion of said detector with the other sliver to effect breakage thereof.

4. In mechanism for preventing singles, means to move and to guide the slivers, and a plurality of like detectors having independent, fixed fulcra and movable transversely to the slivers, the free end of each detector engaging one sliver and being normally maintained inoperative thereby and having a device to engage and effect breakage of the other sliver when released by breakage of its own sliver, the fulcra of said detectors being equidistant from the slivers normally supporting them, whereby the slivers are subjected to equal strain.

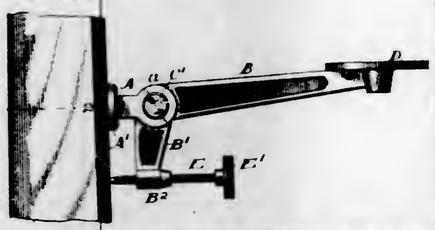
5. In apparatus of the class described, an upright plate having guide-eyes through which the slivers are drawn, an auxiliary, notched guide-bar, two like fulcrum-studs to secure the said guide-bar to the plate in front of the guide-eyes, each stud having a head, a boss adjacent thereto, a detector-seat, and a threaded shank, and oppositely set to engage the plate and guide-bar respectively with their threaded shanks outside the sliver-paths, two like detectors each pivotally mounted on the seat of one of the studs, to rock thereon in parallel planes transverse to the slivers, the inner, free ends of the detectors passing each other and being normally supported by the sliver remote from its fulcrum, each detector having teeth to engage and effect breakage of the other sliver when released by breakage of its own sliver.

681,618. **PROCESS OF DYEING.** RENÉ BOHN, Mannheim, Germany, assignor to Badische Anilin und Soda Fabrik, Ludwigshafen, Germany. Filed May 27, 1901. Serial No. 62,129. (No specimens.)

Claim.—1. The process of dyeing which consists in treating mordanted textile fiber with tetrahydroxy-naphthalene and subjecting the fiber thus treated to the action of oxidizing agents, substantially as described.

2. The process of dyeing which consists in treating textile fiber with tetrahydroxy-naphthalene and subjecting the fiber thus treated to the action of oxidizing agents, substantially as described.

681,614. **SUPPORT FOR CAMERAS OR PHOTOGRAPHIC APPARATUS.** HANDY H. BOWES and FRANCIS T. HARMON, Chicago, Ills.; said Harmon assignor to said Bowes. Filed June 29, 1900. Serial No. 22,097. (No model.)



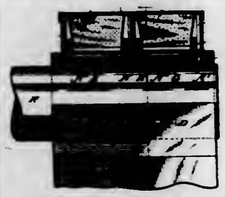
Claim.—1. In a camera-support, the combination with a bracket and means for attaching it to a stationary support and permitting its axial rotation, of a bar pivoted to said bracket and provided at its free end with a suitable base for the attachment of a camera, and means for adjusting said bar by swinging it upon its pivot.

2. In a camera-support, the combination with a bracket provided with a wood-screw adapted to be inserted in any wooden support and to permit axial rotation of the bracket, of a bar pivoted to said bracket and provided at its free end with a suitable base for the attachment of a camera and means for adjusting said bar by swinging it about its pivot.

3. In a camera-support, the combination with a bracket provided with means for attaching it to a wooden support and permitting its axial rotation, of a bell-crank bar pivoted to said bracket, a suitable base for the attachment of a camera fastened to the end of one arm of said bar, and an adjusting-screw seated in the end of the other arm of said bar, said adjusting-screw being adapted to effect the swinging of the bar about its pivot.

4. The combination with the bracket, A, having the wood-screw, A^2, of the bell-crank bar, B, B', pivoted to said bracket, the perforated disk, D, attached to the end of the arm, B, of said bar and the adjusting-screw, E, set in the end of the arm, B', of said bar.

681,615. **LUBRICATING DEVICE.** JOHN W. BOWERBANK, Jersey City, N. J. Filed Jan. 17, 1901. Serial No. 43,616. (No model.)



Claim.—1. A lubricator, comprising a receptacle for containing a lubricant, and provided in its bottom with a transverse slot, and a roller-disk loosely journaled in said receptacle and extending through said slot to engage the peripheral surface of the part to be lubricated, substantially as shown and described.

2. A lubricator, comprising a receptacle for containing a lubricant and having transverse slots in its bottom, roller-disks extending through said slots to contact with the periphery of the part to be lubricated, and bearings in the receptacle for said roller-disks, to allow the latter to rest by their own weight on the part to be lubricated, and to hold the roller-disk against transverse movement, as set forth.

3. A lubricator, comprising a receptacle having a concave bottom with transverse slots, roller-disks extending through the slots to contact with the part to be lubricated, a shaft connecting the roller-disks with each other, and bearings in the receptacle for said shaft, as set forth.

4. A lubricator, comprising a receptacle having a concave bottom with transverse slots, a perforate hopper set in said receptacle, roller-disks extending through said slots, a shaft connecting the roller-disks with each other, and bearings in the receptacle for the shaft to turn in, the part of the shaft extending between the roller-disks being below the lower ends of said perforate hopper, as set forth.

5. A lubricator having a receptacle for containing a lubricant, and provided with transverse slots in its bottom, roller-disks extending through the slots, to contact with the part to be lubricated, and a shaft connecting the roller-disks with each other, said roller-disks and shaft being made of different metals, as set forth.

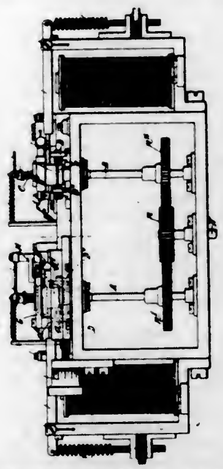
681,616. **ACETYLENE-GAS LAMP.** DANIEL BROWN, Newark, N. J. Filed Feb. 20, 1901. Serial No. 48,048. (No model.)



Claim.—1. An acetylene-gas lamp, comprising in its construction an outer casing, an inner tube of the same diameter throughout its length within said casing, a cap surrounding the upper end of said outer casing and provided with a plurality of annular shoulders, one of which is adapted to engage the upper end of said inner tube and retain the same centrally of the outer casing, thereby providing an annular space between said inner tube and outer casing, a perforated closure in the lower end of said inner tube, a carbid-receptacle within said inner tube, means for supplying water to said carbid-receptacle, and a flame-tube communicating with said inner tube, substantially as described.

2. An acetylene-gas lamp, comprising in its construction an outer casing, an inner tube within the same, a cap surrounding the upper end of said outer casing and provided with an annular shoulder adapted to engage the uppet end of said inner tube and retain the same in position within said outer casing, thereby providing an annular space between the inner tube and the outer casing, the said annular shoulder of said cap at the same time serving to close the upper end of said annular space, whereby water placed in said space cannot enter the inner tube at the top, a carbid-receptacle within said inner tube, means for supplying water thereto, and a flame-tube penetrating said cap at a point on said annular shoulder, whereby the inner end of said tube communicates with the inner tube, and the outer end extends at right angles to the said outer casing and beyond the same, substantially as described.

681,617. **TELEGRAPHIC APPARATUS.** SIDNEY G. BROWN, Bournemouth, England. Filed Mar. 29, 1900. Serial No. 10,656. (No model.)



Claim.—1. Interpolating apparatus for use on electric-telegraph circuits, comprising constantly-rotating spindles, collars fixed to said spindles, clutch-sleeves mounted on said spindles, cams carried by the clutch-sleeves, means operated by said cams for transmitting signals, means for normally holding the clutch-sleeves free from the fixed collars, and means operated by the signaling-currents received from a cable or line for throwing the clutch-sleeves into gear with the fixed collars, substantially as described.

2. Interpolating apparatus for use on electric-telegraph circuits, comprising signaling-levers, a receiving-relay, a relay-battery, a relay-line, means adapted to be released by the receiving-relay to operate said signaling-levers so as to send on the correct number of signaling impulses as originally transmitted and also to curb said signaling impulses, substantially as described.

3. Electric-telegraph transmitting apparatus comprising transmitting-levers, contact-stops between which said levers are adapted to oscillate, oscillatory reversing-levers for reversing the battery connections during the transmission of every signal which oscillatory levers have their ends at one extremity pivoted to a fixed point and their opposite ends connected together by insulation, a fixed contact-stop between said reversing-levers, a movable contact-stop situated between said reversing-levers and carried by one arm of a pivoted lever, means for operating the transmitting-levers and means for rocking the pivoted lever so as to operate the reversing-levers, substantially as described for the purpose specified.

4. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-sleeves mounted on said spindles, cams carried by said clutch-sleeves, transmitting-levers adapted to be oscillated by said cams, contact-stops between which the transmitting-levers oscillate, oscillatory reversing-levers for reversing the battery connections during the transmission of every signal, a fixed contact-stop between each pair of the reversing-levers, a movable contact-stop situated between each pair of reversing-levers and carried by one arm of a pivoted lever, spring connections between the clutch-sleeves and pivoted levers, means for normally holding the clutch-sleeves out of gear with the spindles, and means for throwing the clutch-sleeves into gear with the spindles for transmitting signals, substantially as described.

5. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-sleeves mounted on said spindles, cams carried by said clutch-sleeves, transmitting-levers adapted to be oscillated by said cams, contact-stops between which the transmitting-levers oscillate, oscillatory reversing-levers for reversing the battery connections during the transmission of every signal, a fixed contact-stop between each pair of reversing-levers, a movable contact-stop situated between each pair of reversing-levers and carried by one arm of a pivoted lever, spring connections between the clutch-sleeves and pivoted levers, means for adjusting the position of the reversing-levers and pivoted levers relatively to the clutch-sleeves, means for normally holding the clutch-sleeves out of gear with the spindles and means for throwing the clutch-sleeves into gear with the spindles for transmitting signals, substantially as described.

6. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-sleeves mounted on said spindles, cams carried by said clutch-sleeves, transmitting-levers adapted to be oscillated by said cams, contact-stops between which the transmitting-levers oscillate, oscillatory reversing-levers for reversing the battery connections during the transmission of every signal, a fixed contact-stop between each pair of reversing-levers, a movable contact-stop situated between each pair of reversing-levers and carried by one arm of a pivoted lever, spring connections between the clutch-sleeves and pivoted levers, sliding plates carrying the reversing-levers and the pivoted levers, means for adjusting the sliding plates relatively to the clutch-sleeves, means for normally holding the clutch-sleeves out of gear with the spindles, and means for throwing the clutch-sleeves into gear with the spindles for transmitting signals, substantially as described for the purpose specified.

7. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted on said spindles, cams carried by said clutch-sleeves, pins projecting laterally from said clutch-sleeves, means arranged in the path of said lateral pins and adapted to lift the clutches out of gear with the clutch-collars during part of the revolution of the clutch, means operated by the cams for transmitting signals, means engaging with the lateral pins for normally holding the clutch-sleeves out of gear with the spindles, and means for releasing the lateral pins when signals are to be transmitted, substantially as described.

8. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted loosely on said spindles, cams carried by the clutch-sleeves, springs which tend to force the clutch-sleeves into gear with the clutch-collars, pins projecting laterally from the clutch-sleeves, rollers arranged in the path of the lateral pins and adapted to lift the clutch-sleeves out of gear with the clutch-collars during part of the revolution of the clutch, means operated by the cams for transmitting signals, means engaging with the lateral pins for holding the clutch-sleeves out of gear with the clutch-collars, and means for releasing the lateral pins for transmitting signals, substantially as described.

9. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted loosely on said spindles, cams carried by the clutch-sleeves, springs which tend to throw the clutch-sleeves into gear with the clutch-collars, pins projecting laterally from the clutch-sleeves, rollers arranged in the path of the lateral pins and adapted to lift the clutch-sleeves out of gear with the clutch-collars during part of the revolution of the clutch, means operated by the cams for transmitting signals, armatures for normally engaging with the lateral pins so as to hold the clutch-sleeves out of gear with the clutch-collars, and electromagnets adapted to be energized and to attract the armatures so as to release the lateral pins for transmitting signals, substantially as described.

10. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted loosely on said spindles, cams carried by the clutch-sleeves, springs which tend to throw the clutch-sleeves into gear with the clutch-collars, pins projecting laterally from the clutch-sleeves, rollers arranged in the path of the lateral pins and adapted to lift the clutch-sleeves out of gear with the clutch-collars during part of the revolution of the clutch, means operated by the cams for transmitting signals, means for "curbing" said signals, armatures for normally engaging with the lateral pins so as to hold the clutch-sleeves out of gear with the clutch-collars, and electromagnets adapted to be energized and to attract the armatures so as to release the lateral pins for transmitting signals, substantially as described.

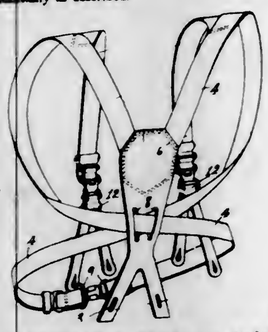
11. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted loosely on said spindles, cams carried by the clutch-sleeves, springs which tend to force the clutch-sleeves into gear with the clutch-collars, pins projecting laterally from the clutch-sleeves, rollers arranged in the path of the lateral pins and adapted to lift the clutch-sleeves out of gear with the clutch-collars during part of the revolution of the clutch, transmitting-levers adapted to be operated by the cams, contact-stops between which the transmitting-levers oscillate, oscillatory reversing-levers for reversing the battery connections during the transmission of every signal, means for operating the reversing-levers from the clutch-sleeves, means for normally engaging the lateral pins to hold the clutch-sleeves out of gear with the clutch-collars, and means for releasing the lateral pins for transmitting signals, substantially as described.

12. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted loosely on said spindles, cams carried by the clutch-sleeves, springs which tend to force the clutch-sleeves into gear with the clutch-collars, pins projecting laterally from the clutch-sleeves, rollers arranged in the path of the lateral pins and adapted to lift the clutch-sleeves out of gear with the clutch-collars during part of the revolution of the clutch, transmitting-levers adapted to be operated by the cams, contact-stops between which the transmitting-levers oscillate, oscillatory reversing-levers for reversing the battery connections during the transmission of every signal which reversing-levers have their ends at one extremity pivoted to fixed points, and their opposite ends connected together by an insulating-link, a fixed contact-stop between each pair of reversing-levers, a movable contact-stop situated between each pair of reversing-levers and carried by one arm of a pivoted lever, spring connections between the clutch-sleeves and pivoted levers, means for normally engaging the lateral pins to hold the clutch-sleeves out of gear with the clutch-collars, and means for releasing the lateral pins for transmitting signals, substantially as described for the purpose specified.

13. Electric-telegraph transmitting apparatus comprising constantly-rotating spindles, clutch-collars fixed on said spindles, clutch-sleeves mounted loosely on said spindles, cams carried by the clutch-sleeves, springs which tend to throw the clutch-sleeves into gear with the clutch-collars, pins projecting laterally from the clutch-sleeves, rollers arranged in the path of the lateral pins and adapted to lift the clutch-sleeves out of gear with the clutch-collars during part of the revolution of the clutch, transmitting-levers adapted to be operated by the cams, contact-stops between which the transmitting-levers oscillate, oscillatory levers for reversing the battery connections during the transmission of every signal which reversing-levers have their ends at one extremity pivoted to fixed points and their opposite ends connected together by an insulation-link, a fixed contact-stop between each pair of reversing-levers, a movable stop situated between each pair of reversing-levers and carried by one arm of a pivoted lever, spring connections between the clutch-sleeves and pivoted levers, sliding plates on which the reversing-levers and pivoted levers are mounted, means for moving said plates so as to adjust the position of the reversing-levers with reference to the clutch-sleeves, armatures for normally engaging the lateral pins to hold the clutch-sleeves out of gear with the clutch-collars, and electromagnets adapted to be energized and to move the armatures out of engagement with the lateral pins for transmitting signals, substantially as described, for the purpose specified.

681,618. **COMBINED SUSPENDERS, SHOULDER-BRACE, AND BELT.** SAMUEL CIESLER, San Francisco, Cal. Filed May 29, 1901. Serial No. 62,417. (No model.)

Claim.—1. In a combined suspenders, shoulder-brace, and belt, the combination of a back piece having integral therewith tongues provided with means for attachment to the rear of the waistband, and straps fixedly attached to the upper end of said back piece, said back piece having longitudinal slits, and the straps being passed through said slits and slidable therein and their ends being provided with means for fastening the ends together, substantially as described.



2. In a combined suspenders, shoulder-brace, and belt, the combination of a back piece having tongues provided with means for attachment to the rear of the waistband, straps fixedly attached to the upper end of said back piece, said back piece having longitudinal slits, and the straps being passed through said slits and slidable therein and their ends being provided with means for fastening the ends together, and suspenders attached to said straps in front of the shoulder and provided with suspender-ends, substantially as described.

3. In a combined suspenders, shoulder-brace, and belt, the combination of a back piece having tongues provided with means for attachment to the rear of the waistband, straps fixedly attached to the upper end of said back piece, said back piece having a guide and the straps being passed through said guide and slidable therein and their ends being provided with means for fastening the ends together, and suspenders attached to said straps in front of the shoulder and provided with suspender-ends, substantially as described.

4. In a combined suspenders, shoulder-brace, and belt, the combination of a back piece having tongues provided with means for attachment to the rear of the waistband, and straps fixedly attached to the upper end of said back piece, said back piece having a guide and the straps being passed through said guide and slidable therein and their ends being provided with means for fastening the ends together, substantially as described.

5. In a device of the character described, the combination of a back piece having tongues provided with means for attachment to the rear of the waistband, straps fixedly attached to the upper end of said back piece, and extending therefrom around the front of the shoulders and under the arms to said back piece and passed through a guide in said back piece and slidable therein, and means for securing the ends of said straps against forward movement, whereby said straps then form a shoulder-brace, substantially as described.

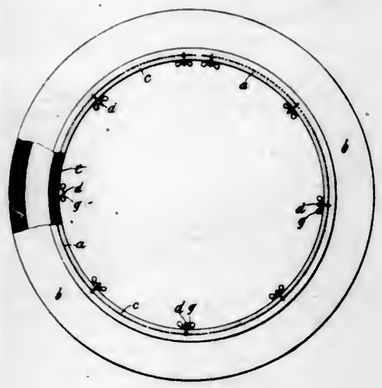
681,619. MEANS FOR SECURING TIRES TO WHEELS OF ROAD-VEHICLES. ARTHUR T. COLLIER, St. Albans, England, assignor of one-half to Edgar Oliver Gess, London, England. Filed Jan. 2, 1901. Serial No. 41,538. (No model.)

Claim.—1. The combination of an inner inflatable tube, an outer cover, canvases arranged in the walls of said cover, and folded so as to form a channel in each edge of the cover, expansible notched retaining-cores inclosed in said channels and free to slide therein, a rim, bolts engaging said cores and passing through the rim, and fastening-nuts on said bolts.

2. The combination of an inner inflatable tube, an outer cover, layers of fabric arranged in the walls of said cover and folded so as to form a channel in each edge of the cover, expansible retaining-cores inclosed in said channels and free to slide therein, a rim, bolts engaging said cores and passing through the rim, and fastening-nuts on said bolts, substantially as described.

3. The combination of the rim of a vehicle-wheel, a pneumatic tire, channels in the edges of said tire, retaining-cores in said channels, bolts threaded on said cores and passing through holes in the rim, fastening-nuts on said bolts, and teeth or serrations on said cores, substantially as, and for the purpose, hereinbefore, described.

4. The combination, with the rim of a vehicle-wheel, of a pneumatic tire, channels in the edges of said tire, retaining-cores in said channels, stiffening plates or webs on said cores, flaps covering said stiffening plates or webs, bolts engaging said cores and passing through holes in the rim, and fastening-nuts on said bolts, substantially as described.



681,620. VEHICLE BRAKE MECHANISM. FRANK B. COOK, Oskaloosa, Kans. Filed July 9, 1901. Serial No. 67,646. (No model.)

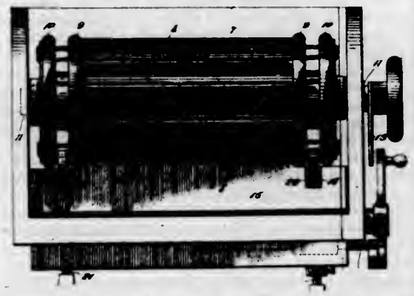


Claim.—1. A brake, comprising in combination with the platform of a car, a lever B pivoted to said platform, the brake-lever and links pivotally connecting same with said lever B, links pivoted to the platform and to the end of said brake-lever, and means for holding the brake-lever at its farthest forward limit, as set forth.

2. A brake, comprising in combination with the car, a lever B pivoted thereto, a brake-lever and links pivotally connecting same with said lever B, links pivoted to the car and to the forward end of said brake-lever, means for holding the latter at its farthest forward limit, and a guard-plate mounted over the pivotal ends of said links, as set forth.

3. In combination with the car, the lever B, the brake-lever and guard-bar secured to said lever B, the links connecting the inner end of said brake-lever with the lever B, the links pivoted to said brake-lever, the guard-plate bent upon itself, a pivotal pin mounted thereon, said brake-lever being notched and adapted to engage over said pivotal pin when said lever is at its farthest forward limit, as set forth.

681,621. FUSE-HOLDER. WARREN R. COOK, Pittsburg, Pa. Filed Dec. 21, 1900. Serial No. 40,684. (No model.)



Claim.—1. A fuse-holder, comprising a casing, a carrier mounted to rotate therein and carrying a series of stretches of fuse-wire, jaws for engaging with said stretches of fuse-wire, the said jaws being in the electrical circuit, and means for moving said jaws into and out of gripping connection with the wire, substantially as specified.

2. A fuse-holder, comprising a casing, a longitudinally-channeled carrier mounted to rotate therein, fuse-wires extended along the channels, heads at the ends of the carrier, each head consisting of two connected disks spaced apart and across which space the fuse-wires extend, and current-carrying jaws adapted to engage with the portions of the wire between the disks of the heads, substantially as specified.

3. A fuse-holder, comprising a casing having an opening through its bottom wall, a fuse-carrier mounted to rotate in the casing, fuse-wires supported in the carrier, deflector-plates extended downward from said carrier at opposite sides of its center, and current-carrying devices adapted for removable connection with stretches of the fuse-wire, substantially as specified.

4. A fuse-holder, comprising a casing, a carrier mounted to rotate therein, fuse-wire stretches mounted in said carrier, jaws adapted to engage with opposite ends of the fuse-wire stretches, the said jaws being in the electric circuit, a shaft, a guard-plate attached to said shaft and adapted to engage with sections of the jaws for moving said jaws to clamping position when the shaft is rocked or rotated, and a cut-out or switch operated by movements of said shaft, substantially as specified.

5. A fuse-holder, comprising a casing, a longitudinally-channeled carrier mounted to rotate in the casing, fuse-wires supported by said carrier, a pointer on the outwardly-extended shaft of said carrier, a dial on the end of the casing over which said pointer may move, gripping-jaws in the electric circuit and adapted for connection with the fuse-wire, means for moving the gripping-jaws, and a switch operated by said means, substantially as specified.

6. A fuse-holder, comprising a casing, a carrier mounted to rotate in the casing, fuse-wires supported by said carrier, swinging jaws at opposite ends of the casing and adapted for engagement with the fuse-wire, the sections of the jaws being pivoted together and the inner sections being in electrical connection with lead-wires, a rotary shaft, means operated by the rotary movement of said shaft for moving the jaws into clamping position with a wire, a fixed switch-section, and a movable switch-section operated by a movement of said shaft, substantially as specified.

681,622. RESPIRATOR. HARVEY S. COVER, South Bend, Ind. Filed May 8, 1901. Serial No. 59,264. (No model.)

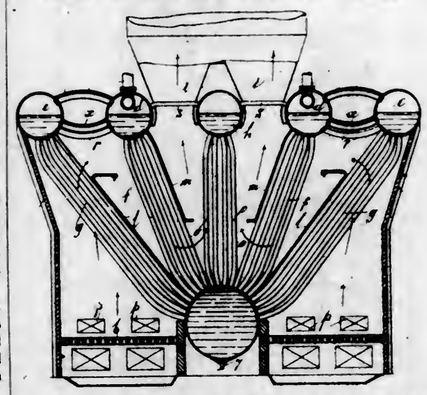


Claim.—1. A filter device, comprising in combination with a mask with contracted end portion with apertures therein, a bag of porous material with flexible ring therein, designed to hold the opposite walls of the bag taut, with one face thereof against the inner wall of the perforated end of said mask, as set forth.

2. In combination with a mask having a contracted portion with end wall perforated, and an annular flexible rib on its inner wall, a filter member comprising a bag of porous material, a flexible skeleton ring positioned within said bag, and designed to hold the opposite walls of the bag taut, and spaced apart, and a sponge held against one of the outer faces of said bag, as set forth.

3. In combination with the mask having a contracted portion with perforated end, an annular flexible rib on the inner wall of said mask, two filtering members, each held distended by means of a flexible skeleton, one of said bags held against the face of said rib, the other against said perforated end, and a filtering material interposed between said two members, as set forth.

681,623. WATER-TUBE BOILER. JOHN COWAN, Edinburgh, Scotland. Filed Mar. 28, 1901. Serial No. 53,351. (No model.)



Claim.—1. In a water-tube boiler adapted to be fired from both ends or sides, a single lower water-space, a feed-water drum and a steam and water space on each side above the water-space, tubes connecting the feed-water drum with all the steam and water spaces with the water-space below, and partition-walls adapted to divide the tubes into banks and form flues disposed symmetrically, one set to each fire-grate, as set forth.

2. In a water-tube boiler adapted to be fired from both ends or sides, the combination with a lower water-drum of a feed-water drum above them, tubes connecting the feed-water drum with the lower water-drum, a partition between these tubes dividing them into two equal sets, a plurality of connected upper steam and water drums symmetrically disposed relatively to the feed-water drum, banks of tubes connecting the steam and water drums above with the water-drum below, and partitions between the banks of tubes adapted to direct the furnace-gases through them to the uptake, substantially as set forth.

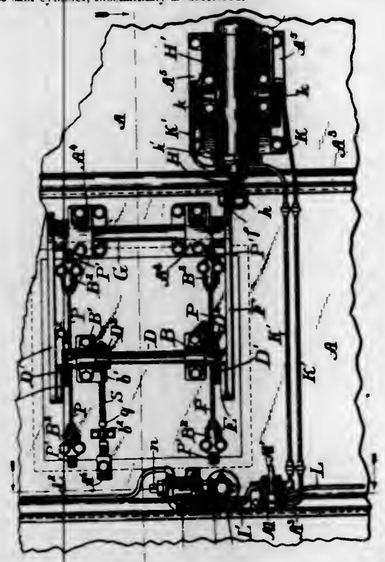
3. In a water-tube boiler adapted to be fired at both ends or sides, the combination with two lower water-drums of a feed-water drum above them, tubes connecting the feed-water drum with the two lower water-drums, a partition between these tubes dividing them into equal sets, a plurality of upper connected steam and water drums symmetrically disposed relatively to the feed-water drum, banks of tubes connecting the steam and water drums above with the two water-drums below, and partitions between the banks of tubes adapted to direct the furnace-gases through them to the uptake, substantially as set forth.

4. In a water-tube boiler adapted to be fired at both ends or sides, the combination with a plurality of lower water-drums of a feed-water drum above them, tubes connecting the feed-water drum with the lower water-drums, a partition between these tubes dividing them into equal sets, a plurality of upper connected steam and water drums symmetrically disposed relatively to the feed-water drum, banks of tubes connecting these steam and water drums above with the lower water-drums, and baffle-plates between the banks of tubes adapted to direct the furnace-gases through them to the uptake, substantially as set forth.

681,624. MECHANISM FOR MOVING ARMORED HATCHES, &c. WILLIAM R. COWLES, Cleveland, Ohio, assignor to the Long Arm System Company, same place. Filed May 8, 1901. Serial No. 59,272. (No model.)

Claim.—1. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, and means for supplying fluid-pressure to said cylinder, substantially as described.

2. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder and connected to the bell-crank lever, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.



3. In a hatch-operating mechanism, the combination with a deck or floor, and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, and means operated either from a distance, or by hand-power at the hatch, for admitting fluid-pressure into said cylinder, substantially as described.

4. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, valve mechanism operated from either side of said deck or floor, and means controlled by said valve mechanism for admitting fluid-pressure to said cylinder, substantially as described.

5. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, tighteners operated by said bell-crank lever during part of the motion of said piston-rod, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

6. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, tighteners operated by said bell-crank lever during part of the motion of said piston-rod, and means operated either from a distance or by hand-power at the hatch for admitting fluid-pressure into said cylinder, substantially as described.

7. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a rock-shaft mounted on said hatch, a bell-crank lever pivoted to the deck or floor and connected to a crank or arm on said rock-shaft, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners automatically operated by said rock-shaft, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

8. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a rock-shaft mounted on said hatch, a bell-crank lever pivoted to the deck or floor and connected to a crank or arm on said rock-shaft, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners automatically operated by said rock-shaft, a lock also automatically operated by said rock-shaft for normally holding said tighteners in the disengaged position, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

9. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of mechanism operated by fluid-pressure for swinging the hatch about its hinges, and roller-tighteners automatically operated by said mechanism during the early part of the opening and the last part of the closing motion, substantially as described.

10. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of mechanism operated by fluid-pressure for swinging the hatch about its hinges, and roller-tighteners automatically operated by said mechanism during the early part of the opening and the last part of the closing motion, with means automatically operated by said mechanism for locking said tighteners out of the way except when the hatch is on its seat, substantially as described.

11. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a rock-shaft mounted on said hatch, a bell-crank lever pivoted to the deck or floor and connected to a crank or arm on said rock-shaft, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners automatically operated by said rock-shaft, and means for supplying fluid-pressure to said cylinder, substantially as described.

12. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a rock-shaft mounted on said hatch, a bell-crank lever pivoted to the deck or floor and connected to a crank or arm on said rock-shaft, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners automatically operated by said rock-shaft, a lock also automatically operated by said rock-shaft for normally holding said tighteners in the disengaged position, and means for supplying fluid-pressure to said cylinder, substantially as described.

13. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of mechanism for swinging the hatch about its hinges, guide-plates each with a wedge face secured to said hatch, and roller-tighteners engaging said wedge faces, automatically operated by said mechanism during the early part of the opening and the last part of the closing motion, substantially as described.

14. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of mechanism for swinging the hatch about its hinges, guide-plates each with a wedge face secured to said hatch, operated by said mechanism during the early part of the opening and the last part of the closing motion, with means automatically operated by said mechanism for locking said tighteners out of the way except when the hatch is on its seat, substantially as described.

15. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, guide-plates each with a wedge face secured to said hatch, of a rock-shaft mounted on said hatch, a bell-crank lever pivoted to the deck or floor and connected to a crank or arm on said rock-shaft, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners engaging said wedge faces automatically operated by said rock-shaft, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

16. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, guide-plates each with a wedge face secured to said hatch, of a rock-shaft mounted on said hatch, a bell-crank lever pivoted to the deck or floor and connected to a crank or arm on said rock-shaft, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners engaging said wedge faces, automatically operated by said rock-shaft, a lock also automatically operated by said rock-shaft for normally holding said tighteners in the disengaged position, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

17. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, and pipes for supplying fluid-pressure to and for carrying it from said cylinder, coiled and respectively connected to the trunnions thereof, substantially as described.

18. In a hatch-operating mechanism, the combination with a deck or floor and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder and connected to the bell-crank lever, fluid-pressure pipes coiled and connected to opposite trunnions of said cylinder, respectively, and operated from either side of the deck, for supplying fluid-pressure to said pipes, substantially as described.

19. In a hatch-operating mechanism, the combination with a deck or floor, and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, fluid-pressure pipes coiled and connected to opposite trunnions of said cylinder respectively, and means operated from a distance for admitting fluid-pressure into the closing-pipe, or by hand-power, at the hatch for forcing fluid-pressure into either of said pipes, substantially as described.

20. In a hatch-operating mechanism, the combination with a deck or floor, and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, a fluid-pressure main, and a hand-pump with pipe connections, both connected to said cylinder, substantially as and for the purposes described.

21. In a hatch-operating mechanism, the combination with a deck or floor, and a hatch hinged thereto, of a bell-crank lever pivoted to the deck or floor and connected to the hatch, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, a fluid-pressure main, and a hand-pump with pipe connections, both connected to said cylinder, valve mechanism, means for operating the same from either side of said deck or floor, and means for operating said pump from either side of said deck or floor, substantially as described.

22. In a hatch-operating mechanism, the combination with a deck or floor, a hatch hinged thereto, and a link connected to said hatch, of a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, and means for supplying fluid-pressure to said cylinder, substantially as described.

23. In a hatch-operating mechanism, the combination with a deck or floor, a hatch hinged thereto, and a link connected to said hatch, of a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder and connected to the bell-crank lever, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

24. In a hatch-operating mechanism, the combination with a deck or floor, a hatch hinged thereto, and a link connected to said hatch, of a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, valve mechanism operated from either side of said deck or floor, and means controlled by said valve mechanism for admitting fluid-pressure to said cylinder, substantially as described.

25. In a hatch-operating mechanism, the combination with a deck or floor, a hatch hinged thereto, and a link connected to said hatch, of a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, tighteners operated by said bell-crank lever through said link during part of the motion of said piston-rod, and means operated from either side of the deck for supplying fluid-pressure to said cylinder, substantially as described.

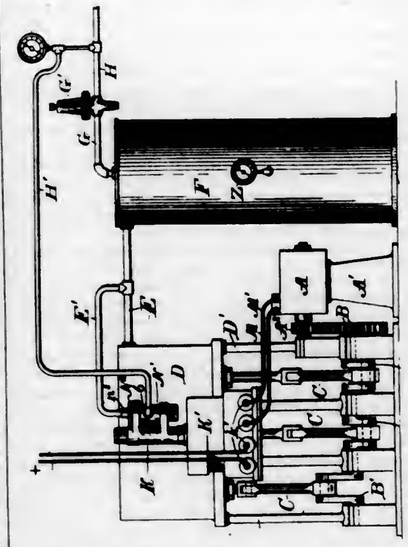
26. In a hatch-operating mechanism, the combination with a deck or floor, a hatch hinged thereto, and a link connected to said hatch, of a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, tighteners operated by said bell-crank lever through said link during part of the motion of said piston-rod, and means operated either from a distance or by hand-power at the hatch for admitting pressure into said cylinder, substantially as described.

27. In a hatch-operating mechanism, the combination with a deck or floor, a hatch hinged thereto, and a link connected to said hatch, of a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, a fluid-pressure main, and a hand-pump with pipe connections, both connected to said cylinder, valve mechanism, means for operating the same from either side of said deck or floor, and means for operating said pump from either side of said deck or floor, substantially as described.

28. In a hatch-operating mechanism, the combination with a deck or floor, and a hatch hinged thereto, of a rock-shaft mounted on said hatch, a link connected to a crank or arm on said rock-shaft, a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, and roller-tighteners automatically operated by said rock-shaft, substantially as described.

29. In a hatch-operating mechanism, the combination with a deck or floor, and a hatch hinged thereto, of a rock-shaft mounted on said hatch, a link connected to a crank or arm on said rock-shaft, a bell-crank lever pivoted to the deck or floor and connected to said link, a cylinder trunnioned to the deck or floor, a piston-rod in said cylinder connected to the bell-crank lever, roller-tighteners automatically operated by said rock-shaft, and a lock also automatically operated by said rock-shaft for normally holding said tighteners in the disengaged position, substantially as described.

681,625. AUTOPNEUMATIC REGULATOR FOR MOTORS. WILLIAM B. COWLES, Cleveland, Ohio, assignor to the Long Arm System Company, same place. Filed May 28, 1901. Serial No. 62,293 (No model.)



Claim.—1. In an apparatus of the character described, the combination with a receiver and a compressor, of an electric motor for operating said compressor, a switch for throwing said motor in and out of circuit with the source of electricity, and means automatically controlled by the rise or fall of pressure in said receiver for operating said switch, comprising valve mechanism operated by said rise and fall of pressure, a piston operated by the fluid controlled by said valve mechanism, and a toggle-joint with spring-impressed arms, and contact-blades operated by said arms, substantially as described.

2. In an apparatus of the character described, the combination with a receiver and a compressor, of an electric motor for operating said compressor, a switch for throwing said motor in and out of circuit with the source of electricity, diaphragms automatically controlled by the rise or fall of pressure in said receiver, valve mechanism operated by said diaphragms, a piston operated by the fluid controlled by said valve mechanism, and a toggle-joint with spring-impressed arms, and contact-blades operated by said arms, substantially as described.

3. In a pneumatic or fluid-pressure arrangement for operating switches, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, a cylinder and piston, a switch operated by said piston, and ports controlled by the motion of said valves for admitting fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

4. In a pneumatic arrangement for operating switches, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, means for adjusting the tension on said springs, a cylinder and piston, a switch operated by said piston and ports controlled by the motion of said valves for admitting fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

5. In a pneumatic arrangement for operating switches, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, a cylinder and piston, a switch operated by said piston, a source of reduced fluid-pressure, and ports controlled by the motion of said valves

for admitting said reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

6. In a pneumatic arrangement for operating switches, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, means for adjusting the tension on said springs, a cylinder and piston, a switch operated by said piston, a source of reduced fluid-pressure, and ports controlled by the motion of said valves for admitting said reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

7. In a pneumatic arrangement for operating switches, the combination with a source of high fluid-pressure, and a source of lower fluid-pressure, of a pair of diaphragms and chambers therefor, and connections to the two sources of fluid-pressure leading to said chambers at opposite sides, respectively, of said diaphragms, valves bearing on the side of said diaphragms opposite the higher fluid-pressure, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predeterminedlimit, a cylinder and piston, a switch operated by said piston, and ports controlled by the motion of said valves for admitting the lower fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

8. In a pneumatic arrangement for operating switches, the combination with a source of fluid-pressure, and a source of reduced fluid-pressure, of a pair of diaphragms and chambers therefor, and connections to the source of higher fluid-pressure leading to said chambers at one side of said diaphragms, and connections to the source of reduced fluid-pressure leading to said chambers at the opposite side of said diaphragms, valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on said diaphragms exceeds a predetermined limit, means for adjusting the tension on said springs, a cylinder and piston, a switch operated by said piston and ports controlled by the motion of said valves for admitting fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

9. In a pneumatic arrangement for operating switches, the combination with a source of fluid-pressure, and a source of reduced fluid-pressure, of a pair of diaphragms and chambers therefor, and connections to the source of higher fluid-pressure leading to said chambers at one side of said diaphragms, and connections to the source of reduced fluid-pressure leading to said chambers at the opposite side of said diaphragms, valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on said diaphragms exceeds a predetermined limit, a toggle-lever operated by said piston, a double-blade switch operated by said toggle-lever, and ports controlled by the motion of said valves for admitting the reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

10. In a pneumatic arrangement for operating switches, the combination with a source of fluid-pressure, of a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, means for adjusting the tension on said springs, a cylinder and piston, a toggle-joint operated by said piston, double-blade switches operated by said toggle-joint, a source of reduced fluid-pressure, and ports controlled by the motion of said valves for admitting said reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

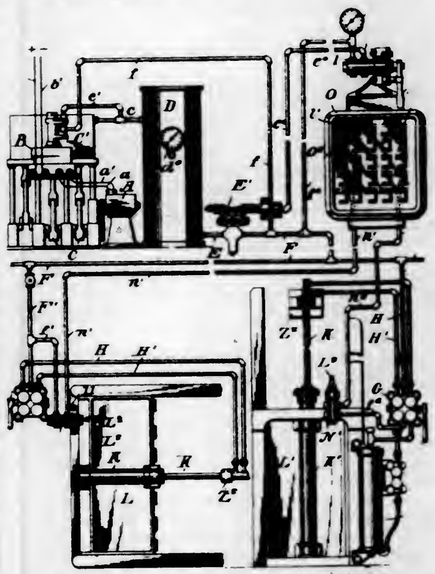
11. In a pneumatic arrangement for regulating motors, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, of springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, a cylinder and piston, a cut-off operated by said piston, and ports controlled by the motion of said valves for admitting fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

12. In a pneumatic arrangement for regulating motors, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at the side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, means for adjusting the tension on said springs, a cylinder and piston, a cut-off operated by said piston, and ports controlled by the motion of said valves for admitting said reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

13. In a pneumatic arrangement for regulating motors, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, a cylinder and piston, a cut-off operated by said piston, a source of reduced fluid-pressure, and ports controlled by the motion of said valves for admitting said reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

14. In a pneumatic arrangement for regulating motors, the combination with a pair of diaphragms and chambers therefor, and connections to the source of fluid-pressure leading to said chambers at one side of said diaphragms, of valves bearing on the opposite side of said diaphragms, springs normally pressing said valves against the action of said diaphragms but yielding when the pressure on the diaphragms exceeds a predetermined limit, means for adjusting the tension on said springs, a cylinder and piston, a cut-off operated by said piston, a source of reduced fluid-pressure, and ports controlled by the motion of said valves for admitting said reduced fluid-pressure to said cylinder, or for exhausting the same therefrom, substantially as described.

681,626. **PNEUMATIC INDICATOR SYSTEM.** WILLIAM B. COWLES, Cleveland, Ohio, assignor to the Long Arm System Company, same place. Filed May 23, 1901. Serial No. 62,294. (No model.)



Claim.—1. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for operating said barriers operated by said source of fluid-pressure, valve mechanism operated by the motion of the barrier at a predetermined part of its travel, a pneumatic or fluid-pressure indicator, and connections between said source of fluid-pressure, said valve mechanism, and said indicator, substantially as described.

2. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for operating said barriers operated by said source of fluid-pressure, valve mechanism operated by the motion of the barrier at a predetermined part of its travel, an indicator-board with a plurality of pneumatic or fluid-pressure indicators mounted therein, and fluid-pressure pipes from said source of fluid-pressure to the various valve mechanisms at the barriers and from thence to said indicator-board, substantially as described.

3. In a pneumatic system of the character described, the combination with a door, hatch or other like barrier, of a source of fluid-pressure, mechanism for moving said barrier operated by said source of fluid-pressure, valve mechanism operated by the motion of the barrier at a predetermined part of its travel connected to said source of fluid-pressure, a fluid-pressure indicator consisting of a bent tube made of resilient material, connected to said valve mechanism, and a pointer operated by said tube upon the variance of the pressure therein, substantially as described.

4. The combination with a plurality of doors, hatches or other like barriers, of means for moving said barriers, a source of fluid-pressure, valve mechanism connected to said source of fluid-pressure and operated by the motion of the barrier at a predetermined part of its travel, a fluid-pressure indicator and a pipe connecting said valve mechanism with said indicator, substantially as described.

5. The combination with a plurality of doors, hatches or other like barriers, of means for moving said barriers, a source of fluid-pressure, valve mechanism operated by the motion of each barrier at a predetermined part of its travel and connected to said source of fluid-pressure, an indicator-board with a plurality of pneumatic indicators mounted therein, and fluid-pressure pipes from the various valve mechanisms at the barriers to said indicator-board, substantially as described.

6. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for moving said barriers operated by said source of fluid-pressure, valve mechanisms operated by the motion of each barrier at a predetermined part of its travel connected to said source of fluid-pressure, fluid-pressure indicators consisting of bent tubes made of resilient material connected to said valve mechanisms, and pointers operated by said tubes upon the variance of the pressure therein, substantially as described.

7. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for operating said barriers operated by said source of fluid-pressure, valve mechanism comprising a tappet, an inlet-valve, and a release-valve operated by the motion of the barrier at a predetermined part of its travel, a pneumatic indicator, and connections between said source of fluid-pressure, said valve mechanism, and said indicator, substantially as described.

8. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for operating said barriers operated by said source of fluid-pressure, valve mechanism comprising a tappet, an inlet-valve, and a release-valve, operated by the motion of the barrier at a predetermined part of its travel, an indicator-board with a plurality of pneumatic or fluid-pressure indicators mounted therein, and fluid-pressure pipes from said source of fluid-pressure to the various valve mechanisms, at the barriers and from thence to said indicator-board, substantially as described.

9. In a pneumatic system of the character described, the combination with a door, hatch or other like barrier, of a source of fluid-pressure, mechanism for moving said barrier operated by said source of fluid-pressure, valve mechanism comprising a tappet, an inlet-valve, and a release-valve operated by the motion of the barrier at a predetermined part of its travel connected to said source of fluid-pressure, an indicator consisting of a bent tube made of resilient material connected to said valve mechanism, and a pointer operated by said tube upon the variance of the pressure therein, substantially as described.

10. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for operating said barriers operated by said source of fluid-pressure, valve mechanism operated by the motion of the barrier at a predetermined part of its travel, consisting of a tappet on said barrier, a valve-casing, an inlet-valve and a release-valve with fluted stems mounted in said casing, and controlling said passages, the said valves being operated by said tappet, a pneumatic indicator, and connections between said source of fluid-pressure, said valve-casing, and said indicator, substantially as described.

11. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for operating said barriers operated by said source of fluid-pressure, valve mechanism operated by the motion of the barrier at a predetermined part of its travel, consisting of a tappet on said barrier, a valve-casing, an inlet-valve and a release-valve with fluted stems mounted in said casing, an indicator-board with a plurality of pneumatic or fluid-pressure indicators mounted therein, and fluid-pressure pipes from said source of fluid-pressure to the various valve-casings at the barriers and from thence to said indicator-board, substantially as described.

12. In a pneumatic system of the character described, the combination with a door, hatch or other like barrier, of a source of fluid-pressure, mechanism for moving said barrier operated by said source of fluid-pressure, valve mechanism operated by the motion of the barrier at a predetermined part of its travel connected to said source of fluid-pressure, the said valve mechanism consisting of a tappet on said barrier, a valve-casing, an inlet-valve and a release-valve with fluted stems mounted in said casing, and controlling said passages, the said valves being operated by said tappet, an indicator-board with a plurality of pneumatic or fluid-pressure indicators mounted therein, and fluid-pressure pipes from the various valve-casings at the barriers to said indicator-board, substantially as described.

13. The combination with a plurality of doors, hatches or other like barriers, of means for moving said barriers, a source of fluid-pressure, valve mechanism comprising a tappet, an inlet-valve, and a release-valve, connected to said source of fluid-pressure and operated by the motion of the barrier at a predetermined part of its travel, a fluid-pressure indicator and a pipe connecting said valve mechanism with said indicator, substantially as described.

14. The combination of a plurality of doors, hatches or other like barriers, of means for moving said barriers, a source of fluid-pressure, valve mechanism comprising a tappet, an inlet-valve, and a release-valve, operated by the motion of said barrier at a predetermined part of its travel and connected to said source of fluid-pressure, an indicator-board with a plurality of pneumatic or fluid-pressure indicators mounted therein, and fluid-pressure pipes from the various valve mechanisms at the barriers to said indicator-board, substantially as described.

15. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for moving said barriers operated by said source of fluid-pressure, valve mechanisms, comprising a tappet, an inlet-valve and a release-valve, operated by the motion of each barrier, at a predetermined part of its travel, and connected to said source of fluid-pressure, fluid-pressure indicators consisting of bent tubes made of resilient material connected to said valve mechanisms, and pointers operated by said tubes upon the variance of the pressure therein, substantially as described.

16. The combination with a plurality of doors, hatches or other like barriers, of means for moving said barriers, a source of fluid-pressure, valve mechanism, connected to said source of fluid-pressure and operated by the motion of the barrier at a predetermined part of its travel, consisting of a tappet on said barrier, a valve-casing, an inlet-valve and a release-valve with fluted stems mounted in said casing, and controlling said passages, the said valves being operated by said tappet, a fluid-pressure indicator and a pipe connecting said valve-casing with said indicator, substantially as described.

17. The combination of a plurality of doors, hatches, or other like barriers, of means for moving said barriers, a source of fluid-pressure, valve mechanism operated by the motion of each barrier at a predetermined part of its travel and connected to said source of fluid-pressure, the said valve mechanism consisting of a tappet on said barrier, a valve-casing, an inlet-valve and a release-valve with fluted stems mounted in said casing, and controlling said passages, the said valves being operated by said tappet, an indicator-board with a plurality of pneumatic or fluid-pressure indicators mounted therein, and fluid-pressure pipes from the various valve-casings at the barriers to said indicator-board, substantially as described.

18. In a pneumatic system of the character described, the combination with a plurality of doors, hatches or other like barriers, of a source of fluid-pressure, mechanism for moving said barriers operated by said source of fluid-pressure, valve mechanism, consisting of a tappet on said barrier, a valve-casing, an inlet-valve and a release-valve with fluted stems mounted in said casing, and controlling said passages, the said valves being operated by said tappet, operated by the motion of each barrier at a predetermined part of its travel and connected to said source of fluid-pressure, fluid-pressure indicators consisting of bent tubes made of resilient material connected to said valve-casings, and pointers operated by said tubes upon the variance of the pressure therein, substantially as described.

681,627. **TOBACCO-BOX.** JOHN T. CUTTING, New York, N. Y. Filed Dec. 3, 1900. Serial No. 38,522. (No model.)

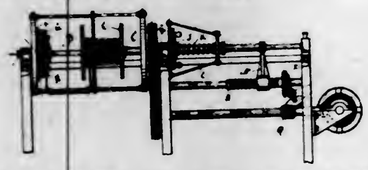


Claim.—1. As a new article of manufacture, a tobacco-box comprising a body oval in shape in cross-section and having one end permanently closed, the edges of the walls at the mouth of the box being nor-

mally in the plane with the sides of the box, and a cover having a dish-shaped body and a marginal flange, the body of the cover being adapted to enter the body of the box and to expand the same, so that the cover will be securely held in position, by the elasticity of the body of the box, as set forth.

2. As a new article of manufacture, a tobacco-box, consisting of a body-section which presents in cross-section an elongated oval, the edges of the walls at the mouth of the box being normally in the plane with the sides of the box, a cap having a dished body fitting in and permanently closing one end of the said body, and a cover for the opposite end of the body, which cover consists of a dished body portion, a marginal flange at the upper edge of the said dished body portion, the sides of the body portion of the cover being inclined inward and downward, the bottom area of the said cover corresponding to the normal area of the box-body at the end which is adapted to receive the cover, whereby when the cover is forced into the box-body the mouth portion of said box-body is expanded and the cover securely held therein by the elasticity of the box-body, as and for the purpose set forth.

681,628. **SPINNING-MACHINE.** GEORGE J. CURNER, Miamisburg, Ohio, assignor to the Hoover & Gamble Company, same place. Filed Jan. 21, 1901. Serial No. 44,055. (No model.)



Claim.—1. In a fiber-spinning machine, a revolving flier, means for driving the same, a capstan journaled on the flier, power-transmitting devices between the capstan and flier, an independently-journaled bobbin-shaft, a brake mechanism for said shaft, and means for reciprocating said shaft, whereby the relative rotations of the flier, capstan and bobbin-shaft are maintained invariable, substantially as specified.

2. In a spinning-machine, a flier provided with two heads, a bobbin-shaft independently journaled in one of said heads, means for retarding the rotation of said shaft, means for reciprocating said shaft, a capstan journaled on the other flier-head, power-transmitting devices between said flier and capstan, and a single driving mechanism, substantially as specified.

3. In a spinning-machine, a flier provided with two heads, a driving device attached to one of said heads, a bobbin-shaft independently journaled in one of said heads, a retarding mechanism for said shaft, a funnel-shaped receiver upon which the other head of the flier is journaled, a capstan journaled inside of said head, and power-transmitting devices between said flier and capstan, substantially as specified.

4. In a spinning-machine, a brake mechanism for the bobbin-shaft consisting of two stationary disks trussed together on said shaft, one being a friction-disk, a rotary disk fixed to turn with said shaft between said stationary disks, a spring interposed between one of said stationary disks and the rotary disk, adapted to force the rotary disk normally against the stationary friction-disk, and means for adjusting the tension of said spring, substantially as specified.

5. In a spinning-machine, a brake mechanism for the bobbin-shaft consisting of two stationary disks trussed together on said shaft, a disk fixed to turn with and slide on said shaft between said stationary disks, a spring interposed between the rotary disk and one of said stationary disks, a sleeve screw-threaded into the stationary disk against which the spring abuts, adapted to regulate the tension, substantially as specified.

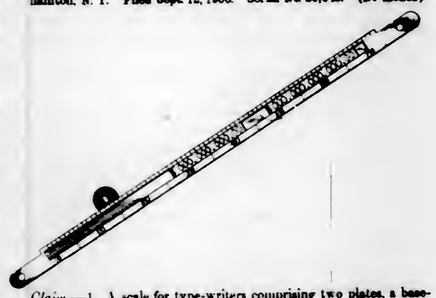
6. In a spinning-machine, in combination with a brake mechanism for the bobbin shaft, a stationary disk and a rotary disk normally in contact therewith, and aerating-ducts formed through the rotary disk adapted to conduct currents of air upon the contacting frictional surfaces when in motion, substantially as specified.

681,629. **VEHICLE-AXLE.** CHARLES A. DAHLHAUS, Brazil, Ind. Filed Nov. 30, 1900. Serial No. 38,323. (No model.)



Claim.—An integral metallic axle to be cast in one piece, and consisting of the narrow body portion of T form in cross-section, and having a planular upper surface, said body having at both end portions thereof lateral horizontal extensions at both sides, said body having also vertical upward extensions at the terminations thereof, the spindles on the same level as the lower or vertical portion of said body, and the vertical web portions connecting said spindles and body, and in the same plane as said upward extensions, substantially as specified.

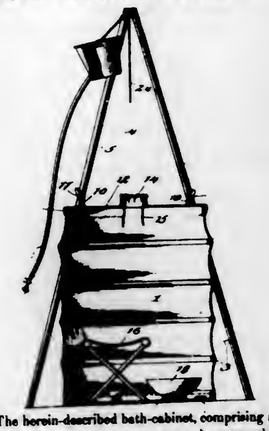
681,630. **TABULATING-SCALE.** ARTHUR L. DICKINSON, Binghamton, N. Y. Filed Sept. 12, 1900. Serial No. 29,843. (No model.)



Claim.—1. A scale for type-writers comprising two plates, a base-plate and a second plate, a longitudinal slot in the second plate extending part way of its length bounded by side walls and end walls, the latter forming stops, the second plate conforming in shape to the base-plate and being permanently attached thereto, a plurality of strips mounted upon the base-plate within the walls of the slot of the second plate, the strips and the second plate being of equal thickness, whereby their upper faces will lie flush, said strips being permanently in engagement with the base-plate, but having a longitudinal movement, limited by the stops at the ends of the second plate, the strips being held in engagement with the base-plate by the second plate.

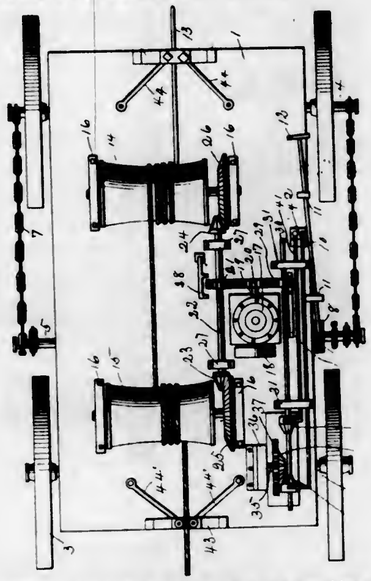
2. A scale for type-writers comprising two plates, a base-plate and a second plate, a longitudinal slot in the second plate extending part way of its length, resulting in side walls and end walls, the second plate being permanently attached to the base-plate, the under side of the former being secured to the upper face of the latter, strips slidably arranged within the slot of the second plate, the walls of the slot diverging toward the base-plate and the strips having beveled sides to conform to the walls, said strips being held in permanent engagement with the base-plate but having a longitudinal movement, said longitudinal movement being limited by the end walls of the slot.

681,631. **BATH-CABINET.** WARREN A. DURRIN, Woodville, Wis. Filed July 23, 1900. Serial No. 24,580. (No model.)



Claim.—The herein-described bath-cabinet, comprising a vertically-collapsible cabinet-body, having an open upper end, a removable top therefor, having an opening formed therein, and provided with an upstanding adjustable neckband surrounding the opening, a supporting-tripod straddling the cabinet-body, the upper ends of the leg-standards thereof having a mutual foldable connection, and each leg-standard having an intermediate joint, whereby the tripod may be folded, the cabinet-body rising above the joints of the leg-standards and having a detachable supporting connection therewith above said joints, a guide carried by the upper end of the tripod and arranged between adjacent standards thereof, a water-receptacle, having a flexible supporting connection which passes loosely through the guide to elevate the receptacle, a flexible pipe connected to the receptacle, and having a discharge-nozzle, and means for fastening the free portion of the flexible connection to one of the leg-standards when the receptacle is elevated, the latter being seated snugly between adjacent standards in its elevated position.

681,632. **CABLE-POWER.** CLYDE J. EASTMAN, Fort Worth, Tex. Filed July 16, 1900. Serial No. 23,767. (No model.)



Claim.—1. Apparatus for obtaining cable-power comprising a carriage, one or more windlasses mounted on said carriage and a cable passing one or more times around said windlasses, means for driving said windlasses, and means of securing the ends of said cable capable of lateral automatic adjustment in either direction.

2. In an apparatus for obtaining cable-power provided with a cable, a carriage, and windlasses mounted on said carriage for moving on said cable; means for securing the ends of said cable at the end of the distance to be traversed by said windlasses and means for permitting lateral automatic adjustments of the ends of said cable in either direction

3. In an apparatus for obtaining cable-power provided with a carriage, a cable, one or more windlasses mounted on said carriage and capable of traveling on said cable, and means for driving said windlass or windlasses; trolley-yokes for securing the ends of said cable and means for allowing lateral automatic adjustments of said yokes in either direction.

4. In an apparatus for obtaining cable-power provided with a carriage, a cable, one or more windlasses mounted on said carriage and capable of traveling on said cable, and means for driving said windlass or windlasses; trolley-yokes for securing the ends of said cable and stay-cables for permitting lateral movement of said yokes in either direction, said stay-cables being secured firmly and at right angle to the power-cable.

5. In an apparatus for obtaining cable-power provided with a carriage, a cable, one or more windlasses mounted on said carriage and capable of traveling on said cable, and means for driving said windlass or windlasses; means for disconnecting the driving means of said windlass or windlasses and means for connecting said driving means with gearing for driving the wheels of said carriage and the gearing for driving the wheels of said carriage whereby said carriage has movement independent of said cable.

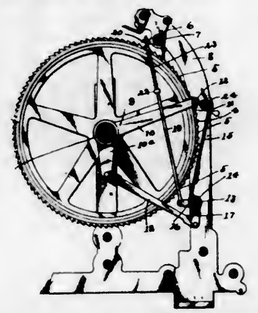
6. In an apparatus for obtaining cable-power provided with a carriage, windlasses mounted on said carriage, a cable passing around said windlasses, and means for driving said windlasses whereby said carriage is propelled; means for shifting said driving means from said windlass propulsion to means for driving said carriage by tractive power and the means for driving said carriage by tractive power.

7. In an apparatus for securing cable-power provided with a carriage, a cable, one or more windlasses mounted on said carriage and capable of traveling on said cable, and means for driving said windlass or windlasses; laterally-movable trolley-yokes for securing the ends of said cable and stationary tracks for permitting automatic adjustment of said cable by means of said trolley-yokes.

8. In an apparatus for obtaining cable-power provided with a carriage, windlasses mounted on said carriage, a cable passing around said windlasses, and means for driving said windlasses whereby said carriage is propelled; means for shifting said driving means from said windlass propulsion to means for driving said carriage by tractive power, means for driving said carriage by tractive power, and means for steering said carriage.

9. In an apparatus for obtaining cable-power provided with a carriage, windlasses mounted on said carriage, a cable passing around said windlasses, and means for driving said windlasses whereby said carriage is propelled; means for securing the ends of said cable and permitting automatic lateral adjustment thereof consisting of posts inserted in the ground, stay-cables attached to said posts, means for taking up the slack of said stay-cables and trolley-yokes attached to the ends of said first-named cable and adapted to run on said stay-cables.

681,633. **CASH-REGISTER.** LEO EHRICH, St. Louis, Mo. Filed Sept. 29, 1898. Serial No. 692,179. (No model.)



Claim.—1. In a machine of the character described, a register, a movable guard for said register, and means for setting the register to zero when the guard is moved.

2. In a machine of the character described, a series of registers, a movable guard for the same, and means connected with said guard for simultaneously setting all the registers to zero.

3. In a machine of the character described, a series of registers, and means for causing all the registers to detect any attempt made to fraudulently manipulate any of the same.

4. In a cash-register, the combination with the framework, registering-wheels journaled therein having numbers on their peripheries, and lip projections arranged at intervals on said wheels, of swinging arms, pawls carried on said swinging arms and adapted to engage with said lip projections and means for simultaneously moving said swinging arms predetermined and corresponding distances, substantially as and for the purpose specified.

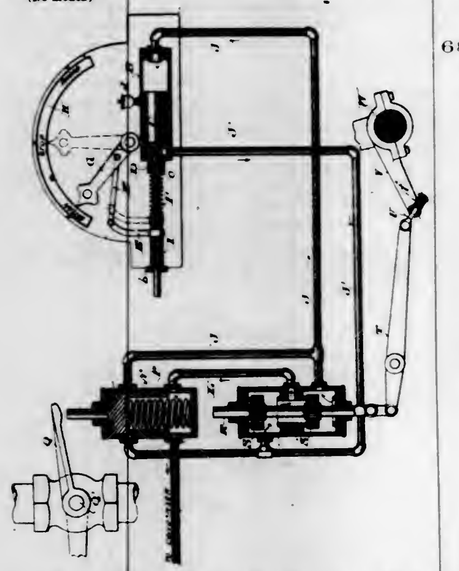
5. In a cash-register, the combination with the framework, registering-wheels journaled therein, said registering-wheels having peripheral numbers arranged in sets comprising figures from "1" to "10," and lip projections between said sets, of a fulcrumed bell-crank lever for each of said wheels, a spring-actuated pawl carried on one arm of each of said levers and supported in the path of said lip projections, a fulcrumed lever and a jointed connection between said lever and bell-crank, substantially as and for the purpose specified.

6. In a cash-register, the combination with the framework, a shaft supported therein, and registering-wheels journaled on said shaft, said registering-wheels having numbered peripheries and lips projecting at intervals therefrom, of bell-crank levers journaled on said shaft, pawls carried on said bell-cranks and supported in the paths of said wheel-lips, a spring-actuated fulcrumed lever 15 and a jointed connection between the latter and the inner arm of said bell-crank, substantially as and for the purpose specified.

7. In a cash-register, the combination with the framework a shaft

supported therein, registering-wheels rotatably mounted on said shaft, said registering-wheels having numbered peripheries and lip projections at intervals thereon, of bell-cranks 9 fulcrumed on said shaft, one arm of each of said bell-cranks carrying a pawl on its outer portion, the latter being supported in the path of the projecting lips of the adjacent registering-wheel, a fulcrumed lever 15, arms 17 projecting at intervals from the latter, said arms 17 having a jointed connection respectively with the inner arms of the bell-cranks 9, substantially as and for the purpose specified.

681,634. MOTOR STOP AND MOTION INDICATOR. ARTHUR R. FORTIER, Wauwatosa, Wis. Filed Jan. 14, 1901. Serial No. 43,140. (No model.)



Claim.—1. A cylinder, a piston in the cylinder, an arm fast on a rod connected to the piston, a sprial spring compressible and expansible on the rod incidental to movement of the arm, a pivotal pointer linked to said arm, and means in conjunction with the start and stop mechanism of a motor for exhausting fluid from either end of said cylinder simultaneously with its admission to the other end of same.

2. A cylinder, a piston in the cylinder, an arm fast on a rod connected to the piston, spiral springs compressible on the rod in opposite directions from the arm, a pivotal pointer linked to said arm, means in conjunction with the start and stop mechanism of a motor for exhausting fluid from either end of said cylinder simultaneously with its admission to the other end of same, and other means in conjunction with a reverse-shaft of the motor for shifting direction of flow on the part of said fluid with respect to the aforesaid cylinder.

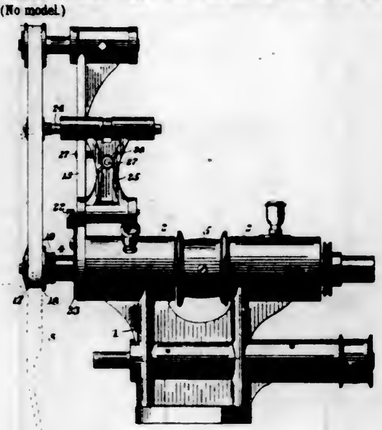
3. A cylinder, a piston in the cylinder, an arm fast on a rod connected to the piston, spiral springs compressible on the rod in opposite directions from the arm, a pivotal pointer linked to said arm, a plurality of casings in pipe connection with each other and both ends of said cylinder, one of the casings being organized for admission of air at but one end of same and the other casing made with air-inlets at both ends, a vacuum-chamber pipe in connection with the first of said casings, a valve arranged in said first casing to control the inlets and outlets of same, this valve being provided with an exposed stem, a spring under compression against the valve, an arm in conjunction with start and stop mechanism of a motor operative in one direction against said stem to actuate said valve against spring resistance, a stem in the second of said casings, means whereby the latter stem is put into reciprocative connection with reverse mechanism of the motor, and a pair of valves on the latter stem controlling the inlets and outlets of said second casing, whereby the direction of flow on the part of air with reference to the aforesaid cylinder is made to accord with direction of motion on the part of said motor.

681,635. UMBRELLA-RUNNER. SAMUEL S. FRETZ, Philadelphia, Pa. Filed Aug. 4, 1900. Serial No. 25,885. (No model.)

Claim.—An umbrella-runner consisting of a runner-barrel provided with an outwardly-flaring substantially cone-shaped portion, at the end thereof at which the notch is applied, and a shoulder on said barrel where the inner end of the notch rests, in combination with a notch, the sprocket portion of which is provided with slots extending through the walls of said notch, the sprocket-segments of which are inclined outward, the said end portion of the notch being formed into, substantially, the shape of a cone, corresponding substantially with the contour of the runner-barrel; substantially as described.



681,636. SCOURING OR BUFFING MACHINE. FREDERICK M. FURBER, Haverhill, Mass. Filed June 11, 1901. Serial No. 64,063. (No model.)



Claim.—1. An edge buffing or scouring machine comprising a rotary roll, an abrasive belt, means for holding the belt in frictional contact with a portion of the periphery of the roll, the said belt forming an abrasive cover for the portion of the roll on which it bears, and an upper guard or shield at one end of the roll whereby contact between said cover and the upper of a boot or shoe is prevented.

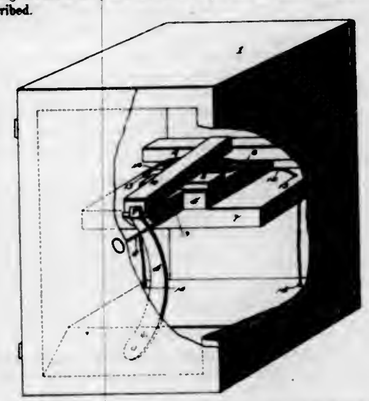
2. An edge buffing or scouring machine comprising a roll having end flanges, one of which is formed as an upper guard or shield, an arm mounted to swing on a bearing which is eccentric to the roll and having a flanged idle pulley at its outer end, an abrasive belt mounted on said roll and pulley, the said eccentric bearing being so arranged that a movement of the arm to a given position decreases the distance between the roll and pulley and permits the removal of the belt from between the flanges of the roll and pulley, while movement of the arm to another position increases said distance and prevents the removal of the belt, and means for locking or securing the arm.

3. An edge buffing or scouring machine comprising a roll having end flanges, an arm mounted to swing on a bearing which is eccentric to the roll, a flanged idle pulley on said arm, an abrasive belt mounted on said roll and pulley, a spring-pressed belt-tightening pulley mounted on the arm between the said roll and flanged pulley and means for adjusting said tightening-pulley.

681,637. EXPLOSIVE FIRE-ALARM. SHERMAN C. GUTHRIE, Findlay, Ohio, assignor of one-half to H. W. Guthrie, Elmore, Ohio. Filed Dec. 8, 1900. Serial No. 39,151. (No model.)

Claim.—1. In a device of the class described the combination of a casing provided with a suitable guide or way, a reciprocating plunger mounted in the guide or way and adapted to engage and depress a push-button, a spring arranged to engage the plunger, and a setting-bar holding the spring against movement and adapted to rest upon a bomb and to be thrown by the same out of engagement with the spring, substantially as described.

2. In a device of the class described the combination of a casing designed to be mounted over a push-button and provided with a guide or way, a plunger mounted in the guide or way, a spring arranged to engage the plunger, a setting-bar holding the spring against movement, a bomb for throwing the setting-bar out of engagement with the spring, and an operating-rod connected with the plunger and extending through the casing to enable the push-button to be operated by hand, substantially as described.



3. In a device of the class described the combination of a casing designed to be arranged over a push-button, a shelf arranged within the casing, a guide or way arranged on the shelf, a plunger mounted in the guide or way, a spring arranged to engage the plunger and secured at one end, a setting-bar engaging the other end of the spring to hold the latter against movement, and a bomb for throwing the setting-bar out of engagement with the spring, substantially as described.

681,638. WRITING-MACHINE. EDWARD B. HESS, Brooklyn, N. Y., assignor to Mechanical Improvements Company, New York, N. Y. Original application filed Apr. 26, 1901, Serial No. 57,588. Divided and this application filed Aug. 2, 1901. Serial No. 70,640. (No model.)

Claim.—1. The combination of a platen, a horizontally-disposed rocking frame in a plane below the platen, pivoted toward the front of the machine and comprising a segmental type-bar support, a projection extending rearwardly from said frame beyond the type-bar support, a rest upon which it normally lies, a shift-key and devices interposed between the shift-key and said extension to rock the frame upon its support, and type-bars pivotally mounted in the said support and extending normally toward the front of the machine.

2. The combination of a platen, a rocking frame in a plane below the platen carrying or comprising a segmental type-bar support, type-bars pivotally mounted in an arc or segmental curve in said support, the pivot of the rocking frame being located in a horizontal plane substantially equidistant from horizontal planes bounding the lowest point of the curve in which the type-bars are pivoted and the upper ends of said curve, and means for rocking the frame for the purpose set forth.

3. The combination of a platen, a horizontally-disposed rocking frame comprising or carrying a segmental type-bar support, type-bars pivoted therein, a shift-key, a rock-shaft arranged beneath the frame, a cam thereon engaging the frame and operative connections between the shift-key and rock-shaft for the purpose set forth.

4. The combination of a platen, a horizontally-disposed rocking frame comprising or carrying a segmental type-bar support, type-bars pivoted therein, a shift-key, a rock-shaft arranged beneath the frame, a cam thereon engaging a roller carried on the frame and operative connections between the shift-key and the rock-shaft for the purpose set forth.

5. The combination of a platen, a horizontal frame located in a plane below the platen and pivoted toward the front of the machine, a segmental type-bar support carried by and comprising part of such frame, type-bars pivotally mounted in said support, an adjustable buffer or stop upon which the frame normally rests, a shift-key, and means acting on the depression of the shift-key to rock said frame, for the purpose set forth.

6. The combination of a platen, a horizontal frame located in a plane below the platen and pivoted toward the front of the machine, a segmental type-bar support carried by and comprising part of such frame, type-bars pivotally mounted in said support, an adjustable buffer or stop located in rear of the type-bar support upon which the frame normally rests, a shift-key, and means acting on the depression of the shift-key to rock said frame, for the purpose set forth.

7. The combination of a platen, a vertically-movable segmental type-bar support mounted below the platen, a vertically-movable type-bar guide adjacent to the platen and mounted independently of the type-bar support, a shift-key, operative connections between the shift-key and the type-bar guide, whereby during the initial depression of the shift-key the type-bar guide is raised, and operative connections between the vertically-movable type-bar support and the shift-key whereby said support is raised during the later stage of movement of depression of the shift-key.

8. The combination of a platen, a vertically-movable type-bar support, type-bars pivotally mounted therein, a vertically-movable type-bar guide located adjacent to the platen, a shift-key and operative connections between the shift-key and the type-bar guide, and operative connections between the shift-key and the type-bar support, whereby the type-bar guide is raised to its elevated position before the depression of the shift-key is completed and the type-bar support is raised to its elevated position on the completion of the movement of the shift-key.

9. The combination of a platen, a vertically-movable type-bar support, type-bars pivotally mounted therein, a vertically-movable type-bar guide adjacent to the platen, the shift-key, and means interposed between the type-bar support and guide whereby on the depression of the shift-key one of said parts is raised to its elevated position during the earlier stage of depression of the shift-key and the other said part to its elevated position during the later stage of depression of said key.

10. The combination of a platen, a vertically-movable type-bar support, a vertically-movable type-bar guide, a shift-key, and means actuated by the shift-key to move one of said vertically-movable parts to its elevated position during part of the depression of the shift-key, and the other said part to its elevated position during the remainder of the depression of the shift-key.

11. The combination of a platen, a vertically-movable type-bar support, an independently-mounted vertically-movable type-bar guide, the cam and rock-shaft for elevating the type-bar guide, the cam and rock-shaft for elevating the type-bar support, an endwise-movable rod actuated by the shift-key, the crank connection between it and one of said rock-shafts and the crank-and-slot connection between it and the other said rock-shaft, and type-bars pivotally mounted in the type-bar support.

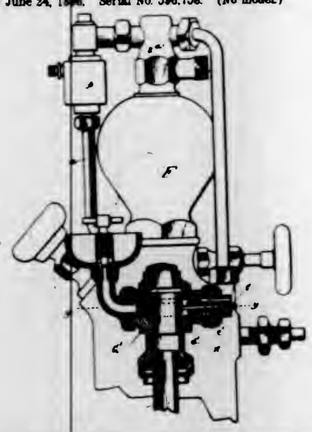
12. The combination of a movable type-bar support, type-bars mounted therein, a movable type-bar guide, a shift-key and devices operated by the shift-key to effect a movement of the guide during one part of the excursion of the key and the support during the other part of the excursion of the key.

13. The combination of a movable type-bar support, a type-bar guide adapted to occupy two positions, a single shift-key and means actuated by said key for first effecting a movement of one of said parts and then the other, and type-bars mounted in said support.

14. In a writing-machine, the combination of a movable type-bar support, type-bars pivoted therein, a sliding type-bar guide, a shift-key, and devices operated by the shift-key to slide the guide during one part of the excursion of the key and move the support during the other part of the excursion of the key.

15. In a writing-machine, the combination of a platen, a movable type-bar support, a sliding type-bar guide adapted to occupy two positions, a single shift-key, means actuated by said key for first sliding the guide and then moving the support, and type-bars pivoted in said support.

681,639. LUBRICATOR. CLARENCE R. HODGES, Detroit, Mich.
Filed June 24, 1896. Serial No. 596,758. (No model.)



Claim.—1. In combination with a lubricator provided with suitable ports and passage-ways, whereby the oil in the lubricator is balanced by steam-pressure, an oil-conducting pipe, a nozzle adapted to deliver the oil from the cup into the conducting-pipe, an auxiliary steam-passage leading from the boiler and adapted to deliver a second supply of steam into the oil-conducting pipe in front of the nozzle and between the nozzle and the cylinder, and means interposed in said auxiliary passage-way whereby the flow of steam is shut off when the main throttle is closed, substantially as described.

2. In combination with a lubricator, provided with suitable pipes and passage-ways whereby the contents of the lubricator are balanced between opposing forces, a tallow-pipe, an auxiliary steam passage-way adapted to furnish an auxiliary supply of steam to carry forward the lubricating-oil escaping from the oil-cup of the lubricator, and an automatically-actuated valve arranged to close said auxiliary passage, and to control steam passing therethrough, substantially as described.

3. In combination with a lubricator, provided with suitable pipes and passage-ways whereby the contents of the lubricator are balanced between opposing forces, a tallow-pipe, a passage-way through which an auxiliary supply of steam passes, and an unbalanced steam-actuated valve arranged to control the steam employed to carry the oil from the lubricator to the cylinder, properly located to close the passage-way through which an auxiliary supply of steam passes from the boiler to and from the tallow-pipe, substantially as described.

4. In combination with a lubricator provided with suitable pipes and passage-ways, whereby the contents of the lubricator are balanced between opposing forces, a tallow-pipe, an auxiliary steam passage-way, an unbalanced valve arranged to control the auxiliary steam and to be actuated in a closing direction by steam on its boiler side, and in an opening direction by back pressure from the cylinder, substantially as described.

5. In combination with a lubricator provided with suitable ports and passage-ways, connections leading thereto from the boiler, and connections leading therefrom to the tallow-pipe, an auxiliary steam-passage, a valve arranged to control the auxiliary steam and to be actuated to both open and close by the steam, having a case that is provided with a relief-opening on one side, substantially as described.

6. In combination with a lubricator provided with suitable pipes and passages whereby the contents thereof are balanced between opposing forces, a tallow-pipe arranged to communicate with the lubricator and with the steam-pipe which produces balance thereof, a restricted constantly open passage, a passage for producing in the tallow-pipe an increased flow of steam beyond that allowed by the restricted passage, and means actuated by variation of pressure for governing the increased flow of steam, substantially as described.

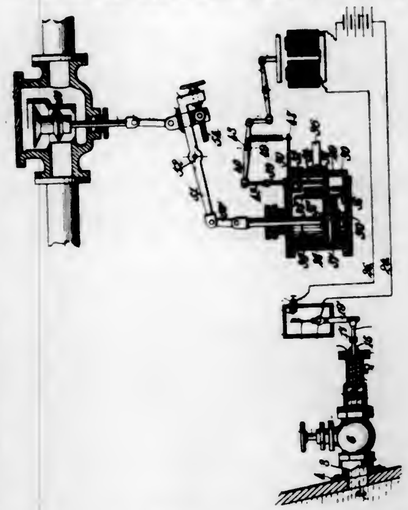
7. In combination with a lubricator provided with suitable pipes and passages whereby the contents thereof are balanced between opposing forces, a tallow-pipe arranged to communicate with the lubricator and with the steam-pipe which produces balance thereof, a restricted constantly open passage, a passage for producing in the tallow-pipe an increased flow of steam beyond that allowed by the restricted passage, and an automatic valve actuated by variation of pressure, for governing the increased flow of steam, substantially as described.

8. The combination with a lubricator provided with suitable pipes and passages whereby the contents thereof are balanced between the opposing forces, of an auxiliary passage adapted to supply an auxiliary supply of steam to carry forward the lubricant, and a valve arranged to be actuated by back pressure for controlling the movement of steam through the auxiliary passage, substantially as described.

9. In a balanced lubricator the combination of an oil-cup, an oil-delivery pipe, a port or passage for permitting an uninterrupted flow of steam into the oil-delivery pipe, a port or passage for permitting an increased flow of steam into the oil-delivery pipe and means serving to close the port or passage through which the increased flow of steam passes, brought into action by the establishment of a preponderance of pressure on the boiler side thereof.

10. In combination with a lubricator, provided with suitable pipes and passage-ways whereby the contents of the lubricator are balanced between opposing forces, a tallow-pipe, a passage-way through which an auxiliary supply of steam passes, and a valve arranged to be actuated automatically to control the steam employed to carry the oil from the lubricator to the cylinder, properly located to close the passage-way through which an auxiliary supply of steam passes from the boiler to and from the tallow-pipe, substantially as described.

681,640. ELECTRIC MARINE GOVERNOR. THOMAS P. HOOBDEN, San Antonio, Tex. Filed Dec. 5, 1900. Serial No. 38,784. (No model.)



Claim.—1. In an engine-governor, an actuating-lever, a rod connected to the throttle-valve of the engine for operating the same and adjustably connected to said actuating-lever, a pressure-regulator connected to said lever for operating the same, a spring return lever mechanism when operated adapted to permit of a supply of pressure to said regulator, and a circuit closing and breaking mechanism for operating said spring return lever mechanism.

2. In an engine-governor, an actuating-lever, an adjustable connection between the same and the throttle-valve of the engine for operating the same, a pressure-regulator connected to said lever for actuating the same, a spring return lever mechanism to permit of supplying pressure to said regulator, an armature connected to said spring return lever mechanism, an electromagnet in communication with a source of electrical supply and mounted in suitable relation to said armature, and means for forming an electrical circuit for energizing said magnet.

3. In an engine-governor, means operated by the movement of the vessel for closing and opening an electrical circuit, a spring return mechanism operated by the closing of said circuit, a pressure-regulator having a pair of inlet-valves operated by said lever mechanism to permit of a supply of pressure to the regulator, an actuating-lever connected to said regulator and operated thereby, connections between said actuating-lever and the throttle-valve of the engine for operating the same, and means carried by said actuating-lever for adjusting said connections.

4. In an engine-governor, a circuit closing and opening lever, connection between the same and a source of electrical supply, a contact-point arranged in suitable relation to said lever, an electromagnet in communication with a source of electrical supply, connections between said magnet and said contact-point, means connected to said lever and operated by the movement of the vessel for operating said lever causing thereby the opening and closing of an electrical circuit, a spring return lever mechanism operated by the forming of said electrical circuit and automatically returned to its normal position when the circuit is open, a pressure-regulator connected to said spring return lever mechanism and adapted to receive a supply of pressure when the spring return mechanism is operated, and an actuating-lever connected to said pressure-regulator, operated thereby, and adjustably connected to the throttle-valve of the engine.

5. In a marine-engine governor, a circuit closing and opening lever in communication with a source of electrical supply, a magnet in suitable communication with said lever and electrical supply, means connected to said lever and operated by the movement of the vessel for operating said lever, opening and closing an electrical circuit and energizing and deënergizing said magnet, a pressure-regulator, a spring return lever mechanism to permit of the supply of pressure thereto, actuated by said magnet when energized and automatically returned to its normal position when the circuit is open, and an actuating-lever adjustably connected to the throttle-valve of the engine and operated by said pressure-regulator.

6. In a marine-engine governor, a circuit closing and opening lever, means connected thereto and operated by the movement of the vessel for operating said lever, a pressure-regulator, a spring return lever mechanism connected to said regulator and adapted when operated to permit of a supply of pressure thereto, connections between said circuit closing and opening lever and said mechanism for operating the latter, and an actuating-lever adjustably connected to the throttle-valve of the engine and operated by said regulator.

7. In a marine-engine governor, a circuit closing and opening lever, means connected thereto and operated by the movement of the vessel for operating said lever, a pressure-regulator, a spring return lever mechanism connected to said regulator to permit of a supply of pressure to said regulator, connections between said circuit closing and opening lever and said mechanism for operating the latter, an actuating-lever operated by said regulator, a connection between said actuating-lever and the throttle-valve of the engine, and means carried by said actuating-lever for adjusting said connection.

8. In a marine-engine governor, means operated by the movement of the vessel for opening and closing an electrical circuit, a pressure-regulator, a series of spring return-levers connected thereto, means for operating said levers when the circuit is closed and adapted to permit of the supply of pressure to said regulator, an actuating-lever operated by said regulator, and means adjustably connected to said actuating-lever and to the throttle-valve for operating the same.

9. In a marine-engine governor, a lever operated by the movement of the vessel for opening and closing an electrical circuit, a pressure-regulator, means connected thereto and adapted when operated to permit of a supply of pressure to said regulator, electrical connection between said lever and said means for operating the latter, an actuating-lever connected to said regulator and operated thereby, a connection between said actuating-lever and the throttle-valve of the engine for operating the former, and means carried by said actuating-lever for adjusting said throttle-valve connection.

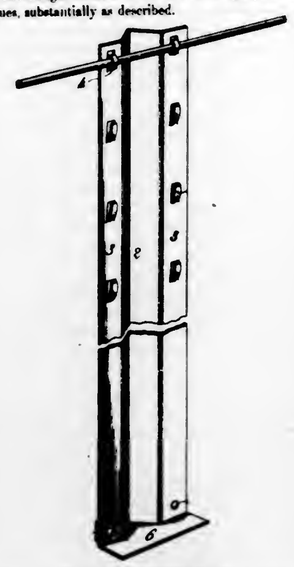
10. In a marine-engine governor, an actuating-lever adjustably connected to the throttle-valve of the engine, a pressure-regulator connected to said lever, a series of spring return-levers adapted when operated to permit of a supply of pressure to said regulator causing thereby the operation of the actuating-lever, and electrical connections for operating said series of spring return-levers.

11. In a marine-engine governor, an actuating-lever adjustably connected to the throttle-valve of the engine, a pressure-regulator connected to said lever, a series of spring return-levers adapted when operated to permit of a supply of pressure to the regulator for operating said actuating-lever, electrical means for operating said spring return-levers, and means operated by the movement of the vessel for opening and closing an electrical circuit.

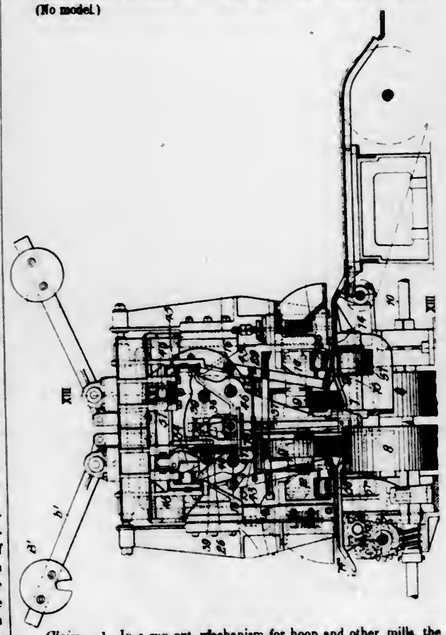
681,641. FENCE-POST. MYRON W. HOWARD, Camanche, Iowa.
Filed Aug. 23, 1900. Serial No. 27,539. (No model.)

Claim.—1. The combination with a fence-post consisting of a rectangular piece of sheet metal provided centrally with a longitudinal V-shaped strengthening-rib, of an anchor consisting of a rectangular piece of sheet metal slitted transversely at one side to form two tongues and an intermediate offset, said tongues being bent up vertically at a right angle to the plate, said post being seated at its lower end on the anchor-plate with the V-shaped rib resting on the offset, and the flanges of the post on each side of the said rib fastened to the vertical tongues, substantially as described.

2. The combination with a fence-post consisting of a rectangular piece of sheet metal provided centrally with a longitudinal V-shaped strengthening-rib, of an anchor consisting of a rectangular piece of sheet metal slitted transversely at one side to form two tongues and an intermediate offset, said tongues being bent up vertically at a right angle to the plate, the said post being seated at its lower end on the anchor-plate with the V-shaped rib projecting between the two tongues and resting on the offset, and the two flanges on each of the said ribs rigidly fastened to the vertical tongues, substantially as described.



681,642. RUN-OUT MECHANISM FOR ROLLING-MILLS. SIGMUND V. HUBER, Pittsburg, Pa. Filed Jan. 12, 1901. Serial No. 42,956. (No model.)



Claim.—1. In a run-out mechanism for hoop and other mills, the combination of mechanism for effecting the outward feed of the article,

mechanism for stretching or pulling said article and mechanism for shifting the article laterally from the feed to the stretching mechanism, substantially as set forth.

2. In a run-out mechanism for hoop and other mills, the combination of two mechanisms for effecting the outward feed of the articles, means for directing the articles to one or the other of said feed mechanisms, two mechanisms for stretching or pulling the articles and mechanism for shifting the articles from the feed mechanisms to the stretching mechanisms, substantially as set forth.

3. In a run-out mechanism for hoop and other mills, the combination of mechanism for effecting the outward feed of the article, mechanism for stretching or pulling the article and mechanism for preventing the contraction of the article during cooling, substantially as set forth.

4. In a run-out mechanism for hoop and other mills, the combination of mechanism for effecting the outward feed of the articles, mechanism for stretching or pulling the articles, mechanism for preventing the contraction of the articles during cooling and mechanism for shifting the articles from the feed mechanism to the stretching mechanism and from the latter to the holding mechanism, substantially as set forth.

5. In a run-out mechanism for hoop and other mills, the combination of means for clamping or holding one end of the article, means for exerting an acting pull on the opposite end of the article and means for causing the pulling and holding mechanism to engage the ends of the article successively, substantially as set forth.

6. In a run-out mechanism for hoop and other mills, the combination of means for clamping or holding one end of the article, a positively-driven roller and a roller movable toward and from the driven roller, said rollers being arranged to engage the opposite end of the article, substantially as set forth.

7. In a run-out mechanism for hoop and other mills, the combination of mechanism for effecting the outward feed of the article, means for gripping or clamping the front end of the article, a roller driven in a direction opposite the feed of the article and a roller movable toward and from the driven roller, said rollers being arranged to engage the rear end of the article, substantially as set forth.

8. In a run-out mechanism for hoop or other mills, the combination of mechanism for gripping or clamping one end of the article, mechanism for exerting an active pull on the opposite end of the article and means for simultaneously shifting said mechanism to engage the ends of the article, substantially as set forth.

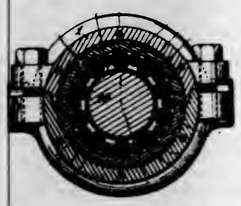
9. In a run-out mechanism for hoop and other mills, the combination of mechanism for effecting an outward feed of the article, mechanism for effecting an active pull or stretch on the article, mechanism for shifting the article laterally from the feed mechanism to the stretching mechanism and means for operating the shifting and stretching mechanisms in succession, substantially as set forth.

10. In a run-out mechanism for hoop and other mills, the combination of a feed mechanism, a pulling or stretching mechanism, a mechanism for shifting the article from the feed mechanism to the stretching mechanism, means for operating shifting and stretching mechanisms in succession and means for holding the shifting mechanism in position to which it has been shifted, during the movement of the stretching mechanism to engage the article, substantially as set forth.

11. In a run-out mechanism for hoop and other mills, the combination of carrier and clamping blocks arranged at a distance apart dependent upon the length of the article to be operated on, slides connected to said blocks, movable wedges operative through suitable connections to shift the slides, and means for simultaneously shifting the wedges, substantially as set forth.

12. In a run-out mechanism for hoop and other mills, the combination of movable carrier and clamping blocks arranged at a distance apart dependent on the length of the article to be operated on, a supporting-bed, a positively-driven roller projecting through the bed at or near one end thereof, a roller mounted on the carrier in line with the driven roller, and presser-feet carried by said blocks, substantially as set forth.

681,643. **ANTIFRICTION-BEARING.** DANIEL E. KENNISTER, Boston, Mass. Filed Sept. 14, 1900. Serial No. 30,063. (No model.)

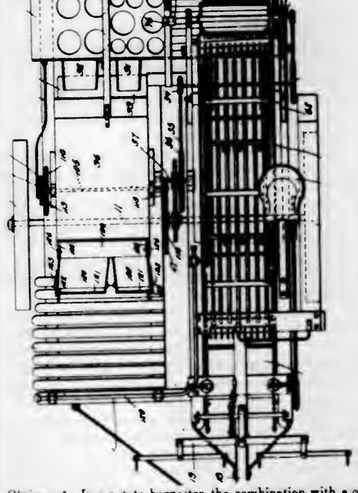


Claim.—1. An antifriction-bearing comprising a casing, a series of rolls within said casing, each roll having a reduced portion forming a neck thereon, a series of rolling separators or disks of smaller diameters than the rolls alternating with said rolls and engaging and having their bearings upon the reduced portions or necks thereof, and a concentric raceway for said separators bearing such relation to the orbit of the axes of said rolls as to retain each separator so that its axis or center of rotation is substantially in a plane passing through the axes of the two rolls separated thereby, for the purpose set forth.

2. An antifriction-bearing, comprising a casing, a series of rolls therein having reduced portions at both ends thereof forming necks thereon, a series of rolling separators or disks of smaller diameters than the rolls, at each end of the series of rolls, one separator at each end between each two of said rolls engaging and having its bearing upon the reduced portions of the rolls to separate said rolls, inner and outer annular rings forming concentric tracks for each series of separators, said tracks forming two raceways bearing such relation to the orbit of the axes of said rolls as to retain each separator so that its axis or center of rotation is substantially in a plane passing through the axes of the two rolls separated thereby, for the purpose set forth.

3. In an antifriction-bearing, a box or casing, a shaft or journal therefor, a plurality of rolls having a plurality of reduced portions forming necks thereon, a plurality of series of separators or disks alternating with said rolls and engaging and having their bearings upon the neck portions thereof, and a plurality of concentric raceways bearing such relation to the orbit or path of the axes of said rolls as to retain each separator substantially in a plane passing through its axis or center and the axes of the two rolls separated thereby, for the purpose set forth.

681,644. **POTATO-HARVESTER.** NARCISSE LEGER, Valleyfield, Canada, assignor to Louis A. Jacques, Montreal, Canada. Original application filed Dec. 13, 1900, Serial No. 39,618. Divided and this application filed Mar. 18, 1901. Serial No. 51,629. (No model.)



Claim.—1. In a potato-harvester, the combination with a conveyer mechanism, of an assorting-shoe provided with the primary grating, a primary plate, compartments with a grating in each for potatoes of different sizes, and a secondary plate in one of the compartments and discharging to the other compartment, substantially as described.

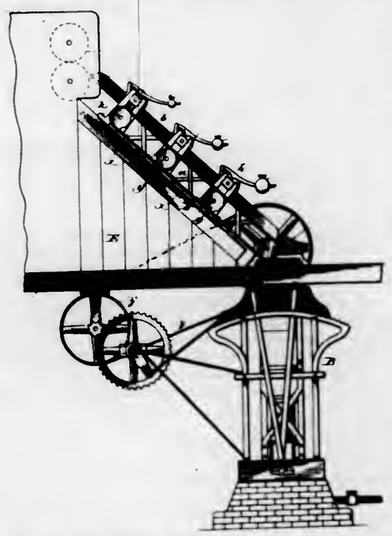
2. In a potato-harvester, an assorting-shoe provided with a casing divided into separate compartments, each having a grated bottom, a grate 86 in the primary compartment which first receives the load and arranged to deliver to the secondary compartment, and an assorting-plate disposed over both compartments, substantially as described.

3. In a potato-harvester, an assorting-shoe provided with a casing divided into separate compartments each having a grated bottom and an individual discharge-opening, an assorting-plate over all the compartments, and a primary load-receiving grating disposed substantially in the same plane as the assorting plate, as set forth.

4. In a potato-harvester, an assorting-shoe comprising a casing divided into separate compartments each having a grated bottom and a laterally-extending discharge-spout, an assorting-plate over both of said compartments, an inclined grating in the primary compartment and arranged to deliver to the secondary compartment, and a primary grating in the plane of the assorting-plate, substantially as described.

5. In a potato-harvester, the combination with a conveyer mechanism, of an assorting-shoe suspended for vibration around a vertical axis and divided into compartments each having a grated bottom and a laterally-extending discharge-spout, an assorting-plate over both compartments of the shoe, a primary grating carried by the shoe and disposed contiguous to the conveyer mechanism to receive the load directly therefrom, means for imparting a lateral vibratory movement to the shoe, and a duplex elevator mechanism having independent receiving-spouts operatively related to the laterally extending discharge-spouts of the shoe, substantially as described.

681,645. **BAT-FORMING MECHANISM.** FREDERICK B. POPE, Augusta, Ga., and GILES D. MIMS, Parksville, S. C. Filed Mar. 1, 1900. Serial No. 6,941. (No model.)



Claim.—1. A bat-forming mechanism, which consists of a series of pairs of perforated rolls, the perforations being of different sizes in the different pairs of rolls, means for causing the rolls to engage, and means for rotating said pairs of rolls, substantially as described.

2. A bat-forming mechanism, which consists of a series of pairs of perforated rolls, the pair which engages with the material in its proximate condition having larger perforations than the pair which engages with the material in its ultimate condition, means for causing the rolls to engage, and means for rotating said pairs of rolls, substantially as set forth.

3. A bat-forming mechanism, which consists of a series of pairs of perforated rolls, the pair which engages with the material in its proximate condition having larger perforations than the pair which engages with the material in its ultimate condition, means for causing the rolls to engage with a degree of pressure in inverse proportion to the size of the perforations therein, and means for rotating each pair of rolls, substantially as described.

4. In a bat-forming mechanism, a condenser and a press, an intermediate pair of perforated rolls, means for feeding the mass of cotton to the bite of the rolls, means for causing the rolls to engage with sufficient pressure to force out the air from both sides of the mass and form a cohesive blanket, and means for passing the blanket to the press, substantially as described.

5. In a bat-forming mechanism, a condenser and a press, intermediate pairs of perforated rolls, means for feeding the mass of cotton to the bite of the rolls, means for causing the rolls to engage with sufficient pressure to force out the air from both sides of the mass, and form a cohesive blanket, and means for passing the blanket to the press, substantially as described.

6. A bat-forming mechanism, which consists of a fixed inclined apron, connecting the condenser with the press, a series of pairs of perforated rolls thereon, the pair which engages with the material in its proximate condition having larger perforations than the pair which engages with the material in its ultimate condition, means for causing the rolls to engage, and means for rotating each pair of rolls, substantially as described.

7. A bat-forming mechanism, which consists of a fixed inclined apron connecting the condenser with the press, a series of pairs of perforated rolls thereon, the pair which engages with the material in its proximate condition having larger perforations than the pair which engages with the material in its ultimate condition, means for causing the rolls to engage with a degree of pressure in inverse proportion to the size of the perforations therein, and means for rotating each pair of rolls, substantially as described.

8. A bat-forming mechanism, which consists of a series of pairs of perforated rolls for proximately pressing the material, the pair which engages with the material in its proximate condition having larger perforations than those which subsequently engage with the material, a pair of corrugated rolls for ultimately pressing the material, means for causing the rolls to engage with a degree of pressure in inverse proportion to the size of the perforations therein, and means for rotating said rolls, substantially as described.

9. A bat-forming mechanism, which consists of a fixed inclined apron connecting the condenser with the press, a series of pairs of perforated rolls therein for proximately pressing the material, the pair which engages with the material in its proximate condition having larger perforations than those which subsequently engage with the material, a pair of corrugated rolls for ultimately pressing the material, means for causing the rolls to engage, and means for rotating said rolls, substantially as described.

681,646. **CAR-COUPLING.** WILLIAM R. POTTS, Jr., and CARROLL A. RUCKEL, Whitehall, Ill. Filed Dec. 27, 1900. Serial No. 41,194. (No model.)

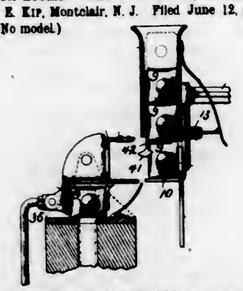


Claim.—1. A knuckle for a car-coupler of the Janney or "vertical-plane" type having a downwardly-projecting extension and a lug projecting at an angle from said extension and having an inclined face, substantially as set forth.

2. A knuckle for a car-coupler of the Janney or "vertical-plane" type having a downwardly-projecting extension and a lug projecting at an angle from said extension and having a face inclined longitudinally and transversely its length, substantially as set forth.

3. A knuckle for a car-coupler of the Janney or "vertical-plane" type having a downwardly-projecting extension corresponding in cross-section with the cross-section of the knuckle and provided at its lower end with a laterally-projecting lug inclined longitudinally and transversely its length, substantially as set forth.

681,647. **WEFT REPLENISHING AND CONTROLLING MECHANISM FOR LOOMS.** WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC E. KIP, Montclair, N. J. Filed June 12, 1901. Serial No. 64,246. (No model.)



Claim.—1. In a loom, weft-replenishing means, an electric circuit controlling said replenishing means and having its terminals sustained exterior to the shuttle, and a shuttle having mounted on it contact devices in the paths of the respective circuit-terminals and exterior to the weft or filling in the shuttle, said terminals closing said circuit upon the exhaustion of the filling in the shuttle to a predetermined extent.

2. In a loom, an electric circuit containing an electromagnet and having a plurality of terminals exterior to the shuttle, and a shuttle provided with circuit-closing means exterior to the weft or filling in the shuttle, and adapted to engage said terminals periodically when the loom is in operation.

3. In a loom, a shuttle-box and shuttle each having an aperture or way in its side for the entry of operating means when the shuttle is in the box, the said shuttle, provided with circuit-closing means situated exterior to the weft or filling in the shuttle, and an electric circuit including a generator and electromagnet and having yielding terminals sustained exterior to the shuttle and adapted, in the operation of the loom, to pass through said apertures in the shuttle and box and operate said circuit-closing means.

4. In a loom, the combination with an electric circuit including a generator and electromagnet, a terminal of said circuit constituting a feeler, and a shuttle provided with a contact-piece located exterior to the weft or filling in the shuttle, and a movable circuit-closer also exterior to the weft or filling and in the path of said feeler, and adapted to be put thereby into contact with said contact-piece when the filling in the shuttle is exhausted to a predetermined extent to thereby complete said circuit.

5. In a loom, an electrically-controlled weft-replenishing means, a terminal of the controlling-circuit thereof constituting a feeler, in combination with a shuttle having mounted on it an electric contact-piece exterior to the weft or filling in the shuttle, a movable circuit-closer mounted on the shuttle exterior to the weft or filling therein and in the path of said feeler, and adapted to be put by the latter into contact with said contact-piece when the filling is exhausted to a predetermined extent, and means for putting said contact-piece in the controlling-circuit when the shuttle is in the shuttle-box.

6. In a loom, the combination with an electric circuit including a generator and electromagnet the terminals of which constitute feelers, of a shuttle provided, exterior to the weft or filling in the shuttle, with circuit-closing devices in paths of the respective feelers, said circuit-closing devices being mounted on the shuttle and one element thereof being held, normally, out of electrical contact with the other by the said weft or filling.

7. In a loom, electrically-controlled weft-replenishing means, the terminals of its controlling-circuit constituting feelers, in combination with a shuttle having mounted on it, exterior to the weft or filling therein, circuit-closing devices in the respective paths of said feelers, one element of said circuit-closing devices being held normally out of electrical contact with the other by the said weft or filling.

8. In a loom, the combination with an electric circuit, including a generator and electromagnet, the terminals of said circuit constituting feelers, and a shuttle provided with contact devices for completing said circuit when acted upon by said feelers, said contact devices being mounted on the shuttle itself and controlled as to their action in completing the circuit by the weft or filling in the shuttle.

9. In a loom, an electrically-controlled weft-replenishing mechanism, the terminals of its circuit constituting yielding feelers, in combination with a shuttle provided with a metal plate 55, in the path of one of said feelers, said plate having a contact part 56, and a spring circuit-closer 57 in the path of the other feeler and adapted to be pressed into electrical contact with the part 56 when the weft or filling in the shuttle is exhausted to a predetermined extent.

10. In a loom, an electrically-controlled weft-replenishing mechanism, the terminals of its controlling-circuit constituting feelers, in combination with a shuttle provided with contact devices for completing said circuit when acted upon by said feelers, said contact devices being both mounted on the shuttle itself and the operation in closing the circuit controlled by the weft or filling in the shuttle.

11. In a loom, a weft-replenishing mechanism having a two-celled shuttle-box mounted to oscillate for bringing either cell of the box to the raceway for picking the shuttle therefrom, a magazine to contain spare shuttles, and a vibrating placer coöperating with said box for supplying full shuttles periodically to the latter.

12. In a loom, a weft-replenishing mechanism comprising electrical controlling means for determining the degree of exhaustion of the weft, mechanical operating means, a two-celled, oscillating shuttle-box for receiving and carrying a full shuttle to the raceway for picking, a magazine for spare shuttles, and means for transferring a shuttle from said magazine to the receiving-cell of the box.

13. In a loom, a weft-replenishing mechanism having an oscillating, two-celled shuttle-box, a magazine to contain spare shuttles and having a bottom delivery, a segregating device, a support below the magazine to receive the segregated shuttle, transferring means for placing the segregated shuttle in the box, mechanical operating means, and electrical controlling means for determining the periods of operation of the replenishing mechanism.

14. In a loom, weft-replenishing means, an electric circuit containing an electromagnet and having a plurality of terminals exterior to the shuttle, and a shuttle provided with circuit-changing means exterior to the weft or filling in the shuttle, a portion of said means being periodically engaged by said terminals, and made inoperative by the presence and operative by the substantial absence of weft in the active shuttle to thereby actuate said replenishing means.

15. In a loom, the combination with an electric circuit including a generator and an electromagnet, a terminal of said circuit constituting a feeler, of a shuttle having circuit-changing means sustained in the shuttle exterior of the weft or filling therein, said shuttle also having an aperture for the entry of said feeler, and a yieldingly-sustained conductor or circuit-closing piece which extends lengthwise of the shuttle across said aperture, the free end of said circuit-closer being directed toward the butt-end of the bobbin or weft-holder in the shuttle.

16. In a loom, the combination of a weft-replenishing mechanism, an electric circuit including a generator and electromagnet, a terminal of said circuit constituting a feeler of a shuttle having circuit-changing means sustained in the shuttle exterior of the weft or filling therein; said shuttle also having an aperture for the entry of said feeler and a yieldingly-sustained conductor or circuit-closing piece which extends lengthwise of the shuttle across said apertore, the free end of said circuit-closer being directed toward the butt-end of the bobbin or weft-holder in the shuttle.

17. In a loom, the combination with an electric circuit including a generator and magnet, of a shuttle provided with circuit-changing means exterior to the weft or filling therein and also provided with a yieldingly-sustained conductor or circuit-closing piece, means exterior of said shuttle adapted in the operation of the loom to press against said circuit-closing piece, said circuit-closing piece having its free end directed toward the butt-end of the weft-holder, said circuit being held inoperative by the presence and made operative by the substantial absence of the weft or filling in the shuttle.

18. In a loom, an electrically-controlled weft-replenishing mechanism, a circuit having circuit-closing means sustained therein exterior to the weft or filling, said shuttle also having a yieldingly-sustained conductor or circuit-closing piece, means exterior of said shuttle adapted in the operation of the loom to press against said circuit-closing piece, said circuit-closing piece having its free end directed toward the butt-end of the weft-holder, said circuit being held inoperative by the presence and made operative by the substantial absence of the weft or filling in the shuttle.

19. As a new article of manufacture, a shuttle having an aperture or way and a yieldingly-sustained piece which extends lengthwise of the shuttle, and across said aperture or way, the free end of said piece being directed toward that end of the shuttle where the holding devices for the bobbin or filling-holder are situated.

20. As a new article of manufacture, a shuttle having an aperture or way and a yieldingly-sustained piece which extends lengthwise of the shuttle and across said aperture or way, a portion of said metal piece being set out of line laterally with the other portion thereof, and the free end of said piece being directed toward that end of the shuttle where the holding devices for the bobbin or filling-holder are situated.

21. In a loom, an electric circuit, a shuttle-box, a shuttle provided, exterior to the filling therein, with circuit-changing means which forms a part or section of said circuit, the actuating portion or section of said circuit being sustained exterior to and independent of the shuttle, and means for connecting the different sections of the said circuit when the filling or weft in the shuttle is exhausted to a predetermined extent.

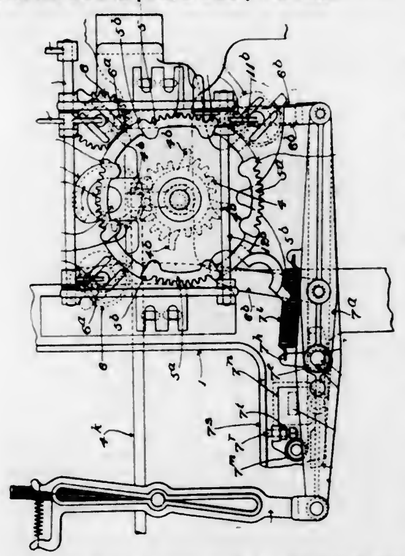
22. In a loom, an electric circuit, a shuttle-box, a shuttle provided, exterior to the filling therein, with circuit-changing means, which forms a part or section of said circuit, the actuating portion or section of said circuit being sustained exterior to and independent of the shuttle, and means for connecting the different sections of the said circuit when the filling or weft in the shuttle is exhausted to a predetermined extent, and a weft-replenishing mechanism controlled by said circuit.

681,648. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. HENRY BARDSLEY, Providence, R. I. Filed Apr. 15, 1901. Serial No. 55,800. (No model.)

Claim.—1. In a loom, in combination, the master gear or wheel, shuttle-box-operating mechanism operated therefrom, and means for moving said master gear or wheel intermittingly with decreasing speed from start to finish of each movement, substantially as described.

2. In a loom, in combination, the master gear or wheel, shuttle-box-operating mechanism operated therefrom, a segmental driven gear connected operatively with the said master gear or wheel, and a rotating driver-segment, with the gear-segments of the driver and driven gear eccentrically disposed to transmit motion at a progressively-decreasing rate of speed to the master gear or wheel at each advance of the latter, substantially as described.

3. In combination, the master gear or wheel, the partially toothed or mutilated pinion, its diametrical lever, pattern devices controlling said lever, and the flange adjacent said pinion having the notch which receives the said lever to lock the pinion, substantially as described.



4. In combination, the master gear or wheel, the partially toothed or mutilated pinion, its diametrical lever, the spring and pattern devices acting in connection with the said lever, and the flange adjacent said pinion having the notch which receives the said lever to lock the pinion, substantially as described.

5. In a shuttle-box-operating mechanism for looms, in combination, the master gear or wheel, a driving-train operating said gear or wheel intermittingly and including a segmental wheel having starting-teeth, and stop-motion devices having operative connection with said starting-teeth to withdraw the latter from their operative position when said devices act, substantially as described.

6. In a shuttle-box-operating mechanism for looms, in combination, the master gear or wheel, a driving-train operating said gear or wheel intermittingly and including a segmental wheel having starting-teeth which are movable laterally from their operative position into inoperative position, and stop-motion devices having operative connection with said starting-teeth to shift the latter into inoperative position when said devices act, substantially as described.

7. In a shuttle-box-operating mechanism for looms, in combination, the master gear or wheel, a segmental gear in operative connection therewith and having a laterally-movable series of starting-teeth, a driver-segment acting in connection with said segmental gear, and stop-motion devices having operative connection with said starting-teeth to withdraw the latter into inoperative position when said devices act, substantially as described.

8. In a shuttle-box-operating mechanism for looms, in combination, the master gear or wheel, a segmental gear in operative connection therewith and having a laterally-movable disk carrying a series of starting-teeth, a spring to hold said disk with the said teeth in operative position, a driver-segment acting in connection with said segmental gear and stop-motion devices having operative connection with said disk to withdraw the latter and its teeth laterally to place said teeth in inoperative position, substantially as described.

9. In a shuttle-box-operating mechanism for looms, in combination, the master gear or wheel, an intermittent gear-driving train therefor, stop-motion devices, and means connected with said devices whereby the latter act to disestablish working relations between an intermittingly-rotated driven member of said train and the driving member therefor.

10. In a shuttle-box-operating mechanism for looms, in combination, the box-lever, box connections therefor, operating means for said box-lever, and a compensating device to equalize the various shifts of the series of shuttle-boxes, substantially as described.

11. In a shuttle-box-operating mechanism for looms, in combination, the box-lever, box connections therefor, operating means for said box-lever, and a compensating device coacting with said box-lever to equalize the shifts of the series of shuttle-boxes, substantially as described.

12. In a shuttle-box-operating mechanism for looms, in combination, the compound box-lever, box connections therefor, operating means for said box-lever, and a compensating device interposed between the simple levers forming said compound box-lever, to equalize the shifts of the series of shuttle-boxes, substantially as described.

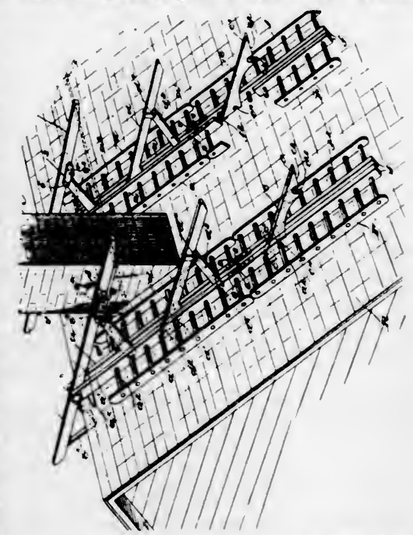
13. In a shuttle-box-operating mechanism for looms, in combination, the box-lever, box connections therefor, operating means for said box-lever, and a compensating device having one member thereof combined with the box-lever and another member applied to a relatively-fixed support, to act during the shifting of the shuttle-boxes to equalize the various shifts of the series, substantially as described.

14. In a shuttle-box-operating mechanism for looms, in combination, the box-lever, box connections therefor, operating means for said box-lever, and a compensating device comprising an eccentric member movable in connection with the box-lever and a second member applied to a relatively-fixed support to act in connection with said eccentric member during the shifting of the shuttle-boxes to equalize the various shifts of the series, substantially as described.

15. In a shuttle-box-operating mechanism for looms, in combination, the compound box-lever, box connections therefor, operating means for said box-lever, and a compensating device having an eccentric member interposed between the simple levers constituting the compound box-lever, and a coacting member applied to a relatively-fixed support, to act during the shifting of the shuttle-boxes to equalize the various shifts of the series, substantially as described.

16. In a shuttle-box-operating mechanism for looms, in combination, the compound box-lever, box connections therefor, operating means for said box-lever, and the compensating device having the eccentric member interposed between the simple levers constituting the compound box-lever, and the fixed stop, whereby the various shifts of the series of shuttle-boxes are equalized, substantially as described.

681,649. ROOF-BRACKET. JAMES L. CHASE, Ayer, Mass. Filed Oct. 5, 1900. Renewed Aug. 2, 1901. Serial No. 70,679. (No model.)



Claim.—1. A roof-bracket comprising an elongated base, having laterally-separated side bars to rest upon the roof and provided with a series of cross-bars, a hook-like ridge-holder connected with the base, and a platform-support consisting of a rigid arm adapted to coöperate at one of its ends with the under side of one and the top of the other of two adjacent cross-bars and be thereby locked in operative position.

2. A roof-bracket comprising an elongated base consisting of parallel center and side bars, to rest upon the roof, cross-bars connecting them, a holder adjustably mounted on the base to engage the ridge, and a platform-support having a locking-notch to receive a cross-bar, and be fulcrumed thereon, the adjacent end of the support extending beneath the next cross-bar above.

3. A roof-bracket comprising an elongated base consisting of parallel center and side bars, to rest upon the roof, cross-bars connecting them, a holder adjustably mounted on the base to engage the ridge, and a reversible platform-support adapted to be locked at either end on the base.

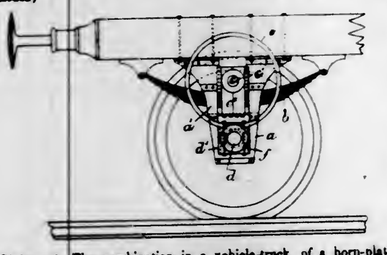
4. A roof-bracket comprising an elongated base consisting of parallel center and side bars, to rest upon the roof, cross-bars connecting them, a holder adjustably mounted on the base between the central bars, said holder being made as an arm pivoted on the upper end of the base and having a fixed and downturned rigid hook thereon beyond its pivot, and means between the base and the arm to lock the latter in horizontal position.

5. A roof-bracket comprising a base having laterally-separated side bars and a pair of adjacent central bars, cross-bars connecting them, an arm pivoted on the upper end of the base, having a ridge-hook on its lower side, means to retain the arm in horizontal position, and a detachable platform-support having a downturned notch to receive one of the cross-bars, and adapted to extend beneath the next one above, to lock said support in horizontal position extended from the base.

6. A roof-bracket comprising an elongated base adapted to rest on the roof, an adjustable holder on its upper end, to engage the ridge, oppositely-extended braces projecting laterally from the base adjacent the holder, to steady the base at its upper end, and a platform-support detachably connected with the base and extended horizontally when in operative position.

7. A roof-bracket comprising a base composed of adjacent, parallel center bars and laterally-separated side bars, cross-bars secured thereto, an arm pivoted between the center bars at their upper ends and having a ridge-hook, means to retain said arm in horizontal position, and a detachable platform-support having a downturned notch at each end, to correspond to different roof-pitches, either notch engaging a cross-bar between the center bars of the base to fulcrum the support thereon, the adjacent end of the support extending beneath the next cross-bar above, to retain the support in position.

681,650. ANTIFRICTION MECHANISM FOR AXLE-SHAFTS OF RAILWAY-CARRIAGES OR OTHER VEHICLES. JOHN E. COOPER, Withernsea, England. Filed Apr. 1, 1901. Serial No. 53,867. (No model.)



Claim.—1. The combination in a vehicle-truck, of a horn-plate, guide-boxes rigidly secured together and playing in the horn-plate, friction-rollers having an axle journaled in one of the guide-boxes, the guide-boxes being subject to the action of the vehicle-spring.

2. The combination in a vehicle-truck, of a horn-plate, guide-boxes rigidly secured together and playing in the horn-plate, friction-rollers having an axle journaled in one of the guide-boxes, the guide-boxes being secured to the vehicle-spring.

3. In antifriction mechanism, the combination of a main axle and an antifriction-axle secured together so as to maintain a fixed relation, and both the journals secured to vehicle-springs, substantially as described.

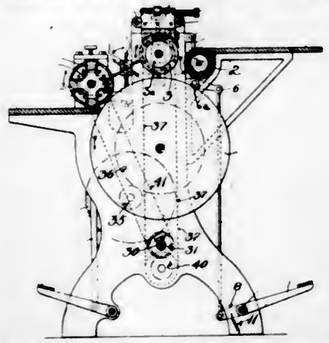
4. In a vehicle or motor truck, the combination of a body, horn-plates having guide-slots secured to the body, two journal-boxes mounted in each horn-plate and playing in the guide-slots, the upper journal carrying the axle of a friction-disk, the lower journal carrying the main axle, and a spring secured to the body and directly to the upper journal-box.

681,651. LEATHER-SEASONING MACHINE. THOMAS DAWSON, Salem, Mass., assignor of three-fourths to William L. Wood, Beverly, Mass. Filed May 22, 1901. Serial No. 61,365. (No model.)

Claim.—1. In a seasoning-machine the combination of a rotary feeding-roll having a yielding supporting-surface, a distributing-roll rotating at a higher speed and coöperating with the feeding-roll to apply and rub in the seasoning liquor as the skin is advanced by said rolls, means for driving said feeding-roll, and means for driving said distributing-roll at a higher surface speed, substantially as described.

2. In a seasoning-machine the combination of a rotary feeding-roll having a brush-like supporting-surface, a distributing-roll rotating at a higher speed and coöperating with said feeding-roll to apply and rub in the seasoning liquor as the skin is advanced by said rolls, means for driving said feeding-roll, and means for driving said distributing-roll at a higher surface speed, substantially as described.

3. In a seasoning-machine the combination of a rotary feeding-roll having a supporting-surface formed of radially-extending bristles, a distributing-roll rotating at a higher speed and coöperating with said feeding-roll to apply and rub in the seasoning liquor as the skin is advanced by said rolls, means for driving said feeding-roll, and means for driving said distributing-roll at a higher surface speed, substantially as described.



4. In a seasoning machine the combination of a rotary feeding-roll having a brush-like surface, an absorbent distributing-roll rotating at a higher speed and coöperating with said feeding-roll to apply and rub in the seasoning liquor as the skin is advanced by said rolls, means for driving said feeding-roll, and means for driving said distributing-roll at a higher surface speed, substantially as described.

5. In a seasoning-machine the combination of a rotary feeding-roll having a yielding surface, an absorbent distributing-roll arranged in the rear of said feeding-roll and rotating at a higher rate of speed, means for driving said feeding-roll, and means for driving said distributing-roll at a higher surface speed, substantially as described.

6. In a seasoning-machine the combination of a rotary feeding-roll, a coöperating distributing-roll, a spreading and rubbing roll, and a rotary drum arranged to support the skin as it comes from the feeding and distributing rolls, and while it is being acted upon by the spreading and rubbing roll, substantially as described.

7. In a seasoning-machine the combination of a rotary feeding-roll, a coöperating distributing-roll, means for rotating the distributing-roll at a higher surface speed than the feeding-roll, a spreading and rubbing roll rotating in the opposite direction, a coöperating drum arranged to direct the skin to the spreading and rubbing roll and to support the same while it is being acted upon by said roll, substantially as described.

8. In a seasoning-machine the combination of a rotary feeding-roll, a coöperating distributing-roll, a spreading and rubbing roll, means to direct the skin to the spreading and rubbing roll and to support the same while being acted upon by said roll, and an aerating device between said distributing-roll and spreading and rubbing roll, substantially as described.

9. In a seasoning-machine the combination of a rotary feeding-roll, a coöperating distributing-roll, a spreading and rubbing roll, means for directing the skin to the spreading and rubbing roll and to support the same while being acted upon by said roll, and a device for preventing the skin from adhering to the distributing-roll, substantially as described.

10. In a seasoning-machine the combination of a rotary feeding-roll, a coöperating distributing-roll, a spreading and rubbing roll, means for directing the skin to the spreading and rubbing roll and to support the same while being acted upon by said roll, and a stripping device for preventing the skin from adhering to the distributing-roll, substantially as described.

11. In a seasoning-machine the combination with a distributing-roll, of a distributing-trough above the same provided with perforations and mechanism for reciprocating said trough longitudinally of said roll, substantially as described.

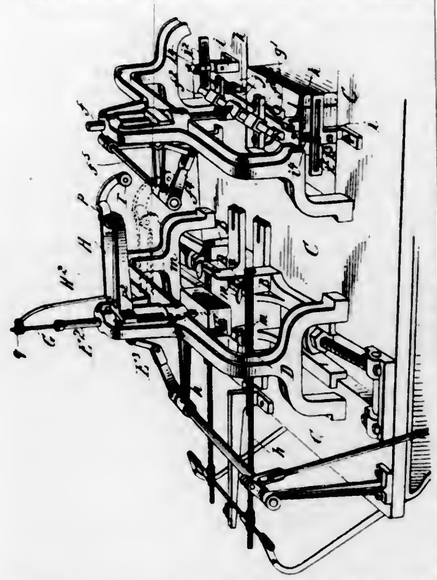
12. In a seasoning-machine the combination, with a distributing-roll of a distributing-trough above the same provided with a bottom inclined from the center toward both ends, perforations through said bottom, and mechanism for reciprocating said trough longitudinally of said roll, substantially as described.

13. In a seasoning-machine the combination with a distributing-roll, of a trough above the same provided with perforations, mechanism for reciprocating said trough longitudinally of said roll, and spreaders on the ends of said trough for spreading the liquor toward the ends of the roll, substantially as described.

14. In a seasoning-machine the combination with a distributing-roll, of a distributing-trough above the same provided with perforations, and spreaders pivoted to the ends of the trough substantially as described.

15. In a seasoning-machine the combination with a distributing-roll, of a distributing-trough above the same provided with perforations, and a spreader on the front side of said trough engaging said roll, substantially as described.

681,652. PAPER-BOX MACHINE. CHAUNCEY W. GAY, West Springfield, Mass. Filed Dec. 26, 1900. Serial No. 41,115. (No model.)



Claim.—1. In a paper-box machine the combination of the blank-pile support, the gummer-picker and the stripper-rod, adjustably supported over the center of the blanks, between the lines of gumming, of the gage-guides *k k* adjustable along and depending below the stripper-rod.

2. In a paper-box machine the combination of the blank-pile support, and the picker-gummer of the stripper-rod located horizontally over the middle of the blank-support, and the gage-guides *k k*, adjustable along the length of, and depending below the stripper-rod.

3. In a paper-box machine the combination with a blank-pile support, and the gummer-picker, of the brackets *i*, opposite sides of the pile and adjustable toward and from each other, the brackets i^4 adjustable on the brackets *i* parallel with each other, and the stripper-rod supported by and extended between the brackets i^4, substantially as described.

4. In a paper-box machine the combination with the gummer-picker of the brackets *i i* adjustable toward and from each other, and having the slotted portions i^2, of the brackets i^4 adjustably engaged and supported by said portions i^2 and the stripper-rod *j* extended between and supported by the said brackets i^4, substantially as described.

5. In a paper-box machine the combination with the horizontal picker carrier-bar f^2 and the pickers *g* secured thereon and depending therebelow at opposite sides of said bar, of the stripper-rod, adjustably supported horizontally under said bar f^2 and between the said depending pickers, substantially as described.

6. In a paper-box machine the combination with the horizontal picker-bar f^2 and the pickers *g* secured thereon and depending therebelow at opposite sides of said bar and said pickers being individually adjustable transversely relatively to the bar of the stripper-rod, located under the bar f^2 and supported for adjustment horizontally and transversely relatively to said bar, substantially as described.

7. In a paper-box machine, in combination, picker-shaft *f* carrying horizontal transverse bar f^2 provided with horizontal bars f^3 right angular thereto, the pickers *g* supported by and depending below said bars f^3, at points forward and rearward of said bar f^2, and which are individually adjustable on the said bars f^3, and the horizontal stripper-rod *j* and adjustable bodily forwardly and rearwardly, substantially as described.

8. In a paper-box machine the combination with the horizontal picker-bar f^2 and the pickers *g* secured thereon and depending therebelow at opposite sides of said bar and said pickers being individually adjustable transversely relatively to the bar, of the horizontal stripper-rod *j*, located under and parallel with the bar *f*, the brackets i^4 by which the end portions of said rod are supported, and the supports having horizontal longitudinal slots i^2 with which the brackets i^4 have adjustable supporting engagements, substantially as described.

9. In a paper-box machine in which it is required to make boxes from blanks having end-forming sections and stay-sections constituted by the corner portions of the blank, a box-forming mechanism comprising a throat the walls of which are contractible and expansible, and which have at their corners, and outside of the planes of the inner walls of the throat, members which project upwardly above the upper edges of the throat-walls, means for conveying the blanks over the throat leaving them to receive support by the corner-sections thereof on said upwardly-extended projections, a former or plunger, and means for causing relatively a telescopic action of the former within the folding-throat, for the purpose set forth.

10. In a paper-box machine in which it is required to make boxes from blanks having end-forming sections, and stay-sections constituted by the corner portions of the blank, a box-forming mechanism comprising a throat the walls of which are contractible and expansible, and which have at their corners, and outside of the planes of the inner walls of the throat, members which project upwardly above the upper edges of the throat-walls and which have the tops thereof concaved or rounded, a reciprocatory conveyer for the blanks comprising rods or bars A A supported by and guided through ways therefor in the end walls or members of the said throat and which in the action of conveying the blanks over the throat bring the corner-sections against said elevated and upwardly-rounded projections whereby the blank is caused to ride up on said projections and to attain supporting positions thereon above the tops of said conveyer-bars and the upper edges of the throat or former and means for causing relatively telescopic action of the former within the throat substantially as and for the purposes set forth.

11. In a machine for making paper boxes from blanks of the character substantially as described, the combination with the reciprocatory former, and a horizontally-movable blank-conveyer, of vertical opposing throat-boundary walls which are movable to have approaching and receding motions, and which are provided with upwardly-extending projections located adjacent the corners, and outside of the area, of the throat and the throat-inclosing walls, whereby, as the blank is conveyed over the throat, such blank is, by the corner-wings thereof supported by said projections above the top edges of the throat-walls, and the descending former insures initially in the folding operations, upturned inclinations of said corner-wings relatively to the box-bottom and box-end sections, substantially as described.

12. In a paper-box machine the combination of the former, conveyer A and folding-throat comprising the end followers B B and the approaching and receding plates D D which have the ears *m*, at the corners of the throat, extending above the tops of said plates, and outside of their outer vertical edges, for the purposes set forth.

13. In a paper-box machine in combination the reciprocating former, the folding-throat comprising the end followers B B and the approaching and receding plates D D which have upwardly-extending projections at their outer portions, and the reciprocating conveyer, having its top lower than said projections, whereby as the blank is by the conveyer carried under the former, it will ride up on said upwardly-extended projections, and be by its corner wings or sections supported on said projections above the top edges of the folding-throat and said conveyer, for the purpose explained.

14. The combination of the former, conveyer A, and folding-throat comprising the end followers B B and the approaching and receding plates D D which have the ears *m*, at the corners of the throat, extending above the tops of said plates, and outside of their vertical edges, and which ears have their upper edges convex or rounded.

15. In a paper-box machine the combination of the former, conveyer A and folding-throat comprising the end followers B B and the approaching and receding plates D D which have the ears *m*, at the corners of the throat, extending above the tops of said plates, and outside of their vertical edges, and having their approached inner ends pointed.

16. The combination of the former, conveyer A, and folding-throat comprising the end followers B B and the approaching and receding plates D D which have the ears *m*, at the corners of the throat, extending above the tops of said plates, and outside of their outer vertical edges, and which ears have their upper edges convex or rounded and their approached ends pointed.

17. In a paper-box machine the combination of the former, conveyer A and folding-throat comprising the end followers B B and the approaching and receding plates D D which have the ears *m*, at the corners of the throat, extending above the tops of said plates, and outside of their vertical edges, having their inner faces downwardly inclined.

18. In a paper-box machine the blank-folding mechanism comprising the folding-throat constructed outside of its corners with the members *m* of almond shape, their faces downwardly and inwardly inclined, their

upper edges rounded and having the attachment parts m^2 secured to the upper portion of the plates D which are comprised in the walls of the folding-throat.

19. In a paper-box machine the combination of the former, conveyer, and folding-throat comprising end followers and approaching and receding upstanding opposite side plates having at their tops outside of their outer vertical edges ears or projections m which have their upper edges higher at their middle portions, inclining forwardly and rearwardly downwardly, and having their inner faces downwardly and inwardly inclined.

20. In a paper-box machine the combination of the former, conveyer h, and folding-throat comprising the end followers B B and the approaching and receding plates D D provided with the flat springs extending from the upper inner edges of the receding plates downwardly and inwardly inclined and said plates D D having the ears m, at the corners of the throat, extending above the tops of said plates, and outside of their outer vertical edges, for the purposes set forth.

21. In a paper-box machine, the combination with the folding plunger or former E having a tubular shaft E^2, of a central shedder-rod G playing through said tubular shaft, adjustable means for imparting at pleasure a longer or shorter downward thrust movement to the rod through and below the bottom of the former, and a retracting-spring located within the tubular shaft and reacting against the said shedder-rod.

22. In a paper-box machine, the combination with the picker-actuating mechanism, the former-shaft, and the shedder-rod, of the shedder-rod-operating lever arranged relatively to the picker-actuating mechanism, to be periodically operated thereby.

23. In a paper-box machine, the combination with the picker-actuating mechanism, the tubular former-shaft, and the shedder-rod, of the shedder-rod-operating lever linked to the rod and arranged relatively to the picker-actuating mechanism to be periodically operated thereby.

24. In a paper-box machine, the combination with the picker-actuating mechanism, the former or plunger having a shedder, of parts interposed between the shedder and picker to be actuated by the picker, and in turn actuating the shedder.

25. In a paper-box machine, the combination with the former having a tubular shaft and the shedder-rod, of the shedder-rod-operating lever, supported by, and bodily movable in unison with the former-shaft, and linked to the shedder-rod, and means for periodically swinging the said lever.

26. In a paper-box machine having a reciprocatory picker mechanism the combination of tubular former-shaft, shedder-rod, bracket p^3 carried by the shaft, lever H pivoted in the bracket, link H^2 pivoted to the lever and adjustably connected to the shedder-rod, a part of said lever H being in cooperative relation to the picker mechanism, to be operated thereby.

27. In a paper-box machine, the combination of the picker mechanism and the box-forming mechanism comprising the former and the shedder, working therethrough, shedder-operating devices arranged relatively to the picker mechanism to be periodically operated thereby.

28. In a paper-box machine the conveyer-rods having the slotted rib and the abutment-hooks each having a grooved base to straddle over the slotted rib, and the screws A^6 for confining the abutment-hooks in their adjusted position along the conveyer-rods, substantially as described.

29. In a paper-box machine, the combination with the former and conveyer of the folding-throat comprising the end followers and the upright members D opposite pairs of which are movable toward and from each other, and which members have the flat spring-plates extending from their upper inner edges in downwardly-inclining directions, for the purpose set forth.

30. In a paper-box machine in which it is required to make boxes from blanks having end-forming sections, and stay-sections constituted by corner wings or flaps of the blank: a box-forming mechanism comprising a throat, within which the blank is to be folded, means for conveying the blank across the mouth of the throat, and supports located at the corners of the throat, onto which the blank is brought and which sustain the blank by the corner-wings thereof preparatory to the folding operation, a former or plunger, and means for causing, relatively, a telescopic action of the former within the folding-throat, whereby there is initially a deflecting impingement between said corner-supports and the corner-flaps, so that the latter are angularly turned before the end-forming sections are turned.

681,653. LOOSE-SHEET HOLDER. JUNIUS B. IRVING, Kansas City, Mo., assignor of one-half to Joseph D. Havens, same place. Filed Mar. 31, 1900. Serial No. 10,900. (No model.)



Claim.—1. In a loose-sheet holder, the combination with two sheet-holding members, of a hinge connecting them comprising two parts having cylindrically-formed portions embracing a common pintle, a notch being provided in the cylindrical portion of one part of the hinge, and a spring on the other part normally bearing upon the cylindrical portion of the opposite part and adapted to enter the notch when the members have been swung toward each other to a certain position, substantially as described.

2. In a loose-sheet holder, the combination with two sheet-holding members, of a hinge connecting them comprising two parts embracing a common pintle, the pintle being provided with a notch, and one of the parts of the hinge being also provided with a notch, and a spring on the other part adapted to enter the two notches when the members have been swung to a certain position, substantially as described.

3. The combination with two sheet-holding members, of a cover hinged to one of the members, a hinge connecting the two members comprising two parts having cylindrically-formed portions embracing a common pintle, a notch being provided in the cylindrical portion of one part of the hinge, and a spring on the other part adapted to enter the said notch when the members have been swung to a certain position, substantially as described.

4. The combination with two sheet-holding members, of a hinge connecting the two members comprising two parts having cylindrically-formed portions embracing a common pintle, a spring on one part which bears upon and resists rotation of the other part on the pintle when the members are swung to a certain position, and means by which the spring tends to rotate the said part when the members are in a different position, substantially as described.

5. The combination with two sheet-holding members, of a plurality of hinges connecting the two members each hinge comprising two parts having cylindrically-formed portions embracing a common pintle, a spring on one part which bears upon and resists rotation of the other part on the pintle when the members are swung to a certain position, and means by which the spring tends to rotate the said part when the members are in a different position, substantially as described.

6. The combination with two sheet-holding members of a plurality of hinges connecting them, each hinge comprising two parts having cylindrically-formed portions embracing a common pintle, a notch in the cylindrical part of one part, and a spring on the other part adapted to engage the said notch when the members have been swung to a certain position, substantially as described.

7. The combination with two sheet-holding members, of a hinge connecting the two members comprising two parts having cylindrically-formed portions embracing a common pintle, a notch in the cylindrical part of one part, and a spring on the other part adapted to enter the said notch when the members have been swung to a certain position, substantially as described.

8. The combination with two sheet-holding members, of a hinge connecting the two members comprising two parts having cylindrically-formed portions embracing a common pintle, a notch in the cylindrical part of one part and a resilient tongue integral with the other part and adapted to enter the said notch when the members have been swung to a certain position, but bearing upon and serving to prevent rotation of the opposite part when the members have been swung to a position in which the tongue is disengaged from the said notch, substantially as described.

9. The combination with two sheet-holding members, of a plurality of hinges connecting them, each hinge comprising two parts having cylindrically-formed portions embracing a common pintle, a notch in the cylindrical part of one part, and a resilient tongue on the other part adapted to engage the said notch when the members have been swung to a certain position, substantially as described.

10. The combination with two sheet-holding members, of a plurality of hinges connecting them, each hinge comprising two parts having cylindrically-formed portions embracing a common pintle, a notch in the cylindrical part of one part, and a resilient tongue integral with the other part and adapted to engage the said notch when the members have been swung to a certain position, substantially as described.

11. The combination with two sheet-holding members, of a cover hinged to one of the members, a plurality of hinges connecting the two members, each hinge comprising two parts having cylindrically-formed portions embracing a common pintle, a notch in the cylindrical part of one part, and a resilient tongue on the other part adapted to engage the said notch when the members have been swung to a certain position substantially as described.

12. The combination with two sheet-holding members, of a cover hinged to one of the members, a plurality of hinges connecting the two members, each hinge comprising two parts having cylindrically-formed portions embracing a common pintle, a notch being provided in the cylindrical part of one part of each hinge, and a spring on the other part adapted to enter the said notch when the members have been swung to a certain position, substantially as described.

681,654. ELECTRIC PROSPECTING APPARATUS. AUGUSTUS F. MCCLATCHEY, Aurora, Ill., assignor to Frederick M. Steele and Ernest Dale Owen, Chicago, Ill. Filed Apr. 20, 1900. Serial No. 13,585. (No model.)



Claim.—1. In an apparatus for detecting and locating minerals, metals, ores or the like in the earth, an electric generator, an indicating device and a measuring device, in combination with terminals arranged to be inserted in the earth, and means for protecting said terminals from the effects of electrolytic action, as and for the purpose set forth.

2. In an apparatus for detecting and locating minerals, metals, ores or the like, earth-terminals arranged to be inserted in the earth, and a protecting agent interposed between the terminal and the earth for protecting said terminals from the effects of electrolytic action, in combination with means for measuring the resistance of the earth portion of the circuit between said terminals, as and for the purpose set forth.

3. In an apparatus for detecting and locating minerals, metals, ores or the like in the earth, earth-terminals arranged to be inserted in the earth, a protecting agent arranged to surround said terminals to protect the same from the effects of variable resistance due to electrolytic action in combination with means for measuring the resistance of the earth portion of the circuit between said electrodes.

4. An earth-terminal for use in measuring the electrical resistance of the earth, comprising a metallic rod, an apertured casing surrounding said rod, and a protecting material interposed between the said rod and casing, as and for the purpose set forth.

5. A terminal for use in measuring the electrical resistance of the earth, comprising a metallic rod, a tubular casing surrounding the same, said casing provided with apertures therethrough, and a filling or packing interposed between said rod and casing and consisting of a protecting agent and a granular conducting material, as and for the purpose set forth.

6. A terminal for the purpose stated, comprising a metallic rod, a surrounding casing provided with apertures, a packing of protecting material between the rod and the surrounding casing, and means for opening and closing the openings in said casing.

7. A terminal for the purpose described, comprising a metal rod, a surrounding casing consisting of inner and outer apertured shells adapted for movement with respect to each other, and a protecting agent interposed between the said rod and the said casing.

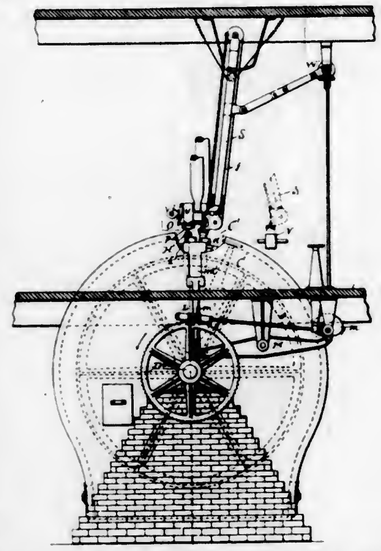
8. A terminal for the purpose described, comprising a metallic rod, a casing consisting of apertured inner and outer shells, the outer shell being provided with a solid point and with a head.

9. A circuit-terminal designed to be inserted in the earth and comprising a metallic rod, in combination with a protecting material interposed between said rod and the earth, as and for the purpose set forth.

10. A circuit-terminal adapted to be inserted in the earth and comprising a metallic rod, in combination with a combined protecting agent and conducting material surrounding said rod and interposed between the same and the earth, as and for the purpose set forth.

681,655. CONTINUOUS HEATING AND BAKING MACHINE. HENRY D. PERKY, Worcester, Mass. Filed Sept. 29, 1900. Serial No. 31,555. (No model.)

Claim.—1. A rotary baking or heating cylinder having automatically opening and closing stoves and a peripheral feed, substantially as specified.



2. A rotary baking or heating cylinder having radially-reciprocating stoves, automatically opening and closing by the movements of reciprocation, substantially as specified.

3. A rotary baking or heating cylinder having radially-reciprocating stoves automatically opening and closing by the movements of reciprocation, and locking devices for holding the stoves closed when seated, substantially as specified.

4. A rotary baking or heating cylinder having a circumferential series of transverse radially-reciprocating stoves in juxtaposition with each other, substantially as specified.

5. In a rotary baking or heating cylinder, the combination with the circumferential transverse outer stove-sections and inner stove-sections of the radially-reciprocating operating blocks or heads pivoted to the outer stove-sections and having a sliding connection with the inner stove-sections, substantially as specified.

6. The combination with a horizontally-journaled baking or heating cylinder, of an endless peripheral feed, and an automatic discharge, substantially as specified.

7. The combination with a continuous baking or heating device, of an endless pneumatic feed, a transfer or discharge, and an endless conveyer, substantially as specified.

8. The combination with a rotary baking or heating device, having transverse automatically opening and closing stoves, of an endless feed and a transfer or discharge, substantially as specified.

9. The combination with a continuous baking or heating device, having transverse automatically opening and closing stoves, of an endless pneumatic feed, a transfer or discharging device, and an endless conveyer in connection with said discharging device, substantially as specified.

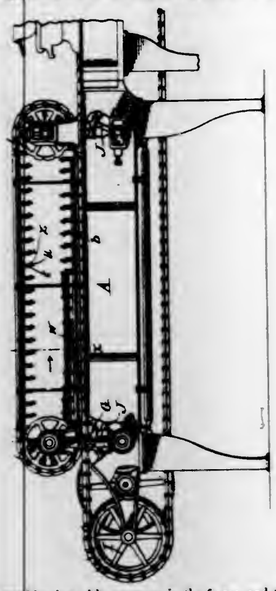
681,656. CONTINUOUS CUTTING-MACHINE. HENRY D. PERKY, Worcester, Mass. Filed Dec. 9, 1899. Renewed Feb. 9, 1901. Serial No. 46,722. (No model.)

Claim.—1. The combination, with a traveling sectional carrier-belt composed of trough-links, of a lower chain cutter-belt having link-blades adapted to pass upward between the trough-links, an upper chain cutter-belt, the plane-tracks and cam tracks of the frame, whereby the movements of the belts are controlled, and the sprockets and gear devices, whereby the belts are connected to move at the same rate of speed, substantially as specified.

2. The combination with the link troughs, and their connected frames and rollers, of a lower chain cutter-belt having fixed blades and devices for engagement with the interval recesses of the trough-links, substantially as specified.

3. The combination with link troughs, and their connected frames,

of the lower chain of link cutters, and an upper chain of links having reciprocating blades, and mechanism for operating, substantially as specified.

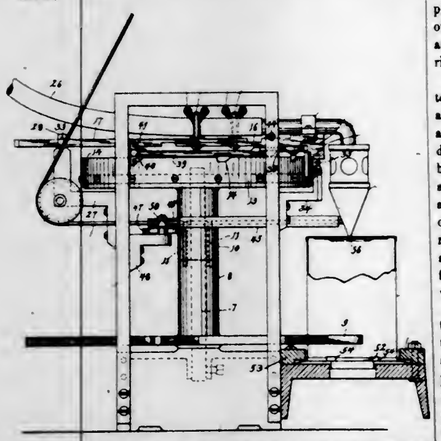


4. The combination with camways in the frame, and the connected section-troughs, of an upper chain of connected links, their adjustable blades and sliding frames, having lateral lugs to engage the camways, substantially as specified.

5. The sectional cutter-link, consisting of the body portion and its connecting lugs and rollers, its mold-form face, its trackway, movable blade-frame, adjustable blade and friction-springs, substantially as specified.

6. In a continuous cutting-machine, the combination with chain of section-troughs, of a lower chain of knife-links, engaging said chain of section-troughs, and an upper chain of links carrying movable cutters and means for reciprocating said cutters, substantially as specified.

681,657. **TIPPING-MACHINE.** WILLIAM L. PORTER and ROBERT WITTER, Oconto, Wis.; said Porter assignor to Robert M. Kyle and Neil J. Kyle, Chicago, Ill. Filed Feb. 16, 1900. Serial No. 5,414. (No model.)



Claim.—1. In a tipping-machine adapted to act in conjunction with can-conveying mechanism, said mechanism adapted to carry cans along in a longitudinal line, the said cans being arranged in an upright position on the conveying mechanism, with the caps of the cans uppermost, the combination of a carriage, a soldering-iron carried by said carriage, means for actuating the carriage so as to carry the soldering-iron along with a can, with the point of said soldering-iron in register with the opening in the can-cap, the iron being adapted to melt solder passing to the opening in the can-cap, and means, after the soldering operation has been completed, for returning the carriage to its initial position ready to be carried along with a succeeding can.

2. In a tipping-machine adapted to act in conjunction with can-conveying mechanism, said mechanism adapted to carry cans along in a longitudinal line, the said cans being arranged in an upright position thereon, with the caps thereof uppermost, the combination of a carriage, a soldering-iron carried by said carriage, means for automatically actuating the carriage so as to carry the soldering-iron along with a can, the point of said soldering-iron being in register with the opening in the can-cap, and the iron being adapted to melt solder supplied thereto, the said melted solder passing to the opening in the can-cap, and means, after the soldering operation is completed, for automatically returning the carriage to its initial position ready to be carried along with a succeeding can.

3. In a tipping-machine adapted to act in conjunction with can-conveying mechanism, said mechanism adapted to carry cans arranged thereon along in a longitudinal line, said cans being disposed on the conveying mechanism in an upright position with the caps thereof uppermost, the combination of a carriage, a soldering-iron carried by said carriage, means for actuating the carriage so as to carry the soldering-iron along with a can, the point of said soldering-iron being in register with the opening in the can-cap, and the iron being adapted to melt solder supplied thereto, the said melted solder passing to the opening in the can-cap, and a spring connected to the carriage and adapted, after the soldering operation is completed, to return said carriage to its initial position ready to be carried along with a succeeding can.

4. In a tipping-machine adapted to act in conjunction with can-conveying mechanism, the combination of a horizontally-swinging carriage carrying a soldering-iron, a device provided with means at certain distances apart for engaging the carriage and moving said carriage therewith, means for intermittently actuating said engaging device simultaneously with the movement of a can, the said carriage being carried with the engaging device, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, means for releasing the carriage from its engaging device, after the soldering operation is completed, and means upon the release of the carriage, for returning said carriage to its initial position ready to be carried along with a succeeding can.

5. In a tipping-machine adapted to be used in conjunction with can-conveying mechanism, the combination of a horizontally-swinging and vertically-rocking carriage carrying a soldering-iron, an another band provided therearound at desired distances apart with notches for engaging the carriage and moving said carriage therewith, means for intermittently rotating the band simultaneously with the movement of a can, a notch of the band being thereby caused to engage the carriage and carry said carriage therewith, the soldering-iron carried by the carriage having its point in register with the opening in the cap of the can during the movement of the carriage, means for causing the carriage to move in a rectilinear plane when thus actuated by the band, means for raising the carriage out of engagement with the notch, after the soldering operation is completed, and means adapted, upon the release of the carriage, to return said carriage to its initial position ready to be carried along with a succeeding can.

6. In a tipping-machine, the combination with a conveyer adapted to convey and carry cans, a movable carriage carrying a soldering-iron, a device provided with means at certain points for engaging the carriage and moving said carriage therewith, mechanism between said engaging device and the conveying mechanism for causing the engaging device to be intermittently actuated simultaneously with the movement of a can, said carriage being thereby carried with the engaging device, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, means for releasing the carriage from the engaging device after the soldering operation is completed, and means adapted, upon the release of the carriage, for returning said carriage to its initial position ready to be carried along with a succeeding can.

7. In a tipping-machine, the combination with a conveyer adapted to convey and carry cans, a rotatable device provided with arms adapted to be acted upon by the cans as said cans are moved, a carriage carrying a soldering-iron, an engaging device carried by the rotatable part, and provided with means at desired distances apart for engaging the carriage and moving said carriage therewith, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, means for releasing the carriage from the engaging device after the soldering operation is completed, and means adapted, upon the release of the carriage, for returning said carriage to its initial position ready to be carried along with a succeeding can.

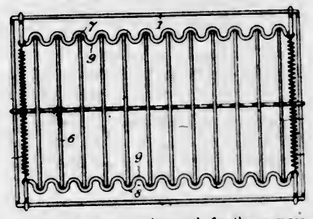
8. In a tipping-machine, the combination with a conveyer adapted to convey and carry cans, a rotatable part provided with arms, said arms adapted to be acted upon by the cans in the movement of said cans and thereby cause a rotation of the rotatable part, a movable carriage carrying a soldering-iron, other arms projecting from the rotatable part and connected by a band, said band provided at certain distances apart with means for engaging the carriage and moving said carriage therewith, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, means for releasing the carriage from its engaging device after the soldering operation is completed, and means adapted, upon the release of the carriage, for returning said carriage to its initial position ready to be carried along with a succeeding can.

9. In a tipping-machine adapted to operate in conjunction with can-conveying mechanism, the combination of a swinging carriage carrying a soldering-iron, and also provided with a wheel, a track against which said wheel rotates, a rotatable part provided at certain distances apart with means for engaging the carriage and moving said carriage therewith and simultaneously with the movement of a can, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, means for releasing the carriage from its engaging device after the soldering operation is completed, and means adapted, upon the release of the carriage, for returning said carriage to its initial position ready to be carried along with a succeeding can.

10. In a tipping-machine adapted to act in conjunction with can-conveying mechanism, the combination, of a swinging carriage carrying a soldering-iron, a device provided with means, at certain distances apart, for engaging the carriage and moving said carriage therewith, means for intermittently actuating the engaging device simultaneously with the movement of the can, the said engaging device in its movement carrying the carriage therewith, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, a plate provided at one end with an elevation adapted to raise the carriage out of engagement with the engaging device, and said plate provided at its opposite end with a stop, and means adapted, upon the release of the carriage, for returning said carriage to its initial position to the limit permitted by the engagement of the carriage with the stop.

11. In a tipping-machine, adapted to act in conjunction with can-conveying mechanism, the combination, of a horizontally-swinging carriage carrying a soldering-iron, a device provided with means at certain distances apart for engaging the carriage and moving said carriage therewith, means for actuating said engaging device to cause the same to be intermittently actuated simultaneously with the movement of a can, the said carriage being carried with the device, and the soldering-iron carried by the carriage having its point in register with the opening in the can-cap during the movement of the carriage, a plate provided with an elevation adapted to raise the carriage out of engagement with the engaging device, said plate provided at its opposite end with another elevation of less height than the first-named elevation, and also provided with a stop, and means adapted, upon the release of the carriage, for returning the carriage to the limit permitted by contact of said carriage with the stop of the plate.

681,658. **PHOTOGRAPHIC-PLATE RACK.** FRANK W. POTTER, Springfield, Mass., assignor to Robert A. Knight, same place. Filed Dec. 14, 1900. Serial No. 39,827. (No model.)

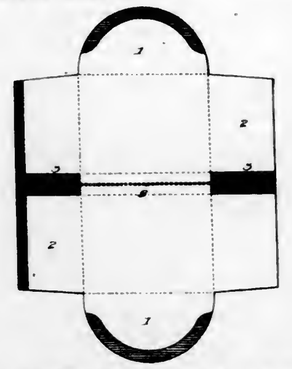


Claim.—1. A photographic-plate rack for the purpose described consisting of two upright parallel sides, a plate-supporting bar located between said sides and substantially in the plane of the lower edge thereof, a side frame pivotally supported on each of said sides, means on said frames whereby plates engaged thereby may be maintained in separated relations, and a spring adapted to move said frames toward one another, substantially as described.

2. A photographic-plate rack for the purpose described consisting of two upright parallel sides, a plate-supporting bar located substantially midway between said sides and about in the plane of the lower edge thereof, and two swinging side frames provided with oppositely-located recesses for receiving the edges of the plates, and a spring for said frames adapted to force the latter against opposite edges of a plate located between them, substantially as described.

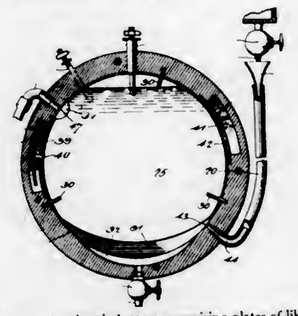
3. A photographic-plate rack consisting of two upright parallel sides, a bar located between said sides and adapted to support the lower edge of a plate, two side-swinging side frames, a spring for said frames adapted to move them against opposite edges of a plate located between them, said bar and side frames having a series of plate-receiving notches whereby a series of plates may be maintained in parallel planes and in separated relations, substantially as described.

681,659. **ENVELOP.** JACOB SALLADE, Milton, Pa., assignor of one-half to Benjamin F. Johnson, Richmond, Va. Filed May 14, 1901. Serial No. 60,143. (No model.)



Claim.—As a new article of manufacture, a twin envelop folded to provide side laps to form a longitudinal central overlapping gummed seam terminating at the open opposite ends and on the same side of the twin envelop, the inner walls of the side laps gummed in transverse lines mediately of their length, and in folded position, crossing the longitudinally-lapped seam, and a weakened line crossing said lapping gummed seam mediately of the width of the gummed transverse lines, and gummed end flaps to seal the open ends of the gummed-seamed side laps.

681,660. **PRIMARY BATTERY.** OTTO A. SPAHR, Millersburg, Ohio. Filed June 9, 1900. Serial No. 19,749. (No model.)



Claim.—1. An electric battery comprising plates of like potential a third plate of different potential disposed between the first-named plates, a supply-pipe leading to a point below and in the plane of the third plate to discharge against the lower edge of the plate, and means constructed and arranged to supply alternate charges of gas and electrolyte through said pipe.

2. An electric battery comprising plates of different potentials and having an inlet-opening below and in the plane of one of the plates, and means constructed and arranged to supply alternate charges of gas and electrolyte through said inlet-opening, whereby they may divide and rise at both sides thereof.

3. An electric battery comprising spaced negative plates and an interposed positive plate and having an inlet-opening below and in the plane of the positive plate, and means constructed and arranged to sup-

ply alternate charges of gas and electrolyte through said opening, whereby they may divide and rise in contact with both faces of the positive plate.

4. The combination with a battery comprising spaced negative plates and an interposed positive plate, an electrolyte covering portions of the plates, and a tube opening into the battery at a point below and in the plane of the positive plate, said tube extending to a point above the level of the electrolyte, of means constructed and arranged to supply alternate bodies of air and electrolyte through said tube.

5. The combination with a battery comprising spaced negative plates and an interposed positive plate, an electrolyte covering portions of the plates, and a tube communicating with the battery at a point below and in the plane of the positive plate, said tube extending above the level of the electrolyte, of means constructed and arranged to drop electrolyte into the tube to compress the air therein and force it into the battery with the electrolyte.

6. The combination with a plurality of cells of battery, each comprising spaced plates of one potential and an interposed plate of a different potential, and a separate supply-tube connected with each cell at a point below and in the plane of the interposed plate of its respective cell, of means constructed and arranged to drop electrolyte into the tubes, and a separate overflow for each cell.

7. A battery comprising electrodes of different potentials, one of said electrodes being a plate having a longitudinal passage therethrough between its active faces to convey fluids from one end to the other thereof, said plate having a tubular extension forming a continuation of the bore of the plate and adapted to receive and direct gas and liquid to the bore of the plate to pass therethrough.

8. A battery comprising spaced plates of one potential and an interposed plate of a different potential, the interposed plate having a longitudinal passage extending through it, means for supplying fluids through the passage to discharge below and in the plane of the interposed plate, and an overflow for the battery.

9. A battery comprising electrodes of different potentials, one of said electrodes being a plate having a longitudinal passage extending through it, a bushing engaged with the inner surface of the passage, said bushing extending exteriorly of the plate and having external threads, and a clamping-nut upon the bushing.

10. A battery comprising a circular frame, elements fixed in the ends of the frame, an element disposed between the first-named elements, an arc-shaped recess in the inner face of the frame below the interposed element, and a draw-off pipe communicating with the recess.

11. A battery comprising a frame, elements disposed in the ends of the frame to form a containing vessel, an insulating turn-button at each end of the frame and disposed for engagement with the plates to hold them in the frame, and a common pivot for the turn-buttons.

12. A battery comprising a plurality of cells, each including a frame having elements disposed in its ends to form a containing vessel, and insulating turn-buttons pivoted upon the frame and adapted for movement into and out of engagement with the plates, said buttons being adapted to lie against the plates of the adjacent cells to hold said cells spaced.

13. The combination with a frame having elements disposed in its ends to form a containing vessel, of a spring-metal yoke disposed to straddle the frame and lie with its ends against the plates, and a binding-post carried by the yoke.

14. The combination with a frame having elements disposed in its ends to form a containing vessel, of a metal yoke disposed to straddle the frame and lie with its ends against the plates, and a binding-post carried by the yoke.

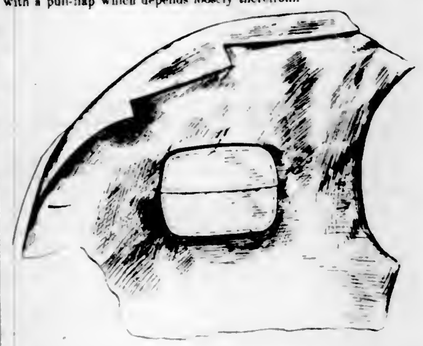
681,651. POCKET-CLOSURE. JOHN M. SUNDEAN, Lincoln, Nebr., assignor to John B. Meserve and William S. Stein, same place. Filed Feb. 26, 1901. Serial No. 48,971. (No model.)

Claim.—1. The combination with a pocket having an entrance and exit opening of a closure insertible into the pocket through the opening and withdrawal through the latter to respectively close and open the pocket, said closure having an exteriorly-located portion for operating the same.

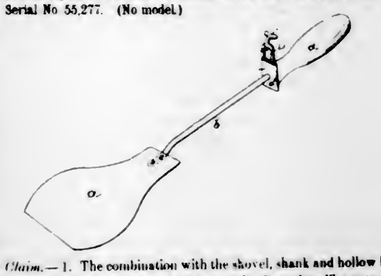
2. The combination of a pocket having an entrance and exit opening at a point between the upper and lower terminals of the pocket, and a closure insertible into and withdrawable through said opening to respectively close and open the pocket, the upper extremity of the closure being free to extend into the upper portion of the pocket above the plane of said opening to serve to hold the closure in engagement with the pocket when performing its closing function.

3. The combination of a pocket having an entrance and exit opening, an upwardly-extending holding-flap secured above the opening, and a closure insertible into the pocket through the opening and withdrawable through the latter to respectively close and open the pocket, said closure having a lip to interiorly engage the pocket and an exteriorly-located pull-flap.

4. The combination of a pocket having an entrance and exit opening, a holding-flap exteriorly located and secured above the opening, and a closure insertible into the pocket through the opening and withdrawable through the latter to respectively close and open the pocket and provided with a pull-flap which depends loosely therefrom.



681,662. PANCAKE-TURNER. WILLIAM TOMASKOFF, Newark, N. J., assignor to Peter Lowentrant, same place. Filed Apr. 11, 1901. Serial No. 55,277. (No model.)



Claim.—1. The combination with the shovel, shank and hollow handle, the latter provided with a suitable case, having a box-like extension lying within said hollow handle and the shank being provided with a pinion or wheel, of a sliding rack engaging said pinion and adapted to move in a direction at right angles to the longitudinal axis of the shank and cause said shovel and shank to rotate, and a spring arranged within the hollow handle and attached to the shank and adapted to return the shovel to a proper normal position, substantially as set forth.

2. The combination with the hollow handle having at one end a perpendicular way and a rack adapted to slide in said way, and having a box for the shank within said handle, and a spring in said handle, of a shank having the shovel at one end and, at the other, extending through the slideway, where it is provided with a pinion in engagement with said rack, and through the said box, and within said handle being attached to said spring, substantially as set forth.

3. The combination with the hollow handle having at one end a casing providing a perpendicular slideway, and a shank-box, the latter being entered within said hollow handle, of a sliding rack, a shank having a shovel and pinion, and a spring arranged within the handle and attached to the said shank, substantially as set forth.

4. The combination with the shovel, shank having a pinion thereon and a chambered handle, of a casing *c*, comprising a piece of sheet metal bent double to form a perpendicular slideway, and the ends of which are again bent to lie parallel one with the other, said parallel ends forming a box for the shank and lying within the hollow handle, a spring and a rack arranged in the slideway and engaging said pinion, substantially as set forth.

5. The combination with the hollow handle and shank having a pinion, of a rack to engage said pinion and a spring to turn said shank, of a casing bent double to form a way for the shank and at its opposite ends bent together and forming a box for the shank, said ends being arranged within said hollow handle, substantially as set forth.

681,663. CORSET. LILLIAN G. WALKER, Boston, Mass., assignor to the Walker Corset Company, of Maine. Filed May 11, 1900. Serial No. 16,383. (No model.)

Claim.—1. A corset having the lower portion of its front concaved to fit over the abdomen, and having the front edges of said lower portion beveled away, whereby when the front edges are united the concave of the front is maintained without pressure on the abdomen; substantially as described.

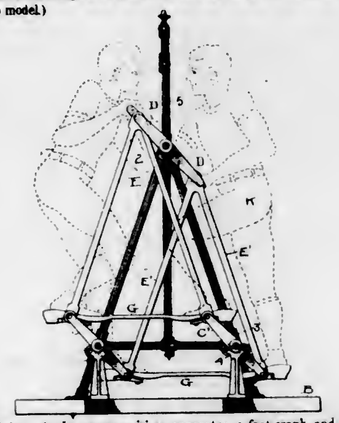


2. A corset, cut away above the hips, and having the lower portion of its front concaved to fit over the abdomen, and having the front edges of said lower portion beveled away, whereby when the front edges are united, the concave of the front is maintained without pressure on the abdomen; substantially as described.

3. A corset having its upper edge terminating at the bust-line, cut away over the hips, and having the lower portion of its front concaved to fit over the abdomen, and having the front edges of said lower portion beveled away, whereby when the front edges are united the concave of the front is maintained without pressure on the abdomen; substantially as described.

4. A corset comprising a series of parts or gores, united by seams, the seams between the front of the corset and the seam directly above the hips, being convex toward the front, and the seams between the back, and the seam directly above the hips, being convex toward the back, the seams directly above the hips being substantially straight, the lower portion of its front concaved to fit over the abdomen, and having the front edges of said lower portion beveled away, whereby when the front edges are united the concave of the front is maintained without pressure on the abdomen; substantially as described.

681,664. EXERCISING APPARATUS. JOHN S. ADDLEMAN, Cleveland, Ohio, assignor, by direct and mesne assignments, of two-thirds to A. A. Armstrong, same place. Filed Aug. 8, 1900. Serial No. 26,242. (No model.)



Claim.—1. In an exercising apparatus, a foot-crank and a hand-crank, a foot-rest pivotally supported on the foot-crank and means to hold the said rest in a horizontal position as the foot-crank rotates, and link connections between said foot-crank and hand-crank of equal length to cause them to rotate together, substantially as described.

2. In exercising apparatus, a suitable frame, rotatable foot-cranks and a hand-crank having the same radius supported in said frame, and link connections between said foot-cranks and the hand-crank, substantially as described.

3. The supporting-frame, a set of foot-cranks and a single hand-crank and adjustable grips thereon constructed to increase their radius, and links of equal length connecting the foot-cranks with the hand-crank, substantially as described.

4. An exercising apparatus having a suitable supporting-frame, a pair of foot-cranks in opposite positions on their supports, foot-rests pivotally supported on said cranks and means to hold said rests horizontally when the cranks are rotated, a pair of hand-cranks at the top of said frame and a pair of links of equal length connecting said foot-cranks and hand-cranks, substantially as described.

5. An apparatus having foot and hand cranks and links connecting same, foot-rests connecting the foot-cranks, and a friction-brake connected with said foot-rests, substantially as described.

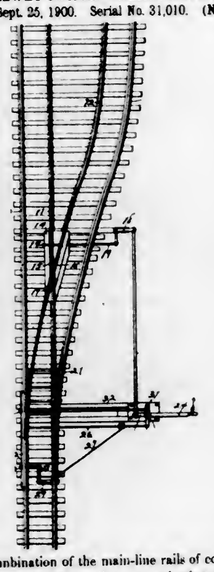
6. In an exercising apparatus, the foot-cranks and the foot-rests pivotally supported thereon to travel in a horizontal position, the hand-cranks above of the same radius as the foot-cranks, and links connecting said cranks, substantially as described.

7. An exercising apparatus having a set of foot- ranks and foot-rests thereon, and a single hand-crank having grips in pairs, so that opposite persons stand on independent rests and hold the same crank-grips, substantially as described.

8. In an exercising apparatus, a supporting-frame, opposite foot-cranks, foot-rests for one person on each pair of cranks and connections between the foot-rests of one crank with the corresponding rests of the other crank, substantially as described.

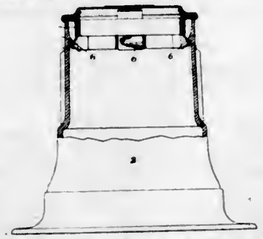
9. In an exercising apparatus, two sets of foot-cranks on the same plane and one set of hand-cranks having double grips, foot-rests on said foot-cranks and means to hold them in horizontal position, and link connections in pairs from opposite foot-cranks to the corresponding hand-crank, substantially as described.

681,665. RAILWAY-SWITCH. WALTER S. ARMSTRONG, Ruthven, Iowa. Filed Sept. 25, 1900. Serial No. 31,010. (No model.)



Claim.—The combination of the main-line rails of continuous form, the attenuated and elevated switch-rails communicating with the main-line rails at times, the bridging-tongue forming a continuation of one of the switch-rails and arranged to cross one of the main-line rails at times, an approach-rail in an inclined plane outside of and parallel with the outer main-line rail and means for moving the switch-rails, bridging-tongue and approach-rail conjunctively, the approach-rail at all times paralleling the outer main-line rail.

681,666. HUB-BAND. DELMER W. CALL, Cleveland, Ohio, assignor to The National Malleable Castings Company, same place. Filed Apr. 13, 1901. Serial No. 55,675. (No model.)

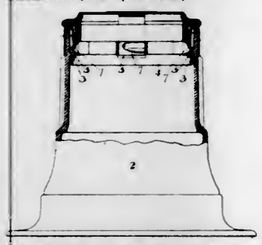


Claim.—1. The combination of a hub-band having on its own interior surface locking portions with recesses therein, and a cap having an

inwardly-projecting flange with spring-catches mounted thereon, said spring-catches being adapted to engage the recesses of said locking portions and to be disengaged therefrom by turning, substantially as described.

2. The combination of a hub-band having on its own interior surface a rib constituting a locking device for a cap, said rib being formed with its outer side inclined toward the end of the hub-band to facilitate the application of the cap; and a cap having spring-catches adapted to engage said rib, substantially as described.

681,667. HUB-BAND. DELMER W. CALL, Cleveland, Ohio, assignor to The National Malleable Castings Company, same place. Filed Apr. 13, 1901. Serial No. 55,676. (No model.)



Claim.—A hub-band having at its end a collar with inner and outer flanges, a rib on the interior of the hub-band, and slots in the inner flange of the collar which extend to the outer side of the rib; substantially as described.

681,668. PROCESS OF SPRAYING TREES, &c. ISAAC M. CLARK, Lompoc, Cal. Filed Apr. 15, 1901. Serial No. 56,005. (No specimens.)

Claim.—The process of spraying fruit or ornamental trees or shrubbery with mineral oil, and then neutralizing the deleterious effects of the oil upon the trees or shrubbery by a second application consisting of an alkaline wash applied substantially as described.

DESIGNS.

34,988. BADGE OR SIMILAR ARTICLE. RALPH L. PECK, Washington, D. C. Filed July 18, 1901. Serial No. 68,855. Term of patent 3½ years.



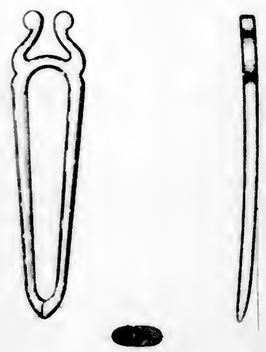
Claim.—The design for a badge or similar article as herein shown and described.

34,989. BROOCH. ALBERT WITTNAUER, New York, N. Y. Filed May 22, 1901. Serial No. 61,463. Term of patent 7 years.



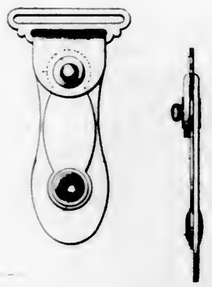
Claim.—The design for the brooch herein shown and described.

34,990. HAIR-PIN. WALTHALL R. SMITH, Napa, Cal. Filed July 27, 1901. Serial No. 69,992. Term of patent 14 years.



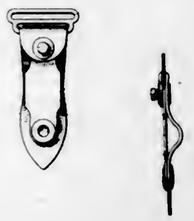
Claim.—The design for a hair-pin, as herein shown and described.

34,991. BUCKLE-PIECE. WILLIAM FREEMAN, New York, N. Y., assignor to Harris Suspender Company, same place. Filed July 20, 1901. Serial No. 69,159. Term of patent 14 years.



Claim.—The design for a buckle-piece herein shown and described.

34,992. BUCKLE-PIECE. FRANK A. FREEMAN, Philadelphia, Pa. Filed July 29, 1901. Serial No. 70,191. Term of patent 14 years.



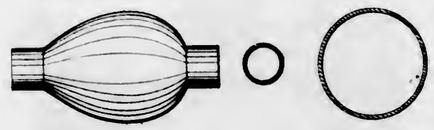
Claim.—The design for a buckle-piece substantially as herein shown and described.

34,993. SUSPENDER MEMBER OR BAND. THOMAS PERRY, Wilmington, Del. Filed Jan. 19, 1900. Serial No. 2,073. Term of patent 14 years.



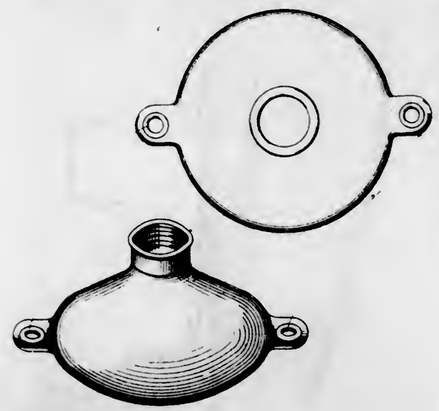
Claim.—The design for a suspender member or band, substantially as herein shown and described.

34,994. INHALER. MORIZ BAUER, Vienna, Austria-Hungary. Filed Sept. 6, 1900. Serial No. 29,235. Term of patent 7 years.



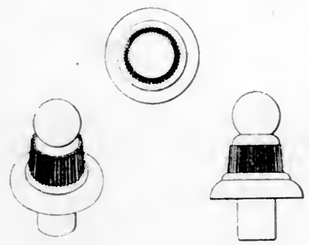
Claim.—The design for an inhaler, substantially as herein shown and described.

34,995. BAG FOR ICE OR WATER. CHRISTIAN WILLIAM MEINECKE, Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Filed Feb. 12, 1901. Serial No. 47,076. Term of patent 14 years.



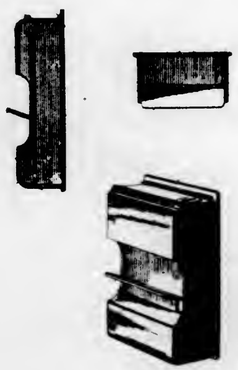
Claim.—The design for a bag substantially as herein shown and described.

34,996. BOTTLE-STOPPER. HARRY O. BRAWNER, Baltimore, Md. Filed Aug. 1, 1901. Serial No. 70,556. Term of patent 14 years.



Claim.—The design for a bottle-stopper substantially as herein described and illustrated in the accompanying drawings.

34,997. VENDING-MACHINE CASE. PHINEAS G. MACLEAN, Boonton, N. J. Filed July 13, 1901. Serial No. 68,268. Term of patent 7 years.



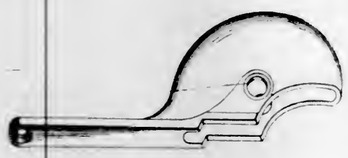
Claim.—The design for a vending-machine case, substantially as herein shown and described.

34,998. PADLOCK. SAMUEL R. SLAYMAKER and GEORGE M. MILLER, Lancaster, Pa.; said Miller assignor to said Slaymaker. Filed July 20, 1901. Serial No. 69,157. Term of patent 7 years.



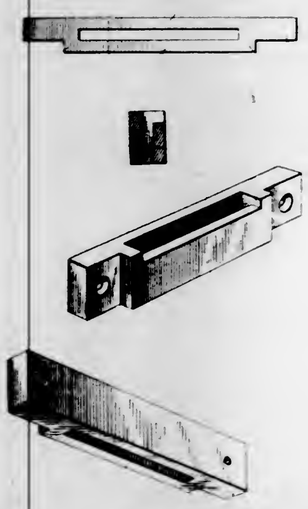
Claim.—The design for a padlock, as herein shown and described.

34,999. WINDOW-PULLEY BRACKET. ULYSSES G. MCQUEEN, New York, N. Y. Filed July 26, 1901. Serial No. 69,858. Term of patent 14 years.



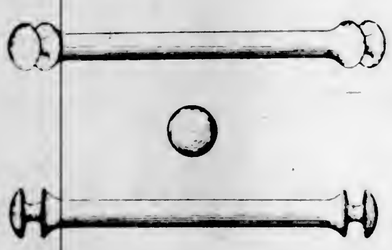
Claim.—The design for a window-pulley bracket, substantially as shown and described.

35,000. SLAT-HOLDER BRACKET. WILLIAM THOMAS KENDRICK, Montgomery, Ala. Filed Apr. 15, 1901. Serial No. 56,016. Term of patent 14 years.



Claim.—The design for a slat-holder bracket, as herein shown and described.

35,001. BRIDLE-BIT MOUTH-BAR. JOHN DEAN, Racine, Wis., assignor to John P. Davies, same place. Filed May 24, 1901. Serial No. 61,810. Term of patent 14 years.



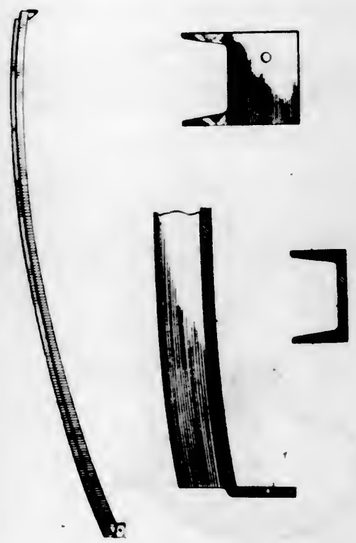
Claim.—The design for a bridle-bit mouth-bar, substantially as shown and described.

35,002. HORSESHOE. WILLIAM H. BRADLEY and GEORGE W. BRADLEY, Philadelphia, Pa. Filed July 15, 1901. Serial No. 68,441. Term of patent 14 years.



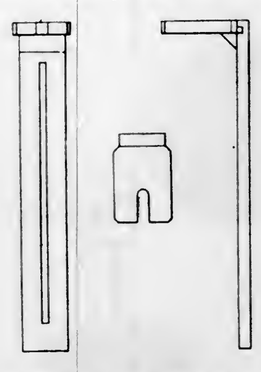
Claim.—The design for a horseshoe as herein shown and described.

35,003. CARLINE. CLIFTON D. PETTIS, Chicago, Ill. Filed Mar. 11, 1901. Serial No. 50,767. Term of patent 14 years.



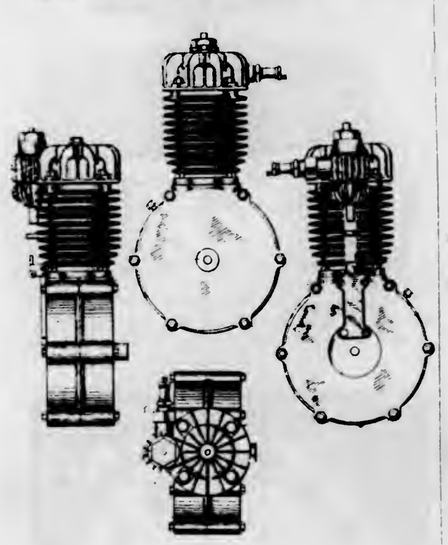
Claim.—The design for a carline substantially as herein shown and described.

35,004. SAWING-TABLE. FRANK H. PIERCE, Brooklyn, N. Y. Filed June 13, 1901. Serial No. 64,463. Term of patent 7 years.



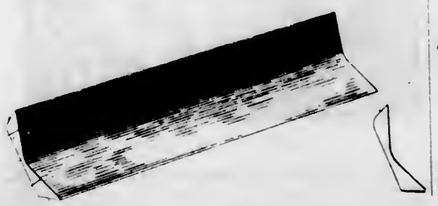
Claim.—The design for a sawing-table, as herein shown and described.

35,005. CASING FOR HYDROCARBON-MOTORS. MICHAEL E. TOEPEL, FRANK R. WIDMAYER, and ADOLPH POTDEVIN, New York, N. Y. Filed Mar. 18, 1901. Serial No. 51,790. Term of patent 7 years.



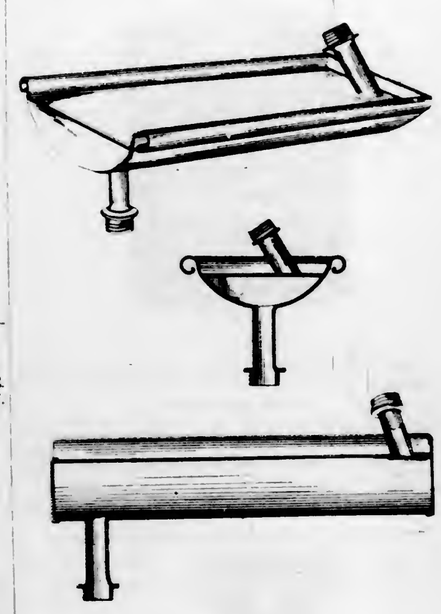
Claim.—The design of a casing for a hydrocarbon-motor as herein shown and described.

35,006. VENTILATOR-BAR. HOWARD WHITE, Burmont, Pa. Filed Apr. 23, 1901. Serial No. 57,143. Term of patent 14 years.



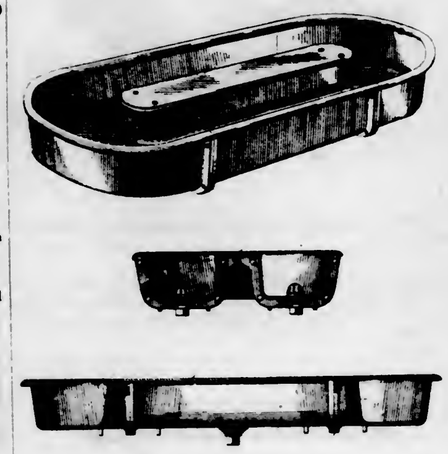
Claim.—The design for a ventilator-bar, substantially as herein shown and described.

35,007. CREAM-COOLER. CHARLES G. BABCOCK, Lander, Pa. Filed July 13, 1901. Serial No. 68,269. Term of patent 7 years.



Claim.—The design for a cream-cooler, as herein shown and described.

35,008. SINK. WILLIAM R. CLOW, Chicago, Ill. Filed June 22, 1901. Serial No. 65,698. Term of patent 14 years.



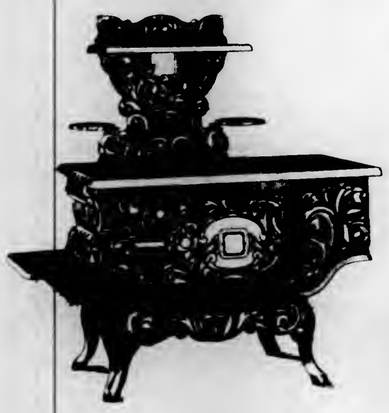
Claim.—The design for a sink, substantially as herein shown and described.

35,009. FURNACE-FRONT. THOMAS R. KENNEDY and EDWARD J. KING, Rochester, N. Y., assignors to Cooperative Foundry Company, same place. Filed July 22, 1901. Serial No. 69,334. Term of patent 7 years.



Claim.—The design for a furnace-front substantially as herein shown and described.

35,010. STOVE OR RANGE. THOMAS R. KENNEDY and EDWARD J. KING, Rochester, N. Y., assignors to Cooperative Foundry Company, same place. Filed July 22, 1901. Serial No. 69,335. Term of patent 7 years.



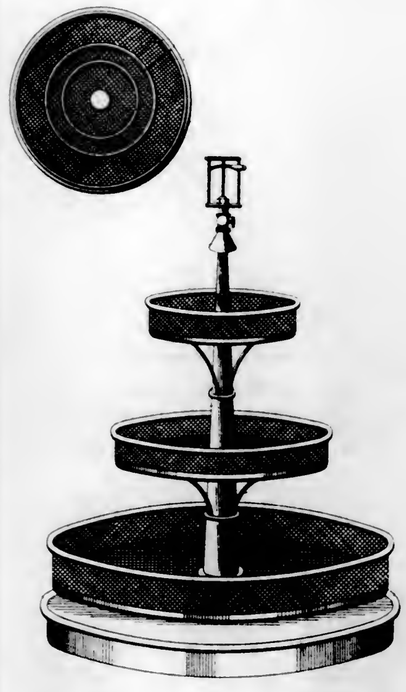
Claim.—The design for a stove substantially as herein shown and described.

35,011. CASKET-LID. NICHOLAS RAPPLEYEA and WILLIAM A. SPARKS, Hoboken, N. J., assignors to National Casket Company, same place. Filed Aug. 2, 1901. Serial No. 70,674. Term of patent 14 years.



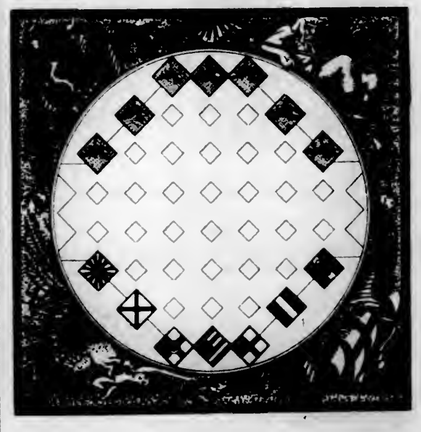
Claim.—The design for a casket-lid, substantially as herein shown and described.

35,012. FOUNTAIN DISPLAY-STAND. CHARLES T. CHILDERS, Galesburg, Ill. Filed July 24, 1901. Serial No. 69,535. Term of patent 7 years.



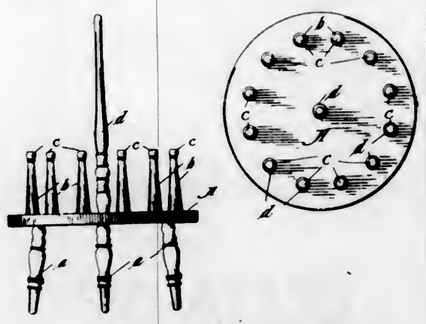
Claim.—The design for a fountain display-stand herein shown and described.

35,013. GAME-BOARD. JAMES W. S. PETERS, Kansas City, Mo. Filed May 10, 1901. Serial No. 59,706. Term of patent 14 years.



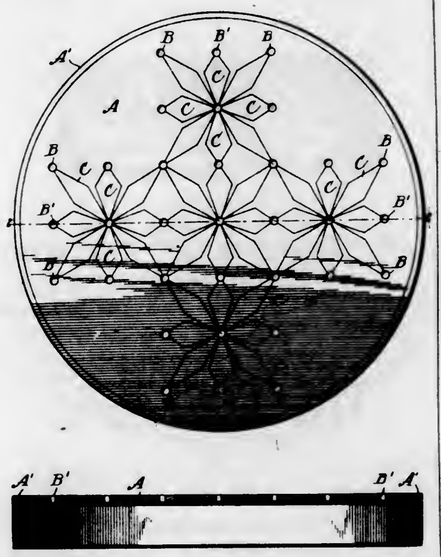
Claim.—The design for a game-board, as herein shown and described.

35,014. GAME-BOARD. GEORGE HILPERT, Parkersburg, W. Va. Filed July 16, 1901. Serial No. 68,549. Term of patent 7 years.



Claim.—The design for a game-board herein shown and described

35,015. PUZZLE-BOARD. HERMAN G. BEACH and HARRY W. WILCOX, Watertown, N. Y. Filed July 20, 1901. Serial No. 69,156. Term of patent 7 years.



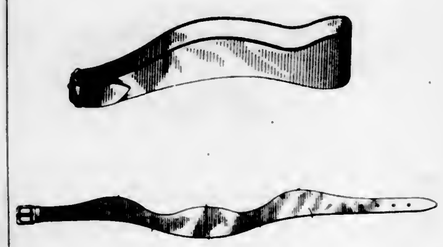
Claim.—The design for a puzzle-board as herein shown and described.

35,016. PAPER DOILY. WILLIAM F. SIEGENER, Philadelphia, Pa., assignor to Herrman Dienelt, same place. Filed Aug. 1, 1901. Serial No. 70,557. Term of patent 7 years.



Claim.—The design for a paper doily, substantially as described and as shown in the accompanying drawing.

35,017. BELT. MAX ISENSTEIN, New York, N. Y., assignor to himself and Louis M. Rosenberg, same place. Filed Aug. 6, 1901. Serial No. 71,111. Term of patent 3½ years.



Claim.—The design for a belt or similar article substantially as herein shown and described.

TRADE-MARKS

REGISTERED AUGUST 27, 1901.

36,951. PLAYING-CARDS. THE UNITED STATES PLAYING CARD CO., Cincinnati, Ohio. Filed May 24, 1901.



Essential feature.—The representation of a rider seated upon an autocycle or motor-cycle. Used since November 22, 1900.

36,952. YARNS, THREADS, AND TWINE. CHARLESTON EXPORT & COMMISSION CO., Charleston, S. C. Filed July 30, 1901.

TRYTANGLEME

Essential feature.—The word "TRYTANGLEME." Used since July 15, 1901.

36,953. RIBBONS. FRÈRES PASSAVANT, St. Etienne, France. Filed July 10, 1900.



Essential feature.—The word "LIBERTY." Used since May 1, 1900.

36,954. SHEETINGS AND DRILLINGS. ARKWRIGHT MILLS, Spartanburg, S. C. Filed July 25, 1901.



Essential feature.—The representation of a man on horseback in the act of spearing a bull. Used since March 28, 1901.

36,955. CORSETS. KOPS BROS., New York, N. Y. Filed July 27, 1901.

DELTA-DIP

Essential feature.—The compound word "DELTA-DIP." Used since May 1, 1901.

36,956. CORSETS. WEINGARTEN BROS., New York, N. Y. Filed Aug. 1, 1901.



Essential feature.—The words "LA RITA." Used since May 1, 1901.

36,957. MEN'S AND WOMEN'S SHOES. MAREK, ROTHENBERG & Co., Meridian, Miss. Filed Aug. 5, 1901.

THE COMPASS.

Essential feature.—The words "THE COMPASS." Used since July 1, 1901.

36,958. MEN'S AND BOYS' SHOES. MAREK, ROTHENBERG & Co., Meridian, Miss. Filed Aug. 5, 1901.

SOUTHERN CENTLEMAN.

Essential feature.—The words "SOUTHERN GENTLEMAN." Used since July 4, 1901.

36,959. MEN'S AND WOMEN'S SHOES. MAREK, ROTHENBERG & Co., Meridian, Miss. Filed Aug. 5, 1901.

THE WISDOM.

Essential feature.—The words "THE WISDOM." Used since July 1, 1901.

36,960. HAIR-PINS. S. BEAUMONT ET FILS, Roubaix, France. Filed June 25, 1901.

LE ZÉPHYR

Essential feature.—The words "LE ZÉPHYR." Used since January 12, 1901.

36,961. CERTAIN NAMED MEDICINAL PREPARATIONS AND SOAP. BENJAMIN J. BEHRE, San Francisco, Cal. Filed July 12, 1901.

Bro. Benjamin's



Essential feature.—The words "BRO. BENJAMIN'S" and the bust representation of an old man, the old man being dressed in the garb of a Quaker, wearing a broad-brimmed hat and having long flowing hair. Used since September 14, 1900.

36,962. ANTIMALARIAL REMEDIES. LEVI W. PERDUE, Wilmot, Ark. Filed July 17, 1901.



Essential feature.—The representation of a swamp with trees in the rear and foreground, the trees being shown as broken and having fallen in part, and an owl sitting on a limb of a dead tree in the foreground. Used since June 5, 1901.

36,963. BLOOD-PURIFIER. CHARLES W. LUCAS, Walnut Springs, Tex. Filed July 23, 1901.



Essential feature.—The representation of a bush, the representation of an Indian holding one branch of the bush in one hand, and an arrow passing through the body of the Indian. Used since June 28, 1901.

36,964. REMEDY FOR LUNG AND THROAT DISEASES. MAXIMILIAN HERJAK, Allegheny, Pa. Filed June 26, 1901.



Essential feature.—The letters "C T B," with a star arranged centrally of a square field having radially-extending lines and a facsimile of registrant's signature on the field. Used since June 1, 1901.

36,965. CERTAIN NAMED MEDICAL COMPOUNDS. JOSEPH H. SCHENCK, Philadelphia, Pa. Filed May 24, 1901.

J. H. Schenck

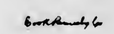
Essential feature.—A facsimile of the name "J. H. SCHENCK," being a facsimile of the signature of registrant's father. Used since 1836.

36,966. MEDICINE FOR CERTAIN NAMED DISEASES. APCO CHEMICAL CO., Jacksonville, Fla. Filed June 15, 1901.



Essential feature.—The representation of a palm-leaf with the word "COMFORT" thereon. Used since 1899.

36,967. PREPARATIONS FOR THE TREATMENT OF CERTAIN NAMED DISEASES. COOK REMEDY COMPANY, Chicago, Ill. Filed Apr. 18, 1901.



Essential feature.—A facsimile of the name "COOK REMEDY CO." in the handwriting of George A. Joslyn, president of said corporation. Used since 1890.

36,968. REMEDY FOR CERTAIN NAMED DISEASES. THE EUCALINE MEDICINE CO., Dallas, Tex. Filed Mar. 25, 1901.



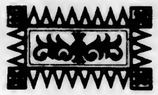
Essential feature.—The representation of a leaf, branch, flower, and seed-pad of the *Eucalyptus* tree, the leaf being separated from the branch and arranged at the left of the latter in a vertical position and curved to the right. Used since December 1, 1900.

36,969. STICKY FLY-PAPER. GRAND RAPIDS STICKY FLY PAPER COMPANY, Grand Rapids, Mich. Filed July 24, 1901.



Essential feature.—The words "STICK OLEO" and a central character, which represents a large script "O" with a stick passing through it. Used since May 1, 1901.

36,970. CIGARETTE-PAPERS. MAISON PIERRE BARDOU JOS, Perpignan, France. Filed Jan. 30, 1901.



Essential feature.—The representation of a rectangle having in its center an ornamental design with four small squares at the corners and a zigzag line between. Used since 1856.

36,971. CIGARETTE-PAPERS. MAISON PIERRE BARDOU JOS, Perpignan, France. Filed Jan. 30, 1901.



Essential feature.—The representation of a rectangle having in its center an ornamental design with four small squares at the corners and a zigzag line between. Used since 1856.

36,972. SMOKING-TOBACCO, CHEWING-TOBACCO, CIGARS, CHEROOTS, CIGARETTES, AND SNUFF. LAMBERT & BUTLER, LIMITED, London, England. Filed July 18, 1901.



Essential feature.—The words "NEEDLE POINT" and the representation of the face of a barometer. Used since May, 1897.

36,973. SMOKING-TOBACCO, CHEWING-TOBACCO, CIGARS, CHEROOTS, CIGARETTES, AND SNUFF. OGDEN'S, LIMITED, Liverpool, England. Filed July 18, 1901.

BEESWING

Essential feature.—The word "BEESWING." Used since November, 1898.

36,974. SMOKING-TOBACCO, CHEWING-TOBACCO, CIGARS, CHEROOTS, CIGARETTES, AND SNUFF. OGDEN'S, LIMITED, Liverpool, England. Filed July 18, 1901.

Essential feature.—The words "GUINEA GOLD." Used since January, 1890.

36,975. SMOKING-TOBACCO, CHEWING-TOBACCO, CIGARS, CHEROOTS, CIGARETTES, AND SNUFF. JOHN PLAYER & SONS, LIMITED, Nottingham, England. Filed July 20, 1901.

PEDIGREE

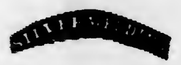
Essential feature.—The word "PEDIGREE." Used since March 5, 1900.

36,976. SPIRITUOUS LIQUORS. THE MEADVILLE, PA., DISTILLING CO., LIMITED, Buffalo, N. Y. Filed Aug. 1, 1901.

Pu-ryo

Essential feature.—The word "PURYO." Used since June 3, 1901.

36,977. WHISKY. HARRY H. MEYERSTEIN, Washington, D. C. Filed July 31, 1901.



Essential feature.—The words "SILVER WEDDING." Used since September 1, 1874.

36,978. MINERAL WATER. BLUE LICK SPRINGS CO., Blue Lick Springs and Carlisle, Ky. Filed June 24, 1901.



Essential feature.—The representation of a pioneer armed with a gun and accompanied by a dog. Used since 1882.

36,979. PREPARED FRUITS AND EXTRACTS FROM FRUITS. CROWN CORDIAL & EXTRACT CO., New York, N. Y. Filed June 20, 1901.

Bloom

Essential feature.—The word "BLOOM." Used since November 14, 1900.

36,980. BONBONS. THE WALTER M. LOWNEY CO., Boston, Mass. Filed Aug. 3, 1901.



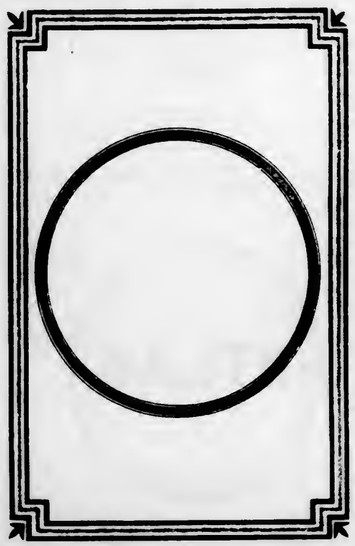
Essential feature.—The representation of a globe having on each side of it a mythological figure, half human being and half goat. Used since April 27, 1901.

36,981. FLAKED OATS. CHARLES C. GREEN, Battlecreek, Mich. Filed July 17, 1901.

FLAK-OTA

Essential feature.—The compound word "FLAK-OTA." Used since June 15, 1901.

36,982. WHEAT-FLOUR. S. C. HURT & SON, Lynchburg, Va. Filed July 17, 1901.



Essential feature.—The representation of a rectangular outer frame or border inclosing a circular inner frame. Used since January 1, 1861.

36,983. LARD. ELIAS MIRÓ, (Sociedad en Comandita,) Havana, Cuba. Filed Aug. 2, 1901.

LA CUBANA

Essential feature.—The words "LA CUBANA." Used since June, 1894.

36,984. CHICKENS, TURKEYS, DUCKS, AND GEESE. CONRON BROS., New York, N. Y. Filed May 20, 1901.



Essential feature.—The representation of a claw and web-foot intersecting each other and the letters "C B," the letters "C B" being placed on the claw at the point of intersection and the letter "B" being encircled by the letter "C." Used since April, 1901.

36,985. BRUSHES. MILWAUKEE DUSTLESS BRUSH CO., Milwaukee, Wis. Filed July 27, 1901.



Essential feature.—The representation of a hemisphere in diagram with a picture of a brush and the words "THE WORLD'S ONLY" thereon. Used since July 16, 1901.

36,986. LAMP CHIMNEYS AND GLOBES, GLASS TUBES, AND SOLID GLASS PIECES. MACBETH-EVANS GLASS COMPANY, Pittsburg, Pa. Filed July 30, 1901.

THERMO

Essential feature.—The word "THERMO." Used since May, 1901.

36,987. PORTLAND CEMENT. ATLAS PORTLAND CEMENT CO., New York, N. Y. Filed July 21, 1900.



Essential feature.—The word "ATLAS" and a surrounding border consisting of a plurality of concentric circular bands, of which the outer ones are conspicuously wider than the inner ones and within and across the center of which the said word is arranged. Used since March 22, 1900.

36,988. CLOCKS. THE NEW HAVEN CLOCK COMPANY, New Haven, Conn. Filed Aug. 1, 1901.

TATTOO.

Essential feature.—The word "TATTOO." Used since August 1, 1896.

36,989. PORTABLE PHOTOMETRIC APPARATUS. GENERAL ELECTRIC COMPANY, Schenectady, N. Y. Filed July 30, 1901.

LUMINOMETER

Essential feature.—The word "LUMINOMETER." Used since September, 1900.

36,990. PUMPS AND WINDMILLS AND THEIR PARTS AND SUPPLIES AND DEVICES THEREFOR. WILLIAM A. KERFOOT, Chicago, Ill. Filed July 24, 1901.

STAR POINTER

Essential feature.—The words "STAR POINTER." Used since May, 1898.

THE NORRIS PETERS CO.

LABELS

REGISTERED AUGUST 27, 1901.

8,625.—*Title:* "BOURDON'S LINIMENT." (For Liniment.) DAVID A. BOURDON, Worcester, Mass. Filed July 31, 1901.

8,626.—*Title:* "TAR HEEL CHILL CURE." (For a Medicine.) CHARLES D. HIGGINS, Greensboro, N. C. Filed August 1, 1901.

8,627.—*Title:* "EL CUBANO RECIPROCO." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed August 5, 1901.

8,628.—*Title:* "SHASTER'S SPARKLING WATER." (For Mineral Water.) AUGUST ELSTEREIT, Whatcom, Wash. Filed June 28, 1901.

8,629.—*Title:* "YOUNG & SMYLIE'S WHY-KNOT." (For Licorice.) YOUNG & SMYLIE, Brooklyn, N. Y. Filed August 6, 1901.

8,630.—*Title:* "HAZELWOOD." (For Butter.) HAZELWOOD COMPANY, LIMITED, Spokane, Wash.; Portland, Oreg., and Sioux City, Iowa. Filed June 20, 1901.

8,631.—*Title:* "KING OF THE COAST." (For Clams.) J. B. SYLVESTER & SON, Blue Hill, Me. Filed July 31, 1901.

8,632.—*Title:* "STAUFER'S LAUNDRY TABLETS." (For Laundry Tablets.) W. B. STAUFER, St. Louis, Mo. Filed July 3, 1901.

8,633.—*Title:* "ALMOND CREAM." (For Toilet Soap.) CHARLES A. CRARY, Huntington, W. Va. Filed August 6, 1901.

PRINTS

REGISTERED AUGUST 27, 1901.

387.—*Title:* "THE HERRICK SHOE." (For Shoes.) SEITER & KAPPES, New York, N. Y. Filed July 25, 1901.

388.—*Title:* "RAFTER'S TEAS AND COFFEES ARE THE BEST." (For Tea and Coffee.) WITTEMANN BROS., New York, N. Y. Filed August 5, 1901.

389.—*Title:* "NOTHING GETS OFF THE FARM IF FENCED WITH LAMB WIRE FENCE." (For Wire Fence.) AMERICAN LITHOGRAPHIC COMPANY, New York and Buffalo, N. Y. Filed August 2, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE THE UNITED STATES PLAYING CARD COMPANY.

Decided July 9, 1901.

1. TRADE-MARK—"MOBILE" FOR PLAYING-CARDS—GEOGRAPHICAL WORD.

The word "Mobile" refused registration as a trade-mark for playing-cards on the ground that it is geographical.

2. SAME—GEOGRAPHICAL WORD.

The word "Mobile," which is the name of the principal seaport of the State of Alabama, situated on Mobile Bay, the site of the historic battle of Mobile Bay, *Held* to have a geographical meaning greater than any fanciful or arbitrary meaning which may be ascribed thereto. Registration should therefore be refused. (*Ex parte Little & Co.*, 85 O. G., 1221.)

ON appeal.

TRADE-MARK FOR PLAYING-CARDS.

Application filed April 10, 1901, No. 63,106.

Messrs. Briesen & Knauth for the appellant.

MOORE, *Assistant Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Mobile" as a trade-mark for playing-cards.

The Examiner holds that the word "Mobile" has primarily a geographical meaning and cites the well-known city and county of that name in the State of Alabama.

The petitioner states that—

it is a well-established and well-recognized rule of law that a geographical name cannot be a proper trade-mark, but this rule is subject to numerous exceptions.

The exception urged for this case is that—

where the fanciful meaning is more apparent than the geographical meaning, registration might be allowed.

The petitioner claims that—

the enormous industry in mobiles which has revolutionized the art of traveling within the last few years, has made the word as applied to vehicles far more familiar to English-speaking people, than it ever was as applied to the city of Mobile with a population of 30,000.

The city of Mobile is well known. It is the principal seaport of the State of Alabama, situated on Mobile Bay. Its position is noted not only as one of the principal ports on the Gulf of Mexico, but because of the historic battle of Mobile Bay. The word "mobile" used as a portion of the words "automobile," "locomobile," &c., is only of recent date.

I am of the opinion that the rule laid down in the decision in *ex parte Little & Co.* (85 O. G., 1221) applies to this case. The rule is as follows:

It being once admitted that a word sought to be registered as a trade-mark has a geographical meaning, it should be the rule of the Office not to register such word unless it appears beyond a shadow of a doubt not only that its fanciful or arbitrary meaning is so generally known and understood that the meaning of the name would be at once recognized, but, furthermore, that the name could not be rightfully used upon the same class of goods by any one making them in the locality bearing the name.

In this case it must be admitted that "Mobile" has a geographical meaning. It does not appear beyond a *shadow of a doubt* that its fanciful or arbitrary meaning is so generally known that this meaning of the name would be at once recognized to the exclusion of its geographical meaning. It is very clear that the mark could be rightfully used upon the same class of goods by any one making them in the city of Mobile.

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE MILLER.

Decided July 12, 1901.

PRINT OR LABEL.

A print or label consisting of "the word 'Ceroleum' in large heavy-faced type or letters of any appropriate size and style, with the words 'Dirt Proof Floor Dressing' printed in small block letters across the face of the said word 'Ceroleum' in a blank space or strip left in the center thereof and equal in width to about one-third of the width of the said word 'Ceroleum,' the said word or words to be printed or otherwise reproduced in any one or different colors desired," *Held* to only involve the expert skill of the type-setter (*ex parte Mahn*, 82 O. G., 1210) and not to present a print which involves an intellectual creation of such artistic merit as to warrant its registration.

ON petition.

PRINT FOR CEROLEUM.

Application of E. I. Miller for registration of print filed April 22, 1901, No. 1,524.

Mr. E. I. Miller pro se.

MOORE, *Acting Commissioner:*

This is an appeal from the action of the Examiner refusing to register a print entitled "Ceroleum."

This print is described as consisting of—

the word "Ceroleum" in large, heavy-faced type or letters of any appropriate size and style, with the words, "Dirt Proof Floor Dressing" printed in small block letters across the face of the said word "Ceroleum" in a blank space or strip left in the center thereof, and equal in width to about one-third of the width of the said word, "Ceroleum;" the said word or words to be printed or otherwise reproduced in any one or different colors desired.

The only question to decide in this case is whether or not this print is sufficiently artistic to warrant its registration in the Patent Office. It is clear that in all other respects the print sought to be registered complies with the requirements of the law.

The fact that a coined word is added to the print or is a part thereof does not make it a proper subject for registration if it is otherwise unregistrable. (*Ex parte Blair*, 70 MS. Dec., 281.)

Whether or not a thing is artistic must be left to the judgment of the observer. In the decision of the Supreme Court of the United States in *Higgins et al.* v. *Keuffel et al.* (55 O. G., 1139) it is laid down that a print is not registrable if it consists merely of words printed in an ordinary and well-known way and which has no value in itself as an intellectual production. Does it amount to an artistic creation to superpose the words, as the petitioner has done?

This Office will take judicial notice of the fact that broken type is in common use among printers and that superposed words, such as petitioner has used, are common in the printing art. It follows, then, that to so arrange the type as to print superposed words only involves the expected skill of the type-setter. (*Ex parte Mahn*, 82 O. G., 1210.)

For these reasons it must be held that the petitioner has not presented a print which involves intellectual creation and therefore presents such artistic merit as to warrant its registration under section 3 of the copyright laws.

The action of the Examiner is affirmed.

Revision of Classification.

(ORDER No. 1,421.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 13, 1901.

The following changes in classification are hereby directed:

For the reason that the patents composing the same have been embodied in class 40, Card, Picture, and Sign Exhibiting, recently published, the following subclasses are hereby abolished:

In Division V, class 41, Fine Arts, subclasses 14, Picture-frames, and 20, Picture-supports.

In Division XXIII, class 177, Electric Signaling, subclass 159, Indicators, station.

In Division XXXIV, class 116, Signals, subclasses 57, Indicators, bolt-operated, and 46, Indicators, identity.

In Division XXXV, class 24, Buckles, Buttons, Clasps, etc., subclasses 1, Baggage-checks, and 100, Tags and tag-fasteners.

In Division XXIII, class 58, Horology, the following subclasses are hereby abolished, the patents composing the same having been embodied in a new class, 81, Tools, in Division XIV:

42. Clock-keys.
23. Watch-keys—
138. Dust-protectors,
139. Expansible-jaw,
141. Safety.
32. Watchmakers' tools—
144. Pliers,
Watchmakers' tools—
145. Roller-removers,
146. Setters, jewel-
147. Ruby-pin,
151. Tweezers.

In Division XXIII, class 58, Horology, the following subclasses are abolished:

Watchmakers' tools—
148. Spring-winders,
149. Staking-tools.

and the patents composing the same are hereby transferred to Class 79, Metal, Personal Wear, Making, subclass 6, Watches and Clocks.

In Division XXIII, Class 58, Horology, subclass 150, Watchmakers' tools, truing-calipers, is hereby abolished and the patents composing the same transferred to class 73, Measuring Instruments, subclass 16, Gages.

In Division XIV, class 168, Farriery, subclass 17, Tools, is established.

In Division XIV, class 81, Metal-Working Tools, subclass 23, Cutting-sharpeners, is abolished, and the patents composing the same transferred to Division XIII, class 76, Metal Tools and Implements, Making, subclass 57, Cutting-sharpeners, which is hereby established.

In Division XIV, class 81, Metal-Working Tools, subclass 12, Pipe-expanders, is hereby abolished and the patents composing the same transferred to class 113, Sheet-Metal Ware, Making, subclass 52, Pipe-expanders, which is hereby established.

Class 81, Metal-Working Tools, is hereby abolished, and class 81, Tools, established in Division XIV, with the following subclasses and definitions:

E. B. MOORE,
Acting Commissioner.

CLASS 81.—TOOLS.

15. Bending—
16. Roofers' tongs.
13. Bolt-holders.
9. Collar-removers.
2. Combined wrenches and pumps or oilers.
1. Miscellaneous.
10. Nut-lock.
11. Pin-removers—
12. Pliers.
187. Pipe and rod cutters—
205. Jaw attachments,
188. Non-traveling, internal,
196. Pivoted—
197. Cam,
198. Handle-jaws,
200. Intergeared handles,
199. Toggle,
201. Sliding—
202. Cam,
203. Head and socket,
204. Lever and link,
205. Rack and segment,
189. Traveling, external—
190. Gear-operated,
191. Thread-feed—
192. Rotary-handle,
193. Traveling, internal—
194. Rotary—
195. Wedge-feed.
43. Pliers and tongs—
47. Crossed handles—
48. Adjustable-pivot,
50. Parallel jaws,
49. Pivoted jaw-piece,
51. Spring-pressed,
44. Expanding,
52. Jaw attachments,
45. Locked jaws,
46. Sliding-jaw.
3. Special—
4. Engravers' clamps,
5. Tweezers,
6. Watchmakers'—
7. Jewel-setters,
8. Ruby-pin setters.
14. Tweezers.
17. Vises—
18. Hand,
28. Jaw attachments—
39. Round work,
40. Wedge-shaped work,
41. Mounts,
32. Nut-operated,
42. Parallel mechanisms,
21. Pivoted-jaw—
23. Adjustable-fulcrum—
24. Rack,
25. Cam,
22. Wedge-shaped work,
27. Rack-lock—
30. Pivoted rack-catch,
31. Sliding rack-catch,
28. Toothed-nut—
29. Sectional,
19. Round work,
33. Screw-operated—
36. Displaceable nut or screw,
37. Interrupted-thread,
34. Multiple-intergeared,
35. Right and left threads,
26. Sliding-jaw, cam,
20. Turret.
53. Wrenches—
180. Attachments and adjuncts—
181. Cutters—
182. Rotary,
183. Roller-clutch,
184. Shank-embracing,
185. Socket-reducers,
58. Clutched-head—
60. Ratchet—
61. Pivoted-pawl—
62. Reversing—
63. Single,
59. Segmental,
77. Double-ended, simultaneous adjustment,
Wrenches—
64. Flexible—
66. Link—
67. Claw,
68. Handle-jaw—
70. Duplex,
69. Pivoted,
65. Threaded adjustment, Hand grip—
78. Pivoted-jaw—
79. Crossed handles—
80. Non-traveling fulcrum—
81. Pivoted gripping-piece,
82. Sliding gripping-piece,
83. Slotted fulcrum-guide,
84. Linked jaw and handle,
Sliding-jaw—
85. Claw-lever and rack,
86. Lever and cam feed,
87. Lever and link feed,
88. Lever and pawl feed,
89. Handles and shanks,
177. Inserted—
71. Expanding,
72. Jaw-faces,
186. Machine—
54. Bolt-holding—
55. Gear-operated,
56. Gear-operated,
57. Multiple pivoted jaws, handle-lever grip,
91. Pivoted inner jaw—
92. Nut or screw fulcrum,
93. Pin-fulcrum—
94. Roller-jaw—
95. Pinion,
96. Spring-pressed,
97. Pivoted outer jaw—
Fixed-fulcrum—
98. Non-traveling-jaw—
99. Spring-pressed,
100. Traveling-jaw—
101. Nut-fulcrum,
102. Rocking-sleeve—
103. Spring-pressed—
104. Fulcrum-washer,
105. Sleeve-inclosed nut,
106. Traveling fulcrum—
110. Fulcrum tooth and rack,
109. Slotted-guide,
107. Threaded handle-bar—
108. Axially-rotating.
Pivoted side-jaw—
111. Bevel-closing—
112. Axial nut or screw,
113. Rotating-ring,
115. Screw-ring,
114. Wedge,
116. Rocking-link,
117. Transverse-screw clamp,
118. Reversible jaws,
178. Rigid jaws—
119. Inclosed—
121. Watch and clock keys—
122. Dust-protectors,
123. Safety,
124. Work-holding,
125. Round work,
120. Sliding adjustments—
129. Rack—
130. Interlocking jaw-handles,
131. Locking set screw or nut,
132. Pinion-lock,
133. Pivoted rack-catch—
134. Cam-seated,
138. Directly-operated,
139. Wrenches—
Sliding adjustments—
Rack—
Pivoted rack-catch—
140. Intermediate-fulcrum,
135. Non-traveling—
136. Intermediate-fulcrum,
137. Transverse,
141. Shank-engaged cam,
142. Sliding rack-catch—
143. Cam-seated,
144. Screw or nut seated,
145. Spring-seated,
146. Spring-seated jaw-frame—
147. Integral frame and teeth,
148. Wedge-lock—
149. Wedge-pusher,
150. Shank-grip—
152. Clutch-yoke,
151. Locking incline,
153. Roller-clutch,
151. Side-jaw,
155. Thread—
156. Displaceable half-nut,
157. Displaceable nut or screw—
158. Traveling screw, shank-rack,
159. Interrupted—
160. Nut-set—
161. Traveling-nut,
162. Traveling-screw, shank-rack,
Wrenches—
Sliding adjustments—
Thread—
166. Non-traveling nut—
167. Intermediate—
168. Sliding outer-jaw,
169. Terminal—
170. Sliding outer-jaw,
171. Non-traveling screw—
172. Bracket-bearing,
173. Shank-sleeved,
174. Right and left threads,
164. Rotating threaded shank,
165. Sliding side-jaw,
178. Traveling-nut—
174. Threaded handle-bar,
175. Traveling-screw—
176. Shank-rack,
128. Sliding-jaw, cam-closing,
179. Sliding-jaw face,
126. Sliding-jaw, handle-lever grip—
127. Claw,
90. Spanners,
73. U-crank arm,
74. Wheel-operated—
75. Hub-rim grasp—
76. Internal.

CLASS 81.—TOOLS.

DEFINITIONS.

Class.

In this class are tools which are not structurally limited to any classified art. When patents limited to a specific art become sufficiently numerous to form a class, they will be classified with such art. The class is, with the exception of wrenches and vises, limited to hand-tools.

Subclasses.

1. MISCELLANEOUS. Miscellaneous tools not classifiable in any other subclass.

2. COMBINED WRENCHES AND PUMPS OR OILERS. Wrenches combined with pumps or oilers, or with both.

3. SPECIAL. Tools having a construction which limits them to work upon a specific article and for which there is no art classification.

4. SPECIAL, ENGRAVERS' CLAMPS. Devices for clamping articles while being engraved.

5. SPECIAL, TWEEZERS. Tweezers having specific features which limit their application.
(Note.—Search also in this class, subclass 14, Tweezers.)

6. SPECIAL, WATCHMAKERS'. Tools having special construction limiting them to watchmakers' use.

7. SPECIAL, WATCHMAKERS', JEWEL-SETTERS. Tools of special construction for use in setting jewels.

8. SPECIAL, WATCHMAKERS', RUBY-PIN SETTERS. Tools of special construction for use in setting ruby-pins or roller-jewels.

9. COLLAR-REMOVERS. Tools for removing collars from pins or shafts, as collets from balance-wheels, hands from clocks and watches, etc.

10. NUT-LOCK. Tools specially adapted for locking nuts and bolts together or for applying or removing nut or bolt locking devices.

11. PIN-REMOVERS. Tools for removing pins or shafts from collars, wheels, etc.
(Note.—Search also in this class, subclass 9, Collar-removers.)

12. PIN-REMOVERS, PLIERS. The tools have the form of pliers.

13. BOLT-HOLDERS. Devices for holding a bolt from movement while a nut is turned on or off.
(Note.—Search also in this class, subclass 55, Wrenches, machine, bolt-holding.)

14. TWEEZERS. This subclass includes tweezers of general application.
(Note.—Tweezers of special construction for special work are in this class, subclass 5, Special, tweezers.)

15. BENDING. Tools specially adapted for bending.
(Note.—Tools limited to bending wire are in class 140, WIRE-WORKING, subclass Tools.)

16. BENDING, ROOFERS' TONGS. Tongs used by roofers for bending roofing-sheets.
(Note.—Tongs for locking or pressing seams are in class 113, SHEET-METAL WARE, Making, subclass Seaming sheets.)

17. VISES. Instruments having jaws for firmly holding objects while being worked upon and known in the arts as "vises."

18. VISES, HAND. Vises grasped by one hand while the other holds the tools to work upon the object held.
(Note.—Search also in this class, subclass 45, Pliers and tongs, locked jaws.)

19. VISES, ROUND-WORK. Vises specially constructed for holding round work, as tubes, spheres, etc.
(Note.—Search also in this class, subclass 39, Vises, jaw attachments, round-work.)

20. VISES, TURRET. The jaws are on revolving heads or carriers which may be turned to bring any pair of jaws into the desired position.

21. VISES, PIVOTED-JAW. One or both jaws are pivoted or swing or turn as if on a pivot.
(Note.—Search also class 78, METAL-FORGING, subclass Anvils, attachments, foot-vise.)

22. VISES, PIVOTED-JAW, WEDGE-SHAPED WORK. The jaw or jaws are specially pivoted for receiving wedge-shaped work.
(Note.—Search also in this class, subclass 40, Vises, jaw attachments, wedge-shaped work.)

23. VISES, PIVOTED-JAW, ADJUSTABLE-FULCRUM. The fulcrum on which the jaw swings is adjustable or travels toward and from the other jaw in order to hold work of different thickness.
(Note.—Search also in this class, subclass 42, Vises, parallel mechanisms.)

24. VISES, PIVOTED-JAW, ADJUSTABLE-FULCRUM, RACK. The fulcrum of the pivoted jaw is a tooth of a rack.
(Note.—Search also in this class, subclass 42, Vises, parallel mechanisms.)

25. VISES, PIVOTED-JAW, CAM. The jaw is closed by a cam.
(Note.—Search also in class 78, METAL-FORGING, Subclass Anvils, attachments, foot-vise.

26. VISES, SLIDING-JAW, CAM. A sliding jaw is closed by the actuation of a cam or by being guided on a cam-path.
(Note.—Search also in this class, subclass 128, Wrenches, sliding-jaw, cam-closing.)

27. VISES, RACK-LOCK. The movable jaw is locked against the work by means of a rack.

28. VISES, RACK-LOCK, TOOTHED-NUT. The nut or half-nut cooperating with the actuating-screw has teeth which may be engaged with or disengaged from a rack or pawl to provide a quick adjustment.

29. VISES, RACK-LOCK, TOOTHED-NUT, SECTIONAL. The toothed nut or half-nut is made up of one or more sections which move toward and from a rack to lock and unlock the vise-jaw.

30. VISES, RACK-LOCK, PIVOTED RACK-CATCH. The movable jaw is locked in place by a pivoted catch which interlocks with a rack, the catch not being rigid with the jaw or the frame.
(Note.—Search also in this class, subclasses 134, Wrenches, sliding adjustments, rack, pivoted rack-catch; 135, Wrenches, sliding adjustments, rack, pivoted rack-catch, non-traveling; 136, Wrenches, sliding adjustments, rack, pivoted rack-catch, non-traveling, intermediate-fulcrum, and 137, Wrenches, sliding adjustments, rack, pivoted rack-catch, transverse.)

31. VISES, RACK-LOCK, SLIDING RACK-CATCH. The movable jaw is locked by a sliding catch interlocking with a rack.
(Note.—Search also in this class, subclasses 142, Wrenches, sliding adjustments, rack, sliding rack-catch; 143, Wrenches, sliding adjustments, rack, sliding rack-catch, cam-seated; 144, Wrenches, sliding adjustments, rack, sliding rack-catch, screw or nut seated; 145, Wrenches, sliding adjustments, rack, sliding rack-catch, spring-seated.)

32. VISES, NUT-OPERATED. The jaws are closed by the actuation of an interiorly-threaded device.

33. VISES, SCREW-OPERATED. The jaws are closed by the actuation of an exteriorly-threaded device.
(Note.—Search also in this class, subclasses 18, Vises, hand; 19, Vises, round-work; 21, Vises, pivoted jaw; 22, Vises, pivoted-jaw, wedge-shaped work; 23, Vises, pivoted-jaw, adjustable-fulcrum; 24, Vises, pivoted-jaw, adjustable-fulcrum, rack; 25, Vises, pivoted-jaw, cam; 28, Vises, rack-lock, toothed-nut, and 29, Vises, rack-rock, toothed-nut, sectional)

34. VISES, SCREW-OPERATED, MULTIPLE-INTERGEARED. A plurality of jaw-closing screws are driven by gearing connecting them.

35. VISES, SCREW-OPERATED, RIGHT AND LEFT THREADS. The jaws are closed by the actuation of a right and left threaded screw.
(Note.—Search also in this class, subclass 163, Wrenches, sliding adjustments, thread, right and left threads.)

36. VISES, SCREW-OPERATED, DISPLACEABLE NUT OR SCREW. The nut and screw are separated in order to provide a quick adjustment.
(Note.—Search also in this class, subclasses 157, Wrenches, sliding adjustments, thread, displaceable nut or screw, and 158, Wrenches, sliding adjustments, thread, displaceable nut or screw, traveling-screw, shank-rack.)

37. VISES, SCREW-OPERATED, INTERRUPTED-THREAD. The threads of the nut and screw are interrupted or cut away, so that by registering the cut-away part of the one with the full part of the other a quick adjustment may be had.
(Note.—Search also in this class, subclasses 159, Wrenches, sliding adjustments, thread, interrupted; 160, Wrenches, sliding adjustments, thread, interrupted, nut-set; 161, Wrenches, sliding adjustments, thread, interrupted, nut-set, traveling-nut, and 162, Wrenches, sliding adjustments, thread, interrupted, traveling-screw, shank-rack.)

38. VISES, JAW ATTACHMENTS. Parts attached to or coöperating with the jaw-holders and capable of replacement when worn or when a jaw-piece of a different kind is desired.

39. VISES, JAW ATTACHMENTS, ROUND-WORK. Attachments constructed to hold round work, as pipes, spheres, etc.
(Note.—Search also in this class, subclass 19, Vises, round work.)

40. VISES, JAW ATTACHMENTS, WEDGE-SHAPED WORK. Attachments constructed to hold wedge-shaped work.
(Note.—Search also in this class, subclass 22, Vises, pivoted-jaw, wedge-shaped work.)

41. VISES, MOUNTS. Means by which vises are mounted to make them secure or to adapt them to be turned in various directions.
(Note.—Search also in class 144, WOODWORKING, subclass 288, Work-holding stands, and in class 208, VELOCIPEDES, subclass Holders and the subclasses thereunder.)

42. VISES, PARALLEL MECHANISMS. Means whereby the jaws are caused to maintain parallelism.
(Note.—Search also in this class, subclasses 23, Vises, pivoted-jaw, adjustable-fulcrum, and 24, Vises, pivoted-jaw, adjustable-fulcrum, rack.)

43. PLIERS AND TONGS. Tools for holding or bending objects, and embracing those pincers and grasping devices known in the arts as pliers and tongs.
(Note.—Pliers specially constructed for bending are in Bending, this class, and for cutting, in Pipe and Rod Cutters, under this class.)
(Note.—Search also in this class, subclasses 3, Special; 4, Special, engravers' clamps, and 5, Special, tweezers.)

44. PLIERS AND TONGS, EXPANDING. The jaws move away from each other in seizing objects.
(Note.—Search also in this class, subclasses 3, Special; 4, Special, engravers' clamps, and 5, Special, tweezers.)

45. PLIERS AND TONGS, LOCKED JAWS. The tool is provided with means for locking the jaws in their closed or operative position.
(Note.—Search also in this class, subclasses 18, Vises, hand; 111, Wrenches, pivoted side jaw, and the subclasses thereunder.)
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

46. PLIERS AND TONGS, SLIDING-JAW. The jaws have a relative sliding movement, one or both jaws moving on guides.
(Note.—Search also in this class, subclass 85, Wrenches, hand-grip, sliding-jaw, and the subclasses thereunder.)
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

47. PLIERS AND TONGS, CROSSED HANDLES. The handles cross each other.
(Note.—Search also in this class, subclass 79, Wrenches, hand-grip, pivoted-jaw, crossed handles, and the subclasses thereunder.)
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

48. PLIERS AND TONGS, CROSSED HANDLES, ADJUSTABLE PIVOT. The pivots of the handles are movable in order to adjust the spread of the jaws.
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

49. PLIERS AND TONGS, CROSSED HANDLES, PIVOTED JAW-PIECE. One or both jaw-carriers have pivoted jaw-pieces to enable the tool to fit the surfaces of wedge-shaped or irregular objects.
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

50. PLIERS AND TONGS, CROSSED HANDLES, PARALLEL JAWS. The jaws are parallel in all positions.
(Note.—For pliers having a sliding jaw movable on guides see subclass 46, Pliers and Tongs, sliding jaw, in this class.)
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

51. PLIERS AND TONGS, CROSSED HANDLES, SPRING-PRESSED. The jaws are pressed by a spring.
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

52. PLIERS AND TONGS, JAW ATTACHMENTS. Parts attached to the jaw-holders and capable of replacement when worn or when a jaw-piece of different type is desired.

53. WRENCHES. Devices for exerting a twisting strain, as in turning bolts, nuts, pipes, and the like, and known in the arts as wrenches.
(Note.—This subclass includes wrenches not classifiable in any other subclass hereinunder.)

(Note.—For wrenches for rotating taps search also in class 10, BOLT, NAIL, NUT, RIVET, AND SCREW MAKING, subclasses 148 to 151, Screw-threading, tapping, implements, tap-wrenches.)

54. WRENCHES, MACHINE. Wrenches having a casing or frame-work which carries moving mechanical elements, but does not itself move during the operation of the wrench.

55. WRENCHES, MACHINE, BOLT-HOLDING. The wrench has a device or part which prevents the movement of the bolt while the nut is being turned on or off.
(Note.—Search also in this class, subclass 13, Bolt-holders.)

56. WRENCHES, MACHINE, BOLT-HOLDING, GEAR-OPERATED. The bolt-holding wrench is operated by gearing.
(Note.—Where the novelty lies in the gearing, search should be made in this class, subclass 57, Wrenches, machine gear-operated.)

57. WRENCHES, MACHINE, GEAR-OPERATED. The wrench is operated by gearing.
(Note.—Search also in this class, subclass 56, Wrenches, machine, bolt-holding, gear-operated.)

58. WRENCHES, CLUTCHED-HEAD. The jaws of the wrench are supported by a head which is clutched by an operating part, usually a lever.
(Note.—Search also in class 10, BOLT, NAIL, NUT, RIVET, AND SCREW MAKING, subclasses 124, Screw-threading, implements, die-stocks, ratchet, and 150, Screw-threading, tapping, implements, tap-wrenches, ratchet.)
(Note.—Search also in class 74, MACHINE ELEMENTS, subclass Pawls and ratchets.)
(Note.—Search also in class 77, BORING AND DRILLING, subclasses 10, Drilling-machines, portable, rail-drills, ratchet; 44, Ratchet-drills, and 50, Ratchet-drills, band-grip.)
(Note.—Search also in class 145, WOODWORKING-TOOLS, subclasses 70, Bit-stocks, ratchet; 75, Handles, ratchet-and-pawl; 76, Handles, ratchet-clutch, and 77, Handles, cross-bar, ratchet.)
(Note.—Search also in class 151, NUT AND BOLT LOCKS, subclasses under Coupled nut and bolt, pawl-and-ratchet; 17, Coupled nut and bolt, thread-lock, superposed nuts, oppositely-threaded, key or pawl locked; 39, Locked nut, base-clutch, pawl-and-ratchet; 40, Locked nut, base-clutch, pawl-and-ratchet, nut-carried pawl; 41, Locked nut, base-clutch, pawl-and-ratchet, yielding interlocking washer, and 48, Locked nut, side lock, pawl-and-ratchet.)
(Note.—Search also class 188, RAILWAY-BRAKES, subclass Staffs.)

59. WRENCHES, CLUTCHED-HEAD, SEGMENTAL. The wrench-head is a segment of a circle at the clutching-surface and is not capable of full revolution.
(Note.—Search also class 10, BOLT, NAIL, NUT, RIVET, AND SCREW MAKING, subclasses 124, Screw-threading, implements, die-stocks, ratchet, and 150, Screw-threading, tapping, implements, tap-wrenches, ratchet.)
(Note.—Search class 74, MACHINE ELEMENTS, subclass Pawls and ratchets.)
(Note.—Search class 77, BORING AND DRILLING, subclasses 10, Drilling-machines, portable, rail-drills, ratchet, and 44, Ratchet-drills.)
(Note.—Search class 145, WOODWORKING-TOOLS, subclasses 70, Bit-stocks, ratchet; 75, Handles, ratchet-and-pawl; 76, Handles, ratchet-clutch, and 77, Handles, cross-bar ratchet.)
(Note.—Search class 151, NUT AND BOLT LOCKS, subclasses under Coupled nut and bolt, pawl-and-ratchet; 17, Coupled nut and bolt, thread-lock, superposed nuts, oppositely-threaded, key or pawl locked; 39, Locked nut, base-clutch, pawl-and-ratchet; 40, Locked nut, base-clutch, pawl-and-ratchet, nut-carried pawl; 41, Locked nut, base-clutch, pawl-and-ratchet, yielding interlocking washer, and 48, Locked nut, side lock, pawl-and-ratchet.)
(Note.—Search also class 188, RAILWAY-BRAKES, subclass Staffs.)

60. WRENCHES, CLUTCHED-HEAD, RATCHET. The wrench-head has a series of ratchet-teeth clutched by the driving device.
(Note.—Search class 10, BOLT, NAIL, NUT, RIVET, AND SCREW-MAKING, subclasses 124, Screw-threading, implements, die-stocks, ratchet; and 150, Screw-threading, tapping, implements, tap-wrenches, ratchet.)
(Note.—Search class 74, MACHINE ELEMENTS, subclass Pawls and ratchets.)
(Note.—Search class 77, BORING AND DRILLING, subclasses 10, Drilling-machines, portable, rail-drills, ratchet; 44, Ratchet-drills, and 51, Ratchet-drills, sliding-pawl.)
(Note.—Search class 145, WOODWORKING-TOOLS, subclasses 70, Bit-stocks, ratchet; 75, Handles, ratchet-and-pawl; 76, Handles, ratchet-clutch, and 77, Handles, cross-bar, ratchet.)
(Note.—Search class 151, NUT AND BOLT LOCKS, subclasses under Coupled nut and bolt, pawl-and-ratchet; 17, Coupled nut and bolt, thread-lock, superposed nuts, oppositely-threaded, key or pawl locked; 39, Locked nut, base-clutch, pawl-and-ratchet; 40, Locked nut, base-clutch, pawl-and-ratchet, nut-carried pawl; 41, Locked nut, base-clutch, pawl-and-ratchet, yielding interlocking washer; and 48, Locked nut, side lock, pawl-and-ratchet.)
(Note.—Search also class 188, RAILWAY-BRAKES, subclass Staffs.)

61. WRENCHES, CLUTCHED-HEAD, RATCHET, PIVOTED-PAWL. A pawl pivoted to the driving device engages the ratchet-teeth of the head.

(Note.—Search class 10, BOLT, NAIL, NUT, RIVET, AND SCREW MAKING, subclasses 124, Screw-threading, implements, die-stocks, ratchet, and 150, Screw-threading, tapping, implements, tap-wrenches, ratchet.)
(Note.—Search class 74, MACHINE ELEMENTS, subclass Pawls and ratchets.)
(Note.—Search class 77, BORING AND DRILLING, subclasses 10, Drilling-machines, portable, rail-drills, ratchet, and 44, Ratchet-drills.)
(Note.—Search class 145, WOODWORKING-TOOLS, subclasses 70, Bit-stocks, ratchet; 75, Handles, ratchet-and-pawl; 76, Handles, ratchet-clutch, and 77, Handles, cross-bar, ratchet.)
(Note.—Search class 151, NUT AND BOLT LOCKS, subclasses under Coupled nut and bolt, pawl-and-ratchet; 17, Coupled nut and bolt, thread-lock, superposed nuts, oppositely-threaded, key or pawl locked; 39, Locked nut, base-clutch, pawl-and-ratchet; 40, Locked nut, base-clutch, pawl-and-ratchet, nut-carried pawl; 41, Locked nut, base-clutch, pawl-and-ratchet, yielding interlocking washer, and 48, Locked Nut, side lock, pawl-and-ratchet.)
(Note.—Search class 188, RAILWAY-BRAKES, subclass Staffs.)

62. WRENCHES, CLUTCHED-HEAD, RATCHET, PIVOTED-PAWL, REVERSING. The direction of rotation of the ratchet-head is reversible.
(Note.—Search class 10, BOLT, NAIL, NUT, RIVET, AND SCREW MAKING, subclasses 124, Screw-threading, implements, die-stocks, ratchet, and 150, Screw-threading, tapping, implements, tap-wrenches, ratchet.)
(Note.—Search class 74, MACHINE ELEMENTS, subclass Pawls and ratchets.)
(Note.—Search class 77, BORING AND DRILLING, subclasses 10, Drilling-machines, portable, rail-drills, ratchet; 44, Ratchet-drills, and 48, Ratchet-drills, reversible.)
(Note.—Search class 151, NUT AND BOLT LOCKS, subclasses under Coupled nut and bolt, pawl-and-ratchet; 17, Coupled nut and bolt, thread-lock, superposed nuts, oppositely-threaded, key or pawl locked; 39, Locked nut, base-clutch, pawl-and-ratchet; 40, Locked nut, base-clutch, pawl-and-ratchet, nut-carried pawl; 41, Locked nut, base-clutch, pawl-and-ratchet, yielding interlocking washer, and 48, Locked nut, side lock, pawl-and-ratchet.)
(Note.—Search class 188, RAILWAY-BRAKES, subclass Staffs.)

63. WRENCHES, CLUTCHED-HEAD, RATCHET, PIVOTED-PAWL, REVERSING, SINGLE. A single pawl controls the direction of revolution.
(Note.—Search class 10, BOLT, NAIL, NUT, RIVET, AND SCREW MAKING; subclasses 124, Screw-threading, implements, die-stocks, ratchet, and 150, Screw-threading, tapping, implements, tap-wrenches, ratchet.)
(Note.—Search class 74, MACHINE ELEMENTS, subclass Pawls and ratchets.)
(Note.—Search class 77, BORING AND DRILLING, subclasses 10, Drilling-machines, portable, rail-drills, ratchet; 44, Ratchet-drills, and 48, Ratchet-drills, reversible.)
(Note.—Search class 145, WOODWORKING-TOOLS, subclasses 70, Bit-stocks, ratchet; 75, Handles, ratchet-and-pawl; 76, Handles, ratchet-clutch, and 77, Handles, cross-bar, ratchet.)
(Note.—Search class 151, NUT AND BOLT LOCKS, subclasses under Coupled nut and bolt, pawl-and-ratchet; 17, Coupled nut and bolt, thread-lock, superposed nuts, oppositely-threaded, key or pawl locked; 39, Locked nut, base-clutch, pawl-and-ratchet; 40, Locked nut, base-clutch, pawl-and-ratchet, nut-carried pawl; 41, Locked nut, base-clutch, pawl-and-ratchet, yielding interlocking washer, and 48, Locked nut, side lock, pawl-and-ratchet.)
(Note.—Search also class 188, RAILWAY-BRAKES, subclass Staffs.)

64. WRENCHES, FLEXIBLE. The object turned is surrounded wholly or partly by a flexible gripping device.

65. WRENCHES, FLEXIBLE, THREADED ADJUSTMENT. The flexible device is adjusted to the size of the work by a screw-threaded device.

66. WRENCHES, FLEXIBLE, LINK. The flexible device is made up of links.

67. WRENCHES, FLEXIBLE, LINK, CLAW. A part of the handle claws or draws or tends to claw or draw a portion of the chain lengthwise between the work and such part of the handle.

68. WRENCHES, FLEXIBLE, LINK, HANDLE-JAW. A jaw on the handle engages the work.
(Note.—If a pivoted jaw is a link of a chain it is classified herein, not in Flexible, link, handle-jaw, pivoted, this class.)

69. WRENCHES, FLEXIBLE, LINK, HANDLE-JAW, PIVOTED. A pivoted jaw carried by the handle engages the work, the said jaw not being a link of the chain.
(Note.—If the jaw is a link of the chain, it is classified in this class, subclass 68, Wrenches, flexible, link, handle-jaw.)

70. WRENCHES, FLEXIBLE, LINK, HANDLE-JAW, DUPLEX. The handle-jaw has two faces, either of which may engage the work according to the direction the chain is passed about it.

71. WRENCHES, INSERTED. Wrenches which are inserted in a hole or tube.

72. WRENCHES, INSERTED, EXPANDING. Parts of the wrench move outwardly to cause locking engagement with the walls of holes or tubes.

73. WRENCHES, U-CRANK ARM. The operating part has a U-shaped arm similar to the common bit-stock.

74. WRENCHES, WHEEL-OPERATED. Wrenches attached to and driven by wheels to turn nuts on or off from axles.

75. WRENCHES, WHEEL-OPERATED, HUB-RIM GRASP. The wrench grips the rim of the wheel-hub to rotate the wrench and wheel together.

76. WRENCHES, WHEEL-OPERATED, HUB-RIM GRASP, INTERNAL. The wrench grips the interior of the hub-rim.

77. WRENCHES, DOUBLE-ENDED, SIMULTANEOUS ADJUSTMENT. The wrench has at each end jaws which are adjusted at the same time.

WRENCHES, HAND-GRIP. The subclasses hereunder include wrenches whose jaws close upon the work by the grip of the hand.

78. WRENCHES, HAND-GRIP, PIVOTED-JAW. The grip of the hand operates one or more pivoted jaws, one jaw swinging relatively to the other.

79. WRENCHES, HAND-GRIP, PIVOTED-JAW, CROSSED HANDLES. The handles gripped by the hand cross each other.

80. WRENCHES, HAND-GRIP, PIVOTED-JAW, CROSSED HANDLES, NON-TRAVELING FULCRUM. The fulcrum or pivot of the jaws has no movement relative to the parts connected by the fulcrum or pivot or to the fixed jaw.

81. WRENCHES, HAND-GRIP, PIVOTED-JAW, CROSSED HANDLES, NON-TRAVELING FULCRUM, PIVOTED GRIPPING-PIECE. One or both of the jaw-levers carry pivoted jaw-pieces which engage the work.

82. WRENCHES, HAND-GRIP, PIVOTED-JAW, CROSSED HANDLES, NON-TRAVELING FULCRUM, SLIDING GRIPPING-PIECE. One or both of the jaw-levers carry sliding jaw-pieces which engage the work.

83. WRENCHES, HAND-GRIP, PIVOTED-JAW, CROSSED HANDLES, SLOTTED FULCRUM-GUIDE. The fulcrum of the jaws is adjustable along a slot.
(Note.—Search also in this class, subclass 109, Wrenches, pivoted outer jaw, traveling-fulcrum, slotted guide.)

84. WRENCHES, HAND-GRIP, PIVOTED-JAW, LINKED JAW AND HANDLES. The jaws are closed by the operation of a link connecting the jaw and the handle.

85. WRENCHES, HAND-GRIP, SLIDING-JAW. The grip of the hand causes one jaw to slide relatively to the other.

86. WRENCHES, HAND-GRIP, SLIDING-JAW, CLAW-LEVER AND RACK. A lever having a tooth or claw engaging a rack to close the jaws, the rack having more than one tooth.
(Note.—Search also in this class, subclass 127, Wrenches, sliding-jaw, handle-lever grip, claw.)

87. WRENCHES, HAND-GRIP, SLIDING-JAW, LEVER AND CAM FEED. A lever operates a cam which closes the jaws.

88. WRENCHES, HAND-GRIP, SLIDING-JAW, LEVER AND LINK FEED. A lever operates through a link connected thereto to close the jaws

89. WRENCHES, HAND-GRIP, SLIDING-JAW, LEVER AND PAWL FEED. A lever operates a pawl connected thereto and engaging a rack to close the jaws.

90. WRENCHES, SPANNERS. Wrenches having shoulders, projections, or holes to engage with coöperating parts on the object to be turned, usually a pipe-coupling.

91. WRENCHES, MULTIPLE PIVOTED JAWS, HANDLE-LEVER GRIP. A plurality of pivoted jaws is caused to grip the work by the action of a handle-lever. A pull on the handle causes a grip on the work.

92. WRENCHES, PIVOTED INNER JAW. The inner jaw (the one nearest the hand) is pivoted and swings or rocks to grip or engage the work.

93. WRENCHES, PIVOTED INNER JAW, NUT OR SCREW FULCRUM. The inner jaw rocks or swings upon a nut or screw as its fulcrum.

94. WRENCHES, PIVOTED INNER JAW, PIN-FULCRUM. The inner jaw has a pin as its fulcrum.

95. WRENCHES, PIVOTED INNER JAW, PIN-FULCRUM, ROLLER-JAW. The pin-fulcrumed inner jaw is a disk or roller.

96. WRENCHES, PIVOTED INNER JAW, PIN-FULCRUM, ROLLER-JAW, PINION. The roller or disk-shaped jaw is toothed and travels on a rack on the handle.

97. WRENCHES, PIVOTED INNER JAW, PIN-FULCRUM, SPRING-PRESSED. The pin-fulcrumed inner jaw is pressed by a spring.

WRENCHES, PIVOTED OUTER JAW. The outer jaw (the one at the end of the handle or the one farthest from the hand) is pivoted or swings as on a pivot.

WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM. The fulcrum on which the jaw swings does not travel relatively to either the fixed jaw or the parts which it connects.

98. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM, NON-TRAVELING-JAW. The outer jaw does not travel longitudinally or in a substantially right line to adjust itself to the size of the work.

99. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM NON-TRAVELING-JAW, SPRING-PRESSED. The outer jaw is pressed by a spring.

100. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM, TRAVELING-JAW. The outer jaw travels longitudinally or in a substantially right line to adjust itself to different sizes of work.

101. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM, TRAVELING-JAW, NUT-FULCRUM. The outer jaw swings or rocks on the adjusting-nut as a fulcrum.

102. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM, TRAVELING-JAW, ROCKING-SLEEVE. The outer jaw is carried by a rocking sleeve.

103. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM, TRAVELING-JAW, ROCKING-SLEEVE, SPRING-PRESSED. The rocking sleeve is spring-pressed.

104. WRENCHES, PIVOTED OUTER JAW, FIXED-FULCRUM, TRAVELING-JAW, ROCKING-SLEEVE, SPRING-PRESSED, FULCRUM-WASHER. The sleeve is a washer on which the nut is seated and on which the outer jaw rocks.

105. WRENCHES, PIVOTED OUTER JAW, FIXED FULCRUM, TRAVELING-JAW, ROCKING-SLEEVE, SPRING-PRESSED, SLEEVE-INCLOSED NUT. The sleeve wholly or partly incloses the adjusting-nut.

106. WRENCHES, PIVOTED OUTER JAW, TRAVELING-FULCRUM. The fulcrum-point of the outer jaw travels relatively to either the fixed jaw or the parts which it connects.

107. WRENCHES, PIVOTED OUTER JAW, TRAVELING-FULCRUM, THREADED HANDLE-BAR. The fulcrum is adjusted by a nut or screw working on a threaded handle-bar.
(Note.—Search also in this class, subclass 174, Wrenches, sliding adjustments, thread, traveling-nut, threaded handle-bar.)

108. WRENCHES, PIVOTED OUTER JAW, TRAVELING-FULCRUM, THREADED HANDLE-BAR, AXIALLY-ROTATING. The fulcrum is adjusted by the axial rotation of a threaded handle-bar.
(Note.—Search also in this class, subclass 164, Wrenches, sliding adjustments, thread, rotating threaded shank.)

109. WRENCHES, PIVOTED OUTER JAW, TRAVELING-FULCRUM, SLOTTED GUIDE. The fulcrum is adjustable in a slot in the shank of the fixed jaw.
(Note.—Search also in this class, subclass 83, Wrenches, hand-grip, pivoted-jaw, crossed handles, slotted fulcrum-guide.)

110. WRENCHES, PIVOTED OUTER JAW, TRAVELING-FULCRUM, FULCRUM-TOOTH AND RACK. The fulcrum of the outer jaw is a tooth which is adjustable along teeth or notches on the shank of the fixed jaw.

111. WRENCHES, PIVOTED SIDE-JAW. One or both jaws swing sidewise of the handle to close upon the work, the meeting plane of the jaws, or the opening between the jaws when in their normal closed condition, lying on opposite sides of the central longitudinal line of the handle or of a line parallel thereto.

112. WRENCHES, PIVOTED SIDE-JAW, BEVEL-CLOSING. The relative movement of the jaws and the handle-body or of the jaws and the jaw-actuating device is along lines neither parallel nor perpendicular to the axis of the handle.
(Note.—Search also in class 145, WOODWORKING-TOOLS, subclass 84, Handles, socket-fastenings, bevel-closing.)

113. WRENCHES, PIVOTED SIDE-JAW, BEVEL-CLOSING, AXIAL NUT OR SCREW. The jaws are drawn back into a beveled socket or are thrust forward into a conical cap by an axially-moving nut or screw.
(Note.—Search also in class 145, WOODWORKING-TOOLS, subclass 83, Handles, socket-fastenings, bevel-closing, axial-screw.)

114. WRENCHES, PIVOTED SIDE-JAW, BEVEL-CLOSING, SCREW-RING. An interiorly-threaded ring laterally surrounds the jaws and has a helical movement thereon.
(Note.—Search also in class 145, WOODWORKING-TOOLS, subclasses 89, Handles, socket-fastenings, bevel-closing, screw-ring; and 90, Handles, socket-fastenings, bevel-closing, screw ring, spring-retracted jaws.)

115. WRENCHES, PIVOTED SIDE-JAW, BEVEL-CLOSING, ROTATING-RING. The jaws are closed by an unthreaded ring or collar, which embraces the jaws and cams them towrd each other.
(Note.—Search also in class 145, WOODWORKING-TOOLS, subclasses 87, Handles, socket-fastenings, bevel-closing, rotating-ring, and 88, Handles, socket-fastenings, bevel-closing, rotating-ring, spring-retracted jaws.)

116. WRENCHES, PIVOTED SIDE-JAW, BEVEL-CLOSING, WEDGE. One or both of the jaws are closed by a part which slides between the jaws or between the jaw and another part, producing a wedge-like action.

117. WRENCHES, PIVOTED SIDE-JAW, ROCKING-LINK. One or both of the jaws are closed by means of links which cause one or both of the jaws to travel longitudinally and inwardly.

118. WRENCHES, PIVOTED SIDE-JAW, TRANSVERSE-SCREW CLAMP. The jaws are closed by a screw located transversely of the axis of the tool.

119. WRENCHES, RIGID JAWS. The jaws or work-engaging parts have no relative movement.

120. WRENCHES, RIGID JAWS, ROUND-WORK. The jaws are specially adapted for grasping or clutching round work.

121. WRENCHES, RIGID JAWS, INCLOSED. The jaw has inclosing walls forming an opening which receives a nut or the like.

122. WRENCHES, RIGID JAWS, INCLOSED, WATCH AND CLOCK KEYS. Socketed tools for winding watches or clocks.

123. WRENCHES, RIGID JAWS, INCLOSED, WATCH AND CLOCK KEYS, DUST-PROTECTORS. The watch or clock keys have means for excluding dust from the sockets.

124. WRENCHES, RIGID JAWS, INCLOSED, WATCH AND CLOCK KEYS, SAFETY. The watch or clock keys have means to prevent the overwinding of the springs.

125. WRENCHES, INCLOSED, WORK-HOLDING. The socket has means for holding a nut from dropping out.

126. WRENCHES, SLIDING-JAW, HANDLE-LEVER GRIP. The actuation of a handle-lever causes a sliding jaw to grip the work. A pull on the handle closes the jaws.
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

127. WRENCHES, SLIDING-JAW, HANDLE-LEVER GRIP, CLAW. The actuating-lever has a claw or tooth which claws or forces the sliding jaw to its work.
(Note.—Search also in this class, subclass 86, Wrenches, hand-grip, sliding-jaw, claw-lever.)
(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3 Type, pliers, and the subclasses thereunder.)

128. WRENCHES, SLIDING-JAW, CAM-CLOSING. A cam is actuated to operate a sliding jaw or coöperates with said jaw to produce a sliding movement thereof.
(Note.—Search also in this class, subclass 26, Vises, sliding-jaw, cam.)

129. WRENCHES, SLIDING ADJUSTMENTS. Means for adjusting sliding parts, as jaws, pivot-carrying blocks, &c.

130. WRENCHES, SLIDING ADJUSTMENTS, RACK. The adjustment is made by means of a rack which locks the parts from movement.
(Note.—Search also in this class, subclass 110, Wrenches, pivoted outer jaw, traveling-fulcrum, fulcrum-tooth, and rack.)

131. WRENCHES, SLIDING ADJUSTMENTS, RACK, INTERLOCKING JAW-HANDLES. The jaws are carried by handles which interlock.

132. WRENCHES, SLIDING ADJUSTMENTS, RACK, LOCKING SET SCREW OR NUT. The jaws are locked by means of a set screw or nut which locks together the rack and its interlocking part.

133. WRENCHES, SLIDING ADJUSTMENTS, RACK, PINION-LOCK. A pinion which travels on a rack on the shank is locked so as to prevent movement of the pinion-carrier.

134. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH. A pivoted device or a device moving as if on a pivot interlocks with a rack.
(Note.—Search also in this class, subclass 30, Vises, rack-lock, pivoted rack-catch.)

135. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH, NON-TRAVELING. The catch does not travel with the traveling jaw.
(Note.—Search also in this class, subclass 30, Vises, rack-lock, pivoted rack-catch.)

136. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH, NON-TRAVELING, INTERMEDIATE-FULCRUM. The non-traveling catch has its pivot between its locking end and its operating part.
(Note.—Search also in this class, subclasses 30, Vises, rack-lock, pivoted rack-catch, and 140, Wrenches, sliding adjustments, pivoted rack-catch, intermediate-fulcrum.)

137. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH, TRANSVERSE. The catch has its pivot or axis of movement lying longitudinally of the handle. It swings transversely of the interlocked rack.
(Note.—Search in this class, subclasses 30, Vises, rack-lock, pivoted rack-catch; 159, Wrenches, sliding adjustments, thread, interrupted; 160, Wrenches, sliding adjustments, thread, interrupted, nut-set, and 161, Wrenches, sliding adjustments, thread, interrupted, nut-set, traveling-nut.)

138. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH, CAM-SEATED. The catch is forced by a cam into locking engagement with the rack.

139. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH, INDIRECTLY-OPERATED. The catch is operated by a part not rigidly attached thereto.

140. WRENCHES, SLIDING ADJUSTMENTS, RACK, PIVOTED RACK-CATCH, INTERMEDIATE-FULCRUM. The catch moves on a pivot located between its locking end and its operating part.
(Note.—Search also in this class, subclass 136, Wrenches, sliding adjustments, rack, pivoted rack-catch, non-traveling, intermediate-fulcrum.)

141. WRENCHES, SLIDING ADJUSTMENTS, RACK, SHANK-ENGAGED CAM. A cam engages the shank and draws the rack and the teeth of its coöperating member together.

142. WRENCHES, SLIDING ADJUSTMENTS, RACK, SLIDING RACK-CATCH. A sliding catch interlocks with the rack of the sliding part.
(Note.—Search also in this class, subclass 31, Vises, rack-lock, sliding rack-catch.)

143. WRENCHES, SLIDING ADJUSTMENTS, RACK, SLIDING RACK-CATCH, CAM-SEATED. A cam holds the catch in engagement with the rack.
(Note.—Search also in this class, subclass 31, Vises, rack-lock, sliding rack-catch.)

144. WRENCHES, SLIDING ADJUSTMENTS, RACK, SLIDING RACK-CATCH, SCREW OR NUT SEATED. A screw or nut holds the catch in engagement with the rack.
(Note.—Search also in this class, subclass 31, Vises, rack-lock, sliding rack-catch.)

145. WRENCHES, SLIDING ADJUSTMENTS, RACK, SLIDING RACK-CATCH, SPRING-SEATED. A spring forces the catch into engagement with the rack.
(Note.—Search also in this class, subclass 31, Vises, rack-lock, sliding rack-catch.)

146. WRENCHES, SLIDING ADJUSTMENTS, RACK, SPRING-SEATED JAW-FRAME. A spring presses the teeth of a jaw carrying frame into engagement with teeth on the shank of the other jaw.
(Note.—This subclass includes only those jaw-frames whose teeth are not integral therewith.)

147. WRENCHES, SLIDING ADJUSTMENTS, RACK, SPRING-SEATED JAW-FRAME, INTEGRAL FRAME AND TEETH. The frame and the teeth are integral.

148. WRENCHES, SLIDING ADJUSTMENTS, RACK, WEDGE-LOCK. A wedge forces the teeth of one part into locking engagement with the other.
(Note.—Search also in this class, subclass 154, Wrenches, sliding adjustments, shank-grip, locking-incline.)

149. WRENCHES, SLIDING ADJUSTMENTS, RACK, WEDGE-LOCK, WEDGE-PUSHER. A special part not rigidly attached to the wedge moves the latter.
(Note.—Search also in this class, subclass 154, Wrenches, sliding adjustments, shank-grip, locking-incline.)

150. WRENCHES, SLIDING ADJUSTMENTS, SHANK-GRIP. The traveling jaw is locked to the shank by a gripping or clamping action.

151. WRENCHES, SLIDING ADJUSTMENTS, SHANK-GRIP, SIDE-JAW. The traveling jaw moves sidewise of the shank, the plane of the meeting faces of the jaws lying on opposite sides of the longitudinal axis of the handle or of a line parallel thereto.

152. WRENCHES, SLIDING ADJUSTMENTS, SHANK-GRIP, CLUTCH-YOKE. A yoke or ring-like device has a portion which grips or bites the shank to lock the traveling jaw.

153. WRENCHES, SLIDING ADJUSTMENTS, SHANK-GRIP, ROLLER-CLUTCH. The traveling jaw is locked by the gripping or clutching action of a roller upon the shank.

154. WRENCHES, SLIDING ADJUSTMENTS, SHANK-GRIP, LOCKING-INCLINE. The traveling jaw is locked to the shank by one or more inclines.
(Note.—Search also in this class, subclasses 148, Wrenches, sliding adjustments, rack, wedge-lock, and 149, Wrenches, sliding adjustments, wedge-lock, wedge-pusher.)

155. WRENCHES, SLIDING ADJUSTMENTS, THREAD. The sliding part is adjusted by means of a threaded device.

156. WRENCHES, SLIDING ADJUSTMENTS, THREAD, DISPLACEABLE HALF-NUT. The nut is made of sections which move away from the screw or of a single section which partially surrounds the screw and moves away from the screw in order to make a quick adjustment.

157. WRENCHES, SLIDING ADJUSTMENTS, THREAD, DISPLACEABLE NUT OR SCREW. The nut or screw is separated bodily from its coöperating member to provide a quick adjustment.
(Note.—Search also in this class, subclasses 36, Vises, screw-operated, displaceable nut or screw, and 137, Wrenches, sliding adjustments, rack, pivoted rack-catch, transverse.)

158. WRENCHES, SLIDING ADJUSTMENTS, THREAD, DISPLACEABLE NUT OR SCREW, TRAVELING-SCREW, SHANK-RACK. The screw is carried by the traveling jaw and is moved away from its coöperating member, which is a rack on the shank, to provide a quick adjustment.
(Note.—Search also in this class, subclasses 36, Vises, screw-operated, displaceable nut or screw, and 176, Wrenches, sliding adjustments, thread, traveling-screw, shank-rack.)

159. WRENCHES, SLIDING ADJUSTMENTS, THREAD, INTERRUPTED. A portion of the threads are removed from coöperating parts, so that by registering the removed portion of one part with the full portion of the other a quick adjustment is provided.
(Note.—Search also in this class, subclass 37, Vises, screw-operated, interrupted-thread.)

160. WRENCHES, SLIDING ADJUSTMENTS, THREAD, INTERRUPTED, NUT-SET. An interiorly-threaded device is operated to lock and advance the jaw at the time of locking.
(Note.—Search also in this class, subclasses 37, Vises, screw-operated, interrupted-thread, and 137, Wrenches, sliding adjustments, rack, pivoted rack-catch, transverse.)

161. WRENCHES, SLIDING ADJUSTMENTS, THREAD, INTERRUPTED, NUT-SET, TRAVELING-NUT. The nut is secured to the traveling jaw.
(Note.—Search also in this class, subclasses 37, Vises, screw-operated, interrupted-thread, and 137, Wrenches, sliding adjustments, rack, pivoted rack-catch, transverse.)

162. WRENCHES, SLIDING ADJUSTMENTS, THREAD, INTERRUPTED, TRAVELING-SCREW, SHANK-RACK. An externally-threaded device secured to the traveling jaw is operated in connection with rack-like threads on the shank of the fixed jaw.
(Note.—Search also in this class, subclasses 37, Vises, screw-operated, interrupted-thread, and 176, Wrenches, sliding adjustments, thread, traveling-screw, shank-rack.)

163. WRENCHES, SLIDING ADJUSTMENTS, THREAD, RIGHT AND LEFT THREADS. The sliding part or parts are adjusted by the actuation of a device having right and left threads.
(Note —Search also in this class, subclass 35, Vises, screw-operated, right and left threads.)

164. WRENCHES, SLIDING ADJUSTMENTS, THREAD, ROTATING THREADED SHANK. The sliding part is adjusted by the axial rotation of a threaded handle.
(Note.—Search also in this class, subclasses 108, Wrenches, pivoted outer jaw, traveling-fulcrum, threaded handle-bar, axially-rotating, and 192, pipe and rod cutters, traveling, external, thread, feed, rotary-handle.)

165. WRENCHES, SLIDING ADJUSTMENTS, THREAD, SLIDING SIDE-JAW. The sliding jaw has a movement transverse of the shank supporting it.

WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING NUT. An interiorly-threaded device having no travel is operated to adjust the sliding part.

166. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING NUT, INTERMEDIATE. The actuating-nut is seated between the jaws and the end of the handle.
(Note.—Search also in this class, subclass 168, Wrenches, sliding adjustments, thread, non-traveling nut, terminal.)

167. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING NUT, INTERMEDIATE, SLIDING OUTER JAW. The outer jaw is adjusted by the actuation of a nut between jaws and the end of the handle.
(Note.—Where the nut is used as the fulcrum of a swinging outer jaw, see in this class, subclass 101, Wrenches, pivoted outer jaw, fixed-fulcrum, traveling-jaw, nut-fulcrum.)
(Note.—Where the nut is carried on a rocking washer, see in this class, subclass 104, Wrenches, pivoted outer jaw, fixed-fulcrum, traveling-jaw, rocking-sleeve, spring-pressed, fulcrum-washer.)
(Note.—Where the nut is carried in a rocking sleeve which guides an outer jaw, see in this class, subclass 105, Wrenches, pivoted outer jaw, fixed-fulcrum, traveling-jaw, rocking-sleeve, sleeve-inclosed nut.)
(Note.—Search also in this class, subclass 169, Wrenches, sliding adjustments, thread, non-traveling nut, terminal, sliding outer jaw.)

168. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING NUT, TERMINAL. The actuating-nut is seated at the end of the handle.
(Note.—Where the nut is used as the fulcrum of a swinging outer jaw, see in this class, subclass 101, Wrenches, pivoted outer jaw, fixed-fulcrum, traveling-jaw, nut-fulcrum.)
(Note.—Where the nut is carried on a rocking washer, see in this class, subclass 104, Wrenches, pivoted outer jaw, fixed-fulcrum, traveling-jaw, rocking-sleeve, spring-pressed, fulcrum-washer.)
(Note.—Where the nut is carried on a rocking sleeve which guides an outer jaw, see in this class, subclass 105, Wrenches, pivoted outer jaw, fixed-fulcrum, traveling-jaw, rocking-sleeve, sleeve-inclosed nut.)
(Note.—Search also in this class, subclass 166, Wrenches, sliding adjustments, thread, non-traveling nut, intermediate.)

169. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING NUT, TERMINAL, SLIDING OUTER JAW. The outer jaw is adjusted by the actuation of a nut at the end of the handle.
(Note.—Search also in this class, subclass 167, Wrenches, sliding adjustments, thread, non-traveling nut, intermediate, sliding outer jaw.)

170. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING SCREW. An exteriorly-threaded device having no longitudinal movement is actuated to adjust the sliding part.

171. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING SCREW, BRACKET-BEARING. The screw has its bearing in or on a bracket, usually on or a part of the upper end of the handle proper.
(Note.—Where the screw is used as the fulcrum of an inner jaw, see in this class, subclass 93, Wrenches, pivoted inner jaw, nut or screw fulcrum.)

172. WRENCHES, SLIDING ADJUSTMENTS, THREAD, NON-TRAVELING SCREW, SHANK-SLEEVED. The screw is a sleeve which surrounds the shank of the fixed jaw.

173. WRENCHES, SLIDING ADJUSTMENTS, THREAD, TRAVELING-NUT. An interiorly-threaded device carried by the sliding part is actuated to secure an adjustment.

174. WRENCHES, SLIDING ADJUSTMENTS, THREAD, TRAVELING-NUT, THREADED HANDLE-BAR. The actuating-nut coöperates with threads upon the handle-bar.

(Note.—Where the nut is used as the fulcrum of an inner jaw, see in this class, subclass 93, Wrenches, pivoted inner jaw, nut or screw fulcrum.)

(Note.—Search also in this class, subclass 107, Wrenches, pivoted outer jaw, traveling-fulcrum, threaded handle-bar.)

175. WRENCHES, SLIDING ADJUSTMENTS, THREAD, TRAVELING-SCREW. An exteriorly-threaded device travels longitudinally to make an adjustment.

176. WRENCHES, SLIDING ADJUSTMENTS, THREAD, TRAVELING-SCREW, SHANK-RACK. The actuating-screw travels with the sliding part and coöperates with rack-like threads upon the shank.

(Note.—Search also in this class, subclasses 158, Wrenches, sliding adjustments, thread, displaceable nut or screw, traveling-screw, shank-rack, and 162, Wrenches, sliding adjustments, thread, interrupted, traveling-screw, shank-rack.)

177. WRENCHES, HANDLES AND SHANKS. Patents wherein the novelty lies in the handle or the shank.

(Note.—Search also in this class, subclass 171, Wrenches, sliding adjustments, thread, non-traveling screw, bracket-bearing.)

178. WRENCHES, REVERSIBLE JAWS. The jaws are reversible to bring a new part into operative position.

179. WRENCHES, SLIDING JAW-FACE. The jaw or jaws are provided with a sliding jaw-face which moves in some degree transversely of the shank.

180. WRENCHES, ATTACHMENTS AND ADJUNCTS. Parts which are exchangeable for other parts, as jaw-pieces, cutters, and the like, or are added to improve wrenches as such.

(Note.—Attachments and adjuncts, except cutters, pumps, and oilers, which are added to wrenches to give them a function other than that of wrenches, are classified in class 7, COMPOUND TOOLS.)

(Note.—For adjuncts holding a nut from dropping out of a wrench see in this class, subclass 125, Wrenches, rigid jaws, inclosed, work-holding.)

181. WRENCHES, ATTACHMENTS AND ADJUNCTS, CUTTERS. Attachments and adjuncts which are applied to wrenches to convert them into cutters and which are so combined with the wrench that the parts which operate the jaws of the wrench are employed for applying the necessary pressure to the cutters.

(Note.—Cases involving cutters of a general nature applied to various parts of the wrench, but not coming within the above definition, are found in class 7, COMPOUND TOOLS.)

182. WRENCHES, ATTACHMENTS AND ADJUNCTS, CUTTERS, ROTARY. The cutters are rotary disks or the like.

183. WRENCHES, ATTACHMENTS AND ADJUNCTS, ROLLER-CLUTCH. Rollers added to wrench-jaws and causing a clutch-grip on the work.

184. WRENCHES, ATTACHMENTS AND ADJUNCTS, SHANK-EMBRACING. The attachment is sleeved upon or partially embraces the shank of the wrench.

185. WRENCHES, ATTACHMENTS AND ADJUNCTS, SOCKET-REDUCERS. Attachments for reducing the size of wrench-sockets.

186. WRENCHES, JAW-FACES. Patents relating to the surface structure of the jaws.

187. PIPE AND ROD CUTTERS. Tools for cutting pipes and rods.

(Note.—Shears for cutting wire are in class 30, CUTLERY, Wire-shears.)

(Note.—Cutters combined with wrenches in which the jaw-operating parts supply the power for bringing the cutters into operation are found in this class, subclass 181, Wrenches, attachments and adjuncts, cutters.)

(Note.—Tools for cutting sheets and bars are in class 164, CUTTING AND PUNCHING SHEETS AND BARS.)

188. PIPE AND ROD CUTTERS, NON-TRAVELING, INTERNAL. Tools having the cutting-blade inside of a tube or the like, the part carrying the cutter having no travel relative to the tube.

189. PIPE AND ROD CUTTERS, TRAVELING, EXTERNAL. The cutting portion of the tool operates externally of a cylinder or tube to be cut and travels circumferentially about it.

190. PIPE AND ROD CUTTERS, TRAVELING, EXTERNAL, GEAR-OPERATED. The cutter is by means of gearing caused to travel circumferentially about a bar or tube.

191. PIPE AND ROD CUTTERS, TRAVELING, EXTERNAL, THREAD-FEED. The cutter is fed by a threaded device during the travel thereof.

192. PIPE AND ROD CUTTERS, TRAVELING, EXTERNAL, THREAD-FEED, ROTARY HANDLE. By axially rotating the handle a threaded device feeds the cutter into the work.

(Note.—Search also in this class, subclass 164, Wrenches, sliding adjustments, thread, rotating threaded shank.)

193. PIPE AND ROD CUTTERS, TRAVELING, INTERNAL. The cutting portion of the tool operates inside of a pipe to be cut and its carrier travels relatively to the pipe.

194. PIPE AND ROD CUTTERS, TRAVELING, INTERNAL, ROTARY. The cutter travels about the pipe to make a cut transverse of its axis.

195. PIPE AND ROD CUTTERS, TRAVELING, INTERNAL, ROTARY, WEDGE-FEED. A wedge feeds the cutter to its work.

196. PIPE AND ROD CUTTERS, PIVOTED. The cutter is carried by a pivoted part.

(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

197. PIPE AND ROD CUTTERS, PIVOTED, CAM. The cutter-jaws are closed by the actuation of a cam.

(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

198. PIPE AND ROD CUTTERS, PIVOTED, HANDLE-JAWS. The cutting-jaws are carried rigidly by the handles, as in the common nippers or wire-cutters.

(Note.—Search also in class 7, COMPOUND TOOLS, subclass 3, Type, pliers, and the subclasses thereunder.)

199. PIPE AND ROD CUTTERS, PIVOTED, TOGGLE. The jaws are closed by the actuation of a toggle.

200. PIPE AND ROD CUTTERS, PIVOTED, INTERGEARED HANDLES. The handles are geared together, so as to cause a simultaneous movement of the jaws.

201. PIPE AND ROD CUTTERS, SLIDING. The cutting blade or blades slide in a substantially right line.

202. PIPE AND ROD CUTTERS, SLIDING, CAM. The sliding jaw is actuated by a cam.

203. PIPE AND ROD CUTTERS, SLIDING, HEAD AND SOCKET. The sliding jaw is actuated by the movement of a head in a socket. The head in most cases is carried by a lever and fits a socket in the cutter-bar.

204. PIPE AND ROD CUTTERS, SLIDING, LEVER AND LINK. The sliding jaw is actuated by the coöperation of a lever and a link.

205. PIPE AND ROD CUTTERS, SLIDING, RACK AND SEGMENT. The sliding jaw is actuated by the coöperation of a rack and a segment, the former usually carried by the blade and the latter by a lever.

206. PIPE AND ROD CUTTERS, JAW ATTACHMENTS. Parts attached to the jaw-holders and capable of replacement by other parts when the original parts are dull or worn out or when a jaw-piece of a different character is desired.

Patents No. 681,669 to 682,156.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 10. TUESDAY, SEPTEMBER 3, 1901. Price—$5 per year.

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Designs	37	No. 35,018 to No. 35,054, inclusive.
Trade-Marks	38	No. 36,991 to No. 37,028, inclusive.
Labels	14	No. 5,634 to No. 5,647, inclusive.
Prints	8	No. 390 to No. 397, inclusive.
Reissues	1	No. 11,990.
Total issue	586	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nevada	----	----
Alaska Territory	----	----	New Hampshire	----	----
Arizona Territory	2	----	New Jersey	27	4
Arkansas	1	----	New Mexico Territ'y	1	----
California	15	1	New York	82	15
Colorado	9	----	North Carolina	1	----
Connecticut	13	2	North Dakota	----	----
Delaware	1	----	Ohio	27	1
District of Columbia	1	----	Oklahoma Territ'y	----	----
Florida	----	----	Oregon	1	----
Georgia	3	----	Pennsylvania	55	8
Idaho	1	----	Rhode Island	12	----
Illinois	50	6	South Carolina	1	----
Indian Territory	2	----	South Dakota	1	----
Indiana	11	----	Tennessee	4	----
Iowa	13	1	Texas	6	5
Kansas	11	1	Utah	1	----
Kentucky	7	2	Vermont	1	----
Louisiana	2	1	Virginia	4	2
Maine	2	----	Washington	6	----
Maryland	4	3	West Virginia	----	----
Massachusetts	32	2	Wisconsin	8	----
Michigan	9	2	Wyoming	----	----
Minnesota	4	1	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	20	----	Total to citizens of the United States	458	57
Montana	----	----			
Nebraska	4	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Jamaica	----	----
Australia	----	----	Japan	----	----
Austria-Hungary	3	----	Mexico	----	----
Barbadoes	----	----	Netherlands	1	----
Belgium	----	----	New South Wales	----	----
Brazil	----	----	New Zealand	----	----
British Guiana	----	----	Norway	----	----
Canada	10	----	Queensland	----	----
Cape Colony	----	----	Russia	1	----
China	----	----	Scotland	1	1
Colombia	1	----	South African Republic	----	----
Cuba	----	----	South Australia	----	----
Denmark	----	----	Spain	----	----
Egypt	----	----	Sweden	4	----
England	18	1	Switzerland	1	----
Finland	----	----	Turkey in Asia	----	----
France	11	----	Victoria	----	----
Germany	16	1	Western Australia	----	----
India	----	----	Total to citizens of foreign countries	67	3
Ireland	----	----			
Italy	----	----			
Haiti	----	----			

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1896, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.

Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.

Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70 pages. In paper covers, $1.50.

Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 68 pages. In paper covers, $1.50.

Vol. 15. Appendix No. 15, July 1, 1895, to June 30, 1896. One volume, 82 pages. In paper covers, $1.50.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business August 27, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs,†Trade-Marks, ‡Labels and Prints, Optics.	Aug. 19	Aug. 12	36
106	II. Farm Stock, Products, etc.	Aug. 14	Aug. 15	186
246	I. Tillage and Fences	Aug. 1	Aug. 13	165
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	July 29	Aug. 13	202
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 29	Aug. 13	142
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 29	Aug. 5	171
129	XXIV. Sewing-Machines, Apparel, and Toilet.	July 29	Aug. 2	186
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	July 29	July 30	110
281	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 29	July 27	273
250	VIII. Furniture, Beds, Store Furniture, etc.	July 27	July 31	399
	Between one and two months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 24	Aug. 3	156
93	XXI. Textiles, etc	July 24	July 24	182
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 23	Aug. 2	115
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 20	Aug. 12	191
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 20	Aug. 6	215
44	XXIV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	July 20	July 27	337
196	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 17	Aug. 6	285
253	X. Carriages and Wagons	July 17	July 25	99
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 17	July 25	242
240	VII. Velocipedes, Games, and Toys.	July 9	July 12	154
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	July 8	July 23	313
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	July 2	July 15	269
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 2	July 12	257
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	July 2	July 12	262
248	XVIII. Steam-Engineering, etc	July 2	July 9	356
255	XII. Mechanical Engineering, Stone-Service, etc.	July 1	July 30	323
215	XVII. Printing, Type-Writing Machines, and Linotyping.	June 28	July 31	255
	Between two and three months.			
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	June 26	July 17	313
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	June 24	Aug. 13	236
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 22	July 25	208
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	June 20	June 21	434
133	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 18	July 25	247
190	IX. Hydraulics, Fire-Extinguishers, etc.	June 17	July 31	190
102	XIX. Stoves and Furnaces	June 17	July 13	464
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 4	July 2	276
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 27	July 17	183
	Total number of applications awaiting action			8,457

Applications Under Examination—Continued.

Under one month.			
*Designs	Aug. 14	Aug. 21	60
†Trade-Marks	Aug. 19	Aug. 22	53
‡Labels and Prints		Aug. 27	3

Order in Relation to Drawings.

(Order No 1,135.)

Department of the Interior,
United States Patent Office,
Washington, D. C., August 22, 1901.

Attorneys and officials of this Office are notified that the subjoined order, No. 1,135, promulgated June 12, 1897, is still in force and that the requirements thereof should in all cases be complied with.

E. B. MOORE,
Acting Commissioner.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant or any other person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval, or upon request it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' room except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case, or upon the request of applicants the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' room before the prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

Roster of Registered Attorneys.

An alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, corrected to January 1, 1901, has been published, and copies will be furnished at the nominal price of five cents each, a five-cent coupon being acceptable in payment therefor.

Registrants are requested to give notice of any errors that appear in the list as published or any change of address since the list was prepared for publication.

Any solicitor, agent, or attorney who, in circulars or advertisements or otherwise, refers to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of his professional standing, does so without authority.

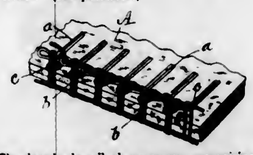
Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

PATENTS

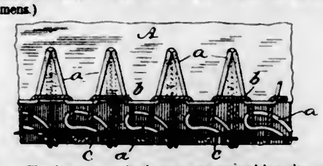
GRANTED SEPTEMBER 3, 1901.

681,669. OVERSEAM FOR SEWED ARTICLES. Edward B. Allen, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 31, 1898. Renewed Jan. 17, 1901. Serial No. 43,627. (No specimens.)



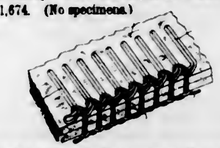
Claim.—The herein-described overseam, comprising the combination with suitable fabric or material, of a depth-stitch thread *a* passing through the material and having loops extended to the edge of the fabric on both faces of the latter, an edge-stitch thread *b* having loops passed through the upper loops of said depth-stitch thread and also around the lower depth-stitch loops, and a third or looper thread *c* having loops passing through the lower loops of depth-stitch thread and around the loops of edge-stitch thread.

681,670. OVERSEAM FOR SEWED ARTICLES. Edward B. Allen, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 15, 1898. Serial No. 666,806. (No specimens.)



Claim.—The herein-described overseam comprising the combination with suitable fabric or material, of a depth-stitch thread *a* passing through the material and having loops extended to the edge of the fabric on both faces of the latter, an edge-stitch thread *b* having loops passed through both of the said loops of depth-stitch thread, and a third or looper thread *c* looped through the loops of edge-stitch thread and around the lower loops of the depth-stitch thread.

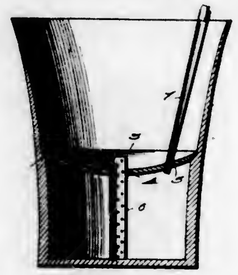
681,671. OVERSEAM FOR SEWED ARTICLES. Edward B. Allen, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 31, 1898. Renewed Dec. 26, 1899. Serial No. 741,674. (No specimens.)



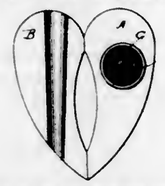
Claim.—The herein-described double-purled overseam, having two threads only and consisting of the combination with suitable fabric or material, of a depth-stitch thread passing at each stitch through the material and having loops extended to the edge of the fabric on both the upper and lower faces thereof, and an edge-stitch thread passing around the lower loops of the depth-stitch thread and through the said upper and lower loops of said depth-stitch thread; whereby the said threads are enchained at the edge of the lower face of the work, and interlooped at the edge of the upper face of the work, as set forth.

681,672. FLOWER-POT. John K. Andrews, Elgin, Ill. Filed Jan. 15, 1900. Serial No. 1,475. (No model.)

Claim.—The combination with a pot formed with an internal annular shoulder, of a disk seated on said shoulder and formed with a central opening; a perforated tube open at its upper end and extending through the central opening in the disk and adapted to receive earth when the pot is filled; and a water-supply pipe the lower end of which extends through the disk while its upper end projects above the upper edge of the pot.

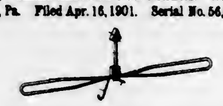


681,673. BOUQUET-HOLDER. Joseph R. Angelovich, San Francisco, Cal. Filed Dec. 15, 1900. Serial No. 40,005. (No model.)



Claim.—A holder of the kind described consisting of two sections hinged together, one of the sections having a longitudinal groove produced in its inner face, the other section having an opening adapted to receive a miniature or photograph, and a pin arranged upon the back of the grooved section, substantially as shown and described.

681,674. SHIRT-HANGER FOR DRIERS. William M. Barner, Philadelphia, Pa. Filed Apr. 16, 1901. Serial No. 56,043. (No model.)



Claim.—1. An improved shirt-drying hanger, comprising projecting arms and a central pin projecting at a right angle to the line of the arms, and a second pin projecting downward and at an angle to the first-mentioned pin and having an angular end.

2. An improved shirt-drying hanger, comprising a standard, arms projecting on opposite sides of said standard, a pin projecting from said standard at right angles to the line of the arms, a vertical post projecting from said standard, flanges projecting from the end of said post, the flanges being joined by upwardly-inclined sides, and a second pin projecting downward and at an angle to the first-mentioned pin and having an angular end.

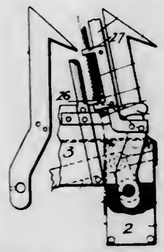
3. An improved shirt-drying hanger comprising a standard, arms projecting on opposite sides of said standard, a downward projection from said standard and a pin projecting from said downward projection at right angles to the line of the arm.

4. An improved shirt-drying hanger comprising a standard, arms projecting on opposite sides of said standard, a downward projection from said standard and a pin projecting from said downward projection at right angles to the line of the arms, and a second pin projecting downward and at an angle to the first-mentioned pin and having an angular end.

5. An improved shirt-drying hanger comprising a standard, arms projecting on opposite sides of said standard, a vertical post projecting from said standard, flanges projecting from the end of said post, the flanges being joined by upwardly-inclined sides, a downward projection from said standard and a pin projecting from said downward projection at right angles to the line of the arms.

6. An improved shirt-drying hanger comprising a standard, arms projecting on opposite sides of said standard, a vertical post projecting from said standard, flanges projecting from the end of said post, the flanges being joined by upwardly-inclined sides, a downward projection from said standard and a pin projecting from said downward projection at right angles to the line of the arms and a second pin projecting downward and at an angle to the first-mentioned pin and having an angular end.

681,675. **CHAIR FOR MINING-CAGES.** MELVIN H. BECK and JULIUS R. CAYSOR, Victor, Colo. Filed Apr. 9, 1901. Serial No. 55,090. (No model.)



Claim.—1. In a device of the class described, the combination with a cage, of an upright chair on the cage provided with a hook adapted to interlock with a suitable support of a mining-shaft, and means for operating the chair, substantially as described.

2. In a device of the class described, the combination with a cage, of upright dogs mounted on the cage and provided with upper beveled or inclined edges adapted to cause the dogs to be thrown inward should they come in contact with the timbers of a mining-shaft, and means for operating the chairs, substantially as described.

3. In a device of the class described, the combination with a cage, of chairs mounted on the cage and provided with hooks and having beveled edges, whereby the chairs are thrown inward automatically when they come in contact with the timbers of a mining-shaft, and means for operating the chairs, substantially as described.

4. In a device of the class described, the combination with a cage, of transverse shafts mounted on the cage and provided with oppositely-disposed arms, oppositely-inclined connecting-bars pivoted to the arms and adapted to push and pull simultaneously, whereby they are prevented from buckling, chairs mounted on the shafts, and means for operating the chairs, substantially as described.

5. In a device of the class described, the combination with a cage having a depending flange, of brackets composed of sections located at opposite sides of and secured to the flange and projecting below the cage, shafts journaled on the brackets or lugs and connected with each other, chairs mounted on the shafts, and means for operating the chairs, substantially as described.

6. In a device of the class described, the combination with a cage, of upright pivotally-mounted chairs, connections between the chairs for causing the same to oscillate in unison, and a spring located above the platform of the cage and connected with the said cage and with a chair and adapted to hold the chairs normally in an inoperative position, substantially as described.

7. In a device of the class described, the combination with a cage, of an upright pivotally-mounted chair, a guide mounted on the cage and having a recess, and an arm or lever mounted on the chair and provided with a latch mechanism for engaging the recess of the guide, substantially as described.

8. In a device of the class described, the combination with a cage, of shafts mounted on the cage and connected together, the chairs 8 and 9 secured to the shafts and extending upward therefrom, the tension devices secured to the cage and connected with the chairs 9, the levers or handles connected with the chairs 8, and means for locking the chairs out of engagement, substantially as described.

9. In a device of the class described, the combination with a block having an inclined upper face, and a cage, of a chair having a hook adapted to engage the inclined face of the block, substantially as described.

10. In a device of the class described, the combination with a cage of a block extending above the floor or platform of the cage, and a chair interlocked with the block and engaging the same at a point above the floor or platform of the cage, substantially as and for the purpose described.

681,676. **SAFETY WATCH-HOLDER.** JOHN H. BEE and THOMAS B. CAMPBELL, Jr., New Kensington, Pa. Filed June 2, 1900. Serial No. 18,898. (No model.)



Claim.—A safety-holder for watches, comprising an elongated plate formed with a central bend, and having its ends bent inwardly to form clamping-arms and enlarged adjacent to the inner ends of said arms, said arms having their meeting ends terminating short of each other and curved outwardly and provided with rounded heads, the meeting ends of said arms being disposed in front of the bend in said plate, threaded studs projecting from the enlarged portions of the plate, buttons for said threaded studs, and a covering of flexible material for the portions of the holder contacting with the watch, substantially as described.

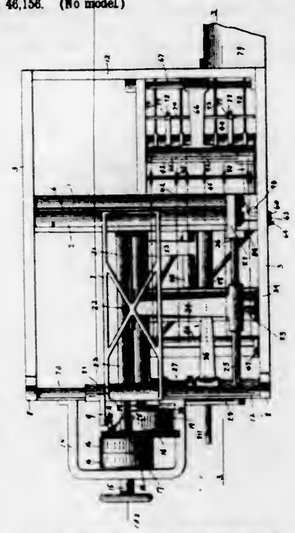
681,677. **PLOW.** STEFAN BEHRINGER, Budapest, Austria-Hungary. Filed Feb. 17, 1900. Serial No. 5,656. (No model.)



Claim.—1. A plow having its beam composed of two longitudinal members between which the plow is supported pivotally a segment having a series of holes and a cross-pin to engage therein and when in position rest on the top of the composite beam and handles to operate the said plow, a cross-bar at the front end of the beam and means for adjustably attaching the front end of said beam to the cross-bar in a lateral direction, wheels of different diameter mounted on the said beam and means for adjusting one of the said wheel-axles vertically substantially as described.

2. A plow having its beam composed of two longitudinal members, divided intermediate their ends, the two parts of the beam thus formed being hinged together, and means for adjusting the angle at which the said parts are fixed one to the other, a plow rigidly mounted in the rear end of the beam and having handles as specified, a rear wheel vertically adjustable on the landside of the plow, a front cross-bar having two wheels of different diameter and means for adjusting one of the same vertically and means for adjusting the front end of the composite beam laterally on the said cross-bar in the manner and for the purpose substantially as described.

681,678. **FOLDING-MACHINE.** WALTER G. BENNETT, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, same place. Filed Oct. 9, 1893. Renewed Feb. 5, 1901. Serial No. 46,156. (No model.)



Claim.—1. The combination in a folding-machine of three sets of folding-rollers arranged substantially as described, with means whereby the folded sheets issuing from the first of said sets of folding-rollers can be delivered through the third set without further folding, or can be delivered from said first set through either of the other two sets and folded thereby without removing any of said rollers, substantially as described.

2. The combination in a folding-machine of two folding apparatuses arranged substantially parallel, an intermediate folding apparatus arranged at right angles to said two, and means whereby the sheet can be delivered from the first of said folding apparatuses through the third set without further folding, or can be delivered folded by either of the other folding apparatuses, substantially as described.

3. The combination in a folding-machine of a pair of folding-rollers as 43, 44, a tucker coacting therewith, and an adjustable stop, these parts being so arranged that, when the stop is in position, the tucker will force the leading end of the sheet into the bite of the folding-rollers, so that the same will pass through without folding, and so that, when not in position, the tucker-blade will crease and fold the sheet into the bite of the folding-rollers, so that the same will be folded thereby, the parts being further so arranged that these adjustments can be made without interfering with the action of the tucker, substantially as described.

4. The combination in a folding-machine of the three sets of positively-driven folding-rollers as 33 34, 48 49 and 43 44 arranged substantially as described, a set of tapes taking the sheets from the rollers 33 34, and means whereby the sheets can be folded by either of said sets of folding-rollers 48 49 or 43 44, or delivered through the rollers 43 44 without further folding and without altering or removing any of said folding-rollers, substantially as described.

5. The combination in a folding-machine of three sets of folding-rollers, as 33 34, 48 49 and 43 44, arranged substantially as described, means whereby the sheet after passing from the rollers 33 34 can be folded by either set of rollers 48 49 or 43 44, or delivered out through the rollers 43 44 without further folding, as desired, and means whereby the sheet issuing from either of the last two sets of folding-rollers will be deposited in the same delivery device, substantially as described.

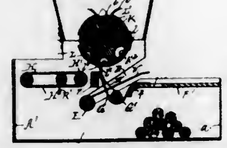
6. The combination in a folding-machine of three sets of folding-rollers as 33 34, 48 49, and 43 44, arranged substantially as described, means whereby the sheet issuing from the rollers 33 34 will be carried first over the rollers 48 49, and then to the rollers 43 44, a stop which is adapted to be thrown into position to stop the sheet over the folding-rollers 48 49, if desired, or which can be so positioned that the sheets will pass to the folding-rollers 43 44, and means whereby the sheets may be either folded by the rollers 43 44, or carried thereto without folding, substantially as described.

7. The combination in a folding-machine of three sets of folding apparatus, a set of tapes carrying the sheet from one of said sets of folding apparatus first, over the next set, and then to the third, a stop adapted to be thrown into and out of position to stop the sheet over the intermediate set of folding-rollers, the tucker knife or blade coöperating with this intermediate set of folding-rollers, and means whereby the folding-blade will be rendered inoperative when the stop is moved so as to allow a free passage over the intermediate set of folding-rolls, and so that when the sheet is stopped over this intermediate set the tucker-blade will be allowed to operate, substantially as described.

8. The combination in a folding-machine of a set of folding-rollers as 43 44, and a coöperating tucker-blade, a set of guiding-fingers as 73, a stop 74 arranged to stop the sheet so that the same will be folded, and a removable set of delivery-stops as 75, which, when in place will stop the head of the sheet so that as the tucking-blade descends, the sheet will be caused to pass between the folding-rollers without being folded thereby, substantially as described.

9. The combination in a folding-machine of a set of folding-rollers as 48 49, a set of tapes as 42 for carrying the sheet over these folding-rollers, a tucker blade or knife 52 for tucking the sheets between these folding-rollers, a stop adapted to arrest the sheet over these folding-rollers in proper position, said stop also being adapted to assume a position which will allow the sheets to pass beyond the folding-rollers, and connections whereby when the stop is in its inoperative position, the folder or tucker blade will be rendered inoperative, and when the stop is in its operative position, the tucker-blade will be allowed to act, substantially as described.

681,679. **BUNCHING-MACHINE.** MILTON J. BOWMAN, Kinzers, Pa. Filed Oct. 5, 1900. Serial No. 32,198. (No model.)



Claim.—1. The combination, in a bunching-machine, of a table, a frame having guideways in the walls thereof, a bunching-roller normally supported in the inner ends of the guideways and adapted to travel through the same, spring-plates bearing on the ends of the bunching-rollers and having their inner ends secured adjacent to the inner ends of the guideways and their outer ends free, and a bunching-apron adapted to form a pocket in front of the normal position of the bunching-roller, for the purpose specified.

2. The combination, in a bunching-machine, of a table, a frame having guideways in the walls thereof and extending downward from said table, a bunching-roller normally supported in the inner ends of the guideways, spring-plates having their inner ends secured in the top walls of the inner ends of the guideways and their outer ends free and extending toward said table, said springs being constructed to bear on the ends of the bunching-roller, and a bunching-apron adapted to form a pocket in front of the normal position of the bunching-roller, for the purpose specified.

3. The combination, in a bunching-machine, of a bunching-apron, a bunching-roller, a feed-cylinder having therein pockets of different sizes, bearings, spindles on the feed-cylinder and removably engaging said bearings, whereby the feed-cylinder may be adjusted to place any one of said pockets in an operative position, and operating mechanism connecting the bunching-roller and the feed-cylinder, for the purpose specified.

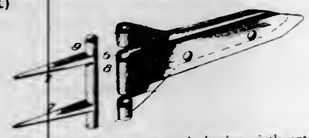
4. The combination, in a bunching-machine, of a bunching-apron, a bunching-roller, a hopper above the bunching-apron and hinged to its supports, a removable feed-cylinder in the hopper and having therein pockets of different sizes, spindles on said cylinder and having their bearings in the meeting edges of the hopper and of the supporting-frame, and operating mechanism connecting the bunching-roller and the feed-cylinder, for the purpose specified.

5. The combination, in a bunching-machine, of a bunching-apron, a hopper above the bunching-apron, a case in the hopper and having therein a feed-slot and a discharge-slot, a rim about the feed-slot in the case, a lip along one side of the discharge-slot in the case, a feed-cylinder in the case and having a pocket adapted to range successively with the slots in the case, and a plunger constructed to push the filling material through the feed-slot in said case and into the pocket in the feed-cylinder, for the purpose specified.

6. The combination, in a bunching-machine, of a bunching-apron, a hopper above the bunching-apron and hinged to its supports, a case in the hopper and having a discharge-slot in the bottom thereof, a lid hinged to said case and provided with a feed-slot, a removable feed-cylinder in the case and having a plurality of pockets, and spindles on said cylinder and having their bearings in the meeting edges of the hopper and of the supporting-frame, for the purpose specified.

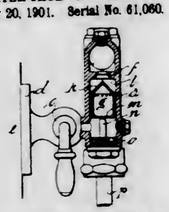
7. The combination, in a bunching-machine, of a bunching-apron, a bunching-roller, a hopper above the bunching-apron and hinged to its support, a case in the hopper and having a discharge-slot in the bottom thereof, a lid hinged to said case and provided with a feed-slot, a removable feed-cylinder in the case and having therein pockets of different sizes, spindles on said cylinder and having their bearings in the meeting edges of the hopper and of the supporting-frame, a plunger constructed to push the filling material through the feed-slot in said case and into a pocket in the feed-cylinder, and operating mechanism connecting the bunching-roller, the feed-cylinder, and the plunger, for the purpose specified.

681,680. **HAME-CLIP.** WILLIAM L. CHRYSLER and WALTER A. PARKER, Woodbine, Nebr. Filed Apr. 1, 1901. Serial No. 53,915. (No model.)



Claim.—In a hame-fastening, a staple having pintle extensions in line with the bar and outside of the legs thereof, and a clip having a middle knuckle to receive the bar at the outer end of the staple, and having the inner member widened adjacent the knuckle to provide an extended bearing against the wale of the collar and terminating in knuckles in line with the middle knuckle to receive the aforesaid pintle extensions, substantially as described.

681,681. **WATER-GAGE.** FRIEDRICH COLLEWUIR, Hamburg, Germany. Filed May 20, 1901. Serial No. 61,060. (No model.)



Claim.—1. In a water-gage, a substantially U-shaped casting having legs *a*, *b*, with the gage-glass connected to the leg *b*, a valve-seat in the leg *a*, a hollow valve with a conical end to seat on said valve-seat, said valve being grooved in its periphery and having openings at the upper ends of the grooves, and a screw-plug in the leg *a*, carrying a pin for normally supporting the valve, substantially as described.

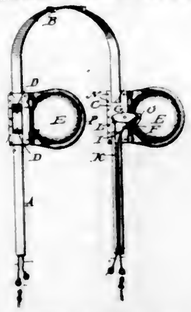
2. In a water-gage a substantially U-shaped casting having the gage-glass connected to one leg thereof, a valve-seat in the other leg of the casting, a hollow valve arranged below the valve-seat and provided with a conical upper end to engage said seat, said valve having peripherally-arranged openings, a screw-plug in the casting below the valve, and a pin carried by said plug for normally supporting the valve, substantially as described.

3. In a water-gage, a casting having a chamber, a valve-seat in the casting above the chamber, a hollow valve within the chamber and provided with a conical end to engage the valve-seat, said valve being peripherally grooved and provided with openings at the upper end of the grooves, a plug for closing the chamber at the lower end thereof, and means carried by the plug for normally supporting the valve, substantially as described.

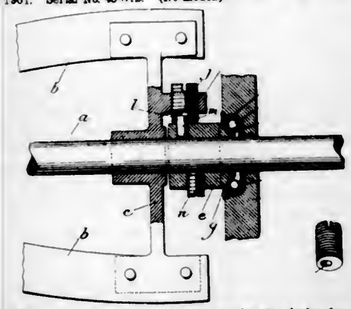
4. In a water-gage, a casting having a chamber, a valve-seat in the casting above the chamber, a ribbed hollow valve in the chamber, said valve having a conical end to engage the valve-seat, a bridge-piece carried by the valve, a plug in the casting for closing the chamber at its lower end, and a pin carried by the plug to engage the bridge-piece to normally support the valve, substantially as described.

681,682. **SAFETY-BLIND FOR HORSES.** DANIEL CONNERTH, Chunchula, Ala., and JOSEF ROTHWEILER, Chicago, Ill. Filed Sept. 14, 1899. Serial No. 730,502. (No model.)

Claim.—In combination with a bridle, hinge-plates, one of which is secured to each of the side straps of the bridle, blinders, one of which is hinged to each of the hinge-plates, a spring interposed between each blinder and its cooperating hinge-plate and acting to hold the blinders inwardly of the bridle, a button or latch for each blinder pivoted to either the hinge-plate or the blinder and operating to hold the blinders open, and an operating-cord connected to the latch for releasing the spring



681,683. **ADJUSTABLE BALL-BEARING.** HENRY DECK, Philadelphia, Pa., assignor to William P. M. Braun and John F. Braun, same place, (copartners trading as John Braun and Sons.) Filed Jan. 28, 1901. Serial No. 45,012. (No model.)



Claim.—1. In an adjustable ball-bearing for shafts, &c., the combination with the ball-socket and balls, of a cone carried by the shaft and adapted to be moved longitudinally thereon, and an adjusting-screw eccentrically connected with the cone, and adapted when turned to positively move the cone longitudinally on the shaft in either direction.

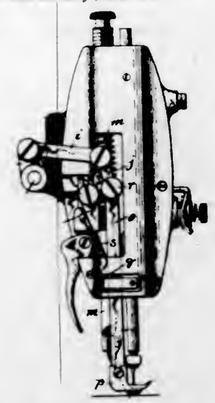
2. In an adjustable ball-bearing for shafts, &c., the combination with the ball-support and balls, of a cone carried by the shaft and adapted to be moved longitudinally thereon, and an eccentric adjusting device engaging said cone and adapted when turned to positively move the cone longitudinally on the shaft in either direction.

3. In an adjustable ball-bearing for shafts, &c., the combination with the ball-support and balls, of a cone carried by the shaft and movable longitudinally thereon and an adjusting-screw having a pivotal connection with the shaft and eccentrically connected with the cone.

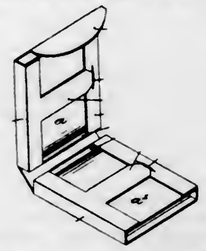
681,684. **ALTERNATING PRESSERS FOR SEWING-MACHINES.** PHILIP DIEHL and MARTIN HEHLER, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Filed Jan. 10, 1901. Serial No. 42,764. (No model.)

Claim.—1. In a sewing-machine, the combination with a rotating shaft provided with an eccentric, of main and auxiliary pressers, an angular lever pivotally mounted on a block attached to the main presser-bar and to the elbow portion of which angular lever the auxiliary presser-bar is pivotally attached, a rock-shaft operatively connected with said eccentric, to be operated thereby, and with said angular lever, to operate the latter, and a spring for effecting the return swinging movements of the said auxiliary presser after it has moved forward with the machine feed-dog.

2. In a sewing-machine alternating-presser mechanism, the combination with a main presser-bar provided with a block and with a presser-foot, of an angular lever pivotally mounted on said block, an auxiliary presser-bar pivotally connected with the elbow portion of said angular lever and provided with a foot, a rotating shaft provided with an eccentric, a rock-shaft having two arms, a pitman connecting one of said arms with said eccentric, a second pitman or link connecting the other of said arms with said angular lever, and a spring for effecting the return swinging movements of the said auxiliary presser-bar.



681,685. **CIGAR-BOX.** MANUEL F. DOMINGUEZ, Philadelphia, Pa. Filed May 16, 1901. Serial No. 60,444. (No model.)



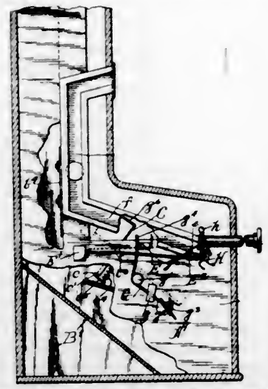
Claim.—1. A cigar-box, consisting of two integral infolding members, whereof one member is provided with a transverse slit and the other with a transverse flap adapted to engage in said slit, said members integrally connected with each other by a strip forming the bottom portion of the box, sides with inturned rims having slits in those on one side and projections in the rims of those on the opposite side and slitted so as to lock in the slitted inturned rims of the said sides, and projections connected with said inturned rims and forming the bottom of each infolded member, substantially as and for the purposes described.

2. A cigar-box, consisting of two integral infolding members, whereof one is provided with a transverse slit and the other with a transverse flap adapted to engage in said slit of the box, sides with inturned rims provided with locking projections on one side and the opposite sides provided with slitted inturned rims adapted to engage and hold said projections to maintain the sides in proper position, the inturned rims of one of the sides being provided with oblong slitted projections and the opposite sides provided with clips having angular slits, the said slitted projections of the internal rims of one of the sides being adapted to lock with the slitted clips of the inturned rims of the opposite sides to form the bottom of the two infolded members of the box, substantially as and for the purposes described.

681,686. **AUTOMATIC VENDING-MACHINE.** WALTER DYER, Chicago, Ill., assignor of one-half to Aurelius E. Stevens, same place. Filed Nov. 30, 1898. Renewed Jan. 23, 1901. Serial No. 44,467. (No model.)

Claim.—1. The combination with a merchandise-receptacle, of a delivery-slide for discharging goods therefrom by thrusting impact, a pushing device for said slide, and coin-controlled apparatus normally holding said slide out of the effective path of the pushing device but throwing it therein upon the reception of a suitable coin.

2. The combination with a coin-chute, of a tilting coin-lever receiving therefrom, a tilting delivery-slide swung into effective position by the weight of the coin deposited upon said lever, a pushing device engaging with said slide only when in such position, and a merchandise-receptacle having lateral openings at its bottom swept by said slide when moved in by the pushing device.



3. The combination with a coin-chute, of a counterbalanced coin-lever receiving therefrom, a tilting delivery-slide swung into effective position by the weight of the coin deposited upon said lever, a spring-retracted thrust-rod engaging with said slide only when in such effective position, and a merchandise-receptacle having lateral openings at its bottom swept by said slide when impelled by the thrust-rod.

4. The combination with a merchandise-receptacle, of a delivery-slide for discharging goods therefrom by thrusting impact, a manually-controlled pushing device for said slide, coin-controlled apparatus normally holding said slide out of the effective path of the pushing device but throwing it therein upon the reception of a suitable coin, and a locking device acting only during the passage of said slide across the foot of the merchandise-receptacle, to hold it in such effective position.

5. The combination with a coin-chute and a tilting coin-lever receiving therefrom, of a tilting delivery-slide swung into effective position by the tilting of said lever under the weight of the coin deposited thereon, a pushing device engaging with said slide only while in such effective position, a locking device acting only during the passage of said slide across the foot of the merchandise-receptacle, to hold it in its said effective position, and means for restoring said slide to its normal ineffective position at the end of said movement.

6. The combination with a coin-chute and with a tilting coin-lever receiving therefrom, of a merchandise-receptacle having lateral bottom ledges and front and rear openings immediately above said ledges, a tilting delivery-slide for traversing the space between said ledges, having an abutment and lateral fingers to sweep said lateral openings and engage with said ledges, and swung into effective position by the tilting of said coin-lever by the weight of the coin deposited thereon, a pushing device engaging with said slide only when in its effective position, and means for restoring said slide to its normal ineffective position when it passes from engagement with said ledges.

7. The combination with a coin-chute and tilting coin-lever receiving therefrom and having a slotted coin-pan to receive and hold the coin edgewise, and with delivery mechanism controlled by said lever, of a positively-actuated elastically-yielding ejector or clearer moved against the bottom of the coin-pan after the coin-depressed lever has come to rest, to discharge the coin therefrom.

8. The combination with a coin-chute and tilting coin-lever, of a delivery-slide brought into effective position by the tilting of said lever under the weight of the coin deposited thereon, a manually-controlled operating device for actuating such delivery-slide while in its effective position, a locking device engaging said slide during its movement of delivery only, to retain it in effective position, and a positively-actuated ejector or clearer acting upon the coin after said locking device has engaged, to discharge it from the coin-lever.

9. The combination of a coin-chute and tilting coin-lever having a slotted coin-pan to receive and hold the coin edgewise, of delivery-apparatus controlled by said lever, a manually-controlled operating device for actuating said delivery apparatus, an ejector-lever one arm of which projects beneath the coin-pan to close against its bottom and lift the coin therefrom, and a lug forced positively against the other arm of said lever during the conjoint movement of the manually-controlled operating device and delivery apparatus.

10. The combination with a coin-chute and tilting coin-lever having a slotted coin-pan, of a delivery-slide brought into effective position by the tilting of said lever under the weight of the coin received in its

pan, a manually-controlled operating device for actuating said slide while in its effective position, an ejector-lever one arm of which projects beneath the coin-pan and the other arm of which rises alongside the effective position of the delivery-slide, and a lateral lug on said delivery-slide, arranged to engage with said arm as the slide is pushed inward.

11. The combination with a coin-chute and tilting coin-lever having a slotted coin-pan, of a delivery-slide brought into effective position by the tilting of said lever under the weight of a coin received in its pan, a manually-controlled operating device for actuating said slide while in its effective position, an ejector-lever, one arm of which projects beneath the coin-pan, and the other arm of which rises alongside the effective path of the delivery-slide, a lateral lug on said slide, arranged to engage with said arm as the slide is pushed inward, and a locking device which engages said slide before the ejector-lever is rocked, to hold it in said effective position.

12. The combination with the coin-lever having a slotted coin-pan, and with the ejector-lever, of the spring carried by the latter beneath said coin-pan.

13. The combination with a tilting coin-lever and a delivery-slide normally held out of effective position thereby, but carried into effective position by the tilting of said lever, of a manually-controlled pushing device acting upon said slide while in effective position, a locking device acting to hold the tilting lever depressed while the slide is being pushed through its path of discharge, and a spring concurrently compressed against said lever and acting upon it to restore it to normal position when the lock is broken.

14. The combination with a tilting coin-lever having a slotted coin-pan, of a delivery-slide normally held out of effective position by said lever, but carried into effective position when it tilts, a manually-controlled pushing device acting upon said slide while in effective position, a locking device holding such slide in said position while being pushed, and with it the coin-lever in its tilted position, an ejector-lever actuated after the locking device is engaged, to discharge the coin from the coin-pan, and a spring carried by said ejector-lever and compressed against the coin-lever in its movement.

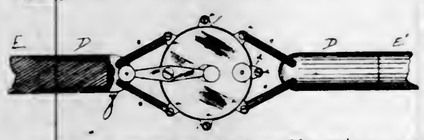
15. The combination with the tilting coin-lever and its coin-receiving pan, and with the coin-chute, of a latch holding said lever in normal position and arranged to be struck and disengaged by the deposit of a coin in said pan, simultaneously with its reception therein.

16. The combination with the coin-chute and with the tilting coin-lever having a slotted pan to which said chute delivers the coin edgewise, of a latch engaging with said pan to hold the lever at normal and arranged to be disengaged by the impact of the coin as it settles into the slot in the pan.

17. The combination with a coin-lever and a latch to hold it, opened by the size of the coin, and with the delivery mechanism, of a lock to hold said lever down while the delivery mechanism is being operated and a spring concurrently compressed to restore said lever to place and cause it to engage with the latch when the lock is broken.

18. The combination of the coin-lever, the rock-shaft to which it is secured, the ways secured to said rock-shaft, the delivery-slide mounted in said ways, the retraction-spring acting on said slide, the table, the thrust-rod and the merchandise-receptacle.

681,687. **FISHING ROD AND REEL COMBINED.** SEELY EDSALL, Plainfield, N. J. Filed Apr. 17, 1900. Serial No. 13,206. (No model.)

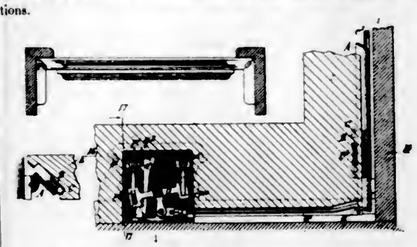


Claim.—1. A combined reel and rod comprising arms *e*, *e*, *e*, *e*, secured to the said reel by screws, and joined to supporting-sockets that are adapted to support sections of a pole, substantially as described.

2. The combination of a reel and rod that comprises metal arms *e*, *e*, *e*, *e*, consisting of short rods of metal, and which are removably secured to the frame of a reel and to the supporting devices or sockets, substantially as described.

681,688. **WINDOW.** OLIVER M. EDWARDS, Syracuse, N. Y. Filed Dec. 5, 1899. Serial No. 739,323. (No model.)

Claim.—1. A window friction holding device consisting of two members hinged together, one of which is adapted to be secured to a window sash or frame and the other is adapted to frictionally bear against the sash or frame adjacent to the secured member and also to move relatively thereto, and a spring or springs arranged to exert their stress or tension upon the movable member, whereby the holding device, when adjusted to a window, is adapted to frictionally hold the sash thereof in desired positions.



2. A window friction holding device consisting of two members hinged together, one of which is adapted to be secured to a window sash or frame and the other is adapted to frictionally bear against the sash or frame adjacent to the secured member and also to move relatively thereto, and a spring or springs arranged between the members, one portion of each spring bearing on one member and the other portion of each spring bearing on the other member, the stress or tension of the spring or springs tending to move one member relatively to the other member, whereby the spring or springs may be held in place by the two members.

3. A window friction holding device consisting of two members hinged together, one of which is adapted to be secured to a window sash or frame and the other is adapted to frictionally bear against the sash or frame adjacent to the secured member and also to move relatively thereto, and a plurality of springs arranged to exert their stress or tension upon the movable member, whereby the holding device, when adjusted to a window, is adapted to frictionally bear against its coacting bearing-surface after one of the springs is broken and proportionally hold the sash in the desired positions.

4. A window friction holding device consisting of two members hinged together and adapted to be secured in operative relation in a window within a space equal to substantially the thickness of the window-sash, one of which members is adapted to be secured to a window sash or frame and the other is movable relatively to the secured member and is also adapted to frictionally bear against the sash or frame adjacent to such secured member, and a spring or springs arranged to exert their stress or tension upon the movable member, whereby the holding device, when adjusted to a window, is contained within a space equal to substantially the thickness of the sash and is also adapted to frictionally hold the sash in desired positions.

5. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a friction holding device or devices, consisting of two members hinged together, one of which members is secured to the sash or frame and the other member is movable relatively to the secured member, and a spring or springs arranged to move the movable member or members by the stress or tension of the same, whereby the sash is held in the desired positions relatively to its frame.

6. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a friction holding device or devices, consisting of two members hinged together, one of which is secured to the sash or frame and the other is movable relatively to the secured member, a spring or springs arranged to move the movable member or members by the stress or tension of the same, and means mounted on the sash adapted to actuate the movable member or members, whereby the sash is held in the desired positions relatively to its frame and is more or less released therefrom.

7. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices secured to the sash or frame, a portion or portions of which are movable relatively to the sash or frame to which such device or devices are secured and means mounted on the sash adapted to actuate the movable portion or portions of the holding device or devices upon the application of force to such means in the direction in which it is desired to move the sash, whereby the movable portion or portions may be actuated sufficiently and the sash be moved in the desired direction as a single operation.

8. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices secured to the sash or frame, a portion or portions of which are movable relatively to the sash or frame to which said device or devices are secured, means mounted on the sash adapted to actuate the movable portion or portions of the holding device or devices upon the application of force to such means in the direction in which it is desired to move the sash, and a locking-detent adapted to lock the sash in a given position and to be actuated by the movement of the means which actuate the movable portion or portions of the holding device or devices, whereby the sash is locked or unlocked and moved in the desired direction as a single operation.

9. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash moves in opening and closing, a locking-detent mounted upon the sash and carried thereby, a locking-detent mounted upon the window-frame, one locking-detent being movable relatively to the other, and means also mounted on the sash and adapted to operate the movable locking-detent upon the application of force to such means in the direction in which it is desired to move the sash, whereby the sash is moved in opening or closing direction and is locked or unlocked as a single operation.

10. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash moves in opening and closing, a locking-detent mounted upon the window-frame, a locking-detent carried by the sash, one locking-detent being movable relatively to the other, and means mounted on the sash and adapted to operate the movable locking-detent upon the application of force to such means in the direction the sash is to move, whereby the movable locking-detent may be actuated and the sash moved by the application of force to a single device.

11. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash moves in opening and closing, a locking-detent mounted on the window-frame, a locking-detent carried by the sash, one locking-detent being movable relatively to the other, and means mounted on the sash and adapted to operate the movable detent upon the application of force to such means in the direction the sash is to move, such means positively moving the movable locking-detent in one direction only, the detent being free to move in the same direction independently of such means.

12. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash moves in opening and closing, a locking-detent mounted on the window-frame nearly midway of its width, a locking-detent carried by the sash nearly midway of its width, one locking-detent being movable relatively to the other, and means carried by the sash and adapted to operate the movable locking-detent upon the application of force to such means in the direction the sash is to move, whereby the movable locking-detent may be actuated and the sash moved by the application of force to a single device.

13. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash moves in opening and closing, a locking-detent mounted on the window-sash, a locking-detent carried by the sash and movable relatively thereto, and an operating device pivoted to the sash to move in the direction the sash moves and arranged to move the movable locking-detent upon the application of force to the operating device in the direction the sash is to move, whereby the movable locking-detent may be actuated and the sash moved by the application of force to a single device.

14. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices mounted upon the sash to move therewith, a portion or portions of which are movable relatively to the sash upon which they are mounted, a spring or springs arranged to exert their stress or tension upon the movable member or members of the holding device or devices, and means also mounted upon the sash and adapted to actuate the movable member or members upon the application of force to such means in the direction in which it is desired to move the sash, whereby the movable member or members may be actuated and the sash moved in the desired direction as a single operation.

15. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices mounted upon the sash and carried thereby, a portion or portions of which are movable relatively to the sash upon which they are mounted, a spring or springs arranged to exert their stress or tension upon the movable member or members of the holding device or devices, means also mounted upon the sash and adapted to actuate the movable member or members upon the application of force to such means in the direction in which it is desired to move the sash, and a locking-detent adapted to lock the sash in a given position and to be actuated by the movement of the means which actuate the movable portion or portions of the holding device or devices, whereby the sash is locked or unlocked and moved in the desired direction as a single operation.

16. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash moves in opening and closing, a holding device or devices mounted upon the sash and carried thereby, a portion or portions of which are movable relatively to the sash upon which they are mounted, a spring or springs arranged to exert their stress or tension upon the movable member or members of the holding device or devices, means also mounted upon the sash and adapted to actuate the movable member or members upon the application of force to such means in the direction in which it is desired to move the sash, and a movable locking-detent also mounted on the sash and adapted to lock the sash in a given position and to be actuated by the movement of the means which actuate the movable member or members of the holding device or devices, whereby the sash is locked or unlocked and moved in the desired direction as a single operation.

17. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices secured to the sash or frame and having a movable member or members and operating means therefor consisting of a handle portion mounted upon the sash and adapted to be moved in opposite directions from a central or normal position, and means connecting the handle portion with the movable member or members of the holding device or devices, whereby the movable member or members may be actuated by the movement of the handle portion in either direction.

18. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices secured to the sash or frame and having a movable member or members, operating means therefor consisting of a handle portion mounted upon the sash and adapted to be moved relatively thereto, means connecting the handle portion with the movable member or members of the holding device or devices, and a locking-detent arranged relatively to the operating means to be in position to be moved out of locking engagement by the movement of the operating means which actuate the movable member or members, whereby the sash may be unlocked and the movable member or members be actuated by a single movement of the handle portion of such operating means.

19. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a holding device or devices secured to the sash or frame and having a movable member or members, operating means therefor consisting of a handle portion mounted upon the sash and adapted to be moved relatively thereto, means connecting the handle portion with the movable member or members of the holding device or devices, and a movable locking-detent mounted upon the sash and arranged relatively to the operating means to be in position to be moved out of locking engagement by the movement of the operating means which actuate the movable member or members, whereby the sash may be unlocked and the movable member or members be actuated by a single movement of the handle portion of such operating means.

20. An operating mechanism for window-holding devices consisting of a handle portion pivoted to a support, which portion is adapted to move in opposite directions, a movable part or parts mounted on a support, connections between the handle portion and the movable part or parts by which such part or parts are moved upon the movement of the handle portion in either direction, and a connection or connections connecting the movable member or members of the holding device or devices with such movable part or parts, whereby the movable member or members are moved upon the movement of the handle portion in either direction.

21. An operating mechanism for window-holding devices consisting of a handle portion pivoted to a support, the pivotal axial line of which is adapted to be parallel with the surface of the glass of the window, which portion is adapted to move in opposite directions, a movable part or parts mounted upon a support and adapted to move in a plane or planes substantially parallel with the axial line of pivoting of the handle portion, connections between the handle portion and the movable part or parts by which such parts are moved upon the movement of the handle portion in either direction, and a connection or connections connecting the movable member or members of the holding device or devices with such movable part or parts, whereby the movable member or members are moved upon the movement of the handle portion in either direction.

22. An operating mechanism for window-holding devices consisting of a handle portion pivoted to a support, which portion is adapted to move in opposite directions, a pivoted piece having three or more points of attachment extending outwardly from the pivotal point of such piece, connections between the handle portion and the piece connecting such portion to points of attachment on different sides of the pivotal point of the piece, and a connection or connections connecting the movable member or members of the holding device or devices with another point or points of attachment on the piece, whereby the movement of the handle in either direction moves the movable member or members.

23. In a window the combination, substantially as set forth, of a sash provided at one of its edges with a beveled bearing-surface, a bearing-surface coacting therewith, a holding device arranged at the opposite edge of the sash and provided with a movable member adapted to force the sash in both sidewise and edgewise directions, and a bearing-surface coacting with the movable member of the holding device, the sash, holding device and bearing-surface coacting with the movable member being located relatively to each other substantially as shown, whereby the sash is free, upon the movement of the movable member, to be removed from its frame without disturbing the adjustment of the operative parts which hold the sash in workable position.

24. In a window the combination, substantially as set forth, of a sash provided at one of its edges with a beveled bearing-surface, a bearing-surface coacting therewith, a holding device arranged at the opposite edge of the sash and provided with a movable member adapted to force the sash in both sidewise and edgewise directions, a bearing-surface coacting with the movable member of the holding device, and a recess in the window-frame adapted to receive a portion of the movable member of the holding device when in position to act upon the sash, the recess, sash, holding device and bearing-surface coacting with the movable member being located relatively to each other substantially as shown, whereby the sash is free, upon the movement of the movable member, to be removed from its frame without disturbing the adjustment of the operative parts which hold the sash in workable position.

25. In a window the combination, substantially as set forth, of a window-frame provided with means for holding a sash in place and controlling its opening and closing movements, a sash bodily movable in the window-frame, which is composed of two separable parts, each of which is provided with a glass, the two forming a closed chamber between the parts, and means securing the two parts together as a single structure, whereby the sash is bodily movable in the window-frame as a single structure for opening and closing the window-opening, and, by manipulating the securing means, access is given to the closed chamber formed in the sash.

26. In a window the combination, substantially as set forth, of a window-frame provided with means for holding a sash in place and controlling its opening and closing movements, a sash bodily movable in the window-frame, which is composed of two separable parts, one of which is of greater edgewise dimensions than the other and is thereby adapted to be received in the window-frame and be controlled thereby and each part is provided with a glass, the two forming a closed chamber between the parts, and means securing the two parts together as a single structure, whereby the sash is bodily movable in the window-frame as a single structure for opening and closing the window-opening, and, by manipulating the securing means, access is given to the closed chamber formed in the sash by moving only the part thereof which has the smaller edgewise dimensions.

27. In a window the combination, substantially as set forth, of a window-frame provided with means for holding a sash in place and sliding therein during its opening and closing movements, a sash bodily slidable in the window-frame, which is composed of two separable parts, one of which is of greater edgewise dimensions than the other and is thereby adapted to be received in the window-frame and to slide therein, and each part is provided with a glass, the two forming a closed chamber between the two parts and means securing the two parts together as a single structure, whereby the sash bodily slides in the window-frame as a single structure in opening and closing the window-opening, and, by manipulating the securing means, access is given to the closed chamber by moving only that part of the sash which has the smaller edgewise dimensions.

28. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, counterbalancing or automatic operating means provided with a roller, chains or flexible straps, one end of each being attached to the roller to wind thereon in the same direction and the opposite ends being movably connected to the sash so that such ends are adapted to move relatively to the sash and compensate for inequalities in the roller or in the chains or straps, whereby the sash remains free to move in the guideway as the chains or straps wind upon or unwind from the roller.

29. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, counterbalancing or automatic operating means provided with a roller, chains or flexible straps, one end of each being attached to the roller to wind thereon in the same direction and the opposite ends are attached to a rotative device on opposite sides of the axis of its rotative movement, which device is mounted in bearings on the sash with its axis substantially parallel with the axis of rotation of the roller, whereby the sash remains free to move in the guideway as the chains or straps wind upon or unwind from the roller.

30. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, counterbalancing or automatic operating means provided with a roller, chains or flexible straps, one end of each being attached to the roller to wind thereon in the same direction and the opposite ends thereof are attached to arms of a rock-shaft mounted in bearings on the sash and whose arms are at different angles and extending upon opposite sides of the axis of rotation of the rock-shaft, whereby the sash is free to move in the guideway as the chains or straps wind upon or unwind from the roller.

31. In a window the combination, substantially as set forth, of a sash composed of two parts, each part adapted to receive a glass, and means adapted to secure the two parts together as a single structure with an air-chamber between the glass of the two parts and also to permit such parts to be separated, a guideway in which the sash may move in opening and closing, and a friction holding device or devices secured to the sash or frame and adapted to act upon the sash, whereby the sash is held in the desired positions and against rattling and to exclude dust or cinders when the sash is closed, and also to exclude heat and cold.

32. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a friction holding device secured to the sash or frame and adapted to act upon the sash, a counterbalancing or automatic operating device, chains or flexible straps, one end of each attached to such device so as to wind thereon in the same direction, and means movably connecting the opposite ends of the chains or straps to the sash, whereby the space between the chains or straps is substantially unobstructed and the sash can move in its guideway without cramping therein.

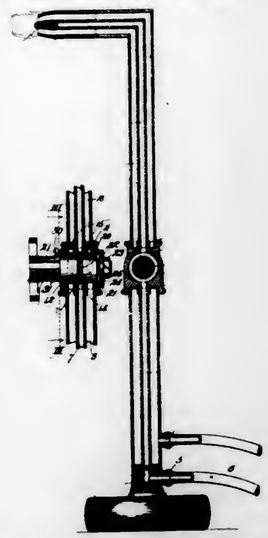
33. In a window the combination, substantially as set forth, of a sash, a guideway in which the sash may move in opening and closing, a friction holding device secured to the frame or sash and adapted to act on the sash and hold it in an edgewise direction, a counterbalancing or automatic operating device, chains or flexible straps, one end of each attached to such device so as to wind thereon in the same direction, and means movably connecting the opposite ends of the chains or straps to the sash, whereby the space between the chains or straps is substantially unobstructed and the sash is more or less held in an edgewise direction in its guideway, and can move therein without cramping.

681,689. BROWN SULFUR DYE AND PROCESS OF MAKING SAME. WILHELM EPSTEIN and EMIL ROSENTHAL, Frankfort-on-the-Main, Germany. Filed Mar. 7, 1901. Serial No. 50,207. (No specimens.)

Claim.—1. The herein-described process for the manufacture of sulfurized coloring-matters by heating with sulfur and alkali-sulfid such nitro compounds of benzidins, which are obtained in treating the sulfuric-acid solutions of the respective bases with at least two molecules of potassium nitrate as and for the purpose set forth.

2. As new products the coloring-matters belonging to the class of sulfurized dyestuffs, which can be obtained by heating nitro derivatives of benzidins with sulfur and alkali-sulfid and which are easily soluble in cold water, being precipitated from this solution by acids, and dye unmordanted cotton from hot or cold baths, yielding shades ranging from yellowish brown to brownish black.

681,690. BLOWPIPE. CHARLES E. ESTERLY, Lawrence, Kans. Filed Jan. 19, 1901. Serial No. 43,908. (No model.)

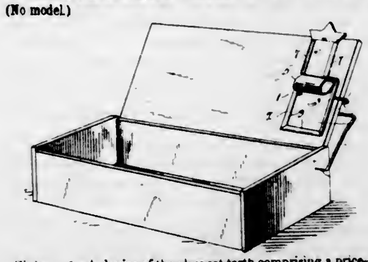


Claim.—1. A blowpipe, comprising a wheel-base provided with a valve, an air-pipe composed of sections and controlled by said valve, an air-supply pipe connected to said air-pipe and communicating therewith when the valve is withdrawn, a gas-pipe surrounding the air-pipe and composed of sections, a supply-pipe connected to the gas-pipe, a coupling connecting said pipe-sections and provided with chambers communicating at their opposite ends with the contiguous ends of the pipe-sections, and a valve journaled in the coupling, and forming a partition between the ends of the gas-pipe sections but never closing the passage between the air-pipe sections, and provided with ports adapted at times to open up communication between the gas-pipe sections, substantially as described.

2. A blowpipe, comprising a wheel-base, provided with a valve, an air-pipe composed of sections and controlled by said valve, an air-supply pipe connected to said air-pipe, and communicating therewith when the valve is withdrawn, a gas-pipe surrounding the air-pipe and composed of sections, a supply-pipe connected to the gas-pipe, a coupling connecting said pipe-sections and provided with chambers communicating at their opposite ends with the contiguous ends of the pipe-sections, a valve journaled in the coupling, and forming a partition between the ends of the gas-pipe sections but never closing the passage between the air-pipe sections, and provided with ports adapted at times to open up communication between the gas-pipe sections, a supply-pipe connected to the gas-pipe, a coupling connecting said pipe-sections and provided with chambers communicating at their opposite ends with the contiguous ends of the pipe-sections, a valve journaled in the coupling, and forming a partition between the ends of the gas-pipe sections but never closing the passage between the air-pipe sections, and provided with ports adapted at times to open up communication between the gas-pipe sections, a stem projecting from the front end of the valve and provided with a handle, and a spring arranged to normally hold the valve with said ports closed to the passage of gas, substantially as described.

3. A blowpipe, comprising a wheel-base, provided with a valve, an air-pipe composed of sections and controlled by said valve, an air-supply pipe connected to said air-pipe and communicating therewith when the valve is withdrawn, a gas-pipe surrounding the air-pipe and composed of sections, a supply-pipe connected to the gas-pipe, a coupling connecting said pipe-sections and provided with chambers communicating at their opposite ends with the contiguous ends of the pipe-sections, a valve journaled in the coupling, and forming a partition between the ends of the gas-pipe sections but never closing the passage between the air-pipe sections, and provided with ports adapted at times to open up communication between the gas-pipe sections, a stem projecting from the front end of the valve, a handle mounted thereon, a set-screw carried by the coupling, a shoulder projecting from the stem, and a spring coiled around the latter and secured at its opposite ends to the coupling and the handle, and normally holding the stop-pin against said set-screw, substantially as described.

681,691. BOX-LID SUPPORTER AND CARD-HOLDER. WARREN W. GEDDES, Kendallville, Ind. Filed Apr. 19, 1901. Serial No. 56,632. (No model.)



Claim.—1. A device of the class set forth comprising a price-display plate, an advertisement-plate, and horizontally-adjustable slide means in rear of the plates for removably holding the said plates in connection with a box-lid.

2. A device of the class set forth comprising an upper price-display plate and an integral advertisement-plate below the same, and horizontally-adjustable slide means in rear of the plates for holding the combined plates applied to a box-lid.

3. A device of the class set forth comprising an upper forwardly-projected price-display plate and a lower integral advertisement-plate, and horizontally-adjustable slide means in rear of the plates for holding the combined plates applied to a box-lid.

4. A device of the class set forth comprising an upper forwardly-projected price-display plate integrally connected to a lower advertisement-plate by an intermediate loop, and horizontally-adjustable slide means in rear of the plates for holding the combined plates applied to a box-lid.

5. A device of the class set forth comprising a plate for display purposes, an elongated bearing-loop secured to the back portion thereof and having a depending leg with a terminal projection, and a binding-slide on the said loop.

6. A device of the class set forth comprising a plate for display purposes, an elongated bearing-loop secured to the back thereof and having a depending leg with a terminal spur, and a binding-slide movably mounted on the said loop and provided with a spur.

7. A device of the class set forth comprising a plate for display purposes, a bearing-loop having a securing-loop centrally attached to the back portion of said plate by bending opposite portions of the metal of said plate in reverse directions over opposite sides of the securing-loop, the bearing-loop having a depending leg, and means on the bearing-loop for holding it in adjusted position.

681,692. ELECTRIC INCANDESCENT LAMP. PATROCLES A. GIBBINS, New York, N. Y. Filed Feb. 18, 1899. Renewed Jan. 16, 1901. Serial No. 43,519. (No model.)



Claim.—1. In an incandescent electric lamp, the combination of the bulb having the ordinary socket and neck, a filament arranged in the form of a spiral, both ends of said filament being secured to said neck, a reflector inclosed by said filament, the surface of the reflector being in the form of a series of prisms, substantially as described.

2. A reflector for incandescent electric lamps consisting of a body adapted to be inclosed or encircled by a filament, the surface of said body being formed of a series of prisms, substantially as described.

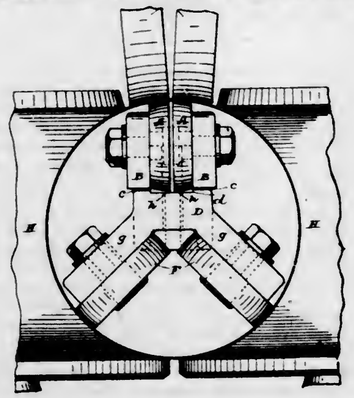
681,693. COLUMN FOR INTERIOR WOODWORK. FREDERICK GOLDENBOGEN, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, of Ohio. Filed Mar. 19, 1900. Serial No. 9,165. (No model.)



Claim.—1. As an improvement in cabinet-work, the combination, with a hollow, shell-like partial column, of any suitable backing; the latter being formed, or provided with grooves, and the former having its vertical edges arranged within and securely fastened in said grooves; all substantially as and for the purpose set forth.

2. As an improvement in cabinet-work, the combination, with a hollow, shell-like partial column, of a backing having grooves, within which the vertical edges of the partial column are securely fastened, as specified; a wooden base having a groove, corresponding in size and contour to the lower end of the said shell-like partial column and embracing the same; and a wooden capital, or cap, having a groove in its under surface that corresponds in size and shape to the upper end of the hollow partial column and within which said end of said column is securely fastened; the whole arranged and operating, as and for the purposes set forth.

681,694. TUBE-WELDING MACHINE. WILLIAM S. GORTON, Cleveland, Ohio. Filed Jan. 26, 1901. Serial No. 44,798. (No model.)



Claim.—1. In a tube-welding machine, the combination of electric contact means, and mandrel means which provide bearing for the tube edge portions in resistance to the pressure of said contact means, the extreme projection of said mandrel means from the axial line of the tube being located relatively to the direction of the tube movement before the extreme projection of said contact means toward said axial line, such mandrel means being also electrically insulated and adapted not to conduct electricity, substantially as set forth.

2. In a tube-welding machine, the combination of electric contact means, and mandrel means which provide bearing for the tube edge portions in resistance to the pressure of said contact means, together with a frame supporting said mandrel means and electrically insulated from the latter, the extreme projection of said mandrel means from the axial line of the tube being located relatively to the direction of the tube movement before the extreme projection of said contact means toward said axial line, the construction of said members and their relative insulation being such as to exclude said mandrel means from conducting electricity, substantially as set forth.

3. In a tube-welding machine, the combination of an electric-current-conducting roll, and an electrically-insulated mandrel-roll which provides bearing for the tube edge portion in resistance to the pressure of said conducting-roll, such mandrel-roll having its axis located in a plane relatively to the passage of the tube through the machine before the plane in which the axis of said conducting-roll is located, such two planes being parallel and at right angles to the line of movement of the tube, substantially as set forth.

4. In a tube-welding machine, the combination of electric contact devices, and mandrel means adapted to provide bearing for the tube edge portions in resistance to the pressure of said contact devices, tube-compressing rolls located respectively on opposite sides of said contact devices and tending to force the butt edges of the tube together, a mandrel-frame, supporting means for said frame located in the same plane across the line of movement of the tube as are the axes of said tube-compressing rolls and adapted to bear against that portion of the tube which is at that time located in said plane, substantially as set forth.

5. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube, two rolls adapted to compress such tube between them and thereby force said joint edges together, mandrel means which provide bearing for said butt edge portions in resistance to the pressure of said contact devices, the extreme projection of said mandrel means from the axial line of the tube being located relatively to the direction of the tube movement before the extreme projection of said contact means toward said axial line, a mandrel-frame, supporting means for said frame located in the axial plane of said compression-rolls across the line of movement of the tube and adapted to bear upon such portion of the tube as may at any certain time be located in said plane, substantially as set forth.

6. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, mandrel means adapted to provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, a mandrel-frame, supports for said frame adapted to bear upon the tube, said conducting devices, mandrel means, frame and supports being relatively located so that a plane substantially right angular to the line of movement of the tube may pass through them all, substantially as set forth.

7. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, two compression-rolls located respectively on opposite sides of said conducting devices and tending to force said butt edges together, mandrel means adapted to provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, two supports each angular to the line of movement of the tube, a frame connecting said mandrel means and supports, substantially as set forth.

8. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, two compressor-rolls located respectively on opposite sides of said conducting devices and tending to force said butt edges together, mandrel means adapted to provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, two supports each angular to the line of movement of the tube and inclined to the axes of said compressor-rolls, a frame connecting said mandrel means and supports, said conducting devices, compressor-rolls, mandrel means, supports and intermediate frame being relatively located so that a plane substantially right angular to the line of movement of the tube may pass through them all, substantially as set forth.

9. In a tube-welding machine, the combination of two electric-current conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, and two compressor-rolls located respectively on opposite sides of said conducting devices and tending to force said butt edges together, mandrel means adapted to provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, two supports each angular to the line of movement of the tube and adapted to bear upon the latter in the axial plane of said compressor-rolls, a frame connecting said mandrel means and supports, said conducting devices, compressor-rolls, mandrel means and supports being relatively located so that a plane substantially right angular to the line of movement of the tube may pass through them all, said frame connected to a fastening device located out of said plane, substantially as set forth.

10. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, two compressors located respectively on opposite sides of said conducting devices and tending to force said butt edges together, mandrel means adapted to provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, two supports each angular to the line of movement of the tube and adapted to bear upon the latter, a frame connecting said mandrel means and supports, said conducting devices, compressors, mandrel means and supports being relatively located so that a plane substantially right angular to the line of movement of the tube may pass through them all, said conducting devices, compressors, mandrel means and supports being severally formed as rolls, substantially as set forth.

11. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, two compressor-rolls located respectively on opposite sides of said conducting devices and tending to force said butt edges together, mandrel means adapted to provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, two supports each angular to the line of movement of the tube, a frame connecting said mandrel means and supports, said frame located within the plane determined by the tube-joint and the tube-axis, said two supports having free ends adapted to bear upon the tube respectively to opposite sides of said plane, substantially as set forth.

12. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the butt-joint of a tube while free from contact with such joint, two compressor-rolls located respectively on opposite sides of said conducting devices and tending to force said butt edges together, mandrel means which provide bearing for said tube edge portions in resistance to the pressure of said conducting devices, the extreme projection of said mandrel means from the axial line of the tube being located relatively to the direction of the tube movement before the extreme projection of said contact means toward said axial line, two supports located angularly to each other and in the axial plane of said compressor-rolls across the line of movement of the tube and adapted to have antifrictional end bearing upon the tube, a frame connecting said mandrel means and supports and located within the plane determined by the tube-axis and the tube-joint, said two supports having their said bearing upon the tube respectively to opposite sides of said plane, substantially as set forth.

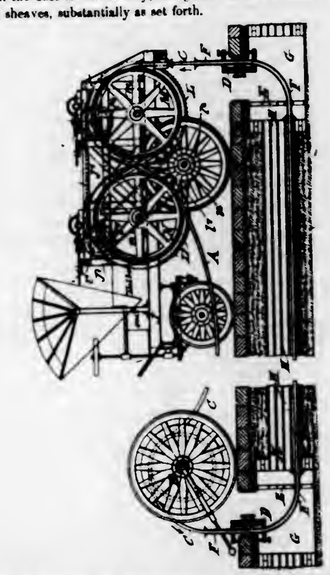
681,695. COMB. FREDERICK W. GRELL, Collegepoint, N. Y. Filed Mar. 21, 1901. Serial No. 52,144. (No model.)



Claim.—A comb having a body or back, and flattened teeth extending therefrom with their edges oppositely and protuberantly curved for a certain distance, and then extended convergently inward on substantially straight lines so that the edges of the teeth shall be salient from where they leave the body or back of the comb to their points.

681,696. APPARATUS FOR HAULING ELECTRIC CABLES. HENRY B. GRINNELL, New York, N. Y. Filed Nov. 30, 1900. Serial No. 38,207. (No model.)

Claim.—1. An apparatus for hauling electric cables, consisting of a wheeled frame provided with hauling-sheaves and means for rotating the same, clamps attached to the manholes at the ends of each subway-section, chutes supported by said clamps and placed at their lower ends in line with the duct of the subway, and guides on the wheeled frame near the rear sheaves, substantially as set forth.



2. An apparatus for hauling electric cables, consisting of a wheeled frame provided with hauling-sheaves and means for rotating the same, clamps attached to the manholes of the ends of each subway-section, curved chutes supported by said clamps and placed at their lower ends in line with the special duct through which the cable is to be hauled, a cable-reel located near the ingoing manhole, and guide-tubes on the rear end of the wheeled frame above the chute of the outgoing manhole, substantially as set forth.

3. An apparatus for hauling electric cables, consisting of a wheeled frame provided with hauling-sheaves and means for rotating the same, clamps attached to the manholes at the ends of each subway-section, chutes supported by said clamps, a cable-reel near the ingoing manhole, supporting-frames for the lower ends of the chutes, and guide-tubes on the rear ends of the wheeled frame near the rear sheaves, substantially as set forth.

4. In an apparatus for hauling electric cables, a wheeled frame provided with rotary main sheaves located in planes parallel with each other, means for rotating the said sheaves in opposite directions, and a guide-tube near the circumference of the rear sheave for conducting the cable to the same, substantially as set forth.

5. In an apparatus for hauling electric cables, a wheeled frame provided with sheaves having two grooves located in planes parallel with each other, one somewhat outside the other, and separated therefrom, motion-transmitting mechanisms for imparting rotary motion in opposite directions to said sheaves, bearings for supporting the shafts of the sheaves on said frame, and an adjustable guide-tube at the rear part of the frame for conducting the cable outo the rear sheave, substantially as set forth.

6. In an apparatus for hauling electric cables, a wheeled frame consisting of a main frame and gear-frame, a pair of sheaves supported outside of the main frame, bearings on the main frame for the shafts of the sheaves, motion-transmitting gears on the gear-frame for imparting rotary motion in opposite direction to said sheaves, and cranks adapted to be applied to the shafts of the different motion-transmitting gears so as to impart varying power to the sheaves, substantially as set forth.

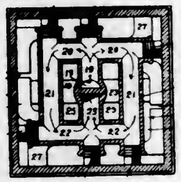
7. In an apparatus for hauling electric cables, a wheeled frame provided with hauling-sheaves, motion-transmitting mechanism for rotating the same in opposite direction to each other, sprocket wheels and chains for transmitting motion from the motion-transmitting mechanism of the sheaves to the hind axle, and shiftable gears adapted to be placed in mesh with the motion-transmitting mechanism of the sheaves or with the driving sprocket wheels and chains of the hind axle, for rotating the sheaves or propelling the wheeled frame, substantially as set forth.

8. In an apparatus for hauling electric cables, a wheeled frame, provided with main sheaves, motion-transmitting mechanisms for imparting rotary motion in opposite directions to said sheaves, one of the gear-wheels of each motion-transmitting mechanism being splined to its shaft and shiftable thereon, sprocket-wheels operated by said shiftable gear-wheels, a horizontal sprocket-chain connecting said sprocket-wheels, and a second sprocket-chain connecting a second sprocket-wheel on the shaft of one of the shiftable gear-wheels with the axle of the hind wheels for propelling the wheeled frame when required, substantially as set forth.

9. In an apparatus for hauling electric cables into ducts, the combination of a wheeled main frame, double-grooved hauling-sheaves, bearings for supporting the shafts of the same on the frame, motion-transmitting mechanisms for rotating the sheaves in opposite directions to each other, said sheaves being located in parallel planes, and a guide-sleeve at the rear end of said frame in line with the inner groove of the rear sheave, substantially as set forth.

10. In an apparatus for hauling electric cables, the combination of a wheeled frame provided with grooved hauling-sheaves, mechanisms for rotating the sheaves in opposite directions, clamps attached to the manholes at the ends of each subway-section, longitudinally-split chutes supported by said clamps and placed at their lower ends in line with the duct of the subway, and split guides on the rear end of the wheeled frame, substantially as set forth.

681,697. WATER-HEATER. JOHN G. HARVEY, Chicago, Ill., assignor to George M. Clark & Company, same place. Filed Dec. 14, 1900. Serial No. 39,839. (No model.)



Claim.—1. The water-heater consisting of a surrounding casing, a burner, and a series of coupled cored sections, each of said sections having both its inlet and its outlet located at its center, and also having angularly-arranged straight water-heating passages connecting the inlet and outlet, substantially as specified.

2. The water-holding sections for water-heaters consisting of a cored casting having a central inlet and central outlet, and also having angularly-arranged straight water-heating passages connecting the inlet and outlet, substantially as specified.

3. The water-holding section for water-heaters consisting of a cored casting having a central inlet and central outlet, and also having angularly-arranged straight water-heating passages connecting the inlet and outlet, and removable plugs giving access to said passages, substantially as specified.

4. The water-heater, consisting of a casing, a burner and a series of coupled cored sections having water-passages therethrough with central inlets and outlets, and outer baffle-plates, substantially as specified.

5. The water-heater, consisting of a casing, a burner and a series of coupled cored sections having water-passages therethrough with central inlets and outlets, and outer baffle-plates integral with the water-passages, substantially as specified.

681,698. METHOD OF MAKING SULFURIC ANHYDRID. WILHELM HASENBACH, Mannheim, Germany, assignor to Verein Chemischer Fabriken, same place. Filed Aug. 20, 1898. Serial No. 689,131. (No specimens.)

Claim.—1. The process herein described of making sulfuric anhydrid, which consists in first drying the air, then passing it over pyrites while they are being roasted, and immediately leading the resulting gases, while retaining the temperature imparted to them by the roasting process, over a suitable contact substance, thereby maintaining a temperature suitable for the production of sulfuric anhydrid.

2. The process herein described of making sulfuric anhydrid, which consists in first drying the air, then passing it over pyrites while they are being roasted, and immediately leading the resulting gases, while retaining the temperature imparted to them by the roasting process, over a suitable contact substance, thereby maintaining a temperature of substantially 600° to 700° centigrade suitable for the production of sulfuric anhydrid.

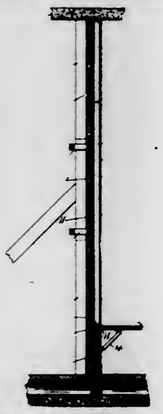
681,699. CORSET-FASTENER. ELIZABETH HEWSON, Newark, N. J. Filed Mar. 5, 1901. Serial No. 49,814. (No model.)

Claim.—A corset-fastener, consisting of a pair of steels, one carrying studs provided with heads and the other carrying eyelets; said eyelets each comprising a plate made of spring metal, a flap cut therefrom

and having parallel sides, a rectangular recess or opening being cut from the outer edge of the flap, and a rectangular opening or recess being cut from the body of the plate opposite the opening of the flap so that when the flap is in the same plane as the plate the two openings form one continuous rectangular opening or slot, whereby when the stud is in engaged position within the opening of the plate it is not in contact or held by the flap and when it is being released or engaged it is out of contact with the opening in the plate and only in contact with the flap's opening.



681,700. **FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME.** ABRAHAM L. A. HIMMELWRIGHT, New York, N. Y., assignor to the New Jersey Wire Cloth Company, Trenton, N. J. Filed Aug. 23, 1900. Serial No. 27,751. (No model.)



Claim.—1. The method of making a vertical fireproof construction which consists in erecting two vertical centers of reticulated metal arranged with a space between them, applying a mold frame or centering on the outside of one of said centers, and filling the space between said centers with a body of concrete or similar plastic material applied in the plastic state and molded against said mold frame or centering, substantially as described.

2. The method of making a vertical fireproof construction which consists in erecting two vertical centers of reticulated metal arranged with a space between them, applying a mold frame or centering on the outside of one of said centers, and filling the space between said centers with a body of concrete or similar plastic material applied in the plastic state by introducing said plastic material through the reticulated metal on the opposite side of the structure from the mold frame or centering and molding the plastic material against the mold frame or centering, substantially as described.

3. The method of making a vertical fireproof construction which consists in erecting two vertical centers of reticulated metal arranged with a space between them, applying a mold frame or centering on the outside of one of said centers, and filling the space between said centers with a body of concrete or similar plastic material applied in the plastic state and molded against said mold frame or centering, and applying a covering of plaster or similar material on the side of the structure opposite the mold frame or centering, substantially as described.

4. The method of making a vertical fireproof construction which consists in erecting two vertical centers of reticulated metal arranged with a space between them, applying a mold frame or centering on the outside of one of said centers, and filling the space between said centers with a body of concrete or similar plastic material applied in the plastic state and molded against said mold frame or centering, removing the mold frame or centering, and applying coverings of plaster or similar material on both sides of the structure, substantially as described.

5. The method of making a vertical fireproof construction which consists in erecting two vertical centers of reticulated metal arranged with a space between them, applying a mold frame or centering on the outside of one of said centers, and filling the space between said centers with a body of concrete or similar plastic material applied in the plastic state by introducing said plastic material through the reticulated metal on the opposite side of the structure from the mold frame or centering and molding the plastic material against the mold frame or centering, and applying a covering of plaster or similar material on the side of the structure opposite the mold frame or centering, substantially as described.

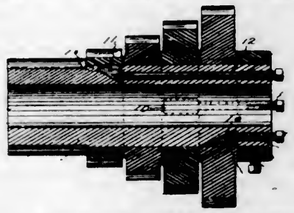
6. The method of making a vertical fire-proof construction which consists in erecting two vertical centers of reticulated metal arranged with a space between them, applying a mold frame or centering on the outside of one of said centers, and filling the space between said centers with a body of concrete or similar plastic material applied in the plastic state and molded against said mold frame or centering, removing the mold frame or centering, and applying coverings of plaster or similar material on both sides of the structure, substantially as described.

681,701. **FURNACE-DOOR AND DEFLECTOR-PLATE.** FRANCIS L. HORSPOOL and GEORGE J. KELLY, Ogden, Utah. Filed July 28, 1900. Serial No. 25,166. (No model.)



Claim.—In a device of the character described, the combination with a frame formed on the upper edge of its opening with spaced hinge-sections and provided about the other three sides of said opening with a flange, of a baffle-plate having at its upper edge hinge-sections extending between the spaced hinge-sections of the frame and having a lip or projection extending upwardly from the central hinge-section and provided with a screw-threaded perforation, said lip being disposed at an angle to the body of the plate, a pivotal pin passing through all of the hinge-sections of the baffle-plate and the frame and pivotally securing the plate in position, an adjusting-screw in said threaded perforation of the plate and bearing against the frame, a door hinged at one side of the frame and provided with a frame and having a swinging upper section provided with a flange at its top and sides for contacting with said frame carried by the door, and a latch for the door, substantially as described.

681,702. **VARIABLE-SPEED MECHANISM.** ARTHUR L. JACOBS, Hartford, Conn., assignor to the Smyth Manufacturing Company, same place. Filed June 11, 1901. Serial No. 64,058. (No model.)

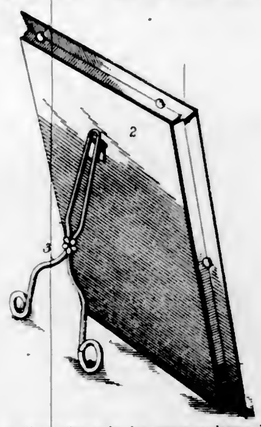


Claim.—1. A variable-speed mechanism having a sleeve, a wheel secured to the sleeve, wheels loose on the sleeve, said sleeve having a mortise inside of each loose wheel, a wedge in each mortise, and a screw for moving each wedge outwardly, substantially as specified.

2. A variable-speed mechanism consisting of a sleeve, a wheel secured to the sleeve, wheels loose on the sleeve, said sleeve having a longitudinal mortise inside of each loose wheel, a longitudinally-movable wedge located in each mortise, said sleeve having an opening from an end of the sleeve to each wedge-mortise, and a longitudinally-movable screw located in each opening and arranged to thrust against the wider end of a wedge, substantially as specified.

3. A variable-speed mechanism consisting of a sleeve, a wheel secured to the sleeve, wheels loose on the sleeve, a collar fastened to the sleeve for retaining the loose wheels in place, said sleeve having a mortise inside of each loose wheel, a wedge located in each mortise, and a screw extending from an end of the sleeve and thrusting against the wider end of each wedge, substantially as specified.

681,703. **REMOVABLE BACK FOR PICTURE-FRAMES.** BENJAMIN JACOBSON, New York, N. Y. Filed July 3, 1901. Serial No. 67,036. (No model.)



Claim.—1. A picture-frame, having engaging devices in combination with a removable back, having elastic flanges, adapted to engage said devices on the frame, whereby the back may be snapped into engagement with the frame, as herein set forth.

2. A picture-frame having engaging devices in combination with a removable back having angularly-bent flanged elastic edges adapted to engage said devices on the frame, whereby the back may be snapped into engagement with the frame, as herein set forth.

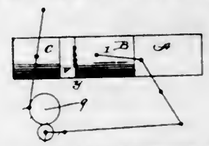
3. A picture-frame having a beveled border with engaging devices located between the edges of said border in combination with a removable back having angularly-bent flaring elastic flanged edges adapted to engage said devices on the frame, whereby the back may be snapped into engagement with the frame, as herein set forth.

4. A picture-frame having a beveled border with spaced balls or knobs located on said border between its edges in combination with a removable back having angularly-bent flaring elastic flanged edges adapted to engage said balls or knobs, whereby the back may be snapped into engagement with the frame, as herein set forth.

5. In a combined picture-frame and removable back, a back formed with angularly-bent flanged elastic edges substantially as herein set forth.

6. As a new article of manufacture, a removable back or covering having angularly-bent flanged elastic edges adapted to engage with devices on the body or frame of the article to which the engaging devices are affixed, whereby the back or covering may be snapped into engagement substantially as herein set forth.

681,704. **GAS-ENGINE.** MARCUS W. JAMIESON, Warren, Pa. Filed May 31, 1900. Serial No. 18,606. (No model.)



Claim.—1. A gas-engine having a cylinder, a piston, a plunger, and connections whereby the direction of travel of the plunger during admission of the charge is opposite to the direction of travel of the piston, and the direction of travel of the plunger during compression is the same as the direction of travel of the piston, substantially as set forth.

2. A gas-engine having a cylinder, a piston, a plunger, and connections whereby the direction of travel of the plunger during admission of the charge is opposite to the direction of travel of the piston, the direction of travel of the plunger during compression is the same as the direction of travel of the piston, and the direction of travel of the plunger during expansion is the same as the direction of travel of the piston but in a direction opposite to the travel during compression, substantially as set forth.

3. A gas-engine having a cylinder, a piston, a plunger, and connections whereby the direction of travel of the plunger during admission of the charge is opposite to the direction of travel of the piston, the direction of travel of the plunger during compression is the same as the direction of travel of the piston, and the direction of travel of the plunger during expansion is the same as the direction of travel of the piston but in a direction opposite to the travel during compression, and the direction of travel of the plunger during expulsion is opposite to the direction of travel of the piston and toward each other, substantially as set forth.

4. A gas-engine provided with a cylinder, piston and plunger a port, and means for reciprocating the piston and plunger to and from a plane intersecting the port and for moving both piston and plunger from each other at different rates of speed during the admission of the charge, substantially as described.

5. A gas-engine provided with a cylinder, piston and plunger, a port, and means for reciprocating the piston and plunger to and from a plane intersecting the port and for moving both piston and plunger from each other at different rates of speed during the admission of the charge and for moving said piston and plunger in the same direction at different rates of speed on compression of the charge, substantially as described.

6. A gas-engine provided with a cylinder, piston and plunger, a port, and means for moving the piston and plunger to and from a plane intersecting the port and for moving both the piston and plunger from each other at different rates of speed during the admission of the charge and for moving said piston and plunger in the same direction at different rates of speed on compression of the charge and for moving the piston and plunger in the same direction at different rates of speed on expansion but in a direction opposite to the direction of compression, substantially as described.

7. A gas-engine provided with a cylinder, piston and plunger, a port, and means for moving the piston and plunger to and from a plane intersecting the port and for moving both the piston and plunger from each other at different rates of speed during the admission of the charge and for moving said piston and plunger in the same direction at different rates of speed on compression of the charge and for moving the piston and plunger in the same direction at different rates of speed on expansion but in a direction opposite to the direction of compression, and for moving said piston and plunger toward each other at different rates of speed on expulsion, substantially as described.

8. A gas-engine provided with a cylinder, pistons, and intermediate plunger, and with independent ports and means whereby to move each piston and the plunger to and from a plane intersecting each port, substantially as set forth.

9. A gas-engine provided with a cylinder, pistons, intermediate plunger, and means whereby to move each piston, and the plunger outward during the explosion of the gases between them to carry them toward each other in exhausting and compressing and from each other in receiving the charge, substantially as set forth.

10. A gas-engine provided with a cylinder, two pistons, an intermediate plunger and means for compressing, exploding and discharging the gases on opposite sides of the plunger alternately, substantially as set forth.

11. In a gas-engine a cylinder having two pistons, and an intermediate plunger combined with means for reciprocating the pistons and plunger, each in a separate part of the cylinder for drawing in, compressing and displacing the gases on opposite sides of the plunger alternately, substantially as set forth.

12. The combination in a gas-engine, of a cylinder, two pistons, an intermediate plunger and means for reciprocating the piston and plunger to move the plunger toward one end of the cylinder during the outward and inward movement of the piston at that end, and toward the other end of the cylinder during the outward and inward movement of the piston at that end, substantially as set forth.

13. The combination of a gas-engine of a cylinder, pistons, intermediate plunger, a shaft having cranks connected with the pistons, and a counter-shaft having a crank connection with the plunger and means for imparting one rotation to the counter-shaft to each two rotations of the crank-shaft, substantially as set forth.

14. A cylinder having two pistons and an intermediate plunger, means for reciprocating the pistons and plunger as set forth, independent ports and valve-casings connected therewith and means for operating the valves to supply and exhaust the portions of the cylinder at opposite ends of the plunger, substantially as set forth.

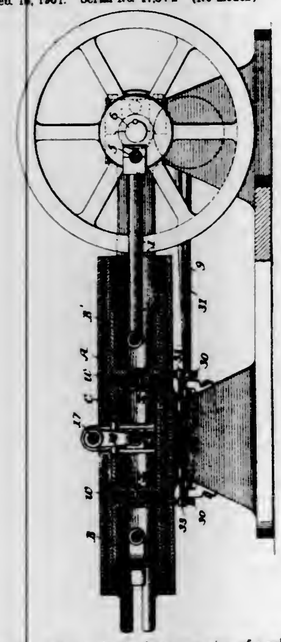
15. The combination with the cylinder, its plunger and piston and operating means, of a port, valve-casing communicating therewith and provided with an exhaust-valve, rock-shaft parallel to the cylinder having an arm connected with the exhaust-valve and a rotating cam and arm on the rock-shaft arranged to make contact with said cam, substantially as set forth.

16. The combination with the cylinder, plunger, pistons, and valve-casings communicating with cylinder-ports and provided with exhaust-valves, of rock-shafts parallel to the cylinder, provided with arms connected with the exhaust-valves, and a rotating cam arranged to make contact with the other arms of both rock-shafts to lift the exhaust-valves alternately, substantially as set forth.

17. The combination of the cylinder, pistons, and intermediate plunger, crank-shaft and counter-shaft, of a rock-shaft having an arm operated from the counter-shaft and another arm connected to operate the plunger, substantially as set forth.

18. The combination of the cylinder, pistons, plunger, levers connected with the pistons, an arm connected with the plunger, of a crank-shaft connected with the piston-lever, with a counter-shaft for operating the arm connected with the plunger and gears upon the crank-shaft and counter-shaft, substantially as set forth.

681,705. **GAS-ENGINE.** MARCUS W. JAMIESON, Warren, Pa. Filed Feb. 16, 1901. Serial No. 47,574. (No model.)



Claim.—1. The combination in a gas-engine, of a cylinder provided with a port *x*, a plunger and a piston moving within the cylinder to and from said port, but without either passing beyond the port, and connections whereby on taking in a charge both the plunger and the piston move in the same direction but at different speeds, substantially as set forth.

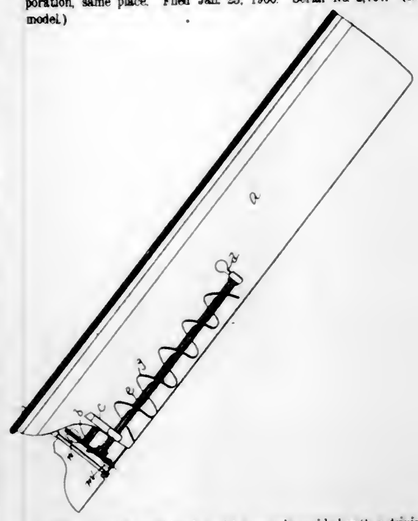
2. The combination in a gas-engine, of a cylinder provided with a port *x*, a piston and a plunger moving to and from said port, but without either passing beyond the port and connections whereby the direction of movement of the plunger under the explosion of the charge is opposite to the direction of travel of the piston, and the direction of travel of the plunger during compression is the same as that of the piston, while both the plunger and piston move in the same direction in taking in the charge but at different speeds, substantially as set forth.

3. The combination in a gas-engine, of a cylinder provided with a port *x*, a piston moving in the cylinder to and from said port, a plunger moving in the cylinder to and from the piston but without closing said port, and connections whereby both the plunger and piston in taking in a charge move in the same direction at different speeds and in expelling the charge move toward each other but without meeting leaving a space for a retention of a portion of the gases, substantially as set forth.

4. A gas-engine provided with a cylinder, pistons, intermediate plunger and ports *x x*, and means whereby to move each piston and the plunger in the same direction but at different speeds in taking in the charge, substantially as set forth.

5. The combination in a gas-engine, of a cylinder provided with two ports *x x*, pistons, an intermediate plunger and connections whereby the direction of movement of the plunger under the explosion of a charge is opposite to the direction of travel of the piston moving under said charge, while the direction of travel of each plunger during compression is the same as that of the piston, while both the plunger and the piston move in the same direction but at different speeds in taking in the charge, substantially as set forth.

681,706. **PROPELLING MECHANISM FOR VESSELS.** CHARLES D. JENKINS, Boston, Mass., assignor to Carter, Rice and Company Corporation, same place. Filed Jan. 25, 1900. Serial No. 2,707. (No model.)



Claim.—1. The combination with a vessel provided with a driving-shaft having a gear fast thereon outside of the vessel, of Archimedean screws having bearings on opposite sides of said vessel and provided with gears in mesh with the gear on the driving-shaft, substantially as described.

2. The combination with a vessel provided with a driving-shaft, of Archimedean screws extended longitudinally of the vessel on opposite sides thereof, means attached to said vessel to support said screws, gears on the shafts of said screws provided with radial blades, and a gear on the driving-shaft in mesh with the gears on said screw-shafts and provided with radial blades extended reversely to the radial blades of the gears on the screw-shafts, substantially as described.

3. The combination with a vessel provided with a driving-shaft extended rearwardly beyond the said vessel and provided with a gear fast thereon, of two Archimedean screws located on opposite sides of the vessel near the keel and extended longitudinally of said vessel, brackets attached to said vessel in which the shafts of said screws revolve, and gears on said screw-shafts in mesh with the gear on the driving-shaft, substantially as described.

681,707. **CURRYCOME.** JAMES G. JOHNSON, Carthage, Ill. Filed Dec. 17, 1900. Serial No. 40,169. (No model.)

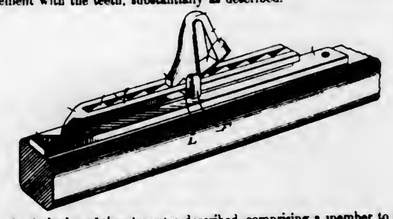


Claim.—The herein-described currycomb comprising a cylindrical stock having a handle at one end and a shoulder at the base of said handle, a cylindrical comb-body mounted upon the cylindrical portion of the stock and composed of coils interlocked at their longitudinal edges and having an oblique arrangement with reference to the axis of the stock, the terminals of the wire coils being bent against the shoulder and the outer end of the cylindrical portion of the stock, and end pieces attached to the ends of the cylindrical body and clamping the terminals of the wire coils, the inner end pieces being of annular formation to receive the handle and made fast to the aforesaid shoulder, substantially as specified.

681,708. **HOLDBACK.** JAMES C. JOYCE, Florida, N. Y. Filed Dec. 1, 1900. Serial No. 38,331. (No model.)

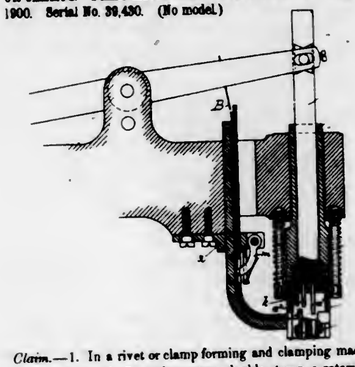
Claim.—1. A device of the character described, comprising a fixed member to be attached to the shaft, and formed with teeth, a movable member to receive the strap and formed with a central portion movable upon said fixed member and upon which said movable member may be rocked, an engaging portion formed on one side of said central portion to engage said teeth, a loop formed on the opposite side of said central portion, and a spring holding said engaging portion in engagement with the teeth, substantially as described.

2. A device of the character described, comprising a fixed member to be secured to the shaft, formed with a series of teeth, a member movable longitudinally thereon and formed with an engaging portion to engage said teeth and an open loop, and a spring-plate carried by said loop and closing the same, and normally holding said engaging portion in engagement with the teeth, substantially as described.



3. A device of the character described, comprising a member to be secured to the shaft, formed with a T-track, a member formed with a T-slot and movable longitudinally upon said track, and capable of rocking thereon, an engaging portion formed on one side of said base to engage the teeth of the track, a loop formed on the other side of the base to receive the strap, and a spring carried by said loop and having its free end extending in the slot of the base and resting upon the upper surface of the track, substantially as described.

681,709. **MACHINE FOR FORMING AND FASTENING RIVETS OR CLAMPS.** FRANZ KAULFERSCH, Bautzen, Germany. Filed Dec. 10, 1900. Serial No. 39,430. (No model.)



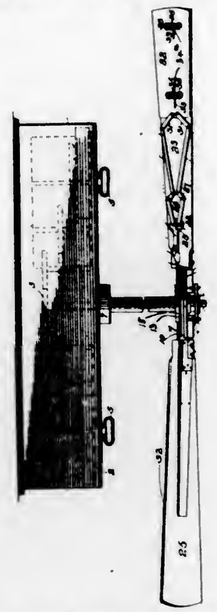
Claim.—1. In a rivet or clamp forming and clamping machine, the combination of a vertically-reciprocatory double stamp, a rotary die having double orifice, and means for feeding a metal strip to one of the said orifices, means for differentially vertically reciprocating the said stamp and die and means for turning over the said die at each reciprocation so as to reverse the position of the die-orifices as regards the double stamp, substantially as described.

2. In a clamp forming and fastening machine, the combination of a double stamp having a longer and a shorter member, a sleeve inclosing said stamp and a die having double orifice pivotally mounted in the lower end of said sleeve, means for differentially reciprocating the said stamp and sleeve, a reciprocatory guide for the metal strip and means for moving it on the metal strip when the stamp is raised and for taking it with the guide as the latter is depressed, a cutter on the stamp and means for reversing the position of the die-orifices as regards the two members of the double stamp when the said die is raised substantially as described.

3. In a clamp forming and riveting machine the combination of a double stamp, having a longer and a shorter member, a sleeve inclosing said stamp and having a die pivotally mounted in its lower end, a double orifice to said die to correspond with the two members of the stamp, means for feeding a strip of metal to the said die, a cutter on the stamp, a pinion on the die-spindle, a gear mounted on the said sleeve-and-ratchet mechanism in engagement with said gear, and means for operating said ratchet mechanism at each upward stroke of the sleeve to turn the gear a part of a revolution, and means for differentially reciprocating the said stamp and die sleeve substantially as described.

4. In a machine for forming and fastening clamps, the combination of a double stamp and a pivotally-supported die having two orifices to correspond with the position of the two members of the stamp, means for differentially reciprocating the said die and stamp and means for turning over the said die at each reciprocation in the manner and for the purpose substantially as described.

681,710. **SPEED-GOVERNOR FOR FANS.** CHARLES D. KENNERER, Weissport, Pa., assignor, by direct and mesne assignments, to the Automatic Speed Governor Company, Limited, Kennett Square, Pa. Filed Aug. 26, 1899. Serial No. 728,527. (No model.)



Claim.—1. In a fan of the character set forth, the combination of a rotatable shaft, feathering fan-blades swivelly attached thereto and having supplemental fan-blade sections movable thereon, brake-shoes adjacent said shaft and mechanism mounted on the fan-blades between the brake-shoes and said supplemental fan-blade sections for regulating the speed of rotation of said shaft.

2. In a fan of the character set forth, the combination with a rotatable shaft, a head mounted thereon, an annulus adjustably carried by said head and supporting inwardly-extending oppositely-projecting spring-fingers, brake-shoes on the heads controlled by said spring-fingers, fan-blades swivelly attached to the head and having slidable supplemental fan-blade sections thereon, and mechanism between the said slidable supplemental sections and the brake-shoes for regulating the speed of rotation of the shaft.

3. In a fan of the character set forth, the combination of a rotatable shaft, a sleeve around said shaft, a head applied to said shaft around the lower end of the sleeve, spring-actuated brake-shoes on opposite sides of the shaft and sleeve, fan-blades swivelly connected to said head and having supplemental fan-blade sections slidable thereon, and mechanism connecting the said slidable supplemental fan-blade sections and the brake-shoes for regulating the speed of the rotation of the shaft.

4. A fan comprising a shaft, a motor connected up with the shaft, a sleeve surrounding the shaft, the head supported on the shaft beneath the sleeve, an annulus mounted on the head, segmental brake-shoes, pivoted to the head, and adapted to bear against the sleeve, spring-fingers projecting in opposite directions, secured on the annulus and adapted to bear against the segmental brake-shoes, the fan-blades trunnioned to the head, the slide having slots, headed pins connecting the slides with the fan-blades, the connecting-rods having heads and swiveled to the segmental brake-shoes and pivots whereby the heads of the rods are connected with the slides.

5. A fan comprising a shaft, a motor connected up with the shaft, a sleeve surrounding the shaft, the head supported on the shaft beneath the sleeve, an annulus mounted adjustably on the head having segmental annular slots, screw-studs extending into the head through the segmental annular slots for securing the annulus, segmental brake-shoes, pivoted to the head, and adapted to bear against the sleeve, spring-fingers projecting in opposite directions, secured on the annulus and adapted to bear against the segmental brake-shoes, the fan-blades trunnioned in the head, the slides having slots, headed pins connecting the slides with the fan-blades, the connecting-rods having heads and swiveled to the seg-

mental brake-shoes and pivots whereby the heads of the rods are connected with the slides.

6. A fan comprising a shaft, a motor connected up with the shaft, a sleeve surrounding the shaft, the head supported on the shaft beneath the sleeve, an annulus mounted on the head, segmental brake-shoes pivoted to the head, and adapted to bear against the sleeve, spring-fingers projecting in opposite directions secured on the annulus and adapted to bear against the segmental brake-shoes, the fan-blades having trunnions provided with pins, the diametrically-disposed sockets for the trunnions through which the trunnion-pins project, the cap having slots to receive the trunnion-pins and secured to the shaft, the slides having slots, headed pins connecting the slides with the fan-blades, the connecting-rods having heads and swiveled to the segmental brake-shoes and pivots whereby the heads of the rods are connected with the slides.

7. A fan comprising a shaft, a motor connected up with the shaft, a sleeve surrounding the shaft, the head supported on the shaft beneath the sleeve, an annulus mounted on the head, segmental brake-shoes pivoted to the head, and adapted to bear against the sleeve, the spring-fingers projecting in opposite directions, secured on the annulus and adapted to bear against the segmental brake-shoes, the fan-blades trunnioned to the head, the slides having heads provided with slots, headed pins connecting the slides with the fan-blades, the connecting-rods having heads and swiveled to the segmental brake-shoes, pivots whereby the heads are connected with the slides, the supplemental fan-blade sections having slots, headed studs connecting the supplemental fan-blade sections through their slots with the fan-blades, bell-crank levers pivoted to the fan-blades, links connecting the bell-crank levers with the heads of the slides, and links connecting the bell-crank levers with the supplemental blade-sections.

8. A fan comprising a shaft, a motor connected up with the shaft, a sleeve surrounding the shaft, the head supported on the shaft beneath the sleeve, an annulus mounted on the head, segmental brake-shoes pivoted to the head, and adapted to bear against the sleeve, the spring-fingers projecting in opposite directions, secured on the annulus and adapted to bear against the segmental brake-shoes, the fan-blades trunnioned to the head, the slides having heads provided with slots, headed pins connecting the slides with the fan-blades, the connecting-rods having heads and swiveled to the segmental brake-shoes, pivots whereby the heads are connected with the slides, the supplemental fan-blade sections having slots, headed studs connecting the supplemental fan-blades through the slots with the fan-blades having antifriction-rollers, the cross-heads having antifriction-rollers and secured to the headed studs, bell-crank levers pivoted to the fan-blades, links connecting the bell-crank levers with the heads of the slides, and links connecting the bell-crank levers with the supplemental fan-blade sections.

681,711. **NUT-LOCK.** GORDON R. KENNEDY, Winchester, Canada. Filed Apr. 1, 1901. Serial No. 53,753. (No model.)



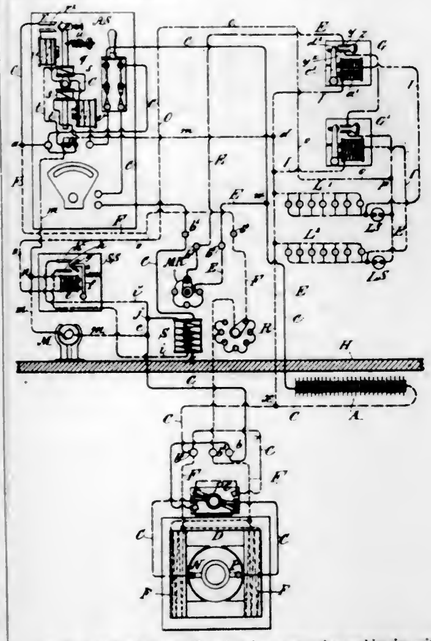
Claim.—1. A nut-locking washer comprising a plate provided with a yieldable locking-dog, the same having an offset or shoulder which is disposed in engaging relation to a beveled edge of said plate, substantially as described.

2. The combination with bolts, and their nuts, of a locking-bar provided with one or more flanges adapted to fit in rear of a nut and also provided with lugs for engagement with end bolts of a series, and locking-washers fitted on the end bolts of the series and having locking-dogs which engage with the nuts on said bolts, substantially as described.

681,712. **MEANS FOR CONTROLLING ELECTRIC CURRENTS.** PATRICK KENNEDY, Brooklyn, N. Y., assignor to the American Railway Electric Light Co., of West Virginia. Filed Mar. 26, 1898. Renewed Apr. 1, 1901. Serial No. 53,945. (No model.)

Claim.—1. In a device for controlling electric currents, the combination with a dynamo, a main exterior circuit fed by said dynamo, an accumulator in said circuit, a series of lamps in parallel in a branch of said circuit, a solenoid S in the said circuit, a field-magnet circuit F, a rheostat R in said circuit, mechanism controlled by the core of said solenoid and operating the finger of said rheostat, and an automatic switch S S which short-circuits a part of the coil of the solenoid when the lamps are turned on, substantially as set forth.

2. In a device for controlling electric currents for lighting, the combination with a dynamo, an exterior circuit fed by said dynamo, an accumulator in said circuit, and a series of lamps in a branch of said circuit beyond the accumulator, of a resistance or rheostat M R in said lamp-circuit between the lamps and the accumulator, and a cam device for putting said resistance automatically into the circuit when the current begins to flow through the outer circuit, thus enabling the voltage in the circuit between the dynamo and accumulator to be maintained without danger to the lamps, said cam device comprising a rotating cam, and a rod coupled to the arm of the rheostat and connected with said cam for operation, substantially as set forth.



3. In a device for controlling electric currents, the combination with the dynamo, an exterior circuit fed by said dynamo, the field-magnet circuit of the dynamo, a rheostat R in said field-magnet circuit, a ratchet mechanism for operating the finger of said rheostat, and a solenoid S, the core of which controls said ratchet mechanism, of the motor M, geared to and operating said ratchet mechanism, a branch circuit from the main circuit and through said motor for driving the latter, and an automatic switch in a branch of the main circuit which shunts out a part of the solenoid-coil when the current in the main circuit reaches a predetermined strength, substantially as set forth.

4. In a device for controlling electric currents, the combination with a dynamo, an exterior circuit fed by said dynamo, an accumulator in said circuit, a series of lamps in parallel in a branch of said circuit beyond the accumulator, an automatic switch A S, controlling a break in the main circuit between the dynamo and the accumulator, a rheostat M R in the circuit between the lamps and accumulator, whereby the voltage in the circuit between the dynamo and the accumulator may be maintained without injury to the lamps, and a rotating cam and a cam-rod for operating the arm of said rheostat, substantially as set forth.

5. In a device for controlling electric currents, the combination with a dynamo, an exterior circuit fed by said dynamo, a series of lamps in parallel in a branch of said circuit, and a switch to turn the said lamps on and off, of a resistance in circuit with said series of lamps, and an electromagnetic switch, in a branch of the lamp-circuit and adapted to shunt out said resistance automatically when the lamps are switched on, substantially as set forth.

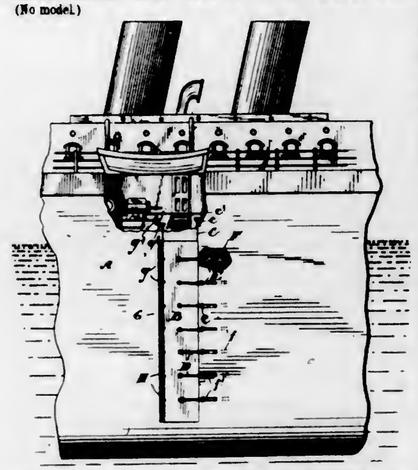
6. In an electric-current regulator, the combination with the dynamo, the exterior circuit fed thereby, the solenoid S in said circuit, the solenoid-spring 15, the rotating shaft 5, carrying the cam-disk 20, having in it the cam-groove 19, 19ˣ, the said cam-disk, the slide-bar 18, having a stud engaging said cam-groove, the lever 17, one arm of which is coupled to the solenoid-spring and the other to said slide-bar, whereby the depression of said bar puts tension on said spring, and the ratchet mechanism, substantially as described, for imparting rotation to the shaft 5.

7. In an electric-current regulator, the combination with a dynamo, an exterior, lamp-circuit fed by said dynamo, lamps in parallel in said circuit, a rotatable shaft 5, a ratchet mechanism substantially as described for rotating said shaft, a cam-disk 20, fixed on said shaft and having in it a cam-groove 19, 19ˣ, and a slide-bar 18, having a stud which engages the said cam-groove, of the rheostat M R in the lamp-circuit, its arm being coupled to said slide-bar for operation thereby, substantially as set forth.

8. In a system for lighting or analogous purposes having as a source of current an intermittently-operated dynamo, a circuit containing a storage battery and the translating devices, means for connecting the dynamo with said circuit after it has reached a speed sufficient to develop an electromotive force substantially equal to that of the battery, means for gradually increasing the resistance of the translating-device circuit up to a predetermined point in response to further increase in the electromotive force of the dynamo without correspondingly increasing the resistance in the dynamo-circuit; and means for subsequently increasing the resistance in the dynamo-circuit, substantially as set forth.

9. In a system for lighting or analogous purposes having as a source of current an intermittingly-operated dynamo, a circuit containing a storage battery and the translating devices, means for connecting the dynamo with said circuit after it has reached a speed sufficient to develop an electromotive force substantially equal to that of the battery, a rheostat having a traveling member and resistance-coils in the translating-device circuit, and resistance-coils in the dynamo field-circuit, the translating-device resistance being in advance of the dynamo-resistance in the direction of travel of said traveling member; and means for operating said traveling member in response to an increase of electromotive force of the dynamo.

681,713. **DEVICE FOR BRAKING THE SPEED OF SHIPS.** LOUIS LACOSTE, Montreal, Canada. Filed Jan. 12, 1901. Serial No. 43,054. (No model.)



Claim.—1. In a ship or other vessel, a ship-brake comprising a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, and struts pivotally attached to the outer face of the gate at one end, and recedably attached to the side of the ship at the opposite end, as and for the purpose specified.

2. In a ship or other vessel, a ship-brake comprising a gate suitably hinged at the sternmost edge to the side of the vessel, and fitting into a recess in the side, so that the outer face of the gate is flush therewith, means for normally holding the gate closed, and struts pivotally attached to the outer face of the gate at one end, and recedably attached to the side of the ship at the opposite end, as and for the purpose specified.

3. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, of struts pivotally attached to the outer face of the gate at one end, the covered slideways located in the side of the ship at the sternmost side of the gate, and provided with slots, slides fitting snugly within the slideways and pivotally connected to the struts, the slides having suitable openings opposite the sternmost end of each slideway, as and for the purpose specified.

4. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, of struts pivotally attached to the outer face of the gate at one end, and recedably connected to the side of the vessel sternward of the gate, and means for starting the gate in its outward movement, as and for the purpose specified.

5. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, struts pivotally connected to the outer face of the gate, and recedably connected to the side of the ship sternward of the gate, of a rod suitably journaled forward of the free edge of the gate and provided with fingers designed to be brought over such edge when the gate is closed, as and for the purpose specified.

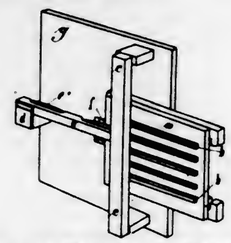
6. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, struts pivotally connected to the outer face of the gate, and recedably connected to the side of the ship sternward of the gate, of a rod suitably journaled forward of the free edge of the gate, and provided with fingers designed to be brought over such edge when the gate is closed, and prongs secured on the aforesaid rod designed to fit within the forward edge of the gate, and provided with slots, designed to coact with the pins projecting from the rod, as and for the purpose specified.

7. The combination with the gate suitably hinged at the sternmost edge to the side of the ship, and having the rod of the hinge extending upwardly into the interior of the ship, and the struts pivotally connected to the outer face of the gate, and recedably connected to the side of the ship sternward of the gate, of suitable gearing, and means for turning the rod located at the top thereof, as and for the purpose specified.

8. The combination with the gate suitably hinged at the sternmost edge to the side of the ship, and means for holding out the gate substantially at right angles to the side of the ship when open, of a rod suitably journaled in the side of the ship, and provided with projecting fingers suitably secured thereto, and designed to coact with the forward edge of the gate, and means for manipulating such rod, as and for the purpose specified.

9. The combination with a gate folding on or flush with the outside of the vessel, of a prong with its inner and ring end encircling a rod journaled where the outer edge of the gate folds to the side, and having a limited movement around the rod, a fixed projection from the said rod, and struts pivotally connected to the outer face of the gate at one end, and at the other recedably attached to the side of the ship sternward of the gate, as and for the purpose specified.

681,714. **MULTIPLYING ATTACHMENT FOR CAMERAS.** CHRISTIAN LAUX, Frankfort-on-the Main, Germany. Filed Aug. 18, 1900. Serial No. 27,332. (No model.)



Claim.—1. In a multiplying attachment for cameras the combination of a cross-bar having on the inner side thereof spring-bows and a sensitive-plate holder having on its back a series of parallelly-disposed guide-ribs between which the said spring-bow engages in the manner and for the purpose substantially as described.

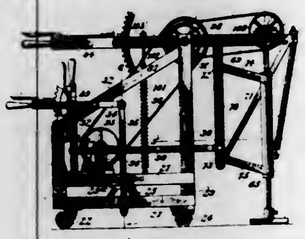
2. In a multiplying attachment for cameras the combination of a plate *g* having a carrier-bar *c* thereon, a transverse bar *e* having inwardly-turned spring-bows *e'* and a hook *d* to retain said bow in position, and a photographic-plate holder located beneath said transverse bar and having a series of ribs at the back between which said spring-bow may engage substantially as described.

681,715. **MACHINE FOR TAMPING CONCRETE.** MARLOS E. LAYNE, Rock Rapids, Iowa. Filed Feb. 25, 1899. Renewed Feb. 5, 1901. Serial No. 46,150. (No model.)

Claim.—1. In a machine for tamping concrete, the combination of the frame, tamping-hammers, plungers to which they are attached, casings inclosing the plungers, means for reciprocating the casings and springs in the casings pressing in opposite directions for cushioning the stroke and return of the hammers, substantially as set forth.

2. In a machine for tamping concrete, the combination with the frame of a hollow casing pivotally supported thereon, a plunger therein having a central collar, a hammer carried by the plunger, springs around the plunger, and above and below the collar and means for reciprocating the casing, substantially as described.

3. In a machine for tamping concrete, the combination with a hammer, a plunger and a casing, of the pivoted frame from which the casing is supported, a shaft therein, a crank on the shaft, a link connecting the crank with the casing, and a spring counterbalance connecting the frame beyond its pivot with the casing, substantially as described.



4. In a machine for tamping concrete, the combination, with a wheeled support, of a series of vertically-arranged, hammer-carriers thereon, and means for varying the angle of inclination of the carriers in all directions.

5. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a swinging frame suspended on the tilting frame at right angles to the axis of the movement thereof, and a series of hammer-carriers on the swinging frame.

6. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a swinging frame on the tilting frame, links on the swinging frame, and a series of hammer-carriers pivotally secured to said links.

7. In a machine for tamping concrete, the combination, with a wheeled support, of a frame thereon, a hammer-carrying frame pivotally mounted on the first-mentioned frame, pairs of links on said hammer-frame, a hammer-carrier pivotally secured to each pair of links, and a spring connected with the frame at one end and with the hammer-carrier at the other.

8. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame mounted thereon, a triangular frame suspended from the tilting frame, links secured to the vertical portion of the triangular frame, hammer-carriers pivotally secured to the said links, and a spring secured to the top of the frame beyond the hammer-carriers at one end and to the carriers, in line with the links, at the other end.

9. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a triangular frame suspended from the tilting frame, at its upper end, hammer-carriers on the triangular frame, and means for raising the triangular frame vertically and for swinging it at right angles to the line of the axis of the movement of the tilting frame.

10. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a horizontally-arranged frame pivotally secured on the tilting frame, hammer-carriers suspended from the forward end of said frame, and means for moving the horizontal frame on its pivots and holding it in its adjusted position.

11. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a horizontally-arranged frame pivotally secured to the top thereof, a hammer carrying frame suspended from the horizontal frame, and means for adjusting each of said frames independently of the others.

12. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a lever for adjusting it, a horizontally-arranged frame on the tilting frame, provided with a hand-lever and pawl, a rack in position to be engaged by the pawl, a hammer-carrying frame suspended from the horizontal frame, and a hand-lever connected with the hammer-carrying frame, provided with a pawl and a rack in position to be engaged by the pawl.

13. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting frame thereon, a horizontally-arranged frame pivotally mounted thereon, a crank-shaft journaled on the forward end thereof, a frame suspended from the horizontal frame, a series of cylinders yieldingly supported by the horizontal frame, the upper end of which is connected with the crank-shaft and a hammer projecting from the lower end.

14. In a machine for tamping concrete, the combination, with a wheeled support, of a tilting turn-table mounted thereon, a lever pivotally secured to the turn-table, one end of which is provided with means for holding it in its adjusted position, a bar connected with the other end of the lever and with the support, and a series of hammers carried by the turn-table.

15. In a machine for tamping concrete, the combination, with a wheeled support provided with a track, of a turn-table on the support provided with rollers for engaging with the track, a lever on the turn-table one end of which is provided with means for holding it in its adjusted position, a bar at the other end of the lever, the lower end of which engages with the track and hammers carried by the turn-table.

16. In a machine for tamping concrete, the combination, with a base, the center of which is provided with a casting, of a turn-table on the base provided with a depending casting and with two fulcrum-blocks, a bolt through the castings, means for tilting the turn-table laterally on said blocks, and a series of adjustable hammer-carriers on the turn-table.

17. In a machine for tamping concrete, the combination, with a base, of a frame supported thereby, and a series of yieldingly-supported casings on the frame, and a cushioned hammer in each casing.

18. In a machine for tamping concrete, the combination, with a base, of a tilting frame thereon, a series of yieldingly-supported casings on the frame, a cushioned hammer in each casing, and means for adjusting the positions of the frame and the hammers.

19. In a machine for tamping concrete, the combination with the stationary frame, of a frame pivoted thereto at one end, hammer mechanism carried thereby, near its opposite end, a counterbalancing-spring beyond the hammer-pivot, connecting the hammer mechanism with the pivoted frame, a curved rack secured to the stationary frame, and the hand-lever and pawl carried by the pivoted frame at its inner end, substantially as described.

20. In a machine for tamping concrete, the combination of stationary frame, a swinging frame thereon, hammer mechanism carried by the swinging frame, a hand-lever, pawl and curved rack carried by the stationary frame, and a link-bar connecting the swinging frame with the hand-lever, substantially as described.

21. In a machine for tamping concrete, the combination with a stationary base, of a frame carrying the hammer mechanism mounted to tilt thereon, and means for adjusting the inclination of the hammer-frame laterally with relation to the base to cause the direction of the hammer-strokes to incline laterally, substantially as described.

22. In a machine for tamping concrete, the combination of a base-frame, a turn-table mounted thereon on oppositely-located fulcrum-blocks and carrying the operative mechanism, a hand-lever, pawl and rack carried by the turn-table, and a link-bar connecting the hand-lever with the base, substantially as described.

23. In a machine for tamping concrete, the combination of a pivoted frame, swinging triangular frames pivoted at their angles to the pivoted frame, a crank-shaft on the pivoted frame, a hammer-plunger casing, a pitman connecting it to the crank-shaft, and parallel links connecting the swinging frame with the casing, substantially as described.

24. In a machine for tamping concrete, the combination of a stationary frame, a horizontally-disposed frame pivoted thereto, a crank-shaft on the pivoted frame, a hammer-plunging casing, a pitman connecting it with a crank on a crank-shaft, triangular swinging frames pivoted to the pivoted frame, parallel links connecting the vertical arms of the triangular frame with the casing, springs connecting the forward ends of their horizontal arms to the casing, and adjustable connections between the triangular frames and the stationary frame, substantially as described.

25. In a machine for tamping concrete, the combination with a wheel-supported frame, of a hammer-carrying frame thereon, and means for moving the hammer-carrying frame forward and back in the line of movement of the wheeled frame and independently of the movement of the latter, substantially as described.

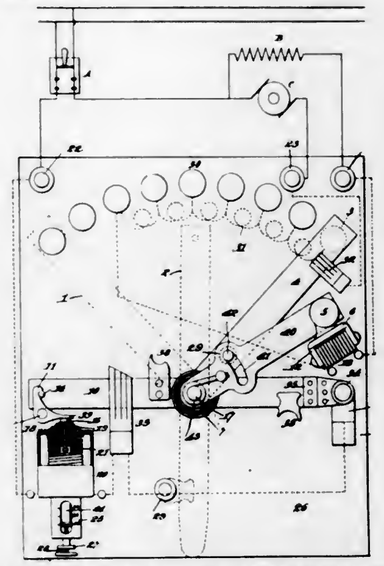
26. In a machine for tamping concrete, the combination, with a wheel-supported frame, of a hammer-carrying frame pivotally supported thereon and movable forward and back at the sides of the wheeled frame in the line of movement of the latter and independent of the movement thereof, substantially as described.

681,716. ELECTRIC-CIRCUIT CONTROLLER. HARRY W. LEONARD, New York, N. Y. Original application filed Mar. 27, 1899, Serial No. 710,726. Divided and this application filed Apr. 9, 1901. Serial No. 55,000. (No model.)

Claim.—1. In a circuit-controller, the combination of two independently-movable switch-levers, an electroresponsive device for controlling one of said levers and responding to failure or abnormal decrease of current to release said lever, means for moving said lever when released to affect the circuit, an electroresponsive device for controlling the other lever and responding to abnormal increases of current to release said second lever, means for moving said lever when released to affect the circuit, and means for imparting blows to said switch-levers to start them when released.

2. In a circuit-controller, the combination of two independently-movable switch-levers, an electroresponsive device for controlling one of said levers and responding to failure or abnormal decrease of current to release said lever, means for moving said lever when released to affect the circuit, a mechanical latch for holding the other lever in its normal position, an electroresponsive device responding to abnormal increases of current to release said lever, means for moving said lever when so released to affect the circuit, and means for imparting blows to said switch-levers to start them when released.

3. In a circuit-controller, the combination of two independently-movable switch-levers, an electroresponsive device for controlling one of said levers and responding to failure or abnormal decrease of current to release said lever, means for moving said lever when released to affect the circuit, a mechanical latch for holding the other lever in its normal position, an electroresponsive device responding to abnormal increases of current to impart a blow to said latch to release said lever, means for moving said lever when so released to affect the circuit, and means for imparting blows to said switch-levers to start them when released.



4. In a circuit-controller, the combination with a movable switch member, and a stationary member with which said movable member is designed to make heavy rubbing contact, of means controlled by an electroresponsive device for imparting a blow to said movable switch member, said electroresponsive means responding to failure or abnormal decrease of current.

5. In a circuit-controlling rheostat, the combination with a series of contact-pieces with which the sections of the resistance are connected, and a movable arm adapted to make contact with said series of contact-pieces and heavy rubbing contact with a final contact-piece, of means controlled by an electroresponsive device for imparting a blow to said movable arm.

6. In a circuit-controller, the combination with stationary switch members, of two movable members independently movable, an electroresponsive device for controlling one of said movable members and responding to abnormal decreases in current to release said member, means for imparting a blow to said member to start it when released, and means for moving said member when so released to affect the circuit.

7. In a circuit-controller, the combination with stationary switch members, of two movable members independently movable, a latch for holding one of said members in its normal position, an electroresponsive device responding to abnormal increases in current to effect the release of said member, an electroresponsive device responding to abnormal decreases in current to release the second movable member, means for imparting a blow to said second movable member to start it when released, and means for moving said member when so released to affect the circuit.

8. In a circuit-controller, the combination with stationary switch members, of two movable members independently movable, a latch for holding one of said members in its normal position, an electroresponsive device responding to abnormal increases in current to impart a blow to said latch to release said member, an electroresponsive device responding to abnormal decreases in current to release the second movable member, means for imparting a blow to said second movable member to start it when released, and means for moving said member when so released to affect the circuit.

9. In a circuit-controller, the combination with stationary switch members, of two movable members independently movable, an electroresponsive device for controlling one of said movable members and responding to abnormal increases in current to effect the release of said member, an auxiliary break for said member, an electroresponsive device responding to abnormal decreases in current to release the second movable member, means for imparting a blow to said second movable member to start it when released, and means for moving said member when so released to affect the circuit.

10. In a circuit-controller, the combination with stationary switch members, of two movable members independently movable, an electroresponsive device for controlling one of said movable members and responding to abnormal increases in current to effect the release of said member, an auxiliary break for said member, means for adjusting said electroresponsive device for different currents, an electroresponsive device responding to abnormal decreases in current to release the second movable member, means for imparting a blow to said second movable member to start it when released, and means for moving said member when so released to affect the circuit.

11. In a circuit-controlling rheostat, the combination with a series of contact-pieces with which the sections of the resistance are connected, a movable arm adapted to make contact with said series of contact pieces and heavy rubbing contact with the final contact-piece, means controlled by an electroresponsive device responding to abnormal decreases in current for imparting a blow to said arm, means for moving said arm to its initial or starting position after the blow is struck, and a switch controlled by an electroresponsive device responding to abnormal increases in current, to affect the circuit.

12. In a circuit-controller, the combination with a pivoted knife-switch lever, of switch-contacts coöperating with one end of said lever, an auxiliary break coöperating with the other end of said lever, an electroresponsive device for controlling said lever and responding to abnormal variations in current to release said lever, and means for imparting a blow to said lever when released.

13. In a circuit-controller, the combination with a pivoted knife-switch lever, of switch-contacts coöperating with one end of said lever, an auxiliary break coöperating with the other end of said lever, means for holding said lever in its normal position, an electroresponsive device for releasing said lever, and means for imparting a blow to said lever when released.

14. In a circuit-controller, the combination with a centrally-pivoted circuit-controlling switch-arm, stationary switch-contacts upon opposite sides of the pivot of said arm, and with which said arm makes contact, means for imparting a blow to said switch-arm, and an electroresponsive device for controlling said means.

15. In a circuit-controller, the combination with stationary switch-contacts, a movable contact arm, a slotted operating-arm for said movable contact-arm, the latter having a projection working in the slot of said operating-arm, a spring placed under tension by said operating-arm, and whereby said arm is caused to impart a blow to said contact-arm, and an electroresponsive device controlling the action of said operating-arm.

16. In a circuit-controller, the combination with a centrally-pivoted circuit-controlling switch-arm, stationary switch-contacts upon opposite sides of the pivot of said arm and with which said arm makes contact, a slotted operating-arm for said switch-arm, the latter having a projection working in the slot of said operating-arm, a spring placed under tension by said operating-arm, and whereby said arm is caused to impart a blow to said switch-arm, and an electroresponsive device controlling the action of said operating-arm.

17. In a motor-controlling switch, the combination with the switch elements, of an electroresponsive device responding to overloads and arranged for connection in the armature-circuit of a motor, a second electroresponsive device responding to underloads and arranged for connection in the field-circuit of the motor, said electroresponsive devices responding independently of each other to abnormal conditions to control the motor-circuit.

18. In a motor-controlling switch, the combination with the switch elements of an electroresponsive device responding to overloads and arranged for connection in the armature-circuit of a motor, a second electroresponsive device responding to underloads and arranged for connection in the field-circuit of the motor, said electroresponsive devices responding independently of each other to abnormal conditions to control the armature-circuit of the motor.

19. In a motor-rheostat, the combination with the resistance and switch elements, of an electroresponsive device responding to overloads and arranged for connection in the armature-circuit of a motor, a second electroresponsive device responding to underloads and arranged for connection in the field-circuit of the motor, said electroresponsive devices responding independently of each other to abnormal conditions to control the motor-circuit.

20. In a motor-rheostat, the combination with the resistance and switch elements, of an electroresponsive device responding to overloads and arranged for connection in the armature-circuit of a motor, a second

electroresponsive device responding to underloads and arranged for connection in the field-circuit of the motor, said electroresponsive devices responding independently of each other to abnormal conditions to control the armature-circuit of the motor.

21. In a motor-controller, the combination of an overload-switch, an independently-movable underload-switch, two electroresponsive devices for controlling the automatic operation of said switches and responding respectively to overloads and underloads, said overload device being arranged for connection in the armature-circuit of a motor and said underload device being arranged for connection in the field-circuit of the motor, and said devices responding independently of each other to abnormal conditions and whereby either switch is caused to affect the motor-circuit.

22. In a motor-controller, the combination of an overload-switch, an independently-movable underload-switch, two electroresponsive devices for controlling the automatic operation of said switches and responding respectively to overloads and underloads, said overload device and both switches being arranged for connection in series in the armature-circuit of a motor, and said underload device being arranged for connection in series with both switches and said overload device in the field-circuit of the motor, and said devices responding independently of each other to abnormal conditions and whereby either switch is caused to affect the motor-circuit.

23. In a motor-rheostat, the combination of the resistance and its switch, an independently-movable switch, an electroresponsive device responding to underloads for controlling the automatic operation of said resistance-switch, an electroresponsive device responding to overloads for controlling the automatic operation of the other switch, said underload device being arranged for connection in the field-circuit of a motor, and said overload device being arranged for connection in the armature-circuit of the motor, and said devices responding independently of each other to abnormal conditions and whereby either switch is caused to affect the motor-circuit.

24. In a motor-rheostat, the combination of the resistance and its switch, an independently-movable switch, an electroresponsive device responding to underloads for controlling the automatic operation of said resistance-switch, an electroresponsive device responding to overloads for controlling the automatic operation of the other switch, said underload device being arranged for connection in series with the overload device, both switches and the resistance in the field-circuit of the motor, and said overload device being arranged for connection in series with both switches in the armature-circuit of the motor and said devices responding independently of each other to abnormal conditions and whereby either switch is caused to affect the motor-circuit.

681,717. FRUIT-JAR. ABNER P. LOCKETT, Knoxville, Tenn. Filed Feb. 9, 1901. Serial No. 46,890. (No model.)



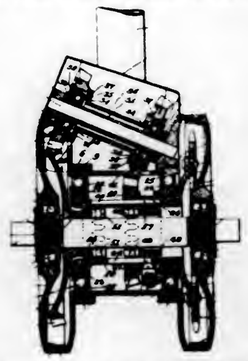
Claim.—1. A fruit or other jar having an upwardly-projecting screw-threaded neck, a screw-threaded cap thereon, a ring of wax surrounding said cap and neck and sealing the joint formed between the lower edge of the cap and jar and entering an undercut in the jar, and a ridge on the jar surrounding the wax and extending above the top surface of the wax, but not above the neck.

2. A fruit or other jar having an upwardly-projecting screw-threaded neck depressed within the body of the jar so as to form an annular groove between the neck and the body of the jar, a screw-threaded cap secured on said neck with its lower edge projecting into said groove and a suitable wax in the groove around the cap and sealing the joint between the cap and jar.

681,718. VARIABLE-SPEED GEARING FOR BICYCLES. GEORGE T. MARTIN, Smith's Falls, Canada. Filed May 31, 1901. Serial No. 62,515. (No model.)

Claim.—1. In a variable-speed gear of the class described, the combination with a pedal-shaft, of a single continuous hollow mandrel supported independently of the pedal-shaft and provided with a driving element, a two-part clutch having one member made fast with the pedal-shaft and its other member connected to the hollow mandrel to slide thereon and to turn therewith, a train of multiplying-gearing driven by the pedal-shaft and having its final member made fast with the shiftable clutch member, and adapted, under certain conditions, to propel the hollow mandrel, and means for shifting the slidable clutch member and the final member of the gear-train, substantially as described.

2. In a variable-speed gear of the class described, the combination with a pedal-shaft, of a single continuous hollow mandrel provided with a driving element, means for independently supporting the hollow mandrel and the pedal-shaft in concentric relation, a train of multiplying-gearing having the driving member thereof propelled by the pedal-shaft and with the final member of said gear-train fitted on the hollow mandrel, a two-part clutch having one member thereof secured fast to the pedal-shaft, and means connecting the final member of the gear-train and the shiftable clutch member fast with one another and also connecting the same slidably with the hollow mandrel, substantially as described.



3. In a variable-speed gear of the class described, the combination with a pedal-shaft, of a hollow mandrel provided with a driving element, a train of multiplying-gearing having the primary member made fast with the pedal-shaft and its final member shiftably connected in fast relation with the hollow mandrel, and a two-part clutch having one member fast with the pedal-shaft and a shiftable member connected with the hollow mandrel and the final member of the train, said shiftable clutch member and the final member of the gear-train being fast one with the other and both having shiftable relation to the hollow mandrel and adapted to turn at all times therewith, and means for adjusting the shiftable clutch member and the shiftable gear, substantially as described.

4. In a variable-speed gear of the class described, the combination of a crank-hanger having two independent sets of ball-bearings disposed in different planes, a pedal-shaft mounted in one set of ball-bearings, a hollow mandrel mounted in the other set of ball-bearings independently of the pedal-shaft and provided with a driving element, a two-part clutch having one member fast with the pedal-shaft and the other member connected fast with the hollow mandrel so as to be shiftable thereon, a train of multiplying-gearing arranged for its primary member to be fast with the pedal-shaft and for its final member to be connected shiftably to the hollow mandrel, and means for adjusting the shiftable clutch member and the final member of the train of gearing, substantially as described.

5. In a variable-speed gear of the class described, the combination of a crank-hanger having the expanded end portions and the removable face-plates, a set of ball-bearings supported in the expanded end portions of the crank-hanger, another set of ball-bearings supported in said face-plates, a pedal-shaft mounted in the bearings of the face-plates, a hollow mandrel supported by the bearings of the crank-hanger, a two-part clutch having its members fast with the pedal-shaft and the mandrel respectively, means for shifting one of the clutch members, and a train of multiplying-gearing having the primary member fast with the pedal-shaft and its final member fast with the hollow mandrel, substantially as described.

6. In a variable-speed gear of the class described, the combination with a pedal-shaft, of a hollow mandrel provided with a driving element, a primary gear member fast with the pedal-shaft, an independently-supported shaft having two gears one of which meshes with the primary gear member, a shiftable gear fast with the hollow mandrel and arranged to mesh with the other gear of the independently-supported shaft, and a two-part clutch having one member fast with the pedal-shaft and its other member connected with the hollow mandrel and with the shiftable gear, said shiftable clutch member and the shiftable gear being made fast one with the other and both having shiftable relation to the hollow mandrel and adapted to turn at all times therewith, substantially as described.

7. In a variable-speed gear of the class described, the combination with a pedal-shaft, of a hollow mandrel provided with a driving element, a primary gear member fast with the pedal-shaft, a stationary spindle or arbor in inclined relation to the pedal-shaft, a bushing on said arbor, a hollow pedal-shaft supported by ball-bearings on the bushing and provided with gears one of which meshes with the primary gear member, a shiftable gear made fast with the hollow mandrel and having intermeshing engagement with the other gear of the hollow shaft, and a two-part clutch one member of which is connected with the hollow mandrel and with the shiftable gear, substantially as described.

8. In a variable-speed gear of the class described, the combination with a pedal-shaft, of a hollow mandrel provided with the slots, a shiftable gear keyed to the hollow mandrel and having a grooved hub, a shiftable clutch member within the hollow mandrel, bolts attached to the shiftable gear, and said clutch member arranged to travel in the slots of the hollow mandrel, a rocking yoke engaging with the hub of said shiftable gear, a fast clutch member on the pedal-shaft, a primary gear member fast with the pedal-shaft, and an independently-supported shaft having gears arranged to mesh with the primary gear member and with the shiftable gear, substantially as described.

9. A variable-speed gear of the class described comprising a crank-hanger provided with face-plates and with independent sets of ball-bearings and with an upper casing, a pedal-shaft journaled in one set of ball-bearings, a hollow mandrel journaled in the other set of ball-bearings and provided with a driving element, the fast and shiftable clutch members secured to the pedal-shaft and having slidable connection with the hollow mandrel respectively, a primary gear member on the pedal-shaft, a shiftable gear member having operative connection with the hollow mandrel and with the shiftable clutch member, and an independently-supported shaft arranged within the casing and having gears disposed to mesh with the primary gear member and with the shiftable gear respectively, substantially as described.

681,719. RIBBON-SPOOL AND RIBBON. MARTIN MERK, Amsterdam, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed July 26, 1900. Serial No. 24,874. (No model.)



Claim.—1. A ribbon-spool provided with a recess to receive the end of a ribbon, and a cover for said recess adapted to hold the ribbon in place.

2. A ribbon-spool having a recess to receive the end of a ribbon, and a spring-band for closing said recess.

3. A ribbon-spool having a recess for the reception of the end of a ribbon, and a circumferential spring-band for holding the ribbon.

4. A ribbon-spool provided with a recess and also with a spring-band secured at one end to the core of the spool and bridging said recess at its free end, which latter is adapted to be retracted to permit the attachment and detachment of the end of an inking-ribbon.

5. A ribbon-spool having a recess and also a spring-band which is secured at one end and at its opposite free end forms a cover for said recess, and said free end being provided with means enabling it to be retracted.

6. A ribbon-spool having a recess and a circumferential spring-band secured at one end to the core of the spool and normally bridging said recess at its free end and having at the latter a notch or opening to facilitate the retraction of said free end.

7. The combination with a ribbon-spool having a recess in its core, of an inking-ribbon having an enlargement at one end adapted to enter said recess, and means for holding the enlargement therein.

8. The combination with a spool having a recess in its core, of an inking-ribbon having an enlargement at one end, and a spring upon said core for holding said enlargement within said recess.

9. The combination of a ribbon-spool having a recess in its core, an inking-ribbon having an enlargement at one end, and a spring-band attached to said core and having one end arranged normally to cover said recess but adapted to be pulled back so as to permit of the insertion and withdrawal of the end of the ribbon.

10. The combination of a spool having a recess in its core, an inking-ribbon having a weighted enlargement at one end thereof adapted to said recess, and means on the core for holding the weighted enlargement within said recess.

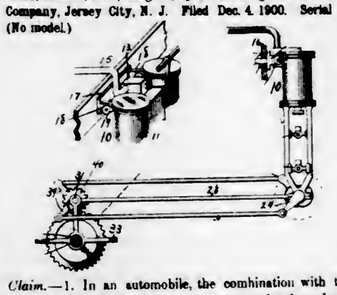
11. The combination of a ribbon-spool having a recess in its core, a ribbon having an enlargement at one end and a spring-acting catch or cover for holding said end within said recess.

681,720. CREAM-SEPARATOR. ALLEN L. MINIUM, Downing, Mo. Filed Apr. 23, 1900. Serial No. 13,973. (No model.)

Claim.—A cream-separator comprising an outer receptacle formed at its upper end with a centrally-disposed opening having an inwardly-extending bead and an upwardly-extending flange, and formed laterally of said opening with a filling-opening having a flange surrounding same and covered by a perforated plate, a removable cylindrical vessel having an open top and an outwardly-extending bead surrounding the top to rest upon the inwardly-extending bead of the outer receptacle and formed with a conical bottom having a central opening and a flange surrounding and depending from the same, said outer receptacle having an inclined bottom formed with a central perforation, braces below said bottom, one of which is hollow and has its outer end extending through the wall of the outer receptacle, and its inner end curved upwardly and projecting through the perforation in the bottom wall thereof and receiving the depending flange carried by the conical bottom of the inner vessel, a faucet in the wall of the outer receptacle and communicating with the interior thereof on a level with the lowest part of the inclined bottom, a plug closing the opening in the conical bottom of the inner vessel, an upwardly-extending operating-rod connected with said plug, and a removable cover having a flange fitting on the inner side of the upwardly-extending flange of the outer receptacle and closing the upper end of the inner vessel, substantially as described.



681,721. DRIVING-GEAR FOR AUTOMOBILES. SAMUEL D. MOTT, Passaic, N. J., assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Filed Dec. 4, 1900. Serial No. 38,697. (No model.)



Claim.—1. In an automobile, the combination with the vehicle-body, of an engine pivoted thereon so as to permit a lateral movement of the body in relation to the engine, and an operative driving connection between the engine and the running parts of the vehicle.

2. In an automobile, the combination with the vehicle-body and the running parts, of the engine hung thereon so as to permit a lateral and backward-and-forward movement of the body in relation to the engine, and an operative driving connection between the engine and the running parts of the vehicle.

3. In an automobile, the combination between the vehicle-body and the running parts of the vehicle, of an engine suspended from the vehicle-body so as to permit a lateral movement of the body in relation to the engine, and an operative driving connection between the engine and the running parts of the vehicle.

4. In an automobile, the combination with the vehicle-body, of an engine suspended on the said body, so as to permit a lateral and backward-and-forward movement of the body in relation to the engine, a crank-shaft driven by the engine, a counter-shaft, means connecting the counter-shaft and crank-shaft whereby the two shafts are held in parallel relation, a driving connection between the two mentioned shafts, and an operative connection between the counter-shaft and an axle of the vehicle.

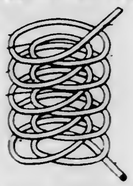
5. In an automobile, the combination with the vehicle-body and an engine suspended thereon so as to permit a lateral movement of the body in relation to the engine, of a crank-shaft turned by the engine, a counter-shaft mounted in suitable movable supports, stay-rods connecting the two shafts, crank-and-rod connections between the counter-shaft and the crank-shaft, and an operative driving connection between the counter-shaft and an axle of the vehicle.

6. In an automobile, the combination with the vehicle-body and an engine suspended thereon so as to permit a lateral and backward-and-forward movement of the body in relation to the engine, of a crank-shaft turned by the engine, a counter-shaft mounted in suitable movable supports, stay-rods connecting the two shafts, crank-and-rod connections between the counter-shaft and the crank-shaft, and an operative driving connection between the counter-shaft and an axle of the vehicle.

7. In an automobile, the combination with the vehicle-body and the engine suspended thereon so as to permit a lateral and backward-and-forward movement of the body in relation to the engine, means for staying the engine in a relatively-fixed position, and an operative driving connection between the engine and the running parts of the vehicle.

8. In an automobile, the combination with the vehicle-body and the engine suspended thereon so as to permit a lateral and backward-and-forward movement of the vehicle-body in relation to the engine, a crank-shaft journaled at the lower ends of the cross-head guides of the engine, a counter-shaft journaled in supports connected with the axle-sleeve of the vehicle, stay-rods connecting the counter-shaft and crank-shaft, a crank-and-rod connection between the two said shafts, and an operative gear connection between the counter-shaft and the driving-axle of the vehicle.

681,722. COIL FOR STEAM-BOILERS. SAMUEL D. MOTT, Passaic, N. J., assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Filed Dec. 4, 1900. Serial No. 38,700. (No model.)



Claim.—1. As an improved article of manufacture, a coil of tubing formed from a single pipe into a plural series of alternating loops of different sizes.

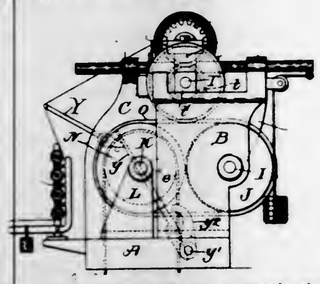
2. As an improved article of manufacture, a coil of tubing formed into a plural series of loops of greater and less size, the loops being alternating and connected so as to deliver from one into the other, substantially as set forth.

3. The herein-described boiler comprising an inclosing hollow double-walled casing forming a header, and coils arranged within the header or casing and connected to the interior thereof at its upper and lower parts.

4. The herein-described boiler comprising a steam and water containing header shaped to form an inclosing casing, and a series of coils arranged within the said inclosing casing and connected at top and bottom to the upper and lower parts of the header.

5. The herein-described boiler comprising a steam and water containing header shaped to form an inclosing casing, and a series of coils arranged within the said casing, each coil being formed into a plural series of loops of different sizes and each coil being also connected at its upper and lower ends to the upper and lower parts of the header.

681,723. WINDING-MACHINE. JOHN O. MCKEAN, Westfield, Mass., assignor to Foster Machine Company, same place. Filed Mar. 12, 1901. Serial No. 50,844. (No model.)



Claim.—1. In a winding-machine, a thread-guide, adapted to reciprocate in a raceway; that raceway; a cam mounted with its axis parallel to the raceway and having a groove with which the thread-guide engages, to actuate the thread-guide; a shaft mounted in line with the axis of the cam; a wheel mounted upon that shaft; a second shaft parallel with the first-mentioned shaft; a wheel mounted upon that second shaft; a driving-belt between the two wheels; a carriage mounted in ways in the frame of the machine at a right angle to the axis of the shafts and carrying a spindle; that spindle; a third shaft carried by the carriage and carrying a wheel in tangential engagement with the belt; that wheel; means to connect the third shaft and the spindle; all organized to cause the wheel on the third shaft to be continuously rotated by the belt as the carriage moves back actuated by the growing cop.

2. In a winding-machine, a thread-guide, adapted to reciprocate in a raceway; that raceway; a cam mounted with its axis parallel to the raceway and having a groove with which the thread-guide engages, to actuate the thread-guide; a shaft mounted in line with the axis of the cam; a wheel mounted upon that shaft; a second shaft parallel with the first-mentioned shaft; a wheel mounted upon that second shaft; a flexible rack running between the two wheels; a carriage mounted in ways in the frame of the machine at a right angle to the axis of the shafts and carrying a spindle; that spindle; a third shaft carried by the carriage and carrying a pinion in engagement with the flexible rack; that pinion; and means to connect the third shaft and the spindle; all organized to cause the pinion on the third shaft to be continuously rotated by the flexible rack as the carriage moves back actuated by the growing cop.

3. In a winding-machine, a driving and a driven shaft; a wheel on each shaft; a flexible rack connecting the two wheels; a carriage sliding in bearings in the frame of the machine across the axial line of the shafts; a pinion carried by that carriage and in engagement with the flexible rack; all organized to cause the pinion to be continuously rotated by the flexible rack, as the carriage slides in its bearings.

4. In a winding-machine, a driving and a driven shaft; a wheel on each shaft; a belt connecting the two wheels; a carriage sliding in bearings in the frame of the machine across the axial line of the shafts; a wheel carried by that carriage and in tangential engagement with the belt; all organized to cause the wheel carried by the carriage to be continuously rotated by the belt as the carriage slides in its bearings.

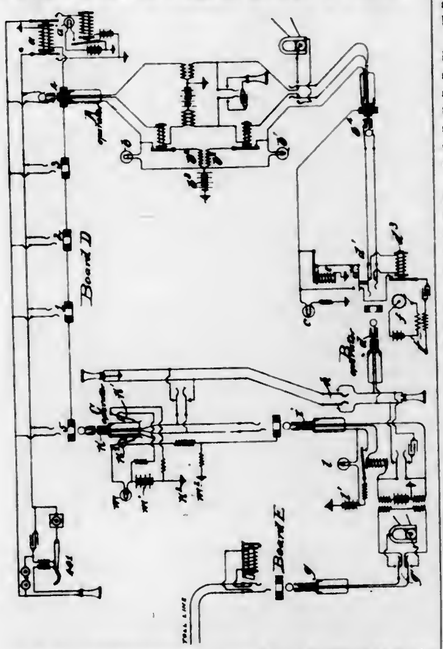
5. In a winding-machine, a carriage carrying a spindle; a pair of parallel shafts, whose axes are across the line of travel of the carriage; a wheel on each of the shafts; a belt running on the wheels; a driven wheel mounted on the carriage and in tangential engagement with the belt; and means fast to the driven wheel to transmit its motion to the spindle; all organized to permit the driven wheel to be continuously rotated without regard to the motion of the carriage.

6. The power-transmitting device above described, consisting of a pair of wheels; a belt running on said wheels; a carriage moving in a path across the axes of the wheels; a driven wheel carried by that carriage and in tangential engagement with the belt; all organized to permit the driven wheel to be continuously rotated without regard to the motion of the carriage.

681,724. TELEPHONE-EXCHANGE SYSTEM. JAMES L. MCQUARRIE, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 10, 1898. Serial No. 696,023. (No model.)

Claim.—1. In a telephone-exchange system, the combination with a telephone-line terminating in line-switches at sections of a multiple switchboard, of a second telephone-line terminating at a second switchboard, a pair of connecting-plugs at one section of the multiple switchboard, a trunk-line extending between the latter section of the multiple switchboard and the second board adapted to be united with the first telephone-line by the connecting-plugs, a second trunk-line between said boards and extending to a second section of the multiple switchboard, switching apparatus at the second board for connecting the operator's telephone thereat with conductors extending to both sections of the multiple switchboard and for connecting the second trunk-line with the telephone-line extending to the second board, switching apparatus at the second section of the multiple switchboard for uniting the second trunk-line with the first aforesaid telephone-line, one test-circuit at the multiple switchboard controlled by one of the aforesaid plugs, a second test-circuit at the multiple switchboard controlled by said connecting-plugs and apparatus associated with the first-aforesaid trunk-line, test-contacts associated with the line-switches at the sections of the multiple switchboard and with said test circuits, and a testing appliance at the second section of the multiple switchboard, the test-circuits serving to produce test manifestations differing from each other, substantially as described.

2. In a telephone-exchange system, the combination with a telephone-line terminating in line-switches at sections of a multiple switchboard, of a second telephone-line terminating at a second board, a trunk-line extending between the second board and a section of the multiple switchboard, a second trunk-line extending between the second board and another section of the multiple switchboard, switching apparatus at the second board for connecting the operator's telephone in circuit with conductors extending to the said sections of the multiple switchboard and for uniting the second telephone-line with the second trunk-line, switching apparatus at the second section of the multiple switchboard for connecting the second trunk-line with a switch of the first-aforesaid telephone-line, a switch for the first trunk-line, a cord-circuit at the first section of the multiple switchboard for forming a continuation of the first-aforesaid telephone-line, a connecting-plug for connecting the cord-circuit with the first trunk-line, thimbles or terminals associated with the switches of the first telephone-line and the latter trunk-line, a source of current connected or adapted to be connected with the thimble associated with the switch of the first trunk-line, a contact portion carried by the connecting-plug adapted to engage the latter contact-thimble, means for charging the test-thimbles associated with the switches of the first-aforesaid telephone-line with current from the said source thus connected with the said contact portion of the connecting-plug, and a testing appliance at the second section of the switchboard, substantially as described.



3. In a telephone-exchange system, the combination with a telephone-line terminating in line-switches at sections of a multiple switchboard; of a second line, as a trunk-line; a switch for the latter line; a cord-circuit for forming a continuation of the first-aforesaid telephone-line; a connecting-plug for connecting the cord-circuit with the second line; thimbles or terminals associated with the switches of each of the said lines; a source of current connected with or adapted to be connected with the thimble associated with the switch of the second line; a local circuit including said source of current, the contact portion of the connecting-plug and the thimble engaging said contact-portion; a coil of an induction-coil included in said local circuit, and a test-circuit connecting the second coil of said induction-coil with the thimbles associated with the line-switches of the first-aforesaid telephone-line, substantially as described.

4. In a telephone-exchange system, the combination with a telephone-line terminating in line-switches at sections of a multiple switchboard, of a second line, as a trunk-line, a switch for the latter line, a cord-circuit for forming a continuation of the first-aforesaid telephone-line, a connecting-plug for connecting the cord-circuit with the second line, thimbles or terminals associated with the switches of each of the aforesaid lines, a source of current connected or adapted to be connected with the thimble associated with the switch of the second line, a contact portion carried by the connecting-plug, and means for charging the test-thimbles associated with the switches of the first-aforesaid telephone-line with current from the said source of electricity thus connected with the said contact portion of the connecting-plug, substantially as described.

5. In a telephone-exchange system, the combination with a telephone-line terminating in line-switches at sections of a multiple switchboard, of a second line, as a trunk-line, a switch for the latter line, a cord-circuit for forming a continuation of the first-aforesaid telephone-line, a connecting plug or part for engaging the latter switch adapted to connect the cord-circuit with the second line, a test-circuit governed by said connecting-plug and apparatus associated with the second line, and test-contacts at the different sections of the switchboard associated with said test-circuit and the line-switches of the first telephone-line, substantially as described.

6. In a telephone-exchange system, the combination with two switchboards; of a trunk-line between said boards; switching apparatus at one of said boards for connecting a telephone-line with said trunk-line; a clearing-out indicator for the said telephone-line; a second clearing-out indicator at the remaining board; a closed circuit including the second clearing-out indicator and a source of current; and a second source of current included by the switching apparatus at the first board (upon connecting the telephone-line with the trunk-line) in circuit with the first-aforesaid clearing-out indicator and with a conductor included in the circuit of the second clearing-out indicator, the current from the sources of electricity being opposed, substantially as described.

7. In a telephone-exchange system, the combination with two switchboards, of a trunk-line signaling-circuit extending between the boards, a source of current and a signal included in the circuit at each board, said sources of current being opposed to one another, a connection m^2 from the circuit between the two signals to a return-circuit with which the two sources of current are connected, and a switch at one of the boards adapted to open the circuit between the signal at that board and the connection m^2, substantially as set forth.

8. In a telephone-exchange system, the combination with two switchboards; of a circuit between the same including a signal at each of said boards, switching apparatus at one of said boards for opening and closing said signal-circuit, said circuit including a source of current and a resistance; a path of low resistance; and means for closing the same about said resistance and one of said signals, substantially as described.

9. The combination with two switchboards; of a circuit between the same including a signal at each of said boards; switching apparatus at one of said boards for opening and closing said signal-circuit; a source of current and a resistance in said circuit; a relay; a spring-jack; and a plug for insertion within the spring-jack, said spring-jack serving upon the insertion of the plug to close circuit through the relay, the armature of the relay serving also when attracted to close circuit through the relay, the relay-circuit forming a path of low resistance about said resistance and one of said signals, the aforesaid switching apparatus serving when manipulated to open the signal-circuit, also to open the relay-circuit, substantially as described.

10. In a telephone-exchange system, the combination with a plurality of sections of a multiple switchboard to each of which the same telephone-lines are connected, of line-connecting apparatus for uniting subscribers for conversation, two test-circuits, each capable of causing a test manifestation differing from that caused by the other, and means controlled by said line-connecting apparatus for associating both test-circuits with the same telephone-line, substantially as described.

11. In a telephone-exchange system, the combination with a telephone-line extending to a switchboard, of a second telephone-line having terminals upon sections of a multiple switchboard and extending to the first-aforesaid board by means of suitable connecting apparatus, test-contacts for the second telephone-line, a test-circuit, and means at the first board for associating said test-circuit with the said test-contacts, substantially as described.

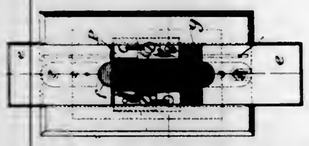
12. In a telephone-exchange system, the combination with a telephone-line extending to a switchboard, of a second telephone-line having terminals upon sections of a multiple switchboard and extending to the first-aforesaid board by means of suitable connecting apparatus, test-contacts for the second telephone-line, two test-circuits each capable of producing a test manifestation differing from that produced by the other, means at the multiple switchboard for associating one of said test-circuits with said test-contacts, and means at the remaining switchboard for associating the other test-circuit with said test-contacts, substantially as described.

13. In a telephone-exchange system, the combination with a telephone-line with terminals thereof on several sections of a multiple switchboard and test-contacts for the line, of a source of characteristic testing-current and a signal at one of the boards and means for connecting them with the telephone-line at the said board, means for testing the line at each of the other boards, and circuit connections at one of said boards closed in making connection with the line adapted to display the signal at said first-mentioned board; whereby a characteristic test-current is applied to the line in making connection at one of the boards, and the establishment of connection with the line at another board signals for the disconnection of said characteristic testing-current, as described.

14. In a telephone-exchange system, in combination, two telephone-circuits, one of said circuits being connected with terminals in different sections of a multiple switchboard, link conductors uniting the circuits, a source of characteristic testing-current connected with the other circuit,

said characteristic testing-current being impressed on the test-contacts of the multipled circuit through the agency of said link conductors, as described.

681,725. ELECTRICAL FLUSH RECEPTACLE AND PLUG. WILLIAM J. NEWTON, New York, N. Y. Filed Oct. 10, 1899. Serial No. 733,232. (No model.)



Claim.—The combination in a flush receptacle, of an outer box, a receptacle adapted to be placed therein, and provided with a slot for one of the screws or bolts which secure the receptacle to the box, a porcelain plug, a chamber in said receptacle for said plug equipped with flush sliding doors, contact-plates, face connections with said plates, and leading-in holes in said receptacle large enough for insulated wires, substantially as described.

681,726. CONDENSING APPARATUS. PLACIDE NEHERAUX, Fives-Lille, France. Original application filed Sept. 23, 1900, Serial No. 31,419. Divided and this application filed May 4, 1901. Serial No. 58,829. (No model.)



Claim.—In a condenser of the class described, the combination with a steam-chamber, and a water-tank, of a pair of oppositely-arranged converging and diverging plates between said chamber and tank, inclined perforations in said plates, means for leading water under pressure between the plates into the tank, and means for leading steam into said chamber, substantially as and for the purpose set forth.

681,727. MANUFACTURE OF PATTERN-ROLLERS. EMIL OFFENBACHER, Markt Redwitz, Germany. Filed Oct. 1, 1900. Serial No. 31,660. (No model.)



Claim.—The process of manufacturing metal pattern rollers and plates, consisting of coating the roller or plate to be operated on with an acid-proof composition, pressing the pattern of the forming-roller through said composition and exposing a portion of the surface of the roller or plate, etching the exposed surface with suitable acid, thereby softening the exposed surface, washing the acid therefrom and then repeatedly pressing the roll into the softened metal and etching and washing the same until a pattern of the desired depth is obtained.

681,728. FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, same place. Filed Aug. 23, 1900. Serial No. 27,774. (No model.)



Claim.—1. A fireproof construction comprising a single vertical center of reticulated metal, and a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, substantially as described.

2. A fireproof construction comprising a single vertical center of reticulated metal, a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, and a covering of plaster or similar material applied on the reticulated-metal side of the structure thus formed, substantially as described

3. A fireproof construction comprising a single vertical center of reticulated metal, a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, and a covering of plaster or similar material on both sides of the structure thus formed, substantially as described.

4. A fireproof construction comprising a single vertical center of reticulated metal, and a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, said reticulated metal being of such mesh as to permit the body of plastic material to be applied through the openings in the metal from the opposite side of the latter, substantially as described.

5. A fireproof construction comprising a single vertical center of reticulated metal, a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, said reticulated metal being of such mesh as to permit the body of plastic material to be applied through the openings in the metal from the opposite side of the latter, and a covering of plaster or similar material on the reticulated-metal side of the structure thus formed, substantially as described.

6. A fireproof construction comprising a vertical body of concrete or similar plastic material with reticulated metal on one side only and consisting of sheets of metal having vertical rods woven therein or secured thereto with the successive sheets overlapping horizontally and having the overlapping portions secured together, substantially as described.

7. A partition consisting of a body of concrete or similar plastic material with reticulated metal on one side only and consisting of sheets of metal having vertical rods woven therein or secured thereto with the successive sheets overlapping horizontally and having the overlapping portions secured together, and a covering of plaster or similar material on one or both sides of the structure, substantially as described.

8. The method of making a fireproof construction, which consists in erecting a vertical center of reticulated metal, mounting on one side of said metal a mold-frame with a space between it and the reticulated metal, and filling the space between the reticulated metal and mold-frame with plastic material, substantially as described.

9. The method of making a fireproof construction, which consists in erecting a vertical center of reticulated metal, mounting on one side of said metal a mold-frame with a space between it and the reticulated metal, filling the space between the reticulated metal and mold-frame with plastic material by introducing it through the reticulated metal, and removing the mold-frame, substantially as described.

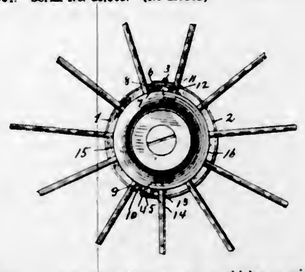
10. The method of making a fireproof construction, which consists in erecting a vertical center of reticulated metal, mounting on one side of said metal a mold-frame with a space between it and the reticulated metal and with offsetting supports between the frame and metal for supporting the latter against pressure, and filling the space between the reticulated metal and mold-frame with plastic material by introducing it through the reticulated metal, substantially as described.

11. The combination with the vertical reticulated-metal center, of the removable mold-frame, and offsetting projections on said frame by which the metal center is offset from the frame and supported against pressure tending to force it toward the frame, substantially as described.

12. The combination with the vertical reticulated-metal center, of the removable mold-frame, offsetting projections on said frame, and means for connecting the metal to the frame, substantially as described.

13. The combination with the vertical reticulated-metal center, of the removable mold-frame, wedge-shaped offsets *h* on said frame, and means for securing the metal to the frame, substantially as described.

681,729. SAND-SHIELD. LOUIS T. PENN, Augusta, Ark., assignor of two-thirds to William H. Chambers, same place. Filed July 2, 1901. Serial No. 66,865. (No model.)



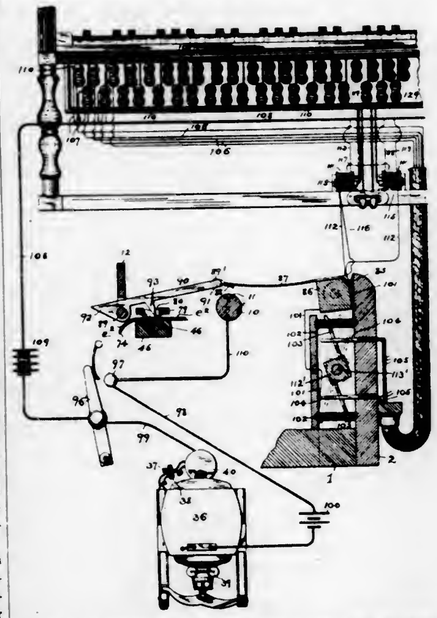
Claim.—1. A sand-shield, adapted to vehicles, consisting of two half-bands, hinged together at the top, and encircling a hub, and united at the bottom; walls secured to the rear edges of said half-bands and having recesses to receive the axle of the vehicle; a neck made in two parts secured to said walls and extending rearwardly; a clamp secured to the two parts of said neck, and hinged together at the top, the lower ends of said clamp being threaded; a perforated clamping-plate fitting on the ends of said clamp and against the lower laps of said neck, and threaded nuts screwed on the threaded ends of said clamp and holding said clamp firmly in place, substantially as shown and described and for the purposes set forth.

2. A sand-shield, adapted to vehicles, consisting of two half-bands hinged together at the top, and encircling a hub, and united at the bottom; double right-angle pieces secured to the inner faces of the said half-bands and near each end, leaving between said angle-pieces and the inner faces of said half-bands, mouths; rubber-belting strips secured to the inner faces of the two half-bands, their ends fitting in the said mouths; short rubber-belting strips secured to the inner faces of said double angle-pieces; walls secured to the inner edges of said half-bands, and having recesses to receive the axle; a neck made in two parts, secured to said walls and extending rearwardly; a clamp secured to the inner ends of the two parts of the said neck, and hinged together at the top; a perforated plate fitting over the ends of said clamp and against the laps of said neck, and threaded nuts secured on the lower ends of said clamp, and holding said clamp firmly in place, substantially as shown and described and for the purposes set forth.

681,730. ELECTRIC PIANO-PLAYER. TIMOTHY B. POWERS, New York, N. Y., assignor to the Magnetic Piano Company, of New Jersey. Filed July 11, 1900. Serial No. 23,200. (No model.)

Claim.—1. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus comprising a contact-support, and contact-fingers, one in series with each electromagnet, and means connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, and complete the electric circuit through one or more of the electromagnets, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, substantially as and for the purposes set forth.

2. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus comprising a contact-support, and contact-fingers, one in series with each electromagnet, and means connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, and complete the electric circuit through one or more of the electromagnets, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, and means for causing an oscillatory motion of said bar, consisting, of one or more electromagnets, and an independent circuit or circuits between said magnet or magnets to one or more of the contact-fingers, substantially as and for the purposes set forth.



3. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electromagnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, and means for raising all of the contact-fingers simultaneously away from contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, substantially as and for the purposes set forth.

4. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, and means for raising all of the contact-fingers simultaneously away from contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, and means for causing an oscillatory motion of said bar, consisting, of one or more electromagnets, and an independent circuit or circuits between said magnet or magnets to one or more of the contact-fingers, substantially as and for the purposes set forth.

5. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, comprising a perforated sheet, and means for feeding said sheet, a cross-bar 45 over which said sheet is

passed, and provided with depressions or perforations, a guide-bar directly above said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in said perforated sheet and down into a depression in the bar 45, and cause the spring contact-finger connected with said lever 90 to make electrical contact with said contact-support, substantially as and for the purposes set forth.

6. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, comprising a perforated sheet, and means for feeding said sheet, a cross-bar 45 over which said sheet is passed, and provided with depressions or perforations, a guide-bar directly above said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in said perforated sheet and down into a depression in the bar 45, and cause the spring contact-finger connected with said lever 90 to make electrical contact with said contact-support, and means for engagement with said levers 90 and raising all of the said contact-fingers simultaneously away from contact with said fixed contact-support, substantially as and for the purposes set forth.

7. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, comprising a perforated sheet, and means for feeding said sheet, a cross-bar 45 over which said sheet is passed, and provided with depressions or perforations, a guide-bar directly above said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in said perforated sheet and down into a depression in the bar 45, and cause the spring contact-finger connected with said lever 90 to make electrical contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, substantially as and for the purposes set forth.

8. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, comprising a perforated sheet, and means for feeding said sheet, a cross-bar 45 over which said sheet is passed, and provided with depressions or perforations, a guide-bar directly above said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in said perforated sheet and down into a depression in the bar 45, and cause the spring contact-finger connected with said lever 90 to make electrical contact with said contact-support, and means for engagement with said levers 90 and raising all of the said contact-fingers simultaneously away from contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, substantially as and for the purposes set forth.

9. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, comprising a perforated sheet, and means for feeding said sheet, a cross-bar 45 over which said sheet is passed, and provided with depressions or perforations, a guide-bar directly above said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in said perforated sheet and down into a depression in the bar 45, and cause the spring contact-finger connected with said lever 90 to make electrical contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, one or more electromagnets for causing an oscillatory motion of said bar, and an independent circuit or circuits between said magnet or magnets to one or more of the contact-fingers, substantially as and for the purposes set forth.

10. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising a contact-support, a series of spring-fingers adapted to make electrical contact with said contact-support, said contact-fingers being in series with said electromagnets, mechanism connected with said apparatus for causing one or more of such contact-fingers to make contact with said contact-support, comprising a perforated sheet, and means for feeding said sheet, a cross-bar 45 over which said sheet is passed, and provided with depressions or perforations, a guide-bar directly above said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in said perforated sheet and down into a depression in the bar 45, and cause the spring contact-finger connected with said lever 90 to make electrical contact with said contact-support, and means for engagement with said levers 90 and raising all of the said contact-fingers simultaneously away from contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, one or more electromagnets for causing an oscillatory motion of said bar, and an independent circuit or circuits between said magnet or magnets to one or more of the contact-fingers, substantially as and for the purposes set forth.

11. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting, of a base and stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a tubular bearing, an upright on said base extending into said bearing, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, connected with said bearing, a spring between said bearing and the upright, said carriage being provided with a perforated sheet for causing the electrical contact of said contact-fingers with said contact-support, and completing the electric circuit through one or more of the electromagnets, substantially as and for the purposes set forth.

12. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connnected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting, of a base and stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a tubular bearing, an upright on said base extending into said bearing, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, connected with said bearing, a spring between said bearing and the upright, said carriage being provided with a perforated sheet for causing the electrical contact of said contact-fingers with said contact-support, and completing the electric circuit through one or more of the electromagnets, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, substantially as and for the purposes set forth.

13. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting, of stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, provided with a perforated sheet for causing the electrical contact of said contact-fingers with said contact-support, and completing the electric circuit through one or more of the electromagnets, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, substantially as and for the purposes set forth.

14. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting, of stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, provided with a perforated sheet for causing electrical contact of said contact-fingers with said contact-support, and completing the electric circuit through one or more of the electromagnets, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, and means for causing an oscillatory motion of said bar, consisting of one or more electromagnets, and an independent circuit or circuits between said magnet or magnets and one or more of the contact-fingers, substantially as and for the purposes set forth.

15. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting of stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, a perforated sheet in said carriage, means for feeding said sheet, a cross-bar 45 in said carriage, provided with depressions or perforations over which said sheet is passed, a guide-bar directly over said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in the said sheet and in a depression in the bar 45, and thereby cause the spring contact-fingers connected with said levers 90 to make electrical contact with said contact-support, substantially as and for the purposes set forth.

16. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting of stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, a perforated sheet in said carriage, means for feeding said sheet, a cross-bar 45 in said carriage, provided with depressions or perforations over which said sheet is passed, a guide-bar directly over said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in the said sheet and into a depression in the bar 45, and thereby cause the spring contact-fingers connected with said levers 90 to make electrical contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, substantially as and for the purposes set forth.

17. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting of stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a swing carriage between said frame-pieces of the contact making and breaking apparatus, a perforated sheet in said carriage, a cross-bar provided with depressions or perforations over which said sheet is passed, a guide-bar directly over said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in the said sheet and into a depression in the bar 45, and thereby cause the spring contact-fingers connected with said levers 90 to make electrical contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, substantially as and for the purposes set forth.

18. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, consisting of stationary frame-pieces, a contact-support in said frame-pieces, and contact-fingers, one in series with each electromagnet, a swing-carriage between said frame-pieces of the contact making and breaking apparatus, a perforated sheet in said carriage, a cross-bar provided with depressions or perforations over which said sheet is passed, a guide-bar directly over said cross-bar, a series of pivoted levers 90, connected at one end with said contact-fingers, but insulated therefrom, and a projection or finger on each lever 90 adapted to be passed through said guide-bar and through a perforation in the said sheet and into a depression in the bar 45, and thereby cause the spring contact-fingers connected with said levers 90 to make electrical contact with said contact-support, and a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, means for increasing or decreasing the resistance of said coils, consisting, essentially, of an oscillatory bar, and contact-making rods or fingers thereon in sliding contact with said resistance-coils, one or more electromagnets for causing an oscillatory motion of said bar, consisting of one or more electromagnets, and an independent circuit or circuits between said magnet or magnets to one or more of the contact-fingers, substantially as and for the purposes set forth.

19. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and an electric contact making and breaking mechanism, fixed frame-pieces in which the same is arranged, a swing-carriage pivotally arranged in said frame-pieces, and a perforated music-sheet in said carriage, constructed to cause said contact making and breaking mechanism to actuate the key magnet or magnets, substantially as and for the purposes set forth.

20. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and an electric contact making and breaking mechanism, fixed frame-pieces in which the same is arranged, a swing-carriage pivotally arranged in said frame-pieces, and a perforated music-sheet in said carriage, constructed to cause said contact making and breaking mechanism to actuate the key magnet or magnets, and a holding-catch connected with said frame for locking or retaining said carriage in its operative position in said frame, substantially as and for the purposes set forth.

21. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and an electric contact making and breaking mechanism, fixed frame-pieces in which the same is arranged, a swing-carriage pivotally arranged in said frame-pieces, and a perforated music-sheet in said carriage, constructed to cause said contact making and breaking mechanism to actuate the key magnet or magnets, and a holding-catch connected with said frame for locking or retaining said carriage in its operative position in said frame, a driving-motor connected with said carriage for causing a feeding motion of the perforated sheet therein, and a reversing mechanism for reversing the direction of motion of said sheet and releasing said holding-catch and means connected with said frame and carriage causing said carriage to swing in an outward and forward direction, substantially as and for the purposes set forth.

22. The combination, in an instrument for playing pianos, organs, or other keyboard musical instruments, of a contact making and breaking device, comprising fixed frame-pieces, a bar 86 between said frame-pieces, said bar being capable of oscillation, contact-making fingers extending from said bar, a support provided with a contact-bar with which said fingers are adapted to make electrical contact, and levers 90 in lifting engagement with said contact-making fingers, with a swing-carriage between said frame-pieces, a roller detachably arranged in bearings in said carriage, and a music-sheet on said roller constructed to actuate said levers 90 and cause said contact-making fingers to produce the electrical contact, a second roller upon which said sheet is to be reeled, a holding-catch for causing said carriage to be retained in its held and operative position in said fixed frame-pieces, and a motor for driving said second roller, substantially as and for the purposes set forth.

23. The combination, in an instrument for playing pianos, organs, and other keyboard musical instruments, of a contact making and breaking device, comprising fixed frame-pieces, a bar 86 between said frame-pieces, said bar being capable of oscillation, contact-making fingers extending from said bar, a support provided with a contact-bar with which said fingers are adapted to make electrical contact, and levers 90 in lifting engagement with said contact-making fingers, with a swing-carriage between said frame-pieces, a roller detachably arranged in bearings in said carriage, and a music-sheet on said roller constructed to actuate said levers 90 and cause said contact-making fingers to produce the electrical contact, a second roller upon which said sheet is reeled, a holding-catch for causing said carriage to be retained in its held and operative position in said fixed frame-pieces, and means connected with said detachable roller for rewinding the music-sheet thereon, substantially as set forth.

24. The combination, in an instrument for playing pianos, organs, or other keyboard musical instruments, of a contact making and breaking device, comprising fixed frame-pieces, a bar 86 between said frame-pieces, said bar being capable of oscillation, contact-making fingers extending from said bar, a support provided with a contact-bar with which said fingers are adapted to make electrical contact, and levers 90 in lifting engagement with said contact-making fingers, with a swing-carriage between said frame-pieces, a roller detachably arranged in bearings in said carriage, and a music-sheet on said roller constructed to actuate said levers 90 and cause said contact-making fingers to produce the electrical contact, a second roller upon which said sheet is to be reeled, a holding-catch for causing said carriage to be retained in its held and operative position in said fixed frame-pieces, a motor for driving said second roller, means constructed and arranged for disconnecting said motor from said second roller and connecting said motor with the first roller, to reverse the direction of rotation of said rollers, and means connected with one of said frame-pieces adapted to be actuated by the music-sheet and thereby release the carriage from its held and operative position, substantially as and for the purposes set forth.

25. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination with a key, of an electromagnet having a rotary armature, and a means of connection between said armature and the bottom of the key, consisting of a screw in the bottom of the key, a rod 121 pivotally connected with said screw, and pivotally connected at its lower end with said armature, substantially as and for the purposes set forth.

26. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination with a key, of an electromagnet having a rotary armature, and a means of connection between said armature and the bottom of the key, consisting of a screw in the bottom of the key, a rod 121 pivotally connected with said screw, a swiveled ring or collar connected with said armature, with which the lower end of said rod is connected, and a means of adjustment on said lower end of the rod, for adjustably securing said rod in position to said swiveled ring or collar, substantially as and for the purposes set forth.

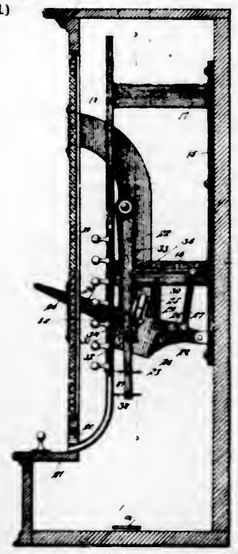
27. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, comprising, a slotted support, and a contact-bar in said slotted support, a series of levers 90 each provided at one end with a socketed end portion 91, carrying a piece of insulating material, a series of contact-fingers of equal number each having a portion 89′ extending into a socketed end portion 91, and resting in said insulating material, a contact-piece 88 on the under side of each contact-finger, and each contact-finger being in series with one electromagnet, and means connected with said apparatus for causing one or more of such levers to actuate said contact finger or fingers and make contact with said contact-support and completing the electric circuit through one or more electromagnets, substantially as and for the purposes set forth.

28. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with an electro magnet or magnets for operating a key or keys, of an electric circuit connected with each magnet, a source of electricity therefor, and a contact making and breaking apparatus, a cam-shaped rod in said apparatus and means connected with said rod for raising and lowering its cam portion, a series of levers each carrying at one end a portion 92 bearing upon said cam-shaped rod and having at the other end a piece of insulating material, a series of electrical contact-making arms or fingers, each arm or finger having a portion resting on said insulating material, a series of resistance-coils, one coil in each circuit between a contact-finger and an electromagnet, and means in slidable contact with each coil for increasing or decreasing the resistance through said coil or coils, substantially as and for the purposes set forth.

29. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with a base, stationary frame-pieces on said base, a tubular bearing on said base, and an upright in said tubular bearing, of a spring-actuated swing-carriage connected with said upright, a music-sheet holder in said carriage, means for retaining said holder in operative position, and means for unwinding the music-sheet, substantially as and for the purposes set forth.

30. In an instrument for playing pianos, organs, or other keyboard musical instruments, the combination, with a base, stationary frame-pieces on said base, a tubular bearing on said base, and an upright in said tubular bearing, of a spring-actuated swing-carriage connected with said upright, a music-sheet holder in said carriage, means for retaining said holder in operative position, mechanism for rewinding the sheet, and means on said sheet for disengaging the sheet-holder from its operative position to permit said carriage to move in an outward and forward direction for removal of the music-sheet holder, substantially as and for the purposes set forth.

681,731. COIN-CONTROLLED VENDING APPARATUS. MILBERT P. PRICE, Iowa City, Iowa. Filed May 16, 1900. Serial No. 16,867. (No model.)

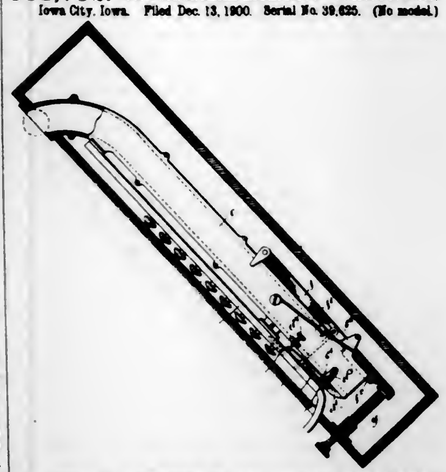


Claim.—1. A coin-controlled apparatus having a hand-lever with a coin-pocket therein adapted to receive a coin, one wall of the coin-pocket being movable relatively to the hand-lever for the purpose specified and adapted to be engaged by the edge of the coin, and a dog mounted at the side of the coin-pocket and adapted to be engaged by the side of the coin to throw the dog into operative position.

2. A coin-controlled apparatus having a hand-lever with a coin-pocket therein, and a dog mounted on the hand-lever at one side of the coin-pocket in position to be engaged by the side of the coin, to throw the dog into operative position.

3. A coin-controlled apparatus having a hand-lever with a coin-pocket therein, a bell-crank lever fulcramed on the hand-lever and forming one end wall of the coin-pocket, the bell-crank lever being in connection at one end with a part stationary relatively to the hand-lever, and a dog mounted at the side of the coin-pocket and adapted to be engaged by the side face of the coin to throw the dog into operative position.

681,732. COIN-CONTROLLED APPARATUS. MILBERT P. PRICE, Iowa City, Iowa. Filed Dec. 13, 1900. Serial No. 39,625. (No model.)

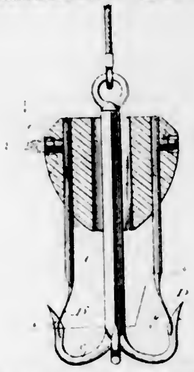


Claim.—1. A coin-controlled apparatus, comprising a coin-chute, two coin members having parts normally projected therein, said coin members being adapted to be connected with the devices with which the coin-controlled apparatus is used, means acting with one of said coin members to hold the same capable of yielding to the weight of the coin, and means acting with the other of said coin members to facilitate the manual operation thereof.

2. A coin-controlled apparatus, having a coin-chute, two coin members with parts normally projected into the chute, such coin members being adapted to be connected with the device with which the coin-controlled apparatus is used, one of the coin members being operated by the weight of the coin, and a push device in connection with the other coin member to permit the manual operation thereof.

3. A coin-controlled apparatus, comprising a coin-chute with openings in opposite edges thereof, a spring-pressed coin-lever with a part projected into one of said openings and adapted to be engaged by the coin to operate the coin member by the gravity of the coin, a second spring-pressed coin-member with a part projected into the other opening in the other chute, said part being adapted to be engaged by the coin to hold it in engagement with the first coin member, and a push device in connection with the second coin member to permit the manual operation thereof, the coin members being adapted to have connection with the device in connection with which the coin-controlled apparatus is used.

681,733. DRAG OR GRAPPLE. PETER RASMUSSEN, Iron Mountain, Mich., assignor of one-third to John Russell, same place. Filed May 5, 1900. Renewed Jan. 31, 1901. Serial No. 45,452. (No model.)



Claim.—1. A drag or grapple for raising submerged bodies, comprising a hook, a weighted fender, and a spring-guard extending between the fender and the hook.

2. A drag or grapple comprising a shank having one or more hooks branching off from one end thereof, a fender adjustably secured to said shank, and a spring guard or guards secured to said fender and bearing against said hook or hooks.

3. A drag or grapple comprising a shank having a series of hooks branching off from one end thereof, a weighted fender adjustably secured to said shank, and a series of spring-guards adjustably secured to said fender and bearing against said hooks.

4. A drag or grapple comprising a shank having a series of hooks branching off from one end thereof, a reversible fender adjustably secured to said shank, and a series of spring-guards adjustably secured to said fender and bearing against said hooks.

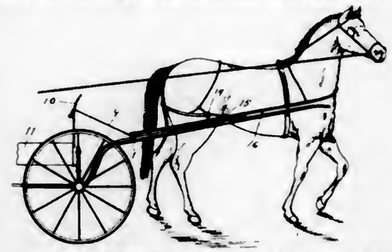
5. A drag or grapple, comprising a shank having a series of hooks branching off from one end thereof, a tapered reversible fender adjustably secured to said shank, and a series of spring-guards adjustably secured to said fender and bearing against said hooks.

6. A drag or grapple, comprising a shank having a series of hooks branching off from one end thereof, a weighted tapered reversible fender adjustably secured to said shank, and a series of guards adjustably secured to said fender, and having bifurcated curved spring ends adapted to straddle and bear against said hooks.

7. A drag or grapple for recovering submerged bodies, comprising a shank having a series of hooks branching off from one end thereof, and a line-attaching ring or loop at its other end, with a reversible weighted fender adjustably secured to said shank.

681,734. HORSE-DETACHING APPLIANCE. EDWIN R. RICHARDS, Laud, Ind. Filed July 5, 1901. Serial No. 67,085. (No model.)

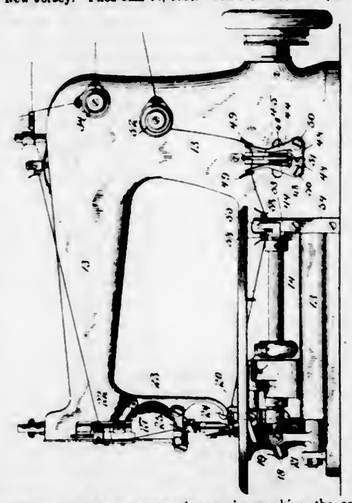
Claim.—1. A horse-detacher consisting of a pivoted singletree-clip having a lateral lug for the purpose specified, and provided with a fixed lever-arm by which the said clip is swung outwardly in the operation of detaching; a thill-hook arranged as shown, and adapted to receive the strain of the holdback-strap; and a holdback-strap passing loosely through the said hook and having its free end mounted on the said clip.



2. In a horse-detaching appliance a pivotally-mounted clip having a fixed operating-lever therefor; means for actuating said lever; a holdback-strap having its free end mounted on the said clip; and means for detachably connecting the said strap to the thill.

3. The combination of a pivoted singletree-clip on which both the trace and holdback-strap are removably mounted; means for actuating said clip on its pivot to detach the said trace and said strap therefrom; a holdback loosely connected to the thill and having its free end mounted on said clip; and means for detachably connecting the said strap to the said thill.

681,735. OVERSEAMING SEWING-MACHINE. ALBERT ROHTER, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 17, 1901. Serial No. 43,598. (No model.)



Claim.—1. In an overseaming sewing-machine, the combination with a needle-carrying bar and its operating mechanism, of a thread-carrying looper reciprocating in a plane substantially transverse to the direction of the feed, mechanism for operating said looper, and a looping-hook or non-thread-carrying looper pivoted at its upper end to a rigid arm attached to the needle-bar, means for imparting swinging movements to said looping-hook as it is reciprocated vertically, said looping-hook being so mounted as to swing in a plane which is inclined at a considerable angle to the path of movement of the said thread-carrying looper, so as to avoid interfering with the latter.

2. In an overseaming sewing-machine, the combination with a needle-bar and its operating mechanism, of a thread-carrying looper arranged to reciprocate in a plane substantially transverse to the direction of the feed of the work and to pass through loops of needle-thread above the work, a lever rigidly attached to said needle-bar, a lever, pivotally secured at its upper end to said lever, and provided at its lower end with a looping-hook, a swinging link jointed at its free end to the said lever and attached at its other end to a stationary part of the machine; whereby, as the said needle-bar is reciprocated, the said looping-hook will be caused to swing inward beneath the work to engage loops of needle-thread and then swing

outward past the edge of the work, as it is moved upward, to hold the said loops in position to be entered by the said thread-carrying looper.

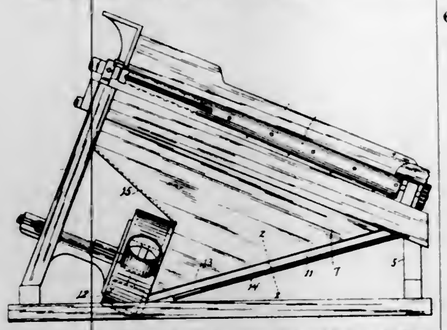
3. In an overseaming sewing-machine, the combination with a needle-bar and its operating mechanism, of a thread-carrying looper arranged to reciprocate in a plane substantially transverse to the direction of the feed of the work and to pass through loops of needle-thread above the work, a lever rigidly attached to said needle-bar, a lever, pivotally secured at its upper end to said lever, and provided at its lower end with a looping-hook, a swinging link jointed at its free end to the said lever and attached at its other end to a stationary part of the machine; whereby, as the said needle-bar is reciprocated, the said looping-hook will be caused to swing inward beneath the work to engage loops of needle-thread and then swing outward past the edge of the work, as it is moved upward, to hold the said loops in position to be entered by the said thread-carrying looper, said looping-hook being so mounted as to swing in a plane which is inclined at a considerable angle to the path of movement of said thread-carrying looper, so as to avoid interfering with the latter.

4. In an overseaming sewing-machine, the combination with the needle and its operating mechanism, of a thread-carrying looper arranged to pass through loops of needle-thread above the work, mechanism for operating said looper, a looping-hook or non-thread-carrying looper, means for imparting combined vertical and horizontal movements to said looping-hook to cause it to take loops of needle-thread from beneath the work-plate, carry them above the work-plate and hold them in position to be entered by the said thread-carrying looper, and take-up and pull-off devices for both the needle and looper threads, said take-up and pull-off devices being adjustable so that their action for different lengths or widths of stitches may be varied.

5. In an overseaming sewing-machine, the combination with the needle and its operating mechanism, of a thread-carrying looper arranged to pass through loops of needle-thread above the work, mechanism for operating said looper, a looping-hook or non-thread-carrying looper, means for imparting combined vertical and horizontal movements to said looping-hook to cause it to take loops of needle-thread from beneath the work-plate, carry them above the work-plate and hold them in position to be entered by the said thread-carrying looper, and take-up, pull-off, intermittingly-acting thread-nipping and constant tension devices for both the needle and the looper threads.

6. In an overseaming sewing-machine, the combination with the needle and its operating mechanism, of a thread-carrying looper arranged to pass through loops of needle-thread above the work, mechanism for operating said looper, a looping-hook or non-thread-carrying looper, means for imparting combined vertical and horizontal movements to said looping-hook to cause it to take loops of needle-thread from beneath the work-plate, carry them above the work-plate and hold them in position to be entered by the said thread-carrying looper, take-up, pull-off, intermittingly-acting thread-nipping and constant tension devices for both the needle and the looper threads, and adjusting means whereby the take-up and pull-off actions of the said take-up and pull-off devices may be varied for different lengths of stitches or different widths of overseams, as may be required.

681,736. **CORN-HUSKING MACHINE.** AUGUST ROSENTHAL, Milwaukee, Wis., assignor to Rosenthal Husker Company, same place. Filed Apr. 6, 1901. Serial No. 54,763. (No model.)



Claim.—1. In a corn-husking machine, the combination of a frame, husking-rollers mounted therein, a main trough beneath the rollers and adapted to receive the stalks and husks which pass between the rollers, said trough provided in its bottom with an elongated slot which slot gradually widens toward the discharge end of the trough, and an auxiliary trough beneath the main trough and lengthwise of the slot of said main trough, and extending only part of the length of the main trough.

2. In a corn-husking machine, the combination of a frame, husking-rollers mounted therein, a fan-casing, a main trough beneath the rollers and adapted to receive the stalks and husks which pass between the rollers, and having its discharge end in communication with the fan-casing, said trough provided in its bottom with an elongated slot, and an auxiliary trough beneath the main trough and lengthwise of the slot of said main trough, and having its discharge end in advance of the fan-casing and out of communication therewith.

681,737. **AUTOMATIC FIREARM.** GEORGES ROTH, Vienna, Austria-Hungary. Filed Aug. 18, 1900. Serial No. 27,340. (No model.)

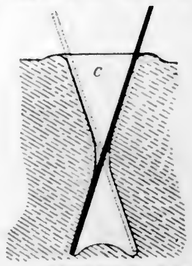


Claim.—1. In a firearm having a self-cocking firing mechanism the combination of a latch pivotally supported in proximity to the hammer-tail and the trigger-tumbler, a spring to depress said latch down in the direction toward the hammer-tail, a shoulder at the lower part of the said latch and a shoulder on the hammer-tail into which said latch-shoulder engages when the hammer is at full-cock, means in connection with the trigger to disengage the said latch when the trigger is pulled to discharge the weapon, and means for disengaging the said latch by hand from the exterior of the weapon and for arresting the said hammer in its position of rest when disengaged by hand in the manner and for the purpose substantially as described.

2. In a firearm having self-cocking firing mechanism, the combination of means for automatically bringing the hammer to the full-cock after a shot has been fired and means in connection with the trigger for releasing the hammer when the trigger is pulled, actuating mechanism for the trigger, tumbler and hammer consisting of two pivotally-connected arms e' and f', and a spring to press the same apart said arms being pivotally supported within the housing between the trigger-tumbler and the hammer one arm of the pair bearing against the tumbler and the other against the hammer-tail substantially as described.

3. In a firearm having a self-cocking firing mechanism, the combination of a latch pivotally supported above the hammer-tail and spring-pressed downwardly, a shoulder to said latch and a shoulder to the hammer-tail, with which the said latch engages when the hammer has been pushed back to the full-cock, a nose on the latch with which the trigger-tumbler engages to disengage the latch when the weapon is fired, and an upward projection to the said latch adapted to be projected into the path of movement of the breech-bolt in the manner and for the purpose substantially as described.

681,738. **PERMANENT FOUNDATION-POST.** WILLIAM O. ROY, Montreal, Canada. Filed July 6, 1900. Serial No. 22,680. (No model.)

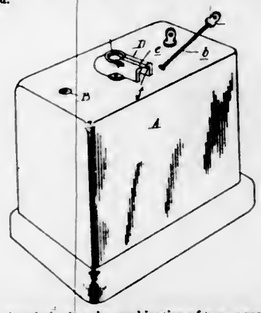


Claim.—1. A permanent foundation-post of hour-glass form and set in the ground as described.

2. A permanent foundation-post of hour-glass form having a central strengthening-bar, and set in the ground as shown and described.

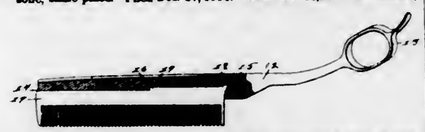
681,739. **ELECTRIC IGNITER.** FREDERICK A. RUFF, Detroit, Mich. Filed Dec. 3, 1900. Serial No. 38,514. (No model.)

Claim.—1. In an electric igniter, the combination with an apertured hollow casing forming one electrode, of a spring within said casing and electrically insulated therefrom, said spring forming the other electrode, and a torch having the portion carrying the inflammable substance adapted to be inserted in said aperture to form an electric connection between said electrodes, whereby upon withdrawal a spark is produced and the torch ignited.



2. In an electric igniter the combination of two separated electrodes arranged to form opposite walls of a tapering channel having an enlarged entering aperture, one of said walls being yielding, and a torch having a portion thereof carrying the inflammable substance forming an electric bridge adapted to be inserted in the larger end of said channel, and drawn out therefrom at the smaller end, for the purpose described.

681,740. **COMBINED SCISSORS AND COMB FOR BARBERS' USE.** JOSEPH SANSONE, Des Moines, Iowa, assignor to Concetta Sansone, same place. Filed Dec. 27, 1900. Serial No. 41,217. (No model.)



Claim.—An improved hair-cutting implement, comprising in combination, a blade 10 having a thumb-opening in its handle, a mating scissor member 12 pivoted to the part 10 and having a finger-opening in one end, a groove 14 in the edge of the part 12 opposite from the cutting edge thereof, said groove having an extension 15 and the shoulder 16, and a comb 17 having the projection 18 and the shoulder 19 thereon, the back of said comb being of a thickness designed to enter the groove 14 and be securely held therein, substantially in the manner set forth, and for the purposes stated.

681,741. **MEDICAMENT DEVICE.** GUSTAV SCHIRMER, Chicago, Ill. Filed Mar. 5, 1901. Serial No. 49,871. (No model.)

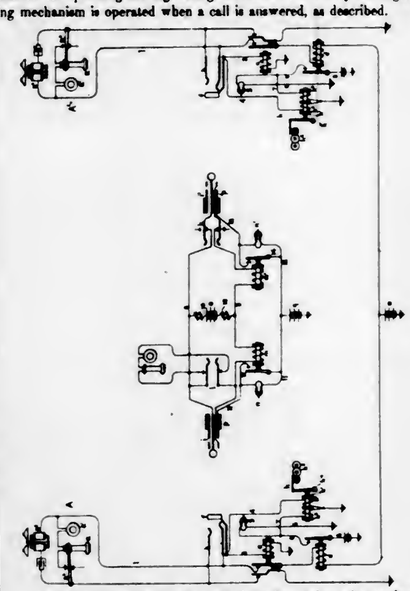


Claim.—1. A medicament device for ephemeral use comprising a receptacle for the medicament adapted to hold a single charge thereof, and of correspondingly-limited size so as to be conveniently carried, and a point or pencil inclosed in said receptacle, sunk in the medicament therein and having a flanged end serving as a closure for the receptacle hermetically sealed thereto.

2. In combination, a medicament-receptacle, a point or pencil inserted therein, sunk into the inclosed medicament, and having a flanged closure for the receptacle and a groove in the closure matching a groove in the receptacle, and sealing material applied to said closure and grooves.

681,742. **CONNECTION-COUNTER FOR TELEPHONE-LINES.** CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 22, 1897. Serial No. 659,467. (No model.)

Claim.—1. The combination with a telephone-line and means for producing current in the line to call, a magnet-winding in the central office excited through the agency of the calling-current, means for making connection with the line in the central office, a local circuit, and a switch for closing the said circuit in making connection with the line, a second magnet-winding in the said local circuit, registering mechanism and means actuated by the joint effect of said magnet-windings when simultaneously excited for operating the registering mechanism; whereby the registering mechanism is operated when a call is answered, as described.



2. The combination with a telephone-line, means for producing a calling-current in the line, and means for making connection with the line in response to a call, of a call-registering appliance associated with the line, said appliance containing two elements with means actuated by the joint action of said elements when simultaneously made operative to effect registration, one of said elements being controlled by calling-current in the line, and the other being controlled by current in the said local circuit determined in making connection with the line in response to a call; whereby answered calls only are registered.

3. The combination with a telephone-line, a line-relay therefor, a local circuit controlled by the relay, and a secondary line-signal in the local circuit, a spring-jack and plug for making connection with the line, a local circuit, and switch-contacts of the plug and spring-jack for closing the said local circuit, of a registering appliance having two magnet-windings adapted when simultaneously excited to effect registration by their joint action, one of said magnet-windings being connected with the local circuit of the line-relay to receive current therefrom, and the other being connected with the local circuit closed in the registering spring-jack and plug; whereby answered calls are registered, as described.

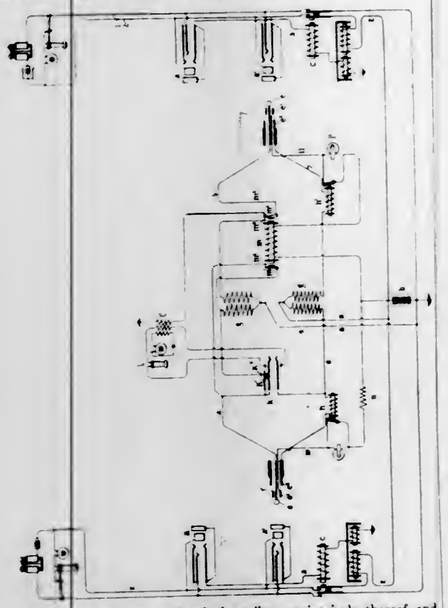
4. The combination with a telephone-line having a switch at its station for closing the line in the use of the telephone, a relay at the central office responsive to current in the line, a local circuit controlled by the relay and a secondary line-signal in the local circuit, a spring-jack and plug for making connection with the line, a local circuit adapted to be completed by registering contacts of the said spring-jack and plug, a cut-off relay having its magnet in the portion of said local circuit associated with the line, and having its switch-contacts interposed in the normal connections with the line-relay, of a registering device comprising an electromagnet and two windings thereon adapted when simultaneously excited to operate the register by their joint action, one of said windings being connected with the local circuit containing the cut-off relay, and the other of said windings being connected with the local circuit controlled by the line-relay, substantially as described.

5. The combination with a telephone-line, the line-relay and secondary line-signal in a local circuit controlled thereby, the cut-off relay, the local circuit including the cut-off relay and means for closing the circuit, of a register having two windings on its magnet adapted when jointly excited to effect registration, one of said windings being in parallel with the cut-off relay and the other of said windings being in parallel with the secondary line-signal, substantially as described.

681,743. **SWITCHBOARD FOR TELEPHONE-LINES.** CHARLES R. SCRIBNER, Chicago, and FRANK R. MCBERTY, Evanston, Ill., assignors to the Western Electric Company, Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,564. (No model.)

Claim.—1. The combination with a telephone-line and the trans-

uitting-telephone thereof adapted for excitement by current supplied through the line, a spring-jack for the line, and a plug and plug-circuit for making connection therewith, of an operator's telephone, a listening-key for connecting the operator's telephone with the plug-circuit, and switch-contacts associated with said listening-key, controlling the application of said source of current to the line; said switch-contacts being actuated in connecting the operator's telephone to the plug-circuit, and adapted simultaneously to apply to plug-circuit current for exciting the substation transmitting-telephone, substantially as described.



2. The combination with telephone-lines, spring-jacks thereof, and an answering and a calling plug with their associated plug-circuits for uniting lines, of a source of current in a bridge of the plug-circuit, an electromagnetic switch having a pair of switch-contacts interposed in the plug-circuit at each side of the said bridge containing the source of current, a local circuit closed in registering contacts of the calling-plug and line-jack including the actuating-magnet of said switch, an operator's listening-key and auxiliary contacts thereof adapted to effect the closure of the break in the plug-circuit toward the answering-plug, substantially as described.

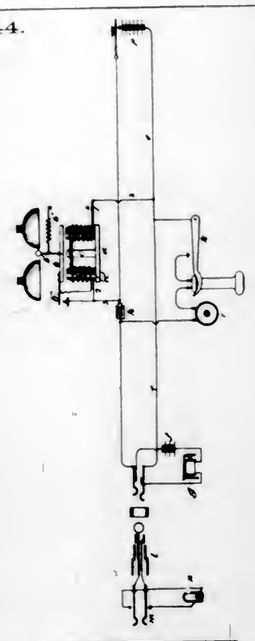
681,744. TELEPHONE CALL-BELL. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Jan. 20, 1900. Serial No. 2,109. (No model.)

Claim.—1. In combination in a polarized electric bell two differential windings, switch-contacts carried by the armature of the bell controlling the continuity of one of said windings, the last-mentioned winding having a greater number of ampere-turns than the other; whereby the bell may be rung with either a continuous or an alternating current.

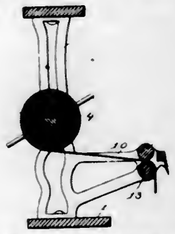
2. In combination in a bell, an electromagnet having two windings differential with respect to each other, a centrally-pivoted armature, a tongue carried thereby and gongs, a permanent magnet for polarizing the electromagnet and armature, switch-contacts controlled by the armature to be closed when the armature is in one position, means for maintaining the armature normally in its opposite position, and a circuit containing the said two windings in multiple branches, one of said branches being controlled by the said switch-contacts, as described.

3. In combination an electromagnet with two windings, one having more turns than the other, a centrally-pivoted armature for the magnet, and a permanent magnet for magnetizing the cores of the electromagnet with the same polarity, a tongue carried by the armature, and gongs, a source of alternating and a source of continuous current, and means for applying said sources in the same circuit, said circuit being connected with both windings of the electromagnet, and switch-contacts controlled by the armature adapted to close the circuit through the winding of the greater number of turns when the magnet is excited by a current in the other winding; whereby the bell may be rung by either alternating or pulsating currents, as described.

681,744.

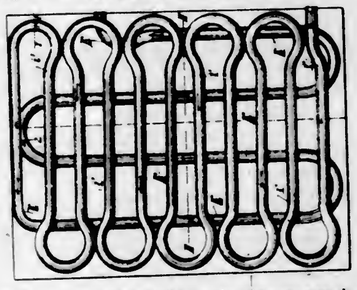


681,745. ROLL-PAPER CUTTER. JAMES R. SEAWRIGHT, Atlanta, Ga. Filed Oct. 30, 1900. Serial No. 34,932. (No model.)



Claim.—In a paper-roll cutter, the combination with standards, the rear edge of each of which is provided with an open notch and the forward end with a bracket, cutting mechanisms secured to said brackets, a shaft loosely mounted in said notches and formed at one end with a plurality of perforations, and a transverse key for each end of the shaft, one of said keys being adapted to be inserted in any one of said perforations for the purpose of adjusting the same, substantially as described.

681,746. TUBE-BOILER. LEON SERPOLLET, Paris, France. Filed May 11, 1900. Serial No. 16,350. (No model.)



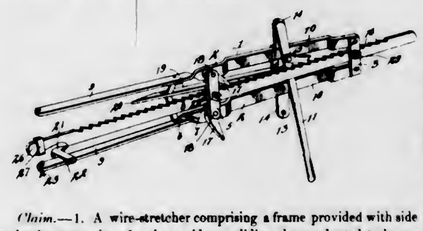
Claim.—1. In a tubular boiler, a casing, three superposed groups of differently-arranged coils of tubes, the tubes of all of the groups having the same exterior diameter, the upper group being composed of a greater number of coil and tubes of larger interior diameter than the lower groups.

2. In a tubular boiler, a casing, three superposed groups of differently-arranged coils of tubes, the upper group being composed of a greater number of coils than the lower groups and the tubes composing said upper group being of different interior diameter from the tubes composing the lower groups, removable supporting-plates in which the ends of the tubes of the several groups are adapted to be secured, and removable connecting-tubes through which the ends of the several coil-tubes communicate.

3. In a tubular boiler, a casing, a plurality of superposed coils of tubes, removable supporting-plates in which the ends of the tubes of the several groups are adapted to be secured, and removable connecting-tubes through which the ends of the several coil-tubes communicate.

4. In a tubular boiler, a casing, a series of tubes bent to rectangular form and surrounding the fire-box, a second series of tubes bent in spiral form placed above and connected with the first series of tubes, a third series of spirally-formed tubes superposed above each other in the form of a grate said series being placed above the second series and connected therewith, substantially as described.

681,747. WIRE-STRETCHER. JOHN R. SEVIER, Browning, Mo., assignor of one-half to Charles Edgar Murphy, same place. Filed Aug. 2, 1900. Serial No. 25,694. (No model.)



Claim.—1. A wire-stretcher comprising a frame provided with side bars having extensions forming guides, a sliding clamp adapted to be arranged on either of the guides for engaging one side of a fence-post, means carried by the frame for engaging the opposite side of the fence-post, a ratchet-bar provided with means for connecting it to a fence-wire, an operating-lever provided with means for engaging the ratchet-bar, and a check-pawl, substantially as described.

2. A wire-stretcher comprising a frame provided with longitudinal guides and having offset portions, a ratchet-bar, a lever fulcrumed on the frame and arranged between the offset portions of the side bar and the ratchet-bar, and provided with means for engaging the latter, a sliding clamp mounted on one of the guides and arranged to engage one side of a fence-post, a device carried by the frame for engaging the other side of the post, and means for connecting the ratchet-bar with a fence-wire, substantially as described.

3. A wire-stretcher comprising a frame provided with side bars and having a cross-bar 4, a ratchet-bar, a lever fulcrumed on the frame, a pawl carried by the lever and engaging the ratchet-bar, a check-pawl, the longitudinal post-engaging bar located between the ends of the frame and rigidly secured at one end to the cross-bar, and the cross-pieces 6, secured to the sides of the frame and rigidly supporting the post-engaging bar near the engaging end thereof, substantially as described.

4. A wire-stretcher comprising a frame composed of side bars having offset outer portions and straight inner portions forming guides, cross bars or pieces connecting the side bars, and a post-engaging bar supported by the cross pieces or bars, a clamp mounted on one of the guides, a ratchet-bar, a reversible lever arranged between the ratchet-bar and the offset portions of the side bars and provided with means for engaging the ratchet-bar, and the opposite check-pawls, substantially as described.

5. In a wire-stretcher, the combination of a frame comprising the side bars having offset outer portions and provided with straight inner portions forming guides, the cross-bars 3 and 4 connecting the side bars at the ends of the offset portions, the cross-bar 4 arranged between the ends of the offset portions and provided with laterally-disposed arms, and the substantially V-shaped brace, the post-engaging bar disposed at an angle to the side bars and supported by the brace and the cross-bar 4, a catch mounted on the cross-bar 5 at the inner face thereof, a ratchet-bar, check-pawls located at the opposite edges of the ratchet-bar, and the reversible operating-lever adapted to be fulcrumed on either of the laterally-disposed arms of the cross-bar 4 and interposed between the ratchet-bar and the offset portions of the side bars and provided with means for engaging the ratchet-bar, substantially as described.

681,748. BED-SPRING. CHARLES G. SMITH, Lakeland, Mich. Filed Oct. 24, 1900. Serial No. 34,193. (No model.)



Claim.—The combination with a bed-bottom comprising a series of loops having parallel sides and closed ends in planes at right angles to the sides and spaced apart in longitudinal alinement, of elongated flat metal connectors having the full transverse extent of the terminals bent into hooks which engage the closed ends of the said loops, the connectors having the ends freely bendable in a longitudinal direction thereover to regulate the tension on the loops and also provided with apertures throughout the length thereof for the insertion of a bending implement.

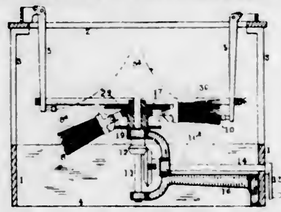
681,749. NECKTIE ATTACHMENT. GEORGE C. SPANGLER, Pittsburg, Pa. Filed Nov. 17, 1900. Serial No. 36,877. (No model.)



Claim.—1. A necktie attachment comprising a pair of plates, each formed integral with a pair of ears bent rearward at its sides at its inner end and perforated, and a gripping-jaw, cut out from the body of the plate and bent outward and inward, and having a notch in its end, a pintle whereby the ears are pivoted together, and a spring coiled around the pintle and having its ends bearing on the plates.

2. A necktie attachment comprising a pair of plates, each formed with a pair of ears bent rearward at its sides at its inner end and perforated and side and end openings near its edge at its outer end, and a gripping-jaw cut out from the body of the plate and bent outward and inward and having a notch in its end, a pintle whereby the ears are pivoted together, and a spring coiled around the pintle and having its ends bearing on the plates.

681,750. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY and CARL GABRIELSON, Elizabeth, N. J., assignors, by direct and mesne assignments, to Jacob Feibel, borough of Manhattan, New York, N. Y. Filed Nov. 16, 1896. Serial No. 612,240. (No model.)



Claim.—1. The combination with a series of types of a brush arranged below the types, means for rotating the brush, and means called into action only at such rotation for elevating the brush into the type-field, the brush being mounted to rotate in working position against the types as long as the brush rotating means are kept in action, and thereafter to return automatically to normal position.

2. In a writing-machine, the combination with a series of types of a rotating brush arranged below the types, means called into action only at the rotation of the brush to elevate it into the type-field; a crank having a permanent bearing upon the frame of the machine, and operative connections from the crank to the brush-elevating means, said connections being permanently arranged outside of the type-field, whereby the types may be freely operated without removing said connections from the machine.

3. In a writing-machine, the combination with a series of types of a rotating brush arranged below the types, means called into action only at the rotation of the brush to elevate it into the type-field, the brush being mounted to rotate in working position against the types in the same direction as long as the brush-rotating means are kept in action, a crank having a permanent bearing upon the frame of the machine, and operative connections from the crank to the brush-elevating means, said connections being permanently arranged outside of the type-field, whereby

the types may be freely operated without removing said connections from the machine.

4. The combination with a series of types of a brush arranged below the types, means for rotating the brush, and means called into action only at such rotation for elevating the brush into the type-field, the brush being mounted to rotate in working position against the types as long as the brush-rotating means are kept in action and thereafter to return automatically to normal position, a crank having a permanent bearing upon the frame of the machine, and operative connections from the crank to the brush-elevating means, said connections being permanently arranged outside of the type-field, whereby the types may be freely operated without removing said connections from the machine.

5. The combination with a series of types of a rotary brush arranged without the type-field and constructed to be moved into the type-field and toward the types by means of centrifugal force developed at its rotation.

6. The combination with a series of types of a rotary brush arranged without the type-field and constructed to be moved into the type-field and toward the types by means of centrifugal force developed at its rotation, and constructed also to return automatically to normal or inactive position upon the cessation of its rotation.

7. The combination with a series of types of a brush and a crank for rotating it, the brush being constructed to be moved toward the types by the action of centrifugal force developed by turning the crank.

8. The combination with a series of types of a rotary shaft and a type-cleaning mechanism, inclusive of a centrifugally-swinging weight, supported thereon.

9. The combination with a series of types of a rotary shaft, a type-cleaning mechanism inclusive of a centrifugally-swinging weight supported thereon, and an actuating-crank for the shaft.

10. The combination with a series of types of a vertically-arranged shaft, a brush constructed to be rotated thereby, a horizontal shaft arranged in operative connection with the vertical shaft, means for turning the horizontal shaft, and means called into action only by the rotation of the horizontal shaft for causing the brush to rise.

11. The combination with a series of types of a vertical shaft bearing a type-cleaning brush, means for causing the brush to move automatically into contact with the types only at the rotation of said shaft, and a horizontally-arranged shaft operatively connected to said vertical shaft and provided at one end with a crank, substantially as set forth.

12. The combination with a series of types of a brush arranged below the type-field and mounted upon a vertical shaft fixed against endwise motion, and means actuated by the rotation of the shaft for causing the brush to move up into the type-field.

13. The combination with a series of types of a brush constructed to swing centrifugally into contact with the types when it is rotated.

14. The combination with a series of types of a radially-arranged brush constructed to swing centrifugally into contact with the types when it is rotated.

15. The combination with a series of types of a centrifugally-flying brush and means for rotating it, said brush normally standing out of the paths of the types but upon rotation flying into the paths of the types by centrifugal force and cleaning said types as the rotation is continued.

16. The combination with a vertically-arranged shaft bearing a centrifugally-flying type-cleaning brush of a horizontal shaft operatively connected thereto and provided with turning means, said brush standing normally out of the paths of the types but flying into the said paths upon rotation of the brush and cleaning said types as the turning movement is continued.

17. The combination with a series of types of a collapsible rotary centrifugal type-cleaning brush normally out of the paths of the types, the axis of whose rotation stands always vertically, the construction and arrangement being such that when in action the brush sweeps across the faces of the types, and such that it may collapse and return to normal position out of the paths of the types, whereupon the types may be freely operated without altering the position of said rotary axis.

18. The combination with a series of types of a collapsible rotary type-cleaning brush constructed to move from an inactive position toward the types by means of centrifugal force developed at its rotation, and means for rotating the brush.

19. The combination with a series of types of a brush pivoted to the free end of a link, as 19, the link being pivotally connected, as at 17, to a rotary member.

20. The combination with a series of types of a pivotally-mounted brush arranged below the types, and constructed when rotated to swing up about its pivot into contact with the types by means of centrifugal force and also constructed to return by gravity to normal position upon the cessation of its rotation.

21. The combination of shaft 11, link 19 pivotally secured thereto and provided with an arm 20, and the type-cleaning brush pivoted to the link and adapted to bear upon the arm.

22. The combination with a series of types of shaft 11, the centrifugally-moving type-cleaning brushes secured thereto, brush-support 24, and guard-plate 29.

23. The combination of shaft 11, collar 22 secured thereto and provided with slots 25 and groove 26, and provided also with a cap 27 having slots and groove to match, and ring 28 secured in the grooves and serving to pivotally support a series of type-cleaning brushes arranged within said slots.

24. The combination of a vertically-arranged shaft, constructed to have a rotary movement only, a fixed bracket having two bearings for the shaft, a type-cleaning brush arranged on the shaft above the upper bearing and constructed to move against the types and to move back out of the type-field without disturbing the vertical position of the shaft, a driving-wheel secured to the shaft below said upper bearing, and a horizontally-arranged shaft provided at one end with a crank and at the other end with a wheel to engage the first-mentioned wheel.

25. The combination with a series of types of a brush arranged below the types, means for rotating the brush, and means called into action only at such rotation for elevating the brush into the type-field, the brush being mounted to rotate in working position against the type, in the same direction, as long as the brush-rotating means are kept in action.

26. In a writing-machine, the combination with a series of types of a brush constructed to sweep across the faces of the types, a rotary member connected to said brush to rotate it, means for moving the brush automatically into the type-field and automatically back to normal position and controlled by said rotating means, a crank having a permanent bearing upon the frame of the machine, and operative connections from the crank to the said rotary member, said connections being permanently arranged outside of the type-field, whereby the types may be freely operated without removing said connections from the machine.

27. The combination with a series of types of a series of rotary brushes adapted to be moved toward the types by the action of centrifugal force.

28. The combination with a series of types of a series of independently-pivoted brushes radially arranged about a common center and standing normally below the type-field, and constructed to swing up into contact with the types by centrifugal force when rotated.

29. In a writing-machine, the combination with a series of types of a brush arranged below the types, means called into action only at the rotation of the brush to elevate it into the type-field, the brush being mounted to rotate in working position against the type in the same direction as long as the brush-rotating means are kept in action, and constructed to return to normal position automatically and independently of such rotation, a crank having a permanent bearing upon the frame of the machine, and operative connections from the crank to the brush-elevating means, said connections being permanently arranged outside of the type-field, whereby the types may be freely operated without removing said connections from the machine.

30. The combination with a series of types of a rotary type-cleaning mechanism including a centrifugally-swinging weight constructed to effect a movement of the type-cleaner from normal to operative position.

31. The combination with a series of types of a collapsible type-cleaning brush having a permanent vertical rotary axis, and an operating-crank for rotating the brush, the brush being mounted to engage the type-faces only upon the rotation of the crank.

32. The combination with a series of types of a brush having a permanent rotary axis, and rotary means for moving it radially outward into contact with the types and thereupon to sweep it across said faces, the brush being constructed to thereafter return radially inward to normal position.

33. The combination with a series of types of a brush having a permanent rotary axis, rotary means for moving it radially outward into contact with the types and thereupon to sweep it across said faces, the brush being constructed thereafter to return radially inward to normal position, and a crank operatively connected to said rotary means.

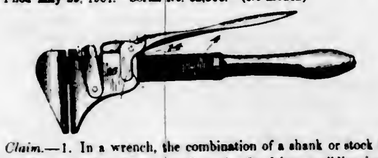
34. The combination with a series of types of a series of independently-pivoted brushes having a common permanent rotary axis, and rotary means for moving the brushes radially outward into contact with the types and thereupon to sweep them across said faces, the brushes being constructed thereafter to return radially inward to normal position.

35. The combination with a series of types of a brush arranged below the types, and a support for the brush fixed upon the upper end of a spindle and having only a rotatory motion, the brush being mounted to automatically rise into the plane of the types when the brush-support is rotated.

36. The combination with a series of types of a brush arranged below the types, a horizontal shaft having only a rotary movement and provided with a crank, and means operated by the crank-shaft for elevating the brush and rotating it in contact with the types.

37. The combination with a series of types of a type-cleaning brush, and rotary means for elevating the brush and rotating it in contact with the types, the brush being constructed to collapse automatically upon the cessation of its rotary movement.

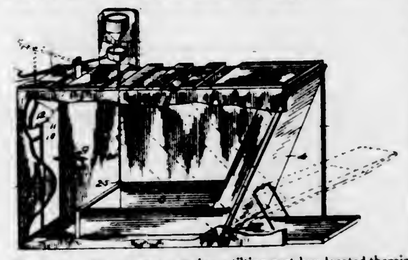
681,751. WRENCH. ALFRED H. F. STRAUB, Lacenter, Wash.
Filed May 29, 1901. Serial No. 62,368. (No model.)



Claim.—1. In a wrench, the combination of a shank or stock having a ratchet-toothed surface, a handle and a fixed jaw, a sliding jaw on said shank, a pivoted dog or pawl carried by the sliding jaw to prevent rearward movement thereof, pivoted eccentric levers having a sliding engagement with the sliding jaw and provided with projecting lugs, an operating-lever also pivoted to the jaw and provided with shoulders to engage said lugs, and a toothed surface to engage the ratchet-toothed surface of the shank, and means for holding the dog in locking position and projecting said lever.

2. In a wrench, the combination of a shank or stock having a ratchet-toothed surface, a handle and a fixed jaw, a sliding jaw on said shank, a pivoted dog or pawl carried by the sliding jaw to prevent rearward movement thereof, pivoted eccentric levers having a sliding engagement with the sliding jaw and provided with projecting lugs, an operating-lever also pivoted to the jaw and provided with shoulders to engage said lugs and a toothed surface to engage the ratchet-toothed surface of the shank, and a spring member having spring-fingers acting simultaneously on the dog to hold the latter in locking position and on the lever to normally project said lever, substantially as described.

681,752. TRAP-NEST. ELISHA STRETCH, East Orange, N. J.
Filed Feb. 21, 1901. Serial No. 48,235. (No model.)



Claim.—1. In a trap-nest, a casing, a tilting nest-box located therein and provided with a platform for closing the rear end of the casing when the box is resting upon the floor of the casing, doors hinged to the forward end of the casing, means for locking the doors, and an automatic means for releasing said locking means so that the doors can be readily pushed open by the fowl from the inside.

2. In a trap-nest, a casing, doors for said casing, means for locking the doors of the casing, means for automatically releasing the doors of the casing, and means for tagging the hen as she escapes.

3. In a trap-nest, a casing, a nest-box, hinged doors, means for locking said door, means for automatically releasing said doors, and means for placing a tag upon the neck of a fowl as it passes out through the doors.

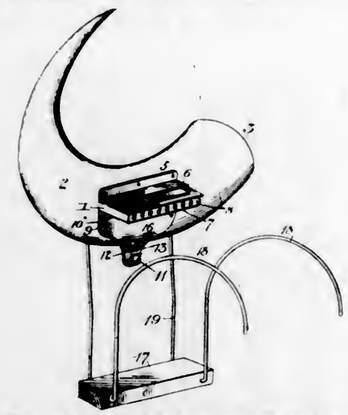
4. In a trap-nest, a casing, a tilting nest-box located therein, means to brace said nest-box when the fowl is in the casing, spring-actuated hinged doors for the casing, means for holding the doors closed, automatic means for releasing said holding means, and means for tagging the fowl as it makes its escape through the doors.

5. In a trap-nest, a casing provided with an open rear end and a spring-actuated front closure, a pivoted nest-box and platform mounted in the rear of the casing, said platform forming a rear wall when the nest rests upon the bottom of the casing, and means to brace and hold said platform in a stationary position.

6. In a trap-nest, a casing, spring-actuated doors secured to the casing, means for holding the doors closed, automatic means for releasing said holding means, and means whereby a tag may be placed upon the neck of the fowl as she makes her escape from the casing.

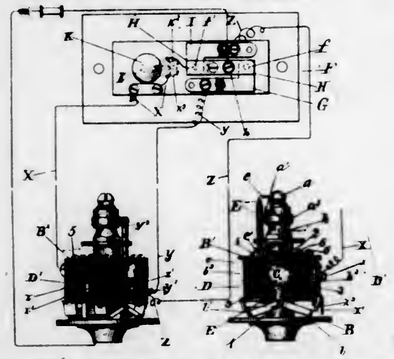
7. In a trap-nest, a casing, a tilting nest-box located therein and provided with a platform for closing the rear end of the casing when the box is resting upon the floor of the casing, spring-actuated doors hinged to the forward end of the casing, and means for locking the doors, means for releasing the same and means for tagging the fowl as it pushes the doors open from the inside and escapes.

681,753. HARMONICA. EDWARD STRIEFFLER, Bisbee, Ariz.
Filed May 15, 1901. Serial No. 60,337. (No model.)



Claim.—An attachment for harmonicas comprising a conical resonating-chamber provided in one side with a slot, a flanged bearing-plate secured to the chamber upon one side of said slot, a flanged clamping-plate located upon the other side of the slot and adapted to clamp the harmonica between it and said bearing-plate, studs or pins secured to the resonating-chamber and projecting through slots in the clamping-plate to slidably connect the same to the chamber so that it may be adjusted toward and from said bearing-plate, and means for adjustably securing the clamping-plate to the chamber, substantially as described.

681,754. SAFETY DEVICE FOR AUTOMATIC ELECTRIC GAS-LIGHTING APPARATUS. HENRY C. THOMSON, Boston, Mass., assignor, by mesne assignments, to Electric Gas Lighting Company, of Maine.
Filed Aug. 6, 1900. Serial No. 25,984. (No model.)



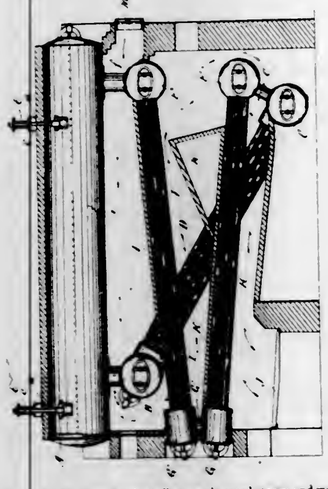
Claim.—1. In combination with the gas-extinguishing circuit of an automatic electric gas-lighting apparatus having an armature, an auxiliary electric circuit, a circuit-closing contact-piece, and its insulated support, as part of said auxiliary circuit, adapted to complete the auxiliary circuit upon making contact with some part of the burner when the gas has been turned completely off, and a signaling device operated by said auxiliary circuit, substantially as described.

2. The combination with an automatic electric gas-lighting burner and its circuits, of an auxiliary circuit X, a signaling device operated by said auxiliary circuit, and contact-pieces adapted to close said auxiliary circuit when the gas has been turned completely off, substantially as described.

3. In combination with an electric gas-lighting burner as described, the two electric circuits Y and Z for turning on and off the gas, the push-buttons and plate F, *f*, *f'*, the signaling device K, *k*, the auxiliary circuit X, the contact-piece x^3, and the insulated support x' therefor, said con-

tact-piece being adapted to close said auxiliary circuit by contact with the gas-extinguishing armature and thereby simultaneously operate the signaling device; substantially as described.

681,755. WATER-TUBE BOILER. SOREN THURSTENSEN, Louisville, Ky., assignor to Henry Vogt Machine Company, same place. Filed Mar. 28, 1901. Serial No. 53,311. (No model.)



Claim.—1. In a water-tube boiler, an elevated steam and water drum, an elevated feed-drum at right angles thereto and connecting therewith, a mud-drum and water-tubes connecting said feed and mud drums in cool relation to the rest of the boiler, auxiliary drums intermediate the mud-drum and the steam and water drum, a series of headers at the forward end of the boiler, a series of inclined banks of straight water-tubes connecting said headers with said auxiliary drums, and suitable connections to make the water-circuit complete, substantially as and for the purpose described.

2. In a water-tube boiler, an elevated steam and water drum A, a feed-drum B, a mud-drum C, the water-tubes D, connecting the same in cool relation to the rest of the boiler, the auxiliary drums E and F, the series of headers G and G' at the forward end of the boiler, the banks of straight tubes H and I, with intermediate connections, substantially as described and for the purpose specified.

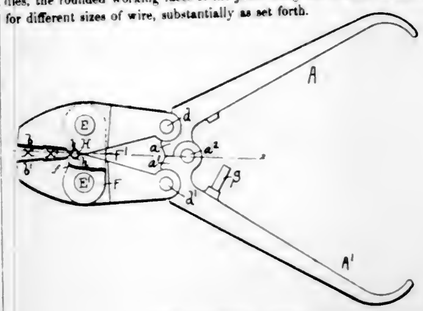
3. In a water-tube boiler an elevated steam and water drum A, a feed-drum B, a mud-drum C, the bank of water-tubes D, connecting the two, the auxiliary drums E and F, and headers G and G', the banks of straight water-tubes H and I, supplemental connections adapted to complete the water-circuit, and tiling covering said banks of tubes H and I, whereby the hot gases from the grate will be caused to travel substantially the length of and in proximity to the tubes and drums, all as described and for the purpose specified.

4. In a water-tube boiler, an elevated steam and water drum A, an elevated feed-drum B, at the rear of the boiler connected to the forward end of the boiler by a series of straight tubes, a mud-drum at the bottom and connected to said feed-drum by a series of straight tubes in cool relation to the rest of the boiler, the auxiliary drums E and F, the headers G and G', the banks of tubes H and I, connection between the drums C and E, and between the drums F and A, and tiling covering said banks of tubes H and I, adapted to cause the gases to circulate, substantially as described and for the purpose specified.

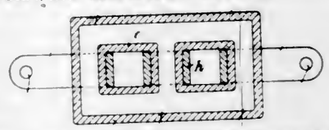
5. In a water-tube boiler, an elevated steam and water drum A, a feed-drum B, at the rear of the boiler, and mud-drum C, the straight tubes D, connecting said feed and mud drums arranged in the coolest part of the furnace, the auxiliary drums E and F, a series of headers G and G', the drum O, a series of banks of straight water-tubes H, I, and I', and supplemental connections and tiling arranged and adapted to cause the hot gases to circulate in proximity to the various parts, substantially as described and for the purpose specified.

681,756. NIPPERS. BENJAMIN L. TOQUET, Westport, Conn. Filed July 7, 1899. Renewed Sept. 20, 1900. Serial No. 30,622. (No model.)

Claim.—A pair of nippers having hinged jaws and operating-handles, the rounded working faces of the jaws being cut to different depths for different sizes of wire, substantially as set forth.



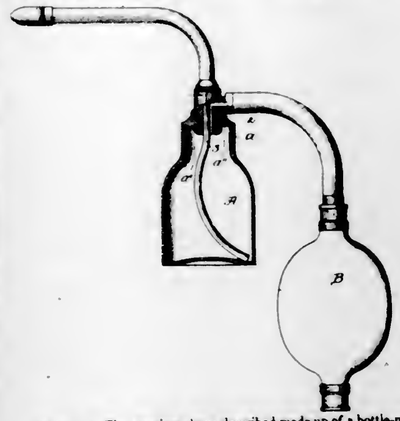
681,757. INSULATOR. HEINRICH TRAUB, Hamburg, Germany. Filed Dec. 7, 1900. Serial No. 39,067. (No model.)



Claim.—1. An insulator for electric conductors consisting of a metallic frame provided with a cross-bar extending from one side to the other thereof, the whole being entirely covered by an even layer of vulcanite substantially as described.

2. An insulator for electric conductors consisting of a metallic frame provided with a cross-bar extending from one side to the other thereof, the whole being entirely covered with an even layer of vulcanite, metallic loops for the attachment of the carrier-wires and a metallic loop on the cross-bar to hold the conductor substantially as described.

681,758. ATOMIZER. CHARLES L. TURNER, Malden, Mass., assignor to Rhodes Lockwood, Boston, Mass. Filed Sept. 14, 1899. Serial No. 730,460. (No model.)

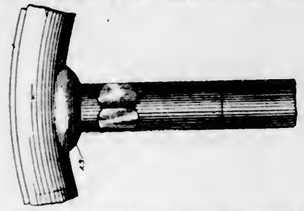


Claim.—1. The atomizer above described made up of a bottle-mouth having a joint surface upon its upper side, the said surface having an aperture circular at the ends with flattened sides, with a margin of joint surface on all sides of the aperture; a nozzle connection having its lower end of similar shape to that of the aperture aforesaid, and adapted to enter the same and having a portion above its lower end of size smaller than the smallest dimension across the aperture to permit the lower end to be passed through the aperture and the nozzle connection to be turned therein; an enlarged portion above the reduced portion, said enlarged portion having a joint surface upon its under periphery; and an inclined plane interposed between the upper side of the lower end of the nozzle connection and the under side of the bottle-mouth to draw the two joint surfaces together to form a fluid-tight joint.

2. The atomizer above described made up of a bottle, a nozzle and a bulb, the bottle-mouth having a joint surface upon its upper side, the said surface having an aperture circular at the ends with flattened sides, with a margin of joint surface on all sides of the aperture; the nozzle connection having its lower end of similar shape to that of the aperture aforesaid, and adapted to enter the same and having a portion above its lower end of size smaller than the smallest dimension across the aperture to permit the lower end to be passed through the aperture and the nozzle connection to be turned therein; an enlarged portion above the reduced portion, said enlarged portion having a joint surface upon its under periphery; and an inclined plane interposed between the upper side of the lower end of the nozzle connection and the under side of the bottle-mouth to draw the two joint surfaces together to form a fluid-tight joint.

3. The atomizer above described, made up of a bottle mouth having a joint surface upon its upper side, the said surface having an aperture longer in one dimension than in the other, with a margin of joint surface on all sides of the aperture; a nozzle connection having its lower end of similar shape to that of the aperture aforesaid and adapted to enter the same and having a portion above its lower end of size smaller than the smallest dimension across the aperture to permit the lower end to be passed through the aperture and the nozzle connection to be turned therein; an enlarged portion above the reduced portion, said enlarged portion having a joint surface upon its under periphery; and an inclined plane interposed between the upper side of the lower end of the nozzle connection and the under side of the bottle-mouth to draw the two joint surfaces together to form a fluid-tight joint.

681,759. TIRE-TIGHTENER. ANDREW VANDANDAIGUE, Willow-springs, Mo. Filed Mar. 6, 1901. Serial No. 50,092. (No model.)



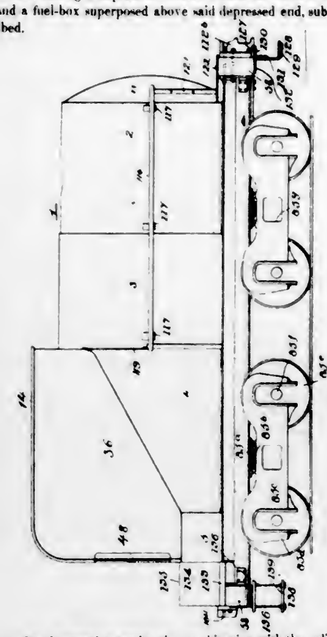
Claim.—1. The combination with a rim, and a spoke, which is terminated short of the rim and provided with a longitudinal central socket in its outer end, the rim having a corresponding transverse opening formed therein, of a non-rotatable screw-threaded stem projected radially inward from the rim, and provided with a longitudinal bore corresponding to the opening in the rim, a tubular rotatable coupling having its inner end swiveled upon the outer end of the spoke, and its opposite internal portion screw-threaded and receiving the stem, and a pin or rod fitted snugly through the opening in the rim, the bore of the stem and into the socket in the spoke, the internal diameter of the coupling being larger than the external diameter of the pin or rod.

2. A spoke-and-rim connection, consisting of a rotatable tubular coupling, having one internal end portion formed into a seat for the swiveled reception of the outer end of a spoke, and its opposite end portion internally screw-threaded, a non-rotatable screw-threaded stem fitted into the internally-screw-threaded end of the coupling, and provided at its outer end with a rim-engaging base, there being a longitudinal bore formed through the stem, and a pin or rod fitting snugly the bore of the stem and projected in opposite directions at the outer end of the coupling and at the outer end of the stem, the internal diameter of the coupling being greater than the external diameter of the rod or pin.

3. A spoke-and-rim connection, consisting of a rotatable cylindrical coupling, having opposite internal marginal shoulders, the respective terminal internal portions between the shoulders and the adjacent ends of the coupling forming smooth cylindrical sockets, the intermediate portion of the coupling being inwardly thickened to form the shoulders and internally screw-threaded, a non-rotatable cylindrical stem fitting one of the socketed ends of the coupling, and having a reduced screw-threaded extremity fitted to the screw-threaded portion of the coupling, there being a longitudinal bore formed through the stem, and a rim-engaging base at the outer end of the stem, and having a recessed outer face for the reception of a rim, and a rod or pin driven through the bore of the stem and projected outwardly in opposite directions at the outer ends of the coupling and the stem, respectively.

681,760. TENDER FOR LOCOMOTIVES, &c. CORNELIUS VANDERBILT, New York, N.Y. Filed May 31, 1901. Serial No. 62,465. (No model.)

Claim.—1. In a locomotive-tender, the combination with a cylindrical tank, having a depression formed within its vertical limits at one end, and a fuel-box superposed above said depressed end, substantially as described.



2. In a locomotive-tender, the combination with the cylindrical tank, of an inclined depression formed within its vertical limits at one end, and a fuel-box superposed upon said tank over said inclined depression, the latter forming the bottom of the box, substantially as described.

3. The combination in a locomotive-tender, of the tank having a depression at one end, and a fuel-box superposed over said depression having defining walls transversely of greater width than the diameter of the tank, and extending above the tank, substantially as described.

4. The combination with the tender, of the tank having an end inclined to the vertical, and a rectangular fuel-box superposed over said inclined end, and having a bottom or septum dividing the tank and box extending transversely beyond the tank, and perpendicular sides and an end extending above said tank, substantially as described.

5. In a locomotive-tender, the combination with a tank, of an inclined septum, formed within the vertical limits of the tank at one end, and extending transversely beyond the tank, plates extending perpendicularly from said septum outside of the tank's diameter, and above the tank, and an end plate connecting the side plates and extending above the tank, substantially as described.

6. In a locomotive-tender, the combination with a tank, of an inclined septum formed within the vertical limits of the tank at one end, and extending transversely beyond the tank, plates extending perpendicularly from said septum outside the tank's diameter and above the tank, an end piece connecting the side plates and extending above the tank, and a perpendicular front plate having an aperture opening into the space between the said plates.

7. In a locomotive-tender, the combination with the tank, having closed ends, an inclined septum formed at one end of the tank within its vertical limits and extending from one end of the tank inwardly and upwardly and transversely beyond the sides of the tank, longitudinal and transverse walls rising from the transverse ends of said septum above the tank, the front wall being inset from the end of the tank, and an aperture formed in the inset wall leading into the space between said walls, substantially as described.

8. In a locomotive-tender, the combination with the tank, the fuel-box superposed over one end of the tank, an inclined septum dividing the box from the tank, and having a horizontal terminating-plate, the box having the front end plate, boxes located in the front corners of the fuel-box at each side of its longitudinal center, the terminating-plate forming the bottom of said box, an aperture in the front plate leading into the fuel-box, and separate apertures in the said front plate at each side of the first-mentioned aperture leading into said separate boxes, substantially as described.

9. In a locomotive-tender, a superposed fuel-box at one end, an inclined bottom dividing the fuel-box from the tank, and a forward horizontal extension of said bottom, separate boxes located at the front corners of the fuel-box, and at each side of the longitudinal center, said boxes having top plates inclined downwardly and inwardly in a plane transverse to the longitudinal axis of the tank, substantially as described.

10. In a locomotive-tender, comprising a tank and a superposed fuel-box, separate boxes located at the front corners of the fuel-box and at each side of its longitudinal center, the bottom of said box being formed by said septum, and transversely disconnected and inwardly and downwardly inclined top plates for said boxes, substantially as described.

11. In a locomotive tender, the combination with the tank, and superposed fuel-box, a septum dividing the tank from the fuel-box, a brace extending transversely of the tank and beneath said box, and upwardly from the bottom of the tank, substantially as described.

12. The combination with the tank, of the superposed fuel-box, a septum extending between the fuel-box and the tank, a brace extending transversely of the tank, and upwardly from its bottom, and a bolster secured to the tank extending transversely thereof, and located in line with said brace, substantially as described.

13. The combination with the tank, of a fuel-box, and a dividing-septum, of a plate extending transversely within the tank, and secured thereto below and in line with the septum, said plate having an aperture, substantially as described.

14. The combination with the tank, of the fuel-box, the dividing-septum, the segmental and flanged ribs secured within the tank below the septum and intermediate of its longitudinal limits, and a plate secured to said flange and extending transversely of the tank within the same to the septum, said plate having an aperture, substantially as described.

15. The combination with the tank, of the fuel-box, the dividing-septum, the segmental and flanged rib secured within the tank below the septum and intermediate of its longitudinal limits, and a plate secured to said flange and extending transversely of the tank within the same to the septum, said plate having an aperture, and a transverse bolster secured to the exterior of the tank below said rib and plate, substantially as described.

16. In a locomotive-tender, the fuel-box having an inclined bottom with a front horizontal extension, an aperture in the front plate, means for increasing or diminishing the area of said aperture, and a plate as 57ᵉ, extending between the transverse limits of the said aperture.

17. The front plate 45 of the tender having an opening 57, combined with the steps 57ᵃ and the stripe 57ᵇ secured to the plate at the sides of said opening and having the arms 57ᶜ supporting the steps.

18. In a locomotive-tender, the combination of a frame comprising longitudinal sills, cross-sills, a circular tank superposed on the frame and having a series of segmental and concentric ribs secured within said tank and to its shell intermediate of the cross-sills, substantially as described.

19. In a locomotive-tender, the combination with the frame and the tank, of a plurality of dasher-plates extending from the top and bottom of the tank in transverse disalinement with each other, and at an angle to the plane of the tank-sheeting, substantially as described.

20. In a locomotive-tender, the combination with the frame and the tank, of a series of exterior septums disposed at an angle to the plane of the tank-sheeting, and drainage-holes formed in said septums near the bottom of the tank, substantially as described.

21. In a locomotive-tender tank, the combination with a frame and the tank, of a series of sheets transversely disposed across the lower interior area of the tank, and further sheets likewise disposed within the upper interior area of the tank, and in perpendicular disalinement with the first-mentioned sheets, substantially as described.

22. The combination with the tank, the transverse bolsters, the longitudinal sills secured to the ends of the bolsters, and wings extending upwardly from said sills to the tank, substantially as described.

23. The combination with the tank, of a framework for the same comprising the end sills, transverse bolsters, the longitudinal sills extending between the end sills and secured to the ends of the bolsters, and wings extending outwardly from the longitudinal sills to the tank, substantially as described.

24. The combination with the tank, of a frame for the same comprising the transverse end sills, transverse intermediate bolsters recessed to receive the tank, longitudinal sills secured to the ends of the bolsters, and wings extending from the longitudinal sills upwardly and outwardly to the tank, substantially as described.

25. The combination with the tank, a frame for the same comprising the end sills, the intermediate transverse bolsters, longitudinal sills secured to the ends of the bolster and end sills, wings extending outwardly from said longitudinal sills to the tank, and the filling-plates interposed between the ends of said wings and tank, substantially as described.

26. The combination with the tank having courses of different diameter, of the bolsters, the longitudinal sills secured to the ends of the bolsters, end sills connecting the longitudinal sills, wings secured to the longitudinal sills coextensive with the tank and extending upwardly thereto, and filling-plates coextensive with the minor courses interposed between the wings and the tank, substantially as described.

27. The combination with the tank, of a frame therefor comprising end sills, longitudinal sills extending between the end sills, intermediate bolsters having curved upper sections extending between the sides of said longitudinal sills secured thereto, and extending below said sills, the tank resting within the curve of said bolsters, and end castings secured between the vertical sides of the ends of said longitudinal sills and abutting against the sides of the end sills, substantially as described.

28. The combination with the tank, and a frame therefor comprising the longitudinal sills, the end sills, end castings secured to the end sills and longitudinal sills, and bolsters located intermediate of the end sills and castings, and a brace extending between the longitudinal sills intermediate of the bolsters, substantially as described.

29. The frame comprising the end sills, the duplex longitudinal sills, the wings having a vertical section interposed between the sill-sections, each wing having outwardly-extending upper sections, bolsters extending between the inner sill-sections, the ends of the bolsters, the longitudinal sill-sections, and the vertical wing-sections being secured together, and a tank secured on said bolster and to the upper wing-sections, substantially as described.

30. The combination with the tank, and a frame comprising cross-bolsters, the two longitudinal sills secured to the ends of the bolster, the wings secured between the sill-sections, and extending upwardly to the tank, and the filler-plate interposed between the upper ends of the wings and the tank, and secured thereto, substantially as described.

31. The combination in a locomotive-tender, the fuel-box superposed over a depression in one end of the tank, running-boards at the sides of the tank extending from its rear end to the fuel-box, steps leading from the running-board to the fuel-box, and steps below the running-boards at said rear end, substantially as described.

32. In a locomotive-tender, the combination with the cylindrical tank, having one end of reduced diameter transversely, an inclined top plate over the reduced end, and a fuel-box disposed vertically and transversely over the inclined plate and reduced end, substantially as described.

33. The combination with the angular members 95 of the intermediate brace of the tender-framing, of the plate 143 secured to said angular members, and a brake-cylinder secured to the horizontal face of said plate, substantially as described.

34. The combination with the end sill 58, of the plate 122 superposed thereover, the tender-framing, the tank supported thereon, the end of the tank being located adjacent the said plate, and steps depending from the end sill below said plate, substantially as described.

35. In a locomotive-tender, the combination with the end sill 58, the tender-framing, the fuel-box having the horizontal portion 32 of its flooring, the riser 134 having the platform 136 on the end sill in line with the flooring 32, and steps secured to the ends of the end sill 58 below the platform, substantially as described.

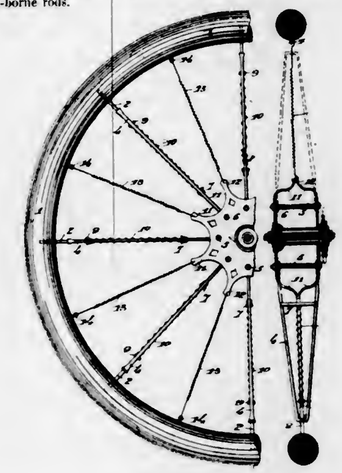
681,761. WHEEL. WILLEM J. H. VERHEGGEN, DANIEL H. J. VAN MENS, and PAULUS F. VAN KEEP, Breda, Netherlands. Filed Mar. 27, 1901. Serial No. 53,075. (No model.)

Claim.—1. In an improved wheel, the combination of two plates, made in the form of a star, placed one on each side of the boss, having their branches bent inward, with metal tubes or rods fixed to the inner edge of the wheel-rim, these tubes or rods being slidably arranged in suitable stirrups fixed to the before-mentioned plates, the said rods or tubes being surrounded by compression-springs one end of each spring bearing against a cross-piece fixed to the stirrup and the other end bearing against an adjustable nut screwed on the said rod, substantially as set forth.

2. In an improved wheel the combination of two plates made in the form of a star, placed one on each side of the boss, having their branches bent inward until they meet, and means for attaching the ends of coiled tension-springs bent in the form of a hook, the other end of each spring hooking into an eyelet fixed to the inner side of the wheel-rim.

3. In an improved wheel, the combination of two plates made in the form of a star placed one on each side of the boss, having their branches bent inward, and means for attaching the ends of coiled tension-springs bent in the form of a hook, the other end of each spring hooking into an eyelet fixed to the inner side of the wheel-rim the said spring being always in the same diametrical line as a compression-spring situated on the other side of the boss, substantially as set forth.

4. In an improved wheel, the combination of two plates made in the form of a star, placed one on each side of the boss, and having their branches bent inward until they meet centrally over the hub, coiled tension-springs hooking at the inner end over said branches at their meeting-point, and at the outer end into eyelets fixed to the inner side of the rim, stirrups through the outer bars of which the straight reaches or stems of said springs play, rods or spokes entering sockets in the rim and playing through outer and inner bars of said stirrup, one on each side of and abreast with the tension-spring thereto appertaining, compression-springs coiled around said rods and seated at the inner ends against inner bars of said stirrups, and adjusting-nuts screw-threaded upon said rods against which the outer ends of said springs abut: each stirrup and the tension-spring and pair of spring-borne rods thereto appertaining being arranged diametrically opposite a corresponding stirrup, tension-spring and pair of spring-borne rods.



681,762. METER-BOX. WILLIAM VOLKHARDT, Stapleton, N. Y. Filed Nov. 3, 1900. Serial No. 35,408. (No model.)

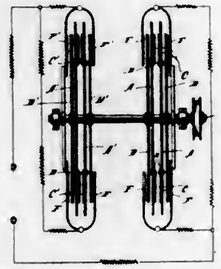


Claim.—1. A meter and stop-cock box, comprising a base-plate, having an upstanding circumferential flange, an open-ended tubular bottom section of less diameter than the base-plate and provided with a pair of bifurcations in its lower end, the lower marginal edge of the bottom section resting upon the base-plate within the outer marginal edge thereof at one side of and snugly fitting the upstanding flange, an upper open-ended tubular box-section telescopically embracing the upper portion of the bottom section, and having an outwardly-directed plate-like marginal flange of extended width at the bottom thereof.

2. A box or casing for street-meters and the like, having upon its upper end portion an inner marginal flange provided with a plurality of diametrically opposite notches, and a removable cover, having a central downwardly-projecting fastening device, and a locking cross-bar, having an intermediate upstanding collar receiving the fastening device and spacing the bar below the cover, the ends of the bar being passed downwardly through opposite notches of the flange and then engaged beneath the flange.

3. A box or casing for street-meters and the like, comprising a base, having an upstanding marginal flange, provided with one or more notches, and a box or casing having its opposite ends open, and provided with one or more upstanding external wings at the bottom edge thereof and received within the notches in the marginal flange of the base.

681,763. ART OF DEVELOPING STATIC ELECTRICITY. ROME V. WAGNER, Chicago, Ill. Filed Mar. 7, 1901. Serial No. 50,244. (No specimens.)



Claim.—1. The method of developing electrical energy, which consists in rotating a non-conducting body continuously in one direction in proximity to an inductor continuously charged with energy of one polarity only, inducing on a rotating surface a development of electrical energy of one polarity only, and collecting the electricity so developed.

2. The method of developing static electricity, which consists in rotating a body continuously in one direction in proximity to a charged inductor, and causing on the body a development of static electricity of one polarity, without reversal of polarity during the rotation.

3. The method of developing static electricity, which consists in moving a non-conducting body in one direction near an inductor of one polarity, and a second body near an inductor of opposite polarity, thereby developing by induction in each case electrical energy of opposite polarity from that of the inductors, collecting from each of the moving bodies electrical energy developed at its surface, and conveying a part of the energy from each moving body to its proper terminal, and another portion to the inductor of the other moving body.

4. The method of developing static electricity, which consists in moving a non-conducting surface continuously in one direction in proximity to an inductor of one polarity, and a second similar surface in similar manner in proximity to a second inductor of opposite polarity, developing electrical energy by induction, and collecting from the moving surface of the one body electrical energy of one polarity only, and from the other body energy of opposite polarity only.

681,764. AUTOMATIC MUSICAL INSTRUMENT. JNO. A. WESER, New York, N. Y. Filed Apr. 26, 1898. Serial No. 678,832. (No model.)

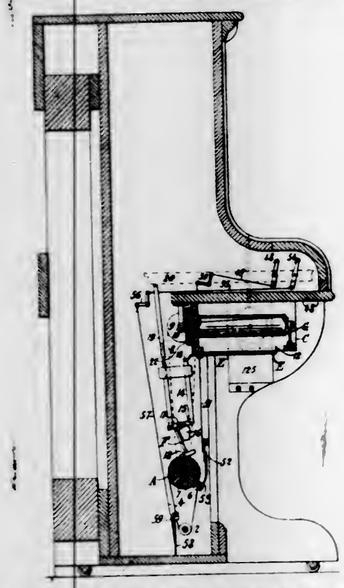
Claim.—1. In combination with movable fingers D and oscillatory shafts E E having upturned arms 12, a support for these shafts consisting of an oblique compound bar 28 comprising a strip 29 approximately L-shaped in cross-section, and a strip 30 fitting into the angle thereof, one of said strips having means for confining said shafts, and said strips being spaced apart sufficiently to permit the passage of the upturned arms 12 between them.

2. In a musical instrument actuated by a perforated sheet, adjustable edge guides for said sheet, opposite levers on which said guides are mounted, a mechanical connection between said levers adapted to cause them to move simultaneously toward and from each other, and means for fastening either lever in position after adjustment.

3. The combination with sheet-edge guides 34, 34, of levers 37 and 38 on which they are mounted, a link 40 connecting said levers on opposite sides of their fulcrums, and a set-screw for clamping either lever in place.

4. The combination of sheet-edge guides 34, 34, having pivotal con-

nections with their supports on which the guides can vibrate to accommodate themselves to variations in the edges of the music-sheet.



5. In an automatic musical instrument controlled by a music-sheet, the combination with the presser-bar for holding down such sheet and the drawer containing the sheet, of a guard applied to the presser-bar for forcing it downward as the drawer is pushed into place.

6. In an automatic musical instrument, the combination with an action comprising a continuously-revolving motor-cylinder, and a series of friction-shoes movable into engagement therewith under the control of a music-sheet, of a motor for driving said cylinder and sheet independently, speed-varying means interposed between said motor and cylinder for varying the speed of the cylinder relative to that of the sheet, and an expression-stop, with mechanical connections from said stop to said speed-varying means for controlling the piano or forte effects at will, independently of tempo effects.

7. In an automatic musical instrument adapted to be operated by a cylinder, and controlled by a music-sheet, the combination with a feed mechanism for propelling such sheet, and a motor for driving such feed mechanism and cylinder independently, of a speed-varying device interposed between said motor and mechanism for varying the speed of the latter relative to that of the cylinder, a tempo-stop, and mechanical connections from said stop to said speed-varying device, whereby the operator may by manipulating said stop control the rate of travel of the sheet, independently of that of the cylinder.

8. In a mechanical musical instrument adapted to be operated by a music-sheet, the combination with such sheet having a stop, feed mechanism for propelling said sheet, and a mechanism for reversing the feed to rewind the sheet, and automatically restoring it to position for again playing, of a separable driving connection between the sheet and said feed mechanism, and mechanical means engaging such stop and moving with the sheet during the end of its winding movement and disengaging said separable connection during such movement, and means operated by the feed mechanism after such disengagement and then engaging said reversing mechanism with the sheet to rewind it.

9. In a mechanical musical instrument adapted to be operated by a music-sheet, the combination with such sheet having a stop, feed mechanism for propelling said sheet, a stop device engaged by said stop and moving with the final movement of the sheet for stopping said sheet at the end of the travel of the sheet, and a rewinding mechanism for reversing the feed to rewind the sheet, of a separable connection between said rewinding mechanism and said feed mechanism, and means operated by the feed mechanism after stoppage of the sheet and then engaging said separable connection.

10. In a mechanical musical instrument adapted to be operated by a music-sheet, the combination with such sheet having a stop, feed mechanism for propelling said sheet, a stop device mechanically engaged by said stop and then moving with the sheet for stopping said sheet at the end of the travel of the sheet, of a separable connection between said sheet and the feed mechanism and operated by said stop device to stop the sheet, a rewinding mechanism for automatically rewinding said sheet, and a cam operated by the feed mechanism and setting said rewinding mechanism in operation after stoppage of the sheet.

11. In an automatic musical instrument operated by a music-sheet, the combination with such sheet having a stop, of a winding-on roller, a feed mechanism for actuating it, a clutch connecting said feed mechanism to said roller, and a stop device mechanically engaged by said stop and then moving with the music-sheet at the end of a musical selection and adapted to disengage said clutch to stop the winding of the sheet, and means operated by the feed mechanism after disengagement of said clutch and moving said roller away from said mechanism and an automatic lock holding said rolls, where thus moved.

12. In an automatic musical instrument operated by a music-sheet, the combination with such sheet having a stop, of winding-on and winding-off rollers, a feed mechanism for driving the former, a reversing-gear interposed between said feed mechanism and winding-off roller for driving the latter backward for rewinding, clutches connecting said rollers to their driving means, and a mechanical stop device engaged by and then moving with the sheet, adapted when operated to disengage one clutch and means operated by the feed mechanism after said disengagement for engaging the other clutch to reverse the travel of the sheet.

13. In an automatic musical instrument operated by a perforated music-sheet, and a series of fingers pressing against the sheet, the combination with such sheet having a plurality of stops, of winding-on and winding-off rollers, a feed mechanism for driving the former, a reversing-gear interposed between said feed mechanism and winding-off roller for driving the latter backward for rewinding, clutches connecting said rollers to their driving means, means for holding said fingers away from the sheet, means for operating said clutches, and a stop device mechanically governing said means, said stop device mechanically moved by said sheet, and when moving in one direction governing the means for engaging one clutch with its driving means and operating the means for disengaging the one which drives the sheet in a forward direction, and operating said means for holding said fingers away from the sheet; and when moving in the opposite direction releasing such clutch-operating means, thereby reversing the engagement of said clutches for driving the sheet in a reverse direction, said stop device operated first by one of said stops and then released by another thereof.

14. In an automatic musical instrument operated by a music-sheet, the combination with such sheet having stops, of feed mechanism for propelling said sheet, and a rewinding mechanism for winding the sheet backward, of two stop devices engaged and mechanically moved by the sheet, the one engaged by the sheet at the end of a musical selection for stopping the feed of the sheet, and the other engaged by the sheet at the end of the rewinding operation to stop such rewinding, and means automatically starting the forward feed of the sheet when the rewinding is stopped.

15. In an automatic musical instrument operated by a music-sheet, the combination of a series of fingers actuated by perforations in the sheet, a feed mechanism for driving the sheet, a rewinding mechanism for driving the sheet backward, means preventing action of the fingers on the sheet during its backward movement, and two stop devices arranged on opposite sides of said series of fingers, the one operating said last-mentioned means and engaged by the sheet at the end of its forward travel to stop the feed mechanism, and the other engaged by the sheet at the end of its backward travel to stop the rewinding mechanism.

16. In a mechanical musical instrument comprising a series of fingers D D adapted to be acted on by a music-sheet, the combination therewith of means automatically operated by the sheet for simultaneously pressing down all of said fingers to throw them out of engagement with the sheet and enable the music-sheet to be reversed without injury.

17. In a mechanical musical instrument comprising a series of fingers D D adapted to be acted on by a music-sheet, the combination with such fingers, such sheet having perforations receiving said fingers, and means for rewinding such sheet, of means for automatically pressing down all of said fingers to throw them out of action, consisting of a depressing-plate above the fingers and between them and the sheet, and a parallel-motion device imparting to said plate a parallel movement into or out of engagement with the series of fingers.

18. In an automatic musical instrument operated by a music-sheet, the combination with the series of fingers D D and presser-bar J overlying them, of means for facilitating the rewinding of the sheet consisting of an elastically-mounted bar arranged on the advancing side of said fingers and adapted as the sheet is drawn over it toward the fingers in rewinding to lift the sheet clear of said fingers.

19. In an automatic musical instrument operated by a music-sheet, the combination with the series of fingers D D and presser-bar J overlying them, of means for facilitating the rewinding of the sheet consisting of a guide-roller 111 mounted on the advancing side of said fingers, movable up and down, and a spring pressing said roller upwardly.

20. In a mechanical musical instrument adapted to be operated by a music-sheet, the combination with such sheet having a stop, and means for winding and rewinding the sheet, of a circuit closer or breaker comprising a lever pressing against the music-sheet and adapted to engage with a prescribed stop in such sheet, with a switch-arm in connection with said lever movable thereby between circuit-closing and circuit-breaking positions, and means operated by the forward movement of the sheet and preventing operation of said lever during backward movement of the sheet.

21. In a mechanical musical instrument adapted to be operated by a music-sheet, a circuit closer or breaker comprising a lever pressing against the music-sheet and adapted to engage with a prescribed stop in such sheet, with a switch-arm in connection with said lever movable thereby between circuit-closing and circuit-breaking positions, combined with a rewinding mechanism for imparting backward motion to the music-sheet, and means in connection with such rewinding mechanism for preventing the engagement of said lever with said stop during the backward travel of the sheet.

22. In a mechanical musical instrument adapted to be operated by a music-sheet, a circuit closer or breaker comprising a lever pressing against the music-sheet and adapted to engage with a prescribed stop in such sheet, with a switch-arm in connection with said lever movable thereby between circuit-closing and circuit-breaking positions, combined with a rewinding mechanism for imparting backward motion to the music-sheet, and means in connection with such rewinding mechanism for preventing the engagement of said lever with said stop during the backward travel of the sheet, consisting of a block normally out of line with said stop, but movable during such rewinding into line therewith beneath said lever so as to support the latter during the passage under it of such stop in the sheet.

23. In a mechanical musical instrument operated by a music-sheet, the combination with a sheet having winding and rewinding stops and an intermediate stop, of a feed mechanism for propelling said sheet forward, a rewinding mechanism for propelling the sheet backward, and fingers pressing against the sheet when it is propelled forward, means automatically holding said fingers away from the sheet when it is propelled forward, means controlled by the sheet for governing said feeding and rewinding mechanisms, and a stop device for stopping the instrument controlled by said intermediate stop in said sheet, and means automatically preventing operation of the last-mentioned device during rewinding of the sheet.

24. In a mechanical musical instrument operated by a perforated music-sheet, the combination with such sheet, fingers pressing against such sheet, a feed mechanism for propelling said sheet forward, a rewinding mechanism for propelling the sheet backward, means engaged and moved by the sheet for controlling said mechanisms, an automatic stop device for stopping the instrument controlled by stops in said sheet, means operated by the movement of the sheet for preventing the operation of said stop device during the rewinding of the sheet, and means controlled by the sheet during its forward movement holding said fingers away from the sheet during rewinding, whereby the instrument can be stopped by such stop device only when the sheet is traveling forward, and said fingers cannot interfere with rewinding.

25. In musical instruments and the like, the combination with a plurality of shafts having laterally-turned ends, and of successively different lengths between said ends, of a support for one end of each of said shafts consisting of an oblique compound bar consisting of two strips on opposite sides of the shafts, one of the strips having means for confining the shafts, and one of the strips engaging the laterally-turned end of each shaft and thereby preventing longitudinal displacement thereof.

26. For musical instruments having a traveling sheet, the improved guide consisting of a pivotally-mounted member having guiding portions at each side of its fulcrum for engaging the edge of a sheet, whereby the guide can oscillate to correspond with the edge of the sheet.

27. In an automatic musical instrument, the combination with a music-sheet movable into and out of playing position, and a presser movable toward the sheet, for holding it into position, and movable with the sheet into and out of position for playing, of means automatically forcing said presser to the operative position when it with the sheet is moved into position for playing.

28. In automatic musical instruments comprising a traveling music-sheet, and a presser, and a movable drawer carrying said parts, the combination with said parts of adjustable means for automatically moving the presser into position against the sheet as the drawer is moved into position for playing.

29. In automatic musical instruments, the combination with an action comprising a revolving cylinder for operating it and a traveling music-sheet, and a motor having a substantially uniform speed and driving both said parts independently, the combination with said parts of independent driving mechanisms for the cylinder and sheet respectively, and means for graduating the speed of either one relatively to that of the other.

30. In automatic musical instruments, the combination with an action comprising a revolving cylinder for operating it and a traveling music-sheet, and a motor for driving both said parts having a predetermined speed independent of that of said parts, the combination with said parts of independent driving mechanisms for the cylinder and sheet respectively, and means for varying the speed of the cylinder relatively to that of the sheet.

31. In an automatic musical instrument operated by a perforated music-sheet traveling over a series of fingers, the combination with said fingers, a strong perforated music-sheet depressing the latter, means pressing said fingers against said sheet, a feed mechanism for the sheet, and a rewinding mechanism therefor, of means holding said fingers away from the sheet during rewinding, a starting device for said feed mechanism adapted to move with the sheet, means carried by the sheet automatically engaging and moving said starting device backward with the sheet during the rewinding of the sheet for again starting the forward travel of the sheet, and automatically operating the means holding said fingers to permit the fingers to press against the sheet.

32. In an automatic musical instrument operated by a music-sheet traveling past a series of fingers, the combination with a stiff perforated sheet, said fingers, and means pressing the fingers against the sheet, of a feed mechanism for the sheet, a reversing mechanism for the latter, means for operating the reversing mechanism, a device for governing the operation of the last-named means, adapted to move with the sheet, and means carried by the sheet automatically engaging and moving said device forward with the sheet at a predetermined point in the travel of the sheet, shoes connected to said fingers, a motor-cylinder for operating said shoes, and automatically-acting means preventing engagement between the fingers and sheet prior to reverse travel of the sheet.

33. In a musical instrument, comprising a thick perforated music-sheet, a winding-on roll, a winding-off roll, a series of fingers pressing against the sheet and movable into its perforations, a motor-cylinder, and shoes connected to said fingers in proximity for frictional engagement with said cylinder when the fingers enter the perforations in the sheet, the combination with such sheet having two series of perforations located at different parts of its length and adapted to different musical selections, and having between said series a neutral unperforated portion, and having in such neutral portion a stop, of a stop device controlled by said stop for stopping travel of the sheet between said series of perforations, rewinding mechanism for automatically rewinding the sheet and means for resetting the sheet at the end of its backward travel, and means automatically preventing engagement of said fingers with the perforations in said sheet during rewinding.

34. In an automatic musical instrument, comprising a perforated traveling sheet, a series of fingers controlled by and entering the perforations of the sheet, shoes connected to said fingers, a motor-cylinder opposite said shoes, rollers for winding on and winding off said sheet, and driving mechanism for operating said rollers, the combination with such parts of clutches for alternately connecting one or the other of said rollers to the driving mechanism, means automatically operated by the forward travel of the sheet, and disengaging one of said clutches, means operated by the driving mechanism and engaging the other clutch after disengagement of the first, means operated by the forward movement of the sheet and pressing said fingers out of engagement with the sheet near the end of its forward movement, and means operated by the rearward movement of the sheet releasing the fingers and the engaged clutch at the end of such rearward movement, and means then automatically reëngaging the other clutch for starting the forward travel of the sheet.

35. In automatic musical instruments the combination with a series of fingers, shoes carried by said fingers, and a motor-cylinder opposite said shoes, of a strong traveling sheet pressing against said fingers for resisting movement thereof, having parallel rows of perforations for receiving the ends of said fingers at predetermined points in the travel of the sheet, and having a cut-out located at a point out of line with said perforations and between the lines of two adjacent rows of such perforations, whereby said cut-out cannot be engaged by said fingers, means for propelling the said sheet forward, and a stop device engaging said sheet in the line of said cut-out, and controlled by the latter, for stopping travel of the sheet at a predetermined position of the latter.

36. In an automatic musical instrument, comprising a traveling sheet, a series of contacts controlled thereby, an action, a motor-cylinder and shoes operated thereby and controlled by the contacts, driving mechanism for the sheet, and means for rewinding the sheet, the combination with said parts, of means for automatically holding the shoes out of action during rewinding of the sheet.

37. In a mechanical musical instrument, comprising a series of fingers D pressing against and adapted to be controlled by the traveling music-sheet, a plurality of friction-shoes having a tendency to engage a motor-cylinder, and restrained and controlled by said fingers, and such motor-cylinder for operating said shoes frictionally, the combination with said parts of means for reversing the sheet, and automatically operated means

other than said sheet holding the shoes away from the cylinder during the backward travel of the sheet.

38. In a mechanical musical instrument comprising a series of fingers D, adapted to be acted on by the music-sheet, the combination therewith of a presser opposite said fingers for moving them out of contact with the sheet, and means operated from the sheet for moving said presser against the fingers.

39. In an automatic musical instrument operated by a music-sheet, the combination with a series of fingers and a presser-bar, of a spring-actuated member pressing the sheet toward the bar and mounted adjacent to said fingers.

40. In automatic musical instruments, the combination with a traveling sheet and a motor for driving it, of a roll on which said sheet is wound, driving mechanism for such roll, means moving such roll out of engagement with said mechanism for permitting unwinding of the sheet, and means holding the roll in its disengaged position.

41. In musical instruments, the combination with a traveling sheet, of driving mechanism for moving it, a roll for winding on such sheet driven by said mechanism and movable out of engagement therewith, and means actuated by the motion of the sheet and holding said roll in its displaced position.

42. In automatic musical instruments, the combination with a perforated traveling sheet, driving mechanism therefor, and fingers entering the perforations in the sheet, of a roll for winding on said sheet, and a shaft for said roll, one of said parts movable axially relatively to the other, and when in one position engaging and when in the other position disengaging said roll from said driving mechanism, automatic means moving said movable part axially, and means automatically disengaging said fingers from the sheet when said movable part is moved.

43. In automatic musical instruments, the combination with a traveling sheet and driving mechanism therefor, of two rolls on which said sheet is wound, one of said rolls being movable axially and when moved disengaging its driving connection, means controlled by the sheet for automatically moving the latter roll axially, driving connections for said rolls, and means operated by the axial movement of said movable roll and engaging the other roll with its driving connection, whereby the sheet controls one roll and as one roll ceases to be driven driving of the other is started for reverse winding, and the movement of one roll controls the other.

44. In automatic musical instruments, the combination with a music-sheet, a plurality of fingers controlled thereby, and rolls G H for moving it, of means for driving said rolls, a lever 64 moved by said sheet and freeing one of said rolls to permit rewinding, and means automatically moving said fingers when said roll is freed.

45. In automatic musical instruments, the combination with a traveling sheet, a plurality of fingers bearing thereagainst, a plurality of shoes controlled by said fingers, a cylinder operating said shoes, and means for driving said parts, in combination with means operated by the traveling sheet and moving the shoes away from the cylinder near the end of travel of the sheet.

46. In mechanical musical instruments, the combination with a traveling sheet and rollers G H therefor, of a lever 64 engaging and moved by the sheet, a lever 67 moved by such lever 64, and a separable driving connection for one of said rolls moved bodily with and disengaged by the movement of the lever 67, and a similar connection governed by said lever for the other of said rolls.

47. In mechanical musical instruments, the combination with a traveling sheet, rolls therefor, a plurality of fingers pressing toward said sheet, means for holding said fingers away from the sheet, and a separable driving connection for one of said rolls, of a lever 95 engaging and moved by the sheet, and a connection between said lever and said driving connection permitting the latter to engage such roll when such lever is so moved, and a connection freeing said fingers when said lever is so moved.

48. In mechanical musical instruments, the combination with a traveling sheet, rolls therefor, and a drawer carrying said parts, of a presser-bar J for said sheet extending across the latter, swinging vertically thereover, and hinged to said drawer at a point remote from the edge of said sheet and at rear of the back wall of said drawer.

49. In an automatic musical instrument controlled by a traveling music-sheet, and a series of contacts opposite the sheet and pressing against it, the combination with a feed mechanism for driving the sheet, of a rewinding mechanism for driving the sheet backward, means throwing such mechanisms alternately into or out of operation, means for alternately removing and restoring engagement of the contacts with the sheet, and means carried by the sheet near its opposite extremities, the one at one end thereof governing the means for throwing the rewinding mechanism into operation and the means removing said contacts from said sheet, and the other at the other end governing the means for throwing the winding mechanism into operation and restoring engagement of said contacts with the sheet, at predetermined points in the travel of the sheet.

50. In an automatic musical instrument operated by a stiff perforated music-sheet traveling past a series of contacts, pressing forcibly against, restrained by, and entering the perforations of said sheet, a feed mechanism for the sheet, and a stopping device for such mechanism, at one side of said contacts, the combination with said parts of a stop carried by the sheet moving past said contacts, and engaging and moving said stopping device with the sheet and thereby automatically operating said device to stop travel of the sheet at a predetermined point, means for automatically removing said contacts from the sheet and means for preventing operation of said stopping device.

51. In automatic musical instruments, the combination with a sheet having perforations for playing two separate selections of music, contacts moving into said perforations, means forcibly pressing said contacts individually against said sheet, and a feed device for such sheet, of means automatically stopping travel of the sheet at a point between the separate selections of music thereon, comprising a lever, engaging the sheet and moving into a perforation therein between said selections, and out of line with the perforations of said selections, and a stop formed as a perforation in the sheet moving past said contacts and receiving said lever for stopping the sheet between said selections, and means for forcibly pressing said contacts away from said sheet.

52. In an automatic musical instrument operated by a music-sheet, the combination with a motor and a series of contacts, of a music-sheet having perforations for playing a musical selection, controlling said contacts for operating the instrument, and having a stop in advance of said selection, and another stop at rear of said selection, means forcibly pressing said contacts individually against said sheet, means for feeding the sheet forward during playing, means for rewinding the sheet, a stop device mechanically moved by said stop in advance of said selection during the rewinding of the sheet, and thereby terminating the rewinding, means holding the contacts away from the sheet during rewinding, means released by said stop device and restoring said contacts to engagement with said sheet after rewinding, and an electrical stop device controlled by said stop at the rear of said selection, and stopping the motor after such selection has been played.

53. In a musical instrument operated by a music-sheet, the combination with a motor for driving the sheet, and a series of contacts controlled by the sheet, pressing against it and individually entering its perforations, of such sheet, having perforations for a plurality of musical selections, having a stop for stopping the sheet at the end of its travel, a stop for terminating rewinding, and an intermediate stop for arresting the sheet between such selections, means for feeding the sheet forward, a rewinding device, means for governing its operation mechanically moved by said first-mentioned stop and starting rewinding, a stop device mechanically moved by said second-mentioned stop and stopping rewinding, and an electrical stop device operated by said intermediate stop and arresting the sheet between such selections, and means automatically holding said contacts away from said sheet during rewinding and releasing when rewinding is completed.

54. In a musical instrument controlled by a sheet, the combination with winding-off and winding-on rolls, a series of contacts, and a perforated sheet moving past said contacts in a rectilinear path from said winding-off to said winding-on roll, said contacts pressing against, and entering the perforations of, said sheet, and said sheet controlling the position of said contacts for holding them in a predetermined position, of a presser-bar engaging the face of said sheet opposite said contacts for holding the sheet toward the latter, said bar extending across the sheet at right angles to its direction of travel, means for holding said bar toward the sheet, and a spring pressing said bar away from the sheet and firmly against said means, whereby the bar holds the sheet in a predetermined position relatively to the contacts, automatic means for feeding the sheet first in one direction and then in the other direction, and means holding said contacts and sheet out of engagement while the sheet is traveling backward.

55. In a musical instrument controlled by a sheet, the combination with winding-off and winding-on rolls, a series of contacts, and a perforated sheet moving past said contacts in a rectilinear path from said winding-off to said winding-on roll, a motor-cylinder, friction-shoes connected to said contacts in proximity to said cylinder, said sheet holding said contacts and located in position for maintaining said shoes out of engagement with said cylinder while the contacts bear against the unperforated portion of the sheet, of a presser-bar engaging the face of said sheet opposite said contacts for holding the sheet toward the latter, said bar extending across the sheet at right angles to its direction of travel, and adjustable means for holding said bar toward the sheet, whereby the position of the bar can be adjusted to obtain any desired relation between the sheet and contacts and to take up wear of the latter, means for automatically rewinding said sheet, and means automatically removing said contacts from contact with said sheet during rewinding.

56. In an automatic musical instrument operated by a traveling sheet, the combination with such sheet having perforations, of a series of contacts engaging such perforations, said sheet and series of contacts pressed

the one forcibly toward the other and said contacts movable individually into the perforations of said sheet, means feeding the sheet past said contacts for playing a musical selection, means automatically restoring the sheet to position for repeating such selection at a predetermined point in the travel of the sheet, and automatic means holding said contacts out of engagement with such perforations during rewinding and thus permitting reverse movement of the sheet during such restoration.

57. In an automatic musical instrument operated by a traveling sheet, the combination with such sheet having perforations, a series of contacts entering said perforations during travel of the sheet for playing a musical selection, driving mechanism for the sheet, means for rewinding the sheet, means preventing engagement between said contacts and the perforations of the sheet during rewinding, and means automatically starting the instrument upon a predetermined rewinding of the sheet.

58. In automatic musical instruments comprising a traveling music-sheet, a series of contacts engaging the sheet, a presser holding the sheet toward said contacts, a cylinder, a series of shoes for engaging said cylinder and controlled by said contacts, said series of contacts collectively and said sheet adjustable the one toward the other, and means for adjusting the adjustable one of such parts toward the other, whereby by such adjustment the relation of the shoes to the cylinder can be varied.

59. In an automatic musical instrument, the combination of a traveling music-sheet, a series of contacts bearing against the sheet and individually moved thereagainst, a cylinder, a series of shoes for engaging said cylinder and controlled by said contacts, and means for holding the sheet in juxtaposition relatively to said contacts, and means for adjusting the sheet toward and from the contacts, whereby by such adjustment the relation of the shoes to the cylinder can be varied.

60. In an automatic musical instrument, the combination with a traveling music-sheet, and a series of contacts controlling playing and controlled by said sheet, and means for driving said sheet in one direction to play a musical selection, and in the reverse direction to restore the sheet to position for again playing such selection, of automatically-operated means reversing the direction of travel of the sheet at a predetermined point in its winding-on movement, and automatically-operating means stopping rewinding of the sheet at the end of the rewinding, and means automatically connecting the sheet with the means for driving it again in the direction for playing, whereby the sheet is continuously driven alternately in one direction and then in the other, and automatically repeats at predetermined intervals the playing of its musical selection.

61. In an automatic musical instrument, comprising a traveling sheet, a series of contacts controlled by the sheet, and feed mechanism for the sheet, in combination with means for continuously driving the sheet first in one direction and then in the other consisting of a separable connection for driving the sheet forward, a separable connection for driving the sheet rearward, means automatically engaging the separable connection with the feed mechanism for driving the sheet forward near the end of the rearward movement of the sheet and means automatically engaging the connection for driving the sheet rearwardly near the end of the forward movement of the sheet, and means mechanically moved by the sheet for governing the operation of said two first-mentioned means.

62. In a musical instrument, comprising a perforated sheet, a winding-on roll, a winding-off roll, a series of contacts controlled by the sheet, and means for driving the sheet, the combination with such sheet having two series of perforations located at different parts of its length and adapted to different musical selections, and having between said series a neutral unperforated portion, and having in such neutral portion a stop, of a stop device controlled by said stop for stopping the travel of the sheet between said series of perforations, rewinding mechanism for automatically rewinding the sheet, resetting mechanism for automatically resetting the sheet at the end of its forward travel, and means mechanically engaged by and moving with the sheet during its forward travel for governing said rewinding mechanism, and means mechanically engaged by and moving with the sheet during its rearward travel for governing said rewinding mechanism and said resetting mechanism.

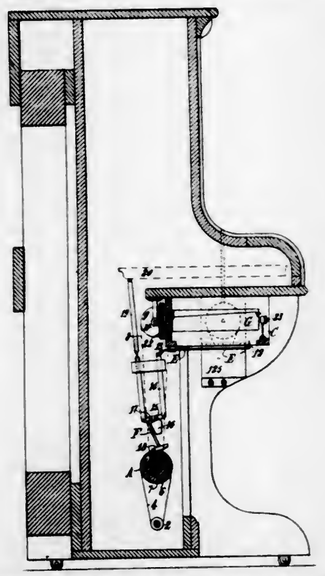
63. In a musical instrument controlled by a sheet, the combination with winding-on and winding-off rolls, a series of contacts, and a perforated sheet moving past said contacts in a regular path from said winding-off roll to said winding-on roll, of a presser-bar engaging the face of said sheet opposite said contacts for holding the sheet toward the latter, said bar extending across the sheet at right angles to its direction of travel, means for holding said bar toward the sheet, and a spring pressing said bar away from the sheet and firmly against said means, whereby the bar holds the sheet in a predetermined position relatively to the contacts.

64. In a musical instrument controlled by a music-sheet, the combination with a traveling sheet having a perforation, of a stop device moving into such perforation for stopping movement of the sheet at a predetermined time, said device disengaging itself from such perforation in case movement of the sheet occurs while the stop device is engaging the perforation.

65. In a musical instrument controlled by a traveling sheet having a perforation, the combination with such sheet of a stop device moving into such perforation and having inclined edges, inclined relatively to, and movable into, the plane of the sheet, for riding across the edges of the perforation and moving the stop device out of engagement therewith when the sheet moves while the stop device is in the perforation.

66. In an automatic musical instrument, the combination with a traveling music-sheet, a series of contacts controlling playing and controlled by the sheet, rolls for winding the sheet first in one direction and then in the other direction to play a musical selection and to restore the sheet to position for again playing such selection, and a feed mechanism, of means automatically operated by the sheet during its forward travel for reversing the direction of travel of the sheet, means automatically operated by the sheet during its rearward travel for again reversing the direction of travel of the sheet, and separable connections between said rolls and said feed mechanism controlled by said means respectively, and the one engaging one roll with the feed mechanism at the end of one period of travel for driving the sheet in reverse direction, and the other engaging the other roll with the feed mechanism at the end of the next period of travel for driving the sheet in the reverse direction, whereby the sheet can be continuously driven automatically alternately in one direction and then in the other, and a musical selection can be automatically repeated at predetermined intervals.

681,765. COIN-CONTROLLED APPARATUS. JOHN A. WEBER, New York, N. Y. Original application filed Apr. 26, 1898, Serial No. 678,832. Divided and this application filed Nov. 8, 1898. Serial No. 695,870. (No model.)



Claim.—1. A coin-controlled musical instrument, comprising a traveling sheet, means operated by such sheet for producing musical selections, a motor for moving the sheet, means operated by a coin for starting the forward feed of the sheet, and means controlled by the sheet for prolonging its forward feed.

2. A coin-controlled musical instrument, comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, means controlled by the sheet for prolonging its forward feed, and means controlled by the sheet for stopping its forward movement.

3. A coin-controlled musical instrument, comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, and means controlled by the sheet for prolonging such forward feed, comprising a switch holding the motor-circuit closed.

4. A coin-controlled musical instrument, comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric

motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, means controlled by the sheet for prolonging such forward feed, comprising a switch holding the motor-circuit closed, said switch maintained in position to close the motor-circuit by such sheet, and means controlled by the sheet for stopping its forward movement.

5. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the circuit to start the motor, means for stopping the forward travel of the sheet, means for reversing the travel of the sheet, and means for maintaining said stopping means inoperative during such reversing travel of the sheet.

6. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the circuit to start the motor, a switch for stopping the forward travel of the sheet, means for reversing the travel of the sheet, means controlled by the sheet for operating said switch, and means controlled by the sheet for maintaining said switch in position to close the motor-circuit during such reverse travel of the sheet.

7. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, means operated by the sheet for prolonging such forward feed, comprising a switch for opening and closing the motor-circuit, means for reversing the travel of the sheet, and means controlled by the sheet for holding said switch in position to close the motor-circuit during such reverse travel of the sheet.

8. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the circuit to start the motor, a switch for prolonging the forward feed of the sheet, having a member controlling its position normally held by such sheet in position to close the motor-circuit, and means carried by the sheet for moving said switch to open the motor-circuit at predetermined intervals.

9. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the circuit to start the motor, a switch for prolonging the forward feed of the sheet, having a member controlling its position normally held by such sheet in position to close the motor-circuit, said sheet being formed with a slot permitting such controlling member of the switch to move to open the motor-circuit.

10. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, means for prolonging the forward feed of the sheet, such means operating automatically upon starting of the motor by said first-mentioned means.

11. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, a switch for operating the motor-circuit prolonging the forward feed of the sheet, said switch automatically operating to close the motor-circuit upon starting of the motor by said first-mentioned means.

12. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving said sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, a switch for prolonging such forward feed having a member controlling its position normally held by such sheet in position to close the motor-circuit, said sheet being formed with a slot permitting such controlling member of the switch to move to open the motor-circuit, said controlling member being so formed that it is engaged by the sheet, and moved to automatically restore the switch to its closed position.

13. A coin-controlled musical instrument, comprising a traveling sheet, means operated by such sheet for producing musical selections, said sheet being formed with perforations for a plurality of tunes, an electric motor for moving the sheet, means operated by a coin for closing the circuit to start the forward feed of the sheet, means for opening the motor-circuit, a stop carried by the sheet after each tune for actuating said last-named means, means operated by said sheet for reversing its travel, and means whereby such means for opening the motor-circuit are maintained inoperative when passing the stops during the reverse travel of the sheet.

14. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit, means operated by the motor for discharging the coin, and means operated by the sheet for prolonging its feed after the discharge of the coin.

15. A coin-controlled musical instrument comprising a traveling sheet, means operated by such sheet for producing musical selections, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit, means operated by the motor for discharging the coin, and restoring said circuit-closing mechanism to position for receiving another coin, and means for prolonging the movement of the sheet after such discharge.

16. A coin-controlled device, comprising a traveling sheet, a motor for driving the sheet, means operated by a coin for starting the forward feed of the sheet, and means controlled by the sheet for prolonging its forward feed.

17. A coin-controlled device, comprising a traveling sheet, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, means controlled by the sheet for prolonging its forward feed, and means controlled by the sheet for stopping its forward movement.

18. A coin-controlled device, comprising a traveling sheet, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, and means controlled by the sheet for prolonging such forward feed, comprising a switch holding the motor-circuit open.

19. A coin-controlled device, comprising a traveling sheet, an electric motor for moving the sheet, means operated by a coin for closing the motor-circuit to start the forward feed of the sheet, means controlled by the sheet for prolonging such forward feed, comprising a switch holding the motor-circuit closed, said switch maintained in position to close the motor-circuit by said sheet, and means controlled by the sheet for stopping its forward movement.

20. A coin-controlled device, comprising a traveling sheet, an electric motor for moving the sheet, means operated by a coin for closing the circuit to start the motor, means for stopping the forward travel of the sheet, means for reversing the travel of the sheet, and means for maintaining said stopping means inoperative during such reverse travel of the sheet.

21. A coin-controlled apparatus comprising, in combination, a motor, a coin-chute, a revolving coin-carrier adapted to receive a coin from the chute, means for starting the motor on receipt of a coin from said carrier, and a connection between the motor and carrier revolving the carrier when the motor is started.

22. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the circuit to start the motor, the sheet having a part for maintaining said motor-circuit closed for prolonging its forward movement, means for stopping the forward travel of the sheet, means for reversing the travel of the sheet, and means for maintaining said stopping means inoperative during such reversing travel of the sheet.

23. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the circuit to start the motor, a switch in circuit with the motor, the sheet having a part for operating said switch, means for reversing the travel of the sheet, and means controlled by the sheet for maintaining said switch in position to close the motor-circuit during such reversing travel of the sheet.

24. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the motor-circuit to start the forward feed of the sheet, a switch in circuit with the motor, the sheet having a part for actuating said switch to prolong the forward feed, means for reversing the travel of the sheet, and means controlled by the sheet for holding said switch in position to close the motor-circuit during such reverse travel of the sheet.

25. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the motor-circuit to start the motor, and a switch in circuit with the motor, having a member controlling its position normally held in position to close the motor-circuit, the sheet having a part for moving said switch to open the motor-circuit at predetermined intervals.

26. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the circuit to start the motor, a switch in circuit with the motor, having a member controlling its position, the sheet having a part for normally holding said member in position to close the motor-circuit, said sheet being formed with a slot permitting such controlling member of the switch to move to open the motor-circuit.

27. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the motor-circuit to start the forward feed of the sheet, means actuated by the sheet for prolonging the forward feed, such means operating automatically upon starting of the motor by said first-mentioned means.

28. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the motor-circuit to start the forward feed of the sheet, a switch in circuit with the motor, the sheet having a part for automatically operating said switch to close the motor-circuit upon starting of the motor by said first-mentioned means.

29. The combination with a traveling sheet, and an electric motor for moving the sheet, of means for temporarily closing the motor-circuit to start the forward feed of the sheet, a switch in circuit with the motor having a member controlling its position normally held by said sheet in position to close the motor-circuit, and prolonging the forward feed of the sheet, said sheet being formed with a slot permitting such controlling member of the switch to move to open the motor-circuit, said controlling member being so formed that it is engaged by the sheet and moved to automatically restore the switch to its closed position.

30. The combination with a traveling sheet, having a plurality of slots, and an electric motor for moving the sheet, of means for temporarily closing the motor-circuit to start the forward feed of the sheet, means for prolonging the forward feed of the sheet, means for stopping the forward feed controlled by said slots, means for reversing the travel of the sheet, and means whereby such means for stopping the sheet are maintained inoperative when passed by said slots during the reverse travel of the sheet.

31. A traveling sheet, a motor for driving the sheet, means for temporarily starting the forward feed of the sheet, and means controlled by the sheet for prolonging its forward feed.

32. A traveling sheet, an electric motor for moving the sheet, means for closing the motor-circuit to start the forward feed of the sheet, and means controlled by the sheet for prolonging its forward feed and for stopping its forward movement.

33. A traveling sheet, an electric motor for moving the sheet, means for closing the motor-circuit to start the forward feed of the sheet, and means controlled by the sheet for prolonging such forward feed, comprising a switch holding the motor-circuit closed.

34. A traveling sheet, an electric motor for moving the sheet, means for closing the motor-circuit to start the forward feed of the sheet, means controlled by the sheet for prolonging such forward feed, comprising a switch holding the motor-circuit closed, said switch maintained in position to close the motor-circuit by said sheet, and released from such position for stopping the forward movement of the sheet.

35. A traveling sheet, an electric motor for moving the sheet, means for closing the circuit to start the motor, means for stopping the forward travel of the sheet, means for reversing the travel of the sheet, and means for maintaining said stopping means inoperative during such reverse travel of the sheet.

681,766. NECK-YOKE SNAP. ELMER J. WILLIAMS, West Superior, Wis. Filed Apr. 9, 1901. Serial No. 55,067. (No model.)



Claim.—1. A device of the class set forth comprising a body with an intermediate solid portion having a transversely-extending straight slot at its upper end, downwardly-diverging slots at opposite sides, a portion integral with the center of the lower edge which is turned upwardly over the body at the center to form a hook, an upper forwardly and upwardly inclined slot, and a flat spring having an upper downwardly and rearwardly inclined end to engage the latter slot, said spring having a free end movably engaging the upper terminal of the hook.

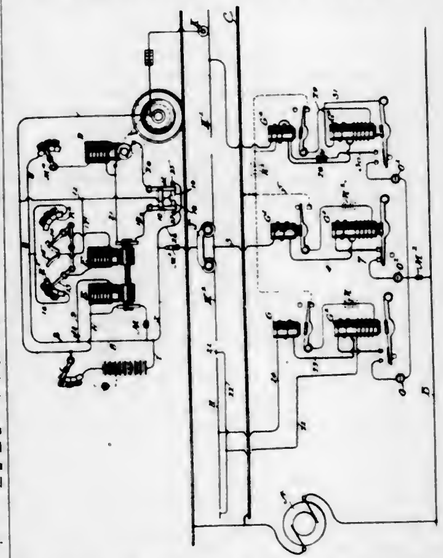
2. A device of the class set forth comprising a body with a hook at one end and a forwardly-inclined slot adjacent to the other end with an outstanding stop in advance of the same, and a flat spring having an inclined end secured in said slot and continuing into a loop over the stop, the free end of the spring movably engaging the hook.

681,767. FENCE-MACHINE. ISAAC WOMACK, Emmett, Idaho. Filed Apr. 23, 1901. Serial No. 57,127. (No model.)



Claim.—In a fence-machine, the combination with a frame, of opposite wire-twisters rotatably mounted thereon and having cylindrical portions, a flexible connecting element having its opposite ends wound upon the cylindrical portions of the respective twisters, an operating-lever fulcrumed midway between the twisters and having a cross-head, the twisters being located in the paths of the opposite ends of the cross-head and forming stops therefor, and opposite flexible winding elements having their opposite ends connected to the lever and the respective cylindrical portions of the twisters, the coiled portions of the winding elements upon the twisters forming cushions for the ends of the cross-head.

681,768. REGULATING AND CONTROLLING ELECTRICAL TRANSLATING DEVICES. GRANVILLE T. WOODS, New York, N. Y., assignor, by mesne assignments, to Harry Ward Leonard, East Orange, N. J. Filed Jan. 14, 1896. Serial No. 534,731. (No model.)



Claim.—1. The combination of an electric motor, a counter-electromotive-force regulator consisting of a dynamotor whose motor-armature is in shunt with the line and whose generator-armature is in another shunt to the line and in series with the armature of the motor to be regulated, the field of the motor to be regulated being connected between the line and the last-named shunt and being coupled in the said shunt between the armatures therein, substantially as described.

2. The combination of a source of constant potential, a shunt-wound motor in one branch therefrom, another branch therefrom containing in series the armature of an electric motor and a dynamo, the dynamo having a variable field and having its armature mechanically connected with the armature of the first-mentioned motor, and the field of the last-named motor being connected between the constant-potential source and the last-named branch therefrom, being coupled in the said branch between the armatures therein, substantially as described.

3. The combination of a source of electric energy, an electric motor, an electromotive-force regulator consisting of a dynamo whose armature is in series with the armature of the motor, the field of the motor being connected in series with its armature, and means for varying and reversing the electromotive force of the dynamo to regulate the motor, substantially as described.

4. The combination of a source of electric energy, an electric motor, an electromotive-force regulator consisting of a dynamo whose armature is in series with the armature of the motor to be regulated, the field of the motor to be regulated being connected in series with its armature, and means for reversing the field of the dynamo so that the current generated thereby can be thrown onto the line-circuit to aid or oppose the line-current, substantially as described.

5. The combination of a source of electric energy, an electric motor, and an electromotive-force regulator consisting of a dynamo whose armature is in series with the armature of the motor to be regulated, the field of the motor to be regulated being connected in series with its armature, and means for reversing the electromotive force of the dynamo and for reversing the motor, substantially as described.

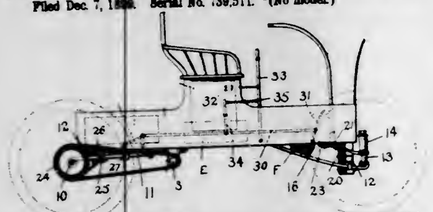
6. The combination of a source of electric energy, an electric motor, an electromotive-force regulator consisting of a dynamo whose armature is in series with the armature of the motor to be regulated, the field of the motor to be regulated being connected in series with its armature, means for reversing the field of the dynamo, and means for reversing the motor, substantially as described.

7. The combination of a source of electric energy, an electric motor, an electromotive-force regulator consisting of a dynamo whose armature is in series with the armature of the motor to be regulated, the field of the motor to be regulated being connected in series with its armature, and means for reversing the motor, substantially as described.

8. The combination with a source of electric energy, of two electrodynamic machines whose armatures are in series with each other and whose fields are in multiple with each other, the field of one of the said machines being connected in series with its armature, means whereby the field of the last-named machine may be varied, and means for reversing the field of the other of the said machines, substantially as described.

9. The combination with a source of electric energy, of two electrodynamic machines whose armatures are in series with each other and whose fields are in multiple with each other, the field of one of the said machines being connected in series with its armature, and means for controlling the speed of said machine, substantially as described.

681,769. MOTOR-VEHICLE. JOSEPH C. WOOD, Worcester, Mass. Filed Dec. 7, 1899. Serial No. 739,511. (No model.)



Claim.—1. In a vehicle, the combination of the body, a rear axle, a frame extending forward from the rear axle and hinged to the body, a front axle, a frame extending back from the front axle and journaled in a piece or frame connected to the body to turn on a central horizontal pivot, whereby the axles may extend at different angles with each other, but will be maintained in parallel vertical planes, and plate-springs interposed between the body and axles, each of said springs having its upper end connected to the carriage-body substantially at one side thereof, and extending transversely across substantially to the other side of the vehicle, substantially as described.

2. In a vehicle, the combination of the body, a rear axle, a frame extending forward from the rear axle and hinged to the body, a front axle, a frame extending back from the front axle and journaled in a piece or frame connected to the body to turn on a central horizontal pivot, whereby the axles may extend at different angles with respect to each other, but will be maintained in parallel vertical planes, and two similar sets of springs, one at the front, and one at the rear of the vehicle, each set of springs consisting of two crossing plate-springs having their upper ends secured to opposite sides of the body, and their lower ends connected to the axle-frames, substantially as described.

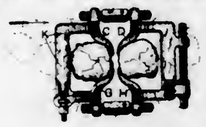
3. In a motor-carriage, the combination of the running-gear, a brake therefor, and a yielding connection for normally shutting off power from the motor upon the application of the brake but permitting the starting of the motor while the brake still remains set, when so desired, substantially as described.

4. In a motor-carriage, the combination of the running-gear, a brake therefor, foot-controlled connections for applying the brake, a lever for starting and stopping the motor, and a yielding connection for normally stopping the motor upon the application of the brake but arranged to permit the lever to be operated to start the motor while the brake still remains set, when so desired, substantially as described.

5. In a motor-carriage, the combination of the running-gear, brake-shoes for the rear wheels thereof, a rock-shaft connected to simultaneously operate said brake-shoes, a foot-lever at the front of the carriage, a link connecting the foot-lever and rock-shaft, a lever for starting and stopping the motor, and a yielding connection between the link and the starting and stopping lever arranged to normally stop the motor upon the application of the brakes but permitting the motor to be started while the brakes remain set when so desired, substantially as described.

681,770. TEETH-SEPARATOR. WILLARD J. WORSLEY, Tinley-park, Ill. Filed June 17, 1901. Serial No. 64,874. (No model.)

Claim.—In a teeth-separator, two oppositely-disposed bows each composed of sections adjustably connected and each bow provided with separating-jaws, each section having an inwardly-projecting arm at the outer end, the arms of opposite sections of each bow in longitudinal sliding engagement, and a screw for each pair of arms for the purpose stated.



681,771. BUTTON-POLISHER. ERNEST W. WRIGHT, Chicago, Ill. Filed Mar. 30, 1901. Serial No. 53,667. (No model.)



Claim.—1. In a device of the character described, the combination of a shaft, a hood adjustably held thereon, disks held upon the lower end of the hood, a polishing device connected to the said shaft, and means for revolving the said polishing device, substantially as shown and described.

2. In a device of the character described, the combination of a shaft having a polisher held thereto, a hood slidably held upon the said shaft, a guide held within said hood, and means for revolving the said shaft, substantially as shown and described.

3. In a device of the character described the combination of a shaft, a hood adjustably held thereon, a collar formed on the said shaft for limiting the movement of the said hood, and disks for closing the open outer end of the said hood, substantially as shown and described.

4. In a device of the character described, the combination of a shaft having a spirally-arranged rib formed thereon and terminating near the lower end of the shaft in a circumferential collar, a hood held upon the said shaft and provided with means for holding the said shaft and hood in vertical alinement, substantially as shown and described.

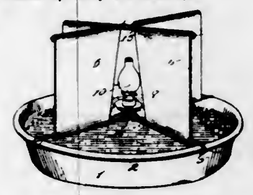
5. In a device of the character described, the combination of a shaft, a polisher held upon the end thereof, a hood held upon the shaft, a semicircular disk held upon the lower end thereof, a movable semicircular disk pivoted to the said stationary disk, the said disk being provided with semicircular openings adapted to be brought into alinement when the said disks are brought together, and means for holding the said disks together, substantially as shown and described.

6. In a device of the character described, the combination of a shaft having a plurality of collars formed upon the lower end thereof, a hood movably held between the said collars, means for normally holding the said hood in engagement with one of the collars, a polisher held upon the lower end of the shaft within the said hood, and means for revolving the said polisher, substantially as shown and described.

7. In a device of the character described, the combination of a shaft, a hood held upon the lower end thereof, a semicircular disk fixedly held to the lower end of the said hood and having a perforated ear formed on one side thereof and a keeper formed upon the opposite side thereof, a movable disk having a perforated ear adapted for engagement with the said ear on the stationary disk, its opposite side having a spring-latch for engagement with the keeper, the said disks having their meeting edges provided with semicircular openings arranged in alinement, all arranged substantially as shown and described.

681,772. INSECT-TRAP. SILAS A. WRIGHT, Springfield, Mo. Filed Apr. 9, 1901. Serial No. 55,088. (No model.)

Claim.—In an insect-trap, the combination with a plan, of supporting-wires terminally attached thereto and centrally intersecting each other at an angle, the central crossed portions of the wires forming a seat for an illuminating device, two or more highly-polished deflectors held in vertical position by said wires and having a space between the inner opposing edges thereof, and intersecting brace-wires coacting with the upper extremities of the deflectors to prevent the latter from being bent over or becoming misshapen, the wires being interlocked at their points of crossing at the upper and lower terminations of the interval or space between the inner edges of the deflectors, the said inner edges of the deflectors being inclined upwardly and inwardly.



681,773. LEAF-TURNER. GEORGE E. ADAMS, Glens Falls, N. Y. Filed May 26, 1900. Serial No. 18,104. (No model.)



Claim.—1. In a leaf-turner, the combination with a horizontal frame, and cushions depending from the end portions of said frame, of a tubular post secured to the central portion of said frame, a rod entering said post and carrying a cushion at its upper end, a spring in the tubular post pressing said cushion-rod upwardly, a rod disposed parallel with the tubular post and passing through the horizontal frame, a series of spring-actuated arms mounted on said rod where it passes through the frame, leaf-clamps carried by said arms, U-shaped springs secured to the tubular post and the rod disposed parallel therewith, and a rod disposed alongside said last-mentioned rod and pressed thereagainst by said U-shaped springs.

2. In a leaf-turner, the combination with a frame, of swinging arms mounted on said frame, springs for swinging said arms from right to left, a single plate at the right side of the frame and provided with a series of notches for holding the arms in their extreme right-hand position, a pivoted lever having one arm disposed below the lower swinging arm for releasing said lower swinging arm only and a weighted trigger pivoted to said lever, said weighted trigger normally projecting beyond the lower swinging arm and adapted to successively engage the remaining swinging arms when the lever is successively operated.

3. In a leaf-turner, the combination with a frame adapted to support leaves to be turned, of arms mounted to swing on said frame, means for forcing said arms from right to left, said frame provided with notches to hold the arms in their extreme right-hand position, a lever normally held out of engagement with said arms and arranged to engage the lower arm only, a counterweighted trigger mounted on said lever and normally projecting beyond the lower arm and means for causing said trigger to release the other arms from their notches when the lever is operated successively.

4. In a music-leaf turner, the combination with a frame and a series of arms mounted to swing thereon, of a bar for each arm, each bar split throughout a portion of its length to form a clamp and having a broadened or flattened portion below the split portion, the broadened portions of the bars secured to the ends of the swinging arms, and finger-holds depending from the broadened or flattened portions of the bars.

5. In a leaf-turner, the combination with a frame and a series of spring-actuated arms mounted therein and carrying leaf-clamps, of a plate at one end of said frame having a series of notches for the reception of the spring-actuated arms, a spring-retained lever pivoted between its ends to said plate, a stop on said plate normally engaged by the lever, a weighted trigger pivoted to the lever and a stop-arm on the lever to receive the weighted end of said trigger.

681,774. BOTTLE. LEONARD C. BAILEY, Florence, Colo. Filed Mar. 9, 1896. Serial No. 582,377. (No model.)



Claim.—1. A bottle provided with a perforable seal which is permanently secured at its edges inside the throat and below the mouth of the bottle so that it cannot be removed or replaced without breaking the bottle, whereby change or removal of the contents of the bottle without puncturing the seal is prevented, substantially as and for the purposes set forth.

2. A bottle provided with a separately-formed neck extension permanently secured thereto in such manner as to prevent its removal without breaking the bottle, and with a perforable seal held in the throat of the bottle below its mouth by said neck extension, substantially as and for the purposes set forth.

3. A bottle formed integrally with a neck having an internally-recessed rim and provided with a separately-formed neck extension which has an external recess in its lower end and is permanently secured in said recessed rim by cement, and a perforable seal secured at its edges between the base of said neck extension and said recessed rim, substantially as and for the purposes set forth.

4. A bottle integrally formed with an internally-recessed rim and provided with a separately-formed neck extension and with a label interposed between said rim and neck extension and visible through the rim in which it is permanently cemented with said neck extension, substantially as and for the purposes set forth.

681,775. RAILWAY-TRACK LIFTING-JACK. GEORGE F. BENTLEY, Fort Worth, Tex. Filed Apr. 27, 1900. Serial No. 14,627. (No model.)

Claim.—1. In a lifting-jack, the combination with a standard and a lifting-bar, of an operating-lever fulcrumed intermediate of its ends upon the standard, and having its inner end bifurcated and loosely embracing the lifting-bar, and alternately-acting ratchet-dogs pivoted to the lever and at opposite sides of the fulcrum thereof, both dogs being in operative relation to the same side of the lifting-bar.

2. The combination with a tubular standard, having a socket formed in the back thereof and communicating with the interior of the standard, opposite inwardly-directed shoulders in the upper portion of the socket and terminating short of the back thereof, and forming opposite recesses, which are open at their bottoms and closed at their outer sides, and a lifting-bar slidably mounted within the tubular standard, of an operating-lever having its inner end bifurcated, located within the socket and embracing the lifting-bar, an intermediate fulcrum-support carried by the shoulders, a pendent bifurcated ratchet-dog pivotally embracing the inner end of the lever and having its opposite upper portions working in the respective recesses in rear of the shoulders, and an upstanding ratchet-dog pivoted upon the lever and located upon the outer side of the fulcrum thereof.

3. In a lifting-jack, the combination with a tubular standard, having a socket communicating with the interior of the standard, and a lateral opening communicating with the socket, of a lifting-bar mounted within the standard, an operating-lever fulcrumed within the socket, a pivot-pin carried by the lever and having a peripheral notch or groove opening outwardly through the outer end thereof, and a ratchet-dog pivotally connected to the pivot-pin, and having an oil reservoir or socket in communication with the notch in the pivot-pin, the latter also being accessible through the opening in the standard.



4. In a lifting-jack, the combination with a tubular standard, having a socket in its back and communicating with the interior thereof, and a lifting-bar mounted within the standard, of an operating-lever having its inner end received within the socket, and provided with a transverse fulcrum-pin opening, there being an oil reservoir or socket in communication with said opening, a transverse groove, and a slot communicating between the reservoir and the groove, a fulcrum-pin fixedly carried by the standard and loosely received within the fulcrum-opening of the lever, and a ratchet-dog mounted in the transverse groove of the lever.

5. In a lifting-jack, the combination with a tubular standard, and a lifting-bar mounted therein and having ratchet-teeth upon the back thereof, of an operating-lever, having its inner end bifurcated to straddle the lifting-bar and fulcrumed in a socket in the back of the standard, a pendent bifurcated ratchet-dog pivotally swung from the inner bifurcated end of the lever and in operative relation to the ratchet-teeth of the lifting-bar, and an upstanding ratchet-dog pivoted to the lever at the opposite or outer side of the fulcrum thereof and arranged in operative relation to the ratchet-teeth of the lifting-bar.

6. In a lifting-jack, the combination with a hollow or tubular standard, having an opening in the back thereof, and a lifting-bar mounted within the standard, of an operating-lever fulcrumed within the opening in the standard, an upstanding ratchet-dog, and a pendent ratchet-dog, both of which are pivotally connected to the lever at opposite sides of its fulcrum, means for disengaging the upstanding dog from the lifting-bar, and a dog-disengaging cam for the pendent dog, said cam being mounted upon the back of the standard adjacent to the bottom edge of the opening therein and at the lowermost limit of the dog, also having its shortest radius normally turned toward the dog, and also being rotatable to bring its longest radius toward the dog for engagement thereby.

7. In a lifting-jack, the combination with a standard, and a lifting-bar, of an operating-lever fulcrumed upon the standard, and having opposite ratchet-dogs, and a longitudinally-adjustable dog-disengaging trip device mounted upon the standard, and having opposite trip projections, which are adjustable with the trip device into the paths of the inner sides of the respective dogs.

8. In a lifting-jack, the combination with a standard, and a lifting-bar mounted thereon, of an operating-lever fulcrumed upon the standard, opposite ratchet-dogs carried by the lever, said dogs projecting respectively above and below the lever and in operative relation to the same side of the lifting-bar; and a longitudinally-adjustable trip device, having a laterally-projecting finger-piece, and opposite trip projections directed toward the ratchet-dogs and adjustable with the trip device into the paths of the inner sides of the respective dogs.

9. In a lifting-jack, the combination with a standard, and a lifting-bar, of an operating-lever, having a bar-engaging lifting-dog, an adjustable dog-engaging trip, and means for returning the trip to its normally-inoperative position by a movement of the lifting-bar.

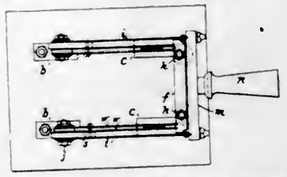
10. In a lifting-jack, the combination with a standard, and a lifting-bar, having an enlarged head, of an operating-lever fulcrumed upon the standard, and provided with a bar-engaging ratchet-dog, a vertically-reciprocating and longitudinally-adjustable dog-tripping rod, having its upper end projected above the top of the standard and in the path of the downward movement of the head of the lifting-rod, in the operative position of the trip, whereby the latter is automatically returned to its normal position by engagement with the lifting-bar.

11. In a lifting-jack, the combination with a standard, and a lifting-bar, of an operating-lever, having a ratchet-dog for engagement with the bar, an adjustable dog-engaging trip, having a tooth or projection to fit in a corresponding notch in the standard and hold a portion of the trip in the path of the lifting-bar, and a spring yieldingly holding the tooth or projection in the notch.

12. In a lifting-jack, the combination with a standard, having an external casing which is open at its upper end and also at its back edge, and a lifting-bar having an enlarged head, of a vertically-slidable trip-rod mounted within the casing, and having its upper end projected above the casing and in the path of the downward movement of the head of the lifting-bar, in the operative position of the trip, a tooth or projection upon one side of the trip-rod and received within a notch in the adjacent wall of the casing in the elevated position of the trip, a tension-spring interposed between the opposite side of the rod and the adjacent wall of the casing, a leaf-spring carried by the trip-rod and projected outwardly through the back opening of the casing in the elevated position of the trip-rod, and an operating-lever fulcrumed upon the standard, and having a bar-engaging ratchet-dog arranged for engagement with the trip-spring.

13. In a lifting-jack, the combination with a tubular standard, having a socket in its back and communicating with the interior of the standard, and a lifting-bar mounted within the standard and having a laterally-enlarged head, of an operating-lever fulcrumed intermediate of its ends within the socket, and provided with upper and lower ratchet-dogs mounted at opposite sides of the fulcrum of the lever, an adjustable dog-engaging trip carried by the standard and arranged at the lowermost limit of the lower dog, and a vertically-slidable trip-rod mounted upon the standard, and having means for yieldingly holding the upper end thereof in the path of the downward movement of the head of the lifting-bar, and opposite trip-springs disposed in the paths of the respective dogs, in the elevated position of the trip-rod.

681,776. ELECTRIC SWITCH. WILLIAM F. BOBBETT, Utica, N. Y. Filed May 20, 1901. Serial No. 60,976. (No model.)



Claim.—1. An electric switch consisting of an insulating-base secured to which are one or more hinge-posts and complementary clips, and one or more conducting-blades pivoted to a hinge-post, with a non-conducting blade or blades provided with a handle also pivoted to said hinge-post having attached to its pivoted end one terminal of a volute spring whose opposite end is secured to the adjacent conducting-blade, whereby when the non-conducting blade is raised the spring is wound up and the circuit opened, as set forth.

2. A double-pole electric switch consisting of an insulating-base secured to which are two hinge-posts and two clips, one of each for each switch, the switches severally having two separated conducting-blades pivoted at one end to its hinge-post and adapted to close over its clip with frictional pressure the opposite ends of the blades being secured to an insulating cross-bar; with a non-conducting blade pivoted to each hinge-post the free ends of which are secured to an insulating cross-bar provided with a handle, each non-conducting blade being united to its contiguous conducting-blade by a volute spring, adapted to be wound up when the non-conducting blades are raised, as set forth.

3. An electric switch consisting of an insulating-base secured to which is a hinge-post and a complementary clip, a conducting-blade pivoted at one end to the hinge-post and adapted to close upon the clip with frictional pressure at the opposite end; with a non-conducting blade pivoted to the hinge-post the free end of which is secured to an insulating-handle, the blades being connected together by a volute spring one end of which is attached to the conducting-blade and the other secured to the periphery of a disk upon which it is wound, as set forth.

4. An electric switch consisting of an insulating-base secured to which is a hinge-post and a complementary clip, a conducting-blade pivoted at one end to the hinge-post and adapted to close upon the clip with frictional pressure at the opposite end; with a non-conducting blade pivoted to the hinge-post the free end of which is secured to an insulating-handle, the blades being connected together by a volute spring one end of which is attached to the conducting-blade and the other secured to the periphery of a disk upon which it is wound, the said non-conducting blade and disk being integral with each other and are, with the conducting-blade, pivoted to the hinge-post by a common bolt, as set forth.

681,777. CORN-HARVESTER. JAMES W. CARLISLE, Algiers, Ind. Filed May 27, 1901. Serial No. 62,062. (No model.)



Claim.—The combination with the wheel-supported triangular frame, provided with upwardly-projecting posts at its corners, sheaves journaled in said posts, and a longitudinal shaft, of a supplementary triangular frame having holes in its corners through which the posts project, and ropes having one of their ends engaged with the shaft and the other ends engaged with said sheaves and connected to the corners of the supplemental frame, and means for rotating said shaft to wind or unwind the rope, and cutters secured to the sides of the supplemental frame, substantially as set forth.

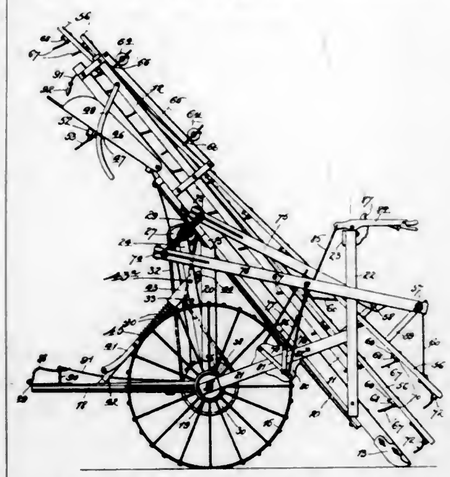
681,778. HAY-LOADER. JOSEPH DAIN, JR., Carrollton, Mo., assignor to Dain Manufacturing Company, same place. Filed Mar. 26, 1894. Serial No. 505,113. (No model.)

Claim.—1. In a hay-loader, the combination with an elevator-frame, of an extension-frame hinged at its lower end thereto, bars pivotally connected at their upper ends to the side pieces of the elevator-frame and engaged by the extension-frame, and means for locking said extension-frame to said side pieces to hold it at different angles to the elevator-frame, substantially as described.

2. In a hay-loader, the combination with an elevator-frame, and an extension-frame hinged at its lower end thereto, of bars notched at the sides and pivotally connected at their upper ends to the side pieces of the elevator-frame, and dogs adapted to engage said notches for locking said extension-frame to said pivoted bars, substantially as described.

3. In a hay-loader, the combination with an elevator-frame, and an extension-frame hinged at its lower end thereto, of pivoted bars 48 at the sides of said extension-frame and having their upper ends pivotally connected to the side pieces of the elevator-frame, said bars having notches 49, rods 50 adapted to engage said notches, and a spring 55 between said rods, substantially as described.

4. In a hay- loader, the combination of an elevator-frame, an axle, supporting-wheels on said axle, a rotary crank-shaft arranged below said elevator-frame and having a double crank at each end thereof, two rake-frames above said elevator-frame, levers connecting each of said rake-frames with one of the cranks at each end of said crank-shaft, said levers being fulcrumed between their ends, and means for rotating said crank shaft from said axle, substantially as described.



5. In a hay-loader, the combination with an elevator-frame, rake-bars adapted to be reciprocated over said frame, reciprocating rocking levers connected with said rake-bars, means for reciprocating and rocking said levers, and traveling fulcra supporting said levers between their connections with the rake-bar and operating means, substantially as described.

6. In a hay-loader, the combination with an axle, and an elevator-frame, of a rake-bar adapted to be reciprocated over said elevator-frame, a rotary crank-shaft, levers connecting said rake-bar and crank-shaft for operating the rake-bar, adjustable fulcra for said levers, means for securing the fulcra in position when adjusted, and mechanism connecting the axle and crank-shaft for rotating said shaft by the forward motion of the loader, substantially as described.

7. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of a crank-shaft, said crank-shaft having a pair of crank-arms at each end, levers connecting the different crank-arms with the rake-bars, traveling fulcra supporting said levers between their ends, and means for rotating said crank-shaft by the forward motion of the loader, substantially as described.

8. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of a crank-shaft having a pair of crank-arms at each end, levers connecting the different crank-arms with the rake-bars, means for rotating said crank-shaft by the forward motion of the loader, and adjustable rocking supports for said levers, substantially as described.

9. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of a crank driving-shaft, and levers connected at one end to said shaft, and at the other end to said rake-bars, and provided with adjustable rocking supports, substantially as described.

10. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of cranks and levers for reciprocating said rake-bars, movable fulcra for said levers, adjustable supports for said fulcra, and means for adjusting said supports, substantially as described.

11. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of reciprocating rocking levers for reciprocating said rake-bars, adjustable fulcra for said levers, and means for operating said levers, substantially as described.

12. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of cranks and levers for reciprocating said rake-bars, bars connected with the elevator-frame, blocks movable upon said bars, swinging bars mounted at one end on said blocks and at the other end connected to said levers, and means for securing the blocks against movement while the loader is in operation, substantially as described.

13. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of cranks and levers for reciprocating said rake-bars, stationary bars 21 connected with the elevator-frame, blocks movable upon said bars, swinging bars mounted on said blocks and connected to said levers, and adjusting mechanism for adjusting the position of said blocks upon said bars 21, substantially as described.

14. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of a crank-shaft, levers connecting said crank-shaft to said rake-bars, whereby, by the rotation of said shaft, the rake-bars will be reciprocated, adjustable rocking supports for said levers, and an elliptical sprocket-wheel for driving said shaft, said sprocket-wheel being adjusted so that the greatest power will be applied to the rotation of said shaft when the rake-bars are nearest the ground, substantially as described.

15. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of a crank-shaft, levers connecting said crank-shaft to rake-bars, whereby, by the rotation of said shaft, the rake-bars will be reciprocated, adjustable rocking supports for said levers, an elliptical sprocket-wheel mounted upon said crank-shaft, and a sprocket-wheel and belt for rotating said first-mentioned sprocket-wheel, said elliptical sprocket-wheel being so adjusted that the greatest power will be applied to the rotation of said shaft when the rake-bars are nearest the ground.

16. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of reciprocating rocking levers for reciprocating said rake-bars, adjustable fulcra for said levers, means for operating said levers, and locking devices for locking the fulcra in their different positions of adjustment, substantially as described.

17. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of rocking levers for reciprocating said rake-bars, adjustable fulcra for said levers, and driving devices arranged below the elevator-frame for operating said rocking levers, substantially as described.

18. In a hay-loader, the combination with an elevator-frame, and rake-bars adapted to be reciprocated over said frame, of rocking levers for reciprocating said rake-bars, adjustable fulcra for said levers, locking devices for securing said fulcra in their different positions of adjustment, and driving mechanism arranged below the elevator-frame for operating said rocking levers, substantially as described.

19. The combination with an elevator-frame, rake-bars adapted to be reciprocated over said frame, reciprocating rocking levers connected with said rake-bars, means for reciprocating and rocking said levers, and swinging supports on which said levers are mounted between their connections with the rake-bars and operating means, substantially as described.

20. The combination with an elevator-frame, rake-bars adapted to be reciprocated over said frame, reciprocating rocking levers connected with said rake-bars, means connected with one end of said rake-bars for reciprocating and rocking them and traveling fulcra for said levers, substantially as described.

21. In a hay-loader, the combination with an elevator-frame, rake-bars adapted to be reciprocated over said frame, reciprocating rocking levers connected with said rake-bars, means for reciprocating and rocking said levers, traveling fulcra supporting said levers between their connections with the rake-bars and operating means, and means for adjusting the position of said fulcra, substantially as described.

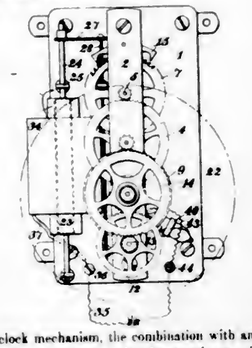
22. The combination with an elevator-frame, rake-bars adapted to be reciprocated over said frame, reciprocating rocking levers connected with said rake-bars, means for reciprocating and rocking said levers, swinging supports on which said levers are mounted between their ends, and means for adjusting the points about which said swinging supports swing, substantially as described.

23. The combination with an elevator-frame, rakes adapted to be reciprocated over said frame, reciprocating rocking levers connected with said rakes and fulcrumed between their ends, means for reciprocating and rocking said levers, and means for adjusting the fulcra of said levers toward and from the elevator-frame to vary the path traversed by said rakes with reference to the elevator-frame, substantially as described.

681,779. **ELECTRIC CLOCK.** OSCAR A. EN HOLM, Pleasantville, N. Y., assignor of one-half to Homer W. Hedge, New York, N. Y. Filed Oct. 1, 1900. Serial No. 31,811. (No model.)

Claim.—1. In clock mechanism, the combination with an electric circuit, of a vertically-moving driving-weight of magnetic material, a coil surrounding said weight and adapted, when energized, to raise the same, and connections whereby when said weight reaches a predetermined point in the path of its movement said coil will be energized, substantially as described.

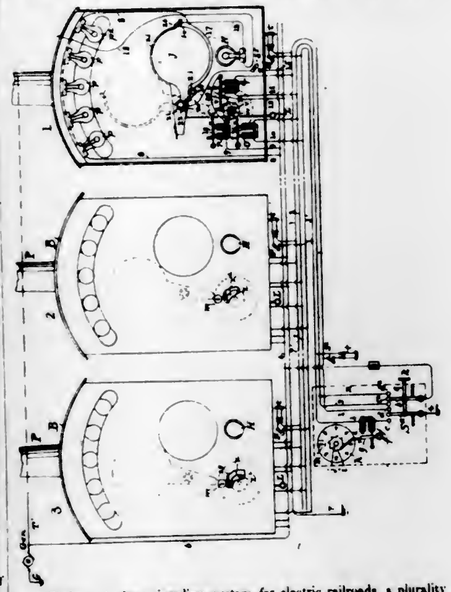
2. In clock mechanism, the combination with an electric circuit, of a vertically-moving driving-weight of magnetic material normally connected with the driven parts, means for disconnecting said weight, a magnet comprising a coil surrounding said weight and adapted, when energized, to raise the same, and means whereby when said weight reaches a predetermined point in the path of movement said coil will be energized and said disconnecting means will be operated, said means being so constructed that said coil is maintained energized until said driving means are restored; substantially as described.



3. In clock mechanism, the combination with an electric circuit, of a vertically-moving driving-weight of magnetic material, a coil surrounding said weight and adapted, when energized, to raise the same, a clutch connecting said weight with the driving parts of the clock during its downward movement, and connections whereby when said weight reaches the limit of its movement said coil will be energized, substantially as described.

4. In clock mechanism, the combination with an electric circuit, of a vertically-moving driving-weight of magnetic material, a coil surrounding said weight and adapted, when energized, to raise the same, a pivoted sealed bulb containing interior switch-terminals in one end thereof and a body of mercury, connections between said terminals and said coil, a lever rigidly attached to said bulb and having a bifurcated end, said bifurcations being separated a distance nearly equal to the length of travel of the weight, and a rod moved by said weight and adapted to engage the respective bifurcations of said lever, substantially as described.

681,780. **SIGNAL FOR ELECTRIC RAILROADS.** HARRY T. GIBBS, Portsmouth, R. I., assignor to the Gibbs Electric Signal Company, same place. Filed Feb. 20, 1901. Serial No. 48,131. (No model.)



Claim.—1. In a signaling system for electric railroads, a plurality of signal-stations, at each of which is a series of electric lamps in a branch circuit from the trolley-wire, adapted to be opened and closed by a manual switch, a signal, a selective device, and telephones; electric circuits extending to each station and to a central station, adapted for signaling and conversational purposes between the signal-stations and the central station; with telephones at the central station, and means for sending selective electric impulses to the signal-stations to operate the selective device at any one signal-station and to set the signal, as set forth.

2. In a signaling system for electric railroads, a plurality of signal-boxes, each secured to a support, each box containing a series of electric lamps in a branch circuit from the trolley-wire adapted to be opened and closed by a manual switch, a semaphore-signal, a selective device, and telephones; electric circuits extending to each signal-box and to a central station, adapted for signaling and conversational purposes between the signal-boxes; with telephones at the central station, and means for sending selective impulses to the signal-boxes to operate the selective device at any one signal-box, and to set the semaphore-signal, as set forth.

3. In a signaling system for electric railroads, a plurality of signal-stations at each of which is a series of electric lamps adapted to be lighted by current from a trolley-wire by a manual switch, a signal, and a selective device; telephone apparatus at all of the stations; electric circuits connecting each signal-station with a central station, adapted for signaling and for conversation; with means at the central station for sending selective electric impulses to the signal-stations to operate the selective device at any desired signal-station, and to set the signal, as set forth.

4. In a signaling system for electric railroads, a plurality of signal-stations, at each of which is a series of electric lamps; a signal held undisplayed by the armature of an electromagnet, the helices of which are in a normally open circuit; a selective device consisting of two electromagnets, the armature of one magnet adapted when attracted to close the said normally open circuit, but restrained therefrom by a slotted disk, the armature of the second magnet adapted to rotate the slotted disk; electric circuits uniting the signal-stations and a central station; means at the central station for sending selective electric impulses to the said second magnets at all of the signal-stations, and for sending impulses to the circuit-closing magnets to close the said normally open circuit at one signal-station only and effect the operation of the signal-magnet, and the setting of the signal, as set forth.

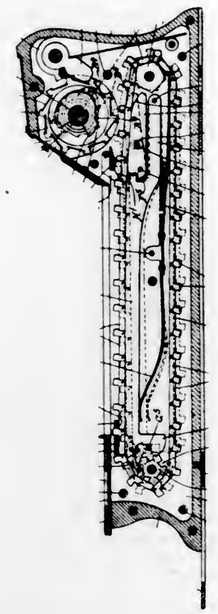
5. In a signaling system for electric railroads, a plurality of signal-stations, at each of which is a series of electric lamps; a signal held undisplayed by the armature of an electromagnet, the helices of which are in a normally open circuit, a selective device consisting of two electromagnets, the armature of one magnet adapted when attracted to close the said normally open circuit but restrained therefrom by a slotted disk, the armature of the second magnet adapted to rotate the slotted disk; telephone apparatus at all of the stations; electric circuits connecting each signal-station with a central station, adapted for signaling and for conversation; with means at the central station for sending selective electric impulses to the said second magnets at all of the signal-stations, and for sending impulses to the circuit-closing magnets to close the said normally open circuit at one signal-station only, and effect the operation of the signal-magnet and the setting of the signal, as set forth.

6. In a signaling system for electric railroads, a plurality of signal-stations along the line of the railroad, there being at each station a series of electric lamps, a signal normally held locked and undisplayed, and a device for selectively unlocking the signal and setting the same consisting of an electromagnet whose armature locks the signal; an electromagnet whose armature is locked by a slotted disk, adapted when unlocked to close a circuit through the signal-locking magnet; and a second electromagnet adapted to rotate the said slotted disk and also an index-disk; electric circuits uniting the signal-stations and a central station, switching means at the central station adapted to send selective electric impulses to the said second magnets at all the signal-stations and rotate the slotted disks, and index-disks, at all of the signal-stations, and an index-disk at the central station, and for sending an impulse to the circuit-closing magnet at the selected signal-station to unlock its armature and permit it to close the circuit through the signal-locking magnet, as set forth.

7. A signal-box provided with openings or windows in two opposite sides, electric lamps within the box, an opeque vertically-moving shutter or dimmer having a portion of its area transparent, normally retained above the said windows by a locked detent, and a device for unlocking the detent, consisting of an electromagnet whose armature is adapted to move the detent, and which is normally inoperative, and a second electromagnet adapted to control the movement of the said armature and remove from its path an obstructing abutment, as set forth.

8. In a signaling system for electric railroads, a plurality of signal-stations with signal-boxes, each provided with openings or windows in two opposite sides, electric lamps within the same, an opaque vertically-movable shutter or dimmer having a portion of its area transparent, normally retained above the said windows by a locked detent, and a device for selectively unlocking the detent, consisting of an electromagnet whose armature is adapted to move the detent, and which is normally inoperative, and a second electromagnet adapted to control the movement of the said armature; electric circuits uniting the signal-stations and a central station, switching means at the central station adapted to send selective electric impulses to the said second magnets at all of the signal-stations, and for sending an impulse to the first electromagnet at the selected signal-station, to unlock the said detent, as set forth.

681,781. **REGISTERING DEVICE.** HENRY GOLDMAN, Chicago, Ill. Original application filed Aug. 1, 1900, Serial No. 35,483. Divided and this application filed Jan. 7, 1901. Serial No. 42,313. (No model.)



Claim.—1. A numeral-wheel for registers, comprising a wheel proper provided with a series of projecting teeth, a series of plates or faces carrying the characters and adapted to be inserted between the teeth after the wheel is formed.

2. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, means for independently rotating said wheels, a connecting device adapted to connect the wheels together when they are in a predetermined position, a holding device for holding the shaft against rotation, and an elastic connection between said holding device and the shaft, whereby the shaft is free to give when a predetermined pressure is applied thereto.

3. The combination with a shaft of a series of disks mounted thereon so as to rotate therewith, a holding device for holding said shaft against rotation, a yielding device for the shaft, which yields when a predetermined pressure is applied to the periphery of said disks, so as to produce a simultaneous yielding or dipping of said disks.

4. A registering device, comprising a series of unmeral-wheels movably mounted upon a shaft, a ratchet-wheel connected with each numeral-wheel so as to rotate therewith, a disk associated with each ratchet-wheel and connected with the shaft so as to rotate therewith, a pawl connected with each numeral-wheel and adapted to ride on the periphery of the associated disk, so as to be normally out of engagement with the ratchet-wheel, said disk provided with a depression which permits the pawl to engage the ratchet-wheel when opposite said depression, and means associated with said shaft which permit it to yield when two or more pawls are to be simultaneously moved past said depression.

5. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a resetting-wheel connected with said shaft, a movable piece attached to said resetting-wheel, so as to have a limited movement with relation thereto, and a spring interposed between said wheel and movable piece.

6. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a resetting-wheel connected with said shaft, a movable piece attached to said resetting-wheel, so as to have a limited movement with relation thereto, a spring interposed between said wheel and movable piece, and a stationary holding device adapted to engage said movable piece so as to hold it against rotation.

7. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a resetting-wheel connected with said shaft, a movable piece attached to said resetting-wheel, so as to have a limited movement with relation thereto, a spring interposed between said wheel and movable piece, a stationary holding device adapted to engage said movable piece so as to hold it against rotation, and means for disengaging the holding device when it is desired to reset the mechanism.

681,782. HYDROCARBON-BURNER. JOHN GRAHAM, Philadelphia, Pa. Filed Feb. 8, 1899. Serial No. 705,008. (No model.)



Claim.—1. In a hydrocarbon-burner for incandescent mantles the combination of a vaporizing-tube within the heat zone of the flame, a mixing and conveying tube extending through and surrounded by the burner and incandescent mantle, open at the top to receive the vapor mixed with air and adapted to convey the same to the burner, substantially as described.

2. In a hydrocarbon-burner for incandescent mantles the combination of an adjustable vaporizing-tube within the heat zone of the flame, a mixing and conveying tube extending through and surrounded by the burner and incandescent mantle, open at the top to receive the vapor mixed with air and adapted to convey the same to the burner substantially as described.

3. In a hydrocarbon-burner for incandescent mantles the combination of a vaporizing-tube within the heat zone of the flame having a detachable vapor-vent nozzle, a mixing and conveying tube extending through and surrounded by the burner and incandescent mantle, open at the top to receive the vapor mixed with air and adapted to convey the same to the burner substantially as described.

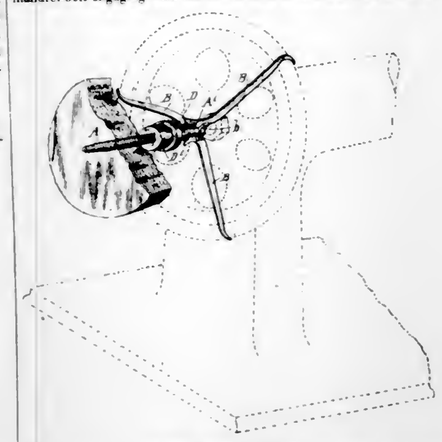
4. In a hydrocarbon-burner for incandescent mantles the combination of a vaporizing-tube within the heat zone of the flame, a heat-concentrating shield inclosing the portion of the vaporizing-tube non-adjacent to the flame, a mixing and conveying tube, extending through and surrounded by the burner and incandescent mantle, open at the top to receive the vapor mixed with air and adapted to convey the same to the burner substantially as described.

5. In a hydrocarbon-burner for incandescent mantles the combination of a vaporizing-tube within the heat zone of the flame, a mixing and conveying tube extending through and surrounded by the burner and incandescent mantle, open at the top to receive the vapor mixed with air and adapted to convey the same to the burner and means adapted to be manually regulated for introducing additional air to the air-mixed vapor at close proximity to the point of combustion substantially as described.

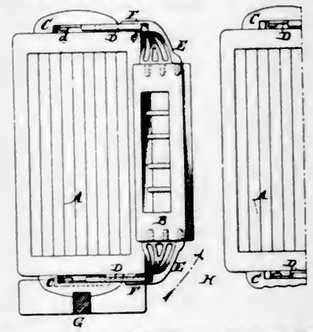
6. In a hydrocarbon-burner for incandescent mantles the combination of a vaporizing-tube within the heat zone of the flame having a detachable vapor-vent nozzle a mixing and conveying tube extending through and surrounded by the burner and incandescent mantle open at the top to receive the vapor mixed with air and adapted to convey the same to the burner and adjustable means for varying the distance between the vapor-vent nozzle and the intake-aperture of the conveying and mixing tube as and for the purpose substantially as described.

681,783. BUFF-WHEEL ATTACHMENT FOR SEWING-MACHINES. JOHN H. GREEN, Springfield, Ill., assignor of one-half to Herbert Harris, same place. Filed June 13, 1901. Serial No. 64,421. (No model.)

Claim.—In a buff-wheel attachment, a screw-threaded mandrel-bolt having an integral head with radiating slotted branches, the slots in said branches inclining forwardly and being of such depth that when the arms are folded alongside of each other the inner edges of the arms will rest on the bottoms of the slots; in combination with arms pivotally supported in the slots in said branches and having curved ends, and a nut on said mandrel-bolt engaging with the curved ends of said arms, as set forth.



681,784. CAR-SEAT. HENRY S. HALE, Philadelphia, Pa., assignor to the Hale and Kilburn Manufacturing Company, of Pennsylvania. Filed June 23, 1899. Serial No. 721,560. (No model.)



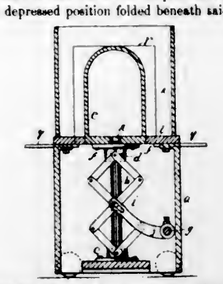
Claim.—1. In a car-seat the combination of the seat proper, hinge-arms directly pivoted to the ends of the seat and adapted to occupy oblique positions a seat-back of considerably less length than the seat proper, and end brackets rigidly connected to the ends of the seat-back and extended outward and forward and hinged or jointed to the upper free ends of the hinge-arms.

2. In a car-seat the combination of a seat proper, two base-plates arranged one at each end of the seat, suitable hinge-arms pivoted to said base-plates and adapted to assume oblique positions, a seat-back of considerably less length than the seat proper, and connecting curved bracket portions rigidly secured at each end of the seat-back and extended outward and forward and pivoted to the upper or free ends of the hinge-arms so as to rotate about axes parallel to the length of the seat-back.

3. In a car-seat the combination of a seat proper, a base-plate C at each end, hinge-arms at each end comprising the two arms D D crossed and pivoted at the bottom at *d d* to the base-plates, a seat-back B of less length than the seat A, and end brackets E E secured to the said seat-back at each end and extended outwardly and forward and terminating in plates F F which are pivoted at points *e e* to the upper or free ends of the hinge-arms D D.

681,785. MACHINE FOR MOLDING CAR-AXLE BOXES. PHILIP T. HANDIGAN, Detroit, Mich., assignor to the Michigan Malleable Iron Company, Delray, Mich. Filed Apr. 13, 1901. Serial No. 55,614. (No model.)

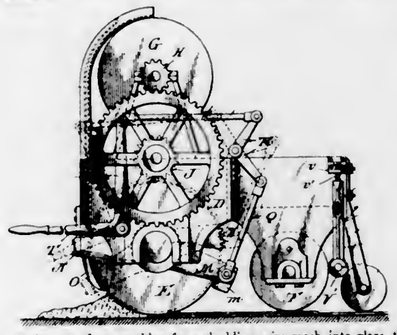
Claim.—1. In a molding-machine, the combination with a movable supporting-body, of a fixed standard carried by said body, a pattern reciprocatory upon said standard, a crank-shaft provided with a crank-arm journaled in said body toward the base thereof and at one side the longitudinal center of the body, and lazy-tongs connected with said crank-arm and with said pattern to raise and lower the pattern, said lazy-tongs when the pattern is in depressed position folded beneath said pattern.



2. In a molding-machine, the combination with a supporting-body, of a stationary standard carried by said body, a supporting-sleeve reciprocatory upon said standard, a pattern engaged with the sleeve also reciprocatory upon said standard, a shaft provided with a crank-arm journaled in said body toward the base thereof and at one side the longitudinal center of the body, and lazy-tongs located below said pattern connected with said crank-arm and with said sleeve to raise and lower the pattern, said crank-arm extending underneath the pattern, and the lazy-tongs when the pattern is in depressed position folded underneath said pattern.

3. In a molding-machine, the combination with a supporting-body, of plural standards carried by said body, a pattern reciprocatory upon said standards, plural lazy-tongs connected with said pattern, and a crank-shaft journaled in said body connected with said lazy-tongs, said lazy-tongs when the pattern is in depressed position folded underneath said pattern.

681,786. MACHINE FOR ROLLING CONFIGURED WIRE-GLASS. CHARLES C. HARTUNG, St. Louis, Mo., assignor to Edward Walsh, Jr., same place. Filed Oct. 18, 1900. Serial No. 33,460. (No model.)



Claim.—1. In a machine for embedding wire mesh into glass, the combination with the embedding mechanism, of a positively-driven suspended finishing-roller for evening the surface of the sheet of molten glass; substantially as described.

2. In a machine for embedding wire mesh into glass, the combination with a corrugated embedding-roller, a positively-driven finishing-roller and means for suspending the said finishing-roller out of contact with the table; substantially as described.

3. In a machine for embedding wire mesh into glass, the combination with a corrugated embedding-roller, a smooth finishing-roller suspended therebehind out of contact with the table, and means for positively driving said finishing-roller, substantially as described.

4. In a machine for embedding wire mesh into glass, the combination with a table, of a carriage, a corrugated embedding-roller mounted in the carriage, a smooth finishing-roller suspended in the carriage, and mechanism for positively driving said finishing-roller; substantially as described.

5. In a machine for embedding wire mesh into glass, the combination with a table, of a carriage traversing the same, a corrugated embedding-roller for supporting one end of the carriage, bracket-rollers for supporting the other end of the carriage, and a suspended finishing-roller mounted in the carriage; substantially as described.

6. In a machine for embedding wire mesh into glass, the combination with the table, of a carriage designed to traverse said table, a corrugated embedding-roller mounted in said carriage, and supporting one end thereof, adjustable brackets carrying rollers for supporting the other end of the carriage, and a smooth finishing-roller suspended by the carriage; substantially as described.

7. In a machine for embedding wire mesh into glass, the combination with the table, of a carriage designed to traverse said table, a corrugated embedding-roller mounted in said carriage, and supporting one end thereof, adjustable brackets carrying rollers for supporting the other end of the carriage, a smooth finishing-roller suspended by the carriage, and means for driving said suspended finishing-roller; substantially as described.

8. In a machine for embedding wire mesh into glass, the combination with the table, of a carriage designed to traverse said table, a corrugated embedding-roller mounted in said carriage, and supporting one end thereof, adjustable brackets carrying rollers for supporting the other end of the carriage, a smooth finishing-roller suspended by the carriage, and means for driving said suspended finishing-roller, said means comprising a friction-roller interposed between the bracket-rollers and the suspended finishing-roller; substantially as described.

9. In a machine for embedding wire mesh into glass, the combination with the table, of a carriage, a corrugated embedding-roller, supporting-brackets for the carriage, said brackets carrying rollers, a suspended, finishing-roller, a friction-roller interposed between the finishing-roller and bracket-rollers, and means for regulating the pressure on said interposed friction-roller; substantially as described.

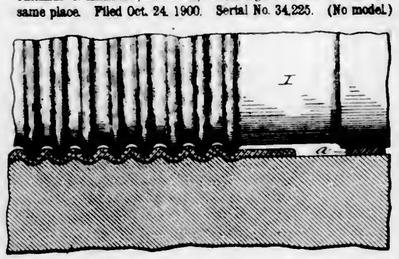
10. In a machine for embedding wire mesh into glass, the combination with a table, of a carriage, a corrugated embedding-roller, a smooth, finishing-roller suspended by said carriage, adjustable brackets carrying rollers for supporting one end of the carriage, a friction-roller interposed between the bracket-rollers and the suspended finishing-roller, and means for regulating the pressure on said interposed friction-roller; substantially as described.

11. In a machine for configuring rolled glass and coincidently embedding wire mesh therein, the combination with a configured table-bed, of a corrugated roller for embedding the wire mesh into the molten glass and spreading said molten glass into plate form, a finishing-roller for smoothing the irregularities on the upper surface of the plate of molten glass, and means for positively driving said finishing-roller in such manner that the plate of glass will not be displaced so as to destroy the configuration imparted thereto by the table-bed; substantially as described.

12. In a machine for configuring wire-glass, the combination with a configured table, of a carriage designed to travel thereover, a corrugated roller for embedding the wire mesh into the molten glass and spreading said molten glass over said table so that the lower surface of the plate of glass partakes of the design of the table, a suspended finishing-roller having a smooth surface for operating upon the upper surface of the spread molten glass and smoothing the irregularities therein left by the corrugated embedding-roller, and means for positively driving said smooth, finishing-roller so that the peripheral speed thereof is approximately the same as the peripheral speed of the corrugated embedding-roller; substantially as described.

13. In a machine for configuring wire-glass, the combination with a configured table, of a corrugated embedding-roller mounted upon said table, a smooth, finishing-roller bearing a fixed relation to the embedding-roller, but elevated above the table, means for supporting said finishing-roller in its elevated position, and mechanism for driving said finishing-roller; substantially as described.

681,787. APPARATUS FOR MAKING CORRUGATED GLASS. CHARLES C. HARTUNG, St. Louis, Mo., assignor to Edward Walsh, Jr., same place. Filed Oct. 24, 1900. Serial No. 34,225. (No model.)



Claim.—1. A roller for corrugating glass, the same having deep spaces between the projecting portions of the corrugations so that the bottom walls of said spaces will not contact with the glass; substantially as described.

2. A roller for corrugating glass, the same having plain bearing ends

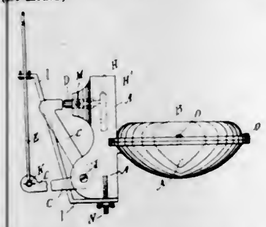
and a corrugated intermediate portion, the corrugations thereof having deep spaces between them so that the bottom walls of said spaces will not contact with the glass being operated upon; substantially as described.

3. In an apparatus of the character described, the combination with a corrugated table, strips on said table to determine the thickness of the glass to be rolled, a plain roller for spreading the glass over the corrugated portion of the table and a corrugated roller following in the wake of the plain roller, said corrugated roller having plain bearing ends, a reduced space adjacent said bearing ends, the projecting portions of the corrugations registering with the corrugations of the corrugated table, and the spaces between said projecting portions of the corrugations being deep so that the bottom walls of said spaces will not contact with the glass, substantially as described.

4. The combination with a corrugated table, of strips *a* arranged thereon, a plain roller mounted upon said strips for spreading molten glass over the table, a frame, and a corrugated roller mounted in said frame, and to the rear of the plain roller, said corrugated roller having deep spaces between the projecting portions of its corrugations so as to prevent contact of the molten glass with the bottom walls of said spaces; substantially as described.

5. The combination with a longitudinally-corrugated table, of a plain roller for spreading the molten glass thereover, a following roller having corrugations whose convexed portions register with the concaved portions of the table corrugations, the spaces between the projecting portions of the corrugations on said roller being deep, whereby, molten glass being rolled cannot contact with the bottom walls of said spaces; substantially as described.

681,788. **DEVICE FOR LIGHTING FIRES IN FIRE-ENGINES.** JOHN W. HEANEY, Los Angeles, Cal. Filed Nov. 28, 1900. Serial No. 38,052. (No model.)

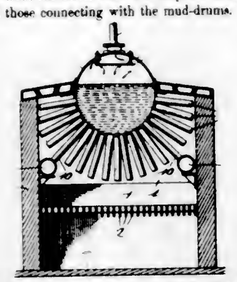


Claim.—A fire-lighter, for use in fire-engines, comprising the magazine B, open at the top and adapted to receive the combustible material; a channel H in support A; an opening in the side of the magazine communicating with the channel H; the support A to support the magazine, the channel H being adapted to hold a vessel containing an acid to ignite the combustible material in the magazine; and adapted to receive a fragile vessel H' in said channel; and means to break said vessel, comprising a firing-pin D, adapted, in its advance movement, to enter the channel H and break the vessel therein; a spiral spring D' encircling said pin and adapted to hold the pin in its retracted position; means to limit the movement of said pin; a hammer C pivoted to said support, and having an upper and lower member; the upper member being adapted to strike the firing-pin on the elevation of the handle E; attached to the lower member; the handle E, the lower end pivotally connected to the lower member of the hammer, and the upper end projecting through the support A; a ring on the opening in the upper end of the handle; a spring F mounted on the bracket G, the projecting prong of said spring adapted to pass through the ring in the top of the handle and prevent the accidental raising of the handle.

681,789. **BOILER.** FRANK A. HENSLEY, Gonzales, Tex. Filed Apr. 5, 1901. Serial No. 54,529. (No model.)

Claim.—1. The combination of a furnace, a boiler longitudinally held and disposed in the upper portion of the furnace, and a plurality of series of radially-arranged tubes depending from the boiler over the fire and heat-currents below, the said tubes comprising outer tubes with lower closed ends and centrally-located smaller tubes within the outer tubes and provided with lower open ends, the tubes all radiating from a common center and extending fully over the fire-bed in a transverse direction and attached to the boiler in a plane at right angles to the latter, all of the said tubes having a maximum extent equally from the boiler over the fireplace except the uppermost side tubes and those connecting with the mud-drums.

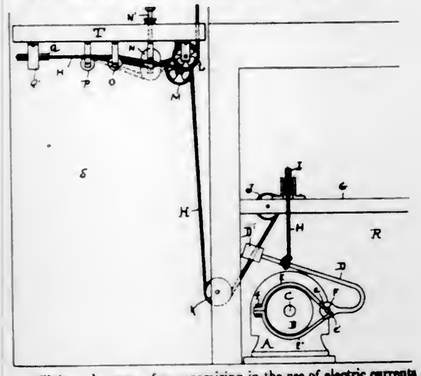
2. The combination of a furnace, a boiler longitudinally held and disposed in the upper portion of the furnace, and a plurality of tubes depending from the boiler over the fire and heat-currents below, the tubes all radiating from the center of the boiler and extending fully over the fire-bed in a transverse direction, all of the said tubes having a maximum extent equally from the boiler over the fireplace except the uppermost side tubes and those connecting with the mud-drums.



3. The combination of a furnace, a boiler longitudinally held and disposed in the upper portion of the furnace, and a plurality of circulating-tubes attached to the boiler and all radiating from a common center which is the center of the boiler and extending full length of the latter, the said tubes being arranged in series and each alternate series being in longitudinal alinement, and each alternate series, transversely considered, being in a different radial plane from the series next in advance, and all the series extending fully over the fire-bed in a transverse direction, all of the said tubes having a maximum extent equally from the boiler over the fireplace except the uppermost side tubes and those connecting with the mud-drums.

4. The combination of a furnace, a boiler longitudinally held and disposed in the upper portion of the furnace, and a plurality of series of tubes radiating from a common center, all of the said tubes having a maximum extent equally from the boiler over the fireplace except the uppermost side tubes and those connecting with the mud-drums, the said tubes comprising outer tubes with lower closed ends and smaller tubes within said outer tubes and provided with lower cut-away open ends at a distance above the said closed ends of the outer tubes.

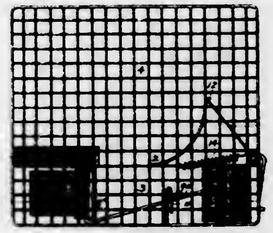
681,790. **ELEVATOR-BRAKE.** JOSEPH W. HICKMAN, Dayton, Ohio. Filed May 2, 1901. Serial No. 58,404. (No model.)



Claim.—In means for economizing in the use of electric currents in operating elevators, the combination with brake mechanism controlling the motor-shaft, of a rope, a lever to which said rope is connected after passing upwardly over suitable guide-pulleys, a series of guide-pulleys secured to the floor of the elevator-car whereby said rope is directed in a position parallel with the floor of the car, and whereby the said rope is enabled to pass upwardly to a permanent connection at the top of the elevator-shaft, the point of entrance and departure of said rope at the floor of the elevator car being approximately in a vertical line, and a plunger arranged in the floor of the elevator-car and engaging with said rope, whereby tension may be applied to said rope at predetermined times to actuate the brake mechanism and thereby avoid the unnecessary use of current, substantially as and for the purposes specified.

681,791. **TRAP.** ORLANDO HUFFMAN, Beatrice, Nebr., assignor of two-thirds to Henry Fishback and William Bosworth, same place. Filed May 11, 1901. Serial No. 59,755. (No model.)

Claim.—In a trap, the combination with a receptacle, a partition in said receptacle dividing it into an entrance-chamber and a cage, a door for the entrance-chamber, a trigger for holding said door open, and a platform in the entrance-chamber for releasing the trigger, of a door between the entrance-chamber and cage, a spring for normally holding said door closed, an arm on the hinged edge of the last-mentioned door to open the first-mentioned door when the last-mentioned door is opened by the animal, and said partition bent to receive the free end of the door to prevent its being opened from the cage.



681,792. **WINDOW OR DOOR SCREEN.** ORLANDO HUFFMAN, Beatrice, Nebr., assignor of two-thirds to Henry Fishback and William Bosworth, same place. Filed May 11, 1901. Serial No. 59,756. (No model.)

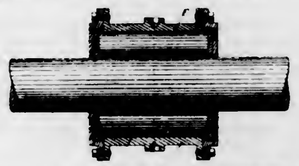


Claim.—1. A screen comprising a frame, a partition secured to the inner face of the frame and having a transversely-disposed perforated portion located between the upper and lower members of the frame, hollow truncated cones disposed upon the transverse portion of the partition and communicating with the perforations therein and a wire-netting connected with the outer edge of the partition and to the frame.

2. A screen comprising a rectangular frame, a sheet-metal partition near the upper member of the frame and secured thereto, said partition having a perforated portion disposed transversely under the upper member of the frame, truncated conical projections on the upper face of the transverse portion of the partition communicating with perforations therein and a wire-netting connecting the partition and the lower and side sections of the frame.

3. In a screen, the combination with a rectangular frame, a metal plate secured to the upper section of the frame and bent at right angles forming a transverse portion having holes and disposed parallel with said upper section and spaced therefrom and again bent at right angles forming a lip, a wire-netting clamped to the lower edge of the lip and secured to the side sections of the frame below the partition and to the bottom or lower section of said frame, and truncated conical projections on the transverse portion of the partition communicating with holes therein.

681,793. **ROLLER-BEARING.** JOHN HUTCHISON, Jackson, Mich. Filed Mar. 21, 1901. Serial No. 52,207. (No model.)

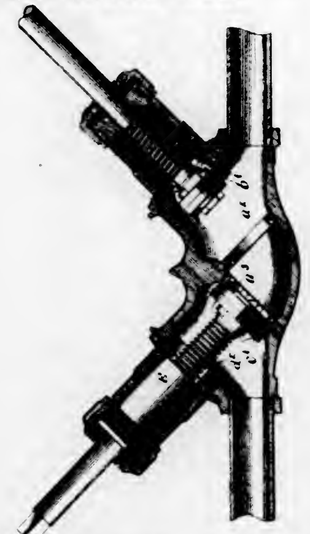


Claim.—1. In a roller-bearing, rings independently rotative, and having opposing parallel surfaces at right angles to the axes of the rolls, and rolls having ends abutting against the rings, whereby the rolls are retained in line with the axis of the shaft, substantially as described.

2. In a roller-bearing, a case having annular heads, rings independently rotative in the heads, and having opposing parallel surfaces at right angles to the axis of the shaft, and rolls having bearing-surfaces of the full diameter of the rolls, and engaging the rings, substantially as described.

3. In a roller-bearing, a case having annular heads, rings independently rotative in the heads, and having inwardly-projecting portions between the rolls, and opposing parallel surfaces at right angles to the axis of the shaft, and rolls having bearing-surfaces of the full diameter of the rolls, and engaging the parallel surfaces of the rings, substantially as described.

681,794. **VALVE.** CHARLES E. HUXLEY, Quincy, Ill., assignor of two-thirds to Frederick Wahl and George E. Ricker, same place. Filed Oct. 19, 1900. Serial No. 33,559. (No model.)



Claim.—1. A valve comprising a hollow casing containing two valve-seats disposed with their faces at opposite angles to the principal axis of said casing, and valve-closures adapted to close on said valve-seats, said valve-closures and valve-seats being arranged to give unrestricted flow through said casing when said valve is open.

2. A valve comprising a hollow casing having a main valve seat and closure, and a secondary valve seat and closure, said secondary valve-seat being arranged obliquely to and in the line of flow from the inlet to the primary valve-seat, said closures being adapted to be retracted beyond said line of flow, and said seats being disposed to give unrestricted flow through said casing when said valves are open.

3. A valve comprising a hollow casing having two connecting nipples at opposite ends in line with each other, obliquely-disposed lateral extensions, cylindric heads secured to said extensions, valve-seats secured in said casing in line with said connecting nipples, and valve-closures actuated by endwise-moving stems having screw-threaded connection with said heads.

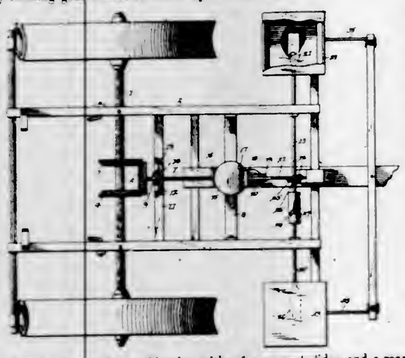
4. A valve comprising a hollow casing having two connecting nipples at opposite ends, and lateral extensions located at the same side thereof, valve-seats disposed obliquely and in line with said nipples, and valve-closures provided with valve-stems, said parts being so arranged that when the valve-closures are withdrawn they are entirely without the line of flow through the valve-casing, and when they are seated the pressure acts against the outer face of one or the inner face of the other of said closures.

681,795. **CORN-PLANTER.** COMER Y. JARED, Alexandria, Tenn. Filed Dec. 17, 1900. Serial No. 40,193. (No model.)

Claim.—1. In a planter, the combination of a frame, a rear shaft or axle, a front shaft, a reciprocating rod designed to be connected with seed-slides, means for connecting the reciprocating rod with the front transverse shaft, a reversely-rotating gear-wheel mounted on the front transverse shaft and having a clutch connection with the same, an oscillating lever provided with teeth and adapted to oscillate the said gear-wheel, a continuously-rotating gear-wheel arranged to engage the lever to move the same in one direction, a spring for moving the lever in the opposite direction, and gearing for connecting the continuously-rotating gear-wheel with the rear shaft or axle, substantially as described.

2. In a planter, the combination of a frame, a rear shaft or axle, a front shaft, a reciprocating rod designed to be connected with seed-slides, means for connecting the reciprocating rod with the front transverse shaft, a reversely-reciprocating gear-wheel mounted on the front transverse shaft and having a clutch connection with the same, an oscillating lever provided with teeth and adapted to oscillate the said gear-wheel, a continuously-rotating gear-wheel arranged to engage the lever to move the same in one direction, means for moving the lever in the opposite direction, a pair of gear-wheels mounted on the rear shaft or axle, a pinion

located between and adapted to mesh with either of the said gear-wheels, and gearing for communicating motion from the pinion to the continuously-rotating gear-wheel, substantially as described.



3. In a planter, the combination with a frame, seed-slides, and a rear shaft or axle, of a front transverse shaft, a reciprocating rod connected with and operated by the front transverse shaft, said rod being also connected with and adapted to actuate the seed-slides, an oscillating lever, a continuously-rotating gear-wheel provided with means for actuating the lever at intervals, and gearing for connecting the continuously-rotating gear-wheel with the rear shaft or axle, and for communicating motion from the lever to the front transverse shaft, substantially as described.

4. In a planter, the combination with a frame, of a reciprocating rod adapted to operate the seed-dropping mechanism, a front shaft connected with and adapted to actuate the reciprocating rod, a reversely-rotating gear-wheel mounted on the front shaft and having a clutch connection with the same, an oscillating lever provided with teeth meshing with the said gear-wheel, and means for oscillating the lever at regular intervals, substantially as described.

5. In a planter, the combination with a frame, of a reciprocating rod adapted to operate seed-dropping mechanism and provided with an arm, a shaft having a continuous cam engaging the arm and adapted to reciprocate the rod, a reversely-reciprocating gear-wheel mounted on the shaft and having a clutch connection with the same, an oscillating lever having teeth meshing with the gear-wheel, and means for operating the lever at intervals, substantially as described.

6. In a planter, the combination with a frame, of a shaft, a reciprocating rod connected with and actuated by the said shaft, a reversely-rotating gear-wheel having a clutch connection with the shaft, an oscillating lever provided with teeth meshing with and actuating the said gear-wheel, a continuously-rotating gear-wheel having a lug or tappet arranged to actuate the lever at intervals to move the same in one direction, means for moving the lever in the opposite direction, and gearing for rotating the said continuously-rotating gear-wheel, substantially as described.

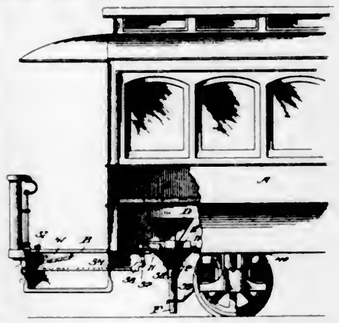
7. In a planter, the combination with a frame, of a shaft, a reciprocating rod connected with and actuated by the shaft and adapted to operate the seed-dropping mechanism, a reversely-rotating gear-wheel having a clutch connection with the said shaft, an oscillating lever fulcrumed between its ends and provided at one end with teeth meshing with the said gear-wheel, a continuously-rotating gear-wheel provided with a lug or tappet arranged to engage the other end of the lever to move the latter in one direction, means for moving the lever in the opposite direction, and means for rotating the continuously-rotating gear-wheel and for changing the direction of such rotation, substantially as described.

8. In a planter, the combination with a frame, of a shaft having a continuous cam-groove, an arm arranged in the groove and reciprocated by the same and adapted to operate seed-dropping mechanism, a reversely-rotating gear-wheel having a clutch connection with the shaft, a lever fulcrumed between its ends and provided at one end with teeth meshing with the said gear-wheel, a continuously-rotating gear-wheel provided with means for engaging the other end of the lever, a laterally-movable shaft provided at its ends with pinions, one of the pinions meshing with the continuously-rotating gear-wheel, and a pair of gear-wheels located at opposite sides of the other pinion and adapted to actuate the same, substantially as described.

9. In a planter, the combination with a frame, an axle, seedboxes located at opposite sides of the frame and having seed-slides, a rod connecting the seed-slides and provided with an arm, a front shaft provided with a continuous cam-groove receiving the arm and adapted to reciprocate the said rod, a reversely-reciprocating gear-wheel having a clutch connection with the front shaft, an oscillating lever fulcrumed between its ends and provided at its front end with teeth meshing with the gear-wheel, said lever being provided at its other end with a head, a continuously-rotating gear-wheel having a lug or tappet for engaging the head of the lever to move the latter in one direction, a spring for moving the lever in the opposite direction, a laterally-movable longitudinal shaft, provided with front and rear pinions, the front pinion meshing with the continuously-rotating gear-wheel, a pair of gear-wheels mounted on the axle and arranged to be engaged by the rear pinion, and operating mechanism for shifting the longitudinal shaft, substantially as described.

10. In a planter, the combination of a shaft, a gear-wheel mounted thereon, means for communicating motion from the shaft to seed-dropping mechanism, an oscillating lever provided with teeth meshing with the said gear-wheel, a continuously-rotating gear-wheel provided with means for engaging the lever to move the same in one direction, means for moving the lever in the opposite direction, and gearing for actuating the continuously-rotating gear-wheel, substantially as described.

681,796. **TRACK-SANDING DEVICE.** WASHINGTON H. KILBOURN, Greenfield, Mass. Filed Dec. 5, 1900. Serial No. 38,804. (No model.)



Claim.—1. A track-sanding device comprising a hopper having a sand-outlet, and a feed-box or carrier mounted to reciprocate beneath the hopper and constructed to deliver sand from both of its ends, as described.

2. A track-sanding device comprising a hopper having a sand-outlet, a conducting-chute below the hopper and a feed-box or carrier mounted to reciprocate at the upper portion of the conducting-chute, which feed-box or carrier is provided with sand-outlets at opposite ends which serve to simultaneously deliver sand to different portions of the conducting-chute as said carrier is reciprocated over the conducting-chute, the carrier in one position cutting off communication between the hopper and conducting-chute, as described.

3. A track-sanding device comprising a hopper having a sand-outlet, a conducting-chute below the hopper, having an upper partition and openings at opposite sides of the partition, a feed-box or carrier mounted to slide between the hopper and conducting-chute, over the latter, the said box or carrier having delivery-openings for sand at both of its ends, which openings in one position of the carrier are adapted to register with the upper openings in the conducting-chute, and means for closing the upper openings in the conducting-chute at a second position of the box or carrier.

4. A track-sanding device, comprising a hopper, a conducting-chute below the hopper, a feed-box or carrier mounted to slide between the hopper and conducting-chute over the latter, means for reciprocating the feed-box or carrier, the said feed-box or carrier having delivery-openings for sand at opposite ends, and the conducting-chute being provided with receiving-openings adapted to register with the outlets of the feed-box or carrier, and a delivery-chute pivotally connected with the conducting-chute and adapted for connection with the truck of a car, as described.

5. A track-sanding device, comprising a plate adapted for attachment to a car, said plate having an opening therein, and a partition crossing said opening near one end, a conducting-chute connected with said plate and extending below the same, a hopper supported from the said plate above the conducting-chute, a feed-box or carrier mounted to slide at the open portion of said plate, the feed-box or carrier having an opening in its bottom at one end and being entirely open at the opposing end, a flange formed on the said feed-box or carrier at the bottom portion of that end adjacent to the opening in the bottom, and means for reciprocating said feed-box or carrier beneath the hopper and over the conducting-chute, as set forth.

6. In a track-sanding device, a hopper having a sand-outlet, a conducting-chute below the said hopper, a feed-box or carrier mounted to slide at the upper portion of the conducting-chute and below the hopper, the said feed-box or carrier having an opening at each end to permit sand

to pass from the interior into the conducting-chute, the said conducting-chute having openings adapted to register with the openings in the carrier, the openings in the conducting-chute being of greater area than the openings in the carrier, for the purpose specified.

7. A track-sanding device, comprising a conducting-chute, a hopper supported above the conducting-chute, a feed-box or carrier mounted to slide at the upper portion of said conducting-chute and below the hopper, said carrier being provided with outlet-openings at opposite ends, an adjustable delivery-chute connected with the outlet of the conducting-chute, and a means for connecting the delivery-chute with a truck of a car, as described.

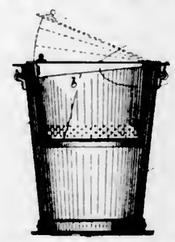
8. In a track-sanding device, a hopper constructed in two sections, corresponding ends of which sections are arranged to slide one upon the other, the ends of one section being provided with horizontal slots, and bolts passed through the said slots into the engaging ends of the opposing section, and tightening devices for the said bolts, as for the purpose set set forth.

681,797. **SPECTACLE-FRAME.** THOMAS V. KIERNAN, Providence, R. I. Filed May 18, 1901. Serial No. 60,858. (No model.)



Claim.—In a spectacle-frame, the combination with the end piece and the temple-joint piece having a socket, of a split spring-bushing fitted thereinto and having dovetailed extension fitting a correspondingly-shaped socket in the temple-joint piece and a dowel-pin embraced by said bushing and forcing the split portions thereof into frictional engagement with the walls of the bushing-socket, all substantially as shown and described.

681,798. **CINDER-SIFTER.** MARTHA KREBS, Gross Peterwitz, Germany. Filed Mar. 6, 1901. Serial No. 50,119. (No model.)



Claim.—The combination, with a suitable pail, of a cover therefor having a depending receptacle formed with a foraminous bottom, said cover having an opening leading into said receptacle, a hinged lid for said opening, and telescoping plates connecting the lid with the side edges of said opening, substantially as described and for the purposes set forth.

681,799. **IGNITING COMPOSITION FOR MATCHES.** JOHN LANDIN and AUGUST JERNANDER, Stockholm, Sweden. Filed Apr. 16, 1900. Serial No. 13,065. (No specimens.)

Claim.—1. An igniting composition for matches, containing an explosive compound of potassium chlorate and charcoal, treated with a readily-inflammable waterproofing substance, a retarder of combustion, and amorphous phosphorus, substantially as set forth.

2. An igniting composition for matches, containing an explosive compound of potassium chlorate and charcoal treated with a readily-inflammable waterproofing substance, a retarder of combustion, amorphous phosphorus and a coating of paraffin, substantially as set forth.

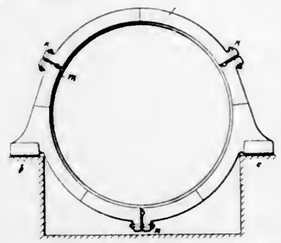
3. An igniting composition for matches, containing an explosive compound of potassium chlorate and carbon treated with a readily-inflammable waterproofing substance, a double cyanid amorphous phosphorus and a coating of paraffin acting as a friction-reducing and waterproofing substance, substantially as set forth.

4. An igniting composition for matches, containing an explosive compound composed of potassium chlorate and charcoal treated with a readily-inflammable waterproofing substance, a double cyanid, and amorphous phosphorus, for the purposes set forth.

5. An igniting composition for matches containing an explosive compound composed of potassium chlorate and charcoal treated with a nitro-cellulose, a double cyanid, and amorphous phosphorus, for the purposes set forth.

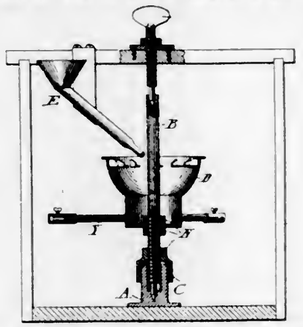
6. An igniting composition for matches, consisting of an explosive compound, a waste product resulting from the purification of illuminating-gas and containing a double cyanid and sulfur, amorphous phosphorus, a gritty substance and a binding agent, substantially in or about in the proportions set forth.

681,800. **STATIONARY ARMATURE AND INDUCTOR.** OSKAR LASCHE, Berlin, Germany. Filed June 18, 1901. Serial No. 65,043. (No model.)



Claim.—Sheet-metal rings and segments for stationary armatures and inductor-rings of electrical machines, provided with one or more pressure-exerting devices at or near those points where deformation is greatest, for the purpose of obviating the inward and outward bending of the rings or segments.

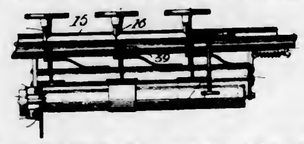
681,801. **DISTRIBUTING-MACHINE.** GEORGE W. LOVEJOY, Tehachapi, Cal. Filed Apr. 30, 1901. Serial No. 58,226. (No model.)



Claim.—1. The combination in a distributing-machine held in a frame; of a revolving vertical shaft; an inverted-cone-shaped distributer having pipes thereon with holes near their outer ends and means to regulate the flow of pulp through these holes.

2. In combination an inverted-cone-shaped distributer having buckets around its inner circumference near the top, a discharge-pipe E, said distributer held on a vertical shaft with means for carrying oil, and a sand-cap on lower end of shaft B all running on two centers and held in a frame over top of tank, all substantially as set forth.

681,802. **VOTING-MACHINE.** LAWRENCE W. LUELLEN, Olathe, Kans. Filed July 25, 1900. Serial No. 24,774. (No model.)



Claim.—1. In a device of the character described, a series of keys, a train of movable dogs for restricting the operation of the keys, the end dog of said train being capable of lateral movement, a locking-bar having a cam-surface for moving the end dog longitudinally and means for moving the end laterally to avoid said cam-surface.

2. In a device of the character described, a series of keys, a train of movable dogs for restricting the operation of the keys, the end dog of said train being capable of lateral movement, a locking-bar having a double cam-surface for moving the end dog longitudinally, and means for moving the end dog laterally to be operated upon by one or the other of said cam-surfaces, substantially as described.

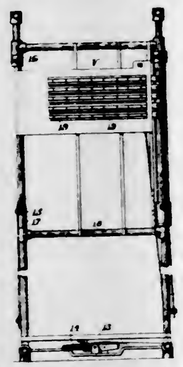
3. In a device of the character described, a series of keys, a train of sliding dogs with cam ends adapted to be forced apart by the depression of the keys and to limit the number of keys depressed at one time, the end dog of said train being capable of lateral movement, a sliding locking-bar having a double cam-surface for moving the end dog longitudinally, and means for moving the end dog laterally to be in a position to be operated upon by one or the other of the said cam-surfaces, substantially as described.

4. In a device of the character described, a base-board having an opening therein, a key slidable in the base-board, a shutter pivoted to the base-board and supported by the key, and a cam on the key for receiving the shutter and forcing it open when the key is depressed, substantially as described.

5. In a device of the character described, a base-board, having an opening therein, a platen located behind the opening, a web fed between the platen and the opening, a shutter pivoted to the base-board and adapted to normally close the opening, a key slidable in the base-board and supporting the shutter and a cam on the key to receive the shutter and force it open when the key is depressed, substantially as described.

6. In a device of the character described, a supporting-frame, a web-roll journaled therein, a ratchet-wheel carried by the web-roll, a pawl on the supporting-frame engaging the ratchet-wheel, a rod having curved slots, pins connecting the rod to the supporting-frame and located in the said curved slots, a movable platform, and a crank connection between the platform and the rod whereby a movement of the platform will cause the rod to move in a curved path, substantially as described.

681,803. **VOTING-MACHINE.** LAWRENCE W. LUELLEN, Olathe, Kans. Original application filed Feb. 1, 1901. Serial No. 45,616. Divided and this application filed Apr. 19, 1901. Serial No. 56,535. (No model.)



Claim.—1. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of means turning with the door through a portion only of its movement for actuating the locking devices.

2. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of a member for actuating the locking devices turning with the door, and a stop connecting with the member to limit its rotative movement to less than that of the door.

3. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of a member for actuating the locking devices turning with the door, and a spring connecting the member and the door.

4. The combination with a booth provided with an entrance and an exit door and a voting mechanism in said booth provided with keys and locking devices therefor, of means turning with the entrance-door through a portion only of its movement for actuating the locking devices.

5. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of a hinge or socket for said door, and means connected with the hinge for actuating the locking devices.

6. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of a hinge or socket for said door, a member for actuating the locking devices, and a spring connecting the hinge and actuating member.

7. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of a hinge or socket for said door, and rotatable means connected with the hinge for actuating the locking devices.

8. The combination with a booth provided with a door and a voting mechanism in said booth provided with keys and locking devices therefor, of a hinge or socket for said door, and means extending within the hinge for actuating the locking devices.

9. The combination with a booth having a cylindrical portion and a voting mechanism in said booth provided with keys and locking devices therefor, of a door for the booth and an actuating member for the locking devices rotatable aboot the cylindrical porton of the booth, and means for limiting the movement of the actuating member.

10. The combination with a booth having a cylindrical portion and a voting mechanism in said booth provided with keys and locking devices therefor, of a door for the booth and an actuating member for the locking devices rotatable about the cylindrical portion of the booth, and a projection carried by the booth extending into a slot formed in the actuating member.

11. The combination with a booth having a cylindrical portion and a voting mechanism in said booth provided with keys and locking devices therefor, of a door for the booth and an actuating member for the locking devices rotatable about the cylindrical portion of the booth, a projection carried by the booth extending into a slot formed in the actuating member, and means carried by the actuating member for limiting the movement of the door.

12. The combination with a cylindrical post of a voting-booth, of a tube supported on said post for rotative movement and having projections adapted for engaging key-locking strips of a voting mechanism, and a door having a hinge or socket surrounding said post and adapted for imparting a rotative strip-actuating movement to said tube.

13. The combination with a tubular post, of two concentrically-disposed members supported for rotative movement about said post, one of which members is provided with a plorality of projections adapted to engage and operate the key-locking strips of a voting mechanism, an actuating-connector between said rotatable members, and means for independently limiting the range of rotative movement of the two members.

14. The combination with key-locking strips, of a key-releasing device comprising three concentrically-disposed members one of which is relatively fixed against rotative movement and the other two of which are rotatable about said fixed member, means on one rotatable member for engaging the locking-strips, and stop devices for limiting the movements of the two rotatable members.

15. The combination with key-locking strips, of a key-releasing device comprising three concentrically-disposed members one of which is fixed against rotative movement and the others of which are rotatable about said fixed member, means on one rotatable member for engaging the locking-strips, a resilient connection between the two rotatable members adapted during the first part of the movement of one rotatable member for imparting a rotative movement to the other member, and means cooperating with each rotatable member for limiting range of movement thereof.

16. The combination with a voting mechanism, of a folding booth adapted to contain the same, a door for the booth, connections between the door and voting mechanism, and a hinge or socket turning upon a relatively stationary portion of the booth and connected to the door by a pivotal joint.

17. The combination with a voting mechanism, of a folding booth adapted to contain the same, a door for the booth, connections between the door and voting mechanism, and a hinge or socket for the door connected thereto by a pivotal joint and provided with contact-faces serving to prevent relative movement of the hinge and door in one direction.

681,804. **CENTRIFUGAL MACHINE.** EDWARD D. MACKINTOSH, New York, N. Y. Filed Oct. 18, 1900. Serial No. 33,433. (No model.)

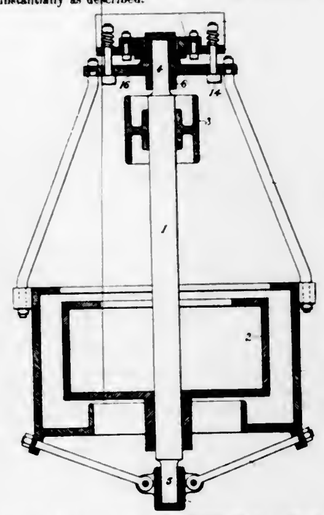
Claim.—1. In a centrifugal machine, a spring-sustained casing swingable about a fixed point above the basket, substantially as described.

2. In a centrifugal machine, the combination of a spring-sustained head above the basket, and a swingable casing hanging from the head, substantially as described.

3. In a centrifugal machine, the combination of a bearing in which turns the spindle, and a spring-sustained head hanging from a fixed support above the basket and giving support to the bearing, substantially as described.

4. In a centrifugal machine, the combination of a head above the basket, a casing supported by the head, a bearing supported by the casing, and a spindle carrying the basket and rotating in the said bearing and also in another bearing, the last-named bearing taking support from the head and being removable upwardly from both the head and the spindle, substantially as described.

5. In a centrifugal machine, the combination of a head and a fixed support, both above the basket, a casing supported by the head, a spindle carrying the basket, a lower bearing supported by the casing, and a higher bearing removable upwardly from the spindle, the head, and the fixed support, substantially as described.



6. In a centrifugal machine, the combination of a bearing supporting the spindle, and tension members, loosely attached to the bearing, extending outward and upward, and loosely attached to the casing, substantially as described.

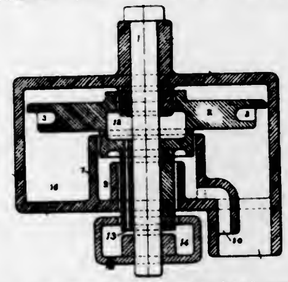
7. In a centrifugal machine, the combination of a hanging head, a swingable casing hanging from the head, a bearing supporting the spindle, and tension members, loosely attached to the bearing, extending outward and upward, and loosely attached to the casing, substantially as described.

8. In a hanging centrifugal machine, the combination of a spring-supported head, a casing attached to the head, a bearing supporting the spindle, and tension members, attached to the bearing, extending outward and upward, and supported by the casing, substantially as described.

9. In a centrifugal machine, the combination of a fixed support above the basket, a head hanging from the fixed support, a swingable casing hanging from the head, and a fixed socket above the basket and forming part of a spring-maintained ball-and-socket joint, substantially as described.

10. In a hanging centrifugal machine, the combination of a bearing above the basket, a spring-maintained ball-and-socket joint connecting the fixed support with a head supporting the casing, a bearing supporting the spindle, and tension members, supporting the last-named bearing, extending outward and upward, and supported by the casing, substantially as described.

681,805. **WATER-MOTOR.** EDWARD D. MACKINTOSH, New York, N. Y. Filed Mar. 13, 1901. Serial No. 50,924. (No model.)



Claim.—1. In a water-motor, the combination of a water-wheel on an upright shaft, a gutter provided with an outlet and contained between upwardly-projecting outer and inner walls surrounding the shaft, a second gutter provided with an outlet and separated from the first by the upwardly-projecting inner wall of the first-named gutter, and a hub projecting over the inner wall of the said second gutter and extending below the top of the wall separating the two gutters, substantially as described.

2. In a water-motor, the combination of a water-wheel on an upright shaft, an outer gutter below the water-wheel and provided with an outlet, an inner gutter provided with an outlet and surrounded by the outer gutter, and a hub projecting over the inner wall of the inner gutter and extending below the top of the inner wall of the outer gutter, substantially as described.

3. In a water-motor, the combination of a water-wheel on an upright shaft, a gutter provided with an outlet and contained between upwardly-projecting outer and inner walls surrounding the shaft, a second gutter provided with an outlet and separated from the first by the upwardly-projecting inner wall of the first-named gutter, a bearing above the water-wheel, a rotating oil-chamber lower than the bearing but higher than that portion of the wheel which is fixed to the shaft, and an outlet from the rotating oil-chamber, substantially as described.

4. In a water-motor, the combination of a water-wheel on an upright shaft, a gutter provided with an outlet and contained between upwardly-projecting outer and inner walls surrounding the shaft, a second gutter provided with an outlet and separated from the first by the upwardly-projecting inner wall of the first-named gutter, a bearing above the water-wheel, a rotating oil-chamber lower than the bearing but higher than that portion of the water-wheel which is fixed to the shaft, an outlet from the said rotating oil-chamber, and another oil-chamber lower than the said outlet from the rotating oil-chamber, substantially as described.

5. In a water-motor, the combination of a water-wheel on an upright shaft, a gutter below the water-wheel and provided with an outlet, a second gutter provided with an outlet and surrounded by the first-named gutter, a bearing above the water-wheel, a rotating oil-chamber lower than the bearing but higher than that portion of the water-wheel which is fixed to the shaft, and an outlet from the rotating oil-chamber, substantially as described.

6. In a water-motor, the combination of a water-wheel on an upright shaft, a gutter below the water-wheel and provided with an outlet, a second gutter provided with an outlet and surrounded by the first-named gutter, a bearing above the water-wheel, a rotating oil-chamber lower than the bearing but higher than that portion of the water-wheel which is fixed to the shaft, an outlet from the said rotating oil-chamber, and another oil-chamber lower than the said outlet from the rotating oil-chamber, substantially as described.

681,806. **LUNG-PROTECTOR.** ARMAND MIGNAULT, Salem, Mass. Filed May 25, 1901. Serial No. 61,884. (No model.)



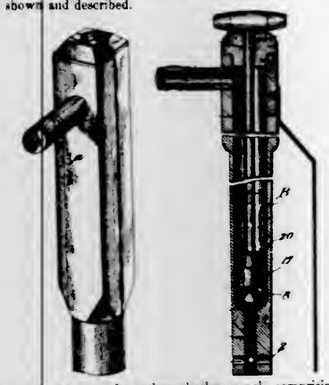
Claim.—1. In a lung-protector the combination of a sheet of animal-skin, with the fur thereof on the outside, and perforated with a series of small holes; a covering of a warm textile fabric preferably flannel; a coating of absorbent cotton secured to the side of said inner lining next to the animal-skin; and saturated with a medical preparation as set forth.

2. In a lung-protector, the combination of a sheet of animal-skin, with the fur upon its outside and perforated with a series of small holes; an inner lining of warm textile fabric, preferably flannel; a covering of absorbent cotton secured to the side of said lining next to said animal-skin; an outer covering of silk said lining and outer covering being sewed together around their edges, and to the animal-skin at their upper portions; and a series of separable fastenings for securing together the lower portions of said fur-covered skin, and the combined lining and outer covering as set forth.

681,807. **LIQUID-PUMP.** THOMAS E. MOON, Sabina, Ohio. Filed Mar. 27, 1901. Serial No. 53,097. (No model.)

Claim.—1. A vinegar-pump for casks and other vessels, comprising a pump-barrel having an outer annular shoulder or flange, and formed for a suitable distance from its lower end with an entrance-port having inlet-openings in the walls thereof for a liquid, an inner chamber of greater in-

ternal diameter than the port extending practically the full length of the barrel and communicating with said port, the walls of said chamber being continuous or unbroken with the walls of the port, and also less in thickness and forming an intermediate conical valve-seat, a ball-valve operating on said valve-seat to open and close communication between the port and chamber, a piston working in said chamber and provided with a valve controlling openings therein, said valve constituting a packing for said piston, and a supporting-brace for the pump adapted for attachment to a vessel, the whole being combined and arranged substantially in the manner shown and described.



2. A vinegar-pump for casks and other vessels, comprising a pump-barrel having an outer annular flange or shoulder and constructed of a single piece of wood formed for a suitable distance from its lower end with an entrance-port having inlet-openings in the walls thereof for a liquid, an inner chamber of greater internal diameter than the port extending practically the full length of the barrel and communicating with said port, the walls of said chamber being continuous or unbroken with the walls of the port, and also less in thickness and forming an intermediate conical valve-seat, a loose ball-valve operating on said valve-seat to open and close communication between the port and chamber, a piston-rod working through one end of said chamber and having at its inner end a smooth tapered stem and an annular shoulder or flange, a removable piston fitting upon said stem frictionally and having ports or openings, and a removable valve for opening and closing said ports confined on the stem between said shoulder and piston, said valve constituting a packing for the piston, substantially as described.

681,808. WIRE-FENCING TOOL. ROGER MCCUE, Alpine, Tex. Filed Jan. 18, 1901. Serial No. 43,756. (No model.)



Claim.—1. In a fence-repairing tool, the combination with a main lever, two holes formed in one end thereof, at different distances from said end, depressions formed in the edges of the tool near the inner end beyond said holes, of chains secured in said holes and a wire-lock secured on the other end of said chains.

2. In a fence-repairing tool, the combination with a main lever, concaved depressions formed in each edge and extending to the inner end of the lever, of chains attached to said lever near each edge at different distances from the concaved depressions and a gripping-tool secured to said chains.

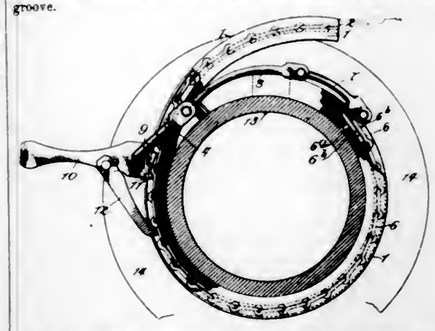
681,809. PIPE-JOINTER. STEWART M. NEFF, New York, N. Y. Filed Jan. 11, 1901. Serial No. 42,831. (No model.)

Claim.—1. An adjustable pipe-jointer composed of a flexible band; a clamping-chain on said band; and means for engaging said chain at any point in its length, and locking the jointer in position upon a pipe.

2. A band for pipe-jointers composed of flexible material and having an open longitudinal channel or groove therein and provided with a clamping device in said groove.

3. A band for pipe-jointers, composed of rubber and having an open longitudinal channel or groove, as 2, formed therein, and provided with a clamping device in said groove.

4. A band for pipe-jointers, composed of a single piece of flexible material having molded therein an open longitudinal channel, as 2, and a lead-pouring aperture, as 5, and provided with a clamping device in said groove.



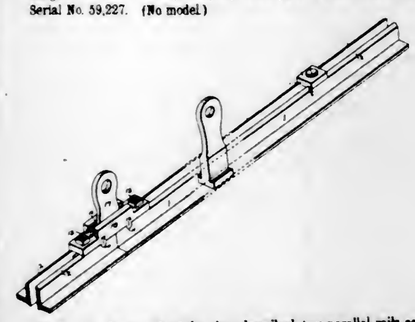
5. An adjustable pipe-jointer composed of a flexible band provided with an open groove, as 2; a chain in said groove; and means for entering said groove and engaging said chain to lock the jointer in position upon a pipe.

6. An adjustable pipe-jointer composed of a flexible band provided with an open groove, as 2, and with a lead-pouring aperture, as 5; a chain in said groove; and means for entering said groove and engaging the chain to lock the jointer in position upon a pipe.

7. An adjustable pipe-jointer composed of a flexible band provided with an open groove, as 2; a chain in said groove; a jointed rod pivoted to one end of said chain; and a clamping handle or lever pivoted to said rod and adapted to enter said groove and engage the links of the chain.

8. An adjustable pipe-jointer composed of a flexible band provided with a groove; a chain in said groove; a jointed rod pivoted to one end of said chain; a clamping-handle pivoted to said rod and provided with a nose or projection to engage said chain; and a dog pivoted to said handle or lever and also adapted to hook into said chain.

681,810. HAY-ELEVATOR TRACK. JACOB NEY, Canton, Ohio, assignor to the V. L. Ney Company, same place. Filed May 8, 1901. Serial No. 59,227. (No model.)



Claim.—1. In a track of the class described, two parallel rails each provided with horizontal and vertical flanges, said vertical flanges provided with beveled upper edges and ribs located below the faces of the horizontal flanges, and caps located upon the beveled tops of the vertical flanges and the ribs, and the clamp upon the rails, substantially as and for the purpose specified.

2. In a track of the class described, parallel rails provided with flanges one flange of each rail provided with a beveled edge and a beveled rib, caps provided with grooves or recesses to receive the beveled edges and the ribs, and means for clamping the caps upon the beveled edges and ribs, substantially as and for the purpose specified.

3. In a track of the class described, parallel rails provided with horizontal and vertical flanges, said vertical flanges provided with recesses near their joined ends, a coupling-block provided with cross-ribs adapted to fit into the recesses in the rail-flanges, said coupling-block provided with flanges upon its bottom or under side, and spaced flanges upon its upper side, and a headed hanger located between the spaced flanges and means for clamping the block upon the track-rails, substantially as and for the purpose specified.

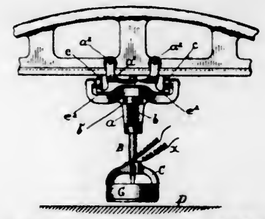
4. In a track of the class described, parallel track-rails spaced one from the other, recesses formed in the vertical flanges of the track-rails, coupling-blocks located upon the top and bottom of the track-rails at their joined ends, the lower coupling-block provided with a web located between the inner faces of the parallel track-rails and the cross-ribs of the upper block fitted into the recesses in the vertical flanges of the track-rails, and means for clamping the blocks upon the track-rails, substantially as and for the purpose specified.

5. In a track of the class described parallel track-rails, coupling-blocks located above and below the track-rails and upon opposite sides of the joint, said coupling-blocks provided with flanges upon their upper and lower sides respectively said upper coupling-block provided with cross-ribs located in recesses of the flanges of the track-rails, and said lower block provided with a web located between the inner faces of the track-rails, and means for clamping the coupling-blocks upon the track-rails, substantially as and for the purpose specified.

6. In a track of the class described, parallel rails a coupling-block provided with spaced flanges upon its upper side, and a headed hanger located between the spaced flanges of the coupling-block, substantially as and for the purpose specified.

7. In a track for hay-elevators, parallel rails spaced one from the other and provided with vertical and horizontal flanges having ribs, and beveled edges located opposite each other, caps provided with grooves adapted to fit the beveled edges and the ribs of the track-rails, said grooves of the caps spaced from each other, and means for clamping the caps, substantially as and for the purpose specified.

681,811. MACHINE FOR CUTTING LEATHER, &c. HENRY PARSONS, Marlboro, Mass. Filed Sept. 5, 1899. Serial No. 729,412. (No model.)



Claim.—1. In a beam die-press, the combination of a vertically-reciprocating beam provided with ledges on its lower edge, a centrally-open carrier supported on said ledges and movable lengthwise of the beam, said carrier having ledges at its lower edges and extending transversely with reference to the beam, a second centrally-open carrier supported on the ledges of the first carrier and movable thereon, and a yieldingly-held die-spindle supported from the second carrier and extending through the carrier-openings, to be depressed by direct contact of the beam, substantially as described.

2. In a beam die-press, the combination of a vertically-reciprocating beam, a longitudinally-movable carrier supported below said beam a transversely-movable carrier also below said beam on the first carrier, and a spindle supported by the second carrier and movable to all positions beneath the beam, substantially as described.

3. In a beam die-press, the combination of the vertically-reciprocating beam, a carrier supported by the beam and movable lengthwise thereof, a second carrier supported by the first and movable in right line crosswise thereof, a die-spindle journaled in an arm extending downward from and forming part of the second carrier, and a spring bearing on said spindle to project it.

681,812. SUPPORT FOR TELEPHONE APPARATUS. ELIAS E. RIES, New York, N. Y. Filed Sept. 19, 1898. Serial No. 691,389. (No model.)



Claim.—In a telephone apparatus, the combination with a base-board or box carrying the stationary portion of said apparatus, of a transmitter arm or support consisting of a tube composed of telescoping sections and secured at its base to the base-board or box, a transmitter having attached thereto a projection of insulation extending into the end of the last of said sections the electric terminals of the transmitter extending into the tube through said projection, and flexible insulated conductors extending from said terminals through the telescopic tube to the apparatus at the box or base-board, substantially as and for the purpose set forth.

681,813. SUPPORT FOR TELEPHONE-TRANSMITTERS OR OTHER APPARATUS. ELIAS E. RIES, New York, N. Y. Filed Sept. 19, 1898. Serial No. 691,390. (No model.)



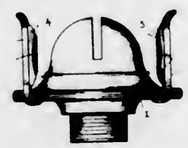
Claim.—1. In a telephone apparatus, the combination with a base-board or box for carrying the stationary portion of said apparatus adapted to be secured to a desk or other support, of an extensible arm mounted upon and projecting from said base-board or box and consisting of a series of groups or sections of conducting-rods insulated from each other, said groups being capable of relative motion in the direction parallel to the common axis of the groups, a telephone-transmitter mounted upon the outermost group of said rods and contact-pieces between certain rods of the several groups for maintaining a sliding electrical connection between the transmitter and said stationary portions of the telephone outfit through the rods of said groups.

2. A supporting-arm for telephone-transmitters, comprising a stationary section and one or more movable sections each consisting of a number of separate parallel rods, insulating-pieces for spacing the rods of each section, openings in said spacing-pieces for the entrance or passage of the rods of other sections, and contact springs or bushings within certain of said spacing-pieces for effecting a sliding or frictional connection between rods of the fixed section and corresponding rods of the movable section or sections whereby said rods form the circuit to and from the transmitter.

3. An extensible supporting-arm for the purpose specified, consisting of one set of two or more rods secured together at their ends by blocks of insulation, and a set of parallel rods also secured together at their ends by blocks of insulation, one of which slides upon the rods of the first section, while the rods of the latter section slide through holes in the insulation at one end of the first section, contact-pieces for maintaining electrical connection between adjacent rods of said sections for the purpose specified, and a frame in which said arm is mounted to swing, substantially as set forth.

4. A supporting-arm for telephone-transmitters consisting of a series of sections composed of rods arranged in the several sections as elements of a cylinder, insulating-pieces for spacing apart the rods of each section, the rods of one section adapted to slide through openings in the spacing-pieces of an adjacent section whereby said arm may be extended or collapsed at will and when collapsed said rods will form a cylindrical mass, and contact springs or bushings within certain of said spacing-pieces for effecting a sliding or frictional connection between rods of adjacent sections whereby said rods form the circuit to and from the transmitter, substantially as set forth.

681,814. LAMP-SHADE HOLDER. WARREN C. ROCKWELL, Mount Carmel, Pa., assignor of one-half to Wm. F. Stine, same place. Filed June 1, 1901. Serial No. 62,786. (No model.)



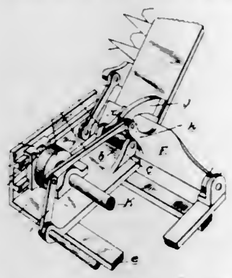
Claim.—1. In a chimney-holder, the combination with a finger having side flanges; a resilient packing within said flanges and adapted to be held in place by the ends of said flanges.

2. A chimney-holder for lamps having longitudinally-arranged and inwardly-bent side flanges provided with overlapping ends or corners; and a resilient packing in the groove formed by said flanges, said packing being securely held in place by the overlapping ends or corners.

3. A chimney-holder comprising a strip adapted to be secured to the spring-fingers of an ordinary lamp-burner said strip having side flanges to form a groove; a resilient packing seated in said groove; and an overlapping extension at the upper end of said strip to engage the extremity of the spring-finger.

4. In a lamp-chimney holder, the combination with the spring-fingers of a lamp-burner; of a strip having an opening through which said finger projects, an overlapping extension at the top of said strip engaging the end of said finger; and a strip of resilient material carried by the first-named strip and adapted to engage the sides of the chimney by frictional contact.

681,815. ADJUSTABLE CUTTER FOR HARVESTERS. PIUS L. SHEPLER, Toledo, Ohio, assignor of one-fifth to Corydon W. Munson, same place. Filed June 19, 1900. Serial No. 20,806. (No model.)



Claim.—1. In a harvester, the combination with a frame of a cutter hinged to said frame comprising a finger-bar and a reciprocatory sickle-bar, means for swinging said cutter into different positions of adjustment, a rotary head upon said frame and a connection between said rotary head and sickle-bar comprising a head reciprocatingly secured to said frame, a crank on said head having a cross-sliding engagement with said reciprocating head, and a link connecting said reciprocating head with said sickle-bar.

2. In a harvester, the combination with a frame, of a cutter hinged thereto, comprising a finger-bar, a reciprocating cutter-bar, and a plate secured to the inner end of said finger-bar and projecting laterally therefrom, lugs projecting upward from opposite ends of said plate, lugs on the frame to which said plate-lugs are hinged, arms *j* and *k* projecting upward respectively from said finger-bar and plate and together forming a bifurcated bearing, a rock-shaft on said frame having an operating-lever, a rock-arm on said rock-shaft, a link connected at one end to said rock-shaft and at its opposite end pivotally connected to said bifurcated bearing, a vertical plate secured to said frame and having parallel guides thereon, a slide reciprocatingly held by said guides, a pivotal link connecting said slide to said cutter-bar, a shaft secured to the frame and a connection between said shaft and slide for reciprocating the latter by the rotation of the former.

681,816. CUTTER FOR MOWERS OR HARVESTERS. PIUS L. SHEPLER, Toledo, Ohio, assignor of one-fifth to Corydon W. Munson, same place. Filed June 19, 1900. Serial No. 20,806. (No model.)



Claim.—1. In a cutter for harvesters, the combination with a reciprocating sickle-bar, of a tapering guard-finger having central ribs upon opposite sides thereof their upper surfaces being flush with the bottom of the knife-slot, said ribs tapering from the point of the finger to a position in rear of the forward end of the sickle-tooth and there terminating to form a shoulder or barb, for the purpose described.

2. A guard-finger for harvester-cutters, comprising a tapering horizontally-slotted body portion having a laterally-enlarged shank below and in rear of said slot, barbs projecting laterally from opposite sides of said body portion below and near the forward end of said slot and a ledger-plate at the bottom of said slot, the forward end of which is mortised in said body between said barbs, its top being flush with the top of said barbs, and its rear end tapering and being mortised into said shank.

3. In a cutter for harvesters, the combination of a sickle-bar having the cutter-teeth secured to its under side and projecting beyond the rear edge thereof, a finger-bar the thickness of which is equal to the combined thickness of said sickle-bar and teeth, said finger-bar having a rabbet on its forward edge with which said projecting portions engage, fingers secured to the under side of said finger-bar and an angle guide-bar secured to the upper face of said finger-bar and embracing said sickle-bar and bearing on the cutter-teeth, so as to form a dust-proof joint therewith.

681,817. EXPANSION-BOLT. CHARLES H. SMITH, Pittsburg, Pa. Filed Feb. 23, 1901. Serial No. 48,435. (No model.)

Claim.—1. An expansion-bolt comprising a wedge-block having opposite tapering and parallel sides, a shell composed of independent halves surrounding said wedge-block and having inner faces conforming to said wedge-block and bearing against the same throughout the length of the latter, and a bolt engaging said wedge-block, whereby as said bolt is turned the shell is expanded with equal pressure throughout its length.



2. An expansion-bolt comprising a wedge-block having opposite tapering and parallel sides, the tapering sides being curved, a shell composed of independent halves surrounding said wedge-block and having inner faces conforming to said wedge-block and bearing against the same throughout the length of the latter, and a bolt engaging said wedge-block, whereby as said bolt is turned the shell is expanded with equal pressure throughout its length.

3. An expansion-bolt comprising a wedge-block having opposite tapering and parallel sides, a shell composed of independent halves surrounding said wedge-block and having their inner faces conforming to said wedge-block and bearing against the same throughout the length of the latter, and a bolt engaging said wedge-block, said wedge-block reaching, or nearly so, the outer ends of said shell and extending back beyond the mid-portion of said shell, or approximately the length of said shell, when the bolt is expanded.

4. An expansion-bolt comprising a wedge-block having opposite tapering and parallel sides, a shell composed of independent halves surrounding said wedge-block and having their inner faces conforming to said wedge-block and bearing against the same throughout the length of the latter, the outer faces of said shell having projections or indentations, and a bolt engaging said wedge-block, whereby as said bolt is turned the shell is expanded with equal pressure throughout its length.

5. An expansion-bolt comprising a wedge-block having opposite tapering and parallel sides, a circular shell composed of independent halves surrounding said wedge-block and having their inner faces conforming to said wedge-block and bearing against the same throughout the length of the latter, the outer faces of said shell having circular ribs at suitable intervals throughout its length, and a bolt engaging said wedge-block, whereby as said bolt is turned the shell is expanded with equal pressure throughout its length.

6. An expansion-bolt comprising a wedge-block having opposite tapering and parallel sides, a circular shell composed of independent halves surrounding said wedge-block and having their inner faces conforming to said wedge-block and bearing against the same throughout the length of the latter, the outer faces of said shell having circular ribs at suitable intervals throughout its length, said ribs being beveled on their inner sides, and a bolt engaging said wedge-block, whereby as said bolt is turned the shell is expanded with equal pressure throughout its length.

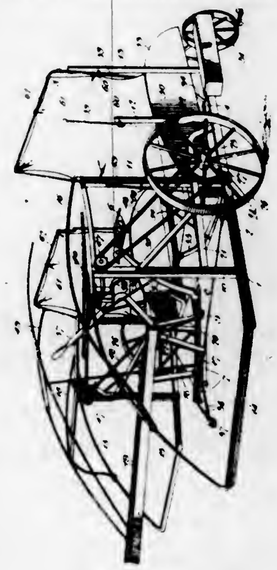
681,818. CORN-HARVESTER. JOSEPH F. STALLSMITH, Topeka, Kans. Filed Dec. 15, 1900. Serial No. 39,992. (No model.)

Claim.—1. In a machine of the class described, the combination with a main frame, a cutting mechanism on the front side thereof, a longitudinally-disposed dumping-table in rear of the cutting mechanism, means to turn the said dumping-table, and rods flexibly connected to the outer side of the dump-table and having guides in one side of the main frame, so that when said table is turned to dump the contents therefrom, said rods serve to collect the corn cut while said table is being dumped and to discharge said corn onto said table when the latter reassumes its normal position, substantially as described.

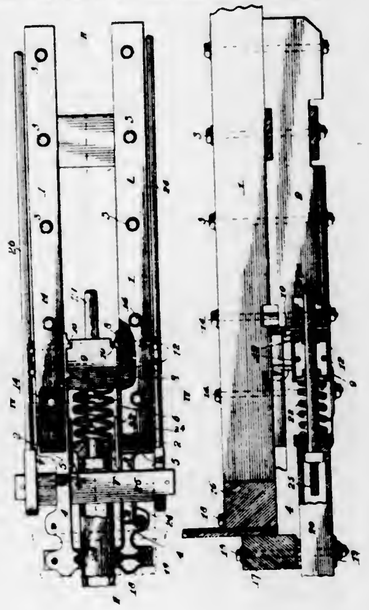
2. In a corn-harvester, a main frame having cutters on its front side, side standards, draft-thills, sweep-reels revoluble in horizontal planes and disposed above the cutters, fender-bars 49 attached to the thills, disposed within and passing over said sweep-reels, and guide-bars 14, on the sides of the main frame, projecting forwardly therefrom, and having rearwardly and upwardly extending guide portions 15 disposed opposite said fender-bars, passing under the inner sides of said sweep-reels, and having their rear ends attached to said standards, said guide and fender bars forming guideways between them to direct the standing corn to the cutters and reels, substantially as described.

3. In a machine of the class described, the combination of a main frame, a cutting mechanism, a pair of longitudinally-disposed pivotally-mounted dumping-tables, spaced apart, and located in rear of the cutting mechanism, said tables having guards at their inner and outer sides, a lever and connections between the same and the tables to dump the latter and discharge their contents into the space between said tables, and rods flexibly connected to the outer guards of said dumping-tables, the sides of the main frame having guides for the said rods, substantially as described.

4. In a corn-harvester, a main frame having cutters on its front side, side standards, draft-thills, sweep-reels revoluble in horizontal planes and disposed above the cutters, fender-bars 49 attached to the thills, disposed within and passing over said sweep-reels, guide-bars 14, on the sides of the main frame, projecting forwardly therefrom, and having rearwardly and upwardly extending guide portions 15 disposed opposite said fender-bars, passing under the inner sides of said sweep-reels, and having their rear ends attached to said standards, said guide and fender bars forming guideways between them to direct the standing corn to the cutters and reels, and outwardly-curved bars 16, disposed beyond the outer sides of said sweep-reels, said bars 16 having their front ends attached to said bars 15 and their rear ends attached to said standards, substantially as described.



681,819. DRAFT-RIGGING FOR RAILWAY-CARS. ANDREW G. STEINBRENNER, St. Louis, Mo., assignor to Sandford Northrop, same place. Filed Mar. 1, 1901. Serial No. 49,435. (No model.)



Claim.—1. In a draft-rigging the combination with buffer-timbers, of the metallic arms, fitted to the ends of the draft-timbers and forming elongations or extensions of said timbers, and having elongated slots formed through their forward ends, and a cap at the inner end of the arms, of a draw-bar mounted between the arms, and a cross-head firmly secured to the same and extending through the elongated slots in the arms whereby the said caps receive the impact of the cross-head in its backward movement, thus protecting the draft or buffer timbers from being split.

2. In a draft-rigging, the combination of buffer-timbers, arms fitted to the timbers and projecting forwardly thereof, and having slots formed through their forward ends, a block fitting between and secured to inner extensions of the arms, a draw-bar located between the outer ends of the arms, a bolt-and-spring connection between the draw-bar and said block, a cross-head passing through said draw-bar and fitting in said slots formed in the outer or forward ends of the arms, whereby the cross-head may move with the draw-bar, and rods for connecting said cross-head to a like cross-head at the other end of the car, substantially as set forth.

3. In a draft-rigging, the combination of buffer-timbers, arms having caps fitting over the ends of said timbers, and inward extensions fitting against the inner faces of the timbers, and having also flanges fitting against the bottom of the timbers, said arms having slots formed through their forward ends, a block fitting between the inner extensions of the timbers, vertical and horizontal bolts connecting the timbers, block and arms together, a draw-bar fitting between said arms, a spring-and-bolt connection between the draw-bar and said block, a cross-head passing through the draw-bar and fitting in the slots in said arms that extend forwardly from said caps, whereby the cross-head may move with the draw-bar, and rods connecting said cross-head to a like cross-head at the other end of the car, substantially as set forth.

4. In a draft-rigging, the combination of buffer-timbers, arms fitted to the timbers and having inner extensions provided with ribs fitting in grooves in the timbers, said arms having slots formed through their forward ends, a block fitting between said arms and having rib-and-groove connection therewith, bolts connecting the timbers, block and arms together, a draw-bar fitting between said arms and having bolt-and-spring connection with said block, and a cross-head passing through said draw-bar and fitting in the slots formed in said arms whereby the cross-head may move in unison with the draw-bar, substantially as set forth.

5. In a draft-rigging, the combination of buffer-timbers, arms having caps fitting over the ends of said timbers and having inward extensions bolted to said timbers, said arms being also provided with elongated slots formed through their forward ends, a draw-bar fitting between the arms, and a cross-head passing through said draw-bar and having a sliding fit in the slots formed in the arms and which extend forwardly from said caps, whereby the cross-head moves in unison with the draw-bar, substantially as set forth.

6. In a draft-rigging, the combination of buffer-timbers, metallic arms having a longitudinal elongated slot 24, comprising caps to fit over the ends of the timbers, an inner vertical extension and a horizontal flange, the vertical ribs 8 and ribs 10, the blocks 9 secured between the vertical extensions and provided with grooves adapted to receive the ribs 10, bolts to secure the whole together horizontally, of a draw-bar mounted between said arms and extending through the block 9, a coiled spring secured around the draw-bar and seated on said block, a horizontal slot through said draw-bar and a cross-bead slidably mounted in the slots of the said arms and secured in the draw-bar, and rods connecting the cross-head to a like cross-head at the other end of the car.

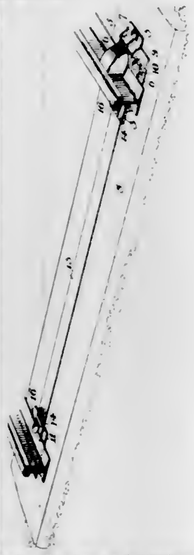
7. In a draft-rigging, the combination with the draft-timbers, of metallic arms, having elongated slots formed through their forward ends, and caps at the inner ends of the slots to cover the ends of the timbers, of a draw-bar between the arms, and a cross-head extending from the draw-bar through the said elongated slots, whereby the said caps receive the impact of the cross-head when the draw-bar is jammed inwardly by the coupling of cars.

8. In a draft-rigging, the combination with the draft-timbers of metallic arms having elongated slots formed through their forward ends, and caps at the inner ends of the slots to cover the ends of the timbers, and guiding-rib 34 formed on the inner face of the respective arms, of a draw-bar between the arms, the inner end of which is guided in its movement by the ribs 34 and a cross-head extending from the other bar through said elongated slots, whereby the caps receive the impact of the cross-head in the draw-bar as jammed inwardly by the coupling of cars.

681,820. RAILWAY-TRACK APPLIANCE. JOHN W. STEPHENSON, Toledo, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed July 25, 1900. Serial No. 24,779. (No model.)

Claim.—1. The combination with a railroad-rail, of a rail-brace having a bearing against the upper side of the flange and the under side of

the head of the rail, and a tie-plate on which the brace is set, said tie-plate having a longitudinally-inclined rear bearing for the rail-brace, said brace having a spike-hole, and the tie-plate having a slot registering therewith; substantially as described.



2. A tie-plate adapted to rest on the surface of a tie under a rail, and having on its under side and inner margin a socket for the reception of a tie-rod, said socket being open at its end for the free insertion of a tie-rod; substantially as described.

3. The combination of the rails of a railway-track, tie-plates therefor, a tie-rod connecting the tie-plates and connected therewith by spikes passed vertically through the plates and tie-rod; substantially as described.

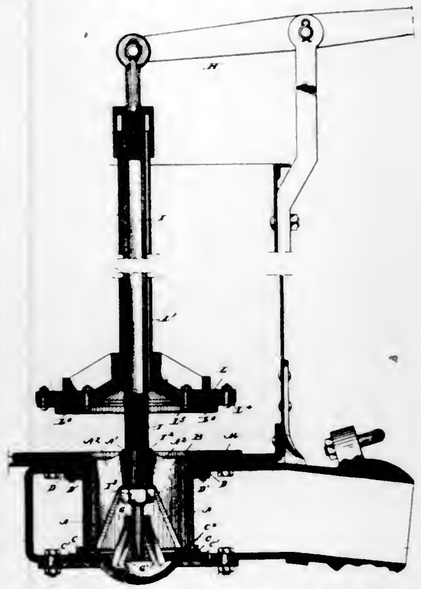
4. The combination with a railroad-rail, of a rail-brace, having a bearing against the upper side of the flange and the under side of the head of the rail, and a tie-plate on which the brace is set, said tie-plate having a longitudinally-inclined rear bearing for the rail-brace; substantially as described.

681,821. GARMENT. GEORGE W. TOMLIN, Galesburg, Ill. Filed Nov. 22, 1899. Serial No. 737,925. (No model.)



Claim.—A garment comprising a shirt having a back A, a tail B, sleeves C C and neckband D, and vest-pieces H H stitched to the shirt along the shoulders around the front portions of the armholes and down the sides beneath the armholes, the bosom of the shirt being cut away beneath the vest-pieces, upon opposite sides of the vertical central portion thereof, thus providing openings E and leaving a strip F connecting the tail and neckband, the garment being provided in the vicinity of the armholes with openings for the passage of the suspenders and the front and bottom edges of the vest-pieces being left free from the shirt, whereby the suspenders may be passed inward through the aforesaid openings in the vicinity of the armholes, thence downward beneath the vest-pieces, thence outward through the openings E and thence downward between the vest-pieces and shirt, substantially as described.

681,822. TANK. JOHN H. WALLACE and JOHN D. ISAACS, San Francisco, Cal. Filed Nov. 6, 1900. Serial No. 35,674. (No model.)



Claim.—1. In a tank of the character specified the combination with a discharge having an opening for the passage of a valve on the one side and a seat for the same on the opposite side; of an open-ended hollow valve adapted to fill the said opening while resting on the said seat to close the said discharge and provided with suitable lifting devices; a disk mounted on the said lifting devices and adapted to be released therefrom to cover the opening in the tank over the said valve; and suitable means for admitting access to the said valve from outside the tank, substantially as described.

2. In a tank of the character specified, the combination with a discharge having openings in the upper and lower sides thereof; of a plate adapted to be fastened in position to close the lower opening in the said discharge and carrying on its upper surface a valve-seat; an open-ended hollow valve adapted to fill the said upper opening in the discharge while resting on the said seat to close the said discharge; suitable devices for lifting the valve; and a disk removably attached to the said valve and suspended within the water in the tank and adapted to close the opening in the tank provided for the valve in the said discharge when not attached to the valve, substantially as described.

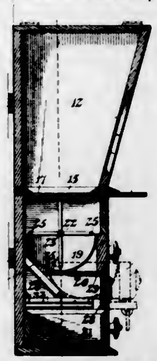
3. In a tank of the character specified, the combination of a discharge; a suitable valve to close the entrance to the said discharge and provided with suitable devices for opening the said valve; and a disk removably connected to the said valve and suspended within the water in the tank and adapted to close the opening provided for the said valve; substantially as described.

681,823. KITCHEN-CABINET. JOHN W. ATKINS, Redland, Ind. Ter., assignor of one-half to William T. Henry, same place. Filed July 6, 1900. Serial No. 22,704. (No model.)

Claim.—1. In a kitchen-cabinet, a casing, a drawer arranged within said casing and carrying a sieve, a rotatable stirrer mounted within the casing and coöperating with said sieve, and means for supporting said drawer and the sieve carried thereby in coöperative relation with the stirrer, said means including a drop-door pivotally mounted upon the casing and arranged to engage a portion of the drawer to hold the same in said coöperative relation.

2. A kitchen-cabinet comprising a bin, a casing arranged beneath and having a communication with said bin, a sieve slidably mounted in the casing, a rotatable stirrer also mounted in the casing and coöperating with the sieve, means arranged within the casing for supporting the rear end of said sieve, and a drop-door pivotally mounted upon the casing and adapted to support the front portion thereof, whereby said sieve is held in coöperating relation with the stirrer, and a drawer arranged in said casing beneath the sieve.

3. In a kitchen-cabinet, the combination with a bin, of a casing arranged beneath said bin and having an opening in one side thereof, a stirrer rotatably mounted in the casing, a sieve detachably mounted in the casing beneath the stirrer and removable through the side opening, the front portion of said sieve when in place closing a portion of said opening, and means for supporting said sieve, said means including a door pivotally mounted upon the casing and forming a front support for said sieve, said door also forming a closure for the side opening of the casing beneath the sieve.



4. In a kitchen-cabinet, the combination with a bin, of a casing arranged beneath said bin and having an opening in one side thereof, said casing being also provided with inclined guide-cleats upon its opposite inner walls adjacent to the side opening, a stirrer rotatably mounted in the casing, a sieve slidably mounted in the casing upon the inclined guide-cleats, and beneath the stirrer, the front portion of said sieve when in place closing a portion of the side opening, and a door pivotally mounted upon the casing and forming a support for said sieve when in place, said door also forming a closure for the side opening of the casing beneath the sieve.

681,824. SWITCH MECHANISM. CHARLES F. GAY, Spokane Wash. Filed Dec. 11, 1900. Serial No. 39,537. (No model.)



Claim.—1. In a switch mechanism, a main rail, a switch-tongue connecting with a switch-rail, a projection on the outer side of the main rail near its point of connection with the free end of the tongue, a shifting block carried by a car, a part on said block for engaging between the main rail and the free end of the switch-tongue, and a part on said block for engaging with the projection to turn the block, substantially as specified.

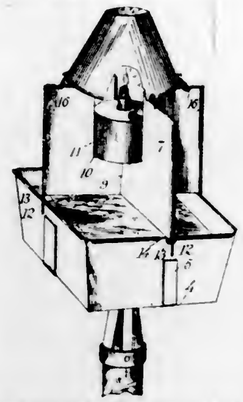
2. In a switch mechanism, a main rail, a switch-tongue connecting with the switch-rail, a projection on the outer side of the main rail near its point of connection with the free end of the tongue, a rod vertically movable through the platform of a car, a shifting block on the lower end of said rod, a shoe on one side of said block for engaging between the main rail and the switch-tongue, and a curved shoe on the opposite side of said block for engaging with said projection, substantially as specified.

3. In a switch mechanism, a main rail, a switch-tongue connecting with a switch-rail, a curved projection on the outer side of the main rail near its point of connection with the free end of the tongue, a shifting block carried by a car, a shoe on the lower side of said block for engaging between the switch-tongue and the main rail, a shoe on the lower side of said block and opposite the first-named shoe, the last-named shoe being adapted for engagement with the curved projection, and a guard-rail with which said last-named shoe is designed to engage, substantially as specified.

4. In a switch mechanism, a main rail, a switch-tongue pivoted to the switch-rail, the said switch-tongue being curved and recessed at its free end, a shifting block carried by the car and having a projecting shoe for engaging in said recess, a curved block or projection on the outer side of the main rail, and a shoe on the shifting block for engaging with said projection, substantially as specified.

681,825. INSECT-EXTERMINATOR. ALBERT C. GILLESPIE and JOSEPH C. DAVIS, Pittsfield, Ill. Filed June 18, 1901. Serial No. 65,000. (No model.)

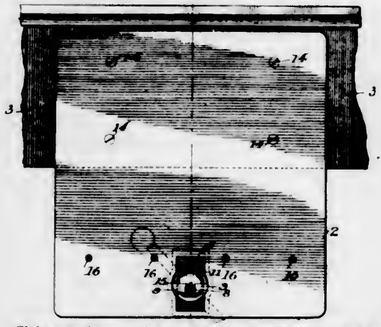
Claim.—1. In an insect-exterminator, the combination with a pan or vessel, of reflectors vertically disposed above the pan or vessel, a lamp supported by the reflectors, and a conical deflector arranged above the reflectors, substantially as set forth.



2. In an insect-exterminator, the combination with a pan or vessel, of reflectors vertically disposed above the pan or vessel, a lamp supported by the reflectors, and a conical deflector arranged above the reflectors, the reflectors being removable from the pan or vessel, and the deflector being removable from the reflectors, substantially as set forth.

3. In an insect-exterminator, the combination with a pan or vessel, of reflectors vertically disposed above the pan or vessel, a lamp supported by the reflectors, a conical deflector arranged above the reflectors, and a holder consisting of a tubular body having supporting-arms to embrace the pan or vessel, said tubular body being adapted to be slipped over the end of a pole or standard, substantially as set forth.

681,826. COPYING-PRESS. AUGUSTUS HOWARD, San Francisco, Cal. Filed Sept. 10, 1898. Serial No. 690,670. (No model.)



Claim.—1. In a copying-press, the combination with a bed having an extension at one edge, of a platen having an extension sliding in the extension of the bed, a rod mounted in said extension of the platen, a cam sliding on and operated by said rod, and an engaging means between the cam and the extension whereby the extensions are engaged and also positively moved to a limited extent with relation to each other after engagement, substantially as described.

2. In a copying-press, the bed-plate 2, with an extension 4, platen 1 with an extension 5 thereon adapted to slide with the extension 4, the rod 8, the cam 10 upon said rod turning with said rod and sliding freely longitudinally thereon, and the spiral thread 15 upon said cam operatively engaging a resistance rigidly fixed to the plate 2, whereby the platen 1 and plate 2 are positively moved toward each other and held while an intervening object is compressed, substantially as described.

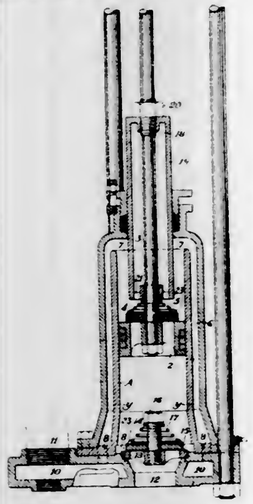
681,827. HAIR-CRIMPER. WILLIAM G. JACKSON, San Francisco, Cal., assignor to L. H. Moise, same place. Filed Jan. 22, 1901. Serial No. 44,337. (No model.)

Claim.—A hair-curler comprising two links linked together, the other ends of said links being free, either link being of sufficient length to

permit of a curl being coiled thereon, and of sufficient width to pass around or over said curl when so coiled upon the other link, substantially as described.



681,828. PUMPING APPARATUS. GUSTAVE A. KROHN, Coarsegold, Cal., assignor of one-half to E. H. COX, Madera, Cal. Filed Nov. 1, 1900. Serial No. 35,114. (No model.)



Claim.—1. The combination in a pump of an inner cylinder, a plunger reciprocable therein, an outer cylinder formed and concentric with the inner cylinder having parallel passages between the two connecting with the inner cylinder at the top, a permanently-fixed chambered base-plate, and means whereby the cylinder is removably attached to said base-plate, said plate having openings connecting the passages between the cylinders with the chamber in said plate, and an extension of the plate to one side and an open connection between said extension and a discharge-pipe.

2. The combination in a pump of an inner cylinder, a piston reciprocable therein, an exterior cylinder with open passages between it and the inner one connecting with the upper open end of the inner cylinder, lugs or flanges at the bottom of the cylinder, a permanently-fixed chambered base-plate to which the cylinder is removably bolted, openings connecting the passages between the cylinders with the chamber of the base-plate, an extension of the base-plate and its chamber beyond one side of the cylinder, and an opening connecting the base-plate chamber with a discharge-pipe.

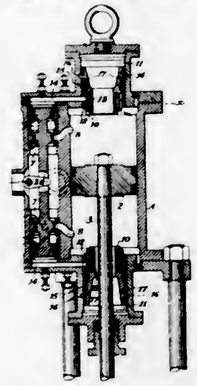
3. The combination in a pump of concentric cylinders having intermediate passages extending longitudinally between them with open connection with the upper end of the inner cylinder, a permanently-fixed chambered base-plate and means whereby the cylinders are removably secured thereto, and a discharge-pipe permanently attached to said base-plate, stuffing-boxes formed in the upper end of the outer cylinder, a cylinder having less diameter than that of the main interior cylinder, and a piston-rod to which it is concentrically fixed and slidable through the stuffing-box, a valved piston fixed to the lower end of a piston-rod and an inlet-valve in the lower end of the inner cylinder.

4. The combination in a pump of concentric main cylinders having longitudinal passages between the two, the upper ends being connected with the open upper end of the inner cylinder, a hollow permanently-fixed base-plate and discharge-pipe opening therefrom, means for removably securing the cylinders upon said base-plate, openings connecting the passages between the cylinders with the chamber of the plate, an independent opening through the center of said plate into the interior cylinder, a valve-seat and valve secured in said opening through which water is admitted into the inner cylinder, a piston reciprocable in the inner cylinder having an upwardly-opening valve and a cylinder fixed to and reciprocable with the piston-rod so as to fill a portion of the upper part of the cylinder on the downstroke of the piston whereby the liquid above the piston is partially discharged at each upward and downward stroke of the piston.

5. The combination in a pump of concentric cylinders with passages between connecting with the upper open end of the inner cylinder, and at the bottom with a chambered base-plate and discharge-pipe, a piston reciprocable in the inner cylinder, upwardly-opening spring-pressed valves in the bottom of the cylinder and through the piston, a hollow cylinder fixed to and carried by the piston-rod and reciprocable therewith through a stuffing-box in the upper end of the outer cylinder said reciprocable cylinder having openings in the lower end for free communication with the water-chamber of the cylinder, whereby said movable cylinder acts as an air-chamber and also to divide the discharge of the water into approximately equal portions for each stroke of the piston.

6. The combination in a pump of concentric cylinders with longitudinal passages between them connecting with the open upper end of the inner cylinder and with a discharge-passage at the bottom, a piston having an opening through it and valves controlling the inlet and the piston-openings, said valves having angularly-disposed peripheral wings against which the passing liquid acts to turn the valves at each rise and fall thereof, a cylinder connected with the piston-rod and reciprocable in the said inner cylinder, and closed at the top and having its lower end provided with openings for the passage of liquid, and a permanently-fixed base-plate having a chamber with which the discharge connects.

681,829. VALVE FOR PUMPING-ENGINES. GUSTAVE A. KROHN, Coarsegold, Cal., assignor of one-half to E. H. COX, Madera, Cal. Filed Nov. 1, 1900. Serial No. 35,115. (No model.)



Claim.—1. In a reciprocating or pumping engine, the piston with its rod movable within the cylinder, a valve-chamber having inlet and exhaust ports, a piston-valve movable therein, ports in the cylinder which are connected alternately with the steam and exhaust passages of the engine by the movement of the valve, annular rings slidable in chambers at each end of the cylinder and normally projecting into the cylinder so that a piston will contact therewith, said rings having peripheral grooves, one of which connects with the exhaust and the other with a steam-inlet passage, and passages connecting the ring-chambers with the ends of the valve-chamber.

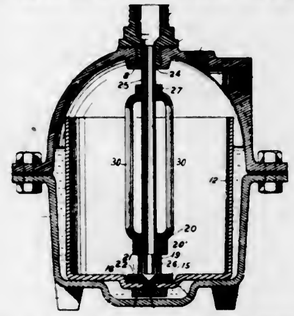
2. The combination in a reciprocating engine of a cylinder, a piston reciprocable therein, a valve-chamber and reciprocating valve whereby communication between steam and exhaust ports and opposite ends of the cylinder are alternately effected, annular rings slidable axially in chambers at the ends of the cylinder, and movable by contact of the piston therewith, grooves upon the peripheries of said rings, one of which grooves connects with the exhaust, and the other with the steam-inlet passages from the ring-chambers into the ends of the main-valve chamber whereby communication is made alternately with the exhaust, and steam-inlet passages to move the main valve.

3. In an engine having a reciprocating piston and piston-valve, rings slidable in chambers at opposite ends of the cylinder, and projecting so that the piston approaching either end will force the ring at that end into its chamber, passages connecting the ends of the main valve-chamber with the ring-chambers, grooves made in the periphery of the ring, one of which connects the valve-chamber with the exhaust-passage of the engine, and the other connects with the inlet-passage, the exhaust-groove connecting with the valve-chamber when the ring is in its normal position, and being cut off therefrom, and the inlet-groove connecting therewith when the ring has been forced into its chamber by the contact of the piston.

4. The combination with a reciprocating piston-engine and piston-valve for the admission and exhaust of the elastic medium, of chambers in the ends of the cylinder, passages leading therefrom to the ends of the valve-chamber, rings fitting and slidable in the cylinder-chambers having grooves on the periphery, one of which connects the end of the valve-chamber with the exhaust when the ring is in its normal position, and the other connects it with the steam-inlet when the ring has been depressed, and means for returning the rings to their normal position after the main piston-pressure thereon has been released.

5. The combination with a reciprocating piston-engine and piston-valve for the admission and exhaust of the elastic medium, of chambers in the ends of the cylinder, passages leading therefrom to the ends of the valve-chamber, rings fitting and slidable in the cylinder-chambers having grooves on the periphery, one of which connects the end of the valve-chamber with the exhaust when the ring is in its normal position and the other connects it with the steam-inlet when the ring has been depressed, secondary grooves within the ring-chambers and channels connecting said grooves with the exhaust whereby pressure is relieved upon one end of the ring while live-steam pressure is applied to again return the ring to its normal position.

681,830. STEAM-TRAP. JAMES J. LAWLER, Mount Vernon, N. Y. Filed Nov. 30, 1900. Serial No. 38,239. (No model.)



Claim.—1. A steam-trap, comprising a casing formed by connecting two members together, an inlet-port formed in the top side wall of the upper member and an outlet-port in the center of the top member, a tube secured in said outlet-port and depending into the casing, a valve carried at the lower end of said tube, a float-guide mounted upon said tube above the valve, and a float connected to the lower end of said guide.

2. A steam-trap, comprising a casing, an upper member of said casing being provided with an inlet-port, and an outlet-port, at substantially right angles to each other, a float slidably mounted in said casing, and a valve in said float near its bottom to control the outlet-port.

3. A steam-trap, comprising a casing, inlet and outlet ports provided in the upper portion of the casing, an inverted conical concaved valve-seat carried by the float in the bottom thereof, a float slidably mounted in said casing, and a valve mounted upon said seat to control the outlet-port.

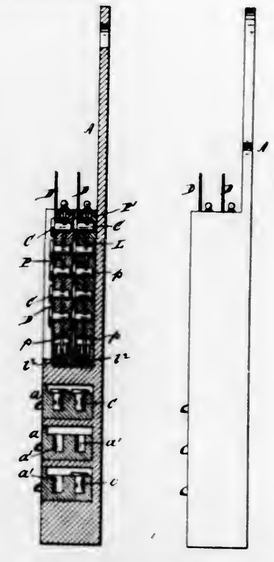
4. A steam-trap, comprising a casing having a depression in its bottom and inlet and outlet ports near and in its top, a tube connected to the outlet-port and extending downward into the casing, a guide mounted upon said tube, a float provided with a depression in its bottom connected to the guide, and a valve to control the lower open end of the tube.

5. A steam-trap, comprising a casing formed by the connection of two members, a float slidably mounted in said casing, an inverted conical concaved valve-seat carried by the float in the bottom thereof, and a tubular valve mounted upon said seat to control the outlet-port.

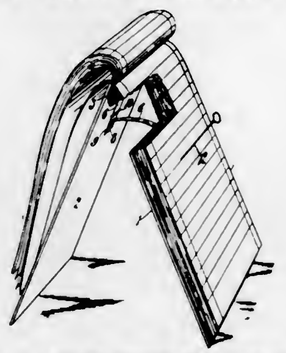
681,831. CALENDAR. ABBOT A. LOW, Brooklyn, N. Y. Filed Jan. 4, 1901. Serial No. 42,078. (No model.)

Claim.—1. In a perpetual calendar the combinaton of the casing A, formed with the receptacle B, the interchangeable plates P, P', formed with the series of sockets *p*, and a series of month-cards D, provided with holes registering with said sockets, and a series of plugs C, bearing denomination-marks for the purpose and substantially in the manner set forth.

2. In a perpetual calendar the combination of the casing A, formed with the recess B, the interchangeable plates P, P', formed with a series of sockets *p*, the series of month-cards D, provided with holes registering with said sockets, the series of lock-plates L, formed with slots *l'*, and engaging edges *l*, and a series of plugs C, formed with the notches *c*, and bearing denomination-marks upon the surface, for the purpose and substantially in the manner set forth.



681,832. STANDING NOTE-BOOK. ELBERT V. MENDENHALL, Los Angeles, Cal. Filed June 14, 1900. Serial No. 20,351. (No model.)



Claim.—1. A note-book comprising stiff covers and bendable back; one of said covers being furnished with a catch-seat; and a spring fastened to the back of the other cover and furnished with a catch to catch in said seat.

2. A note-book furnished with stiff covers and bendable back; leaf-springs fastened to the covers respectively and each furnished at the free end with a catch and at the fastened end with a seat for the catch of the other spring.

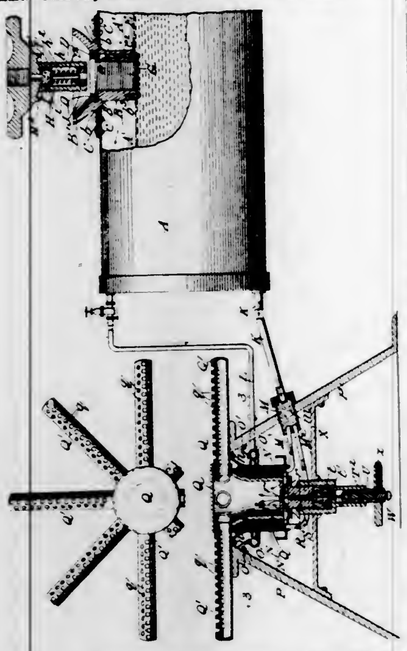
3. A book comprising a stiff cover; a leaf-spring furnished at one end with a catch and at the other end with an opening corresponding to the catch; a staple embracing the spring at the end furnished with said opening, and having its limbs inserted through the book-cover and clenched, whereby a catch socket or seat is provided at the end of the spring opposite the catch substantially as and for the purpose set forth.

4. The combination with two stiff covers and flexible back, of an attachment consisting of a spring, fastened at one end to one cover, the other end of the spring being free and furnished with a book or catch; and a seat on the other cover to seat the catch or hook, substantially as specified.

5. The combination of two stiff covers, flexible back and attachments thereto, composed of springs fastened to the covers, respectively, and provided at loose end with catch or hook and seats on the covers respectively for receiving the catches or hooks substantially as specified.

6. The combination of two stiff covers and flexible back, and attachments thereto composed of springs, respectively, provided at loose end with a catch or hook and fastened at the other end, and suitable staples or clasps respectively providing a receptacle for catch or hook on loose end of the other spring, substantially as specified.

681,833. VAPOR-BURNER. WILLIS MITCHELL, Malden, Mass., assignor to the Mitchell Gas Generator and Burner Company, Boston, Mass. Filed July 24, 1900. Serial No. 24,697. (No model.)



Claim.—1. In combination with a hydrocarbon-burner having radial perforated arms and a downwardly-extending cylindrical part, a coiled tubular generator of cylindrical form surrounding the said cylindrical part, a supplementary annular burner surrounding the said generator for heating the same, a tank or reservoir for liquid hydrocarbon provided with a space at the top for air and hydrocarbon vapor, a pipe from the said tank supplying said generator with liquid fuel, and a pipe from the said air and vapor space supplying the said supplementary burner substantially as set forth.

2. In combination with a hydrocarbon-burner having a downwardly-extending cylindrical part, a coiled tubular generator of cylindrical form surrounding the said cylindrical part, a supplemental annular burner surrounding the said generator for heating the same, a tank or reservoir for liquid hydrocarbon provided with a space at the top for air and hydrocarbon vapor, a pipe from the said tank supplying said generator with liquid fuel and a pipe from the said air and vapor space supplying the said supplementary burner substantially as set forth.

3. A hydrocarbon-burner consisting of a hollow cylindrical body and radial, perforated tubes, in combination with a generator surrounding said body and consisting of a tube wound in concentric helices, pipes whereby the outer generating-helix is supplied with inflammable fluid at both ends, a jet-block through which the said fluid passes from the inner helix to the interior of the burner-body and a valve for regulating the flow through the said jet-block, substantially as set forth.

4. In combination with a hydrocarbon-burner and means for supplying the same, a valve for regulating the said supply, a tubular screw inclosing the head of said valve and adapted to adjust the said valve longitudinally without turning it, a removable pin bearing against the said head, to hold the said valve normally in place but allowing its removal at will and a screw for holding the said pin in place substantially as set forth.

5. In combination with a hydrocarbon-burner, a generator for supplying the same consisting of concentric continuous tubular helices supplied simultaneously at both ends of the outer helix, a filter, pipes connecting these ends to the said filter and a pipe connecting the said filter to the source of supply, substantially as set forth.

681,834. BRICK OR BLOCK PAVEMENT. CYRUS K. PORTER, Buffalo, N. Y. Filed Oct. 11, 1900. Serial No. 32,782. (No model.)



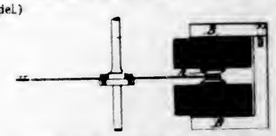
Claim.—1. A paving brick or block having an offset or shoulder on one or more of its sides, an air-chamber, and a vent leading therefrom to a point above said shoulder.

2. A polygonal paving brick or block having an offset or shoulder extending around the brick, an air-chamber, and a vent leading therefrom to a point above said shoulder.

3. A pavement composed of brick or blocks having a plurality of equal angular sides provided with offsets or shoulders forming channels of equal width around the brick, air-chambers in the brick communicating with said channels by means of vents, and a hard filling in said channels.

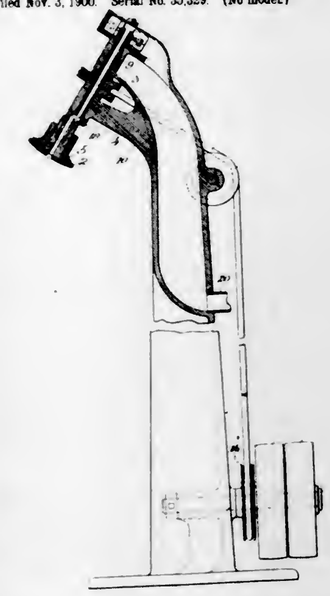
4. A pavement composed of polygonal brick or blocks having enlarged bases, and shoulders or offsets at the upper ends of the bases forming channels of equal width and depth around all the sides of the brick and extending to the surface of the pavement air-chambers in the brick provided with vents communicating with said channels, and a filling in said channels.

681,835. MEANS FOR BRAKING ELECTRICITY-METERS. FELIPE SALDAÑA, Paris, France. Filed May 22, 1900. Serial No. 17,562. (No model.)



Claim.—The improved means for braking electricity-meters comprising a rotatably-mounted member having a rim, in combination with magnets having pole-pieces at the opposite sides of the rim reduced at their ends to concentrate the magnetic field upon said rim.

681,836. SOLE-BUFFING MACHINE. JACOB R. SCOTT, Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Filed Nov. 3, 1900. Serial No. 35,329. (No model.)



Claim.—1. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, actuating means for the pad and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture, substantially as described.

2. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, a hollow shaft for actuating the pad, means for actuating the shaft and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture and hollow shaft, substantially as described.

3. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, a hollow shaft for actuating the pad, means for actuating the shaft, and an exhaust-fan mounted on the shaft acting to remove the dust from the surfaces of the sole and pad through said aperture and hollow shaft, substantially as described.

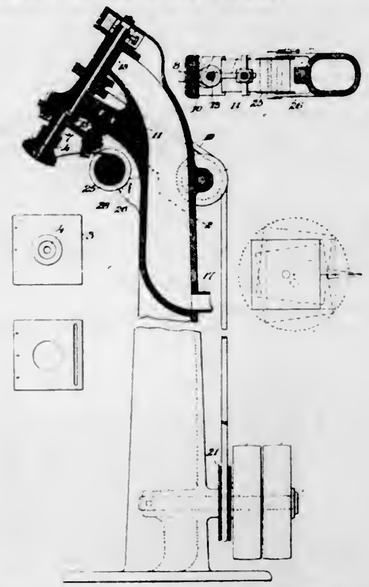
4. A sole-buffing machine, having, in combination, a rotary buffing-pad provided with an aperture in its working face eccentric to its center of rotation, means for rotating the pad and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture, substantially as described.

5. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, a hollow shaft to which the pad is secured so as to rotate therewith, means for rotating the shaft and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture and hollow shaft, substantially as described.

6. A sole-buffing machine, having, in combination, a hollow shaft, a buffing-pad secured eccentrically to said shaft provided with an aperture eccentric to said shaft, means for rotating said shaft and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture and hollow shaft, substantially as described.

7. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, means for rotating the pad and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture, substantially as described.

681,837. SOLE-BUFFING MACHINE. JACOB R. SCOTT, Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Filed Nov. 3, 1900. Serial No. 35,330. (No model.)



Claim.—1. A sole-buffing machine, having, in combination, a buffing-pad, a carrier to which the pad is secured, a bearing for one end of the carrier arranged to allow the carrier to move longitudinally and laterally therein, a bearing for the other end of the carrier arranged to allow the carrier to move longitudinally therein, a shaft, means for rotating the shaft, and connections between the shaft and carrier for imparting to the carrier longitudinally-reciprocating and laterally-oscillating movements, substantially as described.

2. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, means for imparting to the pad longitudinally-reciprocating and laterally-oscillating movements, and a suction device acting to remove dust from the surfaces of the sole and pad through said aperture, substantially as described.

3. A sole-buffing machine, having, in combination, a buffing-pad, a carrier to which the pad is secured, a bearing for one end of the carrier arranged to allow the carrier to move longitudinally and laterally therein, a bearing for the other end of the carrier arranged to allow the carrier to move longitudinally therein, a shaft, a crank-pin thereon fitting an opening in the carrier and means for rotating the shaft, substantially as described.

4. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, means for actuating the pad to cause different portions thereof to travel in intersecting paths and a suction device acting to remove dust from the surfaces of the sole and pad through said aperture, substantially as described.

5. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, a carrier to which the pad is secured, a bearing for one end of the carrier arranged to allow the carrier to move longitudinally and laterally therein, a bearing for the other end of the carrier arranged to allow the carrier to move longitudinally therein, a hollow shaft, a hollow crank-pin thereon fitting an opening in the carrier, the passage-ways formed by the hollow crank-pin and shaft communicating with each other and with said aperture, means for rotating the shaft and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture, hollow crank-pin and shaft, substantially as described.

681,838. COMBINATION-LOCK. WARREN H. TAYLOR, Fairfield, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Apr. 22, 1897. Serial No. 633,320. (No model.)



Claim.—1. In a combination-lock, the combination of a locking-bolt having a projecting spring, a tumbler controlling the withdrawal of said bolt, means for turning said tumbler to unlocking position, a spring for returning said tumbler, a pawl for holding said tumbler to its adjustment, and a dog carried by the bolt, tripping past the pawl in one direction but engaging said pawl and tripping it in the other direction; substantially as and for the purpose set forth.

2. In a combination-lock, the combination of locking mechanism, a tumbler controlling said locking mechanism and provided with a return-spring, a pawl for holding said tumbler to its adjustment, means for releasing said pawl, and means for turning the tumbler consisting of a dial having an eccentric projection engaging in a slot in the tumbler, and a return-spring for said dial to return it to normal position after setting the tumbler; substantially as and for the purpose set forth.

3. In a combination-lock, the combination of a door or other part to which the lock is applied, formed with a spindle-bearing, and slot concentric with said bearing, a dial having a spindle turning in said slot, a spring-box formed in said dial, a spring in said box engaging at one end the dial, at the other end the door or fixed part, a tumbler having a return-spring, and mounted on the spindle, and formed with a curved slot in which the eccentric projection on the dial engages but which extends backward from the point of engagement to permit the dial to return to normal position independently, and means under control of the locking mechanism for holding the tumbler to its adjustment and for releasing it by the unlocking movement; substantially as and for the purpose set forth.

4. The combination of the tumbler of a combination-lock formed with a spring-box, a spring located within said box engaging at one end with the tumbler and at the other end with a fixed part, and a dial engaging the tumbler when rotating in one direction only, and having an independent spring returning it to normal position, substantially as and for the purpose set forth.

5. In combination with the locking mechanism of a combination-lock, a fence carried by the bolt thereof, a tumbler in the path of said fence, having a disconcerting-spring, and a pawl restraining said tumbler, released by a slight unlocking movement of the bolt, said tumbler having its periphery formed with notches in addition to the unlocking gate, to permit partial movement of the locking-bolt, to cause release of the pawl and disconcerting of the tumbler upon attempting to retract the bolt, substantially in the manner and for the purpose set forth.

6. In a combination-lock, the combination of the locking mechanism, a tumbler controlling said locking mechanism and having a return-spring, and a yielding buffer for arresting movement of the tumbler when returned by the spring; substantially as explained.

7. In a combination-lock, the combination of the locking mechanism and an automatically returning or disconcerting tumbler controlling said locking mechanism, and comprising two parts, connected together by means of a slot-and-screw connection, and one of which is formed with a spring-box containing a spring; substantially as and for the purpose set forth.

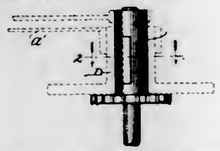
8. In a dial-lock, the combination of a dial and a tumbler engaged by said dial only in the direction for setting, and an automatic returning means, independent of the tumbler, whereby the dial, after setting the tumbler, will at once automatically return to its normal position.

9. In a dial-lock, the combination of a dial having independent automatic returning means, and a tumbler engaged in one direction and set thereby, means for holding the position to which the tumbler may be moved by the dial, and means carried by the bolt that releases said holding means when the bolt is moved, whereupon said tumbler would automatically return to its normal position, substantially as described.

10. In a combination-lock, the combination of locking mechanism, an automatically-returning tumbler controlling said locking mechanism, means whereby said tumbler is released by the movement of the bolt, and an independently-movable latch carried by the bolt, substantially as and for the purpose set forth.

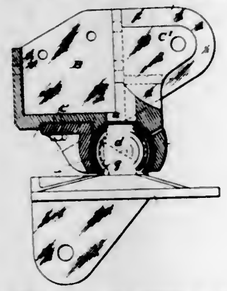
11. In a combination-lock, the combination of a self-returning tumbler, and locking mechanism controlled by said tumbler and adapted to release the same; said locking mechanism comprising a bolt proper carrying the latch and the fence and a carriage having a limited independent movement and carrying the means for releasing the tumbler; substantially as and for the purposes set forth.

681,839. CANNON-PINION FOR WATCHES. OLIVER F. TEED, Chicago, Ill., assignor, by mesne assignments, to himself, William F. Prawiz, and Louise Leubrie, same place. Filed Nov. 30, 1900. Serial No. 38,108. (No model.)



Claim.—A cannon-pinion comprising a toothed wheel or disk, a barrel connected thereto and having a recess larger than one-half of its circumference, and a clamping portion located in said recess and formed to embrace more than one-half of the circumference of the arbor and to engage the arbor with its side edges, substantially as described.

681,840. PIVOT FOR MASTS OF DERRICKS. EDWARD F. TERRY, New York, N. Y. Filed Nov. 2, 1900. Serial No. 35,250. (No model.)



Claim.—1. A mast foot-block and its support for derricks, having a ball-and-socket connection, the socket being composed of plural members which together embrace more than half the ball, the plane of division between the two being oblique to the axis passing through the center of the socket-opening, one of said socket members having a shoulder engaged by the other to prevent its movement away from the pivot.

2. A mast foot-block and its support for derricks, having a ball-and-socket connection, the socket being composed of plural members which together embrace more than half the ball, the plane of division between the two being intermediate the perpendicular and the horizontal, both socket and ball having axial openings for the passage of the derrick-operating cables.

3. A mast foot-block and its support for derricks, having a ball-and-socket connection, the socket being composed of plural members which together embrace more than half the ball, the plane of division between the two being intermediate the perpendicular and the horizontal, the ball and socket being located at one side of the mast and having axial openings for the passage of the derrick-operating cables.

4. A mast foot-block and support for derricks, the support having a ball and the foot-block having a socket embracing said ball, the walls of said socket being formed of two parts, one integral with the foot-block and the other adapted to be secured thereto, the integral portion embracing substantially one-half the ball and at one side extending below the center of the ball, and the removable portion embracing a segment of the ball opposite that engaged by the lower side of the integral portion.

5. A mast foot-block and support for derricks, the support having a ball and the foot-block having a socket embracing said ball, the walls of said socket being formed of two parts, one integral with the foot-block and the other adapted to be secured thereto, the integral portion embracing substantially one-half the ball and at one side extending below the center of the ball, and the removable portion embracing a segment of the ball opposite that engaged by the lower side of the integral portion, the ball and socket being adapted to lie at one side of the mast and having holes for the passage of the derrick-operating cables.

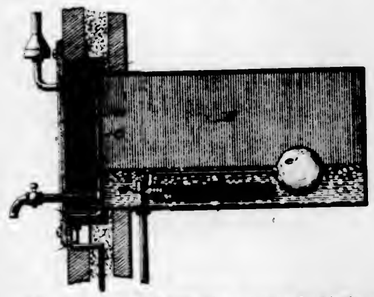
6. A mast foot-block and support for derricks, the support having a ball and the foot-block having a socket embracing said ball, the walls of said socket being formed of two parts, one integral with the foot-block and the other adapted to be secured thereto, one part having a shoulder engaged by the other to prevent its horizontal displacement, the integral portion of the socket embracing substantially one-half the ball and at one side extending below the center of the ball and the removable portion of the socket embracing a segment of the ball opposite that engaged by the lower side of the integral portion.

7. A mast foot-block and support for derricks, the support having a ball and the foot-block having a socket embracing said ball, the walls of said socket being formed of two parts, one integral with the foot-block and the other adapted to be secured thereto, one part having a shoulder engaged by the other to prevent its horizontal displacement, the integral portion of the socket embracing substantially one-half the ball and at one side extending below the center of the ball and the removable portion of the socket embracing a segment of the ball opposite that engaged by the lower side of the integral portion, the ball and socket being adapted to lie at one side of the mast and having holes for the passage of the derrick-operating cables.

8. A mast foot-block for derricks having a socket for the reception of the foot of the mast, a support, and a ball-and-socket pivot connection between the foot-block and its support having its center beyond one edge of the socket for the mast, the pivot-socket extending beyond the center of the ball and having one side detachably secured to the remainder.

9. A mast foot-block and its support having a ball-and-socket connection, the socket-walls being formed of two separable parts, each of which extends beyond the center of the ball upon different sides thereof, the ball and socket having registering openings for the passage of the operating-ropes.

681,841. BEER FILTER AND COOLER. LEROY A. WESTON, Adams, Mass. Filed Dec. 5, 1900. Serial No. 38,790. (No model.)



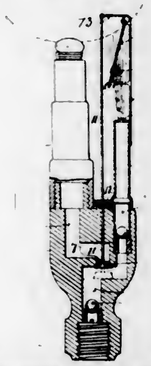
Claim.—1. A beer-cooler comprising a chamber fixed in the wall of an ice-box and projecting into the same, a cover-plate to the end of said chamber, a second cover-plate arranged outside the first on the exterior face of the ice-box, and a drip-trough and vent-spout arranged at the bottom of the air-space between the two cover-plates substantially as described.

2. A beer-cooler comprising an ice-box having an inner and outer casing with holes through their sides opposite each other, the hole in the inner casing being smaller than that in the outer one, and a cooling-chamber secured in horizontal position in said side walls and having its body portion made of a size to fit snugly the hole in the inner casing and having its outer end flanged to a larger size to fit the outer hole and to form also a shoulder to receive the closing-cover as described.

3. A combined beer cooler and filter comprising an inclosing-chamber having in its bottom a beer-inlet pipe with a filter and an automatic float-valve arranged within the chamber, a dispensing-faucet arranged near the bottom of said chamber, and an automatic air-inlet valve arranged near the top substantially as and for the purpose described.

4. A combined beer cooler and filter comprising an inclosing-chamber having in its bottom a beer-inlet pipe with a filter and an automatic float-valve arranged within the chamber, a dispensing-faucet arranged near the bottom of said chamber, a pipe extending from the top of the said chamber and turned up and notched, a cup mounted on the end of the pipe and screw-threaded exteriorly, an inverted-funnel-shaped case screwed onto said cup, and a conical valve arranged within the same and playing between the end of the pipe and the upper section of the valve-case substantially as described.

681,842. LIGHTING DEVICE FOR GAS-BURNERS. EDWIN F. BANFIELD, New York, N. Y. Filed Oct. 11, 1900. Serial No. 32,363. (No model.)



Claim.—1. In a gas-lighting device, in combination, a main burner; an igniter-burner; a gravity-valve; a heat-controlled valve; and means operated by the heat of the flame whereby the heat-controlled valve is opened and closed, substantially as described.

2. In a gas-lighting device, in combination, a main burner; an igniter-burner; a valve, normally closed, controlling the passage to the igniter-burner; a second valve, normally closed, controlling the passage to the main burner; and means operated by the heat of the flame whereby the valve to the main burner is opened when the igniter-flame is lighted, substantially as described.

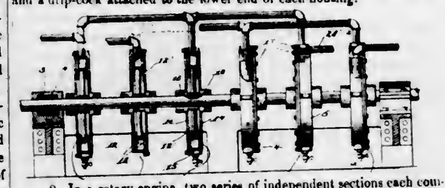
3. In a gas-lighting device, in combination, a main burner; an igniter-burner; a gravity-valve controlling the passage to the igniter-burner; a heat-controlled valve, controlling the passage to the main burner; and means operated by the heat of the flame whereby the heat-controlled valve is opened and closed, substantially as described.

4. In a gas-lighting device, in combination, a main burner; an igniter-burner; a gravity-valve; a heat-controlled valve; means operated by the heat of the flame whereby the heat-controlled valve is opened and closed, and a valve arranged and adapted to shut off the flow of gas through the burner when below the pressure necessary to produce ignition on the igniting material, substantially as described.

5. In a gas-lighting device having an igniting material, the combination with the burner through which the gas passes to be lighted by the igniting material, and the valve controlling the same, of a second valve arranged and adapted to shut off the passage of gas through the burner when below the pressure necessary to produce ignition on the igniting material, substantially as described.

681,843. ROTARY MOTOR. JOHN T. COPITHORN, Hingham, Mass. Filed Nov. 19, 1900. Serial No. 36,969. (No model.)

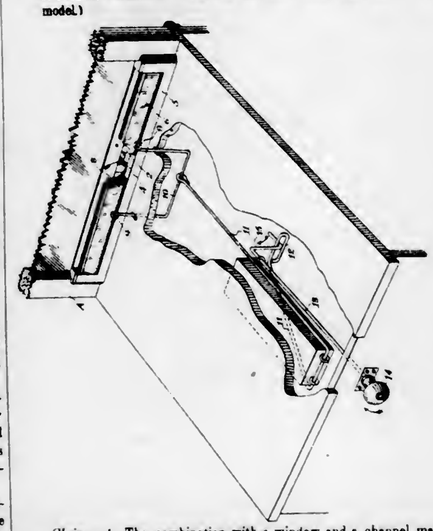
Claim.—1. In a rotary engine, two series of independent sections, each comprising a stationary housing, and a rotary driving member inclosed therein, a main shaft to which all of said driving members are made fast, each driving member having a series of inclined blades projecting from its periphery, and said sections each having an outlet and a tangentially-arranged inlet, the outlet of each of said sections of each series being connected to the inlet of the next succeeding section in the same series, the blades of the driving members of one series being oppositely disposed to the blades of the driving members of the other series, and a drip-cock attached to the lower end of each housing.



2. In a rotary engine, two series of independent sections each comprising a stationary housing and a rotary driving member inclosed therein a main shaft to which all of said driving members are made fast, each driving member having a series of inclined blades projecting from its periphery and said sections each having an outlet and an inlet, the outlet of each section of each series being connected to the inlet of the next succeeding section in the same series, and the blades of the driving members of one series being oppositely disposed to the blades of the driving members of the other series.

3. A sectional rotary motor composed of a main shaft having two series of sections mounted thereon, each section comprising a stationary housing loose on the shaft, and a driving member inclosed in said housing and fast on said shaft, said driving member having a series of pockets, the walls of which fit tightly against the inner peripbery of said housing, each section having an inlet and an outlet, the inlet arranged so as to direct the motive fluid squarely against the walls of the pockets, the outlets of one section being connected to the inlet of the next adjacent section of the same series, and pockets of the driving members of one series being oppositely disposed to those of the other series.

681,844. WINDOW FLY-ESCAPE AND CLOSURE. ADONIRAM J. COLLAR, Yreka, Cal. Filed Jan. 11, 1901. Serial No. 42,887. (No model.)



Claim.—1. The combination with a window and a channel made through the sash, of a gate hinged along one edge, and means for moving the opposite edge of the gate into and out of contact with the glass, thereby controlling said channel.

2. The combination with a window and a channel made through the lower sash, of a gate having a concaved front surface, hinges by which the front lower edge of the gate is loosely connected with the bottom of the channel, while the inner edge of the gate extends above the lower edge of the glass, a yielding material fixed to the movable edge of the gate, means whereby the gate is turned about its hinges, and said edge brought in contact with the glass.

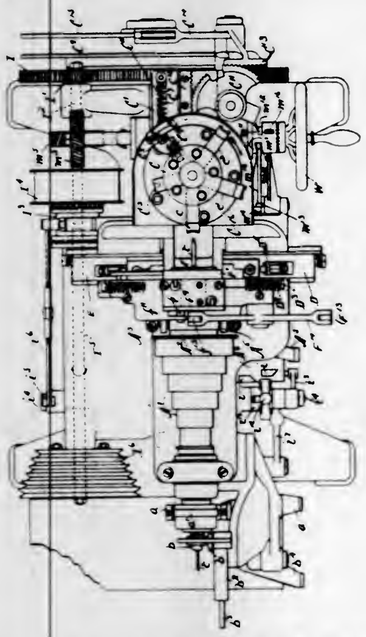
3. The combination with a window having a channel made through the lower sash beneath the edge of the glass for the escape of insects, a gate, hinges by which the lower edge is connected with the bottom of the channel, a concaved front face to said gate extending upwardly above the horizontal plane of the lower edge of the glass, and a flexible covering over said edge, connections between the rear of said gate and a lever mechanism whereby the gate is opened or closed.

4. The combination in a window of a channel made in the lower sash for the escape of insects, a hinged swinging gate by which said channel is opened or closed, a fulcrumed lever, connections between one arm of said lever and the gate, a turnable shaft having a crank-arm engaging the other end of said lever whereby the parts are moved to open or close the gate.

5. The combination with a window having a fly-escape passage through the lower sash, and a gate by which said passage is opened or closed, of a flexible yoke-lever, one arm of which is connected with the gate, a turnable shaft having a crank engaging the other arm of said lever and adapted to lock the parts with the gate in either the open or closed position substantially as described.

6. The combination in a window of a lower sash-bar having a slot or channel made through it below the glass, a metal strengthening-plate fixed to the sash above the opening with its upper edge essentially flush with the glass, a gate having its lower edge hinged in the bottom of the channel and its upper edge closable against said surface, and a mechanism by which the gate may be opened or closed and locked in either position.

681,845. METAL-WORKING MACHINE. WILLIAM S. DAVENPORT, New Bedford, Mass. Filed Jan. 2, 1901. Serial No. 41,796. (No model.)



Claim.—1. The combination of mechanism for holding and rotating a shaft, mechanism for forcing a blank onto said shaft, and mechanism for turning the blank operatively connected and combined to automatically assemble the shaft and blank and to turn the blank.

2. The combination of mechanism for holding and rotating a shaft, mechanism for forcing a blank onto said shaft, and mechanism for turning the shaft operatively connected and combined to automatically assemble the shaft and blank and to turn the shaft.

3. The combination of mechanism for holding and rotating a shaft, mechanism for forcing a blank onto said shaft, mechanism for turning said blank, and mechanism for turning said shaft operatively connected and combined to automatically assemble the shaft and blank and to turn the blank and shaft.

4. The combination for holding and rotating a rod of stock, mechanism for forcing a blank onto said rod of stock, mechanism for turning said blank, and mechanism for severing said rod of stock.

5. The combination of mechanism for holding and rotating a rod of stock, mechanism for forcing a blank onto said rod, mechanism for turning said blank, and mechanism for turning and severing said rod of stock.

6. The combination of mechanism for holding and rotating a rod of stock, mechanism for forcing a blank onto said rod, mechanism for supporting the outer end of said rod, mechanism for turning said blank, and mechanism for turning and severing said rod.

7. The combination of mechanism for holding and rotating a rod of stock, mechanism for forcing a blank onto said rod, mechanism for turning said blank, mechanism for turning a part of said rod, mechanism for burnishing the turned part of said rod, and mechanism for severing said rod.

8. The combination of mechanism for holding and rotating a rod of stock, mechanism for forcing a blank onto said rod, mechanism for turning said blank, mechanism for supporting the outer end of the rod, mechanism for turning a part of said rod, and mechanism for severing the rod at the turned part.

9. The combination of mechanism for holding a rod or shaft, of a reciprocating blank-carrier for forcing a blank onto said rod or shaft operatively connected and combined to automatically assemble the blank and shaft.

10. The combination of a mechanism for holding and rotating a rod of stock, mechanism for intermittently feeding said rod, mechanism for forcing a blank onto said rod, and mechanism for severing said rod.

11. The combination of a chuck for holding and rotating a rod of stock, mechanism for intermittently feeding said rod through said chuck, a blank-carrier for forcing a blank onto said rod of stock, and cutters for turning said blank and for severing said rod of stock.

12. The combination of a chuck for holding and rotating a rod of stock, mechanism for intermittently feeding said rod through said chuck, a blank-carrier for forcing a blank onto said rod of stock, and cutters for turning said blank and rod and severing said rod.

13. The combination of a chuck for holding and rotating a rod of stock, mechanism for intermittently feeding said rod through said chuck, a blank-carrier for forcing a blank onto said rod, cutters for turning said blank and rod and severing said rod, and mechanism for burnishing the turned parts of said rod.

14. The combination of mechanism for holding a rod or shaft, a series of blank-holders, mechanism for bringing said holders successively into line with said rod, and mechanism for causing a relative movement between said rod and holders longitudinal of said rod to force blanks onto said rod.

15. The combination of mechanism for holding and rotating a shaft or rod, a series of blank-holders, mechanism for bringing said holders successively into line with said rod, mechanism for causing a relative movement between said rod and holders longitudinal of said rod to force blanks onto said rod, and mechanism for turning said blanks.

16. The combination of mechanism for holding and rotating a rod of stock, mechanism for intermittently feeding said rod forward, a series of blank-holders, mechanism for bringing said holders successively into line with said rod, mechanism for causing a relative movement between said rod and holders longitudinal of said rod to force blanks onto said rod, and mechanism for severing said rod.

17. The combination with a turret-slide of a cam for controlling the forward and return movement of said slide, a driving mechanism for driving said cam at a high speed during the return of said slide, a separate driving mechanism for driving said cam in the same direction at a slow speed during the advance of said slide, mechanism for alternately connecting said driving mechanism with said cam and means for varying the speed of the slow-driving mechanism.

18. The combination with a turret-slide, of a cam for controlling the forward and return movements of said slide, a pulley driven at a high speed, a shaft driven in the same direction at slow speed, a cone-pulley for driving said shaft, and a clutch for alternately connecting the pulley and shaft with said cam.

19. The combination with a cam-shaft, of two driving mechanisms, a clutch for connecting either of said driving mechanisms with said cam-shaft, a rock-shaft connected with said clutch, an arm operated by a cam on said cam-shaft, and a detachable connection between said arm and said rock-shaft.

20. The combination with a cam-shaft of two driving mechanisms, a clutch for connecting either of said driving mechanisms with said cam-shaft, a rock-shaft connected with said clutch, an arm operated by a cam on said cam-shaft, a lever secured to said rock-shaft, and arranged to either be engaged with said arm and connect it with said rock-shaft or to be engaged with a fixed part and hold the clutch out of engagement with both driving mechanisms.

21. The combination with a turret, of means of indexing the same comprising radially-arranged projections or teeth, a cam-drum, a series of cam-ribs on said drum for successively engaging said projections, and means for intermittently giving the cam-drum a partial revolution.

22. The combination with a turret of means for indexing the same comprising radially-arranged projections or teeth, an intermittently-revolving cam-drum, a spirally-arranged cam thereon for engaging said projections, and a space between the ends of said cam to allow the rotation of said projections when said cam-drum is stationary.

23. The combination with a rock-shaft i^8 of an oscillating arm i^9 loosely mounted thereon, a collar i^{12} secured to said shaft, a lever i^{13} pivoted to said collar, an engaging recess and projection for connecting the lever i^{12} with the arm i^9, and an engaging recess and projection for connecting the lever and a fixed part.

24. The combination with a turret of means for indexing the same comprising radially-arranged teeth or projections connected with the turret, and an intermittently-revolving cam for engaging said projections and shaped to start the turret with a gradually-increasing speed and stop said turret with a retarded speed.

25. The combination with a turret, of means for indexing the same comprising radially-arranged teeth or projections connected with said turret, and a spirally-arranged cam for engaging said projections and shaped to start the turret with a gradually-increasing speed and stop said turret with a retarded speed.

26. The combination with a turret of means for indexing the same comprising radially-arranged teeth or projections connected with said turret, and a cam-drum having spirally-arranged ribs for passing between said projections and rotating said turret, said ribs being shaped to start said turret with a gradually-increasing speed and stop said turret with a retarded speed.

27. The combination with a reciprocating turret of means for indexing the same comprising radially-arranged teeth or projections connected with the turret, and a spirally-arranged cam mounted in fixed position for engaging said projections when the turret is retracted.

28. The combination with a turret, of means for indexing the same comprising radially-arranged projections m', a cam-drum m^3 having spirally-arranged ribs m^2 shaped to start said turret with a gradually-increasing speed and stop said turret with a retarded speed and means for intermittently revolving said drum.

29. The combination with a turret, of means for indexing the same comprising radially-arranged teeth or projections, an intermittently-revolving cam for engaging said projections having a space between its ends to allow the rotation of said projections when said cam is stationary.

30. The combination with a work-carrying spindle, of a turret-slide arranged to slide in a direction at right angles to the axis of such spindle, and a turret mounted in said slide with its axis parallel to the axis of said spindle.

31. The combination with a work-carrying spindle, of a vertically-moving turret-slide arranged above said spindle, and a turret carried by said slide and having the axis parallel to the axis of the spindle.

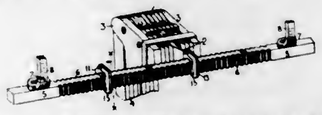
32. The combination with a work-carrying spindle, of a turret-slide arranged to move in the direction of the spindle-axis, a turret mounted thereon, cutter-slides mounted to move transversely of the spindle-axis, a vertically-movable turret-slide mounted above the spindle, and mechanisms for operating said slides and turrets.

33. The combination of assembling mechanism and turning mechanism operatively connected and combined to automatically assemble a blank and shaft and to turn the same.

34. The combination with a work-carrying spindle, of a vertically-movable turret-slide mounted above said spindle, a cam-shaft below said spindle, a lever connected with said slide, a second lever connected with said first lever and operated by a cam on said cam-shaft.

35. The combination with a work-carrying spindle, of a vertically-movable turret-slide mounted above said spindle, a cam for operating said slide mounted below said spindle, connections between said cam and slide comprising a lever engaged by said cam, a lever connected with said slide, and connections between said levers, and means for adjusting the connections between said cam and said slide.

681,846. TYPE-WRITING MACHINE. LOUIS P. DIBB, Ilion, N. Y., assignor to Wyckoff, Seamans & Benedict, same place. Filed Jan. 12, 1900. Serial No. 1,181. (No model.)



Claim.—1. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising a thin plate adapted to engage between the teeth of a rack-bar and having a toothed portion, and comprising also an independently-movable detent for engaging said rack-bar to retain the tappet in place.

2. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising a thin plate adapted to engage between the teeth of a rack-bar and having a toothed portion and comprising also a pivoted detent for engaging said rack-bar to retain the tappet in place, and means for limiting the movement of said detent.

3. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising a thin plate having a notched portion for engaging between teeth upon the opposite sides of the rack-bar, a toothed portion, and a detent pivoted to said plate.

4. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising a thin plate having a notched portion for engaging between teeth upon the opposite sides of a rack-bar, a toothed portion, a detent pivoted to said plate, and a spring for said detent.

5. A tappet for the tabulating mechanism of a type-writing machine, comprising a plate, a detent formed of sheet metal and folded to partially embrace said plate, and a spring.

6. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising a thin forked plate, at least one of the prongs of the fork being widened and adapted to coact with the denomination-stops of the tabulating mechanism, and also comprising a spring-pressed detent for retaining said plate in position.

7. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising a thin forked plate, at least one of the prongs of which is beveled, and a detent pivoted to said plate and adapted to retain it in position.

8. A tappet for the tabulating mechanism of a type-writing machine, comprising a plate which is notched vertically to form a fork, whereby said plate is enabled to be seated between teeth upon opposite sides of a rack-bar, the width of the said notch being substantially equal to the thickness of the rack-bar between the bottoms of the kerfs, and a spring-pressed detent mounted on said plate.

9. A tappet for the tabulating mechanism of a type-writing machine, comprising a plate adapted to be engaged by the denomination-stops of the tabulating mechanism, and a detent pivoted to said plate and comprising a folded stem 13, parallel arms 14 extending therefrom, one upon each side of the plate, said arms being pivoted to the plate at their free ends, and means upon the lower end of said stem for engaging the lower projecting corners of the teeth upon the rack-bar.

10. A tappet for the tabulating mechanism of a type-writing machine, comprising a plate, a folded detent device partially embracing said plate, and a spring secured to said detent device, and adapted to bear upon the upper edge of said plate.

11. A tappet for the tabulating mechanism of a type-writing machine comprising a forked plate, a folded detent device pivoted thereto and provided with a perforation, a spring secured in said perforation and extending upwardly and bent at substantially right angles and adapted to bear upon the upper edge of said plate.

12. A tappet for the tabulating mechanism of a type-writing machine, comprising plate 9, detent 13 having arms 14 pivoted at 12 to said plate, and also having a catch 15, ear 21 formed on at least one of said arms 14, and stop 20 on said plate adapted to be engaged by said ear 21.

13. A tappet for the tabulating mechanism of a type-writing machine, comprising two parts pivoted to each other, one of said parts being adapted to be seated between the teeth of the rack-bar and the other of said parts being adapted to prevent accidental displacement of the tappet.

14. A detachable tappet for the tabulating mechanism of a type-writing machine, comprising two parts pivoted to each other, one of said parts being folded so as to partially embrace the other of said parts, and one of said parts being adapted to be seated between the teeth of the rack-bar and also to engage the denomination-stops of the tabulating mechanism and the other of said parts being adapted to retain the tappet in position upon the rack-bar of the tabulating mechanism.

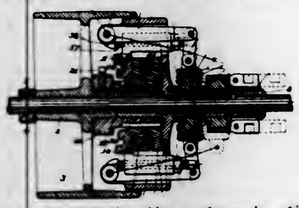
15. A tappet for the tabulating mechanism of a type-writing machine, comprising a thin forked plate portion adapted to engage between the teeth of the rack-bar, and a spring-pressed detent adapted to automatically move to a position to retain the tappet upon the bar after the latter is placed in position, the construction and arrangement being such that upon grasping said detent and moving it in a direction to remove the tappet from the bar, said detent is automatically released and the removal of the tappet is permitted.

16. A tappet for the tabulating mechanism of a type-writing machine, comprising a plate and a spring-pressed L-shaped detent, the detent being pivoted to the plate at the end of one of its L-arms and being provided with a catch portion at the end of the other L-arm.

17. The combination with a bar correspondingly toothed on two sides, of a thin plate-like tappet having portions adapted to enter between the teeth on said sides so as to support and sustain said tappet, and an

independent spring-pressed catch mounted on said plate and adapted to engage the bar and hold said tappet against accidental displacement.

681,847. FRICTION-CLUTCH. EUGENE V. FAUCETT, Wilmington, Del. Filed Aug. 2, 1900. Serial No. 25,703. (No model.)



Claim.—1. The combination with means for securing a friction-disk to a rotative member upon a shaft, of a clutch-case provided with a plurality of apertures, a friction-ring provided with pins entering said respective apertures, an intermediate friction-ring carried upon said pins, and friction-ring-actuating mechanism, substantially as set forth.

2. The combination with means for securing a friction-disk to a rotative member upon a shaft, of a clutch-case provided with a plurality of apertures, a friction-ring provided with pins entering said respective apertures, a spring-actuated intermediate friction-ring carried upon said pins, and friction-ring-actuating mechanism, substantially as set forth.

3. The combination with means for securing a friction-disk to a rotative member upon a shaft, of a clutch-case adapted to be secured to said shaft, a plurality of clutch-levers pivotally movable upon said case, and provided with eccentric studs connected with said levers, a friction-ring having projections in the path of movement of said studs, and clutch-lever-actuating mechanism, substantially as set forth.

4. The combination with means for securing a friction-disk to a rotative member upon a shaft, of a clutch-case provided with a plurality of apertures, a plurality of pivotally-supported clutch-levers working in said apertures, a friction-ring having pillars working also in said apertures, set-screws threaded in said pillars, said clutch-levers having eccentric studs connected with said levers in the path of said set-screws, and means of actuating the levers, substantially as set forth.

5. The combination with means for securing a friction-disk to a rotative member upon a shaft, of a clutch-case provided with a plurality of different sets of apertures alternately disposed, respectively, a friction-ring provided with correspondingly-disposed lugs, said lugs being alternately provided with pins and pillars adapted to enter their respective apertures in the clutch-case, clutch-levers pivotally movable upon the case and working in the apertures occupied by the pillars of the ring, and provided respectively with eccentric studs, set-screws in the respective pillars working in the path of said studs, and means for actuating the clutch-levers, substantially as set forth.

6. The combination with the members of a clutch mechanism, comprising one part adapted to run loose upon a shaft, another part adapted to be secured to the shaft, friction members upon each, and friction-member-actuating mechanism, of a member for operating the actuating mechanism, movable endwise of the shaft, said member being provided with an annular boss, and a thrust-collar recessed to fit the annular boss and provided upon opposite sides with bearing-recesses adapted to receive the pins of the arms of an actuating-lever, and to be irrevolubly operated thereby, substantially as set forth.

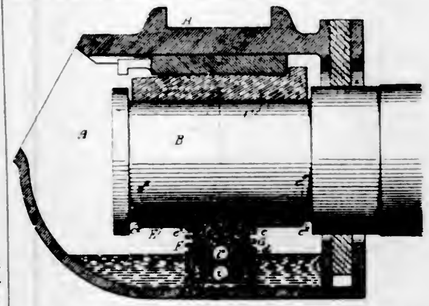
7. The combination with means for securing a friction-disk to a rotative member upon a shaft, of a clutch-case, friction-ring and clutch-levers upon the case separated from and adapted to actuate said friction-ring, a sliding collar upon said case, a loose ring fixed to said collar, and links pivotally uniting said loose ring and the clutch-levers respectively.

681,848. LUBRICATOR. GEORGE F. GODLEY, Philadelphia, Pa. Filed June 4, 1900. Serial No. 19,050. (No model.)

Claim.—1. The combination of a box, a reservoir in the bottom of the box, a journal mounted above the reservoir, a bearing for said journal, a cylinder extending from the reservoir to the under side of the journal, and an independent pumping mechanism within the cylinder operated by the jar or other movement of the car, substantially as described.

2. The combination in a lubricator for car-axle or other bearings, of a journal, a reservoir for the lubricant below the journal, a cylinder between the reservoir and the journal, a piston within the cylinder, a spring supporting said piston, and a valve for controlling the flow of the lubricant to the journal, substantially as described.

3. The combination in a lubricator for car-axle and other bearings, of an axle, a reservoir below the axle, a cylinder between the reservoir and the axle, a spring-supported piston within the cylinder, said piston having a passage, and a valve for controlling the flow of the lubricant to the axle or other bearing, substantially as described.



4. The combination of a car-axle box or other bearing, a journal mounted therein, a frame having an opening, a plate, the frame and plate having overlapping flanges forming a cylinder between the reservoir in the bottom of the box and the axle, a spring-supported piston within the cylinder thus formed, said piston having an opening, and a valve therefor, substantially as described.

5. The combination of a car-axle box or other bearing, a journal mounted therein, a frame having an opening, a plate, the frame and plate having overlapping flanges forming a cylinder between the reservoir in the bottom of the box and the axle, a spring-supported piston within the cylinder thus formed, said piston having an opening, a valve for the piston-opening, and a valve for the opening in the frame, substantially as described.

6. The combination of a car-axle box shaped to contain a lubricant in the bottom thereof, an axle within the box, a frame mounted in the bottom of the box and having an upwardly-projecting flange, a plate having a downwardly-projecting flange, one flange overlapping the other forming a cylinder between the reservoir in the bottom of the box and the axle, means for keeping the plate in contact with the axle, a piston within the cylinder, a spring supporting said piston, said frame having an opening therein, a valve closing said opening, a piston having an opening therethrough, and a valve closing the opening, substantially as described.

7. The combination of a car-axle box, an axle, a bearing for said axle, a frame mounted in the bottom of the box and having an upwardly-extending flange, an opening in the frame, a valve closing said opening, a plate in contact with the under side of the axle and having a chamber formed therein for the reception of a lubricant and having a downwardly-projecting flange overlapping the flange of the frame, a piston mounted in the flange of the frame, a spring supporting said piston, said piston having an opening, and a valve closing the opening, substantially as described.

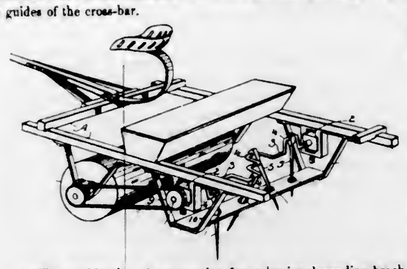
8. The combination of a box, an axle mounted in said box, a bearing for the axle, a plate supported so as to rest against the under side of the axle, said plate having a rib forming a chamber for lubricating material directly under the axle, a cylinder extending from the plate to the reservoir in the bottom of the box, a spring-supported piston within the cylinder, said cylinder having an inlet and an outlet, and valves therefor, so that on the movement of the piston the lubricant will be pumped from the reservoir to the axle, substantially as described.

9. The combination in a lubricator, of a box, a journal, a frame, a plate conforming to the shape of the journal, a spring mounted between the plate and the frame tending to keep the plate in contact with the journal, a piston within the cylinder formed by the plate and frame, and a valve or valves controlling the flow of lubricant to the journal, substantially as described.

10. The combination of a journal, a reservoir below the journal, a plate mounted under the journal, a cylinder extending from the plate to the lubricant-reservoir, and a pump for pumping the lubricant from the reservoir to the journal, said plate having a flange so as to form a chamber for lubricating material between the plate and the journal, the flange having openings at each corner whereby the lubricating material will escape and lubricate the collars of the journal, substantially as described.

681,849. COMBINED HARROW AND CRUSHER. EDWARD S. GORDON, Santa Rosa, Cal. Filed Nov. 24, 1900. Serial No. 37,604. (No model.)

Claim.—1. The combination of a roller, a supporting-frame, brackets depending from said frame, a cross-bar supported upon the brackets and having guides, a shaft having cranks, and picks having their upper portions attached to said cranks and their lower portions operating through the guides of the cross-bar.



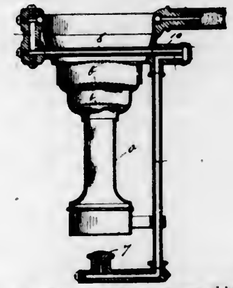
2. The combination of a supporting-frame having depending brackets, a roller, a crank-shaft in rear of the roller and boxes for the ends of said shaft, a bar having guide-openings, said bar having its ends supported upon said brackets, and picks having their upper portions attached to the cranks and their lower portions operating through and guided in the guide-openings of the bar.

681,850. BUTTON. MATHIAS HOFFOER, Elkhart, Ind. Filed Feb. 3, 1899. Serial No. 704,411. (No model.)



Claim.—A button comprising a shank having an eye, a lower disk having a bulge or convex part formed with an elongated depression, an upper disk having an elongated slot coinciding with the elongated depression, means whereby the disks are secured together at one side so as to leave a narrow segmental space or slot between the disks at the other side thereof, a thin segmental tongue formed with a curved outer projection and with a curved inner locking projection, and a pivot-pin whereby the segmental tongue is pivoted to the disks by its outward projection.

681,851. INCANDESCENT VAPOR-BURNER. THOMAS GORDON, Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, same place. Filed Aug. 17, 1900. Serial No. 27,153. (No model.)

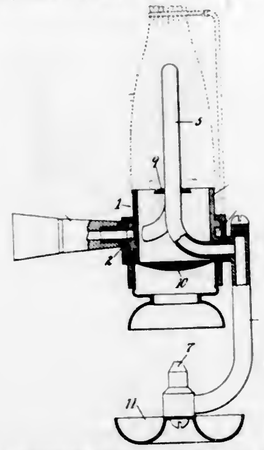


Claim.—1. An incandescent vapor-burner comprising a shell forming a combustion-chamber and a mixing-tube and having its top turned over to form a vaporizing-chamber, an oil-supply pipe connected therewith, a perforated cap between the combustion-chamber and the tube and a pipe leading from said vaporizing-chamber and crossing the combustion-chamber at the root of the flame and leading to a jet that discharges through the shell, substantially as described.

2. An incandescent vapor-burner comprising a shell forming a combustion-chamber, a primary vaporizing-channel arranged at the top, an oil-supply pipe connected therewith, a mixing-tube below the combustion-chamber, a perforated cap between the combustion-chamber and the mixing-tube, and a pipe forming a secondary vaporizing-channel leading from said primary channel and crossing the combustion-chamber at the root of the flame and leading to a jet that discharges through the shell, substantially as described.

681,852. INCANDESCENT VAPOR-BURNER. THOMAS GORDON, Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, same place. Filed Sept. 14, 1899. Serial No. 730,394. (No model.)

Claim.—1. In a hydrocarbon-burner, the combination of a burner-head having within its wall a divided annular passage that encircles the root of the burner-flame for primarily heating oil, a supply-pipe in communication with one part of said passage, and a secondary or superheating vaporizing chamber or conduit in communication with another part of the passage and projecting into the body of the same burner-flame from within the burner-head, substantially as described.



2. In a hydrocarbon-burner, the combination of a burner-head having within its wall a divided annular passage that encircles the root of the burner-flame for primarily heating oil, a supply-pipe in communication with one part of said passage, a secondary or superheating vaporizing chamber or conduit communicating with another part of said passage and extending into the body of the flame and transversely of said combustion-chamber, substantially as described.

3. In a hydrocarbon-burner, the combination of a primary vaporizing passage or conduit that encircles the root of the main burner-flame, a mixing-chamber, a combustion-chamber adjacent to the mixing-chamber, a foraminous diaphragm interposed between the two chambers, and a secondary vaporizer or superheater arranged in said combustion-chamber in position to be heated by the body of the main burner-flame, substantially as described.

4. In a hydrocarbon-burner, the combination of a burner-head, a foraminous diaphragm which divides said burner-head into an upper or combustion chamber and a lower or mixing chamber, an annular duct within the wall of the combustion-chamber for primarily heating oil, a supply-pipe in communication with said duct, and a secondary vaporizer or superheater communicating with said duct and projecting into the body of the main burner-flame from within the combustion-chamber and having a vapor-discharge opening arranged below the mixing-chamber, substantially as described.

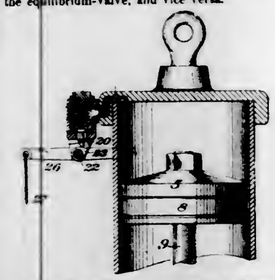
5. In a hydrocarbon-burner, the combination of a centrally-located secondary vaporizer or superheater in contact with the flame, a mixing-chamber, a combustion-chamber adjacent to the mixing-chamber and surrounding said superheater, a foraminous diaphragm between the chambers, and a primary vaporizing-chamber surrounding the combustion-chamber and having one of its walls integral with the wall of the combustion-chamber, substantially as described.

6. A hydrocarbon-burner comprising the combination of a burner-head provided with a channel or passage for primarily vaporizing oil, a supply-pipe in communication with said channel or passage, a secondary vaporizer or superheater consisting of an inverted-U-shaped tube extending upward from within the burner-head, and having one of its ends in communication with said passage or channel and a pipe communicating with the other end of said tube and provided with a tip, substantially as described.

681,853. PNEUMATIC HOIST. WILLIAM S. HALSEY, Pittsburg, Pa. Filed Apr. 5, 1901. Serial No. 54,512. (No model.)

Claim.—1. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a fluid-pressure-supply pipe, a fluid-pressure-supply valve controlling communication between the fluid-pressure-supply pipe and one end of the cylinder, an exhaust-valve controlling communication between the other end of the cylinder and an exhaust-passage, an equilibrium-valve controlling communication between the opposite ends

of the cylinder, each of said valves being movable toward and from its seat, and being subject to pressure tending to seat it, and means for manually unseating the fluid-pressure-supply valve and exhaust-valve, independently of the equilibrium-valve, and vice versa.



2. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a fluid-pressure-supply pipe, a fluid-pressure-supply valve controlling communication between the fluid-pressure-supply pipe and one end of the cylinder, an exhaust-valve controlling communication between the other end of the cylinder and an exhaust-passage, an equilibrium-valve controlling communication between the opposite ends of the cylinder, means for automatically seating said valves, an operating-shaft journaled in bearings transversely to the stems of said valves, cams or lifting-toes projecting from said shaft, in position to abut against and lift the stems of the fluid-pressure-supply and exhaust valves, by movement of the shaft in one direction, and a cam or lifting-toe projecting oppositely from said shaft in position to abut against and lift the stem of the equilibrium-valve, by movement of the shaft in the opposite direction.

3. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a fluid-pressure-supply pipe, a fluid-pressure-supply valve controlling communication between the fluid-pressure-supply pipe and one end of the cylinder, an exhaust-valve controlling communication between the other end of the cylinder and an exhaust-passage, an equilibrium-valve controlling communication between the opposite ends of the cylinder, an operating-shaft journaled in bearings transversely to the stems of said valves, cams or lifting-toes projecting from said shaft, in position to abut against and lift the stems of the fluid-pressure-supply and exhaust valves, by movement of the shaft in one direction, a cam or lifting-toe projecting oppositely from said shaft in position to abut against and lift the stem of the equilibrium-valve, by movement of the shaft in the opposite direction, and a stop-cam having arms projecting oppositely from said shaft in position to contact with fixed stops at the limits of circumferential movement of the shaft.

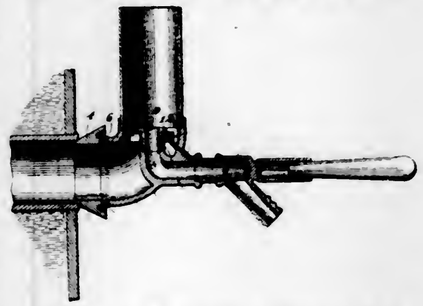
4. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a valve controlling the passage of fluid under pressure into one end of the cylinder, an oil-receptacle communicating with the casing of said valve, and a valve governing communication between the oil-receptacle and said casing and adapted to be unseated by said controlling-valve when the latter is unseated.

5. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a fluid-pressure-supply pipe, a fluid-pressure-supply valve controlling communication between the fluid-pressure supply pipe and one end of the cylinder, an exhaust-valve controlling communication between the other end of the cylinder and an exhaust-passage, an equilibrium-valve controlling communication between the opposite ends of the cylinder, means for unseating the fluid-pressure-supply valve and exhaust-valve, independently of the equilibrium-valve, and vice versa, an oil-receptacle, and a valve controlling the flow of lubricant from said receptacle to the cylinder and adapted to be unseated by the equilibrium-valve when the latter is unseated.

6. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a fluid-pressure-supply pipe, a fluid-pressure-supply valve controlling communication between the fluid-pressure-supply pipe and one end of the cylinder, an exhaust-valve controlling communication between the other end of the cylinder and an exhaust-passage, an equilibrium-valve controlling communication between the opposite ends of the cylinder, means for unseating the fluid-pressure-supply valve and exhaust-valve, independently of the equilibrium-valve, and vice versa, a tubular cap connected to the casing of the equilibrium-valve and forming an oil-receptacle and a guide for the stem of said valve, and a valve controlling communication between the oil-receptacle and the casing of the equilibrium-valve, and located in position to be unseated by the stem of the equilibrium-valve when said equilibrium-valve is unseated.

7. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, a fluid-pressure-supply pipe, a fluid-pressure-supply valve controlling communication between the fluid-pressure-supply pipe and one end of the cylinder, an exhaust-valve controlling communication between the other end of the cylinder and an exhaust-passage, an equilibrium-valve controlling communication between the opposite ends of the cylinder, means for automatically seating said valves, an operating-shaft journaled in bearings transversely to the stems of said valves, cams or lifting-toes projecting from said shaft, in position to abut against and lift the stems of the fluid-pressure-supply and exhaust valves, by movement of the shaft in one direction, a cam or lifting-toe projecting oppositely from said shaft, in position to abut against and lift the stem of the equilibrium-valve, by movement of the shaft in the opposite direction, arms fixed to and projecting oppositely from the shaft, and pendants connected to said arms for effecting the movement of the shaft in either direction from a lower level.

681,854. BOILER-FLUE CLEANER. WILLIAM H. HOWE, Toledo, Ohio. Filed May 16, 1901. Serial No. 60,439. (No model.)

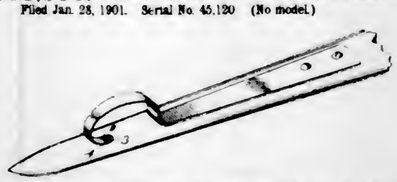


Claim.—1. In a boiler-flue cleaner, the combination with the discharge-tube, of a jet-nozzle arranged in axial alinement therewith and having a rotary wheel mounted on its end.

2. In a boiler-flue cleaner, the combination with the discharge-tube, of a jet-nozzle arranged in axial alinement therewith, a nipple secured in the end of the jet-nozzle, and a wheel rotatably mounted on said nipple.

3. In a boiler-flue cleaner, the combination with the discharge-tube, of a jet-nozzle arranged in axial alinement therewith, a rotary wheel mounted on the end of the jet-nozzle, and a tube leading from the jet-nozzle and terminating adjacent to the said wheel.

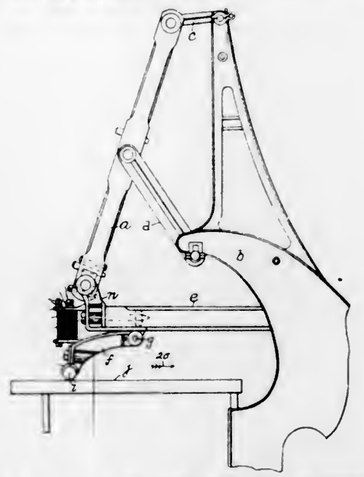
681,855. TRACE-FASTENER. JOHN C. JOHNSON, Dallas, Tex. Filed Jan. 28, 1901. Serial No. 45,120. (No model.)



Claim.—1. In combination with a singletree having an opening or depression and a longitudinal channel extending therefrom, a trace-fastening consisting of a metallic strap secured at its inner end to the singletree and having its outer end portion bent into an approximately arched form and recurved, and having its terminal bent outward and adapted to enter the aforesaid opening or depression, the recurved portion of the strap fitting in the channel, substantially as set forth.

2. In combination, a singletree having its end portion tapering in width and thickness and having an opening or depression and a channel extending therefrom, a trace-fastening consisting of a metallic strap secured at its inner end to the singletree and having its outer end portion bent into the form of an arch and recurved and having its terminal bent outward to enter the said opening or depression, the recurved part fitting in the said channel so as to come about flush with a side of the singletree, the trace being adapted to encircle the recurved portion of the fastening and form a lock therefor and prevent its accidental displacement, substantially as set forth.

681,856. LEATHER-DRESSING MACHINE. ALBERT F. JONES, Salem, Mass., assignor, by mesne assignments, to Vaughn Machine Company, Boston, Mass., a Corporation of West Virginia. Filed Dec. 14, 1900. Serial No. 39,838. (No model.)



Claim.—1. In a machine of the class described, the combination with a pendulum and a reciprocating rod pivotally attached thereto, of a tool-carrier pivotally connected to said reciprocating rod, means to support the free end of said tool-carrier and adjust the same with relation to a bed, the said bed, means to exert a yielding pressure upon said tool-carrier, and means to adjust said pressure without disturbing the position of the tool-carrier with relation to the said bed, substantially as described.

2. In a machine of the class described, the combination with a pendulum and a reciprocating rod pivotally attached to said pendulum, of a tool-carrier pivotally connected at one end to the reciprocating rod and provided with a lug or arm, a lug or arm on the said reciprocating rod, means to adjustably connect said lugs, a spring interposed between said lugs, and means to regulate the tension of said spring, substantially as described.

3. In a machine of the class described, the combination with a bed, a tool-carrier cooperating therewith, means for reciprocating said tool-carrier, means to adjust said tool-carrier with relation to said bed, means to exert a yielding pressure upon said tool-carrier, and means to adjust said pressure without disturbing the position of the tool-carrier with relation to the said bed, substantially as described.

4. In a machine of the class described, the combination with a reciprocating rod, a tool-carrier pivoted thereto, means to adjust the free end of said tool-carrier toward and away from said reciprocating rod, means to exert a yielding pressure upon said tool-carrier, and means to adjust said pressure without disturbing the position of the tool-carrier with relation to said reciprocating rod.

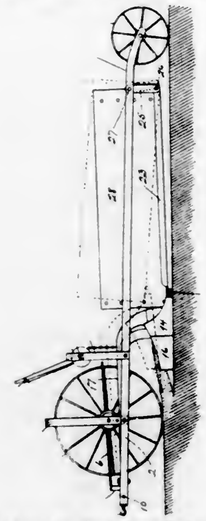
681,857. DITCHING-MACHINE. MATHEW L. KINLEN, Kansas City, Mo. Filed Oct. 4, 1900. Serial No. 32,012. (No model.)

Claim.—1. In a ditch and sewer excavator, a main frame, a transverse shaft near the front end of the frame, plow-beams secured to the shaft, plowshares secured to the lower ends of the beams, and a rectangular frame pivotally connected at its forward end with said plowshares and supported at its rear end by depending arms pivotally secured thereto and to said main frame, substantially as described.

2. In a ditch and sewer excavator, a frame, a tranverse shaft or bar secured near the front end of the frame, plow-beams secured to the shaft or bar, a transverse plate secured to the lower ends of the plow-beams, plowshares secured to said plate, landside-plates secured to the ends of said plate, and substantially vertical cutting-plates secured to the landside-plates, substantially as described.

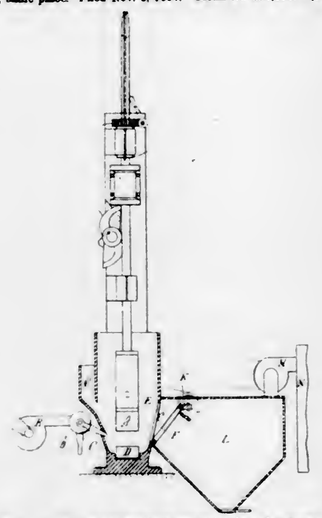
3. In a ditch and sewer excavator, a gang of plowshares arranged transversely, a transverse plate secured to the lower portions of the plow-beams, a rearwardly-extending step or flange on said plate, hinge members secured to said step or flange, and a frame having at its forward end hinge members connected to the hinge members of the step or flange, substantially as described.

4. In a ditch and sewer excavator, a frame, arched hangers having their outer ends secured to the sides of the frame, a bar secured across the forward end of the frame, a platform secured to said bar and by the inner ends of the hangers, an axletree secured to the platform, and carrying-wheels on the axletree under said arched hangers, substantially as described.



5. In a ditching-machine, a main frame, a transverse shaft or bar near the front end thereof, plow-beams secured to said bar, plowshares secured to said beams, a rectangular frame having its forward end pivotally connected to said shares and supported at its rear end by pivoted arms hung from said main frame, and a box, supported by said rectangular frame, said box being open at its end adjacent to said plowshares, substantially as described.

681,858. STAMP-MILL. FREDERICK B. PETTENGILL, Los Angeles, Cal., assignor of three-fourths to Alexander Jeffrey and Samuel L. Kistler, same place. Filed Nov. 8, 1897. Serial No. 657,890. (No model.)

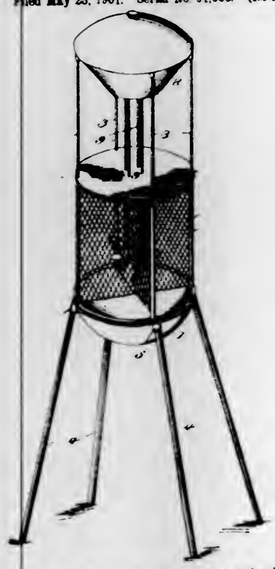


Claim.—1. In a stamp-mill, the combination of a stamp; a mortar with a die at the bottom; a chute to feed ore onto the die; a downwardly-directed air-blast nozzle arranged below the ore-chute to direct an air-blast across the path of the ore and to direct the ore toward the die; an opening being provided just above the path of the blast in the mortar-wall

opposite the air-blast nozzle; an outwardly and upwardly slanting screen in said opening; a dust-box extending downward from said screen and furnished in the bottom with an outlet; means for temporarily closing said outlet; a dust-outlet being provided at the top of the dust-box opposite said screened opening; an exhaust-blower connected with the dust-outlet to draw off the dust from the upper part of the dust-box; and means for shaking the screen.

2. In a stamp-mill, the combination of a stamp; a mortar with a die at the bottom; a chute to feed ore onto the die; a downwardly-directed air-blast nozzle arranged below the ore-chute to direct an air-blast across the path of the ore and to direct the ore toward the die; an opening being provided just above the path of the blast in the mortar-wall opposite the air-blast nozzle; an outwardly and upwardly slanting screen in said opening; and means for shaking the screen.

681,859. **INSECT-EXTERMINATOR.** NORVEL A. POLLARD, Sheppards, Va. Filed May 23, 1901. Serial No. 61,808. (No model.)



Claim.—1. An insect-exterminator comprising a plurality of wings radiating from a vertical line, a basin below the wings, a reservoir above the said wings, burners connected with the reservoir and located in the angular spaces formed between adjacent wings, and a deflector above the wings and between the burners and the reservoir, substantially as described.

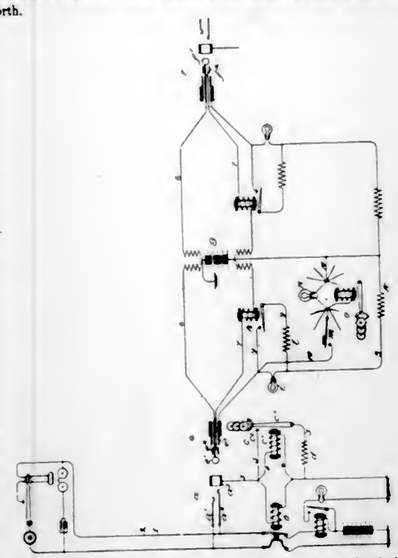
2. In an insect-exterminator, pieces of sheet material secured together midway of their ends and having the parts upon opposite sides of the line of juncture bent to provide radiating wings, and a burner located in the angular space formed between adjacent wings, substantially as set forth.

3. In an insect-exterminator, a basin, a reservoir located above the basin, rods connecting the basin and reservoir, radiating wings having their outer edge portions secured to the said rods, and burners pendent from the reservoir and located in the angular spaces formed between adjacent wings, substantially as set forth.

4. The herein-described insect-exterminator comprising a basin provided with sockets, legs fitted in the said sockets, a reservoir located above the basin, rods connecting the basin and reservoir, divergent wings secured at their outer edges to the said rods, and burners pendent from the reservoir and located in the angular spaces formed between adjacent wings, substantially as set forth.

681,860. **SERVICE-METER FOR TELEPHONE-EXCHANGES.** CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Jan. 12, 1901. Serial No. 42,964. (No model.)

Claim.—1. The combination with telephone-lines extending from substations to a central-office exchange, of means at the central office for uniting two of the lines in response to a call from one of them, a connection-register or service-meter associated with one of the lines, means for actuating said connection-register to record the connection, a local switchboard-circuit including a signal, and switch contacts, operated by the register in recording the connection, adapted to change the electrical condition of the local circuit, to cause the display of said signal, as set forth.



2. The combination with a telephone-line having a spring-jack terminal at an exchange-switchboard, of a plug and plug-circuit for making connection with the line, an electrically-operated connection-register for the line, a circuit for said call-register established in plugging into the spring-jack, means in the circuit for operating the register, and a signal before the operator controlled by the register in recording the connection, whereby the attendant is informed of the operation of the call-register, as set forth.

3. The combination with a telephone-line having a spriog-jack terminal at a central-office switchboard, of an operator's plug and plug-circuit for making connection with the line, an electrically-operated connection-register associated with the line and means for actuating the same, a local switchboard signal-circuit, established in making connection with the line, a signal before the operator, included in said local circuit, and switch contacts operated by the register in recording the connection, controlling the electrical condition of the said local signal-circuit, whereby the operation of the subscriber's connection-register is indicated by said signal, as described.

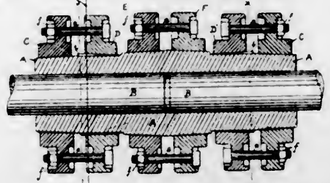
4 The combination with a telephone-line having a spring-jack terminal at a central-office switchboard, of an operator's plug and plug-circuit for making connection with the line, an electrically-operated connection-register for the line, a circuit for said register established in contacts of the plug and spring-jack, a switch controlling the electrical condition of the circuit to operate the connection-register, a signal in the circuit adapted to respond to an increase of current, and a shunt closed by the connection-register in recording the connection, whereby the signal is displayed when the register operates, as described.

5. The combination with a telephone-line having a spring-jack terminal at a central office, and an operator's plug and plug-circuit for making connection with the line, of a connection-register for the line and a circuit including said register with a source of current, established in making connection with the line, a resistance in the circuit, a shunt about the resistance and a switch for closing said shunt, whereby the register is operated by the increased current, switch-contacts operated by the register, a shunt closed by said switch-contacts in the operation of the register, and a signal device in the circuit, responsive to the increased current when the register operates, substantially as set forth.

6. The combination with telephone-lines extending from substations to spring-jacks at a central-office switchboard, of an operator's plug-circuit at the switchboard for making temporary connection with any of said lines, a local circuit including a source of current, established in registering contacts of one of the plugs and the spring-jack of any line, a subscriber's service-meter for each line in the portion of said local circuit which terminates in the spring-jack of that line, a switch *m* adapted to change the electrical condition of the circuit to operate the subscriber's service-meter, and an operator's general service-meter connected with the plug-circuit portion of said local circuit, responsive to the changes produced by said switch, whereby each connection registered upon the subscribers' meters of lines to which the plug-circuit is connected, is registered also upon the operator's general meter.

7. The combination with subscriber's telephone-lines terminating in spring-jacks at an exchange-switchboard, of a service-meter associated with each line, an operator's plug-circuit for uniting said lines, a circuit for the service-meter established in registering contacts of a plug and the spring-jack of a line in making connection therewith, means for changing the electrical condition of said local circuit to actuate the service-meter, and an operator's service-meter in the portion of the local circuit associated with the plug, responsive to current changes in the circuit, whereby the first-mentioned service-meter and the operator's meter are simultaneously operated.

681,861. **SHAFT-COUPLING.** HOBART E. SMITH, New Haven, Conn. Filed Jan. 28, 1901. Serial No. 44,913. (No model.)



Claim.—1. In a compression-shaft coupling, the combination of a centrally-bored sleeve, adapted to be fitted to abutting shafts, and having on its periphery a series of rightward and leftward conical surfaces, longitudinal grooves formed in these conical surfaces with accompanying lands, alternating slots cut through to the bore and nearly to opposite ends, with taper-bored collars fitted to the conical surfaces of the sleeve, the inside collars having grooves formed longitudinally in their taper bore, and screw-bolts and nuts for the purpose and substantially as shown and described.

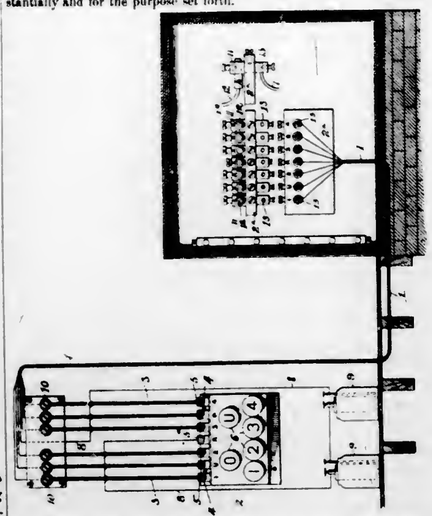
2. In a shaft-coupling, the combination of a centrally-bored sleeve A M or N having on its periphery a series of rightward and leftward conical surfaces, longitudinal grooves *a a* formed in these conical surfaces, slots *c c* cut alternately from opposite ends, taper-bored collars C C' fitted to the conical surfaces of the sleeve, taper-bored collars D D' G H fitted to the conical surfaces of the sleeve, said collars D D' having grooves *d d* formed in their taper bore, these grooves adapted to mesh respectively with the lands *b b* of the sleeve, and when thus meshed allowing the collars to pass longitudinally over the outer surfaces of the sleeve to a predetermined position and when mounted in this position, capable of being revolved so that the conical surfaces of the sleeve and collars will be in contact substantially as shown and described.

3. In a shaft-coupling, the combination of a sleeve having on its periphery rightward and leftward conical surfaces, the central conical surface of such a diameter as will adapt it to collars which may be passed over the outer conical surfaces of the sleeve, longitudinal grooves in these outer conical surfaces, slots cut through to the bore for the purpose of rendering it more elastic, with the taper-bored collars C D C' D', of which collars D D' have longitudinal grooves formed in their taper bore and adapted to be fitted to the conical surfaces of the sleeve, and screw-bolts and nuts for the purpose and substantially as shown and described.

4. In a shaft-coupling, the combination of a sleeve A, taper-bored collars C C' D D' with the longitudinal grooves *a a*, lands *b b*, slots *c c* cut in the sleeve, and of long screw-bolts *e' e'* passing from the outer collars C C' and through the inner collars D D' and the opposite outer collars C' C, these long bolts alternating with shorter screw-bolts *e e*, both series of bolts having their accompanying nuts for securing and alining the same together for the purpose and substantially as described.

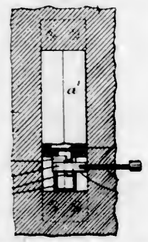
681,862. **DEVICE FOR CONTROLLING THE OPERATION OF ELECTRICAL DEVICES.** EMORY STOCKWELL, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Dec. 31, 1894. Serial No. 533,436. (No model.)

Claim.—1. As a means for operating combination electric locks the herein-described internal switchboard having a series of binding-posts, a series of terminals 12 having connection with respective devices to be operated and having ends 4 which adapt them for connection with any of the binding-posts, a series of line-wires 1 also connected with said binding-posts and extending to a point without the safe, the terminal board 10 with which the line-wires are connected with terminals 3 connected with the respective wires 1 through said board 10, switchboards 5 having sockets in which the terminals 3 may be inserted, and the push-buttons having connection with the return-wires and adapted to be depressed upon contacts in electrical connection with the binding-posts 5 of substantially and for the purpose set forth.



2. A device for controlling the operation of electrical devices comprising an exterior switchboard, a series of socket-posts mounted on the exterior switchboard, contacts connected with the socket-posts, the push-buttons for engaging the contacts, the terminals having plugs, connected with the socket-posts, the group of wires connected with the terminals, the internal switchboard, a series of socket-posts, corresponding to the socket-posts of the exterior switchboard, mounted on the internal switchboard, and with which the group of wires are connected, conducting-wires having plugs connected with the socket-posts of the internal switchboard, a return-wire and a battery; substantially as described.

681,863. **SASH-BALANCE.** JAMES H. WALLACE and ARTHUR G. HILTON, Providence, R. I., assignors to the International Burglar Proof Sash-Balance and Lock Company, Incorporated, same place. Filed June 7, 1900. Serial No. 19,401. (No model.)



Claim.—In a window-sash balance, in combination, a spring-actuated gear-wheel, a casing inclosing the gear-wheel, a locking device consisting of a bar, a key projecting from one side of the bar and formed to enter between two teeth of the gear-wheel, the contracted portion of the casing, ways in the contracted portion of the casing close to the teeth of the gear-wheel forming the support of the locking device, a stop on the bar, and a rod for operating the bar; whereby the locking device may be operated within the thickness of the casing, as described.

681,864. **SASH-BALANCE.** JAMES H. WALLACE and ARTHUR G. HILTON, Providence, R. I., assignors to the International Burglar Proof Sash-Balance and Lock Company, Incorporated, same place. Filed June 7, 1900. Serial No. 19,402. (No model.)

Claim.—1. In a mechanism operated by a helically-coiled spring, the combination with the case inclosing the spring, the central post and an abutment on the central post, of an abutment formed by the inward extension of the curved inner surface of the case, and a helical spring having its inner end formed into a U-shaped hook and its outer end bent

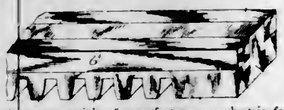
backward to form an arm longer than the distance between the inner surface of the case and the coil of the spring when said spring is wound up or contracted, whereby a spring disconnected from the case may engage with the abutments, as described.



2. In a sash-balance or similar device, a spring-case having an inward-extending abutment formed by the inward extension of the curved inner surface of the case, in combination with a spring having an arm at its outer end of a length greater than the space between the outer coil of the spring and the inner face of the case when said spring is wound up or contracted, whereby the case may rotate unrestrained by the spring in one direction and is restrained when rotating in the opposite direction, as described.

3. In a sash-balance or similar device, a rotatable spring-case having two or more inward-extending abutments formed by the inward curving of the inner surface of the case, and a central fixed post provided with two abutments in combination with a helically-wound spring loose in the case and provided at the inner end with a U-shaped hook and at the outer end with an arm of a length greater than the distance between the outer coil of the spring and the inner surface of the case when said spring is wound up or contracted, as described.

681,865. SASH-RACK. JAMES H. WALLACE and ARTHUR G. HILTON, Providence, R. I., assignors to the International Burglar Proof Sash-Balance and Lock Company, Incorporated, same place. Filed June 7, 1900. Serial No. 19,403. (No model.)



Claim.—As a new article of manufacture, a rack-strip for window-sash balances formed of wood the grain of which extends transversely to the strip, having a strip of wood inserted in the back portion of the rack the grain of which extends longitudinally to the strip, as described.

681,866. SASH-BALANCE. JAMES H. WALLACE and ARTHUR G. HILTON, Providence, R. I., assignors to the International Burglar Proof Sash-Balance and Lock Company, Incorporated, same place. Filed June 7, 1900. Serial No. 19,405. (No model.)

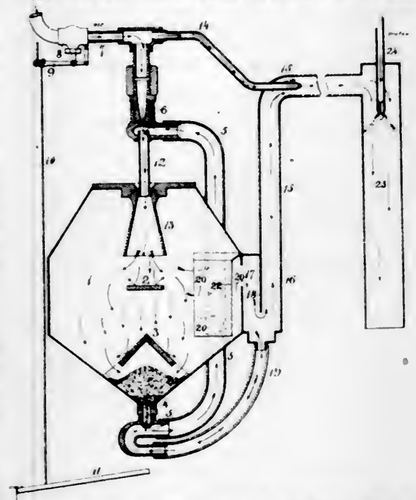


Claim.—1. In a sash-balance, in combination with the inclosing case having a post extending from one side, of a spring-actuated spring-case having a sleeve extending inward from the side of the spring-case journaled on part of the post, and a spring the inner end of which is contracted in width and engages with the part of the post beyond the journal-bearing of the spring-case, as described.

2. In a sash-balance, the combination with the case inclosing the spring-actuated gear, a post projecting from one side of the casing and across the width of the casing, an abutment on the base of the post, and a journal-bearing extending beyond the base, of a gear-wheel having a central space for the reception of the helically-coiled spring, a sleeve extending from the outside and the inside of the side plate of the gear, and a helically-wound spring having the width of the plate near the inner end contracted to the width of the base of the post and formed into a hook and the outer end bent backward to form an arm; whereby a wide spring may be used in a comparatively narrow case, as described.

3. In a sash-balance, in combination with the two-part casing inclosing the actuating-gear, of the post a^2, the journal-bearing a^3 of less diameter than the base of the post, the gear b, the spring-cavity in the gear, the sleeve b^2 projecting from the two sides of the plate b^2 of the gear, and a helically-wound spring having one end engaging with the base of the post, substantially as described.

681,867. SAND-BLAST MACHINE. ARTHUR F. BARDWELL, Stamford, Conn., assignor to the Yale & Towne Manufacturing Company, same place. Filed Jan. 24, 1896. Serial No. 576,724. (No model.)



Claim.—1. In a sand-blast machine, the combination of the chamber in which the work is manipulated, a sand-pipe connected with the bottom and top of said chamber, a compressed-air pipe connected with the said pipe for drawing sand through the same so as to cause it to pass into the chamber, and suitable means for diffusing the compressed air whereby the sand is allowed to drop onto the work by gravity alone, substantially as shown and described.

2. In a sand-blast machine, the combination of a closed chamber in which the work is manipulated, said chamber being provided with an opening which is suitably connected with a discharge-flue, and suitable means for creating a draft through said flue so that air is withdrawn from said chamber to cause a current to pass across the face of the work to keep it free from dust; substantially as described.

681,868. CONNECTING-PLUG FOR TELEGRAPH-SWITCH-BOARDS. JOSEPH A. BOWEN, Millvale, Pa., assignor of one-half to Harry J. Bowen, Wilkinsburg, Pa. Filed Dec. 5, 1900. Serial No. 39,214. (No model.)



Claim.—1. In a telegraph-switchboard, the combination with the vertical and cross bars, of a plug adapted to connect any one of the vertical bars with any one of the cross-bars, said plug being provided with separable circuit-terminals which are normally in contact.

2. In a telegraph-switchboard, the combination with the vertical and cross bars, of a plug adapted to connect any one of the vertical bars with any one of the cross bars, said plug being provided with separable circuit-terminals, and a split plug adapted to be inserted in said connecting-plug, said split plug comprising two sections insulated from each other and conductors united to each of said sections.

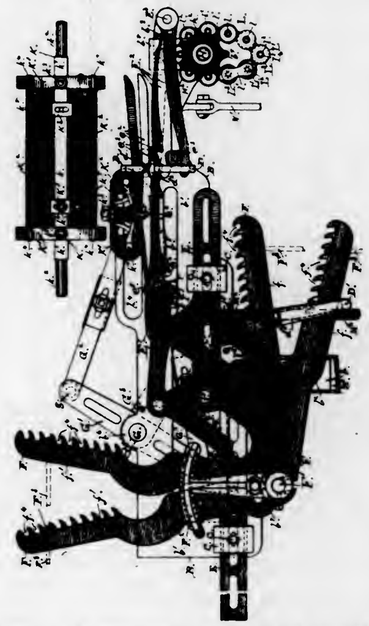
3. A plug for telegraph-switchboards comprising two longitudinal metallic sections, insulation between said sections, means for securing said sections together, and separable circuit-terminals connecting said sections, said terminals being normally in contact.

4. A plug for telegraph-switchboards comprising longitudinal metallic sections hollowed out at one end, insulation between said sections, means for securing said sections together, and springs connected to each of said sections and normally bearing against each other.

5. Telegraph-switchboard connecting devices comprising separable circuit-terminals, and a split plug, said plug comprising two metallic sections adapted to make contact with said separable circuit-terminals, insulating material between said sections and projecting beyond the same, said projecting insulating material being adapted to pass between said separable circuit-terminals, and a conductor connected to each of the metallic sections of the split plug.

6. Telegraph-switchboard connecting devices comprising a hollow plug provided with separable circuit-terminals and a split plug adapted for insertion in the hollow plug and between the separable terminals thereof, said split plug comprising two sections insulated from each other and circuit connections to each of said sections.

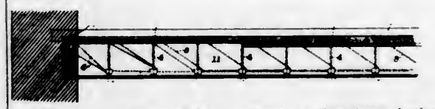
681,869. WITCH-LOOM. ELMER E. BROWN, Mount Joy, Pa., assignor to himself and George H. Brown, same place. Filed Nov. 5, 1898. Serial No. 696,618. (No model.)



Claim.—1. The combination in a loom-head of the character described and having oscillating angle-levers adapted to raise and lower the warp-harness into positions for the woof by positive pulls on the frames of said harness, plates moving back and forth to oscillate said angle-levers, slide-strips having their rear ends pivoted thereto to move said plates, and means provided to raise and lower and hold in intermediate positions the forward ends of the slide-strips, said slide-strips having dovetail projections on their upper edges and oblong notches with dovetail ends in their lower ones, a two-bladed knife having a transverse bar with blocks moving back and forth in guide-slots through the sides of the head, with cross-pieces secured to the top of said bar toward the ends thereof, and oppositely-disposed wing-blades having the ends of their outer or extreme edges pivoted into the sides of said cross-pieces adjacent to the ends thereof, and their inner or adjacent edges adapted to engage against said upper edge projections, and another two-edged knife having oppositely-disposed and inclined sides with blocks moving back and forth in guide-slots also through the sides of the head, said inclined sides adapted to engage in said lower edge notches, with mechanism provided to simultaneously move said knives in opposite directions, all substantially as described and for the purpose hereinbefore set forth.

2. In a loom-head of the character described, having the angle-levers, F; the bars, E, to oscillate said levers; the slide-strips, E', pivoted to said bars, and having the lower edge notches, e^4, and the upper edge dovetail projections, e^3, and the two-edged knife, I, to engage in said notches, e^4; the wing-bladed knife, K, having the transverse bar, k, with the slide-blocks, k', and the pivot-trunnions, k^3; the cross-blocks, K', secured to the top of said bar, k; the wing-blades, K^2, with their end pivot-lugs, k^4, journaled through said cross-blocks, K', and the upwardly-projecting tines or fingers, k^2, adjacent to the drop edges of the wing-blades; the slotted plates, K^3, and the screws, k^4, through the slots of said plates, with the tines, k^3, contacting therewith; all substantially as described and for the purpose hereinbefore set forth.

681,870. FIREPROOF FLOOR CONSTRUCTION. CHARLES P. BURSTE, Allegheny, Pa. Filed July 26, 1900. Serial No. 24,884. (No model.)



Claim.—1. In fireproof floor construction, a floor-sleeper having cross-bars secured thereto and having end portions extending beyond its sides, and a depending truss structure secured to said cross-bars, said end portions being arranged to support the stress if the sleeper is burned away; substantially as described.

2. In fireproof flooring, a floor-sleeper having a depending trussed structure, and hollow refractory centers supported upon the trussed structure; substantially as described.

3. A fireproof flooring comprising floor-sleepers having depending truss structures, hollow tiles between the trussed structures and engaging them, and a layer of concrete inclosing the trussed structures between the tiles; substantially as described.

4. In fireproof flooring, a series of concrete joists containing reinforcing truss structures and hollow refractory centers between the trussed structures; substantially as described.

5. A fireproof flooring having hollow refractory centers, the centers near the middle being smaller than those at the ends, and concrete between the centers; substantially as described.

6. In fireproof floor construction, a trussed sleeper having ledges, hollow refractory centers having shoulders resting on the ledges, and concrete between the hollow centers; substantially as described.

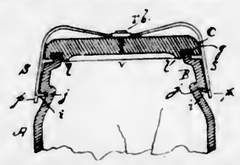
7. In fireproof floor construction, a wooden floor-sleeper having a depending trussed structure secured thereto, hollow refractory centers on the sides of the trussed structure, and concrete filling embedding the truss in the lower part of the sleeper and covering the tiles; substantially as described.

8. In fireproof floor construction, a floor-sleeper forming the top member of a depending trussed structure embedded in the concrete, said trussed structure being proportioned according to the strains brought upon its different parts; substantially as described.

9. Fireproof flooring containing hollow refractory centers and concrete joists, said centers having lower air-spaces below and in line with the concrete joists; substantially as described.

10. In fireproof floor construction, a series of laterally-separated floor-sleepers, having cross-bars secured thereto, and having end portions extending a considerable distance beyond the sides of the sleepers, and depending truss structures secured to said cross-bars, the end portions of the bars and truss structures being embedded in concrete; substantially as described.

681,871. FRUIT-JAR. ALBERNE H. BURDICK, Dunellen, N. J. Filed May 21, 1901. Serial No. 61,209. (No model.)



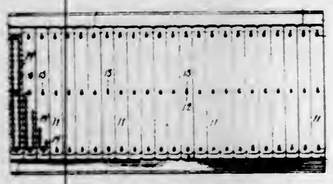
Claim.—A jar having a mouth-flange provided with an inclined surface upon the exterior thereof, and an abrupt edge at the bottom of said flange, a cover for said mouth that is adapted to rest upon the rim of the mouth thereof, an elastic gasket between said cover and said jar, a lip on said cover entering into the mouth of the jar, a vent in said cover; a spring-fastener for securing said cover to its seat that comprises a depressed portion carrying an elastic band for closing said vent, and provided with two bearing members adapted to catch under the abrupt edge on the mouth-flange of said jar, at either terminal, and the projecting point p on either terminal of said spring for facilitating the removal of said interlocked spring.

681,872. MATCH-SPLINT CARRIER. ARTHUR N. CALKINS, Franklin, N. J., assignor to the American Match Machine Company, New York, N. Y. Filed Dec. 3, 1900. Serial No. 39,212. (No model.)

Claim.—1. A carrier for match-splints having means therein for rotating a match-splint about its longitudinal axis to a predetermined position, and for locking it in the position to which it has been so rotated.

2. A plate or bar, for a match-splint carrier, having an orifice there-

through of sufficient size to permit the free passage therethrough of a match-splint, the said orifice having a restricted lateral extension adapted to clamp the sides of a match-splint upon a relative movement of the match-splint with the bar or plate, transversely of the match-splint.



3. In a match-splint carrier, the combination of two locking-plates movable with respect to each other, each plate having an orifice for receiving a match-splint, the said orifices having convergent sides which run in opposite directions in the said plates.

4. In a match-splint carrier, the combination of two plates or bars relatively movable with respect to each other, each plate or bar having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, and the said orifices having each a restricted extension, oppositely arranged, for clamping the match-splint upon the relative movement of the plates or bars, with respect to each other.

5. In a match-splint carrier, the combination of two plates or bars relatively movable with respect to each other, each plate or bar having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, and the said orifices having each a restricted extension, oppositely arranged, for clamping the match-splint upon the relative movement of the plates or bars, with respect to each other, such clamping action taking place at the sides of the match-splint parallel with the line of movement of the plates or bars.

6. In a match-splint carrier, the combination of two plates or bars relatively movable with respect to each other, each plate or bar having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, and the said orifices having each a restricted extension, oppositely arranged, for clamping the match-splint upon the relative movement of the plates or bars, with respect to each other, such clamping action taking place only at the sides of the match-splint parallel with the line of movement of the plates or bars.

7. In a match-splint carrier, the combination with a frame having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, of a locking plate or bar, relatively movable with respect to said frame, transversely of the said orifice, and also having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, said last-named orifice having a restricted extension, adapted to clamp the sides of the match-splint upon the said relative movement of the said plate or bar and frame.

8. In a match-splint carrier, the combination with a frame having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, of two plates or bars mounted upon said frame and relatively movable with respect to each other and to the frame, each plate or bar having an orifice therethrough adapted to register with each other and with the orifice in the frame, said orifices in the plates or bars also being of sufficient size to permit the passage therethrough of a match-splint, and each having a restricted extension, oppositely arranged, for clamping the match-splint, upon the said relative movement of the bars or plates.

9. In a match-splint carrier, the combination with a frame having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, of two superposed plates or bars mounted upon said frame, means whereby the plates or bars may be moved in opposite directions relatively longitudinally of each other and in opposite directions relatively to the frame, said plates or bars having orifices therethrough of such size and shape as to permit the free passage therethrough of a match-splint before said movement and to clamp the match upon said movement.

10. In a match-splint carrier, the combination of two locking-plates movable with respect to each other, each plate having an orifice for receiving a match-splint, the said orifices having convergent sides which run in opposite directions in the said plates, and the convergent sides in said orifice being unsymmetrical, as and for the purpose set forth.

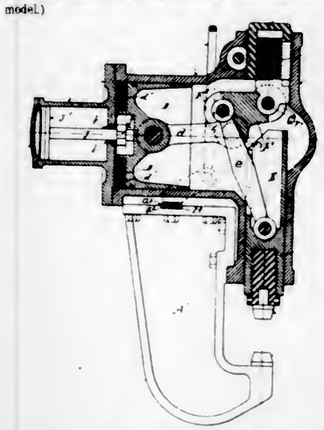
11. In a match-splint carrier, the combination of two plates or bars relatively movable with respect to each other, each plate or bar having an orifice therethrough of sufficient size to permit the free passage therethrough of a match-splint, and the said orifices having each an oppositely-arranged restricted extension, one side of each said extension being cut away, at about the point at which it unites with the main portion of its orifice, to a greater extent than the other.

12. In a match-splint carrier, the combination of two locking plates or bars movable with respect to each other, and having rigid locking-surfaces, each of the said plates adapted in its movement to clamp both the two sides of a match-splint parallel with the line of the said movement.

13. In a match-splint carrier, the combination of two locking plates or bars movable with respect to each other, and having rigid locking-surfaces, each of the said plates adapted in its movement to clamp both and only, the two sides of a match-splint parallel with the line of the said movement.

14. A locking plate or bar, for a match-splint carrier, having an orifice therethrough of sufficient size to permit the free passage therethrough of the match-splint, the said orifice having a restricted lateral extension, of substantially the form and shape shown in the drawings.

681,873. RIVETING-MACHINE. CHARLES J. CARNEY and JOHN C. GORTON, Dunkirk, N. Y. Filed July 2, 1900. Serial No. 22,290. (No model.)



Claim.—1. The combination in a riveting-machine, of a main cylinder, a cylinder-head on the rear end thereof, an auxiliary cylinder secured to the main-cylinder head, pistons in both cylinders, a piston-rod passing through said cylinder-head and connecting the pistons in both cylinders, a valve-chest having a port leading to the rear of the auxiliary cylinder, a port leading to the rear of the main cylinder on a plane somewhat below the plane of the port leading to the rear of the auxiliary cylinder, and a port leading to the front of the auxiliary cylinder, and a valve in said valve-chest adapted to successively close the port leading to the rear of the main cylinder, open the port leading to the rear of the auxiliary cylinder to air, and the port leading to the front of the auxiliary cylinder to exhaust, without opening the port leading to the rear of the main cylinder, until by a further movement of said valve it opens the port leading to the rear end of the main cylinder to air, and when reversed in like manner successively open the ports leading to the rear ends of the main and auxiliary cylinders to exhaust, and the port leading to the front of the auxiliary cylinder to air, substantially as and for the purpose set forth.

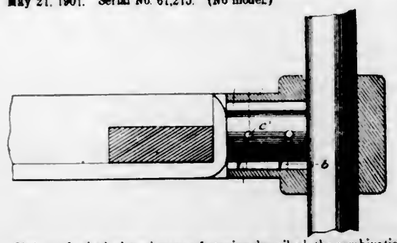
2. The combination in a riveting-machine, of a main cylinder, a cylinder-head on the rear end thereof, an auxiliary cylinder secured to the main-cylinder head, pistons in said main and auxiliary cylinders, a piston-rod passing through said main-cylinder head and connecting the pistons in both cylinders, packing in said cylinder-head around said piston-rod, a valve-chest having a port leading to the rear of the auxiliary cylinder, a port leading to the rear of the main cylinder on a plane somewhat below the plane of the port leading to the rear of the auxiliary cylinder, and a port leading to the front of the auxiliary cylinder, and a single valve in said valve-chest adapted to successively close the port leading to the rear of the main cylinder, open the port leading to the rear of the auxiliary cylinder to air, and the port leading to the front of the auxiliary cylinder to exhaust, without opening the port leading to the rear of the main cylinder, until by a further movement of said valve it opens the port leading to the rear end of the main cylinder to air, and when reversed in like manner successively open the ports leading to the rear ends of the main and auxiliary cylinders to exhaust, and the port leading to the front of the auxiliary cylinder to air, substantially as and for the purpose set forth.

3. The combination in a riveting-machine, of main and auxiliary cylinders, pistons operating therein, a piston-rod connecting both pistons together, a valve-chest, a single valve therein adapted to successively close the port leading to the rear of the main cylinder and open the port leading to the rear of the auxiliary cylinder, so as to produce a constantly-increasing vacuum in the main cylinder during a portion of its forward stroke, a plunger-die guide, a plunger-die operating therein, a bell-crank lever and link mechanism connecting the main piston and plunger-die, and so arranged that the power-arm of the bell-crank lever travels across, and the weight-arm thereof toward the line of greatest efficiency, substantially as set forth.

4. The combination in a riveting-machine, of a frame substantially composed of a main cylinder, a plunger-die guide, an anvil-jaw removably secured to said cylinder and plunger-die guide, and a trunnion removably secured in a slot between the under side of said cylinder and the top of the removable anvil-jaw, substantially as and for the purpose set forth.

5. The combination in a riveting-machine, of a frame comprising substantially a main cylinder and a plunger-die guide at right angles to each other, and an anvil-jaw removably secured to said cylinder and plunger-die guide, a removable trunnion removably secured in a slot between the upper end of the anvil-jaw and the lower surface of the main cylinder, a yoke or bail pivoted to said trunnion, an auxiliary cylinder secured to a head on the rear end of the main cylinder, pistons in both of said cylinders, a piston-rod passing through said cylinder-head and connecting both of said pistons together, a valve-chest having ports leading to both of said cylinders, and also an exhaust-port, and a valve in said valve-chest operating to control the ports to both cylinders, substantially as and for the purpose set forth.

681,874. BEDSTEAD. MERIT G. CONLEY, Longmont, Colo. Filed May 21, 1901. Serial No. 61,215. (No model.)



Claim.—In the bedstead corner-fastening described, the combination of a corner-post, a tubular projection extending laterally from said post and having a longitudinal groove in its inner side, and also having another groove in its inner side communicating with the longitudinal groove and extending laterally therefrom, and a side rail of right-angle form in cross-section having a dowel at one end adapted to enter the tubular projection on the corner-post, and provided with a stud adapted to enter the longitudinal and lateral grooves in the interior of said projection; the said stud being so arranged that when it is seated in the lateral groove of the tubular projection one of the portions of the right-angle rail will rest in a vertical position and the other portion will rest in a horizontal position at the inner side of the vertical portion whereby, when a slat is placed on the horizontal portion with its end abutting against the vertical portion, casual turning of the rail and disconnection of the same from the corner-post will be prevented.

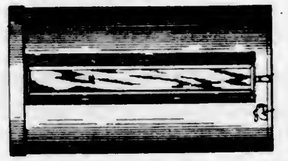
681,875. CAP FOR WAGON-POLES. WILLIAM H. CURTS, Michie, Mich. Filed Oct. 25, 1900. Serial No. 34,290. (No model.)



Claim.—In a cap for wagon-tongues, the combination of a short hooked head having a circular transverse opening and an opening on its lower side; a latch horizontally pivoted in the booked end and arranged to open inwardly and to close by its own weight; a thumb-piece fixed to the latch for raising it; a projection on the hooked end for supporting the latch; and an upper and lower concaved prong integral with said hooked end, whereby the cap is bolted to the end of the wagon-tongue, substantially as described.

681,876. COOLING-CAN. EDWARD S. CUSHMAN, Centerville, Iowa. Filed Feb. 11, 1901. Serial No. 46,915. (No model.)

Claim.—1. A cooling-can, comprising an outer shell, an inner shell or can so located as to provide an interspace between the walls and bottoms of the outer and inner shells, a lid adapted to fit over said outer shell and provided with a depressed portion leading solely to said inner can, said depressed portion forming a cover for said inner can, an inner tube extending downward through said inner can and the bottom thereof and opening into the space between said inner and outer cans, and a vertical collar fitting over the upper end of said inner tube, said collar having an annular flange, substantially as described.



2. A cooling-can, comprising an outer shell, an inner shell or can so located as to provide an interspace between the walls and bottoms of the outer and inner shells, the walls of said inner shell being corrugated vertically the entire length of said walls, a lid adapted to fit over said outer shell and provided with a depressed portion having a strainer at the bottom thereof, an inner tube extending downward through said inner can and the bottom thereof and opening into the space between said inner and outer cans, and a vertical collar fitting over the upper end of said inner tube, said collar having an annular flange forming the inner seat for the strainer, said cover, strainer and collar serving to support the upper end of said tube against lateral movement and strain, substantially as described.

3. The combination in a cooling-can, of a water-can, a milk-can located within said water-can so as to provide an interspace between the walls and bottoms of said milk-can and said water-can, a vertical panel formed by turning in the walls of said water-can and joining the edges of said turned-in portion to the walls of said milk-can, a gage-glass located at the back of said panel so as to form a portion of the wall of said milk-can, a collar forming a support for the inner portion of said strainer, said lid, strainer and collar coacting to hold the upper end of the tube against lateral movement and strain, substantially as described.

681,877. COWL. GEORGE DOWMAN, Atlanta, Ga. Filed Jan. 14, 1901. Serial No. 43,147. (No model.)

Claim.—1. In a cowl, a flue and a cap located above the upper end thereof, a fender-ring surrounding them with air-passages intervening between the upper edge of said fender-ring and the outer edge of said cap and between the upper end of said flue and the lower edge of said fender-ring and an annulus located within the said fender-ring below said cap and above said flue with air-passages between its upper and lower edges and said cap and flue respectively and between said annulus and fender-ring.

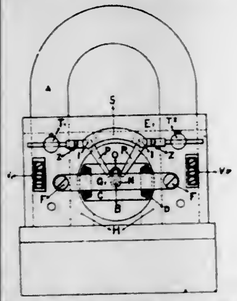
2. In a cowl, a flue and a cap located above the open end thereof, a fender-ring surrounding them with air-passages intervening between the upper edge of said fender-ring and said cap and between the upper end of said flue and the lower edge of said fender-ring and an annulus flaring larger from about its middle to its upper and lower edges and located within said fender-ring below said cap and above said flue with air-passages between its upper and lower edges and said cap and flue respectively and between said annulus and fender-ring.

3. In a cowl, a flue and a cap located above the open end thereof, a fender-ring surrounding them with air-passages intervening between the upper edge of said fender-ring and said cap and between the upper end of said flue and lower edge of said fender-ring and an annulus flaring larger from about its middle to its upper and lower edges and located within said fender-ring below said cap and above said flue with air-passages between its upper and lower edges and said cap and flue respectively and between said annulus and fender-ring, the upper flared portion of said annulus being directed at an angle toward the air-passage between the said cap and fender.

4. In a cowl, a flue and a conical petticoat on the upper end thereof flaring downwardly and outwardly from its upper edge where it joins the said flue, a cap located above the open end of said flue, a fender-ring surrounding them with air-passages intervening between the upper edge of said fender-ring and said cap and between the upper end of said flue and the lower edge of the said fender-ring, and an annulus flaring larger from

about its middle to its upper and lower edges and located within the said fender-ring below said cap and above said flue with air-passages between its upper and lower edges and said cap and flue respectively and between said annulus and fender-ring, the lower flared portion of said annulus lying substantially above and parallel to the aforesaid petticoat.

681,878. **TELEPHONE SWITCH APPARATUS.** LARS M. ERICSSON, Stockholm, Sweden, assignor to the Aktiebolaget L. M. Ericsson & Co., same place. Filed Mar. 29, 1899. Serial No. 710,973. (No model.)



Claim.—1. In an automatic telephone switch apparatus, a reversing apparatus comprising as its essentials one or more permanent magnets, a rotatable frame, a coil carried thereby and situated between the pole-shoes of said magnet, said coil being coupled in the main line from the central station, in combination with a subscriber's electromagnet, a permanent magnet connected therewith, an armature in contact with one pole of said permanent magnet, and means for maintaining said armature in contact with a yielding pressure, substantially as and for the purposes set forth.

2. The combination with a reversing apparatus, comprising the permanent magnet or magnets, the rotatable frame, and the coil carried thereby and situated between the pole-shoes of the magnet, of a disk of insulating material carried by said frame and having in it a circumferential channel containing mercury, an intermediate contact Q, always in the mercury, two lateral contacts, R'_1 and R'_2, adapted to be put into contact alternately with the mercury by the rocking of said disk, the terminals V' and V^2, and conductors connecting said lateral contacts respectively with said terminals, substantially as set forth.

3. In the reversing apparatus, the combination with the rotatable frame, of the disk K, having in it an annular channel L, for mercury, contacts which enter said channel, and means for choking said channel, whereby the reversing apparatus is protected against the influence of alternating currents, substantially as set forth.

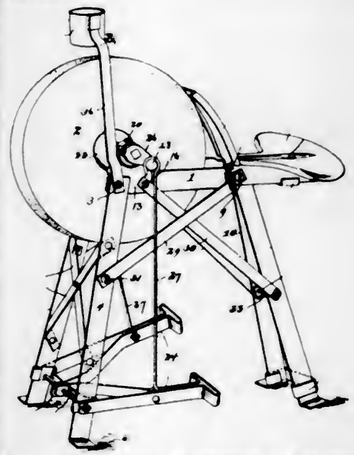
4. In the reversing apparatus, the combination with the rotatable frame of the latter, of the disk K, having in it an annular channel L, for mercury, contacts R'_1 and R'_2, which enter said channel, and the intermediate contact Q, which enters said channel and is of such size as to choke said channel and thus protect the reversing apparatus against the influence of alternating currents, substantially as set forth.

681,879. **PORTABLE GRINDSTONE.** CHARLES H. FERGUSON, Chicago, Ill., assignor of one-half to the Wilcox Manufacturing Company, Aurora, Ill. Filed Dec. 13, 1900. Serial No. 39,782. (No model.)

Claim.—1. In a portable grindstone, the combination, with the stone and its shaft and a suitable supporting-frame therefor having a seat for the operator thereon, of a pair of treadles each formed from a single length of strap metal bent into appropriate shape and pivoted at its open end to the lower forward end of the frame, the closed end of the treadle constituting the pedal, and suitable pitman-rod connections between said treadles and the cranks of the shaft, substantially as described.

2. In a portable grindstone, the combination with the stone and its shaft and a suitable supporting-frame therefor of a pair of treadles, each formed from a single length of strap metal doubled upon itself and pivoted at its open end to the lower forward end of the frame, the closed end of the treadle constituting the pedal and being disposed at right angles to the body portion thereof, and suitable pitman-rod connections between said treadles and the cranks of the shaft, substantially as described.

3. In a portable grindstone, a collapsible supporting-frame therefor comprising a pair of horizontal bars carrying the shaft-bearing blocks at one end and the operator's seat at the other, front and rear supporting-legs pivoted at their upper ends to said horizontal bars, suitable braces between the front and rear legs of the frame respectively, and a pair of oppositely-disposed diagonal braces pivoted at their upper ends to the horizontal bars and removably secured at their lower ends to the front and rear legs on each side of the frame, all united and combined, substantially as described.



4. In a portable grindstone, the combination with the stone and its shaft, of a suitable supporting-frame therefor, and a water-guard pivotally clamped through its heel between the upper horizontal members of the supporting-frame and adjustable toward and away from the stone by loosening its pivot-bolt, substantially as described.

5. In a grindstone-frame, the combination with the horizontal supporting members of the frame, of a pair of shaft-bearing blocks having notches cut in their lower edges, and a series of screw-bolts passing through said horizontal members and through said notches in the bearing-blocks, whereby the latter may be securely clamped to the horizontal members of the frame and may be readily removed therefrom by loosening said bolts, substantially as described.

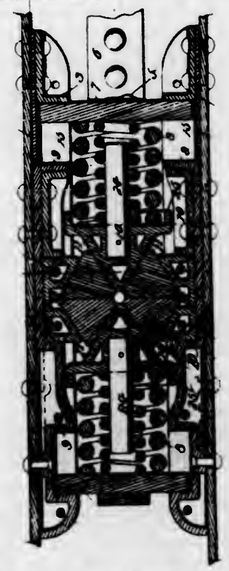
6. The combination, in a grindstone-frame, of the horizontal and supporting members of the frame suitably pivoted together, a pair of oppositely-disposed diagonal braces on each side of the frame pivoted at their upper ends to the horizontal member and secured at their lower ends to the front and rear supporting members, and a pair of bearing-blocks having notches cut in their lower edges to engage and rest upon the screw-bolts which unite the upper ends of the forward supporting member and one of the diagonal braces on each side to the horizontal member of the frame, and to be removably clamped between said parts, whereby, by loosening said screw-bolts said bearings may be readily lifted out of place, substantially as described.

681,880. **DRAFT OR BUFFING RIGGING.** RICHARD D. GALLAGHER, Jr., New York, N. Y., assignor to Standard Coupler Company, same place. Original application filed Apr. 8, 1901, Serial No. 54,900. Divided and this application filed June 15, 1901. Serial No. 64,765. (No model.)

Claim.—1. In a mechanism such as described, the combination of the following instrumentalities, to wit, oppositely-disposed springs arranged to transmit pressure in substantial alinement, followers interposed between the proximate ends of said springs, wedge-blocks interposed between said followers and a confining-frame having internal frictional faces coöperating with the wedge-blocks, the friction-faces on said frame and followers being arranged each at an angle to the other, whereby the longitudinal movement of one follower causes a longitudinal displacement of the other follower; substantially as described.

2. In a mechanism such as described, the combination of the following instrumentalities, to wit, oppositely-disposed springs arranged to exert pressure in substantial alinement and in the line of the buffing and draft strains, followers interposed between the proximate ends of said springs, said followers having friction-faces arranged at an angle with relation to each other, wedge-blocks interposed between said friction-faces, and a fixed guide having friction-faces which faces are arranged at an angle with respect to the friction-faces on the followers and control the plane of movement of the wedge-blocks; substantially as described.

3. In a mechanism such as described, the combination of the following instrumentalities, to wit; a confining-frame having internal inclined friction-faces, triangular wedge-blocks having faces resting against said friction-faces, oppositely-arranged followers, friction-faces moved thereby and coöperating with other faces of the wedge-blocks, springs for holding said followers toward each other, means for retaining the outer ends of the springs and means for applying draft and buffing strains, whereby said friction-faces are caused to slide upon each other in absorbing such strains; substantially as described.



4. In a mechanism such as described, the combination of the following instrumentalities, to wit; a pair of oppositely-disposed springs, movable follower-plates between which the springs are confined, followers interposed between the proximate ends of said springs, friction-faces on the proximate sides of said followers, wedge-blocks interposed between said faces, fixed guides with which the wedge-blocks coöperate and means for applying buffing and draft strains to the follower-plates; substantially as described.

5. In a mechanism such as described, the combination of the following instrumentalities, to wit; a pair of oppositely-disposed springs, means for confining said springs, followers interposed between the proximate ends of said springs and having inclined friction-faces on their proximate sides, coöperating wedge-blocks interposed between said friction-faces, oppositely-inclined guides within which the blocks work and means for applying buffing and draft strains whereby in absorbing such strains the blocks are caused to travel on the friction-faces and guides; substantially as described.

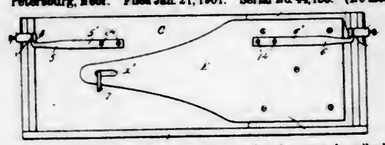
6. In a draft or buffing rigging the combination with a draw-bar and a pair of springs arranged in alinement, and adapted to receive draft and buffing strains from the draw-bar, of a friction-gear interposed between the proximate ends of said springs and embodying transversely-movable wedge-blocks and guiding friction-faces therefor arranged at an angle to the line of spring compression substantially as described.

7. In an apparatus such as described, the combination with the independent springs arranged in alinement, and followers moving in unison with the proximate ends of the springs and having oppositely-inclined friction-faces on their proximate sides, of contacting triangular wedge-blocks interposed between said friction-faces and guides having oppositely-inclined friction-faces for guiding the blocks in oppositely-inclined planes; substantially as described.

8. In a draft and buffing rigging, the combination with the follower-plates movable toward each other, stops for limiting their outward movement and the draw-bar and strap passing around the plates, of a pair of springs arranged in alinement between the plates, followers interposed between the proximate ends of the springs and having friction-faces on their proximate sides, triangular wedge-blocks interposed between said friction-faces and an inclosing frame for said blocks having internal friction-faces for coöperation with the blocks; substantially as described.

9. In a draft and buffing rigging, the combination with the central frame having the oppositely-inclined frictional guiding-faces, and sets of triangular wedge-blocks coöperating with said faces and with each other, of oppositely-arranged followers having inclined friction-faces coöperating with the wedge-blocks, springs for pressing said followers toward each other, follower-plates between which the springs are located, stops for limiting the outward movement of the plates and a draw-bar and connections for transmitting the strains to the plates; substantially as described.

681,881. **END-GATE.** CLAUDE L. HARVEY and JOHN H. NIEMAN, Petersburg, Nebr. Filed Jan. 21, 1901. Serial No. 44,153. (No model.)



Claim.—In an end-gate attachment of the character described, the combination with an end-gate comprising two hinged sections of extending ears upon opposite sides and extending in outward directions, of two counterpart spring-keepers secured at one end to the sides of a wagon-body, and provided at the opposite end with terminal seatings, said seatings being adapted to be engaged by said ears in a locked position, an adjusting-screw passing through each keeper, and a plate acting as a stop for said screws, all arranged substantially, as and for the purpose set forth.

681,882. **COAGULANT AND PROCESS OF MAKING SAME.** IRA H. JEWELL, Chicago, Ill. Filed Aug. 30, 1900. Serial No. 28,563. (No specimens.)

Claim.—1. A coagulant for the separation of impurities from liquid, consisting of a basic hydrate and an alkaline salt, the product being dry to the sight and touch and assuming a flocculent condition when mixed with water.

2. A coagulant consisting of a basic hydrate, practically free from acid deleterious to the liquid to be treated, and an alkaline salt; the coagulant being dry to the sight and touch and assuming a flocculent condition when mixed with water.

3. A coagulant for the separation of impurities from liquids, which consists of alumina hydrate as a base and an alkaline salt; the coagulant being dry to the sight and touch and assuming a flocculent condition when mixed with water.

4. A coagulant for separating impurities from liquids, which consists of a basic hydrate and sodium carbonate, the coagulant being dry to the sight and touch and assuming a flocculent condition when mixed with water.

5. A coagulant for separating solids from liquids, which consists of alumina trihydrate and an alkaline salt the product being dry to the sight and touch and assuming a flocculent condition when mixed with water.

6. The process of preparing a coagulant which consists in first obtaining a basic hydrate; then adding thereto an alkaline salt while the basic hydrate is in a moist condition; then drying the substance while retaining its property to become flocculent when mixed with water.

7. The process of making a coagulant which consists in first preparing a basic hydrate of alumina in a flocculent form; then adding an alkaline salt; then drying the substance while retaining its property to become flocculent when mixed with water.

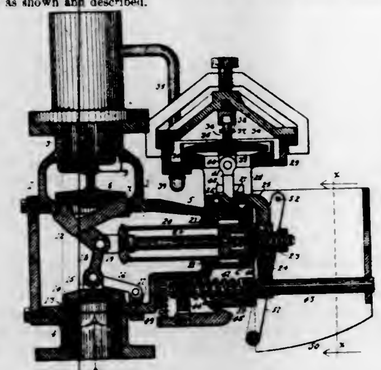
8. The process of making a coagulant which consists in preparing alumina trihydrate by the addition of sodium carbonate with water to the alumina sulfate; then removing the liquid; then adding sodium carbonate to the precipitate; then drying the substance while retaining its property to become flocculent when mixed with water.

9. A composition of matter consisting of trihydrate of alumina and sodium carbonate, the product being dry to the sight and touch, and assuming a flocculent condition when mixed with water.

681,883. **INDUCTION-VALVE.** CHARLES W. KERSTETER, Akron, Ohio. Filed Jan. 28, 1901. Serial No. 45,075. (No model.)

Claim.—1. In a valve of the class designated, the combination with an inclosing case having a branch to receive water under pressure and a branch to connect with a sprinkler-pipe system containing air under pressure of an outward-opening valve to close said second branch having a bar across its seat, and an inward-opening valve to close said first branch connected with and arranged to be opened by the water-pressure, a rocking bar to hold said valve and rest against the cross-bar of the opposite seat, a plunger to hold said bar, a valve connected with the sprinkling-pipe system and arranged to be held against its seat by the air-pressure in said pipe system, and to be released by a decrease of said pressure and a latch arranged to be held by said last-mentioned valve to lock said plunger against movement and to release it by the rising of the valve, substantially as shown and described.

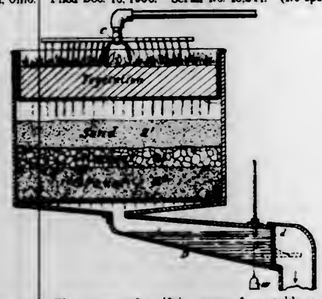
2. In a valve of the class designated, the combination with an inclosing case having a branch to receive water under pressure, and a branch to connect with a sprinkling-pipe system having a valve-seat and valve with a bar across said seat, of a valve to close said first branch adapted to be rocked inward and connected with a rocking bar to press against said cross-bar and arranged to be opened by a spring-pressed plunger, a spring-pressed plunger to hold said cross-bar and first valve, a latch to hold said plunger against movement to release said valve, a valve connected with said latch and the pipe containing air under pressure arranged to be operated by the air-pressure to hold said latch in engagement with said plunger, and to release it by a decrease of said pressure, substantially as shown and described.



3. In a valve of the class designated having an inclosing case with a branch to receive water under pressure, and a branch to connect with a sprinkling-pipe system containing air under pressure, and an outward-opening valve to close said second branch and an inward-opening valve to close said first branch connected with and arranged to be operated by a sliding plunger, and a latch to hold said plunger against movement, and a valve operated by the air-pressure to hold said latch and to release it by a decrease of said pressure, of a spring to move said plunger to open said inward-opening valve a lever to compress said spring to permit said valve to be closed and a detachable catch to hold said spring and release it when desired.

4. In a valve of the class designated having an inclosing case with a branch to receive water under pressure and a branch to connect with a pipe-sprinkling system containing air under pressure and an outward-opening valve to close said second branch, and an inward-opening valve to close said first branch connected with and arranged to be operated by a sliding plunger and a latch to hold said plunger against movement and a valve operated by the air-pressure to hold said latch and to release it by a decrease of said pressure and a cross-head attached to said plunger of adjusting devices consisting of a tubular nut meshing in said cross-head and surrounding a shaft mounted in said plunger and meshing thereon with threads of an opposite inclination from those on the outside of said nut to regulate the movement between the inward-opening valve and a latch-operating valve with reference to each other, substantially as described.

681,884. **PURIFYING WATER.** CLEOPHAS MONJEAU, Middletown, Ohio. Filed Dec. 18, 1900. Serial No. 40,241. (No specimens.)



Claim.—1. The process of purifying water for potable uses consisting in spraying the same over artificially-prepared beds of vegetation and allowing the water to percolate through the same, and at the same time aerating the water.

2. The process of purifying water for potable uses consisting in spraying the same over artificially-prepared beds of vegetation and allowing the water to percolate through the same and thence through a bed or beds of filtering material, and coincidently therewith aerating the water.

3. The process of purifying water for potable uses consisting in spraying the same over artificially-prepared beds of vegetation and allowing the water to percolate through the same and thence through a bed or beds of filtering material, and at the same time aerating by passing air upward through said beds, substantially as specified.

4. The process of purifying water and rendering the same potable, consisting in passing the same downward over or through a bed of growing vegetation as an initial step in filtration, and, coincidently therewith, introducing atmospheric air and allowing the same to pass upward through the bed of vegetation, substantially as set forth.

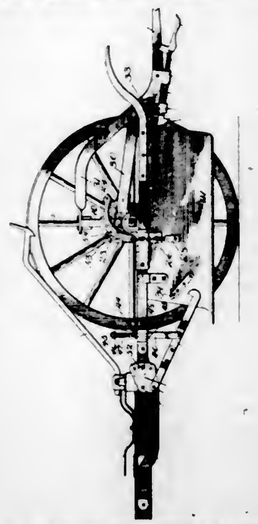
5. The process of artificially effecting the equivalent of such natural purification of polluted water or waters by causing the same to percolate through duly-interposed living vegetation and particularly the roots thereof, and thence through a bed or beds of filtering material, collecting the water for use, and aerating the water by an upward current of air.

681,885. **JAR AND JAR-COVER.** MARY T. MYERS, Lamoille, Iowa. Filed Feb. 14, 1901. Serial No. 47,329. (No model.)



Claim.—A fruit-jar, having its upper marginal edge beveled inwardly and downwardly to form a cover-seat, and a cover formed of material which is expansible under the action of heat and provided in its top with a socket for the reception of a heated liquid, the bottom of the cover being convexed to correspond with the beveled seat, the external diameter of the cover being equal to that of the seat, the latter being free from upstanding marginal projections, and the cover being free from pendent marginal projections, whereby the joint between the cover and the jar is free from overlapped parts and the cover may be slid edgewise from the seat.

681,886. **WHEELED SCRAPER.** THOMAS R. MCKNIGHT, Aurora, Ill., assignor to Western Wheeled Scraper Company, same place. Filed June 15, 1901. Serial No. 64,634. (No model.)



Claim.—1. In a scraper, the combination of a carriage, a scraper-pan, lifting-lever mechanism for raising the pan, flexible suspending devices suspending the scraper-pan from the carriage, and means arranged to continuously increase the leverage of the lifting-lever mechanism as the pan moves from loading to carrying position, substantially as described.

2. In a scraper, the combination of a carriage, a scraper-pan, lever mechanism for lifting the pan, cam mechanism adapted to be rocked by said lever mechanism, and flexible suspending devices suspending the scraper-pan from said cam mechanism, said cam mechanism being arranged to continuously move the point at which the power is applied to said flexible suspending devices toward the fulcrum of said lever mechanism as the pan moves from loading to carrying position, substantially as described.

3. In a scraper, the combination of a carriage, a scraper-pan, an axle, eccentric lifting-blocks carried by the axle, lever mechanism for rocking said lifting-blocks, and flexible supporting devices suspending the scraper-pan from said lifting-blocks, said lifting-blocks being arranged to move the point at which the power is applied to said flexible suspending devices toward the fulcrum of said lever mechanism when the weight to be lifted increases as the pan is raised from loading to carrying position, substantially as described.

4. In a scraper, the combination of a carriage, a scraper-pan, an axle, eccentric lifting-blocks carried by the axle, lever mechanism for rocking said lifting-blocks, and chains secured to said lifting-blocks and lying in grooves in the peripheries thereof, said lifting-blocks being arranged to move the point at which the power is applied to said chains toward the fulcrum of said lever mechanism when the weight to be lifted increases as the pan is raised from loading to carrying position, substantially as described.

5. In a scraper, the combination of a carriage, an axle therefor, cam lifting-blocks mounted on said axle, the upper portions of said blocks being a greater distance from the axle than the lower portions thereof, flexible connections secured to said lifting-blocks and resting on the peripheries thereof, a scraper-pan secured to the flexible connecting devices, and a lever for rocking said lifting-blocks, substantially as described.

6. In a scraper, the combination of a carriage, an axle therefor, cam lifting-blocks mounted on said axle, the upper portions of said blocks being a greater distance from the axle than the lower portions thereof, flexible connections secured to said lifting-blocks and resting on the peripheries thereof, a scraper-pan secured to the flexible connecting devices, a lever for rocking said lifting-blocks, and a bar connected to the scraper-pan and to one of said lifting-blocks, substantially as described.

7. In a scraper, the combination of a carriage, an axle therefor, cam lifting-blocks mounted on said axle, the upper portions of said blocks being a greater distance from the axle than the lower portions thereof, flexible connections secured to said lifting-blocks and resting on the peripheries thereof, a scraper-pan secured to the flexible connecting devices, a lever for rocking said lifting-blocks, and a rigid connecting device between said lifting-blocks and the scraper-pan, substantially as described.

8. In a scraper, the combination of a carriage, an axle therefor, cam lifting-blocks mounted on said axle, the upper portions of said blocks being a greater distance from the axle than the lower portions thereof, flexible connections secured to said lifting-blocks and resting on the peripheries thereof, a scraper-pan secured to the flexible connecting devices, a lever for rocking said lifting-blocks, and a rigid connecting device between said lifting-blocks and the scraper-pan, said rigid connecting device being movably connected to one of said lifting-blocks, substantially as described.

9. In a scraper, the combination of a carriage, a scraper-pan, a draft-hook adapted to engage the forward portion of the pan, and means for adjusting said draft-hook longitudinally to vary the loading position of the pan, substantially as described.

10. In a scraper, the combination of a carriage, a scraper-pan, means for raising said pan from loading to carrying position, draft mechanism adapted to engage the forward portion of the pan when in loading position, and means for adjusting said draft mechanism longitudinally to vary the loading position of the pan, substantially as described.

11. In a scraper, the combination of a carriage, a scraper-pan, draft-hooks adapted to engage said pan when in loading position, said draft-hooks being pivotally connected at their forward ends with the frame of the machine, and means for adjusting the pivots of said draft-hooks longitudinally, substantially as described.

12. In a scraper, the combination of a carriage, a scraper pan, a draft-hook adapted to engage said pan when in loading position, and a swinging plate pivotally connected to said draft-hook and to the frame of the carriage, said plate being movable to adjust said draft-hook longitudinally, substantially as described.

13. In a scraper, the combination of a carriage, a scraper-pan, draft devices, a draft-hook pivotally connected to said draft devices, devices carried by the scraper-pan adapted to be engaged from the under side by said draft-hook, springs normally holding said hook in a raised position, and means for longitudinally adjusting said draft-hook, substantially as described.

14. In a scraper, the combination of a carriage, a scraper-pan, lever mechanism for raising the pan, cam mechanism operated by said lever mechanism, flexible suspending devices suspending the scraper-pan from said cam mechanism, said cam mechanism being arranged to move the point at which the power is applied to said flexible suspending devices toward the fulcrum of said lever mechanism when the pan moves from loading to carrying position, and means for holding the scraper-pan down while in loading position, substantially as described.

15. In a scraper, the combination of a carriage, a scraper-pan, eccentric rocking lifting-blocks, lever mechanism for rocking said lifting-blocks, flexible suspending devices connected to said lifting-blocks and to the scraper-pan, and rigid bars connected to the scraper-pan and loosely connected with the lifting-blocks for holding the scraper-pan down while in loading position, substantially as described.

16. In a scraper, the combination of a carriage, a scraper-pan, eccentric lifting-blocks, lever mechanism for rocking said lifting-blocks, chains connected to the scraper-pan and lying in grooves in the peripheries of said lifting-blocks, and lugs in said grooves adapted to engage links of said chains, substantially as described.

17. In a scraper, the combination of a carriage, a scraper-pan, eccentric lifting-blocks, means for rocking said lifting-blocks, and chains secured to the pan for suspending said pan from the lifting-blocks, said blocks having means at different distances from the pivots of said lifting-blocks for positively engaging links of the chain, said lifting-blocks being arranged to move the point at which the power is applied to said chains toward the pivots of said lifting-blocks when the weight increases as the pan is raised from loading to carrying position, substantially as described.

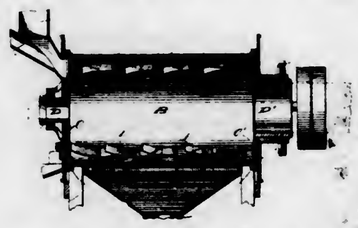
18. In a scraper, the combination of a carriage, a scraper-pan, longitudinally-adjustable draft-hooks, devices carried by the pan adapted to be engaged by said draft-hooks, bars supporting said draft-hooks, and springs holding said supporting-bars normally in their uppermost position, substantially as described.

19. In a scraper, the combination of a carriage, a scraper-pan, lifting-lever mechanism for raising the pan, flexible suspending devices suspending the pan from the carriage, means arranged to increase the leverage of the lifting-lever mechanism when the pan moves from loading to carrying position, and means for holding the scraper-pan down while in loading position, substantially as described.

20. In a scraper, the combination of a carriage, a scraper-pan flexibly suspended therefrom, lever mechanism for raising the pan, and means for moving the point at which the weight is sustained by said lever mechanism toward the fulcrum thereof when said lever mechanism is operated to raise the pan, substantially as described.

21. In a scraper, the combination of a carriage, a scraper-pan flexibly suspended therefrom, lever mechanism for raising the pan, means for moving the point at which the weight is sustained by said lever mechanism toward the fulcrum thereof when said lever mechanism is operated to raise the pan, and rigid means for holding the pan down when in loading position, substantially as described.

681,887. **COFFEE-COOLING APPARATUS.** ISAAC D. RICHHEIMER, Chicago, Ill. Filed Mar. 30, 1901. Serial No. 53,615. (No model.)



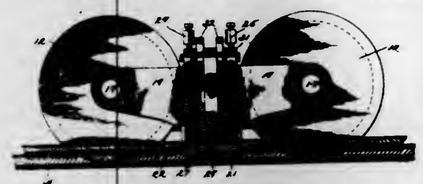
Claim.—1. In an apparatus for dry-cooling coffee the combination of a foraminous cylinder and means for revolving the same, agitating devices within the cylinder, a casing inclosing the lower portion of the cylinder, an exhaust-pipe communicating with said casing and means for inducing a current of air through the cylinder and the coffee therein contained while the cylinder is revolving and the coffee is being agitated, substantially as described.

2. In an apparatus for dry-cooling coffee, the combination of a foraminous cylinder and means for revolving the same, agitating devices within the cylinder, a casing inclosing the lower portion of said cylinder and leaving the upper portion exposed, an exhaust-pipe connected with said casing, and an air-inlet pipe, whereby currents of air are induced to flow through the coffee while it is being agitated and out through the exhaust-pipe, substantially as described.

3. In an apparatus for dry-cooling coffee, the combination of a foraminous cylinder and means for revolving the same, heads for said cylinder, trunnions journaled in bearings in said heads and carrying spiders supporting the cylinder, agitating devices within the cylinder and a casing inclosing the lower portion of the cylinder and terminating in an exhaust-pipe, substantially as described.

4. The combination of a foraminous cylinder and means for revolving the same, heads for said cylinder, hollow trunnions carrying the cylinder and journaled in bearings in the heads, a casing inclosing the lower portion of the cylinder and tapered at its bottom and communicating with an exhaust-pipe, agitating devices within the cylinder, an inlet-chute for delivering coffee into the cylinder and an air-pipe for discharging a current of air into the chute at its discharge end, substantially as described.

681,888. WIRE-ROPE CONVEYER OR TRAM. RUGHLEY D. SEYMOUR, Chicago, Ill. Filed June 3, 1901. Serial No. 62,995. (No model.)



Claim.—1. In a conveyer a carriage adapted to run upon a track, means for securing a load to one side of said carriage, a clutch or grip adapted to take hold of a driving or traction cable running on the opposite side of the carriage at approximately the level of the track, for the purposes set forth.

2. In a conveyer a carriage adapted to run upon a track, means for securing a load to one side of said carriage, a clutch or grip mechanism mounted within and having jaws extending outside the carriage adapted to take hold of the driving or traction cable running on the opposite side of the carriage at approximately the level of the track, for the purposes set forth.

3. In a conveyer carriage or trolley, the combination of a pair of wheels in tandem journaled in a suitable frame, a rigid and a movable jaw mounted on the frame between the wheels and extending outside the frame so as to take hold of a driving or traction cable running approximately parallel to the bottom of the wheels, and mechanism connected to said movable lever adapted to pass over automatic cam-switches and open and close said jaws for the purposes set forth.

4. In a conveyer carriage or trolley, the combination of a pair of tandem wheels journaled in a frame, a rigid jaw secured between the wheels extending outside the frame at approximately the level of the bottoms of the wheels, a lever pivoted to the frame having one end in the form of a jaw extending outside the frame adapted to clamp a driving-rope between itself and said fixed jaw, and the other end extending within the frame between the wheels, another lever pivoted to the outside of the frame adapted to engage a cam-switch, and a connection between said levers for the purposes set forth.

5. In a conveyer carriage or trolley, the combination of a pair of tandem wheels journaled in a frame, a rigid jaw secured between the wheels extending outside the frame at approximately the level of the bottoms of the wheels, a lever pivoted to the frame having one end in the form of a jaw extending outside the frame adapted to clamp a driving-rope between itself and said fixed jaw, and the other end extending within the frame between the wheels, another lever pivoted to the outside of the frame adapted to engage a cam-switch, and a link connection between said levers, the proportions of the various parts being such that when the jaws are closed or open the points of connection of said link to said lever will be below the pivoted point of the second lever to the frame whereby said jaws are locked in either position, substantially as described.

6. In a conveyer carriage or trolley the combination of a pair of tandem wheels journaled in a frame, a rigid jaw 20, a pivoted jaw 26, a pivoted lever 29, and a link 32 connecting said levers, substantially as described.

7. In a conveyer system, a saddle shaped as shown, adapted to fit into the top of a trestle, a carrying-roller for the traction-rope let into the top of said saddle, and journal-blocks slidably mounted in recesses in said saddle adapted to support said pulley, substantially as described for the purposes set forth.

8. In a conveyer system the combination of a series of trestles, a track-cable over said trestles, a saddle on each trestle at or near the level of the track, a driving or traction rope traveling over said saddles, a carriage or trolley adapted to run upon said track, a grip or clutch mounted in said carriage adapted to grasp said driving-rope, and means for securing a load to said trolley on the opposite side from said driving-rope for the purposes set forth.

681,889. RECLINING-CHAIR. GEORGE F. SMITH, Monroe, Me. Filed May 29, 1901. Serial No. 62,366. (No model.)



Claim.—1. In a chair the combination with a seat, a back and a foot-rest movably attached thereto, of a spring-actuated frame carried by the back and adapted to engage with the foot-rest, for the purpose set forth.

2. In a reclining-chair, a seat supported by a suitable frame, a back and a foot-rest pivoted to the seat-carrying frame, a frame pivotally attached to the lower portion of the back and a spring for holding said frame upward at its forward end so as to engage the foot-rest and permit a movement of the foot-rest and frame independent of the back.

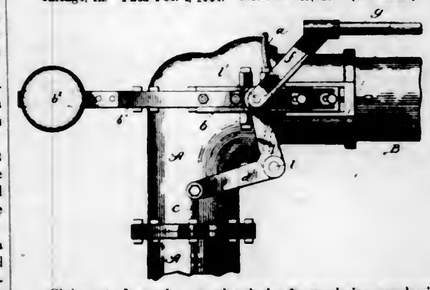
3. In a reclining-chair, a frame having a seat rigidly attached thereto, a back in swinging engagement with the frame said back extending below the seat-supporting frame, a frame pivotally attached to the lower portion of the back, a spring for swinging said frame upward a foot-rest hinged to the seat-carrying frame, segmental pawls connected to the back and pins with which the pawls engage to prevent a downward swinging of the back, substantially as shown.

4. The combination, in a reclining-chair of a seat-supporting frame, a back connected thereto, a foot-rest movably connected on the opposite side of the frame from the back, arms rigidly attached to the back so as to extend above and below the seat, means for restraining the movement of the back, and a spring-actuated frame held in engagement with the foot-rest substantially as shown and for the purpose set forth.

5. In a chair for the purpose set forth, the combination of a frame having a fixed seat, a back, and a foot-rest both hinged to the seat-carrying frame, a spring-actuated frame attached at one end to the back the other end of the frame being adapted to bear upon the under side of the foot-rest substantially as shown and for the purpose set forth.

6. In a chair, the combination of a seat-supporting frame, a back hinged thereto and provided with extensions which extend below the seat, arms attached to the back and to the extensions, pawls pivoted to the back-pins with which said pawls engage to prevent backward movement of the back, a frame pivoted to the extensions of the back, a spring for forcing the forward end of the frame upward and a foot-rest hinged to the seat said foot-rest being engaged by the spring-actuated frame when the back is inclined, substantially as shown.

681,890. VALVE-ACTUATING DEVICE. THEODORE W. SNOW, Chicago, Ill. Filed Feb. 4, 1901. Serial No. 45,915. (No model.)



Claim.—1. In a valve-actuating device for stand-pipes, mechanism carried by the vertical portion of the stand-pipe and connected with the valve, manual operating means therefor connected with the horizontal arm of the pipe, and connection between said two portions lying, when the valve is closed, in substantially the axis about which said horizontal arm swings, substantially as described.

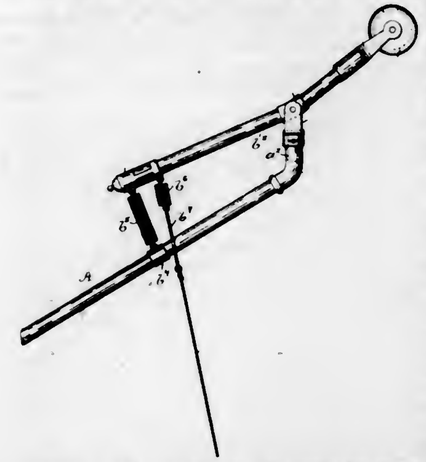
2. In a stand-pipe having a vertical standard, and an arm connected therewith and swinging about a horizontal axis, a bell-crank lever pivoted to a relatively stationary part and connected at one of its arms with the valve, and an actuating device for said lever carried by the horizontal arm of the pipe, and pivotally connected with the free end of said lever, said pivoted connection lying in the axis about which said horizontal pipe swings, substantially as described.

3. The combination with a pipe A and a pipe B connected therewith to swing about an axis a', of bell-crank levers pivoted on opposite sides of the upper portion of the pipe A, each lever having connection at one arm with the valve, a yoke connected with the free ends of said levers, the points of connection coinciding with the axis a', and manual means carried by the pipe B for moving said yoke, substantially as described.

4. In a valve-actuating device for the purpose set forth, bell-crank levers pivoted to relatively stationary parts and located at opposite sides of the stand-pipe, vertical valve-actuating rods connected with one set of arms of said levers, and manual operating means connected with the vertically-swinging arm of the pipe and having pivotal connection with the free arms of said levers, said last-named pivotal connections coinciding with the axis about which said vertically-swinging arm turns, substantially as described.

5. In a valve-actuating device for the purpose set forth, a yoke f, rods g connected with said yoke, manual means for moving said rods, bell-crank levers at the sides of the stand-pipe to which the device is applied and having pivotal connection at one set of arms with said yoke, pivotal connections between said levers and relatively stationary parts of the vertical portion of the stand-pipe, vertically-moving valve-actuating rods in the rear of the bell-crank fulcrums, and pivotal connections between said last-named rods and the free arms of said bell-cranks, substantially as and for the purpose set forth.

681,891. TROLLEY-ARM FOR ELECTRIC CARS. JAMES F. SNOW, Pawtucket, R. I. Filed Feb. 19, 1901. Serial No. 47,925. (No model.)

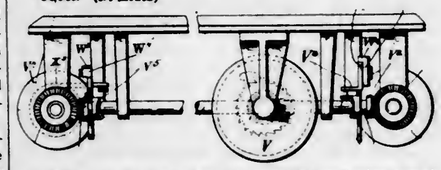


Claim.—1. A trolley-arm for electric cars having a lever pivotally secured in a fork the vertical spindle of which is supported in a socket of the main trolley-arm, the movement of the lever being restricted by springs, as described.

2. A trolley-arm for electric cars having a socket near its free end, in combination with a fork supported in the socket, a lever pivoted in the fork, a trolley-wheel on one end of the lever, and a coiled spring connecting the other end of the lever with the trolley-arm, as described.

3. In a trolley-arm for electric cars, the combination with the main trolley-arm and a socket on the same, of a lever, a trolley-wheel on the end of the lever extending beyond the socket, a coiled spring connecting the opposite end of the lever with the trolley-arm, a pivotal support for the lever journaled in the socket, a loop extending around the main trolley-arm and a coiled spring connected with the loop and the pivoted lever, as described.

681,892. RIBBON-SHIFTING MECHANISM. CHARLES SPIRO, New York, N. Y. Original application filed July 27, 1900, Serial No. 25,090. Divided and this application filed Oct. 23, 1900. Serial No. 34,046. (No model.)



Claim.—1. In a type-writer, ribbon-shifting mechanism comprising a spool-operating shaft, a grooved cam-faced collar on said spool-operating shaft, and a double-armed lever, one arm of which is adapted to enter said groove and the other arm of which is adapted to coact with said cam-face of the collar; substantially as specified.

2. In a ribbon-shifting mechanism, spool-rotating gears, a lever provided with an extension adapted to rest upon the surface of the ribbon on the spool and pivoted to a fixed part of the machine, in combination with a double-armed lever adapted to move and lock the spool-rotating gears, and connections whereby said functions of the double-armed lever are performed; substantially as specified.

3. In a ribbon-shifting mechanism, a spool-operating shaft, operating-gears for said shaft, a cam on said shaft, and a spring-pressed double-armed lever having one arm adapted to contact with a grooved collar on the spool-shaft for locking the spool-operating gears in mesh, and the other arm being arranged to contact with the cam on said shaft for shifting one of said gears; substantially as specified.

4. A double-armed lever adapted to embrace a spool-driving shaft of a ribbon-shifting mechanism, and provided with a spring and with a projection, in combination with means for retaining and releasing said projection, and means coöperating with said lever for shifting and locking said shaft in a shifted position; substantially as specified.

5. In a ribbon-shifting mechanism, the combination with a ribbon-spool, a driving-shaft therefor, a pivoted ribbon-lever, one end of which is located over the spool and the other end of which is provided with an arm, of a double-armed lever, a spring carried thereby and projecting into the path of the arm of the first-mentioned lever, and means for shifting said ribbon-lever to place said spring under tension; substantially as specified.

6. In a ribbon-shifting mechanism, the combination with a ribbon-spool, a driving-shaft therefor, a pivoted lever having an arm arranged to be operated by the ribbon on the spool, a catch pivoted to oscillate in a plane parallel to the ribbon-lever, a double shifting and locking lever, and connections between the catch and the ribbon-lever whereby the former is released by a change in the diameter of the ribbon upon the spool, substantially as specified.

7. In a ribbon-shifting mechanism, a ribbon-spool, means for operating a spool-driving gear, and a lever adapted to be operated by a ribbon upon said spool and pivoted to a fixed part and having a projection beyond its pivot, in combination with a latch pivoted in a vertical plane parallel to the projection and having a lateral arm extending over the projection of the lever, whereby a diminution of the ribbon upon the spool causes the ribbon-lever to release the latch; substantially as specified.

8. In a ribbon-shifting mechanism, the combination of each spool and its gears, with the transverse shaft carrying one of the miter-gears at each spool, a collar at each end of the shaft having a cam-face and a groove, a double-armed lever located at each end of said shaft, one arm of each lever being in the plane of the said groove when the gear at the opposite end of the shaft is in mesh with its pinion on the spool, and connections for automatically removing said arm of said lever from the groove at one end of the shaft and throwing the corresponding arm of the lever at the opposite end of the shaft into the groove at the other end of the shaft when the shaft and gears are shifted from one spool to the other; substantially as specified.

9. In a ribbon-shifting mechanism, a ribbon-spool-driving shaft, a pivoted double-armed shaft-lever having rigid shifting and locking arms and a latch-receiving projection, and means coöperating with said lever for shifting and locking said spool-driving shaft; substantially as specified.

10. In a ribbon-shifting mechanism, a shaft shifting and locking lever comprising an arm carrying a roller for coöperation with a cam, a grooved collar, an arm for coöperation with a locking-groove in said collar, a spring for moving the lever in one direction, means for its pivotal support, a latch and a lug or projection for the reception and operation of said latch; substantially as specified.

11. In a ribbon-shifting mechanism, the combination with a ribbon-spool and its driving-shaft of a double-armed shifting and locking lever having a latch-receiving projection, a pivoted latch coöperating there-

with, and a ribbon-lever extending from a ribbon-spool to said latch for operating the latch, and means cooperating with said lever for shifting and locking a spool-driving shaft; substantially as specified.

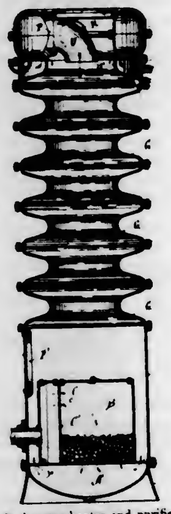
12. The combination with the frame of a type-writer and a ribbon-spool and its driving-shaft, of a depending bracket arranged parallel with the spool-shaft of the machine, a ribbon-lever pivoted to the bracket and having a lateral extension projecting over the spool-shaft, a latch mounted on the pivot of the ribbon-lever and having an arm projecting over said lever at a point beyond the pivot, a double-armed lever mounted in the same vertical plane as the ribbon-lever with one of its arms above and the other below the transverse ribbon-spool-driving shaft of the machine, and a spring extending from the lower arm of the double-armed lever to a point on the ribbon-lever below its pivot; substantially as specified.

13. As a means for shifting and locking the transverse ribbon-shaft of a type-writer, a grooved, cam-faced collar secured to said shaft, and means mounted on a fixed part of the machine and projecting beyond said shaft and adapted to cooperate with the cam and the groove of said collar thereon; substantially as specified.

14. As a means for shifting the transverse ribbon-shaft of a type-writer, a lever pivoted to a fixed part of a machine and extending over said shaft, and carrying upon said extension means for cooperating with a cam, in combination with a collar upon said shaft having a cam-face limited to less than the entire circumference of the collar, whereby the said lever may contact with the periphery of the collar until the cam-face thereof is reached in the rotation of said collar; substantially as specified.

15. In a ribbon-shifting mechanism, a grooved collar having a cam in a portion of one side thereof, in combination with a two-armed lever, one arm of which is mounted to be beneath the collar throughout the periphery and the other arm of which is provided with a cam cooperating device adapted to ride upon the periphery of the collar throughout a portion of its periphery, these parts being duplicated at each end of the said shaft, whereby when the cam and upper arm of said lever have performed their function at one end of said shaft the lower arm of the double-armed lever is in the plane of and enters the groove in the collar at the opposite end of said shaft; substantially as specified.

681,893. FEED-WATER HEATER AND PURIFIER. EDWIN R. STILWELL, Dayton, Ohio. Filed Nov. 7, 1900. Serial No. 35,730. (No model.)



Claim.—1. In a feed-water heater and purifier, a heating-chamber having undulating sides the interior surface of which is adapted to pass water downwardly in a continuous stream, a water-supply surrounding the top of said chamber and adapted to pass water to the interior surface of said undulating sides, and means for passing steam through the interior of said chamber in direct contact with the film of water flowing down said undulating sides, substantially as described.

2. In a water heater and purifier, a heating-chamber having undulating sides the interior surface of which is adapted to pass water downwardly in a continuous stream, an overflow-basin surrounding the top of said chamber and adapted to pass water to the interior surface of said undulating sides, means for passing steam into the interior of said chamber from one end whereby it is caused to mingle with the flow of water from said basin, substantially as described.

3. In a water heater and purifier, a heating-chamber having undulating sides the interior surface of which is adapted to pass water downwardly in a continuous stream, said chamber being made up of superimposed sections, an overflow-water basin surrounding the top of said chamber adapted to overflow water onto the interior surface of said undulating sides, means for supplying steam into the interior of said chamber, substantially as described.

4. In a water heater and purifier, a heating-chamber having undulating sides the interior surface of which is adapted to pass water downwardly in a continuous stream, an overflow-water basin surrounding the top of said heater and adapted to overflow water onto the interior surface of said undulating sides, means for introducing steam and escaping steam at the top of said chamber intermediate of said basin, substantially as described.

5. In a water heater and purifier, a vertical heater open at the top and having undulating sides the interior surface of which is adapted to pass water downwardly in a continuous stream, a water-supply pipe around the open top and adapted to supply water to the inner surface of the undulating sides, and means for supplying steam through said open top, whereby it passes downward through said vertical heater in direct contact with the film of water upon its undulating sides, substantially as described.

6. In a water heater and purifier, a vertical heater substantially circumferential, the sides of said heater being undulating, the heater being open at the top, an overflow-water basin exteriorly surrounding the top of the heater, adapted to supply water over the edge of the heater to the inner surface of the undulating sides, and means for supplying steam into said heater through said open top, whereby the steam and water in direct contact pass downwardly through said heater, substantially as described.

7. In a water heater and purifier, a vertical heater composed of superimposed sections, the sides of which are undulating in a vertical plane, an overflow-water basin surrounding the upper peripheral edge of said heater and adapted to supply water to the inner surface of the undulating sides, a steam-supply pipe tapping interiorly into the upper open end of said heater, whereby the steam and water are passed in direct contact downwardly through the heater, and a steam-escape, substantially as described.

8. In a heater and purifier, a heater having undulating sides, means for supplying water to the inner surfaces of the top walls of the heater, a steam-supply chamber extended exteriorly around the top of the heater forming an intermediate opening constituting a steam-escape orifice, the discharge end of the heater opening into the top of the heater, substantially as described.

9. In a heater and purifier, an open heater, means for supplying water thereto, a steam-supply chamber at one end of the heater forming a curved passage, and opening into the heater, the sides of said curved passage serving to catch the water of condensation and oil deposited thereon by the centrifugal force evolved in the passage of the steam around said curved passage into the heater, and means for taking off said water and oil, substantially as described.

10. In a heater and purifier, a heater having undulating sides, a water-supply to the inner surfaces of the top walls of the heater, a steam-supply chamber at the top of the heater forming a curved passage, and opening downwardly into the said heater interior of the water-supply to the walls of the heater, and an opening at the top of the heater constituting a steam-escape, and means for taking off the water of condensation and oil deposited on the sides of said curved passage, substantially as described.

11. In combination with a vertical heater, a water-inlet adapted to discharge water into the top portion of the heater, a steam-supply passage extended circumferentially around the top of the heater, one end of said steam-passage being turned in radially and discharging concentrically into the heater, substantially as described.

12. In a vertical heater and purifier, a heating-chamber having undulating sides, a water-supply to the top thereof, adapted to pass water to the interior surfaces of said undulating sides, means for supplying steam into the heater, a settling-compartment under the said heating-tank forming a continuation thereof, a filter-tank having a perforated bottom suspended in the settling-compartment, forming water-passages between the abutting faces of the settling-compartment and filter-tank for access to the bottom of the latter, substantially as described.

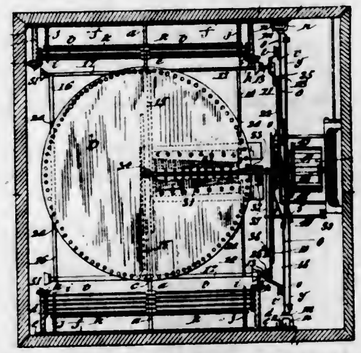
681,894. KEY-RING. FRED J. SWANSON, Jamestown, N. Y. Filed July 5, 1901. Serial No. 67,101. (No model.)

Claim.—1. A key-ring having notched disks revolubly attached each side of the opening to the ring, holes in said disks, a link in said holes of the right length to enter said notches and work them in unison, substantially as shown and for the purpose specified.

2. In combination with a key-chain, a key-ring having notched disks revolubly attached each side of the opening to the ring, slots in said disks, a link in said slots for attaching to said chain, said link having such a size that it can enter said notches when unattached to said chain but cannot when attached, substantially as shown and for the purpose specified.



681,895. MECHANICAL MUSICAL INSTRUMENT. HERMANN THORENS, Ste. Croix, Switzerland. Filed Mar. 27, 1901. Serial No. 53,074. (No model.)



Claim.—1. In a musical instrument of the character described, the combination with a sounding device, and a series of disks adapted to actuate said sounding device, of two holders or supports for said disks arranged adjacent to the sounding device, means for automatically removing a disk from either one of said holders to operative position relative to the sounding device and for automatically transporting said disk from said operative position to the other holder.

2. In a musical instrument of the character described, the combination with a horizontally-arranged sounding device, and a series of disks adapted to actuate said sounding device, of two holders arranged on opposite sides of the sounding device and each adapted to support a series of said disks in vertical position, and means for automatically moving the disks successively from either of said holders into operative position relative to the sounding device and for transporting the disks successively from said operative position to the opposite holder.

3. In a musical instrument of the character described, the combination with a sounding device, of two holders or supports for music-disks adapted to actuate the sounding device, and means for automatically transporting a disk from either of said holders to operative position relative to the sounding device.

4. In a musical instrument of the character described, the combination with a sounding device, of two holders or supports for music-disks adapted to actuate the sounding device, means for successively moving the disks from one of said holders to operative position relative to the sounding device, means for moving said disks from such operative position to the other of said holders or supports, and means for reversing the action of said transporting devices.

5. In a musical instrument of the character described, the combination with a sounding device, of a series of music-disks each adapted to actuate the sounding device and provided with a peripheral notch or recess, a stationary rod or bar arranged at one side of said sounding device and on which a series of said disks can be supported, by having a notch or recess in each engaging said bar, means for moving the foremost disk of said series from said support and into position to actuate the sounding device, and means for moving the remaining disks longitudinally of their support toward the sounding device.

6. In a musical instrument of the character described, the combination with a sounding device, of two holders for supporting music-disks adapted to actuate the sounding device, means for automatically moving the disks on one of said holders to release one therefrom, means for automatically transporting said released disk to operative position relative to the sounding device, means for transporting a disk from said operative position to the other of said holders, and means for moving the series of disks on the last said holder and removing said disk from the transporting device to said holder.

7. In a musical instrument of the character described, the combination with a sounding device, of two holders for supporting music-disks adapted to actuate the sounding device, a transporting device arranged between the sounding device and each of said holders and adapted to convey a disk to or from operative position, and means for successively actuating said transporting devices, whereby a disk can be moved from operative position to one of said holders and another disk moved from the other of said holders to operative position.

8. In a musical instrument of the character described, the combination of a sounding device, holders arranged on different sides of the sounding device for supporting music-disks adapted to actuate the sounding device, a transporting device arranged between each of said holders and the sounding device for moving disks to and from operative position relative to the sounding device, means for adjusting the series of disks on each of said holders, and a single power-disk adapted to successively actuate the feeding devices for adjusting the disks mounted on said holders and said transporting devices, whereby a disk can be moved from operative position to either of said holders and another disk conveyed from the other holder to operative position.

9. In a musical instrument of the character described, the combination of a sounding device, a stationary rod or bar arranged at one side of the sounding device, a series of music-disks adapted to actuate the sounding device, each having a peripheral notch through which said bar or rod extends to support said disks in inoperative position, means for moving the series of disks longitudinally of said supporting-bar, a rock-shaft mounted between the sounding device and said support for inoperative disks, a series of arms connected to said rock-shaft and adapted to extend substantially in the plane of the sounding device, below the operative music-disk, or parallel to the disks supported on said bar, means for moving a disk from operative position at the completion of a revolution thereof, means for thereafter actuating said rock-shaft to cause the arms thereon to move toward and from the series of inoperative disks, and means for feeding the foremost of said inoperative disks onto said arms of the rock-shaft while they are extending parallel thereto.

10. In a musical instrument of the character described, the combination of a horizontally-arranged sounding device, a rod or bar *a* arranged at one side of the sounding device for supporting a series of music-disks adapted to actuate the sounding device, a spring-pressed bar forcing the series of disks on said support toward the sounding device, a rock-shaft arranged between the sounding device and said disk-support and provided with a series of arms adapted to extend beneath the operative music-disk, a lever connected with said rock-shaft, a power-disk adapted to move said lever at the completion of a revolution of the operative disk to actuate said rock-shaft and adjust the arms thereof to and from a position parallel to the inoperative disks, rotatable sleeves mounted on opposite sides of the inoperative disks and provided with means for moving said series of disks longitudinally of their support, and power devices controlled by the movement of said rock-shaft, for causing said feed devices to release one of the inoperative disks from its holder and deliver the same to the arms of said rock-shaft while extending parallel thereto.

11. In a musical instrument of the character described, the combination of a horizontally-arranged sounding device, a bar or rod *a* arranged at one side of the sounding device to support a series of music-disks adapted to actuate the sounding device, two rotatable sleeves mounted above said support and each provided at its end adjacent the sounding device with a worm and at its opposite end with a sprocket, a chain connecting said sprockets with a drive-gear, a vertically-movable pawl adapted to actuate said drive-gear, a lever for raising said pawl, a lock for holding the pawl in its elevated position, a rock-shaft mounted between the sounding device and the holder or support for the music-disks, a series of arms connected to said rock-shaft and adapted to support a music-disk while moving it from said inoperative to operative position, a lever for actuating said rock-shaft, a finger connected to said rock-shaft and adapted to release the lock of said pawl as said shaft is actuated, and a power-disk adapted to successively move the levers connected with said pawl and rock-shaft, as and for the purpose described.

12. In a musical instrument of the character described, the combination of a horizontally-arranged sounding device, a bar or rod *a* arranged at one side of the sounding-device to support a series of music-disks adapted to actuate the sounding device, two rotatable sleeves mounted above said support and each provided at its end adjacent the sounding device with a worm and at its opposite end with a sprocket, a chain connecting said sprockets with a drive-gear, a vertically-movable pawl adapted to actuate said drive-gear, means for adjusting said pawl laterally to vary

the direction of rotation of said drive-gear, a lever for raising said pawl, a lock for holding the pawl in its elevated position, a rock-shaft mounted between the sounding device and the holder or support for the music-disks, a series of arms connected to said rock-shaft and adapted to support a music-disk while moving it from said inoperative to operative position, a lever for actuating said rock-shaft, a finger connected to said rock-shaft and adapted to release the lock of said pawl as said shaft is actuated, and a power-shaft adapted to successively move the levers connected with said pawl and rock-shaft, as and for the purpose described.

13. In a musical instrument of the character described, the combination with a sounding device, of two holders each arranged to support a series of music-disks adapted to actuate the sounding device, means for automatically transferring a disk from either of said holders to operative position relative to the sounding device, and means for moving a disk from said operative position to the other of said holders.

14. In a musical instrument of the character described, the combination with a sounding device, of two holders each arranged to support a series of music-disks adapted to actuate the sounding device, a transporting device operating between each of said holders and the sounding device to move a disk from either holder to operative position relative to the sounding device or from such operative position to said holder, and means for successively actuating said transporting devices upon the completion of a revolution of the operative music-disk whereby said disk will be automatically transported from its operative position to one of the holders and another disk transported from the other holder to operative position relative to the sounding device.

15. In a musical instrument of the character described, the combination with a sounding device, of two holders each arranged to support a series of music-disks adapted to actuate the sounding device, means for moving the series of disks in each holder toward or from the delivery end thereof, a transporting device operating between each of said holders and the sounding device to move a disk from its associated holder to operative position relative to the sounding device or from such operative position to said holder, and means adapted to be operated at the completion of a revolution of the music-disk which is engaging the sounding device to successively actuate the disk-adjusting devices of both holders and both transporting devices, whereby the played disk will be automatically removed from its operative position to one of said holders and another disk withdrawn from the other holder and moved to operative position.

681,896. FOLLOWER-PLATE FOR DRAFT-GEARS OF CARS. JAMES TIMMS, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed July 26, 1901. Serial No. 69,826. (No model.)



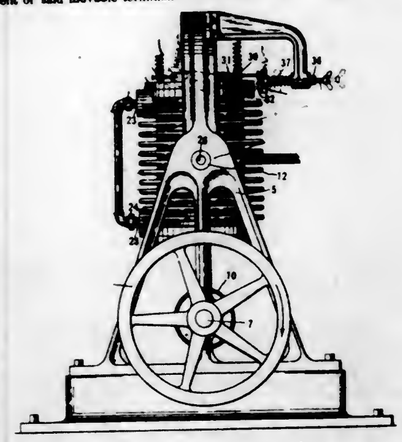
Claim.—In a draft-gear for cars in which the resisting medium consists of a main helical spring and auxiliary smaller springs, the combination with followers having the auxiliary-springs seats in planes farther separated than the main-spring seats, the said springs being of normally different lengths, but all having the same, and a limited movement in compression.

681,897. SPARKING IGNITER FOR GAS-ENGINES. CHARLES H. WARNE, Indianapolis, Ind. Filed Oct. 20, 1900. Serial No. 33,722. (No model.)

Claim.—1. In a gas-engine, the combination with a crank-shaft, of an oscillatory cylinder, a piston mounted therein and connected to said crank-shaft, whereby the cylinder will be oscillated by the reciprocation of the piston, a pair of coöperating terminals carried by said cylinder, one of said terminals being movable toward and from the other, and a stop arranged in the path of movement of the movable terminal.

2. In a gas-engine, the combination with a crank-shaft, of a cylinder arranged to oscillate upon an axis parallel with the crank-shaft, a piston mounted therein and connected to said crank, a pair of coöperating terminals carried by said cylinder, one of said terminals being movable toward and from the other, a spring normally separating said terminals, a yielding stop arranged in the path of movement of said movable terminal, and means for adjusting the position of said stop.

3. In a gas-engine, the combination with a crank-shaft, of a cylinder mounted so as to oscillate about an axis parallel with the crank-shaft, a pair of terminals carried by said cylinder one of said terminals being movable toward and from the other, yielding means for normally separating said terminals, and a yielding stop arranged in the path of movement of said movable terminal.



681,898. SHOE. GEORGE S. WEBBER, Chicago, Ill. Filed Apr. 15, 1901. Serial No. 55,883. (No model.)



Claim.—1. In a shoe, the combination with an upper provided with a slit, of a guide located on the upper on one side of said slit, a flexible flap permanently connected at its lower end with said upper, a guide connected with one margin of said flap, the same not interfering with the necessary flexibility of the flap, and means for securing the flap in its closed position, substantially as and for the purpose set forth.

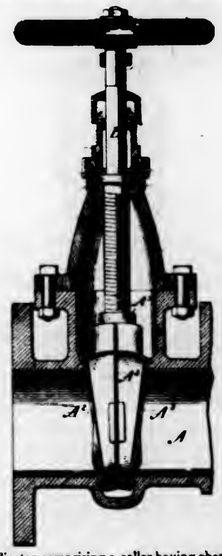
2. In a shoe, the combination with an upper provided with a slit, of a guide located on the upper on one side of said slit, a flap provided at one margin with a guide engaging said first-named guide, said flap being permanently connected along its lower margin with the shoe and left disconnected along its margin opposite the guide-equipped margin, and means for securing the upper free corner of the flap to the adjacent portion of the upper, substantially as described.

3. In a shoe, the combination with an upper provided with a slit or opening, of a guide located on the upper on one side of said slit, a flexible flap permanently connected at its lower end with said upper, and a flexible guide connected with one margin of said flap, substantially as and for the purpose set forth.

681,899. VALVE-INDICATOR. OWEN L. WHITEMAN, Coxsackie, N. Y. Filed May 21, 1901. Serial No. 61,284. (No model.)

Claim.—1. A valve-indicator comprising a collar having characters upon opposite end portions and an intermediate threaded periphery, an interiorly-threaded sleeve or band engaging the threads on said collar, and means for rotating said sleeve; substantially as specified.

2. A valve-indicator comprising a collar having characters upon opposite end portions and an intermediate threaded periphery, an interiorly-threaded sleeve or band engaging the threads on said collar, and means slidably mounted upon a valve-stem for rotating said sleeve; substantially as specified.



3. A valve-indicator comprising a collar having characters upon opposite end portions and an intermediate threaded periphery, an interiorly-threaded sleeve or band engaging the threads on said collar, an angular collar adapted to engage a similar face upon a valve-stem, and a yoke extending from said collar to said sleeve; substantially as specified.

4. In a valve-indicator, the combination with a rotating valve-stem, a sleeve or collar carried thereby and capable of reciprocatory motion thereon, and a feeding-thread entirely within and protected by said sleeve; substantially as specified.

5. In a valve-indicator, the combination with a rotating valve-stem, a sleeve or collar carried thereby and capable of reciprocatory motion thereon, and a collar having indications thereon and a peripheral thread extending entirely within said sleeve; substantially as specified.

681,900. GATE-VALVE. OWEN L. WHITEMAN, Coxsackie, N. Y. Filed June 12, 1901. Serial No. 64,300. (No model.)

Claim.—1. A gate-valve rocker comprising an elongated body having a laterally-curved face and an opposite longitudinally-curved face; substantially as specified.

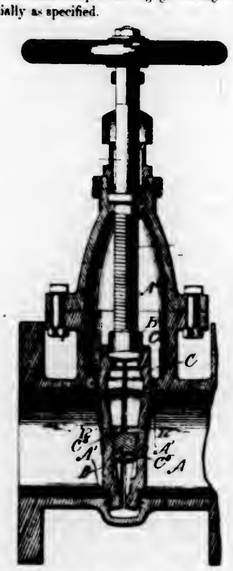
2. A gate-valve rocker having a laterally-curved face and an opposite longitudinally-curved face, the latter being tapered from the top of the rocker downwardly; substantially as specified.

3. A gate-valve comprising opposite gates or disks having elongated recesses therein curved in opposite directions, an elongated rocker having opposite laterally and longitudinally curved faces to correspond with said recesses; substantially as specified.

4. A gate-valve comprising a gate or disk provided with recesses at each side of its vertical center curved transversely to a vertical line therethrough, an opposite gate or disk provided with recesses curved longitudinally to a vertical line therethrough and in alinement with the first-mentioned recesses, and rockers having laterally and longitudinally curved faces adapted to seat in said recesses; substantially as specified.

5. A gate-valve comprising a gate or disk having recesses therein curved transversely to a vertical line therethrough, an opposite gate or disk provided with recesses curved longitudinally to a vertical line therethrough, rockers having laterally and longitudinally curved faces adapted to seat in said recesses, and a recess at the upper portion of each of said gates or disks adapted to receive a stem-nut; substantially as specified.

6. A gate-valve comprising a gate or disk having recesses therein curved transversely to a vertical line therethrough, an opposite gate or disk provided with recesses curved longitudinally to a vertical line therethrough, rockers having laterally and longitudinally curved faces adapted to seat in said recesses, a recess at the upper portion of each of said gates or disks adapted to receive a stem-nut, and guide-lugs at the opposite sides of each of said disks adapted to engage a flange within the valve-casing; substantially as specified.



7. A gate-valve comprising opposite gates or disks one of which is provided with recesses curved transversely to a vertical line therethrough and the opposite disk with recesses curved longitudinally to a vertical line therethrough, rockers adapted to be seated in said recesses and having a laterally-curved face and an opposite longitudinally-curved face extending from the inner to the outer end of the rocker and tapered from the top of the rocker downwardly; substantially as specified.

8. A gate-valve comprising opposite gates or disks one of which is provided with recesses curved transversely to a vertical line therethrough and the opposite disk with recesses curved longitudinally to a vertical line therethrough, rockers adapted to be seated in said recesses and having a laterally-curved face and an oppositely longitudinally curved face extending from the inner to the outer end of the rocker and tapered from the top of the rocker downwardly, a valve-casing provided with guide-flanges, guide-lugs carried upon the opposite disks or gates, a stem-nut seated in the upper portion of said gates, and a rotatable threaded stem adapted to pass through said nut; substantially as specified.

681,901. HYDRANT. OWEN L. WHITEMAN, Coxsackie, N. Y. Filed June 13, 1901. Serial No. 64,436. (No model.)



Claim.—1. In a hydrant, a supply connection provided at its lower portion with guides or ways upon its opposite walls, a gate-valve having lugs at opposite sides to travel in said ways, and a pivoting-socket upon one face having a recess at an angle thereto, a nut having a stem and pivoting-arms to fit said recess and socket, and means for reciprocating said nut; substantially as specified.

2. In a hydrant, a supply connection provided at its lower portion with guides or ways upon its opposite walls, and openings at each side of said guides, a gate-valve having lugs at opposite sides to travel in said ways, means for moving said valve, an inclined face carried by the back of said valve, and a cover-plate for one of said openings provided with a wedging-lug extending therefrom in alinement with said face when the valve is seated; substantially as specified.

3. In a hydrant, a supply connection provided at its lower portion with guides or ways upon its opposite walls, a gate-valve having lugs at opposite sides to travel in said ways, means for moving said gate-valve, an inclined face carried by the back of said valve, a wedging-lug extending from the casing in alinement with said face when the valve is seated, a drip-valve having a lever-arm extending therefrom, and a path or way carried by said gate-valve for oscillating said arm; substantially as specified.

4. In a hydrant, the combination with a casing provided with a valve-seat, a gate-valve having upon one face thereof a pivoting-socket, a stem-nut seated in said socket, a securing device carried by the socket for pivotally retaining the nut thereon, and means for reciprocating said nut; substantially as specified.

5. In a hydrant, the combination with a casing provided with a valve-seat, a gate-valve having upon one face thereof a socket, and a lever-operating track, a drip-cock having a lever cooperating with said track, a stem-nut seated in said socket, means for reciprocating said nut, a wedge-lug opposite said valve-seat, and a beveled wedging-face carried by said stem-nut opposite said lug; substantially as specified.

6. In a hydrant, the combination with a casing provided with a valve-seat, a gate-valve having upon one face thereof, a socket, a stem-nut seated in said socket, means for reciprocating said nut, a wedge-lug opposite said valve-seat, a beveled wedging-face carried by said stem-nut opposite said lug, a vertical extension from said stem-nut adapted to seat in a socket carried by the valve, and a rotatable connection between the said nut and means for operating the valve; substantially as specified.

7. In a hydrant, a gate-valve, means for operating the same, and a stem-nut connected to said valve and provided at its lower portion with a transverse body having a face curved transversely of said body, and an opposite longitudinally-curved face tapered from its upper portion downwardly; substantially as specified.

8. In a hydrant, a gate-valve, means for operating the same, a stem-nut connected to said valve and provided at its lower portion with a transverse body having a face curved transversely of said body and an opposite longitudinally-curved face tapered from its upper portion downwardly, and a socket secured upon one face of said valve-disk having a horizontal and vertical recess to receive said stem-nut; substantially as specified.

9. In a hydrant, the combination with a casing, of a gate-valve therein, means for operating the same, a curved path or way upon said gate-valve, a drip-valve carried by said casing, a lever for operating said drip-valve, and a crank-arm from said lever extending into said path or way; substantially as specified.

10. In a hydrant, the combination with a casing, of a gate-valve therein, means for operating the same, a curved path or way upon said gate-valve, a drip-valve carried by said casing, a lever for operating said drip-valve, a crank-arm from said lever extending into said path or way, a cover-plate at the rear of said gate-valve provided with an apertured drip-pipe, and an apertured sleeve carried by said lever and surrounding said drip-pipe; substantially as specified.

11. In a hydrant, the combination with a casing, of a gate-valve therein, means for operating the same, a curved path or way upon said gate-valve, a drip-valve carried by said casing, a lever for operating said drip-valve, a crank-arm from said lever extending into said path or way, a cover-plate at the rear of said gate-valve provided with an apertured drip-pipe, an apertured sleeve carried by said lever and surrounding said drip-pipe, and an inwardly-projecting wedge-lug carried by the inner face of said plate and adapted to engage and force said gate-valve to its seat; substantially as specified.

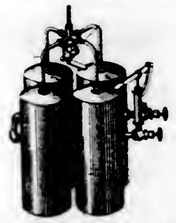
12. In a hydrant, the combination with a casing, of a gate-valve therein, means for operating the same, a curved path or way upon said gate-valve, a drip-valve carried by said casing, a lever for operating said drip-valve, a crank-arm from said lever extending into said path or way, a cover-plate at the rear of said gate-valve provided with an apertured drip-pipe, an apertured sleeve carried by said lever and surrounding said drip-pipe, an inwardly-projecting wedge-lug carried by the inner face of said plate and adapted to engage and force said gate-valve to its seat, a stem-nut connected to said valve to permit oscillation of the valve thereon, and a horizontally-curved face upon said nut adapted to seat and rock upon said wedge-lug; substantially as specified.

13. In a hydrant, the combination with a casing, of a gate-valve therein, means for operating the same, a path or way upon one face of said valve, a drip-valve carried by said casing, and an operating device for said valve extending into the path or way upon the gate-valve; substantially as specified.

14. In a hydrant, a water-supply connection provided at its lower portion with opposite openings, a cover-plate for one of said openings provided with a drip device therein, a gate-valve adapted to seat upon the opposite aperture and provided upon its face next the cover-plate with a path or way, and means for opening and closing said drip device projecting into the path or way upon the face of said gate-valve; substantially as specified.

681,902. SUPPLY-TANKS FOR GASOLENE OR THE LIKE. AXEL H. WOLTH, Chicago, Ill. Filed Apr. 6, 1901. Serial No. 54,691. (No model.)

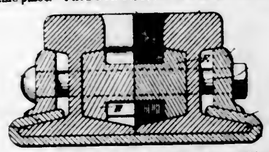
Claim.—1. In a battery of supply-tanks for gasolene, hydrocarbons and the like, comprising two or more tanks, overflow and pressure-equalizing pipes connecting said tanks intermediate their ends and dividing the same into oil-retaining spaces of predetermined capacity and air-spaces, supply-pipes leading from the bottom of each of the tanks and a multiple-way valve connected to said supply-pipes and to the main supply, by which one only of the tanks may be opened to the main supply at a time.



2. In a battery of supply-tanks for gasolene, hydrocarbons and the like, comprising two or more closed tanks, overflow and pressure-equalizing pipes connecting said tanks intermediate their ends and located at a definite height to divide the tanks into oil-retaining spaces of predetermined capacity and air-spaces, supply-pipes leading from the bottom of each of said tanks, a multiple-way valve connected to said supply-pipes and to the main supply, by which only one of said tanks may be opened to the main supply at a time and liquid-supply and vent pipes connected respectively to the end tanks of the battery.

3. In a battery of supply-tanks for gasolene, hydrocarbons and the like, comprising two or more closed tanks, overflow and pressure-equalizing pipes connecting said tanks intermediate their ends and located at a definite height to divide the tanks into oil-retaining spaces of predetermined capacity and air-spaces, supply-pipes leading from the bottom of each of said tanks, a multiple-way valve connected to said supply-pipes and to the main supply, by which only one of said tanks may be opened to the main supply at a time, liquid-supply and vent pipes connected respectively to the end tanks of the battery at the height of said overflow and pressure-equalizing pipes and an air-pump movably connected to said vent-pipe.

681,903. FROG FOR RAILWAY-RAILS. FRANK C. ANDERSON, Cincinnati, Ohio, assignor of two-thirds to George W. Zapf and Salmon Jones, same place. Filed Dec. 17, 1900. Serial No. 40,143. (No model.)



Claim.—1. In railway-frog construction, the combination of a taper chair-sleeve, the guard-rails and point-rails confined therein and supported thereby, filling-blocks between the guard-rails and point-rails, fish-plates applied to the outer sides of the guard-rails with feet resting on the turned-over portions of the taper sleeve, and clamping-bolts passed through and uniting said fish-plates guard-rails filling-blocks and point-rails, substantially as described.

2. In railway-frog construction, the combination of a taper chair-sleeve, the guard-rails and point-rails confined therein and supported thereby, filling-blocks between the guard-rails and point-rails, fish-plates applied to the outer sides of the guard-rails with feet resting on the turned-over portions of the taper sleeve, stops on said portions for the ends of the fish-plates, and clamping-bolts passed through and uniting said fish-plates guard-rails filling-blocks and point-rails, substantially as described.

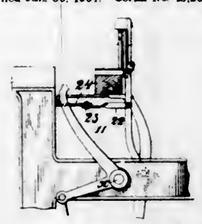
681,904. NUT-LOCK FOR RAIL-SPLICES. ARTHUR H. ARMSTRONG, Sandwich, Mass., assignor of one-half to Samuel M. Einstein, Attleboro, Mass. Filed May 21, 1901. Serial No. 61,296. (No model.)



Claim.—1. In a rail-splice, the combination with the ends of the rails and the fish-plates, of centrally-perforated lock-plates having locking edges at their ends, and bolts inserted from the opposite sides to secure the lock-plates, the ends of the two lock-plates being in contact with the nuts d^3 of the adjacent bolts, as described.

2. In a rail-splice, the combination with the rails *a a* abutting to form the joint d^4, the fish-plates *b b* overlapping the joint, the bolts d' and d^2 nearest the joint inserted from opposite sides through the nut-lock plate, and the centrally-perforated nut-lock plate secured by a bolt-head and having the ends in contact with the bolts of the adjacent nuts, as described.

681,905. WEFT-REPLENISHING MECHANISM FOR LOOMS. WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC E. KIP, Montclair, N. J. Filed Jan. 30, 1901. Serial No. 45,285. (No model.)



Claim.—1. In a loom, the combination with a weft or filling changing or supplying mechanism having a vibrating part which operates in supplying fresh weft or filling, of a vibrating cutter or parter for the weft-thread, intermediate mechanism whereby said vibrating part of the supplying mechanism actuates the cutter to part the weft-thread, and a spring which actuates the cutter to part the weft end from the fresh weft-carrier, substantially as set forth.

2. In a loom, the combination with a weft or filling changing or supplying mechanism, a vibratable blade with two cutting edges, adapted to cut at each movement to and fro, said blade being carried by the lay and in position to cut, at both movements, a thread carried by the shuttle, and means, controlled by the said supplying mechanism for actuating said cutting or parting blade, substantially as set forth.

3. In a loom, the combination with a double-edged weft cutting or parting blade carried by the lay and adapted to vibrate between an upright and horizontal position, of a spring which returns said blade to and holds it in one position, a weft or filling supplying mechanism having a vibrating part, and means between said blade and said vibrating part whereby the latter actuates the blade in a direction antagonistic to said spring, substantially as set forth.

4. In a loom, the combination with the lay, of an upright shear-blade and a horizontal shear-blade carried by the lay, a vibratable double-edged blade carried by the lay and adapted to cooperate with said shear-blades for severing the weft-threads, means for operating said blade when fresh weft or filling is supplied to the loom, and means for operating said blade immediately after the freshly-supplied weft-carrier has been picked, substantially as set forth.

5. In a loom, the combination with the vibratable, double-edged cutter-blade carried by the lay, of the magazine, the vibratable placer, its supporting-arm, and the mechanism between said arm and said blade whereby the former actuates the latter, substantially as set forth.

6. In a loom, the combination with a weft or filling changing or supplying mechanism, of a double-edged, vibratable blade or weft-parter, and means for operating said blade or parter to sever the weft-thread of the substantially exhausted outgoing shuttle and to sever the weft end of the incoming shuttle directly after the first pick of the latter.

7. In a loom, the combination of the following instrumentalities: a double-edged weft cutter or parter, a weft-supplying mechanism, a vibratable shuttle-feeder, and means between said feeder and parter for operating said weft-parter at the time of operation of the shuttle-feeding mechanism.

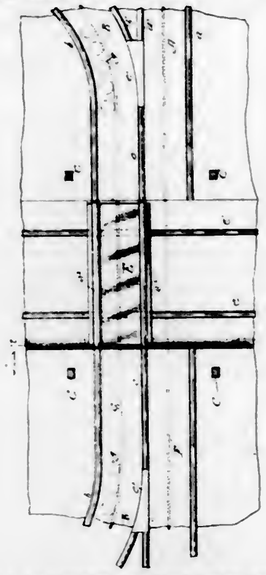
8. In a loom, the combination with the lay, a vibratable weft cutter or parter mounted thereon, a shuttle-feeder mounted on an upright vibratable arm which vibrates in supplying fresh weft or filling to the loom, the said arm, and mechanism between said arm and cutter impinged upon by said arm for operating said cutter to sever the weft-thread when the loom is supplied with fresh weft or filling, substantially as set forth.

9. In a loom, the combination with the magazine, the lay, the shuttle-feeder 10, the vibrating, upright arm 11, carrying said feeder, a vibrating cutter or parter for the weft-thread mounted on the lay, a spring adapted to hold the cutter in one of its positions, and mechanism in the path of the vibrating arm 11 and connected with the cutter for operating the same, whereby the impingement of said arm on said mechanism actuates the cutter, substantially as set forth.

10. In a loom, the combination with a weft or filling changing or replenishing mechanism, of a weft cutter or parter consisting of a double-edged cutting or parting blade, and means intermediate said weft-parter and replenishing mechanism for operating said weft-parter to cut or part the weft-thread as required.

11. In a loom, the combination with a weft or filling changing or replenishing mechanism, of a weft cutter or parter consisting of a double-edged cutting or parting blade, and means intermediate said weft-parter and replenishing mechanism for operating said weft-parter to sever the weft-thread of the outgoing exhausted supply and to sever the weft end of the incoming fresh supply.

681,906. TRACTION SYSTEM FOR USE WITH CABLE-ROADS IN HANDLING COAL. JOHN G. BELANSON, Somerville, Mass. Filed May 4, 1901. Serial No. 58,687. (No model.)



Claim.—1. In a switchless double-track traction system especially adapted for cable-cars, two tracks each consisting of two independent rails during a greater portion of its length, the adjacent independent rails merging into a single continuous and unbroken rail whereby said double track is narrowed without the use of switches, in combination with two cables each located between the rails of one of said tracks whereby means are provided for moving a car upon either track including the rail common to both tracks, all as and for the purposes described.

2. In a traction system comprising two tracks each having an outside rail, an intermediate rail common to both tracks, in combination with a sliding platform provided with two rails adapted to register with said intermediate rail and with either of said outside rails, as and for the purposes described.

681,907. GAS-BURNER. JOHN H. CLIFF, GEORGE H. CLIFF, and THOMAS D WARDLAW, Dundas, Canada. Filed Oct. 7, 1899. Serial No. 732,845. (No model.)



Claim.—1. A gas-burner having an arm provided with a gas-orifice, a front wall allined with said arm, and two side walls extending from the front wall toward and attached to said burner-arm, the first-mentioned wall having a gas-passage, said walls and arm forming a chamber, the opposite ends of said chamber being open forming air-inlets, substantially as described.

2. A gas-burner having a passage-way and an orifice leading thereto at an angle, and a hood composed of a bent strip having a wall extend-

ing transversely of the burner and provided with an opening, and having opposed walls extending from the sides of the first-mentioned wall toward and attached to said burner to form an air space or chamber on the exterior of the burner, the opposed ends of said chamber being open, the sides of the chamber being closed by the second-mentioned walls, substantially as described.

3. A gas-burner having a body portion provided with a pair of diverging arms having gas-passages, and an orifice leading from each passage, and tubes secured to said arms and each having a transverse portion located at a distance from the face of the burner and provided with an opening aligned with an orifice to form air spaces or chambers whose ends above and below the orifices are open, substantially as described.

681,905. PROCESS OF MAKING EXPLOSIVE POWDER. CHAS. H. COY, Boston, Mass. Filed Oct. 10, 1900. Serial No. 32,561. (No specimens.)

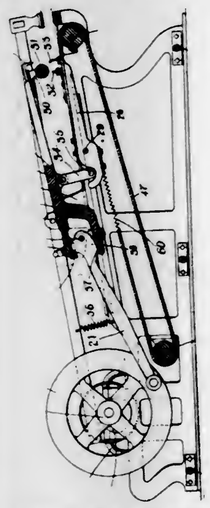
Claim.—1. That improvement in the process of making explosive powder, which consists in first mixing nitrate of sodium and carbon, then adding a volatile hydrocarbon thereto, and then heating the mixture.

2. That improvement in the process of making explosive powder, which consists in first mixing nitrate of sodium and carbon, then adding a volatile hydrocarbon thereto, then heating the mixture and triturating it while it is heated.

3. That improvement in the process of making explosive powder, which consists in first mixing nitrate of sodium, theo adding a volatile hydrocarbon thereto, and then simultaneously heating and triturating the mixture, and at the same time adding boiling water thereto.

4. That improvement in the process of making explosive powder, which consists in first mixing nitrate of sodium and carbon, then adding a volatile hydrocarbon thereto, then adding boiling water to the mixture, then simultaneously heating and triturating, and then adding sulfur and additionally triturating.

681,909. LEATHER-STAKING MACHINE. THOMAS DAWSON, Salem, Mass., assignor, by mesne assignments, to Dennis W. Murphy, Beverly, Mass. Filed Jan. 2, 1901. Serial No. 41,853. (No model.)



Claim.—1. A leather-staking machine having an operative member, mechanism including a spring for yieldingly operating said member and means for automatically and intermittingly increasing the pressure of said spring when said member is in operative position for staking.

2. A leather-staking machine having an operative member, means for positively moving said member in one direction, means for yieldingly moving the said member in the opposite direction, and automatic mechanism for intermittingly varying the power of the said yielding means when said member is in operative position for staking.

3. A leather-staking machine having coacting members, means for positively separating said members, means for yieldingly closing said members, and automatic mechanism for intermittingly increasing the power of the said closing means when said members are together.

4. A leather-staking machine having movable coacting members, connected together whereby one imparts movement to the other, a revoluble crank, a pitman connecting said crank with said members to reciprocate them, said pitman having a cam to actuate one member and through it actuate the other member.

5. A leather-staking machine having movable coacting members, connected together whereby one imparts movement to the other, a carriage to which said members are pivotally connected, an operatively-driven pitman pivotally connected to said carriage, and having a cam bearing against one of said members to actuate it and through it actuate the other member.

6. A leather-staking machine having movable coacting members, a reciprocatory carriage to which said members are both pivoted, intermediate of their ends, an operative connection between the front portion of one member and the rear portion of the other member, and means for oscillating one of said members whereby the other is oscillated thereby in the opposite direction.

7. A leather-staking machine having movable coacting members, a carriage to which said members are both pivoted intermediate of their ends, a connection between the front portion of one member and the rear portion of the other member, and an operatively-driven pitman pivotally connected to the carriage and having a cam portion to act upon one of said members.

8. A leather-staking machine having movable coacting connected members, one of said members being pivoted between its ends, a carriage on which said members are operatively supported, a wheel having a crank-pin, a pitman connecting the crank-pin with the carriage, and a cam on said pitman which engages the rear end of the pivoted member.

9. A leather-staking machine comprising a staking member, an actuator bearing against said member to operate it, an arm pivoted to said member, and one or more springs connecting the arm and the member to hold the member against the actuator.

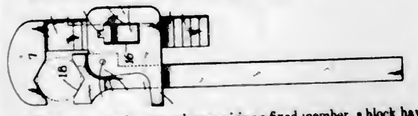
10. A leather-staking machine comprising a staking member, an actuator bearing against said member to operate it, a spring for holding said member against said actuator, and means operated by said actuator for controlling the tension of said spring.

11. A leather-staking machine comprising a staking member, an actuator for actuating it, an arm pivotally connected to said member and lying on the opposite side of said actuator, a spring or springs connecting the arm and the member, and a cam on said actuator for moving said arm.

12. A leather-staking machine comprising vibratory and reciprocatory staking members and a flexible support for the work directly connected with one of said members and adapted to reciprocate with said members and having a flexible yielding section to prevent the support from interfering with the vibrations of the staking members.

13. A leather-staking machine comprising vibratory and reciprocatory staking members, a flexible support fixed at one end to one of said members, loose pulleys, the said support extending around said pulleys and connected at its other end by a yielding tension device to the same member, the said tension device enabling the member to which it is attached to vibrate without interference by the said flexible support.

681,910. PIPE-WRENCH. FRANK P. GALVIN, Buffalo, N. Y. Filed Apr. 13, 1901. Serial No. 55,752. (No model.)



Claim.—1. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and rectangular transverse openings extending from the longitudinal opening through the sides of the block; the transverse openings having at least one inclined edge, a movable member having a ratchet-tooth shank extending through the longitudinal opening and pawls of corresponding rectangular formation having support in the transverse openings and each having a correspondingly-inclined edge adapted to contact with and receive support from the inclined edge of the transverse opening when the pawl is in locking position, substantially as set forth.

2. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and at least one rectangular transverse opening extending from the longitudinal opening through the side of the block, a movable member having a toothed shank adjustably fitting in the longitudinal opening and a pawl of corresponding rectangular formation in the transverse opening engaging with the toothed shank and adapted to receive support from the block when in locking position.

3. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and at least one transverse opening extending from the longitudinal opening through the side of the block; two of the surrounding edges of which are inclined at opposite angles to the surface of the block, a movable member having a toothed shank adjustably fitting in the longitudinal opening and a pawl in the transverse opening engaging with the toothed shank, and having oppositely-inclined end edges adapted to contact with the edge of the transverse opening when the pawl is in one position whereby the pawl is supported in position at the limit of its movement by the edge of the transverse opening.

4. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and at least one comparatively large transverse opening extending from the longitudinal opening through the side of the block, one at least of the surrounding edges of which is inclined, a movable member having a toothed shank adjustably fitting in the longitudinal opening and a pawl having a comparatively large body similar in form to the transverse opening and movably secured in said opening and adapted to engage the toothed shank, and having an edge of corresponding inclination contacting with and receiving support from the edge of the transverse opening when the pawl is in locking position.

681,911. PERAMBULATOR. FRED GERSLINGER, Phœnix, Ariz. Filed Apr. 10, 1901. Serial No. 55,241. (No model.)

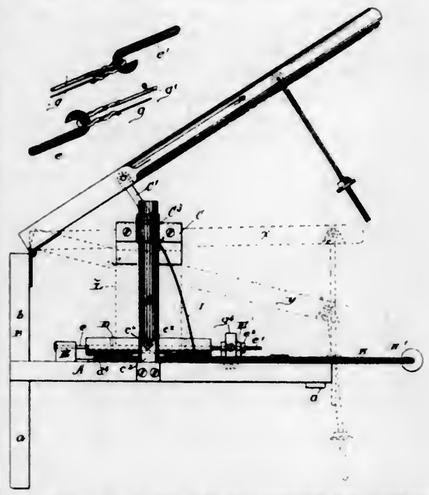


Claim.—1. A device of the class described comprising a coach including sills connected at their rear ends, a body mounted upon the sills and a forward axle provided with wheels and pivotally connected with the sills, said sills having also a caster-wheel connected therewith adjacent to their rear ends, and a driving mechanism adjustably connected with the sills and including a drive-wheel and pedals operatively connected therewith, a steering-shaft being mounted between the coach-body and drive-wheel and having operative connection with the pivoted axle.

2. A device of the class described comprising a coach having a forward pivoted axle provided with supporting wheels, a drive mechanism including a ground-wheel and adjustably connected with the coach for movement forwardly and rearwardly with respect thereto, a steering-shaft mounted between the driving mechanism and coach-body and having operative connections with the pivoted axle, and handles adjustably connected with the upper end of the steering-shaft for movement to project rearwardly over the ground-wheel when the latter is in its forward position.

3. A device of the class described comprising a coach including sills having a connecting-web at their rear ends and an upwardly-directed tube thereon having transverse openings therethrough, said sills having an axle pivotally connected with their forward ends and provided with supporting-wheels, a drive mechanism including a drive-wheel and a frame therefor comprising upper and lower tubes slidably engaged with the openings in the upwardly-directed tube, said upper and lower tubes having openings disposed to lie within the upwardly-directed tube and aline, and a steering-shaft rotatably mounted in the upwardly-directed tube and engaged with the perforations of the upper and lower tubes, and having operative connections with the front pivoted axle.

681,912. BUTTER-CUTTER. PIERCE F. GIBBONS, Chicago, Ill. Filed June 1, 1901. Serial No. 62,706. (No model.)



Claim.—1. In a butter-cutter, the combination with a base-plate having an opening, of a butter-receptacle supported above said opening, wires extending across and longitudinally of said receptacle and having means to regulate their tension, a cutter-handle movably secured below said receptacle and carrying on its inner portion a cutting-wire, a plunger-handle pivotally secured at one of its ends and located above the butter-receptacle, a plunger pivotally connected to said handle and having transverse and longitudinal recesses in its lower surface for the reception of the wires across the butter-receptacle, substantially as described.

2. In a butter-cutter, the combination with a base-plate having an opening and provided with standards near said opening, of a butter-receptacle supported above said opening, wires extending across and longitudinally of said receptacle and having means to regulate their tension, a cutter-handle movably secured below said receptacle and carrying on its inner portion a cutting-wire, a plunger-handle pivotally secured at one of its ends and located above the butter-receptacle, a plunger pivotally connected to said handle and having transverse and longitudinal recesses in its lower portion, brackets secured to the ends of the plunger and having collars to embrace the said standards, substantially as described.

3. In a butter-cutter, the combination with a base-plate having an opening, of a butterr-receptacle supported above said opening, a series of small wires extending in parallelism across said receptacle, a series of larger wires located vertically below the first-named wires and in parallelism across said receptacle, a wire extending longitudinally of said receptacle, means to regulate the tension of said wires, a cutter-handle movably secured below the butter-receptacle and carrying on its inner portion a cutting-wire, and means to force the butter through the receptacle, substantially as described.

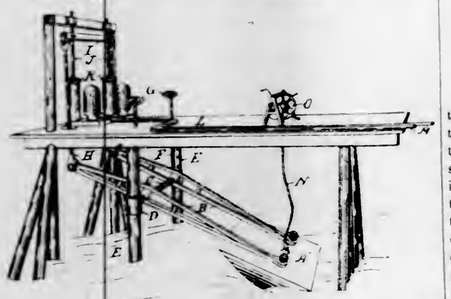
4. In a butter-cutter, the combination with a base-plate having an opening and provided with standards near said opening, of a butter-receptacle supported above said opening, wires extending across and longitudinally of said receptacle and having means to regulate their tension, a cutter-handle movably secured below said receptacle and carrying on its inner portion a cutting-wire, a plunger-handle pivotally secured at one of its ends and located above the butter-receptacle and provided with a check-rod having a nut adjustably secured thereon, a plunger pivotally connected to said handle and having transverse and longitudinal recesses in its lower surface, brackets secured to the ends of the plunger and having collars to embrace the said standards, substantially as described.

5. In a butter-cutter, the combination with a base-plate having an opening and provided with a standard near each end of said opening, of a butter-receptacle supported above said opening, wires extending across and longitudinally of said receptacle and having means to regulate their tension, a roller journaled near one end of the butter-receptacle, another roller journaled near the other end of the receptacle, and having means to

adjust it, a cutter-handle horizontally movably secured on the upper surface of the base-plate, and having its sides in engagement with said rollers, a cutting-wire secured to the inner portion of said handle, a plunger-handle pivotally secured at one of its ends and located above the receptacle, a plunger pivotally connected to said handle and having transverse and longitudinal recesses in its lower portion, and brackets secured to the ends of the plunger and having collars to embrace the said standards, substantially as described.

6. In a butter-cutter, the combination of a butter-receptacle, with a series of small wires extending in parallelism across said receptacle, and a series of larger wires located directly below the first-named wires and in parallelism across said receptacle, substantially as described.

681,913. **WAVE-MOTOR.** DELOS S. GILLESPIE, Los Angeles, Cal. Filed July 23, 1900. Serial No. 24,829. (No model.)



Claim.—1. A wave-motor, comprising a wharf having a plurality of supporting-piles; sleeves mounted on two of said piles; screws adapted to move said sleeves vertically on said piles; a shaft rigidly affixed to said sleeves; levers pivotally mounted on said shaft; a floating air-chamber connected to one end of said levers; pitman-rods connected to the other end of said levers; a cross-head connected to the upper ends of said pitman-rods; and a pump connected to said cross-head

2. The herein-described wave-motor mounted on the wharf L, comprising float A; trussed levers B, connected thereto and pivotally mounted on shaft C; shaft C affixed to sleeves D; sleeves D, slidably mounted on piles E; screws F, adapted to move sleeve D on piles E; piles E; pitman-rods H, connected to levers B and to cross-head I; cross-head I connected to piston-rods J; piston-rods J, and pump K.

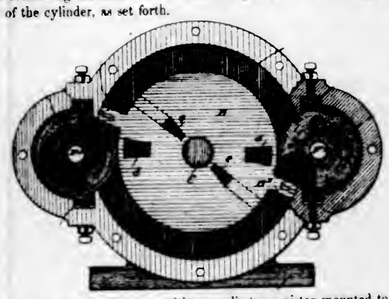
3. In a wave-motor, the combination with a rigid supporting structure of a buoyant float, operatively connected thereto by means of levers fulcrumed on said structure; levers pivotally mounted on a cross-shaft, the shaft having means for vertical adjustment on said structure, comprising the sleeves D, having bearings for the cross-shaft C and screw-threaded opening for the screw F, carrying handle G; and the screw F; the said levers being secured to the float at one end and operatively connected with pumps at the other end by means of pitman-rods secured at one end to the operating-levers, and at the other end to a cross-head to which the piston-rods of the pumps are secured.

4. The combination in a wave-motor of the rigid structure L, having upright supports E, vertically-trussed operating-levers B, pivotally mounted on the cross-shaft C, the long arms of the levers being secured to the actuating-float A, and the short arms pivotally secured to the pitman-rods H; the pitman-rods H, operatively connected with the cross-head I; pumps K having piston-rods J, secured to the cross-head; the piston-rods J; the cross-shaft carrying the operating-levers having adjusting means, comprising the supporting-sleeve D providing supports for the cross-shaft, and having threaded openings to receive and engage the screw F, provided with handle G.

681,914. **ROTARY ENGINE.** JOHN W. HICKS, Chicago, Ill. Filed Mar. 30, 1900. Renewed Feb. 7, 1901. Serial No. 46,372. (No model.)

Claim.—1. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a piston-head, a rotary abutment for said piston and mounted to rotate in unison therewith, a steam-chest having ports for registering with ports in said piston, and a valve in said steam-chest and under the control of the operator, to open and close the ports in the steam-chest, said valve also controlling the exhaust of the motive agent from the working chamber of the cylinder, substantially as shown and described.

2. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a piston-head, inlet-ports extending through the piston to opposite sides of the piston-head, a rotary abutment for said piston and mounted to rotate in unison therewith, a steam-chest having sets of ports for registering with the ports in said piston, and a valve in said steam-chest and under the control of the operator and having ports adapted to register with either set of the ports in said steam-chest, said valve also controlling the exhaust of the motive agent from the working chamber of the cylinder, as set forth.



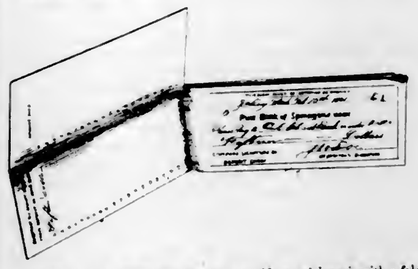
3. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a piston-head, and sets of ports extending through the piston to the peripheral surface thereof at opposite sides of said piston-head, a rotary abutment for said piston and mounted to rotate in unison therewith, a steam-chest for closing one end of said cylinder, and having sets of inlet-ports and sets of exhaust-ports, of which the latter register with the working chambers of the cylinder, and a valve mounted to turn in said steam-chest and having a set of ports for registering with either set of inlet-ports in said steam-chest, said valve having a recess connected with the steam-supply and from which lead said set of valved ports, the valve also having flanges for opening and closing the exhaust-ports in said steam-chest, substantially as described.

4. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a piston-head and provided with inlet-ports, a rotary abutment for said piston and mounted to turn in unison therewith, and a pressure-plate in said cylinder having recesses to which the motive agent is conducted from the inlet-ports to counterbalance the piston, substantially as described.

5. A rotary engine, comprising a cylinder, a piston mounted to turn therein and having a piston-head, a rotary abutment for said piston and mounted to rotate in unison therewith, a steam-chest having ports for registering with ports in said piston, a valve in said steam-chest and under the control of the operator to open or close the ports in the steam-chest, and a pressure-plate in said cylinder and having recesses in register with extensions of the piston-ports, substantially as shown and described.

6. A rotary engine, comprising a cylinder, a piston mounted to turn therein and provided with piston-heads, inlet-ports extending through the piston to opposite sides of the piston-heads, rotary abutments for said piston and mounted to rotate in unison therewith, a steam-chest having sets of ports for registering with the ports in said piston, a valve in said steam-chest and under the control of the operator and having ports adapted to register with either set of the ports in said steam-chest, and a pressure-plate in said cylinder having recesses registering with the inlet-ports in the piston, substantially as described.

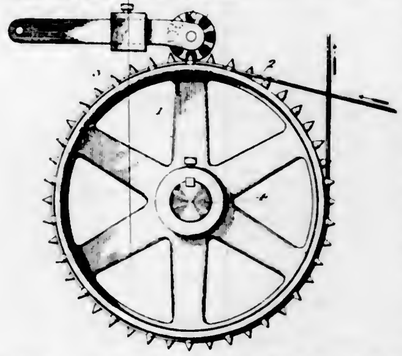
681,915. **CHECK-BOOK.** JAMES H. HOFFMAN, Springdale, Wash., assignor of one-half to Israel Mastin, same place. Filed May 15, 1901. Serial No. 60,361. (No model.)



Claim.—1. A check-book having a certificate of deposit with a foldable leaf and embodying means for identifying a depositor's signature, a verification as to amount deposited, a back-entry means for the several amounts drawn corresponding to the numbers of the checks and an auxiliary indelible entry of such amounts, and a series of checks, all except one of the latter having a depositor's receipt forming an integral part thereof and numbered to correspond to the preceding check.

2. A check-book having a certificate of deposit forming a part thereof and provided with means for directly receiving the amounts drawn by successive checks, and a series of checks, all except one of the latter having a depositor's receipt forming an integral part thereof and numbered to correspond to the check next preceding the same.

681,916. **FEED MECHANISM FOR WIRE-FABRIC MACHINES.** VERNON HOXIE and WILLIAM H. BURNHAM, Adrian, Mich. Filed June 17, 1901. Serial No. 64,899. (No model.)



Claim.—1. In a device of the class set forth, the combination of a rotatable member having a plurality of outstanding pins in the circumference thereof, and a traveler arranged over the said rotatable member.

2. In a device of the class set forth, the combination of a rotatable member having peripheral projections, and means for holding a wire strand down between said projections to bear closely on the circumference of the member.

3. In a device of the class set forth, the combination of a rotatable member having circumferential projections spaced apart from each other and so arranged as to deflect a wire strand encircling the member from a straight line, and means for holding the wire strand down between said projections.

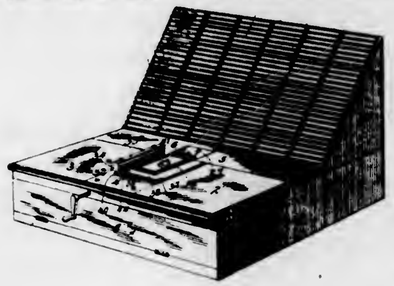
4. In a device of the class set forth, the combination of a rotatable member having means on the circumference thereof for holding a wire therearound, and means for causing said wire to closely lie against the circumference of said member.

5. In a device of the class set forth, a rotatable member having regularly-arranged projecting means for receiving and holding a wire around the circumference thereof and deflecting said wire from a straight circumferential line.

6. In a device of the class set forth, a rotatable member having circumferential projections spaced apart from each other, and slotted means over said member to receive the projections and hold the encircling wire to the periphery of the rotatable member.

7. In a device of the class set forth, a rotatable member having circumferential projections spaced apart from each other and so arranged as to deflect a wire strand encircling the member from a straight line, and a follower having transversely-extended slots therein to receive the said projections.

681,917. **MANIFOLDING ACCOUNT DEVICE.** CHARLES W. INGLEDUE, Lima, Ohio. Filed June 7, 1900. Serial No. 19,436. (No model.)



Claim.—1. In a manifolding-machine of the character set forth, the combination of manifolding-strips, one arranged above and at an angle to the other and adapted to have impression-receiving devices inserted between and mounted over the same, mechanism for operating said strips, and a holder movably mounted over said strips and having a tearing edge at one side.

2. In a manifolding-machine of the character set forth, the combination of manifolding-strips, one being arranged at an angle to and looped under the other and adapted to receive impression-depositing devices between, over and under the same, and means for operating the said strips.

3. In a machine of the character set forth, the combination of manifolding-strips disposed at an angle to each other and adapted to receive impression devices over, under and between the same, a hinged retainer over the upper strip, and a holder movably mounted over the strips and having a tearing edge at one side.

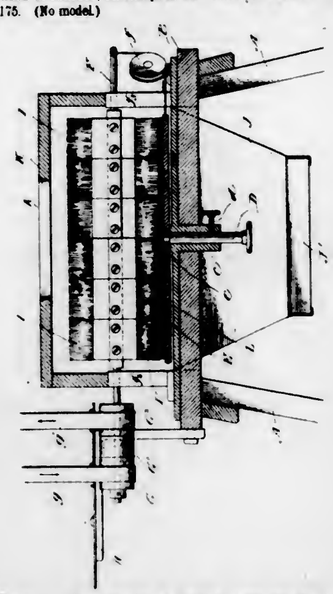
4. In a machine of the character set forth, the combination of manifolding-strips arranged to have paper strips pass between them, one of said manifolding-strips being doubled and disposed at an angle to the other, a holder hinged at one end and located over the said manifolding-strips and having an inclosing cap at the end opposite the hinged end with a depending outer member formed with a tearing edge for severing a portion of the paper strips and an antifrictional roller in said cap, and a pressure-receiving and guide roller having a stationary plane of rotation directly below said antifrictional roller.

5. In a machine of the character set forth, the combination of manifolding-strips arranged to receive paper strips between them, the one manifolding-strip being doubled and extending in a plane at an angle to that of the other, and a plate between portions of the said manifolding-strips.

6. A machine of the character set forth having two independently-mounted manifolding-strips, one of the said strips being doubled and arranged in a plane at an angle to the other.

7. In a machine of the class set forth, the combination of a casing having a top with a transversely-extending recess, a plate projecting from the bottom of said recess transversely of the machine, one end of the plate being higher than the other, manifolding-strips arranged above the lower portion of the said recess and plate, one of said strips being above and at an angle to the other, and means for controlling the movement of the strips, the strips being adapted to have impression-receiving devices disposed between them and the transverse recess to receive pads with loose leaves.

681,918. **MACHINE FOR LEADING SOUND-RECORDS.** ELDRIDGE R. JOHNSON, Philadelphia, Pa. Filed Jan. 20, 1900. Serial No. 2,175. (No model.)



Claim.—1. In a machine for leading sound-records, the combination with a supporting-frame, of a turn-table mounted therein adapted to support a record-disk, means for adjusting the turn-table vertically, a se-

ries of brushes arranged above the turn-table adapted to contact with the record-disk and means for revolving the said brushes in either direction, substantially as described.

2. In a machine for leading sound-records, the combination with a supporting-frame, of a turn-table mounted in said frame, means for the vertical adjustment of said turn-table, a driving-shaft located above the turn-table, a series of brushes alternately arranged on said driving-shaft adapted to contact with the turn-table as the driving-shaft is revolved, means for operating the driving-shaft and for simultaneously operating the turn-table, substantially as described.

3. The combination with the supporting-frame, of a stationary spindle mounted in the center of said frame, a turn-table secured to the upper end of said spindle, means for adjusting the spindle vertically, a driving-shaft arranged above the turn-table, a series of brushes carried by the driving-shaft adapted to contact with the turn-table, means for revolving the said driving-shaft, and a connection between the driving-shaft and the turn-table for operating the said turn-table simultaneously with the driving-shaft, substantially as described.

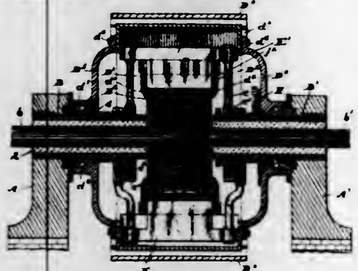
4. The combination with the supporting-frame, of a supporting-plate, C, having a central-hub bearing in the main frame, a spindle, D, secured in said hub, a turn-table loosely mounted on the upper end of said spindle adapted to support a record-tablet, a driving-shaft journaled in bearings carried by the supporting-frame, a series of brushes alternately arranged on the driving-shaft adapted to contact with the record-tablet as the driving-shaft is revolved, means for revolving the said driving-shaft, and a belt connection between the driving-shaft and the turn-table for revolving the said turn-table, substantially as described.

5. The combination of a revolving turn-table adapted to support a sound-record, a driving-shaft located above said turn-table, a series of brushes extending radially from opposite sides of said shaft, and means for revolving the said brushes first in one direction and then in an opposite direction, for the purpose described.

6. The combination with a supporting-table, of a turn-table journaled in the center of said supporting-table, a driving-shaft located above the turn-table, a series of brushes carried by said driving-shaft, a belt surrounding the turn-table and connected with the driving-shaft and a pair of idlers for holding the said belt in operative position, substantially as described.

7. The combination with the supporting-table, B, of a turn-table, C, journaled on said table, a driving-shaft journaled in supports carried by the frame, a series of brushes alternately arranged on said driving-shaft, a belt connection between the driving-shaft and the turn-table for revolving the two simultaneously, a pair of loose pulleys, G, G^2, arranged on the end of the driving-shaft and an intermediate tight pulley, G', the driving-belts, g, g', adapted to run in opposite directions and a shifting-lever for throwing either of the said driving-belts into engagement with the tight pulley, substantially as described.

681,919. **ROTARY ENGINE.** ALFRED KITCHEN, Dunnville, Canada. Filed Jan. 31, 1900. Serial No. 3,492. (No model.)



Claim.—1. In a rotary engine, the combination with the main stationary shaft and the solid cylindrical eccentric portions of the concentric casings having the concentric side plates overlapping the ends of the solid cylindrical portion and the intermediate concentric portion or plate attached to the concentric casing and fitting into a corresponding recess formed between the eccentric solid cylindrical portion as specified and a suitable port leading through the solid cylindrical portion and forming a communicating passage-way between the chambers as specified.

2. In a rotary engine, the combination with the main stationary shaft and the solid cylindrical eccentric portions of the concentric portions, of the concentric casings having the concentric side plates overlapping the ends of the solid cylindrical portion, suitable ring-packing between the concentric casings and the solid cylindrical portion, the intermediate concentric ring or plate attached to the concentric casings and fitting into a correspoonding recess formed between the eccentric solid cylindrical portions and suitable packing-rings in the solid cylindrical portions abutting such intermediate ring on each side and a suitable port leading through the solid cylindrical portion and forming a communicating passage-way between the chambers as specified.

3. In a rotary engine, the combination with the main stationary shaft and the solid cylinder attached to or forming part of same located intermediate of its length, of the inlet and exhaust passage-ways extending through the shaft, the radial inlet and exhaust ports extending therefrom to the periphery of the solid cylinder, the rotating cylinder concentric to the shaft and forming a crescent-shaped steam-chamber supported on suitable bearings and the radial pistons suitably held in the cylinder and provided with lateral offsets outside the cylinder, the stationary eccentric secured to the stationary shaft and the eccentric rotatable straps and rods connected to the offsets of the radial pistons as and for the purpose specified.

4. In a rotary engine, the combination with the main stationary shaft and the solid cylinder attached to or forming part of same located intermediate of its length and eccentric thereto, of the inlet and exhaust passage-ways extending through the shaft, the radial inlet and exhaust ports extending therefrom to the periphery of the solid cylinder, the rotatable cylinder concentric to the shaft forming a crescent-shaped steam-chamber and supported on suitable bearings and the radial pistons suitably held in the cylinder, means for imparting a rotary movement thereto to follow the periphery of the solid cylinder in their rotation, the valve-chamber and cut-off valve located therein intermediate of the length of the inlet-port, the eccentric on the stationary shaft, the strap surrounding the same and connected by link to the stem of the valve, the arm connected to the eccentric, the weighted arm and rod and link connected to the aforesaid arm and the plate secured to the rotatable casing on which the said weighted arm is pivoted and the spring connecting the weighted arm to said plate all arranged as shown and for the purpose specified.

5. In a rotary engine, the combination with the main stationary shaft and the solid cylinder attached to or forming part of same located intermediate of its length, of the inlet and exhaust passage-ways extending through the shaft, the radial and inlet exhaust-ports extending therefrom to the periphery of the solid cylinder, the tapered hole extending through the solid cylinder, the tapered plug fitting therein and connecting with the inlet and exhaust passage-ways extending through the shaft, the port B^5, the port B^4, the port B^3 and port B^1 and port B^2 designed to coact with the inlet and exhaust ports extending through the portions of the cylinder, the rotatable cylinder concentric to the shaft, the division-ring situated between the two ends of the cylinder and forming two crescent-shaped steam-chambers, the radial pistons and means for imparting a radial movement thereto to follow the periphery of the solid cylinder in their rotation as and for the purpose specified.

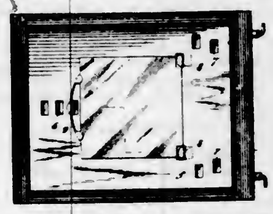
6. In a rotary engine, the combination with the main stationary shaft and the solid cylinder attached to or forming part of same located intermediate of its length, of the inlet and exhaust passage-ways extending through the shaft, the radial and inlet exhaust-ports extending therefrom to the periphery of the solid cylinder, the tapered plug fitting therein and connecting with the inlet and exhaust passage-ways extending through the shaft, the port B^5, the port B^4, the port B^3, and port B^1 and port B^2 designed to coact with the inlet and exhaust ports extending through the two portions of the double cylinder, the rotatable cylinder concentric to the shaft, the division-ring situated between the two ends of the cylinder and forming two crescent-shaped steam-chambers, the radial wings, means for imparting a radial movement thereto to follow the periphery of the solid cylinder in their rotation, the pipe extension of the shaft, the shoulder thereon, the threaded collar fitting against the shoulder and provided with a handle and the coacting collar fitting against the aforesaid collar and also provided with a handle for adjustment as and for the purpose specified.

7. In a rotary engine, the combination with the eccentric inner portion of the casing and the concentric outer portion forming a crescent-shaped steam-chamber, of the pistons, the stationary eccentrics on the shaft, the straps surrounding the eccentrics and the rods connecting them to the ends of the pistons whereby such pistons in their rotation are made to follow the periphery of the eccentric inner portion as and for the purpose specified.

681,920. **PHOTOGRAPHIC-PLATE HOLDER.** ARTHUR C. LA MAY, Rochester, N. Y., assignor to the Warnica Company, same place. Filed Feb. 16, 1901. Serial No. 47,582. (No model.)

Claim.—1. In a photographic-plate holder, a septum having a series of alined openings at one end and a series of opposite openings near the other end, a spring-clip adapted for engaging in any one of the first-named openings, and corner-clips for engaging in opposite openings, substantially as specified.

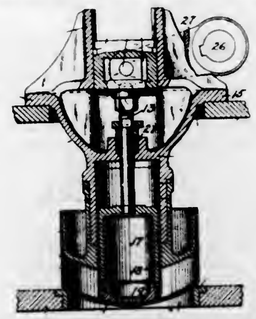
2. A photographic-plate holder, comprising a frame, two septums secured in said frame, each of said septums having alined openings near one end and opposite openings near the other end, the said opposite openings of one septum being arranged at the opposite end from that of the opposite openings in the other septum, a spring-clip for engaging in any one of the alined openings, and corner-clips for engaging in opposite openings, substantially as specified.



3. In a photographic-plate holder, a septum having openings, a spring-clip having a shank portion to pass through an opening and to engage against the inner side of the septum, and corner-clips having shank portions to engage against the inner side of the septum, substantially as specified.

4. In a photographic-plate holder, a septum having openings and corner-clips, each corner-clip having a shank portion, a portion to engage against the end of a plate, a portion to engage upon the outer surface of the plate, and a portion for engaging with the side edge of the plate, substantially as specified.

681,921. **OUTLET-VALVE FOR AIR-COMPRESSORS.** JOHN S. LEWIS, Youngstown, Ohio, assignor to William Tod & Company, same place. Filed Nov. 17, 1900. Serial No. 36,856. (No model.)



Claim.—1. In an air-compressor, the combination of an outlet-valve having a hollow cylindrical extension, a stationary piston within said extension, said valve being adapted to cushion on the air between the stationary piston and the valve, and means actuated by the valve-gear for forcing the valve to its seat, said means being free from frictional contact with the inner cylindrical surface of the valve.

2. In an air-compressor, the combination of an outlet-valve having a hollow cylindrical extension and adapted to open automatically by excess of air-pressure in the cylinder, a stationary piston within said cylindrical extension, means for confining air between said stationary piston and the valve during its opening movement, and mechanism actuated by the valve-gear but out of contact with the inner cylindrical surface of the valve for forcing said valve to its seat.

3. The combination, in an air-compressor, of a cup-shaped outlet-valve adapted to be opened by excess pressure in the cylinder, a stationary piston within the valve, and means, disconnected from the valve, and out of contact with its inner cylindrical surface, actuated by the valve-gear for forcing said valve to its seat, said valve being adapted to cushion on the air between the stationary piston and the valve.

4. In an air-compressor, the combination with an outlet-valve having a hollow cylindrical extension of a stationary piston located within the said extension, a stem actuated by the valve-gear for forcing the valve to its seat, said stem being disconnected from the valve and free from frictional contact with the interior cylindrical surface thereof.

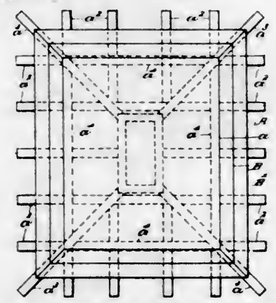
5. In an air-compressor, the combination, of an outlet-valve having a cylindrical extension, a stationary piston located within said cylindrical extension, a stem extending through the stationary piston and actuated by the valve-gear to force said valve to its seat, said stem being disconnected from the valve and free from frictional contact with the inner cylindrical surface thereof.

6. In an air-compressor, the combination of an outlet-valve having a cylindrical extension, a stationary piston located within said cylinder, a stem extending through the stationary piston and provided with a guide therein, a head of less area than the interior of the valve secured to the stem, and means for reciprocating the stem whereby the valve may be operated.

7. In an air-compressor, the combination of an outlet-valve having a hollow cylindrical extension, and adapted to open by excess pressure in the cylinder, a stationary piston within said extension, a stem actuated by the valve-gear, and a head of less area than the interior of the said extension secured to said stem and adapted to be withdrawn into an opening in the stationary piston.

8. In an air-compressor, the combination of an outlet-valve having a hollow cylindrical extension and adapted to open by excess pressure in the cylinder, a stationary piston within said extension serving as a guide for the valve, said piston being provided with a cavity, and a head of less area than the interior of the said extension having a guide within said cavity and adapted to be actuated by the valve-gear.

681,922. **APPARATUS FOR STRETCHING AND DRYING RUGS.** ALVIN S. LYON, Lowell, Mass., assignor to Bigelow Carpet Company, same place and Clinton, Mass. Filed Sept. 1, 1900. Serial No. 28,754. (No model.)



Claim.—1. The combination of a table having a flat surface to sustain the central portion of a rug, a support projecting beyond the edges of the table, a detachable frame adapted to be carried on said support and surrounding the flat surface, the top of the detachable frame and the said flat surface being in substantially the same plane.

2. The combination of a table having a top, supporting-braces for said top extending beyond the edges of said top, and a detachable frame adapted to be carried by said braces and surrounding said top, the surfaces of the top and the detachable frame when in position upon the supporting-braces being in substantially the same plane.

3. The combination of a table provided with a top, braces supporting said top and projecting beyond the edges thereof, a plurality of removable stretching-frames adapted to surround said top one within the other, and be supported on said braces, each of said frames having its upper surface in the same plane to provide a plane surface for the support of a rug while being secured to the stretching-frame.

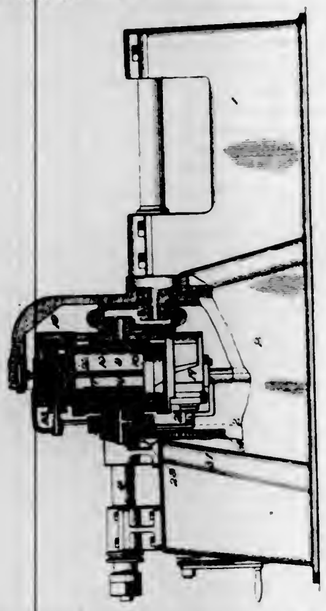
4. The combination of a table, provided with supporting-brackets, and a removable frame or margin, adapted to surround and fit said table and to rest upon said brackets with its upper surface in the same plane as the top of said table.

681,923. **ROTARY ENGINE.** LEWIS C. MALTBY, Washington, D. C., assignor to Evan S. Stokes, trustee, same place. Filed Dec. 4, 1900. Serial No. 38,644. (No model.)

Claim.—1. In a reciprocating rotary engine, the combination of the following instrumentalities: a rotary cylinder closed at its ends, a single piston in said cylinder, means for alternately admitting steam to and exhausting it from said cylinder through the end heads thereof on opposite sides of the piston and in the direction of the longitudinal reciprocation thereof, a driven shaft, and a connection between the latter and the piston-rod, substantially as set forth.

2. In a reciprocating rotary engine, the combination of the following instrumentalities: a steam-cylinder, two shafts, out of line with each other, and upon one of which said cylinder is centrally mounted, a connection between said cylinder and the other shaft, a piston within said cylinder, a connection between the rod of said piston and the last-mentioned shaft, and means on the end heads of said cylinder for alternately admitting steam to and exhausting it from said cylinder through its end heads in the direction of the longitudinal reciprocation of the piston, as set forth

3. In a reciprocating rotary engine, the combination of the following instrumentalities: a steam-cylinder, two shafts, out of line with each other, and upon one of which said cylinder is centrally mounted, a connection between said cylinder and the other shaft, a piston within said cylinder, a connection between the rod of said piston and the last-mentioned shaft, said cylinder having steam inlet and outlet ports in its end heads, valves for controlling said ports, and means for reciprocally operating said valves in opposite directions, as set forth.



4. In a reciprocating rotary engine, the combination of the following instrumentalities: a steam-cylinder having steam-inlet and steam-exhaust chambers, a tubular shaft opening into said steam-inlet chamber and upon which said cylinder is centrally mounted, a second tubular shaft out of line with the first-mentioned shaft, a chambered coupling between said cylinder and said second shaft, said coupling leading from said steam-exhaust chamber, means on the end heads of said cylinder for controlling the admission of steam to and its exhaust from said cylinder, means for operating said latter means in opposite directions, and a piston in said cylinder having its rod connected to said second shaft, as set forth.

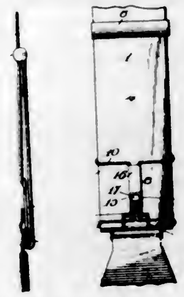
5. In a reciprocating rotary engine, the combination of the following instrumentalities: a steam-cylinder having steam-inlet and steam-exhaust chambers, a tubular shaft opening into said steam-inlet chamber and upon which said cylinder is centrally mounted, a second tubular shaft out of line with the first-mentioned shaft, a chambered coupling between said cylinder and said second shaft, said coupling leading from said steam-exhaust chamber, said cylinder having steam inlet and exhaust ports in its end heads, valve-chests on said heads, and valves in said chests for controlling said ports, adjustable means for actuating said valves in opposite directions, and a piston in said cylinder having its rod connected to said second shaft, substantially as set forth.

6. In a reciprocating rotary engine, the combination of the following instrumentalities: a steam-cylinder having steam-inlet and steam-exhaust chambers, a tubular shaft opening into said steam-inlet chamber and upon which said cylinder is centrally mounted, a second tubular shaft out of line with the first-mentioned shaft, a chambered coupling between said cylinder and said second shaft, said coupling leading from said steam-exhaust chamber, said cylinder having steam inlet and exhaust ports in its end heads, valve-chests on said heads, and valves in said chests for controlling said ports, a piston in said cylinder, a connection between the rod of said piston and said second shaft, an eccentric, bands thereon having arms connected to said valves, and means for adjusting said eccentric, substantially as set forth.

7. In a reciprocating engine, the combination of the following instrumentalities: a rotary cylinder closed at its ends, a single piston in said cylinder, means for alternately admitting steam to and exhausting it from said cylinder through the end heads thereof on opposite sides of the piston and in the direction of the longitudinal reciprocation of the latter, a driven shaft, a fly-wheel on the latter having an overhanging rim, and a connection between the rod of said piston and the rim of the fly-wheel, substantially as set forth.

8. In a reciprocating rotary engine, the combination of the following instrumentalities: a rotary cylinder closed at its ends, valves on the ends of said cylinder for controlling the inlet and exhaust of steam, a piston in said cylinder, a driven shaft, a connection between said shaft and the rod of said piston, an eccentric, bands thereon having oppositely-projecting arms, connections between said arms and said valves, a gear-wheel carried by said eccentric, a second gear-wheel meshing with the former gear-wheel, and a crank-shaft for operating said second gear-wheel, substantially as set forth.

681,924. **SUSPENDERS.** ASBURY R. MILLER, Lockhaven, Pa. Filed Oct. 12, 1900. Serial No. 32,865. (No model.)



Claim.—1. A garment-suspender provided with a loop, a suspending device freely slidable upon the outer side portion of the loop and resting at its lower end in the bottom thereof, and a suspender-end retained by the suspending device and engaging therewith above the lower end of the loop.

2. A garment-suspender provided with an adjustable loop, a suspending device freely slidable upon one side portion of the loop and resting at its lower end in the bottom thereof, the other side portion of the loop constituting a guard, and a suspender-end engaged with the suspending device at a point above the lower end of the loop.

3. A garment-suspender provided with a loop, a suspending device slidably retained upon the front portion of the loop, wholly between the ends thereof, the lower end of the suspending device resting in the bottom of the loop, while the rear portion of the latter constitutes a guard for the suspending device, and a suspender-end attached to the suspending device above the bottom of the loop.

4. A garment-suspender provided with a loop, a suspending device having a pair of transverse, unobstructed spaced loops receiving the front side of the suspender-loop, a suspending-hook located intermediate of the said transverse loops, the rear side of the suspender-loop constituting a guard to prevent contact of the suspending device with the garment over which the suspenders are worn, and a suspender-end attached to the suspending-hook.

5. A garment-suspender provided with a loop, a suspending device mounted solely upon one side of the said loop so that the other side thereof constitutes a guard to prevent contact between the suspending device and the garment over which the suspenders are worn, said suspending device comprising a pair of transverse-spaced loops, an intermediate shank, and a suspending-hook extending from the shank and disposed opposite thereto and located between the loops, and the suspender-end provided at its upper end with a loop engaging the suspending-hook of the said suspending device, said suspender-end being disposed against the front side of the suspender-loop.

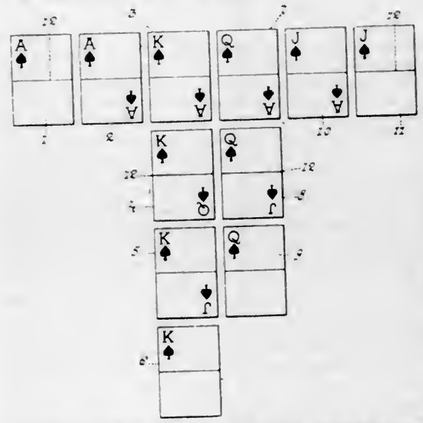
6. A garment-suspender provided with a loop, a suspending device mounted solely upon one side of the loop to cause the other side thereof to act as a protector for the shirt, said suspending device comprising a pair of transverse-spaced loops, an intermediate shank disposed at right angles to the loops, and an upwardly-opening hook extending from the shank and located between the loops, and the suspender-end engaging the said hook and disposed against the front side of the suspender-loop.

7. A garment-suspender provided with a loop, a suspending device mounted solely upon one side of the loop so as to constitute the other side thereof a guard or supporter to prevent the suspending device from contacting with the garment over which the suspenders are worn, said suspending device being formed from a single strand of wire and comprising a loop, a hook extending from one side of the loop, and a double shank extending from the hook and terminating in a second loop, and the suspender-end attached to the hook so as to be disposed against the front side of the suspender-loop.

8. A suspending device comprising a pair of transverse loops, an intermediate shank disposed at right angles to the loops and connected thereto, and the upwardly-opening hook extending from the shank and located between the loops, said hook being disposed substantially parallel with the shank.

9. A suspending device formed from a single strand of wire and comprising a loop, an upwardly-opening rigid hook extending from one side of the loop, and a double shank extending from the bottom of the hook and terminating in a second loop, whereby the hook is located between the two loops.

681,925. **GAME.** THOMAS H. O'NEILL, Auburn, N. Y. Filed Jan. 10, 1901. Serial No. 42,740. (No model.)



Claim.—In a game a set of cards or dominoes consisting of eleven pieces in the suit of spades having the following values, viz: 1, ace-blank; 2, double ace; 3, king-ace; 4, king-queen; 5, king-jack; 6, king-blank; 7, queen-ace; 8, queen-jack; 9, queen-blank; 10, jack-ace; and 11, jack-blank; and having a divisional line arranged centrally across the width of each of said eleven pieces, in combination with eleven pieces in the suit of diamonds having similar values and similar divisional lines; eleven pieces in the suit of clubs having similar values and similar divisional lines, and eleven pieces in the suit of hearts also having similar values and similar divisional lines the whole combined and constituting a deck or pack of forty-four members substantially in the manner and for the purpose herein shown and described.

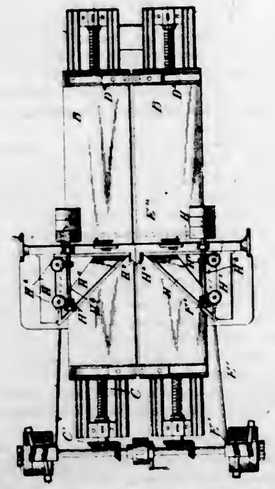
681,926. **DOUBLE-PLATEN PLANER.** FRED R. PATCH, Rutland, Vt. Filed Mar. 19, 1901. Serial No. 51,936. (No model.)

Claim.—1. In a machine of the class described, bed-frames, independent platens mounted to reciprocate thereon, independent driving-shafts for each of said platens, means for connecting the adjoining ends of said shafts, independent shipping mechanism for each platen and driving-shaft, means for connecting said shipping mechanisms together, and means for simultaneously actuating both shipping mechanisms when the driving-shafts are connected together; substantially as specified.

2. In a machine of the class described, the combination with platens, driving-gears and feed-screws therefor, of a driving-shaft formed in two sections in line with each other each section having a gear meshing with a screw-gear and upon the same relative side thereof and united by means of a clutch, one member of which is fixedly mounted upon one section and the other member slidingly mounted on the other section, whereby motion is conveyed directly from the driving-shaft to both of the feed-screws; substantially as specified.

3. In a machine of the class described, a bed-frame, independent platens mounted to reciprocate thereon, independent driving-shafts for each of said platens, means for connecting the adjoining ends of said shafts, shipping mechanisms carried by each of said platens, and means for transmitting the motion of one of said shifting mechanisms to the other; substantially as specified.

4. In a machine of the class described, a bed-frame, independent platens mounted to reciprocate thereon, independent driving-shafts for each of said platens, means for connecting the adjoining ends of said shafts, shipping mechanisms carried by each of said platens, a cross-shaft on which said shipping mechanisms are loosely mounted, and clutches keyed to said shaft to engage said shipping mechanisms; substantially as specified.



5. In a machine of the class described, independent platens adapted to operate adjacently side by side, means for driving said platens independently or in unison, a trough or pocket extending laterally at one end of each of said platens below the upper face thereof, and a block carried by said pocket and adapted to be secured at its opposite ends to each of said platens within the pocket thereof; substantially as specified.

6. In a machine of the class described, independent platens, means for operating the same independently or in unison, standards at the opposite outer edges of the platens, cross-rails independently adjustable in said standards and comprising tool-holders, and means for securing said rails together; substantially as specified.

7. In a machine of the class described, independent platens, means for operating the same independently or in unison, standards at the opposite outer edges of the platens, cross-rails independently adjustable in said standards and comprising tool-holders, means for securing said rails together, and diagonal braces extending from the adjacent ends of said rails and engaging a portion of said standards; substantially as specified.

8. In a machine of the class described, a platen having means for reciprocating the same, a shipping-dog carried by said platen, a shipping-arm pivoted at its lower end and provided at its upper portion with a stop-pin, a pivoted latch extending above the upper end of said dog and adapted to engage said pin, connections from the upper end of said arm to a belt-shipping mechanism, and an operating-handle extending from the pivot for the arm; substantially as specified.

9. In a machine of the class described, a platen having a longitudinal groove upon its edge, a shipping-dog adjustably secured in said groove, a pivotally-mounted shipping-arm adapted to be engaged by said dog, connections from said arm to a belt-shipping mechanism, a shaft extending to the opposite side of said platen upon which said arm is mounted, and a clutch member splined upon said shaft and adapted to engage a corresponding member rotatably carried by said arm to transmit motion to said shaft; substantially as specified.

10. In a machine of the class described, a platen having a longitudinal groove upon its edge, a shipping-dog adjustably secured in said groove, a pivotally-mounted shipping-arm adapted to be engaged by said dog, connections from said arm to a belt-shipping mechanism, a shaft extending to the opposite side of said platen upon which said arm is mounted, a clutch member splined upon said shaft and adapted to engage a corresponding member rotatably carried by said arm to transmit motion to said shaft, a pivoted latch carried by said arm, and a short dog carried by the platen upon the opposite side of said arm from said first-mentioned dog and adapted to engage said latch in the travel of the platen; substantially as specified.

11. In a machine of the class described, parallel independent platens, a driving device beneath each of the same, a beveled gear upon the end of said driving device, independent driving-shafts, each provided with a gear meshing with said beveled gear, a toothed clutch secured to the end of one driving-shaft, a corresponding clutch slidably splined upon the adjoining driving-shaft, and means controlled by the platens for automat-

ically changing the direction of rotation of said shafts in unison; substantially as specified.

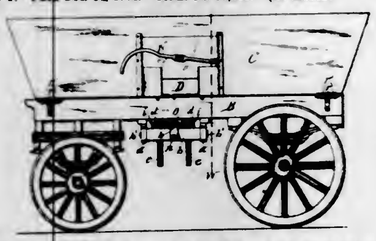
12. In a machine of the class described, parallel independent platens, a driving device beneath each of the same, a beveled gear upon one end of said driving device, independent driving-shafts, each provided with a gear meshing with a beveled gear, a toothed clutch secured to the end of one driving-shaft, a corresponding clutch slidably splined upon the adjoining driving-shaft, shipping mechanism operated in the movement of the platen to change the direction of rotation of each of said shafts, and means for connecting said mechanisms to operate the same in unison; substantially as specified.

13. In a machine of the class described, the combination with independent platens, of means for operating the same independently or in unison, standards at the opposite edges of said platens, cross-rails comprising tool-holders slidingly mounted upon said standards, and independent adjusting-screws supported from the upper portion of said standards and connected to said cross-rails for adjusting the same; substantially as specified.

14. In a machine of the class described, the combination with independent platens, of means for operating the same independently or in unison, standards at the opposite edges of said platens, cross-rails comprising tool-holders slidingly mounted upon said standards, independent adjusting-screws supported from the upper portion of said standards and connected to said cross-rails for adjusting the same, a driving-shaft mounted upon the upper portion of said standard and provided with gears meshing with gears upon the upper ends of said adjusting-screws, and means for reversing the direction of rotation of said shaft; substantially as specified.

15. In a machine of the class described, independent platens adapted to operate adjacently side by side, a filling-strip adapted to lie between the adjacent faces of the platens, means for driving said platens independently or in unison, a trough or pocket extending laterally at one end of each of said platens below the upper face thereof, and a block carried by said pockets and adapted to be secured at its opposite ends to each of the platens within the pocket thereof; substantially as specified.

681,927. **DUMPING-WAGON.** CHARLES S. PHARIS, Syracuse, N. Y. Filed Dec. 14, 1900. Serial No. 39,903. (No model.)



Claim.—1. A dumping-wagon comprising a frame supported at its ends on the running-gears of the wagon, the body pivotally supported at opposite sides on said frame and movable vertically thereon and provided with discharge-gates in its sides, and mechanism for elevating and lowering said body from and to the frame.

2. A dumping-wagon having a vertically-movable body pivotally supported at opposite sides and provided with discharge-gates in its sides, and mechanism for lifting either side of the body independently of the opposite side thereof as set forth.

3. A dumping-wagon having a vertically-movable body pivotally supported at opposite sides and provided with discharge-gatee in its sides, and mechanism for elevating said body and adapted to tilt the body sidewise as set forth.

4. A dumping-wagon having a vertically-movable body pivotally supported at opposite sides and provided with discharge-gates in its sides, mechanism for tilting said body sidewise, and means for sustaining the body in its tilted position.

5. A dumping-wagon having a vertically-movable body pivotally supported at opposite sides and provided with discharge-gates in its sides, mechanism for elevating said body and adapted to tilt the elevated body sidewise, and means for preventing lateral movement of the body during its vertical movement.

6. A dumping-wagon comprising a frame extending lengthwise of the wagon and supported on the running-gears thereof, transverse main sustaining-bars hinged at one end to one side of said frame, transverse supplemental bars hinged to the free ends of said main sustaining-bars, and the body fastened to said supplemental bars and provided with discharge-gates in its sides as set forth.

7. A dumping-wagon comprising a frame extending lengthwise of the wagon and supported on the running-gears thereof, transverse main sustaining-bars hinged at one end to one side of said frame, transverse supplemental bars hinged to the free ends of said main sustaining-bars, the body fastened to said supplemental bars and provided with discharge-gates in its sides, and mechanisms for tilting the body sidewise as set forth.

8. A dumping-wagon comprising a frame extending lengthwise of the wagon and supported on the running-gears thereof, longitudinal bars supported on the sides of the said frame by lateral rocker-bearings, nuts disposed axially vertical and pivotally supported on the aforesaid longitudinal bars, screws passing through said nuts, the body mounted on said screws and provided with discharge-gates in its sides, and means for turning said screws.

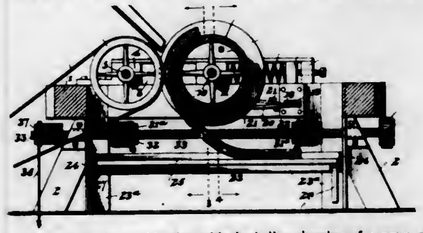
9. A dumping-wagon comprising a frame extending lengthwise of the wagon, and supported on the running-gears thereof, longitudinal bars supported on the sides of said frame by lateral rocker-bearings, separate mechanisms mounted on said bars and each consisting of nuts disposed axially vertical and pivotally supported on the longitudinal bar, screws passing through said nuts, gears formed on the peripheries of said nuts, a shaft disposed at right angles to the axis of said gears, worms attached to said shaft and engaging the said gears, means for operating said shaft, and the wagon-body supported on the screws at opposite sides of the aforesaid frame and provided with discharge-gates in its sides as set forth.

10. A dumping-wagon comprising a frame extending lengthwise of the wagon and supported on the running-gears thereof, two pairs of hangers disposed at opposite sides of said frame and fastened thereto, longitudinal bars pivotally supported in said hangers, nuts disposed axially vertical and arranged in pairs pivotally supported, one pair on each of the longitudinal bars, gears formed on the exteriors of said nuts, longitudinal shafts disposed one at each pair of said gears, worms on said shafts and engaging said gears, a bevel-gear attached to each of said longitudinal shafts, separate transverse shafts each having fastened to it a bevel-pinion engaging one of said bevel-gears, screws passing through the aforesaid nuts, and the wagon-body supported on said screws and provided with discharge-gates in its sides as set forth.

11. A dumping-wagon comprising a frame extending lengthwise of said body and supported on the running-gears thereof, two pairs of hangers disposed at opposite sides of said frame and fastened thereto, longitudinal bars pivotally supported in said hangers, nuts disposed axially vertical and arranged in pairs supported, one pair on each of the longitudinal bars, gears formed on the exteriors of said nuts, longitudinal shafts disposed one at each pair of said gears, worms on said shafts engaging said gears, a bevel-gear attached to each of said longitudinal shafts, separate transverse shafts each having attached to it a bevel-pinion engaging one of said bevel-gears, screws passing through the aforesaid nuts, the wagon-body mounted on said screws and provided with discharge-gates in its sides, transverse main sustaining-bars hinged at one end to one side of the aforesaid frame, and supplemental transverse bars hinged to the free ends of the main sustaining-bars and fastened to the wagon-body as set forth.

12. A dumping-wagon having its body pivotally supported at opposite sides and provided with discharge-gates in its sides, and the side walls joined to the end walls of the body by triangular plates disposed with their apexes in the tops of the inner corners and extending therefrom divergent to the bottoms of the side and end walls of the body as set forth and shown.

681,928. **BAT COMPRESSING AND FEEDING MECHANISM FOR COTTON-PRESSES.** HENRY RENBERT, Galveston, Tex., assignor of one-third to N. Weekes, Ed. McCarthy, and H. Reidel, same place. Filed Apr. 30, 1898. Renewed July 31, 1901. Serial No. 70,422. (No model.)



Claim.—1. In combination with the baling-chamber of a press, of pressing mechanism having means for accumulating a single bat of cotton and compressing the same into an endless layer of predetermined size, means for automatically cutting said compressed layer into a single sheet, and separate means for carrying the sheet singly in a flat spread-out condition into the baling-chamber of the press and depositing the same therein.

2. In a machine of the class described, the combination with the baling-chamber of a press, of pressing mechanism having means for accumulating a single bat of cotton and compressing the same into an endless layer of predetermined size, means for automatically cutting said compressed layer into a single sheet, and means, operating below, and within the vertical plane of said compressing mechanism, for receiving the sheet in a flat spread-out condition, carrying the same singly in such condition within the said baling-chamber of the press, and automatically depositing the same therein upon the previously-deposited sheet, substantially as described.

3. In a machine of the class described, compressing mechanism having a pair of compressing-rolls, one of which is movable automatically toward and away from the other roll, and is provided with an adhesive surface for taking up a bat of cotton and accumulating the same into a compressed layer of predetermined size, means for severing the compressed layer on the roll to form a single cut sheet, and means for feeding said cut sheet singly in a spread-out condition to the baling-box of a press, substantially as set forth.

4. In a machine of the class described, compressing mechanism having a pair of horizontal rotating compressing-rolls, one of which is movable and provided with an adhesive surface, an automatically-operating knife arranged beyond the movable roll within the plane of its movement, and set into action by the cotton layer when it reaches a predetermined thickness, and a feeding device for carrying the cut compressed sheet to the baling-box of a press, substantially as set forth.

5. In a machine of the class described, the frame, a fixed rotating compressing-roll mounted in said frame, a movable rotating compressing-roll arranged within the frame at one side of the fixed roll and having an adhesive surface, a drive-belt passing over and covering the entire surface of the fixed compressing-roll to form a cushion for the bat of cotton, means for severing the compressed layer of cotton on the movable roll, and means for feeding the compressed layer in a flat condition to the baling-box of a press, substantially as specified.

6. In a machine of the class described, the frame, a fixed rotating compressing-roll mounted in the frame, a movable rotating compressing-roll supported in sliding bearing-boxes and provided with peripheral guard-flanges at its ends, and with an adhesive surface, pressure devices connected with the sliding bearing-boxes for the movable roll to provide for normally pressing the same in a direction toward the fixed roll, an automatically-operating knife arranged beyond one side of the movable roll and set into action by the engagement of the cotton therewith, and a feeding device for carrying the compressed layer of cotton in a flat condition to the baling-box of a press, substantially as specified.

7. In a machine of the class described, the frame, a pair of horizontal rotating compressing-rolls mounted in the frame, one of said rolls being movable and provided with an adhesive surface, an automatically-movable separating-knife arranged within the frame beyond one side of the roll, and below the axis of rotation of the latter, said knife having a horizontal oscillatory supporting-bar pivotally supported at its ends, and a plurality of knife-blades projected from one side of said bar and provided with chisel-points adapted to be engaged by the cotton on the movable roll and lifted to a plane for penetrating the entire layer on the roll, and a feeding device for carrying the compressed layer of cotton in a flat condition to the baling-box of a press, substantially as specified.

8. In a machine of the class described, compressing mechanism having a pair of compressing-rolls, one of which is automatically movable toward and away from the other roll and provided with an adhesive surface for taking up the bat of cotton, means for severing the compressed layer of cotton on said movable roll, and for separating the same therefrom, a traveling platen arranged for vertical movement below the movable compressing-roll and adapted to receive thereover the compressed layer of cotton in a flat condition, and means for automatically raising and lowering said platen, substantially as specified.

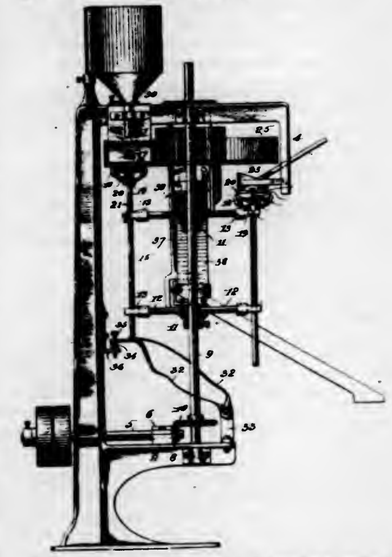
9. In a machine of the class described, compressing mechanism having means for accumulating a single bat of cotton and compressing the same into a layer of predetermined size, a vertically-traveling platen arranged to work below the compressing mechanism and into the baling-box of the press, said platen having a drop-bottom, and means for severing the compressed layer of cotton and delivering the same in a spread-out condition onto the platen beneath the compressing mechanism, substantially as described.

10. In a machine of the class described, compressing mechanism having means for compressing a bat of cotton into a layer of predetermined size, a traveling platen arranged to work below the compressing mechanism and having a pair of pivotal leaves forming a drop-bottom, automatically-operating latches for supporting said leaves in a position for receiving and holding the bat of cotton, means for automatically raising and lowering the platen, and means for severing the compressed layer of cotton and delivering the same in a flat condition on the platen, substantially as specified.

11. In a machine of the class described, compressing mechanism having means for compressing a bat of cotton into a layer of predetermined size, a traveling platen arranged to work below the compressing mechanism, and comprising a rectangular frame, a pair of pivotal leaves mounted within said frame and pivotally supported at their outer corners, return-springs engaging the said leaves to normally elevate the same, and a pair of segmental latch-arms reversely arranged to each other and pivoted near one end to one of the end bars of the platen-frame, the ends of said latches adjacent to their pivots being adapted to engage beneath the free edges of said leaves, means for automatically raising and lowering the platen, and means for severing the compressed layer of cotton and delivering the same in a flat condition on the platen, substantially as specified.

12. In a machine of the class described, the frame, a pair of compressing-rolls mounted in the frame, one of said rolls being movable and adapted to have compressed thereon a layer of cotton, a traveling platen arranged to work below the compressing-rolls and having a drop-bottom, a pair of oppositely-located supporting-shafts, having a belt connection and arranged longitudinally of the frame at opposite sides thereof, said shafts having winding-drums, one of which is provided with a ratchet-notch, suspension-cables winding on said drums and connected with the platen, a weighted drum connection with one of said shafts, a latch-lever pivotally supported at one side of the frame, and having a catch-arm adapted to engage with said ratchet-notch, said latch-lever having the upper portion thereof engaged by a projection carried with the movable roll, and means for severing the layer of cotton and delivering the same in a flat condition on the platen, substantially as specified.

681,929. **CAKE-ICING MACHINE.** JOHN ROSBOROUGH, St. Louis, Mo., assignor of one-half to Louis A. Maneval, same place. Filed Feb. 4, 1901. Serial No. 45,914. (No model.)



Claim.—1. In a machine of the class described, the combination of an apertured rotatable turn-table, means is located beneath said turn-table for receiving and carrying the cakes to be iced, means for automatically depositing the cakes on said carrying means, and means for causing said cake-carrying means to be elevated to the apertures in said turn-table, substantially as described.

2. In a machine of the class described, the combination of an apertured rotatable turn-table, means for receiving and carrying the cakes to be iced, means for automatically depositing the cakes on said carrying means, means for elevating said cake-carrying means to the apertures in said turn-table, and means for depositing and spreading the icing on said cakes, substantially as described.

3. In a machine of the class described, the combination of an apertured rotatable turn-table, means for receiving and carrying the cakes to be iced, means for elevating said cake-carrying means to the apertures in said turn-table, a delivery-chute, and means for conducting the cakes from said carrying means into said delivery-chute, substantially as described.

4. In a machine of the class described, the combination of an apertured rotatable turn-table, means for receiving and carrying the cakes to be iced, means for elevating said cake-carrying means to the apertures in said turn-table, a delivery-chute, means for conducting the cakes from said carrying means into said chute, and a vibrating chute having communication with said delivery-chute, substantially as described.

5. In a machine of the class described, the combination of an apertured rotatable turn-table, means for receiving and carrying the cakes to be iced, an inclined track through which said cake-carrying means is elevated to said turn-table, and means for depositing the icing from said turn-table onto said cakes, substantially as described.

6. In a machine of the class described, the combination of an apertured rotatable turn-table, means for receiving and carrying the cakes to be iced, a spring-supported track by which said cake-carrying means is elevated, and means for depositing the icing from said turn-table onto the cakes, substantially as described.

7. In a machine of the class described, the combination of an apertured rotatable turn-table, means for receiving and carrying the cakes to be iced, a slotted chute from which the cakes are discharged onto said cake-carrying means, means for discharging the cakes from said chute onto said cake-receiving means, means for elevating said cake-carrying means to said turn-table and means for depositing the icing from said turn-table onto the cakes, substantially as described.

8. In a machine of the class described, the combination of an apertured rotatable turn-table, cake-carrying disks, slide-rods by which said disks are carried and means for elevating said disks to said turn-table, substantially as described.

9. In a machine of the class described, the combination of an apertured rotatable turn-table, cake-carrying disks, slide-rods by which said disks are carried, spring-controlled jaws carried by said disks, and means for elevating said slide-rods and disks to raise said disks to said turn-table, substantially as described.

10. In a machine of the class described, the combination of an apertured rotatable turn-table, cake-carrying means, means for elevating said cake-carrying means to said turn-table, and a scraper arranged to deposit the icing on the cakes through the apertures in said turn-table, substantially as described.

11. In a machine of the class described, the combination of cake-carrying means, an apertured rotatable turn-table, means for elevating said cake-carrying means to said turn-table, and reducing-rings arranged in the apertures of said turn-table, substantially as described.

12. In a machine of the class described, the combination of means for carrying the cakes to be iced, means for applying icing thereto, a delivery-chute, tongues projecting from said chute and adapted to receive the cakes from said carrying means, and a push-finger arranged to conduct the cakes on said tongues into said delivery-chute, substantially as described.

681,930. **TYPE-WRITER.** LOUIS SCHLESINGER, Chicago, Ill. Filed Sept. 12, 1898. Serial No. 690,771. (No model.)

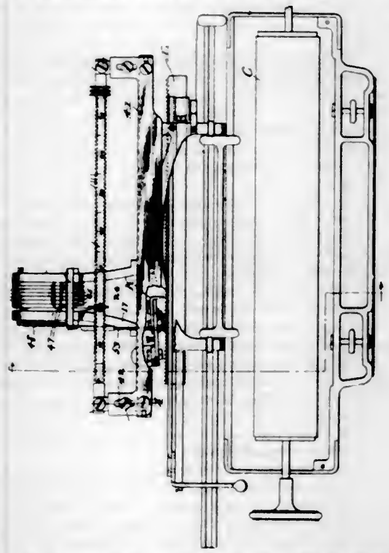
Claim.—1. In a type-writer, a paper-feed carriage, a stop-rack carried thereby, and a feed mechanism for said carriage, in combination with a series of movable plungers, an arm or bar arranged to be moved when any one of said plungers is moved, a lever between said movable bar and the paper-carriage-feed mechanism, whereby when a plunger is moved the carriage is released, stops carried by said rack and arranged to engage said plungers when moved, and means for actuating said plungers, as and for the purpose set forth.

2. In a type-writer, a paper-carriage, a feed mechanism therefor, stops carried by said carriage, a series of movable plungers, each arranged to be moved into position to be engaged by a stop on the carriage, an arm or bar actuated by any one of said plungers for releasing the carriage from its feed mechanism, a brake, and connections actuated by the movement of said arm or bar for applying said brake to the carriage, as and for the purpose set forth.

3. In a type-writer, a paper-carriage, a feed mechanism therefor, a series of movable plungers, each arranged when moved to arrest the carriage at a different distance from a predetermined point, a feed mechanism for said carriage, an arm or bar actuated by the movement of any one of said plungers, devices connected to said arm or bar for releasing the carriage from its feed mechanism, a brake for the carriage, and means actuated by the movement of any one of the plungers for applying said brake, as and for the purpose set forth.

4. In a type-writer, a paper-carriage, a feeding mechanism therefor, stops carried by said carriage, a series of movable plungers, a brake-arm, a brake-shoe yieldingly mounted on said arm, means actuated by the movement of any one of said plungers for releasing said carriage from its feed mechanism, and connections, also actuated by the movement of any one of said plungers, for rocking said brake-arm and applying the brake to said carriage, as and for the purpose set forth.

5. In a type-writer, a paper-carriage having the usual feed mechanism, a stop-rack and stops carried by said carriage, a series of movable plungers, an arm or strap arranged to be engaged and rocked when any one of said plungers is moved, and intermediate connections between said bar and carriage-feed mechanism and independent of said rack-bar, and actuated by the movement of said arm or strap, for releasing the carriage from its feed mechanism, as and for the purpose set forth.



6. In a type-writer, a paper-feed carriage, a stop-rack carried thereby, said rack provided with grooves or seats arranged a distance apart corresponding to the distance traversed by the carriage in moving a letter-space, stops in the form of flat plates of a thickness such as to permit the edge thereof to be removably received in said grooves or seats, a series of movable plungers arranged a letter-space distance apart, means for actuating said plungers, and means for releasing the carriage from its feed mechanism, as and for the purpose set forth.

7. A stop-rack having grooves on opposite sides thereof and arranged a letter-space distance apart, in combination with stops in the form of flat plates arranged to straddle said rack, and having the edges thereof adapted to be received in said grooves, whereby said stops may be readily inserted in or removed from said grooves, as and for the purpose set forth.

8. A stop-rack having grooves in the exterior surface thereof, said grooves being spaced a letter-space distance apart, in combination with stops in the form of thin flat plates arranged to be removably inserted in said grooves, as and for the purpose set forth.

9. The combination in a type-writer of a paper-carriage and its feed mechanism, with a stop-rack carried by said carriage, a series of movable stop-plungers, and means for relatively adjusting said rack and plungers, as and for the purpose set forth.

10. The combination in a type-writer with a paper-carriage, a stop-rack adjustably connected at the ends thereof to said carriage and carrying stops, a series of stop-plungers, means for actuating the same, said plungers and stop-rack being relatively adjustable toward and from each other, as and for the purpose set forth.

11. In a type-writer, a paper-carriage, a feed mechanism therefor, a stop-rack and stops carried by said carriage, a series of movable plungers, each provided with a shoulder, a movable bar or arm independent of said stop-rack arranged in front of said shoulders, whereby when any one of said plungers is moved, said bar or arm is moved, means for actuating said plungers, and intermediate connections between said arm or bar and the carriage-feed mechanism actuated by the movement of said bar or arm for releasing the paper-carriage from its feed mechanism, as and for the purpose set forth.

12. In a type-writer, a paper-feed carriage, feeding mechanism therefor, a stop-rack and stops carried by said carriage, a series of movable stop-plungers, each provided with a shoulder or lug, means for actuating said plungers, and intermediate connections arranged to be engaged and actuated by the shoulders on said plungers for releasing the paper-carriage from its feed mechanism, said intermediate connections being independent of said stop-rack, as and for the purpose set forth.

13. In a type-writer, a paper-carriage, a feed mechanism therefor, and stops carried by said carriage in combination with an auxiliary frame, movable plungers mounted therein, said plungers being scored or grooved on their contacting faces, and means for actuating said plungers, as and for the purpose set forth.

14. The combination with a paper-carriage and its feed mechanism, of means for releasing said carriage from its feed mechanism, and means for arresting the same at predetermined points for uniformly columnating figures and the like, and including sliding plungers, said plungers being grooved on their contacting surfaces, as and for the purpose set forth.

15. The combination with a paper-carriage and its feed mechanism, a stop-rack and stops carried by said carriage, of a series of plungers arranged to be moved into the path of said stops, levers connected to said plungers for moving the same, auxiliary keys for rocking said levers, and intermediate connections between said plungers and the carriage-feed mechanism and coincident with the movement of said plungers for releasing the carriage from its feeding mechanism, said intermediate connections being independent of said stop-rack, as and for the purpose set forth.

16. The combination with a paper-carriage and its feed mechanism, of a tabulator attachment for releasing said carriage and arresting the same in position to uniformly columnate figures and the like, and means for locking said feed mechanism against accidental displacement, as and for the purpose set forth.

17. In a type-writer, a paper-carriage and its feed mechanism, a stop-rack and stops carried by said carriage, in combination with an auxiliary frame, pins or bolts mounted therein, a series of slotted plungers mounted to slide on said pins or bolts, means for independently moving said plungers, an arm or bar arranged to be actuated by the movement of any one of said plungers for releasing the carriage from its feed mechanism, said arm or bar being independent of said stop-rack, as and for the purpose set forth.

18. In a type-writer, a paper-carriage and its feed mechanism, and stops carried by said carriage, in combination with an auxiliary frame, a series of sliding plungers mounted therein, said plungers arranged therein a letter-space distance apart, a lever loosely connected to each of said plungers, whereby said plungers may be independently moved, auxiliary keys for actuating said levers, and means for releasing the carriage from its feeding mechanism, as and for the purpose set forth.

19. In a type-writer, a paper-carriage and its feed mechanism, and stops carried by said carriage, in combination with an auxiliary frame, a series of sliding plungers arranged therein a letter-space distance apart, each plunger provided with a seat or depression, a lever loosely connected to each plunger in said seat or depression, auxiliary keys for actuating said plungers, and means for releasing the paper-carriage from its feed mechanism, as and for the purpose set forth.

20. In a type-writer, a paper-carriage and its feed mechanism, stops carried thereby and arranged to be adjusted to any desired point with reference to each other and the spacing-scale of the type-writer, a series of movable plungers arranged a letter-space distance apart, said plungers having beveled ends, means for independently projecting said plungers into the path of traverse of said stops, and means for releasing said carriage from its feed mechanism, as and for the purpose set forth.

21. In a type-writer, a paper-carriage and its feed mechanism, a stop-rack and stops carried by said carriage, a series of movable plungers arranged a letter-space distance apart, a bail or strap independent of said stop-rack and arranged to be engaged and moved when any one of said plungers is projected, means actuated by the movement of said bail or strap for releasing the paper-carriage from its feed mechanism, and means for independently projecting said plungers, as and for the purpose set forth.

22. In a type-writer, a paper-carriage and its feed mechanism, a stop-rack and stops carried by said carriage, an auxiliary frame, pins or rods mounted therein, a series of sliding plungers arranged a letter-space distance apart and mounted to slide upon said pins or rods, a strap or bail independent of said stop-rack and common to all of said plungers, whereby when any one of said plungers is moved said strap or bail is moved, means actuated by the movement of said strap or bail for releasing the carriage from its feed mechanism, and means for independently actuating said plungers, as and for the purpose set forth.

23. In a type-writer, a paper-carriage and its feed mechanism, a stop-rack and stops carried by said carriage, an auxiliary frame, pins or rods mounted therein, sleeves mounted on said pins or rods, a series of plungers mounted to slide on said sleeves, said plungers arranged a letter-space distance apart and adapted to be projected into the path of said stops, means for independently projecting said plungers, and means actuated when any one of said plungers is actuated, and independent of said stop-rack for releasing the carriage from its feed mechanism, as and for the purpose set forth.

24. In a type-writer, a carriage having the usual feed mechanism, a stop-rack, and stops carried by said carriage, a series of movable plungers each arranged to be moved into position to be engaged by a stop on the carriage, an arm or strap arranged to be moved when any one of said plungers is moved, intermediate connections between said arm or strap and carriage-feed mechanism and independent of said rack for releasing the carriage from its feed mechanism, and means for independently actuating said plungers, as and for the purpose set forth.

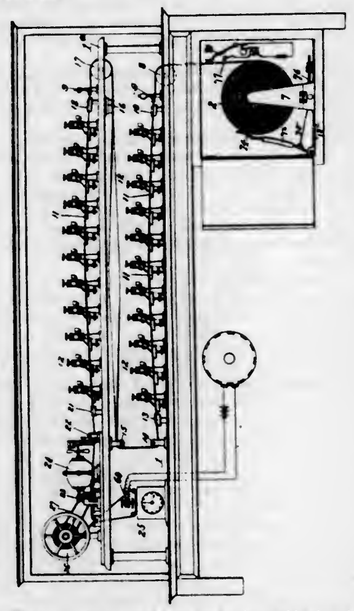
681,931. **BRUSH.** JOSEPH SCHREINER, Newark, N. J., assignor to the Rubber and Celluloid Harness Trimming Co., of New Jersey. Filed Jan. 23, 1900. Serial No. 2,425. (No model.)



Claim.—1. The herein-described brush, consisting, essentially, of a handle *a*, having a butt a^2 and an annular groove in the cylindrical surface of said butt, a metallic ring of non-corrosive metal on said butt, a knot or bunch of bristles in said ring, a non-metallic ferrule surrounding said ring, a ring-shaped shoulder or projection on said ferrule, extending into said annular groove of said butt, and a protecting means at the lower marginal edge of said ring, arranged and constructed to extend around the lower marginal edge of said ferrule, substantially as and for the purposes set forth.

2. The herein-described brush, consisting, essentially, of a handle *a*, having a butt a^2 and an annular groove in the cylindrical surface of said butt, a metallic ring of non-corrosive metal on said butt, a knot or bunch of bristles in said ring, a ferrule of hard rubber, surrounding said ring, a ring-shaped shoulder or projection on said ferrule, extending into said annular groove of said butt, and a marginal bead or upturned edge surrounding the lower extremity of said metallic ring and in contact with the lower marginal edge of said ferrule, substantially as and for the purposes set forth.

681,932. **TELEGRAPHIC RECORDING APPARATUS.** JOHN F. SKIRROW, East Orange, N. J. Filed Jan. 25, 1901. Serial No. 44,685. (No model.)



Claim.—1. In a recording apparatus the combination of means for supporting a record-strip, a series of marking-tables arranged in an upward-curved arc, means for moving the strip over the said tables, a recorder adjacent each table and adapted to mark on said strip, each of said recorders being in circuit with a telegraph instrument and working in unison therewith, and a tension device at each end of the series of tables to hold the strip flat on the tables.

2. In a recording apparatus the combination, of means for supporting a record-strip, a series of marking-tables, means for moving the record-strip over said tables, a recorder adjacent each table and adapted to mark on said strip, each of said recorders being in circuit with a telegraph instrument and working in unison therewith, a flexible lint and tension brush at the forward end of the series of tables and bearing on the upper side of the strip, and a tension device at the rear end of the series of tables and bearing on the strip.

3. A recorder consisting of a support, a magnet, a pivoted armature, a marker carried by said armature and consisting of a heavy glass siphon having a large channel therethrough, the lower end of its longer arm being drawn down to form a fine marking-point and to reduce the channel, the lower end of its shorter arm being connected to an ink-well, and means for securing said marker to the armature.

4. In a recording apparatus the combination, of a support for a record-strip, a recorder, a drawing mechanism consisting of a main roll, means for driving the main roll, a pivoted frame below the main roll, a pressure-roll in said frame, an adjusting-lever extending inward under said frame, a spring between the inner end of the lever and the frame, and an adjusting-screw in the outer end of the lever, substantially as described.

5. In a recording apparatus, the combination of means for supporting a record-strip, a series of marking-tables arranged in an upward-curved arc, means for moving the strip over said tables, a recorder adjacent each table and adapted to mark on said strip each of said recorders being in circuit with a telegraph instrument and working in unison therewith, a flexible lint-brush at the forward end of the series of tables and bearing on the strip and depressing it below the forward end table, and a tension device at the rear end of the series adapted to depress the strip below the rear end table.

6. In a recording apparatus, the combination of means for supporting a record-strip, a recorder, a mechanism for drawing the strip past the recorder, a winding-reel, a slip-belt driving the winding-reel, and a time-stamping mechanism between the drawing mechanism and the winding-reel and adapted to operate on the record-strip.

7. In a recording apparatus, the combination of means for supporting a record-strip, a recording mechanism, means for drawing the strip past the recording mechanism, a winding-reel to receive the strip from the drawing mechanism, and a slip-belt driving the winding-reel from the drawing mechanism.

8. In a recording apparatus, the combination of means for supporting a record-strip, a recorder, a drawing mechanism, a winding-reel, and a longitudinally-yieldable slip-belt driving the winding-reel from the drawing mechanism.

9. In a recording apparatus, the combination of means for supporting a record-strip, a recorder, a drawing mechanism, a winding-reel, and an endless coil-spring slip-belt driving the winding-reel from the drawing mechanism.

10. In a telegraphic recording apparatus the combination, of a support for a record-strip, a series of recorders, each of said recorders being in electrical connection with a telegraph instrument, a tension device for the record-strip at each end of the series of recorders, a second series of recorders, means between the two series of recorders for reversing the record-strip, a tension device at each end of the second series of recorders, and a drawing mechanism whereby both sides of the record-strip will be marked upon.

11. A recorder consisting of a standard, a horizontal supporting-bar formed with a socket at its inner end adapted to receive the standard, an adjusting-screw carried by the said bar and engaging the standard, a magnet carried by said bar, an armature pivoted on said bar and carrying an adjustable marker, and a marking-table to support a record-strip adjacent the marker.

12. A recorder consisting of a standard, a horizontal supporting-bar formed with a socket at its inner end adapted to receive the standard, means carried by the supporting-bar and engaging the standard to secure the bar in position, a magnet carried by the bar, an armature pivoted on the bar and carrying a marker-holding means at one of its ends, and a marker consisting of a siphon having the lower end of its longer arm drawn to a marking-point and the lower end of its shorter arm secured to and carrying an ink-reservoir.

13. In a recording apparatus, the combination of a pair of supports one of which is adapted to be moved outward away from the other, means for locking the movable support in its inner position, a spindle journaled in said supports, means on said spindle for clamping a roll of record-strip, a recorder, and means for drawing said strip past the recorder.

14. In a recording apparatus, the combination of a support for a record-strip, a recorder, a mechanism to draw the strip past the recorder, said drawing mechanism consisting of a main drawing-roll, means for rotating said roll, a pressure-roll below the main roll, means for yieldingly pressing said pressure-roll against the main roll, means for adjusting said pressure, a winding-reel, and means for driving said reel from the drawing mechanism.

15. In a recording apparatus, the combination of a support for a record-strip, a recorder, a drawing mechanism, said drawing mechanism consisting of a main roll, means for driving said roll, a pressure-roll below the main roll, means for yieldingly holding the pressure-roll against the main roll, a winding-reel, and a slip-belt driving the reel from the main drawing-roll.

16. In a recording apparatus, the combination of a support for a record-strip, a recorder, a drawing mechanism consisting of a main roll, means for positively driving the main roll, a pivoted frame below the main roll, a pressure-roll in said frame, an adjusting-lever extending inward under said frame, a spring between the inner end of the lever and the frame, an adjusting-screw in the outer end of the lever, a winding-reel, and a slip-belt driving the reel from the main drawing-roll.

17. A recorder consisting of a standard, a supporting-bar formed with a socket at its inner end adapted to receive the standard, an adjusting means securing the bar to the standard, a magnet carried by said bar, an armature pivoted on said bar and carrying an adjustable marker, and a marking-table to support the record-strip adjacent the marker.

18. A recorder consisting of, a standard, a supporting-frame vertically adjustable thereon, a magnet carried by said frame, a pivoted bar, one end of which forms an armature, a marker carried by the other end of the said pivoted bar, and an independently-adjustable marking-table for the record-strip to hold said strip adjacent the marker.

19. A recorder consisting of a support, a magnet carried thereby, a pivoted bar the inner end of which forms an armature, a pair of slides on the outer end of said bar, an arm on each slide, said arms inclining away from each other and connected at their ends by a clamp-screw, and a marking device adapted to be clamped between the arms on the slides.

20. A recorder consisting of, a support, a magnet carried thereby, a pivoted bar one end of which forms an armature, a slidable clamp on the other end of said bar, and a marking device adapted to be supported by said clamp and consisting of a siphon having the lower end of its longer arm formed into a marking-point, and the lower end of its shorter arm secured to and carrying an ink-well.

21. A recorder consisting of a standard, a supporting-frame vertically adjustable thereon, a magnet carried by said frame, a pivoted bar carried by the supporting-frame, one end of said pivoted bar forming an armature for the magnet, an adjustable marker on the other end of the pivoted bar, and a vertically and horizontally adjustable marking-table to hold the record-strip adjacent the marker.

22. A recorder consisting of a standard, a supporting-frame vertically adjustable thereon, a magnet carried by said frame, a pivoted bar carried by said supporting-frame, one end of said pivoted bar forming an armature for the magnet, a marker carried by the other end of the pivoted bar, a vertically-adjustable marking-table, and means for tilting said table forward or rearward.

23. A recorder consisting of a standard or base, a marking mechanism vertically adjustable thereon, a marking-table, means for tilting said table forward or rearward, and means for vertically adjusting said table.

24. A recorder consisting of a standard, a supporting-frame vertically adjustable thereon, a magnet carried by said frame, a pivoted bar carried by said supporting-frame, one end of said pivoted bar forming an armature for the magnet, a marker adjustable on the other end of said pivoted bar, a vertically and horizontally adjustable marking-table, and means for tilting said table forward or rearward.

25. In a telegraph recording apparatus, the combination of a support for a record-strip, a series of recorders, each recorder being electrically connected to a telegraph instrument and operating in unison therewith, and consisting of a marking apparatus and an independent marking-table to support the strip close to the marking apparatus, and means for drawing the strip over said tables.

26. In a telegraphic recording apparatus, the combination of a support for a record-strip, a plurality of recorders each recorder being electrically connected to a telegraph instrument and operating in unison therewith, and consisting of a marking apparatus, an independent marking-table to support the strip close to the marking apparatus, and means for adjustably supporting each of said tables.

27. In a telegraphic recording apparatus, the combination of a support for a record-strip, a plurality of recorders, each recorder being electrically connected to a telegraph instrument and working in unison therewith and consisting of a marking apparatus, an independent marking-table for each recorder, means for tilting said table forward or rearward, and means for drawing said strip over the tables.

28. In a telegraphic recording apparatus, the combination of a support for a flexible record-strip, a plurality of recorders arranged in line, each recorder being electrically connected to a telegraph instrument and working in unison therewith, and consisting of a marking device, a vertically-adjustable marking-table therefor, a tension device at one end of said line of recorders and adapted to bear on the strip, a blotting device at the other end of the line of recorders, and a mechanism for drawing the record-strip over the line of marking-tables and the blotting device.

29. In a telegraphic recording apparatus, the combination of a support for a flexible strip, a plurality of recorders arranged in a line each recorder being electrically connected to a telegraph instrument, means for drawing the strip past the recorders, a flexible tension device at the forward end of the line of recorders and adapted to engage the flexible strip, and a rotary blotter at the rear end of the line of recorders and adapted to engage the flexible strip.

30. In a telegraphic recording apparatus, the combination of a support for a record-strip, a series of recorders, each of said recorders being in electrical connection with a telegraphic instrument, a tension device for the record-strip at one end of the series of recorders, a rotary blotter for said strip at the other end of said series of recorders, a second series of recorders, means between the two series of recorders for reversing the record-strip, a tension device and a blotting device for the second series of recorders, a drawing mechanism, a winding-reel, and means for operating them, whereby both sides of the record-strip will be marked upon.

31. In a telegraphic recording apparatus the combination, of a support for a record-strip, a series of recorders, each of said recorders being in electrical connection with a telegraphic instrument, a tension device for the record-strip at each end of the series of recorders, a second series of recorders, means between the two series of recorders for reversing the record-strip, a tension device at each end of the second series of recorders, a drawing mechanism, a winding-reel, and means for operating it from the drawing mechanism, whereby both sides of the record-strip will be marked upon.

32. In a telegraphic recording apparatus the combination, of a support for a record-strip, a series of recorders, each of said recorders being in electrical connection with a telegraphic instrument, a flexible tension-brush at the forward end of the series of recorders, a rotary blotter for said strip at the other end of said series of recorders, a second series of recorders each of which is connected to a telegraphic instrument, means between the two series of recorders for reversing the record-strip, a flexible tension-brush at the forward end of the second series of recorders, a rotary blotter at the other end of the second series, a drawing mechanism, whereby both sides of the record-strip will be marked upon.

33. A marker for a recording apparatus, consisting of a glass siphon, having the lower end of its longer arm drawn to a marking-point, and a glass ink-reservoir formed integral with the lower end of the shorter arm of the siphon, and a closure device and a vent for said ink-reservoir.

34. In a telegraphic recording apparatus, the combination, of a support for a record-strip, a series of recorders, each recorder being electrically connected to a telegraph instrument and working in unison therewith, and consisting of a vertically-adjustable marking apparatus, and means for supporting the record-strip adjacent the marking apparatus of each recorder.

35. In a telegraphic recording apparatus, the combination of a support for a record-strip, a series of recorders, each recorder being electrically connected to a telegraph instrument and working in unison therewith, and consisting of a vertically-adjustable marking apparatus, and a vertically-adjustable marking-table for each marking apparatus.

36. In a recording apparatus, the combination of a recorder, a drawing mechanism, a winding-reel adapted to receive the record-strip from the drawing mechanism and consisting of a supporting-spindle, two separated rotatable members thereon, one of said members being removable, a hub carried by one of said members and extending across the space between the members, and an eccentric clamping device carried by one member and adapted to clamp the record-strip to the hub, means for holding the removable member in place, and means connected to the non-removable member and to the drawing mechanism for driving the winding-reel.

37. In a recording apparatus, the combination of a recorder, a drawing mechanism, a winding-reel adapted to receive the record-strip from the drawing mechanism and consisting of a supporting-spindle, two separated members thereon, one of said members being removable, a hub carried by one of said members and extending across the space between the members, headed pins carried by said hub and extending through the removable member, means carried by the removable member to engage the headed pins and lock the removable member in place, and means for clamping the record-strip on the hub, and means connected to the non-removable member and to the drawing mechanism for driving the winding-reel.

38. In a recording apparatus, the combination of a recorder, a drawing mechanism, a winding-reel adapted to receive the record-strip from the drawing mechanism and consisting of a supporting-spindle, two separated members thereon, one of said members being removable, a hub carried by one of said members and extending across the space between the members, headed pins carried by said hub and extending through the removable member a slotted disk carried by the removable member and adapted to be partly rotated to engage the pins and hold the said member in place, means for clamping the record-strip to the hub, and means connected to the non-removable member and to the drawing mechanism for driving the winding-reel.

39. In a recording apparatus, the combination of a support for a record-strip, a series of recorders, connected to a series of telegraph instruments and operating in unison therewith, means for drawing the strip past the recorders, and a rotary blotter at the end of the series and adapted to bear on the record-strip.

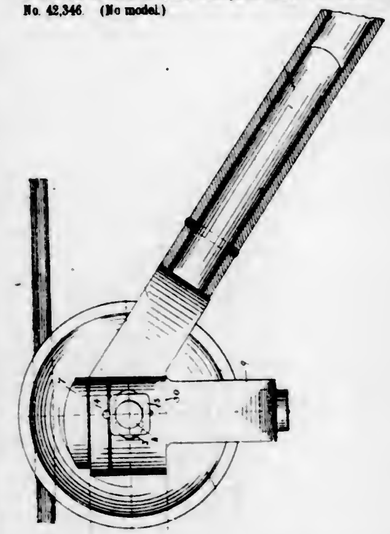
40. In a recording apparatus, the combination of a support for a record-strip, a series of recorders connected to a series of telegraph instruments and operating in unison therewith, means for drawing the strip past the recorders, and a rotary blotter at the end of the series and adapted to bear on the record-strip, said blotter consisting of a spindle and a support therefor, a cylinder supported on said spindle, a pair of slidable rings on said cylinder and adapted to clamp a removable covering of blotting material between them.

41. In a recording apparatus, the combination of a support for a record-strip, a series of recorders connected to a series of telegraph instruments and operating in unison therewith, means for drawing the strip past the recorders, and a rotary blotter at the end of the series and adapted to bear on the record-strip, said blotter consisting of a rotatable cylinder and a support therefor, a slidable ring on each end of the cylinder, a clamping-flange on each ring and adapted to engage the adjacent edge of a removable cylinder-covering of blotting material.

42. In a recording apparatus, the combination of a support for a record-strip, a series of recorders connected to a series of telegraph instruments and operating in unison therewith, means for drawing the strip past the recorders, and a rotary blotter at the end of the series and adapted to bear on the record-strip, said blotter consisting of a spindle and a support therefor, a cylinder, antifriction-bearings on the spindle and supporting the cylinder, a slidable ring on the cylinder at each end thereof, an inward-extending clamping-flange formed on each ring and adapted to engage the adjacent edge of a removable covering of blotting material.

43. In a recording apparatus, the combination of a series of recorders connected to a series of telegraph instruments and operating in unison therewith, a support for a roll of record-strip, said support consisting of a spindle, a support therefor, a hollow shaft surrounding said spindle, antifriction-bearings carried by the spindle and supporting the hollow shaft, a two-part sleeve on the shaft, and adapted to be secured together, one of said parts being removable, said sleeves when connected together being adapted to support the roll of record-strip, and means for drawing the strip past the recorders.

681,933. TROLLEY. HUGH SMITH, Watervliet, N. Y., assignor of one-half to John H. Jones, same place. Filed Jan. 7, 1901. Serial No. 42,346. (No model.)



Claim.—1. The combination with a trolley-wheel, and a trolley-pole: of a wheel-holder on the upper end of the pole comprising bifurcate arms having concave segments each with a guide-slot, and apertured convex bearing-segments movable, in such concave segments, revolubly

about a vertical axis; a wheel-axle having its ends projecting through the apertured convex segments respectively into the guide-slots in the concave segments, and means for securing the axle against end thrust, substantially as described.

2. The combination with a trolley-wheel, and a trolley-pole: of a wheel-holder on the upper end of the pole comprising bifurcate arms having concave segments, each with a guide-slot, and apertured convex bearing-segments movable, in such concave segments, revolubly about a vertical axis; depending yokes, one within the other, pivotally connected with each other at their lower extremities in the axial line of such concave and convex segments, the outer yoke connecting the concave segments, and the inner yoke connecting the inner segments; a wheel-axle; and means for securing the axle in such segments and against end thrust, substantially as described.

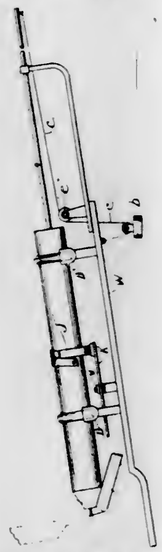
3. The combination with a trolley-wheel and a trolley-pole; of a wheel-holder on the upper end of the pole comprising bifurcate arms each having a cylindrical segment with a guide-slot and apertured convex bearing-segments movable in such cylindrical segments revolubly about the axis of the cylindrical segments; a wheel-axle having its ends respectively projecting through both segments; concave washers, one at each end of the axle, bearing upon the convex surface of the adjacent cylindrical segment; and means for securing the washers upon the axle ends, substantially as described.

681,934. **CHATELAINE-PIN.** NOYES J. SMITH, Attleboro, Mass., assignor to S. A. Dean Company, same place. Filed June 14, 1901. Serial No. 64,539. (No model.)



Claim.—In a chatelaine-pin, the combination with the face-plate *a*, having the cavity *a'* in the back of the face-plate, the cap *b* detachably secured to and projecting beyond the back of the face-plate, the pin *g'* pivotally secured to the back of the cap *b*, a number of devices g^2, and the pendants g^1 g^3, of the plate *c*, the fixed post *c'* on the back, the ring *d*, the coiled spring *d'* connected with the post *c'* and the ring *d*, the watch-chain *e* secured at one end to the ring *d*, and the chain-swivel *f* secured to the other end of the watch-chain, as described.

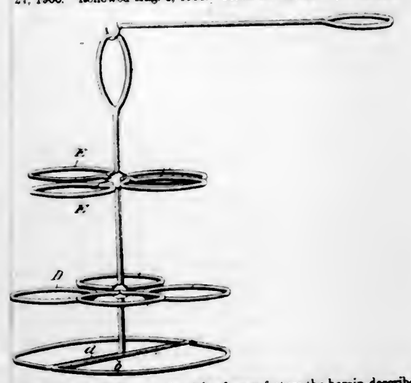
681,935. **FEEDING MECHANISM FOR TACK-MACHINES.** FREDERIC A. SNELL, Providence, R. I. Filed Dec. 13, 1900. Serial No. 39,646. (No model.)



Claim.—1. In a strip-feeding mechanism, the combination with a nosepiece having its front slotted end transverse to its axis, and the exterior portion made tapering from the transverse part rearward; of a cutting member having a cutting portion and a shank projecting therefrom at an angle corresponding to the angle of said tapering portion with the end of the nosepiece, the cutting member having the said parts arranged to engage the end and the tapering portions of the nosepiece respectively when the strip is supported upon the cutting portion.

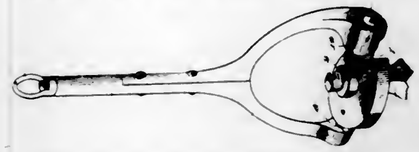
2. In a strip-feeding mechanism, the combination of a nosepiece of substantially oblong cross-section with curved corners, said nosepiece having a slot at its front end for engaging a strip and having its bore tapering from said slot rearward, and a pair of nippers adapted to support the strip to be fed, the nippers being made tapering and arranged to engage the walls of the said nosepiece when supporting the strip in said slot.

681,936. **EGG-BOILER.** FRANK SOADY, Pekin, Ill. Filed Sept. 27, 1900. Renewed Aug. 8, 1901. Serial No. 71,403. (No model.)



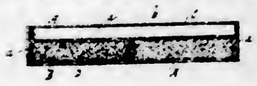
Claim.—As an improved article of manufacture the herein-described egg-boiler the same consisting of a body portion of a single piece of wire bent to form a base with one end of the wire extended diametrically across the same and secured to the base and the other end extended half-way across the diameter of the base and secured to the diametric portion and from the center of the base extended upwardly and terminating in a loop, and a series of sets of egg-supporting loops supported on the vertical portion of the body with the loops of one set alternating with those of the next adjacent set, all substantially as shown and described.

681,937. **SUCKER-ROD ELEVATOR.** CASSIUS M. SPINK, Cygnet, Ohio, assignor of one-half to Charles E. Wolfe, same place. Filed Mar. 28, 1901. Serial No. 53,289. (No model.)



Claim.—In a sucker-rod elevator, the combination of a forked stem, the fork members of which are provided with corresponding bearings, a wrench-head pivoted in the bearings and provided with a slot extended endwise between the fork members and having an open end located adjacent to one of the bearings, and an arcuate closure-flange upon the inner side of the fork member which is adjacent to the open end of the slot, said flange being substantially concentric with and arched over the adjacent bearing, with one end portion normally lying within the open end of the slot and closing the same, and the flange also being constructed to turn through the slot when the stem is being swung upon its pivotal connection with the wrench-head, whereby the slot is maintained closed during the swing of the stem.

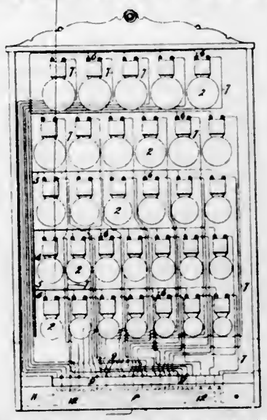
681,938. **HEAT-INSULATING WALL.** BENJAMIN A. STEVENS, Toledo, Ohio. Filed Feb. 18, 1901. Serial No. 47,780. (No model.)



Claim.—1. A heat-insulating block, consisting of a box A, a second box B, of less depth than the box A, placed therein the latter with its open end inward, and a third box C, placed over the box A, so that the bottom of the box C, shall lie approximately even with the edges of the box A, and shall form the top of the box A, substantially as described.

2. A heat-insulating block, consisting of a box A, a second box B, of less depth than the box A, placed within the latter with its open end inward, and a third box C, placed over the box A, with its sides lying against the sides of the box A, and united thereto by glue, the box C, being so placed that its bottom shall close the open end of the box A, substantially as described.

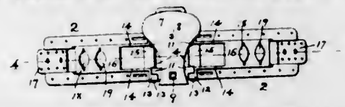
681,939. **ELECTRICAL MUSICAL INSTRUMENT.** ROCCO L. VENUTO, Kansas City, Mo. Filed Aug. 7, 1900. Serial No. 26,119. (No model.)



Claim.—1. An electrical musical instrument, comprising a suitable casing, a plurality of electromagnetic bells therein, an electric battery, a conductor connecting one pole of the battery with each bell, a contact connected to the opposite pole of the battery, keys corresponding in number to the bells, a conductor between each key and the bell representing the tone of said key, a contact for each key adapted to contact with the said contact connected to the battery, a resistance or rheostat in said circuit, a local circuit including a source of electric energy, an electromagnet, and a pair of contacts, a key to place said contacts in electrical engagement, an armature-carrying arm for operating the rheostat, and a spring to normally hold said arm elevated when said local circuit is broken, substantially as described.

2. An electrical musical instrument, comprising a suitable casing, a plurality of electromagnetic bells therein, an electric battery, a conductor connecting one pole of the battery with each bell, a contact connected to the opposite pole of the battery, keys corresponding in number to the bells, a conductor between each key and the bell representing the tone of said key, a contact for each key adapted to contact with said contact connected to the battery, a rheostat in said circuit, embodying a plurality of contact-points, and a lever to contact successively with said points, provided with an arm, a spring engaging said arm, an armature carried by said arm, a local circuit including a source of electric energy, an electromagnet, and a pair of contacts and a key pivoted to work laterally and adapted to place said contacts in electrical engagement, all arranged substantially as and for the purpose described.

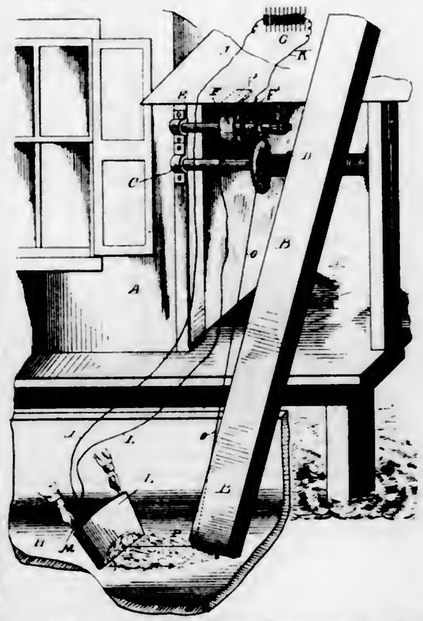
681,940. **HARNESS-SADDLE.** GEORGE WALKER, Newark, N. J., assignor to Rubber and Celluloid Harness Trimming Co., of New Jersey. Filed Mar. 9, 1901. Serial No. 50,430. (No model.)



Claim.—1. A saddletree consisting, of a gullet 3, ribs 5 on said gullet, a pair of side plates 2, ribs 14 on said side plates, perforated ears on the ribs 5 and perforated ears on the ribs 14, and pivotal pins in said ears, substantially as and for the purposes set forth.

2. The herein-described saddletree for a saddle, consisting, essentially, of a gullet 3 having ribs 5, and projections on said ribs for the support of a cantle thereon, perforated ears on said ribs 5, side plates 2 provided with perforated ears registering with the perforated ears of said ribs on said gullet, and pins in the said perforated ears for pivotally connecting the said side plates with said gullet, substantially as and for the purposes set forth.

681,941. **POWER SHOVELING DEVICE.** CHARLES S. WESTBROOK, Ogdensburg, N. Y. Filed Nov. 28, 1900. Serial No. 38,021. (No model.)



Claim.—1. The combination with a shovel or scoop, of a stationary electric motor for actuating it, a source of electric energy in circuit with the shovel or scoop and the motor, and a circuit-controller carried by the shovel or scoop, substantially as described.

2. The combination with a shovel or scoop, of a stationary electric motor for actuating it, a drum driven by said motor, a cable from said drum connected to the shovel or scoop, a source of electric energy in circuit with the motor and the shovel or scoop, and a circuit-controller carried by the shovel or scoop, substantially as described.

3. The combination with a shovel or scoop, of a motor, a drum geared thereto, a cable from said drum attached to the shovel or scoop for actuating it, and means attached to and carried by the shovel or scoop for starting the motor, substantially as set forth.

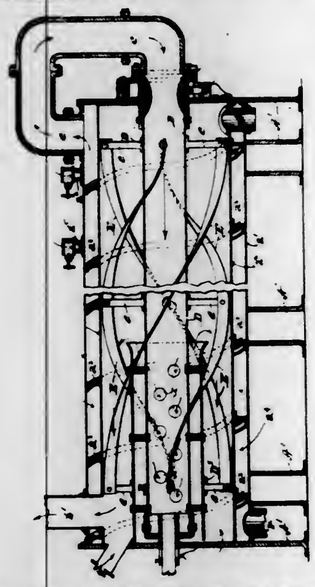
681,942. **DRYING APPARATUS.** CARL WHITE, Newhope, Ky. Filed Dec. 3, 1900. Serial No. 38,486. (No model.)

Claim.—1. In a drying apparatus, the combination of a jacketed drum; an axial hollow rotatable shaft; means connecting with one end portion of the drum and admitting hot air thereto; a pipe or passage connecting with the opposite end portion of the drum said pipe or passage having its opposite end connecting with one end of the shaft; a spiral conveyer carried by the shaft; and a pipe or passage at the end of the drum opposite to the first-named pipe or passage and through which vapors may be exhausted from the interior of the drum.

2. In a drying apparatus, the combination of a stationary jacketed drum having a hot-air entrance connecting with the jacket-space near one end of the drum, and a discharge-passage from the interior of the drum, near the opposite end thereof; a hollow rotatable shaft, having means for conveying the material through the interior of the drum; a pipe or passage connecting the jacket-space of the drum directly with the shaft; and a pipe or passage leading from the interior of the drum and through which the air is exhausted from the shaft and the vapors from the drum.

3. In a drying apparatus, the combination of a drum; means for heating the same; a hollow rotatable shaft; means carried by the shaft for conveying material through the drum, said shaft having air-outlets

near one end; an inclosure for said outlets; and means whereby the vapors may be exhausted from the drum.



4. In a drying apparatus the combination of a drum and an axial hollow rotatable shaft; means whereby the drum may be heated and the heat medium conveyed to the interior of the shaft said shaft having outlets near one end; a shield or casing surrounding said outlets and separated from the shaft to form an intervening passage which connects with the interior of the drum; means whereby the vapors may be exhausted from the drum; and means for conveying material through the drum.

5. In a drying apparatus the combination of a drum and a hollow shaft therefor having air-outlets near one end; means for supplying hot air to said shaft; a shield or casing surrounding one end of the shaft and covering and protecting said outlets said shield receiving the material upon its exterior and dividing and heating it; and means for conveying the material through the drum, substantially as described.

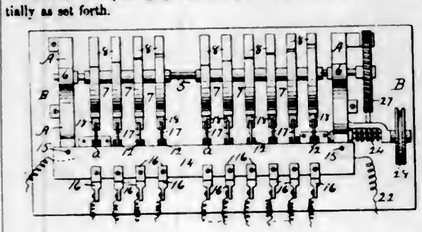
6. In a drying apparatus the combination of a drum and means whereby the same may be heated; a hollow rotatable shaft adapted to receive heat products said shaft having openings in one end portion; and a shield surrounding the last-named portion of the shaft and upon which the material first falls and by which it is spread into a sheet and heated; and means for conveying the material through the interior of the drum.

7. In a drying apparatus a jacketed drum having a spiral passage through it said passage connecting at one end with a source of heat, and having a discharge at the opposite end; a hollow shaft and means for rotating the same; means connecting the discharge end of the spiral passage with one end of the shaft said shaft having heat-outlets near the opposite end; a shield surrounding the last-named end of the shaft so as to inclose the outlets and connect the interior of the shaft with the interior of the drum; means whereby the vapors may be exhausted from the interior of the drum; and means for conveying the material through the drum.

8. The apparatus for drying still-slop and similar semiliquid material, embodying a jacketed drum, adapted to be heated, an axial hollow shaft opening into the interior of the drum and rotating therein, radial arms fixed to the shaft and blades carried upon the arms in proximity to the curved wall of the drum, a pipe connecting the jacket-space of the drum directly with one end of the shaft said shaft having air-outlets in its opposite end portion, an inclosure for these outlets, and means whereby the air and vapors are exhausted from the drum.

681,943. **ELECTRIC SWITCH.** CHRISTIAN F. ZIEGLER, Chicago, Ill. Filed May 4, 1901. Serial No. 58,734. (No model.)

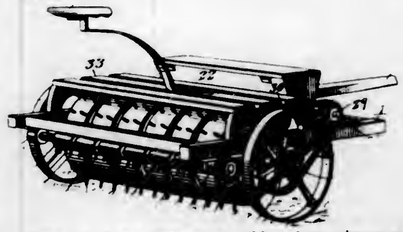
Claim.—1. In combination with a series of rotary devices, a series of circuit-closing levers 17, having projecting insulated tips arranged for mechanical contact with said rotating devices, a series of stationary parts in electric circuit with said levers, arranged for mechanical and electrical contact with the said levers as these latter are depressed by said rotating devices, a series of cushions arranged to prevent the excessive upward movement of the said levers, a series of springs attached to the said stationary parts to receive the impact of the said levers and aid in replacing them and a series of replacing-springs acting directly on said levers substantially as set forth.



2. In combination with a series of circuit-closing levers of rigid material arranged to be rocked on their pivots by the impact of such rotary devices a series of fixed rigid parts arranged and adapted to close the circuit with the said levers as the latter are depressed against them and replacing-springs and stops for said levers substantially as set forth.

3. Circuit-closing devices of rigid material arranged in a series of pairs one member of each pair being pivoted, in combination with a series of rotary segments acting on the pivoted members of the said pairs to close the said circuits, and replacing-springs for the said levers substantially as set forth.

681,944. **COMBINED HARROW AND PLANTER.** JESSE H. ALEXANDER, Labelle, Mo. Filed July 14, 1900. Serial No. 23,642. (No model.)



Claim.—1. A farm implement comprising a frame, a harrow-wheel provided with several circumferential series of teeth, and a clearing device having a series of separate pairs of clearing-teeth for each series of harrow-teeth, the spaces between the series of pairs of clearing-teeth being opposed to the spaces between the series of harrow-teeth.

2. A farm implement comprising a frame, a harrow-wheel provided with several circumferential series of teeth, and a rotary clearing device having a series of separate pairs of clearing-teeth for each series of harrow-teeth, the spaces between the series of pairs of clearing-teeth being opposed to the spaces between the series of harrow-teeth.

3. A farm implement comprising a frame, a series of harrow-wheels provided with several circumferential series of teeth, and a series of clearing-blocks opposed to the harrow-wheels and provided with series of separate pairs of clearing-teeth for the series of harrow-teeth, the spaces between the series of pairs of clearing-teeth being opposed to the spaces between the series of harrow-teeth.

4. A farm implement comprising a frame, a series of coaxial adjustable harrow-wheels each provided with several circumferential series of teeth, and a series of coaxial, rotary clearing-blocks adjustable for the purpose of accommodating them to the adjusted positions of the harrow-wheels, each of said clearing-blocks being provided with series of separate pairs of clearing-teeth for the series of harrow-teeth upon the adjacent harrow-wheel, the spaces between the series of pairs of clearing-teeth being opposed to the spaces between the series of harrow-teeth.

5. A farm implement comprising a frame, a series of relatively adjustable harrow-wheels each provided with a series of harrow-teeth, a cooperating series of independently-adjustable clearing devices having series of separate pairs of clearing-teeth for the series of opposed harrow-teeth, the spaces between the series of pairs of clearing-teeth being disposed between the series of harrow-teeth, and means for simultaneously operating the several wheels and clearing devices.

6. In a farm implement, the combination with a frame and driving-shaft, of a plurality of harrow-wheels mounted upon the shaft and arranged in separate relatively adjustable series, securing means common to the several wheels of each series, a clearer-shaft, a plurality of independently-adjustable clearing-blocks arranged for individual cooperation with the harrow-wheels, said harrow-wheels being provided with the harrow-teeth and said clearing-blocks being provided with series of separate pairs of clearing-teeth disposed for the reception of the harrow-teeth.

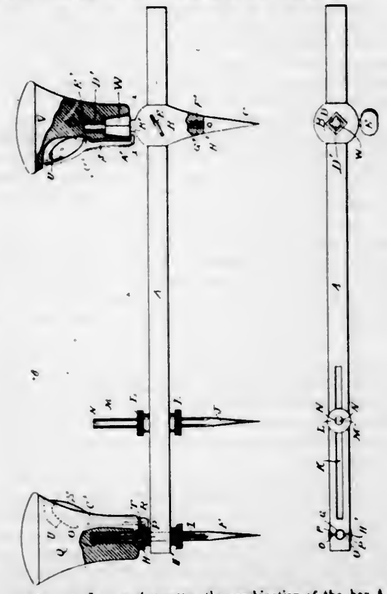
7. In a farm implement, the combination with a frame and shaft, of a plurality of harrow-wheels mounted upon the shaft in series, collars opposed to the wheels at the opposite ends of each series, means for retaining said collars upon the shaft, and means carried by the collars for operatively connecting the several wheels of each series to permit their simultaneous adjustment.

8. In a farm implement, the combination with a shaft, harrow-wheels mounted in series thereon, collars adjustably mounted upon the shaft and opposed to the opposite ends of each series, and a thrust-screw carried by the collar at one end of each series and bearing against the adjacent harrow-wheel for the purpose of clamping the several harrow-wheels of each series for simultaneous actuation.

9. In a farm implement, the combination with a harrow-shaft, of a plurality of harrow-wheels mounted in series on said shaft, adjustable collars confining the wheels of each series, a rotary clearing-shaft, a series of cylindrical clearing-blocks mounted upon said shaft, each of said blocks being opposed to the periphery of a harrow-wheel, means for fixing said blocks in their adjusted positions, harrow-teeth extending from the peripheries of the harrow-wheels, paired clearing-pins extending from the peripheries of the clearing-blocks, and gearing intermediate of the harrow-shaft and clearer-shaft to effect the simultaneous rotation of the harrow and clearing device.

10. In a farm implement, the combination with a frame and driving-shaft, of a plurality of harrow-wheels mounted upon the shaft and arranged in separate relatively adjustable series, adjustable collars confining the several wheels of each series, a clearer-shaft, a plurality of independently-adjustable clearing-blocks mounted on the clearer-shaft and arranged for individual coöperation with the harrow-wheels, said harrow-wheels being provided with harrow-teeth and said clearing-blocks being provided with clearing-teeth disposed to clear the harrow-teeth and located out of contact with the ground.

681,945. **GASKET-CUTTER.** JOSEPH F. AUSTEN, Milwaukee, Wis. Filed Nov. 21, 1900. Serial No. 37,246. (No model.)

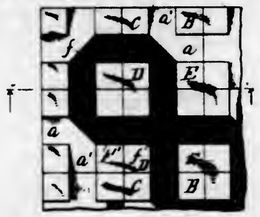


Claim.—1. In a gasket-cutter, the combination of the bar A provided with aperture G; cutting-knife F detachably secured in said aperture G; handle Q detachably secured to the shank I of said knife; adjustable pin B provided with rectangular shank W and cylindrical projection D'; and handle V detachably secured to said cylindrical projection D', substantially as and for the purpose specified.

2. In a gasket-cutter, the combination of the supporting-bar A; pin B adjustably secured to said bar; rectangular shank W; cylindrical projection D' formed integral with said pin B, and adapted to be interchangeably used in connection with a handle or bit-stock; handle V detachably secured to said cylindrical projection D'; knife F provided with screw-threaded shank I; clamping-nuts H and H' having screw-threaded bearings on said shank, and adapted when turned toward each other, to impinge upon said supporting-bar and hold said knife in place; and handle Q, substantially as and for the purpose specified.

3. In a gasket-cutter, the combination of the supporting-bar A provided with the slot K; pin B adjustably secured to said bar; rectangular shank W and cylindrical projection D' formed integral with said pin B, and adapted to be interchangeably used with a handle or bit-stock; handle V detachably secured to said cylindrical projection D'; knife F provided with a screw-threaded shank I; clamping-nuts H and H' having screw-threaded bearings on such shank, and adapted to impinge upon said supporting-bar and hold said knife in place; handle Q; knife J provided with screw-threaded shank M; opposing clamping-nuts L operating on said shank, and adapted to impinge the respective upper and lower surfaces of said bar, and hold said knife in place, all substantially as and for the purpose specified.

681,946. **FLOOR-TILE.** GEORGE H. BENNETT, New York, N. Y. Filed May 15, 1901. Serial No. 60,296. (No model.)



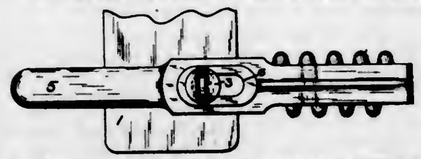
Claim.—1. A tile floor-covering comprising tiles having vertical extensions formed with vertical walls, and locking-tiles arranged between and filling the spaces between the extensions.

2. A floor-covering composed of a series of base-tiles entirely covering the foundation, each base-tile having a vertically-walled channel or recess therein and a surface portion and a locking-tile fitting the channels of and laterally uniting a plurality of the base-tiles.

3. A floor-covering consisting of a series of tiles covering the desired foundation, each tile having portions cut away to form recesses having vertical walls and extending between the surfaces of the tiles, and locking pieces or tiles fitting into the recesses and filling the spaces between their surface portions and engaging said tiles to secure them together laterally; whereby said locking-tiles may be removed or replaced from the surface.

4. A floor-covering presenting a surface consisting of small mosaic tiles part of said mosaics extending from supporting-bases of greater area than the surface portions, in combination with locking-tiles engaging the said bases and closing the openings in the surface between the base-supported mosaics and uniting the said base-tiles laterally.

681,947. **SPRING-CLEVIS FOR WHIFFLETREES.** GEORGE G. F. BOSWELL, Indianapolis, Ind., assignor of one-half to Virgil H. Lockwood, same place. Filed Jan. 7, 1901. Serial No. 42,368. (No model.)



Claim.—1. A spring-clevis including an inner member with a yoke, an outer member embracing the yoke-shaped member, a pin for pivoting both members to a whiffletree, and a spring to resist the independent movement of said members.

2. A spring-clevis including an inner member with a yoke, an outer member embracing said yoke-shaped member and having slots therein, a pin for securing the yoke-shaped member to a whiffletree or other draft appliance and which extends through the slots in the outer member, and a spring that resists the independent movement of said members.

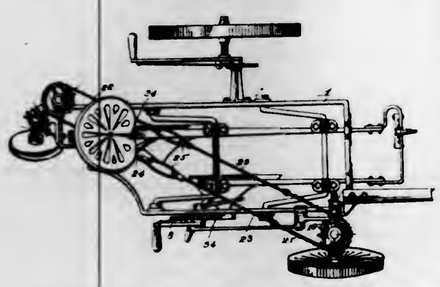
3. A spring-clevis including an inner member composed of a guide-rod with a yoke at one end for pinning it to a whiffletree or other draft appliance, an outer member embracing said yoke and having at one end a guideway for said guide-rod, said members being independently movable, and a spring about said guide-rod that bears against the guiding end of said outer member to resist the independent movement of said members.

4. A spring-clevis including an inner member composed of a guide-rod with a yoke at one end for pinning it to a whiffletree or other draft appliance, an outer member embracing said yoke and divided at one end, said divided end of the outer member enveloping and forming a guide for said guide-rod, and a spring about said guide-rod acting between said inner member and the divided end of said outer member.

5. A spring-clevis including an inner member composed of a guide-rod with a yoke at one end for pinning it to a whiffletree or other draft appliance, an outer member embracing said yoke divided at one end, said divided end of the outer member enveloping and forming a guide for said guide-rod and having inward extensions about said guide-rod, and a spring placed about said guide-rod and the inward extension from the divided ends of the said outer member.

6. A spring-clevis including an inner member composed of a guide-rod with a yoke at one end for pinning it to a whiffletree or other draft appliance, a flexible outer member embracing said yoke and divided at one end, with a flaring opening to enable said outer member to be forced over the whiffletree or other draft appliance by spreading the divided ends thereof.

681,948. **RIDING-PLOW.** JOHN W. BROWN, Quincy, Ill., assignor to the Collins Plow Company, same place. Filed Dec. 26, 1900. Serial No. 41,012. (No model.)



Claim.—1. In a riding-plow, the combination with the forward and rear wheels and their axles, of elliptical gearing by which said rear wheel is turned, and means of connection between the axle of said forward wheel and said gearing, substantially as described.

2. In a riding-plow, the combination with the forward and rear wheels and their axles, of an elliptic gear carried by the rear-wheel axle, a shaft mounted on the plow-frame, an elliptical gear on said shaft arranged to engage the gear on said rear-wheel axle, and means of connection between the forward-wheel axle and said shaft, substantially as set forth.

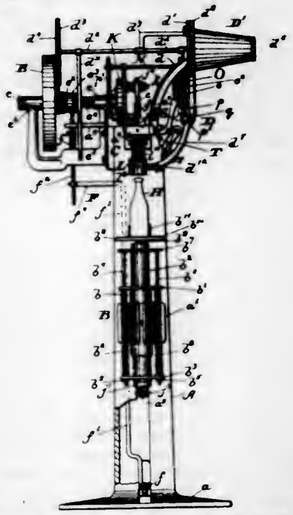
3. In a riding-plow, the combination of the forward and rear wheels, and their axles, of a shaft carried by the plow-frame, a cog-gear carried by the rear-wheel axle, a cog-gear carried by said shaft adapted to intermesh with the first-mentioned cog-gear, said cog-gears each having a curved section extending from a point close to the axis of the gear to a point more remote therefrom, and means of connection between the forward-wheel axle and said shaft, substantially as described.

4. In a riding-plow, the combination of the forward and rear wheels, and their axles, of a shaft carried by the plow-frame, a cog-gear carried by the rear-wheel axle, a cog-gear carried by said shaft adapted to intermesh with the first-mentioned cog-gear, said cog-gears each having a curved section extending from a point close to the axis of the gear to a point more remote therefrom said gears also being provided with toothed arms terminating at greater distances from the axes of the gears than the closest approaches of said curved sections, and means of connection between the forward-wheel axle and said shaft, substantially as described.

5. In a riding-plow, the combination with the forward and rear wheels and their axles, of a shaft carried by the plow-frame, intermeshing elliptical gearing carried by said shaft and the rear-wheel axle, sprocket-wheels carried by the forward-wheel axle and said shaft, chains arranged in engagement with said sprocket-wheels, rods connected to said chains, and turnbuckles uniting said rods, substantially as and for the purpose set forth.

6. In a riding-plow, the combination with the plows proper, a lifting-lever, and means of connection between said plows and said lever; of a toothed segment pivoted to the plow-frame, said lever being provided with an opening containing teeth or corrugations, a toothed wheel arranged in said opening adapted to engage said teeth or corrugations, and means for clamping said wheel, substantially as set forth.

681,949. **BOTTLE-STOPPERING MACHINE.** JOSEPH BUTKUS and JOHN A. BUTKUS, Baltimore, Md. Filed Mar. 9, 1901. Serial No. 50,436. (No model.)



Claim.—1. In a bottle-stoppering machine, the combination of a bottle-holder; stopper-expanding fingers thereabove; a vertically-reciprocable stopper-holder surrounding said expanding-fingers; a casing surrounding and secured to said stopper-holder and spring-pressed in a downward direction; and means whereby the mouth of a bottle on said bottle-holder will press against said casing and raise the latter and said stopper-holder against the action of said casing-springs, for the purpose set forth.

2. In a bottle-stoppering machine, stopper-expanding devices; a vertically-reciprocable stopper-holder adapted to hold a stopper below said expanding devices; and a downwardly-spring-pressed bottle-mouth guide secured to said stopper-holder, the bottle-mouth guide and stopper-holder being distinct parts, for the purpose set forth.

3. In a bottle-stoppering machine, the combination of stopper-expanding fingers; means for spreading said fingers apart; a vertically-reciprocable stopper-holding tube slitted at its lower end whereby to form spring-fingers adapted to hold a stopper below the stopper-expanding fingers; and means for automatically spreading said stopper-holding fingers apart whereby to release the stopper therefrom.

4. In a bottle-stoppering machine, the combination of stopper-expanding fingers; means for spreading said fingers apart; a vertically-reciprocable stopper-holder adapted to hold a stopper below said expanding-fingers; a casing surrounding and secured to said stopper-holder to raise the latter and serving as a bottle-mouth guide, said casing being a part distinct from said stopper-holder; and a device for automatically releasing the stopper when the stopper-holder is raised.

5. In a bottle-stoppering machine, the combination of a stopper-expander provided with expanding-fingers; means for spreading said fingers apart; a stopper-releasing device surrounding said expander and provided with an annular shoulder; and a series of stopper-holding fingers slidable on said releasing device and provided with shoulders adapted to engage the shoulder of the same whereby to spread the stopper-holding fingers apart.

6. In a bottle-stoppering machine, the combination of a tube provided with a series of spring expanding-fingers; means for spreading said fingers apart; a releasing-tube surrounding said expanding-fingers and provided at its lower end with an annular shoulder; a stopper-holding tube slidable vertically on said releasing-tube and provided with a series of spring-fingers which engage said shoulder when said stopper-holding tube is raised; and a cylindrical casing secured ardund said stopper-holding tube.

7. In a bottle-stoppering machine, a stopper holding, releasing, and expanding device, comprising a series of expanding-fingers; a wedge-pin adapted to spread said fingers apart; a tube surrounding said fingers; and a series of stopper-holding fingers on said tube and adapted to be spread apart by said tube whereby to release the stopper, the stopper-holding fingers at their lower end being provided with an inwardly-projecting flange on which the rim of the stopper is adapted to rest until the stopper is released.

8. In a bottle-stoppering machine, the combination with a standard,

of a vertically-reciprocable bottle-holder mounted thereon; stopper-expanding devices also mounted thereon above said bottle-holder; a rotatable shaft journaled on said standard and provided with a wheel, K; and a reciprocating and vertically-yielding rod secured to said wheel and also to said bottle-holder whereby to move the latter up and down.

9. In a bottle-stoppering machine, the combination with a standard, of stopper-expanding devices mounted on said standard and provided with expanding-fingers and a wedge-pin adapted to spread said fingers apart; a rocking lever fulcrumed on said standard and provided with an arm which has an aperture which receives said wedge-pin and a shoulder at each side of said aperture; an upwardly-yielding collar inserted on said wedge-pin and provided with recesses at its lower end which loosely fit over said shoulders; and means for rocking said lever.

10. In a bottle-stoppering machine, the combination with a standard, of stopper-expanding devices mounted on said standard and provided with expanding-fingers and a wedge-pin adapted to spread said fingers apart; a rocking lever fulcrumed on said standard and provided with an arm through which the upper end of said wedge-pin is loosely inserted; a bushing sliding on the upper end of said wedge-pin above said lever-arm and provided with an encircling spring; a collar on the lower end of said bushing and abutting against the said spring and resting on said lever-arm; means for limiting the upward sliding movement of said bushing on said wedge-pin; and means for rocking said lever.

11. In a bottle-stoppering machine, the combination with a stopper-holder, of a delivery-chute whose discharge end is located adjacent said holder; a stopper-receptacle adapted to pass stoppers into said chute; a reciprocating ejector-arm engaging the stoppers one at a time on its forward movement and ejecting them from the end of the chute into the stopper-holder; and a stopper-pusher adapted to move forward simultaneously with said ejector-arm whereby to push the stoppers down the chute, said pusher remaining still and holding the stoppers from moving up the chute on the backward movement of the ejector-arm, until the latter engages with another stopper.

12. In a bottle-stoppering machine, the combination with a stopper-holder, of a delivery-chute whose discharge end is located adjacent said holder; a stopper-receptacle adapted to pass stoppers into said chute; a reciprocating ejector-arm which on its forward movement ejects the stoppers from the end of the chute into the stopper-holder; and means for engaging and holding said stoppers in the discharge end of the chute from moving up the chute during the backward movement of the ejector-arm.

13. In a bottle-stoppering machine, the combination with a stopper-holder, of a delivery-chute whose discharge end is adjacent said holder; a stopper-receptacle adapted to pass stoppers into said chute; a reciprocating ejector-arm which ejects the stoppers from the end of the chute into the stopper-holder; a shunt device for discharging collarless stoppers from said chute at a point above the said end of the same; and a reciprocating pusher-foot arranged to engage and push the stoppers past or out of said shunt device.

14. In a bottle-stoppering machine, the combination with a stopper-holder; of a delivery-chute whose discharge end is adjacent said holder; a stopper-receptacle adapted to pass stoppers into said chute; a reciprocating ejector-arm which ejects the stoppers from the end of the chute into the stopper-holder; a shunt device for discharging collarless stoppers from said chute at a point above the said end of the same; and a reciprocating stopper-pusher provided with two legs adapted to engage two adjacent stoppers in said chute and push them past or out of said shunt device.

15. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; a reciprocating ejector-arm adapted to eject the stoppers out of the discharge end of said chute; means for swinging said arm forwardly; a trip for releasing said arm from said swinging means; and means for jerking said arm backwardly when the latter is released.

16. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle and provided with a face-plate; an ejector-arm pivotally connected to said face-plate; a vertically-reciprocating actuating-arm arranged for engagement with said ejector-arm; a trip-stud secured to said face-plate and adapted to release said actuating-arm from said ejector-arm; and a spring for jerking said latter arm backwardly.

17. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm for ejecting the stoppers from said chute; an actuating-arm s^4, for moving said ejector-arm forwardly; a rod, O, for moving said actuating-arm; and a yielding connection between said rod and actuating-arm.

18. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; a vertically-reciprocating ejector-arm adapted to eject the stoppers from said chute; an actuating-arm for moving said ejector-arm forwardly; and means whereby said arm may yield.

19. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm for ejecting stoppers from said chute; an actuating-arm adapted to engage said ejector-arm and move it forwardly; an adjustable trip for throwing said actuating-arm out of engagement with said ejector-arm; and means for moving said ejector-arm backwardly.

20. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; a rod, O, mounted to vertically reciprocate adjacent said chute, and provided with a tubular lower end; a downwardly-spring-pressed shank slidable in said tubular lower end; a stopper-pusher pivotally connected to said shank; a downwardly-spring-pressed tube also slidable in the lower end of said rod; an ejector-actuating arm pivotally connected to said tube; and a stopper-ejecting arm arranged for engagement by said actuating-arm.

21. A stopper-feed device for bottle-stoppering machines, comprising a rotary stopper-receptacle provided at its rim with a channel, d^{14}, and stopper-outlet openings, d^6; a stationary ring, d^8, entirely encircling said rim and also, provided with a channel, d^9; and a delivery-chute, d^7, adapted to receive the stoppers passed from the channel, d^{14}, through the openings, d^6, into the channel, d^9, as and for the purpose set forth.

22. In a bottle-stoppering machine, the combination of intermittently-operated stopper-expanding devices; a continuously-rotated stopper-receptacle; a delivery-chute adapted to pass the stoppers from said stopper-receptacle to the expanding devices; and an intermittently-operated ejector-arm adapted to carry the stoppers one at a time from said chute to the expanding devices.

23. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm adapted to engage a stopper and carry it out of the discharge end of the delivery-chute; and an alarm device sounded by said arm when the latter passes out of the discharge end of the chute without a stopper.

24. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm adapted to engage the stopper in said chute and carry it out of the discharge end of the delivery-chute; an alarm device actuated by said arm when the latter moves forwardly without engaging a stopper; and means for throwing said alarm device out of the way of said arm when the latter, on its forward movement, engages a stopper.

25. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm adapted to engage a stopper and carry it out of the discharge end of the delivery-chute; a spring at the discharge end of the chute and extending into the way of the stopper; an alarm device arranged to be actuated by said ejector-arm; and means for throwing said alarm device out of the way of said ejector-arm when said spring is pressed upon by a stopper.

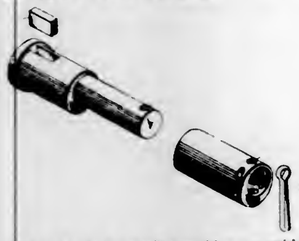
26. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm adapted to engage a stopper to eject it out of the discharge end of the delivery-chute; a gong secured to said chute; a pivoted clapper also secured to said chute; an alarm-trip carried by said ejector-arm and adapted to trip said clapper; and means for throwing said clapper out of the way of said alarm-trip.

27. A stopper-feed device for bottle-stoppering machines, comprising a stopper-receptacle; a delivery-chute adapted to receive stoppers from said receptacle; an ejector-arm adapted to eject stoppers out of the discharge end of the delivery-chute; a gong secured to said chute; a pivoted and partially-rotatable rod mounted on said chute, and provided at one end with a clapper adapted to strike said gong, and also provided at its other end with a pin which rocks when said rod rotates; an alarm-trip mounted upon an ejector-arm and adapted to strike said pin to trip said rod; a rocking rod, u', adapted to engage said rocking pin and move the latter out of the way of said alarm-trip; and means whereby a stopper in said chute will rock said rod, u', as and for the purpose set forth.

28. In a bottle-stoppering machine, the combination of stopper-expanding fingers; means for spreading said fingers apart; a bottle-mouth guide surrounding said expanding-fingers and provided with a side opening for the passage of a stopper; a stopper-delivery chute with its discharge end normally adjacent said side opening and provided with a recessed upper wall; and a divided ing, l^{13}, secured to the bottle-mouth guide above said side opening and normally fitting in said recess.

29. In a bottle-stoppering machine, the combination with stopper-expanding devices of stopper-feeding devices comprising a horizontal rotary shaft, d^2; means for rotating said shaft; a rotary conical stopper-receptacle carried by said shaft and provided at its rim with a channel, d^{14}; and a discharge-chute adapted to pass stoppers from said receptacle to said expanding devices.

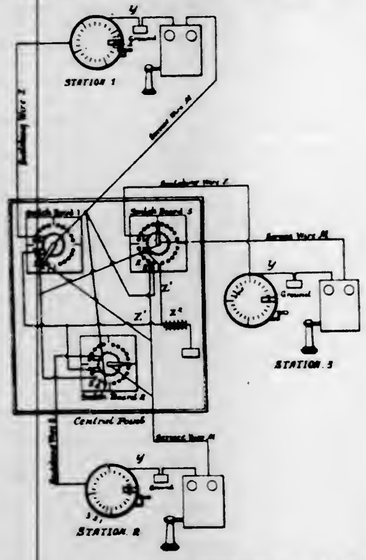
681,950. HINGE-PIN. ANDREW CLARK, Kansas City, Mo. Filed Nov. 30, 1900. Serial No. 38,258. (No model.)



Claim.—1. A hinge-pin for mowing-machines, comprising a body portion having an eccentrically-projecting stem at one end, a sleeve corresponding in form and diameter to said body portion and eccentrically bored to fit upon the stem and provide in conjunction with the body portion a straight cylindrical pin, and means for securing said sleeve upon the stem at the desired point of adjustment, substantially as described.

2. A hinge-pin for mowing-machines, comprising a cylindrical body portion having a head at one end, and an eccentric stem at the opposite end, a sleeve eccentrically bored fitting on said stem and provided with a plurality of holes, a pin to extend through certain of said holes and said stem to lock the stem and sleeve in the desired relation, in combination with arms in which said body portion and sleeve are journaled, and means for locking one of said parts in its respective arm, substantially as described.

681,951. SYSTEM OF ELECTRICAL INTERCOMMUNICATION. HENRY A. CLARK, Sioux City, Iowa, assignor, by mesne assignments, to the Clark Automatic Telephone Switch-Board Company, Providence, R. I. Filed June 8, 1896. Serial No. 594,767. (No model.)



Claim.—1. In a transmitter, the combination with a shaft, a dial mounted thereon, and a worm-wheel also mounted thereon, of a worm-shaft for rotating said worm-wheel, a fork mounted thereon, and a contact-spring adapted to be engaged by said fork, substantially as described.

2. In a transmitter, the combination with a shaft, a dial mounted thereon, and a worm-wheel also mounted thereon, of a worm-shaft for rotating said worm-wheel, projections formed thereon, and a contact-spring having an insulating-block secured thereto adapted to be engaged by said projections, substantially as described.

3. In a transmitter, the combination, with a dial, and a shaft provided with means for rotating the same, and provided with flattened portions, of a spring bearing against the shaft and adapted to encounter the flattened portions thereof as the shaft revolves, thereby causing the shaft and dial to occupy fixed and definite positions when at rest, and a circuit making and breaking device arranged to operate as the dial rotates, the positions of rest of said shaft fixed by the spring corresponding to open-circuit positions of the circuit making and breaking devices, substantially as described.

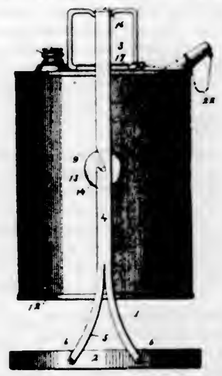
4. In a receiver, the combination with a circular series of contact-points, a switch-wheel centrally located therein, said wheel having teeth circularly arranged thereon equal in number to the number of contact-points, and an arm carried by said switch-wheel adapted to successively make contact with said contact-points, of an electromagnet, an armature therefor, and two stepping-levers engaging said switch-wheel and connected to said armature, and adapted to move the wheel forward with a step-by-step movement, one on the forward movement of the armature and the other on the backward movement thereof, substantially as described.

5. In a receiver, the combination with a circular series of contact-points, a switch-wheel centrally located therein, said wheel having teeth circularly arranged thereon equal in number to the number of contact-points, and an arm attached to said switch-wheel and adapted to successively make contact with said contact-points, of stepping-levers adapted to rotate said switch-wheel with a step-by-step movement, an electromagnet, an armature therefor, and rods connecting said armature with said stepping-levers, substantially as described.

6. In a receiver, the combination with a circular series of contact-points, a switch-wheel centrally located therein, said wheel having teeth circularly arranged thereon equal in number to the number of contact-points, and an arm attached to said switch-wheel adapted to successively make contact with said contact-points, of stepping-levers adapted to rotate said switch-wheel with a step-by-step movement, an electromagnet, an armature therefor, and the adjustable rod *r* and forked rod *r'* connecting said armature with said stepping-levers, substantially as described.

7. In a receiver, the combination with a circular series of contact-points, the base-plate S, the switch-wheel W mounted thereon, said wheel having teeth formed on its periphery equal in number to the number of contact-points, the bent lever U, attached to said switch-wheel, and the contact-spring T, of the stepping-levers V and V', the electromagnet X, the armature *l*, and the rods *r* and *r'* connecting said armature and said stepping-levers, substantially as described.

681,952. LIQUID HOLDING VESSEL. WILLIAM D. CRAIG, Kansas City, Mo. Filed Apr. 29, 1901. Serial No. 57,868. (No model.)



Claim.—1. In a liquid-holding vessel, a base, standards secured thereto, bearings formed in said standards, a transverse portion connecting the upper ends of the standards, a loop formed in said transverse portion, a can journaled in the bearings of the standards, and a bail hinged to the can and adapted to engage the loop in the transverse portion, substantially as described.

2. In a liquid-holding vessel, a suitable supporting-frame, a can, a transverse shaft extending therethrough and journaled in the frame, a bail hinged to the top of the can and having a depressed portion which frictionally engages the frame, substantially as described.

3. In a liquid-holding vessel, a suitable supporting-frame, a loop formed in a portion thereof, a can suitably journaled in the frame, a bail hinged to the can and having a depressed portion adapted to engage the loop in the frame, substantially as described.

681,953. WAREHOUSE-DOOR. WILLIAM A. CREES, Chicago, Ill. Filed Feb. 11, 1901. Serial No. 46,834. (No model.)

Claim.—1. The combination of a door frame or way, vertical guide-slides at the sides of the same, supplementary guide-slides arranged horizontally near the top of the doorway, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides and the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, substantially as set forth.

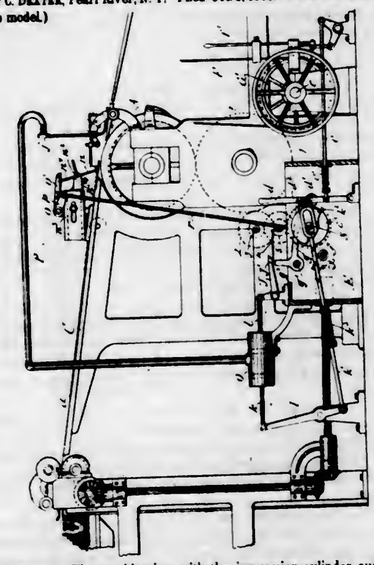


2. The combination of a door frame or way, horizontal guide-slides arranged at the sides and adjacent to the top of the doorway, vertical guide-slides arranged at the sides of the doorway and extended up past the horizontal guide-slides, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides, and the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, substantially as set forth.

3. The combination of a door frame or way, vertical guide-slides at the sides of the same, supplementary guide-slides arranged horizontally near the top of the doorway, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides, the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, and attaching means on the guide-pintles of the lower door-section for the chain connection of suitable counterweights, substantially as set forth.

4. The combination of a door frame or way, horizontal guide-slides arranged at the sides and adjacent to the top of the doorway, vertical guide-slides arranged at the sides of the doorway and extended up past the horizontal guide-slides, a door formed in two sections hinged together, the upper door-section provided near its upper end with guide-pintles engaging the horizontal guide-slides and near its middle with guide-pintles engaging the vertical guide-slides, the lower door-section provided with guide-pintles near its middle engaging the vertical guide-slides, and attaching means on the guide-pintles of the lower door-section for the chain connection of suitable counterweights, substantially as set forth.

681,954. AUTOMATIC GUARD FOR PRINTING-PRESSES. TALBOT C. DEXTER, Pearl River, N. Y. Filed Oct. 8, 1900. Serial No. 32,340. (No model.)



Claim.—1. The combination, with the impression-cylinder and its actuating mechanism, of a pneumatic tripper controlling said mechanism, a guard disposed to be actuated by paper retarded in its passage from the impression-cylinder, and means actuated by said guard and controlling the aforesaid tripper.

2. The combination, with the impression-cylinder and its actuating mechanism, of a pneumatic tripper controlling said mechanism, a guard disposed to be actuated by paper retarded in its passage from the impression-cylinder, and a valve actuated by said guard, and controlling the aforesaid tripper as set forth.

3. The combination with the impression-cylinder, its actuating mechanism and fingers conducting the paper from said cylinder, of a vertically-yielding guard-finger sustained normally in proximity to and parallel with one of the conducting-fingers, and a pneumatic tripper adapted to arrest the actuating mechanism and controlled by the guard-finger.

4. The combination, with the impression-cylinder, its actuating mechanism and fingers conducting the paper from said cylinder, of a pneumatic tripper adapted to arrest the actuating mechanism, a valve controlling said tripper, and a vertically-yielding guard-finger sustained normally in proximity to and parallel with one of the conducting-fingers and actuating the valve as set forth.

5. The combination, with the impression-cylinder, its actuating mechanism and fingers conducting the paper from the impression-cylinder, of a guard-finger extending lengthwise of and normally parallel over one of the conducting-fingers and pivoted to be actuated by paper buckled upon said conducting-finger, a pneumatic tripper adapted to arrest the actuating mechanism, and a lever actuated by the guard-finger and controlling the tripper.

6. The combination, with the impression-cylinder, its actuating mechanism and fingers conducting the paper from said cylinder, of a guard-finger extending lengthwise of and normally parallel over one of the conducting-fingers and pivoted to be actuated by paper buckled upon said conducting-finger, a pneumatic tripper adapted to arrest the actuating mechanism, a valve controlling said tripper, and a lever actuated by the guard-finger and moving said valve.

7. The combination with the impression-cylinder, its actuating mechanism and fingers conducting the paper from said cylinder, of a stop mechanism controlling said actuating mechanism, a guard-finger extending lengthwise over one of the conducting-fingers and pivoted to be actuated by paper buckled upon said conducting-finger, a lever extending from the guard-finger, a pneumatic tripper controlling the actuating mechanism, and a valve connected to the aforesaid lever and controlling the tripper as set forth.

8. The combination with the impression-cylinder, automatic paper-supplier, feed-table, the finger conducting the paper from the impression-cylinder and mechanism actuating said impression-cylinder and paper-supplier in common, of a spring-actuated lever stopping the actuating mechanism, a cam forcing said lever in opposition to its actuating-spring, a detaining-arm movable to and from a position to confine said lever in its cam-forced position, a feeler disposed to be actuated by the paper in transit to the impression-cylinder and controlling the aforesaid detaining-arm, a guard-finger extending lengthwise over one of the aforesaid conducting-fingers and pivoted to be actuated by paper buckled upon the conducting-finger, a pneumatic tripper controlling the detaining-arm independently of the aforesaid feeler, and a valve controlling said tripper and actuated by the guard-finger as set forth.

681,955. GARMENT. JAMES G. S. DEY, Syracuse, N. Y. Filed Apr. 23, 1901. Serial No. 57,091. (No model.)



Claim.—A combination-garment having a main body portion, sleeves B, neckband C, and an outer supplementary blouse portion D completely enveloping the upper end of said body portion and connected to said body portion at the neckband-seam and at the armhole-seams thereof, whereby the suspender-straps may pass between said body portion and blouse portion and be concealed thereby.

681,956. THROAT-PLATE FOR SEWING-MACHINES. HENRY A. DODGE and WILLIAM WILSON, Boston, Mass., assignors to Campbell Bosworth Machinery Company, same place. Filed May 23, 1901. Serial No. 61,457. (No model.)



Claim.—1. In a sewing-machine, a presser-foot having at its under side a projection to enter the stock when the foot is lowered, combined with a throat-plate having provision for locating the slot therein for the awl and needle relatively to the projection of the presser-foot to obviate the depression of the stock by the presser-foot into said slot.

2. In a sewing-machine, the combination of a throat-plate, a carriage independent of the throat plate and movable on the machine-frame, means to detachably connect the throat-plate to the carriage, and separate means for longitudinally adjusting the carriage and the throat-plate carried thereby.

3. In a sewing-machine, a throat-plate, a carriage, means to adjust the carriage longitudinally, and means independent of said adjusting means to positively clamp the throat-plate and carriage in adjusted position.

4. In a sewing-machine, a throat-plate, a carriage to which the throat-plate is detachably connected, a groove to receive said carriage, an adjusting-screw operatively connected with said carriage whereby said carriage may be moved in the direction of movement of the screw.

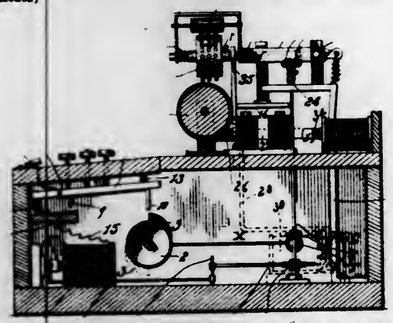
5. In a sewing-machine, a block, an adjustable carriage sustained by the block, a throat-plate having a slot, a screw to unite said throat-plate with said carriage, the screw when turned into the carriage positively clamping the carriage and plate to said block.

6. In a sewing-machine, a throat-plate having a slot for the awl and needle, provisions for varying the length of the slot, and means for adjusting the throat-plate.

7. In a sewing-machine, a throat-plate having a slot for the awl and needle, provisions for varying the length of said slot to suit the character of awl or needle, a carriage on which the throat-plate is mounted and means for adjusting the carriage and consequently the throat-plate in a direction longitudinally of the seam.

8. In a sewing-machine, a throat-plate having a slot for the awl and needle, provisions for varying the length of the slot to suit the character of awl and needle, a carriage and means for detachably connecting the throat-plate and carriage.

681,957. ELECTRIC TYPE-WRITER. GEORGE H. EDDIS, Troy, N. Y., assignor, by mesne assignments, to Electric Typewriter Company, Buffalo, N. Y. Filed Mar. 24, 1900. Serial No. 10,050. (No model.)



Claim.—1. In a type-writer, a type-carrier rotated to the desired point by a single impulse, a spirally-arranged stop for causing the carrier to cease its movement at the desired character, and means for vibrating the carrier for causing the impress of said character upon the paper carried upon the paper-roll.

2. In a type-writer, a type-carrier rotated to the desired point by a single impulse, a spirally-arranged stop for causing the carrier to cease its movement at the desired character and means for vibrating the carrier for causing the impress of said character upon the paper carried by the paper-roll and means for shifting the type-wheel endwise.

3. In a type-writer, a type-wheel revolubly supported and adapted to be rotated to the desired point by an electric impulse, a key-lever in electrical connection with mechanism for rotating, sliding and vibrating said wheel and a revolubly-supported spirally-arranged contact strip or abutment for causing the type-wheel to cease its rotary movement at the desired character preparatory to the lateral swing of the wheel to impress the character upon the paper to be printed.

4. In a type-writer, a type-carrier which is shifted axially, longitudinally and bodily and then held fixedly by a single electric impulse until an imprint of the predetermined character is made upon the paper after which the carrier instantly returns to its first position preparatory to the imprinting of another character.

5. In a type-writer, a type-carrier shifted to the desired character preparatory to an imprint by suitable actuating means, a movable stop which moves and rests simultaneously with the type-carrier, and key-levers operating in connection with the stop.

6. In a type-writer, a type-carrier shifted to the desired character preparatory to an imprint by suitable actuating means, a spiral rotatable stop which moves and rests simultaneously with the type-carrier, and key-levers operating in connection with the stop.

7. In a type-writer, a type-carrier shifted to the desired character preparatory to an imprint by a single electric impulse, a spiral rotatable stop which moves and rests simultaneously with the type-carrier, and key-levers operating in connection with the stop.

8. In a type-writer, the combination with a rotary type-wheel, a key-lever and electric means for rotating the wheel, shifting it axially and swinging it laterally, of a spirally-disposed contact strip or abutment mechanism for stopping the rotation of the type-wheel at a predetermined character.

9. In a type-writer, the combination with a rotary type-wheel, a key-lever and electric means for rotating the wheel, shifting it axially and swinging it laterally, of stop mechanism consisting of a cylinder having on its periphery a helicoidal contact adapted to be engaged by a projection on the key-lever for stopping the rotation of the wheel at a predetermined point.

10. In a type-writer, the combination with a rotary type-wheel, a key-lever and means for rotating the wheel, shifting it axially and swinging it laterally, of stop mechanism consisting of a cylinder having on its periphery a helicoidal contact adapted to be engaged by a projection on the key-lever for stopping the rotation of the type-wheel at a predetermined point, and gearing set in motion by the key-lever for communicating motion to the type-wheel and the cylinder.

11. The combination with a type-wheel and electrical means for turning said wheel, shifting it axially and swinging it laterally of a key-lever for closing electrical circuit and a cylinder having a helicoidal contact strip or abutment adapted to be engaged by a projection from the key-bar to stop the rotation of the type-wheel at a predetermined point.

12. The combination with a type-wheel and electrical means for turning said wheel, shifting it axially and swinging it laterally, of a key-lever for closing the electrical circuit and a cylinde. having a helicoidal contact strip or abutment adapted to be engaged by a projection from the key-bar to stop the rotation of the type-wheel at a predetermined point and gearing for communicating rotary motion to the type-wheel and cylinder.

13. In a type-writer, the combination with a printing-roller, and a type-wheel, of an electromagnet for vibrating the type-wheel to cause the imprint of the character thereon upon the paper on the roller, key-levers for energizing said magnets, means for rotating the type-wheel, and rotary stop mechanism engaged by the key-levers.

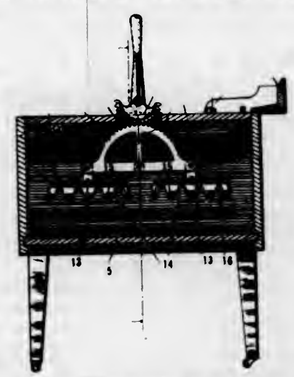
14. In a type-writer, the combination with a printing-roller, a pivoted frame, a shaft revolubly supported by the frame and carrying a type-wheel, and an armature connected with said frame, of an electromagnet, and key-levers for energizing the magnet and attracting the armature to cause the type-wheel to imprint the proper character upon the paper on the roller.

15. In a type-writer, the combination with a type-wheel, printing-roller, and key-levers, of a rotary stop mechanism adapted to be actuated by and connected in electric circuit with the keys, and mechanism connected with this stop mechanism for rotating the key-wheel to a predetermined position determined by the stopping-point of the rotary stop mechanism.

16. In a type-writer, the combination with a type-wheel, printing-roller, and key-levers, of a rotary stop mechanism adapted to be actuated by and connected in electric circuit with the keys, mechanism connected with this stop mechanism for rotating the key-wheel to a predetermined position determined by the stopping-point of the rotary stop mechanism, and electromagnet energized when the rotary stop mechanism ceases its movement to vibrate the key-wheel to cause the imprint of the proper character upon the paper on the roller.

17. In an electric machine, the combination of the following elements which operate in turn as a result of a single motion of a key-lever, to wit, a type-carrier revolubly and slidingly mounted and laterally vibratable, a rotary stop for obecking the type-carrier at the desired character and electric devices for insuring these actions of the type-carrier and stop in proper order in response to a single movement of the type-lever.

681,958. WASHING-MACHINE. WILLIAM J. EVERETT, Indianapolis, Ind. Filed Feb. 20, 1901. Serial No. 48,036. (No model.)



Claim.—1. In a washing-machine, the combination with the tub, of a cover therefor having a central slot, a pair of brackets mounted in said slot and extending from both faces of said cover, a segment pivoted between the inner ends of said brackets, a pair of presser-feet pivoted to the ends of said segment, and a driving-segment, provided with a suitable operating-lever, pivoted between the outer ends and said brackets and meshing with the inner segment.

2. In a washing-machine, the combination with the tub, of a cover therefor, a segment pivotally mounted upon the under side of said cover, a presser-foot pivoted upon each end of said segment, a driving-segment of less radius than the first segment meshing with said first segment, and a lever carried by the driving-segment and projecting above the cover.

681,959. GRADE-CLIMBING ATTACHMENT FOR SHOES. JOHN R. PENNO, Potsington, Kans. Filed Nov. 2, 1900. Serial No. 35,949. (No model.)



Claim.—1. A grade-climbing attachment for a shoe, comprising a hollow part adapted to receive the heel of the shoe, with devices for attaching said hollow part to the foot, and an adjustable extension for said hollow part substantially as described.

2. A grade-climbing attachment for a shoe, comprising a hollow part adapted to receive the heel of the shoe, with devices for attaching said hollow part to the foot, a screw-threaded extension for said hollow portion, and a locking device for holding said extension to its adjustment substantially as described.

3. A grade-climbing attachment for a shoe, comprising a hollow part adapted to receive the heel of the shoe, a rigidly-attached counter fixed to the said hollow part and extending over the heel of the foot, and a rigidly-attached shank extending under the instep, said counter and shank having attaching straps and buckles, and an adjustable extension of the said hollow part substantially as described.

681,960. SPINNING-TOOL. ROBERT FLANIGAN, Baltimore, Md. Filed May 15 1901. Serial No. 60,270. (No model.)



Claim.—1. As an article of manufacture a corrugated spinning-tool.

2. As an article of manufacture a spinning-tool having a corrugated flange.

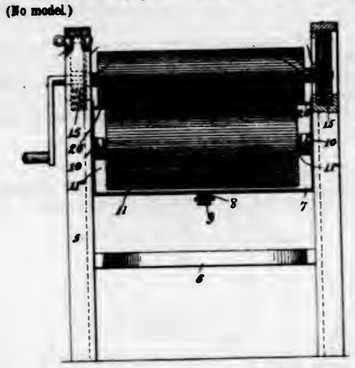
3. In a spinning-tool, the combination of a hub; a ring surrounding said hub and having a laterally-projecting annular flange at its upper end; and means between said hub and ring to allow the latter to yield laterally on said hub.

4. In a spinning-tool, the combination of a cup-shaped ring having a central aperture therein and a laterally-projecting annular flange at its upper end; a flanged hub slightly smaller in circumference than the central aperture in said ring and having the flange resting upon the upper edge of the said ring; and an elastic ring between said cup-shaped ring and hub.

5. In a spinning-tool, the combination of a cup-shaped ring having a central aperture therein and a laterally-projecting annular flange at its upper end; a flanged hub projecting through the said aperture and adapted to be fitted over a spindle; and an elastic ring between said cup-shaped ring and hub.

6. In a spinning-tool, the combination of a hub; a ring surrounding said hub and having a laterally-projecting annular corrugated flange at its upper end; and means between said hub and ring to allow the latter to yield laterally on said hub.

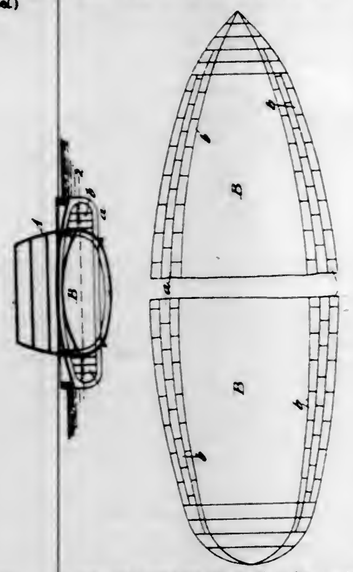
681,961. MACHINE FOR PAINTING TIN. JAMES E. FLITCROFT, Ocean Grove, N. J., assignor of two-thirds to George W. O'Brien and John T. Reid, Jr., same place. Filed Mar. 19, 1901. Serial No. 51,853. (No model.)



Claim.—1. A machine of the class described, comprising a main frame, a trough secured therein, a roller mounted on said trough and removable therefrom, another roller mounted above the first-named roller and longer than said first-named roller and adapted to bear thereon, said last-named roller being provided with spring-supported bearings, and means for depressing the same the main frame being also provided at the front thereof with projecting arms adapted to receive material passing between said rollers, substantially as shown and described.

2. A machine of the class described, comprising a main frame, a trough secured therein, a roller mounted in said trough and removable therefrom and provided with a fabric covering, said second roller mounted above the first-named roller and adapted to bear thereon, said second roller being longer than the first-named roller and being provided with spring-supported bearings, and means for depressing the same, said machine being also provided at the front thereof with projecting arms adapted to receive material passed between said rollers, substantially as shown and described.

681,962. CONSTRUCTION OF VESSELS. ERAST E. GOULAEFF, St. Petersburg, Russia. Filed Feb. 16, 1901. Serial No. 47,556. (No model.)

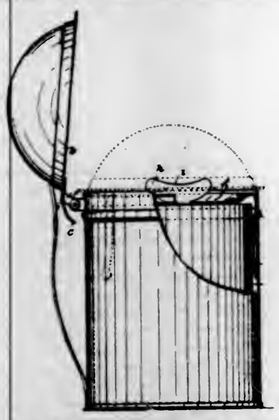


Claim.—1. A ship's hull, consisting of a portion above water-line and a portion below water-line, said lower portion projecting laterally beyond the upper portion, and the projecting part of said lower portion being composed of a plurality of closed water-tight compartments, substantially as set forth.

2. A ship's hull, consisting of a portion above water-line and a portion below water-line, said lower portion projecting laterally beyond the upper portion, and the projecting part of said lower portion decreasing in width gradually from the middle toward each end of the hull and being composed of a plurality of closed water-tight compartments, substantially as set forth.

3. A ship's hull, consisting of a portion above water-line and a portion below water-line, said lower portion projecting laterally beyond the upper portion, and the projecting part of said lower portion decreasing in width gradually from the middle toward each end of the hull and being composed of a plurality of closed water-tight compartments arranged in a plurality of layers, substantially as set forth.

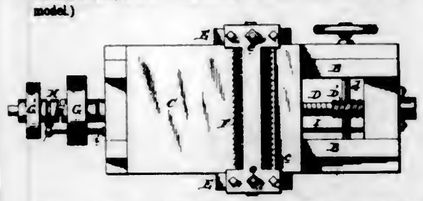
681,963. HOLDER FOR CONDENSED-MILK CANS. BENJAMIN P. HANFT, Paterson, N. J. Filed June 4, 1901. Serial No. 63,080. (No model.)



Claim.—1. A spoon-cleaning attachment for receptacles for condensed-milk cans and the like consisting of an annular body portion, and integral clips extending downwardly from said body portion and adapted to be interposed between said receptacle and the can contained therein, substantially as described.

2. A spoon-cleaning attachment for receptacles for condensed-milk cans and the like consisting of an annular body portion, and integral clips extending downwardly from said body portion and adapted to be interposed between said receptacle and the can contained therein, said body portion having a projection provided with a curved wiping-edge, substantially as described.

681,964. MACHINE FOR LEVELING ELECTROTYPES. CHAS. HURST, Brooklyn, N. Y. Filed June 15, 1901. Serial No. 64,686. (No model.)



Claim.—1. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, and guides for guiding the table at a fixed distance from the surface of the roller.

2. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, guides for guiding the table at a fixed distance from the surface of the roller, power devices for reciprocating the table, manually-controlled devices for putting the power devices into operation, and automatic means controlled by the table for throwing the power devices out of action for arresting the table.

3. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, guides for guiding the table at a fixed distance from the surface of the roller, a screw-shaft for reciprocating the table, a hand-wheel and shaft for operating the screw-shaft, and gearing between the screw-shaft and the shaft of the hand-wheel.

4. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, guides for guiding the table at a fixed distance from the surface of the roller, power devices for reciprocating the table, manually-controlled devices for putting the power devices into operation, automatic means controlled by the table for throwing the power devices out of action for arresting the table, a screw-shaft for reciprocating the table, a hand-wheel and shaft for operating the screw-shaft, and gearing between the screw-shaft and the shaft of the hand-wheel.

5. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, guides for guiding the table at a fixed distance from the surface of the roller, power devices for moving the table forward and backward but in which the forward speed is slower than the back speed, and manually-controlled devices for controlling the operation of the power devices.

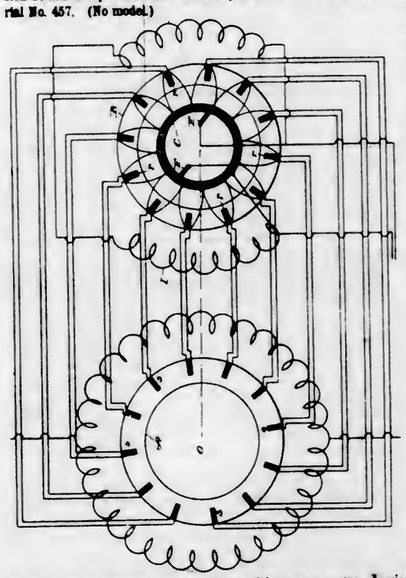
6. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, guides for guiding the table at a fixed distance from the surface of the roller, power devices for moving the table forward and backward but in which the forward speed is slower than the back speed, manually-controlled devices for controlling the operation of the power devices and automatic devices to arrest the action of the power devices when the table has reached the end of a reciprocation.

7. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a movable electrotype-supporting table having a smooth surface, guides for guiding the table at a fixed distance from the surface of the roller, a screw-shaft to reciprocate the table, two driving-wheels adapted to rotate in opposite directions, a clutch device on the screw-shaft and movable longitudinally thereon for connection with either of the driving-wheels, manually-operated devices for shifting the clutch into connection with the driving-wheels, and automatic devices for shifting the clutch out of connection with said driving-wheels.

8. The combination of the main frame, a roller journaled therein and having its surface grooved longitudinally and circumferentially to form a series of distributed projections, a reciprocating table having a smooth surface movable under the roller, and having a projecting shoulder for pushing the electrotype under the roller.

9. In a machine for leveling electrotypes, the combination of a roller having its surface provided with closely-arranged projections, a smooth table upon which the electrotype is placed face downward, a frame for holding the roller and table relatively at a fixed distance apart, and power devices for causing a relative movement between the table and roller for causing the roller to traverse the whole back surface of the electrotype on the table.

681,965. APPARATUS FOR TRANSFORMING ALTERNATING INTO CONTINUOUS CURRENTS. MAURICE HUTIN and MAURICE LEBLANC, Paris, France, assignors to Société Anonyme pour la Transmission de la Force par l'Électricité, same place. Filed Jan. 5, 1900. Serial No. 457. (No model.)



Claim.—1. A rotary transformer comprising an armature having two groups of conductors each in sections, a commutator having a number of plates corresponding to the number of sections, the respective sections of the conductors being electrically connected to each other on the opposite sides of a plane of symmetry and to the corresponding plates of the commutator, an alternating-current inductor acting on one of the two groups of conductors, and means for driving the armature at half the speed of synchronism, whereby there are generated such electromotive forces in the sections of the other group of armature-conductors as present a constant difference of potential between sections at the extremities of a diameter fixed in space, substantially as described.

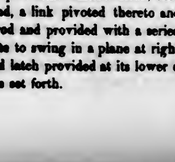
2. A rotary transformer comprising an armature carrying two groups of conductors, each divided into a number of sections corresponding to the number of commutator-plates, the respective sections of the conductors on the opposite sides of a plane of symmetry being connected to each other and to the corresponding segments of a commutator, an alternating-current inductor for acting on one of the two groups of armature-conductors, means for rotating the armature at half the speed of synchronism and stationary brushes bearing on the commutator for taking a continuous current therefrom, substantially as described.

3. A rotary transformer comprising an armature carrying two groups of conductors each divided into a number of sections corresponding to the number of commutator-plates, the respective sections of the conductors being symmetrically connected to each other and to the corresponding segments of the commutator, an alternating-current inductor acting on one of the groups of armature-conductors, a continuous-current inductor acting on the other group of armature-conductors and thus rotating the armature at half the speed of synchronism and stationary brushes, bearing on the commutator, for taking a continuous current therefrom, substantially as described.

4. A rotary transformer comprising an armature carrying two groups of conductors each divided into a number of sections corresponding to the number of commutator-plates, the respective symmetrical sections of the conductors being connected to each other and to the corresponding segments of the commutator, an alternating-current inductor acting on one of the groups of armature-conductors, a continuous-current inductor acting on the other group of armature-conductors and thus rotating the armature at half the speed of synchronism, a magnetic screen between the continuous-current inductor and the armature for insuring the stability of synchronism and stationary brushes, bearing on the commutator, for taking a continuous current therefrom, substantially as described.

5. A rotary transformer comprising an armature carrying two groups of conductors, each divided into a number of sections corresponding to the number of commutator-plates, the respective symmetrical sections of the conductors being connected to each other and to the corresponding segments of a commutator, an alternating-current inductor of the monophase type acting on one of the groups of armature-conductors, a continuous-current inductor acting on the other group of armature-conductors, a magnetic screen between the continuous-current inductor and the armature for suppressing any magnetic field which moves in space and thus insuring the rotation of the armature at half the speed of synchronism, and stationary brushes bearing on the commutator for taking a continuous current therefrom, substantially as described.

681,966. HUB-CAP FOR VEHICLES. OLIVER C. KEIPE, Norristown, Pa. Filed Jan. 18, 1901. Serial No. 43,744. (No model.)



Claim.—1. A hub-cap for a vehicle, provided with an elastic lining extending axially of the hub and held under pressure between the hub-cap and hub-band.

2. A hub-cap for a vehicle, provided with an elastic lining extending axially of the hub and held compressed between the hub-band and cap, and mechanically locked to the hub.

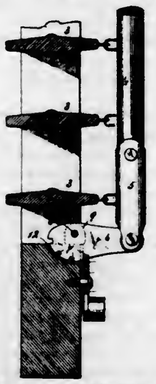
3. A hub-cap for a vehicle, provided with recesses and an elastic lining compressed into the recesses by the hub-band over which the cap is applied.

4. A hub-cap for a vehicle provided with peripheral holes, and an elastic lining extending through said holes, and projecting above the surface of the cap.

5. A hub-cap for a vehicle, provided with elastic projections distributed over its outer surface to form a stepping-band.

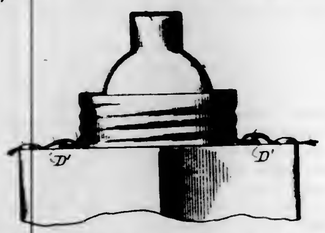
6. A hub-cap for a vehicle, provided with lugs or projections of elastic material held in cavities in the periphery of the cap.

681,967. WINDOW-BLIND REGULATOR. GUSTAVE LEY, Westphalia, Kans. Filed Mar. 11, 1901. Serial No. 50,599. (No model.)



Claim.—In a pivot-slat window-blind, the combination of a plate secured to the blind, a link pivoted thereto and pivotally connected to the slat-actuating rod and provided with a series of notches, and a latch pivoted to said plate to swing in a plane at right angles to that in which the link moves, said latch provided at its lower end with a handle, all as and for the purpose set forth.

681,968. MEANS FOR SAFELY SEALING VESSELS. ABBOT A. LOW, Brooklyn, N. Y. Filed Oct. 17, 1900. Serial No. 33,344. (No model.)



Claim.—The combination for a safety sealing means for vessels; consisting of an exterior cap closed at its top and secured to and over the main sealing-cap on a vessel, and provided with bottom flange and with perforations in said flange adapted to receive thongs; whereby the said exterior cap may be and is sealed to the body of the vessel; all constructed, arranged and combined to operate substantially as and for the purposes hereinbefore specified.

681,969. FIREPROOF FLOOR AND CEILING. JOHN O'NEIL, New York, N. Y. Filed May 13, 1901. Serial No. 59,229. (No model.)



Claim.—1. The combination in a fireproof floor and ceiling, of the girders; the T-irons C supported beneath the girders; the tiling G located upon the T-irons C; metallic floor-supports spanning the space between the webs of the adjacent girders; tiling B; and suitable filling material above the tiling B and between the girders; whereby a dead-air space is formed between the ceiling and floor, and the lower flanges of the girders insulated.

2. The combination in a fireproof floor and ceiling, of girders; the T-irons for the ceiling located beneath the girders; the arched T-irons for supporting the floor; and tiling located upon the ceiling and floor T-irons.

3. The combination in a fireproof floor and ceiling, of girders; T-irons for the ceiling located beneath the girders; arched T-irons spanning the space between the girders; hangers forthe ceiling T-irons; braces; and suitable tiling.

4. The combination in a fireproof floor and ceiling, of girders; supporting-irons for the ceiling located below the girders; metallic floor-supports spanning the space intermediate the webs of the girders; supports for the ends of the said floor-supports resting upon the flanges of the girders; and suitable tiling.

5. The combination in a fireproof floor and ceiling, of girders; T-irons for the ceiling located below the girders; hangers; arched T-irons for the floor supported by the flanges of the girders; and suitable tiling upon the T-irons.

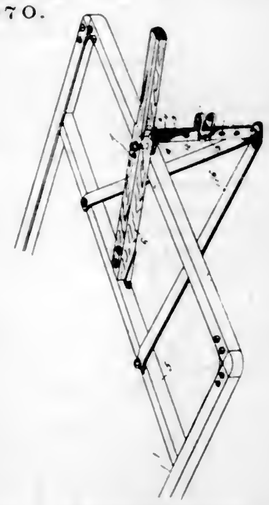
681,970. HITCH FOR GRAIN-DRILLS. CHARLES H. PELTON, Springfield, Ohio. Filed July 8, 1901. Serial No. 67,408. (No model.)

Claim.—1. A hitch for grain-drills and the like, comprising in combination a frame, a vertical swiveling hitch-bar provided with a clevis or shackle vertically adjustable thereon, and brace-rods diverging from the lower end of the hitch-bar upward and rearward and secured at their rear upper ends to the frame, substantially as described.

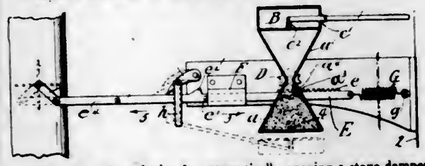
2. A hitch for grain-drills and the like, comprising a frame and tongue, braces extending forward and downward from the frame, a vertical hitch-bar having a swivel or pivotal connection with the tongue and with the lower forward ends of the brace-bars, and a clevis or shackle for the doubletree vertically adjustable on said hitch-bar, substantially as described.

3. A hitch for grain-drills and the like, comprising a frame, a tongue secured thereto and having a bearing on its under side, brace-bars secured at their rear ends to the frame and converging downward and forward, a hitch-bar pivotally mounted in the bearing of the tongue and in the forward ends of the brace-bars and provided with a plurality of apertures with varying heights, and a clevis or shackle for the doubletree provided with a pin whereby it may be pivotally and adjustably connected with the hitch-bar, substantially as described.

681,970.



681,971. TIME DAMPER-REGULATOR. RICHARD A. PENROSE, Philadelphia, Pa., assignor of one-tenth to Daniel Looney, same place. Filed Nov. 20, 1900. Serial No. 37,108. (No model.)

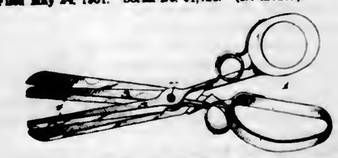


Claim.—1. As a device for automatically opening a stove-damper, the combination with a pivoted receptacle embodying two hoppers emptying into each other, sand therein and a pinion thereon, and a balanced plate within an extension of one of said compartments and a lever attached to said plate, with a sliding spring-actuated rod having a rack thereon engaging the said pinion, and a ratchet-and-pawl mechanism for holding the rod against the action of its spring, and means connecting said rod with a stove-damper, substantially as shown and described.

2. As a stove-damper regulator, the combination of the pivoted receptacle embodying the two hoppers, the pinion on said receptacle, sand within said receptacle, a plate in one of the said hoppers and the lever connected with said plate, with the sliding rod, the rack thereon for turning the said receptacle, the tooth on said rod and the pawl for engagement therewith and the depending arm of said pawl, and the spring for operating the said rod, substantially as shown and described.

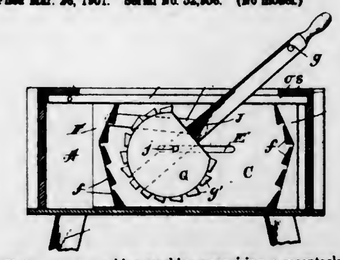
3. As a device for automatically opening a stove-damper, the combination with a pivoted receptacle embodying two hoppers emptying into each other, sand therein and a pinion thereon, and a balanced plate within an extension of one of said compartments and a lever attached to said plate, and a swinging gate within one of said hoppers; with a sliding spring-actuated rod having a rack thereon engaging the said pinion, and a ratchet-and-pawl mechanism for holding the rod against the action of its spring, and means connecting said rod with a stove-damper, substantially as shown and described.

681,972. SCISSORS. ISAAC POSTLETHWAIT, New Mayville, Pa. Filed May 24, 1901. Serial No. 61,728. (No model.)



Claim.—In combination with scissors, of a pair of supplemental jaws secured to the scissors by the same pivot-pin securing the scissor-blades together, square engaging faces on each of the said jaws, the said jaws normally extending over the cutting edges of the scissor-blades and adapted to grasp the material and hold the same before the cutting-blades act thereon, and coil-springs secured to the rear end of each jaw and to the handles of the scissors, substantially as described.

681,973. WASHING-MACHINE. W J. POTTER, Waterloo, Iowa. Filed Mar. 26, 1901. Serial No. 52,966. (No model.)

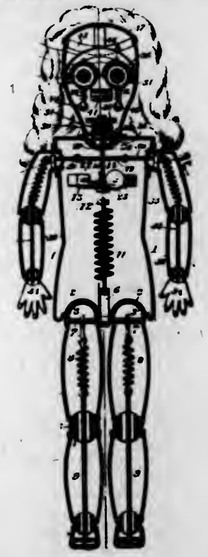


Claim.—1. A washing-machine comprising a receptacle, a sliding member having oppositely-arranged slots in its sides, scrubbing-boards carried by the ends of said member, a scrubber having a shaft passing through said slots and horizontally adjustably mounted in the receptacle, and means operated by the scrubber for sliding said member, substantially as described.

2. A washing-machine comprising a receptacle, a sliding member therein having washing-boards at the ends, and oppositely-arranged horizontal slots in the sides, a series of bearings carried by the sides of the receptacle opposite said slots, a scrubber having a shaft adapted to pass through said slots and to rest in the bearings, and means carried by the scrubber for operating the sliding member, substantially as described.

3. A washing-machine comprising a receptacle having oppositely-arranged vertical slots in the sides and horizontal slots connected therewith, bearings carried by the lower face of said horizontal slots, a sliding member within the receptacle having scrubbing-boards at its ends, and the sides provided with horizontally-extending slots opposite the slots in the receptacle, a scrubber intermediate said boards, a shaft carried by said scrubber and passing through the slots in the sliding member and mounted in the bearings, means for oscillating the scrubber, and means connected with the scrubber for operating the sliding member, substantially as described.

681,974. DOLL. ROBERT C. PURVIS, Laurel Springs, N. J., assignor of one-half to Bernhard Wilmsen, Philadelphia, Pa. Filed Mar. 1, 1901. Serial No. 49,502. (No model.)



Claim.—1. In a doll, a head, eyes, a frame on which said eyes are pivotally mounted, and an annular band carrying said frame, said band being adapted to hug the inner side of said head.

2. In a doll, a head, eyes secured therein, eyelids in said head, a counterweight, and a spring connecting the latter with said eyelids whereby the latter oscillate as the head is moved.

3. In a doll, a head, a body, a spring-engaged rod connecting said head and body, gearing actuating said rod for imparting movements to said head with respect to said body, and means for disengaging the members of said gearing and enabling said head to be rocked or tilted independently of said actuating gearing.

4. In a doll, a head, a body, a rod connecting the same, a spur-wheel on said rod, and a spring-pressed plunger and a pinion mounted on the latter, adapted to engage said wheel, for turning the latter in either direction whereby the head may be turned with respect to said body.

5. In a doll, a head, a body, a rod connecting the same, a ratchet-wheel on said rod and a pinion adapted to mesh with said wheel at the proper time to turn the same, and with it said head, and means for moving said pinion toward and away from said ratchet.

6. In a doll, a head, eyes therein, a frame carrying said eyes, and teeth for the mouth, said teeth being mounted on a bar which is pendent from said frame.

7. In a doll, a head having an open top, and a crown formed of carved cross-bands, and a circular lower band, said cross-bands being secured to said lower band and the latter being adapted to be sprung into the open top of the head and interlocked with the wall thereof.

8. In a doll, a body, a head therefor, a plate in said head, a spring-actuated rod passing through said plate and adapted to engage therewith, and means for rotating said head and with it said plate, whereby said head may be turned.

9. In a doll, a body, legs and spring-actuated rods connecting said body and legs, a common cross-bar in the upper portions of the legs, the rods being secured to said bar, and a spring in the body connected with the latter and said bar.

10. The combination of a doll's head, a band seated in said head, eyes immovably secured to said band, eyelids movably mounted thereon and teeth for the doll, said band being a common support for said eyes, eyelids and teeth.

11. In a doll, a body, a head seated thereon, a plate on said head, a spring resting on said plate, a second plate on the top of said spring, a rod passing through said plates and spring, and means for rotating said rod, said rod having a cross-piece which engages with said lower plate and is adapted to rock in said plate carrying the upper plate with it in the different positions of the head.

681,975. SURGICAL INSTRUMENT. JOHN N. RANGER, Evansville, Ind. Filed Apr. 6, 1901. Serial No. 54,671. (No model.)



Claim.—1. In a device of the class described, the combination with a hollow cylinder or barrel and a nozzle connected thereto, of a piston comprising a hollow cylinder in said barrel, a cap for said cylinder which is provided with an air-duct leading into the interior of the cylinder, and having a ring adjacent the duct for the insertion of the finger governing the flow of air through said duct.

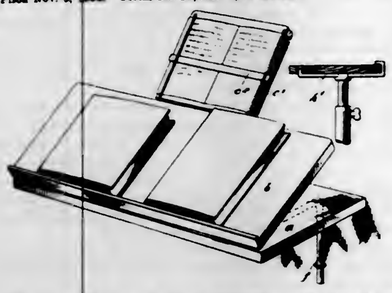
2. In a device of the class described, the combination with a hollow barrel or cylinder having a nozzle, of a piston comprising a hollow cylinder movable in the barrel, and a removable cap connected to the outer end of said piston-cylinder and having an outwardly-extending flange overlapping the barrel and also provided with a head having an air-duct leading into the interior of the piston-cylinder, and a ring extending up from said head and adapted to receive the finger of the user governing the flow of air therethrough.

3. In a device of the class described, the combination with a hollow cylinder or barrel and a nozzle attached thereto, of a piston comprising a hollow cylinder movable in the barrel, means for allowing ingress of air to and egress of air from the interior of the piston-cylinder, and a head detachably or removably connected to the inner end of the piston-cylinder which is provided with an opening, or port.

4. In a device of the class described, the combination with a hollow cylinder or barrel and a nozzle attached thereto, of a piston comprising a hollow cylinder movable in the barrel, means for allowing ingress of air to and egress of air from the interior of the piston-cylinder, and a head

for the inner end of said piston-cylinder which is provided with an opening and a loop or bail adjacent thereto for the attachment of a valve.

681,976. BOOK-REST. WILLIAM R. RATHVON, Florence, Colo. Filed Nov. 6, 1900. Serial No. 35,610. (No model.)



Claim.—1. A book-rest support, comprising a stem, a laterally-projected arm having its outer end turned upward to engage the book-rest, said arm being carried by the stem, and a second laterally-projected arm also carried by the stem and extending in a direction different from that of the first-named arm, the second-named arm having its outer end bent upward and inward to form a hook arranged to engage over the edge of the book-rest.

2. A book-rest, comprising a base, a main shelf pivoted thereon, an auxiliary shelf pivoted to the free end of the main shelf, two brackets independently pivoted to the base, and means on each shelf with which the brackets may respectively be adjustably engaged, for the purpose specified.

681,977. SPARKING PLUG. JEAN M. RICARD and FRANÇOIS C. GART, Toulouse, France. Filed Mar. 15, 1901. Serial No. 51,223. (No model.)



Claim.—A sparking plug comprising a socket, having a conical seat formed within its bore, a non-conducting ring, one end of which telescopes with the adjacent end of the socket, a sleeve having one end fitted to the conical seat in the bore of the socket, a rod extending through the sleeve, said rod having a collar or shoulder on one end and a centering-washer embracing adjacent ends of the ring, sleeve and rod whereby to hold them concentric and out of contact with one another, and means on the rod by which parts of the plug are held together.

681,978. TWINE-CUTTER. FRED A. RICHARDSON, Lowell, Mass. Filed Feb. 16, 1901. Serial No. 47,584. (No model.)

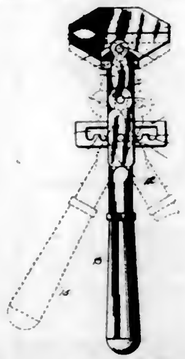
Claim.—1. A finger-ring cutter for twine or the like, having the peripheral extension in the plane of the ring, extending first directly outwardly to form a smooth-walled stop-shoulder, and thence in a manner approaching the parallel with the adjacent ring-wall to include a recess therebetween, and a cutting device arranged in said recess, substantially as specified.

2. A finger-ring cutter for twine or the like, having the peripheral extension in the plane of the ring extending first directly outwardly to form a smooth-walled stop-shoulder, and thence in a manner approaching the parallel with the adjacent ring-wall to include a recess therebetween, cutting devices arranged in said recess, and a second stop shoulder or extension upon the same side of the ring as said first-named shoulder, substantially as specified.

3. A finger-ring cutter for twine, or the like, having the peripheral extension in the plane of the ring and including a recess therebetween and the adjacent ring-wall, a knife secured in said extension, and also in the plane of the ring, a plate-spring extending peripherally of the ring in the same plane thereas into said recess, and split at its free end portion to straddle said knife, substantially as specified.

4. A finger-ring cutter for twine or the like, having the peripheral extension in the plane of the ring, and including a recess therebetween and the adjacent ring-wall, a knife secured in said extension, and also in the plane of the ring, a plate-spring extending peripherally of the ring in the same plane thereas, and secured in a peripheral slot thereof, said spring being split at its free end portion to straddle said knife, together with a stop-shoulder at the base of such extension, and a second stop shoulder or extension upon the same side of the ring as said first-named shoulder, substantially as specified.

681,979. WRENCH. MARSHAL A. RICHARDSON, Windsor, Ill. Filed June 13, 1901. Serial No. 64,450. (No model.)



Claim.—1. In a wrench, the combination with a shank having a jaw, of a stock pivoted intermediate its ends to the shank and having a handle at one end, a movable jaw having a longitudinal sliding engagement with the shank and coacting with the jaw thereof, and a link secured to the movable jaw and having a pivotal connection with that portion of the stock which is on the opposite side of the pivot from the handle.

2. In a wrench, the combination with a shank having oppositely-disposed jaws at one end, of a stock pivoted intermediate its ends to the opposite end of the shank, and having a handle at one end, a movable head having a longitudinal sliding engagement with the shank and provided with oppositely-disposed jaws that coact with those of said shank, and a link secured to the movable head and having a pivotal connection with that portion of the stock which is on the opposite side of the pivot from the handle.

3. In a wrench, the combination with a shank having oppositely-disposed jaws at one end, of a stock pivoted intermediate its ends to the opposite end of the shank and having a handle at one end, a movable head having a longitudinal sliding engagement with the shank and provided with oppositely-disposed jaws that coact with those of said shank, and a link pivotally secured to the movable head and having a pivotal connection with that portion of the stock which is on the opposite side of the pivot from the handle, said several pivots being so located that when the shank and stock are in alinement the pivots will also be in substantial alinement.

4. In a wrench, the combination with a shank having oppositely-disposed jaws at one end, of a stock bifurcated at one end to form spaced arms that embrace the shank, the said arms being pivotally secured at their bases to the end of the shank, the other end of the shank constituting an operating-handle, a head mounted upon the shank and slidable longitudinally thereof, said head being provided with oppositely-disposed jaws that coact with those of the shank, and links pivotally secured to the opposite sides of the head and having a pivotal connection with the free ends of the stock-arms.

5. In a wrench, the combination with a shank carrying a jaw, of another jaw having a slidable connection with the shank, and a stock connected with the slidable jaw and having a fulcrum connection with the shank, said fulcrum connection being movable transversely of said shank.

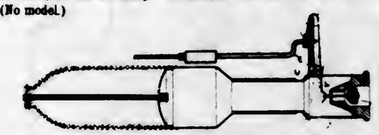
6. In a wrench, the combination with a shank carrying a jaw, of another jaw having a slidable connection with the shank, and a stock pivotally and slidably connected to the shank and having an operative connection with the sliding jaw.

7. In a wrench, the combination with a shank carrying a jaw and provided with a transversely-disposed slot, of another jaw slidably mounted upon the shank, and a stock connected to the sliding jaw and having a pivot engaging in the slot of the shank and slidable therein.

8. In a wrench, the combination with a shank carrying a jaw and provided with a transversely-disposed slot having a plurality of shoulders, of another jaw slidably mounted upon the shank, and a stock connected to the sliding jaw and having a pivot slidably mounted in the slot of the shank and arranged to engage behind the shoulders thereof.

9. In a wrench, the combination with a shank carrying a jaw and provided with a transversely-disposed bar having a slot, said slot being provided with a plurality of shoulders, of another jaw slidably mounted upon the shank, a stock having a pivot intermediate its ends which engages in the slot of the transverse bar and is arranged to engage behind the shoulders thereof, and a link pivotally connecting one end of the stock and the sliding jaw.

681,980. GAS-BURNER. HELIODOR ROSTIN and STANISLAUS SEUBERT, Berlin, Germany. Filed Mar. 22, 1901. Serial No. 52,355. (No model.)



Claim.—1. The combination, with a gas-burner, and a hollow body provided with an elastic portion having one side directly exposed to the external air, of a gas-valve arranged to be actuated by the movement of the elastic portion and controlling the supply of gas to the burner, a hollow chamber located adjacent to the burner and in communication with the hollow body, and a rod of heat-conducting material carried by the said hollow chamber and extending into close proximity to the burner-flame.

2. The combination, with a gas-burner, and a hollow body provided with an elastic portion having one side directly exposed to the external air, of a gas-valve arranged to be actuated by the movement of the said elastic portion and controlling the supply of gas to the burner, a hollow chamber, said chamber arranged to be heated by the burner, a connection between said hollow chamber and the hollow body, and mechanism for opening the valve prior to the operation of the elastic portion of the hollow body.

3. The combination, with a gas-burner, and a hollow body provided with an elastic portion, of a hollow chamber in communication with said hollow body and arranged to be heated by the burner, a collar and bracket device connected to the burner and arranged to support said hollow body, said bracket having bearings, a key turning in the bearings, a spring under the control of both the elastic portion of the hollow body and the key and a valve arranged to control the supply of gas to the burner and connected to the said spring.

681,981. REPRODUCER FOR PHONOGRAPHS. EVANS H. RUSSELL, New Haven, Conn. Filed June 10, 1901. Serial No. 63,853. (No model.)



Claim.—1. In a reproducer, the combination with the diaphragm-post and weight of an auxiliary weight adapted to be secured to the weight, a sapphire-arm pivotally mounted in the said auxiliary weight and connected directly to the diaphragm-post, substantially as described.

2. In a reproducer, the combination with a weight, of slides mounted therein, a sapphire-arm mounted between said slides, a diaphragm-post connected directly with one end of said sapphire-arm, substantially as described.

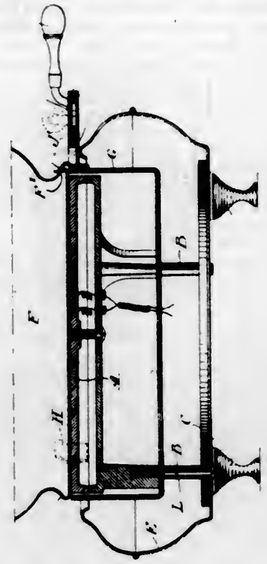
3. In a reproducer, the combination with a diaphragm-post and weight, of slides mounted in the said weight and formed with inwardly-projecting headed pins, and a sapphire-arm formed in opposite sides with grooves to receive said pins, and connected at its inner end directly with the diaphragm-post, substantially as described.

681,982. COOKING UTENSIL. GEORGE E. SAVAGE, Meriden, Conn. Filed Mar. 5, 1901. Serial No. 49,765. (No model.)

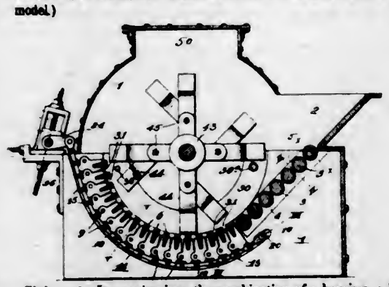
Claim.—1. In a cooking utensil, a heater portion, receptacle portion, a flange on the lower portion of said receptacle portion, a jacket surrounding said heater portion but separated from the edges thereof, stationary clips carried by said jacket and a movable clip carried by said jacket, said clips cooperating to engage and disengage the flange of said receptacle member.

2. In a cooking utensil, a heater portion, a receptacle portion, a flange on the lower portion of said receptacle portion, a jacket surrounding said heater portion but separated from the edges thereof, stationary clips carried by said jacket and a sliding clip carried by said jacket, said clips cooperating to engage and disengage the flange of said receptacle member.

3. In a cooking utensil, a heater portion, a receptacle portion, a flange on the lower portion of said receptacle portion, a jacket surrounding said heater portion but separated from the edges thereof, stationary spring-clips carried by said jacket and a movable spring-clip carried by said jacket, said clips coöperating to engage and disengage the flange of said receptacle member, and an external annular casing around said heater portion.



681,983. PULVERIZER. AUGUST SCHOELLHORN and HERMAN S. ALBERGER, St. Louis, Mo. Filed Feb. 11, 1901. Serial No. 46,778. (No model.)



Claim.—1. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a series of rollers located beneath the hopper of the housing, a part of the series of rollers having reduced ends, and grooved plates set into the inner faces of the housing to support the series of rollers, said plates being held in position by the rollers having the reduced ends.

2. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen arranged beneath the beater; said screen consisting of bars normally in constant automatic oscillation supported by blocks pivoted together and provided with means for rocking them on their pivots when the machine is in operation, substantially as set forth.

3. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen arranged beneath the beater and consisting of bars normally in constant automatic oscillation, blocks pivoted together and supporting the bars, chains connecting with the bars, and means for moving the chains to rock the bars in a direction transverse to the line of movement of the material through the machine, substantially as set forth.

4. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen arranged beneath the beater and consisting of bars normally in constant automatic oscillation and means for supporting and rocking the bars in a direction transverse to the line of movement of the material through the machine when the machine is in operation, substantially as set forth

5. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater and consisting of bars normally in constant automatic oscillation, and means for supporting the bars and by which they are rocked in a direction transversely of their length, substantially as set forth.

6. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater; said screen consisting of bars, blocks pivoted together and which are notched to receive the bars, chains connecting with the blocks, and means for moving said chains, said blocks having tapering sides permitting them to rock on their pivots, substantially as set forth.

7. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater; said screen consisting of bars, blocks pivoted together and notched to receive the bars, chains located beneath the blocks, and between which downward extensions of the blocks fit, spring-actuated bolts connecting the chains at one end to the housing, a rock-shaft to which the other ends of the chains are connected, and a rod and eccentric connection between said rock-shaft and the shaft of said beater, substantially as set forth.

8. In a pulverizer, the combination of a housing, a beater located within the housing, and a screen located beneath the beater; said screen consisting of bars, blocks pivoted together and supporting the bars, chains yieldingly connected at one end to the housing of the machine, and means to which the other ends of the chains are connected and by which the blocks are moved on their connecting-pivots when the machine is in operation, substantially as set forth.

9. In a pulverizer, the combination of a housing, a beater located within the housing, and a screen located beneath the beater; said screen consisting of bars, blocks pivoted together and supporting the bars, chains connecting with the blocks and which are spring-connected at one end to the housing, a rock-shaft to which the other ends of the chains are connected and means for rocking the shaft while the machine is in operation, substantially as set forth.

10. In a pulverizer, the combination of a housing, a beater located within the housing, and a screen located beneath the beater, which consists of bars and blocks pivoted together and which support the bars, a rock-shaft, means connecting the rock-shaft to said blocks by which the latter are moved in one direction on their pivots when the machine is in operation, and means for moving the blocks in the other direction, substantially as set forth.

11. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater which consists of bars and blocks pivoted together and supporting the bars, a vertically-adjustable rock-shaft, a connection between said shaft and said bars, whereby the latter are moved in one direction on their pivots while the machine is in operation, and means for moving the blocks in the other direction, substantially as set forth.

12. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater, which consists of bars and blocks pivoted together and which support the bars, means for rocking the bars in one direction on their pivots, means for moving the bars in the other direction, and means for holding the bars from moving in a vertical direction, substantially as set forth.

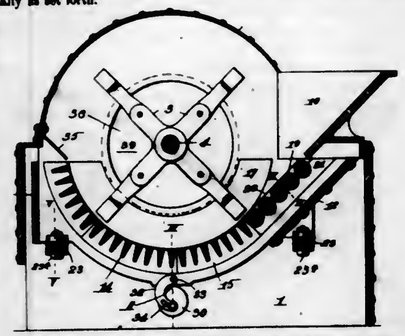
13. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater which consists of bars and blocks pivoted together and supporting the bars, means for rocking the blocks in one direction on their pivots, means for moving the bars in the other direction, and means for holding the bars from moving vertically consisting of wearing-plates having projections fitting between part of said series of bars, substantially as set forth.

14. In a pulverizer, the combination of a housing, a beater arranged within the housing, and a screen located beneath the beater which consists of bars and blocks pivoted together and supporting the bars, chains connecting with the blocks, and fitting in grooves formed in the inner walls of the housing, friction-rollers carried by said chains, means for yieldingly connecting one end of the chains to the housing, and a rock-shaft to which the other ends of the chains are connected and by which the chains are moved to rock the blocks on their pivots, substantially as set forth.

15. In a pulverizer, the combination of a housing, a beater located in the housing, and a screen located beneath the beater; said housing having a top extension 50 forming a dust-chamber, substantially as set forth.

681,984. PULVERIZER. AUGUST SCHOELLHORN and HERMAN S. ALBRECHT, St. Louis, Mo. Filed Feb. 11, 1901. Serial No. 46,779. (No model.)

Claim.—1. In a beater, the combination of a housing consisting of a lower portion and an upper portion fitting within the lower portion, a screen carried by the upper portion of the housing, a beater carried by the lower portion of the housing, eccentrics journaled in the lower portion of the housing and which bear against the bottom of the upper portion of the housing, and links pivoted to the upper portion of the housing, and having a slot-and-bolt connection with said eccentric, substantially as set forth.



2. The combination of a housing consisting of a lower portion, an upper portion fitting within and adjustable up and down in the lower portion, and having enlarged openings in its end walls, said upper portion carrying a screen; and a beater having its shaft extended through the openings in the upper housing and mounted in bearings susceptible of vertical adjustment; whereby space for the adjustment of the beater-shaft is obtained by the adjustment of the housing.

3. The combination of a housing consisting of a lower portion, an upper portion fitting within and adjustable up and down in the lower portion, and having enlarged openings in its end walls, said upper portion carrying a screen; and a beater having its shaft extended through the openings in the upper housing and mounted in bearings susceptible of vertical adjustment; whereby space for the adjustment of the beater-shaft is obtained by the adjustment of the housing, the shields or disks 39 mounted on the beater-shaft and in all positions maintaining the closure of the end openings.

681,985. CELLAR-DOOR. CHARLES C. SCHREIBER, Cincinnati, Ohio, assignor to the L. Schreiber & Sons Company, same place. Filed Apr. 26, 1901. Serial No. 57,964. (No model.)



Claim.—In combination with a door-frame having an inner marginal drain, a pair of doors hinged to said frame, one of which doors is provided with a drain at the jointed edge and the other door provided with a batten-strip and having a water-lip on the edge of the door, substantially as specified.

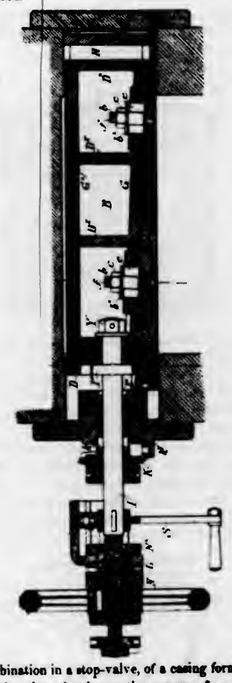
681,986. MAIN STOP-VALVE. FRANCIS SCHUMANN, Philadelphia, Pa. Filed Dec. 10, 1900. Serial No. 39,394. (No model.)

Claim.—1. The combination of a casing forming a valve-chamber, ports opening into said chamber, a valve consisting of two wedge-shaped sections constructed to operate in the chamber, a valve-rod engaging the valve, with means attached to the outside of the rod for moving one of said sections longitudinally upon the other, and independent means also attached to said valve-rod for rotating the valve, substantially as described.

2. In a stop-valve for fluids, the combination of a casing, ports therein, a valve in the casing consisting of two wedge-shaped sections, a longitudinal groove in one section and a tongue or projection on the other section fitting said groove, a valve-rod connected to said valve with means for rotating the same with the attached valve and independent means connected to the outside of said rod for moving it longitudinally, and thereby also moving one valve-section upon the other, substantially as described.

3. The combination in a stop-valve, of a casing forming a cylindrical chamber, ports opening into the chamber, two wedge-shaped valve-sections in the chamber, a valve-rod attached to one of the sections, means for moving the rod longitudinally and an independent operating-arm for rotating the rod, substantially as described.

4. The combination with a two-section valve of the character described, of a valve-casing, a valve rod, projections thereon engaging one of the valve-sections, whereby the section is made to turn when the rod is turned, a thread on the outside end of the rod, a yoke carried by the valve-casing, a threaded bushing in the yoke, through which the threaded part of the valve-rod passes, a hand-wheel keyed to the bushing, substantially as described.



5. The combination in a stop-valve, of a casing forming a cylindrical chamber, two wedge-shaped valve-sections, means for operating the said sections, and an end-thrust plate engaging the said valve-sections, said plate having a grooved periphery and passages through its body, substantially as described.

6. The combination of a valve-casing forming a cylindrical valve-chamber, ports therein, a valve consisting of two sections, each of said sections having a face circular in outline constructed to fit over and close the said ports, undercut grooves in each face of the valve and packing in the grooves, substantially as described.

7. The combination in a valve of the character described, of a casing forming a cylindrical valve-chamber, a bonnet or cover-plate, a valve in the chamber, and a valve-rod connected to the valve extending through the bonnet, a stuffing-box in the bonnet around the rod, a threaded extension of the bonnet having a gland-cap thereon, said extension having in it a recess, a gland in the stuffing-box and apertures through said extension, substantially as described.

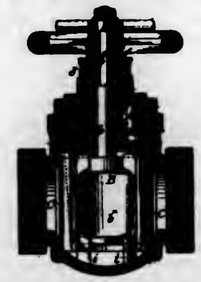
8. The combination of a valve-casing, its ports, a two-part cylindrical valve, one part longitudinally movable on the other to increase or diminish the diameter of the valve, a valve-rod attached to one part, an operating-lever on said rod, a pin in the lever, a fixed segment having notches with which the pin engages and means for moving the rod longitudinally, substantially as described.

9. The combination with a valve of the character described, of a yoke-piece secured to the casing of the valve, a notched quadrant, a threaded bushing constructed to be supported by the yoke, a valve-rod fitting the threaded interior of the bushing, said rod having on its extreme end a nut, an operating-arm keyed to the rod, a pin in the same constructed to engage the said quadrant and a hand-wheel keyed to the threaded bushing, substantially as described.

681,987. STOP-VALVE. FRANCIS SCHUMANN, Philadelphia, Pa. Filed Jan. 21, 1901. Serial No. 44,079. (No model.)

Claim.—1. The combination in a stop-valve structure, of a casing, a single tapered piece having a passage-way for fluid through it, seat-plates mounted between the piece and the casing, a hand-wheel for moving said piece longitudinally and a second wheel for turning the piece, substantially as described.

2. The combination in a valve-casing having a bore of an even diameter throughout and having inlet and outlet openings, seat-plates having surfaces concentric with the bore of the casing and of such a size as to close the inlet and outlet openings, with a piece engaging the seat-plates and having a single rod attached to it, a hand-wheel freely rotatable on the said rod constructed to longitudinally move the rod and the said piece and thereby to release the seat-plates and a second hand-wheel fixed to the rod for turning the said piece, substantially as described.



3. The combination of a valve-casing having a bore of an even diameter throughout, inlet and outlet openings, a cap fitted to the casing having a thread on its upper portion, seat-plates mounted between a shoulder on the casing and a cap and fitting the bore of said casing, a piece having tapered portions mounted in the seat-plates and less in height than the same, a rod for said piece, a hand-wheel loosely mounted thereon for moving the piece longitudinally, said wheel having threads engaging the threads on the cap, and a device fixed to the rod for turning the said piece, substantially as described.

4. The combination in a valve-casing having inlet and outlet openings, a cap for said casing, seat-plates confined between the cap and the bottom of the valve-casing and arranged to close the openings when in one position, a piece mounted in the casing between the seat-plates and arranged to move vertically independent of the plates but turn with them, a hand-wheel, a screw-thread thereon, a head secured to the cap and having a screw-thread with which the screw-thread on the hand-wheel engages, and a ring for confining said hand-wheel to the stem so that on turning the hand-wheel the said piece will be raised and then turned, substantially as described.

5. The combination of a casing having inlet and outlet openings, a cap screwed into the casing, seat-plates mounted between the cap and the bottom of the casing, a piece arranged to slide on but turn with the seat-plates, a rod therefor, a stuffing-box in the cap, a gland therefor, a head screwed into the cap and resting upon the gland, a screw-thread in the said head, a hand-wheel having a threaded hub, the threads of which mesh with the threads of the head, and a ring secured to the said rod and confining the hand-wheel thereto, substantially as described.

6. The combination in a stop-valve structure, of a casing, a tapered piece, seat-plates mounted between the said piece and the casing, means for moving the piece longitudinally and for turning the same, ribs on the said plates between which the edges of the piece rest, and ears on the ribs, substantially as described.

7. The combination in a stop-valve structure, of a casing, a single tapered piece, seat-plates mounted between the said piece and the casing, means for moving the piece longitudinally and for turning the same, and stops within the casing placed to engage the seat-plates for limiting the rotary movement of the said seat-plates in either direction, substantially as described.

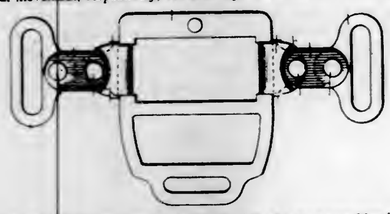
8. The combination in a stop-valve structure, of a casing having inlet and outlet openings, a single tapered piece having a rod, seat-plates mounted between the said piece and the casing, the piece having an open center forming a passage when the valve is turned to open, with two wheels on the said rod, one being loosely mounted thereon and constructed to move the piece longitudinally, the other being fixed to the rod outside of the first wheel and constructed to turn said piece, substantially as described.

681,988. HARNESS-BUCKLE. ALFRED SHEPHERD, Maltaband, Mo., assignor of one-half to William M. Rozell, same place. Filed Mar. 29, 1901. Serial No. 53,548. (No model.)

Claim.—1. The combination of a harness-buckle, a strap-attaching loop, a clip connected to said buckle, and links connected to said clip and to said loop, substantially as set forth.

2. The combination, with a harness-buckle, of a strap-attaching loop connected thereto by a clip and links, said clip having arranged therein a stop or plate with one edge engaging a side bar of the buckle-frame, and

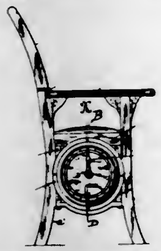
said clip and links having a lateral pivotal movement and an edgewise pivotal movement, respectively, substantially as set forth.



3. The combination with a harness-buckle, of a strap-attaching loop connected thereto by a clip and links, said clip having arranged therein a stop or plate with one edge engaging a side bar of the buckle-frame, said side-bar-engaging edge of said stop being grooved or concaved and said clip and links having a lateral pivotal movement and edgewise pivotal movement, respectively, substantially as set forth.

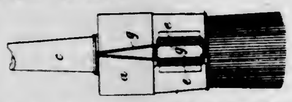
4. The combination with a harness-buckle, of a strap-attaching loop connected thereto by a clip and links, said clip having arranged therein a stop or plate with one edge engaging a side bar of the buckle-frame, said side-bar-engaging edge of said stop being grooved or concaved, and said clip being laterally indented or recessed to receive the opposed end portions of the loop-attaching links, substantially as set forth.

681,989. **REGISTERING-CHAIR.** HENRY SHUART, Buffalo, and ORON B. THOMPSON, North Tonawanda, N. Y. Filed Dec. 21, 1900. Serial No. 40,642. (No model.)



Claim.—In a registering-chair, a seat supported upon blade-springs crossing each other at right angles and secured together at their point of intersection, a pin beneath the said springs and normally held in contact therewith, a lever composed of two parallel parts placed a distance apart and connected together at one end, said levers being pivoted or journaled at the connected end and further connected near the opposite end by a pivot engaging the said pin, a downwardly-projecting bracket formed integral with one of the members of said lever, a spiral spring acting upon the end of said bracket, a ratchet-wheel below said two-part lever, a shaft carrying this ratchet-wheel, a dog pivoted between said members of the lever and acting upon said ratchet-wheel, and suitable mechanism for indicating the successive depressions of the seat-springs, as specified.

681,990. **BRIDLE, TIE, OR LIKE FITTING FOR PAINTERS' BRUSHES.** GEORGE A. SUDAY, London, England. Filed Jan. 3, 1901. Serial No. 42,553. (No model.)

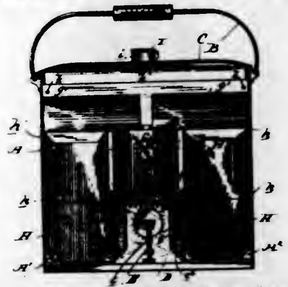


Claim.—1. A brush-bridle, consisting of a strip of suitable material with the ends thereof overlapping, a pair of hooks, means for pivotally connecting said hooks to the said strip, a flexible medium for causing the bridle to contract upon the hair or bristles of a brush, and means for retaining the flexible medium in position.

2. A bridle for brushes, consisting of a single strip of suitable material adapted to entirely surround the hairs or bristles of the brush, projections formed integral with the said strip of material, and means engaging the projections for securing the strip in position as well as causing the same to contract upon the hairs or bristles of the brush, substantially as herein shown and for the purpose described.

3. A bridle for a brush, consisting of a strip of suitable material having the ends thereof overlapping and adapted to surround the hairs or bristles of the brush, projections connected to the outer face near each end of the said strip, and means engaging the said projections for contracting the strip of material upon and securing the same to the hairs or bristles of the brush.

681,991. **HEATED LUNCH-BOX.** BURR R. SKINNER, Calmar, Iowa. Filed Jan. 29, 1901. Serial No. 45,204. (No model.)



Claim.—1. A lunch-pail comprising a body portion and a double-walled heating-chamber, said chamber dividing the body portion into compartments A', A^2, the walls of the heating-chamber being perforated at different levels to induce the circulation of a cooling agent therethrough, and suitable receptacles in said compartments, substantially as described.

2. A lunch-pail comprising a body portion and a double-walled heating-chamber, said chamber dividing the body portion into compartments A', A^2, the walls of the heating-chamber being perforated at different levels to induce the circulation of a cooling agent therethrough, a plate having inclined edges connecting the upper portions of the walls and adapted to constitute a support, and suitable receptacles in the respective compartments designed to rest upon said support, substantially as described.

681,992. **FLASHER FOR ELECTRIC LAMPS.** CLYDE SLUSSER, Danville, Ill. Filed Apr. 15, 1901. Serial No. 55,868. (No model.)



Claim.—1. A flasher for electric lamps, comprising a thermostat suspended from the lamp-socket and partially surrounding the lamp, a hanger arranged in the lamp-circuit and with which one end of said thermostat is connected, a hanger in the electric circuit, a contact adjustable in said last-named hanger, and a contact on the free end of the thermostat, substantially as specified.

2. A flasher for electric lamps, comprising a thermostat partially surrounding the upper portion of the lamp, a hanger arranged in the electric circuit of the lamp, another hanger arranged in the electric circuit and insulated from the first-named hanger, both hangers being connected to the lamp-socket, an adjustable contact in the last-named hanger, a contact-plate on the free end of the thermostat, a connection between the first-named hanger and a pole of the lamp-filament, and a connection between the other pole of the filament and the lead-wire, substantially as specified.

3. A flashing device for electric lamps, comprising a thermostat arranged in the electric circuit and partially surrounding the lamp-globe and adapted to open and close the circuit at irregular intervals of time, substantially as specified.

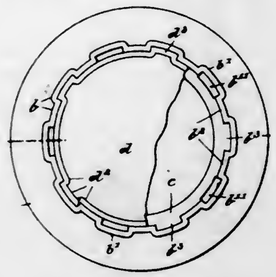
681,993. **PROCESS OF PRODUCING TITANIUM COMPOUNDS.** HOWARD SPENCE, Manchester, England. Original application filed June 3, 1899, Serial No. 719,299. Divided and this application filed Dec. 23, 1899. Serial No. 741,439. (No specimens.)

Claim.—1. The herein-described process for the production of new soluble compounds of titanic acid, sulfuric acid and alkali having as set forth the formula $TiO_2 2(SO_3)X_2O$ from a titanic-acid-containing substance in which the titanic acid is readily soluble in sulfuric acid, which consists in digesting the titanic-acid-containing substance in heated sulfuric acid in slight excess and maintaining in the liquor an excess of sulfuric acid to the limited extent necessary to retain the titanic acid in solution, adding to the clear solution of the titanic acid in sulfuric acid, sulfate of the particular alkali employed in the proportion of not less than one molecule of alkali sulfate for every molecule of titanic sulfate contained in solution, and crystallizing out the resulting compound of titanic acid, sulfuric acid and alkali by evaporating the said clear solution to a specific gravity of about 1.4.

2. The herein-described process for the production of new soluble compounds of titanic acid, sulfuric acid and alkali having as set forth the formula $TiO_2 2(SO_3)X_2O$ which consists in dissolving titanic acid in heated dilute sulfuric acid, such sulfuric acid being in excess of what is actually required for the solution of the titanic acid, adding an alkaline sulfate to the resulting solution, crystallizing out the resulting compound of titanic acid, sulfuric acid and alkali, dissolving the crystallized compound in dilute sulfuric acid adding normal sulfate of the alkali employed to the resulting solution, and again crystallizing out the compound of titanic acid, sulfuric acid and alkali.

3. The herein-described process for the production of new soluble compounds of titanic acid, sulfuric acid and alkali having as set forth the formula $TiO_2 2(SO_3)X_2O$ which consists in dissolving titanic acid in heated dilute sulfuric acid such dilute sulfuric acid being in excess of what is actually required for the solution of the titanic acid, adding an alkaline sulfate to the resulting solution, crystallizing out the resulting compound of titanic acid, sulfuric acid and alkali, dissolving the crystallized compound in dilute sulfuric acid, adding normal sulfate of the alkali employed to the resulting solution, and again crystallizing out the compound of titanic acid, sulfuric acid and alkali.

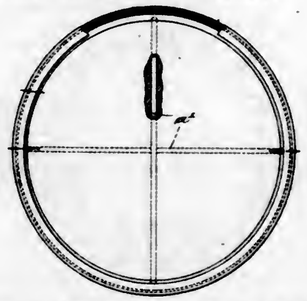
681,994. **MANHOLE FRAME AND COVER.** WILLIAM O. STEELE, Philadelphia, Pa., assignor of one-half to Charles T. Wright, same place. Filed Mar. 18, 1901. Serial No. 51,610. (No model.)



Claim.—1. The combination with a frame having a wall, a flange or ledge projecting therefrom to form the seat for the cover, a series of indentations formed in the interior of the wall above the ledge and a series of projections separating said indentations, certain of the indentations being continued through the ledge in the form of an oblong slot, of a cover adapted to be supported by said ledge and of a diameter approximately the same as the distance between diametrically opposite projections, and a series of wings projecting from the periphery of the cover and corresponding in number with the number of slots in the ledge, said wings formed complementally to the indentations of the frame and adapted to interlock therewith.

2. The combination with a frame having a wall the interior of which is fluted, a flange or ledge projecting from the wall to form a seat for the cover, said flange or ledge being slotted vertically at intervals to form continuations of certain of the indented flutings of the wall of the frame through the ledge, of a cover adapted to be supported by said ledge and of a diameter approximately the same as the distance between diametrically opposite projecting flutings of the frame, and a series of wings formed on the periphery of the cover and corresponding in number with the number of slots in the ledge, said wings being formed complementally to and adapted to interlock with the indented flutings of the frame.

681,995. **MANHOLE FRAME AND COVER.** WILLIAM O. STEELE, Philadelphia, Pa., assignor of one-half to Charles T. Wright, same place. Filed Mar. 21, 1901. Serial No. 52,157. (No model.)



Claim.—1. A manhole frame and cover having a main or body portion formed of low-grade cast metal, and strengthening or reinforcing pieces of higher grade metal of greater tensile strength than the low-grade cast metal, said pieces inserted in and covered by the low-grade casting at points where the casting is subjected to greatest strain or shock.

2. A manhole frame and cover, consisting of a low grade of metal and inserted reinforcing or strengthening devices of a different metal internally introduced into the structure in the casting or formation thereof, substantially as and for the purposes described.

681,996. **HUNTER'S HEADLIGHT OR LANTERN.** GEORGE W. STOCKWELL, Greenville, Miss. Filed Aug. 9, 1900. Serial No. 26,427. (No model.)



Claim.—An adjustable head-gear for a hunter's headlight and lantern, comprising a flexible metallic band provided at one end with a series of openings and at its other end with an opening countersunk upon the inner side of the band, a locking-stud projecting through said latter opening and adapted to engage either one of the series of openings and formed with a head occupying the countersunk end of the opening in which it is fitted, a keeper-strip secured to the inner face of the band in line with the countersunk opening to retain the stud in place, and a loop slidably embracing the ends of the band to retain the same in locking engagement, substantially as described.

681,997. **JOURNAL-BEARING FOR MINE-CARS.** DAVID J. SULLIVAN, Jermyn, Pa. Filed Dec. 6, 1900. Serial No. 38,934. (No model.)



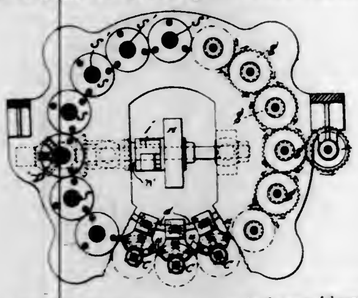
Claim.—1. In combination with a car-axle journal, a journal-box comprising a stationary member adapted for attachment to the car, and a movable member slidable transversely of and toward and from the journal, said members having interfitting portions forming a divided box to inclose the journal, substantially as set forth.

2. A journal box or bearing for car-axles, comprising a stationary section composed of a bracket adapted to be attached to a car and having a transversely-extending box-section and longitudinal edge and intermediate guide-grooves, a movable section provided with a complementary transverse box-section and tongues slidably engaging the edge guide-grooves on said stationary section, a set-screw on the movable section and entering the intermediate guide-groove on the stationary section, and a key for holding the movable section fixed and the box-sections in engagement with each other, substantially as set forth.

681,998. **BRAIDING-MACHINE.** JOHN P. SWIFT, Pawtucket, R. I. Filed July 14, 1900. Serial No. 23,687. (No model.)

Claim.—1. The combination with a movable electromagnet and means for operating the same, of a second electromagnet, a carrier comprising an armature adapted to be carried around by the first magnet to the second and there left, and mechanism for magnetizing the first magnet during the time it is so carrying the armature and until it brings the

armature into proper relation to the said second magnet and then demagnetizing the first magnet and magnetizing the second magnet to cause it to withdraw the armature from the first magnet; substantially as described.



2. A braiding-machine, comprising carriers for the material composing the braid each having an armature portion, mechanism for transmitting the said carriers from one point to another in a given course and comprising revolving groups of electromagnets, a magnet of any group being adapted to receive a carrier from a magnet of an adjacent group, carry it through a complete or any desired portion of a revolution and deliver it to the magnet of another group or to a magnet of the same group from which it was received, and means for effecting the magnetization and demagnetization of the magnets to hold and release the carrier, substantially as described.

3. In a braiding-machine the combination of the following elements, viz: a series of groups of electromagnets, each group revolving about a vertical axis, the pole-pieces of each magnet in any group being adapted to come into opposition to the pole-pieces of a magnet in each adjacent group; said pole-pieces being milled to receive an armature of any desired shape; suitable armatures adapted to carry the material composing the braid, and commutators connecting said magnets with a source of electricity in such a manner that any given magnet in one group will engage an armature, transmit it through a part or the whole of a revolution of such group and deliver it to a magnet of the same group from which it was received, or to a magnet of another adjacent group, substantially as set forth.

4. In a braiding-machine an automatic stop-motion comprising means for connecting the source of power with the mechanism of the machine; an armature fixed upon and constituting part of said means; and an electromagnet adapted to maintain said connection by engagement with said armature and to release said connection when the current of said magnet is broken, substantially as described.

5. In a braiding-machine an automatic stop-motion consisting of a clutch connecting the machine with the source of power, a lever attached to said clutch as weighted as normally to keep said clutch disconnected; an armature fixed upon said lever; an electromagnet adapted while the circuit is closed to maintain by engagement with said armature the connection aforesaid and to break such connection when the circuit is broken; and means for the automatic breaking of said circuit, substantially as specified.

6. In a braiding-machine an automatic stop-motion consisting of the following parts, viz: a clutch connecting the source of power with the machine; a weighted lever operating said clutch and normally keeping it out of connection with the source of power; an armature fixed upon and comprising a part of said lever; an electromagnet operating by engagement with said armature when the circuit is closed, to maintain the connection aforesaid; a partially-revoluble toothed wheel normally in electrical circuit with said magnet, and a spool suspended by the yarn and adapted by the breaking or exhaustion of the same to drop and by engagement with one of said teeth to move said wheel sufficiently to break the circuit of said magnet and automatically release the clutch aforesaid, substantially as set forth.

7. A braiding-machine, comprising a series of groups of electromagnets, each group revolving about a vertical axis, the pole-pieces in each magnet in any group being adapted to come into opposition to the pole-pieces of a magnet in each adjacent group, armatures having depending spool-carrying spindles provided with tension-arms, and means for magnetizing and demagnetizing the magnets to cause one magnet to carry said armature to a magnet of another series and then release it as it is attracted by the said second magnet; substantially as described.

8. In an electromagnetic braiding-machine, a spool-carrier comprising a tubular armature having a depending tubular spool-carrying spindle, and a tension-arm parallel with and offset from said spindle, said arm having upper and lower thread or yarn perforations and a recess at the upper end of its inner face; substantially as described.

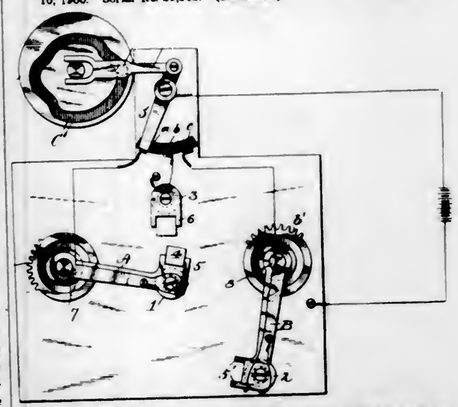
9. The combination, in an electromagnetic braiding-machine, of a spool-carrier comprising a tubular armature terminating in a tubular spool-carrying spindle, and a tension-arm offset from and parallel with the spindle; said tension-arm having upper and lower thread-apertures and a recess in the upper end of its inner face, with a spool provided with radial arms to engage the tension-arm and at intervals ride upward thereon to and through said recess; substantially as set forth.

10. In an electromagnetic braiding-machine, a spool-carrier comprising a tubular armature terminating in a tubular spool-carrying spindle, flanges w, w', projecting out from the ends of the armature and a tension-arm depending from the lower flange w' and provided with upper and lower apertures and a recess in the upper end of its inner face; substantially as described.

11. A carrier for braiding-machines consisting of a cylinder composed of magnetic material having projecting downwardly therefrom a spindle, and an arm parallel thereto, said spindle and cylinder forming a continuous tube; a bobbin revoluble on said spindle, the thread from the bobbin passing through the arm, thence under the bobbin and up through said spindle and cylinder in such a manner that the weight of the bobbin is sustained and said bobbin kept in place on the spindle by the tension of the thread; and means to check the rotation of said bobbin until said tension lifts the same to a desired height, substantially as set forth for the purpose specified.

12. A carrier for braiding-machines consisting of a cylinder of magnetic material, having projecting downwardly therefrom and integral therewith a spindle and an arm adjacent and parallel thereto; said arm having near one end thereof a recess upon its inner face, a bobbin revoluble on said spindle and suspended and held in place thereon by reason of the thread therefrom passing through said arm, thence under said bobbin and upward through said spindle and cylinder; said bobbin having the head nearest the recess aforesaid provided with one or more radially-projecting pins operating to engage the side of said arm and to check the rotation of said bobbin until the tension on the thread lifts the same and permits the escapement of the pin through the recess aforesaid; substantially as described.

681,999. ART OF TRANSMITTING BODIES BY MEANS OF ELECTROMAGNETS. JOHN P. SWIFT, Pawtucket, R. I. Filed Sept. 10, 1900. Serial No. 29,512. (No model.)

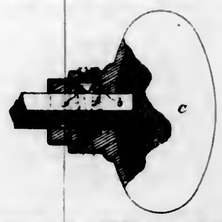


Claim.—1. The process of transmitting a body or bodies from one point to another, which consists in placing a movable magnet in proper relation to a second magnet, then energizing the first magnet to cause it to attract and hold said body till brought to said second magnet, and then energizing the second magnet and demagnetizing the first-named magnet.

2. The process of transmitting a body or bodies through a predetermined course, which consists in arranging a series of rotary groups of magnets in the order or course desired, then magnetizing certain magnets of one series to attract and hold the body or bodies to be transmitted until said body or bodies is or are brought to a magnet of the next group, then demagnetizing the said magnet of the first group and energizing the magnet of the second group and maintaining such energizing till the body is brought to a magnet of the third group and so on indefinitely.

682,000. DOOR-KNOB. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed June 5, 1901. Serial No. 63,295. (No model.)

Claim.—1. The combination with a spindle, of a knob, clamping-plates located within a recess in the shank of the knob and provided each with an opening for the passage of the spindle, means for separating said plates at one edge whereby they are caused to bind against and clamp the spindle, and means tending to yieldingly force the clamping-plates together.



2. The combination with a spindle, of a knob, clamping-plates carried by said knob and provided with a hole for the passage of the spindle, springs for yieldingly holding said plates in contact and a screw for separating said plates at one edge.

3. As a new article of manufacture a knob having a recessed shank the latter being provided with a groove in one wall of the recess, clamping-plates located within said recess with one edge of each in the groove, springs embracing the plates and tending to hold them in contact, and a screw carried by the shank of the knob and adapted to engage the plates substantially as described.

682,001. SPRING-SUPPORT FOR VEHICLES. ANDREW TROVATON, Sletten, Minn. Filed Sept. 8, 1900. Serial No. 29,457. (No model.)



Claim.—1. In a support of the class described, the same comprising a bolster-saddle, supporting-levers mounted upon the saddle and both carrying similar rests to loosely support thereon the vehicle-body, but disconnected therefrom, and cushions also carried by the saddle and arranged to resist the movement of said levers, said cushions and levers constituting the sole spring or yielding support for the vehicle-body.

2. A spring-support for vehicles comprising a bolster-saddle, and separate pairs of duplicate spring-pressed levers, mounted upon the saddle respectively at opposite sides of the transverse center thereof, both pairs of levers carrying similar rests for the loose support of the vehicle-bed thereon, substantially as set forth.

3. A spring-support for vehicles comprising a bolster-saddle, and spring-pressed supporting-levers mounted upon the saddle and carrying rests shiftable to different positions on the levers.

4. A spring-support for vehicles comprising a bolster-saddle, and separate pairs of spring-pressed pivotal supporting-levers mounted on the saddle respectively at opposite sides of the transverse center thereof, each pair of levers carrying rests shiftable to different positions on the lever.

5. A support of the class described, comprising spring-pressed supporting-levers constituting a yielding support for the vehicle-body, body-supporting rests carried by said levers, and means for shifting said rests to different points on the levers to vary the leverage thereof, the rests having no connection with the vehicle-body.

6. A spring-support for vehicles comprising oppositely-arranged pairs of spring-pressed supporting-levers, each pair of levers carrying at the outer end thereof a shiftable rest consisting of a swinging bail and a bearing-roller supported thereon, substantially as described.

7. A spring-support for vehicles comprising a bolster-saddle, oppositely-arranged pairs of spring-pressed supporting-levers, and individual rests comprising means for varying the leverage of each pair of levers, said rests being carried by and adjustable upon the levers, substantially as described.

8. A spring-support for vehicles comprising a bolster-saddle carrying cushions, oppositely-located pairs of supporting-levers pivotally mounted upon the saddle and having their inner ends coöperating with said cushions, and a shiftable rest associated with the outer ends of each pair of levers, substantially as described.

9. A spring-support for vehicles comprising a bolster-saddle having oppositely-located tubular casings, cushion-springs housed within said casings, and separate pairs of supporting-levers arranged respectively at opposite sides of the transverse center of the saddle, and having their inner ends coöperating with the cushion-springs within said casings, the outer ends of said levers carrying similar rests for the loose support of the vehicle-body thereon, substantially as described.

10. A spring-support for vehicles comprising a bolster-saddle consisting of a skeleton casting open at the lower side and provided at an intermediate point upon opposite sides with pendent tubular casings, cushion-springs housed within said casings and opposite pairs of pivotal supporting-levers mounted upon the casting respectively at opposite sides of the transverse center thereof, the pair of levers at the same side of the saddle having loosely interlocked ends loosely projecting into and engaging beneath the cushion-spring at that side, substantially as described.

11. A spring-support for vehicles comprising a bolster-saddle adapted to be placed astride the bolster of the vehicle, opposite pairs of spring-pressed pivotal supporting-levers pivotally mounted respectively upon opposite ends of the saddle, the levers of each pair being provided in their outer end portions with a plurality of pivot-openings, and a shiftable rest associated with each pair of levers and consisting of a U-shaped bail adjustably associated with the said pivot-openings and a bearing-roller supported by said bail.

12. A spring-support for vehicles comprising spring-pressed levers carrying shiftable rests at one side of their pivotal supports, and a rest-bar for the vehicle body or bed having spaced seats to engage with said rests in different positions.

13. A spring-support for vehicles comprising oppositely-arranged pivotal supporting-levers carrying similar rests, adapted to loosely support thereon the vehicle-body, but disconnected therefrom, and cushion-springs associated with the inner ends of the levers to provide for a normal elevation of the ends carrying the rests, substantially as set forth.

682,002. BOLSTER-SPRING. ANDREW TROVATON, McIntosh, Minn. Filed June 27, 1901. Serial No. 66,283. (No model.)



Claim.—1. A spring-support for vehicles comprising a bolster-saddle carrying spring-pressed supporting-levers, and a rest-bar carrying means for varying the leverage of the supporting-levers.

2. A spring-support for vehicles comprising a bolster-saddle carrying spring-pressed supporting-levers, and a rest-bar provided with adjustable rests for engaging the supporting-levers.

3. A spring-support for vehicles comprising a bolster-saddle carrying spring-pressed supporting-levers provided at their outer extremities with bearing-surfaces, a rest-bar having roller-rests engaging the said surfaces, and means for adjusting the roller-rests with relation to the bearing-surfaces, whereby to increase or diminish the leverage of the supporting-levers.

4. The combination with a bolster-saddle carrying spring-pressed supporting-levers, of a rest-bar carrying roller-rests engaging the supporting-levers, and means carried by the rest-bar to adjust the roller-rests with relation to the supporting-levers.

5. The combination with a bolster-saddle carrying spring-pressed supporting-levers, of a rest-bar, guides carried by the rest-bar, roller-rests carried by the guides, and means for shifting the guides.

6. The combination with a bolster-saddle carrying spring-pressed supporting means, of a rest-bar, yoke-bearing guides mounted for longitudinal movement on the rest-bar, roller-rests carried by the yokes, and adjusting means connected with the guides.

7. The combination with a bolster-saddle carrying spring-pressed supporting-levers, of a rest-bar, yoke-bearing guides mounted for longitudinal movement in ways formed in the bar, roller-rests carried by the yokes, a locking-lever, and arms connecting the locking-lever and the guides.

8. The combination with a bolster-saddle carrying spring-pressed supporting-levers, of a rest-bar, yoke-bearing guides mounted for longitudinal movement in the bar, roller-rests carried by the yokes, arms adjustably connected with the guides, and a locking-lever connected with the arms.

9. The combination with a bolster-saddle carrying spring-pressed

supporting-levers, of a rest-bar, yoke-bearing guides mounted for movement in the bar, said guides being provided with orificed heads, arms engaging the orifices of the heads and having a plurality of openings, locking means for engaging the openings in the arms, and a locking-lever connected with the arms.

10. The combination with a bolster provided at each end with a standard, a bolster-saddle mounted on the bolster and carrying spring-pressed supporting-levers, a rest-bar having recesses engaging the standards, roller-rests carried by the rest-bar and engaging the supporting-levers, and means for shifting the roller-rests with relation to the supporting-levers.

11. A spring-support for vehicles comprising a bolster-saddle, spring-pressed supporting-levers mounted on the saddle and having their extremities connected by bearing-plates, and shiftable roller-rests supported on the plates and sliding thereover.

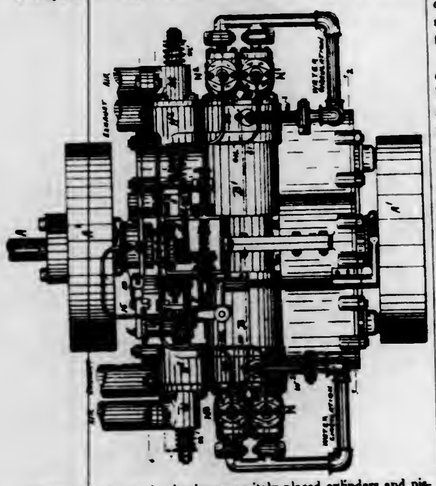
12. In a spring-support for vehicles, a rest-bar carrying roller-rests, and means for adjusting the rests with relation to the rest-bar.

13. In a spring-support for vehicles, a rest-bar carrying roller-rests, means for adjusting the rests with relation to the rest-bar, and means for locking the roller-rests in their adjusted positions.

14. A support of the class described comprising spring-pressed oppositely-disposed supporting-levers, and manually-operated means for varying the leverage of all the levers simultaneously.

15. A support of the class described comprising spring-pressed supporting-levers, roller-rests, and means for shifting the said rests on the levers to vary the leverage thereof.

682,003. **EXPLOSION-ENGINE.** WILLIAM W. TUCK, Brooklyn, and AUGUST WASSMANN, Astoria, N. Y., assignors to Abbot A. Low, Brooklyn, N. Y. Filed Mar. 5, 1901. Serial No. 49,875. (No model.)



Claim.—1. An engine having oppositely-placed cylinders and pistons and a main shaft passing between the cylinders at right angles thereto, in combination with a rocking lever between the cylinders and connected to the pistons and crank connections at the sides of the cylinders, by which the rocking lever is connected up with the main shaft, substantially as described.

2. An engine having oppositely-placed cylinders and pistons and a main shaft passing between the cylinders at right angles thereto, in combination with a rocking lever mounted to turn freely about the shaft and connected to the pistons, and crank connections at the sides of the pistons between the rocking lever and shaft, substantially as described.

3. An engine having oppositely-placed cylinders and pistons and a main shaft passing between the cylinders at right angles thereto in combination with a rocking lever between the cylinders and connected to the pistons and cranks and gear-wheels at the sides of the cylinders connecting the rocking lever to the shaft, substantially as described.

4. An engine having oppositely-placed cylinders and pistons and a main shaft between the cylinders, in combination with a rocking lever mounted to turn freely on the main shaft and connected to the pistons, a second rocking lever at the side of the cylinders, connected to the first lever, two gear-wheels having crank-pins connected to said second rocking lever and a wheel keyed on the main shaft and geared to said two gear-wheels, substantially as described.

5. An explosive-engine having oppositely-placed cylinders and pistons and valves and a main shaft passing between the cylinders at right angles thereto, in combination with a rocking lever between the cylinders and at one side of the cylinders, crank connections between the lever and the shaft, while at the other side of the cylinders, is the valve-operating mechanism, substantially as described.

6. An explosive-engine having oppositely-placed cylinders and pistons, oil-bulbs and air inlet and exhaust valves, with a main shaft and a rocking lever between the cylinders and connected to the pistons, gearing on one side of the cylinders connecting the lever with the shaft, while on the other side of the cylinders is the mechanism for operating the exhaust-valves and the oil-supply, all substantially as described.

7. An engine having four oppositely-placed cylinders and pistons and valves and a main shaft passing between the cylinders at right angles thereto, in combination with a rocking lever between the cylinders and connected to the pistons, gearing on one side of the cylinders, counter-shafts passing between adjacent cylinders parallel with the main shaft and connected to the rocking lever by said gearing, with valve-operating devices actuated from said counter-shafts, all substantially as described.

8. An engine having oppositely-placed cylinders and pistons and valves, in combination with a main shaft passing between the cylinders, crank connections on one side of the cylinders between the pistons and shaft and on the other side of the cylinders the valve-actuating mechanism, substantially as described.

9. A multiple-cylinder oil-engine, having an ignition-bulb for each cylinder, in combination with an oil-pump, distributing-piping from the pump to the bulbs and a distributing-valve in the piping to supply oil to one bulb at a time, substantially as described.

10. A multiple-cylinder oil-engine having an ignition-bulb for each cylinder, in combination with an oil-pump, a distributing-valve and pipes leading from said valve, one to each bulb and means for automatically operating said valve from a moving part of the engine to connect the several pipes in succession and one at a time with the pump, substantially as described.

11. A multiple-cylinder oil-engine having an ignition-bulb for each cylinder, in combination with an oil-pump, a distributing-valve and pipes leading from said valve, one to each bulb, means for automatically operating said valve from a moving part of the engine to connect the several pipes in succession one at a time with the pump and means for simultaneously actuating the pump, substantially as described.

12. An explosive oil-engine having an oil-pump, a cam, means for actuating the pump from a moving part of the engine and means for changing the time of actuation of the pump to reverse the engine while in operation.

13. A multiple-cylinder oil-engine having an ignition-bulb for each cylinder, in combination with an oil-pump, means for supplying oil to the several bulbs from the pump, a cam, a rocking lever actuated by the cam, lever-and-rod connections to the pump and means for changing the relation of the rocking lever to the cam and said lever connections to change the time of actuating the pump, substantially as described.

682,004. **SECTIONAL DISPLAY-RACK.** JAMES W. TUCKER, Vicksburg, Miss. Filed Apr. 13, 1901. Serial No. 56,738. (No model.)

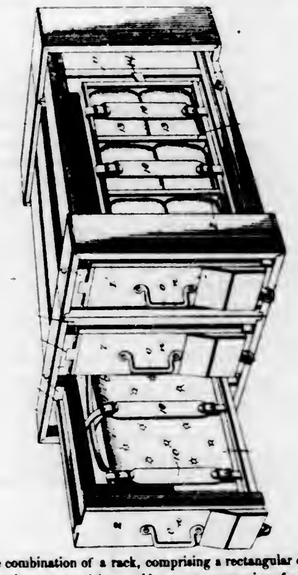
Claim.—1. In a display-rack, the combination with a case and guides in said case; of a rack adapted to slide upon said guides, a tilting frame mounted in said rack, and a latch adapted to catch and retain said frame in a vertical or closed position, substantially as described.

2. In a display-rack, the combination with a case, and guides mounted in said case, of a plurality of racks adapted to slide upon said guides, each of said racks being provided with a vertically-swinging frame, latches upon said frames adapted to retain said frames in a vertical or closed position, and means for retaining the contents of said frames when in a vertical position, substantially as described.

3. In a display-rack, the combination with a case, and a plurality of guides mounted in said case; of a plurality of racks adapted to slide upon said guides, interchangeable swinging frames, pivotally mounted in said racks, stops provided upon said racks, and latches adapted to catch and retain said frames in a vertical or closed position, substantially as described.

4. In a display-rack, the combination with an inclosing case, and guides mounted within said case; of a plurality of racks adapted to slide in said guides, swinging frames pivotally mounted within said racks, slats upon one side of said frames, and adjustable straps upon the front of said frames, stops carried by said racks, and latches upon said frames, adapted to catch and retain said frames in a vertical position, substantially as described.

5. In a display-rack, the combination with an inclosing case, a plurality of guides in said case and antifriction-bearings mounted in said guides, of a plurality of racks adapted to slide in said guides, upon said antifriction-bearings, a swinging frame mounted in each of said racks, means provided upon said frame for retaining their contents, stops provided upon said racks, and a latch upon each of said frames adapted to catch and lock said frame in a vertical or closed position, substantially as described.



6. The combination of a rack, comprising a rectangular casing with projections on its upper and lower sides, a cut-away piece forming a corner on one end thereof, bearings, one of them being inclined, a holder provided with pivots engaging said bearings, said holder being provided with retaining-straps, and a spring-catch for holding said holder in a vertical position.

682,005. **MAIL-BOX.** WILLIAM H. WALKER, Degraff, Ohio, assignor of two-fifths to Solomon E. Loffer and William E. Harris, same place. Filed June 18, 1901. Serial No. 65,038. (No model.)



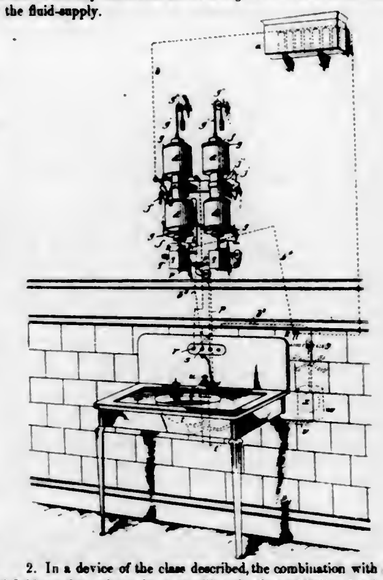
Claim.—1. The combination with a post or the like, and a hood projected therefrom, of a mail-box closed at one end, and pivoted near its longitudinal center upon the post so that either end of said box may be located close beneath the hood by turning movement of the box, and a lock on the post adapted to secure either end of the box uppermost.

2. The combination with an upright post, and a laterally-projected hood thereon, of a mail-box open at one end, a pivot device on the post and box which adapts said box for free rotatable movement so as to locate the open end of the box close beneath the hood or removed therefrom, a hinged hasp on the post, having a toe which passes through an opening in the post, a locking device adapted to hold the hasp folded and the toe thereon inserted in the opening, and a keeper device on the box engaged by the toe when the hasp is folded.

3. The combination with a post or the like, an arched hood extended laterally from the post, and a mail-box open at one end and pivoted near its longitudinal center upon the post, so as to permit the open end of the box to be located close beneath the hood by turning movement of said box, of a target device, comprising a signal-plate on one end of a standard, that loosely engages within an orifice in the hood, and at the opposite end thereof is bent to form a pintle, that is rockably held on the box, whereby the movement of the box will automatically set the signal so as to elevate or depress it.

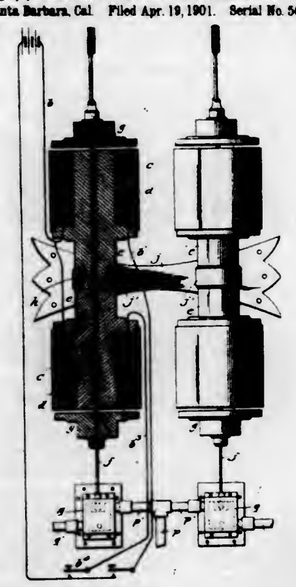
682,006. **ELECTRICAL CONTROL OF FLOW OF WATER TO BASINS OF WASHSTANDS OR LAVATORY-BOWLS.** ISAAC G. WATERMAN, Santa Barbara, Cal. Filed Feb. 23, 1901. Serial No. 48,426. (No model.)

Claim.—1. In a device of the class described, the combination with a fluid-receptacle, a pipe adapted to supply the same, and a valve controlling the flow through the pipe, of a float-tank communicating with the receptacle, an electrically-controlled device for closing the valve, a float in said tank which has an upright stem, a guide for said stem, contact-fingers in circuit with the electrically-controlled device, and a pivoted lever actuated by the stem which is adapted to bridge the contact-fingers when raised to a predetermined height, whereby the circuit is closed and the electrically-controlled device energized to close the valve and cut off the fluid-supply.



2. In a device of the class described, the combination with a source of fluid-supply, and a valve controlling the flow of fluid, of independent electrically-controlled devices, one adapted to open the valve, and the other to close the valve, an independent circuit and embraced circuit closer for the valve-opening device, an independent circuit and embraced circuit closer for the valve-closing device, a circuit which is automatically completed, in part, when the valve is opened, and an independent automatic circuit-closer in the last-named circuit and in circuit with the valve-closing device which automatically closes its circuit at a predetermined time and thus energizes the valve-closing device to close the valve.

682,007. **ELECTROMAGNETIC APPARATUS.** ISAAC G. WATERMAN, Santa Barbara, Cal. Filed Apr. 19, 1901. Serial No. 56,606. (No model.)



Claim.—1. In an electromagnetic apparatus, the combination with a hollow electromagnetic core disposed with its longitudinal axis in substantially vertical position, of independent magnetic coils thereon in independent circuits and adapted for independent energization, an armature-rod of appreciably smaller diameter than the hollow interior of the core and extending loosely therethrough, longitudinally thereof and normally out of contact with the interior walls of the core, armature-plates connected to said rod which are located adjacent the respective pole-pieces of the core and at sufficient distance therefrom to insure suitable play for said plates and rod so that either plate may move in response to the magnetic attraction incident to the energization of the coil adjacent thereto, and an independent counterbalancing device coacting with the armature-rod to neutralize the natural gravitation thereof, which insures the retention of the armature rod and plates in position where drawn by the magnetic attraction.

2. In an electromagnetic apparatus, the combination with a hollow electromagnetic core disposed with its longitudinal axis in substantially vertical position, of independent magnetic coils thereon in independent circuits and adapted for independent energization, an armature-rod of appreciably smaller diameter than the hollow interior of the core and extending loosely therethrough, longitudinally thereof, and normally out of contact with the interior walls of the core, armature-plates connected to said rod which are located adjacent the respective pole-pieces of the core and at sufficient distance therefrom to insure suitable play for said plates and rod so that either plate may move in response to the magnetic attraction incident to the energization of the coil adjacent thereto, a cord connected to the armature-rod, a pulley over which said cord runs and a weight on the depending end of the cord, said cord and weight constituting a counterbalancing device for the armature rod and plates to neutralize the natural gravitation thereof, which insures the retention of the armature rod and plates in position where drawn by the magnetic attraction.

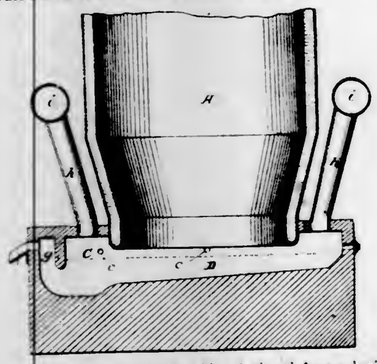
682,008. CATTLE-GUARD. FREDERICK A. WEGNER, Detroit, Mich. Filed Aug. 25, 1900. Serial No. 28,041. (No model.)



Claim.—1. In a cattle-guard, the combination of a fabric foundation, a cement or artificial stone coating on both the under and upper sides of said fabric, the structure being formed in ridges with intervening troughs, and corresponding hollows under the ridges, substantially as described.

2. The combination of a fabric foundation, a coating of cement or artificial stone on each side thereof, and projecting points secured to the foundation reaching through and projecting above the cement coating on the upper side thereof, substantially as described.

682,009. BLAST-FURNACE. JAMES L. WELLS, Cerrillos, N. Mex. Filed Feb. 16, 1901. Serial No. 47,589. (No model.)

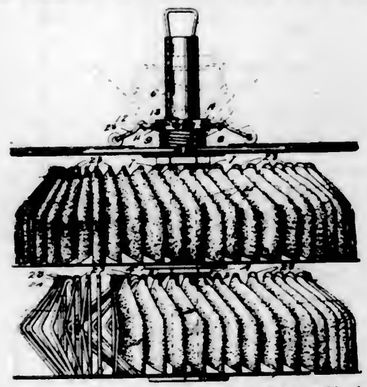


Claim.—1. The combination with a forehearth-furnace having an opening in its top and a hearth inclining downwardly to one side thereof, a depending bridge adjacent to said side and forming with said side a chamber having communication with the hearth, and said chamber having a discharge-orifice at its upper end, a blast-furnace stack supported with its lower end projecting through the top opening down into the forehearth-furnace whereby a chamber is formed between the sides of the forehearth-furnace and the inwardly-projecting end of the stack to receive the molten material, and means for introducing air under pressure into said chamber, substantially as set forth.

2. The combination of a forehearth-furnace having an opening in its top and a hearth inclining downwardly to one side thereof, a depending bridge adjacent to said side and forming with said side a chamber having communication with the hearth, and said chamber having a discharge-orifice at its upper end, a blast-furnace stack supported with its lower end projecting through the top opening down into the forehearth-furnace whereby a combustion-chamber is formed between the sides of the forehearth-furnace and the inwardly-projecting end of the stack, means for introducing fuel into said combustion-chamber, and means for introducing air under pressure into said combustion-chamber, substantially as set forth.

3. The combination of a forehearth-furnace having an opening in its top and a hearth inclining downwardly to one side thereof, a depending bridge adjacent to said side and forming with said side a chamber having communication with the hearth, and said chamber having a discharge-orifice at its upper end, a blast-furnace stack supported with its lower end projecting through the top opening down into the forehearth-furnace whereby a combustion-chamber is formed between the sides of the forehearth-furnace and the inwardly-projecting end of the stack, means for introducing fuel into said combustion-chamber, means for introducing air under pressure into said combustion-chamber, and means for introducing fine ores into said combustion-chamber, substantially as set forth.

682,010. APPARATUS FOR DYEING HATS. JOSEPH W. WIGNER, Wabash, Ind. Filed Jan. 7, 1901. Serial No. 42,404. (No model.)



Claim.—1. In an apparatus for dyeing hats, the combination with the perforated disks, of the two hollow shafts, a smaller disk, semicircular lids secured thereto, and means for securing the two hollow shafts together substantially as described.

2. In an apparatus for dyeing hats the combination with the perforated disks, of the hollow shafts, the semicircular lids, the spiral spring, and the annular collar, carrying a spring and a locking-pin substantially as described.

3. In an apparatus for dyeing hats, the combination with the perforated disks, of the hollow shafts having circular openings therein, collars permanently secured thereto, a small metal disk, wire-gauze lids secured thereto, a spiral spring secured thereto, an annular collar above said spring, a spring, locking-pin and lugs, carried thereon, substantially as described.

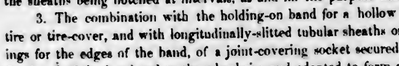
4. In an apparatus for dyeing hats a form constructed of a single piece of wire carried vertically upward to form a vertical upright, then bent back upon itself at an angle of about forty-five degrees, then bent inwardly toward the vertical upright at substantially right angles, in combination with a retaining-spring, substantially as described.

5. In an apparatus for dyeing hats, the combination with the perforated disks forms secured thereto of the hollow shafts, gauze lids, spiral spring, an annular collar carrying a locking-pin, substantially as described.

6. In an apparatus for dyeing hats, the combination of two or more perforated disks one over the other, two or more series of forms, arranged circularly upon said disks, and wire-gauze lids covering said disks, substantially as described.

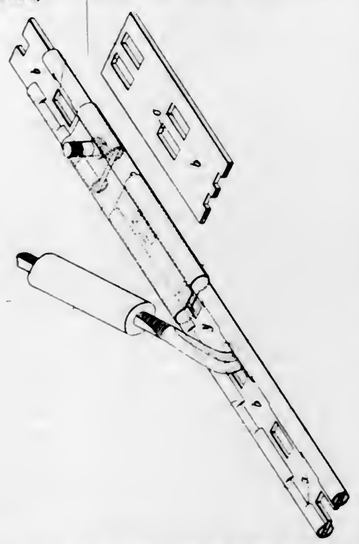
682,011. RAILROAD-TIE. AMBROSE WILLIAMS, Elizabeth, Pa. Filed May 3, 1901. Serial No. 58,580. (No model.)

Claim.—1. In a device of the character described, the combination of a locking-lug having a perforation therein adapted to receive a bolt, the said lug having a cut-away portion formed in its base for the reception of the base of the rail, of a wedge-block having cut-away portions for the reception of the under face of the tread and the base of the rail, and an integral yoke adapted to be countersunk in the rail-tie and engage the upper face of the wedge-block, substantially as described.



2. In a device of the character described, the combination of a locking-lug having a perforation therein, a bolt adapted to secure the said lug to the tie, the said lug having a cut-away portion formed in its base adapted to receive the base of the rail, of a wedge-block, substantially triangular in shape, the said block being cut away so as to receive the base and under face of the tread of the rail, and an integral yoke countersunk in the under face of the rail-tie and having one of its faces beveled to engage the upper face of the wedge-block, substantially as described.

682,012. SECURING ELASTIC TIRES TO WHEELS. WILLIAM F. WILLIAMS, London, England. Filed Apr. 13, 1901. Serial No. 55,749. (No model.)



Claim.—1. The combination, with the holding-on band for a hollow elastic tire or tire-cover, of sheaths or beadings for the edges of the band, formed of longitudinally-slitted tubes embracing the edges of the band and presenting a rounded external surface to contact with the sides of the tire or tire cover, as described.

2. The combination, with a holding-on band for an elastic tire, of longitudinally-slitted tubular sheaths embracing the edges of the band, the sheaths being notched at intervals, as and for the purpose described.

3. The combination with the holding-on band for a hollow elastic tire or tire-cover, and with longitudinally-slitted tubular sheaths or beadings for the edges of the band, of a joint-covering socket secured to the fixed end of the band and to the wheel-rim and adapted to form a guide for the free end of the band and sheaths when being tightened up, substantially as specified.

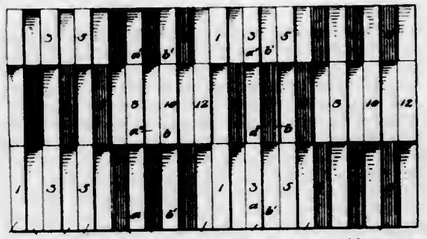
4. The combination with a rubber tire of D-section, of a holding-on band applied to clasp the base of the tire to the wheel-rim, longitudinally-slitted tubular sheaths embracing the edges of the band and intervening between them and the adjacent sides of the tire or tire-cover, a row or rows of holes or cavities in the band, and a circumferential projection on the tire-seat in the wheel-rim opposite the row or rows of holes or cavities, so as to force the material of the tire-base into interlocking engagement with said holes or cavities in the band, as described.

682,013. WINDOW FASTENER AND LOCK. SAMUEL S. ZELLEY, Philadelphia, Pa. Filed Mar. 20, 1901. Serial No. 51,969. (No model.)

Claim.—In a fastener for windows, a spring-arm and twist therein, an inclined face thereon, a shoulder formed thereby, having a portion thereof bearing against said arm, and a catch having a shoulder thereon, which is adapted to be engaged by said first-mentioned shoulder and an inclined face, on which said first-mentioned face is adapted to ride.

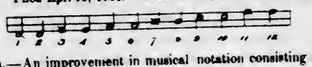


682,014. KEYBOARD FOR MUSICAL INSTRUMENTS. JOHANN P. H. ADAMS, St. Paul, Minn. Filed Apr. 15, 1901. Serial No. 55,886. (No model.)



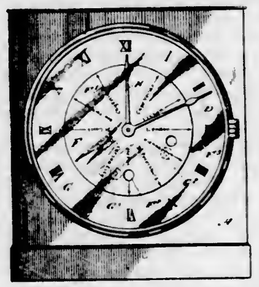
Claim.—A keyboard for musical instruments comprising two sets of key-levers, the levers of one set having upper and lower rows of keys and the levers of the other set a central row of keys which lies on a line between said upper and lower rows of keys, said keys being arranged in the same plane and in alternate groups of two different colors in each row, substantially as described.

682,015. MUSICAL NOTATION. JOHANN P. H. ADAMS, St. Paul, Minn. Filed Apr. 15, 1901. Serial No. 55,887. (No model.)



Claim.—An improvement in musical notation consisting of a staff of three lines, signs or signatures called tone-location marks, and two distinctive signs for the notes of the scale, which are determined by the position of said signs upon the three-lined staff, substantially as described.

682,016. GEOGRAPHICAL CLOCK. CARLOS ALBAN, Panama, Colombia. Filed Feb. 28, 1901. Serial No. 49,272. (No model.)



Claim.—1. In a clock, a dial having a winding-hole, an hour-hand spindle, and a disk held to rotate with the hour-hand spindle and engaged to normally cover the said hole, said disk having a hole adapted to register with that of the dial.

2. In a clock, a dial having a winding-hole in its central portion, and time indications at its marginal portion, an hour-hand spindle, a disk held to rotate with the hour-hand spindle and covering the central portion of the dial while leaving the marginal portion thereof exposed, said disk having an opening adapted to register with the winding-hole of the dial, and a series of radial or meridian lines, and an hour-hand held to normally rotate with said disk but adjustable to any one of the meridian lines.

682,017. PHOTOGRAPHIC LENS. HUGH L. ALDIS, county of Middlesex, England. Filed Feb. 4, 1901. Serial No. 45,900. (No model.)

Claim.—1. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second com-

ponent consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, and the radius of curvature of the outer face of the second component being greater than that of its inner face.



2. The combination of a component consisting of a convergiug-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, and the apparent centers of curvature of the faces being in the order: center of outer face of second component, center of cemented faces of first component, center of outer face of first component, center of inner face of first component, and center of inner face of second component.

3. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, the radius of curvature of the cemented faces of the first component being greater than that of either of its other two faces, and the radius of curvature of its outer face being greater than that of its inner face, and the apparent centers of curvature of the faces being in the order: center of outer face of second component, center of cemented faces of first component, center of outer face of first component, center of inner face of first component, and center of inner face of second component.

4. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, the radius of curvature of the cemented faces of the first component being greater than that of either of its other two faces, the radius of curvature of its outer face being greater than that of its inner face, and the apparent centers of curvature of the faces being in the order: center of outer face of second component, center of cemented faces of first component, center of outer face of first component, center of inner face of first component, and center of inner face of second component.

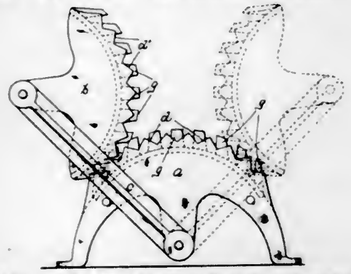
5. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, the refractive index of the diverging-lens of the first component being higher than that of its converging-lens.

6. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, and the apparent centers of curvature of the faces being in the order: center of outer face of second component, center of cemented faces of first component, center of outer face of first component, center of inner face of first component, center of inner face of second component, the refractive index of the diverging-lens of the first component being higher than that of its converging-lens.

7. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, the radius of curvature of the cemented faces of the first component being greater than that of either of its other two faces, the radius of curvatnre of its outer face being greater than that of its inner face, the refractive index of the diverging-lens of the first component being higher than that of its converging-lens.

8. The combination of a component consisting of a converging-lens and a diverging-lens cemented together, and a second component consisting of one double convex lens the radius of curvature of each of the two faces of the second component being greater than the radius of curvature of any face of the first component, the radius of curvature of the outer face of the second component being greater than that of its inner face, the radius of curvature of the cemented faces of the first component being greater than that of its other two faces, the radius of curvature of its outer face being greater than that of its inner face, the refractive index of the diverging-lens of the first component being higher than that of its converging-lens, and the apparent centers of curvature of the faces being in the order: center of outer face of second component, center of cemented faces of first component, center of outer face of first component, center of inner face of first component, the refractive index of the diverging-lens of the first component being higher than that of its converging-lens.

682,018. MEAT-TENDERER. FRANK H. ALLEN, Norwich, Conn. Filed May 6, 1901. Serial No. 58,880. (No model.)



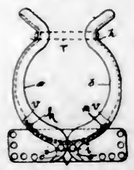
Claim.—1. A meat-tenderer comprising, in combination, two confronting sector-shaped plates one of which is fixed and each provided with spurs substantially as set forth, and means for connecting said sectors whereby one sector may be rocked upon the other sector.

2. In combination, in a meat-tenderer, two confronting sector-shaped plates one of which is fixed and the other of which is carried by a pivotal support, each formed with projecting spurs as set forth, rods *c c'* connecting the said sectors, and means for maintaining the spurs of one sector in meshing relation to the spurs of the companion sector.

3. In combination, in a meat-tenderer, two confronting sector-shaped plates, one of which is fixed and each plate being provided with projecting spurs, means connecting said sectors, a pivotal support for the movable sector whereby it may be rocked upon the companion sector, and means, consisting of handle *e*, whereby the movable sector may be grasped and rocked.

4. In combination, in a meat-tenderer, two confronting sector-shaped plates, one of which is fixed and each formed with projecting spurs as set forth, rods *c c'* connecting the said sectors, gears *d d'* whereby the said sectors are kept in operative relation to each other, arms pivoted beneath the acting face of the fixed sector and pivotally connected with the movable sector and an operating-handle *e* secured to the movable sector.

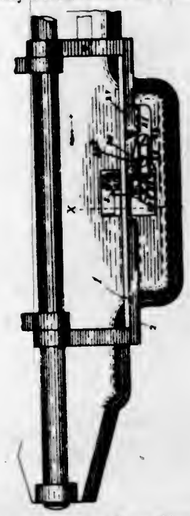
682,019. WATCH-PROTECTOR. AUGUST ALMQVIST, ADOLF W. KASTBERG, GUSTAF A. CAHLING, and PER A. SJÖQVIST, Skönsberg, Sweden. Filed Mar. 5, 1901. Serial No. 49,812. (No model.)



Claim.—A watch-protector, consisting of two spring-actuated semicircular clamps, having concave inner walls, the upper portions of the clamps, being bent to form necks and flaring ends, the lower ends of the clamps, being pivote dand formed concavo-convex, the inner convex portions of which abut against each other whereby to form a hinge-joint connection, for operating the clamps by means of the concave portions, and the said flaring ends, forming a passage-way whereby to locate the watch between the clamp-sections, substantially as specified.

682,020. TYPE-WRITER. CHARLES H. BELL, Brooklyn, N. Y., assignor to Frederic W. Hillard, Tottenville, N. Y. Filed Dec. 29, 1898. Serial No. 700,841. (No model.)

Claim.—1. In a type-writer escapement, the combination with a rack, of a pivoted spacing-rocker operatively connected with the key-levers to be vibrated thereby and provided with an arm extending from the pivotal portion and free to swing at its opposite end, a moving part operatively connected with the free end of said arm to be moved into engagement with the rack by the swinging of the arm upon depression of a key-lever, said moving part being also operatively connected with a part mounted on the machine independently of said rocker for movement upon the rocker and relatively thereto, substantially as described.



2. In a type-writer escapement, the combination with a rack, of a pivoted spacing-rocker operatively connected with the key-levers to be vibrated thereby and provided with an arm extending from the pivotal portion and free to swing at its opposite end, a moving part operatively connected with the free end of said arm to be moved into engagement with the rack by the swinging of the arm upon depression of a key-lever, said moving part also being operatively connected with a part mounted on the machine independently of said rocker to control the carriage while a key is depressed and whereby the force of the carriage-propelling power is operative for returning the rocker to its normal position after it has been moved, substantially as described.

3. In a type-writer escapement, the combination with a rack, of a pivoted spacing-rocker operatively connected with the key-levers to be vibrated thereby and provided with an arm extending from the pivotal portion and free to swing at its opposite end, a moving part operatively connected with the free end of said arm to be moved into engagement with the rack by the swinging of the arm upon depression of a key-lever, said moving part also being operatively connected with a part mounted on the machine independently of said rocker to control the carriage while a key is depressed, and a face on said moving part which is in engagement with the rack after the release of the key and arranged at an angle to its plane of movement, substantially as described.

4. In a type-writer, the combination with a carriage and its propelling power, of an escapement therefor comprising a spacing-rocker having a moving part mounted thereon, a rack, means for actuating the rack by said propelling power and for thereby spacing said moving part forward on the rocker while it is engaged with the rack, and a spring supported independently of the rocker for disengaging said moving part from the rack and for spacing it backward on the rocker as soon as it has been disengaged from the rack, substantially as described.

5. In a type-writer, the combination with a carriage and a mainspring therefor, of an escapement for the carriage comprising a rocker-frame having a dog swiveled thereon, a rack, means for actuating the rack by the mainspring and for thereby swiveling said dog forward on the rocker-frame while it is engaged with the rack, and a spring supported independently of the rocker-frame for disengaging said dog from the rack and for swiveling it backward on the rocker-frame as soon as it has been disengaged from the rack, substantially as described.

6. In an escapement, the combination with a rack, of a spacing-rocker and a pivoted dog mounted thereon, a spring supported independently of the rocker but operatively connected with the dog to hold the rocker in its normal position and to return it to its normal position when it has been moved, and means for adjusting the tension of said spring, substantially as described.

7. In a type-writer escapement, the combination of a spacing-rocker, a pivoted dog mounted thereon, a spring supported independently of the rocker for positioning said dog, and means for adjusting the tension of said spring, substantially as described.

8. In a type-writer escapement, the combination of a spacing-rocker, a pivoted dog mounted thereon, a spring for both positioning the rocker and for positioning the dog in relation thereto, and means for adjusting the tension of said spring, substantially as described.

9. In a type-writer, the combination with a carriage, of carriage-propelling power and an escapement, a spring connected with said escapement, a key for moving the escapement against the spring, means for bringing the carriage-propelling power into action through said escapement-spring to lift the key when the key is depressed, and means for adjusting the tension of said escapement-spring, substantially as described.

10. In an escapement, the combination of two pivoted dogs, each of which moves on its pivot to effect the spacing, a spring supported independently of the rocker for positioning one of said dogs, and means for adjusting the tension of said spring, substantially as described.

11. In a type-writer escapement, the combination of a spaced member and a spacing member, carriage-propelling power which feeds the spaced member, a part in one of said members normally free from the other member but adapted to yieldingly contact therewith in antagonism to said propelling power, means operated by a key for causing said part to contact with the other member, said means being increasingly antagonistic to the propelling power during the depression of the key, to a degree sufficient to prevent feed of the spaced member by the propelling power while the key is fully depressed, substantially as described.

12. In a type-writer escapement, the combination of a spaced member and a spacing member, carriage-propelling power which feeds the spaced member, a part in one of said members normally free from the other member but adapted to yieldingly contact therewith, in antagonism to said propelling power, an escapement wheel and pinion constituting a power-reducing gearing between the propelling power and spacing member, means operated by a key for causing said part to contact with the other member, said means being increasingly antagonistic to the propelling power, to a degree sufficient, in conjunction with said power-reducing gearing, to prevent feed of the spaced member by the propelling power while the key is fully depressed, substantially as described.

13. In a type-writer, the combination with a carriage and its propelling power, of an escapement therefor comprising a rack and a swiveled dog which can be engaged with the rack at different distances from its swiveling-point, whereby the swiveling pull of the carriage-propelling power on the dog when the rack is in engagement therewith varies at different periods of the said engagement, and a spring mounted upon a fixed part of the machine, acting upon the escapement mechanism through the dog to disengage the dog from the rack and to swivel it in opposition to the carriage-propelling power, whereby the power exerted by the dog-spring to swivel the dog when the latter is engaged with the rack varies inversely with the power exerted on the dog in the opposite direction by the carriage-propelling power, substantially as described.

14. In a type-writer, the combination with a carriage and a propelling power therefor, of a rack and a rocker-frame having a dog swiveled thereon which can be engaged with the rack at different distances from its swiveling-point, whereby the swiveling pull of the carriage-propelling power on the dog when the latter is in engagement with the rack varies at different periods of said engagement, and a spring bearing upon the dog and supported independently of the rocker-frame and from off the pivotal point of the latter, substantially as described.

15. In a type-writer escapement, the combination of a spring acting upon a movable part of the escapement and having bearings at its opposite ends and flexed between such bearings upon the initial movement of such part of the escapement, and a stop engaging the spring at an intermediate point upon the subsequent movement of the movable part, whereby the length of the spring that is flexed by such subsequent movement is shortened, substantially as described.

16. In a type-writer escapement, the combination with a rocker-frame, having a pivoted dog thereon, a spring, a spring-holder engaging one end of the spring and having a limiting-stop to hold the opposite end of the spring out of engagement with the dog in the normal position of the dog, and a limiting-face to engage an intermediate portion of the spring when the latter has been flexed by the movement of the rocker, substantially as described.

17. In a type-writer escapement, the combination with a rocker-frame having a pivoted dog thereon, a spring supported independently of the rocker-frame and acting upon the dog when the rocker-frame is swung, and a stop to hold the spring out of engagement with the dog in the normal position of the rocker-frame, substantially as described.

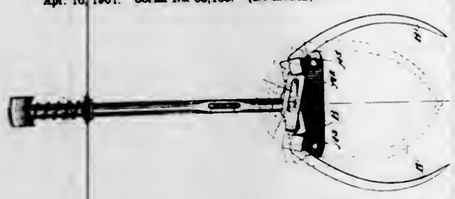
18. In a type-writer escapement, the combination with a machine-frame, of a rocker-frame pivoted to rock thereon, a dog swiveled upon the rocker-frame, and having a shoulder projecting therefrom, and a spring mounted on the machine-frame to one side of the rocker-frame, the free

end of the spring projecting over the swiveled dog and being bent to engage the shoulder thereon, substantially as described.

19. In a type-writer escapement, the combination of a rocker-frame, a spring having a flat portion pivoted thereon and an extending arm, the flat portion being provided with a slot and a clamping-screw extending through the slot into the rocker-frame, whereby the extending arm of the spring may be adjusted in position, substantially as described.

20. In a type-writer escapement, the combination with a spring, of a holder therefor having a flat base provided with a pivotal aperture and a clamping-slot, whereby the holder may be adjusted to vary the pressure exerted by the spring, and screws inserted respectively through the pivotal aperture and through the clamping-slot, substantially as described.

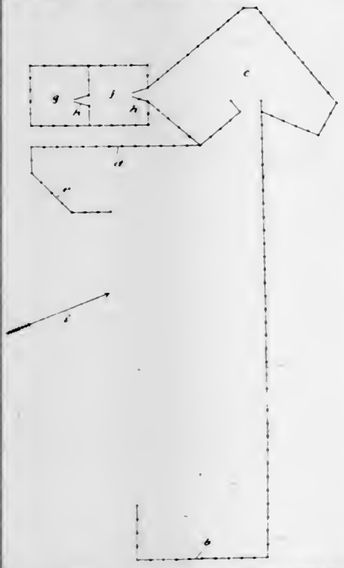
682,021. NAIL-GRAB. PAUL J. BENNETT, Cheneyville, La. Filed Apr. 10, 1901. Serial No. 55,185. (No model.)



Claim.—1. A nail-grab comprising a rod having a handle, claw-carrying members pivotally connected with said rod and having crossed slotted arms, and a slide movable on said rod and having pins engaging the said arms at their slots, the said pins being located and moving in a plane situated centrally between the pivots of said claw-carrying members.

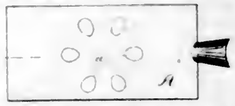
2. A nail-grab comprising a rod having a handle and lateral projections, claw-carrying members pivotally connected with said rod and having slotted arms, a slide movable on said rod and having pins engaging the said arms at their slots, bars extending from said slide lengthwise of the rod and provided with slots engaged by the projections on the rod, another handle secured to the outer ends of said bars, and a spring interposed between the two handles.

682,022. FISH-TRAP. PEDER M. BENSETH, Fairhaven, Wash. Filed Feb. 26, 1901. Serial No. 48,882. (No model.)



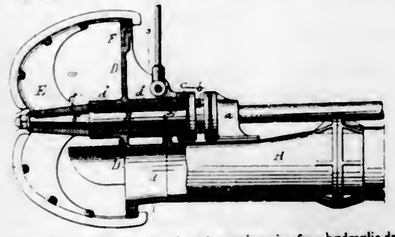
Claim.—A fish-trap, comprising a lead, a heart arranged at the offshore end of the lead and having a tunnel leading from one side thereof in a line transverse to the lead, a secondary inclosure communicating with the tunnel and arranged in line therewith transversely to the lead, and a secondary lead passing from the heart at the side of its mouth opposite the side at which the main lead is located, the secondary lead passing transversely of the main lead and terminating in a hook directed inshore.

682,023. EGG-TESTER. JOHN C. BOWERS and EDWARD DOOL, Aledo, Ill. Filed May 6, 1901. Serial No. 58,963. (No model.)



Claim.—In an egg-tester, in combination, a box, having perforations in the top thereof, a mirror within the box, pivots supporting the mirror intermediate its ends, so that it may be inclined in either direction from the horizontal, and an eye-tube projecting beyond the walls of the box and adapted at its outer end to fit the face of an operator and thereby exclude all light from the box except such as enters through the perforations.

682,024. CUTTER-HEAD FOR HYDRAULIC DREDGES. WILLIAM J. BRADLEY, Philadelphia, Pa., assignor to the American Dredging Company, same place. Filed Apr. 28, 1900. Serial No. 14,729. (No model.)



Claim.—1. The combination of a suction-pipe for a hydraulic dredging apparatus, a back plate secured to the suction-pipe and having an opening in line with the opening in the suction-pipe, a bearing on the back plate, a shaft mounted in the bearing, a frame carried by the shaft, blades on the frame, and a removable flange secured to the periphery of the back plate and mounted between the back plate and the frame, substantially as described.

2. The combination of a suction-pipe for a hydraulic dredging apparatus, a back plate having an opening therein in line with the suction-pipe, a bearing on the back plate and a bearing on the suction-pipe, a shaft passing through the bearings, a collar on the shaft mounted between the two bearings, a frame secured to the shaft in front of the back plate, and blades secured to the frame, substantially as described.

682,025. COMBINED WEED-CUTTER AND CORN-CULTIVATOR. CHARLES BRADSHAW and WALLACE S. TOBEY, Hope, Kans. Filed May 27, 1901. Serial No. 62,163. (No model.)

Claim.—1. An apparatus of the class described, comprising a standard, a yoke adjustably secured to said standard, a head-block, a yoke secured to said head-block, the latter yoke and the yoke secured to the standard being pivotally secured together, knives extending rearwardly and outwardly from the head-block, a shield intermediate the knives, and means for raising and lowering the shield and knives.

2. An apparatus of the class described, comprising a standard, two plates adjustably secured to the standard, a yoke secured to the plates, a head-block, a yoke secured to said head-block, the two yokes being pivoted together, knives extending rearwardly from the head-block, a shield intermediate the knives, means for adjusting the shield independently of the knives, and means for simultaneously raising the knives and shield.

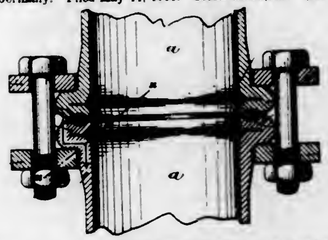
3. An apparatus of the class described comprising a standard, a head-block pivotally connected to the standard, knives extending rearwardly from the head-block, a shield intermediate the knives, means for adjusting the shield up or down independent of the knives, and means for simultaneously lifting and holding the shield and knives in a predetermined position.

4. An apparatus of the class described comprising a standard, two plates having slots, bolts passing through the slots to the standard, a yoke rigidly secured to the two plates, a head-block, a yoke projecting forwardly from the head-block, a pin passing through the two yokes to pivotally secure them together, castings projecting from the head-blocks, knives fixed to said castings, an arm extending upwardly from the head-block, a bar having a series of perforations, a bolt passing through one of

said perforations and the arm, and a shield having depending sides fixed to said bar.



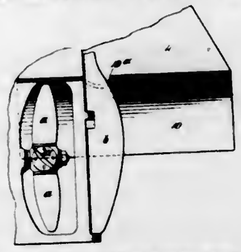
682,026. WROUGHT-METAL PIPE. RUDOLF BUNGEROTH, Düsseldorf, Germany. Filed May 11, 1901. Serial No. 59,845. (No model.)



Claim.—1. A wrought-metal pipe having a thickened end on which is formed a doubled flanged rim, as and for the purpose described.

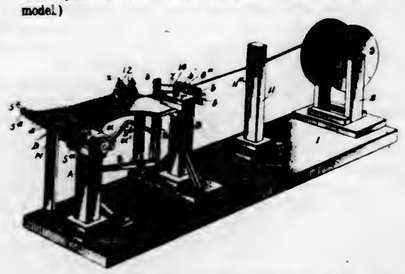
2. A wrought-metal pipe having its end thickened outwardly and a doubled flanged rim formed thereon, as and for the purposes described.

682,027. PROPULSION OF VESSELS. HAROLD F. BURGESS, Vancouver, Canada. Filed Sept. 22, 1899. Serial No. 731,299. (No model.)



Claim.—The hereinbefore-described improvement, comprising in combination with the hull, the propeller and the rudder; a hood projected rearwardly from the hull over the propeller and rudder and extending aft of the rudder, the front end of the hood being at a point in advance of the propeller, said front end being imperforate whereby the water thrown upward will be arrested thereby, received therein and thrown aft, said hood having a semicircular shape in cross-section—its lower edges being disposed in a plane with the horizontal axis of the propeller, and stays or braces secured to the top of the hood projected radially therefrom, said hood having an opening for the rudder-post, as specified.

682,028. BED-SPRING-MAKING MACHINE. BRAXTON R. BUTLER, Fayetteville, N. C. Filed June 6, 1901. Serial No. 63,416. (No model.)



Claim.—1. In a machine for the purposes described, the combination, with a mandrel having a socket to receive and hold the free end of the wire, a conical former slidably mounted on the mandrel, with its apex cooperating with the socketed end of the mandrel, said socketed end having a beveled shoulder adapted to throw out the free end of the wire from the socket, when the former with the coil therein is slid back, as set forth.

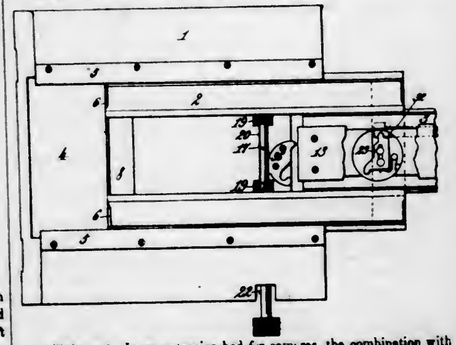
2. In a machine as described, a mandrel having a wire-end-receiving aperture, and an elongated socket, communicating with said aperture, the inner end of the socket having a beveled shoulder; of a single-body-forming head, slidably mounted on the mandrel, and adapted when slid back to bring the free end of the wire against the beveled shoulder, for the purposes specified.

3. The combination with the mandrel, having a longitudinal socket in its front end, a longitudinal recess merging with the socket, and a transverse shoulder 5'; of the former-block D, slidable on the mandrel, said block having a forwardly-extending member adapted to extend beyond the shoulder 5', when in an operative position, and having a longitudinally-extending straight edge, substantially as shown and for the purposes described.

4. In a machine as described, the combination with the mandrel, having means for holding the free end of the wire; of a single-body conical former-block, having a projecting end to engage the wire, said block being slidably held on the mandrel, and detent devices for holding the block locked to its forward or operative position, as set forth.

5. The hereinbefore-described improvements in spring-making machines, comprising in combination, a base, a reel, mounted at one end, a table at the other end, a cutter mechanism including a wire-guide on that end of the table adjacent the reel, a coiling-head on the other end of the table, said head including a mandrel, having means for gripping the end of the wire, and a single-body former-block, slidably mounted on the mandrel, all being arranged substantially as shown and for the purposes described.

682,029. EXTENSION-BED FOR PHOTOGRAPHIC CAMERAS. HARVEY B. CARLTON and CHARLES E. HUTCHINS, Rochester, N. Y., assignors to Rochester Optical and Camera Company, same place. Filed May 18, 1901. Serial No. 60,870. (No model.)



Claim.—1. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking device for connecting said sections with each other, and means for releasing said locking device from its engagement with one of said sections and for throwing it into engagement with said support, as and for the purpose set forth.

2. In an extension-bed for cameras, the combination with a plural-

ity of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking device carried by one of said sections and adapted to coöperate with the other of said sections and with said support, and means for releasing said locking device from the part with which it is in engagement and for throwing it into locking engagement with the other, as and for the purpose set forth.

3. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a locking device carried by one of said sections and adapted to coöperate with the other of said sections and with said support, and means on said support for releasing said locking device from its engagement with one of said sections, and for throwing the same into locking engagement with said support, as and for the purpose set forth.

4. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a locking device carried by one of said sections, coöperating means therefor on the other of said sections and on said support, and means for releasing said locking device from its engagement with the coöperating means on said section and for throwing the same into locking engagement with the coöperating means on said support, as and for the purpose set forth.

5. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking device for locking one of said sections to said support, the said locking device being automatically disengaged from the said support and thrown into locking engagement with both of said sections when the other of said sections reaches the limit of its movement in one direction, as and for the purpose set forth.

6. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking device for locking one of said sections to said support, the said device being normally maintained in such locking position by the other of said sections and automatically disengaged therefrom and automatically thrown into locking engagement with both of said sections when said other section reaches the limit of its movement in one direction, as and for the purpose set forth.

7. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable spring-actuated locking device for locking one of said sections to said support, and engaging means on the other of said sections acting upon said device for maintaining the same in such locking position, the said device being automatically moved out of engagement with said support and into locking engagement with both of said sections when the engaging means on said other section passes out of contact with the same, as and for the purpose set forth.

8. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking-plate on one of said sections having an incline thereon, coöperating locking means for said plate on said support and on the other of said sections, a spring acting upon said locking-plate for normally urging the same toward one of said coöperating means, and an incline on said support adapted to engage the incline on said locking-plate for moving the same in opposition to said spring and into engagement with the other of said coöperating means, as and for the purpose set forth.

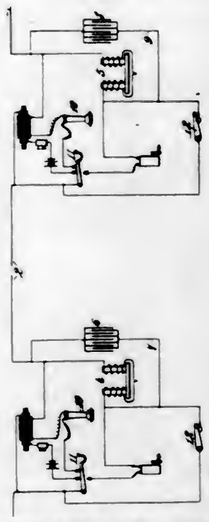
9. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a laterally-movable locking-plate on one of said sections having an incline and two teeth thereon, a spring acting upon said locking-plate for normally urging it in one direction, a plate on said support having an incline thereon adapted to engage the incline on said locking-plate for moving the latter in opposition to said spring, a hook on said support adapted to be engaged by one of the teeth on said locking-plate, and a strip on the other of said sections adapted to engage said locking-plate for holding the same in locking engagement with said hook, and having a notch therein for receiving the other of said teeth, as and for the purpose set forth.

10. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking-plate on one of said sections having an incline and two teeth thereon, a spring acting upon said locking-plate for normally urging it in one direction, a plate on said support having an incline thereon adapted to engage the incline on said locking-plate for moving the latter in opposition to said spring, and having an integral hook thereon adjacent to its incline adapted to be engaged by one of the teeth on said locking-plate, and a strip on the other of said sections adapted to engage said locking-plate for holding the same in locking engagement with said hook, and having a notch therein for receiving the other of said teeth, as and for the purpose set forth.

11. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same, and a support on which said sections are mounted, of a laterally-movable locking-plate on one of said sections having an incline thereon, coöperating locking means for said plate on said support and on the other of said sections, a spring acting upon said locking-plate for normally urging the same toward one of said coöperating means, a pin on one of said sections and a shoulder on the other of said sections adapted to be brought into contact with each other when one of said sections reaches the limit of its independent movement in one direction, and an incline on said support adapted to engage the incline on said locking-plate for moving the same in opposition to said spring and into engagement with the other of said coöperating means, as and for the purpose set forth.

12. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a transverse plate on one of said sections having a pin thereon, a laterally-movable locking-plate on said transverse plate having an incline and two teeth thereon, a spring acting upon said locking-plate for normally urging it in one direction, a plate on said support having an incline thereon adapted to engage the incline on said locking-plate for moving the latter in opposition to said spring, a hook on said support adapted to be engaged by one of the teeth on said locking-plate, and a strip on the other of said sections adapted to engage said locking-plate for holding the same in locking engagement with said hook, and having a notch therein and a shoulder thereon, the said notch being adapted to receive the other of the teeth on said locking-plate, and the said shoulder being adapted to engage the pin on said transverse plate, as and for the purpose set forth.

682,080. SERIES TELEPHONE SYSTEM. CHARLES A. CASPERER, Brandenburg, Ky. Filed Apr. 17, 1901. Serial No. 56,258. (No model.)



Claim.—1. In a series telephone system, a ringer-coil at each station and a condenser in multiple therewith the said condenser being included in a shunt-circuit having no source of impedance therein, as and for the purpose set forth.

2. In a series telephone system, a ringer-coil at each station and a condenser connected with the line and bridged across said coil the said condenser being included in a shunt-circuit having no source of impedance therein, as and for the purpose set forth.

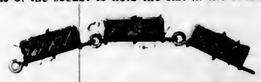
3. In a series telephone system, serially-arranged ringer-coils located respectively at each station, a non-impeding shunt-circuit around each of said coils, and a condenser in said shunt-circuit, as and for the purpose set forth.

4. In a series telephone system, a ringer-coil at each station, a normally-closed non-impeding shunt around said coil, connected with the line above the hook-switch for the receiver, a condenser in said shunt, and a switch for opening said shunt, as and for the purpose set forth.

682,031. TREE-PROTECTOR. CASPAR A. CHISOLM, Charleston, S. C. Filed June 18, 1901. Serial No. 65,022. (No model.)

Claim.—1. A tree-protector, comprising links and slats held in the links, each link consisting of a socket and a retaining and connecting pin,

the several pins being connected with each other, and each pin extending to the ends of the socket to hold the slat in the socket, as set forth.

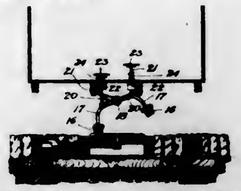


2. A link for picket-fencing, comprising a socket for receiving a picket formed at its ends with eyes, and a retaining and connecting pin extending through the said eyes, the pin being formed with eyes at its ends outside of the eyes of the socket to hold the pin against displacement on the socket, as set forth.

3. A link for picket-fencing, comprising a socket for receiving a picket formed at its ends with eyes, and a retaining and connecting pin extending through the said eyes, the pin being formed with eyes at its ends outside of the eyes of the socket to hold the pin against displacement on the socket, the eyes on the pin standing at angles one to the other, as set forth.

4. A tree-protector, comprising links and slats held in the links, each link consisting of a socket, and a retaining and connecting pin, the several pins being connected with each other, and each pin extending to the ends of the socket to hold the slat in the socket, and staples for fastening the sockets and pins to the pickets, as set forth.

682,082. SWITCH-TURNER. EDWARD B. CLARK, Pittsburg, Pa., assignor of one-half to Hosea Napay, same place. Filed Dec. 18, 1900. Serial No. 40,269. (No model.)



Claim.—1. The combination with a rotatable disk and connections therefrom to a movable switch-point, of a shoe *m* mounted underneath the car-body, and provided with frictional corrugations on the lower side and means for depressing it into rubbing contact with the upper surface of the disk, substantially as set forth.

2. The combination with a horizontal rotatable disk and connections therefrom to a movable switch-point, of a shoe having a corrugated under surface mounted underneath the car-body, and means for depressing it into rubbing contact with the upper surface of the disk, substantially as set forth.

3. The combination with a rotatable disk, provided with corrugations on its upper surface, and connections therefrom to a movable switch-point, of a shoe mounted underneath the car-body and means for depressing it into rubbing contact with the upper surface of the disk, substantially as set forth.

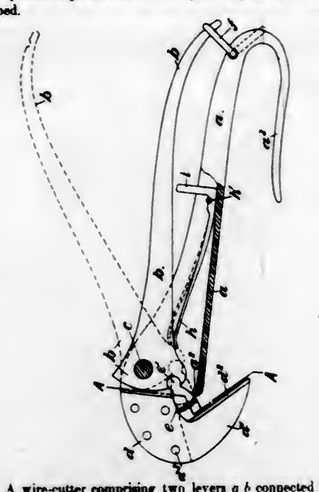
4. The combination of a rotatable disk, a case therefor provided with a bearing-surface, intervening ball-bearings and connections from the disk to a movoble switch-point; of a shoe having a corrugated surface mounted underneath the car-body, with means for depressing it into rubbing contact with the disk, substantially as set forth.

5. The combination of a rotatable disk provided with a corrugated upper surface, a case in which the disk is mounted upon ball-bearings, a connecting-rod secured to the switch and to mechanism adapted to move a switch-point, and a shoe mounted on a rock-shaft with means for throwing the shoe into rubbing contact with the upper surface of the disk, substantially as set forth.

6. The combination of a rotatable disk provided with a corrugated upper surface, a case in which the disk is mounted upon ball-bearings, a connecting-rod secured to the switch, and to mechanism adapted to move a switch-point, a rock-shaft centrally mounted to the car-framing, lateral crank-arms secured thereto, longitudinal friction-shoes supported from the ends of the crank-arms, and treadle-rods attached to operating-cranks secured to the rock-shaft, substantially as set forth.

682,033. WIRE-CUTTER. WILLIAM CLAYWORTHY, Warrington, England. Filed Aug. 25, 1900. Serial No. 23,033. (No model.)

Claim.—1. A wire-cutter comprising a lever *a*, having a beak *d'*, with a wire-bearing face d^2 in the inner side of the beak, and a blade *e*, the edge at one end of which is adapted to operate in connection with the face d^2, and its other end is loosely connected with a lever *b*, fulcrumed at the joint *c* to the lever *a* at a point outside the said loose connection, and on the handle side of the right line passing through the fulcrum-axis and the cutter-point, and adapted to be reciprocated thereby up to and away from the wire-bearing face d^2, when the handles of the levers *a* and *b*, are pressed together and moved apart, respectively; substantially as described.



2. A wire-cutter comprising two levers *a b* connected together by the fulcrum-joint *c*, a beak *d'* on the lever *a* extending below and having its face d^2 for supporting the wire facing toward the lever *a*, a separate blade *e* disposed within and adapted to work in an aperture serving as a guide in the lever *a*, having a cutting edge at one end disposed outside the lever *a*, and at the other end a head loosely connected with the lever *b* at a point between the parallel planes passing through the axis of the fulcrum *c* and cutting edge of the tool, whereby said tool is reciprocated in its guide bodily up to and away from the said bearing or cutting face; substantially as set forth.

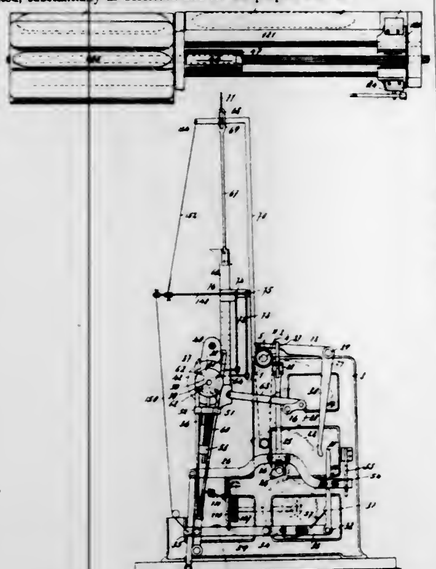
3. A wire-cutter having two levers connected together at their head by a fulcrum *c*, a head-block having an inclined beak *d'*, with a bearing-face to support the wire on its inner inclined face d^2, a blade *e* connected at one end with the head of the lever *b* at a point outside the fulcrum *c*, and between said fulcrum and the point of the bearing-face d^2 on which the wire is cut, and on the handle side of said levers on the line passing through the fulcrum-axis, and the said point on which the wire is cut, whereby the angle between the lines passing from the said joint and the fulcrum, and the said joint and the cutting edge of the cutting-tool, becomes more obtuse as the levers *a* and *b* of the tool are pressed toward each other, and as the tool passes into the wire; substantially as set forth.

682,034. WEFT-REPLENISHING LOOM. PAUL CLÉMENT, Wasquehal, France. Filed Aug. 10, 1900. Serial No 26,478. (No model.)

Claim.—1. In a device for enabling the empty shuttle of a loom to be automatically replaced by a fresh one when the weft-thread has run out, in combination with a mechanism for changing the shuttle, a shuttle having a predetermined length of thread, a card-chain effecting a complete displacement during the time occupied in using nearly the said predetermined length of the shuttle-thread, means for actuating the changing mechanism by aid of the said card-chain, means for actuating a clutch by aid of the said card-chain immediately after the changing mechanism has been operated, a clutch, a disk momentarily actuated by said clutch, a flier, operative connections between the said disk and flier by which the flier is caused to slide on suitable guide-rods and to feed the changing mechanism with a new shuttle, and means for releasing the clutch and stopping the movement of the flier substantially as described and for the purpose set forth.

2. In a device for enabling the empty shuttle of a loom to be automatically replaced by a fresh one when the weft-thread has run out in combination with a mechanism for changing the shuttle, a feed mechanism comprising a card-chain, a hole in one of the cards of the said card-chain, a lever 6 fitted with a pin 12 adapted to rest upon the cards of the card-chain a lever 78 adapted to be actuated by the said lever 6 at the moment when the pin 12 falls into the hole of the card-chain, an oscillating lever 79 connected to the said lever 78, means for oscillating the said lever 79 a bent lever 83 actuated by the said oscillating lever 79 a rod 85 fitted with a hinge-joint and connected to the forked lever 93 of the sleeve of a clutch, a clutch 97 98 a disk 110 gear-wheels connecting in an operative manner the said disk 110 with the clutch, a flier, means

for actuating the flier by aid of the said disk and means for releasing the clutch and stopping the disk and the flier after the flier has been operated, substantially as described and for the purpose set forth.



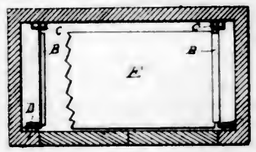
3. In a device for enabling the empty shuttle of a loom to be automatically replaced by a fresh one when the weft-thread has run out, in combination a card-chain, a changing mechanism actuated by the said card-chain a feed mechanism also actuated by the said card-chain and comprising a clutch, means for actuating the said clutch, a disk operated by the said clutch and actuating a flier adapted to furnish a fresh shuttle to the changing mechanism, a roller 134 on one face of the disk 110 an oscillating lever 131 fitted with a nose adapted to be acted upon by the roller 134 of the disk, a connection between the said lever and the means for actuating the clutch so as to release the same and stop the disk 110 when the roller of the said disk engages with the nose of the oscillating lever 131 and means for stopping effectively the movement of the disk substantially as described and for the purpose set forth.

4. In a device for enabling the empty shuttle of a loom to be automatically replaced by a fresh one when the weft-thread has run out, a changing mechanism, a feed mechanism, a card-chain actuating successively the changing and the feeding mechanisms, a box 64 oscillating with the batten of the loom and capable of holding a shuttle and from which the fresh shuttle is pushed into the changing mechanism by aid of the feed mechanism, a box 66 capable of holding a number of superposed shuttles, hinges connecting the said box 66 to the box 64 and means to deliver a shuttle from the box 66 to the box 64 after a fresh shuttle has been furnished to the changing mechanism, substantially as described and for the purpose set forth.

5. In a device for enabling the empty shuttle of a loom to be automatically replaced by a fresh one when the weft-thread has run out, a changing mechanism, a feed mechanism, a card-chain actuating successively the changing and feeding mechanisms, a box 64 oscillating with the batten of the loom and capable of holding a shuttle and from which the fresh shuttle is pushed into the changing mechanism by aid of the feed mechanism a hinged box 66 capable of holding a number of superposed shuttles, hinges connecting the said box 66 to the box 64 a double system of retaining-catches 72 73 and means for actuating successively the said catches in correspondence with the action of the changing and feeding mechanisms, substantially as described and for the purpose set forth.

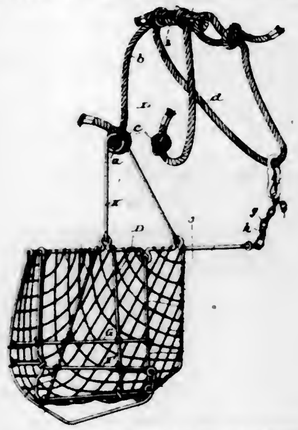
6. In a device for enabling the empty shuttle of a loom to be automatically replaced by a fresh one when the weft-thread has run out, in combination, a changing mechanism, a feed mechanism, substantially as described, a box capable of holding a shuttle, a flier carrying at its side adjacent to the box, a tappet sliding in a lateral groove of the said box, and at its other side a support 124 fitted with a swinging hook 125 adapted to remove the empty shuttle from the changing mechanism rods upon which the said flier slides and means for actuating the said flier by aid of the feed mechanism, substantially as described.

682,035. REFRIGERATOR SHELF-SUPPORT. CHARLES P. COFFIN, Grand Rapids, Mich., assignor to the Michigan Barrel Company, same place. Filed Mar. 21, 1901. Serial No. 52,211. (No model.)



Claim.—In a refrigerator, a plurality of channeled uprights, the web of one having a slot and the flanges of the other having alined slots situated at right angles to the other slot and a shelf-support having extensions at its ends one of which forms an alined projection of said shelf-support and the other of which is a right-angular one, said extensions being detachably fitted in said right-angularly-disposed slots.

682,036. ANIMAL-MUZZLE. GEORGE P. COOLEY, Kansas City, Kans. Filed Jan. 17, 1901. Serial No. 43,630. (No model.)



Claim.—1. The combination of a halter, and an animal-muzzle pivotally connected to the halter, and comprising the frame made up of the oval head-bow, the side bars connected at their ends to the bow and depending therefrom, the U-shaped brace connected at its ends to the sides of the bow, and at intermediate points of its length to the lower portions of the side bars and forming the rear open end of the frame, and a transverse bar arranged in a plane above the lower portion of the U-shaped brace and connected to the upright portions of said brace, and wire meshwork arranged on and connected to the frame.

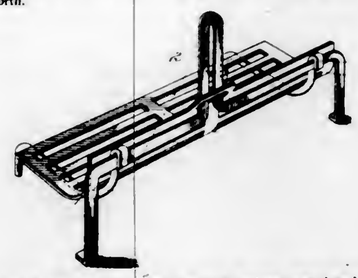
2. The combination of a halter, and an animal-muzzle, pivotally connected to the halter and comprising a frame open at its rear end, and having a transverse bar extending across the rear opening in a plane slightly above the bottom of said opening, and wire meshwork connected to said frame.

3. The combination of a halter, and an animal-muzzle pivotally connected to the halter, and comprising a frame made up of an oval head-bow, side bars connected at their ends to the sides and forward portion of the bow, an upright U-shaped brace connected at its ends to the sides of the bow and at intermediate points of its length to the lower portions of the side bars and forming the rear open end of the frame, and a rectangular horizontal brace connected to the upright portions of the U-shaped brace, and the forward portions of the side bars, and having its forward stretch curved forwardly and its rear stretch disposed in a plane above the bottom of the frame, and wire meshwork connected to the frame.

682,037. ANDIRON. JENNIE COPE, Essary Springs, Tenn. Filed May 21, 1901. Serial No. 61,250. (No model.)

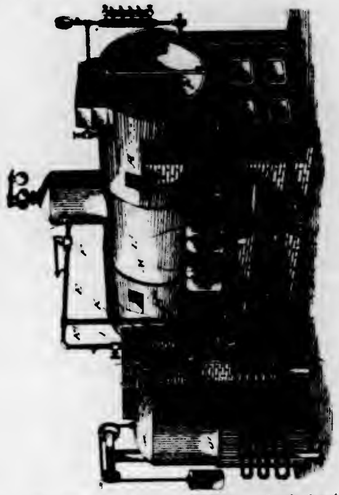
Claim.—1. Andirons comprising a front support, angle-bars with their forward ends adapted to be connected to the first-named part, and a grate adapted to be retained by said angle-bars or upon said front support, substantially as set forth.

2. Andirons comprising a front support having a central projection, angle-bars with their forward ends adapted to be connected to said front support, and a grate having a loop to engage said projection, substantially as set forth.



3. Andirons comprising a front support having a central projection, angle-bars with their forward ends adapted to be connected to said front support, and a grate having a loop to engage said projection, said loop standing out centrally from a longitudinal curved edge of said grate, substantially as set forth.

682,038. PROCESS OF MAKING GAS. ELIJAH B. CORNELL, Philadelphia, Pa., assignor of one-half to William C. Alderson, same place. Filed Oct. 24, 1900. Serial No. 34,157. (No specimens.)



Claim.—The process of making gas, which consists in forming hydrogen gas, injecting the hydrogen thus formed together with a hydrocarbon oil into a highly-heated retort, thereby forming carbureted hydrogen gas and at the same time subjecting the gas to a series of successive contractions and expansions while highly heated thereby forming a fixed illuminating-gas.

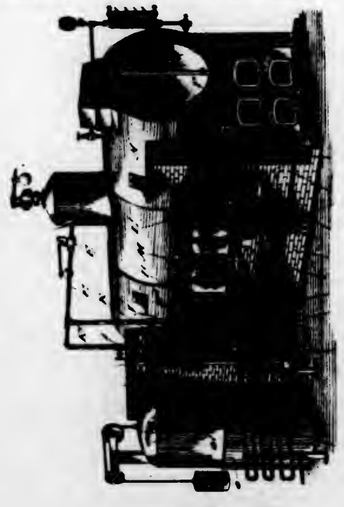
682,039. GAS-GENERATOR. ELIJAH B. CORNELL, Philadelphia, Pa., assignor of one-half to William C. Alderson, same place. Filed Oct. 24, 1900. Serial No. 34,158. (No model.)

Claim.—1. The combination with a furnace, of retorts arranged in sets on the bridge-wall of the furnace, the sets being connected together, a steam-supply connected with one set of the retorts, and a hydrocarbon-supply connected with the connection between the sets of retorts, as set forth.

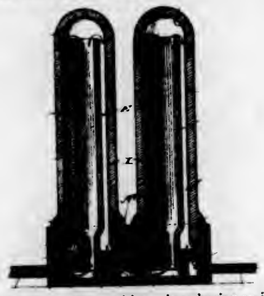
2. The combination with a furnace, and a boiler, of retorts arranged in sets on the bridge-wall of the furnace and on opposite sides of the boiler, a connection between the sets of retorts, a steam-pipe leading from the boiler to one of the sets of retorts, and an automatic oil-feed connected with the connection between the sets of retorts, as set forth.

3. A gas-generator of the character described, comprising sets of retorts connected together and adapted to be placed in a furnace to be acted upon directly by the heat thereof, a steam-pipe leading to one set of retorts, a hydrocarbon-reservoir connected with the steam-pipe, and a connection connecting the reservoir with the connection between the sets of retorts, as set forth.

4. A gas-generator of the character described, comprising sets of upright double-walled retorts arranged in sets connected together, said retorts being adapted to be placed in a furnace to be acted upon directly by the heat thereof, a steam-pipe leading to one set of retorts, a hydrocarbon-reservoir connected with the steam-pipe, a sight-feed tube connected with the reservoir, and a pipe leading from the sight-feed tube to the connection between the sets of retorts, as set forth.



682,040. GAS-RETORT. ELIJAH B. CORNELL, Philadelphia, Pa., assignor of one-half to William C. Alderson, same place. Filed Oct. 17, 1900. Serial No. 33,396. (No model.)



Claim.—1. A retort compriaing a base having an inlet and an outlet with a partition separating them, a shell and an open-end core provided with a contracted end and located within the shell, the said core having its contracted end fitted into said partition.

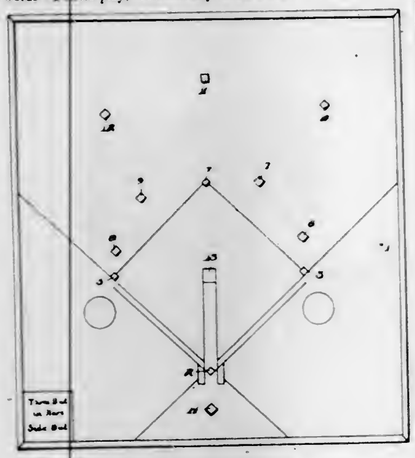
2. A retort comprising a base having an inlet and an outlet with a partition separating them, also coaxial sockets, a shell fitted into one of said sockets and having a grooved exterior flange adjacent to the socket, a packing-ring seated in the groove of said flange and engaging the outer wall of said socket, and an open-end tubular core fitted into the other socket.

3. A retort comprising a shell, a core located within the shell and spaced therefrom to form a chamber or jacket surrounding the core, an inlet-tube leading to the retort and communicating with said chamber, and an outlet tube leading from the retort and likewise communicating with said chamber, the outlet-tube having a smaller bore than the inlet-tube.

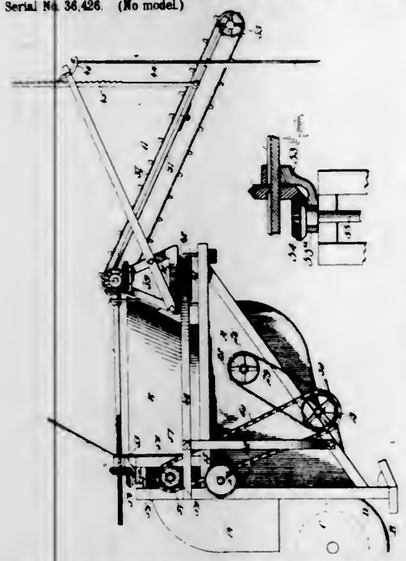
682,041. GAME. PATRICK H. CROWE, Meadville, Pa. Filed Nov. 8, 1900. Serial No. 35,825. (No model.)

Claim.—A game comprising a game-board marked off in imitation of a base-ball field and an indicating-inscription in one corner, in combination with nine cubes each of which bear on their respective faces the words "Struck out," "Fly out," "Foul out," "First base," "One ball;" four of which cubes bear on their one face the words "Second base;" three

of the cubes bearing on one face the words "Third base;" one cube bearing on one face the words "Home run," and one cube bearing on one face the words "Double play," substantially as described.



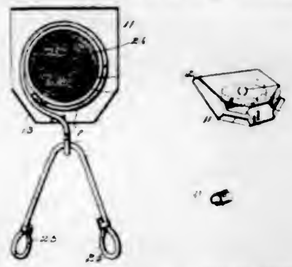
682,042. BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES. TRADDEUS L. CUMMINGS, Hagerty, Iowa. Filed Nov. 14, 1900. Serial No. 36,426. (No model.)



Claim.—1. In a band-cutter and feeder for threshing-machines, a hopper, a track around the said hopper, supports held to travel on the said tracks, feed-boards or bundle-carriers pivoted to the said supports, extensions from the said supports, toothed adjusting-rods pivotally attached to the bundle-carriers or feed-boards, having guided movement in the extensions of the said supports, pawls carried by the said extensions, adapted for engagement with the teeth of the adjusting-bars, and vertically and laterally adjustable driving mechanism for each of the said feed-boards or bundle-carriers.

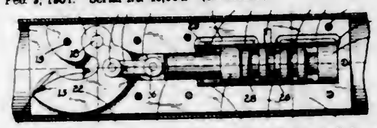
2. In a band-cutter and feeder for threshing-machines, the combination, with a frame adapted for attachment to a threshing-machine, a hopper carried by the frame, a track adjacent to the said hopper, and supports mounted to slide upon the said track, of bundle-carriers or feed-boards pivotally connected at their upper ends to the said supports, means for adjusting the free end portions of the bundle-carriers or feed-boards, driven shafts having gear connections with the driving mechanisms for the conveyers of the bundle-carriers or feed-boards, the said shafts being held to slide in pivoted bearings and through gears, which gears turn with the said shafts, and a driving mechanism for the said gears, as and for the purpose set forth.

682,043. ATTACHMENT FOR SUSPENDERS. LOUIS DAHL, Mineral Tex. Filed Mar. 6, 1901. Serial No. 50,045. (No model.)



Claim.—An attachment for suspenders comprising a casing adapted for attachment to shoulder-straps and including a plate bent upon itself, the sides of the plate having spaced perforations, a tubular spindle having its ends bifurcated to form ears engaged with the perforations and bent to lie upon the outer faces of the casing, a hollow drum disposed rotatably upon the spindle, a helical spring wound upon the spindle and attached to the spindle and drum, a strap attached to and wound upon the drum and having a loop at its free end, and a tab slidably engaged with the loop and having terminal eyes for engagement with buttons.

682,044. SCALE-REMOVING DEVICE. GEORGE W. DEAN, Fort Erie, Canada, assignor of one-half to George B. Nye, Buffalo, N.Y. Filed Feb. 9, 1901. Serial No. 46,664. (No model.)



Claim.—1. A scale-removing device comprising a shell formed in two separable half portions; each half having a depression forming half of the valve-chamber, a recess forming half of a hammer-receiving space and a secondary recess forming a pocket, a piston in the valve-chamber, a hammer in the hammer-receiving space and connections in the pockets pivoted to the hammer and piston.

2. A scale-removing device comprising a shell having a steam-chamber, a hammer supported in said shell, an actuating-piston in the steam-chamber, rods connecting the piston to the hammer and a tubular valve device slidably encircling the piston and having a series of steam-receiving spaces.

3. A scale-removing device comprising a shell having a steam-chamber, a hammer supported in said shell, an actuating-piston in the steam-chamber having a reduced portion, rods connecting the hammer to the reduced portion of the piston, and a tubular valve device slidably encircling the reduced portion of the piston and having a series of transverse grooves forming a plurality of steam-receiving spaces.

4. A scale-removing device comprising a shell formed in halves; each half having exhaust and inlet ports, a depression forming part of a valve-chamber and a recess forming part of a hammer-receiving chamber, a reciprocating piston in the valve-chamber, a hammer in the hammer-receiving chamber, and a valve device slidably mounted on the piston and having a plurality of transverse steam-spaces and rings or enlargements between the spaces.

5. In a scale-removing device, a shell having a chamber provided with two oppositely-disposed walls of curving conformation, of an angular hammer having two curved side edges corresponding to the curves of the walls and adapted to play between said walls.

6. In a scale-removing device, a shell having a chamber provided with irregular oppositely-disposed walls and a pivotal space having a nearly-circular wall, of an angular hammer having opposite side edges conforming to the irregular walls and a pivoted end portion fitting in the pivotal space and having a curved edge conforming to the wall of said space.

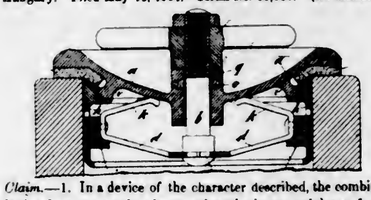
7. A scale-removing device comprising a shell, a curved hammer pivoted at one end in said shell, a centrally-arranged actuating-piston and rods pivotally connected at one end to an intermediate portion of the hammer and at the opposite end to the piston.

8. A scale-removing device comprising a shell, a comparatively large curved hammer in said shell, an actuating-piston having a reduced end provided with opposite flat surfaces and flat connections pivoted to the piston end and the hammer.

9. A scale-removing device comprising a shell having a central longitudinal opening which enlarges at one end to form a valve-chamber, reduces at one intermediate point to form a pocket and enlarges at the opposite end to form an irregular walled hammer-space, a piston in the valve-chamber having a reduced end extending into the pocket, an angular hammer pivoted at one end and having curved surfaces conforming to the irregular walls of the hammer-space, and two flat connections arranged on opposite sides of and pivoted to the hammers and piston.

10. A scale-removing device comprising a shell formed in longitudinal halves and each half having a longitudinal depression which forms part of a valve-chamber, a hammer-receiving space and an intermediate pocket, a piston in the valve-chamber having a reduced end extending into the pocket, a curved hammer pivoted at one end in the hammer-space and curving across the pocket and rods in the pocket pivoted to the hammer and piston end.

682,045. PIPE-STOPPER. EMILIO DE CARLO, Triest, Austria-Hungary. Filed May 18, 1901. Serial No. 60,907. (No model.)



Claim.—1. In a device of the character described, the combination with brake-shoes arranged to bear against the inner periphery of a tube, two spring-arms disposed in the axial plane of the tube at an obtuse angle to each other and supported in the brake-blocks at their outer ends, a cap or plate arranged to bear upon the end and to close the tube, and a screw-bolt attached centrally to the spring-arms and passing through cap or plate, substantially as described.

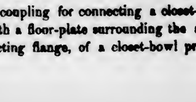
2. In a device of the character described, the combination with brake-shoes arranged to bear against the inner periphery of a tube, two spring-arms disposed in the axial plane of the tube at an obtuse angle to each other and supporting the brake-blocks at their outer ends, a cap or plate arranged to bear upon the end and to close the tube, a spring applied to the under side of the cap or plate and pressing the spring-arms away from the plate, substantially as described.

3. In a device of the character described, the combination with a cap or plate adapted to close the end of a tube, a tubular projection extending from the inner side thereof adapted to enter the tube and provided with vertical slots, two spring-arms within the tube and arranged at an obtuse angle with each other in the axial plane thereof, brake-blocks at their free ends entering said slots, and a screw-bolt passing through the cap or plate and connected with the center of the spring-arms, substantially as described.

4. In a device of the character described, the combination with brake-shoes arranged to bear against the inner periphery of a tube, two spring-arms disposed in the axial plane of the tube at an obtuse angle to each other and supporting the brake-blocks at their outer ends, a cap or plate arranged to bear upon the end and to close the tube, springs applied to the under side of the cap or plate forming return-bends or continuations of said spring-arms, substantially as described.

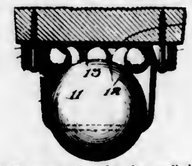
5. In a device of the character described, the combination with a cap or plate adapted to close the end of a tube and provided with a tubular screw-threaded flange adapted to project into the tube, and a tubular projection threaded thereon and provided with vertical slots, two spring-arms within the tube and arranged at an obtuse angle with each other in the axial plane thereof, brake-blocks at their free ends entering said slots, and a screw-bolt passing through the cap or plate and connected with the center of the spring-arms, substantially as described.

682,046. CONNECTION FOR PIPES. WILLIAM R. DELEHANTY, Troy, N. Y. Filed Dec. 7, 1900. Serial No. 39,040. (No model.)



Claim.—In a coupling for connecting a closet-bowl to a soil-pipe, the combination with a floor-plate surrounding the soil-pipe and having an upwardly-projecting flange, of a closet-bowl provided with a base-plate overlying the floor-plate and having a downwardly-projecting tubular spud entering the upper end of the soil pipe and surrounded by a packing-groove, suitable packing within said groove against which the said flange bears, and means for drawing the said parts together, the upper edge of the flange being at least as high as the upper edge of the soil-pipe, whereby the packing is brought into direct contact with said upper edge of the flange to form a sensitive seal thereat, substantially as described.

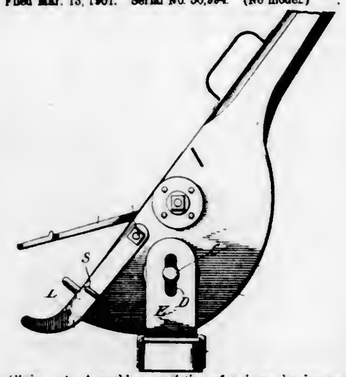
682,047. BALL-CASTER. RICHARD B. DIXON, Toronto, Canada. Filed Oct. 31, 1900. Serial No. 35,042. (No model.)



Claim.—1. A ball-caster adapted to be applied to an article of furniture without recessing the same, said caster comprising a casing made of two sections, one of said sections being provided with a ball-race having a flat top, an annular side wall, and an annular upstanding rim spaced from the latter forming an intermediate space, the other section having its upper portion covering the first-named section and surrounding and secured to the upstanding spaced rim thereof, a plurality of antifriction-balls arranged within the ball-race, and a bearing-ball in contact with said antifriction-balls and projecting through the casing.

2. In a ball-caster adapted to be applied to an article of furniture without recessing the same, a cap-section comprising a tubular shell having an enlarged annular offset portion at its upper end formed with an annular rim, a bearing-ball projecting through the opposite end of said section, a plurality of antifriction-balls in contact with the bearing-ball, of an inner or base section arranged within the enlarged annular portion of the outer section, and comprising a ball-race having a flat top, an inclined annular side wall, and an upturned annular rim spaced from the latter, the rims of the two sections fitting one within the other, and fastening means passing through the outer and inner sections between the inclined side wall of the ball-race and the offset rims of the two sections.

682,048. GRUBBER. CHRISTIAN S. DOUTHAT, Rippiemead, Va. Filed Mar. 13, 1901. Serial No. 50,994. (No model.)



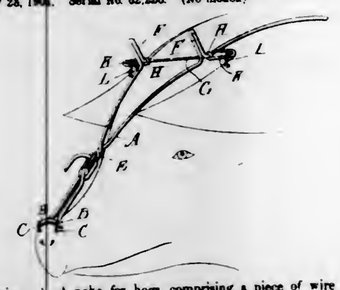
Claim.—1. A grubber consisting of a lever having a cam-shaped end, a guide-block on which said lever rests, slotted members on said block a rod carried by said cam-shaped end and having sliding pivotal connection with said slotted members whereby the fulcrum-point of the lever may constantly change as the lever is swung, as set forth.

2. A grubber consisting of a lever having a cam-shaped end, a block on which said cam end is fulcrumed, guide members having elongated slots mounted upon said block, a rod passing through the cam-shaped end of the lever and having a sliding pivotal connection with said members, a pivoted clamp mounted on the lever and a stationary jaw to cooperate with the pivoted clamp to grip a tree while the lever is swung down, the fulcrum-point designed to constantly change as the lever is operated.

3. A grubber consisting of a lever having a cam-shaped end a shoe on the edge thereof, a block on which said shoe rests, slotted members mounted on said block a rod carried by the cam end of the lever and

having pivoted connection with said slotted members, a stationary clamp-jaw secured to said lever, a pivoted clamp-arm and a pivoted knife, substantially as shown and described.

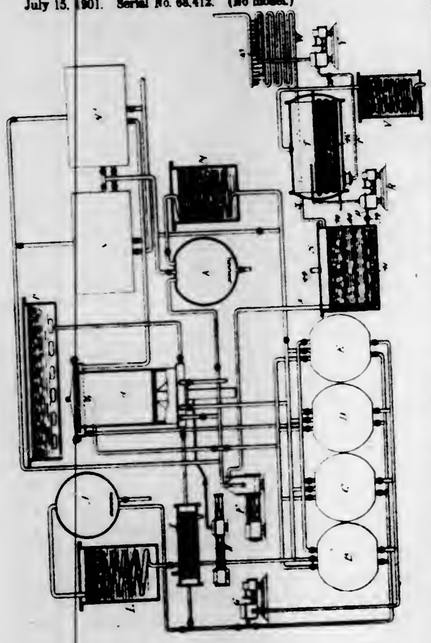
682,049. ANIMAL-POKE. MILLARD F ELLIS, Ghent, Ky. Filed May 28, 1901. Serial No. 62,220. (No model.)



Claim.—1. A poke for hogs, comprising a piece of wire having shank portions, the wire being bent upon itself at two points forming a lateral projection with eyes at the ends thereof, nose-rings engaging said eyes, the shank portions of the poke being twisted about each other, upwardly-inclined projections formed above said twisted portion by bending the shank portions of the poke upon themselves, a cross-piece made of wire carried upon the upper ends of said shank portions and supported by said projections, and ear-engaging rings carried at the ends of said cross-piece.

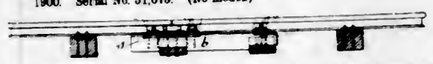
2. In combination with the poke comprising a piece of wire bent at points B to form laterally-projecting loops at the lower end of the poke, nose-rings engaging said projecting loops, the shank portions of the poke twisted about each other, the upper rearwardly-curved arms of the poke bent upon themselves forming forward projections F, a cross-piece of wire bent to form two eyes which engage over said upper arms, and are supported by said projections, the ends of the cross-piece having eyes, ear-rings engaging said eyes, and a wire bent upon itself and passing through the coiled portions of the poke, one end of said wire bent forwardly and downwardly disposed to form a hook, as set forth.

682,050. APPARATUS FOR SEPARATING SOLVENT VAPOR FROM AIR. WALTER REBES, Philadelphia, Pa. Original application filed Oct. 4, 1899, Serial No. 732,573. Divided and this application filed July 15, 1901. Serial No. 68,412. (No model.)



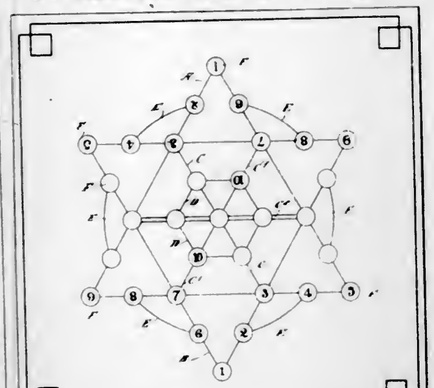
Claim.—The combination of the solvent-vapor trap, means for supplying solvent-impregnated air thereto, the still, the cooler, liquid-forcing devices and connecting-pipes, whereby the oil from the trap may be caused to travel in a circuit from the trap to the still, from the latter to the cooler and from the latter back to the trap, substantially as specified.

682,051. SYSTEM OF BONDING OR JOINTING RAILS IN RAILWAYS. LUDOVIC A. FARNET, Montereau, France. Filed Sept. 25, 1900. Serial No. 31,075. (No model.)



Claim.—In combination in a railway-track, a cross-tie located directly below the meeting ends of the rails, a longitudinal sleeper extending from said cross-tie in the direction a train runs on said track, to the next adjacent cross-tie, a connection between the longitudinal sleeper and the down-rail above said second cross-tie and chairs resting on the longitudinal sleeper and supporting said meeting-rails adjacent to but a sufficient distance from the ends of the same to provide a slight overhang.

682,052. GAME APPARATUS. GEORGE C. FELTER, Haverstraw, N. Y. Filed Oct. 4, 1900. Serial No. 31,973. (No model.)



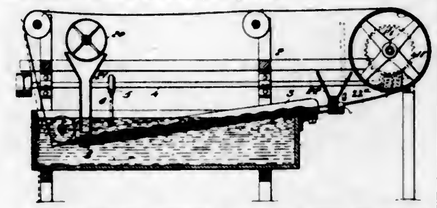
Claim.—1. In a game apparatus, a board having a main field formed of intersecting equilateral triangles, forming a hexagonal center field and triangular fields at the sides of the hexagonal field, and a second hexagonal field within the main hexagonal field and concentric therewith, the said hexagonal fields being divided by diagonal lines and a straight line, said lines extending from the points of intersection of the triangles and crossing each other at the center of the second hexagonal field, the straight line being distinguishable from the diagonal lines, as and for the purpose set forth.

2. In a game apparatus, a board having a main field formed of intersecting equilateral triangles forming a hexagonal center field, and triangular fields at the sides of the hexagonal field, a second hexagonal field within the main hexagonal field and concentric therewith, the said hexagonal fields being divided by lines extending from the points of intersection of the triangles and crossing each other at the center of the second hexagonal field, one of the lines being distinguishable from the other lines, and stations at the intersecting points and at the apexes of the triangular fields, as set forth.

3. In a game apparatus, a board having a main field formed of intersecting equilateral triangles forming a hexagonal center field and triangular fields at the sides of the hexagonal field, a second hexagonal field within the main center field and concentric therewith, lines extending from the points of intersection of the triangles and crossing each other at the center of the second hexagonal field, lines connecting the sides of adjacent triangular fields, and stations at the intersecting points and at the apexes of the triangular fields, substantially as herein shown and described.

682,053. CONCENTRATOR. PETER C. FORRESTER, Springvalley, Ill. Filed Mar. 15, 1901. Serial No. 51,306. (No model.)

Claim.—1. A concentrator, comprising a water-tank, a vibrating sluice arranged in said tank, blocks arranged in the bottom of the sluice and having varying height, the said projections diminishing toward the outlet end of the sluice, and an endless belt movable through said sluice and upon said blocks, substantially as specified.



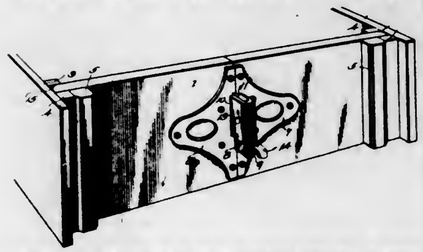
2. A concentrator, comprising a water-tank, a sluice-box arranged at an incline in said tank, means for causing a vibrating motion of said sluice-box, blocks of varying height arranged in said sluice-box, an endless band movable through said sluice-box and over the blocks, and a heating-drum around which said band passes, substantially as specified.

3. A concentrator, comprising a tank, a sluice-box mounted to swing in said tank and having a wave-like bottom, an endless belt or band movable over said wave-like bottom at a transverse incline, a heating-drum around which the band passes, idlers over which the band passes, and a receiver for values discharged from the heating-drum, substantially as specified.

4. A concentrator, comprising a water-tank, a sluice arranged at a lengthwise incline in said tank, blocks of varying height arranged in said sluice, an endless belt movable over said blocks at a transverse incline, a heating-drum around which the belt passes, a receiver for the values discharged from the drum, and a feeding device at the lower end of the chute, substantially as specified.

5. A concentrator, comprising a fixed tank, a sluice arranged at an incline in said tank, an endless band of canvas movable through said sluice, a heating-drum around which the band passes, means for discharging a heating medium into said drum, a driving-shaft for the drum, an eccentric connection between said shaft and the sluice, a receiver for material discharged from the drum, a perforated feed-drum at the lower end of the sluice, and a chute for receiving material therefrom, substantially as specified.

682,054. END-GATE. ABRAHAM L. FOSTER, Lacrosse, Kans., assignor of two-thirds to Lewis H. Whiteman and Elbert F. Whiteman, same place. Filed June 14, 1901. Serial No 64,570. (No model.)



Claim.—1. A device of the class described comprising the plates provided with flanges, and a catch or casing receiving the flanges and locking them together and adapted to release the same, substantially as described.

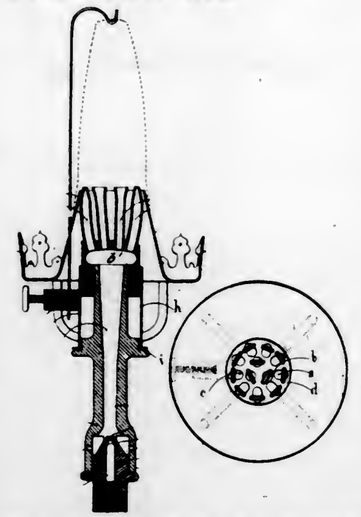
2. In a device of the class described, the combination with an end-gate composed of sections hinged together, of flanges mounted on the sections at their inner hinged edges and arranged to abut against each other when the sections of the end-gate are in alinement, and a catch for holding the flanges together, substantially as described.

3. In a device of the class described, the combination with an end-gate composed of hinged sections, of vertical flanges mounted on the sections and at their inner hinged edges and arranged to abut against each other when the said sections are in alinement, and the sliding catch or casing mounted on one of the flanges and arranged to engage the other, substantially as described.

4. In a device of the class described, the combination with an end-gate composed of hinged sections, of vertical flanges mounted on the sections, one of the flanges being extended beyond the other, and a sliding casing mounted on the extended portion of the said flange and composed of two sides connected together and arranged to confine the flanges, substantially as described.

5. In a device of the class described, the combination of an end-gate, of a fastener comprising the plates provided with flanges 8 and 9 arranged vertically, the flange 8 being extended beyond the flange 9, and enlarged and slotted, a slide or casing composed of sides connected together and arranged to confine the flanges, and a fastening device mounted on the slide or casing and passing through the said slot, substantially as described.

682,055. GAS-BURNER. EDMOND FOUCHÉ, Paris, France. Filed Jan. 5, 1900. Serial No. 512. (No model.)



Claim.—In an acetylene-gas burner, an injector-tube provided with a feed-passage having a part of its length converging inwardly and terminating in a flared lower end and the remaining part of its length formed substantially conical in contour, a sleeve formed integral with the lower end of said injector-tube and provided with air-inlets, an injector-nozzle secured within said sleeve and formed with a passage terminating at its upper end in a jet-opening communicating with the flared lower end of said feed-passage, a cap secured to said tube and formed with a gas-chamber communicating with the upper end of said feed-passage, and a series of burner-tubes connected to said cap and communicating with said gas-chamber.

682,056. CONTACT FOR UNDERGROUND TROLLEYS. JOSEPH S. GARDNER, New York, N. Y. Filed July 10, 1901. Serial No. 67,703. (No model.)



Claim.—1. A contact for underground trolleys, comprising a contact freely slidable on a plow and having contact-points at its ends to connect with the main and the return feed-wires at the different points of their length, as set forth.

2. A contact for underground trolleys, comprising a contact-frame having contacts on its ends and freely slidable on a plow, as set forth.

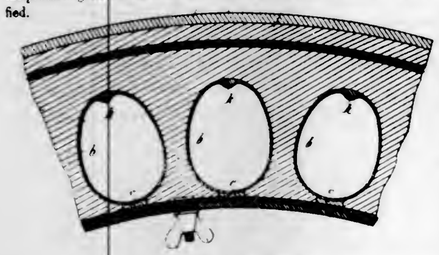
3. A contact for underground trolleys, comprising a contact-frame having contact-points at the ends, the frame being freely slidable on its plow, and means for limiting the sliding of the frame on the plow, as set forth.

4. A contact for underground trolleys, comprising a frame having longitudinal bars with insulated ends, roller-bearings on the plow and in which are mounted to slide said bars, and contact-points on said ends of the frame and in contact with the main and the return feed-wires, as set forth.

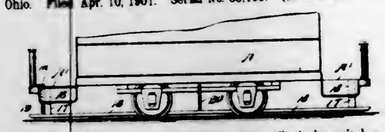
682,057. CUSHION-TIRE. ERNEST GERMAIN, Paris, France. Filed June 5, 1901. Serial No. 63,223. (No model.)

Claim.—A cushion-tire, comprising a soft-rubber body portion, inflated ovate balls arranged in the body portion and having inwardly-extended thickened portions at the tread side, a casing of rubber-coated canvas, a rubber covering on the canvas and thickened at its tread side, and

the protecting-band connected to said rubber casing, substantially as specified.



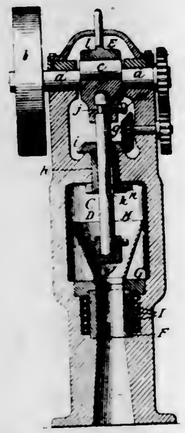
682,058. RAILWAY-SWITCH. JOHN W. GORDON, Marietta, Ohio. Filed Apr. 10, 1901. Serial No. 55,160. (No model.)



Claim.—1. In a device of the character described, the switch mechanism, comprising a box positioned between the main-track rails, a rockable cover-plate on said box, a roller carried by the cover-plate at its free end, a rock-shaft pivoted in the box by its ends, an arm on said shaft, a roller pivoted on the free end of said arm and adapted to contact with the cover-plate, a second arm on the rock-shaft, a pusher-bar projecting through a wall of the box and pivoted by one end on the second arm, the other end of said pusher-bar being pivoted upon a projection on the tongue near its point, and an expanding spring mounted upon the pusher-bar, and adapted to press said bar for closure of the tongue-point against the main-track rail to which it is adjacent.

2. In a device of the character described, the switch-adjuster carried upon a car, comprising a presser-bar held to rock longitudinally of said car, by its attachment upon pivoted depending members of two bracket-arms secured near respective ends of the car, a retractile spring having its ends respectively affixed upon the presser-bar and upon the car, and a curved lever loosely connected by one end with the presser-bar, and having its upper end extended through the platform of the car to receive foot-pressure.

682,059. MACHINE FOR CONVERTING PEAT INTO COMPACT NON-FIBROUS SUBSTANCES FOR USE AS FUEL. JAMES O. GREEN and HARRY T. MARTIN, Whitewater, Wis. Filed June 17, 1901. Serial No. 64,943. (No model.)



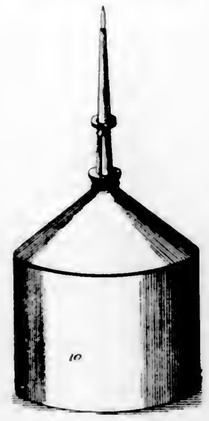
Claim.—1. In a peat-machine, the combination of a plunger having a thrusting and rotary motion, with a tube, all substantially as set forth and described.

2. A plunger for a peat-machine having a corrugated end for grinding, substantially as described.

3. In a peat-machine, the combination of an interchangeable tube with a plunger having an enlarging-shoe, so that different sizes of fuel may be made with the same machine.

4. In a peat or any similar fuel machine, the combination of a shaft with an eccentric and gears; a rotating plunger with sleeve and gears; a hopper; an interchangeable tube with cap and coil; and a shoe for enlarging the plunger, all to work together substantially as set forth and described for the uses and purpose mentioned.

682,060. OIL-CAN. FRANK R. GRIMSHAW, Clark, S. D. Filed Feb. 14, 1901. Serial No. 47,297. (No model.)



Claim.—1. In an oil-can, the combination with a spout having a stop-flange, of a cleaner-rod located longitudinally of the spout and arranged to have its outer end projected beyond the end of the same, a plug-valve arranged to close the passage-way at the inner end of the spout when the rod is in projected position, an operating-rod passing through the flange of the spout and connected to the plug, said rod being provided with an operating-handle, and a plug-valve located upon the exterior portion of the operating-rod between the handle and the flange of the spout, the said valve being arranged to close the opening through which the operating-rod passes and also forming a stop to space the operating-handle from the flange.

2. In an oil-can, the combination with a spout having a stop-flange, of a cleaner-rod slidably mounted longitudinally within the spout and arranged to have its outer end projected beyond the end of the same, a plug-valve arranged to close the passage-way at the inner end of the spout when the rod is in projected position, an operating-handle located on the exterior of the spout, an operating-rod connected to the handle and passing through the stop-flange of the spout, said rod being connected to the plug-valve, and a stop secured to the exterior of the operating-rod to limit the inward movement of the same and space the operating-handle from the stop-flange.

3. In an oil-can, the combination with a spout having a stop-flange, of a cleaner-rod slidably mounted within the spout and arranged to have its outer end projected from the same, an operating-rod connected to the inner end of the cleaner-rod and passing through the stop-flange of the spout, said operating-rod being provided at its outer end with an adjusting-collar that surrounds and is slidable upon the spout, a plug arranged upon the outer portion of the operating-rod and arranged to close the opening in the stop-flange of the spout through which the operating-rod passes, said plug also forming a stop to space the adjusting-collar from the stop-flange.

4. In an oil-can, the combination with a tapering spout having a stop-flange, of a cleaner-rod slidably mounted within the spout and arranged to have its outer end projected from or housed within the same, said rod when in its projected position closing the outer end of the spout, a plug secured to the inner portion of the rod and arranged to close the inner end of the passage-way through the spout when the rod is in its projected position, guide-arms secured at one end of the rod and having their opposite ends arranged contiguous to the end edge of the plug, an operating-rod secured to the inner end of the cleaner-rod and passing through the stop-flange of the spout, and an adjusting-collar secured to the outer end of the operating-rod and surrounding the spout.

682,061. PROCESS OF EXTRACTING GOLD FROM ORES, &c. CAMILLE GROLLET, Paris, France. Filed Mar. 9, 1900. Serial No. 8,066. (No specimens.)

Claim.—A new process of extracting gold from its ores or metallurgical products containing same, consisting in treating these ores or these metallurgical products, previously roasted if they are impure, by the simultaneous action of chlorin and bromin, the chlorin being in such proportion that the excess over that necessary to dissolve the gold is in excess of the bromin employed, said treatment beginning by first producing chlorin within the mass of ore and adding bromin immediately after, then filtering and washing the material and then precipitating the gold, substantially as described.

682,062. ADHESIVE FASTENER. ALBERT HABERSTROH, Boston, Mass. Filed May 24, 1901. Serial No. 61,780. (No model.)



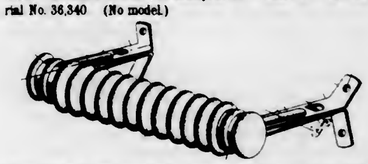
Claim.—The herein-described adhesive fastener, consisting of two members connected together and having their inner faces provided with an adhesive substance, the active adhesive surfaces of the two members being out of register with each other, substantially as described.

682,063. ADHESIVE FASTENER. ALBERT HABERSTROH, Boston, Mass. Filed May 24, 1901. Serial No. 61,781. (No model.)



Claim.—The herein-described adhesive fastener, consisting of two members attached together one of which members is annular, having a central perforation, and the other of which members is solid and adhesively coated at its central portion which is exposed in the central perforation of the annular member, substantially as described.

682,064. HANDLE FOR WASHBOILERS OR OTHER RECEPTACLES. ZACHARY T. HALL, Philadelphia, Pa. Filed Nov. 13, 1900. Serial No. 36,340. (No model.)



Claim.—As a new article of manufacture, a handle for the purpose set forth, the same consisting of a grip and a bracket therefor, the latter being formed of a piece of metal bent on itself and comprising a sleeve embracing said grip, two arms extending in the same direction from said sleeve, divergent lips on the ends of said arms, opposite to said sleeve, and a locking-tongue integral with one arm passing through a slot in the other arm, said tongue being intermediate of said lips and sleeve and serving to hold both lips and sleeve in adjusted position.

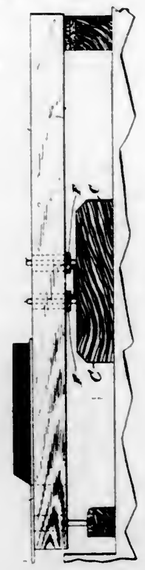
682,065. KEY FOR PIANOFORTES. CLIFFORD R. S. J. HALLÉ, London, England. Filed Feb. 11, 1901. Serial No. 46,893. (No model.)

Claim.—1. In a pianoforte, a pivot-rail and a gutter-shaped strip mounted thereon and bent to form a pair of parallel balancing edges for the piano-keys.

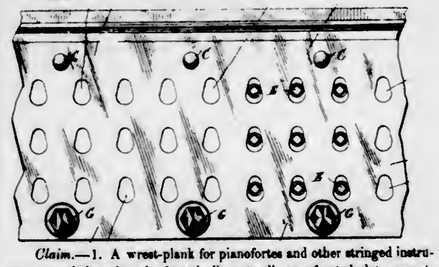
2. In a pianoforte, the combination with the pivot-rail thereof, of guide-pins mounted thereon and adapted to extend through the piano-keys, and means arranged between the said pins upon the said rail and provided with a pair of balancing edges for the said keys.

3. In a pianoforte, the combination with the pivot-rail thereof, of the guide-pins mounted thereon and adapted to engage the piano-keys, means arranged between said pins upon the said rail and provided with a pair of balancing edges for the piano-keys, and means interposed between the piano-keys and said edges and mounted upon said pins for causing the piano-keys to rest and pivot upon one of said edges.

4. In a pianoforte, guide-pins for the piano-keys, a strip provided with a pair of balancing edges for the said keys, and means for supporting said pins and strip.



682,066. WREST-PLANK FOR PIANOFORTES. CLIFFORD R. S. J. HALLÉ, London, England. Filed Mar. 5, 1901. Serial No. 49,860. (No model.)



Claim.—1. A wrest-plank for pianofortes and other stringed instruments, consisting of a pair of vertically-extending perforated plates, wrest-pins mounted within the perforations of the plates, extending through the latter and adapted to receive the strings of the instrument between the said plates, a series of rivets for connecting the plates together, tubes introduced between the said plates for spacing them apart, and means extending through the said tubes and plates for securing the latter in position, substantially as herein shown and described.

2. A wrest-plank for pianofortes and other stringed instruments, consisting of a pair of plates, tubes interposed between the said plates for spacing them apart, wrest-pins extending through the said plates and adapted to receive the strings of the instrument thereon between the said plates, and means extending through the tubes and plates for securing the latter in position.

3. A wrest-plank consisting of a pair of vertically-extending plates suitably spaced apart and connected together, and wrest-pins extending through the said plates and adapted to receive the strings of an instrument thereon between said plates.

682,067. PIANO STRING-PLATE. CLIFFORD R. S. J. HALLÉ, London, England. Filed Mar. 5, 1901. Serial No. 49,861. (No model.)

Claim.—1. In a piano, the combination with the piano-frame, of projections formed on the bars of said frame and each provided with a shoulder, a hitch-pin plate mounted against said projections and having one edge thereof abutting against said shoulders, and means for securing said plate to the said projections.

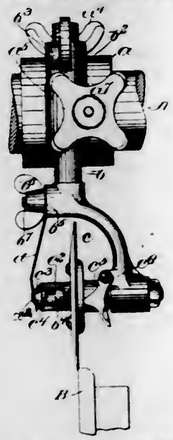
2. In a piano, the combination with the frame thereof, of projections formed on the bars of the said frame, a hitch-pin plate mounted against said projections, and means extending through the plate and projections for securing the plate to the frame.



3. In a piano, the combination with the frame thereof, of a series of projections formed integral with the bars of the frame, and each provided with a shoulder, a hitch-pin plate having its under side formed with a thickened portion abutting against the shoulder of the projections, and means for securing the plate to the frame.

4. In a piano, the combination with the frame thereof, of a series of projections formed integral with the bars of the frame and each provided with a shoulder, a hitch-pin plate having its under side formed with a thickened portion abutting against the shoulder of the projections, and bolts extending through the said plate and projections for securing the plate to the frame.

682,068. **PAPER-SLITTING MACHINE.** GEORGE W. HAMBLET, Lawrence, Mass. Filed June 20, 1901. Serial No. 65,294. (No model.)



Claim.—1. In a paper-slitting machine, a solid hanger having a bore to fit the shaft and a bore transverse thereto to contain a clamping member, the bore for the clamping member intersecting with the main bore; and a clamping member in said bore adapted to engage the shaft, as set forth.

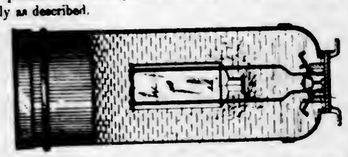
2. In a paper-slitting machine, a solid hanger having a bore to fit the shaft, and bores transverse thereto to contain respectively the rod for the slitter-disk and a clamping member, the bore for the clamping member intersecting with the main bore; a clamping member in said bore adapted to engage the shaft upon which the hanger is mounted; means for forcing said clamping member into position; and means for clamping the rod which supports the slitter-disk in the bore therefor, substantially as described.

3. In a paper-slitting machine, a slitter-disk provided with a hub; a bearing for the said hub; a support for the said bearing; and a spring clamped to said support and bearing against the said hub to exert a pressure near the axis thereof, the said hub being held in position mainly by said spring, as set forth

4. In a paper-slitting machine, the combination with the slitter-disk c provided with the hub c^2 and bearing member c^3; of the bearing b^4; the spring d; and the clamping member b^5 to hold said spring in position, substantially as described.

682,069. **FIRE-EXTINGUISHER.** THOMAS F. HANDLY, Allegheny, Pa. Filed Oct. 1, 1900. Serial No. 31,679. (No model.)

Claim.—1. In a fire-extinguisher, a liquid-receiving receptacle having a closure-cap, and a cage suspended from said cap within the liquid-receptacle, combined with a floating acid-receptacle, a sealing device suspended from the closure-cap within the cage to engage the mouth of the acid-receptacle and seal the same when the extinguisher is in an upright position, and a gravity-lock for maintaining the seal between the sealing device and the acid-receptacle when the extinguisher is in the upright position, and adapted upon the inversion of the extinguisher to break the seal and permit the acid-receptacle to float upwardly within the cage, substantially as described.



2. In a fire-extinguisher, a liquid-receptacle, a closure-cap for the liquid-receptacle, and a sealing device carried by the closure-cap, combined with a floating acid-receptacle, and means adapted to hold the acid-receptacle in a sealed position while the extinguisher is in an upright position, and to automatically break the seal to permit the acid-receptacle to float upwardly in the liquid-receptacle upon the inversion of the extinguisher, substantially as described.

3. In a fire-extinguisher, a liquid-receptacle having a closure-cap, and a sealing device carried by said cap, combined with a floating acid-receptacle, gravity means adapted to retain the acid-receptacle in engagement with the sealing device while the extinguisher is in an upright position, said means being adapted to automatically break the seal and release the acid-receptacle upon the inversion of the extinguisher, and means carried by the sealing device to prevent the reëngagement of the acid-receptacle therewith as the solution is being discharged from the receptacle.

4. In a fire-extinguisher, the combination with the liquid-receptacle having a closure-cap, a cage carried by said cap and provided with a neck portion, a floating acid-receptacle within the cage, a seal suspended from the cap within the neck portion of the cage, a pair of clamping-arms pivotally connected to opposite sides of said seal, said arms having curved upper ends and provided at their lower ends with outwardly-extending lugs, a ring surrounding the neck portion of the cage and resting upon the lugs at the lower ends of the arms when the extinguisher is in an upright position to hold the clamping-lugs in engagement with the floating acid-receptacle, said ring being adapted upon the inversion of the receptacle to engage the curved ends of the arms and release the clamping-lugs from engagement with the acid-receptacle, substantially as described.

5. In a fire-extinguisher, the combination with the liquid-receptacle having a closure-cap, of a floating acid-receptacle, a seal suspended from the closure-cap, a pair of clamping-arms pivotally supported from said seal, and a ring engaging said arms for holding the same in engagement with the acid-receptacle while the extinguisher is in an upright position, said ring adapted upon the inversion of the extinguisher to automatically release the arms from engagement and permit the acid-receptacle to float upwardly in the liquid-receptacle and discharge its contents as it floats, substantially as described.

6. In a fire-extinguisher, a liquid-receptacle, a closure-cap carried thereby, and a sealing device carried by said cap, combined with an acid-receptacle, clamping-arms pivoted to the sealing device, clamping-lugs carried by said arms for engagement with the acid-receptacle to hold the latter in sealed engagement with the sealing device, and a weight normally supported by the clamping-arms for holding the clamping-lugs in engagement, said weight adapted, upon the inversion of the extinguisher, to break the seal of the acid-receptacle, substantially as described.

7. In a fire-extinguisher, a liquid-receptacle and a closure-cap suspended from the sealing device of the liquid-receptacle, combined with an acid-receptacle, pivoted clamping-arms adapted to engage the acid-receptacle and hold the same normally in engagement with the sealing device, and a weight adapted, upon the inversion of the extinguisher, to disengage the clamping-arms from the acid-receptacle to break the seal of the latter, substantially as described.

8. In a fire-extinguisher, the combination with a liquid-receptacle having a closure-cap, of an acid-receptacle, a sealing device, clamping-arms pivoted to the sealing device and adapted to hold the acid-receptacle normally in sealed engagement with said sealing device, and a weight supported by the clamping-arms while the extinguisher is in an upright position for holding the acid-receptacle in sealed engagement with the sealing device, substantially as described.

9. In a fire-extinguisher, the combination with a liquid-receptacle having a closure-cap, of a floating acid-receptacle, a sealing device, pivotally-supported clamping-arms having clamping-lugs for engagement with the acid-receptacle to hold the latter in sealed engagement with the sealing device when the liquid-receptacle is in the upright position, and a weight normally supported by the arms and adapted, upon the inversion of the extinguisher, to disengage the arms from the acid-receptacle, breaking the seal of the latter and permitting the same to float upwardly in the liquid-receptacle, substantially as described.

10. In fire-extinguishers, the combination with the liquid-receptacle having a closure-cap, and the sealing device suspended from the closure-cap, an acid-receptacle, clamping-arms pivotally connected to the sealing device and provided with lugs to engage the acid-receptacle, a weight surrounding said arms for holding the lugs of the clamping-arms normally in engagement with the acid-receptacle, and means carried by the arms for supporting said weight when the extinguisher is in the upright position, substantially as described

11. In fire-extinguishers, the combination with the liquid-receptacle, the acid-receptacle, and the sealing device, of pivotally-supported clamping-arms for engagement with the acid-receptacle to hold the latter normally in engagement with the sealing device, and gravity means adapted upon the inversion of the extinguisher to actuate the clamping-arms and disengage the latter from the acid-receptacle, as and for the purpose described.

12. In fire-extinguishers, the combination with the liquid-receptacle, the acid-receptacle, and a sealing device, of pivoted clamping-arms engaging the acid-receptacle to hold the latter normally in engagement with the sealing device, and gravity means adapted when the extinguisher is in the upright position to hold the clamping-arms in locked engagement with the acid-receptacle, and, upon the inversion of the extinguisher, adapted to actuate the clamping-arms to disengage the same from the acid-receptacle, and break the seal, substantially as described.

13. In fire-extinguishers, the combination with the liquid-receptacle, the acid-receptacle, and a sealing device, of pivoted clamping-arms engaging the acid-receptacle to hold the latter normally in engagement with the sealing device, gravity means supported normally by the arms to hold the latter in locked engagement with the acid-receptacle when the extinguisher is in an upright position, said gravity means adapted upon the inversion of the extinguisher to actuate the arms to disengage the same from the acid-receptacle and break the seal, and means carried by the sealing device to prevent the resealing of the acid-receptacle with the sealing device during the time of discharge of the acid from the acid-receptacle.

14. In fire-extinguishers, the combination with the liquid-receptacle, the acid-receptacle, and the sealing device, of pivoted clamping-arms for engagement with the acid-receptacle to hold the same normally in sealed engagement with the sealing device, and gravity means supported normally on the said arms for maintaining the normal engagement of the arms with the acid-receptacle, said means adapted upon the inversion of the extinguisher to actuate the arms and disengage the latter from the acid-receptacle, as and for the purpose specified.

15. In fire-extinguishers, the combination with the liquid-receptacle, the floating acid-receptacle, and the sealing device, of pivoted clamping-arms for engagement with the acid-receptacle to hold the same normally in sealed engagement with the sealing device, gravity means supported normally on the lower ends of said arms for maintaining the normal engagement of the arms with the acid-receptacle, said means adapted upon the inversion of the extinguisher to engage the opposite ends of the arms and actuate said arms to disengage the same from the acid-receptacle, whereby the latter will be free to float upwardly in the liquid-receptacle, and means whereby the reëngagement of the mouth of the acid-receptacle with the sealing device during the discharge of the acid is prevented.

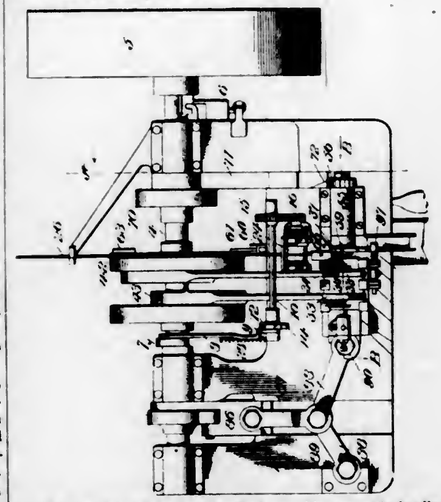
16. In fire-extinguishers, the combination with the liquid-receptacle, a floating acid-receptacle, and a sealing device for said acid-receptacle, of clamping-arms for engagement with the acid-receptacle, and gravity means adapted to normally hold said clamping-arms in engagement with the acid-receptacle, said gravity means adapted upon the inversion of the extinguisher to actuate the arms and disengage the same from the acid-receptacle, as and for the purpose specified.

17. In fire-extinguishers, the combination with the liquid-receptacle, a floating acid-receptacle, and a sealing device for said acid-receptacle, of pivoted means for engagement with the acid-receptacle to support the same, and gravity means for maintaining the engagement of the pivoted means with the acid-receptacle when the extinguisher is in its normal position, said gravity means adapted upon the inversion of the extinguisher to actuate the pivoted means and disengage the same from the acid-receptacle whereby the said receptacle will be free to float upwardly in the liquid-receptacle, substantially as described.

682,070. **MACHINE FOR MAKING WASHERS.** HUBERT C. HART, Unionville, Conn. Filed Apr. 16, 1901. Serial No. 56,158. (No model.)

Claim.—1. A machine of the class described, comprising means for bending a single split ring from cold metal, a movable carrier, means for moving the carrier, means for delivering said split ring to said carrier, and means impinging two opposite sides of said ring while the latter is in the carrier, thereby forming a flat split washer.

2. A machine of the class described, comprising means for bending a single split ring from cold metal, a revolving carrier, means for revolving the carrier, means for delivering said split ring to said carrier and means impinging two opposite sides of said ring while the latter is in the carrier, thereby forming a flat split washer.



3. A machine of the class described comprising means for bending a single split ring from cold metal, a carrier having ring-receptacles, means for moving said carrier step by step, means for delivering said split ring to a receptacle of said carrier and means for compressing a ring at each step of the carrier, to form a split-ring washer.

4. A machine of the class described, comprising means for forming a single split ring, a revolving carrier having ring-receptacles, means for revolving said carrier step by step, means for delivering a split ring to a receptacle of the carrier at the completion of each step of the same, said means working simultaneously with the ring-delivering means for compressing a previously-made ring carried by the carrier into a flat split washer.

5. A machine of the class described, comprising means for forming a single split ring, a revolving carrier having a series of ring-receptacles, means operating said carrier step by step, means working parallel with the axis of the carrier for delivering an individual ring to the carrier at each step, and means impinging two opposite sides of a ring to compress the latter into a flat split washer

6. A machine of the class described, comprising a mandrel, means for feeding wire to said mandrel, two oppositely-revolving formers for winding the wire around said mandrel to form a complete ring, means impinging two opposite sides of said ring to compress the latter into a split washer, and means equal in diameter to the ring for maintaining said diameter while being compressed.

7. A machine of the class described, comprising means for feeding metal to be bent into a ring, an eccentrically-arranged mandrel, two oppositely-revolving formers for winding the metal around said mandrel, and means for compressing the ring into a washer.

8. A machine of the class described, comprising a mandrel, means for feeding metal to said mandrel, two oppositely-revolving formers for winding the metal around said mandrel to form separate split rings, a carrier, means for moving said carrier step by step, means for delivering a split ring from the mandrel to the carrier, and means for compressing said ring into a flat washer.

9. A machine of the class described comprising a mandrel, means for feeding metal to said mandrel, two formers, one of which works within the other, each revolving in opposite directions and eccentrically to said mandrel, to form separate split rings, a movable carrier, means for delivering the ring on the mandrel to the carrier, means for revolving the carrier step by step, and a die and anvil for compressing the ring into a washer, while it is held by the carrier.

10. A machine of the class described, comprising a mandrel, means for feeding cold metal to said mandrel, means for bending the cold metal into a separate split ring around said mandrel, a movable carrier provided with ring-receptacles, a movable die, an anvil in alinement with said die, an ejector, and means for simultaneously delivering a ring to one of the receptacles of the carrier from the mandrel, forcing the die against the anvil to compress said ring into a washer and ejecting from a receptacle a previously-made washer.

11. A machine of the class described comprising a mandrel, two

formers revolving in opposite directions around said mandrel to bend the metal into rings, each of said formers having a series of teeth, racks engaging said teeth, a power-shaft, means on said shaft for communicating a reverse movement to said racks, and means for compressing the metal into a washer.

12. A machine of the class described, comprising means for making a separate split ring, a carrier mounted on a shaft, means for revolving said shaft step by step, a series of receptacles, being formed in the carrier, means for delivering a split ring to one of the receptacles, a die and anvil in line with each other and on opposite sides of the carrier, an ejector, and means for positively stopping the revolving carrier to present a ring-receptacle respectively in the path of the mandrel, the die and anvil and the ejector.

13. A machine of the class described comprising a mandrel, means for feeding metal to said mandrel, two oppositely-revolving formers to make rings, means for imparting motion to said formers, a carrier having ring-receptacles, means for delivering a ring to the receptacles in said carrier, means for compressing the ring into a washer, an ejector, and means for positively removing the completed washer from the carrier and the ejector.

14. A machine of the class described, comprising a mandrel, means for feeding metal to said mandrel, two oppositely-revolving formers to make rings, means for imparting motion to said formers, a carrier having ring-receptacles, means for delivering a ring to the receptacles in the carrier, means for compressing the ring into a washer, an ejector, a lever adapted to oscillate on the face of the carrier to positively remove the completed washer therefrom and the ejector, and means for oscillating said lever across the receptacle just as the ejector ejects the washer.

15. A machine of the class described, comprising a mandrel, means for feeding wire step by step to said mandrel, a stationary shear, and two oppositely-revolving formers engaging said wire on the mandrel, one of said formers being a shear which coacts with the stationary shear to cut the wire in sections, all for the purpose of cutting wire into the desired length and forming it into a ring.

16. A machine for the purpose specified, comprising a mandrel, means for feeding cold wire step by step to said mandrel, means for simultaneously cutting and bending the wire while it is cold into a separate split ring of a diameter approximately equal to the predetermined washer, means for compressing said ring into a flat split-ring washer, and means for preserving the diameter of the split ring after said ring is formed into a washer.

17. A machine for the purpose specified, comprising means for feeding wire step by step to a mandrel, two oppositely-revolving members which simultaneously cut, and bend the wire into separate split rings, and means for compressing said ring into a flat split-ring washer.

18. A machine of the class described, comprising means for making an individual split ring, a revolving carrier, means for revolving said carrier periodically, a friction-brake to act on said carrier, a series of openings or ring-receptacles being formed in the carrier which are equal in diameter to a split ring, means for delivering a ring to said receptacle, means being provided in each receptacle for holding the ring in position therein, and means for compressing said ring into a flat split-ring washer.

19. A machine of the class described, comprising means for bending wire into split rings, a movable carrier having a series of openings or receptacles, of the shape and size of the ring made, each receptacle being provided with a groove to form a seat or means for holding the ring in position, means for delivering said ring to said seat, and means for compressing the same into a flat split-ring washer.

20. In a machine of the class described, means for forming a separate ring, a carrier having a series of openings, means for delivering a ring to one of said openings, means in each opening for holding a ring, a movable die, an anvil, means for revolving the carrier to present a ring in alinement with the die and anvil, means for forcing in said die toward the anvil to compress the ring into a flat split-ring washer, and simultaneously therewith deliver a second ring to a second opening in the carrier.

21. A machine of the class described, comprising a mandrel, and two members working eccentrically to said mandrel, for forming a ring and positively holding said ring to said mandrel, and means for compressing said ring into a washer.

682,071. **SEPARABLE HINGE.** CHARLES HARTMANN, Chicago, Ill. Filed Jan. 7, 1901. Serial No. 42,377. (No model.)

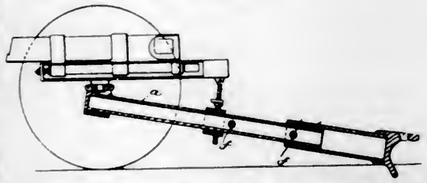
Claim.—1. The combination with a window frame and sash, of a hinge-pin carried by the said frame, a movable member carried by the sash and having a bearing at its upper end, and means for locking said bearing on said hinge-pin, substantially as described.

2. In a hinge, the combination with a hinge-pin, of a V-shaped member, the outer arm of said member having an inwardly-open concaved bearing adapted to receive the said hinge-pin, means for securing the lower end of said member to the device to be hinged, a bolt passing through both arms of said member and means carried by the bolt for drawing the two arms together whereby said concave bearing is held in engagement with the hinge-pin, substantially as described.



3. The combination with a window frame and sash, of a hinge-pin carried by the upper portion of said frame, a plate secured to the upper end of the sash and extending thereabove, a movable member carried by the plate and having an inwardly-open concaved bearing adjacent the upper end of said plate and adapted to receive the hinge-pin, and means for drawing said bearing around the hinge-pin and against said plate and locking it, substantially as described.

682,072. **FIELD-CARRIAGE FOR QUICK-FIRING GUNS.** KONRAD HAUSSNER, Eisenach, Germany. Original application filed Oct. 13, 1900, Serial No. 33,040. Divided and this application filed May 25, 1901. Serial No. 61,929. (No model.)



Claim.—1. The combination with a gun-carriage, of an extensible trail therefor, comprising a stationary and a movable section, and means for securing the sections one within the other when the trail is closed and for rigidly securing the movable section to the stationary section when the trail is extended whereby the upward element or component of the recoil during firing is reduced.

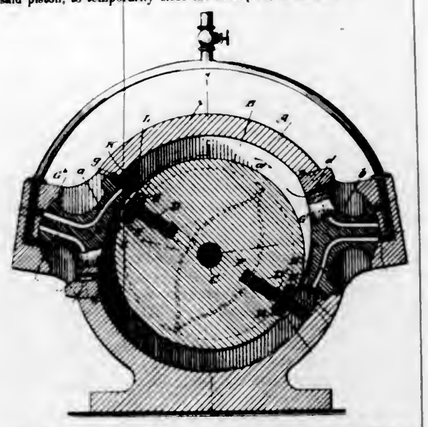
2. The combination with a field-carriage, of a telescopic trail therefor, comprising a stationary and a movable section, the latter provided with a pintle-eye whereby the carriage when the trail is extended may be limbered, and means for securing the sections together when telescoped, and for rigidly securing the movable to the stationary section when the trail is extended whereby the upward element or component of the recoil during firing is reduced.

682,073. **ROTARY ENGINE.** HARDY HESTAND and ARTHUR R. MATTHEWS, Dundee, Tex. Filed Dec. 29, 1900. Serial No. 41,452. (No model.)

Claim.—1. A rotary engine, comprising a cylinder, a piston mounted to turn therein, and provided with a movable piston-head, a steam-chest provided with inlet-ports, and an abutment mounted to rock and having an outer portion forming a valve on the steam-chest, the said abutment having sets of inlet and exhaust ports, and having an inner cam-surface for engagement by said piston-head, as set forth.

2. A rotary engine, comprising a cylinder, steam-chests on said cylinder and provided with inlet-ports, a piston mounted to turn in said cylinder and having spring-pressed piston-heads, and abutments mounted to be turned for reversing purposes and each having an outer portion forming a valve on the respective steam-chest, the said abutments each having sets of inlet and exhaust ports, of which the inlet-ports are adapted to connect with the inlet-ports of the steam-chest, the said abutments extending into the cylinder and each having an inner cam-surface for the piston-heads to travel on, as set forth.

3. A rotary engine, comprising a cylinder, a piston mounted to turn therein and provided with a movable piston-head, an abutment having inlet and exhaust ports, the abutment extending into the cylinder and having a cam-surface for the piston-head to travel on, and a spring-valve on the head end of the abutment and adapted to be engaged by means on said piston, to temporarily close the inlet-port, as set forth.



4. A rotary engine, comprising a cylinder, a piston mounted to turn therein, a steam-chest provided with ports, an abutment mounted to rock in said cylinder and forming a valve on said steam-chest, the said abutment being provided with an inlet-port and an exhaust-port, and a spring-valve for temporarily closing the inlet-port, as set forth.

5. A rotary engine having a reversible abutment mounted to rock and provided with sets of inlet-ports and exhaust-ports, and spring-valves for temporarily closing the inlet-ports, as set forth.

6. A rotary engine comprising a cylinder, steam-chests on said cylinder, a piston mounted in said cylinder and provided with spring-pressed movable piston-heads, abutments mounted to rock in said cylinder and forming valves on the steam-chests, and provided with sets of inlet and exhaust ports, the said abutments extending into the cylinder and having cam-surfaces for the piston-heads to travel on, and means under the control of the operator for simultaneously turning said abutments to bring the abutments into reversing positions, as set forth.

7. A rotary engine, comprising a cylinder, a piston mounted therein and provided with spring-pressed movable piston-heads, abutments mounted to rock in said cylinder and having sets of inlet and exhaust ports, said abutments extending into the cylinder and having cam-surfaces for the piston-heads to travel on, means under the control of the operator, for simultaneously turning said abutments, to bring the abutments into reversing positions, and spring-valves on the abutments, for temporarily closing the inlet-ports of the abutments, said spring-valves being controlled by lugs on the said piston, as set forth.

8. In a rotary engine, a cylinder, a piston mounted to turn therein and provided with a movable piston-head, a steam-chest on said cylinder, an abutment provided with trunnions journaled in the cylinder-heads, the outer end of said abutment having a convex face adapted to engage a seat in the inner face of the valve-chest, the said abutment being provided with sets of inlet-ports and exhaust-ports, of which the inlet-ports are adapted to register with ports of said steam-chest, and means connected with the trunnions of said abutment for turning the abutment, as set forth.

9. A rotary engine having a reversible abutment, mounted to rock and provided with two inlet-ports extending in opposite directions and opening into the cylinder at the ends of the abutment, and two exhaust-ports located near the ends of the abutment, and spring-valves on the inner face of the abutment and having members extending over the exit end of the inlet-ports the said spring-valves being provided with ports or openings normally in register with the said inlet-ports, and arranged to be moved out of register with said ports, as set forth.

10. A rotary engine, comprising a cylinder, a piston mounted therein and provided with spring-pressed movable piston-heads, oppositely-arranged steam-chests on said cylinder provided with ports and connected with a motive-agent supply, abutments mounted to rock in said cylinder and forming valves for the said steam-chests, the said abutments having sets of inlet and exhaust ports and having inner cam-surfaces for the piston-heads to travel on, means for rocking said abutments to bring them into reversing positions, and spring-valves on the inner face of said abutments and controlled by the piston, for temporarily closing the inlet-ports of the abutments, as set forth.

682,074. **WINDOW-SHADE MACHINE.** EDWIN HETHERINGTON, Cedar Rapids, Iowa. Filed July 23, 1900. Serial No. 24,472. (No model.)



Claim.—1. In a window-shade machine, the combination with feed-rolls and trimming-cutters, of a bar parallel therewith provided with a straight-edge of metal to coact with a knife in squaring the shade, a groove parallel therewith to form a seat for the roller while attaching the shade, and a smaller groove to serve as a seat for the finishing-strips attached to the bottom of the shade.

2. In a window-shade machine, the combination with a pair of shafts and fixed bearings therefor, of feed-rolls and cutters fixed to said shaft near one end, a pair of oppositely-arranged rolls and cutters adjustable on the remainder of said shafts, an intermediate, laterally-adjustable bearing to support and adjust said adjustable rolls with relation to the shade material, and a graduated bar to determine the location of said bearing and the adjacent cutters, substantially as described.

3. In a window-shade machine, the combination with a suitable frame, substantially as described, of a rod to support the roll of shade material, a pair of shafts provided with fixed cutters and feed-rolls near one end, and adjustable cutters and feed-rolls mounted to slide along the remainder of said shafts, a metal straight-edge back of and parallel with said roll-shafts, an adjacent groove parallel with said straight-edge, to form a seat for the shade-roller in the operation of attaching the shade thereto, a spindle adapted to engage one end of the shade-roller and turn it to reel up the shade, an adjustable bearing for the other end of said roller, means for turning the feed-rolls, and a connection thereof with said spindle.

682,075. **GATE.** HILL H. HILLERSON, Champaign county, Ill. Filed Mar. 15, 1901. Serial No. 51,301. (No model.)

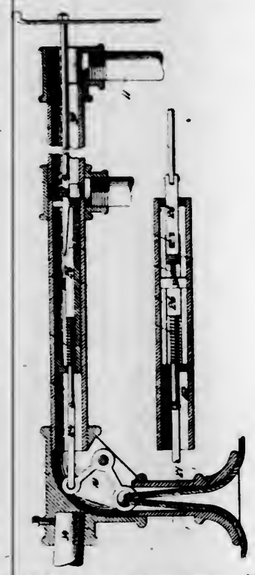
Claim.—1. A swing-gate provided with an extension-arm at its hinged portion, which arm is carried over and beyond the hinge-post of the gate and has a downwardly-projecting tubular member having a flaring mouth, for the purpose specified.

2. A swing-gate, a tubular extension-arm carried rearward from the hinged end of the gate, a tubular projection carried downward from the outer or rear portion of the extension-arm, and operating-ropes leading out through the tubular projection in opposite directions for the purpose set forth.

3. A swing-gate, a tubular extension-arm carried rearward from the hinged end of the gate, said arm extending over and beyond the hinge-post for the gate, and having a downwardly-extending and flaring mouth, and a governor adjustably connected with the outer end of the extension-arm, for the purpose specified.

4. A swing-gate, a hinge-post therefor, a tubular extension from the hinged portion of the gate, which extension is carried from the upper portion of the gate-frame rearward over and beyond the hinge-post, a tubular projection extending downward from the extension-arm at the rear of the hinge-post, a governor adjustably carried by the rear end portion of the said extension-arm, operating-ropes leading out through the said projection in opposite directions, and guides for the said ropes, for the purpose set forth.

5. In gates, an extension-arm carried from the hinged end of the said gate, which extension-arm terminates at its outer end in an angular member having a chamber therein, a bell-crank lever fulcrumed within the said chamber, operating-ropes connected with the lower end of the said bell-crank lever, a spring-controlled operating-head having movement in the extension and connected with the upper end of the bell-crank lever, a spring-latch for the gate, a rod attached to the said spring-latch, terminating in a pivotally-connected receiving bar or member, means for locking the receiving bar or member to the operating-head, and means for automatically releasing the operating-head from the receiving bar or member, as described.



6. In the construction of gates, the combination, with a gate and a tubular extension carried outward from the hinged portion of the gate, the said extension terminating in an angular member provided with a chamber, of a bell-crank lever pivoted within the said chamber, a spring-controlled operating-head mounted to slide in the said extension and having pivotal connection with one member of the said bell-crank lever, the said operating-head having its upper surface beveled at its inner end and provided with a lug upon its upper face correspondingly beveled, a spring-latch for the gate, a rod attached to the said spring-latch, and passed through the gate, a receiving bar or member pivoted to said rod, the receiving bar or member having an opening therein to receive the lug on the operating-head, and a fixed releasing device located within the tubular extension, having its upper surface inclined correspondingly to the upper face of the lug on the operating-head and the beveled face of the inner end of said operating-head, which releasing device is adapted to remove the operating-head from engagement with the receiving bar or member when the receiving bar or member has been carried a sufficient distance rearward.

7. In gates, the combination, with the frame of a gate, a tubular extension-arm carried from the hinged end of the gate, having a downwardly-extending chambered member at its rear end, a lever fulcrumed in said chamber, a funnel continuation of the said chamber, and operating-cords extending through the funnel extension, which cords are attached to the said lever, of a spring-latch for the gate, a rod connected with the said latch, an apertured receiving bar or member pivotally attached to the said rod, a spring-controlled operating-head connected with the said lever and having movement to and from the receiving bar or member, and normally in locking engagement therewith, and means, substantially as described, for disconnecting the receiving bar or member from the operating-head when the operating-head has been moved a certain distance to the rear, as set forth.

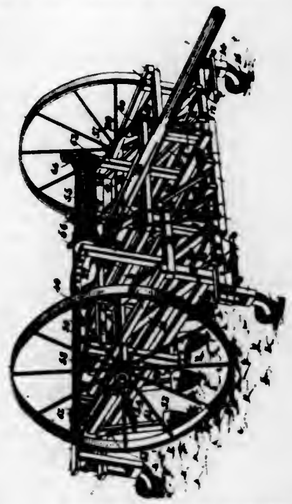
8. In gates, the combination, with the frame of the gate, a tubular extension-arm carried from the hinged end of the gate, having a downwardly-extending chambered member at its rear end, a lever fulcrumed in said chamber, a funnel continuation of the said chamber, and operating-cords extending through the funnel extension, which cords are attached to the said lever, of a spring-latch for the gate, a rod connected with the said latch, an apertured receiving bar or member pivotally attached to the said rod, a spring-controlled operating-head connected with the said lever and having movement to and from the receiving bar or member, and normally in locking engagement therewith, means, substantially as described, for disconnecting the receiving bar or member from the operating-head when the operating-head has been moved a certain distance to the rear, a governor connected with the rear portion of the extension-arm, and guide-supports for the said operating cords, as and for the purpose set forth.

9. The combination with a gate having an extension-arm projecting beyond the hinge-post of the gate, and a spring-latch for the gate, of a sliding and spring-pressed member carried by the extension, a bar connected with the latch, the said bar and member being normally interlocked, means for disengaging the bar and sliding member, and means connected with the sliding member for operating it, as set forth.

10. The combination with a gate having an arm projecting beyond the hinge-post of the gate, and a spring-latch for the gate, of a sliding and spring-pressed head carried by the said arm, means connected with the sliding member for moving the arm against the action of its spring, a pivoted bar connected with the latch of the gate, the said bar and head being normally interlocked, and means for disengaging the bar from said head, as set forth.

11. The combination with a gate, having an arm projecting beyond the hinge-post of the gate, and a spring-latch for the gate, of a sliding and spring-pressed head carried by the said arm, and provided with a projection, means connected with the said head for compressing the spring thereof, a bar connected with the latch and provided with an opening for engaging the projection of the head, and means for disengaging the bar from the head, as set forth.

682,076. CULTIVATOR. CURTIS T. HINES, West Monroe, La. Filed Dec. 27, 1900. Serial No. 41,262. (No model.)



Claims.—1. In an agricultural implement, the combination with carrying-wheels and a frame extending forwardly from said wheels, of a series of plow-beams supported at their front ends by the front end of the frame, and a beam-carriage supporting the beams at a point behind the frame, said beam-carriage being independent of the frame.

2. In an agricultural implement, the combination with a frame and carrying-wheels supporting the frame, of a plurality of plow-beams pivotally supported at one end by the frame, and a separate wheeled beam-carriage independent of the frame and supporting the other ends of the beams, the wheels of said carriage being disposed to track with the carrying-wheels.

3. In an agricultural implement, the combination with a frame, carrying-wheels supporting the rear end of the frame and caster-wheels supporting the front end thereof, of a series of plow-beams supported at their front ends by the forward end of the frame, and a wheeled beam-carriage separate from the frame and located behind the carrying-wheels and supporting the rear ends of the beams, the wheels of the carriage and the caster-wheels of the frame being disposed to track with the carrying-wheels.

4. In an agricultural implement, the combination with the frame and carrying-wheels therefor, of a series of plow-beams extending rearwardly from the frame, a separate wheeled beam-carriage supporting the rear ends of the beams and permitting limited independent movement thereof within the carriage, and means for raising and lowering the carriage, said beam-carriage being separate from and independent of the frame.

5. In an agricultural implement, the combination with a frame comprising side portions in laterally-spaced relation, a superstructure connecting the side portions, and carrying-wheels at opposite sides of the frame, of a gang of plow-beams carried by each side portion of the frame, a separate independent wheeled carriage supporting the rear ends of the plow-beams, and means for raising and lowering the carriage independently of the frame.

6. In an agricultural implement, the combination with a frame comprising depressed side portions in laterally-spaced relation, an intermediate superstructure located in a plane above the side portions and carrying-wheels for the frame, of means for securing the superstructure of the frame at different heights, plow-beams supported at their front ends by the frame, and means for raising and lowering the rear ends of said beams.

7. In an agricultural implement, the combination with a frame comprising side portions in laterally-spaced relation, a superstructure connecting said side portions, said superstructure comprising a vertically-adjustable arch at the front of the frame, vertically-adjustable posts at the rear end of the frame, and a main transversely-disposed frame-beam carried by said posts, side gangs of plow-beams mounted in the side portions of the frame, a center gang of plow-beams removably mounted intermediate of said side portions of the frame, and means for supporting the rear ends of the several plow-beams.

8. In an agricultural implement, the combination with a frame comprising side portions in laterally-spaced relation, a superstructure connecting said side portions, said superstructure comprising a vertically-adjustable arch at the front of the frame, vertically-adjustable posts at the rear end of the frame, and a main transversely-disposed frame-beam carried by said posts, side gangs of plow-beams mounted in the side portions of the frame, a center gang of plow-beams removably mounted intermediate of said side portions of the frame, removable stop-beams located at the opposite ends of the frame for limiting the depression of the plow-beams, and means for effecting the simultaneous elevation of the several beams.

9. In an agricultural implement, the combination with a frame and carrying-wheels, of plow-beams carried by the frame and arranged in side gangs and an intermediate center gang, and means for raising and lowering the rear ends of all of the plow-beams and the front ends of the center gang.

10. In an agricultural implement, the combination with a frame and carrying-wheels, of side gangs of plow-beams pivotally mounted at their front ends, a center gang of plow-beams intermediate of the side gangs, beams for raising or lowering the rear ends of all of the plow-beams, and means for raising and lowering the front ends of the center gang of beams when their rear ends are similarly adjusted, whereby the advanced plows carried by the center gang will be adjusted in a degree substantially corresponding to the adjustment of the less advanced plows carried by the side gangs.

11. In an agricultural implement, the combination with a frame and carrying-wheels, of side gangs of plow-beams pivotally mounted at their front ends, a center gang of plow-beams disposed intermediate of the side gangs, a wheeled carriage supporting the rear ends of all of the beams, a drum mounted on the frame, and cables wound upon the drum and connected to the carriage and to the front end of the center gang of beams to effect the elevation or depression of the beams in a manner to secure the substantially corresponding adjustment of all of the plows.

12. In an agricultural implement, the combination with a frame comprising laterally-spaced side portions and an intermediate superstructure, of a short axle constituting a part of each side portion of the frame, a carrying-wheel supporting each axle, a caster-wheel disposed immediately in advance of each carrying-wheel and supporting the front end of the frame, side gangs of plow-beams mounted in each side of the frame and a movable center gang of plow-beams disposed between the side portions of the frame, a wheeled carriage supporting the rear ends of all of the beams and having caster-wheels disposed directly behind the carrying-wheels, and means for raising and lowering said carriage.

13. In an agricultural implement, the combination with a frame comprising laterally-spaced side portions and an intermediate superstructure, of a short axle constituting a part of each side portion of the frame, a carrying-wheel supporting each axle, a caster-wheel disposed immediately in advance of each carrying-wheel and supporting the front end of the frame, side gangs of plow-beams mounted in each side of the frame and a movable center gang of plow-beams disposed between the side portions of the frame, a wheeled carriage supporting the rear ends of all of the beams and having caster-wheels disposed directly behind the carrying-wheels, means for raising and lowering said carriage, and a removable stop-beam located at the rear end of the frame and designed to limit the depression of the plow-beams.

14. In an agricultural implement, the combination with a frame comprising laterally-spaced side portions each composed of front and rear posts, a longitudinal beam connecting said posts, a short axle extending laterally from the rear post, a short supporting-beam extending laterally from the front post, inclined braces connecting the axle and supporting-beam, a vertically-adjustable arch connecting the front posts of the side portions, and a main frame-beam connecting the rear posts of the side portions, of carrying-wheels mounted on the axles, caster-wheels supporting the short supporting-beams at the front of the frame, and a series of plow-beams mounted in the frame.

15. In an agricultural implement, the combination with a frame comprising laterally-spaced side portions each composed of front and rear posts, a longitudinal beam connecting said posts, a short axle extending laterally from the rear post, a short supporting-beam extending laterally from the front post, inclined braces connecting the axle and supporting-beam, front and rear standards secured to the axle and supporting-beam, longitudinal and transverse braces connecting the front and rear standards and connecting the front standard with the adjacent front post, a vertically-adjustable arch connecting the front posts of the side portions, and a main beam connecting the rear posts of the side portions, of carrying-wheels mounted on the axles, caster-wheels supporting the short supporting-beams at the front of the frame, and a series of plow-beams mounted in the frame.

16. In an agricultural implement, the combination with a frame comprising laterally-spaced side portions each composed of front and rear posts, a longitudinal beam connecting said posts, a short axle extending laterally from the rear post, a short supporting-beam extending laterally from the front post, inclined braces connecting the axle and supporting-beam, front and rear standards secured to the axle and supporting-beam, longitudinal and transverse braces connecting the front and rear standards and connecting the front standard with the adjacent front post, a vertically-adjustable arch connecting the front posts of the side portions, and a main beam connecting the rear posts of the side portions, of carrying-wheels mounted on the axles, caster-wheels supporting the short supporting-beams at the front of the frame, a series of plow-beams mounted in the frame, a stop-beam located below the plow-beams and secured to the rear posts and standards, and a second stop-beam secured at its opposite ends to the lower ends of the front posts of the frame.

17. In a convertible agricultural implement, the combination with a frame comprising laterally-spaced side portions, an intermediate vertically-adjustable superstructure, and a vehicle-tongue and driver's seat supported by said superstructure, of carrying-wheels supporting the frame, side gangs of plow-beams supported by the side portions of the frame, a removable center gang of plow-beams located intermediate of the side portions of the frame, and means disposed adjacent to the driver's seat for effecting the adjustment of the several plow-beams.

18. In an agricultural implement, the combination with a frame, of a series of plow-beams, a drum mounted above the frame, cables wound upon the drum and connected to the fixed part of the frame, said cables having running connection with the opposite ends of the plow-beams to effect the simultaneous elevation or depression of both ends of the plow-beams, as desired.

19. In an agricultural implement, the combination with a frame, of plow-beams pivotally supported at their rear ends and capable of lateral movement in a horizontal plane, means for yieldingly retaining said beams in their normal positions, and means disposed at the front ends of the beams for moving them laterally to bring the plows close to the roots of the plants being cultivated as described.

20. In an agricultural implement, the combination with a frame, of plow-beams pivotally supported at their rear ends for lateral movement in a horizontal plane, means for yieldingly retaining the beams in their normal positions against lateral movement, means for urging the beams laterally to present the plows closer to the plants being cultivated, and means for effecting the vertical adjustment of the plow-beams.

21. In an agricultural implement, the combination with a frame, of plow-beams mounted at their front ends for lateral movement in a horizontal plane, means for imparting such movement to the plow-beams at their front ends, a carriage supporting the rear ends of the beams, and means for raising and lowering the carriage.

22. In an agricultural implement, the combination with a frame, of a series of plow-beams mounted thereiu, a carriage supporting the rear ends of said beams in a manner to permit the vertical movement of said beams within the carriage, and springs resisting such movement of the beams to hold them in their depressed positions.

23. In an agricultural implement, the combination with a frame and plow-beams, of a wheeled carriage, guide-rods supported by the carriage and piercing the beams, and springs surrounding said guide-rods and opposing upward movement of the beams within the carriage.

24. In an agricultural implement, the combination with a frame and

plow-beams, of a wheeled carriage common to the several plow-beams, means for yieldingly supporting the beams in the carriage, and a plow-standard carried by the beams and movable independently thereof.

25. In an agricultural implement, the combination with a frame and plow-beams provided with pivoted plow-standards, of a wheeled carriage supporting the rear ends of the beams, of springs resisting the movement of the beams within the carriage, and other springs resisting the yielding of the plow-standards with respect to the beams.

26. In an agricultural implement, the combination with a frame, of plow-beams carried by the frame and arranged in side gangs and an intermediate center gang, means for raising and lowering the rear ends of all of the plow-beams and the front ends of the center gang, and means for moving the front ends of the center gang of beams laterally in a horizontal plane.

27. In an agricultural implement, the combination with a frame, of plow-beams carried by the frame and arranged in side gangs and an intermediate center gang, means for raising and lowering the rear ends of all of the plow-beams and the front ends of the center gang, springs disposed to urge the front ends of the center gang of beams laterally in a horizontal plane, and means for urging said beams in opposition to the springs.

28. In a convertible agricultural implement, the combination with a frame, comprising side portions in laterally-spaced relation, a superstructure connecting said side portions, said superstructure comprising a vertically-adjustable arch, side gangs of plow-beams mounted in the side portions of the frame, a center gang of plow-beams removably mounted intermediate of said side portions of the frame, and means for supporting the rear ends of the several plow-beams.

29. In an agricultural implement, the combination with the frame, of a series of plow-beams, means for urging the front ends of the beams laterally in a horizontal plane, and means for raising and lowering the rear ends of the beams.

682,077. **PORCELAIN-CROWN FACER.** CHARLES E. HOFFMAN, New Albany, Ind. Filed Apr. 9, 1901. Serial No. 55,030. (No model.)



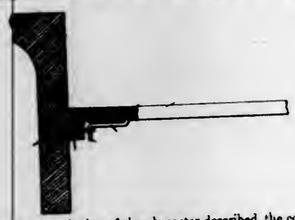
Claim.—1. A porcelain-crown facer, comprising a chambered body, a cap-sleeve removably attached to the body, and a grinding-disk held between the cap-sleeve and body, the grinding-disk being provided with an opening registering with the chamber in the body, as set forth.

2. A crown-facer, comprising a trumpet-shaped head provided with an opening, a flat grinding-disk located upon said trumpet-shaped head and provided with a smaller opening, and a member removably secured to said trumpet-shaped head and provided with an annular flange adapted to clamp said grinding-disk against said trumpet-shaped head.

3. A crown-facer, comprising a revoluble head provided with an opening, a grinding-disk located upon the same and provided with a second opening, and a retaining member secured upon said revoluble head, engaging said grinding-disk, and provided with a third opening, all of said openings registering centrally with each other, said parts together constituting a tool shaped like a shallow cup, the inner wall of which is smooth and the bottom adjacent to said inner wall is rough.

4. A crown-facer, comprising a revoluble cup, provided with an apertured bottom, the inner wall of said cup being smooth and incapable of grinding, and the bottom thereof adjacent to said inner wall being rough, so as to form a grinding-surface.

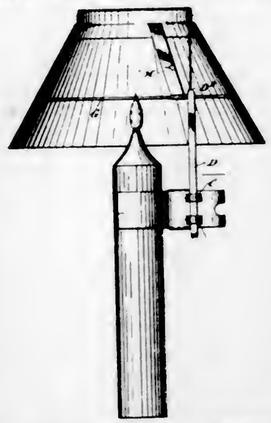
682,078. **SLAT-HOOK FOR BED-SLATS.** THOMAS P. R. HOUSE, Uniontown, Pa. Filed Feb. 20, 1901. Serial No. 48,115. (No model.)



Claim.—1. In a device of the character described, the combination with the bed-rail, the slat-rest secured thereto, and the slat, of a substantially Z-shaped fastening-hook for securing the slat on the rest, said fastening-hook having its one end extending upwardly and provided with threads to engage with the bed-slat through the underneath face thereof, the other end of said fastening-hook extending downwardly, and an eye carrying a threaded shank engaging in the slat-rest, said eye adapted to receive the downwardly-extending end of said hook, substantially as described.

2. In a device of the character described, the combination with the bed-rail, the slat-rest carried thereby, the eye carried by the slat-rest, and the slat, of a fastening-hook formed of a single piece of wire having its ends bent in opposite directions, the one of said ends being threaded and inserted into the bed-slat, and the other end engaging the eye carried by the slat-rest, substantially as described.

682,079. **SHADE-HOLDER FOR CANDLES.** FRANKLIN E. HOWARD, Buffalo, N. Y. Filed Oct. 10, 1900. Serial No. 32,619. (No model.)

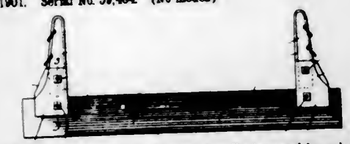


Claim.—1. A shade-holder for use on candles comprising the clamp composed of a plate of spring metal having the opposite spring-jaws and the double-winged U-shaped shank, and having one of its shank-wings provided with an arm forming with the body of the wing a clamping-guide for the shade-supporting rod, the supporting-rod held and movable longitudinally in said guide, the lugs or plates projecting from one of the shank-wings and extending past the other said wing, and the lever carried by said lugs and arranged for operation to compress the shank and force the clamping-jaws toward each other, all substantially as and for the purpose set forth.

2. A shade-holder for use on candles comprising the clamp for application to the candle and provided with vertical guides for the shade-supporting upright, the shade, and the upright composed of a strip of flat metal fitting slidably in the guide of the clamp twisted above said guide forming a stop to limit the downward movement of the upright and also bringing its upper portion into position for attachment to the wing of the shade-frame, substantially as set forth.

3. In a shade-holder, a clamp having jaws, and a shank comprising opposite wings and having one of said wings provided with an upright guide for the shade-supporting rod, and the rod slidable in said guide, substantially as set forth

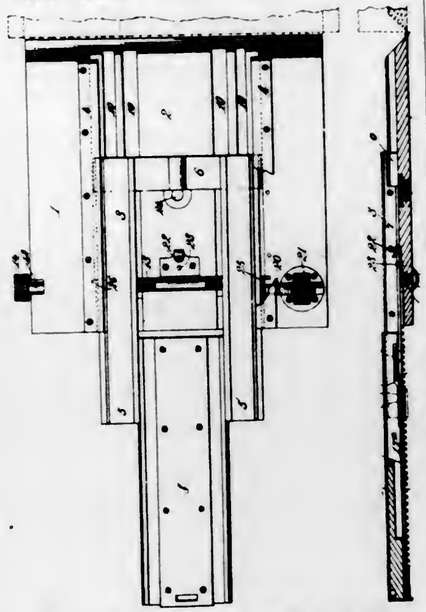
682,080. **COMBINED STANDARD AND LOG-BLOCK FOR WAGON-BOLSTERS.** JOSEPH N. HUDSON, Clinton, Ky. Filed May 9, 1901. Serial No. 59,464. (No model.)



Claim.—1. A device of the class described comprising a bolster, the reversible blocks having vertical openings extending entirely through them and forming sockets, said blocks being provided with vertical and inclined faces and adapted to be turned to bring either of the faces to the inner side, and standards removably fitted in sockets of the blocks, substantially as described.

2. A device of the class described comprising a bolster, a reversible block having a vertical opening extending entirely through it and provided with depending side flanges embracing the bolster and detachably secured to the same, said block being provided with oppositely-disposed vertical and inclined faces and adapted to be turned to bring either face at the inner side, a standard fitted in the opening of the block, and a reinforcing-strip secured to the standard and abutting against the upper edges of the block, substantially as described.

682,081. **EXTENSION-BED FOR PHOTOGRAPHIC CAMERAS.** CHARLES HUTCHINS, Rochester, N. Y., assignor to Rochester Optical and Camera Company, same place. Filed Jan. 17, 1901. Serial No. 43,638. (No model.)



Claim.—1. In an extension-bed for cameras, the combination with a plurality of sections and means for extending the same, of a locking device for connecting said sections with each other, and means for releasing said locking device from its engagement with one of said sections and throwing it into locking engagement with the part on which said sections are supported, as and for the purpose set forth.

2. In an extension-bed for cameras, the combination with a plurality of sections and means for extending the same, of a locking device carried by one of said sections and adapted to coöperate with the other of said sections and with the part on which said sections are supported, and means for releasing said locking device from the part with which it is in engagement and for throwing it into locking engagement with the other, as and for the purpose set forth.

3. In an extension-bed for cameras, the combination with a plurality of sections and means for extending the same, of a locking device carried by one of said sections and adapted to coöperate with the other of said sections and with the support for said sections, means on said support for releasing said locking device from its engagement with one of said sections, and means on one of said sections for throwing the same into locking engagement with said support, as and for the purpose set forth.

4. In an extension-bed for cameras, the combination with a plurality of sections and means for extending the same, of a locking device carried by one of said sections, coöperating means therefor on the other of said sections and on the support for said sections, means for releasing said locking device from its engagement with the coöperating means on said section, and means on one of said sections for throwing the locking device into locking engagement with the coöperating means on said support, as and for the purpose set forth.

5. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a locking device for locking one of said sections to said support, the said locking device being automatically disengaged from said support and thrown into locking engagement with both of said sections, when the other of said sections reaches the limit of its movement in one direction, as and for the purpose set forth.

6. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a locking device for locking one of said sections to said support, the said device being normally maintained in such locking position by the other of said sections and automatically disengaged therefrom and thrown into locking engagement with both of said sections when said other section reaches the limit of its movement in one direction, as and for the purpose set forth.

7. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a spring locking device for locking one of said sections to said support, and engaging means on the other of said sections for normally maintaining said device in such locking position, the said device automatically springing out of engagement with said support and into locking engagement with both of said sections when the engaging means on said other section passes out of contact with the same, as and for the purpose set forth.

8. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a spring locking-plate secured to one of said sections and having an incline thereon, and cooperating locking means for said plate on said support, and on the other of said sections, the latter section having a recess therein for receiving said plate, and having an incline thereon adjacent to said recess, the said other section normally bearing against said plate and serving to maintain the same in locking engagement with the coöperating means on said support, and said recess permitting said plate to spring out of engagement with said support and into locking engagement with the coöperating means on said other section, when the latter is moved so as to bring the incline thereon opposite the incline on said plate, as and for the purpose set forth.

9. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a spring locking-plate secured to one of said sections and having an incline thereon, coöperating locking means for said plate on said support and on the other of said sections, the latter section having a recess therein for receiving said plate and having an incline thereon adjacent to said recess, and means on said support for releasing said plate from its locking engagement with the coöperating means on said other section, the incline on said section adapted to engage the incline on said plate for forcing the same into locking engagement with the coöperating means on said support, as and for the purpose set forth.

10. In an extension-bed for cameras, the combination with a plurality of sections, means for extending the same and a support on which said sections are mounted, of a spring locking-plate secured to one of said sections having an incline thereon and provided with perforations, a pin or projection on said support adapted to enter one of said perforations, a pin or projection on the other of said sections adapted to enter another of said perforations, the said other section having a recess therein for receiving said plate and having an incline thereon adjacent to said recess, and means on said support for moving said plate away from said other section so as to disengage the perforation therein from the pin on said section, the incline on said section adapted to engage the incline on said plate for moving the latter so as to cause the engagement of one of the perforations therein with the pin on said support, as and for the purpose set forth.

11. In an extension-bed for cameras, the combination with a bed-plate, a plurality of extension-sections carried thereby and means for adjusting said sections, of a locking device operatively connected with one of said sections, engaging means for said locking device carried by the other of said sections, engaging means for said locking device carried by the bed-plate, and means for shifting the locking device into operative relation to one or the other of said engaging means, as and for the purpose set forth.

12. In an extension-bed for cameras, the combination with a bed-plate, a plurality of extension-sections carried thereby, and means for adjusting said sections, of a locking device carried by one of said sections which automatically engages another of said sections when the latter is extended, to firmly lock the sections together, and means on the bed-plate in the path of said locking device for releasing the locking engagement of the sections when the extended section is being retracted, and means for throwing said locking device into locking engagement with said bed-plate, as and for the purpose set forth.

13. In an extension-bed for cameras, the combination with a bed-plate, a plurality of extension-sections carried thereby, and means for adjusting said sections, of a locking-plate carried by one of said sections, means carried by the other of said sections with which the locking-plate engages automatically when the latter is extended, means carried by the bed-plate for engaging said locking-plate, a shifter arranged in the path of said plate which operates to release the engagement of the locking-

plate with the extended section, and means for moving said locking-plate into engagement with the bed-plate during the retraction of said extended plate, substantially as described.

14. In an extension-bed for cameras, the combination with a bed-plate, a plurality of extension-sections carried thereby, and means for adjusting said sections, of a locking-plate carried by one of said sections, means for engaging the locking-plate carried by the other of said sections and other means for engaging said locking-plate carried by the bed-plate, a lock-shifter carried by the bed-plate and arranged in the path of the locking-plate for disengaging the locking-plate from the extended section when the extended section is retracted, means for moving said locking-plate into engagement with the bed-plate during the retraction of the extended section, and means for disengaging the locking-plate from said bed-plate and moving it into engagement with said other section when the latter has reached the limit of its extension, as and for the purpose set forth.

15. In an extension-bed for cameras, the combination with a bed-plate, of a plurality of extension-sections carried thereby and provided with racks, a single pinion engaging said racks for adjustment of both of said sections, a locking-plate carried by one of said sections and adapted to automatically engage the other thereof when extended, a lock-shifter adapted to release the engagement of said plate from the extended section, and means for forcing said locking-plate into engagement with the bed-plate when said extended section is being retracted, substantially as described.

682,082. **FIRE-ESCAPE.** CHARLES A. IVES, New York, N. Y. Filed Nov. 10, 1900. Serial No. 36,009. (No model.)

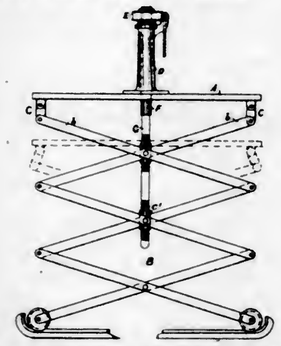


Claim.—1. In a fire-escape, a friction device, comprising a back plate having its ends enlarged and provided with an eye at one end, and with a lateral flange, said flange being approximately of the contour of the back plate and having an arched top, at the center of which is a guide-loop, inwardly-curved surfaces at about the middle of the sides, and openings at the upper and lower ends of each of the said curved surfaces, substantially as described.

2. A fire-escape, comprising a friction device formed of a back plate having its ends enlarged and provided with an eye at one end, and with a lateral flange, said flange being approximately of the contour of the back plate and having an arched top, at the center of which is a guide-loop, inwardly-curved surfaces at about the middle of the sides, and openings at the upper and lower ends of each of the said curved surfaces, a cable or rope passed over the top of the flange, and through the openings therein, and a suspension device attached to opposite ends of the runs of the cable or rope, substantially as described.

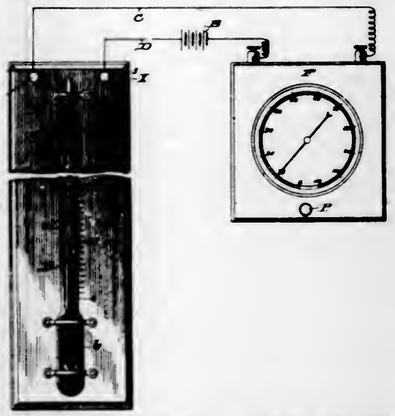
682,083. **MEANS FOR ELEVATING PLATFORMS.** HENRY R. JAMES, London, England. Filed June 10, 1901. Serial No. 63,906. (No model.)

Claim.—1. In combination with the platform, the lazy-tongs B, B', the swinging links connecting the lazy-tongs and the platform, rigid cross-bars connecting the lazy-tongs together, right and left hand threaded nuts carried by said cross-bars, a central vertical shaft having right and left hand threads and engaging the correspondingly-threaded nuts, a worm-wheel with means for operating the same, said vertical shaft having a connection with the worm-wheel whereby said shaft is rotated and is permitted vertical movement, substantially as described.



2. In combination with the platform, the lazy-tongs B, B', the swinging links connecting the lazy-tongs and the platform, rigid cross-bars connecting the lazy-tongs together, right and left hand threaded nuts carried by said cross-bars, a central vertical shaft having right and left hand threads and engaging the correspondingly-threaded nuts, a worm-wheel with means for operating the same, said vertical shaft having a connection with the worm-wheel whereby said shaft is rotated and is permitted vertical movement, said connection comprising a sleeve integrally connected with the worm-wheel and having a sliding connection with the shaft, substantially as described.

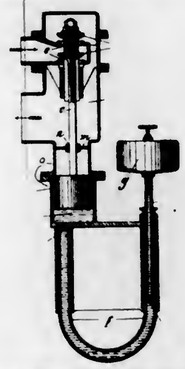
682,084. **ELECTRIC TEMPERATURE-INDICATOR.** FRANK L. JOHNS, Richmond, Va. Filed Aug. 15, 1900. Serial No. 26,963. (No model.)



Claim.—1. In an electric temperature-indicator, the combination of a face-plate having along its side edges two rearwardly-projecting strips or flanges, a glass mercury-tube arranged in the face-plate and having terminal wire contacts fused therein along the line of the mercury column and in exposed relation thereto, two series of resistances connected to said terminal contacts, said resistances being composed of transverse wire bobbins wound upon pairs of pins projecting rearwardly from the face-plate, said resistances and their connections being housed and protected within the inclosure of the side strips or flanges substantially as and for the purpose described.

2. An electric temperature-indicator, consisting of a face-plate having along its side edges two rearwardly-projecting strips or flanges, a glass mercury-tube arranged in the face-plate and having terminal wire contacts fused therein along the line of the mercury column and in exposed relation thereto, two series of resistances connected to said terminal contacts, said resistances being composed of transverse wire bobbins wound upon pairs of pins projecting rearwardly from the face-plate within the inclosure of the side strips or flanges of the frame, a binding-post connected to the mercury-bulb, and another binding-post connected to the two series of resistances, and a battery, current-indicator, and electric circuit connecting the same to the binding-posts substantially as and for the purpose described.

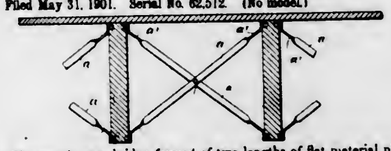
682,085. **PRESSURE-REDUCING APPARATUS.** FRITZ KAEPERLE, Hanover, Germany. Filed May 10, 1901. Serial No. 59,713. (No model.)



Claim.—1. In a pressure-reducing apparatus having a double-beat valve and a float connected therewith which float is movable in a float vessel, the combination of a siphon connected with an adjustable vessel, the said siphon having constrictions at one or more points for the purpose of checking the motion of the liquid in the siphon on the occurrence of sudden fluctuations of pressure substantially as described.

2. In a pressure-reducing apparatus having a double-beat valve and a float connected therewith which float is movable in a float vessel, the combination of a siphon connected with an adjustable vessel, the said siphon having constrictions at one or more points, and a fixed partition in the float vessel, said partition being provided with an opening for the passage of the valve-rod for the purpose of preventing overflow of liquid from said float vessel into the pipes beyond the apparatus substantially as described.

682,086. **CROSS-BRIDGE.** THOMAS F. KEARNEY, New York, N. Y. Filed May 31, 1901. Serial No. 62,512. (No model.)

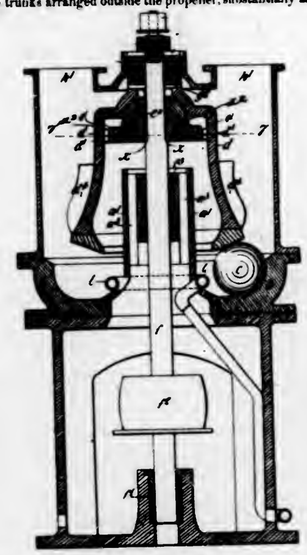


Claim.—A cross-bridge formed of two lengths of flat material pivoted together at their middles, and a spacer arranged between said lengths of material at the pivot to separate them from each other and said lengths of material being bowed outward oppositely from each other at their middles, their end portions being given a quarter-turn and bent laterally in the plane of the cross-bridge, said end portions lying directly opposite each other.

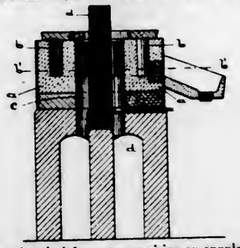
682,087. **CRUSHING OR PULVERIZING APPARATUS.** WALTER KITTO, Hammersmith, England. Filed Dec. 29, 1897. Serial No. 664,334. (No model.)

Claim.—1. In a ball crushing-mill, the combination of a vertical driving-spindle, a bell-shaped ball-propeller driven by the spindle and provided on its outer surface with vertical, radiating wings, a ball-raceway containing a ball, a tubular neck rising centrally from the ball-raceway into the bell-shaped propeller, open to the atmosphere at its lower end and through which and the propeller an air-current is created by said radiating wings, ascending air-escape trunks arranged outside the propeller, and an air-supply pipe constructed to direct air onto the ball-raceway, substantially as described.

2. In a ball crushing-mill, the combination of a vertical driving-spindle, a bell-shaped propeller driven by the spindle and having radiating wings mounted on its exterior, a ball-raceway containing a ball, a tubular neck rising from the center of the ball-raceway, having an open top, open at its lower end to the atmosphere and through which and the propeller an air-current is created by said radiating wings, and ascending air-escape trunks arranged outside the propeller, substantially as described.

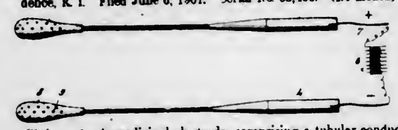


682,088. **ELECTRIC FURNACE.** FREDRIK A. KJELLIN, Gysinge, Sweden. Filed Mar. 13, 1901. Serial No. 50,976. (No model.)



Claim.—An electrical furnace comprising an annular furnace-chamber, a core *d* of magnetic material arranged centrally thereof and an induction-coil arranged around said core and within the annular furnace-chamber and connected to an alternating-current generator for the purpose of by said coil to induce currents in the charge of the annular chamber, sufficient for the smelting of charge therein.

682,089. **MEDICINAL ELECTRODE.** ORVILLE L. LEACH, Providence, R. I. Filed June 6, 1901. Serial No. 63,408. (No model.)



Claim.—1. A medicinal electrode, comprising a tubular conductor, having a gradually-enlarged end, a tube of insulating material extending from said enlarged end, a sponge material arranged in said insulating-tube, a hollow handle on the other end of said conducting-tube having perforations, and a sponge material in said handle, substantially as specified.

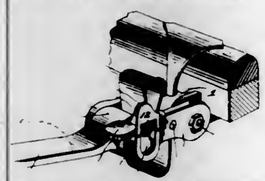
2. A medicinal electrode, comprising a copper conducting-tube having the major portion of its length of reduced interior diameter and the other portion of its length of funnel shape, a covering of insulating material on said conducting-tube, a tube of insulating material extended from the larger end of the tube, a sponge material in said insulating-tube, a hollow handle on the opposite end of the conducting-tube and having perforations, and a sponge material in said handle, substantially as specified.

682,090. SURGICAL-DRESSING PACKER. JOHN E. LEE, Consnohocken, Pa. Filed Dec. 13, 1900. Serial No. 39,735. (No model.)



Claim.—A surgical-dressing packer, comprising a tube having an annular indentation in the body of the tube, in combination with a feeding-plunger, as and for the purpose described.

682,091. THILL-COUPLING. GEORGE W. LESTER, Chicago, Ill. Filed Apr. 4, 1901. Serial No. 54,324. (No model.)



Claim.—The combination of a coupling-head provided with a fixed and a hinged ear, the fixed ear being provided with a pivot-pin and the hinged ear being provided with a latch to engage with the pivot-pin, and the laterally-projecting pin, and a spring having one end secured to said coupling-head and the other end bent upwardly in bow form and confined between the two pins, substantially as set forth.

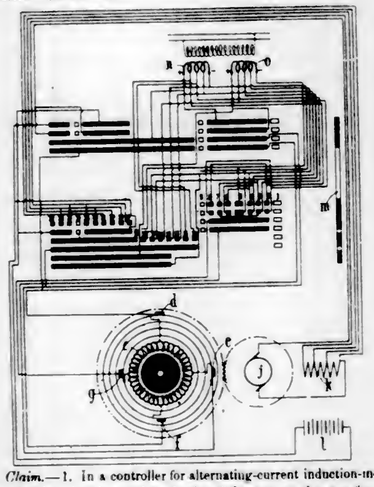
682,092. CHAIN. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed Nov. 19, 1898. Serial No. 696,933. (No model.)



Claim.—1. In a chain, the combination of side bars which overlap at the joints and are formed with interlocking projections and recesses, the outer side bars beyond the said interlocking parts being formed with shouldered perforations, cross-bolts which pass through and unite the side bars at the joints of the chain, and are provided with shoulders with which the shoulders surrounding the said apertures in the outer side bars engage and by which the said side bars are spaced apart, and the cross-bolts being also provided with screw-threaded end portions which extend beyond the shoulders thereof, nuts engaging with the screw-threaded portions of the cross-bolts for clamping the outer side bars against the shoulders of the bolts, and wearing barrels or thimbles surrounding the cross-bolts and arranged between the inner side bars, substantially as set forth.

2. A chain comprising side bars which overlap one another at the joints of the chain, cross connecting bolts or bars for uniting the opposite side bars of the chain at the joints thereof, each bolt being provided near its ends with a shoulder and with a screw-threaded portion beyond the shoulder, and the side bars being provided with apertures for the passage of the cross connecting-bolts, the apertures in the outer bars being recessed, whereby there are formed shoulders adapted to fit against the shoulders of the connecting-bolts, and nuts which fit the screw-threaded ends of the connecting-bolts and are arranged to clamp the outer side bars tightly against the shoulders of the bolts, substantially as set forth.

682,093. CONTROL OF ALTERNATING-CURRENT MOTORS. RENÉ D. DE LIGNIÈRES, Paris, France. Filed Mar. 22, 1901. Serial No. 52,433. (No model.)



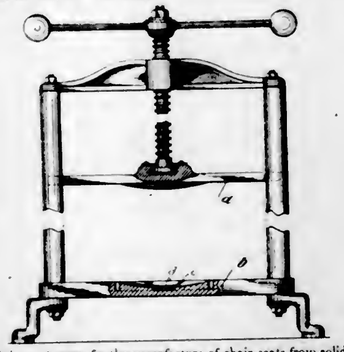
Claim.—1. In a controller for alternating-current induction-motors, means for changing the number of poles of the motor and means for moving the inducing-field member in one direction or the other.

2. In a controller for alternating-current induction-motors, means for changing the number of poles of the motor, means for moving the inducing-field member in one direction or the other, and means for varying the voltage in the motor by connecting up therewith a greater or less number of convolutions of the secondary coils of a transformer.

3. In a controller for alternating-current induction-motors, means for changing the number of poles of the motor, and an auxiliary motor for moving the inducing-field member in one direction or the other.

4. In a controller for alternating-current induction-motors, means for changing the number of poles of the motor, means for varying the voltage in the motor by connecting up therewith a greater or less number of convolutions of the secondary coils of a transformer, and an auxiliary motor for moving the inducing-field member in one direction or the other.

682,094. APPARATUS FOR MANUFACTURING CHAIR-SEATS. CHRISTIAN LINGENBERG, Hattenheim, Germany. Filed Aug. 22, 1899. Serial No. 728,107. (No model.)



Claim.—A press for the manufacture of chair-seats from solid blocks of wood, softened by steam or the like; constructed with opposed convex and concave surfaces in the bed and platen respectively and with a central depression and radial grooves extending therefrom in one of said opposed surfaces and with circular grooves intersecting said radial grooves; to facilitate the discharge and evaporation of moisture contained between the wood fibers, as herein shown and described.

682,095. ELEVATING-TRUCK. HARRY T. LITER, Blue Springs, Mo. Filed Feb. 6, 1901. Serial No. 46,232. (No model.)

Claim.—1. In an elevating wagon-truck, the combination of a frame having running-gear in connection therewith, a winding-shaft across the front of the frame and having winding pulleys or drums near opposite ends thereof, an elevatable bed mounted in the frame, and opposite ropes or cables connected to the front and rear ends of the bed and passed through the said winding pulleys or drums, the ropes or cables being guided above and below the bed through parts of the frame.



2. In an elevating wagon-truck, the combination of a frame having running-gear in connection therewith and comprising opposite sides composed of tubular lengths arranged in parallel spaced pairs and bent upwardly at the ends, means for transversely connecting the said sides, pulleys or sheaves arranged at intervals in relation to the lengths, a winding-shaft across the front of the frame and having opposite winding pulleys or drums thereon, an elevatable bed mounted in the frame, and opposite ropes or cables connected to the front and rear ends of the bed and engaging the winding pulleys or drums and the pulleys or sheaves arranged in relation to the frame.

3. In an elevating wagon-truck, the combination of a frame having running-gear in connection therewith, an elevatable bed mounted in the frame, opposite side ropes or cables respectively connected at their terminals to the front and rear ends of the bed, and a single transversely-extending winding-shaft on the front of the frame engaged adjacent to its extremities by the said ropes or cables to simultaneously elevate or lower both ends of the bed equally.

4. In an elevating wagon-truck, the combination of a frame having running-gear in connection therewith, an elevatable bed mounted in the frame, opposite side ropes or cables respectively connected at their terminals to the front and rear ends of the bed, a single transversely-extending winding-shaft on the front of the frame, and winding pulleys or drums secured on the shaft adjacent to the extremities of the latter and each having two circumferential grooves and a diagonal opening therethrough, the ropes or cables being passed through the openings of the pulleys or drums.

5. In an elevating wagon-truck, the combination of a frame having running-gear in connection therewith, the said frame comprising opposite sides composed of tubular lengths arranged parallel and spaced apart from each other and provided with upwardly-directed ends, transversely-extending means for connecting the sides of the frame, sheaves or pulleys arranged between the upper and lower portions of the lengths composing the sides of the frame, an elevatable bed mounted in the frame, opposite side ropes or cables respectively connected at their terminals to the front and rear ends of the bed and engaging the said upper and lower sheaves or pulleys, and a single shaft extending transversely across the front of the frame and having winding-drums near the opposite ends between the upwardly-directed ends of the tubular lengths of the sides of the frames to engage the said ropes or cables.

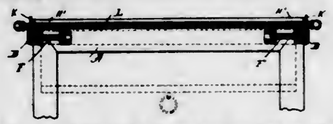
682,096. MUFFLER FOR STEAM OR GAS MOTORS. CARL LÖPER, Lichtenberg, near Berlin, Germany. Filed May 11, 1901. Serial No. 59,804. (No model.)

Claim.—1. In combination with a muffler for steam and gas motors a tube for leading the steam or gas to the muffling device and a nozzle connected with the said tube and having partly a circular and partly a flat cross-section, the flat part of the nozzle being provided with slots.



2. In combination with a muffler for steam and gas motors a tube for leading the steam or gas to the muffling device, a nozzle connected with the said tube and having partly a circular and partly a flat cross-section, the flat part of the nozzle being provided with slots, and a second nozzle of similar construction and inserted between the said tube and the muffler proper.

682,097. CURTAIN-FIXTURE AND POLE-BRACKET. ADOLF S. LUNDBERG, West Everett, Mass. Filed Apr. 18, 1901. Serial No. 56,369. (No model.)



Claim.—The herein-described adjustable curtain-fixture device, consisting in combination of a pair of frames B, B, adjustably secured to the window-casing, each such frame having a tapering recess E, on its under side and a longitudinal slot F, a block G, longitudinally adjustable in said recess and having secured to it a shank H, passing through the said slot F, and having a screw-threaded portion A, and a clamping-nut I, screwed upon the threaded portion of said shank and arranged to draw the block G to its seat in the recess of the frame, said shank having a head H', for supporting the curtain-roller substantially as and for the purpose set forth.

682,098. DENTAL APPLIANCE. WILLIAM T. LYON, Oregon City, Oreg. Filed Apr. 17, 1901. Serial No. 56,279. (No model.)



Claim.—1. A cylindrical mold, a member coöperating therewith adapted to form a slit or groove on the outer vertical face of the completed matrix, a tooth-form-holding pin, and means for supporting the said pin within the mold, said mold including a top portion having a pouring-aperture, as specified.

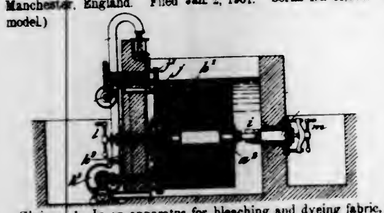
2. A dental appliance of the character described, comprising a tooth-form-holding pin, a mold having an opening at one end to receive the tooth-form-holding pin and provided with a pouring-opening, and an elastic disk held over said opening provided with a central aperture for the passage of the pin, as set forth.

3. A dental appliance, comprising a tooth-form-holding pin, a matrix-forming chamber; a member detachably held therein and adapted to form an external dividing groove or slit in the finished matrix, and a detachable cover having a central aperture for the passage of the tooth-form-holding pin, said cover having a pouring-aperture, as described.

4. A dental appliance for the purposes described, comprising a cup-shaped portion 3, a tubular chamber 2, adapted to fit within the portion 3,

and having a height extending beyond the portion 3, a cylindrical part 1, adapted to oppose the portion 3, and to project over the part 2, said portion 1 having a central aperture, and an internal annular flange 1^a, a disk 6 formed of elastic material, said disk having a flange portion for engaging the flange 1^a, of the part 1, and provided with a central aperture, a tooth-form-holding pin, adapted to project through the said central aperture, and a groove-forming member 5, adapted to be supported within the part 2, all being arranged substantially as shown and for the purposes described.

682,099. APPARATUS FOR DYEING, &c. WILLIAM MATHER, Manchester, England. Filed Jan. 2, 1901. Serial No. 41,909. (No model.)



Claim.—1. In an apparatus for bleaching and dyeing fabric, mandrels on which the fabric is rolled and from which it is unrolled, supporting means therefor, trucks for suitably supporting the rolls of fabric, each of which is provided with a circumferentially-toothed front, a keir for receiving the trucks and rolls of fabric, means engaging the toothed front of the trucks for rotating said rolls of fabric within the keir, a tank provided with means for supporting the mandrel carrying the fabric, an end chamber for said tank having a perforated front wall with its periphery toothed, means for retaining the mandrel carrying the fabric within the end chamber, means for rotating said end chamber, causing thereby the rotation of the mandrel retained in the end chamber, and means for circulating liquid through said end chamber and tank.

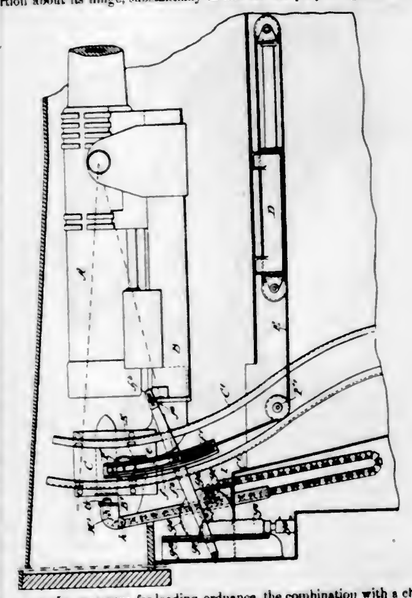
2. Apparatus for bleaching and dyeing fabrics in their full width, comprising mandrels on which the fabric is rolled or from which it is unrolled, frames provided with bearings for the mandrels, trucks having bearings for mandrels and end chambers with perforated fronts adapted to have the rolls of fabrics pressed against them, the said front being circumferentially toothed, a track for the trucks, a keir adapted to receive the trucks, and provided with a tightly-closing door, and with gearing to engage the toothed peripheries of the end chamber of the trucks, a tank made of material not attacked by bleaching or dyeing liquids having bearings for a mandrel and a rotatable end chamber with perforated front and toothed periphery, a gear adapted to engage the said periphery and rotate the chamber, and a rotary pump and pipes for circulation of liquids through the tank and its end chamber.

682,100. MECHANICAL RAMMER. ROBERT MATTHEWS, Manchester, England. Filed Nov. 20, 1900. Serial No. 37,174. (No model.)

Claim.—1. In apparatus for loading ordnance, the combination with a chain-rammer carried by the gun-mounting, of a motor which is fixed to a part of the mounting that does not participate in the movement of elevation or depression of the gun, of a guide for the chain-rammer which guide is carried by the gun-mounting so as to move therewith, of gearing connecting said chain with a shaft driven by the motor, of a clutch device interposed between said shaft and gearing and normally remaining in an inoperative condition to permit the said chain and guide to freely move with the mounting independently of the said motor, and of means for throwing said clutch device into action when the chain and rammer are to be operated by the motor.

2. In apparatus for loading ordnance, the combination with a chain-rammer carried by the gun-mounting, of a motor which is fixed to a part of the mounting that does not participate in the movement of elevation or depression of the gun, of a guide for the chain-rammer connected with an arm on the gun-mounting, of gearing connecting said chain with a shaft driven by the motor, of a clutch device interposed between said shaft and gearing and normally remaining in an inoperative condition to permit the said chain and guide to freely move with the mounting independently of the said motor, of means for throwing said clutch device into action when the chain and rammer are to be operated by the motor, and of means for enabling the upper portion of said guide to be turned on one side to permit of hand-ramming, substantially as described.

3. In apparatus for loading ordnance, the combination with a chain-rammer carried by the gun-mounting of a motor which is fixed to a part of the mounting that does not participate in the movement of elevation or depression of the gun, of a guide for the chain-rammer connected with an arm on the gun-mounting, of gearing connecting said chain with a shaft driven by the motor, of a clutch device inserted between said shaft and gearing and normally remaining in an inoperative condition to permit the said chain and guide to freely move with the mounting independently of the said motor, of means for throwing said clutch device into action when the chain and rammer are to be operated by the motor, of a laterally-hinged upper portion to said guide, and of means for turning said portion about its hinge, substantially as and for the purpose specified.



4. In apparatus for loading ordnance, the combination with a chain-rammer carried by the gun-mounting, of a motor which is fixed to a part of the mounting that does not participate in the movement of elevation or depression of the gun, of a guide for the chain-rammer connected with an arm on the gun-mounting, of gearing connecting said chain with a shaft driven by the motor, of a clutch device interposed between said shaft and gearing and normally remaining in an inoperative condition to permit the said chain and guide to freely move with the mounting independently of the said motor, and of means for automatically throwing said clutch device into action simultaneously with the admission of the motive power to the motor, substantially as and for the purpose specified.

5. In apparatus for loading ordnance, the combination with a chain-rammer carried by the gun-mounting, of a motor fixed to a part of the mounting that does not participate in the movement of elevation or depression of the gun, of a guide for the chain-rammer pivotally connected with a rearwardly-projecting arm on the gun-mounting, of means for enabling the upper portion of said guide to be turned laterally on one side, of a socket in which the said guide and chain move, of a pinion mounted on a shaft carried by the socket and adapted to be operated by said motor, of a toothed wheel mounted loosely on said shaft and gearing with a toothed pinion mounted on a second shaft carried by the said socket, of a clutch carried by the first-mentioned shaft and normally remaining out of gear with the loose toothed wheel thereon, of means for automatically shifting said clutch into engagement with said loose toothed wheel simultaneously with the admission of motive power to the motor, of a toothed wheel mounted on said second shaft and gearing with the ram-chain, and of antifriction-rollers located between the said ram-chain and the guide and between the guide and the said socket all substantially as and for the purpose specified.

6. In apparatus for loading ordnance, the combination with a chain-rammer carried by the gun-mounting, of a hydraulic cylinder and ram carried by a part of the mounting that does not participate in the movement of elevation or depression of the gun, of a curved guide for the chain-rammer pivotally connected with a rearwardly-projecting arm on the gun-mounting, of means for enabling the upper portion of said guide to be turned laterally on one side, of a socket in which the said guide and chain move, of a toothed rack on the ram of the hydraulic cylinder, of a toothed pinion mounted on a shaft carried by the socket and engaging with said ram, of a toothed wheel mounted loosely on said shaft and gearing with a toothed pinion mounted on a second shaft carried by the said socket, of a clutch carried by the first-mentioned shaft and normally remaining out of gear with the loose toothed wheel thereon, of means for automatically shifting said clutch into engagement with said loose toothed wheel simultaneously with the admission of the motive power to the hydraulic cylinder, of a toothed wheel mounted on said socket-shaft and gearing with the ram-chain, and of antifriction-rollers located between the said ram-chain and the guide and between the guide and the said socket all substantially as and for the purpose specified.

682,101. ARC-LAMP. JOSEPH C. MAYBROPER, New York, N. Y., assignor to John C. Cady, Jr., and Robert B. Ward, same place. Filed July 27, 1898. Renewed Feb. 12, 1901. Serial No. 47,053. (No model.)

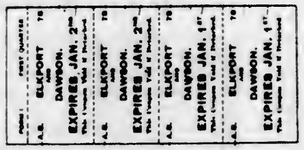


Claim.—1. An arc-lamp, comprising a casing, a solenoid in said casing and through which the main electric current is designed to pass, a tubular core for the solenoid adapted to receive the lower carbon, a block on the upper end of said core, tubes arranged in the casing and having slots, arms extended from the block into said slots, springs in the tubes and engaging with the arms, a ring supported from the casing, and a holder for the upper carbon adjustable in said ring, substantially as specified.

2. An arc-lamp, comprising a casing, a ring supported on said casing, a globe engaged between the ring and the casing, a lower carbon passing through the casing and into the globe, a collar mounted friction-tight on said carbon within the globe and adapted when the carbon is in operative position to prevent the entrance of air to the globe, an upper-carbon holder adjustably connected to the ring, and a solenoid for moving the lower carbon away from the upper carbon, substantially as specified.

682,102. RAILROAD SEASON-TICKET. GEORGE A. MERRILL, South Framingham, Mass. Filed Mar. 6, 1901. Serial No. 50,005. (No model.)

Claim.—1. A railroad season-ticket, consisting of a series of pairs of transportation-coupons, each coupon of said pairs of coupons having a single designatory inscription across the face thereof to indicate the day of its expiration, the single designatory inscription upon each coupon of each pair of coupons corresponding.



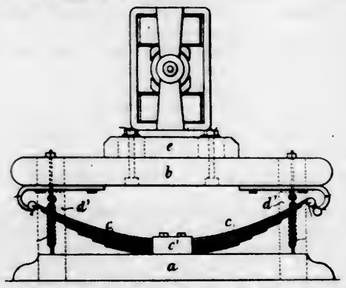
2. A railroad season-ticket, consisting of a series of pairs of transportation-coupons, each coupon of said pairs of coupons having a single designatory inscription across the face thereof to indicate the day of its expiration, the single designatory inscription upon each coupon of each pair of coupons corresponding and the said coupons of each pair of coupons being correspondingly numbered.

3. A railroad season-ticket, consisting of a series of pairs of transportation-coupons, each coupon of said pairs of coupons having a single designatory inscription across the face thereof to indicate the day of its expiration, the single designatory inscription upon each coupon of each pair of coupons corresponding, said coupons of each pair of coupons being correspondingly numbered and said coupons of each pair of coupons further provided with a corresponding inscription across the face thereof to indicate the stations or terminals between which the coupons of each pair of coupons are used.

682,103. PROCESS OF MAKING SUBSTITUTES FOR MOTHERS' MILK. JOHN MEYENBERG, Kent, Wash. Filed July 20, 1900. Renewed Feb. 14, 1901. Serial No. 47,352. (No specimens.)

Claim.—The process herein described of producing a substitute for mother's milk, which consists, first, in aerating fresh cow's milk, second, filtering the same, third, removing the cream from a portion of the milk, fourth, decaseinizing the so-obtained skimmed milk, fifth, filtering the whey thus obtained, sixth, mixing with the whey the separated cream, remaining portion of the milk and a small quantity of sugar, seventh, filtering and simultaneously heating the milk under exclusion of air, and lastly, concentrating the milk *in vacuo*, substantially as set forth.

682,104. BASE-FRAME FOR ABSORBING VIBRATION OR TREMOR. GEORGE MIDDLETON, London, England. Filed May 13, 1901. Serial No. 60,069. (No model.)



Claim.—1. A base-frame for absorbing vibration or tremor, consisting of superposed frames fitted with intermediate springs and safety-blocks, substantially as and for the purpose set forth.

2. A base-frame for absorbing vibration or tremor, consisting of superposed frames fitted with intermediate springs, and a base to which the motor or machinery is attached, substantially as set forth.

3. In a base-frame, the combination, with superposed frames, of springs arranged between said frames, and fitted with shackle or equivalent ends to permit of the "draw" of the springs, substantially as set forth.

4. In a base-frame the combination with superposed frames, of semi-elliptic springs arranged between said frames, one end of each spring being pivotally fixed and the other end shackled or linked, substantially as set forth.

5. In a base-frame, the combination, with superposed frames fitted with intermediate springs, of the means described for preventing excessive oscillation or inclination of the supported frame, substantially as set forth.

6. In a base-frame, the combination with superposed frames, of springs suitably connected thereto to form a floating support, and safety-blocks for the said floating support.

7. In a base-frame, the combination, with superposed frames, of springs of the carriage or laminated type arranged between said frames, and means for pivoting and shackling the ends of the said springs substantially as set forth.

8. In combination, superposed frames, springs connected to the lower of said frames, means for pivotally connecting one end of said springs to the upper of said frames, means for shackling the opposite end of said springs to the upper of said frames, and an adjustable base mounted upon said upper frames.

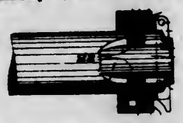
9. In combination, superposed frames, springs connected to the lower of said frames, means for pivotally connecting one end of the said springs to the upper of said frames, means for shackling the opposite end of said springs to the upper of said frames, auxiliary springs interposed between the said frames, and an adjustable base mounted upon the upper of said frames.

10. In combination, superposed frames, springs interposed between the said frames, means for pivoting one end of the said springs to the upper of said frames, means for shackling the opposite end of said springs to the upper of said frames, auxiliary springs interposed between the said frames, safety-clocks interposed between the said frames, and a base mounted upon the upper of said frames.

11. In combination, superposed frames, springs interposed between the said frames, means for pivoting one end of the said springs to the upper of said frames, means for shackling the opposite end of said springs to the upper of said frames, auxiliary springs interposed between the said frames, safety-blocks interposed between the said frames, a base mounted upon the upper of said frames, and means to permit of the adjusting of said base.

12. In combination, superposed frames, springs interposed between the said frames and suitably connected to the upper of said frames, safety devices interposed between the said frames, and an adjustable base mounted upon the upper of said frames.

682,105. **HUB-ATTACHING DEVICE.** CONRAD MILLER, Leadville, Colo. Filed May 15, 1900. Serial No. 16,778. (No model.)



Claim.—1. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, means for retaining the lugs interlocked, and means carried by the locking-ring and adapted to engage an axle for locking the rings thereon.

2. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, means for retaining the lugs interlocked, and a latch carried by the locking-ring and adapted to engage an axle for locking the rings thereon.

3. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, a pin carried by the locking-ring and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and means for locking the rings in engagement with an axle.

4. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring fitting therein and provided with outwardly-extending lugs, the lugs of said rings being adapted to interlock for securing the rings together, a pin carried by the locking-ring and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and a latch for locking the rings in engagement with an axle.

5. A device of the class described, comprising a bearing-ring provided at one of its faces with an annular flange, means carried by said flange for engaging an axle to prevent rotation of said ring thereon, inwardly-extending diametrically opposite lugs also carried by said ring, a locking-ring, outwardly-extending diametrically opposite lugs carried by said locking-ring and adapted to interlock with the inwardly-extending lugs of the bearing-ring, whereby said rings are secured together, the lugs of said rings lying in different vertical planes and means for locking said rings in engagement with an axle.

6. A device of the class described, comprising a bearing-ring provided at one of its faces with an annular flange, means carried by said flange for engaging an axle to prevent rotation of said ring thereon, inwardly-extending diametrically opposite lugs also carried by said ring, a locking-ring, outwardly-extending diametrically opposite lugs carried by said locking-ring and adapted to interlock with the inwardly-extending lugs of the bearing-ring, whereby said rings are secured together, the lugs of said rings lying in different vertical planes and a latch for locking said rings in engagement with an axle.

7. The combination with an axle provided with oppositely-arranged lugs and an annular groove, said axle being also provided with a transversely-extending groove, of a hub-attaching device provided with inwardly-extending lugs adapted to fit in said groove and interlock with the lugs of the axle, a latch adapted to enter the transversely-extending groove of the axle for locking the device in engagement with the latter, and a spring carried by said latch for locking the latch in said groove.

8. The combination with an axle provided with oppositely-arranged lugs and an annular groove, said axle being also provided with a transversely-extending groove, of a hub-attaching device comprising a bearing-ring, and a locking-ring, said locking-ring being provided with inwardly-extending lugs adapted to fit in said annular groove and interlock with the lugs of the axle, a latch carried by the locking-ring and adapted to enter the transversely-extending groove of the axle for locking the device in engagement with the latter, and a spring carried by said latch for locking the latch in said groove.

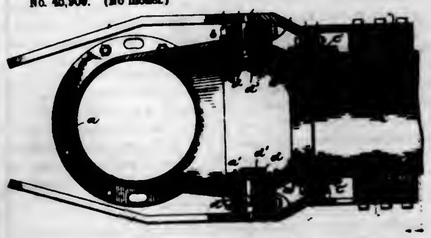
9. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, and a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation.

10. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation, and means carried by said rings and adapted to engage an axle for locking the device thereon.

11. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation, and a latch carried by said rings and adapted to engage an axle for locking the device thereon.

12. A device of the class described, comprising a bearing-ring provided with inwardly-extending lugs, a locking-ring comprising a hub having an annular flange and provided with outwardly-extending lugs, the lugs of said rings lying in different vertical planes, whereby the same are adapted to interlock for securing the rings together, a pin carried by said flange and adapted to contact with the lugs of the bearing-ring, whereby the locking-ring is limited in its movement upon the bearing-ring, and the lugs of said rings retained in interlocked relation, and a latch pivoted to the locking-ring and adapted to engage an axle for locking the device thereon.

682,106. **WATER STAND-PIPE.** MOSES M. MOORE, Chicago, Ill., assignor to Theodore W. Snow, same place. Filed Feb. 4, 1901. Serial No. 45,909. (No model.)



Claim.—1. In a stand-pipe having a vertical column and a swinging column supported thereon, a joint between said columns comprising

spherical sections fitted together, adjustably-fixed trunnions carried by said vertical column, and bearings for said trunnions connected with said swinging column, substantially as described.

2. In a stand-pipe having a vertical column and a swinging column supported thereon, a joint between said columns comprising curved surfaces permitting vertical movement of the swinging column, studs adjustably carried by the vertical column, and bearings for said studs connected with the swinging column, substantially as described.

3. In a stand-pipe having a vertical column and a swinging column, globe-sections connected with the meeting ends of said columns, and lateral trunnions pivotally connected with the globe-section of said swinging column and rigidly and adjustably secured to the globe-section of said vertical column, substantially as described.

4. In a stand-pipe having a vertical column and a swinging column, globe-sections connected with adjacent ends of said columns and forming a joint between the same, lateral trunnions on which said swinging column is pivoted, and means for adjustably connecting said trunnions rigidly with the globe-section of said vertical column, substantially as described.

5. In a stand-pipe having a vertical column and a swinging column supported thereby, globe-sections connected with the meeting ends of said columns, the globe-section of one of said columns being divided and the parts thereof adjustably connected together, removable washers being interposed between said parts, substantially as and for the purpose set forth.

6. In a stand-pipe having a vertical column and a swinging column supported thereon, globe-sections connected with the meeting ends of said columns, trunnions having pivotal connections with one of said globe-sections, the other globe-section being divided and having its parts adjustably connected together, and means for adjustably securing said trunnions to the divided globe-section, substantially as and for the purpose set forth.

7. In a stand-pipe having a vertical column and a swinging column supported thereon, a globe-section connected with said swinging column, a globe-section connected with said vertical column and receiving within it said first-named globe-section, trunnions pivotally connected with the inner globe-section, said outer globe-section being divided and having its parts adjustably connected, and means for adjustably fixing said trunnions to said outer globe-section, substantially as described.

8. In a stand-pipe having a vertical column and a swinging column supported thereon, curved surfaces forming a joint between said columns, lateral trunnions pivotally connected with the swinging column and adjustably connected with the vertical column, and counterweight-arms rigidly secured at one end to the swinging column and pivoted on the outer ends of said trunnions, substantially as and for the purpose set forth.

9. In a stand-pipe having a vertical column and a swinging column supported thereon, globe-sections connected with the meeting ends of said columns, the outer globe-section having two adjustably-connected parts, lateral trunnions pivotally connected with the inner globe-section, and means for adjustably connecting said trunnions to the two portions of the outer globe-section, substantially as described.

10. In a stand-pipe, a vertical column provided with a guide located beneath and rigidly connected with its base, a cylindrical valve fitting in said guide and seating against the base of the pipe, and operating means connected with said valve, substantially as described.

11. In a stand-pipe having a vertical column provided at its base with a valve-seat, downwardly-projecting studs connected with the base of said vertical column, a guide rigidly connected with said column through the medium of said studs and having a closed lower end, a cylindrical valve connected with said guide and seating upwardly, and actuating means for said valve, substantially as described.

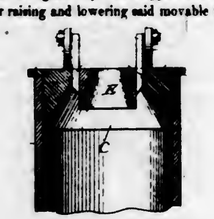
12. In a stand-pipe having a vertical column and a valve at the base thereof, actuating means for said valve and retarding means for said valve connected with said actuating means and comprising a cylinder communicating with said column above said valve, and a plunger within said cylinder and connected with the valve-actuating means, substantially as described.

13. In a stand-pipe having a vertical column and a valve at the base thereof, actuating means for said valve and retarding means for said valve connected with said actuating means and comprising a cylinder communicating with said vertical column above said valve and having an external discharge-orifice, a valve at said discharge-orifice, a piston in said cylinder having lost-motion connection with said piston, and a stem connected with said piston and with the valve-actuating means, substantially as described.

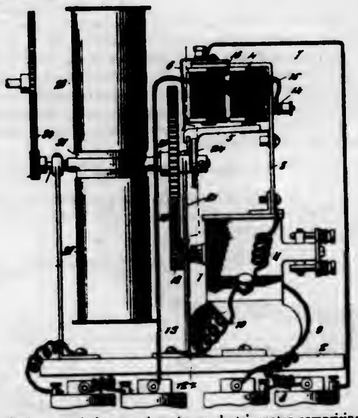
682,107. **EXHAUST-NOZZLE FOR ENGINES.** WESLEY W. MORROW, Springfield, Ill., assignor of one-half to William R. Killen, Jacksonville, Ill. Filed Mar. 20, 1901. Serial No. 52,056. (No model.)

Claim.—1. An exhaust-nozzle provided with a stationary tip having guideways, and a movable tip therein provided with arms adapted to slide in said guideways and support and guide the movable tip, and means for engaging said arms to operate said tip, substantially as described.

2. An exhaust-nozzle provided with a stationary tip having an interior wall inclined inward toward the top, and guideways, a movable tip therein having an interior wall inclined inward toward the top, and arms adapted to slide in said guideways and support and guide the movable tip, and means for raising and lowering said movable tip, substantially as described.



682,108. **TIME-REGULATOR FOR ELECTRIC MOTORS.** MAX M. MOVSHOVITCH, New York, N. Y. Filed Mar. 19, 1901. Serial No. 51,863. (No model.)



Claim.—1. A time-regulator for an electric motor, comprising a shaft having gear connection with the motor, a cylinder mounted on said shaft but insulated therefrom, said cylinder consisting of two compartments communicating one with the other, a liquid in the cylinder, and floats in the compartments for closing the electric circuit, substantially as specified.

2. A time-regulator for electric motors, comprising a two-section shaft having gear connection with the armature of the motor, a cylinder consisting of two compartments mounted on said shaft-sections but insulated therefrom, a liquid in the cylinder, floats arranged in the compartments and adapted to close an electric circuit through the shaft-sections, and an electromagnet operated by the closing of the circuit to close the circuit through the motor, substantially as specified.

3. A time-regulator for electric motors, comprising a two-section shaft, gear connections between said shaft and the motor-armature, a two-compartment cylinder mounted on said shaft-sections, a liquid in said cylinder, floats in said compartments for closing the circuit through the shaft-sections, an electromagnet controlled by said floats, and an armature for said electromagnet for closing the circuit through the motor, substantially as specified.

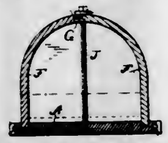
4. A time-regulator for electric motors, comprising a two-section shaft, a gear connection between said shaft and the motor-armature, a liquid-containing cylinder mounted on said shaft, circuit-closing floats in said cylinder, an electromagnet, an armature for said magnet, a stop-wheel on the shaft with which said armature is adapted to engage, and a contact adapted to be engaged by the armature for closing the circuit through the motor, substantially as specified.

5. A circuit-closing device for an electric motor, comprising a cylinder mounted on a shaft, said shaft having gear connection with the motor, the said cylinder comprising two sections communicating one with the other, a liquid in said cylinder, and float devices in the sections or compartments of the cylinder for closing the circuit, substantially as specified.

682,109. **GRAVE-VAULT.** GEORGE W. MURRAY, Skidmore, Mo. Filed May 10, 1901. Serial No. 59,556. (No model.)

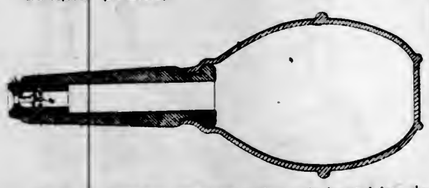
Claim.—1. A grave-vault comprising a series of transverse horizon-

tal base members disposed side by side and forming a base portion in each side of which is a longitudinal groove, a rod located in each of said grooves, a plate at each end of the base portion mounted on the two rods and provided with means for being secured thereon, two series of side members resting at their lower ends upon the base portion and having their upper ends curving inwardly to meet the side members of the opposite series, the side members having their sides overlapping the adjacent side members, means for securing the side members to the base portion, and two end members disposed one at each end of the two series of side members and resting on the base portion, substantially as described.



2. A grave-vault comprising a series of transverse horizontal members disposed side by side and forming a base portion in each side of which is a longitudinal groove, a rod located in each of said grooves, a plate at each end of the base portion mounted on the two rods and provided with means for securing thereto, two series of side members resting at their lower ends upon the base portion and having their upper ends curving inwardly and abutting the side members of the opposite series, rods extending from the side members to the base portion and secured to the base portion and the side members, and two end members disposed one at each end of the two series of side members and resting on the base portion, substantially as described.

682,110. SYRINGE. JAMES MURRAY, New Haven, Conn., assignor to the Seamless Rubber Co., same place. Filed May 15, 1901. Serial No. 60,231. (No model.)



Claim.—1. A syringe comprising a pipe, a tip inserted into the outer end thereof, the sides of the tip being smaller than the diameter of the pipe so as to provide a passage between the outer end of the pipe and the said tip, said tip formed with transverse openings into said passage and also formed with a central opening extending longitudinally through the tip so to leave it open at both ends, and a valve within said opening and adapted to close the same, substantially as described.

2. A syringe comprising a pipe having internal threads below its outer end, the said outer end outwardly beveled, a tip formed with threads at its lower end for engagement with the threads in the pipe, said tip extending beyond the ends of the pipe and over the beveled edges thereof so as to leave an annular passage between the tip and pipe, transverse openings in the tip opening into said annular passage, a longitudinal opening extending through the tip, and a valve within the tip, the stem of the valve extending through said central opening, and a transverse pin for supporting the valve within the tip, substantially as described.

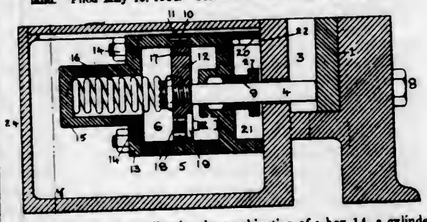
682,111. COLLAR. FANNIE E. MCCATHIE, Port Jervis, N. Y. Filed May 24, 1901. Serial No. 61,747. (No model.)



Claim.—1. A closed-front collar, comprising an inner section and an outer section secured together at their edges, the said inner section having an opening at the front and extending widthwise of the collar forming two pockets, a stiffener adapted to be placed in the pockets and serving to stiffen the collar from edge to edge, and fastening means on the inner face of the collar at the front and end, substantially as specified.

2. A collar, comprising inner and outer sections, secured together at the edges, the inner section having an opening at the front, whereby openings for opposite pockets are formed, a stiffener of celluloid adapted to be placed in the pockets, the said stiffener having perforations, a loop secured to the lower portion of the front of the collar, and another loop at the center of the end of the collar, substantially as specified.

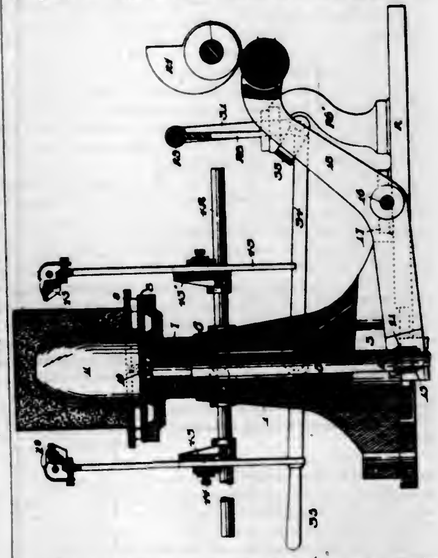
682,112. RAIL-POINT. WILLIAM A. MCKNIGHT, Liverpool, England. Filed May 13, 1901. Serial No. 60,080. (No model.)



Claim.—1. In a rail-point the combination of a box 14, a cylinder within said box having lugs 7, bolts 8 adapted to hold said cylinder in position, a piston 12 having valve 19 and vent 17, a piston-rod whose outer end is in direct contact with the tongue 1, and a spring 16 within said cylinder and in direct contact with said piston, substantially as set forth and for the purposes specified.

2. In a rail-point in combination with a cylinder adapted to contain oil, a piston adapted to reciprocate in said cylinder, and means for connecting said piston with the movable tongue of the point, of a screw-plug 10 and a protecting-cap 11, substantially as described and for the purposes set forth.

682,113. APPARATUS FOR FORMING SAND MOLDS. JOHN B. NEESHAM, Pittsburg, Pa., assignor of one-half to James Neesham, Allegheny, Pa. Filed Jan. 21, 1901. Serial No. 44,108. (No model.)



Claim.—1. In a molding-machine, the combination of a jarring-block, a vertical reciprocating plunger or shaft operating therein, said shaft having a reduced portion thereon forming a shoulder, a table carried by the said plunger or shaft above the jarring-block and adapted to engage the upper end of the latter, a stripping-plate carried by the said table, a pattern connected thereto and projecting through the stripping-plate, an L-shaped lifting-arm secured in suitable bearings, brackets made integral with one end of said arm, an apertured nut secured between said brackets, said nut being mounted upon the said reduced portion and engaging the said shoulder thereon, the other end of said lifting-arm being bifurcated,

a follower mounted in said bifurcation, a drive-shaft, and means actuated by the drive-shaft for engagement with the arm to actuate the same and to impart an intermittent motion to the plunger or shaft and table, substantially as described.

2. In a molding-machine, the combination of a jarring-block, a vertical reciprocating plunger or shaft operating therein, said shaft having a reduced portion thereon forming a shoulder, a table carried by the said plunger or shaft above the jarring-block and adapted to engage the upper end of the latter, a stripping-plate carried by the said table, a pattern connected thereto and projecting through the stripping-plate, an L-shaped lifting-arm secured in suitable bearings, brackets made integral with one end of said arm, an apertured nut secured between said brackets, said nut being mounted upon the said reduced portion and engaging the said shoulder thereon, the other end of said lifting-arm being bifurcated, a follower mounted in said bifurcation, a drive-shaft, and a cam on the drive-shaft for engagement with the follower on the said lifting-arm to actuate the same and to impart an intermittent motion to the plunger or shaft and table, substantially as described.

3. In a molding-machine, the combination of a jarring-block, a plunger or shaft arranged to reciprocate vertically therein, a table carried by said shaft above the jarring-block, a pattern connected to said table, a stripping-plate mounted on said table to receive the flask in which the mold is to be formed, a lifting-arm engaging the plunger or shaft, a drive-shaft, means actuated by the said drive-shaft, for giving said arm an intermittent motion, and adjustable means for engagement with the stripping-plate to hold the flask and stripping-plate suspended while the pattern is stripped therefrom and the said stripping-plate is out of engagement with the said table, substantially as described.

4. In a molding-machine, the combination with a jarring-block, a plunger or shaft arranged to operate vertically therein, a table carried by the said shaft above the jarring-block, a pattern connected to said table, a flask mounted on said table, and a lifting-arm engaging said shaft, a drive-shaft, a cam mounted thereon, and adjustable means carried by the jarring-block for engagement with the stripping-plate to hold the flask and stripping-plate suspended while the pattern is stripped from the flask, substantially as described.

5. In combination, a jarring-block, a shaft arranged to reciprocate therein, a table carried by said shaft, a pattern mounted on the table, a flask carried by the table, an operating-shaft, a lifting-arm for actuating the said first-named shaft, means carried by the operating-shaft for imparting motion to the table and shaft, and adjustable means carried by the jarring-block for engagement with the stripping-plate to hold the flask and stripping-plate suspended while the pattern is stripped from the flask, substantially as described.

6. In a molding-machine, the combination with a jarring-block, a plunger or shaft, a table carried by the plunger or shaft, an L-shaped lifting-arm engaging the shaft for actuating the same, an operating-shaft, means actuated by the operating-shaft for intermittently operating said lifting-arm, and adjustable means for holding the flask out of engagement with the table when the pattern is stripped from the flask, substantially as described.

7. In a device of the character described, a base, a jarring-block mounted thereon, said jarring-block being provided with a central bore, a shaft or plunger mounted therein, a table carried by said shaft or plunger, an L-shaped arm, said arm being secured in suitable bearings, and movably connected to said shaft or plunger, an operating-shaft, a cam carried thereby, said L-shaped arm being bifurcated, a follower mounted in said bifurcation and adapted to be engaged by the said cam, in combination with rods or shafts secured on opposite sides of the said jarring-block, adjustable arms mounted thereon, supports secured to said arms, guide-rods connected to the said table and means for operating the said guide-rods, substantially as described.

8. In a molding-machine, a base, a jarring-block mounted thereon, said jarring-block having a central bore formed therein, a shaft or plunger mounted therein, a table carried thereby, an L-shaped arm, said arm being secured in suitable bearings and movably connected to said shaft or plunger, an operating-shaft, means actuated by said shaft for giving said arm an intermittent motion, in combination with rods or shafts secured on opposite sides of the said jarring-block, adjustable arms mounted on said rods or shafts, supports secured to said arms, guide-rods connected to the said table, and levers connected to said guide-rods, substantially as described.

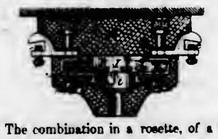
9. In a molding-machine, a base, a jarring-block mounted thereon, said jarring-block being provided with a central bore, a shaft or plunger mounted therein, a table carried by said shaft or plunger, a lifting-arm secured in suitable bearings and connected to said shaft or plunger, an operating-shaft, a cam carried thereby to actuate said lifting-arm, in combination with rods or shafts secured on the said jarring-block, arms mounted on said rods or shafts, supports secured to said arms, guide-rods connected to the said table, and levers connected to said guide-rods, substantially as described.

10. In a device of the character described, the combination of a jarring-block provided with a central bore, a shaft or plunger mounted therein, a table carried thereby, a lifting-arm connected to said shaft or plunger at its lower end, said arm being secured in suitable bearings, an operating-shaft, means for actuating the said shaft by giving the said arm an intermittent motion, rods or shafts carried by said jarring-block on opposite sides, adjustable arms mounted on said rods or shafts, supports secured to said arms, and guide-rods connected to the said table, and levers pivotally secured to the said guide-rods, substantially as described.

11. In a molding-machine, a base, a jarring-block mounted thereon, said jarring-block having a central bore formed therein, a shaft or plunger mounted therein, a table carried thereby, said table being provided with perforated posts, an L-shaped arm, said arm being pivoted on said base and movably connected to said shaft or plunger, an operating-shaft, means actuated by said shaft for giving said arm an intermittent motion, rods or shafts secured on said jarring-block, adjustable arms mounted on said rods or shafts, supports secured to said arms, guide-rods mounted in the said perforated posts, and means for actuating said guide-rods, substantially as described.

12. In a molding-machine, the combination of a jarring-block provided with a central bore, a shaft arranged to reciprocate therein, a table carried by said shaft, a pattern carried by the table, a flask mounted thereon, an L-shaped lifting-arm connected to said shaft, a drive-shaft, means actuated by the drive-shaft for giving said arm an intermittent motion, adjustable means carried by the jarring-block for engagement with the stripping-plate to hold the flask and stripping-plate suspended while the pattern is stripped from the mold, and means carried by the jarring-block for stripping said pattern from the mold, substantially as described.

682,114. ROSETTE. HENRY T. PAIste, Philadelphia, Pa. Filed Oct. 20, 1900. Serial No. 33,736. (No model.)



Claim.—1. The combination in a rosette, of a base, a cap, means for coupling the cap to the base and one or more screws extending through the cap and bearing upon the said coupling means, substantially as described.

2. The combination in a rosette, of a base and a cap, means for removably attaching the cap to the base by a rotary motion of the cap, and means operated from outside of the said rosette and applied to the means for holding the cap to the base, whereby the cap may be rigidly retained on the base after they have been removably connected, substantially as described.

3. The combination in a rosette of the character described, of a base, clips thereon, a cap for said base, hooks on said cap constructed to engage the clips on the base and a device operated from the outside of said rosette for clamping the hooks and clips together, substantially as described.

4. The combination in a rosette, of a cap, hooks thereon, a base, a set of clips on the base, said hooks arranged to engage the clips whereby the cap may be detachably connected to the base, screws for clamping the clips to the hooks whereby the cap may be rigidly connected to the base, substantially as described.

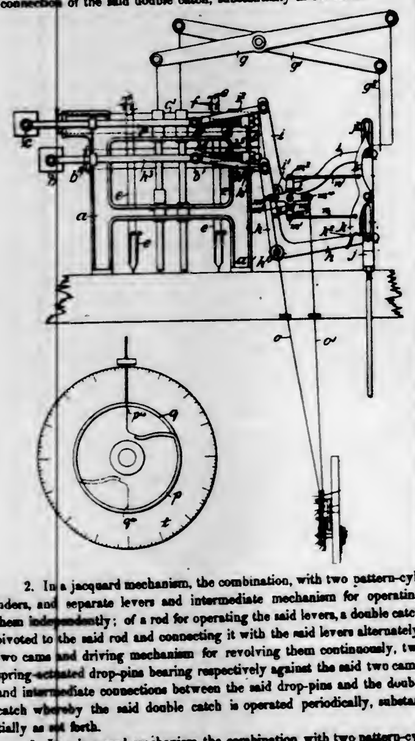
5. The combination in a rosette of the character described, of a base-piece, a clip thereon, a cap, a terminal on said cap constructed to engage the clip on the base-piece, a tubular screw holding the terminal to the cap and a screw fitting the interior of said tubular screw and adapted to clamp the clip on the base to the terminal on the cap, substantially as described.

6. In a rosette of the character described, the combination of a base, electrical terminals on said base, U-shaped clips connected to said terminals, a cap, U-shaped hooks thereon, said hooks being held to the cap by the hollow screws, a second screw passing through each of the hollow screws and constructed to clamp the clips on the base to the hooks on the cap, a third screw on each hook of the cap, electrical terminals also on the cap and screws on said terminals, substantially as described.

7. The combination of a base, a cap constructed to fit on said base, clips on the base, and hooks on the cap engaging the clips whereby the cap is held to the base, a tubular screw having a slotted head and extending from the outside through the cap into each hook, screws extending through the tubular screws and arranged to engage the clips of the base when the cap and the base are put together, substantially as described.

682,115. JACQUARD MECHANISM FOR LOOMS. WALTER PATON, Carlisle, England. Filed Dec. 17, 1900. Serial No. 40,089. (No model.)

Claim.—1. In a jacquard mechanism, the combination, with two pattern-cylinders, and separate levers and intermediate mechanism for operating them independently; of a rod for operating the said levers, a double catch for connecting the said rod with the said levers alternately, and trip mechanism operating automatically at prearranged intervals to reverse the connection of the said double catch, substantially as set forth.



2. In a jacquard mechanism, the combination, with two pattern-cylinders, and separate levers and intermediate mechanism for operating them independently; of a rod for operating the said levers, a double catch pivoted to the said rod and connecting it with the said levers alternately, two cams and driving mechanism for revolving them continuously, two spring-actuated drop-pins bearing respectively against the said two cams, and intermediate connections between the said drop-pins and the double catch whereby the said double catch is operated periodically, substantially as set forth.

3. In a jacquard mechanism, the combination, with two pattern-cylinders, and separate levers and intermediate mechanism for operating them independently; of a rod for operating the said levers, a double catch pivoted to the said rod and connecting it with the said levers alternately, a pivoted four-armed lever, connections between two of the opposite arms of the four-armed lever and the said catch, means for holding the four-armed lever against abnormal movement, and two independent tripping devices operated automatically at prearranged intervals and connected with the remaining arms of the said four-armed lever, substantially as set forth.

682,116. **ELECTRIC-LIGHT ATTACHMENT.** JOSEPH H. RUSBY, Nutley, N. J. Filed Oct. 20, 1900. Serial No. 33,763. (No model.)



Claim.—1. The combination with a pipe-closing cap, of an electric-light attachment comprising sections, the upper section having a seat for said cap, and a passage for a screw or fastening for the cap, said cap having a tapped boss for engaging said screw without allowing the latter to pass through or pierce the cap substantially as described.

2. An electric-light attachment comprising an upper and lower section, the latter being provided with a depression and the former provided with a series of slotted holes for conductors and a centrally-arranged seat and passage, truing-lugs on the said upper section adapted to be seated in the depression of the lower section, a cap mounted in the said seat, and a screw extending through said passage for connecting the cap to the upper section.

3. An electric-light attachment comprising an upper and lower section, said upper section provided with a series of slotted holes for conductors and a centrally-arranged seat, means for separably connecting the sections, a cap adapted to be connected to the seat of the upper section.

682,117. **BOX-FASTENER.** THOMAS R. SAYER, Beloit, Wis. Filed Nov. 10, 1900. Serial No. 36,062. (No model.)



Claim.—1. A box-lid fastener, comprising a longitudinally-slidable and laterally-movable bolt, means for operating the same, and a spring-guard located intermediate of the opposite ends and transversely of the bolt, in frictional engagement therewith, and provided with a bolt-receiving notch located at one limit of the lateral movement thereof.

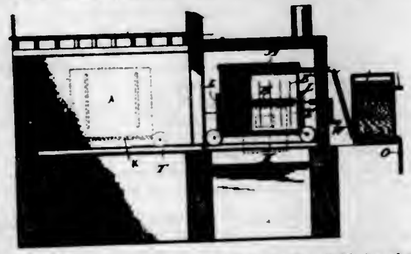
2. The combination with a box-fastener or the like, comprising a tumbler, sliding radial bolts carried by the tumbler and a cap having feet, of an approximately U-shaped guard adapted to engage one of the bolts and hold it in its locked position, a pair of the feet of the cap being fitted against the respective sides of the guard, and the fastenings of the feet also passing through the sides of the guard to mount the latter upon the cover, substantially as shown and described.

3. A box-lid fastener, comprising a longitudinally-slidable and laterally-movable bolt, means for operating the same, and a substantially U-shaped guard, the opposite sides of which form attaching-legs and lie at opposite sides of the bolt, the transverse intermediate portion of the guard being deflected laterally and formed into a spring-tongue which is angularly related with respect to the body of the guard and lies in frictional engagement with the bolt, the tongue having a bolt-receiving notch located at the lateral limit of the bolt when it is locked.

4. A box-lid fastener, comprising a longitudinally-slidable and laterally-movable locking-bolt, an actuating pivotal tumbler connected to the inner end of the bolt, and a bowed spring-guard located in the path of the lateral movement of the bolt, and provided with a notch which is arranged to frictionally embrace the bolt in its locked position.

5. The combination with a box-lid having an opening therein, of a tumbler pivotally mounted upon the inner side of the lid and accessible through the opening therein, a longitudinally-slidable and laterally-movable locking-bolt having its inner end pivotally connected to the tumbler, and a substantially U-shaped spring-guard secured to the inner side of the lid, and having its bowed portion deflected and disposed in the path of the lateral movement of the bolt, the outer edge of the deflected portion having a notch formed therein and frictionally embracing the bolt in its locked position.

682,118. **APPARATUS FOR DESTRUCTIVE DISTILLATION OF GARBAGE.** JOHN W. SEWELL and DANIEL T. SIMES, Covington, Ky., assignors of one-half to Henry F. Bisse and Michael J. Miller, same place. Filed Aug. 24, 1900. Serial No. 27,944. (No model.)

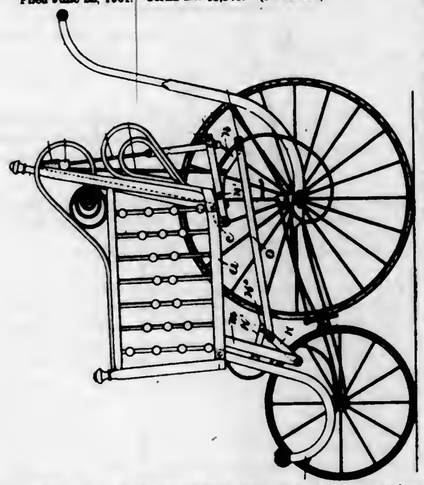


Claim.—1. In an apparatus for the destructive distillation of garbage, the firing-chamber, the truck mounted on tracks therein, the garbage-receptacle mounted on said track, rotary stirrers journaled in the ends of the receptacle, a crank-shaft mounted in the wall of the firing-chamber and having connections with the stirrer-shaft, and the tank of water outside the chamber and having pipe connections with the receptacle, as set forth.

2. In an apparatus for the destructive distillation of garbage, the firing-chamber and furnaces, the garbage-receptacle, the track on which said receptacle is mounted and arranged to tilt, the grate in the lower portion of the receptacle and the drip-pan beneath said grate, and the water-tank outside the firing-chamber, having communication through the wall with the receptacle, and the crank journaled in the wall of the chamber and connected with the stirrer-shaft in the receptacle as set forth.

3. In combination with the receptacle mounted as described, the curved grate in the lower portion of the receptacle, the drip-pan beneath said grate, a pipe outside the receptacle affording communication between the upper end of the latter and the drip-pan, the water-tank outside the firing-chamber, a pipe affording communication between the tank and the receptacle, and the agitator-shaft and crank mounted as described for operating said shaft, as set forth.

682,119. **GO-CART.** OTTO W. SIEBERT, West Gardner, Mass., assignor to Bay State Metal Wheel Company, East Templeton, Mass. Filed June 22, 1901. Serial No. 65,573. (No model.)



Claim.—1. A go-cart comprising a seat; a hinged back, a strut journaled in a bearing on the upper portion of the back, and having notches arranged at different heights, said strut being adapted to assume different positions by partial rotative movements in said bearing, a locking member supported behind the seat and having a strut-receiving slot, said locking member being formed to engage a notched portion of the strut when the latter is in one of said positions, and to permit the endwise movement of the strut in the slot when the strut is in another position, and a spring engaged with the strut and adapted to normally hold it in engagement with said locking member.

2. A go-cart comprising a seat, a hinged back, a spring-controlled strut rotatively connected with the back and provided with notches arranged at different heights, and a locking device formed to engage notched portions of the strut and having a slot in which the strut is movable endwise, said locking device being pivotally connected to a support on the seat, so that it accommodates itself to varying inclinations of the back and strut.

3. A go-cart comprising a seat, a hinged back, a spring-controlled strut rotatively connected with the back and provided with notches arranged at different heights, and a locking device formed to engage notched portions of the strut and having a slot in which the strut is movable endwise, said locking device being pivotally connected to a support on the seat and provided with stops which limit the rotation of the strut by its spring.

4. A go-cart comprising a seat, a hinged back, a bearing attached to the upper portion of the back and having contracted ends and an intermediate enlargement, a strut journaled in said contracted ends and having notches located at different heights, and a collar located in said enlargement, said collar abutting against the reduced ends of the bearing and preventing endwise movement of the strut, a locking device formed to engage notched portions of the strut, and having a slot in which the strut is movable endwise.

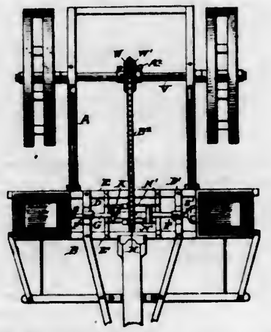
5. A go-cart comprising a seat, a bracket affixed to the seat and extending rearwardly therefrom, a locking member pivoted to said bracket and provided with a strut-receiving slot and with stop-shoulders adjacent to the slot, a hinged back, a strut journaled in a bearing on the upper portion of the back and extending downwardly therefrom through the slot in the locking member, said strut having notches arranged at different heights and formed to engage the locking member, and a spring engaged with the strut and with its bearing and adapted to normally hold the strut in engagement with the locking member.

6. A go-cart comprising a seat, a hinged back, a hinged dasher, a strut engaged with the back, a locking member supported behind the seat, said strut and locking member coöperating in supporting the back in different positions, a bearing or enlargement affixed to and movable with the strut, and dasher elevating and supporting mechanism comprising a collar having a sliding connection with the strut and located below said enlargement, so that it may be depressed by the latter, and connections between said collar and the dasher, whereby the dasher may be raised either by the depression of the back or independently thereof.

7. A go-cart comprising a seat, a hinged back, a back-supporting strut journaled in a bearing on the upper portion of the back and extending downwardly therefrom, means supported by the seat for locking said strut and supporting the back in different positions, a hinged dasher, toggle-links jointed at their outer ends to the dasher and to a bracket affixed to the seat and adapted when straightened to support the dasher in a raised position, and toggle-straightening devices including a collar slidingly connected with the strut below the strut-bearing and connections between said collar and the toggle-links whereby when the back is depressed the strut-bearing or its specified equivalent depresses the collar and causes the latter through said toggle-links and intermediate connections to raise the dasher, the sliding connection between the strut and collar permitting the back to be raised without lowering the seat.

8. A go-cart comprising a seat, a hinged back, a hinged dasher, a rear bracket extending rearwardly from the rear portion of the seat, a front bracket extending downwardly from the front portion of the seat, a spring-controlled strut journaled in a bearing on the upper portion of the back and extending downwardly therefrom, a locking member pivotally connected with the rear bracket and adapted to lock the strut and back in different positions, toggle-links jointed at their outer ends to the dasher and front bracket respectively, a lever pivoted to the rear bracket, a collar fitted to slide on the strut below the strut-bearing, a rod connecting said lever with one of the toggle-links, and another rod connecting the lever with the collar.

682,120. **CORN-PLANTER.** JOHN W. TOBY, Richland county, Ohio. Filed May 21, 1901. Serial No. 61,279. (No model.)

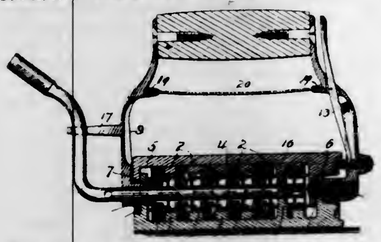


Claim.—1. The combination with the frame and dropper mechanism, the dropping-slides connected together by a connecting-bar a block secured in the center and upon the under side of the said bar, the said block provided upon each side with grooved rollers, said rollers adapted to travel upon suitable trackways in line with the dropping mechanism, a cam mechanism embodying rotating disks, arms secured thereto and came at right angles to said arms, the dropping-slides cam and mechanism operated from the main axle by suitable sprocket-wheels and chain, substantially as set forth.

2. The combination with a main frame, axle, and supplemental frame for the dropping mechanism, brackets secured upon the supplemental frame between the dropping mechanisms, the said brackets supporting a shaft, the said shaft provided with flanged collars cam-levers secured to the flanged collars wedge-shaped cams secured upon the end of said levers, a sprocket-wheel secured upon the shaft centrally between the flanged collars, the slides in the dropping mechanism connected together by a suitable connecting-bar, a block secured in the center and upon the under side of the connecting-bar, cam contact-rollers journaled upon the top of the connecting-bar and block the block provided with a roller upon the

under side of the same, and adapted to travel upon a suitable trackway secured in the supplemental frame between the dropping mechanism, the said mechanism operated by the rotation of the axle through sprocket-wheels and chain, the sprocket-wheel secured upon the axle adapted to be engaged and disengaged at the will of the operator, substantially as set forth.

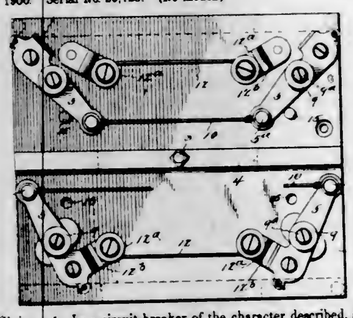
682,121. SAD-IRON. EDWARD K. TOLMAN, Worcester, Mass., assignor, by mesne assignments, to Charles S. Hall, same place. Filed Feb. 13, 1900. Serial No. 5,064. (No model.)



Claim.—1. In a sad-iron, the combination with a hollow body made in sections having overlapping lips, of two brackets carrying bearings passing through said lips, a handle removably secured between the upper ends of said brackets, a removable pipe passing through one of said bearings and entering between the sections of the iron, a device carried by one of said brackets for holding the pipe normally in position and a latch carried by the other bracket and engaging one section of the iron to normally hold the iron fixed with relation to said brackets.

2. In a sad-iron the combination with a sectional body, each section having lugs or projections on its inner face, and a projecting lip at each end, the lips of the respective sections arranged to overlap, of a handle one arm or bracket of which has a rigid bearing passing through a projecting lip on each section, a removable bearing carried by the other arm or bracket and passing through the other lips, and means for locking the handle against movement.

682,122. FUSE-BOX. ELMER A. WILSON, Niles, Ohio. Filed Sept. 11, 1900. Serial No. 29,725. (No model.)



Claim.—1. In a circuit-breaker of the character described, a series or pair of spring-actuated levers having contact-terminals, a fuse connected to said terminals, in combination with an auxiliary fuse having its contacts facing in the plane of movement which would be described by said levers in event of a short circuit or cutting out of the first-mentioned fuse, substantially as set forth.

2. In a circuit-breaker of the character described, a series or pair of spring-actuated levers having contact-terminals, posts or fulcrums having screw-threaded connection with said levers, and a fuse connected to said terminals, substantially as set forth.

3. In a circuit-breaker of the character described, a series or pair of spring-actuated levers having contact-terminals, a fuse connected to said contact-terminals, posts or fulcrums having screw-threaded connection with said levers, and an auxiliary fuse, with its contacts arranged in the path of the movement of said levers, substantially as set forth.

4. In a circuit-breaker of the character described, a series or pair of spring-actuated levers bearing contact-terminals, a primary fuse connected to said terminals, an auxiliary fuse with its contacts arranged in the path of the movement of said levers, and the pendent lateral contacts applied to said levers and adapted to engage the contacts of said auxiliary fuse, substantially as set forth.

5. In a circuit-breaker of the character described, a series or pair of spring-actuated levers having contact-terminals, a fuse connected to said terminals, pendent lateral contact-points applied to said levers, an auxiliary fuse with its contacts facing in the path of the movement of said levers, and a base having plug-receiving holes or sockets, the plugs adapted to suitably hold said levers preparatory to placing the primary fuse upon said terminals, substantially as described.

6. In a circuit-breaker of the character described, a series or pair of spring-actuated levers having contact-terminals, with a fuse connected thereto, an auxiliary fuse, with contacts adapted to engage contacts of said levers, a base, and a cover having a pendent partition engaging said base and having fuse-receiving lugs arranged upon its top or upper surface, substantially as set forth.

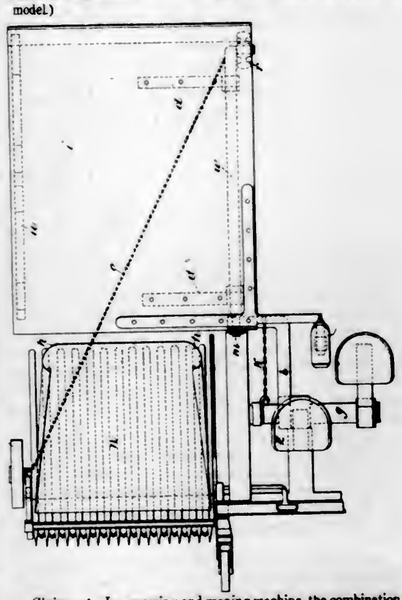
7. In a circuit-breaker of the character described, a series or pair of levers having contact-terminals, screw-threaded fulcra and screw-threaded openings, and springs arranged upon said fulcra and adapted to cause the respective screw-threads of said fulcra and openings, to more closely impinge upon each other, substantially as set forth.

682,123. HAY-FEVER DISK. WILLIAM R. WILSON, Denver, Colo. Filed Aug. 7, 1900. Serial No. 26,189. (No model.)



Claim.—A device of the class described consisting of a flexible exteriorly-concave band having a dust-straining diaphragm applied thereto, the diameter of the band being substantially the same on both edges.

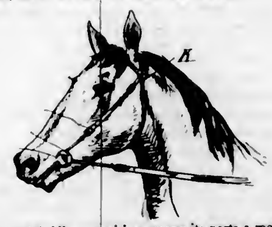
682,124. MOWING OR REAPING MACHINE. CHRISTIAN ANDRESEN, Dollerup, Germany. Filed Jan. 26 1901. Serial No. 44,854. (No model.)



Claim.—1. In a mowing and reaping machine, the combination with the cutting devices and raking-platform, of a fore-and-aft shaft *w*, means for supporting and drawing said shaft at the rear of the machine, a receiving-table laterally hinged on said shaft behind the hand-raking platform, means for supporting the table on the ground, and a treadle or foot lever on said table adapted to almost counterbalance its weight and enable it to be tilted to throw the wheat laterally beyond the wheels, substantially as described.

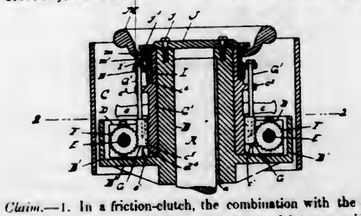
2. In a mowing and reaping machine, the combination with the cutting devices and raking-platform, of a fore-and-aft shaft *w*, means for supporting said shaft on the machine-frame at one end, a wheel *r* for supporting said shaft on the ground at the other end, a receiving-table *i* hinged on said shaft at one side, and having sledge-runners *u* at the other side, means for tilting said table to throw the wheat laterally beyond the wheels of the machine, and chains *o* and *k* adapted to draw and assist in the supporting and steering of the table in a yielding manner, substantially as described.

682,125. BRIDLE. JOHN S. BINKLEY, Atchison, Kans. Filed Aug. 20, 1900. Serial No. 27,456. (No model.)



Claim.—A bridle comprising among its parts a mouthpiece having eyes at its ends, a ring slidingly engaged by said eyes, a slot extending longitudinally of the wall of said ring on one side thereof, an antifriction-roller mounted across said slot, and a cheek-strap extended through said slot under said roller and having its free end attached to the bridle-rein.

682,126. CLUTCH. JOHN CARRUTHERS and EDWIN J. FITHIAN, Grove City, Pa. Filed Dec. 26, 1899. Serial No. 741,533. (No model.)



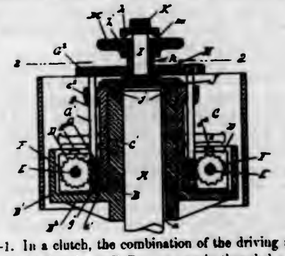
Claim.—1. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members, comprising friction-shoes arranged to be moved into and out of rotative engagement by movement in a radial direction; a screw journaled on the driven member; means actuated by the relative movement of the members, one to the other, for actuating said screw; and means for actuating said screw in a reverse direction while the clutch members are in motion.

2. In a clutch, the combination of the driving member, B; the driven member, C, journaled thereon; the sleeve, I, journaled on the driven member; a nut, H, on the sleeve, I, and means actuated by the nut, H, for locking the driving and driven members together.

3. In a clutch, the combination of the driving member B; the driven member, C, journaled thereon; the screw-sleeve, I, journaled on the driven member; the nut, H, arranged on the screw, I; means actuated by the nut, H, for locking the driving and driven members together; the wheel, M, secured to the sleeve, I, and arranged to have axial movement thereon; the cap, J, and the clutch mechanism between the clutch, J, and the wheel, M.

4. In a clutch, the combination of the driving member B, having the web, B^2 and friction-flange, B′ thereon; the driven member, C, having the hub, C′, journaled on the driving member; the sleeve, I, journaled on the hub, C′; the nut H, arranged on the sleeve, I; rods, G′ and racks, G, secured to said nut; gears, F, arranged to mesh the racks, G; reversely-threaded screws, E, secured to said gears, F; friction-shoes, D, arranged to be actuated by said screws, E; the wheel, M, secured to the sleeve, I, and means for locking and unlocking said wheel, M, with the driving member B.

682,127. CLUTCH. JOHN CARRUTHERS and EDWIN J. FITHIAN, Grove City, Pa. Filed Dec. 26, 1899. Serial No. 741,534. (No model.)



Claim.—1. In a clutch, the combination of the driving and driven members; of the friction-shoes, D D; a reversely-threaded screw operating upon said shoes; a worm-gear secured to said screw; a worm arranged to operate upon said gear; and means actuated by the relative movement of the members one to the other for actuating said worm.

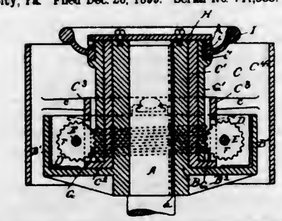
2. In a friction-clutch, the combination of the driving and driven members; a friction device interposed between said members; a gear, H, journaled with the driving member as a center; means for locking said gear with said driving member; the gears, G^2, meshing the gear, H; and a friction device actuated by the gears, G^2.

3. In a friction-clutch, the combination of the driving member, B; the extension, I, thereon; the gear, H, journaled on the extension, I; the wheel, M; the auxiliary clutch for locking the wheel, M, with the extension, I; gear, G^2, arranged to mesh the gear, H; and means actuated by the gear, G^2, for centering the clutch mechanism.

4. In a friction-clutch, the combination of the driving and driven members; the gear, H, journaled with the axis of the driving member as a center; means for locking the said gear, H, with the driving member; the gear, G^2, arranged to mesh the gear, H; the worm, G, actuated by the gear, G^2; the worm-gear, F; the screw, E, actuated by the worm-gear, F; and a friction-shoe, D, actuated by the screw, E.

5. In a clutch, the combination of the driving member B, having the web, B^2, and flange, B′ thereon; the driven member, C, journaled on said driving member; the clutch-shoes, D; the screws, E, operating upon said shoes; worm-gear, F, secured to said screws; worm, G, arranged to operate said gears; rod, G′, extending from the worm, G; gear, G^2, fixed on the rod, G′; the extension, I, secured to the driving member; the gear, H, journaled on the extension, I; and means for locking the gear, H, with the driving member.

682,128. CLUTCH. JOHN CARRUTHERS and EDWIN J. FITHIAN, Grove City, Pa. Filed Dec. 26, 1899. Serial No. 741,535. (No model.)



Claim.—1. In a friction-clutch, the combination with the driving and driven members; of a friction device interposed between said members comprising friction-shoes arranged to be moved into and out of operative engagement, by a movement in a radial direction; a worm arranged to actuate said shoes, said worm being journaled with the axis of the driving member, as a center, and means actuated by the relative movement of the members, one to the other, for actuating said worm.

2. In a friction-clutch, the combination with the driving and driven members; of a friction-shoe; a screw arranged to move said shoe into and out of engagement; a worm-gear secured to said screw; a worm arranged to mesh and actuate said gear, said worm being journaled with the axis of the driving member as a center; means actuated by the relative movement of the members, one to the other, for actuating said worm.

3. In a friction-clutch, the combination of the driving member, B, having a web, B^2 and flange, B′ thereon; the driven member comprising the hub, C′, web, C^2, and flange, C^3; the friction-shoe, D; the screw, E, for actuating said shoe; the gear, F; the worm, G, meshing said gear and journaled on the hub, C′, and means for throwing said worm into and out of engagement with the driving member, B.

682,129. CORK-EXTRACTOR. WILLIAM A. WALSH, Fredericton, Canada, assignor to Fred. F. Dow, John Kilburn, John McConnell, John Palmer, and Albert J. Gregory, same place. Filed Feb. 14, 1901. Serial No. 47,273. (No model.)



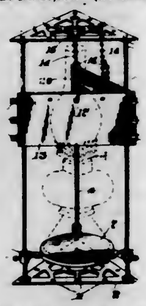
Claim.—1. A cork-extractor comprising a stem having a handle, and a tapered head having side cutting edges and provided with upwardly-extending barbs, the inner edges of the barbs forming cutting edges and the upper ends of the barbs being flat and lying in a common plane at right angles to the stem.

2. A cork-extractor comprising a stem having a handle at one end, a lug spaced downwardly from the handle and extending at right angles

from the stem, and a head at the opposite end of the stem, said head being triangular and having its downwardly-converging side edges sharpened to form cutting edges, said head having upwardly-extending barbs the inner edges of which are beveled to form cutting edges and the upper ends of which are flattened and lie at right angles to the stem.

3. A cork-extractor comprising a stem provided with a handle and with a triangular head disposed with its side edges converging downwardly and sharpened to form cutting edges, said head having wings hinged to the upper edge thereof at both sides of the stem and adapted for movement to lie in the plane of the head or at right angles thereto.

682,130. LAMP-STOVE. HENRY M. CRIDER, York, Pa. Filed Aug. 1, 1900. Serial No. 25,568. (No model.)



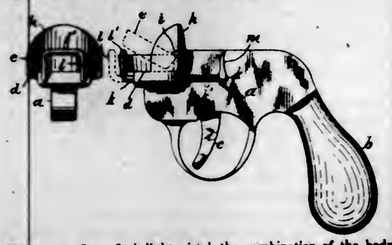
Claim.—1. A stand for a lamp-stove comprising top and bottom pieces of equilateral triangular shape and corresponding size the top piece being provided near its edge with perforations 11, rigid parallel connecting-rods uniting the said top and bottom pieces at their corners, the parts of the stand thus enumerated having fixed relations to each other, an adjustable lamp-platform arranged between the top and bottom pieces and supported upon the connecting-rods along which it is adjustable, and means carried by the platform for securing it in different positions, substantially as set forth.

2. The combination of a stand of a lamp-stove having a top piece, of triangular shape, to permit the convenient assembling of a plurality of stands, said top piece being provided near its edge with perforations, a shade, a chain or similar flexible device attached to the shade and passing through one of the perforations in the top piece of the stand, and a hook at the free end of the said suspending device adapted to engage with the suspending device between the top piece and the shade, substantially as set forth.

3. The combination with a lamp-stove stand of triangular shape in plan, whereby a plurality of strands may be assembled, said stand having open sides, of a plurality of screens or shades arranged to extend over a corresponding number of the open sides of the stand, means for uniting such screens or shades, and means for supporting them, substantially as set forth.

4. The combination of a lamp-stove stand having top and bottom pieces, and rods connecting such pieces at the corners, and a plurality of screens each adapted to extend across an open side of the stand from one rod to another, the screens being provided with tongues and slits through which the tongues may pass, whereby they may be united, substantially as set forth.

682,131. PISTOL FOR FIRING FLASH-LIGHT CARTRIDGES. JAMES E. BLACKBURN, Newark, N. J. Filed Feb. 25, 1899. Renewed Aug. 6, 1901. Serial No. 71,081. (No model.)



Claim.—1. In a flash-light pistol, the combination of the body *a* having handle *b* and trigger *c*, and provided with the seat *d* adapted to support a pan-like cartridge having cap attached to the bottom, with the seat having an aperture, and the body of the pistol having a hammer arranged to operate through such aperture against the cap upon the bottom of the cartridge, and means for holding the bottom of the cartridge pressed down upon such seat to resist the upward blow of the hammer.

2. In a flash-light pistol, the combination, with the supporting-handle, having the seat *d* provided at its rear edge with an upwardly-projecting shield and adapted to support a pan-like cartridge as set forth, of a hammer operating through said seat, a clamping-jaw with spring for pressing it upon the outer edge of the cartridge-pan to hold it against the shield, and a thumb-piece for actuating such clamp.

3. In a flash-light pistol, the combination, with the supporting-handle, and the seat *d* provided at its rear edge with the upwardly-projecting shield *k* and adapted to support a pan-like cartridge as set forth, of a hammer operating through said seat, a pin within the shield to engage the rear edge of the cartridge-pan, a clamp adapted to engage the front edge of the cartridge-pan and press it toward the shield, a spring for pressing the clamp normally toward the shield, and a thumb-piece for actuating the clamp, substantially as herein set forth.

682,132. HAY-RAKE. CHARLES BLACKWELL, Vinita, Ind. Ter., assignor to G. W. Blackwell, same place. Filed Nov. 30, 1900. Serial No. 38,204. (No model.)



Claim.—1. In a horse hay-rake, the combination of a wheeled supporting-frame and a rake-head on the front side thereof, said rake-head being longitudinally movable so that the rake teeth or fingers may be extended in advance of the front side of the frame or drawn rearward thereon to clear the same of hay, and a lever and connections to move said rake-head forwardly and rearwardly, substantially as described.

2. In a horse hay-rake, the combination of a wheeled supporting-frame, a rake-head on the front side thereof supported by said frame and movable longitudinally for the purpose set forth, said rake-head having longitudinally-disposed guiding and adjusting bars, means coacting therewith to secure the said rake-head when adjusted and a lever and connections to adjust the said rake-head, substantially as described.

3. In a horse hay-rake, the combination of a wheeled supporting-frame, a rake-head on the front side thereof, supported by said frame, and movable longitudinally, for the purpose set forth, said rake-head having longitudinal guide and supporting bars, locking-bars on the rear side of the supporting-frame having locking-bolts to engage and secure said guiding and supporting bars, a pedal-link connecting the said locking-bars and a lever and connections to operate the rake-head, substantially as described.

682,133. WORKMAN'S TIME-RECORDER. FRANK BROOK and JOSEPH S. GAUNT, Huddersfield, England; said Brook assignor to said Gaunt. Filed Aug. 13, 1900. Serial No. 26,786. (No model.)

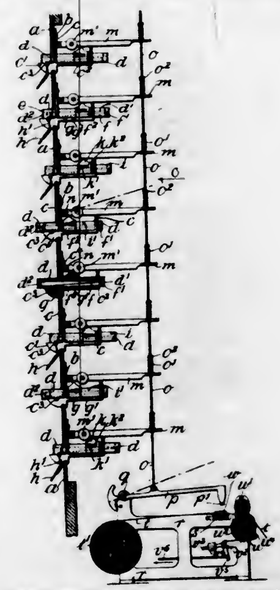
Claim.—1. In a workman's time-recorder, the combination, with a series of type-levers for printing the record, of a series of pivoted tumbling-levers, a series of wires connecting the type-levers with the tumbling-levers, a series of springs for raising the type-levers, and a series of operating-bars provided with tappet mechanisms for raising the tumbling-levers and permitting them to drop suddenly, substantially as set forth.

2. In a workman's time-recorder, the combination, with a pair of rolls for traversing the record-sheet, of two ratchet-toothed wheels u^2 and u^3 secured to one of the said rolls and having their teeth arranged in opposite directions, a pivoted operating-lever *v* having a tooth which engages with the wheel u^3 and having also a pawl u^4 which engages with the wheel u^2, a pivoted check-pawl v^9 engaging constantly with the wheel u^3, and a hooked stop-pawl v^{10} normally resting on the pawl u^4 and engaging with the wheel u^2 after the pawl u^4 commences to revolve the wheel u^2, substantially as set forth.

3. In a workman's time-recorder, the combination, with a stationary supporting-bracket, of a slidable operating-bar, a tappet operated by the bar and movable to a limited extent longitudinally of it, a pivoted tumbling-lever operated by the said tappet, and record-printing mechanism actuated by the said lever, substantially as set forth.

4. In a workman's time-recorder, the combination, with a stationary supporting-bracket, of a slidable operating-bar, a tappet which rests on the said bracket and is provided with a longitudinal slot, a pin projecting from the bar and sliding in the said slot, a tumbling-lever operated by the said tappet, and record-printing mechanism actuated by the said lever, substantially as set forth.

5. In a workman's time-recorder, the combination, with a stationary supporting-bracket, of a slidable operating-bar provided with a detent which locks it to the bracket at the extremities of its travel, record-printing mechanism actuated by the said bar at each extremity of its travel, and a workman's time-check provided with a projection for releasing the detent and engaging with the said bar, substantially as set forth.



6. In a workman's time-recorder, the combination, with a stationary supporting-bracket provided with a projecting portion having a notch in its upper side, of a slidable operating-bar provided with a longitudinal slot in its under side and a cross-slot in its front portion which registers with the notch in the bracket when the said bar is pushed back, a detent pivoted in the said longitudinal slot and projecting into the cross-slot and locking the bar to the bracket at the extremities of its travel, a workman's time-check provided with a projection for engaging with the cross-slot and notch, and record-printing mechanism actuated by the said bar at each extremity of its travel, substantially as set forth.

682,134. LAMP-BURNER. GEORGE T. BROWN, Baltimore, Md., assignor of one-half to James D. Brown, same place. Filed June 7, 1901. Serial No. 63,594. (No model.)



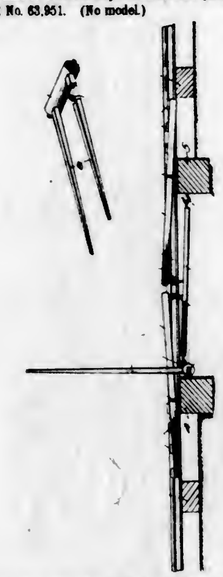
Claim.—1. In a burner, the combination of the threaded collar, the wick-tube depending therein, and the wick-raiser rod journaled in the collar; with the chimney or globe supporting devices exterior to and attached to said collar, substantially as described.

2. In a burner the combination of the threaded collar having a closed upper end, the wick-tube depending through the top of said collar, the wick-raiser, and the supporting-rod thereof transfixing said collar and journaled in the opposite sides thereof; with the chimney or globe supporting devices exterior to and attached to the collar substantially as described.

3. In a burner, the combination of the fount having a threaded nipple, the burner having a threaded collar adapted to screw on the nipple, a wick-guide suspended in said collar, a wick-raiser, and a wick-raiser-supporting rod journaled in the opposite walls of the collar; with the chimney or globe supporting devices exterior to but attached to the collar substantially as described.

4. The herein-described collar and burner, comprising an internally-threaded collar, an annular plate surrounding and attached to said collar, and an annular flange rising from said plate adapted to support a globe or chimney; a wick-tube supported by and depending into the collar, a wick-raiser rod extending through and journaled in said collar, and a wick-raiser on said rod also within the collar, all substantially as and for the purpose set forth.

682,135. CATTLE-GUARD. ARNETT CONWAY, Louisville, Ky., assignor of one-half to Thomas Key Manson, same place. Filed June 10, 1901. Serial No. 63,951. (No model.)



Claim.—1. In a cattle-guard, bars pivotally disposed transversely of the railway-track and having pickets connected thereto, an arm or bracket depending from each of said bars, lever-arms each pivotally connected at one end to a stationary support and flexibly connected by the other end of said brackets, and means connected with the lever-arms between the ends thereof whereby said lever-arms are raised by the act of the animal when attempting to pass the gap sought to be guarded, substantially as shown and described.

2. In a cattle-guard, a series of bars pivotally disposed transversely of the railway-track, and having pickets connected thereto, an arm or bracket depending from each of said bars, a series of lever-arms each pivotally attached at one end to a stationary support and each connected flexibly by the other end to one of said brackets, and operating-levers located above the said bars and extending inward beyond the same and connected with the lever-arms between the ends thereof, substantially as shown and described.

3. In a cattle-guard, a series of bars having pickets projecting therefrom and pivotally disposed transversely of the railway-track, a series of levers poised adjacent to said bars and located above the same and having transverse extensions adapted to extend the surface of the levers laterally, and means whereby depression of said extended slatted portion of said levers will actuate said pickets, substantially as shown and described.

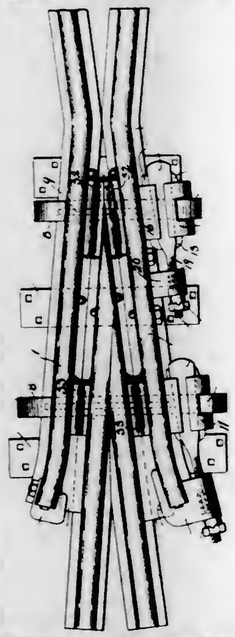
682,136. CLAMP FOR RAILWAY-FROGS. GEORGE B. DONNELLY, Chicago, Ill., assignor of one-half to Thomas J. Peden, same place. Filed Dec. 6, 1900. Serial No. 38,889. (No model.)

Claim.—1. The combination of a pair of diverging rails; a clamp connecting said rails; a wedge acting between one of the rails and the clamp-jaw; a spring normally tightening said wedge in its seat; and means for adjustably locking said wedge between said rail and clamp-jaw.

2. The combination of a pair of diverging rails; a clamp connecting said rails; said clamp being secured against movement longitudinally of said rails; a wedge acting between one of the rails and the clamp-jaw; a spring normally tightening said wedge in its seat; and means for adjustably locking said wedge between said rail and clamp-jaw.

3. The combination of a pair of diverging rails; a clamp connecting said rails; a block removably seated between one of the rails and its clamp-jaw and having a seat for said clamp-jaw; and a wedge acting between said block and the adjoining rail and thereby urging the block against said clamp-jaw.

4. The combination of a pair of diverging rails; a clamp connecting said rails; said clamp being secured against movement longitudinally of said rails; a wedge acting between one of the rails and the clamp-jaw and having a threaded shank; an apertured member secured to said rail and having the threaded shank passing through the aperture; a nut on said shank, acting toward said member and whereby the wedge may be adjusted between said rail and clamp-jaw; and a spring acting between said nut and apertured member for tightening said wedge.



5. The combination of a pair of diverging rails; a clamp connecting said rails and having one of its jaws secured against movement longitudinally of said rails; a block secured against movement longitudinally of said rails between the other jaw and its rail; a wedge acting between such jaw and said block; means for adjustably locking said wedge between such jaw and block; and a spring normally tightening said wedge in its seat.

6. The combination of a pair of diverging rails; a clamp connecting said rails and having one of its jaws secured against movement longitudinally of said rails; a block secured against movement longitudinally of said rails between the other jaw and its rail; a second block engaged by and removably seated inward of said other jaw; a wedge acting between said blocks; and means for adjustably locking the wedge between said blocks.

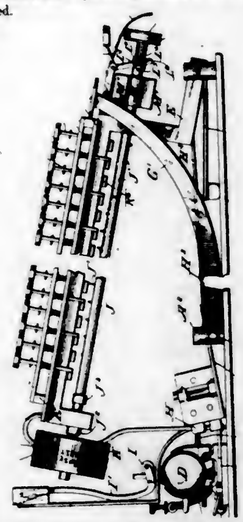
7. The combination of a pair of diverging rails; a clamp connecting said rails; a block removably seated between one of the rails and its clamp-jaw and having a seat for said clamp-jaw; a wedge acting between said block and the adjoining rail and thereby urging the block against said clamp-jaw; and a spring normally tightening said wedge between the block and said adjoining rail.

682,137. PORTABLE TYPE-WRITER. ARTHUR C. FERGUSON, Saratoga Springs, N. Y. Filed Nov. 22, 1900. Serial No. 37,370. (No model.)

Claim.—1. In a type-writing machine, a type-wheel shaft mounted in a frame pivoted at one end and provided with a pulley thereon, a motor directly connected with said pulley, and a key adapted in its movement to engage and stop the rotation of said shaft and afterward move said frame and shaft downward toward a platen; substantially as specified.

2. In a type-writer, a type-wheel shaft provided with a driving-pulley and mounted in a frame pivoted at one end, a motor connected with said pulley to continuously rotate said shaft, and keys mounted in said frame and adapted to engage projections on the shaft to stop the rotation of said shaft and to depress said frame and shaft; substantially as specified.

3. In a type-writer, a type-wheel shaft provided with a driving-pulley and mounted in a frame pivoted at one end, a governor mounted upon said shaft, and a motor operatively connected to said shaft; substantially as specified.



4. In a type-writer, a type-wheel, a rotatably and longitudinally movable shaft carrying said wheel at one end thereof and mounted in a frame pivoted at one end, a pulley mounted at the pivoted end to continuously drive the shaft, means for moving the shaft longitudinally, a motor connected with said pulley, and a key adapted in its continued movement to stop the rotation of said shaft and depress said frame and shaft; substantially as specified.

5. A type-writer comprising a type-wheel, a shaft carrying said wheel mounted in a frame pivoted at one end and provided with a series of projections positioned upon the shaft with relation to the location of the characters on the type-wheel, and a series of keys adapted to be moved into contact with said projections; substantially as specified.

6. In a type-writer a type-wheel and its shaft mounted in a pivoted frame, a series of projections upon such shaft, and a series of keys carried by said frame and adapted to contact with said projections; substantially as specified.

7. In a type-writer comprising a type-wheel having a plurality of sets of printing characters and mounted upon a shaft carried by a pivoted frame and having a single series of projections disposed with relation to the position of the printing characters in each set thereof, means for moving said shaft longitudinally, means for rotating said shaft, and a series of keys each of which is adapted to contact with one of said projections in either position of the shaft; substantially as specified.

8. In a type-writer, a type-wheel and its shaft mounted in a frame pivoted at one end, a pulley mounted in a type-wheel shaft at the pivoted end of the frame, a motor, flexible connections between the motor and the type-wheel shaft whereby the type-wheel may be continuously rotated regardless of its position and that of the pivoted frame, and a key traveling in the path of a projection from said shaft and adapted to depress the frame and shaft and hold said shaft against rotation; substantially as specified.

9. In a type-writer the combination with the type-wheel and its shaft, of a pulley mounted on said shaft, a motor having projections upon a rotating part, a belt extending from the motor to said pulley, and a pivoted key to engage said projections for stopping the motor; substantially as specified.

10. The combination with the type-wheel shaft of the type-writer and with a pulley fixed thereon, of a motor comprising spring-barrel and spring, a connecting-belt, suitable guide-pulleys, a stop-key adapted to contact with spring-barrel, and means for automatically retaining the stop-keys in and out of contact with the barrel; substantially as specified.

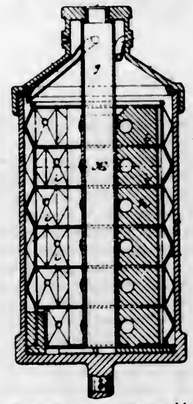
11. In a type-writer the combination with the type-wheel shaft having a pulley thereon, of a motor operatively connected with said pulley and with the carriage of the type-writer; substantially as specified.

12. The combination with the paper-carriage and type-wheel shaft of a type-writer, of a spring-motor, connections between the same and the carriage and type-wheel shaft, and a pivoted lever having ratchet connections with said motor and accessible to the operator for winding the spring of the motor; substantially as specified.

13. In a type-writer a pivoted frame, a type-wheel and its shaft mounted in said frame, and a keyboard comprising plates arranged above and below said frame, and keys operatively mounted in said plates; substantially as specified.

14. In a type-writer a pivoted frame, a type-wheel and its shaft mounted in said frame, for longitudinal movement and for rotation, a collar mounted rotatatively on the shaft and fixed against longitudinal movement thereon, and a key mounted on the frame and adapted to move said collar; substantially as specified.

682,138. CENTRIFUGAL CREAM-SEPARATOR. JAMES H. FLEMING, Newark, N. J. Filed Jan. 11, 1900. Serial No. 1,035. (No model.)



Claim.—1. In a cream-separator, the combination with the bowl and longitudinally-slotted feed-tube, arranged at the center of said bowl, of radial partitions arranged vertically in said bowl, the inner edges of said partitions lying in the longitudinal slots and a series of horizontal partitions binding said vertical partitions together and holding the same in the slots, substantially as set forth.

2. In a cream-separator, the combination with the bowl, of a longitudinally-slotted milk-supply tube, the slots of which are disposed at different points about the periphery of said tube, a series of radial partitions, the inner vertical edges of which are fitted and held in said slots, and means for holding said plates in proper relative position with respect to one another, substantially as set forth.

682,139. METHOD OF TUFTING CUSHIONS. ALFRED FRESCHL, Chicago, Ill. Original application filed May 16, 1898, Serial No. 680,804. Divided and this application filed Sept. 25, 1899. Renewed June 19, 1901. Serial No. 65,217. (No model.)



Claim.—1. The method of making tufted cushions which consists in laying a piece of pliable material face downward over a form having a plurality of upwardly-projecting tufters, depressing the said material between the tufters to form a plurality of upwardly-opening pockets therein, positioning said material upon the tufters by pins associated with said tufters to hold it in proper relation upon the former, filling the pockets with a suitable pliable filler, applying a suitable backing material over the filler and pressing the same down over the pins, and securing said upper and lower materials together at the points between said pockets.

2. An improved method of making tufted cushions, which consists in laying a piece of pliable material face downward over a form having a plurality of tufting-posts each provided with a detachable tufting-button having an upwardly-projecting shank or pin forming upwardly-opening pockets in said material between the posts, securing said material over the pins to hold the same in position, filling the pockets with a suitable pliable substance, applying a suitable material over the top of the article and pressing the same down over the pins to hold the same in proper relation to said material first mentioned, and then securing said upper and lower materials together at the points between the pockets by means of said pins.

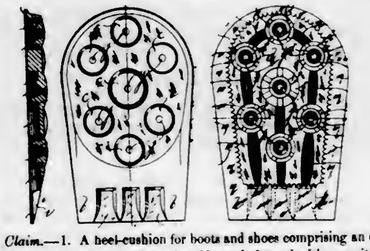
682,140. MANUFACTURE OF REFRACTORY MATERIALS. RICHARD J. FRISWELL, London, England, assignor of one-half to the British Uralite Company, Limited, same place. Filed June 17, 1901. Serial No. 64,980. (No specimens.)

Claim.—1. A process for the production of refractory materials from asbestos, chalk and like substances by depositing colloidal silica in said substances from a silicate by the action of carbonic-acid gas in a closed chamber, and subsequently washing out the carbonate and bicarbonate so generated, substantially as described.

2. A process for the production of refractory materials from asbestos, chalk and like substances by saturating blocks or sheets of said substances in a solution of sodium silicate, then subjecting said articles to the action of moist carbonic-acid gas in a closed chamber, and subsequently removing by washing, the sodium carbonate and bicarbonate, so generated, substantially as described.

3. A process for the production of refractory materials from asbestos, chalk and like substances by saturating blocks or sheets of said substances in a solution of sodium silicate, then subjecting said articles in a closed chamber to the action of moist and cooled furnace-gases containing carbonic-acid gas, and subsequently removing by washing the sodium carbonate and bicarbonate so generated, substantially as described.

682,141. HYGIENIC HEEL-SUPPORT. WILLIAM GALLOWAY, Glasgow, Scotland, assignor to Allan Thomson, same place. Filed Feb. 23, 1901. Serial No. 48,406. (No model.)



Claim.—1. A heel-cushion for boots and shoes comprising an elastic body having projections in its under side each formed with a cavity, and with perforations through its top communicating with said cavities, the lower ends of the projections terminating above the plane of the bottom of the body, and the body portion on its under side formed with channels communicating with the cavities of the projections, substantially as described.

2. A heel-cushion for boots and shoes comprising an elastic body having projections on its under side each formed with a cavity, and with perforations through its top communicating with said cavities, the lower ends of the projections terminating above the plane of the bottom of the body, and the body portion on its under side formed with channels communicating with the cavities of the projections, and outlet-passages leading from said channels at one end of the cushion, substantially as described.

3. A heel-cushion for boots and shoes comprising an elastic body having projections on its under side, each formed with a cavity, and with perforations through its top communicating with said cavities, said body having a groove formed therein around each projection and provided with radiating ribs in said grooves, and formed with channels connecting the cavities of the projections and with outlet-passages leading from said grooves at one end of the cushion, substantially as described.

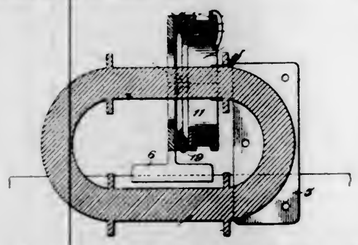
4. A heel-cushion for boots and shoes comprising an elastic body having projections on its under side, each formed with a cavity, and with perforations through its top communicating with said cavities, said body having a groove formed therein around each projection and with channels connecting said grooves and with outlet-passages leading from said channels at one end of the cushion, and a "lift" of elastic material secured to the bottom face of the elastic body and formed with openings registering with the cavities in the projections, substantially as described.

682,142. MEANS FOR COILING FLEXIBLE MATERIAL. EDWIN R. GILL, New York, N. Y. Filed Mar. 28, 1899. Serial No. 710,755. (No model.)

Claim.—1. In a means for coiling flexible material, a divisible rotatable outer carrier adapted to loosely surround the device to be wound upon, a divisible inner carrier borne loosely thereon, and means for rotating one of said carriers.

2. In a means for coiling flexible material, a divisible outer carrier adapted to loosely surround the device to be wound upon, a divisible inner carrier borne loosely thereon, means for rotating said carriers and means for locking said carriers together at will.

3. In a means for coiling flexible material, an outer carrier adapted to loosely surround the device to be wound upon, an inner carrier borne loosely thereon, means for rotating one of said carriers and means for locking said outer carrier in a closed position.

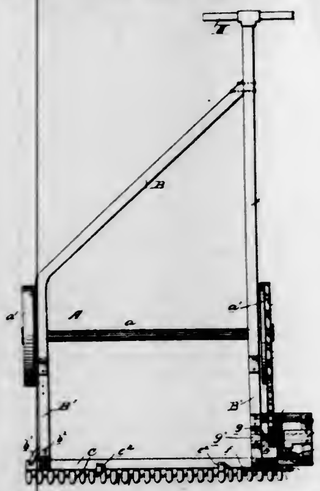


4. In a means for coiling flexible material, a divisible outer carrier adapted to loosely surround the device to be wound upon, a divisible inner carrier borne loosely upon said outer carrier and means for locking said two carriers together with coincident joints.

5. In a means for coiling flexible material, a divisible outer carrier adapted to loosely surround the device to be wound upon, a divisible inner carrier borne thereon and rims on the parts of the outer carrier to confine the parts of the inner carrier.

6. In a means for coiling flexible material, a fixed support, rollers thereon, a divisible wire-carrier, and a divisible bearing-wheel attached to said carrier adapted to embrace and to be operatively borne upon said rollers.

682,143. **MOWING-MACHINE.** ISAAC E. GROOM, Marysville, Kans., assignor of one-half to Nellie A. Faulkner, Marshall county, Kans. Filed Jan. 3, 1901. Serial No. 42,490. (No model.)



Claim.—1. In a mowing-machine, the combination with the carrying-wheels, the handle, the cutter-bar, and its actuating mechanism, of a frame for carrying said actuating mechanism, comprising a bar horizontally disposed and arranged in rear of the cutter-bar, a depending bracket secured thereto, having its lower portion in horizontal alinement with the cutter-bar, an arm pivotally connected to said bracket at its forward end, a roller carried by said arm at its rear end, a vertically-disposed arm, provided with a series of apertures, extending upward through an aperture in the carrying-frame, perforated ears located adjacent to said aperture, and a pin taking through the perforation in the ears of the arm, to secure the latter in adjusted positions, substantially as set forth.

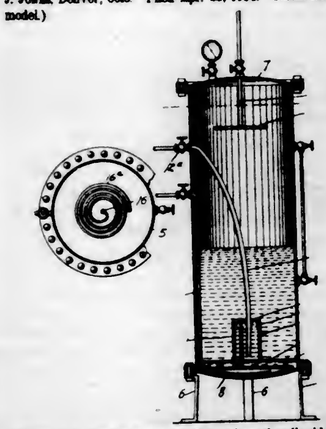
2. In a mowing-machine, the combination with a cutting mechanism, supporting-wheels therefor, means for operating the cutter, and an operating-handle provided with a metallic extension, a return-bend *b*, secured to the cutting mechanism and adapted to brace the extension, and a lateral brace *b'* for the portion *b* secured thereto, and to the cutting mechanism, substantially as described.

682,144. **COAL-PICK.** JAMES H. HIGGINS, Whitwell, Tenn. Filed Aug. 2, 1899. Serial No. 725,881. (No model.)



Claim.—In a device of the character described, a head, oppositely-extending arms made integral therewith, a pair of tenons on the extreme outer ends of said arms, rounded faces on each of said tenons, the said tenons forming a substantially U-shaped recess therebetween with right-angular corners, each arm having a cylindrical opening extending in alinement therewith, the said opening being of the same width as the said recess and tapering toward the eye of the pick, each arm being further provided with a substantially rectangular transverse opening, the front wall of which is straight and rear wall having its upper end at an incline thereto, in combination with removable pick-points having oppositely-disposed recesses, curved faces on said recesses adapted to receive the said curved ends of the tenons, a substantially rectangular portion between said recesses adapted to fit in the said U-shaped recess, a cylindrical shank tapering at its rear end secured to said rectangular portion and of the same width, said shank being of less length than the said opening in the said arms, the said shank having a transversely-extending opening, a straight front wall therein, a rear wall at an incline thereto, a draw-pin having one straight edge, and a rear edge partly at an incline, the lower end of said pin being screw-threaded, a nut for engagement with said screw-threads, the inclined edge of said draw-pin engaging the said inclined wall of the slot in the shank with the straight edge of said pin free from engagement with the opposite straight wall of the slot in the shank, substantially as described.

682,145. **APPARATUS FOR CARBONATING LIQUIDS.** WILLIAM J. JOHNS, Denver, Colo. Filed Apr. 23, 1901. Serial No. 57,112. (No model.)



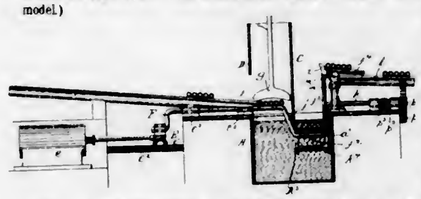
Claim.—1. In an apparatus for carbonating liquids, the combination with a liquid-containing tank, of a diaphragm located therein, means for introducing gas to the tank beneath the diaphragm, an auxiliary chamber located within the main chamber of the tank, an inlet from below the diaphragm to the auxiliary chamber, and an outlet from the auxiliary chamber, through which the carbonated liquid may be drawn.

2. In an apparatus of the class described, the combination with a main liquid-containing tank, of a diaphragm located in its lower portion, and a perforated pipe for the introduction of gas, said pipe being located below the diaphragm, of an auxiliary chamber located above the diaphragm, an open-ended inlet-tube passing through the diaphragm into the auxiliary chamber, and an outlet-conduit leading from the auxiliary chamber.

3. In an apparatus of the class described, the combination with a liquid-containing tank, a diaphragm located in its lower portion, and a perforated pipe-coil located beneath the diaphragm and communicating with the gas-inlet conduit, of an auxiliary chamber located above the diaphragm, a tube passing through the diaphragm into the auxiliary chamber, and an outlet-conduit leading from the auxiliary chamber, the casing of which is provided with a vent located in its upper portion

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682,146. **APPARATUS FOR COATING PIPES OR BARS.** HARRY B. LYNCH, Versailles, Pa. Filed June 2, 1899. Serial No. 719,057. (No model.)



Claim.—1. The combination with a coating pot or tank, of means for raising a charge of coated pipes therefrom, and independently-movable means for simultaneously supporting a second charge in position to be immersed in the tank but preventing their entrance therein.

2. The combination with a coating pot or tank, of means for raising a charge of coated pipes therefrom, means for simultaneously supporting a second charge in position to be immersed in the tank but preventing their entrance therein, and means for thereafter moving said last-named means to allow the immersion of the pipes supported thereon and carry the same over the raising means.

3. The combination with a coating pot or tank, of movable bars for supporting pipes in position to be immersed and for receiving the same after being lifted from the tank, means for raising the pipes out of the tank, and means for preventing a second charge of pipes being immersed in the tank while the preceding charge is being raised therefrom.

4. The combination with a coating pot or tank, of bars extending transversely thereof and serving to support the pipes above and in the tank and to deliver the same from the tank, means for raising the pipes from the tank, and means for moving the bars into position alternately to receive a fresh charge and simultaneously carry a preceding charge transversely over the lifting means, and then to immerse the first charge and simultaneously receive the preceding charge from the lifting means and deliver the same from the tank.

5. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and having portions extending down into the tank and forming supports for the pipe therein, substantially as set forth.

6. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and having portions extending down into the tank and forming supports for the pipes therein, and rotating cranks adapted to swing into the tank and raise the pipes from said bars, substantially as set forth.

7. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof, and extending part way above the same, and thence extending down into the same, and thence extending upwardly from the same, substantially as set forth.

8. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof, and extending part way over the tank, thence extending at an incline downwardly into the tank, thence extending horizontally therein, and thence extending upwardly out of the tank, substantially as set forth.

9. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and extending part way above the same, and thence extending down into the same and thence extending upwardly from the same, and thence extending outwardly beyond that side of the tank, substantially as set forth.

10. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof, and extending part way above the same, and thence extending down into the same and thence extending upwardly from the same, and rotating cranks adapted to swing down into the tank below the said bars and raise the pipes from the tank, substantially as set forth.

11. The combination with a coating pot or tank, of a frame located at the side thereof and having a series of bars extending out therefrom first above the tank and thence downwardly into the same, and thence extending above the tank, and means for reciprocating said frame.

12. The combination with a coating pot or tank, of a frame traveling on a track at the side thereof transversely of the tank, and a series of bars extending out from the frame through guideways and across the tank, parts of said bars being depressed within the tank, substantially as set forth.

13. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and extending part way above the tank, and thence downwardly into the same, and a reciprocating pusher adapted to enter the tank so as to force the pipes downwardly into the same, substantially as set forth.

14. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and extending part way above the same, thence extending down into the same, thence extending upwardly from the tank and thence outwardly beyond the opposite side thereof, and guides located on the opposite side of the tank for supporting said bars, substantially as set forth.

15. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and extending part way above the same, thence extending down into the same, thence extending upwardly from the tank and thence outwardly beyond the opposite side thereof, and spring-jacks located on the opposite side of the tank for supporting said bars.

16. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and extending part way above the same, thence extending down into the same, thence extending upwardly from the same, and thence extending outwardly beyond the opposite side of the tank, and shoulders at the elbow uniting the upwardly and outwardly extending portions of said crank-bars.

17. The combination with a coating pot or tank, of bars supported to reciprocate transversely thereof and exteoding part way above the same, thence extending down into the same, thence extending upwardly from the same, and thence extending outwardly beyond the opposite side of the tank, and rotating cranks adapted to swing down into the tank below the said bars and raise the pipes from the tank, substantially as set forth.

18. The combination with a coating pot or tank, of a series of cranks mounted at one side thereof and adapted to swing down into the tank, said cranks being located at different points in the length of the tank and having crank-arms of different lengths, substantially as set forth.

19. The combination with a coating pot or tank divided by a longitudinal partition into two sections, of bars supported to reciprocate transversely of the tank and having portions extending down into the tank and forming supports for the pipes therein, a reciprocating pusher located in one tank-section and a series of rotating cranks located in the other tank-section, substantially as set forth.

20. The combination with a coating pot or tank divided longitudinally into two sections, of bars supported to reciprocate transversely of the tank and adapted to extend over one section thereof, and having portions extending down into the tank to form supports for the pipes to be coated, and a series of cranks adapted to swing down into the other section of the tank, substantially as set forth.

21. The combination with a coating pot or tank, of a series of cranks located at different distances along the same and adapted to swing down into the tank, said cranks each having crank-shafts carrying gear-wheels, and a bar supported to reciprocate longitudinally of the tank and carrying rack-faces, and gearing between said rack-faces and the gear-wheels carried by said rotating cranks, substantially as set forth.

22. The combination with a coating pot or tank, of a series of rotating cranks mounted at one side thereof and adapted to swing down into the tank, said cranks each having crank-shafts carrying gear-wheels p, shafts p^2 carrying pinions p' meshing with the gear-wheels p and pinions p^2, the racks r connected together, each meshing with a pinion p^2 and means for reciprocating said racks, substantially as set forth.

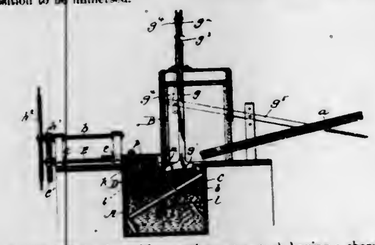
682,147. **APPARATUS FOR COATING PIPES OR BARS.** HARRY B. LYNCH, Versailles, Pa. Filed June 2, 1899. Serial No. 719,058. (No model.)

Claim.—1. The combination with a coating pot or tank, of movable means for supporting a charge of pipes in position to be immersed in the tank but preventing their entrance therein, and means independently movable with relation to said supporting means for simultaneously raising a charge of coated pipes therefrom, while a third charge is immersed in the tank.

2. The combination with a coating pot or tank having a charging-section and a withdrawing-section, of means for raising a charge of coated pipes from the withdrawing-section, and simultaneously holding a second charge in the charging-section and preventing their entrance into the withdrawing-section.

3. The combination with a coating pot or tank having a charging-section and a withdrawing-section, of means for raising a charge of coated

pipes from the withdrawing-section and holding a second charge in the charging-section, and means for simultaneously supporting a third charge in position to be immersed.



4. The combination with a coating pot or tank having a charging-section and a withdrawing-section, of bars extending across the tank, and a movable bar within the tank between the charging-section and the withdrawing-section for holding the pipes on said cross-bars within the charging-section, while preceding pipes are being withdrawn from the withdrawing-section.

5. The combination with a coating pot or tank having a charging-section and a withdrawing-section, of bars extending across the tank, a movable bar for holding the pipe on said cross-bars within the charging-section, and a pusher over the charging-section adapted to push the pipe down into the bath, substantially as set forth.

6. The combination with a coating pot or tank, of guide-bars extending across the same, and a rotating crank extending from one side of the tank part way across the same and adapted to receive the pipes from said cross-bars, substantially as set forth.

7. The combination with a coating pot or tank having a charging-section and a withdrawing-section, of cross-bars within the tank extending at a downward incline from the charging into the withdrawing section, and a rotating crank-shaft having a crank-arm extending part way across the tank and adapted to receive the pipes from said inclined bars, substantially as set forth.

8. The combination with a coating pot or tank, of cross-bars within the tank, and a rotating crank-shaft extending part way across the tank and having a supplemental arm extending at an angle to its main crank-arm and adapted when the crank is raised to extend downwardly and prevent sidewise travel of the pipe on the cross-bars, substantially as set forth.

9. The combination with the coating pot or tank, of a crank-shaft mounted at one side thereof and having a crank extending part way across the tank and provided with the supplemental arm extending at an angle to the main arm and adapted when the crank is raised to extend downwardly within the tank, and cross-bars within the tank extending at a downward incline toward the crank-shaft, substantially as and for the purposes set forth.

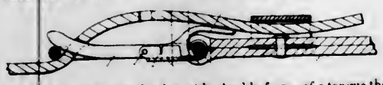
10. The combination with a coating pot or tank, of a partition extending longitudinally thereof and dividing the same into charging and withdrawing sections, removable bars extending across the top of the charging-section, cross-bars extending across the tank within the same, and a movable bar adapted to hold the pipes upon such cross-bars and within the charging-section, substantially as set forth.

11. The combination with a coating pot or tank of a crank mounted at one side of the tank and extending down into the same, said crank having a horizontal arm extending from the outer end thereof, and a heel or lug at the outer end of the horizontal arm.

12. The combination with a coating pot or tank, of a crank mounted at one side of the tank, and extending down into the same, said crank having a horizontal arm extending from the outer end thereof, and an arm *l*, extending at an angle to the horizontal arm.

13. The combination with a coating pot or tank, of a crank mounted at one side of the tank, and extending down into the same, said crank having a horizontal arm extending from the outer end thereof, an arm *l*, extending at an angle to the horizontal arm, and projecting rearward beyond the same to form a heel or lug.

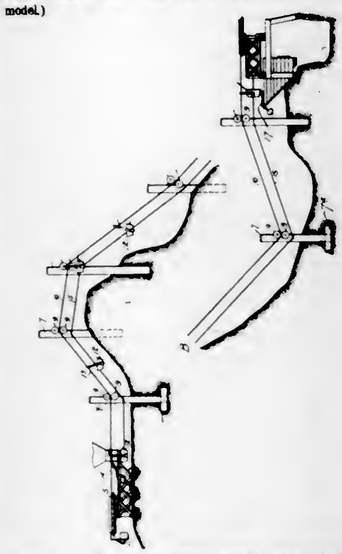
682,148. **BUCKLE.** TIMOTHY J. MACCARTHY, Holyoke, Mass. Filed Mar. 29, 1901. Serial No. 53,462. (No model.)



Claim.—1. The combination with a buckle-frame, of a tongue therefor extending across the frame from end to end, one end of said tongue constituting a thumb-piece whereby the tongue is operated; a short arm hinged on the frame by one end, and a pivotal connection between the other end and said tongue, whereby the swinging movement of said arm in one direction will first raise the rear end of the tongue and then move it rearwardly; and a shoulder on the tongue whereby the latter may be restrained against endwise movements to the rear, when in strap-engaging position, substantially as described

2. The combination with a buckle-frame, of a short arm hinged on one of the cross-bars thereof, a tongue made in one piece of greater length than said frame, a shoulder on said tongue, a pivotal connection between said tongue and arm, whereby the swing of the arm in one direction will bring the shoulder on the tongue below the plane of the top of the buckle-frame, and the tongue in strap-engaging position, substantially as described.

682,149. **AERIAL WIRE-ROPE TRAMWAY.** JAMES H. MONTGOMERY, Denver, Colo. Filed Dec. 20, 1900. Serial No. 40,581. (No model.)



Claim.—1. In an aerial-tramway system, the combination with an endless cable and buckets, of a line of single poles, brackets mounted on the poles and projecting therefrom on opposite sides, two pairs of pulleys mounted on each bracket, and a pair of coöperating pulleys engaging the cable on each side of the pole, the individual pulleys of each pair, engaging the cable at the same point and being located respectively above and below the cable.

2. In an aerial-tramway system, the combination with an endless cable and buckets, of a line of single poles, brackets mounted on the poles and projecting therefrom on opposite sides, two pairs of pulleys mounted on each bracket, and a pair of pulleys engaging the cable on each side of the pole, the upper pulley of each pair being located a sufficient distance from the vertical pole, on inclines to allow the cable to pass between the pulleys without changing its normal direction.

3. In an aerial-tramway system, the combination with an endless cable and buckets, of a line of supports, brackets mounted on the supports and projecting therefrom on opposite sides, two pairs of pulleys mounted on each bracket, the arrangement being such that a pair of coöperating pulleys, engages the cable on each side of the support, the individual pulleys of each pair engaging the cable at the same point and being located respectively above and below the cable.

4. In an aerial-tramway system, the combination with an endless cable and buckets, of a line of supports, brackets mounted on the supports, and projecting therefrom, a pair of pulleys mounted on each bracket, the upper pulley of each pair being located a sufficient distance from the support, on inclines to allow the cable to pass between the pulleys without changing its normal direction substantially as described.

682,150. **TRACK-SANDER.** CHARLES B. NICHOLS, Westpark, Ohio, assignor, by direct and mesne assignments, to the Nichols-Lintern Company, Cleveland, Ohio. Filed Jan. 25, 1901. Serial No. 44,700. (No model.)

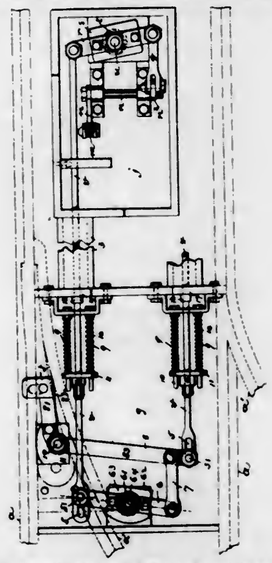
Claim.—1. In a track-sanding apparatus, the combination with a sand-reservoir, a suitable conduit leading downward therefrom, and a closed box adapted to receive sand from said conduit, of a substantially rectangular compartment in said box, means comprising a depending rib in and an inclined end of said box for holding sand and forming a layer thereof against said inclined end extending into said compartment, a suitable outlet leading from the other end of said compartment, an air-pipe passing through the said inclined end of said box and opening under said layer of sand, and means for forcing a current of air through said pipe, substantially as set forth.



2. In a track-sanding apparatus, the combination of a closed feeder-box adapted to receive sand from a reservoir comprising a substantially rectangular compartment, and means comprising a depending rib in and an inclined end of said box for holding sand and forming a layer thereof against said inclined end extending into said compartment, a funnel-shaped outlet leading downward from the other end of said compartment adapted to support a conductor for conveying sand to the track, an air-pipe passing through the inclined end of said box opening under said layer of sand, and means for forcing a current of air through said pipe, substantially as set forth.

3. In a track-sanding apparatus, the combination with a sand-reservoir, a closed feeder-box thereunder and means for supplying said box with sand from said reservoir, of a lateral partition in said box and an inclined rear end thereof forming a wedge-shaped hopper communicating with said reservoir, a substantially rectangular compartment forward of said partition communicating with said hopper through a rectangular aperture under said partition, an outlet projecting above the bottom of the forward end of said compartment provided with means for attaching a suitable conductor thereto, and means for injecting an air-blast through said inclined end into said compartment, substantially as set forth.

682,151. **STREET-RAILWAY SWITCH.** FREDERICK G. SMITH, Bloomfield, N. J. Filed Feb. 1, 1901. Serial No. 45,605. (No model.)

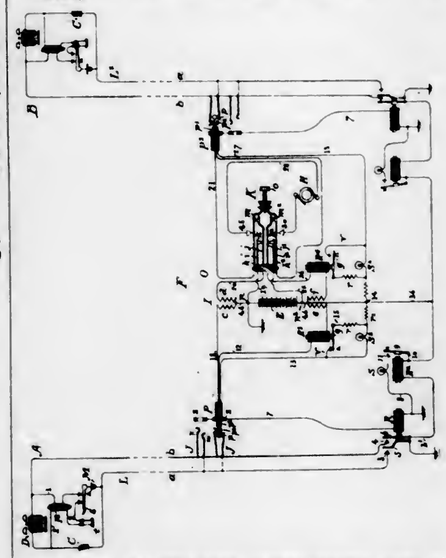


Claim.—1. The combination with the main and branch rails and switch-tongue, of a box *g*, having a crank-lever fulcrumed therein, and a second lever fulcrumed adjacent to the said crank-lever, the two levers being pivotally connected by a connecting-rod, and two slotted connected rods, one of which is loosely connected to the crank-lever and the other to the second lever, springs for holding said slotted rods in normal position, and shifting-levers connected to said slotted rods at a distance from said switch and adapted to be depressed to effect longitudinal movements of said slotted rods, substantially as set forth.

2. The combination with the main and branch rails and switch-tongue, of a box *g*, having levers 6 and 8, one of which is in connection with the switch-tongue and the other of which is connected to the first by a connecting-rod 7, of slotted connecting-rods *v*, *v*, one connected with one lever and the other with the other lever, springs holding the last said connecting-rods in normal position, boxes *j*, arranged at a distance from the box *g*, levers *r*, arranged in said boxes, crank-levers arranged in said boxes connecting-rods *q*, and shifting-levers projecting up from said boxes *j*, and adapted to be depressed to effect a shifting of the switch-tongue, substantially as set forth.

3. The combination with the main and branch rails and switch-tongue, of a box containing levers, one of which is in connection with the switch-tongue and the other of which is connected to the first by a connecting-rod, of a long and a short connecting-rod, which connect one with one lever and the other with the other lever, springs holding said last connecting-rods in normal position, boxes *j*, *j*, arranged at different distances from the first said box and containing levers *r*, to the end of each of which one of said long and short rods is connected, and means in connection with said levers *r*, to be operated by or from the car, substantially as set forth.

682,152. **TELEPHONE-EXCHANGE APPARATUS.** ALBON B. STETSON, Malden, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed May 24, 1901. Serial No. 61,777. (No model.)



Claim.—1. In a central-battery telephone-exchange system, the combination with a switchboard having two conductive plug-sections; an interposed induction-coil uniting the said sections inductively; a ringing-key associated with one of said plug-sections; and a telephone-circuit connected with said plug-section and arranged to receive calling-current by the operation of the ringing-key associated therewith; of a path extraneous to the induction-coil through which the discharge or return current of said circuit is discharged at the close of said ringing operation, thereby preventing said current from acting upon the induction-coil.

2. In a central-battery telephone-exchange system, the combination with a switchboard having two conductive plug-sections; an interposed induction-coil uniting the said sections inductively; a ringing-key associated with one of said plug-sections; and a telephone-circuit connected with said plug-section and arranged to receive calling-current by the operation of the ringing-key associated therewith; of means for preventing the discharge or return current of said circuit at the close of said ringing operation from acting upon the said induction-coil, by diverting the same through an alternative channel of lesser resistance; substantially as set forth.

3. In a central-battery telephone-switchboard apparatus the combination of a switchboard having answering and companion terminal plugs; an induction-coil having its windings in circuit with the main-line

contacts of the said plugs respectively; a main-telephone circuit connected with said companion plug and including a winding of said induction-coil; and a ringing-key associated with said cord and companion plug, and adapted when operated to send calling-current over said main circuit; with a normally discontinuous or incomplete short circuit around the said induction-coil winding, of low resistance relatively thereto; and a circuit-closing device actuated by said ringing-key on its release, to momentarily complete the said short circuit, and establish thereby a transient alternative conductive channel for the return-current or discharge of said main circuit; substantially as and for the purposes set forth.

4. In a central-battery telephone system, the combination of two substation telephone-circuits: switching devices organized to unite them for the formation of a through talking-circuit; a central-station battery bridged across said through-circuit and furnishing a supply of current for both of the component circuits thereof; a repeating induction-coil associated with said switch devices, and having its windings connected in the said two component circuits respectively; a receiving-telephone in one of the said component circuits; a ringing-key associated with said switch devices and arranged between said repeating induction-coil and the other of said component circuits, to send signaling-currents over the latter to the substation thereof; a normally discontinuous short circuit including said battery arranged around the induction-coil winding of said called-for line; and means as indicated, controlled by said ringing-key, for closing the said short circuit around the said coil-winding during and for a brief period of time after the operation of said ringing-key; substantially as and for the purposes described.

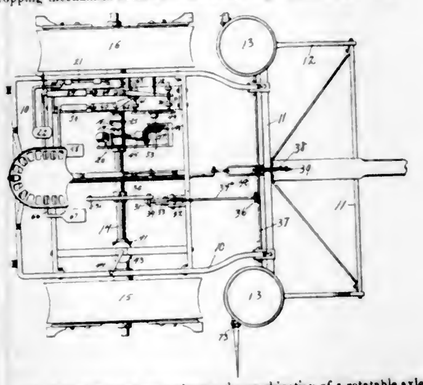
5. In the central-station switchboard apparatus of a central-battery telephone-exchange the combination with the switch-cord circuit O, having answering and companion switch-plugs; the common battery E bridged between the main conductors of said cord; the induction-coil I, having its windings associated with the said plugs respectively, and having one-half of both windings on each side of said battery; and the ringing-key K, having two sets of terminal springs h h^2 and j j^2 normally in contact with each other to maintain normal continuity between the companion-plug contacts, and the two halves of its induction-coil winding, and a set of auxiliary springs i i^2 united electrically to points on the battery-bridge between the poles of said battery and the half-windings of said induction-coil, the said auxiliary springs being normally disconnected in said key, but adjusted to cooperate as a circuit-closer with the springs j j^2 during the operation of said key and momentarily thereafter, and thereby during the pendency of said contact to short-circuit the said induction-coil winding; substantially as and for the purposes described.

6. The combination of a telephone-circuit composed of two substation-circuits united in a central-station switchboard by a switch-cord connection comprising an answering-plug section and a companion-plug section, a repeating induction-coil inductively uniting the said plug-sections and having a centrally-divided winding in each; a central battery in a bridge between the two half-windings of both sections, having its poles connected with the inner terminals of said windings; and an independent generator at said central station supplying currents for the transmission of outgoing call-signals; with a ringing-key in the companion-plug cord-section normally maintaining the continuity of the conductors thereof between the battery, induction-coil winding and plug-contacts, but adapted when operated to sever the said conductors, to connect the portion leading to the plug with the terminals of said independent generator, and on the cessation of such operation to restore the continuity of said conductors, and to momentarily provide them with a short circuit for their discharge around the said induction-coil windings, and through said battery, substantially as described.

682,153. WIRELESS CHECK-ROW CORN-PLANTER. JOHN E. SWORSON, Boone, Iowa, assignor of one-half to John A. Johnson, Stratford, Iowa. Filed July 17, 1900. Serial No. 23,969. (No model.)

Claim.—1. In a check-row corn-planter the combination of a machine-frame, supporting-wheels therefor, one or more spacing or marking wheels, a single, independent gearing device permanently connecting the supporting-wheels to the spacing and marking wheels whereby they normally operate in unison, means whereby the said gearing device may be automatically operated during the advance of the machine to turn the spacing and marking wheels either faster or slower than the supporting-wheels, manually-operated means for controlling said automatic means, and seed-dropping mechanism actuated from the spacing and marking wheels.

2. In a check-row corn-planter the combination of a machine-frame, supporting-wheels therefor, one or more spacing and marking wheels, a gearing member connected with the supporting-wheels, a coacting gearing member connected with the spacing and marking wheels; said gearing members being permanently meshed with each other, means whereby the gearing device connected with the supporting-wheels may be automatically actuated during the advance of the machine to move the spacing and marking wheels either faster or slower than the supporting-wheels, manually-operated means for controlling said automatic means and seed-dropping mechanism actuated from the spacing and marking wheels.

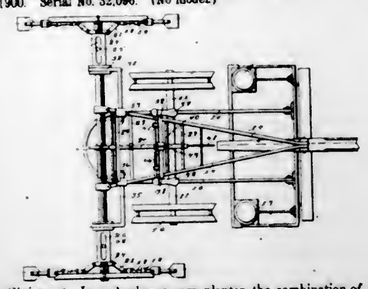


3. In a check-row corn-planter, the combination of a rotatable axle, means for actuating seed-dropping mechanism from said axle, a spacing-wheel rotatably mounted on said axle, a worm gear-wheel connected with one of the spacing-wheels, a frame fixed to the axle, a shaft mounted on the frame, having a worm thereon, meshed with said gear-wheel and manually-operated means on the machine-frame for actuating said shaft in either direction, whereby motion is transmitted from the spacing-wheel to the axle, which motion may vary with relation to that of the spacing-wheel, as determined by the direction of the rotation of said shaft, for the purposes stated.

4. In a check-row corn-planter, the combination of a rotatable axle, seed-dropping mechanism, means for actuating the seed-dropping mechanism from the axle, supporting-wheels rotatably mounted on the axle, a frame fixed to the axle, a shaft in said frame parallel with the axle, a wheel having radial arms on said shaft, a second shaft in said frame, having a worm thereon, means for gearing the two shafts together, a rotatable sleeve on the axle, a pinion on said sleeve, meshed with said worm, a releasable clutch device for connecting the spacing-wheel and said sleeve, and two sliding bars on the machine-frame, capable of being projected into the path of said wheel having radial arms on opposite sides of its shaft, foot-levers fulcrumed to the machine-frame and connected with the said side bars, whereby they may be operated, and springs for normally withdrawing the side bars.

5. In a check-row corn-planter, the combination of a rotatable axle, seed-dropping mechanism, means for actuating the seed-dropping mechanisms from the axle, supporting-wheels rotatably mounted on the axle, a frame fixed to the axle, a shaft in said frame, parallel with the axle, a wheel having radial arms on said shaft, a second shaft in said frame, having a worm thereon, means for gearing the two shafts together, a rotatable sleeve on the axle, a pinion on said sleeve, meshed with said worm, means for connecting the sleeve with one of the supporting-wheels, and two sliding bars on the machine-frame, capable of being projected into the path of said wheel having radial arms, on opposite sides of its shaft, foot-levers fulcrumed to the machine-frame and connected with the said slide-bars, whereby they may be operated, and springs for normally withdrawing the slide-bars.

682,154. CORN-PLANTER. JOHN E. SWORSON, Stratford, Iowa, assignor of two-thirds to John A. Johnson, same place. Filed Oct. 5, 1900. Serial No. 32,096. (No model.)

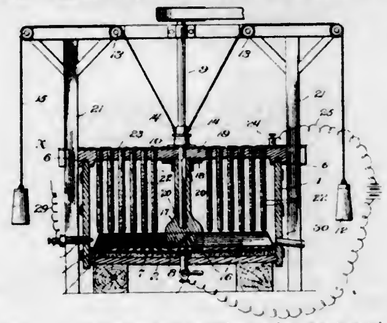


Claim.—1. In a check-row corn-planter, the combination of a machine-frame mounted on wheels, seed-dropping mechanism on said frame, an auxiliary frame hinged to the machine-frame and capable of free vertical movement relative to the machine-frame, one or more marking and spacing wheels on the auxiliary frame, means for actuating the seed-dropping mechanism from said spacing and marking wheels, radial arms on the marking and spacing wheels, capable of radial movement, means for operating the radial arms either inwardly or outwardly, and two pedals connected with said means, whereby when one is pressed the arms will move outwardly, and when the other is pressed, the arms will move inwardly, for the purposes stated.

2. An improved check-row corn-planter, comprising in combination a machine-frame, mounted on wheels, seed-dropping mechanism thereon, an auxiliary frame hinged to the machine-frame and capable of free vertical movement relative thereto, two marking or spacing wheels on the auxiliary frame, having radial arms capable of lengthening or shortening and designed to engage the ground-surface with their outer ends, a rock-shaft mounted in the auxiliary frame, pedals secured thereto on opposite sides, means for moving the said radial arms from said rock-shaft, means for automatically locking the rock-shaft in its position when the radial arms are of normal length, and manually-operated means for releasing said locking means.

3. In a corn-planter, the combination of a machine-frame, an auxiliary frame pivotally connected with the machine-frame, a rotatable shaft mounted in its rear end, a sleeve slidingly but non-rotatably connected with said shaft at each end, a series of radially-movable markers at each end of the shaft, links pivotally connecting the inner ends of the markers with said sleeve, arms connected with said sleeves, and each having a vertical slot in its end, a shaft mounted in the auxiliary frame to extend longitudinally, a lever fixed thereto, rollers on the ends of said lever, to enter said slots, whereby when the lever is rocked the arms will be drawn toward or from each other, arms fixed to said shaft, to project upwardly and outwardly therefrom, pivoted pedals on the ends of said arms, a rock-shaft mounted upon said arms, arms connected with the rock-shaft and with the rear end portions of the pedals, an arm connected with said rock-shaft to project forwardly, an arched cross-piece having an opening therein to receive the latter-mentioned arm, and a yielding pressure device for normally holding the latter-mentioned arm in the opening in the said arched cross-piece, substantially as, and for the purposes stated.

682,155. ELECTROLYTIC APPARATUS FOR EXTRACTING PRECIOUS METALS. CHARLES P. TATRO and GEORGE DELIUS, Seattle, Wash. Filed Jan. 15, 1901. Serial No. 43,334. (No model.)

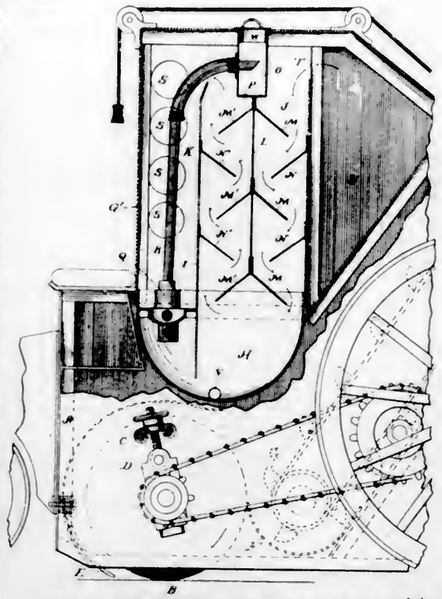


Claim.—1. In apparatus for extracting precious metals, a tub; a metallic pan in the bottom thereof; mercury in the pan; a lid for the tub; a series of carbons attached to and depending from the lid inside of the tub and connected together to form an anode; an agitator vertically journaled in the lid and having screw-propeller-shaped blades located to revolve below the said carbons; one or more balance-weights connected with the said lid; vertical guideways for the lid; and electric connections between the said carbons and one side of a battery and between the said pan and mercury and the other side of the battery, substantially as described.

2. In apparatus for extracting precious metals, a tub; mercury therein and electric connection between the mercury and a source of electricity whereby the mercury serves as a cathode; a lid for the tub and an anode depending from the lid into the tub; an agitator vertically journaled in the lid; means for raising the lid and its dependencies from the tub, and means for revolving the agitator while descending into and ascending out of the tub, substantially as described.

3. In apparatus for extracting precious metals, a tub; a mercurial cathode in the bottom thereof; a principal anode, means for lowering it into and raising it out of the tub, and a minor anode permanently in the tub, substantially as described.

682,156. DUST-TRAP FOR STREET-SWEEPERS. AUGUSTUS A. CLOUGH, Denver, Colo. Filed Jan. 12, 1899. Serial No. 701,947. (No model.)



Claim.—1. A dust-collector for pick-up street-sweepers consisting of a suitable casing, partitions arranged therein to divide the space into compartments, deflectors so located within the trap as to shed water poured thereon in sheets, means for supplying the water to said deflectors, a tank for receiving the water from the deflectors, an exhaust-chamber, means connected with said chamber for causing a flow of dust-laden air through the sheets of water around the deflectors to the exhaust-chamber, and means for operating the device, as specified.

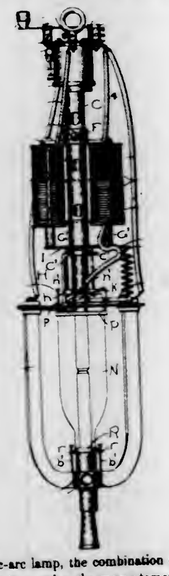
2. A dust-collector for pick-up street-sweepers consisting of a suitable casing, a partition I arranged therein so as to divide its interior into two compartments, a partition L subdividing one of these compartments, a series of deflectors arranged alternately so as to receive water one from the other, a tank arranged above the deflectors having slots in the bottom for permitting water to fall upon the upper deflectors in sheets, a tank arranged at the bottom of the collector for holding the proper supply of water, a pump for elevating water from the last-named tank to the tank O, and suitable means for exhausting air from the collector, as specified.

3. In a pick-up street-sweeper, a rotary brush, means for revolving the same in contact with the ground over which the sweeper is drawn, a shield for guiding material picked up, a hopper for receiving said material, means for elevating material from the hopper, a dust-chamber formed in the casing of the sweeper, a dust-collector consisting of a suitable casing having partitions therein dividing it into the compartments J and K, a series of inclined deflectors alternately arranged within the compartment J, a tank arranged over the deflectors having slots in the bottom for permitting sheets of water to fall upon the upper deflectors whereby said water will be caused to flow downward in sheets from one deflector to the other, a tank H located at the bottom of the collector for holding the water-supply, a pump located at the bottom of the chamber K and arranged to draw water from the tank H, a pipe leading from the pump to the tank O whereby the water thus drawn will be supplied to the last-named tank, and means, such as a fan, for exhausting air from the chamber K so as to create a draft through the collector and around the deflectors, as and for the purpose set forth.

REISSUES.

11,930. ELECTRIC-ARC LAMP. DANIEL HIGHAM, Winthrop Highlands, Mass., assignor to the General Electric Company, of New York. Filed July 20, 1901. Serial No. 69,152. Original No. 675,599, dated June 4, 1901.

Claim.—1. In an electric-arc lamp, the combination of a series coil, an auxiliary coil, and means for causing the magnetomotive force of said auxiliary coil to vary at a rate different from the rate of variation of current in the arc.



2. In an electric-arc lamp, the combination of a series coil, an auxiliary coil, and means for causing the magnetomotive force of said auxiliary coil to vary at a rate greater than the rate of variation of current in the arc.

3. In an electric-arc lamp, the combination of an arc-regulating mechanism acted upon by coils traversed by current flowing through the arc, one serving primarily to maintain a separation of the electrodes and another more sensitive to current variations in the arc and acting to promptly adjust the length of the arc in response to said current variations.

4. In an electric-arc lamp, the combination of a magnet-winding including two coils both of which are traversed by current flowing through the arc, and means for causing a variation of current in the arc to produce a quicker rate of change of current in one of the coils than in the other.

5. In an electric-arc lamp, the combination of a magnet-winding including two coils both of which are traversed by current flowing through the arc, and means for causing a variation of current in the arc to produce momentarily a greater proportional change of current in one of the coils than in the other.

6. In an electric-arc lamp, the combination of an arc-regulating mechanism controlled by coils carrying current flowing through the arc, and means for causing the rise or fall of current in one of the coils to vary at a rate different from the rate of change in another of said coils.

7. In an electric-arc lamp, the combination of a magnet-winding in portions arranged in series with each other, and a branch circuit shunted about one of said portions.

8. In an electric-arc lamp, the combination of a magnet-winding in portions arranged in series with each other, and a branch circuit of considerable self-induction shunted about one of said portions.

9. In an electric-arc lamp, the combination, with a series coil comprising two portions, of an inductance-coil in shunt to one of said portions.

10. In an electric-arc lamp, the combination with a series coil comprising two portions of differing resistance, of an inductance-coil in shunt to the portion of higher resistance.

11. In an electric-arc lamp, the combination with a series coil comprising two portions, one of fine wire and one of coarse wire, of an inductance-coil in shunt to the fine-wire portion of said coil.

12. In an electric-arc lamp, the combination with a series coil comprising two portions of differing resistance, of an inductance-coil of low resistance in shunt to the higher-resistance portion of the series coil.

13. In an electric-arc lamp, the combination, with a vertically-movable upper-carbon holder, of a dash-pot connected therewith having closed ends and provided with a by-pass containing a check-valve permitting a slow leakage when closed.

14. In an electric-arc lamp, the combination with a vertically-movable upper-carbon holder, of a dash-pot connected therewith, a by-pass for said dash-pot, containing a chamber, a ball-valve in said chamber, and means for limiting the movement of the valve.

15. In an electric-arc lamp, the combination with an inner globe, of a vertically-movable gap and socket to receive said globe, and a lower-carbon holder arranged to lift and firmly secure these parts when inserted into place.

16. In an electric-arc lamp, the combination with a frame comprising a plate and a hanger depending therefrom, of a cap, suspending-rods attached thereto and passing loosely through the plate, a socket vertically movable on the hanger, an inner globe adapted to be held between the cap and socket, and a lower-carbon holder arranged to lift the socket, globe and cap when inserted into place.

17. In an electric-arc lamp, the combination, with a vertically-movable cap for the inner globe, of a clutch for the upper carbon, and a tripping device for said clutch normally held in operative position by said cap.

18. In an electric-arc lamp, the combination, with a vertically-movable cap for the inner globe, of a ring-clutch for the upper carbon, and a pin arranged to be forced up against said ring when the cap is raised.

19. In an electric-arc lamp, the combination with a frame comprising a plate, of a cap for the inner globe loosely suspended below said plate, a ring-clutch for the upper carbon located above said plate, and a spring-supported pin passing up through the plate under the ring and adapted to be raised when the cap is lifted.

20. In an electric-arc lamp, means for tripping the clutch to release the upper carbon when the lower-carbon holder is inserted into place.

21. In an electric-arc lamp, a lower-carbon holder made in two parts, an insulated screw fixed in one part and engaging with the other, and insulating-washers between the two parts.

22. In an electric-arc lamp, the combination of a frame, a cap, and rods movably engaging said frame and secured to said cap.

23. In an electric-arc lamp, the combination of an arc-regulating mechanism controlled by a plurality of coils connected so as to carry current flowing through the arc, and means for causing a variation of current in the arc to produce momentarily a greater proportional change of current in one of the coils than in another.

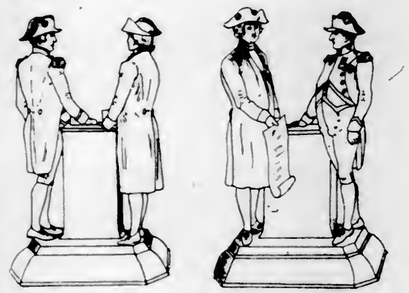
DESIGNS.

35,018. BADGE. JOHN W. STEWART, Richmond, Va. Filed Aug. 5, 1901. Serial No. 70,988. Term of patent 3½ years.



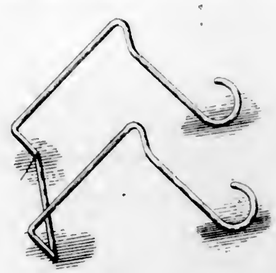
Claim.—The design for a badge herein shown and described.

35,019. STATUETTE. ENEAS J. MCCURDY and CHARLES R. EARBY, St. Louis, Mo. Filed July 20, 1901. Serial No. 69,155. Term of patent 3½ years.



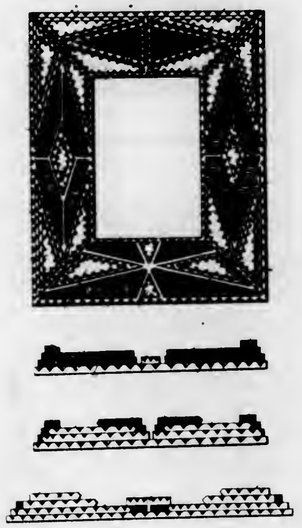
Claim.—The design for a statuette, substantially as herein shown and described.

35,020. EASEL. STEPHEN HUSTYAVA, New York, N. Y. Filed July 20, 1901. Serial No. 69,161. Term of patent 7 years.



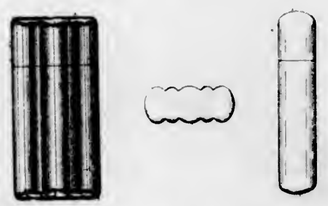
Claim.—The design for an easel substantially as herein shown and described.

35,021. PICTURE-FRAME. AUGUST ASSMANN, New York, N. Y. Filed July 26, 1901. Serial No. 69,859. Term of patent 14 years.



Claim.—The design for a picture-frame, herein shown and described.

35,022. POCKET-CASE. GUSTAVE REHMANN, Newark, N. J. Filed Apr. 17, 1901. Serial No. 56,324. Term of patent 14 years.



Claim.—The design for a pocket-case substantially as herein shown and described.

35,023. CIGAR OR CIGARETTE HOLDER. PAYSON T. SYKES, Auburn, Me. Filed Aug. 5, 1901. Serial No. 70,836. Term of patent 14 years.



Claim.—The design for a cigar or cigarette holder substantially as shown and described.

35,024. BACK FOR BRUSHES OR SIMILAR ARTICLES. OTTO LEIGH, Newark, N. J. Filed Aug. 9, 1901. Serial No. 71,429. Term of patent 3½ years.



Claim.—The design for the back of a brush or similar article, as herein shown and described.

35,025. RULING-PEN. HARRY C. KING, Baltimore, Md. Filed May 31, 1901. Serial No. 62,674. Term of patent 14 years.



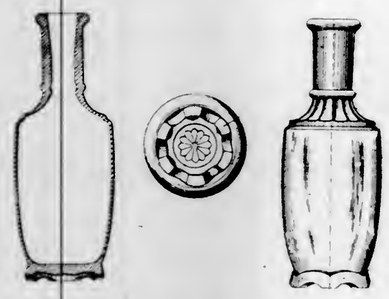
Claim.—The design for a ruling-pen substantially as herein shown and described.

35,026. BUTTON. RICHARD C. HILL, Philadelphia, Pa. Filed July 6, 1901. Serial No. 67,369. Term of patent 7 years.



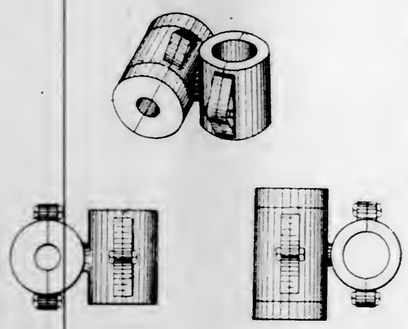
Claim.—The design for a button as herein shown and described.

35,027. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,675. Term of patent 14 years.



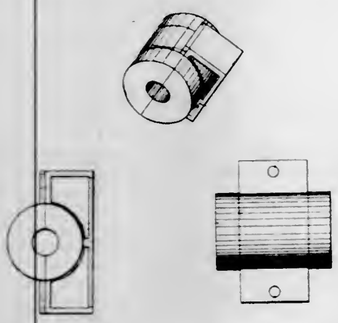
Claim.—The design for a bottle, as herein shown and described.

35,028. BRACKET FOR ELECTRIC WIRES AND CABLES. GEO. A. RICKER, Buffalo, N. Y. Filed May 10, 1901. Serial No. 59,710. Term of patent 3½ years.



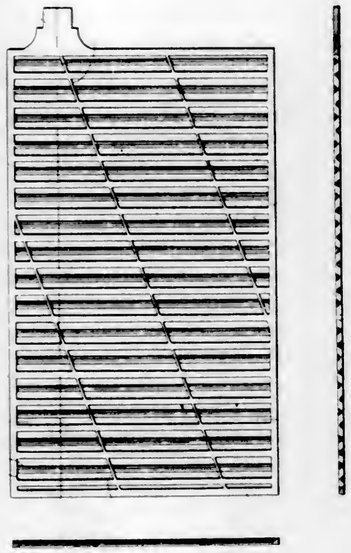
Claim.—The design for a bracket for electric wires and cables, substantially as shown and described.

35,029. BRACKET FOR ELECTRIC WIRES AND CABLES. GEO. A. RICKER, Buffalo, N. Y. Filed May 10, 1901. Serial No. 59,711. Term of patent 3½ years.



Claim.—The design for a bracket for electric wires and cables, substantially as shown and described.

35,030. STORAGE-BATTERY PLATE. JOHN BELL CONRAD, Chicago, Ill. Filed Apr. 10, 1901. Serial No. 55,259. Term of patent 7 years.



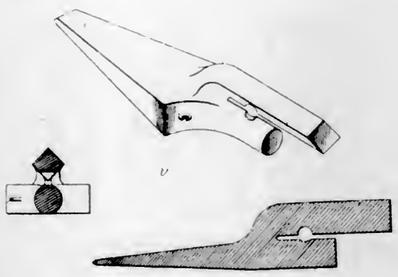
Claim.—The design for a storage-battery plate substantially as set forth.

35,031. BOAT-CLEAT. JOHN F. W. SCHMIDT, Oshkosh, Wis. Filed Aug. 8, 1901. Serial No. 71,412. Term of patent 14 years.



Claim.—The design for a boat-cleat, as herein shown and described.

35,032. ANCHOR FOR DRILLING-MACHINES. ISAAC WANTLING, Peoria, Ill. Filed Aug. 8, 1901. Serial No. 71,359. Term of patent 7 years.



35,032.



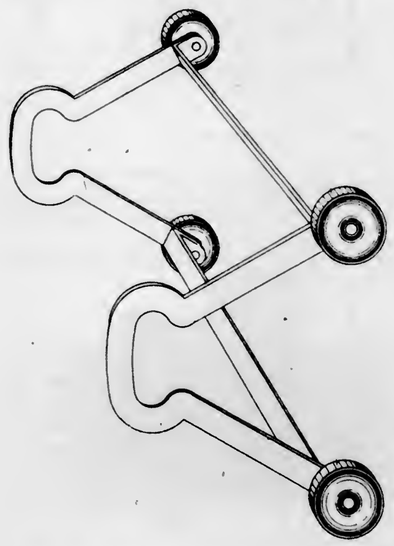
Claim.—The design for an anchor for drilling-machines as herein shown and described.

35,033. BRAKE-BEAM. WILSON E. SYMONS, Savannah, Ga. Filed July 31, 1901. Serial No. 70,429. Term of patent 14 years.



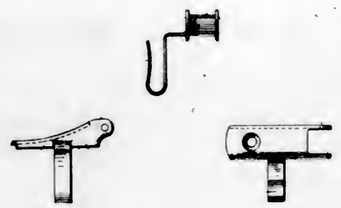
Claim.—The design for a brake-beam as herein shown and described.

35,034. BARREL-TRUCK. LOUIS J. WILLENBURG, Springvalley, Ohio. Filed July 8, 1901. Serial No. 67,548. Term of patent 7 years.



Claim.—The design for a barrel-truck, as herein shown and described.

35,035. TRACE-HOLDER MEMBER. JAMES S. BARCLAY, Marion, Ind. Filed July 15, 1901. Serial No. 68,425. Term of patent 7 years.



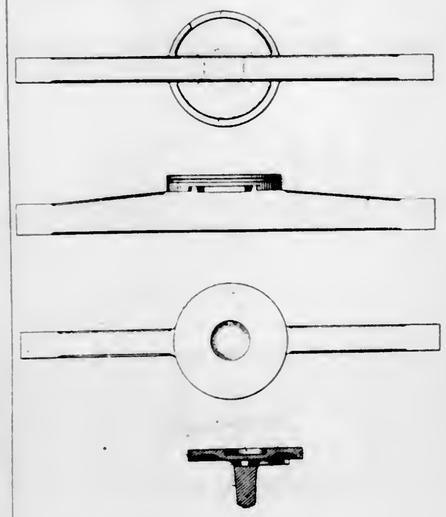
Claim.—The design for a trace-holder member, substantially as herein shown and described.

35,036. HUB-BAND. DELMER W. CALL, Cleveland, Ohio, assignor to The National Malleable Castings Company, same place. Filed May 25, 1901. Serial No. 61,974. Term of patent 14 years.



Claim.—The design for a hub-band, substantially as herein shown and described.

35,037. LOWER MEMBER OF FIFTH-WHEELS. HARRY A. BARNES, Milwaukee, Wis., assignor to Premier Manufacturing Company, Hartford, Conn. Filed Apr. 13, 1900. Serial No. 12,777. Term of patent 14 years.



Claim.—The design for the lower member of a fifth-wheel as herein shown and described.

35,038. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,676. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

35,039. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,677. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

35,040. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,678. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

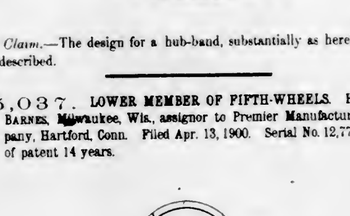
35,041. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,679. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

35,042. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,680. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

35,043. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,681. Term of patent 14 years.



Claim.—The design for a bottle, as herein shown and described.

35,044. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,682. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

35,045. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,683. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

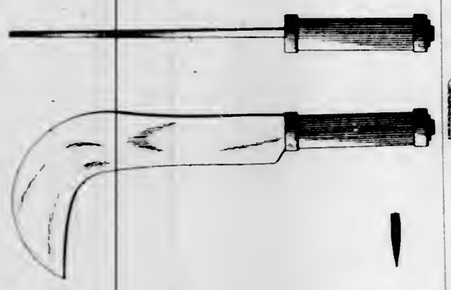
35,046. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,684. Term of patent 14 years.

Claim.—The design for a bottle, as herein shown and described.

35,047. BOTTLE. ALBERT F. JAMMES, New York, N. Y. Filed Aug. 2, 1901. Serial No. 70,685. Term of patent 14 years.

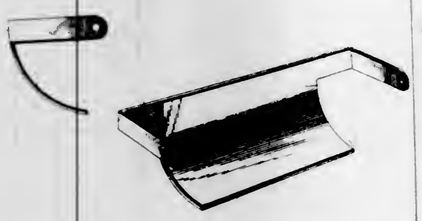
Claim.—The design for a bottle, as herein shown and described.

35,038. BUSHWHACKER OR BRUSH-SCYTHE. RICHARD MITCHELL, Wooddale, Pa. Filed June 5, 1901. Serial No. 63,313. Term of patent 14 years.



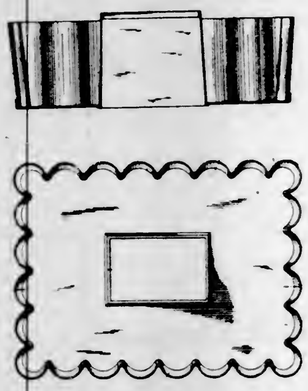
Claim.—The design for a bushwhacker or brush-scythe as herein shown and described.

35,039. FOLDER FOR BALING-PRESSES. JAMES KERR, Defiance, Ohio, assignor to the Berry Manufacturing Company, Upper Sandusky, Ohio. Filed Aug. 1, 1901. Serial No. 70,558. Term of patent 7 years.



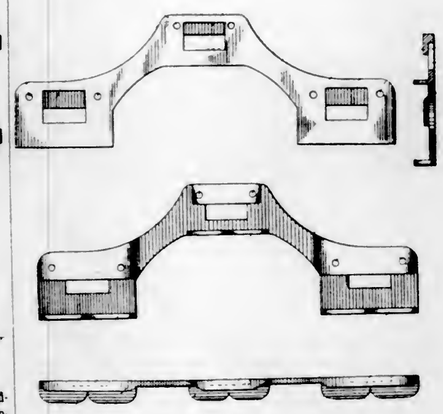
Claim.—The design for a folder for baling-presses, substantially as shown and described.

35,040. CAKE OR BREAD PAN. HENRY HANDY, Philadelphia, Pa. Filed Aug. 2, 1901. Serial No. 70,676. Term of patent 7 years.



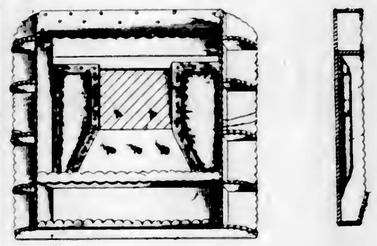
Claim.—The design for a cake or bread pan, substantially as herein shown and described.

35,041. BRACKET FOR COMBINATION IRONING-BOARDS. CHAS. E. KENNEDY, Chicago, Ill. Filed Aug. 1, 1901. Serial No. 70,559. Term of patent 3½ years.



Claim.—The design for a bracket for combination ironing-board substantially as herein shown and described.

35,042. WALL-BRACKET. ROSCOE C. BURTON, Schenectady, N. Y. Filed Aug. 6, 1901. Serial No. 71,106. Term of patent 14 years.



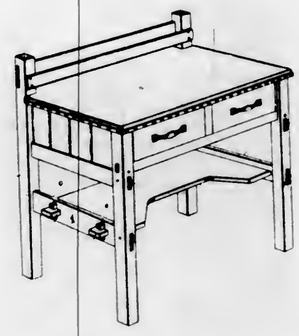
Claim.—The design for a wall-bracket, as herein shown and described.

35,043. ROLLING CHAIR. HARRY E. WEISGERBER, Atlantic City, N. J. Filed Aug. 2, 1901. Serial No. 70,677. Term of patent 7 years.



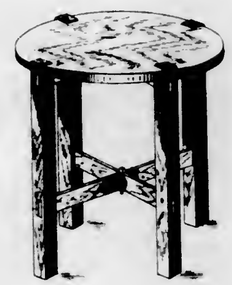
Claim.—The design for a rolling chair substantially as shown and described.

35,044. LIBRARY TABLE-DESK. GUSTAVE STICKLEY, Syracuse, N. Y. Filed July 31, 1901. Serial No. 70,433. Term of patent 7 years.



Claim.—The design for a library table-desk as herein described and shown.

35,045. TABLE. GUSTAVE STICKLEY, Syracuse, N. Y. Filed July 22, 1901. Serial No. 69,332. Term of patent 7 years.



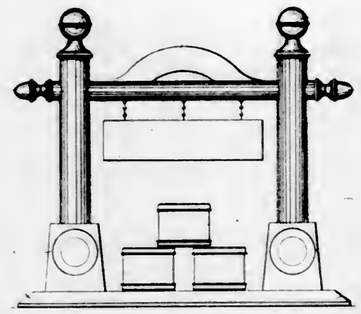
Claim.—The design for a table substantially as herein described and shown.

35,046. HAMMOCK-BODY. ISAAC E. PALMER, Middletown, Conn. Filed Aug. 10, 1901. Serial No. 71,658. Term of patent 14 years.



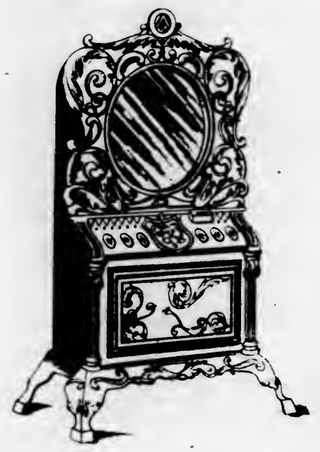
Claim.—The design for a hammock-body substantially as herein shown and described.

35,047. ADVERTISING DEVICE. FREDERICK KAMPFF, New York, N. Y. Filed July 27, 1901. Serial No. 69,995. Term of patent 7 years.



Claim.—The design for an advertising device, as herein shown and described.

35,048. MERCHANDISE-CABINET. JOHN GABEL, Chicago, Ill. Filed Aug. 9, 1901. Serial No. 71,428. Term of patent 7 years.

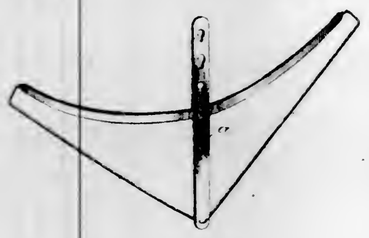


Claim.—The design for a merchandise-cabinet, substantially as herein shown and described.

35,049. SHIRT-WAIST FORMER. FRANK MAWSON, Philadelphia, Pa., assignor of one-half to John R. Mawson, same place. Filed Aug. 7, 1901. Serial No. 71,272. Term of patent 3½ years.



35,049.



Claim.—The design for a shirt-waist former as herein shown and described.

35,050. CARPET. HENRY W. PARTON, Yonkers, N. Y., assignor to Alexander Smith & Sons Carpet Company, same place. Filed July 16, 1901. Serial No. 68,544. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown and described.

35,051. CARPET. HENRY W. PARTON, Yonkers, N. Y., assignor to Alexander Smith & Sons Carpet Company, same place. Filed July 16, 1901. Serial No. 68,545. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown and described.

35,052. CARPET. GEORGE J. STENGEL, Yonkers, N. Y., assignor to Alexander Smith & Sons Carpet Company, same place. Filed July 16, 1901. Serial No. 68,546. Term of patent 3½ years.



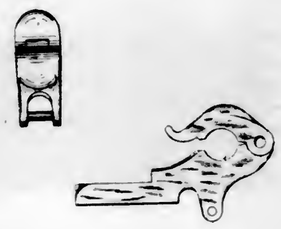
Claim.—The design for a carpet, substantially as shown and describe

35,053. CARPET. WALTER THOMAS, Yonkers, N. Y., assignor t Alexander Smith & Sons Carpet Company, same place. Filed July 1 1901. Serial No. 68,547. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown and described.

35,054. THILL-COUPLING. HARVEY A. MOYER, Syracuse, N. Y. Filed Aug. 5, 1901. Serial No. 70,984. Term of patent 14 years.



Claim.—The design for a thill-coupling as herein shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 3, 1901.

36,991. SPOOL COTTON AND THREAD. THE H. B CLAFLIN COMPANY, New York, N. Y. Filed Aug. 12, 1901.

CAMELOT

Essential feature.—The word "CAMELOT." Used since June 1, 1901.

36,992. BUST GIRDLES AND STAYS FOR ATHLETIC AND NEGLIGÉE WEAR. CLASSIC CORSET COMPANY, Chicago, Ill. Filed July 12, 1901.

CORSET REST

Essential feature.—The words "CORSET REST." Used since January 1, 1901.

36,993. SHOES. WILLIAM CRAWFORD, New York, N. Y. Filed Aug. 9, 1901.

ESS-SEE-ESS

Essential feature.—The hyphenated word "ESS-SEE-ESS." Used since July 27, 1901.

36,994. MEN'S BOOTS AND SHOES. J. P. SMITH SHOE CO., Chicago, Ill. Filed July 5, 1901.

Emperor

Essential feature.—The word "EMPEROR." Used since June 22, 1901.

36,995. BOOTS AND SHOES AND LEATHER FOR SAME. RICE & HUTCHINS, INCORPORATED, Boston, Mass. Filed July 20, 1901.



Essential feature.—The pictorial representation of a boy and a girl. Used since July 1, 1901.

36,996. SHIRTS, DRAWERS, OVERALLS, COATS, AND NIGHT-GOWNS. THE WEISS MANUFACTURING CO., New Orleans, La. Filed July 18, 1901.

Rex

Essential feature.—The word "REX." Used since June, 1897.

36,997. OVERALLS, JACKETS, TROUSERS, AND SHIRTS. HOWARD S. LANIER, Danville, Va. Filed Aug. 8, 1901.



Essential feature.—The representation of the world and a man astride thereof and supporting a flag, the face of the man being a representation of the sun throwing out sunbeams in all directions. Used since July 28, 1901.

36,998. OVERALLS, JACKETS, TROUSERS, AND SHIRTS. HOWARD S. LANIER, Danville, Va. Filed Aug. 8, 1901.

SUNBEAM

Essential feature.—The word "SUNBEAM." Used since July 28, 1901.

36,999. CIGARETTES. ARTHUR Q. WALSH, New York, N. Y. Filed July 9, 1901.



Essential feature.—A band of cork or a material simulating that substance exposed at the outer face of a package. Used since June 15, 1901.

37,000. BEER. FRED SEHRING BREWING COMPANY, Joliet, Ill. Filed July 29, 1901.



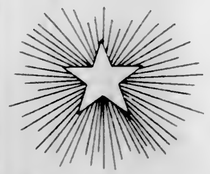
Essential feature.—The representation of a beer mug or stein with its lid partly raised by foam, said mug having the letter "S" upon its body and being arranged upon a shield which is provided with a border and is partly inclosed by a wreath of hop and barley sprays. Used since January 1, 1894.

37,001. WHEAT AND OTHER FLOUR. SOUTH JERSEY MILLERS ASSOCIATION, Millville, N. J. Filed July 19, 1901.



Essential feature.—A monogram of the letters "S J M A." Used since May 1, 1901.

37,002. FLOUR. GEORGE W. WERTZ, Wernersville, Pa. Filed Aug. 9, 1901.





Essential feature.—The representation of a star and three camels bearing riders. Used since July 15, 1901.

37,003. CHEESE, BUTTER, AND PREPARATIONS OF MILK. KARL HOEFELMAYR, Kempten, Germany. Filed Aug. 6, 1901.



Essential feature.—The representation of the flower of the edelweiss. Used since September 5, 1892.

37,004. BREAD. CLAUS OAK, Topeka, Kans. Filed June 15, 1901.



Essential feature.—A diamond-shaped rhombus and a large figure "9" in the center thereof. Used since 1889.

37,005. GRANULATED SUGAR. LANSING SUGAR COMPANY, Lansing, Mich. Filed Aug. 7, 1901.

CAPITAL

Essential feature.—The word "CAPITAL." Used since July 25, 1901.

37,006. CANNED FRUITS, MEATS, AND VEGETABLES. WILLIAM B. CHEATHAM, Baltimore, Md. Filed Aug. 5, 1901.

ADMIRAL

Essential feature.—The word "ADMIRAL." Used since September 1, 1899.

37,007. PERFUMERY. FREDERICK STEARNS & CO., Detroit, Mich. Filed July 30, 1901.

Suprema

Essential feature.—The word "SUPREMA." Used since June 1, 1901.

37,008. REMEDY FOR CERTAIN NAMED DISEASES. C. JOHN SHARP & CO., El Paso, Tex. Filed July 10, 1901.

J. de T.

Essential feature.—The letters "J. DE T." Used since June 4, 1901.

37,009. REMEDY FOR CERTAIN NAMED DISEASES. TINCTURE AMÄL MFG. CO., LTD., Baltimore, Md. Filed July 25, 1901.



Essential feature.—The word "AMÄL" and the representation of a keystone. Used since October, 1900.

37,010. RESPIRATORY SEDATIVE AND TONIC. HENRY S. CLARK, New York, N. Y. Filed Aug. 5, 1901.

HEROMAL

Essential feature.—The word "HEROMAL." Used since January 1, 1901.

37,011. ANTIPYRETIC AND ANTIPERIODIC. FARBENFABRIKEN OF ELBERFELD CO., New York, N. Y. Filed Aug. 9, 1901.

ARISTOCHIN

Essential feature.—The word "ARISTOCHIN." Used since January 1, 1901.

37,012. MEDICINAL PREPARATION FOR SHEEP AND CATTLE. STEPHEN PETTIFER & SONS, Malmesbury, England. Filed Aug. 2 1901.

SANTOVIN

Essential feature.—The word "SANTOVIN." Used since January 1, 1900.

37,013. BLACKS AND COLORS. BISBEE & SMITH, New York, N. Y. Filed July 26, 1901.



Essential feature.—The representation of a diamond and the letters and character "B & S." Used since July 1, 1896.

37,014. PAINT. THE AMERICAN LUCOL COMPANY, New York, N. Y. Filed July 31, 1901.

ROMALITE

Essential feature.—The word "ROMALITE." Used since January 8, 1901.

37,015. PAINTS. HENRY H. KEYGER, Minneapolis, Minn. Filed Feb. 1, 1901.



Essential feature.—The representation of a central star, a superimposed group of stars, a surrounding border of stars having depending ends, the rings, and a female head arranged between the said depending ends. Used since October 1, 1899.

37,016. GRAPHITE. JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J. Filed July 12, 1901.



Essential feature.—The representation of two angles superimposed one upon the other so that the lines of the one intersect the lines of the other. Used since July 3, 1901.

37,017. GRAPHITE. JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J. Filed Aug. 13, 1901.

D X N

Essential feature.—The letters "D X N." Used since July 3, 1901.

37,018. TOY BUILDING-BRICKS. HAMBURGER & CO., New York, N. Y. Filed Aug. 10, 1901.

Imperial

Essential feature.—The word "IMPERIAL." Used since January 1, 1901.

37,019. ANTIFRICTION METALS. THE NATIONAL METAL CO., Glasgow, Scotland. Filed Aug. 9, 1901.

JACANA 

Essential feature.—The word "JACANA" and the representation of a jacana, used either alone or in combination. Used since January 31, 1898.

37,020. CERTAIN NAMED BONE GOODS. THE ROGERS & HUBBARD CO., Middletown, Conn. Filed Jan. 14, 1901.



Essential feature.—The representation of a black diamond. Used since October 8, 1900.

37,021. HAND-STAMP. BYRON H. JOY, Chicago, Ill. Filed Aug. 3, 1901.

RED-Y RULE-R

Essential feature.—The hyphenated words "RED-Y RULE-R." Used since January 2, 1890.

37,022. CARTRIDGES. SELBY SMELTING & LEAD CO., San Francisco, Cal. Filed Aug. 7, 1901.

EXCELSIOR

Essential feature.—The word "EXCELSIOR." Used since August 20, 1885.

37,023. INCANDESCENT LIGHTS, PARTS THEREOF, AND MANTLES, CHIMNEYS, GLOBES, AND SHADES THEREFOR. WELSBACH LIGHT COMPANY, Philadelphia, Pa. Filed July 29, 1901.



Essential feature.—The representation of a shield having a horizontal bar and surmounted by an eagle upholding a ribbon or scroll on which appear the words "THE SHIELD OF QUALITY." Used since July 16, 1901.

37,024. INCANDESCENT MANTLES FOR GAS OR VAPOR BURNERS. THE STILLWELL LIGHT COMPANY, Camden, N. J., and Philadelphia, Pa. Filed Aug. 6, 1901.

Perfecto

Essential feature.—The word "PERFECTO." Used since July 15, 1900.

37,025. MECHANICALLY-PROPELLED VEHICLES EXCEPT BICYCLES. AMERICAN BICYCLE COMPANY, Jersey City, N. J., and New York, N. Y. Filed July 6, 1901.

RAMBLER

Essential feature.—The word "RAMBLER." Used since September, 1900.

37,026. MECHANICALLY-PROPELLED VEHICLES. AMERICAN BICYCLE COMPANY, Jersey City, N. J., and New York, N. Y. Filed July 27, 1901.

HYDRO CAR

Essential feature.—The word "HYDROCAR." Used since January, 1901.

37,027. HORSESHOES. GOODLUCK MANUFACTURING COMPANY, Chicago, Ill. Filed Aug. 1, 1901.

GOODLUCK

Essential feature.—The word "GOODLUCK." Used since October 26, 1900.

37,028. CERTAIN NAMED AGRICULTURAL IMPLEMENTS AND VEHICLES. PIONEER IMPLEMENT CO., Council Bluffs, Iowa. Filed June 21, 1901.

BOSS

Essential feature.—The word "BOSS." Used for fifteen years.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED SEPTEMBER 3, 1901.

8,634.—*Title:* "SOLE COMFORT." (For Shoes.) FELIX EMILE MISTROT, Galveston, Tex. Filed August 12, 1901.

8,635.—*Title:* "SOLE COMFORT." (For Shoes.) FELIX EMILE MISTROT, Galveston, Tex. Filed August 12, 1901.

8,636.—*Title:* "MOSS AGATE FINISH." (For Note-Paper and Envelops.) PH. HAKE, New York, N. Y. Filed June 12, 1901.

8,637.—*Title:* "BAND-BOX." (For Rubber Bands.) THE B. F. GOODRICH COMPANY, Akron, Ohio. Filed April 13, 1901.

8,638.—*Title:* "SOAPSTONE SLATE PENCILS." (For Slate-Pencils.) TOWER MFG. & NOV. CO., New York, N. Y. Filed June 26, 1901.

8,639.—*Title:* "BARTO'S PURE CANDIES." (For Candy.) C. C. BARTOIS & BROS., Baltimore, Md. Filed August 2, 1901.

8,640.—*Title:* "KING DODO." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed August 7, 1901.

8,641.—*Title:* "AL. HAZZARD'S GOLDSEAL." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed August 10, 1901.

8,642.—*Title:* "WHITE WOLF." (For Flour.) THE MEDLIN MILLING CO., Wolfe City, Tex. Filed May 24, 1901.

8,643.—*Title:* "20th CENTURY." (For Flour.) THE MEDLIN MILLING CO., Wolfe City, Tex. Filed May 24, 1901.

8,644.—*Title:* "LIVER-RO." (For Liver-Tablets.) IRWIN MCGREGOR ADAMS, New York, N. Y. Filed August 7, 1901.

8,645.—*Title:* "VIN. VIGORANS." (For a Medicine.) LE COMPTE & GAYLE CO., Frankfort, Ky. Filed August 8, 1901.

8,646.—*Title:* "CHALGONIA." (For a Medicine.) LE COMPTE & GAYLE CO., Frankfort, Ky. Filed August 8, 1901.

8,647.—*Title:* "BED ROCK." (For Planes.) STANLEY RULE & LEVEL CO., New Britain, Conn. Filed August 8, 1901.

PRINTS

REGISTERED SEPTEMBER 3, 1901.

390.—*Title:* "WHITING'S STANDARD PAPERS." (For Writing-Paper.) WHITING PAPER CO., Holyoke, Mass. Filed August 12, 1901.

391.—*Title:* "MAKES LIGHT WORK." (For Welsbach Lamps.) ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

392.—*Title:* "A STEADY LIGHT MAKES A STEADY HAND." (For Welsbach Lamps.) ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

393.—*Title:* "I AM DISGUSTED WITH IMITATIONS. (For Welsbach Mantles.) ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

394.—*Title:* "CAN'T FOOL ME." (For Welsbach Mantles.) ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

395.—*Title:* "DON'T BE IT." (For Welsbach Mantles.) ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

396.—*Title:* "ECONOMY IS WEALTH." (For Welsbach Lamps." ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

397.—*Title:* "DR. H. W. DAVENPORT'S COMBINED LOCAL AND SYSTEMIC TISSUE TREATMENT FOR PYORRHOEA ALVEOLARIS." (For a Medicine.) HARRY W. DAVENPORT, Chicago, Ill. Filed July 31, 1901.

REPORT OF THE COMMISSIONER OF PATENTS

FOR THE FISCAL YEAR 1900-1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 19, 1901.

SIR: Complying with the request contained in your letter of June 22, 1901, I beg to submit herewith the following report of the business of the United States Patent Office for the fiscal year ending June 30, 1901:

Applications and Caveats received.

Applications for letters patent	42,082
Applications for design patents	2,368
Applications for reissue patents	101
Applications for registration of trade-marks	2,312
Applications for registration of labels	1,036
Applications for registration of prints	176
Caveats	1,860
Total	49,935

Applications awaiting action.

Number of applications awaiting action on the part of the Office on July 1, 1901	7,683

Applications for Patents, including Reissues, Designs, Trade-Marks, Labels, and Prints.

June 30, 1892	43,544
June 30, 1893	43,589
June 30, 1894	39,206
June 30, 1895	41,014
June 30, 1896	45,645
June 30, 1897	47,747
June 30, 1898	44,216
June 30, 1899	40,320
June 30, 1900	45,270
June 30, 1901	48,075

Applications awaiting action on the part of the Office.

June 30, 1892	9,447
June 30, 1893	8,293
June 30, 1894	7,076
June 30, 1895	4,927
June 30, 1896	8,943
June 30, 1897	12,241
June 30, 1898	12,187
June 30, 1899	2,989
June 30, 1900	3,564
June 30, 1901	7,683

Patents granted and Trade-Marks, Labels, and Prints registered.

Letters patent granted (including reissues and designs)	26,481
Trade-marks registered	1,826
Labels registered	824
Prints registered	124
Total	29,255

Patents withheld and Patents expired.

Letters patent withheld for non-payment of final fees	4,288
Letters patent expired	20,690
Applications allowed awaiting payment of final fees	8,189

EXPENDITURES.

	Expended.	Estimated liabilities.	Total.
Salaries	$768,716 70		$768,716 70
Scientific Library	1,273 93	$726 07	2,000 00
Transportation of publications to foreign countries			
Postage on foreign matter	2,591 00		2,591 00
Stationery	12,217 65		12,217 65
Furniture	3,963 99		3,963 99
Carpets	2,763 66		2,763 66
Ice	513 16		513 16
Telephones	543 00		543 00
Washing towels	100 88		100 88
Refitting attorneys' room	2,367 13		2,367 13
Shelving, sash, doors, etc.	5,439 08		5,439 08

EXPENDITURES—Continued.

	Expended.	Estimated liabilities.	Total.
Sundries	6,664 33		6,664 33
Law Library	392 25		392 25
Public use of inventions and defending suits	22 45		22 45
Official Gazette, illustrations, paid contractor	62,100 00		62,100 00
Photolithographing, paid contractor	104,715 47		104,715 47
Blue-print work, paid contractor	4,284 07		4,284 07
Printing and Binding.			
Paid Public Printer, for producing the Official Gazette and indexes out of the appropriation for 1901	67,791 32	5,267 00	73,058 32
Printing specifications	217,639 97		217,639 97
Miscellaneous printing and binding	18,148 42		18,148 42
International Protection of Industrial Property	728 60		728 60
Total	1,282,977 06	5,993 07	1,288,970 13

RECEIPTS AND EXPENDITURES.

Receipts from all sources	$1,408,877 67
Expenditures (including total in all appropriations)	1,288,970 13
Surplus	119,907 54

Comparative statement.

	Receipts.	Expenditures.
June 30, 1892	$1,268,727 35	$1,114,134 23
June 30, 1893	1,288,809 07	1,111,444 22
June 30, 1894	1,183,523 18	1,053,962 38
June 30, 1895	1,195,557 07	1,038,106 08
June 30, 1896	1,307,090 30	1,097,368 85
June 30, 1897	1,343,779 44	1,088,473 16
June 30, 1898	1,253,948 44	1,092,449 83
June 30, 1899	1,209,554 88	1,148,663 48
June 30, 1900	1,358,228 85	1,247,827 58
June 30, 1901	1,408,877 67	1,288,970 13

Summarizing these tables, there were received in the last fiscal year 42,082 applications for mechanical patents, 2,368 applications for designs, 101 applications for reissues, 1,860 caveats, 2,312 applications for trade-marks, 1,036 applications for labels, and 176 applications for prints. There were 26,481 patents granted, including reissues and designs, and 1,826 trade-marks, 824 labels, and 124 prints were registered. The number of patents that expired was 20,690. The number of allowed applications which were by operation of law forfeited for non-payment of final fees was 4,288. The total receipts of the Office were $1,408,877.67, the total expenditures were $1,288,970.13, and the surplus of receipts over expenditures, being the amount turned into the Treasury, was $119,907.54.

THE WORK OF THE OFFICE.

The volume of work of this Bureau has reached unprecedented figures. It indicates by the regular character of its increase that it is likely to continue and may be taken as representing the gen-

eral prosperity and growth of the country. This large volume of work has only been kept in hand by the greatest effort of the examining divisions and the clerical force of the Office. A considerable portion of the examining divisions has been working under a rule requiring attendance until five o'clock, and it is very evident that the work can only be successfully kept up with reasonable promptness by an increase of Office force if the present volume of business continues.

One of the greatest difficulties which this Office has to contend with is the fact that the requirements of training in the examining divisions are so great and the opportunities afforded to our examiners to engage in business outside of the Office are so frequent that this Office is continually losing numbers of its best-equipped men, who leave it for exterior employment. New men starting in this work are comparatively inefficient until after a considerable period of training, and it would seem to be self-evident that this Office should retain its highly-trained examiners by giving them such increase of salary as should make their continuance here more desirable to themselves.

An increase in the clerical force is also required, since the clerical work has increased in equal ratio with the work of the examining divisions. In the clerical force the salary paid to stenographers and type-writers ranges from $720 to $900, which is less than the amount paid to this class of clerks in other bureaus, so that we are at the disadvantage of having some of the best of our clerks transferred to other Departments where their services are better compensated. This Bureau should be able to retain for its own purposes the services of these people by its ability to pay them as much as is paid for the same services in other bureaus of the Government.

In view of the fact that the surplus of receipts over expenditures for the fiscal year just ended reaches a total of $119,907.54, it seems that a part of this surplus could be well employed in bettering the facilities which this Office affords to inventors.

ROOM.

The necessity for more room has been frequently urged in the reports of my predecessors, and it is an ever-present necessity. Lack of room hampers all of our operations and causes waste of time and the destruction of valuable documents, for which there is no remedy under present conditions. There is no doubt in my mind but that if more space were accorded to this Office it would take the place to some extent of an increased force in more economical methods of work.

SCIENTIFIC LIBRARY.

This library, consisting of nearly 75,000 volumes and of the greatest value to the Government and to inventors and attorneys, should be provided with steel stacks in addition to those already provided, so that it may be rendered more safe from fire. It is thought that $2,500 would be sufficient to complete this installation of steel stacks. The appropriation for the purchase of books is inadequate and should be increased.

Respectfully submitted,

F. I. ALLEN,
Commissioner.

THE SECRETARY OF THE INTERIOR.

DECISIONS OF THE COMMISSIONER OF PATENTS.

COMMISSIONER'S DECISIONS.

EX PARTE REID.

Decided June 10, 1901.

1. REQUIREMENT FOR DIVISION—INDEPENDENCE OF INVENTIONS CLEAR—PROCESS AND PRODUCT—REFERENCES UNNECESSARY.

Where it is evident upon mere inspection that the process covered by one claim does not necessarily produce the article covered by another claim. *Held* that the independence of the inventions is clear and that it is not necessary for the Examiner to cite references or state reasons in support of his requirement for division.

2. SAME—CITATION OF REFERENCES—PRACTICE.

It is the practice for the Examiners in requiring division to cite such references and give such information as to the state of the art as they possess without making any extended examination, so as to aid the applicant in making his election; but it is not the practice to make a regular action upon the merits.

ON petition.

MANUFACTURE OF POROUS CARBON TUBES.

Application filed January 8, 1901, No. 42,500.

Mr. Wallace A. Bartlett for the applicant.

ALLEN, *Commissioner:*

This is a petition asking that the Examiner be instructed—

to examine the case on its merits or to inform applicant of "the reasons" for his assertion that the product claimed is not the necessary product of the process covered in claim 1.

It appears that claim 1 covers a process of making carbon tubes which consists in certain successive treatments to which the materials used in the production of the tubes are subjected, whereas the remaining claims cover carbon tubes as articles of manufacture. The Examiner required division between the process and the product under the authority of *ex parte Erdman*, (93 O. G., 2531.)

The present petition is apparently not designed to raise the question whether or not the requirement for division was correct, but was intended merely to raise the question whether or not the Examiner sufficiently stated his reasons for the requirement. The questions are, however, so closely related that it is necessary to consider them together. The fact that the tube of peculiar shape covered by claims 3 and 4 is not the necessary result of the process of claim 1, which makes no reference whatever to the form of the tube produced, is so clear as to require no argument or statement of reasons in support of it. It is evident upon a mere reading of the claims, and therefore it was not necessary for the Examiner to cite references in order to support his contention. This is a case in which the independence of the inventions is clear, and under Rule 42 the Examiner was not required to make an examination and action upon the merits.

While it is true that it is the practice for the Examiners in requiring division to cite such references and give such information as to the state of the art as they possess without making any extended examination, so as to aid the applicant in making his election, it is not the practice to make a regular action upon the merits. (*Ex parte Randall and Luck*, 95 O. G., 2063.) To make such action would be to give the applicant an examination upon two inventions in one case and in the present instance would necessitate an examination in two different divisions of the Office.

The petition is denied.

EX PARTE VINCKE.

Decided June 29, 1901.

CLAIMS—ELEMENTS SHOULD BE POSITIVELY INCLUDED.

Where an element is mentioned in a claim and intended to be included as an element of the combination, *Held* that it is in the interest of clearness and good form to positively and directly include it instead of making an indefinite reference to it.

ON petition.

REGULATOR FOR HYDROCARBON AND OTHER MOTORS.

Application filed March 26, 1900, No. 10,179.

Mr. B. Singer for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner objecting to the claim for the reason that it refers to "the fixed sleeve" without directly and positively including it as an element of the combination.

The clause containing this reference is as follows—

a movable sleeve controlled by said ball-regulator, a coiled spring arranged between said sleeve and the fixed sleeve of the regulator—

and this is the only place in the claim where the fixed sleeve is mentioned. The petitioner contends with some force that this reference would be construed in view of the specification as making the fixed sleeve an element of the combination; but if this is true it is not seen what valid objection the petitioner can have to positively including it in the regular way. According to his own statement that would not add an additional limitation to the claim, and it would undoubtedly make it clearer and in better form.

The petition is denied.

EX PARTE COURVILLE.

Decided July 8, 1901.

FINAL REJECTION TECHNICALLY UNWARRANTED—REFUSAL TO REOPEN CASE.

Where after numerous actions in the case in which the Examiner states that there is nothing patentable presented the claims are finally rejected, although by reason of amendments they are not the same in all details as the claims before rejected, and the applicant thereafter presented two sets of claims substantially the same as those finally rejected and the Examiner while refusing to reopen the case stated that they were substantially the same and unpatentable, *Held* that the final rejection was technically unwarranted at the time, but that since there is a clear issue between the applicant and the Examiner no useful purpose would be served by reopening the case, and since substantially the same claims have been reconsidered by him it is directed that the last amendment be entered and the claims considered finally rejected.

ON petition.

ATTACHMENT FOR PLAYING MUSICAL INSTRUMENTS.

Application of Joseph Courville filed September 22, 1899, No. 731,263.

Mr. N. S. Wright for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner making his rejection of February 15, 1900, final and refusing thereafter to enter and consider amendments.

It appears that the action of February 15, 1900, was the third rejection of the claims upon the same references, although the claims had been twice amended in the endeavor to avoid the references which the Examiner regarded as anticipating the entire invention disclosed. The Examiner states that the amendment after the previous rejection did not change the claims in substance, and therefore he made his rejection of February 15, 1900, final under the provisions of Rule 134. The applicant thereafter twice presented amendments to the claims; but the Examiner refused to reopen the case for consideration, holding that the prosecution of the case before him was closed. He said, however, in regard to the new claims:

It is obvious, however, on mere inspection that so far as patentable subject-matter is concerned they cover no more than the claims hitherto rejected and nothing over the references.

It is evident, therefore, that the Examiner has considered the merits of the new claims and regards them as possessing no more patentable novelty than those formally rejected by him.

It seems clear from the record that to reopen the case before the Primary Examiner would serve no useful purpose, but would merely unnecessarily prolong the prosecution. He regards the invention as anticipated without regard to the mere form of the claims, and therefore if the applicant is of a different opinion his remedy is by an appeal to the Examiners-in-Chief. There is a clear issue between the Examiner and the applicant.

The amendment of January 22, 1900, changed the wording of the claims, and, strictly construed, they might be held to set forth features of construction not specifically included in the previous claims, and therefore technically they cannot be considered the same, although for the practical purposes of the examination the real invention is the same. Even if the final rejection be held to have been technically unwarranted at the time, the applicant has twice since that time presented claims not differing in substance from those rejected, and the Examiner has informally considered them and held them unpatentable. Those claims will be entered; but they will be considered finally rejected in view

of the Examiner's repeated actions upon substantially the same claims.

To the extent of entering the amendments the petition is granted.

THE FARMERS MANUFACTURING COMPANY *v.* W. R. HARRISON & CO.

Decided August 12, 1901.

1. TRADE-MARKS—USE IN FOREIGN COUNTRY—COMMON-LAW RIGHT.

Use of a trade-mark in a foreign country without such use in this country as to give a common-law right to the mark here does not entitle a party to registration. (*Richter* v. *Reynolds*, 67 O. G., 404; *Leprince* v. *Iler & Morris*, 92 O. G., 189.)

2. SAME—GOODS MADE IN THIS COUNTRY, BUT SOLD ABROAD—PUBLICITY OF USE.

While the use of a trade-mark upon goods manufactured and marked in this country, although sold abroad, might in some cases establish a common-law right here, *Held* that the business must be carried on with such publicity as to indicate to others in this country an intention to adopt the mark as a trade-mark.

3. SAME—SECRET USE OF MARK DOES NOT ESTABLISH RIGHT.

A single shipment to an agent or customer in Mexico of two machines bearing the mark where the mark was intentionally concealed, so that it could not be seen, and instructions were given to keep the fact of the shipment and marking secret, *Held* not such public use of the mark in this country as to establish a common-law right to it.

4. SAME—RIGHT RESTS UPON THE MANNER OF USING MARK.

Held that the common-law right to a trade-mark arises not from the intention of the user to acquire the right, but from the manner of its use.

APPEAL from Examiner of Interferences.

TRADE-MARK FOR AGRICULTURAL IMPLEMENTS.

Application of The Farmers Manufacturing Company filed August 11, 1900, No. 61,630. Application of W. R. Harrison & Co. filed August 3, 1900, No. 61,592.

Mr. William L. Pierce for The Farmers Manufacturing Company.

Mr. F. E. Tasker for W. R. Harrison & Co.

ALLEN, *Commissioner:*

This is an appeal by Harrison & Co. from the decision of the Examiner of Interferences awarding to The Farmers Manufacturing Company priority of adoption of a trade-mark for feed cutters and carriers consisting of the word "Cyclone."

Harrison & Co. raise the preliminary question whether or not certain depositions on behalf of The Farmers Manufacturing Company, taken before H. W. Caskey as a special examiner, should be striken from the record. It appears that at the time the depositions were taken counsel for Harrison & Co. consented that M. W. Caskey should act as special examiner to take the depositions. By the request of opposing counsel for such consent he was in effect notified of some informality in the proceedings, and being so placed upon his guard it was his duty to have informed himself of the particular informality and to have then made his objection. Having failed to make any objection when the opposing counsel could have corrected the informality, he will not now be heard to raise it.

The Farmers Manufacturing Company has not established by its evidence an adoption and use of the mark upon its goods until some time in August, 1900, after the applications of both parties were filed, although some months prior to that time at a meeting of the stockholders of the company it was decided to use the word "Cyclone" as a trade-mark, and its intention to put the goods on the market under that name had been extensively advertised prior to July 1. The mere advertisement of its intention cannot be considered an adoption of the mark within the meaning of the law. (*Schneider* v. *Williams*, 44 O. G., 1400.)

Harrison & Co. claim to have considered the question of adopting the mark "Cyclone" as early as 1896, but they did not actually apply it to goods until July 3, 1900, when they shipped two machines so marked to a customer or agent in Mexico. They seem to have used the mark on no other machines until December, 1900. Their whole case rests upon the shipment to Mexico. If it constituted such adoption and use of the mark as to give them a common-law right to it in this country, they must prevail. Otherwise the decision must be in favor of The Farmers Manufacturing Company.

The trade-mark statutes do not create a right to a mark where none existed at common law, but merely provide for the registration of such marks as have become property by common law if they have also been used in commerce with foreign nations or the Indian tribes. It is well settled that use in a foreign country without such use in this country as to give a common-law right to the mark here does not entitle a party to registration. (*Richter* v. *Reynolds*, 67 O. G., 404; *Leprince* v. *Iler & Morris*, 92 O. G., 189.) In these cited cases it was also held that limited sales in this country by a foreign manufacturer upon especial orders to supply particular customers did not give a common-law right, since they did not constitute a use of the mark "in such circumstances as to publicity and length of use as to show an intention to adopt it as a trade-mark."

While a case where the goods were manufactured and marked in this country, although sold abroad, may properly be regarded as standing upon a different footing from a case where they were both made and sold abroad and might in some cases be held to establish a common-law right here, the business must be carried on with such publicity as to indicate to others here an intention to adopt the mark as a trade-mark. The single shipment to Mexico is not believed to have been such public use of the mark as to establish the right of Harrison & Co. to it. F. G. Harrison says that the name "Cyclone" was marked with a stencil upon the machines and that—

> They were covered with paper over the parts stenciled.
>
> X-Q. 47. What was the reason for this?
>
> Simply because we had application papers in for trade-mark and competitors in the same vicinity who would try to prevent us from getting this trade-mark, and we did it to anticipate any moves on their part.
>
> X-Q. 48. In fact, you have told certain people, have you not, to say nothing about this Mexican shipment with the word "Cyclone" thereon, as you wished to keep the fact secret that you had so marked the machine?
>
> It undoubtedly is.

It seems clear that such secret use of the mark could not inform others in this country of their in-

tention to adopt it as a trade-mark. The personal intentions of the members of the company are inconsequential so long as the mark was not actually used in such a way as to inform others in this country of their intentions. The right to a mark arises not from the intention of the user, but from the manner of its use. Even if the shipment to Mexico on July 3 be regarded as a *bona fide* sale of the machines, a question not free from doubt, it was not made under such circumstances as to establish the right of Harrison & Co.

In view of the conclusion announced above it is unnecessary to consider the question of fraud on the part of Harrison & Co. in the adoption of the mark raised by The Farmers Manufacturing Company.

The decision of the Examiner of Interferences awarding priority to The Farmers Manufacturing Company is affirmed.

EX PARTE LANDSING.

Decided June 22, 1901.

1. AMENDMENT—AFTER FINAL REJECTION—RULE 68.

Where an amendment is filed after a final rejection, the same should not be entered unless accompanied by a duly-verified statement satisfactorily showing why said amendment was not earlier presented.

2. SAME—SAME—SAME.

Where an amendment is filed after a final rejection canceling the original claims and inserting in lieu thereof new claims, said new claims differing in scope from the original claims and not being merely the original claims presented in better form, *Held* that the amendment should not be entered for the purpose of appeal.

ON petition.

ELECTRIC RAIL-BONDS.

Application of Jang Landsing filed April 25, 1900, No 14,346.

Mr. Harold Binney for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition from the action of the Examiner refusing to enter a certain amendment inserting a new set of claims in lieu of certain claims now under final rejection.

It appears that all the claims as originally filed were rejected by the Examiner on the first action. The petitioner then filed an argument setting forth the reasons why, in his opinion, the references cited fail to anticipate the claims and accompanied it with a request for reconsideration. The Examiner upon a reconsideration rejected the claims a second time. Nine months after the date of the final rejection the petitioner revoked the original power of attorney and appointed the present attorney, who filed an amendment canceling the original claims and inserting in lieu thereof two new claims. The Examiner properly refused to enter this amendment under the provisions of Rule 68.

The petitioner thereupon filed an affidavit, as required by said rule, giving reasons why the amendment was not earlier presented. The Examiner has ruled that this affidavit did not set forth such good and sufficient reasons as to warrant him in entering and considering the proposed amendment. He also properly refused a request to enter the amendment for the purpose of appeal on the ground that the claims in the proposed amendment differed in scope from those under final rejection and were not merely the original claims presented in better form.

It has been repeatedly held that there must be at some time an end to the prosecution of an application. It is clear that the Examiner has acted strictly in accordance with the rules, and his actions meet with my approval.

In view, however, of the peculiar conditions of this case and in view of the fact that it is evident that the proposed amendment was not filed for the purpose of delay and that the petitioner has all along acted in good faith, I am of the opinion that it would be equitable to make an exception in this case and cause the same to be reopened. The Examiner is therefore directed to enter the amendment filed April 22, 1901, and consider the same on its merits.

The petition is granted.

HENDLER *v.* GRAF.

Decided July 12, 1901.

1. INTERFERENCE—MOTION TO SET ASIDE DECISION OF EXAMINER OF INTERFERENCES—REHEARING—EX PARTE AFFIDAVITS.

Where an exhibit model referred to by witnesses in the record of one of the parties, though filed in the Patent Office, was not properly marked and identified and for that reason was not applied to the interference record and was not considered by the Examiner of Interferences in rendering his decision, *Held* that said exhibit cannot be identified and made a part of the record in the interference by *ex parte* affidavits filed by the witnesses who originally testified with respect to said exhibit.

2. SAME—TESTIMONY—EX PARTE AFFIDAVIT NOT CONSIDERED.

Where, after the taking of testimony was closed and the interference was on appeal to the Examiners-in-Chief, *ex parte* affidavits were filed by one of the parties to correct alleged errors and deficiencies in the testimony, *Held* that said affidavits should not be considered for the purpose for which they were presented. Affidavits may lay the foundation for the introduction of testimony, but they are not themselves testimony. (*Nielson* v. *Bradshaw*, 91 O. G., 644.)

3. SAME—CORRECTION OF TESTIMONY—PROPER PRACTICE.

Where a *prima facie* case has been made out by reason of *ex parte* affidavits that the testimony as originally taken is defective through the fault of the officer before whom the testimony was taken in not properly marking an exhibit and that the incorrectly-marked exhibit sent to the Patent Office is, in fact, the exhibit referred to in the record, *Held* that the equities of the case demand the party in whose behalf the *prima facie* case has been made should be given an opportunity to prove that the exhibit on file in the Patent Office is, in fact, the exhibit referred to in his record, and further *Held* that said party should file a motion to set aside the decision of the Examiner of Interferences and to be permitted to take further testimony.

APPEAL on motion.

GAS-BURNER.

Application of John J. Hendler filed April 13, 1900, No. 12,975. Application of John J. Graf filed April 10, 1899, No. 712,400.

Mr. T. S. Brown and *Messrs. Wilkinson & Fisher* for Hendler.

Mr. Carl Spengel and *Mr. Arthur Stem* for Graf.

MOORE, *Acting Commissioner:*

This is a motion brought by Hendler to reopen

the above-entitled interference before the Examiner of Interferences, "that the decision of the Examiner of Interferences dated April 11, 1901, be vacated and set aside, and that the case be reheard by the Examiner of Interferences." Hendler further moves—

that a certain exhibit now on file in the Patent Office, under the name of Oscar C. Dodson, notary public, be admitted in the above-entitled interference, and marked as follows: "Hendler vs. Graf, Interference 20,593, Hendler Exhibit B—Underwood, Oscar C. Dodson, notary public," with the same force and effect as if the same had been properly marked and filed in the Patent Office before the original hearing.

Hendler also moves that pending the final determination of this motion his appeal to the Examiners-in-Chief be deferred. This latter request was granted by me under date of June 27, 1901.

On page 68 of Hendler's record is the following statement:

Counsel for John J. Hendler offers in evidence the burner marked Exhibit B—Underwood and the same to be produced at the hearing of this case.

No reference is made to this Exhibit B in the index of said record

On page 53, in answer to Q. 3, Hendler says:

* * * I went to Toledo and built another acetylene cooker producing a blue flame for cooking purposes. This was in 1898, October or November, at Zeigler Model Works, Toledo, Ohio, where this was made. This burner was marked "Exhibit B." The burner was made by John Schmidt.

The notary public before whom this testimony was taken and whose duty it was to forward the burner said to be marked "Exhibit B—Underwood" to the Patent Office was one Oscar C. Dodson.

John Schmidt testifies, pages 40 and 41, that the burner marked "Exhibit B" was the one that he made, with the exception that some specified changes had been made in the same.

Witness Burns, a solicitor of patents and a mechanical draftsman, files an affidavit attached to a blue-print of a drawing of a certain burner. In said affidavit he states that he is the same Burns who testified in the above-entitled interference before Homer C. Underwood, a notary public, at the office of the affiant and that on the same day—namely, August 23, 1900—the testimony was also taken of Joseph Bossler, Joseph Treuchet, and Geo. W. Staub in the above-entitled case. Burns states that he heard each of these witnesses testify, and that during the testimony of each of them they referred to a certain gas-burner, and that he had said gas-burner in his hands and examined it closely. He describes the construction of this gas-burner by reference to the blue-print which is attached to the affidavit. The description and showing in the blue-print are the same as shown by the burner received in the Patent Office marked "Oscar C. Dodson, notary public." Witness Underwood, the notary, corroborates the affidavit of Burns in an affidavit duly filed by him. The witnesses Bossler, Staub, and Treuchet also file affidavits stating that the blue-print of the drawings and description of the same in the affidavit of Burns correspond to the "Exhibit Burner B" referred to by them in their testimony. By reference to the testimony of these witnesses it is seen that they all refer to a burner marked "Exhibit B."

Schmidt also files an affidavit setting forth facts similar to those set forth in the affidavit filed by Burns.

The notary public, one Frederic Flagg, before whom Schmidt testified also files an affidavit similar to the affidavit of the notary Underwood.

It is stated in the affidavit of the general agent of the United States Express Company at Cincinnati, Ohio, that the books of said company show that a certain package weighing about two pounds was shipped through his office on August 29, 1900, addressed to the Hon. Commissioner of Patents, Washington, D. C. The books of the express company also show that said package was delivered to the Patent Office on August 31, 1900, and was receipted for by employee Curtis.

This burner not being properly marked by the notary public, Oscar C. Dodson, identifying the same as the "Exhibit B—Underwood in Hendler vs. Graf, Interference No. 20,593," the same was not placed in the files and records of said interference.

The burner has since been found and bears the official label, showing that it was received in the United States Patent Office on August 31, 1900.

I have carefully considered the brief filed by the counsel for Graf opposing the motion brought by Hendler. This brief discusses quite fully the bearing the Exhibit B, if admitted, would have in deciding the question of priority. This argument should be presented before the tribunal before whom the question of priority is brought for decision.

The question for me to decide at this time is whether or not Hendler has made out a *prima facie* showing that the exhibit burner now on file in the Patent Office and which has been on file in this Office since August 31, 1900, is the identical exhibit burner which was placed in evidence and referred to throughout the record of Hendler as "Exhibit B—Underwood." I am of the opinion after carefully considering the affidavits on file that Hendler has made out a *prima facie* case, that the exhibit burner filed in the Patent Office on August 31, 1900, and marked "From Oscar C. Dodson, Notary Public," is the identical "Exhibit B—Underwood" referred to in the record of John J. Hendler. This showing being *ex parte*, it is not such evidence as to warrant its consideration in an interference proceeding. (*Nielson* v. *Bradshaw*, 91 O. G., 644.)

I am of the opinion, however, that the equities of the case demand that Hendler should be given an opportunity to prove that the exhibit on file in the Patent Office is, in fact, the exhibit referred to in his record as "Exhibit B—Underwood."

If Hendler desires to make such proofs, he should file a motion to set aside the decision of the Examiner of Interferences and to be permitted to take further testimony.

This motion is dismissed without prejudice to the right of Hendler to make the motion as above indicated.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 11. TUESDAY, SEPTEMBER 10, 1901. Price—$5 per year.

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Patents	489—No.	682,157 to No. 682,595, inclusive.
Designs	32—No.	35,055 to No. 35,086, inclusive.
Trade-Marks	26—No	37,029 to No. 37,054, inclusive.
Labels	26—No.	8,648 to No. 8,673, inclusive.
Prints	1—No.	398.
Reissues	None.	
Total issue	524	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	....	Nevada	2	....
Alaska Territory	....	....	New Hampshire	4	....
Arizona Territory	1	....	New Jersey	19	1
Arkansas	1	....	New Mexico Territ'y	....	....
California	19	2	New York	71	17
Colorado	6	1	North Carolina	1	....
Connecticut	9	....	North Dakota	2	....
Delaware	1	....	Ohio	38	....
District of Columbia	6	....	Oklahoma Territ'y	....	1
Florida	1	....	Oregon	6	1
Georgia	1	....	Pennsylvania	36	11
Idaho	....	....	Rhode Island	3	....
Illinois	45	1	South Carolina	3	....
Indian Territory	....	....	South Dakota	2	2
Indiana	10	....	Tennessee	2	1
Iowa	9	....	Texas	4	1
Kansas	1	....	Utah	....	....
Kentucky	6	....	Vermont	....	1
Louisiana	3	....	Virginia	5	1
Maine	1	....	Washington	3	....
Maryland	1	....	West Virginia	2	....
Massachusetts	39	5	Wisconsin	9	1
Michigan	13	1	Wyoming	....	....
Minnesota	6	2	U. S. Army	....	....
Mississippi	....	1	U. S. Navy	1	....
Missouri	11	1			
Montana	1	1	Total to citizens of the United States	411	52
Nebraska	6	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1	....	Jamaica	....	....
Australia	....	....	Japan	....	....
Austria-Hungary	8	....	Mexico	1	....
Barbadoes	....	....	Netherlands	....	....
Belgium	1	....	New South Wales	....	....
Brazil	....	....	New Zealand	1	....
British Guiana	....	....	Norway	....	....
Canada	3	....	Queensland	....	....
Cape Colony	....	....	Russia	1	....
China	....	....	Scotland	1	....
Colombia	....	....	South African Republic	....	....
Cuba	....	....	South Australia	....	....
Denmark	2	....	Spain	....	....
Egypt	....	....	Sweden	1	....
England	16	....	Switzerland	....	....
Finland	....	....	Turkey in Asia	....	....
France	7	1	Victoria	1	....
Germany	19	....	Western Australia	....	....
India	....	....			
Ireland	....	....			
Italy	2	....	Total to citizens of foreign countries	60	1
Haiti	....	....			

Complete Applications.

It is hereby ordered that applications shall not be given serial numbers as complete applications and forwarded to the examining divisions for examination (1) when the petition has not been signed by the inventor; (2) when the specification and claims have not been signed by the inventor and the signature attested by two witnesses; (sec. 4888, Rev. Stats.;) (3) when the drawing has not been signed by the inventor or his attorney in fact and the signature attested by two witnesses; (sec. 4889, Rev. Stats.;) and (4) when the oath to the application does not fill the requirements of sections 4887 and 4892, Revised Statutes.

The requirements of section 4896, Revised Statutes, respecting the right of executor or administrator to make application for a patent for the invention of a deceased person must also be observed before the application will be considered as complete and forwarded for examination. The legal requirements in cases where the application is made by a foreign administrator are stated in *ex parte Ransome*, (C. D., 1870, 143.)

* * * * * * * * *

This order, so far as applicable, relates to applications for the registration of trade marks, labels, and prints, which must in all respects comply with the requirements of the statutes.

Patents to Assignees.

Rule 201. In every case where it is desired that the patents shall issue to an assignee the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business September 3, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Aug. 28	Aug. 12	44
106	II. Farm Stock, Products, etc.	Aug. 21	Aug. 22	164
246	I. Tillage and Fences	Aug. 9	Aug. 13	160
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 7	Aug. 7	142
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 5	Aug. 20	144
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Aug. 3	Aug. 13	177
129	XXIV. Sewing-Machines, Apparel, and Toilet.	Aug. 3	Aug. 3	146
	Between one and two months.			
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Aug. 1	Aug. 1	307
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	July 30	July 30	144
281	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 29	Aug. 2	226
253	X. Carriages and Wagons	July 27	Aug. 7	115
250	VIII. Furniture, Beds, Store Furniture, etc.	July 27	July 31	409
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 25	Aug. 13	140
93	XXI. Textiles, etc	July 24	July 24	217
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 23	Aug. 2	185
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 20	Aug. 14	172
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 20	Aug. 6	219
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 18	Aug. 6	306
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 17	Aug. 7	236
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	July 15	July 17	217
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	July 10	Aug. 3	312
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	July 9	July 22	243
240	VII. Velocipedes, Games, and Toys.	July 9	July 12	258
	Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	July 2	July 20	358
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 2	July 12	292
248	XVIII. Steam-Engineering, etc	July 2	July 9	342
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	July 1	July 26	256
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	June 29	Aug. 13	109
215	XVII. Printing, Type-Writing Machines, and Linotyping.	June 28	Aug. 10	258
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 24	July 31	182
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 22	July 25	235
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	June 20	June 20	407
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 18	July 24	240
102	XIX. Stoves and Furnaces	June 18	July 24	432
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 17	July 2	267
"	*Between three and four months.*			
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	May 28	July 27	166
	Total number of applications awaiting action			8,307

Applications Under Examination—Continued.

Under one month.			
*Designs	Aug. 14	Aug. 29	56
†Trade-Marks	Aug. 24	Aug. 30	50
‡Labels and Prints		Aug. 31	2

Order in Relation to Drawings.

(ORDER No 1,135.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 22, 1901.

Attorneys and officials of this Office are notified that the subjoined order, No. 1,135, promulgated June 12, 1897, is still in force and that the requirements thereof should in all cases be complied with.

E. B. MOORE,
Acting Commissioner.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant or any other person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval, or upon request it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' room except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case, or upon the request of applicants the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' room before the prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

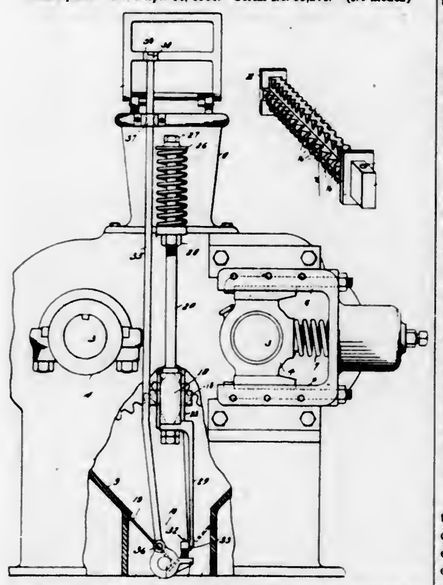
Amendments to Allowed Applications.

Hereafter all amendments proposed to allowed applications and all petitions and requests relating thereto shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action. (Order 629 amended October 15, 1898.)

PATENTS

GRANTED SEPTEMBER 10, 1901.

682,157. GRINDING OR CRUSHING MILL. DOW L. ADELSPERGER, Springfield, Ohio, assignor to the Foos Manufacturing Company, same place. Filed Apr. 11, 1901. Serial No. 55,278. (No model.)



Claim.—1. In a grinding or crushing apparatus of the character described, provided with a normal point of discharge of the products thereof, the combination, with a crushing or grinding roll, of a yielding bar arranged in close proximity to said roll, and means controlled by the yielding of said bar for diverting the product from said normal point of discharge, substantially as described.

2. In a grinding or crushing apparatus of the character described, provided with a normal point of discharge of the products thereof, the combination, with two crushing or grinding rolls, of a yielding bar arranged in close proximity to both rolls on the discharge side thereof, and means controlled by the yielding of said bar for diverting the product from said normal point of discharge, substantially as described.

3. In a grinding or crushing apparatus of the character described, provided with a normal point of discharge for the products thereof, the combination, with two crushing or grinding rolls revolving in the opposite direction, of a yielding bar arranged in close proximity to both of said rolls on the discharge side thereof, and means controlled by the yielding of said bar for diverting the product from said normal point of discharge, substantially as described.

4. In a grinding or crushing apparatus of the character described, provided with a normal point of discharge, the combination, with a crushing or grinding roll having circular rows of teeth, of a yielding bar arranged in close proximity to said roll and provided with notches through which the teeth pass, and means controlled by the yielding of said bar for diverting the product from said normal point of discharge, substantially as described.

5. In a grinding or crushing apparatus of the character described, provided with a normal point of discharge for the products thereof, the combination, with a pair of grinding and crushing rolls having circular rows of teeth, the paths of which overlap but do not intersect, of a yielding bar arranged in close proximity to said rolls on the discharge side thereof and provided with notches or recesses through which the teeth of the rolls pass, and means controlled by the yielding of said bar for diverting the product from said normal point of discharge, substantially as described.

6. In a grinding or crushing apparatus of the character described, the combination, with grinding or crushing rolls, and a discharge-hopper located below the same and provided with a normal outlet and an emergency-outlet, of a yielding bar located in close proximity to the rolls on the discharge side thereof, and a switch-valve controlling said outlets, and itself controlled by said yielding bar, whereby, when said bar yields, said valve is shifted to close the normal outlet and open the emergency-outlet, substantially as described.

7. In a grinding or crushing apparatus of the character described, the combination, with grinding or crushing rolls, and a yielding bar arranged in close proximity to the discharge side of said rolls, of normal and emergency outlets located on the discharge side of said rolls, a switch-valve controlling said outlets and arranged to normally open the normal oulet and close the emergency-outlet, and mechanism intermediate said bar and valve, whereby, when said bar yields, said valve will be shifted to close the normal outlet and open the emergency-outlet, substantially as described.

8. In a grinding or crushing apparatus of the character described, the combination, with crushing-rolls, and a yielding bar located in close proximity thereto on their discharge side and provided with a downwardly-extending arm, of normal and emergency outlets located on the discharge side of the rolls, a switch-valve controlling said outlets, and a rock-shaft carrying said switch-valve and provided with a projection located in the path of the arm of the yielding bar, whereby, when said bar is depressed, the switch-valve will be shifted, substantially as described.

9. In a grinding or crushing apparatus of the character described, the combination, with grinding or crushing rolls, and a yielding bar located in close proximity thereto on their discharge side, of normal and emergency outlets on said discharge side, a switch-valve controlling said outlets, and itself controlled by the yielding bar, and a visible signal also controlled by the yielding bar, substantially as described.

10. In a grinding or crushing apparatus of the character described, the combination, with a pair of grinding or crushing rolls, a receiving-hopper above said rolls, a discharge-hopper below said rolls provided with normal and emergency outlets, a switch-valve controlling said outlets, and a yielding bar located in close proximity to said rolls on their discharge side, and controlling the switch-valve, of self-closing gates mounted on the receiving-hopper, and retaining devices for holding said gates in open position, said retaining devices being controlled by the yielding bar, substantially as described.

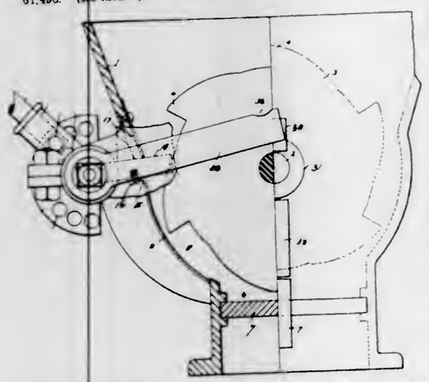
11. In a grinding or crushing apparatus of the character described, the combination, with grinding or crushing rolls, and a yielding bar arranged in close proximity thereto on the discharge side, of a receiving-hopper above said rolls provided with self-closing gates, a discharge-hopper below said rolls provided with normal and emergency outlets, a rock-shaft provided with a switch-valve controlling said outlets and adapted to be operated by the yielding bar, and retaining devices for normally holding said receiving-hopper gates in an open position, said retaining devices being connected with and operated by said rock-shaft to close said gates when the valve is shifted, substantially as described.

12. In an apparatus of the character described, the combination, with grinding or crushing rolls, and a bar arranged in close proximity to the discharge side thereof, of a frame or casing having slots through which the bar projects at its ends and provided with supporting-lugs above the same, rods secured to the ends of said bar and passing through said lugs, springs surrounding said rods and bearing against the lugs and against adjustable abutments on the rods, and stops adjustable on said rods to limit the upward movement of the bar by their contact with the under sides of said lugs, substantially as described.

13. In a grinding or crushing apparatus of the character described,

the combination, with a frame or casing having a receiving-hopper at the top and a discharge-hopper at the bottom provided with normal and emergency outlets, of grinding or crushing rolls located in said casing between said hoppers, a yielding bar located in close proximity to the discharge side of said rolls and having a downwardly-extending arm, a rock-shaft provided with a switch-valve controlling said outlets and having a lug arranged in the path of the downwardly-extending arm, self-closing gates mounted on the receiving-hopper, and rods normally engaging said gates to hold them open and eccentrically connected with the rock-shaft, substantially as described.

682,158. APPARATUS FOR GRINDING, CRUSHING, OR FEEDING. DOW L. ADELSPERGER, Springfield, Ohio, assignor to the Foos Manufacturing Company, same place. Filed May 23, 1901. Serial No. 61,498. (No model.)



Claim.—1. In an apparatus of the character described, provided with a normal point of discharge of the products thereof, the combination, with a roll, of a yielding bar arranged in close proximity to said roll, means controlled by the yielding of said bar for diverting the product from said normal point of discharge, and means for retarding the return of the parts to their normal position, substantially as described.

2. In an apparatus of the character described, the combination, with a roll, and a yielding bar arranged in close proximity to said roll, of a hopper or casing provided with a normal discharge-outlet and an emergency-outlet, and a door or valve for said emergency-outlet connected with and operated by the yielding bar, substantially as described.

3. In an apparatus of the character described, the combination, with a hopper or casing, and a roll mounted therein, said hopper or casing being provided with a normal discharge-outlet and an emergency-outlet, of a yielding bar arranged in close proximity to said roll, a rock-shaft on which said bar is mounted, and a door or valve for the emergency-outlet connected with and operated by said yielding bar, substantially as described.

4. In an apparatus of the character described, the combination, with a roll, of a hopper or casing provided with a normal discharge-outlet and an emergency-outlet, a yielding bar arranged in close proximity to the roll, a spring controlling said yielding bar, and means for adjusting the tension of said spring, substantially as described.

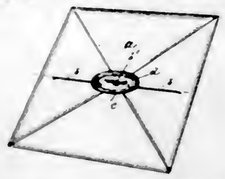
5. In an apparatus of the character described, the combination, with a roll, of a hopper or casing provided with a normal discharge-outlet and an emergency-outlet, a rock-shaft mounted externally of said hopper or casing, a yielding bar carried by said rock-shaft and extending through an opening into close proximity with the roll, and a guard or shield carried by said yielding bar and serving to close that portion of the emergency-outlet above said bar, substantially as described.

6. In an apparatus of the character described, the combination, with a hopper or casing, of a roll mounted therein, a yielding bar located in close proximity to said roll, a rock-shaft on which said bar is mounted, a spring coiled on said rock-shaft and connected therewith at one end, a loose collar on said rock-shaft with which the other end of said spring is connected, and provided with an aperture, a fixed tension-plate having a series of apertures with which the aperture of the collar may register, and a pin for adjustably connecting said collar and tension-plate, said hopper or casing being provided with normal and emergency outlets, and said yielding bar having connected therewith a door or valve controlling the emergency-outlet, substantially as described.

7. In an apparatus of the character described, the combination, with a roll having a threaded shaft, of a casing having normal and emergency outlets, a rock-shaft provided with a yielding bar located in close proximity to the roll, a spring controlling said yielding bar, and a yielding arm connected with said rock-shaft and adapted to engage with the thread of the roll-shaft when the yielding bar is depressed, substantially as described.

8. In an apparatus of the character described, the combination, with a roll having a threaded shaft, of a yielding bar located in proximity to said roll, a rock-shaft on which said bar is mounted, a spring controlling said bar and rock-shaft, a yielding arm connected with the rock-shaft and adapted to engage the thread of the roll-shaft when the bar is depressed, and stops located on opposite sides of the threaded portion of said roll-shaft, that one of said stops with which the yielding arm engages when the bar is depressed being adjustable, substantially as described.

682,159. FASTENER FOR ENVELOPS. CHARLES W. ALLEN, Philadelphia, Pa. Filed May 7, 1901. Serial No. 59,090. (No model.)

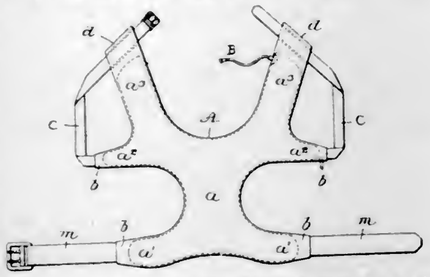


Claim.—1. The combination of an envelop or similar device with a knotted string passing freely therethrough, a plate and sealing-wax applied to the string at opposite sides of the knot and between the perforations in the envelop through which the string is passed, whereby the string may, by means of the plate, be drawn to and fro in order to detect any cutting and rejoining of said string, and the plate be reversed to detect any tampering with the seal, substantially as specified.

2. The combination of an envelop or similar device with a string passing freely therethrough, a flanged plate disconnected from the envelop, and sealing-wax for securing the plate to the string between perforations in the envelop through which the string is passed, whereby the string may, by means of the plate, be drawn to and fro in order to detect any cutting and rejoining of said string, and the plate be reversed to detect any tampering with the seal, substantially as specified.

3. The combination of an envelop or similar device with a string passing freely therethrough, a perforated and flanged plate disconnected from the envelop, and sealing-wax for securing the plate to the string between perforations in the envelop through which the string is passed, whereby the string may, by means of the plate, be drawn to and fro in order to detect any cutting and rejoining of said string, and the plate be reversed to detect any tampering with the seal, substantially as specified.

682,160. SWIMMING-BAG. GEORGE B. ANDERSON, Philadelphia, Pa. Filed June 18, 1901. Serial No. 64,996. (No model.)

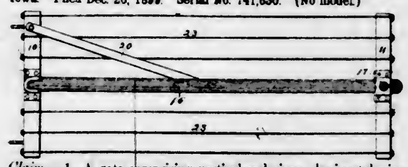


Claim.—1. A swimming apparatus consisting essentially of an inflatable bag shaped to conform to the general outline of the front or back of the trunk of the human body, that is to say, having a central portion *a*; below the same, two opposite narrow extensions a', a', and above the same, like opposite narrow extensions a^2, a^2, with two other like narrow extensions a^3, a^3, proceeding upward at an incline from the central portion *a*; means to inflate the same, and securing means adapted to fasten the device to the shoulders, chest and waist, respectively, of the wearer.

2. A swimming apparatus composed of an inflatable bag-like portion, with means to inflate the same, elastic extension-pieces *b* at the waist, chest and shoulder lines to which said inflatable portion is attached, and body-straps secured to said extension-pieces, the inflatable portion of the device being shaped substantially as described to adapt it to conform to the general outline of the front or back of the trunk of the human body; substantially as described.

3. A swimming apparatus composed of a mounting-cloth A, of elastic material, and having extension ends *b*, *b*, at the waist and chest lines and other extension ends *d* at the shoulders, an inflatable and elastic bag-like portion shaped to form a central part *a*, with narrowed extensions a', a^2 and a^3, means to inflate the bag-like portion, and securing-straps attached to the extension ends of the elastic mounting-cloth of the device; substantially as described.

682,161. FARM-GATE. ALEXANDER J. ARTHUR, Fort Dodge, Iowa. Filed Dec. 26, 1899. Serial No. 741,630. (No model.)



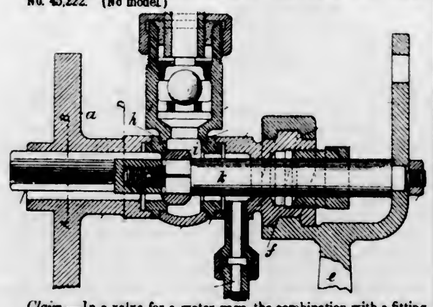
Claim.—1. A gate comprising vertical end pieces, horizontal wires stretched between said end pieces and mounted thereon, a horizontal stay-bar longer than said gate mounted in a socket fixed upon one of said end pieces, the other end passing through a clip fixed upon the other of said end pieces and provided with a device for expanding the gate, substantially as shown and described.

2. In a gate a horizontal stay-bar longer than said gate mounted in a socket fixed upon the hinge-post thereof and passing through a clip fixed upon the latch-post of the gate, said stay-bar provided with a device for expanding the gate bearing against said latch-post, and a brace-rod connecting the hinge-post and stay-bar, substantially as shown and described.

3. In a gate a horizontal stay-bar longer than said gate mounted in a socket fixed upon the hinge-post thereof and passing through a clip fixed upon the latch-post of the gate, said stay-bar having suitably mounted thereon a screw bearing against said latch-post for expanding the gate, substantially as shown and described.

4. In a gate a horizontal stay-bar longer than said gate mounted in a socket fixed upon the hinge-post thereof and passing through a clip fixed upon the latch-post of the gate, said stay-bar having suitably mounted thereon a screw bearing against said latch-post for expanding the gate, and a brace-rod connecting the hinge-post and stay-bar, substantially as shown and described.

682,162. VALVE FOR WATER-GAGES. WILLIAM H. BAILEY and ALFRED J BAILEY, Salford, England. Filed Jan. 29, 1901. Serial No. 45,222. (No model.)



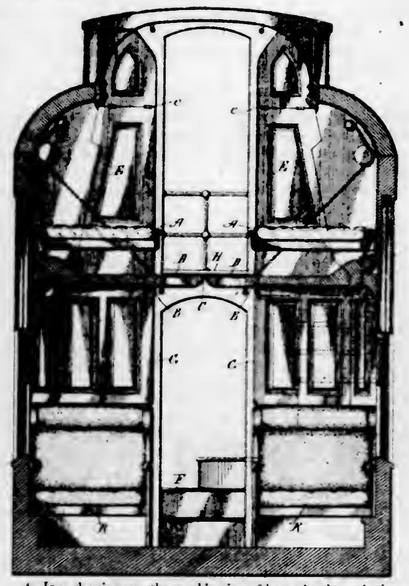
Claim.—In a valve for a water-gage, the combination with a fitting by which the gage is secured to the boiler, a casting which supports the gage-glass at any desired inclination, and a third part carrying the handle of the valve-spindle and bolts for clamping the aforesaid parts together, of renewable valve-seatings fitted to both sides of the gage-glass casting substantially as and for the purposes herein set forth.

682,163. SLEEPING-CAR. CHARLES W. BRAIL, New York, N. Y. Filed July 1, 1901. Serial No. 66,647. (No model.)

Claim.—1. In a sleeping-car, the combination with upper and lower tiers of berths, of an upper floor, constructed in sections hinged to swing from the sides of the car and to meet when swung down, so as to form a platform from side to side of the car.

2. In a sleeping-car, the combination of lower berths, swinging upper berths, a hinged sectional floor between the two, adapted to form a platform from side to side of the car.

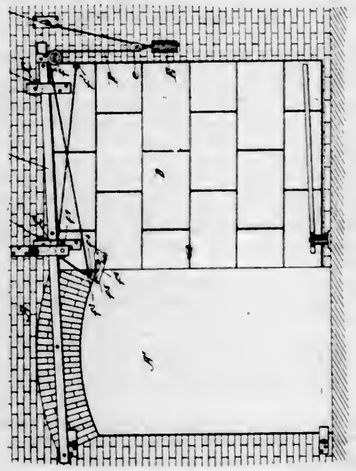
3. In a sleeping-car the combination of a car-body depressed between the trucks, the portion of the car thus depressed provided with a lower tier of berths, a tier of upper folding berths, a sectional folding floor between the two tiers of berths, which when lowered forms a floor from side to side of the car.



4. In a sleeping-car, the combination of lower berths, swinging upper berths, a hinged sectional floor between the upper and lower berths, which when lowered forms a floor from side to side of the car, and partitions for the lower sections, hinged to the lower sides of the sections of the folding floor.

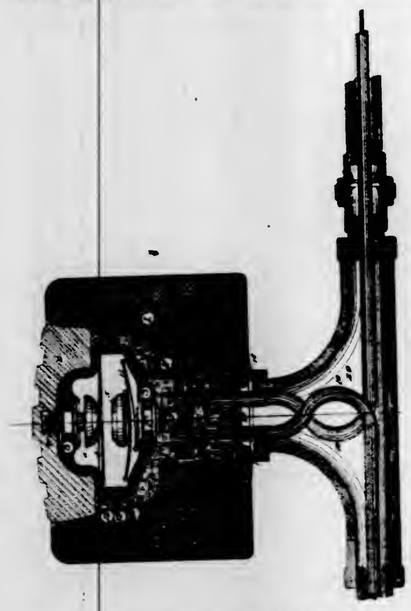
5. In a sleeping-car, the combination of lower berths, swinging upper berths, a hinged sectional floor between the upper and lower berths, which when lowered forms a platform from side to side of the car, partitions for the lower berths, hinged to the lower sides of the sections of the folding floor, and jointed removable partitions for the upper-berth sections.

682,164. DEVICE FOR CLOSING SLIDING FIRE DOORS OR SHUTTERS. IRVIN BESSE, Newburyport, Mass., assignor to Victor Manufacturing Company, same place. Filed Feb. 18, 1901. Serial No. 47,838. (No model.)



Claim.—The combination of a sliding door or shutter, an inclined rail or track upon which it is mounted, a weight, a rope supporting the weight attached at one end to the rear of the door or shutter, and at the other end to the wall beyond the same, stationary sheaves about which the rope passes from its point of attachment, and a fusible connection attached to the forward end of the door or shutter through which said rope renders whereby the weight is combined with the door as a balancing device while the release of the rope by the fusible connection converts the balancing-weight, by means of one of the sheaves, into an overbalancing and door-closing means.

682,165. **CONTACT DEVICE FOR ELECTRIC RAILWAYS.** WILLIAM M. BROWN, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Jan. 3, 1901. Serial No. 42,502. (No model.)



Claim.—1. The combination with the base portion of the box having the chamber therein, an opening leading into said chamber from the bottom, and contact devices contained in said chambers, of a cylindrical open-end shell seated in said opening, a detachable fastening securing the upper end of the said shell, and means supported in said shell for supporting a supply-conductor and for electrically connecting the same to one of the contacts.

2. The combination with the base portion of the box, having the chamber therein, the opening leading into said chamber from the bottom, and contact devices contained in said chambers of the cylindrical shell seated in said opening and having a flange at its lower end engaging the bottom of the base, a detachable fastening device engaging the upper end of said shell, and means supported by the shell for effecting an electrical connection between the contact devices and a supply-conductor.

3. In a contact-box of the character described, the combination with the base portion of the box having an opening leading into it from the bottom, a conductor-carrying conduit having an extension seated in said opening and from which the box may be lifted vertically, and detachable means engaging the upper end of said extension to normally secure the box thereto.

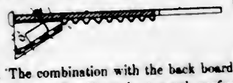
4. In a contact-box of the character described, the combination with the base portion having a chamber therein containing contact devices, and an opening leading into said chamber from the bottom, of a conduit to which the box is connected, a sectional supply-conductor in said conduit, the adjacent ends of adjacent sections thereof being extended into said box through the said opening, an electrical connection between the said ends, and an electrical connection between the same and the contact devices.

5. In a contact-box of the character described, the combination of the base having a chamber therein containing contact devices, and an opening leading into said chamber from the bottom of the box, of a conductor having separated end portions leading into said chamber through the said opening, a removable support in said opening in which said end portions are secured, and an insulated piece above said support which electrically connects said end portions, together with means for making an electrical connection between said piece and one of the contacts.

6. In a contact device of the character described, the combination of a chambered box containing contact devices, and having an opening leading into its chamber from the bottom, of a severed supply-conductor leading into the said box through the said opening, a removable support in said opening in which the end portions of the conductor are secured, an insulated removable piece above said support which electrically connects said end portions, and means for effecting a separable electrical connection between said piece and the contact devices.

7. In an electric railway of the class described, the combination of a plurality of isolated contact-boxes, of a main conductor or feeder, and sectional subfeeders connected to the main feeder at their ends, the sections of the subfeeders being electrically connected in series by the said boxes, and electrical connections in said boxes between the subfeeders, and the circuit-making devices of the boxes.

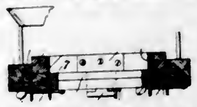
682,166. **WASHBOARD.** WILLIAM P. BRUSH, Jersey City, N. J. Filed Sept. 17, 1900. Serial No. 30,209. (No model.)



Claim.—1. The combination with the back board and side posts of a washboard; of a plate of resilient sheet metal, perforated as specified; flanges formed on the inner side of said plate, around said perforations; said plate arranged to form the front of a triangular chamber, in front of the said back board, above the corrugations of said washboard; and said chamber arranged with one angle downward, and with a narrow opening extending nearly across said washboard, between the lower edge of said resilient plate and the back of said chamber; all substantially as and for the purpose set forth.

2. The combination with the back board and side posts of a washboard; of a plate of resilient sheet metal perforated and flanged as set forth, and arranged to form one side of a triangular chamber on the upper part of said board; ends, back and cover for said chamber; said ends provided with grooves to receive said sheet, and a bolt and nut to hold the parts of said mechanism in position; all substantially as and for the purpose set forth.

682,167. **WAGON-BODY.** JAMES T. BURDICK, Jr., Friendship, N. Y. Filed Apr. 16, 1901. Serial No. 56,110. (No model.)



Claim.—1. The combination with a base, a sill supported thereby and having a pair of slots in each side bar, and a latch pivoted beneath the sill adjacent each pair of slots; of two bodies comprising frames of different sizes adapted to rest upon the sill, a pair of catches on the larger frame passing through the outermost of the slots, and a pair of catches on the smaller frame passing through the innermost of the slots.

2. The combination with a sill having a pair of slots in each of its side bars, and pivoted latches adapted to be swung over the ends of the slots; of a number of bodies adapted to rest upon the sill and having variously-disposed catches adapted to pass through certain of said slots, and T-shaped heads at the lower ends of the catches adapted to be engaged by the latches when the latter are turned so as to stand across the ends of the pairs of slots.

3. The combination with a rectangular sill having upright slots through its body; of a rectangular body fitting around the sill, flanges projecting inward from its side bars, catches depending from the inner edges of said flanges and adapted to pass through said slots, and latches pivoted to the sill for removably engaging the lower ends of the catches.

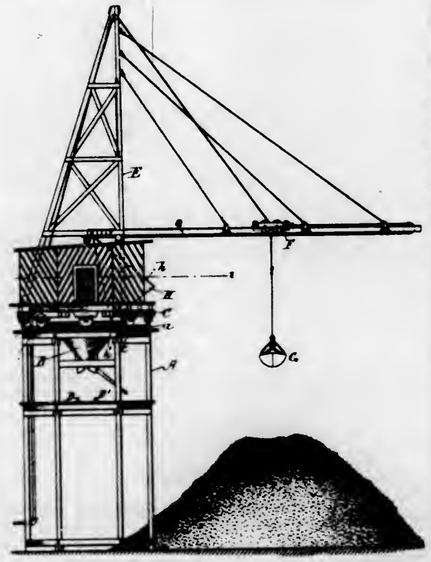
4. The combination with a sill having upright slots therethrough; of two bodies each having frames adapted to rest simultaneously upon the sill, catches depending from the frames and adapted to pass through the slots, these catches having T-heads at their lower ends, and latches pivoted to the lower face of the body and adapted to be turned into engagement with said T-heads.

5. The combination with a sill having upright slots therethrough, of a body adapted to rest on the sill, catches depending from the body and adapted to pass through the slots, these catches having T-heads at their lower ends, latches pivoted to the lower face of the body and adapted to be turned into engagement with said T-heads, and other latches pivoted to the lower face of the sill and adapted also to be turned into engagement with said T-heads.

6. The combination with a rectangular base having two upright slots in each side bar and one in its rear bar, and latches pivoted beneath the sill adjacent said slots; of a smaller body adapted to rest upon the side bars of the sill, three catches depending from this body and adapted to pass through the innermost side slots and the rear slot, a larger body surrounding the sill and having flanges projecting inward over its side bars, catches depending from these flanges and passing through the outermost side slots, all said catches having T-heads at their lower ends, and other latches pivoted to the lower edges of the side bars of the larger body, all the catches adapted to be turned into engagement with the T-heads.

7. The combination with a base, a sill supported thereby, bodies of different sizes adapted to be mounted on the sill, and means for detachably holding them in place; of standards rising from each body, and seats carried by the standards in such position that the bodies can be applied simultaneously to the sill.

682,168. **APPARATUS FOR HANDLING COAL OR OTHER MATERIAL.** JEREMIAH CAMPBELL, Newton, Mass. Filed Nov. 16, 1900. Serial No. 36,690. (No model.)



Claim.—1. In an apparatus for handling coal and other material, the combination of a stand or support, a bopper mounted upon said stand or support, a circular track upon said stand or support, a truck mounted upon said circular track to be turned thereon, a hopper carried thereby adapted to receive material in any position to which the truck is turned and to deliver it to the stationary hopper, a radiating trolley-supporting boom and means for sustaining it mounted upon the truck, a trolley movable lengthwise the boom, a grab or shovel movable toward and from the stand or support by the trolley, and means for moving the grab or shovel vertically and for closing and opening the same, as and for the purposes set forth.

2. The combination in an apparatus for handling coal or other material, of a stand or support, a curved track upon said stand or support, a truck mounted upon said curved track, a receiving and delivery hopper mounted upon said truck, a tower mounted upon said truck, a boom extending horizontally therefrom and supported wholly thereby, a trolley mounted on said boom, a grab or shovel and means for moving the trolley and operating the grab or shovel, the said boom, trolley, grab or shovel, and hoppor being movable together upon an arc from one position to another.

3. The combination in an apparatus for handling coal or other material of a stand or support, a circular track mounted thereon, a stationary hopper on said stand, a truck mounted upon the track to be movable thereon, a tower carried by the truck, a horizontal boom extending from the tower, a trolley movable upon the boom, a grab or shovel, a hopper upon the truck near the inner end of the boom, and operating devices carried by the truck connected with the trolley and with the grab or shovel to move the trolley and operate the grab or shovel.

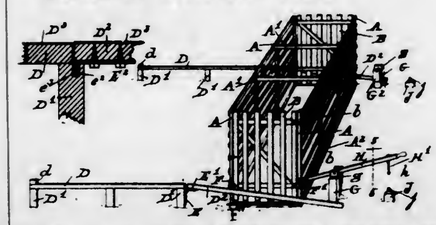
4. The combination in an apparatus for handling coal or other material of a stand or support, a circular track mounted thereon, a stationary hopper, a truck mounted upon the track to be movable thereon, a tower carried by the truck, a horizontal boom extending from the tower, a trolley movable upon the boom, a grab or shovel, a hopper upon the truck near the inner end of the boom, and operating devices carried by the truck connected with the trolley and with the grab or shovel to move the trolley and operate the grab or shovel, the said devices being also connected with the truck to move the same.

5. In an apparatus for handling coal or other material, a stand or support, a hopper and a curved track mounted thereon, a truck mounted upon the curved track to be movable upon it, a tower carried by the truck, a horizontal boom extending from the tower and supported thereby, a trolley movable upon the boom, a grab or shovel and a hopper mounted upon the stand or support and bearing operative relation to the boom and grab or shovel.

6. The combination in an apparatus for handling coal or other material of a stand or support, a hopper and a curved track mounted thereon, a truck mounted upon the track to be movable upon it, a tower carried by the truck, a horizontal boom extending from the tower and supported thereby, a trolley movable upon the boom and a grab or shovel vertically movable with respect to the trolley and horizontally movable with it, all constructed to provide means for the delivery or the handling of coal or other material upon a radius and upon an arc.

7. The combination in an apparatus for handling coal or other material of a stand or support carrying a stationary hopper, a curved track mounted upon said stand or support above said hopper, a truck mounted upon said hopper to be movable upon it, and coal or material handling devices mounted upon said truck to be movable therewith in a curved path, and also to be movable radially with relation thereto, and a hopper mounted on said truck near its outer edge adapted to receive the contents of said coal or material handling devices and deliver them to said stationary hopper, as and for the purposes described.

682,169. **SCALE-RACK.** HENRY A. CANFIELD, Springfield, Ill. Filed Feb. 4, 1901. Serial No. 45,964. (No model.)



Claim.—1. In a scale-rack, the combination of a rack-frame, wheels mounted on said rack-frame, track-rails, oscillative switch-rails in line with said track-rails and adapted to carry said rack-frame, means for supporting the free ends of said switch-rails and means for raising said rack-frame, as set forth.

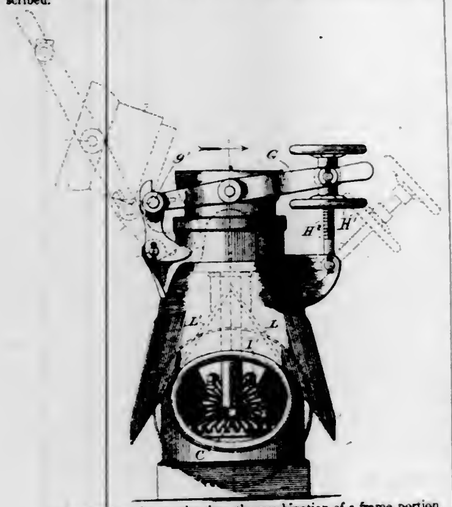
2. In a scale-rack, the combination of a rack-frame, wheels mounted on said rack-frame, shouldered posts adjacent to one side of said rack-frame, a lever connectible with said posts, track-rails adapted to carry said rack-frame and switch-rails in operative relation to said track-rails and adapted to rest on the shoulders of said posts, as set forth.

3. In a scale-rack, the combination of posts D', track-rails supported on said posts, plates E, secured to posts D', switch-rails D^2, plates E', secured to the rails D^2, posts G in line with posts D', a lever H, connectible with the posts G, a chain secured to said lever and having a hook, posts J adjacent to the posts G, links secured to the posts J, a rack-frame and wheels mounted on the rack-frame and adapted to travel on the rails D^2 and D, substantially as set forth.

682,170. **ROCK AND ORE PULVERIZER.** THOMAS W. CAPEN, Chicago, Ill., assignor to the Gates Iron Works, same place. Filed Jan. 18, 1900. Serial No. 1,869. (No model.)

Claim.—1. In a rock and ore pulverizer, the combination of a frame portion, a vertical operating-shaft provided with a crushing-head, crushing-ring-concave mechanism surrounding the crushing-head between which elements material may be fed and ground, and lever mechanism for holding the crushing-ring-concave mechanism in operative position and entirely removing and holding such ring without the operative sphere of the head, substantially as described.

2. In a rock and ore pulverizer, the combination of a frame portion, a vertical operating-shaft provided with a crushing-head on the upper end thereof and rotatably mounted within the frame a ring concave surrounding the crushing-head, a shell in which the grinding ring concave is removably held, and lever mechanism for adjustably holding the shell with its crushing ring concave in operative position and entirely removing and holding it without the operative sphere of the head, substantially as described.



3. In a rock and ore pulverizer, the combination of a frame portion, a vertical operating-shaft provided with a crushing-head on its upper portion, a beveled driving-gear in which the lower end of the crushing-shaft is mounted and forming the step therefor, a crushing ring concave surrounding the crushing-head, a shell in which the crushing concaved ring is removably mounted, and means for adjustably holding the shell with its crushing ring concave in operative position and entirely removing it without the operating sphere of the crushing-head, substantially as described.

4. In a rock and ore pulverizer, the combination of a frame portion, a vertical operating-shaft mounted therein, a crushing-head loosely mounted thereon so as to rotate therewith, a crushing concaved ring surrounding the crushing-head, a shell portion in which the crushing concaved ring is held and lever mechanism for adjustably holding the shell with its crushing ring concave in operative position and entirely removing it without the operative sphere of the crushing-head, substantially as described.

5. In a rock and ore pulverizer, the combination of a frame portion, a vertical operating-shaft mounted thereon and provided with a crushing-head at its upper portion, a crushing ring concave surrounding the head portion, a shell in which the concaved ring is removably mounted, lever mechanism pivotally secured to the frame portion and to the shell portion for holding it with its crushing ring concave in operative position and entirely removing it without the same, and screw mechanism for adjustably holding the lever with its other parts in operative position, substantially as described.

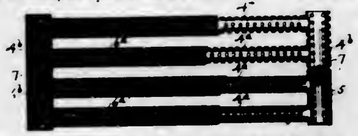
6. In a rock and ore pulverizer, the combination of a frame portion, a vertical operating-shaft provided with a crushing-head mounted thereon, a crushing ring concave surrounding the crushing-head, a shell portion in which the crushing ring concave is removably mounted, compound lever mechanism pivoted to the frame portion and to the shell for raising and lowering the shell and holding it in different positions, a holding-screw pivoted to the frame portion, and hand-nuts on the holding-screw for adjustably holding the levers, shell and other parts in operative position, substantially as described.

682,171. **STERILIZER.** RICHARD W. CARTTER, West Springfield, Mass. Filed Feb. 6, 1901. Serial No. 46,257. (No model.)

Claim.—1. A sterilizer for sterilizing soil comprising a perforated steam-receptacle covered with a jacket pervious to steam and substantially impervious to soil.

2. A sterilizer for sterilizing soil, comprising a plurality of steam-receptacles connected with end steam-receptacles, said receptacles being perforated and having jackets, said jackets being pervious to steam and substantially impervious to soil.

3. In combination with a steam-supply, a perforated receptacle for sterilizing soil, covered with a jacket pervious to steam and adapted to protect the receptacle-perforations from soil, substantially as set forth.



4. In combination with a steam-supply, a plurality of receptacles connected with end receptacles, for sterilizing soil, said receptacles being perforated and having jackets, said jackets being pervious to steam and adapted to protect the receptacle-perforations from soil, substantially as set forth.

5. The combination, in a sterilizer for sterilizing soil, of the perforated tubes 4^a, the perforated connecting end tubes 4^b, steam-inlet pipes attached to said end tubes, and jackets of fabric covering said tubes, substantially as shown.

682,172. **PINCH-COCK.** WILLIAM H. CRADDOCK, Allegan, Mich. Filed Mar. 21, 1900. Serial No. 9,514. (No model.)



Claim.—1. A pinch-cock formed from a piece of spring-wire coiled to form a spring-loop 1 having one end 2 doubled upon itself to form a straight jaw portion 4 5 and bent to form a shank 6 having a finger-piece 7, and having the other end 3 crossing said end 2 and bent to form a straight jaw portion 8 and a shank 9 having a finger-piece 10, substantially as set forth.

2. A pinch-cock formed from a piece of spring-wire coiled to form a spring-loop 1, having one end 2, doubled upon itself to form a straight jaw portion 4 5, and bent to form a shank 6, having a finger-piece 7, secured upon it, and having the other end 3, crossing said end 2 and bent to form a straight jaw portion 8, and a shank 9, having a finger-piece 10, secured upon it, and a jaw-plate 11, secured upon the parallel pieces 4 5 of the jaw portion, substantially as set forth.

682,173. **METALLIC SURFACE-SHEATHING.** GEORGE D. COLEMAN, Boston, Mass. Filed Dec. 20, 1900. Serial No. 40,544. (No model.)



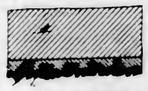
Claim.—1. A metallic surface-sheathing consisting of a continuous imperforate sheathing of metal or alloy and a layer of paint by which said sheathing is attached to the surface to be covered, substantially as described.

2. A metallic surface-sheathing consisting of a layer of paint studded with granulated or comminuted metal or alloy, the particles of which are united to form a metallic surface, substantially as described.

3. A metallic surface-sheathing consisting of a layer of paint studded with granulated or comminuted solderable metal or alloy having particles of solder studding the surface of the paint in the interstices between the particles of metal or alloy, the particles of metal or alloy and solder being united together to form a metallic surface, substantially as described.

4. A metallic surface-sheathing consisting of a layer of paint studded with granulated or comminuted solderable metal or alloy having smaller particles of solder studding the surface of the paint in the interstices between the larger particles of metal or alloy, the particles of metal or alloy and solder being united together to form a metallic surface, substantially as described.

682,174. **METHOD OF MAKING METALLIC SURFACE-SHEATHING.** GEORGE D. COLEMAN, Boston, Mass. Filed Dec. 20, 1900. Serial No. 40,545. (No specimens.)

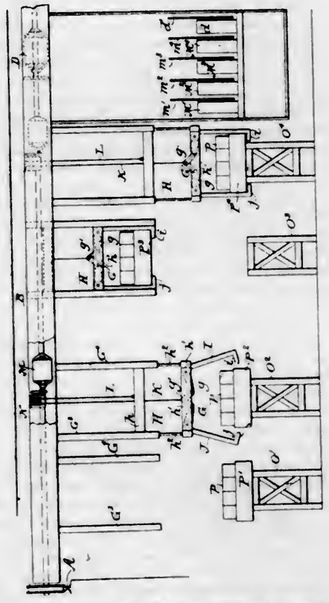


Claim.—1. The method of making metallic surface-sheathing which consists in applying to the surface to be covered a layer of paint, in applying to the surface of the layer of paint particles of granulated or comminuted metal or alloy, and in uniting the particles of metal or alloy by the application of heat, substantially as described.

2. The method of making metallic surface-sheathing which consists in applying to the surface to be covered a layer of paint, in applying to the surface of the layer of paint particles of granulated or comminuted metal or alloy, in applying finely-divided solder to the interstices between the particles of metal or alloy, and in uniting the particles of metal or alloy and solder by the application of heat, substantially as described.

3. The method of making metallic surface-sheathing which consists in applying to the surface to be covered a layer of paint, in applying to the surface of the layer of paint particles of granulated or comminuted metal or alloy, in applying finely-divided solder to the interstices between the particles of metal or alloy, in coating the particles of metal or alloy and solder with soldering fluid, and in uniting the particles of metal or alloy and solder by the application of heat, substantially as described.

682,175. **ELEVATOR AND TRANSFER-CRANE FOR STORAGE BATTERIES.** GEORGE H. CONDICT, New York, N. Y., assignor to the Electric Vehicle Co., same place. Filed Sept. 3, 1898. Serial No. 690,194. (No model.)



Claim.—1. In a plant for handling and charging storage batteries, a traveling crane, a row of supports for batteries in a plane substantially parallel to the plane of motion of the crane and an elevator carried by the crane, grapples on said elevator, and means for operating said elevator independent of the grapples and means for operating said grapples and with them the elevator, the change from one of said means to the other being possible only at the limit of movement of said elevator.

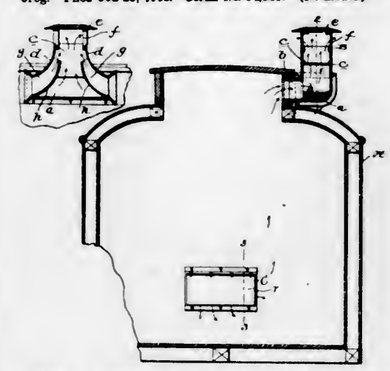
2. In a plant for handling and charging storage batteries, a traveling crane, a row of supports for batteries in a plane substantially parallel to the plane of motion of the crane and an elevator carried by the crane, a drum and flexible connectors therefrom to the elevator and to the grapple respectively, so attached to the drum that only one of them can be operated at a time and arranged that the change can take place only at the limit of movement of the elevator.

3. The combination with an elevator and grappling mechanism to hold the object to be elevated, of a hoisting-drum and flexible connectors so attached to the drum that winding in one direction will raise the elevator and in the other direction will close the grapples and then raise the elevator while the change takes place when the elevator is at the limit of its movement.

4. The combination with a plurality of rows of charging-stands of substantially uniform height, an overhead traveling crane adapted to move over the space occupied by the rows of tables, a pluralitv of combined elevating and gripping devices carried by the crane, one for each row of charging-stands and each having a hoisting-drum provided with a flexible connector for operating the elevator independent of the grappling means and other flexible connectors for operating the gripping mechanism connected therewith and means for operating the overhead crane, whereby the batteries may be elevated and lowered and conveyed to and from the tables as desired.

5. The combination with an elevator and grappling mechanism to hold the object to be elevated, of a hoisting-drum, and chains connected respectively to the elevator and to the grappling mechanism and attached to the drum at points at an angle to each other, and means for rotating the drum in either direction, whereby when the elevator-chain is taut, the grappling-chain is slack and vice versa.

682,176. **CAR VENTILATION.** WILLIAM T. COTTIER, Portland, Oreg. Filed Oct. 25, 1900. Serial No. 34,315. (No model.)



Claim.—1. The combination with a car having an opening *k* in one of its walls, the lower wall of which is inclined downwardly and inwardly; of a rectangular open frame arranged at and connected to the inner side of said end wall, and having openings *t* in its lower bar for the discharge of dust and dirt, a screen attached to the inner face or face of the frame that is presented to the interior of the car, and an imperforate flap connected in a hinged manner to the upper bar of the frame and arranged to normally rest over the screen carried by said frame, substantially as specified.

2. The combination of a car having an opening in one of its vertical walls, the lower wall of which is inclined downwardly and inwardly, a bar *l* connected to the inner side of said wall below the opening, a bar *m* connected to the inner side of the wall above the opening, and having depending dowel-pins, the rectangular frame interposed between the bars *l* and *m*, and having the lower bar of a greater width than the bar *l*, and provided with apertures *t*, and the upper bar provided with sockets to receive the dowel-pins, the screen connected to the inner face of the rectangular frame, an imperforate flap connected in a hinged manner to the upper bar of the rectangular frame, and adapted to normally rest over the screen, a detachable connection between the rectangular frame and the wall of the car, and one or more suitable suction devices connected to and communicating with the interior of the upper portion of the car.

682,177. **SIGN.** JULIUS A. DALUHI, New York, N. Y. Filed Apr. 12, 1901. Serial No. 55,450. (No model.)

Claim.—1. A sign composed of a slotted sign-board, pintles secured thereto, lids frictionally mounted upon the pintles and having knuckles that project rearwardly through the slots of the sign-board, and stops arranged on the rear face of the sign-board and adapted to engage the knuckles, substantially as specified.

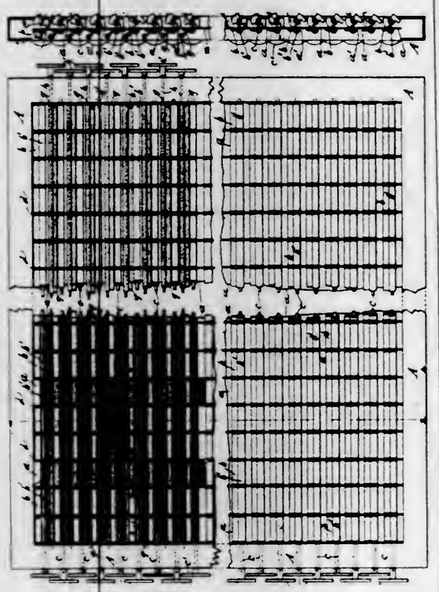
2. A sign composed of a slotted sign-board, lids having knuckles and pivoted thereto, and pivoted stops having noses adapted to engage said knuckles, substantially as specified.

3. A sign composed of a slotted sign-board, lids having polygonal knuckles and pivoted thereto, and pivoted stops having noses adapted to engage the knuckles, and tailpieces adapted to engage the sign-board, substantially as specified.

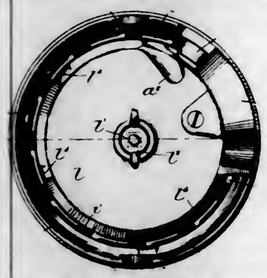
4. A sign composed of a multicolored sign-board, lids pivoted thereto, and color-plates pivoted to the sign-board intermediate the lids, substantially as specified.

5. A sign composed of a multicolored sign-board, lids pivoted thereto and having differently-colored faces, and additional color-plates pivoted to the sign-board intermediate the lids, substantially as specified.

6. A sign composed of a multicolored sign-board, rows of multicolored pivoted lids, and intermediate pivoted color-plates adapted to be overlapped by the lids, substantially as specified.



682,178. DROPPING MECHANISM FOR CORN-PLANTERS. HARRY L. DOOLEY, Rock Island, Ill., assignor to Henry D. Macdona, New York, N. Y. Filed Jan. 8, 1901. Serial No. 42,488. (No model.)



Claim.—1. In a dropping mechanism for corn-planters, a hopper-bottom having an annular channel into which the grains settle indiscriminately, a horizontal rotating ring or plate at the bottom of said channel having cells adapted to receive the grains edgewise only, and means for agitating the grains in the channel and arranging them so that they enter the cells edgewise.

2. In a dropping mechanism for corn-planters, a hopper-bottom having an annular channel into which the grains settle indiscriminately, a horizontal rotating ring or plate at the bottom of said channel having cells adapted to receive the grains edgewise only, and projections on said ring extending up into the channel between its side walls for the purpose of agitating the grains and causing them to enter the cells edgewise.

3. In a dropping mechanism for corn-planters, a hopper-bottom having an annular channel into which the grains settle indiscriminately, a rotating ring or plate at the bottom of said channel having cells adapted to receive the grains edgewise only, projections on said ring extending up into the channel between its side walls, and lateral projections on one or both of said side walls coöperating with the projections on the ring to agitate the grains and cause them to enter the cells edgewise.

4. In a dropping mechanism for corn-planters, a hopper-bottom having an annular upwardly-flaring channel, a horizontal rotating ring or plate at the bottom of said channel having a flange projecting vertically into the channel with a space between it and the side walls of the channel, and cells formed in said flange at intervals and adapted to receive the grains edgewise only.

5. In a dropping mechanism for corn-planters, a hopper-bottom having an annular upwardly-flaring channel, a rotating ring or plate having a flange projecting upwardly into the channel between its side walls, cells formed in said flange at intervals and adapted to receive the grains edgewise only, and a ledge in the hopper-bottom forming a floor or bottom for said cells.

6. In a dropping mechanism for corn-planters, a hopper-bottom having an annular channel, a rotating ring or plate having an upstanding flange cut away at intervals to form cells to receive the grains edgewise only, a ledge in the bottom forming a floor or bottom for said cells, a cam or riser on the ledge to lift the grains as each cell approaches the point of discharge, and a cut-off to clear away superfluous grains.

7. In a dropping mechanism for corn-planters, a hopper-bottom having an upwardly and outwardly inclined edge flange, a rotating seed-plate, a stationary cover-plate overlying said seed-plate and having an edge flange inclined downwardly and outwardly, a vertical flange on the seed-plate projecting midway between the flanges and cut away at intervals to form cells adapted to receive the grains edgewise only, and a ledge in the bottom forming a floor for the cells, the oppositely-inclined flanges forming a channel with upwardly-flaring side walls converging downwardly toward the cells.

8. In a dropping mechanism for corn-planters, a hopper-bottom having a groove in which works an annular gear-ring, a seed plate or ring connected with the gear-ring, a cover-plate overlying said rings and having an edge flange inclined outwardly and downwardly, an outwardly-inclined edge flange in the hopper-bottom projecting upwardly outside the flange of the cover-plate, said oppositely-inclined edge flanges forming a channel with flaring side walls converging downwardly, and cells formed in said seed-plate in the vertical plane of the nearest convergence of the edge flanges, said cells being only wide enough to receive the grains edgewise.

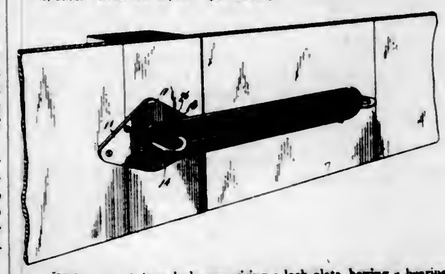
9. In a dropping mechanism for corn-planters, a hopper-bottom having an annular upwardly-flaring channel, a rotating ring at the bottom of said channel, and a flange on said ring projecting upwardly into the channel between its side walls, said flange being cut away at intervals to form cells adapted to receive the grains edgewise only, and said flange also having portions of its outer edge chamfered off between the cells.

10. In a dropping mechanism for corn-planters, a hopper-bottom having an annular upwardly-flaring channel, a rotating ring at the bottom of said channel, and a flange on said ring projecting upwardly into the channel between its side walls, said flange being cut away at intervals to form cells adapted to receive the grains edgewise only, and said flange being provided with enlargements at the rear ends of the cells.

11. In a seed measuring and delivering mechanism for corn-planters, an annular channel in the hopper-bottom constructed to receive the grains indiscriminately, and a horizontal rotating ring or plate at the bottom of said channel having cells adapted to receive the grains edgewise only, said plate being constructed to agitate the grains lying in the channel above and arrange them so that they enter the cells edgewise.

12. In a hopper-bottom for corn-planters, an annular channel constructed to permit the grains to settle indiscriminately therein, a rotating ring or plate at the bottom of said channel, having cells adapted to receive the grains edgewise only, and projections on the plate extending into the channel for agitating and changing the positions of the grains lying therein from an indiscriminate arrangement to an edgewise arrangement with respect to the cells.

682,179. HASP-LOCK. IRA C. DRAKE, Orting, Wash. Filed Dec. 6, 1900. Serial No. 38,935. (No model.)

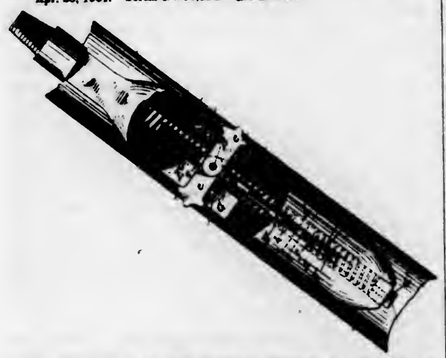


Claim.—1. A hasp-lock comprising a lock-plate having a bearing therein, a casing to which the lock-plate is secured and having its bearing opening into the casing, said plate having recesses therein of different depths, a bail adapted to receive a hasp and having a stem rotatably disposed in the bearing and projecting into the casing, said bail being adapted for engagement of its outer end with the recesses of the plate interchangeably, a spring disposed to hold the bail normally retracted with its outer end in a recess of the plate to hold the bail in different positions against rotation, and a locking device for holding the bail against outward movement, said locking device being adapted for engagement with the bail when the outer end thereof is in the recess of greatest depth and for disengagement therefrom when the bail is in a recess of lesser depth.

2. A hasp-lock comprising a casing having a lock-plate secured thereto and having a bearing therein opening into the casing, a bail adapted to receive a hasp and having a stem rotatably disposed in the bearing and provided with a stop-plate at its inner end within the casing, a helical spring disposed upon the stem and bearing against the stop-plate and lock-plate to hold the bail yieldably retracted, a spring-plate disposed in the casing and resting normally with its free end against the stop-plate, said spring-plate being adapted to snap under the stop-plate when the stem is moved inwardly to its limit, to hold it in its inward position, said lock-plate having a locking-recess formed therein to receive the free end of the bail and permit inward movement of the bail-stem to carry the stop-plate beyond the spring-plate.

3. A hasp-lock comprising a lock-plate having a bearing therein, a casing to which the lock-plate is secured and having its bearing opening into the casing, said plate having recesses therein of different depths, a bail adapted to receive a hasp and having a stem rotatably disposed in the bearing and projecting into the casing, said bail being adapted for engagement of its outer end with the recesses of the plate interchangeably, a spring disposed to hold the bail normally retracted with its outer end in a recess of the plate to hold the bail in different positions against rotation, and a locking device for holding the bail against outward movement, said locking device being adapted for engagement with the bail when the outer end thereof is in the recess of greatest depth and for disengagement therewith when the bail is in a recess of lesser depth, said locking device including a stop-plate at the inner end of the stem of the bail and a spring-plate disposed for engagement behind the stop-plate when the stem is at the inner limit of its movement.

682,180. WELL-CASING PERFORATOR. JOSEPH EASTWOOD, San Francisco, and ELLERY M. HOAGLAND, East Oakland, Cal. Filed Apr. 23, 1901. Serial No. 57,124. (No model.)



Claim.—1. A well-casing perforator consisting of a stock, an arm pivoted in the stock and adapted to swing in the plane of the length of the stock from a position at right angles thereto to an angle on either side of said right-angle position, a dog on the outer end of the arm adapted to bear against the inner wall of the casing, and a punch projecting from said dog in the plane of the length of the arm.

2. A well-casing perforator consisting of a stock, an arm pivoted in the stock and adapted to swing in the plane of the length of the stock from a position at right angles thereto to an angle on either side of said right-angle position, a dog on the outer end of the arm adapted to bear against the inner wall of the casing, a punch projecting from said dog in the plane of the length of the arm, and a spring controlling the arm, to hold its dog to the casing-wall.

3. A well-casing perforator consisting of a stock, a pair of oppositely-extending arms connected with the stock by a pivot, adapting them to swing in the plane of the length of the stock, from a position in alinement, to a position at an angle with each other on either side of said alinement, each of said arms having, on its outer end, a dog adapted when the arms are in alinement to bear against opposite sides of the inner wall of the casing, a spring controlling said arms to hold their dogs to said casing-wall, and a punch carried by and projecting outwardly from each of said dogs.

4. A well-casing perforator consisting of a stock, a pair of oppositely-extending arms connected with the stock by a pivot adapting them to swing in the plane of the length of the stock, from a position in alinement, to a position at an angle with each other on either side of said alinement, each of said arms having, on its outer end, a dog adapted when the arms are in alinement to bear against opposite sides of the inner wall of the casing, a spring controlling said arms to hold their dogs to said casing-wall, and a punch carried by and projecting outwardly from each of said dogs.

5. A well-casing perforator consisting of a stock having a longitudinal bore, and a cross-slot traversing said bore, an arm fitted in said cross-slot and projecting radially from the stock, said arm being pivoted at its inner end in the stock and adapted to swing in the plane of the length of the stock from a position at right angles thereto to an angle on either side of said right-angle position, a dog on the outer end of the arm adapted to bear against the inner wall of the casing, a punch projecting from said dog in the plane of the length of the arm, and a spring controlling the arm, to hold its dog to the casing-wall.

6. A well-casing perforator consisting of a stock having a longitudinal bore and a diametrical slot traversing said bore and opening out on opposite sides of the stock, a pair of arms fitted in said cross-slot and projecting radially therefrom in opposite directions, said arms being pivoted at their inner ends in the stock and adapted to swing in the plane of the length of the stock from a position in alinement, to a position at an angle with each other on either side of said alined position, a dog carried by the outer end of each arm and adapted when the arms are in alinement to bear against opposite sides of the inner wall of the casing, springs seated in the bore of the stock and bearing on each side of the hinge or pivot joints of the arms and tending to return the arms from an angle on either side, to a position in alinement, whereby the dogs are held to their bearing against the casing-wall, and a punch carried by and projecting outwardly from each dog.

7. In a well-casing perforator and in combination with the stock having the longitudinal bore and diametrical slot, the pair of radial oppositely-extending arms, each having at its outer end a dog with a punch, the inner ends of said arms being overlapped, a cross-pin through said ends pivoting them in the stock, guide-rods in the stock-bore, each having a head, the head of one rod bearing against the pivoted ends of said arms on one side, and the head of the other rod bearing against said ends on the other side, and a spring around each rod bearing behind its head and holding it against said arm ends.

8. In a well-casing perforator and in combination with the stock having the longitudinal bore and a plurality of diametrical slots, a pair of radial oppositely-extending arms, fitted in each slot and each arm having at its outer end a dog with a punch, the inner ends of the arms of each pair being overlapped and pivoted in the stock by a cross-pin, rods in the stock-bore bearing against the pivoted ends of each pair of arms on their relatively remote sides, telescoping rods in the stock-bore bearing against the pivoted ends of each pair of arms on their relatively adjacent sides, and springs on the rods tending to hold them against the arms, to hold each pair normally in radial alinement.

9. A well-casing perforator consisting of a stock, a plurality of pairs of oppositely-extending arms pivoted in the stock, one pair being in a plane at an angle to that of another pair, the members of each pair of said arms being adapted to swing in the plane of the length of the stock from a position in alinement with each other to a position at an angle with each other on either side of said alinement, a dog on the other end of each arm adapted to bear against the inner wall of the casing, a punch projecting from each dog in the plane of the length of the arm, and a spring controlling the arms, to hold their dogs to the casing-wall.

682,181. PROCESS OF PRODUCING ALBUMOSES. GEORG EICHELBAUM, Berlin, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Filed Apr. 16, 1898. Serial No. 677,866. (No specimens.)

Claim.—1. The herein-described process for the conversion of albumen into albumoses in which the formation of peptones is practically prevented, consisting in first beating such albumen with solutions of bisulfites in closed vessels at a temperature below 100° centigrade; secondly removing the acid contained in the reaction mixtures, and thirdly, separating the albumoses from the liquids thus obtained, substantially as described.

2. The herein-described process for the conversion of albumen into albumoses in which the formation of peptones is practically prevented, consisting in first beating in closed vessels such albumen with a five-per-cent. watery solution of bisulfite of lime at a temperature of about 98° to 100° centigrade, secondly removing the acid contained in the reaction mixtures, and thirdly, separating the albumoses from the liquids thus obtained, substantially as described.

682,182. VENTILATED SHOE. THERON H. ELLINGS, New York, N. Y., assignor to Fred M. White, Boston, Mass. Filed Apr. 4, 1901 Serial No. 54,251. (No model.)



Claim.—1. The combination with a shoe, of a ventilating-piece provided with channels or grooves and attached to the inside of the upper of the shoe and extending downward beneath the vamp, to form ventilating-passages between the inside of the lower or vamp-inclosed portion of the shoe and one or more perforations at a point in the instep, as set forth.

2. The combination with a shoe, of a ventilating-piece provided with channels or grooves and applied to the inside of upper of the shoe, and extending downward beneath the vamp, and a strip of leather or other suitable material secured over said piece, the said strip having perforations therein over the channels in the ventilating-piece, and the upper being perforated to complete the air-passages from the inside of the shoe, as set forth.

3. The combination with a shoe, of a ventilating-piece of rubber or the like having a channel or groove extending from one end and branching into a series of divergent channels, the said piece being applied to the inside of the upper of the shoe and forming ventilating-passages from the vamp-inclosed portion of the shoe to one or more perforations in the same in the instep portion, as set forth.

4. The ventilating attachment for shoes consisting of a strip of rubber or the like having a channel or groove A extending from one end and branching into channels B, the latter extending through the strip to form a series of slots near the lower and wider end of the piece, as herein set forth.

5. The combination with a shoe of the ventilating-strip of rubber or the like having a channel or groove A branching into channels B, the latter extending through the strip to form a series of slots near its wider end, and the covering-strip of leather F having perforations therein, as set forth.

682,183. GLOBE-TESTER. HARRY BYERRIDGE, McKeesport, Pa. Filed May 9, 1901. Serial No. 59,377. (No model.)



Claim.—1. A testing device for globes, comprising a detached body which by its own weight is adapted to seal an open end of a globe upon which it freely rests, and means whereby air may be conducted into or exhausted from said globe through said body to detect leakage or fracture in said globe.

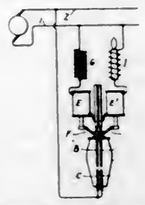
2. A testing device for globes, comprising a detached body which by its own weight is adapted to seal an open end of a globe upon which it freely rests, means whereby air may be conducted into or exhausted from said globe through said body to detect leakage or fracture in said globe, and a yielding surface on said body where contact is made with the said globe end.

3. A testing device for globes, comprising a detached body which by its own weight is adapted to seal an open end of a globe upon which it rests, and an elastic conductor extending from said body whereby air may be forced into or exhausted from said globe through said body to detect leakage or fracture therein.

4. A testing device for globes, comprising a detached body which by its own weight is adapted to seal an open end of a globe upon which it freely rests, an elastic conductor extending from said body whereby air may be forced into or exhausted from said globe through said body to detect leakage or fracture therein, and a yielding surface on said body where contact is made with the said globe end.

5. A testing device for globes, comprising a detached body which by its own weight is adapted to seal an open end of a globe upon which it freely rests, an elastic conductor extending from said body which terminates in a mouthpiece whereby air may be forced into or exhausted from said globe through said body to detect leakage or fracture therein, and a yielding surface on said body where contact is made with the said globe end.

682,184. ELECTRIC LIGHTING BY LOW-FREQUENCY CURRENTS. WALTER C. FISH, Lynn, Mass., assignor to General Electric Company, of New York. Filed Jan. 26, 1901. Serial No. 44,776. (No model.)



Claim.—1. The combination with two leads carrying a single-phase alternating current of low frequency, of illuminants placed close together, and taking current from said leads, and means for causing, in the normal operation of the device, a relative phase displacement of the current flowing through said illuminants.

2. The combination with two leads carrying a single-phase alternating current of low frequency, of two illuminants placed close together, and connected across said leads, and an inductive resistance in series with one of said illuminants.

3. The combination with two leads carrying a single-phase alternating current of low frequency, of two illuminants placed close together, and connected across said leads, an inductive resistance in series with one of said illuminants, and a non-inductive resistance in series with the other.

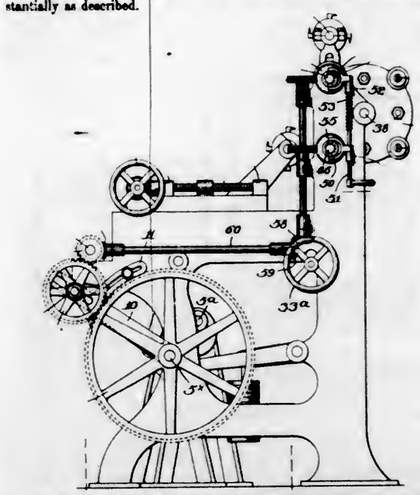
4. The combination with two leads carrying a single-phase alternating current of low frequency, of two upper carbons placed close together and connected to one of said leads, a single lower carbon in arcing relation to both the upper carbons and connected with the other lead, means for independently regulating the upper carbons, and means for causing a phase lag in the current flowing to one of said upper carbons.

5. The combination with two leads carrying a single-phase alternating current of low frequency, of a pair of carbons connected across said leads, an inductive resistance in series therewith, and an auxiliary carbon in arcing relation to the lower carbon of the pair and connected with the same lead as the inductive resistance.

682,185. MACHINE FOR CUTTING AND SHAPING WOOD OR OTHER MATERIAL. CHARLES H. FITLER, Philadelphia, Pa. Filed Oct. 31, 1900. Serial No. 35,013. (No model.)

Claim.—1. In a machine of the character described, the combination with two sets of cutting devices, reciprocative supporting-beds therefor, differential gear and cam mechanisms, and operative connections between the same and the respective beds, of a shiftable carriage mounted in proximity to said devices and provided with chucks or holders for supporting material in the paths of the respective devices, whereby the said carriages may be shifted to transfer the material from one set of cutting devices to the other set, together with means for rotating said chucks or holders when they have been set in active relation to the cutting devices, substantially as described.

2. In a machine of the character described, the combination with two sets of cutting devices, reciprocative supporting-beds therefor, differential gear and cam mechanisms, and operative connections between the same and the respective beds, of a carriage rotatably mounted in proximity to said devices and provided with chucks or holders for supporting material in the paths of the respective devices, whereby the said carriage may be rotated to transfer the material from one set of cutting devices to the other set, together with means for rotating said chucks or holders when they have been set in active relation to the cutting devices, substantially as described.



3. In a machine of the character described, the combination with a set of cutting devices, a horizontally-reciprocative support therefor, and differential gear and cam mechanism for effecting and controlling the reciprocations of the said support, of a second set of cutting devices, a vertically-reciprocative support therefor, and differential gear and cam mechanism for effecting and controlling the reciprocations of the said support, together with a shiftable carriage mounted in proximity to the said cutting devices and provided with chucks or holders for supporting material in the paths of the respective devices, whereby the said carriage may be shifted, to transfer the material from one set of cutting devices to the other set, and means for rotating said chucks or holders, substantially as set forth.

4. In a machine of the character described, the combination with a horizontally-reciprocative bed, differential gear and cam mechanism for effecting and controlling the reciprocations thereof, a supplemental bed horizontally adjustable on the main bed, means for adjusting the supplemental bed, bearings on the latter bed, a cutter-shaft in said bearings, its cutters, and means for revolving said shaft, of a vertically-reciprocative bed, differential gear and cam mechanism for effecting and controlling the reciprocations thereof, a supplemental bed vertically adjustable on the vertically-reciprocative bed, means for adjusting the supplemental bed last named, bearings on the latter bed, a cutter-shaft in said bearings, its cutters, and means for revolving the shaft, a shiftable carriage mounted in proximity to the cutters and provided with chucks or holders for supporting material in the paths of the respective cutters whereby the said carriage may be shifted to transfer the material from one set of cutters to the other set, and means for rotating said chucks or holders, substantially as set forth.

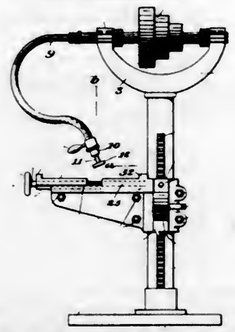
5. In a machine of the character described, a rotary carriage provided with independently-revolvable chucks or work-holders, longitudinally-movable and revolvable shafts adapted to be engaged with and disengaged from the chucks or holders in axial alinement therewith, a rock-shaft, and connections between the same and the shafts first named whereby said first-named shafts may be shifted longitudinally, together with means for rotating said first-named shafts, substantially as set forth.

682,186. STONE CARVING AND DRESSING MACHINE. WILLIAM P. GAULT, Cincinnati, Ohio. Filed Dec. 30, 1899. Serial No. 742,037. (No model.)

Claim.—1. In a stone carving and dressing machine, the combination of a frame having an adjustable support for the stone to be carved or dressed, a main shaft journaled in the frame, a flexible tool-shaft attached and secured directly to and driven from said main shaft, said flexible shaft being movable in any direction within the limit of its length, and a cutting-tool carried on the flexible shaft, substantially as set forth.

2. In a machine for carving and dressing stone, the combination of a frame having a standard, a main shaft journaled above the standard, a flexible tool-shaft secured to and driven from the main shaft, a tool on the flexible shaft, an adjustable table on the standard, and work-rests on the table, one of said rests being horizontally adjustable toward and away from the other, substantially as set forth.

3. In a machine for carving and dressing stone, the combination of a frame having a standard forked at its upper end, a main shaft journaled in the forks of the standard, a pulley on said shaft, a flexible tool-shaft, a coupling between the main shaft and tool-shaft, a head on the tool-shaft, a sleeve encircling said head and in which said head is adapted to revolve, a handle on said sleeve, a tool on said head, and a table carried by the standard, substantially as set forth.



4. In a stone carving and dressing machine, a base, a vertical tubular standard having a forked upper end, a horizontally-arranged drive-shaft journaled in the ends of the fork, a flexible shaft secured to and driven by said drive-shaft, a cutting-tool driven from said flexible shaft, a rack arranged along one side of the standard, a pinion meshing therewith, a two-part table having a sleeve portion fitted to the standard and inclosing and providing a bearing for the pinion, and clamps for the work, substantially as set forth.

682,187. TROLLEY-WIRE SUPPORT. WALTER GERARD, St. Bernard, Ohio. Filed Jan. 17, 1901. Serial No. 43,565. (No model.)



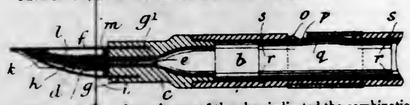
Claim.—1. In a trolley-wire support, the combination of an upper supporting member 12, provided with means for its attachment and support, a wire-bearing 11 of equal length having two upwardly-extending flanges which are adapted to be slipped up from below and receive the supporting member between them with the trolley-wire intermediate the two, a projection 16 between the ends of the wire-bearing whereby the wire is correspondingly raised upward between the ends of the support a corresponding cavity curved out between the ends of the upper member sufficient to not only receive the wire so raised up by projection 16 but to also prevent it from being engaged thereat by the upper member so that the wire is engaged at the ends of the support only and held in alinement by being clamped thereat between the ends of member 12 above and the opposite ends of the wire-bearing 11 below and means to hold these two parts detachably in position on each other.

2. In a trolley-wire support, the combination of an upper supporting member 12 provided with means for its attachment and support, curved out between its ends and having a transverse opening 14, a wire-bearing 11 of coextensive length, having two upwardly-projecting flanges adapted to be slipped up from below over the supporting member, receiving the same between them with a trolley-wire intermediate the two, alined openings 13, one in each one of these flanges, a projection 16 between the ends of bearing 11 and a screw 15 adapted to pass through openings 13, 14, 13 when they are alined to hold members 11 and 12 detachably to each other, such alinement being only possible when the wire is tightly clamped between the ends of member 12 above and the opposite ends of the wire-bearing 11 below, the intermediate portion of the wire being raised up by projection 16 into the space above all as shown and for the purpose described.

3. In a trolley-wire support, the combination of an upper supporting member 12 provided with means for its attachment and support, curved out between its ends and having a transverse opening 14, a wire-bearing 11 of coextensive length having two upwardly-projecting flanges adapted to be slipped up from below over the supporting member, receiving the same between them with a trolley-wire intermediate the two, alined openings 13, one in each one of these flanges, a projection 16 be-

tween the ends of bearing 11 whereby the trolley-wire is raised up from between the ends of this latter, a screw 15 adapted to pass through openings 13, 14 13 when they are alined, a lateral projection 24 on member 12 and a corresponding projecting depression 25 on one of the flanges of the wire-bearing which two by their engagement facilitate the alinement of the screw-holes above mentioned.

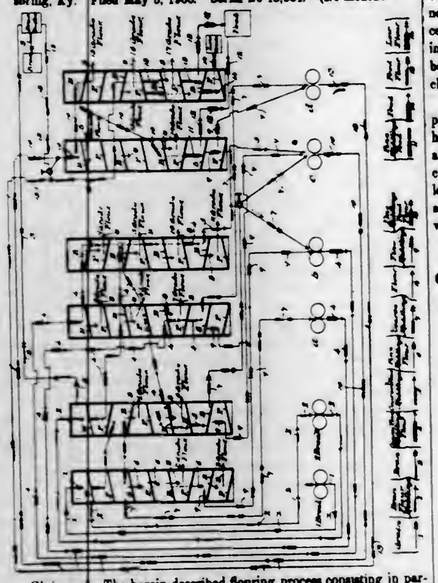
682,188. **FOUNTAIN-PEN.** HENRY GRAHL, Flowerdale, Victoria. Filed Nov. 3, 1900. Serial No. 35,311. (No model.)



Claim.—1. In a fountain-pen of the class indicated the combination with a handle having a reservoir, of the plug having a nib-slit and an ink-guide slit or the like, an ink-feed tube projecting from the said plug and having its exit below the back of the nib, a tapering coil *l* forming an ink-receiver with its rear large end *m* meeting the plug and its front small end touching the nib and touching an ink-guide and the said ink-guide *k* which is inserted in the slit in the plug all substantially as and for the purposes set forth.

2. In a fountain-pen of the class indicated the combination with a handle having a reservoir, provided with a recess *o*, aperture *p*, and grooves *s*, of a rubber tube *q* with a lip *r* at each end and seated in each case in the groove *s* and a revoluble band *n* fitting in the recess *o* and having an aperture *t* all substantially as and for the purposes set forth.

682,189. **MANUFACTURE OF FLOUR.** SQUIRE T. GREEN, Beesoring, Ky. Filed May 5, 1900. Serial No. 15,901. (No model.)

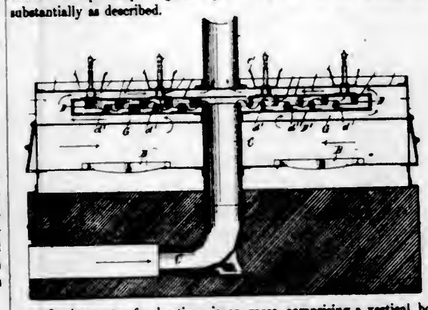


Claim.—1. The herein-described flouring process consisting in partially grinding the wheat, screening the bran therefrom, bolting the finest flour from the resulting stock, separating the coarse middlings from said stock, bolting the finished flour from the fine middlings, and subsequently separately reducing said coarse and fine middlings.

2. The herein-described flouring process consisting in partially grinding the wheat, screening the bran therefrom, bolting the finest flour from the resulting stock, separating the coarse middlings from said stock, bolting the finished flour from the fine middlings, and subsequently separately reducing said coarse and fine middlings by a series of partial reductions, and taking out flour resulting from each partial reduction.

682,190. **APPARATUS FOR HEATING AIR OR GASES.** WILLIAM H. HAMLETT, Keston, England, assignor of one-half to Herbert Samuel Russell, London, England. Filed Jan. 19, 1901. Serial No. 43,898. (No model.)

Claim.—1. Apparatus for heating air or gases comprising a vertical body with fire-grates and flues therein, a central air-supply pipe, a heater-box in said body located around and communicating with said supply-pipe, baffle-plates secured to the top and bottom of said heater-box, and arranged to alternate therein and air-outlet pipes secured on said heater-box top and passing through the top cover of the vertical body, substantially as described.

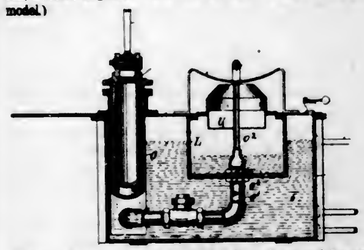


2. Apparatus for heating air or gases, comprising a vertical body with a fire-box and flues therein, an air-heating box inclosed in said body and surrounded by the flues, an air-supply pipe passing through the fire-box into the center of the air-heater, a central chimney, and air-outlet pipes leading from the air-heater box outside of the chimney through the top cover of the vertical body.

3. Apparatus for heating air or gases, comprising a vertical body having a fire-box, a central opening above the fire-box, an air-heating box inclosed in the body of the heater above the opening, a central chimney, flues surrounding the air-heating box and communicating with the central opening below and the central chimney above said box, an air-inlet pipe leading through the fire-box into the center of the air-heating box, and air-outlet pipes leading from said air-heating box outside of the chimney through the cover of the vertical body.

4. Apparatus for interiorly heating casks, barrels and the like, comprising a vertical body with a fire-box and flues inclosed therein, an air-heating box inclosed within said body and surrounded by the flues, an air-supply pipe passing through the fire-box into the air-heating box, a chimney connecting with the flue-space within the body, air-outlet pipes leading through the top of the vertical body, and racks or supports on said top cover for the articles to be heated, said outlet-pipes being provided with nozzles adapted to enter the articles supported on said racks.

682,191. **APPARATUS FOR LINING CASKS, &c.** WILLIAM H. HAMLETT, Keston, England, assignor of one-half to Herbert Samuel Russell, London, England. Filed Jan. 19, 1901. Serial No. 43,899. (No model.)

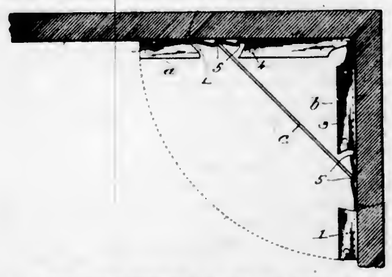


Claim.—In apparatus of the kind indicated, a vessel for containing the lining material, comprising a tank secured in an outer vessel for containing water, a steam-pipe opening near the bottom of said outer vessel, a force-pump located in said outer vessel and operated from outside thereof, an inlet-pipe leading from the tank to the pump and an outlet-pipe leading from the pump to a discharge-nozzle outside the cover, and valves in said pipes, substantially as described.

682,192. **CORNER-BRACKET.** JESSE F. HASEN, Epping, N. H. Filed May 18, 1901. Serial No. 60,835. (No model.)

Claim.—1. A corner-bracket, comprising two shelf-supporting members having their top edges in horizontal alinement for supporting a shelf and yieldingly connected at their inner ends and each provided with exterior lateral prongs extending integrally therefrom to enter the wall and a detachable diagonal brace to engage and maintain said members pressed against the walls.

2. A corner-bracket comprising two shelf-supporting members each having formed thereon external lateral prongs to enter the wall, a pivotal detachable connection between the inner ends of said members, a diagonal brace to maintain said members in place on the walls, and means to adjustably connect the brace with said members.



3. A corner-bracket comprising two sheet-metal members each having an upright web provided with external holding-prongs and a shelf-supporting flange at right angles to the web, a pivotal connection between the inner ends of said members, and a diagonal brace to engage and maintain said members in position.

4. A corner-bracket, comprising two shelf-supporting members pivotally connected at their inner ends, integral holding-prongs on the outer faces of said members, and an adjustable brace to engage and maintain the said members pressed against the walls of a room at the corner thereof.

5. A corner-bracket comprising two shelf-supporting members F-shaped in cross-section, prongs on the exterior of each member to engage a wall, a pivotal connection between the inner ends of the said members, whereby the angle between them may be varied, a cross-brace to maintain the said members in position, and a plurality of shoulders on each member, to coöperate with the ends of the brace.

6. A corner-bracket comprising two shelf-supporting members F-shaped in cross-section, prongs on the exterior of each member, to engage a wall, one member having an eye at one end and a hook on the other member, to enter the eye and pivotally connect said members, and a detachable diagonal brace adapted to engage and maintain the said members pressed against the walls of a room at the corner thereof.

7. A corner-bracket comprising two externally-pronged shelf-supporting members connected at their inner ends and variably separable at their outer ends, a detachable resilient diagonal brace to maintain the said members pressed against the walls of a room, and means to hold the ends of the brace on said members.

682,193. **BEATER FOR THRESHING-MACHINES.** CHARLES O. HEGGEM, Massillon, Ohio, assignor to Russell & Company, same place. Filed Mar. 15, 1901. Serial No. 51,280. (No model.)



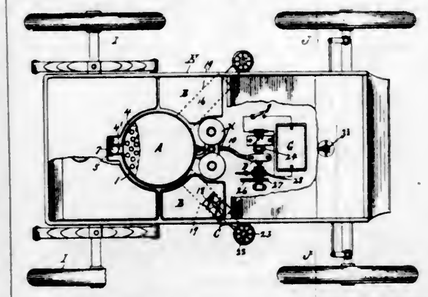
Claim.—1. A rotary beater for grain-separators having diverging spiral wings or blades of opposite pitch terminating at their outer ends in straight radial portions, substantially as described.

2. In a grain-separator for threshing-machines, the combination, with a separating-table, of a rotary beater located above that end of said table which receives the straw from the cylinder, said beater being provided with a plurality of diverging spiral wings or blades of opposite pitch, terminating at their outer ends in straight radial portions, substantially as described.

3. In a grain-separator for threshing-machines, the combination, with a separating-table, of a rotary beater located above that end thereof which receives the straw from the threshing-cylinder, said beater being provided with a plurality of pairs of spiral wings or blades of opposite pitch, meeting centrally in wedge form and terminating at their outer ends in straight radial portions, substantially as described.

682,194. **STEAM-PROPELLED VEHICLE.** HENRY K. HEM, Philadelphia, Pa. Filed Dec. 10, 1900. Serial 39,277. (No model.)

Claim.—1. In a steam-propelled vehicle, the combination with the vehicle-body, of an engine and a steam-generator mounted in the body and provided with a charcoal-burner for the purpose specified and a manually-operated feed having an operating member in proximity to the seat of the vehicle for feeding the charcoal to the burner.



2. In a steam-propelled vehicle, the combination with the vehicle-body, of an engine and a steam-generator mounted in the body and provided with a charcoal-burner, a charcoal-reservoir also mounted in the body and arranged to discharge into the burner and means in proximity to the seat of the vehicle for controlling the feed of charcoal from the reservoir to the burner.

3. In a steam-propelled vehicle, the combination with the vehicle-body, of an engine and a steam-generator mounted in the body and provided with a charcoal-burner, a charcoal-reservoir also mounted in the body and arranged to discharge into the burner, and manually-operated means having a handpiece in proximity to the seat of the vehicle for feeding the charcoal from the reservoir into the burner.

4. In a steam-popelled vehicle, the combination with the vehicle-body, of an engine, and a steam-generator mounted in the body and provided with a charcoal-burner extending beneath the body, a charcoal-reservoir discharging into the burner and manually-operated means having an operated member in proximity to the seat of the vehicle for feeding the charcoal from the reservoir to the burner.

5. The combination with a vehicle-body having upper and lower decks and a seat, of an engine, a steam-generator mounted in the body and provided with a charcoal-burner in its base and a smoke-chamber in its top, a movable cap or closure for the base of the burner, a smoke-flue connected to the smoke-chamber and extending through the upper and lower decks at the rear of the seat, and a movable deflector-plate in said flue for diverting the smoke upwardly or downwardly through the flue for the purpose described.

6. The combination with a vehicle body having a seat, of a steam-generator mounted on the body and having a charcoal-burner at its base, said burner having a movable closure, a charcoal-reservoir discharging into the burner, and a manually-operated feed carried by the vehicle and operated from the seat for forcing the charcoal from the reservoir to the burner.

7. The combination with a vehicle-body, of a steam-generator mounted on the body and having a charcoal-burner at its base, a charcoal-reservoir discharging into the burner, a rotary screw-feed movable in the base of the reservoir for feeding the charcoal to the burner, and a handpiece supported on the body in proximity to the seat of the vehicle and connected to actuate the screw.

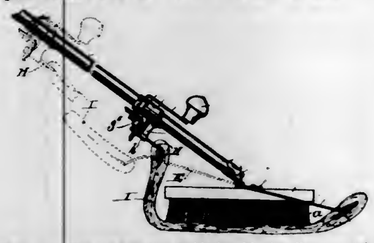
8. In a steam-propelled vehicle, the combination with the body and seat, a steam-generator mounted in the body beneath the seat and provided with a charcoal-burner having a hollow grate formed with a perforated upper wall, said burner having an opening beneath the grate and bottom of the vehicle-body, a removable closure for the opening, and means carried by the vehicle for forcing air into the hollow grate.

9. The combination with a vehicle-body having upper and lower decks and a seat, a steam-generator having its upper portion arranged between the decks and provided with a smoke-chamber and its lower portion provided with a charcoal-burner having a hollow grate, a smoke-conduit connected to said chamber and extending through the upper and lower decks, charcoal-reservoirs partially surrounding the generator and having their lower portions discharging into the burner and independent operating members in proximity to the seat of the vehicle for controlling the feed of the charcoal to the burner.

10. The combination with a vehicle-body, having upper and lower decks and a seat, a steam-generator having its upper portion arranged between the decks and provided with a smoke-chamber and having its lower portion provided with a charcoal-burner, a smoke-conduit connected to said chamber and extending through the upper and lower decks, charcoal-reservoirs discharging into the burner, independent feeds in the bases

of the reservoirs, and a handpiece for each of the feeds supported in proximity to the seat of the vehicle.

682,195. COMBINED MOP AND BRUSH. EDWARD HILKER, Chicago, Ill. Filed Jan. 9, 1901. Serial No. 42,582. (No model.)



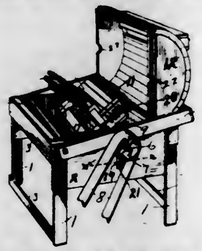
Claim.—1. The combination of a block, with a handle secured thereto, a bail pivotally secured on the block, a sleeve movably located on the handle and having means to fix it thereto, a rod or shaft journaled on said sleeve, a mop secured at one of its ends to said rod or shaft and at its other end to the said bail, and means to rotate the shaft, substantially as described.

2. The combination with a block, of a handle pivotally connected thereto, a bail substantially U-shaped and pivotally secured at its ends on the block and provided near its free end with elbows, a sleeve movably secured on the handle and having means to fix it thereto, a shaft journaled on said sleeve, a mop secured at one of its ends to said shaft, and at its other end to the bail, and means to rotate the shaft, substantially as described.

3. The combination with a block, of a plate secured on its upper surface and having curved flanges extending crosswise the body, a socket-piece having a transverse arm located in the curved flanges of the said plate, a handle secured in the socket-piece, a bail having its bearings in the said flanges and provided in its free end between its sides with an inwardly-bent portion, a sleeve movably secured on the handle and having means to fix it thereto, a shaft journaled on said sleeve, a mop connected at one of its ends to said shaft and at its other end to the bail, and means to rotate the said shaft, substantially as described.

4. The combination with a block, of a plate secured on its upper surface and having curved flanges extending crosswise the body, a socket-piece having a transverse arm provided with a longitudinal groove and located in the curved flanges of the said plate, a handle secured in the socket-piece, a bail having its ends bent inwardly and located in the groove of the arm and in said flanges, a sleeve movably secured on the handle and having means to fix it thereto, a shaft journaled on said sleeve, a beveled gear on said shaft, a mop connected at one of its ends to said shaft and at its other end to the bail, a crank-shaft journaled on the sleeve at right angles to the first-named shaft, and a beveled gear on the crank-shaft, substantially as described.

682,196. APPLE-BUTTER MACHINE. JACOB E. HIMEBAUGH, Lake, Ohio. Filed Apr. 29, 1901. Serial No. 57,899. (No model.)

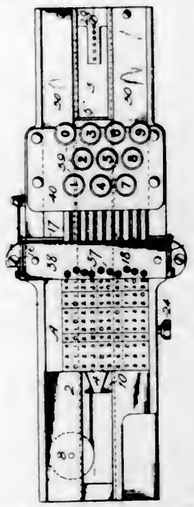


Claim.—1. In an apple-butter machine of the class described, a frame having connected thereto a semicircular trough formed tapering longitudinally, a hinged frame having journaled thereto a shaft, a brush-cylinder mounted upon the shaft, a cover hinged to the stationary trough and the stationary trough provided with openings in its bottom or lower portion, and a removable gauze located over the openings, substantially as and for the purpose specified.

2. The combination of a frame having fixed thereto a semicircular trough, a hinged frame having journaled therein a shaft and said shaft having mounted thereon a brush-cylinder, openings formed in the fixed trough, and said trough formed tapering longitudinally, an aperture located at the lower end of the semicircular trough, end brushes fixed to the brush-cylinder, a gauze located over the openings in the fixed trough, and a hinged cover provided with an opening upon the side thereof, substantially as and for the purpose specified.

3. The combination of a frame having fixed thereto a semicircular trough or receptacle, a brush-cylinder journaled in a pivoted frame, the brush-heads of said cylinder tapered to correspond with the taper of the trough, said trough provided with openings in its bottom or lower portion, end brushes secured to the brush-cylinder, an opening or aperture located at the one end of the trough, and a removable gauze strainer located over the openings in the bottom of the trough, all arranged, substantially as and for the purpose specified.

682,197. APPARATUS FOR PERFORATING RECORD-CARDS. HERMAN HOLLERITH, Washington, D. C. Filed May 17, 1901. Serial No. 60,752. (No model.)



Claim.—1. In a record-perforating apparatus the combination of a reciprocating card-carrier, a plurality of punches arranged in a row extending across the path of movement of the card, a key connected with each punch for imparting movement thereto, a motor connected with the carrier to move it in one direction, an engaging device for holding the carrier in position under the punches and connections between each key and the engaging device by which the operation of any punch will actuate the latter to release the card-carrier and permit it to move under the action of the motor to the next predetermined position, substantially as shown and described.

2. In an apparatus for perforating record-cards the combination of a reciprocating card-carrier, a plurality of punches arranged in a row extending across the path of movement of the card, a key connected with each punch for imparting movement thereto, a motor connected with the carrier for moving it in one direction, an engaging device for holding the carrier in position under the punches, connections between each key and the engaging device by which the operation of any punch will actuate the latter to release the card-carrier and permit it to move under the action of the motor to the next predetermined position and a key operating independently of the punches for releasing the carrier from the control of the engaging device, substantially as shown and described.

3. In an apparatus for perforating record-cards the combination of a bed-plate for supporting the card, a reciprocating carrier by which the card is moved along the bed-plate, a series of punches and operating-keys, a motor connected with the carrier for moving it in one direction, feeding devices actuated by the punch-keys and comprising a yieldingly-supported member by which the feeding of the carrier is controlled in such direction and which is movable by the carrier out of locking engagement therewith when it is moved in the reverse direction, whereby the carrier may be instantly moved to commence the punching at any intermediate position, substantially as shown and described.

4. In a record-perforating apparatus the combination of a reciprocating card-carrier, a plurality of punches arranged in a single row, a lever for each punch, a plurality of keys, one for each punch, arranged in groups at different distances from the punches, guides for confining the keys to a rectilinear movement in the same direction, connections between each key and its lever and a stop for limiting the operating movement of each key, substantially as shown and described.

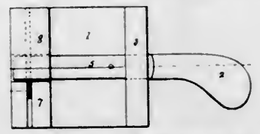
5. In a record-perforating apparatus the combination of a bed-plate upon which the card is supported, a plurality of punches arranged in a single line near the center of the bed-plate, keys for actuating the same, a slot in the bed-plate on each side of the punches, a card-carrier comprising pieces which engage the card at each end, guide-plates for the card overlapping one end of the bed-plate, a tension device connected with the carrier and means actuated by the keys for feeding the carrier a predetermined distance each time a punch is operated, substantially as shown and described.

6. In apparatus for perforating record-cards the combination of a bed-plate for supporting the card, a punch-frame mounted transversely above the bed-plate near its center, a plurality of spring-supported punches arranged in said punch-frame, a lever for each punch, a plurality of keys, one for each punch-lever, supported above the bed-plate, a slot in the bed-plate extending longitudinally on both sides of the punch-frame, a card-carrier comprising card-engaging end pieces which travel in the slot, a tension device connected with the carrier and feeding devices for the carrier connected with and actuated by the punch-keys, substantially as shown and described.

7. In apparatus for perforating record-cards the combination of a bed-plate for supporting the card, a punch-frame mounted transversely above the bed-plate near its center, a plurality of spring-supported punches arranged in said frame, a lever supported by each punch and fulcrumed in said punch-frame, a plurality of keys, one for each punch-lever, supported above the bed-plate and a universal bar supported by the punch-frame with which the punch-levers all engage, a card-carrier, tension and feeding devices therefor and connections between the universal bar and the feeding devices, substantially as shown and described.

8. In apparatus for punching record-cards the combination of a bed-plate for supporting the card, a carrier for moving the card on the bed-plate, a punch-frame mounted transversely above the bed-plate near its center, a plurality of spring-supported punches arranged in said punch-frame, a lever for each punch, an adjustable fulcrum for each lever supported by the punch-frame, keys for said levers, feeding devices for the carrier and operating connections between the keys and the levers, substantially as shown and described.

682,198. PEDAL FOR PIANOFORTES OR ORGANS. WILLIAM H. IVERS, Dedham, Mass. Filed Feb. 1, 1901. Serial No. 45,633. (No model.)



Claim.—A pedal pivoted with a short independent pin loosely inserted therein, detachably fastened thereto by a set-screw and used with this pedal only, the aforesaid parts being constructed and arranged to permit the withdrawal of the pedal without disturbing the bearing-blocks substantially as set forth.

682,199. SASH-FRAME. LEWIS H. JORDAN, Chicago, Ill., assignor to American Luxfer Prism Co., same place. Filed Apr. 12, 1901. Serial No. 55,532. (No model.)



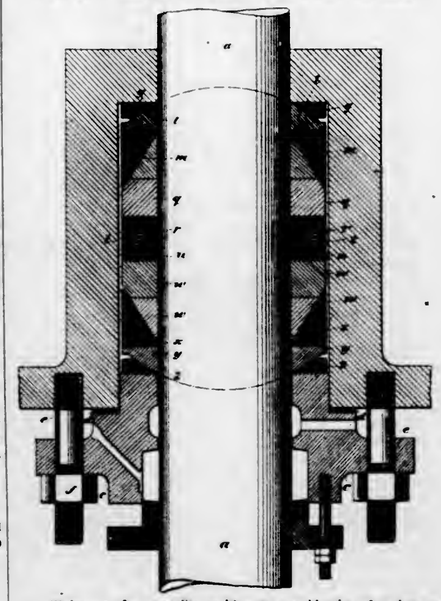
Claim.—1. In a sash-frame having intersecting grids halved together and laterally channeled for engagement with the edges of the tiles to be framed, beads on opposite edges of intersecting grids, a surrounding frame inwardly channeled for engagement with said tiles, and ties extending through beads on the opposite edges of intersecting grids secured at the ends to said frame whereby the several parts are locked together, for the purposes described.

2. A sash-frame having intersecting grids halved together and provided with beads to engage the edges of the tiles to be framed, a surrounding frame, ties secured at their ends to said surrounding frame passing through the bead of said grids on their halved edge and penetrating the bead of the intersecting grids, whereby the grids and cross-grids are interlocked at their intersections, for the purposes described.

3. A sash-frame having a surrounding frame and a series of interlocking grids extending continuously from side to side thereof halved together and having parallel beads, one on each edge constituting channels adapted to engage the plates to be framed, and ties securing said intersecting grids to each other and grids to the surrounding frame, for the purposes described.

4. In a sash-frame, a surrounding frame composed of an outer shell and internal reinforcing-bars having elbows extending around the corners of said frame, intersecting grids halved together and tied to said surrounding frame, said ties, grids and surrounding frame and reinforcing-bars being of refractory material, for the purposes described.

682,200. METALLIC PACKING. LEOPOLD KATZENSTEIN, New York, N. Y. Filed Nov. 24, 1900. Serial No. 37,561. (No model.)



Claim.—1. In a metallic packing, the combination of an intermediate tension-ring and a plurality of oppositely-placed sets of rings *w q*, a pair of tapered rings *m x* surrounding said rings *q w* respectively and curved-faced bearing-rings, one at each side of the group of rings and a plurality of curved seat-rings freely movable with respect to the piston-rod substantially as described and for the purposes set forth.

2. In a metallic packing the combination of an intermediate tension-ring, a plurality of sets of packing-rings one on each side of the said tension-ring, each of said sets of packing-rings consisting of an internal tapering ring and an external tapered ring fitting within the same, curved-faced bearing-rings whose faces form part of the same circle, and freely-movable curved-faced seat-rings *g z* upon which the bearing-rings work.

3. In a metallic packing, the combination with suitable packing-rings adapted to be forced apart in opposite directions, of a tension-ring therefor, the said tension-ring consisting of two members, one of the said members having seats for springs, and the other of the said members having a depending flange *v* to prevent fragments of springs from coming in contact with the piston-rod should the breakage of any of the springs occur.

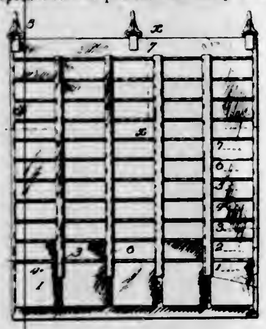
682,201. MAIL-BAG. LILLIAS M. KELLEY, Colo, Iowa. Filed Feb. 28, 1901. Serial No. 49,345. (No model.)

Claim.—1. In a device of the character set forth, vertical rows of pockets, and vertical strips separating the rows of pockets and attached at their longitudinal edges thereto and adapted to sustain the strain, substantially as set forth.

2. In combination, vertical rows of overlapping pockets having overlapped portions secured together, and vertical strips separating the rows of pockets and attached at their edges to the overlapped portions of the pockets secured together, substantially as set forth.

3. In combination, vertical rows of pockets, a transverse strip provided with suspending means, and vertical strips attached to the transverse strip at their upper ends and secured at their longitudinal edges to the edges of the respective rows of pockets, substantially as set forth.

4. The herein-described bag comprising a back, a transverse strip at the upper end of the back provided with suspending means, vertical rows of pockets having overlapped portions secured together, the outermost rows of pockets being secured to the edges of the back, and vertical strips attached at their upper ends to the transverse strip and at their edges to the respective rows of pockets, substantially as set forth.



682,202. BUNG FOR BARRELS, KEGS, OR CASKS. CHARLES J. KINTNER, New York, N. Y. Filed Aug. 3, 1900. Serial No. 25,786. (No model.)



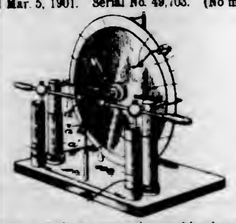
Claim.—1. An exteriorly-cone-shaped bung-ring designed for use with a correspondingly interiorly-cone-shaped bung-bushing, said ring being provided with a rim or extension at its inner end normally of greater diameter than the interior diameter of the bung-bushing and adapted, when in position in the bushing and below the lower end thereof, to hold or secure it from being withdrawn, substantially as described.

2. An exteriorly-cone-shaped bung-ring designed for use with a correspondingly interiorly-cone-shaped bung-bushing, said ring being provided with a rim or extension at its inner end normally of greater diameter than the interior diameter of the bung-bushing and adapted, when in position in the bushing and below the lower end thereof, to hold or secure it from being withdrawn; in combination with a detachable part having a head or rim adapted, when in position within the ring, to lock it against ejection, substantially as described.

3. An exteriorly-cone-shaped bung-ring designed for use with a correspondingly interiorly-cone-shaped bung-bushing, said ring being slitted on one side in the direction of its axis and provided with a rim or extension at its inner end adapted, when in position in the bushing and below the lower end thereof, to hold or secure it from being withdrawn, substantially as described.

4. An exteriorly-cone-shaped bung-ring designed for use with a correspondingly interiorly-cone-shaped bung-bushing, said ring being slitted on one side in the direction of its axis and provided with a rim or extension at its inner end adapted, when in position in the bushing and below the lower end thereof, to hold or secure it from being withdrawn; in combination with a detachable part having a head or rim adapted, when in position within the ring, to lock it against ejection; together with a cord for preventing the detachable part from becoming separated from the ring when said part is injected into the barrel, substantially as described.

682,203. STATIC MACHINE. THOMAS B. KINRAIDE, Boston, Mass. Filed Mar. 5, 1901. Serial No. 49,703. (No model.)



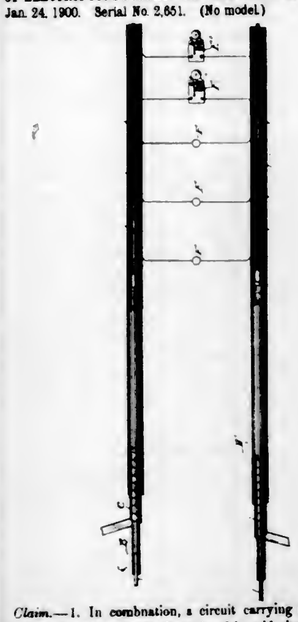
Claim.—1. In a static machine, the combination with the plate, of means at the receiving-terminal for preventing discharge thereat, and means at the opposite terminal for freely permitting discharge thereat.

2. In a static machine, the combination with the plate, of receiving and discharge terminals, the former being in the form of a plane electrode of considerable area substantially parallel to the plate, and the latter in the form of one or more discharge-points.

3. In a static machine comprising means for generating a static field, and electrodes for coöperating therewith, a neutralizing rod or means, having at one end an enlarged plane terminal for readily receiving electricity and reluctantly discharging the same, and at its other end terminating in means freely discharging the charge received by said plane terminal.

4. In a static machine, the combination with the plate, of a plane receiving-electrode having an extended area parallel to the surface of the plate, and a coöperating electrode having a discharge point or points next to the plate.

682,204. DEVICE FOR INDICATING LEAKS IN INSULATION OF ELECTRIC CONDUCTORS. ISIDOR KITSEE, Philadelphia, Pa. Filed Jan. 24, 1900. Serial No. 2,651. (No model.)



Claim.—1. In combination, a circuit carrying a current useful for light or power, consuming devices placed in said circuit, and an indicating device, one terminal of which is connected to the circuit proper, and the second terminal of which is connected to a conductor insulated from, but in proximity to said circuit.

2. In a device to protect buildings from injury due to the leakage of electric energy, a conductor or conductors carrying said electric energy, said conductor or conductors insulated throughout their length, and provided with a metallic envelop, in combination with an indicating device or devices connected with one terminal to the current-carrying circuit, and with the other terminal to the conducting-envelop.

3. A circuit, carrying an electric current, incandescent lamps connected in multiple arc as to said circuit, an insulating-envelop for each line-wire of said circuit, and a conducting-envelop inclosing both of said line-wires, in combination with an indicating or alarm device connected to one of the wires of which said circuit is formed and to the conducting-envelop, respectively.

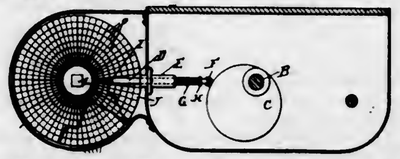
4. In an electric circuit for light and power, two conducting-lines, each provided with an insulating-envelop, a conducting-envelop inclosing the insulating-envelop, consuming devices connected to the conducting-lines, and an indicating device of a resistance higher than the resistance of any of the consuming devices, connected to one of the line-wires and the conducting-envelop respectively.

5. In combination with a current-carrying circuit, consuming devices placed in said circuit, an alarm device connected, with interposition of a switch, to the circuit and to a metallic envelop surrounding said circuit, but insulated therefrom.

6. A circuit carrying an electric current useful for light and power, insulating material surrounding the wire of said circuit, conducting material in contact with said insulating material, consuming devices for said circuit, and a high-resistance-indicating device connecting with one terminal

to the conducting-circuit, and with one terminal to the independent conductor, and means to open and close the indicating-circuit.

682,205. RECORDING DEVICE. ISIDOR KITSEE, Philadelphia, Pa. Filed Mar. 16, 1900. Serial No. 8,914. (No model.)



Claim.—1. A controller adapted to control the connections of an electric motor to its source of energy, provided with means, automatic in their action, to record the different positions of the movable part of said controller.

2. A controlling device for electric motors, in combination with a registering device, the movements of the movable parts of the registering device being controlled by the movements of the movable part of the controlling device.

3. A controller adapted to control the electric connections of a motor to its source of energy, in combination with a registering device adapted to record the movements of the movable part of said controller and in further combination with a timing device adapted to control the time movements of the movable part of the registering device.

4. In a controller adapted to control the electric connections of a motor to its source of energy, a movable shaft provided with a cam or device similar in its action, in combination with an adjustable arm provided with a marking device, the movements of said adjustable arm being controlled by the different positions of the cam or device similar in its action.

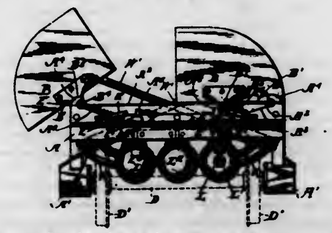
5. A registering device in combination with a controlling device adapted to control the connections of a motor to its source of energy, the movement of the recording-stylus of said registering device being controlled by the movable device of the controller proper, in combination with the timing device controlling the time movements of the material on which the record is made.

6. In combination with a controller adapted to control the connections of a motor to its source of energy, a registering device consisting of the movable arm provided with a recording-stylus and adapted to be actuated by the movement of the movable part of the controller, in combination with a material adapted to receive the recording-marks, said material being designed to be operated by a timing device with which the recording device is provided.

7. In a registering device adapted to be operated by a controlling device designed to control the connections of the motor to its source of energy, a material designed to receive the recording-marks, said material being provided with time-divisions and controller-divisions, the controller-divisions being adapted to record the positions of the movable part of the controller proper, and the time-divisions being adapted to mark the length of time said positions are maintained.

8. A controller provided with a casing in combination with a recording device, the casing of which is secured to the casing of said controller, said recording device being provided with a movable arm passing through the opening of said controller-casing, one terminal of said movable arm being in contact with the movable part of said controller and one terminal of said movable arm being in contact through a recording-stylus with the movable material designed to have recorded thereon the movements of said stylus.

682,206. DUMPING-CAR. THOMAS LAWSON, New York, N. Y. Filed Dec. 14, 1900. Serial No. 39,873. (No model.)



Claim.—1. In a dumping-car, having two continuous series of ball-bearings to provide easy movements of loads transversely of the car, a carrier adapted to run thereon from inboard to outboard positions and return, two inclines and hooks at the outboard end of the traverse, journals on said carrier arranged to be received in such hooks and allow the carrier to be tilted to dump a nearly horizontal cylinder carrying a piston and connections arranged to give both the horizontal traversing and the tilting motion, and means controlled at will for supplying compressed air to act on such piston in opposite directions to induce the movements to traverse horizontally and dump and return, combined substantially as herein specified.

2. In a dumping-car, having two continuous series of ball-bearings to provide easy movements of loads transversely of the car, two carriers adapted to run thereon from inboard to outboard positions and return, two inclines and hooks at the outboard end of the traverse on each side, two journals on each carrier arranged to be received in such hooks and allow the carrier to be tilted to dump a nearly horizontal cylinder for each carrying a piston and connections arranged to give both the horizontal traversing and the tilting motions to each carrier, and means controllable at will for supplying compressed air to act independently on each such piston in opposite directions to induce the movements to traverse horizontally and dump and return simultaneously or either alone, all combined substantially as herein specified.

3. In a dumping-car, having two continuous series of ball-bearings to provide easy movements of loads transversely of the car, a carrier adapted to run thereon from inboard to outboard positions and return, two inclines and hooks at the outboard end of the traverse, journals on said carrier arranged to be received in such hooks and allow the carrier to be tilted to dump a nearly horizontal cylinder carrying a piston and connections arranged to give both the horizontal traversing and tilting motions, and means controllable at will for applying compressed air to act on such piston in opposite directions to induce the movements to traverse horizontally and dump and return, such means comprising operative cocks H and I, one for each end of each cylinder, the levers H^3 and I^3 and the rod M connecting them and means for operating the rod from the end of the car so as to not only effect the admission of the compressed air to drive the carrier in either direction but also to effect the cutting off of the impelling-air and the cushioning of the air in advance of the piston by simple movements, all substantially as herein specified.

4. In a dumping-car, having two continuous series of ball-bearings to provide easy movements of loads transversely of the car, a carrier adapted to run thereon from inboard to outboard positions and return, two inclines and hooks at the outboard end of the traverse, journals on said carriers arranged to be received in such hooks and allow the carrier to be tilted to dump a nearly horizontal cylinder carrying a piston and connections arranged to give both the horizontal traversing and tilting motions, and means controllable at will for applying compressed air to act on such piston in opposite directions to induce the movements to traverse horizontally and dump and return, the removable box B^3 in such carrier allowing the pin B^4 to be set high and the application of the force in inclined directions and also allowing easy access to such pin, all substantially as herein specified.

5. In a dumping-car, having a carrier adapted to run easily from inboard to outboard positions and return, two inclines and hooks at the outboard end of the traverse, journals on said carrier arranged to be received in such hooks and allow the carrier to be tilted to dump, a nearly horizontal cylinder carrying a piston and connections arranged to give both the horizontal traversing and the tilting motions, means controllable at will for applying compressed air to act on such piston in opposite directions to induce the movements, and the strong and light reservoir L^2 for storing compressed air on the car, all combined substantially as herein specified.

682,207. TRAP-NEST. WILLIAM H. LEISTER, Stonington, Ill. Filed Apr. 1, 1901. Serial No. 53,933. (No model.)



Claim.—1. A trap-nest comprising a frame having beveled sides; slotted levers pivotally secured to said sides; headed pins projecting from the rear ends of said levers; a box to contain a nest, a bail at each side of said box whereby the box is detachably suspended from said pins; a hinged gate in front of the beveled ends of the sides; pins projecting from said gate and extending into the slots of the levers; and stops for limiting the outward movement of said gate.

2. A trap-nest comprising a frame having side pieces beveled at their front ends; slotted levers pivotally secured to said sides and provided at their rear ends with projecting headed pins; a box adapted to contain a nest, bails at opposite sides of said box whereby the box is detachably suspended from said pins; a hinged gate in front of the beveled ends of the sides; pins projecting from said gate and extending into the slots of the levers; and inclined bars secured to the standards of the frame to limit the downward movement of said gate.

682,208. COMBINATION TICKET-PUNCH. DAVID S. LEMEN, Milwaukee, Wis. Filed Sept. 7, 1900. Serial No. 29,339. (No model.)

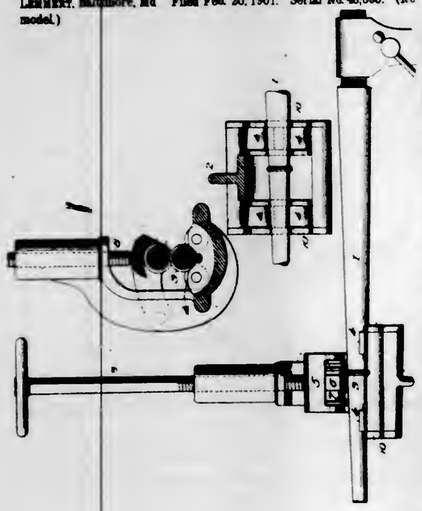


Claim.—1. In a ticket-punch, the combination of two movable parts, each comprising a handle and a jaw pivotally connected together, one of said jaws being provided with a plurality of longitudinal ticket-receiving slots, and a plurality of transverse slots, or female dies, opening toward the opposing jaw and extending inward transversely through said longitudinal slots, said opposing jaw being provided with a plurality of male dies respectively registering with said female dies, and of different lengths corresponding with the depth of the seats of said female dies from the face of their containing-jaw, substantially as set forth.

2. In a ticket-punch, the combination of two movable parts, each comprising a handle and a jaw, one of said handles being provided with a recess for the reception of the opposing handle, in which the same is pivoted, one of said jaws being provided with a plurality of longitudinal slots, and a plurality of transverse slots, or female dies, having seats respectively in said longitudinal slots; and the other jaw being provided with a plurality of male dies registering and corresponding in length with the depth of said female dies, substantially as set forth.

3. In a ticket-punch, the combination of two movable parts, each comprising a handle and a jaw pivotally connected together, one of said jaws being provided with a plurality of longitudinal ticket-receiving slots and a plurality of transverse slots or female dies, opening toward the opposing jaw and extending inward transversely through said longitudinal slots, said opposing jaw being provided with a plurality of male dies respectively registering with said female dies, and of different lengths corresponding with the depth of the seats of said female dies from the face of their containing-jaw; and an S-shaped actuating-spring interposed between said handles, said spring being rigidly affixed centrally and at one end to one of said handles, and adapted to bear at its free end against the opposing handle, all substantially as set forth.

682,209. DEVICE FOR EXPANDING FINGER-RINGS. AUGUST LEMMERT, Baltimore, Md. Filed Feb. 20, 1901. Serial No. 48,095. (No model.)

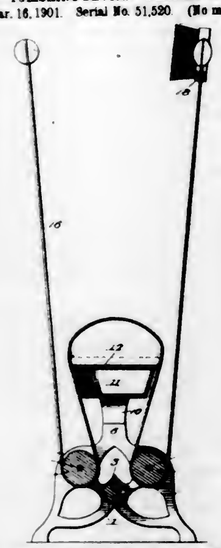


Claim.—1. In a device for expanding finger-rings and in combination with a fixed tapering mandrel, a pressure-roller device comprising a stock having bearing-rolls in pairs, and a carrier having a grooved roller adapted to engage a ring on the mandrel and means whereby pressure upon the grooved roller effects and maintains its engagement with the ring, the said bearing-rolls and the said grooved pressure-roller tapering to conform to the taper of the mandrel.

2. A pressure-roller device for expanding finger-rings consisting of a stock having tapering bearing-rolls in pairs, a suitable carrier having a grooved tapering roller, and means whereby the said grooved-roller carrier is put under pressure to permit the groove-roller to be operated in engagement with a ring suitably supported to be expanded under a rolling pressure.

3. A pressure-roller device for expanding rings consisting of a stock having tapering bearing-rolls in pairs, a tapering roller having a plurality of circular grooves of different widths, a carrier for said grooved roller and means whereby it is put under pressure to allow the grooved roller to be operated in engagement with a ring on a fixed mandrel whereby the ring is expanded by a rolling pressure.

682,210. POLISHING DEVICE. FRITZ LESCHINSKI, Philadelphia, Pa. Filed Mar. 16, 1901. Serial No. 51,520. (No model.)

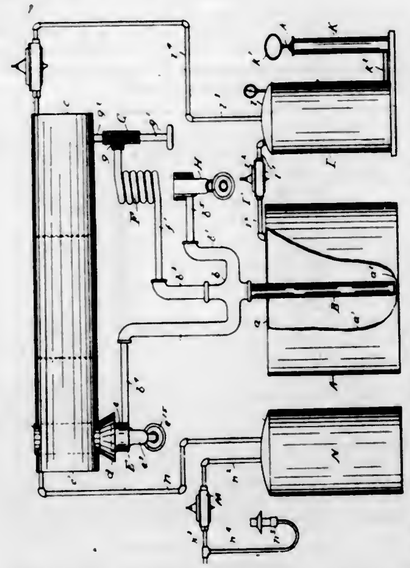


Claim.—A polishing device comprising a stand composed of end pieces having seats for a foot-rest, rollers journaled in the ends of a stand parallel with each other, a foot-rest having projecting ends seated and secured in the seats of the ends of the foot-rest, a receptacle formed integral in the sole of the foot-rest, a hinged cover to close the receptacle, a polishing-band arranged under the rollers and over the foot-rest, and a dauber secured to one end of the polishing-band.

682,211. CARBURETER. EDMUND B. LUDWIG, Kansas City, Mo. Filed Dec. 10, 1900. Serial No. 39,396. (No model.)

Claim.—1. In a gas-mixing apparatus, a receiver having separate compartments for the gases, and tortuous passages leading from one of said compartments to the other, a tank for compressed fluid, and a pressure-regulating device, and a conductor of the compressed fluid connected with said tank and leading to one of the compartments in said receiver through the pressure-regulating device, a generator for gas and a conductor of the heated gas connected with the generator and also with said compartment receiving the fluid under pressure, means for reheating the mixed gases in another compartment of the receiver, and a separate pressure-regulating device controlling the distribution of the mixed gases from said receiver.

2. An apparatus for making illuminating-gas, comprising a receiver for the mixing of gases, having separate compartments and tortuous orifices or passages leading from one of said compartments to the other, and a gas-generator, a conductor for the heated gas extending from the generator to one compartment of the receiver, and with the lower part of said compartment, and a tank for compressed air, and an air and gas pressure reducing device, and a pipe connected with the said compressed-air tank, and the inlet to said pressure-reducing device, and a pipe connecting the outlet to said device with the upper part of the said receiver and the compartment in which the generated gas is admitted, a gas-heating flue extending through another compartment of said receiver, and a heating device within said flue, and means for regulating the discharge of the mixed gases from said receiver.



3. In an apparatus for making illuminating-gas, comprising a receiver for mixing of gases having separate compartments and tortuous passages leading from one of said compartments to the other, of a gas-generating retort and a conductor of the generated gas connected with said generator and one of said compartments of the receiver, a tank for the gas-making fluid, and a delivery-pipe extending within said tank at one end and having the other end connected with said gas-generating retort, a separate tank for compressed air and an air-pressure-reducing device between said tanks and conductors of the compressed air connected with said tanks and with the respective inlet and outlet openings to the reducing device, a separate pressure-reducing device between said air-compressing tank and said receiver for the mixed gases, and conductors of compressed air connected with the said tank for compressed air and with said receiver and the compartment receiving the generated gas and connected with the respective inlet and outlet to the air-pressure-reducing device, means for heating the gas-generating retort, and a gas-pressure-regulating device regulating the delivery of the mixed gases from said receiver.

4. An apparatus for making illuminating-gas, comprising a receiver for the mixing of gases having separate compartments for mixing and reheating the gases, and tortuous passages leading from one of said compartments to the other, a tank for the fluid to be vaporized, and a delivery-pipe extending within said tank at one end and branches of said pipe-joint, a gas-generating retort or coil of pipe having one end connected with one of the branches of said pipe-joint, and the other end extending within the gas-mixing chamber of said receiver, separate gas-burners, one of which is arranged beneath said coil of pipe, and the other beneath said chamber for reheating the mixed gases, and conducting-pipes for said fluid connected with said burner and the said branches of said three-way pipe-joint, a separate tank for compressed fluids, and a pressure-regulating device between said tank and the tank containing the fluid to be vaporized, and pipes connected with said tanks and the respective inlet and outlet to said air or gas pressure regulating device, a separate air or gas pressure regulating device between said tank for compressed fluids and said receiver, and pipes connected with the gas-mixing chamber of said receiver and said tank for compressed fluids and connected with the respective inlet and outlet to said air or gas pressure regulating device, a distributing-pipe for the mixed gases connected with the chamber for reheating the mixed gases, and an air or gas regulating device connected with said pipe.

682,212. MOLD FOR BLOWN GLASS. EDGAR J. LUTWYCHE, Chicago, Ill. Filed Oct. 17, 1900. Serial No. 33,393. (No model.)



Claim.—1. In a separable glass-mold, in combination, a base-plate having a number of radial grooves therein; sections comprising the body portion of said mold, adapted to move along said grooves, said sections having portions projecting into said grooves, and adapted to slide therein; an oscillatory plate pivotally mounted on the lower side of said base-plate concentric with said radial grooves; links having a pivotal connection with said oscillatory plate; a pivotal bolt for connecting the outer ends of said links with the lower projecting portions of said sections; and a handle for moving said oscillatory plate upon its pivotal center, and for moving said sections lengthwise in said grooves toward and from one another.

2. In a separable glass-mold, in combination, a base-plate having radial grooves therein; a plurality of sections, each section having a portion projecting into said grooves, adapted to slide lengthwise thereof, said sections being of such width as to touch each other at their edges when they are slid toward the center of said base-plate, and thereby form the inclosed body portion of said mold; an oscillatory plate pivotally mounted on the lower side of said base-plate concentric with said radial grooves; a link pivotally connected to said oscillatory plate; a pivotal bolt for connecting the outer ends of said links with the lower projecting portion of each of said sections; and a handle for oscillating said plate on its supporting-pivot and moving said sections toward and from one another along said radial grooves.

3. A pattern for glass-molds, having a body portion, a recess in the rear side thereof, and vent-holes connecting the depressions in the face of said pattern with said recess, to permit the escape of air from said depressions, said recess being closed to the outer air except for said vent-holes.

4. A pattern for glass-molds, having a body portion, a recess in the rear side thereof, and vent-holes connecting the depressions in the face of said pattern with said recess, to permit the escape of air from said depressions, said recess being closed to the outer air except for said vent-holes, and having a capacity such that with the usual pressure in blowing the glass into the mold the air confined within the chamber will cushion the glass in the face of the pattern, and prevent it from entering the vent-holes in the face of said pattern.

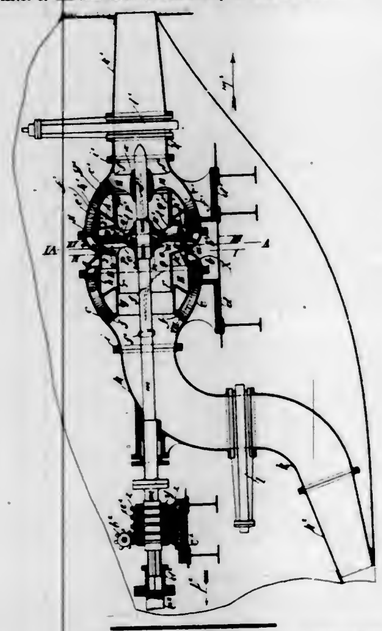
682,213. HYDRAULIC PROPELLER FOR SHIPS. EDMOND E. MARCHAND, Paris, France. Filed Sept. 19, 1900. Serial No. 30,475. (No model.)

Claim.—1. A hydraulic propeller for ships comprising two turbines placed symmetrically back to back, one against the other, a shaft upon which said turbines are mounted and having one of its ends resting upon a bearing arranged upon a slide parallel with the axle, the cover of which carries a rack in engagement with a pinion actuating it, two opposing parts also symmetrical and stationary in which are inclosed the movable turbines and which at their free ends terminate in suction or discharge pipes, be the same straight, cylindrical or conical, or bent in the form of a double bend so as to permit said shaft to pass through a suitable stuffing-box, substantially as described above.

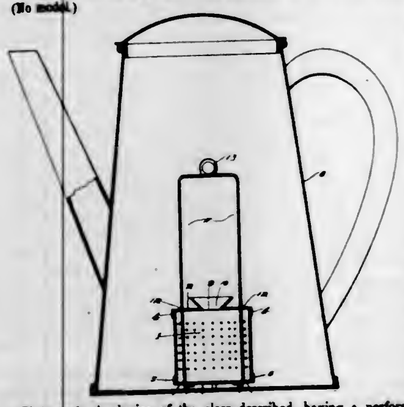
2. A hydraulic propeller for ships comprising two turbines placed symmetrically back to back one against the other and provided with radial ribs curved in the direction of the rotation of the turbines, a shaft carrying said turbines and having one of its ends resting upon a bearing arranged upon a slide, the cover of which carries a rack in engagement with a pinion actuating it, two stationary opposing parts placed back to back symmetrically and in the interior and cylindrical portion of which are arranged said movable turbines, said two opposing parts being capable of being constructed in three parts and being provided with two annular spaces, opposite to each of which may alternately be placed the similar annular opening of one of the movable radial turbines, the said annular spaces of the opposing parts communicating respectively with suction and discharge pipes through conduits or channels provided between the radial ribs or paddles at their beginning and curved suitably afterward, but in directions opposite to the paddles of the movable turbines, in such manner as to discharge in nearly axial directions in said suction and discharge pipes, substantially as described above.

3. A hydraulic propeller for ships, comprising two radial turbines placed symmetrically back to back one against the other and supported by a shaft which at one of its ends is mounted upon a bearing arranged upon a slide placed parallel with the axis of the turbines and the cover

of which carries a rack engaging with a pinion actuating the same; two opposing parts for said turbines and two tubes for suction and discharge, be the same straight, cylindrical or conical or suitably curved for permitting the passage of the shaft carrying said turbines; the latter each carrying on opposite sides two cylindrical walls of different diameters and arranged in the opposing parts which for such purpose are bored out to two different diameters and which are equal, respectively, to the exterior diameters of said cylindrical walls, in such manner as to form two circular spaces, of which that which is situated forward, in the sense of the forward movement, communicates with the space of the corresponding turbine through a number of suitable holes passing through the cheek of said turbine and distant from the axis of the latter to a given extent, so that the span formed by the cylindrical walls and the opposing part of the forward turbine communicates by means of a series of holes which pass through the ribs or paddles of the latter turbine with the space provided in the middle of the turbines placed back to back one against the other, which latter space communicates by means of another series of holes with the interior of the rear turbine substantially as described above.



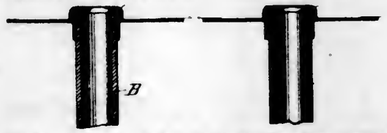
682,214. SEDIMENT-COLLECTOR FOR COFFEE-POTS, &c. PERCY P. MARTIN, Snyder, Tex. Filed May 15, 1901. Serial No. 60,383. (No model.)



Claim.—1. A device of the class described, having a perforate body, a removable top having an entrance-opening formed therethrough, and a handle rising from the bottom of the body and projected loosely through an opening in the removable top, the latter being slidably mounted upon the projected portion of the handle.

2. A device of the character described, comprising an open-ended perforate cylindrical body, a removable bottom having a marginal cylindrical rim embracing the lower end of the body, a removable top having a marginal cylindrical rim embracing the top of the body, and provided with a pair of diametrically opposite perforations, and a central opening, an inverted conical funnel or hopper rising from the walls of the opening, and an inverted substantially U-shaped handle having its opposite sides passing downwardly and loosely through the corresponding perforations in the top, with their lower ends connected to the bottom, the top being slidably mounted upon the projected handle portion.

682,215. BUSHING FOR ELECTRICAL CONDUITS. MATHIAS MAUER and WILLIAM J. BILLINGS, New York, N. Y. Filed Feb. 19, 1901. Serial No. 48,028. (No model.)

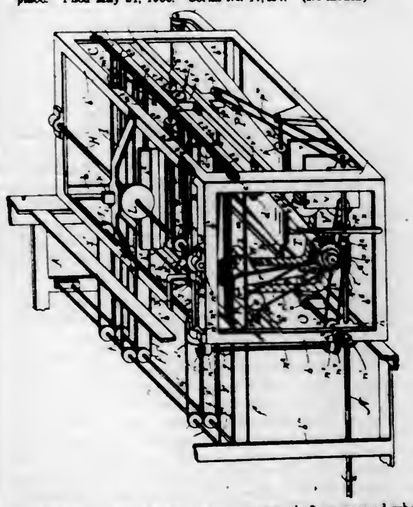


Claim.—1. In an outlet-box the combination of an eccentrically-formed or cam-shaped bushing with an aperture of the same form as described and for the purposes specified.

2. The combination with an outlet-box of a pipe leading into such box, a cam-shaped or eccentric bushing formed of elastic material and provided with a longitudinal slit to allow elastic play, and an aperture in the side of the box having a periphery coinciding with that of the bushing as described and for the purposes specified.

3. The combination in an outlet-box of a compressible bushing engaging with an aperture coinciding in form with the periphery of the bushing and so arranged as to cause a locking action when the bushing is rotated in the aperture, all as described and for the purposes specified.

682,216. ADDRESS-PRINTING MACHINE. ROBERT MAXWELL, Topeka, Kans., assignor of one-half to Joseph F. Kirkpatrick, same place. Filed May 21, 1900. Serial No. 17,457. (No model.)



Claim.—1. In an address-printer, a rotary shaft, a grooved wheel on said shaft, separate flexible, longitudinally-slotted plates, having transverse openings in said plates, and a grooved type-body adapted to be inserted within the slot in each plate extending below the plane of the under side of said plates and within the grooves in said wheel.

2. In an address-printer, a side-supporting plate having a bracket at its upper end, a transverse, rotary shaft supported by said plate and bracket, a wheel upon said shaft upon the side of said plate, having said bracket, a sprocket-wheel upon the other end of said shaft, a stud-shaft upon the lower end of said plate, a sprocket-wheel upon said stud-shaft, a sprocket-chain extending over the sprocket-wheel on said stud-shaft and also over the sprocket-wheel on said rotary shaft, means upon said plate-carrying wheel and said plate for preventing loose motion, a main driving-shaft, a worm on said shaft, and a worm-wheel stud-shaft engaging with the worm on said main shaft.

3. The combination in a paper-folding machine, with its main driving-shaft, of movable address-printing devices, separate fixed and movable stops in the path of the paper to be folded upon the folding-machine, and mechanism upon the folding-machine substantially as described, actuated by the movable address-printing devices, and moving one of said stops from the path of the paper.

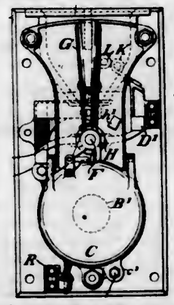
4. The combination in a paper-folding machine with its main driving-shaft, of a rotary shaft upon said machine, a wheel upon said shaft, printing devices upon said wheel, power-conveying devices upon the main driving-shaft connected with and actuating the shaft having said wheel, separate fixed and movable stops upon said folding-machine, in the path of the paper to be folded, and mechanism substantially as described upon the folding-machine actuated by the movable address-printing device, and moving one of said stops from the path of the paper.

5. An address-printer comprising separate plates hinged together in series, printing devices upon said plates, a power-actuated rotary shaft, a wheel upon said shaft supporting said series of plates, means for supplying the printing substance to the printing-plates, a compression device for obtaining the imprint, separate fixed and movable stops in the path of the material to receive the imprint, a rock-shaft, an arm upon said shaft connected with said movable stop, a crank upon said shaft, a draft-rod connected with said crank and a projection upon said rod, with which one or more of the series of printing-plates automatically engage.

6. In an address-printing machine comprising a rotary shaft and a bracket supporting one end of said shaft, a rotary wheel upon said shaft, a series of printing-plates supported by said wheel, separate fixed and movable stops in the path of the material to receive the imprint, a compressing device for obtaining the imprint, a rock-shaft upon said machine, an arm upon said shaft connected with said movable stop, a crank upon said shaft, a rod connected at one end with said crank, a lug upon one or more of said printing-plates and a barb upon the other end of said rod and an inclined plane upon the bracket supporting the rotary shaft and in the path of said barb.

7. The combination in a paper-folding machine with the main driving-shaft, of paper-folding devices, a separate longitudinal rotary shaft actuating said paper-folding devices, suitable power connections connecting the latter shaft with the main shaft, separate printing-plates hinged together in series, a rotary wheel supporting said series of plates, a vibrating arm pivotally connected with the said machine at one end and having a pad at the other end adapted to compress the paper to receive the imprint upon the printing-plate, a spring supporting the vibrating end of said arm and a cam upon the rotary shaft actuating the paper-folding devices adapted to come into contact with the said vibrating arm, substantially as described.

682,217. CIRCUIT-BREAKER. FRANK A. MERRICK, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Jan. 18, 1900. Serial No. 1,863. (No model.)



Claim.—1. In a circuit-breaker of the character described, the combination with a suitable base, and a magnet-core supported at right angles thereto, and having pole-pieces formed with massive, parallel elongated extensions, of a series-connected coil wound on said core between the said extensions, main and secondary contacts, the latter being situated directly between said extensions, a locking device for normally maintaining the engagement, of the respective contacts, means operated by said coil for releasing said locking device and means for effecting the separation of said contacts when released.

2. In an automatic circuit-breaker, the combination with an electro-magnet having its energizing-coil in series, and provided with elongated polar extensions, a pair of fixed main contacts, a bridging-piece for connecting the same, a rotary shaft carrying the bridging-piece, a fixed secondary contact situated between said polar extensions, a coöperating movable secondary contact, and means on said rotary shaft for engaging said movable contact, substantially as described.

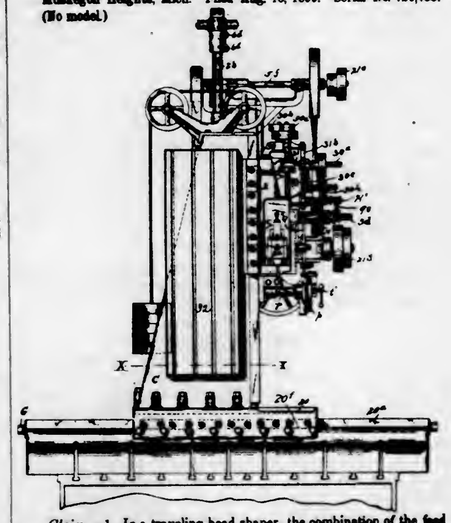
3. In an automatic circuit-breaker, the combination of a pair of fixed main contacts, a rotary shaft, a bridging-piece for said contacts carried by the said shaft, a spring for actuating said shaft in one direction, a fixed secondary contact, a movable secondary contact, a spring for maintaining the engagement of the secondary contacts, means on said shaft for effecting a separation of the secondary contacts, a locking device for said shaft, and an electromagnet for tripping said locking device, said magnet having massive elongated parallel pole-pieces between which the said secondary contacts are situated, substantially as described.

4. In an automatic circuit-breaker, the combination with two fixed main contacts and a single fixed secondary contact, of a rotary shaft, a bridging-piece carried by said shaft for connecting the main contacts, a spring for actuating said shaft to separate the bridge-piece from said contacts, an electromagnet for releasing said locking device, a pivoted secondary contact, and means on said shaft arranged to engage and move said pivoted secondary contact after a certain initial movement of said shaft, said magnet having extended pole-pieces between which the secondary contacts are situated, substantially as described.

5. In an automatic circuit-breaker, a rotary contact-carrier having a forked lug or projection, a spring for actuating said device in one direction, an electromagnet having a hinged armature, and a finger pivoted to the said armature and arranged to make an unstable engagement with one of the forks of said lug or projection, substantially as described.

6. In an automatic circuit-breaker, a rotary contact-carrier, having a forked lug or projection, an electromagnet having a hinged armature, and a finger pivoted to said armature and adapted to be engaged by one arm of said lug or projection and thereby moved into engagement with the other arm thereof, said other arm having an inclined surface adjacent to the point of such engagement, substantially as described.

682,218. SHAPER. MATTHEW MORTON and HENRY R. MORTON, Muskegon Heights, Mich. Filed Aug. 10, 1899. Serial No. 726,733. (No model.)



Claim.—1. In a traveling-head shaper, the combination of the feed mechanism, a feed-actuating shaft H, or H', a shaft 30ª, a shaft *n*, means for imparting a continuous rotary motion to the shaft 30ª, means for imparting an intermittent rotary motion to the shaft *n*, and means for connecting either the shaft 30ª, or the shaft *n*, with the feed-actuating shaft, substantially as described.

2. In a traveling-head shaper, the combination of a base, horizontal ways on said base, a column adapted to travel on said ways, vertical ways upon said column, a saddle adapted to slide upon said vertical ways, means for feeding said column and said saddle along their respective ways, a ram adapted to reciprocate in a direction at right angles to the motions of said column and said saddle and to carry the cutting-tool, and means for reciprocating said ram to make the cut, substantially as described.

3. In a traveling-head shaper, a lever, K', provided with a slot k', a rotating part K, a radially-adjustable pin upon the part K, extending into the slot k', and adapted to actuate said lever, a segmental rack upon said lever, and a feed-actuating mechanism gearing with said segmental rack, substantially as described.

4. In a traveling-head shaper, in combination with a ram and a horizontally-movable column by which the ram is carried, a track upon which the column rests in part and is adapted to slide, and a track upon which the column rests, and is adapted to ride, in part, substantially as described.

5. In a traveling-head shaper, in combination with a ram, and a horizontal movable column by which the ram is carried, a track upon which the column rests in part and is adapted to slide, and a track upon which the column rests, and is adapted to ride in part, and means for regulating the relative bearing of the column on the track and the track, substantially as described.

6. In a traveling-head shaper, in combination with a ram, and a column by which the ram is carried, a base supporting a track on which the column rests in part, a truck running on the base and supporting the column in part, and springs arranged between the truck and the column, whereby the weight of the column is partly carried on the trucks and carried on the track, substantially as described.

7. In a shaper, the combination of a hollow ram, means for reciprocating the ram, an arbor mounted in the ram, a splined shaft parallel with the ram, a train of gear-wheels mounted on said ram adapted to rotate said arbor, and adapted to traverse and to be actuated by said splined shaft, and means for rotating said splined shaft, substantially as described.

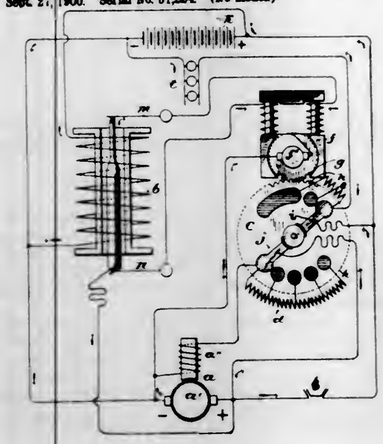
8. The combination of a surface plate provided with, T-slots, a bed-plate 20, secured by bolts to said surface plate, a horizontally-movable vertical column supported on said bed-plate, a vertically-movable saddle on said column, a ram adapted to reciprocate in a direction at right angles to the movement of said column and said base, a milling-tool in said ram, means for actuating said milling-tool, and means for feeding the various parts, substantially as described.

9. In a traveling-head shaper, the combination of a base, horizontal ways on said base, a column adapted to travel on said ways, vertical ways upon said column, a saddle adapted to slide upon said vertical ways, and means located upon said saddle for regulating and controlling the feed of said column and saddle, substantially as described.

10. The combination of a T-slotted surface plate, a draw-cut shaper, the supporting-column of the actuating mechanism of said draw-cut shaper being adapted to be attached to said surface plate by bolts passing into said slots, so as to be attachable at will to said surface plate at different positions thereon, a vertical plate on the supporting-column, arranged to have a horizontal support 32^a, secured thereto, whereby the draw of the cutting motion of the shaper, is resisted directly by said supporting-column through said plate and the support 32^a, substantially as described.

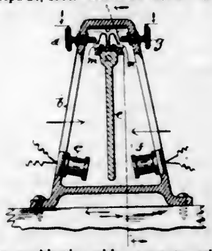
11. The combination with a traveling-head shaper with its supports and actuating mechanism, a vertical plate on the face of the supporting-column of said shaper, arranged to have a horizontal support 32^a, secured thereto, whereby the draw of the cutting motion of the shaper, is resisted directly by said supporting-column through said plate and the support 32^a, substantially as described.

682,219. **ELECTRIC REGULATOR.** MORRIS MOSKOWITZ, New York, N. Y., assignor to James H. Young, trustee, same place. Filed Sept. 27, 1900. Serial No. 31,224. (No model.)



Claim.—The combination with a generator, and with a work-circuit adapted to be supplied therefrom, of a current-regulating device included in circuit between the generator and the work-circuit, electrodynamic adjusting mechanism for the regulating device one member of which has opposed coils, circuit making and breaking devices for the said opposed coils, and electrically controlled and actuated means in circuit with the generator for operating the said circuit making and breaking devices, a storage battery and connections for charging it from the generator and discharging it into the work-circuit, and a switch for connecting and disconnecting the generator with the battery and the work-circuit, substantially for the purposes set forth.

682,220. **AUTOMATIC REVERSING-SWITCH.** MORRIS MOSKOWITZ, New York, N. Y., assignor to James H. Young, trustee, same place. Filed Sept. 27, 1900. Serial No. 31,223. (No model.)



Claim.—1. In combination with a generator subject to changes in speed and direction of rotation, means for exciting the field-magnet thereof, a reversing-switch for the field-magnet connections and wind-actuated means for operating the said switch, substantially as set forth.

2. In combination with a generator subject to changes in speed and direction of rotation, a storage battery connected to be charged by the generator, connections for exciting the field-magnet coil of the generator from the said battery, a reversing-switch for the said field-magnet coils and automatic means for actuating said switch, substantially as set forth.

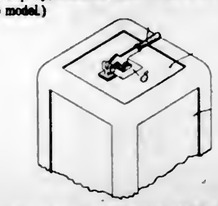
3. In combination with a generator subject to changes in speed and direction of rotation, means for exciting the field-magnet thereof, a reversing-switch for the field-magnet connections and wind-actuated means for operating the said switch, an electrically-actuated circuit-controlling switch having one of its coils connected in shunt to the generator and another coil in the main circuit from the generator, substantially as set forth.

4. In combination with a storage battery, and a generator subject to reversals, and a circuit therefor, a fluid-actuated electric switch for the generator having a movable vane or diaphragm and switch-contacts controlled thereby, substantially as set forth.

5. In combination in a wind or fluid actuated electric switch, a box or case having open sides to admit the wind or fluid pressure, a pivotally-mounted vane within the said box, electromagnets for holding the said vane, stationary switch-contacts, and movable switch-contacts actuated by the said vane, substantially as set forth.

6. In combination with a generator subject to changes in speed, a circuit and switch therefor, and a wind-actuated means for operating the said switch, substantially as set forth.

682,221. **SAFE.** MORRIS MOSLER, Cincinnati, Ohio, assignor to the Mosler Safe Company, Hamilton, Ohio. Filed Feb. 15, 1901. Serial No. 47,405. (No model.)

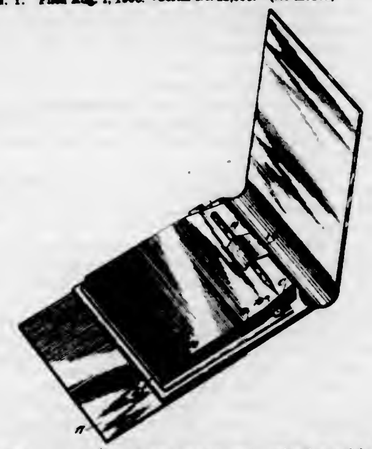


Claim.—1. In a safe, the combination, substantially as set forth, of a roof formed of a fireproof filling held between upper and lower shelves and provided with a vertical port therethrough, a margin-frame fixed within said port, a plug fitting within said port and arranged for vertical sliding motion therein and formed of fireproof filling inclosed within a hollow metallic shell and having a length of fireproof material in excess of the thickness of said roof, and having through its fireproof material a diagonal port adapted to open alternatively above and below said roof, stops to limit the vertical movement of said plug, and mechanism mounted upon the roof of the safe for raising and lowering said plug.

2. In a safe, the combination, substantially as set forth, of a roof formed of a fireproof filling held between upper and lower shelves and provided with a vertical port therethrough, a margin-frame fixed within said port, a plug fitting within said port and arranged for vertical sliding motion therein and formed of fireproof filling inclosed within a hollow metallic shell and having a length of fireproof material in excess of the thickness of said roof, and having through its fireproof material a diagonal port adapted to open alternatively above and below said roof, stops to limit the vertical movement of said plug, and a hand-lever pivoted to the roof of the safe and to the upper end of the plug and adapted to serve in raising and lowering the plug.

3. In a safe, the combination, substantially as set forth, of an upper and lower roof-shell, a margin-frame disposed between said shells and forming a port through the roof of the safe, fireproof filling between the roof-shells and around said margin-frame, a hollow plug-shell arranged for vertical sliding motion in said margin-frame and having through it a diagonal port adapted to alternatively have its lower end opened to the interior of the safe or its upper end opened above the roof of the safe by the vertical movement of the plug-shell, a marginal projection at the top of the plug-shell adapted to engage the roof of the safe and limit the descent of the plug-shell, a coöperating groove and rib upon the margin-frame and plug-shell and serving to limit the upward motion of the plug-shell, fireproof filling within the plug-shell above and below the diagonal port therethrough, and mechanism for raising and lowering the plug-shell.

682,222. **MANIFOLD-BOOK.** EDWARD D. MCKENNA, Brooklyn, N. Y. Filed Aug. 1, 1900. Serial No. 25,533. (No model.)



Claim.—1. A carbon-holder consisting of a strip of material which comprises a long member and parallel shorter members, the said shorter members having apertures therein and being adapted to receive carbon-sheets between them, and spring-clips which straddle the shorter members of the strip, said clips having depressed surfaces adapted to bear against the said shorter members at their apertured portions, as described.

2. A manifold-book, having its side edges at its bound portion inclined in direction of each other, whereby a carbon-holder may be readily introduced into said book and carried to the bound portion thereof, as and for the purpose specified.

3. The combination with a manifold-book and its covers or binder, of a spring-clamp constructed of a single piece of spring metal bent upon itself to form a lower, an upper and a connecting member, the lower member being straight and the upper member arched near its front transverse edge, the clamp being removably applied to the bound edge of the book independent of the covers or binder, the upper and lower faces of the book being received between the upper and lower members of the clamp, and a copy-sheet holder placed between the leaves of the book at its bound portion under the action of the clamp, which copy-sheet holder is removable from the book without disengaging the clamp from the book, substantially as described.

4. In a manifold-book, the combination, with a binding having a stop formed upon the inner face of one of its members near the flexible connection between the members, and a pocket formed upon the inner face of the member carrying the stop, of a book provided with a strip at one side arranged to enter the said pocket, and a spring-clamp which straddles the bound portion of the book, engaging with opposite side faces thereof, the upper member of the spring-clamp being arched and its free edge being brought in forcible contact with the upper side of the book, whereby the leaves of the book can be opened only on a line with the upper free end of the clamp, and whereby also a carbon-holder when forced between the leaves of the bound portion of the book will be held in the book by said clamp, the arched portion of the upper member of the clamp providing a receptacle for a pen or pencil as described, the connecting member of the clamp engaging with the said stop, whereby the book is prevented from leaving its binding, although removable therefrom, as specified.

682,223. **MEASURING-FUNNEL AND STRAINER.** GOTTLIEB NEUDECKER, Chicago, Ill. Filed Dec. 28, 1900. Serial No. 41,356. (No model.)



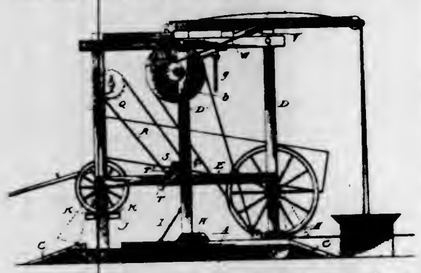
Claim.—1. A measuring-funnel and strainer comprising a liquid-receptacle having a discharge-port at the bottom, having a tubular threaded section above said discharge-port, and having its side walls provided with a series of horizontal measuring-ridges at different heights above said threaded section; a threaded sleeve removably seated in said threaded section and having a strainer secured to and covering its upper end; a valve seated below said strainer and having a stem extending downwardly through said discharge-port; a discharge-spout detachably secured to said stem, said spout having an outer annular shoulder above its free end, and being vertically movable relatively to said receptacle; and a downward extension or guide secured to said receptacle for directing the relative vertical movement of said spout and receptacle.

2. A funnel comprising a liquid-receptacle having a discharge-port at the bottom; a tubular extension rigidly secured to said receptacle and extending below said discharge-port, and having a pair of opposite vertically-disposed slots in its side walls; a sleeve telescoping with said tubular extension, vertically slidable thereon, and having an outer annular shoulder above its free end; a valve seated in said receptacle and having a central stem extending downwardly through said discharge-port; and a pin detachably securing said sleeve to said stem, passing through said slots and vertically slidable therein.

3. A funnel comprising a liquid-receptacle having a discharge-port at the bottom; a valve seated above said discharge-port and having a stem extending downwardly through said discharge-port and with an aperture passing horizontally through said stem; a tubular extension rigidly secured to said receptacle and extending below said discharge-port, and having a pair of opposite vertically-disposed slots in its side walls; a sleeve telescoping with said tubular extension, vertically slidable thereon, and having an outer annular shoulder above its free end, and an aperture in each side opposite said slots and above said shoulder; and a pin passing through said slots and through the apertures in said sleeve and stem and vertically slidable in said slots.

4. A funnel comprising a liquid-receptacle having a discharge-port at the bottom; a valve seated above said discharge-port and having a stem extending downwardly through said discharge-port and with an aperture passing horizontally through said stem; a tubular extension rigidly secured to said receptacle and extending below said discharge-port, and having a pair of opposite vertically-disposed slots in its side walls; a sleeve telescoping with said tubular extension, vertically slidable thereon, and having an outer annular shoulder above its free end, and an aperture in each side opposite said slots and above said shoulder; said sleeve having a threaded seat at one of its apertures; and a pin passing through said slots and through the apertures in said sleeve and stem, being threaded into said threaded seat and vertically slidable in said slots.

682,224. PORTABLE ELEVATOR. WALTER L. NICHOLSON, Edholm, Nebr. Filed Mar. 2, 1901. Serial No. 49,639. (No model.)



Claim.—1. An elevator comprising a support provided with a vertically-movable section, means to elevate the latter, a framing carried by the support, a boom mounted upon the framework for swinging movement, a receptacle suspended from the boom, and mechanism for simultaneously swinging the boom and elevating the receptacle, substantially as described.

2. An elevator comprising a support having a movable section, a plurality of uprights pivoted to said support, means detachably connected with the uprights for normally holding them vertical, and a pair of the uprights constituting guiding means for said movable section, a framing supported by said uprights, a swinging boom on said framing, a receptacle suspended from said boom, and mechanism for simultaneously swinging the boom and raising said receptacle, substantially as described.

3. An elevator comprising a platform or framework, including a plurality of uprights pivoted to the platform, braces connected with the platform and detachably connected to the uprights, a boom pivoted at its inner end to the framework, a shaft on the framework carrying palleys, ropes secured to said boom and oppositely wound upon said pulleys, a drum upon said shaft, elevating-ropes carried by said boom and adapted to be wound upon said drum, and means for rotating said shaft, substantially as described.

4. An elevator comprising a platform, inclines hinged thereto at its respective ends, standards arranged longitudinally of the platform and hinged thereto at their lower ends, elevating mechanism supported by said standards, and braces pivoted to the platform and detachably secured to the standards for holding the same in an upright position, substantially as described.

5. An elevator comprising a support, a boom pivoted at its inner end thereto and adapted to swing laterally thereof, a shaft mounted in said support having pulleys, ropes secured to said boom and oppositely wound upon said pulleys, guides disposed on opposite sides of the boom over which said ropes pass, a drum upon said shaft, elevating-ropes carried by said boom and adapted to be wound upon said drum, operating-drums loose upon said shaft, operating-ropes attached to said drums and extending in opposite directions, and means for locking either of said drums to the shaft, substantially as described.

6. An elevator comprising a support, a swinging boom carried thereby, a shaft mounted upon said support having pulleys, ropes connected with the boom and oppositely wound upon said pulleys, an elevating-rope carried by the boom and adapted to be wound upon said shaft, and means for rotating said shaft in either direction to wind said elevating-rope thereon and to swing the boom to either side of the elevator, substantially as described.

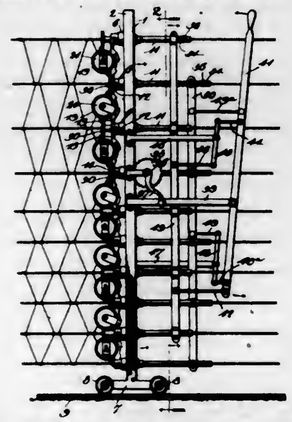
682,225. SHOE-FORM. WALTER L. C. NILES, Lynn, Mass. Filed Dec. 13, 1900. Serial No. 39,736. (No model.)



Claim.—1. A hollow form provided with a brace, consisting of a bar provided at each end with angularly-disposed bearing-shoulders and clenching-points, clenched in the sides of the form, substantially as described.

2. A hollow form provided with a brace, consisting of a bar substantially U-shaped in cross-section and having at each end downwardly-turned broad bearing-shoulders, and clenching-points projecting from the shoulders clenched in the sides of the form, substantially as described.

682,226. WIRE-FENCE MACHINE. CLOUDE PAGE, Farmland, Ind. Filed Mar. 25, 1901. Serial No. 52,862. (No model.)



Claim.—1. In a fabric-making machine of the class set forth, a frame, a plurality of plungers on which the frame is movable, a series of twisting devices between pairs of which the front portions of the plungers are movable to alternately shift the same, and means for propelling the frame.

2. A fabric-making machine of the class set forth having a plurality of plungers through which stringers are passed, and a series of twisting devices between pairs of which front portions of the plungers are movable to change their position in operative relation to different stringers, the twisting devices carrying mesh-wires.

3. A fabric-making machine of the class set forth having a plurality of plungers, and a series of twisting devices supported by and rotatable around the plungers and shiftable to different positions by the movement of the latter between them.

4. A fabric-making machine of the class set forth having a plurality of tubular plungers, and twisting devices rotatable thereround and automatically shiftable to different positions by the movement of the plungers between them.

5. A fabric-making machine of the class set forth having a plurality of plungers, carriers rotatable on the plungers, and twisting devices shiftable in alternation to and from adjacent carriers by the projection of front portions of the plungers.

6. A fabric-making machine of the class set forth having a plurality of plungers, carriers rotatably supported by the plungers, and twisting devices having yokes shiftable in alternation to and from adjacent carriers by the projection of front portions of the plungers.

7. A fabric-making machine of the class set forth having a plurality of plungers, carriers rotatable on the plungers, and twisting devices shiftable in alternation to and from adjacent carriers by the projection of front portions of the plungers between pairs of the said devices.

8. A fabric-making machine of the class set forth having a plurality of plungers, carriers rotatably supported by the plungers, and twisting devices shiftable in opposite directions in arcs of circles by the projection of front portions of the plungers between the same.

9. A fabric-making machine of the class set forth having a plurality of plungers, and rotatable twisting devices shiftable in opposite directions in alternation to change their position in relation to different wires by the projection of portions of the plungers between them.

10. A fabric-making machine of the class set forth having plungers and twisting devices, the plungers being projectable in planes between the twisting devices to connect the latter in alternation with different plungers.

11. A fabric-making machine of the class set forth having twisting devices including wire-carrying spools supported to have arcuate movement in opposite directions, and plungers projectable between the twisting devices to shift the same.

12. A fabric-making machine of the class set forth having a plurality of plungers, carriers rotatably supported on said plungers and having arms, and twisting devices including yokes to shiftably engage the arms and wire-holding spools.

13. A fabric-making machine of the class set forth having a plurality of plungers, and twisting devices rotatably supported by said plungers and including shiftable holders with wire-carrying spools removably mounted therein, parts of the plungers being adapted to engage portions of the holders to move the latter.

14. A fabric-making machine of the class set forth having a plurality of plungers, and twisting devices rotatably supported by said plungers and including holders comprising bands with slots therein shiftable in relation to the plungers, and wire-carrying spools removably mounted in said holders and having the strands fed through said slots of the bands to centralize the same.

15. A fabric-making machine of the class set forth having a plurality of plungers, and twisting devices rotatably supported by said plungers and comprising carriers on the plungers, shiftable holders having yokes to engage the said carriers and slots in opposite portions to the yokes, and wire-supporting spools removably mounted in said holders and having the strands therefrom fed through the slots to always hold said strands in central position.

16. A fabric-making machine comprising a plurality of plungers and twisting devices, the plungers being projectable between pairs of the said devices, and the latter in a portion of the machine being closer together than in the remaining portion.

17. A fabric-making machine comprising a plurality of plungers, a series of twisting devices supported by, rotatable around and shiftable in relation to the plungers, the plungers being projectable between the twisting devices, and the latter closer to the plungers and having a greater number of rotations in one portion of the machine than in the other portion of the latter, and mechanism for imparting the difference in motion to the said twisting devices.

18. A fabric-making machine comprising a plurality of plungers, and rotatable twisting devices which are closer together in one portion of the machine than in the other, the plungers being projectable between the said devices to shift the same, and portions thereof provided with heads at their front ends to compensate for the difference in distance between the devices.

19. A fabric-making machine comprising a plurality of plungers, a series of twisting devices and a frame, the plungers affording means for the frame to regularly slide in its propulsion, and also serving as supports, means for adjusting and means for maintaining the adjustment of the twisting devices.

20. A fabric-making machine comprising a plurality of tubular plungers, a frame slidable on said plungers, rotatable twisting devices supported and shiftable by the plungers, automatically-operating dogs located within the rear portions of the plungers, independent shifting-bars alternately connected to different plungers, and lever mechanism fulcrumed on devices projected from the frame and connected to said bars to alternately impart pulling and pushing motions thereto to shift the frame and project portions of the plungers.

21. A fabric-making machine comprising a plurality of plungers, and a series of twisting devices rotatable around the said plungers, the latter being alternately projected and retracted, the projection of the plungers shifting the said devices to throw them into operative relation to the plungers projected.

22. A fabric-making machine comprising a plurality of plungers, carriers rotatably mounted on the plungers and having arms in planes substantially at right angles to the plungers, holders having portions to engage the said arms and shiftable from the arms of the one carrier to the arms of adjacent ones, the holders having spools for coiled wire therein, the ends of the arms being contiguously disposed in accurate alinement at the end or completion of each twisting operation for subsequent shifting of the holders, and means for operating the carriers.

23. A fabric-making machine comprising a plurality of plungers, carriers rotatably mounted thereon and having arms, and holders for spools having portions to shiftably engage the said arms, the holders being arranged in pairs and movable from the two arms of one carrier to an arm of each of two adjacent holders on opposite sides.

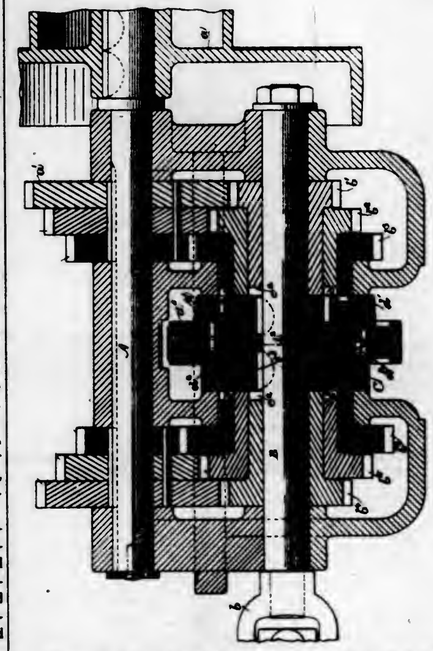
24. A fabric-making machine comprising a plurality of plungers, a portion of the plungers having slots in their front extremities, heads having tubular necks to move in the latter extremities and projections to engage the said slots, and shiftable twisting devices provided with projecting portions for engagement by said heads and in part directly by the plunger extremities.

25. A fabric-making machine comprising a plurality of twisting devices, a frame, a series of plungers of tubular form which support said twisting devices, and gripping-dogs in the rear portions of the plungers, each dog comprising opposite trunnions and a central depending toothed enlargement inside of the plunger.

26. A fabric-making machine comprising a plurality of twisting devices, a frame, a series of plungers of tubular form and which support said twisting devices, and gripping-dogs in the rear portions of the plungers, each dog comprising opposite trunnions, a central depending toothed enlargement inside of the plunger, and an upper recess opposite said enlargement.

27. A fabric-making machine comprising a plurality of plungers, carriers supported by said plungers and having arms with curved seats and inner shoulders, and shiftable twisting devices having yokes to engage said seats for imparting a rotary motion to said twisting devices.

682,227. VARIABLE-SPEED MECHANISM. JOHN PARKER, Providence, R. I., assignor to The Brown and Sharpe Manufacturing Company, same place. Filed Aug. 29, 1900. Serial No. 28,432. (No model.)



Claim.—1. A variable-speed mechanism comprising a shaft, two series of gears of varying diameters, and devices between said two series of gears for connecting any one of the said gears to said shaft.

2. A variable-speed mechanism comprising a shaft, two series of nested gears of varying diameters, a ring secured to said shaft between said series of gears, and a series of bolts carried by said ring for connecting said ring and any one of said gears.

3. A variable-speed mechanism comprising a shaft, a series of gears, a ring secured to the shaft, a series of connecting devices carried by said ring and arranged to connect any one of said series of gears with said ring, and means for operating said connecting devices.

4. A variable-speed mechanism comprising a shaft, a series of gears, a ring secured to the shaft, a series of bolts mounted in said ring and arranged to connect said gears with said ring, and a cam-sleeve mounted on said ring for controlling said bolts.

5. A variable-speed mechanism comprising a shaft, a series of gears, a ring secured to said shaft, a series of bolts mounted in said ring, a series of levers connected with said bolts, and a sleeve provided with a cam for engaging said levers.

6. A variable-speed mechanism comprising a shaft, a series of nested gears having recesses in the ends of the hubs, a ring secured to the shaft, spring-pressed bolts mounted in said ring in line with said hubs, racks on said bolts, pinions engaging said racks, levers secured to said pinions, a cam-sleeve mounted to turn on said ring, and a cam on said sleeve engaging said levers.

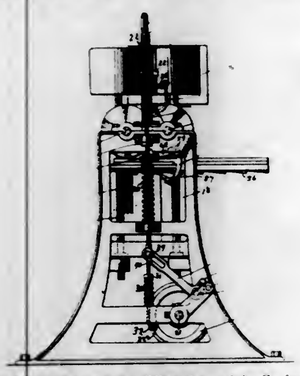
682,228. MATCH-MACHINE. WILLIAM H. PARKER, Boundbrook, N. J., assignor to Franklin Blake, trustee, Passaic, N. J. Filed Aug. 16, 1900. Serial No. 26,917. (No model.)

Claim.—1. The combination with the rotary cutters adapted to cut a series of splints, of means for feeding a veneer strip to position above the cutters, and a knife moving transversely to the strip to cut it off to the right length for the cutters.

2. The combination with the cutters, the stock-feed, and a guide located above the cutters to receive the stock, of a cutting-off knife at one end of the guide substantially as described.

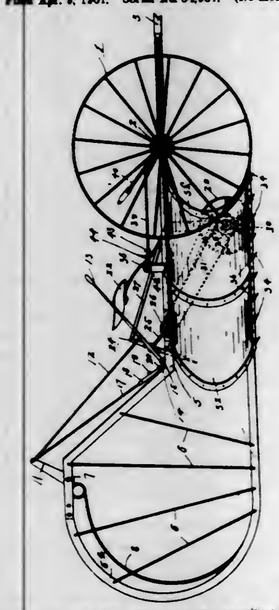
3. In a match-machine, the dipping or splint-holding frame, comprising oppositely-arranged plates having interlocking fingers, a connection between the plates whereby they are movable in unison but in op-

posite directions, and means for moving the plates substantially as described.



4. The combination with the sliding plates of the dipping-frame, of the arms connected to the plates, parallel rods or shafts journaled parallel with the plates and connected to the rods or shafts, a connection between the rods or shafts by which they are turned in unison, and a crank mechanism for turning one of the rods.

682,229. HAY RAKE AND COCKER. CHRIS R. PAULSON, Boyd, Minn. Filed Apr. 9, 1901. Serial No. 54,967. (No model.)



Claim.—1. In a machine of the character described the combination with the rake, of a detent yieldingly holding said rake in an operative position, and adapted to be overcome by excessive pressure on the said rake, substantially as described.

2. In a machine of the character described, the combination with the pivoted rake, of a detent for holding said rake in an operative position, and a trip, actuated by excessive pressure, to release said rake from said detent, and cause the same to deposit the hay in a cock, substantially as described.

3. In a machine of the character described, the combination with the rake, of a detent, for holding the same in an operative position, a trip for releasing said rake from said detent, and the tedder or packer for pressing the accumulated hay against said rake to actuate said trip, substantially as described.

4. In the machine of the character described, the combination with the pivoted rake, having the arm 11, of the lever 13 connected to said arm 11 by rod 12, the trip-rod 17, pivoted to said arm 11, the pivoted detent 20 coöperating with the end of said rod 17, and the adjustable spring 21, acting on said detent, substantially as described.

5. The combination of the pivoted rake of a detent yieldingly holding said rake in an operative position, a tedder or packer, working in front of the said rake, and a traction-wheel, with connections for driving said tedder, substantially as described.

6. In a machine of the character described, the combination with a rake and means for causing the same to discharge its load, of a pair of forwardly-diverging imperforate gathering-plates, which are approximately semicylindrical, and are provided on their under edges with yielding rake-teeth, substantially as described.

7. In a machine of the character described, the combination with a pivoted rake and means for causing the same to discharge its load, of a pair of forwardly-diverging concaved gathering-plates, the inner ends of which plates terminate approximately in line with the sides of said rake, but in advance thereof, and a tedder operating to positively force the gathered hay or stock backward between the inner ends of said gathering-plates and against said rake, substantially as described.

682,230. MACHINE-GUN. GIUSEPPE PERINO, Rome, Italy. Filed Mar. 16, 1901. Serial No. 51,421. (No model.)



Claim.—1. In a machine-gun, in combination, a casing, a barrel having reciprocatory movement, a frame connected thereto adapted to slide in the casing, a breech-bolt having movement with and independently of the frame, a bolt-lock journaled in the frame adapted to interlock with the breech-bolt, said bolt-lock being disposed substantially in the axis of the gun-bore and engaging the breech-bolt on opposite sides thereof and a lever with means for actuating the same for swinging said lock into and out of locking position during the reciprocatory movement of the frame, substantially as described.

2. In a machine-gun, in combination, a casing, a barrel having reciprocatory movement, a frame connected thereto adapted to slide in the casing, a breech-bolt having movement with and independently of the frame, a bolt-lock journaled in the frame adapted to interlock with the breech-bolt on opposite sides thereof, said bolt-lock being disposed substantially in the axis of the bore of the gun and a lever pivoted to said frame, means on the casing for actuating said lever during the movement of the frame and a connection between the lever and bolt-lock for swinging the latter into and out of locking position, substantially as described.

3. In a machine-gun, in combination, a casing, a reciprocatory barrel, a frame connected thereto adapted to slide in the casing, a breech-bolt guided in said frame and moving therewith, means for locking the bolt in place, releasing means, a lever pivoted to said frame below the plane of the breech-bolt, a guide-plate carried by the breech-bolt, a connection between the lever and said plate for controlling the movement of said breech-bolt, a stationary rack and a toothed segment carried by the lever adapted to engage said rack during the reciprocatory movement of the frame, to swing said lever substantially in the line of movement of the frame to give said breech-bolt accelerated movement, substantially as described.

4. The combination with a gun having a reciprocating barrel, a reciprocating frame 29, secured thereto and moving therewith, a breech-bolt guided in the frame, with means for actuating the same, and a cartridge-band comprising a series of carriers adapted to be alined with the axis of the breech-bolt and bore of the barrel whereby the cartridges are placed in the axis of the breech-block and barrel, of means for automatically feeding said band and alining the carriers successively as described comprising an oscillating yielding device and means for actuating the same as the frame 29 reciprocates, substantially as described.

5. The combination with a gun having a reciprocating barrel, a reciprocating frame 29 secured thereto and moving therewith, a breech-bolt guided in the frame, with means for actuating the same, and a cartridge-band comprising a series of carriers adapted to be alined with the breech-bolt and bore of the barrel, of means for automatically feeding said band and alining the carriers successively as described comprising a pivoted arm, a fork yieldably carried thereby, a connection between the frame 29 and the fork for simultaneously depressing the same to bring the same out of engagement with the cartridge-band and moving the same into position to engage a new carrier, and engaging parts on said frame and arm for swinging said arm and fork to bring the new carrier engaged by the latter into alinement with the bore of the gun, substantially as described.

6. The combination with a gun having a reciprocating barrel, a reciprocating frame 29 secured thereto and moving therewith, a breech-bolt guided in the frame with means for actuating the same, and a cartridge-band comprising a series of carriers adapted to be alined with the breech-bolt and bore of the barrel, of means for automatically feeding said band and alining the carriers successively as described comprising a pivoted arm, a fork guided therein, a spring interposed between the arm and fork, a projection on the fork coacting with the frame 29 for depressing the fork and swinging the same with the arm to engage a new carrier when the frame 29 is reciprocated in one direction, a toe on said arm and a part on the frame 29 designed to depress said toe to swing said arm and fork back to starting position, substantially as described.

7. The combination with a barrel, a casing, a frame 29 having sliding movement, a breech-bolt, a bolt-lock, a firing-bolt, a lever pivoted to the frame 29 having a part engaging the firing-bolt and a fixed stop arranged in the path of said lever adapted to strike the same at the end of the forward movement of the frame 29 to tilt the lever, whereby a quick forward movement is imparted to the firing-bolt, substantially as described.

8. The combination with a reciprocatory barrel, a frame 29 carried thereby, a breech-bolt, means for locking the same in place, cartridge-feeding mechanism, a firing-bolt having a projection thereon, a lever pivoted to the frame 29 having a forked end straddling said bolt and abutting said projection, and a fixed stop located in the path of the opposite end of the lever, said lever being carried against said stop at the end of the forward movement of frame 29 whereby the lever is tilted and a forward movement imparted to the firing-bolt, substantially as described.

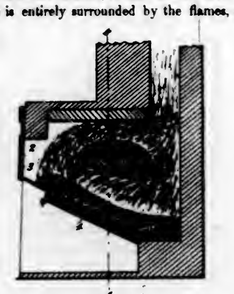
9. In combination in a gun, a reciprocatory barrel, a casing inclosing the barrel providing an air-chamber around the latter, means secured to the barrel near the rear end of the chamber to prevent the escape of air past said means as the barrel recoils, means secured to the barrel near the front end of the chamber to prevent the escape of air as the barrel returns, an air-inlet in the casing intermediate of the ends thereof, a discharge from the front end of said chamber, and a discharge leading from the rear end of the chamber to the rear end of the bore in the barrel, substantially as described.

10. In combination in a gun, a barrel having reciprocatory movement, a stationary casing surrounding the same providing an air-chamber about the barrel, a loose ring surrounding the barrel near each end thereof, annular flanges arranged in pairs moving with the barrel, each pair of flanges confining a ring, the outer member of each pair being notched, an air-inlet in the casing, an air-discharge at the front end thereof to the atmosphere, and a discharge-passage leading from the rear end of the chamber in the casing to the rear end of the bore of the barrel, substantially as described.

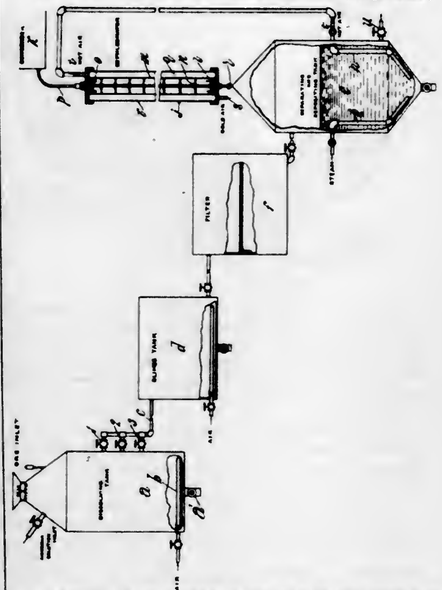
11. The combination with a casing, a handle secured thereto, a reciprocating barrel, a frame secured in said casing, said barrel and frame being reciprocated rearward after the firing of a cartridge, means adapted to return the frame and barrel, a latch pivoted to the rear end of the casing adapted to engage the frame to prevent the return thereof, and a device guided in the rear wall of the casing having an operating part adjacent to the handle for releasing said latch, substantially as described.

682,231. COKING-TABLE FURNACE. SAMUEL H. ALSIP, Belleville, Ill. Filed Apr. 1, 1901. Serial No. 53,763. (No model.)

Claim.—In a furnace, having projections 4 rigid with the inner sides of its walls, a table 5 mounted on said projections substantially midway of the front and rear walls and extending entirely across the furnace so that part of the flames will be deflected in front of and pass over the table while the other part of the flames is passed along the under side of the table and up the rear side thereof, so that all the table except the extreme outer ends is entirely surrounded by the flames, substantially as specified.



682,232. PROCESS OF PRODUCING METALLIC OXIDS FROM COPPER ORES BY AMMONIUM SOLUTIONS. CHARLES A. BECK, Goodsprings, Nev. Filed May 21, 1900. Serial No. 17,476. (No specimens.)



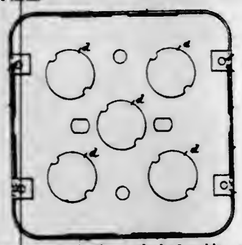
Claim.—1. In the production of metallic oxids from copper oxids by ammonia solutions, the process set forth of decomposing a cupro-ammonia solution, which consists in subjecting said solution to the simultaneous action of steam and hot air; collecting and condensing the ammonia and precipitating the metallic oxid.

2. In the production of metallic oxids from copper ores by ammonia solutions, the process set forth of decomposing a cupro-ammonia solution, which consists in subjecting said solution to the simultaneous action of steam and hot air; collecting and condensing the ammonia, and cooling the steam and thereby condensing it after the decomposing process and before the ammonia is condensed.

682,233. OUTLET-BOX FOR INTERIOR CONDUITS. WILLIAM F. BOSSERT, Utica, N. Y., assignor to The Bossert Electric Construction Company, same place. Filed July 20, 1901. Serial No. 68,996. (No model.)

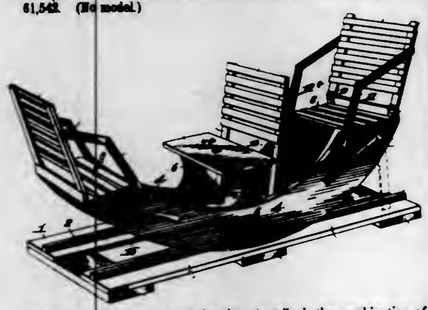
Claim.—1. A metal outlet-box, having one or more partially-formed openings in its walls, each opening being circular and having one or more ears projecting into notches in the periphery of the blanks closing said openings.

2. A metal outlet-box, having one or more partially-formed openings in its walls, each opening being circular in configuration, the peripheries of the openings and of their partly-expelled blanks being metally indented, as set forth.



3. The improvement in the method of making metal outlet-boxes which consists in simultaneously punching portions of the walls of a sheet-metal outlet-box and displacing the punched portions a distance less than the thickness of the walls, as herein described.

682,234. CONVERTIBLE ROCKING-CHAIR, COUCH, AND MERRY-GO-ROUND. ANTON BRENNER and JOHN M. FULTZ, Quincy, Ill.; said Fultz assignor to said Brenner. Filed May 23, 1901. Serial No. 61,542. (No model.)

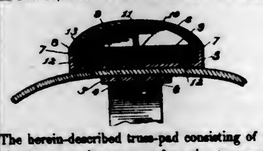


Claim.—1. In an article of the class described, the combination of rockers provided with a pair of end seats and a center seat, a removable back detachably mounted between said rockers at the location of said center seat and adapted to be positioned on said center seat, and a pair of backs hinged to said rockers at the location of said end seats and adapted to be folded into a horizontal position, substantially as and for the purpose set forth.

2. In an article of the class described, the combination of a platform, a turn-table base detachably applied to said platform, and rockers provided with seats and revolubly mounted on said turn-table base, substantially as described.

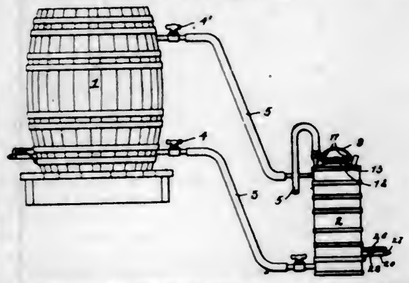
3. In an article of the class described, the combination of a platform, a turn-table base detachably applied to said platform, rockers provided with seats, a cross-piece mounted between said rockers, a bearing-block carried by said cross-piece and adapted to rest upon said turn-table base, and a swivel-pin positioned in said cross-piece, bearing-block and turn-table base, substantially as described.

682,235. HERNIAL TRUSS. CHARLES R. BROOKS, Marshall, Mich. Filed Dec. 20, 1900. Serial No. 40,543. (No model.)



Claim.—The herein-described truss-pad consisting of the casing or body portion 3 having upon its outer surface the transversely-disposed member 5 slightly separated from the body portion and thereby providing a seat for the carrying-bolt, said body portion being also provided with a recess designed to receive the end of the auxiliary carrying-strap 2 in combination with a cushion or pad properly formed of soft yielding substance and having a radial flange 7 adapted to be received by a flange upon said body portion said cushion also having the outwardly-extending lip 8 and the inwardly-directed shoulder 13; cross-sections or partitions 11 forming an integral part of the pad, and an anchoring-disk 9 adapted to fit within the body portion 4 and having a central aperture 10 designed to permit the air to enter the cushion, all substantially as specified and for the purpose set forth.

682,236. SPRAYER. EDWARD C. BROWN, Rochester, N. Y. Filed Oct. 20, 1900. Serial No. 33,798. (No model.)



Claim.—1. The combination with a sprayer for receiving and discharging spraying solution, of a supply tank or reservoir adapted to supply spraying solution to the said sprayer, a tube for conveying the solution from the reservoir to the said sprayer, a second tube connecting the reservoir with the said sprayer for equalizing the pressure and effecting a flow of solution, and valves provided in the said tubes, substantially as described.

2. The combination with a closed receptacle for receiving and discharging spraying material, of pumping mechanism associated with said receptacle for supplying pressure thereto, an indicator or signal operative when the required amount of pressure has been introduced within the receptacle, and means structurally distinct from the signal for effecting its operation through the agency of predetermined pressure, substantially as described.

3. The combination with a closed receptacle for receiving and discharging spraying solution, of pumping mechanism associated with said receptacle for supplying pressure thereto, a signal normally disconnected from the said receptacle, and means structurally distinct from the signal for effecting communication between the said signal and receptacle to operate the signal when the required amount of pressure has been introduced within the said receptacle, substantially as described.

4. The combination with a closed receptacle for receiving and discharging spraying solution, of pumping mechanism associated with said receptacle for supplying pressure thereto, a signal normally disconnected from the said receptacle, means for effecting communication between the said signal and receptacle to operate the signal when the required amount of pressure has been introduced within the said receptacle, and means for preventing the continued operation of the said signal after actuation, substantially as described.

5. The combination with a closed receptacle for receiving and discharging spraying solution, of pumping mechanism associated with said receptacle for supplying pressure thereto, a whistle normally disconnected from the said receptacle, and a valve for effecting communication between the said whistle and receptacle to operate the whistle when the required amount of pressure has been introduced within the said receptacle, substantially as described.

6. The combination with a closed receptacle for receiving and discharging spraying solution, of pumping mechanism associated with said receptacle for supplying pressure thereto, a whistle normally disconnected from the said receptacle, a valve for effecting communication between the said whistle and receptacle to operate the whistle when the required amount of pressure has been introduced within the said receptacle, and valving means for preventing the continued operation of the said whistle after actuation, substantially as described.

7. The combination with a closed receptacle adapted to receive and discharge fluids, of a perforated dasher within the receptacle for agitating the contents thereof, means external to the said receptacle for actuating said dasher, and a flexible connection between the said receptacle and the said means, said flexible connection being closed at one extremity to prevent the flow therethrough of fluids, substantially as described.

8. The combination with a closed receptacle adapted to receive and discharge fluids, of a dasher within the receptacle for agitating the contents thereof, a pedal 26 external to the said receptacle for actuating the said dasher, a connecting-bar uniting the said pedal and the said dasher, and a flexible tube 20 through which the said connecting-bar is passed to prevent the leakage of fluids from the said closed receptacle, substantially as described.

9. The combination with a closed receptacle provided with a collar 11 at one extremity, of pumping mechanism comprising the pump 6 also provided with a collar 10, a lid 13 for securing the pump-collar to the tank-collar, a handle 9 for operating said pumping mechanism, and catches 17, 17, provided upon the said tank-collar which are adapted to prevent actuation to the said pump-handle when in engagement therewith, substantially as described.

10. The combination with a spraying-tank provided with an outlet through which fluid within the tank may be sprayed, of a pump adapted for insertion within the tank and communicating therewith to create pressure within the tank, an orifice provided in the wall of the tank for receiving the pump, a packing-gasket 12 located about the rim of the orifice, a collar 10 provided upon the pump-barrel and adapted for engagement with the said gasket, a fastening means 13, structurally distinct from the pump, and means whereby the said fastening means may effect a clamping engagement between the gasket and the collar 10 upon one side and between the gasket and the contiguous portion of the tank, whereby the pump may be securely sealed in its place, substantially as described.

11. The combination with a spraying-tank provided with an orifice, of a pump adapted for communication with the said tank through the said orfice and having means for engaging it with the metal of the tank surrounding the orifice, a fastening device 13 structurally distinct from the pump, clamping means for engaging the said fastening means with the tank, whereby the pump may be separably secured to the tank, and packing means interposed between the pump structure and the tank, substantially as described.

12. The combination with a spraying-tank provided with an outlet through which fluid within the tank may be sprayed, of a pump adapted for communication with the tank to create pressure within the tank, an orifice provided in the wall of the tank for affording such communication, a packing-gasket 12 located about the rim of the orifice, a collar 10 provided upon the pump-barrel and adapted for engagement with the said gasket, a fastening means 13 structurally distinct from the pump and provided with slotted ears at its ends, and clamping-screws passing through the slots of the ears and engaging the said fastening means with the tank, substantially as described.

682,237. SPRAYING APPARATUS. EDWARD C. BROWN, Rochester, N. Y. Filed Feb. 26, 1900. Serial No. 6,516. (No model.)



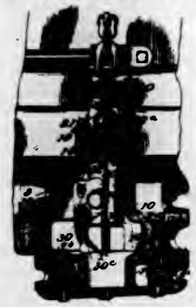
Claim.—1. The combination with a pressure-tank for receiving and discharging fluid, of a pump-cylinder having engagement with the said pressure-tank, a piston adapted to be reciprocated within the pump-cylinder, a piston-rod extending from the piston, a handle secured to the piston-rod, and means for rigidly engaging the handle with the pump-cylinder, whereby the pump-cylinder may be readily inserted within and removed from the pressure-tank, and whereby the handle may be maintained close to the pump-cylinder to enable the entire apparatus to be readily carried, substantially as described.

2. The combination with a pressure-tank for receiving and discharging fluid, of a pump-cylinder having clamping engagement with the said pressure-tank, a piston adapted to be reciprocated within the pump-cylinder, a piston-rod extending from the piston, a handle secured to the piston-rod, the said handle being stirrup-shaped and provided with a base extending transversely to the piston of the pump, the said base being provided with an aperture eccentric to the piston-rod, and a post 10 adapted to project through the said aperture, whereby the pump-cylinder may be engaged or disengaged from the tank, substantially as described.

3. The combination with a pressure-tank for receiving and discharging fluid, of a pump-cylinder having clamping engagement with the said pressure-tank, a piston adapted to be reciprocated within the pump-cylinder, a piston-rod extending from the piston, a handle secured to the piston-rod, the said handle being stirrup-shaped and provided with a base extending transversely to the piston of the pump, the said base being provided with an aperture eccentric to the piston-rod, and a post 10 adapted to project through the said aperture, and the said post being provided with a hole and a pin or key adapted for insertion through said hole in the post, whereby the apparatus may be readily carried, substantially as described.

4. In a spraying device, the combination with a pressure-tank for containing liquid to be subjected to pressure, of a pump for forcing air under pressure into the said tank, a bushing secured in the wall of the tank, a safety-diaphragm closing the bushing and a clamping-cap for securing the safety-diaphragm in place, the said cap being provided with an opening adapted to form a continuation of the opening in the bore of the bushing when the said safety-diaphragm is broken, substantially as described.

682,238. CAR-COUPLING. PERRY BROWN, Wilmington, Del. Filed May 26, 1900. Serial No. 18,105. (No model.)



Claim.—1. In a car-coupler; a locking-pin comprising two main parts sliding on each other; a connecting-pin on one part and a slot in the opposite part permitting said sliding movement; and a dog pivoted to one of said parts and arranged to prevent the withdrawal of said pin; the said connecting-pin coacting with said dog and swinging the same into an inoperative position as one part of said locking-pin slides on the other.

2. In a car-coupler; a knuckle; a dog arranged to open said knuckle and having teeth thereon; and a locking-pin having means as a stud adapted to operate between said teeth for moving the said dog.

3. In a car-coupler; a knuckle; a swinging dog having one part arranged to open said knuckle and provided with teeth; and a locking-pin having means thereon adapted to operate between said teeth and thereby operate the said swinging dog, as the locking-pin is moved.

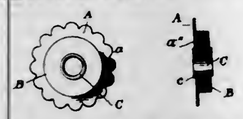
4. In a car-coupler; a knuckle; a locking-pin for holding said knuckle in its closed position; a swinging dog having teeth thereon; and means as the stud on said pin adapted to operate between said teeth and thereby operate the dog to move the knuckle as the pin is elevated; the said swinging dog being so arranged that its under tooth holds said pin in its elevated position.

5. In a car-coupler, a knuckle provided with a recess therein; a wearing-plate; a base-plate supporting said wearing-plate and having a perforated ear entering the recess of said knuckle; and a bolt or pin passing through said knuckle and perforated ear and securing them together.

6. In a car-coupler, a knuckle, a locking-pin, a vertically-swinging dog engaging said locking-pin and knuckle, the latter coacting with said dog and pin and preventing the withdrawal of the latter when said knuckle is swung open.

7. In a car-coupler, a knuckle, a dog arranged to open said knuckle and having teeth thereon; and a locking-pin having means thereon arranged to operate between said teeth and thereby operate the said swinging dog as the locking-pin is moved; the said knuckle coacting with said dog and pin and preventing the withdrawal of the latter when the said knuckle is swung open.

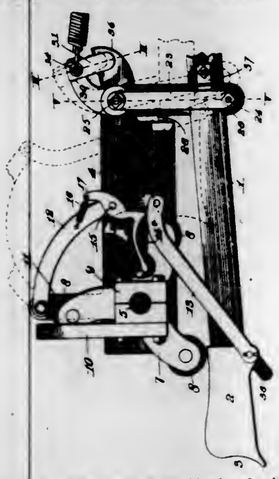
682,239. TRACTION DRUM OR ROLLER. JOHN J. CHATTAWAY, Brooklyn, N. Y., assignor to William A. Force, same place. Filed Jan. 7, 1901. Serial No. 42,392. (No model.)



Claim.—1. A traction drum or roller for use in an endless-band dating-stamp or other device, consisting of a metal plate A to which is fastened a rubber drum B by means of a metal tube C passing through drum B and plate A and turned over at the end *c* and projections *a''* to prevent lateral motion substantially as shown and specified.

2. A means of fastening a rubber traction-drum B to a metal plate A consisting of a metal tube C having a flange, said metal tube C passing through the drum B at *b* and through the plate A at *a'* and clenched on the under side at *c* and projections *a''* to prevent lateral motion substantially as shown and specified.

682,240. BALING-PRESS. WILLIAM R. COLMAN, Quincy, Ill. Filed Jan. 14, 1901. Serial No. 43,681. (No model.)



Claim.—1. In a baling-press, the combination of a pitman, a power-head, a bed-plate, an arm pivoted to the bed-plate, links connecting the arm to the pitman, and a lever pivoted to the arm and yieldingly connected thereto and which is adapted to be engaged by the power-head; said lever having a cam portion adapted to engage the arm as the lever is moved on its pivot, said arm yielding as power is exerted on said lever, substantially as described.

2. In a baling-press, the combination of a pitman, a power-head, a bed-plate, an arm pivoted to the bed-plate, links connecting the arm to the pitman, and a lever pivoted to the arm; said lever having an extension on one side of its pivot that is spring-connected to the arm and having on the other side of its pivot a surface adapted to receive the arms of the power-head, and said lever having a cam portion adapted to engage said arm as the lever is moved on its pivot, said arm yielding as power is exerted on said lever, substantially as set forth.

3. In a baling-press, the combination of a pitman, a bed-plate, a carrier-arm pivoted to the bed-plate, a power-head, a pivoted arm adapted to be engaged by the power-head, and links connecting said arm to the pitman, one of said links having an extension adapted to engage the carrier-arm, and a brake on the carrier-arm to stop rearward movement of pitman, substantially as described.

4. In a baling-press, the combination of a pitman, a bed-plate having a tapered extension, a carrier-arm pivoted to the bed-plate, and a jaw carried by the arm and which is adapted to engage a tapered extension on the bed-plate, substantially as set forth.

5. In a baling-press, the combination of a pitman, a bed-plate having a tapered extension, a carrier-arm pivoted to the bed-plate and provided with an extension, and a spring-controlled jaw secured to the extension of the carrier-arm and which is adapted to engage a tapered extension on the bed-plate; substantially as described.

6. In a baling-press, the combination of a pitman, a bed-plate, a carrier-arm pivoted to the bed-plate, a plate 23 connected to the carrier-arm, and shoulders 37 carried by the pitman and adapted to engage the carrier-arm upon the rearward movement of the pitman, and a brake on the carrier-arm to engage the bed-plate to stop the rearward movement of the pitman, substantially as set forth.

7. In a baling-press, the combination of a pitman, a bed-plate, a carrier-arm pivoted to the bed-plate and having an extension 30, a jaw secured to the carrier-arm and a tapered projection on the bed-plate with which said jaw engages; said jaw consisting of a pair of plates connected to the extension of the carrier-arm by means of a bolt provided with a spring, said spring yielding to the opening of the jaws and acting as a cushion, substantially as set forth.

682,241. WRENCH. MARLY COOKE, Vista, Iowa. Filed July 5, 1901. Serial No. 67,190. (No model.)

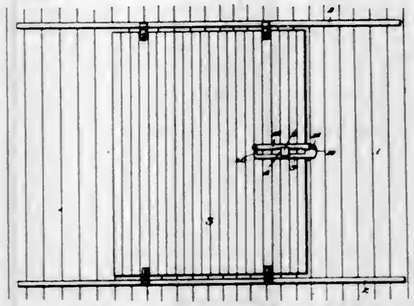


Claim.—1. A wrench, comprising pivotally-connected members provided with cooperating jaws, one of the members having a rotatable externally-screw-threaded finger-piece, and the other member having a laterally-projected toothed portion in mesh with the adjusting finger-piece.

2. A wrench, comprising a bifurcated handle member, provided at its outer end with a laterally-offset and longitudinally-extended jaw, a movable member pivoted within the bifurcation, and having its outer free end provided with a laterally-offset and longitudinally-projected jaw, the inner end of the jaw having teeth, and an externally-screw-threaded adjusting finger-piece rotatably mounted upon the inner side of the first-mentioned handle and in mesh with the teeth of the movable jaw.

3. A wrench, comprising a stationary handle member, having its outer end provided with a laterally-offset and longitudinally-extended jaw, the handle being bifurcated from the shoulder formed by the jaw, a movable handle member pivoted within the bifurcation, with its outer free end projected outwardly through the outer end of the bifurcation and provided with a laterally-offset longitudinally-projected jaw, the inner laterally-projected end of the latter jaw being transversely toothed, a cross-bar provided across the inner edge of the stationary member and forming a stop for the movable member, and an externally-screw-threaded rotatable adjusting finger-piece mounted upon the cross-bar and in mesh with the teeth of the movable jaw.

682,242. FASTENER FOR CAR-DOORS. PERCY G. CURLEY, Charlestown, Mass. Filed Dec. 18, 1900. Serial No. 40,291. (No model.)

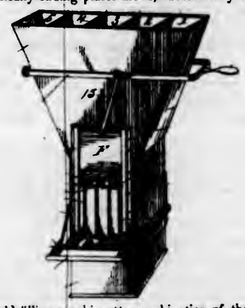


Claim.—A fastener for car-doors comprising a pivot-bar having a pin-opening, a notched bar pivoted to the pivot-bar and having a pin insertible in the pin-opening, and a bolt having teeth with which the notched bar engages.

682,243. MACHINE FOR MOLDING ICE-CREAM. GEORGE W. CUSCADEN, CHARLES F. KLOTZ, and HARRY A. CUSCADEN, Louisville, Ky. Filed July 3, 1901. Serial No. 67,053. (No model.)

Claim.—1. In a mold-filling machine, the combination of the casing open at bottom, hollow vertical partitions in the casing, vertically-sliding plates in said hollow partitions, and a cut-off plate at the bottom of the casing.

2. In a mold-filling machine, the combination of the open bottom casing flaring at the top, vertical hollow partitions in said casing, vertically-sliding plates in said partitions, and means for moving them from outside the casing, and a slotted cut-off plate through which slots the lower ends of the vertically-sliding plates move, substantially as described.



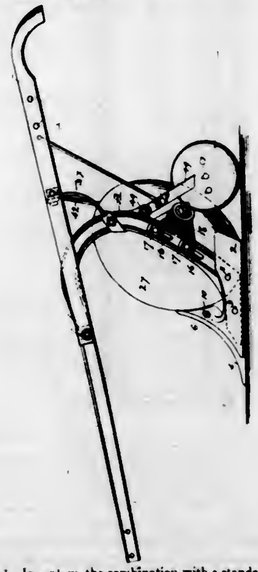
3. In a mold-filling machine, the combination of the casing having vertical partitions, vertically-moving plates which when depressed form extensions of said partitions, means for lifting said plates, a transversely-sliding cut-off plate having slots through which the vertically-movable plates pass, and a mold of substantially the area of the lower end of the casing, substantially as described.

4. In a machine as described, the casing having its lower portion constructed with slotted parallel sides, vertically-movable plates having ears extending through said slots in the casing, covering-plates outside the casing to which the ears are connected and means for lifting said covering-plates, substantially as described.

5. The combination of the slotted casing, the vertically-movable plates therein having lugs extending through said slots, the covering-plates outside said casing connected to said lugs, and the links and forked lever connected to said covering-plates, substantially as described.

6. The combination with the open-bottomed casing or filling-receptacle, of vertically-movable plates extensible from the bottom thereof, a mold corresponding to the bottom of the casing into which the plates are extended, thereby forming partitions in the mold, and a cut-off gate movable below the bottom of the filling-receptacle.

682,244. DISK PLOW. CALVIN R. DAVIS, South Bend, Ind., assignor to South Bend Iron Works, same place. Filed Apr. 29, 1901. Serial No. 58,020. (No model.)



Claim.—1. In a plow, the combination with a standard having a series of notches therein and a landside, of a moldboard-support having a tooth thereon to engage said notched portion of the standard, means for holding the tooth in a notch and a revoluble moldboard mounted on said support.

2. In a plow, the combination with a standard having a series of notches therein, of a spindle-box having a tooth thereon to fit into any one of the notches in the standard, bolts passed through said box and slots in the standard to hold the tooth in a notch, and a moldboard having a journal mounted in said journal-box.

3. In a plow, the combination with a standard having elongated slots therein and a series of notches, of a revoluble moldboard, a spindle-box for the journal of the moldboard, a bar on said spindle-box adapted to fit against the standard and having bolt-holes therein, a tooth on said bar to engage the notched portion of the standard, and bolts passed through said bolt-holes in the bar and the slots in the standard to clamp the tooth in a notch and to permit of the adjustment of the tooth from one notch to another.

4. In a plow, the combination with a standard inclining forward from its upper to its lower end, a forwardly-projecting foot on the lower end of said standard, a landside secured to the foot and a shin-plate secured to the landside, of a rotary moldboard or disk adjustably and revolubly connected to the standard and having its edge disposed close to the upper edge of the shin-plate and retreating therefrom to the lower edge of the shin-plate where a considerable space is left between the edge of the moldboard and shin-plate to permit the escape of trash.

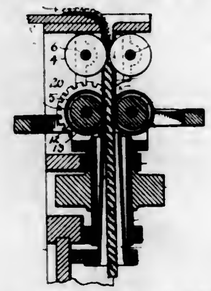
5. In a plow, the combination with a standard, a rotary moldboard or disk revolubly connected to the standard between its ends and a landside connected to the lower end of the standard, of a plow-point and a shin-plate secured to said landside, the rear edge of the shin-plate at its upper end disposed close to the edge of the moldboard or disk and said rear edge of the shin-plate then gradually sloping away from the edge of the disk.

6. The combination of a standard, a landside secured thereto, a moldboard mounted on the standard, a plow-point having bearing against the landside, a rib on the face of the part of the point which lies against the landside, said rib fitting into a depression in the landside and a bolt passing through the landside, point and the rib on the latter.

7. The combination with a landside and an inclined rearwardly-projecting plate integral therewith, of a combined plow-point and shin-plate having a rib on its under face to fit into a depression in the first-mentioned plate, and a bolt securing said parts together and a moldboard in the rear of the rear edge of said shin-plate.

8. A bearing for a rotary concavo-convex moldboard or disk, comprising a spindle-box having a conical bore, a bar integral with said box and projecting at an angle thereto and adapted to support the box, a hollow spindle in said box, an enlarged head at the forward end of the spindle having a concave face to receive the convex rear face of the disk, a headed bolt passed through said disk and spindle and a nut screwed onto said bolt and against the rear end of the box.

682,245. FABRIC-TWISTING MACHINE. EDWARD F. DRENAN, Cleveland, Ohio. Filed Mar. 1, 1901. Serial No. 49,393. (No model.)



Claim.—1. A set of rollers to feed a strip of fabric having a circumferential groove in the peripheral face of each, and an elastic covering bridging said groove, substantially as described.

2. A set of gripping feed-rollers, in combination with a separate set of combined feed and twisting rollers having circumferential grooves and elastic covering for said grooves, a rotatable support for said twisting-rollers, and means to revolve each set of rollers and the rotatable support, substantially as described.

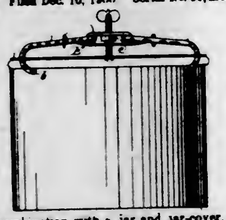
3. In a fabric-twisting machine, a rotatable support having a pair of rollers mounted thereon, a circumferential groove in said rollers and an elastic covering bridging said rollers, a gear to rotate said rollers, a circular inclined track engaging said gear, means to rotate said roller-sup-

port, and a pair of rollers to feed the fabric to said first-mentioned rollers, substantially as described.

4. A pair of feed-rollers for a strip of fabric, in combination with a pair of twisting feed-rollers mounted opposite thereto, a hollow rotatable support for said twisting-rollers, a stationary tube within said support open at its top and bottom and arranged centrally below said twisting-rollers, and means to rotate said support and rollers separately, substantially as described.

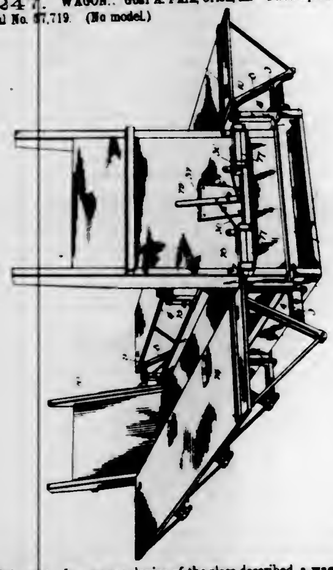
5. In a fabric-twisting machine, a set of gripping feed-rollers, in combination with a set of combined feed and twisting rollers having intermeshing gears, a hollow rotatable support for said twisting-rollers, a stationary tube within said support having an open top and bottom and arranged immediately below said twisting-rollers, a circular inclined track having its ends spaced apart and overlapping each other, a gear on one of said twisting-rollers engaging said track, and means to rotate said support, substantially as described.

682,246. JAR COVER AND CLAMP. JOHN W. EVERHART, Grand Rapids, Mich. Filed Dec. 10, 1900. Serial No. 39,490. (No model.)



Claim.—In combination with a jar and jar-cover, a central nut, a base, arms pivoted to each end of the base and extending thence to the periphery of the cover, hooks formed at the ends of said arms, a spring passing under the base and over the arms at each end of the base, and a screw, substantially as and for the purpose set forth.

682,247. WAGON. GUST A. FAIR, Orion, Ill. Filed Apr. 27, 1901. Serial No. 57,719. (No model.)



Claim.—1. In a wagon device of the class described, a wagon-body, standards at the sides thereof each consisting of a rigid frame part, a hinged part carrying rack sides, a link connecting the lower end of the hinged part to the upper end of the rigid frame part and a brace pivoted at one end to the outer lower end of the rigid frame part and adjustably connected at its other end to the upper free end of the hinged part.

2. In a wagon of the class described, a wagon-body, standards at the sides thereof each consisting of a rigid frame part, a hinged part carrying a rack side, links connecting the lower end of the hinged part to the upper end of the rigid frame part, a slide-block movable in a guideway on said hinged part, a catch on said slide-block adapted for engagement with shoulders in the guideway, and a brace pivoted at its lower end to the rigid frame part and at its upper end to the slide-block.

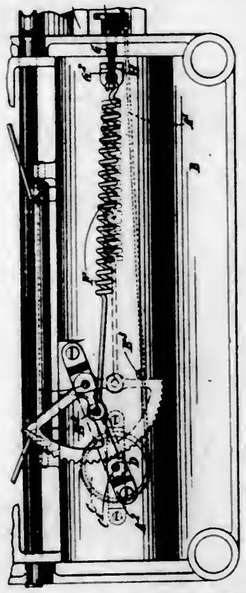
3. In a wagon of the class described, the combination with a wagon-body, having girths projecting at its sides, of standards having rigid frame parts removably secured upon the projecting ends of said girths and against the wagon sides, hinged parts carrying rack sides, links connecting the lower ends of the hinged parts to the upper ends of the rigid frame parts, braces pivoted at their lower ends to the outer lower ends of the rigid frame parts and supporting at their other ends the upper ends of the hinged parts, and overhanging hooks on the inner edges of the rigid frame parts adapted to fit over the top edge of the wagon sides, for the purpose stated.

4. In a wagon of the class described, the combination with a wagon-body having a front end-gate hinged to fold inwardly, a rear end-gate hinged to fold outwardly, standards at the sides of the wagon-body of greater height than the sides thereof, headed studs on said standards projecting inwardly from points above said wagon sides and catches on the said end-gates adapted to engage said headed studs for the purpose stated.

5. In a wagon of the class described the combination of the wagon-body, standards consisting of rigid frame parts secured at the sides of said wagon-body, and hinged parts connected with said rigid frame parts through links and carrying rack sides, headed studs inwardly projecting from said rigid frame parts above the top edge of the wagon sides, openings in the rack sides adapted for the reception of said headed studs when the rack sides stand upright, and catches on the inner sides of the rack sides adjacent to the openings therein and adapted to fit over the heads of said studs, for the purpose stated.

6. In a wagon of the class described, the combination of standards, racks adjustable on said standards, a foldable end-gate, and slidable bolts on the end-gate adapted for engagement with studs on the standards to support the gate in raised position.

682,248. TYPE-WRITING MACHINE. JAMES S. FOLEY, West Bromwich, England, assignor of one-half to John Henry Birch, same place. Filed June 3, 1901. Serial No. 62,978. (No model.)



Claim.—1. In a type-writer the combination with the frame, the platen-carriage movable thereon a drum in operative connection with the carriage and a gear-wheel adapted to rotate with the drum of a pivoted toothed segment carried on the frame in gear with the wheel and a spring attached to the segment and to the frame to pull the segment in one direction the two points of attachment of the spring being located relatively to the pivotal point of the segment so that the effective leverage distance between the segment's pivot and the spring's segmental point of attachment decreases as the tension of the spring increases substantially as set forth.

2. In actuating mechanism for a type-writer platen-carriage the combination with a spring such as F and a screw-bolt adjustably carried on the frame and having a flattened portion engaging the spring of a guide-way engaging said flattened portion substantially as and for the purpose set forth.

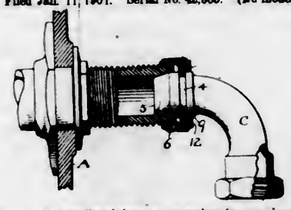
682,249. PROCESS OF MAKING CARBON PIGMENT. ADOLPH FRANK, Charlottenburg, Germany. Filed June 26, 1899. Serial No. 721,934. (No specimens.)

Claim.—1. The process for producing carbon, which consists in reacting on a carbid such as described, with an oxid of carbon, substantially as described.

2. The process for producing carbon, which consists in reacting on a carbid of a metal with an oxid of carbon, substantially as described.

3. The process for producing carbon, which consists in reacting on a carbid of the metals of the alkalies or alkaline earths with an oxid of carbon, substantially as set forth.

682,250. COUPLING-JOINT. JOSEPH H. GLAUBER, Cleveland, Ohio. Filed Jan. 11, 1901. Serial No. 42,885. (No model.)

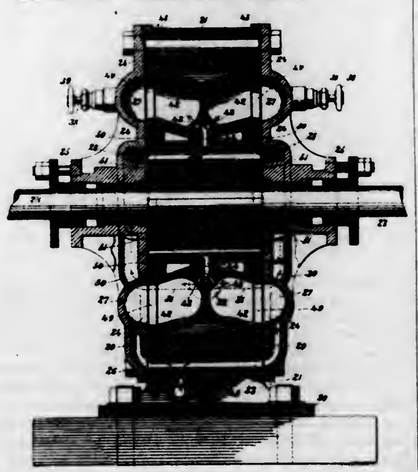


Claim.—1. A coupling-joint cast complete in one piece and having a threaded head at one end and an annular shoulder of less size than said head around its other end and provided with a conical seating projection outside said shoulder, and a removable ring of greater depth than said shoulder engaged behind the same, substantially as described.

2. As a new article of manufacture, a coupling formed in one piece and having a conical seating projection at one end and an annular shoulder substantially at the base of said projection and a threaded head on the other end of the coupling larger in cross-section than said annular shoulder, a removable ring engaged behind said shoulder and a coupling nut behind said ring, substantially as described.

3. A fixed coupling member having an outwardly-flaring internal seat and threaded about its outside, in combination with a coupling-joint having a tapered extremity adapted to said seat and an annular shoulder about its outside back from said tapered extremity, a loose divided ring of spring metal behind said shoulder and extended outwardly therefrom, and a nut engaged over said ring and screwed upon said fixed member, substantially as described.

682,251. ROTARY ENGINE. JOHN A. GROSHON, New York, N. Y. Filed Jan. 17, 1901. Serial No. 43,581. (No model.)



Claim.—1. In a rotary engine the exterior casing comprising the ring and face-plates, the latter having the channels 30 and grooves 28 for the admission of the motive fluid, and also the chambers 27 exposed at their facing sides, combined with the wheel 22, and shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing the pairs of chambers or cylinders 42 arranged with respect to said chambers 27, said hub having channels to communicate with said grooves 28 and being in communication with said chambers or cylinders 42; substantially as set forth.

2. In a rotary engine, the exterior casing comprising the ring and face-plates, the latter having the channels 30 and grooves 28 for the admission of the motive fluid, and also having the series of chambers 27 exposed at their facing sides, said grooves 28 being on the arc of a circle, combined with the wheel 22, and shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing the pairs of inwardly-converging chambers or cylinders 42 arranged with respect to said chambers 27, said hub having the channels 45 to travel along said grooves 28, and said wheel having passages leading from said channels 45 into the said chambers or cylinders 42; substantially as set forth.

3. In a rotary engine, the exterior casing comprising the ring and face-plates, the latter having the channels 30 and grooves 28 for the admission of the motive fluid, the series of chambers 27 exposed at their facing sides, and the valved passages 35 connecting said chambers 27, combined with the wheel 22, and shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing the pairs of inwardly-converging chambers or cylinders 42 arranged with respect to said chambers 27, said hub having the channels 45 to travel along said grooves 28, and said wheel having passages leading from said channels 45 into the said chambers or cylinders 42; substantially as set forth.

4. In a rotary engine, the exterior casing comprising the ring and face-plates, the latter having the channels 30 and grooves 28 for the admission of the motive fluid, and also having the series of chambers 27 exposed at their facing sides, combined with the wheel 22 having in its faces the annular grooves 48, the flat rings 49 in said grooves 48 and having the packings along their periphery to engage the adjacent walls of said wheel, and the shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing the pairs of chambers or cylinders 42 arranged with respect to said chambers 27, said hub having channels to communicate with said grooves 28 and being in communication with said chambers or cylinders 42, and said rings 49 having openings to match the open ends of said chambers or cylinders 42; substantially as set forth.

5. In a rotary engine, the exterior casing comprising the ring and face-plates, said ring having the exhaust-channel 33, and said face-plates having the channels 30 and grooves 28 for the admission of the motive fluid, the chambers 27 exposed at their facing sides, and the channels 29 leading from the lower chambers 27 to said exhaust-channel 33, combined with the wheel 22, and shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing the pairs of chambers or cylinders 42 arranged with respect to said chambers 27, said hub having channels to communicate with said grooves 28 and being in communication with the said chambers or cylinders 42; substantially as set forth.

6. In a rotary engine, the exterior casing comprising the ring and face-plates, the latter having inlet-channels for the motive fluid and also the chambers 27 exposed at their facing sides, combined with the wheel 22, and shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing the pairs of inwardly-converging chambers or cylinders 42 arranged with respect to said chambers 27, said hub having channels 45 to communicate with said inlet-channels and being in communication with said chambers or cylinders 42; substantially as set forth.

7. In a rotary engine, the exterior casing comprising the ring and face-plates, the latter having inlet-channels for the motive fluid and also the chambers 27 exposed at their facing sides, combined with the wheel 22, and shaft 23, said wheel being mounted on said shaft within said casing and comprising the hub 41 and outer portion containing a pair of inwardly-converging chambers or cylinders 42 whose outer ends are exposed toward said face-plates and adapted to travel along the line of said chambers 27, said hub having a channel 45 to communicate with said inlet-channels and being in communication with said chambers or cylinders 42; substantially as set forth.

8. In a rotary engine, the sides having the inlets for the motive fluid and provided on their inner faces with chambers 27, combined with the wheel 22 connected with the shaft to be driven and comprising the hub 41 having a channel to pass into communication with said inlets and the outer portion having the pairs of inwardly-converging chambers 42 whose outer ends are exposed toward said sides and adapted to travel along the

line of said chambers 27, said wheel also having passages for the motive fluid from the channel in said hub to a pair of said chambers 42; substantially as set forth.

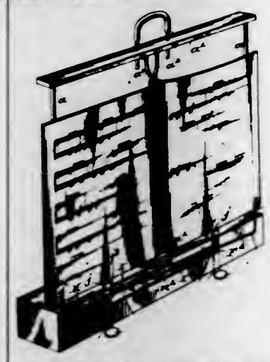
9. In a rotary engine, the sides having the inlets for the motive fluid and provided on their inner faces with the chambers 27, combined with the wheel 22 between said sides and connected with the shaft to be driven, said wheel having in its opposite sides the pairs of chambers or cylinders 42 to coöperate with the said chambers in said sides. the hub of said wheel having the channels to follow along the said inlets, and said channels being in communication with the inner ends of the said pairs of chambers or cylinders 42; substantially as set forth.

10. In a rotary engine, the sides having the inlets and provided on their inner faces with the chambers 27, combined with the wheel 22 connected with the shaft to be driven and comprising the hub 41 having channels to travel along in communication with said inlets and the outer portion having the pairs of inwardly-converging chambers or cylinders 42 whose outer ends are exposed toward said sides and adapted to travel along the line of said chambers 27, said wheel also having passages for the motive fluid from the channels in the said hub to the inner ends of said pairs of chambers 42; substantially as set forth.

11. In a rotary engine the casing having in its sides the chambers 27, combined with the wheel 22 between said sides and connected with the shaft to be driven, said wheel having in its opposite sides the pairs of chambers or cylinders 42 to coöperate with the said chambers in said sides, the said wheel having the channels to follow along the inlets for the steam, and said channels being in communication with the inner ends of the said pairs of chambers or cylinders 42; substantially as set forth.

12. In a rotary engine, the casing having the sides provided with the chambers 27, and a suitable supply for the steam, combined with the wheel 22 connected with the shaft to be driven and comprising the hub having channels to communicate with the steam-supply, and the outer portion having the pairs of inwardly-converging chambers or cylinders 42 whose outer ends are exposed toward said sides and adapted to travel along the line of the said chambers 27, said wheel also having passages for the motive fluid to the said pairs of chambers 42; substantially as set forth.

682,252. **MUSIC-LEAF TURNER.** ROBERT O. HAMMOND, Depew, N. Y., assignor to Christian Hagen, Buffalo, N. Y. Filed June 20, 1901. Serial No. 65,224. (No model.)



Claim.—1. The combination with the casing, of a revolving element, a movable stop held in the path of said revolving element to normally hold the same from turning, suitable power for automatically operating said revolving element when the said stop is moved out of the path of the same, a leaf-turning arm pivoted to swing, and a link connecting said revolving element with the leaf-turning arm, substantially as set forth.

2. The combination with the casing, of a revolving element under spring tension and normally held from revolving, a swinging leaf-turning arm, a link connecting said leaf-turning arm with the revolving element at one side of its axis, and means for releasing said revolving element, substantially as set forth

3. The combination with the casing, of a revolving element under spring tension and normally held from revolving, a leaf-turning arm pivoted near its rear end, a link connecting said revolving element at one side of its axis with the rear end of said leaf-turning arm, and means for releasing said revolving element to allow the same to swing the said leaf-turning arm through the medium of said link, substantially as set forth.

4. The combination with the casing, of a revolving element having stops at either side of its axis and being under spring tension, a spring-controlled sliding key normally held to prevent movement of said revolving element and being adapted to be depressed to release the same, a leaf-turning arm pivoted near its rear end, a link connecting the rear end of said arm with the revolving element at one side of its axis, said connection allowing of a combined pivotal and sliding movement, substantially as set forth.

5. The combination with the casing, of a revolving bar held under spring tension, a sliding key having a stop against which said bar bears and whereby it is held from revolving, a spring for keeping said key in its normal position, a leaf-turning arm pivotally held near its rear end, and a link being pivotally connected with one end to the rear end of the leaf-turning arm, and having a longitudinal slot in its other end through which a pin secured to one end of said revolving bar passes, substantially as set forth.

6. The combination with the casing, of a spindle held under spring tension, a bar secured midway between its ends to said spindle, a sliding key having stops to limit its movement and a stop against which either end of said bar bears, a spring to keep the said key in its elevated or normal position to prevent the turning of the spindle, a leaf-turning arm pivoted near its rear end, and a link pivotally connected at one end to the rear end of the leaf-turning arm and slidingly connected at its other end to one end of the said bar, substantially as set forth.

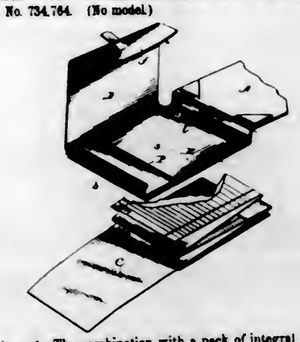
682,253. **CAR-COUPLING.** GEORGE C. HARLIN, Stockton, Cal. Filed Nov. 21, 1900. Serial No. 37,281. (No model.)



Claim.—1. In a car-coupler, a draw-head having an internal shoulder and a beveled inner wall extending upwardly from the shoulder, a hook pivoted in the draw-head, a keeper pivoted to the book and having its end engaged by the shoulder, the parts being so arranged as to cause the end of the keeper to ride up the inclined wall of the draw-head when displaced from engagement with the shoulder, while the hook is under tension.

2. In a car-coupler, a draw-head having an internal shoulder and a beveled inner wall extending upwardly from the shoulder, a hook pivoted in the draw-head, a keeper pivoted to the hook, and having its end engaged by the shoulder, the parts being so arranged as to cause the end of the keeper to ride over the inclined wall of the draw-head when displaced from engagement with the shoulder, and a flexible connection in such relation to the keeper as to elevate the same and actuate the hook.

682,254. **COMBINED MANIFOLDING WRITING-TABLET AND HOLDER.** HENRY L. HAUBAMER, Grafton, N. D. Filed Oct. 25, 1899. Serial No. 734,764. (No model.)



Claim.—1. The combination with a pack of integral zigzag-folded leaves, of a base-strip upon which said leaves are mounted, and to one end portion of which is anchored the underlying leaf only of the pack, and a carbon-sheet attached to the end of said base to which the underlying leaf is attached, substantially as and for the purpose set forth.

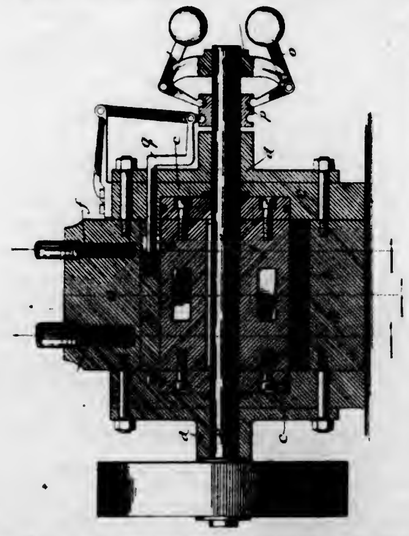
2. The combination of a pack of integral, zigzag-folded leaves arranged in pairs, a base-strip upon which said leaves are attached, a carbon-leaf secured at one edge of said base-strip parallel to the lines of folding of said leaves, whereby it may be folded over the adjacent edge of the pack in the direction of the opposite fold of the uppermost pair of leaves and between same; in combination with a holder having a pocket for the reception of the base-strip of said pack; and a hinged leaf-binder arranged to fold at right angles over said pack and inner face of said holder; and adjustable means for securing the free edge of said binder in a position to adjust itself snugly about said pack, substantially as described.

3. The combination of a pack of integral, zigzag-folded leaves arranged in pairs, a base-strip upon which said leaves are attached, a carbon-leaf secured at one edge of said base-strip parallel to the lines of folding of said leaves, whereby it may be folded over the adjacent edge of the pack in the direction of the opposite fold of the uppermost pair of leaves and between same; in combination with a holder having on its inner face a pocket for the reception of the base-strip of said pack, and a transversely-extending turned-up portion at one end of said holder for holding the strip in position within said pocket; and a hinged binder folding at right angles over said pack and holder, said binder having a flap, and a pocket at the edge of the holder for the reception of said flap as and for the purpose set forth.

4. The combination of a pack of integral zigzag-folded leaves arranged in pairs, a base-strip upon which said leaves are attached, a carbon-leaf secured at one edge of said base-strip parallel to the lines of folding of said leaves, whereby it may be folded over the adjacent edge of the pack, and adapted when in position to automatically fold, successively, between the leaf pairs, as the leaves are withdrawn, in combination with a holder, means for attaching said strip to the holder and means arranged at one end of said strip to hold said leaves in a flatwise position on said strip; and a binder folding at right angles over said pack and holder, said binder having a flap portion, and a pocket at the edge of the holder for the reception of said flap, as and for the purpose set forth.

5. The combination with a pack of integral zigzag-folded leaves arranged in pairs, of a base-strip upon which said leaves are mounted and to one end of which is anchored the underlying leaf only of the pack, and a carbon-leaf attached to one edge only of the base-strip and adapted to fold or be presented between the respective pairs of the folded leaves, substantially as described.

682,255. **ROTARY ENGINE.** FRANK A. HEADSON, Lafayette, Ind., assignor of one-half to Leo Pottlitzer, Herman Pottlitzer, Max Pottlitzer, and Julius Pottlitzer, same place. Filed May 28, 1900. Serial No. 18,222. (No model.)



Claim.—1. In an engine of the class described, the combination of a cylinder provided with inlet and outlet passages and a steam pocket or chamber connected with the inlet-passage, a piston rotatably mounted therein adapted to cover and uncover the steam-pocket, a stationary inward projection upon the cylinder extending to and in contact with the rotatable piston, and means for varying the size of the steam-pocket to regulate the cut-off of steam, substantially as described.

2. In an engine of the class described, the combination of a cylinder provided with inlet and outlet passages, a piston rotatably mounted therein, a segmental valve-bushing or projection inserted between the piston and the cylinder and provided with a valve-pocket which the rotatable piston covers and uncovers during its rotations, and means for varying the size of the pocket to regulate the cut-off of steam, substantially as described.

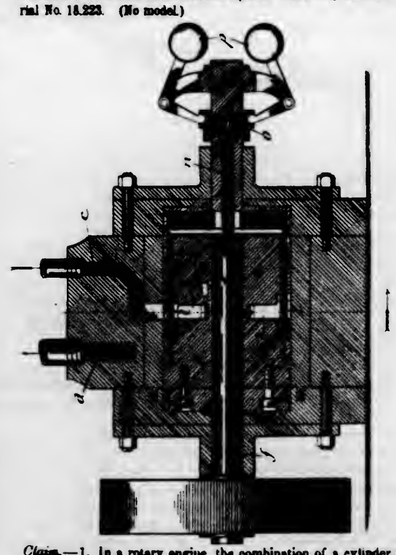
3. In an engine of the class described, the combination of a cylinder provided with inlet and outlet passages, a substantially segmental valve-bushing arranged in the operating-chamber of the cylinder and provided with a valve-pocket, and a piston rotatably mounted in the operating-chamber of the cylinder and provided with a passage or passages arranged to be brought in alinement with the valve-pocket of the bushing and cover and uncover the same during the rotations of the piston, and means for varying the size of the steam-pocket to regulate the supply of steam, substantially as described.

4. In an engine of the class described, the combination of a cylinder provided with inlet and outlet passages, a substantially segmental valve-bushing arranged in the cylinder and provided with a steam-pocket forming a substantial continuation of the inlet-passage, a piston rotatably mounted in the cylinder and provided with passages extending through the piston and opening in different vertical planes to cover and uncover the valve-pocket during the rotations of the piston and permit the introduction and cutting off of motive fluid, and valve mechanism in the steam-pocket for varying the size of such pocket and thus control the cut-off of the motive fluid, substantially as described.

5. In an engine of the class described, the combination of a cylinder provided with inlet and outlet passages, a segmental valve-bushing arranged in the cylinder and provided with a steam-pocket forming a practical continuation of the inlet-passage, a piston rotatably mounted in the cylinder adjacent to the valve-pocket in the bushing and provided with two or more passages extending through the piston and having their openings in different vertical planes—one opening of which is adapted to register with the valve-pocket and permit the introduction and cutting off of the motive fluid at desired times, and a valve in the steam-pocket arranged to be operated by a mobile part of the engine to cut off the motive fluid at the desired time or times, substantially as described.

6. In an engine of the class described, the combination of a cylinder provided with inlet and outlet passages, an operating-chamber having a projecting or bushing portion therein, which portion is provided with a valve-pocket forming a practical continuation of the inlet-passage, a piston rotatably mounted in the cylinder and provided with a passage extending from one portion of its peripheral surface to another and through the piston so that such surface covers and uncovers the inlet-passage to permit the introduction and cut-off of the motive fluid, a valve longitudinally movably mounted in the valve-pocket to vary the size of the valve and thus regulate the cut-off of the motive fluid, and ball-governor mechanism for moving said cut-off valve as the piston is rotated, substantially as described.

682,256. **ROTARY ENGINE.** FRANK A. HEADSON, Lafayette, Ind., assignor of one-half to Leo Pottlitzer, Herman Pottlitzer, Max Pottlitzer, and Julius Pottlitzer, same place. Filed May 28, 1900. Serial No. 18,223. (No model.)



Claim.—1. In a rotary engine, the combination of a cylinder portion provided with inlet and outlet passages, a piston rotatably mounted

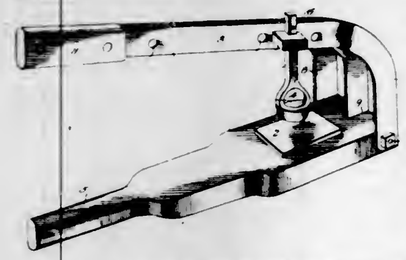
therein and provided with steam-pockets and steam-passages extending through the piston, connecting-pockets on opposite sides of the piston whereby steam or other motive fluid is admitted to substantially opposite points of the cylinder and exhausted therefrom, substantially as described.

2. In an engine of the class described, the combination of a cylinder portion provided with an exhaust-passage and two inwardly-projecting portions substantially diametrically opposite each other—one of which contains the inlet-passage, a piston rotatably mounted in the cylinder and provided with steam pockets and passages for covering and uncovering the inlet passage and admitting steam to substantially opposite points or sides of the cylinder and exhausting it therefrom at or during the same time or times, substantially as described.

3. In an engine of the class described, the combination of a cylinder portion provided with a lower imperforate inwardly-projecting portion or bushing and an upper inwardly-projecting portion or bushing having an inlet-passage therefrom and an outlet-passage in the main frame, a rotatable piston provided with steam-pockets in the peripheral surface thereof arranged in pairs, each pocket in each pair diametrically opposed to each other and connected together by means of ports or passages so that during the rotation of the piston steam is admitted in the cylinder through the pockets at substantially opposite points of the cylinder and permits the exhaust to take place therefrom at substantially opposite points, substantially as described.

4. In an engine of the class described, the combination of a cylinder portion provided with upper and lower inwardly-projecting portions or bushings, an inlet-passage through the upper bushing and an outlet-passage through the main frame of the engine, four pockets arranged in the peripheral surface of the piston in pairs connected together by means of ports or passages so that during the rotation of the piston steam is permitted to enter and exhaust from the cylinder at substantially opposite points, wing mechanism arranged longitudinally of the piston between each pair of steam-pockets to receive the expansive force of the steam and permit the exhaust to take place at proper time or times, and valve mechanism arranged in the steam-pockets to vary the size thereof and control or regulate the "cut-off" of motive fluid at the proper time or times, substantially as described.

682,257. **DEVICE FOR MARKING THE EARS OF ANIMALS.** JACOB HIRE, Jr., Canastota, S. D. Filed May 20, 1901. Serial No. 61,173. (No model.)

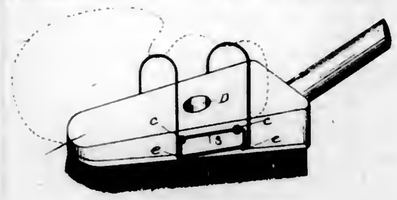


Claim.—1. In a device of the class described, the combination of a lower jaw having a counter-die, an upper jaw hinged to said lower jaw, a die having a shank provided with a notch in one side, a bolt having a hooked head to engage said shank and secure said die to said upper jaw, and a pin 16 projecting from one side of said die-shank and entering an opening in said upper jaw, substantially as described.

2. In a device of the class described, the combination of the lower jaw broadened at one end, the upper jaw formed of a plurality of metal strips secured together and diverging from each other at one end, said diverging ends of said strips being hinged or pivoted to the broadened end of the lower jaw, a die and means to secure the same to said upper jaw, substantially as described.

682,258. **PAINT OR WINDOW CLEANER.** SOREN JENSEN, Providence, R. I., assignor of one-half to Joseph Loyd, same place. Filed May 23, 1901. Serial No. 62,206. (No model.)

Claim.—In a brush, the combination of a cage member for securing a cleaning material to the back of the device, which member comprises two arched portions hinged to one side of the block and which have a transverse connection at their free ends, and a double link member comprising a portion rotatably secured to the opposite side of the block from said hinged member, said latter portion having an integral transverse part at each end that lie in the same plane and which are each pivotally connected by their free ends to the said transverse connection of the arched member, the said arched portions being resilient and curved so as to press its link-attached portion against the side of the block.



682,259. **PICKET FENCE.** JOHN LAHR, Pittsburg, Pa. Filed June 8, 1900. Serial No. 19,560. (No model.)



Claim.—1. A picket fence consisting of detachable and adjustable parts, comprising rails provided with picket-openings having projections, pickets adapted to fit in the openings in the rails, said pickets being provided with notches, locking-bars extending along the sides of said pickets and engaging the notches therein, and means for securing said locking-bars to the rails.

2. A picket fence consisting of detachable parts comprising perforated rails, pickets adapted to fit in the perforated rails, said pickets being provided with notches, locking-rods adapted to engage the notches of the pickets, and cover-plates secured to the rails and taking over the locking-rods.

3. A picket fence consisting of detachable parts, comprising perforated angle-iron rails, pickets adapted to fit in the perforated rails, said pickets being provided with notches, locking-rods adapted to lie on the horizontal legs of the rails and engage the notches of the pickets, and cover-plates secured to the vertical legs of the rails and taking over the locking-rods.

4. A picket fence consisting of detachable and adjustable parts, comprising rails having openings with projections therein, pickets adapted to fit in the openings in the rails so that said pickets are bound in said openings when the rails are inclined, said pickets consisting of angle-irons provided with notches at the angles, and locking-bars engaging the notches in the pickets and secured to the rails.

5. A picket fence consisting of detachable parts, comprising perforated angle-iron rails, pickets adapted to fit in the perforated rails, said pickets consisting of angle-irons provided with notches at the angles, locking-rods adapted to engage the notches of the pickets and lie on the horizontal legs of the rails, and cover-plates secured to the vertical legs of the rails and taking over the locking-rods.

6. A picket fence consisting of detachable and adjustable parts, comprising rails having openings with projections therein, pickets adapted to fit in the openings in the rails, said pickets consisting of angle-irons set with their angles toward the front of the fence so that they are bound in the openings when the rails are inclined, and means for locking the pickets to the rails.

7. A picket fence consisting of detachable parts, comprising perforated rails cut away on one side of said perforations to form corners, pickets adapted to fit in the perforated rails, said pickets consisting of angle-irons set with their angles in the cut-away portion of the rails and having the corners of the latter bearing against their sides, and means for locking the pickets to the rails.

8. A picket fence consisting of detachable parts, comprising the perforated angle-iron rails, pickets adapted to fit in the rails, and the locking-rods for the pickets, the rails having their horizontal and vertical legs cut away at the ends to permit said rails to be set at any angle, vertically or horizontally, to each other.

9. A picket fence consisting of detachable parts, comprising the perforated angle-iron rails, pickets adapted to fit in the rails, locking-rods for the pickets, and cover-plates for the locking-rods, the rails having their horizontal and vertical legs cut away at the ends and the cover-plates having their upper and lower corners cut away, in order to adapt the fence to curves or inclinations as desired.

10. A picket fence consisting of detachable parts, comprising the perforated angle-iron rails, pickets and locking-rods, the horizontal leg of the rail being bent inside the perforation to curve the rail.

11. A picket fence consisting of detachable parts, comprising rails provided with picket-openings, pickets adapted to fit in said openings, means for locking said pickets to the rails, and connecting-plates secured to the ends of adjacent rails by means of horizontal connecting means, whereby the rails may be inclined vertically.

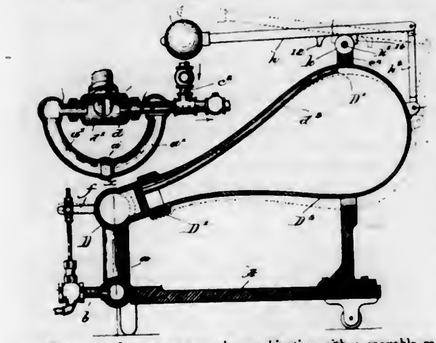
12. A picket fence comprising a series of standard bases, panels comprising detachable rails and pickets, connecting-plates secured to the ends of adjacent rails by means of horizontal connecting means, whereby independent vertical inclination of the rails is permitted, and means for detachably securing the end pickets of adjacent panels to one of the bases.

13. A picket fence comprising a series of standard bases, panels comprising detachable rails and pickets, connecting-plates secured to the ends of adjacent rails by means of horizontal connecting means, whereby independent vertical inclination of the rails is permitted, means for detachably securing the end pickets of adjacent panels to one of the bases, and a brace extending from said base and secured to one of the connecting-plates.

14. A picket fence comprising a series of standard bases, posts detachably secured to the bases at openings and angles in the fence, the panels comprising detachable rails and pickets, connecting-plates secured to the ends of adjacent rails by means of horizontal connecting means, whereby independent vertical inclination of the rails is permitted, and means for detachably securing the end pickets of adjacent panels to the bases intermediate the posts.

15. A picket fence comprising a series of standard bases, an adjusting-plate secured to each base, posts secured to the plates of the bases at openings and angles in the fence, the panels comprising detachable rails and pickets, connecting-plates secured to the ends of adjacent rails by means of horizontal connecting means, whereby independent vertical inclination of the rails is permitted, and means for securing the end pickets of adjacent panels to the adjusting-plates of the bases intermediate the posts.

682,260. **STEAM-TRAP.** FRANK A. LITTLEFIELD, Nashua, N. H., assignor to Nashua Machine Company, same place. Filed Jan. 9, 1901. Serial No. 42,606. (No model.)



Claim.—1. In a steam-trap, the combination with a movable receiver, of a counterbalancing-lever having two longitudinally-separated fulcrum-points and connected at one side of its fulcrum with and to be rocked by the receiver and sustaining a weight at the other side of the fulcrum, and a fulcrum for the lever, rocking of the latter thereupon past dead-center causing the lever to shift longitudinally upon the fulcrum from one to the other of said fulcrum-points.

2. In a steam-trap, the combination with a movable receiver, of a longitudinally-shiftable counterbalancing-lever having an elongated fulcrum-seat, and a fulcrum upon which the lever rocks and shifts, said lever being connected at one side of its fulcrum with and to be rocked by movement of the receiver and sustaining a weight at the opposite side of the fulcrum.

3. In a steam-trap, the combination with a movable receiver, of a shifting counterbalancing-lever connected at one side of its fulcrum with and to be rocked by the receiver and sustaining a weight at the other side of the fulcrum, and a fulcrum for and upon which said lever shifts longitudinally when swung past dead-center by movement of the receiver.

4. In a steam-trap, the combination with a movable receiver, of a shifting counterbalancing-lever connected at one side of its fulcrum with and to be rocked by the receiver and sustaining a weight at the other side of the fulcrum, a fulcrum for and upon which said lever shifts longitudinally when swung past dead-center by movement of the receiver, and means to limit such shifting movement of the lever.

5. In a steam-trap, the combination with a movable receiver, of a shifting counterbalancing-lever connected at one side of its fulcrum with and to be rocked by the receiver and sustaining a weight at the other side of the fulcrum, and a rotatable fulcrum on which said lever rocks and over which it travels longitudinally when swung past dead-center by movement of the receiver.

6. In a steam-trap, a rocking receiver, combined with a rotatable fulcrum-roll mounted in fixed bearings, a counterbalancing-lever supported upon said roll and longitudinally shiftable thereupon, stops on the lever at opposite sides of the roll, to limit the shifting movement of the lever, a weight sustained by the latter at one side of the fulcrum, and a connection at the other side between the lever and the receiver, the active points of the lever being normally above and below the fulcrum, respectively, rocking of the lever by movement of the receiver reversing the position of the active points relatively to the fulcrum and causing the lever to shift when past dead-center.

7. In a steam-trap, a movable receiver, combined with a controlling-lever provided with a weight at one side of its fulcrum and connected at the opposite side thereof with and to be rocked by movement of the receiver, a fulcrum having a convex supporting-surface upon which the lever is free to be rocked and to move longitudinally, the main movement of the receiver in either direction acting to rock the lever to and past dead-center, subsequent shifting of the lever on its fulcrum being simultaneous with the slight final movement of the receiver, and means to limit the shifting movement of the lever and the throw of the receiver.

682,261. **SHEARS.** CHARLES J. LOICHOT, Canton, Ohio. Filed Jan. 18, 1901. Serial No. 43,710. (No model.)



Claim.—1. In shears as described, blades and handles pivotally connected together, a cap rigidly attached to one of the blades, enlarged portions located between the blades and handles, one of the enlarged portions provided with a fixed pivot and the other enlarged portion provided with segmental slots, and the cap-screws extended through said segmental slots, substantially as and for the purpose specified.

2. In shears made as herein described one of the blades having two or more segmental slots, cap-screws passing therethrough and secured in the other blade, and a pivot secured in the other blade and operating in the central pivotal hole of the first-named blade.

3. The combination of shear-blades provided with handle portions, enlarged portions located between the shear and handle portions and fitted face to face one of the enlarged portions provided with a fixed pivot or bearing-point, and the other enlarged portion provided with segmental slots, a cap located upon the outer face of one of the enlarged portions, and cap-screws passed through the cap, and the segmental slots and connected to the enlarged portion provided with the fixed pivot, substantially as and for the purpose specified.

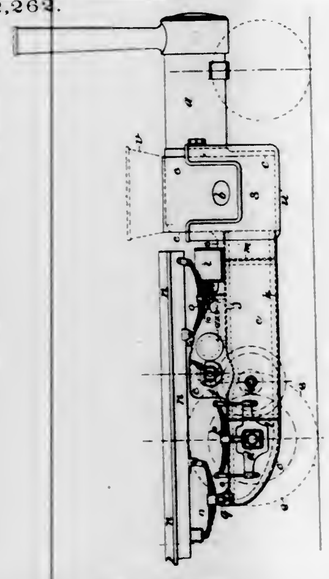
682,262. **STEAM-VEHICLE FOR COMMON ROADS.** JAMES H. MANN, Leeds, England. Filed Feb. 18, 1901. Serial No. 47,866. (No model.)

Claim.—1. In a steam wagon or vehicle for the conveyance of goods and passengers on common roads, the combination of a boiler *a* of the locomotive type having a firing-hole *b* in one of the sides of the fire-box, rearward extension of the fire-box-shell sides *c*, engine *i g*, bearings *d* for the axle of the road driving-wheels *e*, and vehicle-body *n*, said engine, bearings and vehicle-body carried by or secured to said rearward extension of the fire-box-shell sides substantially as set forth.

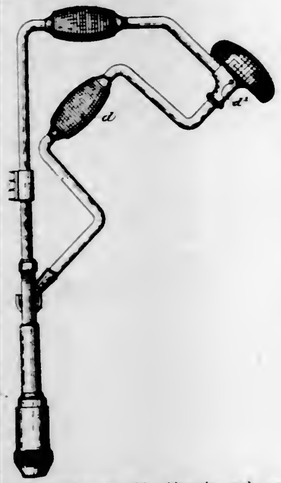
2. In a steam wagon or vehicle for the conveyance of goods or passengers on common roads the combination of a boiler *a* of the locomotive type having a firing-hole *b* in one of the sides of the fire-box, rearward extension of the fire-box-shell sides *c*, top and bottom and end cross-plates *j*, *k* and *l* and *m* forming a tank between said extension of the fire-box-shell sides *c*, engine *i g*, bearings *d f* and *h* for the axle of the road driving-wheels *e* for the engine-shaft *g* and for any intermediate shaft respectively all carried by or secured to said rearward extension of the fire-box-shell side plates *c* and vehicle-body *n* carried by said rearward extension *c* substantially as set forth.

3. In a steam wagon or vehicle for the conveyance of goods or passengers on common roads, the combination of a boiler *a* of the locomotive type with firing-hole *b* in one of the sides of the fire-box, a rearward extension of the fire-box-shell sides *c*, water-tank *j l k m*, engine *i g*, intermediate gear-shaft *h*, road wheel-axle bearings *d* carrying the said extension on springs *p* and vehicle-body *n* carried on said extension by springs *o*, said water-tank engine intermediate shaft and axle bearings all attached to or carried by said rearward extension of the fire-box-shell sides substantially as herein set forth and illustrated by the accompanying drawings.

682,262.



682,263. BIT-BRACE. CHARLES S. DU MONT, Buffalo, N. Y. Filed May 15, 1901. Serial No. 60,351. (No model.)

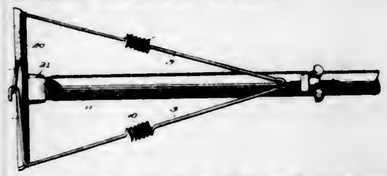


Claim.—1. The combination with a bit-socket, and a crank having its axis arranged at an angle to the bit-socket, of mechanism whereby the rotary motion of the crank is transmitted to the bit-socket, a head, a casting connecting the head to the crank, and an angular bow-frame having its upper end connected to the casting and its lower end connected to the bit-socket whereby the bit-socket and crank are retained in their relative positions, substantially as set forth.

2. The combination with a bit-socket, and a crank having its axis arranged at an angle to the bit-socket, of mechanism whereby the rotary motion of the crank is transmitted to the bit-socket, a head, a casting connecting the head to the crank, and an angular bow-frame having its upper end connected to the casting and its lower end connected to the bit-socket whereby the bit-socket and crank are retained in their relative positions, said angular bow-frame being provided with a handle, substantially as set forth.

3. The combination with a bit-socket, and a crank having its axis arranged at an angle to the bit-socket, of mechanism whereby the rotary motion of the crank is transmitted to the bit-socket, a head, a casting connecting the head to the crank, and an angular bow-frame having its upper end connected to the casting and its lower end connected to the bit-socket whereby the bit-socket and crank are retained in their relative positions, and a "crab" or support having gripping-prongs and mounted upon the angular bow-frame to steady the same and permit of the movement of said bow-frame through said "crab" or support, substantially as set forth.

682,264. BRUSH-HANDLE. CHARLES J. MCCORD, Grand Rapids, Minn., assignor of one-half to Martin M. Mullhall, Baltimore, Md. Filed Dec. 1, 1900. Serial No. 38,367. (No model.)



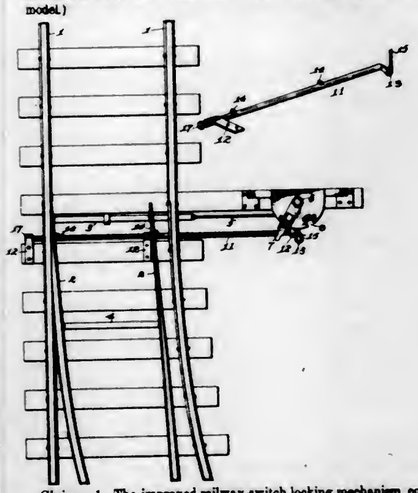
Claim.—1. The combination of a head provided with a socket, a handle having a transverse opening, a bail secured to said head having its sides formed with integral coils, a block having a pin formed with a threaded opening and extending through the transverse opening in the handle, a screw extending through said threaded opening and formed at its lower end with a hook engaging the bail, and a nut for adjusting said screw.

2. The combination with a head provided with a socket; of a bail detachably secured thereto, and formed with coils and having its ends bent inward under the head and formed with hooks; a handle fitting the socket; and means carried by the handle for securing and tensioning the bail.

3. The combination with a head of concavo-convex form in cross-section notched or recessed at its ends, and having a projecting socket; of a bail having its ends bent inward and formed with hooks, a handle fitting said socket; and means carried by said bail for securing and tensioning the bail.

4. The combination with a head of concavo-convex form in cross-section, notched or recessed at its ends and having a projecting socket, of a handle fitting said socket; a bail comprising a single piece of wire bent centrally to form diverging arms having integral coils and then bent inward to form arms which are provided with hooks at their ends; and means for securing the bail to the handle and tensioning said bail comprising a bracket projecting from the handle and formed with a threaded opening; a screw extending through said opening and provided with a hook at its lower end for engaging the bail; and a nut for adjusting said screw.

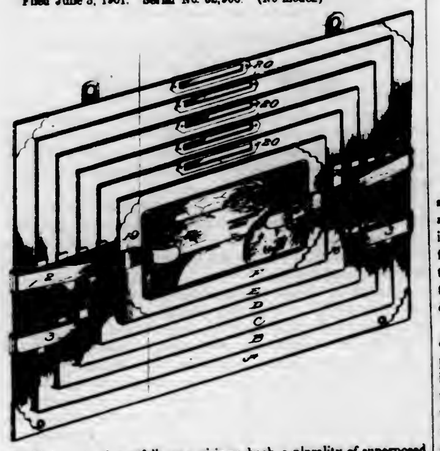
682,265. SAFETY-LOCK FOR RAILWAY-SWITCHES. JAY NOBLE, St. Louis, Mo. Filed Jan. 7, 1901. Serial No. 42,333. (No model.)



Claim.—1. The improved railway-switch locking mechanism, comprising the usual switch-stand, a vertically-movable switch-handle, the usual connections between the switch-stand and the movable switch-rails, a rocking lock-bar having locking-lugs projecting therefrom, bearings in which said bar is mounted to rock, and the connecting-rod 15 connecting the said lock-bar to the said switch-handle whereby when the latter is elevated and lowered, the said lock-bar will be moved axially in its bearings, for the purpose set forth.

2. In a railway-switch, the combination of the fixed rails, the switch-rails, a switch-stand, connections between said switch-stand and said movable rails whereby the same are thrown and held in position, the lock-bar 11 having lugs 14 projecting therefrom, bearings in which said lock-bar is mounted, a crank 13 on said lock-bar, a switch-handle, and a connecting-rod 15 connecting said crank to the said switch-handle, whereby the initial movement of said switch-handle will move said lock-bar and remove said lugs from the path of said movable switch-rails and further movement of said handle will move said switch-rails, and the final movement of said handle will cause said lugs to lock said rails against movement in the opposite direction, substantially as specified.

682,266. PORTFOLIO. JOHN A. PARKER, Bellefontaine, Ohio. Filed June 3, 1901. Serial No. 62,900. (No model.)



Claim.—1. A portfolio comprising a back, a plurality of superposed leaves, and independent closing-springs secured to the back and to the respective leaves, whereby opening one leaf does not relieve closing tension on the ones behind it.

2. A portfolio comprising a back and a series of superposed leaves, each hinged to the one beneath it and independent closing-springs secured to the back and each exerting closing tension on a plurality of the leaves.

3. A portfolio comprising a back, and a plurality of superposed leaves, each hinged to the one beneath it in a line above the edge of the latter, and a plurality of closing-springs extending from the back to the several leaves.

4. A portfolio, comprising a back, a series of superposed leaves of gradually-decreasing dimensions hinged each upon the one beneath it with the edge of each hinged leaf bearing above the edge of the one to which it is hinged, and independent closing-springs extending from the back to the leaves.

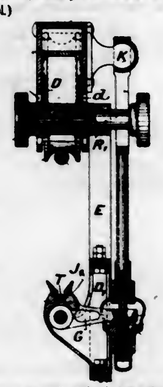
5. A portfolio comprising the back, the series of superposed leaves, each hinged to the one beneath it, and the hinges comprising the long flexible members 4 secured each at one end to one of two leaves to be hinged together, so as to leave the greater part of its length free, and the short members 8 each having pintle connection with the free end of a long member and secured to the other of the two leaves to be hinged together, whereby the leaves may remain parallel when separated.

6. In a portfolio, the combination of the superposed back and leaves having means for closing them together, the hinges comprising each a long flexible member secured at one end to one of said superposed parts, having the greater part of its length free, and the short member having pintle connection with the long member of the hinge and connected to the other superposed part to be hinged, the rods 7 and 11 secured to the respective parts that are hinged together, and the flexible apron 13 supported by said rods.

7. A portfolio comprising a suitable back, a series of superposed leaves, each hinged to the part beneath it, the closing-springs secured at one end to the back, and hooks and eyes securing the opposite ends of said springs to the respective leaves.

8. A portfolio comprising a suitable back, a series of superposed leaves each hinged to the one beneath it, the closing-springs all secured to the back and two to each of the leaves, and the adjusting-buckle attaching the two springs to the outer leaf.

682,267. GRIPPING DEVICE FOR SUSPENDED CABLE OR ROPE RAILWAYS. RUDOLF PFAFFENBACH, Leipsic, Germany, assignor to Adolf Bleichert & Co., same place. Filed May 11, 1901. Serial No. 59,906. (No model.)



Claim.—1. In an automatic gripping mechanism for the vehicles of suspended cable or rope railways such as described the combination with a hanger pivotally suspended from a block adapted to slide up and down in guides in the frame of the car, said hanger being provided with means for carrying the load, of a pair of jaws forming a grip one of which is attached to said hanger and the other of which is connected by a link to the stationary framework of the car, substantially as and for the purpose described.

2. In an automatic gripping mechanism for the vehicles of suspended cable or rope railways such as described the combination with a hanger pivotally suspended from a block sliding in substantially vertical guides in the frame of the car, said hanger being provided with means for carrying the load, of a pair of jaws forming a grip one of which is attached to said hanger and the other of which is connected by a link to the stationary framework of the car, said link being hinged at both ends by means of universal joints, substantially as and for the purpose described.

3. In an automatic gripping mechanism for the vehicles of suspended cable or rope railways such as described the combination with a substantially cylindrical block placed in corresponding bearings in the frame of the car and containing a second block adapted to slide freely up and down in guides diametrically arranged in said cylindrical block, of a hanger suspended from said sliding block and provided with means for carrying the load and of a pair of jaws forming a grip one of which is attached to said hanger and the other of which is connected by means of a link to the aforesaid cylindrical block, substantially as and for the purpose set forth.

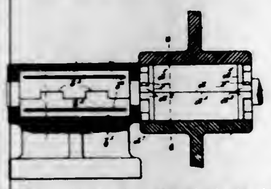
4. In an automatic gripping mechanism for the vehicles of suspended cable or rope railways such as described the combination with a substantially cylindrical block placed in corresponding bearings in the frame of the car and containing a second block adapted to slide freely up and down in guides diametrically arranged in said cylindrical block, of a hanger suspended from said sliding block and provided with means for carrying the load, of one of a pair of gripping-jaws fixedly attached to said hanger, of the second of said pair of jaws pivotally connected to the first and provided with a lever of suitable length and of a link connecting the free end of said lever with said cylindrical block, substantially as and for the purpose described.

5. In an automatic gripping mechanism for the vehicles of suspended cable or rope railways such as described the combination with a substantially cylindrical block placed in corresponding bearings in the frame of the car and containing a second block adapted to slide freely up and down in guides diametrically arranged in said cylindrical block, of a hanger suspended from said sliding block and provided with means for carrying the load, of one of a pair of gripping-jaws fixedly attached to said hanger, of the second of said pair of jaws pivotally connected to the first and provided with a lever of suitable length the free end of which is connected by a link with said cylindrical block and of means for adjusting the length of said link, substantially as and for the purpose set forth.

6. In an automatic gripping mechanism for the vehicles of suspended cable or rope railways such as described the combination with a substantially cylindrical block placed in corresponding bearings in the frame of

the car and containing a second block adapted to slide freely up and down in guides diametrically arranged in said cylindrical block, of a hanger suspended from said sliding block and provided with means for carrying the load and of a pair of jaws forming a grip one of which is attached to said hanger and the other of which is connected by means of a link to the aforementioned cylindrical block, the fixed jaw being placed in a bearing and the free end of the lever controlling the movable jaw being provided with a universal joint, substantially as and for the purpose set forth.

682,268. **SELF-LUBRICATING BEARING.** JOHN T. PHILLIPS, Lowell, Mass. Filed June 25, 1900. Serial No. 21,424. (No model.)



Claim.—1. The combination, in a self-lubricating bearing, of a shaft, a sleeve, surrounding said shaft and rigidly secured thereto, and provided in its ends with counterbores, and an outer sleeve, surrounding said inner sleeve and beyond the ends of said inner sleeve having a less internal diameter than said counterbores, to form with said counterbores annular oil-chambers.

2. The combination, in a self-lubricating bearing, of a shaft, a sleeve, surrounding said shaft and rigidly secured thereto, and provided in its ends with counterbores, and an outer sleeve, surrounding said inner sleeve and beyond the ends of said inner sleeve having a less internal diameter than said counterbores, to form with said counterbores annular oil-chambers, said inner sleeve having oil-passages which connect said oil-chambers with each other and with the outer carved surface of said inner sleeve.

3. The combination, in a self-lubricating bearing, of a shaft, a sleeve, surrounding said shaft and rigidly secured thereto, and provided in its ends with counterbores, and an outer sleeve surrounding said inner sleeve and beyond the ends of said inner sleeve having a less internal diameter than said counterbores, to form with said counterbores annular oil-chambers, and said inner sleeve having two longitudinal halves, each of said halves being provided at one of its meeting edges with one or more tongues or projections and at its other meeting edge with one or more grooves, the tongues and grooves respectively of each half being adapted to enter and to receive the grooves and tongues of the other half.

682,269. **SYRINGE ATTACHMENT.** JAMES G. POE, Dallas, Tex. Filed Oct. 25, 1900. Serial No. 34,342. (No model.)



Claim.—A clip for use with a syringe-tube and a liquid-holding receptacle having an arched form and provided with legs, one leg being longer than the other and continued into an oblique tongue toward the other leg to hold it in applied position, both legs being formed with inwardly-converged separable resilient wings to receive and hold a portion of the tube.

682,270. **ABDOMINAL SUPPORTER.** FANNY PORTUGAL HIRSCHBERG, Chicago, Ill. Filed Nov. 15, 1900. Serial No. 36,599. (No model.)

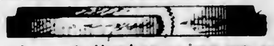


Claim.—1. A supporter of the character described, comprising comparatively narrow front and back sections segmentally curved to extend across the abdomen below the point of greatest expansion and across the back immediately below the waist-line, and adapted to curve over and rest upon the hip-bones, the front section being cut on the bias of the material and provided with diagonal reinforcing-strips extending in reverse directions from the center, and the back section having a central interposed elastic gore, fastening means for uniting the sections, and hip-straps, substantially as described.

2. A supporter of the character described, comprising a supporting-band composed of segmentally-curved front and back sections, the front section being adapted to bear upon the lower portion of the abdomen, elastic connections between said sections, an elastic substantially V-shaped obesity-band connected centrally to and adapted to lie upon the outer surface of said front section and to exert an independent supporting pressure at a higher point on the abdomen, and inelastic connections between the bands, substantially as described.

3. An abdominal supporter and obesity-band, comprising a segmentally-curved back supporting-section having a central elastic gore, a similarly-curved front supporting-section adapted to exert an upward supporting pressure on the lower portion of the abdomen, elastic straps for connecting said sections, a substantially V-shaped elastic obesity-band connected centrally to said front supporting-section and adapted to bear at a higher point upon the abdomen, and straps connected to said rear supporting-section for securing the ends of the obesity-band thereto, said straps being arranged at an upward diagonal angle to hold the obesity-band properly supported, substantially as set forth.

682,271. **EMBROIDERY-HOOP.** JOHN H. POST, Andover, Conn. Filed Aug. 29, 1900. Serial No. 28,443. (No model.)



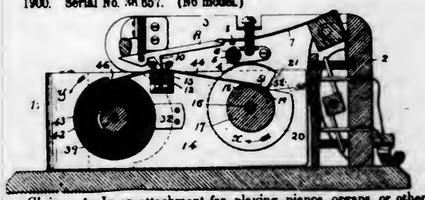
Claim.—1. In an embroidery-hoop, an inner wide section and an outer narrow section arranged to clamp fabrics of different thicknesses and locate the narrow section within the limits between the surface of the fabric on one edge of the wide section and the opposite edge of said section.

2. In an embroidery-hoop, an outer narrow section and an inner wider section, one of said sections having a portion of its holding-face formed at an angle with the holding-face of the opposite section and the remainder of its holding-face formed in the same plane as that of the holding-face of the opposite section.

3. An embroidery-hoop composed of an outer narrow and an inner wide section one fitting closely within the other, the holding-face of one section having for a part of its width a surface beveled with reference to the holding-face of the opposing section and the rest of its holding-face formed in the same plane as the holding-face of the opposite section, whereby a space of varying width between the sections is formed.

4. In an embroidery-hoop, an inner wide section and a narrow outer section, one of said sections having its holding-face beveled with reference to the plane of the holding-face of the opposite section, said sections being arranged to clamp fabrics of different thicknesses and maintain the outer section within the limits between the surface of the fabric on one edge of the wide section and the opposite edge of said section.

682,272. **CASE FOR PERFORATED MUSIC-SHEETS FOR MUSICAL INSTRUMENTS.** TIMOTHY B. POWERS, New York, N. Y., assignor to the Magnetic Piano Company, of New Jersey. Filed Nov. 16, 1900. Serial No. 36,657. (No model.)



Claim.—1. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, and means rotatably arranged in said shell or casing, of a perforated music sheet or roll on said means, said music-sheet having its forward end projecting from the longitudinal opening or slot in said shell or casing, and means at the forward end of said music-sheet, adapted to be brought in holding engagement with a portion or portions of said shell or casing, substantially as and for the purposes set forth.

2. In an attachment for playing pianos, organs, or other musical instruments, the combination with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, and a stem or spindle in said shell or casing having its ends rotatively arranged in the perforations of said end pieces or caps, of a perforated music-sheet within said shell or casing, having its inner end secured to said stem or spindle, and having its forward end projecting from the longitudinal opening or slot in said shell or casing, and means at the forward end of said music-

sheet, adapted to be brought in holding engagement with a portion or portions of said shell or casing, substantially as and for the purposes set forth.

3. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, and a stem or spindle in said shell or casing having its ends rotatively arranged in the perforations of said end pieces or caps, of a perforated music-sheet within said shell or casing, having its inner end secured to said stem or spindle, and having its forward end projecting from the longitudinal opening or slot in said shell or casing, and means at the forward end of said music-sheet, consisting, of a rod or bar around which the said end of the music-sheet is secured, and projecting ends to said rod or bar adapted to be brought in holding engagement with portions of said shell or casing, substantially as and for the purposes set forth.

4. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, and a stem or spindle in said shell or casing having its ends rotatively arranged in the perforations of said end pieces or caps, of a perforated music-sheet within said shell or casing, having its inner end secured to said stem or spindle, and having its forward end projecting from the longitudinal opening or slot in said shell or casing, and means at the forward end of said music-sheet, consisting, of a rod or bar around which the said end of the music-sheet is secured, projecting ends on said rod or bar adapted to be brought in holding engagement with portions of said shell or casing, and a loop or finger-piece on said rod or bar, substantially as and for the purposes set forth.

5. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, a stem or spindle in said shell or casing having its ends rotatively arranged in the perforations of said end pieces or caps, and a cylindrical body on said stem, of a perforated music-sheet within said shell or casing reeled upon said cylindrical body, the inner end of said music-sheet being fixed to said cylindrical body, and said music-sheet having its forward end projecting from the longitudinal opening or slot in the shell or casing, and means at the forward end of said music-sheet, adapted to be brought in holding engagement with a portion or portions of said shell or casing, substantially as and for the purposes set forth.

6. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, a stem or spindle in said shell or casing having its ends rotatively arranged in the perforations of said end pieces or caps, and a cylindrical body on said stem, of a perforated music-sheet within said shell or casing reeled upon said cylindrical body, the inner end of said music-sheet being fixed to said cylindrical body, and said music-sheet having its forward end projecting from the longitudinal opening or slot in the shell or casing, and means at the forward end of said music-sheet, consisting, of a rod or bar around which the said end of the music-sheet is secured, and projecting ends to said rod or bar adapted to be brought in holding engagement with portions of said shell or casing, substantially as and for the purposes set forth.

7. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a shell or casing, provided with a longitudinal opening or slot, perforated end pieces or caps, a stem or spindle in said shell or casing having its ends rotatively arranged in the perforations of said end pieces or caps, and a cylindrical body on said stem, of a perforated music-sheet within said shell or casing reeled upon said cylindrical body, the inner end of said music-sheet being fixed to said cylindrical body, and said music-sheet having its forward end projecting from the longitudinal opening or slot in the shell or casing, and means at the forward end of said music-sheet, consisting, of a rod or bar around which the said end of the music-sheet is secured, projecting ends to said rod or bar adapted to be brought in holding engagement with portions of said shell or casing, and a loop or finger-piece on said bar or rod, substantially as and for the purposes set forth.

8. The combination, with a pair of bearings having receiving-sockets, and one of said bearings having a slot or opening, of a shell or casing, provided with a longitudinal opening, and end pieces or caps, a central roller in said shell or casing, a music-sheet on said roller, and a stud or projection on one of said end pieces or caps extending into said slot or opening in one of said bearings, substantially as and for the purposes set forth.

9. The combination, with a pair of bearings having receiving-sockets, and one of said bearings having a slot or opening, of a shell or casing, provided with a longitudinal opening, and perforated end pieces or caps, a cylindrical body in said shell or casing, provided with means for rotatively arranging said cylindrical body in the perforated end pieces or caps, a music-sheet within said shell or casing, and a stud or projection on one of said end pieces or caps, extending into said slot or opening in one of said bearings, substantially as and for the purposes set forth.

10. The combination, with a receiving-roll, having flanges at its ends and slots or cut-away portions in said flanges, and said roll having a longitudinal groove 18, and an enlarged depression 19, of a music-sheet adapted to be reeled upon said roll, and means at one end of said music-sheet for attaching said sheet to said roll, consisting, essentially, of a rod or bar around which the said end of said sheet is secured, said rod and end of the sheet being arranged in said groove 18, a loop or finger-piece on said rod or bar adapted to be arranged in said depression 19, and projecting ends on said rod or bar adapted to be removably arranged in the slotted or cut-away portions in the flanges of said receiving-roll, substantially as and for the purposes set forth.

11. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a tubular shell or casing, and a cylindrical body in said shell or casing, having a longitudinal groove or slot, of a perforated music-sheet in said shell or casing, and a stem or rod 43 around which one end of said music-sheet is secured, said stem or rod 43 being arranged in the groove or slot of said cylindrical body, substantially as and for the purposes set forth.

12. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a tubular shell or casing, and a cylindrical body in said shell or casing, having a longitudinal groove or slot, of a perforated music-sheet in said shell or casing, a stem or rod 43 around which one end of said music-sheet is secured, said stem or rod 43 being arranged in the groove or slot in said cylindrical body, and a rod or bar around which the forward end of the music-sheet is secured, and projecting ends to said rod or bar adapted to be brought in holding engagement with portions of said shell or casing, substantially as and for the purposes set forth.

13. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a tubular shell or casing, and a cylindrical body in said shell or casing, having a longitudinal groove or slot, of a perforated music-sheet in said shell or casing, a stem or rod 43 around which one end of said music-sheet is secured, said stem or rod 43 being arranged in the groove or slot in said cylindrical body, a rod or bar around which the forward end of the music-sheet is secured, projecting ends to said rod or bar adapted to be brought in holding engagement with portions of said shell or casing, and a loop or finger-piece on said rod or bar, substantially as and for the purposes set forth.

14. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a carriage, and contact-making fingers, of bearings in said carriage, one of said bearings having a slot 27, a roller detachably arranged in said bearings, a shell or casing on said roller, having recesses 52, and a stud 50 extending into said slot 27, a perforated music-sheet on said roller, said shell or casing surrounding said sheet, and projections 52 on said music-sheet, arranged to engage said recesses in said shell or casing and cause the turning of said bearing provided with the slot 27, substantially as and for the purposes set forth.

15. In an attachment for playing pianos, organs, or other musical instruments, the combination, with a carriage, and contact-making fingers, of bearings in said carriage, one of said bearings having a slot 27, a roller detachably arranged in said bearings, a shell or casing on said roller, having recesses 52, and a stud 50 extending into said slot 27, a perforated music-sheet on said roller, said shell or casing surrounding said sheet, projections 52 on said music-sheet, arranged to engage said recesses in said shell or casing and cause the turning of the said bearing provided with the slot 27, a holding-catch for holding or retaining said carriage in its held and operative position, and means connected with said bearing provided with said slot 27 for releasing said catch, substantially as and for the purposes set forth.

682,278. **CAR-TRUCK.** WILLIAM R. PRINDLE, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Oct. 24, 1900. Serial No. 34,162. (No model.)

Claim.—1. In a car-truck, a pedestal-casting having a vertical recess in its under side to form a seat for an axle or journal-box, a longitudinal recess at its top portion forming a seat for a car-body-supporting spring, upwardly-extending spring-seating pockets at each side of its vertical recess, and longitudinal extensions both within and without the wheel-base.

2. In a car-truck, the combination with the extended side pieces having journal-box seats, the extended sill-pieces, the elliptic springs seated between the extended ends of said side and sill pieces without the wheel-base, and the semi-elliptic springs having a center bearing on the side pieces over the journal-box guides, and their ends flexibly connected to the sill-pieces.

3. In a car-truck, the combination of the pedestal-pieces having longitudinal extensions both within and without the whole base, the upper extended sill-pieces, the elliptic springs seated between the extensions of

the sill-pieces and the outer extensions of the pedestal-pieces, and the semi-elliptic springs having center bearings on said pedestal-pieces and end bearings on said sill-pieces.



4. In a car-truck, the combination with the extended side pieces having journal-box seats, the extended sill-pieces, the elliptic springs seated between the extended ends of said side and sill pieces without the wheel-base, and semi-elliptic springs having a center bearing on the side pieces over the journal-box seats and end bearings on said sill-pieces, together with journal-box springs connected to the said side pieces and having bearings on supports carried by the journal-boxes.

5. In a car-truck, the combination with side frames having seats for journal-boxes, journal-boxes seated therein, spring bearing-pieces underneath the said boxes, guide-straps embracing the said boxes, and springs seated between said pieces and bearings on the frame, and bolts extending through said springs and connecting the straps to said bearing-pieces and also supporting the bearing-pieces from the frames.

6. In a car-truck, the combination with side frames having seats for journal-boxes, journal-boxes seated therein, the parallel guide-straps seated over said boxes, the spring-supports underneath said boxes, and formed with seats for the lower portions of said straps, the springs seated in pockets in the side frames and upon said supports, and bolts which detachably connect said supports to the side frames.

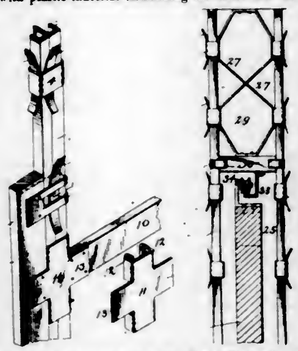
7. In a car-truck, the combination with the side frames having seats for the journal-boxes, and a spring-pocket at the sides of said seats, of the U-shaped guide-straps embracing the axle-box at both the inside and outside of the side frames, and having their lower portions bent horizontally, the spring-supports under the axle-boxes having seats for the horizontal portions of said straps, the springs seated in said pockets and upon said supports, and bolts detachably connecting said supports to the frame.

8. In a car-truck, the combination with spring-supports extending underneath the axle-boxes, the springs seated on said supports and in pockets of the truck-frame, bolts extending up through the end portions of said supports and through the springs and pockets, nuts on the lower ends of said bolts, and detachable laterally-movable fastenings which secure the upper ends of said bolts to the frame.

682,274. **FIREPROOF PARTITION FOR BUILDINGS.** SAMUEL R RABBITT, Washington, D. C. Filed June 20, 1901. Serial No. 65,308. (No model.)

Claim.—1. A partition consisting of metallic studs extending from a floor to a ceiling provided with base-boards between and secured to the studs by clips, and metallic lathing secured to the studs; in combination with plastic material embedding the studs and the lathing.

2. A partition consisting of metallic studs, a door-frame having a member secured to a stud by clips engaging the stud and embracing the sides of said member, and metallic lathing secured to the studs; in combination with plastic material embedding the studs and the lathing.



3. A double partition consisting of metallic studs, vertical and lateral zigzag or crossed metallic braces between the studs of the two partitions and secured thereto by clips, and metallic lathing secured to the studs; in combination with plastic material embedding the studs and the lathing.

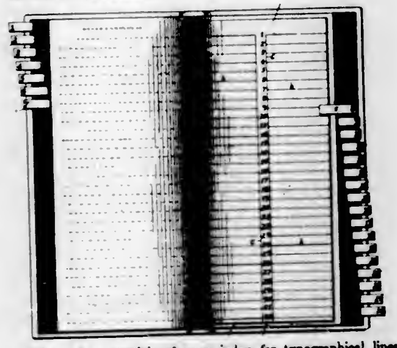
4. A double partition consisting of metallic studs, vertical and lateral metallic braces between the studs of the two partitions and secured thereto, a track-rail support engaged by one end of said braces, metallic lathing secured to the studs, and plastic material embedding the studs and the lathing.

5. A double partition consisting of studs, a track-rail support between the studs, braces secured at one end to the ceiling above and at the opposite end to said track-rail support and secured to the studs intermediate its ends, lathing secured to the studs, and plastic material embedding the studs and the lathing.

6. A clip for securing metallic lathing, consisting of a body-piece having flanges to engage a metallic stud, and a separate strap engaging the body.

7. A clip for securing metallic lathing, consisting of a body-piece having flanges to engage a metallic stud, parts extending beyond the stud to engage another member of the partition, and a separate strap engaging the body for securing lathing to the stud.

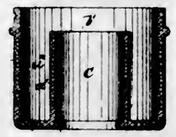
682,275. **COMBINED INDEX AND REFERENCE-INDICATOR.** WILLIAM R. RATHVON, Florence, Colo. Filed June 28, 1900. Serial No. 21,910. (No model.)



Claim.—A sequential reference-index for typographical lines in books, said index comprising the combination of a series of pieces of paper or cardboard less in size than the book-leaves, and each having marks numbered consecutively to indicate a sequential line of a specific book-page and each having a numbered part in a position out of alinement with all other like parts of the remaining pieces, and which projects during use beyond the edge of the book, both sides of the device being identical in construction and markings, substantially as specified.

682,276. **PASTE POT OR JAR.** FREEBORN F. RAYMOND, 2d, Newton, Mass., assignor to Carter's Ink Company, Boston, Mass. Filed May 4, 1901. Serial No. 58,738. (No model.)

Claim.—1. A paste pot or jar having an outer receptacle containing a chamber open at its top and a cavity extending through its bottom, with a removable vessel held in said cavity, the top and bottom of which are both accessible while in the outer receptacle.



2. A paste pot or jar comprising a receptacle having an outer wall, an inner wall shorter than the outer wall, a bottom connecting the two walls, the inner and outer walls forming a chamber open at its top and also forming a bottomless cavity, with an independent vessel contained in said cavity and adapted to be removed from it.

682,277. **SAW-CLAMP.** JAMES V. RISK, Monroe, La. Filed Dec. 17, 1900. Serial No. 40,213. (No model.)



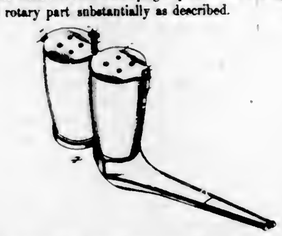
Claim.—1. A clamp, comprising opposite fixed and movable members, having corresponding heads, each of which has a socket or opening in its inner face and grooves radiating from the socket, opposite jaws, each of which has a laterally-projecting pivot-pin mounted in the socket of the adjacent head, and radial ribs corresponding to the radial grooves, and means for moving the movable member toward the fixed member to clamp the jaws together.

2. A clamp, comprising a body having opposite fixed members, of which one is bifurcated, a fixed jaw carried by the other member, a rocking stem mounted in the bifurcation of the one member, and carrying a jaw coöperating with the fixed jaw, the outer face of the stem having a longitudinal groove, a cam clamping-lever having its cam-head received within the groove of the stem and frictionally bearing against the back of the groove, and a pivot-pin passing transversely through the sides of the bifurcated member the stem and the cam-head, the side walls of the groove in the stem having corresponding transverse slots receiving the pivot-pin, whereby the single pivot-pin forms a guide for the free swinging end of the stem and a pivotal support for the cam clamping-lever.

3. A saw-clamp, comprising a substantially V-shaped body having its outer member bifurcated, a bench-clamp at the lower end of the body, a relatively-fixed jaw rotatably mounted upon the inner body member and constructed to swing down into the space between the two body members, the opposing faces of the jaw and the body having interlocked engagements at the opposite positions of the jaw, a rocking stem pivotally supported at its lower end within the bifurcation of the outer member, and provided in its outer face with a longitudinal groove, the upper end portions of its side walls having corresponding transverse slots, a clamping-lever located within the groove, and having its upper end provided with a cam-head, a pivot-pin passing through the opposite sides of the bifurcated member, the slots of the stem and eccentrically through the cam-head, the latter working against the back of the groove in the stem, and a jaw rotatably mounted upon the upper inner end of the stem, constructed to swing downwardly into the space between the two body members, and having opposite interlocked engagements with the stem.

682,278. **TOBACCO-PIPE.** GEORGE W. ROLLER, Mundell, Ark. Filed May 18, 1901. Serial No. 60,901. (No model.)

Claim.—1. A tobacco-pipe comprising a stem and a part mounted to turn about an axis arranged at an angle to the said stem, said part having chambers or compartments in its top side arranged to have their outlets successively alined with the bore of the stem and constituting individual bowls which maintain an upright position at all stages of rotation of the said rotary part substantially as described.



2. A tobacco-pipe comprising a stem having a chambered end and an offstanding rest having a recessed seat, and a part rotatably fitted to the stem and formed with compartments or chambers constituting bowls and having their lower ends shaped to fit the said seat and chambered end of the stem, substantially as specified.

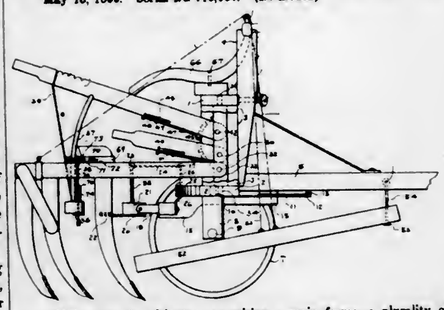
3. In a tobacco-pipe, a stem provided with a chambered end and an offstanding rest having a seat, and a movable duplex bowl having pendent portions shaped to snugly fit the seat in said rest and chambered end of the stem, substantially as specified.

4. In a tobacco-pipe, a stem, a rod projected from the stem and constituting an axis, and a part rotatable upon the rod and formed with a series of compartments or chambers constituting bowls, any one of which is adapted to be operatively fitted to the stem, and a spring applied to the said rod and normally exerting a pressure upon the said rotatable part to hold it in place when adjusted, substantially as set forth.

5. In a tobacco-pipe, a stem having a chambered end and an offstanding rest, a multiple bowl mounted upon the stem and rest for rotation, a rod secured to the stem and constituting an axis for the bowl to turn about, and a cover mounted upon the said rod, substantially as set forth.

6. In a tobacco-pipe, a duplex bowl having a stop at one end and a catch at the opposite end, and a perforate cover for the members of the bowl, having a stop projection at one end and a finger and catch projection at the opposite end, substantially as set forth.

682,279. **CULTIVATOR.** WILHELM ROTH, Columbus, Nebr. Filed May 13, 1899. Serial No. 716,667. (No model.)



Claim.—1. A cultivator comprising a main frame, a plurality of cultivator-beams carrying teeth and independently movable on horizontal axes on said frame and having a lateral movement on said frame, and means for raising any of said beams on said axes independently of the others.

2. A cultivator comprising a main frame, four or more cultivator-beams carrying teeth and independently movable on horizontal axes on said frame and having a lateral movement on said frame, and means for simultaneously raising the outer beams on said axes independently of the inner beams.

3. A cultivator comprising a main frame, four or more cultivator-beams carrying teeth and independently movable on horizontal axes on said frame and having a lateral movement on said frame, and means for simultaneously raising the outer beams on said axes independently of the inner beams, or raising either of said outer beams independently of the other.

4. A cultivator comprising a main frame, a plurality of cultivator-beams carrying teeth and independently movable on horizontal axes on

said frame and having a lateral movement on said frame, means for raising any of said beams on said axes independently of the others, a cross-piece located under said beams whereby their downward movement is limited, vertically-disposed rods or arms slidingly engaging said beams and cross-piece.

5. A cultivator comprising a main frame, a plurality of cultivator-beams carrying teeth and independently movable on horizontal axes on said frame and having a lateral movement on said frame, means for raising any of said beams on said axes independently of the others, a cross-piece located under said beams whereby their downward movement is limited, vertically-disposed rods or arms slidingly engaging said beams and cross-piece, a seat-support loosely mounted on all of said beams and having slots for slidingly engaging two of said rods.

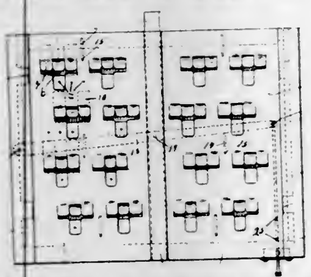
6. A cultivator comprising a main frame, a plurality of cultivator-beams carrying teeth and independently movable on horizontal axes on said frame and having a lateral movement on said frame, means for raising any of said beams on said axes independently of the others, a cross-piece located under said beams whereby their downward movement is limited, vertically-disposed rods or arms slidingly engaging said beams and cross-piece, a seat-support loosely mounted on all of said beams and having slots for slidingly engaging two of said rods, and means for adjusting said cross-piece to increase or diminish the distance between the beams independent of their vertical movement.

682,280. **BROOM FOR STREET-SWEEPING OR OTHER ROUGH SWEEPING.** ANDREW SCHAEFER, Louisville, Ky. Filed Apr. 19, 1901. Serial No. 56,345. (No model.)



Claim.—A broom, comprehending two separated side braces having laterally-extending lower ends which project toward but not into contact with each other, bent bristles located between said side braces, a longitudinal bar located between the sides of the bristles and serving to force and hold the closed ends of the bent bristles upon said laterally-extending ends of the side braces and also to hold said bristles against the inner surfaces of said side braces, and transverse bolts for securing the parts together.

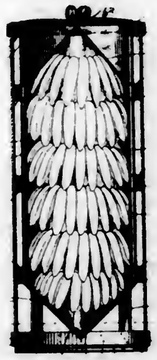
682,281. **ADJUSTABLE SCREEN FOR GRAIN OR SEEDS.** MATHIAS SCHILL, Farmhill, and JOHN A. HEINTZ, Menomonie, Wis. Filed Mar. 19, 1900. Serial No. 9,176. (No model.)



Claim.—1. In a screen of the class described, the combination, with the frame, of two screen-plates supported thereby and arranged one above the other, the plates being formed with registering apertures, lips projecting upwardly from one side of each of the apertures in the upper plate, lips arranged along the corresponding side of each of the apertures in the lower plate and projecting upwardly between the lips upon the upper plate, and means for adjusting said plates to carry the lips upon one plate out of alinement with the lips upon the other plate.

2. In a screen of the class described, the combination with a frame, of two plates slidably arranged one above the other, the upper plate being formed with apertures each consisting of a transverse slot having a central forward extension, and the lower plate being formed with apertures registering with the apertures in the upper plate, lips projecting upwardly from the ends of the rear side of the transverse slots in the upper plate, and lips projecting upwardly from the lower plate between the lips upon the upper plate, the lips upon the lower plate being of less width than the forwardly-extending part of the apertures in the upper plate.

682,282. **BANANA-SHIPPING CASE.** FRANK SCHMITZ, Chicago, Ill. Filed Jan. 14, 1901. Serial No. 43,201. (No model.)



Claim.—1. In a banana-shipping case, the combination with a suitable bag hung therein, of an outer supporting-crate composed of longitudinal slats and intersecting hoops, said crate having a trussed end composed of an inner hoop within the slats and an outer hoop opposite the same and without the slats, said inner and outer hoops being secured together by suitable means through the slats and also drawn together and fastened to each other between the same; substantially as described.

2. In a banana-shipping case, the combination with a suitable supporting-crate and a flexible bag hung therein, and out of contact therewith, of an inner bag fitted to the outer bag and open along one side so that the bananas may be laid in said inner bag through said lateral opening; substantially as described.

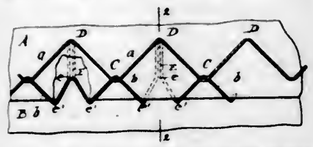
3. The combination in a banana-shipping case, with an outer supporting-crate, and a flexible bag hung within the same and out of contact therewith, of an inner bag approximately fitted in the outer bag and having a longitudinal opening along one side and a sliding cap fitted to slide within the case, and of suitable shape to center the banana-stem; substantially as described.

4. In a banana-shipping case, the combination with an outer supporting-crate and a flexible bag hung within the same, of a flexible cap fitted to slide down into the bag and center the bananas therein; substantially as described.

5. In a banana-shipping case, the combination with a supporting-crate and a flexible bag hung within the same, of a cone-shaped cap fitted to slide down in the crate and center the bananas; substantially as described.

6. In a banana-shipping case, the combination with an outer supporting-crate and a bag hung within the same and out of contact therewith, of an inner loose bag open along one side and having a conical bottom and a conical cap fitted to slide down inside of the bag and center the banana-stem; substantially as described.

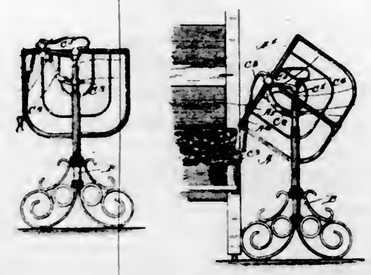
682,283. **SEAM FOR SEWED ARTICLES.** CARL SCHNEIDER, Brooklyn, N. Y., assignor to William D. Elger, same place. Filed Feb. 18, 1896. Serial No. 670,751. (No model.)



Claim.—1. The combination with two layers of material, of the two threads *a* and *b* uniting them, the thread *a* forming a zigzag line on the face of the upper layer and the thread *b* forming a blind stitch in the lower layer and being interlooped with the thread *a* alternately on the upper surface of the upper layer and between the two layers, substantially as herein shown and described.

2. The combination with two layers of material, of two threads *a* and *b* uniting the two layers, the thread *a* forming a zigzag line on the upper surface of the upper layer and the thread *b* forming a blind stitch in the lower layer and being interlooped with the thread *a* alternately above and below the upper layer and the thread *a* forming a blind stitch in the upper layer, substantially as herein shown and described.

682,284. **CHILD'S CRADLE.** POUL F. SCHRODER, Chicago, Ill. Filed Feb. 3, 1900. Serial No. 3,801. (No model.)



Claim.—1. In a child's cradle, in combination, a body portion; bearing-studs therefor; a support for the body portion; an arm of irregular form for holding said body portion in a tilted position; and two projections extending from the body portion adapted to engage said arm on opposite sides thereof.

2. In a child's cradle, in combination, a body portion; bearing-studs therefor; a support for the body portion, which support has two depressions for receiving each of said bearing-studs; an arm for holding the body portion in a tilted position; and two bearing-arms extending from the body portion to engage said first-mentioned arm.

3. In a child's cradle, in combination, a body portion; bearing-studs therefor; a support for the body portion, which support has two depressions for receiving each of said bearing-studs; an arm for holding the body portion in a tilted position; a clip on said arm for engaging the side rail of a bedstead; and two bearing-arms extending from the body portion to engage said first-mentioned arm.

4. In a child's cradle, in combination, a body portion; a bearing-stud at each end thereof; a support for the body portion, which support has two depressions for receiving each of said bearing-studs; means for adjusting the height of said support; an arm for holding the body portion in a tilted position; and two bearing-arms extending from the body portion, adapted to engage said first-mentioned arm.

5. In a child's cradle, in combination, a body portion; a bearing-stud at each end thereof; a support for the body portion, which support has two depressions for receiving each of said bearing-studs; means for adjusting the height of said support; an arm at each end of said support, for holding the body portion in a tilted position; and two bearing-arms extending from each end of the body portion, adapted to engage said first-mentioned arm.

6. In a child's cradle, in combination, a body portion; bearing-studs therefor; a support for the body portion; an arm for holding said body portion in a tilted position, which arm has an offset portion; and two bearing-arms extending from the body portion, adapted to engage said first-mentioned arm.

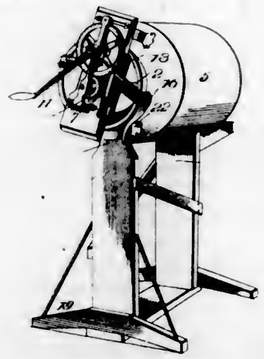
7. In a child's cradle, in combination, a body portion; a bearing-stud at each end thereof; a support for the body portion, which support has an adjustable extension, and is provided with two depressions for receiving each of said bearing-studs; an arm at each end of said support, for holding the body portion in a tilted position, and for holding the cradle in position relative to the side rail of a bedstead; a clip on each of said arms, for engaging a portion of the bedstead, each of which arms has an offset; and two bearing-arms extending from each end of the body portion, adapted to engage said first-mentioned arm.

8. In a child's cradle, in combination, a body portion; bearing-studs therefor; a support for the body portion; an arm for holding said body portion in a tilted position; a locking-latch for holding the body portion in an upright position; and two bearing-arms extending from the body portion, adapted to engage said first-mentioned arm.

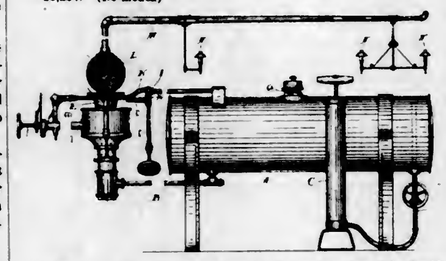
682,285. **CAN-WASHER.** LEONARD T. SEATON, Plano, Ill. Filed Apr. 17, 1901. Serial No. 56,288. (No model.)

Claim.—In apparatus for washing cans and analogous receptacles, a plate provided with driving mechanism, a cleaner supported by the plate and attached to an element of the driving mechanism, a bar attached to the plate and extended from opposite sides thereof and having a hook at one end, a cam-lever at the opposite end of the bar, and a block attached to the lower side of the plate and having its ends rounded and beveled to fit snugly within the flaring mouth of the can or receptacle, substantially as set forth.

682,285.



682,286. **VAPOR GENERATOR AND BURNER.** FRANK B. SHAFER, Howell, Mich., assignor to Adoniram Judson Prindle, Edward A. Bowman, and Benjamin R. Lane, same place, Nelson J. McColough, Ithaca, and Virgil L. Stark, Byron, Mich. Filed July 30, 1900. Serial No. 25,237. (No model.)



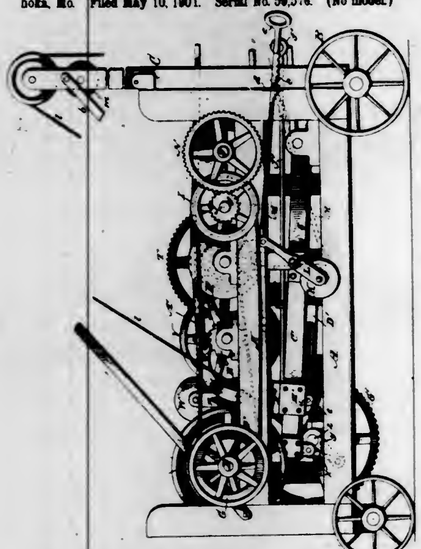
Claim.—1. In a gas-vapor generator, the combination of the liquid hydrocarbon-supply tank, provided with means for supplying it with air under pressure, the vapor-generator, comprising a retort in constant communication with the air-space of the supply-tank, and a vertical tubular stem filled with an absorbent material and in constant communication with the liquid in the tank, a burner upon the stem below the retort formed with a closed outer vapor-heating chamber into which vapor derived from the retort and mixed with air is admitted under control of a valve, and with an inner combustion-chamber having air-admission ports in its bottom and communicating with the outer chamber through a perforated partition having means for restricting the number of its openings, a valve-controlled pipe leading from the air-space of the tank and terminating in a burner-tip opposite the side of the retort in heating relation thereto, an air-heating chamber mounted upon the retort and provided with screened air-admission openings, a valve-controlled vapor-discharge pipe from the retort into the bottom of said air-heating chamber and terminating in an upwardly-directed jet-orifice, an air-mixing tube vertically opposite the jet-orifice, and a distribution-pipe rising from said mixing-tube to a series of distant incandescent vapor-burners.

2. In a system of incandescent lighting by means of hydrocarbon vapor, the combination with a series of incandescent hydrocarbon-burners and a service-pipe for supplying the same with vapor from a common source, of a hydrocarbon-vapor generator at the receiving end of the service-pipe formed with a retort on top and a depending oil-tube filled with an absorbent material, a generator-burner upon said oil-tube below the retort, two independent vapor-discharge pipes from the retort each terminating in a valve-controlled jet-nozzle, one adapted to supply the generator-burner and the other adapted to supply the service-pipe with vapor for the incandescent burners, an oil-supply tank on a level with the generator, a pipe connecting the bottom of the tank with the oil-tube of the generator, a pipe connecting the top of the tank above the level of the oil with the retort, means for supplying the space of the tank above the oil with carbureted air under pressure and an independent jet-burner communicating with said space and directing its flame horizontally against the generator above the generator-burner.

3. In a system of incandescent lighting by means of hydrocarbon vapor, the combination with a series of incandescent hydrocarbon-burners and a service-pipe for supplying the same with vapor from a common

source and having its receiving end formed by an open-ended riser-pipe, of a hydrocarbon-vapor generator below the riser-pipe comprising an oil-tube filled with an absorbent material, a generator-burner upon the oil-tube and a retort on top of the oil-tube, a vapor-discharge pipe from the retort terminating in an upwardly-directed jet-nozzle below the open end of the riser-pipe, a second vapor-discharge pipe from the retort for supplying the generator-burner, an oil-supply tank on a level with the generator, means for supplying the space in the tank above the oil with a supply of carbureted air under pressure, an oil-supply pipe connecting the bottom of the tank with the oil-tube of the generator, an equalizing-pipe connecting the retort of the generator with the space in the tank above the oil and a jet-burner communicating directly with said equalizing-pipe, said jet-burner above the generator-burner and adapted to initially heat the upper portion of the generator.

682,287. WELL-DRILLING MACHINE. JAMES F. SIMON, Kahoka, Mo. Filed May 10, 1901. Serial No. 59,576. (No model.)



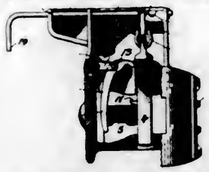
Claim.—1. In a well-drilling machine, a walking-beam having a slotted guide upon its under side, a sleeve slidable upon the beam and provided with clamping-ears and clamping-screw for holding the sleeve in its adjusted position, said clamping-screw passing through the slot of the guide on the beam, and a suitable pulley carried by the sleeve for the drill rope or cable, substantially as and for the purpose described.

2. In a well-drilling machine, a walking-beam, a sleeve slidable thereon, and means for holding the sleeve in its adjusted position, and a bracket carrying the pulley for the drill rope or cable, said bracket being pivotally connected to the sleeve and having segmental slots and guide-pins projecting up from the sleeve and engaging the slots to form stops to limit the lateral movement of the bracket, substantially as and for the purpose specified.

3. A well-drilling machine comprising a suitable frame, a derrick connected thereto, a reel provided with gear-wheel, a rotatable friction-wheel having pinion adapted to engage the gear-wheel, a shaft connecting with the driving power and provided with a friction-wheel, a friction-roller located between the friction-wheels, a pivoted supporting-bar, a pivoted arm thereon to which the roller is connected, a pivoted hand-lever carrying a brake-shoe to operate in connection with one of the friction-wheels, said lever being pivoted at its extremity to the end of the supporting-bar, substantially as and for the purpose described.

4. A well-drilling machine, comprising a suitable frame, a derrick connected thereto, rotatable reels for the drill rope or cable and the sand-line, suitable means for operating said reels, suitable friction-brakes for controlling the rotation of the reels, a walking-beam, a shaft connecting with the walking-beam, a clutch-box upon the shaft and means for operating the box consisting of a double yoke engaging the box, a segmentally-slotted plate pivoted to the yoke, a pin extending through the slot to limit its motion, a link pivotally connected to the slotted plate and to the frame of the machine, and a rod connected to the plate for operating it, substantially as and for the purpose set forth.

682,288. CAR-COUPLING. GEORGE W. SHILLIE, Newark, N. J. Filed July 11, 1900. Serial No. 23,206. (No model.)



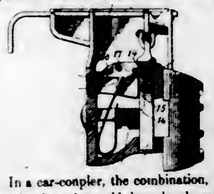
Claim.—1. In a car-coupler, the combination, with the draw-head having a coupling-pin and a pivoted knuckle adapted to be held in closed position by said coupling-pin, of a lever supported with one end extending into a position to engage with the knuckle and its other end extending into the path of a projection on the coupling-pin, a pivoted link having a pivotal connection with said lever and supporting the same, and means for permitting a limited vertical movement of said link, for the purpose set forth.

2. In a car-coupler, the combination, with the draw-head having a coupling-pin, and a pivoted knuckle adapted to be held in closed position by said coupling-pin, of a bell-crank lever supported with one arm extending into a position to engage with the knuckle and its other arm extending into the path of a projection on the coupling-pin, a link pivotally connected at one end with the draw-head and at its opposite end having a pivotal connection with said lever, means for supporting the lever-connecting end of said link in vertical position, and a stop for limiting the upward movement of said link and the connected lever, for the purpose set forth.

3. In a car-coupler, the combination, of the draw-head provided with a vertically-arranged flange, a knuckle, a coupling-pin, an uncoupling-lever supported in a longitudinally-movable position in bearings on said flange and provided with an arm having operative connection with said coupling-pin, and a forwardly-projecting lug located upon the front face of said flange and provided with a recess in its upper edge as a seat for said lever-arm, the said recess being formed with tapering walls, one of which terminates at the upper edge of the lug in a relatively narrow tapering point over which the lever-arm is free to be moved, for the purpose set forth.

4. In a car-coupler, the combination, of a draw-head provided with a flange on its upper side having bearings one of which is open, a knuckle, a locking pin or bolt, an uncoupling-lever supported in a longitudinally-movable position in the bearings on said flange, and provided with a lever-handle at one end and with a lever-arm at a point between its bearings having detachable connection with said locking-pin, and means for removably retaining said lever in position in its bearings.

682,289. CAR-COUPLING. GEORGE W. SHILLIE, Newark, N. J. Filed July 6, 1900. Serial No. 22,673. (No model.)



Claim.—1. In a car-coupler, the combination, with the draw-head, the swinging knuckle pivoted to said draw-head, and means for holding said knuckle in its closed position, of a substantially U-shaped spring supported in a vertical position between the inner arm of the knuckle and the adjacent wall of the draw-head with one arm bearing against said knuckle-arm and with its loop portion formed in a relatively large curve located below the latter, for the purpose set forth.

2. In a car-coupler, the combination, with the draw-head, the swinging knuckle pivoted to said draw-head, and a coupling pin or device for holding said knuckle in its closed position, of a stop device for limiting the movement of the coupling-pin and having a detachable connection with the draw-head, and a knuckle-opener having connection with said stop device, for the purpose set forth.

3. In a car-coupler, the combination, with the draw-head, the swinging knuckle pivoted to said draw-head, and a vertically-movable coupling-pin for holding said knuckle in its closed position, of a plate having detachable connection with the draw-head and arranged with a part thereof extending into a position to engage with the coupling-pin and limit its upward movement, and a knuckle-opening spring bearing against the knuckle-arm and having connection with said detachable plate, for the purpose set forth.

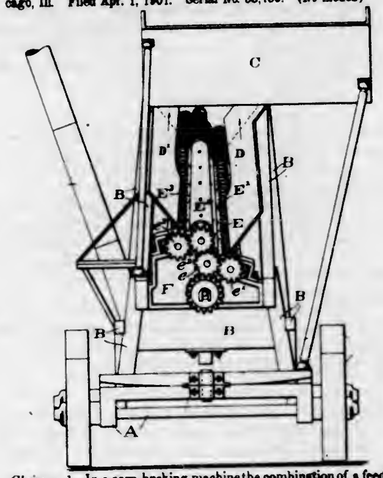
682,290. WORK HOLDER. JOSEPH W SPAULDING, Tecumseh, Nebr. Filed May 4, 1901. Serial No. 58,735. (No model.)



Claim.—1. In a work-clamp, a base-plate having a central opening and threaded apertures toward the ends beyond the central opening, clamps each comprising a body having a depending lip and diverging fingers, and binding-screws threaded in the apertures of the base and engaging the clamps as and for the purpose described.

2. In a work-rest, a base-plate suitably supported and having a central aperture and threaded holes, clamps each comprising a body having a depending lip and fingers and binding-screws for holding the clamps in engagement with the work.

682,291. CORN-HUSKING MACHINE. JOHN F. STEWARD, Chicago, Ill. Filed Apr. 1, 1901. Serial No. 53,759. (No model.)

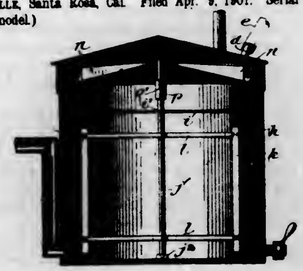


Claim.—1. In a corn-husking machine the combination of a feeding-table and two or more pairs of rollers, said rollers inclined longitudinally beneath said table, the rollers of each pair lying substantially side by side, one roller of one pair overlying one roller of the other pair, substantially as described.

2. In a corn-husking machine a feeding-table having husking-rollers lying beneath, the said rollers adapted, at their upper ends, to receive the stalks and force the ears therefrom, and the lower portions of the rollers adapted to husk the ears, said rollers lying side by side in pairs, one roller of one pair beneath one roller of the other pair, whereby the roller which lies above the other serves as a moving dividing device, all combined substantially as described.

3. In a corn-husking machine a hopper, inclined husking-rolls, a hopper having its sides cut away at its lower edges to permit the ears to escape laterally, so that they shall not interfere with the entrance of the butts of the stalks between the rollers, all combined substantially as described.

682,292. LARD COOLING AND MIXING MACHINE. WILLIAM SUKALLE, Santa Rosa, Cal. Filed Apr. 9, 1901. Serial No. 55,097. (No model.)



Claim.—The combination in a lard cooling and mixing machine, of the inner tank A, a rotatable lid therefor, buckets a attached to said lid, a beater adapted to be connected with said lid, a nozzle adapted to direct a jet of water against the buckets to rotate the lid and beater, an outer case to receive the discharge from the buckets, and a lid for said outer case in which water-supply nozzle is placed, all substantially as set forth.

682,293. NON-REFILLABLE BOTTLE. JEROME F. TAFT, Uxbridge, Mass., assignor of one-half to Edward J. Prest, same place. Filed Feb. 27, 1901. Serial No. 49,062. (No model.)



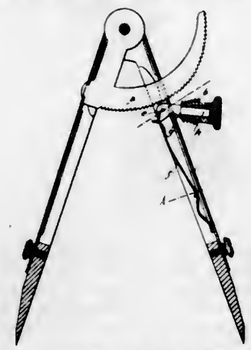
Claim.—1. In combination, a bottle having a thread, a cap having a corresponding thread matching the thread of the bottle and adapted to screw thereon, and a thread-stripping device applied to said cap for removing the thread from the bottle when unscrewing the cap therefrom, substantially as set forth.

2. In combination, a bottle provided with a thread composed of spaced elements or cogs, and a cap having a matching-thread and provided with a thread-stripping device for removing the thread from the bottle when unscrewing the cap therefrom, substantially as specified.

3. In combination with a bottle provided with a thread composed of spaced elements or cogs, a cap having a matching-thread, and a spring thread-stripping device applied to the cap to ride upon the cogs of the thread of the bottle when screwing the cap thereon and to engage with said cogs and strip them from the bottle when unscrewing the cap therefrom, substantially as set forth.

4. In combination with a bottle provided with a thread capable of removal, a cap having a matching-thread, and a spring-cutter pressed from the body of the cap and adapted to strip the thread from the bottle when unscrewing the cap therefrom, substantially as set forth.

682,294. DRAWING COMPASSES, CALIPERS, &c. HENRI TERLIN, Luneville, France. Filed Mar. 17, 1900. Serial No. 9,085. (No model.)



Claim.—1. In a compass, a pair of channel-shaped legs, a toothed sector secured to one and passing through the web of the other of them, a worm pivoted in said other leg and organized to be spring-held out of engagement with said rack when desired, substantially as and for the purpose stated.

2. In a compass a pair of channel-shaped legs, a toothed sector secured to one and passing through the other of them, a pin pivoted to said other leg and arranged to be spring-held away from said rack when desired and a worm journaled on said pin arranged to engage the rack and have limited longitudinal motion, substantially as and for the purpose stated.

3. In a compass a pair of channel-shaped legs, a toothed sector secured to one and passing through the other of them, a pin pivoted to said other leg and provided with a nose at one end thereof, a spring engaging said nose, a hollow worm on the other end of said pin, a coil-spring inside

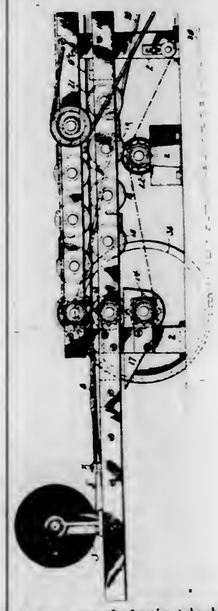
of said worm and a nut holding said spring and worm on the pin, substantially as and for the purpose stated.

4. In compasses of the class described, channel-shaped legs, points longitudinally adjustable therein and a ball-bearing adapted to be secured to one of said legs whereby said leg can be centered in a hole to draw a circle around it, substantially as and for the purpose stated.

5. In a compass the combination of two legs of U-section each provided with a head comprising two parallel cheeks one of which forms the exterior while the other is lodged at the interior in the space between the cheeks of the other leg on being mounted together, a toothed arc or sector fixed to one of the legs and an endless screw or worm secured to the other leg and so arranged as to enable it to engage with or to be withdrawn from the teeth of the said arc, longitudinally-adjustable points at the ends of the U-sections of the legs, spherical pieces adapted to be secured to the extremity of one of the said points, and a graduated ruler formed with a V-slit the axis of which coincides with the zero-line of the divisions on the ruler, substantially as and for the purpose stated.

6. The combination with a compass, spherical pieces adapted to be secured to one of the compass-legs of a graduated ruler, a V-slit formed therein, the axis of which coincides with the zero-line of the divisions on said ruler, substantially as and for the purpose stated.

682,295. **MACHINE FOR FORMING PAPER TUBES.** JOHN T. THORPE, Washington, D. C. Filed Jan. 15, 1897. Serial No. 619,330. (No model.)



Claim.—1. In an apparatus for forming tubes having a single straight longitudinal seam, the combination with a former, and a rod located in line with the discharge end of the former, of a pasting-roller for applying paste to the under side of the overlapping edge of the material of the partly-formed tube, and means for forcing the edge with the paste thereon down onto the body of the tube.

2. In an apparatus for forming paper tubes from a continuous strip of paper the combination of a former for shaping the strip, a rod around which the strip is shaped, means for applying adhesive to the overlapping edge of the material of the partly-formed tube and means for forcing the overlapping edge onto the body of the tube.

3. In an apparatus for forming paper tubes, the combination of a former and rollers for applying an adhesive to the overlapping edge of the material of partly-formed tube.

4. In an apparatus for forming paper tubes the combination of a former, rollers for applying an adhesive to the material of the partly-formed tube, means for drying the tube thus formed, and roller for applying wax to the tube.

5. In an apparatus for forming paper tubes from a continuous strip of paper, the combination with means for shaping the strip into tubular form, rolls for feeding or drawing the paper through the shaping means, a rod or core over which the tube is formed, said rod or core passing between the feeding-rollers, means for applying an adhesive to the paper of the partly-formed tube, means for forcing the overlapping edge of the partly-formed tube down onto the body, and a cutter for severing the tube thus formed into short lengths.

6. In an apparatus for forming paper tubes, the combination with a former and means for pasting the free edge of the partly-formed tube to the body of the latter, of a device for drying the pasted tube, and means for waxing the latter.

7. In an apparatus for forming paper tubes the combination of a former means for applying an adhesive to the overlapping edge of the paper of the partly-formed tube, means for drying the tube, means for waxing the same, and means for cooling the waxed tube.

8. In an apparatus for forming paper tubes having a straight longitudinal seam from a continuous strip of paper, the combination with means for shaping the strip into tubular form, rolls for feeding or drawing the paper through the shaping means, a rod or core over which the tube is formed, said rod or core passing between the feeding-rollers, means for applying an adhesive to the paper of the partly-formed tube, and a cutter for severing the tube thus formed into short lengths.

9. In an apparatus for forming paper tubes, the combination with a former for shaping the paper strip and means for applying an adhesive to the overlapping edge of the material of the partly-formed tube, of heated rollers or cylinders having grooves which approximately embrace the tube, cause the overlapping edge to adhere to the body of the tube and dry the adhesive, substantially as set forth.

10. In an apparatus for forming paper tubes, the combination with a former for shaping the paper strip and means for applying an adhesive to the overlapping edge of the material of the partly-formed tube, of grooved rollers or cylinders for drying the tube and devices for waxing the tube, substantially as set forth.

11. In an apparatus for forming paper tubes, the combination with a former for shaping a tube from a continuous strip of paper and means for pasting the under side of the overlapping edge of the partially-formed tube to the body of the tube, of heating devices for drying the paste, means for waxing the dried tube, and means for severing the waxed tube into short tubes of approximately equal size.

12. In an apparatus for forming paper tubes, the combination with a former for shaping a paper strip of pasting-rolls and a feed-wheel comprising two heads and slats connecting the heads, the said feed-wheel adapted to supply paste to one of said pasting-rolls.

682,296. **OPENER FOR ENVELOPS OR WRAPPERS.** WALTER S. TIBBIS, Brooklyn, N. Y., assignor of one-half to James T. Russell, same place. Filed Mar. 16, 1900. Serial No. 8,948. (No model.)



Claim.—1. An envelop having side flaps at one end folded over onto the body of the envelop with the entire surface of said flaps securely gummed to the body throughout the depth of the front and back portions of the envelop, and also having said side flaps firmly gummed together when the back portion of the envelop is folded into position onto the front portion to complete the envelop, as and for the purpose set forth.

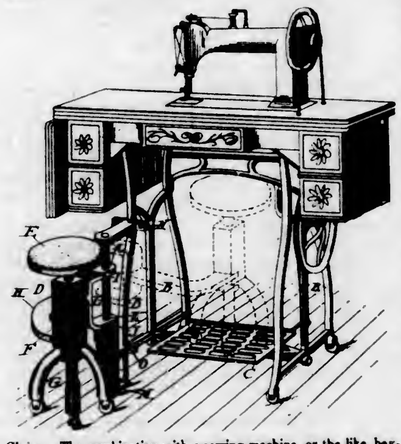
2. An envelop having side flaps slit at the point of division between the front and back portions and folded over onto the body of the envelop with the entire surface of said side flaps securely gummed to the body throughout the depth of the front and back portions of the envelop, said side flaps being firmly gummed together when the back portion of the envelop is folded into position onto the front portion to complete the envelop, said folded gummed flaps extending wholly beyond the containing-space of the envelop.

3. An envelop having side flaps folded over onto the body of the envelop with the entire surface of said flaps securely gummed to the body throughout the depth of the front and back portions of the envelop, said side flaps being firmly gummed together with a strip of woven fabric or fibrous material between them when the back portion of the envelop is folded into position to complete the envelop.

4. An envelop having side flaps slit at the point of division between the front and back portions, one of said side flaps being folded over onto the inside of the front portion of the envelop and the other side flap being folded over onto the back of the envelop; the back and front portions of the envelop and the side flaps being all gummed together to form a solid tearing-strip, such strip being wholly beyond the containing-space of the envelop, substantially as herein set forth.

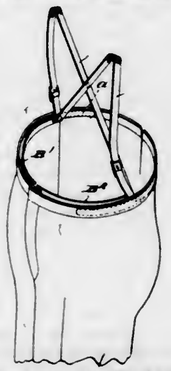
5. An envelop having side flaps slit at the point of division between the front and back portions, one of said side flaps being folded over onto the inside of the front portion of the envelop and the other side flap being folded over onto the back of the envelop, said envelop having a strip of woven fabric or fibrous material of the same width as the said side flaps inserted at the end of the envelop; the front and back portions of the envelop and the side flaps and the said strip being all gummed together to form a solid tearing-strip, such strip being wholly beyond the containing-space of the envelop, substantially as herein set forth.

682,297. **SEAT FOR SEWING-MACHINES, &c.** MARGARET R. TUCKER, Riderville, Ala. Filed Apr. 22, 1901. Serial No. 56,990. (No model.)



Claim.—The combination with a sewing-machine, or the like, having legs, of a seat having fixed legs, a support F, and an arm H having forks I and J, said arm H being secured to the support F; a post L; and clamps N and O; the said clamps rigidly securing the post to a leg of the machine; and the forks I and J of the arm being loosely journaled upon the post and adapted to slide up and down thereupon; the arrangement being such that the seat and arm can be raised bodily and turned to a position under the machine and caused to rest upon the pedal.

682,298. **GARMENT-SUPPORTER.** CHARLES L. VAN DOREN, New York, N. Y. Filed Oct. 18, 1900. Serial No. 33,452. (No model.)



Claim.—1. A garment-supporter adapted to be supported from the shoulders comprising strips of fabric crossed at the back and united intermediate of their ends and the rear end of each strip brought forward and united to the forward end of the other strip beneath the shoulder and at the waistband of a garment, means for adjusting the strips as to length, a plate secured on the garment laterally, means on the united ends of said strips affording attachment to said plates and a strip of fabric provided with means for supporting an undergarment secured on each of said united ends and extending forwardly and each provided at its free end with means for securing the same together.

2. A garment-supporter comprising two strips of fabric adapted to extend over the shoulders and cross at the back and united intermediate of their ends, the rear end of one strip being united to the forward end of the other strip beneath the shoulder and at the waist-line, means for adjusting said strips as to length, attaching means on the united ends of said strips, a strip of fabric secured on each of said united ends and extending forwardly, means for uniting the free ends thereof, hooks thereon to support the undergarment and a strip of spring metal adapted to be permanently secured on a garment beneath the shoulders and at the waist-line and provided centrally with means for attaching the united ends of the supporter thereto.

3. An article of manufacture comprising a relatively narrow plate of spring metal provided on one side with a central loop and adjacent thereto with an upwardly-turned hook and a sheath of fabric inclosing said strip through which said loop and said hook project, said loop and hook being formed of a strip of spring metal secured on said plate extending longitudinally thereof and acting to reinforce the same.

682,299. **BOILER-TUBE.** JOHN W. WALSH, Burlington, Iowa. Filed Jan. 24, 1901. Serial No. 45,078. (No model.)

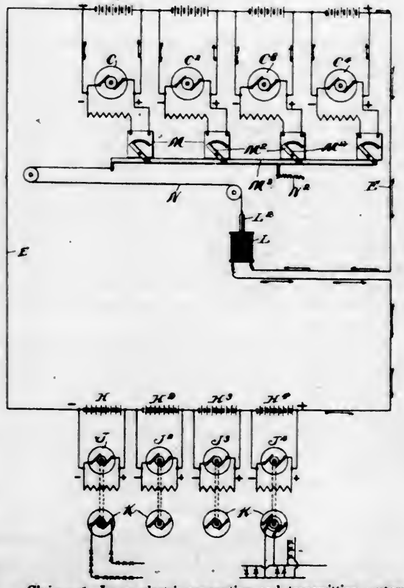


Claim.—1. A sheet-metal tube having a plurality of concentric corrugations which are of substantially the same thickness as the uncorrugated spaces between the corrugations.

2. A metal tube formed of a plurality of concentric corrugations which are separated by continuous annular plain spaces and having its ends circumferentially enlarged, said corrugations and plain spaces being of uniform thickness.

3. A sheet-metal tube having its ends enlarged circumferentially and formed adjacent to said ends with concentric corrugations of substantially the same thickness as the metal forming the uncorrugated portion of the tube.

682,300. **ELECTRICAL POWER-TRANSMISSION SYSTEM.** NATHANIEL G. WARTH, Indianapolis, Ind. Filed Feb. 11, 1901. Serial No. 46,767. (No model.)



Claim.—1. In an electric generating and transmitting system, a multiple number of direct-current generators operated simultaneously in connection with a multiple number of groups or sets of secondary batteries, which latter are in series connection with the transmission-line for generating and transmitting direct currents of high potential.

2. In a generation system, a plurality of direct-current primary generators, a plurality of sets of secondary batteries, serially connected with

each other and with the transmission-line, and a local circuit for and including each said set of batteries and its generator.

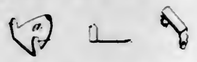
3. A system of high-potential direct-current generation and transmission wherein each of a number of direct-current generators delivers its generated direct currents locally to a suitable set of secondary batteries, the plural sets of said batteries being connected in series relative to each other and to the transmission-line, the generation of current and transmission of same being practically simultaneous.

4. In an electric direct-current generating and transmitting system, the combination with a transmission-line, of a multiple number of groups or sets of secondary batteries in series in the line at the transmitting and receiving points, a multiple number of direct-current generators connected simultaneously operating with the secondary batteries at the transmission-points of the line, translating apparatus connected with the secondary batteries at the receiving point or points, whereby direct high-potential currents may be generated, transmitted and utilized.

5. In a high-tension direct-current-transmission system, a plurality of direct-current generators, sets of secondary batteries, each set connected with each generator, sets of secondary batteries at the receiving end of the system, a translating device connected with each set of secondary batteries, an electromagnetic controller in the transmission-line and means for controlling or regulating the output of the current of the generators, actuated by the electromagnetic controller, in response to the current demand.

6. In an electric direct-current generating and transmitting system, the combination with a transmission-line, of a multiple number of groups or sets of secondary batteries in series in the line at the transmitting and receiving points, a multiple number of direct-current generators at the transmitting-points, local circuits including each such generator and group or set of batteries, translating devices at the receiving end of the line, and local circuits connecting each such device with a group or set of said secondary batteries according to the potential differences desired whereby direct currents of high potential may be generated, transmitted and utilized at lower tensions.

682,301. **DRESS-FASTENING.** EDWIN B. WATSON, Upper Norwood, England. Filed Dec. 13, 1900. Serial No. 39,598. (No model.)



Claim.—1. In a fastening device, the combination with a substantially flat triangular-shaped piece having curved side edges, of means for closely connecting the wide end of said piece to the lining of the overlapping portion of the article to be fastened, of a bent part at the free end of said triangular-shaped piece and of a wide clasp on the other portion of the article, for said triangular-shaped piece to engage with, the width of said clasp being approximately equal to that of the wide end of the said triangular-shaped piece, for the purpose specified.

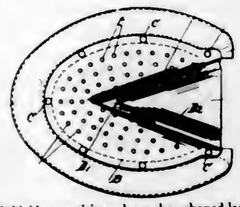
2. In a fastening device, the combination with a substantially flat triangular-shaped piece having curved side edges, of arms at the wide end of said tongue-shaped piece adapted to be passed through the lining of the overlapping portion of the article to be fastened and to be bent to secure the triangular-shaped piece in close contact with said lining, of a bent portion at the free end of said triangular-shaped piece and of a wide clasp on the other portion of said article, the width of said clasp being approximately equal to that of the wide end of the said triangular-shaped piece, for the purpose specified.

3. In a fastening device, the combination with a substantially flat triangular-shaped piece, of arms at the wide end of said piece adapted to be passed through the lining of the overlapping portion of the article to be fastened and to be bent to secure the said piece in close contact with said lining, of a bent portion at the free end of said piece and of a clasp comprising a strip or band having arms for entering the other part of said article and connecting said clasp thereto by bending said arms inwardly, the width of said clasp being approximately equal to that of the wide end of the said triangular-shaped piece, for the purpose specified.

682,302. **HOOF-SHIELD.** ALBERT E. WHEATCROFT, New York, N. Y. Filed June 21, 1901. Serial No. 65,400. (No model.)

Claim.—1. A hoof-shield comprising a horseshoe-shaped leather backing and a rigid metallic plate of lesser size having its outer edge secured immediately upon the inner edge of the leather backing upon the under surface thereof and lying wholly beneath the plane of the said backing, out of contact with the hoof, whereby a cavity or recess is formed between said plate and the hoof.

2. A hoof-shield comprising a horseshoe-shaped leather backing and a metallic plate of lesser size having its outer edge secured immediately upon the inner edge of the leather backing upon the under surface thereof and lying wholly beneath the plane of the said backing, out of contact with the hoof, whereby a cavity or recess is formed between said plate and the hoof, a portion of the said plate being depressed centrally and at the rear thereof to form a downwardly-projecting part, open at the rear of the hoof.



3. A hoof-shield comprising a horseshoe-shaped leather backing and a metallic plate of lesser size having its outer edge secured immediately upon the inner edge of the leather backing, upon the under surface thereof, and lying wholly beneath the plane of the said backing, out of contact with the hoof, whereby a cavity or recess is formed between said plate and the hoof, the said plate being formed with a triangular depressed portion centrally and at the rear thereof, the apex of which is directed forwardly of the hoof, and which is open at the rear.

4. A hoof-shield comprising a backing of a form, size and material to rest between the hoof and the horseshoe and to permit the passage of the horseshoe-nails therethrough at any point, and a rigid metallic plate of considerably lesser size having its outer edge secured upon the inner edge of the backing, whereby the latter when clamped between the hoof and shoe will form a hinge-mounting therefor.

5. A hoof-shield comprising a horseshoe-shaped backing of the character described, and a metallic plate secured upon the inner edge of the said backing and lying wholly beneath the plane thereof, and out of contact with the hoof, whereby a cavity or recess is formed between the said plate and the hoof, the said cavity or recess being open at the rear, and a portion of the plate being perforated forwardly of the said rear opening of the cavity, whereby water may be injected at the rear of the shield and ejected forwardly thereof.

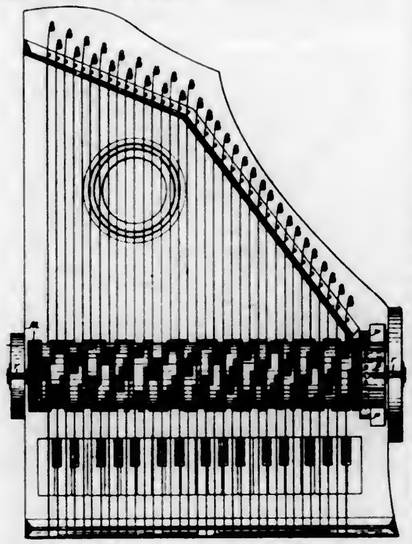
6. A hoof-shield comprising a horseshoe-shaped backing of the character described, a rigid metallic plate having its outer edge secured to the inner edge of the said backing and projecting beneath the plane of the backing to form a cavity or recess between the plate and the hoof, a triangular depressed portion formed in said plate at the rear thereof, and having its apex directed forwardly near the center of the plate, and ranging along the plane parallel with the plane of the backing; the forward portion of the plate being perforated and said depressed portion being imperforate.

7. A hoof-shield comprising a horseshoe-shaped centrally-open leather backing, a metallic plate having its outer edge secured to the inner edge of the said backing whereby it will be pivotally mounted relatively to the hoof when the shoe and shield are connected thereto, and a triangular depressed portion formed at the rear of the plate, extending across the central opening of the back and decreasing in diameter forwardly to form diagonal or inclined sides, the said depressed portion ranging beneath and on a plane parallel with the plane of the backing and forming with the remainder of the plate and said backing a cavity or recess between the said plate and the hoof.

8. A hoof-shield comprising a horseshoe-shaped leather backing adapted to rest between the hoof and the shoe and to be secured by the nails which secure the shoe to the hoof, and being of a form and size to project inwardly of the shoe, and being cut out or open at the center, a metallic plate of considerably lesser size having its outer edge secured to the inner edge of the leather backing upon the under surface thereof, the main portion of the plate being flat and the entire plate lying wholly beneath the plane of said backing out of contact with the hoof, whereby a cavity or recess is formed between the said plate and the hoof, the rear portion of the plate being formed with a downwardly-projecting triangular portion lying upon a plane parallel with the plane of the backing and extending at the rear wholly across the inside of the backing and leaving an enlarged cavity open at the rear of the shield and having its apex directed forwardly of the hoof and its sides inclined longitudinally and beveled downwardly, the main body or flat portion of the plate being formed with a plurality of perforations of such diameter as to prevent any nails which enter the rigid plate therethrough from projecting to or reaching the hoof, and the depressed portion of the plate being imperforate.

682,303. **BOX-HARP OR ZITHER.** JAMES P. WHITE, Boston, Mass. Filed Dec. 1, 1900. Serial No. 38,326. (No model.)

Claim.—1. In a stringed intrument, or zither, a muting attachment resting normally upon and across the strings of said instrument, with means whereby the longitudinal shifting of the whole muting-body a fractional part of the distance between said strings liberates strings of different chords; said means consisting of muting-pads, or mutes, placed upon the surface of said body so as to leave, in some instances, but a small margin between a muted string and a space; in others, but a small part of a space between a free string and a mute; in still others, more margin of mute or of space for the string; as described.



2. In a stringed instrument, or zither, a muting attachment resting normally upon and across the strings, having a curving muting-surface, with means whereby the turning, or partially revolving, of the muting-body but a part of the distance which would be required were the mutes in independent longitudinal series, liberates strings of different chords; said means consisting of mutes placed upon said curving surface so as to leave, in some instances, only the edge of a mute in contact with a string; in others, the edge of a mute just out of contact with a string; and in still others, a reserve of arc length of mute or of arc length of space for the string; as described.

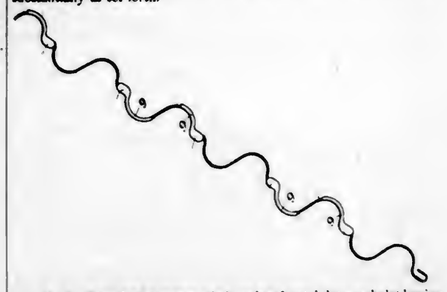
3. In a stringed instrument, a muting-body crossing the strings of said instrument, having muting-pads of two thicknesses, the thinner pad permitting the vibration of a string when said body is but lightly pressed, and serving like the thicker padding to mute the string when more pressure is applied, as described and for the purpose set forth.

4. In a chromatically-strung musical instrument, having strings successively equidistant, the attachment of a muting-cylinder mounted in suitable bearings and resting normally upon and across said strings, and capable of either revolving or shifting longitudinally one half or other fractional part of the distance between strings, with means whereby either the slight shiftings of said cylinder in either direction, or twelve, twenty-four or other number of slight arc motions of the same amounting to a complete revolution thereof, or a difference of manual pressure on the cylinder in certain positions, liberate strings of different and successively related chords; said means consisting of mutes placed upon the curving surface of the cylinder so as to leave in some instances, only the edge of a mute in contact with a string; in others the edge of a mute just out of contact with a string; and in still others, a reserve of mute or of space for the string; also mutes of two thicknesses, with the circle of muting-surfaces completed without breaking the order; as described.

682,304. **ROLLING METAL SHUTTER.** JAMES G. WILSON, New York, N. Y. Filed July 18, 1901. Serial No. 68,818. (No model.)

Claim.—1. A rolling shutter composed of a series of metal slats S-shaped in cross-section and having their extremities at the top and bottom formed into hook-like elements capable of interlocking, substantially as set forth.

2. A rolling shutter composed of a series of metal slats S-shaped in cross-section and having their extremities at the top and bottom formed into hooks capable of interlocking, the free ends of which hooks extend toward each other while the concavo-convex portions of the S-shaped slats are contained wholly between the horizontal planes of said free ends, substantially as set forth.

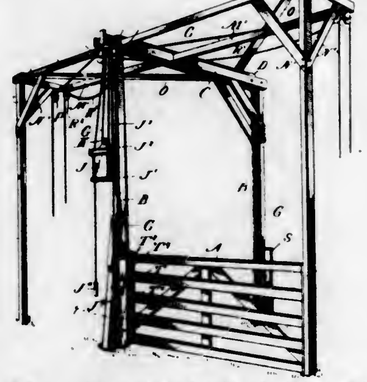


3. A rolling shutter composed of a series of metal slats, each slat having two reversely-disposed concavo-convex portions which are joined together at the center of the slat, the ends of each slat at the top and bottom being formed into hooks capable of interlocking, the free ends of which hooks extend toward each other and are in horizontal planes which inclose the reversely-disposed concavo-convex portions, substantially as set forth.

4. A rolling shutter composed of a series of metal slats, each slat having reversely-disposed concavo-convex portions, the upper and lower edges of each slat being formed into hooks capable of interlocking, while the convex surfaces of alternate slats are provided with metal shields having ears which extend across the ends of the interlocking hook elements, substantially as set forth.

5. A rolling shutter composed of a series of metal slats hinged together, each slat having reversely-disposed concavo-convex portions whereby an S shape is presented in cross-section, the convex surfaces of alternate slats at the ends thereof being provided with metal shields which latter also extend beyond the ends of said alternate slats and overlap the ends of the hinged portions, substantially as set forth.

682,305. **GATE.** WILLIAM S. WITTEN, Chicago, Ill. Filed Dec. 26, 1900. Serial No. 41,102. (No model.)



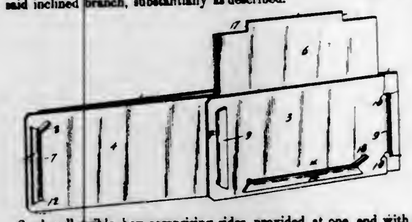
Claim.—1. In a combination dropping and swinging gate, the combination with the framework, the gate and weighted means for raising said gate, of means for allowing one end of the gate to swing free from the framework, and mechanism for holding the opposite end of the gate from rising while the free end of the gate is swung laterally.

2. In combination with the vertical posts, the dropping gate mounted between said posts, a weight and detachable connections between said weight and the gate, a swinging door at one end of the gate to allow the gate to swing free from the post, a chain and hook carried thereby, said chain being secured to the gate-post, an eye on the gate designed to be engaged by said hook to hold one end of the gate down, while its opposite end swings, and means for holding the gate open, as shown and described.

682,306. **COLLAPSIBLE BOX.** WARREN A. WOOLSEY, Ypsilanti, Mich. Filed Jan. 3, 1901. Serial No. 42,016. (No model.)

Claim.—1. A collapsible box comprising sides connected at their

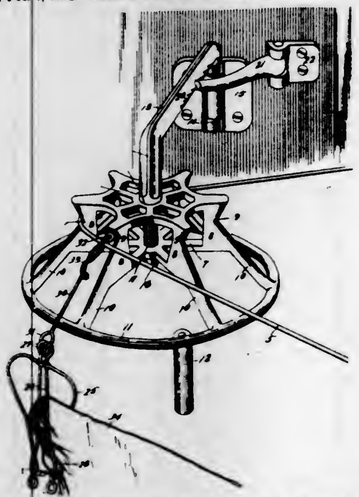
ends, one of the sides being provided with a straight slot and the opposite side being provided with a slot having an inclined branch, and a bottom provided at opposite sides with tongues to engage the said slots, one of the tongues being dovetailed and adapted to be deflected to pass through the said inclined branch, substantially as described.



2. A collapsible box comprising sides provided at one end with a slot and having a tongue at the other end for engaging the slot of the adjacent side, said slots and tongues forming hinged connections and permitting the sides to collapse, two of the sides being provided with horizontal slots, and a bottom provided with tongues engaging the horizontal slots, said bottom being hinged at one side and detachably connected at the other, substantially as described.

3. A collapsible box comprising the sides having dovetailed tongues at one end and provided at the other end with vertical slots having inclined branches, two of the sides being also provided with horizontal slots, and one of such slots having an inclined branch, and a bottom provided at opposite sides with tongues to engage the horizontal slots, one of the tongues of the body being straight and the other being dovetailed and adapted to be deflected to pass through the inclined branch of the bottom horizontal slot, substantially as described.

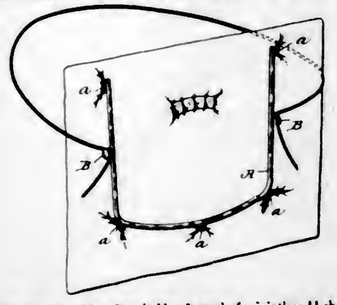
682,307. CLOTHES-LINE. FRED WRIGHT, Coldwater, Mich. Filed Feb. 7, 1901. Serial No. 46,689. (No model.)



Claim.—1. The combination with an endless clothes-line, of a plurality of supporting-palleys therefor, each palley having an intermediate marginal way for the reception of the line, the lower wall of the way forming an outwardly and downwardly flared marginal portion terminating in an outer circular rim, and one or more intermediately and loosely jointed clothes-pins hung from the line, the upper portion of each pin being longer than the distance from the back of the way to the outer edge or rim of the lower wall thereof, whereby said edge or rim is located in the path of the intermediate portion of the upper part of the clothes-pin.

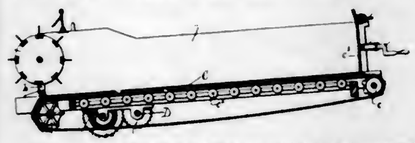
2. The combination with an endless clothes-line, of a plurality of supporting-palleys therefor, each of the latter comprising upper and lower spiders having corresponding central openings for the reception of a pivotal support, upright webs connecting the outer edges of the spiders, and having their outer edges provided with corresponding notches forming seats for the reception of the clothes-line, outwardly and downwardly inclined radial arms extending from the webs, and a marginal rim carried by the lower ends of the arms, and one or more clothes-pins hung from the line and having an intermediate pivotal joint, the upper portion of the pin being arranged for engagement with the rim of the reel and also longer than the distance between the notched portion of a web and the rim, and the lower portion being constructed for connection with an article to be suspended from the line.

682,308. RUBBER-DAM HOLDER. LUTHER A. YOUNG, St. Louis, Mo. Filed Nov. 14, 1900. Serial No. 36,447. (No model.)



Claim.—A rubber-dam holder formed of a jointless U-shaped body portion, having engaging points for the rubber, and pinch-buttons carried by said U-shaped body for engaging a twine, cord, or like material; substantially as described.

682,309. FERTILIZER-DISTRIBUTER. JOHN ZBORNIK, Fort Atkinson, Iowa, assignor to Kemp & Burpee Manufacturing Company, Syracuse, N. Y. Filed Oct. 24, 1900. Serial No. 34,169. (No model.)



Claim.—1. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, power-transmitting mechanism for actuating the discharging device, and means for moving the discharging device from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said device commences its operation, substantially as and for the purpose described.

2. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a revoluble discharging device, said device being revoluble for discharging the fertilizer and being at rest when not discharging the fertilizer, means for moving the discharging device from the contiguous portion of the fertilizer, and power-transmitting means for rotating the discharging device, substantially as and for the purpose specified.

3. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle having one end open, a discharging device arranged to form a closure for the open end of the receptacle, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, power-transmitting mechanism for actuating the discharging device, and means for moving the discharging device from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said device commences its operation, substantially as and for the purpose set forth.

4. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, power-transmitting mechanism for actuating the discharging device, and an actuating member supported by the receptacle and connected to the discharging device for moving the same from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said device commences its operation, substantially as and for the purpose described.

5. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle having one end open, a discharging device arranged to form a closure for the open end of the receptacle, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, power-transmitting mechanism for actuating the discharging device, and an actuating member supported in proximity to the opposite end of the receptacle and connected to the discharging device for moving the same from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said device commences its operation, substantially as and for the purpose specified.

6. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a movable support for the discharging device, a rocking actuating member supported by the receptacle, and a link connected to the support and to the actuating member, substantially as and for the purpose set forth.

7. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, separated supports pivoted to one end of the receptacle, a discharging device journaled in the supports, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a rocking actuating member supported by the opposite end of the receptacle, and links arranged on opposite sides of the receptacle and connected to the supports and to the actuating member, substantially as and for the purpose described.

8. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device for the fertilizer, a driving-shaft, power-transmitting mechanism connecting the discharging device and the driving-shaft and provided with a clutch for controlling the transmission of power to the discharging device, and an actuating member connected to the discharging device for moving the same from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said discharging device commences its operation, said actuating member being also connected to the clutch for operating the same, substantially as and for the purpose specified.

9. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device for the fertilizer, a feeding device for supplying the fertilizer to the discharging device, a driving-shaft, power-transmitting mechanism connecting the feeding device and the driving-shaft and provided with means for controlling the transmission of power to the feeding device, and an actuating member connected to the discharging device for moving the same from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said discharging device commences its operation, said actuating member being also connected to said means of the power-transmitting mechanism for operating the same, substantially as and for the purpose specified.

10. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device for the fertilizer, a feeding device for supplying the fertilizer to the discharging device, a driving-shaft, power-transmitting mechanism connecting the discharging device and the driving-shaft and provided with a clutch for controlling the transmission of power to the discharging device, a second power-transmitting mechanism connecting the feeding device and the driving-shaft and provided with means for controlling the transmission of power to the feeding device, and an actuating member connected to the discharging device for moving the same from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when said discharging device commences its operation, said actuating member being also connected to the clutch of the first power-transmitting mechanism and to said means of the second power-transmitting mechanism for operating said clutch and means, substantially as and for the purpose set forth.

11. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device for the fertilizer, power-transmitting mechanism for actuating the discharging device, a feeding device for supplying the fertilizer to the discharging device, means for preventing the operation of the feeding device, and an actuating member connected to the discharging device, for moving the same from the contiguous portion of the fertilizer and thereby preventing breakage of the parts when the discharging device commences its operation, said actuating member being also connected to the means for preventing the operation of the feeding device, substantially as and for the purpose set forth.

682,310. PROCESS OF PRODUCING COATINGS OF METALLIC LUSTER ON CERAMIC OBJECTS, &c. RICHARD ZSIGMONDY, Jena, Germany. Filed Nov. 8, 1900. Serial No. 35,884. (No specimens.)

Claim.—1. A process of producing coatings of metallic luster on ceramic objects, enamels, glasses, base metals, and the like, which process consists in applying to the objects to be decorated an argentiferous organic fluid, which is similar to the luster colors and contains less than seven per cent. of precious metals, and then heating the objects to a temperature between 340° and 480° centigrade, essentially as described.

2. A process of producing coatings of grayish-white metallic luster on ceramic objects, enamels, glasses, base metals, and the like, which process consists in applying to the objects to be decorated an argentiferous organic fluid which, comprising compounds of silver, of bismuth, and of boric acid, dissolved in essential oils, is similar to the luster colors and contains less than seven per cent. of precious metals, and then heating the objects to a temperature between 340° and 480° centigrade, essentially as described.

3. A process of producing coatings of yellow, greenish-yellow and red metallic luster on ceramic objects, enamels, glasses, base metals, and the like, which process consists in applying to the objects to be decorated an argentiferous organic fluid which, comprising a mixture of organic solutions of silver, gold and bismuth in the proportions of one part of silver to one to eight parts of gold and one part of gold to 0.45 to three parts of oxid of bismuth, is similar to the luster colors and contains less than seven per cent. of precious metals, and then heating the objects to a temperature between 340° and 480° centigrade, essentially as described.

682,311. METHOD OF MAKING CYANIDS. SYLVESTER ZUCKSCHWERDT, Leopoldshall, Germany. Filed June 4, 1900. Renewed Feb. 8, 1901. Serial No. 46,584. (No specimens.)

Claim.—1. In or for the manufacture of cyanids by heating carbon and an alkali in the presence of ammonia, removing gases from coarsely-powdered carbon, impregnating the carbon so treated with a concentrated solution of the alkali, and then drying it with exclusion of air.

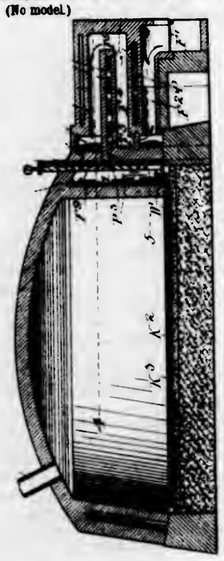
2. In or for the manufacture of cyanids by heating carbon and an alkali in the presence of ammonia, impregnating the carbon with the alkali by steaming coarsely-powdered carbon, then boiling it in a suitable liquid and thus removing the gases, and then saturating the carbon so treated with a strong solution of alkali with continuous circulation of the latter until all the water absorbed by the carbon is replaced by the alkaline lye.

682,312. BUILDING CONSTRUCTION. JULIO G. ZWICKER, Mexico, Mexico. Filed May 13, 1901. Serial No. 60,017. (No model.)



Claim.—In a building construction, the combination of a series of timbers forming the entire walls and partitions each provided with a groove upon its lower and a ridge upon its upper side, a series of dovetail-shaped ridges upon the inner side of the walls and upon both sides of the partition-timbers, removable dovetailed strips secured to the timbers between the ridges, nails for securing the timbers more securely together, and a joint for the corner-timbers, consisting of a bore made equally in the meeting edges of all timbers, a plug fitting tightly in said bore, ties to span the meeting edges, and a corner-protector fitting in a space between the outer edge and having wings flush upon the outside faces of the corner-timbers.

682,313. APPARATUS FOR CARBONIZING MATERIAL. BERNHARD ZWILLINGER, Ashland, Wis., assignor to Frederick Guillermo Voss, trustee, New York, N. Y. Filed Nov. 23, 1899. Serial No. 738,016. (No model.)



Claim.—1. The combination with a carbonizing-chamber having its lateral walls made hollow to form a flue extending nearly around the chamber, of a chimney leading from one end of said flue, and a superheating-furnace discharging its waste gases into the opposite end of said flue, whereby the chamber is practically surrounded by a constantly-renewed layer of heated gas, and means for passing gas through said superheating-furnace and into the carbonizing-chamber.

2. The combination with the carbonizing-chamber and the small contiguous chamber, of the furnace discharging its waste gases into said small chamber, a drum within the latter, a pyrometer extending into said drum, and means for forcing carbonizing-gas through said furnace into said drum and thence into the carbonizing-chamber.

3. The combination with the carbonizing-chamber and a superheating-furnace alongside the same, of a gas-reservoir, an air-compressor for compressing gas and forcing it into said reservoir, heating-coils within the superheating-furnace, a valved pipe leading from the reservoir to the coils, and perforated pipes connected to said coils and extending to all parts of the floor of the carbonizing-chamber.

4. The combination with a carbonizing-chamber having its lateral walls made hollow to form a flue extending nearly around the chamber and opening at one end into a chimney, of a small chamber opening into the other end of said flue, a furnace discharging its waste gases into the small chamber, a drum in the latter, a pyrometer extending into the drum, a compressor, a reservoir receiving gas from the compressor, a valved pipe leading from the reservoir, heating-coils within the furnace, receiving gas from the pipe and delivering it in the drum, and perforated pipes receiving gas from the drum and delivering it in all parts of the lower portion of the carbonizing-chamber, substantially as set forth.

682,314. **SHOE ATTACHMENT.** HENRY L. BECKER, Washington, D. C. Filed Dec. 19, 1900. Serial No. 40,417. (No model.)



Claim.—1. The combination with a shoe having lacing devices and a lace, of a flap applied to and detachably closable over the upper portion of the shoe and located completely at one side of and at a distance from said lacing devices to form a flexible pocket having a closed bottom to receive and hold the lace extremities exclusively.

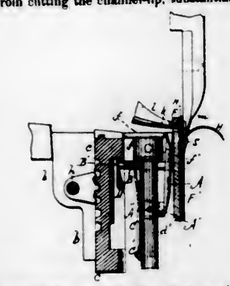
2. The combination with a shoe having lacing devices and a lace, of a flap applied to and detachably closable over the upper portion of the shoe and located completely at one side of and at a distance from said lacing devices and having a front open end and closed bottom to receive and clamp the lace extremities exclusively.

3. The combination with a shoe having lacing devices and a lace, of a flap applied to and detachably closable over the upper portion of the shoe and located completely at one side of and at a distance from said lacing devices and having an open top and front end portion and a secured bottom and rear end to form a pocket for receiving and holding lace extremities exclusively.

682,315. **ATTACHMENT FOR CHANNELING-MACHINES.** WILLIAM S. BRAINARD, West Bridgewater, Mass. Filed May 9, 1901. Serial No. 59,440. (No model.)

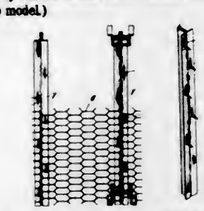
Claim.—1. In an attachment to a sole-channeling machine, the combination with the channeling-knife, of a knife-guard connected with said machine and normally out of use, and mechanism whereby the knife-guard can be moved forward from and with relation to the channeling-knife into position to fend off the sole and prevent the channeling-knife from cutting the channel-lip, substantially as described.

2. In an attachment to a sole-channeling machine, the combination with the channeling-knife and channel-knife holder, of a knife-guard pivotally secured to said holder and held normally against the same, and mechanism adapted to swing said guard forward from and with relation to the channeling-knife into position to fend off the sole and prevent the channel-knife from cutting the channel-lip, substantially as set forth.



3. In an attachment to a sole-channeling machine, in combination with the channeling-knife and channel-knife holder, the guard A hinged to said holder and extending up next the channeling-knife; a cam B, B' extending from the guard and sliding horizontally in the holder; the lever D hinged to the machine and provided with the wedge D' adapted to engage with the cam; and mechanism for operating said lever whereby the guard is moved forward in position to fend off the sole and prevent the channeling-knife from cutting the channel-lip, and out of such position, substantially as described.

682,316. **STUD FOR BUILDING CONSTRUCTION.** WILLIAM L. CALDWELL, New York, N. Y., assignor of two-thirds to John W. Rapp and Henry Loy Easton, same place. Filed Sept. 15, 1900. Serial No. 30,120. (No model.)



Claim.—1. A building construction comprising perforate metallic lathing and a stud of malleable metal with flat prongs formed thereon and therefrom by making perforations in the flat portion of the metal strip so that the prongs are supported at one end and have metal on each side of them projecting through perforations in the lathing and bent over the latter so as to clench same.

2. A stud for partitions comprising a longitudinal loop portion, the edges of which are separate, lateral flanges at said edges and tangs formed from the metal comprised in the loop portion.

3. A stud for partitions comprising a longitudinal loop portion, the edges of which are separate one from the other, lateral flanges provided at said edges, and means in the said loop portion by which wire or other lath may be secured to said loop portion.

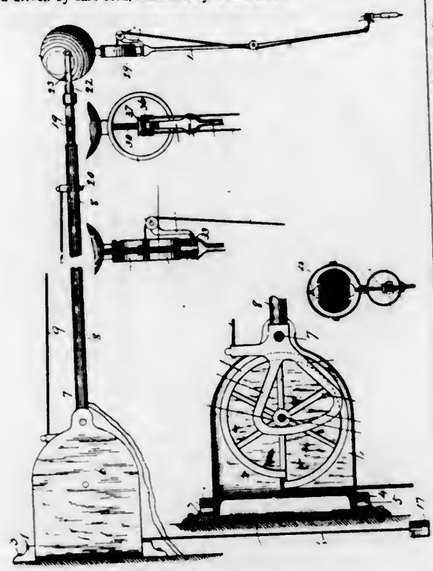
4. A stud for partitions comprising a longitudinal loop portion and means provided therein by which wire or other lath may be secured thereto.

682,317. **DENTAL ENGINE.** MONROE N. CALLENDER, San Francisco, Cal. Filed Nov. 27, 1900. Serial No. 37,917. (No model.)

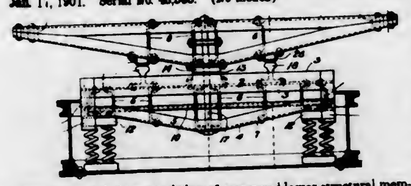
Claim.—1. In a dental engine, the combination of a fixed bracket, a horizontally-swinging casing pivotally carried by said bracket, an arm pivoted on a horizontal axis on said casing, a counterbalance therefor, an electromotor on the end of said arm, a ring-frame secured to said motor, the motor-shaft being revolubly supported in said frame, a rod having its upper end secured to said frame, pulleys carried by said rod, a pulley carried by said motor-shaft, a driving-cord around said pulleys, and a dental instrument driven by said cord, substantially as described.

2. In a dental engine, the combination of a swinging arm having a rearward extension carrying a segment-gear, a pinion meshing therewith, a spiral pulley rotated by said pinion, a cord secured to said pulley, and a counterbalance-weight carried by said cord, substantially as described.

3. In a dental engine, the combination of an electromotor, a pivotal support for the same, a ring-frame secured to said motor, the motor-shaft being revolubly supported in said ring-frame, a pulley within said ring-frame on said motor-shaft, an upper rod secured at its upper end to said ring-frame, pulleys carried at the upper end of said rod, a lower rod jointed to said upper rod, pulleys at said joint, a driving-cord around the above palleys, and a dental instrument at the lower end of the lower rod and driven by said cord, substantially as described.



682,318. **BOLSTER.** CYRUS M. CARNAHAN, Allegheny, Pa. Filed Jan. 17, 1901. Serial No. 43,585. (No model.)



Claim.—1. A bolster consisting of upper and lower structural members, intervening brace members, and tie-rods passing through and connecting the brace members with intervening sleeve-strut members, substantially as set forth.

2. A bolster consisting of upper and lower structural members, intervening channel members riveted to such upper and lower members, supplemental end reinforcing-plates, tie-rods passing through all of the intervening channel members and reinforcing-plates, and intervening sleeve-strut members surrounding the tie-rods between the channel members, substantially as set forth.

3. A bolster consisting of upper and lower structural members, intervening brace members, tie-rods passing through and connecting the brace members with intervening strut members, and a center bearing-plate secured to one of the members, substantially as set forth.

4. A bolster consisting of upper and lower structural members, intervening brace members, tie-rods passing through and connecting the brace members with intervening strut members, a center bearing-plate secured to one of the members and supplemental cross-bearing rails at each side of such bearing-plate, substantially as set forth.

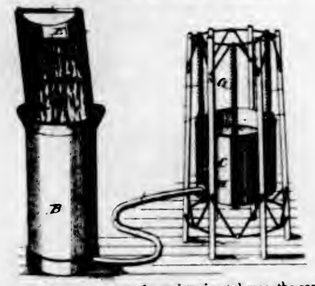
5. A bolster consisting of an upper horizontal structural member, a lower structural member dropped at its middle portion and bent upwardly at each end, intervening brace members and tie-rods passing through and connecting the brace members with intervening strut members, substantially as set forth.

6. A bolster consisting of upper and lower structural members, intervening brace members, tie-rods passing through and connecting the brace members with intervening strut members, and vertical guiding and bearing plates on the sides of the bolster, substantially as set forth.

7. The combination of a truck-bolster consisting of upper and lower structural members, intervening brace members, tie-rods connecting the brace members with intervening strut members and upper center and lateral bearing members, with a body-bolster consisting of upper and lower structural members, intervening brace members, tie-rods connecting the brace members with intervening strut members, and lower center and lateral bearing members, substantially as set forth.

8. The combination of a truck-bolster consisting of upper and lower structural members, intervening brace members, tie-rods connecting the brace members with intervening strut members, and upper center and lateral bearing members, with a body-bolster consisting of upper and lower structural members, intervening brace members, tie-rods connecting the brace members with intervening strut members, and lower center and lateral bearing members, with a central bolt passing through the body and truck bolster and the center bearing members, respectively substantially as set forth.

682,319. **TOBACCO-MOISTENER.** LAUREL L. CLARK, Galesburg, Ill. Filed Dec. 31, 1900. Serial No. 41,099. (No model.)



Claim.—1. In an apparatus for moistening tobacco, the combination with a dip-tank adapted to contain water, of a tobacco-holder adapted to receive and hold a bundle of tobacco, the tank and holder conforming approximately so that the holder when inserted in the tank fits it after the manner of a loose piston, whereby when the holder with the contained tobacco is forcibly inserted in the dip-tank the water will be forced upward into and through the bundle of tobacco, substantially as described.

2. In an apparatus for moistening tobacco, the combination with a dip-tank, of a tobacco-holder adapted to receive and hold a bundle of tobacco and adapted to be inserted in said tank, said holder having a reticulated bottom conforming approximately to the interior of the dip-tank, after the manner of a loose piston, substantially as described.

3. In an apparatus for moistening tobacco, the combination with a dip-tank, of a vertically-movable tank, means for connecting the two tanks and conducting water from one to the other, and means for yieldingly supporting the movable tank and permitting it to rise and fall, substantially as described.

4. In an apparatus for moistening tobacco, the combination with a dip-tank, of a vertically-movable tank, a tube connecting them, and springs for yieldingly supporting the movable tank and permitting it to rise and fall, substantially as described.

5. In an apparatus for moistening tobacco, the combination with a dip-tank, of a vertically-movable tank in open communication therewith, tensile springs supporting the movable tank, and means for supporting said springs, substantially as described.

6. In an apparatus for moistening tobacco, the combination with a dip-tank, of a vertically-movable tank in open communication therewith, tensile springs secured at their lower ends to the movable tank near the bottom thereof, tubes secured to the movable tank and inclosing the springs, and means for supporting said springs, substantially as described.

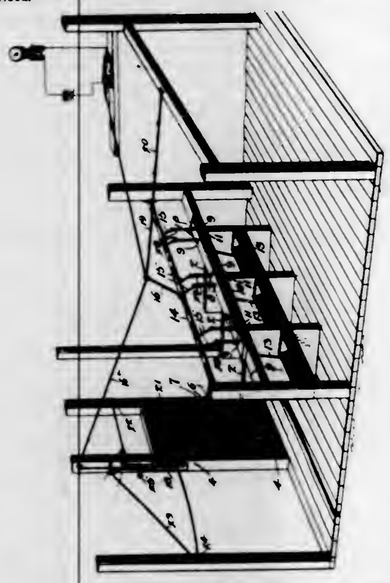
7. In a tobacco-moistener, a tobacco-holder having a semicylindrical body, a reticulated bottom, a perforated follower adapted to rest upon the tobacco, and a chain connecting the follower and the bottom, substantially as described.

682,320. **STOCK-RELEASING DEVICE.** JOHN W. COLLINS, Richmond, Va. Filed June 11, 1901. Serial No. 64,143. (No model.)

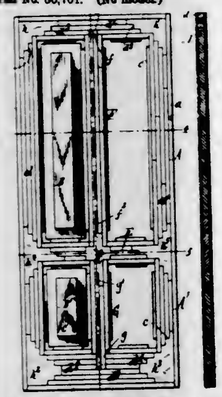
Claim.—1. The combination of a door, a fastening device therefor, an animal-releasing device, means to normally retain the latter in an inoperative position, a weight, a door-opening connection between the same and the door, and connections between said weight and said door-fastening and animal-releasing devices, whereby an animal will be released, and the door unfastened, and opened by said weight, when said retaining means is ineffective, substantially as described.

2. The combination of a door, locking means therefor, a weight, connections between the same and said door and locking means to unlock and open the door when the weight drops, means including a separable element to support the weight in an elevated position, and an animal-re-

leasing device connected to said weight supporting means, substantially as described.



682,321. DOOR. FREDERICK J. CROSIR, Utica, N. Y. Filed Sept. 21, 1900. Serial No. 30,701. (No model.)

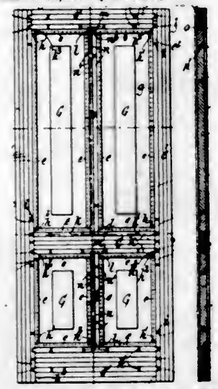


Claim.—1. A frame for doors and similar articles having adjacent frame members separated by intervening spaces and each member being constructed of strips which are arranged side by side and which project successively one beyond the other so as to produce a stepped end on the member, and filling or locking blocks arranged in said recesses and having correspondingly-stepped faces which are secured to the stepped ends of the frame members, substantially as set forth.

2. A corded door having stiles composed of upper and lower sections each of which is built up of strips of uniform thickness arranged side by side and having their ends stepped or arranged to project successively beyond each other, a lock-rail composed of similar strips having their outer ends stepped, and filling-blocks arranged in the spaces between the adjacent ends of the stile-sections and the lock-rail and having its edges stepped to fit the contiguous portions of said members, substantially as set forth.

3. A corded door having a lock-rail composed of sections arranged on opposite sides of the vertical center line of the door and each built up of strips of uniform thickness arranged side by side and having their ends stepped or arranged to project successively beyond each other, upper and lower muntins composed of similar strips having stepped inner ends, and a filling or locking block arranged in the space between the opposing stepped ends of the muntins and the lock-rail sections and having stepped edges conforming to the corresponding ends of said members, substantially as set forth.

682,322. DOOR. FREDERICK J. CROSIR, Utica, N. Y. Filed Sept. 26, 1900. Serial No. 31,168. (No model.)



Claim.—1. A frame for doors and similar articles, the members of which are composed of strips arranged side by side, one of said members having a straight-sided mortise on its side and a dovetail mortise at the bottom of the straight-sided mortise, and the other member having a straight-sided tenon which engages with said straight-sided mortise and also having a dovetail tenon at the end of the straight-sided mortise which engages with said dovetail mortise, substantially as set forth.

2. A door having adjacent frame members which are composed of strips arranged side by side, one of said members having a straight-sided mortise formed in its inner or panel strip and a dovetail mortise formed in a strip at the bottom of the straight-sided mortise, and the other member having a straight-sided tenon at its end which engages with said straight-sided mortise and having a dovetail tenon on one of its strips which engages with said dovetail mortise, substantially as set forth.

3. A door having adjacent frame members which are composed of strips arranged side by side, one of said members having an inner or panel strip provided with a straight-sided mortise and an intermediate strip composed of sections one of which forms the bottom of said straight-sided mortise and has a dovetail mortise, and the other member having a straight-sided tenon at its end which engages with said straight-sided mortise and having one of its intermediate strips composed of sections one of which has a dovetail tenon at its end which engages with said dovetail mortise, substantially as set forth.

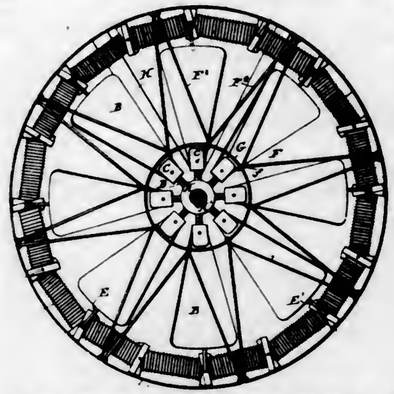
4. A frame for doors or similar articles having its frame members composed of strips arranged side by side, one of said members having an elongated dovetail mortise formed lengthwise therein and the other member having a dovetail tenon engaging with said mortise, whereby the last-mentioned frame member is permitted to move lengthwise on the first-mentioned member without liability of shearing off the tenon, substantially as set forth.

5. A door having adjacent frame members composed of strips arranged side by side, one of said members having an inner or panel strip provided with a straight-sided mortise and an intermediate strip which is arranged at the bottom of said straight-sided mortise and which is provided with a longitudinal dovetail mortise, and the other member having a straight-sided tenon which engages with said straight-sided mortise and a dovetail tenon arranged at the end of the straight-sided tenon and engaging with said dovetail mortise, substantially as set forth.

6. A door having adjacent frame members composed of strips arranged side by side, one of said members having an inner or panel strip provided with a straight-sided mortise, and an intermediate strip which is arranged at the bottom of said straight-sided mortise and which is provided with a longitudinal dovetail mortise, and the other member having two or more intermediate strips forming a straight-sided tenon which engages with said straight-sided mortise and dovetail tenons arranged at the ends of the strips forming the straight-sided tenon and both of said dovetail tenons engaging with the same longitudinal dovetail mortise, substantially as set forth.

682,323. APPARATUS FOR AGITATING AND HEATING AIR. JAMES P. ERIR, New York, N. Y., assignor to the Erie Exploration Company, same place, and Dover, Del. Filed Sept. 21, 1900. Serial No. 30,713. (No model.)

Claim.—1. In an apparatus for agitating and heating air, comprising a fan, a heater and a guard, each composed of standard sections united together to form a complete apparatus, means for varying the diameter of the fan, and means for varying the dimensions of the heater and guard to correspond to variations in the dimensions of the fan, substantially as described.



2. In an apparatus for agitating and heating air, comprising a fan, a heater and a guard, each composed of standard sections united together to form a complete apparatus, means for varying the diameter of the fan, and means for simultaneously varying the dimensions of the heater and guard to correspond to variations in the dimensions of the fan, substantially as described.

3. In an apparatus for agitating and heating air, the combination with a rotary fan comprising a hub and blades supported from the hub, with means for varying the pitch of the blades and the diameter of the fan, of a sectional heater, surrounding the fan and supported from the center, a sectional guard for the fan and heater, and means for varying the diameters of the heater and guard to correspond to variations in the diameter of the fan, substantially as described.

4. In an apparatus for agitating and heating air, the combination, with a fan comprising a hub, blades supported by said hub, and means for adjusting the blades to change their relation to the hub, and to vary the diameter of the fan, of an annular heater formed of standard sections surrounding the fan, and supported from the hub, means for varying the diameter of the heater, a guard for the fan and heater, and means for varying the diameter of the guard to accommodate changes in the fan and heater, substantially as described.

5. In an apparatus for agitating and heating air, the combination with a rotary fan comprising a hub and blades supported from the hub, with means for varying the pitch of the blades and the diameter of the fan, of a sectional heater surrounding the fan and supported from the center and means for proportionately varying the diametrical and peripheral dimensions of the heater, a sectional guard for the fan and heater, and means for varying the diametrical and peripheral dimensions of the guard proportionately to variations in the dimensions of the fan and heater, substantially as described.

6. A fan comprising a hub, rods mounted thereon, blades, and brackets to which the blades are adjustably attached, said brackets being adjustably mounted on the rods, substantially as described.

7. A fan comprising a hub, screw-threaded rods mounted thereon, blades having screw-threaded ends, and brackets having sockets for the reception of the screw-threaded ends of the blades and having screw-threaded sockets engaging the rods, substantially as described.

8. A fan comprising a hub, blades mounted thereon, and heater-sections adjustably mounted with relation to the blades, substantially as described.

9. A fan comprising a hub, blades adjustably mounted thereon, and heater-sections adjustably mounted to rotate with the blades, substantially as described.

10. A fan comprising a hub, blades supported thereby, heater-sections, and means for adjustably supporting the blades and heater-sections, substantially as described.

11. A fan comprising a hub, rods mounted thereon, blades adjustably mounted on the rods, and heater-sections also mounted on said rods, substantially as described.

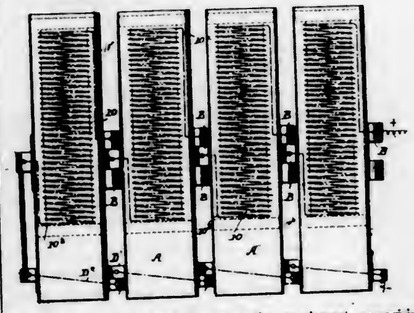
12. A fan comprising a hub, rods mounted thereon, blades adjustably mounted on the rods, and heater-sections also adjustably mounted on said rods, whereby the relations of the blades and heater-sections to the hub may be changed to increase or decrease the diameter of the fan and heater, substantially as described.

13. A fan-guard comprising a number of standard sections united together, each section having a sector portion and an arc portion and provided with means for connecting the sections together to form the guard, substantially as described.

14. A fan-guard comprising a number of standard sections united together, each section being provided with connecting-pieces for uniting the sections to each other and for uniting the sections to a ring, substantially as described.

15. The combination with a fan having blades adjustable to increase or decrease the diameter of the fan, of a heater made up of sections, means for supporting the heater with relation to the fan, a guard comprising sections each section being provided with connecting-pieces for uniting the sections to each other, and means for supporting the guard with relation to the fan and heater, substantially as described.

682,324. ELECTRIC HEATER. JAMES P. ERIR, New York, N. Y., assignor to the Erie Exploration Company, same place and Dover, Del. Filed Sept. 22, 1900. Serial No. 30,826. (No model.)

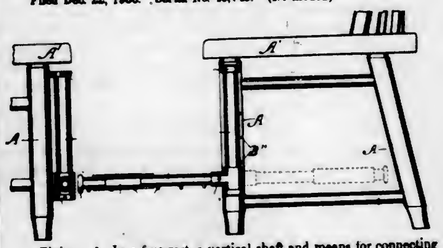


Claim.—1. An electric heater section or element, comprising a holder, a conductor mounted in the holder, and hinge-sections secured to the holder and connected to the terminals of the conductor and forming mechanical and electric connectors for uniting a plurality of heater sections or elements, substantially as described.

2. An electric heater-section, comprising a holder, an insulating strip or core mounted therein and carrying an electric conductor, hinges secured to the edges of the holder forming electric terminals and connected to the terminals of the conductor on the strip, and supplemental hinges or contacts mounted on the holder and adapted to form a return-circuit, substantially as described.

3. An electric heater, comprising a series of electric heater-sections, each section comprising a holder containing an insulating-strip and conductor thereon, each holder being provided with electric terminals connected to the conductor on the strip, and hinges connected to the edges of the sections serving as mechanical connections between the sections and to complete the electric connections through the same, substantially as described.

682,325. FOOT-REST. JAMES C. GARRETT, San Francisco, Cal. Filed Dec. 22, 1900. Serial No. 40,743. (No model.)



Claim.—1. In a foot-rest, a vertical shaft and means for connecting the shaft to a chair, a rod projecting from the shaft and vertically adjustable thereon, a foot-plate on the rod and means for adjusting the plate and for retaining it in its adjusted position.

2. In a foot-rest, the combination with a chair of a vertical shaft, pins projecting at right angles from one side, a T-fitting mounted on said shaft having a vertical channel cut out in its concaved surface adapted to

pass over said pins, and be restrained from revolving motion when in its lower and inward position on said shaft and to revolve between the pins at various elevations and one or more incisions cut into the lower edge of said T-fitting adapted to fall astride said pins and arrest revolving motion at determined outward positions, substantially as and for the purpose described.

3. In a foot-rest, a chair, a vertical shaft united to the chair, lateral projecting pins alined on one side, a vertically-movable T-fitting mounted on said shaft, a horizontally-extending rod inserted in the shank of said T-fitting and secured therein, alined pins projecting at determined points along one side of said rod, a reversible foot-plate held by the pins, a flanged cap secured to the end of said rod adapted to retain said movable foot-plate on said rod, substantially as and for the purpose described.

4. In a foot-rest, a chair, a vertical shaft applied to the chair, having lateral projecting pins alined on one side, a vertical and rotary moving T-fitting mounted on said shaft, a horizontal rod extending from the shank of said T-fitting provided with alined lateral projecting pins, and removable flanged cap on its outer end, and a horizontally-movable foot-plate mounted on said horizontal rod, provided with a cylindrical band having a channel cut parallel with the line of said projecting pins on said rod, recesses cut in one side of said channel with the unmutilated part of one edge of said channel fitting between the pins maintaining the said foot-plate in a relatively level position on said shaft and preventing horizontal movement and adapted to move horizontally when said foot-plate is raised alining said channel and lateral projecting pins, substantially as and for the purpose described.

682,326. **PROCESS OF MAKING AN ADHESIVE FROM BLOOD FIBRIN.** JULIUS HOFMEIER, Vienna, Austria-Hungary. Filed Sept. 4, 1900. Serial No. 28,912. (No specimens.)

Claim.—A process of obtaining a preparation for gluing and similar purposes consisting in evaporating to dryness an alkaline solution of blood fibrin, dissolving the residue and treating the solution obtained with a coagulating agent or agents substantially as hereinbefore described.

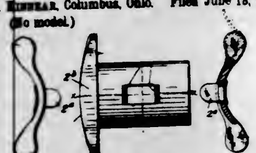
682,327. **PHOTOGRAPH-EXHIBITOR.** JOSEPHINE HUMPAL, David City, Nebr. Filed Apr. 3, 1901. Serial No. 54,884. (No model.)



Claim.—1. In a photograph-exhibitor, the combination of a base having an upright spindle with an upper head, a series of holding members comprising a pair of spiders in each instance with leaves or wings attached thereto and rotatably mounted on the said spindle, the spiders of the separate members being arranged at different vertical elevations to avoid interference with each other on the spindle, and a series of skeleton photograph-supports fixed to the said head and inclined inwardly in an upward direction and standing out from said head.

2. In a photograph-exhibitor, the combination of supporting means, a series of holding members rotatably mounted thereon and each comprising a series of connected leaves or wings with openings to display photographs, and a placing-rod movably connected at its inner end to freely swing in a horizontal plane under and having a projection to engage the lower ends of said wings or leaves.

682,328. **FIRE-RESISTING DOOR, BLIND, OR THE LIKE.** WILLIAM R. KINNEAR, Columbus, Ohio. Filed June 18, 1901. Serial No. 65,031. (No model.)

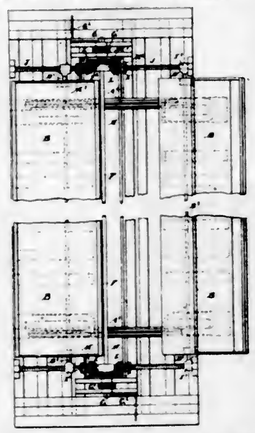


Claim.—1. In combination with a fire-resisting curtain, door or the like composed of metallic slats hinged together, of stops and runners attached to the ends of alternate slats, said stops and runners each comprising a shank portion secured to the slat and a head portion tapering for the purpose explained and laterally-projecting portions preventing outward longitudinal movement of the slats with respect to each other, substantially as described.

2. A runner for fire-resisting curtains or doors of the kind described, comprising a shank portion adapted to be secured to a slat, and a tapering head portion projecting beyond the end of the slat, substantially as described.

3. A combined stop and runner for slats of a fire-resisting curtain or door of the kind described, comprising a shank portion adapted to be secured to the end of the slat and a tapering head portion having a laterally-projecting portion to prevent outward longitudinal movement of an adjoined slat, substantially as described.

682,329. **DUMPING-CAR.** THOMAS LAWSON, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,192. (No model.)



Claim.—1. The combination with a railroad-car of two carriers with provisions for moving each independently outward and inward, endless series of ball-bearings under each, and provisions for allowing each carrier to tilt and dump at the outward extremity of its motion, all substantially as herein specified.

2. The combination with a railroad-car of two carriers with provisions for moving each independently outward and inward, continuous series of ball-bearings under each with housings for the balls arranged in the bases of the carriers and rails in the car-body received in the openings in such housing, all arranged to serve substantially as herein specified.

3. The combination with a railroad-car of two carriers with provisions for moving each independently outward and inward, an operating-shaft F extending longitudinally of the car near the floor, a crank-shaft G at a higher level, with mechanical connection H for communicating motion, clutch connection for communicating motion from such shaft for operating either or both at will, a door on the outer side and a door on the inner side of each carrier hinged at its upper edge, with provisions for controlling the same, all substantially as herein specified.

4. The combination with a railroad-car of two carriers with provisions for moving each independently outward and inward, continuous series of ball-bearings under such carriers, trunnions B^3 thereon, and provisions for supporting such trunnions in the act of dumping, all arranged for joint operation substantially as herein specified.

5. The combination with a railroad-car of two carriers moving outward and inward on suitable supports, trunnions on the carriers, transverse screws J supported in bearings on the car with provisions for turning them, clutches for engaging and disengaging them at will, and threaded blocks I traversed by said screws and performing the double function of moving the carriers outward and inward by the action of the screws and also of supporting the carriers independently of the main supports at and near the position for dumping, all arranged for joint operation substantially as herein specified.

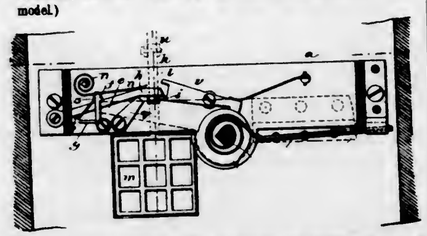
6. The combination with a railroad-car of two carriers with provisions for moving each independently outward and inward, series of ball-bearings under each, tilting bearings on the carriers, transverse screws J supported in bearings on the car, a longitudinal shaft with provisions for turning it in one direction and the opposite as required, gearing communicating motion from such shaft to the corresponding two screws so that they shall turn simultaneously and equally when required, and threaded blocks moved by such screws and traversing with said carriers arranged to support the tilting bearings of the latter in the act of dumping, and clutches for disconnecting either carrier at will, all substantially as herein specified.

682,330. **ALLOY.** HANS LEYENDECKER, Cologne-Ehrenfeld, Germany. Filed Apr. 10, 1901. Serial No. 55,263. (No specimens.)

Claim.—1. An alloy composed of lead and copper containing from one-tenth to five-tenths per cent. of copper.

2. An alloy composed of lead, copper and antimony containing one-tenth to five-tenths per cent. of copper and one-tenth to three-tenths per cent. of antimony.

682,331. **POULTRY-KILLING APPARATUS.** WILHELM LOCK, Groitzsch, Germany. Filed Apr. 26, 1900. Serial No. 14,485. (No model.)



Claim.—1. In a poultry-killing apparatus, the combination with the box or receptacle having an opening in one wall, a pivoted lever carrying a frame arranged before said opening, a knife adapted to pass across said opening, means for operating the knife, a locking device for holding the knife retracted, and means for releasing said locking device independently thereof by an outward movement of the frame; substantially as described.

2. In a poultry-killing apparatus, the combination with the box or receptacle having an opening in one wall, a spring-actuated knife adapted to pass across the opening, a pivoted lever carrying a frame or cover arranged before said opening, the knife-lever, a bell-crank lever one arm of which engages the knife-lever to hold the knife retracted, and a spring-actuated arm adapted to strike the other arm of the bell-crank lever, to release the knife-lever; substantially as described.

3. In an apparatus such as described the combination with the spring-actuated knife, the pivoted lever carrying the frame adapted to be moved outward by the imprisoned bird, the bell-crank lever, for holding the knife retracted, the spring-actuated arm adapted to strike the bell-crank lever to release the knife, and the stop on the lever carrying the frame, for holding the spring-actuated arm; substantially as described.

4. In an apparatus such as described, the spring-actuated knife, a locking device for the knife, means for releasing the knife, and means for holding the knife while resetting; substantially as described.

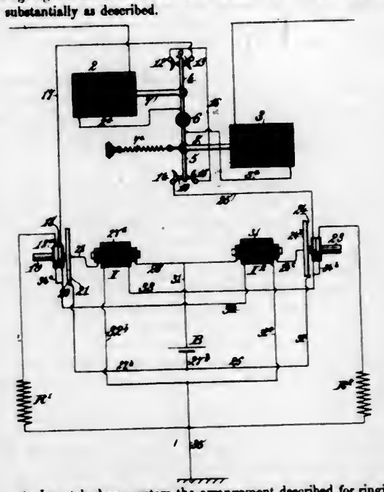
5. In an apparatus such as described, the spring-actuated knife, mounted on a shaft, a locking device for the knife, the lever or arm for releasing the knife, a cam-disk on the knife-shaft, a locking-lever one end of which engages with said cam-disk to hold the knife while being set, and the other end adapted to be struck by the releasing-lever to unlock the knife-shaft; substantially as described.

682,332. **MEANS FOR AUTOMATICALLY REVIVING EXHAUSTED TELEPHONE PULSATIONS.** MORRIS C. MEYERS, Sheepshead Bay, N. Y. Filed Aug. 31, 1899. Serial No. 729,107. (No model.)

Claim.—1. In a telephone system, the combination with a line-wire, of two microphones, two magnets, one for each microphone, each having two opposite windings, one connected to said line, two induction-coils, the primaries thereof being in connection with a battery, and each secondary being connected to both the windings upon the magnet of one of the microphones, an earth connection for the second winding on each magnet, and a resistance in each equal to the resistance of the line, substantially as described.

2. In a telephone system, the combination with two similar microphones and induction-coils, of a battery connected to the primaries of the latter, magnets having each two windings in opposite directions connected to the secondary windings of the induction-coils and through the latter to earth, and an incoming and outgoing telephone-line, each connected to one of the windings of said magnets, substantially as described.

3. In a telephone system, the combination with a reinforcing apparatus, of a switch consisting of two conducting portions pivoted on a central insulation, a solenoid on each side having cores connected to said portions, a connection from the second terminal of each solenoid to one of the conducting portions of the switch, contacts between which the latter vibrate, a connection between two of said contacts, a spring normally pressing the switch against the two remaining contacts, and an incoming and outgoing line connected to the first terminals of the respective solenoids, substantially as described.



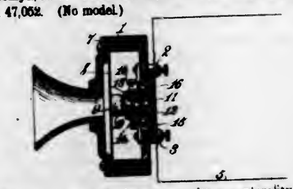
4. In a telephone system the arrangement described for ringing up substations without cutting in a reinforcing-station, which consists of a pivoted switch having conducting portions on opposite sides of its pivot, two contacts on alternately opposite sides of the two parts of said switch, a wire connecting said contacts, two alternately-arranged contacts each connected to the reinforcing apparatus, a spring normally holding the two parts of the switch against the latter contact and out of touch with the first two named, two solenoids arranged on the same sides of the switch as said first-named contacts, their cores being connected to the conducting parts of said switch, and a line-wire looped into said reinforcing-station, and connected to the terminals of the solenoids, substantially as described.

5. In a telephone system, the combination with a microphone, of a receiver, one of the diaphragms of said microphone constituting the diaphragm of said receiver, and said receiver comprising a core having two oppositely-wound coils thereon, a second microphone, and a second receiver comprising a core having two oppositely-wound coils thereon, one only of the coils of said magnets being traversed by the incoming current and both being traversed by the outgoing current.

6. In a telephone-repeater, a combined receiver and transmitter, the magnet of the receiver comprising two oppositely-wound coils, one only of which is traversed by the incoming current and both of which are traversed by the outgoing current.

7. In a telephone-repeater, a microphone and a receiver having a common diaphragm, the magnet of the receiver comprising a core and two oppositely-wound coils thereon, a line connection with one of said coils and a ground connection, containing a resistance, with the other of said coils, the first of said coils being traversed by the incoming current, and both of said coils being traversed by the outgoing current, which outgoing current is thereby divided, part of the same passing to the line and the other part to said ground connection containing said resistance.

682,333. **TELEPHONE-TRANSMITTER.** MORRIS C. MEYERS, Brooklyn, N. Y. Filed Feb. 15, 1900. Renewed Feb. 12, 1901. Serial No. 47,052. (No model.)



Claim.—1. In a telephone-transmitter, a plurality of contact-sections, having a cavity therein, a diaphragm, a button on said diaphragm

fitting within said cavity, and means for holding said sections in engagement with said button.

2. In a telephone-transmitter, a plurality of contact-sections having a tapering or cone-shaped cavity therein, a diaphragm, a button on said diaphragm having a tapering or cone-shaped end fitting within said cavity, and means for holding said sections in engagement with said button.

3. In a telephone-transmitter, a plurality of contact-sections having a cavity therein, a diaphragm, a button on said diaphragm fitting within said cavity, and springs for holding said sections in engagement with said button.

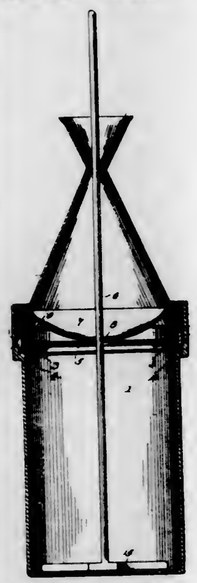
4. In a telephone-transmitter, a plurality of separated contact-sections, having a tapering or cone-shaped cavity therein, a button on said diaphragm having a tapering or cone-shaped end fitting within said cavity, and springs for holding said sections in engagement with said button, the said springs, contact-sections, and button being included in an electric circuit.

5. In a telephone-transmitter, a plurality of contact-sections having a cavity therein, a diaphragm, a button thereon fitting within said cavity, means for holding said sections in engagement with said button, and means for preventing vibration of said sections.

6. In a telephone-transmitter, a plurality of contact-sections having a cavity therein, a diaphragm, a button thereon fitting within said cavity, means for holding said sections in engagement with said button, and a yielding pad or buffer for preventing the vibration of said sections.

7. In a telephone-transmitter, a plurality of contact-sections having a cavity therein, a diaphragm, a button thereon fitting within said cavity, means for holding said sections in engagement with said button, and a ring of yielding or plastic material embracing said sections for preventing the vibration thereof.

682,334. CHURN. JOHN D. MILLS, Aransas Pass, Tex. Filed May 17, 1901. Serial No. 60,749. (No model.)



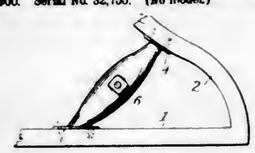
Claim.—1. A churn comprising a body, an inner lid supported by the body, a funnel arranged upon and supported by the lid, a conical outer cover receiving the funnel, and interlocked with the body and retaining the lid in place, and a dasher, substantially as described.

2. A churn comprising a body provided with an inclined seat, a horizontal inner lid having an inclined peripheral flange arranged on the inclined seat, a funnel located above and supported by the lid, and the conical outer cover arranged on the inclined flange of the lid and retaining the latter on the seat, substantially as described.

3. A churn comprising a body, an inner lid, an outer cover connected with the body and engaging the lid and retaining the latter in place, and an inner funnel arranged above and supported by the lid and fitting against the inner face of the cover, substantially as and for the purpose described.

4. A churn comprising a body provided with an inclined seat and having an offset upper portion, a horizontal lid having an inclined peripheral flange arranged on the inclined seat, the conical cover fitting against the inclined flange of the lid and against the inner face of the churn-body, the funnel arranged above and supported by the lid and having its periphery arranged against the inner face of the conical cover, and means for interlocking the cover with the body whereby the lid is secured to the seat, substantially as described.

682,335. PIANO. SAMUEL MOORE, Norwalk, Ohio. Filed Oct. 11, 1900. Serial No. 32,755. (No model.)



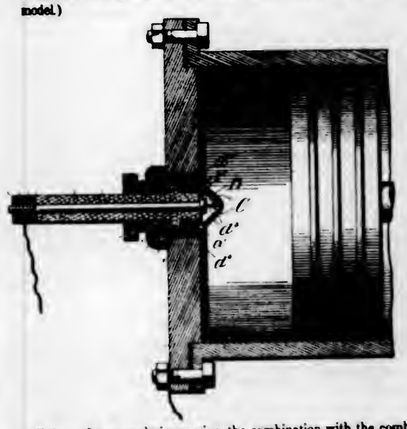
Claim.—1. In a piano, the combination with two members of the frame and the metal string-plate, of a sound-amplifier disposed between said members of the frame, means rigidly connecting said amplifier with both of said members of the frame and a rigid bar connected at one end to the center of the amplifier and at the other end to the string-plate.

2. In a piano, the combination with two members of the frame and the metal string-plate of the piano, of a hollow body connected rigidly with said members of the frame and a bar rigidly secured at one end to said hollow body and at its other end to said metal string-plate.

3. In a piano, the combination with two members of the frame and metal string-plate of the piano, of a hollow body bulged at its center and secured at its respective contracted ends to said members of the frame, and a rod or bar secured at one end to the bulged central portion of the hollow body and at its other end to said metal string-plate.

4. In a piano, the combination with the metal string-plate thereof, two fixed members of the frame of the piano and a sounding-board parallel with said metal plate, of a hollow body fixed at both of its ends to said fixed members of the piano-frame, and a rigid device fixed to said hollow body and string-plate and passing through the sounding-board without contact therewith.

682,336. ELECTRIC SPARKER FOR GAS-ENGINES. FRANK B. MCMULLEN, Chicago, Ill. Filed Mar. 8, 1900. Serial No. 7,868. (No model.)

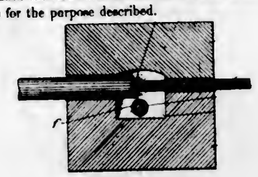


Claim.—In an explosive-engine, the combination with the combustion-chamber, of an electric igniter comprising among its members of the conical igniting-chamber communicating with the combustion-chamber by fine openings in the walls of the igniting-chamber near the apex thereof forming a fire communication between them, and an electrode extending within the igniting-chamber to near the apex of the same, forming with said apex the two electrodes of the igniter, substantially as described.

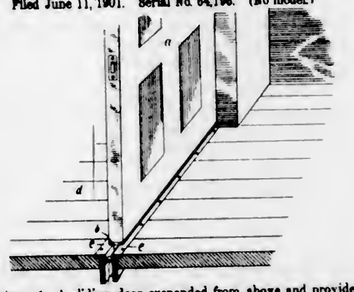
682,337. MANUFACTURE OF INCANDESCING MEDIA FOR INCANDESCENT LIGHTING. RASMUS A. NIELSEN, Copenhagen, Denmark. Filed July 14, 1900. Serial No. 23,594. (No specimens.)

Claim.—The process of manufacturing incandescing media, which consists in subjecting oxids of the rare earths to the heat of the electric

are while said oxids are shielded from the electrolytic decomposing action of the arc, until the said oxids are melted and then drawing the same out into threads for the purpose described.



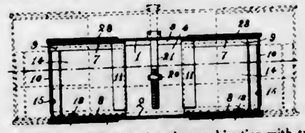
682,338. SLIDING DOOR. JEREMIAH F. O'BRIEN, Jr., Madison, N. J. Filed June 11, 1901. Serial No. 64,196. (No model.)



Claim.—1. A sliding door suspended from above and provided at its lower edge with a shoe having a tongue, in combination with a guideway countersunk in the floor, said tongue being adapted to slide in said guideway, substantially as set forth.

2. A sliding door suspended from above and provided at its lower edge with a shoe having a tongue, in combination with a guideway countersunk in the floor said guideway being provided with openings in the bottom, and said tongue being adapted to slide in said guideway, substantially as set forth.

682,339. LOOSE-LEAF BINDER. ARTHUR OPALLA, Chicago, Ill., assignor to Opalla Struben Manufacturing Company. Filed Sept. 17, 1900. Serial No. 30,300. (No model.)



Claim.—1. In a loose-leaf binder, the combination with two members relatively movable in one direction and provided with guides, of a plurality of members movable in said guides and interfitting with each other, whereby said binder is expansible in two directions, devices carried by said members for holding sheets, and means for removably mounting covers on said back.

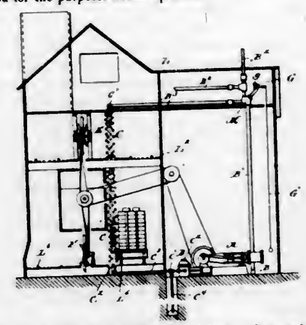
2. In a loose-leaf binder, the combination with four or more interfitting members relatively telescopically movable to make said back expansible in two directions, of devices for locking said members against movement in one direction, and devices for adjusting same in the other direction comprising springs bearing at their ends against opposite members, a bolt carried by one member and a nut carried by another member to receive said bolt, whereby by turning said bolt said members are forced toward or away from each other.

3. In a loose-leaf binder, the combination with a plurality of interfitting members movable telescopically with relation to each other to expand or contract said back in two directions, of devices for locking said members against relative movement to expand or contract said back in one direction, springs interposed in said back to normally expand said back in one direction, and devices engaging two of said members for contracting said back in said direction against the action of said springs.

4. In a loose-leaf binder, the combination with a back comprising a plurality of interfitting members relatively telescopically movable to expand or contract said back in two directions, of removable covers on said back, and devices carried by said back for securing sheets therein.

682,340. CONDENSER. SIMEON G. PHILLIPS, Rahway, N. J. Filed Sept. 27, 1899. Serial No. 731,856. (No model.)

Claim.—1. A system of radiator-coils, an engine having the exhaust therefrom received in said coils, means driven by the engine and disposed in series at one side of said radiator for supplying cool air to the exterior of said coils, and means for utilizing such air when heated thereby, and means for removing the water of condensation from the interior of said coils so as to induce a partial vacuum in said system and thereby increase the efficiency of the engine, all combined and arranged to serve substantially as and for the purposes herein specified.



2. An inclosure having a series of air-inlet openings and discharge-passages, a system of radiator-coils, an engine having its exhaust received in said coils, a series of fans driven by the engine and arranged to draw cool air in independent currents through said openings, circulate it through said coils and the articles to be dried and diagonally across and back from one fan to the next and discharge the heated air through said passages, and means for removing the water of condensation from the interior of said coils so as to induce a partial vacuum in said system and thereby increase the efficiency of the engine, all combined and arranged to serve substantially as and for the purposes herein specified.

3. A system of radiator-coils, an engine having the exhaust therefrom received in said coils, means driven by the engine for supplying cool air to the exterior of said coils, and means for utilizing the air thus heated, means for drawing said air diagonally across and back, means for carrying and exposing material to the spiral paths of the several currents of air, means for removing the water of condensation from the interior of said coils so as to induce a partial vacuum therein and thereby increase the efficiency of the engine, an open connection from the exhaust-passage of the engine to the atmosphere, and a valve controlling sneh connection whereby back pressure on the engine is avoided, all combined and arranged to serve substantially as herein specified.

4. An open pipe receiving the exhaust from an engine, a branch pipe therefrom leading to a system of radiator-coils, in combination with the latter and a drain-pipe therefrom, of a depth to inclose a column of the water of condensation sufficient by its gravity to drain and maintain a partial vacuum therein, and valves controlling said open and branch pipes, whereby a portion of the exhaust-steam may be driven to said coils and a portion escape freely, all substantially as herein specified.

5. A pipe receiving the exhaust-steam from an engine, a branch pipe therefrom, a relief-valve located at the junction of said pipes and an escape-pipe leading from the valve, a deep drain-pipe of a depth to inclose a column of the water of condensation sufficient by its gravity to drain the radiator and maintain a partial vacuum therein, in combination with the connected radiator-coils and means as fans for supplying cool air to said coils, all substantially as herein specified.

6. A pipe receiving exhaust-steam from an engine, a branch pipe therefrom, a relief-valve located at the junction of said pipes, and an escape-pipe leading from the valve, a deep drain-pipe of a depth to inclose a column of the water of condensation sufficient by its gravity to drain the radiator and maintain a partial vacuum therein, in combination with each other and with the radiator-coils connected at the upper ends to said branch pipe, an air-pump connected to the lower portion thereof, and means as the fans for supplying cool air to said coils, all substantially as herein specified.

7. The relief-valve, comprising the casing M, oblique partition M^4 having the valve-seat *m* therein, the valve-disk M^6, stem M^5, yoke M^{11}, springs M^9 and M^{10}, and their adjusting means, in combination with each other and with the exhaust-pipe B′ connected to the nozzle M^1, and the branch pipe B^3 connected to the nozzle M^3 below said partition, and the escape-pipe B^2 connected to the nozzle M^2 above the partition, arranged to allow steam from the exhaust-pipe to flow directly to the escape-pipe when said valve-disk lifts, all substantially as herein specified.

8. A system of radiator-coils, an engine having the exhaust therefrom received in said coils, means driven by the engine for supplying cool

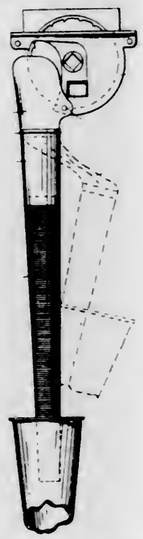
air to the exterior of said coils from one side of the coils and passing it diagonally back and forth across the inclosure, and means for utilizing the air thus heated, means as a deep drain-pipe for removing the water of condensation from the interior of said system so as to induce a partial vacuum therein and thereby increase the efficiency of the engine, and an open connection from the exhaust-passage of the engine to the atmosphere whereby back pressure on the engine due to non-condensation of the exhaust is avoided, all combined and arranged to serve substantially as and for the purposes herein specified.

9. The inclosure L having the air-inlet openings and discharge-passages, the system of radiator-coils C, and fans F, the engine A driving said fans and exhausting into said coils, means for removing the water of condensation from the latter, and means as the tracks L^4 and cars P carrying and exposing the articles to be dried, all combined and arranged to serve substantially as and for the purposes herein specified.

10. The inclosure having air-inlet openings and air-discharge passages, the system of radiator-coils C, and series of fans F adapted to induce independent currents of air through said openings and passages and circulate them through said coils and spirally of said inclosure, the engine A driving said fans, a pipe B B' B^2 leading the exhaust-steam from the engine, a branch B^3 leading it to the said system, the relief-valve M located at the junction of said branch with said pipe, means as the air-pump D for removing the water of condensation from said system, and means as the tracks L^4 and cars P for carrying and exposing the articles to be dried to said currents, all combined and arranged to serve substantially as herein specified.

11. An inclosure having a series of air-inlet openings and discharge-passages, a system of radiator-coils, an engine having its exhaust-steam received in said coils, a series of fans driven by the engine and arranged to draw cool air through said openings, circulate it through said coils and the articles to be dried, and discharge the heated air through said passages, in combination with a deep drain-pipe as C^4 serving to inclose a column of the water of condensation sufficient by its gravity to drain the radiator and maintain a partial vacuum therein, all substantially as herein specified.

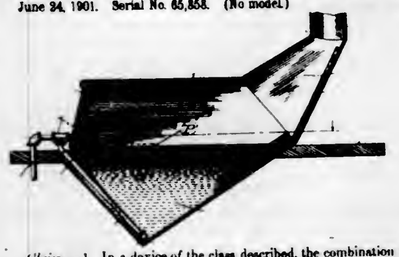
682,341. **SEED-TUBE FOR GRAIN-DRILLS.** JOHN W. POUNDEXTER, Cynthiana, Ky. Filed May 3, 1901. Serial No. 58,660. (No model.)



Claim.—1. In a grain-drill tube of the character described, the combination of an upper flexible portion suitably secured to the grain-receiver, and a lower portion composed of coiled wire secured to the upper flexible portion and extending into the upper end of the boot, substantially as described.

2. In a grain-drill tube of the character described, the combination of an upper flexible portion composed of canvas or heavy duck suitably secured to the grain-receiver, and a lower portion composed of coiled wire secured to the upper flexible portion and extending into the upper end of the boot, substantially as described.

682,342. **FILE-SHARPENING APPARATUS.** ANTHONY H. RADELL, Chicago, Ill., assignor to Benjamin M. Frees, same place. Filed June 24, 1901. Serial No. 65,858. (No model.)



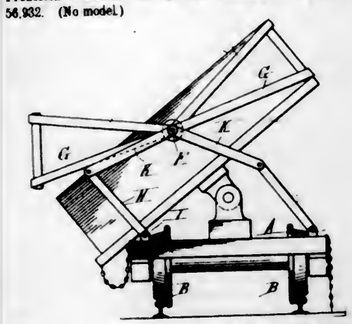
Claim.—1. In a device of the class described, the combination with an injector, of a supply-pipe connected with the suction-chamber thereof and also connected both with a source of supply and with an air-inlet pipe, substantially as described.

2. In a device of the class described, the combination with an injector, of a supply-pipe connected with the injector and leading to a source of supply, and an air-inlet pipe leading to a point adjacent to the supply-opening in said supply-pipe, substantially as described.

3. In a device of the class described, the combination with a casing having a hopper-shaped portion, of an injector arranged to discharge into said casing, a portable impact-plate arranged within said casing and opposite to the point of discharge from said injector, substantially as described.

4. In a device of the class described, the combination with a casing having a hopper-shaped portion, of an injector arranged to discharge into said casing, a hood arranged within said casing and adjacent to the discharge-nozzle of said injector, and a portable impact-board arranged within said casing opposite to the point of discharge from said injector, substantially as described.

682,343. **DUMP-CAR.** JAY B. RHODES, Harvey, Ill., assignor to Frederick C. Austin, Chicago, Ill. Filed Apr. 22, 1901. Serial No. 56,932. (No model.)



Claim.—1. In a dump-car, a tilting body provided with a swinging gate; a vibratory prop hinged or pivoted to the car-truck and arranged to receive the weight of and uphold the gate when the car-body is tilted in one direction; and means for automatically controlling the position of the prop; the gate structure being separated from the prop when the gate is raised either independently of the car-body or with the car-body when such car-body is tilted in a direction to raise the gate.

2. In a dump-car, a tilting body provided with a swinging gate; a vibratory prop hinged or pivoted to the car-truck and arranged to receive the weight of and uphold the gate when the car-body is tilted in one direction; a link suitably hung and arranged to control the position of said prop, the gate structure being separated from the prop when the gate is raised either independently of the car-body or with the car-body when such car-body is tilted in a direction to raise the gate.

3. In a dump-car, a tilting body provided with a swinging gate; a vibratory prop hinged or pivoted to the car-truck and arranged to receive the weight of and uphold the gate when the car-body is tilted in one direction, a pivoted link controlling the position of said prop, the gate structure being separated from the prop when the gate is raised either independently of the car-body or with the car-body when such car-body is tilted in a direction to raise the gate.

4. In a dump-car, a tilting body provided with a swinging gate; a vibratory and longitudinally extensible or adjustable prop hinged or pivoted to the car-truck and arranged to receive the weight of and uphold

the gate when the car-body is tilted in one direction, and means for controlling the position of the prop, the gate structure being separated from the prop when the gate is raised either independently of the car-body or with the car-body when such car-body is tilted in a direction to raise the gate.

5. In a dump-car, a tilting body provided with a swinging gate, a vibratory prop provided at its lower end with a bearing and having its upper end arranged to receive the weight of and uphold the gate when the car-body is tilted in one direction; and means for controlling the position of the prop, the gate structure being separated from the prop when the gate is raised either independently of the car-body or with the car-body when such car-body is tilted in a direction to raise the gate.

6. In a dump-car, a tilting body provided with a swinging gate; a vibratory prop having its lower end hinged or pivoted to the car-truck, a swinging link having one end pivoted to the upper end of said prop and its other end suitably connected with said tilting body, the prop thus arranged receiving the weight of and upholding the gate when the car-body is tilted in one direction, the said link controlling the position of the prop, and the gate structure being separated from the prop when the gate is raised either independently of the car-body or with the car-body when the same is pivoted in a direction to raise the gate.

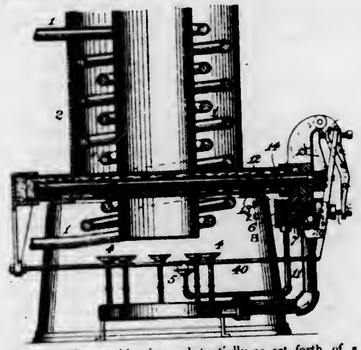
7. A dump-car comprising a truck, a tilting body mounted thereon, a swinging side gate for said body, jointed or articulated connections between said truck and body, the lower members of said connections being arranged to receive the weight of and uphold the gate when the car-body is tilted in one direction, and the gate structure being separated from said lower members when the gate is raised either independently of the car-body or with the car-body when such car-body is tilted in a direction to raise the gate.

8. The combination of the truck, the tilting body, and the articulated connections providing props for the swinging gates of said body, each gate structure being free to rise from the upper ends of the props, substantially as described.

682,344. **MEDICATED FABRIC.** CLAUDE A. O. ROSELL, New York, N. Y., assignor to Jeremiah A. Scriven, same place. Filed July 13, 1900. Serial No. 23,453. (No specimens.)

Claim.—As a new and useful article of manufacture a highly-flexible textile fabric whose constituent threads or yarns are cellularly impregnated with linoxin and a medicinal agent the interstices between the threads being open so that the fabric remains pervious to air.

682,345. **AUTOMATIC CUT-OFF FOR GAS-SERVICE PIPES.** EDWIN RUUD, Pittsburg, Pa. Filed Feb. 17, 1898. Serial No. 670,655. (No model.)



Claim.—1. The combination, substantially as set forth, of a gas-burner, a valve controlling the supply of gas thereto, a spring bearing on said valve with a constant tendency to effect its closure, a thermostat normally subjected to the heat of a gas-burner, means acting in opposite direction to said spring, and a tripping device actuated by said thermostat for releasing said means, thereby permitting the spring to close said valve.

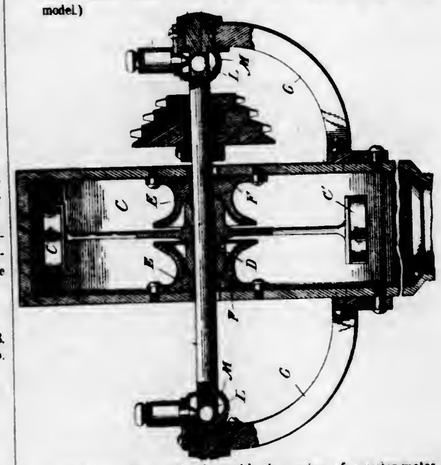
2. The combination, substantially as set forth, of a main gas-burner, an independent or pilot burner, a valve controlling the supply of gas to the main burner, a thermostat normally subjected to the heat of the pilot-burner and unaffected by the main burner, and mechanism, connected with and controlled by said thermostat, for effecting the automatic closure of the valve upon the extinguishment of the flame at the main and pilot burners.

3. The combination, substantially as set forth, of a main gas-burner, an independent or pilot burner, a valve controlling the supply of gas to the main burner, a thermostat normally subjected to the heat of the pilot-burner and unaffected by the main burner, a closing-spring bearing on the valve with a constant tendency to effect its closure, means acting in opposite direction to the closing-spring to hold the valve open, and a tripping device by which said means are automatically released, and the spring caused to close the valve, in and by the contraction of the thermostat resultant upon the extinguishment of the flame at the main and pilot burners.

4. The combination, substantially as set forth, of a main gas-burner, an independent or pilot burner, a valve controlling the supply of gas to the main burner, a thermostat normally subjected to the heat of the main burner, said thermostat being connected with and regulating the movement of said valve, a supplemental thermostat subjected to the heat of the pilot-burner and unaffected by the main burner, and mechanism, connected with and controlled by said supplemental thermostat, for effecting the automatic closure of the valve upon the extinguishment of the flame at the main and pilot burners.

5. The combination of the water-heater the main gas-burners, and the pilot-burner, with automatic mechanism controlled by the temperature of the heater and regulating the supply of gas to the main burners, and automatic cut-off mechanism operative upon extinguishment of the pilot-burner to cut off the flow of gas to the main burners.

682,346. **LEAKAGE-GUARD FOR WATER-MOTORS.** DAVID P. SIMS, Lincoln, Nebr. Filed Mar. 2, 1901. Serial No. 49,609. (No model.)



Claim.—1. In combination with the casing of a water-motor, a shaft passing through apertures therein, a cylindrical round-ended hub on said shaft, double-flanged guard-cups fastened by their outer flanges to the walls of the casing, the bottoms of the interiors of said cups conforming to the ends of said hub, their exteriors being concave and their inner ends being adjacent to the spokes of the motor-wheel, as set forth.

2. In combination with the casing of a water-motor, a shaft passing through apertures therein, a cylindrical round-ended hub on said shaft, double-flanged guard-cups fastened by their outer flanges to the walls of the casing, washers countersunken in the outer faces of said guard-cups, the bottoms of the interiors of the cups conforming to the ends of said hub, their exteriors being concave and their inner ends being adjacent to the spokes of the motor-wheel, as set forth.

682,347. **FOOT-SWITCH.** DAVID P. SIMS, Lincoln, Nebr. Filed Mar. 22, 1901. Serial No. 52,423. (No model.)

Claim.—1. A foot-operated switch, consisting of a swiveled yoke, a hinged plate connected thereto, a foot-tread pivoted to said plate, and a cable-actuating member mounted on the hinged plate, and actuated by the foot-tread, as set forth.

2. A foot-operated switch, consisting of a yoke swiveled on a stationary pin, a plate hinged to said yoke, a foot-tread pivoted to said plate, a cable-actuating member also pivoted to said plate, an integral lug on the foot-tread having a rounded end and disposed in a slotted end of said cable-actuating member forming a ball-and-socket joint, as set forth.

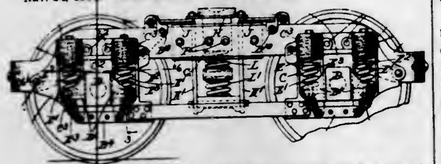
3. A foot-operated switch consisting of a yoke a stationary pin on which said yoke is swiveled, a plate hinged to said yoke, a tread pivoted on a pin carried in lugs on said plate, a cable-actuating member pivoted to the under side of said plate, an integral round-headed lug, on the under

side of said tread, and disposed in a slotted end of said member, the grooved pulleys, and cables connected to the forked ends of said member, and passed over said pulleys, as set forth.



4. A foot-operated switch comprising a yoke swiveled on a stationary pin, a plate hinged to said yoke, a foot-tread pivoted to said plate, an integral round-ended lug on the under side of said tread, a cable-actuating member pivoted to the under side of the hinged plate and having a slotted end engaging said lug, the forked ends of said member being slitted, plates pivoted in these slits cables secured to these plates, and the grooved wheels mounted adjacent to each other and between which the cables are guided, as set forth.

682,348. CAR-TRUCK. ARTHUR A. AMBLER, Chicago, Ill. Filed Nov. 24, 1900. Serial No. 37,609. (No model.)



Claim.—1. In a car-truck, a rigid wheel-encompassing frame, a bolster, having the pivot-seat for the car-body, a plate having an aperture for the pivot-seat, and four diagonal strain-rods or tie-bars, located in line two and two, through the axis of the bolster-pivots, and connected to the apertured center plate and to the side bars of the frame.

2. In a car-truck, a rigid wheel-encompassing frame; a transversely-oscillating bolster-plate having pivot-seats for the car-body; a plate having an oblong aperture to accommodate the oscillation of the pivot of the bolster; and four diagonal strain-rods or tie-bars, located in line two and two through the axis of the bolster-pivot, and connected to the apertured center plate and to the side bars of the frame.

3. In a car-truck, a rigid wheel-encompassing frame; a bolster having the pivot-seat for the car-body; a plate having an aperture to accommodate such pivot-seat; and four diagonal strain-rods located in line two and two through the axis of the bolster-pivot, and connected at their opposite ends respectively to such apertured center plate and to the wheel-pedestal.

4. In a car-truck, a frame encompassing the wheels having compound side bars composing two parallel vertically-edgewise plates rigidly spaced and secured together, and pedestal-irons longitudinally apertured from the top downward to receive the compound side bars, both plates of such compound bars being received in one and the same upwardly-open aperture in the pedestal.

5. In a car-truck, the frame encompassing the wheels, having compound side bars composed each of two parallel vertically-edgewise plates rigidly spaced and secured together; pedestal-irons longitudinally apertured from the top downward to receive the compound side bars and transversely apertured from the lower side upward to receive the axle journal-boxes, both plates of such compound bars being received in one and the same aperture in the pedestal.

6. In a car-truck, the frame encompassing the wheels having compound side bars composed each of two parallel vertically-edgewise plates rigidly spaced and secured together; pedestal-irons longitudinally apertured from the top downward to receive the compound side bars and transversely apertured from the lower side upward to admit the axle journal-boxes, and detachable tie-bars connecting the lower branches of such pedestal-irons across the gap through which the axle journal-boxes are admitted.

7. In a car-truck, an integral endless vertically-edgewise frame-bar encompassing the wheels, combined with supplemental plates bound to the sides respectively of such wheel-encompassing frame-bar, and spaced therefrom, and extended around the corners and lapped and secured facewise rigidly on the end portions of the encompassing frame-bar.

8. In a car-truck, in combination with the wheel-encompassing frame, pedestal-irons having the frame-bars extending longitudinally through them at the upper part and the axle journal-boxes extending transversely through them at the lower part, and having at the upper part downwardly-open spring housings or seats, one upon each side of the longitudinal frame-bars, and one upon each side of the axle journal-box; such axle journal-box having corresponding seats for the lower ends of the springs, and four springs interposed between said downwardly-open seats or housings and the upwardly-facing seats of the journal-box.

9. In a car-truck, in combination with the wheel-encompassing frame, a cross-bar at the middle part of the length for supporting the bolster, the side bars of the frame being composed of two vertically-edgewise plates and an I-block, having its flanges at one side embracing the upper and lower edges of the inner plate of such side bar, the cross-bar having its end formed with a seat between the upper and lower flanges of the I-block on the inner side, and a spacing-block between the two plates of the side bar, Z-shaped in cross-section, having its upper flange turned outward and engaging above the upper edge of the outer plate, and its lower flange turned inward and engaging below the flange of the I-block; and a bolt taking through the foot of the cross-bar and the I-block, both plates of the side bar and the spacing-block between the same.

10. In a car-truck, in combination with the wheel-encompassing frame having compound side bars composed of edgewise-vertical plates rigidly spaced and secured together, the apertured center plate and the strain-rods or tie-bars extending therefrom to the side bars of the frame; spacing-blocks, of the compound side bars, being extended and provided with shoulders bearing upon the upper edge of the plates, and with a lug to receive the strain-rods or tie-bars to constitute the means of connecting the same to the frame.

11. In combination with the centrally-apertured plate and the strain-rods or tie-bars therefrom to the side bars of the frame, the spacing-block, extended above the upper edges of the plates forming the side bar, and provided with downwardly-extending lugs clasping said side bars between them, and an upwardly-extending lug to receive the strain-rods or tie-bars.

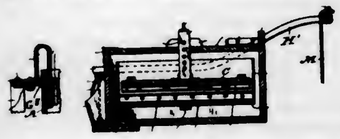
12. In a car-truck, in combination with a wheel-encompassing frame, a bolster supported therein, having a pivot-seat for the car-body, a central plate apertured to accommodate the pivot-seat; strain-rods pivotally connected to and extending from such center plate to the side bars of the frame, and the lugs, rigid with such side bars, apertured to receive the rods, the rods being threaded and provided with nuts, whereby they may be adjusted to take up slack in the construction, and render the frame tensely rigid horizontally.

13. In a car-truck, an integral, vertically-edgewise frame-bar encompassing the wheels, the ends or transverse portions of such frame-bar being drooped below the level of the sides or longitudinal portions, and supplemental plates bound to said sides respectively, and spaced therefrom and extending along the drooping portion to the lower level occupied by the end portion, and bound rigidly facewise to said end portion.

14. In a car-truck, an integral, endless, vertically-edgewise frame-bar encompassing the wheels, the ends or transverse portions of such integral frame-bar being drooped below the level of the sides or longitudinal portions; supplemental plates bound to said sides respectively and spaced therefrom, and extending along the drooping portions to the lower level occupied by the ends and bound rigidly facewise to said ends; pedestals having the sides or longitudinal portions of frame-bars secured to them at the top and rigid longitudinal bars connecting at the bottom the pedestals at each side, the ends or transverse portions of the integral frame-bars being intermediate in level between the longitudinal portions of the same and said lower longitudinal bars.

15. In a car-truck, an integral, endless, vertically-edgewise frame-bar encompassing the wheels, the ends or transverse portions of such integral frame-bar being drooped below the level of the sides or longitudinal portions; pedestals having the sides or longitudinal portions of such frame-bars secured to them at the top, and rigid longitudinal bars meshing at the bottoms of the pedestals at each side, the ends or transverse portions of the integral frame-bars being intermediate in level between the longitudinal portions of said integral bar and said lower longitudinal bars.

682,349. WASHING-MACHINE. THOMAS H. C. BEALL, Cicero, Ind. Filed Jan. 23, 1901. Serial No. 44,351. (No model.)



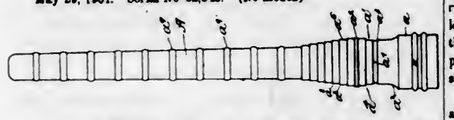
Claim.—1. A washing-machine including a spring-supported movable agitator having perforations in the bottom thereof, and a presser having perforations therein and adjustably supported in the agitator.

2. A washing-machine comprising a water-tank, curved springs, a yoke supported by the springs, an agitator suspended in the tank by the yoke, levers for the agitator, a beam removably attached to the tank, and a presser adjustably supported by the beam.

3. In a washing-machine, the combination with a tank, of curved springs supported by the tank, a yoke supported by the springs, an agitator suspended upon the yoke and having the perforated bottom, and a presser having the ribs and the perforations and suitably supported in the agitator independently thereof, substantially as set forth.

4. In a washing-machine, the combination of the water-tank, the curved springs supported at two sides of the tank, the yoke supported by the springs and extending into the tank, the levers attached to the yoke and having links suitably anchored, the agitator carried by the yoke vertically in the tank, the beam at the top of the tank, the presser supported adjustably by the beam, the handle-bar connecting the levers, and means whereby power may be applied to the handle-bar, substantially as set forth.

682,350. BOBBIN. PHILIP H BOLLMAN, Abbeville, S. C. Filed May 29, 1901. Serial No 62,343. (No model.)

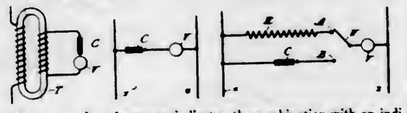


Claim.—1. The bobbin herein described, the same having a butt provided with a shallow neck and a conical section a^4 the outer part of which neck merges gradually into the said conical section a^4 and has means for preventing the outward movement or slipping of the filling in the neck while it is paying therefrom.

2. A bobbin having a butt provided with a shallow neck and a stepped conical section a^4, the portion of the neck inclined from the conical section toward the butt having steps reversely arranged with respect to those of the conical section.

3. The improved bobbin herein described having a butt provided with a shallow neck and the stepped conical section a^4, the neck merging gradually into the conical section and being reversely stepped with respect to the stepping of the said conical section, said bobbin also having circular enlargements upon its extension from the said stepped conical section.

682,351. FREQUENCY-INDICATOR. CUMMINGS C. CHESNEY and WILLIAM J. LLOYD, Pittsfield, Mass. Filed May 25, 1901. Serial No. 61,856. (No model.)



Claim.—1. In a frequency-indicator, the combination with an indicating device of means for producing changes in impedance when there are changes in frequency, said indicating device and means being in series with one another, substantially as described.

2. In a system of distribution by alternating currents, the combination with a source of alternating currents, of a condenser and an indicating device in series with one another and connected with said source, said indicating device depending for its operation upon the amount of energy passing through it and indicating the frequency of the current supplied by said source.

3. In a frequency-indicator, the combination of a condenser and a non-inductive indicating device in series with said condenser, substantially as described.

4. In a frequency-indicator, the combination of a condenser and a hot-wire-indicating device in series therewith, substantially as described.

5. In a frequency-indicator, the combination of two branch circuits in which energy passing increases with the voltage and which by reason of said variation exert counteracting tendencies to move a pointer in opposite directions, and means for varying the energy passing through one or both of said branches when the frequency of alternation changes.

6. In a frequency-indicator, the combination of two branch circuits in which the energy passing increases with the voltage and which by reason of said variation exert counteracting tendencies to move a pointer in opposite directions, a condenser in one of said branches and resistance in the other, substantially as described.

682,352. CONCEALED-HINGE LOCKET. JOSEPH FORSHEIM, New York, N. Y., assignor to William C. Popper, same place. Filed Feb. 7, 1901. Serial No. 46,294. (No model.)



Claim.—1. A concealed-hinge locket comprising a body portion having a peripheral rim, a cover fitted to the inner wall of the said peripheral rim, a member hinged to the under face of the cover at the edge of the cover and a retaining-plate for locking the member in position within the body portion, substantially as set forth.

2. A concealed-hinge locket comprising a body portion, a cover, a member hinged to the under face of the cover at the edge of the cover and a retaining-plate for locking the member in position within the body portion, the said retaining-plate being cut away at a point adjacent to the hinge for forming a fulcrum on which the cover is rocked when its hinged end is depressed, substantially as set forth.

3. A concealed-hinge locket comprising a body portion having a peripheral rim, a cover fitted to the inner wall of the said peripheral rim, a loop on the under face of the cover at its edge and a curved wire passing through the loop and along the inner wall of the peripheral rim upon opposite sides of the loop for hinging the cover to the body portion, substantially as set forth.

4. A concealed-hinge locket comprising a cup-shaped body portion, a picture-holding retaining-plate located within the body portion and spaced from its bottom, a cover arranged to fit the space between the retaining-plate and the top of the body portion and a member hinged to the cover and held in position in the body portion by the retaining-plate, substantially as set forth.

682,353. FILTER. JOSEPH F. GEISLER, New York, N. Y. Filed May 27, 1901. Serial No. 62,033. (No model.)



Claim.—1. In a filter, the combination, with a filtering-chamber, adapted to contain a disk of filtering material, and having inlet and outlet passages each provided with branches communicating with the filtering-chamber upon opposite sides of the filtering-disk, of valves controlling the flow of water through each branches, a disk of elastic filtering material adapted to fit closely within said chamber, perforated supporting-plates therefor, said plates having flanges on the sides adjacent to the filtering-disk, whereby said disk may be pressed against the walls of the filtering-chamber, and means for pressing said plates against said disk.

2. In a filter, the combination, with a filtering-chamber, adapted to contain a disk of filtering material, and provided with removable caps upon the opposite sides of said disk, inlet and outlet passages, each of said passages being provided with branches communicating with the chamber upon opposite sides of the position of the filtering-disk, of valves controlling the flow of water through said branches, a disk of filtering material within said chamber, and perforated supporting-plates therefor, one abutting against a projection of the wall of the filtering-chamber, the screw-cap adjacent to the other of said supporting-plates having projections

whereby it may press said supporting-plate against the filtering-disk, and thereby press said disk against the other supporting-plate.

682,354. CLASP. JOSEPH GOLDBERG, New York, N. Y. Filed July 19, 1901. Serial No. 68,894. (No model.)



Claim.—1. In a corset-clasp the combination of two corset-stays, a stud attached to one of the stays, three plates secured to the other stay, the middle plate having an opening to receive the stud and having recesses therein, the upper or pivoted plate having means to move in said recesses of the first-named plate, the lower or inner plate being of spring metal and adapted to bear against the outer plate to keep it closed against the stud and prevent the accidental displacement or unlocking of the stud.

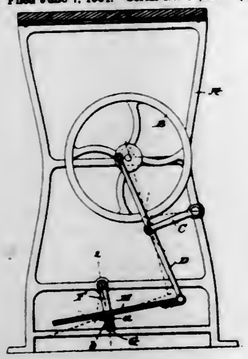
2. In a spring-locked corset-clasp, the combination of two corset-stays, a stud attached to one of the stays, three plates secured to the other stay, the middle plate having an opening therein to receive the stud and the recesses or depressions struck up from the under side thereof, the upper or pivoted plate having projections which move in said depressions of the first-named plate, the lower or inner plate being made of spring metal and having two spring-arms which bear against the projections of the outer plate to keep it closed against the stud and prevent the accidental displacement or the unlocking of the stud.

3. In a spring-locked corset-fastener, the combination of the two stays, a stud attached to one stay, a plate having an opening and a contracted slot and recesses or depressions, and another plate having two spring-arms fastened to the under side of the first-named plate, the two being riveted to the other stay, a third plate having an opening therein and two projections, the said projections working in the depression in the first-named plate and against which the two arms of the spring-plate bear to hold said pivoted plate in a locked position over the head of the stud to prevent the accidental displacement of the stud.

4. In a spring-locked corset-fastener, the combination of the two stays, a stud attached to one stay, a plate having an opening and a contracted slot and recesses or depressions, and another plate having two spring-arms fastened to the under side of the first-named plate, the two being riveted to the other stay, a third plate having an opening therein and two projections, the said projections working in the depression in the first-named plate and against which the two arms of the spring-plate bear to hold said pivoted plate in a locked position over the head of the stud to prevent the accidental displacement of the stud, the outer end of the pivoted plate projecting beyond the end of the first-mentioned plate.

5. In a spring-locked corset-fastener, the combination of the stays A, A', the stud B attached to the stay A, the plate C^2 having the opening 4 and the contracted slot 5 therein and the depression or recess 3, the spring-plate C having the spring-fingers 1, 1 secured to the under side of the plate C^2, the two plates being riveted to the stay A', the plate C' having the projections 2, 2 bearing against, or working in, the depressions 3, 3 of the plate C^2, the said plate C' having an opening 6 therein to pass over the head of the stud B, the inner end 11 of which bears against the stud, the outer end 7 of the plate C' projecting beyond the end 8 of the plate C^2, the parts operating substantially as and for the purpose described.

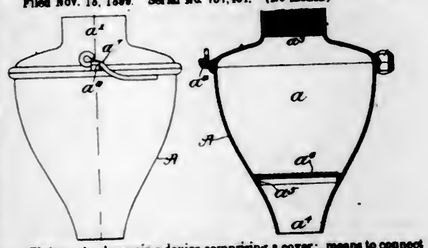
682,355. TREADLE MECHANISM. WALTER T. GORDON, Juniper, Ore. Filed June 7, 1901. Serial No. 63,580. (No model.)



Claim.—1. The herein-described treadle mechanism for sewing and other foot-power machines, consisting essentially of the main frame, the crank or fly wheel, the arm C pivotally connected to the main frame and arranged to swing in a vertical plane, the pitman D pivotally connected to the crank or fly wheel at a point off the center thereof, and pivotally connected to the arm C, the arms F pivotally connected to and depending from the frame, and having inwardly-extending lateral studs or projections on their lower portions, means connecting the arms below the inwardly-extending lugs or projections whereby said arms are caused to move together, and a treadle E fulcrumed at an intermediate point of its length on the inwardly-directed studs or projections of the arms and interposed between the arms and pivotally connected at its forward end to the lower end of the pitman D.

2. The herein-described treadle mechanism for sewing and other foot-power machines, consisting essentially of the main frame, the crank or fly wheel, the arm C pivotally connected to the main frame and arranged to swing in a vertical plane, the pitman D pivotally connected to the crank or fly wheel at a point off the center thereof and pivotally connected to the arm C, the arms F pivotally connected to and depending from the frame and having inwardly-extending lateral studs or projections on their lower portions, a cross-bar formed integral with and connecting the portions of the arms below the said studs or projections and serving in conjunction with said arms to form a swing, and a treadle E fulcrumed at an intermediate point of its length on the inwardly-directed studs or projections of the arms of the swing, and interposed between said arms, and pivotally connected at its forward end to the lower end of the pitman D.

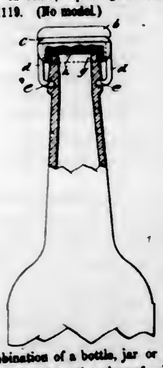
682,356. SOAPING DEVICE. GEORGE H. HARRY, Taunton, Mass. Filed Nov. 13, 1899. Serial No. 737,401. (No model.)



Claim.—1. A soaping device comprising a cover; means to connect the cover with a faucet; a receptacle for holding the soap; and means connecting the receptacle with the cover on which the receptacle can be moved horizontally into and out of its position under the cover and held horizontally out of its position under the cover.

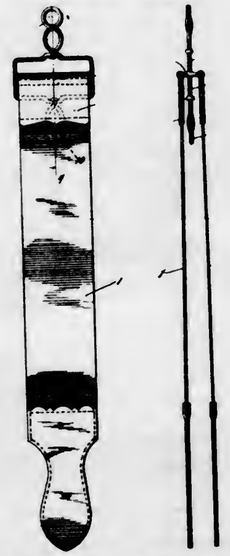
2. A soaping device comprising a cover; means to connect the cover with a faucet; a receptacle for holding the soap; means connecting the receptacle with the cover on which the receptacle can be moved horizontally into and out of its position under the cover and held horizontally out of its position under the cover; and means to retain the receptacle in position under the cover.

682,357. STOPPER FOR BOTTLES, JARS, OR SIMILAR CONTAINERS. KONRAD R. JAHN, Copenhagen, Denmark. Filed June 5, 1900. Serial No. 19,119. (No model.)



Claim.—The combination of a bottle, jar or similar container provided with a groove in the neck portion thereof, with a stopper comprising a body portion *b* provided with a groove *f* around its outer edge and notches *i* at opposite points, and rigid wires *c* tightly inserted in said groove *f*, bent downward in the notches *i* and forming arms *d* terminating in hooks *e*, adapted to be sprung over the neck of the bottle or the like, by downward pressure, and into the said groove on the neck of the bottle.

682,358. RAZOR-STROP. JOHN H. KEATING, Chicago, Ill. Filed Mar. 29, 1901. Serial No. 53,397. (No model.)



Claim.—1. In a duplex razor-strop the combination of a pair of strops, a rigid ring or link to opposite sides of which said strops are attached respectively and supporting-bails extending upwardly and downwardly from and rigidly secured to opposite sides of said link, substantially as set forth.

2. A holder for duplex razor-strops comprising a rigid rectangular link, the bails, rigidly secured to the sides of the link respectively above and beneath the same and the supporting-rings swiveled to the respective bails.

682,359. MACHINE FOR MANUFACTURING TUBULAR BODIES. HERBERT R. KEITELEY, Wilson, N. Y. Filed July 1, 1901. Serial No. 66,666. (No model.)

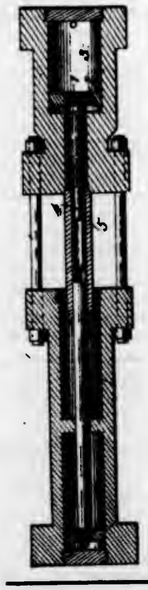
Claim.—1. In a machine for manufacturing seamless bodies, a blank-chamber, a punching device projecting therein and means for operating the same, a plunger projecting therein and means for operating the same, a tubular abutment located at the end of said blank-chamber and means for operating the same, a piston-rod coacting with said tubular abutment and means for operating the same, said tubular abutment and said punch coacting to form a die.

2. In a machine for manufacturing seamless bodies, a blank-chamber, a punching device located therein and means for operating the same, a plunger located therein and means for operating the same, a tubular abutment located at the entrance to said blank-chamber and means for operating the same, a piston-rod projecting into said tubular abutment and means for operating the same, said tubular abutment and said punch coacting to form a die.

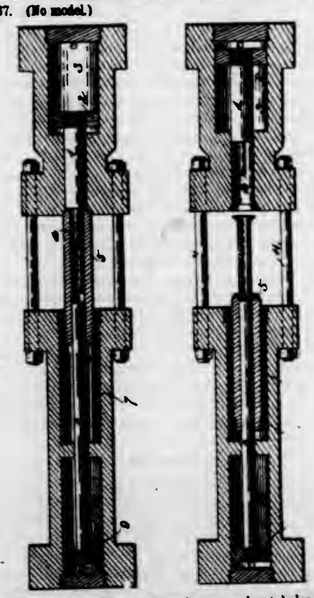
3. In a machine for manufacturing seamless tubular bodies, in combination, a blank-chamber, a plunger located therein and fitting the same, said blank-chamber having a beveled entrance, a tubular abutment projecting into the beveled entrance to said blank-chamber and means to remove said tubular abutment therefrom, a punch carried by the plunger and coacting with the tubular abutment to form a tubular die.

4. In a machine for manufacturing seamless tubular bodies, in combination, a blank-chamber having a beveled entrance, a plunger located in the blank-chamber and fitting the same, a movable tubular abutment having its forward end tapered to engage with the wall of the beveled entrance to said blank-chamber, a punch independent of said tubular abutment but coacting therewith to form a tubular die of smaller diameter than said blank-chamber.

5. In a machine for manufacturing seamless tubular bodies, in combination, a blank-chamber having a beveled entrance, a movable tubular abutment having its forward end tapered to engage with the wall of the beveled entrance to said blank-chamber, a beveled entrance to the tubular bore of said abutment, a piston-rod movable in the bore of said tubular abutment, a plunger movable in the blank-chamber, and a device acting as a punch in the blank-chamber and as a mandrel in the passage in the tubular abutment.



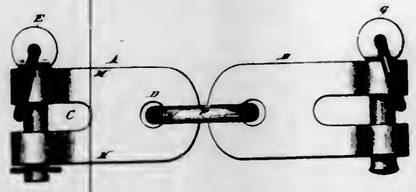
682,360. METHOD OF MANUFACTURING TUBULAR BODIES. HERBERT R. KEITELEY, Wilson, N. Y. Filed July 1, 1901. Serial No. 66,667. (No model.)



Claim.—A process for manufacturing a seamless tubular iron or steel body from a solid body in a continuous operation, said process comprising heating a solid iron or steel blank, then punching said blank while the same is confined at its sides, thereby forming a short, tubular body, then

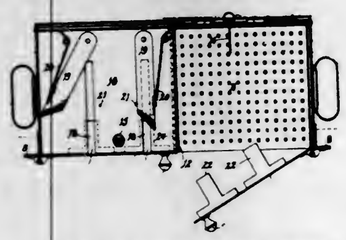
forcing said tubular body through a tubular die of less diameter than the said short, tubular body, thereby contracting said body diametrically so that the metal is passed by displacement to flow longitudinally and forwardly beyond the point of the punch or mandrel, thereby elongating said body and forming in the finished product longitudinal fiber.

682,361. CLEVIS. WILLIAM R. KEITH, Coalcreek, Tenn. Filed Oct. 15, 1900. Serial No. 33,117. (No model.)



Claim.—A clevis comprising a plate A provided with a slot C, cut from the center thereof, having the corners of the said plate rounded and bent upon itself, thus forming an opening for the headed pin E, the other end of the clevis being provided with an opening through which passes a link F by means of which it is pivoted to another clevis identical in form to the one described, as and for the purpose described.

682,362. FLAT-IRON HEATER. CARL A. LANDGREN, Kenosha, Wis. Filed Apr. 8, 1901. Serial No. 54,823. (No model.)



Claim.—1. A flat-iron heater in the form of a chamber and comprising, a rectangular frame of angle-iron adapted to rest on a flat support and forming a laterally-projecting ledge, sheet-metal side walls secured rigidly to the frame at three sides thereof, one or more doors hinged to the adjacent side walls so as to swing laterally closing the fourth or front side of the chamber, a perforated removable bottom resting on the angle-iron frame, and a sheet-metal cover hinged to the rear rigid wall of the chamber and adapted to swing upwardly.

2. In combination in a flat-iron heater, side walls including a side door, a removable floor, a hinged cover provided with a slot for the handle of a flat-iron, a spring-actuated cover over the slot the end of the slot-cover being beveled, and a slot-closer fixed on the door adapted when the door is closed to close a portion of said slot in the cover of the heater.

3. In combination in a flat-iron heater, side walls provided with a frame, a ledge around near the bottom, doors in and forming a part of the side walls, springs normally closing the doors, slot-closers on the doors, a removable floor, a cover-supporting standard on the floor medially, slotted covers adapted to swing upwardly, and slot-covers having beveled ends.

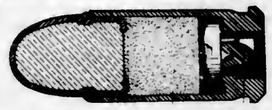
4. In combination in a flat-iron heater, side walls including a plurality of doors, a removable bottom provided with a cover-supporting standard, covers at a distance above the floor and a partition hinged to the standard adapted to be swung across the chamber of the heater dividing it into two parts.

682,363. WOOD-PRESERVING COMPOUND. CHARLES S. LAWRENCE, Plainfield, Wis., assignor of one-half to Frank McCornick, Friendship, Wis. Filed Feb. 12, 1901. Serial No. 47,010. (No specimens.)

Claim.—1. A composition of matter for preserving wood, consisting of chlorid of sodium, arsenious acid, bichlorid of mercury, nitrate of potassium, and subacetate of copper, in about the proportions specified.

2. A composition of matter for preserving wood, consisting of the following ingredients, by weight: chlorid of sodium, sixteen (16) parts; arsenious acid, eight (8) parts; bichlorid of mercury, one (1) part; nitrate of potassium, two (2) parts; and subacetate of copper, one (1) part, substantially as described.

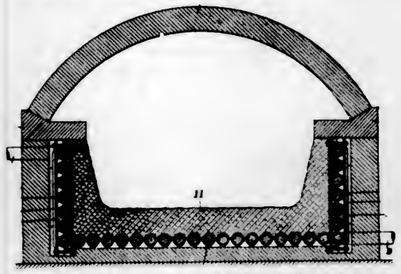
682,364. CARTRIDGE. JACQUES MANSON, Brussels, Belgium. Filed Feb. 21, 1901. Serial No. 48,227. (No model.)



Claim.—1. In combination with a cartridge for guns, of a perforated diaphragm adapted to be placed between the priming and the powder of the cartridge for obtaining a space between the same, said perforated diaphragm having an annular flange which forms a support for the diaphragm, substantially as described.

2. In combination with a cartridge for firearms, a diaphragm carrying an annular flange and adapted to be placed between the powder and priming of the cartridge, substantially as described.

682,365. GLASS TANK-FURNACE. LAMPTON L. MOUNT, Auckland, New Zealand, assignor to Henry L. Dixon, Pittsburg, Pa. Filed Oct. 30, 1900. Serial No. 34,902. (No model.)

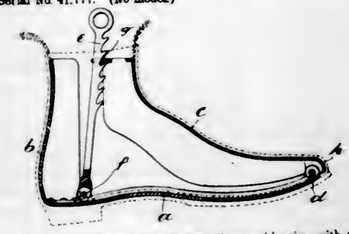


Claim.—1. A glass-melting tank-furnace having at least a portion of the tank formed of separate hollow pipe-sections connected at their ends and in position to be in direct contact with a batch of glass-forming material, and means for circulating a cooling fluid through the successive sections; substantially as described.

2. A glass-melting furnace having a tank whose bottom is formed of a continuous tortuous pipe-channel in position to be in direct contact with a batch of glass-forming material, and means for circulating a cooling fluid through the coil of continuous pipe; substantially as described.

3. A glass-melting furnace having a tank with its sides formed of separated pipe-sections connected alternately end to end, refractory material covering the top portion of the sides, and means for circulating a cooling fluid through the pipe-sections; substantially as described.

682,366. SHOE-FORM. FREDERICK H. NIES, Brooklyn, N. Y., assignor of one-half to William Dunn, same place. Filed Jan. 2, 1901. Serial No. 41,777. (No model.)



Claim.—1. In a shoe form or tree, the combination with the upper and lower sections thereof, hinged together at the toe, of the upright rack-bar hinged at its lower end to the lower section near the heel, said upper section being provided with a shoulder *g* to engage the teeth of the said bar, substantially as set forth.

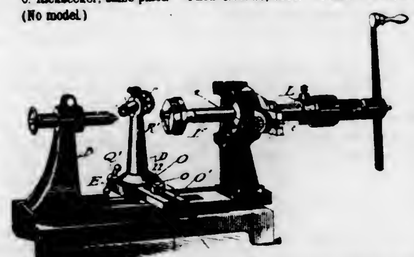
2. A shoe-form comprising a sole-plate *a*, a heel-piece *b*, secured thereto, an upper section *c*, hinged at its front end to the front end of the sole-plate, and a ratchet device for supporting the rear free end of the section *c* when the latter is elevated, substantially as set forth.

3. The combination with the sole-plate and heel-piece, of the upper section *c*, hinged at *d* to the sole-plate and having its toe *h* curved concentric to the hinging-axis, and means for supporting the free rear end of the said section *c* when elevated, substantially as set forth.

682,367. FABRIC. CLAUDE A. O. ROSELL, New York, N. Y., assignor to Jeremiah A Scriven, same place. Filed Mar. 24, 1900. Serial No. 10,072. (No specimens.)

Claim.—As a new and useful article of manufacture, a highly-flexible textile fabric whose constituent threads or yarns are cellularly impregnated with linoxin, the interstices between the threads being open so that the fabric remains pervious to air.

682,368. COMBINED GATE AND GLOBE VALVE RESEATING MACHINE. FRANK L. SMITH, Chicago, Ill., assignor of one-half to Alva C. Ricksecker, same place. Filed Nov. 28, 1900. Serial No. 37,964. (No model.)



Claim.—1. A valve-reseating machine, comprising a rotatable shaft adapted at one end to carry a tool provided at the other end with means for rotating it; a bearing in which the shaft is journaled; a support for the bearing in which the latter is adjustable angularly; and corresponding stops on the support and bearing, curved about a center located beyond them in the direction of the tool-holding end of the shaft; and means for making the bearing rigid with its support.

2. A valve-reseating machine, comprising a rotatable shaft, a sleeve in which the shaft is journaled, a collar through which the sleeve extends loosely, affording range for change of axial direction of the shaft and sleeve relative to the collar; stops on the sleeve at opposite ends of the collar, and means for clamping the collar between the stops.

3. A valve-reseating machine, comprising a rotatable shaft, a sleeve in which the shaft is journaled, a collar through which the sleeve extends loosely, affording range for change of axial direction of the shaft and sleeve relative to the collar, the collar having its opposite ends concentrically curved; stops on the sleeve at opposite ends of the collar; and means for making the sleeve rigid with the collar.

4. A valve-reseating machine, comprising a rotatable shaft, a bearing-sleeve in which the shaft is journaled, a collar through which the sleeve extends loosely, affording range for change of axial direction of the shaft and sleeve relative to the collar, the collar having its opposite ends concentrically curved, and stops on the sleeve at opposite ends of the collar.

5. A valve-reseating machine, comprising a rotatable shaft, a sleeve in which the shaft is journaled, a collar through which the sleeve extends loosely, affording range for change of axial direction of the shaft and sleeve relative to the collar; said collar having its opposite ends curved about a common center located in the line of the axis; stops on the sleeve at opposite ends of the collar, and means for making the sleeve rigid with the collar.

6. A valve-reseating machine, comprising a rotatable shaft, a sleeve in which the shaft is journaled, a collar through which the sleeve extends loosely, affording range for change of axial direction of the shaft and sleeve relative to the collar, stops on the sleeve at opposite ends of the collar, one of said stops being movable on the sleeve toward and from the collar, and means for forcing and securing it against the collar, to clamp the latter between the stops.

7. A valve-reseating machine, comprising a rotatable shaft, a sleeve in which the shaft is journaled, a collar through which the sleeve extends loosely, affording range for change of axial direction of the shaft and sleeve relative to the collar, said collar having its opposite ends concentrically curved; stops on the sleeve at opposite ends of the collar, one of said stops being movable on the sleeve toward and from the collar; and means for forcing and securing it against the collar to clamp the latter against the stops.

8. A valve-reseating machine, comprising a rotatable shaft; a sleeve in which the shaft is journaled; a two-part collar through which the sleeve extends loosely, one part having an aperture enlarged in all directions from the axis, and the other having an oblong aperture and adapted to be rotated about the axis with respect to the first part; and means for making the two parts of the collar rigid with each other and with the sleeve.

9. A valve-reseating machine, comprising a rotatable shaft, a sleeve in which the shaft is journaled, a two-part collar through which the sleeve extends loosely, one part having an aperture enlarged in all directions about the axis, and the other having an oblong aperture and adapted to be rotated about the axis with respect to the first part; stops on the sleeve at opposite ends of the collar, one of said stops being movable on the sleeve toward and from the collar; and a nut screwed on the sleeve outside the movable stop, to force and secure it against the collar between the stops.

10. A valve-reseating machine, comprising a rotatable shaft; a sleeve in which the shaft is journaled; a collar through which the sleeve extends loosely, affording range for change of axial direction of the collar and sleeve relative to the collar; said collar having its opposite ends concentrically curved; stops on the sleeve at opposite ends of the collar, one of said stops being movable on the sleeve toward and from the collar; and a nut screwed on the sleeve outside the movable stop to force and secure it against the collar to clamp the latter between the stops.

11. A valve-reseating machine, comprising a rotatable shaft; a sleeve in which the shaft is journaled; a two-part collar through which the sleeve extends loosely, one part having an aperture enlarged in all directions about the axis, and the other having an oblong aperture and adapted to be rotated about the axis with respect to the first part; stops on the collar at opposite ends of said two parts of the latter, one of said stops being movable on the sleeve toward and from the collar; and means for forcing and securing it against the collar to clamp the latter between the stops.

12. A valve-reseating machine, comprising a rotatable shaft; a sleeve in which the shaft is journaled; a two-part collar through which the shaft extends loosely, one part having an aperture enlarged in all directions about the axis, and the other having an oblong aperture and adapted to be rotated about the axis with respect to the first part; said rotatable part being curved cylindrically about an axis parallel to the plane of its rotation and to a line therein at right angles to the longer dimension of the oblong aperture; stops on the sleeve at opposite ends of the two-part collar, the stop at the end of the cylindrically-curved rotatable part being correspondingly curved; and a nut on the sleeve for clamping said stop against the cylindrically-curved member of the sleeve.

13. A valve-reseating machine, comprising a rotatable shaft; a sleeve in which such shaft is journaled; a two-part collar through which the sleeve extends loosely, one part having an aperture enlarged in all directions about the axis, and the other having an oblong aperture and adapted to be rotated about the axis with respect to the first part, and being at the outer side—which constitutes the end of the sleeve—curved cylindrically and channeled in the direction of the longer dimension of its oblong aperture; stops on the sleeve at opposite ends of the two-part collar, the stop at the cylindrically-curved end of the rotatable part being correspondingly curved and adapted to be engaged in the channel, whereby it is rotated with the rotatable member, and seats on the cylindrically-curved face of the latter at all angular adjustments of the same.

14. A valve-reseating machine, comprising a rotatable shaft; a sleeve in which such shaft is journaled; a two-part collar through which the sleeve extends loosely, one part having an aperture enlarged in all directions about the axis, and the other having an oblong aperture and adapted to be rotated about the axis with respect to the first part, and being at the outer side—which constitutes the end of the sleeve—curved cylindrically in the direction of the longer dimension of the oblong aperture; stops on the sleeve at opposite ends of the collar, the stop on the end of such cylindrically-curved part being correspondingly curved, and a nut on the sleeve for clamping said stop against the collar.

15. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which said shaft is journaled; said bearing-sleeve having rigid with it an exterior-threaded element; a threaded feeding-sleeve journaled on the bearing-seat outside the latter and engaging the thread of the threaded element of the bearing-sleeve, rotatable with respect thereto, and having a stop-shoulder; the shaft having a corresponding shoulder stopped against that of the feeding-sleeve; means for holding the bearing-sleeve rigid; and means for rotating the shaft.

16. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled, said bearing having rigid with it an exterior element exteriorly threaded; a threaded feeding sleeve journaled on the bearing-sleeve, outside the latter, screwed about said threaded element of the bearing-sleeve, rotatable with respect thereto, and having a stop-shoulder; the shaft having a corresponding shoulder stopped against that of the feeding-sleeve; means for holding the bearing-sleeve rigid; and means for rotating the shaft.

17. A valve reseating machine, comprising a rotatable shaft; a bearing in which the shaft is journaled; a sliding collar on the bearing, and means for making it rigid with the latter, said collar being threaded; a threaded feeding-sleeve journaled on the bearing-sleeve outside the same screwed to said collar, rotatable with respect thereto, and having a stop-shoulder; the shaft having a corresponding shoulder, stopped against that

of the feeding-sleeve; means for holding the bearing-sleeve rigid; and means for rotating the shaft.

18. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a collar through which the sleeve extends loosely, said collar being at one end exteriorly carved and widely apertured to permit change of the axial direction of the sleeve with respect to the collar; stops on the sleeve at opposite ends of the collar, the stop at the carved end of the collar being correspondingly carved to seat on such carved end: one of the stops being movable with respect to the shaft, and means for forcing and holding it toward the other stop to bind the collar between the stops.

19. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a collar through which the sleeve extends loosely; stops on the sleeve at opposite ends of the collar; said collar being at one end exteriorly threaded and widely apertured to permit change of the axial direction of the sleeve in respect to the collar, the sleeve at that end being correspondingly carved to seat on the carved end of the collar; said collar and stop being graduated in the arc of such curvature to indicate the angular displacement of the sleeve from any assumed initial position.

20. A valve-reseating machine, comprising a rotatable shaft; a bearing in which the shaft is journaled; a collar through which the sleeve extends loosely; stops on the opposite ends of the collar, the collar being at one end exteriorly threaded and widely apertured to permit change of the axial direction of the sleeve in respect to the collar, the stop at that end being correspondingly curved to seat on the carved end of the collar; said collar and stop being graduated in the arc of such curvature to indicate the angular displacement of the sleeve from any assumed initial position; one of the stops being movable on the sleeve toward and from the collar, and means for forcing and securing it against the collar to clamp the latter between the stops.

21. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a two-part collar through which the sleeve extends loosely; stops on the sleeve at opposite ends of the collar; one part of the collar being seated on and rotatable with respect to the other, said other part being, at the end at which the first part is seated, widely apertured in all directions about the axis, the first part having its outer end curved about an axis parallel to the plane of rotation, and having an oblong aperture whose greater dimension is in a plane at right angles to the axis of such curvature; the stop at that end being correspondingly curved to seat on the curved end of the collar; said collar and stop being graduated in the arc of such curvature to indicate the angular displacement of the sleeve from any assumed initial position.

22. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a two-part collar, through which the sleeve extends loosely; stops on the sleeve at opposite ends of the collar, one part of the collar being seated on and rotatable with respect to the other, said other part being, at the end at which such part is seated, widely apertured in all directions about the axis; the first part having its outer end curved about an axis parallel to the plane of rotation, and having an oblong aperture whose greater dimension is in a plane at right angles to the axis of such curvature, the stop at that end being correspondingly curved to seat on the curved end of the collar, and seated also on the sleeve; the collar and said stop having coöperating features for guiding the stop and thereby the bearing-sleeve on which it is seated, in the direction of the longer dimension of the oblong aperture.

23. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a two-part collar through which the sleeve extends; stops on the sleeve at opposite ends of the collar, one part of the collar being seated on and rotatable with respect to the other, said other part being, at the end at which the first part is seated, widely apertured in all directions about the axis; the first part having its outer end curved about an axis parallel to the plane of its rotation, and having an oblong aperture whose greater dimension is in a plane at right angles to the axis of such curvature; means for guiding the sleeve laterally in such oblong aperture, and means for clamping the sleeve between the stops.

24. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a collar through which the sleeve extends loosely, the collar being at one end exteriorly curved and widely apertured to permit change of the axial direction of the sleeve in respect to the collar, the stop at that end being correspondingly curved to seat on the curved end of the collar, and being seated also on the sleeve; the collar and said slot having coöperating features for guiding the stop and thereby the bearing-sleeve on which it is seated in the direction of the longer dimension of the oblong aperture.

25. A valve-reseating machine, comprising a rotatable shaft; a bearing-sleeve in which the shaft is journaled; a collar through which the sleeve extends loosely, the collar being at one end exteriorly curved and widely apertured to permit change of the axial direction of the sleeve in respect to the collar, the stop at that end being correspondingly curved to seat on the carved end of the collar, and being seated also on the sleeve; the collar and said sleeve having coöperating features for guiding the stop and thereby the bearing-sleeve on which it is seated in the direction of the longer dimension of the oblong aperture; and being graduated in the arc of such curvature to indicate the angular displacement of the sleeve from any assumed initial position.

26. A valve-reseating machine, comprising a rotatable shaft; a bracket-plate adapted to be rigidly mounted; having a circular threaded aperture; a universal joint, comprising an outer and an inner element, of which the latter constitutes a bearing for the shaft and penetrates the former and the former is an exteriorly-threaded collar adapted to be screwed to the bracket-plate and made rigid therewith; means for making said two parts of the universal joint rigid with each other; and means for rotating the shaft.

27. A valve-reseating machine, comprising a base-frame; an apertured bracket mounted thereon; a rotatable shaft; a universal joint, comprising an inner and an outer element of which the former constitutes the bearing of the shaft and penetrates the latter and the latter penetrates the bracket and is adapted to be made rigid therewith; means for rotating the shaft; a standard swivel-mounted on the base-frame; means for rotating it about its swivel-axis; a sleeve adjustably secured in the standard transverse to the swivel-axis; a spindle longitudinally guided in the sleeve; and means for advancing and retracting it.

28. A valve-reseating machine, comprising a base-frame; an apertured bracket therein; a collar penetrating the bracket and adapted to be made rigid therewith; a bearing-sleeve extended through the collar, the latter being apertured to afford the sleeve a range for change of axial direction; means for making the bearing-sleeve rigid with the collar; a rotatable shaft journaled in the bearing-sleeve; means for rotating the shaft in the sleeve; a standard swivel-mounted on the base-frame; means for rotating it about its swivel-axis; a sleeve adjustably secured in the standard transverse to the swivel-axis; a spindle longitudinally guided in the sleeve; and means for advancing and retracting it.

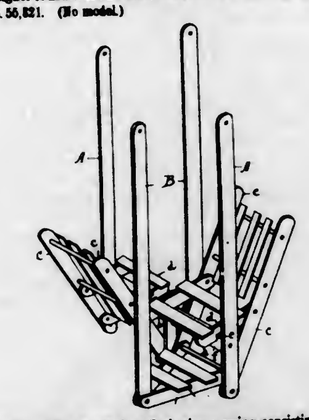
29. A valve-reseating machine, comprising a base-frame; an apertured bracket mounted thereon; a collar penetrating the bracket and adapted to be made rigid therewith; the bearing-sleeve extending through the collar, the latter being apertured to afford the sleeve a range for change of axial direction, and means for making the bearing-sleeve rigid with the collar; a rotatable shaft journaled in the bearing-sleeve; means for rotating the shaft in the sleeve, a standard swivel-mounted and also adapted to be horizontally adjusted on the base-frame; means for rotating it about its swivel-axis; a sleeve adjustably secured in the standard transverse to the swivel-axis; a spindle longitudinally guided in the sleeve, and means for advancing or retracting it.

30. A valve-reseating machine, comprising a base-frame; an apertured bracket mounted thereon; a collar penetrating the bracket and adapted to be made rigid therewith; a bearing-sleeve extending through the collar, the latter being apertured to afford the sleeve a range for change of axial direction; and means for making the bearing-sleeve rigid with the collar; a rotatable shaft journaled in the bearing-sleeve, and means for rotating it in the sleeve; a standard, comprising a base-plate and an upright vertically journaled in the plate and provided with a horizontal worm-gear; a worm-shaft, journaled in the base-plate and engaging the gear to rotate the upright about the swivel-axis; a sleeve adjustably secured in the upright transverse to the swivel-axis; a spindle longitudinally guided in the sleeve; and means for advancing and retracting it.

31. A valve-reseating machine, comprising a base-frame; an apertured bracket mounted thereon; a collar penetrating the bracket and adapted to be made rigid therewith; the bearing-sleeve extending through the collar, the latter being apertured to afford the sleeve a range for change of axial direction, and means for making the bearing-sleeve rigid with the collar; a rotatable shaft journaled in the bearing-sleeve; and means for rotating the shaft in the sleeve; a standard, comprising a base-plate having an upstanding spindle, and a socket about the base of the spindle; an upright having an axial aperture to receive the spindle and a flange constituting a worm-gear lodged in the socket; a worm-shaft journaled in the base and engaging the worm-gear flange; an annular cap which is secured on the base and covers the socket inclosing the worm-shaft and worm-gear flange and at whose central aperture a vertical journal-bearing is afforded for the standard; a sleeve adjustably secured in the standard, transverse to the swivel-axis; a spindle longitudinally guided in the sleeve; and means for advancing and retracting it.

32. A valve-reseating machine, comprising a base-frame; an apertured bracket mounted thereon; a rotatable shaft; a universal joint, comprising an inner and an outer element, of which the former constitutes the bearing of the shaft and penetrates the latter and the latter penetrates the bracket and is adapted to be made rigid therewith; a standard swivel-mounted and also adapted to be adjusted horizontally on the base-frame; means for rotating it about the swivel-axis; a sleeve adjustably secured in the standard transverse to the swivel-axis; a spindle longitudinally guided in the sleeve, and means for advancing and retracting it.

682,369. PIAZZA-SWING. FRED B. SPAULDING, Waterville, Me., assignor to Elvin A. Parkman, Fairfield, Me. Filed Apr. 15, 1901. Serial No. 56,821. (No model.)



Claim.—The herein-described piazza-swing consisting of a pair of hanging bars A having a seat-bar extending from one to the other near their lower ends, an arm depending from the center of said seat-bar, two chair-backs pivoted to the lower end of said arm and the lower ends of said hanging bars, seats pivoted to said chair-backs and resting on and engaging said seat-bar to support the chair-backs, foot-rests pivoted to the lower ends of said chair-backs and hanging bars B pivoted by their lower ends to said foot-rests.

682,370. MANUFACTURE OF TILES, PLATES, SLABS, &c. MAXIMILIAN STORP, Hamburg, Germany. Filed May 29, 1901. Serial No. 62,370. (No specimens.)

Claim.—The hereinbefore-described process for the production of pressed gypsum tiles, plates slabs or the like, consisting of adding chlorid of magnesium to the gypsum in the proportions specified, mixing the whole with water to a thick paste and pressing the same to form plates the outer face of which, after hardening is covered with a weatherproof coating substantially as hereinbefore described and for the purpose specified.

682,371. ORE-CONCENTRATOR. HARRY P. TAYLOR, Howard, Oreg., assignor of one-fourth to W. P. Keady, same place. Filed Jan. 7, 1901. Serial No. 42,344. (No model.)

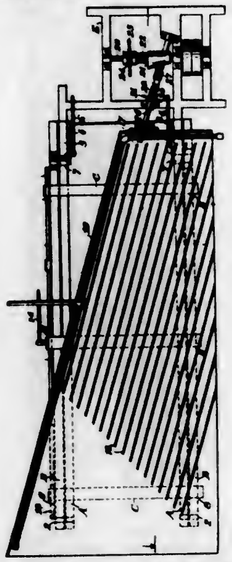
Claim.—1. In a concentrator, the combination of a longitudinally and transversely inclined support, and a table mounted thereon said table being of irregular shape with a narrowed head end, riffles upon the table arranged parallel with the outer or longer side thereof and diagonal to the said support, and means by which the table is given an endwise reciprocating movement oblique to longitudinal axis of the machine, and in the line of said riffles.

2. In a concentrator, the combination with a base of a frame pivoted thereon, means by which the frame may be inclined longitudinally, a bed hinged on this frame and capable of being given an incline transverse to the frame, a table upon this bed, said table being of irregular shape and diverging from its head end, and having riffles parallel with its outer or long side and diagonal to the bed, and means by which the table may be given an endwise-reciprocating movement oblique to the longitudinal axis of the machine, and in the line of the riffles.

3. In a concentrator, a table having a narrow head end, and gradually increasing in width toward the foot having parallel riffles extending in a line oblique to the longitudinal axis of the table and parallel with the longer or outer side of the table, and means by which this table may be given a reciprocating movement in the line of these riffles.

4. In a concentrator, the combination with a base, of a frame pivoted at one end thereon, inclined wedges slidable upon the base, bearing-surfaces fixed upon the frame which engage these wedges and means by which the wedges are moved and the frame given a longitudinal tilt, a bed hinged upon the frame, and means by which the bed is laterally tilted, a table carried upon the bed having parallel riffles oblique to the axis of the machine, and extending in uphill direction, and means by which the table is given a reciprocating movement in the direction of the riffles.

5. The combination with a concentrator-table and means by which it may be longitudinally and transversely tilted, means whereby this table may be differentially reciprocated obliquely to the longitudinal axis of the table, said means consisting of a shaft, a cone-shaped cam slidable upon this shaft, a sleeve upon the shaft and also slidable thereon, and abutting against the base of the cone, said sleeve having exterior threads, a nut thereon held between guides by which the sliding movement of the sleeve on the shaft is effected, and the cam moved, and means whereby the sleeve is kept from turning, an arm upon the head of the table and carrying a wheel which runs on the periphery of the cam, means by which the contact of the wheel against the cam is maintained.



6. The combination in a concentrator of a longitudinally-tilted frame, and means by which this tilt may be varied, a transversely-tilted bed upon this frame and means whereby its tilt may be varied, a table mounted thereon having one side inclined outward from the axis of the machine and in the direction of the foot end of the table, means by which water is fed to the table along this longer outer edge, riffles parallel with this longer edge, and means by which this table is given a differential reciprocating movement in the direction of the riffles and whereby the concentrates are made to travel "uphill" upon the table.

7. In an ore-concentrator, the combination with a longitudinally and transversely tilted table, said table having its outer and upper edge divergent from the axis of the machine, riffles of graduated lengths parallel with this upper edge and diagonal to the head end, and means whereby this table is given a differential reciprocating movement in the direction of this upper edge.

682,372. BALING-PRESS. LUTHER TRABUE, Girard, Ill. Filed Mar. 30, 1901. Serial No. 53,554. (No model.)

Claim.—1. In a baling-press, a feeder having a head comprising a fixed finger and pivoted spring-actuated fingers, overlapping the fixed finger and means for regulating the movement of the fingers in combination with a hopper.

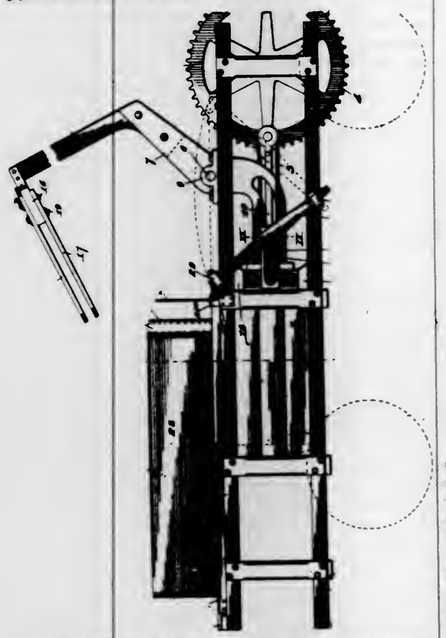
2. In a baling-press, a feeder having a head provided with vertically-adjustable spring-actuated pivoted fingers in combination with a hopper having inclined sides adapted to move said fingers toward each other, substantially as set forth.

3. In a baling-press, a feeder having a head provided with pivoted spring-actuated fingers, and a wedge between the fingers for regulating the movement of the fingers, in combination with a hopper having inclined sides adapted to move said fingers toward each other, substantially as set forth.

4. In a baling-press, a feeder having a head consisting of a fixed finger, pivoted spring-actuated fingers overlapping the fixed finger, and adjustable means for limiting the movement of the fingers, in combination with a hopper having inclined sides, adapted to move the pivoted fingers toward each other, substantially as set forth.

5. In a baling-press, the combination of a hopper having a movable

end, arms secured to the movable end and extending lengthwise of the press toward the power end thereof, a traverser, and levers pivoted directly to the traverser in advance of the ends of said arms, the upper ends of said levers engaging said arms and the lower ends of said levers having pivotal connection with the frame of the press.



6. In a baling-press, the combination of a hopper having a movable end, arms connected to said movable end, and which extend horizontally toward the power end of the press, a traverser and levers pivoted to the traverser; the upper ends of said levers engaging said arms and the lower ends of said levers having pivoted connection with the frame of the press, substantially as set forth.

7. In a baling-press, the combination of a condenser having a movable end, arms connected to said movable end and which extend horizontally toward the power end of the press, a traverser, and grooved blocks carried by the traverser, levers having projections fitting in the grooves formed in the blocks, and means for connecting the upper ends of said levers to said arms and for connecting the lower ends of said levers to the frame of the press, substantially as set forth.

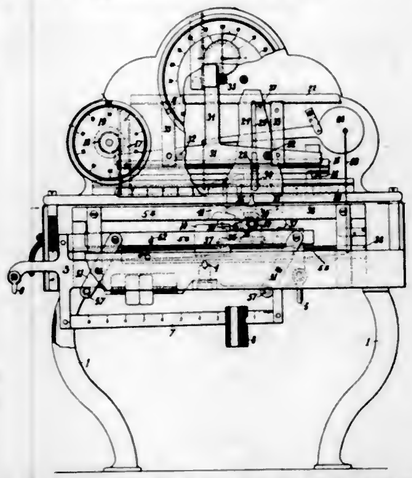
682,373. COMPUTING-SCALE. WILLIAM C. WHITNEY, Newark, N. J., assignor to the Wilmore Computing Scale Company, same place. Filed Nov. 24, 1900. Serial No. 37,575. (No model.)

Claim.—1. In a computing-scale, the combination with a scale-beam and poise, of a computing mechanism, a locking device for rendering the said mechanism normally incapable of being operated by the weighing devices, and means for connecting the computing mechanism and poise and also for controlling the locking device, whereby the computing mechanism is rendered operative when connected with the weighing mechanism, as set forth.

2. In a computing-scale, the combination with a scale-beam and a poise normally locked against movement on the beam, of a computing mechanism normally locked against operative movement by the weighing mechanism, and a device for connecting the poise and computing mechanism and at the same time unlocking both, as set forth.

3. In a computing-scale, the combination with a scale-beam and a poise, of a computing mechanism, a device for connecting and disconnecting the poise and computing mechanism, and a locking device for the computing mechanism connected with and controlled by the connecting device substantially as set forth.

4. In a computing-scale the combination with a scale-beam and a sliding poise thereon, of a computing mechanism having a part adapted to move in a direction parallel with the plane of the beam, a locking device which normally prevents the movement of said part, and an arm thereon adapted to be thrown into engagement with the poise and connected with the said locking device so as to release the computing mechanism when in engagement with the poise, as set forth.



5. In a computing-scale the combination with a scale-beam and a sliding poise thereon, of a computing mechanism having a part capable of movement corresponding to that of the poise, a device for connecting and disconnecting the poise and the said part of the computing mechanism and means operated thereby for holding the beam in a horizontal position while the poise and computing mechanism are connected, as set forth.

6. In a computing-scale the combination with a scale-beam, of a computing mechanism, a poise on the beam, a clutch carried by the poise and adapted to lock it on the beam, and a device for connecting the computing mechanism with the poise adapted by its engagement with the poise to release the clutch thereon, as set forth.

7. In a computing-scale the combination with a scale-beam, a sliding poise and a computing mechanism, of a carriage mounted to travel in a path parallel with the plane of the beam and connected with the computing mechanism, locking devices on the poise and the carriage, a device carried by the carriage adapted to be moved into engagement with the poise, and by its movement to unlock both the carriage and poise, as set forth.

8. In a computing-scale the combination with a scale-beam, a sliding poise and a computing mechanism, of a carriage mounted to travel in a path parallel with the plane of the beam and connected with the computing mechanism, means for connecting and disconnecting the carriage and poise and means controlled thereby for maintaining the beam parallel with the path of the carriage while connected with the poise, as set forth.

9. In a computing-scale of the kind described, the combination with a scale-beam and sliding poise, of the traveling carriage, a stationary track therefor, a locking device on the carriage arranged normally to prevent movement of the carriage, a connecting device on the carriage, adapted to be moved into engagement with the poise and connected with the said locking device, whereby the carriage is released when connected with the poise, as set forth.

10. In a computing-scale of the kind described, the combination with a scale-beam, and sliding poise, of the traveling carriage, a stationary track therefor, a serrated sliding plate on the carriage normally engaging with a serrated portion of the track, a connecting device on the carriage, adapted to be moved into engagement with the poise, and connections between said device and the sliding plate whereby the plate is raised out of engagement with the track when the carriage and poise are connected, as set forth.

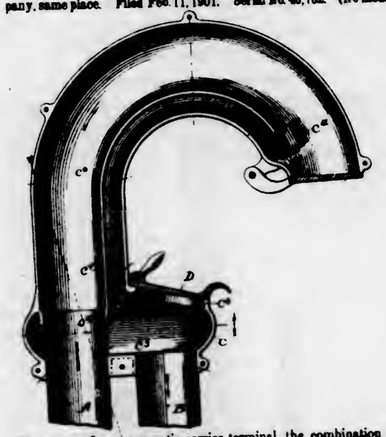
11. In a computing-scale of the kind described the combination with the scale-beam and computing mechanism of a sliding poise, a controllable connecting device on the computing mechanism and a pivoted spring-actuated lever on the poise normally bearing against the beam, but adapted to be released by the engagement of the connecting device with the poise, as set forth.

12. In a computing-scale of the kind described the combination with a scale-beam and poise, of a fixed track or guide parallel to the plane of the beam, a carriage thereon connected with the computing mechanism, a rock-shaft on the carriage, an arm thereon for engaging the poise, a bar having a parallel motion, means connecting the rock-shaft and said bar, whereby the latter is moved with the rock-shaft, and connections between the bar and the scale-beam, whereby the scale-beam will be held parallel with the track of the carriage when the latter is connected with the poise, as set forth.

13. The combination with the beam and poise of a weighing mechanism, of a computing mechanism, a carriage intermediate the computing mechanism and the weighing mechanism, connecting means between the carriage and the computing mechanism, a movable connecting device on the carriage arranged to be brought into engagement with the poise to unite it with the carriage, means for locking the carriage against movement, and a handle arranged to move the said connecting device and cause it to engage the poise while the carriage remains locked, substantially as set forth.

14. The combination with the scale-beam and poise, of the sliding plate 24 of the computing mechanism the carriage 36, permanently connected with plate 24, the arm 41 mounted on the carriage and adapted to be turned to engage with a recess in the poise, and the handle 43, for turning said arm and moving the carriage and poise, as set forth.

682,374. TERMINAL FOR PNEUMATIC CARRIERS. AUGUST WOLTMAN, Chicago, Ill., assignor to National Pneumatic Service Company, same place. Filed Feb. 11, 1901. Serial No. 46,782. (No model.)



Claim.—1. In a pneumatic-carrier terminal, the combination with a chambered base adapted for attachment to the discharge and return tubes, of a receiving-valve opposite the end of the return-tube, a curved extension of said base containing a circular discharge-passage, and a contiguous parallel return-passage opening into the discharge-passage near the end thereof, and into the chambered base, and a discharge-valve adapted to close the end of said discharge-passage; substantially as described.

2. In a terminal for pneumatic carriers, the combination with a hollow base provided with openings to receive the discharge and return tubes, of a curved extension provided with a partition, on one side of which is a circular discharge-passage having a circular opening in the base to receive the discharge-tube and on the other side of which is a parallel and partially-surrounding return-passage opening into the interior of the base and at its opposite end into the end of the discharge-passage, and a discharge-valve closing the end of said discharge-passage; substantially as described.

682,375. PNEUMATIC CARRIER. AUGUST WOLTMAN, Chicago, Ill., assignor to National Pneumatic Service Company, same place. Filed Feb. 11, 1901. Serial No. 46,783. (No model.)

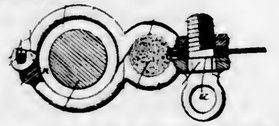
Claim.—1. In a terminal for pneumatic-carrier systems, the combination with a suitable base, provided with openings to receive the discharge and return tubes of the system, of a curved discharge branch angularly adjustable about the axis of the discharge-tube; substantially as described.

2. In a terminal for pneumatic-carrier systems, the combination of a hollow base adapted for attachment to the discharge and return tubes of the system, of a curved discharge branch containing a discharge-passage into which the discharge-tube opens, a return-passage connected with the discharge-passage near the discharge end thereof, and with the return-tube at the other end, and means for securing said discharge branch in place and adjusting it angularly about the axis of the discharge-tube; substantially as described.

3. In a terminal for pneumatic-carrier systems, the combination of a hollow base provided with openings to receive the discharge and return tubes and a valve affording access to said return-tube, a curved discharge branch secured to the base and angularly adjustable thereon about the axis of the discharge-tube, said discharge branch having a discharge-passage into which the discharge-tube opens and a parallel and partially-surrounding return-passage opening at one end into the base and at the other end into the discharge-passage near the discharge end thereof and a suitable discharge-valve for closing the end of said discharge-passage; substantially as described.



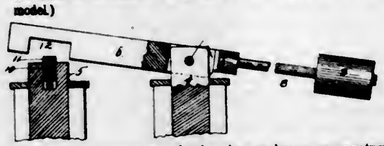
682,376. HANK. WILLIAM WOOD, Banta, Cal., assignor of one-half to George John Fake, Vernalis, Cal. Filed June 5, 1901. Serial No. 63,277. (No model.)



Claim.—1. A hank or device for connecting a sail to a stay, comprising a body made up of double semicircular members; one of said members having a square end and a loop adjacent thereto, and the other having a hook engaging the loop of the first-named member and a square end to meet the similar end thereof, and a screw for connecting the opposite ends of the body members together, and to a sail and clamping said ends on the sail.

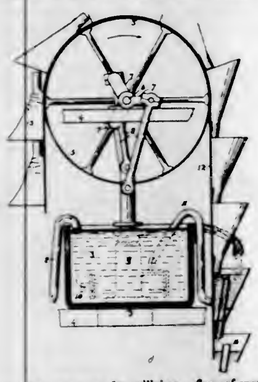
2. A hank or device for connecting a sail to a stay comprising a body made up of double semicircular members connected in a hinged manner at one end and having inwardly-directed lapped portions arranged intermediate of their semicircular portions, and also having straight end portions provided with apertures one of which is threaded, and the inner sides of the curvilinear portions adjacent to the straight end portions chamfered and the screw for connecting the straight end portions of the body members together and to a sail and clamping the same on the sail.

682,377. ELECTROMAGNET. THEODORE H. WURMB and ROBERT BAUMANN, St. Louis, Mo. Filed Apr. 9, 1900. Serial No. 12,212. (No model.)



Claim.—An electromagnet having elongated cores, an armature pivotally carried by one of the cores and provided with a groove or recess and being adapted to operate upon the other core of the magnet, which core is formed with a depression in its upper end, a spring-actuated pin carried within said depression and projecting above the top of the core for overcoming the residual current and detaching the armature, and a counterbalance-weight carried by the rear end of said armature, substantially as specified.

682,378. AUTOMATIC WATER-ELEVATOR. JOHN R. ARMSTRONG, Santa Cruz, Cal. Filed Apr. 4, 1901. Serial No. 54,284. (No model.)



Claim.—1. An apparatus for utilizing a flow of water consisting of a tank and connections by which it is supplied from a source, a tower or elevation upon which the tank is located, a pump submerged in the tank and a crank and means for operating the pump, an endless chain of buckets each bucket of which has its lower end reduced and made conical, an open-ended pipe fitted to said conical end and extending upwardly into the bucket whereby water is delivered from one bucket to the other, a drum upon the crank-shaft over which the chain passes, and an overflow-pipe by which surplus water is delivered from the tank into the buckets.

2. The combination in a water-lifting apparatus of an elevated tank, connections therefrom to a source of supply, an endless chain of buckets, said buckets having conical lower ends, drums mounted upon journal-shafts at the tank and at the bottom of the support around which the chain passes, said tank being located in the vertical plane of and substantially within the belt, a plurality of pumps operated by cranks upon the upper drum-shaft, and supply-inlets to said pumps connected with the tank, an overflow from the upper part of the tank, discharging into the uppermost buckets of the belt, an overflow connection from each bucket to the next below, and consisting of a pipe contained within each bucket, having its upper end slightly below the top of the bucket and its lower end extending through the conical end of the bucket, whereby the buckets are successively filled until the weight acts to start the belt and revolve the pump-shaft.

3. The combination in an apparatus for raising water, of an elevated tank, a source of supply by which the tank is filled, one or more pumps submerged in the tank and connections by which they are supplied from the lower part of the tank, an overflow-pipe from the upper part of the tank, an endless chain of buckets, a drum upon the pump-shaft about which the upper end of the chain passes, a similar drum located at the bottom of the elevated-tank support, around which the lower part of the chain passes, said drums and pump being substantially vertically in line with each other, and said buckets being made conical and having inclosed overflow-pipes discharging through the lower ends of the cones into the next adjacent buckets, the upper end of such pipes being open and just below the level of the tops of the buckets whereby each bucket is filled and the surplus delivered into the next bucket below.

682,379. SWIMMING APPARATUS FOR ATTACHMENT TO THE LEGS. CARL CLASSEN, New York, N. Y. Filed Apr. 10, 1901. Serial No. 55,172. (No model.)



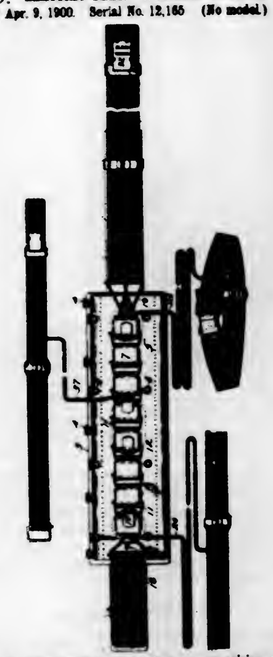
Claim.—1. A swimming attachment for the leg, consisting of a sock or stocking adapted to frictionally engage the leg and conforming to the shape thereof, whereby it is self-retained in position, a plurality of circumferential superposed series of webs or flies mounted upon the outer surface thereof and pivoted one beneath the other and adapted to be opened in the backward movement of the leg, substantially as shown and described.

2. A swimming attachment for the leg, consisting of a sock or stocking adapted to frictionally engage the leg and conforming to the shape thereof, whereby it is self-retained in position, a plurality of circumferentially-superposed series of webs or flies mounted upon the outer surface thereof, and pivoted one beneath the other and adapted to be opened in the backward movement of the leg the said webs or flies being provided at their side with flexible connections attaching them to the sock or stocking and foldable against the latter, substantially as shown and described.

3. A swimming attachment for the legs consisting of a sock or stocking adapted to frictionally engage the leg and conforming to the shape thereof, whereby it is self-retained in position, a plurality of circumferentially-superposed series of webs or flies mounted upon the outer surface thereof and pivoted one beneath the other and adapted to be opened in the backward movement of the leg, the said webs or flies being provided interiorly with stiffening-strips, substantially as shown and described.

4. A swimming attachment for the leg, consisting of a sock or stocking adapted to be drawn thereonto and the surface of which is provided with webs or flies which are adapted to be opened in the backward movement of the leg, said webs or flies consisting of separate strips stitched together and provided with a central pocket in which is placed a stiffening strip or plate, substantially as shown and described.

682,380. ELECTRIC BELT. WILLSHIRE M. DAVIS, Springfield, Mo. Filed Apr. 9, 1900. Serial No. 12,165. (No model.)



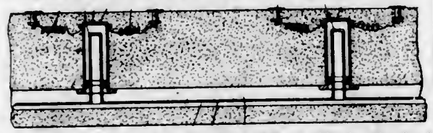
Claim.—1. An electric belt and battery comprising a plurality of cells of a battery connected in series, a fabric covering for said cells, electrodes having radial extensions passed through said covering and engaging each end cell of the battery, an electrode having radial fingers passed through the cover and engaging intermediate cells of battery, and means for securing said fabric about the person, substantially as specified.

2. An electric belt, comprising a plurality of cells of a battery connected in series, a fabric covering for said cells, an electrode connected with each terminal cell of battery, an additional electrode connected flexibly with each of said first-named electrodes, an electrode connected with intermediate cells of the battery, an electrode flexibly connected with the intermediate electrode, a fabric connected with the battery and adapted for attachment to the person, and a fabric having connecting means and connected directly with each of said flexibly-connected electrodes, substantially as specified.

3. In an electric belt, the combination with a battery of an electrode comprising a contact-plate having outwardly-extending fingers bent to lie parallel with the plate, and a cell of said battery held between the plate and the fingers thereof and in electrical connection with the latter, substantially as specified.

4. In an electric belt, the combination with a battery of an electrode comprising a contact-plate having radiating fingers bent to lie parallel with the plate and receive a cell or double cells of the battery between them and the plate, the extremities of said fingers being bent outwardly to lie parallel with the body portions thereof, and a flexible connection with the adjacent portions of said fingers and having an electrode connected therewith, substantially as specified.

682,381. ELECTRIC-TRACTION ROAD. LEON DION, Boston, Mass. Filed Jan. 28, 1901. Serial No. 44,979. (No model.)



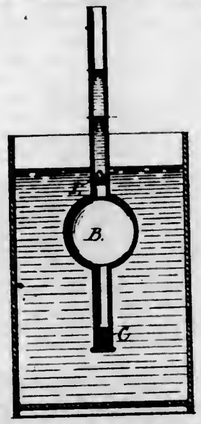
Claim.—1. In an electric-traction road the combination of a closed conduit having a series of pockets or recesses projecting toward the roadway-surface, a conductor in said conduit having movable magnetic members occupying said pockets, unexposed contact members associated with said pockets, and a surface conductor comprising a series of exposed contact members isolated from the pockets and electrically connected with said unexposed contact members.

2. In an electric-traction road the combination of an unexposed feeder, a series of pockets containing movable magnetic members connected with the feeder, unexposed contact members associated with the pockets, and a surface conductor comprising a series of exposed contact members isolated from and located between said pockets and electrically connected with the unexposed contact members.

3. In an electric-traction road the combination of an unexposed feeder, a series of pockets containing movable magnetic members, a series of unexposed contact members shorter than the pockets associated with their lower ends and a surface conductor comprising a series of exposed contact members isolated from the pockets and electrically connected with said unexposed contact members.

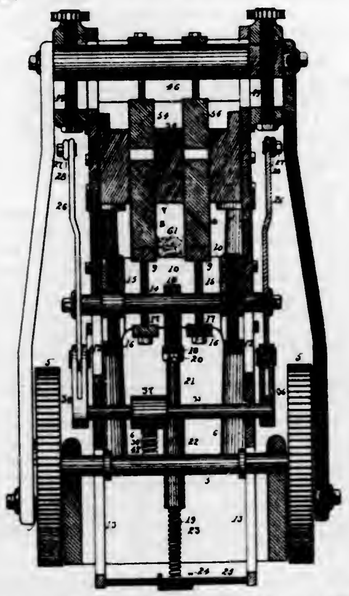
4. In an electric-traction road the combination of a closed conduit having a series of pockets or recesses projecting from it toward the roadway-surface, a conductor in said conduit having movable magnetic members occupying said pockets, a series of unexposed contact members shorter than the pockets associated with their lower ends, and a surface conductor comprising a series of exposed contact members isolated from the pockets and electrically connected with said unexposed contact members.

682,382. LIQUID-BALANCE. JOHN W. GRAY, Oakland, Cal. Filed Mar. 16, 1896. Serial No. 674,319. (No model.)



Claim.—A instrument for determining weights, volumes, &c., consisting of a hollow tube to receive a liquid adapted to rise in the tube when the object to be weighed is placed within the latter, means for causing the tube to float erect in a liquid, and means for determining depths of flotation and rise of liquid within the instrument.

682,383. BRICK-PRESSING MACHINE. JOHN R. LONG, Springfield township, Ohio. Filed Aug. 13, 1900. Serial No. 26,695. (No model.)



Claim.—1. In a machine for pressing bricks the combination of a main driving-shaft, cranks and connecting-rods attached thereto, a cross-head attached to the end of said connecting-rods provided with means for vertical adjustment, plungers depending from said cross-head, arranged to enter molds, a pair of rods suspended from said cross-head, a cross-shaft mounted in said rods bearing cranks at its ends, levers connected to said cranks and a brick-feeding mechanism, a shaft bearing a lower cross-head arranged to pivot and be supported by said levers, lower plungers mounted on said lower cross-head adapted to rise and approach said first plungers and molds adapted to receive said sets of plungers simultaneously in opposite directions, substantially as shown and described.

2. In a machine for pressing bricks the combination of a main driving-shaft, cranks and connecting-rods attached thereto, a cross-head attached to the end of said connecting-rods, provided with means for vertical adjustment, plungers depending from said cross-head, arranged to enter molds, a pair of rods suspended from said cross-head, a cross-shaft mounted in said rods bearing cranks at its ends, levers connected to said cranks and a brick-feeding mechanism, a shaft bearing a lower cross-head arranged to pivot and be supported by said levers, lower plungers mounted on said lower cross-head adapted to rise and approach said first plungers, a horizontal rod projecting from said cross-shaft bearing a second rod constantly held by a spring and capable of a limited vertical motion and arranged to partially rotate said cross-shaft as it rises to break the joints between the cranks on said cross-shafts and levers and cause the partial retarding of said lower cross-head, and molds adapted to receive said sets of plungers simultaneously in opposite directions, substantially as shown and described.

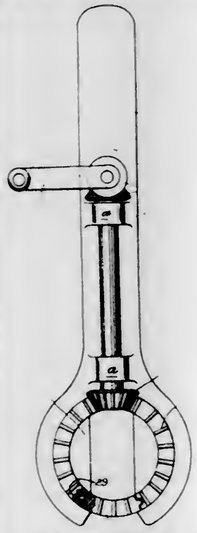
3. In a machine for pressing bricks the combination of a main driving-shaft, cranks and connecting-rods attached thereto, a cross-head attached to the end of said connecting-rods, provided with means for vertical adjustment, plungers depending from said cross-head arranged to enter molds, a pair of rods suspended from said cross-head, a cross-shaft mounted in said rods bearing cranks at its ends, levers connected to said cranks and a brick-feeding mechanism, a shaft bearing a lower cross-head arranged to pivot and be supported by said levers, means to permit the vertical adjustment of said lower cross-head with reference to its supporting-shaft, lower plungers mounted on said lower cross-head adapted to rise and approach said first plungers, a horizontal rod projecting from said cross-shaft bearing a second rod constantly held by a spring and capable of a limited vertical motion and arranged to partially rotate said cross-

shaft as it rises to break the joints between the cranks on said cross-shafts and levers and cause the partial retarding of said lower cross-head, and molds adapted to receive said sets of plungers simultaneously in opposite directions, substantially as shown and described.

4. In a mechanism of the class designated, the combination with a lower main frame, a driving-shaft mounted therein, cranks and connecting-rods attached thereto, a plate bearing molds, mounted on posts rising from said main frame, a cross-head bearing depending plungers above said mold-plate arranged to be reciprocated by said connecting-rods, a pair of rods depending from said cross-head, a cross-shaft suspended between said rods, cranks mounted on said cross-shaft, levers mounted and pivoted between said levers, a lower cross-head mounted on said last-named shaft, a brick-feeding device consisting of a series of followers sliding on a table attached to the upper ends of said levers, and means as a horizontal rod bearing a depending second rod provided with a stop for gradually retarding the upward motion of said lower plungers by rotation of said second-mentioned shaft and the oscillation of said levers, substantially as shown and described.

5. In a mechanism of the class designated, the combination with a lower main frame, a driving-shaft mounted therein, cranks and connecting-rods attached thereto, a plate bearing molds, mounted on posts rising from said main frame, a cross-head bearing depending plungers above said mold-plate arranged to be reciprocated by said connecting-rods, a pair of rods depending from said cross-head, a cross-shaft suspended between said rods, cranks mounted on said cross-shaft, levers mounted and pivoted between said levers, a lower cross-head mounted on said last-named shaft a brick-feeding device consisting of a series of followers sliding on a table attached to the upper ends of said levers, and means as a horizontal rod bearing a depending second rod provided with a stop for gradually retarding the upward motion of said lower plungers by rotation of said second-mentioned shaft and the oscillation of said levers, and means for removing the finished bricks from the vicinity of said plungers before the descent thereof, substantially as shown and described.

682,384. **WRENCH.** JAMES D. MCFARLAND, JR., San Francisco, Cal., assignor of one-half to John Bruckman, same place. Filed Nov. 17, 1900. Serial No. 36,840. (No model.)



Claim.—1. A wrench including a handle having an enlarged head with circular opening, a circular, revoluble jaw mounted in said opening, and means including a shaft parallel with the handle and having a gear engaging and adapted to continuously rotate the jaw independent of the movement of the handle.

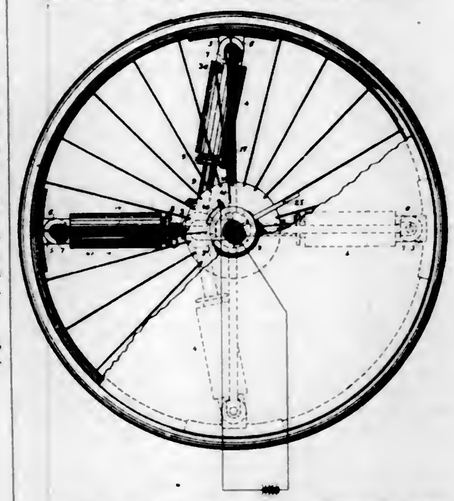
2. A wrench including a handle having an enlarged head, a revoluble jaw let into said head so as to be substantially flush therewith, and provided with a gear-surface, and means including a shaft parallel with the handle and having a gear engaging the gear-surface of the jaw for continuously rotating the jaw without movement of the handle.

3. A wrench consisting in combination of a handle, a circular jaw, gear-teeth upon this jaw, a segmental toothed portion adapted to close the jaw-opening and means whereby this jaw may be actuated continuously without movement of the handle.

4. The combination in a wrench, of a handle, a revoluble jaw, a bevel-gear upon the jaw, a segmental geared portion hinged upon the jaw and turnable at right angles to the plane of the jaw, and means whereby said jaw may be revolved continuously.

5. A wrench including a handle having a head provided with a circular opening, a circular jaw mounted in said opening and provided with gear-teeth on one of its faces, a shaft parallel with the handle and provided with a bevel-gear for engaging the teeth of the jaw, and means for rotating the shaft and continuously operating the jaw without movement of the handle.

682,385. **ROTARY EXPLOSIVE-ENGINE.** JAMES D. MCFARLAND, Jr., San Francisco, Cal., assignor of one-half to John Bruckman, same place. Filed Dec. 4, 1900. Serial No. 38,865. (No model.)



Claim.—1. A rotary engine including a revoluble wheel, a central crank-shaft the crank whereof is eccentrically located with relation to the wheel-center, cylinders having their outer ends pivoted to the wheel-rim, pistons movable in the cylinders and piston-rods connecting the pistons with said crank, said shaft having inlet and exhaust passages made in it, a plug fitting the shaft and having passages communicating with said inlet and exhaust passages, and passages connecting the inlet and exhaust passages with the cylinders, and igniting mechanism, and means for making and breaking contact to explode the gas charges.

2 A rotary engine consisting of a revoluble wheel, and a fixed central shaft having a crank eccentric to itself, cylinders having the outer ends pivoted in the wheel-rim, pistons movable therein and piston-rods connecting with the fixed crank, disks forming the wheel-hubs, passages made through the disks and pipes connecting said passages with the outer ends of the cylinders, inlet and exhaust passages made in the shaft, and a tapering plug fitting between the shaft and the hub and having passages through which inlet and exhaust communications are established with the cylinders.

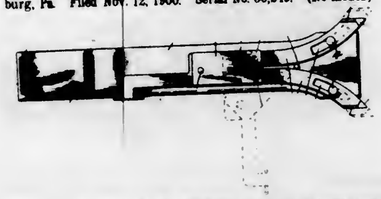
3. The combination in a rotary engine of a wheel, a fixed crank-shaft upon which it is revoluble, cylinders pivotally secured to the rim of the wheel, and the inner ends of the piston-rods connected with the crank eccentric to the main shaft, inlet and exhaust passages made through the main shaft, corresponding passages made through the wheel-hub, a plug fitting between the shaft and the hub having passages therethrough adapted to register with those of the shaft and the hub, a lever by which said plug may be turned to change the relative positions of the passages and reverse the rotation of the engine, and pipes connecting the wheel-hub passages with the outer ends of the cylinders to admit the propelling medium thereto.

4. The combination in a rotary gas-engine of a revoluble wheel, a crank-shaft, a plurality of cylinders having their outer ends pivoted to the rim of said wheel, and the piston-rods of said cylinders connected with the crank formed in said shaft, passages through the shaft and through the wheel-hub, pipes connecting the passages in the wheel-hub with the outer ends of the cylinders, said connection being made through the pivot-pins about which the cylinders oscillate.

5. The combination in a rotary gas-engine of a revoluble wheel, a crank-shaft, a plurality of cylinders having their outer ends pivoted to the rim of said wheel, and the piston-rods of said cylinders connected with the crank formed in said shaft, passages through the shaft and through the wheel-hub, pipes connecting the passages in the wheel-hub with the outer ends of the cylinders, and a valve interposed between the shaft and the wheel-hub having passages therethrough, and means for moving said valve to reverse the rotation of the wheel.

6. The combination in a rotary gas-engine of a revoluble wheel, a crank-shaft, a plurality of cylinders having their outer ends pivoted to the rim of said wheel, and the piston-rods of said cylinders connected with the crank formed in said shaft, passages through the shaft and through the wheel-hub, pipes connecting the passages in the wheel-hub with the outer ends of the cylinders, said connection being made through the pivot-pins about which the cylinders oscillate, electric igniting-wires, and means for making and breaking the contact consisting of a member carried by the wheel-hub, with which one of the wires is connected, said member making and breaking contact with the other wire during the revolution of the wheel.

682,386. **CLAMP FOR BED-RAILS.** ULYSSES C. OBLOSSER, Rohrsburg, Pa. Filed Nov. 12, 1900. Serial No. 36,249. (No model.)



Claim.—In a clamp of the character described, a frame provided with a jaw at one end, an operating-lever fulcrumed to the frame intermediate of its ends, a plate pivoted at one end to the operating-lever, other levers lying in the same plane close against the opposite end of the frame and having independent pivotal connection at their inner ends with the aforesaid pivoted plate on opposite sides of a medial line and having their outer ends bent to provide jaws, and a guide-lug arranged in the space between a pair of levers, substantially as set forth.

682,387. **ELASTIC VALVE ATTACHMENT FOR PNEUMATIC TIRES.** ROLLAND J. PEET, Hamilton, N. Y. Filed Apr. 29, 1901. Serial No. 57,895. (No model.)

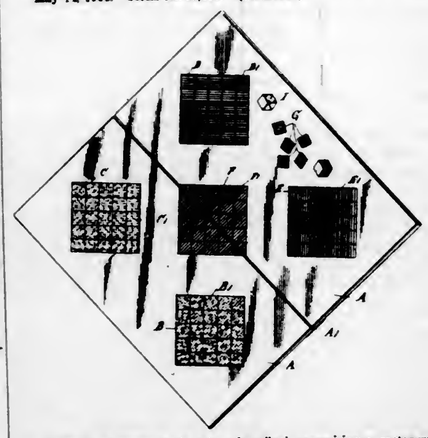


Claim.—1. In an attachment for inflating a pneumatic tire, the combination of a standard, a coil-spring on the standard, a nipple mounted to be moved on the standard having an air-passage for connecting with the rubber supply-tube and a rubber packing in the end of the nipple for receiving and making connection with the valve-stem on the tire substantially as set forth for the purpose as stated.

2. In an attachment for inflating a pneumatic tire, the combination of a standard having a bifurcated end for supporting the device on the wheel, a coil-spring on the standard, a nipple having an air-passage and a stem mounted to be moved on the standard and connecting with the air-supply tube and provided at its end with a rubber packing for connecting the same to the stem of the pneumatic tire substantially as set forth.

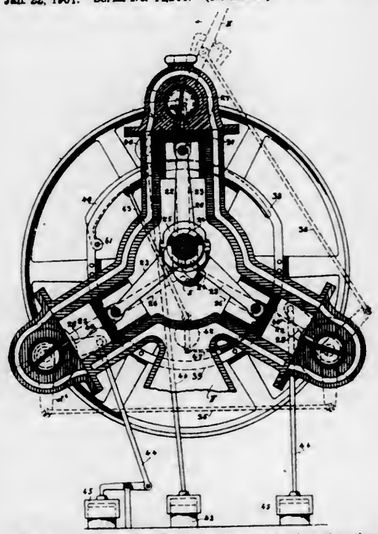
3. In an attachment for inflating a pneumatic tire, the combination of a pair of standards having a bifurcated connection for engaging the wheel, coil-springs on the standards, a nipple having a rubber packing in its upper end mounted on the standards to be moved into and out of engagement with the valve-stem of the tire and an air-passage through the nipple adapted to be connected to the flexible air-supply pipe substantially as set forth for the purpose as stated.

682,388. **GAME.** HENRY C. PIGUERON, New York, N. Y. Filed May 14, 1901. Serial No. 60,136. (No model.)



Claim.—A game of the class described comprising a rectangular game-board, five rectangles of paper secured upon the board at the corners thereof and in the center and each colored differently and divided into a number of correspondingly-shaped rectangles or sections, the number of sections of all papers corresponding and each paper being adapted to form a field or ground for one player; five sets of pawns or pieces, each set corresponding to the number of divisions of one paper rectangle and corresponding in color to the respective rectangles of the game-board, each pawn or piece being of the same size and shape as the divisions of the rectangles and being adapted to exactly cover the said divisions and said rectangles when all placed upon the latter.

682,389. **ENGINE.** WILLIAM K. RILEY, Lake City, Colo. Filed Jan. 22, 1901. Serial No. 44,266. (No model.)



Claim.—1. An engine consisting in combination of a plurality of fixed cylinders, pistons reciprocating therein and acting upon a shaft, oscillating inlet-valves at the outer ends of said cylinders, means by which such oscillation is effected, a rotatable controlling-valve adjacent to each of said inlet-valves, an inlet and an exhaust port in the end of each controlling-valve, inlet and exhaust ports in the end of each of said first-named valves, means whereby said ports are adapted properly to register, and means whereby said controlling-valves are operated simultaneously to admit or shut off steam to the cylinders.

2. An engine consisting in combination of a plurality of radially-dis-

posed cylinders in the same plane, pistons therein, piston-rods connecting with the crank of a main shaft, said piston-rods having segmental portions bearing upon said shaft and held thereto by straps or rings, oscillating inlet-valves at the outer ends of said cylinders and means for effecting said oscillation, rotatable controlling-valves in axial alinement with said oscillating valves, connections between said oscillating and controlling valves and a lever mechanism whereby said controlling valves are operated to admit or shut off steam to or from the cylinders.

3. In an engine and in combination with a cylinder thereof, a rotatable inlet-valve consisting of a cylindrical structure having a longitudinal diaphragm, slots on either side of said diaphragm and adapted to register with the port of said cylinder and radial slots at one end of said valve and on either side of said diaphragm.

4. In an engine and in combination with the steam-supply passage thereof, a controlling-valve having a hollowed or chambered end portion, an opening in the wall of said valve into said chamber, a second opening in the wall of said valve and adapted to register with said supply-passage, and radial partitions inclosing said second opening whereby communication with the chamber proper is cut off.

5. The combination in an engine of multiple fixed cylinders radially disposed in relation to a shaft, oscillating inlet-valves in the outer ends of said cylinders, means by which said oscillation is effected, each of said valves having a longitudinally-partitioned chamber, ports on either side of said partition adapted to register with an opening into the cylinder, radial ports at one end of said valves, fixed plates or partitions against which the oscillating valves abut, radial slots in said partition with which the ports in the end of said valves are adapted to register, and a controlling-valve in relation to each of said oscillating valves, said controlling-valve having one end abutting against said slotted partition, admission and exhaust ports in said controlling-valve and adapted to register with the slots in said partitions, and means by which said controlling-valves are rotated in unison to start, stop or reverse the engine.

6. In an engine having radially-disposed cylinders, the combination with oscillating inlet-valves at the outer end of said cylinders, of a governor consisting of two conjoined concentric crescents of unequal radius upon the spokes of the fly-wheel, the larger crescent having a slot in which a crescent lever is fulcromed and movable to or from the center of the wheel, means by which this lever is drawn inwardly by the more rapid revolution of the wheel, and conversely swung outwardly by the slowing of the wheel, and means by which this lever operates to open the inlet-valves on the revolution of the wheel.

7. The combination in an engine having a plurality of radially-disposed fixed cylinders, of rotatable inlet-valves in the outer ends of said cylinders, stems upon these valves protruding through the casing, cranks upon these stems, and means by which the valves are kept closed, of a governor upon the fly-wheel on the engine-shaft, said governor consisting of two conjoined concentric crescents of unequal radius upon the spokes of the wheel, the larger crescent having a slot in which is fulcrumed a crescent lever, and which appears or disappears within the crescent by the revolution of the wheel, said appearance and disappearance being controlled by a centrifugally-operating weight upon the wheel, said lever adapted to engage with each of the above-mentioned valve-cranks successively in the revolution of the wheel, whereby the said valves are rotated and steam admitted to the cylinders during such engagement of the lever and cranks.

682,390. **MACHINE FOR PACKING EXPLOSIVE GELATIN.** JOHN C. SCHRADER, Dover, N. J. Filed July 23, 1900. Serial No. 25,116. (No model.)

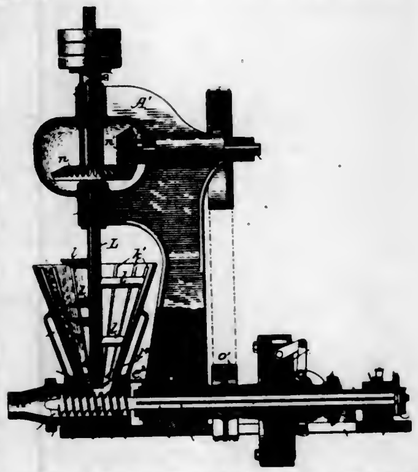
Claim.—1. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of automatically-regulated feeding mechanism for variably supplying material to said case in response to variations in the quantity consumed by said screw, substantially as described.

2. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper, means for feeding material therefrom to said screw, and means whereby the amount fed to said screw will be automatically varied in response to variations in the quantity consumed by said screw, substantially as described.

3. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper, means within the hopper for forcing material therefrom to said screw, and means whereby the pressure upon the material in the hopper will remain constant during the operation of the machine regardless of the quantity consumed by said screw, substantially as described.

4. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper, means within the hopper for forcing material to the packing-screw, and means for regulating the pressure upon the material, substantially as described.

5. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper, a vertically-movable shaft suspended therein, horizontal blades carried by said shaft having downwardly-inclined faces, and means for rotating said shaft, substantially as described.



6. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper, revolvable blades within said hopper having faces angular to their plane of rotation, and means whereby said blades are free to rise during their rotation, substantially as described.

7. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper, a vertical shaft suspended therein having blades angular to a horizontal plane projecting radially therefrom, said shaft being free to rise in suitable bearings, an adjustable weight on said shaft, and means for revolving said shaft and screw, substantially as described.

8. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a frame, a hopper, a longitudinally-movable shaft suspended therein, horizontal blades carried by said shaft having downwardly-inclined faces, a gear splined to said shaft supported by said frame, and means for rotating said gear, substantially as described.

9. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a frame, a hopper, a longitudinally-movable shaft suspended therein, horizontal blades carried by said shaft having downwardly-inclined faces, a gear splined to said shaft supported by said frame within a closed case, substantially as described.

10. In a machine for packing explosive gelatin, the combination of a hollow driving-shaft, a packing-screw provided with an extension fitting into said hollow shaft, and forming the sole support for said screw, and means for rotatively coupling said screw and shaft, substantially as described.

11. In a machine for packing explosive gelatin, the combination of a hollow driving-shaft, of a packing-screw provided with a rearward extension fitting into said hollow shaft and extending beyond the rear end thereof, and a key at the rear end of said extension for preventing its withdrawal from said shaft, substantially as described.

12. In a machine for packing explosive gelatin, the combination of a packing-screw case, a packing-screw within said case, means for revolving said screw, and means whereby said screw may be readily withdrawn from said case and another inserted without disturbing the revolving means, substantially as described.

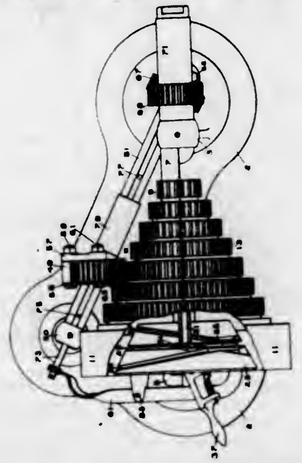
13. In a machine for packing explosive gelatin, the combination of a packing-screw case having a detachable nozzle, a packing-screw within said case, rotating mechanism for said screw, and means whereby said screw may be withdrawn from said case and from its connection with the rotating mechanism upon the removal of said nozzle, substantially as described.

14. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper communicating with said case, a vertically-movable shaft suspended in said hopper from bearings above the same, horizontal blades carried by said shaft having downwardly-inclined faces, and substantially vertical ribs on the inner surface of said hopper, substantially as described.

15. In a machine for packing explosive gelatin, the combination of a packing-screw, a case therefor, a jacketed hopper communicating with said case, and a detachable jacketed nozzle for said case, substantially as described.

16. In a machine for packing explosive gelatin, the combination with a packing-screw and its case, of a hopper communicating with said case, horizontally-revolvable blades suspended in said hopper and adapted to force material therefrom to said screw, and means permitting the automatic rising of said blades when the material offers sufficient resistance to the rotation thereof, substantially as described.

682,391. **VARIABLE-SPEED GEARING.** WILLIAM P. SHATTUCK, Minneapolis, Minn., assignor to Shattuck Manufacturing Co., same place. Filed Mar. 5, 1901. Serial No. 49,949. (No model.)



Claim.—1. A variable-speed gearing comprising two members, one composed of a plurality of gears of different diameters, and the other being a pinion, one of said members being made up of movable sections and means for relatively moving said sections to carry the same into mesh with a higher or lower gear.

2. A variable-speed gearing comprising two members, one of which is movable longitudinally upon its axis, one of said members comprising a plurality of gears of different diameters and the other being a pinion, one of said members being made up of relatively movable sections, and means for shifting said sections to carry the same into pitch-line of the adjacent gear to shift said pinion from one gear to another without interrupting the transmission of power from one gear to the other.

3. A variable-speed gearing comprising coöperating gear members, one of said members being provided with a section capable of movement in the direction of its axis, and means for moving said movable section whereby one member of the gearing may be shifted and the speed of the gearing varied.

4. A variable speed gearing comprising coöperating gear members, one of said members being formed in a plurality of sections, in combination with means for securing a relative longitudinal movement of said sections for the purpose of shifting the other member of the gearing.

5. A variable-speed gearing comprising coöperating gear members, one of said members comprising a plurality of gears and the other member being a pinion, one of said members being in two parts capable of movement for the purpose of shifting the other member, in combination with means for controlling the movement of the parts of said movable member.

6. A variable-speed gearing comprising coöperating gear members, one of which is composed of gears of different sizes, one of said members being divided into sections capable of relative longitudinal and lateral movement and means for accomplishing said movement, as and for the purpose specified.

7. A variable-speed gearing comprising coöperating gear members, one composed of different-sized gears, one member being composed of longitudinal sections and means for relatively moving said sections, while the members are in mesh, to shift one section into the pitch-line of the opposed gear, whereby the variation of speed is secured without interruption in the transmission of power, substantially as described.

8. A variable-speed gear comprising coöperating gear members, one composed of different-sized gears and divided into sections and means for relatively shifting said sections laterally to engage a new gear with the opposed member without interruption in the transmission of power, substantially as described.

9. A variable-speed gear comprising coöperating gear members, one composed of different-sized gears and divided into sections and means for relatively shifting said sections laterally and longitudinally to form a new ratio of engagement with the opposed gear member, substantially as described.

10. A variable-speed gear comprising coöperating gear members, one whereof is composed of gears of different sizes, and automatically-operative means for relatively shifting said gears with relation to their axes, during engagement with the opposed member to increase or decrease the speed without interrupting the power of transmission, substantially as described.

11. A variable-speed gearing comprising opposed gear members, one composed of a plurality of gears and the other being a pinion constantly engaged therewith and means for relatively shifting the gears of the first member during engagement with said pinion to move said pinion longitudinally and transfer the same from one gear to another, substantially as described.

12. A variable-speed gearing comprising opposed gear and pinion members, said gear member comprising a plurality of gears divided into longitudinal sections capable of longitudinal and lateral movement and a switch or shifting mechanism associated with said gear member for relatively moving the sections thereof to shift said pinion member while in mesh therewith, substantially as described.

13. A variable-speed gear comprising opposed gear and pinion members, said gear member comprising a plurality of gears divided into longitudinal sections capable of diagonal movement and a shift or switching mechanism associated with said gear member for relatively moving the sections thereof to shift said pinion member while in mesh therewith, substantially as described.

14. A variable-speed gear comprising coöperating gear and pinion members in constant mesh, said gear member being composed of a plurality of gears of different sizes, said gear member being divided longitudinally and having its sections connected for relative movement and a shifting mechanism for shifting one section of said gear member while the other section is in mesh with the pinion member, substantially as described.

15. A variable-speed gear comprising coöperating gear and pinion members in constant mesh, said gear member being composed of a plurality of gears of different sizes, said gear member being divided longitudinally and having its sections connected for relative movement and a shifting mechanism for shifting one section of said gear member and thereafter returning the first section and shifting the pinion member, substantially as described.

16. A variable-speed gear comprising coöperating gear and pinion members, said gear member being composed of a plurality of different-sized gears capable of distortion with relation to the axis thereof, said pinion being movable longitudinally of said gear member, and a shifting mechanism associated with said gear member and momentarily operative to shift or distort the parts of said gear member to shift said pinion from one gear to another of said gear member.

17. A variable-speed gear comprising coöperating gear and pinion members, said gear member being composed of a plurality of different-sized gears, certain teeth of which are in longitudinal line, said gear member having a shiftable section and means for shifting said section to accomplish the transfer of said pinion upon the longitudinally-alined teeth of said gear, substantially as described.

18. A variable-speed gear comprising coöperating gear and pinion members, said gear member being composed of relatively movable sections constituting gears of different sizes and shifting means for moving a section of said gear member into a momentary eccentric position to receive said pinion, as and for the purpose specified.

19. A variable-speed mechanism comprising opposed rotary members in constant engagement, one of said members being composed of a plurality of steps of different diameters and being divided into sections relatively movable into non-corresponding positions to receive and transfer the coöperative member.

20. The herein-described mechanism comprising a divided member having annular grooves of different diameters, the sections of said member being relatively movable to register non-corresponding grooves and a member constantly engaged in one or the other of said grooves.

21. A variable-speed gearing comprising coöperating gear members, one of said members consisting of two or more gears of different diameters, each formed of a fixed and a movable section, and means for moving the movable section of one gear into coincidence with the fixed section of another gear.

22. In a variable-speed gearing, a series of concentric gears of different diameters, each provided with a movable section adapted to be moved into coincidence with the fixed section of the next larger or the

next smaller gear, and means for moving said movable sections, in combination with a cooperating gear member.

23. The combination, in a variable-speed gearing, with a series of gears of different diameters, each provided with a movable section, adapted to be moved into coincidence with the fixed section of the next larger or the next smaller gear, of a controller adapted to control the movements of said movable sections, and a cooperating pinion or gear member engaging at all times one of said gears, for the purpose set forth.

24. The combination, in a variable-speed gearing, with a series of gears of different diameters, each provided with a fixed section and a movable section, each of said movable sections being adapted to be moved into coincidence with the fixed section of the next larger or the next smaller gear, of an automatic controller connected with and adapted to control the movements of said movable sections, and a cooperating pinion or gear member engaging at all times one of said gears, for the purpose set forth.

25. The combination, in a variable-speed gearing, with a series of gears of different diameters, each provided with a fixed section and a movable section, of a cooperating pinion or gear member at all times engaging one of said gears, a grooved controller, a shoe arranged to travel in the grooves of said controller, and connected with and controlling the movement of said movable section, for the purpose set forth.

26. The combination, in a variable-speed gearing, with a series of gears of different diameters, each provided with a fixed section and a movable section, of a grooved controller, a shoe adapted to travel in the grooves of said controller, and connected with said movable section, and a switch in said controller for directing the movements of said shoe, for the purpose set forth.

27. The combination, in a variable-speed gearing, with a series of gears of different diameters, each provided with a fixed section and a movable section, each of said movable sections being adapted to be moved into coincidence with the fixed section of the next larger or the next smaller gear, of a grooved controller provided with three grooves, one of which retains the movable sections in their normal position and the others of which cause said sections to be moved in opposite directions, and means connecting said controller with said movable section, for the purpose set forth.

28. The combination, in a variable-speed gearing, with a series of gears of different diameters, each provided with a movable section, adapted to be moved into coincidence with the fixed section of the next larger or the next smaller gear, of a controller connected with and arranged to control the movement of said movable section, a cooperating pinion and an automatic locking device arranged to lock the section-controlling mechanism when the cooperating pinion has reached the limit of its movement in either direction, for the purpose set forth.

29. The combination, with the shaft 7, the series of fixed gear-sections 9, and the web 15 connected with said shaft, of the movable gear-sections 13 provided with the web 17 arranged to fit against and slide upon said web 15, and means for moving said movable sections diagonally in respect to said fixed sections, whereby each movable section may be made to coincide, at one side of the gears, with the next larger or next smaller fixed section, for the purpose set forth.

30. The combination, with a series of fixed gear-sections 9, a shaft to which said sections are connected, a belt-pulley 11 secured to or formed integrally with said fixed section, of a series of cooperating movable gear-sections, and means for moving said sections, for the purpose set forth.

31. The combination, with the fixed gear-sections 9, a shaft 7 upon which said sections are mounted, a longitudinal web 15 uniting said sections, said web having diagonal grooves, of a corresponding series of movable sections provided with a web 17, uniting said sections, bars connecting said sections, and means for moving said movable sections, for the purpose set forth.

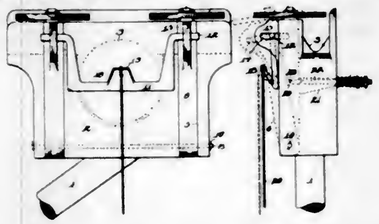
32. The combination, with a series of gears of different diameters, each comprising a fixed and a movable section, and having the circumferential grooves 45 and flanges 47, of the coacting pinion or gear member 49 adapted to engage any one of said gears, swinging standards supporting said pinion or gear member, and a suitable lug secured upon one of said standards and engaging the groove 45, for the purpose set forth.

33. The combination, with the fixed gear-sections 9 and the movable gear-sections 13, and means for securing said sections together while permitting one to move relatively to the other, of the grooved controller 23 and means connecting the movable sections with said controller, for the purpose set forth.

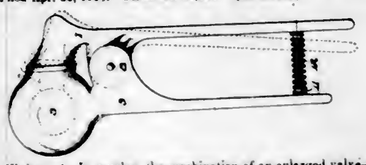
34. The combination, with the fixed gear-sections 9 and the movable gear-sections 13, of the grooved controller 23, a switch-block 33 arranged in said controller, and connected with said movable gear-sections, and means for operating said switch-block, for the purpose set forth.

682,392. TROLLEY. JACOB A. THOMPSON, McDonald, Pa. Filed Apr. 18, 1901. Serial No. 56,506. (No model.)

Claim.—In a trolley, the combination of a trolley-harp having recesses formed therein, pivoted brackets secured in said recesses, a shaft upon which said pivoted brackets are secured, heads having slots therein formed at the upper end of said pivoted brackets, a yoke secured in said slots, an operating-cord secured to said yoke, horizontally-arranged wheels secured to the upper end of said heads, rods extending through said trolley-bar in the rear face of said pivoted brackets, and springs encircling the ends of said rods whereby the said brackets and wheels are returned to their normal position, all parts being arranged and operating substantially as herein shown and described.



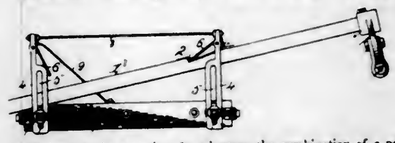
682,393. SAFETY-VALVE. JACOB A. THOMPSON, McDonald, Pa. Filed Apr. 20, 1901. Serial No. 56,690. (No model.)



Claim.—1. In a valve, the combination of an enlarged valve-casing having formed therein an exhaust-opening, an arm, a valve formed integral with said arm, an arm secured on said casing, and a spring interposed between said arms to normally retain the said valve in the closed position.

2. In a blow-off valve, the combination of an enlarged valve-casing having formed therein an exhaust-opening and valve-seat, an arm, a valve secured to said arm operating in said seat, a casing carried by said valve-casing, pivotal connections between said arm and said valve-casing, an arm formed integral with said casing, and a spring interposed between said arms to normally close the valve, substantially as described.

682,394. MARKER FOR CORN-PLANTERS. THOMAS THORPE, Decatur, Ill. Filed May 31, 1901. Serial No. 62,463. (No model.)



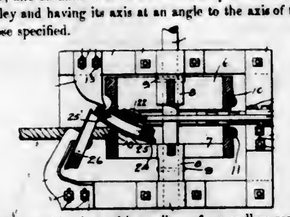
Claim.—1. In a marker for planters, the combination of a pair of vertically-slotted standards one on each side of the longitudinal center of the planter, a marker-bar tiltable and longitudinally movable in the slots of the standards and detents in the upper ends of the standards to engage uptilted ends of the bar, substantially as described.

2. In a marker for planters, the combination of a pair of vertically-slotted standards one on each side of the longitudinal center of the planter, a marker-bar longitudinally movable and vertically tiltable in the slots of the standards, such bar having notches in and stops on its upper surface, and detents pivoted in the upper ends of the standards with their lower ends presented downward and toward each other and terminating above the bar when the bar rests in a horizontal position in the slots, substantially as described.

3. In a marker for planters, the combination of a runner-shoe attachable to a marker-bar, a loop embracing the shoe and extending below the same when in operative position and a binding-bolt to clamp the loop to the shoe; whereby the loop may be swung to an inoperative position, substantially as described.

682,395. PULLEY. EMIL L. WAGNER, Aberdeen, S. D. Filed Nov. 27, 1900. Serial No. 37,874. (No model.)

Claim.—1. The combination, with a pulley, of an endless rope or cable having a loop or wrap around the peripheral face of the pulley, means for engaging said loop to direct it across the face of the pulley as it revolves, and an antifriction wheel or roller provided in the periphery of the pulley and having its axis at an angle to the axis of the pulley, for the purpose specified.



2. The combination, with a pulley, of an endless rope or cable engaging said loop or wrap around the face of the pulley, means engaging said loop to direct it across the face of the pulley as it revolves, and an adjustable antifriction wheel or roller provided in the periphery of the pulley and having its axis at an angle to the axis of the pulley, for the purpose specified.

3. The combination, with a pulley, of an endless rope or cable having a loop or wrap about the peripheral face of the pulley, adjustable means engaging said loop to direct it across the face of the pulley as it revolves, and an antifriction wheel or roller provided within the periphery of said pulley and having its axis at an angle to the axis of said pulley, for the purpose specified.

4. The combination, with a pulley, of an endless rope or cable having a loop or wrap about the peripheral face of the pulley, an antifriction wheel or roller provided within the periphery of the pulley and having its axis at an angle to the axis of said pulley and adapted to direct the rope or cable from one side of the pulley to the other, and a suitable guide or guard wheel provided near said antifriction-wheel to prevent the rope from running off the same when the pulley is running forward, substantially as described.

5. The combination, with a pulley, of a rope or chain looped about the peripheral face of the same, means for directing the rope from one side of the pulley to the other, and an antifriction wheel or roller supported within the periphery of the pulley, and having its axis at an angle to the axis of the pulley, and projecting beyond the face of the same to engage the rope as it passes from one side of the pulley to the other, substantially as described.

6. The combination, with a pulley divided vertically into two annular sections or members, of a shaft whereon said members are mounted with a space between them, an endless rope or cable looped or wrapped about the peripheral face of said members, means engaging the rope to direct it from one member to the other, a suitable guard provided within the space between said members, and an antifriction wheel or roller also provided within said space and over which the rope passes from one member to the other, substantially as described.

7. The combination, with a pulley divided vertically into two annular sections or members, of a shaft whereon said members are secured with a space between them, a rope or cable looped or wrapped about the peripheral face of said members, means engaging said loop to direct it across said space from one member to the other as the pulley revolves, a suitable guard coacting with said directing means, an antifriction wheel or roller provided between said members and having its axis at an angle to said shaft and projecting beyond the peripheries of said members to engage the rope as it passes from one to the other, and a suitable guard to prevent the rope from leaving said antifriction-wheel when the pulley is reversed, substantially as described.

8. The combination, with a pulley, divided vertically into two annular sections or members, of a shaft whereon said members are mounted with a space between them, a rope or cable looped or wrapped around the peripheries of said members, an adjustable plate engaging said rope to direct it from one member to the other, a guard coacting therewith, an antifriction wheel or roller provided between said members, and projecting outside the peripheries of the same to engage the rope as it passes from one member to the other, and a suitable standard or support whereon said wheel is pivoted, substantially as described.

9. The combination, with a pulley, of a rope or cable looped or wrapped about the peripheral face of the pulley, means engaging the rope, cable or chain to direct it across the face of the pulley as it revolves, and an antifriction wheel or roller provided in the periphery of the pulley and having its axis at an angle to the axis of said pulley, whereby its direction of rotation will be diagonally across the face of the pulley, for the purpose specified.

10. The combination, with a pulley, of a rope or cable looped or wrapped about its peripheral face, means engaging the rope to direct it across the face of the pulley as it revolves, and an adjustable antifriction device provided within the periphery of the pulley on which the rope travels from one side to the other, for the purpose specified.

11. The combination, with a pulley, of flexible power-transmitting means looped or wrapped about the peripheral face of the pulley, means engaging said power-transmitting means to direct it across the face of the pulley as it revolves, and a wheel or roller provided in the periphery of the pulley, the direction of rotation of said wheel being diagonally with respect to the face of the pulley, for the purpose specified.

12. A pulley, in combination with flexible power-transmitting means looped or wrapped about its peripheral face, and an antifriction device on the periphery of the pulley, the direction of movement of said antifriction device on its axis being diagonally with respect to the face of the pulley, for the purpose specified

13. A pulley having annular grooves in its face, in combination with flexible power-transmitting means looped or wrapped about the same, and an antifriction device provided in the periphery of the pulley, and rotating in a direction diagonally with respect to the face of the same, for the purpose specified.

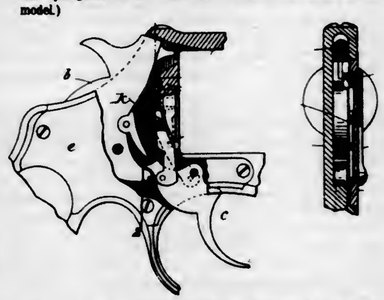
14. A pulley, in combination with flexible power-transmitting means looped or wrapped about its face, and a flanged wheel or roller provided on said pulley, the direction of its rotation being diagonally with respect to the face of said pulley, for the purpose specified.

682,396. SPECTACLE OR EYEGLASS CASE. GEORGE W. WELLS, Southbridge, Mass. Filed Mar. 28, 1900. Serial No. 10,454. (No model.)



Claim.—As an article of manufacture, a spectacle or eyeglass case consisting of a body and a lid covered outwardly, each provided with joining portions, a rod or pintle connecting the joining portions of the body and lid and extending less than the length of the body and lid portions, said rod or pintle having its central portion bent to form a loop to bear upon the outside of the body and its opposite ends bent toward each other to bear upon the outside of the lid to thereby normally close and hold closed the lid.

682,397. SAFETY DEVICE FOR REVOLVERS. DANIEL B. WESSON, Springfield, Mass. Filed Apr. 13, 1901. Serial No. 55,703. (No model.)



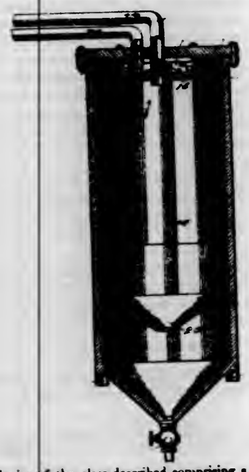
Claim.—1. The combination with the hammer of a self-cocking revolver, of a safety-bolt adapted to be interposed between the front edge of the hammer when the latter is in its rebounded position, the hand, a beveled edge on the latter and on the bolt, whereby the movement of the hand during the cocking operation of the arm will force said bolt out of the path of the hammer, in advance of the fall of the latter, substantially as described.

2. The combination in a self-cocking revolver, of the hammer, a safety-bolt movable transversely of the path of the hammer and adapted to intercept the latter in its rebounded position, a spring for moving said bolt into engagement with the hammer, the hand and a wedge on the hand for engagement with said bolt for moving the latter endwise in advance of the fall of the hammer, substantially as described.

682,398. FEED-WATER PURIFIER. ULYSSES S. WOHLGAMUTH and GEORGE R. WILLIAMS, Findlay, Ohio, assignors of one-tenth to Otis A. Long, same place. Filed Mar. 2, 1901. Serial No. 49,611. (No model.)

Claim.—1. A device of the class described comprising a casing, an inner and an outer chamber or compartment within the casing having communication at their lower ends, a receiving-chamber at the upper end of the inner compartment and communicating with the outer compartment, an inlet-pipe leading to the receiving-chamber and disposed to discharge against the bottom thereof, and an outlet-pipe leading from the inner compartment at the upper portion thereof to insure contact of the

cooler water with the under side of the bottom of the receiving-chamber to cool it.



2. A device of the class described comprising a casing, a partition within and concentric with the casing to form an inner and an outer compartment, said partition terminating short of the lower end of the casing, a head within and adjacent to the upper end of the partition to form a receiving-chamber, said chamber communicating with the outer compartment at the upper end thereof, an inlet-pipe leading to the receiving-chamber and disposed to discharge against the bottom thereof, and an outlet-pipe leading from the inner compartment through the receiving-chamber.

3. A device of the class described comprising a casing, an inner and an outer compartment within the casing having their lower ends communicating, a receiving-chamber above the inner compartment and communicating with the outer compartment, an inlet-pipe leading to the receiving-chamber, an outlet-pipe leading from the inner compartment through the receiving-chamber to chill the contents thereof, and an inverted frusto-conical partition in the casing below the communication between the compartments.

4. A device of the class described comprising a casing having an interior concentric partition inclosing an inner compartment and forming an outer compartment between it and the casing, a head within the partition forming a receiving-chamber between it and the upper end of the casing, said chamber having communication with the upper end of the outer compartment, and said partition terminating short of the bottom of the casing to permit of communication of the compartments at their bottoms, a partition in the casing below the first-named partition, said partition being disposed transversely and having a central opening, an inlet-pipe leading to the receiving-chamber, and an outlet-pipe leading from the inner compartment through the receiving-chamber.

682,399. COMBINED HARROW AND ROLLER. JOHN A. ALTENBAUGH, Pittsburg, Pa. Filed June 7, 1901. Serial No. 63,562. (No model.)



Claim.—1. In a combined roller and harrow, the combination of a hinged frame, rollers rotatably mounted in said frame, a series of harrow-teeth extending through said rollers, and means whereby said harrow-teeth may be adjusted inwardly, substantially as described.

2. In an implement of the character described, the combination of a hinged frame, perforated rollers rotatably secured therein, a series of harrow-teeth adjustably secured in the interior of said rollers, and means whereby said harrow-teeth may be adjusted inwardly and outwardly, through and into said rollers, substantially as described.

3. In a combined harrow and roller, the combination with a frame, perforated rollers rotatably secured therein, angle-irons arranged in said rollers, harrow-teeth secured to said angle-irons, and means whereby said angle-irons are adjusted carrying said teeth through and into said rollers, all parts being arranged and operating substantially as described and for the purpose set forth.

682,400. RAIL-JOINT. ALBERT W. BEACH, Knoxville, Pa. Filed July 12, 1901. Serial No. 67,980. (No model.)



Claim.—1. In a rail-joint, the combination with the rails having openings formed in the webs thereof, of a fish-plate, upper and lower engaging faces thereon, inwardly-extending lugs carried by said fish-plate, an inward extension made integral with the upper end of the said fish-plate, engaging faces on said lugs and extension, a substantially triangular locking-plate engaging said lugs and extension, and means whereby said locking-plate is fastened to the rail, substantially as described.

2. In a rail-joint, the combination with the rails having openings formed in the upper and lower edges of the web thereof, of an interlocking fish-plate carrying inwardly-extending lugs on the lower edge thereof and an inward extension on the upper edge thereof, said lugs and extension engaging in the said openings, and a locking-plate engaging said lugs and extension and the web of the rail, substantially as described.

3. In a rail-joint, the combination with the rails having openings formed therein, an interlocking fish-plate, inwardly-extending lugs, an inward extension through said openings in the rail, a triangular-shaped locking-plate engaging said lugs and inwardly-extending portion, and means whereby said locking-plate is fastened to the rails, substantially as described.

4. In a device of the character described, the combination with the rails having openings formed in the webs thereof, of a fish-plate, upper and lower engaging faces thereon, lugs having notched faces made integral with the lower end of the said fish-plate, an integral inward extension carried by the upper end of said fish-plate, a notched face on said extension, the said lugs and extension adapted to engage in the said openings, a locking-plate, upper and lower engaging faces carried by said plate, and means for locking said plate to the rails, substantially as described.

682,401. REPAIR-TOOL. GEORGE W. BOLTON, Jr., Detroit, Mich. Filed Feb. 12, 1901. Serial No. 46,959. (No model.)



Claim.—1. A puncture-repair tool having its inner end shaped for insertion through a puncture-opening in the tube, means at said inner end for retaining strips or bands of material, and disengaging means at the inner tool end for freeing the latter from the bands or strips after the insertion of the tool within the tube and prior to its withdrawal therefrom.

2. A puncture-repair tool comprising two complementary members shaped for insertion through the puncture-opening in the tube, said members having sliding engagement one with the other and one of said members at its inner end projecting normally beyond the corresponding end of its complementary member, forming in connection with the latter a strip or band retaining shoulder and strip-retaining means upon one of the members arranged at a distance from said shoulder.

3. A puncture-repair tool comprising an outer member shaped for insertion through a puncture-opening in the tube and having an enlargement formed upon its opposite end, a plurality of pins pivotally connected to the enlargement and adapted to extend at substantially right angles therefrom, bearings formed upon the pivot ends of the pins, a stem arranged within the tubular member and projecting normally beyond the inner end of the latter, said stem having a thread formed upon its outer end adapted to engage a thread upon the interior of the enlargement, and a head upon the outer stem end constructed to engage the bearings upon the pins and maintain the latter in their extended positions.

4. A puncture-repair tool having its inner end shaped for insertion through the puncture-opening, means at said inner tool end for retaining a strip or strips of elastic material, similar means upon said tool at a distance from the inner end thereof, a strip-releasing mechanism for disengaging the strips from the inner tool end after the insertion of the latter within the tube, and means for automatically disengaging the strips from the band-retaining means at the opposite end of said tool.

682,402. DRAFT-RIGGING FOR RAILWAY-CARS. FRANK H. CLARK, Chicago, Ill. Filed Aug. 20, 1900. Serial No. 27,408. (No model.)



Claim.—1. The combination with a longitudinal sill, and an end sill the major diameter of the cross-section of which is arranged in a horizontal plane and the bottom face of which lies in a plane above the bottom face of the longitudinal sill, of a sill-plate secured to said longitudinal sill and a part of the body of which extends up beside said longitudinal sill, said plate having a part extending forwardly above the plane of the bottom of the longitudinal sill and beneath and supporting said end sill, substantially as described.

2. The combination with longitudinal sills, and an end sill the bottom face of which lies in a plane above the bottom faces of the longitudinal sills, of opposite sill-plates a part of the bodies of which plates extend up between and are secured to said longitudinal sills, said plates having parts extending forwardly above the plane of the bottoms of the longitudinal sills and beneath and supporting said end sill, substantially as described.

3. In mechanisms of the class described, the combination of longitudinal sills, an end sill arranged so as to abut against the end thereof and with its major diameter arranged in a horizontal plane, whereby the bottom face of the end sill lies in a horizontal plane above the bottoms of the longitudinal sills, and a cheek-piece secured to each longitudinal sill provided with a body portion secured to and extending up between the longitudinal sill and a forwardly-projecting portion supporting the end sill to prevent it from tipping and provided with longitudinal and vertical flanges on the rear sides thereof engaging with the lower surface and ends of the longitudinal sill to transmit the buffing strains to such sill, substantially as described.

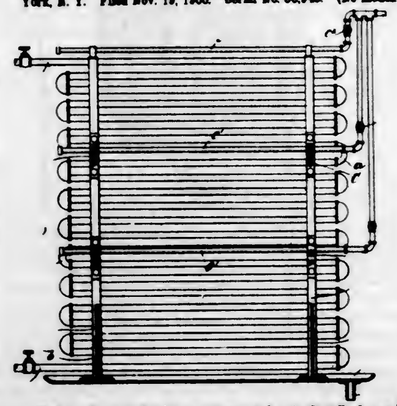
4. In mechanisms of the class described, the combination of longitudinal sills, an end sill having the major diameter of its cross-section arranged in a horizontal plane and abutting against the ends of the longitudinal sills, whereby the bottom face of the end sill lies in a horizontal plane above the bottoms of the longitudinal sills, and metal pieces secured to and extending up between the longitudinal sills and forming sill-pockets secured to the longitudinal sills and provided with forwardly-projecting portions passed underneath to support the end sill and prevent tipping or drooping of the same and to transmit strains of buffing and pulling to the longitudinal sills, substantially as described.

5. The combination with an end sill and longitudinal sills abutting thereagainst at their ends and having their bottom faces extended downwardly below the bottom face of the end sill, of sill-plates or draft-arms located between said longitudinal sills and secured thereto, said sill-plates or draft-arms having forwardly-extending portions extending beneath and supporting said end sill, substantially as described.

6. The combination with an end sill and longitudinal sills abutting thereagainst at their ends and having their bottom faces extended downwardly below the bottom face of the end sill, of sill-plates or draft-arms having body portions extending up between and secured to said longitudinal sills, said sill-plates or draft-arms having forwardly-extending portions lying beneath and supporting said end sill, substantially as described.

7. The combination with an end sill and longitudinal sills abutting thereagainst at their ends and having their bottom faces extended downwardly below the bottom face of the end sill, of sill-plates or draft-arms having horizontal flanges *k* below their tops adapted to engage the under faces of said longitudinal sills and also having substantially vertical flanges *u* adapted to engage the lower portions of the ends of the longitudinal sills, said sill-plates or draft-arms having portions extending forwardly beneath and supporting said end sill, substantially as described.

682,408. CONDENSING APPARATUS. CHARLES F. CONOVER, New York, N. Y. Filed Nov. 19, 1900. Serial No. 36,946. (No model.)



Claim.—In a condensing apparatus as herein described, consisting of two or more series of condensing-pipes arranged out of line, one above the other, and a sprinkling-pipe located above each of the said series of condensing-pipes, of offsetting-brackets secured to the frames of the condenser-pipes and adapted to hold together the said series of pipes so that they set out of line with each other to prevent the water dripping from the upper series of pipes from coming in contact with the series below, substantially as described.

682,404. ANNEALING-BOX. ALBERT J. DENEKER, Wellsville, Ohio. Filed Aug. 4, 1900. Serial No. 25,855. (No model.)

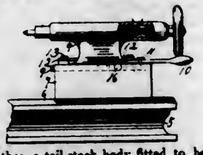


Claim.—1. An annealing-box having a cover provided with straight side walls and an arched or raised top portion, and rods extending across between the straight side walls and close to the arched top portion.

2. An annealing-box having an integral cast cover provided with straight side walls and an arched or raised top portion, and rods extending across between the straight side walls and close to the arched top portion.

3. An annealing-box having a cover provided with straight side walls and an arched or raised top portion, and rods engaging connections on the inner faces of the straight side walls and extending across the box close to the arched top portion.

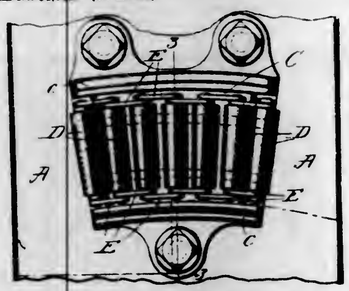
682,405. LATHE. GEORGE L. FAIRBANKS and ARTHUR H. FAIRBANKS, Worcester, Mass. Filed Apr. 18, 1901. Serial No. 56,394. (No model.)



Claim.—In lathes, a tail-stock body fitted to be located upon the ways of the lathe; a lever connecting the carriage with the body to slide

one relatively to the other, the carriage being provided with a series of pin-holes and the body with a pin to engage any one of the holes; a spindle fitted to slide longitudinally in the said carriage; and a screw to operate the spindle, substantially as described.

682,406. **ROLLER SIDE BEARING.** FRANCIS K. FASSETT, St. Louis, Mo., assignor to Leo Ehrlich, same place. Filed Mar. 13, 1901. Serial No. 50,910. (No model.)



Claim.—1. In a side bearing, the combination with a truck-bolster, of a truck-support arranged thereon, an endless chain of rollers surrounding the truck-support, and a bearing-surface on the body-bolster for engaging the rollers on top of the truck-support; substantially as described.

2. In a side bearing, the combination with a truck-bolster, of a truck-support arranged thereon, the side edges of said truck-support being radial to the king-pin, an endless chain of rollers surrounding the truck-support, the links connecting the outer ends of the rollers being the longer so as to cause the rollers on top of the truck-support to travel in a curved line described from the king-pin, and a bearing-surface on the body-bolster for engaging the rollers on top of the truck-support; substantially as described.

3. In a side bearing, the combination with an inclined truck-support whose side edges are radial to the king-pin, of a plurality of rollers, and links connecting said rollers and forming an endless chain; substantially as described.

4. In a side bearing, the combination with an inclined truck-support provided with flanges at its inner and outer edges, said flanges being on an arc of a circle described from the king-pin, and an endless chain of coned rollers arranged upon said truck-support and between said flanges; substantially as described.

5. In a side bearing, the combination with a truck-support, of an endless chain of rollers surrounding the same, and devices for supporting the idle rollers underneath the truck-support so as to prevent the roller-chain from sagging and exerting a pull at the bends of the chain, and to enable the rollers in operative position on top of the truck-support to move freely; substantially as described.

6. In a side bearing, the combination with an inclined truck-support, of a series of rollers coöperating therewith, and links forming chains of different lengths for carrying said rollers; substantially as described.

7. In a side bearing, the combination with a truck-support, of a series of rollers having reduced ends, and links arranged on said reduced ends and forming an endless chain around said support; substantially as described.

8. In a side bearing, the combination with an inclined truck-support, of coned rollers having reduced ends, and links of different lengths arranged upon said reduced ends whereby an endless chain is formed, the links connected to the enlarged ends of the rollers being the longer; substantially as described.

9. In a side bearing for railway-cars, the combination with the truck and body bolsters, of a track-support arranged on the truck-bolster, an endless movable chain of rollers coöperating with said track-support, so that two or more of said rollers will at all times occupy positions above said track-support, and a bearing on the body-bolster for coöperating with said rollers; substantially as described.

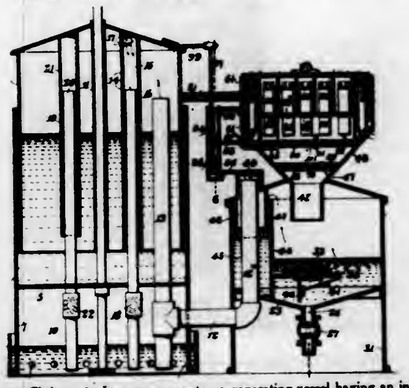
10. In a side bearing, the combination with an inclined track-support consisting of flanges and coned rollers D, and links E of unequal lengths, said links being recessed to clear the edges of the track-support; substantially as described.

11. In a side bearing, the combination with an inclined track-support, of sectional rollers staggered or nested with respect to each other, spindles for said rollers, and links arranged upon the ends of the spindles, said links and rollers forming an endless chain around said track-support; substantially as described.

12. In a side bearing, the combination with a track-support, of sectional rollers staggered with respect to each other, or nested, and links of unequal lengths in which the spindles of said rollers are mounted, said links and rollers forming an endless chain around said track-support; substantially as described.

13. In a side bearing, the combination with a track-support, of endless chains of different lengths, spindles carried by said chains, and rollers of different diameters mounted on said spindles, said rollers overlapping each other; substantially as described.

682,407. **ACETYLENE-GAS-GENERATING APPARATUS.** WILLIAM A. FEURT and HENRY H. MARTIN, Maryville, Mo., assignors to Feurt-Martin Manufacturing and Supply Company, same place. Filed July 26, 1900. Serial No. 24,940. (No model.)



Claim.—1. In a gas apparatus, a generating vessel having an inlet for carbid at the top, and a bottom drain connection, a grate having a pivotal support interposed between the inlet for the carbid and the drain connection, said grate carrying a scraper having a sweep across and at one side of the drain connection, and means for rocking the grate.

2. In a gas apparatus, a generating vessel provided with a drain connection at the bottom, a carbid-grate mounted within the vessel, a single scraper-blade carried by the grate at the under side thereof, said blade extending longitudinally of the grate and having a sweep across and at one side of the plane of the drain connection, and means for rocking said grate with its scraper-blade.

3. In a gas apparatus, the generating vessel having a dished bottom provided with a drain connection, a carbid-grate pivotally mounted within the vessel, a scraper-blade affixed to the grate at the under side thereof and extending longitudinally of the same, said blade conforming to the dish of the bottom and having a sweep across and at one side of the plane of said drain connection, and means for rocking said grate with its attached scraper-blade.

4. In a gas apparatus, a generating vessel having a main compartment, a separate water-chamber, and a gas-chamber at the top of the water-chamber, the latter being arranged to permit of the overflow of water therefrom into the main compartment, and a water-supply for the generating vessel having communication with the said water-chamber, substantially as set forth.

5. In a gas apparatus, a generating vessel having a main compartment and a separate water-chamber partitioned therefrom, said water-chamber being arranged to permit of the overflow of water therefrom into the main compartment of the vessel, a gas-discharge pipe, and a water-supply in communication with said separate water-chamber, substantially as set forth.

6. In a gas apparatus, a generating vessel having a main compartment and a separate water-chamber partitioned therefrom, a gas-chamber provided within the top portion of said water-chamber, and sealed from the main compartment of the vessel, a gas-discharge pipe extending into said gas-chamber, and means for supplying water to the water-chamber and causing its overflow into the main compartment of the generating vessel, substantially as set forth.

7. In a gas apparatus, a generating vessel having a main compartment, a separate water-chamber partitioned therefrom and in communication therewith, and a sealed gas-chamber formed by a pendent hood projecting from the top of the generating vessel into the said separate water-chamber, a gas-discharge pipe leading into the gas-chamber formed by said hood, and means for supplying water to the water-chamber and causing the overflow thereof into the main compartment of the generating vessel, substantially as set forth.

8. In a gas apparatus, a generating vessel having a main compartment and a water-chamber partitioned therefrom and in communication therewith, a gas-pocket offset from the top of the generating vessel, a hood pendent from said top and projecting into the said separate water-chamber, a gas-discharge pipe extending through the water-chamber into the said gas-pocket, and means for supplying water to said separate water-chamber and also to the main compartment of the vessel, substantially as set forth.

9. In a gas apparatus, a generating vessel having a main compartment and a separate water-chamber arranged to overflow into the main compartment, a gas-discharge pipe, a suitably-arranged filling-funnel having a water-supply pipe connection with said separate water-chamber, a lid or cover for said funnel, an air-vent cock fitted to the generating vessel and having an operating stem or handle, and a link connection between said handle or stem and the lid or cover to provide for the synchronous movement of these parts, substantially as set forth.

10. In a gas apparatus, a generating vessel having a main compartment, and a separate water-chamber arranged to permit of the overflow of water therefrom into the main compartment, a suitably-arranged filling-receptacle having a water-supply pipe connection with the separate water-chamber, a lid or cover for said receptacle, an air-vent cock fitted to the vessel and in communication with the main compartment thereof, and means for synchronously operating the cock and said lid or cover.

11. In a gas apparatus, a generating vessel having a main compartment and a water-chamber arranged to permit of the overflow of water therefrom into the main compartment, a filling-funnel having a water-supply pipe connection with the water-chamber, a lid or cover for said funnel, an air-vent cock fitted to the generating vessel and in communication with the main compartment thereof, and an operating-handle for said cock having an operative connection with the lid or cover to synchronously move the same with the cock.

12. In a gas apparatus, the combination with the generating vessel, of a carbid-holding hopper in communication with said vessel, a cover having a sealed connection with the hopper-body, air-exhaust and cut-off means coöperating with the hopper, independently of and below the cover, to assist in holding the latter in place and to facilitate its removal and a cut-off arranged to control communication between the hopper and the vessel, substantially as set forth.

13. In a gas apparatus, the combination with the generating vessel, of a carbid-holding hopper in communication with said vessel, an imperforate cover having a sealed connection with the hopper-body, means, independent of the cover, for controlling communication between the outer air and the interior of the hopper below the cover, to assist in holding the latter in place and to facilitate its removal and a cut-off arranged to control communication between the hopper and the vessel, substantially as set forth.

14. In a gas apparatus, a generator having a carbid-holding hopper, an imperforate removable cover having a plurality of sealed connections with the hopper, means, independent of the cover, for controlling communication between the outer air and the interior of the hopper below the cover to assist in holding the latter in place and to facilitate its removal and a cut-off arranged to control communication between the hopper and the vessel.

15. In a gas apparatus, a generator having a carbid-holding hopper open at the top, a removable cover having a sealed connection with the hopper, an air-chamber in communication with the interior of the hopper, and a valved air-relief pipe in communication with said air-chamber, substantially as set forth.

16. In a gas apparatus, a generator having a carbid-holding hopper open at the top, a removable cover for the hopper having a retaining-keeper, an air-chamber in communication with the interior of the hopper, an air-relief pipe in communication with the air-chamber, an air-controlling valve arranged in said pipe and having an operating-handle, and a guard-bolt connected with said operating-handle and adapted to engage and disengage said keeper, substantially as set forth.

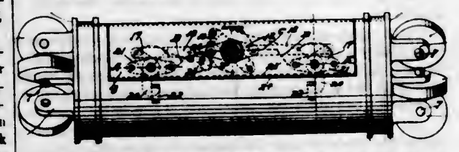
17. In a gas apparatus, a generator having a carbid-holding hopper, a removable cover for the hopper, an air-relief pipe in communication with the interior of the hopper below its cover, a valve arranged in said pipe and having an operating-handle carrying a guard adapted to engage with the cover, and a cut-off gate for the hopper carrying a guard-arm also adapted to engage with the cover, substantially as set forth.

18. In a gas apparatus, a generator having a generating vessel and a hopper in communication with said vessel, an offset air-chamber in communication with the hopper and having a relief-pipe connection, a removable cover for the hopper, a sliding cut-off gate arranged to work within the hopper and also arranged to be projected into the said air-chamber, and an operating-rod connected with said gate and having a guard-arm adapted to work over the cover, substantially as set forth.

19. In a gas apparatus, a generator having a carbid-holding receptacle, separate batteries of individual cells located within the receptacle, each cell having an independent hinged bottom and a latch for holding the same in operative position, journals located within the receptacle, shafts mounted in the journals and arranged respectively contiguous to each battery, said shafts having means for successively operating the latches of the cells and being geared together within the receptacle for simultaneous rotation, one of the shafts being located wholly within the receptacle, and the other having one end projecting through the same, and operating means engaging the exposed portion of said shaft to rotate the same.

20. In a gas apparatus, a generator having a carbid-holder, a battery of individual carbid-cells mounted within the hopper, each cell having a downwardly-swinging hinged bottom, and a latch for holding said bottom in closed position, and a resetting device consisting of a single U-shaped bail slidably mounted within the hopper-body with its cross-bar extending across and beneath the entire series of cells, whereby the cross-bar of the bail when raised will operate to simultaneously lift all of the hinged bottoms.

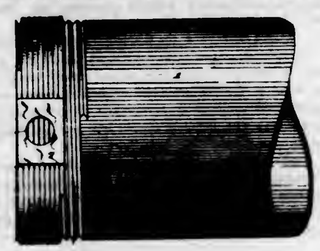
682,408. **CARRIER FOR PNEUMATIC-DESPATCH TUBES.** HUGO W. FORSLUND, Chicago, Ill., assignor to the Lake Street Manufacturing Company, same place. Filed Sept. 15, 1899. Serial No. 730,547. (No model.)



Claim.—1. In a carrier adapted for transit in a despatch-tube, the combination with the shell of the carrier and the heads closing the ends of the same, of a door hinged to the shell intermediate of its ends, locking-hooks pivotally attached to inside of the door, hook-sockets secured to the inside of the shell of the carrier so that when the hooks are pulled into said sockets the door is locked and simultaneously the opening edge of the door is securely drawn against the contiguous edge of the shell of the carrier, thereby unalterably preserving a uniform contour of the shell and door of the carrier, of connecting-links pivotally connecting the locking-hooks and the operating-lever, an operating-lever pivotally secured to the inside of the door of the carrier whereby the locking-hooks are simultaneously operated, a key-shaft by which the locking device may be operated from the inside of the carrier, a stop adapted to arrest the operative parts in locking position and a spring arranged to act upon said locking mechanism to normally force the latter into position to hold the door locked, substantially as described.

2. In a carrier adapted for transit in a despatch-tube, the combination with the shell of the carrier and the heads closing the ends of the same, of a door hinged to the shell intermediate of its ends, of locking-hooks pivotally attached to inside of the door, of hook-sockets secured to the inside of the shell of the carrier so that when the hooks are pulled into said sockets the door is locked and simultaneously the opening edge of the door is securely drawn against the contiguous edge of the shell of the carrier, thereby unalterably preserving a uniform contour of the shell and door of the carrier, of connecting-links pivotally connecting the locking-hooks and the operating-lever, of an operating-lever pivotally secured to the inside of the door of the carrier whereby the locking-hooks are simultaneously operated, of a key-shaft by which the locking device may be operated from the outside of the carrier, of a stop-pin against which the operating-lever is pressed when the locking device is locked, of a spiral spring pivotally attached at each end on the inside of the door and located so as to press the operating-arm against the stop-pin thereby preventing the locking device from unlocking except by voluntary means, substantially as described.

682,409. **THREAD-PROTECTOR.** BENJAMIN F. GREENE, Sheridan, Pa. Filed Apr. 10, 1901. Serial No. 55,120. (No model.)



Claim.—1. A thread-protector comprising in its entirety a series of parallel circular convolutions or coils of wire the peripheries of which are exposed, and means for binding the convolutions or coils together, substantially as described.

2. A thread-protector comprising a series of wire convolutions or coils abutting against each other with their peripheries exposed except at the point where the coils are bound together, substantially as described.

3. A thread-protector comprising a series of circular wire convolutions arranged in parallel relation and abutting against each other, a clamp fixed to the wire convolutions at one point for binding the same together, the said wire convolutions being peripherally exposed except at the point where covered by the clamp, substantially as described.

4. A thread-protector comprising in its entirety a single piece of wire which is circular in cross-section and wound into a series of parallel circular convolutions abutting against each other, the greater portion of said convolutions being peripherally exposed, and means for binding the convolutions together, substantially as described.

5. A thread-protector comprising a series of coils or convolutions of wire abutting against each other and having a taper conforming to the taper of the pipe-threads, the said coils or convolutions being peripherally exposed except at the point where bound together, substantially as described.

6. A thread-protector comprising a series of coils or convolutions of wire abutting against each other with the greater part of their peripheries exposed, combined with a clamping-plate which lies across the peripheries of the coils at one point and has its side edges flanged and countersunk into the two outside coils, substantially as described.

7. A thread-protector formed of a single piece of wire which is wound into a series of circular convolutions or coils abutting one against the other, combined with means embracing the coils on their outer face at one point only for binding the coils together, substantially as described.

8. A thread-protector formed of a single piece of wire substantially circular in cross-section and which is wound into a series of circular convolutions or coils abutting against each other, the greater part or portion of said coils being peripherally exposed, and means for binding the coils in abutting engagement with each other.

9. A thread-protector formed of a single piece of wire which is wound into a series of substantially parallel circular convolutions or coils having a taper and abutting against each other, the greater part or portion of said coils being peripherally exposed, and means for binding the coils in abutting engagement, substantially as described.

10. A thread-protector comprising a series of wire convolutions or coils, the sides of which are in abutting engagement with one another throughout their length, substantially as described.

11. A thread-protector comprising a series of convolutions or coils, the sides of which coils are in abutting engagement with one another throughout their length, and means for binding the coils together substantially as described.

12. A thread-protector comprising a series of convolutions or coils, the greater part or portion of which are peripherally exposed, and means for connecting the coils together, substantially as described.

13. A thread-protector comprising a series of convolutions or coils, the greater part or portion of which are peripherally exposed, and a clamping-plate embracing the outer face of the coils at one point only for connecting the same together, substantially as described.

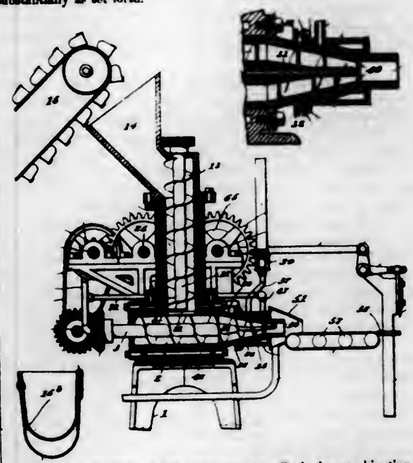
14. A thread-protector comprising a series of wire convolutions or coils peripherally exposed and the sides of which are in abutting engagement throughout their length, and a clamping-plate for connecting the coils together, substantially as described.

15. A thread-protector formed of a single piece of wire wound into a series of circular convolutions or coils, combined with means engaging the coils on their outer face at one point only for binding the coils together, substantially as described.

682,410. MACHINE FOR MAKING FIRE-KINDLERS, &c. CHARLES HOFF and GEORGE H. KLOTTER, Cincinnati, Ohio. Filed Sept. 27, 1900. Serial No. 31,266. (No model.)

Claim.—1. In a machine of the character described, the combination of a compression-chamber, a shaft arranged therein and provided with a passage for conveying liquid material, said passage being arranged to discharge liquid at the discharge end of the compression-chamber, means for causing solid materials to traverse said chamber and means for coating the materials with liquid substance after passage through said compression-chamber, substantially as set forth.

2. In a machine of the character described, the combination of a compression-chamber, a shaft arranged therein and having driving devices and provided with a spiral wing and a tapered end portion at the discharge end of the chamber, a tapered discharge-section at the discharge end of the chamber, means for maintaining the substances in a heated condition while passing through the discharge-section of the chamber, and means, located at said discharge end of the compression-chamber, for supplying liquid materials to the substances passed through the chamber, substantially as set forth.



3. In a machine of the character described, the combination of a compression-chamber, a shaft arranged therein and having driving means and provided with a spiral wing and a tapered end portion at the discharge end of the chamber, a tapered discharge-section for the chamber, a die inclosing the discharge-section of the chamber and forming between itself and said section a chamber inclosing said section and adapted for communication with the bore of the die by an annular opening at its smaller end, and means for supplying liquid material to said space, substantially as set forth.

4. In an apparatus of the character described, the combination of a compression-cylinder having a discharge-section, a heating-jacket inclosing the compression-chamber, a die inclosing the discharge-section and having a passage for the molded articles, and also provided with a space between itself and the discharge-section which space is adapted for communication with said passage, means for supplying liquid material to said space, and a heating-jacket inclosing said die, substantially as set forth.

5. In an apparatus of the character described, the combination of a compression-chamber having a discharge-section, means for causing solid materials to traverse said chamber, and means for supplying liquid to the discharge-section of the chamber, said liquid-supplying means comprising a tank or holder having a heating-coil, a stand-pipe arranged for communication with said tank or holder and a heating-pipe extended in said stand-pipe and connected with said heating-coil, substantially as set forth.

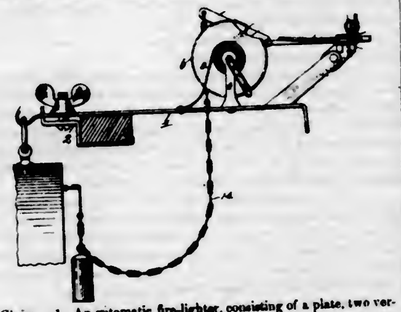
6. In a machine of the character described, the combination of a die for molding substances, means for compressing such substances and supplying them while compressed to said die, means for supplying liquid material to the die for coating such compressed substances, a steam-jacket for maintaining the substances in heated condition while being molded, and a steam-pipe for supplying steam to said jacket and arranged to inclose the liquid-supplying means, substantially as set forth.

7. In a machine of the character described, the combination of means for compressing and molding substances, means for supplying liquid for coating the substances, a heating device for maintaining the substances in a heated condition while being coated, and a pipe for supplying said heating device and arranged to inclose the liquid-supplying means, substantially as set forth.

8. In a machine of the character described, the combination of a compression-cylinder, means for causing substances to traverse said compression-cylinder, means for molding the substances after passage through the compression-cylinder, a vertical feed-cylinder arranged above and adapted to discharge into the compression-cylinder and a screw having operating devices and arranged in the feed-cylinder for causing the substances to traverse the same to the compression-cylinder, substantially as set forth.

9. In a machine of the character described, the combination of a compression-chamber, means for causing substances to traverse the same, a die for molding the substances discharged from the compression-chamber, a conical hood inclosing the die and through which the substances when molded by said die are caused to pass, a carrier for receiving and conveying the molded substances from the said die, and a blower arranged to supply air to said hood for cooling the molded substances discharged from said die, substantially as set forth.

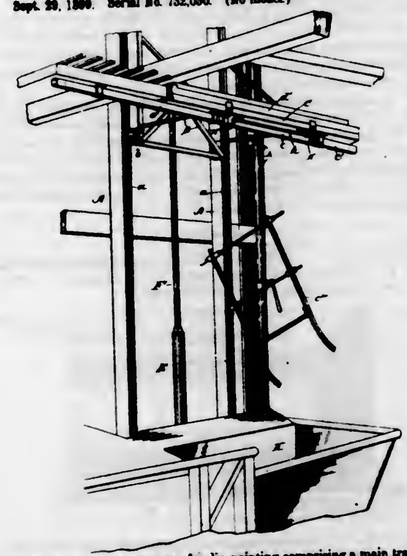
682,411. TIME FIRE-LIGHTER. CHARLES L. HOGG, St. Louis, Mo. Filed Feb. 26, 1901. Serial No. 48,713. (No model.)



Claim.—1. An automatic fire-lighter, consisting of a plate, two vertical standards carried by said plate, a shaft supported by said standards, a wheel having an abrasive coating mounted upon said shaft, a spring having one end connected to the shaft and the opposite end attached to the plate, a crank rigid with the shaft for winding the spring, a shoulder integral with said crank and adapted to engage against one of the vertical standards to stop the wheel, a locking-pawl supported by one of the standards and adapted to hold the wheel when wound, means for releasing the locking-pawl at a predetermined time, a spring-actuated clamp, and means for fixing a match in said clamp so that the end thereof will bear upon the abrasive coating of the wheel, substantially as specified.

2. An automatic fire-lighter, consisting of a plate, two vertical standards carried thereby, an emery-wheel having a groove in its periphery, supported between said standards, a spring for operating said wheel, a crank for winding the spring, a shoulder rigid with the crank and adapted to engage with one of the said standards to stop the wheel, a locking-pawl for holding the emery wheel, means for releasing the locking-pawl at a predetermined time, and a spring-actuated match-support mounted adjacent to the emery-wheel, substantially as specified.

682,412. DIP PAINTING APPARATUS. WILSON P. HUNT, Moline, Ill., assignor to the Deere & Mansur Company, same place. Filed Sept. 29, 1900. Serial No. 732,090. (No model.)



Claim.—1. An apparatus for dip-painting comprising a main track, a movable section in said track adapted to receive the work to be dipped, a dip-tank and means for lowering the said movable section of track to immerse the work to be dipped in the tank, substantially as described.

2. An apparatus for dip-painting comprising a movable section of track forming a part of the main overhead track, adapted to receive the work to be dipped, a dip-tank located beneath said movable track-section, means for lowering and raising said section of the track and the work thereon, and an automatic lock device operated by the movements of the movable track-section, to project across the ends of the movable track-section and prevent the work thereon from running off when the track is lowered, and operated to withdraw from across the ends of the movable track-section when the latter is in line with the main track, substantially as described.

3. An apparatus for dip-painting comprising a movable section of track forming part of a main overhead track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section, means for lowering and raising said section of track and the work thereon and means for preventing the work from running off at the ends of said movable section of track while on its vertical movement, substantially as described.

4. An apparatus for dip-painting comprising a movable section of track forming part of a main overhead track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, means for lowering and raising said section of track and a locking device adjacent to each end of said section of track adapted to be projected across the track to prevent the work thereon from running off at the ends of said section during its vertical movement, substantially as described.

5. An apparatus for dip-painting comprising a movable section of track forming part of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms located adjacent to the ends of said movable section of track and means for automatically projecting said arms across the section of track to prevent the work thereon from running off at the ends of said section of track, substantially as described.

6. An apparatus for dip-painting comprising a movable section of track forming a part of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms located adjacent to the ends of said section of track, a finger connected with said arms and a spring operating on said finger to throw the arms across the track, substantially as and for the purpose described.

7. An apparatus for dip-painting, comprising a movable section of track forming part of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms located adjacent to the ends of said section of track, a stationary cross-piece above said section of track and a finger connected with said arms and adapted to engage said stationary cross-piece to throw the arms back from their locked position into their normal unlocked position, substantially as described.

8. An apparatus for dip-painting comprising a movable section of track forming part of a main track and adapted to receive the work to be dipped, a dip-tank located beneath said movable section of track, arms located adjacent to the ends of said section of track, a finger connected with said arms, a cross-piece arranged above the section of track and adapted to be engaged by said finger to hold the arms in unlocked position, and a spring connected with said finger and adapted to throw the arms into locked position when the finger is released from engagement with the cross-piece, substantially as described.

9. An apparatus for dip-painting comprising a movable section of track forming part of a main track and adapted to receive the work to be dipped, a stationary cross-piece located above the movable section and provided with openings therein, and guide-pins carried with the movable section of track and adapted to enter the openings in the stationary cross-piece, substantially as and for the purpose described.

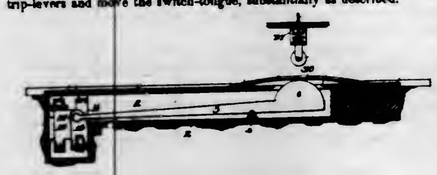
10. In a painting apparatus, the combination with a dipping-tank and an overhead track or way having carriers traveling thereon and adapted to have the articles to be painted suspended therefrom, of an elevator comprising a separable portion of the track or way and provided with an automatic latch mechanism for locking the carrier in position thereon, substantially as described.

11. In a painting apparatus, the combination with a dipping-tank, an overhead track or way and carriers traveling thereon, and adapted to have suspended from them the articles to be painted, of an elevator comprising a separable section of the track or way, adapted to receive a carrier, automatic latching mechanism for locking the carrier in position on said section during the vertical movement of the elevator and an automatic tripping mechanism for releasing said latch at the end of the return movement of the elevator, substantially as described.

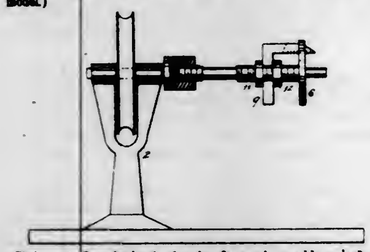
682,418. SWITCH-OPERATING MECHANISM. THOMAS B. KELLEY, Meadville, Pa. Filed Jan. 16, 1901. Serial No. 43,483. (No model.)

Claim.—In a device of the character described, the combination with the switch-tongue, of a casing located in the road-bed of the track and provided with a lid or cover having slots, a pair of trip-levers arranged within the casing and provided with headed ends projecting into the slots of the lid or cover, a toggle-block journaled in the casing, connections be-

tween said trip-levers and the toggle-block, connections between the toggle-block and the switch-tongue, spring-plates covering the slots in the lid or cover over the headed ends of the trip-levers, and means carried by a car for engagement with said spring-plates to depress the headed ends of the trip-levers and move the switch-tongue, substantially as described.



682,414. DEVICE FOR FORMING FINGER-RING MOLDS. LOUIS LEER, New York, N. Y. Filed May 10, 1901. Serial No. 59,568. (No model.)



Claim.—1. In a device for forming finger-ring molds a shaft, a head on the shaft having an interior thread, a spindle for engaging said thread, a gage-plate on the spindle and a cutting-tool adjusted on the spindle.

2. In a device for forming finger-ring molds, a longitudinally-slotted spindle, a cutting-tool, having a shank portion for passing through the slot, set-nuts on the spindle for engaging opposite sides of the shank, and a gage-plate on the spindle and having a slot to receive the cutting-tool.

3. In a device for forming finger-ring molds a spindle, a graduated gage-plate on the spindle, the said plate having an outwardly-opening slot and the graduated cutting tool adjusted along the spindle and in said slot.

682,415. PROCESS OF MAKING ORNAMENTED LEATHER. PETER MANTHEY, New York, N. Y. Filed Feb. 6, 1901. Serial No. 46,194. (Specimens.)



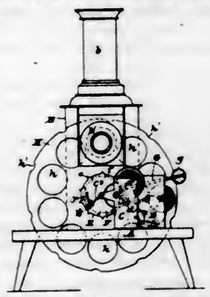
Claim.—1. The process herein described of ornamenting leather, which consists in transferring the design to the surface of the leather to be ornamented, softening the surface of the leather by an aqueous solution of a suitable acid, treating the surface with a suitable grounding solution, and then treating those portions of the surface forming the design with a suitable bleaching agent, substantially as set forth.

2. The process herein described of ornamenting leather, which consists in transferring the design to the surface of the leather to be ornamented, softening the surface of the leather by an aqueous solution of a suitable acid, treating the surface with a suitable grounding solution, treating those portions of the surface forming the design with a suitable bleaching agent, and then outlining the design against the ground by suitable toolwork, substantially as set forth.

3. The process herein described of ornamenting leather, which consists in transferring the design to the surface of the leather to be ornamented, softening the surface of the leather by an aqueous solution of a suitable acid, treating the surface with a suitable grounding solution, treating those portions of the surface forming the design with a suitable bleaching agent, coloring the design, and then outlining the same against the ground by suitable toolwork, substantially as set forth.

4. The process herein described of ornamenting leather, which consists in transferring the design to the surface of the leather to be ornamented, softening the surface of the leather by an aqueous solution of a suitable acid, treating the surface with a solution of ferric sulfate, and then treating those portions of the surface forming the design with an aqueous solution of oxalic acid, substantially as set forth.

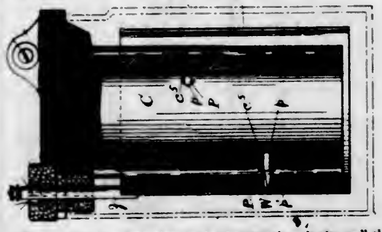
682,416. AUTOMATIC ADVERTISING DEVICE. FREDERICK I. MATTHEWS, New York, N. Y. Filed Apr. 18, 1901. Serial No. 56,501. (No model.)



Claim.—1. In combination illuminating means, a rotatable display-disk H provided with notches h' and a series of exhibiting-faces to register with said illuminating means, a power movement provided with a disk E having teeth e to operate the disk, and another power movement provided with pinion d to engage the teeth e and to control the movement of the said disk, and means to stop the same, so that each exhibiting-face will successively register with the illuminating means, consisting of a reciprocating bar G and wheel g.

2. In combination a rotatable display-disk H provided with the notches h' in its periphery, a cam-disk F having cams f, a serrated disk E having teeth e, a power movement to operate the same, and another power movement to control the movement of the said disks, provided with a pinion d to engage one of the teeth e of the serrated disk E, and also a bar G having wheel g to engage the notches of the display-disk and also the cams f of the cam-disk F.

682,417. ELECTRIC BATTERY. WILLIAM MILLS, Elizabeth, N. J., assignor to the Eastern Carbon Works, Rahway, N. J. Filed Oct. 3, 1900. Serial No. 31,812. (No model.)



Claim.—1. A carbon element having openings in the wall thereof, combined with insulating-pins removably mounted in said openings, and means for locking said pins therein, substantially as described.

2. The combination of an electrode for an electric battery, and an insulating-pin removably carried thereby for preventing contact with the electrode, said pin being passed through an opening in the electrode and having means whereby it is locked thereto by being turned on its axis after such passage, substantially as described.

3. An electrode for an electric battery having an elongated opening through it, combined with an insulating-pin occupying said opening and having means whereby it is locked to the electrode by being turned on its axis in the opening, and an elastic padding surrounding the pin and clamped between it and the electrode, substantially as described.

4. In an electric battery, in combination, a positive electrode, a negative electrode, one of said electrodes having an elongated opening through it, and a non-conducting pin carried by the electrode which has the opening, said pin having a shank terminating by an elongated shoulder, which shoulder is adapted to be passed through said opening and the pin then locked to the electrode by being turned on its axis in the opening, substantially as described.

5. In an electric battery, in combination, a carbon element having an annular wall with an elongated opening through it, a zinc element exterior to said wall, an insulating-pin adapted to be passed through said opening and locked by being turned on its axis after such passage, and an elastic padding for holding said pin to said carbon element, substantially as described.

6. In an electric battery, in combination, a carbon element with an annular wall having an elongated opening through it, a zinc element surrounding said wall, a pin having a shank with a shoulder at each end thereof, one of said shoulders being adapted to pass through said opening and lock against said wall, and an elastic washer surrounding said pin between the other side of said wall and the other shoulder, substantially as described.

7. In an electric battery, in combination, a carbon element having an annular wall with a fluted exterior, openings between the flutes thereof, pins of insulating material adapted to pass through said wall, said pins each having an elongated head and an elongated shoulder adapted to be on opposite sides of said wall, and an elastic washer surrounding said pin between the head and the shoulder and bearing against the carbon element, substantially as described.

8. A carbon element for an electric battery having an annular wall, a pin made of hard material removably occupying an opening in said wall, and a soft elastic padding compressed between a shoulder on the pin and said wall, substantially as described.

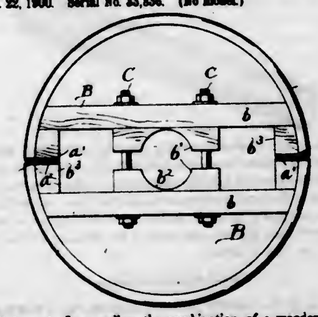
682,418. SPINNING-RING. THOMAS F. MOORES and FRED. H. MOORES, Boston, Mass. Filed Nov. 8, 1900. Serial No. 35,985. (No model.)



Claim.—1. As an improvement in spinning-rings a traveler and a non-revolvable traveler-ring in combination with and pivoted to a support which permits the traveler to traverse a gyratory path when the tension of the yarn rotates it around the traveler-ring, constructed to operate substantially as described.

2. As an improvement in spinning-rings a traveler-ring B, an outer ring C to which it is pivoted at points a b substantially diametrically opposite, in combination with a stationary supporting-frame D to which the ring C is pivoted at points c d diametrically opposite, but located in a vertical plane at right angles to the vertical plane passing through the pivots of the traveler-ring, whereby the latter is given a gyratory motion by which a uniform tension of the yarn is maintained and its breakage prevented, substantially as set forth.

682,419. PULLEY. ARTHUR L. MOORE, Cleveland, Ohio. Filed Oct. 22, 1900. Serial No. 33,836. (No model.)



Claim.—1. In a pulley, the combination of a wooden spoke-bar adapted to clasp a shaft, and a metal rim having inwardly-projecting flanges, said spoke-bar lying between said flanges and abutting the inner faces thereof, substantially as described.

2. In a pulley, in combination, wooden members and two metal rim-sections having inwardly-projecting side flanges, said wooden members lying within said rim-sections and having their ends abutting the body of the rim and their sides near the ends abutting said flanges, substantially as described.

3. A pulley made in halves, each half including a spoke-bar and a semicircular metal rim secured thereto, said spoke-bar consisting of a through member and an end block near each end thereof on that side of said spoke-bar which is toward that diameter of the pulley which is parallel to said through member, said metal rim having at its edges flanges with which the sides of said spoke-bar and end blocks abut, substantially as described.

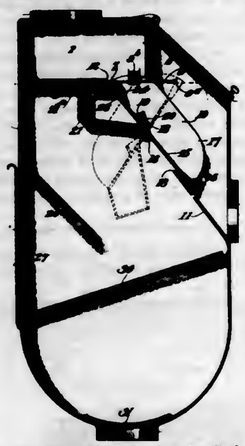
4. A pulley made in halves, each half including a spoke-bar and a semicircular metal rim secured thereto, said spoke-bar consisting of the through member b, the end blocks b^2 secured thereto at the ends thereof, and a center bearing-block b', the ends of the metal rim being bent inward diametrically and secured to the diametric face of the blocks b^2, substantially as described.

5. A pulley made in halves, each half including a wooden spoke-bar and a metal rim, said rim extending along the ends of the spoke-bar and bent in on the diametric face thereof and there secured, substantially as described.

6. A pulley made in halves, each half including a wooden spoke-bar and a metal rim, said rim extending along the ends of the spoke-bar and being bent in on the diametric face thereof and there secured, and having inwardly-projecting flanges at its edges extending over the sides of the spoke-bar near its ends, substantially as described.

7. A pulley made in halves, each half including a wooden spoke-bar and a metal rim, said rim extending along the ends of the spoke-bar and bent in on the diametric face thereof and there secured, said rim being crowned and the bent-over ends of the rim being bifurcated, substantially as described.

682,420. AUTOMATIC CUT-OFF FOR CISTERNS. WILLIAM R. O'CONNER, London, Tenn. Filed Apr. 27, 1901. Serial No. 57,786. (No model.)



Claim.—1. In a device of the character described, a casing having a compartment at its upper part provided with an opening in the bottom thereof, a pivoted cut-off in the casing having an integral chamber or pocket provided with means for gradually admitting water thereto for automatically effecting the shifting of the cut-off to direct the water to a cistern, and means for closing said opening for regulating or cutting off such admission at will, substantially as shown and for the purpose set forth.

2. In a device of the character described, a casing adapted for connection with a pipe or spout, and having a waste-outlet to a sewer and an outlet to a cistern, said casing also having an upper compartment provided with an opening in the bottom thereof, a pivoted cut-off in said casing normally in position to direct the incoming water to said waste-outlet, and having an integral chamber or pocket provided with means for gradually admitting water thereto for automatically effecting the shifting of said cut-off to alter the course of the water from the waste-outlet to the outlet to the cistern, and means for closing said opening for regulating or cutting off such admission at will, as set forth.

3. In a device of the character described, the casing having an inlet for water and a sewer-outlet and an outlet to a cistern, and also having an upper compartment having an opening in its bottom for the passage of water, an automatic cut-off having an integral chamber or pocket provided with means for admitting water thereto, and a hand-operated slide movable across said opening for regulating or cutting off such admission at will, as and in the manner set forth.

4. In a device of the character described, the casing having a door in the side near the top, and provided with an upper compartment having a door at one end and an opening in its bottom, a pivotally-mounted cut-off in line with said opening and comprising a chamber or pocket provided with means for admitting water thereto, and means for regulating or controlling such admission accessible through said doors.

5. In a device of the character described, the casing having a door in the side near the top, and provided with an upper compartment having a door at one end and an opening in its bottom, a pivotally-mounted cut-off in line with said opening and having a chamber or pocket provided with means for admitting water thereto, and a slide for regulating or controlling such admission having a handle accessible through said doors.

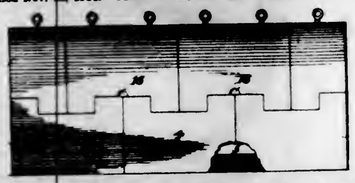
6. In a device of the character described, the casing having at its upper part an opening through which water passes, an automatic cut-off having a chamber or pocket provided with two rows of holes or openings, a gate or weir across the upper surface of the cut-off intermediate said rows, said cut-off having an opening near its axis, and said pocket having a leak-vent, and a slide or valve coöperating with said weir, in the manner and for the purpose set forth.

7. In a device of the character described, the casing having at its upper part an opening through which water passes, a pivotally-mounted weighted cut-off having end pieces or guards, and provided with a chamber or pocket having two rows of holes formed in the cut-off, a gate or weir across the said cut-off intermediate the said rows, the cut-off having an opening near its axis and the pocket having a leak-vent, and a gate or valve coöperating with said weir, as set forth.

8. In a device of the character described, the casing having an upper compartment provided with an opening in its bottom and a door in one end, said casing having a contiguous door, a pivotally-mounted cut-off in line with said opening and having a chamber or pocket provided with two rows of openings formed in the cut-off, a gate or weir across the upper surface of the latter intermediate the said rows, and the slide having the handle accessible through said doors, as set forth.

9. In a device of the character described, the casing having the side and upper doors, and having the filtering devices therein and provided with the outlets to a sewer and a cistern, the box in the upper part of the casing having a door in one end and an opening in its bottom, the movable slide working beneath said box, and the pivotally-mounted cut-off having the chamber or pocket and formed with the two rows of holes or openings leading to said pocket, said cut-off having the weir intermediate said rows and formed with an opening near its axis partially surrounded by a collector or guard, and said pocket having a leak-vent, as set forth and shown.

682,421. **BURIAL-VAULT.** WILLIAM S. PARKER, Austin, Tex. Filed Nov. 15, 1900. Serial No. 36,631. (No model.)

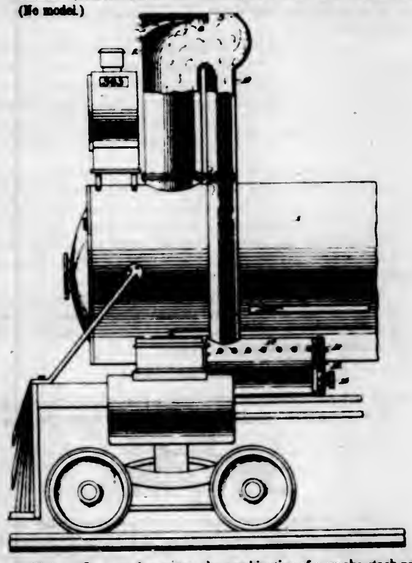


Claim.—1. A vault comprising a hollow receptacle composed of sections which are directly interlocked at their meeting ends against lateral movement, and a cover fitting over the hollow receptacle and interlocked with a pair of receptacle-sections, whereby the direct interlocking of the cover-sections with the sections of the receptacle serves to hold the receptacle-sections against separation in the longitudinal direction of the vault.

2. A vault comprising a hollow receptacle composed of sections which are directly interlocked at their meeting ends against lateral movement, and a cover fitting over the hollow receptacle and made up of separate sections, each of which is directly interlocked with a pair of the receptacle-sections, whereby the direct interlocking of the cover-sections with the sections of the receptacle serves to hold the receptacle-sections against separation in the longitudinal direction of the vault.

3. A vault comprising a hollow receptacle composed of several sections, each of said receptacle-sections being made up of integral bottom and side walls, the bottom and side walls of each receptacle-section being connected by rabbet-joints to the bottom and side walls of the adjacent receptacle-sections, and each side wall of each of said sections being provided with a recess at the center of its upper edge and an arched cover composed of sections extending across the receptacle, each of the cover-sections being provided in its bottom edge with a recess, the recesses of the cover and receptacle being disposed in alternating arrangement, and each receiving projecting portions of a pair of opposed sections, whereby the sections of the receptacle are locked against lateral displacement by reason of their direct interlocking engagement and are locked by the cover-sections against movement in the longitudinal direction of the vault, the end sections of the cover and receptacle being provided with end walls in interlocking engagement.

682,422. **SPARK-ARRESTER FOR LOCOMOTIVES.** GEORGE S. PARSELL, Sistersville, W. Va. Filed Apr. 23, 1901. Serial No. 57,104. (No model.)



Claim.—In a spark-arrester, the combination of a smoke-stack provided with a curved rearwardly-extending deflecting-surface terminating with a semicircular recess, and with a funnel-shaped air-passage entering the stack in front of the semicircular recess, said stack being also provided with a bulged portion opposite said deflecting-surface, a cinder-chamber and a pipe arranged to receive the deflected cinders and to convey them to said chamber, substantially as described.

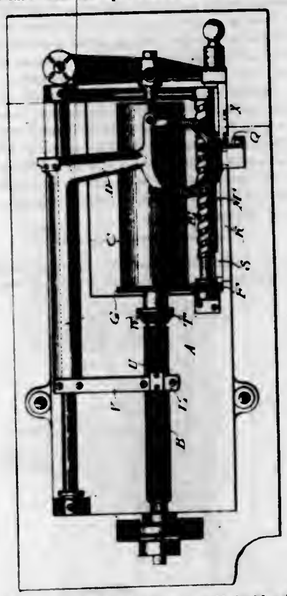
682,423. **METHOD OF MAKING LAP-WELD TUBING.** PETER PATTERSON, McKeesport, Pa., assignor to the National Tube Company, New York, N. Y. Filed Jan. 5, 1901. Serial No. 42,150. (No specimens.)



Claim.—The method of making lap-weld metal tubes which consists in forming a plate having a longitudinal rib, or thickened portion at its transverse center and having substantially parallel faces from said rib to the edges of the plate, bending said blank plate into tubular form with its edges overlapping, and then heating and welding the overlapping edges of said plate whereby the walls of the tube are reduced to substantially a uniform thickness.

682,424. **REPEATING MECHANISM FOR PHONOGRAPHS.** JOHN B. POWELL, Philadelphia, Pa. Filed Jan. 23, 1901. Serial No. 44,367. (No model.)

Claim.—1. The combination with a phonograph, of a screw-shaft geared to the driving mechanism thereof, a dog carried by the reproducer-arm of said phonograph adapted to engage said screw-shaft, means for lifting said reproducer-arm and means for moving said dog into engagement with the screw-shaft when the reproducer-arm reaches one limit of its movement, means independent of the means for lifting said reproducer-arm for supporting the same in its raised position, said supporting means terminating near the other limit of movement of the reproducer-arm, whereby the reproducer-arm is lowered, and means for disengaging said dog and screw-shaft when the reproducer-arm is lowered.



2. In a phonograph, a reproducer-arm provided with a dog, a screw-shaft geared to the driving mechanism of the phonograph and adapted to be engaged by said dog to return the reproducer-arm to the beginning of the record, means independent of said dog for lifting said reproducer-arm and means for moving said dog into engagement with said screw-shaft, when the reproducer-arm reaches one limit of its movement, said dog being provided with means for engaging a portion of the frame of the machine to support said reproducer-arm in elevated position when the dog engages the screw-shaft, said reproducer-arm being lowered at the other limit of its movement when the dog reaches the end of and becomes disengaged from said portion of the frame of the machine and means for disengaging said dog and screw-shaft when the reproducer-arm is lowered.

3. In a phonograph, a feed-shaft, a record-cylinder, a reproducer-arm and its carriage, a screw-shaft geared to the driving mechanism of the phonograph, a dog carried by said reproducer-arm and adapted to engage and be disengaged from said screw-shaft, a cam independent of said dog to engage a portion of the reproducer-carriage when the reproducer reaches the end of its movement to lift said reproducer-arm, means for moving said dog into engagement with said screw-shaft when said reproducer-arm is lifted, said dog engaging a portion of the frame of the machine when the reproducer-arm is lifted to support said arm in said elevated position, said reproducer-arm being lowered at the other limit of its movement when the dog reaches the end of and becomes disengaged from said portion of the frame of the machine and means for disengaging said dog and screw-shaft when the reproducer-arm is lowered.

4. In a phonograph, a feed-shaft provided with a cam, a screw-shaft geared to said feed-shaft, a reproducer-carriage having an arm provided with a finger to engage said cam and adapted to lift the reproducer-arm of said carriage when the latter reaches one limit of its movement, a dog carried by said carriage and adapted to engage said screw-shaft when the reproducer-arm is lifted, said dog engaging a portion of the frame of the machine when the carriage is being fed by the feed-shaft to hold said dog disengaged from said screw-shaft, means for throwing said dog into engagement with said screw-shaft when the reproducer-arm is lifted, said dog engaging a portion of the frame of the machine when the reproducer-arm is lifted to support the reproducer-arm in its raised position, said reproducer-arm being lowered at the other limit of its movement when the dog reaches the end of and becomes disengaged from said portion of the machine, whereby the reproducer-arm can be fed by the feed-shaft and means for disengaging said dog and screw-shaft when the reproducer-arm is lowered.

5. In a phonograph, a feed device provided with a gear, a screw-shaft having a pinion meshing with said gear, a cam upon said feed-shaft, a finger upon the arm of the reproducer-carriage to engage said mechanism, a dog upon said reproducer-arm adapted to engage said screw-shaft when the reproducer-arm is lifted at one limit of its movement, means for supporting said reproducer-arm in raised position, said supporting means terminating near the other limit of movement of the reproducer-arm, whereby the latter is lowered, and means for disengaging said dog and screw-shaft when the reproducer-arm is lowered.

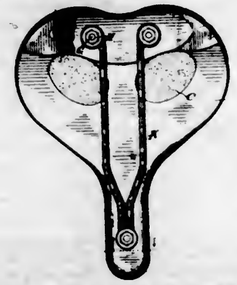
6. In a phonograph, a feed-shaft, a reproducer-arm, a feed-arm therefor, said reproducer-arm and said feed-arm being adapted to be raised and lowered to disengage and engage the feed-arm and feed-shaft, said feed-shaft serving to feed the reproducer-arm in one direction, a screw-shaft geared to said feed-shaft and adapted to feed in the opposite direction, a guide-rail extending a portion of the length of said screw-shaft, means for lifting the reproducer-arm at one limit of its movement to disengage said feed-arm and shaft, a spring-depressed dog on said reproducer-arm provided with a roller to engage said guide-rail when the reproducer-arm is lifted, and to hold it elevated, a nose on said dog to engage the screw-shaft when the reproducer-arm is lifted, whereby the latter is fed in the opposite direction, said reproducer-arm being lowered at the other limit of its movement when the roller reaches the end of and becomes disengaged from the guide-rail, whereby the feed-arm engages the feed-shaft, and said dog engaging a stationary portion of the machine when the reproducer-arm is lowered and serving to hold the nose disengaged from said screw-shaft, and the roller disengaging from said guide-rail.

7. In a phonograph, a feed-shaft for moving the reproducer-arm in one direction, a screw-shaft having threads of a different pitch for moving the arm in the opposite direction, means for raising said reproducer-arm at one limit of its movement, and means for connecting it with the screw-shaft, and means for supporting said reproducer-arm in its raised position, said means being independent of the means for lifting the same, and terminating near the other limit of movement of the reproducer-arm whereby the latter is lowered and connected with the feed-shaft.

8. In a phonograph, a feed-shaft provided with means for elevating the feed-nut to move the same from engagement therewith, a stationary cam situated in the path of the reproducer-arm to elevate the same when the feed-nut is disengaged from the feed-shaft, and means for moving the said reproducer-arm in the opposite direction to that in which it is moved by said feed-shaft.

9. In a phonograph, a guide-rail, a reproducer-arm having a dog provided with a projection to engage said guide-rail and to support said reproducer-arm in an elevated position, said projection bearing against the side of said guide-rail, a feed device for moving said reproducer-arm in one direction, a screw-shaft for moving the same in the opposite direction, means for lifting said arm at one limit of its movement to allow said projection to engage said guide-rail and said dog to engage said screw-shaft when the reproducer-arm is lifted, and a rail upon which said arm rests when the projection of the dog passes beyond the end of the guide-rail and allows said arm to descend.

682,425. **SADDLE FOR BICYCLES, &c.** FRANCIS B. RAY and OSCAR S. BRANDT, New York, N. Y. Filed Sept. 2, 1899. Renewed Feb. 26, 1901. Serial No. 48,987. (No model.)



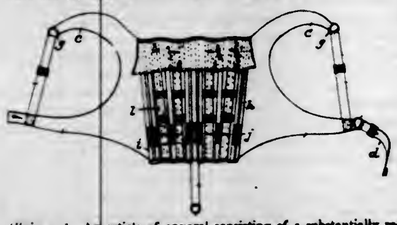
Claim.—1. A bicycle-saddle having a spring-plate base, openings or cut-away portions to take up torsional strains, and one or more bridging-plates, as and for the purposes set forth.

2. A bicycle-saddle having a spring-plate base composed of two or

more leaves, openings or cut-away portions to take up torsional strains, and bridging-plates, as and for the purposes set forth.

3. A bicycle-saddle having two or more spring-plates lying contiguous to one another as shown, the said plates having cut-away portions or slots to provide for torsional action, the said cut-away portions being arranged in staggered form, as and for the purposes set forth.

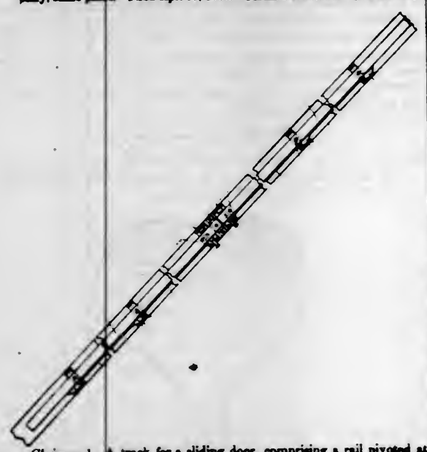
682,426. **BUST-FORMER.** FRANK C. REINHARDT, Paterson, N. J. Filed Oct. 16, 1900. Serial No. 33,194. (No model.)



Claim.—1. An article of apparel consisting of a substantially rectangular band of fabric or other similar material having fullness in its center portion, in combination with straps extending substantially from the middle of the end portions of said band and adapted to secure said article in place over the bosom of the wearer, exerting lateral strains thereon in opposite directions, ribs secured to said band substantially transversely of the direction of strain of said straps and with their end portions nearer to each other than their intermediate portions, and other straps extending one from each upper corner of said band and adapted to be connected to said first-named straps and another from the middle lower portion of said band and adapted to be secured to some other garment worn by the wearer, substantially as described.

2. An article of apparel consisting of a substantially rectangular band of fabric or other similar material having fullness in its center portion, in combination with straps adapted to secure said article in place over the bosom of the wearer and exert lateral strains thereon in opposite directions, pairs of spaced alined pockets arranged on the inside of said band, said pairs of pockets being arranged substantially transversely of the direction of strain of said straps and with their end portions nearer to each other than their intermediate portions, and ribs, each rib being received by a pair of pockets and projecting at one end into one pocket and at the other end into the other pocket, substantially as described.

682,427. **TRACK FOR SLIDING DOORS.** ADOLPH J. RICKER, South Milwaukee, Wis., assignor to Stowell Manufacturing & Foundry Company, same place. Filed Apr. 13, 1901. Serial No. 55,905. (No model.)



Claim.—1. A track for a sliding door, comprising a rail pivoted at one extremity on a fixed support, a cam pivoted on the rail at a distance from said pivotal support, a bracket provided with a ledge on which the cam rests, a bell-crank pivoted on the rail and connected to said cam, and means for tilting the bell-crank.

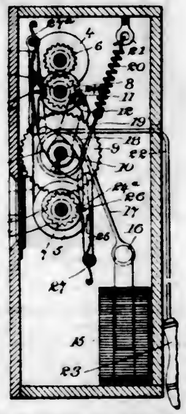
2. In combination, a track-rail adapted to be pivoted and thereby supported at one end, a bracket provided with a ledge, a cam pivoted on the rail at a distance from its pivotal point and adapted to bear eccentrically on said ledge, and means for actuating and holding said cam.

3. In combination, a track-rail adapted to be pivoted and thereby supported at one end, a bracket provided with a ledge, a cam pivoted on the rail at a distance from its pivotal point and adapted to bear eccentrically on said ledge, a bell-crank pivoted on said rail, a bracket adapted to be secured to a fixed support, a screw rotatable but non-movable endwise in said bracket, a block on and movable by the thread of the screw and provided with a pin that enters a slot in one arm of said bell-crank, and a rod connecting the other arm of said bell-crank to said cam.

4. In combination, a track-rail adapted to be pivoted and thereby supported at one end, a bracket provided with a ledge and a slot, a cam pivoted on the rail at a distance from its pivotal point and adapted to bear eccentrically on said ledge its pivot being movable in said slot in said bracket, and means for actuating and holding said cam.

5. In combination, a track, comprising two rails abutting ends of which are pivoted on a common pivot, swinging cams pivoted on the rails at a distance from the pivotal point of the rails, brackets having ledges on which the cams rest and slots in which the pivots of the cams are movable, bell-cranks pivoted on the rails near their pivotal extremities, rods connecting the cams to the bell-cranks, revolvable screws non-movable endwise, and blocks on the screws provided with pins entering slots therefor in the bell-cranks.

682,428. **STATION-INDICATOR.** EDWIN A. RUSSELL, Newark, Ohio. Filed Aug. 16, 1900. Serial No. 27,085. (No model.)



Claim.—1. The combination of the station-indicator for electric cars consisting of a belt with names printed thereon, and two rollers from one to the other of which the belt may be wound, means by which said rollers may be automatically rotated at intervals by a shunt-current from the motor-circuit of the car, and means whereby the said rollers may be operated by hand, said first-mentioned means consisting of an electromagnet and armature, a shaft, apparatus by which the rectilinear motion of the armature is converted into a rotary movement of the shaft, and a ratchet-wheel and pawl connection from the shaft to one of the rollers, while said last-mentioned means consists of a cord wound around the shaft and having a free end adapted to be grasped by the operator.

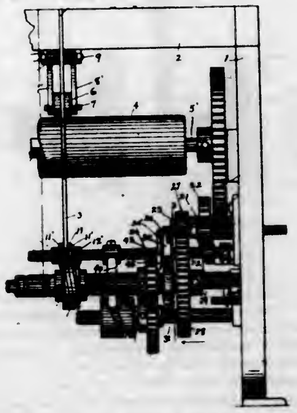
2. The combination of the belt and roller, a pinion on said roller, a brake-wheel having recesses cut in its periphery at equal distances, a brake-lever having a projection adapted to engage any one of said recesses, and spring-pressed in the direction to produce such engagement, a driving-shaft, a loose gear on said shaft meshing with the pinion, a crank and pawl carried by the shaft and adapted to rotate the gear-wheel in one direction, a cam on the driving-shaft which holds the brake-lever out of engagement while the parts are at rest, but which allows the projection on the brake-lever to press against the periphery of the brake-wheel as soon as the parts have moved a short distance, and means for giving the driving-shaft a fraction of a rotation and then returning it to its original position of rest.

3. The combination of the two rollers and the belt wound in opposite directions thereon, the pinion on each roller, the reversing-pinion meshing with the pinion on one roller, the driving-shaft having one end journaled in a shifting bearing, the gear-wheel carried by and rotated from the driving-shaft and adapted to mesh with the pinion on one roller or the reversing-pinion geared to the other roller according as the shaft-bearing is shifted, the drum on the shaft, the motor apparatus, the cord

wound on the drum and connected to the motor apparatus, and the second cord wound in the opposite direction on the drum and having its other end connected to a spring.

4. The combination of the two rollers and the belt wound in opposite directions thereon, the pinion on each roller, the reversing-pinion meshing with the pinion on one roller, the driving-shaft having one end journaled in a shifting bearing, the gear-wheel carried by and rotated from the driving-shaft and adapted to mesh with the pinion on one roller or the reversing-pinion geared to the other roller according as the shaft-bearing is shifted, the drum on the shaft, the motor apparatus, the cord wound on the drum and connected to the motor apparatus, and the second cord wound in the opposite direction on the drum and having its other end connected to a spring, together with the third cord wound on the drum in the same direction as the motor-cord and having a free end adapted to be grasped by the operator.

682,429. **LOOM.** EPPA H. RYON, Worcester, Mass., assignor to Crompton & Knowles Loom Works, same place. Filed Apr. 13, 1901. Serial No. 55,906. (No model.)



Claim.—1. In a take-up or winding mechanism for tape, ribbon, &c., the combination with a guide, a spool on which the tape is wound, said spool loose on a shaft, and said shaft, of means for communicating a transverse or lateral motion to said guide, and means for rotating said spool, and retarding the rotation of said spool, substantially as shown and described.

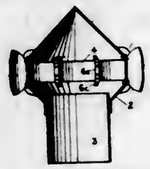
2. In a take-up or winding mechanism for tape, ribbon, &c., the combination with a guide, a spool, on which the tape is wound, on a sleeve loose on a shaft, and means for communicating a transverse or lateral motion to said guide, of means for rotating said spool, and retarding the rotation of said spool, and the transverse movement or travel of the guide, substantially as shown and described.

3. In a take-up or winding mechanism for tape, ribbon, &c., the combination with a guide-needle, a spool on which the tape is wound, fast on a sleeve loose on a shaft, and means for communicating a transverse or lateral motion to said guide-needle to guide the tape onto said spool, of means for rotating said spool, and retarding the rotation of said spool, and the transverse movement or travel of the guide-needle, said means comprising friction or yielding mechanism connected with and intermediate the shaft on which the sleeve and spool are mounted, and a gear for communicating rotary motion to said spool and to the cam which governs the transverse motion or travel of the guide-needle, substantially as shown and described.

4. In a take-up or winding mechanism for tape, ribbon, &c., the combination with a driven shaft, a sleeve loose on said shaft, and a spool on which the tape is wound on said sleeve, and a gear fast on said sleeve, meshing with and driving a gear connected with a cam, and said cam, and connections between said cam and a longitudinal moving shaft, and said shaft, and a flanged collar thereon, and a guide-needle attached to said collar and extending over the spool on which the tape is wound, of mechanism for retarding the rotation of the spool on which the tape is wound, and the transverse movement of travel of the guide-needle, as the wound tape increases in size, said means comprising a friction device, intermediate the driven shaft and the gear fast on the sleeve carrying the spool on which the tape is wound, substantially as shown and described.

5. In a take-up or winding mechanism for tape, ribbon, &c., the combination with a roll under which the tape passes, and means for rotating said roll from a driven shaft, a second roll, over which the tape passes, on a swinging frame and bearing on the first-mentioned roll, a flanged collar under which the tape passes, a guide-needle secured to said collar to guide the tape, and extending over the spool on which the tape is wound, and having an opening or openings therein through which the tape passes, said collar loose on a longitudinal moving shaft, and said shaft, and an arm fast thereon, and having a pin thereon traveling in a groove in a cam, and said cam, of the spool on which the tape is wound, fast on a sleeve loose on a shaft, a gear fast on said sleeve and meshing with a gear fast on the shaft carrying said grooved cam, and mechanism for retarding the rotation of the spool on which the tape is wound, and of the grooved cam for regulating the transverse travel or movement of the guide-needle, as the size of the wound tape on the spool increases, consisting of a friction device, connected with and intermediate the gear connected with the spool on which the tape is wound and the driven shaft on which the sleeve carrying said spool is loose, substantially as shown and described.

682,430. **CHIMNEY-COWL.** EDWARD A. SANDERS, Saginaw, Mich. Filed Mar. 5, 1901. Serial No. 49,868. (No model.)



Claim.—1. In a chimney-cowl the combination with the upper and lower hoods, of a series of interlocking cells; each cell consisting in a scallop of substantially semi-elliptical cross-section having a lateral flange formed on one vertical edge and integral therewith; a lateral flange formed on the other edge of the cell, said second flange having an upwardly and downwardly projecting end for engaging the inner surfaces of the upper and lower hoods, the long flange of one cell overlapping the short flange of the adjacent cell.

2. As an article of manufacture, a cell or unit for building up the ring of a chimney-cowl consisting in a sheet of metal bent into the form of a vertical scallop of substantially semi-elliptical cross-section, having two lateral wings or flanges, one of said flanges being shorter than the height of the space between the cowl-hoods and the second flange having upwardly and downwardly projecting ends whereby the cell is fastened to the hoods, for the purposes described.

3. A cell or unit for building up the rim of a chimney-cowl consisting in a sheet of metal bent into the form of a vertical scallop with top and bottom edges crimped, and having two lateral wings or flanges, one of said flanges being shorter than the height between the cowl-hoods and the second flange having upwardly and downwardly projecting ends whereby the cell is fastened to the hoods, for the purposes described.

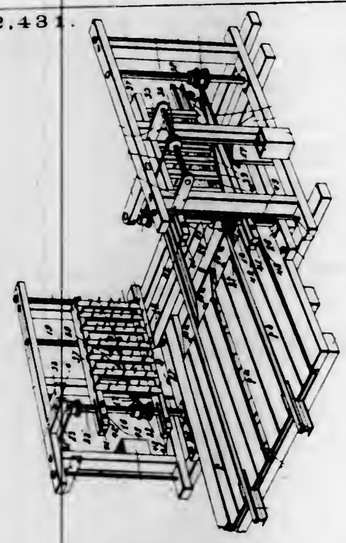
682,431. **CATTLE-GUARD.** CHARLES E. SABSOUCY, Eveleth, Minn., assignor of two thirds to Andrew H. Peterson and Samuel Perrault, same place. Filed Apr. 25, 1901. Serial No. 57,416. (No model.)

Claim.—1. A cattle-guard comprising vertical shafts disposed at opposite sides of a railway-track, gates carried by said shafts, means for normally holding said gates in open positions, a horizontal rock-shaft provided with quadrants and with rocker members, operative connections between the quadrants and the gates, and a divided platform hung between rails of a track and overlapping the rocker members on the rock-shaft, to turn the latter by depression of either of the platform members, substantially as described.

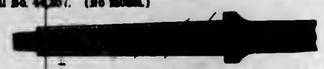
2. A cattle-guard comprising a sectional platform having the members thereof disposed substantially in the plane of a track and hung independently of each other, a rock-shaft mounted independently of the platform members, rocker members secured fast on the rock-shaft and fitted beneath the free ends of the platform members to be actuated by the individual members of said platform, swinging gates mounted on opposite sides of the track and normally maintained in open positions, and operative connections between the rock-shaft and said gates, substantially as described.

3. A cattle-guard comprising a platform, a rock-shaft arranged to be actuated by the platform, gate-shafts erected on opposite sides of the track and each carrying a gate, spools fast on the gate-shafts, a counterpoise operatively connected to each gate, quadrants fast on the rock-shaft, and independent counter-shafts each having cables which are connected individually to the quadrants of the rock-shafts and the spools of the gate-shafts, substantially as described.

682,431.



682,432. AXLE-SKEIN. FRITZ A. SCHULZ, Chicago, Ill., assignor of one-half to Alfred J. Kootechau, same place. Filed Jan. 22, 1901. Serial No. 44,207. (No model.)



Claim.—1. An axle-skein, formed of a split tube with flanges extending inward from the longitudinal edges of the tube.

2. The combination of an axle, and a skein in the form of a split tube, secured to the axle at the longitudinal edges of the skein.

3. The combination, with an axle having a longitudinal groove therein, of a skein in the form of a split tube, and flanges extending along the longitudinal edges of the tube and removably fitted into the groove.

4. An axle-skein, formed of a split tube of spring metal serving by its spring properties closely to embrace the axle, said tube having an inwardly-projecting portion engaged with the axle, whereby to secure the skein in place.

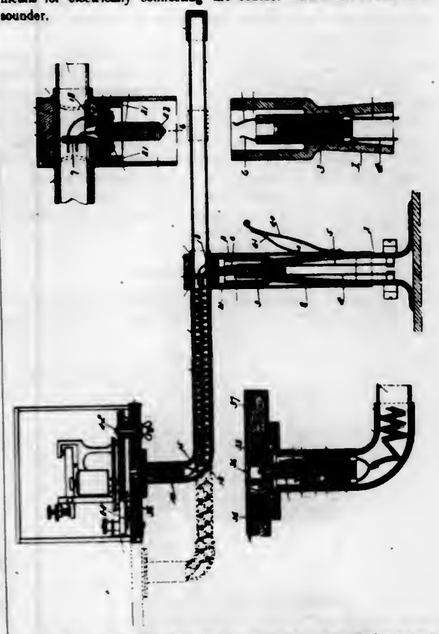
5. The combination with an axle having a longitudinal groove therein, of an axle-skein formed of a split tube of spring metal arranged snugly to embrace the axle and provided with inturned flanges at its longitudinal edges, the groove of the axle extending throughout the length of the said skein and the flanges of the skein fitting in said groove, for the purpose specified.

682,433. RESONATOR. JOHN F. SKIBROW, East Orange, N. J. Filed Feb. 15, 1901. Serial No. 47,453. (No model.)

Claim.—1. In a resonator, the combination of a standard, two separated contacts carried by said standard, a sounder-support removably and rotatably mounted on the standard, a pair of contacts carried by the sounder-support and adapted to engage the contacts carried by the standard, and insulated wires connected to the contacts carried by the sounder-support and adapted to be electrically connected to the sounder.

2. The combination, of a standard, two separated contacts carried thereby and insulated therefrom, a removable and rotatable part supported by the standard, a pair of depending contacts within the rotatable part and adapted to engage the contacts carried by the standard and to remain in engagement therewith during the rotation of the rotatable part, a sounder-support carried by the rotatable part, and a pair of insulated wires connected to the contacts within the rotatable part and adapted to be electrically connected to a sounder.

3. The combination, of a standard formed with a central chamber, a pair of separated contacts extending upward into said chamber one of said contacts being longer than the other, a sleeve adapted to be removably and rotatably supported by the standard, a depending contact-post supported centrally within the sleeve and adapted to engage the shorter contact carried by the standard, a contact-sleeve surrounding the contact-post and insulated therefrom and adapted to engage the longer contact carried by the standard, a sounder-support carried by the sleeve, and means for electrically connecting the contact within the sleeve to a sounder.



4. The combination, of a support, a vertical plug of insulation mounted centrally in the support and formed with a central socket in its top, a pair of separated contacts carried by said plug, one of said contacts being shorter than the other, a removable and rotatable sleeve, a depending contact-post supported centrally within the sleeve its lower end being adapted to enter the socket in the plug carried by the support and to engage the shorter contact, a contact-sleeve surrounding the contact-post and engaging the longer contact, a sounder-support carried by the sleeve, and a pair of wires connected to the contacts within the sleeve and adapted to be electrically connected to a sounder.

5. The combination, of a support, a centrally-mounted plug of insulation carried by the support, a pair of wires extending through said insulation and flattened at their upper ends to form spring-contacts and to prevent their downward removal, means to prevent said wires moving upward through the plug, a sounder-support adapted to be mounted on the support, a pair of contacts carried thereby and adapted to engage the contacts carried by the support, and a pair of wires connected to the contacts carried by the sounder-support and adapted to be electrically connected to a sounder.

6. The combination, of a standard, a pair of contacts carried thereby, a rotatable part mounted on the standard and carrying a pair of contacts adapted to engage the contacts on the standard, a rod carried by the rotatable part, a sounder-box rotatably and removably mounted on said rod, a pair of wires connected to the contacts carried by the rotatable part on the standard and adapted to be electrically connected to a sounder in the sounder-box.

7. The combination, of a standard, a pair of contacts carried thereby, a rotatable part removably mounted on the standard and carrying a pair of contacts adapted to slidingly engage the contacts carried by the standard, a rod carried by the rotatable part, a sounder-box rotatably mounted on said rod, a pair of wires connected to the contacts carried by the rotatable part on the standard and adapted to be electrically connected to a sounder in the sounder-box.

8. The combination, of a standard, a pair of contacts carried thereby, a rotatable part, a pair of contacts carried thereby and adapted to engage the contacts carried by the standard, a rod carried by the rotatable part, a sounder-box rotatably mounted on one end of this bar and slidably removable therefrom, a pair of contacts carried by the bar, a pair of contacts carried by the sounder-box and adapted to slidingly engage the contacts carried by the bar, and means for electrically connecting the contacts carried by the rotatable part on the standard to the contacts carried by the end of the bar.

9. The combination, of a support, a pair of contacts carried thereby, a rotatable part removably mounted on the support and carrying a pair of contacts adapted to engage the contacts carried by the support, a slidable rod carried by the removable part, a sounder-support carried by the rod, and means adapted to electrically connect the contacts on the removable part to a sounder on the sounder-support.

10. The combination, of a support, a pair of contacts carried thereby, a rotatable part mounted on the support and carrying a pair of contacts adapted to engage the contacts carried by the support, a slidable rod carried by the rotatable part, a pair of contacts carried by said rod at one end thereof, a sounder-box rotatably and removably mounted on the end of the slidable rod and carrying a pair of contacts adapted to engage the contacts on the slidable rod, and means for electrically connecting the contact on the removable part with the contact on the end of the slidable rod.

11. The combination, of a support, a pair of contacts carried thereby, a sleeve removably and rotatably mounted on said support, a pair of contacts carried by said sleeve and adapted to engage the contacts carried by the support during the rotation of the sleeve, a horizontal rod slidably mounted in said sleeve, a sounder-box mounted on one end of the slidable rod, and means for electrically connecting the contacts carried by the sleeve to a sounder in the sounder-box.

12. The combination, of a standard, a sleeve rotatably mounted thereon, a pair of contacts carried by the standard, a pair of contacts carried by the sleeve and adapted to engage the contacts carried by the standard, a horizontal slidable rod carried by the sleeve, a rotatable sounder-box mounted on one end of said rod, and means for electrically connecting the contacts carried by the sleeve to a sounder in the sounder-box.

13. The combination, of a standard, a sleeve rotatably mounted thereon, a pair of contacts mounted on the standard, a pair of contacts supported within the sleeve and adapted to engage the contacts carried by the standard, a horizontal slidable tubular rod carried by the sleeve, a sounder-box carried by said tubular rod, and a pair of slack wires in said tubular rod, each of said wires being connected at its inner end to one of the contacts carried by the sleeve, the outer ends of said wires being adapted to be electrically connected to a sounder in the sounder-box.

14. The combination, of a standard, a rotatable sleeve mounted on said standard, a pair of contacts mounted in the standard, a pair of contacts supported within the sleeve and adapted to engage the contacts supported by the standard, a slidable tubular rod mounted in said sleeve, a sounder-box mounted on one end of said slidable rod, a pair of insulated wires coiled within the tubular rod, the inner end of each of said wires being connected to one of the contacts carried by the sleeve, the other ends of said wires being permanently secured at the outer end of the slidable rod adjacent the sounder-box, and means for electrically connecting the outer ends of said wires to a sounder in the sounder-box.

15. The combination, of a standard, a sleeve rotatably mounted on said standard, a pair of contacts within the standard, a pair of contacts carried by the sleeve and adapted to engage the contacts carried by the standard, a slidable tubular rod carried by said sleeve, a pair of wires loosely coiled within said rod, the inner end of each of said wires being connected to one of the contacts carried by the sleeve, the outer ends of said wires being secured permanently at the outer end of the tubular rod and formed into contacts, a sounder-box rotatably mounted on the end of the slidable rod, a pair of contacts carried by the sounder-box and adapted to engage the outer ends of the coiled wires, and means for electrically connecting the contacts carried by the sounder-box to a sounder within said box.

16. The combination, of a standard, a sleeve rotatably mounted on said standard, a pair of contacts carried by the standard, a pair of contacts carried by the sleeve and adapted to engage the contacts carried by the standard, a horizontal slidable tubular rod mounted in said sleeve, a pair of insulated wires loosely coiled within said tubular rod, a stop-plate carried by the rotatable sleeve and extending into the tubular rod and confining the coil between said stop-plate and one end of the slidable rod, the inner end of each one of said wires passing through the stop-plate and being connected to one of the contacts carried by the sleeve, the outer ends of said wires being permanently secured to one end of the slidable rod, a sounder-box mounted on the slidable rod, a pair of contacts carried by said sounder-box and adapted to engage the outer ends of the coiled wires.

17. The combination, of a standard, a sleeve rotatably mounted on said standard, a pair of contacts carried by the standard, a pair of contacts within the sleeve, a slidable tubular rod carried by the rotatable sleeve, said rod being extended upward at one end and provided with a longitudinal slot in its under side, a key secured to the rotatable sleeve and extending into the slot in the slidable bar to prevent the rotation of said bar, a sounder-box mounted on the upward-extended end of the rod, a pair of contacts carried by the sounder-box and extending into the slidable bar, and means for electrically connecting the contacts carried by the sounder-box to the contacts carried by the sleeve to a sounder in the sounder-box.

18. The combination, of a standard, a sleeve rotatably mounted on said standard, a pair of contacts carried by the standard, a pair of contacts carried within the sleeve, a slidable tubular rod carried by the rotatable sleeve, said rod being extended upward at one end and provided with a longitudinal slot in its under side, a key secured to the rotatable sleeve and extending into the slot in the slidable bar to prevent the rotation of said bar, a sounder-box rotatably and removably mounted on the upward-extended end of the rod, a pair of contacts carried by the sounder-box and extending into the slidable rod, a pair of contacts in said rod and engaged by the contacts on the sounder-box, and means for electrically connecting the contacts in the rotatable sleeve to the contacts in the end of the slidable rod.

19. The combination, of a standard, a sleeve thereon, a pair of contacts in the standard, a pair of contacts carried by the sleeve, a horizontal tubular supporting-arm carried by the sleeve, a slidable rod in said supporting-arm and having one of its ends extended upward, a sounder-box on the upward-extended end of the slidable rod, and means for electrically connecting the contacts in the sleeve to a sounder in the sounder-box.

20. In combination, a standard formed with a central vertical chamber at its top, a pair of contacts extending into said chamber, a removable rotatable part on the standard, a pair of contacts carried by the rotatable part, a slidable rod supported by the rotatable part, one end of said rod being extended vertically, a sleeve adapted to fit over the vertical end of the slidable rod and in the chamber in the top of the standard, a pair of contacts in the vertical end of the slidable rod similar to the contacts in the standard, a pair of contacts carried within the sleeve and adapted to engage the contacts in the standard or in the slidable rod, a sounder-box carried by said sleeve, and means for electrically connecting the contacts within the sleeve to a sounder in the sounder-box.

21. The combination, of a standard formed with a central vertical chamber at its top, a pair of separated contacts extending into said chamber, a removable rotatable sleeve fitting over the standard, a depending contact-post within the sleeve, a contact-sleeve surrounding the post and insulated therefrom, a slidable bar carried by the sleeve one end of said bar being extended vertically, a pair of contacts in said vertical end of the bar, a pair of slack wires connected to the contacts in the sleeve and to the contacts in the end of the bar, a rotatable sleeve fitting the vertical end of the slidable bar and adapted to fit the chamber in the standard, a contact-post centrally mounted in this sleeve and surrounded by a contact-sleeve, said contacts being adapted to engage the contacts in the standard or those in the vertical end of the slidable bar, and a sounder-box carried by the sleeve on the end of the bar.

22. A sounder-box comprised of a base, and a sound-reflecting section hinged thereto, substantially as described.

23. In combination, a standard, a removable rotatable part fitting on top of the standard, a slidable rod supported by the rotatable part, a sounder-support adapted to slidably fit one outer end of said rod and the top of the standard when the rotatable part is removed, whereby said sounder-support may be placed on the rod or on the standard, as desired, substantially as set forth.

24. A sounder-box comprised of a base, and a sound-reflecting section hinged thereto to adapt it to be swung below the base-piece and consisting of the side pieces and the upward-inclined back piece, substantially as described.

25. In combination, a sounder-box consisting of a base and a sound-reflecting section, a sounder mounted on said base and provided with supporting-pins, a screw extending through the sounder-base and the base of the sounder-box, and a block between the base of the sounder and the base of the sounder-box, substantially as described.

682,434. FIREPROOF COVERING. MAURICE SULLIVAN, New York, N. Y. Filed Apr. 17, 1901. Serial No. 56,237. (No model.)



Claim.—1. A fireproof covering, built up of a number of tubular sections having circular exterior form in cross-section, and having projected tangentially from their exteriors a wing or apron, said wing or apron extending continuously along the section throughout the length thereof.

2. A fireproof covering, made up of a number of tubular sections having circular exterior form, each section having a wing or apron projecting tangentially from its side and lying against the adjacent section, said wings or aprons extending continuously throughout the length of the sections.

682,435. FISH-PLATE. JOHN SWANSON, Greatbend, N. D. Filed Nov. 26, 1900. Serial No. 37,855. (No model.)

Claim.—The within-described fish-plate consisting of the two bars, each bar at its central portion being thicker in cross-section at the part

that bears against the rail-web between the ties than at its opposite ends and at each central portion having a downwardly and inwardly turned part adapted to receive and lap under the base of the rail, such downwardly and inwardly turned part being lighter in thickness than the part bearing against the rail-web, the opposite ends of each bar having enlarged flattened portions to rest upon the ties, such flattened portions having recesses in their under faces to receive the flanges of the rails, the outer walls of said recesses constituting shoulders against which the edge of the rail-flange will abut, substantially as described.



682,436. SHAFT END FOR VEHICLES. RAY F. TRIMMER, Cleveland, Ohio. Filed July 20, 1901. Serial No. 69,140. (No model.)



Claim.—1. In an end piece for shafts, in combination, a tapered tube made of sheet metal whose meeting edges are united by being crimped together, a metallic reinforcing-plate within the tube lying snugly against it and held by having one edge clamped in the crimp, and a plug occupying the tube within the reinforce and having its large end cut off on an incline within the tube and the reinforce, substantially as described.

2. In an end piece for shafts, in combination, a tapered tube consisting of a piece of sheet metal having its meeting edges united by being crimped together, a reinforce-plate held in place by having one edge clamped within said crimp, the other edge being free along the same, the larger end of said tube being rolled outward around a wire, and a filling-block within the tube and reinforce extending from the smaller end of the tube but having its larger end cut off diagonally within the tube and reinforce, substantially as described.

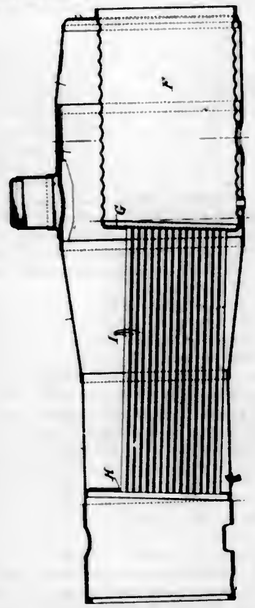
3. In an end piece for vehicle-shafts, a metallic tapered tube straight for some distance from its larger end and then curved, combined with a wooden filling-plug within the tube occupying both the curved and straight portions, the larger end of said plug being cut off diagonally within the straight portion of the tube, substantially as described.

682,437. LOCOMOTIVE-BOILER. CORNELIUS VANDERBILT, New York, N. Y. Filed May 22, 1901. Serial No. 61,352. (No model.)

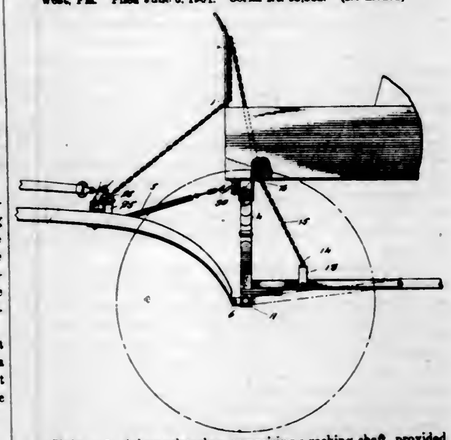
Claim.—1. A locomotive-boiler having a cylindrical forward section, a truncated conical middle section and a cylindrical fire-box section all symmetrically disposed with relation to the common axis, substantially as shown and described.

2. A locomotive-boiler having a cylindrical forward section, a truncated conical middle section and a cylindrical fire-box section all symmetrically disposed with relation to the common axis, a reduced or tapered rear portion of the fire-box section and a rear head to which said reduced portion is secured, said head having a greater diameter than the fire-box, substantially as shown and described.

3. A locomotive-boiler having a cylindrical forward section, a truncated conical middle section and a cylindrical fire-box section all symmetrically disposed with relation to the common axis, inclined tubes and front and rear flue-sheets disposed at right angles to said tubes, substantially as shown and described.



682,438. HORSE-DETACHER. BALDOMERO V. VELASCO, Key-west, Fla. Filed June 6, 1901. Serial No. 63,382. (No model.)



Claim.—1. A horse-detacher, comprising a rocking shaft, provided with a crank and with harness-hooks, a movable link for detachably securing said crank, and a member controllable by hand for actuating said movable link and thereby releasing said crank.

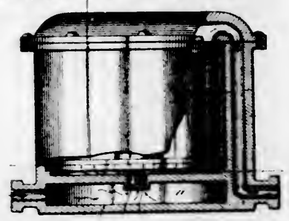
2. A horse-detacher, comprising a rocking shaft, provided with a crank and with harness-hooks, a movable link for detachably securing said crank, stationary spring-clips normally closing said hooks, and a member controllable by hand for actuating said movable link and thereby releasing said crank.

3. The combination of a controlling means, a reach, a Y-shaped member pivoted on said reach, right-angular portions forming the forward ends of said member, an axle which is controlled in its position by said Y-shaped member, a link carried by said Y-shaped member, a chain, and a hook and eye for controlling the position of the Y-shaped member with respect to said axle.

4. A horse-detacher, comprising a rocking shaft provided with a crank and with harness-hooks, fixed spring-clips normally engaging said hooks for keeping the same closed, and a manually-operated link for detachably securing said crank and thereby holding said hooks in detachable engagement with said springs normally used for closing the same.

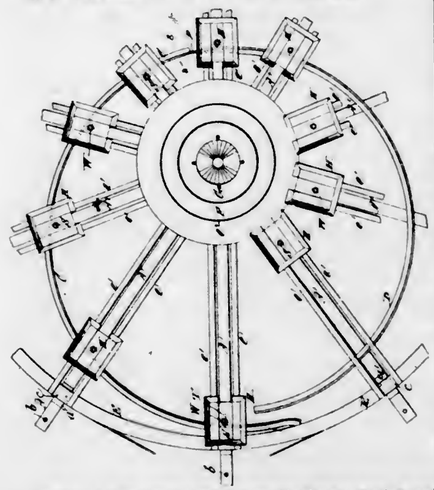
5. A horse-detacher, comprising a rocking shaft provided with a crank and also with V-shaped hooks for engaging the harness, spring-clips relatively stationary to said rocking shaft and normally straddling said V-shaped hooks so as to coact therewith, a pivoted link for detachably securing said crank, means for manually actuating said link in one direction, and springs for retracting the same.

682,439. METER. JOHN S. WARDE, West New Brighton, N. Y. Filed Dec. 18, 1900. Serial No. 40,256. (No model.)



Claim.—A meter, comprising a casing, a dome on said casing and from which an outlet leads through the wall of the casing, a receiving-chamber below the casing, the upper wall of said chamber having an opening, a perforated plate above said upper wall, and a valve seated in the opening of said upper wall, substantially as specified.

682,440. PLEASURE-WHEEL. GEORGE F. WEBER, New York, N. Y. Filed June 6, 1900. Serial No. 19,217. (No model.)



Claim.—1. The combination of a rotatable pleasure-wheel, formed with an annular rack-gear, a gear-wheel engaging with said annular rack, a pinion on said gear-wheel, an annular rack engaging with said pinion, an intermediate annular platform attached to said last-named annular gearing, whereby the motion of the rotatable pleasure-wheel is transmitted at a reduced speed to the intermediate rotatable platform for the purpose set forth.

2. The combination of a rotatable pleasure-wheel, having radial rails, a car or platform mounted upon said rails, an eccentric advancing-rail, and an eccentric retracting-rail, and a wheel upon said power-platform arranged to engage said eccentric advancing and retracting rails, substantially as set forth.

3. The combination of a rotatable pleasure-wheel formed with radial rails, a car or platform mounted upon said rails and with a contact-wheel adapted to be raised or lowered, and an eccentric advancing-rail and an eccentric retracting-rail upon a lower level than said advancing-rail, for the purpose set forth.

4. In a rotatable pleasure-wheel formed with radial rails, a car or platform mounted on said rails, a contact-roller mounted adjustably upon said car or platform, an eccentric advancing-rail, acting against said contact-roller to push the car outward, an eccentric retracting-rail and means for automatically lowering said bearing-roller upon the car or platform to bring it into contact with the retracting rail, for the purpose of returning the car to its normal position, substantially as described.

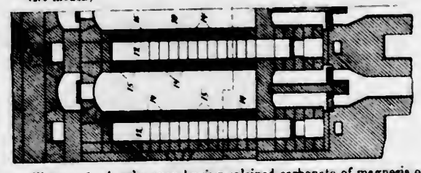
5. The combination of a rotatable pleasure-wheel E, with the annular rack e', the gear-wheel e^2, and pinion f', the annular rack f, the annular platform F, and the central stationary platform G, the whole arranged and operating substantially in the manner and for the purpose described.

6. The combination of a rotatable pleasure-wheel E, the rails e', e', the car or platform H, mounted thereon, the adjustable contact-wheel W, the eccentric advancing-rail D, and the eccentric retracting-rail C, for the purpose and substantially in the manner described.

7. The combination of a rotatable pleasure-wheel E, having the rails e', e', a car or platform H, mounted upon said rails, the spindle S, on said car or platform provided with the roller W, the radial projections i', on said spindle, the stationary cam J, the cam-arm s, on the spindle, the eccentric advancing and retracting rails C, D, and the stationary stud T, the whole arranged and operating substantially in the manner and for the purpose described.

8. The combination of a rotatable pleasure-wheel E, having the rails e', e', a car or platform H, mounted upon said rails, the spindle S, on said car or platform, provided with the roller W, the radial projections i', on said spindle, the stationary cam J, the cam-arm s, on the spindle, the spring s', and means for raising the spindle manually against the resistance of said spring, the eccentric advancing and retracting rails, C, D, and the stationary stud or projection T, the whole arranged and operating substantially in the manner and for the purpose described.

682,441. COKE-OVEN. SAMUEL T. WELLMAN and CHARLES H. WELLMAN, Cleveland, Ohio. Filed May 22, 1901. Serial No. 61,355. (No model.)



Claim.—1. A coke-oven having calcined carbonate of magnesia or magnesite bricks arranged in alternate courses in the side walls of the retort, substantially as described.

2. A coke-oven having calcined carbonate of magnesia or magnesite bricks embodied in the side walls of the retort, substantially as described.

3. Coke-ovens having the walls of the retort composed of fire-brick formed of a mixture of silica or silicate of alumina and magnesia, substantially as described.

4. In coke-ovens, the combination with the retort and the flue-passages on either side thereof, the intermediate wall being formed of fire-brick laid in alternate courses to form a skeleton structure, of the calcined carbonate of magnesia or magnesite brick interposed in the courses of said wall as a part thereof, substantially as described.

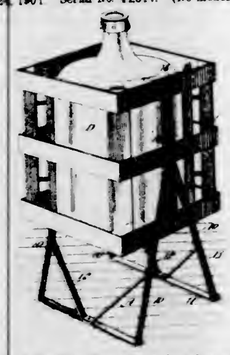
5. In coke-ovens, the combination with the inner and outer retort-walls and with the cross-walls tied between them to form flue-passages, of the calcined carbonate of magnesia or magnesite brick interposed in the courses at the inner wall as a part thereof, substantially as described.

682,442. ELASTIC TIRE. WILLIAM F. WILLIAMS, London, England. Filed May 13, 1901. Serial No. 59,988. (No model.)



Claim.—The combination with a hollow elastic tire, of an internal solid elastic core or cushion of highly-elastic rubber having embedded therein non-extensible cords knotted at intervals and of such different cross-sectional shape to that of the bore or portion of the bore within which it is contained, that vacant lateral spaces will be left between the core or cushion and the sides of the tire, so that while affording internal support to the tread portion of the tire, the core or cushion will have perfect freedom for lateral expansion under compression by the load, as described.

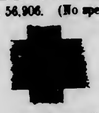
682,443. **DEMIJOHN-FRAME.** ALLEN L. WOOD, Brooklyn, N. Y. Filed Jan. 24, 1901. Serial No. 44,517. (No model.)



Claim.—1. A demijohn-frame consisting of two sections, corresponding side members of the sections being pivotally connected at their upper ends, the said side members at each side of the frame having opposing lugs extending upward from their upper ends, the lugs being located adjacent to opposite longitudinal edges of the side members, and said lugs at each side of the frame being placed one in the path of the other, so that when the sections of the frame are folded together the lugs at the sides of the frame will separate, but when the sections of the frame are spread apart the lugs at the sides of the frame will come in engagement with each other and limit the outward movement of the sections, as described.

2. A demijohn-frame comprising two sections, corresponding side members of the sections being connected by pivot-pins, which pins extend inwardly and terminate in heads to form journal-bearings for the demijohn, or demijohn-basket, and lugs formed at the upper end of each side member of a section, the lugs at each side of the frame being curved in direction of each other, the said lugs being also located adjacent to opposing longitudinal side edges of the side members of the sections, for the purpose specified.

682,444. **FABRIC FOR USE IN THE PRODUCTION OF AIR-TIGHT TUBING.** CHARLES E. W. WOODWARD, Chicopee, Mass. Filed Apr. 22, 1901. Serial No. 56,906. (No specimens.)



Claim.—1. As a new article of manufacture, a close-woven fabric or cloth for use in the production of air-tight tubing, comprising hard-wound warp-threads and loose-wound soft or fluffy woof-threads interwoven to form a sheet of true cloth having substantial strength both lengthwise and laterally, the strong warp-threads restraining internal pressure in the completed tubing and the soft woof-threads protecting the warp-threads against abrasion, and also forming a padding to resist puncture.

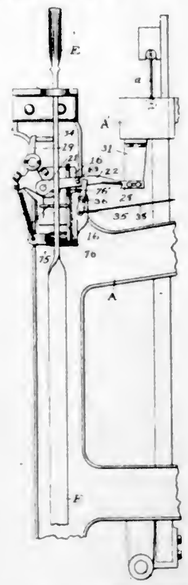
2. As a new article of manufacture, a close-woven fabric or cloth for use in the production of air-tight tubing, comprising an equal or substantially equal number of hard-wound warp-threads and loose-wound soft or fluffy woof-threads interwoven to form a sheet of true cloth having substantial strength both lengthwise and laterally, the strong warp-threads restraining internal pressure in the completed tubing, and the soft woof-threads protecting the warp-threads against abrasion, and also forming a padding to resist puncture.

682,445. **STOP-MOTION FOR LOOMS.** HORACE WYMAN, Worcester, Mass., assignor to Crompton & Knowles Loom Works, same place. Filed June 7, 1901. Serial No. 63,586. (No model.)

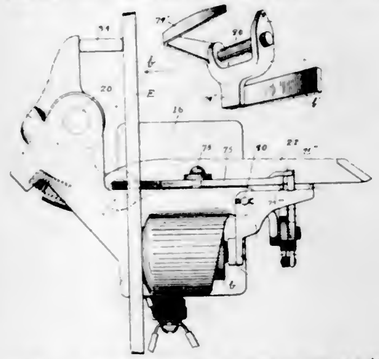
Claim.—1. In a loom, the combination with a dagger, and the shipper-lever, of a dagger-lifter, moving in a plane at right angles to the plane of movement of the dagger, and operative to engage and hold the dagger in its inoperative position, and having an extension in the path of the shipper-lever, to be engaged thereby, and moved out of engagement with the dagger, substantially as shown and described.

2. In a loom, the combination with a dagger, and the shipper-lever, of a dagger-lifter, having a cam-surface thereon to engage the under side of the dagger and hold it in its inoperative position, and having an extension in the path of the shipper-lever, to be engaged thereby, and moved out of engagement with the dagger, substantially as shown and described.

3. In a loom, the combination with a dagger, and the shipper-lever, of a dagger having a cam-surface thereon to engage the under side of the dagger and hold it in its inoperative position, and having an extension in the path of the shipper-lever to be engaged thereby, and moved out of engagement with the dagger, and also an extension over the dagger, to prevent the dagger being raised out of its position, substantially as shown and described.



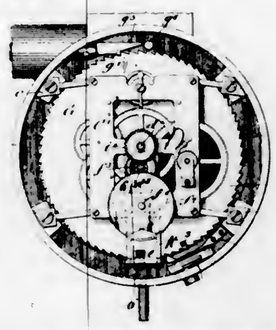
682,446. **STOP-MOTION FOR LOOMS.** HORACE WYMAN, Worcester, Mass., assignor to Crompton & Knowles Loom Works, same place. Filed June 7, 1901. Serial No. 63,587. (No model.)



Claim.—1. In a loom, the combination with a dagger, and a shipper-lever, of a pivoted dagger-lifter having an armature thereon, and an extension under the dagger, and a spring attached to said lifter to move the same and withdraw the armature, and a centrally-pivoted lever extending in the path of the shipper-lever to be engaged and moved thereby, and a spring to move the centrally-pivoted lever in the opposite direction, substantially as shown and described.

2. In a loom, the combination with a dagger, and a shipper-lever, of a pivoted dagger-lifter having an armature thereon, and an extension under the dagger, and a spring attached to said lifter to move the same and withdraw the armature, and a centrally-pivoted lever extending in the path of the shipper-lever to be engaged and moved thereby, and a spring to move the centrally-pivoted lever in the opposite direction, and a spring-actuated pivoted latch having an extension to engage the dagger-lifter when in its lowered position, said latch engaged by the centrally-pivoted lever to be moved out of engagement with the dagger-lifter, substantially as shown and described.

682,447. **APPARATUS FOR RECORDING SPEED OF VEHICLES.** FRANK BAYERDOERFER, Brooklyn, N. Y. Filed Sept. 25, 1900. Serial No. 31,083. (No model.)



Claim.—1. The combination, with a clock-train, of a record-disk actuated thereby, a shiftable marking device, spring-actuated mechanism supporting the same, mechanism connected with the wheels of the vehicle for moving the marking device into contact with the disk, and a cam rotated by the clock-train in operative connection with said marking device, said cam having such form as to periodically shift said marking device from its original position, maintain the same in a shifted position, and finally permit the return of the same by its spring-actuated supporting mechanism into original position ready for the next shifting action, substantially as set forth.

2. In a device for recording the speed of vehicles, the combination, with a record-disk, of a piercing device supported adjacent to the disk, means for actuating the piercing device, a stationary slotted plate, means for shifting the piercing device in the slot of said plate, a movable slotted plate located adjacent to said stationary plate, and means for rotating the record-disk between said plates, substantially as set forth.

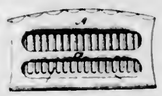
3. In a device for recording the speed of vehicles, the combination, with a record-disk, and means for moving the same, of a piercing device comprising a shank and a spring-actuated piercing-point pivoted to said shank, substantially as set forth.

4. The combination, with a clock-train, of a record-disk actuated thereby, a shiftable marking device, a spring-actuated plate supporting said marking device, mechanism connected with the wheels of the vehicle for moving the marking device into contact with the disk, and a cam rotated by the clock-train in operative connection with said supporting-plate, said cam having such form as to periodically engage and shift said plate from its original position, maintain the same in a shifted position, and finally release the same, substantially as set forth.

5. In a device for recording the speed of vehicles, the combination, with a record-disk, and means for moving the same, of a piercing device provided with a piercing-pin having a pivoted and spring-actuated point movable in the direction of motion of the disk, substantially as set forth.

6. In an apparatus for recording the speed of vehicles, the combination, with a clock-train and a record-disk applied to the center arbor thereof, of intermediate transmitting gear-wheels composed of two separate gears and springs connecting the same, so as to take up the play between the teeth and produce the accurate movement of the record-disk, substantially as set forth.

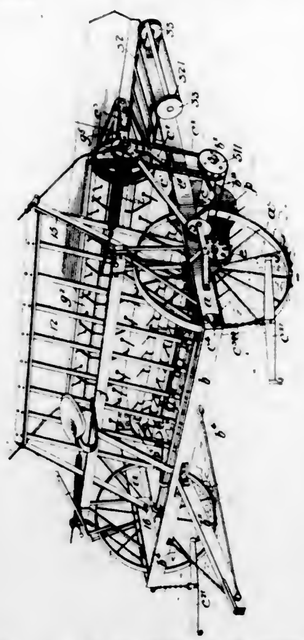
682,448. **HAIR-RETAINER.** WILLIAM S. BECHTOLD, Newark, N. J. Filed July 3, 1901. Serial No. 66,970. (No model.)



Claim.—1. A hair-retainer comprising a back and a comb attached to said back at one end thereof and extending contiguous with said back, and the prongs of said comb having intermediate of their lengths, portions curved toward the back for the purpose of locking the retainer to the hair, substantially as described.

2. A hair-retainer comprising a back and a comb attached to said back at one end thereof and extending contiguous with said back; the prongs of said combs have intermediate of their lengths, portions curved toward the back for the purpose of locking the retainer to the hair, and said prongs having their points diverging from the back, substantially as described.

682,449. **MACHINE FOR GATHERING AND HANDLING HAY.** MARSHALL BECK, Moline, Ill., assignor of two-thirds to Jacob W. Skinkle and David K. Hill, Chicago, Ill. Filed Apr. 10, 1901. Serial No. 55,201. (No model.)



Claim.—1. In a machine for gathering hay, the combination of a cross-carrier, mechanism for gathering the hay from the ground and delivering it to the carrier, mechanism for driving the carrier including a means for reversing the direction thereof, and means within reach of the driver in his seat, whereby the reversing means may be operated at will without stopping the machine to cause the carrier to deliver the hay on the ground in a continuous stream at either side of the machine without changing the position of the carrier on the machine.

2. In a machine for gathering hay, the combination of a cross-carrier, mechanism for gathering the hay from the ground and delivering it to the carrier, gearing for driving the carrier including a clutch, and a lever extending within reach of the driver in his seat, whereby the clutch may be operated at will without stopping the machine to cause the carrier to deliver the hay on the ground in a continuous stream, or to deposit it in bunches at intervals without changing the position of the carrier on the machine.

3. In a machine for gathering hay, the combination of a cross-carrier at the rear of the machine, a gathering-cylinder in front of the cross-carrier revolving forward at the ground-line, and an elevating-cylinder located above the gathering-cylinder, said elevating-cylinder revolving in the same relative direction as the gathering-cylinder, and operating to take the hay from the latter and carry it up and over itself backward to the cross-carrier.

4. In a machine for gathering hay, the combination of a cross-carrier at the rear of the machine, a gathering-cylinder in front of the cross-carrier and revolving forward at the ground-line, an elevating-cylinder located above the gathering-cylinder, and revolving in the same relative direction, and a rear delivery-carrier for stripping the hay from the elevating-cylinder, said carrier overhanging the front edge of the cross-carrier.

5. In a machine for gathering hay, the combination of a cross-carrier, a gathering-cylinder rotating forward at the ground-line, an elevating-cylinder revolving in the same relative direction and taking the hay from the gathering-cylinder, a guard in front of and extending above said cylinders, and a rear delivery-carrier projecting from the elevating-cylinder over the cross-carrier.

6. In a machine for gathering hay, the combination of a cross-carrier, a gathering-cylinder rotating forwardly at the ground-line, an elevating-cylinder revolving in the same relative direction and taking the hay from the gathering-cylinder, a guard in front of and extending above said

cylinders, and a rear delivery-carrier projecting from the elevating-cylinder over the cross-carrier, said gathering and elevating cylinders and rear delivery-carrier having a constant relation to each other, and being mounted in an elastically-supported frame.

7. In a machine for gathering hay, the combination of a gathering-cylinder rotating forward at the ground-line, an elevating-cylinder located above and revolving in the same relative direction as the gathering-cylinder, and a guard in front of and extending above said cylinder, said guard being adapted to yield at its upper or lower end.

8. In a machine for gathering hay, the combination of a gathering-cylinder rotating forward at the ground-line, an elevating-cylinder located above and revolving in the same relative direction as the gathering-cylinder, and a guard in front of and extending above said cylinders, either end of said guard being adapted to yield independently of the other, and both ends being adapted to yield simultaneously.

9. In a machine for gathering hay, the combination of a gathering-cylinder rotating forward at the ground-line, an elevating-cylinder located above and revolving in the same relative direction, and taking the hay from the gathering-cylinder, and a guard in front of and extending above said cylinders, said guard consisting of slats pivoted at their upper ends to arms that are pivoted at their lower ends, whereby the guard is adapted to yield at either or both ends to accommodate the hay on cylinders.

10. In a machine for gathering hay, the combination of a gathering-cylinder rotating forward at the ground-line, an elevating-cylinder located above and revolving in the same relative direction, and taking the hay from the gathering-cylinder, and a guard in front of and extending above said cylinder, said guard consisting of slats pivoted at their upper ends to arms that are pivoted at their lower ends, the rearward movement of the slats being limited by strap-loops engaging the axle, and the rearward movement of the pivoted arms being limited by stop-rods connected to the elevating-cylinder.

11. In a machine for gathering hay, the combination of an elastically-suspended floating frame, a gathering-cylinder, carried by said frame, an elevating-cylinder also carried by said frame above the gathering-cylinder, and a guard in front of said cylinders, said guard being pivoted at its lower end and connected at its upper free end by means of stop-rods extending down to the floating frame so as to keep it at a predetermined distance from the elevating-cylinders.

12. In a machine for gathering hay, the combination of an elastically-suspended rotating cylinder, resilient gathering-fingers carried by the cylinder, and a stop to limit the downward movement of the cylinder.

13. In a machine for gathering hay, the combination of a trailing frame pivotally connected at its forward end to the machine, and elastically suspended at its opposite end, a cylinder rotating forwardly at the ground-line mounted in said frame, resilient gathering-fingers carried by the cylinder, and a stop to limit the downward movement of the cylinder-carrying end of the frame.

14. In a machine for gathering hay, the combination of an elastically-suspended, pivoted, trailing frame, a gathering-cylinder mounted in said frame and rotating forwardly at the ground-line, and resilient pick-up fingers carried by the cylinder.

15. In a machine for gathering hay, the combination of an elastically-suspended floating frame, a rotating cylinder mounted in said frame, resilient gathering-fingers carried by the cylinder, and means for positively rocking said fingers.

16. In a machine for gathering hay, the combination of a rectangular frame carrying the operative parts of the machine, and mounted on wheels at its front end, a triangular supplemental frame connected to the main frame at a point intermediate of its ends and projecting rearward beyond the same, a caster-wheel mounted at the apex of the triangular frame, and tie-rods connecting the inclined bars of the triangular frame with opposite ends of the rear cross-bar of the main frame.

17. In a machine for gathering hay, the combination of a rectangular frame carrying the operative parts of the machine, and mounted on wheels at its front ends, a triangular supplemental frame connected to the main frame at a point intermediate of its ends and projecting rearward beyond the same, a caster-wheel mounted at the apex of the triangular frame, and tie-rods connecting the inclined bars of the triangular frame with opposite ends of the rear cross-bar of the main frame and with each other.

18. In a machine for gathering hay, a rotating cylinder comprising heads at opposite ends, a fixed crank-shaft projecting through the heads and having finger-carrying heads pivoted to its cranked portion, slats secured to the cylinder-heads at intervals around the cylinder periphery through which slats said fingers project, and skeleton braces secured to the inner sides of the slats at suitable distances apart along their length to prevent them from binding or engaging.

19. In a machine for gathering hay, a rotating cylinder comprising heads at opposite ends, side brackets carrying hollow journals projecting inwardly through and beyond the heads, slats secured to the heads at intervals around their periphery, and a cranked shaft extending through the cylinder having finger-carrying heads pivoted to its cranked portion, the fingers of which heads project through the slats, the outer concentric ends of the shaft projecting outwardly through the hollow journals beyond the cylinder-heads, and the inner ends of the journals being notched to lock the cranked shaft by engaging its radial sections.

20. In a machine for gathering hay, a rotating cylinder comprising heads at opposite ends, a frame in which the cylinder is mounted, said frame comprising side bars provided with brackets carrying hollow journals upon which the heads revolve, a fixed shaft extending through the cylinder and hollow journals and projecting beyond the side brackets, and cutters in the end of the shaft, whereby the side brackets and the side bars of the frame are prevented from spreading away from the cylinder-heads.

21. In a machine for gathering hay, the combination of a gathering-cylinder inclosed within the side bars of the machine with an intervening space between its ends and said bars, an elevating-cylinder located above the side bars and the gathering-cylinder and exceeding the latter in length, and a driving-chain extending from a sprocket-wheel on the gathering-cylinder shaft to a sprocket-wheel on the elevating-cylinder outside the side bars.

22. In a machine for gathering hay, the combination of a revolving cylinder, a stationary shaft within the cylinder having a portion eccentric to the axis of the cylinder, and finger-carrying heads consisting of parallel strips having fingers clamped between them, hinged to the shaft, said hinges consisting of clips encircling the shaft at one end and bolted together through the finger-carrying strips at the other.

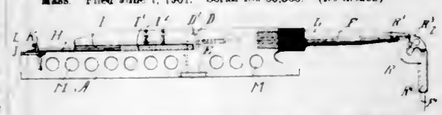
23. In a machine for gathering hay, the combination of a revolving cylinder having finger-carrying bars, and resilient fingers carried by said bars, the fingers being rigidly secured at their inner ends only to the bars, and provided with unsupported coils surrounding the bars the latter being eccentric to the circle of the coils.

24. In a machine for gathering hay, the combination of an elastically-suspended gathering-cylinder, and resilient pick-up fingers carried by the cylinder.

25. In a machine for gathering hay, the combination of a gathering-cylinder revolving forward at the ground-line and provided with teeth projecting in such proximity to the ground as to pick up the hay therefrom without the intervention of raking or gathering teeth, and an elevating-cylinder located above the gathering-cylinder, said elevating-cylinder revolving in the same relative direction as the gathering-cylinder and operating to take the hay from the latter and carry it up and over itself backward.

26. In a machine for gathering hay, the combination of a gathering-cylinder revolving forward at the ground-line, an elevating-cylinder located above the gathering-cylinder and revolving in the same relative direction, side sills between which and the ends of the gathering-cylinder there is an intervening space, and the elevating-cylinder having its ends extended to span said intervening space.

682,450. MICROMETER-INDICATOR. JOSEPH BOULET, Beverly, Mass. Filed June 7, 1901. Serial No. 63,503. (No model.)

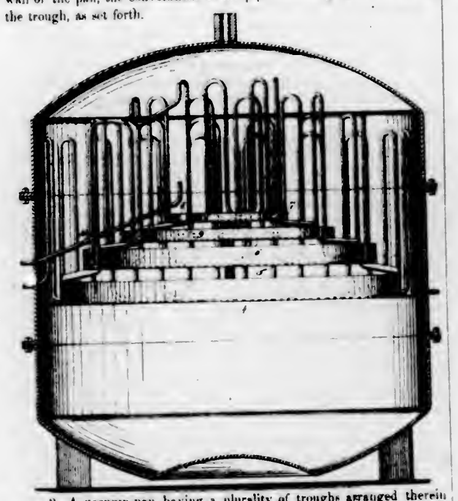


Claim.—1. A micrometer-indicator comprising the following parts, constructed, arranged and operating together as and for the purposes described, namely: a body A, provided with a horizontal passage I; a supporting-block I, formed to fill a portion of said passage; an index-arm H, adapted to vibrate in said passage in conformity with said block; a pivot-block D; a plug C, provided with an adjustable center C'; a spring G; an arm L; a needle F; and a scale J; all as specified.

2. A micrometer-indicator comprising a body A, provided with a horizontal passage I, and a series of transverse holes M, through the body; an extension-arm L; pivot-block D; plug C, having an adjustable center C'; arm H; needle F; spring G; scale J; a detachable auxiliary needle F', arranged at right angles to needle F, and supported by a body R, having a sleeve R', fitted to arm L, and an oscillating block R^3, pivoted to body R, and arranged to act in contact with and between the ends of needles F and F', so as to transmit the movement of one directly to the other; all substantially as specified.

682,451. VACUUM-PAN. ROBERT J. BOWMAN, Alexandria, La. Filed Nov. 15, 1900. Serial No. 36,582. (No model.)

Claim.—1. A vacuum-pan having a trough on the inside of the wall of the pan, and a serpentine condensing-pipe located adjacent to the wall of the pan, the convolutions of the pipe extending vertically above the trough, as set forth.



2. A vacuum-pan having a plurality of troughs arranged therein at different horizontal levels, and a condensing-pipe within the pan and through which is adapted to pass a cold-producing agent, the said pipe conforming in arrangement to the several troughs to discharge the liquid condensed on the outside of the pipe into the troughs, as set forth.

3. A vacuum-pan having a condensing-pipe within the pan and through which is adapted to pass a cold-producing agent, the pipe being arranged with vertical members having bends at the top and bottom, and a plurality of water-collecting troughs arranged within the pan, for receiving the water condensed on the outside of the said pipe, as set forth.

4. A vacuum-pan having a series of troughs arranged within the pan, and with one of the troughs on the inside of the wall of the pan, the troughs being arranged one above another and gradually diminishing in size from the lower trough to the upper and a condensing-pipe within the pan and having vertical members connected by bends located over the troughs to discharge the condensed water into the troughs, as set forth.

5. The combination with a vacuum-pan, of a series of removable troughs arranged therein, spouts connecting the troughs, a fixed trough on the inside of the wall of the pan, and arranged to support the removable troughs, and a condensing-pipe within the pan and arranged to discharge the condensed water into the troughs, as set forth.

6. The combination with a vacuum-pan, of a series of troughs arranged therein one above another, and communicating one with another, and a condensing-pipe comprising vertical members connected at the top and bottom and formed into concentric circles conforming to the circles of the troughs, substantially as specified.

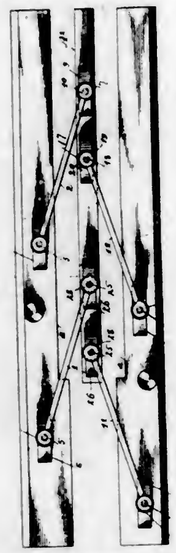
7. The combination with a vacuum-pan, of a series of troughs arranged within the pan, the said troughs being circular and gradually diminishing in diameter from the lower to the upper trough, spouts connecting the troughs, and a condensing-pipe formed in concentric circles and having vertically-disposed members, the lower portions of said members being extended into the troughs, substantially as specified.

8. The combination with a vacuum-pan, of a series of troughs arranged therein around a common center and at different horizontal levels, the said troughs communicating one with the other and arranged to permit of the upward passage of the vapors rising from the juice in the pan, a continuous condensing-pipe arranged within the pan, and extending above the troughs and conforming in arrangement thereto, so that the water of condensation will pass from the surface of the pipe into the troughs, and means for carrying off the water of condensation from the troughs, as set forth.

9. The combination with a vacuum-pan, of a plurality of troughs arranged therein and having a common center, the troughs being of different sizes, and spaced apart to permit of the upward passage of the vapors rising from the juice in the pan, and a condensing-pipe conforming in arrangement to the several troughs, to discharge the liquid condensed on the surface of the pipe into the troughs, as set forth.

10. The combination with a vacuum-pan, of a condensing-pipe within the pan, formed in sections arranged one within the other, each section having vertically-disposed members connected at the top and bottom, and means for receiving and carrying off the liquid condensed on the outside of said pipe, as set forth.

682,452. PARALLEL-RULER. ALBERT H. BUHNER, San Francisco, Cal. Filed May 28, 1901. Serial No. 62,196. (No model.)



Claim.—1. A parallel-ruler consisting of the straight-edge members, the middle member, pivoted rod connections between the straight-edge members and the middle member, and means permitting an adjustment of one of the rod connections longitudinally of the middle member independently of the other rod connections, substantially as described.

2. A parallel ruler consisting of oppositely-disposed straight-edge members, an intermediate member, means movably connecting the straight-edge members with the intermediate member, including means connected to and adjustable longitudinally of one of the members to maintain the parallelism of the straight-edge members, substantially as described.

3. A parallel-ruler consisting of the straight-edge members, the middle member, separated pivoted rod connections between the middle member and the respective straight-edge members, said connections being provided with automatic adjusting means for preventing lost motion and means for shifting the pivot between the end of one of the rods and the member to which it is attached longitudinally independently of the other pivots, substantially as described.

4. The combination with the straight-edge members, of the middle member, a series of rod connections between the said members, of means whereby adjustment is permitted one pair of said connecting-rods, and a spring-bearing interposed between the pivotal joint of each rod and its respective member.

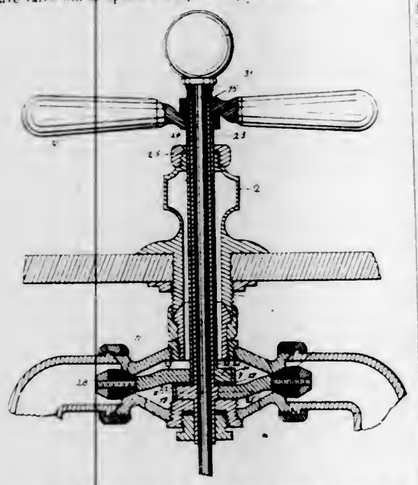
5. In a parallel-ruler, the combination with the oppositely-arranged straight-edge members, the middle member, rods connecting the straight-edge members with the middle member, pivots for the connecting-rods, springs interposed between each connecting-rod and the surface of the member to which it is attached, and cone bearing-collars working over the pivots and bearing upon the rods from the outside in a manner to oppose the springs, substantially as described.

6. A parallel-ruler consisting of the straight-edge members, the middle member, connecting-rods, means for pivotally securing each rod to the middle member and one of the straight-edge members, including devices whereby one of said pivot means may be shifted independently of the others, substantially as described.

682,453. COMBINATION SUPPLY AND WASTE APPARATUS. WILLIAM BUNTING, Jr., Brookline, Mass. Filed Feb. 27, 1901. Serial No. 49,038. (No model.)

Claim.—1. A hot and cold water valve comprising a casing having two inlet-ports which are arranged on opposite sides of the casing, and a discharge-port, a valve in each inlet-port, a seat for each valve, said valves being so arranged that they will engage their respective seats and close said inlet-ports when they are moved toward each other, two independently-rotatable valve-stems, one of which is tubular and incloses the other, said stems being arranged substantially at right angles to the paths of movement of said valves and the inner of said stems extending below the

end of the outer, connections between the lower end of each of said stems and said valves respectively, whereby when either stem is rotated its respective valve will be operated independently of the other.



2. A hot and cold water valve comprising a casing having two inlet-ports and a discharge-port, a valve for each inlet-port, two valve-stems one of which is tubular and incloses the other, two eccentrics, one of which is secured to the inner stem below the lower end of the outer stem, and the other of which is secured to said outer stem at its lower end, an eccentric-ring on each eccentric and connections between each ring and its respective valve.

3. A bath or basin fitting comprising a casing, a valve therefor, a tubular stem which passes entirely through said casing, a suitable packing in said casing for preventing the escape of water around said stem at the point where it passes through the casing, means for causing said stem to operate said valve, a waste-valve, means for operating said waste-valve comprising a handle which is located at the upper end of said stem, and connections between said handle and waste-valve which are located within said stem.

4. A bath or basin fitting comprising a valve-casing, a valve therefor, a tubular valve-stem which passes entirely through said casing, means for preventing the escape of water past said stem as it passes through said casing, means for causing said stem to operate said valve when it is rotated, a waste-valve, a rod which passes through said tubular stem, connections between the lower end of said rod and waste-valve for operating the latter, and an operating-handle at the upper end of said rod.

5. A bath and basin fitting comprising a valve-casing having a valve, a stem which is mounted in said casing, connections between said stem and valve for operating the latter, a passage throughout the entire length of said stem, two apertures in the walls of said casing which are in line with the passage through said stem, a waste-valve, a handle located at the upper end of said stem, and connections between said handle and waste-valve which pass through said stem and the apertures in said valve-casing, and which are adapted to operate said waste-valve.

6. A hot and cold water valve comprising a casing having two inlet-ports which are arranged on opposite sides of the casing, and a discharge-port, a valve in each inlet, a seat for each valve, said valves being so arranged that they will engage their respective seats and close said inlet-ports when they are moved toward each other, two independently-rotatable valve-stems, one of which is tubular and incloses the other, said stems being arranged substantially at right angles to the paths of movement of said valves, the inner of said stems extending both above and below the end of the outer stem, connections between the lower ends of each stem, and one of said valves, respectively, and a laterally-extending handle on the upper end of each stem, respectively.

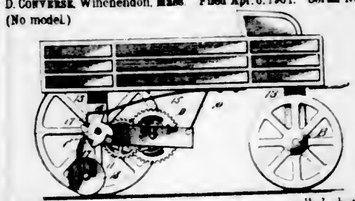
7. A hot and cold water valve comprising a valve-casing having two inlet-ports and a discharge-port, a valve for each inlet-port, two tubular valve-stems, one of which incloses the other, connections between each of said stems and one of said valves which are adapted to operate said valves when said stems are rotated, a waste-valve, an operating-rod which is connected to said valve and passes through said inner tubular stem, and handles on the upper ends of said valve-stems and rod.

8. A hot and cold water valve comprising a casing having two laterally-arranged inlet-ports and a discharge-port, two independently-rotatable valve-stems, one of which is tubular and incloses the other, a valve in each inlet-port, a seat for each valve, said valves being so arranged and guided that they move in planes which are substantially at right angles to said stems when they move toward and from their respective seats, said stems terminating near the planes of said valves and having the end of the inner stem extending below the end of the outer, connections between the lower end of each of said stems and said valves, respectively, whereby when either stem is rotated its respective valve will be operated independently of the other.

9. A hot and cold water valve comprising a casing having two laterally-arranged inlet-ports and a discharge-port, two independently-rotatable valve-stems, one of which is tubular and incloses the other, a valve in each inlet-port, a seat for each valve, said stems terminating adjacent said valves, the end of the inner stem extending below the end of the outer, an eccentric on the lower end of each stem, connections between each eccentric and its corresponding valve, whereby when either stem is rotated its respective valve will be operated independently of the other.

10. A hot and cold water valve comprising a casing having two laterally-arranged inlet-ports and a discharge-port, two independently-rotatable valve-stems, one of which is tubular and incloses the other, a valve in each inlet-port, a seat for each valve, said stems terminating adjacent said valves, the end of the inner stem extending below the end of the outer, connections between the lower end of each stem and its respective valve, whereby when either stem is rotated its corresponding valve will be operated independently of the other.

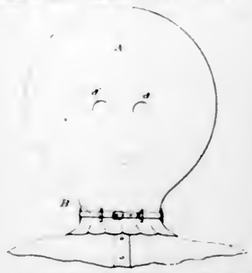
682,454. **STOP-MOTION FOR MECHANICAL TOYS.** ATHERTON D. CONVERSE, Winchendon, Mass. Filed Apr. 6, 1901. Serial No. 54,614. (No model.)



Claim.—1. In a mechanical toy, a motor-controlled shaft having projections therefrom, and a check device consisting of a spring-arm adapted for engagement with the projections on the shaft, and a roller carried by the arm, adapted for engagement with the surface on which the vehicle is to travel.

2. In a mechanical toy, a motor-controlled shaft, a projection from the said shaft, a spring-arm adapted for attachment to the body of the vehicle, the said arm having a section for engagement with the said projection, and a second section which extends below the projection, and a fifth-wheel carried by the lower extension of the arm, which fifth-wheel in the normal position of the arm is below the horizontal plane of the peripheral surfaces of the wheels on the driving-axle, as set forth.

682,455. **RESPIRATORY HOOD.** GEORGE A. COOPER, Pittston, Pa. Filed Jan. 9, 1901. Serial No. 42,567. (No model.)



Claim.—In a respiratory hood, the combination of a head-covering of suitable fabric and provided with transparent eyepieces, the said head-covering possessing a single opening or mouth, devices for drawing and securing the said mouth about the neck of the wearer, a crown or helmet within the said head-covering and provided with receptacles or pockets, a frame secured to the said crown and arranged to hold the covering above the crown and away from the head, the crown forming means for holding a chemical in the receptacles thereof and the said chemical being adapted to combine with the carbon of the products of respiration, thereby setting free the oxygen, substantially as described.

682,456. **BREAD-CUTTER.** EDMOND N. CORRIVEAU, Stonington, Conn. Filed Jan. 25, 1901. Serial No. 44,688. (No model.)



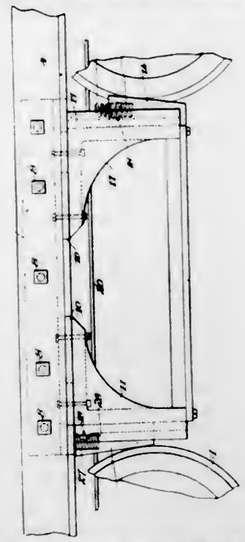
Claim.—1. A bread-cutter, comprising a bread-board, an abutment-board extended upward from one side thereof, a knife-guide at the forward end of said abutment-board and consisting of two sections, one comprising two connected upright sections, and the other section consisting of an upright adjustable on the bread-board between the two members of the first-named section, and a slice-gage adjustable on the bread-board, substantially as specified.

2. A bread-cutter, comprising a bread-board, an abutment-board extended upward therefrom, a knife-guide consisting of two sections, one of said sections comprising two members connected together at the top, the said members being seated in grooves at the forward end of the abutment-board so that the front surfaces of the members project slightly beyond the front end of said abutment-board, the other section of the knife-guide consisting of an upright adjustable on the bread-board between the two members of the first-named section of the knife-guide, and a slice-gage adjustable on the bread-board, substantially as specified.

3. A bread-cutter, comprising a bread-board, an abutment-board extended upward therefrom, a knife-guide at the forward end of said abutment-board, one section of said guide being fixed at the end of the board while the other section consisting of wire has an upright connecting at its lower end with a horizontally-disposed loop, a set-screw for passing through said loop into the board, and a slice-gage adjustable on the bread-board, substantially as specified.

4. A bread-board, an abutment-board extended upward therefrom, a knife-guide at the forward end of said abutment-board, a slice-gage consisting of a length of wire bent to form a loop extending transversely of the bread-board, and a loop extending lengthwise of the bread-board, one member of said last-named loop being movable in a channel formed in the bread-board, and a set-screw passing through said last-named loop, substantially as specified.

682,457. **EMERGENCY-BRAKE.** JOSEPH L. CUSHING, Lowell, Mass. Filed Oct. 11, 1900. Serial No. 32,670. (No model.)



Claim.—1. A car-truck, having, in combination, a frame, wheels and axles carried thereby, brake-wedges, detents normally supporting the brake-wedges out of contact with the wheels, guideways for said wedges rigidly mounted on the frame between the wheels and adjacent to their tread-surfaces, means for actuating the detents to release the brake-wedges, spring-actuating devices for starting the brake-wedges and connections between the detent-actuating devices, substantially as described.

2. A car-truck having, in combination, a frame, wheels and axles carried thereby, a brake-wedge normally supported out of contact with the wheel, a rigid support, a guideway for the brake-wedge secured to said support, supporting-screws interposed between said guideway and said support, to permit movement of the guideway toward the support to loosen the brake-wedge, substantially as described.

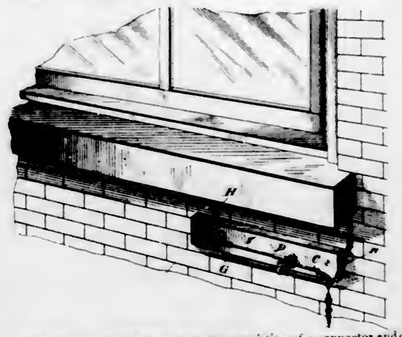
3. A car-truck, having, in combination, a frame, wheels and axles carried thereby, brake-wedges normally supported out of contact with the wheels, guideways for said wedges rigidly mounted on the frame between the wheels and adjacent to their tread-surfaces, and means for releasing the wedges comprising an actuating device movable in two directions and mechanism arranged to release one set of wedges upon movement of the actuating device in one direction and the other set upon movement in the other direction, substantially as described.

4. A car-truck, having, in combination, a frame, two pairs of wheels carried thereby, brake-wedges supported normally out of contact with said wheels, guideways for said brake-wedges rigidly mounted on the frame, and means for releasing the brake-wedges comprising bell-crank levers, detent-rods pivoted thereto, a slotted actuating device, and sliding pivotal connections between the levers and the actuating device, whereby movement of said device in one direction will release the brake-wedges for one pair of wheels, and movement in the other direction will release the brake-wedges for the other pair of wheels, substantially as described.

5. A car-truck, having, in combination, a frame, wheels and axles carried thereby, a brake-wedge, normally supported out of contact with the wheel, a guideway for said wedge mounted on the frame adjacent to the tread of a wheel, means for releasing the brake-wedge so that it will engage the wheel and by the motion of the same be wedged into close contact therewith, and means for loosening the brake-wedge, substantially as described.

6. A car-truck, having, in combination, a frame, wheels and axles carried thereby, a brake-wedge, the braking-surface of which is inclined to the tread-surface of the wheel, a guideway for said wedge rigidly mounted on the frame adjacent to the tread of a wheel, a detent normally supporting the brake-wedge out of contact with the wheel and means for actuating the detent to release the brake-wedge so that it will engage the wheel and by the motion of the same be wedged into close contact therewith, substantially as described.

682,458. **TELEPHONE-PROTECTOR.** ALFRED DECK, Franklin township, Montgomery county, Ind. Filed June 12, 1901. Serial No. 64,247. (No model.)



Claim.—1. A telephone-protector consisting of a connector and contact, a switch-rod having its end adapted to engage the contact, the line-wire coiled around the connector and carried beyond the same, a ground-wire having its end adjacent to the end of the line-wire, and a feed wire having one end coiled around the end of the switch-rod and leading to the telephone.

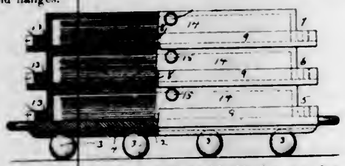
2. A telephone-protector having a connector and contact consisting of a wire having one end doubled on itself, and a switch or coupling rod loosely supported at one end and having its opposite end adapted to engage the doubled portion of the contact.

682,459. **ANNEALING-BOX.** ALBERT J. DENMLER, Wellsville, Ohio. Filed Aug. 4, 1900. Serial No. 25,854. (No model.)

Claim.—1. In an annealing-box, the combination of a series of box-sections built one upon the other, the bed for each section having side flanges and removable end flanges, a section-cover fitting within said flanges, and a luted joint between the cover and flanges.

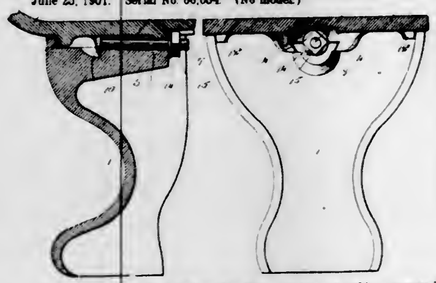
2. In an annealing-box, the combination of a series of box-sections

built one upon the other, the bed for each section having side flanges formed therewith and provided with inwardly-extending lips at their ends, and removable end flanges engaging with the inwardly-extending lips, a section-cover fitting within said flanges, and a luted joint between the cover and flanges.



3. An annealing-box having a bed with side flanges and sand ribs formed integral therewith and extending longitudinally at or near the outer edges, but not across the ends of the bed, a cover fitting between said flanges and ribs, and a removable end flange extending across the ends of the pan and with the cover forming the sand-groove.

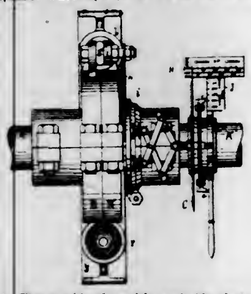
682,460. **LEG-FASTENER.** PATRICK H DUNN, Rome, N. Y. Filed June 25, 1901. Serial No. 66,034. (No model.)



Claim.—1. In a bath-tub or the like, convergent guides arranged on the under side thereof, a leg, an inwardly-extended leg at the upper portion of the leg and having its opposite edges adapted to engage in the guides, the said lug having a recess in its upper surface near the front end, a bolt having a portion of its head adapted to engage the inner wall of said recess and to extend between the lug and the bottom of the bath-tub or the like, and a tightening-nut on the inner end of said bolt, substantially as specified.

2. In a bath-tub or the like, converging guides arranged on the bottom thereof and extended slightly beyond the center, a cross-piece connected to the inner ends thereof and having a depression, a leg, an inwardly-extended lug on said leg, the said lug being wedge-shaped and having beveled edges for engaging in the guides, the said lug also having a recess and a channel or groove extended from the recess inward, a bolt adapted to engage its head against the inner wall of said recess, the body of the bolt being received in said channel and in the depression, and a fastening-nut on the inner end of the bolt, substantially as specified.

682,461. **TRANSMITTING-DYNAMOMETER.** JOHN T. FANNING, Minneapolis, Minn. Filed Sept. 4, 1900. Serial No. 28,936. (No model.)



Claim.—1. The combination with a suitable shaft, and a coupling on said shaft, the parts of which are flexibly connected, of a sliding indicating-disk and lazy-tongs levers connecting said coupling and disk, and giving to the disk a right-line motion proportionate to the angular motion of the coupling-lugs, substantially as described.

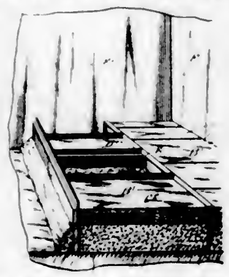
2. The combination with a suitable shaft, and a coupling on said shaft, of a plurality of springs connecting the parts of said coupling, a sliding indicating-disk, and lazy-tongs levers connecting said coupling and disk and giving to the disk a right-line motion proportionate to the angular motion of the coupling-lugs, substantially as and for the purpose described.

3. The combination with a plurality of volute, tapered springs, and shaft coupling halves which said springs connect, of a sliding indicating-disk, and lazy-tongs levers connecting said coupling and disk, and giving to the disk a right-line motion proportionate to the angular motion of the coupling-lugs, substantially as described.

4. A plurality of volute springs, in combination with a like number of pairs of perforated lugs on a shaft coupling or pulley, which said springs flexibly connect, and with a sliding indicating-disk, and lazy-tongs levers connecting said coupling and disk, and giving to the disk a right-line motion proportionate to the angular motion of the coupling-lugs, substantially as described.

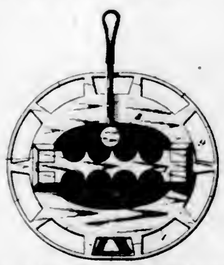
5. The combination with a suitable shaft, of a flexibly-connected coupling on said shaft, consisting of a loose pulley and slotted coupling half, each supplied with pairs of perforated lugs, and with springs which connect said pairs of lugs, and also of a sliding indicating-disk, and lazy-tongs levers connecting both halves of said coupling with said disk and giving to the disk a right-line motion proportionate to the angular motion of the coupling halves, substantially as and for the purpose described.

682,462. **FLOOR OR SIDEWALK.** RICHARD FLEMING, Corning, Ohio. Filed June 5, 1901. Serial No. 63,239. (No model.)



Claim.—In the manufacture of sidewalks, floors and the like, the combination with removable longitudinal and transverse supporting-boards for forming pockets for the cement material, and sheets of paper forming linings for said boards and extending above the same, the sheets being adapted to remain in the sections or blocks of the sidewalk or floor after the supporting-boards are removed, as set forth.

682,463. **FIRE-POT.** JOHN W. GREEN, Portland, Oreg. Filed Jan. 2, 1901. Serial No. 41,886. (No model.)



Claim.—1. A fire-pot for heating soldering-irons or the like, comprising a hollow body portion having an opening for the entrance of a heating device, and a bar extended over the top of the fire-pot, the said bar having notches in its opposite sides in which tools may be held, substantially as specified.

2. A fire-pot, comprising a body portion, a flange extended outward from the upper end of the body portion and having air-passages, and a tool-holding bar extended over the top of the fire-pot, said bar having notches in its opposite sides, substantially as specified.

3. A fire-pot, comprising a body, lugs extended upward from the top of the body, and a supporting-bar having its ends engaging with said lugs, whereby the bar is held above the top plane of the fire-pot, the said bar being provided with notches in its opposite sides, substantially as specified.

682,464. **STOPPER FOR INFANTS FEEDING-BOTTLES.** FREDERICK R. GRAHAM-YOOLL, Edinburgh, Scotland. Filed May 29, 1900. Serial No. 18,371. (No model.)



Claim.—1. A stopper formed in two halves A A with a plurality of recesses in its meeting faces, forming apertures of different size, in combination with a tube C adapted to be adjusted to either one of said apertures by lateral movement, substantially as described.

2. The combination of the two-part stopper A A having the diverse recesses c c' D and E forming apertures of different form and capacity; and a tube C capable of adjustment to each of such diverse apertures, to regulate or stop the flow of liquid, as explained.

682,465. **FASTENING DEVICE FOR HORSESHOE-CALKS.** ERNST HAMMESFAHR, Foche, Germany. Filed June 9, 1900. Serial No. 19,697. (No model.)



Claim.—1. A fastening device for horseshoe-calks, comprising a metallic boxing provided with a bottom arranged to engage the upper end of the stem of the calk, the interior diameter of the boxing being substantially equal to the diameter of the stem of the calk and the exterior diameter of said boxing being substantially equal to the diameter of the opening in the horseshoe.

2. A fastening device for horseshoe-calks, comprising a metallic boxing having a bottom and two sides separated from each other, the interior diameter of the boxing being substantially equal to the diameter of the stem of the calk and the exterior diameter of said boxing being substantially equal to the diameter of the opening in the horseshoe.

3. A fastening device for horseshoe-calks, comprising a metallic boxing having a bottom arranged to be engaged by the end of the stem of the calk, said boxing being provided with flanges arranged to engage the under face of the horseshoe, the interior diameter of the boxing being substantially equal to the diameter of the stem of the calk and the exterior diameter of said boxing being substantially equal to the diameter of the opening in the horseshoe.

4. A fastening device for horseshoe-calks, comprising a metallic boxing having a bottom arranged to be engaged by the end of the stem of the calk, and having two sides separated from each other and provided with flanges arranged to engage the under face of the horseshoe, the interior diameter of the boxing being substantially equal to the diameter of the stem of the calk and the exterior diameter of said boxing being substantially equal to the diameter of the opening in the horseshoe.

5. The combination with a horseshoe having a calk-opening, of a calk having a stem, and a boxing having a depth equal to that of the stem provided with a bottom arranged to engage the end of the stem, the boxing fitting tightly between the calk-stem and the walls of the calk-opening.

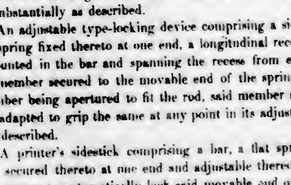
682,466. **TYPE-LOCKING DEVICE.** EDWARD D. HARDY and WILLIAM W. REBUSCHATIS, Washington, D. C. Filed Apr. 17, 1901. Serial No. 56,290. (No model.)

Claim.—1. A type-locking device comprising a side bar and a single spring attached thereto and adapted to exert pressure at two points on said bar and through said bar upon the type to hold the same in position, substantially as described.

2. An adjustable type-locking device comprising a side bar and a single adjustable spring attached thereto and adapted to exert pressure at two points on said bar and through said bar upon the type to hold the same in position, substantially as described.

3. An adjustable type-locking device comprising a side bar, an adjustable spring fixed thereto at one end and movable along the bar at the other end, and means for holding the movable end of the spring in its adjusted position substantially as described.

4. An adjustable type-locking device comprising a side bar, an adjustable spring fixed thereto at one end and movable along the bar at the other end and means acting automatically to hold the movable end of the spring in its adjusted position substantially as described.



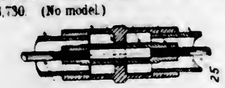
5. An adjustable type-locking device comprising a side bar, an adjustable spring fixed thereto at one end and movable along the bar at the other end and a friction-clutch secured to the movable end and adapted to hold the spring in its adjusted position, said clutch being releasable by applying pressure on the movable end of the spring substantially as described.

6. An adjustable type-locking device comprising a side bar, an adjustable spring fixed thereto at one end, a longitudinal recess in the bar, a rod mounted in the bar and traversing the recess, an angular member secured to the movable end of the spring and slidable along the rod and means to secure the angular member at any point in its movement on the rod substantially as described.

7. An adjustable type-locking device comprising a side bar, an adjustable spring fixed thereto at one end, a longitudinal recess in the bar, a rod mounted in the bar and spanning the recess from end to end, an angular member secured to the movable end of the spring, one part of said member being apertured to fit the rod, said member slidable on the rod and adapted to grip the same at any point in its adjustment substantially as described.

8. A printer's sidestick comprising a bar, a flat spring laid along said bar, secured thereto at one end and adjustable thereon at the other end, and means to automatically lock said movable end of the spring to the bar at any point in its adjustment substantially as described.

682,467. **DEVICE FOR OPERATING FANS ON ROCKING-CHAIRS.** GOTTLIEB A. HEIMBUCHER, Chicago, Ill. Filed Nov. 13, 1899. Serial No. 736,730. (No model.)



Claim.—1. In a device for the purpose described the combination of a rocking-chair, a fan, a tubular support for said fan secured to said rocking-chair and comprising two sections and a threaded sleeve connecting said sections together, a rod arranged in said tubular support, connected with said fan and comprising two sections threaded at their contiguous ends, a portion threaded to each of said sections and arranged concentrically in and having operative connection with said sleeve whereby the rotation of said sleeve will also rotate the last said threaded portion, and means operatively connected with said rod for oscillating the fan by the rocking movement of the chair, substantially as set forth.

2. In a device for the purpose described the combination of a rocking-chair, a fan, a tubular support for said fan on said rocking-chair, comprising two sections adjustably connected together, an operating-rod arranged in said tubular support and comprising two sections also adjustably secured together, means for adjusting said tubular sections and means for adjusting said rod-sections operatively connected with said first means whereby the same will be actuated to adjust the tubular sections and rod-sections simultaneously, means for connecting the fan with one of said rod-sections and means for reciprocating said rod-sections by the rocking movement of the chair, substantially as set forth.

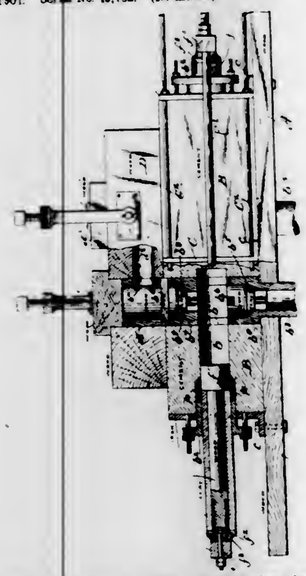
3. In a device for the purpose described the combination of a rocking-chair, a fan, a tubular support for said fan upon said chair comprising two sections threaded at their contiguous ends, a sleeve threaded on said contiguous ends of said support and having an internal web provided with a squared aperture, a rod connected with said fan and comprising two sections threaded at their contiguous ends and arranged in said support, a member having a squared exterior passing through the squared aperture of said web and threaded at opposite ends to said rod-sections respectively and means for oscillating said rod-sections by the rocking movement of the chair, substantially as set forth.

682,468. RAIL-JOINT. JOHN P. HEUER, Pittsburg, Pa. Filed June 13, 1901. Serial No. 64,389. (No model.)



Claim.—In a rail-joint, the combination of rails having cone-shaped openings formed in the webs thereof, of fish-plates formed in two sections and having elongated apertures therein, a chair portion made integral with said fish-plates, outwardly-extending apertured lugs carried by the chair portion, clamps adapted to engage the lower rail-webs, said clamps having openings formed therein adapted to register with said apertures in the lugs, the said clamps adapted to receive said lugs therein, spikes for engaging in said registering apertures, a wedge-shaped key for engaging in said openings in the rail-webs, and outwardly-extending pins formed integral with said key for engagement with the elongated openings in the fish-plates, substantially as described.

682,469. PUMP. JOSEPH E. IRWIN, Marietta, Ohio. Filed Mar 5, 1901. Serial No. 49,782. (No model.)



Claim.—1. A pump comprising a block having a longitudinal bore and a transverse vertical bore, a plunger reciprocating in the longitudinal bore, a lining-sleeve in the lower member of the transverse bore with its bore in two diameters to form a valve-seat, a second lining-sleeve within and of greater length than the upper member of the said transverse bore having a lateral opening thereabove and also having its bore in two diameters, valves seated on the two seats, a cover-block secured on top of cylinder-block and having a vertical bore into which the upper end of said upper lining-sleeve projects and also having a lateral outlet registering with the lateral opening in the upper lining-sleeve, and a plug or closure closing the vertical bore in the cover-block and engaging the upper end of the upper lining-sleeve.

2. In a pump of the character described, a plunger comprising a pottery or vitreous tube, and a wooden filler extending through the tube and having its inner end enlarged exterior to the inner end of the tube to form the plunger-head.

3. A pump comprising a horizontal base, two blocks placed end to end and having longitudinal and vertical bores, end plates and tie rods or bolts securing the blocks together upon the base, oppositely-reciprocating plungers working in said longitudinal bores, cross-heads and tie rods or bolts connecting the outer ends of the plungers, upper and lower valves in both vertical bores, a cover-block secured over the two cylinder-blocks and having an outlet with lateral branches communicating with the upper ends of the two valve-bores.

4. The combination, in a pump, with a cement block formed with a longitudinal and a vertical intersecting bore, of a plunger reciprocating in the longitudinal bore and formed of a wooden core or filler and an outer tube or cylinder of pottery, and inlet and outlet valves formed of pottery and mounted on seats within the said vertical bore; substantially as described.

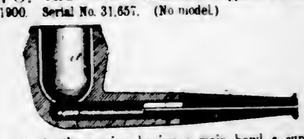
5. The combination, in a pump, with a cement block formed with a longitudinal and a vertical intersecting bore, of a wood and pottery plunger working in the longitudinal bore, wooden sleeves in the vertical bore and forming upper and lower seats, and pottery valves within said sleeves and seating on their seats; substantially as described.

6. A pump comprising a cement block having a longitudinal and a vertical intersecting bore and a wooden top block secured to the cement block and formed with a transverse opening registering with the said vertical bore and having a lateral outlet or discharge, a removable plug for said transverse block-opening, wooden valve-chamber sleeves in the vertical bore of the cement block, pottery inlet and outlet valves in said sleeves, the upper sleeve extending up into the block-opening against the plug therein and provided with a lateral opening registering with the discharge-opening formed in said top block, and a pump-plunger of wood and pottery operating in the longitudinal bore of the cement block; substantially as described.

7. A double-plunger pump, comprising a suitable base, cement blocks placed end to end thereon and having longitudinal and vertical bores, middle and end plates bolted to the base, rods connecting the said plates and binding the cement blocks firmly together, plungers working in the longitudinal bores, cross-heads and rods connecting the plungers at their outer ends, said plungers being formed of pottery sleeves and wooden cores or fillers, inlet and outlet valves in the vertical bores of the blocks, and a wooden top block bolted to the cement blocks and having vertical holes through it, registering with the spaces above the outlet-valves and communicating with a discharge-passage and removable plugs closing the upper ends of the vertical holes and permitting access to the valves; substantially as described.

8. The combination with the cement pump-cylinder, of a plunger formed by a pottery or earthenware tube, and a wooden filler or core extending through the said tube and having its inner end enlarged to form the plunger-head, bolts secured to the outer end of the wooden core and a cap-plate secured on said bolts to hold the tube on the filler and also serve as a means of connecting the plunger with its operating mechanism; substantially as described.

682,470. PIPE. JOHN F. KENNEFICK, Cripplecreek, Colo. Filed Oct. 1, 1900. Serial No. 31,657. (No model.)



Claim.—1. A tobacco-pipe, having a main bowl, a supplemental bowl removably secured therein, the adjacent walls of the main and supplemental bowls being spaced apart to form an air-chamber and a perforate flange extending between the upper edges of the main and supplemental bowls.

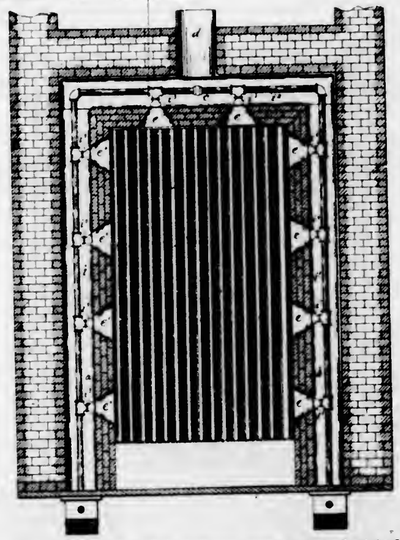
2. A tobacco-pipe, having a main stem and a main bowl, a supplemental stem removably fitted within the main stem, and a supplemental bowl removably fitted within the main bowl and separated from the inner wall thereof, the base of the supplemental bowl being joined to the supplemental stem and the supplemental bowl having communication with the interior of the supplemental stem.

3. A tobacco-pipe having a bowl, a supplemental bowl fitted therein and spaced therefrom throughout its entire length to form an air-chamber, and a flange carried by the upper edge of the supplemental bowl and extending outward over the upper edge of the main bowl, the flange being perforated at points between the two bowls to open the said air-chamber to the atmosphere.

4. A tobacco-pipe, having a main stem, a main bowl, a supplemental stem removably fitted within the main stem, and a supplemental bowl removably fitted within the main bowl and being fastened to the supplemental stem at the base of the supplemental bowl, said supplemental bowl and stem having interior communication with each other.

682,471. AUTOMATIC SMOKE-PREVENTER. PHINEAS F. KING, Cleveland, Ohio, assignor of two-thirds to Chas. H. Tucker and M. J. Edwards, same place. Filed Mar. 30, 1901. Serial No. 53,647. (No model.)

Claim.—1. In an automatic smoke-preventer direct open communication between the exterior of the front of the fire-box and the flue in the stack through retorts in the walls of said fire-box, and openings from said retorts to the interior of the fire-box at intervals from the front to the rear of same, whereby a uniform supply of oxygen is furnished to all parts of the fire-box, substantially as specified.



2. In an automatic smoke-preventer, retorts in the walls of the fire-box, said retorts extending from the exterior of the front of the fire-box into the flue of the stack and open at both ends, openings from said retorts into the fire-box at intervals from the front to the rear of said fire-box, pipes in said retorts, connected with a steam-supply and provided with openings registering with the openings from the retorts into the fire-box, substantially as specified.

3. In an automatic smoke-preventer, retorts in the walls of the fire-box, said retorts extending from the exterior of the front of the fire-box into the flue of the stack and open at both ends and forming direct open communication between the exterior of the front of said fire-box and the flue in the stack, and having openings into the fire-box at intervals from the front to the rear of same, in combination with pipes in said retorts, connected with a steam-supply and provided with openings registering with the openings from the retorts into the fire-box, and means for automatically regulating the supply of steam to said pipes, substantially as described.

4. In an automatic smoke-preventer, retorts in the walls of the fire-box, said retorts extending from the exterior of the front of the fire-box into the flue of the stack and open at both ends and forming direct open communication between the exterior of the front of said fire-box and the flue in the stack, and having openings into the fire-box at intervals from the front to the rear of same, in combination with pipes in said retorts, connected with a steam-supply and provided with openings registering with the openings from the retorts into the fire-box, a valve connected with said pipes for regulating the supply of steam to same, a lever connected with the stem of said valve, and means for automatically operating said lever to open and close the valve, substantially as specified.

5. In an automatic smoke-preventer, retorts in the walls of the fire-box, said retorts arranged as shown, whereby open communication and a uniform supply of oxygen is provided from the exterior of the front of the fire-box, and the flue of the stack, said retorts having openings therefrom into the fire-box at intervals from the front to the rear of said fire-box, in combination with pipes in said retorts, connected with a steam-supply and provided with openings registering with the openings from the retorts into the fire-box, a valve connected with said pipes for regulating the supply of steam to them, a lever connected with the stem of said valve, a cylinder having a piston therein, the rod of which is connected with one end of the lever, a pipe connecting the lower part of said cylinder with the steam-supply, a valve in said pipe for regulating the supply of steam to the cylinder, means for automatically opening said valve when pressure has been relieved therefrom, and suitable means for the escape of condensed steam below the last-named valve, substantially as described.

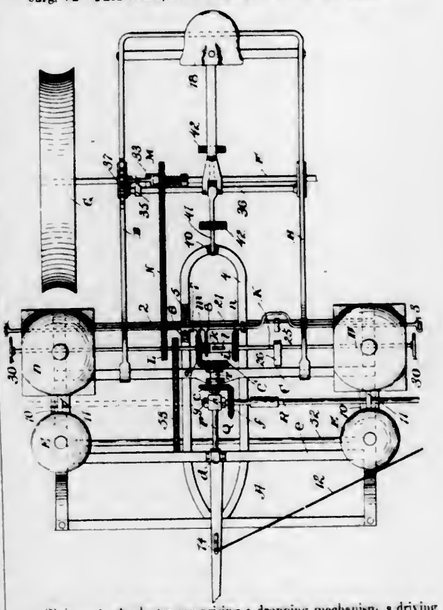
6. In an automatic smoke-preventer, direct open communication between the exterior of the front of the fire-box and the flue of the stack through retorts arranged in the walls of the fire-box, openings from said retorts into the fire-box, pipes in said retorts having openings therein registering with the openings from the retorts into the fire-box, said pipes being connected with a valve, a steam-supply pipe connected with said valve, the stem of said valve being connected with a lever fulcrumed at one end and having the other end connected with the rod of a piston whose face has a greater area than the area of the valve, and which operates in a cylinder, a pipe connecting the lower part of said cylinder with the steam-supply pipe through a valve, suitable connection between said valve and the door of the fire-box, whereby the opening and closing of said door will open and close said valve, a valve in the base of the cylinder, means for automatically opening said valve when steam-pressure has been relieved therefrom, means for regulating the resistance of the said valve and means for the escape of condensed steam below the last-named valve, substantially as specified.

682,472. HEAT-INDICATOR. JOHN LENNON and JAMES H. COPE, Colerain, Ohio. Filed Dec. 24, 1900. Serial No. 40,916. (No model.)



Claim.—In an oven-thermometer, a casing provided with a central tubular hub, externally threaded at its outer end, a nut on said threaded end, a plate in the frame, pins projecting from said plate, a rock-shaft extending through said plate, a second plate carried by said pins and sustaining the rock-shaft, a segment located between said plates, and carried by one of said pins, having a heel, a link having a longitudinal slot, a screw passing through said slot, a second link pivoted to the other one, a two-part metallic ring pivoted to said second link, an L-shaped clip engaging said ring and having a threaded shank projecting through said casing, a nut on said shank, a perforated plate covering the inner end of the casing, a dial, and a pointer connected to said rock-shaft.

682,473. CORN-PLANTER. ALEXANDER M. LINDSAY, Jr., Leesburg, Va. Filed Dec. 5, 1900. Serial No. 38,774. (No model.)



Claim.—1. A planter comprising a dropping mechanism, a driving mechanism operatively connected therewith, a shaft operatively connected and revolved by the dropping mechanism, the said shaft carrying a marking-wheel at its outer end, substantially as described.

2. A planter comprising a transversely-arranged dropping mechanism, a marker-wheel shaft geared to the dropping mechanism and revolved

in unison therewith, the marking-wheel shaft carrying a marking-wheel, and the said shaft adapted to be transferred to either side of the machine, substantially as described.

3. A planter comprising a dropping mechanism, a marking-shaft carrying a marking-wheel adapted to be transferred to either side of the machine and operatively connected with the dropping mechanism, and means for causing the marking-wheel shaft to revolve in opposite directions according to the position of the said shaft, substantially as described.

4. A planter comprising a dropping mechanism, a revoluble marker-wheel shaft carrying a marker-wheel, a gearing between the marker-wheel shaft and the dropping mechanism including means for disconnecting the said gear whereby the marking and dropping mechanisms may be relatively set, substantially as described.

5. A planter comprising a dropping mechanism, a longitudinally-arranged counter-shaft carrying a gearing at opposite ends, the dropping mechanism including a transversely-arranged shaft having a gearing in engagement with one of the counter-shaft gears, a dropping mechanism operatively connected with the dropping-mechanism shaft, a marking-wheel shaft geared to the opposite gear of the counter-shaft and carrying a marking-wheel at its free end, substantially as described.

6. A planter comprising a dropping mechanism, a transversely-arranged marker-wheel shaft carrying a marker-wheel at its free end, the inner end of the shaft having an elongated longitudinally-arranged bearing whereby the marker-wheel shaft can be transferred to either side of the machine, and an operative connection between the marker-wheel shaft and the dropping mechanism, substantially as described.

7. A planter comprising a dropping mechanism, a longitudinally-arranged shaft carrying a transverse boxing or bearing, a marker-wheel shaft having its inner end journaled in said bearing and operatively connected with the dropping mechanism, the opposite and outer end of the marker-wheel shaft carrying a marker-wheel, whereby the marker-shaft may be transferred to either side of the machine, substantially as described.

8. A planter comprising a dropping mechanism, a marker-wheel shaft operatively connected with the dropping mechanism, the inner end of the shaft having a longitudinally-arranged bearing and carrying at its outer end a marker-wheel, the said marker-wheel shaft having an intermediate jointed connection whereby it can be turned in a vertical position and folded backward for transportation, substantially as described.

9. A planter comprising a transversely-arranged feeding-shaft, a grain-box having a downwardly-extending passage-way, a gate closing the lower end thereof, a transversely-arranged oscillating rod operatively connected with the said gate, and operative means between the said shaft and rod whereby the rod is oscillated for actuating the gate and dropping the corn or grain, substantially as described.

10. A planter comprising a grain-box, a feeding-shaft therefor, a downwardly-extending passage-way in communication with the grain-box, a gate closing the lower end thereof, operative means between the feed-shaft and the gate for opening it, a marker-wheel shaft operatively connected with the feed-shaft to move in unison therewith, the marker-shaft carrying at its outer end a marker-wheel, substantially as described.

11. A planter comprising a transversely-arranged feed-shaft having a sleeve carrying two bevel-gears, a counter-shaft carrying at one end a gear adapted to mesh with either of the said gears of the said sleeve when the sleeve is moved, the opposite end of the counter-shaft carrying a bevel-gear, a transversely-arranged marker-shaft having a bevel-gear in engagement with the last said bevel-gear, the marker-shaft carrying at its outer end a marker-wheel, substantially as described.

12. A combined planter and fertilizer-distributer comprising fertilizer and grain tubes having a communicating passage-way at their lower ends, a gate for controlling the lower end of the grain-passage, and a gate adapted to control the communication between the fertilizer and grain passage-ways, whereby the fertilizer passage-way may be thrown into or out of communication with the grain passage-way, substantially as and for the purpose described.

13. A combined fertilizer-distributer and planter comprising independent fertilizer and grain tubes, the grain tube having a passage-way establishing communication at their lower ends, a gate for controlling the lower end of the grain passage-way, and a gate pivoted at its lower end and adapted to control the communication between the said passage-ways, substantially as and for the purpose described.

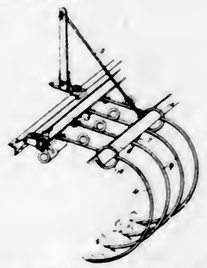
14. A planter comprising a transversely-arranged feeding-shaft, a transversely-arranged dropping-shaft, the feed and drop shafts having laterally-extending arms adapted to travel in the same path, a marker-shaft geared to revolve in unison with the feed-shaft, means for throwing the feed-shaft out of operation, and means for revolving the feed-shaft and the marker-wheel shaft for carrying them in proper positions to mark and to drop in unison, substantially as described.

15. A planter comprising a transversely-arranged feed-shaft, a marker-wheel shaft adapted to be transferred to either side of the machine and carrying at its free end a marker-wheel, a gearing operatively connecting the marker-wheel shaft and the feed-shaft, a sleeve upon the feed-shaft carrying gears adapted to engage alternately with the connecting-gearing between the marker-shaft and the feed-shaft for the purpose of controlling the rotation of the marker-wheel shaft, and a transversely-arranged shifting-rod operatively connected with the said sleeve for the purpose described.

16. The combination with a planter having a transversely-arranged wheel c, of a rotating marker-wheel shaft adapted to swing from a point concentric said wheel, the said shaft operatively connected with said wheel, substantially as described.

17. The combination with a planter having a longitudinally-arranged driving-shaft, of a rotating marker-shaft adapted to swing from a point concentric with the axis of said longitudinal shaft and operatively connected therewith, substantially as described.

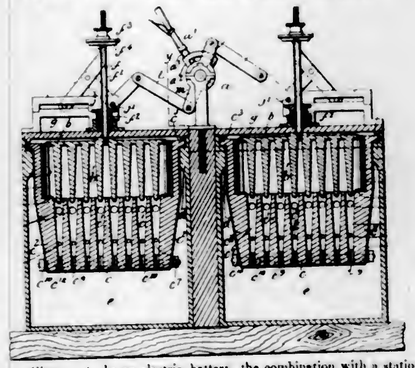
682,474. HAY-RAKE. DANIEL LUTZ, Springfield, Ohio, assignor to the Thomas Manufacturing Company, same place. Filed July 8, 1901. Serial No. 67,392. (No model.)



Claim.—1. In a rake, the combination, with a frame, a rake-head pivoted thereto and having curved teeth, and means for operating said head and teeth, of a cleaner-bar pivotally supported from the frame, and a plurality of independent retaining devices, each retaining device passing around the cleaner-bar and also around one of the teeth, substantially as described.

2. In a rake, the combination, with a frame, a rake-head pivoted thereto and having curved teeth, and means for operating said head and teeth, of a cleaner-bar pivotally supported from the frame, and a plurality of independent retaining devices located at intervals on the cleaner-bar, said retaining devices being annular in form and passing loosely around the cleaner-bar and also around one of the rake-teeth, substantially as described.

682,475. PRIMARY BATTERY. SAMUEL W MAQUAY, Chertsey, England. Filed Aug. 6, 1900. Serial No. 26,096. (No model.)

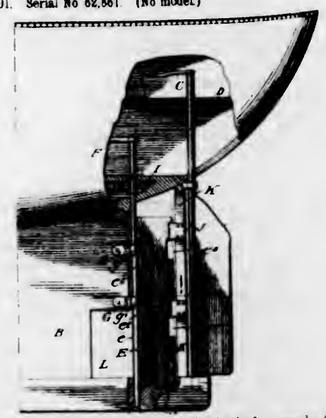


Claim.—1. In an electric battery, the combination with a stationary electrode having a series of upwardly-extending teeth surrounded by side walls of the same material, of a receptacle in which said electrode is held, a movable electrode comprising a plate having a series of downwardly-extending teeth adapted to occupy the spaces between the teeth of the stationary electrode, and means for raising and lowering said movable electrode, substantially as described.

2. In an electric battery, the combination with a stationary electrode having a series of upwardly-projecting teeth surrounded by side walls perforated at intervals between said teeth, said teeth being bolted together near their lower extremities leaving openings upward between adjacent

teeth, of a conducting-strip secured to the said teeth and to the side of said walls, a receptacle and means for supporting said electrode by its side walls from the upper portion of said receptacle, a movable electrode comprising a plate having a series of downwardly-extending teeth adapted to occupy the spaces between the teeth of the stationary electrode, and means for raising and lowering said movable electrode, substantially as described.

682,476. RUDDER. JOHN MAROLF, Tillamook, Oreg. Filed June 3, 1901. Serial No. 62,861. (No model.)



Claim.—1. The combination with the keel of a vessel, of a main rudder and a spare rudder mounted adjacent to the main rudder, movable independently thereof, and provided with means for locking it when not in use.

2. The combination with the keel of a vessel, of a main rudder, a spare rudder mounted adjacent thereto, but independently movable, means for raising and lowering the spare rudder, and means for locking the spare rudder when not in use.

3. The combination with the keel of a vessel, of a main rudder, means for operating it, a spare rudder mounted forward of the main rudder, means for independently operating the spare rudder, and devices for locking the spare rudder when not in use.

4. The combination with the keel of a vessel, of a main rudder, a spare rudder movable vertically, means for guiding the spare rudder when moved vertically, and for locking it when not in use.

682,477. SMOKE-CONSUMER. WILLIAM A MARTEL, Brandon, Canada. Filed Apr 16, 1901. Serial No. 56,053. (No model.)



Claim.—1. A smoke-consumer, comprising a pipe-section adapted to be connected with the smoke-pipe of a stove or heater, the said pipe-section having an air-inlet at one side, a valve for said inlet, a partition of open-work material arranged in the pipe below said opening, and a baffle-plate on the partition, substantially as specified.

2. A smoke-consumer, comprising a length of pipe designed to be placed in connection with the smoke-pipe of a stove or heater, the said pipe having an air-inlet opening at one side, a valve for said opening, a partition of open-work material arranged in the pipe below said opening, the said partition consisting of two sections, one section being mounted to swing, and a baffle-plate mounted on said partition, substantially as specified.

3. A smoke-consumer, comprising a length of pipe having an opening at one side, a door for said opening, said door having an air-inlet opening, a valve for the air-inlet opening, a partition of open-work or screen material, a frame to which the partition material is attached, means for supporting the partition in the pipe below the air-inlet opening, a baffle-plate extended upward from the partition near the air-inlet opening, and braces extended from the baffle-plate to the partition, substantially as specified.

682,478. DUST-EXCLUDER. JOHN P. MARTIN, Ely, Nev. Filed Dec. 19, 1900. Serial No. 40,365. (No model.)

Claim.—A dust-excluder, comprising a body part in the form of a box or casing provided with two openings therein, a gauze fabric covering one of said openings, a tube leading from the box or casing and forming a means of communication between the box and the throat of the user and a gauze-fabric flap commanding the second opening in the body and forming an outwardly-opening valve, for the purpose specified.



682,479. COMBINED BABY-CARRIAGE AND CRADLE. JOHN S. MERCER, Asheville, N. C. Filed July 27, 1901. Serial No. 69,954. (No model.)



Claim.—1. The combination in a child's carriage, of the running-gear, the body portion adjustable to positions above and below the wheels of the running-gear, and extensible supports connecting the body portion to the running-gear, said supports acting as springs when the body portion is in the lowest position and as rigid supports when the body portion is elevated.

2. The combination in a child's carriage, of the body portion, springs for supporting the body portion, said springs each comprising pairs of centrally-hinged plates adapted to be bent in opposite directions and to be moved on their hinged points to substantially vertical positions, and means for locking said plates in said vertical positions.

3. The combination in a child's carriage, of the body portion, upper and lower plates having flaring ends, spring-sections hinged to said plates and to each other, means for locking said springs in vertically-extended position, the running-gear, and means for connecting the upper and lower plates to the body portion and to the running-gear respectively, substantially as specified.

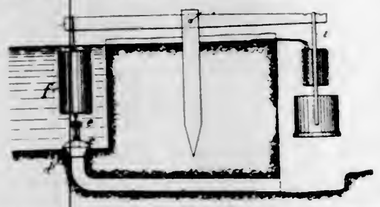
4. The combination in a child's carriage, of the body portion, upper and lower plates having flaring ends, spring-sections hinged to said plates and to each other, means for locking said spring-sections in vertically-extended position, means for connecting the lower plates to the axles of the running-gear, hooks carried by the upper plate and means for suspending the body portion on said hooks, substantially as specified.

5. The combination in a child's carriage, of the running-gear, the body portion, upper and lower bars arranged in pairs at each end of the body portion, the lower bar of each pair being detachably secured to the running-gear, a hooked standard carried by the upper bar of each pair and adapted for connection to the body portion, and adjustable springs provided between the upper and lower bars, substantially as specified.

6. The combination in a child's carriage, of the wheel-axles, pins thereon, a perforated plate or bar adapted to said axle, spring-sections pivoted to said plate or bar, a second plate or bar, spring-sections pivoted thereto and to the spring-sections of the first plate or bar, hook-sections carried by said upper plate or bar, and a body portion or basket hung on said hooks, substantially as specified.

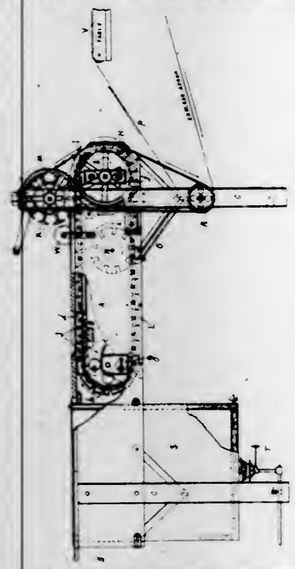
7. The combination in a child's carriage, of the wheel-axles, a supporting device arranged on each axle and comprising a pair of oppositely-disposed plates having flaring end portions, spring-sections pivoted to the bars and to each other and adapted to bear on such flaring end portions, means for holding the spring-sections in vertically-extended position, standards secured to the upper bar of each pair, hooks arranged at the upper ends of said standards, a carriage body or basket, and means for connecting said carriage body or basket to said hooks, substantially as specified.

682,480. **APPARATUS FOR FILLING OR EMPTYING RESERVOIRS AUTOMATICALLY.** JEAN L. A. METSONNIER, Privas, France. Filed May 16, 1901. Serial No. 60,553. (No model.)



Claim.—In an apparatus of the character specified the combination with a liquid-receptacle having a discharge-opening in its bottom, a lever pivoted intermediate its ends, a valve-stem depending from one end of the lever, a float on said stem, a valve on said stem adapted when lowered to close the discharge-opening, a metal bow suspended on the other end of the lever, a lower bucket carried thereby with an opening in its bottom, a counterpoised valve-stem suspended from the bow, adapted when lowered to close the opening in the lower bucket, an upper bucket secured on the valve-stem, a small discharge-pipe from the upper to the lower bucket, and a small overflow-channel from the main receptacle into the upper bucket, substantially as described.

682,481. **MACHINE FOR MOLDING POPCORN.** HENRY E. MILLER, Kansas City, Mo., assignor of one-half to John W. Lockhart, same place. Filed Aug. 30, 1900. Serial No. 28,552. (No model.)



Claim.—1. A machine of the character described, having a mixing-tank at one end, a table-top at the other end, a series of endless, flexibly-connected molds traveling across the table-top, rotary disks having notched peripheries mounted on shafts and adapted to engage and rotate said molds, a rotary compressor situated above the table-top at the end opposite the said mixing-tank, a spur-gear connecting said compressor with the front mold-carrier, an ejector situated in the body of the machine below the table and between the mold-drivers, an endless apron to receive the ejected articles, delivering them onto a table, and a driving device for the said apron.

2. A machine of the character described, consisting of a suitable framing, a table-top, a series of endless, flexibly-connected molds traveling across the table-top, a combined mold carrying and driving device, a rotary compressor above the table-top having projections adapted to enter the molds, and an ejector situated beneath the table-top and between the mold-carriers, working into the bottom of the molds and ejecting the article downwardly.

3. A machine of the character described, consisting of a suitable framing, a table-top, a series of endless, flexibly-connected molds traveling across the table-top, a combined mold carrying and driving device, a rotary compressor above the table-top and near one end, having projections adapted to enter the molds, said compressor connected to the front mold-carrier and driven thereby.

4. The combination, with, a series of flexibly-connected molds, mold carriers and drivers, and a rotary compressor, of the shaft of the mold-carrier E, forming the driving-shaft of the mechanism, having a driving-gear on one end, the spur-gear I on the other end, meshing into the spur-gear M, fixed on the end of the compressor-spindle, the said mold-carrier shaft also bearing the pulley H upon one end, which pulley is connected with small pulley R and drives the endless apron P.

5. A machine of the character described, consisting of a suitable framing, a table-top, a series of endless, flexibly-connected molds traveling across the table-top, a combined mold carrying and driving device, a compressor above the table-top, having projections adapted to enter the molds, and a rotary ejector situated beneath the table-top and between the mold-carriers, working into the bottom of the molds and caused to rotate by the moving molds.

6. An ejecting-roller, having a body portion *v*, with projections *w*, uniformly arranged on its periphery, each longitudinal row of projections having the plane of its driving-face directed to the axis of the roller.

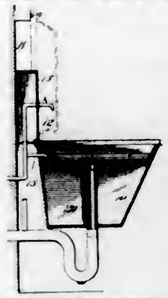
7. An ejecting-roller, having a body portion *v*, with projections *w*, uniformly arranged on its periphery, each longitudinal row of projections having the plane of its driving-face directed to the axis of the roller, and the plane of the other side face parallel to the plane of the driving-face of the longitudinal row of projections adjacent to the said side face.

8. A one-piece ejecting-roller, having a body portion *v*, with integral projections *w*, uniformly arranged on its periphery, each longitudinal row of projections, having the plane of its driving-face directed to the axis of the roller, and the plane of the other side face parallel to the plane of the driving-face of the longitudinal row of projections, adjacent to the said side face.

9. A mold, consisting of side pieces *i*, cross-pieces *j*, and end pieces *k*, the end pieces, each, having a stud *n* on its short axis and near its lower edge, and a flange *m* at its top, said elements so joined as to make the side pieces diverge upwardly.

10. A mold, having side pieces *i*, bent at right angles and toward the same sides at the ends, lapping over a portion of the end pieces and secured thereto, cross-pieces *j*, bent at the ends at right angles in opposite directions and at an angle to the long axis of the middle member, the short members being parallel to the side pieces *i*, and secured thereto, and end pieces *k*, having a stud *n* on the short axis and near the lower edge, a flange *m* at the top, and the ends diverging upwardly to correspond to the taper of said cross-pieces.

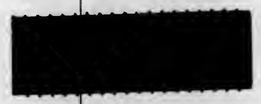
682,482. **COMBINED SINK AND WASHTUB.** WALTER J. MINER, New York, N. Y. Filed Mar. 12, 1901. Serial No. 50,848. (No model.)



Claim.—1. A washtub, a pivoted sink constituting a cover for the said tub, an upwardly-extending flange at the rear upper edge of the sink, a sink back or casing adapted for attachment to the wall or a like support and into which the said flange extends, a waste and an overflow pipe located within the tub and having open upper ends, a strainer for the sink, and a sleeve around the strainer, extending from the bottom of the sink and adapted to enter the waste-pipe, for the purpose set forth.

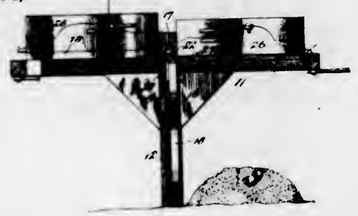
2. The combination, with a washtub, a sink back or casing above the said tub, and a waste and an overflow pipe located within the tub having open upper ends side by side, the overflow-pipe terminating short of the top of the waste-pipe and having its lower end opening into the waste-pipe of a sink pivotally attached to the sink back or casing, the sink being adapted to constitute a cover for the tub, a flange extending upward from the rear upper edge of the sink at the rear of the sink back or casing, the rear face of the sink being concaved at its outer side, a strainer for the sink, and a sleeve surrounding the strainer and extending downward from the sink, which sleeve is adapted to enter the waste-pipe, for the purpose set forth.

682,483. **WELL-STRAINER.** ALEXANDER D. MORESI, Jeanerette, La. Filed May 11, 1901. Serial No. 59,769. (No model.)



Claim.—A well, &c., strainer, comprising a foraminous or perforated pipe or tubing having a wire wound or coiled and secured thereon, a wire-cloth or strainer secured over the coils of said wire, and a second wire coiled or wound over the wire-cloth and the coils of the inner wire and secured upon said wire-cloth or strainer, substantially as set forth.

682,484. **MOLDING AND CASTING APPARATUS.** JAMES R. MCWANE, Lynchburg, Va. Filed Jan. 9, 1901. Serial No. 42,666. (No model.)



Claim.—1. In apparatus of the class described, the combination with means for supporting a flask, of means independent of the flask for supporting the mold contained in said flask, said mold-supporting means being movable from beneath the mold.

2. In apparatus of the class described, the combination with stationary means for supporting a flask, of movable means independent of the flask for supporting the mold contained in the flask, said mold-supporting means being removable from beneath the mold.

3. In apparatus of the class described, the combination with a flask, of a supporting member for the flask having elements arranged to engage opposite portions thereof, a movable support for the mold contained in said flask and located below the flask when the latter is in place upon its support, said mold-support being in position to engage the under face of the mold but movable from beneath the same.

4. In apparatus of the class described, the combination with means for supporting a flask, of a platform arranged to support the mold contained in said flask and movable from beneath the same, said platform being mounted independently of the flask.

5. In apparatus of the class described, the combination with a frame arranged to support a flask, of a hinged platform adapted to support the mold contained in said flask and movable from beneath the same, said platform being mounted independently of the flask, and means for holding the platform in operative position.

6. In apparatus of the class described, the combination with a frame arranged to support a flask, of a platform hinged to the frame and adapted when in raised position to support the mold contained in the flask, said platform being movable from beneath the mold, and means carried by the frame and coacting with the platform to hold the latter in raised position.

7. In apparatus of the class described, the combination with a frame arranged to support a flask, of a platform hinged to the frame and adapted when in raised position to support the mold contained in the flask, said platform being movable from beneath the mold, and a latch secured to the frame and coacting with the platform to hold the latter in raised position.

8. In apparatus of the class described, the combination with an open frame forming a support for a flask, of a platform hinged within the frame and when in elevated position forming a support for the mold in the flask, and means arranged upon the frame for holding the platform in elevated position.

9. In apparatus of the class described, a mold-receiving bench having an open frame supported solely at one side and arranged to form a flask-support, and a platform hinged to said frame and forming when in elevated position, a support for the mold within the flask, and means for holding the platform in elevated position.

10. In apparatus of the class described, a mold receiving bench having an open frame supported solely at one side, a platform hinged to said supported side, and locking means arranged upon the opposite side of the frame and adapted to engage said platform to hold it in elevated position.

11. In apparatus of the class described, a mold-receiving bench having a plurality of independently-hinged drop-platforms, and independent means for holding each of said platforms in elevated position.

12. In apparatus of the class described, a mold-receiving bench having an open frame and a plurality of oppositely-disposed supporting-platforms hinged to intermediate portions of said frame.

13. In apparatus of the class described, a mold-receiving bench comprising an open frame supported intermediate its side edges, a plurality of independent supporting-platforms hinged to the frame, and means for holding said platforms in elevated position.

14. In apparatus of the class described, a mold-receiving bench comprising an open frame having a longitudinal intermediate hinge-rod, and a plurality of oppositely-disposed supporting-platforms hinged to said rod.

15. In apparatus of the class described, a mold-receiving bench comprising an open frame supported intermediate its side edges and having an intermediate longitudinal hinge-rod, a plurality of oppositely-disposed supporting-platforms hinged to said rod, and means for holding said platforms in elevated position.

16. In apparatus of the class described, a mold-receiving bench comprising an open frame supported intermediate its side edges and having an intermediate hinge-rod, a plurality of oppositely-disposed supporting-platforms detachably hinged to said rod, and independent latches for holding each of said platforms in elevated position.

17. In apparatus of the class described, the combination with means for supporting both the flask, and the mold arranged therein, said means being removable from beneath the same, of a device arranged to engage the flask and support it, but release the mold, when said combined flask and mold support is removed.

18. In apparatus of the class described, the combination with a movably-mounted support arranged to hold both the flask and mold carried thereby and movable from beneath the same, of a stationary frame located adjacent to the support and arranged to engage the flask only when the combined flask and mold support is removed.

19. In apparatus of the class described, the combination with a frame, of a platform movably mounted on the frame, and means for supporting the platform with its upper face above the horizontal plane of the upper face of the frame.

20. In apparatus of the class described, the combination with an open frame, of a platform hinged within said frame, said platform when elevated having its upper face arranged above the horizontal plane of the upper face of the frame, and means for holding the platform in elevated position.

21. In apparatus of the class described, the combination with an open frame, of a drop-platform hinged at one side to the frame, and a latch arranged upon the opposite side of the frame and pivoted thereto intermediate its ends, one end of the latch forming a handle, the other end being adapted to engage the platform to hold it in elevated position.

22. In apparatus of the class described, the combination with an open frame, of a drop-platform hinged at one side to the frame, and a bell-crank lever arranged upon the opposite side of the frame and pivoted thereto at its elbow, one arm of said lever forming a handle portion, the other arm being adapted to engage the platform to hold it in elevated position.

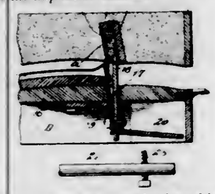
23. In apparatus of the class described, the combination with an open frame, of a drop-platform substantially coextensive in size with a flask and adapted when in elevated position to support the same, said platform being hinged to one side of the open frame and means for holding the platform in elevated position.

24. In apparatus of the class described, the combination with an open frame, of a drop-platform hinged within said frame and when elevated having its upper face arranged above the horizontal plane of the edge of the same, means for holding the platform in elevated position, said platform when in elevated position being adapted to support a flask and the mold arranged therein, said flask being adapted to engage the open frame when the platform is dropped.

682,485. **MOLDING APPARATUS.** JAMES R. MCWANE, Lynchburg, Va. Filed Apr. 30, 1901. Serial No. 58,199. (No model.)

Claim.—1. In molding apparatus, the combination with a pattern member, of a flask member arranged to be placed in coacting relation with the pattern member, an impression element movably mounted upon the pattern member, and a casing carried by the flask member and arranged

to fit over the impression element when the pattern and flask members are in coacting relation to hold the molding material from contact with certain portions of the impression element.



2. In molding apparatus, the combination with a pattern member, of a flask member arranged to be placed in coacting relation with the pattern member, an impression element movably mounted upon the pattern member, and a chill arranged to be placed over the impression element to hold the molding material from contact with certain portions thereof, said chill being removable from the movable impression element.

3. In molding apparatus, the combination with a pattern member, of a flask member arranged to be placed in coacting relation with the pattern member, an impression element movably mounted upon the pattern member, and a chill carried by the flask member and arranged to fit over the impression element when the pattern member and flask member are in coacting relation to hold the molding material from contact with certain portions of said impression element.

4. In molding apparatus, the combination with a pattern member, of a flask member arranged to be placed in coacting relation with the pattern member, an impression element movably mounted upon the pattern member, and a chill carried by the flask member and arranged to fit over the impression element when the pattern member and flask member are in coacting relation to hold the molding material from contact with certain portions of said impression element, said chill and impression element having their adjacent faces spaced from each other to permit the movement of the latter toward the former.

5. In molding apparatus, the combination with a pattern member, of a flask member arranged to be placed in coacting relation with the pattern member, an impression element pivotally mounted upon the pattern member, and a chill carried by the flask member and arranged to fit over the impression element when the pattern and flask members are in coacting relation to hold the molding material from contact with certain portions of the impression element.

6. In molding apparatus, the combination with a pattern member, of a flask member arranged to be placed in coacting relation with the pattern member, an impression element pivotally mounted upon the pattern member, and a chill carried by the flask member and having offset flanges arranged to fit over the impression element to hold the molding material from contact with certain portions thereof, said chill and impression element having adjacent faces spaced from each other to permit the movement of the latter toward the former.

7. In molding apparatus, the combination with a pattern member carrying a plurality of patterns, of a flask member arranged to be placed in coacting relation with the pattern member, a plurality of impression elements pivotally mounted upon the pattern member, and a plurality of chills carried by the flask member and arranged to fit over the impression elements when the flask and pattern members are in coacting relation to hold the molding material from contact with certain portions of said impression members.

8. In molding apparatus, the combination with a pattern member carrying a plurality of patterns, of a flask member arranged to be placed in coacting relation with the pattern member, a plurality of impression elements pivotally mounted upon the pattern member, a plurality of chills carried by the flask member and arranged to fit over the impression elements when the flask and pattern members are in coacting relation to hold the molding material from contact with certain portions of said impression members, and common means for holding the impression elements against movement.

9. In molding apparatus, the combination with a pattern member carrying a plurality of patterns, of a flask member arranged to be placed in coacting relation with the pattern member, a plurality of impression elements pivotally mounted upon the pattern member, a plurality of chills adjustably secured to the flask member and arranged to fit over the impression elements when the flask and pattern members are in coacting relation to hold the molding material from contact with certain portions of said impression members.

10. In molding apparatus, the combination with a pattern member carrying a plurality of patterns, of a flask member arranged to be placed in coacting relation with the pattern member, a plurality of impression elements pivotally mounted upon the pattern member, and a plurality of chills adjustably secured at their outer ends to the flask member and projecting inwardly within the same, said chills being arranged to fit over the impression elements when the flask and pattern members are in coacting relation to hold the molding material from contact with certain portions of said impression members.

11. In molding apparatus, a match-section, an impression element movably mounted upon the match-section, and means for moving the impression element, said means including a stem projecting above the operative face of the match-section and constituting a gate-molding device.

12. In molding apparatus, a match-section having a plate which is provided with an opening, an impression element pivoted to the under side of the plate and projecting through the opening, a movable operating-stem extending through the plate and projecting from the same face thereof as the impression element, and a connection between the stem and the portion of the movable impression element that is located beneath the plate.

13. In molding apparatus, a match-section having a plate which is provided with an opening, an impression element pivoted to the under side of the plate and projecting through the opening, a movable operating-stem extending through the plate and projecting from the same face thereof as the impression element, and an adjustable connection between the same and a portion of the movable impression element which is located beneath the plate.

14. In molding apparatus, a match-plate carrying a pattern on its upper face and provided with an opening, an impression element pivoted to the under side of the plate and passing through the opening thereof, and a counterweight secured to the impression element beneath the match-plate and arranged to urge said element to an upright position.

15. In molding apparatus, a match-plate carrying a pattern on its upper face and provided with an opening, an impression element pivoted to the under side of the plate and passing through the opening thereof, a counterweight secured to the impression element beneath the match-plate and arranged to move said element to an upright position, and means adapted to engage the counterweight to hold the impression element at an inclination to the pattern.

16. In molding apparatus, a match-plate carrying a pattern on its upper face and provided with an opening, an impression element pivoted to the under side of the plate and passing through the opening thereof, a counterweight secured to the impression element beneath the match-plate and arranged to move said element to an upright position, and adjustable means adapted to engage the counterweight to hold the impression element at an inclination to the pattern.

17. In molding apparatus, a match-plate carrying a pattern on its upper face and provided with an opening, an impression element pivoted to the under side of the plate and passing through the opening, a counterweight secured to the impression element beneath the match-plate and arranged to move said element to an upright position, a stem projecting through the plate, and means carried by the lower portion of the stem and adapted to engage the counterweight to hold the impression element at an inclination to the pattern.

18. In molding apparatus, a match-plate carrying a pattern on its upper face and provided with an opening, an impression element pivoted to the under side of the plate and passing through the opening, a counterweight secured to the impression element beneath the match-plate and arranged to move said element to an upright position, a stem projecting through the plate, and adjustable means carried by the lower portion of the stem and adapted to engage the counterweight to hold the impression element at an inclination to the pattern.

19. In molding apparatus, a match-plate carrying a plurality of patterns on its upper face and provided with openings contiguous to the patterns, impression elements pivoted to the under side of the plate and passing through the openings thereof, counterweights secured to the impression elements beneath the plate to move said elements to upright positions, a stem projecting through the plate, and means carried by the lower portion of the stem and adapted to engage the counterweights to hold each impression element at an inclination to the adjacent pattern.

20. In molding apparatus, a match-plate carrying a plurality of patterns on its upper face and provided with openings contiguous to the patterns, impression elements pivoted to the under side of the plate and passing through the openings thereof, counterweights secured to the impression elements beneath the match-plate and arranged to move said elements to upright positions, a slidable stem projecting through the plate and carrying radiating arms located beneath the counterweights, and adjusting-screws carried by the arms and arranged to engage said counterweights when the stem is raised.

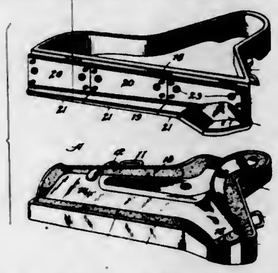
21. In molding apparatus, a match-plate carrying a plurality of patterns on its uppper face and provided with openings contiguous to the patterns, impression elements pivoted to the under side of the plate and passing through the openings thereof, counterweights secured to the impression elements beneath the match-plate and arranged to move said elements to upright positions, a slidable stem projecting through the plate and carrying radiating arms located beneath the counterweights, adjusting-screws carried by the arms and arranged to engage said counterweights when the stem is raised, and means for holding the stem in raised position.

22. In molding apparatus, a match-plate carrying a plurality of patterns on its upper face and provided with openings contiguous to the patterns, impression elements pivoted to the under side of the plate and passing through the openings thereof, counterweights secured to the impression elements beneath the match-plate and arranged to move said elements to upright positions, a slidable stem projecting through the plate and carrying radiating arms located beneath the counterweights, adjusting-screws carried by the arms and arranged to engage said counterweights when the stem is raised, and a sliding bolt adapted to bear against the lower end of the stem to hold the stem in raised position.

23. In plow-molding apparatus, the combination with a pattern member having a stationary pattern-section and a movable pattern-section coacting therewith, of a flask arranged to be placed in coacting relation with the pattern member, and a chill coacting with the movable pattern-section when the flask is in place upon the pattern member.

24. In plow-molding apparatus, the combination with a plowshare-pattern comprising a stationary body-section and a movable lock-section, of a flask arranged to be placed in coacting relation with the pattern, and a chill secured to the flask and located adjacent to the movable lock-section when the flask is in said coacting relation, said chill constituting a portion of the wall of the lock-mold made in the flask.

682,486. MOLDING APPARATUS. JAMES R. MCWANE, Lynchburg, Va. Filed Jan. 9, 1901. Serial No. 42,667. (No model.)



Claim.—1. In molding apparatus, the combination with a "match" element carrying a fixedly-positioned pattern, of a "flask" element arranged to be placed in coacting relation with the "match" element, means for holding the "match" element and "flask" element against relative movement when in coactive relation, and a chill adjustably secured to the "flask" element and arranged to register with certain portions of said pattern.

2. In molding apparatus, the combination with the "match" element carrying a fixedly-positioned pattern, of a "flask" element arranged to be placed in coacting relation with the match element, means for holding the "match" element and "flask" element against relative movement when in coactive relation, and a sectional chill adjustably secured to the "flask" element and arranged to register with certain portions of said pattern.

3. In molding apparatus, the combination with a "match" element carrying a fixedly-positioned pattern, of a "flask" element arranged to be placed in coacting relation with the "match" element, means for holding the "match" element and "flask" element against relative movement when in coactive relation, and a sectional chill, each section of which is independently secured to the "flask" element and arranged to register with certain portions of said pattern

4. In molding apparatus, the combination with the "match" element carrying a fixedly-positioned pattern, of a "flask" element arranged to be placed in coacting relation with the "match" element, means for holding the "match" element and "flask" element against relative movement when in coactive relation, and a sectional chill, each section of which is independently and adjustably secured to the "flask" element and arranged to register with certain portions of said pattern.

5. In molding apparatus, the combination with a "match-section" carrying a pattern, and a "flask-section" arranged to be placed in coacting relation with the "match-section" and carrying a chill arranged to register with certain portions of said pattern, of another "match-section" carrying a pattern the operative face of which is similar in shape to the chill of the "flask-section," and another "flask-section" arranged to be placed in coacting relation with said second "match-section."

6. In molding apparatus, the combination with a "match-section" carrying a fixedly-positioned pattern, and a "flask-section" arranged to be placed in coacting relation with the "match-section," and carrying an adjustable chill adapted to register with certain portions of said pattern, of another "match-section" carrying an adjustable chill-pattern similar to the chill of the "flask-section," and another "flask-section" arranged to be placed in coacting relation with said second "match-section."

7. In molding apparatus, the combination with a "match-section" carrying a fixedly-positioned pattern, and a "flask-section" arranged to be placed in coacting relation with the "match-section," and carrying an adjustable sectional chill adapted to register with certain portions of said pattern, of another "match-section" carrying an adjustable sectional chill-pattern similar to the chill of the "flask-section," and another "flask-section" arranged to be placed in coacting relation with said second "match-section."

8. In molding apparatus, the combination with a "match-section" carrying a fixedly-positioned pattern, and a "flask-section" arranged to be placed in coacting relation with the "match-section," and carrying an adjustable sectional chill, each section of which is independently and adjustably secured to the flask element and is arranged to register with certain portions of said pattern, of another "match-section" carrying an adjustable sectional chill-pattern similar to the chill of the "flask-section," and another "flask-section" arranged to be placed in coacting relation with said second "match-section."

9. In molding apparatus, the combination with a "match-section" carrying a fixedly-positioned pattern, and a "flask-section" arranged to be placed in coacting relation with the "match-section," and carrying an adjustable sectional chill, each section of which is independently and adjustably secured to the "flask" element and is arranged to register with certain portions of said pattern, of another "match-section" carrying an adjustable sectional chill-pattern similar to the chill of the "flask-section," each section of said chill-pattern being independently and adjustably secured to said "match-section," and another "flask-section" arranged to be placed in coacting relation with said second "match-section."

10. In molding apparatus, the combination with a "flask" element, of a sectional chill adjustably secured to the "flask" element.

11. In a molding apparatus, the combination with a "flask" element, of a sectional chill, each section of which is independently and adjustably secured to the "flask" element.

12. In molding apparatus, the combination with a "flask" element, of a chill adjustably secured to the exterior face of the "flask" element, and provided with a chill-flange arranged beneath the edge of the "flask" element.

13. In molding apparatus, the combination with a "flask," of a sectional chill adjustably secured to the exterior face of one section and provided with a bearing-flange arranged to rest upon the upper edge of the other section, said chill being provided with a chilling-flange disposed beneath the edge of the first-named section.

14. In molding apparatus, the combination with a "flask" element, of a sectional chill, bolts for independently securing each section of said chill to the "flask" element, and set-screws carried by the chill-sections and engaging the "flask" element.

15. In a molding apparatus, the combination with a "flask" element, of a chill comprising a plurality of sections, tie-bolts arranged intermediate the side edges of the chill-sections for securing them to the "flask" elemeot, and set-screws carried by the chill-sections on opposite sides of the tie-bolts and engagaging the "flask" element.

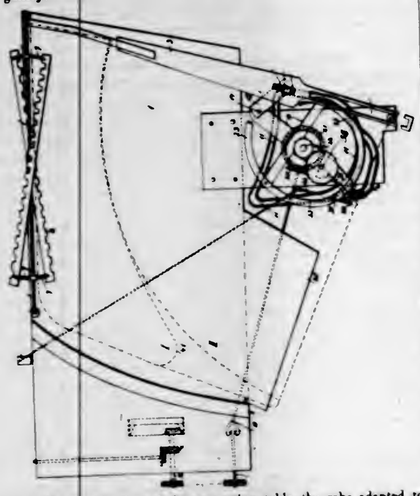
682,487. MACHINE FOR CUTTING CORN OR THE LIKE. FRANZ NAGITGAL, Alexandrowsk, Russia. Filed Jan. 18, 1900. Serial No. 1,902. (No model.)

Claim.—1. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the stationary guide provided with a runway for said spindle, means for causing the spindle to travel along said runway, and an inclined gallery or support arranged to govern the inclination of the rake relatively to the table.

2. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the rake being loosely mounted on the spindle so as to be capable of swinging up and down thereon, the stationary guide provided with a runway for said spindle, means for causing the spindle to travel along said runway, and an inclined gallery or support arranged to govern the inclination of the rake relatively to the table.

3. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the stationary guide provided with a runway for said spindle, means for causing the spindle to travel along said runway, and an inclined gallery-support held to rotate and arranged to govern the inclination of the rake relatively to the table.

4. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the stationary guide provided with a runway for said spindle, a rotary driving device for causing said spindle to travel along said runway, and an inclined segmental gallery or support arranged to rotate with said driving device and to govern the inclination of the rake relatively to the table, said driving device passing between the ends of the gallery.



5. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the stationary guide provided with a runway for said spindle, a rotary driving device for causing said spindle to travel along said runway, and an inclined segmental gallery or support arranged to rotate with said driving device and to govern the inclination of the rake relatively to the table, said driving device passing between the ends of the gallery, the rake and the spindle being provided with projections arranged to engage each other at the time the rake is between the ends of the gallery, to prevent upward movement of the rake at that time.

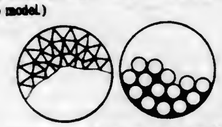
6. The combination of the supporting-table, the rake adapted to sweep over the table, a driving device for the rake, a continuous guide having a runway engaged by a projection on the rake, said runway having at one point two branches in substantially the same horizontal plane, but at different distances from the center of the guide, a switch for causing the projection of the rake to pass into one or the other branch of the runway, to lengthen or shorten the path of the rake, and means for throwing said switch.

7. The combination of the supporting-table, the rake adapted to sweep over the table, a driving device for the rake, a continuous guide having a runway engaged by a projection on the rake, said runway having at one point two branches in substantially the same horizontal plane, but at different distances from the center of the guide, a switch for causing the projection of the rake to pass into one or the other branch of the runway, to lengthen or shorten the path of the rake, and a switch-throwing device, operatively connected with the driving device of the rake, for causing the projection of the rake to pass alternately into the two branches of the runway.

8. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the stationary guide provided with a runway for said spindle, said runway having at one point two branches in substantially the same horizontal plane, but at different distances from the center of the guide, a switch for causing the rake-spindle to pass into one or the other branch of the runway, to lengthen or shorten the path of the rake, a device for driving the rake, and means for throwing said switch.

9. The combination of the supporting-table, the rake adapted to sweep over the table, the stationary post with which the rake has a sliding pivotal connection, the spindle projected from the rake at a distance from said post, the stationary guide provided with a runway for said spindle, said runway having at one point two branches in substantially the same horizontal plane, but at different distances from the center of the guide, a switch for causing the rake-spindle to pass into one or the other branch of the runway, to lengthen or shorten the path of the rake, a device for driving the rake, and a switch-throwing device, operatively connected with the driving device of the rake, for causing the projection of the rake to pass alternately into the two branches of the runway.

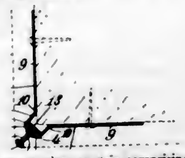
682,488. APPARATUS FOR TRANSFORMING STEAM. JACQUES A. R. M. P. B. O'BRIEN, Paris, France. Filed Aug. 7, 1900. Serial No. 26,149. (No model.)



Claim.—1. In a superheater for steam and other fluids, a tube adapted for connection with the steam-supply, and a series of small tubes, open at both ends, located in the first-named or inclosing tube and extending lengthwise thereof, said small tubes being in contact with each other, and the outermost small tubes being in contact with the inclosing tube, so that the heat received by the inclosing tube will be transmitted to the small tubes and through their medium to the steam circulating through the small tubes, thereby securing first, a subdivision of the steam into thin streams to facilitate its heating, second, a large metallic heating-surface, and third, a multiplicity of points of contact between the small tubes themselves and the inclosing tube, and consequently, a thorough transmission of heat.

2. A superheater for steam and other fluids, consisting of a series of superposed tubes of which the lowermost is adapted for connection with a steam-supply at one end, while the other end of said lowermost tube is connected with one end of the uppermost tube, the other end of said uppermost tube being connected with one end of the next tube below, and so forth, to cause the steam to travel downward to the outlet, which is at one end of the tube immediately above the lowermost tube.

682,489. CORNER PLATE, STRIP, OR BEAD AND CLIP THEREFOR. WILLIAM F. PARKER, New York, N. Y. Filed Dec. 11, 1900. Serial No. 39,531. (No model.)



Claim.—1. A corner plate or strip comprising a web or body portion having flanges extending outwardly from the inner edge thereof at right angles to said web or body portion.

2. A corner plate or strip comprising a web or body portion having a longitudinal bead along one edge and lateral flanges along its opposite edge, said flanges extending outward from opposite sides of the plate or strip and arranged at right angles to the web or body portion.

3. A corner plate or strip formed from a sheet-metal strip bent and folded upon itself to provide a web or body portion having a bead along its front edge, the free longitudinal edges of said strip being bent outward at a right angle to said web or body portion and projecting from opposite sides thereof.

4. A corner plate or strip formed from a single sheet of metal bent and folded upon itself to provide a web or body portion having a bead along its front edge and right-angled extensions at its rear edge projecting from opposite sides of the plate or strip, said web or body portion being provided with plaster-openings.

5. A corner plate, strip or bead having a T shape in cross-section, and means for supporting the same removed from the angle of a wall.

6. A corner plate, strip or bead having a T shape in cross-section, combined with a clip having ears or lips embracing the opposite sides of said plate along the inner longitudinal edges thereof.

7. The combination with a corner-strip comprising a web or body portion having flanges extending outward from opposite sides thereof, of a clip having a flat face to receive and support said flanges, and means for locking the strip and clip together.

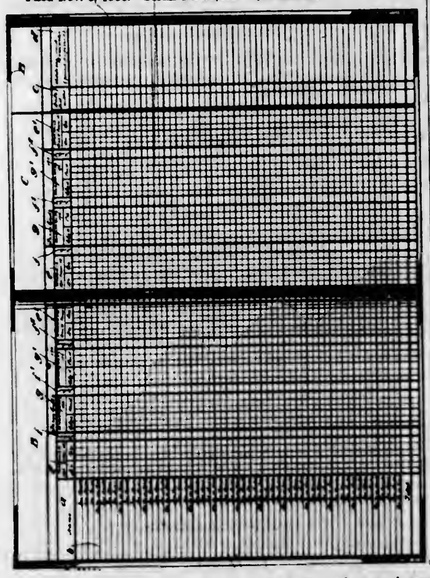
8. The combination with a corner-strip comprising a web or body portion having flanges extending outward from the inner edge thereof upon opposite sides, of a clip having a flat face to receive and support said flanged portion of the strip, and lips or tongues formed integral with the clip and embracing said flanges upon opposite sides to lock the parts together.

9. A corner plate or strip comprising a web or body portion having lateral flanges extending outward from the base thereof, said flanges being folded back upon themselves to provide double thicknesses of metal at these points.

10. A clip comprising two members arranged at an angle to each other and having an intermediate extension provided with a flat face or wall, and lips or tongues formed integral with the clip and overhanging said face or wall.

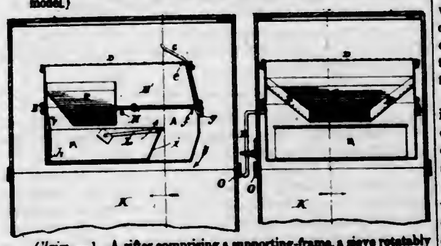
11. A clip for attaching corner-plates to walls, comprising a single strip of metal bent intermediate its ends to provide two members arranged at right angles to each other, an extension formed centrally of said strip and arranged at an angle to said members and providing a flat supporting face or wall, and lips or toogues stamped from said strip upon opposite sides of the extension and overhanging the said face or wall.

682,490. LEDGER. ARCHIBALD E. PARTRIDGE, Seattle, Wash. Filed Nov. 8, 1900. Serial No. 35,852. (No model.)



Claim.—A ledger or like book, having wide leaves and narrow leaves arranged between them, so that the marginal portion of the wide leaves projects beyond that of the narrow leaves, said projecting portion bearing on one side a name-column, and on the other side an address-column, the narrow leaves and the portions of the wide leaves from their inner or attached ends to a distance corresponding to the width of the narrow leaves, being provided with the same arrangement of headings and columns at each side of the crease, viz., a balance-column at each end, and between them a series of term-columns all subdivided into a "charged" (Dr.) and "paid" (Cr.) side.

682,491. ASH-SIFTER. JOSEPH A. PAYNE and JAMES F. PERKINSON, Gloucester, Mass. Filed Jan. 12, 1901. Serial No. 43,068. (No model.)



Claim.—1. A sifter comprising a supporting-frame, a sieve rotatably mounted within said frame and composed of an upper section and a lower section hinged together, the entire top of the upper section having a sifting-surface, and a chute carried by one end of the said upper section and extending within the lower section, substantially as described.

2. A sifter comprising a supporting-frame, a sieve rotatably mounted within said frame and composed of an upper section and a lower section hinged together, an ash-pan within the lower section, a downwardly-projecting arm carried by the upper section and engaging one end of the pan, a chute carried by one end of the upper section and extending within the lower section, and means for rotating said sieve, substantially as described.

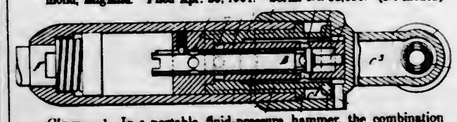
3. A sifter comprising a supporting-frame, a sieve rotatably mounted within the frame, and consisting of an upper section and a lower section hinged together, an ash-pan within the lower section, an arm adapted to engage the rear end of said pan, a transverse bar upon which the opposite end of the pan is adapted to rest, and a chute carried by the upper section, substantially as described.

4. A sifter comprising a frame, a sieve rotatably mounted within said frame, and composed of an upper section and a lower section, hinged together, an ash-pan within the lower section, and means carried by the lower portion of the upper section for supporting the ash-pan within the lower section, substantially as described.

5. A sifter comprising a frame, a sieve rotatably mounted within the frame and composed of an upper section and a lower section, hinges connecting two adjacent sides of said sections, a lock securing the opposite adjacent edges, an ash-pan within the lower section, a downwardly-extending arm carried by the upper section and engaging one end of said pan, a horizontal bar carried by the upper section and adapted to support the opposite end of the pan, when the pan is in the reversed position, a chute secured to one end of the upper section and extending within the lower section, and a wire-netting covering the upper open end of the said upper section, substantially as described.

6. A sifter comprising a frame, a rotatably-mounted sieve within the frame, and composed of an upper section and a lower section hinged together, the top of the upper section covered with a wire-netting, an ash-pan within the lower section, a chute carried by one end of the upper section and converging and extending within the lower section, a clip carried by the upper section and adapted to grasp one wall of the pan within the lower section, and a bar for supporting the opposite wall when the pan is in reversed position, substantially as described.

682,492. FLUID-PRESSURE HAMMER. WALTER PAYTON, Richmond, England. Filed Apr. 29, 1901. Serial No. 58,056. (No model.)



Claim.—1. In a portable fluid-pressure hammer, the combination with a casing formed of two detachable parts and constituting the working cylinder, said casing having a handle at one end and a tool-holder at the other end, of a reciprocating piston constituting the hammer proper and consisting of a block having a central longitudinal hole extending completely therethrough, of a sliding tubular tappet-valve located in said central longitudinal hole and of a push-piece located contiguous to one end of said tubular valve and projecting from one end of the piston, said valve and piston being provided with ports adapted to be opened and closed by the changes in position of the tubular valve relatively to the piston, substantially as described.

2. In a portable fluid-pressure hammer, the combination with a casing formed of two detachable parts and constituting the working cylinder, said casing having a handle at one end and a tool-holder at the other end, of a reciprocating piston constituting the hammer proper and consisting of a block having two external diameters and a central longitudinal hole extending completely therethrough, of a sliding tubular tappet-valve located in said central longitudinal hole and of a push-piece located contiguous to one end of said tubular valve and projecting from one end of the piston; said valve and piston being provided with ports adapted to be opened and closed by the changes in position of the valve relatively to the piston, substantially as described.

3. In a portable fluid-pressure hammer, the combination with a casing formed of two detachable parts and constituting the working cylinder, said casing having a handle at one end and a tool-holder at the other end, of a reciprocating piston constituting the hammer proper and consisting of a block having two external diameters and a central longitudinal hole extending completely therethrough, of a sliding tubular tappet-valve located in said central longitudinal hole and of a push-piece located contiguous to one end of said tubular valve and projecting from the smaller end of the piston, said valve and piston being provided with ports adapted to be opened and closed by the changes in position of the valve relatively to the piston, substantially as described.

4. In a portable fluid-pressure hammer, the combination with a casing formed of two detachable portions and constituting the working cylinder, said casing having a handle at one end and a tool-holder at the other end, of a reciprocating piston consisting the hammer proper and consisting of a block having a central longitudinal hole extending completely therethrough and of smaller diameter at one end than at the other, of a sliding tubular tappet-valve located in the larger diameter of said central longitudinal hole, of a spring-ring situated in an annular cavity in the exterior of said valve, of a stop-piece for limiting the extent of longitudinal movement of said valve, and of a push-piece located contiguous to one end of said valve and provided with a stem that extends through the smaller diameter of said central longitudinal hole and projects beyond the end of the piston, said tubular valve and piston being provided with ports adapted to be opened and closed by the changes in position of the valve relatively to the piston, substantially as described.

5. In a portable fluid-pressure hammer, the combination with a casing formed of two detachable portions and constituting the working cylinder, said casing having a handle at one end and a tool-holder at the other end, of a reciprocating piston constituting the hammer proper and consisting of a block having a central longitudinal hole extending completely therethrough, of a sliding tubular tappet-valve located in said central longitudinal hole and adapted to project from opposite ends of the piston as the latter reaches the ends of its reciprocations, and of a central transverse partition dividing the interior of said tubular valve into two compartments, said valve being provided with ports on opposite sides of its partition and near its ends, for coöperating with ports in the piston as said valve changes its position relatively to the piston, substantially as described.

682,498. CARRYING-CASE. ROBERT R. PENDLETON, Redbluff, Cal. Filed Apr. 11, 1901. Serial No. 55,383. (No model.)



Claim.—1. In a holder of the class described, the combination with a receptacle comprising a side, a bottom and end walls, leaving an open side and an open top, of a cover having an interlocking engagement with the receptacle and provided with a side and a top that are arranged to respectively cover the open side and top of the receptacle said cover also having a bottom that fits over the bottom of the receptacle, and means for holding the cover in operative position upon a receptacle.

2. In a holder of the class described, the combination with a receptacle comprising a side, a bottom and end walls, leaving an open side and an open top, of a cover having a detachable interlocking engagement at one side with the receptacle, and provided with a side wall and a top that are arranged to respectively cover the open side and top of the receptacle, and means located at the side opposite the detachable interlocking engagement for holding the cover in operative position upon the receptacle.

3. In a holder of the class described, the combination with a receptacle comprising a bottom, a side and end walls, leaving an open side and an open top, of a detachable cover having a side wall and a top that are arranged to respectively cover the open side and top of the receptacle, said cover being provided with a bottom having an upturned flange arranged to engage over the outer face of the receptacle to hold the cover in place.

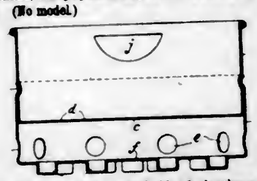
4. In a holder of the class described, the combination with a receptacle having an open side and end, of a cover arranged to close the open side and end of the receptacle and having side walls which surround the same, a continuous inturned flange located at the outer edge of one of the cover side walls and arranged to engage over the outer face of the receptacle, a handle arranged upon the opposite side wall, a flexible loop secured to the receptacle and adapted to be hooked over the handle, and a holding device secured to one edge of the receptacle and having a detachable connection with the opposing edge.

5. In a holder of the class described, the combination with a receptacle having an open side and an open upper end, the lower end being closed by an inclined wall, of a cover arranged to close the open side and end of the receptacle and provided with side walls which surround the same, an inturned flange located at the outer edge of the lower side wall of the cover and adapted to engage over the exterior face of the receptacle, a handle arranged upon the opposite side wall, locking means carried by the receptacle and engaging the handle to hold said receptacle and cover in place, and an elastic holding device secured to one edge of the receptacle, and having a detachable engagement with the other edge.

682,494. PROCESS OF MERCERIZING SHORT-STAPLE COTTON. FRIEDRICH A. REICHMANN and CARL A. LAGERQVIST, Varberg, Sweden. Filed Sept. 13, 1900. Serial No. 29,863. (No specimens.)

Claim.—A process for imparting a silky luster to American or short-staple cotton either in the yarn or in the piece, consisting in boiling and well-soaking the cotton in concentrated alkali-lye until free from grease or fat, then treating it in a state of tension with concentrated caustic soda-lye and copper-oxid ammonia until it is of a dark-blue color, then washing and neutralizing and finally allowing it to lie in highly-concentrated nitric acid until it is of a pale-yellow color, whereupon it is squeezed and well washed.

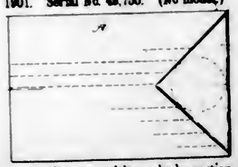
682,495. RECEPTACLE FOR TRANSPORTING BOTTLES, &c. DAVID RICHARDS, Pantyffynnon, England. Filed May 14, 1901. Serial No. 60,141. (No model.)



Claim.—1. A sheet-metal case or holder for bottles or other articles, formed of two superposed slightly-coned or nearly-cylindrical cupped portions fitted the one in the other and united by an interlocking seam or joint formed by spinning or pressing the edge of the one into a groove formed in the side of the other, the bottom of the upper portion having holes in it to form an apertured diaphragm or partition integral with the sides of the upper part, as described.

2. A sheet-metal case or holder for bottles or other articles formed of two superposed slightly-coned or nearly-cylindrical cupped portions fitted the one in the other and united by an interlocking seam or joint formed by spinning or pressing the edge of the one into a groove formed in the side of the other, and the bottom of the lower portion having recesses punched up or countersunk in it in vertical alinement with the apertures of the diaphragm or partition as specified.

682,496. COIN-CARRIER. ELLWOOD W. ROBERTS, Brooklyn, N.Y. Filed Mar. 5, 1901. Serial No. 49,756. (No model.)

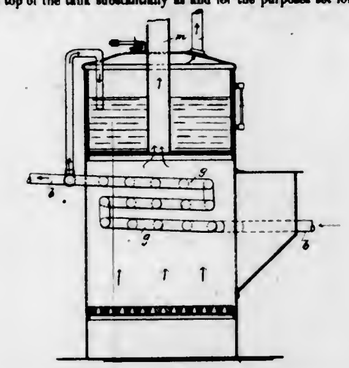


Claim.—A coin-carrier, comprising a body portion, in the form of a single sheet having a triangular pocket for a coin at one end thereof, said coin-pocket comprising a triangular back flap having a folding connection with one end of the sheet and forming the back of said coin-pocket, and coin-retaining flaps forming the front of said coin-pocket, and adapted to fold over the coin, said retaining-flaps being triangular in shape and having their hypotenuse foldingly connected with the sides of the back flap, to form, when folded, a pocket-front corresponding in size and shape to the pocket-back, the pocket being folded upon the sheet with the retaining-flaps resting against said sheet, as set forth.

682,497. APPARATUS FOR PREVENTING FREEZING OF WATER-PIPES. JULIUS RÜHLING, Gera, Germany. Filed Apr. 5, 1901. Serial No. 54,535. (No model.)

Claim.—1. In a device of the character described, the combination with a heater and a superposed water-tank, of a main water-pipe, a coil of pipe in the fire-box of the heater, valved connections, between the ends of the coil and the main pipe, a valve in the main pipe between said connections, a branch pipe leading from the main pipe, beyond the coil connections, into the water-tank, and a pipe leading from the top of the tank substantially as and for the purposes set forth.

2. In a device of the character described, the combination with a heater and a superposed water-tank surrounding the chimney of the heater, of a main water-pipe, a coil of pipe in the fire-box of the heater, valved connections having interposed couplings between the ends of the coil and the main pipe, a valve in the main pipe between said connections, a branch pipe leading from the main pipe, beyond the coil connections, into the water-tank delivering below the water-level thereof, and a pipe leading from the top of the tank substantially as and for the purposes set forth.



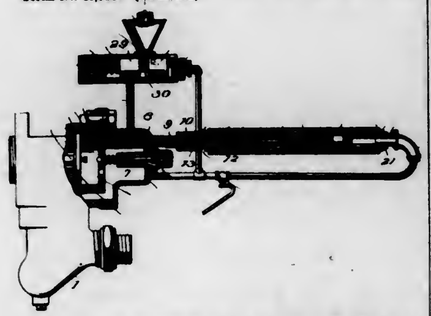
682,498. TENPIN. RUDOLPH SCHARKOPSKY, Cleveland, Ohio. Filed June 29, 1901. Serial No. 66,533. (No model.)



Claim.—1. In a tenpin, a metallic ring embedded in, and projecting from, the bottom of the pin.

2. In a tenpin, an annular longitudinal recess in the bottom of the pin, and a metallic ring in the recess, the edge of the ring projecting slightly below the bottom of the pin.

682,499. TRIPLE VALVE. JOHN W. SHAFER, Chicago, Ill., assignor of one-half to Belle Bradrick, same place. Filed Feb. 11, 1901. Serial No. 46,923. (No model.)

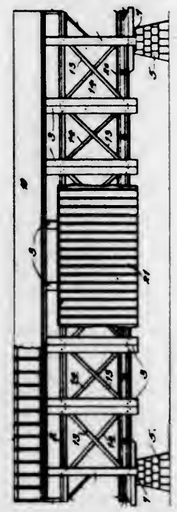


Claim.—1. The combination with a triple valve, of a cylinder connected with the drain-cup, a piston adapted to work in said cylinder and a piston-rod connected with said piston and adapted to operate the piston-rod and slide-valve and graduating-valve when the train-pipe pressure is increased.

2. The combination with a train-pipe valve, of a pipe leading from the drain-cup, a cylinder and a piston-rod connected with said pipe and the means for connecting said cylinder and piston-rod with said drain-cup, a piston-rod projecting into the piston-chamber and moving the piston, a piston, sliding valve and graduated valve.

3. The combination with a triple valve, of a pipe leading from the drain-cup, a chamber connected with said pipe, another pipe leading into the drain-cup, a coupling connecting the last-named pipe and said chamber, a piston located within said chamber and a rod extending from said piston through the chamber into the triple-valve casing into contact with the piston-head 3.

682,500. TRUSS-BRIDGE. WARREN SHAFER, Lagrange, Ga. Filed Apr. 18, 1901. Serial No. 56,473. (No model.)



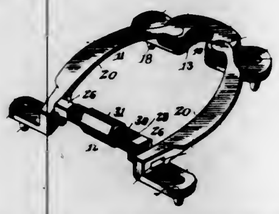
Claim.—1. A truss-bridge, comprising in its construction a plurality of solid, continuous, upper and lower chords, each running the entire length of the span and made up of parallel timbers nailed together and spliced at varying intervals so as to break joints, vertical members secured to and inclosing said chords, girders securing the upper ends of the verticals together, transverse beams secured to the upper edge of the lower chords, means for supporting a floor upon said transverse beams, and a plurality of diagonal beams secured to the inner side of each of the opposite lower chords for bracing the entire structure against endwise movement, substantially as described.

2. A truss-bridge, comprising in its construction two parallel, continuous, lower chords extending the entire length of a span, means for supporting a floor upon said chords, means for securing said chords together, means for preventing sidewise movement of said chords, two parallel, continuous, upper chords extending the entire length of a span, vertical members secured to the outside of each of said lower chords and also secured to the outside of each of said upper chords, thereby connecting the upper and lower chords of one side of the bridge and the upper and lower chords of the other side of the bridge, vertical members secured to the inside of each of said upper and lower chords and corresponding in number to said outer vertical members, thereby forming sets of vertical members inclosing said chords, means for securing the upper ends of the respective opposite sets together, and crossed, diagonal braces, secured to each other at the point of crossing, and secured at the lower end between the lower portion of one set of vertical members and upon one of said lower chords, and secured at the upper end between the next set of verticals, near the upper end thereof, and beneath one of said upper chords, substantially as described.

682,501. CALK ATTACHMENT FOR HORSESHOES. SAMUEL P. SMITH, St. Paris, Ohio. Filed May 29, 1901. Serial No. 62,411. (No model.)

Claim.—1. A calk attachment comprising a toe member, side members pivoted to the ends of the toe member, said attachment being arranged to fit within a shoe, the toe member having spaced flanges that engage over the upper and under faces of the shoe, the outer flange being provided with calks, the side members being each provided intermediate its ends with a flange that engages over the upper face of the shoe and at its outer or free end with an outstanding lug that extends beneath

the shoe and carries a calk, and a spreader located between the side members for forcing them apart and holding them in operative relation to the shoe.



2. In a calk attachment, the combination with pivotally-connected side members arranged to fit within a shoe, said members being provided with calks and holding means that engage the upper and under faces of the shoe, of an extensible spreader extending across the space between and connecting the side members, said spreader having its intermediate portion offset and disposed above the plane of the shoe, so that it will be located in the space beneath the hoof.

3. In a calk attachment, the combination with pivotally-connected members carrying calks and provided with sockets in their opposing faces, of a spreader for the members located between the same, said spreader comprising arms having offset keepers that engage in the sockets of the members, one of the arms having a screw-threaded shank, and an operating-nut connecting the arms and provided with a screw-threaded opening in which the screw-threaded shank of said arm engages.

682,502. **COMPOSITION FOR THE MANUFACTURE OF TILES, ROOFINGS, LININGS, OR THE LIKE.** PAUL SORBIN, Paris, France. Filed July 23, 1900. Serial No. 24,589. (No specimens.)

Claim.—1. The herein-described method for the manufacture of tiles, roofings, linings and the like from paper or other pulp, consisting first in incorporating fine sand or its equivalent to the pulp, second, adding a preservative thereto, third, increasing the solidity thereof, fourth, increasing the rigidity thereof, and fifth, rendering the same impervious.

2. The herein-described method for the manufacture of tiles, roofings, linings and the like from paper or other pulp, consisting first in incorporating tannin therein, second, increasing the solidity thereof by the addition of a fibrous material, third, increasing the rigidity of the material, and fourth, rendering the material impervious by submerging in a suitable bath.

3. The herein-described method for the manufacture of tiles, roofings, linings and the like from paper or other pulp, which consists in treating the pulp with tannin, adding thereto a fibrous material for increasing the solidity of the pulp, adding gelatinous substance to the pulp, increasing the rigidity of the pulp by means of resinous soap, and then subjecting the pulp to the action of a bath of stearic acid and resin for rendering the pulp impervious.

4. As a new article of manufacture, tiles, roofings, linings and the like, consisting of pulp, a fibrous material and a preservative.

5. As a new article of manufacture, tiles, roofings, linings and the like, consisting of pulp, fibrous material, a preservative and rendered impervious.

6. As a new article of manufacture, tiles, roofings, linings and the like, consisting of pulp, sand, tannin, fibrous material, stearic acid and resin.

7. As a new article of manufacture, tiles, roofings, linings and the like, consisting of pulp, tannin, waste hemp, stearic acid and resin.

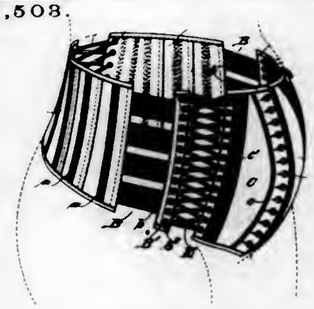
8. As a new article of manufacture, tiles, roofings, linings and the like, consisting of pulp, sand, tannin, waste hemp, stearic acid and resin.

9. As a new article of manufacture, tiles, roofings, linings and the like, consisting of pulp, tannin, fibrous material and rendered impervious.

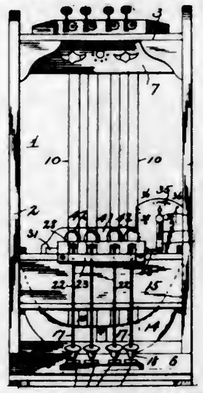
682,503. **ABDOMINAL SUPPORTER.** RACHEL STRAMBURGER, Butte, Mont. Filed Mar. 11, 1901. Serial No. 50,894. (No model.)

Claim.—The herein-described supporter comprising two similar opposite back portions, a lace connecting said portions, two elastic side portions consisting of a series of parallel elastic strips extending from bottom to top of the supporter and connected at their rear ends to the adjoining ends of the back portions and having their front ends connected to vertical eyeleted strips, and two front portions having their rear ends eyeleted and their front edges rounded, and respectively provided with buttons and buttonholes, and eyelets and laces connecting the opposite front portions to the adjoining side portions, respectively, all constructed and arranged to operate substantially as and for the purpose set forth.

682,503.



682,504. **MUSICAL INSTRUMENT.** EDWARD STRIEPLER, Bisbee, Ariz. Filed May 15, 1901. Serial No. 60,333. (No model.)



Claim.—1. In a stringed musical instrument, the combination of strings arranged in pairs, and pickers arranged to move between the strings of the instrument and each provided with oppositely-projecting points to strike and vibrate the strings of the coöperating pair, substantially as described.

2. In a stringed musical instrument, the combination of strings arranged in pairs, picker-bars arranged to reciprocate between the strings of each pair, pickers carried by said bars and provided with oppositely-projecting points to strike the strings, and means for reciprocating said bars, substantially as described.

3. In a stringed musical instrument, the combination of strings arranged in pairs, sliding picker-bars arranged to reciprocate between the strings of each pair, pickers carried by said bars and provided each with oppositely-projecting points to strike the strings, pivoted operating-levers for reciprocating the bars, and springs for retracting the levers and bars, substantially as described.

4. In a stringed musical instrument, the combination of strings arranged in pairs, reciprocating picker-bars, pickers carried by said bars to strike and vibrate the strings, each of said pickers being provided with oppositely-projecting points to strike and vibrate the strings of the coöperating pair, balls adapted to be struck by the bars and to be moved into and out of the path of movement thereof, and means for reciprocating the bars, substantially as described.

5. In a stringed musical instrument, the combination of strings arranged in pairs, pickers adapted to move between the strings of each pair and to simultaneously strike the same, and means for moving either one of the strings of each pair out of the path of movement of the picker, substantially as described.

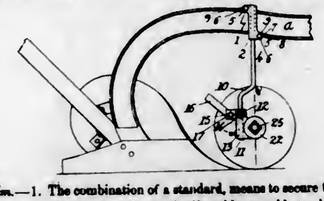
6. In a stringed musical instrument, the combination of strings arranged in pairs, pickers movable between the strings of each pair and adapted to simultaneously strike the same, a slide provided with fingers projecting between the strings and adapted to be moved in either direction to move either string of each pair out of the path of movement of the picker, substantially as described.

7. In a stringed musical instrument, the combination of strings arranged in pairs, pickers movable between the strings of each pair and adapted to simultaneously strike the same, a slide, fingers carried by the slide and projecting between the strings of each pair, and means for moving and indicating the extent of movement of said slide, substantially as described.

8. In a stringed musical instrument, the combination of strings arranged in pairs, pickers movable between the strings of each pair and adapted to simultaneously strike the same, a slide, fingers carried by the slide and projecting into the spaces between the strings of each pair, an indicator, a pointer for operating the slide and coöperating with the indicator, and means for holding the pointer in adjusted position, substantially as described.

9. In a musical instrument of the character described, the combination of strings arranged in pairs, picker-bars arranged to reciprocate between the strings of each pair, pickers carried by said bars and adapted to simultaneously strike the same, means for operating the bars, a slide, fingers projecting from the slide and into the spaces between the strings of each pair, an indicator-plate provided with indicator-marks and seats, a pointer pivoted to said plate and connected with the slide and adapted to coöperate with said marks to indicate the extent of movement of the slide in either direction, and a spring-actuated detent carried by said pointer to engage the seats in the plate and hold the pointer in adjusted position, substantially as described.

682,505. **ATTACHMENT FOR PLOWS.** ASA B. STRONG, Perrydale, Oreg. Filed Mar. 11, 1901. Serial No. 50,712. (No model.)



Claim.—1. The combination of a standard, means to secure the same to a plow-beam, a block secured to and adjustable on said standard, said block having a horizontal bearing, a tubular journal in said bearing having a cap at its inner end overlapping the inner end of said bearing, a detachable cap at the outer ends of said bearing and said tubular journal, said detachable cap overlapping the outer end of said bearing, a disk having its central portion disposed against the inner end of said tubular journal and a bolt passing through said disk, through said tubular journal and through said detachable inner cap, said bolt securing said disk to said journal and securing the latter, together with the detachable cap against endwise movement in the said bearing, substantially as described.

2. The combination of a standard, having a bearing at its lower end for a revoluble disk, with a clamp comprising a pair of plates having matched grooves on their opposing sides to receive said standard, the latter being adjustable vertically between said plates, and a U-shaped clip-bolt passing through matched openings in said plates, said clip-bolt securing the said plates to a plow-beam and also clamping said standard between said plates, substantially as described.

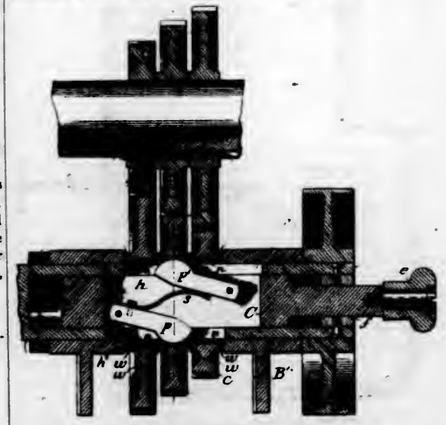
682,506. **HORSESHOE.** OTTO SWANSTROM, France, Minn. Filed Mar. 11, 1901. Serial No. 50,673. (No model.)



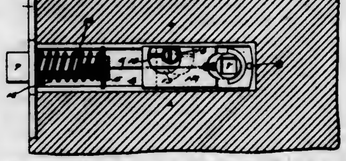
Claim.—As an improved article of manufacture, a horseshoe having inclined socket-seats therein, tapering from the base upward, the calks having front and rear inclined face portions, and chisel-shaped terminal lower portions, the calks provided with shanks having inclined and tapering portions to correspond to the shapes of the socket-seats of the shoe, and the surrounding projecting rings formed at the union of the calks and shanks whereby frictional engagement of the shanks with the socket-seats of said shoe is accomplished, substantially in the manner described.

682,507. **CHANGEABLE-SPEED GEARING.** JOHN R. SWEET, Syracuse, N. Y. Filed Jan. 16, 1899. Serial No. 702,236. (No model.)

Claim.—In changeable-speed gear, a rotary shaft having a slotted cavity, a sliding member mounted within the cavity of the shaft, radially-movable splines mounted in said sliding member, projecting therefrom beyond the rotary shaft, a plurality of gears mounted directly upon said shaft side by side and running loosely thereon, said gears provided with keyways on their inner bearing-surfaces, springs to press the said splines outward to engage said keyways in succession as the sliding member is moved, and intervening annular portions between adjacent keyways, flush with the inner contacting faces of said gears, whereby said splines are disengaged from each keyway as they pass from one to the other by the movement of the sliding member, substantially as specified.



682,508. **LOCK.** CHAUNCEY T. THOMAS, Rushville, Ill., assignor of one-half to Samuel Davis, same place. Filed Mar. 30, 1901. Serial No. 53,650. (No model.)



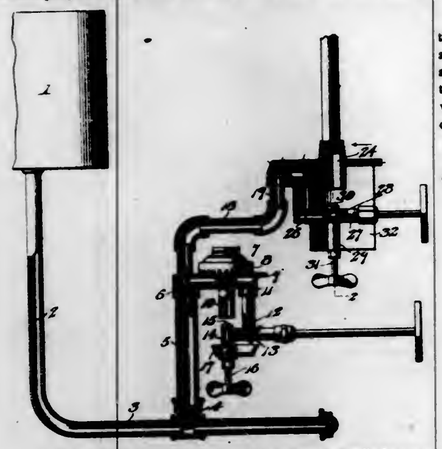
Claim.—1. The combination of a lock-case, a spring-pressed latch-bolt, a knob-sleeve revoluble in the lock-case, a link connecting said sleeve to said latch-bolt, a longitudinally-movable tumbler guided in the sides of the lock-case, disposed between said bolt and said knob-sleeve and adapted to directly engage said knob-sleeve and lock the same against rotation, said tumbler having a cam-opening, and a revoluble spindle journaled in the lock-case, adapted to be engaged and turned by a key, said spindle extending through and having an arm operating in the cam-opening of said tumbler, to move the latter into and out of engagement with said knob-sleeve, and lock said tumbler both when engaged with and disengaged from said knob-sleeve, substantially as described.

2. A lock comprising a cylindrical case formed of two semicylindrical separable sections, one of the same having a face-plate at its outer end, a knob-sleeve revoluble in said case, said sleeve having its bearings in openings in said separable sections, a spring-pressed latch-bolt having its shank in said case, a link connecting said bolt-shank to said knob-sleeve, a longitudinally-movable tumbler disposed and guided in said case, said tumbler being located between said bolt-shank and said knob-sleeve, having a cam-opening in one side, and at one end adapted to directly engage and lock the knob-sleeve against rotation, and a key-spindle, disposed in said cam-opening, having its bearings in the sections of said lock-case and provided with an arm operating in said cam-opening, said key-spindle, with its arm locking said tumbler both in engaged and disengaged position with relation to said knob-sleeve, substantially as described.

682,509. **CARBURETER.** WILLIAM O. VANCE, New Albany, Ind. Filed July 25, 1900. Serial No. 24,813. (No model.)

Claim.—1. In a carbureter, the combination with a reservoir, an oil-pipe leading therefrom and means for heating said pipe to vaporize the oil, of a commingling and distributing head comprising a plate formed with an open-ended commingling-chamber and with a port located to one side of the commingling-chamber, one end of said port being in communication with the oil-pipe, a valve-casing suspended from the plate and in communication with the opposite end of the port in said plate and hav-

ing a jet-orifice arranged to inject vapor into the lower open end of the commingling-chamber of the head, and a valve within the valve-casing.



2. In a carbureter, the combination with a reservoir, an oil-pipe communicating therewith and a vaporizing-burner in communication with the pipe and arranged to heat said pipe at an advanced point, to effect the vaporization of the hydrocarbon, a commingling and distributing head comprising a plate formed with an open-ended commingling-chamber and with a U-shaped port, one end of said port being in communication with the oil-pipe beyond that portion heated by the burner, a valve-casing provided with a jet-orifice arranged to inject vapor into the commingling-chamber of the head, a valve within the valve-chamber, and a valve-controlled vapor-pipe leading from the other end of the U-shaped port and communicating with the valve-casing.

3. In a carbureter of the character described, the combination with a reservoir and a depending oil-pipe provided with a horizontal branch and an upstanding pipe communicating with said horizontal branch and supporting a commingling-burner at its upper end, an oil-pipe extension located beyond the burner and communicating with the oil-pipe, said extension being provided with a horizontal portion located immediately above the burner, a vaporizing and distributing head comprising a horizontal plate formed with a vertically-disposed open-ended commingling-chamber and with an enlargement formed with a U-shaped port, one end of said port being in communication with the oil-pipe beyond that portion heated by the burner, a needle-valve casing provided with a jet-orifice arranged to inject vapor into the commingling-chamber of the head, a valve-controlled vapor-pipe leading from the other end of the port in the head and communicating with the needle-valve casing, and a hood depending from the plate intermediate of the commingling-chamber and the burner to protect the exposed vapor from the heat generated by said burner.

4. A portable carbureter of the character described, comprising a reservoir, an oil-pipe pendent from the reservoir and having an upstanding branch, a vaporizing-burner, and a commingling and distributing head both supported exclusively by said upstanding branch of the oil-pipe, said vaporizing-burner being disposed to heat the pipe at a point intermediate of the reservoir and head, the lower end of the head being open for the free ingress of air, and a jet device suspended from the head and disposed to project a jet of vapor into the open end thereof.

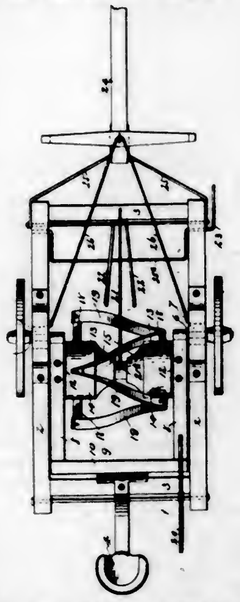
5. In a carbureter, the combination with a distributing and commingling head comprising a plate formed with a flue opening into the outer air at its lower end, and a port located at one side of the flue and opening at one end through the under side of the plate, a valve-casing supported by the plate below the same and having a jet-orifice disposed to project a jet of vapor into the open end of the flue, said valve-casing being in communication with the adjacent end of the port, a supply-pipe coupled to the opposite end of the port and constituting the support for the head, and a vaporizing device disposed to vaporize the oil within the supply-pipe.

6. The combination with a commingling-head comprising a plate provided with an open-ended flue or commingling-chamber extending above and below the plate and with a port disposed to one side of the commingling-chamber and having one end opening through the under side of the plate, of means for leading vapor to one end of said port, and means for leading said vaper from the opposite end of the port and for injecting it into the lower end of the flue.

682,510. BLUE DISAZO DYE. WALTER VOIGTLÄNDER-TETZNER, Ludwigshafen, Germany, assignor to Badische Anilin & Soda Fabrik, same place. Filed June 19, 1901. Serial No. 65,175. (No specimens.)

Claim.—The new coloring matter obtainable by combining tetrazotized dianisidin with phenyl-1-acid and 1.8 amido-naphthol-alpha-sulfo-acid, which dissolves in water with a blue color, to which solution the addition of hydrochloric acid or caustic soda lye produces a violet-blue, to blue-violet, precipitate; which dissolves in concentrated sulfuric acid with a blue-green color, and yields on reduction with zinc and dilute caustic soda lye a brown-red vat, substantially as described.

682,511. STALK-CUTTER. JOHN R. WEATHERLY, Sumter, S. C. Filed June 8, 1901. Serial No. 63,791. (No model.)



Claim.—1. In a device of the class described, a knife-drum comprising the combination of two hubs coned on their inner ends, radial arms arranged alternately mounted on said hubs, and knives connecting said arms in pairs and extending diagonally of the drum.

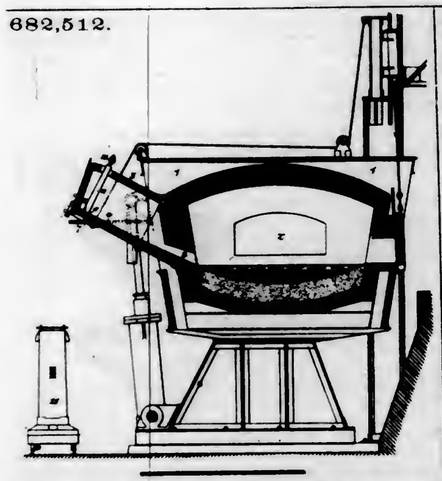
2. In a device of the class described, a knife-drum comprising the combination of two hubs, radial arms mounted on said hubs and arranged alternately, and knives connecting said arms, substantially as described.

682,512. OPEN-HEARTH STEEL-FURNACE. SAMUEL T. WELLMAN and CHARLES H. WELLMAN, Cleveland, Ohio, assignors to the Wellman Seaver Engineering Company, same place. Filed July 16, 1900. Serial No. 23,810. (No model.)

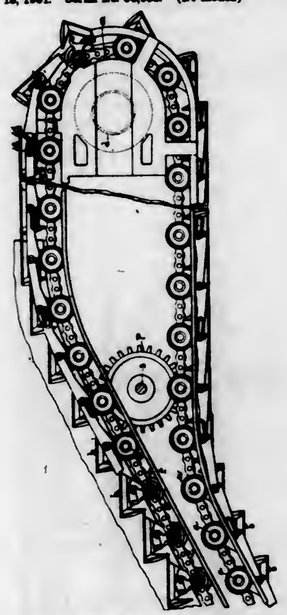
Claim.—1. The combination of a tipping or tilting open-hearth steel-furnace having a basin-shaped hearth forming the charge-receiving chamber, means for passing heating-gases therethrough, a projecting structure containing a forehearth independent of the gas-passages and having one or more stoppered discharge-openings in the bottom, and a passage extending from the upper edge of the basin-shaped hearth through the side wall of the furnace to the forehearth, whereby the bottom of the forehearth is disposed above the said charge-receiving chamber when the furnace is in its normal or working condition, substantially as specified.

2. The combination of a tipping or tilting open-hearth steel-furnace having a basin-shaped hearth forming the charge-receiving chamber, means for passing heating-gases therethrough, an upwardly-inclined passage extending from the upper edge of the said basin-shaped hearth through the side wall of the furnace, a projecting structure containing a forehearth forming an inclined continuation of said inclined passage, and having one or more stoppered discharge-openings in its bottom, said forehearth being independent of the gas-passages, whereby said forehearth is so disposed that its bottom is above the said charge-receiving chamber when the furnace is in its normal or working condition, substantially as specified.

682,512.



682,518. ELEVATOR. GEORGE A. WHEELER, New York, N. Y. Filed Mar. 13, 1901. Serial No. 50,992. (No model.)



Claim.—1. In an elevator the combination of a series of carriages or steps each provided with supporting-wheels, a suitable track or guideway therefor, a chain connection between successive carriages or steps, a series of arms suitably connected to the steps, respectively, each arm extending to its pivotal point between the axis of the step and its tread, and links pivoted to said arm at said points whereby adjacent arms are united.

2. In an elevator the combination of a series of carriages or steps each provided with antifriction supporting devices, a suitable track or guideway therefor, whereby the moving carriages or steps are maintained in a predetermined relative position with respect to the line of movement, a link-propelling connection between the several carriages or steps, a series of arms each arm extending to its pivotal point between the axis of the step and its tread and links pivoted to said arms at said points to unite adjacent arms.

3. In an elevator the combination of a series of carriages or steps each provided with supporting-wheels, a suitable track or guideway therefor, a chain connection between successive carriages or steps, a series of arms one for each step suitably connected thereto, each arm extending to its pivotal point between the axis of the step and its tread, and links connecting adjacent arms, each link being hinged at one end and provided with a slotted bearing at the other end.

4. In an elevator the combination of a series of carriages or steps each provided with supporting-wheels, a suitable track or guideway therefor, a chain connection between successive carriages or steps, a series of arms suitably connected to the steps, respectively, each arm extending to its pivotal point between the axis of the step and its tread, a series of links each link pivoted at each end to an arm and having means for elongation in harmony with variations of curvature of the surface of the road-bed at the loop-terminals.

5. In an elevator the combination of a series of carriages or steps each provided with supporting-wheels, a suitable track or guideway therefor, a chain connection between successive carriages or steps and a series of arms suitably connected to the steps, respectively, said arms being located outside the ends of the treads of said steps, each arm extending to its pivotal point between the axis of the step and the tread thereof, and links pivoted to said arms at said points whereby adjacent arms are connected.

6. In an elevator the combination of a series of carriages each provided with supporting-wheels, a direct and return road-bed with looped terminals, a chain connection between the carriages, a series of arms suitably connected to the axles, respectively, a series of links, each link being pivoted at each end to an arm and having means for variation in distance to conform to variations in curvature of the road-bed at the loop-terminals consisting of an expansible bearing including a slot having an enlargement in one link and a pin in said slot connecting it with the adjacent link.

7. In an elevator the combination of a series of carriages each provided with supporting-wheels, a direct and return road-bed with loop-terminals, a chain connection between the carriages, a series of arms suitably connected to the axles, respectively, a series of links, each link pivoted at each end to an arm and having means for variation in distance to conform to variations in curvature of the road-bed at the loop-terminals consisting of an expansible bearing including a slot having an angle in one link, a pin in said slot connecting it with the adjacent link and means for automatically freeing the pin from engagement with one terminal of said slot.

8. In an elevator the combination of a series of carriages each provided with supporting-wheels, a direct and return road-bed with looped terminals, a chain connection between the carriages, a series of arms suitably connected to the axles, respectively, a series of links, each link pivoted at each end to an arm said links having means for variation in distance to conform to variations in curvature of the road-bed at looped terminals and means for limiting the extent of variation in position of each step or carriage consisting of lugs fixed to the propelling-chain at the axles said lugs having one or more separated stops and a stop fixed to the step in position to engage with the stop of the lug.

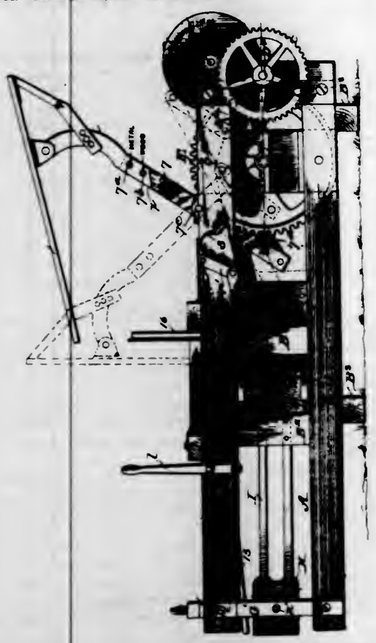
9. In an elevator, a series of carriages, a suitable track or guideway therefor, a series of journals upon the carriages, a chain-propelling connection between said journals uniting carriages into a single flexible structure, a series of auxiliary journals upon the carriages, links connecting auxiliary journals said links having at one end convertible fixed and extensible bearings for said auxiliary journals in combination with means for automatically shifting the journal from the fixed to the extensible bearing and vice versa.

10. In an elevator, the combination of a series of carriages, a suitable track or guideway therefor, a journal upon each carriage, a chain-propelling connection between said journals for uniting carriages into a single flexible structure, an auxiliary journal upon each carriage, links connecting auxiliary journals, said links having an elongated slotted bearing with a notch recessed from the slot and adapted to receive the journal and retain it until forced out of engagement and means for automatically forcing said journal out of said notch and for replacing it.

11. In an elevator the combination of a series of carriages or steps each provided with supporting-wheels, a suitable track or guideway therefor, a chain-propelling connection between successive carriages or steps uniting them into a single flexible structure, means for maintaining the treads of the steps in a horizontal position, including lugs suitably attached to the chain, having one or more stops, adapted to engage with a stop upon the steps to control the latter.

12. In an elevator the combination of a series of suitable steps each provided with supporting-wheels arranged on an axial line, a track or guideway therefor, a linked propelling connection uniting said steps together into a flexible sectional structure, means for maintaining the treads of the steps in a horizontal position including a series of auxiliary journals or bearings upon said steps, devices for connecting and retaining said journals or bearings at a definite distance and for modifying control of one step after another only at a predetermined point in the progressive movement.

682,514. BALING-PRESS. LEANDER WILSON, Alpha, Ill., assignor of one-fourth to John W. Johnson, same place. Filed Mar. 29, 1901. Serial No. 53,554. (No model.)



Claim.—1. A press comprising a framework with a reciprocating plunger and a single pair of jointed toggle-arms, the outer arm being made short, an end-thrust plate jointed thereto, and the inner arm longer and jointed to the plunger, two gear-wheels arranged inside the framework and on opposite sides and having on their adjacent faces wrist-pins located at points between their center and circumferences, a separate link connecting each wrist-pin to the middle joint of the toggle-arm, said toggle-arms being arranged between said links substantially as described.

2. A press comprising a framework with a reciprocating plunger, and a single pair of jointed toggle-arms, the outer one being made short and jointed to an end-thrust plate, and the inner arm longer and jointed to the plunger, two gear-wheels arranged inside the framework and on opposite sides and having on their adjacent faces wrist-pins as described, a separate link connecting each wrist-pin to the middle joint of the toggle-arm, a packing-board and operating-lever said lever being fulcrumed directly on the main frame and having its lower end branched and straddling the toggle-arm and descending to a position between the gear-wheels and connected by links to the middle joint of the toggle-arms substantially as described.

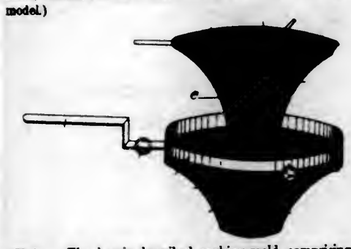
3. In a baling-press having a reciprocating plunger and toggle-arms for operating it, the combination with said toggle-arms of links connected to their middle joint, two oppositely-faced gear-wheels having wrist-pins connected to said links and long journals extended outwardly, and a metal frame-plate B⁴ bolted to the framework and having extended journal-bearings for said gear-wheels substantially as described.

4. In a baling-press having an automatically-operated packing-board, the operating-lever for said packing-board made in two jointed sections with a breakable pin for rendering them rigid, the joint of said sections being constructed as a knuckle yielding in one direction only to prevent the board from dropping in front of the plunger and being destroyed, when the brake-pin is broken substantially as described.

5. In a baling-press of the kind described, the combination with the feed-chamber having a slot-opening beside the hopper, a sliding shelf for closing said opening and sustaining the partition-board, springs for holding said shelf to said position, a loosely-coupled hook fastened to the said shelf and arranged to be dropped down into range of engagement with the plunger, and a rock-shaft with crank-arm and operating devices for rocking the same to drop the hook substantially as shown and described.

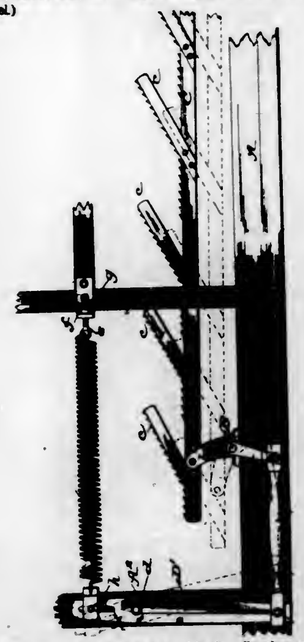
6. In a baling-press of the kind described, the combination with the feed-chamber having a slot-opening beside the hopper, a sliding shelf for closing said opening and sustaining the partition-board, horizontal guide-rods with coil-springs around them for holding the shelf across the opening, a loosely-coupled hook attached to the shelf and having an elongated slot, a horizontal crank-shaft arranged in said slot, and a lever and connecting-rod for working said rock-shaft and raising or lowering the hook substantially as shown and described.

682,515. MOLDING AND FRYING IMPLEMENT. EUGÈNE ALLARD, Cannes, France. Filed June 4, 1901. Serial No. 63,138. (No model.)



Claim.—The herein-described cooking-mold, comprising an inner and an outer part, each composed of a metallic frame covered with wire-mesh and a suitable strengthening-ring, at the top, a suitable handle secured to the outer part, nosepieces projecting from the two parts, and sliding rings fitting on said nosepieces for securing the two parts together in operative positions, substantially as described.

682,516. THRESHING-MACHINE STRAW-CARRIER. HERMAN BAAK, Charter Oak, Iowa. Filed Jan. 12, 1901. Serial No. 43,008. (No model.)



Claim.—1. The combination with the vibrating straw-rack in a thresher; of a horizontal helical spring, a vertical lever attached at its upper end to said spring, a pitman connected to the lower end of said lever, and a rock-shaft having a crank-arm attached to the other end of said pitman and having also upwardly-projecting supporting-arms for sustaining and oscillating the straw-rack substantially as described.

2. The combination with the vibrating straw-rack in a thresher; of a horizontal spring, a vertical lever, and connecting mechanism for connecting it to the straw-rack, whereby the spring is put under strain through the backward movement of the rack and is made to expend its force to advance the rack through its advance movement, and a connection between the spring and the lever made adjustable to or from the fulcrum of the lever for varying the leverage and influence of the spring substantially as shown and described.

3. The combination with the vibrating straw-rack in a thresher; of a horizontal spring, a vertical lever, and a horizontal pitman with crank and rock-shaft for connecting the lower end of the lever to the straw-rack, whereby the spring is put under strain throughout the backward movement of the rack and is made to expend its force to advance the rack through the advance movement, and means for regulating the tension of the spring substantially as described.

4. The combination with the vibrating straw-rack in a thresher, its rock-shaft and supporting-arms; of a horizontal helical spring, a vertical lever connected at its upper end to said spring, a horizontal pitman connected to the lower end of said lever, and a crank-arm rigidly fixed to the rock-shaft and connected to the said pitman substantially as described.

682,517. ADJUSTABLE SHELVING. OTTO R. BARNEMANN, Gera, Mich. Filed Feb. 27, 1901. Serial No. 49,195. (No model.)



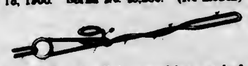
Claim.—1. The combination with a series of grooved uprights; of an endless series of shelves each provided with shelf-balancing slides projecting from the ends of the shelves and movable in the grooves, upper and lower sets of guide-strips horizontally disposed, and arranged in spaced parallel relation and adapted to engage the upper and lower sides of the ends of the shelves as they move in a horizontal direction, and means for raising and lowering the shelves.

2. The combination with grooved standards, and upper and lower sets of horizontal guide-strips, arranged in spaced parallel relation and adapted to engage the upper and lower sides of the shelves adjacent to their edges, of an endless series of shelves provided with shelf-balancing slides projecting from the ends of the shelves and each comprising a shank and a vertically-disposed portion working in said grooves, endless belts connecting the shelves, and operating means for said belts or chains embodying an operating-shaft and a detachable crank fitted thereto.

3. The combination with an endless series of movable shelves arranged to move up and down in parallel planes; of a stand or casing in which the shelves are mounted, means for preventing the shelves from tipping in their upward and downward movements, means for operating the shelves and horizontally-disposed guide-strips at the top and bottom of the stand or casing, said strips being arranged in spaced parallel relation and adapted to respectively engage the upper and lower sides of the shelves adjacent to their edges.

4. The combination with a stand or casing, an endless series of shelves movable up and down therein, and operating means for the shelves; of a series of pivotally-mounted shelf supports or catches, and a common operating device connected with said catches for simultaneously tripping them.

682,518. CLOTHES-LINE. JAMES R. BAILEY, Montebello, Canada. Filed Dec. 18, 1900. Serial No. 40,289. (No model.)



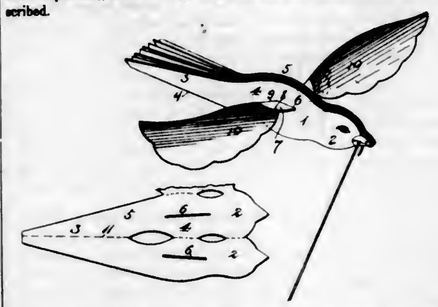
Claim.—1. A clothes-line link comprising a strip formed at one end with a rebent twisted portion, a loop, a stem, and a head, and at the other end with a spring-coil and a loop surrounding the stem beneath the head.

2. In a clothes-line, a combined link and spring-clamp, formed in a single piece of metal and comprising a main strip having a loop at one end, a stem projecting from said strip, a head thereto, a coil at the opposite end of the strip, and a spring-arm thereto inclosing the stem and normally bearing upon the head.

682,519. TOY BIRD. CASSIUS M. BARTHOLOMEW, Nelsonville, Ohio. Filed July 23, 1901. Serial No. 69,412. (No model.)

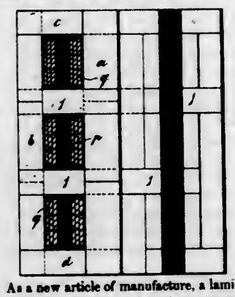
Claim.—1. In a toy bird, the combination of a plurality of flexible members secured together and forming a body having a spreading tail, and wings hinged to said body, substantially as described.

2. In a toy bird, the combination of a plurality of flexible members secured together and extending parallel to form a body and diverging to form a spreading tail, and wings hinged to said body, substantially as described.



3. In a toy bird, the combination of flexible members formed in pairs of an integral sheet of paper and connected along the tail, said members being secured together parallel to each other to form a head and body and diverging to form a tail, and wings leaning and pointing forward, hinged to said body, substantially as described.

682,520. ELECTRICAL TRANSFORMER. ARTHUR F. BERRY, London, England. Filed Jan. 23, 1901. Serial No. 44,429. (No model.)



Claim.—1. As a new article of manufacture, a laminated iron block made of sector or approximately sector shape in cross-section and adapted to form part of a transformer-core, said block being composed of a number of parallel strips of sheet-iron made of different widths and held firmly together, substantially as described.

2. As a new article of manufacture, a laminated iron block adapted to form part of a transformer-core and composed of strips of sheet-iron of different widths held firmly against each other with the widest strip or strips in the center and with the strips on each side of such widest strip or strips of successively less width, substantially as described.

3. As a new article of manufacture, a laminated iron block adapted to form part of a transformer core and composed of groups of strips of sheet-iron placed side by side and held together, the groups being of different widths with the strips in each group of the same width.

4. As a new article of manufacture, a laminated iron block adapted to form part of a transformer-core and composed of strips of sheet-iron, said block comprising a central group of strips of iron having the greater width and on each side thereof a number of other groups of strips of iron of successively less width but with the strips in each group of the same width, substantially as described.

5. As a new article of manufacture, a laminated iron block adapted to form part of a transformer-core and composed of groups of strips of sheet-iron placed side by side and held together, the groups being of different widths with the strips in each group of the same width and with a layer of non-magnetic material between adjacent groups.

6. As a new article of manufacture, a laminated iron block adapted to form part of a transformer-core and composed of long straight parallel strips of sheet-iron of different widths held side by side with the ends of alternate strips arranged to overlap the corresponding ends of the intermediate strips.

7. As a new article of manufacture, a laminated iron block adapted to form part of a transformer-core and composed of groups of straight parallel strips of sheet-iron, the widest group or groups being arranged centrally with the groups on each side thereof of successively less width, the strips in each group being of the same width, and the ends of alternate strips being arranged to overlap the corresponding ends of the intermediate strips.

8. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core the central portion of which, extending through the center of said windings, is composed of strips of sheet-iron arranged in sets, each set being composed of strips of different widths arranged side by side, substantially as described.

9. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core the central portion of which, extending through the center of said windings, is composed of strips of sheet-iron arranged in sets, each set being composed of strips of different widths arranged side by side, the widest strips being arranged at the center of the set and the strips on each side of the widest being of successively less width so as to form a sector or approximately sector shaped set of strips.

10. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core the central portion of which, extending through the center of said windings, is composed of strips of sheet-iron arranged in sets, each set being composed of groups of strips of different widths with the strips in each group of the same width.

11. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core the central portion of which, extending through the center of said windings, is composed of strips of sheet-iron arranged in sets, each set being composed of groups of strips of different widths with the strips in each group of the same width, the widest group or groups being arranged at the center of the set and the groups of successively less width being arranged at the opposite sides of the center group or groups, substantially as described.

12. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core surrounding the said windings, and the central portion of which extends through the windings and is composed of a number of sector-like blocks or bundles of strips of iron, the strips in each block or bundle being arranged in groups of different widths, arranged side by side, and each composed of strips of the same width, substantially as described.

13. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core surrounding the said windings, and the central portion of which extends through the windings and is composed of a number of sector-like blocks arranged around a common center and each composed of a central group of strips of iron, and on each side thereof, a number of groups of strips of iron of successively less width, the strips of iron in each group being of the same width, the said blocks being arranged so that holes or passages will be formed between their adjacent sides and between their inner ends, substantially as described.

14. In an electrical transformer, the combination with the primary and secondary windings, of a laminated iron core encircling said windings and comprising a central portion composed of straight strips of sheet-iron extending through the center of the windings and arranged to form a number of sector-like sets of strips that are arranged side by side and are of different widths, and top, bottom and outer vertical sets of straight strips that are interlocked with each other and with the central sets of strips, substantially as described.

15. In an electrical transformer, a transformer-core comprising a number of iron plates extending radially from the central portion of the core and each comprising laminated inner, outer, top and bottom members with one or more laminated intermediate members arranged to form two or more magnetic circuits, substantially as described for the purpose specified.

16. An electric transformer comprising two or more sets of primary and secondary windings, and a laminated radially-arranged iron core common to all the sets of windings but separately surrounding each set of windings so as to form an independent magnetic circuit for each set of windings.

17. An electric transformer comprising two or more sets of primary and secondary windings, a core built up of strips of iron arranged to form laminated plates extending radially from a center and surrounding each of said sets of windings and forming two or more magnetic circuits therefor.

18. An electric transformer comprising an iron core composed of iron plates extending radially from the central portion of said core and each comprising laminated inner, outer, top and bottom members with one or more laminated intermediate horizontal members, said members being arranged to form two or more openings through each plate, and primary and secondary windings extending through each of said openings, substantially as described for the purpose specified.

19. An electric transformer having primary and secondary windings arranged one inside the other and one of which is formed at intervals with bends arranged to form with the adjacent winding, a number of air-passages that extend in a direction at right angles to the plane of the windings, substantially as described for the purpose specified.

20. An electric transformer having primary and secondary windings arranged one inside the other and one of which is arranged between the others, the outer windings being each bent away from the center winding at intervals so as to form between the adjacent windings a number of air-passages that extend in a direction at right angles to the plane of winding, substantially as described.

21. An electric transformer having concentrically-arranged primary and secondary windings the winding on each side of the center one being of corrugated shape and arranged to bear against said center winding at intervals so as to form therewith a number of air-passages that are parallel to the axis of the windings, substantially as described.

22. An electric transformer comprising concentrically-arranged primary and secondary windings composed of an outer winding, an intermediate winding and an inner winding, and laminated iron plates surrounding said windings, the inner winding at points between said plates being bent away from said intermediate winding, substantially as described.

23. An electric transformer comprising concentrically-arranged primary and secondary windings composed of an outer winding, an intermediate winding and an inner winding, and laminated iron plates surrounding said windings, the outer winding at points between said plates being bent away from said intermediate winding, substantially as described.

24. An electric transformer comprising concentrically-arranged primary and secondary windings composed of an outer winding, an intermediate winding and an inner winding, and laminated iron plates surrounding said windings, the inner and outer windings being each bent away from said intermediate windings at points between said plates so as to form air-passages with said intermediate winding at its inner and outer surfaces, substantially as described for the purpose specified.

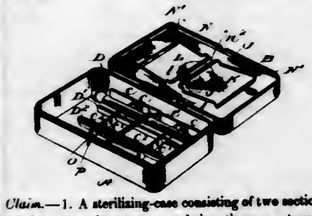
682,521. **PROCESS OF GENERATING ACETYLENE GAS.** HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed Sept. 17, 1898. Renewed Jan. 19, 1901. Serial No. 43,963. (No specimens.)

Claim.—1. The process of producing hydrogen carbids which consists in performing a double reaction between an extraneously-heated carbid and a dry hydrogen acid the hydrogen of which has greater affinity for the carbon of the carbid than it has for the acid constituent with which it is combined in the presence of said carbid.

2. The process of producing hydrogen carbids which consists in subjecting metallic carbid to the action of hydrogen sulfid or its described equivalent, and simultaneously heating the mixture by extraneous heat.

3. The process of producing hydrogen carbids which consists in subjecting an extraneously-heated metallic carbid to the actions of an acid gas or its described equivalent.

682,522. **STERILIZER-CASE.** WILLIAM BOSKEL and JULIUS BOSKEL, Philadelphia, Pa. Filed May 27, 1901. Serial No. 63,109. (No model.)



Claim.—1. A sterilizing-case consisting of two sections one of which is adapted to be used as a stove and the other as a tray, these two sections being detachably connected together substantially as set forth.

2. A sterilizing-case consisting of two sections hinged together by a removable pintle, the section A being adapted to be used as a tray and the section B having an alcohol-tank formed therein and being provided with folding supports for section A and an opening and wick, in order that the device may be transformed at will from an instrument-holding case to a sterilizing stove and tray substantially as set forth.

3. The section B provided with an internal plate J having a screw-neck and a wick formed therein and folding supports N raised thereon which are provided with elbows N' serving as braces therefor, in combination with section A adapted to rest on said supports and serve as a tray, and a detachable connection between the sections, allowing them to be folded together, when connected, to close the case, substantially as set forth.

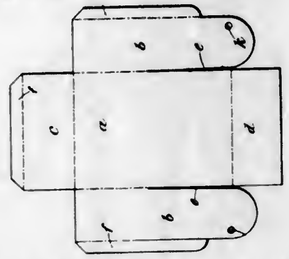
682,528. **BLUE DYE AND PROCESS OF MAKING SAME.** RUDOLF BOSZI, Mannheim, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Filed Feb. 26, 1901. Serial No. 48,798. (No specimens.)

Claim.—1. The process of producing a new blue dye by melting a hereinbefore-defined beta-amido-anthraquinone substance with caustic potash and dissolving the melt in water in the presence of air, substantially as described.

2. The process of producing a new blue dye by melting a hereinbefore-defined beta-amido-anthraquinone substance with caustic potash substantially as described.

3. The new blue dye which can be obtained by melting beta-amido-anthraquinone with caustic potash and dissolving the melt in water in the presence of air which in its unreduced form is a blue substance insoluble in water and caustic-soda solution, whose solution in concentrated sulfuric acid is yellow-brown, which can be converted by oxidation with chromic acid into a yellow substance which substance is reconverted into the original blue coloring-matter on suitable reduction, and which in its reduced form is soluble in caustic-soda solution, which solution dyes textile fiber, especially cotton, directly-blue shades, substantially as described.

682,524. **BOX.** JUAN R. BOSSENBARSON, Buenos Ayres, Argentina. Filed May 27, 1901. Serial No. 63,094. (No model.)



Claim.—1. A box having its bottom, sides and ends formed from a single blank, the said bottom being disconnected from the sides for a portion of its length to constitute a free tongue-like portion, the end of which is curved inward and upward, a cover pivoted to the sides of the box, and an interlocking connection between the cover and tongue-like portion, whereby an inward pressure on the latter will cause the cover to open.

2. A box having its bottom, sides and ends formed from a single blank, the said bottom being disconnected from the sides for a portion of its length to provide a yielding tongue-like portion, the end of which is curved inward and upward, and a cover pivoted to the sides of the box and having its pivotal end bent to form a channel into which the free end of the tongue-like portion fits, the arrangement being such that an inward pressure on the tongue-like portion will cause an opening of the cover.

3. A box having its bottom disconnected from the sides for a portion of its length to provide a yielding tongue-like portion, the free end of which is curved inward and upward, and a cover pivoted to the sides of the box and having its pivotal end interlocked with the free end of the tongue-like portion, the arrangement being such that an inward pressure on said tongue-like portion will cause an opening of the cover.

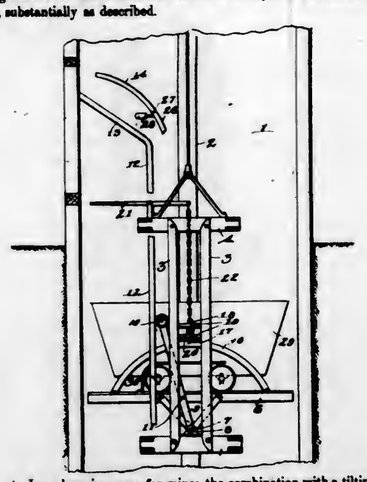
4. A box having its bottom *a* disconnected from the sides for a portion of its length to provide a yielding tongue-like portion, said tongue-like portion being curved upward at its rear end *d* to form an end for the box and having its free end *h* bent upward, and a cover *g* pivoted to the sides of the box, said cover having a downwardly-curved portion *g'* and a channel *i* at its pivotal end, the said end *h* of the tongue fitting freely into said channel, the parts being constructed and operating substantially as described.

682,525. **DUMPING-CAGE FOR MINES.** BARCLAY BRANTINGHAM, Hocking, Iowa. Filed Dec. 18, 1900. Serial No. 40,308. (No model.)

Claim.—1. In a dumping-cage for mines, the combination with a tilting platform, of guide-rails having each an inclined straight portion at its upper end, a curved rail located above each of said inclined portions and a wheel carried by said platform at each side thereof, and located between said guide-rail and one of the shoes of the cage and adapted to engage the under side of said curved rail in the upward movement of the cage, substantially as described.

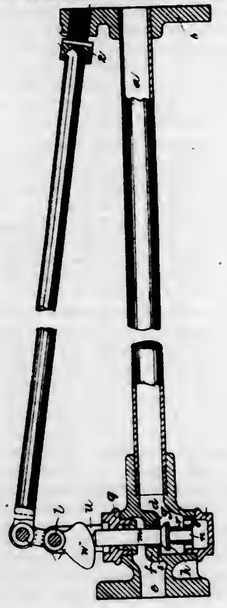
2. In a dumping-cage for mines, the combination with a tilting platform, of guide-rails having each an outwardly-extending portion at its upper end, a curved rail located above each of said outwardly-extending portions but shorter than the latter, whereby to provide an opening as described, a yielding end piece mounted on the opposite end of each of said curved rails, and a wheel carried by said platform at each side thereof and located between said guide-rail and one of the shoes of the cage and adapted to engage the under side of said curved rail in the upward movement of the cage, substantially as described.

3. In a dumping-cage for mines, the combination with a tilting platform, centrally pivoted on the cage, a shaft mounted in bearings on said cage constituting the pivotal bearing of the platform, of guide-rails having each an inclined portion at its upper end, a curved rail located above each of said inclined portions, an arm secured at one end to each end of said shaft and intermediate its ends being secured to said platform, and a wheel mounted on the opposite end of each of said arms and located between said guide-rail and one of the shoes of the cage and adapted to engage the under side of said curved rail in the upward movement of the cage, substantially as described.



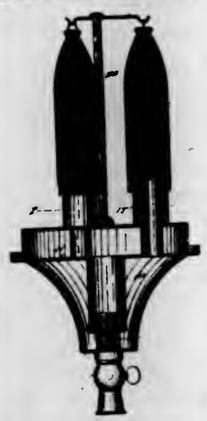
4. In a dumping-cage for mines, the combination with a tilting platform and means for automatically tilting the same, of a curved latch-rail mounted on the platform and having a recess, a spring-controlled latch mounted on the cage and engaging in said recess, a lever pivotally mounted on the cage, a chain connecting one end of said lever with said latch, and a stop in the shaft of the mine located in the path of movement of the opposite end of said lever, substantially as described.

682,526. **STEAM-TRAP.** ROBERT G. BROOKE, Macclesfield, England. Filed Feb. 9, 1901. Serial No. 46,673. (No model.)



Claim.—An expansion steam-trap comprising an expansion-tube having a valve-box, a valve in said box having a projecting stem, a lever intermediately pivoted at a point substantially in a line with said stem, a rigid rod connected with one end of said lever and the opposite end of the lever provided with a cam-surface engaging said projecting valve-stem, substantially as described.

682,527. INCANDESCENT BURNER. JAMES J. BYRNES, Brooklyn, N. Y. Filed May 21, 1901. Serial No. 61,905. (No model.)



Claim.—1. In incandescent burners, a body-casing having an apertured bottom, a partition dividing the body-casing into an upper gas-receiving chamber and a lower air-receiving chamber, a mixing-tube within the air-receiving chamber, the bottom of which mixing-tube is above the perforations in the body-casing, the top extending through the said partition, a gas-supply pipe passed through the body-casing and into the mixing-tube, a burner-tube connected with the upper or gas-receiving chamber of the body-casing, and an air-supply tube open at both ends, extending the length of the burner-tube and through the partition, for the purpose described.

2. In incandescent burners, the combination, with a body provided with an apertured bottom for the admission of air, a gas-supply pipe leading into the said body, a partition at the upper portion of the body, a mixing-tube within the body, adapted for the reception of gas and air, which mixing-tube passes through the said partition, of a burner-tube located upon the body in communication with the space above the partition, an auxiliary tube within the burner-tube, of less diameter than the burner-tube, which auxiliary tube extends to the top of the burner-tube and through the said partition, said auxiliary tube being open at the top and at the bottom, substantially as described.

682,528. ORE-SAMPLING MACHINE. ALBERT C. CALKINS, Los Angeles, Cal., assignor to Frederick W. Braun, same place. Filed Nov. 19, 1900. Serial No. 36,990. (No model.)

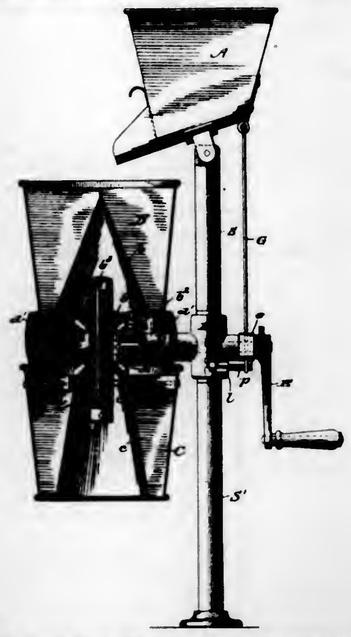
Claim.—1. In a mixing and subdividing apparatus, the combination of a bucket having a series of compartments disposed around the center a portion of which are open at the bottom, and gears for rotating the bucket located in the vertical center of the bucket and inside the circle of the discharge-openings substantially as described.

2. In a mixing and subdividing apparatus, the combination of two buckets arranged one above the other and having a series of compartments disposed in a circle about the center a portion of which are open at the bottom, and double-acting gears for rotating the buckets in opposite directions, said gears being located centrally inside the circle of the discharge-openings and between the buckets substantially as described.

3. A mixing and subdividing apparatus comprising two buckets or chambers having radial partitions forming compartments a part of which are open at the bottom and a part closed, the buckets being arranged one above the other and discharging from one into the other, and means for rotating the buckets in opposite direction substantially as described.

4. A mixing and subdividing apparatus, comprising two buckets having radial partitions forming chambers with openings at the bottom, and a double-acting gear arranged between and in central relation to the two buckets to rotate them in opposite directions substantially as described.

5. A mixing and subdividing apparatus comprising a standard made in two sections, a coupling connecting the same and formed with a supporting-bracket frame, double-acting gears arranged in said frame, and two mixing and dividing buckets arranged one above and the other below said gears and rotating in opposite directions substantially as described.



6. In a mixing and subdividing apparatus, the combination with an upper and lower bucket having discharge-openings at the bottom, double-acting gears arranged between them for rotating them in opposite directions and a stationary projecting flange extending above and outside the lower edge of the upper bucket, and arranged inside the outer wall of the lower bucket, substantially as described.

7. In a mixing and subdividing apparatus, the combination of two reversely-rotating buckets having openings in the bottom, reversely-operating gears for the same, an oscillating hopper arranged above the buckets, a shaft for rotating the gears, and a cam and rod for imparting motion from the shaft to the oscillating hopper substantially as described.

8. In a mixing and subdividing apparatus, the combination of a frame D supported at one side and having a central vertical shaft d', in combination with a bevel-gear b' with closed hub b^2 and pendent covering-flange b^3, and a surmounting bucket having radial partitions and bottom, openings and a driving gear-wheel housed and covered by the flange b^3 substantially as described.

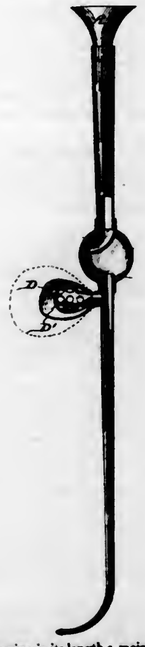
9. In a mixing and subdividing apparatus, the combination of a frame D supported at one side and having a central vertical shaft d', a bucket having a flanged gear-wheel attached to its lower side and mounted on the upper end of the shaft, a second bucket with gear-wheel attached to the upper part of the same and sustained upon the lower end of said shaft, and an intermediate driving-gear for rotating the two buckets in opposite directions substantially as described.

10. In a mixing and subdividing apparatus, the combination with a revolving bucket, and its gears and supporting-frame; of a hollow vertical standard with coupling F a horizontal drive-shaft passing through said coupling and having a cam, a rod operated upon by said cam, and an oscillating hopper connected to the rod substantially as described.

11. In a mixing and subdividing apparatus, the combination with the rotary buckets, and the crank-shaft having cam e; of the coupling-section F having stud l with slot in its end, the pin p, the bent rod G jointed to the pin and extending horizontally past the cam to be acted upon by the same, and thence extended upwardly, and an oscillating hopper connected to the upper end of said rod, substantially as described.

682,529. AUTOMATIC BLOWPIPE. ALBERT C. CALKINS, Los Angeles, Cal., assignor to Frederick W. Braun, same place. Filed Dec. 22, 1900. Serial No. 40,758. (No model.)

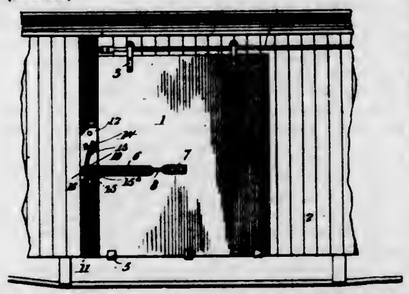
Claim.—1. In a blowpipe, the combination with the body-tube; of a tapering and detachable mouthpiece having a flexible valve-diaphragm stretched across its lower end, and a retaining-ring embracing the edges of the diaphragm, the said mouthpiece and its ring and diaphragm being fitted in the end of the body-tube with an extended bearing substantially as described.



2. A blowpipe having in its length a moisture-bulb, the inlet-pipe of which is extended within the same and bent to one side and terminates in a laterally-directed nozzle, to cause the incoming moist-air currents to strike the side wall of the bulb and condense the aqueous vapors substantially as described.

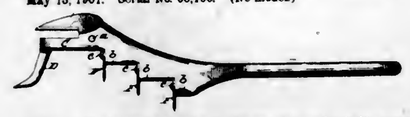
3. A blowpipe having in its length a laterally-projecting nipple terminating in a perforated bulb and having tightly fitted around the nipple an elastic sheath substantially as and for the purpose described.

682,530. CAR-DOOR FASTENER. JOHN L. CLARK and FRANK G. HAMILTON, Stevens Point, Wis. Filed Feb. 2, 1901. Serial No. 45,777. (No model.)



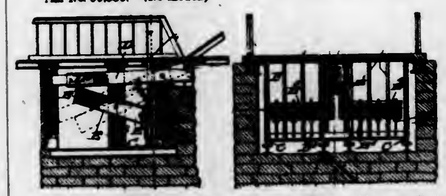
Claim.—A car-door fastener comprising a flat metallic hasp or bar secured to the car-door and adapted to lie flush with the outer surface thereof and bold the same flush with the locking-plate, a locking-plate secured on the jamb of the door and arranged flush with the surface thereof, and provided with a segmental curved slot formed with an enlarged portion at its upper end, the woodwork of the jamb beneath the plate being cut away and left open to form a discharge for the dirt which would tend to collect in the slot, a hook portion formed on the free end of the hasp or bar, and extending inward and backward upon the same for engaging the segmental slot, an apertured lug on the end of said bar adapted to be brought into coincidence with a corresponding apertured lug formed on the edge of the locking-plate at the lower edge of the slot formed therein, the lower edge of said slot limiting the downward movement of the hasp, and causing the said apertures to register when the hasp is in its lowest position, said apertures being designed to receive a seal or other locking means.

682,531. CAN-OPENER. NOE CLOUTIER, Attleboro, Mass. Filed May 13, 1901. Serial No. 60,106. (No model.)



Claim.—A can-opener having a fulcrum-plate and a knife or cutter connected thereto for opening square or flat-sided cans, and an axial pivot-point and a plurality of knives or cutters disposed on different vertical and horizontal planes, substantially as and for the purpose specified.

682,532. BRIDGE-GATE. JAMES CUMMINGS, Victor, Colo., assignor of one-half to James M. Hally, same place. Filed Dec. 11, 1900. Serial No. 39,539. (No model.)



Claim.—1. The combination of the vertically-movable gate, the lever connected with said gate, and the intermediate lever overlying said first lever and arranged at one end to operate thereon and at its other end for operation by the bridge, substantially as set forth.

2. The combination substantially as herein described of the gate having a cross-bar and tubes secured thereto, upright guide-rods on which said tubes slide, a weighted lever arranged at one end for operation and having its other end weighted, and a counter-lever connected at one end with the gate and arranged at its other end to be operated upon by the weighted end of the first-named lever substantially as described.

3. The combination in an automatic gate for a bridge-approach, of the upright guide-rods, the gate having tubes sliding on said guide-rods, and means for operating the gate substantially as described.

4. The combination of the gate, upright guides therefor the weighted lever, the counter-lever arranged at one end for operation by the weighted lever and provided at its other end with a cross-head, and links connecting the cross-head with the gate substantially as set forth.

5. The combination of the gate having upright tubes and rods on which they slide, connections between said tubes at their lower ends, the counter-lever having a cross-head and links connecting the same with the cross connection between the tubes of the gate, the weighted lever arranged at one end to operate the counter-lever, and the bridge arranged to operate upon the opposite end of the weighted lever substantially as set forth.

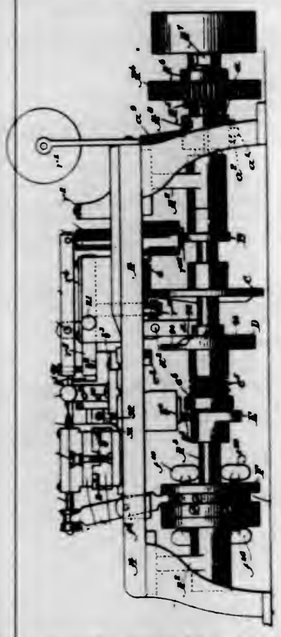
6. The combination with a vertically-movable gate of the counter-lever having a cross-head adjacent to the gate, and a plurality of links between said cross-head and the gate whereby the lever exerts a straight upward pull upon the gate substantially as set forth.

682,533. MACHINE FOR INSERTING LATCH-PIVOTS INTO LATCH-NEEDLES. ARTHUR CURRIER and AVERY B. DODGE, Manchester, N. H., assignors to Dodge Needle Company, same place. Filed Dec. 18, 1897. Serial No. 662,382. (No model.)

Claim.—1. In a machine of the class described, a stationary but adjustable jaw, an opposed movable jaw, one of said jaws having at one edge a shouldered part to receive upon it and support the body of the needle, a lever carrying one of said jaws; a rotating shaft, a cam carried by said shaft loosely and adapted to rotate with said shaft and to slide thereon; combined with a spring to keep said cam in its normal position, a lever actuated by said cam, and means between said lever and the lever carrying one of said jaws, said spring enabling said cam to yield at desired times and prevent injury to the operative parts of the machine, substantially as described.

2. In a machine of the class described, a clamp to hold a needle, a lever to force said clamp on the needle, a rotatable shaft provided with

a screw-thread, a collar adjustable on said screw-thread, and a cam splined loosely on said shaft and acting against said lever, and combined with a spring interposed between the hub of said cam and said collar, the rotation of said collar on said screw-thread adjusting said spring that it may yield at the desired times and prevent injury to the operative parts of the machine.



3. In a machine of the class described, the following instrumentalities, viz: means to clamp the needle; wire-feeding mechanism; a wire-cutting member into which the end of the wire is fed; a pivot-presenter, it also receiving the end of the wire, said pivot-presenter also acting as a wire-cutter; and means for moving said pivot-presenter to not only sever the wire to form a pivot but to place the said wire-presenter and its pivot in line with the hole in the body of the needle, substantially as described.

4. In a machine of the class described, the following instrumentalities, viz: means to clamp the needle; wire-feeding mechanism; a wire-cutting member into which the end of the wire is fed; a pivot-presenter, it also receiving the end of the wire, said pivot-presenter also acting as a wire-cutter, and means for moving said pivot-presenter to sever the wire to form a pivot and place the said wire-presenter and its pivot in line with the hole in the body of the needle; and a pivot-inserter carried by and movable with the said pivot-presenter, substantially as described.

5. In a machine of the class described, the following instrumentalities, viz: means to clamp the needle; wire-feeding mechanism; a wire-cutting member into which the end of the wire is fed; a pivot-presenter, it receiving the end of the wire, means for moving said pivot-presenter to sever the wire to form a pivot and place it with the pivot in line with the hole in the body of the needle; a pivot-inserter carried by and movable with the said pivot-presenter; a block, and means to move it to act upon the said pivot-inserter and cause it to push the pivot from the said presenter into the hole in the body of the needle and its contained latch, substantially as described.

6. In a machine of the class described, jaws to clamp the body of a needle with its latch inserted therein; a hole-finder to position the said latch correctly in the body of the needle; means to operate said hole-finder; a pivot-presenter; and means to move it to present a pivot opposite the hole in the said body; and a pivot-inserter to act upon said pivot and force it from said pivot-presenter into the hole in the body of said needle and the latch, substantially as described.

7. In a machine of the class described, jaws to clamp the body of the needle with its latch in position; a pivot-presenter; means to move it into position to place its pivot opposite the hole in the body of the needle; a pivot-inserter; a block to act on said pivot-inserter; and a carrier to act upon said block to move it, substantially as described.

8. In a machine of the class described, jaws to clamp the body of the needle with its latch in position; a pivot-presenter; means to move it into position to place its pivots opposite the hole in the body of the needle; a pivot-inserter; a slotted block to act on said pivot-inserter; and the carrier to act upon said block to move it, whereby the hole-finder carrier is enabled at a second operation to aid in inserting the pivot, substantially as described.

9. In a machine of the class described, jaws to clamp a needle having a hole made in it for the reception of a pivot, a stop for the end of the needle, a device to aid in holding in a slot of the needle the latch to be pivoted therein, a hole-finder, and means to actuate it to enter the hole in the needle and also the hole in the latch, combined with a stripper acting against said needle to prevent any lateral movement thereof while the hole-finder is being drawn out of the hole in the needle and the latch, substantially as described.

10. In a machine of the class described, jaws to hold the body of the needle, one of said jaws having a shoulder; combined with a spring carried by one of said jaws to produce friction upon the latch of the needle when inserted in the groove or slot in the body of the needle, substantially as described.

11. In a machine of the class described, a jaw c', means to adjust said jaw upon its support, an opposed jaw having a groove at one edge in which may be placed the needle to be treated, a lever carrying said jaw, combined with a spring carried by the said stationary yet adjustable jaw, said spring acting upon the body of the needle to keep the same in the groove of the movable jaw, and means to move said movable jaw away from the fixed jaw, the said spring as the movable jaw is retracted from under the said needle serving to depress the needle and throw the same out from between the said jaws, substantially as described.

12. In a machine of the class described, jaws to hold the body of the needle drilled for the reception of a pivot; wire-feeding mechanism; a pivot-presenter; means to move it to place the pivot carried by it into position opposite the hole in the body of the needle; and means to insert said pivot automatically into the said hole, substantially as described.

13. In a machine of the class described, wire-feeding mechanism, a wire-cutter b', a second coöperating wire-cutter and pivot-presenter, and a pivot-inserter carried by the said wire-cutter and pivot-presenter, combined with means to move said wire-cutter to form a pivot and with it said inserter, and means to move said inserter longitudinally in said wire-cutter and pivot-presenter to drive said pivot therefrom, substantially as described.

14. In a machine of the class described, a fixed and a movable jaw, a lever to carry one of said jaws, and a spring to normally separate said jaws, combined with a lever, a yielding cam to actuate said lever, and connections between this latter lever and the lever carrying the said jaw, substantially as described.

15. In a machine of the class described, a sliding post having a hole to receive a wire-cutter, and a pivot-inserter also rising and falling with said wire-cutter, combined with a block also movable with said post, and means for moving said block to cause the pivot-inserter to drive said pivot from the said wire-cutter, substantially as described.

16. In a machine of the class described, the following instrumentalities, viz: a clamp composed of a stationary jaw, and a movable jaw having a recess to receive and hold the needle to be treated, a lever to carry said movable jaw, a wire-cutting member consisting of a block having a hole to receive the wire, a movable block carrying said cutting member, a stationary, opposed cutting member as b', wire-feeding mechanism to move the wire through a hole in said stationary member and into the hole in the said movable member, the movement of the said movable member cutting off from the end of the wire a length thereof sufficient to form a pivot, and means to enter said movable cutting member and drive the pivot therefrom into the drilled hole of the needle when the said block is raised, putting the movable cutting member with its pivot contained therein opposite the hole in said drilled needle, substantially as described.

17. A clamp to grasp the body of the needle, a support for the rear side of the needle where it is provided with a drilled hole, combined with a latch-retaining device located in a plane just above the level of the top of said needle, and adapted to act frictionally against the latch, the end of which has been put into a slot of the said needle, said retaining device holding said latch in place in the needle, that it may receive the pivot to be inserted through the needle and the latch.

18. In a machine of the class described, a plunger having a wire-cutter to cut a pivot from the end of the wire, said plunger being provided with an adjustable foot; combined with a cam acting on said foot, and a pivot-inserter carried by said plunger, the adjustment of said foot determining the position to be occupied by the pivot under the action of said cam, substantially as described.

19. In a machine of the class described, a plunger having a wire-cutter to cut a pivot from the end of a wire, said plunger being provided with an adjustable foot, combined with a cam acting on said foot, and a pivot-inserter carried by said plunger, combined with an adjusting device to determine the position of the said wire-cutter when the plunger is in its lowest position or down, substantially as described.

20. In a machine of the class described, the following instrumentalities, viz: a clamp to clamp a drilled needle in position to receive a pivot, wire-feeding mechanism, wire-cutting mechanism coöperating with said wire to cut the same into pivot lengths, a pivot-inserter moving with one member of the wire-cutting mechanism, and means to actuate said pivot-inserter to put said pivot into the drilled hole of the needle and through the latch held in position in said needle, substantially as described.

21. In a machine of the class described, a hole-finder, means for operating the same to cause it to enter the alined holes in a needle and a latch, a pivot-inserter, and separate devices for holding the needle and latch in proper relative position during a certain period of operation of the machine.

22. In a machine of the class specified, a hole-finder, means for operating the same to cause it to enter the holes of a needle and its latch, a pivot-inserter operable independently of the hole-finder, and separate devices for holding the needle and the latch in proper relation during a certain period of operation.

23. In a machine of the class specified, a hole-finder, means for operating the same to cause it to enter the holes in a needle and its latch, a pivot-inserter operable independent of the hole-finder, and means for holding the needle and its latch in proper relative position during a certain period of operation.

24. In a machine for inserting pivots through previously-formed holes in needles and their latches, a stop located to be directly engaged by the needle, and a hole-finder mounted to move into the holes of the needle and its latch.

25. In a machine for inserting pivots through previously-formed holes in needles and their latches, a standard, a screw carried by the standard and disposed longitudinally of the line of feed of the needles and constituting an adjustable stop and located to be directly engaged by a needle, a hole-finder, and means for operating the hole-finder to cause it to enter the holes in the needles and latches.

26. In a machine for inserting pivots through previously-formed holes in needles and their latches, a stop located to be directly engaged by the needle, means for clamping the needle with one end in contact with said stop, means for holding the latch in proper relative position to the needle, and a hole-finder located to enter the holes in the needle and latch.

682,534. FILLING-CARRIER FOR LOOM-SHUTTLES. GEORGE O. DRAPER, Hopedale, Mass., assignor to Draper Company, same place. Filed Mar. 23, 1901. Serial No. 53,305. (No model.)



Claim.—1. A filling-carrier for loom-shuttles, and an elongated, split ferrule or band of resilient magnetizable material mounted thereupon, the opposed separated edges of the ferrule being arranged to prevent the formation of a continuous axial opening from one to the other end of the ferrule.

2. A filling-carrier for loom-shuttles, having a head and a body, and an annular elongated contact member mounted upon the body adjacent the head and split from one to the other end, the opposed edges being irregularly shaped to prevent the formation of a continuous opening from end to end of the ferrule.

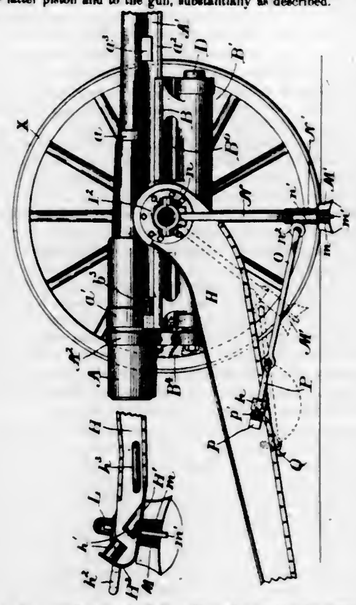
682,535. RECOIL-MOUNT FOR ARTILLERY. WILLIAM H. DRIGGS, U. S. Navy. Filed Feb. 16, 1901. Serial No. 47,696. (No model.)

Claim.—1. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle but held against turning thereon, and provided with journal-bearings for the cradle, a cradle provided with hollow trunnions inclosing said axle and journaled in said bearings in the trail, a recoil-check carried by said cradle below said axle and connected to the gun, and a sleeve mounted on said cradle and adapted to slide therein, and rigidly secured to the gun, substantially as described.

2. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle but held against turning thereon, and provided with journal-bearings for the cradle, a cradle provided with hollow trunnions inclosing said axle and journaled in said bearings in the trail, a spring-cylinder carried by said cradle below said axle, a recoil-cylinder of smaller diameter also carried by said cradle and provided with ports opening into said spring-cylinder, a piston and spring in said spring-cylinder, a piston in the recoil-cylinder, and a piston-rod connected to the latter piston and to the gun, substantially as described.

3. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle but held against turning thereon, and provided with hollow trunnions inclosing said axle and journaled in said bearings in the trail, a spring-cylinder carried by said cradle below said axle, a recoil-cylinder of smaller diameter also carried by said cradle and provided with ports opening into said spring-cylinder, a piston and spring in said spring-cylinder, a piston in the recoil-cylinder, and a piston-rod connected to the latter piston and to the gun, substantially as described.

4. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle but held against turning thereon, and provided with journal-bearings for the cradle, a cradle provided with hollow trunnions inclosing said axle and journaled in said bearings in the trail, a spring-cylinder carried by said cradle below said axle, a recoil-check carried by said cradle below said axle and connected to the gun, and a sleeve mounted on said cradle and adapted to slide therein and rigidly secured to the gun, substantially as described.



5. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle but held against turning thereon, and provided with journal-bearings for the cradle, with means for moving said trail laterally on said axle, a cradle provided with hollow trunnions inclosing said axle and journaled in said bearings in the trail, a recoil-check carried by said cradle below said axle and connected to the gun, and a sleeve mounted on said cradle and adapted to slide therein and rigidly secured to the gun, substantially as described.

6. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle but held against turning thereon, and provided with journal-bearings for the cradle, with means for moving said trail laterally on said axle, a cradle provided with hollow trunnions inclosing said axle and journaled in said bearings in the trail, a spring-cylinder carried by said cradle below said axle, a recoil-cylinder mounted in and concentric with said spring-cylinder and provided with one or more ports connecting the two cylinders, an annular piston and a coil-spring in the annular space between said cylinders, a piston in the recoil-cylinder, and a piston-rod connected to the latter piston and to the gun, substantially as described.

7. In a recoil-mount for field-artillery, the combination with an axle of a sleeve rigidly secured to the gun, a trunnioned cradle supporting said sleeve, a spring-cylinder of large diameter carried by said cradle below said axle, with a spring and piston in said cylinder, a recoil-cylinder of smaller diameter carried by said cradle and provided with one or more ports opening into said spring-cylinder, a piston in said recoil-cylinder, and a piston-rod connecting the latter piston and the gun, a sector secured to or integral with said cradle with worm-teeth thereon, and worm-gearing engaging said teeth for elevating and depressing the gun, substantially as described.

8. In a recoil-mount for field-artillery, the combination with an axle of a sleeve rigidly secured to the gun, a trunnioned cradle supporting said sleeve, a spring-cylinder carried by said cradle below said axle, a recoil-cylinder within and concentric with said spring-cylinder and provided with ports opening into said spring-cylinder, an annular piston interposed between said cylinders, a coil-spring mounted in the annular space between said cylinders, a piston in the recoil-cylinder, and a piston-rod connected to the latter piston and to the gun, a sector secured to or integral with said cradle with worm-teeth thereon and worm-gearing engaging said teeth for elevating and depressing the gun, substantially as described.

9. In a recoil-mount for field-artillery, the combination with a guide, an axle of a sleeve rigidly attached to the gun, a trunnioned cradle provided with guideways and supporting said sleeve, a spring-cylinder rigidly secured to said cradle beneath said trunnions, a recoil-cylinder mounted in and concentric with said spring-cylinder with a port or ports opening from said recoil-cylinder into said spring-cylinder, an annular piston, and coil-spring mounted in the annular space between said cylinders, a piston in the recoil-cylinder, a piston-rod rigidly connecting said gun and the latter piston, a sector secured to or integral with said cradle with worm-teeth thereon, and worm-gearing engaging said teeth for elevating and depressing the gun, substantially as described.

10. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle, a cradle provided with hollow trunnions inclosing said axle and journaled in said trail, a sector secured to or integral with said cradle with worm-teeth thereon, and hand-operated worm-gearing mounted in said trail and engaging said sector, a spring-cylinder carried by said cradle below said axle, a recoil-cylinder of smaller diameter also carried by said cradle and provided with ports opening into said spring-cylinder, a piston and spring in said spring-cylinder, a piston in the recoil-cylinder, and a piston-rod connected to the latter piston and to the gun, substantially as described.

11. In a recoil-mount for field-artillery, the combination with an axle and wheels supporting the same, of a trail slidable on said axle, a cradle provided with hollow trunnions inclosing said axle and journaled in said trail, a sector secured to or integral with said cradle with worm-teeth thereon, and hand-operated worm-gearing mounted in said trail and engaging said sector, a spring-cylinder carried by said cradle below said axle, a recoil-cylinder mounted in and concentric with said spring-cylinder and provided with one or more ports connecting the two cylinders, an annular piston and a coil-spring in the annular space between said cylinders, a piston in the recoil-cylinder, and a piston-rod connected to the latter piston and to the gun, substantially as described.

12. A recoil-check for a field-carriage, comprising a substantially vertical pivot-pin secured to the trail, and a spade revolubly mounted on said pin, said spade comprising a central hub, and a plurality of pointed wings projecting therefrom and adapted to bite into the ground, substantially as described.

13. A spade for field-carriages, comprising a perforated hub, and a plurality of sharp-pointed wings projecting radially from said hub and adapted to engage in the ground, substantially as described.

14. In a field-mount for guns, the combination with a trail supported at its forward end on the axle and provided at its rear end with a shoe, and a spade revolubly mounted beneath said shoe, substantially as and for the purpose described.

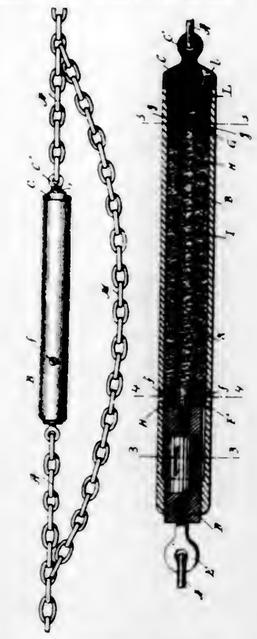
15. In a field-mount for guns, the combination with a trail supported at its forward end on the axle and provided at its rear end with a shoe, flaring out laterally at H′ and turned up rearwardly at H², a pivot-pin mounted in said shoe, and a spade revolubly mounted on said pivot-pin and beneath said shoe, substantially as described.

16. In a field-mount for guns, a revoluble spade provided with a plurality of sharp-pointed radial wings symmetrically disposed about the axis of revolution of the spade and adapted to bite into the ground, substantially as described.

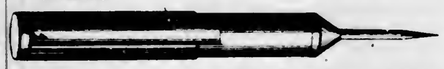
17. In a field-mount for guns, the combination with a trail adapted to slide at its forward end laterally on the axle, of a spade revolubly secured to said trail and provided with a plurality of sharp-pointed radial wings symmetrically disposed about the axis of revolution of the spade, substantially as described.

682,536. HYDRAULIC CABLE SAFETY DEVICE. WILLIAM A. DUNLARDY, Brockton, Mass., assignor of one-half to Ambrose A. Winot, same place. Filed Mar. 23, 1901. Serial No. 53,343. (No model.)

Claim.—The herein-described hydraulic cable safety device, consisting in combination, a cylinder connected in one end to the chain or cable and having a yielding plunger arranged in its opposite end, and connected to the chain or cable, a centrally-perforated block or diaphragm secured within said cylinder, a piston-rod secured in one end to said plunger and in its opposite end to a perforated piston, a compressible spring and a liquid contained in the space between said piston and diaphragm, and a chain M connected to the main chain or cable at opposite ends of the safety device, substantially as and for the purpose set forth.



682,537. SIGNAL-TORCH. FRANK DUTCHER and WARREN DUTCHER, Postoria, Ohio. Filed May 29, 1901. Serial No. 62,357. (No model.)



Claim.—1. A torch, having a frictionally-ignitible device projected externally thereof, and a cap fitted to the torch, housing the ignitible device, and provided with an internal marginal frictional surface extending entirely around the cap and located inwardly from the ignitible device.

2. A torch, having a removable igniting-cap, formed from a single blank, and a fastening device connecting the edges of the blank, and having its inner end projected beyond the cap and formed for engagement with the torch to prevent accidental displacement of the cap.

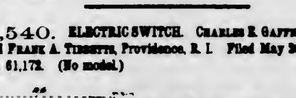
3. A torch, having a removable igniting-cap, formed from a single blank folded into a tube, with its opposite edges folded backwardly and externally, and a fastening device of metal having its opposite edges folded inwardly in opposite directions to embrace the respective edges of the cap-blank, the inner end of the fastening being projected beyond the cap and formed into a pointed spring-finger in frictional engagement with the body of the torch to prevent accidental displacement of the cap.

4. As a new article of manufacture, an igniting-cap for torches, comprising a tubular body which is open at one end and closed at the opposite end, the open end having an internal frictional surface extending entirely around the cap.

5. As a new article of manufacture, an igniting-cap for torches, comprising a tubular body formed from a single blank folded into a tube, the opposite meeting edges of the blank being folded outwardly and backwardly in opposite directions, and a metallic fastening-strip having its opposite longitudinal edges folded inwardly in opposite directions to snugly embrace the respective bent edges of the blank, the strip being extended beyond the open inner end of the cap and notched to form pointed spring fingers or prongs, and the opposite end of the cap being closed, the interior of the cap being provided with a frictional surface.

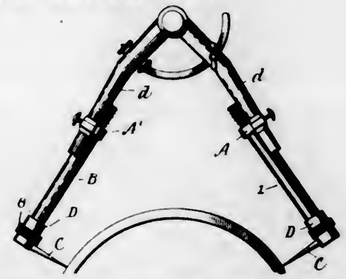
682,538. TRACE-CHAIN. DAVID FOX, Valley Station, Canada, assignor of one-fourth to Geo. J. Mosher, Truro, Nova Scotia, Canada. Filed Feb. 11, 1901. Serial No. 46,955. (No model.)

Claim.—1. In a trace-chain the combination of the tug-chain with the grab-link *a*, and the ring *d*; substantially as and for the purpose herein described and set forth.



2. A chain having attached to one end an endless hook with a contracted and curved neck adapted to clasp and hold on any part of the chain, in combination with a ring adapted to encircle and to be moved over two parts of said chain onto the neck of the endless hook; substantially as, and for the purposes herein specified and set forth.

682,539. COMPASSES. DANIEL FESSLER, Joliet, Ill. Filed May 28, 1901. Serial No. 62,296. (No model.)



Claim.—1. Compasses or dividers provided with a point having a ball-and-socket connection with the leg thereof, to secure a universal adjustment, substantially as set forth.

2. Compasses or dividers provided with a point having a ball-and-socket connection with the leg thereof to secure a universal adjustment, and means for securing the point in adjusted positions, substantially as set forth.

3. Compasses or dividers provided with a point having a spherical head, a socket in the leg to receive said head, and a cap for retaining said head in said socket, the cap being provided with an aperture through which extends the needle-point, substantially as set forth.

4. Compasses or dividers provided with a point having a spherical head, a socket in the leg to receive said head, a cap having screw-threaded connection with said leg to retain said head in said socket, said cap being provided with a central aperture in its lower end, and slots extending radially therefrom, substantially as and for the purposes described.

5. An extension attachment for compasses consisting of a leg having a tapered resilient end screw-threaded to receive a corresponding nut and provided with a recess extending longitudinally within said tapered end, the recess being tapered toward the bottom thereof, and having a smaller, straight recess extending centrally from the bottom thereof, whereby a shoulder 11 is formed between said recesses, substantially as and for the purpose set forth.

682,540. ELECTRIC SWITCH. CHARLES E. GAFFNEY, Pawtucket, and FRANK A. TIBBETTS, Providence, R. I. Filed May 20, 1901. Serial No. 61,172. (No model.)



Claim.—1. The combination with a pivoted tongue having an elongated slot on its lower surface, extending lengthwise of the tongue and located at or near the free or vibratory end thereof, of an eccentric having sliding connection in the said slot, a gear connected with the eccentric, a pair of electromagnets, an armature provided with a segment for operating the gear-wheel which controls the eccentric and means for energizing either magnet to shift the armature in one direction or the other.

2. The combination with a pivoted tongue having a cushioned bearing on its inner surface to reduce the frictional contact of the tongue upon its support, of an eccentric mechanism independent of the cushioned bearing for vibrating the tongue and means for turning the eccentric in one direction or the other.

3. The combination with a pivoted tongue having a cushioned bearing on its inner surface to reduce the frictional contact of the tongue upon its support, of an eccentric mechanism independent of the cushioned bearing for vibrating the tongue, an armature for turning the eccentric, electromagnets for vibrating the armature and means for energizing one magnet or the other.

4. The combination with a gear-wheel having a cap on its upper end which carries an eccentrically-located pin said cap having an annular groove on its lower surface and an oil-cup located beneath it, of an annular flange upon which the cap turns and is supported evenly in its rotary movements, and which makes it dirt and water proof.

5. The combination with two electromagnets and means for energizing one or the other, of an armature under the control of these magnets, said armature having a segment at one end, a gear-wheel meshed with the teeth of said segment said gear-wheel having a cap at its upper end which carries an eccentric-pin, said cap provided with a depending annular groove and an annular flange or track which receives this groove and upon which the cap turns, and a pivoted device vibrated by the eccentric-pin.

6. The combination with a pivoted tongue, of a railroad-switch and electromagnets and armature for shifting said tongue, of a car provided with a trolley having main and secondary trolley-wheels, the latter being spring-actuated, a main conductor-wire, secondary bands or contacts in circuit with the electromagnets and a contact-maker for each of said circuits.

7. The combination with a pivoted tongue, of a railroad-switch and electromagnets and armature for shifting said tongue, of a car provided with a trolley having main and secondary trolley-wheels, the latter being spring-actuated, a main conductor-wire, secondary bands or contacts in circuit with the electromagnets, a contact-maker for each of said circuits, a spring for normally breaking the circuit at the contact-maker and a removable foot-pin for operating the contact-maker.

8. A double-railed, pivoted switch-tongue having a single groove vibrated by armature and electromagnets, and which being without the confines of side rails, cannot become clogged by dirt or other foreign matter, and eccentric mechanism for shifting the switch-tongue.

9. A trolley-arm having a main trolley-wheel and electric connections, said arm provided with oppositely-extending grooved arms, secondary wheels, the bearings of which slide in said grooves, springs for normally forcing the wheels yieldingly outward and means for retaining the wheel-bearings in said groove.

682,541. STUD. HONORÉ GARNIER, Paris, France. Filed May 15, 1901. Serial No. 60,329. (No model.)



Claim.—1. A stud of the class described, in which the foot of the stud takes always automatically its normal position after being put in the shirt, characterized by a stem, which is provided on its bottom part with an enlargement and an axis trunnioned in bearings on the covering-plate of the foot of the stud, substantially as described.

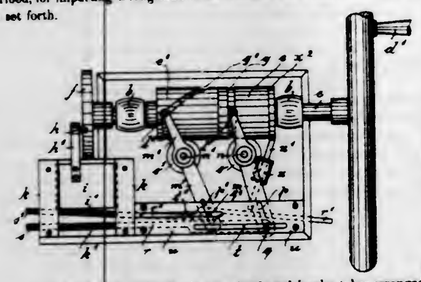
2. In a stud of the class described, the combination with the foot of the stud comprising a covering-plate and a bottom plate secured together, of a stem trunnioned in bearings on the covering-plate, an intermediate plate between the covering and bottom plates, and two springs cut from the intermediate plate and arranged to come into action as soon as the foot is turned against one side of the stem substantially as described.

682,542. MACHINE FOR THE MANUFACTURE OF CIGARETTES. CONRAD GLOEDEN, Friedrichshagen, Germany. Filed Apr. 9, 1898. Serial No. 677,069. (No model.)

Claim.—1. In a machine for making cigarettes, the combination of a pair of semicircular tubes one movable laterally and both longitudinally, a reciprocating presser-block and actuating means therefor to periodically bring said semicircular tubes coincident to compress a tobacco filling, and mechanism, substantially as described, for retracting said semicircular tubes one after the other, as set forth.

2. The combination in a machine for making cigarettes, of a support having a stationary press-cheek *k* and a movable press-block *i*, a pair of semicircular tubes one movable laterally and both longitudinally between said press cheek and block, means for intermittently reciprocating said movable press-block to bring said semicircular tubes coincident to form a complete tube, and mechanism, substantially as described, for withdrawing said semicircular tubes one after the other, as set forth.

3. The combination in a machine for making cigarettes of a motive shaft, a disk fast upon said shaft, the cam-groove *f'* in said disk, a support having a stationary press-cheek and a movable press-block *i*, a pair of semicircular tubes, one movable laterally and both longitudinally between said press cheek and block a link operatively connecting said movable press-block with the cam-disk, and mechanism, substantially as described, for imparting a longitudinal movement to said semicircular tubes, as set forth.



4. A cigarette-machine having a pair of semicircular tubes arranged to close upon a tobacco filling to form the cigarette a presser block and cheek in operative connection therewith, and separate mechanism, for independently operating said presser block and cheek, and tubes, substantially as set forth.

5. The combination in a machine for making cigarettes, of a table, a shaft journaled thereon, cam-rollers upon said shaft a cam-grooved disk *f* rigid upon the shaft, a support having a stationary press-cheek and a movable press-block, a pair of semicircular tubes one movable laterally and both longitudinally between said press cheek and block, a link operatively connecting said disk and movable press-block to impart a reciprocating motion to the latter, and mechanism, substantially as described, for withdrawing said semicircular tubes one after the other, as set forth.

6. The combination in a cigarette-machine, of a table, a motive shaft journaled thereon, cam-rollers on said shaft, a drive-wheel at one end of the shaft, and a disk having a cam-groove in its plane surface at the opposite end of said shaft, a slotted support *u*, the semicircular tubes *s s* having the oblique arm *r'* movable in said support, a support *k*, a stationary press-cheek and a movable press-block mounted in said support and arranged respectively one at either side of the semicircular tubes, a link operatively connecting said movable press-block with the disk, and cam-levers *m m'* for transferring motion from the cam-rollers to said semicircular tubes, as set forth.

7. The combination in a cigarette-machine, of a table, a motive shaft journaled thereon, cam-rollers on said shaft, a drive-wheel at one end of the shaft and a disk having a cam-groove in its plane surface, at the opposite end of said shaft, a slotted support *u*, the semicircular tubes *s s* having the oblique arm *r'* movable in said support, a support *k*, a stationary press-cheek and a movable press-block mounted in said support and arranged respectively at opposite sides of said semicircular tubes, a link operatively connecting said movable press-block with the disk, cam-levers *m m'* for transferring motion from the cam-rollers to said semicircular tubes, to close the same, another cam-roller on the shaft, a standard *x*, and a pin movable in said standard adapted to be reciprocated by said cam-roller to open the tubes, as set forth.

8. The combination in a machine for making cigarettes, of a table, a motive shaft journaled thereon, a drive-wheel at one end of the shaft, and a disk having a cam-groove in its plane surface at the opposite end of said shaft, a slotted support *u* the semicircular tubes *s s* having the oblique arm *r'* movable in said support, a support *k*, a stationary press-cheek and a movable press-block mounted in said support and arranged respectively at opposite sides of said semicircular tubes, a link operatively connecting said movable press-block with the disk, slotted cranks *m m* having studs *q q* movable in said slotted support, cam-rollers *e e'* operatively connecting with said cranks to actuate the same, another cam-roller on the shaft, a standard *x*, and a pin movable in said standard adapted to be reciprocated by said cam-roller, as and for the purposes set forth.

682,543. GARMENT-SUPPORTER. ROBERT GORTON, Newton, Mass. Original application filed Oct. 7, 1898, Serial No. 606,147. Divided and this application filed Aug. 29, 1898. Serial No. 689,771. (No model.)

Claim.—1. In a garment-supporter, the combination of a base-plate, a shank projecting therefrom, a piece of yielding material on the end of the shank, and a rivet for securing the yielding material to the shank, the inner end of which is arranged within the shank.

2. In a garment-supporter, the combination of the base-plate, a shank struck up from the base-plate and thus immovably connected therewith, a piece of yielding material projecting laterally from the shank, and a rivet for securing the yielding material to the end of the shank.



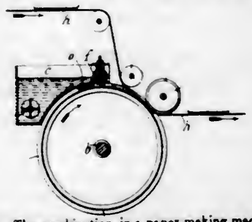
3. In a garment-supporter, the combination of the base-plate formed integrally with a hollow shank and thus immovably connected therewith, a ring of yielding material on the outer end of the shank and projecting laterally therefrom, and a rivet passing through the yielding ring and into the shank for holding the ring in place.

4. A hose-supporter button, comprising a base-plate, a shank of stiff or unyielding material projecting therefrom, the outer end of which is of a diameter not greater than its inner end, an attaching-rivet and a piece of yielding material interposed between the end of the shank and the head of the rivet projecting laterally therefrom and presenting a soft yielding surface on its edge and on its under side against which the fabric is drawn.

5. A hose-supporter button comprising a base-plate, a shank of stiff or unyielding material projecting therefrom whose outer end is of a diameter not greater than its inner end, a rivet attached to the shank, a piece of yielding material interposed between the end of the shank and the head of the rivet projecting laterally therefrom and presenting a soft yielding surface on its edge and on its under side, in combination with a loop which presses the fabric against the soft under side of the piece of yielding material.

6. In a hose-supporter, the combination of a suspending strap, a loop attached thereto, a base-plate attached to the strap, a shank projecting from the base-plate and tapering inwardly from its inner to its outer end, and a head of rubber secured to the shank which presents a soft yielding surface on its under side against which the fabric is drawn by the loop which slides on the tapered shank toward the head.

682,544. PAPER-MAKING MACHINE. CHARLES K. GRAHAM, London, England. Filed June 21, 1901. Serial No. 65,463. (No model.)



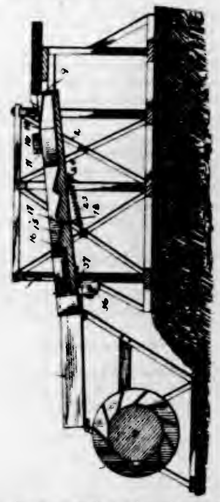
Claim.—1. The combination, in a paper-making machine, of a cylinder having a rough periphery, a trough mounted adjacent to the said cylinder, a delivery-orifice in said trough for discharging the pulp onto the upper part of the said cylinder, and means for pressing the pulp and removing it from the cylinder, substantially as hereinbefore described.

2. The combination, in a paper-making machine, of a cylinder having a rough periphery, a trough mounted adjacent to the said cylinder, a delivery-orifice in said trough for discharging the pulp onto the upper part of the said cylinder, a regulating-roller for regulating the flow of pulp onto the cylinder, a press-roll and a permeable band traveling between said cylinder and said press-roll, substantially as, and for the purpose, hereinbefore described.

3. The combination, in a paper-making machine, of a drum, sieving forming the periphery of said drum, a trough mounted adjacent to the drum, a mixer in said trough, a delivery-orifice in said trough for discharging the pulp onto the upper part of said drum, elastic rings at the ends of said drum, a strip of flexible material arranged along the lower edge of said delivery-orifice and fitting between said elastic rings, and means for pressing the pulp and removing it from the drum, substantially as described.

4. The combination in a paper-making machine, of a drum, sieving forming the periphery of said drum, a trough mounted adjacent to the drum, a mixer in said trough, a delivery-orifice in said trough for discharging the pulp onto the upper part of said drum, elastic rings at the ends of said drum, a strip of flexible material arranged along the lower edge of said delivery-orifice, a regulating-roller for regulating the flow of pulp onto the drum, a press-roll, a band traveling between said drum and said press-roll, and guide-rollers for said band, substantially as described.

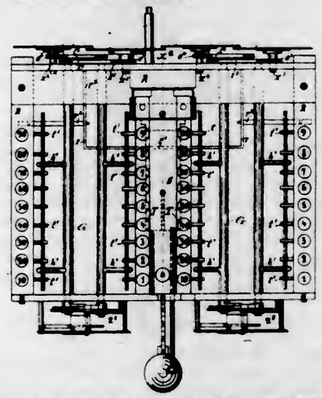
682,545. COMBINED GOLD WASHER AND AMALGAMATOR FOR PLACER-MINING. WILLIAM L. HARRAMAN, FRED O. CHAPMAN, CHARLES SEVERIN, and DAVID H. BROWN, Grand Junction, Colo. Filed May 5, 1900. Serial No. 15,604. (No model.)



Claim.—1. In an ore washer and amalgamator, the combination of a longitudinally-vibrating flume having an amalgamating-bottom provided with mercury-holding pockets located at intervals along its length, said flume having its sides converged at its delivery end, a series of transverse, closely-juxtaposed, parallel slats constituting amalgam-catching riffles disposed between the converged sides of the flume, a screen carried by the flume at the upper or receiving end thereof, above the flume-bottom, and adapted to receive the material prior to entering the flume, said screen being inclined upwardly from its receiving to its opposite end, whereby the material is retarded in its forward motion on the screen, and an angular divider located at the higher end of the screen with its apex directed thereto, said divider being adapted to divert the coarse material laterally from the screen and over the sides of the flume.

2. In a device of the class described, the combination with a swinging or vibrating flume, of a stationary flume adapted to deliver the water and material to the swinging flume, said stationary flume having false sides which loosely and freely receive the sides of the end of the swinging flume between themselves and the sides of the stationary flume.

682,546. CASH-REGISTER. JOSEF HAUSER, Frankfort-on-the-Main, Germany, assignor to Louis Dreyfus, same place. Filed Jan. 23, 1899. Serial No. 703,149. (No model.)



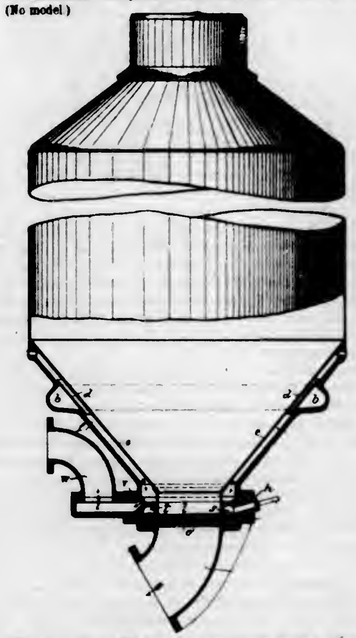
Claim.—1. In a cash-register, a series of keys provided with striking-surfaces of various heights, indicating or numeral disks, numeral type-segments, a gearing for transmitting motion to said disks and segments, a lever for operating said type-segments, means for releasing said gearing to return the whole mechanism to its normal position, and a slide provided with a wedge and adapted to engage with and operate said releasing means for the gearing.

2. In a cash-register, the combination with the lower bar of the frame thereof and keys having vertical slots, of means for limiting the downward movement of said keys, consisting of guide-bolders mounted in said lower bar and adapted to receive the ends of the keys, and cross-bars mounted in said bolders and adapted to extend in the slots of the keys.

3. In a cash-register, means for preventing simultaneous depression of the tens and units keys, consisting of a vertically-moving slide, ratchet-wheel segments connected with an indicator mechanism for operating the same, pawls engaging said segments to prevent the return thereof to their original positions, and a double lever connected to said slide, operated thereby and adapted to release the said pawls from their engagement with said segments.

4. In a cash-register, a gearing for operating an indicating mechanism, pawls engaging said gearing, a vertically-movable slide, a double lever operated thereby, and pins carried by said lever and adapted to engage and release said pawls from said gearing.

682,547. DIFFUSION APPARATUS. LUDWIG HIRT, Grevenbroich, Germany, assignor to Maschinenfabrik Grevenbroich, vormals Langen & Hundhausen, same place. Filed Feb. 23, 1901. Serial No. 48,549. (No model.)



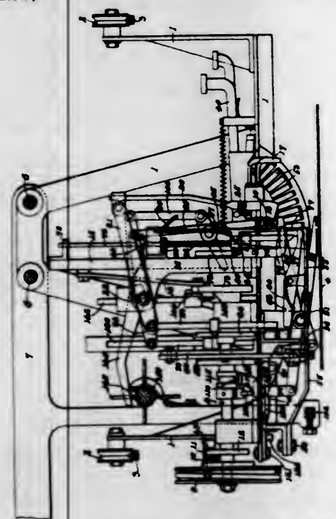
Claim.—1. In a diffusion apparatus, a tank having a tapered portion and an annular passage in such tapered portion provided with a supply-opening, a perforated sheet covering said passage, having its perforations of different sizes, and a perforated shell in said tapered portion tapered to correspond therewith and separated therefrom by an annular space.

2. In a diffusion apparatus, a tank having a tapered portion and an annular passage in such tapered portion provided with a supply-opening, a perforated sheet covering said passage, having its perforations of different sizes, a perforated shell in said tapered portion tapered to correspond therewith and separated therefrom by an annular space; and a box connected to the under side of said tank carrying a slide for controlling the discharge from said tank, said box having a discharge-channel in communication with said tank.

3. In a diffusion apparatus, a tank having a tapered portion and an annular passage in such tapered portion provided with a supply-opening, a perforated sheet covering said passage, having its perforations of different sizes, a perforated shell in said tapered portion tapered to correspond therewith and separated therefrom by an annular space; a box connected to the under side of said tank carrying a slide for controlling the discharge

from said tank, said box having a discharge-channel in communication with said tank, said box having an annular channel above the slide, a packing between the slide and said annular channel, and means for directing a pressure medium to said channel.

682,548. LOOM FOR WEAVING TUFTED FABRICS. CHARLES HUGHES, London, England. Filed Mar. 26, 1901. Serial No. 53,997. (No model.)



Claim.—1. In a loom for weaving Turkey carpets and similar fabrics, the combination of a perforated oscillatory segment through which the differently-colored yarns to be employed for knotting are threaded, feed mechanism for said yarns, a keyboard having a key appropriated to each perforation of the said segment and serving to control the segment so as by depressing a key the yarn corresponding thereto is brought opposite the feed mechanism and knotting mechanism for knotting the yarns, substantially as described.

2. In a loom for weaving Turkey carpets and similar fabrics, the combination of a perforated oscillatory segment through which the differently-colored yarns to be employed for knotting are threaded, an arm on said segment, a keyboard comprising a series of pivoted key-levers the tail ends of which bear against the arm aforesaid, means whereby the depression of the different keys turns the segment through different amounts, and feeding and knotting mechanisms, substantially as described.

3. In a loom for weaving Turkey carpets and similar fabrics, the combination of a perforated oscillatory segment through which the differently-colored yarns to be employed for knotting are threaded, an arm on said segment, a keyboard comprising a series of pivoted key-levers the tail ends of which bear against the arm aforesaid, said key-levers being pivoted at different distances from the arm so that the depression of the different keys turns the segment through different amounts, and feeding and knotting mechanisms, substantially as described.

4. In a loom for weaving Turkey carpets and similar fabrics, the combination of a perforated oscillatory segment through which the differently-colored yarns to be employed for knotting are threaded, feed mechanism for said yarns, a keyboard having a key appropriated to each perforation of the said segment and serving to control the segment so as by depressing a key the yarn corresponding thereto is brought opposite the feed mechanism, knotting mechanism for knotting the yarns, a pivoted lever arranged in combination with the key-levers so as to be tilted when a key is depressed, means controlled by the said pivoted lever whereby the feeding and knotting mechanisms are started when a key is depressed and stopped when the key is released, substantially as described.

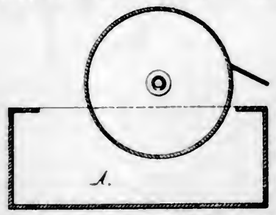
5. In a loom for weaving Turkey carpets and similar fabrics, the combination with the knotting-carriage of means for traversing said carriage across the warp-threads, said means comprising a stationary rack 102, toothed wheel 100 mounted on the carriage and engaging with said rack, a toothed segment 109 on the driving-shaft actuating a star-wheel 107 which drives the wheel 100, and means for sliding the segment 109 along the driving-shaft to gear with the opposite side of the star-wheel, when a row of knots is completed, substantially as described.

6. In a loom for weaving Turkey carpets and similar fabrics, the combination with the knotting-carriage of means for traversing said carriage across the warp-threads, said means comprising a stationary rack 102, toothed wheel 100 mounted on the carriage and engaging with said rack, a toothed segment 109 on the driving-shaft actuating a star-wheel 107 which drives the wheel 100, a lever 117 having a pin-and-slot connection with the segment 109 and pivoted on a pin 118, an arm 119 on said pin, a lever 120 pivoted at 121 to the carriage, and connected to the arm 119, and a pin 122 on said lever 120 which pin 122 meets a stop on the loom-frame at the end of the traverse and thus slides the segment 109 on the driving-shaft, and reverses the movement of the carriage, substantially as described.

7. In a loom for weaving Turkey carpets and similar fabrics, the combination with the sliding carriage which traverses the warp-threads, of feeding and knotting mechanisms comprising grippers 55, 57, nippers 76, 77, side plates 70, 71 and tweezers 17 whereby the yarn is positively controlled throughout the whole operation of knotting, substantially as described.

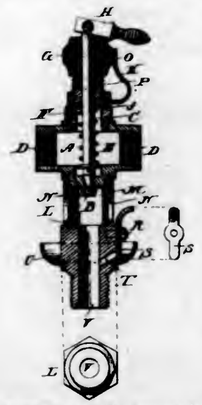
8. In a loom for weaving Turkey carpets and similar fabrics, the combination with feeding and knotting mechanisms of shears 90 pivoted at 91 and coupled together by links 96, 97, 98, a driving-shaft, and a cam on said driving-shaft for operating said shears, substantially as described.

682,549. CASEIN POWDER. JOHN A JUST, Syracuse, N. Y. Original application filed Jan. 13, 1896, Serial No. 575,496. Divided and this application filed Jan. 14, 1901. Serial No. 43,111. (No specimens.)



Claim.—The herein-described compound of casein and an alkali containing no casein compounds which are insoluble in cold water, the same being a white, practically tasteless and odorless substance, somewhat crystalline in appearance, of a loose, fluffy and highly-porous structure, much lighter than water, dissolving readily and completely in cold water and forming therewith a permanent and uniform opalescent solution, substantially as set forth.

682,550. OILER. LEOPOLD KACHANDER, New York, N. Y., and EDWARD K. HILL, Worcester, Mass., assignors to Nathan Manufacturing Company, New York, N. Y. Filed May 23, 1901. Serial No. 61,587. (No model.)

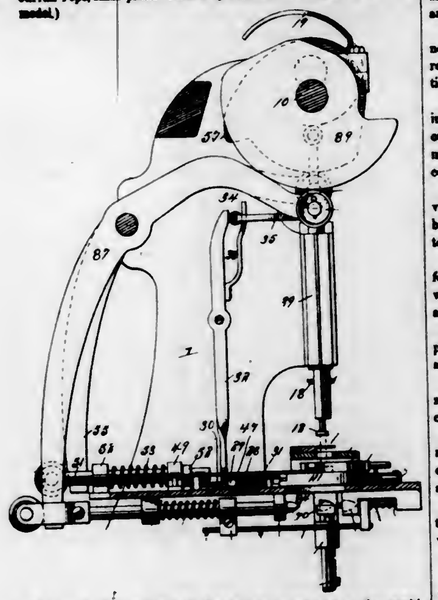


Claim.—1. The combination with a valve-casing provided with an outlet, and the regulating-valve stem for controlling said outlet, of the shank provided with the vessel U surrounding the same and provided also, below the valve-controlled outlet of the valve-casing, with the opening T through which said vessel U can communicate with the interior of the shank, substantially as and for the purposes hereinbefore set forth.

2. The combination with the valve-casing provided with an outlet, and the regulating-valve stem for controlling said outlet, of the shank provided with the vessel U, and provided also below the valve-controlled outlet of the valve-casing, with the opening T through which said vessel U can communicate with the interior of the shank, and a swivel-plate S controlling the opening T, substantially as and for the purposes hereinbefore set forth.

3. In oil-valve construction a valve-chamber communicating with a source of oil-supply under pressure, a packing-box at the upper end of said cap, a cap-nut movable on said cap, a regulating-valve stem controlling the outlet from the valve-chamber and passing through said cap, packing-box and cap-nut, a sight-feed shank below the outlet from the valve-chamber, a hand-oiler cap, a passage in the shank below the sight-feed through which said cap communicates with the interior of the shank, and a gate by which said passage is controlled, all arranged and operating substantially as and for the purposes hereinbefore set forth.

682,551. MACHINE FOR MAKING HOLLOW CONES FROM SHEET METAL. FREDERICK B. HEISS, Louisville, Ky., assignor to Curran Pope, same place. Filed May 31, 1901. Serial No. 62,585. (No model.)



Claim.—1. In a machine for forming sheet-metal cones, the combination of cutting-dies, by which the blank is formed, a presser for retaining the blank, and coiling-jaws which advance in an annular path against the ends of the blank, to coil the same in conical form.

2. In a machine for forming sheet-metal cones, the combination of the male cutting-die having a convex face whereby the blank is slightly concaved, means for holding the blank, and coiling-jaws having curved edges and moving in an annular path under the ends of the blank, substantially as described.

3. In a machine for forming sheet-metal cones, the combination with the cutting-die, of swinging floor-sectors which close under the die and a presser acting to retain the blank on these sectors as the die retires.

4. In a machine for forming sheet-metal cones, a cutting-die, swinging floor-sectors which receive the blank from the die, and coiling-jaws moving in an annular path against the ends of the blank while resting on said floor-sectors.

5. In a machine of the character described, the combination of floor-sectors moving in an annular path and having annular grooves in their faces, and bending-jaws moving in an annular path over said sectors and having ribs entering the said floor grooves, substantially as described.

6. In a machine as described, floor-sectors moving in an annular path, and a carrier reciprocating vertically below and between the floor-sectors to receive the work therefrom.

7. The combination of the annularly-moving floor-sectors, the vertically-reciprocating carrier, and the annularly-moving jaws passing over the floor-sectors.

8. The combination of the swinging floor-sectors, the swinging coiling-jaws, the vertically-reciprocating carrier, and the blank-holding presser combined and coöperating as set forth.

9. In a machine as described, an annular guideway, floor-sectors moving in said guideway, coiling-jaws moving in the same guideway over the floor-sectors, and means for separately moving the floor-pieces and jaws in their annular path, all combined.

10. In a machine as described, the cutting-dies, annularly-moving floor-sectors, the vertically-moving presser, and a horizontally-moving holding-finger acting to replace the presser, all combined.

11. In a machine as described, the floor-sectors moving in annular guides, the coiling-jaws moving in annular guides above the floor-sectors, and a holding-finger moving horizontally over the work between the jaws, all combined.

12. In a machine for forming sheet-metal cones, a vertically-reciprocating carrier, coiling-jaws moving in an annular path to engage the ends of a blank on the carrier, and means for holding the blank down to the carrier, all combined.

13. In a machine as described, the annularly-moving floor-sectors, spring-actuated mechanism acting to close said sectors toward each other, and positively-driven mechanism acting to spread the sectors apart in their annular path, all combined.

14. The floor-sectors moving in annular guides, spreader-rods connected to said sectors, links connected to the spreader-rods and to a reciprocating cross-head, and means for moving the cross-head in both directions, all combined.

15. The vertically-reciprocating cutting-die, a presser-foot moving in a recess in the die, a spring acting to depress the presser-foot, a spring of superior power acting to lift the presser-foot, and positively-driven mechanism operating at intervals to overcome the superior spring, all combined.

16. The combination of a vertically-moving cutting-die with a convex face, acting to cut and slightly bend the blank, means for holding the blank, and annularly-moving coiling-jaws engaging the ends of the blank, to roll the same into a hollow cone, substantially as described.

17. The combination of the annularly-moving coiling-dies, means for holding the blank while said jaws operate, a reciprocating carrier by which the coiled piece is carried from the coiling-jaws, and capping-dies acting on the coiled piece, all combined.

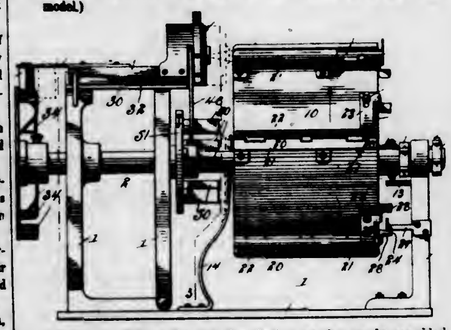
18. The vertically-reciprocating carrier, horizontally-moving capping-punch and its connecting cap, and an ejector connected to the punch and operating to expel the work from the cap, all combined.

19. The combination of the vertically-reciprocating carrier, the horizontally-moving holding-clamps, and the capping-dies acting to take the cone from said clamps, substantially as described.

20. The combination with the coiling-jaws, of the vertically-reciprocating carrier, means for moving the same vertically, and a yielding connection whereby the carrier gives slightly in case of obstruction, substantially as described.

21. The vertically-reciprocating carrier, means for placing the cone thereon, and the holding-clamps having inclines engaged by the carrier, whereby the clamps are spread, all in combination.

682,552. MACHINE FOR SECURING METALLIC TIP-COVERS TO CIGARS. FREDERICK B. HEISS, Louisville, Ky., assignor to Curran Pope, same place. Filed July 15, 1901. Serial No. 68,368. (No model.)



Claim.—1. In a machine as described, a rotating carrier provided with means for clasping a cigar, a cutter-holder having cutters or punches in proximity to the end of the cigar when clasped in said carrier, means for advancing the cutter-holder to the cigar-tip, and means for projecting the cutters into the tip, all combined.

2. In a machine as described, a movable cigar-carrier and means for clasping a cigar therein, a movable cutter holder and means for moving the same to the cigar clasped in the carrier, cutters in said holder, and means closing the same onto the cigar-tip, and means for retracting the cutters, all combined.

3. In a machine as described, a rotating cylindrical carrier, a fixed and a movable leaf on said carrier constituting a cigar-pocket, an arm connected to the movable leaf, and an abutment in the path of movement of said arm whereby the pocket is opened automatically as the carrier rotates.

4. The combination with the rotating cigar-carrier, of a fixed leaf and a movable leaf constituting the sides of a pocket, and an end piece adjustably secured to one of the leaves, whereby the length of the pocket may be regulated.

5. The combination with the rotating carrier, of a fixed leaf thereon, a hinged leaf constituting with the fixed leaf the sides of the pocket, a spring acting on the hinged leaf to close the same, and an adjustable stop by which the closure of the pocket may be regulated.

6. The combination with the axial shaft, of a rotating carrier supported thereon, means for rotating the carrier in one direction, means for holding the carrier temporarily, a cutter-holder and punches carried thereby, means for rotating the shaft, and a cam carried by the shaft and operating on the cutter-holder to advance the same toward the carrier.

7. The combination with the carrier and means for holding a cigar therein, of the cutter-holder, means for advancing the same to inclose the cigar-tip, the radially-movable cutters carried by the cutter-holder, and cams acting on said cutters to project the same into the cigar-tip.

8. The combination of a longitudinally-reciprocating cutter-holder, radially-arranged punches or cutters carried by said holder, a rocking cam-plate engaging said cutters to move them radially, an arm connected to said cam-plate, and a rotating disk having studs which engage said arm to rock the cam-plate.

9. The combination with the rotating carrier and its cigar-clasping pockets, a cutter-holder and punches, of means for moving the cutter-holder toward the cigar in one of the pockets, means for actuating the punches carried by said holder, and automatic releasing mechanism by which the cigar is dropped from the rotary carrier.

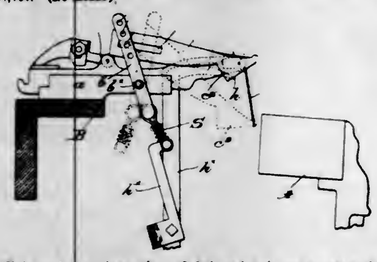
10. In a tip-attaching machine, the axial shaft, a carrier supported thereby, the hand-lever and pawl-and-ratchet mechanism by which the carrier is moved intermittingly in one direction and the shaft in the other direction, a face-cam on the shaft, and a sliding cutter-holder movable in one direction by said face-cam and in the other direction by a spring, all combined.

11. In a machine as described, the axial shaft, the carrier having cigar-clamping pockets, the hand-lever engaging said carrier to rotate it in one direction and engaging the shaft to rotate it in reverse direction, a sliding cutter-holder, a face-cam on the shaft serving to move the cutter-holder, cutter-moving cams, and a stud-carrier on the main shaft by which said cams are moved, all combined.

12. The combination with the rotating carrier and its cigar-holding pockets, of a stop by which the carrier is held at rest, a reciprocating cutter-holder moving on a slideway toward and from the carrier, cutters carried by said holder, and means for actuating said holder while the carrier is at rest.

13. The combination with the rotating carrier and clamping-pockets thereon, of a reciprocating cutter-holder, a rotating face-cam to advance said cutter-holder, cutters carried by the holder, a cam acting on said cutters, and a rotating disk having studs by which said cam is actuated.

682,553. WEFT-FORK CLEARER FOR LOOMS. BELOWIE JANELLE, Manchester, N. H., assignor of two-thirds to Herman F. Straw and Harry R. Parker, same place. Filed Apr. 27, 1901. Serial No. 57,707. (No model.)



Claim.—1. In a loom, the weft-fork, and a clearer to automatically clear the fork of weft collected thereupon.

2. In a loom, the weft-fork, a clearer to engage and remove weft collected upon the fork, and means to vibrate the clearer in the direction of the length of the fork.

3. In a loom, the weft-fork, a clearer to clear collected weft therefrom, a rocking support on which the clearer is mounted, and means to rock the support.

4. In a loom, the weft-fork, a blade-like clearer movable in a vertical plane adjacent the fork, to engage and remove a weft end caught on the fork, and means to move the clearer.

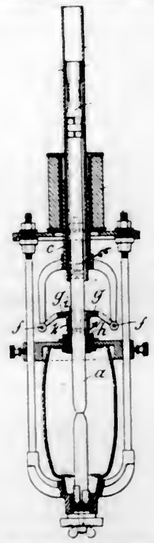
5. In a loom, the weft-fork, the weft-hammer, a clearer to clear the fork of a weft end caught thereon, and operating connections between the clearer and the weft-hammer, to actuate the former.

6. In a loom, the weft-fork, a blade-like clearer movable in a vertical plane adjacent the fork, to engage and remove a weft end caught on the fork, a rocking support on which the clearer is adjustably mounted, the weft-hammer, and connections between it and the support, to rock the latter and vibrate the clearer.

7. In a loom, the weft-fork, a vibratable, blade-like clearer adjacent the fork and having an upper cutting edge, and means to vibrate the clearer longitudinally of the fork, to remove weft caught thereupon.

8. In a loom, the weft-fork, a vibratable, blade-like clearer adjacent the fork and having an upper cutting edge, and an upturned hook at its extremity, and means to vibrate the clearer longitudinally of the weft-fork, to push therefrom weft on its downward stroke, or to engage and sever the weft on its upward stroke.

682,554. REGULATING DEVICE FOR ELECTRIC-ARC LAMPS. PAUL KÄSBRAUER, Vienna, Austria-Hungary, assignor, by direct and mesne assignments, to Eugen Mytteis, same place, and Oskar Lenck, Oedenburg, Austria-Hungary. Filed June 1, 1900. Serial No. 18,737. (No model.)

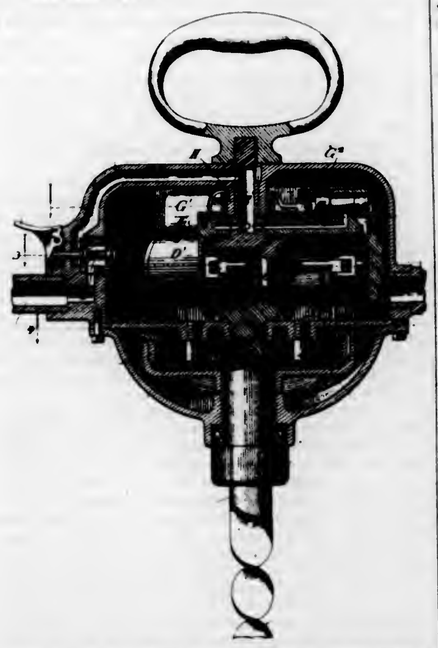


Claim.—1. In an arc-lamp, the combination with a stationary abutment, of depending vertically-movable brackets, clamping-jaws arranged to grip the carbon and contact with said abutment at the limit of their travel, a cut-away portion on the inner face of said jaws below their clamping-surface and arms rigidly connected to the upper ends of said jaws and pivotally connected to the depending brackets, substantially as and for the purpose set forth.

2. In an arc-lamp, the combination with an abutment, of depending vertically-movable brackets, clamping-jaws arranged to grip the carbon and contact with said abutment at the end of their travel, arms rigidly connected to the upper ends of said jaws and pivotally connected to the ends of said brackets, and a ring loosely surrounding the jaws at their lower ends, substantially as and for the purpose set forth.

3. In an arc-lamp, the combination with an insulated stationary abutment, of electromagnetically-moved depending brackets, clamping-jaws, the lower part of the clamping-face cut away, a ring loosely surrounding the lower ends of the clamping-jaws, arms rigidly secured to the upper ends of said jaws and pivoted at their ends in the ends of the depending brackets, substantially as and for the purpose set forth.

682,555. DRILL. HENRY J. KIMMAN, Chicago, Ill., assignor of one-half to Edward M. Hurley, same place. Filed Mar. 29, 1900. Serial No. 10,651. (No model.)



Claim.—1. In a machine of the class described, the combination of a cylinder-frame provided with a plurality of fluid-pressure cylinders having a fixed relation to each other arranged to rotate around a common central point and with a valve-chamber open at both ends, arranged in line with each of the fluid-pressure cylinders, a reciprocating valve in each of the valve-chambers, and a fixed eccentric connected with each and all reciprocating valves, whereby as the cylinder-frame is rotated the valves are given their proper motion, substantially as described.

2. In a machine of the class described, the combination of a casing, a crank-shaft the body portion of which is fixed therein to prevent its rotation, an inlet-passage formed partly in the casing and axially through the body of the crank-shaft, a cylinder-frame rotatably mounted upon the crank-shaft and provided with a plurality of pressure-cylinders and a valve-chamber in line with each fluid-pressure cylinder and with an inlet-passage for each valve-chamber leading from the axial opening in the crank-shaft, a reciprocating valve in each of the valve-chambers, a fixed eccentric surrounding the crank-shaft, and means connecting the fixed eccentric with the reciprocating valves, whereby as the cylinder is rotated the valves are given a proper motion to permit the introduction and exhaust of fluid-pressure into and out of the fluid-pressure chambers, substantially as described.

3. In a machine of the class described, the combination of a cylinder-frame provided with a plurality of fluid-pressure cylinders having a fixed relation to each other arranged to rotate around a common central point, a valve-chamber open at both ends arranged in line with each of the fluid-pressure cylinders, a reciprocating valve in each of the valve-chambers, a crank-shaft, the body portion of which is secured in the casing against rotation and provided with a fluid-inlet passage extending axially through a portion of the same, a fixed eccentric around the crank-shaft way from contact with the live-fluid pressure, and eccentric-straps around the fixed eccentric, each connected with a respective piston-valve, substantially as described.

4. In a machine of the class described, the combination of a casing, a crank-shaft fixed therein against rotation, an inlet fluid-passage formed partly in the casing and axially in the crank-shaft, a cylinder-frame provided with a plurality of fluid-pressure cylinders having a fixed relation to each other rotatably mounted upon the fixed crank-shaft, a piston within each fluid-pressure cylinder, a pitman-rod for each piston connecting it with the fixed crank-shaft, a valve-chamber open at both ends arranged adjacent to and in line with each fluid-pressure cylinder, a piston-valve for each valve-chamber, a fixed eccentric around the crank-shaft and fluid-inlet passage operatively connected with the piston-valves, a fluid-passage connecting each valve-chamber with its respective pressure-cylinder when the valve is in position to open the fluid-inlet passage and connecting with the open end of the valve-chamber when the valve is in position to close the fluid-inlet passage, substantially as described.

682,556. FLIER. WILLIAM A. LEHAN, New Bedford, Mass., assignor of two-thirds to Robert Burgess, same place, and Fyans, Fraser and Blackway Co., Fall River, Mass. Filed Apr. 15, 1901. Serial No. 56,566. (No model.)



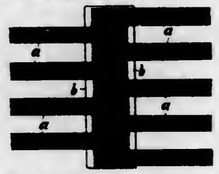
Claim.—1. In a flier of a slubbing-machine, a scraper arranged between the eye in the presser-foot and the point from whence the sliver is delivered to the said eye.

2. In a flier of a slubbing-machine, a scraper arranged between the eye in the presser-foot and the point from whence the sliver is delivered to the said eye, one side of said scraper having a sharpened edge to engage the sliver.

3. In a flier of a slubbing-machine, a scraper arranged between the eye in the presser-foot and the point from whence the sliver is delivered to the said eye, one side of said scraper having a sharp edge and capable of being adjusted to or from the presser-foot.

4. In a flier of a slubbing-machine, a scraper arranged between the eye in the presser-foot and the point from whence the sliver is delivered to the said eye, a knife-edge formed on one side of said scraper, capable of adjustment to and from the presser-foot and a projection extending from the upper edge of the scraper.

682,557. MANUFACTURE OF IMITATION CRIMEAN OR PERSIAN FUR GOODS. SIMON LEWIN, Berlin, Germany, assignor to Anton & Alfred Lehmann Aktiengesellschaft, same place. Filed Mar. 15, 1901. Serial No. 51,327. (No specimens.)



Claim.—1. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair transversely of said strip, curling the hair by rolling the same from the tips to the roots, and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable or desired manner, for the purpose set forth.

2. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair transversely of the strip, curling the hair by rolling the same together with a strip of paper from the tips to the roots and the said strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable or desired manner, for the purpose set forth.

3. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair in different directions transversely of the strip, curling the hair by rolling the same from the tips to the roots and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable or desired manner, for the purpose set forth.

4. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair in different directions transversely of the strip, curling the hair by rolling the same together with a strip of paper from the tips to the roots and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable or desired manner, for the purpose set forth.

5. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair transversely of said strip, curling the hair by rolling the same from the tips to the roots and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable manner so as to vary the direction of lay of the curls, for the purposes set forth.

6. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair transversely of said strip,

curling the hair by rolling the same from the tips to the roots and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable manner on a textile backing so as to vary the direction of lay of the curls, for the purposes set forth.

7. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair in tufts alternately in opposite directions transversely of said strip, curling the tufts by rolling the same from the tips to the roots and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable or desired manner, for the purposes set forth.

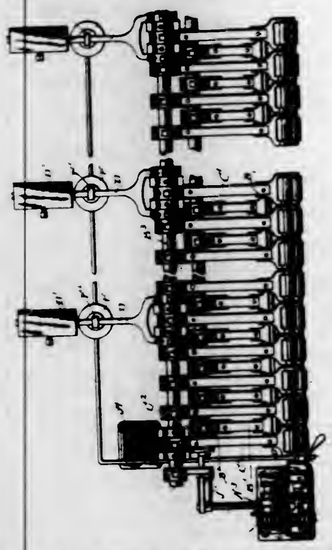
8. The herein-described method, which consists in cutting the skin into strips, and, after wetting, laying the hair in tufts alternately in opposite directions transversely of said strip, curling the tufts by rolling the same together with a strip of paper from the tips to the roots and the strip of skin into a tight roll, allowing the curls to set and uniting the strips in any suitable or desired manner, for the purposes set forth.

9. The herein-described method, which consists in cutting the skin into strips, laying the hair, after wetting, in different directions transversely of said strip, folding the strip of skin flesh side out, curling the hair by rolling the same from the tips to the roots and the folded strip of skin into a tight roll, allowing the curls to set, unfolding, and uniting the strips in any suitable or desired manner, for the purpose set forth.

10. The herein-described method, which consists in cutting the skin into strips, laying the hair, after wetting, in different directions transversely of said strip, placing a strip of paper thereon curling the hair by folding the strip flesh side out and rolling the hair from the tips to the roots together with an outer strip of paper, and the folded strip of skin into a tight roll, allowing the curls to set and finally unfolding the strips and uniting the same in any suitable or desirable manner, substantially as and for the purposes set forth.

11. Imitation Persian or Crimean fur, consisting of strips of a suitable skin having the hair thereon curled, said strips united so as to vary the lay of the curls substantially as in the said Crimean or Persian furs, substantially as set forth.

682,553. HOSE-MACHINE. JOSEPH S. H. LOVETT, Trenton, N. J., assignor to Isabelle C. Wilson, Samuel K. Robbins, and Barclay L. Stokes, same place, executors of Samuel K. Wilson, deceased. Filed Jan. 4, 1901. Serial No. 42,104. (No model.)



Claim.—1. In a machine for winding hose, the combination with the yieldably-supported roller-bed, of the mandrel or hose-pole, the driving-shaft therefor, having a chuck for said mandrel, and means for yieldably supporting said shaft, substantially as specified.

2. In a machine for winding hose, the combination with the yieldably-supported roller-bed, of the mandrel or hose-pole, the driving-shaft therefor, having a chuck for said mandrel, means for yieldably supporting said shaft, the main driving-shaft having a gear-wheel in mesh with a gear-wheel upon said first-named shaft, and means for maintaining the proper degree of engagement of the teeth of said gear-wheels under movement of said mandrel-driving shaft, substantially as specified.

3. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the driving-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the clutch-operating lever, the spring-actuated rock-shaft having an arm engaging a slot of said lever, means for maintaining said spring-actuated shaft under tension, and means for releasing the same to throw such clutch members into engagement, and for restoring the tension of said shaft, through movement of said first-named rock-shaft, substantially as specified.

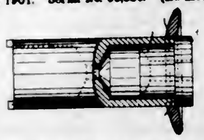
4. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers, and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the driving-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the clutch-operating lever, the spring-actuated rock-shaft having an arm engaging a slot of said lever, a spring-catch engaging a second arm of said rock-shaft to maintain the same under tension, a downwardly-extending rod pivoted to a crank-arm of said first-named rock-shaft, having a cam-surface engaging said spring-catch to release said last-named rock-shaft upon downward movement of said rod, said rod having a lower lateral extension for restoring the tension of said shaft, substantially as specified.

5. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the spur-wheel, and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the main driving-shaft having a spur-wheel in mesh with said first-named wheel, the link connection of said shafts, the sliding boxes, in which said main shaft has bearings, and means whereby said clutch members are engaged and disengaged upon actuation of said rock-shaft, substantially as specified.

6. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers, and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the driving-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the yieldably-supported bifurcated frame carrying said driving-shaft, clutch members and wheel, the clutch-operating lever pivoted to said frame at opposite sides thereof, the spring-actuated rock-shaft having an arm engaging a slot of said lever, means for maintaining said spring-actuated shaft under tension, and means for releasing the same to throw said clutch member into engagement, and for restoring the tension of said shaft, through movement of said first-named rock-shaft, substantially as specified.

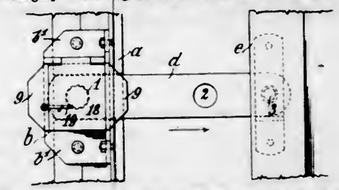
7. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers, and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the spur-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the yieldably-supported bifurcated frame carrying said driving-shaft, clutch members and wheel, a counterbalancing device for said frame, the clutch-operating lever pivoted to said frame at opposite sides thereof, the spring-actuated rock-shaft, having an arm engaging a slot of said lever, means for maintaining said spring-actuated shaft under tension, means for releasing the same to throw said clutch members into engagement, and for restoring the tension of said shaft through movement of said first-named rock-shaft, the main driving-shaft, having a spur-wheel in mesh with said first-named spur-wheel, the link connection of said driving-shafts, and the sliding boxes in which said main shaft has bearings, substantially as specified.

682,559. BOBBIN. HENRY A. MACK, Weatherly, Pa., assignor to Harry C. Mack, Bernard F. Mack, and H. Clark Bacon, same place. Filed Mar. 8, 1901. Serial No. 50,330. (No model.)



Claim.—A bobbin consisting of a cylindrical barrel provided at the end with outwardly-extending lugs or projections each having a thickness which corresponds with that of the barrel and being approximately as wide as thick, an annular flange abutting against the end of the barrel and provided with recesses corresponding in shape to the shape of, and receiving, said lugs or projections, the inner surfaces of said lugs and the flange being substantially flush, and a bushing having a head and inserted in and snugly fitting said barrel and the flange, substantially as described.

682,560. SEAL-LOCK. KORNEL MAHLOWSKA, Neu-Sandec, Austria-Hungary, assignor of three-fourths to Stefan Walorski, Rudawa, near Cracow, and Josef Pilawski and Wladimir von Lewicki, Cracow, Austria-Hungary. Filed Aug. 28, 1899. Serial No. 728,755. (No model.)



Claim.—1. A lock comprising a springless bolt having an enlarged head, an inclosing casing provided with an internal keeper or keepers and with an aperture through which the bolt can be projected for engagement with a locking-keeper, said bolt having to-and-fro motion in its casing, means for imparting such motion to said bolt, and a spring-projected and key-retracted locking bolt or bolts within the head of the bolt and adapted to engage the keeper or keepers in the casing when the bolt is projected therefrom and lock said bolt against motion, for the purpose set forth.

2. A lock, comprising a lock-bolt having an enlarged head, a casing in which said bolt can be moved to and fro by hand, said casing open at one end and provided in its opposite end with an aperture in line with the bolt and with internal keepers, means for locking the bolt-head to its casing when pushed into the same with the bolt projecting through the aforesaid aperture, and means limiting the movement of the bolt out of its casing, for the purpose set forth.

3. A lock comprising a springless lock-bolt provided with an enlarged chambered head, an inclosing casing provided with an aperture through which the bolt can be projected into engagement with a suitable keeper, said bolt having to-and-fro motion in its casing, and means for imparting such motion to the bolt; in combination with oppositely-arranged keepers within the casing and reciprocally-movable spring-projected and key-retracted locking-bolts in the aforesaid chamber in the bolt-head adapted to engage the keepers within the casing and lock the lock-bolt against motion when projected from said casing, for the purpose set forth.

4. A lock comprising a bolt having an enlarged head polygonal in cross-section, and a corresponding casing in which said bolt has to-and-fro motion, said casing provided in one end with an aperture in line with the bolt and with internal keepers on four of its sides; in combination with locking-bolts contained in the bolt-head and adapted to be projected from its four sides into engagement with the aforesaid keepers in the casing to lock the bolt thereto, for the purposes set forth.

5. A lock comprising a lock-bolt having an enlarged head, a casing in which said bolt has to-and-fro motion, said casing provided in one end with an aperture in line with the bolt, and with oppositely-arranged internal keepers, and two locking-bolts contained within the lock-bolt head and constructed to be reciprocally and simultaneously moved into or out of engagement with the aforesaid keepers to lock the lock-bolt thereto or unlock it therefrom; in combination with means for preventing the unlocking of the bolt-head from its casing should an attempt be made to move one locking-bolt after another out of engagement with their keepers, for the purpose set forth.

6. A lock, comprising a lock-bolt having an enlarged head, a casing in which said bolt has to-and-fro motion, said casing provided in one end with an aperture in line with the bolt, and with internal oppositely-arranged keepers; in combination with reciprocally-movable locking-bolts contained in the bolt-head and adapted to be moved into and out of engagement with the aforesaid keepers in the casing to lock the bolt-head thereto or unlock it therefrom, and tumblers connected with said bolts, for the purpose set forth.

7. A lock comprising a lock-bolt having an enlarged head, a casing in which said bolt has to-and-fro motion, said casing provided in one end with an aperture for the bolt, the resilient keepers *i j* in said casing, the reciprocally-moving locking-bolts *g* contained in the bolt-head and coöperating with said keepers to lock said head to its casing, and the tumbler *l* of said bolts; in combination with the spring-actuated locking-tongues *q* arranged relatively to the locking-bolts as described and adapted to engage a shoulder 13 on said bolts, substantially as and for the purposes set forth.

8. A lock comprising a lock-bolt having an enlarged head a bolt-casing, handholds on the bolt-head for moving the bolt to and fro in its casing, the latter provided with a bolt-aperture in one end and with oppositely-arranged internal keepers; in combination with two reciprocally-sliding key-operated locking-bolts contained within the bolt-head and adapted to engage the aforesaid keepers and lock the bolt to the casing, springs acting on said bolts to hold them in engagement with their keepers, and a revoluble key-operated device constructed to engage with and retract said locking-bolts, for the purpose set forth.

9. A lock, comprising a lock-bolt having an enlarged head, a casing open at one end and into and out of which the bolt has free motion, said casing provided with a bolt-aperture in its opposite end and with oppositely-arranged internal keepers; in combination with reciprocally-movable locking-bolts contained within the bolt-head and adapted to engage the aforesaid keepers, said bolts having the inner faces of their outer ends carved, springs acting on said bolts to keep them in engagement with their keepers, a key-operated device for retracting the bolts from their keepers, and means for limiting the motion of the bolt out of its casing, substantially as and for the purpose set forth.

10. A lock, comprising a bolt having an enlarged head rectangular in cross-section and provided with longitudinal slots in opposite sides, a casing of like form in cross-section in which said bolt-head has free to-and-fro motion, said casing provided with a bolt-aperture, and spring-supported keepers oppositely arranged in said casing and located near the outer end thereof; in combination with reciprocally-movable locking-bolts, springs holding said bolts normally projected through the aforesaid slots in the bolt-head in engagement with their keepers, a key-pin arranged axially within the bolt-head, and a key-operated device revoluble on said pin and adapted to engage the locking-bolts and retract the same into the bolt-head, for the purpose set forth

11. A lock comprising a bolt having an enlarged head rectangular in cross-section and provided with longitudinal slots in opposite sides, a casing of like form in cross-section in which said bolt-head has free to-and-fro motion, said casing provided with a bolt-aperture, and spring-supported keepers oppositely arranged in said casing and located near the outer end thereof; in combination with reciprocally-movable locking-bolts, springs holding said bolts normally projected through the aforesaid slots in the bolt-head in engagement with their said keepers, a key-pin arranged axially within the bolt-head, a key-operated device revolvable on said pin and adapted to engage the locking-bolts and retract the same into the bolt-head, and a latch at the outer end of said head adapted to engage a projection on a key and lock the same against rotation, and the locking-bolts against the stress of the bolt-springs, substantially as and for the purpose set forth.

12. A lock comprising a bolt having an enlarged head polygonal in cross-section, a casing of similar form in cross-section in which said bolt-head has free to-and-fro motion, said casing provided with a bolt-aperture in one end and with oppositely-arranged internal keepers, reciprocally-movable locking-bolts contained in the bolt-head, springs holding said bolts normally in engagement with their keepers, and a key-pin arranged axially in the bolt-head between said bolts; in combination with a sleeve *m* revoluble on the key-pin and having a shoulder 7 on its outer face and radial arms 6 adapted to engage both locking-bolts, and a spring *p* on the key-pin acting on said sleeve, substantially as and for the purpose specified.

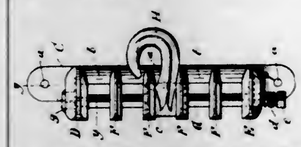
13. A lock comprising a bolt having an enlarged head, a casing open at one end, in which said bolt can be moved to and fro by hand, said casing provided in its closed end with an aperture in line with the bolt, a seal-chamber at the outer end of the bolt-head, a gate for closing said chamber, and locking appliances contained within the bolt-head and adapted to lock the same to its casing; in combination with means for locking the seal and seal-chamber gate to the bolt-head when moved to project the lock-bolt from its casing, for the purpose set forth.

14. A lock comprising a bolt having an enlarged head, a casing open at one end, in which said bolt can be moved to and fro by hand, said casing provided in its closed end with an aperture in line with the bolt, a seal-chamber at the outer end of the bolt-head, a gate for closing said chamber, and locking appliances contained within the bolt-head and adapted to lock the same to its casing; in combination with means for locking the seal and seal-chamber gate to the bolt-head when moved to project the lock-bolt from its casing and to automatically release said seal and gate chamber when the bolt-head is moved to withdraw the bolt into its casing, for the purpose set forth.

15. The combination with the head *f* of the lock-bolt provided with an aperture 15 in its front face, the locking-bolt *w*, and a spring acting thereon to hold the outer end of said bolt projected from one of the lateral faces of said lock-bolt head *f*, a gate hinged to the outer end of the bolt-head and provided with an aperture *x*, and the casing *b* in which said bolt-head has free to-and-fro motion; of a seal having a perforated shank adapted to be inserted through the gate-aperture *x* and the bolt-head aperture 15 with its perforation in line with the locking-bolt *w*, whereby when the said head is pushed into its casing the locking-bolt *w* is moved into the

perforation in the shank of the seal, locking the same, and therethrough the gate, to the bolt-head, substantially as and for the purpose set forth.

682,561. **ADJUSTABLE TUG-HOOK FOR HAMES.** JOSEPH M. NAHM, Charleston, W. Va., assignor of two-thirds to Henry C. Yeiser and Otto H. L. Wernicke, Cincinnati, Ohio. Filed Mar. 22, 1901. Serial No. 52,334. (No model.)



Claim.—1. In tug-book construction for hames, a plate attached to the hame and having a series of locking-stops, a shaft journaled to said plate with means for locking it against rotation in one position, and a tug-book free to slide on said shaft when turned to one position but locked from independent rotation thereon, whereby said tug-book can be engaged with any of said locking-stops to regulate its vertical position and when so engaged is locked together with the shaft from turning.

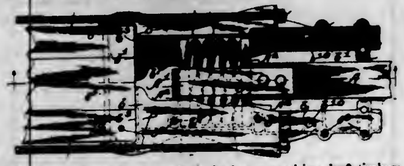
2. In tug-book construction for hames, a plate attached to the hame and having a series of booked lugs, a shaft journaled to said plate with means for locking it against rotation in one position, and a tug-book free to slide on said shaft when turned to one position but locked from independent rotation thereon, whereby said tug-book can be engaged with any of said booked lugs to regulate its vertical position and when so engaged is locked together with the shaft from turning.

3. In tug-book construction for hames, a plate attached to the hame and having a series of booked lugs projecting therefrom, a shaft journaled to said plate and having endwise movement thereon, locking-shoulders on said shaft for locking it against rotation in one position, and a tug-book free to slide on said shaft when the latter is unlocked from the plate and swung around, whereby said tug-book can be engaged with any of said booked lugs to regulate its vertical positions and when so engaged is locked from turning, substantially as described.

4. In tug-book construction for hames, a plate attached to the hame and having a series of booked lugs projecting therefrom, a shaft journaled to said plate and having endwise movement thereon, locking-shoulders on said shaft for locking it against rotation in one position, a tug-book free to slide on said shaft when the latter is unlocked from the plate and swung around, and a spring for holding said shaft in locked engagement, whereby said tug-book can be engaged with any of said booked lugs to regulate its vertical position, and when so engaged is locked from turning, substantially as described.

5. In tug-book construction for hames, the combination of the ribbed plate C provided with booked lugs F and top and bottom lugs D E, the shaft F having a flattened side and secured through and between the lugs D E, a locking-shoulder on the upper end of said shaft provided with a rib i and a correspondingly-shaped aperture in the plate D, and the tug-book H free to slide on but locked against rotation on the shaft G, substantially as and for the purpose specified.

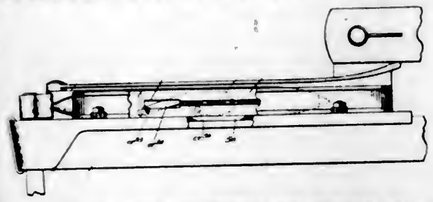
682,562. **CAR DRAFT-RIGGING.** CHARLES S. HERDMAN, Decatur Ill., assignor of one-half to George S. Bigelow, Chicago, Ill. Filed Sept. 7, 1900. Serial No. 29,269. (No model.)



Claim.—A frame for a car draft-rigging comprising draft-timbers, a filling-block and metal frame members, the ends of said draft-timbers and of said filling-block being flush with each other and said metal frame members comprising rigid surfaces which abut against the ends of said draft-timbers and of said filling-block and comprising also webs which embrace only exposed outer surfaces of said draft-timbers, substantially as described.

682,563. **FILLING-REPLENISHING LOOM.** JONAS NORTHROP, Hopedale, Mass., assignor to Draper Company, same place and Portland Me. Filed Apr. 11, 1901. Serial No. 56,372. (No model.)

Claim.—1. In a loom provided with automatic filling-replenishing mechanism, a feeler, and an actuator therefor maintained by engagement with the shuttle-filling in position to intermittingly engage and move the feeler until the filling has been exhausted to a predetermined extent, failure of the feeler to coöperate with the actuator operating by or through the former to effect the actuation of the filling-replenishing mechanism.



2. In a loom provided with automatic filling-replenishing mechanism, a shuttle adapted to contain a supply of filling, a feeler, and an actuator therefor maintained by engagement with the shuttle-filling in position to intermittingly engage and move the feeler until the diameter of the filling mass has been reduced to a predetermined extent, failure of the feeler to coöperate with the actuator operating by or through the former to effect the actuation of the filling-replenishing mechanism.

3. In a loom, provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, and a feeler-actuator mounted on the shuttle and maintained by engagement with the filling therein in position to intermittingly engage and move the feeler until the filling has been exhausted to a predetermined extent, failure of the feeler to cooperate with the actuator operating by or through the former to effect the actuation of the filling-replenishing mechanism.

4. In a loom provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, and a feeler-actuator pivotally mounted on the shuttle and maintained by engagement with the filling therein in position to intermittingly engage and move the feeler until the filling mass has been reduced in diameter to a predetermined extent, failure of the feeler to coöperate with the actuator operating by or through the former to effect the actuation of the filling-replenishing mechanism.

5. In a loom provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, and having an aperture in its side wall to receive the feeler, and a feeler-actuator pivotally mounted on the shuttle and maintained by engagement with the filling therein in position to close the aperture in the shuttle and intermittingly engage and move the feeler until the filling has been exhausted to a predetermined extent, opening of the aperture by withdrawal therefrom of the actuator permitting entrance of the feeler into the shuttle, to thereby effect the actuation of the filling-replenishing mechanism.

6. In a loom provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, and having an aperture in its side wall to receive the feeler, and an arm pivoted on the shuttle, one end of the arm being engaged by the filling until exhausted to a predetermined extent, to thereby retain the arm in position to intermittingly engage and move the feeler, the arm when released by the exhaustion of the filling moving out of the feeler-path, failure of the feeler to be moved effecting the actuation of the filling-replenishing mechanism.

7. In a loom provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, and having an aperture in its side wall to receive the feeler, and a plate-like actuator pivotally mounted on the inner face of the side wall of the shuttle adjacent the aperture, said actuator having an inturned projection to be engaged by the filling until exhausted to a predetermined extent, retaining the actuator in position to intermittingly engage and move the feeler, the actuator when its toe is released moving out of the feeler-path and permitting passage of the feeler through the aperture, non-coöperation of the actuator and feeler operating through the latter to effect actuation of the filling-replenishing mechanism.

8. In a loom provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, and a feeler-actuator pivotally mounted on the shuttle and having a roll to engage the filling, the latter maintaining the actuator in position to intermittingly engage and move the feeler until the filling has been exhausted to a predetermined extent, failure of the feeler to coöperate with the actuator operating by or through the former to effect the actuation of the filling-replenishing mechanism.

9. In a loom provided with automatic filling-replenishing mechanism, a feeler, a shuttle adapted to contain a supply of filling, a feeler-actuator pivotally mounted on the shuttle and having a roll to engage the filling, and means to limit the pivotal movement of the actuator, the latter being maintained by the filling in position to intermittingly engage and move the feeler until the filling has been exhausted to a predetermined extent, failure of the feeler to coöperate with the actuator operating by or through the former to effect the actuation of the filling-replenishing mechanism.

10. In a loom provided with automatic filling-replenishing mechanism, the lay having a recess in the bottom of one of its shuttle-boxes, a shuttle adapted to contain a supply of filling, a feeler-actuator pivotally mounted on the shuttle and maintained in operative position by the filling in the shuttle until the volume thereof has been exhausted to a predetermined extent, and means to control the time of operation of the filling-replenishing mechanism, said means including a feeler to intermittingly engage and be moved by the actuator when the latter is in operative position, failure of coöperation of the feeler and its actuator acting through the controlling means to effect a change of filling, the recess in the lay permitting a part of the actuator to enter it when the filling has been exhausted as described.

11. An automatically self-threading shuttle for feeler-looms, adapted to have a filling-supply inserted automatically therein, and having an aperture in one of its side walls, a feeler-actuator movably mounted on the shuttle and adapted to close or open the aperture, and means to move the actuator to open the aperture by or through exhaustion of the filling to a predetermined extent.

12. An automatically self-threading shuttle for feeler-looms, adapted to automatically receive and to contain a supply of filling and having an aperture in one of its side walls, a feeler-actuator movably mounted on the shuttle and having a filling-engaging portion, to automatically move the actuator into position to close the aperture by insertion of the filling into the shuttle, and means to move the actuator to open the slot when the actuator is released by exhaustion of the filling to a predetermined extent.

13. An automatically self-threading shuttle for feeler-looms, having an aperture in one of its side walls, a feeler-actuator pivotally mounted on the shuttle and adapted to close or open the aperture, and a counterbalance to automatically move the actuator to open the aperture, by or through exhaustion of the filling to a predetermined extent.

14. An automatically self-threading shuttle for feeler-looms, having an aperture in one of its side walls, a feeler-actuator pivotally mounted on the shuttle and located wholly within it and adapted to close or open the aperture, means to automatically move the actuator to open the aperture by or through the insertion of a supply of filling, and means to limit the pivotal movement of the actuator.

15. In a loom provided with automatic filling-replenishing mechanism, a shuttle provided with an actuator continuously and automatically governed in movement by the volume of yarn in the shuttle and in direct engagement with the yarn until the volume thereof is reduced to a predetermined extent, and intermediate devices between said actuator and the filling-supplying mechanism to operate the latter through the movement of the actuator and intermediate devices on exhaustion of the filling to a predetermined point.

682,564. **BOX FOR POSTAGE OR OTHER STAMPS.** ERNEST OLDENBUSCH, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company, of New York. Filed Dec. 15, 1899. Serial No. 740,381. (No model.)



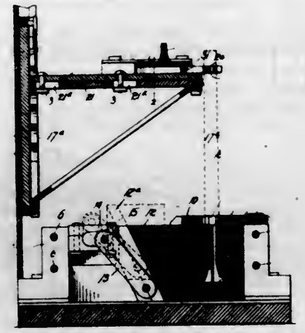
Claim.—1. In a device of the character described, a pair of plates hinged together, a catch on one plate adapted to engage the other plate and a pair of shells longer than the said plates and attached thereto, substantially as described.

2. In a device of the character described, a pair of plates hinged together, a catch on one plate adapted to engage the other plate, a pair of shells longer than the said plates and attached thereto, and projections on the plates extending through the shells and forming means for opening the plates, substantially as described.

3. In a device of the character described, a pair of plates hinged together, a catch on one plate adapted to engage the other plate, a pair of shells longer than the plates and attached thereto leaving a free space at one end of the shells, said shells being tapered at their open ends, and projections on the plates extending through the shells and forming means for opening the device, substantially as described.

682,565. **DRILL-BIT SHARPENER.** WELLINGTON OVERM, Silverton, Colo. Filed Mar. 28, 1901. Serial No. 53,353. (No model.)

Claim.—1. The combination with a casing, of two die members located therein, and recessed to form a socket for the lower extremity of the tool to be sharpened, one of the said members being movable, and suitable means applied to the movable member, for closely confining the drill-bit in the adjustable socket.



2. In a sharpener for drill-bits and similar tools, the combination with a suitable casing, of two dies recessed to form a socket for the extremity of the tool to be sharpened, one of the dies being movable, a block connected with the movable die to have a vertical movement on the latter, the casing having guides for the block whereby it has a diagonal movement, and suitable means for actuating the said block for the purpose of manipulating the movable die.

3. The combination of two dies recessed to form a socket for the cutting extremity of the tool to be sharpened, one of said dies being movable, a block connected with said movable die, and arranged to move vertically as it moves the die horizontally, a crank-shaft, and a link connecting the block with the crank-shaft.

4. In a drill-bit sharpener, the combination with a casing of two cooperating detachable dies, recessed to form a sharpening-socket for the drill-bit, one of the dies being movable to vary the size of the socket whereby it is made to accommodate bits of different sizes, an adjustable plate located above the dies to hold them in place during use, said plate being apertured above the sharpening-socket.

5. In a drill-bit sharpener, the combination of two dies inclosing a sharpening-socket, one die being movable, adapted to receive the cutting extremity of the bit, and means located directly above the sharpening-socket for holding the upper portion of the drill-bit during the sharpening operation.

6. In a drill-bit sharpener, the combination with clamping means provided with a sharpening cavity, of a standard, a vertically-adjustable platform mounted on the standard, and an adjustable device carried by the platform and adapted to clamp the upper portion of the drill-bit shank when its cutting extremity is in the sharpening cavity.

7. In a drill-bit sharpener, the combination with clamping means provided with a sharpening cavity, of a standard, a vertically-adjustable platform mounted on the standard, a plate horizontally adjustable on the platform, and a clamping device mounted on the plate above the sharpening cavity.

8. In a drill-bit sharpener, the combination with bit-confining means provided with a sharpening cavity, of a standard, a vertically-adjustable platform mounted on the standard, an adjustable device carried by the platform and adapted to clamp the upper portion of the drill-bit shank when its cutting extremity is in the sharpening cavity, the said device comprising a slidable plate, two clamping members embraced by the plate on opposite sides and normally separated by a narrow space, the plate being provided with a depending projection adapted to separate the members as the plate is moved in one direction, while the plate embraces the clamping members from the sides and closes the members when the plate is moved in the opposite direction.

682,566. **MECHANISM FOR REMOVING OR REPLACING SWITCHBOARD-JACKS.** WILLIAM S. PAGA, Erie, Pa., assignor of one-half to Peter H. Adams, same place. Filed Dec. 26, 1900. Serial No. 41,061. (No model.)

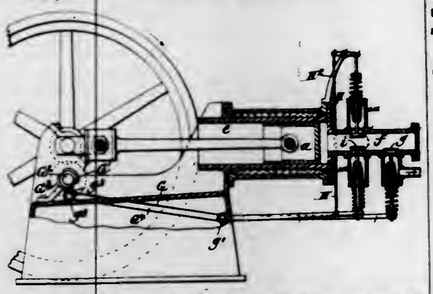


Claim.—1. A tool for removing and replacing telephone-switchboard jacks consisting substantially of a rod adapted to engage and hold the jack, substantially as and for the purpose set forth.

2. A tool for removing jacks from telephone-switchboards comprising substantially a rod screw-threaded on one end so as to screw into a

jack from the front of the switchboard and the jack be moved back thereby through the opening between the switchboard-cables, and returned through said opening to its place in the board, substantially as set forth.

682,567. **INTERNAL-COMBUSTION ENGINE.** PEITZ REICHENBACH, Berlin, Germany. Filed July 5, 1901. Serial No. 67,174. (No model.)

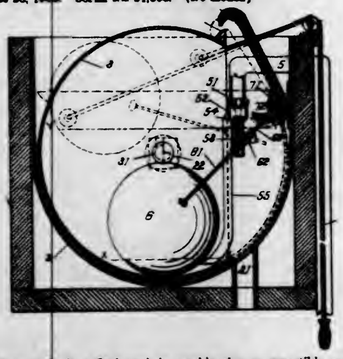


Claim.—1. In an internal-combustion engine, the combination, with a cylinder having a compression-chamber and an exhaust-outlet, of a piston movable in the cylinder, means for closing the exhaust-outlet before the piston completes its backward stroke, whereby a part of the residues of combustion are compressed, and means for supplying air and fuel separately and simultaneously to the compression-chamber upon the completion of the compression of the residues of explosion.

2. In an internal-combustion engine, the combination, with a cylinder having a compression-chamber, an exhaust-outlet, an air-inlet, and a fuel-inlet separate from the air-inlet, of a piston movable in the cylinder, valves in the exhaust-outlet, the air-inlet and the fuel-inlet, means for closing the exhaust-valve before the piston has completed its backward stroke, whereby the residues of combustion are compressed, mechanism for forcing air through the air-inlet valve upon the completion of the backward stroke of the piston, and separate means for simultaneously forcing fuel through the fuel-inlet valve.

3. In an internal-combustion engine, the combination, with a cylinder having a compression-chamber, an exhaust-outlet, an air-inlet and a fuel-inlet separate from the air-inlet, of a piston movable in said cylinder, an exhaust-valve in the exhaust-outlet, an air-inlet valve in the air-inlet, a fuel-inlet valve in the fuel-inlet, means for closing the exhaust-valve before the piston has completed its backward stroke, whereby the residues of combustion are compressed, means for simultaneously opening the air and fuel inlet valve upon the completion of the backward stroke of the piston, and independent devices for separately supplying air and fuel to the air and fuel inlet.

682,568. **FLUSH-TANK.** FRANK REHM, Bridgeport, Conn. Filed June 28, 1900. Serial No. 21,893. (No model.)

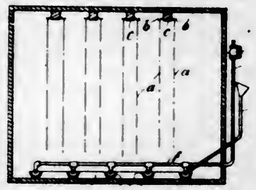


Claim.—1. In a flush-tank in combination an invertible receiving-tank, a chamber into which said tank empties, an engaging portion adapted to hold said tank in its inverted position and automatically-operative means for disengaging said portion from said tank when said tank has been substantially emptied.

2. In a flush-tank in combination an invertible receiving-tank, a chamber into which said tank empties, manually-operative means for inverting said tank, a float and an engaging portion adapted to hold said tank in its inverted position and to be disengaged from said tank by the lowering of said float as the tank empties, substantially as described.

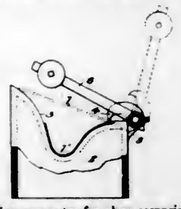
3. In a flush-tank in combination an invertible receiving-tank, a chamber into which said tank empties, a supply-pipe, a valve acting to close said supply-pipe, manually-operative means for inverting said tank, an engaging portion adapted to hold said tank in its inverted position and a float arranged to open said valve and to disengage said portion from said tank by its downward motion as said tank empties, substantially as described.

682,569. **PROCESS OF REMOVING HAIR, WOOL, FUR, OR THE LIKE FROM HIDES OR SKINS.** HENRY R. ROBERTS, Cheshunt, England, assignor to Wool, Hide & Skin Syndicate, Limited, same place. Filed July 2, 1901. Serial No. 66,815. (No specimens.)



Claim.—The herein-described process of dehairing skins, which consists in washing the skins, mechanically breaking the same in moist condition, subjecting the skins while still moist to the combined action of heated ammonia-gas and a heated aqueous vapor, and then mechanically removing the hair from the hide, substantially as set forth.

682,570. **APPARATUS FOR BENDING GLASS.** HENRY J. SAGE, Beaver, Pa., assignor to the Opalite Tile Company, Pittsburg, Pa. Filed May 11, 1900. Serial No. 16,330. (No model.)



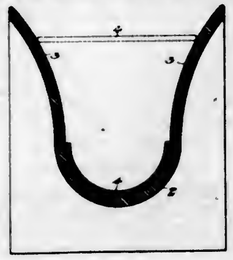
Claim.—1. Bending apparatus for glass comprising a matrix and a clamp adapted to hold an end of the glass the opposite end being free; substantially as described.

2. Bending apparatus for glass comprising a matrix and a clamp adapted to hold the end of the glass, said clamp comprising a pivoted finger and weight; substantially as described.

3. Apparatus for bending glass comprising a matrix having a guiding-surface extending beyond the matrix-cavity, and a clamp for holding the glass opposite to the guiding-surface; substantially as described.

4. Apparatus for bending glass comprising a matrix, having at one end a stop for the glass, and opposite thereto a guiding-surface extending beyond the matrix-cavity; substantially as described.

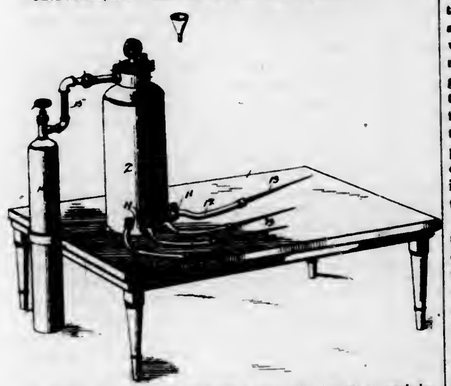
682,571. **APPARATUS FOR BENDING GLASS.** HENRY J. SAGE, Beaver, Pa., assignor to the Opalite Tile Company, Pittsburg, Pa. Original application filed May 11, 1900, Serial No. 16,330. Divided and this application filed Oct. 8, 1900. Serial No. 32,370. (No model.)



Claim.—1. Apparatus for bending glass, comprising a matrix having guiding-surfaces extending beyond the matrix-cavity, and formed in planes more divergent than the walls of the matrix; substantially as described.

2. Apparatus for bending glass comprising a matrix having a guiding-surface for the glass extending beyond the matrix-cavity and flaring outwardly therefrom on a line different from the curvature of the matrix-cavity; substantially as described.

682,572. **PROCESS OF CURING MEATS.** LOUIS M. SCHLARB, Allegheny, Pa., assignor to the B. Gloekler Company, Pittsburg, Pa. Filed June 3, 1901. Serial No. 63,867. (No specimens.)



Claim.—1. The herein-described process of curing meat, consisting in injecting brine and carbonic acid therein, under pressure, exhausting the air from the meat and subsequently subjecting the meat to the action of brine *in vacuo*.

2. The herein-described process of curing meat, consisting in simultaneously injecting brine and carbonic acid therein under pressure, exhausting the internal air from the meat, subjecting the meat to the action of brine *in vacuo* and finally subjecting the meat to the action of carbonic acid under pressure.

3. The herein-described process of curing meat consisting in injecting a preservative fluid and carbonic acid therein, exhausting the internal air from the meat and subsequently subjecting the meat while *in vacuo*, to the action of preservative fluid.

4. The herein-described process of curing meat consisting in injecting brine and carbonic acid therein exhausting internal air therefrom and subjecting the meat while *in vacuo* to the action of a preservative.

682,573. **COIN-CONTROLLED VENDING-MACHINE.** BARTON W. SCOTT, San Jose, Cal., assignor to the Globe Development Company, same place. Filed June 7, 1900. Serial No. 19,444. (No model.)



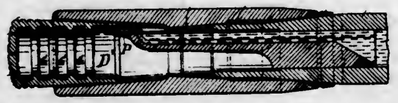
Claim.—1. A coin-actuated controlling mechanism for vending-machines, comprising the combination with a rotatable shaft connected with a vending mechanism to operate the same; of a disk fixed on the shaft, coin-receiving pockets in the disk located diametrically on opposite sides of the shaft and adapted to hold a coin or token of given size in a position projecting beyond the rim of the disk, a coin-chute above the pocket, pivoted oppositely-acting dogs having their free ends resting on the rim of the disk to engage oppositely-set notches therein, one of said dogs being continuously in action to prevent retrograde movement of the disk, and the other dog being set to make contact with the other of said dogs and raise the same clear of the notches in the rim in the forward movement of the disk, and means for ejecting the deposited coin from the pocket in the disk after the dog raised by the coin has passed over the notch in the rim.

2. In a coin-actuated controlling mechanism for vending-machines, the combination with an operating-shaft giving motion to a vending mechanism; of a disk fixed on the shaft having a coin-pocket in the rim in which a deposited coin will rest with its edge standing beyond the rim, a notch in the rim in line with the center of the pocket, a locking-dog engaging said notch and by engagement therewith preventing forward rotation of the disk, an oppositely-acting dog and a plurality of notches in the rim beyond the pocket adapted to prevent retrograde movement of the disk, a coin-ejecting means whereby the coin is expelled from the pocket after the locking-dog riding over the edge of the coin has passed over the locking-notch and means connected to the shaft to impart limited retrograde movement to set the disk after each operation in position to receive another coin.

3. In a coin-actuated controlling mechanism for vending-machines, the combination with the operating-shaft and controlling-disk fixed thereon; of the coin-chute or runway adapted to receive the coin from the controlling-disk, the oscillating stop-lever having stop-pins set with relation to the runway as described, and the stop-pin on the controlling-disk engaging the stop-lever at periods in the rotation of the disk to release one coin in every movement of the disk.

4. In a coin-controlled vending-machine, the combination with the operating-shaft, of the means for resetting it to the starting-point, consisting of the spiral spring having one end attached to a fixed point, the friction-collar on the shaft to which the other end of the spring is attached, a projection on the collar, and the fixed stops adapted to limit the movement of the collar.

682,574. **FOUNTAIN-PEN.** JAMES A. SKILTON, Brooklyn, N. Y. Filed June 3, 1901. Serial No. 63,881. (No model.)



Claim.—1. In fountain-pens, a cap and a tapered holder engaged and held together by two joints the innermost joint of these two joints being a conical, union, hermetical, progressive-wedge and frictional joint, substantially as shown and described.

2. In fountain-pens, a cap and a holder engaged and held together by two joints one of which, located at or near the mouth of the inner member, is a conical, union, hermetical, progressive-wedge and frictional joint, substantially as shown and described.

3. In fountain-pens, a cap and a holder engaged and held together by two separate, conical, union, hermetical, progressive-wedge and frictional joints, one located at or near the mouth of the cap and the other located at or near the mouth of the holder, substantially as shown and described.

4. In fountain-pens, a cap and a holder engaged and held together by two conical, union, hermetical, progressive-wedge and frictional joints, one located at or near the mouth of the cap and having a yielding, elastic outer member, and the other located at or near the mouth of the holder and having a yielding, elastic inner member, substantially as shown and described.

5. In fountain-pens, a cap and a holder engaged and held together by two separate, conical, union, hermetical, progressive-wedge and frictional joints, one located at or near the mouth of the cap and the other located at or near the mouth of the holder, the two joints being separated by an annular chamber-space the opposite surfaces of which are not sufficiently near to develop a capillary film and movement of ink by and between them, substantially as shown and described.

6. In fountain-pens, a conical, union, hermetical, progressive-wedge and frictional joint formed by and between a cap and a holder and located at or near the mouth of the holder but making joint contact with an adjacent inner part of the cap-chamber back from the mouth of the cap, substantially as shown and described.

7. In fountain-pens, a conical, union, progressive-wedge and fric-

tional joint formed by and between a cap and a holder and located at or near the mouth of the holder but making joint contact with an adjacent inner part of the cap-chamber back from the mouth of the cap, substantially as shown and described.

8. In fountain-pens, a conical, union, hermetical, progressive-wedge and frictional joint formed between a cap and a holder within the body of the cap and near the mouth of the holder, the open end of the cap extending beyond the joint over and upon the holder and thereby maintaining the joint and keeping the joint-surfaces in coöperative relations, substantially as shown and described.

9. In fountain-pens, a conical, union, progressive-wedge and frictional joint formed between a cap and a holder within the body of the cap and near the mouth of the holder, the open end of the cap extending beyond the joint over and upon the holder and thereby maintaining the joint and keeping the joint-surfaces in coöperative relations, substantially as shown and described.

10. In fountain-pens, a conical, union, hermetical, progressive-wedge and frictional joint and stop formed between a cap and a holder within the body of the cap and at or near the mouth of the holder, the open end of the cap extending beyond the joint over and upon the holder and thereby maintaining the joint and keeping the joint-surfaces in coöperative relations, substantially as shown and described.

11. In fountain-pens, a conical, union, progressive-wedge and frictional joint and stop formed between a cap and a holder within the body of the cap and at or near the mouth of the holder, the open end of the cap extending beyond the joint over and upon the holder and thereby maintaining the joint and keeping the joint-surfaces in coöperative relations, substantially as shown and described.

12. In fountain-pens, a cap and a holder engaged and held together by an inner frictional joint which is a conical, union, hermetical, and progressive-wedge joint and stop, located in or near the interior or middle portion of the cap-chamber, substantially as shown and described.

13. In fountain-pens, a cap and a holder engaged and held together by an inner frictional joint which is a conical, union and progressive-wedge joint and stop, located in or near the interior or middle portion of the cap-chamber, substantially as shown and described.

14. In fountain-pens, a cap provided at its outer end with an open chamber in combination with a removable condensing-chamber seated in the cap-chamber and forming a frictional union-joint therewith, substantially as shown and described.

15. In fountain-pens, a cap provided at its outer end with an open conical chamber in combination with a removable condensing-chamber seated in the cap-chamber and forming a frictional joint therewith, substantially as shown and described.

16. In fountain-pens, a cap provided at its outer end with an open chamber in combination with a removable condensing-chamber seated in the cap-chamber and forming a conical, union, hermetical, progressive-wedge and frictional joint therewith, substantially as shown and described.

17. In fountain-pens, a cap provided at its outer end with an open conical chamber in combination with a removable condensing-chamber seated in the cap-chamber and forming a conical, union, hermetical, progressive-wedge and frictional joint therewith, substantially as shown and described.

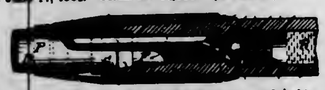
18. In fountain-pens, a cap provided at its outer end with an open conical chamber in combination with a removable condensing-chamber seated in the cap chamber and provided with ledges or sockets to receive and hold condensed ink, substantially as shown and described.

19. In fountain-pens, a cap and a holder engaged and held together by a conical, progressive-wedge and frictional joint in which the inner member is a hollow, comparatively yielding, elastic member and the joint is formed at or near the extreme open end and on the outside of the inner member, substantially as shown and described.

20. In fountain-pens, a conical, progressive-wedge and frictional joint in which the inner member is a hollow, comparatively yielding, elastic member and the joint is formed at or near the extreme open end and on the outside of the inner member, substantially as shown and described.

21. In fountain-pens, a cap provided at its outer end with an open chamber, in combination with a removable condensing-chamber seated in the cap-chamber and provided with ledges or pockets to receive and hold condensed ink, substantially as shown and described.

682,575. FOUNTAIN-PEN. JAMES A. SKILTON, Brooklyn, N. Y. Filed June 17, 1901. Serial No. 64,818. (No model.)



Claim.—1. In fountain-pens, a cap or cover and holder engaged and held together by a frictional joint in which the cap or cover is the inner member and its mouth enters the mouth of the holder, substantially as shown and described.

2. In fountain-pens, a cap and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint, in which the cap is the inner member of the joint, substantially as shown and described.

3. In fountain-pens, a cap and a holder engaged and held together by an elastic, progressive-wedge, union joint in which the cap is an inner and elastic member of the joint, substantially as shown and described.

4. In fountain-pens, a conical, union, hermetical, progressive-wedge and frictional joint formed between the cap and the holder at or near the mouth of the holder, the inner member of said joint being comparatively yielding, and in which the inner member of the joint is so proportioned as to make first contact with the outer member and form the joint on and by the outer surface of the inner member at or near the mouth of the outer member, substantially as shown and described.

5. In fountain-pens, a conical, union, hermetical, progressive-wedge, and frictional joint formed between a cap and a holder at or near the mouth of each, the inner member being a yielding member, and so as to prevent the ink from escaping from the inner surface of the holder and from reaching the outer surface of the holder.

6. In fountain-pens, a cap and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint located at or near the mouth of each, the mouth of the cap entering a chamber in the mouth of the holder and forming the said joint by and between the exterior surface of the cap at or near its open end and the opposite surface of the chamber in the holder, substantially as shown and described.

7. In fountain-pens, a hollow, elastic stopper for the upper and open end of a holder and the holder open at its upper end and provided with a conical seat or chamber engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint formed between the outer surface of the hollow stopper at or near its open end and a conical chamber in the upper end of the holder, substantially as shown and described.

8. In fountain-pens, a hollow, elastic stopper for the upper and open end of a holder and the holder open at its upper end and provided with a conical seat or chamber engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint, substantially as shown and described.

9. In fountain-pens, a stopper for the upper and open end of a holder the outer end of which is provided with a chamber to receive the open end of a fountain-pen cap and hold the same in place while the pen is in use for the purposes of writing, and a holder, said stopper and holder being held together by a conical, union, hermetical, progressive-wedge and frictional joint, substantially as shown and described.

10. In fountain-pens, a cap and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint, in combination with a reinforcing-tube which at one end makes a conical, union, progressive-wedge and frictional joint with the holder and at the other end with the cap, substantially as shown and described.

11. In fountain-pens, a cap and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint, in combination with a reinforcing-tube that makes a frictional union-joint at one end with the holder and at the other end with the cap, substantially as shown and described.

12. In fountain-pens, a holder and a reservoir open at the upper end and provided with a stopper for closing the same, provided also with feed devices and with a ball and ball-valve seat located at or near the inner end of the feed devices for closing the writing-pen end of the reservoir while the reservoir is being filled, and also with a cap which forms a conical, hermetical joint with the writing-pen end of the holder while the reservoir is being filled, substantially as shown and described.

13. In fountain-pens, a ball and a ball-valve seat located at or near the inner end of the feed devices, consisting of a feed-bar provided with a groove and capillary fissures, the ball covering and closing the inner end of the groove or air-duct in the feed-bar, but leaving the fissure or fissures in the feed-bar open or uncovered, substantially as shown and described.

14. In fountain-pens, a ball and a ball-valve seat located at or near the inner end of the feed devices and also provided with a valve-seat for the ball back of the ball and in the holder or reservoir, substantially as shown and described.

15. In fountain-pens, a ball of a ball-valve in combination with two ball-valve seats, one located in front of the ball at and near the inner end of the feed-bar and the other located behind the ball at and near the outer or writing-pen end of the reservoir, substantially as shown and described.

16. In fountain-pens, a ball of a ball-valve in combination with two ball-valve seats, one located in front of the ball at and near the inner end of the feed-bar and the other located behind the ball at and near the outer or writing-pen end of the reservoir, the feed devices in front and the valve-seat behind the ball being provided with capillary fissures for the movement of ink in either direction between the reservoir and the point of the writing-pen, substantially as shown and described.

17. In fountain-pens, a holder and a reservoir open at the upper end and provided with a stopper for closing the same, also provided with a ball and ball-valve seat located at or near the inner end of the feed devices for closing the writing-pen end of the reservoir sufficiently while the reservoir is being filled and the pen is held perpendicular, the ball being so balanced as to roll out of its seat and open the way for the air to enter and the ink to pass from the reservoir to the feed devices when the fountain-pen is held in position for writing, substantially as shown and described.

18. In fountain-pens, a holder and reservoir provided with a ball and ball-valve seat located at or near the inner end of the feed devices for closing the writing-pen end of the reservoir, the ball being so balanced as to roll out of its seat and open the way for the air to enter and the ink to pass from the reservoir to the feed devices when the fountain-pen is held in position for writing, substantially as shown and described.

19. In fountain-pens, a filler and filler-terminal and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint formed by and between the filler and the holder at the writing-pen end of the holder, substantially as shown and described.

20. In fountain-pens, a filler and filler-terminal and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint formed by and between the filler and the holder, alternatively, either at the upper and open end or at the writing-pen end of the holder, at will, the filler-terminal and the chambers at the opposite ends of the holder being made of such relative dimensions as to make contact and form such joint at either end of the holder, substantially as shown and described.

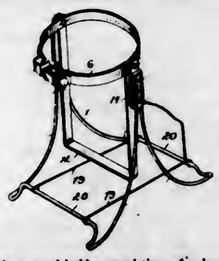
21. In fountain-pens, a filler and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint formed between the holder and the terminal of the filler at the upper end of the holder, in combination with a ball-valve and valve-seat located at and near the inner end of the feed devices as and for the purposes set forth, substantially as shown and described.

22. In fountain-pens, a hollow stopper for the upper and open end of the holder the outer end of which is provided with a chamber to receive the fountain pen cap and hold the same in place while the pen is in use for the purposes of writing, and a holder, said stopper and holder being held together by a conical, union, hermetical, progressive-wedge and frictional joint, substantially as shown and described.

23. In fountain-pens, a hollow, elastic stopper for the upper and open end of a holder the outer end of which is provided with a chamber to receive the fountain-pen cap and hold the same in place while the pen is in use for the purpose of writing, and a holder engaged and held together by a conical, union, hermetical, progressive-wedge and frictional joint and stop located at or near the mouth of the inner member, substantially as shown and described.

24. An elastic non-capillary joint for the convenient opening and hermetically closing of the outlets of vessels to contain fluids, consisting in a conical progressive-wedge, hermetical, and frictional joint in which the inner member is a hollow, comparatively-yielding, elastic member and the joint is formed at or near the extreme open end and on the outside of the inner member, substantially as shown and described.

682,576. TILTING VESSEL-HOLDER. ELDRIDGE J. SMITH, Washington, D. C., assignor of one-half to T. A. Wickersham, same place. Filed June 16, 1900. Serial No. 20,500. (No model.)



Claim.—A tilting vessel-holder consisting of a base part, a tilting part constituting a vessel-holder consisting of a flexible band adapted to pass around the vessel, the ends of the band being bent out and then lapped back upon themselves, leaving recesses formed at the ends, a tightening adjustment consisting of an internally-threaded nut located in one recess and a thumb-screw passing horizontally through the back-lapped ends and recesses of both ends and engaging the nut.

682,577. HOSE-COUPLING. CLARENCE A. TRIPP, Los Angeles, Cal. Filed June 17, 1901. Serial No. 64,935. (No model.)

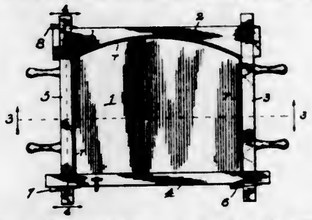


Claim.—1. A dust-protector for air-hose coupling-heads, comprising a hemispherical stopper adapted to be spring-pressed to close the opening in the gasket of the coupling-head, and a spring affixed to the stopper-head adapted to press the stopper-head into tight contact with the gasket in the coupler-head, when the hose is uncoupled, and close the opening therein.

2. A dust-protector for the coupling-heads of air-hose, comprising a hollow hemispherical stopper-head, cut into two parts pivoted together, a portion of one of said parts being adapted to swing away from the other part; and a spring affixed to the stopper-head, adapted to pass into the coupler-head and press the stopper-head into tight contact with the gasket in the coupling-head, and to normally keep the parts of the stopper-head in contact at all points with each other.

3. A dust-protector for the coupling-heads of air-hose, comprising the stopper-head C attached to spring D, said spring having legs adapted to rest upon the bottom of the coupler-head and hold the stopper-spring pressed against the gasket.

682,578. MOLD FOR BURIAL-VAULT SECTIONS. BENJAMIN F. VAN CAMP, Indianapolis, Ind., assignor to Van Camp Burial Vault Company, same place. Filed Nov. 23, 1900. Serial No. 37,468. (No model.)



Claim.—1. The combination, in a mold, of a platform, the border-pieces 2, 3, 4, and 5, 2 and 3 of which are fixed rigidly to said platform and 4 and 5 of which are removable and adjustable toward and from said other border-pieces, and fastening devices for securing said removable and adjustable pieces in place, substantially as set forth.

2. The combination, in a mold, of a platform, the border-pieces part of which are fixedly secured to said platform and part of which are removable and adapted to be adjusted toward and from said fixed pieces, means for securing them in place, and the ribs r secured on the facing edges of border-pieces, substantially as set forth.

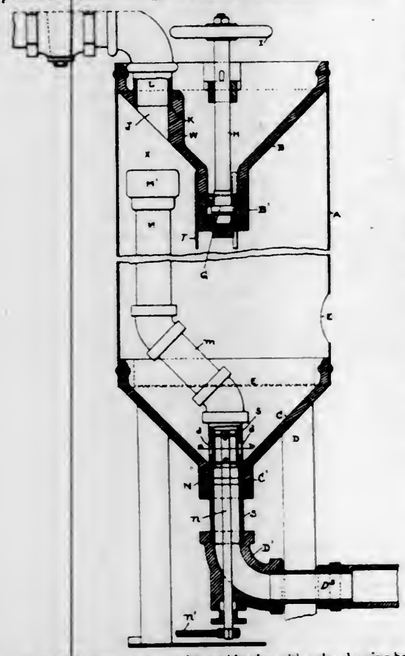
682,579. MIXER FOR SAND-BLAST APPARATUS. AMBROSE G. WARREN, Philadelphia, Pa., assignor of one-half to J. W. Paxson Company, same place. Filed Feb. 23, 1901. Serial No. 49,257. (No model.)

Claim.—1. In a sand-blast apparatus, the combination with a closed casing adapted to receive and contain a body of sand and discharge it directly therefrom under pressure, to a contained combining-tube, of means within the casing to separate therein the sand and fluid-pressure delivered into the casing, and discharge the sand in the path of a separated and rapidly-moving volume of the fluid-pressure, said means consisting of a secondary air-inlet within the casing, and a combining-tube communicating directly therewith, and having peripheral openings into which the sand in the casing is directly delivered by gravity and pressure in the path of said moving volume of fluid-pressure discharged thereinto from the secondary air-inlet.

2. In a sand-blast apparatus the combination with a casing adapted to receive and contain sand and fluid-pressure, a discharge-outlet therein, a combining-tube supported by and opening into said discharge-outlet and extending upward into the interior of the casing, radially-arranged ports or passages in said upper portion of the combining-tube into which sand is adapted to be forced by gravity and pressure directly from the casing, and a secondary air-inlet within the casing communicating by a closed passage directly with the mouth of the combining-tube and adapted to deflect a portion of the fluid-pressure within the casing, above the sand-line, into said combining-tube above the radial sand ports or passages therein.

3. In sand-blast apparatus, the combination with a closed casing having sand and air inlets respectively, admitting sand and compressed air

directly into the body of the same, a conical discharge-hopper at the base thereof, having a central screw-threaded mouth, a combining-tube within the casing and extending into said screw-threaded mouth of the hopper, means extending above the discharge end of the initial inlet for sand, within the casing, conveying fluid-pressure to the upper end or mouth of the combining-tube, and ports or passages in that portion of the combining-tube within the closed casing, said ports or passages establishing communication directly between the combining-tube and the body of sand under pressure, within the casing, substantially as described.



4. In sand-blast apparatus, the combination with a closed casing having sand and air inlets respectively, through which sand and air are received directly into the body of the casing; a secondary air-inlet supported within the casing and adapted to receive and convey the main volume of compressed air to a combining-tube extending partly within and partly without the interior of the closed casing; a sand-hopper at the base of the casing, having a tubular mouth, a combining-tube supported air-tight in said tubular mouth, and perforated at points in its periphery within the casing at or near the base of the sand-discharge hopper; substantially as described.

5. In sand-blast apparatus, the combination with a closed casing having sand and air inlets respectively, admitting sand and air under pressure directly into the body of the same, a combining-tube within the casing and extending without it, means extending above the discharge end of the inlet for sand, within the casing, conveying fluid-pressure to the combining-tube, and ports or passages in that portion of the combining-tube within the closed casing, said ports or passages establishing communication directly between the combining-tube and the body of sand under pressure, within the closed casing, and a sand-valve governing said ports or passages, operated by a stem projecting through the combining-tube; substantially as described.

682,580. ETCHING. RUDOLF WIDMANN, Munich, Germany. Filed July 22, 1899. Serial No. 724,877. (No specimens.)

Claim.—1. The process which consists in providing the plate to be etched with an acid-resisting grain, then executing a design or inscription thereon with an acid-resisting substance, and then etching the said plate.

2. The process which consists in applying to the plate to be etched an acid-resisting powder, and causing the particles of the same to adhere to the plate, then executing a design or inscription thereon with an acid-resisting substance, and then etching the said plate.

3. The process which consists in dusting over the plate to be etched, a resinous powder and heating the plate sufficiently to cause the particles of the same to adhere thereto, then executing the design or inscription on the plate with a fatty crayon or pencil, and then subjecting the plate to the action of acid.

4. The process which consists in providing the plate to be etched with an acid-resisting grain, then executing a design or inscription thereon with an acid-resisting substance, and then etching the said plate, and finally removing the acid-resist from the plate.

682,581. ART OF PREPARING RELIEF PRINTING-SURFACES. RUDOLF WIDMANN, Munich, Germany. Original application filed July 22, 1899, Serial No. 724,877. Divided and this application filed Oct. 26, 1900. Serial No. 34,377. (No specimens.)

Claim.—1. The process of producing relief printing-surfaces which consists in transferring a design in resisting ink or paint to a plate provided with a grain of resisting material and then etching the plate.

2. The process of producing relief printing-surfaces which consists in transferring a painted or half-tone design made with an etching-resist to a plate provided with a resisting-grain, and then etching the plate.

3. The process of producing relief printing-surfaces which consists in transferring a painted or half-tone design made with an etching-resist to a plate provided with a resisting-grain, then etching the plate, and removing the resisting-grain and design.

4. The process of producing relief printing-surfaces which consists in executing a fatty design upon a sheet or film provided with a soluble adhesive grounding and providing a plate to be etched with a resisting-grain, then transferring said design to the grained plate, and then etching.

5. In the art of preparing relief printing-plates, the method of preparing a transfer-sheet which consists in coating a sheet or film with a mixture of albumen and isinglass and then painting a design thereon in fatty paint.

6. In the art of producing relief printing-surfaces the process which consists in coating a sheet of paper or the like with a mixture of albumen and isinglass, then painting thereon a design in fatty paint, then transferring such design upon a plate provided with a resin-grain and finally etching the plate.

7. In the art of producing relief printing-surfaces the process which consists in coating a sheet of paper or the like with a mixture of albumen and isinglass, then painting thereon a design in fatty paint, then transferring such design upon a plate provided with a resin-grain and finally etching the plate and removing the resin-grain and fatty paint.

682,582. SUSPENDERS. AUGUSTUS C. WOOLMAN, Bellefontaine, Ohio, assignor to Susannah Woolman, same place. Filed Nov. 23, 1900. Serial No. 37,478. (No model.)



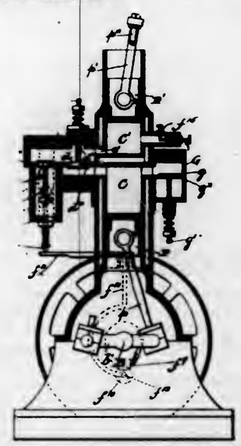
Claim.—1. A suspender-tab designed for insertion through a slit in a shirt, and means carried by said tab for preventing the accidental withdrawal of said tab through the slit, said means comprising a bar and a plate, the latter being of less length than the former and formed with a groove, said bar being pivoted to said plate, substantially as set forth.

2. A suspender-tab designed for insertion through a slit in the shirt, and means carried by said tab to prevent the accidental withdrawal of said tab through the slit, said means comprising a bar and a plate, the former being of greater length than the latter and the latter being formed with a groove to receive the former and also having its ends doubled upon themselves and inserted through the tabs on the suspenders and clenched or bent, substantially as set forth.

682,583. MULTIPLE-CYLINDER EXPLOSIVE-ENGINE. SCHUYLER W. ZEPP, Marion, Ohio. Filed Aug. 10, 1897. Serial No. 647,753. (No model.)

Claim.—1. In a gas-engine, two coacting cylinders placed in alinement one above the other, pistons in said cylinders, a channel connecting said cylinders, a valve in said channel adapted to open the same to admit the combustible charge supplied to the upper cylinder into the lower cylinder and keep said channel open until the explosion of said combustible charge, and to close said channel immediately after said explosion, and means of igniting the combustible charge in said upper cylinder, substantially as shown and described.

2. In a gas-engine, two coacting cylinders placed in alinement one above the other, pistons working in said cylinders and connected with the crank-shaft of said engine, a valve operated by the suction of the piston in said upper cylinder on its forward stroke, said valve admitting the combustible charge to said upper cylinder, said piston in said upper cylinder opening said valve and drawing said combustible charge into said upper cylinder by suction; a channel connecting said cylinders, a valve adapted to open said channel and admit the combustible charge into the lower cylinder and to leave said channel open until said combustible charge is exploded, and to close said channel immediately after said explosion; and means for igniting said combustible charge in said upper cylinder, substantially as shown and described.

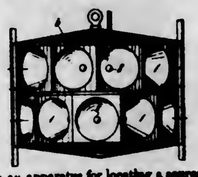


3. In a gas-engine, two coacting cylinders one above the other provided with a partition between them, pistons working in said cylinders from opposite directions, the upper piston connected with the driving-shaft by a cross-head and connecting-rods, and the lower piston by a piston-rod, a port adapted to establish communication between the interiors of said cylinders, a spring-controlled valve seated in said port adapted to be opened as the pistons approach the partition, a suction-valve operated by the upper piston and adapted to admit gas to the upper cylinder, a spring-controlled valve adapted to admit the gasolene into the supply-reservoir, a governor to operate the same, a spring-controlled exhaust-valve adapted to be opened as the pistons start on their forward stroke, and means for igniting the combustible charge, substantially as shown and described.

4. A gasolene-engine provided with upper and lower cylinders in alinement with each other, each provided with a piston, a gasolene-receiving chamber, a spring-valve for controlling the feed of gasolene thereto, and means for operating said valve once at every revolution of the engine, an air and gasolene-mixing chamber connected to said receiving-chamber and provided with a gravity-valve, and means for operating said piston and raising said gravity-valve by suction and thereby admitting gasolene to the upper cylinder, a valve for establishing communication between said cylinders, and a valve for exhausting the products of combustion from the lower cylinder, substantially as shown and described.

5. In a gas engine provided with two cylinders one above the other, a partition separating the same, provided with a valve for establishing communication between said cylinders, pistons working from opposite ends of the cylinders toward said partition, a cross-head connected with the upper piston, and connecting-rods connecting said cross-heads with cranks on the driving-shaft, substantially as shown and described.

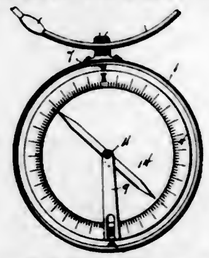
682,584. MEANS FOR LOCATING SOURCE OF SOUND. MARIO R. D'ARAR, Genoa, Italy. Filed Dec. 27, 1900. Serial No. 41,220. (No model.)



Claim.—1. In an apparatus for locating a source of sound, a sound-receiver comprising a plurality of sound-collectors located in rows one above the other, the sound-collectors in one row being intermediate those of the adjacent row.

2. In an apparatus for locating a source of sound-waves, the combination with a plurality of microphonic devices arranged at angles to one another, each device comprising a telephonic transmitter and a circuit-breaker, of a plurality of telephonic circuits controlled by the telephonic transmitter, a telephone-receiver common to all of said telephonic circuits, a plurality of signaling-circuits controlled by the circuit-breakers, indicating devices located in the respective signaling-circuits, and an alarm common to all of said signaling-circuits.

682,585. DIPPING-NEEDLE COMPASS. HENRY D. COTTER and JOSEPH W. A. GARDAM, Brooklyn, N. Y., assignors to William Gardam and Joseph Gardam, New York, N. Y., (composing firm of William Gardam & Son.) Filed Dec. 29, 1897. Serial No. 664,202. (No model.)

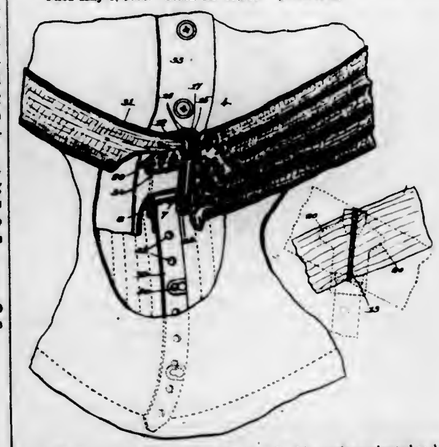


Claim.—1. In a dipping-needle compass, the combination with a spherical case, and a self-adjusting universal suspension device therefor, of an annular dial pivotally supported within said case above and below in a vertical plane, and a magnetic needle pivotally supported within and operating the dial, and mounted on a horizontal axis provided with adjustable bearings, as and for the purpose set forth.

2. The combination with a ring-support, of a compass provided with a suspending device formed with an opening for the passage of the ring-support, said opening being beveled on opposite sides to form converging walls and a sharp bearing-surface for the ring.

3. The combination with a ring-support and a compass provided with a suspension device, and a universal coupling self-adjusting and having opening through which the suspension device passes, the sides surrounding said opening being beveled to converge toward the center forming a sharp edge at the center of the coupling upon which the suspension device bears, substantially as shown and described.

682,586. BUCKLE. WILLIAM A. H. CROWLEY, Boston, Mass. Filed May 3, 1901. Serial No. 58,588. (No model.)



Claim.—1. A buckle comprising two buckle-sections adapted to be clasped together, one of said sections having attached thereto a hook-shaped member adapted to be hooked over the waistband of a skirt, and a flexible attaching-strap secured to said member and adapted to be secured to an undergarment.

2. A buckle comprising two buckle-sections adapted to be clasped together, one of said sections having detachably secured thereto a hook-shaped member adapted to be hooked over the waistband of a skirt, a flexible attaching-strap secured to said member and adapted to be secured to an undergarment.

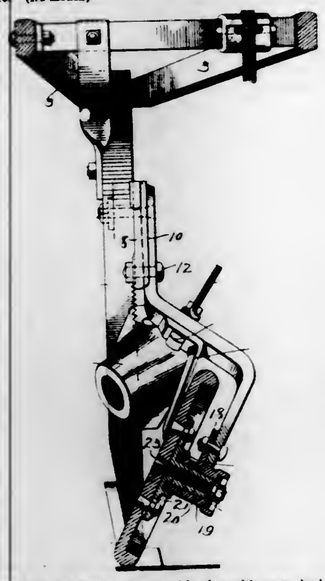
3. A buckle comprising two buckle-sections adapted to be clasped together, one of said sections having a hook-shaped member attached thereto, and a flexible attaching-strap secured to said member, and adapted to be secured to an undergarment, said hook-shaped member having oppositely-disposed wings extended from its body portion, whereby when said body portion is inserted through a buttonhole in the dress-waist of the wearer, the attaching-strap operates to hold both the waistband of the skirt and the dress-waist in position.

4. A fastening device for skirts comprising a body having a hook at one end adapted to be hooked over the waistband of a skirt, and a flexible attaching-strap secured to the other end thereof, said attaching-strap having means for adjustably securing the same to a corset or undergarment, and said body having wings projecting from the opposite sides thereof, whereby when the said body is inserted through buttonholes in the dress-waist of the wearer the attaching-strap operates to hold both the waistband of the skirt and the dress-waist in position.

5. A fastening device for skirts, comprising a body having a hook at one end adapted to be hooked over the waistband of a skirt, and a flexible attaching-strap secured to the other end, said attaching-strap having means to adjustably secure the same to a corset or underwaist, and a loop member connected to the hooked end of said device.

6. A buckle having a hook-shaped member attached thereto and adapted to be hooked over the waistband of a skirt, and a flexible attaching-strap secured to said member and adapted to be secured to a corset or underwaist.

682,587. PLOW. CALVIN R. DAVIS, South Bend, Ind., assignor to South Bend Iron Works, same place. Filed July 16, 1901. Serial No. 68,510. (No model.)

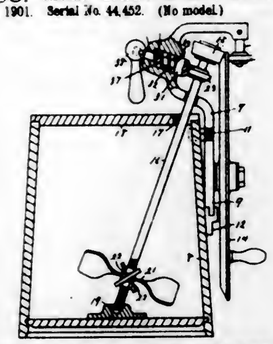


Claim.—1. In a plow, the combination with a standard, of a rotatively-mounted moldboard on said standard, a wheel-standard projecting rearward from the plow-standard, means for adjustably connecting the wheel-standard to the plow-standard, and a wheel adjustably supported by said wheel-standard behind the moldboard and having an oval or rounded periphery.

2. In a plow, the combination with a standard, of a casting secured to said standard and raised between its ends, a wheel-standard secured to the casting by bolts on opposite sides of the raised portion, a wheel-spindle box, a tongue thereon raised or enlarged between its side edges, bolts on opposite sides of said raised portion securing the tongue and wheel-standard together, and a guide-wheel rotatively supported in said box.

3. In a plow, the combination with a standard, a moldboard, a landside and a point connected with said standard, of a wheel-standard secured to the plow-standard and projecting rearward therefrom, a guide-wheel rotatively supported at the rear end of the wheel-standard and means for changing the angle of the wheel with relation to the wheel-standard and means for changing the angle of the wheel-standard with relation to the plow-standard.

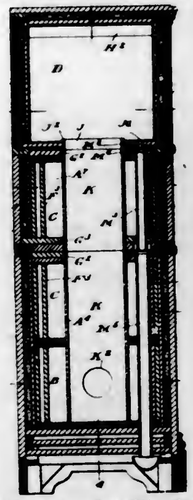
682,588. CHURN. EDGAR A. EDWARDS, Cincinnati, Ohio. Filed Jan. 23, 1901. Serial No. 44,452. (No model.)



Claim.—1. In a churn, the combination with a drive-wheel, a dasher-shaft, and a pinion secured thereon, of a bearing mounted on the shaft near the pinion, and a spring-actuated plunger arranged to detachably engage with the bearing and maintain the pinion in engagement with the drive-wheel.

2. In a churn, the combination with a bracket removably secured to the side of a tub, a drive-wheel mounted thereon to turn in a vertical plane, a dasher-shaft journaled at one end in the center of the tub-bottom, and a pinion secured on its other end, of a bearing attached to the shaft near the pinion, a spring-actuated plunger mounted to slide in a chamber formed in the bracket and arranged to detachably engage the bearing and maintain the pinion in engagement with the drive-wheel, and means to disengage the plunger from the bearing and release the pinion from the drive-wheel, for the removal of the shaft from the tub.

682,589. REFRIGERATOR. EDWARD H. GIBBY, Wyoming, Ohio, assignor to Alfred M. Stearns, same place, and Henry H. Gibby, Lancaster, Ohio. Filed Apr. 14, 1897. Serial No. 632,124. (No model.)



Claim.—1. A refrigerator-crock consisting of an earthenware receptacle B having a floor, roof, back, sides and open front, and having in its roof near the rear thereof an elongated opening E, extending crosswise of said crock, a ledge E^2 formed along the long edge of said opening nearest the front of the crock and inside of said crock, the said crock being also provided with a large opening B through the center of one of its sides, substantially as described.

2. A refrigerator-crock consisting of an earthenware receptacle B, having a floor, roof, back, sides and open front, and having in its roof and floor and near the rear thereof, the elongated openings E, extending crosswise of said crock, a ledge E^2 formed along the long edge of each of said openings nearest the front of said crock, the sides of said crock being completely closed, substantially as described.

3. A refrigerator comprising a body or casing having an ice-chamber and two sets of tiers each consisting of a plurality of superposed provision-compartments, the compartments of each tier or set being arranged at a lower level than the ice-chamber, means to carry cold air from the lower part of the ice-chamber down past the upper compartments of the tiers or sets and to discharge such cold air into the lowermost compartments thereof, and two flues for each set or tier of compartments, the flues of each set or tier being arranged for communication with opposite parts of each compartment of such tier or set and being adapted to circulate such cold air through the provision-compartments and to discharge the same into the upper part of the ice-chamber, substantially as described.

4. A refrigerator comprising a body or casing having an ice-chamber and a plurality of superposed provision-compartments at a lower level than the ice-chamber, means to carry cold air from the ice-chamber down past one or more of the provision-compartments and to discharge the same into the lowermost provision-compartment, and two flues arranged for communication with opposite parts of each of said superposed provision-compartments and adapted to circulate such cold air through the provision-compartments and to discharge the same into the upper part of the ice-chamber, substantially as and for the purposes specified.

5. A refrigerator comprising a body or casing having an ice-chamber and two sets or tiers each consisting of a plurality of superposed provision-compartments, the compartments of each tier or set being arranged at a lower level than the ice-chamber, and the tiers or sets of compartments being spaced away from each other, a flue extended from the lower part of the ice-chamber down through the space between the two tiers or sets or provision-compartments past the upper compartments and arranged to discharge cold air to the lowermost compartment of each tier or set, and means for circulating the air through the several superposed compartments and for returning the same to the upper part of the ice-chamber, substantially as described.

6. A refrigerator comprising a body or casing having an ice-chamber and two sets or tiers each consisting of a plurality of superposed provision-compartments, said tiers or sets being arranged side by side, means to carry cold air from the lower part of the ice-chamber down past the upper compartments of the tiers or sets and to discharge such cold air into the lowermost compartments thereof, said body having a space adapted for communication with each compartment and arranged to carry the air from the same to the upper part of the ice-chamber, and a vertical partition arranged across said space to divide it into two flues each having communication with the compartments of one tier or set, substantially as described.

7. A refrigerator comprising a body or casing having an ice-chamber and a plurality of superposed provision-compartments at a lower level than the ice-chamber and each provided with a lining having an open front and closed top, bottom, sides and back, the lining of the lowermost provision-compartment having an opening in its top and near its rear wall and the lining or linings of the upper provision compartment or compartments being provided with similarly-located openings in both top and bottom, the said openings being arranged to afford circulation of air upward through the provision-compartments from the lowermost compartment, means for supplying cold air from the lower part of the ice-chamber to the lowermost provision-compartment, and means to carry the air after being passed through said openings to the upper part of the ice-chamber, substantially as described.

8. A refrigerator comprising a body or casing having an ice-chamber and two sets or tiers each consisting of a plurality of superposed provision-compartments, the compartments of each tier or set being arranged at a lower level than the ice-chamber and being each provided with a lining having an open front and closed top, bottom, sides and back, the linings of the two lowermost compartments of the respective tiers or sets having each an opening in its top near its rear wall, and the lining or linings of the upper provision-compartments of each tier or set being provided, with similarly-located openings in both top and bottom, the openings in the linings of each tier or set being arranged to afford circulation of air upward through the provision-compartments from the corresponding lowermost compartment, means for supplying cold air from the lower part of the ice-chamber to the lowermost provision-compartment of each tier or set and means to carry the air after being passed through the compartments of each set or tier to the upper part of the ice-chamber, substantially as described.

9. A crock or lining for a refrigerator-compartment consisting of a receptacle having an open front and provided with back, top, bottom and side walls, one of said walls being provided with an opening and having on its inner surface a bead or ledge raised above said surface and extended along the edge of said opening, substantially as set forth.

682,590. GRADUATED LAWN OR GARDEN SPRINKLER. THOMAS J. GREER, St. Helena, Cal. Filed Dec. 26, 1900. Serial No. 41,126. (No model.)



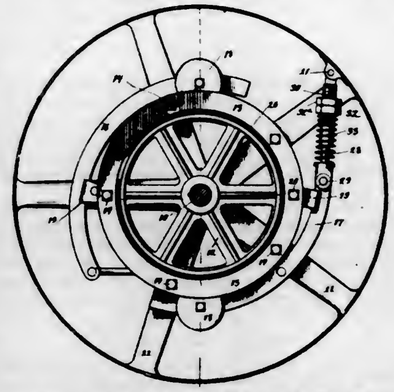
Claim.—1. A lawn-sprinkler comprising two cylindrical shells one within the other, each having a transverse slot in the wall thereof, and means for imparting movement both longitudinally and transversely to said inner shell, substantially as described.

2. A lawn-sprinkler comprising two cylindrical shells one within the other, each having a transverse slot in the wall thereof, the inner one being provided with a stem extending through the end of the outer one, and means for imparting a rotary and longitudinal motion to said inner shell, whereby said slot-opening may be reduced longitudinally and laterally.

3. A lawn-sprinkler constructed of metal comprising two cylindrical shells one within the other, each having a transverse slot in the wall thereof, a perforation in the end of the outer shell, a threaded shank on the end of the inner shell threaded through said hole, and a thumb device for operating said stem, a lock-nut to hold said inner shell in its adjustment and a peg which is screwed or cast in the bottom side of said lawn and garden sprinkler to be thrust into the ground to hold same in place when in operation.

4. A lawn and garden sprinkler constructed of metal, comprising two cylindrical shells the one within the other, each having a corresponding slot cut squarely across the same, Fig. 1, the outer shell having a quarter-inch screw-hole in one end, and the inner, or B, a threaded shank on one end which screws into said hole, said shank having a thumb-screwing device fitted on the outer end with which B, the regulating device, is worked, and having a lock-nut C, to hold regulating device B, in place, substantially as described.

682,591. AUTOMATIC CLUTCH MECHANISM. JAMES R. HARRISON, Racine, Wis., assignor to J. I. Case Threshing Machine Company, same place. Filed Dec. 24, 1900. Serial No. 40,850. (No model.)



Claim.—1. In an automatic clutch, the combination with a rotatable drive-shaft, of fixed and loose rotatable clutch members thereon, centrifugally operated devices mounted on one of said clutch members for engaging and rotating the other clutch member, spring mechanism for opposing the outward movement of said devices, said spring mechanism being so arranged that the leverage of the spring diminishes as the centrifugally-operated devices move outwardly.

2. In an automatic clutch, the combination with a rotatable drive-shaft, of fixed and loose rotatable clutch members thereon, weighted arms pivoted to one of said members and means operatively connected to said arms for engaging and rotating the other of said members, a spring opposing the outward movement of said pivoted arms and connected to one of said arms near its pivot, the opposite ends of said spring and the pivot

of said arm being normally out of line, but arranged to approach a straight line as said arm moves outwardly, whereby the leverage of said spring is diminished when the clutch members are in engagement.

3. In an automatic friction-clutch, the combination with a rotatable drive-shaft, of a friction-wheel and a pulley thereon, one of which parts is fixed and the other loose on said shaft, weighted arms pivoted to said pulley and provided with suitable means for engaging and rotating said friction-wheel, a spring connected to one of said arms near its pivot, and to said pulley, the pivot of said arm and the points of connection of said spring being normally out of line, but arranged to approach a straight line as said weighted arms move outwardly, whereby the leverage of said spring is diminished when said clutch members are in engagement.

4. In an automatic friction-clutch, the combination with a shaft, of a fixed friction-wheel and a loose pulley thereon, said pulley being provided with weighted governor-arms and a friction-band operated thereby for engaging said friction-wheel, a two-part slide pivoted to one of said arms and to said pulley, and a cushion-spring interposed between the parts of said slide.

5. In an automatic friction-clutch, the combination with a shaft, of a friction-wheel and a pulley thereon forming fixed and loose clutch members, said pulley being provided with weighted governor-arms and a friction device operated thereby for engaging said friction-wheel, a two-part slide pivoted to said pulley and to one of said governor-arms near its pivot, the pivots of said slide and of said governor-arm being normally out of line but arranged to approach a straight line as said governor-arm swings outwardly, and a cushion-spring between the parts of said slide.

6. In an automatic friction-clutch, the combination with a shaft, of a fixed friction-wheel and a loose pulley thereon, said pulley being provided with weighted governor-arms and a friction-band operated thereby for engaging said friction-wheel, a two-part slide pivoted to one of said arms and to said pulley, a cushion-spring interposed between the parts of said slide, and a movable collar upon one of said parts for adjusting the tension of said spring.

7. In an automatic friction-clutch, the combination with a shaft, of a loose pulley and a fixed friction-wheel thereon, a pair of connected weighted governor-arms pivoted to said pulley, a friction-band for engaging said wheel secured at one end to the pivot of one of said arms and at its other end to said arm adjacent its pivot, a two-part slide comprising a socket and a bolt engaging said socket, one of said parts being pivoted to said pulley and the other to one of said governor arms and a cushion-spring interposed between said socket and said bolt.

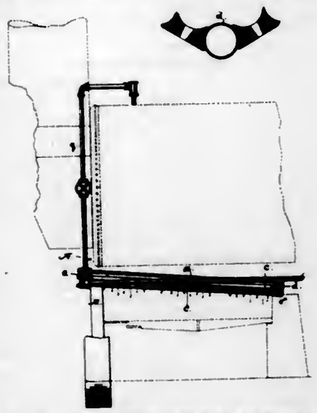
8. In an automatic friction-clutch, the combination with a shaft, of a loose pulley thereon and a friction-wheel secured to said shaft adjacent said pulley, a pair of curved governor-arms interposed between the rims of said wheel and said pulley, supporting-offsets secured to said arms and pivoted at their ends to said pulley, a friction-band for engaging said friction-wheel, secured at one end to one of said pivots and at its other end to one of said offsets, and a spring for opposing the outward movement of said governor-arms.

9. In an automatic friction-clutch, the combination with a shaft, of a loose pulley and a fixed friction-wheel thereon, a pair of weighted governor-arms provided with supporting-offsets for engaging pivots on said pulley, a friction-band for engaging said friction-wheel secured at one end of said pulley and at the other end to one of said governor-arms, and a cushion-spring interposed between said pulley and the end of one of said arms and extending substantially in line with the latter.

10. In an automatic friction-clutch, the combination with a shaft, of a loose pulley thereon, a ring secured to said pulley by offset studs, a friction-wheel arranged intermediate said ring and said pulley and fixed to said shaft, weighted governor-arms pivoted to opposite offset studs, a friction-band for engaging said wheel secured at one end to one of said studs and at the other end to one of said governor-arms, and a spring for opposing the outward movement of said governor-arms.

682,592. DEVICE FOR INTRODUCING AND DISTRIBUTING AIR TO FURNACES. ADAM HEBERER, Berkeley, Cal. Filed Apr. 16, 1900. Serial No. 13,014. (No model.)

Claim.—1. A device for introducing and distributing air in furnaces of steam-boilers, adapted to be located in the fire-space thereof, and having a shell composed of water-tubes arranged in parallel lines in a circle in close order to inclose a cylindrical air-heating chamber; hollow chambered heads uniting the ends of the tubes, one of said heads having a compartment common to all the tubes at that end, the other head having a partition dividing its internal space into two compartments and separating the water-tubes at that end into separate series for return circulation of water to the opposite head; air-delivery outlets in the shell, formed by spaces left between the series of tubes, as described, extending longitudinally of the shell; an inlet for air through one head leading into the space inclosed by the tubes; means for connecting said inlet with an air-supply; and connections in the partitioned head for introducing water into one compartment and carrying it off from the other compartment.



2. In a device adapted for insertion in the fire-space of a furnace for introducing and distributing air over and in relation to the fuel as described, the combination of a plurality of water-tubes arranged in a circle in close order to produce a cylindrical shell, said tubes being separated in groups or series at intervals to leave longitudinal apertures in the shell; hollow heads uniting said tubes at the ends, one of said heads having a compartment common to all the tube-terminals at that end, and the other head divided by a partition into two separate compartments and separating the tube-terminals at that end into separate series for return circulation of water; a water-inlet in one compartment and a water-outlet from the other compartment of the same head; means connecting said inlet and outlet with the water-space and steam-space of the boiler; and an air-supply pipe connecting the air-inlet in the head with an air-supply outside.

3. A device for introducing and distributing air in furnaces having a shell or body formed of a plurality of water-tubes arranged in a circle at intervals apart; hollow heads uniting the ends of said tubes; removable filling-blocks inserted between the tubes; the bolts extending diametrically across the shell and uniting the filling-blocks on one side with those on the opposite side; an air-inlet communicating with the inclosed central space from the outside for introducing air; outlet-apertures at intervals apart in the circumference for distributing air from the interior space through the shell; and water inlet and outlet apertures in one head for maintaining circulation of water through the heads and water-tubes.

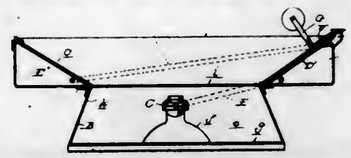
682,593. GATE. DAVID RAMSOUR, Walla Walla, Wash. Filed Dec. 26 1899. Serial No. 741,066. (No model.)



Claim.—In combination with a gate, a stationary post to which said gate is hinged, a bent lever journaled in said gate and secured to a stationary post, said latter post being in the path of said gate, a secondary lever pivoted in said former post and connected to said bent lever and to suitable operative means, the action of said bent lever being such as to elevate and draw said gate toward said secondary post, substantially as set forth.

682,594. APPARATUS FOR OILING FELLIES. DANIEL D. FRISBIE, Detroit, Mich. Filed June 24, 1901. Serial No. 65,770. (No model.)

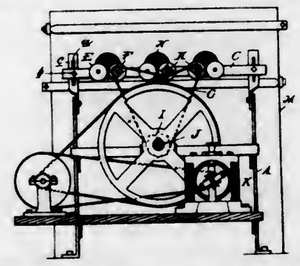
Brief.—A is the tank for containing oil. D is the gasolene-tank for supplying the burner C. In order to create sufficient pressure upon the burner-supply, for which the difference of level between the burner and supply-tank is insufficient, an air-pressure tank E' is provided, the pressure being produced by heating the confined air through the heat from tank A and the burner-gases, which pass through a hole K.



Claim.—1. The combination with a trough, having the bottom thereof inclined upward at the sides, of a casing arranged beneath the central portion of said trough and supporting the same, a triangular tank for the burning oil arranged outside said casing and beneath one of the upwardly-inclined ends of said trough, a burner within said casing and a connection between said burner and burning-oil tank.

2. The combination with a trough, having oppositely-projecting ends, a burner beneath the same and a casing surrounding said burner beneath the central portion of said trough, of oil and air tanks arranged respectively beneath the opposite projecting ends of said trough, without said casing, a connection between said air-tank and the upper portion of said oil-tank, and a connection between the lower portion of said oil-tank and said burner whereby the expansion of air due to the heat from said burner will assist in feeding the oil thereto.

682,595. MACHINE FOR FIRE-FINISHING GLASS ARTICLES. MICHAEL J. OWENS and AMOS R. WILSON, Toledo, Ohio, assignors to the Toledo Glass Co., same place. Filed June 24, 1899. Serial No. 721,717. (No model.)



Claim.—1. The combination of a frame, rollers journaled on the frame and constituting an antifriction-support for a staff, a staff supported and engaged by said rollers, and means for positively rotating one of said rollers for the purpose of rotating said staff, substantially as described.

2. The combination of a frame, two cross-bars thereon, adjusting means for said bars, a support on one bar for a staff, a pair of adjacent rollers journaled on the other bar and constituting a second support for the staff, and means for positively rotating one of said rollers, substantially as described.

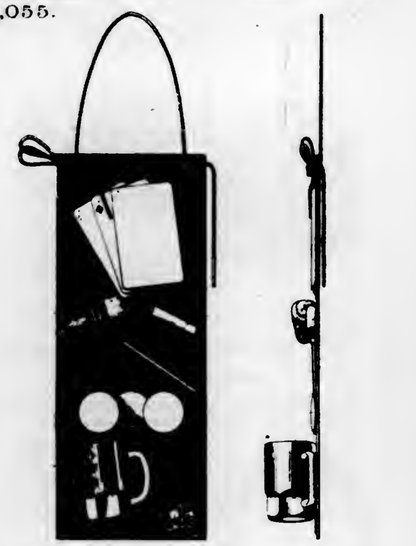
3. The combination of a frame, two cross-bars thereon, supports on one bar for staffs, a plurality of pairs of adjacent rollers journaled on the other bar and each pair constituting a second support for one staff, and a common means for rotating one roller of each pair, substantially as described.

4. The combination of a frame, two cross-bars at the top thereof each having a series of supports for staffs, a pair of adjacent rollers forming one support for each staff, means for rotating one of each pair of rollers and means for adjusting the cross-bars vertically.

5. The combination of a frame, rollers journaled on said frame and constituting an antifriction-support for a staff, means for positively rotating one of said rollers for the purpose of rotating said staff, and a staff detachably supported by said roller-support and provided with means for supporting an article, substantially as described.

DESIGNS.

35,055. DISPLAY-CARD. LOUIS B. MARIX, Chicago, Ill. Filed Aug. 16, 1901. Serial No. 73,275. Term of patent 3½ years.



Claim.—The design for a display-card, substantially as herein shown and described.

35,056. BADGE. HARRY W. TUCKEY, San Francisco, and LUCIEN W. KLINE, Alameda, Cal. Filed May 6, 1901. Serial No. 59,110. Term of patent 14 years.



Claim.—The design for a badge as herein shown and described.

35,057. CHAIN FABRIC. SHUBAEL COTTLE, New York, N. Y. Filed May 21, 1901. Serial No. 61,311. Term of patent 7 years.



Claim.—The design for a chain fabric, substantially as herein shown and described.

35,058. SILVERSMITH'S STOCK. PETER J. GORDON, New York, N. Y., assignor to H. A. Cary Company, same place. Filed Aug. 17, 1901. Serial No. 72,454. Term of patent 3½ years.



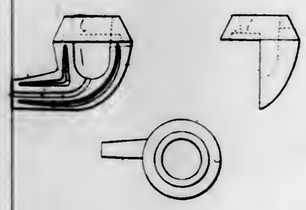
Claim.—The design for silversmiths' stock herein shown and described.

35,059. PENHOLDER. JOHN F. BARNHART, Akron, Ohio. Filed May 23, 1901. Serial No. 61,630. Term of patent 14 years.



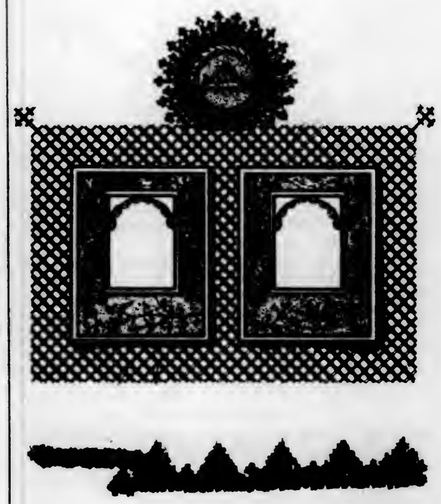
Claim.—The design for a penholder, substantially as herein shown and described.

35,060. MEMBER FOR TOBACCO-PIPE BOWLS. WALTER C. CUSHERMAN, Philadelphia, Pa., assignor to Open Tobacco Pipe Company, of New Jersey. Filed Aug. 5, 1901. Serial No. 70,967. Term of patent 7 years.



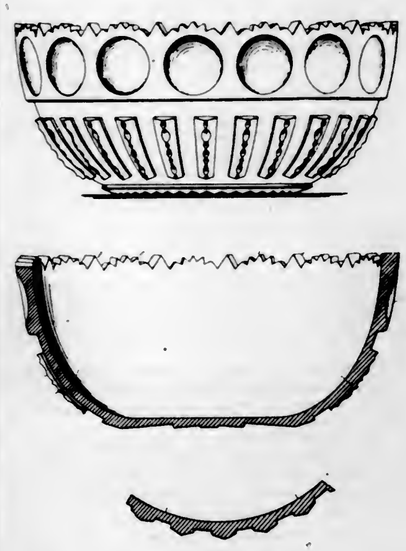
Claim.—The design for a member of a tobacco-pipe bowl as herein shown and described.

35,061. PICTURE-FRAME. OSCAR SODERSTROM, Newark, N. J. Filed June 8, 1901. Serial No. 63,816. Term of patent 14 years.



Claim.—The design for a picture-frame, as herein shown and described.

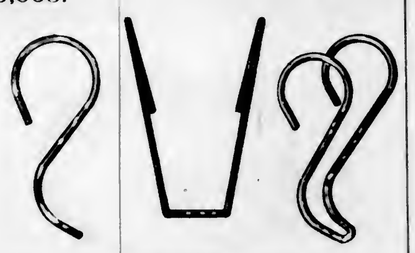
35,062. GLASS RECEPTACLE. ANDREW SNOW, Jr., New Bedford, Mass. Filed July 27, 1901. Serial No. 69,996. Term of patent 3½ years.



Claim.—The design for a glass receptacle as herein shown and described.

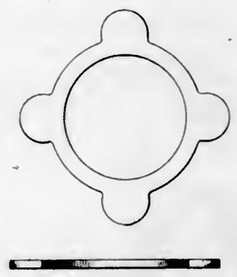
35,063. BOTTLE-HOLDER. EDWARD WAGNER, St. Louis, Mo., assignor to the Model Bottling Machinery Company, same place. Filed Apr. 10, 1901. Serial No. 55,264. Term of patent 14 years.

35,063.



Claim.—A design for a bottle-holder, substantially as herein shown and described

35,064. JAR-RUBBER. FLORENCE C. PULCIFER, Port Huron, Mich. Filed May 18, 1901. Serial No. 60,942. Term of patent 14 years.



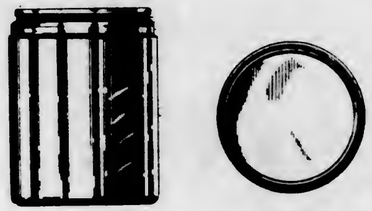
Claim.—The design for a jar-rubber as herein shown and described.

35,065. CAN OR JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,841. Term of patent 14 years.



Claim.—The design for a can or jar substantially as shown and described.

35,066. CAN OR JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,842. Term of patent 14 years.



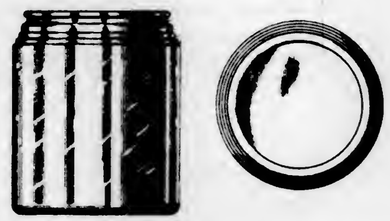
Claim.—The design for a can or jar substantially as shown and described.

35,067. CAN OR JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,843. Term of patent 14 years.



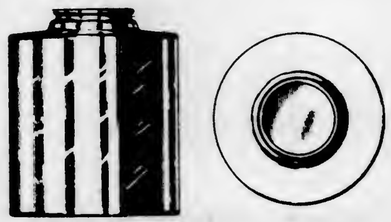
Claim.—The design for a can or jar substantially as shown and described.

35,068. CAN OR JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,844. Term of patent 14 years.



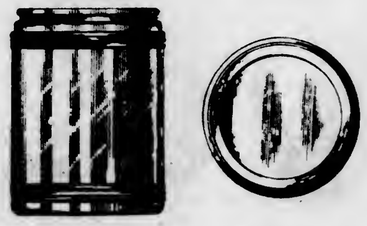
Claim.—The design for a can or jar substantially as shown and described.

35,069. CAN OR JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,845. Term of patent 14 years.



Claim.—The design for a can or jar substantially as shown and described.

35,070. CAN OR JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed Aug. 12, 1901. Serial No. 71,847. Term of patent 14 years.



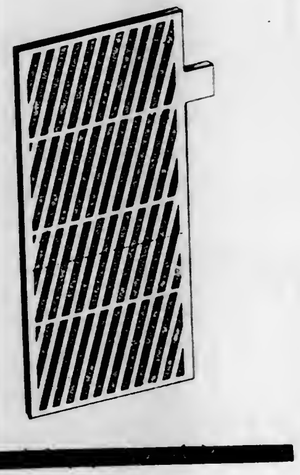
Claim.—The design for a can or jar substantially as shown and described.

35,071. ANODE-PLATE. JOHN HANNAHS, Belleville, Ill. Filed Feb. 2, 1901. Serial No. 45,788. Term of patent 14 years.



Claim.—The design for an anode-plate herein shown and described.

35,072. STORAGE-BATTERY PLATE. TRACY B. HATCH, Menomonie, Wis. Filed Aug. 12, 1901. Serial No. 71,840. Term of patent 14 years.



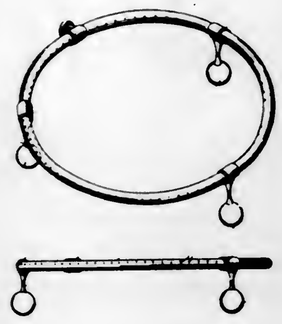
Claim.—The design for a storage-battery plate, as herein shown and described.

35,073. LAWN-SPRINKLER. SCOTT H. HULL, Oskaloosa, Iowa. Filed Aug. 1, 1901. Serial No. 70,560. Term of patent 3½ years.



Claim.—The design for a lawn-sprinkler, substantially as herein shown and described.

35,074. LAWN-SPRINKLER. FRANK R. HULL, Oskaloosa, Iowa. Filed Aug. 1, 1901. Serial No. 70,565. Term of patent 14 years.



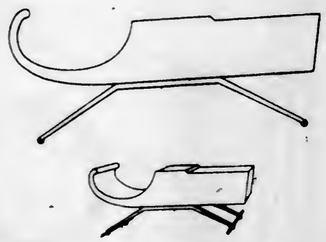
Claim.—The design for a lawn-sprinkler, substantially as herein shown and described.

35,075. METALLIC WHEEL-RIM. JAMES MEREDY MACLELLAN, London, England, assignor to the Stridar Rubber Company, Limited, same place. Filed June 15, 1900. Serial No. 20,483. Term of patent 14 years.



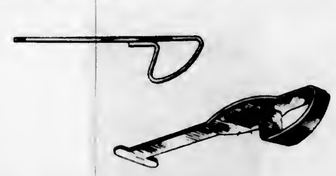
Claim.—The design for a metallic wheel-rim, substantially as herein shown and described.

35,076. VEHICLE-BODY FRAME. RAMSOM R. OLDS, Detroit, Mich. Filed June 5, 1901. Serial No. 63,311. Term of patent 14 years.



Claim.—The design for a vehicle-body frame, substantially as herein shown and described.

35,077. CLAMP MEMBER FOR SMOOTHING-IRON HANDLES. AUGUSTUS N. ALLEN, Scranton, Pa. Filed Aug. 6, 1901. Serial No. 71,107. Term of patent 14 years.



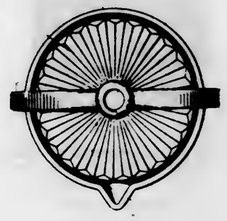
Claim.—The design for a clamp member for smoothing-iron handles, substantially as herein shown and described.

35,078. SMOOTHING-IRON HANDLE. AUGUSTUS N. ALLEN, Scranton, Pa. Filed July 12, 1901. Serial No. 68,118. Term of patent 14 years.



Claim.—The design for a smoothing-iron handle, substantially as herein shown and described.

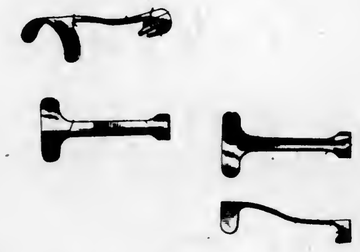
35,079. RECEPTACLE MEMBER FOR MEAT OR OTHER PRESSES. HENRY F. OSBORNE, Newark, N. J., assignor to H. F. Osborne Company, of New Jersey. Filed July 12, 1901. Serial No. 68,113. Term of patent 14 years.





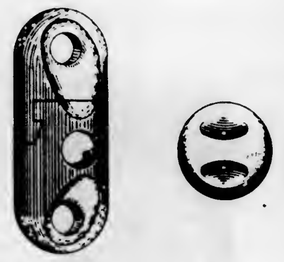
Claim.—The design for the receptacle member of a meat or other press, substantially as herein shown and described.

35,080. DENTAL-ENGINE HANDPIECE ATTACHMENT. MILLARD WINFIELD GRIGG, Fort Mill, S. C. Filed Apr. 20, 1901. Serial No. 56,771. Term of patent 7 years.



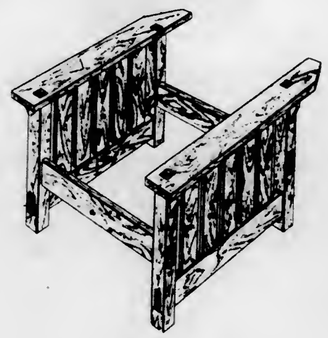
Claim.—The design for a dental-engine handpiece attachment, substantially as herein shown and described.

35,081. ROPE-SPLICER. JAMES L. FRAHER, Peoria, Ill. Filed June 10, 1901. Serial No. 64,046. Term of patent 14 years.



Claim.—The design for a rope-splicer as herein described and shown.

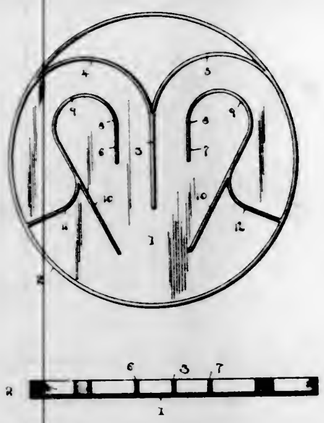
35,082. CHAIR-BODY. GUSTAVE STICKLEY, Syracuse, N. Y. Filed July 22, 1901. Serial No. 69,331. Term of patent 7 years.



Claim.—The design for a chair-body substantially as herein described and shown.

35,083. GAME-BOARD. WILLIAM J. SHARP, York, Pa. Filed Aug. 9, 1901. Serial No. 71,535. Term of patent 7 years.

35,083.



Claim.—The design for a game-board herein shown and described

35,084. RUG. ERNEST H. BENNETT, East Orange, N. J. Filed Aug. 17, 1901. Serial No. 72,449. Term of patent 3½ years.



Claim.—The design for a rug, substantially as shown and described.

35,085. RUG. ERNEST H. BENNETT, East Orange, N. J. Filed Aug 17, 1901. Serial No. 72,450. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

35,086. RUG. ERNEST H. BENNETT, East Orange, N. J. Filed Aug. 17, 1901. Serial No. 72,451. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 10, 1901.

87,029. MEN'S AND WOMEN'S SHOES. MARKS, ROTHSCHILD & Co., Meridian, Miss. Filed Aug. 5, 1901.

THE ARUNDELL.

Essential feature.—The words "THE ARUNDELL." Used since July 1, 1901.

87,030. BOOTS AND SHOES. J. H. WINCHELL & Co., Haverhill Mass. Filed Aug. 3, 1901.



THE WASHINGTON

Essential feature.—A picture of the head of George Washington and the words "THE WASHINGTON." Used since July, 1898.

87,031. BOOTS AND SHOES AND LEATHER. PACKARD AND FIELD, Brockton, Mass. Filed Aug. 14, 1901.

BURROJAPS

Essential feature.—The word "BURROJAPS." Used since July 22, 1901.

87,032. CERTAIN NAMED FABRICS. JOHN S. BRITTAIN DRY Goods Co., St. Joseph, Mo. Filed July 8, 1901.



Essential feature.—A portrait of President Madison. Used since May 15, 1901.

87,033. PAPER BAGS. THE UNION BAG & PAPER Co., New York. N. Y. Filed Aug. 16, 1901.



ANCHOR

Essential feature.—The word "ANCHOR" or the representation of an anchor. Used since 1871.

87,034. FOUNTAIN-PENS. PAUL E. WIRT, Bloomsburg, Pa. Filed Aug. 16, 1901.



Essential feature.—The representation of a hand holding a fountain-pen. Used since June 30, 1901

87,035. POCKET-KNIVES, RAZORS, AND SCISSORS. WATKINS COTTRELL Co., Richmond, Va. Filed May 2, 1901.



Essential feature.—The word "CLIPPER" and the representation of a sabre. Used since April 22, 1901.

87,036. CERTAIN NAMED FANCY METALLIC ARTICLES. L. HUET & H. LICHER, Paris, France. Filed June 27, 1901.



Essential feature.—The letters "H" and "L" and the representation of two key-rings. Used since May 20, 1901.

37,087. SOAP. JAMES S. KIRK & COMPANY, Jersey City, N. J., and Chicago, Ill. Filed Feb. 11, 1901.

I-KE-LENE

Essential feature.—The hyphenated word "I-KE-LENE." Used since December 1, 1900.

37,038. PERFUMERY, TOILET WATER, FACE-POWDERS, AND SACHET-POWDERS. ALBERT F. JANSEN, New York, N. Y. Filed Aug. 2, 1901.

EXQUISIA

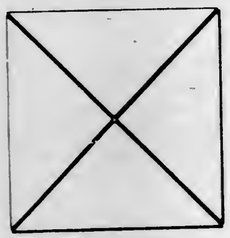
Essential feature.—The word "EXQUISIA." Used since August 1, 1891.

37,039. CERTAIN NAMED LIQUID PREPARATION. NAPOLEON COTA, Burlington, Vt. Filed Aug. 5, 1901.



Essential feature.—The representation of a barrel filled to overflowing with peanuts. Used since June 1, 1901.

37,040. CEREAL PREPARATION TO BE USED AS A BEVERAGE. PROFERINE CEREAL CO., San Jose, Cal. Filed Feb. 14, 1901.



Essential feature.—The representation of a square figure with lines dividing it into substantially equal parts. Used since August 22, 1900.

37,041. CARBONATED OR NON-ALCOHOLIC BEVERAGES. PENNSYLVANIA BOTTLING & SUPPLY CO., LTD., Philadelphia, Pa. Filed July 15, 1901.

37,041.



Essential feature.—The word "SWALLOW," a diamond-shaped figure, the representation of a building, and a panel. Used since June 7, 1901.

37,042. NON-ALCOHOLIC BEVERAGE. BLUE SEAL SUPPLY CO., Boston, Mass. Filed Aug. 12, 1901.

RON-BRE 

Essential feature.—The compound word "RON-BRE" and the representation of a bear. Used since January, 1900.

37,043. WHISKY. REES & FINEMAN, Minneapolis, Minn. Filed July 15, 1901.



Essential feature.—The words "SOLD FROM POLE TO POLE" and a representation of the earth with reversely-arranged bottles at the poles. Used since April 1, 1901.

37,044. CIGARS, CIGARETTES, AND SMOKING AND CHEWING TOBACCO. Y. PENDÁS & ALVAREZ, New York, N.Y. Filed May 6, 1901.

LA MIA

Essential feature.—The words "LA MIA." Used since December, 1876.

37,045. CIGARS, CIGARETTES, AND SMOKING AND CHEWING TOBACCO. Y. PENDÁS & ALVAREZ, New York, N.Y. Filed Apr. 23, 1901.



Essential feature.—A scene comprising the representation of a lady crossing a narrow board extended from an attic-window over a water-wheel in the foreground of a lake, mountain scenery, houses, and people. Used since 1879.

37,046. CIGARS. Y. PENDÁS & ALVAREZ, New York, N. Y. Filed Apr. 23, 1901.



Essential feature.—The representation of two female figures, one holding her hands over a vase filled with flowers and the other standing behind the first and fanning her with an Indian fan. Used since September, 1881.

37,047. CIGARS. Y. PENDÁS & ALVAREZ, New York, N. Y. Filed Apr. 23, 1901.



Essential feature.—The pictorial representation of a female figure attired in a loose costume or gown, with her hands raised holding a head-covering and partially surrounded by garlands of roses and other flowers, which appear to be falling from bells supported on poles at her sides, all of which appear in a foreground of tropical trees. Used since September, 1881.

37,048. CIGARS. Y. PENDÁS & ALVAREZ, New York, N. Y. Filed Apr. 23, 1901.



Essential feature.—The representation of two female figures, one attired in Spanish costume and the other in Indian costume, with garlands of roses and flowers beneath them and partly around them and a shield between them having a laurel wreath thereon. Used since June, 1883.

37,049. CIGARS. Y. PENDÁS & ALVAREZ, New York, N. Y. Filed Apr. 23, 1901.



WEBSTER

Essential feature.—The name "WEBSTER," associated with a portrait of Daniel Webster. Used since September, 1882.

37,050. ALUM BAKING-POWDER. J. C. GRAFT CHEMICAL COMPANY, Chicago, Ill. Filed Sept. 24, 1900

RABBIT'S FOOT

Essential feature.—The words "RABBIT'S FOOT." Used since September, 1898.

37,051. HARD SUGAR. THE AMERICAN SUGAR REFINING CO., New York, N. Y. Filed Aug. 14, 1901.



Essential feature.—The representation of a mask. Used since August 1, 1900.

37,052. BUTTER AND CHEESE. THE CONTINENTAL CREAMERY COMPANY, Denver, Colo., and Topeka, Kans. Filed Aug. 12, 1901.



Essential feature.—The representation of three heart-shaped figures, each bearing the letter "C." Used since March 1, 1900.

37,053. LEAD. THE DAVIS LEAD COMPANY OF PITTSBURG, Pittsburg, Pa. Filed Feb. 27, 1900.

STA-THERE

Essential feature.—The hyphenated word "STA-THERE." Used since January 1, 1900.

37,054. WALL-PLASTER. GRAND RAPIDS PLASTER CO., Grand Rapids, Mich. Filed Feb. 4, 1901.



Essential feature.—The word "HERCULES." Used since December 15, 1900.

THE NORRIS PETERS CO.
PHOTO-LITH.
WASHINGTON, D.C.

LABELS

REGISTERED SEPTEMBER 10, 1901.

8,648.—*Title:* "BLACK EAGLE BRAND." (For Shoes.) AL A. ROSENBUSH & Co., Boston, Mass. Filed August 19, 1901.

8,649.—*Title:* "PED-REINA." (For Shoes.) LAMKIN & FOSTER, Boston, Mass. Filed August 19, 1901.

8,650.—*Title:* "TOP NOTCH." (For Shoes.) THE WILLIAM RICHARDSON COMPANY, Hornellsville, N. Y. Filed July 23, 1901.

8,651.—*Title:* "MINERVA." (For Carpet-Chain.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,652.—*Title:* "HOUSEKEEPER." (For Carpet-Chain.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,653.—*Title:* "ECONOMY." (For Carpet-Chain.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,654.—*Title:* "PEARL." (For Carpet-Warp.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,655.—*Title:* "QUAKER CITY." (For Carpet-Warp.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,656.—*Title:* "FIDELITY." (For Carpet-Warp.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,657.—*Title:* "TIOGA." (For Carpet-Warp.) TINKLER AND Co., Philadelphia, Pa. Filed August 15, 1901.

8,658.—*Title:* "LEMONITA." (For a Cleansing Preparation.) CHARLES W. LEFFINGWELL, Jr., Whittier, Cal. Filed August 16, 1901.

8,659.—*Title:* "HAVANA SMOKERS." (For Cigars.) F. GARCIA & BROS., New York, N. Y. Filed August 15, 1901.

8,660.—*Title:* "I. M. Q. K." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed August 16, 1901.

8,661.—*Title:* "GOYER'S MAPLE SYRUP BLEND." (For Syrup.) C. W. GOYER & Co., Memphis, Tenn. Filed June 17, 1901.

8,662.—*Title:* "THE SIBERIAN TRANSIT TEA." (For Tea.) THE SIBERIAN TRANSIT TEA CO., New York, N. Y. Filed August 16, 1901.

8,663.—*Title:* "COFATENO." (For a Table Beverage.) THE COFATENO COMPANY. Minneapolis, Minn. Filed August 20, 1901.

8,664.—*Title:* "VITAQUA." (For Mineral Water.) CONSOLIDATED BOTTLING Co., Huron, S. D. Filed August 5, 1901.

8,665.—*Title:* "TATANKA." (For Mineral Water.) CONLOLIDATED BOTTLING Co., Huron, S. D. Filed August 5, 1901.

8,666.—*Title:* "BEEMAN'S SWEETHEART GUM." (For Chewing-Gum.) ELBERT BEEMAN, Waco, Tex. Filed August 15, 1901.

8,667.—*Title:* "HI-HI CHEWING GUM." (For a Medicinal Chewing-Gum.) ROBERT ARTHUR WILSON, Portland, Oreg. Filed August 15, 1901.

8,668.—*Title:* "MEKKO COUGH MIXTURE." (For Cough Remedy.) OGDEN & SHIMER, Middletown, N. Y. Filed August 15, 1901.

8,669.—*Title:* "FOREST TAR DROPS." (For Cough-Drops.) FRANK S. ZAPPULLA, Brooklyn, N. Y. Filed July 9, 1901.

8,670.—*Title:* "PERRIN'S PILE SPECIFIC." (For a Medicine.) C. A. PERRIN, Helena, Mont. Filed February 23, 1901.

8,671.—*Title:* "RUMOL." (For a Medicine.) IRWIN MCGREGOR ADAMS, New York, N. Y. Filed August 7, 1901.

8,672.—*Title:* "COLE'S COUGH CURE." (For a Medicine.) J. W. COLE & Co., Black River Falls, Wis. Filed August 19, 1901.

8,673.—*Title:* "CROWN ANT EXTERMINATOR." (For an Ant-Exterminator.) IDA E. STEVENS, Whiteplains, N. Y. Filed August 16, 1901.

PRINTS

REGISTERED SEPTEMBER 10, 1901.

398.—*Title:* "NIGHT'S COMFORT IS—LIGHT." (For Welsbach Lamps.) ALFRED GRATZ, Philadelphia, Pa. Filed August 10, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

WHIPPLE *v.* SHARP.

Decided June 21, 1901.

1. MOTIONS TO DISSOLVE—SHOULD BE MADE AFTER PRELIMINARY STATEMENTS ARE APPROVED.

A motion to dissolve made before the preliminary statements are approved when as yet the parties have no right to inspect each other's applications should not be transmitted to the Primary Examiner except under those unusual circumstances which would render it just to hold all parties bound by the decision rendered.

2. SAME—PIECEMEAL MOTIONS.

The piecemeal disposition of motions to dissolve is not a method to be commended, and it is regarded as for the interests of all parties that motions be transmitted and decided only after each party is in full possession of the facts which may have a hearing upon the matter. A knowledge of the application without a knowledge of the actions which have been taken is not such full information.

APPEAL on motion.

HARROWS.

Patents of Effinger M. Whipple granted August 30, 1898, and November 7, 1899, Nos. 609,981, 610,115, 636,371, and 636,477. Application of Charles S. Sharp filed December 21, 1897, No. 662,802.

Mr. Hubert E. Peck and *Messrs. Whitaker & Prevost* for Whipple.

Mr. B. J. Noyes and *Messrs. Dodge & Sons* for Sharp.

ALLEN, *Commissioner:*

This is an appeal by Whipple from the decision of the Examiner of Interferences refusing to transmit to the Primary Examiner his motion to dissolve the above-entitled interference upon all the grounds of Rule 122.

The motion was made before the preliminary statements of the parties were received and approved, and its transmission was opposed by Sharp. It is the well-settled practice of the Office to refuse to transmit such motions at this stage of the proceedings when as yet the parties have no right to inspect each other's applications except under those unusual circumstances which would render it just to hold all parties bound by the decision rendered. (*Laurent-Cely* v. *Payen*, 51 O. G., 621; *King and Babendreier* v. *Libby*, 89 O. G., 2653.) An inspection of the application may reveal grounds for dissolution not apparent from a reading of the issue alone or from a partial knowledge of the contents of the application, and it is regarded as for the interests of all parties that these motions to transmit be made and considered only after each party is in full possession of the facts which may have a bearing upon the matter. The piecemeal disposition of motions to dissolve is not a method to be commended; but all questions to be raised should be presented at one time.

While in the present case Whipple may be in possession of a copy of Sharp's application as filed, he has no copy of all of the subsequent actions, and they may have a material bearing upon the question of dissolution.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Eighth Circuit.

SHAVER *et al. v.* HELLER & MERZ COMPANY.

Decided April 29, 1901.

1. UNFAIR COMPETITION—"AMERICAN BALL BLUE"—INJUNCTION GRANTED.

Where the complainants had built up a trade for "American Ball Blue" and "American Wash Blue," the respondents were properly enjoined from using the same words upon their blue on the ground of unfair competition, notwithstanding the descriptive character of the words.

2. SAME—GEOGRAPHICAL AND DESCRIPTIVE TERMS.

Geographical terms and words descriptive of character, quality, or place of manufacture or sale cannot be monopolized as trade-marks; but the use of such terms and words to palm off the goods of one manufacturer or vendor as those of another and to carry on unfair competition may be lawfully enjoined to the same extent as the use of any other terms or symbols.

3. SAME—FOUNDATION FOR SUIT—FRAUD—RIGHT TO MARK UNNECESSARY.

Suits to enjoin unfair competition in trade are founded upon the damage to the trade of the complainants by the fraudulent passing of the goods of one manufacturer for those of another, and no proprietary interest in the words, names, or means by which the fraud is perpetrated is requisite to maintain the suit.

4. SAME—PACKAGES DIFFERENT, BUT DESCRIPTIVE WORDS THE SAME—FRAUD.

Where the appellants put their goods up in different-colored packages and in other ways differentiated the dress of their goods from that of those manufactured by the appellee, but where the bluing was ordinarily bought and ordered by its name "American Ball Blue, *Held* that the differences in the packages did not and could not prevent the fraud.

5. SAME—NAME AND ADDRESS OF MANUFACTURER ON PACKAGE DOES NOT AVOID FRAUD.

The placing of the appellants' name and address upon the packages in addition to the appellee's mark is an aggravation and not a justification of the use of that mark, since it enabled them to derive greater benefit from their fraud.

6. GOOD-WILL OF TRADE IN ARTICLE—NOT LOST BY PUTTING CUSTOMER'S NAME ON IT.

One does not lose the good-will of his trade in an article of his manufacture by placing upon it the names of his customers who are engaged in selling it, nor by the fact that the consumers know only the name and excellence of the article and neither know nor care who makes it.

7. INJUNCTION—DESCRIPTIVE WORDS—MAY DESCRIBE, BUT NOT MISLEAD.

An injunction against the use of the words "American Ball Blue" does not prevent a description of the goods as being an American product, since that can be effected in many forms of expression without leading purchasers to believe that it is the product of the complainants.

8. EXERCISE OF RIGHTS—INJURY TO NEIGHBORS.

The principle of law that no one may so exercise his own rights as to inflict unnecessary injury upon his neighbor is general and without exception.

9. EQUITY—CLEAN HANDS.

He who comes into equity must do so with clean hands; but the inequity which will repel him must have an immediate and necessary relation to the equity for which he sues. It does not repel all sinners from courts of equity.

APPEAL from the Circuit Court of the United States for the Northern District of Iowa.

STATEMENT OF THE CASE.

This is an appeal from a decree which enjoins the appellants, Isaac H. Shaver, Frederick H. Shaver, James E. Blake, and Ella Bever-Blake, copartners as Shaver, Blake & Co., from using the brands or names "American Ball Blue" and "American Wash Blue" to palm off bluing made by parties other than the appellee, the Heller & Merz Company, a corporation, as the bluing made and sold by that corporation. (102 Fed. Rep., 882.) The chief objection assigned to the decree is that it forbids the appellants to use the word "American" to deceive the public and to defraud the appellee, while the latter has no proprietary interest in that word or in its exclusive use.

Mr. Charles K. Offield (*Mr. Henry S. Towle, Mr. Charles C. Linthicum*, and *Mr. U. C. Blake* on the brief) for appellants.

Mr. Edmund Wetmore (*Mr. Archibald Cox* on the brief) for appellee.

Before CALDWELL, SANBORN, and THAYER, *Judges*.

SANBORN, circuit judge, after stating the case as above, delivered the opinion of the court.

May a court of equity lawfully enjoin one from using the word "American" to sell the goods of one manufacturer as those of another to the damage of the latter and the deceit of the purchasers? This is the real issue which this case presents. It arises out of this state of facts: The appellee is a corporation which succeeded in 1889 to the business of manufacturing and selling bluing which had been established in the State of New Jersey by Heller & Merz in 1869. In 1872 the predecessors of the appellee put upon the market bluing of their manufacture in small round balls under the name "American Ball Blue," and from that time until 1898 they continued to make and sell this form of bluing under this name. By energy, enterprise, and perseverance they established a large demand for and a lucrative trade in this specific article of their manufacture. In 1898 there were many different names used to distinguish the origin or ownership of the various bluings upon the market in the form of balls. Among these were the "American Ball Blue" of the appellee, the "National Ball Blue," the "Royal Ball Blue," "Sauer's Ball Blue," and "Fischer's Ball Blue." The article made by the appellee became known to the trade by its name, quality, and character, and it was generally ordered, bought, and sold by its title "American Ball Blue." No one but the appellee had ever made or sold any bluing under this name, and the appellee's use of it had been continuous, notorious, and exclusive. In 1897 the appellants bought the business of a firm of soap-makers at Cedar Rapids, in the State of Iowa, styled G. M. Olmsted & Co. Olmsted & Co. had for many years purchased of the appellee bluing of its manufacture styled "American Wash Blue;" but they had never bought or sold the American ball-blue. In the early part of the year 1898 the appellants bought bluing made by others than the appellee and very properly issued notices to the trade that after May 1, 1898, the "American Wash Blue," which their predecessors, Olmsted & Co., had been selling, would be succeeded by the "Salome Laundry Blue;" but in July of that year, after an effort to sell the Salome blue for two months, their cupidity seems to have overcome their honesty, and they proceeded to solicit purchasers and to make sales of bluing not made by the appellee at greatly-reduced prices under the names "American Ball Blue" and "American Wash Blue." In their correspondence they called these names their brands and styled themselves "Manufacturers of American Ball Blue, American Wash Blue," although they never made any bluing of any kind and never purchased any of these articles which they pretended to sell. Upon the packages in which they shipped the articles which they sold they placed their own names and their residence, Cedar Rapids, Iowa, and by colors and in other ways differentiated the dress of their goods from that of those manufactured by the appellee; but as the appellee's bluing was generally ordered and sold by correspondence and by its names these differences in the dresses of the packages did not prevent and cannot prevent the fraud and deceit which the appellants perpetrate by the use of these names and by soliciting orders for and selling their goods under them. The result of this course of action on the part of the appellants was that they diverted to themselves a large portion of the trade of the appellee in the West and reaped the benefit of the established reputation of its goods.

The history of the American wash-blue differs to some extent from that of the American ball-blue. The predecessors of the appellee applied the former name in 1874 to bluing of their manufacture in the form of lozenges packed in small cylinders and proceeded to sell it. From 1878 to 1897 the predecessors of the appellants, Pomeroy & Olmsted and G. M. Olmsted & Co., purchased this article from the appellee and from its predecessors and sold it

from their place of business at Cedar Rapids, in the State of Iowa. They advertised this article of bluing in connection with their advertisements of the soaps they were selling, and at their request the manufacturers of the bluing, in addition to putting upon the packages their trade-mark, which was the letter "U" surrounded by a triangle, and the name of their factory, "American Ultramarine Works," placed the names of Pomeroy & Olmsted and G. M. Olmsted & Co. thereon. During five years of this term G. M. Olmsted & Co. bought the American wash-blue of the Consolidated Ultramarine Company, Limited; but that company was a distributer for the appellee and other manufacturers and the bluing was made and packed by the appellee or its predecessors during all this time. The customers who purchased of Pomeroy & Olmsted and of G. M. Olmsted & Co. knew the bluing, its character, and its name, but they did not know who manufactured it and supposed Pomeroy & Olmsted or G. M. Olmsted & Co. to be its manufacturers. When the appellants purchased the business of G. M. Olmsted & Co., they bought its good-will, and they insist that they thereby became entitled to use the name "American Wash Blue" upon any bluing which they may buy and sell, whether it is manufactured by the appellee or not. The facts which condition this claim were stated more at length and were carefully considered by the court below in its opinion in *Heller & Merz Co.* v. *Shaver*, (102 Fed. Rep., pp. 882, 886.) That court came to the conclusion that the appellants had no better right to use the name "American Wash Blue" to palm off the goods of other manufacturers as those made by the appellee than G. M. Olmsted & Co. had and that the latter firm stood in such a fiduciary relation to the appellee that they could not be permitted to take such action. It held that the good-will of the business established under the name "American Wash Blue" was the property of the appellee. These conclusions are, in our opinion, well founded in fact and in law. The brand "American Wash Blue" was conceived and applied to their manufacture by the predecessors of the appellee. The excellence of the article and the introduction which the appellee gave it or induced Olmsted & Co. to give it by the character and price of the bluing it furnished established the trade in it and gave that trade its value. Purchasers in the trade and the public came to know, to demand, and to buy the appellee's manufacture by this brand. The inevitable result is that the good-will of this trade became the appellee's property, which neither Olmsted & Co. nor their successors could lawfully lead away from it by fraud or falsehood. One does not lose the good-will of his trade in an article of his manufacture by placing upon it the names of his customers who are engaged in selling it, nor by the fact that the consumers know only the name and excellence of the article and neither know nor care who makes it. (*Brewery Co.* v. *Powell*, [1897,] App. Cas., 710, 716; *Lichtenstein* v. *Goldsmith*, C. C., 37 Fed. Rep., 359.)

The conclusions which must be drawn from the facts of this case, therefore, are that by industry and energy the appellee has built up an extensive and lucrative trade in the specific articles of its manufacture, which have become known to the trade and the public as "American Ball Blue" and "American Wash Blue;" that these articles are ordered, bought, and sold by mail and telegraph by their names or brands without a view of the packages in which they are inclosed; that the appellants have put these names or brands on goods made by other manufacturers, have offered these goods to the public at reduced prices, and have solicited purchasers to buy them under these names for the purpose and with the intent of selling these goods as the manufactures of the appellee; that they succeeded in this way in deceiving purchasers and defrauding the appellee of a portion of its trade, and that these brands cannot be used as the names of the products of other manufacturers than the appellee without creating confusion in the trade and purloining the latter's custom.

In this state of the case the appellants have been enjoined from using these names, and one of their loudest complaints is that the goods they sell are made in America and that they are forbidden to use the word "American" to notify the public of this fact. There are two answers to this objection—first, that the injunction does not prohibit the appellants from using the word for that purpose, and, second, that they neither need nor seek so to use it; but their only object in trying to make use of it is to filch the good-will and trade of the appellee. The injunction restrains them only from "holding themselves out to the public as the owners of the names or brands 'American Ball Blue' and 'American Wash Blue,' or as the manufacturers of the commodities heretofore known and sold under these names, or from selling or offering for sale under these names or brands, or names or brands intended to simulate the same, any blue or bluing manufactured by parties other than complainants." They insist that they have the right to state that the goods they sell are made in America and the right to use the word "American" for that purpose. The injunction does not forbid them from doing so. They may state in their correspondence or upon their packages, notwithstanding the inhibition of the court, that their ball-blue or wash-blue is an American manufacture, an American article, or an American product. They may express the same idea by the declaration that it is a New York or a New Jersey or an Iowa product, as the case may be, and they may convey the same thought in many other ways without impinging upon the decree of the court. The truth is, however—and there could be no more conclusive proof of it than the prosecution of this appeal—that they do not desire to use the word "American" or any other word for the purpose of declaring that the articles which they sell are made in America. Every one who purchases them either knows or presumes that to be the fact already. What they seek, and the only thing they

really desire, is to use this word to divert to themselves the appellee's trade in American ball-blue and in American wash-blue, and they well know that they can accomplish this only by using it in those brands for the sole purpose of conveying to the public the falsehood that the goods they sell are made by the appellee.

Another proposition of counsel for the appellants is that the appellee has and can have no proprietary interest in the word "American" or in its exclusive use, and therefore it is entitled to no injunction to restrain its use by another. But an ownership and an interest in the means by which a fraud or wrong is about to be committed are not essential to the maintenance of a suit to enjoin its perpetration. A title to the property about to be injured is sufficient. One gathers the seeds of pernicious weeds and threatens to sow them on the field of his neighbor. The latter has no proprietary interest in the seeds, but he owns the field and the crop it is producing, and these facts are sufficient to warrant any court in granting him summary relief by injunction against the threatened injury. The appellants scatter throughout the land, for the purpose of deceiving the public and diverting to themselves the trade, custom, and good-will of the appellee, words and names which convey the false statements that the goods they are selling were made by the Heller & Merz Company. That company has no property in the words or in the means by which this fraud is committed, but it owns the good-will—the custom—which the false and fraudulent use of these words and names injures and destroys, and its proprietary interest in this goodwill is ample to warrant the court in enjoining its destruction by the fraud. The contention of counsel for the appellants here is a confusion of the bases of two classes of suits—those for infringements of trade-marks and those for unfair competition in trade. Suits of the former class rest on the ownership of the trade-marks. Suits of the latter class are founded upon the damage to the trade of the complainants by the fraudulent passing of the goods of one manufacturer for those of another. In the former title to the trade-marks is indispensable to a good cause of action. In the latter no proprietary interest in the words, names, or means by which the fraud is perpetrated is requisite to maintain a suit to enjoin it. It is sufficient that the complainant is entitled to the custom—the good-will—of a business and that this goodwill is injured or is about to be injured by the palming off of the goods of another as his. (*Lee* v. *Haley*, 5 Ch. App., 155, 161; *Pillsbury-Washburn Flour-Mills Co.* v. *Eagle*, 85 O. G., 1397; 86 Fed. Rep., 608, 628; 30 C. C. A., 386, 406; 41 L. R. A., 162; *Coats* v. *Thread Co.*, 63 O. G., 1531; 149 U. S., 562; 13 Sup. Ct., 966; 37 L. Ed., 847; *Singer Mfg. Co.* v. *June Mfg. Co.*, 75 O. G., 1703; 163 U. S., 169; 16 Sup. Ct., 1002; 41 L. Ed., 118.) This is not a suit for the infringement of a trade-mark. It is a suit for unfair competition—for selling goods of the appellee as those of another. For this reason no proprietary interest in the word "American" or in the names whose use is enjoined was essential to the issue of the injunction.

For the same reason this case is not governed nor affected by the principle that geographical terms and words descriptive of the character, quality, or place of manufacture of an article are not capable of monopolization as trade-marks. (*Canal Co.* v. *Clark*, 1 O. G., 279; 13 Wall., 311, 321; 20 L. Ed., 581; *Columbia Mill Co.* v. *Alcorn*, 65 O. G., 1916; 150 U. S., 460, 464; 14 Sup. Ct., 151; 37 L. Ed., 1144; *Iron Co.* v. *Uhler*, 75 Pa., 467; 15 Am. Rep., 599; *Brown Chemical Co.* v. *Meyer*, 55 O. G., 287; 139 U. S., 540, 546; 11 Sup. Ct., 625; 35 L. Ed., 247; *Continental Ins. Co.* v. *Continental Fire Assn.*, C. C., 96 Fed. Rep., 846.) There is no claim that the words whose use is enjoined constituted trade-marks; but this case rests upon the broad proposition that every man must so use his own as to inflict no unnecessary damage upon his neighbor. Under this principle the appellants had the right to buy and sell ball-blue; but they had not the privilege to so exercise that right as to unnecessarily injure the business of the appellee. Right here is the broad distinction between this case and *Singer Mfg. Co.* v. *June Mfg. Co.*, (75 O. G., 1703; 163 U. S., 169; 16 Sup. Ct., 1002; 41 L. Ed., 118;) *Centaur Co.* v. *Heinsfurter*, (84 Fed. Rep., 955, 958; 28 C. C. A., 581, 584; 56 U. S. App., 7, 13,) and *Centaur Co.* v. *Marshall*, (97 Fed. Rep., 785; 38 C. C. A., 413.) In those cases the words whose use the plaintiffs sought to enjoin, "Singer" and "Castoria," had become the names of the things which the defendants had the same right as the complainants to make and sell. It was indispensable to their exercise of these rights that they should use the names of the things, because these were the only names by which the articles were known. The result in those cases was that the use of these names was held to inflict no legal injury on the plaintiffs, and for this reason their use was not enjoined, but the defendants were required to distinguish as far as possible the goods which they sold from those made by the plaintiffs. In the case at bar the appellants have no right to make or sell American ball-blue or American wash-blue. The names of the articles in which they have the right to deal are "ball-blue" and "wash-blue." These terms perfectly describe the articles, and it is not necessary for them to use the names of the articles manufactured by the appellee in the exercise of any right which they possess.

Nor is this case ruled by that class of authorities illustrated by *Brown Chemical Co.* v. *Meyer*, (55 O. G., 287; 139 U. S., 540, 546; 11 Sup. Ct., 625; 35 L. Ed., 247,) in which there was no satisfactory proof of an intent by the defendants to sell their goods as those of the complainants, and the dresses of the articles so distinguished them that confusion and deceit would not be likely to result. The proof of the intent of the appellants here to sell the goods of other manufacturers as those of the appellee amounts to a demonstration, and there is no practicable way other than by prohibition of the use of the name by which filching the trade of an arti-

cle whose sale is solicited and made by its name can be effectually prevented.

Thus the issue in this case finally narrows to the question whether or not one has the right to use the word "American" to sell the property of one manufacturer as that of another. From the facts that "American" is a geographical term, that it may not constitute a trade-mark, that no one may have a proprietary interest in it, counsel for the appellants draw the conclusion that every one has the right to use it to palm off the goods of one vendor as those of another. Does the conclusion necessarily follow from the premises? Every one has the right to use and enjoy the rays of the sun, but no one may lawfully focas them to burn his neighbor's house. Every one has the right to use the common highway, but no one may lawfully apply it to purposes of robbery or riot. Every one has the right to use pen, ink, and paper, but no one may apply them to the purpose of defrauding his neighbor of his property, of making counterfeit money, or of committing forgery. The partner has the right to use his firm's name, but he may not lawfully employ it to cheat his copartner out of his property. Every one has the right to use his own name, but he may not lawfully apply it to the purpose of filching his property from another of the same name. The use of a geographical or descriptive term confers no better right to perpetrate a fraud than the use of any other expression. The principle of law is general and without exception. It is that no one may so exercise his own rights as to inflict unnecessary injury upon his neighbor. It is that no one may lawfully palm off the goods of one manufacturer or dealer as those of another to the latter's injury. It prohibits the perpetration of such a fraud by the use of descriptive and geographical terms which are not susceptible of monopolization as trade-marks as effectually as it prohibits its commission by the use of any other expressions. The most instructive case upon this subject, in view of the claim of counsel for the appellants that the injunction should be so modified as to permit them to use the word "American" in the names of the articles they sell on condition that they state upon their packages and circulars the names of the manufacturers or vendors, is *Thompson* v. *Montgomery*, (41 Ch. Div., 35, 38, 47, 51;) on appeal, *Montgomery* v. *Thompson*, [1891,] (App. Cas., 217, 220.) In that case the plaintiffs and their predecessors had operated a brewery at Stone, a place of about six thousand inhabitants, and had called the ale they brewed "Stone Ale." After this ale became well known to the trade and the public the defendant built a brewery at Stone and called ales which he manufactured there by the same name. The question presented by the case was whether an injunction should be granted against the defendant prohibiting him from using the words "Stone Ale" without any qualification or should simply enjoin him from using these words "so as to induce the belief that the ale sold by the defendant is the ale sold by the plaintiff." (Page 38.) Chitty, J., in considering the question, said:

> Now, he is clearly entitled to set up his brewery at Stone, and he is clearly entitled to brew beer and ale at Stone, and to sell them in such a manner as is not calculated to deceive. He may mention on any ale that he makes that the ale is brewed at Stone. But that is not the question. Can he honestly use the term "Stone Ale," having regard to what the plaintiffs have shown to be the present market meaning of that term?—and then held that he could not do so, and granted an unqualified injunction against the use of the words. (Pages 40, 41.)

This injunction was sustained in the court of appeals, where Lindley, J., said:

> The evidence in this case convinces me that any ale which may be sold by this particular defendant as "Stone Ale" will be intended by him to be passed off as the plaintiff's ale. I am satisfied that he does not use the words "Stone Ale" for any honest purpose whatever, but, according to the evidence, with a distinctly fraudulent purpose. Is there any reason, then, why the court should not deal with him accordingly, and prevent him from carrying out such intention by restraining him from using the words which he will only use for that purpose? (Page 51.)

An appeal was taken to the House of Lords, and there the decree for the injunction was affirmed. Lord Herschell, delivering his opinion, said:

> They insisted that the appellant ought not to have been restrained from "selling or causing to be sold any ale or beer not of the plaintiffs' manufacture under the term 'Stone Ales' or 'Stone Ale.'" They contended that such an injunction was too wide in its language; that the plaintiffs had no property in the word "Stone," as applied to ale; and that they could not monopolize the use of the name of that town merely because for a time they had been the only brewers there, and exclude the rest of the public from employing it to describe the place of origin of such beer as they might choose to brew there. I do not think the principle on which the court ought to act in such a case as the present is open to doubt. The respondents are entitled to ask that a rival manufacturer shall be prevented from selling his ale under such a designation as to deceive the public into the belief that they are obtaining the ale of the respondents, and he ought not the less to be restrained from doing so because the practical effect of such restraint may be much the same as if the persons seeking the injunction had a right of property in a particular name. * * * The court having come to the conclusion that he could not sell the liquor manufactured by him under that name without inducing the belief in the mind of the purchaser that he was obtaining the plaintiffs' ale,—a conclusion from which I see no ground for differing,—I do not think that it was improper to frame the injunction in the form adopted, and thus to determine the question at once, instead of leaving it to be raised and contested on an application to commit. (*Montgomery* v. *Thompson*, [1891,] App. Cas., 217, 220, 221.)

The case before us is on all fours with that from which these quotations have been made. The appellants used the word "American" for the purpose and with the intention of selling the goods of other manufacturers for those of the appellee. They cannot use that word in the names whose use is enjoined without producing the effect which they intend. They have no right to produce this effect or to use them for this purpose, and the action of the court below was not without the support of high authority.

In the leading case of *Seixo* v. *Provezende*, (1 Ch. App., 192, 194,) decided in 1866, an injunction was issued against the use of the word "Seixo," which was the name of a region from which the wine of both parties to the suit was derived.

In *Lee* v. *Haley* (5 Ch. App., 155, 161) an injunction was granted against the use by the defendant, who was doing business in Pall Mall, of the name "The Pall Mall Guinea Coal Company" in Pall Mall because the plaintiff had previously become known by that name. The judge said:

> I quite agree that they have no property in the name, but the principle upon which the cases on this subject proceed is, not that there is property in the word, but that it is a fraud on a person who has established a trade, and carries it on under a given name, that some other person should assume the same name with a slight alteration, in such a way as to induce persons to deal with him in the belief that they are dealing with the person who has given a reputation to the name.

In *Knott* v. *Morgan* (2 Keen, 213) the use of the

word "London" was forbidden. Lord Langdale said:

The right which any person may have to the protection of this court does not depend upon any exclusive right which he may be supposed to have to a particular name, or to a particular form of words. His right is to be protected against fraud, and fraud may be practiced against him by means of a name, though the person practicing it may have a perfect right to use that name, provided he does not accompany the use of it with such other circumstances as to effect a fraud upon others.

In *Wotherspoon* v. *Currie*, (L. R., 5 H. L., 508, 522, 523,) a case decided in 1872, Wotherspoon and another were the successors of a firm which had manufactured starch for many years at Glenfield until their product had become known as "Glenfield Starch." But the plaintiffs were then engaged in business at another place. Currie, the defendant, established a manufactory of starch at Glenfield, placed the name "Currie & Co." in large letters upon his packages as manufacturers thereof, and his agents proceeded to sell his product as Glenfield starch. An injunction was granted restraining him "from using the word 'Glenfield' in or upon any labels affixed to packages of starch manufactured by or for him and from in any other way representing the starch manufactured by or for him to be 'Glenfield Starch' and from doing any act or thing to induce the belief that starch manufactured by or for him is 'Glenfield Starch.'"

In *Reddaway* v. *Banham* (1896, App. Cas., 199, 204, 211, 215) the plaintiffs sold "camel-hair belting" under that name until the name came to signify their belting. Thereupon the defendant made belting which was properly described by the same name because it was belting and was made in part of camel's hair; but notwithstanding the fact that these words were descriptive and might not be monopolized as a trade-mark the defendants were enjoined from using them. Lord Halsbury in delivering his opinion in the House of Lords stated that the case rested on the principle that "nobody has any right to represent his goods as the goods of somebody else," (page 204.) and Lord Herschell said:

In my opinion, the doctrine on which the judgment of the court of appeals was based—that, where a manufacturer has used as his trade-mark a descriptive word, he is never entitled to relief against a person who so uses it as to induce in purchasers the belief that they are getting the goods of the manufacturer who has theretofore employed it as his trade-mark—is not supported by authority, and cannot be defended on principle. I am unable to see why a man should be allowed in this way more than in any other to deceive purchasers into the belief that they are getting what they are not, and thus to filch the business of a rival. (Pages 210, 211.)

In *Brewery Co.* v. *Powell* (1897, App. Cas., 710, 716) the use of the words "Yorkshire Relish" was enjoined.

In *North Cheshire & M. Brewery Co.* v. *Manchester Brewery Co.* (1899, App. Cas., 83) the use of the word "Manchester" in the name of the defendant was enjoined.

The principles of law and the practice illustrated by these cases from the English courts have been sustained and followed in the courts of the United States. In *American Waltham Watch Co.* v. *U. S. Watch Co.* (173 Mass., 85; 53 N. E., 141) a defendant engaged in the manufacture of watches in Waltham, Mass., was enjoined at the suit of a prior manufacturer from using the words "Waltham Watch" or "Waltham Watches." In *Pillsbury-Washburn Flour-Mills Co.* v. *Eagle* (85 O. G., 1397; 86 Fed. Rep., 608, 628; 30 C. C. A., 386, 406; 41 L. R. A., 162) an injunction was issued forbidding the use of the words "Minneapolis" and "Minnesota." In *American Brewing Co.* v. *St. Louis Brewing Co.* (47 Mo. App., 14, 20) an injunction was issued against the use of the word "American." In *Cady* v. *Schultz* (19 R. I., 193, 195; 32 Atl., 915; 61 Am. St. Rep., 763; 29 L. R. A., 524) a defendant was enjoined from using the term "U. S. Dental Rooms" at the suit of one who had established a business under the name "United States Dental Association." In *Newman* v. *Alvord* (49 Barb., 588) an injunction was issued against the use of the word "Akron" in the name or description of a cement. In the following cases the defendants were enjoined from using their own names to pass off their goods as those of others: *Croft* v. *Day*, (7 Beav., 84, 89, 90;) *Meyer* v. *Medicine Co.*, (66 O. G., 1755; 58 Fed. Rep., 884, 887; 7 C. C. A., 558, 565; 18 U. S. App., 373, 378;) *Garrett* v. *T. H. Garrett & Co.*, (79 O. G., 1681; 78 Fed. Rep., 472, 477, 478; 24 C. C. A., 173, 178, 179;) *Walter Baker & Co.* v. *Sanders*, (80 O. G., 1476; 80 Fed. Rep., 889; 26 C. C. A., 220; 51 U. S. App., 421;) *Tarrant & Co.* v. *Hoff*, (78 O. G., 1107; 76 Fed. Rep., 959, 961; 22 C. C. A., 644, 646;) *R. W. Rogers Co.* v. *Wm. Rogers Mfg. Co.*, (70 Fed. Rep., 1017, 1019; 17 C. C. A., 576, 578; 35 U. S. App., 843, 847, 848;) *Clark Thread Co.* v. *Armitage*, (76 O. G., 1419; 45 U. S. App., 62, 73; 21 C. C. A., 178, 186; 74 Fed. Rep., 936, 944.) In *Block* v. *Distributing Co.*, (C. C., 95 Fed. Rep., 978, 980;) *Fuller* v. *Huff*, (92 O. G., 1620; 43 C. C. A., 453; 104 Fed. Rep., 141, 144; 51 L. R. A., 332,) and *Williams* v. *Mitchell* (C. C. A., 106 Fed. Rep., 168) the use of descriptive words such as "Standard Distilling," "Health Food," and "Carrom" was enjoined.

The leading cases in support of injunctions restraining the use of geographical terms for the purpose of selling the goods of one manufacturer as those of another are *Wotherspoon* v. *Currie*, where the use of the name "Glenfield" was enjoined, and *Montgomery* v. *Thompson*, where the use of the word "Stone" was forbidden. The principles upon which these cases rest have been repeatedly considered and affirmed by the Supreme Court of the United States. In *McLean* v. *Fleming* (13 O. G., 913; 96 U. S., 245, 254, 255; 24 L. Ed., 828) that Court said:

Nor is it necessary, in order to give a right to an injunction, that a specific trade-mark should be infringed; but it is sufficient that the Court is satisfied that there was an intent on the part of the respondent to palm off his goods as the goods of the complainant, and that he persists in so doing after being requested to desist. * * * Chancery protects trade-marks upon the ground that a party shall not be permitted to sell his own goods as the goods of another; and therefore he will not be allowed to use the names, marks, letters, or other indicia of another, by which he may pass off his own goods to purchasers as the manufacture of another. (*Croft* v. *Day*, 7 Beav., 84; *Perry* v. *Truefitt*, 6 Beav., 66; *Newman* v. *Alvord*, 51 N. Y., 192; 10 Am. Rep., 588.)

In *Lawrence Mfg. Co.* v. *Tennessee Mfg. Co.* (55 O. G., 1528; 138 U. S., 537, 549, 550, 551; 11 Sup. Ct., 396; 34 L. Ed., 997) the court cites and reviews with approval *Wotherspoon* v. *Currie* and *Montgomery* v. *Thompson*, and says:

Undoubtedly an unfair and fraudulent competition against the business of plaintiff, conducted with the intent on the part of the defendant to avail itself of the reputation of the plaintiff

to palm off its goods as plaintiff's, would, in a proper case, constitute ground for relief.

In the last case in which this subject is considered—*Elgin Nat. Watch Co.* v. *Illinois Watch-Case Co.*, (95 O. G., 755; 179 U. S., 665, 674; 21 Sup. Ct., 270; 45 L. Ed., —,) a suit for the infringement of a trade-mark—that Court held, in accordance with the established rule, that the word "Elgin" was not susceptible of monopolization as a trade-mark. But it also reviewed with approval *Wotherspoon* v. *Currie* and *Reddaway* v. *Banham*, and said upon this subject:

But it is contended that the name "Elgin" had acquired a secondary signification in connection with its use by appellant, and should not, for that reason, be considered or treated as merely a geographical name. It is undoubtedly true that, where such a secondary signification has been acquired, its use in that sense will be protected by restraining the use of the word by others in such a way as to amount to a fraud on the public, and on those to whose employment of it the special meaning has become attached.

From the opinions which have now been reviewed and the authorities cited below the following principles may be safely deduced:

1. The sale of the goods of one manufacturer or vendor as those of another is unfair competition and constitutes a fraud which a court of equity may lawfully prevent by injunction. (*Manufacturing Co.* v. *Spear*, 2 Sand., 599; *Seixo* v. *Provezende*, 1 Ch. App., 192, 194; *Coats* v. *Thread Co.*, 63 O. G., 1531; 149 U. S., 562; 13 Sup. Ct., 966; 37 L. Ed., 847.)

2. Geographical terms and words descriptive of the character, quality, or places of manufacture or of sale of articles cannot be monopolized as trade-marks. (*Canal Co.* v. *Clark*, 1 O. G., 279; 13 Wall, 311, 321; 20 L. Ed., 581; *Columbia Mill Co.* v. *Alcorn*, 65 O. G., 1916; 150 U. S., 464; 14 Sup. Ct., 151; 37 L. Ed., 1144; *Brown Chemical Co.* v. *Meyer*, 55 O. G., 287; 139 U. S., 540, 546; 11 Sup. Ct., 625; 35 L. Ed., 247; *Amoskeag Manufacturing Co.* v. *Trainer*, 17 O. G., 1217; 101 U. S., 51, 56; 25 L. Ed., 993; *Goodyear's India-Rubber Glove Mfg. Co.* v. *Goodyear Rubber Co.*, 46 O. G., 122; 128 U. S., 598, 602; 9 Sup. Ct., 166; 32 L. Ed., 535; *Continental Ins. Co.* v. *Continental Fire Assn.*, C. C., 96 Fed. Rep., 846; *Brown Chemical Co.* v. *Frederick Stearns & Co.*, C. C., 37 Fed. Rep., 361; *Chemical Works* v. *Muth*, C. C., 35 Fed. Rep., 524; 1 L. R. A., 44; *Illinois Watch-Case Co.* v. *Elgin Nat. Watch Co.*, 87 O. G., 2123; 94 Fed. Rep., 667; 35 C. C. A., 237; *New York & R. Cement Co.* v. *Coplay Cement Co.*, C. C., 53 O. G., 1408; 45 Fed. Rep., 212; *Iron Co.* v. *Uhler*, 75 Pa., 467; *Connell* v. *Reed*, 128 Mass., 477.)

3. But the use of such geographical or descriptive terms to palm off the goods of one manufacturer or vendor as those of another and to carry on unfair competition may be lawfully enjoined by a court of equity to the same extent as the use of any other terms or symbols. (*Knott* v. *Morgan*, 2 Keen, 213; *Wotherspoon* v. *Currie*, L. R., 5 H. L., 508, 522, 523; *Thompson* v. *Montgomery*, 41 Ch. Div., 35; *Montgomery* v. *Thompson*, [1891,] App. Cas., 217, 220; *Lee* v. *Haley*, 5 Ch. App., 155; *Seixo* v. *Provezende*, 1 Ch. App., 192, 194; *Brewery Co.* v. *Powell*, [1897,] App. Cas., 710, 716; *North Cheshire & Manchester Brewery Co.* v. *Manchester Brewery Co.*, [1899,] App. Cas., 83; *McLean* v. *Fleming*, 13 O. G., 913; 96 U. S., 245, 255; 24 L. Ed., 828; *Lawrence Mfg. Co.* v. *Tennessee Mfg. Co.*, 55 O. G., 1528; 138 U. S., 537, 550, 551; 11 Sup. Ct., 396; 34 L. Ed., 997; *Elgin Nat. Watch Co.* v. *Illinois Watch-Case Co.*, 95 O. G., 755; 179 U. S., 665, 673, 674; 21 Sup. Ct., 270; 45 L. Ed., —; *Saxlehner* v. *Eisner & Mendelson Co.*, 93 O. G., 940; 179 U. S., 19, 41; 21 Sup. Ct., 7; 45 L. Ed., —; *Pillsbury-Washburn Flour-Mills Co.* v. *Eagle*, 85 O. G., 1397; 86 Fed. Rep., 608, 628; 30 C. C. A., 386, 406; *City of Carlsbad* v. *Kutnow*, 71 Fed. Rep., 167, 173; 18 C. C. A., 24, 30; 35 U. S. App., 750, 763; *Block* v. *Distributing Co.*, C. C., 95 Fed. Rep., 978, 980; *Meyer* v. *Medicine Co.*, 66 O. G., 1755; 58 Fed. Rep., 884, 887; 7 C. C. A., 558, 565; 18 U. S. App., 372, 378; *Garrett* v. *T. H. Garrett & Co.*, 79 O. G., 1681; 78 Fed. Rep., 472, 478; 24 C. C. A., 173, 178, 179; *Walter Baker & Co.* v. *Sanders*, 80 O. G., 1486; 80 Fed. Rep., 889; 26 C. C. A., 220; 51 U. S. App., 426; *Tarrant & Co.* v. *Hoff*, 78 O. G., 1107; 76 Fed. Rep., 959, 961; 22 C. C. A., 644, 646; *R. W. Rogers Co.* v. *Wm. Rogers Mfg. Co.*, 70 Fed. Rep., 1017, 1019; 17 C. C. A., 576, 578; 35 U. S. App., 843, 847, 848; *Clark Thread Co.* v. *Armitage*, 76 O. G., 1419; 45 U. S. App., 62, 73; 21 C. C. A., 178, 186; 74 Fed. Rep., 936, 944; *Fuller* v. *Huff*, 92 O. G., 1620; 104 Fed. Rep., 141, 144; 43 C. C. A., 453; 51 L. R. A., 332; *Williams* v. *Mitchell*, C. C. A., 106 Fed. Rep., 168; *Salt Co.* v. *Burnap*, 73 Fed. Rep., 818, 821; 20 C. C. A., 27, 30; 43 U. S. App., 243, 250; *Saxlehner* v. *Apollinaris Co.*, 13 Times Law Rep., 258; *American Waltham Watch Co.* v. *U. S. Watch Co.*, 173 Mass., 85; 53 N. E., 141; *Cady* v. *Schultz*, 19 R. I, 193, 195; 61 Am. St. Rep., 763; 29 L. R. A., 524; *American Brewing Co.* v. *St. Louis Brewing Co.*, 47 Mo. App., 14, 20; *Newman* v. *Alvord*, 49 Barb., 488; *Taylor* v. *Carpenter*, 11 Paige, 292; 42 Am. Dec., 114; *Id.*, 2 Sand. Ch., 603; *Croft* v. *Day*, 7 Beav. 84, 89, 90; *Reddaway* v. *Banham*, [1896,] App. Cas., 199; *Cochrane* v. *Macnish*, [1896,] App. Cas., pp. 225, 229.)

4. A proprietary interest in the terms or symbols used to palm off the goods of one manufacturer or vendor as those of another or to commit any other fraud is not essential to the maintenance of a suit to enjoin the perpetration of the wrong, but an interest in the good-will of the business or in the other property threatened is sufficient. (*Knott* v. *Morgan*, 2 Keen, 213; *Lee* v. *Haley*, 5 Ch. App., 155; *Clark Thread Co.* v. *Armitage*, 76 O. G., 1419; 45 U. S. App., 62, 73; 21 C. C. A., 178, 186; 74 Fed. Rep., 936, 944.)

The decree of the circuit court is in perfect accord with these principles and authorities. The appellants were using the word "American" and the names of the appellee's manufactured articles with the intent and for the sole purpose of selling the manufactures of others as those of the appellee, and they were accomplishing this illegal end. The only effectual method of preventing the continuous perpetration of this fraud and of protecting the good-will of the business of the appellee from injury or destruction was to enjoin the appellants from applying the names of the appellee's articles to the manufactures of others, and the court wisely

and lawfully granted that relief. This conclusion ends the discussion of the real issue in hand and practically determines the decision of this case. A few minor objections to the decree, which do not require extended consideration, will be briefly noticed.

Counsel for appellants maintain that the fact that they have placed their names and residence in conspicuous places on their packages and have otherwise distinguished them from those of the appellee should relieve them from the injunction; but the "American Ball Blue" and the "American Wash Blue" were articles well known to the trade and to the public as the manufactures of the appellee before the appellants entered upon the business of selling bluing. These articles and the names by which they were known had an established reputation and commanded a lucrative trade. To the dealers in bluing the appellants were unknown. The only effect of placing their unfamiliar names and residence upon the packages of bluing under the names of the appellee's well-known articles was to give to the appellants the benefit of the established reputation of the appellee's articles, and thus to enable them to derive greater benefit from their fraud. "That is an aggravation, and not a justification, for it is openly trading in the name of another upon the reputation acquired by the device of the proprietor." (*Menendez* v. *Holt*, 46 O. G., 971; 128 U. S., 514, 521; 9 Sup. Ct., 143; 32 L. Ed., 526; *Gillott* v. *Esterbrook*, 48 N. Y., 374, 378; 8 Am. Rep., 553.)

It is said that the appellee was entitled to no relief because the names "American Ball Blue" and "American Wash Blue" do not denote origin or ownership, and therefore cannot constitute trade-marks, and because the appellee registered its trade-mark, which did not consist of any of the words constituting these names, and it thereby disclaimed their use as trade-marks. But this is not a suit for the infringement of trade-marks, but to restrain the sale of the goods of one manufacturer as those of another, and a complainant has the same right to an injunction against the perpetration of such a fraud by the use of words or names which do not in themselves indicate origin or ownership and which are incapable of use and are disclaimed as trade-marks as he has against its commission by the use of any other terms or expressions. Whether the brands "American Ball Blue" and "American Wash Blue" indicated the origin and ownership of the articles to which they were applied in 1872 and 1874, when they were first used, or not, the evidence is overwhelming that by association they came to point out to the trade articles made and owned by the appellee long before 1898, when the appellants first appropriated them, and it was for this reason alone that they used them in their endeavor to deceive the public and to filch the business of the appellee. These facts furnish ample grounds for the injunction, whether the words were capable of use as trade-marks or not.

The appellee has since 1895 been engaged in manufacturing and selling bluing under the names "Germania Ball Blue" and "Bavarian Ball Blue" in boxes simulating foreign products, and counsel for appellants insist that these names were false and misleading and that the appellee was entitled to no relief from a court of equity because it did not come with clean hands. The principle that "he who comes into equity must do so with clean hands" is familiar and indisputable; but it does not repel all sinners from courts of equity, nor does it disqualify any complainant from obtaining relief there who has not dealt unjustly in the very transaction concerning which he complains. The iniquity which will repel him must have an immediate and necessary relation to the equity for which he sues. (*Dering* v. *Earl of Winchelsea*, 1 Cox Ch., 318, 319; *Lewis & Nelson's Appeal*, 67 Pa., 153, 166; *Bateman* v. *Fargason*, 4 Fed. Rep., 32, 33; Bisp. Eq., 61.) There is no evidence that the appellee has been guilty of any injustice, fraud, or wrong in acquiring the good-will of its business in the American ball-blue and the American wash-blue, which is the subject of this suit, or in its relations with the appellants, and relief cannot be denied to it because it may have been wicked in other transactions which affect neither the appellants nor the equity here under consideration.

The decree below is affirmed.

THAYER, *J.*, (dissenting:)

As I have reached a conclusion different from that announced by my associates, I deem it proper to state my views concerning the questions of law and fact which arise in the case; and, first, with respect to the facts. The Heller & Merz Company, hereinafter termed the "complainant," or its predecessors began the manufacture of bluing, as it seems, at Newark, N. J., about the year 1868 or 1869. At first they manufactured bluing only in the form of a powder. Later, in the year 1872, they began to put it up in the form of round pellets or balls about the size of small marbles, and later still, in the year 1874 or 1875, they began to manufacture bluing to some extent in the form of round lozenges or wafers. To the bluing which was put up in the form of balls they applied the name "American Ball Blue" and to that put up in the form of round lozenges they claim to have applied the name "American Wash Blue" when they first began to manufacture it in that form. The evidence shows, however, that what is now termed "American Wash Blue" was as commonly and perhaps more frequently termed "Lozenger Blue" until the year 1878, when Pomeroy & Olmsted, a firm which subsequently became G. M. Olmsted & Co., took hold of the latter kind of bluing and advertised it extensively in the Northwest, with the consent of the complainant, as an article of their own manufacture under the name "American Wash Blue." Even while Olmsted & Co. were thus advertising and selling it as their own product under the name "American Wash Blue" the plaintiff company most frequently referred to it in their letters and bills as "Lozenger Blue." To my mind the evidence leaves little room for doubt that the words "American Ball Blue" and "American Wash Blue" were originally

adopted by the complainant itself solely for descriptive purposes—that is to say, to describe a bluing made in the United States and to be used for laundry purposes—the one kind put up in the form of balls and the other in the shape of round lozenges. There is no evidence, I think, which indicates that either name was chosen as an artificial brand; but the testimony rather indicates that the names were selected because they accurately described the articles to which they were applied, the word "American" differentiating them from several kinds of bluing which were made abroad and imported into this country for sale. Olmsted & Co., who were soap-makers at Cedar Rapids, Iowa, for twenty years succeeding the year 1878, advertised bluing put up in the form of round lozenges extensively as "American Wash Blue" throughout the States of Iowa, Minnesota, and the Dakota Territories and built up an extensive trade in the article in those States and Territories. The bluing was put up in cylindrical-shaped blue paper boxes of sufficient diameter to contain the lozenges. The cylindrical boxes bore on one end a white label, on which was stamped the letter "U" surrounded by a small triangle, and on the three sides of this triangle were printed in very small letters the words "American Ultramarine Works. Trade-Mark." Wrapped around the cylindrical box was another larger label commending the qualities of the article and giving directions for its use, which was signed as follows: "G. M. Olmsted & Company, Soap Makers, Cedar Rapids, Iowa." The small cylindrical paper boxes were packed in larger wooden ones, on the ends of which were stenciled the following words: "American Wash Blue. G. M. Olmsted & Co., Cedar Rapids, Iowa." The packages of American wash-blue as put up and sold by Olmsted & Co. with the full knowledge of the complainant bore no marks indicating to the public that the article was made by the complainant other than the above-described label on the end of the cylindrical boxes, and the evidence shows beyond peradventure that nearly all of Olmsted's customers were ignorant of the existence of such a concern as the Heller & Merz Company and supposed that the article was made by or for Olmsted & Co. and that the words "American Wash Blue" were wholly descriptive. While Olmsted & Co. handled American wash-blue—that is to say, for twenty years succeeding the year 1878—the complainant manufactured and sold no other lozenger bluing, except a small amount in the States of Illinois and Wisconsin. They manufactured bluing in that form for twenty years, principally to fill orders for Olmsted & Co. The defendants below, Shaver, Blake & Co., acquired the good-will of the business of Olmsted & Co. when the latter firm was dissolved by the death of one of its members. Shortly thereafter, in the year 1898, they commenced to advertise and sell lozenger blue in the same form of package that it had been sold by Olmsted & Co., using the words "American Wash Blue" as their predecessor in interest had used them; but they ceased to affix the label at the end of the cylindrical boxes, which bore the impress of the letter "U" surrounded by the triangle above described. The defendants purchased the bluing from or had it manufactured for them by the International Ultramarine Works, located at Staten Island, N. Y., and they ceased to patronize the complainant company. Thereupon, as it seems, the complainant began to sell American wash-blue put up in the form of lozenges in the territory formerly occupied by Olmsted & Co., and to retaliate, apparently, as Olmsted & Co. had never sold the ball-blue, the defendants began to advertise and sell it as well as the wash-blue. The boxes, however, in which the defendants packed and sold ball-blue which was manufactured for them by the International Ultramarine Works bore no resemblance whatever to the boxes in which the complainant had theretofore packed and sold its ball-blue. The defendants' boxes were different in color and had the words "Shaver, Blake & Company, Cedar Rapids, Iowa" prominently displayed on the face of the boxes. No one, in my judgment, could have possibly mistaken the defendants' ball-blue for similar goods of the complainant's manufacture if he had exercised the slightest care. Moreover, this record fails to show that there is any substantial difference in the bluing made by the complainant and by the International Ultramarine Works. The article manufactured by each concern is the same, and nothing in this record would indicate that one is a better article than the other. This litigation, as I view it, is the outgrowth of the foregoing facts.

The decree of the lower court, which is approved by the majority opinion, enjoins the defendants, among other things, from selling or offering for sale any blue or bluing under the name "American Wash Blue" or "American Ball Blue" unless it is manufactured by the complainant company. It is also said in the majority opinion that the defendants "have no right to make or sell American ball-blue or American wash-blue," and, furthermore, that "the names of the articles in which they (the defendants) have the right to deal are 'Ball Blue' or 'Wash Blue.'" At the same time it is conceded in the majority opinion—and of this proposition there can be no doubt—that the words "American Wash Blue" and "American Ball Blue" are purely descriptive words and phrases, which cannot be monopolized as a trade-mark by any manufacturer of bluing. To my mind the two propositions thus announced are antagonistic—namely, that a manufacturer of bluing cannot as respects that article obtain a monopoly of the aforesaid words and phrases, because they are confessedly descriptive, but that he may make use of the words himself and enjoin another manufacturer who makes the same article from using them to describe his own product. If the latter of these propositions is sound law, then it is apparent, I think, that the former proposition ought to be abandoned and that it be henceforth conceded that one of the fundamental doctrines of the law of trade-mark is no longer tenable—namely, that no one is entitled to monopolize either words or phrases which as applied to a given article are purely descriptive of its kind or quality or place of manufacture. It will be observed that the opinion of the majority concedes the defendants' right to sell their product under the names "Ball Blue" and "Wash Blue," but denies their right to make use of the word "American" in connection therewith, and I am unable to perceive any substantial reason

why the right to use the former of these words shold be admitted and the right to use the latter denied. The word "American" is no less descriptive than the words "Wash Blue" or the words "Ball Blue." It indicates that the bluing is made in America and is a domestic product, just as the word "Wash" indicates that the bluing is designed for washing purposes, and the word "Ball" indicates that the bluing is put up in the form of small pellets. The words in question are each purely descriptive, and as the complainant company and as the defendants both employ them they are used in a very natural relation to each other to aptly describe the two articles to which they are applied and to show that they are a domestic and not a foreign product.

Another observation to be made concerning the decree below, and the majority opinion is that the relief afforded is not based on the ground that the descriptive words in question have been used on boxes or packages containing bluing which are made in imitation of the complainant's boxes and packages and for that reason are liable to deceive the public and lessen the complainant's trade. The injunction is so framed that the phrases "American Wash Blue" and "American Ball Blue" cannot be used by the defendants under any circumstances, even though they put up ball-blue and lozenger blue in boxes which are so totally unlike those employed by the complainant that they would not mislead a customer who was grossly negligent. The injunction against using the words, therefore, is not founded upon any deception practiced or attempted to be practiced, except such as may result from the use of words in a purely natural relation to each other which are confessedly descriptive and cannot be monopolized as a trade-mark. The reason assigned for awarding such an injunction is that it may be granted on the ground that the defendants employ these words with intent to purloin some of the complainant's trade and that their conduct in so doing is fraudulent. But in my opinion an appropriate answer to this suggestion is that a person cannot be said to have been guilty of any such fraud as a court of law or equity will redress when he makes use of words or phrases to describe an article which he manufactures which as applied to that article are purely descriptive, and hence are the common property of all who manufacture or deal in the article. The law, except in a few rare cases, does not concern itself with the motives of men when their acts are lawful, and injuries which result to others from the exercise of lawful rights or privileges are *damnum absque injuria*. (*Passaic Print Works* v. *Ely & Walker Dry-Goods Co.*, 44 C. C. A., 426; 105 Fed. Rep., 163.) If the words "American Wash Blue" and "American Ball Blue," as the complainant contends, have become associated in the public mind with two articles which it manufactures in such a way that they have ceased to be descriptive of the articles and have acquired a meaning which is secondary and arbitrary, then this result is attributable to the complainant's own fault. If such a result was liable to ensue, it should have chosen a brand originally which was arbitrary and that might have been monopolized. It had no greater need of employing the descriptive words in question than the defendants have to describe the bluing which they sell. It cannot, therefore, by reason of the peculiar result above mentioned, insist that other manufacturers of bluing in this country shall not call their product "American Wash Blue" and "American Ball Blue" if it is so in fact. It requires but little penetration to see that if this doctrine of "secondary signification" is adopted in these days of fierce competition the most common descriptive words and phrases will be monopolized, or at least that attempts will be made repeatedly to monopolize them, and little difficulty will ordinarily be experienced in obtaining testimony to support the claim that common and necessary descriptive words have by long-continued use acquired a secondary meaning. I am willing to concede that one or two English cases cited in the majority opinion, particularly *Thompson* v. *Montgomery*, (41 Ch. Div., 35, and the same case as reported in 1891, App. Cas., 217,) sustain the doctrine contended for by my associates that a descriptive word by association with an article may acquire a secondary signification and that when such secondary meaning has been acquired the use of it by another may be enjoined; but as I read and construe the American decisions, particularly the decisions of the Supreme Court, which are controlling authority here, the doctrine in question has not been approved to the extent to which it has been carried in the case in hand. In *Singer Mfg. Co.* v. *June Mfg. Co.* (75 O. G., 1703; 163 U. S., 169; 16 Sup. Ct., 1002; 41 L. Ed., 118) the right of the public to make use of the word "Singer" as descriptive of a particular sewing-machine after the expiration of the patent on the machine was upheld, with the single limitation that one who makes such machines and calls them by that name must by other marks and signs on the machines clearly indicate to the public that they are made by him and not by the original Singer Company. The recent case of *Elgin Nat. Watch Co.* v. *Illinois Watch-Case Co.*, (decided Jan. 7, 1901, 95 O. G., 755; 21 Sup. Ct., 270; 45 L. Ed., —.) as I construe it, inculcates the same doctrine—namely, that a manufacturer cannot be enjoined from making use of words or phrases which in their primary sense are clearly descriptive of the article which he manufactures and that even when such words as used by another have acquired a secondary signification the most that a court of equity can do for his protection is to require third parties who have occasion to use them to affix other marks and signs or indulge in such explanations as will most effectually prevent a confusion of goods. These are the latest decisions by the Supreme Court on the subject; but prior thereto it was said in *Brown Chemical Co.* v. *Meyer* (55 O. G., 257; 139 U. S., 540, 547; 11 Sup. Ct., 625; 35 L. Ed., 247) concerning descriptive words which could not become a trade-mark:

> If the words * * * cannot be lawfully appropriated as a trade-mark, it is difficult to see upon what theory a person making use of these or similar words can be enjoined. We understand it to be conceded that these words do not in themselves constitute a trade-mark. It follows, then, that another person has the right to use them unless he uses them in such connection with other words or devices as operate as a deception upon the public.

Similar views were also expressed in the case of *Goodyear's India-Rubber Glove Mfg. Co.* v. *Goodyear Rubber Co.*, (46 O. G., 122; 128 U. S., 598, 602; 9 Sup. Ct., 166; 32 L. Ed., 535.) See also *Illinois Watch-Case Co.* v. *Elgin Nat. Watch Co.*, (87 O. G., 2323; 35 C. C. A., 237; 94 Fed. Rep., 667.)

My conclusion is, therefore, that the injunction in its present form ought not to stand, because the defendants have the right to use the words "American Wash Blue" and "American Ball Blue" and to use the words in that relation to each other. these being clearly descriptive words and phrases, provided they neither simulate the complainant's boxes or packages and provided they display their own name prominently on their boxes, circulars, and advertisements and with equal prominence state that the bluing which they sell is manufactured for them by the International Ultramarine Works, of Staten Island, N. Y., and is not the complainant's product. I have no fault to find with that part of the restraining order which enjoins the defendants from holding themselves out to the public as the owners of the names "American Wash Blue" and "American Ball Blue" or as the manufacturers of those articles, since no one, in my judgment, is or can be the owner of these names or have an exclusive property therein.

Patents Nos. 682,596 to 683,012.

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Roster of Registered Attorneys.

An alphabetical list of the individuals and firms registered in this Office under the provisions of Rule 17 of the Rules of Practice, as amended August 6, 1897, corrected to January 1, 1901, has been published, and copies will be furnished at the nominal price of five cents each, a five-cent coupon being acceptable in payment therefor.

Registrants are requested to give notice of any errors that appear in the list as published or any change of address since the list was prepared for publication.

Any solicitor, agent, or attorney who, in circulars or advertisements or otherwise, refers to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of his professional standing, does so without authority.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business September 10, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Aug. 30	Aug. 20	52
105	II. Farm Stock, Products, etc.	Aug. 27	Aug. 29	164
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Aug. 12	Aug. 28	158
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 12	Aug. 22	167
246	I. Tillage and Fences	Aug. 12	Aug. 13	174
238	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 12	Aug. 13	172
350	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 12	Aug. 10	373
	Between one and two months.			
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Aug. 8	Aug. 14	266
129	XXIV. Sewing-Machines, Apparel, and Toilet.	Aug. 5	Aug. 10	189
253	X. Carriages and Wagons	Aug. 2	Aug. 16	123
261	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Aug. 1	Aug. 17	259
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Aug. 1	Aug. 8	128
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Aug. 1	Aug. 2	209
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 29	Aug. 9	240
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 27	Aug. 22	161
98	XXI. Textiles, etc	July 27	July 24	214
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 25	Aug. 13	163
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 23	Aug. 2	164
231	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	July 22	Aug. 17	159
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 22	Aug. 14	226
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 19	Aug. 9	300
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 18	Aug. 1	253
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	July 17	Aug. 7	300
240	VII. Velocipedes, Games, and Toys.	July 17	July 20	244
248	XVIII. Steam-Engineering, etc	July 16	July 11	346
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	July 11	July 24	212
	Between two and three months.			
255	XII. Mechanical Engineering, Stores-Service, etc	July 2	July 24	408
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 2	July 12	328
215	XVII. Printing, Type-Writing Machines, and Linotyping.	July 1	Aug. 10	270
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	July 1	July 3	442
130	IX. Hydraulics, Fire-Extinguishers, etc.	June 29	Aug. 13	190
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 27	July 25	258
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	June 25	July 18	263
102	XIX. Stoves and Furnaces	June 21	July 30	506
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 18	Aug. 12	205
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	June 12	Aug. 12	192

Total number of applications awaiting action..... 8,473

Applications Under Examination—Continued.

Under one month.			
*Designs	Aug. 26	Aug. 28	58
†Trade-Marks	Aug. 30	Sept. 6	49
‡Labels and Prints			

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Order in Relation to Drawings and Blue-Prints.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

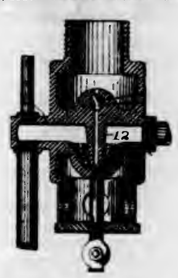
Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 986, of January 26, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

PATENTS

GRANTED SEPTEMBER 17, 1901.

682,596. CARBURETING DEVICE FOR EXPLOSIVE-ENGINES. ROBERT ALDRICH and WILLIAM T. ALDRICH, Millville, Mass., assignors to themselves, and Fred L. Cleveland and George H. Baker, Woonsocket, R. I. Filed Sept. 5, 1900. Serial No. 29,353. (No model.)



Claim.—1. In a supply mixer and controller for explosive-engines, the combination of a casing formed by a casting, and having a main outer chamber or air-passage, means for regulating the admission of air to the lower end thereof, an oil-passage formed integrally with said casing, and extending transversely across the air-passage thereof, said oil-passage having a small central round-bottomed basin for containing a small quantity of oil, and a nipple which extends down concentrically substantially to the bottom thereof, whereby the end of the nipple will be submerged in a small quantity of oil, and surrounded equally on all sides thereby, a valve for controlling the passage from said nipple to the outer chamber, and connections for supplying oil to the oil-passage, substantially as described.

2. In a supply mixer and controller for explosive-engines, the combination of a casing having an outer chamber or air-passage, a damper for controlling the admission of air to the lower end of said outer chamber, an oil-passage extending transversely across the casing, and formed integrally therewith, said oil-passage having a small centrally-located round-bottomed basin for containing a small quantity of oil, a nipple extending concentrically down into said basin substantially to the bottom thereof, a drain-pipe for drawing out the oil from said basin when desired, an oil-supply pipe for the oil-passage, an overflow-pipe having a vent for preventing the pressure of an oil-pump from forcing oil directly up through the nipple, a turn-plug valve controlling the passage from the nipple to the outer chamber, said valve being counterbored so as to have a single edge for throttling said passage, and a sector and worm for adjusting said valve, substantially as described.

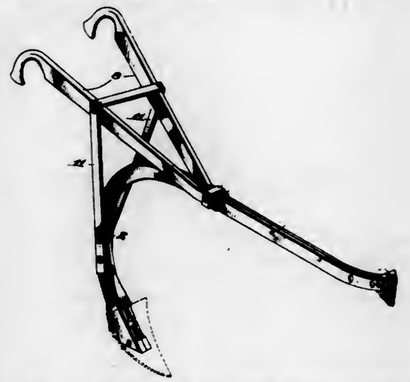
3. The combination of an explosive-engine, a valve-controlled passage for supplying explosive mixture thereto, a supply mixer and controller connected to said passage, and comprising a vertical casing or casting having an outer or main air chamber or passage, a damper controlling the admission of air to the lower end thereof, a transverse oil-passage formed integrally with and extending across said casing, and having a small central round-bottomed oil pocket or basin with a nipple extending down concentrically therein, substantially to the bottom thereof, a throttle-valve controlling the outlet from said nipple to the outer casing, connections for controlling said throttle-valve, an oil-pump for supplying oil to said oil-passage, and an overflow-pipe for draining off the surplus oil from said oil-passage, said overflow-pipe being vented to prevent the pump-pressure from forcing oil up through said nipple, substantially as described.

682,597. DENTAL FORCEPS. GEORGE L. BENNETT, Chicago, Ill. Filed Feb. 13, 1901. Serial No. 47,166. (No model.)

Claim.—The combination in a dental forceps of two beaks of concaved ends with the angular points cut diagonally across each member in different directions and meeting at converse angles, substantially as described.



682,598. PLOW. OBED A. BOOTY, Sunnyhill, La. Filed Jan. 24, 1901. Serial No. 44,606. (No model.)



Claim.—1. The combination with a slotted standard, of a shield to cover the slot therein, said shield being provided with a shank extending through the slot of said standard and formed with a head which engages the rear edges of the standard, a bolt extending through said slot and said head, and a nut secured upon said bolt for clamping the shield and nut in vertical adjusted position, substantially as set forth.

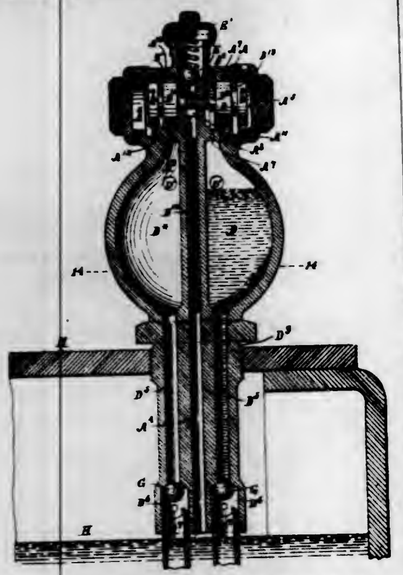
2. The combination with a slotted standard, of spacing-plates inserted in said slots between the walls thereof and provided with flanges which engage the front edges of said standard, a bolt-nut inserted through the lower end of said standard and said plates, a shield to cover the slot in said standard, said shield being provided with a shank extending through the slot of said standard and formed with a head which engages the rear edges of the standard, a bolt extending through said slot to said head, and a nut secured upon said bolt for clamping the shield in vertical adjusted position, substantially as set forth.

682,599. DIFFERENTIAL-PISTON VALVE AND PUMP. THOMAS R. BROWN, Altoona, Pa. Filed Feb. 13, 1899. Renewed Feb. 20, 1901. Serial No. 48,208. (No model.)

Claim.—1. A valve-casing having operating steam-chambers arranged to open upon opposite faces of a piston-valve and constructed, as specified, so as to effect a gradual fall in the pressure of steam confined therein, in combination with a piston-valve working in said casing and ports controlled by such valve as described, to connect a source of steam-supply alternately with said steam-chambers, substantially as specified, and so as to alternately charge said chambers with steam and permit a gradual fall of pressure therein after the valve has moved from its charging position.

2. An automatic steam-valve having heads B, B', forming two differential pistons and connected by a stem, and combined with a valve-casing having cylinders for the pistons, necks, as e^2, fitted to the stem with an intermediate live-steam chamber, operating-chambers in connection with the outer sides of said heads, and a passage adapted by one move-

ment of the valve to supply steam to the differential pistons upon one of the heads, and adapted by the reverse movement of the valve to supply steam to the differential pistons upon the other head.



3. In an automatic steam-valve, a valve-casing having operating-chambers, as A^2, A^6, at opposite ends, a steam-chamber as A^3 arranged intermediate to the same, and suitable cylinders formed between the steam-chamber and each of the operating-chambers, in combination with two differential pistons fitted to such cylinders and connected by a stem, with passages opened by the movement of the valve for supplying steam alternately to the smaller areas, and a passage through each of such pistons into the adjacent operating-chamber for alternately transmitting the steam to the outer side of each piston and thereby reversing the valve by the pressure accumulated in the adjacent operating-chamber, substantially as herein set forth.

4. In an automatic steam-valve, a valve-casing having operating-chambers at opposite ends, a live-steam chamber arranged intermediate to the same, and suitable cylinders formed between the steam-chamber and each of the operating-chambers, in combination with two heads B, B', forming differential pistons fitted to such cylinders and connected by a stem, with passages opened by the movement of the valve to supply steam alternately to the smaller pistons, a port opened when the valve is moved by pressure upon either of the smaller pistons to admit steam to the adjacent operating-chamber for reversing the valve, and exhaust-ports, as A^5, A^{10}, situated in the cylinders A, A', as described, so as to be closed by the heads B, B', when in their outer positions, and opened while such heads are moving inward and before they reach the end of such inward movement.

5. A valve-casing having operating steam-chambers, as A^2, A^6, at its opposite ends and adjacent cylindrical portions, as A, A', with contracted necks A^7, A^7, said operating-chambers being constructed as specified to permit a gradual fall in the pressure of steam confined therein, in combination with a piston-valve having heads, as B, B', working in the cylinders and exposed to the chambers A^2, A^6, a stem-section B^2 fitting and working in the necks A^7 said stem-section being formed as described to alternately open and close a connection between a source of steam-supply situated between the necks A^7, A^7, and the cylinders A and A', and steam-passages B^8 and B^7 formed in the heads B, B', whereby steam in the cylinder in which such head works is permitted to enter the adjacent operating-chamber, exhaust-ports, as A^5, A^{10}, situated in the cylindrical sections A, A' as described so as to be closed by the heads B, B', when in their outer positions but opened while said pistons are moving inward and before they reach the end of such inward strokes, and supplemental heads, as B^9, B^9, secured to the outer faces of the heads B, B', by narrowed necks as B^{10}, B^{11}, and arranged to restrict the connection between the cylindrical sections and the steam-chambers as the heads move inward and before they open the exhaust-ports A^5, A^{10}.

6. The combination, with two working chambers, as D, D^6, of a valve-casing having operating steam-chambers arranged to open upon opposite faces of a piston-valve and constructed as specified so as to effect a gradual fall in the pressure of steam confined therein, and having two piston-cylinders with an intermediate live-steam chamber, in combination with a piston-valve having heads, as B, B', working in the said cylinders, and steam-passages adapted as described to connect the source of steam-supply alternately with said operating-chambers, substantially as specified, and ports connecting each of the cylinders to one of the working chambers and supplied by the movements of the heads alternately with steam, so as to alternately fill the working chambers, as and for the purpose set forth.

7. The combination, with a pump-chamber, as D, having admission and delivery ports, as D', D^2, and non-return valves controlling the passage of fluid therethrough, of a piston-valve casing having a piston-valve working automatically therein and having two operating-chambers opening upon opposite faces of the valve, ports in said valve arranged to connect the said operating-chambers alternately with a source of live-steam supply in accordance with the position of the valve, and means for effecting a gradual fall of the steam-pressure in the operating-chambers when cut off from the steam-supply, substantially as and for the purpose set forth.

8. The combination with two pump-chambers, as D, D^6, each having admission and discharge ports, as D', D^3, and non-return valves controlling the passage of fluid therethrough, of a live-steam chamber, as D^{10}, separating said chambers, a piston-valve having an intermittent automatic reciprocation, and steam-passages controlled by said valve as described and whereby a supply of live steam is alternately admitted to and cut off from the pump-chambers.

9. In combination with two pump-chambers, as D, D^6, each having admission and discharge ports, as D', D^3, and non-return valves controlling the passage of fluid therethrough, a piston-valve casing having two operating steam-chambers arranged to open upon opposite faces of the valve working therein, ports arranged to connect the operating-chambers alternately with a source of live-steam supply in accordance with the position of the valve, means for effecting a gradual fall of steam-pressure in the operating-chambers when cut off from the steam-supply, live-steam ports leading to each pump-chamber, and a piston-valve automatically working in the valve-chamber aforesaid and arranged as specified to control the ports leading to the steam and pump chambers.

10. In combination with a boiler, a pump-chamber, as D, having an admission-port D', a delivery-port D^2, and non-return valves controlling the passage of fluid through ports D' and D^3, a piston-valve having an intermittent automatic reciprocation, and a steam-passage from the boiler, as A^4, opening at the water-line of the boiler, and controlled by said valve as specified and so that steam is admitted to the pump-chamber in one position of the valve and cut off therefrom in its alternative position.

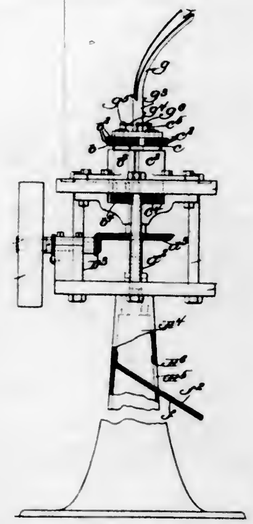
11. In combination with a boiler, a pump-chamber, as D, having an admission-port D', a delivery-port D^2 opening at the water-line of the boiler, and non-return valves controlling the passage of fluid through ports D' and D^2, a casing having cylinders with operating steam-chambers arranged to open upon opposite faces of the valve working therein, ports arranged to connect said operating-chambers alternately with the steam-space of the boiler in accordance with the position of the valve, means for effecting a gradual fall in steam-pressure in the operating-chambers when cut off from the source of supply, and the piston-valve working automatically in the valve-cylinders and governing the admission of steam to the operating-chambers aforesaid and to the pump-chamber as described.

12. The combination, with a boiler, of a pump-chamber, as D, having a water-admission port D' and discharge-port D^3 and non-return valves controlling the passage of fluid through said ports, a piston-valve having an intermittent automatic reciprocation, and a steam-passage leading from the water-line of the boiler and controlled by said valve as described, and whereby a supply of live steam is alternately admitted to and cut off from the pump-chamber.

13. An automatic boiler feed-pump, comprising a valve having heads B, B' forming two differential pistons connected by a stem, a valve-casing having cylinders for the pistons, necks fitted to the stem with an intermediate live-steam chamber, and operating-chambers in connection with the outer sides of said heads, a pump-chamber having admission and discharge ports, as D', D^3, and non-return valves controlling the passage of fluid therethrough with a supply of water to the admission-port, and a port opened and closed by one of said heads and connected with such pump-chamber, whereby a gradual fall of steam-pressure induced alternately in the operating-chambers serves to reciprocate the valve and produce the alternate flow of the water into and out of the said water-chamber.

682,600. MACHINE FOR SCORING BULLETS. PAUL BUTLER, Lowell, Mass. Filed Jan. 9, 1899. Serial No. 701,655. (No model.)

Claim.—1. A machine for scoring or grooving bullets comprising a plurality of rotatable operating members provided with ribs or projections; means for rotating all of said members to operate upon the bullet interposed between them, each member having an unribbed portion arranged to be adjacent to the similar portions of the other members at a certain period in the operation; and means for automatically feeding the bullet into the place between said unribbed portions, as set forth.



2. A machine for scoring or grooving bullets comprising a plurality of rotatable operating members provided with ribs or projections; means for rotating all of said members to operate upon the bullet interposed between them, each member having an unribbed portion arranged to be adjacent to the similar portions of the other members at a certain period in the operation; means for automatically feeding the bullet into the space between said unribbed portions; and a gage or stop to position the bullet thus fed, as set forth.

3. A machine for scoring or grooving bullets, comprising a plurality of rotatable operating members provided with ribs or projections; means for rotating all of said members to operate upon the bullet interposed between them, each member having an unribbed portion arranged to be adjacent to the similar portions of the other members at a certain period in the operation; means for automatically feeding the bullet into the place between said unribbed portions; a gage or stop to position the bullet thus fed; and means for discharging the bullet when the unribbed portions of the several members are again adjacent to each other.

4. A machine for scoring or grooving bullets, comprising a plurality of rotatable operating members provided with ribs or projections, and a gage or support for the end of the bullet to properly position the same with relation to said members, substantially as described.

5. A machine for grooving bullets comprising three operating members arranged to rotate on vertical axes, said members being triangularly arranged and adapted to engage a bullet between their peripheries, projecting ribs extending partially around said members to form the grooves in the bullets, a gage or support for the bullet which is being operated upon, and means for removing said gage when the unribbed portions of said members are adjacent to each other, substantially as described.

6. A machine for grooving bullets comprising three operating members, each consisting of a disk mounted on a vertical axis and provided along its periphery with one or more projecting ribs extending partially around the same, means for rotating said disks, said means being so arranged that the unribbed portions of the several disks are adjacent to each other at one period in the rotation, and a supporting-flange formed on one of said disks below the periphery thereof to support the bullet interposed between the said disks, substantially as described.

7. A machine for grooving bullets comprising three operating members, each consisting of a disk mounted on a vertical axis and provided along its periphery with one or more projecting ribs extending partially around the same, means for rotating said disks, a supporting-flange formed on one of said disks below the periphery thereof to support the bullet interposed between the said disks, and an opening in the said flange to permit the bullet to drop out from between the said disks, substantially as described.

8. A machine for grooving bullets comprising three operating members, each consisting of a disk mounted on a vertical axis and provided along its periphery with one or more projecting ribs extending partially around the same, means for rotating said disks, a supporting-flange formed on one of said disks below the periphery thereof to support the bullet interposed between the said disks, an opening in the said flange to permit the bullet to drop out from the said disks, and a feed-chute to feed the bullets toward said supporting-flange, substantially as described.

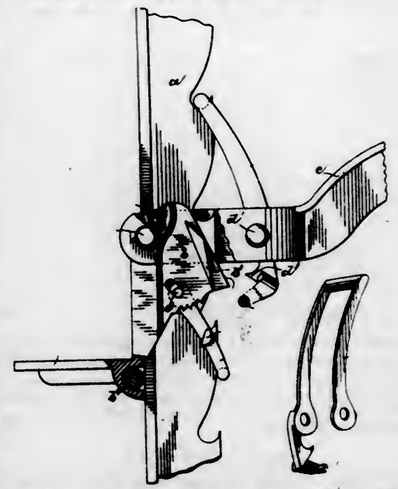
9. A machine for grooving bullets comprising rotatable disks arranged to engage the bullets between their peripheries, ribs projecting from said disks to form the grooves in the bullets, a portion of the periphery of each disk being unribbed, a feed-chute for feeding bullets to a position between said disks by gravity when the unribbed portions are adjacent, and means for controlling the bullets in said feed-chute to prevent the feed of a bullet during the removal of the bullet previously operated upon, substantially as described.

10. A machine for grooving bullets comprising disks rotatable on a vertical axis and arranged to receive a bullet between their peripheries, ribs projecting from said disks to form the grooves, a support for the bullet during the operation of said disks thereon, means for removing the said support to allow the bullet to drop from the machine at the end of the operation, a feed-chute arranged to feed bullets by gravity toward the support, a controlling device to support the bullets in the chute when the said support is removed, and means for operating said controlling device to permit a bullet to descend and rest upon said support when said support is in position to receive the same, substantially as described.

11. In a machine for grooving bullets the combination with the operating members *a*, *b* and *c*, each having ribs extending partially around it, the unribbed portions being arranged to become adjacent to permit a bullet to be inserted between said members, of a chute arranged to contain a column of bullets, said chute leading toward a position between said members, a stop extending across the said chute and arranged to support a column of bullets therein, a spring to hold the stop in normal position, and a projection from one of said members to engage and remove the said stop from its normal position, substantially as and for the purpose described.

12. In a machine for grooving bullets, the combination with the operating members *a*, *b* and *c*, each having ribs extending partially around it, the unribbed portions being arranged to become adjacent to permit a bullet to be inserted between said members, of a support for the bullet which is being operated upon, means for removing said support at the end of the operation to permit the bullet to fall by gravity, and a deflector below the support, said deflector being covered with a layer of yielding material to prevent the bullet from being dented or otherwise injured, substantially as described.

682,601. LEVER-JACK. GEORGE W. CAMPBELL, Kenton, Ohio. Filed Dec. 24, 1900. Serial No. 40,836. (No model.)



Claim.—1. In a lifting-jack, the combination with the stock having a rack on one side as an essential part thereof, of a single sliding frame

on said stock, an operating-lever, a lifting-pawl on said lever and a retaining-pawl carried by said frame, whereby when said lever is operated said pawls will alternately engage said rack, substantially as specified.

2. In a lifting-jack, the combination with the stock having a rack on one side as an essential part thereof, of a sliding frame on said stock, an operating-lever pivoted to said frame, a lifting-pawl on said lever and a retaining-lever pivoted to said frame so as to normally engage said rack, whereby when said lever is operated said pawls will alternately engage said rack to lift and hold the load, substantially as specified.

3. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a sliding frame on said stock carrying a lifting-foot, an operating-lever pivoted to said frame, a lifting-pawl pivoted to said lever and interengaging parts between said pawl and frame which upon said lever being moved beyond its position for lifting, serve to throw said pawl out of engagement with the teeth of said rack, substantially as specified.

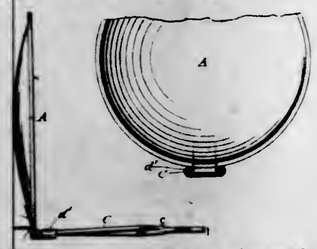
4. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a sliding frame on said stock adjacent to said rack and provided with a lifting-foot, a retaining-pawl pivoted to said frame and adapted to normally engage said rack, an operating-lever pivoted to said frame, a lifting-pawl pivoted to said lever and interengaging parts between said lifting and retaining pawls which upon said operating-lever being moved beyond its position for lifting serve to throw said retaining-pawl out of engagement with the teeth of said rack, substantially as specified.

5. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, a frame sliding on said stock and provided with a lifting-foot, a retaining-pawl pivoted to said frame and adapted to engage said rack, an operating-lever also pivoted to said frame and having a lifting-pawl pivoted thereto, and interengaging parts on said lifting and retaining pawls whereby, when the lifting-lever is moved beyond its position for lifting, the pawls will be thrown out of engagement with the rack until they have passed the teeth on said rack which they would normally engage, substantially as and for the purpose specified.

6. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a frame sliding on said stock adjacent to said rack and provided with a lifting-foot, a retaining-pawl pivoted to said frame and adapted to normally engage said rack, an operating-lever pivoted to said frame, a lifting-pawl pivoted to said lever and interengaging parts between said lifting and retaining pawls and said frame which upon said operating-lever being moved beyond its position for lifting serve to throw said lifting and retaining pawls alternately in and out of engagement with said rack, substantially as specified.

7. In a lifting-jack, the combination with a stock T-shaped in cross-section, having a rack formed on the stem thereof, of a frame sliding on said stock having recesses in each end thereof, antifriction-bearings in said recesses to engage opposite sides of said stock, an operating-lever, a lifting-pawl on said lever and retaining-pawl carried by said frame and interengaging parts between said lifting and retaining pawls and said frame whereby when said lever is moved beyond its position for lifting, said pawls will alternately engage said rack, substantially as specified.

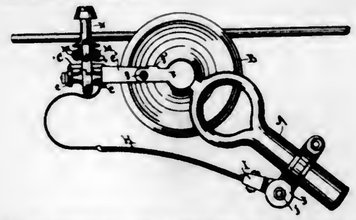
682,602. **REFLECTOR.** ALONZO B. CONDE, Delmar, N. Y. Filed Apr. 27, 1901. Serial No. 57,664. (No model.)



Claim.—The combination with a supporting-arm of spring metal having curved inner ends adapted to form a clasp or clamp, of a reflector hinged to the outer end of said arm, and a handle attached to the outer end of said arm independently of said reflector and provided with a shoulder adapted to limit the backward movement of said reflector, substantially as shown and described.

682,603. **TROLLEY.** FRANCIS A. CRAIN, Waverly, N. Y. Filed June 18, 1901. Serial No. 65,022. (No model.)

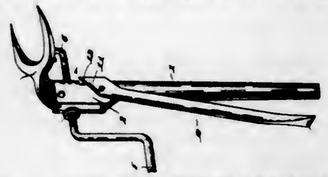
Claim.—1. The combination, with a trolley pole and wheel, of a frame carrying two spring-actuated laterally-movable grooved rollers to engage the line-wire, and means for separating said rollers to release the trolley-wheel from said wire, said frame having arms hung upon the ends of the trolley-wheel spindle with side plates to close over the ends of said spindle, one or both of said plates being movable to permit of the insertion of the spindle, and means for supporting said frame in proper position relatively to the line-wire.



2. The combination, with a trolley pole and wheel, of a frame carrying two spring-actuated laterally-movable grooved rollers to engage the line-wire, and means for separating said rollers to release the trolley-wheel from said wire, said frame being hung upon the trolley-wheel spindle and being supported from beneath by a spring-arm held in an adjustable socket-piece clamped upon the trolley-pole.

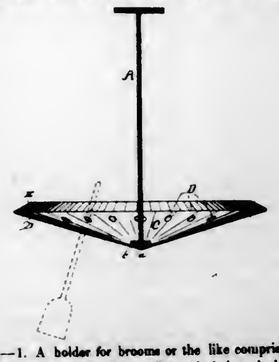
3. The combination, with a trolley pole and wheel, of the frame C having arms hung upon the ends of the wheel-spindle, the covering-plates F F, the insulating-strips G G and washers E E, the spring-actuated arms L L carrying the grooved rollers N N, the spring-arm H, the socket-piece I, the insulating-clamp J, and means for locking said socket-piece and clamp together in required adjustment.

682,604. **WIREWORKING-TOOL.** MARION F. DICKEY, Pendletonville, Tex. Filed Mar. 28, 1900. Serial No. 10,511. (No model.)



Claim.—A wireworking-tool, comprising a lever-handle having a lateral terminal forked arm disposed at substantially right angles thereto, the outer terminals of the fork members being constructed to form a fulcrum for the handle and for engagement with a support, and an endwise-slidable and rotatable spindle mounted transversely upon the handle adjacent to the inner side of the terminal arm and projected in the same direction thereof and at opposite sides of the handle, that end of the spindle which is next to the arm being terminated short of the outer end thereof and provided with a terminal wire-engaging hook, the opposite end having an operating crank-handle, and there being a lateral handle-engaging stop upon the spindle and between the handle and the crank.

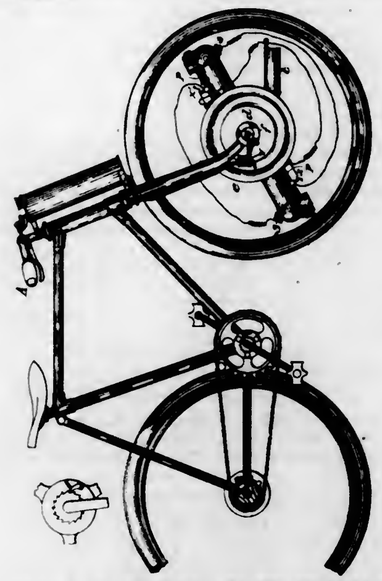
682,605. **HOLDER.** BENJAMIN B. DOUGLASS, Mountaingrove, Mo. Filed Apr. 25, 1901. Filed Serial No. 57,436. (No model.)



Claim.—1. A holder for brooms or the like comprising a suitable suspended rod, a perforated substantially conical shaped plate at the end of the rod, the perforations extending at an angle to the rod, substantially as described.

2. A holder for brooms or the like, comprising a suitably-suspended support, a substantially conical shaped plate on the support provided with a series of apertures, and a flange on the plate overhanging a portion of the apertures, substantially as described.

682,606. **EXPLOSIVE-ENGINE FOR MOTOR-VEHICLES.** CHAS. R. DURYEA, Elizabeth, N. J. Filed July 20, 1897. Serial No. 645,233. (No model.)



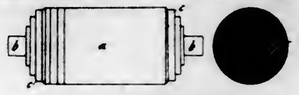
Claim.—1. In a motor-vehicle, a fuel-supply tank located on the front fork portion thereof and provided with an adjustable fuel-supply valve, an inlet-port for the admission of air and fuel concentric with the front wheel and axis, an inwardly-opening valve closing said port, air and fuel passages communicating with the inlet-port, a combined hub and engine case adapted to receive the fuel mixture and also containing the working mechanical parts, a crank-shaft, idlers gearing the same to the wheel-hub, an idler-shaft carrying said idlers, a clutch for clutching said shaft at will to the bicycle-forks, said case being provided with cylinders having pistons connected to said crank-shaft and having outwardly-opening valves.

2. In a motor-bicycle, a tubular bearing-axis having an inwardly-opening valve at the inner end, a crank-shaft bearing concentric with the passage, a fuel-atomizer so placed as to permit an explosive mixture to be drawn through the valve, a crank-inclosing case forming the hub of the wheel and supporting-cylinders with pistons attached to the crank-shaft, in combination with idler-gears engaging with the crank-shaft pinion and the crank-case, a pinion on the crank-shaft and arranged to drive the crank-case when the idler-gears are maintained in a fixed position, an idler-shaft passing out of the said case concentric with the wheel-axis and on the opposite side from the inlet-port; a clutch whereby said idler-shaft is adapted to be clutched to the bicycle-forks.

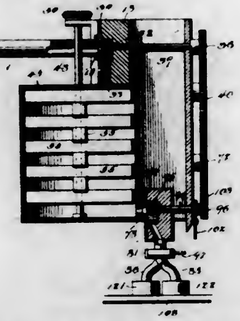
3. In a motor-bicycle, an explosion-engine placed within the front wheel, a crank-shaft, a pinion on said shaft, a fuel-inlet port concentric with the axis on one side of the wheel, an idler-shaft projecting from the inside of the wheel outwardly through the axis on the other side of the wheel, idlers meshing with pinion on the crank-shaft and engaging the crank-case, and means for clutching the idler-shaft and the bicycle-forks, which means are operated by one hand of the rider, combined with means for regulating the fuel-supply by the other hand of the rider.

682,607. **ROLLER FOR CALENDERING-MACHINES.** JOSEPH ECK, Dusseldorf, Germany. Filed Nov. 22, 1898. Serial No. 737,923. (No model.)

Claim.—In an elastic calendering-roller, the combination with a solid core having straight ribs and grooves extending parallel to the longitudinal axis of said core around the whole of the circumference of same so as to let the said core have a cog-wheel-like cross-section, of asbestos disks having each a central opening corresponding in shape to the cross-section of the core, and being all arranged tightly side by side upon the latter so as to form together an immovable asbestos covering of perfectly uniform resistibility throughout the whole of its circumferential surface.



682,608. **MACHINE FOR MIXING AND PACKING AXLE-GREASE.** DANIEL L. EUSTICE, Galena, Ill. Filed Oct. 21, 1899. Serial No. 734,407. (No model.)



Claim.—1. In a machine of the character described, one or more receiving-measures, a mixer, one or more measures for filling the packages and means for operating the measures and mixer conjointly for the purposes shown.

2. In a machine of the character described, a measure for measuring the oil-supply, a measure for measuring the set-supply, a mixer for mixing the oil and set, one or more measures for measuring the mixture and delivering it into the packages, a traveling table for holding the packages and means for operating the measures, mixer and table conjointly, for the purposes shown.

3. In a machine for mixing and packing axle-grease, a mixer, measures for admitting the material into the mixer, measures for delivering the mixture from the mixer, said measures consisting of a box provided with a circular recess, a slotted cap eccentrically mounted within the recess, measuring-plates carried by the cap and adapted to slide back and forth within the slots, and openings for receiving and discharging the material.

4. In a machine for mixing and packing axle-grease, a mixer, measures for admitting the material into the mixer, measures for delivering the mixture from the mixer, a trough beneath the delivering-measures and provided with one or more discharge-openings, a cut-off within the trough whereby a given quantity of the mixture is delivered into each of the packages and means for operating the measures, mixer, and cut-off conjointly, substantially as shown and described.

5. In a machine of the character described, an oil-supply pipe and a set-supply pipe, a mixer, means for delivering a given quantity of oil and set into the mixer, means for discharging a given quantity of the mixture from the mixer, and means for operating the mixer and the delivering and discharging means for the material conjointly.

6. In a machine of the character described, a measure, means for operating said measure, a cut-off, and means for operating said cut-off, consisting of the lever 69, a wheel 72 having lugs 76 and 77 adapted to engage said lever, all combined as and for the purposes shown.

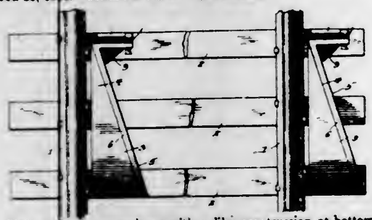
7. A machine of the character described, consisting of two supply-pipes, one for the oil and one for the set, a valve in each pipe, means for operating said valve at the same time, a measure connecting with each of said pipes, a mixer connecting with both of said measures, a measure connected with the mixer and having a discharge-opening, a cut-off beneath the opening, and a traveling table carrying the packages to be filled, with means for operating the mixer, the cut-off and the table, all combined as and for the purposes shown.

8. A machine of the character described, consisting of one or more measures connected with the oil and set supply, a mixer, one or more measures for delivering a given quantity of the completed grease into each package, means for operating said measures and mixer, in combination with a traveling table carrying the packages to be filled, consisting of a

table, a central shaft to which the table is secured, and means for operating said shaft in conjunction with the measures and mixer, as and for the purposes shown.

9. In a machine of the character described, one or more measures for measuring the supply, a mixer, a measure for filling the packages, with means for operating the same, and a traveling table carrying packages set beneath the filling-measure, means attached to the table for holding the packages thereon, and a worm-gear for operating said table in conjunction with said filling-measure, substantially as and for the purposes shown.

682,609. **CAR-REPLACER.** JULIAN A. FOSTER, Salem, Wis. Filed Oct. 25, 1900. Serial No. 34,320. (No model.)



Claim.—1. A car-replacer with a like construction at bottom and top and adapted to be turned upside down for reversible use and having an upwardly-inclined flange for direct contact with a car-wheel provided with a lower broadened end and centrally projecting from a vertical web having portions projecting above and below the said flange to form straight shoulders gradually increasing in width toward the upper reduced end of the said flange, and means for holding the device.

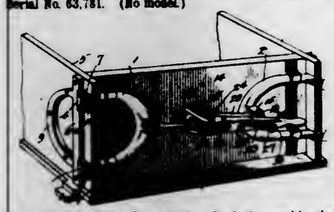
2. A car-replacer with a like construction at bottom and top and adapted to be turned upside down for reversible use and having an upwardly-inclined flange for direct contact with a car-wheel provided with a lower broadened end and an upper reduced end and projected from one side of a vertical web having portions extending above and below the said flange to form straight shoulders gradually increasing in width toward the upper reduced end of the said flange, and a projection at one end of the web having a recess in its outer free end.

3. A car-replacer with a like construction at bottom and top and adapted to be turned upside down for reversible use and having an upwardly-inclined flange for direct contact with a car-wheel provided with a lower broadened end and an upper reduced end and straight shoulders above and below one side of the same, the said shoulders gradually increasing in width in a vertical direction toward the upper reduced end of the flange.

4. A reversible car-replacer having a vertical web forming upper and lower inclined shoulders in relation to an intermediate longitudinally-inclined flange, the latter decreasing in width toward its upper end, the shoulders gradually increasing in width toward the upper reduced extremity of the flange and the lower terminal of the latter having direct contact with the base-rest of the device when in use.

5. As an improved article of manufacture, a reversible car-replacer having a similar top and bottom construction and including a downwardly-inclined intermediately-located flange, the lower terminal of said flange having direct contact with the base-rest of the device when in use.

682,610. **END-GATE.** GEORGE W. GIFFORD, Kinsley, Kans., assignor of one-half to Harry Linn Read, same place. Filed June 8, 1901. Serial No. 63,781. (No model.)



Claim.—1. In a device of the class described, the combination with a wagon-body, of catches fixed to the sides of the wagon-body and consisting of rigid hooks arranged in pairs and spaced apart, sliding bars extending between the hooks and provided at their outer ends with heads for engaging the same, and means for moving the bars inward and outward to engage them with and disengage them from the catches, substantially as described.

2. In a device of the class described, the combination with a wagon-body, and an end-gate, of the U-shaped horizontally-movable bars slidingly mounted on the end-gate and capable of reciprocation to engage them with and disengage them from the wagon-body, and means for reciprocating the bars and for locking them in engagement with the body, substantially as described.

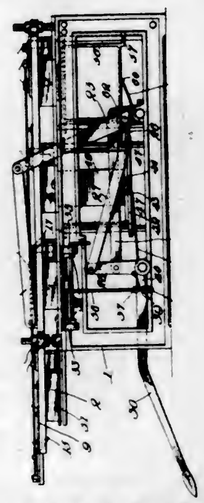
3. In a device of the class described, the combination with a wagon-body, and an end-gate, of the bars provided with curved braces and having upper and lower catches consisting of hooks arranged in pairs, the approximately U-shaped sliding bars provided at their ends with heads engaging the catches, and means for reciprocating the sliding bars and for locking them in engagement with the catches, substantially as described.

4. In a device of the class described, the combination of a wagon-body provided at opposite sides with slots, an end-gate, catches consisting of hooks arranged at opposite sides of the slots, sliding bars mounted on the end-gate and having heads for engaging the hooks, and means for reciprocating the locking-bar and for holding the heads in engagement with the hooks, substantially as described.

5. In a device of the class described, the combination with a wagon-body, and an end-gate, of sliding bars for engaging the wagon-body, links connected with the sliding bars, one of the links being provided with a projecting arm, a lever fulcrumed between its ends on the end-gate and connected with the inner ends of said links and adapted to swing to and from the said arms, and means for securing it to the arms, substantially as described.

6. In a device of the class described, the combination with a wagon-body, and an end-gate, of sliding bars mounted on the end-gate and engaging the wagon-body, a lever fulcrumed between its ends, links pivoted to the lever at opposite sides of the fulcrum-point and connected with the sliding bars, one of the links being provided with an arm, a locking device for securing the lever to the arm, and a catch mounted on the arm and engaging the lever, substantially as described.

682,611. **LABELING-MACHINE.** EMMETT N. GILFILLAN and EDDY T. MCKAIG, Chicago, Ill., assignors to New York Labeling Machine Company, of New York. Filed Aug. 29, 1900. Serial No. 28,378. (No model.)



Claim.—1. In a labeling-machine the combination of an elongated rigid bottle-runway, a paste apparatus and a label-holder arranged adjacent to and adapted to approach one side of said runway, means arranged on the other side of said runway, for holding the bottles thereagainst, opposite said paste apparatus and label-holder, a reciprocating feeder having a plurality of disengageable devices for successively advancing a bottle to a point first opposite said paste apparatus and next opposite said label-holder and means operatively connecting said feeder and paste apparatus and label-holder in time to cause said paste apparatus and label-holder to engage the bottles on said runway after the feeding movement of said feeder ceases, substantially as set forth.

2. In a labeling-machine the combination of a bottle-runway, a reciprocating feeder for advancing the bottles along said runway, label-applying devices and an operating-handle having loose connection with said feeder and elastic connection with said label-applying devices, substantially as set forth.

3. In a labeling-machine, the combination of a bottle-runway, a paste apparatus, a label-holder, means for advancing the bottles to positions over said paste apparatus and label-holder, stops for arresting the movement of the bottles on said runway and means for raising said paste apparatus and label-holder, substantially as set forth.

4. In a labeling-machine the combination of a bottle-runway, means for intermittently advancing the bottles along said runway, disengageable stops actuated in unison with said means for arresting the movement of the bottles on said runway, and label-attaching devices, substantially as set forth.

5. In a labeling-machine the combination of a runway adjustable for various sizes of bottles, a feeder for advancing the bottles along said runway, an adjustable stop for limiting the movement of said feeder and label-applying device operatively related to the bottle-runway, substantially as set forth.

6. In a labeling-machine the combination of means for holding the bottle to be labeled, a label-holder consisting of a follower having a rounded end, and a casing fitting over said rounded end and having an open end provided with projections for engaging the edges of the labels, and an aperture in its side for the insertion of the labels, and means for bringing the bottle and labels in said open end of the casing together, substantially as set forth.

7. In a labeling-machine the combination of a bottle-runway, a reciprocating feeder having a plurality of disengageable pawls for intermittently advancing the bottles along said runway, a paste apparatus, a label-holder and means for causing the bottles on said runway to be engaged by said paste apparatus and label-holder, said feeder and means being operatively connected and so timed with relation to each other that the feeder will cease its feeding movement before the bottle and label-holder engage one another, substantially as set forth.

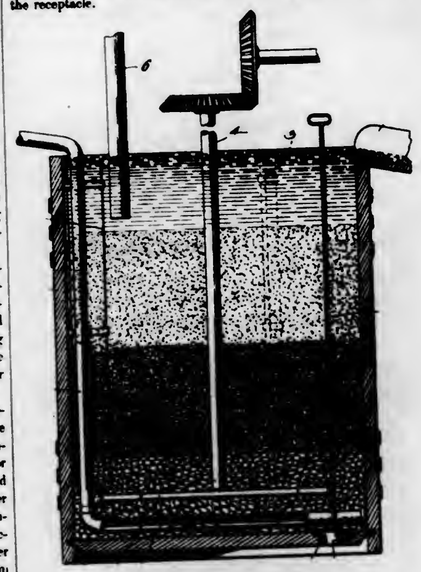
8. In a labeling-machine the combination of a bottle-runway, a reciprocating feeder for advancing the bottles along said runway, a paste apparatus, a label-holder and a pressure device arranged in a line lengthwise of said runway, an arm connected with said reciprocating feeder for moving the same, a crank-arm, a rod connecting said arms together and having sliding connection with one of them, an operating handle or lever operatively connected with said crank-arm, means for operatively connecting said lever with said paste apparatus, a yielding operative connection between said handle or lever and label-holder for forcing the latter toward the bottle, and an operative connection between said crank-arm and pressure device having a yielding medium for forcing the pressure device against the bottle, substantially as set forth.

9. In a labeling-machine the combination of a runway for the bottles, a paste apparatus, a label-holder and a pressure device arranged in a line lengthwise of said runway, a reciprocating feeder for the bottles, an operative arm for reciprocating said feeder, a shaft on which said arm is loosely pivoted, a spring secured to said shaft and acting against said pressure device, a second shaft, a spring secured to said second shaft and acting against said label-holder, a crank-arm on said second shaft operatively connected with said paste apparatus, crank-arms on said shafts respectively connected together, a link connecting said first arm with one of the crank-arms on said second shaft and having sliding connection with one of said arms and an operating handle or lever connected with one of said shafts, substantially as set forth.

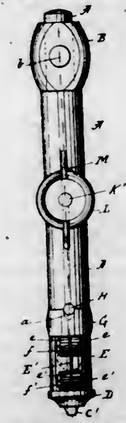
682,612. **METHOD OF LEACHING ORES.** ERNEST L. GODBE, Salt Lake City, Utah. Filed Jan. 24, 1901. Serial No. 44,641. (No specimens.)

Claim.—1. The herein-described method of leaching ores which consists in disposing moistened ore in superimposed strata within a containing-receptacle by a continuous mechanical agitation in the lower portion of the latter to form a lower thoroughly-agitated stratum of heavier portions of the ore, a stratum of lighter portions or particles next above which are agitated to a less degree, a stratum of slimes and other lighter portions next above which remain substantially immobile, and a top covering of a clear supernatant solution, introducing the ore below the upper surface of said latter solution, overflowing and carrying off the clear solution, introducing a leaching solution at the bottom of the containing-receptacle below the lower stratum of heavier portions of the ore and causing said leaching solution to filtrate or percolate upwardly through the strata above and at the same time increasing the agitation, and carrying off the overflow leaching solution and the metal in conjunction therewith for precipitation.

2. The herein-described method of leaching ores which consists in disposing moistened ore in superimposed strata within a containing-receptacle by a continuous mechanical agitation in the lower portion of the latter to form a lower thoroughly-agitated stratum of heavier portions of the ore, a stratum of lighter portions or particles next above which are agitated to a less degree, a stratum of slimes and other lighter particles next above which remain substantially immobile, and a top covering of a clear supernatant solution, introducing the ore below the upper surface of said latter solution, overflowing and carrying off the clear solution replacing water in the charge by a cyanid of potassium solution introduced at the bottom of the receptacle below the lower heavier stratum and causing it to percolate upwardly through the strata above, increasing the agitation during the introduction of said cyanid solution, carrying off the metal-bearing cyanid solution which overflows from the top of the charge, and precipitating the said overflow metal-bearing solution after it leaves the receptacle.



682,613. **DIE AND DIE-HOLDER FOR PUNCHING-MACHINES.** BENJAMIN F. HALL, Salem, Mass., assignor of one-half to Elmo Goodell, same place. Filed May 10, 1901. Serial No. 59,566. (No model.)



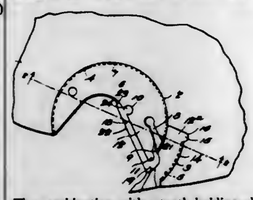
Claim.—1. A centrally-perforated die-holder, D having a recess *d*, and internal shoulder or offset *d'*, combined with a perforated die having a cylindrical upper portion C, adapted to be received in the die-holder recess *d*, and to rest against the die-holder shoulder *d'* and having a cutting edge C', substantially as and for the purpose set forth.

2. In a perforating or punching device, in combination a die-holder bar A, a longitudinally-adjustable collar G arranged thereon, a slitted die-holder sleeve E, adjustably arranged on said die-holder bar and means for securing it thereon, a die-holder secured to said sleeve, and a die attached to said die-holder and mechanism substantially as described for

adjusting said die and die-holder longitudinally relative to the die-holder bar substantially as herein set forth and described.

3. In combination a die-holder bar A, a transverse bolt K, journaled in the former, and having upon it a cam or eccentric K″, adapted to engage a rod I, adjustable in said die-holder bar, a collar G, and a slitted sleeve E, adjustable on said die-holder bar, a die-holder attached to said sleeve and a die attached to said die-holder substantially as and for the purpose set forth.

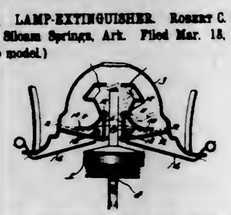
682,614. **MEANS FOR ATTACHING SAW-TEETH.** EDWARD E. HARRIS, Aberdeen, Wash. Filed June 24, 1901. Serial No. 65,868. (No model.)



Claim.—1. The combination with a tooth-holding clamp for a saw of a removable protector for the throat and tooth engaging portions of such clamp.

2. The combination with a saw-body having a socket for a clamp, of a clamp mounted in the socket, a protector removably applied to the clamp, and a tooth held in place by said devices.

682,615. **LAMP-EXTINGUISHER.** ROBERT C. HENRY and CHAS. C. CARRIN, Siloam Springs, Ark. Filed Mar. 18, 1901. Serial No. 51,753. (No model.)



Claim.—1. The combination with a lamp-burner including a perforated base or diaphragm and a wick-tube, of fulcrum devices secured to the said base or diaphragm, extinguishing members movably supported by said fulcrum devices for free pivotal action and located on opposite sides of the wick-tube and comprising lower outwardly-extending wings and upper caps, and wires for manually operating the said members disposed in opposite positions in the base or diaphragm and loosely passed through the latter, the inner extremities of the said wires being in the form of reversely-extending fingers having a lateral angular direction and normally located under the wings.

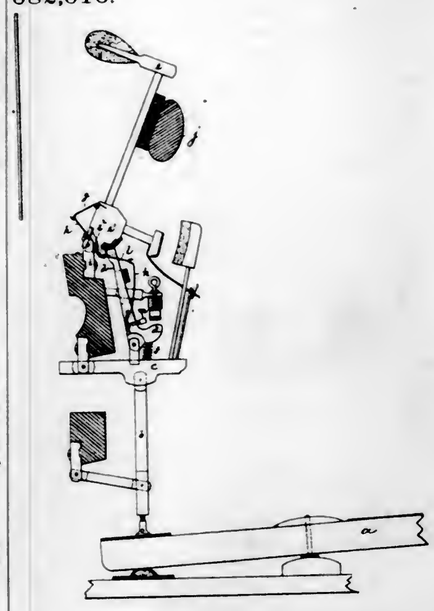
2. The combination with a lamp-burner including a perforated base or diaphragm and a wick-tube, of fulcrum devices secured to the base or diaphragm on opposite sides of the wick-tube, automatically-operating extinguishing members movably attached to said fulcrum devices for free pivotal action and having upper caps and lower outwardly-extending wings, and wires for manual operation loosely passed through said base or diaphragm and having inner extremities located under the wings of the members for individually actuating the latter, the said wires being turned to elevate the inner extremities thereof.

3. The combination with a lamp-burner including a perforated base or diaphragm and a wick-tube, of fulcrum devices secured to the base or diaphragm on opposite sides of the wick-tube and comprising in each instance two upstanding loops having outwardly-extending shanks with terminal right-angular hooks or loops to engage the said base or diaphragm, the said fulcrum devices being completely clear of the wick-tube and held by the base or diaphragm exclusively, and extinguishing members movably supported by the said fulcrum devices to have an automatic operation.

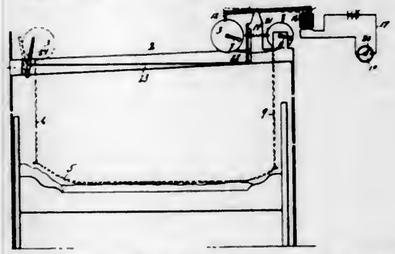
682,618. **REPEATING ACTION FOR UPRIGHT PIANOS.** JOSEPH HERRENBERGER, Paris, France. Filed Apr. 3, 1901. Serial No. 54,009. (No model.)

Claim.—In a repeating action for upright pianos, the combination of a jack having a pair of slots, with a spring *k*, pivoted to the jack, means in the lower slot for regulating the tension of the spring, a string passing through the upper slot and connecting the spring to the hammer-butt, a spring *g*, secured to said hammer-butt, and a string *h*, for connecting said spring to the hammer-flange, substantially as specified.

682,616.



682,617. **AUTOMATIC DEVICE FOR COVERING BEDS.** JOSEPH HERR, Redlands, Cal. Filed June 17, 1901. Serial No. 64,780. (No model.)



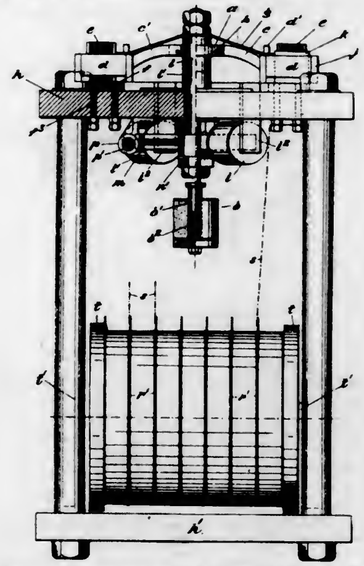
Claim.—1. In a device for the purpose set forth, the combination of a supporting-frame, a roller adapted to travel upon said frame, a blanket wound upon said roller, means for locking said roller against movement and means for unlocking said roller to permit it to roll upon the frame and discharge the blanket therefrom onto the bed.

2. In a device for the purpose set forth, the combination of an inclined frame, a roller having a blanket wound thereon, adapted to roll upon said frame, a second roller journaled in the frame and adapted to support one end of the blanket, cords connecting the ends of said blanket to said rollers, a detent for locking the roller adapted to travel upon the frame, an electromagnet for actuating said detent, said magnet being included in an electric circuit and a thermostat adapted to close said circuit.

3. In a device for the purpose set forth, the combination of an inclined supporting-frame, a roller adapted to roll upon said frame, a blanket attached to said roller by cords and adapted to roll thereon, a second roller pivoted in the frame having cords attached thereto which are also attached to the ends of said blanket, a detent adapted to lock the traveling roller against movement, an electromagnet adapted to actuate said detent, an electric circuit including said magnet and a thermostat, means for locking the journaled roller against rotation, means in the path of the traveling roller adapted to actuate said lock, and means for unlocking said pivoted roller.

4. In a device for the purpose set forth, the combination of a suitable frame, a traveling roller mounted on said frame, a blanket attached to said roller by cords and adapted to be wound thereon, means for supporting the opposite end of said blanket, means for causing said roller to travel upon said frame and unwind the blanket therefrom and means for lowering the blanket onto the bed when unwound from said roller.

682,618. **ELECTRICAL STARTING AND REGULATING SWITCH.** ARTHUR H. HICKLEY, Rock Ferry, England. Filed May 6, 1901. Serial No. 59,027. (No model.)



Claim.—1. In combination, the disk *a*, the switch-arms *c*, *c′* hinged to said disk, the brush-holders *d* formed on the ends of said arms, and the spring *g* guided by pins *d″* and adapted to press the brushes of the switch onto the contacts *f*, as described.

2. In combination, a hinged switch-arm, the brush-holders *d* on said arm, soft-iron armatures *j* attached to said brush-holders, and the electromagnets *i*, *i′* the pole-pieces i^2 of which being disposed so that they influence said armatures and draw the brushes *c* into closer electrical connection with the contact disposed between said pole-pieces, as described.

3. In combination, a contact such as *f* on a base *h*, an electromagnet *i* disposed beneath said contact and base, the pole-pieces i^2 of the magnet passing through said base so that their ends are flush with said contact and a switch-arm provided with soft-iron armatures *j* so disposed that the influence of the magnet upon the armatures draws the switch-brush *c* into closer electrical connection with the said contact, as described.

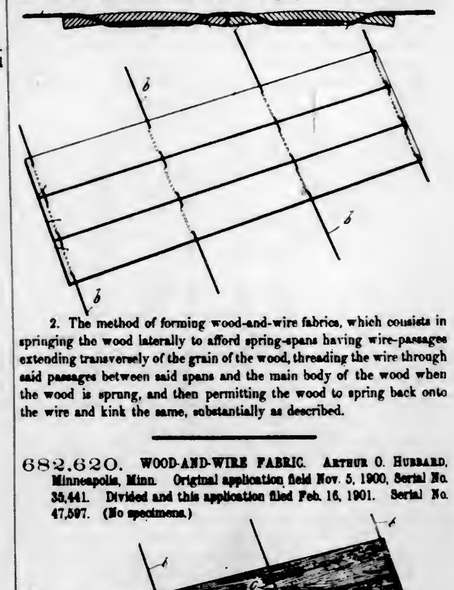
4. In combination, a switch-arm brush-holder, a slot therein at the side of the brush, and a spark-extinguishing plate *k* of insulating material loosely disposed in said slot, whereby the plate rests on the contacts *f* and extinguishes the spark, as described.

5. In combination, the spindle *l*, the switch-arm disk *a* and half-clutch *n′* fast thereon, the worm-wheel *m* loose thereon and attached to the core *o′* of a solenoid *o*, wound in series with the field-circuit, a spring o^2 for expelling the core and raising the wheel *m* out of engagement with the half-clutch *n′* and a hand-wheel spindle *p′* and worm *p* gearing with said worm-wheel, whereby when the field-circuit is made the solenoid *o* closes the clutch *n* and places the switch-arm and hand-wheel spindle *p′* in gear, and when said circuit is broken the spring *o′* opens the clutch *n* and throws the switch-arm out of engagement, as described.

6. In combination the contacts *f* attached to the base *h* by the studs f^2 the platform *h′* suspended from said base, brackets *l′* on said platform, the resistances *r*, terminal rings *r′* and disks *t* secured between the brackets *l′* by the bolt t^2, and the ribbons *s* forming an electrical connection between the rings *r′* and the contact-studs f^2, as described.

682,619. **PROCESS OF PRODUCING WOOD-AND-WIRE FABRICS.** ARTHUR O. HUBBARD, Minneapolis, Minn. Filed Nov. 5, 1900. Serial No. 35,441. (No specimens.)

Claim.—1. The method of forming wood-and-wire fabric, which consists in springing the wood to afford spans for embracing the wire, threading the wire between the said spans and the main body of the wood when the wood is so sprung, and then permitting the wood to spring back and clamp the wire, substantially as and for the purposes set forth.



2. The method of forming wood-and-wire fabrics, which consists in springing the wood laterally to afford spring-spans having wire-passages extending transversely of the grain of the wood, threading the wire through said passages between said spans and the main body of the wood when the wood is sprung, and then permitting the wood to spring back onto the wire and kink the same, substantially as described.

682,620. **WOOD-AND-WIRE FABRIC.** ARTHUR O. HUBBARD, Minneapolis, Minn. Original application filed Nov. 5, 1900, Serial No. 35,441. Divided and this application filed Feb. 16, 1901. Serial No. 47,597. (No specimens.)

Claim.—1. As a new article of manufacture, a fabric made up of wood and wire, with the wire threaded through spring-spans of the wood from a single or common side of the same.

2. As a new article of manufacture, a fabric made up of wood and wire, with the wire threaded through spring-spans thereof, transversely of the grain of the wood and from a common or single side of the same.

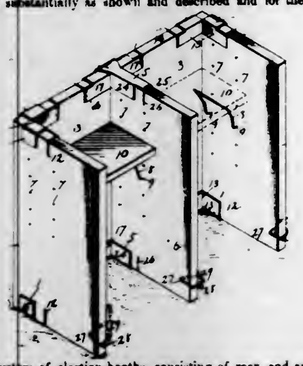
3. As a new article of manufacture, a fabric made of wood and wire, with the wire threaded through spring-spans thereof, transversely of the grain of the wood and from a single or common side of the same, which wire is kinked by the wood which is sprung back onto the same.

4. A wood-and-wire fabric, made up of a series of parallel slats or sections of thin wood, and a transverse series of binding-wires threaded through spring-spans thereof transversely of the grain of the wood, and from a common side of the slats.

682,621. **ELECTION-BOOTH, KNOCKDOWN STRUCTURE, &c.** FRANCIS M. HUMPHREY, Pendleton, Oreg. Filed Apr. 30, 1901. Serial No. 58,145. (No model.)

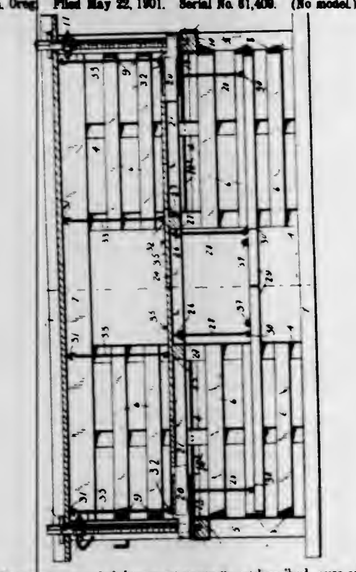
Claim.—1. A system of election-booths or similar structures, consisting of rear walls, having vertical slots in their upper and lower ends; end and central walls, having vertical slots in their upper and lower ends; corner-clasps, each consisting of a right-angle plate, adapted to fit in the extreme corners of each end booth, flanges to fit in said slots and flanges turning over the tops and running down the outer faces of said end and rear walls; central ties, each consisting of a plate having end flanges adapted to fit in the slots of the rear walls, a flange extending rearwardly and turning over the top and extending down the rear faces of said rear walls, its corners turned up and out, forming ears, and central clasps each consisting of a plate having a flange extending rearwardly over the central tie and down under the ears of the last-mentioned flange, flanges extending down each side of the central wall, and an end flange fitting in the slot of said central wall, substantially as shown and described and for the purposes set forth.

2. A system of election-booths, consisting of rear walls, having vertical slots in their upper and lower ends; end and central walls having vertical slots in their upper and lower ends; corner-clasps clasping together the rear edges of the end walls and outer edges of the rear walls; central ties tying together the inner edges of the rear walls; a central clasp, clasping the central wall to the rear walls; stays set in the front edges of the end and central walls, each stay having an eye and adapted to be secured to the floor, substantially as shown and described and for the purposes set forth.



3. A system of election-booths, consisting of rear, end and central walls; said walls each having parallel rows of perforations and slots in their upper and lower ends; corner-clasps adapted to clasp together the rear and outer edges of the end and rear walls; central ties adapted to tie together the rear walls; central clasps adapted to clasp the central wall to the rear walls; wire brackets having feet adapted to enter the perforations in said walls; a shelf adapted to rest on said brackets, substantially as shown and described and for the purposes set forth.

682,622. **DOUBLE-DECK CAR.** FRANCIS M. HUMPHREY, Pendleton, Oreg. Filed May 22, 1901. Serial No. 61,409. (No model.)

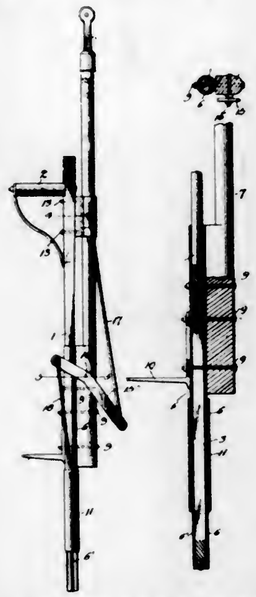


Claim.—1. In a freight-car substantially as described, eyes secured to the deck inside of the car-door opening; floor extensions fitting in said car-door openings; hooks pivoted to said floor extensions and adapted to be turned in and out of said eyes, substantially as shown and described and for the purposes set forth

2. In a freight-car having an upper deck substantially as described, removable platforms, one in each end meeting in the center, and suspended from the lower face of said deck, by means of eyes and hooks; eyes secured to said platforms inside of the coach-doors; floor extensions fitting in said coach-door openings; hooks secured to the upper faces of said floor extensions, their points turned up; said hooks adapted to be hooked into said eyes and removed therefrom, substantially as shown and described and for the purposes set forth.

3. The combination of a car-body, beams secured across the ends of said body, equidistant from the top and bottom; bearing-plates, resting on the upper faces of said beams; bearings in the top of the body, corresponding with said last-mentioned bearings; threaded rods, one in each corner, journaled in said bearings; a deck provided with threaded extensions, one working on each threaded rod; sprocket-chain working around said sprocket-wheels; eyes secured to the under face of the deck; corresponding eyes secured to the upper faces of two suspended and abutting platforms; rods having hooks on each end, and adapted to be hooked in said eyes, substantially as shown and described and for the purposes set forth.

682,623. **DANDELION-EXTRACTOR.** EDWARD B. HUGHES and WILLIS F. CLOW, Colorado Springs, Colo. Filed June 20, 1901. Serial No. 65,343. (No model.)



Claim.—1. In an implement of the class described, the combination of a barrel having its lower end slotted, a plunger therein, and a movable sleeve on the said barrel, for the purpose set forth and means to operate said sleeve, substantially as described.

2. In an implement of the class described, the combination of a barrel, a plunger therein having a handle, said plunger having a longitudinal slot, an operating-rod bolted to said barrel, the bolts which secure said barrel to said rod passing through the slot in the plunger, and a foot-rest secured to said barrel by said bolts, substantially as described.

3. In an implement of the class described, the combination of a barrel, a plunger therein, an operating-rod attached to the barrel, a lever fulcrumed to said operating-rod and connections between said lever and said plunger, a sleeve on said barrel, said sleeve being connected to and operated by said lever, substantially as described.

4. In an implement of the class described, the combination of a barrel having the lower end split and thereby adapted to be contracted and expanded, a plunger in said barrel, said plunger being adapted to be operated manually, an operating-rod attached to said barrel, a sleeve ensheathing the lower portion of the barrel and movable longitudinally thereon, a guide fixed to the plunger and in which the operating-rod moves, a lever fulcrumed to said operating-rod, and links connecting said lever at points on opposite sides of its fulcrum to said sleeve and guide respectively, substantially as described.

682,624. **KNIFE.** RUDOLPH KLOCKHAR, Chicago, Ill. Filed May 28, 1901. Serial No. 62,230. (No model.)

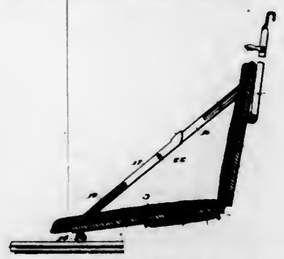
Claim.—1. In a knife, a handle, a blade, and a finger-guard on the blade adapted to be retracted into the handle.

2. In a knife, a handle, a blade, a movable finger-guard on the back of the blade and a recess in the handle into which the finger-guar is adapted to be retracted.



3. In a knife, a handle, a blade, a slot in the blade, and a finger-guard, having a projection engaging the slot, slidably mounted on the back of the blade.

682,625. **CAR-FENDER.** SOLOMON LEVY, East St. Louis, Ill. Filed Apr. 12, 1901. Serial No. 55,533. (No model.)



Claim.—1. The combination of the fender-back designed to be secured to a car, the bottom, and hinges connecting the bottom and the back and located at opposite sides of the fender and provided with curved guides or ways arranged to permit the fender to swing laterally to cover curved portions of the track, substantially as described.

2. In a car-fender, the combination of a back, a bottom, hinges located at opposite sides of the fender and connecting the back and the bottom and provided with curved guides permitting the bottom of the fender to have a limited lateral swing in either direction, and springs connected with the bottom of the fender and adapted to hold the same in alinement with the car normally, substantially as described.

3. A car-fender comprising a back designed to be fixed to a car, a bottom, and hinges having rear leaves connected with the back and provided with front leaves slidably connected with the bottom, whereby the bottom is permitted to swing vertically and move laterally, substantially as described.

4. In a car-fender, the combination of a back, a bottom, hinges secured to the back and provided with forwardly-extending guides having curved slots, pivots mounted on the bottom and arranged in the slots of the guides, and permitting the bottom to swing horizontally, said bottom being also adapted to swing vertically on the said hinges to fold it against the back, and means for holding the pivots normally at the rear ends of the guides, substantially as described.

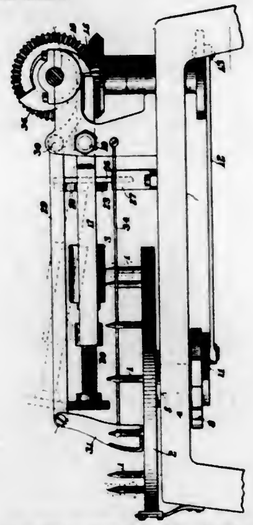
5. In a car-fender, the combination of a back, a bottom, hinges secured to the back and provided with guides extending forward beneath the bottom and having curved slots, pivots depending from the bottom and extending through the slots of the guides, and having plates at their lower ends, and coiled springs located at opposite sides of the fender and connected with the bottom and with the guides, substantially as described.

682,626. **MACHINE FOR PUNCHING NIPPLES, &c.** RHODES G. LOCKWOOD, Boston, Mass., assignor of two-thirds to Rhodes Lockwood and William N. Lockwood, same place. Filed Jan. 30, 1901. Serial No. 45,301. (No model.)

Claim.—1. In a punching-machine, a hammer; means to actuate that hammer; a multiplicity of punches, each punch being adapted to hold an article to be punched; a turn-table supporting those punches; means adapted to rotate the turn-table intermittently, and cause the punches to be set successively under the hammer.

2. In a punching-machine, a hammer; means to actuate that hammer; a multiplicity of punches, each punch being adapted to hold an article to be punched; a turn-table supporting those punches; means connected with the driving mechanism of the hammer adapted to rotate the turn-table intermittently, and cause the punches to be set successively under the hammer; and a cam-operated scoop to lift the articles from the punches in succession.

3. In a punching-machine, a hammer pivoted on the frame of the machine; a cam rotatably mounted on a driving-shaft of the machine, and adapted to actuate that hammer; a crank actuated by that driving-shaft; a pawl actuated by the crank; a turn-table bearing a multiplicity of punches, each adapted to hold an article to be punched; and a ratchet connected with the turn-table, whereby said pawl imparts to the turn-table and punches intermittent rotation; all organized and arranged so that the punches shall successively take position and remain stationary to receive the blow of the hammer.



4. In a punching-machine, a hammer pivoted on the frame of the machine; a cam rotatably mounted on a driving-shaft of the machine, and adapted to actuate that hammer; an eccentric connected with that driving-shaft; a pawl actuated by the eccentric; a turn-table bearing a multiplicity of punches, each adapted to hold an article to be punched; and a ratchet connected with the turn-table, whereby said pawl imparts to the turn-table and punches intermittent rotation; all organized and arranged so that the punches shall successively take position and remain stationary to receive the blow of the hammer; and a scoop pivoted to the frame of the machine; a cam on the driving-shaft whereby that scoop is thrown up and down close to one of the positions taken by the punches after passing the hammer.

5. In a punching-machine, a turn-table; a multiplicity of punches supported by the turn-table, each punch being adapted to hold an article to be punched; means to rotate the turn-table intermittently, whereby the several punches are successively set in the same position; a hammer adapted to strike a blow upon a punch set in said position, and means to actuate that hammer.

6. In a punching-machine having one or more punches set to receive the blow of a hammer, the combination of a hammer-arm; a screw-shaft journaled in said arm; a hammer-head fixed on that shaft; a ratchet-wheel on the shaft free to slide but not to rotate thereon; a pawl and arm therefor to actuate the ratchet-wheel; means to move the hammer-arm alternately from and to the punch, and a stationary bearing on the frame of the machine adapted to engage and actuate the arm of the pawl as the hammer-arm moves.

7. In the striking mechanism of a punching-machine, a hammer-head; a screw-threaded support for that hammer-head; means to move the hammer-head toward and from the point where the blow is delivered upon the punch; a ratchet-wheel connected with that head and free to slide but not to rotate with respect thereto; a pawl adapted to engage the ratchet; a smooth plate intervening between the teeth of the ratchet and the pawl during a portion of the travel of the pawl, and means on the stationary portion of the machine to actuate the hammer and the pawl.

8. In a punching-machine having one or more punches set to receive the blow of a hammer, a hammer; a relatively soft and penetrable striking-surface on the hammer; means to actuate the hammer; means to set the punch or punches always in the same position to receive the blow of the hammer; and means to shift the position of the striking-surface of the hammer at each stroke to present a fresh portion thereof to the punch.

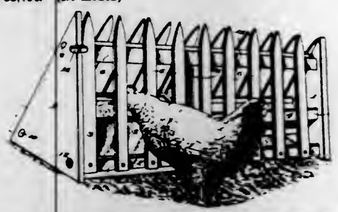
9. In a punching-machine having one or more punches set to receive the blow of a hammer, a hammer; a rotatable striking part on the hammer; a relatively soft and penetrable surface on that striking part; means to support that striking part rotatably; means to actuate the hammer; and means to rotate the striking part when the hammer is actuated, to present a fresh portion of its surface to the punch.

10. In a hammer for a punching-machine, an adjustably-mounted

striking part adapted to deliver the blow of the hammer; a relatively soft and penetrable surface on that striking part; and means to adjust the striking part when the hammer is actuated.

11. In a punching-machine having one or more punches set to receive the blow of a hammer, the combination of a hammer-head; means to support that hammer-head; a screw adjustment in those supporting means; means to move the hammer-head alternately to and from the punch; and means on the stationary portion of the machine to operate the adjusting mechanism of the hammer-head at each stroke of the hammer.

682,627. **DEVICE FOR FEEDING AND WATERING POULTRY.** ERNEST H. MACK, Keuka College, N. Y. Filed Apr. 13, 1901. Serial No. 55,730. (No model.)

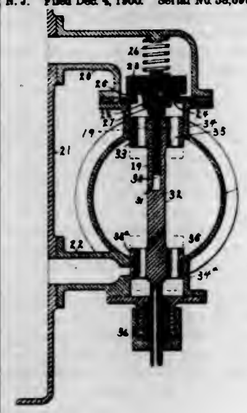


Claim.—1. A device of the class described comprising the triangular ends, the inclined rigid side fixed to the ends and composed of horizontal bars and upright pickets, the movable side hinged at its bottom to the triangular ends and adapted to swing downward and outward and abutting against and supported by the upper portion of the stationary side, a fastening device for locking the movable side in its closed position, a box mounted within the frame and having one of its sides secured to and carried by the hinged side and adapted to receive a heating device, and a drinking trough or receptacle forming a cover for the box and resting upon the upper edges of the same, substantially as described.

2. A device of the class described comprising a frame or inclosure having a hinged side, a box mounted within the frame or inclosure and having one of its sides mounted on the hinged side of the frame or inclosure, said box being provided with a lining and being adapted to receive a heating device, and a drinking trough or receptacle provided with a marginal flange arranged upon the box or casing, substantially as described.

3. A device of the class described comprising a frame composed of triangular ends and having inclined fixed and movable sides composed of horizontal bars and upright pickets, the movable side being hinged at its bottom to the ends and having its upper portion abutting against and supported by the top portion of the fixed sides, an intermediate support or partition connected with the fixed side, a feed-trough arranged between the support or partition and one end of the frame or inclosure, a box or casing arranged at the opposite side of the support or partition and having one of its walls mounted on the hinged side of the frame or inclosure and a drinking trough or receptacle supported upon the box or casing substantially as described.

682,628. **WATER-FEED FOR BOILERS.** SAMUEL D. MOTT, Passaic, N. J., assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Filed Dec. 4, 1900. Serial No. 38,699. (No model.)



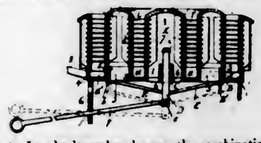
Claim.—1. In a device of the kind described, the combination with the receptacle having a water-inlet and boiler connections near the top and bottom, of a pair of reciprocating valves adapted to open and close the steam connection and water-inlet, and an independent valve adapted to close the steam connection, the said independent valve being moved up by the upstroke of the first-mentioned valves.

2. A device of the kind described, comprising a receptacle having steam and water connections near the top and bottom respectively with a boiler, a valve seated in the steam connection so as to normally close it, a pair of connected ported valves movable over the water-inlet and over the water connection to the boiler, and means for opening the valve in the steam connection by the upstroke of the two ported valves.

3. A device of the kind described, comprising a receptacle having steam and water connections near the top and bottom respectively with a boiler, a pair of vertically-ported connected valves reciprocating over the water-inlet and the water connection to the boiler, a valve controlling the steam connection, and means for lifting and opening the valve in the steam connection by the upward movement of the connected valves.

4. A device of the kind described, comprising a receptacle having steam and water connections near the top and bottom respectively, and a pair of vertically-ported connected valves movable in unison over the water-inlet and the water connection to the boiler, and a check-valve having a depending stem extending downward into the path of the stem of the ported valves whereby the upstroke of the latter raises the check-valve.

682,629. **HYDROCARBON-BURNER.** EDWIN G. MUMBERY, Detroit, Mich. Filed Sept. 24, 1900. Serial No. 30,898. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel perforated on its inner periphery, of means to open and close said perforations.

2. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel having a perforated flange, of a vertically-movable sleeve or band to open and close said perforations.

3. In a hydrocarbon-burner, the combination with a base provided with a vaporizing-channel perforated on its inner periphery, of a vertically-movable sleeve or band to open and close said perforations.

4. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel having a perforated flange, of a vertically-movable band or sleeve to open and close said perforations, and a lever to actuate said sleeve or band.

5. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel perforated on its inner periphery, of a vertically-movable sleeve or band to open and close said perforations, said base provided with a central hub, and said sleeve or band with a standard movable in said hub.

6. In a hydrocarbon-burner, the combination of a base provided with a vaporizing-channel perforated on its inner periphery, of a vertically-movable sleeve or band to open and close said perforations, said base provided with a central hub and said sleeve or band with a standard movable in said hub, and a stop to limit the movement of said sleeve or band.

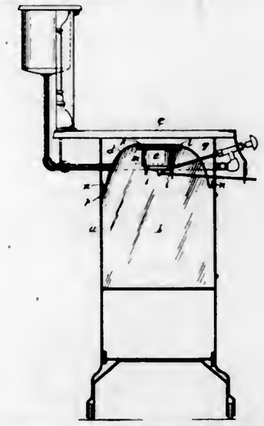
682,630. **HYDROCARBON-VAPOR STOVE.** EDWIN G. MUMBERY, Detroit, Mich. Filed Mar. 6, 1901. Serial No. 50,008. (No model.)

Claim.—1. The combination with a hydrocarbon-vapor stove provided with a top, of an open chamber immediately beneath said top, a warming-closet located beneath said open chamber, and a burner within said warming-closet, said burner and the top of said closet constructed to confine the heat passing laterally and downwardly through the burner within the closet, and permitting the heat passing upward through the burner to be directed into said open chamber, said closet constructed to permit the inlet of a supply of air to assist in supporting combustion.

2. The combination with a hydrocarbon-vapor stove formed with a top, of an open chamber immediately below said top, a warming-closet below said open chamber having an opening in the top thereof, and a burner located in said closet beneath the opening in the top thereof, said burner and the top of said closet constructed to close said opening about the outside of the upper end of the burner, and to restrict the heat passing laterally and downwardly through the base of the burner and confine it within the warming-closet.

3. The combination with a hydrocarbon-vapor stove formed with a top, of an open chamber immediately below said top, a warming-closet

below said open chamber having an opening in the top thereof, and a burner located in said closet beneath the opening in the top thereof, said burner and the top of said closet constructed to close said opening about the outside of the upper end of the burner and to restrict the heat passing laterally and downwardly through the base of the burner and confine it within the warming-closet, the top of the warming-closet being elevated at the longitudinal center thereof.



4. The combination with a hydrocarbon-vapor stove formed with a top, of an open chamber immediately below said top, a warming-closet below said open chamber having an opening in the top thereof, and a burner located in said closet beneath the opening in the top thereof, said burner and the top of said closet constructed to close said opening about the outside of the upper end of the burner and to restrict the heat passing laterally and downwardly through the base of the burner and confine it within the warming-closet, the top of the warming-closet being elevated at the longitudinal center thereof, the longitudinal edges of the top of the warming-closet being trough-shaped.

5. The combination with a hydrocarbon-burner provided with a top, of an open chamber immediately below said top, a warming-closet having an opening in the top thereof located beneath said open chamber, a burner within said warming-closet beneath the opening in the top thereof, and a collar located between the outside of the top of the burner and the adjacent edge of the opening in the top of the closet to close said opening about the outside of the burner at the upper end thereof, the base of the burner communicating with the interior of the closet, and the top of the burner communicating with the open chamber thereabove.

682,631. **VESSEL OR SHIP.** PAUL MANCHIN and LOUIS BOUDREAUX, Paris, France. Filed July 15, 1899. Serial No. 723,957. (No model.)



Claim.—1. A vessel provided with a series of hermetically-closable float-chambers connected to the hull of the vessel, said chambers rising above the upper deck so as to form superstructures above the latter, the combined capacity of the float-chambers and height of the same being such as to obtain a volume at least equal to the displacement of the volume of water necessary to float the vessel when the latter is completely immersed and prevent the uppermost ends of the floats being submerged.

2. A vessel provided with a series of hermetically-closable float-chambers connected to the hull of the vessel, and rising above the upper deck so as to form superstructures above the latter, the combined capacity of the float-chambers and the height of the same being such as to obtain a volume at least equal to the displacement of the volume of water necessary to float the vessel when the latter is completely immersed and prevent the uppermost ends of the floats being submerged, means for entering and hermetically closing said floats and gangways between the tops of adjacent float-chambers, substantially as described.

682,632. **MANUFACTURE OF COMPOUND PLATES OF STEEL OR IRON AND COPPER.** EDOUARD MARTIN, Paris, France. Filed July 17, 1900. Serial No. 23,871. (No specimens.)

Claim.—The process of making compound sheets of iron or steel and copper, which consists in scouring an ingot of iron or steel, coating the surface thereof with an electric deposit of copper, and heating such ingot, rolling a sheet of copper obtained by electrical deposit, plating the said sheet with an electric deposit of copper, and heating it, placing said ingot, while so heated in a hydraulic press, placing said copper sheet while so heated in contact with the copper-plated side of said ingot in the press, and therein compressing said sheet and ingot together until they are firmly united, substantially as and for the purpose set forth.

682,633. **TIRE FOR VEHICLE-WHEELS.** WILLIAM F. MASTERS, Brooklyn, N. Y. Filed Feb. 20, 1901. Serial No. 48,096. (No model.)



Claim.—1. A wheel provided with the usual rim, the sides of which are provided at the perimeter thereof with annular grooves, and a tire consisting of an inner band of steel, a band of rubber, a band of wood, and an outer band of steel provided at its inner edges with annular grooves and metal side plates bolted to said band of wood and inclosing the inner band of steel, the band of rubber, and the band of wood, substantially as shown and described.

2. A wheel, the rim of which is provided at its perimeter with annular side grooves, and a tire consisting of an inner band of steel, a band of rubber, a band of wood, another band of rubber, and an outer band of steel, the last-named band being provided with annular side grooves at its inner perimeter and side plates bolted to the band of wood and inclosing the inner band of steel and the bands of rubber and wood, substantially as shown and described.

682,634. **COOLING-COIL.** FERDINAND MESSNER, St. Louis, Mo. Filed May 15, 1901. Serial No. 60,384. (No model.)



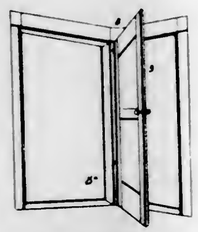
Claim.—A cooling-coil comprising a series of parallel tubes separated suitable distances apart, a plate at each end of the series into which the ends of the tubes are inserted, each plate having formed at one end thereof a hollow nozzle having two openings one of which connects with the end tube of the series, and the other to a suitable pipe-section, a cover-plate for each of the aforesaid plates, each cover-plate having a series of concave pockets each spanning the ends of any two contiguous tubes, the pockets of one cover-plate alternating or breaking joint in relative position with the pockets of the opposite cover-plate, whereby any tube will be brought into communication at one end with the adjacent end of a contiguous tube on one side thereof, and at the other end with the adjacent end of a contiguous tube on the other side thereof, means for securing or coupling the cover-plates directly to the inner plates or heads, and a suitable packing strip or layer interposed between each cover-plate and the plate carrying the tubes, substantially as set forth.

682,635. **DOOR.** WILLIAM NEWDYKE, Denoon, Wis. Filed June 13, 1901. Serial No. 64,403. (No model.)

Claim.—1. Two door-casings joined together at one side at an angle to each other, a jamb at the junction, and a door hinged to the jamb, the hanging-stile of the door having a double bevel at its edge.

2. Two door-casings joined together at one side at an angle to each other, a jamb at the junction, a door, and hinges attached to the door and jamb and adapted to permit the door to close either doorway.

682,635.



682,666. TYPE-WRITER ESCAPEMENT-WHEEL. WILLIAM S. PERRY, Newark, N. J. Filed May 12, 1900. Serial No. 16,466. (No model.)

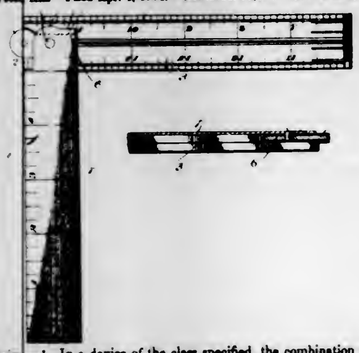


Claim.—1. In an escapement, the combination, with a base, of a shaft journaled therein, a wheel mounted upon the shaft and provided with crown-teeth, of a frame secured to the base, an arm pivotally secured in the frame, the free end of which is recessed and movable across the path of the teeth of the wheel and the pivotal end is cut off square, a flat spring secured to the frame, the free end of which is provided with a cross-head the ends of which engage with the squared end of the arm upon opposite sides of the pivot, substantially as described.

2. In an escapement, the combination, with a base, of a shaft journaled therein, a wheel mounted upon the shaft and provided with crown-teeth, of a frame secured to the base, an arm pivotally mounted in the frame, the free end of which is recessed and provided with an extension, said extension being provided with a lateral recessed projection, and the pivotal point of the arm is provided with extensions, adjustable supports for the pivotal points, and a spring for engaging with the arm and holding it in its normal position, substantially as described.

3. In an escapement, the combination with a wheel provided with inclined crown-teeth, of a swinging arm pivoted in front of the wheel and at right angles to the axis thereof, the portion of said arm adjacent to the wheel recessed upon one side of the arm and upon one edge thereof to form two abutments, one of which projects beyond the other laterally of the arm, and means for swinging said arm to move the abutments across the path of the teeth of the wheel, substantially as described.

682,837. COMBINED RULE AND SQUARE. WILLIAM F. PUFFER, Newton, Ala. Filed Apr. 1, 1901. Serial No. 53,876. (No model.)

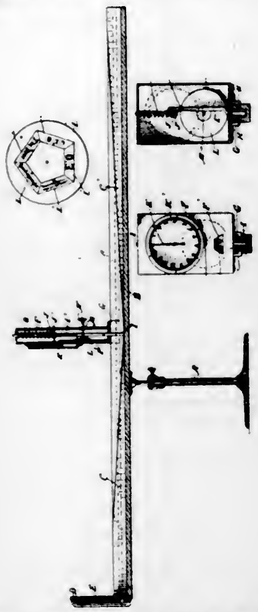


Claim.—1. In a device of the class specified, the combination of a rule consisting of two jointed arms, one of the arms having a recess to receive an offset on the other, and an auxiliary arm pivotally connected to the main arms at a point in line with the abutting edges of the two main arms, said auxiliary arm being disposable at a right angle to either of said main arms.

2. In a device of the class specified, the combination with a rule consisting of two jointed arms one of which has an offset and the other of which is recessed to receive said offset, of an auxiliary arm pivoted to the arm of the rule which is provided with the offset, in line with the edge of said arm and having shoulders, and a single stop on the arm of the rule which carries said auxiliary arm, in position to engage either of the shoulders, substantially as described.

3. In a device of the class specified, the combination with a rule consisting of two jointed arms, one of which has an offset and the other of which is recessed to receive said offset, of an auxiliary arm pivoted to the arm of the rule which is provided with the offset, in line with the edge of said arm, and having an offset forming shoulders, and a stop on the arm of the rule which carries said auxiliary arm, in position to be engaged by either of the shoulders, substantially as described.

682,638. EYE-TESTER. HENRY D. REESE, Abbeville, S. C., assignor to D. Ed. Kennedy and Charles C. Cutts, Cordele, and Parker A. Henderson, Seville, Ga. Filed Nov. 17, 1900. Serial No. 36,861. (No model.)



Claim.—1. The combination of a bar having oppositely-inclined planes, a case slidable on the bar and having a dial and an index traversing the dial, and a vertically-movable rod engaging the inclined planes and moving the index over the dial, substantially as described.

2. The combination of a bar having oppositely-inclined planes, a case slidable on the bar and having a dial, a shaft in the axis of the dial and journaled in the case, an index on the shaft traversing the dial, a pinion on the shaft, a vertically-movable rod in the case having a rack engaging the pinion and engaging and traversing the inclined planes of the bar at one end, substantially as described.

3. The combination of a bar having an inclined plane, a shield having an opening and attached to the bar, a case slidable on the bar, a dial and index on the case, a vertically-movable rod in the case and engaging the inclined plane of the bar, and means for connecting the rod and index whereby the rod moves the index, substantially as described.

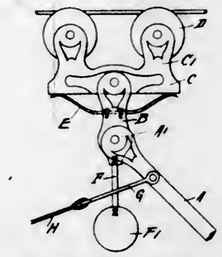
4. The combination of a bar having inclined planes in its upper side and grooves in its vertical sides, a case slidable on the bar and having clips engaging the side grooves in the bar, a vertically-movable rod in the case and engaging the inclined planes, an index moved by the rod and a dial traversed by the index, substantially as described.

5. The combination of a bar having inclined planes, a case slidable on the bar and having a dial and an opening at the front, a rotative disk in the case having portions of its surface visible in succession through said opening, means for rotating the disk, an index traversing the dial, a vertically-movable rod in the case operating the index and engaging the inclined planes of the bar, substantially as described.

6. The combination of a bar having oppositely-inclined planes, a case slidable on the bar, a vertically-movable rod in the case and engaging and traversing the inclined planes, a rack and a spring on the bar, a dial on the case, a shaft journaled in the case in the axis of the dial, and a pinion on the shaft engaged by the rack, substantially as described.

7. The combination of a bar having inclined planes, a shield having an opening in the middle and recesses in the lower side, a case slidable on the bar and having an opening and a dial, a rotative disk partially visible through said opening, means for rotating the disk, an index traversing the dial, a vertically-movable rod in the case operating the index and engaging and traversing the inclined planes, substantially as described.

682,639. TROLLEY. DAVID J. ROSEN, Brooklyn, N. Y. Filed June 13, 1901. Serial No. 64,357. (No model.)



Claim.—1. The combination with a trolley-arm of a support B pivoted in the end thereof, a yoke-shaped support C pivoted in the said first-named support, spring-arms secured to the support B and extending in opposite directions and bearing beneath the yoke-shaped support C and contact-wheels mounted in said yoke-shaped support, substantially as shown and described.

2. The combination with a trolley-arm, of a support B pivoted in the end thereof, a yoke-shaped support C pivoted in the said first-named support, spring-arms secured to the support B and extending in opposite directions and bearing beneath the yoke-shaped support C and contact-wheels mounted in said yoke-shaped support, said support B being also provided with a depending weight, rigidly connected therewith, substantially as shown and described.

3. A trolley provided at its upper end with a fork pivoted thereto, and provided with means for balancing the same, whereby it is maintained normally at a desired angle to the wire, and spring-actuated contact devices pivotally connected to the said fork and capable of rocking motion relatively to the said wire.

4. A trolley formed with a forked upper end and provided with a fork pivoted therein, a yoke mounted upon the upper end of the said pivoted fork and formed with two arms carrying separate trolley-wheels which simultaneously contact with the wire, and a weight upon the lower end of the said fork to maintain the said trolley-wheels both normally in contact with the wire.

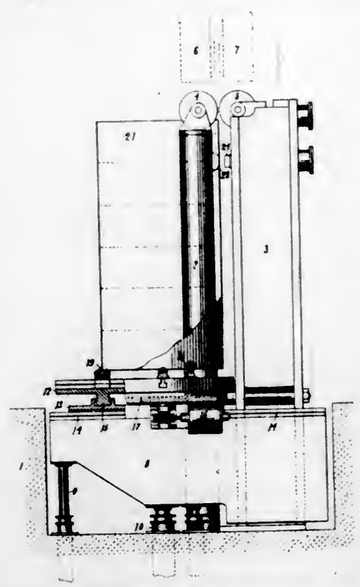
5. A trolley having pivoted to the upper end thereof a fork, a yoke pivoted between the upper ends of the said fork and formed with two arms, each carrying a trolley-wheel adapted for simultaneous contact with the wire, a spring secured in the fork between the ends thereof, and bearing against the ends of the said yoke, a bar secured in the said fork, a weight secured rigidly upon the lower end of the bar, and a yoke pivoted to the upper end of the trolley-arm and encircling the pivoted fork, the said yoke being connected with the guide-rope of the trolley.

682,640. WELDING-MACHINE. THOMAS F. ROWLAND, New York, N. Y. Filed Jan. 3, 1901. Serial No. 41,934. (No model.)

Claim.—1. In a welding mechanism, two vertical arms provided at their free ends with coöperating welding devices, a blank-carrying carriage movably mounted on one arm and vertically adjustable thereon and arranged to support and carry the blank around the other arm.

2. In a welding mechanism, two vertical arms provided at their free ends with coöperating welding devices adapted to weld a vertical seam and coacting welding devices adapted to weld a horizontal seam, and a vertically-adjustable blank-carrying carriage adapted to carry a blank between such welding devices.

3. In a welding mechanism, two vertical arms provided at their free ends with coacting welding devices adapted to weld a vertical seam and coacting welding devices adapted to weld a horizontal seam, and a blank-carrying carriage movably mounted on one arm and vertically adjustable thereon and adapted to carry a blank around the other arm and between the welding devices.



4. In a welding mechanism, two vertically-arranged arms provided at their free ends with coöperating welding devices, a carriage mounted on one of said arms and vertically adjustable thereon and adapted to carry a blank around the other arm, and a horizontally and circularly movable blank-carrying table mounted on said carriage.

5. In a welding mechanism, two vertically-arranged arms provided at their free ends with coacting welding devices adapted to weld a vertical seam and coacting welding devices adapted to weld a horizontal seam, a carriage mounted on one of said arms and vertically adjustable thereon and adapted to carry the blank around the other arm, and a horizontally and circularly movable blank-carrying table mounted on said carriage.

6. In a welding mechanism, two vertically-arranged arms provided at their free ends with coöperating welding devices, a carriage vertically adjustable relative to said arms and provided with radially-adjustable rotating blank-supporting mechanism and also provided with blank-locking mechanism, substantially as and for the purposes above set forth.

7. In a welding mechanism, two vertically-arranged arms provided at their free ends with coacting welding devices, a carriage movably mounted on one arm and vertically adjustable thereon, and arranged to support and carry the blank around the other arm, and provided with radially-adjustable rotating blank-supporting mechanism and also provided with blank-locking mechanism, substantially as and for the purposes above set forth.

8. In a welding mechanism, two vertically-arranged arms provided at their free ends with coacting welding devices adapted to weld a vertical seam and coacting welding devices adapted to weld a horizontal seam, a carriage movably mounted on one arm and vertically adjustable thereon and arranged to support and carry the blank around the other arm, and provided with radially-adjustable rotating blank-supporting mechanism and also provided with blank-locking mechanism, substantially as and for the purposes above set forth.

9. In a welding mechanism, two vertically-arranged arms provided at their free ends with coacting welding devices, a carriage vertically adjustable relative to said arms and provided with a horizontally and circularly movable blank-carrying table mounted on said carriage, which said table is provided with radially-adjustable rotating blank-supporting mechanism, and also provided with blank-locking mechanism, substantially as and for the purposes above set forth.

10. In a welding mechanism, two vertically-arranged arms provided at their free ends with coacting welding devices, a carriage movably mounted on one arm and vertically adjustable thereon and arranged to support and carry the blank around the other arm, and a horizontally and circularly movable blank-carrying table mounted on said carriage, which said

table is provided with radially-adjustable rotating blank-supporting mechanism, and also provided with blank-locking mechanism, substantially as and for the purposes above set forth.

11. In a welding mechanism, two vertically-arranged arms provided at their free ends with coacting welding devices adapted to weld a vertical seam and coacting welding devices adapted to weld a horizontal seam, a carriage movably mounted on one arm and vertically adjustable thereon and arranged to support and carry the blank around the other arm, and a horizontally and circularly movable blank-carrying table mounted on said carriage, which said table is provided with radially-adjustable rotating blank-supporting mechanism, and also provided with blank-locking mechanism, substantially as and for the purposes above set forth.

12. In a welding mechanism, a vertical arm provided at its free end with fixed welding mechanism, a second vertical arm provided at its free end with movable welding mechanism coöperating with the fixed welding mechanism on the other arm, a blank-carrying carriage movably mounted and vertically adjustable on the second arm and adapted to carry the blank around the first arm.

13. In a welding mechanism, a vertical arm provided at its free end with a fixed welding mechanism adapted to weld a vertical seam and also provided with a fixed welding mechanism adapted to weld a horizontal seam, a second vertical arm provided at its free end with movable welding mechanism adapted to coöperate with the fixed welding mechanism on the other arm, a blank-carrying carriage movably mounted and vertically adjustable on the second arm and adapted to carry the blank around the first arm.

14. In a welding mechanism, a vertical arm provided at its free end with fixed welding mechanism adapted to weld a vertical seam and also provided with fixed welding mechanism adapted to weld a horizontal seam, a second vertical arm provided at its free end with movable welding mechanism adapted to coöperate with the fixed welding mechanism on the other arm, a blank-carrying carriage movably mounted and vertically adjustable on the second arm and adapted to carry the blank around the first arm, and a horizontally and circularly movable blank-carrying table mounted on said carriage.

15. In a welding mechanism, two vertical arms provided at their free ends with coöperating welding devices, a blank-carrying carriage movably mounted on one arm and vertically adjustable thereon, and arranged to support and carry the blank around the other arm, rams coacting with the body of said carriage to cause the vertical adjustment of the same, and an auxiliary ram located near the end of said carriage farthest from the arm on which it is mounted, substantially as and for the purposes above set forth.

16. In a welding mechanism, two vertical arms provided at their free ends with coacting welding devices adapted to weld a vertical seam and coacting welding devices adapted to weld a horizontal seam, a blank-carrying carriage movably mounted on one arm and vertically adjustable thereon and arranged to support and carry the blank around the other arm, rams coacting with the body of said carriage to cause the vertical adjustment of the same, and an auxiliary ram located near the end of said carriage farthest from the arm on which it is mounted, substantially as and for the purposes above set forth.

17. In a welding mechanism, the vertical arm 3 carrying at its upper end a welding-roll 5, the vertical arm 2 carrying at its upper end the welding-roll 4, the vertically-adjustable carriage 8 movably mounted on the arm 3, and the horizontally and circularly movable blank-carrying table 12 mounted on the carriage 8 whereby the blank is carried around the arm 2.

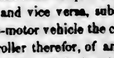
18. In a welding mechanism, the vertical arm 3 carrying at its upper end a welding-roll 5, the vertical arm 2 carrying at its upper end the welding-roll 4, the vertically-adjustable carriage 8 movably mounted on the arm 3, the horizontally and circularly movable blank-carrying table 12 mounted on the carriage 8, whereby the blank is carried around the arm 2, and radially-adjustable rotating blank-bearings 19, and blank-clamping devices 21.

19. In a welding mechanism, the vertical arm 3 carrying at its upper end an adjustable welding-roll 5 and an adjustable welding device 24, the vertical arm 2 carrying at its upper end the fixed welding-roll 4, and the fixed welding device 23, the vertically-adjustable carriage 8 movably mounted on the arm 3, and the horizontally and circularly movable blank-carrying table 12 mounted on the carriage 8, whereby the blank is carried around the arm 2, and radially-adjustable rotating blank-bearings 19, and blank-clamping devices 21.

20. In a welding mechanism, the vertical arm 3 carrying at its upper end a welding-roll 5, the vertical arm 2 carrying at its upper end the welding-roll 4, the vertically-adjustable carriage 8 movably mounted on the arm 3, the horizontally and circularly movable blank-carrying table 12 mounted on the carriage 8, whereby the blank is carried around the arm 2, and radially-adjustable rotating blank-bearings 19, and blank-clamping devices 21, hydraulic rams permitting the vertical adjustment of the carriage 8, and the auxiliary ram 9, substantially as and for the purposes set forth.

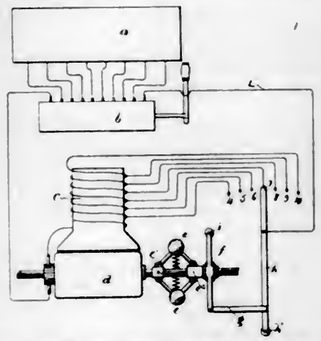
21. In a welding mechanism, the vertical arm 3 carrying at its upper end an adjustable welding-roll 5, and an adjustable welding device 24, the vertical arm 2 carrying at its upper end the fixed welding-roll 4, and the fixed welding device 23, the vertically-adjustable carriage 8 movably mounted on the arm 3, the horizontally and circularly movable blank-carrying table 12 mounted on the carriage 8, whereby the blank is carried around the arm 2, and radially-adjustable rotating blank-bearings 19, blank-clamping devices 21, hydraulic rams permitting the vertical adjustment of the carriage 8, and the auxiliary ram 9, substantially as and for the purposes set forth.

682,641. MANILA ROPE. HENRY RYDER, Boston, MASS. Filed Sept. 27, 1900. Serial No. 31,338. (No specimens.)



Claim.—A rope composed of a series of yarns each yarn comprising a core of untwisted fine-gage steel wire covered with hemp spun thereon in the form substantially of a tape, the hemp fibers composing the slivers of said tape being substantially parallel whereby when the yarn with its wire core is completed said core and its covering are so arranged as to resist substantially equal tensile strain without the diameter of said yarns being materially increased and thereby practically doubling the tensile strength resistance of the completed rope.

682,642. MEANS FOR CONTROLLING ELECTRIC-MOTOR VEHICLES. JOSEPH SACHS, Hartford, Conn. Filed July 26, 1900. Serial No. 24,570. (No model.)



Claim.—1. In an electric-motor-controlling system, the combination with a source of electric energy and the actuating-motor, of devices for automatically varying the field strength of the motor whereby, without an increased current-supply from the source of electric energy, any additional torque demanded of the motor is delivered at a decreased speed and vice versa, substantially as specified.

2. In an electric-motor-controlling device the combination with a source of electric energy and the actuating-motor, of a device automatically actuated by the motor-shaft and shifted by the variable speed thereof, for varying and so regulating the strength of the motor-field, whereby without an increased current-supply from the source of electric energy, any additional torque demanded of the motor is delivered at a decreased speed and vice versa, substantially as specified.

3. In an electric-motor-controlling device, the combination with a source of electric energy and the actuating-motor, of a device automatically actuated by variations in the current-supply to said motor, and devices automatically actuated by the motor-shaft and shifted by the variable speed thereof for varying and so regulating the strength of the motor-field, whereby without an increased current-supply from the source of electric energy, any additional torque demanded of the motor is delivered at a decreased speed and vice versa, substantially as specified.

4. In an electric-motor vehicle the combination with a source of electric energy and controller therefor, of an electric motor connected to the driving-axle of said vehicle and devices for automatically varying the field strength of the motor whereby, without an increased current-supply from the source of electric energy, any additional torque demanded of the motor is delivered at a decreased speed and vice versa, substantially as specified.

5. In an electric-motor vehicle, the combination with a source of electric energy and controller therefor, of a series motor whose field-coils are made in sections connected to the axle of said vehicle, of a governor on the shaft of such motor, of means connected to and operated by said governor and electric connections, whereby an increase or decrease of the torque demanded of said motor is automatically supplied, by a decrease or an increase of field strength and a decrease or an increase of speed, at a practically constant current-supply from the source of electric energy to motor, substantially as specified.

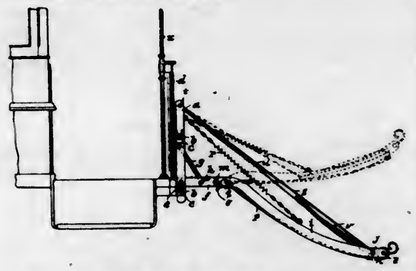
6. In an electric-motor vehicle, the combination with the source of electric energy and controller therefor, of an electric motor connected to the driving-axle of said vehicle, a centrifugal governor on the shaft of said motor, a series of cut-out terminals electrically connected to successive sections of the motor-fields and devices actuated by the varying speed movements of the governor for successively contacting with said terminals, whereby the field strength is increased or decreased to compensate for the varying torque demanded of the motor, substantially as specified.

7. In an electric-motor vehicle the combination with a source of electric energy and controller therefor, of an electric motor connected to an axle of said vehicle and devices which automatically vary the torque and speed of the motor without changing its output, with a constant current flow and fixed electromotive force at its terminals, substantially as specified.

8. In a system of electric-motor-vehicle control the combination with an electric motor and a source of electrical energy therefor, of devices for automatically varying the torque and speed of the motor inversely, without affecting either the motor's energy output, the potential at its brushes, or the current supplied thereto, substantially as described.

9. In a system of motor-control, the combination with an electric motor and a source of electrical energy, of devices for manually regulating the movement and speed of the motor, and devices for automatically effecting an inversely variable speed and torque in the motor at a given energy input, without changing either the motor's energy output, the potential at its brushes, or the current supplied thereto, substantially as set forth.

682,643. CAR-FENDER. ROCCO SALOMONE, Paterson, N. J., assignor of one-half to Thomas F. O'Grady, same place. Filed May 2, 1901. Serial No. 58,423. (No model.)



Claim.—In a car-fender, the combination, with a stationary frame adapted to be secured to the car, of another frame pivoted in said stationary frame, hangers detachably connecting said frames and adapted to sustain the pivoted frame in operative position, the fender proper fulcrumed in said pivoted frame, springs connecting said fender and the stationary frame and normally tending to raise the outer end of said fender, pivoted pawls engaging the pivoted frame and fender and normally acting to hold the fender in lowered position, another frame fulcrumed in the outer portion of said fender, and operative connection between said fulcrumed frame and the pawls, substantially as described.

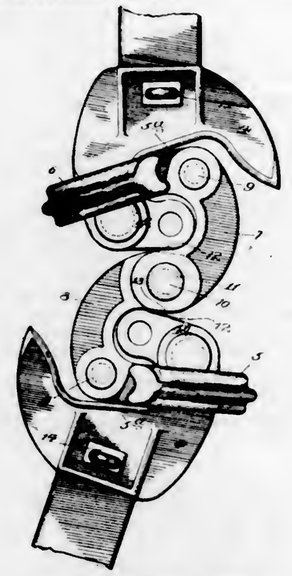
682,644. COUPLING DEVICE. WILLIAM D. SARGENT, Chicago Ill. Filed June 3, 1901. Serial No. 62,956. (No model.)

Claim.—1. A coupling device comprising a pair of dogs constructed to engage the knuckle-arms of a pair of Master Car-Builders' couplers, a link connection pivoted to each of said dogs, and a pivotal connection between said link connections, substantially as described.

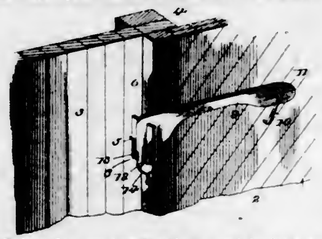
2. A coupling device comprising a pair of dogs, a link connection pivoted to each of said dogs, a pivotal connection between said link connections, the connecting end of one of said link connections being made larger in longitudinal dimension than the other so as to take buffing strains, substantially as described.

3. A coupling device comprising a pair of dogs, a link connection secured to each of said dogs, a slotted opening in the meeting ends of said link connections, and a pin engaging said slotted opening, substantially as described.

4. A coupling device comprising a pair of dogs constructed to engage the knuckle-arms of two adjacent Master Car-Builders' couplers, and connections between said dogs constructed to receive both pulling and buffing strains, substantially as described.

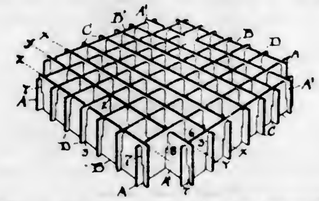


682,645. CAR-DOOR FASTENER. ADAM SCHAEFER, Beardstown, Ill. Filed Apr. 9, 1901. Serial No. 55,086. (No model.)



Claim.—In a car-door fastening, a catch having a notch in its upper edge and a transverse opening below and in vertical alinement with the said notch, and a hasp adapted to enter said notch and provided with spaced portions to embrace opposite sides of the catch and having transversely-alined openings in said spaced portions to register with the opening of the catch to receive a fastening device, substantially as specified.

682,646. FILLER FOR EGG-CRATES. SIMON SCHEUER, Cleveland, Ohio. Filed July 1, 1901. Serial No. 66,745. (No model.)



Claim.—1. In egg-fillers, a primary filler-frame comprising four several interlocking strips A and A' having each a series of slots 6 in one edge equidistant apart and slots 7 in the same edge at the ends of the strips outside of the engagement of said strips with one another and in opposite edges in the strips A and A', and slots 8 in the edges of said strips

extending midway into the space between the last of the series of slots 6 and the end slot 7 and serving to interlock said strips and form a square, substantially as described.

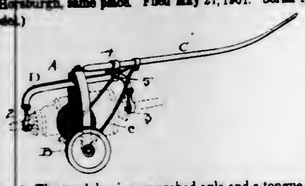
2. In egg-fillers, a primary filler-frame to which the other parts are built comprising four similar strips A and A′ interlocked with each other near their ends and forming a square, each strip having open slots 6 and 8 in one edge and slots 7 in the other edge and the strips A and A′ inverted in respect to each other in the frame, substantially as described.

3. A filler for egg-crates having an inner and an outer locking-strip at each of its four sides, the said outer strips being shorter than the inner strips and having slots 4 and 5, and said inner strips having a series of slots 6 in one edge and a slot 7 in the same edge at each end and slots 8 near their ends in the opposite edges and serving to lock said inner strips together, and cross-strips B and C engaging both sets of said inner and outer locking-strips, substantially as described.

4. A filler for egg-crates having outside strips B and B′ provided each with a series of slots 4 equidistant apart along one edge and slots 5 near its ends in the opposite edge, cross-strips interlocked with both slots 4 and 5, the end strips engaging slots 5 being inserted oppositely to the strips engaged in slots 4, substantially as described.

5. In a filler for egg-crates, a set of interlocking foundation-strips, a series of interlocking strips mounted upon and interlocked with said foundation-strips to form the body of the filler, and a set of interlocking end strips engaging both said foundation-strips and body-strips, substantially as described.

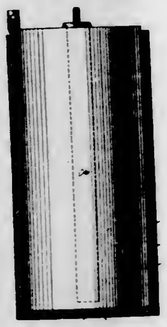
682,647. **TRUCK.** TERANCE SCULLIN, Cleveland, Ohio, assignor to Frank Hershurgh, same place. Filed May 27, 1901. Serial No. 62,040. (No model.)



Claim.—1. The truck having an arched axle and a tongue rigid with said axle, a carrying-beam pivoted at its center in the top of the axle and means to fasten the inner end of the said beam in raised position, substantially as described.

2. The truck substantially as shown and described, consisting of an arched axle and carrying-wheels at the ends thereof and a tongue fixed rigidly to the axle, and a beam pivoted at its middle in the arch of the axle and having oppositely-arranged hooks at its ends, and means to temporarily fasten one end of said beam to prevent tilting when the load is on, substantially as described.

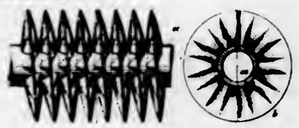
682,648. **DRY BATTERY.** HENRY SPLITDORF, New York, N. Y. Filed May 27, 1901. Serial No. 62,022. (No model.)



Claim.—A dry battery provided with a negative element, a zinc element, two concentric shells surrounding the zinc element, and a packing of paraffin and rosin between the shells, substantially as specified.

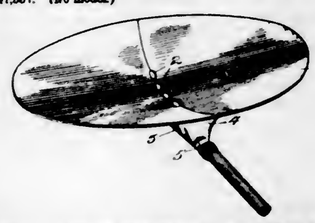
682,649. **RADIATOR.** HENRY W. STRUSS, New York, N. Y. Filed Dec. 24, 1900. Serial No. 40,872. (No model.)

Claim.—1. In a radiator, the combination of a liquid-conduit and a rib running spirally with respect to the axial line of said pipe and in heat-conducting communication therewith, the inner edge only of the said rib being waved, the outer portion of said rib being substantially unaffected by the undulations.



2. In a radiator, the combination of a pipe *a* and a rib *b* wound thereon in heat-conducting communication with the outside surface of the pipe or conduit, the said rib having waves or undulations at its inner edge only.

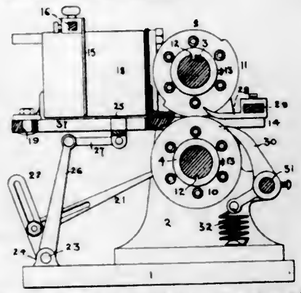
682,650. **BED-PAN.** GEORGE THORNTON, FRANKLIN D. FREEBORN, and WILLIAM HILLER, Randolph, N. Y. Filed Feb. 14, 1901. Serial No. 47,337. (No model.)



Claim.—1. A bed-pan comprising an elongated elliptical body sloping inwardly and downwardly from the opposite ends and sides to the center, a plurality of drain-openings being formed in the lowermost portion of the center of the said body, a drain-chamber under the central portion of said body and the said openings, and a flexible tube attached to the outer end of said chamber.

2. A bed-pan comprising an elongated elliptical body sloping inwardly and downwardly from the opposite ends and sides to the center, a plurality of drain-openings being formed in the lowermost central portion of the center of the said body and transversely alined, a drain-chamber under the central portion of said body and the said openings and enlarged toward its outer end, the latter end being provided with a nipple at its lower portion, a tube attached to said nipple, and a prop on the bottom of the body diametrically opposite the said chamber.

682,651. **SLOTTING-MACHINE.** THOMAS M. TRIPP, PERCY I. JACOBSON, and HARRY D. JACOBSON, Liverpool, England. Filed Nov. 26, 1900. Serial No. 37,735. (No model.)



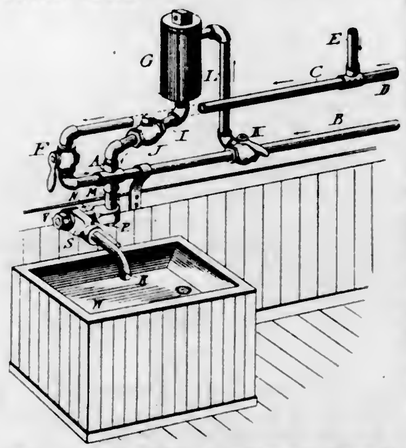
Claim.—In a slotting-machine the combination of rotary knife-edged cutters, rotary blunt-edged cutters adapted to mesh therewith throughout a portion of their revolution, a table adjacent to said cutters adapted to support blanks, a reciprocating feed-bar on said table adapted to feed the blanks one by one, an eccentric adapted to actuate said feed-bar, said eccentric being adjustable on its shaft in such manner that the moment of feed relative to the rotation of the cutters may be varied, substantially as as described.

682,652. **DEVICE FOR RELEASING ANIMALS FROM STABLES.** WILLIAM H. UNDERWOOD, Parksburg, Pa. Filed May 15, 1901. Serial No. 60,257. (No model.)

Claim.—In a halter-releasing device a supporting-frame having openings, movable spring-pressed bolts thereon each having a beveled end, and arranged to move across the opening, a sliding bar, a connection between the bolts and bar for providing a limited relative longitudinal movement, a lever attached to the sliding bar, and a plate having three notches so arranged that when the lever is in one of the end notches the bolt will be locked, when in the other end will be held open, and when in the middle notch will act as a spring-latch, as described.



682,653. **SOAP-DELIVERY ATTACHMENT FOR WATER-PIPES.** CHARLES R. WALKER, Jamestown, N. D. Filed Dec. 26, 1900. Serial No. 41,082. (No model.)



Claim.—1. The combination in a soap-delivery attachment of a double T A; a faucet connected to one branch of the double T; a hot-water pipe B connected to another branch of the double T, a three-way valve K in the pipe B; a cold-water pipe C connected to a third branch of the double T; a valve F in pipe C; a soap-chest G; a pipe L joining the soap-chest and pipe B; a pipe I leading from the soap-chest to the double T; and a check-valve in pipe I.

2. The combination in a soap-delivery attachment, of a faucet; a hot-water pipe in communication with the faucet; a three-way valve in the hot-water pipe; a cold-water pipe C in communication with the faucet; a valve F in the cold-water pipe; a soap-chest G; pipe L uniting the hot-water pipe and the soap-chest; and a pipe I having a check-valve leading from the soap-chest to the faucet.

3. The combination in a soap-delivery attachment, of a double T A; hot and cold water supply pipes united to the double T; a faucet in communication with the hot and cold water pipes by way of the double T; a soap-chest; and means for passing water from one of the pipes through the soap-chest to the faucet.

4. The combination in a soap-delivery attachment, of a water-supply pipe; a three-way valve in the water-pipe; a soap-chest; a faucet; a pipe uniting the three-way valve and the soap-chest; and a pipe leading from the soap-chest to the faucet.

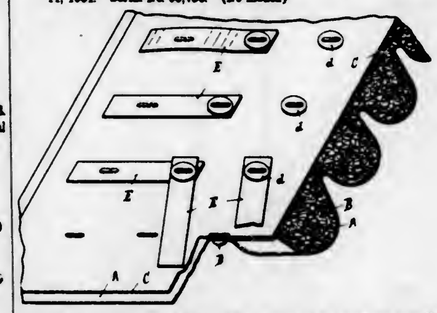
5. The combination in a soap-delivery attachment, of a faucet; a hot-water pipe; a cold-water pipe; a three-way valve K in one of the pipes; a valve F in the other pipe; a soap-chest; a pipe leading from valve K to the soap-chest; and a pipe leading from the soap-chest to the faucet.

6. The combination in a soap-delivery attachment, of a nipple N; casting S; nozzle R; pipe M; water-pipe B communicating with pipe M; a three-way valve K in pipe B; a soap-chest; a pipe uniting valve K and the soap-chest; and a pipe I leading from the soap-chest to the pipe M, said pipe M also being in communication with nozzle R.

7. The combination in a soap-delivery attachment, of a faucet; a hot-water pipe; a cold-water pipe; a soap-chest; a pipe leading from one of the water-pipes to the soap-chest; a cut-off in the other pipe; and a pipe leading from the soap-chest to the faucet.

8. The combination in a soap-delivery attachment, of a water-supply pipe; a faucet in communication with said water-supply pipe; a soap-chest; a pipe leading from the water-supply pipe directly to the soap-chest; a pipe leading from the soap-chest to the faucet; and means in connection with the pipes for transmitting water from the water-supply pipe through the soap-chest to the faucet.

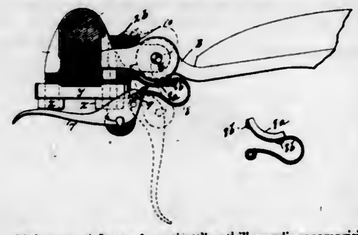
682,654. **TUFTED CUSHION.** JOHN WARD, Indianapolis, Ind., assignor to the Kramer Manufacturing Company, same place. Filed May 11, 1901. Serial No. 59,730. (No model.)



Claim.—1. In combination with a cushion of the character described flexible strips secured to the backing at points within the last row of tufting-buttons to be secured to said buttons after the cushion has been laid upon a frame to draw them in beneath the frame and form rounded edges upon the cushion and said frame, substantially as shown and described.

2. A cushion of the character described having flexible strips secured to it next to the backing by the prongs of the next to the last row of tufting-buttons, and adapted to be secured to the last or edge row of tufting-buttons after the cushion has been laid upon a frame to form rounded edges upon the cushion, substantially as shown and described.

682,655. **THILL-COUPLING.** FREDERICK A. WEGNER, Detroit, Mich. Filed Dec. 22, 1900. Serial No. 40,726. (No model.)



Claim.—1. A fixture for antirattling thill-couplings comprising a saddle adapted to engage over the shackle and provided with lever-support-

ing sides, a lever fulcrumed to the sides, a bent spring held by a pin to the lever, substantially as described.

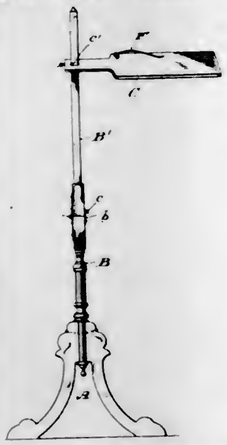
2. A fixture for antirattling thill-couplers, comprising in combination a saddle having a cross-bar and depending sides provided with ears 3^a, 4^a, a bent lever fulcrumed to the sides depending from the cross-bar of the saddle, a bent spring secured by a pin to the lever, substantially as described.

3. A fixture for antirattling thill-couplers comprising a saddle provided with a cross-bar and depending sides, a concave lever fulcrumed to the sides, a bent spring secured by a pin to the end of the lever, substantially as described.

4. A fixture for antirattling thill-couplings comprising a saddle provided with a stiffening-rib 2^a, and arranged to engage over the shackle, provided also with lever-supporting sides, a lever fulcrumed to the sides, a spring held by a pin to the lever, and adapted to bear against the rear of the thill-eye, substantially as described.

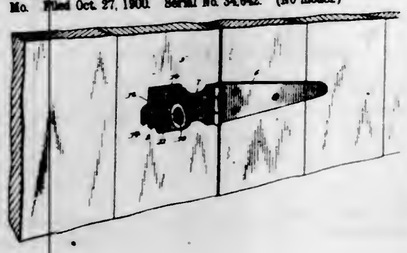
5. A fixture for antirattling thill-couplings, comprising a saddle adapted to engage over the shoe and provided with lever-supporting sides, a lever fulcrumed to the sides, a spring held by a pin to the lever and a cushion secured to the spring, substantially as described.

682,656. COPY-HOLDER. REBA WING, Oconomowoc, Wis. Filed July 26, 1900. Serial No. 24,881. (No model.)



Claim.—In a folding copy-holder, a squared upper standard B' and an adjustable table C adapted to be moved upon said standard, having at one end a squared opening at a right angle to its face, the parallel surfaces of said squared opening at right angles to the length of the table, serving to lock the same vertically upon the corresponding parallel squared surfaces of the aforesaid squared standard, the remaining parallel surfaces of said squared opening serving to lock said table upon the remaining squared surfaces of the standard against horizontal movement, a base having a central rigid standard hinged to the aforesaid squared standard, a hook *b* pivoted to the former and a pin *c* projecting from the latter whereby they are normally locked in an upright position, and an eye *f* at the end of the table whereby when the said table is removed from the hinged standard and the latter is unlocked and folded, the former is suspended from the pin *c* in a compact body substantially as set forth.

682,657. HASP-FASTENER. REUBEN D. WIRT, Independence, Mo. Filed Oct. 27, 1900. Serial No. 34,642. (No model.)



Claim.—A hasp-fastener adapted for adjustment to compensate for variations in elevation and inclination of an engaging hasp, said fastener comprising an attaching-plate having an elongated slot therein, and an eye including a stem having an open head at one end and an enlarged base at its opposite end, said eye having its stem passed through the slot of the plate with its base and head at opposite sides of the plate, said stem being slidable longitudinally of the slot and adapted for axial rotation in the slot to vary the position of the head to aline with or lie at various angles to the slot without varying the angle of the stem to the plate.

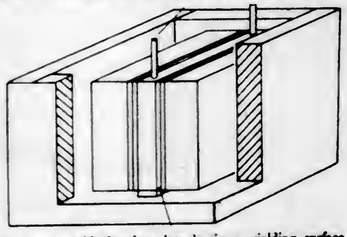
682,658. SOLAR HEATER. JAMES M. WISHART, Oakland, Cal. Filed June 4, 1900. Serial No. 19,018. (No model.)



Claim.—1. A solar heater comprising a receptacle, a fluted absorbing-plate covering the receptacle, the contiguous walls of said flutings merging to form upwardly-directed sharpened ribs and corresponding reëntrant angles on its under face, a plurality of vertical partitions in the receptacle and having their upper edges disposed in reëntrant angles of the absorbing-plate, said partitions dividing the receptacle into chambers, ingress and egress pipes communicating with the terminal chambers at their opposite ends and located respectively adjacent the top and bottom of the receptacle, and transfer-pipes located within the chambers and connecting the top and bottom of adjacent chambers alternately at opposite ends of the heater.

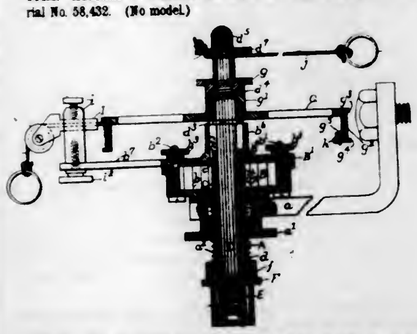
2. A solar heater comprising a receptacle, a fluted absorbing-plate covering the receptacle, the contiguous walls of said flutings merging to form upwardly-directed sharpened ribs and corresponding reëntrant angles in its under face, and a plurality of partitions disposed to divide the receptacle into compartments and with their upper edges engaged in the reëntrant angles of the absorbing-plate, the compartments having communication through the partitions and the outer compartments having inlet and outlet openings, respectively.

682,659. ICE-FREEZING PLATE. WILLARD J. WOODCOCK, Brooklyn, N. Y. Filed Jan. 24, 1901. Serial No. 44,602. (No model.)



Claim.—A stable freezing-plate having a yielding surface to compensate for the expansion and contraction of ice forming thereon.

682,660. REDUCING-WHEEL FOR STEAM-ENGINE INDICATORS. HERBERT W. YEOMANS, Lowell, Mass. Filed May 2, 1901. Serial No. 58,432. (No model.)



Claim.—1. The combination with the spindle, having an external screw-thread, of the cord-wheel and the indicator-cord sleeve, each arranged concentric with the other and with said spindle and movable therewith, the engine-cord and the indicator-cord, each having a diameter equal

to the pitch of said screw-thread and arranged to wind and advance in opposite directions on said cord-wheel and indicator-cord sleeve, respectively, a nut, to engage said screw-thread and means of securing said nut from rotary movement, to cause said spindle to traverse longitudinally.

2. The combination of the hollow stand, the spindle, rotary therein and having at opposite ends of said stand, a collar and an external screw, a nut held from rotary movement and engaging said screw, a spring-box on said stand, a sleeve, surrounding said spindle within said box and rotary with said spindle.

3. The combination of the hollow stand, the sleeve, supported by said stand, in line therewith, the spindle, passing through and turning in said stand and sleeve and provided with a collar above said sleeve and with a screw-thread which extends below said stand, a nut turning on said screw-thread, and a keeper, consisting of a nut turning on an external screw-thread with which the lower end of said stand is provided to clamp said first-named nut against the lower end of said spindle and to prevent the rotation of said first-named nut.

4. The combination of the hollow stand, the non-rotary spring-box, the spindle, adapted to turn in said stand and box and having above said box a collar and below said stand a screw-thread, a nut engaging said screw-thread, clamping means, to hold said nut from rotation and against the lower end of said stand, a sleeve, arranged within said spring-box below said collar and rotating with said spindle, the spring secured at one end to said sleeve and at the other end to said box, and a cover, surrounding said sleeve, above a flange, with which said sleeve is provided, and secured on said box, to prevent said sleeve from moving longitudinally with said spindle.

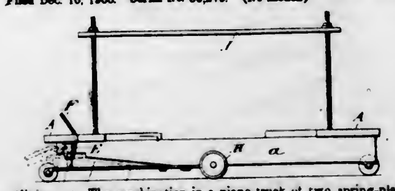
5. The combination with the stand and non-rotary spring-box, of the spindle, adapted to be turned therein, a spring, one end of which is secured to said spring-box, means of connecting the other end of said spring to said spindle, to rotate said spindle while permitting the longitudinal movement thereof, a nut, surrounding said spindle and engaging an external screw-thread with which said spindle is provided, means for holding said nut from rotating or moving with said spindle, a cord-wheel concentric with said spindle and rotary therewith.

682,661. ELECTRICAL THERMOSTAT. THEODORE J. ZOELLER, Nashville, Tenn., assignor to the Standard Automatic Fire Alarm Company, Huntsville, Ala. Filed Dec. 14, 1900. Serial No. 39,890. (No model.)



Claim.—A thermostat consisting of a base, a convexed disk and a concaved disk meeting at their edges and being secured to the base, said disks being of light dimensions and concaved and convexed on like arcs, a spring-lever mounted on the base behind the disks and having near its free end a stiffening-rib, said lever extending diametrically with relation to the disks, the inner disk coming in contact with the lever at an intermediate point in combination with coöperating contacts.

682,662. PIANO-TRUCK. SETH BARTHOLOMEW, Sturgis, Mich. Filed Dec. 10, 1900. Serial No. 39,279. (No model.)



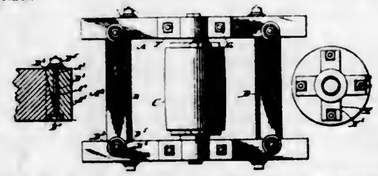
Claim.—1. The combination in a piano-truck of two spring-plates journaled at the ends, with a roller revolving therein, all substantially as set forth.

2. In a piano-truck the combination of a couple of spring-plates journaled and having a roller operating in said journals, with a rectangular bar, and a lever attached to said rectangular bar, all substantially as and for the purpose described.

3. The combination in a piano-truck of a couple of rods having nuts and washers with a cross-bar secured to said rods, all substantially as and for the purpose set forth.

682,663. TIMBER-DOLLY. JAMES L. BAYLEY, Spokane, Wash. Filed Feb. 23, 1901. Serial No. 49,184. (No model.)

Claim.—1. In a timber-dolly, the combination with a suitable roll and bearings therefor, of a frame comprising two side beams and a pair of cross-beams, the side beams being diagonally gained on the inner side to take the ends of the cross-beams, said cross-beams being beveled to correspond therewith, tie-rods adjacent to said cross-beams, and bolts passing vertically through the side beams and partially through the ends of the cross-beams, whereby the whole frame is securely bound and locked together.

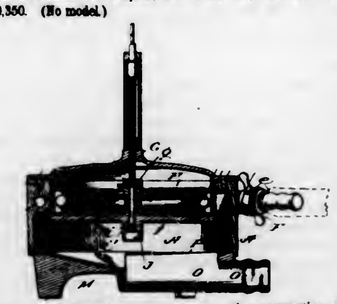


2. In a timber-dolly, the combination with a frame substantially as described, of a tubular roll therefor, having heads fitted in its ends, tie-rods to draw them securely in position, and spiders having sockets in their arms to engage and hold the nuts and heads of said tie-rods.

3. In a timber-dolly, the combination with a suitable frame, of a roll, comprising a tubular body, heads fitted in its ends, tie-rods connecting said heads, an axle and keys to retain the heads thereon, and spiders external to the heads having nut-sockets in their arms to engage the nuts and heads of the tie-rods, and adapted to hold said keys in place when in position.

4. In a timber-dolly, the combination with a suitable frame, bearings and roll, substantially as described, of a tubular axle for the roll, provided with oil-holes at the bearings, and plugs screwed in the ends to retain said oil.

682,664. IMPACT WATER-MOTOR. WILLIAM BOEKEL and JULIUS BOEKEL, Philadelphia, Pa. Filed May 15, 1901. Serial No. 60,350. (No model.)



Claim.—1. In an impact water-motor, the combination of a water-wheel and its spindle with the top section of the casing by which they are carried and with which they are removable, the middle section of the casing being provided with a waterway and nozzles for impact jets and the bottom section with an outlet substantially as set forth.

2. In an impact water-motor the combination of a water-wheel and its spindle with a casing in three detachable sections, the top section being provided with bearings for the said spindle and wheel which are removable with it, the bottom section being provided with an outlet and the middle section being provided with a waterway which discharges through nozzles against the periphery of said wheel, substantially as set forth.

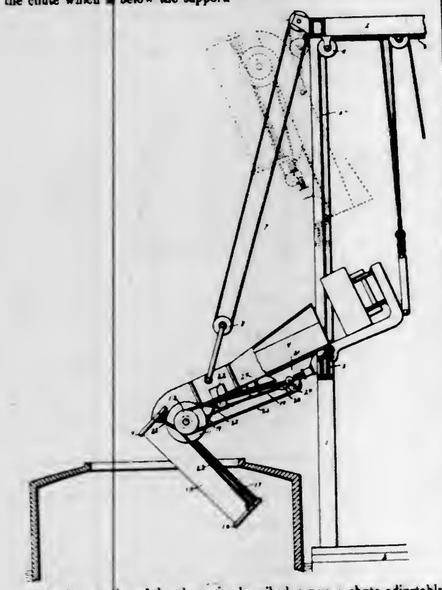
3. In a water-motor a casing having a bottom section or plate which is concave on top to a central opening discharging out through its side, the said plate or section being also provided with two raised flanges which extend inwardly from opposite sides of the said plate on parallel lines, leaving the beginning of the outlet between their inner ends and serving to prevent a vortex substantially as set forth.

682,665. DEVICE FOR HANDLING COAL OR OTHER MATERIALS. KARL H BROWNING, Cleveland, Ohio. Filed Jan. 7, 1901. Serial No. 42,387. (No model.)

Claim.—1. In a device of the character described, an adjustably-supported chute having one of its sides normally open, and an extensible closing device for that portion of the open side of the chute which is below the support.

2. In a device of the character described, a chute adjustably support-

ed intermediate its length, and having one of its sides normally open, and an extensible and flexible belt for closing that portion of the open side of the chute which is below the support.



3. In a device of the character described, a pan, a chute adjustably supported by said pan, and having one of its sides normally open, and a link belt for maintaining closed that portion of the chute which is below the support.

4. In a device of the character described, a pan, a chute supported by said pan and having one side normally open, means for vertically and angularly adjusting the chute, and means for maintaining closed that portion of the open side of the chute which is below the pan irrespective of the adjustment of the same.

5. In a device of the character described, a pan, a drum and chute supported from the pan, said chute having one side normally open, and a flexible belt passing over the drum and secured to the lower part of the chute to close the lower part of the open side of the same.

6. In a device of the character described, a chute having one of its sides formed of a flexible link belt for the purpose specified.

7. In a device of the character described, an open-sided chute, a drum from which said chute is adjustably supported, and a plurality of plates hinged together to form a link belt, one end of said belt being secured to the bottom of the chute and the other passing over the drum, whereby the intermediate portion of the open side of the chute is closed.

8. In a device of the character described, a pan, steering devices rotatably mounted on said pan, a chute engaging with the steering devices and means for rotating said devices to change the inclination of the chute.

9. In a device of the character described a pan, steering-pulleys rotatably mounted on the pan, a chute supported by the pan and having sliding connection with the steering-pulleys, and means for turning the pulleys to change the inclination of the chute.

10. In a device of the character described, a pan, a drum and chute supported by the pan, steering-pulleys mounted loosely on the drum and engaging with the chute, means to turn said pulleys to vary the inclination of the chute, other pulleys also mounted on the drum, and cables passing over said other pulleys and secured to the chute to raise and lower the same.

11. In a device of the character described, a pan, a chute carried by said pan, a hoisting-engine and means connecting the hoisting-engine with the chute whereby the latter is raised or lowered, or its inclination is varied as desired.

12. In a device of the character described, a pan, a drum and a vertically-adjustable chute carried by the pan, said chute having one side normally open, an idler-roller also carried by said pan, a belt passing over the drum and secured at one end to the chute, chains or ropes secured to the other end of the belt and passing over the idler-roller and thence back to the drum, whereby when the chute is elevated the belt will be drawn over the drum to keep the lower portion of the open side of the chute closed.

13. In a device of the character described, an open-sided chute, a series of beveled plates forming a belt for closing the same, pairs of hinge-pieces extending from one of the edges of the plates and a corresponding number of single hinge-pieces extending from the opposite edges thereof, the latter hinge-pieces overlapping for some distance the edge of the adjacent plate so as to make the belt flexible in one direction, but inflexible in the opposite direction.

14. In a device of the character described, a pan, steering-pulleys carried by the pan, pulleys 12 adjacent the steering-pulleys, a chute having sliding connection with the steering-pulleys, cables passing over pulleys 12 and supporting the chute, and means for turning the steering-pulleys to change the inclination of the chute.

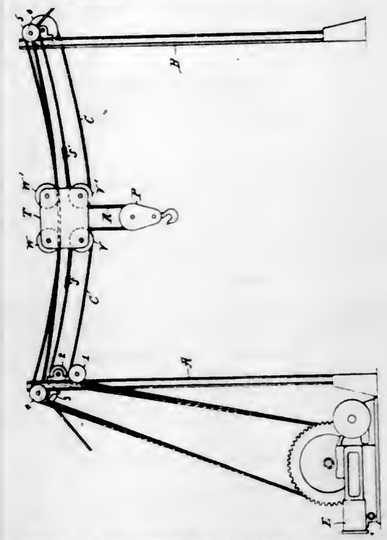
15. In a device of the character described, an adjustable chute, means for guiding the same while being adjusted, a hoisting device and a cable attached at its ends to the ends of the chute and passing about the hoisting device whereby the chute may be adjusted as desired.

16. In a device of the character described, an adjustable chute, means for guiding the same while being adjusted, a hoisting device, a pulley adjacent the chute, and a cable attached at its ends to the ends of the chute, passed on opposite sides of the pulley and thence to the hoisting device, whereby the chute may be adjusted as desired.

17. In a device of the character described, a pan, steering-pulleys supported by the pan, a chute also supported by the pan, means for raising and lowering the chute, bars on the chute, slide-boxes on the steering-pulleys through which the bars pass, and means for turning the steering-pulleys.

18. In a device of the character described, an adjustable and normally open-sided chute, means for guiding the same while being adjusted, a polygonal drum adjacent the chute, a link belt closing the lower portion of the open side of the chute and passing over the drum, and means for turning the drum to take up the slack in the belt as the chute is raised.

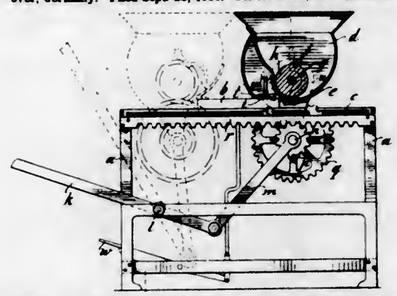
682,666. HOISTING AND CONVEYING MACHINE. ALEXANDER R. BROWN, Cleveland, Ohio, assignor to The Brown Hoisting Machinery Company, of Delaware. Original application filed Feb. 10, 1900, Serial No. 4,736. Divided and this application filed Apr. 13, 1901. Serial No. 55,745. (No model.)



Claim.—1. The combination of a trolley having sheaves, one or more of which is provided with and connected to a winding drum or drums; a suitable supporting-track for said trolley and a cable system passing over drums of an actuating mechanism, provided for the purpose, and around said trolley-sheaves in opposing loops, as described, and a hoisting line or lines attached to said winding drum or drums, substantially as shown and described.

2. The combination of a trolley having one or more winding-drums mounted therein, a suitable supporting-track for said trolley and a cable system connected with suitable actuating mechanism provided for the purpose, a cable or cables constituting said system which pass around and are attached to said drum or drums, in the form of opposing loops, as described, together with a hoisting line or lines secured to said drum or drums, substantially as shown and described.

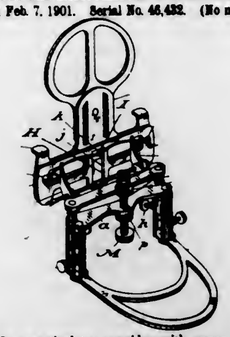
682,667. MACHINE FOR FORMING TILES. PAUL BRUHN, Hanover, Germany. Filed Sept. 25, 1900. Serial No. 31,043. (No model.)



Claim.—1. In a forming-table for profiled tiles and the like the combination of a frame, rails being disposed in said frame, a forming-chest reposing on the frame between said rails, a feeding-box slidable on said rails, a pin fastened to an extension of said feeding-box, a lever fastened to the side of said frame, a connecting-rod linked on one side to said lever and on the other side to said pin, a profiled roller, a rammer arranged inside the feeding-box, gearing for operating same, and a rack fastened to the frame, substantially as shown and described.

2. In a forming-table for tiles and the like the combination with the feeding-box, the roller and rammer inside said box and the pin fastened to the extension of said box, of two pinions fastened to each other and running loose on said pin, a rack fastened to the frame of said table, engaging one of the pinions, another pinion fastened to the axle of said roller and engaging the second pinion, a gear fastened to the other end of the roller-axle, a pinion gearing therein, a rod pivoted eccentrically to said pinion and carrying the rammer, substantially as hereinbefore shown and described.

682,668. DENTAL ARTICULATOR. WILLIAM M. BRUCE, Toronto, Canada. Filed Feb. 7, 1901. Serial No. 46,432. (No model.)



Claim.—1. In an articulator provided with upper and lower jaw-plates, a pivot located in the median plane of the jaw-plates, said pivot being mounted in a support adapted to move backward and forward, combined with the upper jaw-plate adapted to swing on said pivot and extend laterally on each side of the same whereby the sides of the said upper jaw-plate swing backward and forward when the front of the jaw-plate swings laterally and means for limiting the backward and forward swing of the sides of the said jaw-plate, substantially as described.

2. In an articulator provided with upper and lower jaw-plates, a pivot located in the median plane of the jaw-plates and so mounted that it may be moved backward and forward in combination with the upper jaw-plate adapted to swing on said pivot; and a spring tending to maintain the said pivot in its forward position, substantially as described.

3. In an articulator provided with upper and lower jaw-plates, the combination with one of the jaw-plates adapted to have an endwise motion and also a lateral swing from a movable center located in the median plane of the jaw-plates; of a spring having its ends attached to the upper jaw-frame and intermediate its ends bearing directly upon the pivot of the upper jaw-plate adapted to return the said jaw-plate to its normal position, substantially as described.

4. In an articulator, upper and lower jaw-plates adapted to have an endwise motion relative to one another and also a simultaneous lateral swing from a movable center located in the median plane of the jaw-plates, substantially as described.

5. In an articulator upper and lower jaw-plates adapted to have an endwise motion relative to one another and also a simultaneous lateral swing from a movable center located in the median plane of the jaw-plates, in combination with a spring adapted to return the jaw-plates to their normal position, and a cushioning device for the upper jaw-plate, substantially as described.

6. In an articulator, the articulator-frame comprising a cross-bar and vertical standards at each side, each having two vertical holes bored therein, in combination with a lower jaw-plate, provided with two vertical posts adapted to fit two of the said holes; an upper jaw-plate connected with two vertical posts adapted to fit the other two holes in the standards; and set-screws adapted to clamp the said posts, substantially as described.

7. In an articulator, an articulator-frame, in combination with an upper jaw-plate having a hinged and vertically-adjustable connection therewith; a leveling-screw screwed through the frame and adapted to engage the under side of the upper jaw-plate; a nut screwed on the upper end of the leveling-screw; and a spring-cushion carried by the said nut, substantially as described.

8. In an articulator, an articulator-frame, in combination with an upper jaw-frame formed in two parts detachably hinged together the lower part being vertically adjustable on the articulator-frame; and an upper jaw-plate connected with the upper part of the said upper jaw-frame, substantially as described.

9. In an articulator, an upper jaw-frame connected with the articulator-frame and having a central fore-and-aft guideway formed therein, in combination with a pivot-block adapted to slide in the said guideway; and an upper jaw-plate mounted to swing laterally upon a pivot carried by said block and adapted for simultaneous backward-and-forward opening and closing and lateral movements, substantially as described.

10. In an articulator, an upper jaw-frame connected with the articulator-frame and having a central fore-and-aft guideway formed therein, in combination with a pivot-block adapted to slide in the said guideway; an upper jaw-plate pivoted thereon; headed studs connected to the upper jaw-frame and passing through wide slots in the jaw-plate, substantially as described.

11. In an articulator, an upper jaw-frame connected with the articulator-frame and having a central fore-and-aft guideway formed therein, in combination with a pivot-block adapted to slide in the said guideway; an upper jaw-plate pivoted thereon; headed studs connected to the upper jaw-frame and passing through wide slots in the jaw-plate; and a spring engaging the pivot-block and the upper jaw-frame and tending to maintain the pivot-block in its normal position, substantially as described.

12. In an articulator, an upper jaw-frame connected with the articulator-frame and having a central fore-and-aft guideway formed therein, in combination with a pivot-block adapted to slide in the said guideway; an upper jaw-plate pivoted thereon to swing laterally simultaneously with its sliding movement; means limiting the swinging movement of the jaw-plate and a spring normally maintaining the jaw-plate in its forward position, substantially as described.

13. In an articulator, an articulator-frame, in combination with an upper jaw-frame formed in two parts hinged together, the lower part being connected to the articulator-frame; and an upper jaw-plate connected with the upper part of the said upper jaw-frame by a vertically-disposed pivot in the median plane of the jaw-plates, substantially as described.

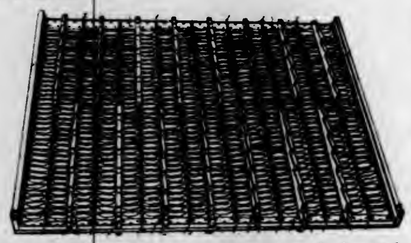
14. In an articulator provided with upper and lower jaw-plates, a pivot located in the median plane of the jaw-plates and mounted for movement backward and forward and interrupted guideways for said pivot whereby it may be removed when desired, combined with an upper jaw-plate mounted to swing laterally on said pivot, and a spring acting directly upon said pivot, substantially as described.

15. An articulator provided with upper and lower jaw-plates, one of which is adapted to have a bodily endwise motion from a movable center located in the median plane of the jaw-plates, a guide for said center having portions adapted to permit of the bodily removal of said center, and a spring acting directly upon said center, as and for the purpose specified.

682,669. GRAIN-SEPARATING SCREEN. CHARLES CLOSE, Webster City, Iowa, assignor to Close and Howard Manufacturing Company, same place. Filed Dec. 26, 1900. Serial No. 41,057. (No model.)

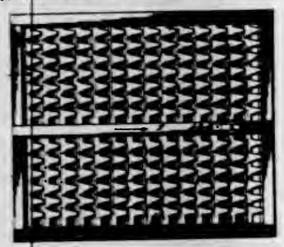
Claim.—1. In a grain-separating screen and in combination with a frame and a metallic screening-platform secured therein having corrugations and openings between them, toothed bars arranged in alinement with, over and upon the corrugations and over and covering the ends of the openings on each side of the corrugations, the said toothed bars extending alike in alternate arrangement from the receiving and from the deliv-

ering ends of the frame on the same horizontal plane and terminating between the ends of the frame, whereby the screening-surface is prevented from being choked at the ends of the openings along the opposite sides of the bars.



2. The combination in a grain-separating screen of a frame and a metallic platform having corrugations and openings between them, with toothed bars having longitudinal grooves in their under edges adapted to receive the corrugations in alinement therewith and to cross and cover the ends and prevent choking of the openings on both sides of the bars, the latter extending in the same horizontal plane alternately from the receiving and from the delivering ends of said frame, terminating between said ends and nailed along their grooves to the ridges of the corrugations, whereby the engagement of the bars with the corrugations serves to brace them laterally throughout their length.

682,670. GRAIN-SEPARATING SCREEN. CHARLES CLOSE, Webster City, Iowa. Filed Dec. 29, 1900. Serial No. 41,517. (No model.)



Claim.—1. In a grain-separating screen and in combination with a frame, of fingered slats pivotally mounted therein the fingers and the slats having a construction giving to the fingers a forward and downward curve and a convex transverse form extending back of the edges of the slats, the latter being concave at the edges between the fingers giving an undulating formation along said slat edges and means whereby the slats are adjusted to open and to close the openings between the fingered edges of the adjacent slats.

2. In a grain-separating screen and in combination with a frame, a screening-surface composed of transverse parallel slats pivotally mounted in said frame having fingers curving forwardly and downwardly, of transverse convex form, the slats between the fingers having surface grooves 5 running back from the edge of the slat.

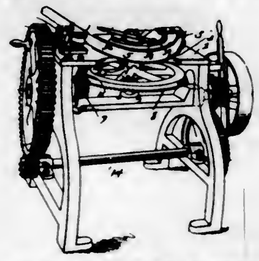
3. In a grain-separating screen and in combination with a frame, a screening-surface composed of transverse parallel slats pivotally mounted in said frame having fingers curving forwardly and downwardly, the depending portion of each slat doubled or lapped on itself forming sleeves thereby, a pivot-forming bar 6 on which one of said sleeves is mounted, rods 8 passed through the other sleeve, a freely-suspended bar mounted on said rods and means whereby said freely-suspended bar is raised and lowered.

4. In a grain-separating screen and in combination a frame, metal slats each doubled or lapped about half its width forming a sleeve, fingers curving forward from said sleeve and of convex transverse form, the convexity extending back of the fingered edge and the latter concave between the fingers, a pivot-forming bar on which said slat-sleeves are mounted and means connecting the lapped ends of the slats for adjusting the fingered edges of the adjacent slats.

5. In a grain-separating screen and in combination a frame, metal slats, each having fingers curving forward and grooves at its edge between the fingers extending back from the fingered edge, a fixed pivot-forming bar on which each slat is loosely mounted and means connecting the slats for adjusting the openings between the fingered and concave edges of adjacent slats.

6. In a grain-separating screen and in combination a frame provided with a mediate bar, slats pivotally mounted in said frame having fingers curving forward so that the openings between the slats will be formed between their adjacent fingered edges, a bar freely suspended on the slats, a bolt vertically in the mediate bar, a link connecting the bolt and the suspended bar, a nut seated on the mediate bar engaging said bolt and a detent arranged to cover and prevent the straw from catching on the nut, whereby a lift connection is made from the mediate bar to adjust the slats.

682,671. PIPE-BENDING MACHINE. HENRY F. CONDON, DeKalb, Ill. Filed Nov. 5, 1900. Serial No. 35,492. (No model.)



Claim.—1. In a pipe-bending machine, the combination of a bending-die having a peripheral groove and divided or made separable in the plane of said groove, a spring acting upon one member of the die to separate it from the other and means for positively advancing one member relatively to the other in opposition to said spring.

2. In a pipe-bending machine, the combination of a segmental bending-die having a peripheral groove substantially conforming to one side of the pipe to be operated upon and divided or made separable in the plane of said groove, clamping-jaws rigidly mounted upon the respective die members in opposing position and adjacent to one of the sides thereof, a spring acting on one die member to separate it from the other and means for drawing said die members together, comprising a locking-pin extending from one member through the other and provided with a shoulder and a slide-shoe having a wedging cam-surface adapted to be reciprocated between the shoulder and an opposing part of the movable die member.

3. In a pipe-bending machine, the combination of a bending-die provided with a peripheral groove, and made separable in the plane of said groove, and means for positively advancing one die member relatively to the other, comprising a plurality of fixed studs upon one member arranged to extend through the opposing member, and provided with a headed or shouldered portion, a slide-shoe slotted to fit and reciprocate upon said pins, provided with cam-surfaces interposed between the shouldered portions of the pins and the adjacent face of the die and a pivoted lever operatively engaged with said slide, substantially as described.

4. In a pipe-bending machine, the combination of a main die-shaft, a bending-die mounted upon said shaft having a peripheral groove and divided or made separable in the plane of said groove, one member of said die having splined driving engagement with the shaft and the other member having driving engagement with said shaft through the medium of a clutch-sleeve, as and for the purpose described.

5. In a pipe-bending machine, the combination with a main die-shaft of a bending-die mounted thereon provided with a peripheral groove and divided or made separable in the plane of said groove, one of said die members having driving engagement with said shaft through the medium of a spline and key and means for driving the other member with said shaft comprising a hub portion upon said die member provided in its end face with clutch projections, a driving member located upon the shaft at a point separated from the die member and likewise provided with clutch projections and a clutch-sleeve provided at its opposite ends with interfitting clutch projections and interposed between said die member and driving member, substantially as described.

6. In a pipe-bending machine, the combination with a bending-die provided with a peripheral groove, of a pair of grooved rollers adapted to coöperate therewith, one of said rollers being located at the bending-point and the other at a short distance in rear thereof, both of said rollers being mounted upon a common base, means for adjusting said base bodily toward and from the bending-die, and means for adjusting said rollers toward and from the bending-die independently of each other, substantially as described.

682,672. CHAIR. DAVID R. COTNER, Bardwell, Ky., assignor of one-half to Willis W. Hester, same place. Filed May 20, 1901. Serial No. 61,089. (No model.)

Claim.—1. The combination with rocking-chairs, of a foot-platform connected to said chairs, and links connected to said chairs above said foot-platform, substantially as set forth.



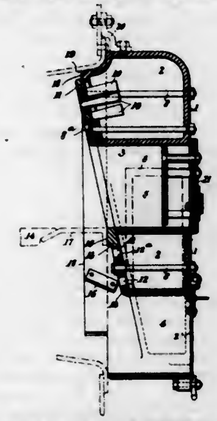
2. The combination with rocking-chairs, of a removable foot-platform connected to said chairs, and removable links connected to said chairs above said foot-platform, substantially as set forth.

682,673. FURNACE. OMAR M. CURTIS, Wolcott, N. Y. Filed Nov. 12, 1900. Serial No. 36,275. (No model.)



Claim.—The combination of a fire-pot having a groove in its upper side, a jacket-section having its lower side fitted in said groove, said jacket-section having an opening for a feed-door, and an offset or countersink around said opening, a top having a groove in its lower side, to receive the upper edge of said jacket-section, and a feed-door frame having a flange fitted in said countersink or offset, the upper and lower edges of said flange engaging said grooves in said top and in said fire-pot, substantially as described.

682,674. FURNACE. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Sept. 17, 1900. Serial No. 30,347. (No model.)



Claim.—1. In a furnace, a furnace-front having an air-supply chamber, the interior wall of which is provided with two series of orifices, those of one series arranged to admit air directly into the ash-pit, and those of the other series to admit air directly over the top of the fire, the total area of air-passage through the latter series being less by a fixed proportion than that through the former series, whereby without the employment of regulating-valves the relatively smaller volume of air admitted to the top surface of the fire remains in a constant proportion to that admitted to the ash-pit throughout all variations of pressure or draft.

2. In a furnace, a furnace-front having an air-supply chamber the interior wall of which is provided with two series of orifices, those of one series arranged to admit air directly into the ash-pit, and those of the other series to admit air directly over the top of the fire, the total area of air-passage through the respective series of openings being in a certain fixed proportion, whereby without the employment of regulating-valves the volume of air admitted to the top surface of the fire remains in a constant proportion to that admitted to the ash-pit throughout all variations of pressure or draft.

3. In a furnace, a furnace-front having an air-supply chamber the interior wall of which is provided with two series of orifices, those of one series arranged to admit air directly into the ash-pit, and those of the other series to admit air directly over the top of the fire, the total area of air-passage through the respective series of openings being in a certain fixed proportion, and unalterable, being without regulating-valves, whereby the volume of air admitted to the top surface of the fire remains in a constant proportion to that admitted to the ash-pit throughout all variations of pressure or draft.

4. In a furnace, a furnace-front having its interior wall formed with two series of orifices, those of one series arranged to admit air into the ash-pit, and those of the other series to admit air above the top of the fire, a series of tubes or blowpipes in said latter series of orifices, and forming air-heating surfaces, and means for feeding air through said blowpipes.

5. In a furnace, a furnace-front having an air-supply chamber, the interior wall of which is provided with two series of orifices, those of one series arranged to admit air directly into the ash-pit, and those of the other series to admit air directly over the top of the fire, the total area of air-passage through the latter series being less by a fixed proportion than that through the former series, whereby without the employment of regulating-valves the relatively smaller volume of air admitted to the top surface of the fire remains in a constant proportion to that admitted to the ash-pit throughout all variations of pressure or draft, and a series of tubes or blowpipes in said latter series of orifices, forming heating-surfaces for the air passing therethrough.

6. In a furnace, a furnace-front having an air-chamber within it, the inner wall of said chamber arranged above the bed of fuel, so as to expose it to the radiant heat of the fire, means for admitting air to said chamber, and a series of tubes or blowpipes extending into said chamber from its inner wall, whereby both the outer and inner sides of said tubes form heating-surfaces for the air.

7. In a furnace, a furnace-front having an air-chamber within it, the wall of said chamber being inclined at an angle to the axis of the fire, so as to expose it to the radiant heat of the fire, and a series of tubes or blowpipes mounted in said inclined wall at substantially right angles thereto, and extending within said chamber.

8. In a furnace, a furnace-front having an air-supply chamber, the interior wall of which is provided with two series of orifices, those of one series arranged to admit air directly into the ash-pit, and those of the other series to admit air directly over the top of the fire, the total area of air-passage through the latter series being less by a fixed proportion than that through the former series, whereby without the employment of regulating-valves the relatively smaller volume of air admitted to the top surface of the fire remains in a constant proportion to that admitted to the ash-pit throughout all variations of pressure or draft, and a series of tubes or blowpipes in said latter series of orifices extending into said chamber, and forming heating-surfaces for the air passing therethrough.

9. In a furnace, a furnace-front having an air-supply chamber, the interior wall of which is exposed to the direct heat of the fire above the grate, and is provided with a series of orifices arranged to admit air directly over the top of the fire to support combustion both when the furnace-doorway is closed and when it is open, and adapted to direct said jets of air so as to prevent outblast of flame through the doorway when it is open.

10. In a furnace, a furnace-front having an air-chamber within it, a wall of which is exposed to the direct heat of the furnace above the bed of fuel, means for admitting air to said chamber, a series of orifices in the wall of said chamber arranged to admit air from the more highly heated part of said chamber over the top of the fire, and orifices for feeding air from the less highly heated part of said chamber to the ash-pit, whereby the air fed to the ash-pit is at a lower temperature than that fed above the grate in order to cool the fire-bars.

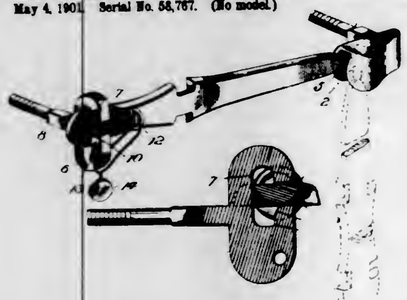
11. In a furnace, a furnace-front having an air-chamber within it, a wall of said chamber being exposed to the heat of the furnace, and having a series of openings communicating with the ash-pit, adapted to direct the air upwardly beneath the grate, and means for admitting air to said chamber, whereby heated air is fed to the furnace below the grate.

12. In a furnace, a furnace-front having an air-chamber within it, a wall of said chamber being exposed to the heat of the furnace, and having a series of openings communicating with the ash-pit, means for admitting air to said chamber, whereby heated air is fed to the furnace below the grate, and a deflector for deflecting the air upwardly toward the fire.

13. The combination with a furnace, and means for producing a forced draft thereto, of a means adapted, during the continuance of said forced draft, to institute an inflow of air in the form of jets through the ash-pit doorway when the latter is open, and thereby prevent blowing out of ashes therethrough.

14. In a furnace, a furnace-front having an air-chamber within it, and a series of openings through the wall of said chamber adjacent to the ash-pit door, and directed toward the interior of the ash-pit, whereby the air enters said ash-pit in the form of jets and prevents blowing out of ashes when the ash-pit is opened.

682,675. SLIDING-DOOR FASTENER. JOHN DENIS, Wilmington, Del., assignor of one-half to Samuel Slesinger, same place. Filed May 4, 1901. Serial No. 58,767. (No model.)



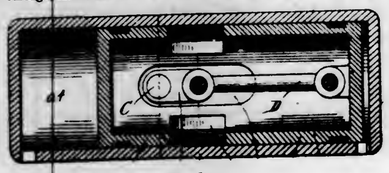
Claim.—1. In a fastener, a hasp and securing means for the pivoted end thereof; a catch or lock for the opposite or free end of the hasp, having a vertically-disposed receiving slot or pocket therein and an entering-slot leading into said vertically-disposed receiving slot or pocket, the said free end of the hasp passing through the entering-slot turning at right angles thereto and having a downward movement within the vertically-disposed slot or pocket, substantially as described.

2. In a sliding-door fastener, a hasp and securing means for the pivoted end thereof; a catch or lock for the opposite or free end of the hasp having a vertically-disposed receiving slot or pocket therein and an entering-slot leading into said vertically-disposed receiving slot or pocket, the said free end of the hasp having notches permitting it to pass through the entering-slot, turn at a right angle thereto and have a downward movement within the vertically-disposed slot or pocket, the notches in the said hasp coacting with the catch and preventing lateral movement therein, substantially as described.

3. In a fastener, a catch having a T-shaped slot comprising a substantially vertical hasp-receiving slot and a substantially horizontal entering-slot leading into the vertical slot, in combination with a hasp arranged to enter through the entering-slot and having a rounded portion allowing it to turn and drop into the vertical receiving-slot, substantially as described.

4. In a fastener, a catch having a T-shaped slot therein comprising a substantially vertical hasp-receiving slot with one of its lower covers formed with a square corner and an entering-slot leading into said receiving-slot, in combination with a hasp arranged to enter through the entering-slot and having a rounded portion allowing it to turn and drop into the vertical receiving-slot, the said hasp also having a flat part coacting with the aforesaid square corner, substantially as described.

682,676. MULTIPLE-CYLINDER ENGINE. WILLIAM R. EWALD, Chicago, Ill. Filed Oct. 19, 1900. Serial No. 33,542. (No model.)



Claim.—1. A fluid-motor comprising a cylinder-casing composed of two sections, a shaft extending transversely through said casing at the junction of said sections, the abutting ends of said cylinder-sections being grooved to accommodate the shaft and so formed as to practically provide the latter with a pair of two-part bearings, piston-heads fitting the bore of the cylinder at opposite sides of said shaft, means for connecting said piston-heads with said shaft, and means for connecting the two sections of the cylinder, substantially as described.

2. A fluid-motor comprising a cylinder-casing composed of two sections, a shaft extending through the casing at the junction of said sections, said shaft being journaled in bushings seated in grooves formed in the abutting ends of said sections, piston-heads fitting the cylinder at opposite sides of said shaft, means for connecting said piston-heads with said shaft, and means for connecting the two cylinder-sections, substantially as described.

3. A fluid-motor comprising a cylinder-casing composed of two sections, the abutting end portions of the sections being provided externally with projections or flange-like portions, bushings seated in grooves formed in the abutting ends of said cylinder-sections, bolts or screws extending through said projections or flange-like portions and serving to hold the two sections together and to clamp the bushings in place, a crank-shaft journaled in said bushings, the cylinder-casing having expansion-chambers arranged at opposite sides of said shaft, and reciprocating piston mechanism for communicating motion to said shaft, substantially as described.

4. A fluid-motor comprising a cylinder-casing, a crank-shaft extending transversely through said casing, a hollow piston cast or made in one piece and having heads or ends reciprocating in unison at opposite sides of said shaft, and a pitman inclosed within said piston and connecting one end of the latter with the crank on said shaft, substantially as described.

5. A fluid-motor comprising a cylinder-casing composed of relatively long and short sections, a crank-shaft extending transversely through the casing at the junction of said sections, a piston having relatively long and short heads or end portions inclosed respectively within the relatively long and short cylinder-sections, and a pitman connecting the long end portion of the piston with the crank on said shaft, the end of the short end portion of the piston reciprocating close to the shaft, and the length of the long head or end portion of the piston, as well as the long cylinder-section, depending practically upon the length of the said pitman, substantially as described.

6. A fluid-motor comprising a cylinder-casing, a piston inclosed therein, and provided with opposite ends or heads, a crank-shaft extending transversely through the cylinder and piston at a point much nearer one end than the other, so as to permit one end of the piston to reciprocate close to the shaft, and a pitman for connecting the other end of the piston with the crank on said shaft, the position of the latter relatively to the opposite ends of the cylinder and piston being determined substantially by the length of the said pitman, substantially as described.

7. A fluid-motor comprising a suitable cylinder, a crank-shaft extending transversely through the cylinder, a hollow piston cast or made in one piece and having relatively long and short portions fitting the cylinder at opposite sides of the shaft, the shaft extending through slots in the piston, the end of the short portion of the piston reciprocating close to the shaft, and a pitman connecting the long end of the piston with the crank on said shaft, the difference in the length of the two portions of the piston depending practically upon the length of the said pitman, substantially as described.

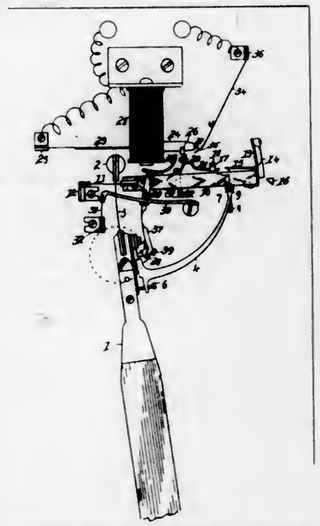
682,677. LEATHER-PAD FASTENING FOR BILLIARD-CUES. ERNST FERDELAND, Brooklyn, N. Y. Filed Mar. 2, 1901. Serial No. 49,558. (No model.)



Claim.—In billiard-cues with a leather-pad fastening the combination comprising with the grooved leather-pad shank, a cue with a threaded tenon having a shoulder on its lower end and the pad-seat on its top and an inner sleeve H over said tenon and over the grooved shank of the pad with a threaded bottom end and contracting grip-plates K over the grooved shank of the pad and an outer sleeve F with a shoulder and an opening contracting the plates K for supporting and gripping the pad and said sleeve with a threaded shank over the sleeve H and over the threaded tenon of the cue and its bottom end meeting the shoulder on the tenon of the cue, substantially as and for the purpose herein set forth.

682,678. ELECTRIC CLOCK. ROBERT J. FLINT, Decatur, Ill., assignor of one-half to Frank Curtis Company, same place. Filed May 21, 1901. Serial No. 61,226. (No model.)

Claim.—1. In an electric clock, the combination of a pendulum, a horizontal impulse-weight pivoted at one end, a spring-detent on the swinging end of the impulse-weight, a fixed stop to engage the detent and hold the weight raised, and an impact-arm on the pendulum that forces the spring-detent clear of the stop and receives the impulse-weight, substantially as described.



2. In an electric clock, the combination of a pendulum, a horizontal impulse-weight bar pivoted at one end, a spring-detent on the swinging end of the impulse-weight, a fixed stop to engage the detent and hold the weight raised, a lateral extension of the detent in line with the weight and an impact-arm on the pendulum adapted to engage the lateral extension of the detent, force the detent clear of the stop and receive the weight of the impulse-bar through the extension of the detent, substantially as described.

3. In an electric clock, the combination of a pendulum, a horizontal impulse-weight pivoted at one end and having a vertical slot in the opposite end, a spring-detent on the swinging end of the weight, an extension of the detent overlapping the slot in the weight, a stop to engage the detent and hold the weight raised, and an impact-arm on the pendulum adapted to extend through the slot in the weight and engage the extension of the detent, substantially as described.

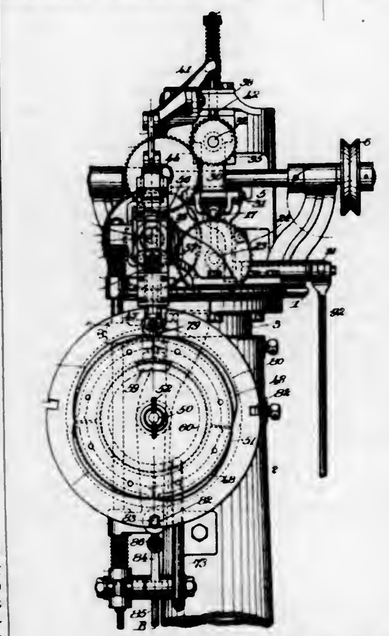
4. In an electric clock, the combination of a pendulum, a horizontal impulse-weight pivoted at one end and having a vertical slot in the opposite end, a spring-detent on the swinging end of the weight, an extension of the detent overlapping the slot in the weight, a stop to engage the detent and hold the weight raised, an impact-arm on the pendulum and a vertically-swinging pin in the end of the arm adapted to extend through the slot of the weight and engage the extension of the detent, substantially as described.

5. In an electric clock, the combination of a pendulum, a horizontal impulse-weight pivoted at one end, a spring-detent on the swinging end of the impulse-weight, a stop to engage the detent and hold the weight raised, an impact-arm to release the detent and receive the weight, a flat spring connecting the arm with the pendulum, and a set-screw in the arm bearing against the pendulum, substantially as described.

6. Clock-impelling mechanism, comprising a pendulum, an impulse-weight for the pendulum, a magnet and armature to raise the weight, a self-closing electrical contact held open by a detent, a detent to hold the impulse-weight raised, an arm on the pendulum which receives the weight by the act of releasing it, a trip on the weight that releases the detent of the electrical contact as the weight descends, means for breaking the circuit by the act of raising the weight, and clock-gearing actuated by the armature, substantially as described.

682,679. ROUNDING AND CHANNELING MACHINE. ALFRED R. FOWLER, Central Falls, R. I., assignor to United Shoe Machinery Company, Paterson, N. J. Filed Oct. 29, 1900. Serial No. 34,360. (No model.)

Claim.—1. A machine for operating on the soles of shoes, having, in combination, a suitable tool, a gage, a plurality of means for relatively actuating the tool and gage to vary the distance from the inseam at which the tool acts on the sole, said plurality of means being constructed and arranged to impart different relative movements to the gage and tool for shoes of different sizes or styles, and means for rendering any one of said means operative, substantially as described.



2. A machine for operating on the soles of shoes, having, in combination, a suitable tool, a movable gage, means for moving the gage to vary the distance from the inseam at which the tool acts on the sole comprising a plurality of cams and intermediate connections constructed and arranged to impart different relative movements to the gage and tool for shoes of different sizes or styles, and means for rendering any one of said cams operative, substantially as described.

3. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, a plurality of means for relatively actuating the knife and gage to vary the distance of the cut from the inseam, said plurality of means being constructed and arranged to impart different relative movements to the gage and knife for shoes of different sizes or styles, and means for rendering any one of said means operative, substantially as described.

4. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage to vary the distance of the cut from the inseam, comprising a plurality of cams and intermediate connections constructed and arranged to impart different relative movements to the gage and knife for shoes of different sizes or styles, and means for rendering any one of said cams operative, substantially as described.

5. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage to vary the distance of the cut from the inseam, comprising a plurality of cams and intermediate connections constructed and arranged to impart different relative movements to the gage and knife for shoes of different sizes or styles, and means for adjusting the cams to bring any one in operative engagement with said connections, substantially as described.

6. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage to vary the distance of the cut from the inseam comprising a plurality of cams and intermediate connections, a rotating carrier on which the cams are arranged in series circumferentially, mechanism for rotating the carrier a distance equal to the length of one of the cams, and means for adjusting the carrier to bring any one of the cams in operative engagement with said connections, substantially as described.

7. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage

to vary the distance of the cut from the inseam comprising a cam and intermediate connections, a driving-shaft, connections between the shaft and cam, means for throwing said connections into operation to actuate the cam, and means for automatically throwing said connections out of operation, substantially as described.

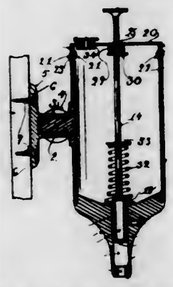
8. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage to vary the distance of the cut from the inseam comprising a cam and intermediate connections, a driving-shaft, connections between the shaft and cam, means for throwing said connections into operation to actuate the cam in either direction, and means for automatically throwing said connections out of operation, substantially as described.

9. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage to vary the distance of the cut from the inseam comprising a cam and intermediate connections, a driving-shaft, reversible gearing connecting the shaft and cam, means for throwing the gearing into operative engagement with the shaft and cam to actuate the cam in either direction, means for locking the gearing in such engagement and means for automatically throwing the gearing out of such engagement, substantially as described.

10. A machine for operating on the soles of shoes, having, in combination, a suitable tool, a movable gage, means for moving the gage to vary the distance from the inseam at which the tool acts on the sole comprising a plurality of cams and intermediate connections, means for actuating said cams in either direction, and means for rendering any one of said cams operative, substantially as described.

11. A sole rounding or channeling machine, having, in combination, a suitable knife, a gage, means for relatively actuating the knife and gage to vary the distance of the cut from the inseam, comprising a plurality of cams and intermediate connections, means for actuating said cams in either direction, and means for rendering any one of said cams operative, substantially as described.

682,680. LIQUID-SOAP HOLDER. ANDRÉE L. FRIBOURG, Denver, Colo., assignor of one-half to Henriette C. Fribourg, same place. Filed Jan. 4, 1901. Serial No. 42,100. (No model.)



Claim.—1. In a liquid-soap holder, the combination with the cylindrical shell having a removable cap on the top end of the cylinder, a conical-shaped, depending member in the opposite end of said cylinder adapted to form its bottom portion, an axial bore in said bottom portion, a stem extending axially through said cap and having a reservoir portion, at its lower end fitting slidably in the bore of said bottom portion and of a shorter length than the length of the bore in said bottom portion, an expanding spring arranged to hold the top portion of said reservoir above the bottom of said cylinder, an inlet-hole leading into the upper end of said reservoir, and a lateral discharge-aperture at its lower end and having said stem slidably feathered in said cap and arranged to be manually pushed down in the bore of said bottom against the expanding elasticity of said spring, an air-hole arranged in the side of said conical bottom in a position to register with the inlet-aperture in said reservoir when it is pressed down to the bottom of the bore in said bottom portion, and a discharge-outlet in said conical bottom arranged to register with the discharge-aperture of said reservoir when it is pressed down to the bottom of the bore in said conical bottom portion, substantially as described.

2. In a liquid-soap-holding receptacle the combination with the cylindrical shell, of a cap removably secured to the top of said cylindrical shell, an air-hole in said cap, a stem extending through said cap and slidably keyed thereto, a press-button portion on the outer end of said stem, a reservoir at the opposite end of said stem, a conical shaped, depending bottom in said cylindrical shell, an axial bore in said bottom portion in which the reservoir end of said stem fits reciprocally, a spring arranged to actuate said stem in one direction of its reciprocal movement and arranged and adapted to hold the upper end of said reservoir portion of said stem above the floor of said cylinder, an inlet-aperture in the top of said reservoir, a discharge-outlet in the side of the bottom portion of said reservoir, a discharge-outlet in the depending end of the bottom of said cylinder arranged to register with the discharge-outlet inside of the bottom portion of said reservoir when at the bottom of its reciprocal stroke, and an air-hole through the side of said depending bottom portion of said cylinder also adapted to register with the inlet-hole of said reservoir when said reservoir and stem is at the end of its downward reciprocal stroke, substantially as described.

3. In a liquid-soap receptacle, the combination of the cylinder having a conical, depending bottom portion and the removable cap containing an air-hole, the axial bore in said bottom portion, the stem extending through and above said cap at one end and having a reservoir portion at its opposite end extending slidably into said axial bore of said cylinder's bottom portion, the soap-inlet aperture and the discharge-aperture in said reservoir, the discharge-apertures in the end, of the bottom of said cylinder and the air-hole in said bottom portion arranged at substantially the same distance apart and to register with the soap-inlet aperture and the discharge-aperture in said reservoir, the keyway in the upper end of said stem, the feather in said cover projecting into said keyway, an abutment on said stem above the floor of said cylinder, the spring surrounding said stem and arranged under expansive pressure between the floor of said cylinder and said abutment, the stop on said stem arranged on said stem under said cover and adapted to limit the upward stroke of said stem, and means including a bracket for supporting said cylinder in a vertical position, substantially as described.

4. In a liquid-soap receptacle the combination of the cylinder having a removable cover containing an air-hole, a bottom portion containing an axial bore, a reciprocating push-button stem extending up through said cover and containing a liquid-soap-holding reservoir at its lower end fitting slidably in the axial bore of said bottom portion, a spring arranged to move said stem through the upward or return stroke of its reciprocating movement and to normally hold the upper end of said reservoir above the floor of the bottom portion of said cylinder, an aperture in the side of the top of said reservoir, above said floor portion and a discharge-aperture in its side at its bottom portion with the discharge-outlet in the side of said cylinder's bottom portion arranged to register with the discharge-aperture in the lower end of said reservoir when at the bottom of its reciprocal stroke, the air-hole arranged to register with the inlet-aperture when said reservoir is at the bottom of its stroke, and the bracket containing a socket portion and a trunnion on said cylinder for supporting said cylinder in a vertical position and at varying distances from a supporting partition or wall, substantially as described.

5. In a liquid-soap receptacle the combination with the cylinder having a bottom portion containing an axial bore, of the removable cap, the push-rod stem feathered slidably against rotative movement to said cap, the reservoir at the lower end of said stem fitting slidably the bore in the bottom of said cylinder, the inlet-aperture in said reservoir and the air-hole in the bottom of said cylinder adapted to register with one another at the end of the operative stroke of said push-rod stem, the discharge-aperture in said reservoir and said cylinder's bottom portion arranged to register opposite one another at the end of the operative stroke of said push-rod stem, with a spring arranged and adapted to move said push-rod stem in the return or inoperative stroke of its movement, substantially as described

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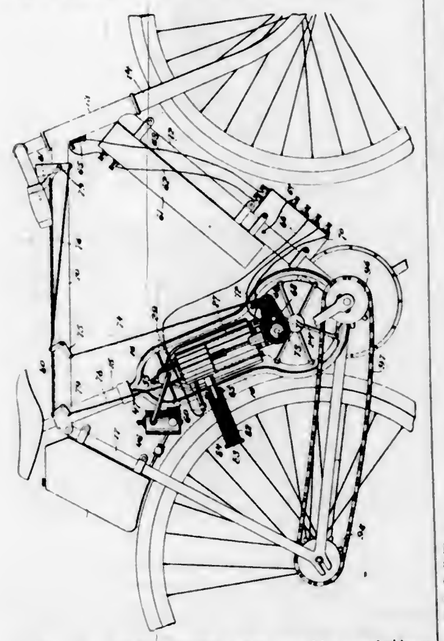
682,681. NAIL OR SCREW SET. PHAON H. HAAS, Allentown, Pa. Filed Mar. 2, 1901. Serial No. 49,636. (No model.)



Claim.—1. In a nail-set, the combination of a body portion, a groove formed in said body portion, a shoulder formed at the lower end of the said groove, a recess formed under said shoulder, a seat or groove for holding a nail, and means for positively retaining the nail in position, substantially as described.

2. In a nail-set, the combination of a body portion having a groove formed therein, a shoulder formed at the lower end of said groove, a recess formed under said shoulder, a groove or seat communicating with the said recess, a spring-actuated arm held in the said groove of the body portion, and having its lower end provided with an extension adapted to enter the seat, substantially as described.

682,682. MOTOR-BICYCLE. EMIL F. HAFELFINGER, Weehawken, N. J. Filed Dec. 1, 1900. Serial No. 38,292. (No model.)



Claim.—1. In a motor-bicycle, a frame, comprising a vertical brace member having a socket-section for a seat-post, a series of arms extended downward from the socket-section, said arms being curved outward between their ends and arranged one pair forward of the other pair, and a motor supported between said arms, substantially as specified.

2. In a motor-bicycle, a frame, comprising a top bar, a bottom brace-bar, rear fork members, a vertical center brace having a frame at its lower portion, a motor arranged in said frame, and a gasolene-tank supported on the rear fork members, substantially as specified.

682,683. FIREPROOF FLOORING. CHARLES F. HAGLIN, Minneapolis, Minn. Filed Nov. 21, 1900. Serial No. 37,229. (No model.)

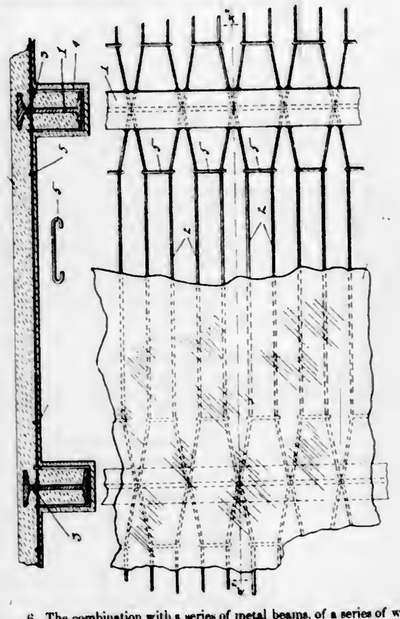
Claim.—1. The combination with a series of metal beams, of a series of wires passed transversely through the webs thereof, which wires are normally stretched, but to less than the maximum of their coefficient of elasticity, and a sheet or body of concrete embedding the said stretched wires, and adhering thereto, and strengthened thereby.

2. The combination with a series of beams, the series of wires extending transversely of said beams, said wires being first set with a slack, sliding tightening devices serving to draw the said wires taut by sliding movements thereon, and a body or sheet of concrete embedding the said wires and tighteners, and strengthened thereby.

3. The combination with a series of metal beams 1, of the series of wires 2 extended transversely through the webs of said beams, the keys or wedges 3 securing said wires to said beams, and the sheet or body of cement 6 embedding said wires 2.

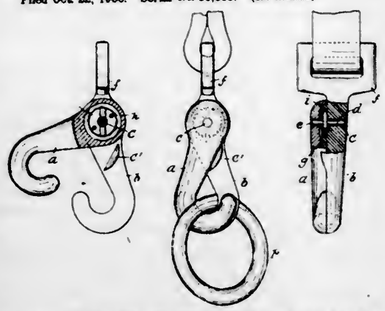
4. The combination with the metal beams 1, of the series of wires or rods 2 passed transversely through the webs of said beams, the U-shaped wires or stirrups suspended from said wires 2, and embracing the lower portions of said beams, and the concrete floor sheet or body 6 embedding said wires 2 and the upper portions of said beams, and provided with the depending ridges embedding said yokes 4 and the lower portions of said beams.

5. The combination with a series of beams, of a series of wires extended transversely through said beams, said wires being first set with slack, sliding tightening-links arranged to draw said wires taut by movements toward the said beams, and a body or sheet of concrete embedding the said wires and tighteners and portions of said beams.



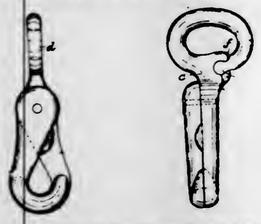
6. The combination with a series of metal beams, of a series of wires passed through said beams and crossed at their junctions with said beams, said wires being first applied with slack, the tightening-links 5 working on said wires to draw the same taut, when driven toward the secured or cross portions of said wires, and a body or sheet of concrete embedding the said wires and strengthened and supported thereby.

682,684. SNAP-HOOK. CHARLES HAKEMEYER, Paterson, N. J. Filed Oct. 22, 1900. Serial No. 33,805. (No model.)



Claim.—In a hook, the combination of two hook-shaped members adapted to coact in engaging another part, one of said members having a circular recess on the face thereof adjacent the other member and being also provided in the bottom of said recess with two elongated grooves or recesses intersecting in the center of the circular recess, a continuous annular projection on the other member extending into and snugly fitting the circular recess and being of a depth slightly greater than the depth of said circular recess and bearing with its face against the bottom thereof, a plate-spring secured to the annular projection-carrying member and provided with a diametrical crimp or bend adapted to cooperate with the intersecting grooves or recesses in the first-mentioned member, and a riveted pivot securing both members close together, all said parts substantially as and for the purposes described.

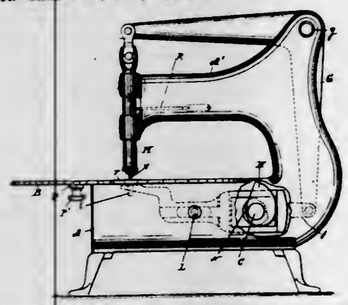
682,685. SNAP-HOOK. CHARLES HAKEMEYER, Paterson, N. J. Filed June 3, 1901. Serial No. 62,915. (No model.)



Claim.—1. A hook having an elongated projection at its attaching end bent into the form of a ring and provided at its free end with a bead, the body portion of said hook having a recess receiving, and provided with an entrance of less width than said head, substantially as described.

2. A hook having an elongated projection at its attaching end bent into the form of a ring and provided at its free end with a head, the body portion of said hook having a recess receiving, and provided with an entrance of less width than, said head, and the longitudinal axis of said recess being substantially at right angles to the line of strain in said hook, substantially as described.

682,686. PUNCHING-MACHINE. BENJAMIN F. HALL, Salem, Mass., assignor of one-half to Zina Goodell, same place. Filed May 10, 1901. Serial No. 59,565. (No model.)



Claim.—1. In a punching or perforating machine, in combination a frame A, and gooseneck A', a vertically-reciprocating die and die-carrier, a spring-pressed rotary presser-foot, a four-motion feed device, a reversible adjustable circular die-plate ring and a clamping-plate for securing said ring in its adjusted position substantially as and for the purpose set forth.

2. In a punching or perforating machine, in combination, a rotary driving-shaft, a knee-lever actuated by an eccentric on said shaft and connected to a reciprocating die-carrier, a pair of cams secured to said shaft, a pivoted feed-carrier actuated by said cam and a spring, and an adjustable feed-regulating device, consisting of an adjustable pivoted lever having one of its ends connected to a bar serving as a stop against the forward end of the feed-carrier substantially as and for the purpose set forth.

3. In a punching or perforating machine, in combination a vertically-reciprocating die-holder bar and die, a work-support, an adjustable die-plate ring and a spring-pressed rotary presser-foot arranged upon a yielding presser-foot bar, having secured to it a collar or projection 9, for limiting its downward motion so as to normally hold said presser-foot from contact with the table and feed-point of the feed device, substantially as herein set forth and described.

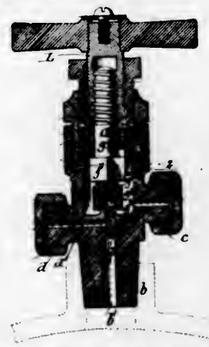
4. In a punching or perforating machine, in combination a vertically-reciprocating die-carrier and die, a spring-actuated presser-foot and a four-motion feed-point carrier actuated by a spring and a pair of cams and pivotally hung upon an eccentric-pin capable of rotary adjustment for adjusting the position of the feed-point relative to the top of the work-plate substantially as herein set forth and described.

682,687. WHEEL FOR BICYCLES. SAMUEL HAMBLEN, Hot Springs, Ark. Filed Oct. 29, 1900. Serial No. 34,762. (No model.)

Claim.—A vehicle-wheel consisting of an outer and an inner rim, the outer rim having a rubber tire fitted thereto, a series of metal bushings extending through openings in said inner rim, nuts on the threaded ends of said bushings, bolts passing through the outer rim and through the bushings, springs encircling the bolts, nuts on the ends of the bolts for adjusting the stress of the springs and detachable cups covering the springs, bolts and nuts, said cups being interiorly threaded to fit the threaded peripheries of the nuts on the ends of the bushings, substantially as described



682,688. VALVE. THOMAS J. HART, Buffalo, N. Y., assignor to Sherwood Manufacturing Company, same place. Filed May 3, 1897. Serial No. 634,866. (No model.)



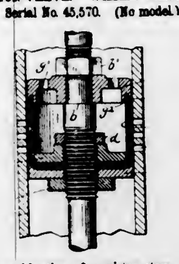
Claim.—1. The combination with the valve-body having a valve-seat and inlet and outlet passages, of a longitudinally-movable valve-stem arranged in a guide and provided with a valve and with an upwardly-facing shoulder, a follower surrounding the valve-stem above its shoulder and resting on a shoulder on said guide, a packing-ring resting on the follower and bearing against said stem and guide, and a rotary valve-spindle having a screw connection with said stem, whereby upon opening the valve fully the packing is compressed from below by the upward movement of the valve-stem, substantially as set forth.

2. The combination with a valve-body having a valve-seat and inlet and outlet passages, of a longitudinally-movable valve-stem arranged in a guide and provided with a valve and with a shoulder, a lower follower surrounding the valve-stem above its shoulder and resting on a shoulder on said guide, a packing-ring resting on the lower follower and surrounding the valve-stem, an upper follower resting on the packing and surrounding the valve-stem, and a rotary valve-spindle having a screw connection with the valve-stem and bearing against the upper follower, substantially as set forth.

3. The combination with the valve-body having a valve-seat and inlet and outlet passages, of a guide-sleeve provided with an external flange bearing against a shoulder on the body, a clamping-sleeve having a screw connection with the body and bearing against said flange, a longitudinally-movable valve-stem guided in the guide-sleeve and provided with a valve and with a shoulder, a lower follower surrounding the valve-stem above its shoulder and resting on an internal shoulder on the guide-sleeve, a packing surrounding the valve-stem and resting on the lower follower, an upper follower surrounding the valve-stem and resting on the packing, and a rotary valve-spindle having a screw connection with the valve-stem and bearing against the upper side of the upper follower, substantially as set forth.

4. The combination with the valve-body having a valve-seat and inlet and outlet passages, of a guide-sleeve provided with an external flange bearing against a shoulder on the body, a clamping-sleeve having a screw connection with the body and bearing against said flange, a longitudinally-movable valve-stem guided in the guide-sleeve and provided with a valve and with a shoulder, a lower follower surrounding the valve-stem above its shoulder and resting on an internal shoulder on the guide-sleeve, a packing surrounding the valve-stem and resting on the lower follower, an upper follower surrounding the valve-stem and resting on the packing, a rotary valve-spindle having a screw connection with the valve-stem and bearing against the upper side of the upper follower, and a thrust-sleeve bearing against the upper follower and having a shoulder bearing against a shoulder on the valve-spindle and a screw connection with said clamping-sleeve, substantially as set forth.

682,689. PISTON-VALVE. WILLIAM RENTON, Homestead, Pa. Filed Feb. 1, 1901. Serial No. 45,570. (No model.)



Claim.—1. The combination of a piston-stem, a leather cup, and disks embracing the stem and clamping the end of the cup between them, with a perforated metal disk secured upon said stem and having an annular groove which takes over the edge of said leather cup, substantially as specified.

2. The combination of a piston-stem having the external shoulder *b*, a leather cup, and two disks embracing the piston-stem and clamping the end of said cup between them, with a perforated metallic disk embracing the piston-stem and abutting against the shoulder *b*, and a nut *b'* which screws onto the piston-stem and clamps said perforated disk against said shoulder, said perforated disk having at its margin a cylindrical flange in the end of which is an annular groove which takes over the edge of said leather cup, substantially as specified.

682,690. ELECTRIC LAMP. PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Serial No. 11,605. (No model.)



Claim.—1. A lamp for producing light by electric energy consisting of an inclosing chamber, a gas or vapor contained therein capable, under proper conditions, of conducting currents of considerable quantity under the influence of moderate difference of potential, and a starting material also contained within the chamber and serving to convey a starting-current under the influence of a higher difference of potential.

2. In a gas or vapor lamp, the combination with a conducting vapor or gas constituting the sole path for the current while the lamp is in operation, of a starting material serving to permit the initial passage of the electric current through the lamp.

3. An electric lamp consisting of a hermetically-sealed inclosing chamber, electrodes within the same, means for securing electrical connection therewith, respectively, through the walls of the chamber, a vapor or gas contained within the chamber having, when traversed by an electric current, a resistance so varying with increments of current as to render it substantially self-regulating, and a steadying resistance in series with the lamp.

4. In an electric vapor or gas lamp, the combination of two electrodes located at or near the respective ends of the lamp, a conducting medium between the electrodes consisting of a vapor or gas which is light-emitting under the influence of electric currents of moderate potential, means for applying a preliminary higher difference of potential to the terminals of the lamp for creating a condition on the part of the conducting-vapor which will permit it to conduct currents of moderate potential, and means for thereafter operating the lamp by the currents of moderate potential.

5. In an electric lamp, the combination of an inclosing chamber, two electrodes, a conducting medium between the electrodes consisting of a vapor or gas which is light-emitting under the influence of electric currents of moderate potential, means for applying a higher difference of potential to the terminals of the lamp for producing a condition on the part of the vapor or gas which will render it conductive for currents of considerable quantity and moderate potential, and means for relieving the static charge at or near one of the electrodes caused by the action of the higher difference of potential.

6. In an electric lamp, the combination of an inclosing chamber, two electrodes, a conducting medium between the electrodes consisting of a vapor or gas which is light-emitting under the influence of electric currents of moderate potential, means for applying a higher difference of potential to the terminals of the lamp for producing a condition on the part of the vapor or gas which will render it conductive for currents of considerable quantity and moderate potential, and means for relieving the static charge at or near one of the electrodes caused by the action of the higher difference of potential consisting of a band of conducting material located near, but out of contact with, that electrode, and electrically connected with the other electrode.

7. A lamp for producing light by means of electric energy consisting of an inclosing chamber, a gas or vapor contained therein capable, under the proper conditions, of conducting currents of considerable quantity and moderate electromotive force, a starting material within the chamber facilitating the passage of current therethrough under the influence of higher differences of potential, a conducting-band surrounding the inclosing chamber near one of the electrodes of the lamp, and electric connections for leading off the electric charge produced therein under the influence of the electric currents of high differences of potential.

8. An electric lamp consisting of a transparent tube, a gas or vaper column contained therein, an electrode at the lower end thereof consisting wholly or in part of liquid, a metallic electrode at or near the upper end of said tube, a cooling and impurity-containing chamber surrounding the upper electrode, and means for securing electric connections with the respective electrodes through the wall of the lamp.

9. An electric lamp consisting of a transparent inclosing chamber, an electrode at or near one end of the chamber consisting wholly or in part of mercury, an electrode at or near the other end of the chamber consisting of a body of iron, and means for forming electrical connections with said electrodes through the wall of said chamber.

10. An electric lamp consisting of an inclosing chamber, electrodes within said chamber connected with each other through an intervening gas or vapor column, and a static-charge dissipator located near one of the electrodes but insulated therefrom and electrically connected with the other electrode.

11. An electric lamp consisting of an inclosing chamber and two electrodes at or near the respective ends of said chamber, one of said electrodes consisting of a solid body of not readily vaporizable material free from carbon and other materials liable to be given off thereby in injurious quantities by the operation of the lamp.

12. An electrode for electric lamps employing a vapor or gas as a conducting medium consisting of a quantity of mercury and a non-conducting wall constricting the path of the electric current between said vapor or gas and said mercury.

13. The combination with an electric lamp wherein light is produced by the passage of electric energy through a hermetically-inclosed gas or vapor, a source of electric currents of moderate difference of potential, connections from said source with the terminals of the lamp, a potential-raising device also connected with said source of electric currents, and means for applying the higher difference of potential produced by said device to the terminals of the lamp while the moderate potential is also applied.

14. The combination with an electric lamp in which light is produced by electric energy traversing a hermetically-inclosed vapor or gas,

a source of electric currents of moderate electromotive force, electric connections therefrom to the terminals of the lamp, and a potential-raising transformer having its secondary coil connected in the circuit leading to the lamp and its primary coil connected with the source of currents of moderate difference of potential, substantially as and for the purpose described.

15. The combination of an electric vapor or gas lamp having a gas or vapor path adapted to be rendered luminous by the passage of an electric current, said vapor path having a resistance so varying with increments of current employed for its operation as to render it substantially self-regulating, a circuit of low potential for the normal operation of the lamp, and a local circuit of higher potential part of which local circuit forms part of the circuit of low potential, the vapor path forming a part of both circuits.

16. The combination with an electric lamp in which light is produced by electric energy acting on a hermetrically-inclosed vapor or gas, a source of electric currents of moderate electromotive force, electric connections therefrom to the terminals of the lamp, and potential-raising transformer having its secondary coil connected in the circuit leading to the lamp and its primary coil connected with the source of currents of moderate difference of potential, with means on starting for shifting from the higher potential to the lower potential circuit, substantially as and for the purpose described.

17. The combination in an electric lamp in which light is produced by electric energy acting on a vapor or gas, a source of electric currents of moderate electromotive force, electric connections therefrom to the terminals of the lamp, a potential-raising transformer having its secondary coil connected in the circuit leading to the lamp and its primary coil connected with the source of currents of moderate potential, and an automatic circuit-interrupter for opening the circuit of the primary coil when currents of considerable quantity traverse the lamp under the influence of the normal electromotive force from said source.

18. The combination with an electric lamp in which light is produced by electric energy acting on a vapor or gas column, a source of electric currents of moderate electromotive force, electric connections therefrom to the terminals of the lamp, a potential-raising transformer having its secondary coil connected in the circuit leading to the lamp and its primary coil connected with the source of currents of moderate difference of potential, and means for producing rapid variations of current in the primary coil, thereby superposing a higher electromotive force upon the moderate electromotive force applied to the lamp.

19. The combination with an electric lamp in which light is produced by the conduction of currents through a path of vapor or gas, of a source of electric currents, connections therefrom with the terminals of the lamp, a converter having its secondary coil connected in said circuit with the lamp and having its primary coil connected with said source, means for rapidly magnetizing and demagnetizing the core of said transformer, a resistance shunt-circuit around the secondary coil of the transformer, and means for closing the connections of said shunt-circuit when the lamp is in operation.

20. The combination with an electric lamp in which light is produced by the conduction of currents through a path of vapor or gas, of a source of electric currents, connections therefrom with the terminals of the lamp, a converter having its secondary coil connected in circuit with the lamp, and having its primary coil connected with said source, means for rapidly magnetizing and demagnetizing the core of said transformer, a resistance shunt-circuit around the secondary coil of the transformer, means for closing the connections of said shunt-circuit when the lamp is in operation, and means for simultaneously interrupting the connections of the primary circuit.

21. The combination in an electric lamp in which a starting-current of higher electromotive force is required, of a transformer for producing such higher electromotive force having its secondary coil connected with the terminals of the lamp and its primary coil connected with a source of electric currents, connections from said source through the secondary coil, and a circuit-interrupting device for the primary coil operated by the magnetization of the core of the converter under the influence of operating-currents traversing the lamp.

22. The combination with a lamp for producing light by the conduction of electric currents through a hermetically-inclosed vapor or gas path, of a source of high difference of potential and a source of moderate difference of potential, means for connecting the lamp with the source of high difference of potential for starting the lamp and with the source of moderate difference of potential for operating the lamp.

23. The combination with an electric lamp, two sources of electromotive force, means for connecting said sources in series for starting the lamp and means for connecting the lamp with one of said sources for operating it when started.

24. The combination with an electric lamp having a light-emitting material consisting of a hermetically-inclosed vapor or gas capable of emitting light under the influence of currents of moderate potential, a source of electric currents, means for connecting the lamp with said source, means for creating from the moderate potential currents of higher potential, means for applying the higher potential to the lamp for starting it, and means for discontinuing the high potential when the lamp is started.

25. The combination with an electric lamp comprising an inclosing chamber and a vapor or gas forming a path for the current between the electrodes of the lamp, of a transformer, means for causing independent variations in the current traversing the primary coil of the transformer, and circuit connections through the secondary coil of the transformer with a source of electric currents.

26. The combination with an electric lamp comprising an inclosing chamber and a vapor or gas forming a path for the current between the electrodes of the lamp, of a transformer, means for causing independent variations in the current traversing the primary coil of the transformer, connections through the secondary coil of the transformer with a source of electric currents, and means for interrupting the flow of currents through the primary coil.

27. The combination with an electric lamp having a hermetically-inclosed gas or vapor path, of a circuit leading to the terminals thereof, a transformer the secondary coil of which is included in said circuit, means for causing a rapidly-carying current to traverse the primary of the transformer, and means for interrupting the circuit of said primary coil, by the action of current flowing through the lamp.

28. The combination with an electric lamp of the character described, of a circuit leading to the terminals thereof, a transformer the secondary coil of which is included in said circuit, means for causing a varying current to traverse the primary of the transformer, means for interrupting the circuit of said primary coil by the action of currents of lower potential flowing through the lamp, and means for cutting the secondary coil out of circuit when the lamp is operating.

29. The combination with a lamp of the character described, of a permanent source of electric current connected to the terminals of the said lamp through the secondary of a transformer, a second circuit from the said source, including the primary of the said transformer, and means for varying the current in the said primary and afterward cutting out the circuit of the primary by the action of the current passing through the lamp.

30. The combination with an electric lamp, of a main supply-circuit, connections therefrom through the secondary coil of a transformer with the terminals of the lamp, a primary coil for the transformer, a circuit-interrupter, means for connecting said primary coil and circuit-interrupter with the supply-circuit, and means for interrupting the primary-coil circuit by the action of currents supplying the lamp.

31. The combination of a translating device, a source of current, a transformer having one coil connected in series with the translating device and with the source of current, means for creating independent time variations in the supply-current traversing the other coil, whereby the electromotive force of the current in the first-named coil is modified, and a device for automatically cutting out the means for creating the independent time variations, through the instrumentality of currents passing through the translating device.

682,691. **METHOD OF OPERATING ELECTRIC LAMPS.** PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Serial No. 11,606. (No model.)

Claim.—1. The method of starting a vapor-lamp comprising a vapor-containing chamber and a vapor or gas contained therein which consists in applying to the terminals thereof a higher difference of potential, thereby creating a conducting condition through the vapor or gas and thereafter operating by currents of lower potential.

2. The hereinbefore-described method of producing light by electric energy through the agency of an apparatus consisting of a closed chamber containing a vapor capable of emitting light under the influence of electric currents and also a material more readily subject to the action of electric currents than said vapor, which consists in first transmitting currents through the device by the instrumentality of one of the materials contained therein and thereafter transmitting currents through the instrumentality of the other contained material.

3. The method of producing light by electricity through the instrumentality of a closed vessel containing gas or vapor or vaporizable substance, which consists in first transmitting a current through the chamber by such current establishing a path for currents of lower potential and thereafter traversing the lamp by such currents of lower potential and of approximately constant quantity.

4. The hereinbefore-described method of operating electric lamps in which light is produced by the conduction of electric energy through a light-emitting gas or vapor which consists in operating upon a starting material within the lamp by electric currents, thereby producing a condition on the part of the light-emitting vapor or gas which renders it capable of receiving currents under the influence of a moderate potential, thereafter operating the lamp by the conduction of currents through the light-emitting gas or vapor to the exclusion of the starting material.



5. The method of operating electric lamps in which electric energy is converted into light by its passage through a vapor or gas path which consists in producing a condition of the vapor or gas path under which it will convey currents of moderate differences of potential, by first passing through the vapor or gas path currents of higher electromotive force and then automatically discontinuing the application of the currents of higher electromotive force.

6. The method of starting electric lamps which convert electric energy into light by the passage of electric currents through a gas or vapor column, which consists in heating the vapor or gas column, penetrating the same by currents of high difference of potential and thereafter operating the lamp by currents of considerable quantity and moderate difference of potential.

7. The hereinbefore-described process of operating electric lamps having a vapor-containing chamber, a vapor or gas within the same and a starting material, which consists in traversing the chamber by currents of a high difference of potential, simultaneously neutralizing the static charge upon the exterior of the chamber and thereafter traversing the chamber by currents of moderate potential.

8. The method of starting and operating a lamp containing a vapor or gas as the conducting medium, which consists in applying to the lamp a current of high potential while the lamp is connected up in a commercial circuit, and afterward cutting off the high-potential current.

682,692. **METHOD OF MANUFACTURING ELECTRIC LAMPS.** PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Serial No. 11,607. (No model.)

Claim.—1. The hereinbefore-described method of manufacturing electric lamps in which light is produced by the action of electric currents upon a vapor or gas which consists in heating the containing-chamber of the lamp by applied heat, exhausting the air and deleterious gases therefrom, heating the electrodes within the lamps by electric currents, introducing or forming the vapor or gas designed to constitute the light-emitting body and causing electric currents to traverse it and then closing the chamber substantially as described.

2. The method of manufacturing electric lamps in which light is produced by the action of electric currents upon a vapor or gas, which consists in introducing or forming into a containing-chamber the desired conducting vapor or gas and an additional substance yielding a starting material, heating the tube and exhausting air and vapor therefrom, causing a relatively high potential electric current to traverse the tube during a portion of the process of exhausting and then causing a current of considerable quantity and moderate electromotive force to traverse the tube while continuing the process of exhaustion and thereafter sealing off the tube.

3. The process of manufacturing lamps adapted to produce light by the action of electric currents, which consists in placing within an inclosing chamber a quantity of material adapted to afford a vapor which becomes light-emitting under the influence of electric currents of moderate potential and considerable quantity, adding thereto a quantity of material capable of imparting to the device the capacity of being traversed by electric currents, exhausting the atmosphere and impurities from the lamp and simultaneously heating the lamp by external heat and thereafter by the passage of electric currents.



4. The method of manufacturing lamps in which light is produced by electric energy acting upon a vapor or gas path, which consists in heating the elements of the lamp, exhausting the foreign substances therefrom, applying a sufficient difference of potential to the electrodes of the lamp during the process of exhaustion to cause the open space between the electrodes to be traversed by currents, varying the resistance of the lamp until currents of considerable quantity traverse the lamp at a moderate electromotive force, and thereafter sealing off the lamp.

5. In the process of manufacturing lamps having a vapor or gas path, the method of treating the electrodes during the process of exhaustion which consists in heating the electrodes by electric arcs formed at the junction of the gas or vapor with the electrodes.

6. The method of driving off occluded gases and foreign substances and producing chemical reactions within a lamp having a vapor or gas path, during the process of manufacturing the same, which consists in heating the electrodes within the lamp during the process of exhaustion by means of electric currents so applied as to render the electrode to be heated for the time being a cathode.

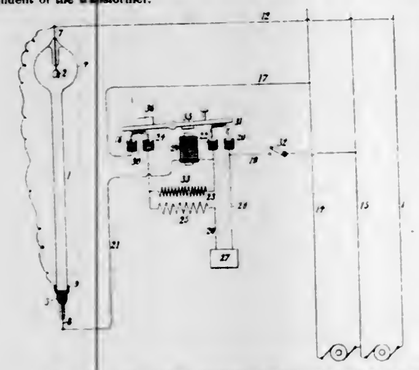
7. The method of manufacturing lamps, which consists in varying the density of the gas or vapor in the lamp while it is subject to the action of an electromotive force substantially the same as that with which the lamp is intended to operate, and also temporarily to a higher electromotive force, continuing such operation until the gas or vapor attains a standard luminosity and thereafter sealing off the lamp.

8. The method of manufacturing lamps having a vapor or gas path, which consists in applying a high alternating or interrupted difference of potential to its electrodes and gradually varying the resistance of the lamp by varying the density of pressure of the gas-path until a current of desired quantity traverses the lamp under the influence of the lower electromotive force with which the lamp is designed to operate.

682,693. **STARTING APPARATUS AND CIRCUIT FOR ELECTRIC LAMPS.** PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Serial No. 11,613. (No model.)

Claim.—1. The combination with a vapor or gas lamp of the character described, of a system of apparatus and circuits for starting and operating the same comprising a circuit-interrupter and a transformer for inducing a starting potential, means for applying a starting potential to the terminals of the lamp, an electromagnet included in the circuit of the

lamp, and means operated thereby for closing a circuit to the lamp independent of the transformer.



2. The combination with a lamp inclosing a vapor acting as a conductor, of means for applying a constant difference of potential to its terminals, a circuit-interrupter, a transformer for temporarily raising the potential at the terminals of the lamp, and means for closing a second circuit to the lamp independent of the transformer and the circuit-interrupter.

3. The combination of a vapor or gas lamp requiring a starting-current of higher potential than the operating-current, a three-wire main supply-circuit, means for applying a difference of potential to the terminals of the lamp from the outer wires of the three-wire system, a circuit-interrupter and a transformer connected between the middle wire and one of the outer wires of the three-wire system, and means for applying the difference of potential produced by the transformer to the terminals of the lamp.

4. The combination with a device requiring an initial current of higher potential than the operating-current, a three-wire system of distribution, means for connecting said device between the outer wires of said three-wire system, a transformer having its primary coil connected upon one side of said three-wire system, means for applying the difference of potential induced in said transformer to said device, means for interrupting the connections of the transformer and simultaneously transferring said device to one side of said three-wire system.

5. The combination of a three-wire supply-circuit, a gas or vapor lamp having one terminal connected with one side of said system, a transformer through which connections are formed from the other side of said system to the other terminal of the lamp and through the secondary coil of which transformer the last-named conductor is connected with the middle wire of said system, a circuit-interrupter in the last-named connections, and means for opening the circuit leading to the transformer-coils and closing a circuit to the lamp independently thereof from the middle wire of said system.

6. In an apparatus for applying a starting-current to an electric lamp, a potential-raising device included in the circuit at starting and an electromagnet included in the operating-circuit of the lamp acting when traversed by operating-currents to close the circuit of the lamp through a third circuit independently of the potential-raising device.

7. The combination with an electric lamp, of a source of electric current with which the lamp is connected at starting, a starting device connected with said source, and means for transferring the lamp to a source of still lower electromotive force when the lamp is in operation.

8. The combination with an electric lamp, of a source of electric currents for operating the lamp after it is started, means for applying to the terminals of the lamp a higher difference of potential at the time of starting, and means for transferring the lamp when in operation to a still lower potential source.

9. The combination of a translating device, means for applying three different electric pressures thereto, means for starting the translating device in connection with the intermediate pressure by means of the highest pressure, and means for transferring the translating device when in operation to the source of lowest pressure.

10. The combination of two electric circuits of different pressures, an electric lamp, means for boosting the higher-pressure circuit for starting the lamp on the higher-pressure circuit, means for shifting the lamp from the high-pressure circuit when started to the low-pressure circuit, and means for shifting the lamp-circuit from the low pressure to the high pressure when extinguished.

11. The combination of a translating device, means for applying three different electric pressures thereto, means for starting the translating device in connection with the intermediate pressure by means of the highest pressure, means for transferring the translating device when in operation to the source of lowest pressure, and means for automatically disconnecting the translating device from the source of the higher pressure.

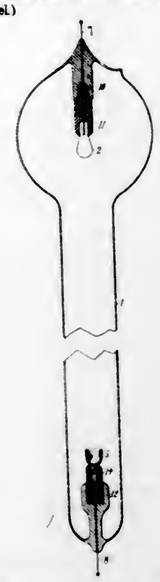
12. The combination with an electric lamp in which electric light is produced by the conduction of currents of considerable quantity and moderate electromotive force through a gas or vapor path, of a three-wire system of distribution, electric connections from the outside wires of said three-wire system to the terminals of the lamp, and means for connecting the lamp between the neutral conductor and one of the outside conductors of said system when the lamp is in operation.

13. The combination with an electric lamp in which electric light is produced by the conduction of currents of considerable quantity and moderate electromotive force through a gas or vapor path, of a three-wire system of distribution, electric connections from the outside wires of said three wire system to the terminals of the lamp, and means for automatically connecting the lamp between the neutral conductor and one of the outside conductors of said system when the lamp is in operation.

14. The combination with an electric lamp in which electric light is produced by the conduction of currents of considerable quantity and moderate electromotive force through a gas or vapor path, a three-wire system of distribution, electric connections from the outside wires of said three-wire system to the terminals of the lamp, and means for automatically connecting the lamp between the neutral conductor and one of the outside conductors of said system when the lamp is in operation.

682,694. ELECTRIC GAS OR VAPOR LAMP AND ELECTRODE THEREFOR.

PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Serial No. 11,616. (No model.)



Claim.—1. The combination of a closed chamber, a gas of such density as to convey currents of considerable quantity under moderate pressures, an electrode, and a protecting-sleeve of non-conducting material, substantially as described.

2. In a gas or vapor lamp comprising two electrodes and a conducting vapor or gas between the electrodes, a protected electrode comprising an exposed conducting-surface, and a sleeve or covering of insulating material protecting the remaining portion of the electrode, substantially as described.

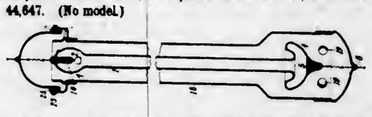
3. In a gas or vapor lamp, an electrode having an exposed conducting-surface, a sleeve or covering of insulating material protecting the remaining portion of the electrode, and a non-conducting supporting-pillar for the sleeve composed of a different material therefrom.

4. In an electric lamp having a vapor or gas path of such density as to conduct currents, an electrode having an exposed portion, a non-conductor surrounding the conductor leading to the electrode for protecting said conductor, consisting of a material inert to chemical reactions within the lamp and forming an electrically-tight joint therewith.

5. The combination of a closed chamber, a gas of such density as to convey currents of considerable quantity under moderate pressure, an electrode, and a protecting-sleeve of non-conducting material for the same, said sleeve being a non-conductor at high temperatures and also being in electrically-tight connection with the wall of the vessel.

682,695. METHOD OF CONTROLLING GAS OR VAPOR ELECTRIC LAMPS.

PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Jan. 25, 1901. Serial No. 44,647. (No model.)



Claim.—1. The method of maintaining an approximately definite resistance on the part of a lamp having a vapor or gas path, which consists in heating the gas or vapor, by the passage of the electric current therethrough, to such a temperature that the region of greatest conductivity is between the axis of the path and the circumference thereof, and producing a rate of heat radiation equal to that of the heat development at a predetermined temperature.

2. The method of producing light by the passage of current through a gas or vapor path, which consists in generating heat by the passage of electric current through the vapor or gas path, thereby modifying the density of the vapor or gas, and maintaining that density at the required degree by radiating heat therefrom at the same, or approximately the same, rate as heat is developed therein by regulation of the surroundings.

3. The method of controlling the resistance of an electric lamp having a vapor or gas path and a definite heat-radiating capacity, which consists in passing current through the vapor or gas path thereby generating heat, and radiating the heat thus developed at such rate as to maintain the temperature and thereby the vapor density at a predetermined degree.

4. The method of controlling the resistance of an electric lamp having a vapor or gas path and a definite heat-radiating capacity, which consists in passing electric current through the gas or vapor in such quantity as to develop heat within the limits of the heat-radiating capacity of the lamp, and thereby maintaining the temperature and the vapor density at a predetermined degree.

5. The method of controlling the resistance of an electric lamp having a vapor or gas path, and a definite heat-radiating capacity, which consists in mutually correlating the current flowing and the heat radiated by the lamp so as to maintain a predetermined vapor or gas density in the conducting-vapor, whereby the rate of heat radiation from the lamp is made dependent upon the resistance offered by the vapor or gas path, to the current flowing.

6. The method of operating electric gas or vapor lamps of the character described, which consists in governing the resistance of the lamp by the density of the vapor or gas path, governing that density by the temperature thereof, and governing such temperature by the heat-emissive capacity of the lamp.

7. The method of operating a gas or vapor lamp of the character described, which consists in governing the current flowing therethrough by the resistance of the lamp, governing the resistance by the vapor temperature, and controlling the vapor temperature by the heat radiation of the lamp.

8. The method of controlling the current flowing through a gas or vapor lamp of the character described, which consists in controlling the temperature of the lamp by predetermining the heat-radiating capacity, thereby controlling the density of the gas or vapor path and thereby controlling the resistance of the gas or vapor path, whereby the current flowing is controlled at definite voltage.

9. The method of controlling the varying resistance of a vapor carrying current, which consists in maintaining the heating effect of the current approximately constant by means of varying the heat-abstracting power of the surroundings in direct ratio to the current passed.

10. The method of varying the current passed by an inclosed vapor passing current at constant voltage, which consists in varying the heat-abstracting power of the surroundings with the current used so as to maintain the ratio of vapor resistance to vapor temperature approximately constant.

11. The method of manufacturing a gas or vapor lamp of the character described, which consists in inclosing a suitable gas or vapor, and so proportioning the length and cross-section of the inclosing chamber to the contained gas or vapor that the cooling effect of the chamber will equal the heat-absorbing capacity of the gas or vapor for a determined temperature.

12. The method of producing and maintaining light by the passage of electric current through a gas or vapor path, which consists in confining the gas or vapor within definite limits suited to the density to be maintained, modifying the density of the gas or vapor by the passage of the current until a suitable operating density is obtained, and maintaining the density at the required degree by radiating heat from the gas or vapor at the same or approximately the same rate as heat is developed therein at a definite temperature.

13. The method of producing and maintaining light by the passage of electric current through a gas or vapor path, which consists in heating the gas or vapor by the passage of the current and thereby modifying the density until a suitable operating temperature is obtained, and maintaining such density by giving to the lamp a capacity for radiating heat from the gas or vapor at approximately the same rate as heat is developed therein at said temperature.

14. The method of adapting a gas or vapor to pass electric current on a constant-potential circuit, which consists in heating the gas or vapor by the passage of the current modifying its density and so confining the gas or vapor and disposing the surrounding parts that the thermal conditions within the confining-chamber remain practically constant.

15. The method of producing and maintaining light by the passage of electric current through a gas or vapor path, which consists in developing heat by the passage of the current through the gas or vapor and nullifying or offsetting the heat developed by the passage of the current after the limit of efficient operation has been reached by the radiation of heat at an equal rate through a proper dimensioning and disposition of the surrounding parts.

16. The method of producing and maintaining light by the passage of electric current at definite voltage through a gas or vapor path which consists in first confining the gas or vapor within a container of appropriate heat-radiating capacity; producing in the gas or vapor a density suitable for efficient working and then causing the thermal conditions within the gas or vapor to operate automatically in opposition to an abnormal change of the density selected.

17. The method of controlling the resistance of a gas or vapor lamp for increasing or decreasing the lighting capacity of the lamp, which consists in varying the heat-abstracting capacity of the surroundings of the lamp and thereby varying the current consumption.

18. The method of producing light, which consists in inclosing a gas or vapor within such limits as to predetermine its normal density as suited to a definite current, and rendering the vapor light radiant by the passage of electric current to which it is adapted.

19. The method of producing light, which consists in inclosing a vapor-producing material within such limits as to predetermine the normal density as suited to a definite current, creating a vapor from such material by heat, and rendering the said vapor light radiant by the electric current to which it is adapted.

20. The method of producing light, which consists in inclosing a vapor within such limits as will produce a normal density adapted to give it a definite low resistance, and passing through such vapor, as the sole conducting medium, a current of electricity of considerable quantity and of a voltage adapted to the resistance of the vapor.

21. The method of producing light, which consists in inclosing a vapor-producing agent within such limits as will give to the produced vapor a normal density adapted to produce low resistance, developing vapor from such agent by heat, and passing through such vapor, as a sole conducting medium, an electric current of considerable quantity and of a voltage corresponding to the low resistance of the vapor.

22. The method of producing light, which consists in inclosing a vapor-producing agent within such limits as will give to the produced vapor a normal density adapted to produce low resistance, passing an electric current through the said agent to first produce vapor of the normal density from it and then bringing said vapor into a light-radiant condition by means of electricity.

23. The method of producing light, which consists in inclosing a volatilizable substance within such limits as will cause the vapor produced therefrom to be of a density near its point of lowest resistance to an electric current, subjecting the substance to heat and thereby developing vapor, and passing into the vapor an electric current of low voltage.

24. In the production of light, the method of removing vaporous impurities from a light-radiant inclosure, which consists in volatilizing an inclosed vapor-producing agent by the passage of an electric current, and permitting the vapor so formed to drive vaporous impurities in the inclosure to a point outside the influence of the current.

25. The method of causing an incipient change in resistance in a vapor carrying current to be counteracted, which consists in causing the variation of temperature created by reason of change in the current due to such incipient change in the vapor resistance, to vary the density of the vapor carrying current sufficiently to correct the change of resistance.

26. The method of securing a variation of resistance of a vapor carrying current at definite voltage in a prescribed manner to the current passed, which consists in inclosing the vapor in a container of predetermined dimensions with respect to the current and so having a definite

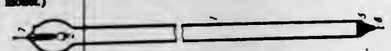
heat-radiating capacity, and causing the current to create varying densities in different parts of the container due to the heating effect of the current.

27. The method of controlling the current passed at constant voltage by a vapor carrying current, which consists in inclosing the vapor, passing current therethrough, thereby developing heat therein, and so adjusting the surroundings that the density of the vapor carrying current in different parts of the container will vary with variations in the cross-section of the vapor traversed by the current.

28. The method of securing the control of the current passed by a conducting-vapor at constant voltage, which consists in limiting the cross-section and length of the conducting-vapor, thereby predetermining the heat-radiating capacity of the apparatus, and causing the resistance of the vapor to vary by reason of the ratio of the heat generated by the current to the rate of heat radiated by the vapor to the surroundings.

682,696. METHOD OF PRODUCING LIGHT BY ELECTRICITY.

PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Jan. 26, 1901. Serial No. 44,643. (No model.)



Claim.—1. The method of controlling the resistance of a lamp having a gas or vapor path, which consists in maintaining the density of the vapor or gas path approximately constant under a given voltage by varying the heat radiation of the lamp directly with variations in the current flowing.

2. The method of adapting a gas or vapor electric lamp to be operated by an approximately constant voltage, which consists in so correlating the vapor density and the heat-radiating capacity of the lamp that any increase of current and consequently of temperature in the vapor will be compensated for by the radiation of heat whereby the current will be cut down and normal conditions be restored.

3. The method of compensating for the increase of current due to a decrease of resistance in the operation of a gas or vapor electric lamp, which consists in creating a variable ratio between the heat absorbed by the vapor, due to the effects of current, and the heat radiated by the lamp.

4. The method of varying the luminous effect of a gas or vapor electric lamp, which consists in confining a gas or vapor in a suitable container, passing an electric current through it, and exposing the container to varying temperatures.

5. The method of correlating gas or vapor lamps containing a vapor or gas of definite variable resistance and having a definite length, for use upon circuits of different voltages, which consists in giving to the lamps a cross-section whose diameter varies approximately inversely with the voltage with which they are to be used.

6. The method of constructing a lamp having as a conductor a gas or vapor of definite variable resistance, for use in connection with any desired voltage and current, which consists in giving to the lamp a length whose ratio to the diameter bears a direct relation to the ratio of the voltage with which it is to be used, to the current which it is to consume.

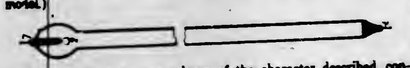
7. The method of correlating vapor or gas electrical resistance and electric energy for commercial use which consists in adjusting each with respect to the other as expressed by the formula

$$\frac{V}{C}=R=\frac{l}{d}g.$$

in which V represents the voltage, C the current, R the electrical resistance, d the diameter of cross-section of conducting vapor or gas, l the length of current path in vapor or gas, and g the electrical resistance factor for any particular vapor or gas; and where the electrical resistance is a function of the density of the vapor or gas and the resistance of the vapor or gas is understood to increase with increase or decrease of density from the density of maximum conductivity, and it is understood that the density will vary as if by reason of the temperature and pressure and that the density may be varied as specified.

682,697. APPARATUS FOR PRODUCING ELECTRIC LIGHT.

PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Jan. 25, 1901. Serial No. 44,649. (No model.)



Claim.—1. A gas or vapor lamp of the character described, consisting of electrodes, a gas or vapor path between them, and an inclosing chamber for said electrodes and gas or vapor path, consisting of a transparent wall, the exterior surface of said wall being so proportioned to the heat-developing capacity of the lamp, under normal operation, as to radiate heat at the proper rate to maintain such a density on the part of the gas or vapor path that the product of its resistance into the current flowing therethrough shall remain approximately constant.

2. In an electric lamp having a gas or vapor path rendered luminous by the conduction of current therethrough, an anode, a cathode, a conducting-path composed during the operation of the lamp of a conducting gas or vapor having definite dimensions and density with respect to the voltage and current employed, and an enlarged chamber surrounding the cathode, a portion of such enlarged chamber lying outside the conducting-path.

3. In an electric lamp having a gas or vapor path adapted to be rendered luminous by the passage of an electric current, an anode, a cathode, and a conducting-path composed, during the operation of the lamp, of a vapor having definite dimensions and density with respect to the voltage and current to be employed.

4. In an electric lamp having a gas or vapor path, a heat-radiating surface so proportioned to the resistance of the lamp and the current carried thereby at definite voltage, that the temperature of the lamp shall be maintained at such a point as to render the density of the vapor in the path of the current approximately constant.

5. In a vapor or gas lamp of the character described in which the gas or vapor path requires to be maintained at an approximately definite ratio of density, the combination of an inclosing chamber, and means for giving to that chamber such a heat-abstracting capacity that the heat abstracted will be equal to the heat generated by the current passing through the lamp at different temperatures, substantially as described.

6. In a gas or vapor electric lamp, the combination with a vapor having a definite density and heat-absorbing capacity, of a container for the said vapor having a heat-radiating capacity equal to the heat-absorbing capacity of the vapor at a definite temperature for a definite amount of current, the density being predetermined with relation to the current to be employed so as to be made luminous thereby.

7. In a gas or vapor lamp of the character described the combination with a vapor having a definite heat-absorbing capacity of a container for said vapor, and means for varying at will the heat-radiating capacity of the container, and thereby varying the current consumed by the lamp.

8. As an article of manufacture, a lamp consisting of a tube or other suitable container holding a vapor or gas of comparatively low resistance, the density of the vapor or gas being approximately that of maximum conductivity for the electrical current passed, whereby it is adapted to pass a definite electric current.

9. As an article of manufacture, a lamp consisting of a tube or other suitable container, a volatile electrode therein provided with electrical connections for volatilizing the same to form a sole conductor of low resistance, the density of such conductor being approximately that of maximum conductivity for the electrical current passed, whereby it is adapted to pass a definite electrical current.

10. In a light-producing device, a container, a gas or vapor in the container, fixed electrodes in the container and suitable electrical connections thereto, the vapor or gas acting as the sole path for the electric current and having a density approximately that of maximum conductivity for the electrical current passed, whereby it is adapted to pass a definite current of considerable quantity and low voltage between the electrodes, said gas or vapor being light-radiant on the passage thereof, the container inclosing a space lying outside the path of the electric current.

11. An electric lamp consisting of an inclosing chamber, a vapor or gas contained therein and capable of conducting currents, two electrodes located at or near the respective limits of the vapor or gas, said chamber having such dimensions as to render the heat-radiating capacity of the lamp commensurate with its heat-generating capacity when in operation.

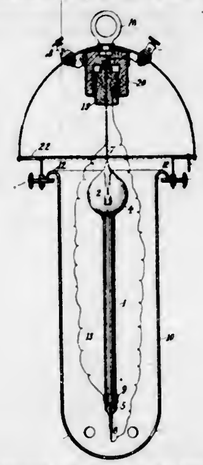
12. An electric lamp consisting of an inclosing chamber, a vapor or gas contained therein and capable of conducting currents, two electrodes located at or near the respective limits of the vapor or gas, said electrodes being substantially deprived of such matter as would offer a high resistance to the passage of electric current between themselves and the vapor or gas and said chamber having such dimensions as to render the heat-radiating capacity of the lamp commensurate with its heat-generating capacity when in operation.

682,698. INCLOSING CASE FOR ELECTRIC LAMPS.

PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Renewed Apr. 30, 1901. Serial No. 58,184. (No model.)

Claim.—1. The combination with a vapor or gas lamp having two electrodes and a vapor path between them and whose current consumption is varied by its temperature, of an inclosing case having draft-openings for varying the current consumption of the lamp through the heat radiation.

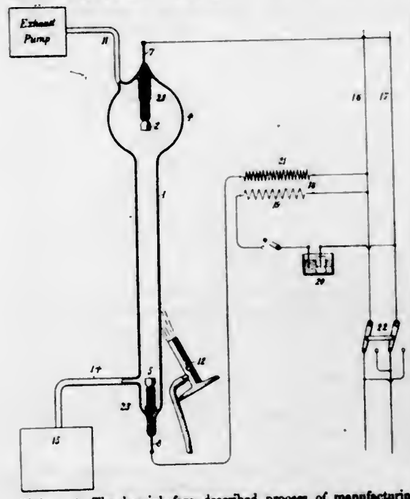
2. The combination with a vapor or gas lamp whose current consumption is varied by the temperature of the lamp, of a protecting-case consisting in whole or in part of transparent material having ventilating-openings, means for holding the lamp therein, means for making electrical connection with the lamp, means for supporting the same, and means for varying the heat-radiating capacity of the case.



3. The combination with a vapor or gas lamp of the character described, of a protecting-case consisting of transparent material, having ventilating-openings, a cap for the said case containing a support for the lamp, the said support carrying means for making electrical connection with the lamp, and means for varying the heat-radiating capacity of the case.

682,699. METHOD OF MANUFACTURING VAPOR OR GAS LAMPS.

PETER C. HEWITT, New York, N. Y., assignor to Peter Cooper Hewitt, trustee, same place. Filed Apr. 5, 1900. Renewed May 2, 1901. Serial No. 58,510. (No model.)



Claim.—1. The hereinbefore-described process of manufacturing lamps having a gas path, which consists in heating the containing-chamber, exhausting the gaseous contents therefrom, washing the chamber with a gas of the same character as that with which it is to be provided, subjecting the interior of the chamber and the electrodes to the action of electric currents, creating within the chamber such a density as will permit the gas to receive currents of considerable quantity under the influence of moderate electromotive force, and then sealing off the lamp.

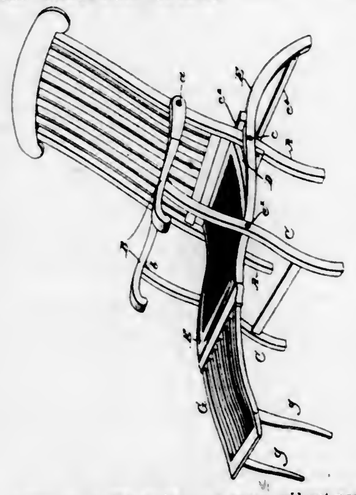
2. In the process of manufacturing lamps having gas or vapor serving as a path for the current between the electrodes, the method of cleaning the lamp which consists in electrically heating the electrodes and washing the lamp by a gas or vapor of the same character as that which is to constitute the gas or vapor path when the lamp is complete.

3. The process of producing within a gas electric lamp the required density of gas which consists in first thoroughly cleansing the lamp from deleterious materials and then providing within the lamp an excess of the gas, gradually reducing the density of the same, and applying an electromotive force of moderate potential and superposing alternating or intermittent currents of higher potential to the terminals of the lamp until such a density is attained that currents having the lower potential will traverse the lamp, and thereafter sealing off the inclosing chamber of the lamp.

4. The method of producing within a gas electric lamp the density of the gas required for operating the lamp under the influence of moderate electromotive force, which consists in thoroughly cleansing the lamp, applying to the terminals of the lamp an electromotive force of higher voltage than that with which the lamp is intended to operate and applying a difference of potential approximately the same as that with which the lamp is designed to operate, gradually changing the density of the gas within the containing-chamber until currents traverse the lamp under the influence of the lower electromotive force, substantially as described.

682,700. CHAIR.

RUFUS HOLMAN, Boston, Mass. Filed Nov. 15, 1900. Serial No. 36,594. (No model.)



Claim.—1. A chair having a seat-support, said seat-support being provided at the front and rear of the chair with cross-bars, each having a rabbet formed therein, a curved seat-frame, the front and rear ends of which enter said rabbets, and means for detachably confining the ends of said seat-frame in the rabbets of the front and rear cross-bars.

2. A chair having a seat-support provided with cross-bars, said cross-bars being rabbeted, a seat-frame of concavo-convex shape in the direction of its length, two opposite edges of which enter the rabbets of the cross-bars respectively to support said seat-frame from said two opposite edges, and means engaging the said opposite edges of the seat-frame and the cross-bars for detachably connecting the seat-frame to the cross-bars.

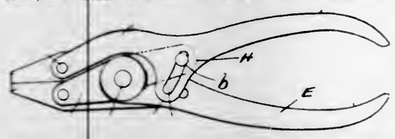
3. A chair having a seat-support, said seat-support being provided at the front and rear of the chair with cross-bars, each having a rabbet formed therein, and a seat-frame curved in concavo-convex form in the direction of its length, the front and rear ends of which at the extremities of the curvature enter said rabbets, and means for detachably confining the ends of said seat-frame in the rabbets of the front and rear cross-bars.

4. A chair having a seat-support provided with rabbeted cross-bars at the front and rear thereof, and a seat-frame curved in the direction of its length, the ends of which enter said rabbets, and means for confining said seat-frame detachably in working position, the endmost cross-bars of said frame having a bead to conceal the line of junction of said seat frame and support.

5. In a chair, a seat-support provided with rabbeted cross-bars, front and back legs loosely jointed thereto, and a seat-frame concaved at its upper side between said front and back legs, and said seat being convexed at its front and beyond the outer faces of the front legs, the ends of said seat-frame being detachably secured in the rabbets of the cross-bars.

6. In a chair, supporting-legs, a seat-support extending from the rear of the back legs to a point beyond the front legs and looseiy jointed to both the front and back legs, cross-bars carried by said seat-support one in rear of the back legs and the other in front of the front legs, a seat-frame concavo-convex in form extending from one cross-bar to the other and supported at its front and rear ends thereby, and means to detachably connect the seat-frame to said cross-bars.

682,701. LOCKING-PLIERS. MATTHEW M. HOWLAND, Providence, R. I. Filed Feb. 1, 1901. Serial No. 45,571. (No model.)



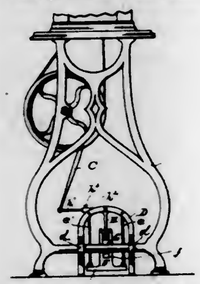
Claim.—1. In self-locking pliers, the combination of an upper jaw, a lower jaw with an extension or bar rearwardly projecting therefrom, a central pivot to connect said jaws together, an operating bar or handle pivoted to said upper jaw forward of said central pivot and having a slot in it back of said central pivot, a locking-pin held in said extension of the lower jaw and projecting through and moving in said slot in the operating-bar, substantially as described.

2. In self-locking pliers, the combination of an upper jaw, a lower jaw with an extension or bar rearwardly projecting therefrom, a central pivot to hold said jaws together, an operating bar or handle pivoted to said upper jaw forward of said central pivot, a friction locking-pin extending through said extension and operating bar or handle, a suitable slot or frictional bearing-surface for said pin to work on made in one of said parts, substantially as described.

3. In self-locking pliers, the combination of an upper jaw, a lower jaw with an extension rearwardly projecting therefrom, a central pivot to hold said jaws together, an operating bar or handle pivoted to said upper jaw forward of said central pivot, with means for automatically locking said operating-bar and said lower jaw in any desired position against any force applied to the front ends of the jaws to open them, substantially as described.

4. In self-locking pliers, the combination of a pair of plier-jaws held together by a central pivot, an operating bar or handle pivoted to the upper jaw before said central pivot, a pin-and-slot connection between said operating-bar and the lower jaw back of said central pivot, substantially as described.

682,702. SEWING-MACHINE TREADLE. WILLIAM E. HOYT, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,393. (No model.)

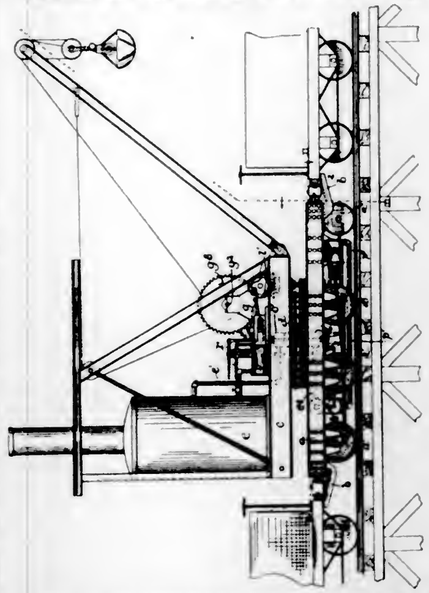


Claim.—1. In a machine-treadle, supporting-frames secured to a treadle-board, links pivotally secured to the frames and to the treadle-board whereby the board will be capable of a to-and-fro movement parallel with the floor, a standard secured to the treadle-board having a slot forming a guide, a block having reciprocating movement in the slot and a bell-crank pivoted to one of the frames and having its lower end pivoted to the block and the other end pivotally secured to the treadle-rod of the machine, substantially as described and shown.

2. The combination, of a treadle-board having a horizontal to-and-fro movement, a vertical slideway secured to the board, a block having reciprocating movement controlled by the slideway, a bell-crank pivoted at its one end to the block and at its other end to the treadle-rod, substantially as described and shown.

3. The combination, of a treadle-board suspended by links so as to have a to-and-fro movement parallel with the floor, a vertical slideway secured to the treadle-board, a block moving in and guided by said slideway, a bell-crank having a two-part telescoping arm, said bell-crank being pivotally secured to a stationary support at its middle and to a treadle-rod at one end and to the sliding block at the other, substantially as described and shown.

682,703. LOCOMOTIVE REVOLVING CRANE. FRANK R. HULETT, Akron, Ohio. Filed Dec. 26, 1900. Serial No. 41,107. (No model.)



Claim.—1. The combination of a truck, a derrick mounted upon said truck, and means formed integral with and arranged at the respective corners of the said truck adapted to engage the adjacent corners of a car coupled to the said truck.

2. In a locomotive crane or derrick, a truck provided with horizontal arms or projections arranged at each side and extending lengthwise beyond the frame of the said truck and adapted to engage the adjacent corners of a car coupled to the said truck.

3. In a locomotive crane or derrick, a truck having a horizontal arm or projection secured at each of its four corners, said arms being arranged lengthwise of the said truck and extending beyond the ends of said truck, substantially as described, for the purpose set forth.

4. In a locomotive crane or derrick, a truck, a driving-engine mounted upon said truck and operatively connected with the wheels of said truck, a platform mounted upon said truck, and adapted to revolve thereon, a boiler mounted upon said platform, and a steam-pipe connecting the said boiler with the said engine, said steam-pipe being provided with a swivel-joint which allows the upper portion to revolve while the lower portion remains stationary, substantially as described and for the purpose set forth.

5. In a locomotive crane or derrick, the combination of a truck, an engine secured to the bottom of said truck and operatively connected with the wheels thereof, a reversing-valve secured on said truck for controlling the admission of steam to the cylinders of said engine, a turn-table mounted on said truck, a boiler located upon said turn-table, a steam-pipe connecting said boiler with the said reversing-valve, and means substantially as described for operating the said reversing-valve from the said turn-table.

6. In a locomotive crane or derrick, the combination of a truck, a motive engine secured to the bottom of said truck and operatively connected with the wheels thereof, a turn-table mounted upon the said truck, a hoisting-engine located upon the said turn-table, a boiler mounted upon the said turn-table, a steam-pipe connecting said boiler and said hoisting-engine, a steam-pipe connecting said boiler and said motive engine, said last-mentioned steam-pipe having a swivel-joint which allows the upper part to turn while the lower part remains stationary.

7. In a locomotive crane or derrick, the combination with a truck, an engine secured to the bottom of the said truck, and operatively connected with the wheels thereof, a reversing-valve secured to said truck for controlling the operation of the said engine, a platform mounted upon said truck and adapted to revolve thereon, a boiler mounted upon said platform, a vertical cylinder secured in the center of said turn-table, a steam-pipe secured to the top of said cylinder by means of a swivel-joint, a steam-pipe connecting the bottom of said cylinder with said reversing-valve, a rod slidably mounted in said vertical cylinder and having its lower end connected by means of a bell-crank with the reversing-valve, substantially as described, for the purpose set forth.

8. In a locomotive crane or derrick, the combination of a truck, a driving-engine mounted on said truck and operatively connected with the wheels of said truck, mechanism located on said truck for reversing said engine, a platform mounted on said truck and adapted to revolve thereon, and a lever mounted on said platform and operatively connected with said reversing mechanism on said truck.

9. In a locomotive crane or derrick, the combination of a truck, an engine secured to the bottom of said truck and operatively connected with the wheels thereof, reversing mechanism secured to said truck and adapted to control the operation of said engine, a platform mounted on said truck and adapted to revolve thereon, a boiler mounted on said platform, a vertical cylinder secured in the center of rotation of said platform, a steam-pipe secured to the top of said cylinder by means of a swivel-joint, a steam-pipe connecting the bottom of said cylinder with the cylinders of the said engine, a rod slidably mounted in said vertical cylinder and having its lower end operatively connected with the said reversing mechanism, for the purpose set forth.

10. In a locomotive crane or derrick, the combination of a truck, an engine mounted on said truck, a platform mounted on said truck and adapted to revolve thereon, a boiler mounted on said platform, a flexible steam connection between the said boiler and said engine, reversing mechanism mounted on said truck and operatively connected with said engine, a lever mounted on said platform, a vertical rod mounted at the center of rotation of said platform, said rod having its upper end secured to the said lever, and its lower end operatively connected with the said reversing mechanism.

11. In a locomotive crane or derrick, the combination of a truck, an engine mounted on said truck, a turn-table mounted on said truck, a boiler mounted on said turn-table, a flexible steam connection between said boiler and said engine, reversing mechanism mounted on said truck and operatively connected with said engine, and means for operating the said reversing mechanism mounted on said turn-table and extending down through the center of rotation of said turn-table and operatively connected with the said reversing mechanism.

682,704. CAR-AXLE BOX. HEINRICH F. W. JAEGER, Sandusky, Ohio, assignor of one-half to George M Gramlich, same place. Filed Apr. 6, 1901. Serial No. 54,632. (No model.)

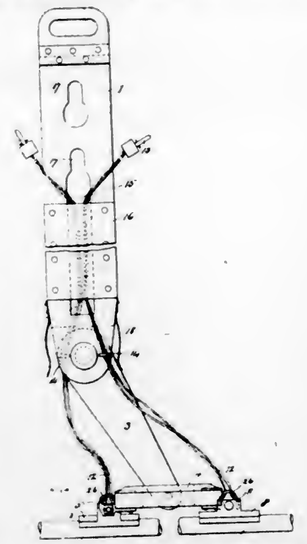


Claim.—1. The combination with a car-axle journal-box, of a curved guard-plate having a central opening and pivot-bolt passing through the lower end of the said plate, and a threaded locking-bolt passing through the upper end of the plate and a nut arranged upon the exterior of the box, substantially as shown and described.

2. The combination with the journal-box, of the guard-plate having tubes or sleeves formed at the upper and lower edges, a pivot-bolt passing through the lower tube or sleeve, and a threaded rod or bolt passing through the upper tube or sleeve, a nut arranged upon the exterior of the journal-box, and a nut also arranged intermediate the ends of the upper tube or sleeve and adapted to be engaged by the threaded rod or bolt, substantially as shown and described.

3. The combination with a car-axle box, of a guard-plate having a central opening, said plate having the upper and lower tubes or sleeves, the pivot-bolt passing through the lower sleeve, a threaded rod or bolt passing through the upper tube or sleeve, the end of said rod or bolt being reduced and threaded, a nut adapted for engagement with the said reduced end, and the housing in which the said nut is held, a clip arranged centrally upon the upper edge of the guard-plate, a nut arranged in said clip and adapted for engagement with the threaded rod or bolt, the operating end of said rod or bolt projecting beyond the axle-box and made polygonal in cross-section, and a housing for protecting said polygonal-shaped end, substantially as and for the purpose described.

682,705. CONTACT DEVICE FOR CONDUIT ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va. Filed Feb 7, 1901. Serial No. 46,401. (No model.)



Claim.—1. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, and provided with a link pivoted to its lower end within the conduit, a shoe-supporting block pivoted to the lower end of the link and having pivoted to it one or more contact-shoes which rest and slide upon the line conductors within the conduit, and are by suitable electrical conductors connected to the motors.

2. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car so as to permit a limited vertical motion and depending through the conduit-slot into the conduit, and provided with a link pivoted to its lower end within the conduit, a shoe-supporting block pivoted to the lower end of the link and having pivoted to it one or more contact-shoes which rest and slide upon the line conductors within the conduit, and are by suitable electrical conductors connected to the motors.

3. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, and provided with a link pivoted to its lower end within the conduit, a shoe-supporting block of insulating material pivoted to the lower end of the link and having pivoted to it one or more contact-shoes which rest and slide upon the line conductors within the conduit, and are by suitable electrical conductors connected to the motors, the insulating-block insulating the shoes from one another.

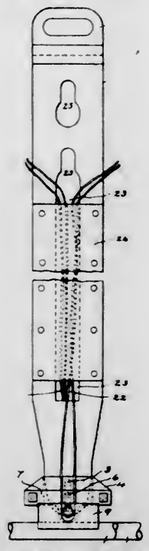
4. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, and provided with a link pivoted to its lower end within the conduit, a pair of springs secured to the plow and adapted to bear upon the link to press it down as it trails forward or back, a shoe-supporting block pivoted to the lower end of the link and having pivoted to it one or more contact-shoes which rest and slide upon the line conductors within the conduit, and are by suitable electrical conductors connected to the motors.

5. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car so as to permit a limited vertical motion and depending through the conduit-slot into the conduit, and provided with a link pivoted to its lower end within the conduit, a pair of springs secured to the plow and adapted to bear upon the link to press it down as it trails forward or back, a shoe-supporting block pivoted to the lower end of the link and having pivoted to it one or more contact-shoes which rest and slide upon the line conductors within the conduit, and are by suitable electrical conductors connected to the motors.

6. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit and provided with a link pivoted to its lower end within the conduit, a pair of springs secured to the plow and adapted to bear upon the link to press it down as it trails forward or back, a shoe-

supporting block of insulating material pivoted to the lower end of the link and having pivoted to it one or more contact-shoes, which rest and slide upon the line conductor within the conduit and are by suitable electrical conductors connected to the motor, the insulating-block insulating the shoes from one another.

682,706. CONTACT DEVICE FOR CONDUIT ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va. Filed Feb. 7, 1901. Serial No. 46,402. (No model.)



Claim.—1. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, a shoe-supporting block pivoted in a slot in the lower end thereof so as to permit vertical motion of the block and shoes, and one or more contact-shoes pivoted to the block and adapted to rest and slide upon the line conductor within the conduit and connected to the motor by suitable electrical conductors.

2. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, a shoe-supporting block pivoted in a slot in the lower end thereof so as to permit vertical motion of the block and shoes, and one or more contact-shoes pivoted to the block in such a manner as to allow a limited vertical movement of the shoes, and adapted to rest and slide upon the line conductor within the conduit and connected to the motor by suitable electrical conductors.

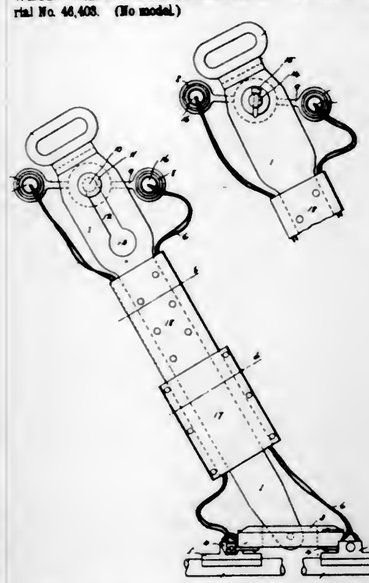
3. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, a shoe-supporting block of insulating material pivoted in a slot in the lower end thereof so as to permit vertical motion of the block and shoes, and one or more contact-shoes pivoted to the block and adapted to rest and slide upon the line conductor within the conduit and connected to the motor by suitable electrical conductors, the insulating-block insulating the shoes from one another.

4. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car so as to permit a limited vertical motion and depending through the conduit-slot into the conduit, a shoe-supporting block pivoted in a slot in the lower end thereof so as to permit vertical motion of the block and shoes, and one or more contact-shoes pivoted to the block and adapted to rest and slide upon the line conductor within the conduit and connected to the motor by suitable electrical conductors.

5. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car and depending through the conduit-slot into the conduit, a shoe-supporting block of insulating material pivoted in a slot in the lower end thereof so as to permit vertical motion of the block and shoes, and one or more contact-shoes pivoted to the block in such a manner as to allow a limited vertical movement of the shoes, and adapted to rest and slide upon the line conductor within the conduit and connected to the motor by suitable electrical conductors, the insulating-block insulating the shoes from one another.

6. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car so as to permit a limited vertical motion and depending through the conduit-slot into the conduit, a shoe-supporting block of insulating material pivoted in a slot in the lower end thereof so as to permit vertical motion of the block and shoes, and one or more contact-shoes pivoted to the block in such a manner as to allow a limited vertical movement of the shoes, and adapted to rest and slide upon the line conductor within the conduit and connected to the motor by suitable electrical conductors, the insulating-block insulating the shoes from one another.

682,707. CONTACT DEVICE FOR CONDUIT ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va. Filed Feb. 7, 1901. Serial No. 46,403. (No model.)



Claim.—1. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car in such a manner that it may swing on its point of suspension in a vertical plane parallel with the conduit, and depending through the conduit-slot into the conduit, a shoe-supporting block pivoted to the lower end of the plow and having pivoted to it one or more contact-shoes which rest and slide upon the line conductor within the conduit and are by suitable electrical conductors connected to the motor.

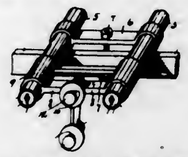
2. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car in such a manner that it may swing on its point of suspension in a vertical plane parallel with the conduit, and depending through the conduit-slot into the conduit, a shoe-supporting block of insulating material pivoted to the lower end of the plow and having pivoted to it one or more contact-shoes which rest and slide upon the line conductor within the conduit and are by suitable electrical conductors connected with the motor, the insulating-block insulating the shoes from one another.

3. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car in such a manner that it may swing on its point of suspension in a vertical plane parallel with the conduit, and so that it may reverse itself on the reversing of the car, and depending through the conduit-slot into the conduit, a shoe-supporting block of insulating material pivoted to the lower end of the plow and having pivoted to it one or more contact-shoes which rest and slide upon the line conductor within the conduit and are by suitable electrical conductors connected with the motor, the insulating-block insulating the shoes from one another.

4. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car in such a manner that it may swing on its point of suspension in a vertical plane parallel with the conduit, and so that it may reverse itself on the reversing of the car, and depending through the conduit-slot into the conduit, a shoe-supporting block of insulating material pivoted to the lower end of the plow and having pivoted to it two contact-shoes which rest and slide one upon the current-supplying conductor and the other upon the current-returning conductor within the conduit, and which are by suitable electrical conductors connected with the motor, the insulating-block insulating the shoes from one another.

5. In a trailing contact for a conduit electric railway, the combination of a plow connected to the car in such a manner that it may swing on its point of suspension in a vertical plane parallel with the conduit, and so that it may reverse itself on the reversing of the car, and depending through the conduit-slot into the conduit, a removable protecting-shield, a shoe-supporting block of insulating material pivoted to the lower end of the plow and having pivoted to it two contact-shoes which rest and slide one upon the current-supplying conductor and the other upon the current-returning conductor within the conduit, and which are by suitable electrical conductors connected with the motor, the insulating-block insulating the shoes from one another.

682,708. SUSPENSORY DEVICE FOR TRAILING CONTACTS FOR CONDUIT ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va. Filed Feb. 7, 1901. Serial No. 46,404. (No model.)



Claim.—1. In a suspensory device, the combination of a pair of parallel supporting-bars secured to the frame of the car-truck transversely of the car and projecting on one side beyond the same, with a contact-device carrier consisting of a yoke having a sleeve on either end fitted upon the projecting ends of the supporting-bars and adapted to slide freely thereon, and a contact device suspended from the carrier.

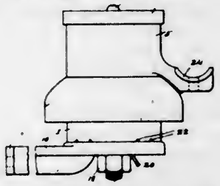
2. In a suspensory device, the combination of a pair of parallel supporting-bars secured to the frame of the car-truck transversely of the car and projecting on one side beyond the same, with a contact-device carrier consisting of a yoke having a sleeve on either end fitted upon the projecting ends of the supporting-bars and adapted to slide freely thereon and having a pendent lug, and a contact device suspended from the lug.

3. In a suspensory device, the combination of a pair of parallel supporting-bars secured to the frame of the car-truck transversely of the car and projecting on one side beyond the same, with a contact-device carrier consisting of a yoke having a sleeve on either end and fitted upon the projecting ends of the supporting-bars and adapted to slide freely thereon and having two legs in a vertical line with one another and a central device suspended from the lugs.

4. In a suspensory device, the combination of a pair of parallel supporting-bars secured to the frame of the car-truck transversely of the car and projecting on one side beyond the same, with a contact-device carrier consisting of a yoke having a sleeve on either end fitted upon the projecting ends of the supporting-bars and adapted to slide freely thereon and having pivotally attached to it a pendent lug and a contact device suspended from the lug.

5. In a suspensory device, the combination of two tubular parallel supports secured to the frame of the car-truck transversely of the car and projecting on one side beyond the same, with a contact-device carrier consisting of a yoke having a sleeve on either end fitted upon the projecting ends of the tubular supports and adapted to slide freely thereon, a contact device suspended from the carrier, and means for electrically connecting the contact device with the motors.

682,709. INSULATOR. WILTON F. JENKINS, Richmond, Va. Filed Feb. 7, 1901. Serial No. 46,405. (No model.)



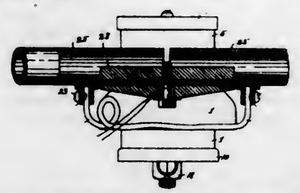
Claim.—1. In an insulator, the combination of a bracket, an insulating-petticoat centrally perforated, a bolt passing downward through the perforation in the petticoat and having its head incased in insulating material, a casing resting on the petticoat and surrounding the insulating-head of the bolt, a cap to the casing covering the insulating-head of the bolt, and means to secure the bolt to secure the parts of the insulator in position on the bracket, substantially as described.

2. An insulator consisting of a centrally-perforated insulating-petticoat having downwardly-curved exterior surfaces and one or more depending flounces and provided on its upper end with a vertically-projecting neck, a waterproofing-casing resting on the top of the insulator and surrounding the neck thereof which it fits closely, a bolt the head of which is embedded in an enlarged insulating-block, said block filling and fitting into the casing when the bolt is passed through the petticoat, and a cover for the casing, substantially as described.

3. An insulator consisting of a centrally-perforated insulating petticoat having downwardly-curved exterior surfaces and one or more depending flounces and provided on its upper end with a vertically-projecting neck, a waterproofing-casing resting on the top of the insulator and surrounding the neck thereof which it fits closely, a bolt the head of which is embedded in an enlarged insulating-block, said block filling and fitting into the casing when the bolt is passed through the petticoat, a cover for the casing, and a supporting-bracket to which the insulator is secured by a nut threaded onto the lower end of the bolt, substantially as described.

4. An insulator consisting of an insulating-petticoat provided on its upper end with a vertically-projecting neck, a casing resting on the top of the petticoat and surrounding the neck thereof which it fits closely and provided with means for supporting a conductor, and insulated means whereby the petticoat and casing are secured to one another.

682,710. BOND FOR ELECTRIC-RAILWAY CONDUCTORS. WILTON F. JENKINS, Richmond, Va. Filed Feb. 7, 1901. Serial No. 46,406. (No model.)

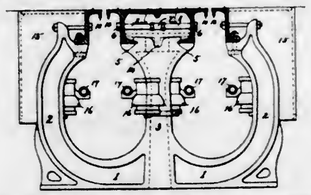


Claim.—1. A detachable bond for tubular conductors, consisting of a support adapted to receive and support the adjacent ends of two conductor lengths and perforated to admit the passage of a bolt, and a nut or clamping-bar located inside of the tubular conductors and into which the bolt is threaded and screwed, substantially as described.

2. A detachable bond for tubular conductors, consisting of an insulated support adapted to receive and support the adjacent ends of two conductor lengths and perforated to admit the passage of a bolt, and a nut or clamping-bar removably fitted inside of the tubular conductor ends and into which nut the bolt is threaded and screwed, substantially as described.

3. A detachable bond for tubular conductors, consisting of an insulated metallic support adapted to receive and support and establish an electrical connection between the adjacent ends of the two conductor lengths and perforated to admit the passage of a bolt, and a metallic nut or clamping-bar removably fitted inside of and establishing an electrical connection between the adjacent ends of the tubular conductors, and into which nut the threaded part of the bolt is screwed to secure the conductor ends and perfect the bond.

682,711. CONDUIT FOR ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va. Filed Feb. 7, 1901. Serial No. 46,407. (No model.)



Claim.—1. In a double-slotted conduit for electric railways, the combination of a yoke having a central post provided with a head undercut in its opposite sides, a pair of slot-plates secured to the outer posts, another pair of slot-plates having their base-flanges engaging beneath said central-post head and provided near the upper edge of their inner faces

with lugs for supporting central cover-plates, fastenings securing said central slot-plates in engagement with said central-post head and at the proper distance apart, and central cover-plates, substantially as described.

2. In a double-slotted conduit for electric railways, the combination of a series of yokes each provided with a central post and an aperture at each side thereof, two pairs of slot-plates, one pair secured to the outside posts of the yokes, and one pair secured back to back to the top of the central posts and provided near the upper edge of their inner faces with lugs for supporting central cover-plates, and central cover-plates located between the two central slot-plates, substantially as described.

3. In a double-slotted conduit for electric railways, the combination of a series of yokes each provided with a central post and an aperture at each side thereof, a pair of slot-plates secured to the outer posts of the yokes, another pair of slot-plates secured, back to back and at a distance apart, to the top of the central posts and provided near the upper edge of their inner faces with lugs for supporting central cover-plates, fastenings to secure the said inner slot-plates in position, and central cover-plates located between the two inner slot-plates, substantially as described.

4. In a double-slotted conduit for electric railways, the combination of a series of yokes each provided with a central post and an aperture at each side thereof, a pair of slot-plates secured to the outer posts of the yokes, another pair of slot-plates secured, back to back and at a distance apart, to the top of the central posts, and provided near the upper edge of their inner faces with lugs for supporting a central cover-plate between them, fastenings to secure the said inner slot-plates in position, and central cover-plates located between the two inner slot-plates, and resting on the lugs with which the said inner slot-plates are provided, substantially as described.

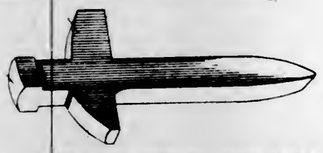
5. In a double-slotted conduit for electric railways, the combination of a yoke having a central post provided with a head undercut in its opposite sides, a pair of slot-plates secured to the outer post, another pair of slot-plates having their base-flanges engaging beneath said central-post head and provided near the upper edge of their inner faces with lugs for supporting central cover-plates, fastenings securing said central slot-plates in engagement with said central-post head and at the proper distance apart, means for supporting the central plates at a lower level than that at which they are supported by the lugs when desirable, and central cover-plates, substantially as described.

6. In a double-slotted conduit for electric railways, the combination of a series of yokes each provided with a central post and an aperture at each side thereof, two pairs of slot-plates, one pair secured to the outside posts of the yokes, and one pair secured back to back to the top of the central posts and provided near the upper edge of their inner faces with lugs for supporting central cover-plates, means for supporting the central plates at a lower level than that at which they are supported by the lugs when desirable, and central cover-plates located between the two central slot-plates, substantially as described.

7. In a double-slotted conduit for electric railways, the combination of a series of yokes each provided with a central post and an aperture at each side thereof, a pair of slot-plates secured to the outer posts of the yokes, another pair of slot-plates secured, back to back and at a distance apart, to the top of the central posts and provided near the upper edge of their inner faces with lugs for supporting central cover-plates, means for supporting the central cover-plates at a lower level than that at which they are supported by the lugs when desirable, fastenings to secure the said inner slot-plates in position, and central cover-plates located between the two inner slot-plates, substantially as described.

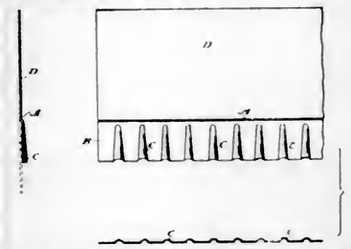
8. In a double-slotted conduit for electric railways, the combination of a series of yokes each provided with a central post and an aperture at each side thereof, two pairs of slot-plates, one pair secured to the outer posts of the yokes, and one pair secured back to back to the top of the central posts, central cover-plates located between the two inner slot-plates, and means for supporting the central cover-plates at two levels.

682,712. RAILROAD-SPIKE. CHARLES JOHNSON, Ely, Minn. Filed July 6, 1900. Serial No. 22,761. (No model.)



Claim.—A railway-spike, comprising a pointed shank, having a laterally-enlarged driving-head at the oppositely-extended terminal, and provided with intermediate lateral projections upon opposite sides of the shank and inclined transversely across the same at corresponding angles, one of the projections being located above the other and forming a rail-engaging member, and the other projection forming a tie-engaging brace, the outer end thereof intersecting the under side at an acute angle and forming a wedge.

682,718. CONSTRUCTION OF TUBES FROM SINGLE STRIPS OF METAL. THOMAS A. JUDGE, Sheffield, England. Filed July 18, 1901. Serial No. 68,821. (No model.)



Claim.—A cylinder, tube, or drum, constructed from a strip of metal set down longitudinally on one edge to form a step, such set-down edge crimped or corrugated with tapering grooves, then coiled with the plain edge of the strip abutting against the said step and lying upon the set-down portion, to which it is soldered as hereinbefore described and set forth.

682,714. MEANS FOR PROTECTING CIRCUITS. JOHN F. KELLY, Pittsfield, Mass. Filed June 5, 1901. Serial No. 63,186. (No model.)



Claim.—1. In a system of distribution by alternating currents, in combination, a main conductor, two branches between said main conductor and the earth, possessing capacity and self-induction respectively, and tuned to the normal frequency of the circuit.

2. In a lightning-arrester for alternating-current circuits, the combination of a capacity device and a self-induction device connected in parallel with each other between the main to be protected and the ground, and tuned to the normal frequency of the system to be protected.

3. In a system of distribution by alternating currents in combination, a main conductor, two branches between said main conductor and the earth, and means for displacing the phase of the currents in said branches in opposite directions substantially 90° at normal frequency, and a spark-gap in circuit with said means between the main to be protected and the earth.

4. In a system of distribution by alternating currents, a lightning-arrester forming a path to earth consisting of two branches connected to the main to be protected, one containing a condenser and affording an easy path for lightning discharges and the other a self-induction coil.

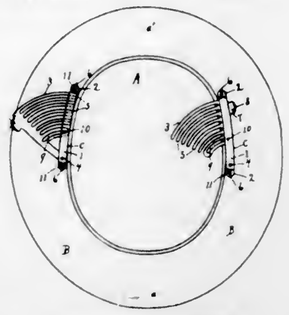
5. In a system of distribution by alternating currents, a lightning-arrester constituting a path to ground consisting of two branches connected to the main to be protected, one containing a condenser and the other a self-induction coil, the two branches having a common terminal and a spark-gap in circuit therewith between the main to be protected and the ground.

6. In a lightning-arrester, a capacity device and a self-induction device combined so as to constitute an easy path to earth for high-frequency discharges and to substantially prevent the passage of current at normal frequency.

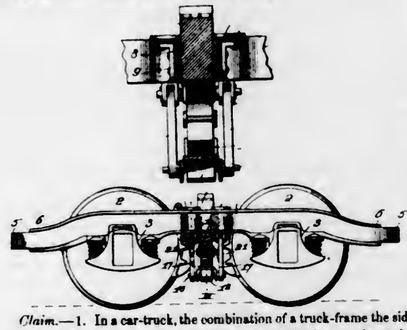
682,715. HAT-FASTENER. RICHARD KISSERLING, Sr., Cincinnati, Ohio. Filed Jan. 7, 1901. Serial No. 42,407. (No model.)

Claim.—1. In a hat-fastener, the combination with a guide comprising an elongated narrow loop adapted for attachment to the brim of a hat, of a comb pivoted within the guide and having its free portion adapted for movement therethrough and for projection therefrom, which is provided with a plurality of curved teeth which are substantially coincident with an equal number of arcs of circles struck at varying distances from the pivotal point of the comb as a center, the tips of said teeth collectively describing a curve, and one of said teeth having a curved slot, and a stop-pin on the guide which passes through said slot.

2. In a hat-fastener, the combination with a guide composed of connected substantially parallel members disposed in separated arrangement from each other and extensions at the ends thereof having apertures whereby the guide can be connected to the brim of a hat, of a comb pivoted within the guide and having its free portion adapted for movement therethrough and for projection therefrom, which is provided with an extension adapted for use as a fingerhold, said comb having a plurality of curved teeth which are substantially coincident with an equal number of arcs of circles struck at varying distances from the pivotal point of the comb as a center, with the tips of said teeth collectively describing a curve, the nearest tooth to the pivot being provided with a curved slot, and a pin on the guide which lies in said slot and is adapted to limit the movement of the comb in both directions.



682,716. CAR-TRUCK. PETER M. KLING, Elizabeth, N. J. Filed Feb. 13, 1901. Serial No. 47,107. (No model.)



Claim.—1. In a car-truck, the combination of a truck-frame the sides of which are formed with sockets, spring-supported plungers located in said sockets, stirrups pivoted to the stems of the plungers, a beam supported by said stirrup, springs resting on said beam, and a bolster carried by said springs, substantially as set forth.

2. In a car-truck, the combination of a truck-frame, the sides of which are formed with sockets, spring-supported plungers located in said sockets, stirrups pivoted to the stems of said plungers, a beam supported by said stirrups, springs carried by said beam, a bolster resting on said springs, and bars secured to the sides of said frame and between which said bolster is located, substantially as set forth.

3. In a car-truck, the combination of a frame, plungers carried by the frame, springs interposed between the plungers and the frame, stirrups pivoted to the plungers, a beam supported by said stirrups, springs resting on said beam, a bolster resting on said springs, and bars secured to said frame and between which said bolster fits, substantially as described.

4. In a car-truck, the combination of a frame the sides of which are provided with sockets, springs located in said sockets, plungers fitting in said sockets and provided with stems which extend beneath said frame, stirrups pivoted to the stems of the plungers, a beam supported by said stirrup, springs carried by said beam, a bolster resting on said springs, and L-shaped bars secured to the sides of said frame and between which said bolster fits, substantially as described.

682,717. RAILWAY-SWITCH AND AUTOMATIC OPERATING DEVICE. JAMES W. KOCH, Reynolds, Pa. Filed Feb. 5, 1901. Serial No. 46,062. (No model.)

Claim.—1. The combination with a track-vehicle, of a switch-lever-operating device carried by the vehicle, said device consisting of a heavy pivoted lever normally out of operating position but movable into operative position, said lever when in operative position being free to swing forward and reverse its position when its lower end is arrested by striking a switch-lever, guide-plates for said heavy lever, and a frame for setting the heavy lever, said frame consisting of links 46 pivoted at their lower ends and at their other ends connected by bars 47 and by transverse bolts adapted to operate on the heavy lever to change its inclination at will, and means for adjusting the position of said frame.



2. The combination with a track-vehicle, of a switch-lever-operating device carried by the vehicle, said device consisting of a heavy pivoted lever normally out of operating position but movable into operative position, said lever when in operative position being free to swing forward and reverse its position when its lower end is arrested by striking a switch-lever, guide-plates for said heavy lever, and a frame for setting the heavy lever, said frame consisting of links 46 pivoted at their other ends connected by bars 47 and by transverse bolts adapted to operate on the heavy lever to change its inclination at will, and means adapted to be operated at a distance for adjusting the position of said frame.

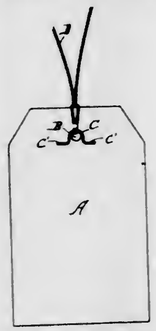
3. The combination with a track-vehicle, of a switch-lever-operating device carried by the vehicle, said device consisting of a heavy pivoted lever normally out of operating position but movable into operative position, said lever when in operative position being free to swing forward and reverse its position when its lower end is arrested by striking a switch-lever, guide-plates for said heavy lever, and a frame for setting the heavy lever, said frame consisting of links 46 pivoted at their lower ends and at their other ends connected by bars 47 and by transverse bolts adapted to operate on the heavy lever to change its inclination at will, and means consisting of a lever, and a rod connecting the lever and frame for adjusting the position of said frame.

4. The combination with a track-vehicle, of a switch-lever-operating device carried by the vehicle, said device consisting of a heavy pivoted lever normally out of operating position but movable into operative position, said lever when in operative position being free to swing forward and reverse its position when its lower end is arrested by striking a switch-lever, guide-plates for said heavy lever, and a frame for setting the heavy lever, said frame consisting of links 46 pivoted at their lower ends and at their other ends connected by bars 47 and by transverse bolts adapted to operate on the heavy lever to change its inclination at will, and means consisting of a lever, and a rod connecting the lever and frame for adjusting the position of said frame, and spring-catches on each side of the distant lever for normally holding said lever in one of its extreme positions.

5. The combination with a track-vehicle, of a switch-lever-operating device carried by the vehicle, said device consisting of a heavy pivoted lever normally out of operating position but movable into operative position, said lever when in operative position being free to swing forward and reverse its position when its lower end is arrested by striking a switch-lever, guide-plates for said heavy lever, and a frame for setting the heavy lever, said frame consisting of links 46 pivoted at their lower ends and at their other ends connected by bars 47 and by transverse bolts adapted to operate on the heavy lever to change its inclination at will, and means consisting of a lever, and a rod connecting the lever and frame for adjusting the position of said frame, and spring-catches on each side of the

distant lever, a rod secured to the lever and having notches near its opposite ends adapted to be engaged by the spring-catches, said notches having inclined ends whereby the catches will yield to a strong pull.

682,718. SHIPPING-TAG. FREDERICK KOEHLE, Dayton, Ohio. Filed May 31, 1901. Serial No. 62,453. (No model.)

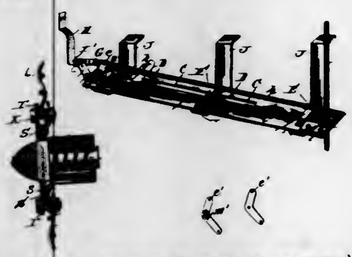


Claim.—1. As a new article of manufacture, a shipping-tag having a perforation therein, a staple partially surrounding said perforation, the ends of said staple terminating at right angles and projected through the tag and the extreme ends thereof clinched on the opposite side of said tag.

2. In a tag, the combination of a tag having a hole or perforation therein, a staple having a curved body which incloses the outer side of said hole or perforation, the ends of said staple being carried down below the hole or perforation and passed through said tag and clinched on the opposite side thereof.

3. A shipping-tag having a hole or perforation therein, a wire staple located above said perforation and lying on each side thereof, with its ends passing through the tag on each side of said perforation, and clinched against said tag on the opposite side.

682,719. SAFETY APPLIANCE FOR ELEVATORS. JOHN H. KUEHLER, Sr., Danville, Ill. Filed Apr. 3, 1901. Serial No. 54,108. (No model.)



Claim.—1. The combination with an elevator cage or truck, the starting rope or cable, devices for clamping said rope, and means for actuating the same which are supported by said cage or truck, of a sliding door for the elevator-shaft, a normally shot rearwardly-projecting bolt which is adapted to engage the actuating means when said door is being opened or shut, as and for the purpose set forth.

2. The combination with an elevator cage or truck, the starting rope or cable, longitudinally-extensible reciprocal devices for clamping said rope or cable, and a lever fulcrumed to said cage or truck and adapted to actuate said clamping devices, of a sliding door for the elevator-shaft, and a normally shot rearwardly-extending bolt which is adapted to engage said lever when said door is being opened or shut, as and for the purpose set forth.

3. The combination with an elevator cage or truck, the starting rope or cable, horizontally-disposed reciprocal devices for clamping said rope or cable, and a vertically-disposed lever fulcrumed to said cage or truck, and adapted to actuate said clamping devices, of a sliding door for the elevator-shaft, and a normally shot rearwardly-extending bolt which is adapted to engage said lever when said door is being opened or shut, as and for the purpose set forth.

4. The combination with an elevator cage or truck, the starting rope or cable, horizontally-disposed longitudinally-extensible reciprocal clamping devices, and a vertically-disposed lever fulcrumed to the front of said cage or truck having its lower end suitably articulated with said clamping devices, of a sliding door, and means carried thereby which are adapted to engage said lever when said door is being opened or shut, as and for the purpose set forth.

5. The combination with an elevator cage or truck, the starting rope or cable, a bed-plate suitably supported below said cage or truck having an opening in one end through which said starting-rope passes, and a longitudinally-extensible reciprocal clamping-bar carried thereby for clamping said rope, means for actuating said clamping-bar which are supported by said truck, of a sliding door for the elevator-shaft, and devices carried thereby which are adapted to engage said actuating means when said door is being opened or shut, as and for the purpose set forth.

6. The combination with an elevator cage or truck, the starting rope or cable, a horizontally-disposed bed-plate attached to and suitably supported below said cage or truck having an opening in one end through which said starting-rope passes, a longitudinally-extensible reciprocal clamping-bar carried by said bed-plate, and means for reciprocating the same which are supported by said cage or truck, of a sliding door for the elevator-shaft, and devices carried thereby which are adapted to engage said actuating means when said door is being opened or shut, as and for the purpose set forth.

7. The combination with an elevator cage or truck, the starting rope or cable, a horizontally-disposed bed-plate suitably supported by said cage or truck, having an opening therein through which said starting rope or cable passes, a longitudinally-reciprocal clamping-bar carried thereby, a vertically-disposed lever fulcrumed to the front of said cage or truck, and devices connecting the lower end of the same to said clamping-bar whereby the oscillatory movement of the lower end of said lever imparts a reciprocal movement to said bar, of a sliding door for the elevator-shaft, and devices carried thereby which are adapted to engage said lever when the door is being opened or shut.

8. The combination with an elevator cage or truck, the starting rope or cable, a horizontally-disposed bed-plate having an opening therein from which said starting rope or cable passes, a vertically-disposed lever fulcrumed to the front of said cage or truck, and adjustable devices for connecting the lower end of said lever to said clamping-bar whereby the oscillatory movement of the lever imparts a reciprocal movement to the clamping-bar, of a sliding door for the elevator-shaft, and devices carried thereby which are adapted to engage said lever when said door is being opened or shut.

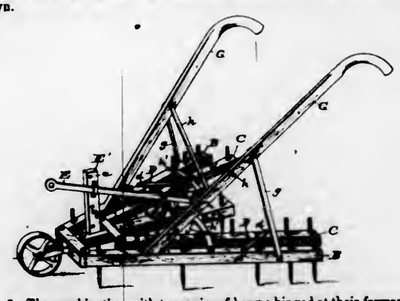
9. The combination with an elevator cage or truck, the starting rope or cable, a bed-plate supported by said cage or truck, having an opening therein through which the starting rope or cable passes, a clamping-bar carried thereby and consisting of two longitudinally-adjustable plates suitably secured together, a vertically-disposed lever fulcrumed to the front of said cage or truck, adjustable devices connecting the lower end of said lever and said clamping bar whereby the oscillatory movement of the former imparts a reciprocal movement to the latter, of a sliding door for the elevator-shaft, and suitable devices carried thereby which are adapted to engage said lever when said door is being opened or shut.

10. The combination with an elevator cage or truck, the starting rope or cable, a bed-plate supported by said cage or truck, having an opening therein through which said rope or cable passes, a vertically-disposed lever fulcrumed to the front of said cage or truck, a series of suitably arranged and articulated links pivotally connected to said clamping-bar, and a clevis connecting said links to the lower end of said lever whereby the oscillatory movement of the latter imparts a reciprocal movement to said clamping-bar, of a sliding door for the elevator-shaft, and suitable devices carried thereby which are adapted to engage the lever when said door is being opened or shut.

11. The combination with an elevator cage or truck, the starting rope or cable, a bed-plate supported by said cage or truck, having an opening therein through which said starting rope or cable passes, a reciprocal clamping-bar carried thereby, a vertically-disposed lever fulcrumed to the front of said cage or truck having a longitudinally-disposed ridge projecting forward from its upper branch or arm, and suitable devices connecting the lower end of said lever to said clamping-bar whereby the oscillatory movement of the former imparts a reciprocal movement to the latter, of a sliding door for the elevator-shaft, a normally shot rearwardly-extending yielding bolt carried by said door and adapted to engage the ridge of said lever when the door is being opened or shut, as and for the purpose set forth.

682,720. COMBINED CULTIVATOR AND HARROW. BENJAMIN F. KUHNS, Indianapolis, Ind. Filed Oct. 8, 1900. Serial No. 32,419. (No model.)

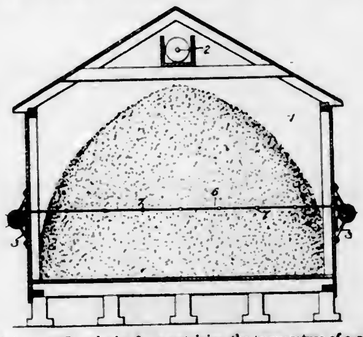
Claim.—1. The combination of the central longitudinal beam, side beams hinged at their front ends to the central beam, and laterally adjustable as to their rear ends, handles secured to the side beams whereby the lateral adjustment of said beams is made and held, and resilient means for normally spreading the hinged members, substantially as described and shown.



2. The combination with two pairs of beams hinged at their forward ends so as to be laterally adjustable as to their rear ends, said rear ends of each pair of beams being connected by double-hinged bars, a spring to press the pairs of beams in opposite direction from each other and handles secured to one of the beams of each pair of beams said handles having inside sliding braces, substantially as described and shown.

3. The combination of a central longitudinal beam, a pair of beams on each side of said central beam each hinged to the latter at its forward end to swing laterally, said side beams being connected in pairs by double-hinged bars, a spring to press the side pairs away from the center beam, handles secured to the outer ones of the side pairs of beams each of said handles having an inside brace with diagonal upper member attached at its upper end to the handle and having a horizontal curved base which rests on top of the center beam and its respective side beams and fastened to the handle-carrying beam and clips to hold the curved base to the beams to permit of a sliding attachment of the curved base to the beam, all substantially as described and shown.

682,721. TEMPERATURE-FINDER FOR STORED COTTON-SEED, &c. GEORGE LEDER, Demopolis, Ala. Filed Feb. 12, 1901. Serial No. 47,069. (No model.)



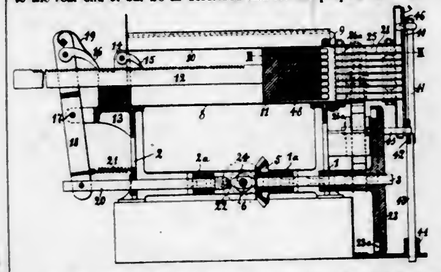
Claim.—1. In a device for ascertaining the temperature of a pile of cotton-seed, seed-cotton and the like, the combination of a device sensitive to the changes of temperature and means connected with the respective ends thereof for moving it through the pile and fixed supports for said moving means to be disposed at respective sides of said pile.

2. In a device for ascertaining the temperature of a pile of cotton-seed, seed-cotton, and the like, the combination of a flexible metal device sensitive to changes of temperature, and means connected with the respective ends thereof for moving it through the pile and fixed supports for said moving means to be disposed at respective sides of the pile.

3. In a device for ascertaining the temperature of a pile of cotton-seed, seed-cotton, and the like, the combination with a flexible metal device sensitive to changes of temperature, measuring devices thereon, and spools or pulleys for moving the flexible metal device through the pile.

682,722. MEAT-CUTTER. GUSTAV LINDENBERG, FRITZ ALTENA, and FRITZ FISCHER, Barmen, Germany. Filed May 17, 1901. Serial No. 60,676. (No model.)

Claim.—1. The combination in a ham-cutting machine of a frame 1, 1ª, 2ª with a shaft 3 carried in said frame 1, 1ª, a miter-wheel 4 at one end and a disk 23 at the other end of said shaft, with a crank-shaft 6 carrying a miter-wheel 5 engaging with said wheel 4, a cam 24 on shaft 6, a roller 22 at the end of a bar 20 carried in frame 2, 2ª, said bar being pulled toward the cam 24 by a spiral spring 21, and a lever 18 jointed to the rear end of bar 20 as described and for the purpose set forth.

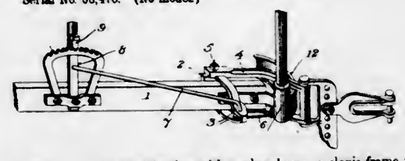


2. The combination in a ham-cutting machine of a trough 8 with a piston 11 having a rack 12 fixed at its rear side, a pawl 16 engaging with said rack and being held movably on a rocking lever 18, a rod 20 connected with said rocking lever and carrying at its front end an anti-friction-roller 22, a spiral spring 21 pulling said rod and the roller at its end against a cam 24 on a shaft 6, so that by the revolution of this shaft the rod 20 is pushed forward and backward the whole as described and for the purpose set forth.

3. In a ham-cutting machine the combination of a trough 8 with a knife-box 25, slits 26ª in the side walls 26 of said knife-box, knives 28 guided in said slits 26ª, knife-frames 31 holding said knives 28 by bolts 30, curved levers 32 fixed by bolts 33 to the machine-frame 2 and engaging by bolts 36 with said frames 31, antifriction-rollers 34 at the lower ends of levers 32, said rollers 34 engaging with a groove 23ª in a disk 23 on shaft 3, the whole as described and for the purpose set forth.

4. In a ham-cutting machine the combination of a trough 8 with a knife-box 25, knives 28 moving horizontally to and fro in said knife-box, a double-edged knife 40, moving up and down in front of the knife-box, vertical cutting-blades 46 fixed to the knife 40, bars 41 holding the knife 40 and fixed to a transversely-slotted frame 42, a pin 45 fixed to the face of disk 23 and engaging with the slot 42ª in frame 42, a guide-rod 43 carrying said frame and a bush 44 for guiding the rod 43, the whole as described and illustrated and for the purpose set forth.

682,723. PLOW-CLEVIS. AUGUST LINDGREN, Moline, Ill., assignor to the Moline Plow Company, of Illinois. Filed July 16, 1901. Serial No. 68,470. (No model.)



Claim.—1. In combination with a plow-beam, a clevis-frame pivoted thereto on a vertical axis, an arm projecting laterally from the side of the same, a brace connecting the arm with the clevis, a lever on the beam, and connections between the lever and the arm for adjusting the clevis-frame.

2. In combination with a plow-beam, a clevis in the form of a U-shaped frame pivoted thereto on a vertical axis and embracing the ends of the beam, a supporting-bracket applied to the end of the beam within the U-shaped frame, a lever on the beam and suitable connections between the lever and the clevis-frame.

3. In combination with a plow-beam, a clevis in the form of a U-shaped frame embracing the beam, a U-shaped arm projecting laterally from the rear end of the clevis-frame, a pivot-bolt connecting said arms to the beam, a brace connected at its forward end to the clevis-frame and extending at its rear end within the U-shaped frame, a rod having its forward end extended through the ends of the brace and arm, and an adjusting-lever on the beam connected with the rear end of the rod.

4. In combination with the beam, a clevis pivoted thereto on a vertical axis, a lever for adjusting the clevis laterally, and a supporting-bracket for the clevis fixed to the forward end of the beam and provided in one end with a vertical socket for the reception of a pole-stem.

5. In combination with a plow-beam, a clevis pivoted thereto on a vertical axis, means for swinging the clevis horizontally on its axis and

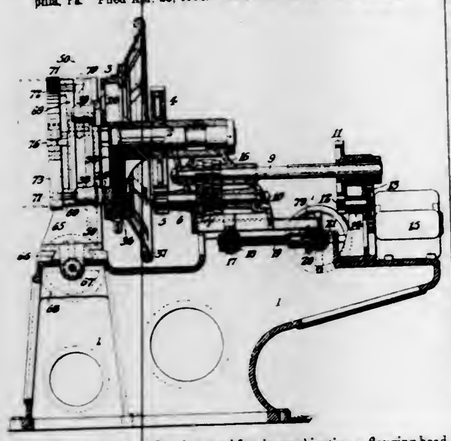
beyond the sides of the beam, a supporting-bracket for the clevis provided with a rearward longitudinal extension for attachment to the beam, a forward lateral extension for supporting the clevis, and formed in one end of said lateral extension with a vertical socket for the pole-stem.

682,724. COMPOSITION OF MATTER FOR INCREASING THE STRENGTH AND DURABILITY OF CEMENTS, &c. HENRY J. LIVINGSTON, Baltimore, Md. Filed Dec. 4, 1900. Serial No. 38,708. (No specimens.)

Claim.—1. The above-described composition of matter consisting of carbon; soluble carbonaceous matter; and a salt of soda; substantially as described and for the purpose specified.

2. The process of preparing a composition for strengthening cements or plaster which consists in mixing carbon in a powdered form, soluble alkaline matter, and soluble carbonaceous matter, in substantially the proportions specified, with water, then evaporating the mixture to dryness, and finally in pulverizing the product thus obtained.

682,725. FLANGING-MACHINE. LUTHER D. LOVEKIN, Philadelphia, Pa. Filed Apr. 25, 1900. Serial No. 14,256. (No model.)



Claim.—1. In a flanging-machine, in combination, a flanging head, a motor, a sliding pedestal on which said head is mounted, gearing connective of the motor and head, and two members of which may be adjusted with respect to each other without interrupting the operation of the gearing, a screw shaft engaged with a threaded member carried by said pedestal, and a manually operated device upon the exterior of the machine the rotation of which occasions the rotation of said shaft, substantially as set forth.

2. In combination, a rotatable head, an arm mounted on said head and adapted to move toward and from the center thereof, a radially disposed screw shaft in threaded engagement with said arm, a rack mounted on said head free for rotation independently of said head, and a connection between said shaft and said rack, substantially as set forth.

3. In a flanging machine, in combination, a rotatable head, an arm carried by said head and adapted to have radial movement with respect thereto, a radially disposed screw shaft in threaded engagement with said arm, an annular rotatable device in association with said head and free for rotative movement independent thereof, and a connection between said screw shaft and said rotative device whereby rotation of said device occasions the rotation of said screw shaft, substantially as set forth.

4. In a flanging machine, in combination, a rotatable head, an arm mounted on said head and adapted to move toward and from the center thereof, a radially disposed screw shaft in threaded engagement with said arm, a rack mounted on said head free for rotation independently of said head, a gearing connective of said shaft and said rack, and an operating wheel connected with said rack, substantially as set forth.

5. In a flanging machine, in combination, a rotatable head, a series of roller provided arms adapted for radial movement toward and from the center of said head, radially disposed screw shafts in threaded engagement with the respective arms, a rack mounted on said head and free for rotative movement independent thereof, an enlargement or operating wheel connected to said rack, and gears which operatively connect said screw shafts and said rack, substantially as set forth.

6. In combination, a rotatable head embodying a series of radial ways, arms mounted in said ways and free for movement longitudinally thereof, screw shafts mounted in said ways in threaded engagement with said arms, gears mounted on said shafts, an annular rack mounted on said head free for movement independent thereof, and an enlargement or operating wheel connected to said rack, substantially as set forth.

7. In combination, a rotatable head, undercut ways formed in said head, arms mounted in said ways, shafts mounted in said ways in threaded engagement with said arms, housings at the ends of said ways opening into an annular rack recess, gear wheels mounted on said shafts and disposed within said housings and opening into said rack recess, and an annular rack mounted in said rack recess, substantially as set forth.

8. In a flanging machine, in combination with a flanging head, a roller carrying arm consisting of two members, the first of said members having a lug provided with teeth arranged in a curved series, the other or second member having a lug overlapping said lug first referred to, a pivot passing through said lugs, and a rotatable worm carried by and moving with the second member, and in engagement with said curved series of teeth, substantially as set forth.

9. In combination, a rotatable flanging head, a series of radially disposed ways, a series of radially disposed screw shafts mounted in said ways, gears mounted one on each of said shafts, an annular rack engaged with said gears and having rotative movement independent of the head, a series of roller carrying arms engaged with said shafts and each consisting of two members pivotally united and provided with means for moving one member to and securing it in different positions of inclination with relation to the other member, substantially as set forth.

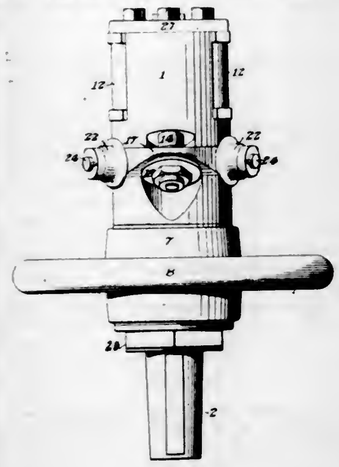
10. In a flanging machine, a roller carrying arm, and means for supporting and rotating the same, an axle mounted on the end of said arm, a cam roller mounted on said axle, a second roller bearing mounted on the outer end of said roller axle, and a deadening roller mounted in said roller bearing with its axis of rotation transverse or perpendicular to that of the cam roller, substantially as set forth.

11. In combination, a flanging head, a head shaft, means for supporting and occasioning the rotation of said head and shaft, a pair of pedestals, means for moving said pedestals toward and from each other, a pair of clamps carried by said pedestals and having facing grooves to receive an annulus, and screws which secure an annulus in said grooves, said screws being mounted in said clamps with their axes in parallelism with the head shaft, so as to present against the side face of the annulus, substantially as set forth.

12. In combination with a pair of supporting clamps adapted to an annulus or coupling ring, lugs projecting from said clamps, a pipe securing band having at each end blocks adapted to be secured respectively to the respective lugs, and a second band having at each end blocks adapted to be secured respectively to the respective blocks of the band first mentioned, substantially as set forth.

13. In combination with a pair of supporting clamps adapted to an annulus or coupling ring, lugs projecting from said clamps, two pipe securing bands each having a block at each end, one adapted to pass beneath the pipe and the other over it, and means for quickly connecting said blocks detachably to the lugs of the clamps.

682,726. FLANGING-MACHINE. LUTHER D. LOVEKIN, Philadelphia, Pa. Filed May 10, 1900. Serial No. 16,167. (No model.)



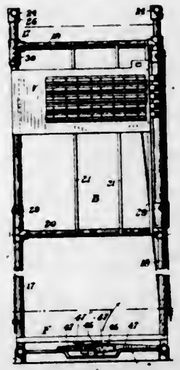
Claim.—1. The combination, to form a machine for operating upon the ends of pipes, of a rotatable mandrel embodying a bore, a follower mounted in said bore, a roller mounted in said mandrel and controlled as to its radial adjustment through the longitudinal movement of said follower, an arm connected to said follower and projecting through a longitudinal slot in said mandrel and having its outer end provided with a thread, a controller ring mounted on said mandrel and having a threaded face with which said threaded arm is engaged, said controller ring being rotatable independently of the mandrel, substantially as set forth.

2. The combination, to form a machine for operating upon the ends of pipes, of a mandrel body which has a bore and is for a portion of its length of reduced diameter, a roller mounted in said body, a follower mounted in said bore, the longitudinal movement of which follower controls the set of the roller, longitudinal slots formed in the reduced portion of the mandrel body, a controller ring seated on the mandrel body, free for rotation independently thereof and extending over the reduced portion of said body, arms extending from said follower through said slots and having their outer ends threaded and engaged with the threaded controller ring, substantially as set forth.

3. The combination to form a machine for operating upon the ends of pipes, of the mandrel body having the reduced portion, the axle bore, the slots formed in its reduced portion, and the slots for the roller blocks,—the threaded controller ring mounted on said body and bridging said reduced portion,—the tapered follower mounted in said bore having arms extending through the slots and engaged with the threaded controller ring,—and roller bearing blocks mounted in the slots in the mandrel and engaged by undercut tongue and groove connections with the upper portions of the follower, substantially as set forth.

4. The combination, to form a machine for operating upon the ends of pipes, of a rotatable mandrel, an expanding roller mounted in said mandrel in approximate parallelism with its axis, a cam or flanging roller mounted on said mandrel with its axis at an acute angle with respect to the axis of the mandrel, and a deadening roller mounted on said mandrel, at a point approximately abreast the cam or flanging roller, and with its axis approximately perpendicular to that of the mandrel, said rollers being all idle rollers, substantially as set forth.

682,727. VOTING-BOOTH. LAWRENCE W. LUELLEN, Olathe, Kans. Filed Feb. 1, 1901. Serial No. 45,616. (No model.)



Claim.—1. A voting-booth including an end frame having vertically-disposed posts; two side frames pivotally connected with said posts; and a platform and a supporting member situated in a lower portion of said booth and adapted to be folded into overlapping relation with the end frame and side frames.

2. A voting-booth comprising an end frame and two side frames pivotally connected together to be folded into overlapping relation; and two door-frames pivotally connected to opposite ends of the end frame, respectively, and adapted to be swung into parallelism with said end frame.

3. A voting-booth embodying an end frame having parallel posts or uprights; two side frames in hinged connection with said posts and adapted to be swung into overlapping relation with said end frame; a platform or floor extending across the lower portion of the booth and pivotally connected to one side frame and adapted to be swung into substantial parallelism with said side frame, and a supporting member also pivoted to one of the frames the construction of the parts being such that the end frame, side frames, platform and supporting member may be folded into overlapping relation.

4. A voting-booth comprising an end frame having two tubular end posts and horizontally-disposed cross-bars connecting said posts; two skeleton side frames each in hinged connection with opposite ends of a post; a door-frame in hinged connection with each post and disposed, when in its closed position, in the vertical plane of the side frame and having stops for limiting the closing movement thereof; a platform in pivotal connection at one end to one side frame; and locking mechanism operable by said platform for locking one door-frame and for unlocking the other door-frame simultaneously.

5. A voting-booth comprising an end frame, two side frames two doors, and a movable platform pivotally connected together whereby they may be folded into overlapping relation.

6. In a voting-booth, the combination, with an end frame adapted for supporting a voting-machine and having two parallel uprights or posts at the opposite ends thereof, of two skeleton side frames each pivotally connected at opposite ends to the upper and lower ends of a post of the end frame; two door-frames each pivotally supported on a post of the end frame between upper and lower ends of the side frames and having break-joints, substantially as described; springs for imparting a closing movement to said door-frames; horizontally-reciprocatory lock-bolts for engaging the door-frames; a movable platform in pivotal connection with one side frame; and means operated by the platform for advancing one lock-bolt and retracting the other concurrently to lock one door and unlock the other door.

7. A voting-booth comprising a skeleton end frame having two parallel vertically-disposed cylindrical posts; two substantially U-shaped side frames each pivotally connected to the upper and lower ends of an end-frame post whereby they may be swung in the arc of a circle into overlapping relation with said end frame; two substantially U-shaped door-frames each disposed in the plane of a side frame between the upper and lower bars thereof and pivotally connected with a post of the end frame; two horizontally-reciprocatory lock-bolts cooperative with the two door-frames for locking the same; pivoted levers in connection with, and adapted for imparting opposing movements to, the two lock-bolts simultaneously whereby to lock one door-frame and unlock the other; a carrier for said levers in pivotal connection at one end with one side frame and normally supported at the opposite end on the lower cross-bar of the other side frame; and a platform disposed above and adapted for operating said levers and having a pivotal connection with one side frame.

8. In a voting-booth, the combination with side frames provided with door-frames and having tubular end posts, of a lock-bolt supported in an end post in position to engage and lock a door-frame; a platform within the booth; and platform-actuated means for operating the lock-bolt.

9. In a voting-booth, the combination with side frames provided with door-frames and having tubular end posts, of a lock-bolt supported in an end post in position to engage and lock a door-frame; a platform within the booth; and platform-actuated means for operating the lock-bolt, including vertically-movable levers, bell-crank levers in connection with the lock-bolts and rods connecting the bell-crank levers and vertically-movable levers.

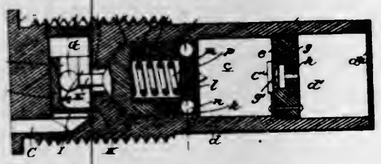
10. In a voting-booth, the combination with an end frame and two side frames hinged together to be folded into overlapping relation; doors in each of the side frames; lock-bolts disposed in the side frames to engage said doors; a movable platform; and lock-bolt-actuating levers operable by said platform for imparting a door-locking movement to one bolt and a door-releasing movement to the other bolt.

11. In a voting-booth, the combination with an end frame and two side frames hinged together for folding into overlapping relation; a door for each of said side frames; lock-bolts disposed to engage said doors; a movable platform in pivotal connection with one side of the side frames; lock-bolt-actuating levers operable by said platform for imparting a door-locking movement to one bolt and a door-releasing movement to the other bolt; and a support for said levers having a pivotal connection with one side frame, whereby said platform, levers and support may be folded into substantial parallelism with said side frame.

12. A voting-booth comprising an end frame having means for supporting a voting-machine, and having tubular end posts; two side frames in hinged connection with the posts of the end frame; two door-frames in pivotal connection with the posts of said end frame between the upper and lower ends thereof and having break-joints whereby the front portions of said door-frames may be turned inward into overlapping relation with the end frame without changing the positions of their pivotal connections with the posts; springs for imparting closing movements to said door-frames; stops on said door-frames for limiting the closing movements thereof; bolts supported for reciprocatory movements on the side frames in position to engage the door-frames; levers pivotally supported on the end frames and having shiftable connections respectively with said bolts; bolt-actuating rods in pivotal connection with said levers; a carrier in pivotal connection at one end of one side frame and supported at its opposite end on the other side frame; bolt-actuating levers pivotally mounted on said carrier and operatively connected at their outer ends with

the bolt-actuating rods; and a platform superposed with relation to, and effective on a movement thereof for operating, said bolt-actuating levers, and having one end thereof in pivotal connection with one of the side frames, substantially as and for the purpose described.

682,728. PERCUSSION-FUSE FOR EXPLOSIVE PROJECTILES. MICHAEL A. LYNCH and HARRY WILSON, Washington, D. C. Filed Nov. 15, 1900. Serial No. 36,642. (No model.)



Claim.—1. In a fuse for explosive projectiles, the combination of a stock, a hammer adapted to move therein and having a projection provided with an enlargement, a securing device for the hammer, movable in the stock, and having a chamber of a size to receive the enlargement of the hammer projection, an opening, of a size to permit the passage of the enlargement of said projection communicating with the chamber, and a comparatively reduced opening communicating with the first-named opening and the chamber and extending forwardly from said first-named opening or in the direction in which the device is moved to release the hammer and means whereby the securing device is moved to effect the release of the hammer when the projectile is fired from a gun.

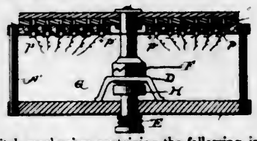
2. In a fuse for explosive projectiles, the combination of a stock, a hammer adapted to move therein and having a projection provided with an enlargement, a securing device for the hammer, movable in the stock and having a chamber of a size to receive the enlargement of the hammer projection, an opening, of a size to permit the passage of the enlargement of said projection, communicating with the chamber, and a comparatively reduced opening communicating with the first-named opening and the chamber and extending forwardly from the former or in the direction in which the device is moved to release the hammer, and means whereby the gases of the propelling charge of a gun are enabled to move the securing device and thereby effect the release of the hammer.

3. In a fuse for explosive projectiles, the combination of a stock having a hammer-chamber and a transverse chamber connected with the hammer-chamber by a passage intermediate of the two, a hammer adapted to move in the chamber therefor, and having a stem or projection provided with an enlargement of a size to pass through said intermediate passage, a securing device for the hammer, movable in the transverse chamber of the stock, and having a chamber of a size to receive the enlargement of the hammer stem or projection, an opening, of a size to permit the passage of the enlargement of said stem or projection, communicating with the chamber, and a comparatively reduced opening communicating with the first-named opening and the chamber and extending forwardly from the former or in the direction in which the device is moved to release the hammer, and means whereby the gases of the propelling charge of a gun are enabled to move the securing device and thereby effect the release of the hammer.

4. In a fuse for explosive projectiles, the combination of a stock having a hammer-chamber, a transverse chamber arranged in rear of the hammer-chamber, a passage intermediate of the two chambers, and a passage for gases leading to the transverse chamber, a hammer arranged and adapted to move in the hammer-chamber, and having a rearwardly-extending stem terminating in an enlargement of a size to pass through the said intermediate passage, and a rectilinearly-movable securing device for the hammer, arranged in the transverse chamber of the stock, and having a chamber of a size to receive the enlargement of the hammer-stem, an opening, of a size to permit the passage of said enlargement, communicating with the chamber, and a comparatively reduced opening communicating with the chamber and the first-named opening, and extending forwardly from the latter or in the direction in which the device is moved to release the hammer.

682,729. ELECTRIC SWITCH. HERMAN A. METZ, Brooklyn, N. Y. Filed July 5, 1899. Serial No. 722,841. (No model.)

Claim.—1. The combination of a circular insulated base having a central opening, provided on its upper face with vertically-yielding contacts projecting therefrom, a shaft projecting loosely through the central opening of said base and that is adapted to be reciprocated therethrough, an electrical contact-disk that is adapted to be mounted axially on the upper projecting end of said shaft, and that is provided with an under face of insulating material, said insulating-face being slotted at predetermined points therein to the depth of the contiguous metal face to provide working contact portions thereon; and means for controlling the rotation and reciprocation of said shaft and disks, whereby the contacts may be brought into operative contact with the working portions of the metal disk, as and for the purpose set forth.



2. A switch mechanism containing the following instrumentalities, viz., an insulated base having yielding contact projections, a rotary metal contact-disk, and an interposed insulating-disk provided with perforations, and that is combined with said metal disk, a shaft projecting centrally through said base, upon the upper projecting end of which said disks are axially mounted; an encircling helical spring sleeved on the opposite end of said shaft in a manner tending to move it in the direction to bring the disks in engagement with the contacts, and a rotary multiple cam-faced gear mounted on said shaft, and a fixed gear that is arranged in operative engagement with said rotary gear to operate against the action of the spring to reciprocate the shaft and thereby raise the disks away from the contacts, substantially as described.

682,730. LINE-GUIDE FOR FISHING-RODS. HENRY B. MITCHELL, Haddonfield, N. J., assignor to Mitchell-Bissell Co., New York, N. Y. Filed June 7, 1901. Serial No. 63,638. (No model.)



Claim.—1. A line-guide consisting of a channeled block, a band encircling the same, a strip with a raised and perforated seat for the block, the ends of the band extending through the perforation of the strip and secured thereon, substantially as set forth.

2. A line-guide consisting of a channeled block, a band encircling the same, a strip with a raised and perforated seat for the block, the ends of the band extending through the perforation of the strip and secured thereon by lips formed by bending the ends of the band, substantially as set forth.

3. A line-guide consisting of a channeled block having a circumferential groove, a band encircling the same in said groove, a strip with a raised and perforated seat for the block, the ends of the band extending through the perforation of the strip and secured thereon, substantially as set forth.

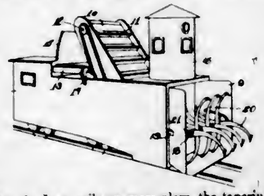
4. The combination with the guide-block, of a strip parallel to the axis of the block and provided with a raised seat upon which the block is supported, and means for securing the block in position on said seat, substantially as set forth.

5. The combination with the guide-block, of a strip parallel to the axis of the block and provided with a raised seat for the block, and a band extending around the block and connected with said seat, substantially as set forth.

6. The combination of the strip having tapering ends and an elevated bearing or seat, the perforated block supported upon said raised portion, and means for securing the block to said seat, substantially as set forth.

7. The combination with a fishing-rod, of a strip having an elevated bearing or seat, means for securing the ends of the strip to the rod, and a guide-block supported upon the seat, and means for securing it to said seat, substantially as set forth.

682,731. RAILWAY SNOW-PLOW. KATHARINE C. MUDGE, Winthrop, Mass. Filed Nov. 5, 1900. Serial No. 35,537. (No model.)

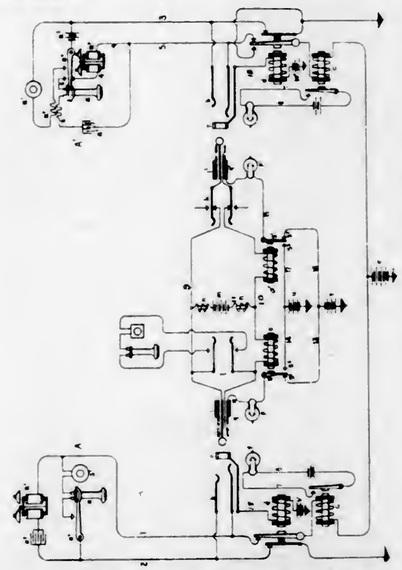


Claim.—1. In a railway snow-plow, the tapering metallic mouth, broader at the front than any other part of the plow, and having an inclined floor, upright sides and a top platform connecting such sides, the lookout-station 16 located on said platform, the snow-loosening cutters 20 revolving in said mouth between such floor and platform and assisting to carry snow into the mouth, in combination with an endless elevating-belt rising from the rear of said mouth and cutters, a transverse discharging-belt back of said elevator, and driving apparatus within the plow-body for actuating said cutters and belts, substantially as set forth.

2. A railway snow-plow having at its front end a lookout-station, a tapering metallic mouth beneath such station and a transverse rotary shaft revolving in bearings in said mouth and carrying independent radial cutter-arms, in combination with a middle section comprising oblique endless elevating and horizontal discharging belts and a transverse fender in rear thereof, and with driving apparatus occupying the interior and rear section of the plow-body, for actuating said cutters and belts, substantially as set forth.

3. In a railway snow-plow, the plow-body having a suitable frame and endless elevating and discharging belts, in combination with a cutting apparatus consisting of a rotary shaft carrying radial arms with flanged inner ends provided with sockets to fit laterally upon such shaft, and clamping means adapted to secure two of such arms to each other and to the shaft, substantially as set forth.

682,732. SUPERVISORY SIGNAL FOR TELEPHONE SYSTEMS. FRANK R. MCBERTY, Downers Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Nov. 13, 1897. Serial No. 658,400. (No model.)



Claim.—1. The combination with telephone-lines of different types centering in the same switchboard, of a signal-receiving electromagnet o for each line and means at the substation of each line for transmitting signals to which said magnet is responsive, said means being different for the different lines, whereby said magnet is affected in different ways, a supervisory signal controlled by the magnet, and an intermediate device or agent through which the magnet acts to affect the supervisory signal, the effect of a given condition of the magnet upon its supervisory signal being dependent upon the intermediate device, the intermediate device of each magnet being associated with the corresponding line and adapted to transfer the signals received by the magnet to the supervisory signal in a manner distinctive to that class of lines, substantially as set forth.

2. The combination with differently-equipped telephone-lines centering in the same switchboard, spring-jacks for the lines and a pair of plugs and their plug-circuit for connecting any two lines together, of a signal-receiving electromagnet in the plug-circuit and means at the substation of each line for determining the flow of current in that line to transmit signals to the central office, the magnet in the plug-circuit being responsive to all such signals, a supervisory signal associated with the magnet, an intermediate translating device or agent adapted operatively to connect the magnet with the supervisory signal, and means controlled by connection of the plug-circuit with any line, for adapting the intermediate device to the particular means of signaling of that line, whereby uniform action of the supervisory signal is obtained in connecting the plug with all of said lines, as set forth.

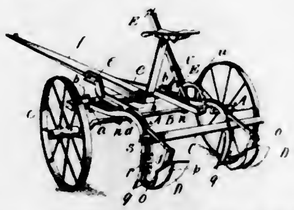
3. The combination with telephone-lines having switches at their substations for closing different circuits for signaling, of a link conductor for making connection with any line, and a signal-receiving device responsive to the calling-current from any line, a secondary signal associated with the link conductor, and an intermediate controlling device between said signal-receiving device and said secondary signal and operatively connecting them when said link conductor is connected with the line, said intermediate device consisting in part of a circuit permanently associated with the line and adapted to modify the control of said signal-receiving appliance over said signal, as described.

4. In combination, normally open telephone-lines with switches for closing them in the use of the telephones, and normally closed lines with switches for opening them in the use of the telephones, said lines centering in a switchboard, of plugs and a plug-circuit for uniting the lines, a supervisory signal associated with each plug, a controlling device for each signal in the plug-circuit, and means for producing current in the said device when the circuit is closed at the substation with which the controlling device is connected; local circuits forming the medium of control between said controlling device and said supervisory signal, each such local circuit being formed in part of a conductor permanently associated with a telephone-line, and a device in the said circuit connections of each line adapted to determine the operation of the signals, the said devices of the normally open and of the normally closed lines being adapted to affect the signal in opposite ways; whereby the response of the signals to changes of position of the switches at the substations is the same whether they are associated with normally open or normally closed lines, as described.

5. The combination with a telephone line having a switch for opening the line in the use of the telephone, a relay connected with the line to be excited by current therein, a line-signal controlled by the relay to be lighted when the relay is inert, of a switch actuated in making connection with the line to sever the normal-line connection with the said relay, and auxiliary contacts of the said switch adapted to complete a local circuit of the relay, whereby the line-signal is effaced in making connection with the line, as described.

6. The combination with a telephone-line, a relay associated therewith to respond to current in the line, a supervisory signal controlled by the relay, a cut-off relay for severing normal circuits during connection with the line, a local circuit including said cut-off relay and said supervisory signal, a switch-lever for said supervisory controlling-relay, and circuit connections controlled thereby adapted to apply a small electromotive force for exciting the cut-off relay or an increased electromotive force for exciting the supervisory signal, according to the position of said relay, as described.

682,733. PLOW. HENRY M. MCCAFFERTY, Montrose, Colo. Filed Apr. 27, 1901. Serial No. 57,734. (No model.)



Claim.—1. A sulky gang-plow substantially as described.

2. In a sulky gang-plow, the combination of plow-beams A A suitably adjusted on axle B and carrying colters *q q*; bars *j* supporting shoes *o o* carrying shares D D substantially as described.

3. In a sulky gang-plow, the combination of plow-beams A A and colters carried by them; shoes *o o* carrying shares D D and bars *j* substantially as described.

4. In a sulky gang-plow, the combination of plow-beams A A supported by axle B and carrying colters *q q*; a cross-bar C; bars *j* supporting shoes *o o* to which are attached shares D D; a lever engaging with ratchet *u* secured to brace *e* substantially as described.

5. In a gang-plow, the combination of plow-beams A A supported by axle B; means for adjusting said beams on axle; bars *j* and means for securing the same to beams A A; shoes secured to bars *j*; shares D D with means for securing the same to shoes *o o*; a cross-bar C and lever E engaging with ratchet *u*, substantially as described.

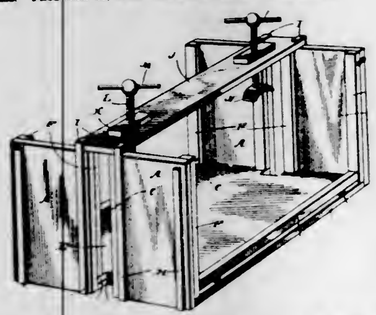
6. In a sulky gang-plow, the combination of a series of beams A, A; means for adjusting said beams to axle B; shoes o o and means for se-

curing the same to the rear ends of bars *j*; means for securing the shares to said shoes; colters *q q* and means for securing the same to the lower ends of beams A A, substantially as described.

7. In a sulky gang-plow, the combination of a solid framework formed by plow-beams A A; a tongue *f*, braces *e e* and beam *c*; cross-bar C with clips *s*; axle B bent at both ends to form two right angles and passing through collars secured in place by clips *b b* and *g g*; colters secured to the lower extremities of said plow-beams; bars *j* and means for attaching the same to the plow-beams A A; shares D D secured to said bars *j* and to the plow-beams A A; means for attaching shoes *o o* thereto; a lever E engaging with ratchet *u* for raising the frame on the axle B substantially as and for the purposes described.

8. In a sulky gang-plow, the combination of the beams A A with axle B; means for securing said beam to axle; bars *j* disposed between the side bars of beams A A and supporting at the outwardly-projecting ends, shoes *o o* carrying shares D D; colters *q q* and means for securing the same to downwardly-projecting ends of beams A A; means for securing the shares D D to shoes *o o*; a cross-bar C holding beams A A rigid; lever E engaging with ratchet *u*, secured to brace *e*; a spring *v* secured to lever E and to beam *c*; tie-bolts, holding beams A A securely on axle B, substantially as described.

682,734. SHINGLE-BUNDLER. CHARLES D. MCLEAN, Roxbury, Mass. Filed Dec. 11, 1900. Serial No. 39,502. (No model.)



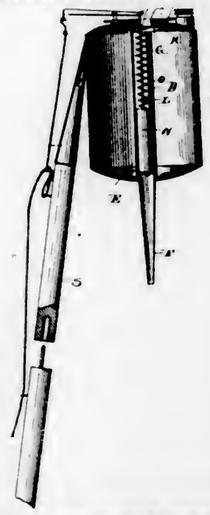
Claim.—A device of the character described comprising a box, open at its top and sides and having vertical cleats on the inner sides of its end walls, the cleats of one end wall being removable, means for securing said cleats in position, a removable cross-bar positioned at the upper end of said box, and compressing-screws movable through said bar, substantially as described.

682,735. PACKING-CASE FOR INCANDESCENT MANTLES. MORTIMER MCROBERTS, San Francisco, Cal. Filed Aug. 13, 1900. Serial No. 26,761. (No model.)



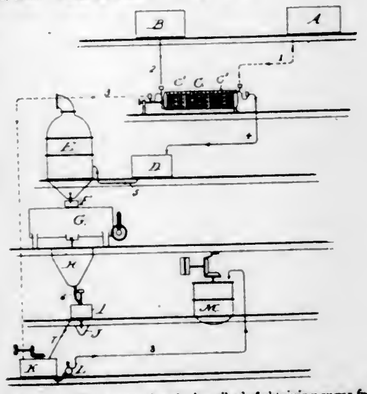
Claim.—A packing-case for incandescent mantles comprising a case; a cap or cover for the end of the case having an exterior flange adapted to pass over the outside end of the case; a circular flange secured to the inside bottom of the cap or cover and adapted to receive the end of the ferrule of the mantle-holder inside the flange; one or more locking-notches in the circular flange and one or more projections on the ferrule adapted to enter and lock into the notches in the flange, and a sealing-strip on the outside of the packing-case overlapping the flange of the cap or cover, substantially as described.

682,736. OIL-CAN. JAMES C. OWEN, Spirit Lake, Iowa. Filed Aug. 2, 1900. Serial No. 25,634. (No model.)



Claim.—In an oil-can, an oval-shaped receptacle having a cylindrical section mounted in the center thereof and provided with a longitudinal slot, of an oil-outlet mounted in the lower end of the said cylindrical section, communicating and integral therewith, of a screw-cap mounted in the top of the said oval-shaped receptacle, the said cap having a lever fulcrumed thereto, a rod connecting one end of the said lever to a spring-actuated plunger mounted in the cylindrical section, of a string connected to the other end of the lever, and an adjustable handle for supporting the receptacle, substantially as shown and for the purpose set forth.

682,737. PROCESS OF EXTRACTING SUGAR FROM MOLASSES. JAMES G. OXNARD and WILHELM BAUR, New York, N. Y. Filed June 26, 1901. Serial No. 66,127. (No specimens.)

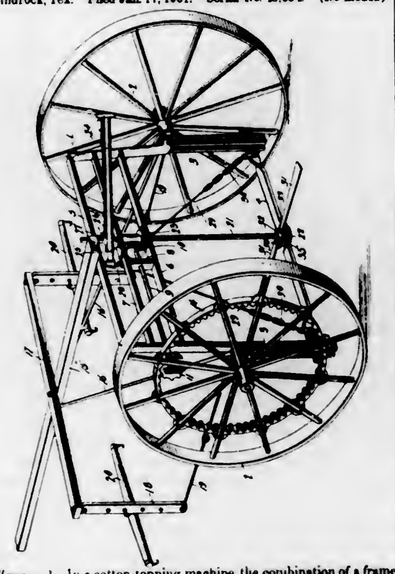


Claim.—1. The process herein described of obtaining sugar from molasses which consists, essentially, in flowing the molasses in contact with the pervious walls of adjacent water-channels whereby a part of the salts and organic impurities contained in the molasses are absorbed and the purity of the molasses is raised; then concentrating the purified molasses and boiling the same to a masse-cuite; then purging the masse-cuite of its molasses; then combining the osmose-water of the original molasses and the said purged molasses, and finally extracting the sugar contained in the combined mixture.

2. The process herein described of extracting sugar from the molasses obtained from working original juice consisting in purifying the molasses by osmosing and boiling the purified molasses to form a masse-cuite; then purging this masse-cuite; then combining the molasses purged therefrom and the solution of the absorbed salts and imperities of the original molasses; and, finally, precipitating the sugar remaining in the combined solution to form sucrates and treating the precipitated sucrates to gain the sugar thereof.

3. The process herein described of extracting sugar from the molasses obtained from working original beet-juice, consisting, essentially, in purifying the molasses by osmosing; then boiling the purified molasses to form a masse-cuite; then purging the masse-cuite of its molasses constituent; then combining the purged molasses and the osmose-water used in purifying the original molasses; and, finally, precipitating the sugar remaining in the combined solution as sucrates and then treating the sucrates to gain the sugar thereof as granulated sugar.

682,738. COTTON-TOPPING MACHINE. GEORGE W. PALM, Roundrock, Tex. Filed Jan. 17, 1901. Serial No. 43,654. (No model.)

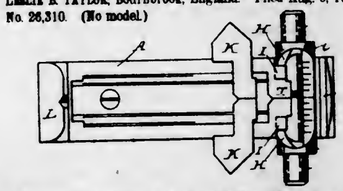


Claim.—1. In a cotton-topping machine, the combination of a frame having vertical guideways, a cross-bar engaging said guideways, means to raise and lower said cross-bar, a revoluble shaft supported by said cross-bar and a chopping device carried by said shaft, said chopping device adapted to coact with said cross-bar, substantially as described.

2. In a cotton-topping machine, a revoluble shaft and chopping-blades, one or more, pivotally connected to and carried by said revoluble shaft, in combination with a relatively-fixed cross-bar, said cross-bar and revoluble chopping-blades adapted to coact, substantially as described.

3. In a cotton-topping machine, the combination of a frame, supporting and traction wheels therefor, vertical guides with which said frame is provided, a cross-bar adjustable in said guides, a vertically-disposed shaft supported by said cross-bar, adjustable therewith and provided with chopping-blades, the latter and said cross-bar adapted to coact, and gears connecting one of said wheels to said shaft, substantially as described.

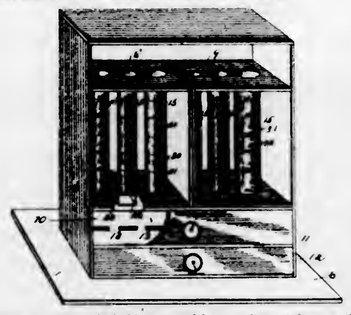
682,739. GUN-SIGHT. EDWARD H. PARSONS, Bournville, and LESLIE B. TAYLOR, Bournbrook, England. Filed Aug. 8, 1900. Serial No. 26,310. (No model.)



Claim.—1. In combination in a sight for rifles, a leaf, a pivot-pin to which the leaf is secured and the pivot-ears in which the pivot turns, the said pivot projecting on each side of the sight when the leaf is in its central position and movable longitudinally through the said ears when either end is pushed upon, the said leaf being moved laterally of the sight by the longitudinal movement of the pin, substantially as described.

2. In combination, the pivot-ears, the pivot-pin having a slot, the leaf having a foot fitted into said slot and having a solid top piece and a slide carried by the leaf and adapted to be placed thereon from the foot end thereof, substantially as described.

682,740. COIN-HOLDER. GEORGE B. PETERS, Smithbranch, Ky. Filed Dec. 1, 1900. Serial No. 38,353. (No model.)

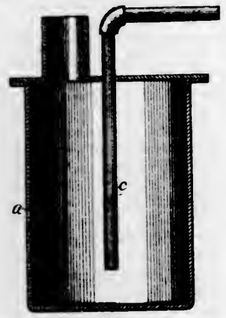


Claim.—1. A coin-holder comprising a coin-container, a plate disposed transversely of and spaced from the container to permit of movement of a coin therebetween, and a chute having a top plate slidably mounted between the first-named plate and the container, said top plate having an opening therein to receive a coin from the container to rest on the first-named plate, and said chute having a degree of slidable movement sufficient to carry the coin in the opening, beyond the first-named plate to precipitate it to the chute.

2. A coin-holder comprising a containing-tube, a plate disposed transversely of and spaced from the lower end of the tube, and a combined chute and handle below said plate and having a top plate slidably disposed between the first-named plate and the tube, the top plate having openings therein adapted for alternate alinement with the tube to receive coins therefrom to rest on the transverse plate, the chute having a degree of movement sufficient to carry a coin in an opening thereof, beyond the transverse plate to precipitate into the chute.

3. A coin-holder comprising a casing, an upper compartment containing a removable and foldable lining, coin-containers carried by the lining and having discharge mechanism therebelow, and a closure for the casing below the lining.

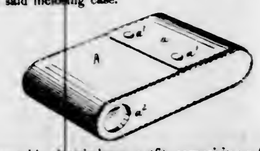
682,741. METHOD OF MAKING CYANIDS. JOHANNES PFLEGER, Frankfort-on-the-Main, Germany, assignor to Deutsche Gold & Silber-Scheide-Anstalt, vorm. Roessler, same place. Filed Dec. 10, 1900. Serial No. 39,382. (No specimens.)



Claim.—The herein-described process for the production of alkali cyanids, which consists in reacting ammonia with a mixture of alkali metal, carbon and cyauid, at a temperature not substantially exceeding the melting-point of cyanid, thereby forming dialkalicyanamid, then raising the temperature of the mass to about 750° to 800° centigrade, thereby causing the dialkalicyanamid to combine with the carbon, forming alkali cyanid, substantially as and for the purposes set forth.

682,742. PORTABLE ELECTRIC LAMP. HERBERT H. PLAIS, New York, N. Y. Filed Apr. 20, 1901. Serial No. 56,780. (No model.)

Claim.—1. A portable electric-lamp outfit, comprising an inclosing case with several cells of battery and a lamp-carrying casing side by side, said lamp-carrying casing as well as the cells being contained within the limits of the said inclosing case.

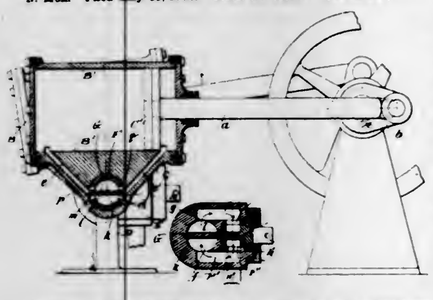


2. A portable electric-lamp outfit, comprising a flat inclosing case containing a series of cells side by side and a casing also side by side with the cells, said casing carrying a lamp and switch and connections, substantially as described.

3. A portable electric-lamp outfit, comprising a flat inclosing case with semicylindrical ends and containing a series of cylindrical cells of battery side by side, and also side by side therewith a lamp and switch carrying cylinder.

4. A portable electric-lamp outfit, comprising an inclosing case containing a series of cells of battery side by side and also a lamp and switch carrying cylinders side by side with the cells, the inclosing case having openings for the lamp and switch.

682,743. **STEAM-ENGINE.** MATTHIAS POLL, Albuquerque, N. Mex. Filed May 13, 1901. Serial No. 60,079. (No model.)



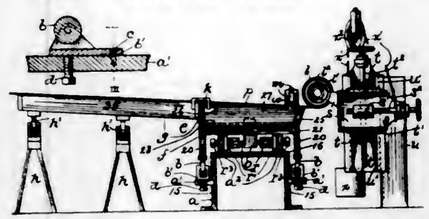
Claim.—1. In a steam-engine, the combination of a suitable support, a hollow body mounted on the support and having upper and lower steam-chambers and also having a projection containing a chamber F′ connected with said steam-chambers and also connected with steam supply and exhaust conduits, a reversing-valve in said chamber F′, a hollow valve connected to the body and having steam supply and exhaust chambers and ports in communication therewith; said valve being exteriorly tapered and provided at its outer end with screw-threads, an oscillatory cylinder having a taper bore receiving the valve, whereby the cylinder is supported by and free to oscillate on the valve, and also having ports leading from said bore to points adjacent to its opposite ends, and a nut mounted on the threaded end of the valve to retain the cylinder in position thereon.

2. In a steam-engine, the combination of a suitable support, a hollow body mounted on the support and threaded at its opposite ends and having upper and lower steam-chambers and also having a projection containing a chamber F′ connected with said steam-chambers and also connected with steam supply and exhaust conduits, a reversing-valve in said chamber F′, hollow valves connected to the threaded ends of the body and having steam supply and exhaust chambers and ports in communication therewith; said valves being exteriorly tapered and provided at their outer ends with screw-threads, oscillatory cylinders having taper bores receiving the valves, whereby the cylinders are supported by and free to oscillate on the valves, and also having ports leading from said bores to points adjacent to their opposite ends, and nuts mounted on the threaded outer ends of the valves.

3. In a steam-engine, the combination of a suitable support, a hollow body mounted thereon, and having steam supply and exhaust chambers and also having a threaded end, a hollow valve connected to the threaded end of the body and having steam supply and exhaust chambers and ports in communication therewith; said valve being exteriorly tapered and provided at its outer end with screw-threads, an oscillatory cylinder having a taper bore receiving the valve, whereby the cylinder is supported by and free to oscillate on the valve, and also having ports leading from said bore to points adjacent to its opposite ends, and a nut mounted on the threaded end of the valve to retain the cylinder in position thereon.

4. In a steam-engine, the combination of a suitable support, a hollow body mounted thereon and having threaded ends, hollow valves connected to the threaded ends of the body and having ports; said valves being exteriorly tapered and provided at their outer ends with screw-threads, a diametrical partition extending through the body and valves and dividing the same into steam supply and exhaust chambers, oscillatory cylinders having taper bores receiving the valves whereby the cylinders are supported by and free to oscillate on the valves, and also having ports leading from said bores to points adjacent to their opposite ends, and nuts mounted on the threaded outer ends of the valves.

682,744. **APPARATUS FOR GRINDING LARGE PLATES OR SHEETS OF GLASS.** FREDERICK POLLARD, Cleveland, Ohio. Filed Mar. 13, 1901. Serial No. 50,928. (No model.)



Claim.—1. Apparatus of the character indicated, comprising a stationary frame *a* of suitable length, a glass-carrier mounted upon and movable endwise of the stationary frame, vertically-adjustable roller-bearings between the said frame and the carrier, means for preventing displacement of the carrier laterally of the path of the carrier, means for holding the sheet or plate of glass to be operated upon down upon the carrier at the forward side of the carrier, a grinding-wheel arranged to operate upon the sheet or plate of glass, and means whereby the said wheel is adjustable toward and from the said path and up and down, substantially as shown, for the purpose set forth.

2. In apparatus of the character indicated, the combination, with a stationary frame *a* of suitable length, and a glass-carrier mounted upon and movable endwise of the stationary frame, of rollers interposed between the frame and the carrier and arranged with their axes parallel and at right angles to the path of the carrier, plates bearing the rollers, set-screws in the stationary frame and engaging the under sides of and arranged to vertically adjust the roller-bearing plates, and other means for securing the said plates in the desired adjustment, substantially as and for the purpose set forth.

3. In apparatus of the character indicated, the combination, with a stationary frame *a* of suitable length, which frame comprises parallel bars *a′* arranged in the same horizontal plane and longitudinally of the frame, and a glass-carrier mounted upon the said bars, of rollers interposed between the upper sides of the said bars and the carrier and arranged with their axes parallel and at right angles to the path of the carrier, plates bearing the rollers, suitably-applied set-screws engaging the plates and arranged to adjust the rollers vertically, and other screws for securing the roller-bearing plates in the desired adjustment.

4. In apparatus of the character indicated, the combination, with a stationary frame *a* of suitable length, and a glass-carrier mounted upon the stationary frame, of rollers *r* arranged to prevent displacement of the carrier laterally of the path of the carrier, plates bearing the rollers and supported from the stationary frame, suitably-applied set-screws for adjusting the said roller-bearing plates laterally of the aforesaid path, and other means for securing the said plates in the desired adjustment, substantially as and for the purpose set forth.

5. In apparatus of the character indicated, the combination, with a stationary frame *a* of suitable length, and a glass-carrier mounted upon the stationary frame and provided, upon its under side, with a bar or beam extending longitudinally of the carrier, of a series of rollers engaging the said bar or beam at one side and arranged with their axes perpendicular to the line of travel of the carrier, a series of correspondingly-arranged rollers engaging the opposite side of the said bar or beam, plates bearing the rollers and supported from the stationary frame, suitably-applied set-screws arranged to adjust the plates bearing one of the said series of rollers, relative to the aforesaid bar or beam, and other screws for securing the said adjustable plates in the desired adjustment, substantially as and for the purpose set forth.

6. In apparatus of the character indicated, the combination, with a grinding-wheel arranged in a horizontal plane, and means whereby the said wheel is rendered adjustable laterally and up and down, of a stationary frame *a* of suitable length, a glass-carrier mounted upon and movable longitudinally of the stationary frame at one side of the grinding-wheel and adjustable laterally of the path of the carrier, and means for securing the said carrier in the desired adjustment, substantially as and for the purpose set forth.

7. In apparatus of the character indicated, the combination, with a suitably-supported grinding-wheel arranged in a horizontal plane, and a stationary frame arranged at one side and longitudinally of the grinding-wheel, of a glass-carrier mounted upon and movable longitudinally of the stationary frame and provided, upon its under side, with a bar or beam *o* extending longitudinally of the carrier, which carrier comprises cross-bars 22 extending across the top of the said beam or bar *o* and having elongated holes or slots 23 arranged longitudinally of the cross-bars, means instrumental in rendering the aforesaid bar or beam *o* rigid with the carrier and comprising suitably-applied bolts or screws *o′* extending through the aforesaid slots 23, and rollers *r* arranged to prevent displacement of the aforesaid beam or bar *o* laterally, substantially as and for the purpose set forth.

8. In apparatus of the character indicated, the combination, with a suitably-supported grinding-wheel arranged in a horizontal plane, and a stationary frame arranged at one side and longitudinally of the grinding-wheel of a glass-carrier comprising a lower section *f* mounted upon and movable longitudinally of the stationary frame, and an upper section *g* mounted on the lower carier-section and adjustable laterally independently of the lower carrier-section, and means for securing the upper carrier-section in the desired adjustment.

9. In apparatus of the character indicated, the combination, with a suitably-supported grinding-wheel arranged in a horizontal plane, and a stationary frame arranged at one side and longitudinally of the grinding-wheel, of a glass-carrier comprising the following: a lower section *f* mounted upon and movable longitudinally of the stationary frame, and an upper section *g* mounted upon and adjustable laterally and independently of the lower carrier-section and comprising cross-bars having elongated holes or slots 31 arranged longitudinally of the said bars, and means instrumental in securing the upper carrier-section in the desired adjustment to the lower carrier-section and comprising bolts or screws *g′* extending through the aforesaid slots.

10. In apparatus of the character indicated, the combination, with a suitably-supported grinding-wheel arranged in a horizontal plane, and a stationary frame arranged at one side and longitudinally of the grinding-wheel, of a glass-carrier comprising the following: a lower section *f* mounted upon and movable longitudinally of the stationary frame and adjustable laterally, means for securing the lower section in the desired adjustment, an upper section *g* mounted upon and adjustable laterally and independently of the lower carrier-section, and means for securing the upper carrier-section in the desired adjustment, substantially as and for the purpose set forth.

11. Apparatus of the character indicated, comprising a stationary frame *a* of suitable length; a glass-carrier mounted upon the said frame; means for preventing displacement of the carrier laterally of its path; a grinding-wheel arranged at one side of and longitudinally of the path of the carrier, a suitably-operated slide *s* carrying the said wheel and movable in a horizontal plane toward and from the aforesaid path; another suitably-operated slide *t* movable up and down and having a slideway for the slide *s*; a standard or stationary object having a slideway for the slide *t*; a counterbalance for the slides and its load, and means for holding the sheet or plate of glass to be operated upon down upon the carrier near the grinding-wheel, substantially as and for the purpose set forth.

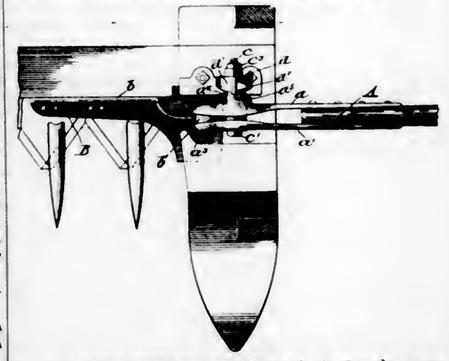
12. Apparatus of the character indicated, comprising a stationary frame *a* of suitable length, a grinding-wheel arranged at an elevation above and at one side and longitudinally of the stationary frame, means whereby the grinding-wheel is rendered adjustable laterally and up and down, a glass-carrier mounted upon and movable longitudinally of the stationary frame alongside of the grinding-wheel and having the external surface of its forward side sloping upwardly and outwardly toward the grinding-wheel, which carrier is adjustable toward and from the grinding-wheel and has a plurality of upwardly-facing surfaces arranged to afford bearing for the sheet or plate of glass to be operated upon and sloping downwardly toward the grinding-wheel, and means for holding the sheet or plate of glass down upon the said plurality of surfaces near the grinding-wheel, substantially as and for the purpose set forth.

682,745. **PITMAN CONNECTION.** JOHN W. PRIDMORE, Chicago, Ill. Filed Dec. 17, 1900. Serial No. 40,080. (No model.)

Claim.—1. A pitman connection, comprising a pair of coöperating spoons, a clamping member having a yielding connection with one spoon, a cam-nut on said clamping member and a coöperating cam on the other spoon.

2. A pitman connection, comprising a pair of coöperating spoons, a spring-pressed bolt carried by one spoon, and a locking cam-nut on said bolt and a coöperating cam on the other spoon.

3. A pitman connection, comprising a pair of coöperating spoons, one of said spoons having a socket and the other having an orifice opposite said socket, a bolt passing through said socket and said orifice, a spring mounted in said socket and engaging said bolt, and coöperating means on said bolt and one of said spoons, whereby said spoons are brought together in operative position and held under tension of said spring.



4. A pitman connection, comprising a pair of coöperating spoons, one spoon having a socket and the other a registering orifice, a bolt passing through said socket and said orifice, a spring mounted in said socket and engaging said bolt, a cam-nut carried by said bolt, and a coöperating cam on one of said spoons whereby said spoons are brought together in operative position and held under tension of said spring.

5. A pitman connection, comprising a pair of coöperating spoons, a bolt passing through both spoons, a spring on said bolt held between the head of said bolt and the contiguous spoon, a cam-nut swiveled on the end of said bolt, a coöperating cam on the adjacent spoon, and means for locking said cams together when their higher points engage.

6. A pitman connection, comprising a pair of coöperating spoons, a bolt passing through both spoons, a spring on said bolt held between the head of said bolt and the contiguous spoon, a cam-nut swiveled on the end of said bolt, a coöperating cam on the adjacent spoon, one of said cams having a projecting lug and the other a coöperating recess whereby said cams are locked together when their higher points engage.

682,746. **DISPLAY-CLIP.** JAMES RAIT, Newton, Mass., assignor to William R. Park, Taunton, Mass. Filed May 9, 1901. Serial No. 59,364. (No model.)



Claim.—1. A display-clip comprising a back piece, and a clasping member consisting of a band loosely surrounding the back piece, and so proportioned as to be capable of receiving an article within its circumference and between itself and the back piece, said back piece being provided with notches adapted to guide and support the band, and a spring normally urging the front of the band toward the back piece, substantially as described.

2. A display-clip comprising a back piece, a suspension-hook, and a clasping member consisting of a band loosely surrounding the back piece, and so proportioned as to be capable of receiving an article within its circumference and between itself and the back piece, and a spring normally urging the front of the band toward the back piece, substantially as described.

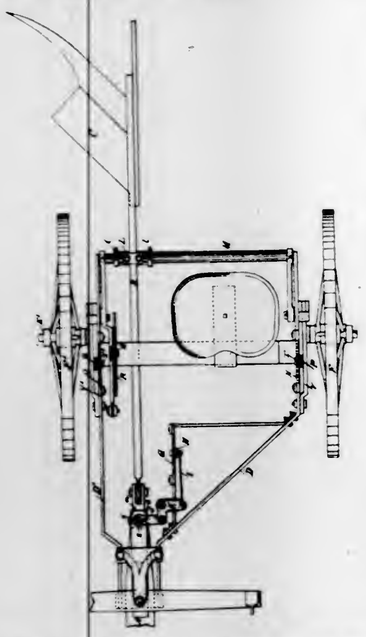
3. A display-clip comprising a back piece, a suspension-hook, and a clasping member consisting of a band loosely surrounding the back piece and so proportioned as to be capable of receiving an article within its circumference and between itself and the back piece, and a spring consisting of the rearwardly-upturned end of the back piece attached to the ring and normally urging the front thereof toward the back piece, substantially as described.

4. In a display-clip the combination with an integral strip of sheet metal whose upper end is bent to form a suspension-hook, whose middle part forms a flat face, and whose lower end is bent rearwardly and upwardly to form a leaf-spring, of a clasping member consisting of a ring loosely surrounding the flat part and adapted to hold an article within its circumference and between itself and the flat face, said leaf-spring being attached to said ring and adapted to normally urge the front of the same toward the flat face, substantially as described.

5. A display-clip comprising a back piece, and a clasping member consisting of a band loosely surrounding the back piece, and so proportioned as to be capable of receiving an article within its circumference and between itself and the back piece, and a spring normally urging the front of the band toward the back piece, substantially as described.

6. In a display-clip the flat face 1, suspension-hook 2, and leaf-spring 3, both integral with said flat face, and the band 4 normally urged by the spring into clasping relation with the flat face, substantially as described.

682,747. RIDING-PLOW. JOHN D. REUS, Castroville, Tex. Filed Apr. 12, 1900. Serial No. 12,624. (No model.)



Claim.—In a plow of the class described, the combination with the frame, the segment-rack G with its hand-lever H to operate the link I, which by means of a bell-crank K and a link J is attached to the tongue A, the two segment-racks N and O with their hand-levers P and Q pivoted at the points T, T', to the frame D and D', and at points U, U', to movable frame-piece V, V', to which the axles are cranked, the segment-rack R with its hand-lever S to raise or lower the axle M to which is attached the plow, all substantially as set forth and described.

682,748. GRILLING ATTACHMENT FOR GAS-STOVES. EDMOND W. T. RICHMOND, Romford, England. Filed Dec. 13, 1900. Serial No. 39,703. (No model.)

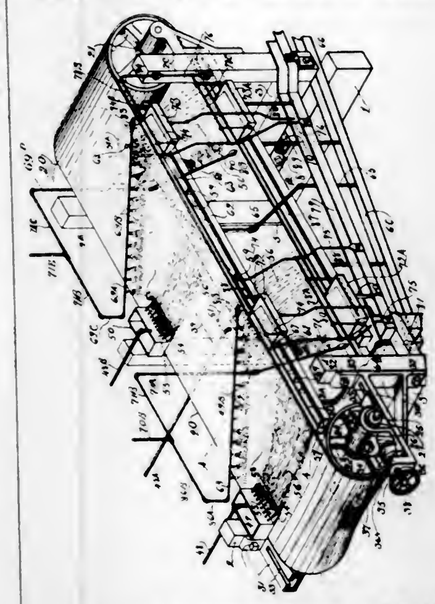


Claim.—1. As a new article of manufacture, a grilling device for gas-stoves, comprising a slab of fire-brick adapted to be placed over the opening in the top plate of a gas-stove, and having a central aperture for the passage of the products of combustion.

2. As a new article of manufacture, a grilling device for use in connection with gas-stoves, comprising a slab of fire-brick, having an aperture for the passage of the products of combustion, and ribs with curved faces radiating from said aperture.

3. As a new article of manufacture, a grilling device for use in connection with gas-stoves, comprising a slab of fire-brick, inclosed by a metal band provided with a handle, and having an aperture for the passage of the products of combustion, and ribs with curved faces radiating from said aperture.

682,749. ORE-CONCENTRATOR. JOHN G. ROBERTS, Idaho Springs, Colo. Filed Apr. 15, 1901. Serial No. 56,972. (No model.)



Claim.—1. In an ore-concentrator, the combination of the endless belt having a concaved, adjustable pulley arranged to support one of its ends and a fixed pulley arranged to support its opposite end, a suitable frame pivotally mounted and arranged and adapted to operatively support said belt and its supporting-pulleys, means including screws for tilting and adjustably setting said frame at any desired transverse inclination to give said belt a side or transverse pitch or inclination, means including a screw-controlled pillow-block and bearing, and a slotted bracket arranged to support said convexed pulley for adjustably tightening said belt, one or more ore-pulp-receiving boxes arranged at the higher side of both the lower and upper portions of said belt, an apron portion on said pulp-boxes, a series of small pulp-discharging holes in said boxes above said apron arranged to discharge pulp over said apron onto said belt, means for conveying ore-pulp to said distributing-boxes, a trough arranged along the lower side of said belt adapted to catch the tailings of said pulp from said belt, a movable adjustable partition in said trough arranged to form two or more compartments and to separate and divide said pulp into tailings and middlings, a discharge-chute below said trough, pipes secured to the tailings-compartments of said trough and arranged to discharge into said discharge-trough, and a pipe leading from each of said middlings-compartments of said trough to one of the said distributing-boxes of said lower portion of said belt, and arranged to convey said middlings portion of said pulp to said distributing-box, and means including power-driven gearing for imparting a slow, longitudinal movement to said belt, substantially as described.

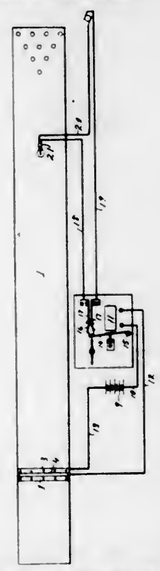
2. In an ore-concentrator the combination of the adjustable tilting frame, the endless rubber belt operatively mounted in an adjustable, transversely-inclined position, and having an adjustable, concave pulley at one end, distributing-boxes arranged and adapted to deliver ore-pulp onto the higher side of said belt, a trough arranged along the discharge side of said endless belt, movable partitions in said trough arranged to divide said pulp into tailings and middlings portions, means for conveying said tailings portion from said trough, means for conveying said middlings portion to a distributing-box on the lower portion of said belt, a clear-water-distributing pipe arranged diagonally across said belt adjacent to each of said distributing-boxes and arranged to diverge away from said distributing-boxes, a row of water-discharging holes arranged along said pipe, an adjustable plug-handle in the end of said pipe a rod extending from said handle along said pipe and washers on said rod arranged to allow a portion of the water flowing into said pipe to flow past them and adapted to regulate the flow and pressure of the water in said pipe, and a hopper arranged along the lower edge of said belt adjacent to each of said clear-water-supply pipes, and provided with a lip arranged to extend under the edge of said belt and arranged and adapted to be adjustably moved a predetermined distance along the edge of said belt, and power-driven means for imparting a slow, continuous, even traveling movement to said belt, substantially as described.

3. In an ore-concentrator, the combination of the supporting, tilting frame, the endless rubber belt operatively mounted thereon, with the pulp receiving and distributing boxes, the trough having the movable partitions, the hoppers arranged to be longitudinally adjusted along the discharge edge of said belt and the clear-water-distributing pipe, the adjustable handle in its end, the rod extending from said handle into said pipe and the washers on said rod arranged to control and to adapt the discharge of the water from said pipe to the conditions required, substantially as described.

4. In an ore-concentrator, the combination of a suitable, adjustable, tilting supporting-frame, the endless traveling belt operatively mounted on said frame and adapted to stand at a slight, transverse inclination, the pulp-distributing boxes and the clear-water-distributing pipe, with the adjustable hopper comprising the tapering pan having a lip portion extending underneath the edges of the belt, a frame arranged alongside the lower edge of said belt, a horizontal bar portion on said frame, rods loosely mounted at one end of said bar and depending from it and secured at their opposite ends to said hopper whereby said hoppers may be adjustable a predetermined distance along said belt, substantially as described.

5. In an ore-concentrator, the combination of the adjustable, transversely-inclined traveling endless, rubber concentrating-belt, the ore-pulp-distributing boxes, the ore-pulp tailings and middlings trough having adjustable partitions and arranged to catch and separate the tailings portion of the ore-pulp from the middlings, with means for discharging a sheet of water in a diagonal direction across the belt across the path of the concentrates and comprising a pipe having a long handle slidably fitting in the end of said pipe, a rod extending from said handle into said pipe, washers mounted on said rod and arranged to allow the water to flow by them, a plurality of small holes arranged in said pipes and adapted to discharge the water toward said pulp-distributing boxes and said hoppers, substantially as described.

682,750. BOWLING-ALLEY. HENRY G. RUENZEL, Milwaukee, Wis., assignor of one-half to Henry P. Hoehl, same place. Filed Apr. 1, 1901. Serial No. 53,878. (No model.)



Claim.—1. A bowling-alley provided with a transverse channel, located at the foul-line thereof; a rod or bar located in said channel, and yieldingly supported in a position for contact with the foot of a player; and a signaling device connected with said rod or bar.

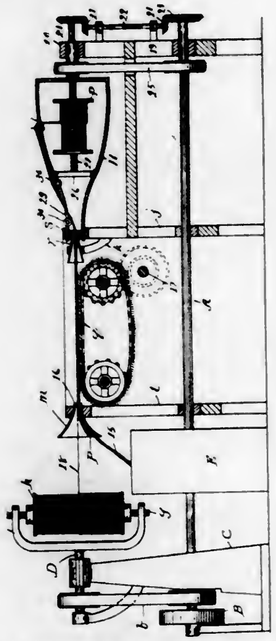
2. A bowling-alley provided with a transverse channel, located at the foul-line thereof; a rod or bar located in said channel and extending transversely across the alley; means for yieldingly supporting said rod or bar in a position for contact with the foot of a player; and a signaling device connected with said rod or bar.

3. A bowling-alley, provided with a transverse channel, located at the foul-line thereof; a rod or bar located in said channel and extending transversely across the alley; means for yieldingly supporting said rod or bar in a position for contact with the foot of a player; and a signaling device connected with said rod or bar, said rod or bar being rounded or inclined downwardly in both directions from the foul-line.

4. A bowling-alley, provided with a transverse channel, located at the foul-line thereof; a rod or bar located in said channel, and having its upper surface inclined downwardly from the foul-line; means for yieldingly supporting said rod or bar in position for contact with the foot of the player at the foul-line; covering-plates, partially covering said channel and bar; and a signaling device operatively connected with the bar.

5. The combination with a bowling-alley; of a transverse rod or bar yieldingly supported at the foul-line thereof, and arranged to project slightly above the surface of the alley when in normal position; electrodes arranged for contact with said rod or bar, when the latter is depressed; a source of electric-current supply, having a circuit arranged to include said electrodes; an electromagnet also included in said circuit; an armature arranged to be operated by said magnet, and also adapted to serve as a switch for making and breaking a signaling-circuit; an electrically-operated signaling device; and a source of current-supply therefor, having a circuit arranged to be closed by the movement of said armature when the magnet is energized; together with means for retracting said armature when the magnet is deënergized.

682,751. MACHINE FOR MAKING MANILA ROPE. HENRY RYDER, Boston, Mass. Filed Mar. 30, 1901. Serial No. 53,581. (No model.)



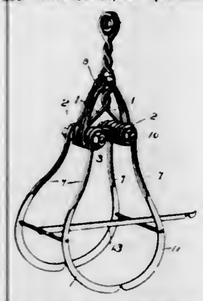
Claim.—1. In a machine of the class described a regulator provided centrally with a wire-opening and a hemp-opening adjacent thereto wherefrom the wire and hemp are simultaneously delivered to the flier.

2. In a machine for spinning compound rope yarn the regulator, *r*, provided with the opening, *t*, and flattened opening, B, arranged substantially as specified.

3. In a machine of the class described the regulator provided with the wire and hemp openings in combination with the rotary flier inclosing the nose of said regulator.

4. In combination the wire-reel and devices for rotating it at right angles to its axis; the stationary regulator provided with the hemp and wire openings; the slotted flier, with its reel and devices for rotating said flier at the same speed and in the same direction as said regulator.

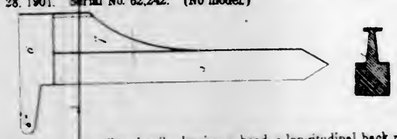
682,752. GRAPPLING DEVICE. SAMUEL A. SAXON, Sang, Ark. Filed May 2, 1901. Serial No. 58,542. (No model.)



Claim.—1. A grappling device consisting of a suspension-bracket formed with bearing-eyes, spring grappling-jaws having their upper ends connected to the stem of the suspension-bracket and formed with bearing-eyes adapted to register with the bearing-eyes in the suspension-bracket, pins to hold the jaws and bracket together, and a trigger-bar having one end pivotally supported on one of the jaws and the other end adapted to detachably engage the opposite grappling-jaw.

2. A grappling device consisting of a suspension-bracket formed with bearing-eyes, and with an eye in the stem, spring grappling-jaws having upwardly-extending loops, looped within the eye in the stem of the bracket, and formed with bearing-eyes at the base of the loops, pins projected through the bearing-eyes of the suspension-bracket and those of the grappling-jaws, grappling-arms integral with the loops and eyes of the latter, cross-bars fixed between the grappling-arms, and a trigger-bar having one end pivotally supported on a cross-bar and the other end formed to engage the other cross-bar, whereby the grappling-arms are held apart and the trigger-bar may be released when contacting with an obstruction so that the grappling-arms spring together to inclose the obstruction or object.

682,753. SPIKE. JOHN W. TEELE, Goldthwaite, Tex. Filed May 28, 1901. Serial No. 62,242. (No model.)

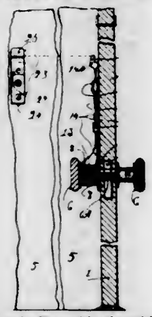


Claim.—1. A railroad-spike having a head, a longitudinal back rib and a laterally-extending flange integral with the head at the edge of the rib, extending downwardly from the head.

2. A railroad-spike having a body, a backwardly-projecting head, a longitudinal rib extending downward from the head, and a laterally-extending flange at the back edge of the rib.

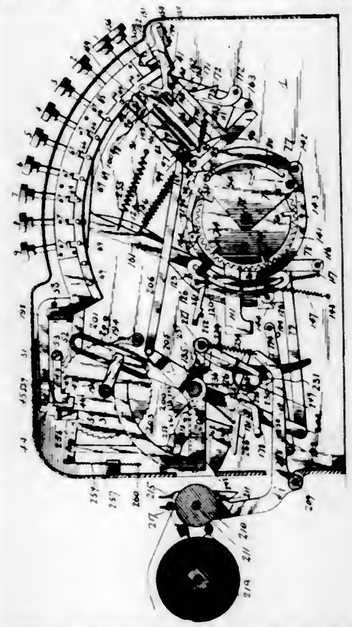
3. A railroad-spike having a body, a backwardly-extending head, a laterally-extending tapering flange projecting downwardly from the back of the head, and a rib between the body of the spike and the flange.

682,754. DOOR-CATCH. WILLIAM M. TRETER, Crippiecreek, Colo. Filed Dec. 15, 1900. Serial No. 40,019. (No model.)



Claim.—In a door-catch, the combination with the knob and its shaft, of the shaft's supporting-thimble containing a slot, a trunnion-collar loosely surrounding said thimble, a screw threaded to said trunnion-collar and extending through the slot in said thimble and bearing against said shaft, trunnions on the opposite horizontal sides of said trunnion-collar, a reciprocating catch-rod, spring-controlled in one direction of its movement supported in suitable guides, a bifurcated end at one end of said rod arranged to straddle said trunnion-collar and having in its two arms oblong slots arranged to fit loosely over said trunnions, a rounded catch end on the opposite end of said catch-rod and a suitable keeper comprising a block containing an overhanging lip, a recess between said lip and the body of the block and a rubber strip secured to the body of said block to cushion said catch, substantially as described.

682,755. COMPUTING-MACHINE. AUGUST SCHNEIDER and JOSEPH PERFLER, Columbus, Ohio, assignors of one-third to Lewis Fink, same place. Filed May 3, 1900. Serial No. 15,294. (No model.)



Claim.—1. In a computing-machine, a key-frame having a plurality of keys, a longitudinally-movable latch-bar and a longitudinally-movable lock-bar engaging all the keys in the series and constructed to lock a depressed key and all the remaining keys in elevated position.

2. In a computing-machine, a key-frame having a plurality of keys, a longitudinally-movable latch-bar having teeth engaging said keys, and a longitudinally-movable lock-bar having slots also engaging the keys, constructed to lock a depressed key and all the remaining keys in the series in elevated position.

3. In a computing-machine, a key-frame having a plurality of keys provided with laterally-extending pins, a latch-bar having teeth provided with shoulders to engage the pins on the keys, and a lock-bar adjacent to the latch-bar and having inclined slots to engage said pins, constructed to lock a depressed key and all the remaining keys in the series in elevated position.

4. In a computing-machine, a key-frame having a plurality of keys provided with laterally-extending pins, a longitudinally-movable latch-bar having teeth provided with shoulders to engage the pins on the keys, a longitudinally-movable lock-bar adjacent to the latch-bar and slots to engage said pins, whereby said bars are operated by the depression of any key in its series to lock said key in its depressed position and all the remaining keys in the series in the elevated position.

5. In a computing-machine, a key-frame having slots in one side thereof to receive the stems of the keys and a longitudinal recess in the opposite side, a plurality of keys having laterally-extending pins, springs in said recess engaging said pins, a latch-bar having teeth provided with shoulders, engaged by said pins, and a lock-bar adjacent to the latch-bar having inclined slots engaging said pins, whereby said bars are moved longitudinally by the depression of any key in its series to lock said key in its depressed position and all the remaining keys in the series in elevated position, and means for automatically returning said bars to their normal position.

6. In a computing-machine, a key-frame having a plurality of keys, each key-stem being provided with a pin and an extension on opposite sides of the stem, one to engage a locking mechanism for the keys and the other to move into the path of and engage the adding mechanism.

7. In a computing-machine, a key-frame having a plurality of keys, a longitudinally-movable lock-bar, and a lever pivotally secured to the side of the key-frame at one end thereof, extending through said frame and engaged by said lock-bar.

8. In a computing-machine, a key-frame having a plurality of keys, a longitudinally-movable lock-bar engaged by said keys, and a lever pivotally secured to one side of said frame and having a bent end extending through the frame, and engaged and operated by the lock-bar.

9. In a computing-machine, a key-frame having a plurality of keys, and slots for the stems of the keys, each key-stem being provided with a pin on one side of the stem, a rack-bar and a lock-bar engaged by said pin, an extension at the end of the stem and on the side opposite said pin, and a plate provided with slots to receive said extensions and secured to the key-frame.

10. In a computing-machine, a key-frame having a plurality of keys, a longitudinally-movable latch-bar and a longitudinally-movable lock-bar operated by any key in the series to lock said keys, and means for returning said locking mechanism to its normal position and unlocking the keys.

11. In a computing-machine, a key-frame having a plurality of keys whose stems are provided with lateral extensions, and pins on the side of said frame, and an adding mechanism, the extensions and the pins constructed and arranged to be engaged by the adding mechanism.

12. In a computing machine, a plurality of key-frames each having a plurality of keys, a longitudinally-movable key-locking mechanism supported on each frame and operated by the keys to lock all the keys in its series, and a pivoted lever secured to each frame in the path of a trip secured to the locking mechanism to release all the keys.

13. In a computing-machine, a plurality of key-frames each having a plurality of keys; in combination with an operating-wheel, a latch-bar and a lock-bar, an adding mechanism and means engaging the operating-wheel and operated by any key of a series to lock all the keys in said series, and unlock the operating-wheel and the adding mechanism.

14. In a computing-machine, a plurality of series of keys, a latch-bar and a lock-bar for each series, an adding mechanism for each series, and an operating-wheel provided with means for locking said wheel in its normal position; in combination with means operated by any key of any of the series for unlocking the operating-wheel.

15. In a computing-machine, a plurality of series of keys, a latch-bar and a lock-bar for each series, an adding mechanism for each series, and an operating-wheel having ratchet-teeth on its periphery, a pawl engaging said teeth, a pin on one side of the wheel, and a hook engaging said pin; in combination with means actuated by any key in either series for disengaging said hook.

16. In a computing-machine, a plurality of series of keys, a latch-bar and a lock-bar for each series, an adding mechanism for each series, and an operating-wheel common to all the adding mechanisms and provided with a pin on one side thereof, and a hook engaging said pin; in combination with a swinging head pivotally connected to a lever actuated from any key in either series for disengaging the hook.

17. In a computing-machine, an adding-wheel, a series of keys for said wheel, means for supporting the keys, and connections between the keys and the adding-wheel; in combination with a bar and a tooth thereon for each wheel to engage the teeth on said wheel, and means for locking said bar with the tooth in engagement with the wheel.

18. In a computing-machine, an adding-wheel, a series of keys for said wheel, means for supporting the keys, and connections between the keys and the adding-wheel; in combination with a bar and a tooth thereon for each wheel to engage the teeth on said wheel and means for locking said bar with the tooth out of engagement with the wheel.

19. In a computing-machine, an adding-wheel, a series of keys for said wheel, means for supporting the keys, and connections between the keys and the adding-wheel; in combination with a bar, and a tooth for each wheel to engage the teeth on said wheel, and means for locking said bar with the tooth in or out of engagement with the wheel.

20. In a computing-machine, an adding-wheel, a series of keys for said wheel and connections between the keys and the adding-wheel; in combination with a bar and a tooth thereon for each wheel to engage the teeth on said wheel, and a pivotally-supported locking-arm having a pin projecting from one side thereof and engaging with the adding mechanism and means for locking the bar and its tooth in engagement with said wheel.

21. In a computing-machine, an adding-wheel, a series of keys for said wheel, and connections between the keys and the adding-wheel; in combination with a bar having a tooth thereon, a swinging link engaged by one end of said bar, and means for throwing said link to engage said tooth with said wheel and disengage it therefrom.

22. In a computing-machine, an adding-wheel, a series of keys for said wheel and connections between the keys and the adding-wheel; in combination with a bar and a tooth thereon to engage the teeth on said wheel, a swinging link connected to one end of said bar and a frame supporting said link.

23. In a computing-machine, an adding-wheel, a series of keys for said wheel, and connections between the keys and the wheel; in combination with a bar and a tooth thereon for each wheel to engage the teeth on the wheel, means for throwing said tooth in and out of engagement with the teeth on the wheel, means for revolving the wheel, and means for locking said wheel.

24. In a computing-machine, an adding-wheel, a series of keys for said wheel, and connections between the keys and the wheel; in combination with a bar and a tooth thereon to engage the teeth on the wheel, a link connected to said bar for throwing said tooth in and out of engagement with the teeth on the wheel, a swinging frame for locking the wheel, and a frame supporting the link and operating the former or locking frame.

25. In a computing-machine, an adding-wheel having a disk on the side thereof provided with radial slots and having a peripheral track, and an arm having a finger to engage said slots; in combination with means for engaging said finger with said slots and disengaging it therefrom.

26. In a computing-machine, an adding-wheel having a disk on the side thereof provided with radial slots, a peripheral track having raised portions adjacent to said slots, an arm having a finger to engage the slots, and a key-frame provided with keys, and projections on one side thereof; in combination with a carrying mechanism and means for engaging said mechanism with the key-frame.

27. In a computing-machine, a key-frame provided with keys having stems provided with lateral extensions, a lever pivoted on said frame with one end extending through the frame, and pins on one side of the frame; in combination with an adding-wheel, a carrying mechanism, one member of which is grooved at its upper end and engages said key-frame, an arm, and a latch pivotally supported on said arm to engage the extensions on the keys when depressed.

28. In a computing-machine, a key-frame, an arm connected to the key-frame at its upper end and supporting a trip pivotally secured to said arm, keys having pins on one side thereof, a longitudinally-movable latch-bar engaging said pins, and a lever pivotally secured to said frame with one end in the path of said trip and the opposite end in engagement with the extensions of the latch-bar; in combination with an adding-wheel, and means for imparting motion thereto.

29. In a computing-machine, a bank or series of keys, an adding-wheel, and a carrying mechanism; in combination with an operating-wheel, a rock-bar connected to the operating-wheel, a connection between the shaft of the rock-bar and the adding-wheel, and the carrying mechanism.

30. In a computing-machine, a key-frame and its keys, an adding-wheel and connections between said frame and said wheel, and an operating-wheel; in combination with a rock-bar connected to said operating-wheel and to said adding-wheel, and a type-frame supported on the shaft of the rock-bar and oscillated thereby.

31. In a computing-machine, a bank or series of keys, an adding-wheel, an operating-wheel, and connections between said keys and wheels; in combination with a rock-bar connected to the operating-wheel, a type-frame supported on the shaft of the rock-bar and oscillated thereby, and a platen supported upon a frame operated from the lower end of said rock-bar.

32. In a computing-machine, a type-frame, a cipher-type pivotally secured thereto, a bell-crank, one arm of which engages said type and the opposite arm is provided with a lateral extension which overlaps a like arm on an adjacent bell-crank, a hook on the arm of the type-frame and a detent engaging said hook.

33. In a computing-machine, a sector-shaped type-frame having a supporting-arm engaging a shaft, with an open space between the frame and the arm and said arm terminating in an angular member; in combination with an adding mechanism, and a connection between the type-frame and the adding mechanism.

34. In a computing-machine, a plurality of series of keys, a sum-total key, and means operated thereby for locking all the keys in all the series in their elevated position; in combination with an operating-wheel, a locking mechanism therefor, and means operated by said key for unlocking said wheel.

35. In a computing-machine, a plurality of series of keys, a sum-total key, and means operated thereby for locking all the keys in all the series in their elevated position; in combination with an operating-wheel, a locking mechanism therefor, means operated by said key for unlocking said wheel, a plurality of adding-wheels, and means operated by said key for locking the adding-wheels.

36. In a computing-machine, a plurality of series of keys, a zero-key, and means operated thereby for locking all the keys in all the series in their elevated position; in combination with an operating-wheel, a locking mechanism therefor, and means operated by said key for unlocking said wheel.

37. In a computing-machine, a plurality of series of keys, a zero-key, and means operated thereby for locking all the keys in all the series in their elevated position; in combination with an operating-wheel, a locking mechanism therefor, means operated by said key for unlocking said wheel, a plurality of adding-wheels and means operated by said wheel for locking the adding-wheels.

38. In a computing-machine, a plurality of series of keys, a sum-total key, and means operated thereby for locking all the keys in all the series in their elevated position; in combination with an operating-wheel, a locking mechanism therefor, means operated by said key for unlocking said wheel, a plurality of adding-wheels, means operated by said key for locking the adding-wheels, a plurality of type-frames, and means for operating the type-frames which have been used in the adding of a given sum to bring them into position to print the sum-total, and means for locking the type-frames which have not been used.

682,756. **ARTIFICIAL DENTURE.** JOHN C. SCHROEDER and GEORGE P. SPANGLER, York, Pa. Filed Mar. 23, 1901. Serial No. 52,643. (No model.)



Claim.—1. In an artificial denture, a body portion having an undercut recess, combined with a metallic anchoring-piece distended in said recess and a metallic pin extending into the recess and soldered to said anchoring-piece.

2. The combination with the body of an artificial denture having an opening enlarged at the inner end, of a metallic pin extending into said opening and surrounded by a sleeve, and a metallic anchoring-piece distended at the inner end of said opening soldered to the ends of the pin and sleeve, substantially as set forth.

682,757. **VALVE-REVERSING MECHANISM FOR EXPLOSIVE-ENGINES.** WALTER W. SCOTT, New York, N. Y., assignor to Diesel Motor Company of America, same place. Filed Nov. 20, 1899. Serial No. 737,565. (No model.)



Claim.—1. In a valve-reversing mechanism, the combination of a rotatable cam-carrying shaft, valve-operating cams thereon and rotatable therewith, valves operated thereby, and positive means permanently connected to the cams for changing the angular positions of the cams relative to the shaft and to one another, so as to vary the operation of the valves, substantially as described.

2. In a valve-reversing mechanism, the combination of a rotatable cam-carrying shaft, valve-operating cams thereon and rotatable therewith, valves operated thereby, and positive means permanently connected to the cams for simultaneously changing the angular positions of the cams relative to the shaft and to one another, so as to vary the operation of the valves, substantially as described.

3. In a valve-reversing mechanism, the combination of a rotatable cam-carrying shaft, valve-operating cams thereon and rotatable therewith, valves operated thereby, and positive means permanently connected to the cams for simultaneously reversing the angular positions of the cams relative to the shaft and to one another, so as to reverse the operation of the valves, substantially as described.

4. In a valve-reversing mechanism, the combination of a rotatable cam-carrying shaft capable of longitudinal movement, valve-operating cams thereon and rotatable therewith, said cams being adjustable with respect to one another, valves operated thereby, means for moving the shaft endwise, and connecting means between the cams and the shaft whereby they are caused to rotate in unison, and whereby, on a longitudinal movement of the shaft, the cams are caused to change their angular positions relative to one another, substantially as described.

5. In a valve-reversing mechanism the combination of a rotatable cam-carrying shaft capable of longitudinal movement, valve-operating cams thereon and rotatable therewith, said cams being adjustable with respect to one another, valves operated thereby, means for moving the shaft endwise, and connecting means between the cams and the shaft whereby they are caused to rotate in unison, and whereby, on a longitudinal movement of the shaft, the cams are caused to simultaneously reverse their angular position relative to one another, substantially as described.

6. In a valve-reversing mechanism the combination of a rotatable cam-carrying shaft capable of longitudinal movement, valve-operating cams thereon and rotatable therewith, valves operated thereby, a shifting-lever for moving the shaft endwise, spiral splines on the shaft, corresponding spiral grooves in the cams, said splines and grooves being of different pitches, whereby the cams and shaft are caused to rotate in unison, and whereby, on a longitudinal movement of the shaft, the cams are caused to change their angular positions relative to one another, substantially as described.

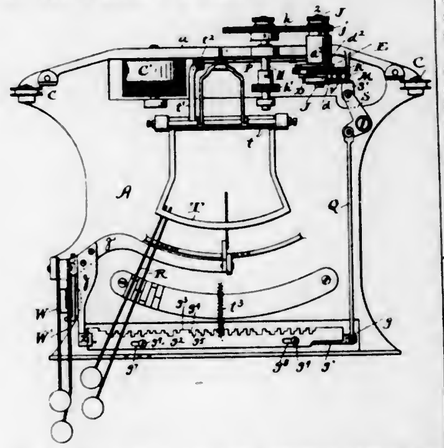
7. In a valve-reversing mechanism the combination of a rotatable cam-carrying shaft capable of longitudinal movement, valve-operating cams thereon and rotatable therewith, valves operated thereby, a shifting-lever for moving the shaft endwise, spiral splines on the shaft, corresponding spiral grooves in the cams, said splines and grooves being of different pitches, whereby the cams and shaft are caused to rotate in unison, and whereby, on a longitudinal movement of the shaft, the cams are caused to simultaneously reverse their angular positions relative to one another, substantially as described.

8. In a valve-reversing mechanism the combination of a rotatable cam-carrying shaft capable of longitudinal movement, stationary bearings for said shaft, a series of valve-operating cams on said shaft located between the bearings of the shaft, hubs on said cams encircling the shaft and abutting one another and the shaft-bearings to prevent endwise movement of the cams, valves operated by the cams, a hand-lever for shifting the shaft longitudinally within the cams, spiral splines on the shaft, spiral grooves on the inside of the hubs of the cams, engaging with the spiral splines, said splines and grooves being of different pitches and directions, whereby the cams and shaft are caused to rotate in unison, and whereby, when the shaft is moved longitudinally, the cams are caused to simultaneously reverse their relative angular positions and to operate the valves in inverse order, substantially as described.

9. In a combustion-engine the combination of a combustion-cylinder, valves on said cylinder, valve-stems for the valves, cams to operate the valve-stems having abutting hubs, a rotatable shaft on which the cams are mounted, said shaft being capable of longitudinal movement within the cams, stationary means for retaining the cams in alinement with their respective valve-stems, a hand-lever for shifting the shaft longitudinally within the cams, spiral splines on the shaft, spiral grooves on the inside of the hubs of the cams, engaging with the spiral splines, whereby the cams and shaft are caused to rotate in unison, and whereby, when the shaft is moved longitudinally, the cams are caused to reverse their relative angular positions and to operate the valves in inverse order, substantially as described.

682,758. **TYPE-WRITER ESCAPEMENT.** CHARLES SEARS, Cleveland, Ohio. Filed Mar. 6, 1899. Serial No. 707,866. (No model.)

Claim.—1. In a type-writing machine having a plurality of systems of printing characters of various widths whereof the widths of the characters in one system have no uniform relation to the widths of the corresponding characters in the other system, the combination of escapement mechanism, a plurality of key-levers, a shift-key, and mechanism whereby the depression of any key-lever will cause the printing of the associated character in either system and a concurrent movement of the escapement mechanism a distance proportionate to the width of the character so printed, substantially as specified.



2. In a type-writing machine having a plurality of systems of printing characters of various widths whereof the widths of the characters in one system have no uniform relation to the widths of the corresponding characters in the other system, the combination of the key-levers, escapement mechanism held in restraint, a stop-bar connected with said escapement mechanism and carrying a plurality of series of stop-surfaces, and movable in two directions, means for moving said stop-bar to bring any series of stop-surfaces thereon into operative position, means operated by the key-levers to release said escapement mechanism whereby it and the stop-bar move concurrently, a plurality of stops severally associated with said key-levers and adapted to be moved thereby into the path of the stop-surface on the stop-bar which corresponds with the character which is printed by the operation of said key-lever, substantially as specified.

3. In a type-writing machine having a plurality of systems of printing characters of various widths whereof the widths of the characters in one system have no uniform relation to the widths of the corresponding characters in the other system, the combination of a swinging frame, a plurality of series of stops severally secured to said frame, and means for moving any desired stop of either series into operative relation to its co-operating stop, with a plurality of coöperating stops, one associated with and operable by each key-lever, escapement mechanism connected with the same swinging frame, a plurality of key-levers, and mechanism operated thereby for releasing said swinging frame, substantially as specified.

4. In a type-writing machine having a plurality of systems of printing characters of various widths whereof the widths of the characters in one system have no uniform relation to the widths of the corresponding characters in the other system, the combination of a plurality of key-levers, escapement mechanism held in restraint, mechanism whereby it is released by the operation of any key-lever, a plurality of movable stops associated one with each key-lever and movable thereby, other movable stops of which a plurality are associated with each of the stops first named, connections between the stops last named and the escapement mechanism, a shift-key and mechanism whereby it moves the stops last named to bring any of them into operative relationship with that one of the first-named stops with which it is associated, substantially as specified.

5. In a type-writing machine, the combination of a key-lever, a stop operated thereby, a plurality of stops movable in two paths and adapted for engagement with said stops, mechanism for moving said movable stops in one path to bring either of them into operative relationship with the said stop which is operated by the key-lever, escapement mechanism connected with said movable stops, and mechanism adapted to move said escapement mechanism until it is brought to a standstill by the engagement of the stop which the key-lever operates and that movable stop which is in operative relationship to it, substantially as specified.

6. In a type-writing machine, the combination of a swinging frame, a notched bar movably secured to said frame, and mechanism for moving the bar on said frame, with a plurality of movable stops adapted to be moved severally into the path of said notched bar, means whereby to move said stops, and movable mechanism which is connected with said frame and whose movements are governed by the movement of said frame, substantially as specified.

7. In a type-writing machine, the combination of a plurality of stops, keys for severally operating said stops, and a notched bar which is movable laterally toward and from said stops and is movable longitudinally to bring different surfaces on its edge into line with the several stops, and movable mechanism connected with said bar and adapted to have its movements controlled by the movements of said bar, substantially as specified.

8. In a type-writing machine, the combination of the escapement mechanism, a spring-actuated swinging frame connected therewith and adapted to control its movements, a notched bar movably secured to said frame, and means for moving the bar upon said frame, with a plurality of movable keys having stubs projecting into the path of said notched bar, and mechanism whereby the depression of each key releases the escapement mechanism, substantially as specified.

9. In a type-writing machine, an escapement consisting of a shaft, a ratchet-wheel rigid thereon, a movable plate having a circumferential recess, a detent-pawl connected to said plate, an oscillating pawl-carrier, a pawl carried thereby, said pawl having a projection lying in said recess, combined with a plurality of finger-keys, and intermediate mechanism whereby the actuation of said keys moves the said plate, and also moves the pawl-carrier backward, substantially as described.

10. In a type-writing machine, the combination of a carriage under tension to move it in the feeding direction, a detent-shaft, and mechanism connecting said shaft and carriage, a ratchet secured to said shaft, an oscillating pawl-carrier, a pawl mounted thereon for engagement with the ratchet, a detent-pawl, a plate movable transversely to the axis of the shaft and adapted to simultaneously move the pawl out of engagement with the ratchet and the detent into engagement with the ratchet, a plurality of finger-keys having projecting stubs, a spring-actuated swinging frame adapted to engage with the stub on a depressed key-lever, mechanism connecting said frame and pawl-carrier, and mechanism operated by the finger-keys for moving said plate, substantially as specified.

11. In a type-writing machine, the combination of a carriage under tension to draw it in the feeding direction, a rack forming a part thereof, a pinion engaging with said rack, an escapement-shaft adapted to be turned by said pinion, a ratchet secured to the shaft, an oscillating pawl-carrier, a pawl mounted thereon, a plate movable in a path transverse to the axis of the shaft and adapted to engage with and lift said pawl out of engagement with the ratchet; a detent pivoted to a fixed support, and pivotally connected with said plate, a stop for the pawl-carrier, a plurality of finger-keys, and intermediate mechanisms, whereby the actuation of said keys moves the said plate, and also moves the pawl-carrier backward, substantially as specified.

12. In a type-writing machine, the combination of a carriage under tension to draw it in the feeding direction, a rack forming a part thereof, a pinion engaging with said rack, an escapement-shaft adapted to be turned by said pinion, a ratchet secured to the shaft, an oscillating pawl-carrier, a pawl mounted thereon, a plate movable in a path transverse to the axis of the shaft and adapted to engage with and lift said pawl out of engagement with the ratchet, a detent pivoted to a fixed support and pivotally connected with said plate, a stop for the pawl-carrier, a plurality of finger-keys, and intermediate mechanisms, whereby the actuation of said keys moves the said plate, and also moves the pawl-carrier backward a distance proportionate to the width of the corresponding characters, substantially as specified.

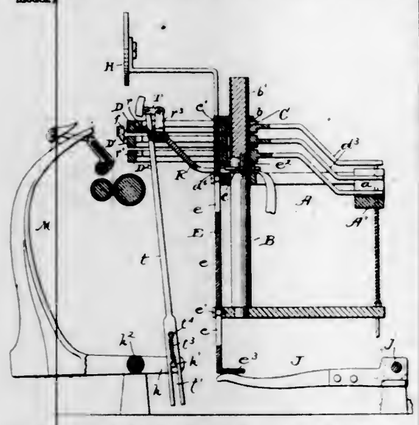
13. In a type-writing machine, the combination of a carriage under tension to draw it in the feeding direction, a rack forming a part thereof, a pinion engaging with said rack, an escapement-shaft adapted to be turned by said pinion, a ratchet secured to the shaft, an oscillating pawl-carrier, a pawl mounted thereon, a plate movable in a path transverse to the axis of the shaft and adapted to engage with and lift said pawl out of engagement with the ratchet, a detent pivoted to a fixed support, and pivotally connected with said plate, a stop for the pawl-carrier, a spring-actuated swinging frame, having a notched top bar, mechanism connecting said frame to the pawl-carrier, a plurality of key-levers having stubs which will be moved into the path of said notched bar when the key-levers are depressed, and mechanism actuated by said key-levers for moving said plate, substantially as specified.

14. In a type-writing machine, the combination of a plurality of key-levers each having a stub, a spring-actuated swinging frame, a bar movably secured on said frame, said bar having notches in its edge facing said stubs whereby to form two or more surfaces for engagement with each stub, which surfaces are different distances from the stub, a shift-key, mechanism whereby the shift-key moves the bar upon said frame, and mechanism connecting said swinging frame with the escapement mechanism, substantially as specified.

15. In a type-writing machine, the combination of a plurality of key-levers each having a stub, a spring-actuated swinging frame, a bar movably secured on said frame, said bar having two or more surfaces for engagement with each stub, which surfaces are different distances from the stub, a spring for moving said bar in one direction, a shift-key, a wedge-block operated thereby and engaging with said bar, whereby it is moved

in the contrary direction, and mechanism connecting said swinging frame with the escapement mechanism, substantially as specified.

682,759. TYPE-WRITING MACHINE. CHARLES SEARS and RICHARD H. SEARS, Cleveland, Ohio; said Richard H. Sears assignor to said Charles Sears. Filed Nov. 12, 1900. Serial No. 36,180. (No model.)



Claim.—1. In a type-writing machine, a plurality of independently-oscillating type-carriers, and mechanism for moving said carriers to bring any type on any carrier to the impression-point, combined with a movable inking-roller which will ink the one type, and only the one type, which is at the impression-point, substantially as and for the purpose specified.

2. In a type-writing machine, a plurality of movable type-carriers which are independently rotatable upon a common axis, each carrier having on its outer periphery a single row of type and a blank space which is in the vertical impression-line when the carrier is at rest in its normal position, mechanism for moving said carriers axially to bring any carrier into the horizontal impression-line, and mechanism for turning that carrier only which is in the horizontal impression-line to bring any type thereon to the impression-point, combined with an inking-roller which is movable in the vertical impression-line whereby it contacts with that type, and only that type, which is at the impression-point, substantially as and for the purpose specified.

3. In a type-writing machine, a plurality of type-carriers which are independently rotatable upon a common axis, each having on its outer periphery a single row of type and a blank space which is in the vertical impression-line when the carrier is at rest in its normal position, means for moving said carriers axially to bring any character into the horizontal impression-line, and means for turning only the carrier in the impression-line to bring any type thereon to the impression-point, combined with an inking-roller which is movable in the vertical impression-line, and an inking-platen with which said inking-roller contacts during its said movement, substantially as and for the purpose specified.

4. In a type-writing machine, a rotatable cylindrical member, and a plurality of type-carriers which are rotatably mounted on said member, and are also movable longitudinally thereon to bring any carrier into the impression-line, combined with means for connecting the carrier in the impression-line with said rotatable member, substantially as and for the purpose specified.

5. In a type-writing machine, a plurality of independently-rotatable type-segments having longitudinally-grooved hubs, and a rotatable cylindrical member on which said segments are mounted so as to be rotatable and longitudinally movable, which rotatable member has a short tongue adapted to engage in the groove of any segment-hub, combined with means for moving said segments longitudinally upon said member to cause the groove in any segment-hub to embrace said tongue, substantially as and for the purpose specified.

6. In a type-writing machine, a fixed cylindrical stud, a sleeve rotatably mounted thereon and having a short tongue, combined with a plurality of type-segments having longitudinally-grooved hubs which are mounted on said sleeve, combined with means for moving said segments longitudinally upon said sleeve to cause the groove in any hub to embrace said tongue, substantially as and for the purpose specified.

7. In a type-writing machine, a rotatable cylindrical member having a short external tongue, and a plurality of type-segments having longitudinally-grooved hubs which are mounted upon said cylindrical member, combined with a vertical movable member having arms to extend under the hubs of said segments and support and move the same, substantially as and for the purpose specified.

8. In a type-writing machine, a rotatable cylindrical member, a plurality of type-carriers which are mounted upon said member, and are movable longitudinally thereon to bring any type-carrier into the horizontal impression-line, means for connecting said rotatable member and that type-carrier which is in the said impression-line, stop-arms secured to said several type-carriers, and a frame having a recess into which some of the stop-arms project to prevent the rotation of their associated carriers, substantially as and for the purpose specified.

9. In a type-writing machine, an oscillating type-carrier adapted to be turned to bring any type thereon to the impression-point, combined with a clamping device for holding said character while the impression of said character is being made, substantially as and for the purpose specified.

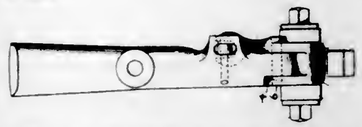
10. In a type-writing machine, an oscillating type-carrier adapted to be turned to bring any type thereon to the impression-point, said carrier having an annular flange, combined with two clamping members located respectively above and below said flange, an impression-hammer, and mechanism controlled by said hammer for operating said clamping members, substantially as and for the purpose specified.

11. In a type-writing machine, the combination of a rotatable member, a plurality of type-segments mounted to oscillate and to move longitudinally upon said member, each segment having a notched annular flange, means for moving said segments to bring any one into the impression-line, and means for moving any segment to bring any character thereon to the impression-point, combined with a fixed finger and a co-operating clamping-lever, both of which are narrower than the notches in said flanges, and mechanism for operating said clamping-lever, substantially as and for the purpose specified.

12. In a type-writing machine, the combination of an oscillating type-segment having an annular flange, a fixed clamping member, a movable clamping member, a rocking arm rigidly connected with the hammer and having a crank-pin, a bar connected with the moving clamping member and having a slotted arm, which embraces the said crank-pin, and a spring connecting said rocking arm and bar, substantially as and for the purpose specified.

13. In a type-writing machine, a rotatable cylindrical member, a plurality of type-carriers which are rotatably mounted upon said member and are adapted to be moved longitudinally thereon to bring any carrier into the impression-line, and mechanism for so moving said carriers, combined with means for automatically connecting said rotatable member with that carrier which is in the impression-line, and mechanism which prevents the turning of the carriers which are not in the impression-line, substantially as described.

682,760. THILL-COUPLING. WILLIAM C. SHEPHERD, Cleveland, Ohio. Filed Oct. 23, 1899. Renewed Feb. 21, 1901. Serial No. 48,333. (No model.)



Claim.—1. In thill-couplings, an axle-clip, a thill-iron and a jaw pivoted on said iron between its ends and constructed to confine the iron on the clip, and a screw and nut to engage the front free end of the jaw and lock it in working position, substantially as described.

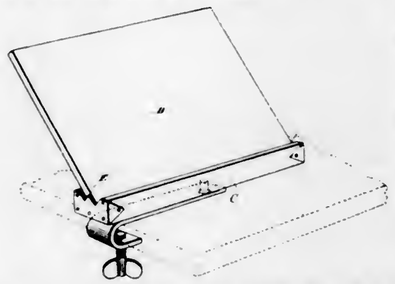
2. A thill-coupling comprising an axle-clip having a transverse seat for the thill-iron, the thill-iron hooked on said seat and a swinging jaw pivoted between its ends on the side of said iron and adapted to engage from the bottom against the said seat and confine the thill-iron in working position, and a screw and nut independent of the said jaw to lock the jaw, substantially as described.

3. The coupling substantially as described, consisting of the axle-clip having a forwardly-extending portion and a rounded cushioned seat thereon for the thill-iron, in combination with said iron engaged over said seat from above, a jaw pivoted on the thill-iron between its ends on a horizontal pivot and constructed at one end with a bearing to be engaged by a fastening screw and nut, and the said screw and nut constructed to lock on said jaw and to swing independently thereof, substantially as described.

4. As a new article of manufacture, a thill-iron having its free end constructed with a hook adapted to be engaged on an ordinary axle-clip, a jaw pivoted on said iron between its ends and having at one end a hook portion to engage on said clip from beneath, and a screw pivoted on said iron in front of the said jaw and having a nut to bear upon the corresponding end of said jaw and hold it in engaging position, substantially as described.

5. The thill-iron having a hook on its rear end, a locking-jaw pivoted on said iron in front of said hook and a locking screw and nut thereon for said jaw pivoted on the iron in front of said jaw, substantially as described.

682,761. BOOK-REST. HIRAM B. SMITH, Sr., Atlanta, Ga. Filed Oct. 23, 1900. Serial No. 34,100. (No model.)

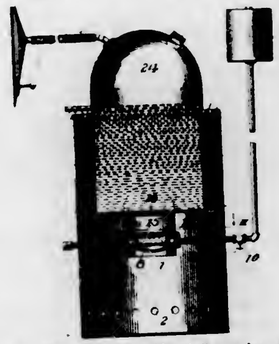


Claim.—1. A book holder or support, consisting of a base having a longitudinal recess therein the lower part of which is undercut to provide walls of different inclinations the inclinations on opposite sides corresponding with those of the walls above, a board connected to the base and links attached to the base and to the board, whereby the board is held in swinging engagement with the base and is adapted to be maintained in either one of two inclinations.

2. A book holder or support consisting of a base and a board held in swinging engagement with the base, said base having stops above and below the point of connection against which the board is adapted to bear, for the purpose of maintaining the board at an inclination with the base, substantially as shown.

3. A book-holder consisting of a base having a longitudinal recess with inclined walls and below the same an undercut recess, links pivoted to the base, and a board pivoted to the upper ends of the links, substantially as shown, the walls of the recess being at different angles so that the board may be supported at different inclinations, one of the sides of the recess forming a support for the lower edge of the book when its back contacts with the inclined board.

682,762. MOISTENER OR SOFTENER FOR WALL-PAPER, PAINT, &c. OLIVER G. SOUDER, Tiffin, and MAGGIE E. HAMILL, Fostoria, Ohio. Filed Dec. 13, 1900. Serial No. 39,807. (No model.)

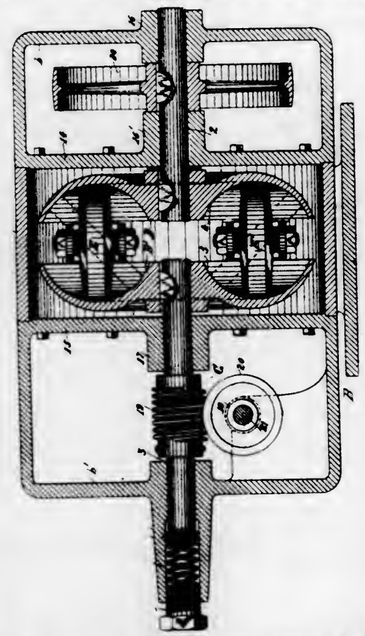


Claim.—1. The combination with a shell or casing, of a heating device arranged therein, radial supports for said heating device, pipes for the supply of oil or gas to said heating device supported in the shell at right angles to said radial supports, a closed tank or vessel supported within the shell above the heating device, a cover for the upper end of the shell having outlet-openings, and a sprayer flexibly connected with said tank or vessel, substantially as described.

2. A sprayer for a device of the character described, consisting of an outer rectangular member having a vapor-tube, an inner conical deflector or sprayer confined within the outer member, and yielding brackets within the outer member and securing the same to said deflector, substantially as described.

3. A sprayer for a device of the character described, consisting of an outer rectangular member having a vapor-tube, an inner conical deflector or sprayer confined within the outer member, yielding brackets within the outer member and securing the same to said deflector, and a handle upon the outer surface of the outer member, substantially as described.

682,763. VARIABLE-SPEED DEVICE. IRA H. SPENCER, Hartford, Conn. Filed Dec. 13, 1900. Serial No. 39,729. (No model.)



Claim.—1. In a variable-speed device, a frame including a base; a cylinder secured to said base; and two skeleton end frames having two disk-like heads secured to and closing the ends of said cylinder and said end frames also having axially-alined bearings for supporting the driving and driven shafts, and the cylinder having a bearing the axis of which is disposed in transverse relation to the axes of the end frame-bearings and which is adapted for supporting the friction-disk-guiding shaft.

2. In a variable-speed device, a frame having a plurality of axially-alined bearings one of which has an enlarged recess for receiving a thrust device; a driving and a driven shaft supported in said bearings one in advance of the other and the latter of which is longitudinally movable; a driving and a driven member secured to said shafts respectively and having concaved annular adjacent faces; friction-wheels adjustably and rotatably supported between and engaging the concaved faces of the two members; and a reactionary adjustable thrust device disposed in the enlarged recess and bearing against the extreme outer end of the driven shaft, whereby to retain the driven member in working engagement with the friction-wheels under predetermined normal stress.

3. In a variable-speed device, a frame including a cylindrical casing; a driving and a driven shaft journaled in said frame and terminating remote from each other in said casing; a driving and a driven member fixed to the ends of said shafts respectively within said casing; a friction-wheel supported for rotation with opposite faces in engagement with the adjacent faces of the driving and driven member; an adjusting-shaft disposed in intersecting relation with the axis of the friction-wheel and journaled in a bearing on the cylindrical casing and having a hinge connection with the friction-wheel; and gearing for rotating said shaft to adjust the friction-wheel in the plane of the axis of the driving and driven members.

4. In a variable-speed device, a framework including a cylinder and two end frames having disk-like heads removably secured to the ends of said cylinder; a driving-shaft wholly supported in bearings on one end frame and terminating in the cylinder; a driven shaft wholly supported

in bearings on the other end frame and terminating in the cylinder; a driving and a driven member secured to the driving and driven shafts, respectively within said cylinder; friction-wheels supported independent of the end frames in said cylinder and engaging the adjacent faces of the driving and driven members; means independent of the end frames for effecting angular adjustment of the friction-wheels to change the relative velocities of the driving and driven members; means for retaining the driving and driven members in frictional engagement with the friction-wheels; and means for rotating the driving-shaft, the construction and organization of the parts being such that one shaft and one member secured thereto will be withdrawn with the end frame supporting the same on the removal of said end frame from said cylinder.

682,764. CURTAIN-HANGER. JACOB STEINBERG, McKeesport, Pa. Filed Jan. 4, 1901. Serial No. 42,132. (No model.)

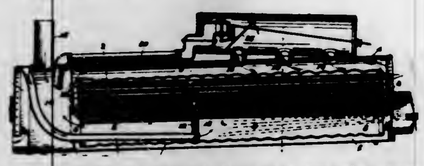


Claim.—1. In curtain-hangers, a tubular body adapted to be secured to a window-casing; brackets for supporting a shade-roller, having each a sleeve open along one side and fitted to telescope within the said body; brackets for supporting a curtain-pole, having each a portion fitted to telescope into the said sleeve, and a binding-screw threaded through the aforesaid body to bear directly upon the said portion of the pole-bracket, substantially as described.

2. In curtain-hangers, a body adapted to be secured to a window-casing and having a binding-screw; a shade-roller bracket and a curtain-pole bracket each having a portion fitted to telescope one into the other and both fitted to telescope within the said body, and adapted to be both secured by the said binding-screw, substantially as described.

3. In curtain-hangers, a bracket comprising an arm which has a tubular portion and a trough-shaped portion with notches in the edges of the trough; and a second arm fitted to rest in the said trough and having lugs to engage the said notches therein while the end of second arm is within the said tubular portion, the second arm having a curved portion to support a curtain-pole, substantially as described.

682,765. STEAM-BOILER. JAMES B. STETSON, San Francisco, and WILLIAM J. THOMAS, Sausalito, Cal. Filed June 20, 1901. Serial No. 65,302. (No model.)



Claim.—1. In a steam-boiler for liquid fuel, in combination, a steam-generating chamber of cylindrical form, water-tubes therein disposed to leave a central combustion-space, an outer shell completely surrounding said chamber with a suitable interval, into which said water-tubes open at their ends, front and rear nipple-openings to said steam-generating chamber, connecting it with said outer shell, and means for introducing liquid fuel through said front nipple-opening, substantially as specified.

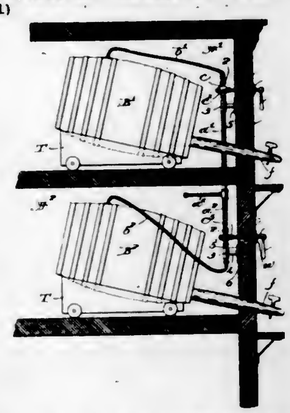
2. In a steam-boiler for liquid fuel, in combination, a steam-generating chamber of cylindrical form, water-tubes therein disposed to leave a central combustion-space, an outer shell completely surrounding said chamber with a suitable interval, into which said water-tubes open at their ends, front and rear nipple-openings to said steam-generating chamber, connecting it with said outer shell, means for introducing liquid fuel and steam to said steam-generating chamber through said front nipple-opening, and a steam-drum over said outer shell, communicating with the water-space therein, substantially as specified.

3. In a steam-boiler for liquid fuel, in combination, a steam-generating chamber, water-tubes therein disposed to leave a central combustion-space, an outer shell completely surrounding said chamber with a suitable interval, into which said water-tubes open at their ends, front and rear nipple-openings to said steam-generating chamber, connecting it with said outer shell, means for introducing liquid fuel to said steam-generating chamber through said front nipple-opening, a refractory bridge-wall across the combustion-chamber at a suitable point toward the rear, and a refractory baffling-plate or barrier fitted around the water-tubes extending forward from the top of the bridge-wall, to deflect the combustion-current, substantially as specified.

4. In a steam-boiler for liquid fuel, in combination, a steam-generating chamber of cylindrical form, placed in an inclined position, water-tubes therein disposed to leave a central combustion-space, an outer shell completely surrounding said chamber with a suitable interval, into which said water-tubes open at their ends, front and rear nipple-openings to said steam-generating chamber, connecting it with said outer shell, means for introducing liquid fuel and steam to said steam-generating chamber through said front nipple-opening, and a register-valve at the entrance of said front nipple-opening for the regulated admission of air therethrough, substantially as specified.

5. In a steam-boiler for liquid fuel, in combination, a steam-generating chamber of cylindrical form, placed in an inclined position, water-tubes therein disposed to leave a central combustion-space, an outer shell completely surrounding said chamber with a suitable interval, into which said water-tubes open at their ends, front and rear nipple-openings to said steam-generating chamber, connecting it with said outer shell, means for introducing liquid fuel through said front nipple-opening, a smoke box and stack in communication with said rear nipple-opening, a refractory bridge-wall across the combustion-chamber at a suitable point toward the rear, a refractory baffling-plate or barrier fitted around the water-tubes, extending forward from the top of the bridge-wall, to deflect the combustion-current, an air-conduit 20 in the smoke-box, and an air-pipe 23 leading from said air-conduit into the combustion-chamber through the bridge-wall, substantially as specified.

682,766. APPARATUS FOR DRAFT BEER OR ALE. HERMAN STRATER, Boston, Mass. Filed May 31, 1900. Serial No. 18,566. (No model.)

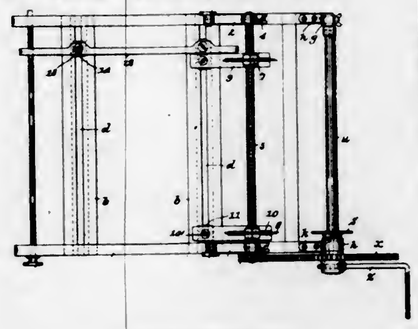


Claim.—An air or gas supply controlling device for ice-boxes, comprising a pipe, flexible connections secured to said pipe adapted to connect the same with receptacles for beer or ale within the ice-box, said pipe being provided adjacent said flexible connections with a coupling, said coupling having at one end a passage for the flow therethrough of the liquid, and at its other end provided with attaching means for rigidly securing the pipe in permanent position, a connection from said pipe to a source of air or gas supply, and a valve in said pipe for each flexible connection, said valve having a valve-stem adapted to extend through the ice-box for external operation, said stem being secured detachably to the valve.

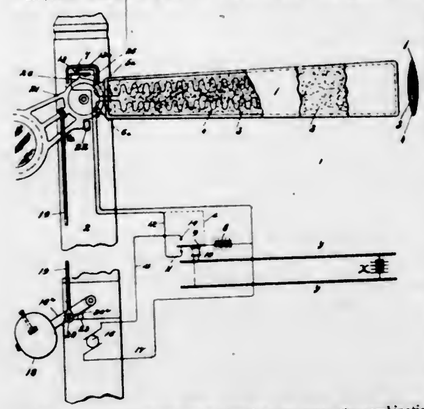
682,767. PAPER-CUTTING MACHINE. HENRY L. STREEL, Fairlawn, N. J. Filed Feb. 6, 1901. Serial No. 46,178. (No model.)

Claim.—1. The combination, with a frame, of a spindle arranged in said frame and adapted as a holder for the paper or other material to be cut, a rotary mandrel, upon which the cut material is adapted to be wound, journaled in said frame, a shaft journaled in said frame between said mandrel and the spindle, elevatory mountings for said shaft, a pair of cutters carried by said shaft, said cutters being adjustable on the shaft relatively to each other, and gearing connecting said mandrel and the shaft, substantially as described.

2. The combination, with a frame, of a spindle arranged in said frame and adapted as a holder for the paper or other material to be cut, a rotary mandrel, upon which the cut material is adapted to be wound, journaled in said frame, a shaft journaled in said frame between said mandrel and the spindle, elevatory mountings for said shaft, a pair of cutters carried by said shaft, said cutters being adjustable on the shaft relatively to each other, gearing connecting said mandrel and the shaft, and a guiding-strip arranged in said frame, said guiding-strip being disposed parallel with the direction of feed and being adjustable parallel with the direction of adjustment of said cutters, substantially as described.



682,768. SIGNALING APPARATUS. HERBERT B. TAYLOR, Newark, N. J. Filed Oct. 1, 1900. Serial No. 31,642. (No model.)



Claim.—1. In a railway-signal-heating apparatus, the combination of a signal, means for heating the signal, and means for causing said heating means to become operative when the signal becomes weighted by snow or ice.

2. In a railway-signal-heating apparatus, the combination of a signal, heating devices arranged in heating relation to the signal to remove the snow or ice therefrom, an electrical circuit for the heating devices, and means for controlling said circuit adapted to cause operation of the heating devices when snow or ice adheres to the signal parts.

3. In a signal-heating device, the combination of a signal, heating means for the signal embedded in a part of the signal, an electrical circuit and source of energy for the heating means, and a circuit-closer in the heating-circuit and controlled by movement of the signal adapted to automatically put the heating means in operation when snow or ice adheres to the signal parts, and to automatically stop the operation of the heating means upon the removal of the said snow or ice from the signal parts.

4. The combination with a visual signal, of means for electrically heating said signal, an electric circuit for said heating means normally open and a controlling-switch in said circuit connected with the signal and operative when snow or ice abnormally weights the signal.

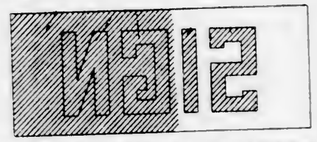
5. The combination of a signal-blade, a normally inoperative heating device located in the interior of the blade, and means for operating the heating device controlled by the movement of the said blade.

6. In a railway-signal-heating device, the combination of a signal, electrical resistance located in the interior of the signal-blade, an electric circuit and source of energy for the said resistance, means actuated by the signal-blade for closing and opening the heating-circuit, and means also for opening and closing the heating-circuit adapted to be actuated by a passing train.

7. The combination with a visual signal, movable to different positions, of heating means for the signal, an electric circuit for said heating means, and contacts in said electric circuit, arranged to be open in normal and operated positions of the signal, but controlled by movement of said signal to an intermediate position under the weight of adhering ice, to close the heating-circuit.

8. The combination with a visual signal provided with heating means and a motor for moving same to different positions, of a circuit for said motor, a circuit for said heating means, a source of electric current, a track-circuit and means controlled thereby to put the source of current in connection with either the motor-circuit or the heating-circuit.

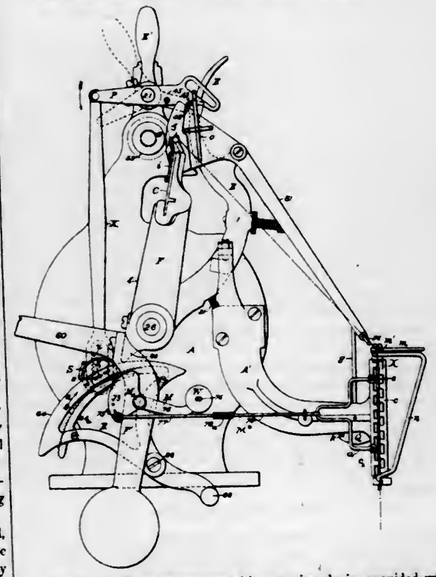
682,769. PROCESS OF LETTERING GLASS SIGNS. JOSEPH L. THORPE, Fairfield, Conn., assignor of one-half to Amos H. Lowden, Bridgeport, Conn. Filed Sept. 17, 1900. Serial No. 30,642. (No specimens.)



Claim.—1. The process of making letters or designs on glass and other smooth surfaces, consisting in first covering the surface with a thin coherent sheet by means of a slow-drying cement; second, outlining the design by cutting it in the said sheet; third, removing all of the said sheet except that which constitutes the design; fourth, painting the surface with an appropriate color; and fifth, removing the remainder of the thin coherent sheet; substantially as described.

2. The process of making letters or designs on glass and other smooth surfaces consisting in first, covering the surface with a slow-drying cement; second, covering the surface with metallic foil; third, outlining the design by cutting it in the foil; fourth, removing all the foil except that which covers the design; fifth, painting the surface with an appropriate color; sixth, removing the remainder of the foil; seventh, covering the surface from which the foil had last been removed, after the first coat has become dry, with a material of contrasting color, substantially as described.

682,770. WINDING-MACHINE. SIMON W. WARDWELL, Jr., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Filed Feb. 17, 1899. Serial No. 705,802. (No model.)



Claim.—1. The combination with a tension device provided with separable combs, and with a spindle and guide supported to move outward with the increase in diameter of the cop, of means for rotating the spindle and for reciprocating the guide and connections between the guide

and the tension device whereby to vary the pressure upon the movable comb as the guide moves away from the spindle, substantially as set forth.

2. The combination with the rotating spindle, guide movable to and from the spindle and tension provided with separable combs, of means for drawing the combs together and connections between the guide and tension device for varying pressure upon the movable comb as the cop increases in diameter, substantially as set forth.

3. The combination with a tension device having separable combs, of means for bringing the combs together and means for automatically and gradually separating the combs to decrease the tension, substantially as set forth.

4. The combination in a winding-machine, of a tension device consisting of two combs for receiving the thread between them, means for moving one of the combs, a reciprocating guide, swinging frame supporting the guide, and connections between the frame and the movable comb arranged to vary the pressure upon the movable comb as the guide moves outward, substantially as set forth.

5. The combination with a thread-guide and pivoted frame carrying the same, and with a tension device, of a weighted lever pivoted to said frame and connected with the tension device, substantially as set forth.

6. The combination with a thread-guide and pivoted frame carrying the same and with a tension device, of a weighted lever pivoted to said frame and connected adjustably with the tension device, substantially as set forth.

7. The combination with a spindle, guide and pivoted frame carrying the guide, of a tension device having separable combs, a weighted lever pivoted to said frame, and connections between the lever and one of the combs, substantially as set forth.

8. The combination with the spindle, guide-frame, a guide carried thereby, means for reciprocating the guide, and a detent for preventing the inward movement of the frame while permitting the free outward movement thereof, of devices arranged to mechanically move said detent as the machine is started to then release the frame, substantially as set forth.

9. The combination of the spindle, guide, frame F and detent 64, and connections arranged to shift the detent as the machine is stopped and started without otherwise affecting its operations, substantially as set forth.

10. The combination of the spindle, guide, pivoted guide-frame, pivoted detent provided with a cam and with a toothed rack or sector, a stopping and starting device, disk provided with a pin to engage the sector and means for rotating the disk on the movement of the stopping and starting device, substantially as set forth.

11. The combination with the pivoted guide-frame and sector, and stopping and starting device, and disk S rotated therefrom, of a yielding pin *s* carried by the disk, substantially as set forth.

12. The combination of the spindle, guide, swinging frame F, and tension device, of a weighted lever M pivoted to the frame F and connected to apply and relieve the tension, substantially as set forth.

13. The combination of the spindle, guide, swinging frame F and tension device, of a weighted lever M pivoted to the frame F and adjustably connected to relieve and apply the tension, substantially as set forth.

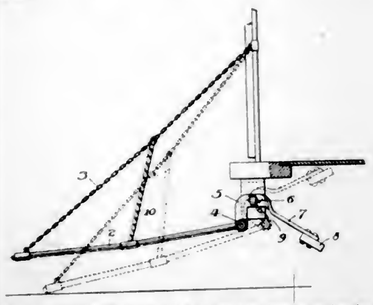
14. The combination in a winding-machine of a rotating spindle, a frame movable to and from the spindle, a guide-carrier supported and reciprocated entirely on the movable frame, and independent of the rest of the machine so that it shall be moved bodily with the movable frame, a guide, carried by the carrier, devices for starting and stopping the winding, and connections between the starting and stopping devices and the movable frame whereby the latter is mechanically shifted to move the guide away from the surface of the package when the winding is stopped, and to return the guide to the surface of the package when the winding is started, substantially as described.

15. The combination in a winding-machine of a rotating spindle, a frame mounted to swing to and from the spindle, a reciprocating carrier supported and carried on the swinging frame, independent of the main body of the machine, to move with the swinging frame to and from the spindle, a guide carried by the carrier, devices for starting and stopping the winding, connections between the starting and stopping devices and the swinging frame whereby the latter is mechanically shifted to move the reciprocating thread-guide away from the surface of the package when the winding is stopped and return it thereto when the winding is started, substantially as described.

682,771. FENDER FOR VEHICLES. WILLIAM F. WEISS, Camden, N. J., assignor to the United States Fender Company, of New Jersey. Filed Dec. 10, 1900. Serial No. 39,305. (No model.)

Claim.—1. A vehicle-fender having a flexible support for its front edge and a counterweighted translative pivotal support for its rear, substantially as described.

2. A vehicle-fender having counterweighted means for normally carrying the fender above the ground but permitting the downward movement of its front edge upon engaging with an obstacle, substantially as described.



3. A vehicle-fender having flexible means for supporting its front edge and counterweighted means for normally carrying the fender above the ground but permitting its downward movement of the front edge upon its engaging with an obstacle, substantially as described.

4. In combination with a vehicle-fender, counterweighted means for movably connecting the fender with the vehicle, consisting of a member rotatably secured to the vehicle having a downward projection from its point of support, the lower extension of which is pivotally secured to the fender, substantially as described.

5. In combination with a fender, flexible means for supporting its lower front edge and its rear upper edge, and counterweighted means for normally carrying the front edge of the fender above the ground and permitting its downward movement upon its engaging with an obstacle, substantially as described.

6. In combination with a fender, flexible means for supporting its lower front edge and its rear upper edge, and pivotal counterweighted means for normally carrying the front edge of the fender above the ground and permitting its downward movement upon its engaging with an obstacle, substantially as described.

7. In combination with a vehicle-fender, flexible means for supporting its front edge and its rear upper edge, and counterbalanced translative means for movably connecting the fender with the vehicle, substantially as described.

8. In combination with a fender having a rearward extension, a counterbalanced member pivotally secured to the vehicle, having a downward extension from its pivot-support movably connected with the rearward extension of the fender, and a rearward extension from its pivot-support provided with a counterweight, substantially as described.

9. The combination of a fender, flexibly supported at its front edge and having a rearward extension, a counterbalanced member pivotally secured to the vehicle-body and movably connected with said rearward extension, and a stop adapted to encounter said counterbalanced member to limit its pivotal movement, substantially as described.

10. The combination of a fender, flexibly supported at its front edge, and having a rearward extension, a counterbalanced member pivotally secured to the vehicle having a downward extension from its pivot-support, said downward extension being movably connected with the rearward extension of the fender, and a stop adapted to engage with said downward extension to limit its rearward movement, substantially as described.

11. The combination of a fender having flexible means for supporting its front edge and a rearwardly-extending arm, a counterbalanced member pivotally secured to the vehicle and movably connected with the rearwardly-extending arm and a stop to limit the upward movement of the counterweight, substantially as described.

12. In combination with a fender flexibly supported at its front edge and having a rearward extension, a counterweighted member rotatably connected with the vehicle, and movably connected with the rearward extension of the fender so arranged and disposed as normally to hold it above the ground but adapted to permit the front edge to descend upon encountering an obstruction and a stop to limit the downward movement of the front edge, substantially as described.

13. The combination with a vehicle of a fender having an approximately horizontal forward portion and a rear inclined portion, flexible means for supporting the lower front edge of the former and the upper rear edge of the latter, rearwardly-extending arms and counterbalanced means for movably connecting the same with the vehicle, substantially as described.

14. The combination with a vehicle of a fender having an approximately horizontal forward portion and a rear inclined portion, flexible means for supporting the lower front edge of the former and the upper rear edge of the latter, rearwardly-extending arms and counterbalanced means for movably connecting the same with the vehicle adapted to carry the fender normally above the ground but to permit its front edge to descend upon encountering an obstacle, substantially as described.

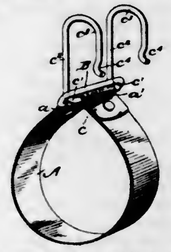
15. The combination with a vehicle of a fender having an approximately horizontal forward portion and a rear inclined portion, flexible means for supporting the lower front edge of the former and the upper rear edge of the latter, rearwardly-extending arms and counterbalanced means for movably connecting the same with the vehicle, substantially as described.

16. The combination with a vehicle of a fender having an approximately horizontal forward portion and a rear inclined portion, flexible means for supporting the lower front edge of the former and the upper rear edge of the latter, rearwardly-extending arms and counterbalanced means for movably connecting the same with the vehicle, consisting of a member rotatably secured to the vehicle having a downward projection from its point of support movably connected with the fender, substantially as described.

17. The combination with a vehicle of a fender having an approximately horizontal forward portion and a rear inclined portion, flexible means for supporting the lower front edge of the former and the upper rear edge of the latter, rearwardly-extending arms and counterbalanced means for movably connecting the same with the vehicle, substantially as described.

18. The combination with a vehicle of a fender having an approximately horizontal forward portion and a rear inclined portion, flexible means for supporting the lower front edge of the former and the upper rear edge of the latter, rearwardly-extending arms and counterbalanced means for movably connecting the same with the vehicle consisting of members rotatably secured to the vehicle having a downward projection from its point of support movably connected with the rearwardly-extending arms, and rearward projections provided with counterweights, substantially as described.

682,772. COMBINED HOSE STRAP AND HOOK. JOHN WELTLIE, Sandusky, Ohio. Filed Mar. 2, 1901. Serial No. 49,614. (No model.)

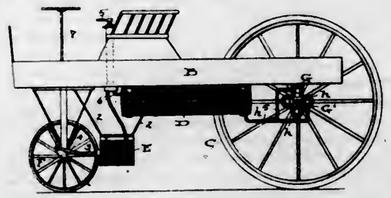


Claim.—1. A combined strap and book comprising a strap having a loop secured to one end thereof, a book having its central portion secured to the opposite end of the strap and having shank portions extending upwardly therefrom and terminating in books, substantially as shown and described.

2. A combined strap and book comprising a strap, a loop secured to one end thereof, a book provided with shoulder portions held to the opposite end of the strap, substantially as described.

3. A combined strap and book comprising a strap, a loop secured to one end thereof, a book provided with shoulders or stop portions adapted to be engaged by the loop, the said hook having its ends terminating in spring-actuating points, substantially as set forth.

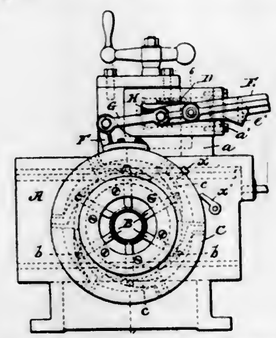
682,773. PNEUMATICALLY-PROPELLED VEHICLE. WILLIAM J. WHITE, Cleveland, Ohio. Filed Apr. 5, 1899. Serial No. 711,815. (No model.)



Claim.—1. A vehicle and a pneumatic chamber and motor thereon to drive the vehicle, in combination with an air-replenishing mechanism comprising a pump set to operate at right angles to the direction of travel and means connected with a revolving part of the vehicle to operate said pump, substantially as described.

2. A vehicle having front and rear axles, a series of direct-acting pumps grouped about the rear axle and pistons and piston-rods parallel to the said axle, and a cam on one of the rear wheels to operate said pumps, substantially as described.

682,774. MACHINE FOR CUTTING SCREW-THREADS. CHAS. F. WIELAND, Edwardsville, Ill. Filed Feb. 11, 1901. Serial No. 46,845. (No model.)



Claim.—1. In a machine of the character described, the combination with a rotatable cam-ring for moving the tools into and out of operative position, of an operating-lever, a connection between said lever and said cam-ring, means for adjusting the fulcrum of said lever, and mechanism for preserving the alinement of the lever-fulcrum and the connection between said lever and the cam-ring in all the adjusted positions of the fulcrum of said lever; substantially as described.

2. In a machine of the character described, the combination with a rotatable cam-ring for moving the tools into and out of operative position, of an operating-lever, a link connecting said operating-lever and the ring, means for adjusting the fulcrum of the lever, and a device for limiting the movement of the lever in one direction, whereby alinement of the pivotal points of the link and the fulcrum of the lever is preserved in the adjusted positions of the lever-fulcrum; substantially as described.

3. In a machine of the character described, the combination with a rotatable cam-ring for moving the tools into and out of operative position, of an operating-lever, a link connecting said operating-lever and said cam-ring, a slidable block on which said lever is fulcrumed, means for adjusting the position of said block, a fin on the lever, and a stop-pin cooperating with said fin and arresting the limit of movement of the lever in one direction; substantially as described.

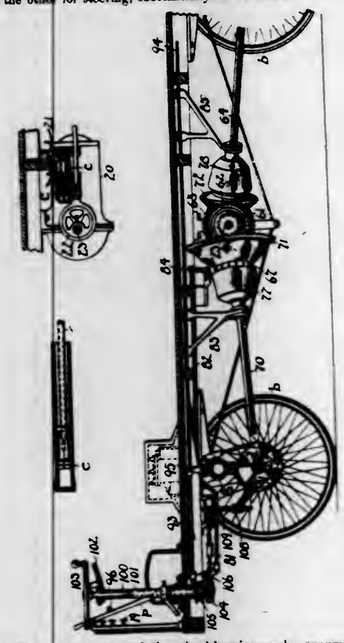
4. In a machine of the character described, the combination with a rotatable cam-ring for moving the tools into and out of operative position, of means for limiting the backward rotation of the ring, mechanism for predetermining the forward rotation of said ring, said mechanism comprising an operating-lever, an adjustable fulcrum for said lever, a link connection between said lever and ring, and mechanism for preserving the alinement of the lever-fulcrum and the connection between said lever and the cam-ring in all the adjusted positions of the fulcrum of said lever; substantially as described.

5. In a machine of the character described, the combination with a rotatable cam-ring for moving the tools into and out of operative position, of a frame forming a guideway, said frame being provided with a scale at the edge of said way, a fulcrum-block slidingly mounted in said way, means for adjusting said block in said way, a lever fulcrumed on said block, a link connection between said lever and said rotatable cam-ring, and means for arresting the movement of said lever in one direction, whereby the pivotal points of the link and said lever are maintained in alinement in all adjusted positions of the fulcrum-block; substantially as described.

682,775. AUTOMOBILE. MELVIN A. YEAKLEY, Kansas, Ohio. Filed Dec. 5, 1900. Serial No. 38,738. (No model.)

Claim.—1. A vehicle-body and wheel-supports, and automatically-controlled pneumatic cushioning and supporting means interposed between said body and wheel-supports, said means adapted to increase or decrease the pneumatic pressure therein, substantially as described.

2. A vehicle-body and wheel-supports, and a controlled pneumatic cushioning and supporting mechanism for the body on said supports, said mechanism comprising a cylinder having the air free therein, and a packed piston-rod in the cylinder and one of said parts adapted to rotate in respect to the other for steering, substantially as described.



3. The vehicle-body and the wheel-bearing, and a pneumatic support and cushion between said body and bearing comprising a cylinder having air liberated therein to form said cushion, and a piston-rod exposed to the air in the cylinder, one of said parts being rigid with said bearing and the other with said body, said cylinder having an air-inlet and an outlet, and controlled by the position of the body in respect to the bearing, substantially as described.

4. A vehicle-body and wheel-bearings, and a pneumatic cushioning device consisting essentially of a cylinder rigid with said body and a piston rigid with a wheel-bearing, said cushioning devices rotatable one in respect to the other on a vertical axis, and the cylinder unobstructed within to afford an exclusively-pneumatic cushion for the piston for supporting the body, and means to control the pressure of the air in said cylinder, substantially as described.

5. In a vehicle, a body and a flexible axle, in combination with a cushioning mechanism for supporting the body comprising a cylinder and a piston-rod confining the cushioning-air between them, means to control the said cushioning-air for suspending the body, and one of said parts being rigid with the body and the other rotatable in respect thereto for steering, substantially as described.

6. In vehicles, a body and wheel-supports, and a pneumatic support and cushion between said body and supports comprising a compression-cylinder rigid with one of said parts and a piston and rod connected with the other part and confining the supporting and cushioning air between them, the said cylinder and piston and rod being rotatively engaged one with the other, whereby the wheels can be turned for steering, and the cylinder having an air-opening into the air-space therein and the air acted upon by the piston, and means to automatically control said air-opening, substantially as described.

7. A vehicle-body and axle-shafts having spindles jointed on their ends, in combination with pneumatic cushioning mechanism supporting the body on the spindles and constructed to allow the spindles to rotate horizontally, said axle-shafts having extensible connections to allow for up-and-down play of the vehicle-body wheels, substantially as described.

8. A vehicle-body and jointed axle-shafts, and pneumatic supports for the body rigid at their lower ends with the spindles on said axle-shafts, and means to apply power to said axle-shafts, substantially as described.

9. In vehicles, a pneumatic cushion for supporting the body of the vehicle comprising a cylinder having inlet and outlet openings for the cushioning fluid, a piston working in said cylinder and means to maintain a pressure on said piston to keep it at outlet-opening, substantially as described.

10. A pneumatic cylinder having an inlet at one end and a series of outlet-openings between its ends, pneumatic members consisting of a piston-rod and piston in said cylinder and means to force air into the cylinder to sustain a load, in combination with a vehicle having flexible axle-shafts and wheel-spindles on said axle-shafts having each a vertical axis of rotation in the axis of the pneumatic member connected therewith, substantially as described.

11. In a vehicle, a series of pneumatic cushions for the body of the vehicle, and separate pump and pipe connections therefrom to each cushion, and means for automatically controlling the pressure of each cushion for suspending the body at a normal point, substantially as described.

12. A vehicle and a series of pneumatic cylinders and pistons therein constructed to carry a load, said cylinders having each an inlet at one end and outlets at their sides, and a separate pump for each cylinder, substantially as described.

13. In vehicles, a set of axle-shafts and propelling mechanism therefor comprising a drive-shaft and a series of differential gears to graduate speed, and transmitting-gears and a pair of shafts arranged to make power connection with any one of said differential gears and with both axle-shafts, substantially as described.

14. A vehicle and propelling mechanism consisting of a drive-shaft and a series of differential gears thereon, a pair of driven shafts geared up with each axle of the vehicle and a separate friction-clutch and intervening mechanism to make driving engagement with each one of said differential gears, substantially as described.

15. The vehicle and its axle-shafts, the drive-shaft and a pair of driven shafts one for each axle-shaft geared therewith, a series of gears on the drive-shafts to change the speed and means to throw any one of said gears into power connection with said driven shafts, substantially as described.

16. In a power-driven vehicle, a drive-shaft and a sleeve thereon and a gear and a clutch fixed on said sleeve to rotate therewith, in combination with a set of driven shafts geared with the axle-shafts and a gear on each driven shaft meshing with the gear on said sleeve, substantially as described.

17. A vehicle and its axle-shaft, transverse drive-shafts and gears thereon, and driven shafts geared therewith and with each axle-shaft, and a clutch on each driven shaft and a gear thereon rigid with one member of said clutch, substantially as described.

18. The vehicle and its axle-shafts and the driven shafts and gears connecting said shafts, in combination with a drive-shaft, a series of gears splined thereon, and a set of gears on each driven shaft in mesh therewith, and a series of friction-clutches on said drive and driven shafts to make working connection through any one of the several gears on the drive-shaft, substantially as described.

19. In a power-driven vehicle, a set of flexible axle-shafts and wheels thereon, in combination with a steering mechanism comprising rotatable sheaves, connected arms rigid with the spindles of each set of wheels, flexible connections from said sheaves to said arms, and means to rotate said sheaves, substantially as described.

20. In a power-vehicle, a suitable body or bed and carrying-wheels, flexible extensible axle-shafts connecting said wheels, power connections to said axle-shafts, and pneumatic cushioning mechanism supporting said body on said wheels, and having one of its members loosely connected with the ends of said axle-shafts, substantially as described.

21. In a vehicle, a pneumatic cushion for supporting the body of the vehicle comprising a cylinder and a piston therein, said cylinder having an air-inlet on one side of the piston and an air-outlet on the same side, and means to sustain the air-pressure in the cylinder, whereby the desired pressure and equilibrium between said cylinder and piston is maintained, substantially as described.

22. In automobile vehicles, a set of wheels and a body and pneumatic cushions supporting the body on said wheels, and pneumatic pressure-sustaining mechanism to hold up all the corners of the body to the same level regardless of the load thereon, said mechanism comprising a pneumatic pump or pumps or a tank of compressed air, substantially as described.

23. In a power-driven vehicle, a vehicle-body, a flexible axle-shaft having spindles at its ends, wheels mounted on said spindles and automatically-controlled pneumatic cushions connecting the wheels with the body of the vehicle and constructed to hold the wheels upright, substantially as described.

24. In vehicles, front and rear wheels and flexible axle-shafts and driven equalizing-gears thereon, and steering mechanism connecting said wheels and constructed to turn each set of wheels in an opposite direction from the other set at the same time and the same distance, said steering mechanism comprising a combined cushioning and rotary pivoting-cylinder, and a laterally-supported piston in said cylinder, and the body of the vehicle rigid with one of said parts and the piston rigid with the other of said parts, substantially as described.

25. In automobile vehicles, a body and wheel-supports and carrying-wheels thereon, means for cushioning and pivoting said wheel-supports to the body comprising a cylinder and a piston-rod rotatably connected, and an automatically-controlled air-cushion between them, one of said parts being rigid with the body and the other part being rigid with the wheel-supports, and means for turning said wheel-supports for steering, substantially as described.

26. In automobile vehicles, a body and wheel-supports and carrying-wheels thereon, means for cushioning and pivoting said wheel-supports on the body comprising a cylinder and a piston-rod rotatably connected, one of said parts being rigid with the body and the other part rigid with the wheel-supports, flexible power-driven axle-shafts operatively connected and connecting the wheels and means connecting the wheel-supports for steering each pair of wheels the same distance at the same times and in opposite directions, substantially as described.

27. In automobile vehicles, a frame and a pair of carrying-wheels for each end vertically and pivotally connected to the frame by wheel-supports outside of the wheels for steering, and driven flexible axle-shafts connecting the inner ends of the hubs of each pair of wheels for driving the vehicle, substantially as described.

28. In automobile vehicles, a frame and a pair of carrying-wheels vertically and pivotally connected outside the wheels to the frame by wheel-supports for steering and holding the wheels upright, and a driven flexible axle-shaft connecting the inner ends of the hub of the wheels to drive them, substantially as described.

29. In automobile vehicles, a body and a pair of carrying-wheels for each end, and wheel-supports pneumatically cushioned and pivoted vertically to the body outside of the wheels, and the wheels mounted on the inward-projecting spindles of said wheel-supports, and a power-driven flexible and extensible axle-shaft connecting the inner sides of the wheels to drive them, all substantially as described.

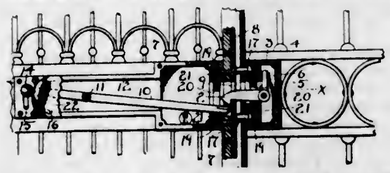
30. In automobile vehicles, a body and a pair of carrying-wheels, and wheel-supports cushioned and pivoted vertically to the body outside of the wheels and the wheels mounted on the inward-projecting spindles of said wheel-supports, and a power-driven flexible and extensible axle-shaft connecting the inner side of the wheels to drive them, substantially as described.

31. In automobile vehicles, a body and sleeved wheel-supports and wheels mounted thereon, said supports pneumatically cushioned and pivotally connected vertically to the body for steering and holding the wheels upright, and a driven flexible and extensible axle-shaft extending through said sleeved wheel-supports and connecting the wheels to drive them, substantially as described.

32. In automobile vehicles, the combination of a body and sleeved wheel-supports and wheels mounted thereon, said supports cushioned and pivotally connected vertically to the body for steering and holding the wheels upright, and a driven flexible and extensible axle-shaft extending through the said sleeved supports and connecting the wheels for driving them, substantially as described.

33. In automobile vehicles, a body and wheel-supports and carrying-wheels thereon, means for cushioning and pivoting said wheel-supports to the body comprising a cylinder and a rod rotatably connected, and means for cushioning between them, one of said parts being rigid with the body and the other part rigid with the wheel-supports, and flexible power-driven axle-shafts connecting said wheels, substantially as described.

682,776. LATCH FOR ELEVATOR-GATES. AUGUST ZITSMANN, Cleveland, Ohio. Filed May 4, 1901. Serial No. 58,680. (No model.)



Claim.—1. The casing and a latch supported thereon, and a cushioning-block about said latch, in combination with a sliding door having a locking-plate and a lever for releasing said latch, and a separate cushioning-block for said lever mounted on said door, substantially as described.

2. In elevator-doors, the combination of the stationary casing having a U-shaped angle-bar mounted thereon, a pivoted latch on said casing and within said angle-bar, a sliding door constructed with an edge plate to retire within said U-shaped bar and having an engaging portion for said latch, and a pivoted lever on said door to release said latch from said plate, substantially as described.

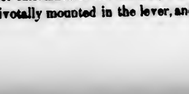
3. The U-shaped angle-bar and the supporting-casing therefor, an opening in said bar and a spring-pressed pivoted latch on said casing projecting through said opening, and cushioning-blocks for said latch, in combination with a sliding door constructed with an edge plate to engage said latch when retired within said U-bar, a pivoted lever to release said latch from said plate, and cushioning-blocks for said lever mounted on said door, substantially as described.

4. The combination of the sliding door and the fixed casing therefor, a U-shaped angle-bar on said casing within which the edge of said door retires, latch mechanism on said door and casing, and removable cushioning and guiding strips for said door mounted on said angle-bar, substantially as described.

5. The casing and the U-shaped angle-bar thereon having offset flanges, cushioning-strips removably secured to said flanges and arranged on the inner face of the sides of said angle-bar, and a latch on said casing, in combination with a sliding door having an edge plate to engage said latch and constructed to retire within said angle-bar and between said cushioning-strips, substantially as described.

6. The sliding door, and the fixed casing having a U-shaped angle-bar to receive the edge of the door, said bar having offset flanges, in combination with removable cushioning and guiding strips for the door having engaging portions to fit between said flanges and said bar, substantially as described.

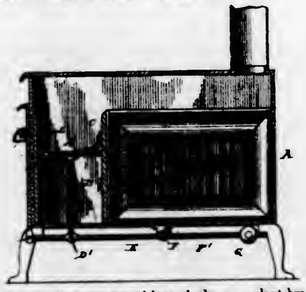
682,777. REED FOR CREEL-FRAMES. HAROLD E. ADAMS and OTTO R. STAPFER, Paterson, N. J. Filed Jan. 22, 1901. Serial No. 44,246. (No model.)



Claim.—1. A reed for creel-frames, consisting of a rectangular frame, comprising a base-plate, a top plate, side bars for securing the base and top plates together, a center bar or partition within said rectangular frame, screw-threaded pins projecting upwardly from the side bars and from the center bar or partition, a cap or cover removably arranged on the top plate and provided with open elongated slots adapted to be penetrated by said screw-threaded pins, wing-nuts on said pins, and removably-arranged dents penetrating said top plate and seated in the base-plate, all said parts substantially as and for the purposes described.

2. A reed for creel-frames comprising a rectangular frame, a transverse bar or partition mounted in the central portion of said frame, dents in said reed-frame and arranged in parallel rows and forming a series of sections on each side of the center bar, the corresponding rows on opposite sides of the partition forming acute angles, the points of which are in the plane of said partition, a single rod or bar extending continuously in front of the series of parallel rows of dents, and brackets sustaining the said rod or bar above the front edge of the lower part of the creel-frame, all said parts substantially as and for the purposes described.

682,778. STOVE. PHILLIP ANDERSON, Denver, Colo. Filed Mar. 30, 1900. Serial No. 10,859. (No model.)



Claim.—1. A stove comprising a body, a pendent bracket secured to the bottom thereof, a lever fulcrumed to the bracket, a rod pivotally mounted in the lever, and having diverging supporting-arms, and a grate pivotally mounted on the supporting-arms.

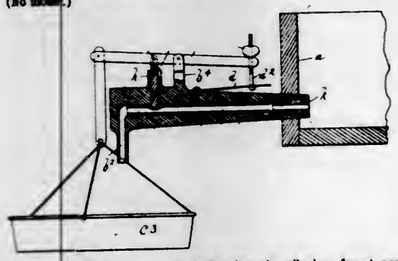
2. A stove comprising a body, a pendent bracket secured to the bottom thereof, a lever fulcrumed to the bracket, a counterbalance-weight on the lever, a rod pivotally mounted in the lever and having diverging supporting-arms, a grate pivotally mounted on the supporting-arms, and a leaf hinged to the grate and sliding on the back of the fire-channel.

3. A stove comprising a body, a pendent bracket secured to the bottom thereof, a lever fulcrumed to the bracket, a counterbalance-weight on the lever, a rod pivotally mounted in the lever, and having diverging sup-

porting-arms, a grate pivotally mounted on the supporting-arms, a holder secured to the face-plate of the body, a lift-rod pivoted to the front end of the lever, working in the holder, and having a handle, and means for locking the lift-rod at desired height.

4. A stove comprising a body having a perforated face-plate, a pendent bracket secured to the bottom of the body, a lever fulcrumed to the bracket, a counterbalance-weight on the lever, a rod pivotally mounted in the lever, and having diverging supporting-arms, a grate pivotally mounted on the supporting-arms, a holder secured to the face-plate of the body, a spring set-bolt working in the holder, and engaging the perforated face-plate, and a lift-rod having a series of bolt-holes, pivoted to the front end of the lever, working in the holder, and having a handle.

682,779. WATER-SUPPLYING DEVICE FOR POULTRY. FERDINAND RADE, Norwood, N. J. Filed Dec. 19, 1900. Serial No. 40,339. (No model.)

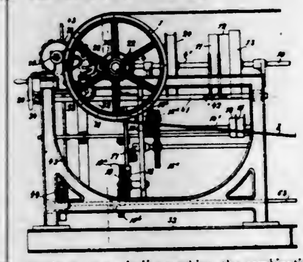


Claim.—1. In an apparatus of the class described, a faucet provided with a longitudinal bore, a flexible tube arranged therein, a support on the upper side of said faucet, a lever pivotally connected therewith longitudinally of said faucet, a plunger connected with said lever and adapted to close the bore or passage in the faucet, the inner end of said lever being connected with a spring connected to said faucet, and the outer end thereof being adapted to suspend a pan or other receptacle, substantially as shown and described.

2. In an apparatus of the class described, a faucet, a lever pivotally supported thereover, and arranged longitudinally thereof, and a plunger connected with said lever and adapted to close the bore or passage through the faucet, the inner end of said lever being connected with a spring secured to the faucet, and vertically adjustable with reference to said spring, and the outer end thereof being adapted to suspend a pan or other receptacle, substantially as shown and described.

3. In a device of the class described, a faucet provided with a longitudinal bore or passage, a lever pivotally supported above said faucet and extending parallel therewith, a plunger connected with said lever and passing into said faucet and adapted to close said bore or passage, means for suspending a pan or other receptacle from the outer end of said lever, and a spring adjustably connected with the inner end of said lever, substantially as shown and described.

682,780. PRINTING-MACHINE FOR YARN OR WARP-THREADS. CARL BARBUTHER, Eger, Austria-Hungary. Filed June 15, 1899. Serial No. 720,638. (No model.)



Claim.—1. In a yarn-coloring machine, the combination with the coloring devices, of an endless traveling belt upon which the yarn to be colored is carried, power devices for operating said belt, an indicator and power-transmitting connection between said indicator and devices for operating the belt to indicate the extent of movement of the belt when moved by said power devices, hand-operated devices for moving said belt when the power devices are out of action, an auxiliary indicator and power-transmitting connections between said indicator and hand-operated devices for indicating the extent of movement of said belt under the action of said hand-operated devices.

2. In a yarn-coloring machine, the combination with the coloring devices, of an endless traveling belt upon which the yarn to be colored is carried, power devices for operating said belt, an indicator and power-transmitting connection between said indicator and devices for operating the belt to indicate the extent of movement of the belt when moved by said power devices, hand-operated devices for moving said belt when the power devices are out of action, an auxiliary indicator and power-transmitting connections between said indicator and hand-operated devices for indicating the extent of movement of said belt under the action of said hand-operated devices said auxiliary hand-operated indicator consisting of two separate indicating-disks with intermediate speed-reducing driving connections.

3. In a yarn-coloring machine, the combination with the endless belt upon which the yarn is wound in longitudinal strands, of a color-carriage adapted to apply color to the yarn while carried by said belt and the elastic impression-plate 45, between which and the color-carriage the endless belt passes.

4. In a machine of the character described, the combination with the endless belt upon which the yarn is wound in longitudinal strands, of the color-carriage adapted to apply color to the yarn while carried by said belt, an impression-surface located adjacent to the point of action of said color-carriage, and pressure-rollers bearing upon said endless belt adjacent to said impression-surface.

5. In a machine of the character described, the combination with the endless belt upon which the yarn is wound in longitudinal strands, of the color-carriage adapted to apply color to the yarn while carried by said belt, an impression-surface located adjacent to the point of action of said color-carriage, and pressure-rollers bearing upon said endless belt adjacent to said impression-surface and means to raise and lower said pressure-rollers.

6. In a machine of the character specified, the combination of an endless traveling belt, upon which the yarn to be colored is wound in longitudinal strands, coloring devices for applying color to the yarn when carried by said belt, power devices for operating said belt to wind the yarn thereon, hand-operated devices for moving said belt when the power devices are out of action, an indicator, and power-transmitting connections between said indicator and the hand-operated devices for moving said belt.

7. In a machine of the character specified, the combination of an endless traveling belt, upon which the yarn to be colored is wound in longitudinal strands, coloring devices for applying color to the yarn when carried by said belt, power devices for operating said belt to wind the yarn thereon, hand-operated devices for moving said belt when the power devices are out of action, an indicator, and power-transmitting connections between said indicator an the hand-operated devices for moving said belt; a second indicator and speed-reducing driving connections for operating said second indicator at a relatively lower speed than the first indicator.

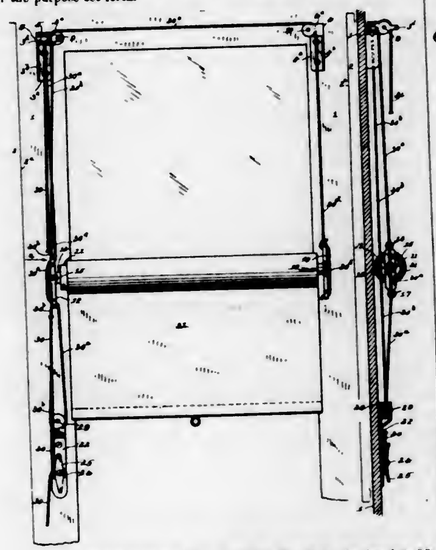
8. In a machine of the character specified, the combination of an endless traveling belt upon which the yarn to be colored is wound in longitudinal strands, a color-carriage for applying color to said yarn while carried by the belt, driving devices for operating said carriage, means to throw said driving devices out of action, hand-operated devices for moving said endless traveling belt, an indicator and driving connections between said indicator and the hand-operated devices for moving the belt.

682,781. CURTAIN-FIXTURE. FRED H. RABBITT, Waterbury, Conn. Filed July 9, 1900. Serial No. 22,917. (No model.)

Claim.—1. The herein-described improvement in spring curtain-roller fixtures, consisting of single and double cord-pulley brackets, the double one having the housing 3^a as shown, a cord running through said brackets, the curtain-roller having end bearings 12 and 18, said cord frictionally connected to bearing 12 and firmly anchored to the bearing 18, said bearing 12 having an elongated slot eccentrically located with respect to the ends of said bearing in which slot one end of the roller is supported for the purpose of reversing said bearing for different diameters of rollers, for the purpose set forth.

2. The combination, herein shown and described, consisting of the double pulley-bracket 3 and the single pulley-bracket 4, pulley-bracket 22 attached to the casing as shown, a single cord passing over said pulleys as follows: section 30 passing over pulley 5 of the bracket 3, from thence, as section 30^a, passing over pulley 28 of the bracket 22, thence as section 30^b, passing over pulley 6 of said bracket 3, thence, as section 30^c, passing over pulley 7 of the bracket 4, with a curtain-roller carrying a winding-spring in one end thereof, a bearing secured to the spring-winding projection, the opposite ends of said bearing having openings therein through which the cord-section 30^c passes and the said bearing is thus frictionally supported to such cord-section, said cord also operating

as a buffer to protect the window-casing, a second bearing in which the opposite end of the roller is journaled, means for securing the cord-section 30^d thereto, the ends of said bearings projecting above said roller so that, when such projecting ends are brought firmly against the brackets 3 and 4 the said roller is leveled, means for securing the free end of cord 30, for the purpose set forth.



3. In a curtain-fixture of the character described, the bracket 22 adapted to be secured to the lower part of the window-casing and carrying a pulley in its upper end and having the elongated opening 27 in the body portion, combined with the cord-fastening cleat 25 having the lugs 26 adapted to enter said opening to keep said cleat from turning, means for securing said cleat firmly to said bracket and also secure the lower end of said bracket, for the purpose set forth.

682,782. SEPARABLE AND DETACHABLE BUTTON. LOUIS B. BECKWITH, Waterbury, Conn., assignor to the L. C. White Company, same place. Filed Mar. 8, 1899. Renewed Mar. 14, 1901. Serial No. 51,184. (No model.)



Claim.—1. In a separable and detachable button, a front for use with a straight shank, and having the body *b* formed with central hole *g* and adjacent opening *f* and having the single spring-leaf *d* with foot *c* fitted within such front and projected thereby in an oblique position across the axis of the button, and provided upon such axis with the hole *e* formed to fit close upon the shank, and adapted to cramp upon its opposite sides, substantially as herein set forth.

2. A separable and detachable button comprising the shank formed with a straight stud and the body *b* having the hole *g* in the bottom to admit the shank, and provided internally with a single spring-leaf *d* affixed at the edge of the front, and projected obliquely across the line of the shank, and having a hole upon such line fitted closely to the shank and adapted to admit the same but to resist its withdrawal, substantially as herein set forth.

3. A separable and detachable button comprising the shank formed with a straight stud and the body *b* having the central hole *g* in the bottom, a single spring-leaf *d* projected obliquely across the axis of the button with hole upon such axis fitted closely to the shank to cramp its opposite sides, and a guide within the top of the button to hold the shank in the center, substantially as herein set forth.

4. A separable and detachable button comprising the shank formed with a straight stud, and a body having the hole *g* in the bottom to admit the shank, a single spring-leaf *d* projected obliquely across the axis of the front with the hole *e* fitted closely to the shank, and an opening *f* in the back or bottom adjacent to the free end of such leaf to admit a lifting-tool, as and for the purpose set forth.

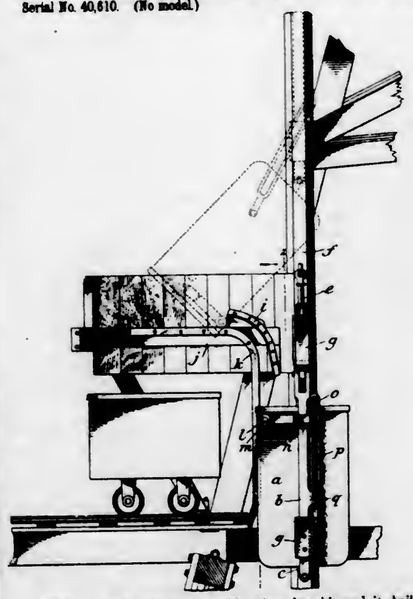
5. In a separable and detachable button, the combination, with the front cover *a* and the body *b* provided with central hole *g*, of the spring-foot *c* locked within the body *b*, the spring-leaf *d* projected obliquely across the axis of the body and provided with a hole *e* in line of such axis, and the body having the slot *f* adjacent to the free end of the leaf *d*, as and for the purpose set forth.

682,783. SCAFFOLD. SEWELL A. BROOKS, Springville, N. Y. Filed Oct. 14, 1899. Serial No. 733,561. (No model.)



Claim.—In combination with the herein-described scaffold consisting essentially of the platform 1, with supporting-beams 3, the angle-braces 5, secured to said supports at their lower ends and pivoted to dovetailed channels 7, at their upper ends having locked engagement with dovetailed strips 8, substantially as shown and described.

682,784. DUMPING-SKIP. THOMAS BRYANT, Butte, Mont., assignor of one-half to A. H. Wethey, same place. Filed Dec. 21, 1900. Serial No. 40,610. (No model.)



Claim.—1. The combination with a dumping-skip and its bail, of means pivoted to the skip to permit rotation thereof and engaging with the bail to limit the rotation of said skip, substantially as described.

2. The combination with a dumping-skip and its bail, of a link pivoted to one of said parts and engaging with the other part to limit the rotation of the skip, substantially as described.

3. The combination with a skip, and a bail pivoted to the skip and provided with a stud, of a link pivoted to the skip and provided with a slot engaging with said stud on the bail to limit the rotation of the skip, substantially as described.

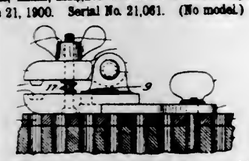
4. The combination with a skip-guide, of a skip-bail provided with a shoe engaging said guide and movable thereon, a skip pivoted at or near its bottom to said bail to rotate freely thereon, and a shoe on said skip at or near its top engaging with and movable on the same guide to hold the skip against rotation, substantially as described.

5. The combination with a skip-guide provided with recesses and a skip-bail movably secured to said guide, of a skip pivoted to said bail to swing freely thereon, a shoe on said skip engaging with the guide to hold the skip against rotation, a roller secured to the skip at or near its outer edge and a track to engage with said roller whereby the said skip-shoe may be disengaged from the guide and the skip upturned, substantially as described.

6. The combination of skip-guides provided with recesses, bails provided with shoes secured to and movable on said guides, a skip pivoted directly to said bails to swing freely thereon, shoes rigidly secured to the skip and adapted to engage with the skip-guides, means for rotating the skip when said skip-shoes are opposite the recesses, and means secured to the skip and engaging the bail to limit the rotation of the skip, substantially as described.

7. The combination of skip-guides provided with recesses, bails provided with shoes secured to and movable on said guides, a skip pivoted to said bails, shoes rigidly secured to the skip and adapted to engage with said guides, rollers on said skip, tracks adapted to engage said rollers when the skip-shoes are opposite said recesses to rotate the skip, and links pivoted to the skip and engaging with the bails to limit the rotation of the skip, substantially as described.

682,785. LEATHER-STRETCHING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to the W. S. Nott Company, same place. Filed June 21, 1900. Serial No. 21,061. (No model.)



Claim.—1. A leather-clamp for a stretching-machine, comprising a pair of jaws hinged together, means for operating them to grip the leather, in combination with a coupling device pivotally connected to one of the jaws close to its gripping-surface so that the clamp may swing freely on its pivot under tension, and means for detachably connecting such coupling device to a stretcher-head, substantially as set forth.

2. A leather-clamp, comprising a pair of jaws hinged together, means for operating the upper jaw, and a coupling device pivoted to the lower jaw and permitting free lateral movement of the clamp under tension; in combination with a stretcher-head provided with means for the lateral and longitudinal adjustment of the coupling device thereon and its detachable connection therewith, substantially as set forth.

3. A leather-clamp for a stretching-machine, comprising a pair of jaws hinged together, means for operating them to grip the leather, a coupling device pivotally connected to one of the jaws close to its gripping-surface and permitting free lateral movement of the clamp under tension, and means for pivotally connecting such coupling device to a stretcher-head, substantially as set forth.

4. A leather-clamp, comprising a pair of jaws and means for operating the upper jaw toward the lower, a coupling-bar pivoted to the lower jaw, and means for pivotally connecting and supporting said bar upon a stretcher-head, substantially as set forth.

5. A clamp for leather-stretching machines, comprising, in combination, a suitable bar, a head mounted upon said bar and adapted to swing laterally in the plane of the same and provided with a fixed jaw, a movable jaw pivotally supported upon said head and having a vertical movement only on its pivots and adapted to engage said fixed jaw when depressed, and means engaging said movable jaw to lock it in engagement with said fixed jaw, substantially as described.

6. A clamp for leather-stretching machines, comprising, in combination, a suitable bar, a head pivotally mounted upon said bar and adapted to swing laterally in the plane of the same, and having a fixed jaw, a movable jaw pivotally supported upon said head above said fixed jaw and having a vertical movement with respect to the same, and a locking device provided on said head above said movable jaw and adapted to engage the same and force it into engagement with and lock it against said fixed jaw, substantially as described.

7. A clamp for leather-stretching machines, comprising, in combination, a plate or bed-piece, a pivoted head supported thereon and provided with a fixed jaw, and a movable jaw having a face overlapping the face of said fixed jaw and adapted to clamp the material inserted between said fixed and movable jaws, substantially as described.

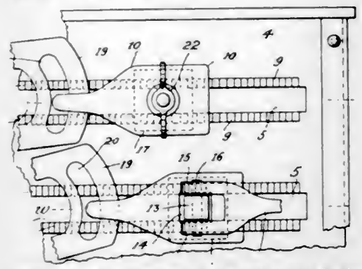
8. A clamp for leather-stretching machines, comprising, in combination, a plate or bed-piece, a pivoted head mounted thereon adapted to swing laterally and provided with a fixed jaw, and a movable jaw pivoted above said head and overlapping the face of the same and adapted to clamp the material between its face and the face of said fixed jaw, substantially as described.

9. A clamp for leather-stretching machines, comprising, in combination, a pivot or stud adapted to be arranged upon a plate or other substantially horizontal support, a swinging head mounted on said pivot and provided with a fixed jaw, and a movable jaw mounted on said head and having a face overlapping the face of said fixed jaw and adapted to swing vertically over the same and to clamp the material between its face and the face of said fixed jaw, substantially as described.

10. A clamp for leather-stretching machines, comprising, in combination, a suitable bed-piece or plate, a head pivotally supported thereon and provided with a fixed jaw, a movable jaw mounted on said head and having a face overlapping the face of said fixed jaw, and means for operating said movable jaw to clamp the material between its face and the face of said fixed jaw, substantially as described.

11. A clamp for leather-stretching machines, comprising, in combination, a suitable bed-piece or plate, a head pivotally supported thereon and adapted to swing laterally and provided with a fixed jaw having a grooved face, a movable jaw pivoted on said head above said fixed jaw and means for operating said movable jaw to clamp the material between its face and the face of said fixed jaw, substantially as described.

682,786. LEATHER-STRETCHING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to the W. S. Nott Company, same place. Filed Dec. 13, 1900. Serial No. 40,239. (No model.)



Claim.—1. The combination with the head of a stretcher-frame having a guideway extending in the direction of the machine's tension, of an adjustable coupling device for a leather-holder guided in its movements by such guideway, an independent leather-holder adapted to be detachably connected to said coupling device, and means for locking the latter to the head in its adjusted positions thereon, substantially as set forth.

2. The combination with a stretcher-head having a guideway extending in the direction of the machine's tension, of a leather-holder coupling device slidable along said way and having a tilting vertical bot no lateral movement, means for permitting it to be tilted to engage with the leather-holder and means for locking it in engagement with the holder and in place on the head, substantially as set forth.

3. The combination with a stretcher-head having a guideway extending in the direction of the machine's tension, a leather-holder coupling device slidable along said way and having a gravitating hook, an independent leather-holder having a tailpiece or like part adapted to lift the hook by lateral pressure against it and to permit the hook to gravitate to engagement for pivotally connecting the holder, and means for locking the hook and coupling device in place when so engaging the holder, substantially as set forth.

4. The combination with a stretcher-head, of an adjustable longitudinally-guided leather-holder coupling device, adapted to pivotally and detachably connect an independent leather-holder to the head, and means for locking the coupling device to the head, substantially as set forth.

5. A coupling and locking device for connecting a leather-holder to a stretcher-head, comprising a coupling device provided with a hook for engaging the holder, a bolt extending through an opening in the coupling device and a slot in the head, and means for operating the bolt to clamp the coupling device to the head, substantially as set forth.

6. The combination with a stretcher-head having a slot, of an adjustable coupling device for a leather-holder guided in its movements by said slot, gravitating means for pivotally connecting a leather-holder to such coupling device, interlocking contact-surfaces on the head and coupling device, and means for clamping the latter on the former, substantially as set forth.

7. The combination with a stretcher-head having a series of parallel guideways extending longitudinally of the stretcher-frame, a series of devices adjustable along said ways and having gravitating means for pivotally connecting a corresponding series of leather-holders, substantially as set forth.

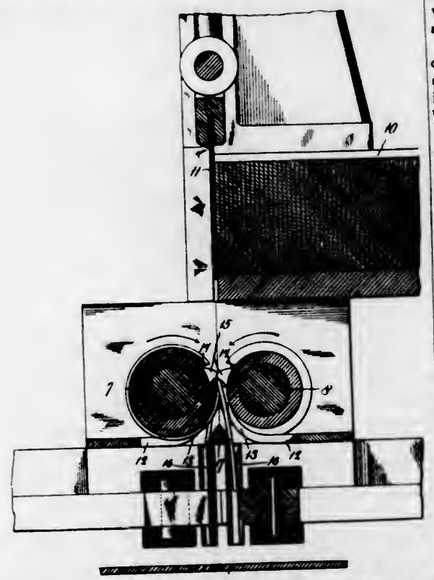
8. The combination with a stretcher-head having slots extending longitudinally of the stretcher-frame, of adjustable locking devices including vertically-movable plates arranged to operate in said slots, means for pivotally and detachably connecting leather-holders to said movable plates, and means for clamping the latter plates to the stretcher-head, substantially as set forth.

9. The combination with a stretcher-head having slots extending longitudinally of the stretcher-frame, of adjustable locking devices including vertically-movable plates arranged to operate in said slots, means for detachably connecting leather-holders to said movable plates, and means for clamping the latter plates to the stretcher-head, substantially as set forth.

10. The combination with a stretcher-head having a series of parallel guideways, a corresponding series of slidable coupling devices severally controlled in their movements by said ways and provided with hooks, leather-holders adapted to be separately connected to the hooks, and means for separately locking the coupling devices to the head after their connection with the holders, substantially as set forth.

11. The combination with a stretcher-head having a series of parallel guideways, a corresponding series of slidable coupling devices severally controlled in their movements by said ways and provided with hooks, leather-holders provided with means for laterally-adjustable pivotal connection with said hooks, and means for locking the coupling devices independently and successively to the head, substantially as set forth.

682,787. ROTARY CUTTER MECHANISM. ALMON B. CALKINS, Franklin, N. J., assignor to American Match Machine Company, New York, N. Y. Filed Dec. 5, 1900. Serial No. 39,200. (No model.)



Claim.—1. The combination of two oppositely-arranged rotary cutters, each having a plurality of circumferential cutting edges, and each having a plurality of lugs or projections, adapted to act as expelling devices, one each of which is arranged between alternate pairs of cutting edges, the lugs or projections upon the opposite cutters arranged alternately of each other.

2. The combination of two oppositely-arranged rotary cutters, each having a plurality of circumferential cutting edges, and each having a plurality of lugs or projections extending beyond the cutting edges, said lugs or projections arranged one each between alternate pairs of cutting edges and adapted to act as expelling devices, the lugs or projections upon the opposite cutters arranged alternately of each other and overlapping and passing between each other in their path of movement.

3. The combination with two oppositely-arranged rotary cutters, each having a plurality of circumferential cutting edges, of two bars carried one each by each of the said cutters and secured to rotate therewith, each bar having a plurality of lugs or projections, adapted to act as expelling devices, one each of said lugs or projections arranged between alternate pairs of cutting edges, and the lugs or projections of the bars upon opposite cutters arranged alternately of each other.

4. The combination of a rotary cutter having circumferential cutting edges, a stripper, and an expelling device carried by the cutter and secured to rotate therewith.

5. The combination with a rotary cutter having circumferential cutting edges, of a stationary stripper, and an expelling device carried by the cutter and secured to rotate therewith.

6. The combination with a plurality of rotary cutters having circumferential cutting edges, of a stationary stripping-comb having teeth projecting between the cutters, and an expelling-comb carried by the cutters and secured to rotate therewith.

7. The combination with a rotary cutter having circumferential cutting edges, of a stationary stripper, and an expelling device carried by the cutter and secured to rotate therewith, said expelling device adapted to pass through the stationary stripper.

8. The combination with a plurality of rotary cutters having circumferential cutting edges, of a stationary stripping-comb, having split teeth projecting between the cutters, and an expelling-comb carried by the cutters and secured to rotate therewith, the teeth of the expelling-comb being arranged to pass between the split portions of the stripping-comb teeth.

9. The combination with rotary cutters having oppositely-arranged and overlapping circumferential cutting edges, of stationary stripping-combs for the cutters, and expelling-combs carried by the cutters and secured to rotate therewith.

10. The combination with rotary cutters having oppositely-arranged and overlapping circumferential cutting edges, of stationary stripping-combs having split teeth arranged between alternate pairs of cutting edges, and expelling-combs carried by the cutters, and secured to rotate therewith, the teeth of the said expelling-combs arranged to pass between the split portions of the stripping-comb teeth.

11. The combination with a rotary cutter having circumferential cutting edges for cutting match-splints, of means operating between the said cutting edges, for applying pressure transversely of the splint, after it has been cut, to force same away from the cutter, and means for expelling the said splint by pressure applied against the end thereof.

12. The combination with a rotary cutter having circumferential cutting edges for cutting match-splints, of means operating between the said cutting edges, for applying pressure transversely of the splint, after it has been cut, to force same away from the cutter, and means carried by the cutter, for expelling the said splint by pressure applied against the end thereof.

682,788. GAS-ENGINE. HARRY H. CAMPBELL and EDGAR M. HAWKINS, Steelton, Pa. Filed Dec. 18, 1899. Serial No. 740,738. (No model.)

Claim.—1. In a multiple-cylinder gas-engine, in combination, two parallel cylinders, a passage connecting their clearance-spaces, an igniter in said passage, inlet-ports in one cylinder, a mixing-chamber in communication therewith through the inlet-ports, exhaust-ports in the other cylinder, pistons in the cylinders moving synchronously and controlling said ports and organized to open the exhaust-ports before the inlet-ports, substantially as set forth.

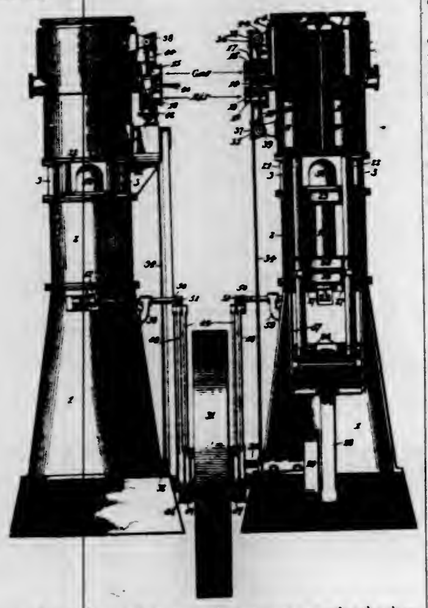
2. In a multiple-cylinder gas-engine, a common passage connecting the clearance-spaces of the cylinders, an igniter in said passage, a series of inlet-ports for air and a series of inlet-ports for gas in one set of said cylinders, a series of exhaust-ports in the other set, and pistons in said cylinders controlling said ports, substantially as set forth.

3. In a multiple-cylinder gas-engine, a passage at each end connecting the clearance-spaces of the cylinders, an igniter in each passage, inlet-ports in one cylinder and outlet-ports in the other cylinder, pistons in said cylinders operating to open said ports at the end of each stroke, admitting gas to one cylinder and exhausting through the other, substantially as set forth.

4. In a multiple-cylinder gas-engine, an open passage at each end of and connecting the clearance-spaces of the cylinders, an igniter in each passage, a series of inlet-ports for gas and a series of inlet-ports for air on each side of the gas-ports in one cylinder, a series of exhaust-ports in the other cylinder and pistons, said ports located relatively to the travel of the pistons to cover and uncover at each stroke, for the purpose set forth.

5. In a multiple-cylinder gas-engine, open passages connecting the cylinders at each end, inlet-ports in a number of said cylinders and exhaust-ports in the remaining ones, pistons in said cylinders opening said ports at the end of each stroke, whereby gas mixture is admitted into one

set of cylinders to sweep the products of combustion through the open passage, the other set of cylinders, and the exhaust-ports, substantially as set forth.



6. In a multiple-cylinder gas-engine, passages connecting the clearance-spaces of the cylinders at each end, a series of inlet-ports for gas interposed between two series of air-ports in one cylinder, exhaust-ports in the other cylinder, and pistons in said cylinders traveling synchronously and uncovering the ports at each stroke, substantially as set forth.

7. In a multiple-cylinder gas-engine, passages connecting the clearance-spaces of the cylinders at each end, two circumferential series of air-ports, a circumferential series of gas-ports between the two series of air-ports in one set of cylinders, a series of exhaust-ports in the other set of cylinders, pistons in said cylinders traveling synchronously, those in one set opening the exhaust-ports at every stroke and those in the other set opening one series of air-ports and the gas-ports at every stroke, substantially as set forth.

8. In a multiple-cylinder gas-engine, a number of cylinders, a passage or chamber connecting them, an ignition device, inlet-ports in one set and exhaust-ports in another set of cylinders, a greater number of cylinders being contained in the set containing the inlet-ports than in that containing the exhaust-ports, substantially as set forth.

9. In a gas-engine, a pair of cylinders, a passage connecting the cylinders at each end, inlet-ports for explosive mixture in one and exhaust-ports in the other of the cylinders intermediate their ends, pistons in said cylinders arranged to open and close said ports and igniting devices to ignite the charges of gas on the opposite sides of the pistons, substantially as set forth.

10. In a gas-engine, two parallel cylinders, a passage connecting their clearance-spaces at the proximate sides of said cylinders, a series of gas-inlets and a series of air-ports in one of said cylinders, the air-ports situated nearer the clearance-space than the gas-ports, a series of exhaust-ports in the second cylinder, pistons in said cylinders arranged to open and close said ports, the piston in the second cylinder closing the exhaust-ports after the air-ports have been closed and an igniter in the passage connecting the clearance-space, substantially as set forth.

11. In a gas-engine, two parallel cylinders, a passage connecting the clearance-spaces at each end at the proximate sides of said cylinders, two series of air-ports, a series of gas-inlet ports located between the two series of air-ports and intermediate the cylinder ends in one of said cylinders, a series of exhaust-ports intermediate the ends in the other cylinder, pistons in said cylinders arranged to open and close said ports, the exhaust-ports arranged to be closed after the respective air-ports and opened before them, substantially as set forth.

12. In a multiple-cylinder gas-engine, in combination, two parallel cylinders, a connection between their clearance-spaces, pistons in said cylinders traveling synchronously, inlet-ports for gas and inlet-ports for air in one of said cylinders, the inlet-ports for air situated nearer the connection between the clearance-spaces than the inlet-ports for gas, exhaust-ports in the other cylinder and a suitable igniting device, substantially as described.

13. In a multiple-cylinder gas-engine, a number of cylinders, means common to all the cylinders at each end to connect their clearance-spaces, inlet-ports in one set and exhaust-ports in the other set of cylinders and pistons in said cylinders opening inlet and exhaust ports at each stroke, substantially as set forth.

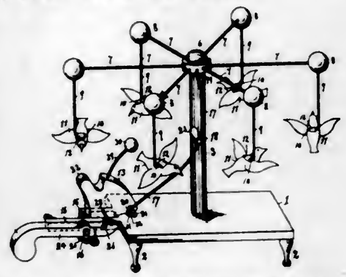
14. In a multiple-cylinder gas-engine, a number of cylinders arranged in two sets, a passage at each end common to all the cylinders to interconnect the cylinders, inlet-ports in one set of cylinders, a mixing-chamber in communication therewith, exhaust-ports in the other set of cylinders, means for igniting the charges and pistons in said cylinders arranged to open the ports at each stroke, substantially as set forth.

682,789. **HOOF-PAD.** CHARLES S. CARRIE, Keene, N. H. Filed Dec. 10, 1900. Serial No. 39,372. (No model.)



Claim.—A hoof-pad comprising an upper layer or thickness of leather with a central depressed cavity having a plurality of openings therethrough and congregated close to the center to leave a closed portion around the same and the margin of the cavity to form a seat for an air-chamber directly under the frog of the hoof of the animal to which it is applied, the portion of the layer surrounding the cavity being horizontally flat, and a lower rubber layer secured to the under side of the said leather layer to form a seat for a shoe, the central portion of said rubber layer immediately under the cavity of the leather layer being formed into a depending hollow closed pad completely open at the top.

682,790. **TOY OR GAME.** JOSEPH A. CHAPMAN, Bay City, Wis., assignor of one-half to Frederick B. Chapman, St. Paul, Minn. Filed Dec. 28, 1900. Serial No. 41,326. (No model.)

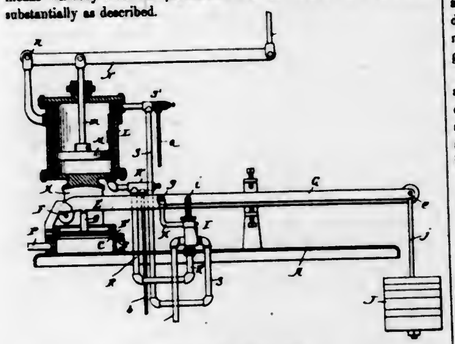


Claim.—1. In a game or toy, a base-plate having a standard, a framework revolubly supported upon said standard, a series of figures mounted removably upon said framework, a pivoted trip-plate having a striking-arm adapted to be moved into the path of said revolving figures, an arm pivoted to said standard and with its upper end projecting into the path of the members of said revolving framework, and with its lower end resting above a pin upon said trip-plate, whereby when said trip-plate is actuated said pivoted arm will act upon said revoluble framework, means for holding said trip-plate and its striking-arm distended and means for releasing said trip-plate, substantially as shown and described.

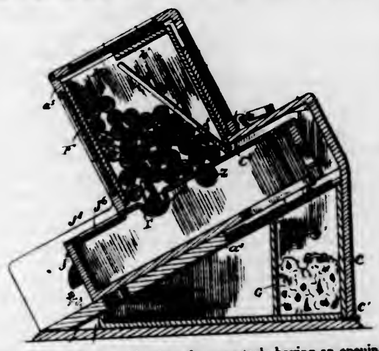
2. In a game or toy, a base-plate having a standard, a framework revolubly supported upon said standard, and having radiating arms, removable figures upon said arms, a pivoted trip-plate adapted to be moved into the path of said revolving figures, an arm pivoted to said standard, and with its upper end projecting into the path of said radiating arms, and with its lower end resting above a pin upon said trip-plate, a stop-plate upon said base-plate, and a stud projecting from said trip-plate, and engaging said stop-plate, to limit the downward movement of said trip-plate, substantially as set forth.

682,791. **DAMPER-REGULATOR.** FRANCIS R. COLLIER, Conshohocken, Pa. Filed Aug. 24, 1900. Serial No. 27,886. (No model.)

Claim.—In a device of the character described, a valve-casing, a plug threaded in the casing and having packing at its lower end fitting against the inner wall of the casing, said plug being cut away above the packing to form an annular chamber, said plug having a central opening and small holes connecting the central opening and the annular chamber, a plug having a port R^3, threaded in the lower end of the valve-casing, a valve-stem T, reduced in diameter near its lower end, a valve on the lower end of the stem, the reduced end of the valve-stem forming with the inner wall of the plug, an annular chamber T^3, the said annular chamber extending slightly above the lower holes U^3, when the valve is seated to close the lower part, the parts being so arranged as to cause the valve to close the annular chamber T^3, in its ascent and in combination therewith, a cylinder, a pipe in communication with the chamber U', leading to the interior of the cylinder near the top, a pipe communicating with the interior of the cylinder at the bottom and connected to the bottom of the valve-casing, a pressure-supply pipe for the casing, a piston in the cylinder, means connected with the piston for operating a damper, and means whereby excessive pressure in a boiler actuates the valve-stem, substantially as described.



682,792. **VENDING-MACHINE.** WILLARD D. DORENUS, Washington, D. C., assignor to the Rex Cigar Vending Company, same place. Original application filed Jan. 31, 1899, Serial No. 704,051. Divided and this application filed May 2, 1900. Serial No. 15,200. (No model.)



Claim.—1. The combination of a receptacle having an opening, a delivery member provided with a cut-off operatively located when within the receptacle, obliquely to a wall of the receptacle, in operative proximity to which the delivery member works.

2. The combination of a receptacle having an opening, a delivery member provided with a cut-off arranged to coöperate with a wall of the receptacle, the cut-off being so located that when in operative withdrawal relation it is oblique to the wall with which it coöperates.

3. The combination with a receptacle having an opening, a delivery member provided with a cut-off arranged to coöperate with a wall of the receptacle, the cut-off being so located that when in operative withdrawal relation, it is oblique to the wall with which it coöperates, the cut-off and receptacle having relative movement.

4. The combination of a receptacle and a delivery member movable relative thereto and in contact therewith, the receptacle having an opening therein adapted to present a plurality of the articles contained in the receptacle simultaneously to the delivery device, the delivery device being provided with a cut-off and so arranged as to present said cut-off to the articles contained in the receptacle at an oblique angle to the wall of the receptacle.

5. The combination of a receptacle having an opening, a delivery member having a cut-off arranged to effect a withdrawal of an article from the receptacle shearwise to a wall of the receptacle, and means for effecting a loose presentment of the articles in the receptacle to the delivery member.

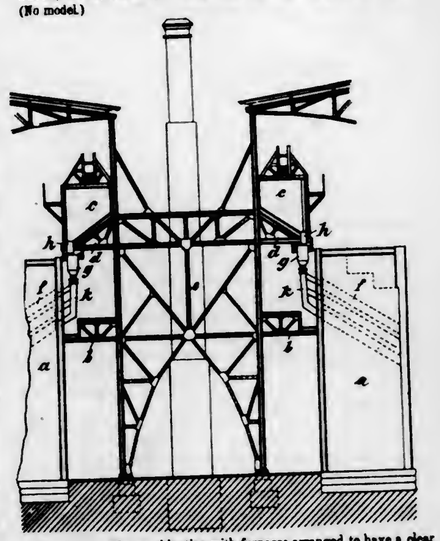
6. The combination of a receptacle having an opening, a delivery member having a cut-off arranged to be presented at an oblique angle to the wall of the receptacle with which it coöperates in the withdrawal operation, and means for effecting a loose presentment of the articles in the receptacle to the delivery member.

7. The combination of a receptacle adapted to contain a stock of articles in lines substantially parallel to a wall of the receptacle, a delivery member having a cut-off movable on lines perpendicular to the said wall of the receptacle, said cut-off having its longitudinal axis arranged at an inclination to said wall.

8. The combination of a receptacle adapted to contain a stock of articles in lines substantially parallel with a wall of the receptacle, and a delivery member provided with a cut-off, the cut-off being adapted to move across the edge of said side of the receptacle, and lying at an angle thereto when wholly underneath the receptacle.

9. The combination of a receptacle adapted to contain a stock of articles in lines substantially parallel with a wall of the receptacle, and a delivery member provided with a cut-off working at an inclination to said wall of the receptacle, said wall of the receptacle where it coöperates with the cut-off, being fixed with respect to the cut-off with which it coöperates.

682,793. **MEANS FOR CHARGING GAS-RETORTS.** EDWARD DROBY, Berlin, Germany. Filed Mar. 15, 1901. Serial No. 51,351. (No model.)



Claim.—1. The combination with furnaces arranged to have a clear space between them, independent roof structures supported on built-up iron-work between the furnaces, coal-receptacles supported on cantalivers above and proximate the furnace-fronts, a track hung from beneath the cantalivers, a charging-receptacle running thereon, a stoker's bridge supported on separate cantalivers below the coal-receptacles, all of said cantalivers supported by the built-up iron-work and independent of the furnaces, substantially as described.

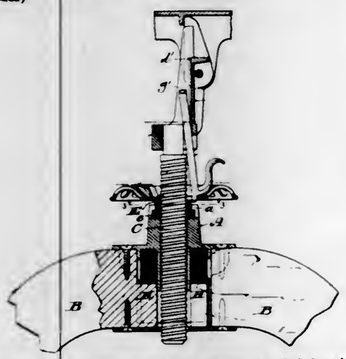
2. The combination with sets of furnaces arranged to have a clear space between, separate roofs for each set of furnaces, structural iron-work supporting the ends of the roofs and connected above the ground to leave a free passage between the buildings, two sets of cantalivers projecting into each building, coal-receptacles above and proximate the furnace-fronts supported on the upper sets of cantalivers, discharging-hoppers on said receptacles, a track supported by the upper set of cantalivers, a charging vessel arranged to move on said track and a platform beneath the coal-receptacles supported by the lower sets of cantalivers, substantially as described.

682,794. **PROCESS OF OBTAINING ZINC SOLUTIONS FREE FROM IRON AND MANGANESE COMPOUNDS.** FRIEDRICH A. GASCH, Hönningen-on-the-Rhine, Germany. Filed Dec. 19, 1899. Serial No. 740,890. (No specimens.)

Claim.—1. The process of obtaining zinc solutions substantially free from iron and manganese, which consists in treating zinciferous roasted pyrites with a strong acid and roasting the product resulting therefrom, and mixing it while still hot with a suitable oxidizing agent and finally leaching the mixture, substantially as set forth.

2. The process of obtaining zinc solutions substantially free from iron and manganese, which consists in treating zinciferous roasted pyrites with concentrated sulfuric acid and roasting the product resulting therefrom at about a temperature of 400° centigrade, and mixing it while still hot with a suitable oxidizing agent and finally leaching the mixture, substantially as set forth.

682,795. **REVOLVING CHAIR.** JULIUS M. GERRANSON, Milwaukee, Wis., assignor to Western Malleable and Grey Iron Manufacturing Company, same place. Filed Sept. 5, 1899. Serial No. 729,451. (No model.)

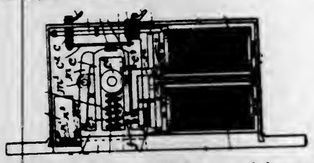


Claim.—1. The combination with the hub of a chair-base having a smooth bore, of a threaded spindle fitted to turn freely in said hub, a nut provided with an opening and revolubly connected with said hub in engagement with the thread on said spindle, and a vertically-movable gravity-catch carried by said spindle and adapted when raised and turned with the spindle opposite the opening in said nut to drop into engagement therewith and lock the nut upon said spindle, substantially as described.

2. The combination with the hub of a chair-base having a smooth bore, of a threaded spindle adapted to turn freely in said hub, a nut adapted to engage the thread on said spindle and revolubly connected with said hub, a vertically-movable catch carried by said spindle and adapted when released to drop into engagement with said nut and to lock the same upon said spindle, and means for holding said catch up out of locking position, substantially as described.

3. The combination with the hub of a chair-base having a smooth bore, of a threaded spindle fitted to turn freely in the bore of said hub and provided with a head having a vertical opening, a nut fitted to engage with said spindle and revolubly connected with said hub, and a locking-bar movable endwise in the opening of said head into and out of engagement with said nut and provided with an outwardly-projecting handle for lifting it out of engagement with the nut, substantially as described.

682,796. **ELECTROMAGNETICALLY-OPERATED DOOR-OPENER.** JOHN M. G. GOULD, Boston, Mass. Filed Nov. 26, 1900. Serial No. 37,752. (No model.)



Claim.—1. In an electromagnetically-operated door-opener, the combination with the actuating mechanism, of an electromagnet for releasing it having a pivoted armature, a stop-arm for normally holding said armature in its retracted position, and an auxiliary armature borne by said stop-arm adapted to be attracted by said electromagnet for moving said stop-arm into position to permit said armature to be attracted, substantially as described.

2. In an electromagnetically-operated door-opener, the combination with the actuating mechanism, of an electromagnet for releasing it having a pivoted armature provided with one or more sockets, and one or more stop-arms normally held out of alinement with said sockets, each bearing an auxiliary armature for moving it into alinement with its socket when the electromagnet is energized, substantially as described.

3. In an electromagnetically-operated door-opener, the combination with the actuating mechanism, of an electromagnet for releasing it having a pivoted armature provided with one or more sockets, and one or more stop-arms normally held out of alinement with said sockets, and means for moving said stop-arms into alinement with said sockets operated by the energized electromagnet, substantially as described.

4. In an electromagnetically-operated door-opener, the combination with the actuating mechanism, of an electromagnet for releasing it having a pivoted armature provided with two sockets, two stop-arms located between the coils of said electromagnet and normally held out of alinement with said sockets and movable in opposite ways to register with said sockets, and an auxiliary armature borne by each stop-arm, substantially as described.

5. In an electromagnetically-operated door-opener, the combination with the actuating mechanism, of an electromagnet for releasing it, a pivoted armature therefor having one of its journals formed with a flat side, and a flat spring bearing on the flat side of said journal for normally holding the armature in its retracted position, thereby serving as a retractile spring for said armature, substantially as described.

6. In an electromagnetically-operated door-opener, the combination with the bolt-actuating mechanism, of an electromagnet having a pivoted armature for releasing it, a circuit-operating device for the circuit of said electromagnet operated by said bolt-actuating mechanism to open the circuit automatically when said bolt-actuating mechanism is released by said pivoted armature, substantially as described.

7. In an electromagnetically-operated door-opener, a case having a striker-plate formed with a recess for the bolt, a bolt-actuating member contained in said case having an abutting face adapted to engage and thrust the bolt out of said recess, a spring for moving said bolt-actuating member outward, a locking device for locking said bolt-actuating member in its "set" position and an electromagnet for operating said locking device to release said bolt-actuating member, substantially as described.

8. In an electromagnetically-operated door-opener, a case having a striker-plate formed with a recess for the bolt, a bolt-actuating member contained in said case having an abutting face adapted to engage and thrust the bolt out of said recess, a spring for moving said bolt-actuating member outward, means operated by the closing of the door for moving said bolt-actuating member inward, a locking device for locking the bolt-actuating member in its "set" position, and an electromagnet for operating said locking device to release said bolt-actuating member, substantially as described.

9. In an electromagnetically-operated door-opener, a case having a striker-plate formed with a recess for the bolt, a bolt-actuating member contained in said case having an abutting face adapted to engage and thrust the bolt out of said recess, a spring for moving said bolt-actuating member outward, a locking device for locking said bolt-actuating member in its "set" position, a pivoted cam-block operated by the closing of the door for moving said bolt-actuating member inward into engagement with said locking device, and an electromagnet for operating said locking device, substantially as described.

10. In an electromagnetically-operated door-opener, a case having a striker-plate formed with a recess for the bolt, a bolt-actuating member contained in said case having an abutting face adapted to engage and thrust the bolt out of said recess, a spring for moving said bolt-actuating member outward, a detent on said bolt-actuating member, a pivoted locking-lever having a recess for said detent and also having a detent, a pivoted armature engaging the detent on said locking-lever and an electromagnet for operating said armature, substantially as described.

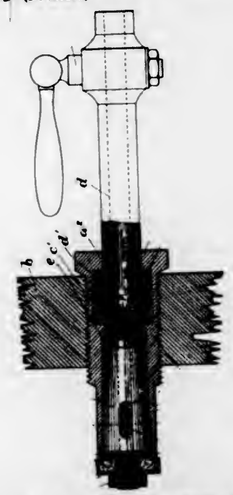
11. In an electromagnetically-operated door-opener, a case having a striker-plate formed with a recess for the bolt, a bolt-actuating member contained in said case having an abutting face adapted to engage and thrust the bolt out of said recess, a spring for moving said bolt-actuating member outward, a detent on said bolt-actuating member, a pivoted locking-lever having a recess in its hub for said detent and having at its extremity a detent, a pivoted armature engaging the detent on said locking-lever and an electromagnet for operating said armature, substantially as described.

12. In an electromagnetically-operated door-opener, a spring-actuated bolt-actuating member having a detent, a pivoted locking-lever having a recess for said detent and having a detent and also having a stop-pin, a pivoted armature engaging the detent on said locking-lever when in its retracted position and engaging the stop-pin when in its attracted position, and an electromagnet for operating said armature, substantially as described.

13. In an electromagnetically-operated door-opener, a case having a striker-plate formed with a recess for the bolt, a bolt-actuating member contained in said case having an abutting face adapted to engage and thrust the bolt out of said recess, a spring for moving said bolt-actuating member outward, means operated by the closing of the door for moving said bolt-actuating member inward, a locking-lever for holding said bolt-actuating member with its actuating-spring under tension, means for connecting said bolt-actuating member with said locking-lever, whereby said locking-lever is restored by said bolt-actuating member, a pivoted armature engaging said locking-lever and an electromagnet for said armature, substantially as described.

14. In an electromagnetically-operated door-opener, a spring-actuated bolt-actuating member, a pivoted latch borne by it, a pivoted cam-block for engaging said latch and restoring said bolt-actuating member, disposed to be struck and operated by the door, a locking device for said bolt-actuating member, and means for releasing it, substantially as described.

682,797. **BARREL-TAP.** HORACE GRAYSON, Providence, R. I., assignor to Henry H. Williams, same place. Filed Nov. 21, 1900. Serial No. 37,274. (No model.)

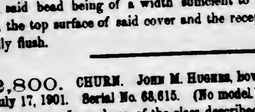


Claim.—1. A barrel-tap comprising a bushing adapted for engagement with the head of a barrel and having inwardly-projecting segmental abutments at its outer end, an internal annular rib at a distance from its outer end and an extension at its inner end containing a valve-seat and liquid-ports, a rotary valve fitted in said seat and having a key-engaging shank projecting into the bushing and ports adapted to register with the ports in the extension, the said valve having a liquid-passage extending from the ports through said shank, a tubular key formed internally at its inner end to fit over and engage said shank and having segmental cam-shaped ears formed to engage said abutments, the ears and abutments being formed and arranged so that a rotation of the key which opens the valve engages the ears with the abutments and gives the key an endwise inward movement, and a compressible packing interposed between a shoulder located near the outer end of the valve and the said internal rib of the bushing, and surrounding the shank of the valve, said packing being compressed by the inward movement of the key and forming a liquid-tight joint, the packing being adapted to be retained in place by the said rib when the key is withdrawn.

2. A barrel-tap comprising a bushing adapted for engagement with the head of a barrel and having an extension at its inner end, containing a tapered valve-seat, liquid-ports, an internal screw-thread at the larger end of the valve-seat, a tapered plug-valve fitted to said seat and having ports adapted to register with the ports in the extension, and a shank projecting from the smaller end of the valve into the interior of the bushing, a screw-threaded valve-adjusting head or abutment engaged with the internal thread of the extension, said head having a screw-threaded shank projecting from its outer side, a nut formed to engage said shank, and a compressible packing interposed between said nut and the outer end of the extension, said packing covering the joint between the extension and the valve-adjusting head.

682,798. **CORSET-CLASP.** EDWIN W. GROSCHEL, Bayonne, N. J. Filed Mar. 11, 1901. Serial No. 50,559. (No model.)

Claim.—1. A clasp for corsets and the like consisting of a pair of flat plate-like bodies having their adjacent portions turned off in relatively the same direction out of the planes of said bodies, each of said portions being bent into substantially the form of a longitudinally-open cylinder and one of them being adapted to receive the other, said receiving portion having its opening of less width than the cylindrical portion of the other body and also having its extreme outer longitudinal edge elevated above the plane of the corresponding plate-like body, substantially as described.



2. A clasp for corsets and the like consisting of a pair of flat plate-like bodies having their adjacent portions turned off in relatively the same direction out of the planes of said bodies and constituting interlocking members, each of said members being bent into substantially the form of a longitudinally-open cylinder and one of them being adapted to receive the other, said receiving member having its opening of less width than the cylindrical portion of the other body and also having its extreme outer longitudinal edge elevated above the plane of the corresponding plate-like body and said other member comprising spaced transverse portions, substantially as described.

682,799. **SHEET-METAL RECEPTACLE.** RANDOLPH C. HOPKINS, Glenville, Ohio, assignor to the Patterson-Sargent Company, Cleveland, Ohio. Filed Aug. 29, 1900. Serial No. 28,392. (No model.)



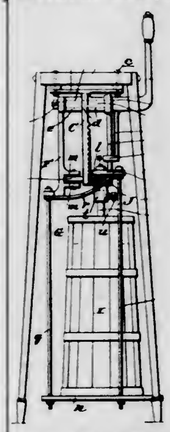
Claim.—1. The combination with a sheet-metal receptacle having a central circular opening, an inwardly-extending inner annular groove intermediate of said opening and the outer receptacle edge, and contiguous to said opening, and a second such groove intermediate of and parallel with said first-named groove; of a cover formed of a single sheet of material and lying substantially flush with said receptacle edge and provided with a peripheral bead adapted to cover and project into said inner groove, the outer edge portion of said cover adapted to project into said second groove, the surface of said inner groove provided with a coating of adherent semisolid material, substantially as set forth.

2. The combination with a sheet-metal receptacle having an opening the wall of which extends downward and is inclined inwardly, said receptacle being provided with two concentric inwardly-extending grooves, said grooves lying between the opening and the receptacle edge, the inner groove being contiguous to said opening, and provided with a coating of adherent semisolid material, and a non-flexible cover having a downwardly-projecting portion for frictionally engaging said wall and having a peripheral bead adapted to cover and project into said inner groove, said bead being of a width sufficient to project into the outer groove, the top surface of said cover and the receptacle edge being substantially flush.

682,800. **CHURN.** JOHN M. HUGHES, Bowling Green, Ky. Filed July 17, 1901. Serial No. 68,615. (No model.)

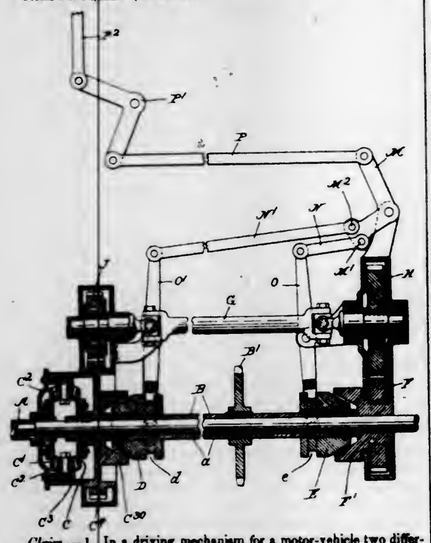
Claim.—1. In a churn of the class described, the combination of a main frame or stand having a top, a hanger connected to the under side of said top and having a depending, segmental rack provided with a transverse aperture, and also having sleeves at opposite sides of the rack and coincident with the aperture thereof, a rock-shaft journaled in the hanger and having a crank, and also having a depending arm provided with an eye, pendent arms loosely mounted on the rock-shaft and disposed at opposite sides of the segmental rack; one of said arms extending through the eye on the depending arm of the rock-shaft, a platform disposed below and connected with the pendent arms, and serving in conjunction with same to form a swinging frame, a churn-body mounted on the platform

of the frame, a pinion connected with one of the pendent arms of the swinging frame and intermeshed with the teeth of the rack, and a dasher arranged in the body and connected with the pinion.



2. In a churn of the class described, the combination of a main frame or stand having a top, a hanger connected to the under side of said top, and having a depending, segmental rack provided with a transverse aperture, and also having sleeves at opposite sides of the rack and coincident with the aperture thereof, a rock-shaft journaled in the hanger and having a crank, and also having a depending arm provided with an eye, arms loosely mounted on the rock-shaft and disposed at opposite sides of the rack; one of said arms extending through the eye on the depending arm of the rock-shaft and having a T-head at its lower end, a platform disposed below the pendent arms and connected thereto by rods, braces connecting the arms and rods, a churn-body mounted on the platform, a pinion connected to one of the pendent arms and intermeshed with the teeth of the rack and having an angular socket at its under side, and also having a set-screw, and a dasher arranged in the churn-body and having an angular upper end secured in the angular socket of the pinion.

682,801. CONTROLLING DEVICE FOR MOTOR-VEHICLE DRIVING-TRAINS. THOMAS B. JEFFERY, Chicago, Ill. Filed Oct. 27, 1900. Serial No. 34,008. (No model.)



Claim.—1. In a driving mechanism for a motor-vehicle two differently-speeded trains, and clutches for engaging them respectively, devices for shifting clutch members of such clutches respectively; an operating-lever, and links connecting it to the clutch-shifting devices respectively, the pivotal connections of the operating-lever being arranged to cause it during its movement in one continuous direction about its axis to first effect engagement of the clutch which operates the slower, and afterward that which operates the speedier train.

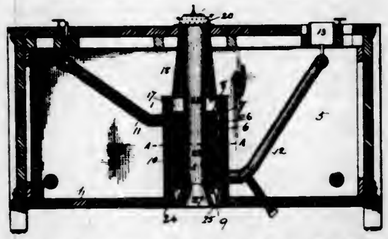
2. In a motor-vehicle driving mechanism, two differently-speeded trains, one of which includes the other, and clutches for engaging them respectively, devices for shifting the clutch members of such clutches respectively, an operating-lever, and links connecting it to the clutch-shifting devices respectively, the pivotal connections of the operating-lever being arranged to cause it during its movement in one continuous direction about its axis to first effect engagement of the clutch which operates the slower, and afterward that which operates the speedier train.

3. In a driving mechanism for a motor-vehicle two differently-speeded trains and clutches for engaging the trains respectively, devices for shifting the clutch members of such clutches: an operating-lever, and links connecting the lever to such shifting devices respectively, the conjunction of the lever with the links which operate the clutch for driving the slower train occurring at the full engagement of the members of such clutch, and the conjunction of the lever with the other link occurring at the maximum separation of the members of the other clutch.

4. In a driving mechanism for a motor-vehicle, two differently-speeded trains, and clutches for engaging the trains respectively; devices for shifting the clutch members of such clutches; an operating-lever, and links connecting it to such shifting devices respectively; the conjunction of the lever with the links which operate the clutch for driving the slower train occurring at the full engagement of the members of said clutch, and the conjunction of the lever with the other link occurring at the maximum separation of the members of the other clutch, said conjunctions being not coincident.

5. In a driving mechanism for a motor-vehicle two differently-speeded trains and clutches for engaging them respectively, the levers O and O′ for shifting clutch members of such clutches respectively; an operating-lever, M, and links, N and N′, respectively, connecting it to the clutch-shifting levers; the pivotal connections of the links N and N′ to the lever M being in different planes radial to the axis of said lever, and the pivots of the links to the levers O and O′ respectively being so disposed with respect to the pivotal connections to the lever M and with respect to the clutches at their disengaged positions, that movement of the lever M from the position at which the clutches are both disengaged in direction to bring the links respectively into lines intersecting the axis of the lever M, engages first the slow-train clutch and afterward, while moving in the direction to disengage said clutch, engages the fast-train clutch.

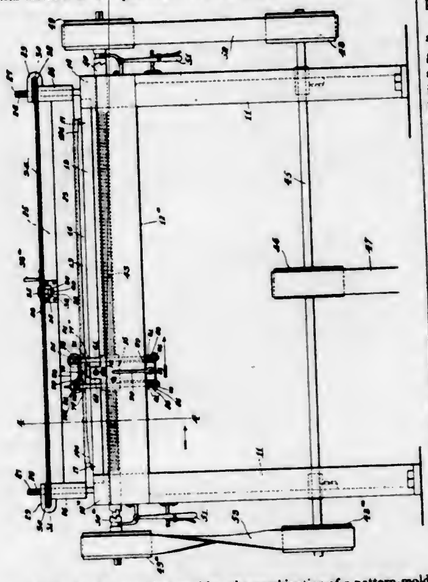
682,802. INCUBATOR-HEATER. JOHN H. MADISON, Petaluma, Cal. Filed Sept. 25, 1900. Serial No. 31,110. (No model.)



Claim.—In an apparatus for heating incubators, the combination of a cylindrical water-reservoir, having a cylindrical axial flue therethrough, and also an annular series of longitudinal apertures or flues around the axial aperture, an outer flue having an enlarged base fitting snugly upon one end of said reservoir and removable therefrom, an inner flue having a cylindrical flue portion of less diameter than the axial flue of the reservoir, a flaring lower portion, a base having a central aperture through which base and around which aperture the flaring portion extends, and an annular portion adapted to engage the other end of the reservoir to fit snugly therewith, but removable therefrom, said inner flue communicating with said cylindrical axial flue, and means for changing the direction of the gases through the flues, substantially as described.

682,803. LEATHER-WORKING MACHINE. HENRY B. MALDEN, Montreal, Canada. Filed Mar. 22, 1901. Serial No. 52,303. (No model.)

Claim.—1. In a leather-working machine, the combination of a pattern-mold provided with pattern-surfaces and a matrix-surface, a work-clamp of less width than the matrix-surface of the pattern-mold and disposed in coöperative relation thereto, a traversing cutter-carriage, and cutter devices mounted on said carriage in active relation to the pattern and matrix surfaces of said pattern-mold, substantially as set forth.



2. In a leather-working machine, the combination of a pattern-mold provided with a matrix-surface and with one or more lateral pattern-surfaces, a work-clamp comprising a thin bar arranged longitudinally and centrally with respect to said pattern-mold and in coöperative relation to the matrix-surface thereof, means whereby said work-clamp may be adjusted in parallel relation with respect to said pattern-mold, a cutter-carriage, and cutter devices mounted on said carriage in active relation to said pattern-mold, substantially as set forth.

3. In a leather-working machine, the combination of a pattern-mold provided with a matrix-surface and with pattern-surfaces, a thin pressure-bar in operative relation to the matrix-surface and disposed longitudinally and centrally with respect to said pattern-mold, means for adjusting said pressure-bar toward or from the pattern-mold, a cutter-carriage, and cutter devices mounted on said carriage in coöperative relation to the pattern-mold, substantially as set forth.

4. In a leather-working machine, the combination of a pattern-mold, a slidable head movable relatively to said mold, a pressure-bar carried by said head and disposed centrally with respect to said pattern-mold, guide-posts on which the head is slidably mounted, an adjusting mechanism having devices engaging with said posts and movable with said head, a cutter-carriage, and cutter devices mounted on the carriage in coöperative relation to the pattern-mold, substantially as set forth.

5. In a leather-working machine, the combination of a pattern-mold, stationary guide-posts, a head slidable on said posts and carrying a pressure-bar which is disposed in coöperative relation to the mold, nuts having threaded engagement with said posts and loosely confined on the head, a driving element operatively connected with said nuts and supported on the head, a cutter-carriage, and cutter devices mounted on the carriage in coöperative relation to the pattern-mold, substantially as set forth.

6. In a leather-working machine, the combination of a screw-shaft, a slidable cutter-carriage engaging with said screw-shaft, a pattern-mold in fixed relation to the cutter-carriage, a work-clamp, cutting-knives mounted on the work-carriage and controllable by the pattern-mold, and skiving-knives also mounted on the work-carriage and arranged to ride upon work confined on said pattern-mold, substantially as set forth.

7. In a leather-working machine, the combination of a pattern-mold provided with a matrix-surface and with pattern-surfaces, a cutter-carriage arranged to traverse the pattern-mold, a work-clamp, cutting-knives mounted on the carriage and controllable by the pattern-surfaces of the pattern-mold, and a skiving-knife movable with the carriage and presented in coöperative relation to the matrix-surface of the mold, substantially as set forth.

8. In a leather-working machine, the combination of a pattern-mold having matrix and pattern surfaces, means for clamping the work upon said matrix-surfaces, a cutter-carriage, skiving-knives mounted on the carriage, pressure devices also mounted on the carriage and arranged to force the work upon the matrix-surface of the pattern-mold, and cutting-knives supported by the carriage and controllable by the pattern-surfaces of said pattern-mold, substantially as set forth.

9. In a leather-working machine, the combination of a pattern-mold, a clamping-bar of less width than the pattern-mold and disposed in longitudinal coöperative relation thereto, a cutter-carriage, pressure devices supported on the carriage and arranged on opposite sides of the clamping-bar and adapted to traverse work on said pattern-mold, and skiving-knives also mounted on the carriage in coöperative relation to work on the mold, substantially as described.

10. In a leather-working machine, the combination of a pattern-mold, a cutter-carriage, a pressure device supported by the carriage and mounted to traverse the mold, means for yieldably holding said pressure devices in their operative relation to the mold, knife-carriers also yieldably mounted on the carriage and arranged to traverse the mold, and means for presenting the knife-carriers toward the mold, substantially as described.

11. In a leather-working machine, the combination of a pattern-mold, a clamping-bar disposed in coöperative relation to a matrix-surface of said pattern-mold, a cutter-carriage, pressure devices mounted on said carriage and disposed on opposite sides of the clamping-bar, skiving-knives also mounted on the carriage and arranged on opposite sides of the clamping-bar, means whereby said devices are held in operative positions, and means for moving said devices away from the mold, substantially as described.

12. In a leather-working machine, the combination of a pattern-mold, a cutter-carriage, pressure-rolls on said cutter-carriage, pivoted skiving-knives movable with the carriage and operable independently of the pressure-rolls, and means whereby said devices are kept in their operative positions, substantially as described.

13. In a leather-working machine, the combination of a pattern-mold, a thin pressure-bar disposed in coöperative relation to the matrix-surfaces of the pattern-mold, pressure devices mounted on the carriage and disposed on the opposite sides of the pressure-bar and in coöperative relation to the mold, and skiving-knives also mounted on the carriage and on opposite sides of the pressure-bar, substantially as described.

14. In a leather-working machine, the combination of a pattern-mold, a cutter-carriage, a pressure-bar opposite to the pattern-mold, pressure devices yieldably mounted on the carriage and disposed to traverse the mold in close relation to said pressure-bar, and skiving-knives pivotally and yieldably mounted on the carriage and disposed in a like relation to the pattern-mold and to the pressure-bar, substantially as described.

15. In a leather-working machine, the combination of a pattern-mold, a cutter-carriage capable of a traversing movement relative to the pattern-mold, a pivoted knife-carrier disposed on said cutter-carriage in coöperative relation to the pattern-mold and provided with a pressure-surface which is eccentric to the pivot of the knife-carrier, a skiving-knife supported in the knife-carrier and projecting beyond the eccentric pressure-surface thereof, and means for imparting a traversing movement to the cutter-carriage and the knife-carrier mounted thereon, whereby the skiving-knife is presented in operative position on the movement of the cutter-carriage in one direction and on the opposite movement of the cutter-carriage said knife-carrier is automatically turned on its pivot and its presser-surface is arranged to act upon and to traverse the work, substantially as described.

16. In a leather-working machine, the combination with a mold, and a cutter-carriage, of a rocking knife-carrier pivotally mounted on said carriage to have a free and unrestrained movement thereon, said knife-carrier provided with a curved presser-surface which lies eccentric to the axis of motion of said carrier, and a skiving-knife attached to the carrier and projecting beyond the curved presser-surface thereof, as and for the purposes described.

17. In a leather-working machine, the combination with a pattern-mold, and a traversing carriage, of a rocking knife-carrier pivotally mounted on the carriage and provided with a curved presser-surface arranged eccentric to the axis of vibration of the knife-carrier, said presser-surface being opposite and in coöperative relation to a matrix-surface of the pattern-mold, a roller-shoe mounted on the knife-carrier beyond the front end of the eccentric surface thereof, and a skiving-knife attached to the knife-carrier and exposed between the roller-shoe and the presser-surface, the parts arranged to operate substantially as set forth.

18. In a leather-working machine, the combination with a pattern-mold, and a traversing carriage, of spring-actuated pressure-bars mounted in the carriage, pressure devices mounted on the pressure-bars, and knife-carriers also mounted on the pressure-bars, and means for giving adjustment to said pressure-bars at different points of traverse of said carriage, substantially as described.

19. In a leather-working machine, the combination with a pattern-mold, and a traversing carriage, of pressure-bars mounted in the carriage and connected in pairs, a pressure-roll and a skiving-knife individually

mounted on one pair of pressure-bars and disposed in coöperative relation to said pattern-mold, means for yieldably actuating said pressure-bars to hold the pressure-rolls and skiving-knives in operative position, and a rocking shaft mounted on the carriage and having means for moving said pressure-bars, substantially as described.

20. In a leather-working machine, the combination with a pattern-mold, and a cutter-carriage, of slidable knife-blocks confined on the carriage and normally held in close relation to the pattern-mold, and cutting-knives yieldably supported on said knife-blocks and provided with controllers which are in operative relation to the pattern-surfaces of said pattern-mold, substantially as described.

21. In a leather-working machine, the combination with a traversing carriage, of a pattern-mold having lateral pattern-surfaces, rocking knife-supports mounted on said carriage contiguous to the pattern-surfaces of said pattern-mold, cutting-knives carried by the knife-supports, and controllers engaging with the pattern-surfaces and operatively connected to the rocking knife-supports for automatically controlling the positions of the cutting-knives, substantially as described.

22. In a leather-working machine, the combination of a pattern-mold having lateral pattern-surfaces and a matrix-surface on its upper side, a traversing carriage, knife-supports slidably mounted on said carriage in the horizontal plane of the pattern-mold and having means arranged to ride against the pattern-surfaces thereof, cutting-knives carried by said knife-supports and presented thereby in coöperative relation to the pattern-surfaces of said pattern-mold, a longitudinal clamp coöperating with the matrix-surface of the pattern-mold, and skiving-knives mounted on the cutter-carriage and disposed on opposite sides of the longitudinal clamp, substantially as and for the purposes set forth.

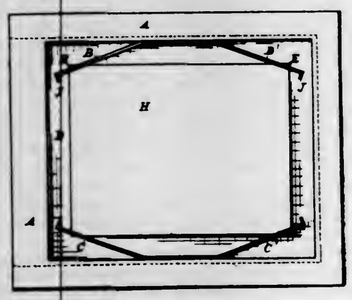
23. In a leather-working machine, the combination of a pattern-mold having lateral pattern-surfaces, a traversing carriage, knife-supports pivotally mounted on the carriage and provided with upstanding knives which are disposed on opposite sides of the pattern-mold and close to the pattern-surfaces thereof, controllers projecting from the knife-supports and arranged to ride against the pattern-surfaces, and retractors for holding the knife-supports and controllers in their operative positions, substantially as described.

24. In a leather-working machine, the combination of a pattern-mold having lateral pattern-surfaces, a traversing carriage, knife-blocks slidably fitted in the carriage, cutting-knives mounted on said knife-blocks and having means controllable by the pattern-surfaces, and means for presenting said knife-blocks in their operative positions, substantially as described.

25. In a leather-working machine, the combination of a pattern-mold, a traversing carriage, knife-blocks slidably fitted in the carriage, springs for impelling said knife-blocks toward the pattern-mold, means for individually retracting the knife-blocks against the pressure of their springs, and cutting-knives supported on the knife-blocks and having means controllable by the pattern-surfaces of said pattern-mold, substantially as described.

26. In a leather-working machine, the combination of a pattern-mold provided with matrix and pattern surfaces and having beveled ends, a thin pressure-bar disposed in coöperative relation to the matrix-surface, a cutter-carriage, pressure-rolls yieldably mounted on the cutter-carriage and disposed on opposite sides of the pressure-bar and in coöperative relation to the matrix-surface, skiving-knives pivotally supported on said carriage and also disposed on opposite sides of the pressure-bar and in coöperative relation to the matrix-surface, and trimming-knives yieldably mounted on the carriage and having means arranged to ride against the pattern-surfaces of said pattern-mold, substantially as described.

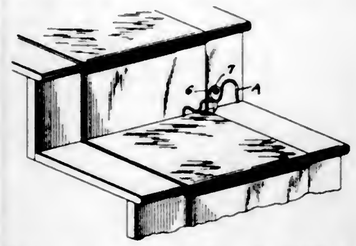
682,804. PHOTOGRAPHIC-PLATE HOLDER. FRANK V. MATHEWS, Rochester, N. Y. Filed June 13, 1901. Serial No. 64,433. (No model.)



Claim.—1. The combination with the frame of a photographic-plate holder, of the two plate-retaining springs attached to the interior of the frame on opposite sides and each provided with notches at a distance from the free ends, whereby the springs are adapted to holding plates of different sizes, as and for the purposes set forth.

2. The combination with the frame of a photographic-plate holder, of the notched plate-retaining springs and means for holding the springs in retracted position, as and for the purposes set forth.

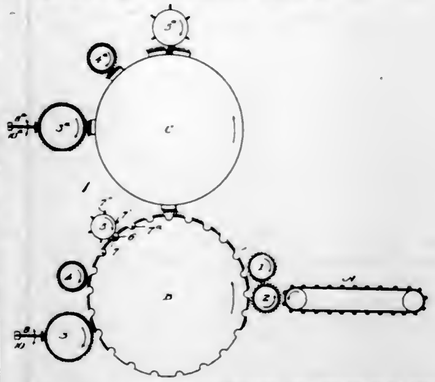
682,805. CARPET-FASTENER. NATHAN J. MEIGS, West Haven, Conn., assignor of one-half to Mary L. Meigs, same place. Filed Mar. 23, 1901. Serial No. 52,517. (No model.)



Claim.—1. A carpet-fastener having a body member made of spring metal terminating at one end in a prong and having a pressure-foot adjacent thereto, which is designed to lie upon the upper surface of the carpet and retaining means for holding said body member in engagement with the carpet, substantially as described.

2. In a carpet-fastener, the combination with the body member terminating in a prong at one end and having a pressure-foot adjacent thereto, the said body member being yielding between the said pressure-foot and the other end thereof; and a button adapted to engage the body member and hold the said prong and pressure-foot in engagement with the said carpet with a spring tension, substantially as described.

682,806. CARDING-MACHINE. FREDERICK W. MIDGLEY, Philadelphia, Pa., assignor of one-half to Gustav P. Gehring, same place. Filed Mar. 14, 1901. Serial No. 51,167. (No model.)



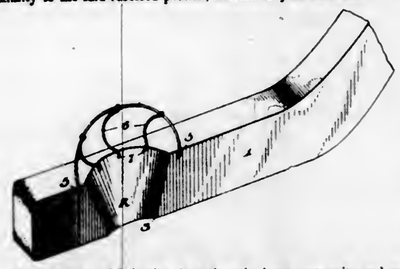
Claim.—1. In a silk-preparing machine, the combination of large cylinders having their periphery divided in sections, longitudinal cutting-knives, distributed over said periphery at equal distances, a rotary cutter whose blades mesh with knives of said cylinders, substantially as described.

2. A silk-preparing machine, consisting of feeding mechanism, straightening devices adjacent thereto, cylinders having knives, cylinders having coacting knives, cylinders for raising silk to surface and means for collecting and removing same.

682,807. HOCKEY-STICK. JESSE MINOR, Pittsburg, Pa. Filed Jan. 8, 1901. Serial No. 41,949. (No model.)

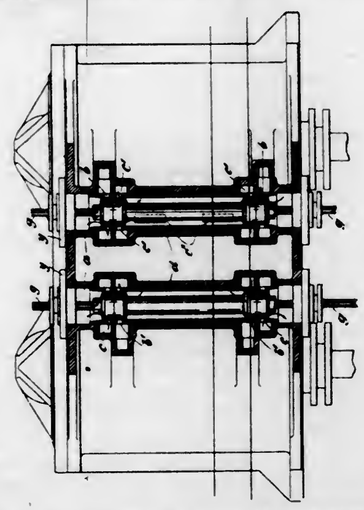
Claim.—1. A hockey-stick carrying on its lower extremity near the end thereof a semicircular wire and cross-ribs, substantially as described.

2. A hockey-stick having formed on its lower extremity and on one face thereof a semicircular-recessed portion, and a guard arranged in close proximity to the said recessed portion, substantially as described.



3. A hockey-stick having formed on its lower extremity and upon one side thereof a semicircular-recessed portion, a semicircular wire arranged in close proximity to said recessed portion and extending upwardly over said recessed portion, cross-ribs attached to said semicircular wire and connected to the upper edge of said semicircular-recessed portion, all parts being arranged and operating substantially as described.

682,808. STEAM-VALVE FOR DUPLEX PUMPS. WILLIAM J. P. MOORE, London, England. Filed Sept. 29, 1900. Serial No. 31,561. (No model.)

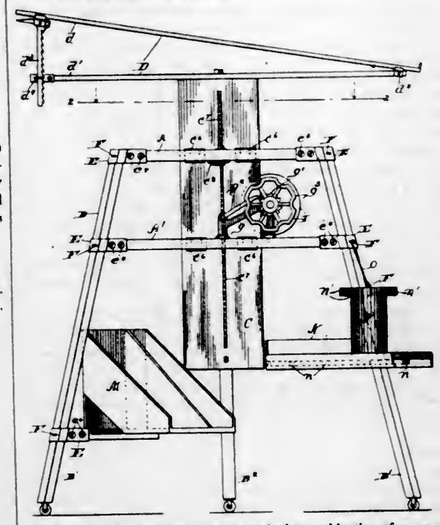


Claim.—In combination in a steam-pump, duplicate steam-cylinders, pistons therein, duplicate valve-chambers, valves therein, means for operating the latter, two sets of ports in each valve-chamber, two sets of ports in each steam-chamber, the ports in the valve-chamber being connected in pairs with the ports in the steam-chamber by steam-passages, the outer ports in both steam-chambers being the inlet and the intermediate ports the outlets, the corresponding ports in one valve-chamber performing like functions, and the passages leading from the members of each set extending parallel to each other, the outer ports in the other valve-chamber being the exhaust-ports and the intermediate ones the inlet, the passages leading from the members of each pair crossing each other, substantially as described.

682,809. PHOTOGRAPHIC-CAMERA STAND. KNUD NELSON, Chicago, Ill. Filed Apr. 8, 1901. Serial No. 54,860. (No model.)

Claim.—1. In a photographic-camera stand, the combination of an upper and a lower horizontal table, clips secured to the tables, legs passing through the clips, respectively, such clips formed respectively of a sheet-metal blank formed to fit the front, the sides, and a part of the back of the legs, and also to fit the edge of the table, and provided with turned flanges fitting the horizontal faces of the table, and means for securing such legs in the corresponding clips; substantially as described.

2. In a photographic-camera stand, the combination of an upper and a lower triangular-shaped table, clips secured to the respective corners of the tables, legs passing through the respective clips, such clips formed, respectively, of a sheet-metal blank formed to fit the front, the sides and a part of the back of the legs, and also to fit the edges of the table, and provided with turned-over flanges to fit the horizontal faces of the table, and means to secure the legs to corresponding clips; a camera-platform, a standard, triangular in cross-section, and the tables provided with triangular openings therethrough, in which openings the standard loosely fits, substantially as described.



3. In a photographic-camera stand, the combination of an upper table, a lower table, clips secured to the tables, respectively, legs corresponding in cross-section to the portion of the clips extending beyond the edges of the tables respectively and arranged to pass through such portion of such clips, means to secure the legs in place in such clips, a vertically-movable standard provided with a table at the upper end thereof, such standard extending through the tables, and means to secure such standard in an adjusted position to such table; substantially as described.

4. In a camera-stand, the combination of a frame consisting of tables and legs removably attached thereto, a standard also provided with a table movably mounted in the frame, a rotatable shaft adjustably mounted on the frame, a drum loosely mounted on the shaft, a spring interposed between the drum and the shaft, such spring secured at one end to turn with the drum and at the other end to turn with the shaft, a hand-wheel and a ratchet-wheel rigidly secured on the shaft, a pawl to engage with the ratchet-wheel to hold such wheel in an adjusted position, and a flexible connection between the loosely-mounted drum and the movably-mounted standard; substantially as described.

682,810. GAINING CUTTER-HEAD. LEWIS F. PARKS, Cincinnati, Ohio. Filed Jan. 26, 1899. Serial No. 703,427. (No model.)



Claim.—1. In a cutter-head a rotary disk having cutting-teeth in its periphery, a hub on which it is mounted in a manner to permit it to be tilted thereon, a flange projecting from said hub and to which the disk is held and an adjusting-screw for changing the angle to which the disk may be tilted.

2. In a cutter-head a rotary disk having cutting-teeth in its periphery, a hub on which it is mounted in a manner to be tilted thereon, the outer surface of said hub occupied by the disk and forming the seat thereof, being curved on circular lines constructed from a center which corresponds with the center on which the disk swings when adjusted to its tilted positions and means to hold and secure the disk in these positions.

3. In a cutter-head, the combination of a mandrel, a hub 12 mounted on it, a flange 15 projecting therefrom, a cutting-disk resting against the same and mounted on the hub on which it is capable of a tilting adjustment, said hub being curved and shaped as shown at 28 and 29 to permit such tilting and at the same time furnish full support to the disk in all the latter's positions, part of flange 15 from the axis on which the disk tilts outwardly removed on a taper to clear the approaching part of the disk when so fitted, an adjusting-screw 17 mounted in flange 15 and projecting therefrom to engage and hold the receding part of the disk, a washer on the other side of the cutting-disk, screws 14 whereby it is secured to flange 15 with the cutting-disk between the two, said screws being located in a line parallel to the axis on which the disk tilts, the bore of the washer being enlarged and flaring outwardly, so as not to interfere with this tilting adjustment, which enlargement is however an elongation merely in one direction only, the major axis of which is located at right angles to the axis on which the tilting adjustment of the disk takes place which adjustment is thereby limited to one in this direction only, projections 25 on this washer also located in a line parallel to the tilting axis and a nut 22 which, engaging these projections, holds all these parts in position on the mandrel.

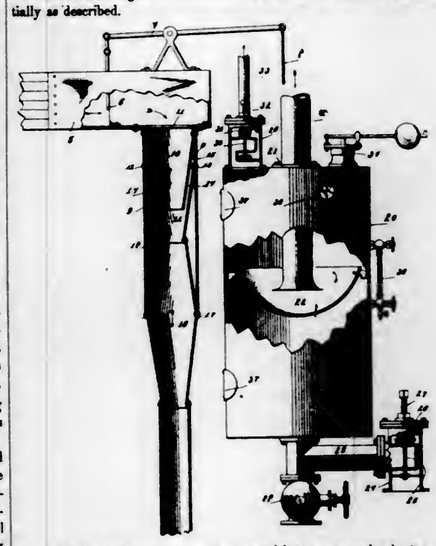
4. In a cutter-head, the combination of a mandrel, a hub 12 mounted on it, a flange 15 projecting therefrom, a cutting-disk resting against the same and mounted on the hub on which it is capable of a tilting adjustment, said hub being curved and shaped as shown at 28 and 29 to permit such tilting and at the same time furnish full support to the disk in all the latter's positions, part of flange 15 from the axis on which the disk tilts outwardly removed on a taper to clear the approaching part of the disk when so fitted, an adjusting-screw 17 mounted in flange 15 and projecting therefrom to engage and hold the receding part of the disk, a countersink in the side of the cutting-disk adapted to receive the end of screw 17, a washer on the other side of said disk its bore fitting the mandrel next to the side of the disk and elongated outwardly, allowing it to tilt only when the elongation is diametrically in line with screw 17, projections 25 on the outer side of this washer and a nut 22 which engaging these projections holds all parts in positions on the mandrel.

5. The combination of a rotary disk having saw-teeth in its periphery with scoring-knives between them diametrically opposite each other and a depression or socket 18 in that one of its flat sides where the scoring-teeth are beveled and in line with the scoring-teeth, a screw 17 the end of which is adapted to enter said socket thereby locating the position of the disk with reference to flange 15 and bringing the scoring-teeth at points of greatest inclination, screws 14, a nut 22, bearing-points 16 in line across flange 15 and at right angle with a diametrical line to screw 17, they being off the center of flange 15 and opposite to screw 17, so as to hold the disk against screw 17 when nut 22 or screws 14 are tightened.

6. The combination of a rotary disk having saw-teeth in its periphery with scoring-knives diametrically opposite each other, the front sides of the cutting-teeth being beveled so as to produce a beveled cutting edge, of which one corner 27 cuts in advance of the other, this bevel being on one half of the saw-teeth in one direction and opposite thereto in the other half, the line defining these two half sets of teeth, being coincident with a diameter which is also in line with the scoring-teeth, a depression or socket 18 in its flat side in line with the scoring-teeth and on that side where the scoring-teeth are beveled, a screw 17, the end of which is adapted to enter said socket 18, screws 14 and a nut 22, bearing-points 16 in line across flange 15 at right angle with a diametrical line to screw 17, bearings 16 being off the center of flange 15 and opposite to screw 17 to hold the disk against the latter when nut 22 or screws 14 are tightened, a washer between nut 22 and said disk, its bore fitting the mandrel next to the side of the disk and elongated outwardly, allowing it to tilt only when the elongation is diametrically in line with screw 17, projections 25 on the outer side of this washer and a nut 22 which engages these projections and holds all parts in position on the mandrel.

682,811. **HYDRAULIC AIR-COMPRESSOR.** JOHN PATERSON, Nelson, Canada. Filed Nov. 3, 1900. Serial No. 35,385. (No model.)

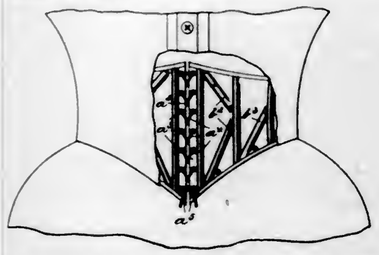
Claim.—1. A hydraulic air-compressor comprising a cylindrical tube having an annular series of air-inlet openings, a tapered tube 10 extending into the cylindrical tube, another tapered tube 12 secured at its upper end to the cylindrical tube below the openings therein and arranged in parallel relation to the tube 10 and partially surrounding the latter to form therewith an annular air-space which is in communication with said openings, and a double-tapered tube disposed in axial alinement with the aforesaid tube and arranged to receive the contents of the tube 12, substantially as described.



2. A hydraulic air-compressor comprising an external tube 9 provided with an annular series of air-inlet openings, a tapered water-feed tube 10 secured in said tube 9, another tapered tube 12 secured at its upper end to the tube 9 below the openings therein and arranged to extend below said tube 10, the said tube 12 surrounding the tube 10 and forming therewith an annular air-space which is in communication with the openings, and a double-tapered tube 16 secured at its bellied portion to the tube 9 and at its upper end to the tube 12, said tube 16 arranged in axial alinement with the tubes 9, 10, 12 and adapted to receive, above the line of its greatest diameter, the contents of the tube 12, substantially as described.

3. A hydraulic air-compressor comprising a closed tank forming a separating-chamber, a cross-sectionally-curved basin having an open top and secured in said tank, a water and air combining pipe leading through the tank and terminating centrally within the basin at a point below the open top thereof and leaving ample space for the water to flow freely into the basin, a water-drain pipe connected to the bottom of the tank and having a double valve, and an air-outlet pipe connected to the upper portion of the tank and also having a balanced double valve, substantially as described.

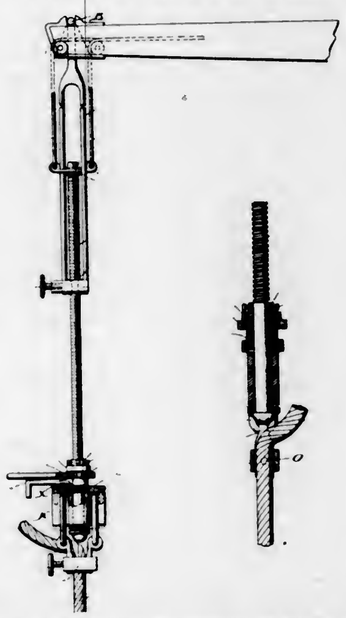
682,812. **COMBINED WAIST-LENGTHENER AND CORSET.** ELLA K. PILLING, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,353. (No model.)



Claim.—1. A combined waist-lengthener and corset, comprising a series of connected sections, a series of ribs or bones inserted at the contiguous edges of adjacent sections and two end sections each having a relatively stiff edge projecting in acute-angled corners both above and below the upper and lower edges respectively of the intermediate sections, said intermediate sections having longitudinally of the article a flat, belt-like medial portion adapted to fit the waist of the wearer and provided at both top and bottom edges with a fullness, substantially as and for the purposes described.

2. In a combined waist-lengthener and corset, a series of connected intermediate sections each having a fullness at the upper and lower edges and a flat belt-like medial portion, a series of ribs inserted between contiguous edges of adjacent intermediate sections, two end sections relatively longer than the intermediate sections, each of said end sections having angular corners projecting respectively above the upper and below the lower edge of the intermediate sections, a series of radiating ribs b^3 strengthening the corners of the end sections and a series of downwardly-inclined ribs b^3 reinforcing the lower edge of the sections adjacent to the end sections, substantially as and for the purposes described.

682,813. **SAFETY TEMPER-SCREW.** ERNEST PORTER, Wallace, W. Va. Filed Mar. 9, 1901. Serial No. 50,463. (No model.)



Claim.—In a temper-screw, the combination with the screw proper, of a swivel carried thereby and having the cap thereof formed with a screw-threaded opening surrounding the temper-screw, an adjustable boss exteriorly screw-threaded to take the threads of said cap and through which the temper-screw passes and having an operating-handle, and a stop disposed adjacent to said boss and against which the latter abuts when adjusted in one direction, substantially as described.

682,814. **FRUIT-CLEANING MACHINE.** FRANK E. PROUD, Orange, Cal. Filed Mar. 30, 1899. Renewed Mar. 22, 1901. Serial No. 52,401. (No model.)

Claim.—1. In a fruit-cleaning machine, the combination of a straight inclined trough having two series of brushes inclined reversely to each other and presenting straight continuous surfaces to the fruit, and an endless positively-movable brush mechanism disposed above said trough, the vertical axes of the trough and the endless brush mechanism being in a common plane, said endless brush mechanism having between its supports a limited amount of sag or play relative to the brushes of the trough, substantially as described.

2. In a fruit-cleaning machine, the combination of a trough having a plurality of series of brushes presenting continuous straight surfaces, one surface being inclined reversely to another like surface, and an endless brush mechanism coextensive in length with the brush-surfaces of the trough and arranged above the latter, said endless brush mechanism having a limited play in a vertical plane and movable positively relative to the brush-surfaces of the trough, substantially as described.

3. In a fruit-cleaning machine, a straight inclined trough comprising a rail, two series of brushes inclined reversely to each other and disposed on opposite sides of the rail to present straight continuous surfaces, and yieldable supports for holding the brushes individually on the rail and permitting the brushes of opposing pairs to give laterally with relation to the axis of the rail, combined with an endless brush mechanism arranged above the trough, coextensive in length therewith, and movable positively in a path substantially parallel to the axis of said trough, substantially as described.



4. In a fruit-cleaning machine, a straight trough comprising a rail, the yieldable arms secured individually to the rail and disposed in pairs on opposite sides thereof, each arm having an inclined length and a vertical length extended beyond the rail, the main brushes fastened to the inclined lengths of said arms, and auxiliary brushes attached to the vertical lengths of the arms, combined with a positively-movable brush mechanism coextensive with and in operative relation to the trough-brushes, substantially as described.

5. In a fruit-cleaning machine, the combination of a trough having a plurality of series of yieldably-supported brushes arranged in reversely-inclined positions and presenting straight continuous surfaces longitudinally of the trough, an endless brush mechanism arranged above and in coöperative relation to the trough-brushes for movement in a path substantially parallel to the axis of the trough and also capable of a limited amount of sag relative to said trough-brushes, and pressure devices acting on the lower lead of said endless brush mechanism to depress the brushes thereof toward the trough, substantially as described.

6. In a fruit-cleaning machine, the combination with a frame, and revoluble supporting devices at the ends thereof, of a straight inclined trough having a plurality of series of reversely-inclined brushes, hangers for detachably fastening the respective ends of the trough on the frame, one of said hangers being adjustable, and an endless brush mechanism fitted to the revoluble supporting devices and sustained thereby in coöperative relation to the trough-brushes for movement in a path parallel, substantially, to the axis of the trough, as set forth.

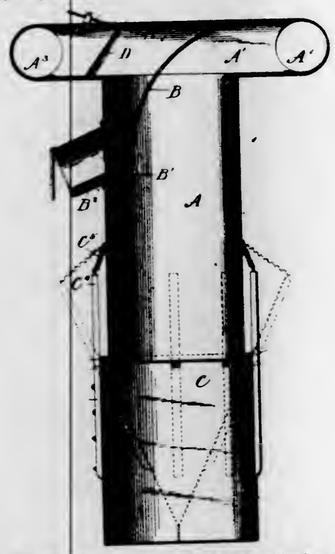
682,815. **METHOD OF WELDING METALS.** BISHIP PURCELL, Portageville, Mo. Filed Jan. 5, 1901. Serial No. 42,204. (No specimens.)

Claim.—A step in the process of welding metals, which consists in first sprinkling powdered sulfur into the fire, and subsequently placing the metals in the said fire and bringing them to a welding heat, substantially as set forth.

682,816. **COTTON CLEANER AND DISTRIBUTER.** JOHN W. SEIFERT, Waco, Tex., assignor to Waco Cotton Machine Manufacturing Company, same place. Filed Apr. 13, 1901. Serial No. 55,699. (No model.)

Claim.—1. In a device of the class described, the combination with a collector-body, of a pneumatic conveyer communicating therewith, a screening-surface disposed in said conveyer, and a counterbalanced valve located between said screening-surface and the suction device of the conveyer and adapted to automatically close to cut off said device by the collection of material upon said surface; substantially as specified.

2. In a device of the class described, the combination with a collector-body having at its lower end a flexible valve, levers secured to said valve, an offset from said body to which said levers are pivoted, and restoring-springs adapted to retain said levers in a vertical position; substantially as specified.



3. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, and a floating valve between said screen and air-pipe freely pivoted at one end for oscillation; substantially as specified.

4. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end for oscillation, and a counterbalance carried by the pivot of said valve; substantially as specified.

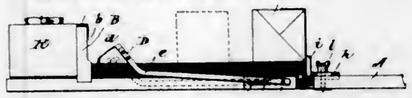
5. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end for oscillation, a counterbalance carried by the pivot of said valve, and a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed; substantially as specified.

6. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end thereof for oscillation, a counterbalance carried by the pivot of said valve, a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed, a flexible valve at the lower end of said collector, and means for normally holding said valve in an open position; substantially as specified.

7. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end thereof for oscillation, a counterbalance carried by the pivot of said valve, a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed, a flexible valve at the lower end of said collector, pivoted levers connected to said flexible valve, and means for normally retaining said levers in a vertical position to open said valve; substantially as specified.

8. In a device of the class described, the combination with a collecting-chamber having a screen therein, cotton and air pipes communicating with the opposite sides of said screen, a floating valve between said screen and air-pipe freely pivoted at one end thereof for oscillation, a counterbalance carried by the pivot of said valve, a dirt-chute disposed at the lower end of said screen and provided with a pivoted door adapted to automatically open when said valve is closed, a flexible valve at the lower end of said collector, pivoted levers connected to said flexible valve, and springs connected to the upper free ends of said levers and to the fixed support; substantially as specified.

682,817. WRAPPER-PASTING DEVICE. JOHN W. SHAMER, Williamsport, Pa., assignor to the National Biscuit Company, Chicago, Ill. Filed Dec. 3, 1900. Serial No. 38,429. (No model.)



Claim.—1. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard pivoted to the sides of the base-plate and adapted to swing into and out of operative position adjacent said transverse abutment, substantially as described.

2. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard adjustably pivoted to the sides of the base-plate and adapted to swing into and out of operative position adjacent and parallel with said transverse abutment, substantially as described.

3. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard in the form of a rectangular bail, having its two arms pivoted in the sides of the base-plate and its transverse guard member arranged adjacent and parallel with the vertical face of the transverse abutment, and normally resting with its lower edge across the topmost wrapper near one end thereof, substantially as described.

4. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard in the form of a rectangular bail, having its two arms pivoted in the sides of the base-plate, and its transverse guard member arranged adjacent and parallel with the opposing vertical face of the transverse abutment and normally resting with its lower edge across the topmost wrapper near one end thereof, the operative face of said guard member being slightly convexed, substantially as described.

5. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard pivoted to the sides of the base-plate and adapted to swing into and out of operative position adjacent said transverse abutment, and a stop in said base-plate adapted to engage the lower end of the stack of wrappers, substantially as described.

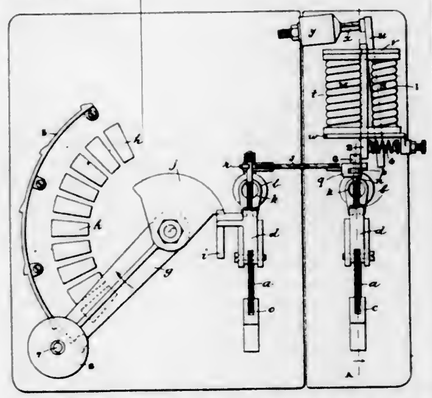
6. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard pivoted to the sides of the base-plate and adapted to swing into and out of operative position adjacent said transverse abutment, and a series of horizontally-adjustable stops in said base-plate adapted to engage the lower end of a stack of wrappers, substantially as described.

7. In a device of the character described, the combination with a base-plate and a transverse bar or partition secured thereon near one end and forming a stop or abutment for a stack of wrappers, of a paste-guard pivoted to the sides of the base-plate, and adapted to swing into and out of operative position adjacent said transverse abutment, a horizontally-adjustable stop in said base-plate adapted to engage the lower end of the stack of wrappers, and a suitable paste-holder secured to said transverse bar or partition, substantially as described.

682,818. SWITCH FOR ELECTROMOTORS. ROBERT A. SLOAN and JOHN R. L. BARLOW, Liverpool, England. Filed June 19, 1900. Serial No. 20,877. (No model.)

Claim.—1. In combination: a switch-bar, a handle by which the bar is operated, insulated contacts adapted to be electrically connected by the bar, a spring which is compressed when the contacts are so connected and which tends to force the bar out of the contacts, a detent for holding the said spring compressed but which leaves the switch-bar free to be opened by the handle, and means for releasing the said detent when the current carried by the switch falls below or rises above a predetermined limit; substantially as described and illustrated.

2. In combination: a main switch-bar, contacts therefor, a spring which is compressed when the switch-bar is in its contacts and which tends to force the said bar out of its contacts; a detent for holding the said spring compressed but which leaves the switch-bar free to be opened by hand, means for releasing the said detent when the current falls below or rises above predetermined limits, a loose handle, adapted to open and close the switch-bar, and provided with a locking-piece; a regulating-switch provided with a locking-piece which, when the regulating-switch is in any position other than the starting position, locks the main-switch handle in its off position, and which, when the latter is in contact with the closed-switch bar, is locked in the starting position; substantially as described and illustrated.



3. In combination: the switch-bar, the contacts, the spring tending to force the bar out of its contacts, the pivoted links whose opposite ends are connected respectively to a fixed pin and to a pin holding the spring, and which are adapted, when closed so that their centers are in line, to hold the said spring compressed, and the means for releasing the said spring by pushing the links out of line; substantially as described and illustrated.

4. In combination: the switch-bar, the contacts, the spring carried in one of the contacts, the detent and the means for releasing the detent; substantially as described and illustrated.

5. In combination: the switch-bar, the contacts, the spring, the plunger, the latter two carried in one of the contacts, the detent and the means for releasing the detent, substantially as described and illustrated.

6. In combination, in a double-pole switch, two sets of fixed contacts, a switch-bar for each set, a lever for each bar, means for moving each bar to close the switch, independent means for each bar tending to open said switch, independent devices for retaining the switch closed, said devices moving in unison in releasing said switches, and means for controlling said devices.

7. In combination in a double-pole switch, two sets of fixed contacts, a switch-bar for each set; a lever for each bar for moving said bars to close the switch, independent means for each bar tending to open said switch, independent pivoted devices for retaining the switch closed, said devices moving in unison in releasing said switch, and means for controlling said devices.

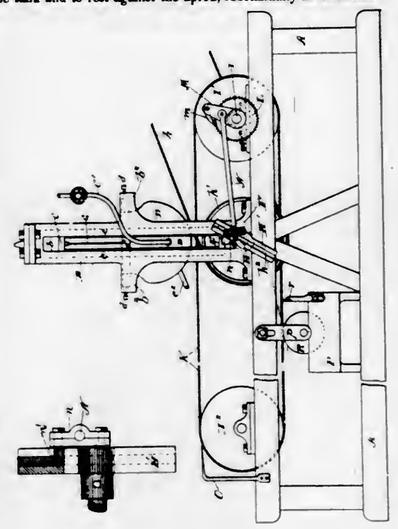
8. In a double-pole switch, in combination; the switch-bars, the contacts, the springs and the two detents, one of the latter consisting of pivoted links, and the other of a detent connected to the said links by a rod which, when the links are opening under the influence of the spring which they control, transmits the force of the said spring to the detent to release it; substantially as described and illustrated.

9. In a regulating-switch, in combination; the switch-arm, the toothed arc, the double-acting pawl, and the pivoted handle adapted to move the pawl in opposite directions, when the extremities of an annular slot therein engage with a pin attached to the pawl; substantially as described and illustrated.

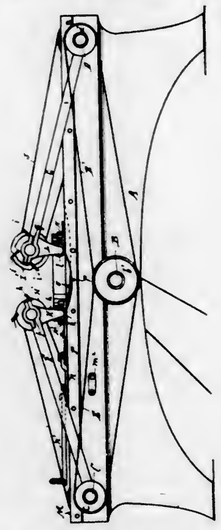
10. In a regulating-switch, in combination; the switch-arm, the toothed arc, the double-acting pawl and a handle adapted to oscillate the said pawl and to move the switch-arm; substantially as described and illustrated.

682,819. CANDY-MAKING MACHINE. HENRY SPORLAND, Chicago, Ill. Filed Apr. 22, 1901. Serial No. 56,906. (No model.)

Claim.—The combination with the main frame, of a steam-jacketed vessel mounted thereon and having a series of openings in its bottom, a frame movably mounted on the main frame, a series of rods carried by the movable frame and adapted to extend into said openings, a driving-shaft journaled on the main frame below the movable frame, a cam fixed on the driving-shaft, a rocker-arm fixed on one end of said shaft, two drums journaled crosswise on the main frame, an endless apron passing over said drums, a ratchet-wheel fixed on the shaft of one of the drums, an arm loosely secured on said shaft and carrying a pawl to engage the ratchet-teeth, a rod pivotally connected at one of its ends to said arm and movably connected at its other end to the rocker-arm, a tank located below the apron, a squeegee secured to the tank and extending crosswise the apron and resting thereagainst, an idler journaled so as to extend into the tank and to rest against the apron, substantially as described.



682,820. CHAIR-SEAT-SURFACING MACHINE. CHARLES A. STARK, Union City, Pa. Filed May 23, 1901. Serial No. 61,533. (No model.)



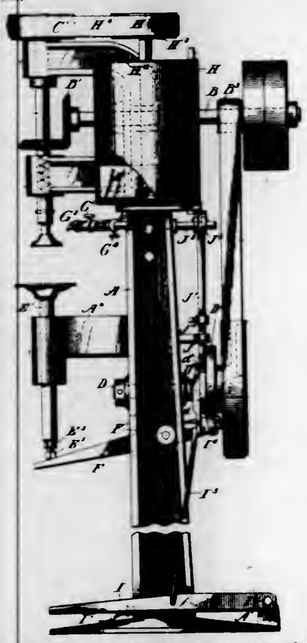
Claim.—1. The combination in a chair-seat-surfacing machine, of a frame, a sliding carriage operating in ways upon said frame, two tracks on each side of said carriage having different-shaped depressions therein, two cutter-cylinders mounted in bearings the bearings of one cylinder resting on one track on each side of the carriage, and the bearings of the other

cylinder resting upon the others of the tracks on each side of the carriage, substantially as and for the purpose set forth.

2. The combination in a chair-seat-surfacing machine of a frame, two cutter-cylinders of different shapes mounted on said frame so as to be vertically movable, a sliding carriage on said frame, two tracks on each side of said carriage having different-shaped depressions in the tops thereof, supports on the cylinder-bearings of each cylinder adapted to be engaged by one pair of said tracks as they travel under said supports, substantially as and for the purpose set forth.

3. The combination in a chair-seat-surfacing machine, of a frame, a pair of arms pivoted at each end of said frame, a cutter-cylinder of one shape mounted in the inner ends of one pair of said arms, and a cutter-cylinder of another shape mounted on the inner ends of the other pair of said arms, a carriage operating under said cylinders upon ways on said frame, two tracks of different shape on each side of said carriage, supports under the bearings of one cylinder resting upon the outside tracks on each side of said carriage, and supports under the other cylinder resting upon the inside tracks on each side of said carriage, substantially as and for the purpose set forth.

682,821. **MACHINE FOR COATING CAN-COVERS.** JOHN A. STEWARD, East Clarendon, Vt. Filed Oct. 20, 1900. Serial No. 33,723. (No model.)



Claim.—1. The combination with a reciprocatory work-support, of a device for reciprocating said support, a reservoir, means for automatically controlling the discharge from said reservoir, a constantly-rotating device for rotating said support when in contact therewith during the discharge from said reservoir, and a rotatable device carried by a driving-shaft to successively control the reciprocation of the work-support and the operation of the reservoir-discharge means; substantially as specified.

2. The combination with a reciprocatory support for a can-cover carried by a stationary standard, of continuously-rotating means above the same, means for automatically raising said cover-support into contact with said rotating means, a reservoir adjacent to said rotating means, means for automatically controlling the discharge from said reservoir while the cover is being rotated, a rotatable device carried by the driving-shaft to successively control the reciprocation of the support and the movement of the reservoir-discharge means; substantially as specified.

3. The combination with a reciprocatory support for a can-cover carried by a stationary standard, of continuously-rotating means above the same, means for automatically raising said cover-support into contact with said rotating means, a reservoir adjacent to said rotating means, means for automatically controlling the discharge from said reservoir while the cover is being rotated, a rotatable device carried by the driving-shaft to successively control the reciprocation of the support and the movement of the reservoir-discharge means, and means for releasing the automatically-controlled mechanisms from their driving device; substantially as specified.

4. The combination with a reciprocatory support for a can-cover carried by a stationary standard, of continuously-rotating means above the same, means for automatically raising said cover-support into contact with said rotating means, a reservoir adjacent to said rotating means, means for automatically controlling the discharge from said reservoir while the cover is being rotating, a rotatable device carried by the driving-shaft to successively control the reciprocation of the support and the movement of the reservoir-discharge means, means for releasing the automatically-controlled mechanisms from their driving device, and means for throwing said releasing device out of operative position to permit the action of the automatically-controlled device; substantially as specified.

5. The combination with a support for a can-cover, of means for rotating said cover and support, means for delivering a composition to said cover, automatic means for controlling the flow of said composition during a rotation of said cover, and an automatically-controlled device for retaining said cover in contact with its rotating means during the coasting action and afterward removing the same to stop the rotation of the cover; substantially as specified.

6. The combination with a support for a can-cover, of means for rotating said cover and support, means for delivering a composition to said cover, automatic means for controlling the flow of said composition during a rotation of said cover, an automatically-controlled device for retaining said cover in contact with its rotating means during the coasting action and afterward removing the same to stop the rotation of the cover; and means for rendering said automatic devices inoperative after the coasting of the cover; substantially as specified.

7. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, and means for coating the work upon said support; substantially as specified.

8. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support, a feed-cam carried by said elevating-cam, and connections whereby the composition will be fed when the work-support is elevated; substantially as specified.

9. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, and a rod extending downward from said rock-arm and riding upon said feed-cam; substantially as specified.

10. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and riding upon said feed-cam; a bifurcated arm carried by said rock-arm, and an angle-lever carried by the valve of said feed-spout; substantially as specified.

11. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and riding upon said feed-cam, a bifurcated arm carried by said rock-arm, an angle-lever carried by the valve of said feed-spout, a spring-actuated presser-foot adapted to contact with the work upon said support, and means for continuously rotating said foot; substantially as specified.

12. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and riding upon said feed-cam, a bifurcated arm carried by said rock-arm, an angle-lever carried by the valve of said feed-spout, a spring-actuated presser-foot adapted to contact with the work upon said support, means for continuously rotating said foot, composition-reservoirs, stirrers within the same, and driving means for continuously operating said stirrers; substantially as specified.

13. The combination with a reciprocatory work-support, of a pivoted lever adapted to raise the same, a cam adapted to bear against one end of said lever, driving means for said cam, a clutch device adapted to connect said cam and driving means, a reservoir for feeding composition to work upon said support, a feed-cam carried by said elevating-cam, a feed-spout provided with a valve, a rock-arm operatively connected with said valve, a rod extending downward from said rock-arm and riding upon said feed-cam, a bifurcated arm carried by said rock-arm, an angle-lever carried by the valve of said feed-spout, a spring-actuated presser-foot adapted to contact with the work upon said support, means for continuously rotating said foot, a composition-reservoir, stirrers within the same, driving means for continuously operating said stirrers; a clutch-finger adapted to normally lie in the path of a clutch-pin, and means for throwing said pin out of operative position; substantially as specified.

14. In a machine of the class described, a shaft having a driving-wheel thereon provided with an apertured hub, a cam loosely mounted on said shaft, a clutch-pin slidingly mounted in said cam, a spring for normally pressing said pin inward to engage an aperture in said driving-hub, a clutch-finger adapted to engage and withdraw said pin when thrown into the path thereof, a reciprocatory work-support, an adjustable means at the lower end of the same, a pivoted elevating-lever engaging said means at one end, and a friction-roller at the opposite end of said lever traveling upon said cam; substantially as specified.

15. In a machine of the class described, a shaft having a driving-wheel thereon provided with an apertured hub, a cam loosely mounted in said shaft, a clutch-pin slidingly mounted upon said cam, a spring for normally pressing said pin inward to engage the apertures in said driving-hub, a clutch-finger adapted to engage and withdraw said pin when thrown into the path thereof, a reciprocatory work-support, an adjustable means at the lower end of the same, a pivoted elevating-lever engaging said means at one end, a friction-roller at the opposite end of said lever traveling upon said cam, an angle-arm extending from said clutch-finger, a pivoted treadle operatively connected with said arm, and means for normally elevating said treadle and throwing the clutch-finger into operative position; substantially as specified.

16. In a machine of the class described, the combination with a work-support, of a composition-reservoir, stirrers within the same, means for rotating said stirrers, a discharge-spout from said reservoir provided with a discharge-valve, an angle-arm extending from said valve, a rock-shaft provided with a bifurcated arm to engage said lever, a crank from the same, and means for automatically elevating said rod to operate said valve; substantially as specified.

17. In a machine of the class described, the combination with a work-support, of a composition-reservoir, stirrers within the same, means for rotating said stirrers, a discharge-spout from said reservoir provided with a discharge-valve, an angle-arm extending from said valve, a rock-shaft provided with a bifurcated arm to engage said lever, a crank from the same, means for automatically elevating said rod to operate said valve, a regulating-cock between said automatically-controlled valve and the reservoir to determine the amount of flow from the spout, and a shut-off cock between said regulating-cock and the reservoir to permit removal of the spout and adjacent parts; substantially as specified.

18. In a machine of the class described, the combination with a work-support, of a reservoir, a delivery-spout extending from the same, an automatically-controlled valve in said spout, a regulating-cock to determine the flow from said valve, and a shut-off cock to permit the removal of the automatically-controlled valve and regulating-cock; substantially as specified.

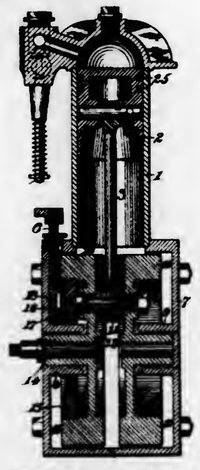
19. In a machine of the class described, the combination with a standard having a series of supporting-brackets, a horizontally-disposed main driving-shaft, a work-support reciprocatively mounted in one of said brackets, a counter-shaft at the lower portion of the standard, means connecting said main driving-shaft and counter-shaft for elevating the work-support, a vertically-disposed shaft carrying a presser-foot, gearing between said shaft and the main driving-shaft, a reservoir provided with stirrers, and connections between the upper end of the presser-foot shaft and the driving-shaft of said stirrers; substantially as specified.

20. In a machine of the class described, the combination with a reciprocatory work-support, of a continuously-driven shaft above the same, a presser-foot yieldingly mounted in the lower portion of said shaft and adapted to rotate therewith, means for elevating said work-support to bring the work into contact with the presser-foot, and a composition-delivery adapted to discharge upon the work while being rotated; substantially as specified.

21. In a machine of the class described, the combination with a reciprocatory work-support, of means to rotate the same when elevated, a composition-reservoir, and a swiveled delivery-spout and piping adapted to swing radially over the work when elevated upon said support; substantially as specified.

22. In a machine of the class described, the combination with a reciprocatory work-support, of means to rotate the same when elevated, a composition-reservoir, a swiveled delivery-spout and piping adapted to swing radially over the work when elevated upon said support, means for automatically elevating said work-support, and means for automatically controlling the discharge from said delivery-spout during the rotation of the work; substantially as specified.

682,822. **OIL-ENGINE.** MICHEAL B. TORPEL, FRANK B. WIDMAYER, and ADOLPH POTDEVIN, New York, N. Y. Filed Aug. 31, 1900. Serial No. 28,654. (No model.)



Claim.—1. In an internal-combustion motor the combination with the fly-wheel having a recess in its face, of a valve-operating cam-disk fastened within said recess.

2. In an internal-combustion motor a valve-operating cam-disk having a double cam-groove adapted to operate the valve once for each two whole revolutions of the crank-shaft combined with a fly-wheel having a recess in its face and means for securing said cam-disk within said recess.

3. In an internal-combustion motor, the combination with the two-part crank casing or shell each having a hollow internal boss or projection adapted to form a bearing for the shaft of the motor, of a two-part fly-wheel and a motor-shaft composed of the hubs of said fly-wheels formed in one piece with them and journaled within the said hollow bosses or projections, as and for the purpose described.

4. In an internal-combustion motor of the inclosed-crank type, bearings for the motor-shaft located entirely inside of the crank case or shell and consisting of internal bosses or projections projecting from the inside of the crank case or shell and within which are journaled the shaft of the motor consisting of the hub or hubs of the motor fly-wheels.

5. In an internal-combustion motor the combination of a pair of fly-wheels and a connecting-rod connecting thereto by bearings which overhang the shaft-bearings of the motor, and a motor-shaft consisting of the hubs of said fly-wheels formed in one piece therewith and journaled in internally-projecting hollow bosses forming a part of the crank-casing, as and for the purpose described.

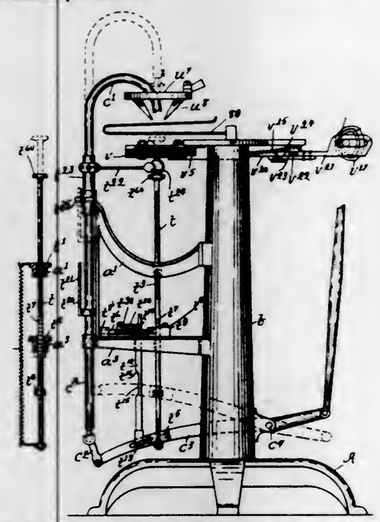
6. In an internal-combustion motor, a motor-shaft consisting of hubs, of the fly-wheels formed in one piece with them and journaled in hollow bosses projecting inwardly from the casing or shell of the machine and all constructed as described so that the bearings of the motor-shaft shall be located entirely within the crank case or shell leaving the outer face of said shell flush or smooth.

7. In a motor of the inclosed-crank type, a crank-shell having hollow internally-projecting hubs or bosses and flush or smooth exterior surfaces combined with the fly wheel or wheels whose shaft is mounted in said bearings and with the bearing-surfaces entirely inside of the crank case or shell, as and for the purpose set forth.

682,823. **WRAPPING-MACHINE.** TRAXTER N. TRIPP, Lynn, Mass. Filed Jan. 16, 1901. Serial No. 43,537. (No model.)

Claim.—1. In a wrapping-machine, the combination of a device for gathering in the edges of the wrapper, a wrapper-support located above said device, a rest, normally held in proximity to, yet beneath, said wrap-

per-support, means for forcing the article down through said wrapper-support onto said rest, and for forcing said rest, with the article and wrapper thereon down below said device to different positions according to the size of the article, and a locking device for said rest, adapted to engage and hold it in its different positions with the article below said device, substantially as described.



2. In a wrapping-machine, the combination of a device for upturning and gathering in the edges of the wrapper, a wrapper-support located above said device, a rest consisting of a vertically-movable spring-supported rod normally occupying a position in proximity to, yet beneath said wrapper-support, and above said device, a plunger for forcing the article with its wrapper down through said wrapper-support onto said rest and for forcing said rest, with the article and wrapper thereon, down through said device to different positions below it according to the size of the article to thereby upturn the edges of the wrapper, means for engaging and holding said rest in its different positions with the article below said device, and means for operating said device to gather in the upturned edges of the wrapper while the rest is thus held, substantially as described.

3. In a wrapping-machine, the combination of a device for gathering in the edges of the wrapper, a wrapper-support located above said device, a rest normally held in proximity to, yet beneath said wrapper-support, a plunger and means for operating it for forcing the article down through said wrapper-support onto said rest and for forcing said rest with the article and wrapper thereon, down below said device, and a locking device for said rest adapted to engage it when in its lowermost position, the actuating member of which is connected to the means employed for operating said plunger, substantially as described.

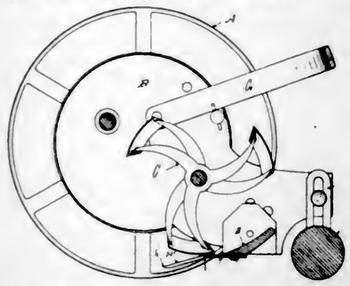
4. In a wrapping-machine, the combination of a device for gathering in the edges of the wrapper, a wrapper-support located above said device, a rest normally held in proximity to, yet beneath, said wrapper-support, a plunger and means for operating it for forcing the article down through said wrapper-support onto said rest, and for forcing said rest, with the article and wrapper thereon, down below said device, a locking device for said rest, which engages it in its lowermost position, and holds it while said plunger rises and releases it at the beginning of the descent of the plunger, the actuating member of which is connected to the means employed for operating said plunger, substantially as described.

5. In a wrapping-machine, a rest for the article consisting of a vertically-movable rod having a plurality of teeth, a spring supporting it in elevated position, a locking device for said rod comprising a dog adapted to engage any one of a number of teeth on said rod, and means for operating said dog, substantially as described.

6. In a wrapping-machine, a set of jamming or pinching jaws for the edges of the wrapper, an actuating-bar for operating said jaws, a yielding connection forming a coöperative part of said bar and means for operating said bar, substantially as described.

7. In a wrapping-machine, a set of jamming or pinching jaws for the edges of the wrapper, an actuating-bar therefor composed of two parts or members loosely connected together and a spring interposed between said parts or members, substantially as described.

682,824. LAWN-MOWER. PATRICK J. TUNNY, Northeast, Pa. Filed Jan. 23, 1901. Serial No. 44,369. (No model.)

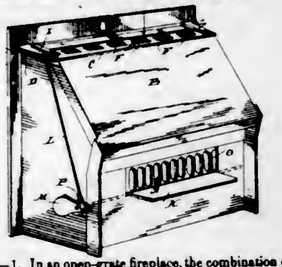


Claim.—The combination in a lawn-mower of a rotary cylinder, spiral cutter-blades on said cylinder, a stationary cutter-blade, downwardly-inclined teeth having their edges parallel with each other and sharp, rounded points on said teeth which curve slightly upward, and cutting-surfaces on the cutter-blade between said teeth, substantially as and for the purpose set forth.

682,825. TANNING OR DRESSING HIDES, SKINS, OR THE LIKE. FRIEDRICH VALENTINER, Leipsic-Plagwitz, Germany. Filed Nov. 27, 1900. Serial No. 37,875. (No specimens.)

Claim.—A method of tanning or dressing skins, hides and the like, comprising the treatment of the same with a fluorin compound of chromium hydroxid.

682,826. OPEN FIREPLACE. GEORGE W. BUCK, Louisville, Ky. Filed Mar. 19, 1900. Serial No. 9,313. (No model.)



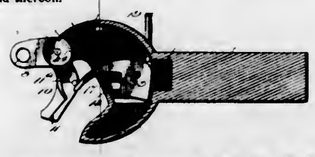
Claim.—1. In an open-grate fireplace, the combination of the basket for coals, an inclined back plate terminating at its front above said basket, a pivoted top plate provided with openings and a slide-piece guided and held on said top plate, by which the openings may be closed and the damper swung, a damper below the back plate connected to the top plate by a draw-rod, so as to close when the top plate is lifted, and a handle connected to said slide-piece and extending to the front of the fireplace proper, whereby all the dampers may be adjusted by the movement of a single handle, substantially as described.

2. In an open fireplace having a basket-grate for coals, an inclined plate extending upward and forward from the rear surface of said basket, a top plate pivoted near the mantel and closing down on said inclined plate to serve as a damper, openings in said top plate and a sliding piece thereon to close said openings, a swinging damper closing into an opening below the top of the grate and a counterweight connected thereto, a draw-rod connecting the top plate and the lower damper so as to close the one as the other opens, and a handle connected to the slide on the top plate and extending to the front of the mantel, so that all the dampers may be operated by one handle, substantially as described.

3. An open fireplace having a basket, an inclined back plate extending upward and forward from the top thereof, a top plate pivoted near the mantel and closing down onto said inclined plate, openings in said top plate and a slide held thereon by guide-pieces so as to slide over such openings, a handle extending outside the mantel from said slide and provided with a graduated index, and a damper in rear of and below the top of the basket, connected to the top plate by a draw-rod, all the specified elements combined, substantially as described.

682,827. CAR-COUPLING. OWEN P. CALLAHAN, New York, N. Y. Filed Sept. 28, 1900. Serial No. 31,394. (No model.)

Claim.—1. The combination with a recessed draw-head having arms projecting forward therefrom, of a knuckle pivoted in one of the arms, an arm thereto adapted to swing into the recess of the draw-head, a curved flange upon said arm, a stud arranged in rear of, and adjacent to, the flange, a vertically-movable locking-block pivoted within the recess of the draw-head, a curved tongue extending therefrom, a shoulder upon the lower surface thereof and means for lifting the locking-block and turning the same upon its pivot when it reaches the limit of its upward movement, the end of said tongue being adapted, when the block is turned, to lie upon the arm of the knuckle and contact with the flange and stud thereon.



2. The combination with a recessed draw-head having arms projecting forward therefrom, of a knuckle pivoted within one of the arms, an arm thereto adapted to swing into the recess of the draw-head, a curved flange upon the arm of the draw-head, a stud upon said arm adjacent to, and in rear of, the flange, a vertically-movable locking-block pivoted within the recess, a forked cam mounted thereunder and the ends thereof adapted, when swung upward, to contact with and raise the block, a stud upon one of the ends of the cam adapted to contact with the wall of the recess when the block reaches the limit of its vertical movement and swing the same upon its pivot, a tongue to the block, the end of which is adapted to rest upon the arm of the knuckle at points between the flange and stud thereon and a shoulder upon the tongue adapted to be contacted by the edge of the knuckle-arm when said knuckle is swung inward.

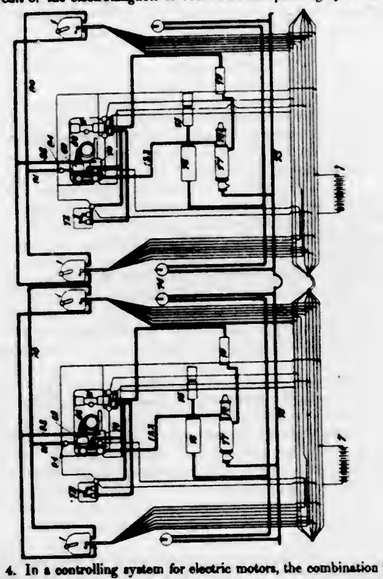
3. The combination with a recessed draw-head having upwardly-projecting arms, of a knuckle pivoted within one of the arms, an arm extending from said knuckle and adapted to swing into the recess of the draw-head, a curved flange upon said arm, a stud upon the arm adjacent to, and in rear of, said flange, a vertical pin slidably mounted within the draw-head, a locking-block secured thereto and adapted to extend in front of the arm of the knuckle, a curved tongue to the locking-block adapted to lie in rear of the arm of the knuckle, a shoulder formed upon the lower surface of said tongue, a transversely-extending rod within the draw-head, means for turning the rod, a forked cam secured to said rod at a point below and normally contacting with the locking-block, the forks of said cam lying within slots in the bottom of the recess of the draw-head and adapted, when raised, to lift the locking-block out of engagement with the arm of the knuckle, and an extension upon one of the forks of the cam adapted to swing into engagement with the wall of a groove formed within the lower surface of the locking-block, when the block reaches the limit of its upward movement.

682,828. ELECTROPNEUMATIC CONTROLLING SYSTEM. ERNEST R. HILL, Wilkinsburg, Pa. Filed Jan. 13, 1900. Serial No. 1,374. (No model.)

Claim.—1. In a train of cars comprising a plurality of motor-cars, each of which is provided with a controller, the combination with fluid-pressure-actuated mechanism for operating such controller, electromagnetic means for governing and controlling the application of fluid-pressure to each of said operating mechanisms, a governing device comprising a manually-operated switch and an automatic switch, air and electric conductors, respectively connecting the fluid-pressure-actuated mechanism and the electromagnetic governing means of the controller with the governing device, whereby a step-by-step movement of the controller-drums in substantial synchronism is automatically effected when the manually-operated switch is closed.

2. In a train of cars comprising a plurality of motor-cars, each of which is provided with a controller, the combination with a fluid-pressure-actuated means for operating each controller, of electromagnetic means for governing and controlling the application of fluid-pressure to said operating mechanism and a governing device located at a point remote from said controllers and provided with operating devices and connections for automatically effecting a step-by-step movement of the controller-drums when the circuit of electromagnetic governing means for the controllers is closed.

3. In a controlling system for electric motors, the combination with a plurality of controllers for such motors, of fluid-pressure-actuated mechanism for operating said controllers step by step, electromagnetically-operated valve mechanism for governing the application of air to the operating mechanism of said controllers, and a governing device for making and breaking the circuits of the electromagnets of the system, said device embodying a means operated by air from the controller mechanism at the completion of each movement step of the controller-drums, to break the circuit of the electromagnets of the controller-operating cylinder.



4. In a controlling system for electric motors, the combination with a plurality of controllers for such motors, of fluid-pressure-actuated mechanisms for operating such controllers, electromagnetically-actuated valves for controlling the application of fluid-pressure to such mechanisms, and a governing device provided with a manually-operated switch, means for automatically effecting a step-by-step movement of the controllers and means for automatically returning the switch to open-circuit position when released by the motorman.

5. A controller for electric motors, in combination with fluid-pressure-actuated means for operating it step by step from the position corresponding to zero-speed to the position of maximum or some intermediate speed of the motor or motors, means actuated by fluid-pressure for effecting the return of the controller-drum to the "off" position, electromagnetic mechanism for controlling the application of fluid-pressure to the mechanism for both operations, and a governing device embodying a manually-operated switch for making and breaking the circuits of the electromagnets of the system, automatic means for insuring a step-by-step movement of the controllers and means for automatically effecting the return of the governing-switch to open-circuit position when released by the motorman.

6. In a controlling system for a train of electrically-propelled cars, the combination with a plurality of controllers, each having mechanism actuated by fluid-pressure for operating it, of a governing device comprising a manually-operated switch for insuring an initial movement of the controllers and a means for automatically insuring a step-by-step movement of the controllers of the system in synchronism so long as the switch is maintained in its closed-circuit position.

7. In a controlling system for a train of electrically-propelled cars, the combination with a plurality of controllers, of mechanism actuated by fluid-pressure for operating each controller, and a governing device comprising a switch movable manually to circuit-closing position and automatically effecting the application of fluid-pressure to the controllers, so that all will be operated synchronously step by step when the manually-operated switch is in circuit-closing position.

8. In a controlling system for a train of electrically-propelled cars, the combination with a plurality of controllers, of mechanism actuated by fluid-pressure for operating each controller, and a governing device comprising a switch movable manually to circuit-closing position and automatically to circuit-breaking position and embodying also means for automatically effecting the application of fluid-pressure to the controllers so that all will be operated synchronously step by step when the manually-operated switch is in circuit-closing position.

9. In a controlling system for railway-trains comprising one or more motor-cars, controllers therefor and fluid-pressure-actuated mechanism for operating each controller, electromagnets and valves for governing and

controlling the admission of air to the controller-operating cylinders, in combination with a governing-switch having an indicator, electric circuits including the said magnets and said governing-switch, and air connections between the controller-operating cylinders and the governing-switch whereby the indicator is automatically moved one step as each movement step of the controllers is completed.

10. In a controlling system for a train of electrically-propelled cars, the combination of a plurality of controllers and mechanism actuated by fluid-pressure for operating each controller, of electromagnets for directing and applying the fluid-pressure, a governing device having a circuit-closing member manually operated in one direction and automatically in the other, means operated by air from the fluid-pressure cylinders of the controllers when they have completed one step for breaking the circuit of the operating-cylinder electromagnet.

11. In an electropneumatic controlling system for electric motors, the combination with one or more controllers, of fluid-pressure-actuated mechanism for operating the same, a governing device having both electric and pneumatic connections with the controller-operating mechanisms, a normally open valve interposed in the pneumatic connection between the controllers and the governing device and an electromagnet connected to the motor-circuit, and serving, when the current to the motors exceeds a predetermined limit, to actuate the said valve so as to cut off air communication between the controller-operating cylinders and the governing device and exhausting the operating-cylinder of such device into the atmosphere.

12. In a controlling system for rail way-motors, the combination with a controller and fluid-pressure-actuated means for operating such controller, of an electromagnetically-actuated valve for governing and directing the application of the fluid-pressure, a governing device provided with an air-cylinder and piston for breaking the circuit, a connection between the governing-device cylinder and the controller-operating cylinder, a normally open valve in said connection, and an electromagnet connected in shunt to the field-magnet windings of one of the motors of the system and serving to close said valve when the current to the motors exceeds a predetermined limit.

13. In a controlling system for railway-motors, the combination with one or more controllers and fluid-pressure-actuated means for operating such controllers, of electromagnetically-actuated valves for governing and directing the application of fluid-pressure, a governing device provided with an air-cylinder and piston for breaking the circuit of the operating-cylinder magnets, a connection between the governing-device cylinder and the controller-operating cylinder, a normally open valve in said connection, and an electromagnet connected in shunt to the field-magnet windings of one of the motors at the grounded side of the circuit and serving to close the valve so as to cut off air communication between the controller-operating cylinder and the governing-device cylinder when the current to the motors exceeds a predetermined limit.

14. In a controller for electric motors, the combination with operating mechanism actuated by fluid-pressure to effect a step-by-step movement of the controller-drum in one direction, valves for controlling and directing the application of fluid-pressure to said mechanism, electromagnets acting, when energized, to so move the valves as to apply fluid-pressure to the operating mechanism, means actuated by fluid-pressure to return the controller-drum to its zero or "off" position, valves for controlling and directing the application of such fluid-pressure, electromagnets acting upon said valves, when energized, to exhaust the fluid-pressure and, when deenergized, permitting the fluid-pressure to effect the return of the drum to its "off" position.

15. In a controlling system for electric motors embodying one or more controllers, the combination with fluid-pressure-actuated mechanism for moving each controller step by step, and fluid-pressure-actuated mechanism for returning the controller-drum to "off" position, of valves and controlling-magnets for directing and applying fluid-pressure to said actuated mechanisms, and means operated by the fluid-pressure that is applied to the controller for returning it to "off" position, to render the step-by-step mechanism inoperative.

16. In an electropneumatic controlling system for electric motors, the combination with a controller, of fluid-pressure-actuated mechanism for moving the controller step by step in one direction, electromagnetically-actuated valves for controlling the application of fluid-pressure to such mechanism, fluid-pressure-actuated mechanism for returning the controller-drum to "off" position, valves and controlling-magnets for governing the application of fluid-pressure to such mechanism, and a valve device actuated by the application of fluid-pressure to the mechanism for returning the drum to "off" position, to render the actuating mechanism for the step-by-step movement inoperative.

17. In an electropneumatic operating and controlling system for railway-vehicles, the combination with the power-circuit, of a brake system, electrically-governed means for making and breaking said circuit and means connected with the brake system whereby the application of the brakes serves to so affect the governing-circuit as to render the power-circuit inactive.

18. A synchronizing device for electropneumatic controlling systems comprising a circuit-closing device for each electromagnet or for each set of corresponding magnets in the system, and means for automatically breaking the controlling-circuit at each movement step of the controllers.

19. In an electropneumatic controlling system for railway-vehicles, the combination with a controller and pneumatic means for operating it, of electromagnetically-actuated valve mechanism for governing said operating means and a governing device operated pneumatically from the controller and serving to break the circuit of the governing-magnet at each operation.

20. A governing and indicating device for electropneumatic systems of control comprising a casing having a sight-opening, an indicator-plate, a ratchet-disk and a pinion to which said plate is connected, a pneumatically-actuated rack and a pneumatically-actuated pawl for respectively engaging said pinion and said ratchet-disk and means for adjusting the rate of movement of said pawl.

21. A governing device for electropneumatic controlling systems comprising stationary contact-terminals, a circuit making and breaking piece, a piston and cylinder for operating said circuit making and breaking piece, the inlet end of the cylinder being provided with a removable diaphragm having an opening the size of which determines the rate of making and breaking the governing-circuit and consequently the rate of acceleration of the car or train under control.

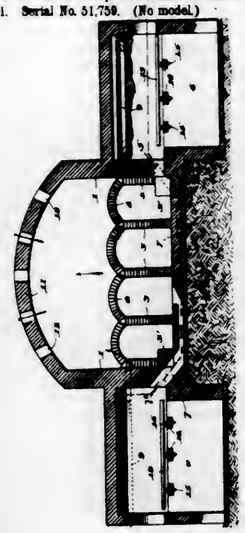
22. An operating and controlling system for cars or trains of cars, embodying motors, controllers, and circuit-breakers, operating and releasing cylinders for the controllers and for the circuit-breakers, fluid-pressure connections and electromagnetically-actuated governing-valves for said cylinders, a governing device and connections arranged to supply pressure to the operating-cylinder and to exhaust the releasing-cylinders when the governing-magnets are energized and vice versa.

23. A governing device for electropneumatic controlling systems comprising contact-terminals in the governing-circuit, a coöperating contact member, a pneumatic means for actuating said member intermittingly to break the governing-circuit and means for adjusting the frequency of said governing-circuit breaks.

24. In an electropneumatic controlling system for electric motors, one or more controllers, a governing-circuit therefor, an intermittingly-operating make and break device for said circuit and means for adjusting the frequency of the make and break movements.

25. In an electropneumatic controlling system for electric motors, one or more controllers and means for applying pneumatic pressure to operate the same, in combination with an electric governing-circuit having a make and break device, means actuated by pneumatic pressure to move said device to circuit-breaking position and means for returning said device to circuit-making position when the pneumatic pressure is withdrawn.

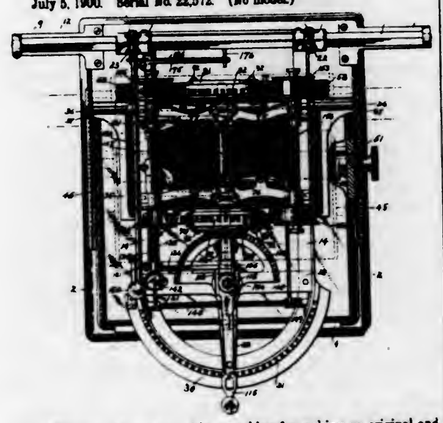
682,829. BRICK-KILN. HENRY KONHORST, Evansville, Ind., assignor of one-half to Joseph R. Johnston, Henderson, Ky. Filed Mar. 18, 1901. Serial No. 51,759. (No model.)



Claim.—1. A brick-kiln having the transversely-disposed open arches, benches of open construction connecting the said open arches, furnaces on opposite sides of the kiln, flues leading from the inner ends of said furnaces directly into the ends of said open arches and underground flues leading from said furnaces to said open arches at points near the centers of the latter, substantially as described.

2. A brick-kiln having furnaces on the outer sides of its side walls, the walls of said furnaces being provided with air-flues leading to the interior of said kiln, said air-flues being heated by but not opening directly into the interior of said furnaces, said kiln being provided with transversely-disposed open arches, benches of open construction between the said arches, having flues leading from the furnaces directly into the ends of said open arches and being further provided with underground flues leading from said furnaces to said open arches at points intermediate of the ends of the latter, substantially as described.

682,830. TYPE-WRITING MACHINE. CHARLES F. MELEN, Evergreen, N. Y., assignor to James N. Darrah, New York, N. Y. Filed July 5, 1900. Serial No. 22,572. (No model.)



Claim.—1. In a type-writing machine for making an original and a duplicate record, the combination of two type-wheels provided with individually-movable type, means for correspondingly moving both records, and means for impressing the type on their respective records, substantially as described.

2. In a type-writing machine for making an original and a duplicate record, the combination of two type-wheels, one for each record and provided with movable type, means for correspondingly moving the paper for both records in the direction of the line-spacing, means for moving both type-wheels in the direction of the letter and word spacing, and means for impressing the type on both their respective papers, substantially as described.

3. In a type-writing machine for making an original and a duplicate record, the combination of a receptacle for said duplicate record provided with a closure, type mechanism for writing both the original and the duplicate record, means for moving the type mechanism for the letter and word spacing, and means for moving the records for the line-spacing, substantially as described.

4. In a type-writing machine for making an original and a duplicate record, a receptacle for the duplicate record provided with a closure, type-wheels with movable type for each record, a reciprocating platen for the original record, and a rotatable carrier for the duplicate record, means for impressing the type on each record, and means for correspondingly moving said platen and said carrier, substantially as described.

5. In a type-writing machine for making an original and a duplicate record, a receptacle for the duplicate record provided with a closure, type-wheels with movable type for each record, a reciprocating platen for the original record and a rotatable carrier for the duplicate record, and means operatively connected with both said platen and said carrier for simultaneously and correspondingly moving the paper for both records, substantially as described.

6. In a type-writing machine for making an original and a duplicate record, the combination of type-wheels for each record provided with individually-movable lower and upper case type, hammers for impressing said type on said records, and means for relatively shifting said wheels and said hammers so as to write either lower or upper case characters, substantially as described.

7. In a type-writing machine for making an original and a duplicate record, the combination of type-wheels for each record provided with individually-movable lower and upper case type, hammers for impressing said type on said records, means for relatively shifting said wheels and said hammers, a reciprocating platen for the original record, a rotatable carrier for the duplicate record, and means for shifting said platen and said carrier, substantially as described.

8. In a type-writing machine for making an original and a duplicate record, the combination of a carriage, type-wheels thereon for each record provided with individually-movable upper and lower case type, hammers for impressing the type on each record, means for relatively shifting said type-wheels and said hammers, escapement mechanism for moving said carriage, means for actuating said hammers to impress the type on the records, and an operative connection between said means and said escapement devices, substantially as described.

9. In a type-writing machine for making an original and a duplicate record, the combination of a carriage, type-wheels thereon for each record, means for shifting the carriage to effect the letter and word spacing, carriers for the original and the duplicate records, and means for shifting them to effect the line-spacing, and a receptacle for the duplicate record provided with a closure, substantially as described.

10. In a type-writing machine for making an original and a duplicate record, the combination of type-wheels for each record provided with individually-movable type, a vertically-vibrating and laterally-oscillating printing-lever and a gear actuated thereby, and said lever being adapted to vibrate vertically without vibrating said gear, and a gear meshing with said first-named gear and adapted to rotate said type-wheels to the printing position, substantially as described.

11. In a type-writing machine for making an original and a duplicate record, the combination of a vertically-vibrating and laterally-oscillating printing-lever, a gear actuated thereby, a gear meshing with said first-named gear and supported against lateral movement, and type-wheels for each of said records operatively connected with said last-named gear so as to be rotated thereby but have lateral motion with respect thereto, substantially as described.

12. In a type-writing machine for making an original and a duplicate record, the combination of a gear-segment, a gear meshing therewith and held against lateral movement, type-wheels for both said records provided with individually-movable upper and lower case type, hammers for impressing said type on their records, an operative connection between said type-wheels and said gear whereby said type-wheels may be shifted laterally without disconnecting them from said gear, and a vibrating and oscillating printing-lever adapted to actuate said hammers and to shift said type-wheels, substantially as described.

13. In a type-writing machine for making an original and a duplicate record, the combination of a vertically-vibrating and laterally-oscillating printing-lever, an index to define the printing positions of said lever, a gear-segment operatively connected with said lever, so as to be oscillated but not vibrated thereby, a bevel-gear meshing therewith, type-wheels for each record provided with individually-movable upper and lower case type, an operative connection between said type-wheels and said bevel-gear whereby the said wheels may have lateral movement without disconnecting from said gear, hammers for impressing the type on their respective records, and an operative connection between said hammers and said printing-lever, substantially as described.

14. The combination in a type-writing machine for making an original and a duplicate record, of type-wheels for each record provided with individually-movable lower and upper case type, hammers for impressing said type on their records, a capital shift-key, and an operative connection between said key and said type-wheels adapted to laterally shift said wheels to change from lower to upper case type, substantially as described.

15. In a type-writing machine for making an original and a duplicate record, a plurality of type-wheels each provided with individually-movable type, hammers for impressing the type on their records, a ribbon and feed mechanism, and an operative connection between said feed mechanism and said hammers whereby the moving of said hammers effects the feeding of said ribbons, substantially as described.

16. In a type-writing machine for making an original and a duplicate record, the combination of a gear, two type-wheels fixed on a common shaft, and said shaft turned by but adapted to shift through said gear, substantially as described.

17. In a type-writing machine for making an original and a duplicate record, a gear, a shaft turned thereby but adapted to shift therethrough, two type-wheels fixed on said shaft, a capital shift-key, and an operative connection between said key and said shaft adapted to shift said shaft, substantially as described.

18. In a type-writing machine for making an original and a duplicate record, the combination of a gear, a shaft turned thereby but adapted to shift therethrough, two type-wheels fixed on said shaft and provided with individually-movable lower and upper case type, hammers for im-

pressing said type on their records, a capital shift-key and an operative connection between said key and said shaft adapted to shift said shaft, substantially as described.

19. In a type-writing machine for making an original and a duplicate record, the combination of a printing-lever, a gear 100 operatively connected therewith, a shaft driven thereby but adapted to shift therethrough, two type-wheels fixed on said shaft and provided with individually-movable lower and upper case type, hammers for impressing said type on their records, and operative connections between said printing-lever and said shaft and said hammers, substantially as described.

20. The combination in a type-writing mechanism of the kind described, of the vertically-vibrating and laterally-oscillating printing-lever 115, the segmental gear 110 operatively connected with said printing-lever so as to be rotated by the lateral oscillation of said printing-lever, the gear 100 meshing with said segmental gear, and type-wheels actuated by said gear 100, substantially as described.

21. The combination in a type-writing machine of the kind described, of the printing-lever 115, type-wheels provided with individually-movable type, hammers 90 and 91, a shaft 128 on which said hammers are fixed, a flanged collar adapted to be actuated by said printing-lever, and an operative connection between said collar and said shaft 128 whereby the raising and depressing of said lever rocks said shaft, substantially as described.

22. The combination in a type-writing machine of the kind described, of a printing-lever 115, a gear-segment 110 adapted to be rotated by said lever, a gear 100 meshing with said segment, type-wheels 70, 71 provided with individually-movable lower and upper case type and adapted to be actuated by said gear 100, hammers 90, 91 adapted to impress said type on their records, a shaft 128 on which said hammers are fixed, an operative connection between said hammers and said printing-lever, a capital shift-key, and an operative connection between said key and said shaft adapted to shift said shaft to change from lower to upper case type and the reverse, substantially as described.

23. The combination in a type-writing machine of the kind described, of two type-wheels, one for an original and the other for a duplicate record, and each wheel being provided with a plurality of chambers, each chamber being adapted to contain individually-movable upper and lower case type, springs adapted to normally hold said type out of the printing position, and hammers one for each wheel and arranged to simultaneously imprint the same character on its respective record-strip, substantially as described.

24. The combination in a type-writing machine of the kind described, of a receptacle for a duplicate record provided with a closure, two type-wheels each provided with a plurality of radial chambers adapted to contain individually-movable lower and upper case type, a central space communicating with each radial chamber, a hammer projecting into said central space of each type-wheel, means for shifting the type-wheels relatively to said hammers and for rotating said type-wheels, and means for actuating said hammers, substantially as described.

25. The combination in a type-writing machine of the kind described of type-wheels for an original and a duplicate record, a receptacle provided with a closure for said duplicate record, a reciprocating platen on said receptacle for the original record, a rotatable platen for the duplicate record in said receptacle, and a slot in said receptacle adjacent to said carrier to permit the type to impress on said duplicate record, substantially as described.

26. In a type-writing machine of the kind described, a device for feeding the duplicate-record strip comprising a spool 57, friction-rolls 50, 55, a rotatable platen 58, a receiving-spool 59, pawl-and-ratchet devices to prevent the surreptitious reversing of the motion of the strip, a belt operatively connecting said spools 57 and 59, and an adjustable brake on said spool 57, substantially as described.

27. The combination in a type-writer of the kind described, of a reciprocating platen 35 for an original record, racks on said platen, a shaft 42 equipped with pinions which mesh with said rack, a roller 50 for moving a duplicate-record strip in unison with the movement of said platen 35, and a ratchet-and-pawl connection between said shaft 42 and said roller 50, substantially as described.

28. The combination in a type-writing machine of the kind described, of a receptacle for a duplicate record provided with a closure, type mechanism supported on the cover of the receptacle, feed mechanism for the duplicate-record strip also supported on said cover, and a slot in said cover to admit of the type making impressions on the said record-strip, substantially as described.

29. The combination in a type-writing machine of the kind described, of a receptacle for a duplicate-record strip provided with a closure, a type-carriage provided with an open-base frame adapted to move transversely over said receptacle, a reciprocating platen on said receptacle for the original record, mechanism in said receptacle for moving said duplicate-record strip, and type mechanism for the original and the duplicate records, substantially as described.

30. The combination in a type-writing machine of the kind described, of a type-carriage rack and escapement-dogs for letter and word spacing, type-wheels provided with individually-movable type, hammers for impressing said type on their records, and an operative connection between said hammers and said escapement-dogs, substantially as described.

682,831. ADJUSTABLE INSULATOR. HENRY D. MURDOCK, Pittsburg, Pa. Filed Apr. 18, 1901. Serial No. 56,476. (No model.)



Claim.—1. A series of insulators having a plurality of engaging faces to receive various thicknesses of cables, substantially as described.

2. A series of laterally-adjustable insulators having a plurality of engaging faces to receive various thicknesses of cables, substantially as described.

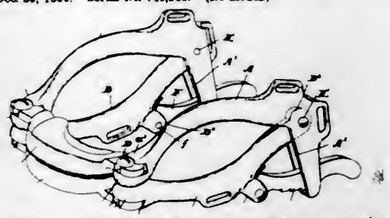
3. A series of insulators formed in two sections having a plurality of engaging faces to receive various thicknesses of cables, as specified.

4. A series of laterally-adjustable insulators formed in two sections having a plurality of engaging faces to receive various thicknesses of cables, as set forth.

5. A series of insulators having formed therein a plurality of engaging faces formed in pairs arranged diametrically opposite each other, substantially as set forth.

6. A series of insulators having formed therein a plurality of engaging faces of various sizes formed in pairs and arranged diametrically opposite each other, substantially as described.

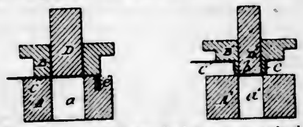
682,832. SPECULUM. J. G. MCPHERSON, Toronto, Canada. Filed Dec. 29, 1899. Serial No. 741,969. (No model.)



Claim.—1. In a speculum, the combination with the incisor-plates having the end notches, of the side pieces provided with the offsets upon which the ends of the plate rest, the screw-pins extending through the notches into the offsets and the overhanging lips extending over the ends of the plate and designed to hold them in place as and for the purpose specified.

2. The combination with a speculum having upper side pieces with depending slotted ends and sockets at the ends of said slots of the lower side pieces having cam-shaped ends pivoted in said slotted ends, the cam portions of said pieces coacting with walls of said sockets to provide a subsidiary stop, substantially as described.

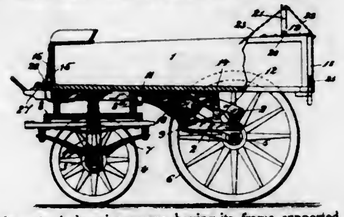
682,833. MANUFACTURE OF HOES. JOHN PERKS and WILLIAM C. SALMON, Wolverhampton, England, assignors to John Perks and Sons, same place. Filed July 4, 1899. Serial No. 723,751. (No model.)



Claim.—1. The herein-described improvement in the art of forming hoes from sheet metal with integral eyes which consists in first forming in the blank a close-ended socket which is shallower and of larger diameter than the intended eye while the metal around the gradually-forming socket is pressed at both faces to prevent it buckling, then drawing down the metal of said socket while still close-ended until the socket is of lesser diameter and greater depth, until the required diameter and depth are reached, and then cutting away the bottom of said socket to open the eye.

2. The herein-described improvement in the art of forming hoes from sheet metal with integral eyes, which consists in first forming in the blank a socket which is shallower and of larger diameter than the intended eye, then drawing down the metal of said socket until the latter is of lesser diameter and greater depth, until the required diameter and depth are reached, then cutting away the bottom of said socket to open the eye, and finally rolling outward the margin at the outer end of the eye.

682,834. DUMPING-WAGON. WILLIAM O. SMADBOLT, Brooklyn, N. Y. Filed June 27, 1901. Serial No. 66,209. (No model.)



Claim.—1. A dumping-wagon having its frame supported at the rear on the hind axle, a rocking fulcrum-bar mounted in the frame between the axles and forming the dumping-fulcrum of the body, full hind springs supported on said bar and situated wholly in front of the hind axle, and the body mounted on the front and rear ends of said springs and supported thereon during the entire dumping operation.

2. A dumping-wagon having a straight hind axle, a frame supported at its rear end on said axle, a rocking fulcrum-bar mounted in said frame in front of the hind axle, and forming the sole dumping-fulcrum of the body, full hind springs secured on said bar and situated wholly in front of said hind axle, and the body mounted on the front and rear ends of said springs, whereby the rear arms of said springs may pass clear of the hind axle in dumping.

3. In a dumping-wagon, the combination with the frame, and the dumping-body mounted thereon, of the tail-gate for the body provided with hinging arms 19 hinged to the body at 20, hinged upright arms on the body, braces connecting said upright arms with the tail-gate, and operating-connectors 23, coupled at one end to the hinged upright arms and at the other end to the frame of the wagon, substantially as set forth.

4. In a dumping-wagon, the combination with the frame and the body mounted to dump, of the tail-gate 18 for the body, provided with hinging arms 19, hinged to the body at 20, the arms 21, hinged at 20, the brace-chains 22, and the operating-chains 23, coupled at one end to the folding arms and at the other end to the frame, substantially as set forth.

5. A wagon having a frame, a dumping-body mounted in said frame, said body being provided at its front end with a projecting lug, a rock-shaft mounted on the frame in front of the body and having a lug adapted to take over said lug on the body, an arm connected with the rocking lug and means for securing said arm to the frame, substantially as set forth.

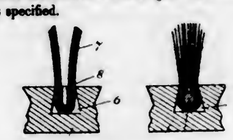
6. The combination with the frame and the dumping-body mounted therein, said body provided with bracket-lugs 26 on its front end, of the rock-shaft 27, mounted in bearings on the frame in front of the body and provided with lugs 28 to overlap those on the body, the arms 29, connected with the respective lugs 28, the locking-rings 30 to engage the ends of the arms 29, and the stems supporting said rings, said stems being adjustably mounted in the frame, substantially as set forth.

682,835. COMPOSITION FOR CLEANING OR POLISHING FURNITURE. FRANK J. TIMAR, Chicago, Ill. Filed May 2, 1901. Serial No. 58,475. (No specimens.)

Claim.—The herein-described composition of matter, for final polish on pianos, fine furniture and carriages, consisting of: water (substantially pure), three pounds, twelve ounces; soap (common washing), four ounces; spirits of turpentine, three pounds, five and one-half ounces; wood-alcohol, seven ounces; substantially as described.

682,836. TOOTH-BRUSH. LUCIEN H. ARNOLD, Chicago, Ill. Filed Mar. 7, 1901. Serial No. 50,902. (No model.)

Claim.—The brush having its tufts secured in the tuft-recesses by malleable filling material inserted in attenuated form and compressed longitudinally into laterally-expanded lump form within the bends of the tufts and acting to force the bristles outward against the walls of the recesses, substantially as specified.

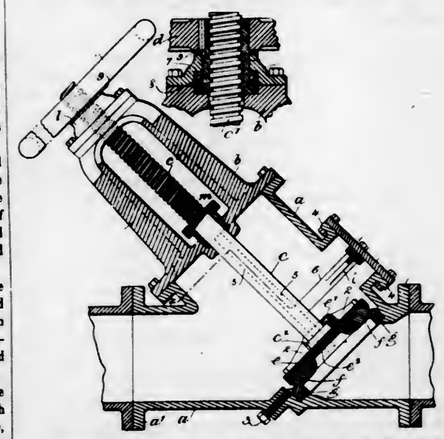


682,837. PROCESS OF PULVERIZING CALCIUM OXID OR LIME. COLBY M. AVERY, Chicago, Ill., assignor to the Chisholm, Boyd & White Company, of Illinois. Filed Nov. 1, 1900. Serial No. 35,109. (No specimens.)

Claim.—1. The process of pulverizing lime consisting of the simultaneous agitation and sifting of said lime in the presence of steam.

2. The process of pulverizing and separating lime from foreign matter consisting in simultaneously subjecting said lime to the action of steam in a confined space and agitating and sifting said lime.

682,838. VALVE FOR WOOD-PULP DIGESTERS, &c. JAMES H. BAKER, GEORGE F. SHEVLIN, and FREDERICK H. BAKER, Saratoga Springs, N. Y. Filed Jan. 16, 1901. Serial No. 43,511. (No model.)



Claim.—1. The combination with a valve-body in the line of piping, a valve and valve-seat and a threaded valve-stem, of a bonnet secured to the valve-body, a cap secured to the bonnet, a nut received within the cap and bonnet around the threaded valve-stem, and a hand-wheel secured to the nut and an antifriction-bearing between said nut and said cap, substantially as set forth.

2. The combination with a valve-body in the line of piping, a valve and valve-seat and a threaded valve-stem, of a bonnet secured to the valve-body and having an annular recess in the outer face, a cap secured to the end of the bonnet and having an annular recess in the inner portion, a hand-wheel, a nut secured to the same and surrounding the threaded valve-stem with an annular flange received in the recess in the bonnet, the nut passing through the cap, and ball-races in the recess in the cap above the flange of the nut forming an antifriction-bearing for the parts, substantially as set forth.

3. The combination with the valve-body in the line of piping, a bonnet secured to the valve-body, a threaded valve-stem passing through the bonnet and a hand-wheel for operating the same, and a head on the opposite end of the valve-stem, of a removable valve-seat, the valve-body having an opening in the side and a removable cover for closing the same, means providing for the longitudinal movement of the valve through the valve-body whereby the turning of the same is prevented, means providing for the removal of the valve-disk through the side opening, and means for preventing false movements of the valve-disk along the valve-body, substantially as set forth.

4. The combination with the valve-body in a line of piping having an inclined portion, a side opening a cover extending over the opening, longitudinal grooves in opposite inner faces of the body and transverse grooves in opposite inner faces of the body at the opening, which trans-

verse grooves open into or connect with the longitudinal grooves, of a bonnet connected to the inclined portion of the body, a threaded valve-stem passing through the bonnet and a hand-wheel for operating the same, a head on the inner end of the valve-stem, a valve-disk having an open undercut collar receiving the head of the valve-stem and from which the valve-disk is removable, guide-pins upon opposite sides of the valve-disk in the longitudinal grooves of the valve-body and movable through the transverse grooves of the valve-body at the opening, and a device inserted through the opening in the valve-body and occupying the transverse grooves and serving as a key to prevent false movements of the valve-disk and its guide-pin, substantially as set forth.

5. The combination with the valve-body in a line of piping, having an inclined portion, a side opening, a cover extending over the opening, longitudinal grooves in opposite inner faces of the body and transverse grooves in opposite inner faces of the body at the opening, which transverse grooves open into or connect with the longitudinal grooves, of a bonnet connected to the inclined portion of the body, a threaded valve-stem passing through the bonnet and a hand-wheel for operating the same, a head on the inner end of the valve-stem, a valve-disk having an open undercut collar receiving the head of the valve-stem and from which the valve-disk is removable, guide-pins upon opposite sides of the valve-disk in the longitudinal grooves of the valve-body and movable through the transverse grooves of the valve-body at the opening, a spanner-key bridging the side opening in the valve-body and having parts received in the transverse grooves, means for holding the spanner-key in place so that the free ends of the parts in the transverse grooves form continuations of the valve-body along the edge of the longitudinal grooves, substantially as set forth.

6. The combination with the valve-body in a line of piping having an inclined portion, a side opening, a cover extending over the opening, longitudinal grooves in opposite inner faces of the body and transverse grooves in opposite inner faces of the body at the opening, which transverse grooves open into or connect with the longitudinal grooves, of a bonnet connected to the inclined portion of the body, a threaded valve-stem passing through the bonnet and a hand-wheel for operating the same, a head on the inner end of the valve-stem, a valve-disk having an open undercut collar receiving the head of the valve-stem and from which the valve-disk is removable, guide-pins upon opposite sides of the valve-disk in the longitudinal grooves of the valve-body and movable through the transverse grooves of the valve-body at the opening, and a spanner-key comprising a T-shaped cross-bar and two limbs, the cross-bar bridging the opening in the side of the valve-body, and the limbs filling the transverse grooves, the outer ends of the transverse grooves being offset to receive the T-shaped cross-bar and form a seat therefor below the removable cover to said opening and the free ends of the limbs coming to the longitudinal grooves and forming continuations of the valve-body along the edge of said groove to retain the guide-pins of the valve-disk in the longitudinal grooves, substantially as set forth.

7. The combination with the valve-body in a line of piping having an inclined portion and a side opening in the valve-body and a cover extending across the opening, a bonnet connected to the inclined valve-body, a threaded valve-stem passing through the bonnet and a hand-wheel for operating the same, of a valve-disk within the body and means for removably connecting the valve-disk to the valve-stem, means for guiding the valve-disk in its longitudinal movement through the valve-body and for removing the valve-disk through the side opening, means for preventing false movements of the valve-disk, a removable valve-seat fitting into an annular recess in the valve-body having faces at right angles to one another and bolts passing through the valve-body and bearing upon the removable valve-seat to hold the same in the valve-body and to force the same into intimate contact with the surface thereof, substantially as set forth.

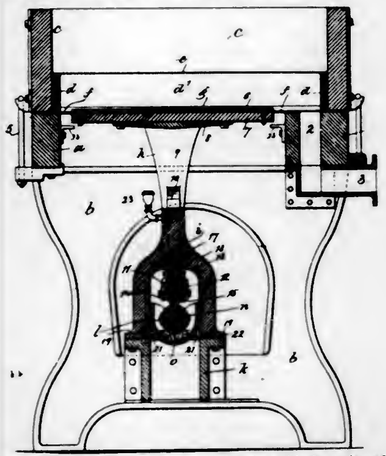
682,839. DIAPHRAGM-SCREEN. JAMES H. BAKER, GEORGE F. SHEVLIN, and FREDERICK H. BAKER, Saratoga Springs, N. Y. Filed May 6, 1901. Serial No. 58,913. (No model.)

Claim.—1. In a diaphragm-screen, an integral vertically-movable frame comprising a diaphragm-plate 8, vertical parts 9, guide-surfaces 10 and a foot connecting the lower end of the guide-surfaces and provided with a shouldered recess, substantially as set forth.

2. In a diaphragm-screen, an integral yoke-stand i including opposite grooves 16, feet 19 and a recess 17, substantially as set forth.

3. In a diaphragm-screen, a vertically-movable frame of integral parts, a yoke-stand also of integral parts located at right angles to, within and straddling the vertically-movable frame and serving as a guide therefor, substantially as set forth.

4. In a diaphragm-screen, the combination with the main and vat frames, and the intervening rubber sheet, of the plates 6 and 7 at opposite sides of the rubber sheet and bolts for securing the same, an integral vertically-movable metal frame A having a plate 8 at the upper end adapted to be secured to the under side of the plate 7 and which, with the plates 6 and 7 and the intervening rubber sheet constitute the entire diaphragm proper, and a yoke-stand straddling and forming a guide for the vertically-movable integral frame, a spring 18 between said parts, a power-shaft a multisurface cam upon the power-shaft and a hard-wood block, and means for securing the same in the lower end of the vertically-movable frame, said block bearing upon the surface of the cam and being renewable when worn out, substantially as set forth.



5. In a diaphragm-screen, the combination with the main and vat frames, and the intervening rubber sheet, of the plates 6 and 7 at opposite sides of the rubber sheet, and bolts for securing the same, an integral vertically-movable metal frame A having a plate 8 at the upper end adapted to be secured to the under side of the plate 7 and which, with the plates 6 and 7 and the intervening rubber sheet constitute the entire diaphragm proper, and a yoke-stand straddling and forming a guide for the vertically-movable integral frame, a spring 18 between said parts, a power-shaft a multisurface cam upon the power-shaft and a hard-wood block and means for securing the same in the lower end of the vertically-movable frame, said block bearing upon the surface of the cam and being renewable when worn out, and a receptacle o of U form in cross-section within the yoke-stand extending around below the cam and the power-shaft and having ears in recesses in the feet of the yoke-stand and by which the same is secured in place, substantially as set forth.

6. In a diaphragm-screen, an integral vertically-movable frame comprising a diaphragm-plate 8, vertical parts 9 guide-surfaces 10, a foot connecting the lower end of the guide-surfaces and provided with a shouldered recess, a wooden block 15 and clamp-plate 14 adapted to fit the shouldered recess and bolts for clamping the said plate and wooden block to the lower end of the vertically-movable frame, substantially as set forth.

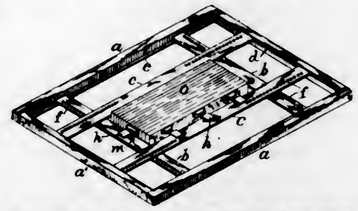
7. In a diaphragm-screen, the combination with the diaphragm-plates and the rubber sheet, of an integral vertically-movable frame connected to said plates, a device at opposite edges thereof for guiding the same in its vertical movements, a power-shaft and a cam for raising the same, and a device beneath and surrounding the cam and embracing the power-shaft and fixed in its relation to the other parts of the machine for holding oil or grease for lubricating the cam, a device secured to the vertically-movable frame and bearing upon the cam and removable from the said frame for renewal as worn, and a spring located in a recess centrally between the movable frame and the device for guiding the same to insure the downward movement of the movable frame, substantially as set forth.

8. In a diaphragm-screen, the combination with the main and vat frames and the intervening rubber sheet, of the plates 6 and 7 at opposite sides of the rubber sheet and bolts for securing the same, a vertically-movable metal frame A having an integral plate 8 at the upper end adapted to be secured to the under side of the plate 7 and which, with the plates 6 and 7 and the intervening rubber sheet constitute the entire diaphragm proper, and means at right angles thereto for guiding and means for vertically moving the said frame and diaphragm parts, substantially as set forth.

682,840. PRINTER'S CHASE. CHARLES F. BURROUGHS, Newark, N. J. Filed Nov. 12, 1900. Serial No. 36,162. (No model.)

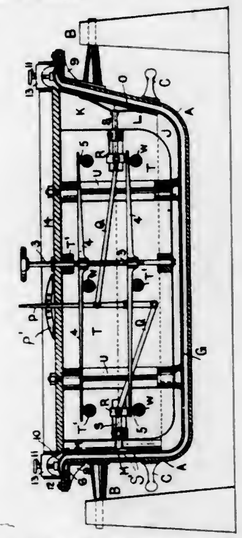
Claim.—1. In a printer's chase having a rectangular frame with

longitudinal and transverse bars adjustable therein, the combination, with such frame and bars, of the clamps having each the forked foot *h* with screws *j* projected therefrom, the headpiece *m* secured movably upon the screw, and the nut *n* for adjusting the headpiece, and the feet being fitted detachably to the inner edges of the bars, substantially as herein set forth.



2. In a printer's chase, the combination, with the frame sides *a* having each the ledge *e* and the frame sides *a'* having each the ledge *e'* opposed to the ledges *e*, of the bars *b* and *c* fitted respectively to such ledges, and adjustable in contact with one another, and their contiguous faces held together by the operation of the opposed ledges, the bars *b* and *c* both having series of holes *r* with locking-pins *g* fitted thereto at the crossings of the bars, and clamps being fitted detachably to the inner edges of the bars, as and for the purpose set forth.

682,841. MOLD FOR CASTING BATHS OR OTHER VESSELS. WILLIAM W. CHAPMAN, Prescot, England. Filed Dec. 27, 1900. Serial No. 41,210. (No model.)



Claim.—1. In a mold for casting baths and like articles, the combination of a core built up of sections adapted to yield under the pressure of the article being cast, an outer casing of the shape of the article to be cast, trunnions supporting said casing at each end in such manner that the mold and core can be turned upside down, an aperture in the bottom of said outer casing through which the molten metal can be poured, and a plug H to prevent the excessive wearing away of the core beneath said aperture, substantially as described.

2. In a mold for casting baths and like articles, the combination of an outer casing having the shape of the article to be cast, a core consisting of a bottom formed in one piece, two sides each of which is made up of two or more pieces one above another and extending around to nearly meet at the large end of the core, a removable piece adapted to fill in the space between their nearly-meeting edges, an end piece at the small end of the core, means for drawing back said end piece when required, and means for expanding or contracting the side pieces, substantially as described.

3. In a mold for casting baths and like articles, the combination of an outer casing A, a core G built up of a plurality of sections, means whereby the sections may be made to yield under pressure; a detached flange 8, surrounding the margin of the casing A; supporting-brackets 9, connecting said flange with the casing A; angle-irons 12 connected to the flange 8; an inner skeleton frame 14; bridge-pieces 13 connecting the angle-irons 12 and skeleton frame 14; relatively adjustable stripe 6 and 10 bridging the space between the flange 8 and the casing A and core G respectively; and screws 7 and 11 on which the stripe 6 and 10 are respectively mounted turning in fixed nuts in the brackets 9 and bridge-pieces 13 respectively, to effect the vertical adjustment of the stripe 6 and 10, substantially as and for the purposes set forth.

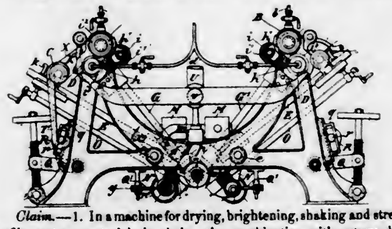
4. In a mold for casting baths and like articles, the combination of an outer casing having the shape of the article to be cast, a core made up of a plurality of sections, a standard provided with bosses, a spring in each such boss, a rod guided in each boss the end of said rod being in contact with said spring, the other end of each rod being rigidly connected to one of the sections of said core, and means for preventing said rods from forcing back said springs and sliding deeper into said bosses for as long a time as desired, substantially as described.

5. In a mold for casting baths and like articles, the combination of a casing A, a core G built up of sections, a central standard T, rods W connecting said sections of the core to said standard in such manner as to allow said core to yield to the pressure of the article being cast, screwed rods 3 and arms 4 working on said rods, and pins 5 carried by said arms and adapted to engage and hold the rods W, substantially as and for the purpose set forth.

6. In a mold for casting baths and like articles, the combination of a core G built up of sections, a central standard T within said core, rods W connecting said standard to the sections of said core in such manner as to allow the core to yield under the pressure of the article being cast, collars Y on said rods, and a frame X surrounding the standard T through which the rods W pass, and against which the collars Y are adapted to bear, substantially as described.

7. In a mold for casting baths and like articles, the combination of an outer casing A, a core G built up of a plurality of sections, a standard T within said core, rods W connecting the sections of said core to the standards in such manner as to allow said core to yield under the pressure of the article being cast, a frame X surrounding the standard T through which frame the rods W connecting the sections of the core to the standard pass, collars X on said rods adapted to bear against said frame, brackets 9 mounted on said outer casing A, plates 6 adjustably mounted in said brackets, a flange 8 mounted on said brackets, an angle-iron 12 connected to said flange 8, a bridge-piece 13 connected to said angle-iron, a skeleton frame 14 connected to said bridge-piece, and plates 10 adjustably mounted on said bridge-piece, substantially as described.

682,842. MACHINE FOR TREATING THREAD. CÉSAR CORBON, Lyons, France. Filed Jan. 23, 1901. Serial No. 44,401. (No model.)



Claim.—1. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers one of which is steam-heated, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, automatic means for causing the vibratory movements of the said swing-frame and a stretching device arranged so as to permit to force down the skein-carrier mounted on the swing-frame through the medium of a coupling to be disconnected therefrom when the swing-frame is to be vibrated up and down for the shaking operation.

2. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers one of which is steam-heated, a steam-heated cylinder in position to bear on the outer face of the skein and means for driving the said cylinder and carriers, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, automatic means for causing the vibratory movements of the said swing-frame and a stretching device arranged so as to permit to force down the skein-carrier mounted on the swing-frame through the

medium of a coupling to be disconnected therefrom when the swing-frame is to be vibrated up and down for the shaking operation.

3. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers one of which is steam-heated, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, automatic means for causing the vibratory movements of the said swing-frame and a stretching device comprising an operating-screw, a sliding piece connected thereto and at least one hooked coupling-bar for the temporary connection of the skein-carrier mounted on the swing-frame with the said sliding piece.

4. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers one of which is steam-heated, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, automatic means for causing the vibratory movements of the said swing-frame, a stretching device arranged so as to permit to force down the skein-carrier mounted on the swing-frame through the medium of a coupling to be disconnected therefrom when the swing-frame is to be vibrated up and down for the shaking operation and means for regulating the intensity or force of the shaking of the skein in the sense that the latter may be increased or diminished by varying the stroke of the swing-frame, or be maintained constant, after stretching the skein.

5. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers one of which is steam-heated, a steam-heated cylinder in position to bear on the outer face of the skein and means for driving the said cylinder and carriers, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, automatic means for causing the vibratory movements of the said swing-frame, a stretching device arranged so as to permit to force down the skein-carrier mounted on the swing-frame through the medium of a coupling to be disconnected therefrom when the swing-frame is to be vibrated up and down for the shaking operation, and means for regulating the intensity or force of the shaking of the skein in the sense that the latter may be increased or diminished by varying the strokes of the swing-frame, or be maintained constant, after stretching the skein.

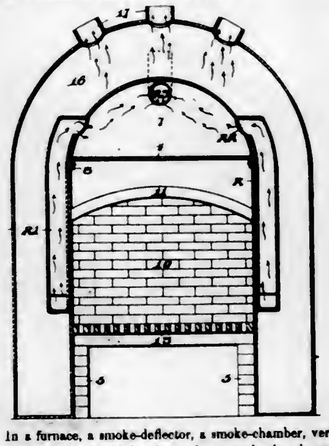
6. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers, one of which is steam-heated, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, a revolved actuating-cam, a roller cooperating therewith and mounted on the swing-frame through the medium of an adjustable eccentric mechanism and a stretching device arranged so as to permit to force down the skein-carrier mounted on the swing-frame through the medium of a coupling to be disconnected therefrom when the swing-frame is to be vibrated up and down for the shaking operation.

7. In a machine for drying, brightening, shaking and stretching filamentous materials in skeins, the combination with rotary skein-carriers one of which is steam-heated, a steam-heated cylinder in position to bear on the outer face of the skein and means for driving the said cylinder and carriers, of a swing-frame carrying the lower of the said skein-carriers and adapted to swing up and down for shaking the skein, whereby its downward motion takes place under the influence of gravity with a predetermined weight, automatic means for causing the vibratory movements of the said swing-frame, a stretching device arranged so as to permit to force down the skein-carrier mounted on the swing-frame through the medium of a coupling to be disconnected therefrom when the swing-frame is to be vibrated up and down for the shaking operation and means for projecting a blast of hot air against the skein on the carriers, below the said steam-heated cylinder.

682,843. **FURNACE.** JAMES DOWNING and HARRY G. WILLETTS, Pittsburg, Pa. Filed Apr. 16, 1901. Serial No. 56,067. (No model.)

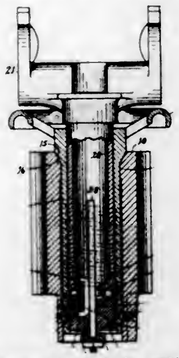
Claim.—1. In a furnace, a smoke-deflector, a smoke-chamber arranged above said deflector, vertical flues arranged on each side of said smoke-chamber and communicating therewith, horizontal flues connected to said vertical flues extending the length of the furnace and communicating with the interior thereof, an outlet-flue communicating with the smoke-chamber and the atmosphere, a hot-air chamber arranged above the said smoke-chamber, a series of flues connected to said hot-air chamber, and an air-inlet arranged at the back of the furnace, substantially as described.

2. In a furnace, a horizontally-arranged smoke-deflector, a smoke-chamber, vertical and horizontal flues communicating respectively with the said smoke-chamber and the rear interior of the furnace, a hot-air chamber surrounding said furnace, flues communicating therewith, and a vertical air-inlet located at the rear of the furnace and communicating with the said hot-air chamber, substantially as described.



3. In a furnace, a smoke-deflector, a smoke-chamber, vertical flues arranged on each side of said chamber and communicating therewith, horizontal flues extending the length of the furnace connected to the lower ends of said vertical flues and communicating with the rear interior of the furnace, a hot-air chamber surrounding said furnace, a flue connected to the said smoke-chamber, and an air-inlet arranged at the rear of the furnace and communicating with the hot-air chamber, substantially as described.

682,844. **REVOLVING CHAIR.** JOHN ELLENBECKER, Port Washington, Wis. Filed Oct. 18, 1900. Serial No. 33,440. (No model.)



Claim.—1. In a revolving chair, the combination of a hub, an interiorly-threaded sleeve revoluble in the hub, means for turning the sleeve, means for preventing vertical movement of the sleeve in the hub, a spindle revoluble in the sleeve, a nut in the sleeve and adapted to act against the spindle, said nut having its threads engaged by the threads of the sleeve, and means for preventing rotary movement of the nut, whereby when the sleeve is rotated the nut is moved vertically and the spindle thereby caused to be moved therewith.

2. In a revolving chair, the combination of a hub, an interiorly-threaded sleeve revoluble in the hub, said sleeve extended above the hub and formed or provided with a hand-wheel for turning the same, means for preventing vertical movement of the sleeve in the hub, a spindle revoluble in the sleeve, a nut in the sleeve and adapted to act against the spindle and having the threads thereof engaged by the threads of the sleeve, and means for preventing rotary movement of the nut, whereby when the sleeve is rotated the nut is moved vertically and the spindle thereby caused to be moved therewith.

3. In a revolving chair, the combination of a hub, an interiorly-threaded sleeve revoluble in the hub, means for turning the sleeve, means for preventing vertical movement of the sleeve in the hub, a spindle revoluble in the sleeve, a nut in the sleeve and adapted to act against the spindle, said nut having its threads engaged by the threads of the sleeve, and a rod fast to a fixed part and engaging the nut, and adapted to prevent rotation of said nut.

4. In a revolving chair, the combination of a hub provided with a downward extension, said extension having its lower end intersected by a cross-piece, an interiorly-threaded sleeve revoluble in the hub, means for turning the sleeve, means for preventing vertical movement of the sleeve in the hub, a spindle revoluble in the sleeve, a nut in the sleeve and adapted to act against the spindle, said nut having its threads engaged by the threads of the sleeve, and said nut also having a rectangular opening, a rod passing through the cross-piece of the downward extension of the hub and engaging the rectangular opening of the nut, and a nut engaging the threaded extremity of the rod and turned against the cross-piece.

5. In a revolving chair, the combination of a hub, an interiorly-threaded sleeve revoluble in the hub, means for turning the sleeve, means for preventing vertical movement of the sleeve in the hub, a tubular spindle revoluble in the sleeve, the lower end of said spindle provided with an inwardly-turned flange, a nut in the sleeve and adapted to act against the spindle, and having its threads engaged by the threads of the sleeve, a bar having hooked ends, one of said hooks engaging a recess in the nut, and the other hook engaging over the flange of the spindle, and means for preventing rotary movement of the nut, whereby when the sleeve is rotated the nut is moved vertically and the spindle thereby caused to move therewith.

6. In a revolving chair, the combination of a hub, an interiorly-threaded sleeve revoluble in the hub, said sleeve provided with an annular recess, a screw passing through the hub and engaging the recess, means for turning the sleeve, a spindle revoluble in the sleeve, a nut in the sleeve and adapted to act against the spindle, said nut having its threads engaged by the threads of the sleeve, and means for preventing rotary movement of the nut, whereby when the sleeve is rotated the nut is moved vertically and the spindle thereby caused to move therewith.

682,845. **ELECTRIC CABLE FOR THREE-PHASE ALTERNATING CURRENTS.** WILLIAM B. BESON, London, England. Filed July 22, 1901. Serial No. 69,177. (No model.)



Claim.—1. In an electric cable for three-phase alternating currents, three principal conductors and a fourth or neutral conductor divided into a series of separate wires arranged between the principal conductors and insulated therefrom.

2. In an electric cable for three-phase alternating currents, the combination of three principal conductors and a fourth or neutral conductor divided into two or more constituent conductors, the said constituent conductors lying between the principal conductors.

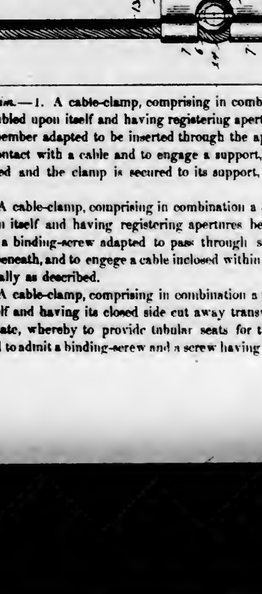
3. In an electric cable for three-phase alternating currents, the combination of three principal conductors and a fourth or neutral conductor divided into two or more constituent conductors being unsymmetrically disposed substantially as set forth.

4. In an electric cable for three-phase alternating currents, the combination of three principal conductors, a fourth or neutral conductor divided into two or more constituent conductors, and a dummy or dummies the said dummy or dummies and the said constituent conductors together constituting a symmetrical arrangement or disposition substantially as set forth.

682,846. **STIRRING APPARATUS FOR UNDRIED MALT.** BERNHARD FISCHER, Heidelberg, Germany. Filed Sept. 11, 1900. Serial No. 29,673. (No model.)

Claim.—1. In a stirring apparatus for undried malt, the combination of a carriage *a* that can be moved backward and forward, a motor *e* disposed on said carriage, spiral tubes *c*, *c'* arranged to rotate in opposite directions, said tubes being provided with perforations, and a blower *d* disposed on said carriage, said blower forcing damp air through the perforations in the tubes *c*, *c'*, substantially as described and for the purpose specified.

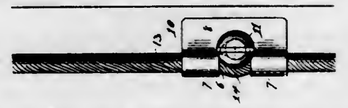
2. In a stirring apparatus for undried malt, the combination of a carriage *a* that can be moved backward and forward, a motor *e* disposed on said carriage, spiral tubes *c*, *c'* arranged to rotate in opposite directions, said tubes being provided with perforations, a blower *d* disposed on said carriage, an air-pipe *k* to conduct air under pressure from the blower *d* to the spiral tubes *c*, *c'*, and a pipe *i* adapted to conduct water from a trough *g* to the pipe *k* in order to moisten the air, substantially as described and for the purpose specified.



3. In a stirring apparatus for undried malt, the combination of a carriage *a* that can be moved backward and forward, a motor *e* disposed on said carriage, spiral tubes *c*, *c'* arranged to rotate in opposite directions, provided with perforations, rubber plates *o* attached to said tubes, adapted to sweep the floor, a blower *d* disposed on said carriage, an air-pipe *k* to conduct air under pressure from the blower *d* to the spiral tubes *c*, *c'*, and a pipe *i* adapted to conduct water from a trough *g* to the pipe *k* in order to moisten the air, substantially as described and for the purpose specified.

4. In a stirring apparatus for undried malt, the combination of a carriage *a* that can be moved backward and forward, a motor *e* disposed on said carriage, spiral tubes *c*, *c'* arranged to rotate in opposite directions, provided with perforations, brushes *n* attached to said tubes, adapted to sweep the floor, a blower *d* disposed on said carriage, an air-pipe *k* to conduct air under pressure from the blower *d* to the spiral tubes *c*, *c'*, and a pipe *i* adapted to conduct water from a trough *g* to the pipe *k* in order to moisten the air, substantially as described and for the purpose specified.

682,847. **CABLE-CLAMP.** GEORGE H. FORSYTH. Chicago, Ill., assignor to the Curtain Supply Company, same place and Jersey City, N. J. Filed July 27, 1900. Serial No. 25,001. (No model.)



Claim.—1. A cable-clamp, comprising in combination a clamping-plate doubled upon itself and having registering apertures in combination with a member adapted to be inserted through the apertures of the plate and in contact with a cable and to engage a support, whereby the cable is clamped and the clamp is secured to its support, substantially as described.

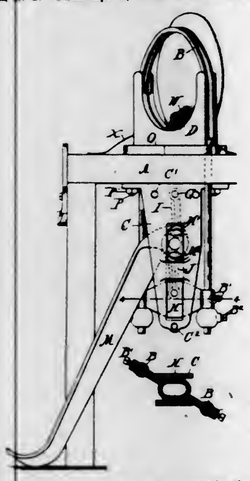
2. A cable-clamp, comprising in combination a clamping-plate doubled upon itself and having registering apertures between its side margins and a binding-screw adapted to pass through said apertures into a support beneath, and to engege a cable inclosed within the clamping-plate, substantially as described.

3. A cable-clamp, comprising in combination a metal plate doubled upon itself and having its closed side cut away transversely of the body of the plate, whereby to provide tubular seats for the reception of the cable and to admit a binding-screw and a screw having a tapering, threaded

body adapted to pass through said slot into a support beneath and to bend or deflect said cable between its tubular supports, substantially as described.

4. A cable-clamp composed of an elastic metal plate doubled upon itself and one of its parts being provided with an integral spur and having the central portion of its body cut away, in combination with a screw having a tapered threaded stem adapted to enter through the base portion of the slot formed by cutting away the clamping-plate and affording means for clamping the cable and for securing the clamp to its support, substantially as described.

682,848. WOOD-BUNDLING MACHINE. DARWIN A. GREENE, Brooklyn, N. Y. Filed Apr. 2, 1901. Serial No. 54,007. (No model.)



Claim.—1. In a wood-bundler, the combination with the bows B and lever M and its connections for strongly moving the bows and a cradle together and apart to uniform extents, the cradle D O in two parts with means Y Y' for releasing, exchanging and confining them adapted to allow of easy and rapid changes in the sizes of bundles to certain previously-determined extents, all substantially as herein specified.

2. In a wood-bundler, the combination with the bows B and lever M and its connections for strongly moving the bows and a cradle together and apart to uniform extents the cradle D O in two parts with means Y Y' for releasing exchanging and confining them and also with means B' B^2 for adjusting the bows to large or small extents, all substantially as herein specified.

3. In a wood-bundling machine having a portion of the iron framework below and another portion above a wood bench A, and having the upper portion serving as the cradle made in two parts D O with means Y Y' for confining releasing and exchanging them, the holding-bolts P having their heads sunk in corresponding recesses *o* in the portion O and extending down through the bench and engaging by nuts P' with the lower frame C, all adapted to serve substantially as herein specified.

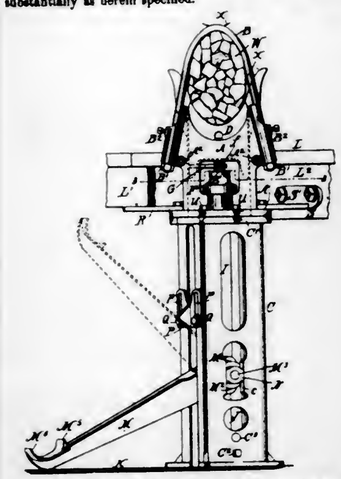
682,849. WOOD-BUNDLING MACHINE. DARWIN A. GREENE, Brooklyn, N. Y. Filed Mar. 23, 1901. Serial No. 52,434. (No model.)

Claim.—1. In a wood-bundling machine, the lever M and the links I and J pivoted thereto, and movable cradle D operated thereby, having the weight of the cradle received through the link I apply on the short arm of the lever J, so that the weight of the cradle lifts the lever, all substantially as herein specified.

2. In a wood-bundling machine, the lever M and the links I and J pivoted thereto, and movable cradle D operated thereby having the weight of the cradle received through the link I apply on the short arm of the lever J, so that the weight of the cradle lifts the lever and with the centers of the pivots M' and M^2 arranged as shown, so that when out of use the lever will be held either in its elevated or in its depressed position by gravity, all substantially as herein specified.

3. In a wood-bundling machine the lever M and the links I and J pivoted thereto, and movable cradle D operated thereby having the weight of the cradle received through the link I apply on the short arm of the lever J, so that the weight of the cradle lifts the lever and that the elastic expansion of the freshly-compressed wood contributes to initiate such motion, all substantially as herein specified.

4. In a wood-bundling machine having a frame C, the lever M and links I and J pivoted thereto, and movable cradle D operated thereby, the stop-piece P and adjustable holding means Q therefor adapted to allow the adjustment of the depth to which the cradle is allowed to sink, all substantially as herein specified.



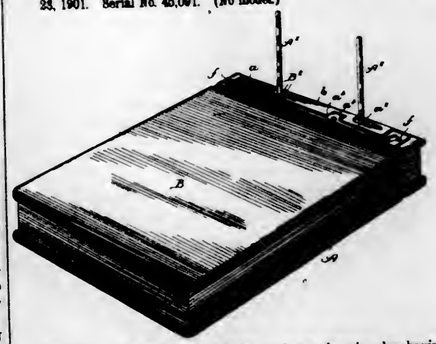
5. In a wood-bundling machine having a foot-lever and mechanism for compressing the wood, the main frame C extending down to and adapted to be supported on the floor, and equipped with means for engaging strongly with the bench so that the bench and the frame are mutually supported, all substantially as herein specified.

682,850. HORSESHOE. HENRY JENKINS, McKees Rocks, Pa. Filed Feb. 19, 1901. Serial No. 47,955. (No model.)



Claim.—As an improved article of manufacture, a horseshoe comprising an iron shoe-blank having its lower face grooved, and hardened-steel toe and heel pieces adapted to engage in the groove in the under face of the shoe, a rounded ridge made integral with the outer face of said toe and heel pieces, the outer face of the toe and heel pieces above the ridge being tapered and terminating in an edge, the said edge adapted to be driven into the shoe, and the ridge adapted to lie partly within the groove when the toe and heel pieces are in position, substantially as described.

682,851. LOOSE-LEAF BINDER. HARRY S. JONES, Chicago, Ill., assignor to Jones Perpetual Ledger Company, same place. Filed Jan. 23, 1901. Serial No. 45,091. (No model.)



Claim.—1. In a loose-leaf binder, a lower clamping-bar having upwardly-projecting posts, an upper clamping-bar provided at its rear edge with slots receiving said posts, a slide provided with shoulders for engaging said posts, movement of said slide in one direction serving to effect a locking and movement of said slide in the opposite direction serving to effect an unlocking, and means for actuating said slide, substantially as described.

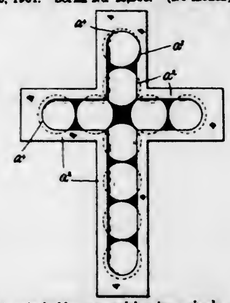
2. In a loose-leaf binder having upwardly-projecting posts, an upper clamping-bar having at its rear edge slots for receiving said posts, headed studs above said upper clamping-bar rigidly connected therewith, a slide having slots registrable with said first-named slots for receiving said studs and shoulders for engaging said binding-posts, and means for actuating said slide, substantially as described.

3. In a loose-leaf binder, a lower clamping-bar having upwardly-extending binding-posts, an upper clamping-bar having post-receiving slots at its rear edge, and a locking device for the upper clamping-bar comprising a member *a* rigidly connected with the upper clamping-bar and provided at its rear edge with post-receiving slots, a slide having longitudinal movement with relation to said member *a* and provided with slots registrable with said first-named slots and with shoulders for engaging said binding-posts and an actuating-lever connected with the member *a* and serving to move said slide, substantially as described.

4. In a loose-leaf binder, a member *a* provided with post-receiving slots, a member *b* provided with post-receiving slots, post-engaging shoulders and a cam-receiving recess, and a cam-lever a^3 pivoted to the member *a* and provided with cam-shoulders a^2, a^4, substantially as described.

5. In a loose-leaf binder, an upper clamping-bar provided at its rear edge with post-receiving recesses, a slide connected with said bar and provided with recesses *g* having offsets *g'* affording shoulders g^2, and means for actuating said slide, substantially as described.

682,852. COIN-HOLDER. ALBERT A. KIDDER, Springfield, Mass. Filed Feb. 6, 1901. Serial No. 46,260. (No model.)



Claim.—A coin-holder comprising in a single structure, a base of plate form having an upwardly and inwardly extending edge whereby an elongated undercut channel, capable of receiving and retaining a multiple of coins, is provided; the said inwardly-turned edge being cut away, as at a^2, whereby coins may be entered, one at a time, and slid into the said undercut channel.

682,858. CARBURETER. JOSEPH W. KITTEN, Chicago, Ill., assignor of one-half to Frank Hinkamp, same place. Filed Jan. 10, 1901. Serial No. 42,798. (No model.)

Claim.—1. In a device of the class described a combined tank and generator, the latter constituting a part of the tank and being in open and unobstructed communication therewith, whereby the pressure in the two may be uniform and condensation prevented, substantially as described.

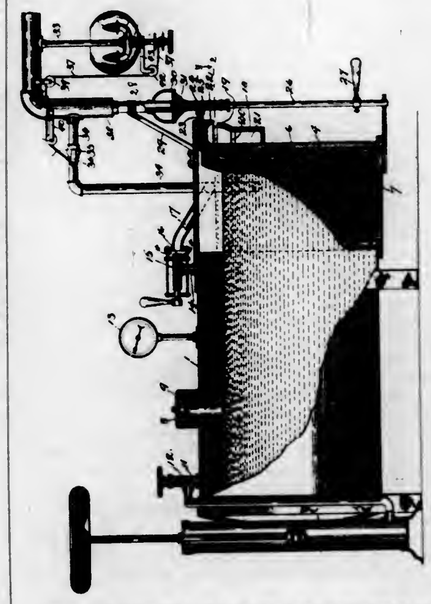
2. In a device of the class described, a combined tank and generator the latter constituting a part of the tank and being in open communication therewith, said generator portion being filled with an absorbent material, substantially as described.

3. In a device of the class described, a combined tank and generator in open communication with each other, the latter having a smaller cross-sectional area than the former, substantially as described.

4. In a device of the class described, a combined tank and generator consisting of a single receptacle one portion of which forms the tank proper, while the other constitutes the generator, the latter being filled with an absorbent material and having a lesser area than the former, substantially as described.

5. In an apparatus of the class described, an oil-reservoir having a portion thereof of lesser area in cross-section than that of the main body of said reservoir, said portion being provided with a generator-burner adjacent to its walls and a filling of absorbent material, in combination with an eduction-valve, a distributing-pipe and a pipe connecting said distributing-pipe with said generator-burner, substantially as described.

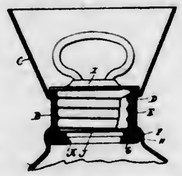
6. In an apparatus of the class described, a combined tank and generator, the latter constituting a part of the tank and being in open and unobstructed communication therewith, in combination with an eduction-valve, a distributing-pipe, a pipe connecting said distributing-pipe with the burner of said generator, a valve in said latter pipe and means for connecting the same with a burner-valve connected with one of the distributing or branch pipes, substantially as described.



7. In an apparatus of the class described, the combination of a tank or reservoir the body of which is arranged horizontally, said tank having an offset or extension leading from the main body thereof, an absorbent filling in said extension extending from the bottom to a level at or near the top, a burner in operative proximity to said extension, a valve-controlled eduction-pipe, a distributing-pipe, means for inducing a flow of air therein, burners communicating with said distributing-pipe, a pipe connecting said distributing-pipe with the generator-burner, a valve interposed in said pipe, said valve being in operative connection with the burner-valve of the first burner of the series; whereby the closing of said burner-valve may serve to shut off the backflow of gas to the generator-burner, substantially as described.

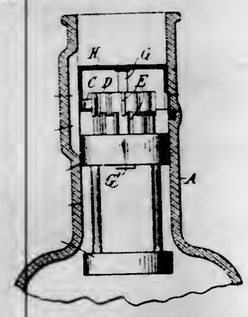
8. In an apparatus of the class described, a combined tank and generator, the latter constituting a part of the tank and being in open communication therewith, in combination with an eduction-valve, a distributing-pipe, a pipe connecting the distributing-pipe with the burner of said generator, a valve in said last-named pipe and a flexible connection, such as a cord or wire, connected with an arm upon the stem of said valve and with a spool upon the stem of one of the distributing-pipe valves, substantially as described.

682,854. STOPPER FOR WATER-BAGS. CHARLES E. LONGDEN, Hamden, Conn. Filed June 17, 1901. Serial No. 64,843. (No model.)



Claim.—The combination with a water-bag, of a nipple secured in the neck thereof, said nipple formed with an internal annular chamber at its lower end, a central opening in its bottom, and also constructed with an extension projecting upward from the bottom around the said opening, a packing-ring within said chamber at the bottom of the nipple in which it is confined by said upward extension, and a plug adapted to be turned into the nipple to a bearing upon said ring, substantially as described.

682,855. BOTTLE. GEORGE LUCAS, Brooklyn, N. Y. Filed June 14, 1901. Serial No. 64,545. (No model.)



Claim.—1. The combination with a bottle of a stopper movably held in said bottle, and means for automatically holding said stopper in a stoppering position after the inversion of said bottle a predetermined number of times.

2. The combination with means for permitting the pouring of only a measured quantity from a bottle at each inversion thereof, of means for automatically stoppering said bottle and holding the same stoppered after a predetermined number of inversions.

3. The combination with a bottle of a stopper arranged to alternate to and from a stoppering position in the neck of said bottle, and means for automatically holding the same in the stoppering position after a predetermined number of alternations.

4. The combination with a bottle of a double stopper having stoppering members connected to each other with an intermediate space, and arranged to move in the neck of said bottle to connect such space with the interior and the exterior of the bottle alternately, and means for automatically preventing such movements thereof in excess of a predetermined number.

5. The combination with a bottle of a stopper arranged to alternate to and from a stopping position in the neck of said bottle, an escapement, means for causing a step-by-step movement of said escapement as said stopper is alternated, means for automatically preventing such movements in excess of a predetermined number, and means for holding said stopper against movement when said escapement is stopped.

6. The combination with a bottle of a stopper arranged to alternate to and from a stopping position in the neck of said bottle, an escapement comprising a projection and a member having a path of determined length for said projection, and means for causing a relative movement of said projection along its path step by step as said stopper is alternated, whereby when said projection reaches the end of its path further alternations of said stopper are prevented.

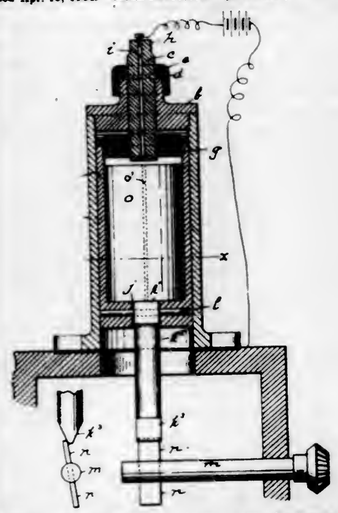
7. The combination with a bottle of a stopper arranged to alternate to and from a stopping position in the neck of said bottle, a rotary member, a spring tending to rotate the same, a series of stops preventing movement of said member by said spring, means for permitting the movement of said member by said spring from one stop to the next as said stopper is alternated, and a final stop preventing further alternation of said stopper.

8. The combination with a bottle of a stopper arranged to alternate to and from a stopping position in the neck of said bottle, a horizontally-rotating member, a spring tending to rotate the same, a series of vertical stops preventing movement of said member in a horizontal direction and interrupted at their upper and lower ends alternately, means for reciprocating said stops to permit the rotation of said member as the stopper is alternated, and a final stop preventing further alternation of said stopper.

9. The combination with a bottle of a stopper arranged to reciprocate to and from a stopping position in the neck of said bottle, a member D attached to said stopper, to reciprocate therewith, a spring arranged to rotate said member horizontally, a relatively-movable series of vertical ribs E and a relatively-fixed projection C forming an escapement for said member D, whereby as said stopper is reciprocated said escapement is operated to permit a step-by-step movement of said member D, and a final horizontal stop E′ in the path of said projection preventing further reciprocation of said stopper.

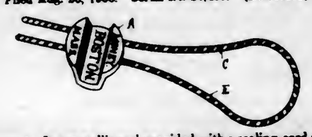
10. The combination with a bottle of a double stopper B arranged to reciprocate in the neck of said bottle, a member D attached to said stopper to reciprocate therewith, a spring arranged to rotate said member horizontally, a relatively-movable series of vertical ribs E and a relatively-fixed projection C forming an escapement for said member D, whereby as said stopper is reciprocated said escapement is operated to permit a step-by-step movement of said member D, and a final horizontal stop E′ in the path of said projection preventing further reciprocation of said stopper.

682,856. SPARKING IGNITER FOR EXPLOSIVE-ENGINES. WILLIAM C. MATTHIAS, Reading, Pa., assignor to Adam H. Leader and Henry H. Roland, same place, and Alexander Murdock, Hamburg, Pa. Filed Apr. 13, 1901. Serial No. 55,602. (No model.)



Claim.—In a sparking igniter, an outer casing *a* having a cap through which passes a regulator-pin *c*, an inner casing *f* having a cap carrying said pin *c*, and a slotted base in which is pivotally mounted a sparking-pin *k*, and weight *o* inside said inner casing adapted to rest against the head of said pin *k*, in combination with a revolving shaft *m* carrying one or more trips *n* adapted to contact with the depending end of said pin *k* with a wiping movement, substantially as and for the purpose set forth.

682,857. METALLIC SEAL. JAMES MURDOCK, Jr., Cincinnati, Ohio. Filed Aug. 20, 1900. Serial No. 27,409. (No model.)



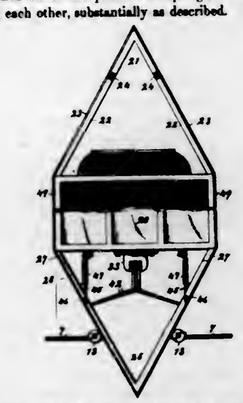
Claim.—1. In a metallic seal provided with a sealing-cord composed of a fibrous combustible strand and metallic strand, the metallic strand made substantially flat and twined about the fibrous strand in spiral form, substantially as set forth.

2. In a metallic seal provided with a sealing-cord composed of a fibrous combustible strand and a metallic strand, the metallic strand made substantially flat and twined about the combustible strand in open spiral form, substantially as set forth.

3. In a metallic seal provided with a sealing-cord composed of a fibrous combustible strand and a metallic strand, the metal strand made substantially flat and twined about the combustible strand in open spiral form with the spirals closely twined at the ends to hold the strands together, substantially as and for the purposes set forth.

682,858. AUTOMATIC CLOSURE FOR ELEVATOR-HATCHWAYS. JOHN W. MCGHEE, Adrian, Mo. Filed Apr. 22, 1901. Serial No. 56,944. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a hatchway-door, composed of sections adapted to move in opposite directions, an elevator-cage provided with a pair of upwardly-projecting wedge-frames, and a pair of depending wedge-frames, the latter comprising stationary and folding portions, downwardly-diverging rods pivoted to the bottom of the cage and extending slidingly through said folding portions, coil-springs upon said rods and attached at their opposite ends to the cage-bottom and said folding portions, means to hold said folding portions in alinement with the stationary portions, and means to trip the first-named means and permit said springs to swing said folding portions toward each other, substantially as described.



2. In an apparatus of the character described, the combination of a hatchway-door, composed of sections adapted to move in opposite directions, an elevator-cage provided with a pair of upwardly-projecting wedge-frames, and a pair of depending wedge-frames, the latter comprising stationary and folding portions, braces pivoted to said folding portions and holding them apart, means to trip said braces and means as the braces are tripped to swing said folding portions inward, substantially as described.

3. In an apparatus of the character described, the combination of a hatchway-door, composed of sections adapted to move in opposite directions, an elevator-cage provided with a pair of upwardly-projecting wedge-frames, and a pair of depending wedge-frames, the latter comprising stationary and folding portions, a casting secured to the cage provided with a cavity in its lower side, a reciprocatory plug projecting from above into said cavity, upwardly-converging braces pivoted to said folding portions and having their upper ends engaging said cavity and plug, a lever pivoted in said casting engaging said plug, a spring-elevated footpiece pivoted to said lever, and springs for swinging said frames inward as the braces are tripped by the elevation of the plug, substantially as described.

4. In an apparatus of the character described, the combination of a hatchway-door, composed of sections adapted to move in opposite directions, an elevator-cage provided with a pair of depending frames, each frame comprising a stationary and a folding portion, a casting secured to the bottom of the cage, a plug fitting in said casting, braces pivoted to said frames and detachably engaging said casting and plug, means under the control of the operator to withdraw said plug and thereby effect the disengagement of the braces from the casting, and means for holding said frames upward toward the bottom of the elevator when the disengagement of said braces takes place, substantially as described.

5. In an apparatus of the character described, the combination of an elevator-cage provided with upwardly and downwardly projecting wedge-shaped frames, a door, comprising a pair of sections notched to form an opening to receive the suspension-cable and to provide openings to receive said frames, and provided also with loops 8 and grooved rollers 9, cross-rails 4 extending through said loops and under said rollers, grooved rollers 15 supported near the corners of the hatchway, grooved rollers 16 supported above and disposed at right angles to rollers 15, cables engaging rollers 16, and extending downward therefrom, the inner strands of the cables engaging the front and under side of rollers 15 and attached to the outer corners of the door-sections, and vertically-moving weights attached to opposite ends of said cables and adapted to effect the automatic closure of the door-sections, substantially as described.

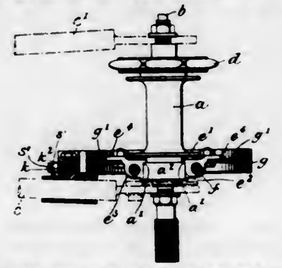
682,859. ANTIFRICTION-BEARING. ALFRED R. OVERTON, New York, N. Y. Filed Jan. 23, 1901. Serial No. 44,406. (No model.)



Claim.—1. An antifriction-bearing, consisting of a shaft having a journal, a series of balls in contact with said journal, a series of separating-disks in contact with said balls, and retained by the same out of contact with the journal, and a casing surrounding said balls and disks, and provided with cones and a raceway for the same respectively, said cones bearing upon said balls and receiving the load, and the periphery of said raceway being located out of bearing contact with said disks, substantially as set forth.

2. An antifriction-bearing, consisting of a shaft having a journal, a series of balls in contact with said journal, a series of separating-disks in contact with said balls, and retained by the same out of contact with the journal, a casing surrounding said balls and disks, and provided with cones and a raceway for the same respectively, said cones bearing upon said balls and receiving the load, and the periphery of said raceway being located out of bearing contact with said disks, and means for adjusting said casing, balls and disks on the shaft, substantially as set forth.

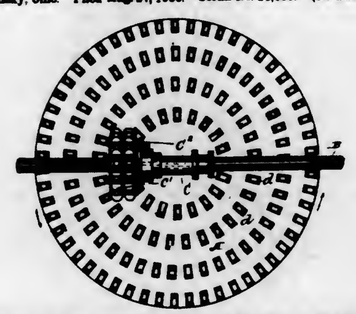
682,860. BAND-BRAKE WHEEL. JOHN H. PUNCHARD, London, England. Filed Mar. 29, 1901. Serial No. 53,421. (No model.)



Claim.—1. The combination, with the end portion of a wheel-hub, said end portion having an annular shoulder, of split-ring portions immovably secured around said end portion, an inwardly-projecting flange on said split-ring portions and fitting behind said annular shoulder, an outwardly-projecting flange on said split-ring portions, and a ring secured to said outwardly-projecting flange and adapted to form the braking-surface, substantially as set forth.

2. The combination, with the end portion a^2 of the wheel-hub, said end portion having an annular shoulder a', of split-ring portions $e\,e$, immovably secured around the said end portion a^2, an inwardly-projecting flange e' on said split-ring portions $e\,e$ and fitting behind the annular shoulder a' to prevent lateral displacement of said split-ring portions $e\,e$, an outwardly-projecting flange e^4 on said split-ring portions $e\,e$, a complete ring provided with a rim g and an inwardly-projecting flange or web g' suitably secured to said flange e^4, so that the outer circumference of the said rim may serve as a braking-surface, substantially as set forth.

682,861. CHANGEABLE GEAR. CHRISTIAN A. RITTMAN, Sandusky, Ohio. Filed Aug. 27, 1900. Serial No. 28,100. (No model.)


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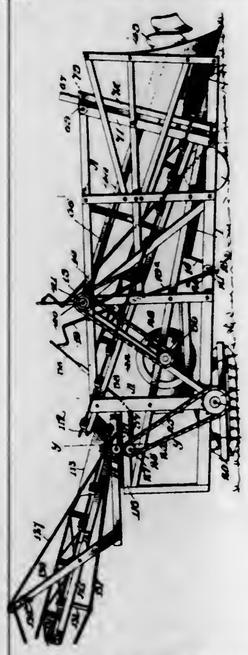
tively to that of said disk, and a two-part pinion movable bodily longitudinally of the shaft adapted to engage said teeth, said parts being held against a separating movement axially, one pinion part being carried by and rotatable with said shaft, the other part being rotatable relatively to the first-mentioned part in one direction only, substantially as set forth.

3. The combination of a rotatable disk provided upon its face with a series of spaced teeth arranged in concentric circles of different diameters, a rotatable shaft having its axis of rotation angularly located relatively to that of said disk, and a two-part pinion adapted to engage said teeth, said parts being held against a separating movement axially, one pinion part being rotatable relatively to the other, the latter being held against rotating movement relative to said shaft, and means connecting the first-named part and the shaft through the second-named part.

4. The combination of a rotatable disk provided upon its face with a series of spaced teeth arranged in concentric circles, a shaft having its axis of rotation angularly located relatively to that of said disk, and a two-part pinion mounted upon said shaft, one pinion part being held against rotatable movement relative to said shaft, and a ratchet-and-pawl mechanism carried by the other part and adapted to have engagement with said first-named part and the shaft, substantially as set forth.

5. The combination of a rotatable disk provided upon its face with a series of spaced teeth arranged in concentric circles, a shaft having its axis of rotation angularly located relatively to that of said disk, and a two-part pinion mounted upon and movable bodily longitudinally relatively to said shaft, one pinion part being held against rotatable movement relative to said shaft and the other part rotatable upon said first-named part, substantially as set forth.

682,862. **TRACTION EXCAVATING-MACHINE.** HENRY H. SCHENK, Memphis, Mo. Filed June 26, 1899. Serial No. 721,902. (No model.)



Claim.—1. In an excavating-machine, the combination of a cutter-head a bearing for the shaft, a bearing for the shaft movable transversely of the machine, means for carrying the bearing vertically and means for automatically directing the transverse and vertical movement of the shaft.

2. The combination in an excavating-machine of a shaft for the cutter-head, a bearing for the shaft, a curved rack on which the bearing is movable, means for directing and propelling the bearing on the rack and means for moving the rack vertically.

3. The combination in an excavating-machine of a shaft for the cutter-head, a bearing for the shaft, a rack on which the bearing is movable, a removable frame to which the rack is secured, and a shifting frame for directing the movement of the bearing and rack-supporting frame.

4. The combination in an excavating-machine of a shaft for the cutter-head, a movable bearing in which the shaft rotates, a rack on which the bearing travels, pinions journaled in the bearing and traveling on the rack, a shaft on which one of the pinions is mounted, gearing for rotating the shaft in opposite directions, a clutch for controlling the direction of rotation, a frame shifted by the action of the shaft and a lever connected with the clutch and operated by the frame.

5. In combination, a shaft on which a cutter-head is mounted, a movable bearing for the shaft, a rack on which the bearing travels, a pinion carried by the bearing for engaging the rack, a shaft for operating the pinion, gearing for rotating and changing the direction of rotation of the pinion-shaft, a frame carrying the rack, said frame having a rack, pinions engaging the rack of the frame, a shaft on which the pinions are mounted, a worm-wheel on the shaft, a worm meshing with the worm-wheel, gearing for driving and changing the rotation of the shaft of the pinion for operating the bearing and the shaft of the worm, frames actuated transversely and vertically by the cutter-shaft, levers operated by the shifting frame and clutches to which the levers are connected and by which the direction of rotation of the shafts is determined.

6. In an excavator, a frame on which the operating parts are supported, a front truck having trunnions on which the frame rests, a ground-wheel for supporting said truck, a circular bar slidable in the truck-frame, bearings for the ground-wheel attached to said frame, a rack on the bar, and a worm suitably operated for engaging the rack and reciprocating the bar.

7. In an excavator, a truck having trunnions by which the frame of the excavator is supported, a circular bar slidable in the truck-frame, a ground-wheel mounted in bearings on the circular bar, cables secured to the rear of the truck-frame, a drum for winding the cables and means for rotating the drum.

8. In an excavating-machine the combination of the shaft for the cutter-head, a movable support for the shaft, a rack-bar on which the support travels, said rack-bar being approximately T-shaped in cross-section, and rolls carried by the movable support for engaging the under surfaces of the head of the rack-bar.

9. In an excavating-machine, a shifting frame actuated by the shaft of the cutter-head, means for guiding the shaft, and means connected with the shifting frame and clutches of the power-transmitting mechanism for altering the direction of rotation of the shaft-guiding means.

10. In an excavating-machine, a shifting frame actuated by the shaft of the cutter-head, a bell-crank operated by the frame, a lever suitably pivoted, moved by the bell-crank, a clutch on the opposite end of the lever, gearing controlled by the clutch a shaft rotated by the gearing, a support for the shaft of the cutter-head actuated by the first-named shaft, a second lever under the control of the shifting frame, a clutch to which the second lever is connected, gearing controlled thereby, a shaft rotated by the gearing and means whereby the rotation of the last-named shaft moves the cutter-head vertically.

11. In an excavating-machine, a suitable shaft for the cutter-head, shafts for controlling the movement transversely and vertically of the shaft of the cutter-head, gearing for rotating the second-named shafts, clutches for altering the direction of rotation of the gearing, levers for actuating the clutches, and a shifting frame under control of the shaft of the cutter-head.

12. In an excavating-machine, a suitable shaft for the cutter-head, shafts for controlling the movement transversely and vertically of the shaft of the cutter-head, gearing for rotating the second-named shafts, clutches for altering the direction of rotation of the gearing, levers for actuating the clutches, a shifting frame under the control of the shaft of the cutter-head, a bell-crank lever actuated by the shifting frame and connected to one of the levers whereby one of the clutches is thrown by the vertical movement of the frame, and an arm carried by the frame and connected to one of the other levers whereby the transverse movement of the frame actuates a clutch.

13. In an excavating-machine a suitable shaft for the cutter-head, shafts for controlling the movement transversely and vertically of the shaft of the cutter-head, gearing for rotating the second-named shafts, clutches for altering the direction of rotation of the gearing, levers for actuating the clutches, a shifting frame under control of the shaft of the cutter-head; said frame comprising a vertically-movable beam, an upper rail slidable on the beam, and a number of bars suitably connected.

14. In combination with the cutter-shaft of the cutter-head and the means for shifting the position of the cutter-head, a vertically-movable transversely-disposed beam of the shifting frame, a rail slidable in the beam, and a series of adjustable bars comprising a portion of the shifting frame, and shafts connected with the mechanism for shifting the cutter-head, and means under the control of the shifting frame for controlling the direction of rotation of the shafts.

15. In an excavating-machine, a secondary elevator mounted to oscillate at the rear of the primary elevator and a truck for supporting the end of the secondary elevator having one wheel of greater diameter than the other.

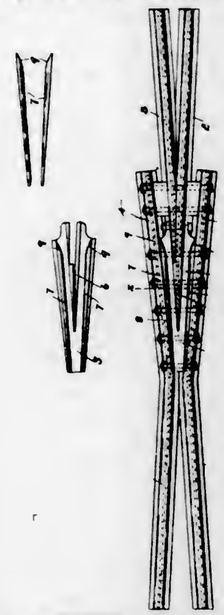
16. In an elevator adapted to have its end supported on a spoil-bank, a truck on the outer end of the elevator and means whereby said truck adapts itself to the inclination of the spoil-bank.

17. In an excavating-machine, a primary elevator, a hopper mounted on a truck at the rear of the primary elevator, a secondary elevator extending from the hopper, a conveyer-apron for the secondary elevator, and means for operating the apron while the secondary elevator is being oscillated.

18. In an elevator for excavating-machines, a truck mounted on a circular track, cables extending from the truck to the outer end of the derrick, the derrick having a windlass on which the cable is wound, other cables extending to the outer end of the secondary elevator for supporting same as shown and described.

19. In an excavating-machine, a truck for the secondary elevator, a shaft longitudinally of the secondary elevator, transversely-mounted rollers, geared to the longitudinal shaft, means for rotating the longitudinal shaft, cables extending from the derrick to the outer end of the elevator, means for adjusting the cables, and a carriage on the outer end of the truck supported by wheels of different sizes, as and for the purpose set forth.

682,863. **RAILWAY-FROG.** DAVID F. VAUGHAN, Haddonfield, N. J. Filed Apr. 2, 1901. Serial No. 54,026. (No model.)



Claim.—1. The combination in a railway-frog, of the point, the wing-rail bent outwardly in advance of said point to an abnormal extent, to form a space of abnormal width between the side of said rail and the side of the point, said space extending from the toe of the point to the free end of the outwardly-bent portion of the rail, the filling-piece, the hard-metal supplemental wing-rail secured to said filling-piece and fitted to the side of the head of said wing-rail, and having its inner side substantially parallel with the side of the point, and forming, with the latter, the flangeway, substantially as and for the purpose set forth.

2. The combination in a railway-frog, of the point, the wing-rail bent outwardly in advance of said point to an abnormal extent, to form a space of abnormal width between the side of said rail and the side of the point, said space extending from the toe of the point to the free end of the outwardly-bent portion of the rail, the filling-piece, the hard-metal supplemental wing-rail integral with the latter and fitted to the side of the head of the wing-rail, and having its inner side substantially parallel with the side of the point, forming with the latter, the flangeway, as and for the purpose set forth.

3. The combination in a railway-frog, of the point, the wing-rail, bent outwardly in advance of said point to an abnormal extent, to form a space of abnormal width between the side of said rail and the side of the point, said space extending from the toe of the point to the free end of the outwardly-bent portion of the rail, the filling-piece, the hard-metal supplemental wing-rail fitted to the side of the head of said wing-rail, and having its inner side parallel with the side of said point, and having also its wider end bent or curved outwardly toward said wing-rail, and separated from the said point to form the flangeway, as and for the purpose set forth.

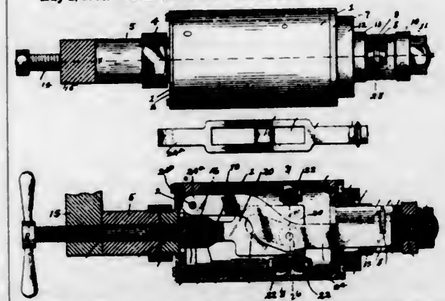
4. The combination in a railway-frog, of the convergent track-rails the filling-piece having the slot adapted to receive the webs of the converging end portion of said track-rails, the point integral with said filling-piece, the divergent wing-rails bent outwardly, in advance of said point to an abnormal extent to form spaces of abnormal width between the sides respectively of said wing-rails and the sides respectively of said point, said spaces extending from the toe of the point to the free ends of the outwardly-bent portions of the wing-rails, respectively, the supplemental wing-rails also integral with said piece, and fitted to the sides of the heads of the wing-rails, and having their inner sides substantially parallel with the sides of the point, forming with the latter the flangeway, substantially as and for the purpose set forth.

5. In a railway-frog, the combination of the point, the wing-rail bent outwardly in advance of the said point to an abnormal extent, to form a space of abnormal width between the side of said rail and the side of the point, which space increases gradually in width from the toe of the point to the free end of the outwardly-bent portion of the rail, the filling-piece, the hard-metal supplemental wing-rail secured to said filling-piece and fitted to the side of the head of said wing-rail, and having its inner side substantially parallel with the side of the point, and forming, with the latter, the flangeway, substantially as and for the purpose set forth.

6. In a railway-frog, the combination of the supporting-rails with a hard-metal body which fits into the sides of the said supporting-rails, and constitutes the principal part of the frog, and is formed with a groove which is divided into two grooves by a point, the said grooves being flared out laterally at the end, substantially as described.

7. In a railway-frog, the combination of the supporting-rails with a hard-metal body which fits into the sides of the said supporting-rails, and constitutes the principal part of the frog, and is formed with a groove which is divided into two grooves by a point, the said grooves being flared out laterally at the end, and the supporting-rails being extended beyond the flared-out ends of the grooves, substantially as described.

682,864. **FLUE-CUTTER.** CARL WITTEK, Columbus, Ohio. Filed May 2, 1901. Serial No. 58,418. (No model.)

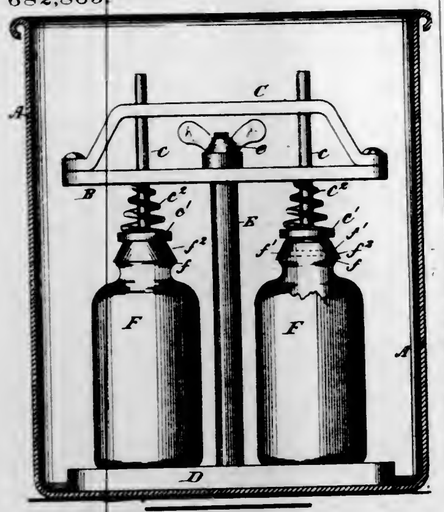


Claim.—In a tube-cutter, the combination with a casing or frame, and a horizontally-movable blade 20 having an inclined slotted opening therein, of a lever 24 having a journaled roller bearing in said blade slotted opening, the rear and upper portion of said lever pivoted within said casing or frame and a cutter-wheel journaled in the forwardly-extending portion thereof, means for imparting a rotary motion to the casing and a horizontal movement to the blade 20, substantially as specified.

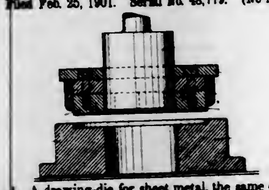
682,865. **APPARATUS FOR TREATING FOOD PRODUCTS.** WILLIAM H. WRIGHT, New York, N. Y., assignor to the Vacuum Can & Jar Company, same place. Filed June 19, 1896. Serial No. 596,200. (No model.)

Claim.—The combination with a rarefying-receptacle, of one or more jars or vessels arranged therein, and each having an upwardly-converging head provided with an external groove, which divides the surface of the heads into two zones, an elastic ring in said groove, a cover for each of said jars having its inner surface corresponding with the convergence of the head of the jar and adapted, when pressure is applied, to distort said elastic ring, to force it into said zones, and a yielding pressure device for said covers.

682,865.



682,866. DRAWING-DIE. OTTO ASCHE, Boulogne-sur-Seine, France. Filed Feb. 25, 1901. Serial No. 48,779. (No model.)



Claim.—1. A drawing-die for sheet metal, the same consisting of a drawing-die proper, a holding-die, and a plunger passing through the drawing-die proper and holding-die, said holding-die being composed of a face-ring formed of independent sector-shaped pieces, movable to slide one on the other, a supporting top plate, and means for separately supporting the sector-shaped pieces and for connecting the face-ring, cushion, and top plate, substantially as set forth.

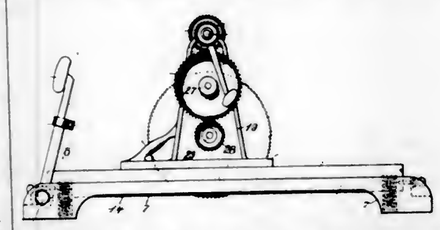
2. A drawing-die for sheet metal, the same consisting of a drawing-die proper, a holding-die, and a plunger guided into the holding-die and drawing-die proper, said holding-die being composed of a face-ring, a supporting top plate provided with sockets, an elastic cushion interposed between the face-ring and the top plate, and screw-bolts connecting the face-ring and the elastic cushion with the top plate, the heads of said bolts being countersunk and guided and movable in the sockets in the said supporting top plate, substantially as set forth.

682,867. CIGAR-BOX. NELSON R. CLARK, Beverly, Mass. Filed Feb. 14, 1901. Serial No. 47,207. (No model.)



Claim.—A cigar-box for ellipsoidally-ended packages of cigars, said cigar-box comprising a pair of rigid interiorly-recessed box ends and a cylindrical box-body; one of the box ends being detachable from the box-body; each box end being approximately ellipsoidal in exterior configuration, and said recesses being also approximately ellipsoidal to snugly fit and protect the ellipsoidal ends of a cigar-package; apical knobs at the outer ends of said box ends; the knobs being of lesser diameter than the box ends; and the box-body being of lesser diameter than the adjacent walls of the rigid box ends, whereby the rigid supporting-margins of the rigid box ends project beyond the intermediate box-body.

682,868. CIRCULAR HANDSAW. DANIEL A. DUGAN, Brooklyn, N. Y. Filed Feb. 8, 1901. Serial No. 46,575. (No model.)



Claim.—1. A hand sawing-machine composed of a base having thereon a vertically-adjustable guide-plate provided with a groove therein, in combination with a standard, having a base-plate with a tongue fitting within the groove of the guide-plate, said standard having a handle for controlling same, a circular saw and crank for operating the same and intervening gearing between the crank and the saw shafts, substantially as set forth.

2. A hand sawing-machine composed of a base having a vertically-adjustable guide-plate thereon, a standard adapted to move along on said guide-plate, a circular saw mounted on a horizontal shaft in said standard, a crank-shaft having a differential gearing thereon, and intermediate gearing between the crank-shaft and saw-shaft, substantially as set forth.

3. A hand sawing-machine composed of a base in combination with a vertically-adjustable guide-plate, a standard adapted to move on said guide-plate, said standard having at its upper end a forwardly-extending step-like projection composed of two slightly-separated branches, united to form a horizontally-projecting housing, a crank-shaft in said housing having at its rear end a pinion between the branches of the step-like projection and below said projection a pair of gears on the front side of the standard and a circular saw mounted on a shaft in the standard and operated by said gear-wheels, substantially as set forth.

4. A hand sawing-machine composed of a base, in combination with a grooved guide-plate thereon and a standard adapted to move on said guide-plate, a circular saw mounted on a shaft in said standard, a crank-shaft and a train of gearing from said shaft to the saw-shaft, and a differential gearing on the crank-shaft, one member of said gearing being integral with the standard, substantially as herein set forth.

5. A hand sawing-machine having in combination a base provided at one end with an adjustable breast-rest, a vertically movable and adjustable grooved guide-plate on said base, a standard on said guide-plate and movable thereon, a circular saw mounted on a shaft in said standard, a crank-shaft having a differential gearing and intermediate gearing between the crank-shaft and saw-shaft and a handle on said standard for controlling the same, as set forth.

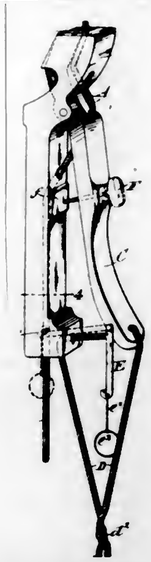
6. A hand sawing-machine having, in combination, a base provided at one end with an adjustable breast plate-rest, a longitudinal groove or slotted opening in the base, a bar in said groove, a spring at each end within said groove to receive the ends of the bar, a series of holes at each end of the bar and pins to hold said bar, a vertically-movable guide-plate movable thereon and having a standard, a circular saw mounted on a shaft in said standard, and a crank-shaft and suitable gearing between said shaft and a saw-shaft, as set forth.

682,869. FIRE-ESCAPE. RICHARD HAMMERLY, New York, N. Y. Filed Apr. 12, 1901. Serial No. 55,584. (No model.)

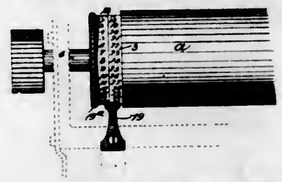
Claim.—1. A fire-escape, consisting of a slide-piece provided with a longitudinal bore and at its upper end with a jaw, a clamping-lever fulcrumed to said slide-piece and provided with a jaw coöperating with the jaw of the slide-piece, and with a perforation, a main rope passing successively through the bore of the slide-piece, the perforation of the clamping-lever, and between said jaws, and a suspension-rope connected with the slide-piece and clamping-lever, substantially as set forth.

2. A fire-escape, consisting of a slide-piece provided with a longitudinal bore and at its upper end with a jaw, a clamping-lever fulcrumed to said slide-piece and provided with a jaw coöperating with the jaw of the slide-piece, and with a perforation located above the upper end of said bore and between the same and the jaws, a main rope passing through said bore and perforation, and between the jaws, a suspension-rope secured to the slide-piece and the clamping-lever, a pin on the slide-piece, a locking-hook pivoted to the clamping-lever and engaging said pin, means attached to said locking-hook for operating the same, and an adjusting-screw turning in the clamping-lever and bearing against the slide-piece, substantially as set forth.

682,869.



682,870. TYPE-WRITING MACHINE. HARRY W. HIGHAM, Sanderstead Hill, England, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed July 18, 1900. Serial No. 24,016. (No model.)



Claim.—1. A position-scale for type-writers comprising a disk 1 immovably attached by screws or the like to the end of the platen of the machine and provided with a peripheral flange, upon one part of which are stamped or otherwise indicated a series of numerals or letters, the other part of the flange being reduced and having formed upon the edge thereof a number of recesses to equal the numerals or the like, and also provided with a central boss bored to receive the spindle of the platen and secured thereto by means of a screw or the like, a ring, also provided with a flange upon which are indicated numerals as in the preceding case, and of an internal diameter to fit the reduced part aforesaid, an internal projection adapted to be engaged at will with any one of the recesses upon the first flange and a means such as a dished washer and compressed springs to hold the two parts together and a suitable pointer secured to the carriage of the machine all arranged, constructed and operating substantially in the manner herein set forth and illustrated by the appended drawings.

2. The combination with a rotatable type-writer platen of a scale on one end thereof composed of two independently-revoluble members each numbered or lettered upon its periphery the whole device being secured to and rotating with the platen substantially as herein set forth and illustrated by the appended drawings.

3. In a type-writing machine, the combination with a revoluble platen of a line-space number-wheel mounted concentrically therewith and rotatable relatively thereto, and a series of devices arranged at line-space intervals and constructed to coöperate with said platen and said number-wheel to hold the latter in the different positions to which it is adjusted.

4. In a type-writing machine, the combination with a revoluble platen of a line-space number-wheel mounted concentrically therewith and rotatable relatively thereto, a series of notches arranged at line-space intervals, and a tooth constructed to enter said notches to hold said number-wheel after the latter is adjusted.

5. In a type-writing machine, the combination with a revoluble platen of a line-space number-wheel mounted concentrically therewith and rotatable relatively thereto, a series of notches, a tooth adapted to said notches, and a spring.

6. In a type-writing machine, the combination with a revoluble platen of a line-space number-wheel mounted concentrically therewith and rotatable relatively thereto, positioning devices 5, tooth 11, studs 16, and springs 18.

7. In a type-writing machine, the combination with a revoluble platen of a line-space number-wheel mounted at one end thereof and rotatable relatively thereto, positioning devices 5, teeth 11, washer 12, studs 16, and springs 18.

8. In a type-writing machine, the combination with a revoluble platen of a pair of line-space number-wheels, one of which is mounted to rotate with the platen, and the other of which is independently adjustable.

9. In a type-writing-machine, the combination with a revoluble platen of a line-space number-wheel mounted concentrically therewith and adjustably connected thereto, an indicator carried by the platen and rotating therewith, a platen-frame, and an indicator carried by the platen-frame.

10. In a type-writing machine, the combination with a revoluble platen of a pair of line-space number-wheels mounted concentrically therewith, one constructed to rotate with the platen and the other adjustable relatively thereto.

11. In a type-writing machine, the combination with a revoluble platen of a pair of line-space number-wheels mounted at the end of the platen and in close proximity to each other, one of said wheels being fixed to the platen and the other being adjustable relatively thereto, a platen-frame, and an index mounted on said platen-frame and extending to both of said wheels

12. In a type-writing machine, the combination with a revoluble platen having a line-space number-wheel of a second line-space number-wheel mounted by the side thereof and rotatable relatively thereto, and means for adjusting said second wheel at line-space intervals.

13. In a type-writing machine, the combination with a revoluble platen having a line-space number-wheel of a second line-space number-wheel mounted by the side thereof, a series of notches arranged at line-space intervals, and a tooth constructed to engage said notches to hold said second number-wheel after adjustment of the latter.

14. In a type-writing machine, the combination with a revoluble platen having a line-space number-wheel of a second line-space number-wheel mounted by the side thereof, a series of notches, a tooth adapted to said notches, and a spring.

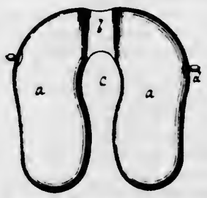
15. In a type-writing machine, the combination with a revoluble platen and a line-space wheel of a pair of number-wheels mounted concentrically with the platen and each having one number for each tooth of the line-space wheel, said numbers being arranged in numerical order in a single column extending around the periphery of each wheel, and means for adjusting one of said wheels relatively to the other.

16. In a type-writing machine, the combination with a platen of a platen-head, a series of line-space numbers extending around the periphery thereof, and a line-space number-wheel mounted concentrically with said platen-head and adjustable relatively thereto.

17. In a type-writing machine, the combination with a platen having a head, of a series of line-space numbers extending around the periphery thereof, and a line-space number-wheel adjustably mounted upon said platen-head.

18. In a type-writing machine, the combination with a platen of a pair of line-space scales, one fixed to the platen and the other adjustable relatively thereto.

682,871. CUSHION. DANIEL HOGAN, New York, N. Y., and CHRISTIAN W. MEINECKE, Jersey City, N. J., assignors to Meinecke & Co., New York, N. Y. Filed Dec. 26, 1900. Serial No. 41,122. (No model.)



Claim.—1. A cushion comprising connected sections made independent of one another and separably inflatable and deflatable and having a hole or opening between the sections, said sections having an air-tight partition or separation at said connection substantially as described.

2. A cushion comprising connected sections made independent of one another and separably inflatable and deflatable and having a hole or

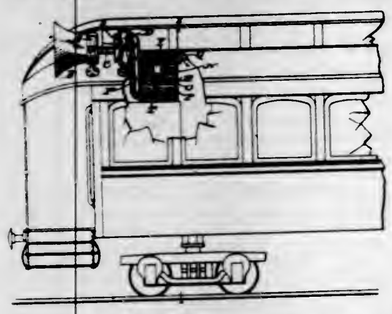
opening between the sections, the connection between the sections being thinned or gutter-shaped to form a ventilator substantially as described.

3. A cushion comprising connected separably inflatable and deflatable sections and a ventilator or gutter extended between the sections from front to rear substantially as described.

4. A cushion comprising connected separably inflatable and deflatable sections and a longitudinal hole and ventilating-gutter extended between the sections from front to rear substantially as described.

5. A cushion comprising connected separably inflatable and deflatable sections and a hole extended longitudinally between the sections, said cushion having ventilating means at front and rear substantially as described.

682,872. **RAILROAD-CAR-VENTILATING APPARATUS.** FRANK L. JOHNSON, Richmond, Va., assignor of one-half to Algernon Sidney Buford, same place. Filed Sept. 18, 1900. Serial No. 30,392. (No model.)



Claim.—1. In a car-ventilating apparatus, a rotary shaft arranged longitudinally with the car and having on the same two sets of fan-blades, the front one being a motor-fan to be acted on by the air-currents, and the rear one a driven suction-fan, a gathering-hood inclosing the motor-fan, and a separate and detached casing inclosing the suction-fan, said casing being entirely open on the front side concentrically with the shaft, whereby the motor-fan is made to turn the suction-fan, and the intake of air for the suction-fan is promoted by having its opening facing to the front substantially as described.

2. In a car-ventilating apparatus, a rotary shaft arranged longitudinally with the car, and having on the same two sets of fan-blades, the front one being a motor-fan to be acted on by the air-currents, and the rear one a driven suction-fan, a gathering-hood inclosing the motor-fan, a separate and detached casing inclosing the suction-fan, said casing being entirely open on the front side concentrically with the shaft, and an air-filtering and temperature-regulating chamber arranged to communicate with the outlet from the suction-fan, and having a discharge-opening into the car substantially as and for the purpose described.

3. In a car-ventilating apparatus, an air-purifying and temperature-regulating chamber having in its bottom a water-tank with a water-regulating float-valve and also a heating-coil, a series of detachable trays arranged above the water-tank for containing ice and filtering material, a box or receptacle arranged in the upper part of the chamber for containing purifying chemicals, doors arranged on the side of the chamber to permit the charging of the trays, and an inlet-pipe of inverted T-shape having its lower broad end opening horizontally below the trays and above the water-level and an outlet-opening arranged in the upper part of said chamber substantially as described.

4. A discharge-ventilator K for a car consisting of a funnel-shaped hood 3, a curved shaft portion L opening down into the car, said shaft and hood being connected together at their small ends with a common confluence, and terminating in a horizontal pipe, and a damper M arranged in the pipe and having a handle extending down into the car substantially as and for the purpose set forth.

5. In an air-purifying filter for a railway-car, the combination with a chamber having a water-tank in its lower portion with level-regulating devices, and filtering devices above; of an air-inlet pipe having at its lower end a T-shape with a horizontally-extended entrance-mouth opening into the water-tank just above the level of the water, and below the filter devices, substantially as and for the purpose described.

682,873. **METAL HOSE-COUPLING AND WASHER.** FRANCISCO D. JOY, Glendora, Cal. Filed June 23, 1900. Serial No. 21,395. (No model.)

Claim.—1. A hose-coupling section of the class described comprising the section proper having lateral slots and a washer having lateral extensions adapted to fit in said slots, substantially as shown and described.

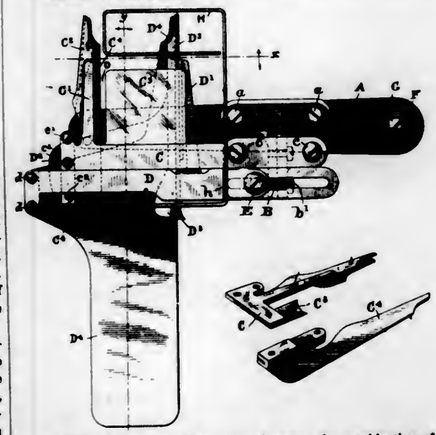


2. The improved hose-coupling section formed of a cylindrical body having lateral slots extending parallel to its end portions, substantially as shown and described.

3. The combination, with a hose-coupling section of the class described having lateral sockets, of a washer having a central opening and lateral extensions or wings adapted to enter said sockets and thereby hold the washer in place, substantially as shown and described.

4. The washer for the hose-coupling section, the same having an annular body and opposite lateral extensions or wings, substantially as shown and described.

682,874. **HEMMER FOR SEWING-MACHINES.** ALEXANDER LAUBACHER, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Aug. 24, 1899. Serial No. 728,283. (No model.)



Claim.—1. In a sewing-machine hemmer, the combination of a suitably-supported base or bracket, the stationary or left-hand folder adapted to deliver the stitching edge of the hem, mounted on said base or bracket and provided with an intervening tongue around which the fabric is folded, with an adjustable slide or arm also secured on said base or bracket, independently of said left-hand folder and tongue and adapted to overreach the latter, the right-hand folder carried by said adjustable slide, and a tongue secured to the latter at a point beyond said left-hand folder and tongue and adapted to coöperate with said right-hand folder, whereby the tongues of said right and left hand folders are overlapped, for the purpose set forth.

2. In a sewing-machine hemmer, the combination of a suitably-supported base or bracket, the overhanging arm C secured thereon and carrying at its outer end the stationary left-hand folder provided with an intervening tongue and adapted to deliver the stitching edge of the hem, with an adjustable slide or arm D operatively mounted adjacent to said overhanging arm C so as to overreach said left-hand folder and intervening tongue, the right-hand folder carried by said arm D and secured thereto at a point intermediate of said left-hand folder and base, and a tongue secured to the extremity of said arm D beyond said left-hand folder and adapted to coöperate with said right-hand folder, whereby the tongues of said right and left hand folders are overlapped, for the purpose set forth.

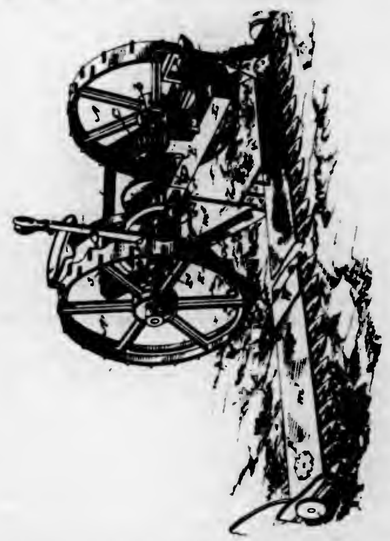
3. In a sewing-machine hemmer, the combination of a suitably-supported base or bracket, the overhanging arm C secured thereon and carrying at its outer end the stationary left-hand folder provided with an intervening tongue and adapted to deliver the stitching edge of the hem, with an adjustable slide or arm D operatively mounted adjacent to said overhanging arm C so as to overreach said left-hand folder and tongue, the right-hand folder carried by said arm D and secured thereto at a point intermediate of said left-hand folder and base, a tongue secured to the extremity of said arm D beyond said left-hand folder and adapted to coöperate with said right-hand folder, whereby the tongues of said right and left hand folders are overlapped, and a guide-plate C^3 carried by said overhanging arm C by means of which the folded hem is held down and guided on its way to the stitch-forming mechanism, an opening of suitable width being left between said guide-plate C^3 and said left-hand folder, for the purpose set forth.

4. In a sewing-machine hemmer, the combination of right and left hand folders, each provided with and carrying a tongue around which the fabric is folded, the overhanging arms to which said folders are respectively attached, a base-plate and a bracket mounted on said base-plate and having said overhanging arm secured thereto, said bracket being jointed and capable of vertical adjustment, whereby the delivery ends of said folders may be raised or lowered, substantially as and for the purpose specified.

5. In a sewing-machine hemmer, the combination of right and left hand folders, each provided with and carrying a tongue around which the fabric is folded, the overhanging arms to which said folders are respectively attached, a base-plate, a bracket mounted on said base-plate and having said overhanging arms secured thereto, said bracket being formed of two sections jointed together and provided with means for vertically adjusting one of said sections with respect to the other, whereby the delivery ends of said folders may be raised or lowered, substantially as and for the purpose specified.

6. In a sewing-machine hemmer, the combination of a jointed bracket and means for vertically adjusting one of the sections of said bracket with respect to the other for the purpose specified, with the respective right and left hand folders operatively mounted on the adjustable section of said bracket, and means for securing the latter in operative position upon the bed-plate of a sewing-machine.

682,875. **MOWER OR REAPER.** PATRICK H. LOVE, Franklin, Tex. Filed Oct. 4, 1900. Serial No. 31,979. (No model.)



Claim.—1. In a mower or reaper, the combination of the finger-bar having a fixed portion and an outer portion which is hinged to the other so as to be raised or folded in a vertical plane, and an endless traveling cutter-bar arranged within each finger-bar and provided with transverse joints which when brought into alinement with the joint of the finger-bar enable the cutter-bar to be folded with the latter, substantially as shown and described.

2. In a mower or reaper, the combination of a finger-bar having a transverse joint which permits folding in a vertical plane, and an endless traveling cutter-bar having similar transverse joints, and chain-wheels upon which the cutter-bar is adapted to run, the parts being so proportioned and constructed that when the cutter-bar is properly adjusted the joints in the opposite sides of the same will aline with the joint of the finger-bar, substantially as shown and described.

3. In a mower or reaper, the combination, with a finger-bar having a transverse joint, of locking devices applied thereto, fixed projections of the finger-bar proper which are engaged by such devices, to hold the outer end of the finger-bar alined with the fixed part, substantially as shown and described.

4. In a mower or reaper, the combination, with a finger-bar formed in two parts, which are joined together and provided at their meeting ends with tongues and intervening grooves, of slidable locking devices applied on the sides of the joints and adapted to engage the said tongues, substantially as shown and described.

5. In a mower or reaper, the combination, with a finger-bar having a transverse joint as specified, and provided with tongues and intervening grooves at the said joint, of locking devices provided with corresponding tongues and intervening grooves, and arranged laterally of the joint, the said devices being adapted to slide lengthwise, whereby their projections may be brought into engagement with the tongues of the finger-bar sections, for holding the outer end of the finger-bar in alinement, as required, substantially as shown and described.

6. The combination with the cutter-bar links provided with two vertical screws placed near the outer edge, and a vertical perforation located near the inner edge of the links in triangular relation to said screws, of a lozenge-shaped cutter having its inclined edges sharpened as described, and provided with a perforation at each end, the said cutter fitting between the screws and its perforation coinciding with that in links, as and for the purpose specified.

7. The combination of the lozenge-shaped cutter having four beveled edges and a vertical perforation in each end, with the cutter-bar having sockets and a vertical perforation at the inner end of such socket, whereby, when either triangular end of the cutter is placed in the socket it may be secured by a screw, as shown and described.

682,876. **NUT-LOCK.** DAVID W. MARTIN, Portage, Pa., assignor of one-half to Gustav H. R. Groke, same place. Filed Aug. 8, 1901. Serial No. 71,349. (No model.)



Claim.—1. A nut-lock comprising opposite members which are foldably connected and provided with corresponding openings, one of which openings is polygonal in shape and also larger than the other, the member having the polygonal opening being provided with means to coöperate with the surface against which it is to lie and have an interlocked engagement therewith to prevent separation of the members.

2. A nut-lock comprising opposite members which are foldably connected and also provided with corresponding openings, one of which openings is polygonal in shape, and the member having the polygonal opening being provided at opposite sides with lateral locking projections.

3. A nut-locking washer formed from a single blank of metal and having opposite members which are capable of being folded over toward each other, and also provided with openings which are constructed to register when the members are folded, one of said openings being polygonal in shape, and the member having the polygonal opening being provided at its outer corners with lateral locking projections.

4. The combination with a member having a bolt-opening, a bolt projected through the opening, and a nut applied to the projected end of the bolt, of a nut-locking washer having a part which is provided with a bolt-opening and is located between the member and the nut, and also having a locking part which is folded over toward the first-mentioned part and is provided with a polygonal opening or seat snugly receiving the nut, the outer corners of this latter part being provided with spring projections that are snapped into sockets or seats formed in the adjacent surface of the member which carries the bolt.

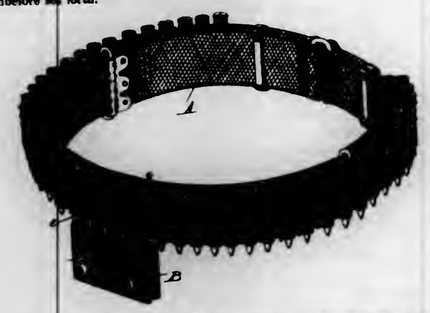
5. A nut-locking washer consisting of a plate which is folded to form opposite members, said members being provided with registered openings, one of which openings is polygonal in shape, the member which has the polygonal opening being provided with lateral corner projections, and said member also being bowed intermediately of the projections to give elasticity thereto.

682,877. **SEAMLESS WOVEN POCKET.** AMOS MILLS, Washington, D. C. Filed July 13, 1901. Serial No. 68,183. (No model.)

Claim.—1. The seamless woven "first-aid-package" pocket, herein described having the edges *c* inside the pocket, and a covering-flap with lateral inturned folds *f* secured to the body of the flap, substantially as set forth.

2. The seamless "first-aid-package" pocket provided with a device

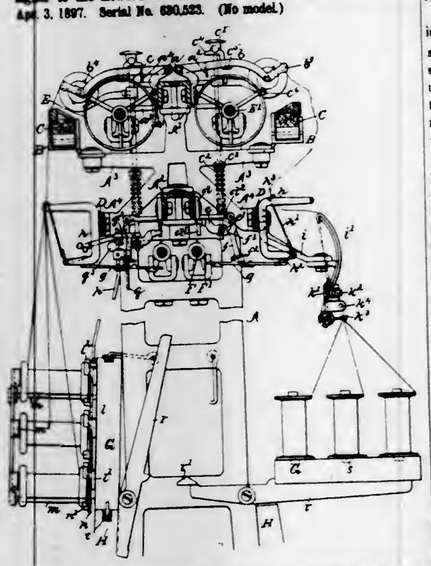
for detachably connecting it with a cartridge-belt consisting of a bar *d* placed on and extending lengthwise of the inner face of the pocket-flap, and provided with hook ends *c* which protrude through eyelets in the fabric, and are adapted to engage the cartridge-belt, substantially as hereinbefore set forth.



3. The woven seamless "first-aid-package" pocket consisting of the woven body of the pocket, the solid side edges *i*, and the covering-flap B' forming a prolongation of the inner ply of the pocket and provided with laterally-extended wings *f* as hereinbefore described and illustrated.

4. The strip composed of a series of connected woven blanks, and consisting of the pocket portions B, the flap portions B' with lateral extensions *f*, which are in a continuous weave, and the solid edges *e* with floating warps *m* between the adjoining edges *e* of contiguous blanks, as herein described and illustrated.

682,878. **DOUBLING-FRAME.** WALTER G. MORRISON, Willimantic, Conn.; Huber Clark, administrator of said Morrison, deceased, assignor to the Atwood-Morrison Company, Stonington, Conn. Filed Apr. 3, 1897. Serial No. 630,523. (No model.)



Claim.—1. In combination with a friction drive-wheel and means for rotating it, a bobbin-spindle, a bobbin-supporting frame adapted to carry the spindle of the bobbin into contact with the friction drive-wheel and having journal-supports for the bobbin consisting of inclined slots arranged to permit unobstructed movement of the bobbin in the slots, means for moving said bobbin-supporting frame toward the friction drive-wheel, and means for supplying material to the bobbin.

2. In combination with a friction drive-wheel and means for rotating it, a bobbin-spindle, a bobbin-supporting frame arranged to carry the spindle of the bobbin into contact with the friction drive-wheel and having journal-supports for the bobbin consisting of inclined slots arranged to permit unobstructed movement of the bobbin therein, means for firmly holding the bobbin-supporting frame during the winding operation, and means for supplying material to the bobbin.

3. In combination with a friction drive-wheel and means for operating it, a bobbin-spindle, a bobbin-supporting frame arranged to carry the spindle of the bobbin into contact with the friction drive-wheel and having journal-supports for the bobbin consisting of inclined slots arranged to permit unobstructed movement of the bobbin therein, a starting-rod arranged to hold the supporting-frame against a fixed stop during the winding operation and also to move it backward, the stop, means for moving the starting-rod, means for releasing the rod on the breaking of a thread being wound, and means for supplying thread to the bobbin.

4. In combination in a doubling-frame, a friction drive-wheel with means for rotating it, a frame adapted to support a bobbin, a bobbin mounted on the frame, projections carried by said bobbin, means for carrying the frame toward and away from the friction drive-wheel, a stop on said means adapted to engage said projections and means for supplying thread to the bobbin.

5. In combination in a doubling-frame, a friction drive-wheel with means for rotating it, a frame adapted to support a bobbin, the bobbin mounted on the frame, projections carried by a rotating part of the bobbin, a starting-rod for carrying the frame toward and away from the friction drive-wheel, a stop on the starting-rod adapted to engage said projections, and means for supplying thread to the bobbin.

6. In combination with a friction drive-wheel and means for rotating it, a bobbin-supporting frame arranged to carry a bobbin into position to be operated by said friction drive-wheel, and having journal-supports for the bobbin consisting of inclined slots permitting the bobbin to move along said slots in the direction of force applied by the contacting surface of the friction drive-wheel, and means for supplying thread to said bobbin.

7. In combination with a friction drive-wheel and means for rotating it, a bobbin-support having a reciprocating movement toward and away from the friction drive-wheel, a starting-rod adapted to engage the supporting-frame, means for forcing the starting-rod upward, a stop to limit the downward movement of the support, a lug on the rod arranged to hold the frame against the stop, and means for releasing the starting-rod on the breaking of a thread being wound.

8. In combination with a friction drive-wheel and means for rotating it, a bobbin-support having a reciprocating movement toward and away from the friction drive-wheel, a starting-rod adapted to engage the support in the upward movement of the rod, means for forcing the rod upward, a forked guide secured to the rod and arranged to engage a lug to prevent rotation of the rod and a shoulder to limit its upward movement, and means for releasing the rod on the breaking of a thread being wound.

9. In combination with a starting-rod, a bracket having a guide-lug projecting therefrom and forming a stop-shoulder, a guide secured to the starting-rod and in engagement with the lug, a projection from the bracket having an opening forming a bearing for the starting-rod, means for moving the rod to carry the guide into engagement with said stop-shoulder, a swinging latch pivoted to the outer end of the projection and arranged to engage the rod, and means for swinging the latch to permit the rod to operate.

10. In combination with a starting-rod having a reciprocating movement, means for holding the rod at one limit of its play, a bracket having a projection forming a bearing for the rod, a guide-lug extending from the bracket, a guide secured to the starting-rod and in engagement with the guide-lug and adapted to limit the upward movement of the starting-rod, a cam-surface formed on the guide, a latch pivoted to the projection from the bracket and arranged to engage the guide and adapted to contact with the cam whereby the latch is swung outward in the movement of the rod, and means for swinging the latch to disengage the rod.

11. In combination with a starting-rod having a reciprocating movement, means for holding the rod at one limit of its play, a bracket having a projection forming a bearing for the rod, a guide-lug extending from the bracket, a guide secured to the starting-rod and in engagement with the guide-lug and adapted to limit the upward movement of the starting-rod, a cam-surface formed on the guide, a latch pivoted to the projection from the bracket and arranged to engage the guide and adapted to contact with the cam whereby the latch is swung outward in the movement of the rod, a tilting lever pivoted on the latch, trip-cams adapted to engage the end of the lever, means for moving the trip-cams, and means for tilting the trip-lever into the path of movement of the cams whereby the latch is disengaged from the starting-rod.

12. In combination with a starting-rod, means for holding the starting-rod normally at one limit of its play, means for holding the starting-rod temporarily at the opposite limit of its play, a guide, a yoke borne on the guide and having a latch-opening therein, a brake-rod bearing a brake in operative relation to a supply-bobbin and extending loosely through the yoke, a finger-lever pivoted on the brake-rod and having a hook extending through the latch-opening in the yoke, and means for holding the lever normally against one wall of the latch-opening.

13. In combination with a starting-rod, means for holding the starting-rod normally at one limit of its play, means for holding the starting-rod temporarily at the opposite limit of its play, means for disengaging the temporary holding device, a guide, a yoke borne on the guide and having a latch-opening therein, a lug on the yoke forming a continuation of the wall of the opening, a brake-rod bearing a brake in operative relation to a supply-bobbin and extending loosely through the yoke, a finger-lever pivoted on the brake-rod and having a hook extending through the latch-opening in the yoke, means for holding the lever normally against one wall of the latch-opening.

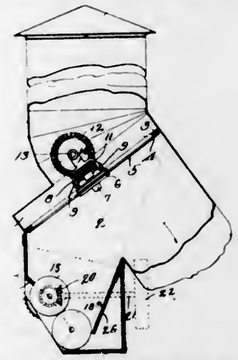
14. In combination with the frame of a winding-machine, a bobbin-rail, means for securing bobbins to the rail, a rest for the lower edge of the rail, a pin and engaging socket on the rail and support, and a swinging hook and engaging socket at the upper end of the rail.

15. In combination in a drop-wire frame, a swinging drop-wire holder consisting of arms pivoted to the frame and a cross-bar connecting the arms, said cross-bar being arranged to lie back of the drop-wire and when swung upward to allow the drop-wire to pass underneath.

16. In combination with a friction drive-wheel and means for rotating it, a bobbin-support having a reciprocating movement toward and from the friction drive-wheel, a starting-rod adapted to engage the support and arranged to have longitudinal movement independent of the support, means for forcing the starting-rod upward, a fixed stop to limit the downward movement of the support, a lug on the rod overlying the support, and means for releasing the rod on the breaking of a thread being wound.

17. In combination with a friction drive-wheel and means for rotating it, a bobbin-support having a reciprocating movement toward and from the drive-wheel and having slots for the reception of the spindle of a bobbin, said slots inclining upward and forward with respect to the direction of movement of the surface of the friction drive-wheel, and means for moving the bobbin-support away from the friction drive-wheel.

682,879. **CONDENSER FOR COTTON-GINS.** STEPHEN D. MURRAY, Dallas, Tex. Filed July 12, 1900. Serial No. 23,376. (No model.)



Claim.—1. A cotton-condenser provided with a rotary foraminous disk for separation of air from the cotton lint, substantially as described.

2. A cotton-condenser comprising a condenser-chamber, a flue for conducting cotton lint into said chamber from a gin, a rotary foraminous disk mounted in an upper part of the condenser-chamber to separate air from the cotton lint, an air-exit flue leading from the condenser beyond said disk, and condenser-rollers mounted in a lower part of the condenser-chamber, substantially as described.

3. A cotton-condenser comprising a condenser-chamber having a flue for inlet of cotton lint from a gin, a rotary foraminous disk mounted in said chamber, an air-exit flue leading from the condenser-chamber beyond said rotary foraminous disk for the separation of air from the cotton lint, and condenser-rollers mounted below said rotary foraminous disk, substantially as described.

4. In a cotton-condenser, the combination with the condenser-chamber having an inlet-flue for conducting cotton lint from a gin and into said chamber, and condenser-rollers mounted in a lower part of the condenser-chamber, of a rotary foraminous disk mounted in an upper part of the condenser-chamber for separation of air from the cotton lint, and an air-exit flue leading from the condenser-chamber beyond said rotary foraminous disk and provided with a hood, substantially as described.

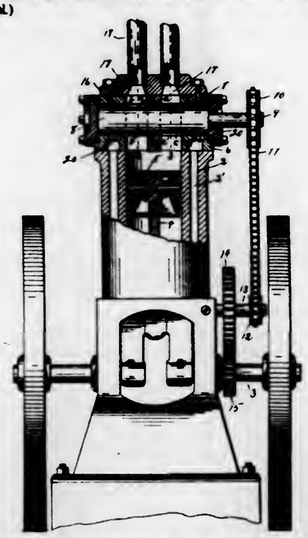
5. In a cotton-condenser, the combination of a condenser-chamber, a flue for conducting cotton lint from the gin and into said chamber, condenser-rollers mounted in the condenser-chamber, gearing for driving said condenser-rollers, a rotary foraminous disk mounted in the condenser-chamber above said rollers for separating air from the cotton lint, means for driving said rotary foraminous disk from one of the condenser-rollers, and an air-exit flue leading from the condenser beyond said rotary foraminous disk, substantially as described.

6. In a cotton-condenser, a rotary foraminous separating-screen having a plane surface.

7. In a cotton-condenser, a condensing-chamber, flues leading into and from said chamber, a rotary foraminous separating-screen having a plane surface located in said chamber between said flues, and condenser-rollers in the lower part of said chamber.

8. In a cotton-condenser, a condensing-chamber, flues leading into and from said chamber, and a rotary foraminous separating-screen having a plane surface located in said chamber and set at an angle to each of said flues.

682,880. **VALVE-GEAR FOR EXPLOSIVE-ENGINES.** JAMES MCNEIL, Allegheny, Pa. Filed Feb. 28, 1901. Serial No. 49,274. (No model.)



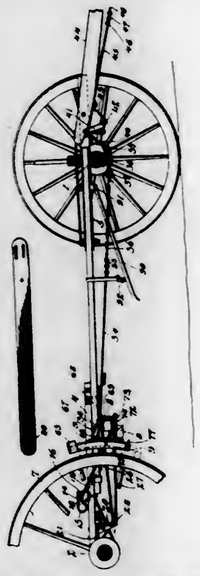
Claim.—1. The combination of a cylinder, a cylindrical valve-casing formed with cylinder-ports *a'* and *b'*, the casing having two ports *a* and *b* diametrically opposite ports *a'* and *b'* respectively, the ports *a a'* and *b b'* being in lines parallel with the axial line of the casing, a cylindrical valve formed with through-and-through ports *c* and *d* in the planes of ports *a a'* and *b b'* respectively ports *c* and *d* being disposed in different radial lines, and inlet and exhaust connections for ports *a* and *b*, substantially as shown and described.

2. The combination of a cylinder, a piston, a crank-shaft operatively connected to the piston, a cylindrical valve-casing formed with cylinder-ports *a' b'* the casing also being formed with ports *a b* diametrically opposite ports *a' b'*, a cylindrical valve formed with the through-and-through radial ports *c d*, all of said ports being of corresponding width and the peripheral length of the valve being sixteen times the width of any one of said ports, the distance between lines extending longitudinally of the valve on the periphery thereof and intersecting adjacent sides of ports *c* and *d* being the same as the width of one of said ports, and mechanism for imparting one revolution to the valve for every four revolutions of the crank-shaft, substantially as shown and described.

682,881. **AUTOMATIC WAGON-BRAKE.** GEORGE S. NEAL and HENRY C. NEAL, Eddyville, N. Y. Filed Mar. 14, 1901. Serial No. 51,122. (No model.)

Claim.—1. In a wagon-brake, the combination with the running-gear and axle, of a brake-beam located transversely of the running-gear and having elements arranged to engage the wheels upon the axle, a brake-beam carrier pivotally connected to the running-gear between said axle and brake-beam, and means for lowering the brake-beam to move

the elements into engagement with the wheels upon said axle, and a spring for raising said elements out of such engagement.



2. In a wagon-brake, the combination with the running-gear and axle, of a brake-beam having elements arranged to engage the wheels upon the axle, a brake-beam carrier, a cross-bar secured to the running-gear between the brake-beam and said axle and forming a pivotal support for the carrier, and means for lowering and raising the brake-beam to move the elements into and out of engagement with the wheels upon said axle.

3. In a wagon-brake, the combination with the running-gear and axle, of a brake-beam having elements arranged to engage the wheels upon the axle, a brake-beam carrier pivotally connected to the running-gear between the brake-beam and said axle, a cross-bar connected to the bounds and forming a support for the brake-carrier, and brake connections for raising and lowering the beam to move the elements carried thereby into and out of engagement with the wheels upon said axle.

4. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted on the running-gear between the brake-beam and axle, brake connections for swinging said carrier into operative relation with the wheels, and a throw-off spring engaging the said carrier to move the brake-beam out of operative relation.

5. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle and provided with a projecting lug, a throw-off spring in engagement with said lug, and brake connections for swinging said carrier.

6. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for swinging said carrier, brake-shoes carried by the brake-beam, and relief-springs acting on said shoes.

7. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake-shoes connected to the brake-beam by pivotal links, and relief-springs engaging said links, for the purpose specified.

8. A wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted on the running-gear and connected to the beam, means for moving the beam into operative relation with the wheels, and a throw-off spring engaging the carrier to move the brake-beam out of operative relation.

9. In a wagon-brake, a brake-beam, a brake-shoe located at one side of the beam, a link pivotally connecting the shoe and the rear portion of the beam, said link being located above said beam, and a coiled relief-spring interposed between the under face of the link and the upper face of the beam to yieldingly support the shoe.

10. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for swinging said carrier, and means for holding said shoes in an elevated position with respect to said brake-beam.

11. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for swinging said carrier, shoes pivotally connected to the brake-beam, and presser-rods for yieldingly supporting said shoes.

12. An automatic wagon-brake, comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, connections for swinging said carrier, brake-shoes, brake-shoe holders connected with the beam and provided with offset shoulders, and presser-rods engaging said shoulders for yieldingly supporting the brake-shoes.

13. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, connections for swinging said carrier, brake-shoes, brake-shoe holders connected to the beam and provided with ears having openings, and presser-rods mounted on the beam and provided with pins for engaging the openings in the ears.

14. An automatic wagon-brake, comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, and connections for swinging said carrier, including inclined brake-levers fulcrumed in hangers secured to the under side of the bounds and having their opposite ends, respectively, in the approximate horizontal planes of the brake-beam and the under side of the reach, operating means for the brake-beam, and a connection between the operating means and the brake-levers, said connection having a portion located beneath the reach.

15. An automatic wagon-brake, comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, and brake connections for swinging said carrier, said connections including a pair of inclined brake-levers, and hangers therefor secured to the bounds and each comprising pendent arms with overlapping extremities pitched at an angle to the horizontal and arranged in parallel relation to each other for the interposition of a brake-lever.

16. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, and brake connections for swinging said carrier, including inclined brake-levers, and brake-rods connecting said levers and brake-beam and comprising upper and lower members diverging forwardly and connected to opposite sides of the brake-beam and having their rear ends connected together and to the brake-levers, substantially as described.

17. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, means for moving the brake toward and away from the wagon-wheels, a thrust-bar mounted on the tongue and adapted to be actuated by the neck-yoke, one end of said bar being associated with the brake connections and the other end opheld by supporting-links.

18. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, brake connections for operating the brake-beam, a thrust-bar on the tongue for operating said connections, and a gravity guard-pin connected with said thrust-bar, for the purpose specified.

19. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, and means for operating the brake-beam comprising a bell-crank mounted on the tongue and having arms extending upward and downward, a flexible connection between the lower arm of the bell-crank and the brake-beam, a thrust-bar mounted on the tongue and connected with the upper arm of the bell-crank, and links pivotally connecting the forward portion of the thrust-bar and the tongue

20. In a wagon-brake, the combination with a movable brake-beam carrying brake-shoes, of an intermediate lever pivoted upon the tongue, connections between the lever and the beam, operating means connected to the lever and located upon the vehicle-tongue, said means being adapted to be moved by an animal hitched to a vehicle, and a pivoted hand-lever also connected to the intermediate lever.

21. In a wagon-brake, the combination with a movable brake-beam carrying brake-shoes, of a lever pivoted intermediate its ends upon the tongue, connections between one end of the lever and the beam, a push-bar connected to the opposite end of the lever, and manual operating means also connected to said opposite ends of the lever.

22. In a wagon-brake, the combination with a movable brake-beam carrying brake-shoes, of a lever pivoted intermediate its ends upon the tongue of the vehicle, connections between the lower end of the lever and the brake-beam, a push-rod located longitudinally of the tongue and connected to the upper end of the lever, a hand-lever pivoted upon the tongue, and a flexible connection between the hand-lever and the upper end of the intermediate lever.

23. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, and brake connections for operating the brake-beam comprising a thrust-bar mounted on the tongue, a slide-hook passing beneath the front axle, and operative connections between the slide-hook, thrust-bar and brake-beam.

24. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, and brake connections for operating the brake-beam comprising a crank-shaft mounted on the tongue contiguous to the pivot thereof and having its arms connected with the brake-beam, and a thrust-bar on the tongue, said thrust-bar also having a connection with the arms of the crank-shaft.

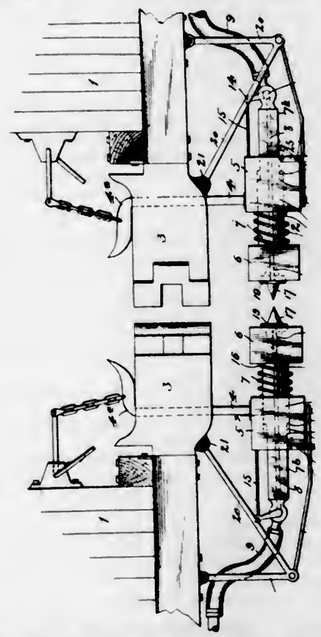
25. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for operating the brake-beam, brake-shoes having pointed end portions, and V-shaped scrapers carried by the pointed end portions of the brake-shoes.

26. In a wagon-brake, the combination with a brake-beam and operating means therefor, said beam being provided with a longitudinally-disposed slot, of a brake-shoe, a brake-shoe holder connected to the brake-beam, and a bolt connecting the shoe-holder and the beam, said bolt passing through the slot of the beam, whereby the brake-shoe may be adjusted laterally to bring it into alinement with the wheel-tire.

27. In a wagon-brake, the combination with a movable beam secured to a vehicle, of a bracket fastened to the tongue of the vehicle below the pivot thereof, a crank-shaft pivoted upon the bracket and provided with a crank-arm, an adjustable connection between the crank-arm and the brake-beam, and a push-rod located upon the tongue and connected with said crank-arm.

28. In a wagon-brake, the combination with the brake-beam carrying shoes, of a hook slidably mounted upon the running-gear of the vehicle, connections between said hook and beam, a yoke having an engagement with the hook, a push-bar located upon the tongue, and a rod having a connection with the push-rod and adjustably secured to the yoke.

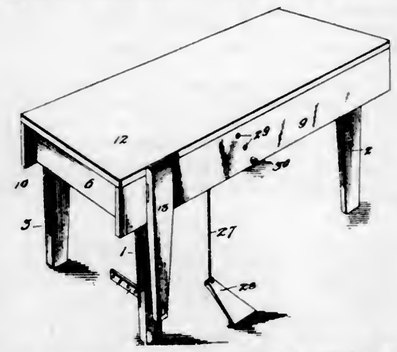
682,882. AIR-BRAKE COUPLING. OLE A. NESS, Zumbrota, Minn. Filed Jan. 11, 1901. Serial No. 42,907. (No model.)



Claim.—In a coupling member, the combination, of a sleeve rigidly supported, a longitudinally-apertured shank slidingly mounted in said sleeve, stops to limit the rearward movement of said shank, an apertured head formed integral with said shank, a spring surrounding said shank and bearing at one end against said sleeve and at the other end against said head, a valve mounted in the said aperture in said shank and arranged to close it, and a rod connecting said sleeve and said valve, guides formed on said head, and a washer seated in said head and surrounding the outer end of the said aperture therein.

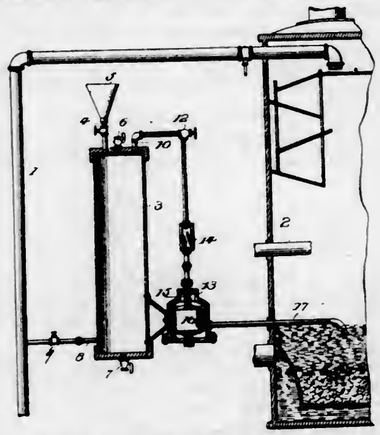
682,888. CABINET-MAKER'S WORK-BENCH. SOLOMAN NEUDERMANN. Des Moines, Iowa. Filed July 3, 1900. Renewed May 15, 1901. Serial No. 60,399. (No model.)

Claim.—1. In combination, the bench, the movable jaw, the yoke fixed to the jaw, and the tension-springs having one end fixed to the bench and the other to the yoke, the treadle, and the flexible cord connecting the yoke and treadle, substantially as and for the purpose set forth.



2. In combination, the bench provided with the guide-holes 29 and the spring-actuated steady-pin adapted to be removably secured in either of said guide-holes, substantially as and for the purpose set forth.

682,884. FEED-WATER PURIFIER. THOMAS O. ORGAN, Philadelphia, Pa. Filed May 29, 1901. Serial No. 62,406. (No model.)



Claim.—1. The combination with a feed-water tank and the supply-pipe opening thereinto, of a receptacle containing a water-purifying compound connected to said supply-pipe and to said tank for automatically supplying the latter with scale-precipitating compounds, and means actuated by the water-levels in the tank for automatically cutting off such supply, as set forth.

2. The combination with a feed-water tank and the supply-pipe opening thereinto, of a receptacle containing a water-purifying compound, a valved connection between said receptacle and tank, a connection between the latter and said supply-pipe, a second valve in the connection between the receptacle and tank, and means for automatically actuating the same to cut off the supply from the receptacle to the tank, such means being controlled by the water-levels in the latter, as set forth.

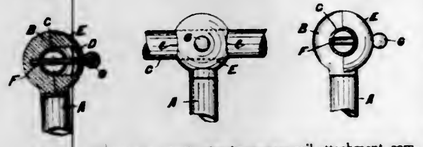
3. The combination with a feed-water tank and the supply-pipe thereof, of a receptacle containing a water-purifying compound, a valved pipe connecting said supply-pipe and receptacle, an outlet-pipe leading from said receptacle to said tank, a sight-feed attachment within such pipe, a valve-casing, a valve therein for automatically cutting off the supply from the receptacle, the pipe connecting said valve-casing to the tank opening into the latter below the working level, and a float in said casing for actuating the valve therein, as set forth.

4. The combination with a water-supply tank, and the supply-pipe therefor opening thereinto, of a chemical-containing tank having a water-supply connection at one end with said supply-pipe, and a water-discharge connection at its other end with said supply-tank, and means actuated by the water-levels in the tank for automatically cutting off such discharge

when the water in the supply-tank reaches a predetermined level, as set forth.

5. The combination with the water-supply tank, and the supply-pipe therefor opening thereinto, of a chemical-containing tank having a water-supply connection at one end with said supply-pipe, a valved discharge-pipe leading from the other end of such latter tank, a casing into which such pipe opens, a valve and float in said casing for automatically cutting off the discharge from such pipe, and a pipe extended from said casing into said supply-tank having its inner end bent downward below the working water-level, substantially as set forth.

682,885. METALLIC BEDSTEAD. JOHN T. PETFORD, Haigh, near Wigan, England. Filed Nov. 2, 1900. Serial No. 35,212. (No model.)



Claim.—A bedstead or similar furniture cross-rail attachment, comprising a rail A having cast on its end a cast bulbous head B of larger diameter than the rail to be fitted and attached to it; a through-gap D in the head B at right angles to the rail A, adapted to receive the cross-rail, and of greater diameter than said rails, and of a depth greater than the diameter; the cross-rail C lying in the bottom of the gap D; a thin metal cap E over the head B and completely covering the gap D, and projecting at its edge over the front parts of rails A and C, and having gaps in it where it fits over these rails A and C and the edges around the gaps being adapted to press upon the surface of the rail C, and prevent it from moving or rattling in the head; and a pin passing through the rail C, and adapted to press the edges of the cap on the rail C, substantially as described.

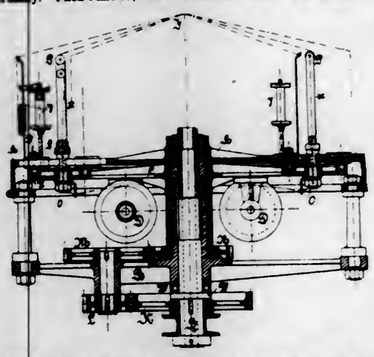
682,886. CUE-TIP FASTENER. NICHOLAS POEHLMAN and VINCENT SIEMS, Baltimore, Md. Filed June 10, 1901. Serial No. 64,013. (No model.)



Claim.—1. In a cue-tip fastener, the combination of a cue 10, provided with one or more holes, 7, and a tip, 9, provided with one or more attaching-wires, 8, the ends of which pass through the holes, 7, for the purpose set forth.

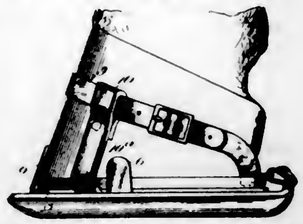
2. In a cue-tip fastener, the combination of a cue 10, provided with one or more holes, 7, a tip 9, provided with one or more attaching-wires 8, the ends of which pass through the holes 7, and the ends of said wires driven into the cue substantially as shown and described.

682,887. BRAIDING-MACHINE. CARL SCHÜRMANN, Dusseldorf, Germany. Filed June 25, 1900. Serial No. 21,567. (No model.)



Claim.—In a braiding-machine, a radially-operating system of bobbins, a concentrically-operating system of thread-guides, corresponding bobbins for the said thread-guides mounted within the machine, so as to render the bobbins of the radial system independent of the bobbins of the concentrical system and thus to diminish the dimensions of the machine while keeping the number of bobbins the same, and carriages for the radially-operating system of bobbins for guiding them, formed to overlap each other in the cam-crossings, so as to lead the carriages securely through the flat crossings without requiring a larger distance between the bobbins.

682,888. LAWN-BOOT. JAMES A. SMITH, Brooklandville, Md. Filed May 17, 1901. Serial No. 60,725. (No model.)



Claim.—1. A lawn-boot comprising a base composed of a metallic plate having an upper and lower covering, a tread secured to said base having its ends extended beyond the edges of the same and turned upwardly, and means secured to the base for fastening the boot to the horse's foot, substantially as described.

2. A lawn-boot comprising a base, a tread having its ends extending beyond said base, said ends turned upwardly, a flange extended above said base and adapted to fit the frog of the hoof, means securing the end of said flange and the rear of the tread to increase or decrease the curvature of the tread at the rear, and means for securing the boot to the hoof of an animal, substantially as described.

3. A lawn-boot comprising a base composed of a metallic plate having an upper and lower covering, a flange projecting above said base and adapted to fit the frog of the hoof, a loop at the rear end of said flange, loop-straps secured to and extending upwardly from the base, a securing-strap guided through the loop in the flange and the loop-straps, a tread secured to the under side of the base, and means connecting the flange above the base and the rear of the tread, substantially as described.

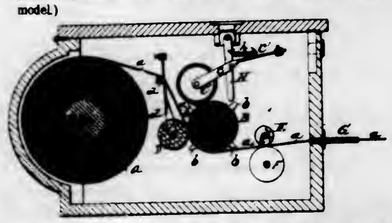
4. A lawn-boot comprising a base composed of a metallic plate interposed between the upper and lower coverings, said coverings and the metallic plate being riveted together, a tread secured to said base, nails or the like securing the tread to the base and adapted to clench in the lower covering against the metallic plate, a flange extending above the base and adapted to fit the frog of the hoof, a flexible connection between the rear of said flange and the rear of the tread to adjust the curvature of said tread, and means for securing the boot to the hoof of the animal, substantially as described.

5. A lawn-boot comprising a base, a flexible tread secured to the under side of the base, said flexible tread extending beyond the edges of the base and curved up, and means for securing the boot to the hoof of the animal, substantially as described.

6. A lawn-boot comprising a base, a flexible tread secured to said base having its ends extended beyond the edges of the same and turned upwardly, and means for increasing or decreasing the curvature of the turned-up edge of said tread, substantially as described.

7. A lawn-boot, comprising a base adapted to be rigidly held to the hoof of the animal, a tread secured to said base and extending beyond the edges of the same, the extended portion of the base being flexible, substantially as described.

682,889. TICKET-PRINTING MACHINE. NELSON E. SPRINGSTEEN, Royalosk, Mich. Filed Apr. 25, 1900. Serial No. 14,303. (No model.)



Claim.—1. In an apparatus of the class described, a printing-roll having at one end a plurality of radial projections, a register having an actuating-arm arranged in the path of said projections, an inking-roll mounted to coöperate with the printing-roll, a paper-roll and a pressure-roll arranged to act against the paper reeled from said paper-roll while it is in contact with the surface of said printing-roll.

2. In an apparatus of the class described, a printing-roll having at one end a plurality of radial projections, a register having an actuating-arm arranged in the path of said projections, an inking-roll mounted to coöperate with the printing-roll, a paper-roll a pressure-roll arranged to act against the paper reeled from said paper-roll while it is in contact with the surface of said printing-roll, and paper-perforating means arranged in advance of the printing-roll.

3. In an apparatus of the character described, a printing-roll, a yieldingly-mounted engaging roll, a paper-roll, a yieldingly-mounted pressure-roll arranged to act against the paper while under action by the printing-roll, a spring-actuated register-arm, a plurality of radial projections upon the printing-roll arranged to engage said spring-actuated arm, and paper-perforating mechanism arranged in advance of the printing-roll.

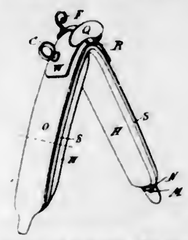
4. In an apparatus of the class described, a casing, printing mechanism in said casing, and the casing having a slot and a hollow plate fitted in said slot and provided with shoulders fitted against the casing, said plate being slotted and having a straight edge.

5. In an apparatus of the class described, a casing, printing mechanism in the casing, and a projecting hollow plate upon the casing, the upper and lower walls of the plate being slotted and the slots being in registration and said plate having a straight edge in advance of the registering slots.

6. In an apparatus of the class described, a casing having a slot, and a hollow plate fitted in said slot and projecting from the casing, the upper and lower walls of the plate being slotted and the slots being in registration and said plate having a straight edge in advance of the registering slots.

7. In apparatus of the character described, the combination of a printing roll or cylinder carrying radial lugs or projections arranged at certain regular intervals apart, a register having a spring-held lever or arm adapted to be engaged by said lugs or projections, an inking-roll adapted to engage said printing-roll, a paper-guide roll arranged in connection with said printing-roll, a paper-perforating roll, a paper-tension roll arranged under said perforating-roll, and a straight-edge or paper-tearing device arranged for operation in connection with the aforesaid parts, substantially as set forth.

682,890. HARNESS-SADDLE. ALFRED G. THOMPSON, Brighton, Victoria. Filed Nov. 13, 1900. Serial No. 36,327. (No model.)



Claim.—1. A harness-saddle having a flap provided with edge pipings or rolls, and with inner catches near its ends, a removable pad fitting between the rolls and provided with metallic extension-pieces engaging the catches on the flap, said pad or cushion also having loops at either side of its apex, and a saddletree having projections engaging said loops; substantially as described.

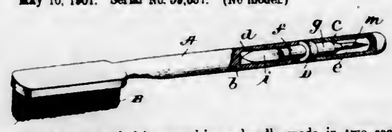
2. A harness-saddle having a metallic saddletree with integral flanges having holes for the passage of the terret-screws and the checkrein-hook, and provided with extensions G, a removable pad or cushion having loops to receive the extensions G, and provided with screw-threaded plates, and a flap having inner end catches engaging metallic end pieces on the pad; substantially as described.

682,891. PROCESS OF MANUFACTURING ALLOYS CONTAINING COPPER AND MANGANESE. GEORGE THOMSON, Elizabeth, N. J. Filed Jan. 7, 1899. Serial No. 701,485. (No specimens.)

Claim.—1. The process of making an alloy of copper and manganese and an alloy of iron and manganese from materials containing iron, manganese and copper which consists in forming a molten mass containing copper, iron and manganese, in preserving such mass in a fluid quiescent state until an alloy or mixture of a portion of the copper and of the manganese is left at the bottom and all or most of the iron with the rest of the copper and manganese has risen toward the top, in thereafter drawing off or otherwise separating the upper portions from such alloy or lower portion, and in reducing the proportion of manganese to iron by the addition of steel (or iron), causing the manganese to combine or alloy therewith and to throw down or separate by gravity the copper, thereby recovering the copper while producing manganese steel, substantially as set forth.

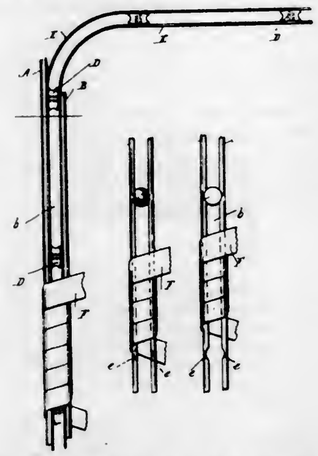
2. The process of alloying manganese with copper, which consists in adding manganese containing iron to the copper, and forming a molten mass, then separating some of the copper alloyed with manganese by settling from the molten mass, then recovering the remaining copper from the iron and manganese in the molten state by introducing a substance having a greater affinity than copper for the manganese, thereby causing the separation and settling of the copper, substantially as set forth.

682,892. TOOTHPICK. EMMA J. THURSTON, Deming, Wash. Filed May 10, 1901. Serial No. 59,637. (No model.)



Claim.—A toothpick comprising a handle made in two sections, each section having longitudinally-extending openings, a detachable and reversible member having longitudinally-extending portions *f* and *g* adapted to fit the openings in the two sections of the handle, an intermediate laterally-extending portion, and suitable scraping and picking implements extending from the outer ends of the portions *f* and *g*, substantially as described.

682,893. CONDUCTOR. FRANCIS TREHAIN, Highgate, England. Filed Jan. 25, 1901. Serial No. 44,674. (No model.)



Claim.—1. The combination, with a pair of conductors arranged parallel with each other and having an open space between them, of distance-pieces arranged at intervals between the said conductors, and means for holding the said distance-pieces and conductors in their relative positions, substantially as set forth.

2. The combination, with a pair of conductors arranged parallel with each other and having an open space between them, of distance-pieces arranged at intervals between the said conductors, and a strip of flexible insulating material wound spirally around the said conductors and holding them and their distance-pieces in their relative positions, substantially as set forth.

3. The combination, with a pair of conductors arranged parallel with each other and having an open space between them, of continuous and flexible strips of insulating material arranged next to the adjacent surfaces of the said conductors, distance-pieces of rigid insulating material arranged at intervals between the said conductors, and means for holding the said conductors, strips and distance-pieces in their relative positions, substantially as set forth.

682,894. CORN-HUSKING IMPLEMENT. PETER A. WALLER, Kewanee, Ill. Filed June 18, 1900. Serial No. 20,780. (No model.)



Claim.—1. In a corn-husking implement, the combination with a husking-pin having a T-shaped projection thereon, a strap having a longitudinal slit through which the projection passes and by which the strap is detachably connected with said projection and said strap having loops thereon, an extension or continuation of the strap loosely passing only through the loops, and means at the opposite end of the pin for securing the strap in adjusted positions, substantially as described.

2. In a husking-pin, the combination with a pin having a T-headed projection thereon, a strap secured removably to said projection by having a longitudinal slit *e* formed therein through which the head passes and having a loop at its end, an extension on the opposite end of said strap loosely passing only through said loop and a securing device at the opposite end of the pin with which the end of the extension engages, substantially as described.

3. In a husking-pin, the combination with a pin proper, of a T-headed projection fixedly secured thereon, a strap having an opening through which the headed projection is passed and a loop at one end, a strap extension at the other end passing loosely through said loop, an opening in the opposite end of the pin and means acting automatically for securing the strap in said opening, substantially as described.

4. In a husking-pin, the combination with a pin proper having a transverse opening therein, of a strap secured to the pin and adapted to pass through the opening, and a transversely-movable securing device movable transversely of the openings and carried by the pin for securing the strap in adjusted positions, substantially as described.

682,895. RAILWAY-TIE PLATE. DANIEL O. WARD, Oakpark, Ill. Filed May 12, 1900. Serial No. 16,400. (No model.)



Claim.—1. A railway-tie plate comprising a metal plate provided with suitable spike-holes and with side flanges extending in the same direction from the plate-body substantially at right angles thereto and positioned to be at right angles to the rail, said flanges having formed thereon a plurality of shoulders for preventing the accidental disengagement of the flanges from a tie composed of compressible material into which they may be driven, substantially as described.

2. A railway-tie plate comprising a metal plate provided with spike-openings, side flanges extending in the same direction from the plate-body substantially at right angles thereto and positioned to be at right angles to the rail, said flanges having one or more longitudinal ribs or ridges formed thereon, substantially as and for the purpose set forth.

3. A railway-tie plate comprising a metal plate provided with spike-openings and side flanges extending in the same direction from the plate-body substantially at right angles thereto and arranged to be at right angles to the rail, said flanges having a plurality of longitudinal ribs or shoulders formed thereon, and also provided with spike-holes formed in the body of the plate, substantially as described.

4. A railway-tie plate comprising a metal plate provided with side flanges extending in the same direction substantially at right angles from the plate-body, said flanges having formed thereon one or more longitudinal ribs or ridges whose sides are inclined and whose shoulders extend at substantially a right angle from the face of the flange, substantially as described.

5. A railway-tie plate comprising a metal plate provided with side flanges extending in the same direction from the plate-body substantially at right angles thereto, said flanges having one or more longitudinal ribs or shoulders formed on each side thereof, substantially as described.

6. A support for railway-rails comprising a wooden cross-tie in combination with a metal tie-plate provided with side flanges seated longitudinally in the tie, said flanges extending in the same direction from the plate-body at substantially right angles thereto, and having formed thereon means for preventing the accidental withdrawal of the same from the tie, and means for securing a rail in position upon the plate, substantially as described.

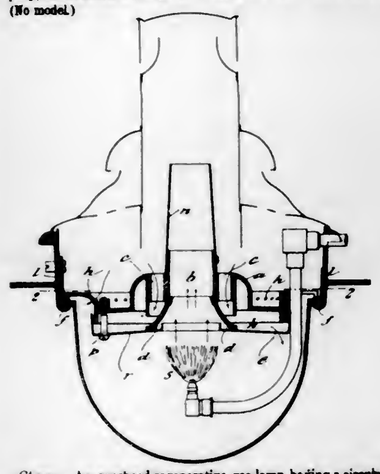
7. A metal tie-plate consisting of a single plate having reduced and tapered edges, corrugated longitudinally to form securing projections in their under faces and bent down at an angle to the plate-body, substantially as described.

8. A tie-plate comprising a bed-plate, a stem, extending longitudinally and from the under face thereof, said stem having a cutting edge, longitudinal shoulders on each side thereof and longitudinal grooves between said shoulders and the plane of the under surface of said tie-plate, substantially as described.

9. A tie-plate comprising a bed-plate and a longitudinal stem or extended rib projecting below the same formed with longitudinal securing ribs or shoulders on its opposite sides and a tapered point or edge, substantially as described.

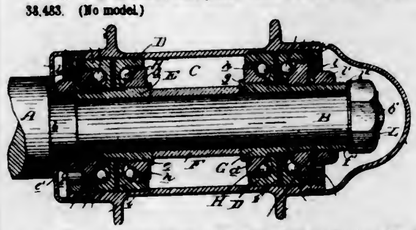
10. A tie-plate comprising a bed-plate and a longitudinal stem below the same having a spear-shaped lower edge and retaining shoulders or projections on its opposite sides, substantially as described.

682,896. OVERHEAD REGENERATIVE GAS-LAMP. WILLIAM H. L. WELCH, Bow, England, assignor to the Lamp Manufacturing Company, Limited, London, England. Filed Apr. 5, 1901. Serial No. 54,505. (No model.)



Claim.—An overhead regenerative gas-lamp having a circular casting over the burner with a central outlet to the chimney, said casting containing a series of down draft-holes surrounding this central outlet, and also having air-admission holes near its periphery, and a reflecting-plate of annular form secured to the casting and provided with a central opening above the burner; substantially as described.

682,897. HUB. JOHN P. WULFF, Albert Lea, Minn., assignor of one-half to W. A. Morin, same place. Filed Dec. 3, 1900. Serial No. 38,483. (No model.)



Claim.—1. In combination with a hub-cylinder, cone-rings threaded therein, a skein divided into two outer members, and an intermediate spacing member, cone-rings on the respective outer members arranged oppo-

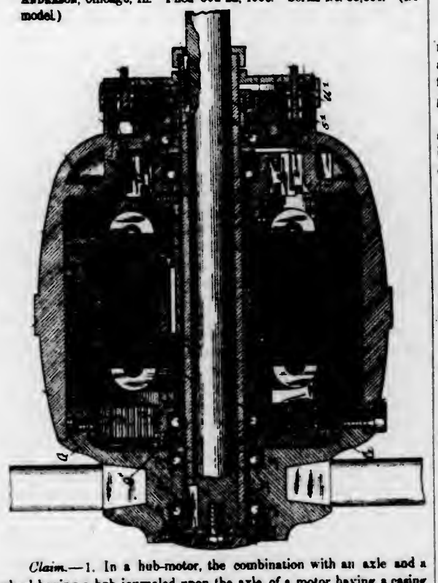
site the rings on the cylinder so as to form raceways therebetween, balls in said raceways, and means for locking the whole in proper relative positions, substantially as described.

2. In combination with a hub-cylinder, oppositely-disposed cone-rings screw-threaded into each end of the cylinder, a divided skein passing loosely through the cone-rings, cone-rings at the opposite ends of the skein so disposed relative to the rings on the cylinder as to form a plurality of raceways therebetween, balls in said raceways, and means for locking the parts in adjusted positions, substantially as described.

3. In combination with a hub-cylinder, oppositely-disposed cone-rings secured in each end of the cylinder and arranged back to back, a skein passing loosely through the cone-rings, cone-rings secured to each end of the skein respectively inside the rings on the cylinder and arranged to form in conjunction therewith a plurality of raceways at each end of the cylinder, balls in the raceways, and means for locking the parts in adjusted positions, substantially as described.

4. In combination with a hub-cylinder, cone-rings screw-threaded into the opposite ends of the cylinder, a divided skein comprising outer and intermediate spacing members passing loosely through the cone-rings, cone-rings at the opposite ends of the skein so disposed relative to the rings on the cylinder as to form raceways therebetween, balls in the raceways, and means for locking the parts in adjusted positions, substantially as described.

682,898. DYNAMO-ELECTRIC MACHINE. CHARLES DE WITT ANDERSON, Chicago, Ill. Filed Oct. 22, 1900. Serial No. 33,881. (No model.)



Claim.—1. In a hub-motor, the combination with an axle and a wheel having a hub journaled upon the axle, of a motor having a casing surrounding and journaled upon the axle, the outer end of the casing being attached to the wheel, substantially as set forth.

2. A hub-motor having an axle and a wheel having a hub journaled on the axle, in combination with a motor having a casing surrounding and journaled upon the axle, and means for detachably connecting the outer end of the casing and the wheel, substantially as set forth.

3. A hub-motor having an axle and a wheel having a hub journaled upon the axle, said hub having at its inner end an annular flange, in combination with a casing surrounding and journaled upon the axle, and means for detachably connecting the outer end of the casing to the flange of the hub, substantially as set forth.

4. A hub-motor having an axle and a wheel having a hub journaled upon the axle and having at its inner end a flange, in combination with a casing surrounding and journaled upon the axle and having its outer end detachably secured to the flange aforesaid, which latter and the hub form the outer end of the casing, substantially as set forth.

5. In a hub-motor, the combination of an axle, a removable sleeve surrounding it, means for preventing the relative rotation of the axle and sleeve, a wheel having a hub journaled upon the sleeve, and a motor having a casing journaled upon the sleeve, whereby the entire motor and wheel may be removed with the sleeve, substantially as set forth.

6. A hub-motor having, in combination, an axle, a sleeve surrounding the axle, means for preventing the relative rotation of the axle and sleeve, a wheel having a hub journaled upon the sleeve, a motor having a casing journaled upon the sleeve and having its outer end detachably connected to the wheel, whereby the wheel may be removed without removing the casing, a second sleeve journaled upon the first and removable independently thereof, and an armature carried by the second sleeve, other parts of the motor being carried by the sleeve first aforesaid, substantially as set forth.

7. In a dynamo-electric machine, the combination of a revoluble casing, a plurality of brush-rings arranged concentrically and with an annular space between them, means for insulating said rings, and brushes occupying the annular space aforesaid and having contact with the rings, substantially as set forth.

8. In a dynamo-electric machine, the combination of a revoluble casing having an annular recess, a plurality of brush-rings arranged in said recess, one within another, with an annular space between them, brushes projecting into said annular space and having contact with the rings, a disk by which the brushes are supported, and a flange carried by the casing and projecting over the periphery of the disk, substantially as set forth.

682,899. ACCUMULATOR-PLATE. HENRY T. D'ARSOULT, Paris, France. Filed Apr. 1, 1901. Serial No. 53,856. (No model.)

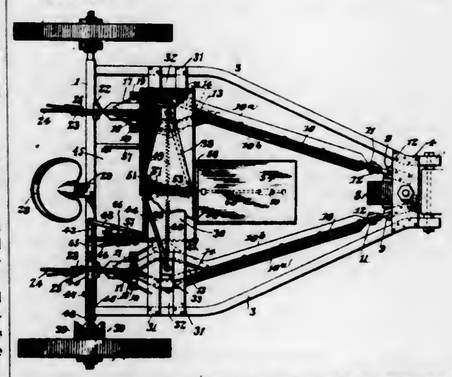


Claim.—1. An accumulator-plate comprising a grid, active material on the grid, perforated celluloid plates between which the grid and active material are located, the edges of said plates projecting beyond and forming therebetween a recess or channel around the outer edges of the grid and active material, and a filling of insulating-cement in said channel.

2. An accumulator-plate comprising a grid, a frame about the grid, active material on the grid within the frame, two perforated celluloid plates between which the grid-frame and active material are located, the edges of said plates projecting beyond and forming therebetween a recess or channel around the outer edge of the frame, and a filling of insulating-cement in said channel.

3. An accumulator-plate comprising a grid, a frame about the grid, active material on opposite sides of the grid within the frame, two perforated celluloid plates between which the grid-frame and active material are located, the edges of said plates projecting beyond and forming therebetween a recess or channel around the outer edge of the frame, and a filling of celluloid cement in said channel.

682,900. POTATO-PLANTER. GEORGE J. RACHMANN and GEORGE MCCONNELL, Muskegon, Mich. Filed Oct. 31, 1900. Serial No. 35,059. (No model.)



Claim.—1. In a planter, the combination with a frame, supporting-wheels, and furrow-opening plows, of a transverse platform, dropper-tubes depending therefrom, separate hoppers disposed above the platform to deliver seeds to the dropper-tubes, and means common to both hoppers for supplying them with seeds, said means being located in advance of the hoppers.

2. In a planter, the combination with a frame, carrying-wheels and plows, of a platform extending transversely across the frame and provided with terminal ways, feed-slides mounted for movement in said ways, means for operating the slides, dropper-tubes depending from the platform, a

double hopper having a bottom wall inclined in opposite directions from a central crest, and an adjustable table located beyond one end of the crest and disposed to deliver seeds to both compartments of the hopper for subsequent delivery to the dropper-tubes.

3. In a potato-planter, the combination with a frame, carrying-wheels and plows, of a transverse platform extending across the frame, feed mechanism comprising a plurality of feed-slides mounted on the platform, a slide-actuating lever for effecting the simultaneous movement of the slides, a second lever located in rear of the platform and operatively connected to the slide-actuating lever, a tappet connected to the second lever, a cam for actuating said tappet, a double hopper disposed over the platform, an adjustable table located in advance of the hopper and disposed to deliver seeds to both compartments thereof, and means located in rear of the platform for effecting the adjustment of the table.

4. In a potato-planter, the combination with a frame, plow-beam and plow, of feed mechanism carried by the frame, a hopper located above the feed mechanism, an adjustable feed-table located in advance of the hopper, a driver's seat located in rear of the hopper, and a table-adjusting device located in proximity to the driver's seat and operatively connected with the table.

5. In a potato-planter, the combination with a frame, plow-beam and plow, of feed mechanism carried by the frame, a hopper mounted above the feed mechanism, a table hinged to the hopper and located in advance thereof, a table-adjusting lever, and means for operatively connecting said lever with the table.

6. In a planter, the combination with a hopper and a hinged feed-table carried thereby, of a pendent table-support carried by the table, a lever mounted below the table, a table-adjusting lever located at the side of the hopper opposite the table, and links connecting the levers and also connecting the first-named lever to the table-support.

7. In a planter, the combination with a hopper provided with a bottom wall inclined in opposite directions from a central crest, of a table disposed beyond one end of the crest, and means for adjusting the inclination of said table.

8. In a planter, the combination with a frame and feed mechanism, of a plow-beam pivotally supported at one end by the frame, a laterally-adjustable beam-guide located at the rear end of the frame for the reception of the rear extremity of the beam, means for raising and lowering said beam and means for retaining the beam-guides in their adjusted positions.

9. In a planter, the combination with a frame comprising an axle and carrying-wheels, of plow-beams pivotally mounted at one end within the frame, pendent beam-guides carried by the axle and laterally adjustable thereon, and beam raising and lowering devices adjustable with said guides.

10. A plow-beam for planters composed of a pair of connected angle-irons spread apart at a point intermediate of their length to form an opening, a plow carried by said beam, a supporting-plate likewise secured to the beam in the rear of the opening and adjustable covering-plates carried by said supporting-plate.

11. A feed-slide for planters comprising side walls and intermediate relatively-fixed transverse gage and cutter plates in different vertical and horizontal planes.

12. In a planter, the combination with a hopper, and a hinged feed-table carried thereby, of a table-adjusting lever located at the side of the hopper opposite the table, and connecting mechanism intermediate of the table and lever.

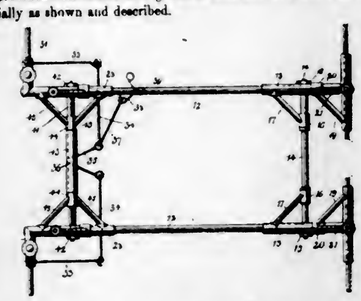
13. In a planter, the combination with a frame and a double hopper hinged to the frame, and having its bottom wall formed with a central crest, of a feed-table hinged to the upper edge of the hopper beyond one end of the crest for the purpose of delivering seeds at opposite sides thereof, and a lever disposed to effect the adjustment of the feed-table.

14. In a planter, the combination with a frame, of plow-beams pivotally mounted at one end within the frame, laterally-adjustable beam-guides pendent from the frame and disposed to receive and guide the rear extremities of the plow-beams, levers mounted on the guides for adjusting the said beams within the guides, means for retaining the levers in their adjusted positions, and means for retaining the guides.

682,901. **VEHICLE-FRAME.** WILLIAM BARBER, Brooklyn, N. Y., assignor to Ada S. Barber, same place. Filed Feb. 1, 1901. Serial No. 45,563. (No model.)

Claim.—1. A vehicle-frame comprising horizontal side bars, sleeves connected with the opposite ends thereof, cross-rods passing through said sleeves and said side bars, and detachably connecting the same and wheel-supports connected with the ends of said sleeves, substantially as shown and described.

2. A vehicle-frame comprising horizontal side bars, sleeves connected with the opposite ends thereof, cross-rods passing through said sleeves and said side bars, and detachably connecting the same, and wheel-supports connected with the ends of said sleeves, said cross-rods being also provided with collars having braces connected with said sleeves, substantially as shown and described.



3. A vehicle-frame comprising horizontal side bars, sleeves connected with the opposite ends thereof, cross-rods passing through said sleeves and said side bars, and detachably connecting the same, and wheel-supports connected with the ends of said sleeves, said cross-rods being also provided with collars having braces connected with said sleeves, and the sleeves at each end of the cross-rods being provided with upwardly-directed supports for the body or bed of the vehicle, substantially as shown and described.

4. A vehicle-frame comprising horizontal side bars, sleeves connected with the ends thereof, transverse rods passing through said sleeves and said side bars, the sleeves at the rear end of the frame being provided with supports for the rear wheels of the vehicle, and the sleeves at the front end of the frame being provided with laterally-directed members to which are pivoted the spindles for the front wheels of the vehicle, substantially as shown and described.

5. A vehicle-frame comprising horizontal side bars, sleeves connected with the ends thereof, transverse rods passing through said sleeves and said side bars, the sleeves at the rear end of the frame being provided with supports for the rear wheels of the vehicle, and the sleeves at the front end of the frame being provided with laterally-directed members to which are pivoted the spindles for the front wheels of the vehicle, and steering devices in operative connection with said pivoted spindles, substantially as shown and described.

6. A vehicle-frame comprising horizontal side bars, sleeves mounted on the opposite ends thereof, cross-rods passing through said sleeves, collars mounted on said sleeves and on said cross-heads and provided with braces connected with said sleeves, wheel-supports connected with the sleeves at the rear end of the frame upwardly-directed members also connected with said sleeves and forming supports for the body of the vehicle, collars connected with the front transverse rod and provided with braces connected with the corresponding sleeves, upwardly-directed members also connected with said sleeves, and forming supports for the body of the vehicle, said sleeves being also provided with laterally-directed members, and spindles for the front wheels of the vehicle pivotally connected therewith, and means for operating said spindles so as to guide the vehicle, substantially as shown and described.

7. A vehicle-frame provided with side bars having flanges, a frame composed of pivoted members and adapted to be supported by said flanges, and a mat adapted to be placed upon said frame, substantially as shown and described.

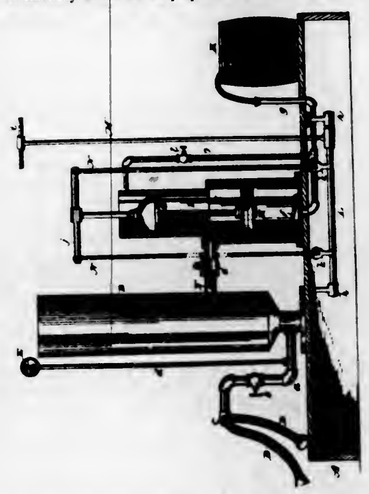
8. A mat-supporting frame for a vehicle-frame comprising longitudinal rods and transverse rods pivotally connected, a central longitudinal rod pivotally connected with the transverse rods, said transverse rods being composed of separate sections pivotally connected at the middle thereof, substantially as shown and described.

9. A vehicle-frame, comprising horizontal side members, transverse end members detachably connected therewith, and adjustable wheel-supports connected with the horizontal side members at the opposite ends thereof, the said wheel-supports at one end being adapted to turn in a horizontal plane, and devices for turning said last-named wheel-supports, substantially as shown and described.

10. A vehicle-body provided at the sides thereof with headed pins which project upwardly therefrom, and a seat the bottom portion of which is provided with slots having enlarged portions adapted to receive said pins, substantially as shown and described.

682,902. **SPRAYING-PUMP.** JOHN BEAN, Los Gatos, Cal. Filed May 31, 1901. Serial No. 62,533. (No model.)

Claim.—1. A spraying-pump consisting of a suitable tank for the air and spraying fluid or liquid, means for connecting a hose thereto, a pump-cylinder connecting with the tank, a check-valve controlling the passage between the tank and cylinder, suitable plunger-heads adapted to work in the cylinder, a suction pipe or hose communicating with the pump-cylinder at the bottom thereof, and a pipe with valve communicating with the suction pipe or hose and with the pump-cylinder at the top thereof, substantially as and for the purpose set forth.



2. In a spraying-pump, a suitable tank for the spraying liquid and means for discharging the same, a suitable pump-cylinder communicating with the tank, a check-valve for controlling the communication between the tank and cylinder, a suction pipe or hose communicating with the lower end of the pump-cylinder, a valve for controlling the communication between the cylinder and the suction pipe or hose, a pipe with valve communicating with the suction pipe or hose and with the pump-cylinder at the upper end thereof, and suitable plunger-heads adapted to work in the cylinder, and means for operating said head through the medium of a rocking shaft, substantially as and for the purpose specified.

3. In a spraying-pump, a suitable pump-cylinder, a suction-pipe communicating therewith, a pipe with valve communicating with the suction-pipe and with the pump-cylinder at the upper end thereof, a plunger-rod with plunger head or heads adapted to work in the cylinder, and means for operating the plunger-rod, comprising a horizontal rocking shaft located below the lower end of the cylinder and having its bearings in stationary brackets, suitable lugs upon the shaft, pitman-rods pivoted thereto to form crank connections between the rocking shaft and pitman-rods, a cross-bar connecting with the plunger-rod at the upper end thereof and the pitman-rods pivotally connecting with the ends of the cross-bar, and an upright operating-lever connected to one end of the rocking shaft, substantially as and for the purpose described.

682,903. **DISPLAY-CASE.** THOMAS M. BENDALL, Memphis, Tenn. Filed July 1, 1901. Serial No. 66,724. (No model.)

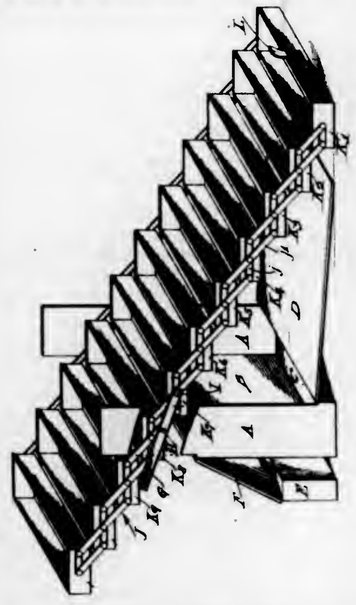
Claim.—1. In a display-case, the combination with a plurality of display-boxes and similar pairs of lazy-tongs fastened to the opposite ends of said boxes, of a U-shaped arm pivoted to said lazy-tongs above the center box, and pivotally supported, substantially as shown and described.

2. In a display-case, the combination with a plurality of display-boxes, and similar pairs of lazy-tongs fastened to the opposite ends of said boxes, of a U-shaped arm pivoted to said lazy-tongs above the center box, and suitable supports in which said arm is pivoted, substantially as and for the purposes set forth.

3. In a display-case, the combination with similar pairs of lazy-tongs and a plurality of boxes fastened to said tongs, of parallel supporting ends, a U-shaped arm pivotally supported by said ends and pivoted to said lazy-tongs, substantially as and for the purposes set forth.

4. In a display-case, the combination with similar pairs of lazy-tongs and a plurality of boxes fastened to said tongs, of parallel supporting ends and a U-shaped arm pivotally supported by said ends and pivoted to said lazy-tongs above the center box, substantially as and for the purposes set forth.

5. In a portable display-case, the combination with similar pairs of lazy-tongs and a plurality of boxes fastened to said tongs, a carrying-case having a suitable bottom, parallel ends fastened to said bottom, a back the lower part of which is fastened to said bottom and ends to stiffen them, the upper part being hinged to said lower part, a top hinged to said back, and a hinged front, of a U-shaped arm pivotally supported by said parallel ends and pivoted to said lazy-tongs above the center box, substantially as and for the purposes set forth.



682,904. **HOSIERY.** JACOB H. BLAETZ, Philadelphia, Pa., assignor to Robert Pilling and Richard Madeley, same place. Filed May 6, 1901. Serial No. 58,964. (No model.)



Claim.—1. Hosiery having a leg portion in which closely-knitted stripes alternate with wide open-work stripes, and an ankle portion in which closely-knitted stripes alternate with open-work stripes narrower than those in the leg portion.

2. Hosiery having leg and ankle portions composed of closely-knitted stripes alternating with open-work stripes, the open-work stripes in the rear portion of the ankle being narrower than those in the front portion of the ankle and in the leg.

3. Hosiery having closely-knitted stripes alternating with open-work stripes in the leg, ankle and top of the foot, the open-work stripes in the rear portion of the ankle being narrower than the others.

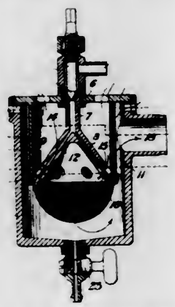
4. Hosiery having closely-knitted seamless heel and toe portions and leg and ankle portions comprising closely-knitted stripes alternating with open-work stripes, the open-work stripes in the rear portion of the ankle being narrower than the others and extending down to the top of the heel.

5. Hosiery having closely-knitted seamless heel and toe portions and leg and ankle portions comprising closely-knitted stripes alternating with open-work stripes, the open-work stripes in the rear portion of the ankle being narrower than the others.

6. Hosiery having closely-knitted seamless heel, sole and toe portions, and leg, foot and ankle portions comprising closely-knitted stripes alternating with open-work stripes, the open-work stripes in the rear portion of the ankle being narrower than the others.

7. Hosiery having closely-knitted seamless heel, sole and toe portions and leg, foot and ankle portions comprising closely-knitted stripes alternating with open-work stripes, the open-work stripes in the rear portion of the ankle being narrower than the others and extending down to the top of the heel.

682,905. **VAPORIZER FOR EXPLOSIVE-ENGINES.** JOHN C. BLAND, Jr., Sewickley, Pa. Filed May 20, 1901. Serial No. 61,047. (No model.)



Claim.—1. A device for vaporizing liquids, comprising an outer casing, a downwardly-extending shell therein, an inverted-dome-shaped wire-gauze covering for the bottom of the shell, a coniform distributer within the shell, and a liquid and an air supply above the distributer, substantially as set forth.

2. A device for vaporizing liquids comprising an outer casing, a downwardly-extending shell therein, a wire-gauze covering across the bottom of the shell, an upwardly-extending coniform distributer within the shell and attached thereto at its lower edge, and a liquid and an air supply above the distributer, substantially as set forth.

3. A device for vaporizing liquids, comprising an outer casing, a downwardly-extending shell therein, a gauze covering across the bottom of the shell, an upwardly-extending coniform distributer within the shell and attached thereto at its lower edge, a liquid-supply and an air-supply above the distributer, and an outlet-opening in the side of the case, substantially as set forth.

4. A device for vaporizing liquids, comprising an outer casing, a downwardly-extending shell therein, a gauze covering across the bottom of the shell, a coniform distributer within the shell, attached thereto at its lower edge and provided with gauze-covered apertures and a liquid-supply and an air-supply above the distributer, substantially as set forth.

5. A device for vaporizing liquids, comprising an outer casing, a downwardly-extending shell therein, a gauze covering across the bottom of the shell, a coniform distributer within the shell attached thereto at its lower edge, a liquid and an air supply above the distributer, an outlet-opening, and air-diluting openings through the shell, substantially as set forth.

6. A device for vaporizing liquids, comprising an outer casing, a downwardly-extending shell therein, a gauze covering across the bottom of the shell, a coniform distributer within the shell attached thereto at its lower edge, a liquid and air supply above the distributer, an outlet-opening, and air-diluting openings through the shell, with means for regulating the supply therethrough, substantially as set forth.

7. A device for vaporizing liquids comprising an outer casing, a downwardly-extending shell therein, a gauze covering across the bottom of the shell, a coniform distributer within the shell attached thereto at its lower edge, a liquid and an air supply above the distributer, an outlet-opening, and a drain-cock, substantially as set forth.

8. A device for vaporizing liquids comprising an outer casing, a downwardly-extending shell therein, a gauze covering the bottom of the shell, a coniform distributer within the shell attached thereto at its lower edge, a valve-controlled liquid-supply above the distributer with a conduit leading thereto, air-supply openings leading to the interior of the shell, and an outlet-opening in the case, substantially as set forth.

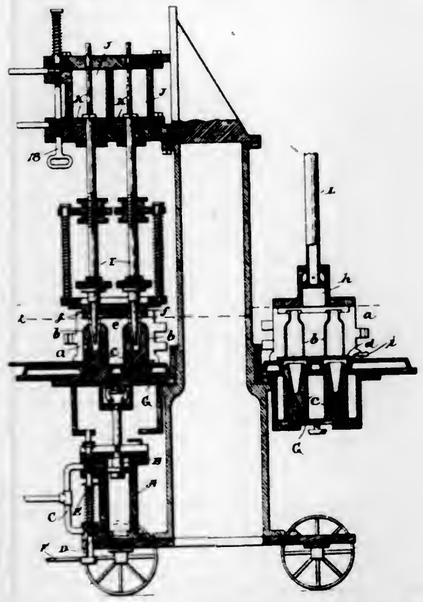
9. A device for vaporizing liquids comprising an outer casing, a downwardly-extending shell therein, a coniform distributer within the shell attached thereto at its lower edge and provided with gauze-covered openings, a liquid-supply and an air-supply above the distributer, and an outlet-opening in the case, substantially as set forth.

10. A device for vaporizing liquids comprising an outer casing, a downwardly-extending shell therein, a gauze covering the bottom of the shell, a distributer within the shell attached thereto at its lower edge, a liquid-supply and an air-supply above the distributer, and an outlet-opening in the case.

11. A device for vaporizing liquids comprising an outer case, a downwardly-extending shell therein, a space intervening between the case and shell, a gauze covering the bottom of the shell, a distributer attached to the lower edge of the shell adapted to deliver the liquid in a thin film upon the gauze, and an outlet-opening in the side of the case.

12. A device for vaporizing liquids comprising an outer case, a downwardly-extending shell therein, a space intervening between the case and the shell, a gauze covering the bottom of the shell, a distributer attached to the lower edge of the shell adapted to deliver the liquid in a thin film upon the gauze, air-diluting openings leading into the intervening space, and an outlet-opening in the side of the case.

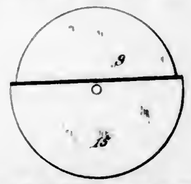
682,906. **MACHINE FOR THE MANUFACTURE OF GLASSWARE.** CHARLES R. BLUE, Wheeling, W. Va. Filed July 17, 1900. Serial No. 23,936. (No model.)



Claim.—A machine for the manufacture of pressed and blown glassware, comprising a plurality of simultaneously-acting press-molds, a plurality of simultaneously-acting blow-molds, a presser-head, a plurality of plungers independently movable through the said presser-head, means independent of the said presser-head for simultaneously and independently operating the said plungers, and a blow-head having simultaneous communication with the blow-molds.

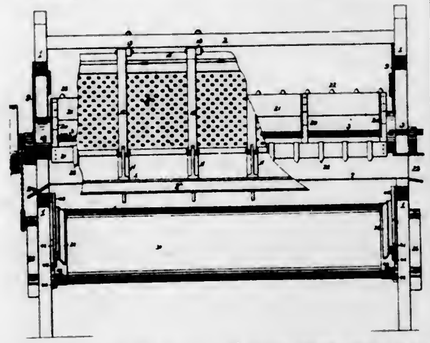
682,907. **PIE-RACK.** ANTHONY O. BOHEM, Philadelphia, Pa., assignor to C. & G. Bohem, same place. Filed Jan. 22, 1901. Serial No. 44,236. (No model.)

Claim.—1. In a pie-rack, the combination with a ring or hoop constituting an annular base, and a diametrically-disposed horizontal plate or bar connecting the opposite sides of said base and lying in the same plane with the upper edge thereof, of a casing in which the pies are supported, made in two semicylindrical parts, one of which is stationary, and the other of which is adapted to rotate, the stationary part being secured to said base with its bottom located slightly above the upper surface of said plate or bar, and the rotating part having its bottom pivoted to said plate or bar, located between said plate or bar and the bottom of said stationary part and supported and movable upon the upper edge of said ring, the bottom of said rotating part and said ring being of substantially the same diameter, whereby said rotating part may be supported along its outer edge by said ring.



2. In a pie-rack, the combination with an annular base, and a diametrically-disposed horizontal plate or bar connecting the opposite sides of said base and lying in the same plane with the upper edge thereof, of a casing in which the pies are supported, the said casing being made up of two semicylindrical parts, one of which is stationary and the other of which is adapted to rotate, the stationary part having a semicircular imperforate bottom, a semicircular top, uprights connecting said bottom and top, and a sheet of open-work material secured to said uprights and to the edges of said bottom and top, the said bottom being secured to said horizontal plate or bar and located slightly above the same, a web constituting a stop and closing the space between said plate or bar and said bottom on one side of the center of said plate or bar, and the rotatable part consisting of a semicircular imperforate bottom pivoted at its central point to said horizontal bar, located between said bar and the bottom of said stationary part and supported and movable upon the upper edge of said base, a semicircular imperforate top located above and pivoted at its central point to the center of the top of said stationary part, uprights connecting the bottom and top of said rotatable part, and the sheet of open-work material connecting the latter uprights and secured to the edges of said bottom and top, the edge of the bottom of said rotatable part adapted to abut against said web, as and for the purpose set forth.

682,908. **MACHINE FOR SHELLING PEAS OR BEANS.** HARRY H. BRAKELEY, Bordentown, N. J. Filed Dec. 15, 1897. Serial No. 661,996. (No model.)



Claim.—1. The combination, in a machine for shelling peas, or beans, of a working-chamber inclosure having end plates, front and rear plates, said front plate being perforated, a bottom plate joined at its front end to the lower portion of the perforated front plate, a rotating shaft having a series of lifting-blades thereon, which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front plate of the inclosure flaring outwardly toward the top, whereby as the vines are lifted by the rotating blades they can open out so as to discharge the shelled peas or beans through the perforations of said front plate, substantially as specified.

2. The combination in a machine for shelling peas or beans, of the rotating beaters, with a working-chamber casing having a concave bottom plate, and a perforated front plate extending upwardly and outwardly from the front edge of said bottom plate, said perforated front plate being pivoted at its lower end and provided at its upper end with means for adjusting it laterally so as to vary its inclination, substantially as specified.

3. The combination in a machine for shelling peas or beans, of the rotating beaters, with a working-chamber casing having a concave bottom plate, and an upwardly and outwardly flaring perforated front plate pivoted at the lower end and adjustable at the upper end, said upper end being connected to a series of pivoted flaps whereby its adjustment can be effected without forming an opening in the top inclosure of the working chamber, substantially as specified.

4. The combination, in a machine for shelling peas, or beans, of mechanism for separating and discharging the peas or beans from the pods, an inclined belt disposed below said mechanism so as to receive the peas or beans and chaff therefrom, flexible side flaps bearing upon the upper run of said belt, a side structure to which said flaps are secured, and adjustable side bars carrying both the belt-drums and the side structures which support said flexible side flaps, whereby both the belt and the side flaps will be adjusted simultaneously and the same relation always preserved between them, substantially as specified.

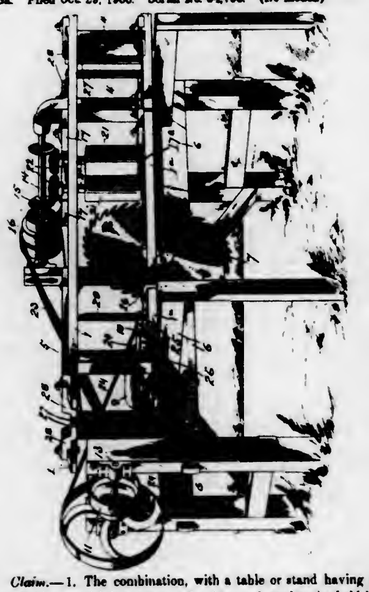
5. The combination in a machine for shelling peas or beans, of shelling mechanism with an inclined belt disposed below the same, projecting hooks or fingers at each edge of said belt, and slotted guides for engaging with said hooks, said guides being laterally flared at the inlet end so as to impart a lateral pull to the hooks after they enter the same, substantially as specified.

6. The combination in a machine for shelling peas or beans, of shelling mechanism with an inclined belt disposed below the same, projecting hooks or fingers at each edge of said belt, and slotted guides for engaging said hooks or fingers, said guides having mouths which flare both vertically and laterally, substantially as specified.

7. The combination in a machine for shelling peas or beans, of shelling mechanism, an inclined belt disposed below the same, projecting hooks or fingers at the opposite edges of said belt, slotted guides for engaging said hooks, and adjustable bars carrying the belt-drums and slotted guides, whereby simultaneous adjustment of the belt and its guides is effected, substantially as specified.

8. The combination in a machine for shelling peas or beans, of shelling mechanism, an inclined belt disposed below the same, projecting hooks or fingers at the opposite edges of the belt, slotted guides for said hooks, bars carrying said guides, side bars carrying the belt-drums and having projecting studs, bolts passing through said studs, and connected to the bars which carry the guides, and nuts on said bolts, whereby they can be adjusted laterally, substantially as specified.

682,909. **RESAWING-MACHINE.** WILLIAM J. BURT, Bartsboro, Ga. Filed Oct. 29, 1900. Serial No. 34,763. (No model.)



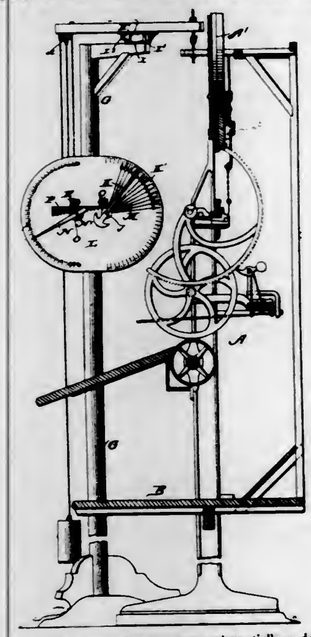
Claim.—1. The combination, with a table or stand having a saw, and suitable saw-driving means, of a frame adapted to be held by said table, feed-rollers adjustable to the frame relative to the saw, a shaft hav-

ing pinions meshing with gears on the rollers, and adjustable on the frame according to the adjustment of the rollers, substantially as set forth.

2. In a reawing-machine, the combination, with the frame portions suitably joined together, and having slots and the vertical rollers, of the roller-brackets having slots to register with the frame-slots for adjusting the rollers, an opening in the brackets, and a flanged box fitting the opening and in which box the rollers are journaled, substantially as set forth.

3. The combination, with the frame, of the horizontal rollers, and the inverted-U-shaped brackets fitting the bottom portions of the frame and in which the rollers are journaled.

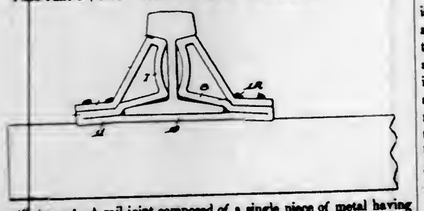
682,910. COMPUTING APPARATUS. HAROLD W. BYRON, Williamsport, Md. Filed May 15, 1900. Serial No. 16,733. (No model.)



Claim.—1. In a computing apparatus substantially as described, the combination of a series of spreading devices, gear-wheels in connection with each of said devices, a series of gears corresponding to said gear-wheels, means for operating said gears, rack-bars meshed with and connecting the said gears and gear-wheels, and brake devices operating upon the rack-bars.

2. In a computing apparatus substantially as described, the combination of a series of spreading-hands provided with gear-wheels, an indicating-hand registering along said spreading hands, a series of gear-wheels opposite those of the spreading-hands, a series of rack-bars meshing with and connecting the opposite sets of gear-wheels, and a guide arranged to operate frictionally upon said bars whereby to prevent the accidental movement thereof, substantially as set forth.

682,911. RAIL-JOINT. CONRAD A. CARRAUGH, Johnstown, Pa. Filed June 27, 1901. Serial No. 66,310. (No model.)



Claim.—1. A rail-joint composed of a single piece of metal having fish-plates formed of angularly-disposed walls, one of said walls engaging the upper face of the rail-base, bent over upon itself and extended to form a chair, the other of said walls engaging the said bent-over portion and simultaneously spiked therewith to the tie, substantially as described.

2. In a rail-joint, fish-plates having inner and outer walls with a space therebetween, a chair, the ends of said chair being bent over upon themselves, the ends of the outer walls of the fish-plate engaging said ends, and spikes passing through said fish-plate ends and the chair ends, substantially as described.

3. In a rail-joint, fish-plates having curved inner walls, angular outer walls with a space between said inner and outer walls, a chair having its ends bent over upon themselves, and upper and lower engaging faces on said fish-plates, substantially as described.

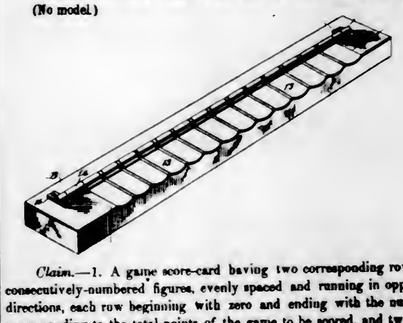
4. In a rail-joint, the combination of fish-plates formed of angular outer walls, curved inner walls, a chair having its ends bent over upon themselves, and means whereby the fish-plates and chair are securely fastened to the ties, all parts being arranged and operating substantially as described and for the purpose set forth.

5. A rail-joint composed of a single piece of metal having inner and outer fish-plates with a space therebetween, upper and lower engaging faces on said fish-plates, a chair having its ends bent over upon themselves at each side of the rail-base, the outer fish-plate having its ends extended to engage the said chair ends, the fish-plate ends and chair ends being simultaneously spiked to the tie, substantially as described.

6. A rail-joint formed of a single piece of metal with angularly-disposed inner and outer walls forming fish-plates, a chair having bent-over ends which are continuations of one of said walls, the end of the other of said walls being simultaneously spiked to the tie with said bent-over ends of the chair, substantially as described.

7. A rail-joint formed of a single piece of metal the one end of which is bent to form an outer wall, continued to form an inner wall, then bent to form a chair the ends of which are doubled upon themselves, and engage the said first-named end, substantially as described.

682,912. DUPLICATE-WHIST SCORING DEVICE. GEORGE L. CARTHER, Clarksville, Tenn. Filed Jan. 23, 1900. Serial No. 2,471. (No model.)



Claim.—1. A game score-card having two corresponding rows of consecutively-numbered figures, evenly spaced and running in opposite directions, each row beginning with zero and ending with the number corresponding to the total points of the game to be scored, and two additional rows of consecutively-numbered figures correspondingly spaced and running in opposite directions, each row beginning with the figure "1" and ending with a figure one number higher than the total points of the game to be scored.

2. A game-counter having a series of lids or covers whose number is equal to the number of points of the game to be scored, plus one, and a score-card adapted to be placed beneath the lids or covers and having two corresponding rows of consecutively-numbered figures evenly spaced and running in opposite directions each row beginning with zero and ending with the number corresponding to the total points of the game to be scored, the said lids or covers being arranged opposite the corresponding figures of the score-card, for the purpose set forth.

3. A game-counter having a series of lids or covers whose number is equal to the number of points of the game to be scored plus one, and a score-card adapted to be placed beneath the lids or covers and having two corresponding rows of consecutively-numbered figures evenly spaced and running in opposite directions, each row beginning with zero and ending with the number corresponding to the total points of the game to be scored, and two additional rows of consecutively-numbered figures correspondingly spaced and running in opposite directions, each of the latter rows beginning with the figure "1" and ending with a figure one number higher than the total points of the game to be scored, the said lids or covers being arranged correspondingly to the said figures, and each adapted to cover a figure in each of said rows.

4. A game-counter having a series of lids or covers whose number is equal to the number of points of the game to be scored plus one, and a series of spaces for scoring each point, the total of such spaces being also equal to the total number of points to be scored plus one, the said spaces being provided with two rows of consecutively-numbered figures, one figure of each row for each space, the rows of figures running in opposite directions, each row beginning with zero and ending with the number corresponding to the total points of the game to be scored, and two additional rows of consecutively-numbered figures running in opposite directions, one figure of each row in each of said spaces, each row beginning with the figure "1" and ending with a figure or figures one number higher than the total points of the game to be scored, the said lids or covers being arranged opposite the corresponding spaces and each adapted to cover the figures in the corresponding space for the purpose set forth.

682,913. ANTIFOULING COATING. GEORGE D. COLEMAN, Boston, Mass. Filed Dec. 31, 1900. Serial No. 41,656. (No model.)



Claim.—1. An antifouling coating for metal structures, composed of a layer of paint, a layer of finely-divided insulating material and a layer of comminuted copper, substantially as described.

2. An antifouling coating for metal structures, composed of a layer of paint, a layer of finely-divided insulating material, a second layer of paint and a layer of comminuted copper, substantially as described.

3. An antifouling coating for metal structures composed of a layer of paint, a layer of finely-divided insulating mineral substance embedded in the layer of paint and a layer of comminuted copper impaled upon the particles of the layer of mineral substance, substantially as described.

4. An antifouling coating for metal structures composed of a layer of paint, a layer of finely-divided insulating mineral substance adhesively attached to the surface of the said layer of paint, a second layer of paint and a layer of comminuted copper driven into the last-mentioned layer of paint and impaled upon the particles of the layer of finely-divided mineral substance, presenting a smooth surface closely studded with bare particles of copper, substantially as described.

682,914. ANTIFOULING COATING. GEORGE D. COLEMAN, Boston, Mass. Filed Dec. 31, 1900. Serial No. 41,657. (No model.)



Claim.—1. An antifouling coating for metal structures composed of a layer of paint, a layer of finely-divided vegetable substance and a layer of comminuted copper, substantially as described.

2. An antifouling coating for metal structures composed of a layer of paint, a layer of finely-divided vegetable insulating material embedded in the layer of paint and a layer of comminuted copper driven in the layer of vegetable substance presenting a smooth surface closely studded with bare particles of copper, substantially as described.

682,915. LEATHER-WORKING MACHINE. FRANK F. CUMMS, Rutland, Vt. Filed Dec. 4, 1900. Serial No. 38,668. (No model.)

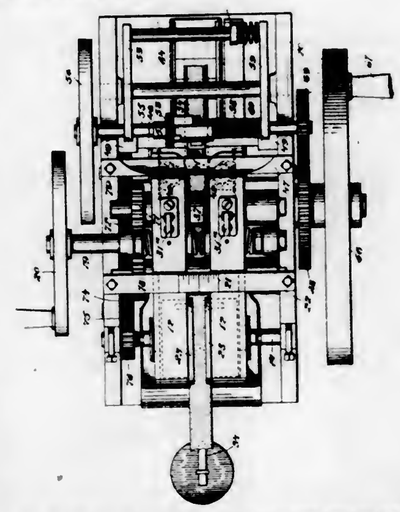
Claim.—1. A leather-working machine, comprising a frame, a tank for blacking arranged in said frame, circular brushes mounted to rotate through said tank and adjustable toward and from each other, and feed-rollers, substantially as specified.

2. A leather-working machine, comprising a frame, a tank for liquid blacking arranged in said frame, a shaft extended across the tank, circular brush-holders mounted on and adjustable longitudinally of said shaft, brush material in said holders, and a bed-roller mounted on said shaft between the brush-holders, substantially as specified.

3. In a leather-working machine, a frame, a tank for liquid blacking in said frame, a shaft extended across said tank, circular brushes mounted on said shaft and adjustable toward and from each other, a vertically-movable frame in said first-named frame, and having connection with the brushes, and means for moving the side portions of said vertically-movable frame toward and from each other to adjust the brushes, substantially as specified.

4. In a leather-working machine, a frame, blacking-brushes mounted to rotate in the forward portion of said frame, means for adjusting said brushes toward and from each other, feed-rollers rearward of said brushes, and creasing-rollers rearward of the feed-rollers, substantially as specified.

5. In a leather-working machine, blacking-applying brushes in the forward portion of the machine, feed-rollers rearward of said brushes, creasing-rollers rearward of the feed-rollers, means for adjusting said creasing-rollers toward and from each other, and grease-applying rollers rearward of the creasing-rollers, substantially as specified.



6. In a leather-working machine, a frame, blacking-applying brushes in the forward portion of said frame, creasing-rollers rearward of the brushes, and grease-applying rollers rearward of the creasing-rollers, substantially as specified.

7. In a leather-working machine, a frame, creasing-rollers mounted in said frame, grease-applying rollers adjacent to the creasing-rollers, and a punching device adjacent to the grease-applying rollers, substantially as specified.

8. In a leather-working machine, a frame, blacking-applying brushes in the forward portion of said frame, a vertically-movable frame in the first-named frame, a feed-roller carried by the vertically-movable frame, a feed-roller in the first-named frame below the first-named feed-roller, creasing-rollers carried by the vertically-movable frame, grease-applying rollers carried by the vertically-movable frame, and means operated by a treadle for raising said vertically-movable frame, substantially as specified.

9. In a leather-working machine, rollers for applying grease to the edges of a strap passed through the machine, means for imparting rotary motion to said rollers, and grease-boxes for supplying grease to said rollers, substantially as specified.

10. A leather-working machine, comprising a frame, blacking-applying brushes in the forward portion of said frame, feed-rollers rearward of said brushes, creasing-rollers rearward of the feed-rollers, grease-applying rollers rearward of the creasing-rollers, and means for simultaneously operating all the rollers and brushes, substantially as specified.

11. In a leather-working machine, a frame, a shaft mounted in said frame, creasing-rollers mounted to rotate on said shaft but adjustable longitudinally thereof, vertically-extended adjusting-shafts having fingers engaging in channels formed in the hubs of the creasing-rollers, and locking and turning levers pivotally connected to the upper ends of said adjusting-shafts, substantially as specified.

12. In a leather-working machine, a fixed frame, a vertically-movable frame in the fixed frame, the slide members of said vertically-movable frame being movable toward and from each other, a screw-shaft for causing said movements, a shaft in the forward portion of the fixed frame, brushes mounted to rotate with said shaft but adjustable longitudinally thereof, the said adjustments being caused by the movements of the side members of the vertically-movable frame, a feed-roller carried by the vertically-movable frame, creasing-rollers carried by the vertically-movable frame, and means for causing the vertical movements of the frame, substantially as specified.

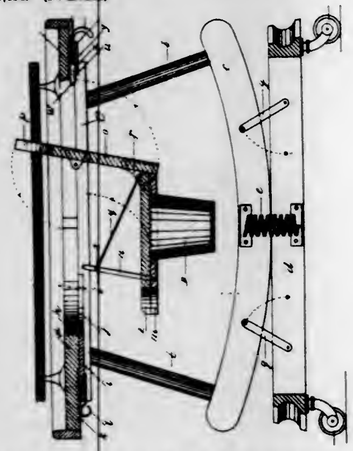
13. In a leather-working machine, a frame, blacking-applying brushes in the forward portion of said frame, feed-rollers rearward of the blacking-applying brushes, creasing-rollers rearward of the feed-rollers and adjustable toward and from each other, grease-applying rollers rearward of the creasing-rollers, a punch arranged in the frame, means for operating said punch, and means for regulating the operations of said punch, substantially as specified.

14. In a leather-working machine, a fixed frame, a frame arranged in the fixed frame, the side walls of which are adjustable toward and from

each other, a shaft arranged in the forward portion of the fixed frame, brush-carriers mounted to rotate with said shaft, the said carriers having connection with the adjustable frame members, and a punching device adjacent to the brush-carriers, substantially as specified.

15. In a leather-working machine, a fixed frame, a vertically-movable frame in the fixed frame, a shaft in the forward portion of the fixed frame, brush-carriers mounted to rotate with said shaft but movable longitudinally thereof, strap-holding devices pivotally connected to the vertically-movable frame, pressing-rollers in the frame, and a punch device in the frame, substantially as specified.

682,916. CHILD'S CONVERTIBLE CHAIR AND GO-CART. HENRY B. CURTIS, Leyton, England. Filed June 24, 1901. Serial No. 65,851. (No model.)



Claim.—In a child's convertible chair and go-cart the combination of a suitable table having an opening therein to accommodate the child's body; a slide for adjusting the size of the opening; means for retaining the slide in its required position; a folding seat below the said table; means for keeping the said seat in a shut-up position; legs to support the said table; rockers to support the said legs; a frame to support the said rockers; means for permitting or permitting and interrupting the rocking of the parts above the frame, all substantially as described in the above specification.

682,917. TIRE. JOHN M. DOAN, Mishawaka, Ind., assignor of one-half to Edward W. Synwolt, same place. Filed July 20, 1901. Serial No. 69,096. (No model.)



Claim.—1. In an elastic tire, a relatively heavy soft-rubber body having a longitudinally-disposed open passage-way therethrough constituting a self-sustaining core, an outer sheathing of flexible rubber, and a filler of soft fibrous material interposed between the heavy core or body and the outer sheathing, said filler being independent of and separate from the core and sheathing.

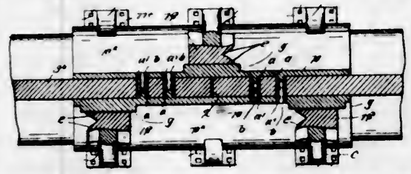
2. In an elastic tire, a relatively heavy soft-rubber body having a longitudinally-disposed open passage-way therethrough constituting a self-sustaining core, an outer sheathing of flexible rubber, and a plurality of independent layers of soft textile material interposed between the heavy core or body and the outer sheathing, said layers being free and separate from the core and sheathing and also from each other.

3. The combination with a rim and tire, of a fastening-wire located longitudinally within the tire and having its ends passing through and secured to the rim, said wire being provided with corrugations that extend transversely of the rim, and thus secure a comparatively broad surface of the tire to said rim.

4. The combination with a rim, of a tire comprising an inner and an outer casing, and a fastening-wire located longitudinally between the inner and outer casings of the tire and unattached thereto, said wire passing through and being secured to the rim, and being furthermore provided with corrugations that extend transversely of the rim and thus secure a comparatively broad surface of the tire to said rim.

5. The combination with a rim, of an elastic tire comprising a relatively heavy soft-rubber core or body having a longitudinally-disposed open passage-way therethrough, an outer sheathing of flexible rubber, and a layer of soft fibrous material interposed between the heavy core or body and the outer sheathing, of a fastening-wire located longitudinally within and bearing against the inner face of the outer sheathing, said wire passing through and being secured to the rim, and being furthermore provided with corrugations that extend transversely of the rim and thus secure a comparatively broad surface of the tire to said rim.

682,918. TRACK-RAIL CONNECTION. WILLIAM M. DONAHUE, Lindsey, Pa. Filed June 22, 1901. Serial No. 65,631. (No model.)



Claim.—1. Track-rail connections, comprising two angular splice-bars at meeting ends of two track-rails, said rails having integral studs laterally projected therefrom to loosely engage perforations in the splice-bars, clamps each having two hook members, and wedge-shaped keys adapted to engage one member of each clamp and contact with an adjacent splice-bar.

2. Track-rail connections, comprising two angular splice-bars, ribs on the sides of said splice-bars, clamps each having two hook members one longer than the other, and wedge-keys grooved to engage with the ribs, said keys being driven between the longer hook members of the clamps and adjacent sides of the splice-bars.

3. Track-rail connections, comprising two angular splice-bars, ribs extending longitudinally on the outer surfaces of the splice-bars, studs connecting the splice-bars and webs of the rails, clamps each having two hook members one longer than the other, and wedge-keys each having prongs at one end, the keys being driven between the longer hook members of the clamps and adjacent sides of the splice-bars, said keys being held in place by spreading the prongs.

682,919. ELECTRIC FUSE. LOUIS W. DOWNER, Providence, R. I. Filed June 11, 1901. Serial No. 64,159. (No model.)



Claim.—1. In an electric fuse or cut-out, a main-fuse wire, an inclosing casing for the same having an opening through the wall thereof, an auxiliary-fuse wire within the casing, and a thread for holding the auxiliary-fuse wire in a position across the inner end of the opening in the casing.

2. In an electric fuse or cut-out, a main-fuse wire, an inclosing casing for the same having an opening through the wall thereof, an auxiliary-fuse wire within the casing, and a thread extending through the opening in the casing for holding the auxiliary-fuse wire in a position across the inner end of said opening.

3. In an electric fuse or cut-out, a main-fuse wire, an inclosing casing for the same having an opening through the wall thereof, an auxiliary-fuse wire within the casing, and a thread looped through the opening in the casing and about the auxiliary-fuse wire for drawing the latter to and holding it in a position across the inner end of said opening.

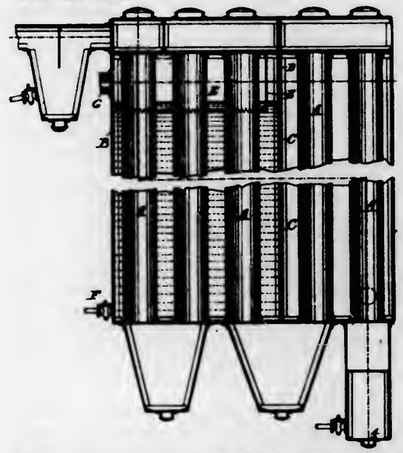
4. In an electric fuse or cut-out, a main-fuse wire, an inclosing casing for the same having an opening through the wall thereof, an auxiliary-fuse wire within the casing, a thread for holding the auxiliary-fuse wire in a position across the inner end of the opening in the casing, and a filling of material in said opening adapted by the disruption or heating of the auxiliary-fuse wire to effect a visual indication at the exterior of the casing of the disruption of the main fuse.

5. In an electric fuse or cut-out, a main-fuse wire, an inclosing casing for the same having an opening through the wall thereof, an auxiliary-fuse wire within the casing, a thread for holding the auxiliary-fuse wire in a position across the inner end of the opening in the casing, a cover on the exterior of the casing over the outer end of said opening and a filling of material in said opening adapted by the disruption or heating of the auxiliary-fuse wire to effect a visual change in the condition of the covering thereby indicating the disruption of the main fuse.

6. In an electric fuse or cut-out, an inclosing casing, caps for closing opposite ends of the casing, each cap having an opening therethrough, a main and an auxiliary fuse wire within the casing passing at opposite ends through the same opening in the caps respectively.

7. In an electric fuse or cut-out, the combination with an inclosing casing and a main-fuse wire or link, of a label or covering of a suitable material adapted to be visually affected upon the disruption of the main-fuse wire, and means for distinguishing or designating a certain known portion of the label which is to be so affected.

682,920. APPARATUS FOR THE TREATMENT OF PRODUCER-GASES. EDWARD J. DUFF, Liverpool, England, assignor to the United Alkali Company Limited, same place. Filed Mar. 16, 1901. Serial No. 51,547. (No model.)



Claim.—1. In a temperature-interchanger, a gas-passage, a chamber adapted to contain a body of water penetrated by the gas-passage, an air-passage adapted to be closed between its inlet and outlet ends by the body of water through which the air is blown in its passage through the apparatus.

2. In a temperature-interchanger for use in connection with gas-producing apparatus, a gas-passage, a chamber adapted to contain a body of water in contact with the outer surface of the wall of said passage, an air-passage penetrated by the gas-passage, and a partition dipping into the body of water and closing the air-passage.

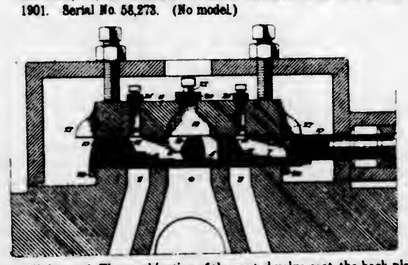
3. In a temperature-interchanger for use in connection with gas-producing apparatus, a chamber adapted to contain a body of water, an air-passage, a partition dipping into the body of water and closing the air-passage between its inlet and outlet ends, and a gas-passage leading through the air-passage between its inlet end and the partition and through the body of water.

4. In a temperature-interchanger for use in connection with gas-producing apparatus, a chamber adapted to contain a body of water, an air-passage, a partition having a serrated lower edge dipping into the body of water and closing the air-passage between its inlet and outlet ends, and a gas-passage leading through the air-passage between its inlet end and the partition and through the body of water.

5. In a temperature-interchanger for use in connection with gas-producing apparatus, a gas-passage, a chamber adapted to contain a body of water surrounding said passage at or near its outlet end but not at its inlet end, an air-passage part of which surrounds the inlet end of the gas-passage and another part of which is penetrated by the gas-passage at its outlet end, and a partition dipping into the body of water and separating the two parts of the air-passage.

6. In a temperature-interchanger for use in connection with gas-producing apparatus, a series of upright pipes suitably connected at top and bottom to form a continuous gas-passage, an inclosing casing about said pipes, a partition across the interior of the casing dividing the same into two communicating chambers one having an air-inlet and the other an air-outlet, a chamber adapted to contain a body of water below the air-inlet and about the gas-pipes therein, and a depending partition in said chamber dipping into the body of water and dividing the air-space in the chamber above the water into two parts into one of which the air-inlet opens and the other of which communicates with the air-space in the other chamber.

682,921. BALANCED SLIDE-VALVE. HENRY D. DUNBAR, North Hartland, Vt., and CHARLES L. DUNBAR, Lebanon, N. H. Filed May 1, 1901. Serial No. 58,273. (No model.)



Claim.—1. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto and having a central passage therein, the valve having a central passage communicating with the exhaust-port and with said central passage of the back plate and near each end a passage communicating with the corresponding induction-port of the valve-seat, said latter passage as the valve is reciprocated being opened to the steam-chest at one end of the travel of the valve, and to the exhaust-port and back-plate passage at the other end of the travel of the valve, substantially as specified.

2. The combination of the ported valve-seat and the back plate rigidly mounted in respect thereto and having a central chamber therein with the valve having a central passage and a passage near each end, the central passage being always in communication with the exhaust-port and with the chamber in the back plate, and each end passage being in communication with the corresponding induction-port of the valve-seat and as the valve is reciprocated being opened alternately to the steam-chest at top and bottom and to the back-plate chamber and exhaust-port at top and bottom respectively, substantially as specified.

3. The combination of the ported valve-seat and the back plate rigidly mounted in respect thereto, with the valve having near each end a passage communicating with the corresponding induction-port of the valve-seat, said passage being opened alternately to the steam-chest and to the exhaust-port as the valve is reciprocated, and packing-strips located on the back of the valve and bearing against the back plate, said packing-strips being located respectively at the sides and ends of the valve, substantially as specified.

4. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto and having a central passage, the valve located between the valve-seat and back plate and having a central chamber, and a chamber between said central chamber and each end of the valve and packing-strips on the back of the valve for bearing against the back plate, said packing-strips comprising longitudinal side packing-strips, transverse end packing-strips, and intermediate transverse packing-strips between the end chambers and the central chamber of the valve, substantially as specified.

5. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto, the valve moving between the valve-seat and back plate and having a central passage, and opposite end passages extending through it from front to back, and packing-strips on the back of the valve and bearing against the back plate, said strips comprising longitudinal side strips and transverse strips located between the central passage and the end passages of the valve, substantially as specified.

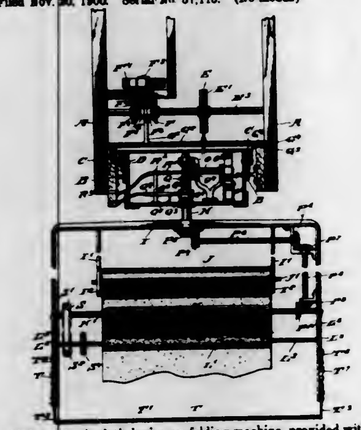
6. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto, the valve moving between the valve-seat and back plate and having passages extending therethrough, and packing-strips on the back of the valve bearing against the back plate, said packing-strips comprising both longitudinal and transverse strips, the longitudinal strips being deeper than the transverse strips, substantially as specified.

7. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto, and the valve moving between the valve-seat and back plate and having passages extending through the same, a relief-passage extending through the back plate, and a flat bar normally resting upon the back of the plate and guided at each end so as to serve as a relief-valve, substantially as specified.

8. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto and having projecting fingers at each end, and the valve moving between the valve-seat and back plate and having passages extending through it, and packing-strips mounted on the back of the valve and bearing against the back plate or its projecting fingers as the valve is reciprocated, substantially as specified.

9. The combination of the ported valve-seat, the valve and the back plate having depending side portions resting upon the valve-seat, and inwardly-projecting end lugs bearing against the ends of the valve-seat, substantially as specified.

682,922. CLOTH-FILER. WILLIAM N. DUNN, Martinsburg, W. Va. Filed Nov. 20, 1900. Serial No. 37,115. (No model.)



Claim.—1. A cloth laying or folding machine, provided with a carriage mounted to travel above a table on which the cloth is to be laid or folded, a cloth-roll hanger revolubly supported from the carriage and means for unwinding the cloth only during the forward travel of the carriage and turning the cloth-roll hanger during the return travel of the carriage said means being controlled by the travel of the carriage, as set forth.

2. A cloth laying or folding machine, comprising an overhead track, a carriage mounted to travel thereon, a roll-hanger revolubly supported from said carriage and adapted to support a cloth-roll, an unwinding device for unwinding the cloth from the said roll, and means for driving said unwinding device and turning the roll-hanger from said carriage, as set forth.

3. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll, means for operating the drum from the carriage and a pair of feed-rolls under said drum and rotating in unison therewith, to unwind the cloth on said cloth-roll, as set forth.

4. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll, a pair of feed-rolls under said drum and rotating in unison therewith, to unwind the cloth on said cloth-roll, and means for rotating said drum and said feed-rolls from said carriage, as set forth.

5. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll means for operating the drum from the carriage, feed-rolls below the drum and rotating in unison therewith, and a cutting device for cutting the cloth, as set forth.

6. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll, feed-rolls below the drum, and means for opening the feed-rolls, to permit the insertion of the cloth, as set forth.

7. A cloth laying or folding machine, comprising an overhead track, a carriage, mounted to travel thereon, a roll-hanger mounted to turn on said carriage and adapted to support the cloth-roll, and means for turning the said hanger from the carriage and during the travel of the same, as set forth.

8. A cloth-folding machine, comprising an overhead track, a carriage mounted to travel thereon, means for imparting a forward-and-backward travel to said carriage, a roll-hanger revolubly supported from said carriage, an unwinding device for unwinding the cloth from the cloth-roll, a driving mechanism for actuating said unwinding device, said driving mechanism being controlled by the forward-and-backward movement of the carriage, and means, substantially as described, for periodically turning said hanger said means being controlled by the travel of the carriage, as set forth.

9. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger supported from the carriage, a drum mounted in the hanger and adapted to form a support for the roll, means for operating the drum from the carriage, a feeding device below the drum for feeding the cloth from the roll over the drum, and means for operating the feed device from the said drum, substantially as described.

10. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls mounted in the roll-hanger below the drum and geared together, and means for operating one of the feed-rolls from the drum, substantially as described.

11. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for causing the carriage to travel back and forth on the track, of a roll-hanger suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls mounted in the hanger below the drum, means for operating the feed-rolls from the drum, and a cutting device carried by the roll-hanger for cutting the cloth, substantially as described.

12. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger revolubly suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls below the drum, means for operating said rolls from the drum, and means for turning the roll-hanger, said means being controlled by the travel of the carriage, substantially as described.

13. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for imparting a back-and-forth movement of the carriage on the track, of a roll-hanger revolubly suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls mounted in the hanger below the drum and geared together, means for operating one of the feed-rolls from the drum, and a cutting device carried by the roll-hanger for cutting the cloth, substantially as described.

14. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and operated from the carriage-operating means, a drum mounted in the hanger and adapted to form a support for the cloth-roll, gearing between the said shaft and the shaft of the drum, and a feeding device arranged below the drum and operating in unison therewith, substantially as described.

15. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and operated from the carriage-operating means, a drum mounted in the roll-hanger and adapted to form a support for the cloth-roll, gearing between the said shaft and drum, feed-rolls below the drum and geared together, and means for operating one of the feed-rolls from the said drum, substantially as described.

16. In a cloth-folding machine, the combination with a track, a carriage mounted thereon, and means for operating the carriage to cause it to travel back and forth on the track, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage, a horizontal shaft mounted in the carriage and geared with the upper end of the vertical shaft, means for operating the horizontal shaft by the travel of the carriage, a drum mounted in the roll-hanger, gearing between the drum and the lower end of the vertical shaft, and a feeding device below the drum and operated therefrom, substantially as described.

17. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for causing the carriage to travel back and forth on the track, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and provided at its upper end with two gear-wheels mounted loosely thereon and spaced apart, said gear-wheels having clutch-faces, a double clutch mounted on the shaft between the gear-wheels to slide on and turn with the said shaft, means for moving the clutch alternately in engagement with the clutch-faces of the said gear-wheels, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the said gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a cloth-feeding device mounted in the roll-hanger, and means for operating the feed device from the lower end of the said vertical shaft, substantially as described.

18. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for causing the carriage to travel back and forth on the track, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and provided at its upper end with two loosely-mounted gear-wheels, spaced apart and having clutch-faces, a double clutch mounted on the shaft between the gear-wheels to slide on and turn with said shaft, a lever secured to the clutch, fixed shifters for engaging the lever to shift the clutch, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the before-mentioned gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a feeding device mounted in the roll-hanger and means for operating the feed device from the said vertical shaft, substantially as described.

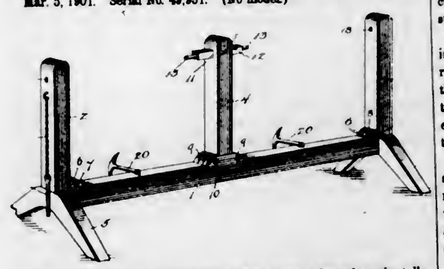
19. In a cloth-folding machine, the combination with a track, a carriage mounted thereon, and means for causing the carriage to travel back and forth on the track, of a sleeve journaled in the carriage, a roll-hanger carried by the sleeve, a vertical shaft mounted in the sleeve and provided at its upper end with two loosely-mounted gear-wheels spaced apart, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the before-mentioned gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a feeding device mounted in the roll-hanger, means for operating the feeding device from the vertical shaft, and means for locking the sleeve to one of the gear-wheels, substantially as described.

20. In a cloth-folding machine, the combination with a track, a carriage mounted thereon, and means for causing the carriage to travel back and forth on the track, of a sleeve journaled in the carriage and having a clutch-face at its upper end, a roll-hanger carried by the sleeve, a vertical shaft mounted in the sleeve and provided at its upper end with two loosely-mounted gear-wheels spaced apart, one of the said gear-wheels being carried by a sleeve on the shaft, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the before-mentioned gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a feeding device mounted in the roll-hanger, means for operating the feeding device from the said vertical shaft, a clutch mounted on the sleeve of the said gear-wheel, a lever for operating the clutch, and fixed shifters with which the lever engages, substantially as described.

21. In a cloth-folding machine, the combination with a track, and a carriage mounted thereon, of pulleys, a band passing over the pulleys and having its ends secured to the carriage, gear-wheels loosely mounted on the shaft of one of the pulleys, said gear-wheels being spaced apart and having opposing clutch-faces, a double clutch mounted between the gear-wheels, a transversely-sliding shifting rod having an arm engaging the clutch and provided with a pin at one end, a longitudinally-sliding rod provided with an angular arm having a slot in which the pin of the shifting rod projects, and stops for the carriage on the longitudinally-sliding rod, substantially as described.

22. In a cloth-feeding machine, the combination with a roll-hanger, of a drum mounted in the hanger, feed-rolls mounted in the hanger below the drum, one of the feed-rolls being mounted in elongated bearings, and a lever pivoted to the hanger and in which the ends of the shaft of the feed-roll which is mounted in elongated bearings, is mounted, substantially as and for the purpose set forth.

682,923. CAN-SUPPORT. ELON EATON, Edwards, N. Y. Filed Mar. 5, 1901. Serial No. 49,931. (No model.)



Claim.—1. A can-support comprising a frame adapted to pivotally support a rotatable can at diametrically opposite points, the pivot on one side being adjustably held in position, the pivot for the opposing side being freely removable, and a catch for holding said can tilted on either side of said frame without preventing a movement of the can to the opposite side to free the catch.

2. A can-support comprising a frame adapted to pivotally support a can at diametrically opposite points, the pivot on one side being adjustably held in position, the pivot for the opposing side being freely removable, and means carried by the frame for holding said can in a tilted position on either side of the frame without preventing a movement of the can to the opposite side of the frame to free the holding means.

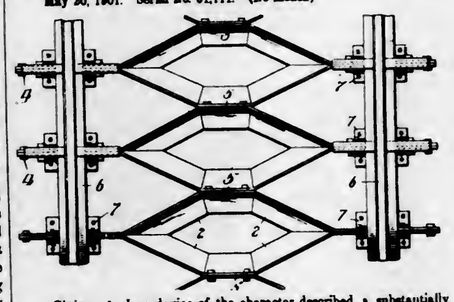
3. In a can-support, a frame for pivotally supporting a rotatable can removably secured therein; and a catch carried by the frame and adapted to engage with the edge of the top of the can, whereby the can may be held tilted on either side of the frame.

4. A support for a plurality of cans, comprising a frame having ends and an intermediate post or standard, an adjustable pivot device mounted on said post or standard, the pivots extending on opposite sides thereof and adjustable to and from said post, and a pin carried by each end and adapted to form the opposing pivot for the can, said pin being freely removable.

5. A support for a plurality of cans, comprising a frame having ends and an intermediate post or standard, an adjustable pivot device mounted on said post or standard, a pin carried by each end and adapted to form the opposing pivot for the can, said pin being removable, and a double-headed catch mounted intermediate the post and the ends, said catch being adapted to hold the can tilted on either side of the frame.

6. In a can-support, a frame for pivotally supporting a rotatable can removably secured therein; and a catch carried by the frame for holding said can tilted on either side of the frame without preventing a movement of the can to the opposite side to free the catch.

682,924. RAIL-TIE. PHILIP W. PLANDERS, Elkhorn, Wis. Filed May 30, 1901. Serial No. 61,111. (No model.)



Claim.—1. In a device of the character described, a substantially diamond-shaped rail-tie formed of two sections, means for uniting the sections, extensions carried by the said tie, and means secured to the said extensions for fastening the rails thereto, substantially as described.

2. In a device of the character described, a substantially diamond-shaped tie, flanges made integral therewith, extensions made integral with the said tie, base-plates carried by the said extensions, the said extensions having recesses formed therein for the reception of the rails, and means for securing the said rails to the said extensions.

3. In a device of the character described, a substantially diamond-shaped tie formed of two united sections, flanges made integral with the said tie at right angles thereto, extensions made integral with the said ties, base-plates made integral with the said extensions, and a saddle secured to the said extensions and engaging the rail carried thereby, substantially as described.

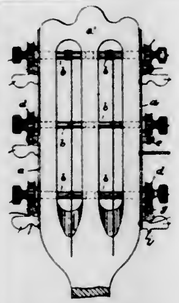
4. In a device of the character described, a diamond-shaped tie having flanges, extensions made integral with the said tie, base-plates carried by the said extensions, the said extensions having recesses formed therein for the rail to be secured in, and a saddle secured to the said extensions for securing the rail thereto, the saddle comprising downwardly-extending sides made integral therewith, and a lug at right angles thereto for engagement with the web of the rail, substantially as described.

5. As an article of manufacture, a rail-tie composed of two sections secured together, the said sections being stamped from a piece of sheet metal, and formed into a substantially diamond-shaped form, provided with extensions, and a saddle stamped from a piece of sheet metal and adapted to be used in combination with the said tie, substantially as described.

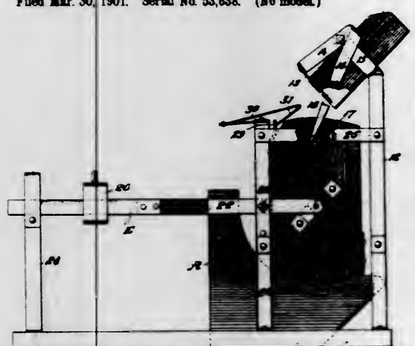
682,925. MUSICAL STRING INSTRUMENT. OTTO GERECKE, Markneukirchen, Germany. Filed Apr. 5, 1901. Serial No. 54,557. (No model.)

Claim.—The combination with the head of a stringed musical instrument, and the usual metal plate on the side thereof, of a string-peg journaled in said plate provided with a head for direct turning, a bearing swiveled in the side plate, a shaft journaled at one end in said swiveled bearing, a worm-wheel on the peg, a worm on the shaft, and a stop or support for the shaft at its opposite end comprising a supporting-pin swiveled in the plate and having a notch in one side and a lug projecting from the other, substantially as described.

682,925.



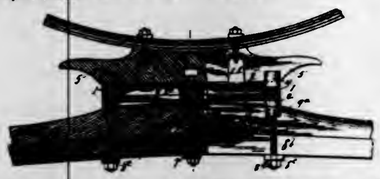
682,926. GRAIN-WEIGHER. ANTON GOEHRING, Edgeley, N. D. Filed Mar. 30, 1901. Serial No. 53,638. (No model.)



Claim.—1. In a grain-weighing device, a revoluble bucket, the wall of which is partly cut away so as to form a slot, a tongue mounted upon said bucket and extending over said slot, and a stationary spring-catch in the path of said tongue and of said slot, in combination with a scale actuated by the weight of said revoluble bucket.

2. In a grain-weighing device, a revoluble bucket, the wall of which is partly cut away so as to form a slot, a tongue mounted upon said bucket and extending over said slot, and a stationary spring-catch in the path of said tongue and of said slot for the purpose of preventing backward rotation of the bucket, a frame for supporting said bucket and normally abutting the same to prevent forward rotation thereof, and a scale actuated by the weight of said bucket for releasing said bucket.

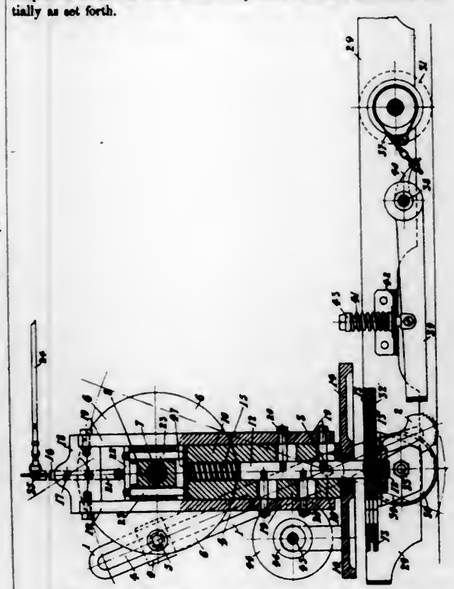
682,927. FIFTH-WHEEL. JACOB GOEBEL, Toledo, Ohio. Filed Sept. 10, 1900. Serial No. 29,494. (No model.)



Claim.—In a fifth-wheel, the combination with the upper circle having a cross-arm and central perforated boss, of the lower circle 8 having a cross-arm 9, a central perforated boss and two lateral, downwardly-projecting lugs 9* at each end of said cross-bar, said lugs being spaced apart to receive the axle, and having vertical bolt-holes, and the face of said lower circle having at each end of bar 9 two rectangular countersunk recesses 8*, two pair of square-headed, removable bolts in the holes of the lugs with their heads in said recesses, and a cross-plate beneath the axle engaged by said pairs of bolts and by nuts, substantially as described.

682,928. MOTOR MECHANISM. NICHOLAS GOODIER and THOMAS PULLITT, Manchester, England. Filed Dec. 4, 1900. Serial No. 38,628. (No model.)

Claim.—1. A self-propelled vehicle in which the propelling machinery comprises vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road, and machinery connected with and adapted to vibrate said levers, the weight of said machinery being adapted to rest or be suspended upon the fulcra of the levers when in action, a vertical sliding frame supporting the fulcra of said levers, and adapted to be moved toward and away from the road-surface, substantially as set forth.



2. A self-propelled vehicle in which the propelling machinery comprises vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road, and machinery connected with and adapted to vibrate said levers, the weight of said machinery being adapted to rest or be suspended upon the fulcra of the levers when in action, a vertical sliding frame supporting the fulcra of said levers, and adapted to be moved toward and away from the road-surface, the fulcra being on slides being operated up and down from a revolving part of the driving machinery; substantially as set forth.

3. In a self-propelled vehicle, vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road, a carrier-frame adapted to slide up and down, and having the fulcra of said levers connected with it, a shaft above the fulcra connected with and adapted to slide up and down in connection with the said frame, cranks on said shaft connected with the upper ends of said levers, and adapted to vibrate same by the rotation of said shaft, and moving supports for said fulcra, adapted to be moved up and down in and by each revolution of the shaft; substantially as set forth.

4. A self-propelled vehicle in which the propelling machinery comprises vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road, and machinery connected with and adapted to vibrate said lever, the weight of said machinery being adapted to rest or be suspended upon the fulcra of the levers when in action, a vertical sliding frame supporting the fulcra of said levers, and adapted to be moved toward and away from the road-surface, and controlling means operated by the driver, adapted to raise and lower the said fulcra; substantially as set forth.

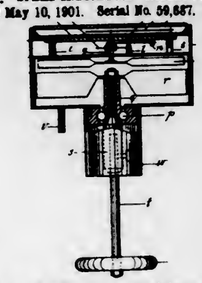
5. A self-propelled vehicle in which the propelling machinery comprises vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road, and machinery connected with and adapted to vibrate said levers, the weight of said machinery being adapted to rest or be suspended upon the fulcra of the levers when in action, a vertical sliding frame supporting the fulcra of said levers, and adapted to be moved toward and away from the road-surface, and also rotated about its vertical axis, and a controlling means operated by the driver adapted to raise and lower the said fulcra, and also revolving with the machinery about its vertical axis; substantially as set forth.

6. A self-propelled vehicle in which the propelling machinery comprises vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road and machinery, connected with and adapted to vibrate said levers, the weight of said machinery being adapted to rest or be suspended upon the fulcra of the levers when in action, a vertical sliding frame supporting the fulcra of said levers and adapted to be moved toward and away from the road-surface, and a wheel running on the road and supporting said vertical sliding frame; substantially as set forth.

7. A self-propelled vehicle in which the propelling machinery comprises vibrating upright levers, the lower ends of which are adapted to engage with the surface of the road, and machinery connected with and adapted to vibrate said levers, the weight of said machinery being adapted to rest or be suspended upon the fulcra of the levers when in action, a vertical sliding frame supporting the fulcra of said levers, and adapted to be moved toward and away from the road-surface, and brake mechanism for braking the wheels of the vehicle connected with and worked from the said vertical sliding frame; substantially as set forth.

8. In a self-propelled vehicle, the combination of a vertical sliding frame 10, lever-fulcra 3 supported from said frame, vibrating levers 1 supported upon said fulcra, a shaft 7 about the fulcra adapted to slide up and down with a frame 10, and crank-disk 6, the crank-pins of which are connected with and directly operate the upper end of the levers 1; and controlling means for raising and lowering the said frame; substantially as set forth.

682,929. SPEED-INDICATOR. ROBERT GOODLAD, Southsea, England. Filed May 10, 1901. Serial No. 59,857. (No model.)



Claim.—In speed-indicators operated by a driving-fan rotated by the force or motion of which the speed is to be ascertained and wherein the readings are controlled by a spiral spring surrounding the arbor of the pointer, a governor consisting of a disk having its axis coincident with the axis of the arbor and having a helicoidal face on which presses the free end of a spring one end of which is attached to a suitable stud, the said disk having also a gap at a part of its periphery corresponding with that of zero on the dial substantially as described.

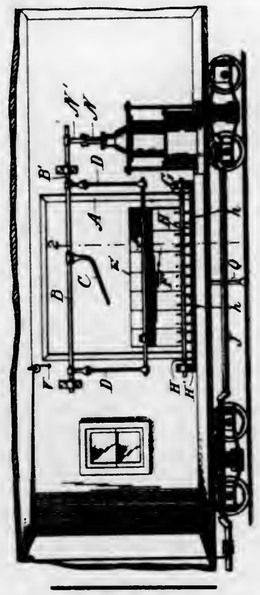
682,930. MAIL-BAG-DELIVERY APPARATUS. ELIAS GRAHAM, Haseldell, Ill., assignor of two-thirds to Samuel McBride, same place, and Owen C. Fuqua, Casey, Ill. Filed June 28, 1901. Serial No. 66,397. (No model.)

Claim.—1. A mail-bag-delivery apparatus, comprising in combination with the car, a rack swinging rack or frame, a trap mounted thereon to receive said mail-bag, pneumatic means for raising said frame to a vertical position to deliver the mail, and means for holding the mail-bags on said platform as the latter is raised, as set forth.

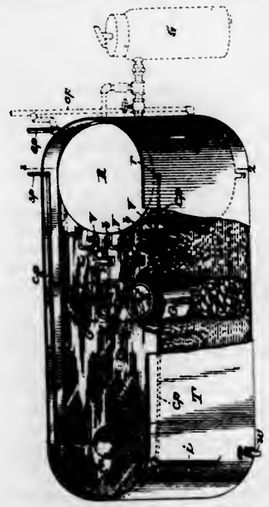
2. A mail-delivery apparatus, comprising in combination with the car, a rack hinged adjacent to the door-opening thereof, a platform or trap secured to said frame, pneumatic means for raising said frame to throw the mail out, a guard-shaft journaled to the car, a series of fingers mounted on said shaft adjacent to the platform, and pivotal connections between the arm on said shaft and frame, whereby as the frame is raised to an upright position, said guard-fingers are hung down into horizontal positions, as set forth.

3. A mail-delivery apparatus, comprising in combination with the car, a frame having a shaft which is journaled adjacent to the door-opening, a guard-shaft journaled in suitable bearings on the car, fingers on said shaft, which are upwardly disposed when said frame is at its lowest limit, arms on said frame, and guard-shaft and a link or bar pivotally connecting said arms, a shaft with mail-receiving arm and pivotal link connections between said frame and the shaft carrying the mail-receiving arm, as set forth.

4. In combination with the car, a rack hinged at its lower end adjacent to the opening of the car, the guard shaft and fingers mounted thereon, pivotal connections between said guard shaft and frame, the mail-receiving arm and shaft carrying the same, which is journaled in suitable bearings on the car, pivotal link connections between the arms on said shaft carrying the mail-receiving arm, and a pneumatic piston having pivotal connections with an arm mounted on or integral with the shaft carrying the mail-receiving arm, and means for actuating said piston whereby the shaft is rotated, and the frame carrying the mail is raised to an upright position.



682,931. ACETYLENE-GAS MACHINE. JOHN W. GREGORY, St. Joseph, Mo., assignor to the Sunlight Manufacturing and Supply Company, same place. Filed Oct. 23, 1900. Serial No. 34,015. (No model.)



Claim.—1. An acetylene-gas apparatus, comprising a tank, a rigidly-fixed inverted bell in said tank closed at top and sides, and open at the bottom, a generator-chamber for carbid, and a conduit connecting said generator-chamber and receiver, said conduit being provided with a valve and a branch pipe with check-valve connecting the receiver to the conduit at a point between the valve in the conduit and the generator substantially as described.

2. An acetylene-gas apparatus comprising a tank for water, an inverted-bell receiver, and a generator, both immersed in the water in the tank, and the generator being connected to the receiver by a conduit

having an extensible portion permitting the generator to be lifted out of the water substantially as described.

3. An acetylene-gas apparatus comprising a tank for water, an inverted-bell receiver, and a generator both immersed in the water of the tank, a conduit connecting the generator to the receiver having a swinging or jointed hollow arm, a valve in said conduit, and a branch pipe from the conduit to the receiver having a check-valve in the same substantially as described.

4. An acetylene-gas apparatus, comprising a tank, an inverted and stationary bell, arranged in said tank, a plurality of generators for containing calcium carbid said generators being connected to the receiver at different levels by conduit-pipes to cause a successive feed of water from the receivers to the generators, substantially as described.

5. In an acetylene-gas apparatus, the combination with a tank, of a generator arranged in the tank and immersed in the water thereof, said generator having a marginal feeder or dam around its charging-mouth extending above the water-level to permit drying out the interior of the generator while in the tank substantially as described.

6. In an acetylene-gas apparatus, the combination with a tank for water and a level-regulating water-supply in the tank; of a generator immersed in the water of the tank and having an extended wall or fender at its upper edge projecting above the water-level, substantially as described.

7. In an acetylene-gas apparatus, the combination with a tank for water; of a generator immersed therein and having around its charging-mouth an extended wall or fender with openings in the same, and a cut-off for closing said openings substantially as and for the purpose described.

8. An acetylene-gas apparatus comprising a tank having a device for regulating the supply of water thereto, an inverted-bell receiver with cooling and drying pipe for the gas, extended in rising position around the top of the tank, an air-inlet and gas-outlet arranged above the water-level of the tank, and one or more generators immersed in the water of the tank and connected to the receiver substantially as described.

9. An acetylene-gas apparatus comprising a tank and a water-level-regulating device for supplying the same, a gas-receiver constructed as an inverted bell immersed in the water and opening at its bottom into the tank, and a generator also immersed in the water of the tank and connected to the receiver substantially as described.

10. In an acetylene-gas apparatus the combination with a main tank for water, an inverted-bell gas-receiver immersed therein, and a generator also immersed in the water and connected with the receiver; of a cover-tank having one or more tubes in the bottom thereof adapted to be immersed and sealed within the water of the main subjacent tank for automatic feed and supply as described.

11. In an acetylene-gas apparatus the combination with a main tank for water, an inverted-bell gas-receiver immersed therein, and a generator also immersed in the water and connected with the receiver; of a cover-tank connected to the top of the main tank and having at its sole opening one or more tubes let into the bottom thereof through which such cover-tank may be filled when reversed and through which opening the water may flow down into the main tank automatically when the cover-tank is down as described.

12. In an acetylene-gas apparatus, the combination with a tank; of a receiver in said tank, a generator arranged extraneous to the receiver in the tank and also immersed in the water thereof, said generator having a suitable device at or near its top for charging same with calcium carbid, and a device for opening and closing same at its bottom, so that residuum may be flushed out of said generator into a connecting flush-pipe or sewer connection without removing the generator from its place, substantially as described.

13. In an acetylene-gas apparatus, comprising a tank, a rigidly-fixed inverted-bell receiver for gas and a generator for producing acetylene gas connected therewith and devices for regulating the supply and overflow of water so as to maintain the water-level in said tank at a practically uniform point, the combination with said parts of a rigidly-fixed water-tight partition arranged in said tank to separate that portion of the tank containing the receiver from the part containing the generator and having the devices regulating the inflow of water, and reaching to such height in said tank (or having a port or ports therein at such height) that the water in the compartment of such tank in which such receiver is situated cannot fall below the desired level, even though the other compartment be wholly or partially emptied thus maintaining uniformity of pressure against the gas in such receiver, despite any fluctuation in the water-level in the other compartment of said tank, substantially as described.

14. An acetylene-gas apparatus comprising a tank, having means for regulating the supply of water thereto, an inverted-bell receiver with a cooling and drying pipe for the gas extended in a curving and rising position from its connection with said receiver, a water-tight partition dividing such tank vertically into two compartments, an opening for intake of air and overflow of water, and an outlet for waste gas arranged at and above the water-level of the tank, and one or more generators immersed in the water of the tank and connected to the gas-receiver, substantially as described.

15. In an acetylene-gas apparatus, the combination with a water-tank containing a gas-bell and generator; of a pipe or flue opening at the water-line in said tank and opening below outside for intake of air and overflow of water, and a blow-off or ventilating pipe opening at the top of such tank so that a current of air may pass into such tank and carry off waste gas through said blow-off or escape pipe, substantially as described.

16. In an acetylene-gas apparatus, the combination with a water-tank, containing a gas-bell and generator immersed in the water and having devices to regulate the water-level; of a frost-proof case inclosing the same substantially as described.

682,932. TRUCK. SAMUEL HALTOM, Henderson, Tex., assignor of one-half to Israel Louis Dreeben, Dallas, Tex. Filed Sept. 6, 1900. Serial No. 29,231. (No model.)



Claim.—1. The combination with a vehicle frame and bed, of lazy-tongs comprising several connected pairs of crossed levers, constituting an extensible support for the bed and disposed to maintain the horizontal position of the bed during its elevation, and lifting mechanism connected to the lazy-tongs at the intersection of the levers of one pair.

2. The combination with a vehicle frame and bed, of an extensible support for the latter, a sectional rack disposed to effect the extension of the support to elevate the bed, and a suitably-driven pinion carried by the frame and engaging the rack, said extensible support being disposed to maintain the horizontal position of the bed during its elevation.

3. The combination with a vehicle frame and bed, of lazy-tongs comprising several connected pairs of crossed levers, constituting an extensible support for the bed and disposed to maintain the horizontal position of the bed during its elevation, a longitudinally-movable rack operatively connected to the lazy-tongs at the intersection of the levers of one pair, and a suitably-driven pinion engaging the rack.

4. The combination with a vehicle frame and bed, of elevating mechanism for the bed, said mechanism comprising a sectional rack, means for locking the sections against relative movement, and means for operating the rack.

5. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a rack having flexibly-connected sections, a pinion engaging the rack, and means for automatically locking the rack-sections against relative movement as the rack is advanced beyond the pinion.

6. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a sectional rack, locking-plates designed to rigidly connect the adjacent rack-section, and means for operating said plates through the movement of the rack.

7. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a sectional rack, means for operating the rack, and means for locking and unlocking the section through the movement of the rack in opposite directions.

8. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a sectional rack, a pinion engaging the rack, locking-plates located upon the rack immediately adjacent to the joints between the sections, and locking and unlocking cams located to shift the positions of said plates through the movement of the rack in opposite directions.

9. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a sectional rack, a casing carried by the frame and arranged to guide the rack, locking and unlocking cams formed upon the casing, and locking-plates constituting elements of the rack and disposed to engage the cams as the rack is moved in opposite directions.

10. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a sectional rack, rack-operating mechanism carried by the frame, means for locking the rack-sections against relative lateral movement as said sections are advanced beyond the rack-operating mechanism, means for unlocking the sections as they are retracted below said operating mechanism, and a drum disposed to receive the flexible portion of the rack.

11. The combination with a vehicle frame and bed, of an extensible bed-support, a sectional rack connected to the support to effect the extension thereof, means for operating the rack, and means for automatically locking and unlocking the rack-sections.

12. The combination with a vehicle frame and bed, of lazy-tongs constituting an extensible support for the bed, a sectional rack connected to the upper portion of the lazy-tongs, rack-operating means carried by the frame, locking-plates arranged to lock the rack-sections, and means for automatically shifting the positions of said plates to effect the locking and unlocking of the rack-sections.

13. The combination with a vehicle frame and bed, of an extensible bed-support comprising a series of crossed levers and a bed-latch arranged to effect a detachable pivotal connection between the bed and the terminal of one of the supporting-levers.

14. The combination with a vehicle frame and bed, of lazy-tongs comprising a bed-support, a shaft carried by one member of the lazy-tongs and provided with rollers supporting one end of the bed, a latch carried at the other end of the bed, and means carried by another of the lazy-tongs members and disposed for engagement by the latch.

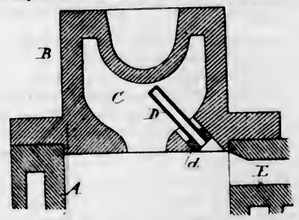
15. The combination with a vehicle frame and bed, of lazy-tongs comprising upper terminals, one of which is pivotally connected to the rear end of the bed, and lower terminals, one of which is pivotally connected to the front end of the frame, the other upper terminal being slidably connected to the front of the bed, and the other lower terminal being slidably connected to the rear end of the frame, whereby the horizontal position of the bed is maintained during its elevation, and elevating mechanism connected to the lazy-tongs.

16. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a rack, a power-shaft, a pinion carried by the shaft engaging the rack, and a plurality of independent shaft-operating devices.

17. The combination with a vehicle frame and bed, of bed-elevating mechanism comprising a rack, a pinion engaging the rack, a shaft supporting the pinion, a ratchet-disk carried by the shaft, a pawl and an operating-lever both slidably mounted upon the shaft and arranged for engagement with the ratchet-disk, a spring urging the lever into its engaging position, and a crank upon the extremity of the shaft.

18. The combination with a vehicle frame and bed, of elevating mechanism for said bed, said mechanism comprising a sectional rack, and means for operating the rack.

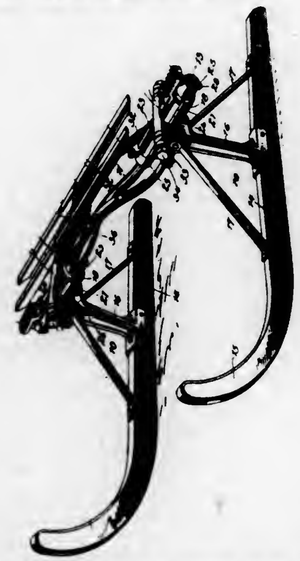
682,933. INCANDESCENT IGNITER FOR EXPLOSIVE-MOTORS. RASMUS P. HANSEN, Brindslev Sogn Rödby, Denmark. Original application filed May 4, 1899, Serial No. 715,671. Divided and this application filed May 23, 1900. Serial No. 17,720. (No model.)



Claim.—1. In explosion-motors, an extension of the explosion-chamber formed in the cover and communicating therewith, an igniting-tube projecting into said extension of the explosion-chamber the closed extremity of the igniting-tube being provided with thin walls; substantially as described.

2. In combination with an explosive-engine cylinder, a cover closing the end thereof and having a chamber therein communicating with the cylinder, said cover having an opening through its wall to one side of the said communication with the cylinder, and a hollow ignition-tube seated in said opening and having its walls projecting into said chamber, the interior of said ignition-tube communicating with the cylinder, substantially as described.

682,934. SLEIGH. JOHN A. HEINTZ, Menomonie, Wis. Filed Apr. 20, 1901. Serial No. 56,763. (No model.)



Claim.—1. In a sleigh, the combination with an axle having terminal spindles at its opposite ends and provided with outstanding shoulders located contiguous to the spindles, of sleigh-knees having journal-boxes mounted on the spindles and provided with outstanding shoulders that coact with and are arranged to abut against the shoulders of the axle to limit the swinging movement of the knees.

2. In a sleigh, the combination with an axle having terminal spindles at its opposite ends and provided with outstanding shoulders, of sleigh-knees having journal-boxes mounted upon the spindles, said journal-boxes being provided with outstanding shoulders located beneath the shoulders of the axle and arranged to abut against the same to limit the swinging movement of the knees, and means located at the opposite ends of the spindles to prevent longitudinal movement of said knees.

3. In a sleigh, the combination with an axle having a terminal spindle, and provided with an outstanding shoulder located contiguous to the spindle, of a sleigh-knee having a journal-box mounted upon the spindle and provided with an outstanding shoulder that coacts with and is arranged to abut against the shoulder of the axle to limit the swinging movement of the knee, and an auxiliary holding device secured to the axle and engaging the journal-box intermediate its ends.

4. In a sleigh, the combination with an axle having a terminal spindle and provided with an outstanding shoulder located contiguous to said spindle, of a sleigh-knee having a journal-box mounted upon the spindle and provided intermediate its ends with a transversely-disposed notch, said journal-box being furthermore provided with an outstanding-shoulder located beneath the shoulder of the axle and arranged to abut against the same to limit the swinging movement of the knee, and a holding-pin secured to the axle and engaging in the transverse notch of the journal-box.

5. In a sleigh, the combination with an axle having a terminal spindle, of a knee having a journal-box rotatably mounted on the spindle, a body-supporting spring arranged longitudinally of the axle and having one end located beyond the inner ends of the terminal spindle and the journal-box, a support for the spring secured to the axle and arranged over the journal-box, and a link connecting the end of the spring and the support.

6. In a sleigh, the combination with runner-sections having journal-boxes, of an axle connecting the runner-sections and engaging in the journal-boxes, a spring having its opposite ends located above the runner-

sections, and means located over the journal-boxes for connecting the ends of the springs to the axle.

7. In a sleigh, the combination with runner-sections having journal-boxes, of an axle connecting the runner-sections and engaging in the journal-boxes, a spring having its opposite ends located above the runner-sections, and means located over the journal-boxes for connecting the ends of the springs to the axle, said means also constituting a stop to limit the swinging movement of the runner-sections.

8. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass, whereby the knees are pivotally mounted thereon, and bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle at the opposite end of said journal-boxes to prevent their longitudinal movement upon the axle.

9. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass, whereby the knees are pivotally mounted thereon, said journal-boxes being provided with shoulders, and bearing-blocks arranged longitudinally of the journal-boxes, and rigidly secured to the axle at the opposite ends of said journal-boxes to prevent their longitudinal movement upon the axle, said blocks being provided with shoulders that coact with those of the boxes to limit the swinging movement of the latter.

10. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass whereby the knees are pivotally mounted thereon, bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle at the opposite ends of the journal-boxes to prevent their longitudinal movement upon the axle, and a body-supporting spring connecting the bearing-blocks.

11. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass whereby the knees are pivotally mounted thereon, said boxes being provided with shoulders, bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle at the opposite ends of said journal-boxes to prevent their longitudinal movement upon the axle, said bearing-blocks being provided with shoulders that coact with those of the boxes to limit the swinging movement of the latter, and a bowed body-supporting spring connecting the bearing-blocks.

12. In a sleigh, the combination with an axle having spindles at its ends, of sleigh-knees having journal-boxes through which pass the spindles whereby the knees are pivotally mounted thereon, bearing-blocks arranged longitudinally of the boxes and rigidly secured to the axle at the opposite ends of said boxes, transversely-disposed projecting arms carried by the bearing-blocks, and a body-supporting spring connecting said arms.

13. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass whereby the knees are pivotally mounted thereon, bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle, transversely-disposed arms carried by the bearing-blocks and having their ends projecting upon opposite sides of the same, and springs connecting the corresponding ends of said arms.

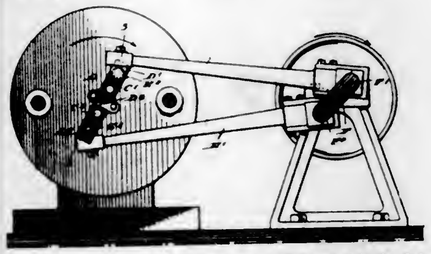
14. In a sleigh, the combination with an axle having spindles at its ends, of sleigh-knees having journal-boxes through which the said spindles pass whereby the knees are pivotally mounted thereon, said boxes being provided with outstanding stop-shoulders, bearing-blocks arranged longitudinally over the boxes and having collars that surround the spindles at the opposite ends of the boxes, means carried by the collars and engaging the spindles to hold the same against independent movement, shoulders arranged on the bearing-blocks and coacting with the shoulders of the boxes to limit the swinging movement of the latter, transversely-disposed arms carried by the bearing-blocks and having their ends projecting upon opposite sides of the same, bowed springs arranged longitudinally of the axle and having links at their ends, and bolts passing through the transverse arms and engaging said links to fasten them to the arms.

15. In a sleigh, the combination with an axle, of a knee having a journal-box at its upper end that receives the axle, a bearing-block located over the journal-box and secured to the axle, and a body-supporting spring secured at one end to the bearing-block.

16. In a sleigh, the combination with an axle having a terminal spindle, of a knee having a journal-box rotatably mounted on the axle-spindle, a body-supporting spring arranged longitudinally of the axle and having one end located beyond the inner end of the knee journal-box, and a connection between said end of the spring and the axle.

682,935. CRANK MECHANISM. CHARLES G. HOLMBERG, Woonsocket, S. D., assignor to Anna Holmberg, John M. Wheeler, and Loren H. Pier, same place. Original application filed Oct. 4, 1900, Serial No. 31,975. Divided and this application filed Feb. 1, 1901. Serial No. 45,578. (No model.)

Claim.—1. A crank mechanism having a crank made in sections, and links for connecting the inner ends of the sections with each other, as set forth.

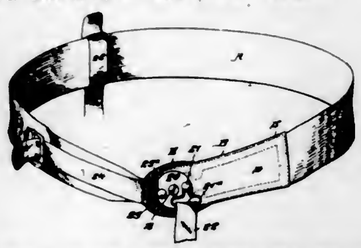


2. A crank mechanism, comprising an oscillating shaft having fork-arms, a crank made in sections held on said fork-arms, links connecting the inner ends of the sections with each other, and pitmen connected with the outer ends of the said sections, as set forth.

3. A crank mechanism, comprising an oscillating shaft having fork-arms, a crank made in sections held on said fork-arms, links connecting the inner ends of the sections with each other, pitmen connected with the outer ends of said sections, and a main or driven shaft having diametrically-arranged crank-arms connected with said pitmen, as set forth.

4. A crank mechanism for connecting an oscillating shaft with a rotary shaft, comprising a crank made in sections standing across the oscillating shaft and pivoted on fork-arms of the said oscillating shaft, a link for connecting the inner ends of the crank-sections with each other, the link standing approximately at a right angle to the sections and diametrically across the oscillating shaft, and connections between the outer ends of the crank-sections and the crank-arms on the rotary shaft, substantially as shown and described.

682,936. HERNIAL TRUSS. GEORGE V. HOUSE, Mount Vernon, N. Y. Filed Feb. 21, 1901. Serial No. 48,297. (No model.)



Claim.—1. In a truss, a front piece formed of pliable material, and a spring controlling device therefor, consisting of a piece of wire bent upon itself to form tines and an approximately semicircular connecting member, the tines being formed with opposing inwardly-extending indentations near the semicircular connecting member, as set forth.

2. In a truss, a front piece formed of pliable material, a spring controlling device therefor consisting of a piece of wire bent to form tines and an approximately semicircular connecting member, the tines being formed with opposing inwardly-extending indentations near the semicircular connecting member, and a cap-plate located on the front piece over the curved end of the controlling device and with which the pad is adapted to be connected, as set forth.

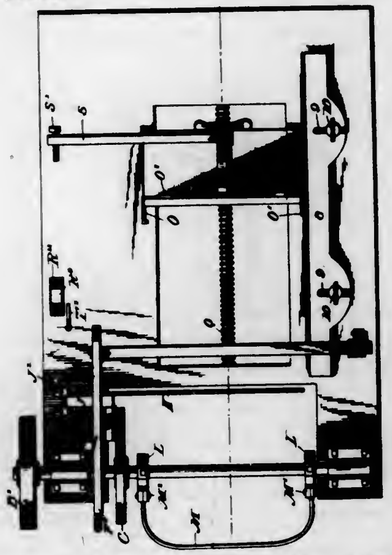
3. In a truss, a pliable front piece formed of an inner and outer section, a spring controlling device arranged between the sections of the front piece and consisting of a piece of wire bent to form tines and a semicircular connecting end member, a retaining-plate for the free ends of the tines, a cap-plate located on the outer face of the front piece over the curved end of the controlling device, a pad on the inner face of the front piece, and a screw passing through the cap-plate and front piece and into the pad, as set forth.

4. In trusses, the combination, with a front piece constructed of pliable material, of a spring controlling device for the said front piece, consisting of wire of proper gage bent upon itself to form opposing tines, a connecting member at one end and opposing inwardly-directed indentations formed in the said tines near the connecting member, producing at that end of the spring controlling device a half-loop, a confining device for the inner ends of the tines, and means for securing the spring controlling device to the said front piece, as described.

5. In trusses, the combination, with a front piece constructed of pliable material, of a spring controlling device for the said front piece, consisting of wire of a suitable gage bent upon itself to form opposing tines, a connecting member at one end and opposing inwardly-directed indentations formed in the said tines near the connecting member, producing at that end of the spring controlling device a half-loop, a confining device for the inner ends of the tines, means for securing the spring controlling device to the said front piece, a cap-plate located on the outer face of the front piece over a portion of the half-loop section of the spring controlling device, exerting pressure thereon, and a pad secured to the front piece through the medium of the said cap-plate, for the purpose set forth.

6. In a truss having a pliable body-band, the combination with a front piece constructed of pliable material, of a spring controlling device therefor, consisting of tines longitudinally opposed to each other, and extending longitudinally of the front piece, the said tines being connected at the pad end by a semicircular connecting member, a confining device secured to the front piece and receiving the free ends of the tines, a pad located upon one surface of the front piece and bearing upon the opposite tines, and a cap-plate securing the pad to the front piece, located on the opposite surface of the front piece, and extending over the opposite tines, and containing a device for connecting said cap-plate to one end of the pliable truss-band, as set forth.

682,937. MACHINE FOR MAKING WOODEN DISHES. BERT HUGHES, Harrisville, N. Y. Filed Dec. 28, 1900. Serial No. 41,366. (No model.)



Claim.—1. In a machine for cutting wooden dishes, comprising in combination with the frame, the operating-shaft having a cam, an eccentric mounted about said cam, the draw-head or slide having pivotal connection with the arm of the eccentric, the rocking knife, link connections between same and said slide or draw-head, a tilting lever having an enlarged end, a cam on the operating-shaft adapted at each revolution thereof to tilt said lever, the rotary knife mounted on the shaft, a stationary post on the table of the machine, a pressure-bar held at one end in said post, and its other end mounted in the end of said tilting lever, and the carriage, and means for imparting an intermittent motion thereto at each revolution of the operating-shaft, as shown and described.

2. In a machine for cutting wooden dishes, the combination with the operating-shaft, the rotary cutting-knife, the reciprocating draw-head and connections between the same and the operating-shaft, for driving said draw-head, the carriage, a worm-shaft mounted in the frame of the machine, and having clutch connections with the carriage, a gear-wheel mounted to rotate with said worm-shaft, a gear-wheel and stub-shaft on which the same is mounted, said stub-shaft being pivoted at one end to a portion of the frame, a pivoted lever on which the opposite end of said stub-shaft is mounted, and means for dropping the stub-shaft and gear-wheel carried thereby out of mesh with the gear-wheel on the worm-shaft when the carriage is fed forward to its farthest limit.

3. A machine for cutting wooden dishes, comprising a frame, an operating-shaft and rotary knife, a reciprocating draw-head and connections between same and the shaft, the carriage and worm-shaft, clutch connections between same and said carriage, a gear-wheel on the worm-shaft, a stub-shaft pivoted at one end, a gear-wheel mounted on said stub-shaft, and meshing with the gear on the worm-shaft, a pivoted lever in which the other end of said stub-shaft is mounted, a spring-actuated lever pivoted to the frame of the machine, the upper end of which lever projects above the table, and the lower end notched, and adapted to hold the lever carrying the outer end of the stub-shaft in a substantially horizontal relation, so that the gear-wheels will be in mesh with each other, and means carried by the carriage to trip against the upper projecting end of said spring-actuated lever.

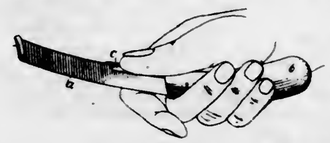
4. In combination in a machine for cutting wooden dishes, the framework, the operating-shaft, the reciprocating draw-head, connections between same and the operating-shaft, the carriage, an arm carried by said carriage, and a set-screw at the end of said arm, the worm-shaft, a gear on said worm-shaft, a stub-shaft pivoted to the frame, a gear-wheel mounted on said stub-shaft, a lever pivoted at one end to the frame of the machine, and supporting the outer end of said stub-shaft, a pivoted spring-actuated lever, having its lower end hooked and adapted to engage and hold the lever carrying the outer end of the stub-shaft in a position so that said gear-wheels will be in mesh with each other, the upper end of said spring-actuated lever projecting above the table, and in the path of said set-screw, whereby as the set-screw contacts with said end, the lower hooked end will be disengaged from the stub-shaft-carrying lever to allow the gear-wheels to be disengaged.

5. In a machine for making wooden dishes, the combination with the framework, the operating-shaft, the cutting-knives, the carriage, the worm-shaft, a gear-wheel mounted to rotate with said worm-shaft, a stub-shaft pivoted at one end to the frame, a gear-wheel mounted on said stub-shaft, a horizontally-mounted lever pivoted at one end of the frame, and supporting the outer end of the stub-shaft, the forward end of said horizontally-mounted shaft being pivoted, a rod secured thereto, passing through the table of the machine, and bent at an angle, a spring-actuated lever having a hooked end normally engaging said aperture to hold the stub-shaft-carrying lever in a horizontal position, so that said gear-wheels will be in mesh, the upper end of the spring-actuated lever projecting above the table of the machine, an arm projecting laterally from the carriage and a set-screw in said arm designed to strike against said projecting portion of the spring-actuated arm to disengage its lower end from the horizontally-disposed lever, whereby the gear-wheels are disconnected, as set forth.

6. In combination with the framework, the driving-shaft, the cutting-knives, the worm-shaft, the gear-wheel mounted thereon, the carriage and clutch connections between the same and said worm-shaft, the gear-wheel mounted on said worm-shaft, the stub-shaft, the gear and ratchet wheels mounted thereon, the vertically-adjustable lever supporting the free end of said stub-shaft, the trip-bar R^6 for normally holding the gears in mesh, and means for tilting the trip-lever to throw the wheels out of mesh, a pawl, and an arm carrying same, and a tilting lever having pivotal connection with said arm, whereby at each revolution of the operating-shaft a partial rotary movement is imparted to the worm-shaft, as shown and described.

7. In a machine for cutting wooden dishes, the combination with the frame, the operating-shaft, cutting-knives, the worm-shaft, carriage and geared connections for operating said worm-shaft, a lever having pivotal connections near its center with the frame, an arm pivoted at one end of said lever, the opposite end of said lever having connections with the driving mechanism, a stub-shaft pivoted at one end to the frame, the gear and ratchet wheels carried by said stub-shaft, and means for raising and lowering said stub-shaft one end of said arm having a journal-bearing for said stub-shaft, and a dog carried by the arm and engaging the teeth of the ratchet-wheel, as shown and described.

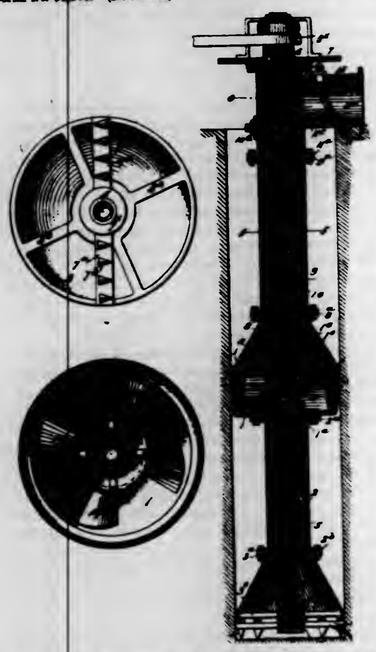
682,938. HORSESHOER'S KNIFE. GEORGE C. INGRAM, South Tacoma, Wash. Filed Nov. 20, 1900. Serial No. 37,165. (No model.)



Claim.—As a new article, a horseshoer's knife, having a blade, a handle whose upper edge lies in a plane with the back or upper edges of the blade, said blade having an integral laterally-curved member, extend-

ing longitudinally of the blade, and formed on the upper or back edge of the blade, adjacent the front end of the handle, and in a plane with the upper or back edge of the handle, for the purposes specified.

682,939. CENTRIFUGAL PUMP MECHANISM FOR DEEP WELLS. EDMUND M. IVERS, New Orleans, La. Filed Sept. 29, 1900. Serial No. 31,570. (No model.)



Claim.—1. A mechanism for the purposes described, comprising a casing, a lift-pipe connected to the bottom thereof, a disintegrator held to operate at a point below the inlet end of the lift-pipe, centrifugally-operating blades within the casing, said casing having outlets in the top, an offtake-pipe into which the material discharges from the casing-outlet, said pipe having its exit discharging above the surface, means for rotating the blades and the disintegrator, and a separate means for feeding water into the top of the pump-casing onto the blades, and to the disintegrator, for the purposes described.

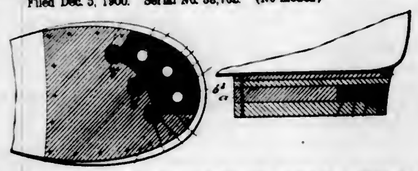
2. In a pumping mechanism adapted to be lowered into a well, as it is being dug, a casing, a centrifugally-operating pump held in the casing for lifting the loosened material, an offtake communicating with the casing-outlet, a lift-pump discharging into the casing, a hollow rotatable pump-shaft, upon which the pump-blades are secured, the lower end of the said shaft having radial arms carrying disintegrating-teeth, the lower end of said shaft being open to supply an earth-loosening agent to the teeth, and a receiver for leading the material from the disintegrator into the lower end of the lift-pipe, for the purposes specified.

3. The combination with the pump-casing, having a central inlet in its bottom, and an annular outlet in its top; a hollow water-feed shaft, passing through the casing, said shaft having pump-blades secured thereto; the disintegrator-head, attached to the hollow water-feed shaft; a conical receiver into which the discharge from the pump passes; a lift-pipe connected with the said receiver, having a lateral offtake-pipe, and a check-valve in the said offtake-pipe; the suction or lift pipe for conveying the material to the pump-casing, and means for operating the disintegrator-head, substantially as shown and described.

4. In a pumping mechanism as described, the combination with the centrifugally-operating pump devices and the discharge or outlet pipe connected therewith; of a lift-pipe connected to the inlet end of the casing, a conical receiver fitted on the lower end thereof, said receiver having radial bottom arms, a central bearing-hub, said hub having fluid-passages and the hollow drive-shaft, said shaft forming a part of the pump devices, said shaft having its lower end journaled in the aforesaid receiver-hub and provided with passages registering with the passages in the said hub, radial arms, having pendent teeth secured to the lower end of the shaft, and a bearing for the upper end of the shaft, all being arranged substantially as shown and described.

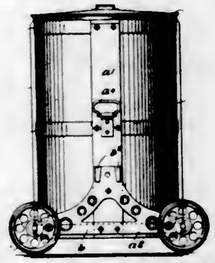
5. In a mechanism of the class described, a suction-pipe, a rotary tubular shaft extending through the suction-pipe to supply a loosening agent to the earth at the receiving end of said suction-pipe, and a pump and a disintegrator, both carried by said shaft.

682,940. BOOT-HEEL. CHARLES E. KELLER, Los Angeles, Cal. Filed Dec. 5, 1900. Serial No. 38,762. (No model.)



Claim.—A heel for articles of footwear, formed of a number of layers of material, an intermediate one of which is of composite structure, comprising a main section with a portion cut out to form a recess, and a relatively elastic section forming a cushion set into the recess in the main section, the said elastic section further having an opening extending vertically through it, and a metallic spring fitted in the opening and bearing against the top and bottom walls of said recess in which the elastic section is placed.

682,941. CAN. JOSEPH W. KOSNER, Buffalo, N. Y. Filed Mar. 25, 1901. Serial No. 52,693. (No model.)



Claim.—1. An ash-can, comprising a can proper having longitudinally-extending slats secured to its outer surface, and frames rigidly secured at their centers to the lower portions of the oppositely-arranged slats, each frame being of a length approximately equal to the diameter of the can and having a wheel mounted at each end thereof, as set forth.

2. An ash-can, comprising a can proper having longitudinally-extending slats secured to its outer surface, frames rigidly secured at their centers to the lower portions of oppositely-arranged slats, each frame consisting of a central vertical member, and a horizontal member at the lower end of the vertical member and projecting on opposite sides of the same, the horizontal member being of a length approximately equal to the diameter of the can, and wheels mounted in the frames, one at each end of each frame, as set forth.

3. An ash-can having wheeled frames secured to opposite sides thereof, runners, and means for removably attaching the runners to the frames between the wheels, for the purpose specified.

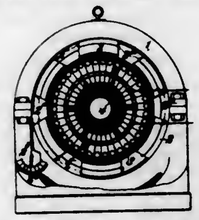
4. An ash-can having frames attached to opposite sides thereof, wheels mounted on the frames, guide-ribs carried on the frames, runners for the ash-can, and brackets secured to the runners and having lugs removably fastened between the guide-ribs of the frame.

682,942. ROTARY TRANSFORMER. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Jan. 28, 1897. Serial No. 621,117. (No model.)

Claim.—1. In a rotary transformer for converting multiphase alternating currents into direct currents, the combination with a member having magnetizing-coils, of means for supplying multiphase currents to said coils and means for taking direct currents therefrom, and a magnetizable member having laminated projections separated by air-spaces and located adjacent to said coil-wound member but having no magnetizing-coils, whereby the machine runs as a motor and delivers a smooth, direct current.

2. In a rotary transformer, the combination with two concentrically-

arranged and relatively rotatable magnetizable members only one of which is provided with a magnetizing-winding, of means for supplying multiphase alternating currents to said winding and a commutator for taking direct currents therefrom, the other member being provided with grooves or slots corresponding in number and position to the commutator-brushes.



3. Means for transforming alternating into continuous currents, comprising a slotted cylindrical core, a commutator, collecting-rings and brushes, a closed-coil winding located in the slots of said core and connected to the commutator-segments and collecting-rings, and a slotted magnetizable member without magnetizing-coils surrounding said cylindrical core and in close proximity thereto.

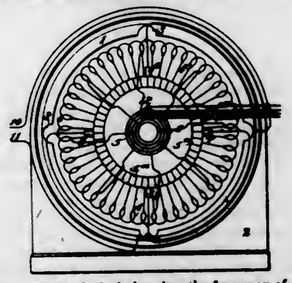
4. Means for transforming multiphase alternating currents into continuous currents, comprising a rotatable core provided with a single winding connected to both the alternating and the continuous current circuits and a magnetizable member without magnetizing-coils in close proximity to said core and its winding.

5. In a rotary transformer for converting multiphase alternating currents into continuous currents, an armature having a magnetizing-winding, means for supplying multiphase currents to said winding and means for taking direct current therefrom, in combination with a field-magnet having inwardly-projecting laminated pole-pieces without magnetizing-coils, whereby the counter electromotive force of the machine is dependent entirely upon the magnetic field set up by said armature, and runs as a motor.

6. A rectifier for phase-differing alternate currents consisting of a cylindrical core having a continuous winding, said winding being connected to the source of phase-differing alternate currents at angular intervals corresponding to the phase differences of said currents, and further connected at regular intervals to segments of a commutator, a keeper traversed solely by the flux due to said phase-differing currents and brushes connected with the work-circuit and bearing upon said commutator and means for maintaining said brushes continuously in contact with the points of maximum potential in said winding, substantially as described.

7. In a rectifier for alternating currents of different phase, a cylindrical core having continuous winding, said winding being connected to a source of phase-differing alternating currents at regular intervals corresponding to the phase difference of said currents, and further connected at regular intervals to segments of a commutator and brushes connected with the work-circuit bearing upon said commutator in combination with a keeper having polar projections as to which said cylindrical core is relatively revolvable, said keeper being energized only from the flux of the currents passing through the winding on said cylindrical core, substantially as described.

682,943. METHOD OF CHANGING FREQUENCY OF ALTERNATING CURRENTS. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed July 24, 1897. Serial No. 645,797. (No specimens.)

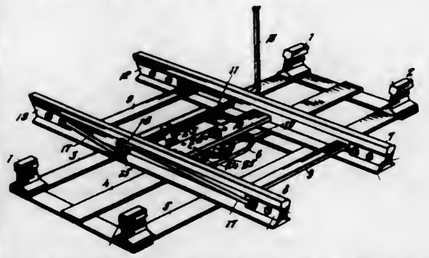


Claim.—1. The method of changing the frequency of alternating currents which consists in supplying alternating currents of a given frequency, through brushes and collector-rings, to the armature-winding of a rotary transformer having a field-magnet unprovided with magnetizing-coils and running said armature at such speed between zero and synchronism as will insure the supply of currents of the desired frequency to the commutator-leads.

2. The method of producing alternating currents of any desired frequency which consists in supplying alternating currents of a given frequency to the armature-winding of a rotary transformer having no magnetizing field-coils, and driving the armature at such speed between zero and synchronism as will provide a current of the desired frequency at the commutator-brushes.

3. The method of changing the frequency of alternating currents which consists in supplying alternating currents of a given frequency to the winding of the rotatable member of an electrical machine through brushes and collector-rings, rotating said member in proximity to a magnetic keeper at a speed corresponding to the desired current frequency and taking off the transformed current through a commutator.

682,944. TURN-TABLE. THOMAS F. LANGLEY, Corvallis, Oreg. Filed Apr. 23, 1901. Serial No. 57,101. (No model.)

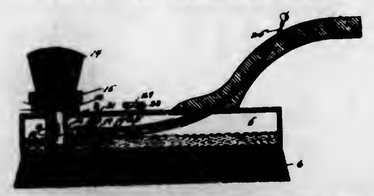


Claim.—1. In a turn-table, a bed-frame consisting of plates extended between adjacent ends of the main-track rails, turn-table rails, cross-bars connecting said turn-table rails, a shaft mounted to rotate in the latter rails, locking fish-plates mounted to slide on opposite sides of said turn-table rails at the ends, opposite plates being connected, and connections between said plates and crank-arms on the shaft, substantially as specified.

2. In a turn-table, a fixed base-frame, turn-table rails, cross-bars connecting said turn-table rails, a turn-plate mounted on the fixed frame and having ratchet-teeth on its upper side, a plate having ratchet-teeth on its under side and connected to one of the cross-bars of the turn-table rails and engaging with the turn-plate, a shaft having bearings in the turn-table rails, an arm on said shaft, a connection between said arm and the turn-plate, and a bolt passing through said turn-plate, the lower frame, the upper plate, and the center cross-bar of the turn-table rails, substantially as specified.

3. In a turn-table, a fixed base-frame, turn-table rails, cross-bars connecting said turn-table rails, a turn-plate mounted on the fixed frame and having ratchet-teeth on its upper side, a plate having ratchet-teeth on its under side and connected to one of the cross-bars of the turn-table rails and engaging with the turn-plate, a shaft having bearings in the turn-table rails, an arm on said shaft, a connection between said arm and the turn-plate, a bolt passing through said turn-plate, the lower frame, the upper plate and the center cross-bar of the turn-table rails, and locking devices operated from said shaft for locking the turn-table rails to the main rails, substantially as specified.

682,945. BLACKING-BRUSH. ELLIS S. G. LEWIS, Perkinston, Miss. Filed Dec. 1, 1900. Serial No. 38,362. (No model.)

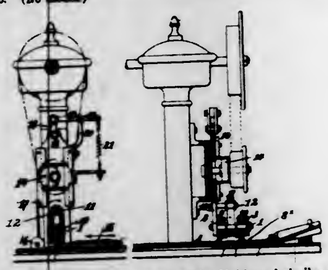


Claim.—1. A fountain blacking-brush comprising a hollow body portion having polishing-bristles attached thereto, a dauber comprising a casing connected with the body and having a communicating opening, a valve for controlling the opening and adapted to be opened by a cord attached thereto, a hollow handle for the body, a cord attached to the valve

and passed outwardly through the hollow handle for manipulation to open the valve, and bristles carried by the dauber-casing.

2. A fountain blacking-brush comprising a hollow body portion, a dauber comprising a casing including a head and a stem, the latter being engaged through an opening in the body, a perforated plate in the casing, an absorbent pad upon the plate, bristles disposed with their butt-ends upon the pad, a perforation in the stem and leading to the body, a plug-valve for closing the opening, means for holding the valve yieldingly in closed position, and means for operating the plug.

682,946. COMB-DABBING MECHANISM. EMILE MEUNIER and EUGENE MEUNIER, Roubaix, France. Filed Dec. 4, 1900. Serial No. 38,683. (No model.)



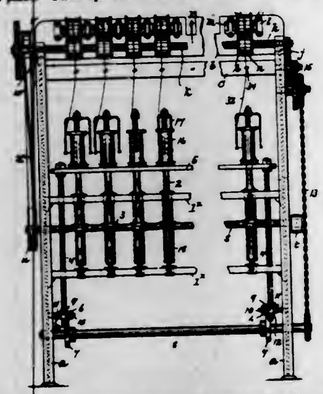
Claim.—1. In combing-machines of the Noble and similar types, a dabbing-brush, consisting of a wheel-brush and a band-brush, in combination with means for imparting the usual rising-and-falling motion to the brush, as and for the purpose described.

2. In combing-machines of the Noble and similar types, a dabbing-brush, consisting of two wheel-brushes and an intermediate band-brush, in combination with means for imparting the usual rising-and-falling motion to the brush, as and for the purpose described.

3. In combing-machines of the Noble and similar types, a dabbing-brush, consisting essentially of a wheel-brush and a band-brush in combination with means for imparting the usual rising-and-falling motion to the brush and a disk beyond the point of contact of such brush and the combs, to act on the fibers at the bottom of the comb-teeth, substantially as described.

4. In combing-machines of the Noble and similar types, a dabbing-brush, consisting essentially of a wheel-brush and a band-brush, in combination with a vertical slide carrying said brush, means for imparting a vertical reciprocating motion to the slide and a counterbalance for the slide and brush, substantially as described.

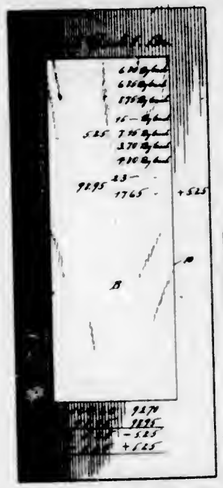
682,947. TWISTING AND DOUBLING MACHINE. FLORIAN MEYER, Paterson, N. J., assignor of one-half to Frederick L. Atherton, same place. Filed Apr. 23, 1900. Serial No. 13,858. (No model.)



Claim.—1. In a spinning-machine, the combination of a supporting-frame, rails arranged one above the other in said frame, spindles journaled in said rails, a vertically-reciprocating frame guided by said rails, spring-clips secured to the reciprocating frame, and bobbins secured to the frame by said clips to thereby enable the frame to positively move the bobbin lengthwise of the spindles, as the frame is reciprocated.

2. In a spinning-machine, a supporting-frame having bobbin-skewers fixed thereto and carrying the operating parts, a plurality of rails connecting the side framing, a vertically-reciprocating frame guided by each of said rails and having metallic clips with upwardly-projecting arms secured thereto adapted to engage bobbins to cause them to move with said frame, and means to operate said vertically-reciprocating frame, comprising a cam, a lever, and an adjustable coupling between the lever and frame, said coupling being pivotally connected to said lever.

682,948. BALANCE-SHEET BLOTTER. FREDERICK J. MULLER, near Cardiff, Ala. Filed Feb. 19, 1901. Serial No. 47,951. (No model.)



Claim.—1. A balance-sheet blotter, comprising a translucid absorbent member and a border member therefor, said border member being of a material which may be written upon.

2. A balance-sheet blotter, comprising a translucid absorbent member and a border member secured to the translucid member, said border member being of greater strength than the absorbent member and of a material which may be written upon.

3. A balance-sheet blotter, comprising a border of the same width as the ledger-page on which it is to be used and of a material which may be written upon, and an absorbent body secured to one face of the border and covering the space within the border, as set forth.

682,949. ELECTRIC HEATER. JAMES F. MCELROY, Albany, N. Y., assignor to Consolidated Car-Heating Company, same place. Filed Nov. 28, 1898. Serial No. 697,577. (No model.)



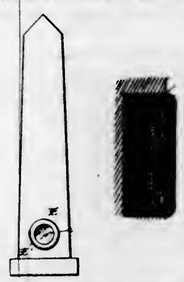
Claim.—1. In an electric heater, a heating-conductor, an insulating-support therefor, a porcelain block provided with an insulating-bushing formed integral therewith at each end of said insulating-support, within which bushings are secured the ends of the heating-conductor substantially as described.

2. An electric heater, consisting of a casing, an insulating-support, a resistance placed thereon, a porcelain block at each end of said support carrying an insulating-bushing, a metallic plate on each end of said insulating-support through which said insulating-bushing passes, so arranged and connected up that the resistance on said insulating-support may be secured at each end within said bushing and the metallic plates when placed within the heater-casing will form the ends thereof, substantially as described.

3. An electric heater, consisting of a casing, one or more resistance-carrying supports, a porcelain block placed at the end of each support, insulating-bushings formed integral with said porcelain blocks, within

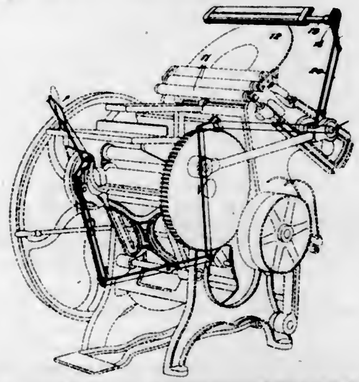
which bushings are secured the terminals of the resistance-wire, so arranged that the resistance-wire may be placed upon the support, its ends secured in the bushing at each end of the support and the supports placed in the casing, a metallic plate at each end of the supports fitting within an opening in the casing, a face-plate for the casing and means for securing the face-plate in position after the supports are placed in the casing, substantially as described.

682,950. MEMORIAL-TABLET. SETH D. MCNEAL, Jonesville, Mich. Filed Jan. 5, 1901. Serial No. 42,265. (No model.)



Claim.—An integral artificial-stone inscription-incasement monument attachment, having the interior shoulder, the glass plate resting upon said shoulder, the inscription or writing in rear of said plate, means in rear of the inscription or writing for keeping it water-tight, and a filling of artificial stone for the rearmost part of the interior of said incasement, and integral with the incasement, substantially as specified.

682,951. DOG-TRIP FOR PRINTING-PRESSES. ROBERT NAUMANN, New York, N. Y. Filed Dec. 26, 1900. Serial No. 41,046. (No model.)



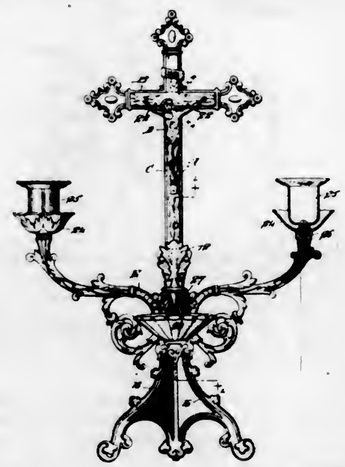
Claim.—In platen-presses, the combination, with the inking-disk of the press, an ink-supply roller having an outwardly-extending trunnion, a shifting shaft, a throw-off lever connected with the shaft, and a roller-carriage for the inking mechanism, of a device for rotating the supply-roller of the ink-fountain controlled by the throw-off lever, which device consists of an arm loosely mounted upon the trunnion of the ink-supply roller, a link connecting the arm with the roller-carriage of the inking mechanism, a dog pivoted to the upper portion of the arm, a ratchet-wheel secured upon the trunnion of the ink-supply roller, a mechanism which connects the shifting shaft with the ink-distributing rollers, and a second link pivotally attached to the dog and connected with the shifting shaft, substantially as described.

682,952. COMBINED CRUCIFIX, FONT, AND CANDELABRUM. HERMAN F. MEIER, New York, N. Y., assignor to Benziger Brothers, same place. Filed June 11, 1901. Serial No. 64,105. (No model.)

Claim.—1. In altar furniture, a cross, and a smaller cross provided with a corpus removably supported on the larger cross, as described.

2. In altar furniture, a cross, a candelabrum fitted to the body of the cross, a font having a bearing against a portion of the candelabrum, and means for locking the font to the body of the cross, as described.

3. In altar furniture, a main cross, means for holding the said main cross in an upright position, extensions from the cross-arm of the main cross and a socket at the lower end of the vertical member of the main cross, and a smaller cross provided with a corpus, removably fitted to the main cross, the cross-arm of the smaller cross resting upon the projections from the corresponding portion of the main cross and the lower end of the smaller cross being adapted to enter the said socket carried by the larger cross for the purpose set forth.

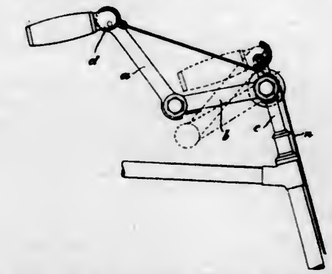


4. In church furniture, a cross, twin legs forming a portion of the upright section of the cross, an auxiliary leg fitted to the twin legs, and lugs extending from the twin legs, engaging the auxiliary leg and held in clamping engagement therewith, whereby the auxiliary leg can be attached to the twin legs without soldering, brazing or the like.

5. In church furniture, a body-section and legs for the body-section, and lugs extending from sundry of the legs and engaging with others, being held in clamping engagement with the legs with which the lugs contact, for the purpose described.

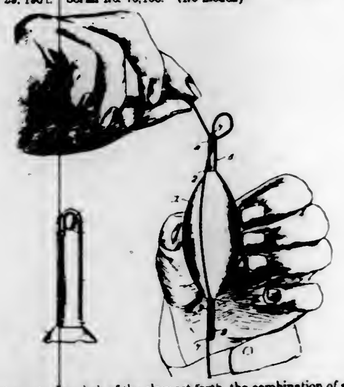
6. In church furniture, a body in the form of a cross, a support for said body, a candelabrum-arm fitted in a depression in the upright section of the body, the candelabrum-arm being provided with a central downwardly and forwardly extending plate and a bar beneath and at the rear of said plate, a font, a portion of which is passed up at the rear of the plate on the candelabrum-arm, and a set-screw passed through the upright portion of the cross and into a threaded opening in said font at the rear of the inclined plate on the candelabrum-arm, as described.

682,953. BICYCLE, TRICYCLE, &c. DOWNES R. NORTON, Hampton Hill, England. Filed July 6, 1900. Serial No. 22,755. (No model.)



Claim.—The combination, with a front fork, of a link *b* pivoted at one end to the said fork, a link *a* pivoted to the other end of the link *b* and foldable upon it, a reciprocatory handle-bar provided with a projecting arm *e* and journaled in the free end portion of the link *a*, a spring-drum carried by the said arm, and a flexible connection wound upon the said drum and connected with the driving mechanism, substantially as set forth.

682,954. FISHING-BOB. NELS OLSON, Burlington, Iowa. Filed July 29, 1901. Serial No. 70,168. (No model.)



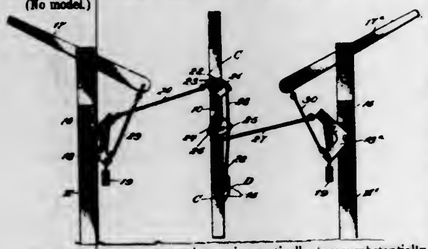
Claim.—1. In a bob of the class set forth, the combination of a body having a flat bar extending therethrough and provided with terminal recesses, and spring-hooks extending over the recessed ends of the bar and forming combined eyes and guards.

2. In a bob of the class set forth, the combination of a body having a flat bar with recessed ends, and reversely-arranged spring-hooks extending over the said ends of the bar and forming combined eyes and guards.

3. In a bob of the class set forth, the combination of a body having a flat bar with recessed ends, and a straight shank secured along one side edge of each bar extremity and having a hook over the recessed end and a straight terminal loosely bearing on the bar close to the opposite side edge for a short distance, whereby a combined eye and yielding guard will be provided.

4. A bob having a flat bar with a recessed end and a resilient closing-hook for said end having a terminal loosely bearing against an adjacent portion of the bar.

682,955. GATE. ELISHA A. ROGER, CLAUDE D. ROGER, and NELSON L. ROGER, Bozeman, Mont. Filed Nov. 22, 1900. Serial No. 37,335. (No model.)



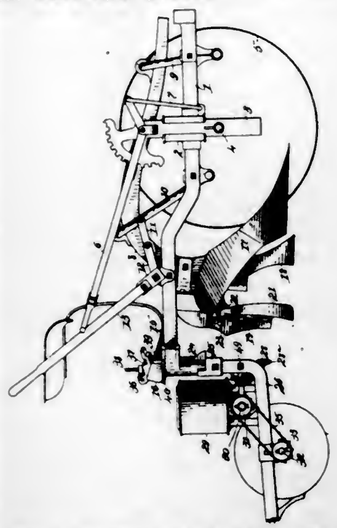
Claim.—1. A gate mounted to swing vertically, levers substantially as described for operating said gate, and weights carried by the levers, adapted in certain positions of the levers to hold the body of the gate in an upper or in a lower position, as described.

2. A gate mounted to swing vertically and provided with end bars extending from its body, and weights at the free ends of the bars, a latch for the said gate, actuating-levers, supports independent of the gate upon which said levers are mounted, angle-levers carried by the said supports, reversely-located plates pivoted on the gate, and link connections between the angle-levers and actuating-levers and the angle-levers and said plates, likewise a connection between the said plates and the latch for the gate, for the purpose specified.

3. The combination, with gate-posts, a gate-body provided with end bars extending therefrom, which end bars are pivotally connected with said posts, weights at the free ends of the said end bars, keepers carried by the said posts, and a latch constructed in interlocking sections, the sections having independent pivotal connection with the body of the gate, the ends of the said sections of the latch being adapted for engagement with the said keepers, of auxiliary posts located one at each side of the gate-post, actuating-levers fulcrumed upon the auxiliary posts, angle or elbow levers likewise fulcrumed on the said auxiliary posts, weights carried by the said angle or elbow levers, reversely-located triangular plates pivoted and having guided movement upon one of the end bars of the said gate, link connections between the weighted portions of the angle or elbow levers and the inner ends of the actuating-levers, a link connection between the upper portion of one of the angle-levers and the upper pivoted plate, and a corresponding connection below the lower pivoted plate and the opposing angle or elbow lever, and a connection between the two pivoted plates and the end of the said latch, for the purpose described.

4. A gate mounted to swing vertically and provided with a counterbalance at its normal upper end, a keeper carried by the supports for the gate, a latch carried by the gate, constructed in coöperating sections, a mechanism for operating the latch, levers connected with the gate and latch mechanism, serving to operate the latch and swing the gate upon its pivots, and an auxiliary weight which acts upon the gate to hold the same in adjusted position, as described.

682,956. COMBINED LISTER PLOW AND PLANTER. ARCHIBALD SATTLEY and IRA A. WEAVER, Springfield, Ill. Filed May 13, 1901. Serial No. 59,925. (No model.)



Claim.—1. In a combined lister plow and planter the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a planter-shank and furrow-former vertically movable in the plow-frame and planting mechanism on the planter-frame adapted to discharge seed into the shank carried by the plow-frame when the parts are in operative position.

2. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a beam swung in the plow-frame to move forward in rising and backward in descending, a seed-depositing shank carried by the plow-beam and planting mechanism on the planter-frame adapted to discharge seed into the shank when the parts are in operative position.

3. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame and a chute for the seedbox communicating with the shank when the parts are in operative position.

4. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame, and a pivotal chute for the seedbox held yieldingly against the shank when the parts are in operative position.

5. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame adapted to discharge into the shank when the parts are in operative position, and cutter-blades hinged at their upper ends to the sides of the shank and restrained from extreme backward swing by lugs on the shank.

6. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame horizontally swingable on the rear end of the plow-

frame, a vertically-movable beam in the plow-frame, a seed-depositing shank on the beam, planting mechanism on the rear frame adapted to discharge into the shank when the parts are in operative position and a releasable lock to hold the planter-frame against side swing.

7. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve on the rear end of the plow-frame, an arm attached to the pivot of the planter-frame above the sleeve of the plow-frame, a lock-lever hinged to the arm, a stop-pin on the plow-frame to engage the lock-lever and means for raising the lock-lever clear of the pin.

8. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve on the rear end of the plow-frame, an arm attached to the pivot of the planter-frame above the sleeve of the plow-frame, a lock-lever hinged to the arm, a stop-pin on the plow-frame to engage the lock-lever and a slidable wedge to raise the lock-lever clear of the pin.

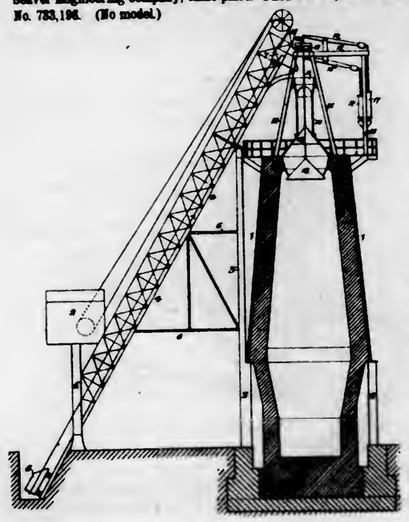
9. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve on the rear end of the plow-frame, an arm attached to the pivot of the planter-frame above the sleeve of the plow-frame, a lock hinged to the arm, a stop-pin on the plow-frame to engage the lock-lever, a swingable beam in the plow-frame, a lift-lever for the beam and a wedge under the lock-lever connected with the lift-lever of the beam.

10. In a combined lister plow and planter the combination of a plow-frame, a planter-frame having a vertical pivot journaled in a sleeve on the rear end of the plow-frame, a disk on the upper end of the sleeve having a notch in its periphery, an upward-extending stop-pin on the disk, an arm attached to the pivot of the planter-frame above the disk, a lock-lever hinged to the arm and having a bole to engage the stop-pin, a pin on the lock-lever to rest in the notch of the disk while the planter-frame is locked and to ride on the disk and support the lock-lever while the planter-frame is turned out of line with the plow-frame, and means for raising the lock-lever clear of the stop-pin.

11. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve in the rear end of the plow-frame, planting mechanism on the rear frame, a wheel in the rear frame geared to the planting mechanism, a clutch in the gearing that connects the wheel with the planting mechanism, a lock for the pivot of the rear frame and a connection between the lock and the clutch whereby the clutch is broken when the lock is released.

12. In a combined lister plow and planter, the combination of a plow-frame, a planter-frame having a vertical pivot that journals in a sleeve in the rear end of the plow-frame, planting mechanism on the rear frame, a wheel in the rear frame geared to the planting mechanism, a clutch in the gearing that connects the wheel with the planting mechanism, a lock for the pivot of the rear frame and a connection between the lock and the clutch extending in part through the pivot of the rear frame.

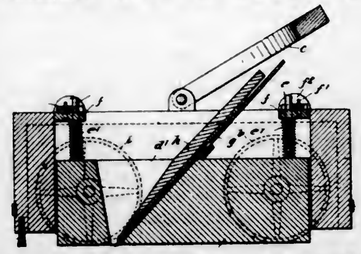
682,957. FUEL-FEEDING MECHANISM FOR BLAST-FURNACES. JOHN W. SEAVER, Cleveland, Ohio, assignor to the Wellman-Seaver Engineering Company, same place. Filed Oct. 10, 1899. Serial No. 733,196. (No model.)



Claim.—1. The combination of a blast-furnace with a hoisting-frame for the loading bucket or buckets, and supporting elements for said frame consisting of upward continuations of the supporting-columns of the furnace, said upward continuations of the columns being disconnected from the shell of the furnace, substantially as specified.

2. The combination of a blast-furnace and the hoist for the charging-bucket, with a framework erected upon the top of the furnace and having mechanism for operating the charging-bells, beams or girders projecting laterally from said framework and extending beyond the furnace structure, and a laterally-traveling hoisting-trolley running on said beams or girders and independent of the hoisting devices for the charging-bucket, substantially as specified.

682,958. PLANE. THOMAS M. SEEDS, Jr., and MARTIN FRIDGE, Philadelphia, Pa. Filed Apr. 12, 1901. Serial No. 55,511. (No model.)

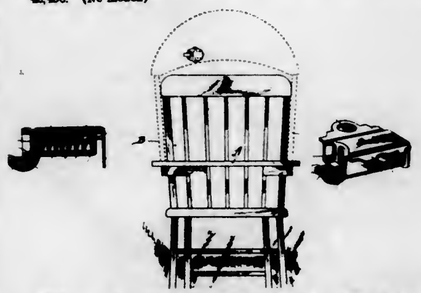


Claim.—1. A planer, comprising a wheeled frame, a block movably mounted thereon, means pressing the block downward and a planing-blade held by the block.

2. A planer, comprising a wheeled frame, a block set loosely therein, a spring pressing the block downward, and a planing-blade held by the block.

3. A plane, comprising a wheeled frame, a block mounted loosely therein, a planing-blade held by the block, a cross-bar engaged with the frame, a latch for removably holding the cross-bar in place, and a spring bearing between the cross-bar and block to press the block downward.

682,959. SPRING-CATCH. WENDELIN P. SENG, Chicago, Ill., assignor to the Seng Company, same place. Filed Jan. 7, 1901. Serial No. 42,438. (No model.)



Claim.—1. In a catch, the combination with a U-shaped housing having its opposite terminal edges laterally disposed and provided with openings forming screw-receiving retaining-ears and at one end provided with a stop-flange having opposite guide-recesses formed in its edge; of a sheet-metal bolt located in the housing and terminating at opposite ends beyond the same, said bolt having formed at one end an engaging head and at its opposite end bent to form a thumb-piece, and between said head and piece provided with guide-flanges mounted in said guide-recesses of the housing.

2. In a catch, the combination with a U-shaped housing having its opposite edges laterally disposed to form securing-plates, and at one end provided with a stop-flange having guide-recesses, and near its opposite end in its bottom provided with an opening; of a sheet-metal bolt mounted in the housing, the front end of the bolt terminating in a downwardly and forwardly disposed angular engaging head, extending through and beyond the opening and the end of the housing and at its opposite end said bolt terminating beyond the end of the housing in a depending thumb-piece, said bolt between said head and thumb-piece being provided with depending guide-flanges engaging with the guide-recesses of the housing, and a

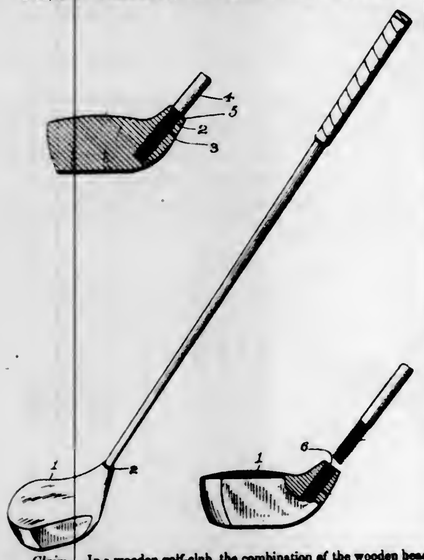
coiled spring inclosed by the bolt and housing and interposed between the engaging end of the former and the stop-flange of the latter.

3. The combination, in a catch, of a U-shaped housing, having an opening in its bottom near one end, a stop-flange provided with guide-recesses in its edges at the opposite end, and provided with securing-flanges; of a sheet-metal bolt seated for reciprocation in said housing, said bolt terminating at its front end in a downwardly-disposed shank, U-shaped in cross-section and laterally and forwardly bent to produce an engaging head, and above the same provided with guide-shoulders, which engage the opposite edges of the opening in the housing when the said head of the bolt is passed therethrough, said bolt at its opposite end being provided with a depending thumb-piece, and between said shank and thumb-piece provided with depending guide-flanges seated and operating in the guide-recesses; and a coiled spring seated in the housing and bolt and compressed between the shank of the bolt and the stop-flange of the housing, and serving to normally press the bolt outward from the housing.

4. The herein-described catch, comprising a housing U-shaped in cross-section and terminating at one end in a stop, a bolt having inwardly-disposed longitudinal sides and mounted between and engaging the sides of the housing, said bolt being projected beyond one end of the housing and terminating in an engaging end and a coiled spring inclosed by the housing and bolt and interposed between said engaging end of the bolt and the stop on the housing.

5. The herein-described catch, comprising a housing, and a U-shaped bolt reversely disposed with relation to and mounted for sliding therein and having one end projected therebeyond forming an engaging end, and a coiled spring seated within the U-shaped bolt and encompassed thereby and arranged to normally project the bolt from said housing.

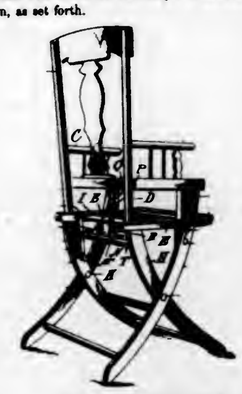
682,960. WOODEN GOLF-CLUB. FRANK L. SLAENGER, New York, N. Y. Filed Dec. 26, 1900. Serial No. 41,025. (No model.)



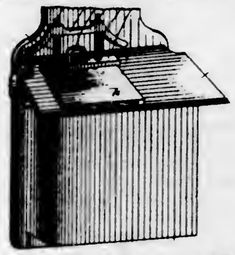
Claim.—In a wooden golf-club, the combination of the wooden head having integral therewith a shank which projects upwardly from the heel end of said head and which is provided with an interiorly-threaded socket that extends from the top of said shank down into the body of said head so as to be immediately behind the driving-face of the latter, a wooden shaft having its lower end threaded and adapted to be driven into said socket so that its inner end extends well into the striking portion of the head behind the driving-face of the same, whereby the driving power of the club is increased and the danger of shivering and breaking the shaft is reduced to a minimum, substantially as described.

682,961. CONVERTIBLE HIGH CHAIR AND ROCKER. GEORGE H. SMITH, Baldwinsville, Mass. Filed May 31, 1901. Serial No. 62,551. (No model.)

Claim.—A convertible high chair and rocker, comprising the seat, the legs thereto, cross-pieces connecting the lower ends of said legs, the two sets of rockers of unequal length, pivoted together, rungs connecting the rockers of each set, plates secured to said cross-pieces, pins carried by the longer set of rockers and journaled in apertures in said plates, the links pivoted to the shorter set of rockers and to the cross-pieces, a bail secured to one of said rungs between the shorter rockers, a bar secured to the seat, a headed lug on said bar, an angle-lever pivoted to said bar, a hook having a slotted shank portion through which said lug is passed, the upper end of said hook pivoted to the angled end of said lever, the hook designed to engage said bail, and hold the upper end of the rockers against the under face of the seat and stripe, as the outer end of said lever is forced down, as set forth.

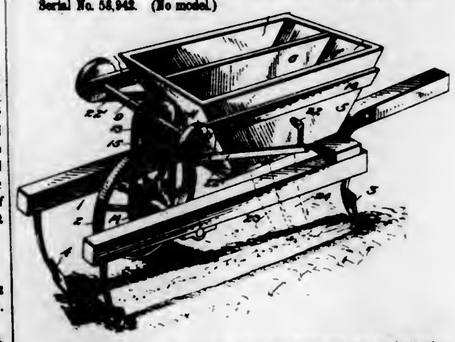


682,962. PAPER-HOLDER. HENRY B. SMITH, Stamford, Conn. Filed Mar. 30, 1901. Serial No. 53,616. (No model.)



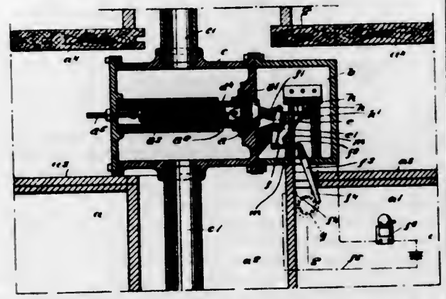
Claim.—A paper-holder for telephone-boxes and the like, comprising a clamp adapted to engage the edge of the ledge or top of the box and extending upward therefrom, a horizontally-disposed arm carried by the clamp and projecting over the top of the box, pins carried in the arm and slidable vertically toward and from the box, a presser-bar carried by the pins at their lower ends, and a spring acting to hold the presser-bar downward.

682,963. COTTON-SEED PLANTER AND FERTILIZER-DISTRIBUTER. CHARLES T. STARKEY, Attalla, Ala. Filed May 6, 1901. Serial No. 58,942. (No model.)



Claim.—In a machine of the character described, the combination of the main frame, a furrow-opener at the forward end and a furrow-closer located at the rear end, a drive-shaft journaled in said main frame and provided with a drive-wheel, a sprocket-wheel fixed to said shaft, a hopper supported upon the main frame and provided with a discharge-orifice in its bottom through which the seed or fertilizer is adapted to be forced, a rock-shaft having a crank at one end, a segmental expelling-disk radially adjustably secured to said rock-shaft and provided with teeth upon its periphery adapted to force the material through the discharge-opening in the bottom of the hopper, a counter-shaft journaled in bearings projecting from the hopper and provided with a fixed sprocket-wheel, a sprocket-chain connecting the two sprocket-wheels, a crank-wheel connected to said counter-shaft, a link connecting the crank of the rock-shaft to the crank-wheel, and an elastic strip secured under the bottom of the hopper immediately under the discharge-opening in said bottom, substantially as set forth.

682,964. FIRE-EXTINGUISHER. GEORGE A. SWENSON, Brooklyn, N. Y. Filed Mar. 1, 1901. Serial No. 49,420. (No model.)



Claim.—1. The combination of walls forming a chamber, a sprinkling-pipe leading thereto, a cover commanding the pipe, means controlled by a fuse for opening the cover, a valve commanding a water-inlet to the chamber, a latch connected with the valve to hold the same, the latch being released by the cover, and a toggle for holding the cover raised.

2. The combination of a casing having communication with a source of water-supply, a valve commanding the same, a sprinkling-pipe leading from the casing, a cover mounted in the casing and commanding the receiving end of the sprinkling-pipe, an explosive cartridge arranged to open the cover, and a connection between the cover and the valve.

3. In a fire-extinguisher, the combination of two casings having communication with each other, a valve commanding said casings, a spring serving to open the valve, a latch serving to keep the valve closed, a sprinkling-pipe leading from one of the casings, a cover commanding the receiving end of the sprinkling-pipe and having connection with the latch, an explosive cartridge serving to unseat the cover and release the latch, and a fuse in connection with the cartridge, to lead the fire thereto.

4. A fire-extinguisher, having a sprinkling-pipe, a valve commanding the passage of water thereto, a latch holding the valve normally in position, a spring tending to open the valve, a hinged cover engaged with the latch to release the same, an explosive cartridge serving to actuate the cover, and a fuse connected with the cartridge.

5. In a fire-extinguisher, the combination of two casings having communications with each other, a valve commanding said communications, means tending to open the valve, a latch serving to keep the valve closed, a sprinkling-pipe leading from one of the casings, and a cover commanding the receiving end of the sprinkling-pipe and having connection with the latch, to release the same, the cover being adapted to be raised by the explosive action of a cartridge.

6. A fire-extinguisher having a sprinkling-pipe, a valve commanding the passage of water thereto, means tending to open the valve, a latch serving to hold the valve normally closed, and a hinged cover for the sprinkling-pipe, said cover having connection with the latch to release the same and being adapted to be operated by the explosive action of a cartridge.

682,965. BALL-PROJECTOR FOR USE IN PLAYING GAMES. WILLIAM O. TAYLOR, Norristown, Pa. Filed July 13, 1900. Serial No. 23,507. (No model.)

Claim.—1. A ball-projector consisting of a bar of such length as to reach from the hand of the player to the ground, said bar having a handle at the upper end, whereby it can be grasped and swung by the player, and also having a runway for the ball and a forwardly-curved lower end, whereby the direction of flight of the ball can be governed, substantially as specified.

2. A ball-projector consisting of a bar of such length as to reach from the hand of the player to the ground, said bar having a handle at the upper end whereby it can be grasped and swung by the player, and also having a runway for the ball, a forwardly-curved lower end, whereby the direction of flight of the ball can be governed, and at its upper end a ball-retainer, movable in order to release the ball, substantially as specified.

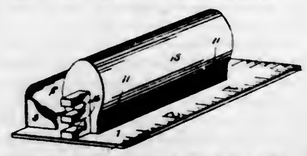


3. A ball-projector consisting of a bar having a handle at the upper end adapted to be held by the hand and serving as a guide and runway for the ball, a pivoted ball-retaining clip at the upper end of the bar, and a spring-trigger acting thereon and serving to normally hold it in retaining position but operative by the hand to move it out of retaining position, substantially as specified.

4. A ball-projector consisting of a bar serving as a guide and runway for the ball, said bar being forwardly curved at its lower end and having at said lower end a portion adapted to be inserted beneath the ball in order to retrieve the latter, substantially as specified.

5. A ball-projector consisting of a bar constructed so as to guide a ball, said bar being composed of sections sliding one upon the other so as to be telescopic, whereby its length may be varied, substantially as specified.

682,966. GLASS-CUTTER. JOHN W. TRITES, Minneapolis, Minn. Filed June 17, 1901. Serial No. 64,924. (No model.)



Claim.—1. A glass-cutter comprising a bottom plate, a guide-plate at right angles thereto, said parts together being provided with an L-shaped slot for use as an anchorage for engaging a centering-arm in combination with a cutting-tool, substantially as described.

2. A glass-cutter, comprising a frame provided with a fixed guideway, a movable guideway located in a plane substantially parallel to said fixed guideway and adjustable in said plane, in combination with a block provided with a cutting-tool passing through both said fixed and said movable guideways, whereby said cutting-tool is made adjustable, substantially as described.

3. A glass-cutter comprising a bottom plate provided with a guideway and a plurality of lugs located upon opposite sides thereof, a bridge-plate resting upon said lugs and provided with a guideway, a reciprocating block extending through both of said guideways and provided with a cutting-tool, a leaf-spring engaging the said block directly, in combination with an adjustable yoke embracing said leaf-spring directly for the purpose of controlling the tension thereof.

4. A glass-cutter comprising a plurality of guideways, a block provided with a cutting-tool and slidably engaging said guideways, and a leaf-spring for tensioning said block, in combination with a yoke embracing said spring directly, said yoke being provided with depending slotted members, and a screw-bolt for adjustably securing said members for the purpose of controlling the tension of said spring.

5. In a glass-cutter, the combination of a bottom plate provided with an aperture, a bridge-plate substantially parallel to said bottom plate and provided with another aperture, a block provided with a cutter and slidably engaging both apertures, and a stop for limiting the sliding movements of said block.

6. A glass-cutter, comprising a pair of members substantially parallel and each provided with a slot, a block provided with a cutting-tool and slidably engaging both of said slots, and a spring engaging one end of said sliding block, in combination with a member removably secured to said block and constituting a shoulder for limiting the motion of the block, substantially as described.

682,967. CAR-LOCK. JAMES WHITE and JOHN SNYDER, Marshfield, Oreg. Filed May 13, 1901. Serial No. 59,985. (No model.)

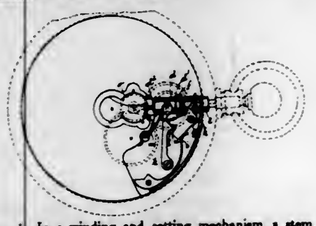


Claim.—1. In an car-lock the combination, with a yoke; of a stem thereto, a strip pivoted in the stem, an arm thereto projecting from the side of the stem near its upper end, a locking-head to the strip, and means for holding said head normally projected from the side of the stem.

2. In an car-lock, the combination with a yoke; of a grooved stem, a strip pivoted therein, an arm and a locking-head to the strip at opposite sides of its pivot, and means for holding said arm and head normally projected from the stem.

3. The combination with a sleeve; of a yoke, a grooved stem thereto seated in the sleeve, a strip pivoted in the groove of the sleeve, an arm and a locking-head to the strip at opposite sides of its pivot, and a spring bearing at opposite ends on the stem and arm respectively and adapted to hold the locking-head normally in engagement with the lower end of the sleeve.

682,968. WINDING AND SETTING MECHANISM FOR WATCHES. ABRAHAM ANSELEWITZ, New York, N. Y. Filed Dec. 6, 1900. Serial No. 38,897. (No model.)

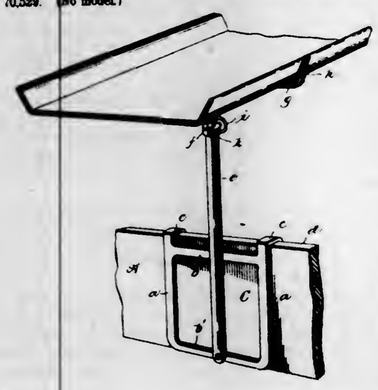


Claim.—1. In a winding and setting mechanism, a stem, a shell carried on the stem, a sliding clutch-sleeve on the stem, and two engaging spring-actuated levers; one of them engaging the shell and the other one serving to shift the clutch-sleeve, and the lever that shifts the clutch-sleeve being positively held in one of its positions by the other lever.

2. In a winding and setting mechanism the combination with a stem, an arbor, and an adjusting-screw for the stem and arbor, of a winding and setting pinion, a shell separate from and seated about said arbor, a lever engaged by the shell, and an arm engaged by the lever and made to carry the winding and setting pinion or gear respectively into and out of action substantially as described.

3. In a winding and setting mechanism, a stem, a shell carried by the stem, a sliding clutch-sleeve on the stem, two engaging spring-actuated levers, one of them engaging the shell and the other one serving to shift the clutch-sleeve, and the lever that shifts the clutch-sleeve being positively held in one of its positions by the other lever, a pin connected with the shell, and a locking device for engaging said pin.

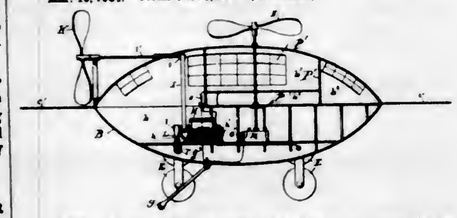
682,969. WAGON ATTACHMENT FOR SUPPORTING CHUTES. JOHN T. D. BLACKBURN, Albany, N. Y. Filed Aug. 1, 1901. Serial No. 70,529. (No model.)



Claim.—1. A device for supporting coal or other chutes provided with means for detachably securing it to the side of the body of a wagon, and having an extensible member provided with laterally-extending arms to engage a chute.

2. A device for supporting coal or other chutes provided with hooks for engaging the body of a wagon and securing the device thereto, and an extensible member having lateral and upturned arms to engage and support a chute.

682,970. AIR-CAR. ADOLF BRODBECK, Nashville, Tenn. Filed Mar. 16, 1901. Serial No. 51,429. (No model.)



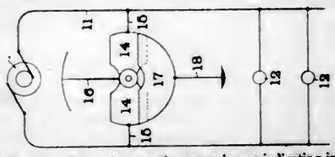
Claim.—1. An aerial apparatus comprising a car, supporting or guide rails upon which the car is adapted to run, a source of energy, a motor on the car in communication with said source of energy, a propeller, connections between the propeller and the motor, operative connections between the motor and the supporting or guide rails, and means for imparting motion from the motor to one or the other of said operating means, substantially as described.

2. An aerial apparatus comprising a car, guide or supporting rails upon which the car is adapted to run, a source of energy, a motor on the car in communication with said source of energy, means operated by the motor to propel the car and an aeroplane surrounding the body of the car on a line at substantially the longitudinal center thereof, substantially as and for the purpose described.

3. An aerial apparatus comprising a car, guide or supporting rails upon which the car is adapted to travel, a source of energy, a motor on the car in communication with said source of energy, propelling means operatively connected to said motor, an auxiliary motor carried by the car, supplemental propelling means connected to said last-mentioned motor, substantially as and for the purpose described.

4. An aerial apparatus comprising a car, guide or supporting rails upon which the car is adapted to run, means for propelling the car, an aeroplane surrounding the body of the car, and oppositely-disposed wheels carried by the aeroplane adapted to engage the guide or supporting rails, substantially as described.

682,971. ELECTROSTATIC MEASURING INSTRUMENT. JAMES H. BRYSON, St. Louis, Mo., assignor to Wagner Electric Manufacturing Company, same place. Filed Mar. 18, 1901. Serial No. 51,626. (No model.)



Claim.—1. In an electrostatic measuring or indicating instrument, the combination with a pair of movable blades carried by a common shaft and insulated from each other, of means for placing the opposite sides of a circuit in electrical communication with said blades, and a stationary member situated within the inductive influence of said blades and neutral with respect thereto under normal conditions of the circuit.

2. In an electrostatic measuring or indicating instrument, the combination with two movable members arranged opposite to and insulated from each other, of means for placing the opposite sides of the circuit in electrical communication with said blades, and a stationary member situated within the inductive influence of said movable members and neutral with respect thereto under normal conditions of the circuit.

3. In an electrostatic measuring or indicating instrument, the combination with a movable member consisting of two blades mounted on a common shaft, of an insulating-block between said blades and forming part of said shaft, means for connecting said blades with the opposite sides of a circuit through said shaft, and a stationary member situated within the inductive influence of said movable members and neutral with respect thereto under normal conditions of the circuit.

682,972. HORSE-HITCHER. JACK CALDWELL, Kansas City, Mo., assignor to the Perfection Hitcher Manufacturing Company, same place. Filed June 22, 1901. Serial No. 65,537. (No model.)



Claim.—1. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, and means to move said rock-shaft endwise and cause said clutch members to interlock, substantially as described.

2. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, means to move said rock-shaft endwise and cause said clutch members to interlock, a lever attached to the rock-shaft, and a third rein attached at its rear end to said lever for the purpose of pulling back on the horse as he steps forward and turns the wheel, substantially as described.

3. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, comprising a stationary portion, a movable portion telescopically engaging the stationary portion, and means for securing them rigidly at the desired adjustment, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, and means to move said rock-shaft endwise and cause said clutch members to interlock, substantially as described.

4. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, comprising a stationary portion having a hole, a movable portion engaging the stationary portion telescopically and provided with a series of holes adapted to register with the hole of the stationary portion, and a pin or bolt engaging the registering holes to secure said members rigidly together, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, and means to move said rock-shaft endwise and cause said clutch members to interlock, substantially as described.

5. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, comprising a stationary portion or ring snugly embracing the hub, and provided with a hole and with perforated lugs, clips embracing the proximate spokes of the wheel and engaging and bolted to the perforated lugs, a movable member or ring engaging the first-named member telescopically and provided with a series of radial arms or teeth and an oblique series of holes, and a pin or bolt engaging the hole of the stationary member and the registering hole of the oblique series of the movable member, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, and means to move said rock-shaft endwise and cause said clutch members to interlock, substantially as described.

6. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a hanger secured to the axle, a bracket clamped to the hanger, a rock-shaft mounted to slide and rotate in the bracket, a clutch member carried by the rock-shaft to engage the first-named clutch member, means to slide the shaft and cause such engagement, and means actuated by the movement of the wheel for pulling back upon the horse, substantially as described.

7. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, and a lever within convenient reach of the driver for moving said rock-shaft endwise in either direction, substantially as described.

8. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, a lever within convenient reach of the driver for moving said rock-shaft endwise in either direction, and means for yieldingly resisting the initial part of the shaft movement endwise in either direction, substantially as described.

9. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank and constituting in conjunction therewith a toggle, a lever within convenient reach of the driver for moving said rock-shaft endwise in either direction, and an upward extension for said lever having a stirrup to receive the foot of the driver, substantially as described.

10. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a hanger secured to the axle and provided with a rosette, a bracket having a rosette portion pivotally clamped to the rosette of the hanger, a rock-shaft mounted to slide and rotate in the bracket, a clutch member carried by the rock-shaft to engage the first-named clutch member, means to slide the shaft and cause such engagement, and means actuated by the movement of the wheel for pulling back upon the horse, substantially as described.

11. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, clips secured to the axle near said wheel, a hanger secured to said clips, a bracket mounted on the hanger, a lever mounted on the bracket, means to prevent the accidental movement of the lever, a rock-shaft carried by the bracket and engaged by the first-named lever and provided with a crank and a lever, a toothed bar pivoted to said crank and adapted under endwise movement of the rock-shaft to engage said clutch member, a spring engaging said bar and tending to depress its toothed end, and a third rein connected to the rock-shaft lever and adapted under the downward movement of the latter to exert a backward pull on the horse, substantially as described.

12. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank, means to move said rock-shaft endwise to cause said clutch members to engage or become disengaged, a third rein connected to said crank and adapted to be pulled downwardly by the latter as the wheel moves forward and operates the rock-shaft when the clutch members are interlocked, and means for yieldingly resisting such movement and restoring said crank and rock-shaft to their original positions, when the clutch members are disengaged, substantially as described.

13. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, an extension for said rock-shaft and provided with a lever, a universal joint connecting said shaft and said extension, a toothed bar forming the other clutch member and pivoted to said crank, a third rein connected to said lever to pull back upon the horse, and means to move said rock-shaft endwise and cause said clutch members to interlock or become disengaged.

14. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft having endwise movement and a crank, a toothed bar forming the other clutch member and pivoted to said crank, means to move said rock-shaft endwise and cause said clutch members to interlock or become disengaged, a lever actuated by the rotary movement of the rock-shaft, and a third rein engaging said lever slidingly and attached at its rear end to a fixed point on the vehicle above the lever.

15. In a horse-hitcher, the combination of a vehicle, a clutch member secured to a wheel thereof, a rock-shaft supported from the axle, a second clutch member carried by said rock-shaft and adapted to engage the first, a check-rein provided with a supplemental bit, a third rein attached to said check-rein at one end and to a fixed point on the vehicle at the other, and a lever carried by the rock-shaft and engaging said third rein slidingly at a point intermediate of its ends, substantially as described.

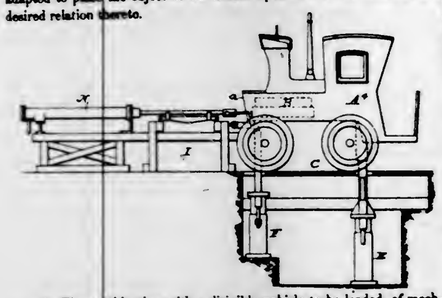
682,973. SYSTEM AND APPARATUS FOR LOADING AND UNLOADING STORAGE BATTERIES FROM MOTOR-VEHICLES. GEORGE H. CONDICT, New York, N. Y., assignor to the Electric Vehicle Co., same place. Filed Oct. 19, 1898. Renewed July 29, 1901. Serial No. 70,115. (No model.)

Claim.—1. In combination a stationary load-moving apparatus, a vehicle-centering apparatus in fixed relation thereto, and adapted to center a dirigible vehicle, and an intermediate movable load-conveyer.

2. The combination with a dirigible vehicle to be loaded and with loading apparatus, of mechanism for acting mechanically against the vehicle to force it in any direction and into desired position with respect to the loading apparatus.

3. The combination with a dirigible vehicle to be loaded and with loading apparatus, of stationary mechanism adjacent to the loading apparatus, adjacent to which the dirigible vehicle is placed, said mechanism adapted to act against the vehicle to move the same in any desired direction into position for loading.

4. The combination with a dirigible vehicle to be loaded, of mechanism for placing the same in the desired position, and moving carriers adapted to place the object to be loaded upon the vehicle while in the desired relation thereto.



5. The combination with a dirigible vehicle to be loaded, of mechanism for placing the same in desired position, and a transfer-table provided with moving carriers adapted to receive and move the object to be placed upon the vehicle into the desired relation thereto.

6. The combination with a dirigible vehicle to be loaded, means for placing the vehicle in the desired position, moving carriers adapted to receive and move the object to be placed upon the vehicle in the desired relation thereto, and stationary means for forcing said object onto the vehicle or withdrawing it therefrom.

7. The combination with a dirigible vehicle to be loaded, of a laterally-movable loading-table adapted to receive and support the vehicle and means for moving the vehicle and table together laterally to a predetermined position for loading the vehicle.

8. The combination with a dirigible vehicle to be loaded, of a laterally-movable loading-table adapted to receive the vehicle, and means adjacent to the loading-table arranged to engage the vehicle to move it together with the table into the predetermined position with respect to the positioning devices.

9. A storage-battery loading and unloading apparatus, comprising a dirigible vehicle to be loaded and means for moving the vehicle in any needed direction into a predetermined position, a carrier arranged to support and move the load into juxtaposition to the positioned vehicle, and a ram or the like, arranged to engage the load and to push it into or draw it from the vehicle.

10. The combination with a dirigible vehicle to be loaded, of a laterally-movable loading-table and a ram or rams at the side thereof, said ram or rams adapted to engage the vehicle upon the table to move said vehicle laterally together with the loading-table into the central or loading position.

11. The combination with a loading-table adapted to receive a road-vehicle to be loaded, of a transfer-table arranged at right angles thereto and provided with laterally-moving carriers adapted to receive and to move the object to be placed upon the vehicle into the desired relation thereto.

12. A storage-battery loading and unloading apparatus comprising a dirigible vehicle to be loaded, a table adapted to receive the vehicle and to be moved laterally together therewith, means for moving the table and vehicle together laterally into a predetermined position, a carrier arranged to support and to move the load into juxtaposition to the positioned vehicle and means for mechanically pushing the load into the vehicle or withdrawing it therefrom.

13. The combination with a loading-table, a dirigible vehicle thereon to be loaded, a transfer-table at right angles to the loading-table, traveling carriers upon the transfer-table, said carriers adapted to receive and convey the load for the vehicle and to sustain the same in the desired horizontal position with respect thereto, and a loading-ram on the opposite side of the loading-table and in line with the receptacle upon the vehicle, and means for operating the ram to force the load into the vehicle or withdraw it therefrom.

14. The combination with a vehicle to be loaded, of a laterally-movable loading-table adapted to receive the same and subdivided to separately sustain the separate sets of wheels of the vehicle.

15. The combination with a dirigible vehicle to be loaded, of a laterally-movable loading-table and means for automatically returning said table to a predetermined position.

16. In combination in vehicle-loading apparatus, a dirigible vehicle, a platform to receive said vehicle, and means of support or suspension for said platform to automatically permit lateral adjustment of said vehicle.

17. A loading-table adapted to receive the four wheels of a vehicle and constructed in two parts adapted to support the front and rear wheels respectively, supports upon which each portion of the loading-table moves laterally, and means connected with each portion of the loading-table for automatically returning the same to normal position.

18. The combination with a vehicle to be loaded, of a loading-table adapted to receive the four wheels thereof, said table being subdivided to separately sustain each pair of wheels, suitable supporting-wheels and tracks therefor for the table, and means for automatically returning the table to predetermined position when the vehicle is removed.

19. A loading-table comprising front and rear portions, suitably-journaled supporting-wheels for each portion, tracks for sustaining the supporting-wheels and a centering-weight for each portion of the table, said weight being connected by chains to both ends thereof for automatically returning the same to predetermined position.

20. The combination with a vehicle to be loaded, of a transfer-table and moving carriers thereon for positioning the load, an extension or bridge attached to the transfer-table and hinged arms connected with the bridge and adapted to engage the vehicle, thereby connecting the transfer-table therewith.

21. The combination with a vehicle to be loaded, of a transfer-table and movable carriers thereon, an extension or bridge adapted to engage the vehicle and to connect the transfer-table therewith, and a stop arranged to engage the carrier upon the transfer-table when in desired position with respect to the bridge and vehicle.

22. The combination with a loading-table, a vehicle thereon, a transfer-table at right angles thereto and provided with movable carriers adapted to sustain a load for the vehicle, of an extension or bridge projecting from the transfer-table, hinged arms connected with the bridge and extending under the vehicle, a hoisting-ram adapted to engage said hinged arms and to raise them together with the portion of the vehicle engaged thereby to bring the end of the vehicle and the bridge into the desired horizontal plane with respect to the load upon the carrier.

23. The combination with a trackless loading-table and a dirigible vehicle thereon, of a vertically-moving ram or rams located below the table and adapted when raised, to engage the vehicle, and to lift the same into the desired position.

24. The combination with a loading-table and a road-vehicle thereon to be loaded, of an elevating-ram located below said table and provided with recessed blocks adapted, when said ram is elevated, to engage, lift and hold the body of the vehicle in desired position.

25. In combination, a vertically-moving elevating device, a laterally-movable loading-table above the same and having an opening therein through which the elevating device can pass upward, and a plurality of hinged metallic or weighted covers for closing said opening.

26. The combination with a loading-table, a transfer-table adapted to sustain the load, an elevating-ram arranged to engage the portion of the vehicle farthest from the transfer-table and located below the same, an opening in the table above the ram and a plurality of hinged metallic or weighted covers for closing said opening, whereby the elevating device is adapted to pass upward through the loading-table raising the covers above it.

27. The combination with a dirigible vehicle to be loaded and centering apparatus therefor, of a loading-ram adjacent to the centering apparatus and provided with gripping devices connected with its moving part and adapted to engage the load to be placed upon or withdrawn from the vehicle.

28. In combination with the transfer-table, vehicle and centering apparatus, a loading-ram adjacent to the transfer-table and located opposite to the centering apparatus, gripping devices connected with the piston-rod of the loading-ram and adapted to engage the load, and automatic tripping devices for the gripping apparatus adapted to disengage the same from the load at the desired point and means for manually operating the tripping devices as desired.

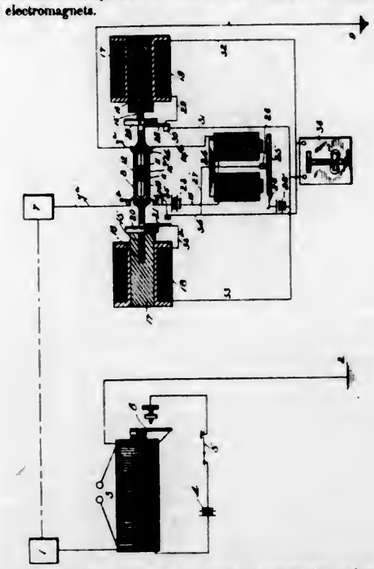
682,974. WIRELESS TELEGRAPHY. HERBERT P. DAVIS, West Philadelphia, Pa., assignor to Gustave P. Gehring, same place. Filed May 8, 1901. Serial No. 59,271. (No model.)

Claim.—1. In a receiving-station, the combination of a tube, metallic particles located therein, a circuit through the particles, a relay actuated by the circuit, and two electromagnets actuated one at a time to give said tube a horizontal movement or to reciprocate the same to disturb the particles.

2. A receiving-station, consisting of a tube, metallic plugs in the tube, metallic particles in the tube between the plugs, a circuit through the plugs and particles, a relay actuated by the circuit, and electromagnets operated one at a time to reciprocate the tube.

3. In a receiving-station, the combination of air and ground plates, a frame connected with said plates, a coherer carried by said frame, and means for reciprocating said frame to decohere the coherer, said frame being journaled in said means.

4. In a receiving apparatus, consisting of air and ground plates, a reciprocating coherer in circuit therewith, electromagnets for reciprocating said coherer, means for causing said electromagnets to be energized one at a time to reciprocate the coherer, and a sounder in circuit with said electromagnets.



5. In a wireless system of telegraphy, a transmitting and receiving station, said receiving-station consisting of air and ground plates, a reciprocating coherer in circuit therewith, electromagnets for reciprocating said coherer, means for causing said magnets to be energized one at a time, and a sounder in circuit with said electromagnets.

6. In a receiver for electrical oscillations, the combination of a tube, metallic particles located in said tube, a circuit through the particles, a relay actuated by the circuit, and two independent means actuated alternately as the relay is magnetized for reciprocating the tube to decohere the particles.

7. In a receiver for electrical oscillations, the combination of a tube containing metallic particles, a circuit through the particles, and two independent means actuated one at a time alternately by the circuit for reciprocating the tube to decohere the particles.

8. In a receiver for electrical oscillations, the combination of an imperfect electrical contact, metallic plates connected to the contact, a circuit through the contact, and two independent means actuated one at a time alternately by the circuit for reciprocating the contact.

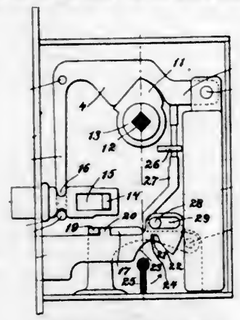
9. In a wireless-telegraph system, the combination of means for producing Hertz oscillations, a signaling instrument and a receiver, said receiver comprising means for receiving the impulse, a circuit through said means, and two independent means actuated one at a time alternately for reciprocating said first-mentioned means, and a receiving instrument operated by the influence of such oscillations.

10. In a wireless-telegraph system, the combination of means for producing Hertz oscillations, a signaling instrument and a receiver, said receiver comprising means for receiving the impulse, a circuit through said means, a relay actuated by said circuit, two independent means actuated one at a time alternately to reciprocate the first-mentioned means, and a receiving instrument operated by the influence of such oscillations.

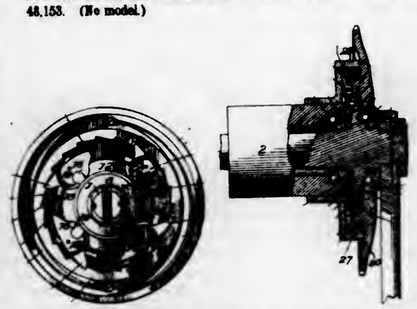
682,975. LOCK AND LATCH. WILLIAM C. DAY, Rumford Falls, Me., assignor to George W. Ridlon, West Paris, Me. Filed Mar. 6, 1901. Serial No. 50,128. (No model.)

Claim.—1. In a door lock and latch apparatus, a latch-operating mechanism comprising a latch-bolt, a bell-crank lever pivoted in the upper front part of the casing and having a lower arm engaging said latch-bolt and an upper arm extending rearwardly in the casing, means for operating said bell-crank lever so as to retract the latch-bolt, means detachably connected with the end of the upper arm for operating said lever to project the latch-bolt, a lock-bolt, a tumbler for retaining the lock-bolt in position, and a strut resting on the said tumbler and having its upper end adapted to be engaged and borne upon by said upper arm of the lever.

2. In a door lock and latch, a latch-operating mechanism comprising a latch-bolt, a bell-crank lever pivoted in the upper front part of the casing and having a lower arm extending substantially vertically in the front part of the casing and engaging said latch-bolt, and an upper arm extending horizontally and rearwardly in the casing and having a recess formed with inclined faces, a knob-spindle having a cam entering the recess of said bell-crank lever so as to retract the latch-bolt, a lock-bolt, a tumbler for retaining the lock-bolt in position, and means connecting the end of the upper arm of said lever with the locking-tumbler.



682,976. BICYCLE COASTER-BRAKE. FREDERICK E. DEMMER and JOHN HULLT, Hood River, Oreg. Filed Feb. 20, 1901. Serial No. 48,153. (No model.)



Claim.—1. In a brake mechanism of the character described, and in combination with means for propelling the bicycle forward the brake elements, and a brake-actuating member, pawls for coöperation with the brake-actuating member, a loosely-mounted carrier for the pawls, and a pawl-actuator operated by means of the propulsive power and adapted to throw the pawls into and out of engagement with the said brake-actuating member, substantially as set forth.

2. In a brake mechanism of the character described, and in combination with means for propelling the bicycle forward the brake elements and a loosely-mounted brake-actuating member, a loosely-mounted carrier, pawls pivoted to said carrier and adapted to coöperate with the brake-actuating member, a pawl-actuator operated by the propulsive power, and interlocking cogs between the pawl-actuator and pawls for positive actuation of the latter in opposite directions, substantially as set forth.

3. In brake mechanism of the character described, and in combination with means for propelling the bicycle forward the brake elements and a brake-actuating member, a carrier in the plane of the brake-actuating member and notched in its periphery, pawls pivoted to one side of the said carrier and having one of their ends offset to enter the notches and engage with the brake-actuating member, and a pawl-actuator at one side of said carrier and adapted to positively throw the pawls into and out of action, substantially as specified.

4. In a brake mechanism of the character set forth, and in combination with means for propelling the bicycle forward the brake elements and brake-actuating member, a loosely-mounted carrier, pawls pivoted intermediate of their ends to said carrier and having their middle portions widened and notched at their inner edges, and a pawl-actuator having portions of its periphery notched or cut away at intervals to provide cogs to enter the notches of the pawls and turn the latter positively in opposite directions upon their pivotal fastenings, substantially as and for the purpose set forth.

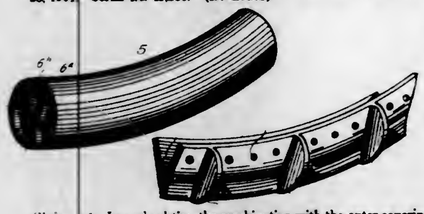
5. In combination, a sprocket-wheel or kindred part having an off-

standing ring or flange, a brake-actuating ring, brake-straps having one end connected with the brake-actuating ring and adapted for coöperation with the aforementioned brake ring or flange, double-ended pawls pivotally supported between their ends, a power-driven axle, and a pawl-actuator secured to said axle for rotation therewith and having interlocking connection with the pawls to throw them by a positive movement into and out of action with, respectively, the brake-actuating ring and the brake ring or flange of the sprocket-wheel, substantially as set forth.

6. In combination, a power-driven axle, a sprocket-wheel having an offstanding brake ring or flange, a brake-actuating ring, brake elements set by means of the brake-actuating ring, a loosely-mounted carrier, pawls pivoted between their ends to said carrier, and a pawl-actuator attached to the aforementioned axle and having interlocking connection with the pawls to move them positively in either direction for engagement with either the brake-actuating ring or the sprocket-wheel, substantially as set forth.

7. In combination, a power-driven axle, a fixed cup or casing, a sprocket-wheel having a depression in one side to receive the flange or rim of the cup and having a brake ring or flange, a brake-actuating ring located within the cup, brake-straps having one end attached to the rim of the cup and the other end attached to the brake-actuating ring, a carrier located within the brake-actuating ring, double-ended pawls pivoted midway of their ends to the said carrier, and a pawl-actuator attached to the aforesaid axle for positive operation of the pawls to throw them into engagement either with the brake-actuating ring or the sprocket-wheel, substantially as set forth.

682,977. **RESILIENT OR ELASTIC TIRE.** ERNEST A. DURRENE, Denver, Colo., assignor to Charles G. Fawkes, same place. Filed Feb. 28, 1901. Serial No. 49,289. (No model.)



Claim.—1. In a wheel-tire, the combination with the outer covering or hood, of an elastic filling located within the hood and comprising two inclined side members separated by a V-shaped opening whose base is adjacent the inner periphery of the hood, the said members forming a junction and merging into a rib located adjacent the outer periphery or tread of the tire, the inclined side members being provided with lugs or wings applied to their outer surfaces at suitable intervals.

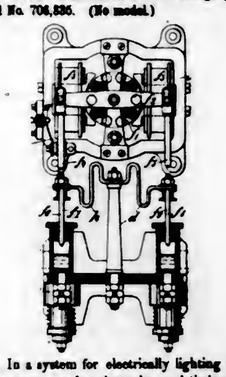
2. In a wheel-tire, the combination with the outer covering or hood, of an elastic filling located within the hood and comprising two inclined side parts separated by an opening adjacent the inner periphery of the hood, the said parts joining and merging into a rib located adjacent the outer periphery or tread of the tire, the inclined side parts being provided with wings or lugs applied to their outer surfaces at suitable intervals, their outer edges being curved to conform to the inner concave surface of the hood.

3. In a tire of the class described, the combination with a hood, of a resilient filling located in the hood and composed of two parts forming an angle with each other and separated by an opening which is widest at the inner periphery of the hood, the said members merging at their intersection into a rib of suitable depth located adjacent the tread of the hood, and wings or lugs applied to the outer surfaces of the said parts, at suitable intervals to give the hood the necessary internal resistance.

4. In a tire of the class described, the combination with a hood, of an elastic or resilient filling located therein and composed of two parts forming an angle with each other and separated by a wedge-shaped opening whose base is located at the inner periphery of the hood, the two parts at their angles, merging into a rib of suitable depth located adjacent the tread of the hood, wings or lugs applied to the outer surfaces of said parts and curved to conform to the inner concave surface of the hood, the parts of the elastic filling being vulcanized together to form a substantially integral device, and the said filling being vulcanized to the inner surface of the hood.

5. In a wheel-tire, the combination with a hood, of two inclined parts separated by a V-shaped opening which is widest at the inner periphery of the hood, the said parts merging into a rib of suitable depth which is located adjacent the tread of the hood, lugs or wings applied to the outer surface of the said parts, which parts are provided with openings or perforations located intermediate the lugs.

682,978. **SYSTEM OF ELECTRICALLY LIGHTING RAILWAY-CARRIAGES.** EMIL DICK, Baden, Austria-Hungary. Filed Feb. 26, 1899. Serial No. 706,835. (No model.)

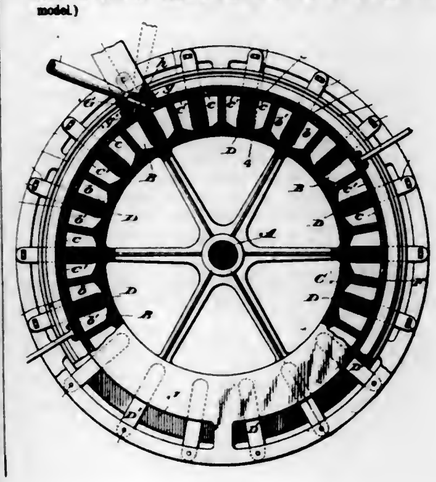


Claim.—1. In a system for electrically lighting trains, the combination with a dynamo, secondary batteries, and their circuits of a lamp-circuit containing incandescent lamps, a magnet the helix of which is in the lamp-circuit, an armature adapted to rotate between the poles of said magnet, a double-armed lever coupled to the armature, draw-rods hinged to said lever, contact-pins borne upon said draw-rods and a cup containing quicksilver into which the contact-pins may dip, and an automatic switch mechanism, substantially as described.

2. In a system for electrically lighting trains, the combination with a dynamo, secondary batteries, and their circuits of a lamp-circuit containing incandescent lamps, a magnet the helix of which is in the lamp-circuit, an armature adapted to rotate between the poles of said magnet, a double-armed lever coupled to the armature, draw-rods hinged to said lever, contact-pins borne upon said draw-rods and a cup containing quicksilver into which the contact-pins may dip, and an automatic switch mechanism embodying two solenoids, each consisting of two coils insulated from one another and soft-iron cores adapted to reciprocate in said solenoids, one of said cores carrying a balance-weight and the other a contact-fork, and cups containing quicksilver into which said fork is adapted to dip to make the circuit.

3. In a system for electrically lighting trains, the combination with a dynamo, secondary batteries, and their circuits, of a lamp-circuit containing incandescent lamps, a magnet the helix of which is in the lamp-circuit, an armature adapted to rotate between the poles of said magnet, a double-armed lever coupled to the armature, draw-rods hinged to said lever, contact-pins borne upon said draw-rods and a cup containing quicksilver into which the contact-pins may dip, automatic switch mechanism, and a resistance-regulating device, substantially as specified.

682,979. **PELTON WHEEL.** CHARLES F. DU BOIS, Denver, Colo. Filed Mar. 28, 1900. Renewed Feb. 18, 1901. Serial No. 47,252. (No model.)



Claim.—1. The combination of a wheel having a series of cells in its periphery, means for directing a jet of fluid into said cells and yielding surfaces or partitions within the cells to cushion the rebound of the jets therein substantially as and for the purpose described.

2. The combination of a wheel having a series of cells or buckets, and a series of yielding partitions in said buckets dividing each cell into two transverse chambers; with means for directing a jet of propelling fluid into each chamber, for the purpose and substantially as described.

3. The combination of a wheel having a series of cells or buckets, and a series of hinged or yielding partitions in said buckets dividing each cell into two transverse chambers and adapted to cushion the rebound of the jets therein; with means for directing a jet of propelling fluid into either chamber and means for closing the openings to the other chambers, for the purpose and substantially as described.

4. In a Pelton wheel, the combination of a wheel having a series of cells or buckets, and a movable or yielding partition in each cell to receive the rebound impact of the propelling fluid, for the purpose and substantially as described.

5. In a Pelton wheel, the combination of a wheel having a series of cells, a movable or yielding partition in each cell to receive the rebound impact of the propelling fluid, said partition having radial extensions or arms connected to the wheel at a point exterior to the cells, for the purpose and substantially as described.

6. The combination of the wheel having a series of cells, yielding partitions therein having radially-extending arms suitably connected to the wheel at a point beyond the cells, and an adjustable jet for directing the propelling fluid into the cells, substantially as described.

7. The combination of the wheel having a series of cells, a yielding partition pivoted in each cell having radially-extending arms projecting out of the cells connected to the wheel-rim at a point beyond the cells, and an adjustable pipe for admitting propelling fluid into the cells, substantially as described.

8. The combination of the wheel having a series of cells in its periphery, transverse partitions in said cells, partitions dividing the cells into opposite chambers, ports leading into said chambers, mechanism for closing the inlet-ports of either series of chambers, and means for directing propelling fluid into the open series of chambers, substantially as described.

9. The combination of the wheel having a series of buckets or cells in its periphery, pivoted transverse partitions in said cells having radially-extending arms projecting beyond the cells and loosely connected to the flanges on the wheel, said partitions dividing the cells into two transverse chambers, ports leading into said chambers, and means for directing fluid into the open series of chambers, substantially as described.

10. The combination of the wheel having a series of closed cells or buckets in its periphery, and a transverse partition in each cell dividing the same into front and rear chambers; with mechanism for closing the inlets of either series of chambers and means for admitting propelling fluid into the other series of chambers as the wheel rotates, substantially as described.

11. The combination of the wheel having a series of closed cells or buckets in its periphery and outwardly-projecting flanges at each side of the cells projecting beyond the same, a transverse partition in each cell dividing the same into front and rear chambers, said partitions having radially-projecting arms extending through the outer walls of the cells and loosely connected to the said flanges beyond the cells, and means for admitting propelling fluid into either series of compartments as the wheel is rotated, substantially as described.

12. The combination of the wheel having a series of closed cells or buckets in its periphery and a transverse partition in each cell dividing the same into front and rear chambers, with an annular valve-band encircling the series of cells having ports adapted to register with the inlets to either series of chambers in the cells while closing the inlets of the other series of chambers therein, for the purpose and substantially as described.

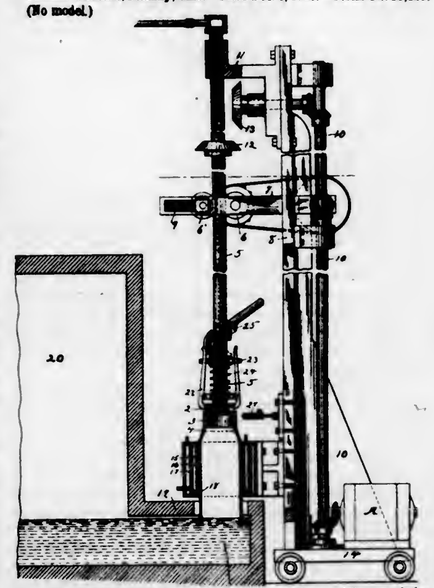
13. The combination of the wheel having a series of closed cells or buckets in its periphery, a transverse partition in each cell dividing the same into front and rear chambers, and an annular valve-band encircling the series of cells having ports adapted to register with the inlets to either series of chambers in the cells while closing the inlets of the other series of chambers therein; with a fixed block having oppositely-inclined ports, and an inlet-tube for the propelling fluid connected to said block and adapted to admit the fluid to either of said ports, for the purpose and substantially as described.

14. The combination of the wheel having a series of closed cells or buckets in its periphery and outwardly-projecting flanges at each side of the cells projecting beyond the same, a transverse partition in each cell dividing the same into front and rear chambers, said partitions having radially-projecting arms extending through the outer walls of the cells and loosely connected to the said flanges beyond the cells; with an annular valve-band encircling the series of cells having ports adapted to register with the inlets to either series of chambers in the cells while closing the inlets of the other series of chambers therein, and an inlet-tube for the propelling fluid, for the purpose and substantially as described.

15. The combination of the wheel having a series of closed cells or buckets in its periphery and a transverse partition in each cell dividing the same into front and rear chambers, and an annular valve-band encircling the series of cells having ports adapted to register with the inlets to either series of chambers in the cells while closing the inlets of the other series of chambers therein, an inlet-tube for the propelling fluid, and the segmental pieces on opposite sides of said inlet overlying the valve-band to prevent escape of fluid from the cells, for the purpose and substantially as described.

16. The combination of the wheel having a series of closed cells or buckets in its periphery and outwardly-projecting flanges at each side of the cells projecting beyond the same, a transverse partition in each cell dividing the same into front and rear chambers, said partitions having radially-projecting arms extending through the outer walls of the cells and loosely connected to the said flanges beyond the cells; with an annular valve-band encircling the series of cells having ports adapted to register with the inlets to either series of chambers in the cells while closing the inlets of the other series of chambers therein, a fixed block having forwardly and rearwardly inclined ports, and an inlet-tube for the propelling fluid connected to said block and adapted to admit the fluid to either of said ports, all substantially as and for the purpose set forth.

682,980. **METHOD OF FORMING HOLLOW GLASS ARTICLES.** PHILLIP ERELING, Findlay, Ohio. Filed Dec. 8, 1900. Serial No. 39,123. (No model.)



Claim.—1. The method of forming hollow glass articles, consisting in drawing a tubular blank directly from a constantly-maintained source of molten-glass supply; expanding the blank; and shaping the blank by operation on the exterior surface thereof adjacent its source.

2. The method of forming hollow glass articles, consisting in drawing molten glass into a tubular blank, simultaneously chilling the blank adjacent its source; expanding the blank; and shaping the blank by operating on its exterior face.

3. The method of forming hollow glass articles, consisting in drawing molten glass vertically upward into a tubular blank; simultaneously chilling the blank adjacent its source; expanding the blank; and shaping the blank by operating on its exterior face.

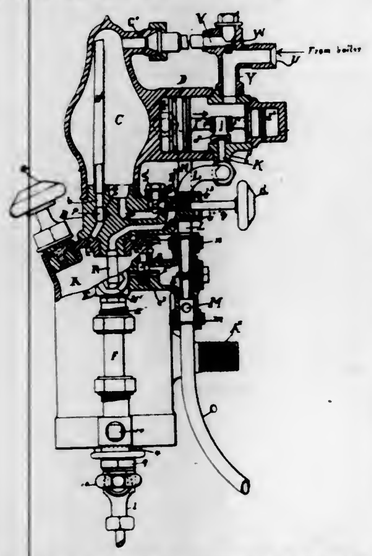
4. The method of forming hollow glass articles, consisting of the following operations performed simultaneously; drawing molten glass into a tubular blank; chilling the blank adjacent its source; expanding the blank; and shaping the blank by operating on its exterior face.

5. The method of forming hollow glass articles, consisting in drawing molten glass into a tubular blank; retarding the longitudinal movement of the blank to elongate or thin it; and expanding the blank.

6. The method of forming a series of connected hollow glass articles, consisting in successively drawing molten glass into a tubular blank;

expanding the blank so formed; and operating on the exterior face of the blank adjacent its source to form the connected articles.

682,981. LUBRICATOR. FRANK W. EDWARDS, Logansport, Ind. Filed May 16, 1899. Serial No. 709,356. (No model.)



Claim.—1. In a lubricator, the combination with the upper feed-arm, a cylinder having a port, and a pipe in communication therewith and leading to the oil-receiving chamber of the said feed-arm, a differential piston in said cylinder, a valve detachably connected with the piston between its ends for controlling said port and arranged to act in unison with the piston, a connection between the cylinder at the rear of the piston and the oil-delivery pipe, which latter delivers oil to the steam-chest, and a connection between the cylinder and the source of live steam from the boiler, and arranged to deliver steam between the heads of the differential piston, as set forth.

2. In a lubricator, a cylinder having connection with a source of live steam from the boiler, and a port for the passage of live steam from said cylinder to the oil-receiving chamber of the upper feed-arm, the upper feed-arm with independent oil-receiving chamber and water-chamber, a differential piston working in said cylinder, a valve working in conjunction with the piston to control said port, a connection between the cylinder at the rear of the piston and the oil-delivery pipe, and a choke-plug interposed between the oil-receiving and water chambers of the said feed-arm, as set forth.

3. In a lubricator, the combination with the condenser, the oil-reservoir of the cylinder and its piston and the upper feed-arm having oil-receiving chamber, means for admitting steam to said cylinder to actuate said piston, of the oil-delivery pipe, an injector in said chamber with its lower end extended beyond the lower end of said chamber and its upper end receiving steam at boiler-pressure, and a connection between the oil-delivery pipe below the injector and the cylinder back of the piston, all substantially as and for the purpose specified.

4. In a lubricator, a feed-arm having detachable depending nipple, hand-oiler, water-chamber and oil-receiving chamber with passages affording communication between the hand-oiler and the oil-receiving chamber and between said chamber and the water-chamber and a valve in said feed-arm controlling said passage.

5. In a lubricator, a condenser having a lateral extension with detachable outer end portion, a differential piston having two heads working in said cylinder extension, a connection between said extension and a source of steam-supply, and a port leading from said extension to the tallow-pipe, and a valve carried by the piston and loosely supported by the same between the piston-heads and a connection between the tallow-pipe and the back of the piston.

6. In a lubricator, the combination with a condenser having a laterally-projecting extension, of a hollow casting formed with four branches one for connection with said extension, one for connection with the boiler and one for connection with the condenser with an offset junction and a valve-seat at said junction, and a removable closure for the other branch opposite said seat, as set forth.

7. In a lubricator, the combination with a condenser having a laterally-projecting extension, of a hollow casting formed with four branches one for connection with said extension, one for connection with the boiler and one for connection with the condenser with an offset junction and a valve-seat at said junction, a removable closure for the other branch opposite said seat, and a valve in said casting fitted to said seat and operated in one direction by steam from the boiler, as set forth.

8. In a lubricator, the combination with a condenser having a lateral extension, of a coupling on said extension, a closing-cap on said coupling in line with the extension, said parts forming a cylinder having inlet and outlet ports, and a hollow casting secured to the coupling and extending at right angles thereto and having means for connection with the top of the condenser.

9. In a lubricator, the combination with a condenser having a lateral extension, the back-pressure pipe leading thereinto, of a coupling mounted on the extension, a cap on said coupling in line with the extension and closed at one end to form the outer end of a cylinder formed by said extension and coupling, the coupling having a port, a differential piston having two heads working in said cylinder, a steam-supply pipe admitting live steam between the heads of the piston and a valve movable with the piston for controlling said port.

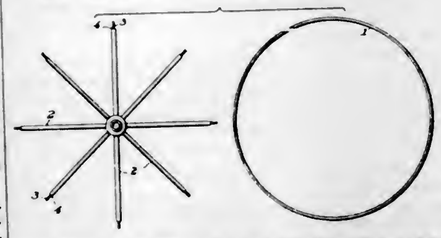
10. In a lubricator, the combination with the tallow-pipe and the condenser, of a cylinder connected with the condenser, a back-pressure pipe leading thereinto, a differential piston having two heads working in said cylinder, said cylinder having a port leading therefrom and a connection for a supply of live steam between the heads of the piston, and a slide-valve mounted loosely on the stem of the piston between its ends for controlling said port.

11. In a lubricator, the combination with the tallow-pipe and a cylinder and connections with the tallow-pipe and with the condenser and source of live steam, of a feed-arm having an oil-receiving chamber, a differential piston in said cylinder and having two heads, and steam-tight at its ends, a valve carried by and between said heads, a pipe leading to said cylinder back of one of the said heads, an injector extending into the oil-receiving chamber of the feed-arm, a connection with the tallow-pipe below the injector, the port in the cylinder being controlled by said valve, as set forth.

12. In a lubricator, the combination of a condenser with a lateral extension having a port, a coupling detachably secured thereto, with a port in its lower wall and a port in its upper wall, and a closure detachably secured to said coupling, the extension, coupling and closure forming a cylinder and permitting of the ready removal and insertion of a piston.

13. In a lubricator, the condenser having a lateral extension having a port, the coupling detachably connected therewith and having upper and lower ports, a closure detachably secured to the coupling, and a hollow casting detachably connected to the coupling at the upper port and having double T-joints.

682,982. METHOD OF MAKING WHEELS. EMIL BENFELDT, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Illinois. Filed July 11, 1901. Serial No. 67,918. (No model.)

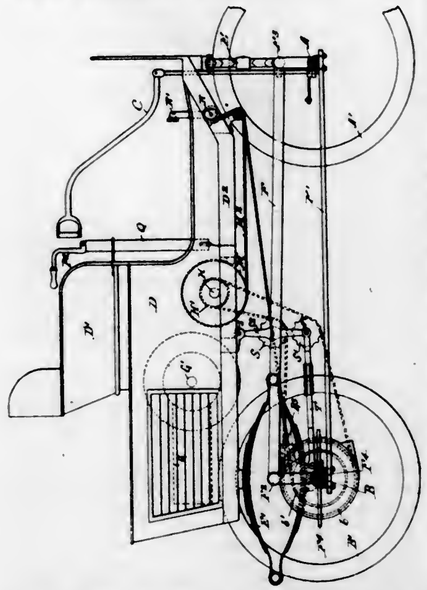


Claim.—1. The method of making metal wheels which consists in inserting shouldered ends of spokes through an open-ended rim, securing the ends of the rim together so that it will be of a diameter greater than the distance between the shoulders on diametrically opposite spokes, and finally seating and securing the rim tightly against the shoulders.

2. The method of making metal wheels which consists in providing a hub with shouldered spokes, and an open-ended rim with holes, passing the ends of the spokes through the holes in the rim, forcing the rim inward to within a slight distance of the shoulders on the spokes, securing the ends of the rim together, and finally fastening the rim firmly against the shoulders.

3. The method of making metal wheels which consists in providing a hub with shouldered spokes, and an open ended rim with holes, passing the ends of the spokes through the holes in the rim, partially riveting the ends of the spokes and thereby forcing the rim to within a short distance of the shoulders on the spokes, securing the ends of the rims together, and finally completing the riveting of the spoke ends to force the rim tightly against the spoke-shoulders.

682,983. MOTOR-VEHICLE. HIRAM A. FRANTZ, Allentown, Pa., assignor of one-half to William A. Wieder, Cementon, Pa. Filed June 20, 1900. Serial No. 20,915. (No model.)



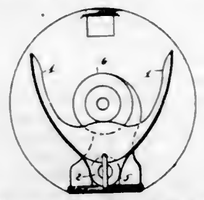
Claim.—1. In a motor-vehicle the combination with a driving-axle and a motor therefor, of an intermediate shaft carrying a driving-wheel in gear with said axle, a pawl-wheel loose on said shaft and fixed to said driving-wheel, a toothed wheel having a ratchet engagement with said pawl-wheel, and separate clutch-wheels on said shaft one of which is arranged to directly operate said driving-wheel and the other of which is arranged to operate the same through said ratchet-engaged toothed wheel and an intermediate gear, substantially as set forth.

2. In a motor-vehicle the combination with a driving-axle and a motor therefor, of an intermediate shaft carrying a driving-wheel in gear with said axle, a pinion fixed to said shaft, a combined pawl and internally-toothed wheel loose thereon and fixed to said driving-wheel, planet-wheels in mesh with said pinion and internally-toothed wheel, a loosely-mounted brake wheel or drum carrying said planet-wheel, a toothed wheel having a ratchet engagement with said pawl-wheel, and separate clutch-wheels on said shaft respectively arranged to directly and indirectly operate said driving-wheel substantially as set forth.

3. In a motor-vehicle the combination with a driving-axle and a motor therefor, of an intermediate shaft having clutch-engaged wheels adjacent to opposite ends thereof and an intermediate fixed pinion, a loosely-mounted brake-drum carrying planet-wheels in mesh with said pinion, an internally-toothed wheel in mesh with said planet-wheel and carrying a ratchet-engaged exteriorly-toothed wheel, a sprocket or driving wheel fixed to said internally-toothed wheel and also to one of said clutch-wheels, and a counter-shaft in gear with the other of said clutch-wheels and also with said ratchet-engaged wheel, substantially as set forth.

4. In a motor-vehicle the combination with a driving-axle and a motor therefor, of an intermediate shaft carrying a driving-wheel in gear with said axle, mechanism on said shaft for indirectly operating said driving-wheel therefrom, said mechanism comprising separate clutch mechanisms on opposite sides of said driving-wheel, connected clutch-operating sleeves thereon, and a mechanism for operating said sleeves comprising a handled shaft in gear with said sleeves, an automatic stop to normally hold the latter in middle position, and means for releasing the same by depressing the shaft-handle while simultaneously rotating the same, substantially as set forth.

682,984. LIP ATTACHMENT FOR LAWN-SPRINKLERS. ALBERT GERDUM, Cleveland, Ohio. Filed Apr. 20, 1901. Serial No. 56,682. (No model.)



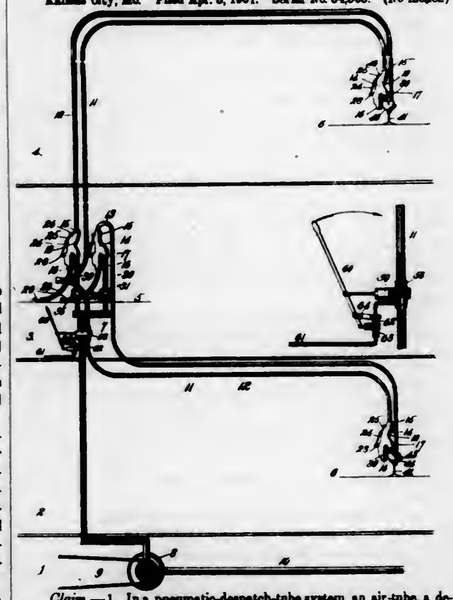
Claim.—1. The combination with a sprinkler, of right and left hand lip attachments therefor, and a common base for said lips.

2. The combination with a sprinkler, of right and left hand lip attachments therefor, a common base for the lips, and means for securing the base to the sprinkler, adjustably, substantially as described.

3. The combination with a sprinkler provided with a boss, right and left hand lip attachments therefor, a common base for the lips, and means for securing the base to said boss, consisting of a thumb-screw, and grooves upon the boss, and a rib upon the base, substantially as described.

4. The combination with a sprinkler of a lip attachment, pivotally secured thereto.

682,985. PNEUMATIC-DESPATCH-TUBE SYSTEM. CHARLES A. GRAY, Kansas City, Kans., assignor to Gray Pneumatic Carrier Co., Kansas City, Mo. Filed Apr. 5, 1901. Serial No. 54,563. (No model.)



Claim.—1. In a pneumatic-despatch-tube system, an air-tube, a delivery-terminal attached thereto and embodying a receiving-arm, a delivery-arm, and a branch arm between the receiving and delivery arms, a delivery-tube connected to the delivery-arm, a return or suction tube connected to the branch arm, a valve normally closing with a yielding pressure the delivery-arm at a point contiguous to the mouth of the branch arm, and a valve for admitting air to the branch arm at the instant the first-named valve is opened by the carrier, for the purpose of preventing air from being drawn up through the delivery-tube and interfering with the escape or ejectment of said carrier, substantially as described.

2. In a pneumatic-despatch-tube system, an air-tube, a delivery-terminal attached thereto and embodying a receiving-arm, a delivery-arm, and a branch arm between the receiving and delivery arms, a delivery-tube connected to the delivery-arm, a return or suction tube connected to the branch arm, a valve normally closing with a yielding pressure the delivery-arm contiguous to the mouth of the branch arm, a valve controlling access of external air to the branch arm with a yielding pressure, and connections between said valves whereby the opening of the first effects corresponding movement of the last, substantially as described.

3. In a pneumatic-despatch-tube system, an air-tube, a delivery-terminal attached thereto, and embodying a receiving-arm, a delivery-arm, a branch arm between the receiving and delivery arms, and an opening opposite the mouth of the latter, a valve closing the delivery-arm, and a valve closing said opening with a yielding pressure and linked to the valve of the delivery-arm and holding the latter normally closed with a yielding pressure, substantially as described.

4. In a pneumatic-despatch-tube system, an air-tube, a delivery-terminal attached thereto, and comprising communicating receiving, delivery and branch arms, the former projecting upwardly and the latter downwardly, and embodying also an opening contiguous to the junction-point of said arms, and a downwardly-disposed valve-seat at the mouth of the upper end of the delivery-arm, a valve for closing said seat and having its arm or stem pivoted in and projecting outwardly of the delivery-arm, a gravity-valve closing said opening with a yielding pressure, and a link pivotally connecting said valves with the arm of the first-named valve in order that the latter may be held normally against its seat, substantially as described.

5. In a pneumatic-despatch-tube system, a return-tube, a coupling therein, a door closing the front end of the coupling, a tubular valve in said coupling also open at its front end, and provided with a pair of openings normally registering with the tube, one of said openings being screen-covered, and means for adjusting said valve so as to regulate the force of the air-current therethrough or altogether cut off said current, substantially as described.

6. In a pneumatic-despatch-tube system, a return-tube, a slotted coupling therein, a transparent door closing the front end of said coupling, a tubular valve in said coupling also open at its front end, and provided with a pair of openings normally registering with the tube, one of said openings being screen-covered, and a pin projecting through the slot of the coupling for the purpose of adjusting said valve therein, substantially as described.

7. In a pneumatic-despatch-tube system, a tube, a coupling therein and normally forming a part thereof, and provided at one side of the tube with a door-controlled opening, and a reciprocatory valve within the coupling and adapted to receive a carrier inserted through said door-opening and deliver it to the tube without short-circuiting the air-current through the latter, substantially as described.

8. In a pneumatic-despatch-tube system, a tube, a coupling therein and normally forming a part thereof, and provided at one side of the tube with a door-controlled opening, a reciprocatory tubular valve within the coupling and adapted to receive a carrier inserted through said door-opening and deliver it to the tube without short-circuiting the air-current through the latter, and means to withdraw the tubular valve to its original position in alinement with the door-controlled opening, substantially as described.

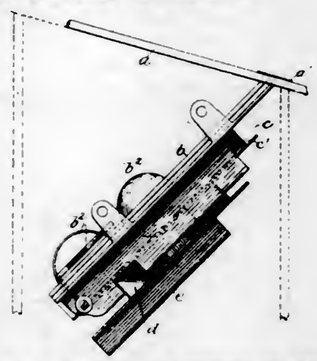
9. In a pneumatic-despatch-tube system, a tube, a coupling therein and normally forming a part thereof, and provided at one side of the tube with a door-controlled opening, a reciprocatory tubular valve within the coupling and adapted to receive a carrier inserted through said door-opening and through it to the tube without short-circuiting the air-current through the latter, rods projecting from the tubular valve at the side most remote from the tube through said coupling, a handle upon their outer ends, and springs interposed between said coupling and said handle for the purpose of automatically returning the tubular valve to its original position, and maintaining it thereat against accidental movement, substantially as described.

10. In a pneumatic-despatch-tube system, an air-tube open at one end to receive objects, a delivery-terminal embodying a receiving-arm connected to the air-tube, a delivery-arm, and a branch arm, an air-return or suction tube connected to the branch arm, means for creating a suction in the air-return tube and in said first-named tube and delivery-terminal, a valve located on and controlling the passage of the first-named tube between its open end and delivery-terminal, a compressed-air pipe communicating with said tube between said valve and said delivery-terminal, a valve located on and controlling said compressed-air pipe, and means for synchronously seating one of said valves and unseating the other, substantially as described.

11. In a pneumatic-despatch-tube system, a return-tube, a coupling therein, a valve in the coupling, provided with a pair of openings normally registering with the tube, one of said openings being screen-covered, and means to adjust said valve to partially or entirely cut off the air-current through the tube, substantially as described.

682,986. TELEPHONE TOLL APPARATUS. WILLIAM GRAY, Hartford, Conn., assignor to the Gray Telephone Pay Station Company, same place. Filed Jan. 5, 1901. Serial No. 42,208. (No model.)

Claim.—1. In a coin-operated device, in combination with a plural number of chutes adapted to receive coins of different value and with traps through the walls of a plural number of said chutes, a runway common to said traps and having a trap through its wall.



2. In a coin-operated device, in combination with a plural number of coin-chutes adapted to receive coins of different value and with traps through the walls of a plural number of said chutes, a runway common to said traps and having a trap in its wall, and a delivery-chute arranged to receive a coin from said coin-chutes.

3. In a coin-operated device, in combination with a main coin-chute having a trap in its wall, a runway arranged to receive a coin from said trap and having a plural number of traps in its wall.

4. In a telephone toll apparatus, in combination with a main coin-chute having a trap in its wall, an indicating device appurtenant to said main coin-chute, a runway arranged to receive a coin from said trap and having a trap in its wall, and a delivery-chute arranged to receive a coin delivered through the trap of the main coin-chute.

5. In a telephone toll apparatus, in combination, a plural number of main coin-chutes having traps through the walls thereof, indicating devices appurtenant to said coin-chutes, a runway common to said traps and having a trap in its wall, and a delivery-chute adapted to receive a coin from the trap in the runway.

6. In a coin-operated device, a main coin-chute having a trap in its wall, a runway arranged to receive a coin from said trap and having a plural number of traps in its wall, a delivery-chute arranged to receive a portion of the coins from the trap from the runway, and a retaining-chute adapted to receive coins from a trap in the runway.

7. In a telephone toll apparatus, in combination, a main coin-chute having a trap in its wall, said chute delivering within a signal-box the signal-box, a runway arranged to receive a coin from the trap of the main coin-chute, said runway delivering within the signal-box and having a trap in its wall, and a delivery-chute adapted to receive a coin from the trap in the runway and delivering at a point outside the signal-box.

8. In a telephone toll apparatus, in combination, a signal-box, main coin-chutes delivering within the signal-box and having traps through the walls thereof, a runway appurtenant to traps in the main coin-chutes and having a trap in its walls, said runway delivering within the signal-box, a delivery-chute arranged to receive a coin from the trap in the runway and delivering to a point outside of the signal-box, and a signal device appurtenant to the main coin-chute.

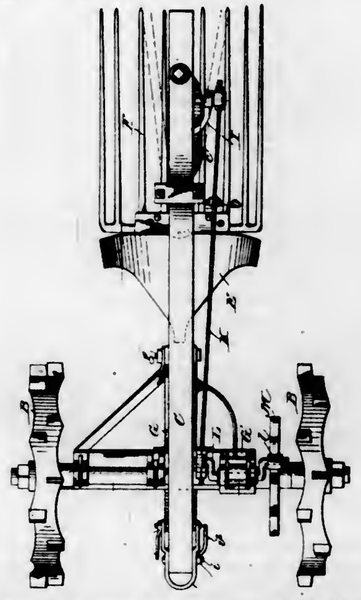
9. In a telephone toll apparatus, in combination, a signal-box, main coin-chutes delivering within the signal-box and having traps in the walls thereof, a runway arranged to receive coins from said traps, said runway delivering within the signal-box and having a trap in its walls, a delivery-chute arranged to receive a coin from the trap in the runway and delivering to a point without the signal-box, and a signal device appurtenant to each main coin-chute.

10. In a telephone toll apparatus, in combination, a signal-box, main coin-chutes delivering within the signal-box and having traps in the walls thereof, a runway common to the traps in the main coin-chutes, said runway having traps in its walls, a delivery-chute arranged to receive coins from the traps in the runway and delivering to a point outside of the signal-box, a retaining-chute arranged to receive coins from a trap in the runway and delivering within the signal-box, and indicating devices appurtenant to the main coin-chute.

11. In a coin-operated device, in combination with a plural number of chutes adapted to receive coins of different value and with traps through the walls of a plural number of said chutes, a runway common to said traps and having a plural number of traps through its wall.

12. In a coin-operated device, in combination with a main coin-chute having a plural number of traps in its wall, a plural number of runways adapted to receive coins from said traps and deliver to different places.

682,987. POTATO-DIGGER. DANIEL Y. HALLOCK, York, Pa. Filed June 7, 1901. Serial No. 63,582. (No model.)



Claim.—1. In a potato-digger, the combination of the beam; the shovel centrally attached to the standard; the standard attached to the beam and having that portion of it between the shovel and the beam laterally deflected to one side of the longitudinal middle of the shovel so that the greater portion of the shovel will lie to one side of the standard; and a vibratory screen attached to said standard and located behind the laterally-deflected portion of the standard, which latter is interposed between the shovel and the screen, substantially as hereinbefore set forth.

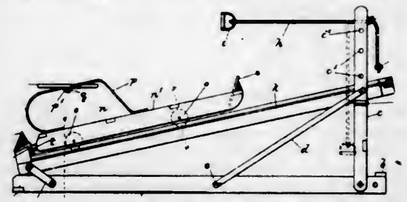
2. The combination with the beam, the axle and wheels and the beam-supporting frame journaled on said axle, of the standard, the shovel, the hinged screen, the star-wheel cam fast on the axle, the crank mounted in a bracket-bearing on the frame and adapted to be operated by said cam in a direction to lift the screen, the longitudinally-reciprocating pitman-rod jointed to one arm of the said crank, the elbow-lever pivoted to the standard, and having one of its arms jointed to the other end of said pitman-rod, the link jointed at one end to the other arm of said elbow-lever and at the other end to the screen, and a spring for forcing the screen downward after having been lifted by the action of the cam, under the arrangement and for joint operation as hereinbefore shown and set forth.

3. In a potato-digger, and in combination with the beam, the standard and the shovel rigidly secured to the standard, a screen arranged in rear of the shovel and hinged so as to be capable of vertical vibration independently of the shovel, an operating-cam and connections whereby the screen is alternately lifted and released, and a spring whereby the screen is forcibly and suddenly depressed immediately on its release, as and for the purposes hereinbefore set forth.

4. In a potato-digger, the combination with the beam, the standard, the shovel and the hinged screen capable of vertical vibration, of mechanism, including a longitudinally-reciprocating pitman-rod, for imparting vertical vibratory movement to the screen, and an agitator-finger, attached to and moving with the pitman-rod and arranged and adapted to operate in connection with the standard, substantially as and for the purposes hereinbefore set forth.

682,988. EXERCISING OR ROWING MACHINE. EDWIN HAZELIP, Baltimore, Md., administrator of Joseph N. Hazelip, deceased, assignor to Charles J. Carroll and George P. Steinbach, same place. Filed Nov. 19, 1900. Serial No. 36,937. (No model.)

Claim.—1. An exercising-machine, comprising a base provided with two side bars adapted to rest on a floor or the like; two vertical posts secured to one end of said base; a rod extending from one post to the other and adjustable thereon at various elevations; an inclined track supported at its high end on said rod and with its lower end resting on the side bars of said base; links pivotally securing the lower end of the track to said side bars; a carriage movable on said track and provided, at its end opposite the pivoted end of the track, with a foot-rest; handles connected to said vertical posts, whereby a person on said carriage and facing said posts may draw himself up said track to exercise his arms; and a foot-rest on the pivoted end of said track, whereby a person on said carriage and facing in the opposite direction may exercise his legs.

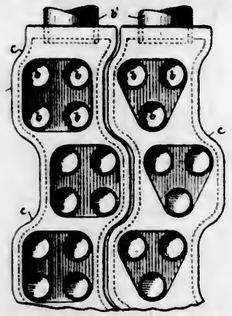


2. An exercising-machine, comprising a base provided with two side bars adapted to rest on a floor or the like; two vertical posts secured to one end of said base; a rod extending from one post to the other and adjustable thereon at various elevations; an inclined track supported at its higher end on said rod and with its lower end resting on the side bars of said base; a carriage movable on said track and provided, at its end opposite the pivoted end of the track, with a foot-rest; handles connected to said vertical posts, whereby a person on said carriage and facing said posts may draw himself up said track to exercise his arms; a foot-rest on the pivoted end of said track, whereby a person on said carriage and facing in the opposite direction may exercise his legs; a rigid bumper on the pivoted end of said track; and elastic buffers on the adjacent end of said carriage adapted to abut against said bumper, as set forth.

3. An exercising-machine, comprising a base provided at one end with two vertical posts each having a plurality of apertures; an inclined track pivoted at one end by links to the said base with its pivoted end resting on the upper surface of said base and provided at said end with a foot-rest; a rod extending through apertures in said two posts and supporting the free end of said track at various elevations; and a wheel-supported carriage movable along said inclined track and provided with a foot-rest and an oscillating seat, which will tilt to correspond to the changing position of the legs of a person exercising on said seat with his feet on the foot-rest of said track, as set forth.

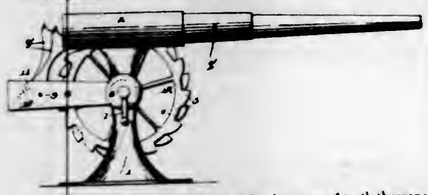
4. An exercising-machine, comprising a base provided at one end with two vertical posts; an inclined track pivoted at one end to said base and provided at its pivoted end with a foot-rest; means connected to said posts for supporting the free end of said track at various elevations; and a carriage movable on said inclined track and provided with an oscillating seat which will tilt to correspond to the changing position of the legs of a person exercising on said seat with his feet on the foot-rest of said track, as set forth.

682,989. HEADER FOR SECTIONAL STEAM-BOILERS. CAMPBELL P. HIGGINS, Roselle, N. J., assignor to The Babcock & Wilcox Co., New York, N. Y. Filed Jan. 2, 1901. Serial No. 41,890. (No model.)



Claim.—A corrugated header for sectional steam-generators having each corrugation constructed with flattened sides to produce a parallelogrammic form, so that a cluster of water-tubes of maximum number and standard diameter may be connected at each corrugation and provide for sufficient space between and surrounding said tubes: a hand-hole aperture opposite the end of each cluster of tubes, through which full access can be had to each tube of the cluster: and, a seat or bearing surrounding the aperture for a cover or plate, as set forth.

682,990. TOY GUN. ALEXANDER F. HUMPHREY, Allegheny, Pa. Filed Sept. 14, 1900. Serial No. 29,991. (No model.)



Claim.—1. In a toy gun a cap-wheel having rows of teeth thereon; the teeth of one row being staggered with relation to the teeth of the other row, substantially as described.

2. In a toy gun, a cap-wheel having rows of teeth thereon, with cam-surfaces on corresponding edges and straight front walls; the said teeth of one row being staggered with respect to the teeth in the opposite row, and spring-pressed hammers oppositely actuated, substantially as described.

3. In a toy gun, a wheel having a row of teeth at each edge; said teeth being out of alinement each having one edge straight and the opposite edge carved, and hammers alternately riding over the curved surfaces of the teeth, as and for the purpose described.

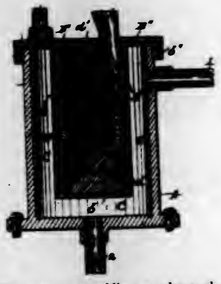
4. In a toy gun, a base, a shaft journaled in the base, a wheel mounted on the shaft having suitably-shaped teeth on each edge of its periphery, the teeth of one row being staggered with relation to the teeth of the opposite row, a bracket extending from the base, hammers pivoted in the bracket and alternately actuated by the teeth, substantially as described.

5. In a toy gun, a cap-wheel, two hammers actuated alternately by the cap-wheel, substantially as described.

6. In a toy gun, a cap-wheel having two rows of cap-recesses and triggers alternately striking the caps in the recesses.

7. In a toy gun, a cap-wheel having two rows of cap-recesses, two hammers alternately elevated and depressed by suitable mechanism, substantially as described.

682,991. PROCESS OF MAKING SOUND-RECORDS. THOMAS H. MACDONALD, Bridgeport, Conn. Filed Nov. 3, 1900. Serial No. 35,351. (No model.)



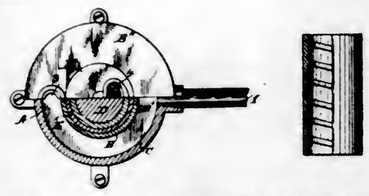
Claim.—1. The process of molding sound-records which consists in filling a suitable matrix with a suitable composition, maintaining the same for a length of time in a superheated condition, and then suddenly and symmetrically chilling it, substantially as described.

2. The process of making a sound-record, which consists in pouring a suitable melted material into a suitable matrix-mold, then admitting steam into a jacket surrounding said matrix and continuing this step until the said material has become limpid and impurities are driven off and the said material forced into intimate contact with its matrix, then allowing the steam to escape and admitting cold water into the jacket whereby the said material is suddenly and symmetrically chilled from its exterior surface next its matrix, substantially as and for the purpose set forth.

3. The process of molding sound-records which consists in filling a suitable matrix with a suitable material and maintaining the same for a length of time in a superheated condition, and then suddenly and symmetrically chilling the same from the exterior inward, substantially as and for the purpose described.

682,992. SOUND-RECORD. THOMAS H. MACDONALD, Bridgeport, Conn. Original application filed Nov. 3, 1900, Serial No. 35,351. Divided and this application filed May 21, 1901. Serial No. 61,267. (No model.)

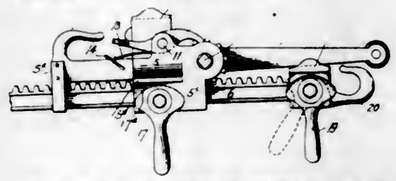
Claim.—1. A sound-record of suitable composition having the surface of the undulatory record case-hardened or tempered, substantially as described.



2. A sound-record of suitable material having its surface case-hardened or tempered and graduating inward into a comparatively softer mass by imperceptible degrees, substantially as described.

3. A molded sound-record of suitable composition having the surface of the undulatory record case-hardened or tempered.

682,993. WIRE-STRETCHER. WILLIAM MAHER, Denver, Colo. Filed June 22, 1901. Serial No. 65,623. (No model.)



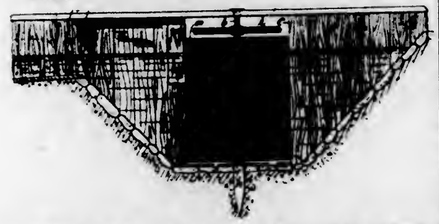
Claim.—1. In a wire-stretcher, the combination with a carriage, and a rack-bar, the carriage having an opening in its lower portion to allow the rack to pass through, the carriage being also provided with a strap forming a further support for the rack-bar which is slidable in the carriage, the latter being also provided with a hook to permit connection with a stationary support, a cam-lever mounted on the carriage which is provided with a ledge adjacent the face of the cam and coöperating therewith, to hold a wire, a shaft or spindle journaled in the carriage and provided with a hand-crank, a pinion fast on the spindle and meshing with the cogs of the rack-bar, a spring-held dog mounted on the carriage and normally engaging the pinion to lock it against movement in one direction, a suitable device movably mounted on the carriage and arranged to engage the dog and lock it against engagement with the pinion during the reverse movement of the carriage, and a locking-cam mounted on one extremity of the rack-bar which is provided with a coöperating shoulder or ledge adjacent said cam.

2. In a wire-stretcher, the combination of the carriage, the rack-bar, slidably connected with the carriage, a pinion mounted on one end of the carriage which is cut out to make room therefor whereby the pinion is allowed to mesh with the cogs of the rack-bar, means for rotating the pinion, a spring-held dog mounted on the carriage and engaging the pinion, the arrangement being such that the pinion is normally locked by the dog against movement in one direction, a device for holding the dog out of engagement with the pinion, a locking-cam mounted on the carriage which is provided with a coöperating ledge overlapping the working face of the cam, a cam mounted on the rack which is provided with a coöperating ledge, and suitable means for connecting one member of the device with a suitable stationary support, while the other member is connected with the wire to be stretched by virtue of its locking-cam.

3. In a wire-stretcher, the combination of two coöperating members one arranged to be connected with a stationary support, and the other arranged to be connected with the wire to be stretched, one member being a carriage and the other a rack-bar, the two members being connected in operative relation whereby one is allowed to move upon the other, the carriage member consisting of an integral casting through which the rack-bar member passes, the carriage member being cut out or recessed at one end, a pinion located in the recess of the carriage, a shaft or spindle journaled in the carriage and upon which the pinion is made fast, means for turning the shaft to rotate the pinion, a spring-held dog pivotally mounted on the carriage and arranged to engage the pinion whereby the latter is locked against movement in one direction, means mounted on the carriage for holding the dog against the tension of the spring, out of engagement with the pinion, to permit the reverse movement of the latter, means for connecting one member with a suitable stationary support, and means mounted on the other member for holding the wire to be stretched, and means mounted on the member connected with the stationary support, for holding the wire during the reverse movement of the member connected with the wire during the stretching operation.

4. In a wire-stretcher, the combination of a carriage and a rack-bar, the carriage consisting of an integral casting having an opening in its lower portion through which the rack-bar passes, a hook at one extremity of the carriage, the opposite extremity being recessed or cut out, a shaft or spindle journaled in the recessed portion of the carriage, hand-cranks attached to the shaft for operating the latter, a gear or pinion fast on the shaft and occupying the recess in the carriage extremity, and arranged to engage the rack-bar, a locking-cam pivotally mounted on the lower part of the carriage intermediate the hook and pinion, a spring-held dog mounted on the carriage and normally engaging the pinion and locking the latter against movement in one direction, a keeper mounted on the carriage and arranged to engage the dog and hold it out of engagement with the pinion to permit the reverse movement of the latter, a hook at one extremity of the rack-bar, a locking-cam pivotally mounted on the rack-bar extremity adjacent said hook, and a ledge formed on the carriage and projecting over the locking-face of the cam and coöperating with the latter to hold the wire in place.

682,994. APPARATUS FOR STRAINING WATER. LAWRENCE PARSONS, Birr, Ireland. Filed July 18, 1901. Serial No. 68,965. (No model.)



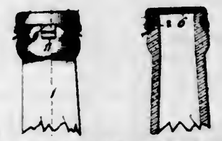
Claim.—1. A device for the removal of leaves and other floating and suspended matter from a water-supply comprising a moving strainer through which the water passes in combination with a discharge-passage situated so as to divert a portion of the water back through the straining-surface whereby the arrested matter is cleared away and conveyed into a tail-race or drain, substantially as described.

2. A device for the removal of leaves and other floating or suspended matter from the water-supply to turbines and other motors, consisting of a revoluble hollow cylindrical strainer in combination with a discharge-passage leading to the turbine tail-race and situated so as to divert part of the water-flow from the interior of the cylindrical strainer through the straining-surface, substantially as described.

3. A device for the removal of leaves or suspended matter from the water-supply to turbines and other motors, consisting of a revoluble hollow cylindrical strainer having an axial discharge for the turbine water-supply, in combination with a channel which leads to the tail-race, and is so situated as to produce a current of water through the straining-surface from the interior of the strainer, whereby the matter arrested is dislodged and discharged into the tail-race, substantially as described.

4. A device for the removal of leaves and other floating or suspended matter from the water-supply to turbines and other motors, consisting of a revolubly-mounted strainer placed across the main water-flow, and a discharge-channel, leading to the tail-race and situated so as to divert a part of the water back through the strainer whereby the leaves and other matter are arrested and discharged into the tail-race, substantially as described.

682,995. CLOSURE FOR CONTAINING VESSELS. RUFUS L. PATTERSON, New York, N. Y. Filed June 11, 1901. Serial No. 64,118. (No model.)



Claim.—1. A closure comprising a cover having a non-resilient flexible leg or extension provided with an upwardly-extending non-resilient flexible section arranged to engage a shoulder on the container and to be forced into engagement therewith by bending the leg, substantially as described.

2. A closure comprising a cover having a non-resilient flexible leg or extension provided with an integral upwardly-extending non-resilient flexible section arranged to engage a shoulder on the container and to be forced into engagement therewith by bending the leg, substantially as described.

3. A closure comprising a cover having a leg or extension which is provided with a flexible non-resilient metal section which is adapted to be forced beneath a shoulder on the outer surface of a receptacle and the metal roll on itself as the section passes into engaging position, substantially as described.

4. A closure comprising a cover having a leg or extension which is provided with an upwardly-extending non-resilient flexible section having a curved engaging surface, substantially as described.

5. A closure comprising a cover having a non-resilient flexible leg or extension which is provided with an upwardly-extending non-resilient flexible section having a curved engaging surface, substantially as described.

6. A closure comprising a cover having a non-resilient flexible leg or extension which is provided with an integral upwardly-extending section having a curved engaging surface, substantially as described.

7. A closure comprising a cover having a non-resilient flexible leg or extension which is bent upon itself to form an upwardly-extending section, said section being spaced from the leg, substantially as described.

8. A closure comprising a cover having a non-resilient flexible leg or extension which is bent upon itself to form an upwardly-extending section, said section being spaced from the leg and having a curved engaging surface, substantially as described.

9. In a closure the combination with a cover of a fastening device comprising a leg or extension, an upwardly-extending non-resilient flexible section adapted to engage a shoulder on the container and a bent portion forming a finger-hold, substantially as described.

10. In a closure the combination with a cover of a fastening device comprising a non-resilient flexible leg or extension, an upwardly-extending flexible section connected therewith, said section having a curved engaging surface and having connected thereto an outwardly-bent portion forming a finger-hold, substantially as described.

11. A closure comprising a cover having a non-resilient flexible leg or extension, said leg or extension being bent upwardly to form an engaging section and then downwardly and outwardly to form a finger-hold, substantially as described.

12. The combination with a container having a shoulder on the outer surface, of a cover having a plurality of downwardly-extending non-resilient flexible legs or extensions, each of said extensions being provided with an upwardly-extending section arranged to be forced into engagement with the shoulder on the container by bending the extensions, substantially as described.

13. The combination with a container having a shoulder on the outer surface, of a cover therefor, said cover having a plurality of downwardly-extending non-resilient flexible legs or extensions, each of which is provided with an upwardly-extending non-resilient flexible engaging section having a curved engaging surface, substantially as described.

14. The combination with a container having a shoulder on its outer surface, of a cover having a plurality of non-resilient flexible legs or extensions, each of said extensions being bent upon itself to form an upwardly-extending engaging section, said section being spaced from the extension, substantially as described.

15. The combination with a container having a shoulder on its outer surface, of a cover having a plurality of non-resilient flexible legs or extensions, each of said extensions being bent upon itself to form an upwardly-extending engaging section, said section being spaced from the extension and having a curved engaging surface, substantially as described.

16. The combination with a container, having a shoulder, of a cover, a fastening device comprising non-resilient flexible legs or extensions, each of said extensions being provided with an upwardly-engaging section, and a finger-hold, substantially as described.

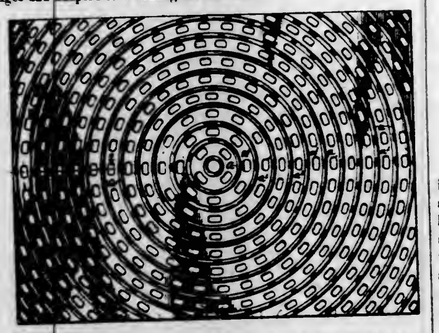
17. The combination with a container having a shoulder, of a cover, a fastening device comprising non-resilient flexible legs or extensions, each of said extensions being provided with an upwardly-engaging section having a curved engaging surface, and a finger-hold, substantially as described.

18. A closure comprising a flanged cap having a plurality of non-resilient flexible legs or extensions connected to the flange of the cap, each of said legs being bent to form an engaging section and said section being bent to form an engaging surface, substantially as described.

19. A closure comprising a flanged cap having a plurality of non-resilient flexible legs or extensions, each of said extensions being bent upon itself to form an engaging section, and each of said engaging sections being further bent to provide a curved engaging surface, and having a continuation which forms a finger-hold, the engaging sections being arranged to be forced into engagement with the shoulder of a containing vessel by bending the legs, substantially as described.

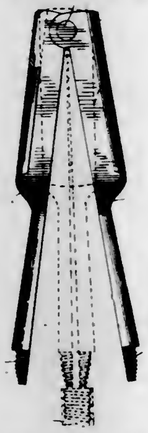
682,996. ELECTRODE. JAMES K. PUMPELLY, Chicago, Ill. Filed Dec. 26, 1900. Serial No. 41,039. (No model.)

Claim.—1. An electrode having circular ridges providing intermediate annular channels, and a series of lips or flanges integral with the ridges and adapted to overhang the channels.



2. An electrode provided with circular ridges forming circular channels, and lips or flanges on the ridges, the lips upon one side of the channels standing opposite the openings between the lips on the other side.

682,997. **VETERINARY DENTAL FILE.** EDWIN L. QUITMAN, Chicago, Ill., assignor of one-half to Simon H. Levy, same place. Filed Nov. 15, 1897. Renewed Dec. 11, 1899. Serial No. 740,015. (No model.)



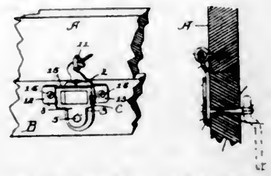
Claim.—1. In a veterinary dental instrument the combination with a file-blade and a handle-piece, of a pair of clamping-jaws pivoted together at their outer ends and having overturned longitudinal flanges at their outer edges for clamping the blade, the handle-piece being adapted to receive and hold the free ends of the jaws.

2. In a veterinary dental instrument the combination with a file-blade and a handle-piece having a screw-threaded socket in its end, of a pair of clamping-jaws pivotally secured together at their outer ends and having longitudinal clamping-flanges at their outer edges, the stems of such jaws being half-round and adapted to have their flat sides meet, and being screw-threaded at their ends to take into the threads of the handle-socket.

3. In a veterinary dental instrument the combination with a file-blade and a handle-piece having a screw-threaded socket in its end, of a pair of clamping-jaws pivotally secured together at their outer ends and having longitudinal clamping-flanges at their outer edges, the stems of such jaws being half-round and adapted to have their flat sides meet, and being screw-threaded at their ends to take into the threads of the handle-socket, the extreme ends of the jaw-shanks being tapered as to their rounded portion, substantially as and for the purpose set forth.

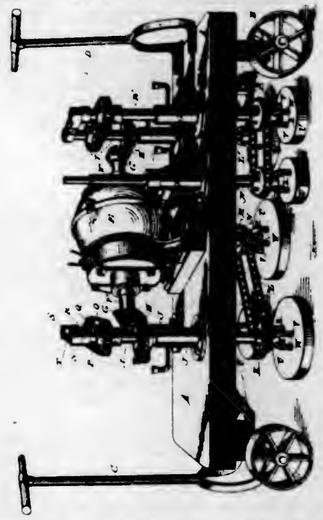
682,998. **SEPARABLE HINGE.** FREDERICK W. RAUEN, St. Paul, Minn. Filed Jan. 7, 1901. Serial No. 42,276. (No model.)

Claim.—1. The combination with a window-sash and its frame of a hook journaled in said sash, a keeper therefor, an eye secured in said frame, and means for rotating said hook on its journal within the limits of its keeper, whereby the same is caused to engage or disengage said eye, substantially as described.



2. In a separable hinge, the combination with a window-sash and its frame of a hook having a shaft disposed at right angles thereto and adapted to be rotatively seated in said sash and project therethrough, a keeper for said hook to limit its movement, an eye secured to the window and adapted to be engaged by the hook, and means for rotating the shaft, whereby the hook is caused to engage or disengage said eye, substantially as described.

682,999. **GRINDING AND POLISHING MACHINE.** ROBERT H. REID, New York, N. Y., assignor to John H. Shipway, same place. Filed May 13, 1901. Serial No. 60,080. (No model.)



Claim.—1. In a grinding and polishing machine, the combination of a suitable base; a series of vertically-disposed shafts carried thereby; abrading-disks carried by the lower ends of said shafts; and means for imparting rotary motion to the shafts, part in one direction and part in the reverse.

2. In a grinding and polishing machine, the combination of a wheeled truck; a series of vertically-disposed shafts carried thereby; abrading-disks carried by the lower ends of said shafts; a motor mounted on the truck; and connections intermediate the motor for imparting motion to said shafts and disks, part in one direction and part in the reverse direction.

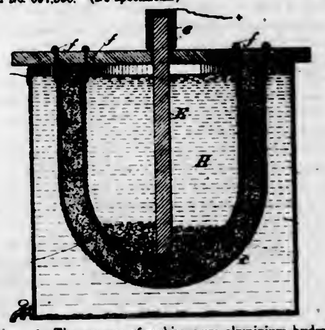
3. In a grinding and polishing machine, the combination of a wheeled truck; a series of vertically-disposed shafts carried thereby; an abrading-disk flexibly connected to the lower end of each shaft; a motor mounted on the truck; and connections intermediate the shafts and the motor.

4. In a grinding and polishing machine, the combination of a wheeled truck; a motor carried thereby; a pair of vertically-disposed shafts geared to said motor to rotate in opposite directions; a second pair of vertically-disposed shafts carried by the truck; driving connections between each member of the first pair of shafts and a member of the second pair; and a grinding-disk flexibly connected to the lower end of each of said shafts.

5. In a grinding and polishing machine, the combination of a wheeled truck; a motor; a shaft extending out from each side thereof; pinions G, G′ carried by the ends of said shaft; a pair of vertically-disposed shafts; gears carried by said shafts and meshing with the pinions; shafts R and N operatively connected to one of said shafts; shafts R′ and N′ operatively connected to the second shaft of the pair; and grinding-disks flexibly connected to the lower ends of the shafts.

6. In a grinding and polishing machine, the combination of a wheeled truck; an electric motor carried thereby, and having its armature-shaft extending out to each side thereof; pinions G, G′ carried by the ends of said shaft; shafts I, I′ mounted on the truck; gears H, H′ carried by the shafts and meshing with the pinions; shaft N; sprocket-and-chain connections intermediate said shaft and shaft I; shaft R; sprocket-and-chain connections intermediate said shaft and the shaft I; a brace extending between upper ends of the shafts I and R; a shaft N′; sprocket-and-chain connections intermediate said shaft and the shaft I′; a shaft R′; sprocket-and-chain connections between shaft R′ and the shaft T; a brace extending between the upper end of shaft I′ and R′; and grinding-disks carried at the lower ends of said shafts I, I′, N, N′, R and R′.

683,000. **METHOD OF OBTAINING ALUMINIUM HYDRATE BY ELECTROLYSIS.** ISAIAH L. ROBERTS, New York, N. Y., assignor of one-third to Edward N. Dickerson, same place. Filed Nov. 23, 1896. Serial No. 697,590. (No specimens.)



Claim.—1. The process of making pure aluminium hydrate, which consists in treating impure aluminium oxid with a hydrate of an alkali capable of dissolving said oxid, and then subjecting the solution to electrolysis and removing the pure aluminium hydrate therefrom.

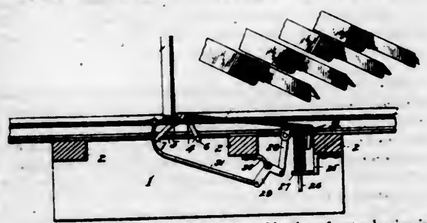
2. The process of making aluminium hydrate, which consists in treating aluminium compounds or ores with a solution of an alkali capable of dissolving said compound, then subjecting the said solution to an electrolysis on the anode side of a wall or partition sufficiently porous to allow the passage of bodies under the action of the electric current, thereby precipitating aluminium hydrate and then removing said aluminium hydrate from said solution.

683,001. **CAR-AXLE.** ANTHONY M. ROBESON, Douglas, Alaska, assignor to William J. Chalmers, Chicago, Ill. Filed Nov. 7, 1900. Serial No. 35,747. (No model.)



Claim.—In a construction of the nature described, the combination of an integrally-formed axle-box having a central enlargement, race members introduced through and retained in said enlargement, axle-sections provided at their inner ends with ball-grooves, balls serving to lock the axle-sections against withdrawal, wheels at the outer ends of said axle-sections, and antifriction-bearings for the axle-sections located adjacent to the wheels, substantially as described.

683,002. **SURFACE CATTLE-GUARD.** ROBERT S. RUST, Front Royal, Va. Filed Jan. 4, 1901. Serial No. 42,060. (No model.)



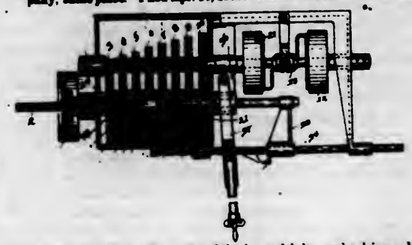
Claim.—1. In a cattle-guard, the combination of gates having interlapping pickets, the contiguous faces of which coincide so that each pair has a common sharp edge, and platforms to operate said gates, substantially as described.

2. In a cattle-guard, the combination of the platforms, a rock-shaft secured thereto, a bell-crank, a link connecting said bell-crank and platforms, a guide-pin adapted to guide said platforms, movable gates, a rock-shaft carrying said gates, a gate-operating arm connecting said bell-crank with said gates, and means for holding said gates normally in a horizontal position, substantially as described.

3. In a cattle-guard, the combination of the platforms, a rock-shaft secured thereto, a bell-crank connected to said platforms, a guide-pin adapted to guide said platforms, movable gates, a rock-shaft carrying said gates and a gate-operating rod connecting said bell-crank with said gates, substantially as described.

4. In a cattle-guard, the combination of the operating-platforms, and gates connected thereto formed of a single piece of sheet metal carrying integral pickets having sharp edges their entire length, substantially as described.

683,008. **VARIABLE-SPEED MECHANISM.** WILLIAM L. SCHELLENBACH, Cincinnati, Ohio, assignor to the National Machine Tool Company, same place. Filed Apr. 17, 1901. Serial No. 56,300. (No model.)



Claim.—1. In a variable-speed device, a driving and a driven shaft, gear-wheels of different diameter oppositely disposed on said shafts normally out of mesh, and means for intermeshing any one of said gear-wheels with its opposite gear-wheel, substantially as specified.

2. In a variable-speed device, a driving and a driven shaft, gear-wheels of different diameter oppositely disposed on said shafts normally out of mesh, and means for intermeshing any one of said gear-wheels with its opposite gear-wheel and fixing it to its shaft, substantially as specified.

3. In a variable-speed system, a shaft, a plurality of gear-wheels of different diameter fixed to said shaft, a second shaft, a plurality of gear-wheels of different diameter loosely supported relative to said second shaft whereby the loose gear-wheels are normally out of mesh with the fixed gear-wheels, and means for intermeshing any selected loose gear with its opposite fixed gear and also fixing the loose gear to its shaft, substantially as specified.

4. In a variable-speed device, a shaft, a plurality of gear-wheels of different diameter fixed to said shaft, a second shaft, a plurality of gear-wheels of different diameter supported normally eccentric of said shaft, whereby the loose gears are normally held out of mesh with the fixed gears, and means adapted to intermesh any one of the loose gears with

its opposite fixed gear and also to concentrically fix said loose gear to its shaft, substantially as specified.

5. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels through which said second shaft loosely passes, and a shifting clutch adapted to throw any selected one of said loose gears into mesh with its opposite fixed gear, substantially as specified.

6. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels supported normally eccentric of said second shaft, whereby the loose gears are held normally out of mesh with the fixed gears, and a clutch interposed between the loose gears and the second shaft adapted to lift any selected one of the loose gears into mesh with its opposite fixed gear, and also to concentrically fix said loose gear to its shaft, substantially as specified.

7. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels each having a bore greater than the diameter of the second shaft, means for supporting the loose gears out of engagement with the second shaft and out of mesh with the fixed gears, and means for engaging any selected one of the loose gears with its shaft and opposite gear, substantially as specified.

8. In a variable-speed device, a shaft, a plurality of gear-wheels of different diameter fixed to said shaft, a second shaft, a plurality of gear-wheels of different diameter supported normally eccentric of said second shaft, whereby the loose and fixed gears are free, a clutch on the second shaft adapted to be interposed into the bore of any selected loose gear whereby the said selected gear is intermeshed with its opposite fixed gear and also fixed to turn with the said second shaft, substantially as specified.

9. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels through which said second shaft loosely passes, a clutch fitting the bores of the loose gear-wheels, adapted to intermesh any one of the loose gears with its opposite fixed gear and to clutch the said selected loose gear to said second shaft, substantially as specified.

10. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels each having a bore greater than the bore of the second shaft passing normally loosely through, a clutch fixed to the second shaft laterally slidable within the loose-gear bores adapted to fix said loose gear-wheels successively to the second shaft, and to lift them successively into mesh with the respective oppositely-disposed fixed gears, substantially as specified.

11. In a variable-speed device, a shaft, a plurality of gear-wheels of different diameter fixed to said shaft, a second shaft, a plurality of gear-wheels of different diameter through which the second shaft passes, means for supporting said last-named gears normally out of engagement with the second shaft and out of mesh with the opposite fixed gear-wheels, and means for lifting one of the loose gears from its supported idle position into engagement with its opposite fixed gear and also into fixed relation with the second shaft, substantially as specified.

12. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels through which the second shaft passes, means for supporting each of the last-named gears loosely relative to the shaft and out of driving contact with the opposite fixed gears, a clutch on the second shaft provided with inclined surfaces at the ends adapted to be shifted successively in either direction into the bore of each loose gear-wheel to engage a selected gear with its opposite fixed gear, and to fix the loose gear to its shaft, and means for shifting said clutch in either direction, substantially as specified.

13. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels each having a bore greater than the diameter of the second shaft, means for supporting said gears loosely relative to the second shaft, a clutch movably mounted within the loose-gear bores, adapted to successively fix each of the loose gears to the second shaft, whereby the loose gears are also successively lifted into engagement with the respective opposite fixed gears, the meeting surfaces of the loose gears and clutch being formed to make a gradual engagement in either direction of movement, substantially as specified.

14. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a plurality of different-diameter gear-wheels supported opposite the fixed gear-wheels but normally out of mesh therewith, a second shaft passing through the bores of the last-named gear-wheels normally loose, a clutch on the second shaft within the gear-bores, movable in either direction and formed to lift each loose gear into intermesh with its respective opposite fixed gear and also fix each loose gear to its shaft, and means for positively shifting said clutch and locking it in different positions of adjustment, substantially as specified.

15. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a plurality of different-diameter gear-wheels supported substantially under the fixed gear-wheels but normally out of mesh therewith, vertical guides for each loose gear-wheel, a second shaft passing normally loosely through the said second series of gear-wheels and means on the second shaft adapted to raise any one of the loose gears into engagement with its opposite fixed gear and also to fix said loose gear to its shaft, substantially as specified.

16. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, an opposing plurality of different-diameter gear-wheels, a support for said second series of gear-wheels substantially under the first-named gear-wheels, holding said second series of gear-wheels out of mesh with the fixed gear-wheels, a shaft passing through the bores of the supported gear-wheels normally eccentric thereof, the said support forming a housing for the gears and a vertical guide for the movement of each loose gear-wheel from supported position into engagement with the respective opposite fixed gear-wheels, and a shifting clutch adapted to lift each of the loose gears into engagement with the respective opposite fixed gear-wheels and also to fix each loose gear to its shaft substantially as specified.

17. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a support, having a series of compartments each under one of the fixed gears, adapted to receive and support the periphery of a contained gear-wheel and forming vertical guides, a plurality of different-diameter gear-wheels normally seated in said compartments out of engagement with the opposite fixed gears, a shaft passing normally loosely through the bores of said seated gear-wheels, and means for lifting each gear from its seat into engagement with its opposite fixed gear-wheel and also fixing it to turn with the said second shaft, substantially as specified.

18. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels supported on said shaft normally out of driving engagement therewith as well as out of mesh with the opposite fixed gears, a clutch on said shaft adapted to be moved into each of the loose gears to lift any selected one of said gears into intermesh with the opposite fixed gear and to fix the loose gear to its shaft, the meeting edges of the loose-gear bores and the clutch having a tapered relation adapted to make a gradual engagement in either direction of clutch movement, substantially as specified.

19. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels through which the second shaft passes each of said last-named gears having a keyway, a support adapted to normally hold said second gear-wheels out of mesh with the opposite fixed gears and out of engagement with the second shaft, a clutch on the second shaft, movable in either direction, a key adapted to engage said keyways and seated on a spring in said clutch, whereby it may be depressed flush with the face of the clutch, the loose-gear bores, key-seats, clutch and key presenting inclined meeting surfaces in either direction of the clutch movement whereby a gradual engagement is effected, substantially as specified.

20. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, a plurality of different-diameter gear-wheels, through which the second shaft passes, a support holding the last-named gear-wheels normally out of mesh with the opposite fixed gear-wheels and normally out of engagement with the second shaft, a clutch mounted on the second shaft movable in either direction, adapted to lift any selected one of the loose gears into mesh with the opposite fixed gear and also to fix it to its shaft, a rack connected to the clutch having notches for the loose gears and a lever provided with a latch adapted to engage into the rack-notches for shifting the clutch, substantially as specified.

21. In a counter-shaft-speed-changing device, a shaft, a clutch thereon, a clutch-shifting mechanism comprising a rack-bar attached to and movable with the clutch, and having notches in its face, a lever pivoted to a support, a latch on the lever adapted to engage into said notches, and means for engaging the latch into the notches for shifting said rack-bar and clutch in step movements in either direction, substantially as specified.

22. The combination with oppositely-disposed loose and fixed gear-wheels of different diameter, a clutch for the loose gear-wheels having inclined surfaces at its ends, said clutch having a key member countersunk in the face thereof, a spring for actuating the key, the end surfaces of said key being inclined, and means for shifting the said clutch with its key in either direction whereby engagement or disengagement is made with the respective loose gears through which the said clutch passes, substantially as specified.

23. In a variable-speed device, a shaft, a plurality of gear-wheels of different diameter each having a keyway and a bore greater in diameter than the diameter of the shaft, and a clutch slidable within the bores of the gears adapted to fit said bores, said clutch having a spring-controlled key seated therein, substantially as specified.

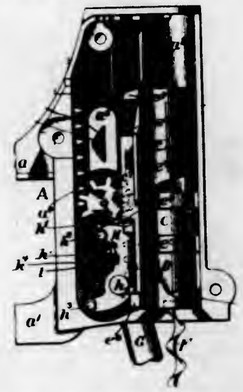
24. In a variable-speed device, a plurality of gear-wheels of different diameter each having a central bore and keyway, a shaft of less diameter than the gear-bore passing through the same, a clutch comprising a spring-seated key member fixed to said shaft adapted to fit the gear-bores, and means for shifting the shaft and the clutch within the gear-bores, substantially as specified.

25. In a variable-speed device, a plurality of different-diameter gear-wheels, each having a bore, a support holding said gear-wheels with their bores in alinement, a shaft provided with a beveled clutch fitting the bore of each gear, and means for shifting said shaft whereby any selected gear-wheel may be mounted upon said hub, substantially as specified.

26. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, another series of different-diameter gear-wheels and collars through the bores of which said second shaft passes normally loosely, said loose gear-wheels being normally out of mesh with the respective oppositely-disposed fixed gear-wheels, a clutch on said second shaft adapted to fit the loose-gear-wheel bores, and means for shifting said clutch in either direction whereby any selected one of said loose gear-wheels may be lifted into engagement with its opposite fixed gear-wheel and also fixed to said second shaft, substantially as specified.

27. In a variable-speed device, a shaft, a plurality of different-diameter gear-wheels fixed to said shaft, a second shaft, another series of different-diameter gear-wheels and collars through the bores of which said second shaft passes normally loosely, a support holding the said loose gear-wheels normally out of mesh with their respective oppositely-disposed fixed gear-wheels, and with the bores of the said loose gear-wheels normally eccentric of said second shaft, the bores of the collars being concentric to said second shaft, and a clutch on said second shaft adapted to fit the loose-gear-wheel bores, and means for shifting said clutch in either direction whereby any selected one of said loose gear-wheels may be lifted into mesh with its opposite fixed gear-wheel and also fixed to said second shaft, substantially as specified.

683,004. CORK-PULLER. JOHN J. SCHERRACK, Freeport, Ill., assignor to Arcade Manufacturing Company, same place. Filed Dec. 3, 1900. Serial No. 38,386. (No model.)



Claim.—1. In a cork-puller, the combination with a suitable supporting-frame and a longitudinally-reciprocating corkscrew guided therein, of a longitudinally-guided corkscrew-carrier in which the corkscrew is mounted, racks upon the case and carrier respectively, a pinion longitudinally guided in the case and meshing with said racks and a handle secured to the pinion and placed at such angular relation thereto as to move in substantially the same direction as the corkscrew while the latter is entering the cork; substantially as described.

2. In a cork-puller, the combination with a suitably-slotted inclosing case, of a longitudinally-reciprocating corkscrew-carrier therein, a corkscrew mounted in said carrier, racks within the case secured to the case and carrier respectively, a pinion between said racks and guided laterally by the walls of the case, and a handle secured to the pinion through the slot and arranged in such angular relation thereto that it moves bodily in substantially the same direction as the corkscrew while the latter is entering the cork; substantially as described.

3. In a cork-puller, the combination with a suitable supporting-frame, of a longitudinally-guided corkscrew-carrier, means for reciprocating said corkscrew-carrier, a corkscrew rotatably mounted in the corkscrew-carrier, a nut threaded to the corkscrew, and longitudinally guided against rotation, a stripper intermediate the nut and the cork, and devices operating to connect the stripper with the corkscrew-carrier, during the withdrawal of the cork and to disconnect the stripper and the carrier during the withdrawal of the corkscrew from said cork; substantially as described.

4. In a cork-puller, the combination with a suitable supporting-frame, of a longitudinally-guided corkscrew-carrier, means for reciprocating said corkscrew-carrier, a corkscrew rotatably mounted in the corkscrew-carrier, a nut threaded to the corkscrew and longitudinally guided against rotation, a stripper intermediate the nut and the cork, means for moving the stripper longitudinally with the carrier during the withdrawal of the cork and means for preventing such longitudinal movement during the stripping of the latter; substantially as described.

5. In a cork-puller, the combination with a suitable supporting-frame, of a longitudinally-guided corkscrew-carrier, means for reciprocating said corkscrew-carrier, a corkscrew rotatably mounted in the corkscrew-carrier, a nut threaded to the corkscrew, and longitudinally guided against rotation, a stripper intermediate the nut and the cork, means for alternately connecting said stripper with the carrier and with the frame, thereby alternately effecting and preventing longitudinal movement of the stripper in unison with the carrier; substantially as described.

683,005. STEAM FEEDING MECHANISM. ROBERT H. F. SEWALL, New Orleans, La., assignor of one-half to Chas. F. De Ganahl, Tampico, Mexico. Filed Dec. 31, 1900. Serial No. 41,669. (No model.)



Claim.—1. In a device of the class specified, a casing having a portion interiorly thereof provided with an annular seat, a web in the casing having an annular seat, funnels in the casing provided with annular flanges snugly fitted in said seats, additional funnels projecting into the other funnels, provided with lugs to prevent motion of the first-mentioned funnels, in one direction, and a cap-piece removably secured to the casing, having seats to receive the outer ends of said additional funnels.

2. In a device of the class specified, a casing having an interior rigid portion, provided with an annular seat, a web inside the casing also having an annular seat, and the end of the casing having annular seats, funnels provided with annular flanges fitted snugly in the two first-mentioned seats, and having interior lugs at one end, additional funnels projecting into the other funnels having lugs to be engaged by the other lugs and also having flanges to fit the annular seats in the end of the casing, and a cap detachably connected to the casing, having seats to receive the additional funnels.

683,006. TOBACCO-PIPE ATTACHMENT. ALBERT S. SPEIRS, New York, N. Y. Filed May 31, 1901. Serial No. 62,644. (No model.)



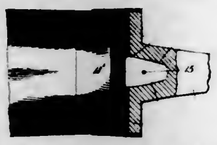
Claim.—1. The combination with a pipe-bowl and a stem, of a cleaning attachment having a coiled extremity lying and held within the base portion of the chamber of the bowl, the remaining part of the said attachment extending from the bowl into the stem.

2. The combination with a pipe-bowl having a stem completely removable therefrom, of a cleaning attachment held by the bowl for insertion into the stem, whereby the entire smoke-conduit from the bowl may be cleansed by the attachment.

3. The combination with a pipe-bowl having a removable stem, of a cleaning attachment having an enlarged extremity held within the bowl and a portion projecting from the latter for insertion in a stem.

4. As an improved article of manufacture, a pipe-cleaning attachment having a coil with a depending securing member for engagement with the lower portion of a pipe-bowl, and a projected portion for insertion in a pipe-stem.

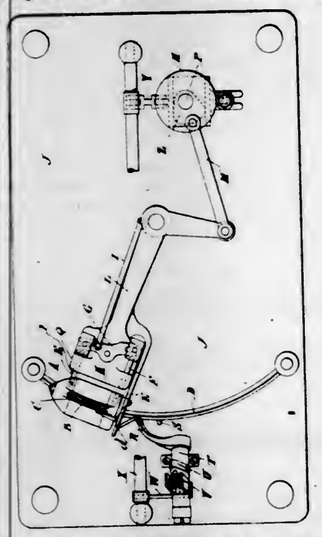
683,007. BRUSH. WILLIAM S. WALKER, Pittsburg, Pa., assignor of two-thirds to Harry C. Blethrow, same place, and John J. Engel, Mount Oliver Borough, Pa. Filed Sept. 20, 1900. Serial No. 30,573. (No model.)



Claim.—1. In a brush, the combination of a ferrule divided into handle and bristle receiving portions by a diaphragm intermediate of the edges of the ferrule, said diaphragm being integral with and connecting the sides of the ferrule rigidly together and being provided with a central slot, a handle in said handle-receiving portion of the ferrule, bristles in said bristle-receiving portion of the ferrule, a binding-wedge for clamping the bristles tightly against the sides of the ferrule, a tang projecting from the upper edge of said wedge and extending through said slot in said diaphragm and into the handle, and devices for securing said tang to said handle.

2. In a brush, the combination of a ferrule divided into handle and bristle receiving portions by a diaphragm intermediate of the edge of the ferrule, said diaphragm being integral with and connecting the sides of the ferrule rigidly together and being provided with a central slot, a handle in said handle-receiving portion of the ferrule, bristles in said bristle-receiving portion of the ferrule, a binding-wedge for clamping the bristles tightly against the sides of the ferrule having a body part with the portions thereof which contact with and bind the bristles rounded in contour said body portion tapering downwardly from said rounded corners and upwardly therefrom to a tang projecting from the upper edge of said wedge and extending through said slot in said diaphragm and into the handle, and devices for securing said tang to the handle.

683,008. TWO-REEL SEWING-MACHINE. HARRY F. AINLEY, London, England. Filed Apr. 6, 1901. Serial No. 54,674. (No model.)



Claim.—In two-reel sewing-machines, a reel-carrier, an oscillatory arm, pins carried by said arm for engaging the reel-carrier, a rocking lever on said oscillatory arm for engaging the pins in alternation, a link connected respectively with said rocking arm and the framework, a looper R, a driving-shaft operatively connected with said oscillatory arm, a cam Z on said shaft, and driving connections between said cam and looper involving a universal joint, connecting-rod X and link Y.

683,009. SURFACE-FINISHING FOR FLOORS, CEILINGS, &c. JOHN J. BLACKMAN, New Britain, Conn., assignor of one-half to George P. Bradstreet, Thomaston, Conn. Original application filed Jan. 14, 1901, Serial No. 43,141. Divided and this application filed July 29, 1901. Serial No. 70,051. (No model.)

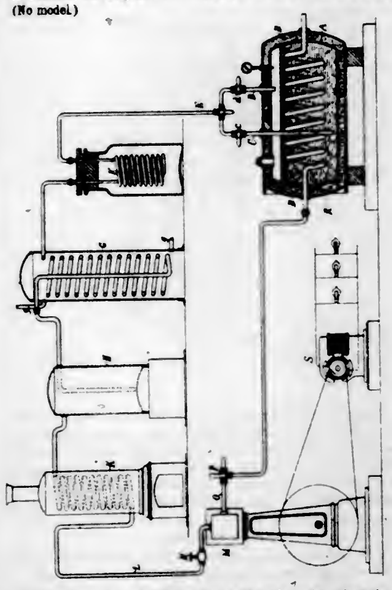


Claim.—1. A surface-finish consisting of a base-plate having a series of separated tongues or ribs extending across the same and each provided with sides formed as ogee curves and with a curved top; and a top plate also having a series of grooves separated by tongues or ribs extending across said top plate, the walls of said grooves conforming to the projections of the base-plate and being held in sliding engagement with said base-plate by interlocking the tongues or ribs of both said plates, and both plates being of the same dimensions.

2. The combination, with a support, of a base-plate having a number of tongues or ribs formed with overhanging sides of ogee shape and with curved tops, said ribs extending across said base-plate; means for securing the base-plate to the support; and a top plate of the same dimensions as the base-plate and also having a number of grooves, the side walls of which are of ogee shape, and a series of tongues or ribs with overhanging edges, also of ogee shape, on its under side, the tongues or ribs of both plates being fitted in sliding and interlocking engagement with each other, and both plates being of the same dimensions.

3. A surface-finish consisting of a base-plate having a series of separated tongues or projections, each tongue having a convex top and overhanging sides of ogee shape; and a top plate having a series of separated grooves, each groove having a rounded rear wall and side walls of ogee shape, and both plates being of the same dimensions, substantially as described.

683,010. SYSTEM FOR UTILIZING LIQUID AIR OR OTHER GASES FOR PURPOSES OF REFRIGERATION AND POWER. GABRIEL A. BOBRICK, Los Angeles, Cal. Filed Nov. 8, 1900. Serial No. 35,880. (No model.)



Claim.—1. In a combined power and refrigerating plant the combination of a receiver or boiler for containing liquid air, a refrigerating apparatus connected with the boiler, an expander into which the gas passes from the refrigerating apparatus, an engine adapted to be operated by the expanded gas, and means for conducting the gas from the exhaust of the engine to the boiler so as to evaporate the liquid therein, substantially as herein set forth.

2. In a combined power and refrigerating plant the combination of a receiver or boiler for containing liquid air, a refrigerating apparatus connected therewith, means for regulating the flow of liquid from the boiler to the refrigerating apparatus, an expander into which the gas from the refrigerating apparatus passes, an engine adapted to be operated by the expanded gas, and means for evaporating the liquid in the boiler by the gas from the exhaust of the engine, substantially as set forth.

3. In a combined power and refrigerating plant the combination of a receiver or boiler for containing liquid air, a refrigerating apparatus connected therewith, means for regulating the flow of liquid from the boiler to the refrigerating apparatus, means for expanding the gas after it has passed through the refrigerating apparatus, a storage-tank for the expanded gas, an engine connected therewith and means for evaporating the liquid in the boiler by the gas from the exhaust of the engine, as set forth.

4. In a combined power and refrigerating plant the combination of a receiver or boiler for containing liquid air, a refrigerating apparatus connected therewith, means for regulating the flow of liquid from the boiler to the refrigerating apparatus, means for expanding the gas after it has passed through the refrigerating apparatus, a superheater or device for applying artificial heat to the expanded gas, a storage-tank for the expanded gas, an engine connected therewith, and means for evaporating the liquid in the boiler by the gas from the exhaust of the engine, as set forth.

5. In a combined power and cold-storage plant the combination of a receiver or boiler for containing liquid air, a refrigerating-coil connected therewith, means for regulating the flow of liquid from the boiler to the refrigerating-coil, an expansion-coil into which the gas from the refrigerating-coil is conducted, a device for storing and an engine for utilizing the expanded gas and a coil within the boiler through which the exhaust-gas from the engine is conducted, as and for the purposes set forth.

683,011. SECTIONAL POST FOR BINDERS. JOHN BOWERS, Milwaukee, Wis., assignor to Henry C. Miller and Julius Bauer, copartners, same place. Filed Apr. 20, 1901. Serial No. 56,607. (No model.)



Claim.—In a sectional post for loose-leaf binders, the combination of a base-section provided with a threaded socket and also provided with a shoulder, a plurality of tubular post-sections, the lower end of the lower tubular post-section fitting the upper end of the base-section and against the shoulder thereof, a tubular coupling-piece fitting within the adjacent ends of two of the tubular post-sections, said coupling-piece provided with an external shoulder against which the said adjacent ends of the tubular post-sections bear, the outer surface of the shoulder being flush with the outer surfaces of the tubular post-sections and a rod passing through the tubular post-sections and fitting closely in the bore of the coupling, the lower end of said rod having a threaded connection with the socket of the base-section, and the opposite end of said rod provided with a head fitting against the upper end of the upper tubular post-section.

683,012. OPTICAL INSTRUMENT. HENRY H. HILL, St. Louis, Mo. Filed Jan. 7, 1901. Serial No. 42,430. (No model.)

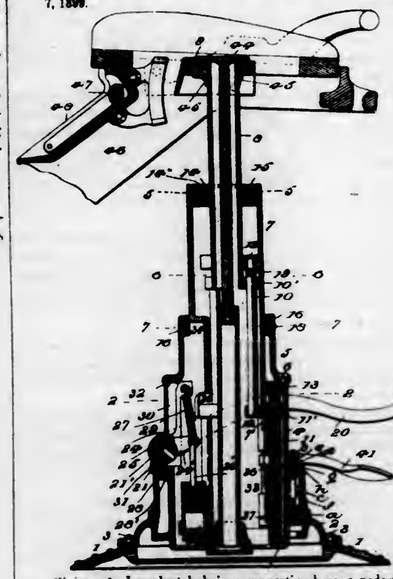
Claim.—1. An optical instrument, consisting of a tube, one end of which serves as an eyepiece, a lens in the outer end of the tube, a shield pivotally carried by the tube adjacent to the eyepiece and adapted to rest parallel to the tube when not in use, and a lock whereby the shield can be held at right angles to the tube to obstruct the vision of one eye, substantially as specified.

2. An optical instrument, consisting of a tube carrying a lens, a projection adjacent to one end of the tube and having an opening formed therein, a plate pivoted to said projection, a shield carried by the free end of said plate, a hook integral with the inner end of the plate and adapted to engage in the opening in the projection to hold the plate at right angles to the tube, substantially as specified.



REISSUES.

11,931. DENTAL CHAIR. FRANK RITTER, Rochester, N. Y. Filed Jan. 9, 1901. Serial No. 42,704. Original No. 619,236, dated Feb. 7, 1899.



Claim.—1. In a dental chair, a supporting-base, a pedestal, a plurality of rotatable telescoping tubes, one of said telescoping tubes carrying on its interior a guide-rod fixed at both ends near its inner surface, another tube carrying on its exterior a projection movably fitting said rod, substantially as described.

2. In combination with seat-elevating mechanism, the fixed base, the rotatable pedestal having fixed therein a guide-rod 11, a telescoping tube 7 movably connected to said rod and carrying on its interior a rod 10, and a telescoping tube 8 movably connected with said rod 10, said tube 7 having at its foot an interior flange to hold its rod and an exterior flange to embrace the pedestal-rod, substantially as described.

3. In combination with the seat and tube elevating and lowering mechanism, a base, the telescoping tubes, flanges 12 within the exterior tube, a guide-rod 10 fixed to the said flanges, a flange 10′ on the exterior of the inner telescoping tube, said rod being freely movable through the flange, and a spring situated between flange 10′ and one of the flanges 12, substantially as described.

4. In combination with the tube and seat elevating and lowering mechanism, a base, the telescoping tube 8, the telescoping tube 7 having flanges 12 at its top and bottom and a flange 11′ at its bottom, the rotatable pedestal, a guide-rod fixed in the pedestal, said flange 11′ being movable on the rod, a guide-rod for the telescoping tube 8 fixed to the flanges 12 inside the tube 7 and a spring 7′ pendent from the foot of said tube, substantially as described.

5. In a dental chair, the combination of the base, a pedestal rotatably supported on said base and having an extension pendent therein, the wedge-block situated between the pendent part of the pedestal and

the base, and devices comprising a bar situated near the base to draw said wedge-block between the walls of the pedestal and base and directly against them and also comprising a rod having a screw-thread connection with the wedge and a connection with the bar, said devices and block being supported on and movable with the pedestal, substantially as described.

6. In a dental chair, the combination of the base, the pedestal rotatably supported on said base, the wedge-block situated between the pedestal and base, and devices to draw said wedge-block between the walls of said pedestal and base, said devices and the block being supported on and movable with the pedestal, the block-moving devices comprising a screw, a detachable screw-turning foot-bar and means for adjusting the bar with respect to the screw to compensate for wear, substantially as described.

7. In a dental chair, the combination of a pedestal comprising an oil-holder, a tube 8, a tube 7, both tubes being adapted to be moved into the holder, a piston-tube 33, and a pump situated adjacent the path of said tube 8, said tube 7 having an inset part 34 to permit it to descend into the oil-holder between the pump and said tube 8, substantially as described.

8. In a dental chair, the telescoping tubes 7 and 8, said tube 8 having a flange 10 and the tube 7 having flange 12 and the inset 34 cut away at 35, whereby in assembling the parts, the tube 8 after its flange has been moved to a plane above the interior flange at the foot of tube 7 can be rotated to cause the holes in the flanges to register, substantially as described.

9. In a dental chair, the combination of the pedestal, the pump, the lever having members 20 and 24 the member 20 being fixed as at 22, exteriorly of the pedestal, to the rod 21, the said rod pivoted in the pedestal-wall, the short lever member 24 consisting of a sleeve secured to the said rod and provided with arms, a second rod 26 extending through said arms at their outer ends, a piston-rod 26' loosely joined to said rod 26, and returning-springs attached to the latter rod and to the pedestal, substantially as described.

10. In a dental chair, the combination of a pump, a pedestal having a door-opening, a reservoir, a pump-operating lever having a member situated in the opening and provided with bearings fixed to the pedestal-wall, lever-returning springs, and a projection 28 arranged on the rotating part of the lever to engage the part 28' of the pedestal and arrest the action of the springs, substantially as described.

11. In a dental chair the combination of a seat, a base, telescoping parts to guide the seat, and a frusto-conical split plug, bearing on one of the telescoping parts to guide the same, one of said telescoping parts having a frusto-conical seat cooperating with the plug.

12. In a dental chair, the combination of a seat, a base, intermediate telescoping parts to guide the seat, a frusto-conical split plug, and means whereby the plug may be adjusted to regulate the friction and to compensate for wear, one of said telescoping parts having a frusto-conical seat cooperating with the plug.

13. In a dental chair, the combination of the cross-bar of the seat-frame, the tube 8 provided with a shoulder 45, a nut engaging the tube above the shoulder to fasten the bar on the tube, said bar having a recess about the tube, and the nut being situated in said recess, and a plunger-rod loosely bearing on the nut, substantially as described.

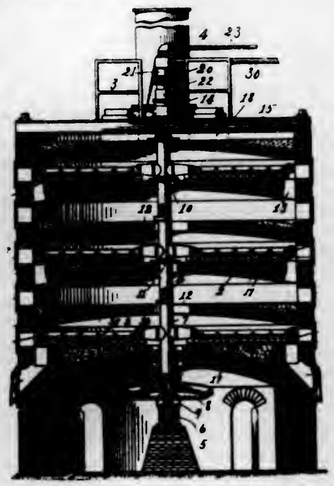
11,932. ROASTING-FURNACE. LEWIS T. WRIGHT, Keswick, Cal. Filed July 22, 1901. Serial No. 69,343. Original No. 629,023, dated July 18, 1899.

Claim.—1. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate pipe in said shaft into which the first pipe discharges, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.

2. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate pipe in said shaft into which the first pipe discharges, a spider between the first pipe and the shaft, supporting, and closing the top of, the intermediate pipe, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and the hollow shaft, substantially as described.

3. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate pipe in said shaft into which the first pipe discharges, open-ended pipes leading from the intermediate pipe into the hollow arms, spiders within the arms around the open ends of said pipes, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.

4. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate pipe in said shaft into which the first pipe discharges at the bottom, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.



5. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate pipe in said shaft into which the first pipe discharges at the bottom, a spider between the first pipe and the shaft, supporting, and closing the top of, the intermediate pipe, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and the hollow shaft, substantially as described.

6. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate pipe in said shaft into which the first pipe discharges at the bottom, open-ended pipes leading from the intermediate pipe into the hollow arms, spiders within the arms around the open ends of said pipes, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.

7. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate closed-bottomed pipe in said shaft into which the first pipe discharges at the bottom, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.

8. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate closed-bottomed pipe in said shaft into which the first pipe discharges at the bottom, a spider between the first pipe and the shaft, supporting, and closing the top of, the intermediate pipe, open-ended pipes leading from the intermediate pipe into the hollow arms, and feed and exhaust pipes connected to the first pipe and the hollow shaft, substantially as described.

9. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, hollow arms carried thereon over the respective floors, an open-bottomed pipe inserted in said shaft, an intermediate closed-bottomed pipe in said shaft into which the first pipe discharges at the bottom, open-ended pipes leading from the intermediate pipe into the hollow arms, spiders within the arms around the open ends of said pipes, and feed and exhaust pipes connected to the first pipe and hollow shaft, substantially as described.

10. In a roasting-furnace, the combination, with a series of floors, of a central hollow shaft, sleeves secured to the shaft, hollow arms having their ends inserted in said sleeves, and threaded outside said sleeves, threaded collars on said threaded portions and secured to said sleeves, and a feed-pipe for supplying water to said hollow shaft and arms, substantially as described.

11. In a roasting-furnace, the combination of a rabble-arm, clamps removably secured at intervals therealong, said clamps carrying guides in line with each other parallel to said arm, a rabble-holder slidably held in said guides, and rabbles secured to said holder, substantially as described.

12. In a roasting-furnace, the combination of a rabble-arm, clamps removably secured thereon, rabble-holder sections held in said clamps and longitudinally removable therefrom, said sections having downwardly-extending ribs, and rabbles removably secured to said ribs, substantially as described.

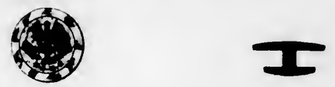
DESIGNS.

35,087. SUPPOSITORY. HENRY H. FORINGER, Erie, Pa. Filed Feb. 4, 1901. Serial No. 45,801. Term of patent 7 years.



Claim.—The design for a suppository as herein shown and described.

35,088. BADGE. PHILIPPE BOUCHER, Woonsocket, R. I. Filed Aug. 8, 1901. Serial No. 71,414. Term of patent 7 years.



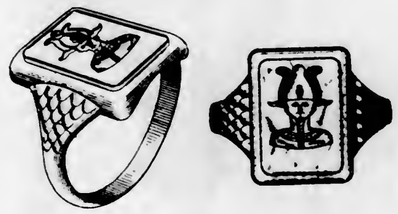
Claim.—The design for a badge, as herein shown and described.

35,089. CORNER-PIECE. CLIFTON C. CHILD, Grinnell, Iowa. Filed May 28, 1901. Serial No. 63,291. Term of patent 3½ years.



Claim.—The design for a corner-piece, substantially as herein shown and described.

35,090. FINGER-RING. ARTHUR T. BOND, North Wilmington, Mass., assignor to Aaron Miles Holbrook and Edward A. Kelly, Winchester, Mass. Filed Aug. 9, 1901. Serial No. 71,536. Term of patent 3½ years.



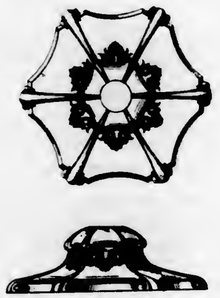
Claim.—The design for a finger-ring substantially as herein shown and described.

35,091. HANDLE FOR SPOONS OR SIMILAR ARTICLES. SOLOMON RUBY, St. Louis, Mo. Filed June 24, 1901. Serial No. 65,892. Term of patent 7 years.



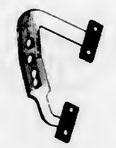
Claim.—The design for the handle of a spoon or similar article, herein shown and described.

35,092. BASE MEMBER FOR SOLID OR PLATED METAL WARE. SETH WILLIAM BARRITT, Meriden, Conn., assignor to the International Silver Company, same place. Filed Aug. 2, 1901. Serial No. 70,673. Term of patent 7 years.



Claim.—The design for a base member for solid and plated metal ware substantially as shown and described.

35,093. EYEGLASS-GUARD. WILLIAM A. JONES, Toledo, Ohio, assignor of one-half to the Swigart Optical Company, same place. Filed Apr. 18, 1901. Serial No. 56,514. Term of patent 7 years.



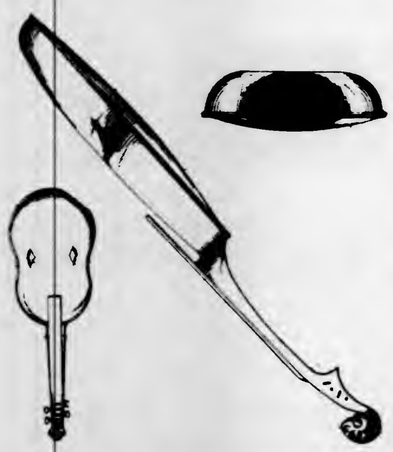
Claim.—The design for an eyeglass-guard, as herein shown and described.

35,094. EYEGLASS-GUARD. WILLIAM A. JONES, Toledo, Ohio, assignor of one-half to the Swigart Optical Company, same place. Filed Apr. 18, 1901. Serial No. 56,515. Term of patent 7 years.



Claim.—The design for an eyeglass-guard, as herein shown and described.

35,095. VIOLIN-BODY. WILLIAM FREDERICK, Newcastle, Pa. Filed June 21, 1901. Serial No. 65,510. Term of patent 7 years.



Claim.—The design for a violin-body, substantially as herein shown and described.

35,096. PARCEL-CARRIER. WILLIAM CARRY, Newport, R. I., assignor of one-half to William Shepley, same place. Filed June 29, 1901. Serial No. 66,617. Term of patent 7 years.



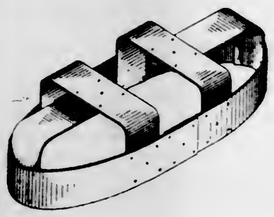
Claim.—The design for a parcel-carrier herein shown and described.

35,097. STOPPER-EXTRACTOR. JESSE S. DEARBORN, Lakeport, N. H. Filed Aug. 15, 1901. Serial No. 72,192. Term of patent 3½ years.



Claim.—The design for a stopper-extractor, as herein shown and described.

35,098. BASKET-COVER. SAMUEL J. DUNKLEY, Kalamazoo, Mich. Filed May 20, 1901. Serial No. 61,193. Term of patent 3½ years.



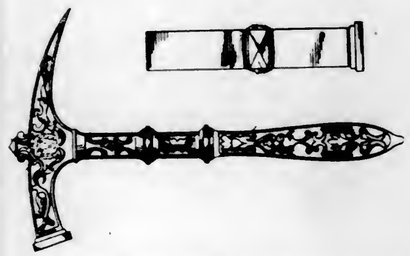
Claim.—The design for a basket-cover, as herein shown and described.

35,099. NECKTIE-FASTENER. JESSE ORRA HUNT, Cairo, Ill. Filed Aug. 16, 1901. Serial No. 72,313. Term of patent 14 years.



Claim.—The design for a necktie-fastener, as herein shown and described.

35,100. HAMMER. CHARLES T. HENNIG, Brooklyn, N. Y. Filed Aug. 6, 1901. Serial No. 71,112. Term of patent 3½ years.



Claim.—The design for a hammer, as herein shown and described.

35,101. HARNESS-AWL. WILLARD S. TINKHAM, Situate, R. I., administrator of Willard Tinkham, deceased. Filed May 9, 1901. Serial No. 59,383. Term of patent 7 years.



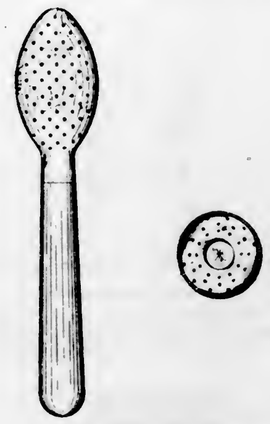
Claim.—The design for a blade for a harness-awl herein shown and described.

35,102. SUPPORT AND REFLECTOR FOR ELECTRIC LAMPS. JOHN H. GOEBEL, Chicago, Ill. Filed May 20, 1901. Serial No. 61,196. Term of patent 3½ years.



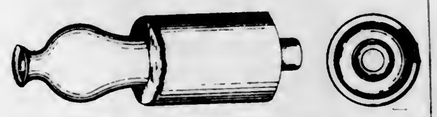
Claim.—The design for a support and reflector for electric lamps substantially as herein shown and described.

35,103. CLOTHES-SPRINKLER. MARTIN ARMS, Syracuse, N. Y. Filed Aug. 10, 1901. Serial No. 71,663. Term of patent 3½ years.



Claim.—The design for a clothes-sprinkler, as herein shown and described.

35,104. LUBRICATOR-BODY. DONALD H. ROBERTS, Detroit, Mich. Filed Aug. 12, 1901. Serial No. 71,857. Term of patent 14 years.



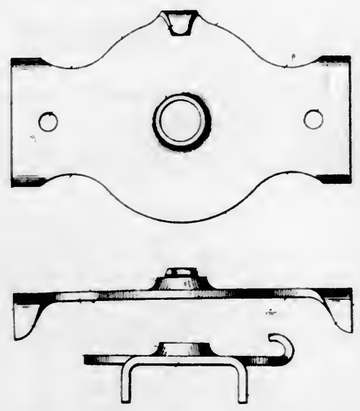
Claim.—The design for a lubricator-body substantially as herein shown and described.

35,105. BRAKE-BEAM. WILSON R. SYMONS, Savannah, Ga. Filed July 31, 1901. Serial No. 70,430. Term of patent 14 years.



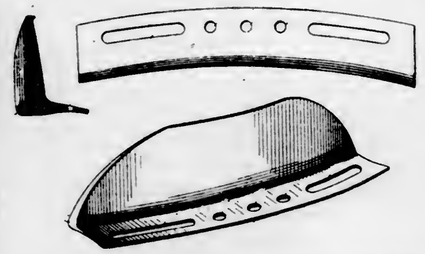
Claim.—The design for a brake-beam as herein shown and described.

35,106. BOLSTER-PLATE FOR VEHICLES. TARGE G. MANDT, Stoughton, Wis. Filed Aug. 10, 1901. Serial No. 71,661. Term of patent 7 years.



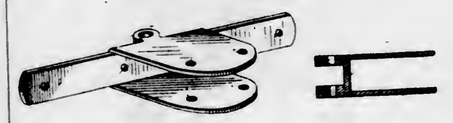
Claim.—The design for a bolster-plate for vehicles, substantially as shown and described.

35,107. RUB-IRON. TARGE G. MANDT, Stoughton, Wis. Filed Aug. 10, 1901. Serial No. 71,662. Term of patent 7 years.



Claim.—The design for a rub-iron, substantially as shown and described.

35,108. EVENER-IRON. TARGE G MANDT, Stoughton, Wis. Filed Aug. 12, 1901. Serial No. 71,839. Term of patent 7 years.

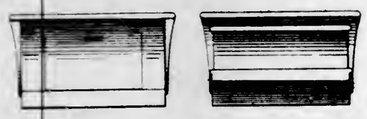


Claim.—The design for an evener-iron, substantially as shown and described.

35,109. VEHICLE-BODY. EDWARD BEACH GALLAHER, Philadelphia, Pa. Filed Aug. 15, 1901. Serial No. 72,196. Term of patent 7 years.

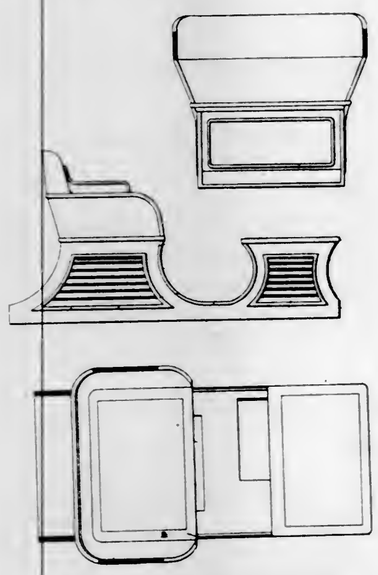


35,109.



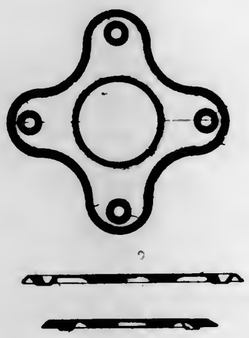
Claim.—The design for a vehicle-body, substantially as herein shown and described.

35,110. VEHICLE-BODY. EDWARD BEACH GALLAHER, Philadelphia, Pa. Filed Aug. 15, 1901. Serial No. 72,197. Term of patent 7 years.



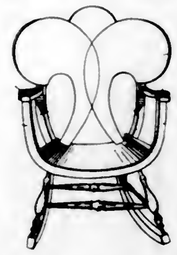
Claim.—The design for a vehicle-body, substantially as herein shown and described.

35,111. CHAIR-HUB PLATE. CHARLES J. TRAVERS, Port Washington, Wis., assignor to Gilson Manufacturing Company, same place. Filed Aug. 10, 1901. Serial No. 71,659. Term of patent 14 years.



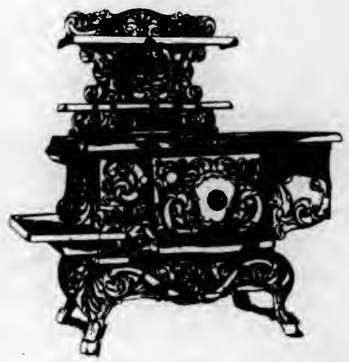
Claim.—The design for a chair-hub plate, substantially as herein shown and described.

35,112. CHAIR. WILLIAM J. NEUKOM, Indianapolis, Ind. Filed Apr. 20, 1901. Serial No. 56,783. Term of patent 3½ years.



Claim.—The design for a chair substantially as shown and described.

35,113. PORTABLE RANGE. THOMAS I. RANKIN, Philadelphia, Pa., assignor to Abram Cox Stove Company, same place. Filed Aug. 27, 1901. Serial No. 73,501. Term of patent 7 years.



Claim.—The design for a portable range as herein described and as illustrated in the accompanying drawing.

35,114. HEATING-STOVE. THOMAS I. RANKIN, Philadelphia, Pa., assignor to Abram Cox Stove Company, same place. Filed Aug. 27, 1901. Serial No. 73,502. Term of patent 7 years.



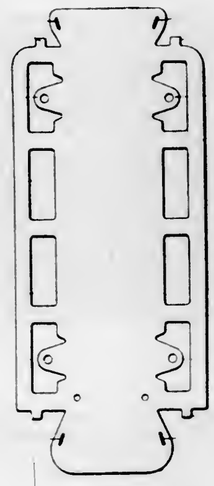
Claim.—The design for a heating-stove as herein described and as illustrated in the accompanying drawing.

35,115. PUZZLE MEMBER. JOHN C. FORSTER, Pittsburg, Pa. Filed June 14, 1901. Serial No. 64,591. Term of patent 14 years.



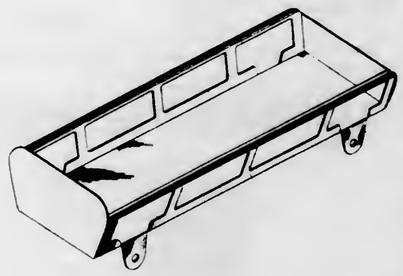
Claim.—The design for a puzzle member, substantially as herein shown and described.

35,116. TOY-WAGON BODY-BLANK. HARRY THAYER KINGSBURY, Keene, N. H. Filed Aug. 6, 1901. Serial No. 71,108. Term of patent 7 years.



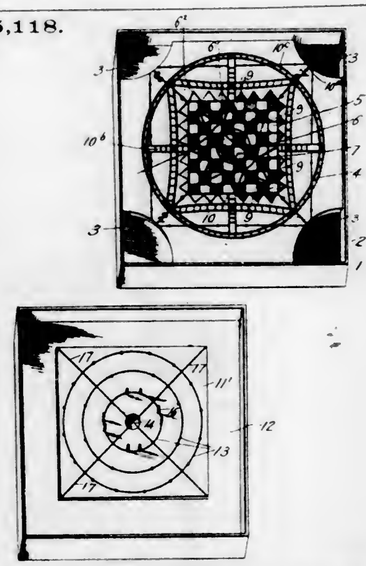
Claim.—The design for a toy-wagon body-blank; substantially as shown and described.

35,117. TOY-WAGON BODY. HARRY THAYER KINGSBURY, Keene, N. H. Filed Aug. 6, 1901. Serial No. 71,109. Term of patent 7 years.



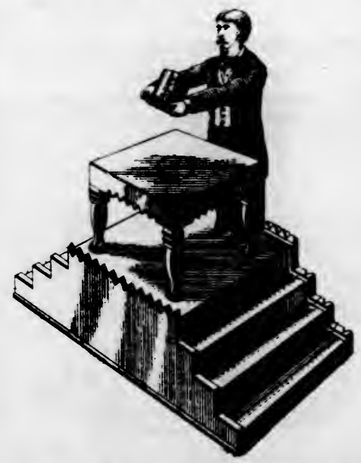
Claim.—The design for a toy-wagon body; substantially as shown and described.

35,118. GAME-BOARD. JAMES W. TAVENNER, Bloomington, Ill. Filed Aug. 19, 1901. Serial No. 72,610. Term of patent 7 years.



Claim.—The design for a game-board, as herein shown and described.

35,119. MONEY-BOX. CHARLES A. BAILEY, Cromwell, Conn., assignor to Abraham L. Kesner, Philadelphia, Pa. Filed Aug. 24, 1901. Serial No. 73,211. Term of patent 7 years.



Claim.—The design for a money-box substantially as shown and described.

35,120. BUILDING-BLOCK. ANTHONY W. HOCKMAN, Parkersburg, W. Va. Filed Aug. 8, 1901. Serial No. 71,413. Term of patent 14 years.



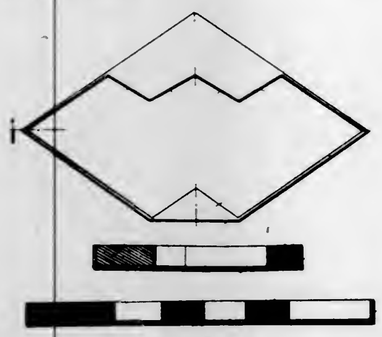
Claim.—The design for a building-block substantially as described.

35,121. GRAVE-MARKER. GIBSON H. DAWSON, REUBEN C. MORTON, and ISRAEL SHOUDY, Rockford, Ill. Filed Aug. 1, 1901. Serial No. 70,561. Term of patent 7 years.



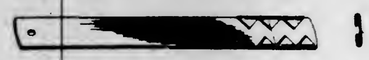
Claim.—The design for a grave-marker, as herein shown and described.

35,122. DISPLAY-FRAME FOR PASTEBOARD BOXES. SUEL J. SPAULDING, Des Moines, Iowa. Filed July 19, 1901. Serial No. 68,982. Term of patent 7 years.



Claim.—The design for a display-frame for pasteboard boxes, substantially as herein shown and described.

35,123. CORSET STAY MEMBER. NORA PARKER, Oxford, Mich. Filed July 10, 1901. Serial No. 67,797. Term of patent 7 years.



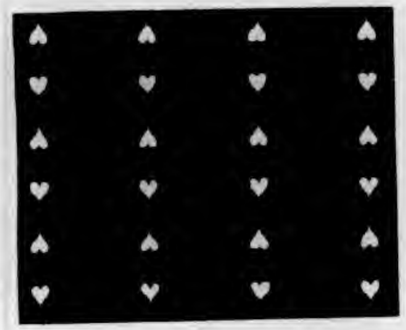
Claim.—The design for a corset stay member substantially as shown and described.

35,124. TRIMMING. ALPHONSE H. KURSHEEDT, New York, N. Y., assignor to Kursheedt Manufacturing Co., of New York. Filed Aug. 24, 1901. Serial No. 73,209. Term of patent 7 years.



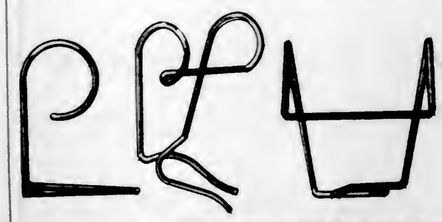
Claim.—The design for a trimming substantially as herein shown and described.

35,125. FABRIC. WILLIAM F. STIFEL, EDWARD W. STIFEL, and HENRY G. STIFEL, Wheeling, W. Va. Filed June 20, 1901. Serial No. 65,360. Term of patent 7 years.



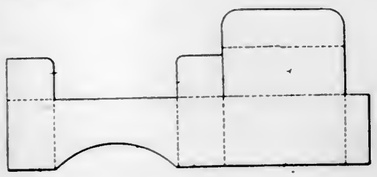
Claim.—The design for a fabric, herein shown and described.

35,126. BOTTLE-HOLDER. EDWARD WAGNER, St. Louis, Mo., assignor to the Model Bottling Machinery Company, same place. Filed Apr. 10, 1901. Serial No. 55,255. Term of patent 14 years.



Claim.—The design for a bottle-holder, substantially as herein shown and described.

35,127. BLANK FOR CIGARETTE-BOX CAPS. EDWARD HILSON, New York, N. Y. Filed Jan. 29, 1900. Serial No. 3,243. Term of patent 3½ years.



Claim.—The design for a blank for a cigarette-box cap as shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 17, 1901.

37,055. CERTAIN NAMED WEARING-APPAREL. ZIMMERMANN BROTHERS CLOTHING COMPANY, Milwaukee, Wis. Filed May 20, 1901.



Essential feature.—The words "BLUE FLAG" or the representation of a blue flag. Used since 1875.

37,056. CORSETS. WEINGARTEN BROS., New York, N. Y. Filed July 29, 1901.

WB

Essential feature.—A black disk bearing the letters "W. B." in white. Used since May 1, 1901.

37,057. BOOTS AND SHOES. MYRON F. THOMAS, Campello, Mass. Filed Aug. 17, 1901.

Pace Setter

Essential feature.—The compound word "PACE-SETTER." Used since June 26, 1901.

37,058. BOOTS AND SHOES. MYRON F. THOMAS, Campello, Mass. Filed Aug. 17, 1901.

None Slicker

Essential feature.—The compound word "NONE-SLICKER." Used since June 26, 1901.

37,059. SHOES, SLIPPERS, AND BOOTS. RINDSK, KALMBACH, LOGIE & Co., Grand Rapids, Mich. Filed Aug. 15, 1901.



Essential feature.—The representation of an irregular polygon, the base and left right lines of which form a right angle, the remaining four angles being obtuse angles, and the characters "R. K. L. & Co." arranged within the bounding lines of the irregular polygon. Used since June 15, 1901.

37,060. CERTAIN NAMED LEATHER PRODUCTS. SCHEUER & BRO., New York, N. Y. Filed May 3, 1901.

KANOTAREM

Essential feature.—The word "KANOTAREM" inclosed in a circle. Used since November 1, 1900.

37,061. MOUTH-HARMONICAS. CHRISTIAN WEISS, Junior, Trossingen, Germany. Filed Aug. 21, 1901.

ELEGIE

Essential feature.—The word "ELEGIE." Used since February 1, 1891.

37,062. EYEGLASSES. "OCULARIUM," ÄRZTLICHES INSTITUT FÜR AUGENGLÄSER, G. M. B. H., Berlin, Germany. Filed Aug. 12, 1901.



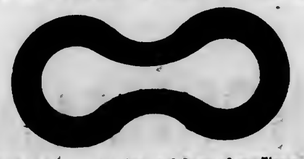
Essential feature.—The picture of an eye surrounded by a triangle and shaded by palm-branches held up by little angels at the right and left. Used since December 6, 1898.

37,063. SEWING-THREAD. THE CLARK MILE-END SPOOL COTTON CO., Newark, N. J. Filed July 17, 1899.

MILE-END

Essential feature.—The compound word "MILE-END." Used since 1820.

37,064. CAMERAS AND PHOTOGRAPHIC SOLUTIONS. THE BOSTAY CAMERA AND CHEMICAL CO., Newark, N. J. Filed Aug. 10, 1901.



Essential feature.—An elongated figure of curvilinear outlines having enlarged ends and a contracted middle portion. Used since December 1, 1900.

37,065. FLY-PAPER. LEBRECHT G. HEINRITZ, Holyoke, Mass. Filed Aug. 21, 1901.

NEW WRINKLE

Essential feature.—The words "NEW WRINKLE." Used since June 26, 1901.

37,066. CERTAIN NAMED MEDICAL COMPOUNDS. LACTO-MARROW COMPANY, New York, N. Y. Filed July 22, 1901.

Lactomaro

Essential feature.—The word "LACTOMARO." Used since July, 1900.

37,067. REMEDY FOR CERTAIN NAMED DISEASES. HAWORTH N. TOWNSEND, New York, N. Y. Filed July 10, 1901.

Navanoids

Essential feature.—The word "NAVANOIDS." Used since March 1, 1901.

37,068. PREPARATION FOR CERTAIN NAMED DISEASES. AMERICAN MEDICINE Co., Waterbury, Conn. Filed June 25, 1901.



Essential feature.—The representation of a scroll and the monogram of the registrant placed in a circle arranged between the lower ends of said scroll and beneath the same. Used since May, 1900.

37,069. STOMACH AND BLOOD REMEDIES. THE CHAPMAN MANUFACTURING Co., Chicago, Ill. Filed Aug. 31, 1901.

NORMALIN

Essential feature.—The word "NORMALIN." Used since July 17, 1901.

37,070. CERTAIN NAMED CURE FOR THE TOBACCO HABIT. ROBERT ARTHUR WILSON, Portland, Oreg. Filed Aug. 1, 1901.

HI-HI

Essential feature.—The compound word "HI-HI." Used since October, 1900.

37,071. MEDICINAL TABLETS. THE ANTIANAMIA CHEMICAL COMPANY, St. Louis, Mo. Filed Aug. 19, 1901.

Essential feature.—The letters "H A K" arranged in the form of a monogram. Used since June 1, 1901.

37,072. TOOTH-POWDER, TOOTH-PASTE, OR TOOTH-WASH. WALTER K. PEEK, New York, N. Y. Filed Aug. 26, 1901.

PERFECTINE.

Essential feature.—The word "PERFECTINE." Used since August 16, 1901.

37,073. LIQUID HAIR-RESTORERS. FRANK C. FOWLER, Meadus, Conn. Filed Oct. 17, 1899.

Lorelein

Essential feature.—The word "LORELEINE." Used since July 1, 1899.

37,074. REMEDY FOR SCALP DISEASES AND TONIC FOR THE SCALP. SOPHIA NORTH, Arlington, Mass. Filed July 26, 1901.



Essential feature.—The letters "D R" arranged in monogram form. Used since July 20, 1901.

37,075. PERFUMED SOAPS AND TOILET PREPARATIONS. ANNIE S. BUTLER, London, England. Filed Aug. 19, 1901.

POPPIA

Essential feature.—The word "POPPIA." Used for eighteen months.

37,076. DISINFECTANTS AND DEODORIZERS. ABRAHAM DREYFUSS, New York, N. Y. Filed Aug. 9, 1901.



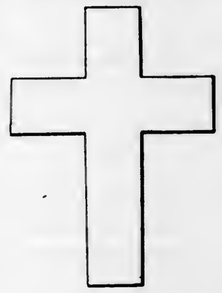
Essential feature.—The word "ANTOZONE" and the representation of a gladiator grasping in one hand a sword and holding a shield against which is directed a number of arrows, with the representation of the rising sun in the background. Used since March 31, 1900.

37,077. WASHING-POWDER. GEORGE SCHNEIDER, Columbus, Ohio. Filed June 28, 1901.

WHITE SWAN

Essential feature.—The words "WHITE SWAN." Used since March 20, 1901.

37,078. WASHING SOLUTION. THOMAS H. TABOR, Ellijay, Ga. Filed Nov. 9, 1900.



Essential feature.—The outline representation of a Latin cross. Used since November 2, 1900.

37,079. LAUNDRY-TABLET. WILLIAM P. ORNE, Boston, Mass. Filed Aug. 17, 1901.



Essential feature.—The word "IMPERIAL" and the representation of a crown. Used since April 4, 1901.

37,080. CERTAIN NAMED LAUNDRY ARTICLES. W. & H. WALKER, Allegheny, Pa. Filed Aug. 10, 1901.



Essential feature.—The word "ROOSTER" and the representation of a cock. Used since April 1, 1901.

37,081. BAKING-POWDER. JOSEPH ROBERT HAYWARD, Christchurch, New Zealand. Filed Aug. 12, 1901.

37,081.



Essential feature.—The representation of a patty-pan and the words "PATTY PAN." Used since May, 1901.

37,082. HARD SUGAR. THE AMERICAN SUGAR REFINING Co., New York, N. Y. Filed Aug. 14, 1901.



Essential feature.—The representation of domino stones or pieces. Used since August 1, 1900.

37,088. SUGAR-CANE SYRUP. THE SMITH BROS. Co., LTD., New Orleans, La. Filed Apr. 6, 1900.



Essential feature.—The representation of a star and a crescent. Used since January 6, 1900.

37,084. COFFEE. CHEEK, NORTON AND NEAL, Nashville, Tenn. Filed Aug. 14, 1901.



Essential feature.—The representation of the bust of a Porto Rican man in native costume. Used since June, 1898.

37,085. COFFEE. THE SMITH BROS. Co., LTD., New Orleans, La. Filed Mar. 17, 1900.

JOCKEY

Essential feature.—The word "JOCKEY." Used since July 1, 1899.

37,086. MALT LIQUORS. SAN ANTONIO BREWING ASSN., San Antonio, Tex. Filed July 10, 1901.



Essential feature.—The representation of a seal consisting of concentric circles inclosing a scalloped annular ring, which in turn incloses a circular figure with a serrated edge, and the representation of the ends of a bar on opposite sides of the figure with the serrated edge and in front of the scalloped annular ring and inside of the concentric circles. Used since 1886.

37,087. MALT LIQUORS. SAN ANTONIO BREWING ASSN., San Antonio, Tex. Filed July 10, 1901.



Essential feature.—The representations of a coat of arms consisting of a shield having crowned rampant lions in two diagonal corners separated by a smaller shield having diamond-shaped figures thereon and the other diagonal corners of the larger shield having geometrical figures of various shapes thereon, of an annular ring surrounding the coat of arms, and a pair of wings extending from opposite sides of the annular ring. Used since June 1, 1893.

37,088. MALT LIQUORS. SAN ANTONIO BREWING ASSN., San Antonio, Tex. Filed July 10, 1901.

Texas Pride.

Essential feature.—The words "TEXAS PRIDE." Used since June 1, 1897.

37,089. MALT LIQUORS. SAN ANTONIO BREWING ASSN., San Antonio, Tex. Filed July 10, 1901.

CARTA BLANCA

Essential feature.—The words "CARTA BLANCA." Used since June 1, 1900.

37,090. CIGARS. ONTARIO CIGAR CO., Oswego, N. Y. Filed Mar. 21, 1901.



Essential feature.—The word "PEACH" or the representation of a peach. Used since March 1, 1899.

37,091. CANNED GOODS. PORTLAND PACKING CO., Portland, Me. Filed Aug. 7, 1901.

BANQUET

Essential feature.—The word "BANQUET." Used since 1900.

37,092. COTTON-SEED OIL AND LARD. ARMOUR & CO., New York, N. Y. Filed June 7, 1901.

APOLLO

Essential feature.—The word "APOLLO." Used since September, 1899.

37,093. MANUFACTURED MAPLE FLOORING. COMBS & MITCHELL, INCORPORATED, Cadillac, Mich. Filed Aug. 20, 1901.

ELECTRIC

Essential feature.—The word "ELECTRIC." Used since June 1, 1899.

37,094. SAWS. J. N. EBERLE & CIE., Augsburg, Germany. Filed Aug. 24, 1901.

Finis

Essential feature.—The word "FINIS." Used since 1896.

37,095. SASH-WEIGHTS. CALIFORNIA MANUFACTURING CO., San Francisco, Cal. Filed June 19, 1901.



Essential feature.—The numeral "7" located within a finished or smooth field. Used since April, 1901.

37,096. CERTAIN NAMED ANIMAL-TRAPS. ANIMAL TRAP CO., Abington, Ill. Filed Aug. 17, 1901.



Essential feature.—The representation of the head of a rodent surrounded by a circular line or lines forming the letter "O" in association with the words "OUT" and "SIGHT." Used since March 15, 1895.

37,097. SEWING-MACHINES AND ATTACHMENTS. WILLIAM ALLEN CHIPMAN, New York, N. Y. Filed Aug. 20, 1901.

ACME

Essential feature.—The word "ACME." Used since June 29, 1901.

37,098. SEWING-MACHINES AND SEWING-MACHINE ATTACHMENTS. WILLCOX & GIBBS SEWING MACHINE CO., New York, N. Y. Filed Nov. 27, 1890.

OVERLOCK

Essential feature.—The word "OVERLOCK." Used since January 1, 1886.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED SEPTEMBER 17, 1901.

8,674.—*Title:* "LETTERETTES." (For Note-Paper and Envelops.) PH HAKE, New York, N. Y. Filed June 12, 1901.

8,675.—*Title:* "SILK MOIRE." (For Note-Paper and Envelops.) PH. HAKE, New York, N. Y. Filed June 12, 1901.

8,676.—*Title:* "NONPAREIL WINDOW SHADE CLOTH." (For Window-Shade Cloth.) KATE FUESSEL, New York, N.Y. Filed August 26, 1901.

8,677.—*Title:* "GRANITE STEEL WARE." (For Granite-Ware.) THE GRAY LITHOGRAPH CO., New York, N. Y. Filed July 11, 1901.

8,678.—*Title:* "JOHN BRADY'S T. ELECTRIC SALVE." (For a Medicine.) J. T. BRADY, St. Louis, Mo. Filed August 17, 1901.

8,679.—*Title:* "SYRUP OF TAR AND COD LIVER OIL.")For a Medicine.) L. P. COLLET & E. N. GAGNIER, Marlboro, Mass. Filed August 12, 1901.

8,680.—*Title:* "OZONINE." (For Poisonous-Plant Antidote.) THE EMIL STARZ BIOCHEMIC LABORATORY CO., Helena, Mont. Filed August 21, 1901.

8,681.—*Title:* "ROSEWOOD DANDRUFF CURE." (For Dandruff Cure.) J. R. REEVES AND CO., Anderson, Ind. Filed August 21, 1901.

8,682.—*Title:* "PIN." (For Soap.) ENTERPRISE SOAP WORKS, Nashville, Tenn. Filed August 24, 1901.

8,683.—*Title:* "IMPERIAL PURITAS SOAP." (For Soap.) IMPERIAL CHEMICAL MFG. CO., New York, N. Y. Filed August 26, 1901.

8,684.—*Title:* "DIAMOND." (For a Polish.) J. LOVE ORR, Cleveland, Ohio. Filed May 2, 1901.

8,685.—*Title:* "PRISCILLA STARCH POLISH." (For a Polish.) PRISCILLA MFG. CO., Rockland, Mass. Filed March 14, 1901.

8,686.—*Title:* "CHO-LUNG." (For Tea.) ISAAC CORDISH and J. M. PRUZAM, Baltimore, Md. Filed August 9, 1901.

8,687.- *Title:* "COLORADO EXTRACTED ALFALFA." (For Honey.) C. H. W. WEBER, Cincinnati, Ohio. Filed August 12, 1901.

8,688.—*Title:* "WHITE CLOVER." (For Honey.) C. H. W. WEBER, Cincinnati, Ohio. Filed August 12, 1901.

8,689.—*Title:* "LOCKYER'S CLUB HOUSE POULTRY, GAME & MEAT SEASONING." (For Seasoning.) FRANK H. LOCKYER, San Francisco, Cal. Filed August 2, 1901.

8,690.—*Title:* "CHAMPION MUSTARD." (For Mustard.) THE E. C. FLACCUS COMPANY, Wheeling, W. Va. Filed August 21, 1901.

8,691.—*Title:* "BABY BRAND." (For Canned Goods.) THE STECHER LITHOGRAPHIC COMPANY, Rochester, N. Y. Filed August 17, 1901.

PRINTS

REGISTERED SEPTEMBER 17, 1901.

399.—*Title:* "IT'S AROUND BEHIND THE BARN." (For Wagons.) AMERICAN LITHOGRAPHIC CO., New York and Buffalo, N. Y. Filed August 27, 1901.

400.—*Title:* "THE ATHLETE." (For Men's Clothing.) SAKS & COMPANY, Washington, D. C. Filed August 13, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

DAVIS *v.* SWIFT.

Decided July 8, 1901.

1. MOTION TO DISSOLVE — PUBLIC USE NOT CONSIDERED — EX PARTE AFFIDAVITS.

The question of public use cannot properly be considered on a motion to dissolve, and in no event can mere *ex parte* affidavits warrant the rejection of a claim.

2. SAME—MOTION ALLEGING TWO GROUNDS, ONE OF WHICH IS IMPROPER—TRANSMISSION.

Where a motion to dissolve alleges public use and also anticipation by certain references, *Held* that the motion should be transmitted to the Primary Examiner to determine the question of anticipation.

APPEAL on motion.

PERFORATED MUSIC-SHEETS FOR MECHANICAL MUSICAL INSTRUMENTS.

Application of George H. Davis filed December 15, 1900, No. 40,028. Application of George Swift filed March 9, 1900, No. 8,052.

Mr. William H. Honiss and *Mr. W. A. Bartlett* for Davis.

Mr. E. H. Brown for Swift.

ALLEN, *Commissioner:*

This is an appeal by Davis from the refusal of the Examiner of Interferences to transmit to the Primary Examiner his motion to dissolve the above-entitled interference on the following grounds:

First. That the claim involved in this interference is not patentable.

Second. That the opposing party has no right to make the claim.

The motion was not made within the twenty days allowed by the rule; but in view of the showing made by Davis the delay seems to have been excusable. This was the view of the Examiner of Interferences, and he refused transmission only upon the ground that the motion raised a question which cannot properly be considered on a motion to dissolve—namely, public use.

The motion itself says nothing of public use; but it is evident from the affidavits and arguments presented that it is the principal question intended to be raised. The only basis for the allegation of public use consists of *ex parte* affidavits which have been filed, and it is well settled that such affidavits do not warrant the rejection of a claim. (*Ex parte von Hefner-Alteneck*, 23 O. G., 2223; *ex parte Van Ausdal*, 91 O. G., 1617.) These affidavits at most, therefore, can furnish nothing more than a basis for instituting public-use proceedings. The Examiner cannot properly consider the question of public use on a motion to dissolve.

This is not a motion to suspend the interference and institute public-use proceedings, and therefore the question whether the facts would justify such action is not here for consideration.

If it is assumed that the question of public use is the only one intended to be raised by the motion, the refusal of the Examiner of Interferences to transmit was correct; but it is found upon examination that the affidavits filed also allege anticipation of the invention by certain patents cited. This question of anticipation by prior patents is a proper one to be considered on a motion to dissolve, and therefore the motion should have been transmitted to the Examiner for a determination of that question.

The decision of the Examiner of Interferences refusing to transmit is reversed.

EX PARTE PECK.

Decided September 12, 1901.

DRAWINGS—MODIFICATIONS SHOULD BE SHOWN.

Modifications described in the specification should be shown in the drawings or the description canceled.

ON petition.

CENTRIFUGAL SEPARATORS.

Application filed November 26, 1897, No. 659,907.

Mr. Sylvanus H. Cobb for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring additional figures of drawing to be filed to show a modification described in the specification, but not now illustrated, and also to show more clearly the construction of a certain element, which element is included in the combination claimed.

The petitioner contends that if a modification is clearly described in the specification it is not necessary to illustrate the same in the drawing. It is quite clear that it is the opinion of the petitioner that the modified construction described, but not illustrated, is the equivalent of that which is described and also illustrated and that therefore the modified construction is covered by the claims. If this be so, the modified construction should be illustrated. The drawing forms a part of an ap-

plication for a patent. The law expressly provides that—

when the nature of the case admits of drawings, the applicant shall furnish one copy. * * * (Sec. 4889.)

It is therefore necessary that a drawing be filed in all cases that are capable of illustration, even though the description itself be so complete and definite that a person skilled in the art can understand the invention.

The modification referred to is either included by the terms of the claims or it is not. If it is covered by the claims, it should be illustrated; if not, the description should be canceled, as it does not form a part of the invention sought to be patented.

The Examiner has also required that one of the elements (the agitator) be clearly illustrated. This element the Examiner states is—

a very material factor in the operation of the device, being, in fact, an element in every claim in the application.

The agitator is now vaguely illustrated by means of dotted lines. It seems that it could not be made by any one skilled in the art from the description and showing now made. The requirement of the Examiner that the same be clearly illustrated is approved.

The petition is denied.

EX PARTE WARREN.

Decided September 12, 1901.

1. ABANDONED APPLICATION—REVIVAL—DELAY NOT UNAVOIDABLE.
   Where after the final rejection of the claims a party persists in presenting inadmissible amendments and makes no attempt to file an appeal, as the condition of the case requires, until eleven days before the year expires and through a mistake or clerical error then fails to file a proper appeal until after the time has expired, *Held* that the delay was not unavoidable and a revival is not warranted.
2. SAME—SAME—INTENTIONAL DELAY—ACCIDENTS.
   Where a party intentionally postpones proper action until the last of the time allowed, he assumes the risk from accidents, mistakes, and other circumstances which may then prevent action.
3. SAME—SAME—DELAY UNAVOIDABLE FOR ENTIRE PERIOD.
   To warrant the revival of an abandoned application, it must be shown that the delay was unavoidable for the entire period.

ON petition.

WASHING-MACHINE.

Application filed February 3, 1900, No. 3,847.

Messrs. C. A. Snow & Co. for the applicant.

ALLEN, *Commissioner:*

This is a petition to revive the above-entitled abandoned application.

The record shows that the claims in this case were finally rejected on July 28, 1900, after six actions by the Office upon the merits and after the applicant had been given ample opportunity to present whatever claims he desired. The case was then properly in condition for appeal, and the applicant was well aware that such was his remedy. Instead of seeking such remedy, however, he presented new claims for consideration by the Primary Examiner in an amendment of January 10, 1901. These claims were properly refused admission to the case in the absence of a showing of good and sufficient reasons why they were not earlier presented. Notwithstanding such refusal the applicant again presented an amendment embodying a new claim on May 2, 1901, and accompanied it by an appeal as to that claim to the Examiners-in-Chief. The Examiner refused to enter the amendment and declined to forward the appeal, because the claim referred to therein had not been acted upon by him. On July 17, 1901, the applicant filed a second appeal, which was substantially a duplicate of that of May 2, and it was refused transmission for the same reasons.

The year allowed by law for action expired on July 28, 1901, and on that date this case became abandoned through the failure of the applicant to take "such propor action as the condition of the case" required within the time. (Rule 171.)

The applicant thereafter presented a proper appeal as to the claims, which were finally rejected on July 28, 1900.

This history of the case has been recited simply to show that after prosecuting the application to a conclusion before the Examiner and with a full knowledge of what action was then required of him the applicant persisted in presenting amendments and endeavoring to take actions which were not warranted by the rules. By this irregular course of procedure he compelled the Examiner to consider these improper amendments and to write four letters in the case, which would have been unnecessary if the rules of the Office had been followed. When a party thus consumes the time of the Examiner which should be devoted to others prosecuting their cases in accordance with the rules, he has not placed himself equitably in a position to demand more time than that allowed by the law within which to act.

The claim that the delay in this case was unavoidable rests upon the statement of the attorneys that in the appeal of July 17, 1901, they intended to embody the finally-rejected claims; but through a clerical error the claim referred to in the appeal of May 2 was copied instead. There is no pretense that they endeavored to or intended to appeal the rejected claims until July 17, and that was only eleven days before the year expired. There is no question but that they could have filed an appeal before that time, if they so desired, instead of taking the other and useless actions.

It is very clear that the delay was not unavoidable for the entire period, as is required to warrant a revival of the application. (*Ex parte Murray*, 56 O. G., 1060; *ex parte Edison*, 56 O. G., 1061; *ex parte Clarke*, 61 O. G., 286; *ex parte McLaughlin and Thomson*, 67 MS. Dec., 196; *ex parte Haskell*, 67 MS. Dec., 274; *ex parte Greunwald*, 68 MS. Dec., 100.)

By intentionally postponing proper action until the last of the time allowed the attorneys assumed the risk from accidents, mistakes, or other circumstances which might then prevent action. The law encourages diligence in the prosecution of applications, and it is for this reason that a time limit is set for actions. Where a party does not exercise diligence within that time, he is not equitably entitled to an extension.

The petition is denied.

EX PARTE ACH.

Decided May 17, 1901.

1. MULTIPLICITY OF CLAIMS.
   Where a method claim includes the step of *heating* and another claim includes the step of *heating over a water-bath*, *Held* that the latter claim is more limited than the former and both may properly be allowed in the same application if the state of the art so warrants.
2. METHOD CLAIMS—FORM OF CLAIM.
   Held that it is better form in a method claim to state that a mixture is *heated at a moderate temperature* than to state that the same is *heated over a water-bath*.

ON petition.

OXYTARTRONIC ACID.

Application of Lorenz Ach filed December 23, 1899, No. 741,447.

Mr. Max Georgii for the applicant.

MOORE, *Assistant Commissioner:*

This is a petition that the Examiner in charge of the above-entitled application be advised that the action alleging the substantial identity of claims 4 and 5 and 2 and 3 be not insisted upon and that the requirement to cancel one of each pair of said claims be withdrawn.

The claims in question are:

2. The process of preparing oxyphenyltartronic acids which consists in introducing a condensation product of a phenol and alloxan into alkali solution and heating the whole.
3. The process of preparing oxyphenyltartronic acids which consists in introducing a condensation product of a phenol and alloxan into alkali solution and heating *and stirring* the whole *over a water-bath*.
4. The process of preparing oxyphenyltartronic acids which consists in introducing a condensation product of a phenol and alloxan into alkali solution and heating the whole until the ammonia has been driven off and then acidulating for the purpose of isolating the acid or a salt thereof.
5. The process of preparing oxyphenyltartronic acids which consists in introducing a condensation product of a phenol and alloxan into alkali solution and heating *and stirring* the whole *over a water-bath* until the ammonia has been driven off and then acidulating for the purpose of isolating the acid or a salt thereof.

Claim 3 differs from claim 2 and claim 5 from claim 4 in the words underlined only.

The Examiner in his answer states that—

the only difference in the pairs of claims is in stirring over a water-bath. The water-bath is a well-known means of heating to a moderate temperature. Any means of heating that can be regulated would do just as well. There is nothing whatever in the source of heat that modifies the chemical action, so long as the same temperature is maintained.

This statement emphasizes a feature which was not clearly brought out in the several actions in the case prior to the filing of the petition. In the Office letter of December 6, 1900, it was held that—

claim 3 differs from claim 2, and claim 5 differs from claim 4, only in the addition of the step of stirring. Stirring mixtures of substances in order to facilitate chemical reaction is a universal and well-known operation every chemist is taught to perform as a condition of the rapidity of chemical action. Such well-known conditions are part of the expected skill of the operator in the chemical art and do not constitute patentable distinctions between claims in any sense whatever.

If the only difference between the two pairs of claims were, in fact, the mere act of *stirring*, the action of the Examiner would, in my opinion, have been well taken. The difference between the two pairs of claims is, however, a more material one. To *heat over a water-bath*, or, in other words, to *heat at a moderate temperature*, is a limitation over the broad act of *heating*.

For this reason I am of the opinion that claims 2 and 3 and 4 and 5 are not substantial duplicates of each other, and all of them should therefore be allowed to remain in the same application, if the state of the art so warrants.

Claims 3 and 5 would, however, in my opinion, be in better form if the words *heating at a moderate temperature* or words to that effect, be substituted for the words "heating over a water-bath," and such an amendment should therefore be made.

This petition is granted to the extent above indicated.

DECISIONS OF THE U. S. COURTS.

Circuit Court of Appeals—Seventh Circuit.

WILLIAMS *et al. v.* MITCHELL *et al.* MITCHELL *et al. v.* WILLIAMS *et al.*

Decided January 2, 1901.

1. TRADE-MARK—DESCRIPTIVE WORD.
   Held that the word "Carrom" or "Carom" is not descriptive of a certain game-board or the games played thereon, for while a carom is possible during the playing of the game it is no part of the game. It is the case of the use of a descriptive word in a non-descriptive sense.
2. SAME—DESCRIPTIVE WORD AND GEOGRAPHICAL AND PERSONAL NAMES—FRAUDULENT USE OF WORDS WHICH ARE NOT TECHNICAL TRADE-MARK.
   While a descriptive word or a geographical or personal name cannot constitute a technical trade-mark, yet where an article has come to be known by the descriptive word one may not use that word to palm off his goods as the goods of another who has first adopted it and by which appellation the goods have become known. One may not use his own name for such purpose when it works a fraud. If he uses the descriptive word or a geographical name or his own name, it must be so used as not to deprive others of their rights or to deceive the public and the name must be accompanied with such indication that the thing manufactured is the work of the one making it as would unmistakably inform the public of the fact.
3. SAME—MARK NOT APPEARING ON THE ARTICLE.
   The fact that the word "Carrom" does not appear on the game-board of the defendants is held to be immaterial so long as the defendants advertise their boards as "carom-boards." (*Machine Manufacturers v. Wilson*, 3 App. Cas., 339.)
4. SAME—UNFAIR COMPETITION—DAMAGES FOR PAST OFFENSES.
   Where the defendants by their imitation of the complainants' advertisement have been guilty of deceiving purchasers and the public into believing that the game-boards of their make were the game-boards made by the complainants, *Held* that this constitutes an invasion of the complainants' rights and the complainants are entitled upon proper proof to compensation to the extent of the invasion.

APPEAL and cross-appeal from the Circuit Court of the United States for the Southern Division of the Northern District of Illinois.

STATEMENT OF THE CASE.

These appeals are from the decree in a suit for injunction against infringement of Trade-Mark No. 29,775 brought by J. A. Mitchell, C. E. Mitchell, and Henry L. Haskell, copartners under the name of Ludington Novelty Works, against Edgar L. Williams and Matilda J. Williams, husband and wife and copartners under the name of Archarena Company. The trade-mark, intended for application to "games or game-boards," as set forth in the statement, "consists of the arbitrarily-selected word 'Carroms.'" The court found and decreed as follows:

(1) That the word "Carroms," "Carrom," or "Carom," set forth as a trade-mark in certificate of registration of the United States No. 29,775, issued April 6, 1897, is descriptive, and that complainants are not entitled to exclusively monopolize the said word as a trade-mark for game-boards; (2) that defendants have imitated the complainants' advertisements published with reference to the game and game-board referred to in the certificate

of registration, and said defendants have been guilty thereby of deceiving purchasers and the public into believing the game-boards of defendants' make to be the game-boards made by the complainants; (3) that said defendants, their agents, employees, servants, and representatives be, and they are hereby, perpetually enjoined from using the word "Carroma," "Carrom," or "Carom," or any equivalent thereto, in advertisements, illustrations, and representations in relation to game-boards, without clearly and unmistakably stating in all said advertisements, illustrations, and representations that the game-boards are made by the defendants, as distinguished from the game-boards made by complainants, and the said defendants, their agents, officers, employees, servants, and representatives be, and they hereby are, particularly enjoined from publishing or causing to be published the cuts and advertisements comprising complainants' exhibit, "Page 624, McClurg's Catalogue," the cut or representation of a game-board shown in complainants' exhibit "Defendants' Circular Letter," and the cut or representation of a game-board shown at the top of the first page of the rules in complainants' exhibit "Defendants' Rules," and all and any similitudes or imitations of the said cuts and advertisements, all of record herein, without distinguishing the same as aforesaid, and that such writ of injunction issue herein; (4) that complainants have and recover of the defendants the costs of this suit to be taxed; (5) that motion of complainants for a reference, to determine the damages sustained by them by reason of past unfair competition, is denied.

This decree was entered on June 7, 1899, and on the ensuing 15th, in response to the petition of the appellants for a construction thereof, the court ordered as follows:

(1) That the final decree entered in this cause is not to be so construed as to enjoin defendants, their agents, employees, servants, or representatives, from using the word "Carroms," "Carrom," or "Carom," or any equivalent thereto, in the descriptive portion of advertisements in relation to game-boards, so long as said words are used in a purely and properly descriptive manner. (2) The defendants may rightfully use the "Exhibit Defendants' New Rules," without change, and that defendants may rightfully use "Defendants' Exhibit Defendants' New Illustration," and the descriptive matter accompanying said illustration, after the word "Carrom," occurring upon the third line of said descriptive matter, has been erased therefrom.

The assignment of errors in behalf of the principal appellants contains the following specifications:

(1) It was error to hold that defendants had been guilty of unfair trade competition by the use of advertisements and illustrations designated in said decree. (2) It was error to hold that defendants had been guilty of unfair trade competition by the use of any advertisements, descriptive matter, or illustrations by said defendants employed. (3) It was error to grant an injunction enjoining and restraining these defendants from publishing or causing to be published said advertisements, descriptive matter, and illustrations referred to in paragraph 2 of said decree. (4) It was error to deny to defendants the right to use the descriptive matter accompanying "Defendants' Exhibit Defendants' New Illustration" without first erasing from said descriptive matter the word "Carrom," occurring upon the third line thereof. (5) It was error to decree that complainants recover of defendants the costs, charges, and disbursements of this suit. (6) It was error not to dismiss the bill of complaint at complainants' cost.

Mr. George P. Fisher for appellant, Edgar L. Williams, and another.

Mr. John G. Elliot for appellee, J. A. Mitchell, and another.

Before WOODS, JENKINS, and SEAMAN, Judges.

PER CURIAM:

During the term at which a decree is rendered it is of course competent for a party to ask a modification; but a construction of the decree in respect to matters outside the issues it is irregular to ask or to grant. The party, however, who invokes such action may not question the result merely because of the irregularity of practice. In respect to the first and second specifications of error, which are directed to questions of fact only, it is enough to say that the evidence in the record, except as stated below, justifies the finding of the circuit court. The third specification is meaningless, because the second paragraph of the decree is a finding of fact only and enjoins nothing. The third paragraph, to which the reference was probably intended, seems to be the logical result of the preceding findings; but if any part of it was thought to be objectionable that part should have been made the subject of a separate and specific assignment. As originally entered, however, the third paragraph did not remain in force. It was modified by the later order, and if by asking the last action the appellants did not waive all objection to the original decree they certainly lost the right to object to it except as modified, and any assignment of error upon it should have included the modification. But one objection is urged to the modifying order, and to the two decrees considered as one that objection, therefore, seems to be the only one which the appellants are in a position to urge. It is not well taken and is without essential merit. The second clause of the second decree required that the word "Carrom" be erased from "the third line" of the descriptive matter of a new form of advertisement proposed by the appellants for the court's approval, called "Defendants' Exhibit Defendants' New Illustration;" but it is impossible to know upon the face of the decree or from the pleadings in reference to which the decree is to be read what was the significance or force of that order. The petition of the appellants for the modifying order purports to have attached to it as an exhibit a sample of the new advertisement; but no such exhibit appears in the record as attached to or in any way connected with the petition. Elsewhere in the transcript, but without reference from it to the petition or from the petition to it, appears a paper with the words "Defendants' Exhibit Defendants' New Illustration" printed upon its face below the other printed matter, but whether there as an item of evidence adduced or for some other reason or purpose can only be conjectured. In the body of that paper the word "Carrom" occurs on the second (not upon the third) line of the descriptive matter, not separately, however, but in the phrase printed in large black letters and under quotation-marks "Five-Pin Cuban Carrom Game." In that combination manifestly the word was used as a part of a name and not descriptively, and the order that it be erased, if the order had reference to it, was in harmony with the declaration of the court that the final decree was not to be construed to forbid the use of the word in its various forms "in the descriptive portion of advertisements, * * * so long as used in a purely and properly descriptive manner."

The cross-appellants insist that the court erred in holding the word "Carrom" to be a descriptive word which could not be made a trade-mark for a game-board. The word "Carrom" or "Carom" is without doubt descriptive of a certain game at billiards and is defined to be "the hitting of two or three balls in succession by the cue-ball from one stroke of the cue." The word is not, however, descriptive of the game-boards before us or the games played thereon, whether those of the complainants or of the defendants, for while a carrom is possible it is no part of the game, which consists in pocketing the disks, rings, or balls. The games are rather the pool or pocket game at billiards. The word "Carroms" is impressed upon each board of the com-

plainants' game as a trade-mark, but does not appear upon the board of the defendants. That, however, is immaterial so long as the defendants advertise their board as carom-boards. (*Machine Manufacturers* v. *Wilson*, 3 App. Cas., 389.) It is the case of the use of a descriptive word in a non-descriptive sense. While a descriptive word or a geographical or personal name cannot constitute a technical trade-mark, yet where, as here, an article has come to be known by the descriptive word one may not use that word to palm off his goods as the goods of another who has first adopted it and by which appellation the goods have come to be known. One may not use his own name for such purpose when it works a fraud. If he uses the descriptive word, or a geographical name, or his own name, it must be so used as not to deprive others of their rights or to deceive the public, and the name must be accompanied with such indications that the thing manufactured is the work of the one making it as would unmistakably inform the public of the fact. (*Singer Mfg. Co.* v. *June Mfg. Co.*, 75 O. G., 1703; 163 U. S., 169; 16 Sup. Ct., 1002; 41 L. Ed., 118; *Meyer* v. *Medicine Co.*, 66 O. G., 1755; 18 U. S. App., 372; 7 C. C. A., 558; 58 Fed. Rep., 884; *Pillsbury* v. *Mills Co.*, 85 O. G., 1397; 24 U. S. App., 395; 12 C. C. A., 432; 64 Fed. Rep., 841; *Raymond* v. *Powder Co.*, 77 O. G., 1124; 55 U. S. App., 575; 29 C. C. A., 245; 85 Fed. Rep., 231; *Mills Co.* v. *Eagle*, 58 U. S. App., 490; 30 C. C. A., 386; 86 Fed. Rep., 608; *Fuller* v. *Huff*, [C. C. A.,] 92 O. G., 1620; 104 Fed. Rep., 141; *Reddaway* v. *Banham*, [1896,] App. Cas., 199.) The decree finds that through imitation of the complainants' advertisements with respect to the game in question, the defendants deceive purchasers and the public into the belief that the game-boards offered by them were made by the complainants, and the injunction restrains the advertisements in strict accordance with the ruling in *Singer Mfg. Co.* v. *June Mfg. Co.*, *supra*. If the first clause of the decree here complained of were necessary or essential to that which follows, we should think the finding incorrect, because while the word "Carrom" may be descriptive of a game at billiards it is not descriptive of the game in question, and the complainants' board coming to be known by the designation of the "Carrom Board" or the "Carrom Game" the defendants may not rightfully apply that name to their game as a designation or name of the game, although they have a right, as the court below decreed, to use the word in descriptive portions of advertisements, so long as they use them in a purely and properly descriptive sense.

After the decree had been rendered the defendants adopted for use a new advertisement and illustration of their game-boards, designated in the record as "Defendants' Exhibit Defendants' New Illustration" and "Exhibit Defendants' New Rules" and by a petition with copies attached asked the court that they be permitted to use such new illustrations and advertisements. The court decreed thereon that the defendants might rightfully use the "Exhibit Defendants' New Rules" without change and that they might rightfully use "Defendants' Exhibit Defendants' New Illustration" with the descriptive matter accompanying it, erasing the word "Carrom," and this is challenged by the complainants. In this particular the decree is within our ruling in *Charles E. Hires Co.* v. *Consumers' Co.*, (41 C. C. A., 71; 100 Fed. Rep., 809,) where we said:

> A court of equity does not sit as an arbiter to determine in advance upon other and changed labels which the infringer may adopt to avoid the condemnation of the court,

and that—

> the court ought not to say how near the infringement may lawfully approximate the label of the complainant, but should cast the burden upon the guilty party of deciding for himself how near he may with safety drive to the edge of the precipice, and whether it be not better for him to keep as far from it as possible.

We do not now pass upon the question whether these new advertisements and rules use the word "Carrom" in a purely descriptive sense or whether the word is used as the name of the game. There may be some ground for holding the latter in the prominent and displayed print of the word "Carrom." It will be time enough for the court to determine the question when presented upon issues properly framed and the evidence taken thereunder.

The complainants also assert error in that the decree denied them compensation for past unfair competition. In this respect also we think the court was in error. The decree declares that the defendants by their imitation of the complainants' advertisements had been guilty of deceiving purchasers and the public into believing that the game-boards of their make were the game-boards made by the complainants. It declares an invasion of the complainants' rights, and the complainants are entitled upon proper proof to compensation to the extent of the invasion.

Upon the appeal of the defendants below the decree is affirmed. Upon the appeal of the complainants below the decree is reversed and the cause remanded with directions to the court below to enter a decree in conformity with this opinion.

Revision of Classification.

(ORDER No. 1,425.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 9, 1901.

The following changes in classification are hereby directed:

In Division XXII all the subclasses under Class 89, Ordnance, are abolished, and the following are substituted:

CLASS 89.—ORDNANCE.

8. Accelerating.	Breech-closure—
2. Automatic—	Swinging.
3. Gas-operated.	33. Cartridge-feeding—
14. Recoil-operated.	35. Belts.
16. Barrels—	34. Holders.
15. Composite.	27. Firing devices—
17. Wound.	28. Electric.
26. Breech-closures—	45. Loading—
18. Gas-checks.	46. Hoisting apparatus.
19. Key-locked.	47. Rammers.
20. Screw—	9. Machine-guns—
21. Interrupted—	11. Axially-moving breech-block.
22. Fixed-ammunition.	10. Centrifugal.
24. Transverse—	12. Revolving-barrel.
23. Sliding.	13. Revolving-cylinder.
25. Sliding and swinging.	

1. Miscellaneous.
37. Mounts—
38. Disappearing gun—
39. Counterpoise.
40. Field.
42. Recoil-checks—
43. Fluid,
44. Spring.
41. Training mechanisms.
6. Pneumatic—
7. Explosive-charge.
29. Practice-barrels.
4. Semi-automatic.
36. Shields.
32. Sights.
5. Submarine.
31. Tompions and valves.
30. Vents and stoppers.

CLASS 89.—ORDNANCE.

DEFINITIONS.

Class.

This class includes all guns and other cannon adapted to be mounted or supported otherwise than by hand, also the mounts, supports, or carriages, loading and hoisting mechanism, shields and sights.

Subclasses.

1. MISCELLANEOUS. Patents not classifiable in any of the other subclasses.

2. AUTOMATIC, GAS-OPERATED. Those guns which utilize the expansive force of the gases of explosion to automatically perform the entire cycle of operations comprising opening the breech, ejecting the shell, feeding in a new charge, and closing the breech. Usually by holding the safety-sear the charge is fired and the loading and firing continue until the sear is released or the ammunition no longer supplied.
(Note.—Search also class 42, FIRE-ARMS, subclass, Guns, gas-operated.)

3. AUTOMATIC, RECOIL-OPERATED. Those in which the recoil of the gun opens the breech, ejects the shell, inserts a new charge, and closes the breech. Usually a safety-sear is provided which, if held, permits the charge to be fired and the cycle of operations to be repeated so long as ammunition is supplied.
(Note.—Search also class 42, FIRE-ARMS, subclass, Guns, recoil-operated.)

4. SEMI-AUTOMATIC. Those guns which utilize the force of the explosion to open the breech and eject the cartridge-shell if present. A new charge inserted by hand or other separate means usually releases the breech-block, which then automatically closes. Some breech-blocks are, however, closed by hand.

5. SUBMARINE. Those adapted to be employed under water, usually for discharging torpedoes.

6. PNEUMATIC.—Those adapted to the use of compressed air or mixtures of air and other gases as the propelling agent.

7. PNEUMATIC, EXPLOSIVE-CHARGE. Those in which the compression of the propelling-gas is secured by exploding a separate charge or in which the mixture is itself exploded.

8. ACCELERATING. Those in which several charges are successively exploded to produce an accelerating effect upon the projectile.

9. MACHINE-GUNS. Those in which mechanical means are employed to load, fire, and reload the gun or in which a holder containing a series of charges is mechanically shifted or fed to bring the charges successively to firing position.

10. MACHINE-GUNS, CENTRIFUGAL. Those which have no explosive charge, but depend upon centrifugal force to throw the projectile.

11. MACHINE-GUNS, AXIALLY-MOVING BREECH-BLOCK. Those in which the movement of the breech-block in opening and closing the breech is in line with the axis or bore of the gun.

12. MACHINE-GUNS, REVOLVING-BARREL. Those in which the barrels revolve during the loading operations. The Gatling and Hotchkiss type are here included.

13. MACHINE-GUNS, REVOLVING-CYLINDER. Those in which, like the common revolver, the cylinder containing the charges revolves to bring a new load or set of loads to firing position.

14. BARRELS. Those in which the novelty resides in the structure of the barrel or body of the gun or the shape or arrangement of the bore or firing-chamber.

15. BARRELS, WOUND. Those in which the barrel is strengthened by windings of wire, metal ribbon, rawhide, etc.

16. BARRELS, COMPOSITE. Those which are built up or formed of more than one piece.

17. BREECH-CLOSURES. Those in which the novelty resides in the breech-block, its operating mechanism, or the means for securing the block to the breech.

18. BREECH-CLOSURES, KEY-LOCKED. Those in which a locking-key is used to hold the block in the breech. The key may be radially thrown out, inserted behind the block, or otherwise employed.

19. BREECH-CLOSURES, SCREW. Those in which the breech-block is screwed into the breech.

20. BREECH-CLOSURES, SCREW, INTERRUPTED. Those in which the block is held in the breech by divided or interrupted screw-threads.

21. BREECH-CLOSURES, SCREW, INTERRUPTED, FIXED AMMUNITION. Those closures of the divided-screw-thread type adapted to fire charges inclosed in a rigid case.

22. BREECH-CLOSURES, TRANSVERSE. Those in which the block in opening or closing the breech moves transversely to the axis of the bore.

23. BREECH-CLOSURES, TRANSVERSE, SLIDING AND SWINGING. Those in which the breech-block has both a transverse sliding and then a swinging movement.

24. BREECH-CLOSURES, TRANSVERSE, SLIDING. Those in which the breech-block slides laterally to open the breech.

25. BREECH-CLOSURES, TRANSVERSE, SWINGING. Those in which a block is pivoted and has no movement except to swing transversely to the axis of the bore to open or close the breech.

26. BREECH-CLOSURES, GAS-CHECKS. Those in which the novelty resides in the means for checking the gases from escaping at the breech in those guns which fire loose charges.

27. FIRING DEVICES. Those in which the novelty lies in the lock or charge-exploding mechanism.
(Note.—Search also in this class the subclasses of 2, Automatic, gas-operated, and 3, Automatic, recoil-operated; all those under 9, Machine-guns; also, those under 20, Breech-Closures, screw, interrupted; 21, Breech-Closures, screw, interrupted, fixed-ammunition, and 24, Breech-Closures, transverse, sliding.

28 FIRING DEVICES, ELECTRIC. Apparatus for firing charges by electricity.

29. PRACTICE-BARRELS. Small barrels adapted to be inserted in the bore of larger guns in order to permit firing a small load for practice or any other purpose.

30. VENTS AND STOPPERS. Those in which the novelty resides in the vent or touch-hole or its stopper.

31. TOMPIONS AND VALVES. Those in which the novelty resides in the tompion or valve for closing the gun-muzzle or other opening in the barrel.

32. SIGHTS. Those in which the novelty resides in the mounting or arrangement of the sight or the traverse-indicators.
(Note.—Search also in class 42, FIRE-ARMS, subclass, Sights.)

3. CARTRIDGE-FEEDING. Those devices adapted to feed the cartridges to the gun.

CARTRIDGE-FEEDING, HOLDERS. Magazines, feed-cases, packages, etc., in which cartridges are regularly placed to be fed therefrom to the feeding-chute or other mechanism which directly supplies the gun.

CARTRIDGE-FEEDING, BELTS. Those in which the novelty resides in the feed-belt to which the cartridges are attached.
(Note.—Search also in class 180, ACCOUTREMENTS, subclass, Cartridge-Belts.)

SHIELDS. Gun-shields, body-attached shields, bullet-proof cloth, etc.

37. MOUNTS. Gun-supporting devices not classifiable in any of the other subclasses of this group.

38. MOUNTS, DISAPPEARING GUN. Those in which the gun is made to disappear after firing to be reloaded.

39. MOUNTS, DISAPPEARING GUN, COUNTERPOISE. Those which are balanced by a weight or weights.

40. MOUNTS, FIELD. Wheeled mounts, tripods, etc., adapted to be readily moved, as in field-service.

41. MOUNTS, TRAINING MECHANISM. Those in which the novelty resides in the means for positively moving the gun in pointing it.

42. MOUNTS, RECOIL-CHECKS. Those in which the novelty resides in the devices for taking up the force of the recoil.
(Note.—Search also in this class, subclasses 3, Automatic, recoil-operated, and 4, Semi-automatic.)

43. MOUNTS, RECOIL-CHECKS, FLUID. The recoil is checked by compression of air, water, or other liquid or gaseous material.

44. MOUNTS, RECOIL-CHECKS, SPRING. The recoil is taken up by the compression of a spring or springs.

45. LOADING. Those in which the novelty lies in the means or devices for getting the load into firing position in the gun and not included in the specific subclasses of this group.

46. LOADING, HOISTING APPARATUS. Apparatus for raising the load to the muzzle or breech of the gun.

47. LOADING, RAMMERS. Devices for ramming or pushing the load into the gun.

F. I. ALLEN,
Commissioner.

Patents Nos. 683,013 to 683,423.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 96.—No. 13. TUESDAY, SEPTEMBER 24, 1901. Price—$5 per year.

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Total issue	458	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1		Nevada		
Alaska Territory			New Hampshire	2	
Arizona Territory			New Jersey	14	
Arkansas	2		New Mexico Territ'y		
California	16		New York	55	6
Colorado	5		North Carolina		
Connecticut	7	1	North Dakota		
Delaware			Ohio	21	1
District of Columbia	2		Oklahoma Territ'y	3	
Florida			Oregon	3	
Georgia	3	2	Pennsylvania	39	2
Idaho	1		Philippine Islands	1	
Illinois	34	3	Rhode Island	4	
Indian Territory			South Carolina	1	1
Indiana	11		South Dakota	1	
Iowa	2	1	Tennessee	3	1
Kansas	5		Texas	3	
Kentucky	2		Utah		1
Louisiana	3		Vermont	2	
Maine	1		Virginia	7	
Maryland	7		Washington	4	
Massachusetts	33	1	West Virginia	1	1
Michigan	8		Wisconsin	9	2
Minnesota	2		U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	18	3	Total to citizens of the United States	341	29
Montana					
Nebraska	3	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Jamaica		
Australia			Japan		
Austria-Hungary	8		Mexico		1
Barbadoes			Netherlands		
Belgium	2		New South Wales		
Brazil			New Zealand	1	
British Guiana			Norway	1	
Canada	4		Queensland		
Cape Colony			Russia		
China			Scotland		
Colombia			South African Republic		
Cuba			South Australia		
Denmark			Spain		
Egypt			Sweden		
England	21	6	Switzerland	4	
Finland			Turkey in Asia		
France	4		Victoria	1	
Germany	27		Western Australia		
India			Total to citizens of foreign countries	75	7
Ireland	2				
Italy					
Haiti					

Changes in Classification.

(ORDER No. 1,427.)

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE,
Washington, D. C., September 16, 1901.

The following changes in classification are hereby directed:

In Division XXXIV, class 104, Railways, subclasses are established as follows:

Elevated—
179. Suspended ways—
180. Switches.

In the same Division, class 186, Store-Service, a subclass is established, to be entitled—

15. Curved ways.

In Division IV, class 214, Loading and Unloading, the subclass

Elevated carriers—
21. Ways,

is abolished, the patents having been transferred to Division XXXIV, to form parts of the above-named new subclasses.

F. I. ALLEN,
Commissioner.

(ORDER No. 1,428.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 20, 1901.

The following change in classification is hereby directed:

In Division XXIV, class 2, Apparel, subclasses 55, Belts, and 125 Garters, are abolished, for the reason that the patents composing them are now embodied in class 24, Buckles, Buttons, Clasps, &c., subclass 66, Garment-supporters, in Division XXXV.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business September 17, 1901.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc.	Sept. 3	Sept. 5	164
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Aug. 30	Aug. 20	57
	Between one and two months.			
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Aug. 15	Aug. 15	274
246	I. Tillage and Fences	Aug. 14	Sept. 5	222
253	X. Carriages and Wagons	Aug. 13	Aug. 27	127
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 12	Aug. 23	149
238	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 12	Aug. 22	204
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 12	Aug. 14	377
281	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Aug. 9	Aug. 19	253
128	XXIV. Sewing-Machines, Apparel, and Toilet.	Aug. 5	Aug. 16	187
256	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Aug. 3	Aug. 30	198
221	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Aug. 3	Aug. 27	152
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Aug. 3	Aug. 14	188
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Aug. 3	Aug. 9	295
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Aug. 1	Aug. 26	113
240	VII. Velocipedes, Games, and Toys.	Aug. 1	July 26	235
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	July 30	Aug. 29	171
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 30	Aug. 14	218
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	July 29	Aug. 9	266
98	XXI. Textiles, etc	July 27	July 24	214
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	July 26	Aug. 28	166
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	July 25	Aug. 5	289
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 23	Aug. 2	177
196	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	July 20	Aug. 9	321
248	XVIII. Steam-Engineering, etc	July 20	July 19	362
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	July 18	July 27	212
	Between two and three months.			
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	July 3	July 12	434
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	July 2	Aug. 1	264
255	XII. Mechanical Engineering, Story-Service, etc.	July 2	July 30	398
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 2	July 12	353
215	XVII. Printing, Type-Writing Machines, and Linotyping.	July 1	Aug. 14	271
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 29	Aug. 13	214
102	XIX. Stoves and Furnaces	June 28	July 30	552
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	June 27	July 27	271
138	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	June 26	Aug. 13	204
	Between three and four months.			
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	June 12	Aug. 12	302

Total number of applications awaiting action.....8,704

Applications Under Examination—Continued.

Under one month.			
*Designs	Sept. 3	Sept. 12	50
†Trade-Marks	Sept. 3	Sept. 13	45
‡Labels and Prints		Sept. 13	2

Amendment to English Patent Law.

CHAPTER 18.

An Act to amend the Law with reference to International Arrangements for Patents, 17th August 1901.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1.—(1.) In the first proviso to subsection one of section one hundred and three of the Patents, Designs, and Trade Marks Act, 1883 (which section relates to the time for making applications for protection under international arrangements), the words "twelve months" shall be substituted for the words "seven months."

(2.) An application under that section shall be accompanied by a complete specification, which, if it be not accepted within the period of twelve months, shall, with the drawings (if any), be open to public inspection at the expiration of that period.

2.—(1.) This Act may be cited as the Patents Act, 1901, and may be cited and shall be construed as one with the Patents, Designs, and Trade Marks Acts, 1883 to 1888.

(2.) This Act shall come into operation on the first day of January one thousand nine hundred and two.

Regulations in Relation to Mail-Matter.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of the city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

Access to Pending Applications.

Hereafter no person except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

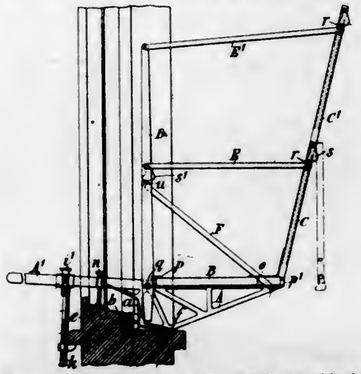
Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

PATENTS

GRANTED SEPTEMBER 24, 1901.

683,013. SEAT OR STAGE FOR WINDOW-CLEANERS OR THE LIKE. THOMAS ALLDER, Jr., and THOMAS H. STREATER, London, England. Filed June 29, 1901. Serial No. 66,506. (No model.)



Claim.—1. A device for the purpose set forth, comprising brackets adapted to be detachably secured to a window-sill, a seat carried by the brackets, a back hinged thereto, uprights hinged or pivoted to the brackets, means for preventing the collapse of the uprights when extended and arms or side guards detachably connecting said uprights with the back so as to support the latter, substantially as described.

2. In a device for the purpose set forth, the combination of a pair of brackets or supports adapted to be detachably secured to a window-sill, a seat supported by said brackets, a back hinged to the seat and divided and hinged horizontally so that the upper portion may be folded down, uprights attached to the brackets, and arms or side guards detachably connecting said uprights with the upper and lower portions respectively of the back so as to support the same, substantially as described and illustrated.

3. In a device for the purpose set forth, the combination with brackets adapted to be detachably secured to a window-sill, of a seat supported on said brackets a back hinged thereto and divided and hinged horizontally, uprights hinged or pivoted to the brackets and detachably connected by swing-arms or side guards with the two portions of the back, and tie-bars detachably connecting the uprights when extended with the brackets, substantially as described.

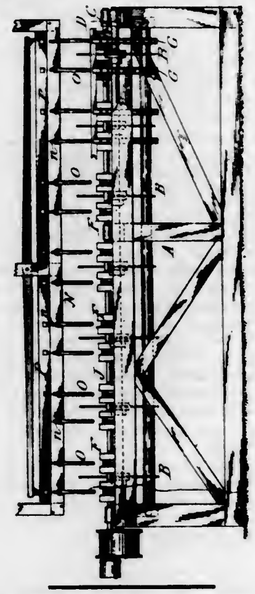
683,014. METHOD OF MAKING FERTILIZERS. WILSON B. ARNSTADT and KILBURN H. CLEAVER, Reading, Pa. Filed May 15, 1901. Serial No. 60,375. (No specimens.)

Claim.—The process of making fertilizer from refuse vegetable and animal matter by first treating said matter in a raw state with highly-heated sulfuric acid, in a quantity more than sufficient to reduce said matter to a pulpy condition, then adding ground phosphate rock which is acidulated by the surplus sulfuric acid, then adding a suitable dry substance to absorb the remaining moisture, and finally screening and grinding said substance, substantially as described.

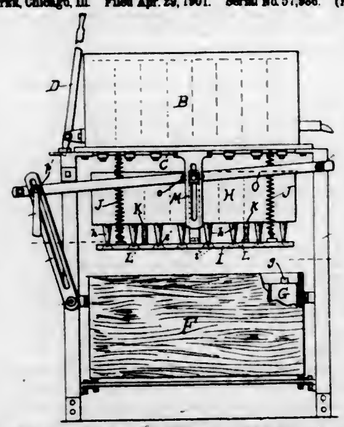
683,015. CROSSCUT GANG-SAW. WILLARD F. BARNES, Klamathon, Cal. Filed Feb. 1, 1901. Serial No. 45,612. (No model.)

Claim.—1. In a sawing-machine, the combination with the lumber-support, gang of saws and chain-carriers, of bars having one of their ends adjustable above the lumber-support, a loose beam to which all their other ends are connected, and which maintains said bars in contact with the lumber.

2. In a sawing-machine, the combination with a support for lumber, means for moving lumber along it, and a gang of saws, of pressure-bars adapted to rest upon the lumber, a loose beam to which all of said bars are connected, and which maintains their pressure, and an equalizing-spring for said beam.



683,016. FILLING-MACHINE. JAMES BAXTER and DAVID BAXTER, Chicago, Ill. Filed Apr. 29, 1901. Serial No. 57,986. (No model.)



Claim.—1. In a filling-machine, the combination with a supporting-frame and a measuring-tank superposed thereon, the latter comprising a series of measuring-cells having discharge-openings in their bottom walls, of a frame carrying a series of funnels corresponding in number and rela-

tive arrangement to the measuring-cells disposed directly beneath the latter, and an operating-lever pivoted at one end on the supporting-frame and at an intermediate point to the funnel-carrying frame, whereby said funnels may be moved vertically into and out of registration with a series of receptacles to be filled disposed therebeneath, substantially as described.

2. In a filling-machine, the combination with a supporting-frame and a measuring-tank superposed thereon, the latter comprising a series of measuring-cells having discharge-openings in their bottom walls, of a frame carrying a series of funnels corresponding in number and relative arrangement to the measuring-cells disposed directly beneath the latter, automatically-operating means for raising and supporting said frame normally in an elevated position beneath the measuring-tank, and other positively-actuated means for depressing the same to carry the funnels into registration with a series of receptacles to be filled disposed therebeneath, substantially as described.

3. In a filling-machine, the combination with a supporting-frame and a multiple-cell measuring-tank superposed thereon, the latter having discharge-apertures in its base, of a mechanism for filling small-necked receptacles therefrom, the same comprising a vertically-adjustable frame having a series of funnels supported thereon, the base of said frame having a series of apertures which are entered by the discharge-nozzles of the funnels, automatically-operating means for supporting said frame normally in an elevated position beneath the measuring-tank, and other positively-operated means for depressing the same and effecting a registration of the discharge-nozzles of the funnels with the receiving-nozzles of the receptacles, substantially as described.

4. In a filling-machine, the combination with a supporting-frame and a multiple-cell measuring-tank superposed thereon, the cells of the latter discharging through their bases, of means for conducting the discharge therefrom into a series of small-necked receptacles disposed therebeneath, the same comprising a frame having formed through its base a series of apertures corresponding in number and relative location to the receiving-nozzles of the receptacles thereunder, a corresponding series of funnels carried by said frame and having their discharge-nozzles entering said apertures, springs normally maintaining said frame and its contained funnels in an elevated position beneath the measuring-tank, lever mechanism for depressing said frame and funnels into registration with the receiving-nozzles of the receptacles, and means for temporarily locking said frame and funnels in such depressed position during the filling operation, substantially as described.

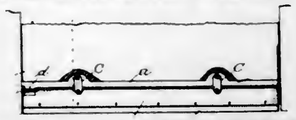
5. In a machine of the character described, the combination with the supporting-frame and the multiple-cell measuring-tank superposed thereon, of an apertured frame carrying a series of funnels disposed beneath the latter, a series of springs supporting said frame and funnels normally in an elevated position, a pair of hangers disposed centrally of said frame on opposite sides thereof, a pair of vertically-slotted guides depending from the opposite sides of the machine-frame and centrally thereof, a pair of slotted levers pivoted at one end of said machine-frame and having their opposite ends connected by a transverse handle-bar, the upper ends of said hangers passing through the slots in said guides and levers, whereby the funnel-frame may be depressed vertically into registration with the receiving-nozzles of the receptacles therebeneath and may automatically adjust itself to a close registration therewith, substantially as described.

6. In a machine of the character described, the combination with a supporting-frame and a multiple-cell measuring-tank superposed thereon and discharging through its base, of means for guiding the discharging fluid from the latter into a series of small-necked receptacles disposed therebeneath, the same comprising a vertically-adjustable frame having a series of chamfered apertures formed through its base and a corresponding series of funnels removably supported on said frame and having their discharging-nozzles entering the said apertures, elastic means whereby said frame and its contained funnels are sustained at their opposite ends from the supporting-frame of the machine, and means for depressing said funnel-carrying frame at points centrally and on opposite sides thereof, whereby, when the funnel-carrying frame is depressed into registration with the receptacles to be filled, said frame automatically adjusts itself to perfect registration and automatically effects a true centering of the discharge-nozzles of the funnel with the receiving-nozzles of the receptacles, substantially as described.

7. An attachment for multiple-cell filling-machines whereby the latter may be rendered capable of filling receptacles having contracted necks, the same comprising in combination a rigid frame the base of which has formed directly therein a series of chamfered apertures adapted to overlie and automatically center the contracted necks of the receptacles relatively to the apertures, a series of funnels removably carried by said frame and having discharge-nozzles which enter said apertures centrally thereof but do not pass through the same, and means for reciprocating said frame into and out of registry with the necks of the receptacles, substantially as described.

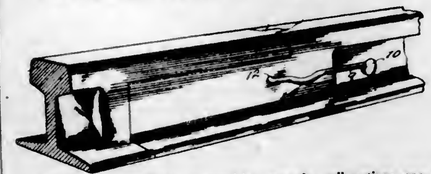
8. An attachment for multiple-cell filling-machines whereby the latter may be rendered capable of filling receptacles having contracted necks, the same comprising in combination a rigid vertically-reciprocable frame the base of which has a series of chamfered apertures formed therein, a series of funnels carried by said frame and having their discharge-nozzles entering but not passing through said apertures, and means for supporting said funnels on said frame to permit automatic vertical adjustment of the funnels relatively to the frame and their ready removal from the latter, the same comprising vertically-telescoping parts carried by said funnels and frame respectively, substantially as described.

688,017. WEATHER-STRIP. ANDREW E. BROWN, Leadville, Colo. Filed Mar. 19, 1901. Serial No. 51,832. (No model.)



Claim.—The combination with a bottom-grooved door provided with a casing or folded plate in the groove, of a weather-strip swinging pivotally by links from said casing, an adjusting-screw fastened to one end of casing and a flat spring arranged at the other end whereby the weather-strip may be moved up and down in its casing, adjusted therein and retracted as shown and described.

683,018. RAIL-JOINT. THOMAS E. BROWN, Star Prairie, Wis. Filed June 13, 1901. Serial No. 64,447. (No model.)



Claim.—1. A rail-joint, comprising opposite rail-sections, one of which has its base-flange removed at one end, and provided with a pendent projection upon the web thereof, and the other section has its tread removed to accommodate the former section, and is provided with a longitudinal open-ended socket in the web portion which has the tread removed and for the reception of the web of the former section, there being an opening in the bottom of the socket for the reception of the projection.

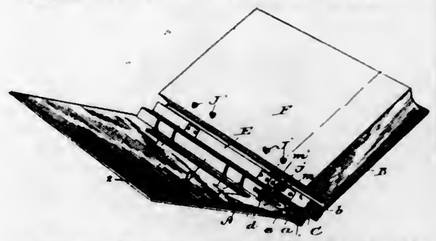
2. A rail-joint, comprising opposite rail-sections, of which one has its terminal tread portion cut away and is provided with an open-ended socket in the remaining web portion, there being an opening formed through the bottom of the socket and at the inner end thereof, the other section having its base removed to correspond with the removed portion of the tread of the former section, the lower edge of the exposed web portion being reduced outwardly from its inner end, with a terminal pendent projection to fit within the opening in the former section.

3. A rail-joint, comprising opposite rail-sections, of which one is bifurcated, and the other is fitted in the bifurcation, there being a spring-fastening carried by one section, and having a lateral projection sprung into corresponding openings in the overlapped portions of the rail-sections.

4. A rail-joint, comprising opposite overlapped rail-sections, and a spring-fastening carried by one section, and having a lateral projection sprung into corresponding openings in the overlapped portions of the rail-sections.

5. A rail-joint, comprising opposite rail-sections, one of which has a terminal portion of its tread removed, and provided in the same terminal portion of its web with a longitudinal socket which opens through the end of the rail and the upper edge of the web thereof, there being an opening formed through the bottom of the socket at the inner end thereof, the other section having its terminal base flange portion removed to correspond with the removed tread portion of the former section, and its web portion formed to snugly fit the socket, there being an outer terminal projection to fit the opening in the bottom of the socket, the overlapped web portions of the two rail-sections having corresponding openings, the opening of the reduced web portion being a longitudinal slot, and a spring-fastening having one end secured to the web of the former rail-section, and its free end provided with a lateral projection to be sprung into the corresponding openings of the web portions, the intermediate portion of the fastening having means to facilitate the removal thereof from the openings of the rail-sections.

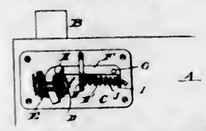
683,019. TEMPORARY BINDER. ROBERT J. BUCHANAN, Pittsburg, Pa. Filed Jan. 8, 1901. Serial No. 42,484. (No model.)



Claim.—1. The combination of the strips, D and E, the slotted plate secured to one of the strips, the sliding bolt arranged in a recess in the other strip and having a slotted portion through which guide-screws extend, a guide-spindle, a spring for moving the bolt in one direction, a handle for moving it in the opposite direction, and a tooth entering the slotted plate, substantially as described,

2. The combination of the stiff cover members, A, B, the strips, D and E, the flexible back, C, to which the strips are attached, the hinged portions, *a*, *b*, between the parts, A, B, and the back C, hollow curved impaling-pins on one of the strips, solid curved impaling-pins on the other strip fitting into the hollow pins, the slotted plate secured to one of the strips, the sliding plate arranged in a recess in the other strip, and having a slotted portion through which guide-screws extend, a guide spindle, a spring for moving the plate in one direction, a handle for moving it in the opposite direction, and a tooth entering the slotted plate, substantially as described.

683,020. CATCH FOR END-GATES. JOSEPH E. CAMP, Washington, Ill. Filed July 5, 1901. Serial No. 67,226. (No model.)



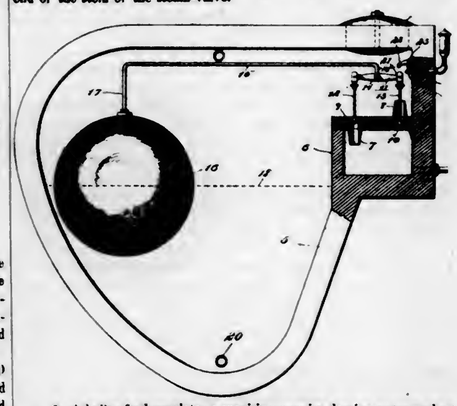
Claim.—1. In a locking device of the character described, a supporting-plate secured to the device to be locked in place, a latch pivoted at one end to the plate, an eye secured to the body with which the device is to be attached, a lug at the pivotal end of the latch, the same having an aperture therethrough, a T-shaped arm pivoted to the plate, one limb thereof extending through the said lug, the other extremity extending over the latch and limiting the movement thereof and forming a guide therefor, and a spring located upon the extremity of said arm which passes through the lug of the latch, said spring arranged to keep pressure against the lug to normally depress the latch as described.

2. The combination of the end-gate A, the plate C secured thereto, a slot D through the gate and plate, the wagon-box side B, the eye E therein passing through the said slot, the latch F having one end bent substantially at right angles thereto, the lug I at its opposite end, said latch being pivoted to the plate near the end having the lug, the bent end of the latch adapted to engage the eye E while moving on its pivot, the T-arm pivoted to the plate, its top arm arranged to inclose the latch and limit the movement thereof, the free arm H′ of the T-arm being curved, and a spring surrounding the said arm H and bearing between the top bar and the lug I of the latch all substantially as and for the purposes described.

3. In a locking device for end-gates, the plate C secured to the said end-gate, the latch F pivoted thereto, the lug I on the latch, the T portion pivoted on the plate C, the spring J surrounding the arm H′ of the T portion in combination with the eye E with which said latch F engages as set forth.

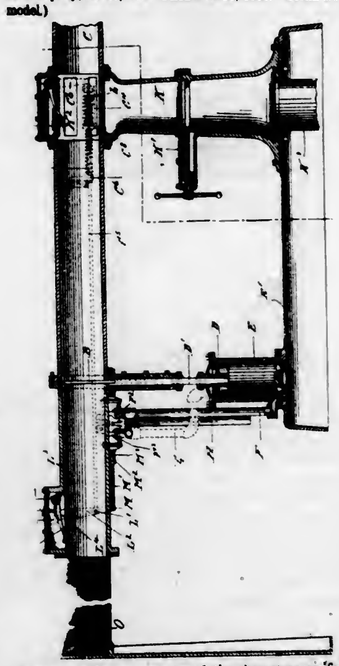
683,021. BOILER FEED-REGULATOR. OMAR E. CLARK and ELLSWORTH E. CLARK, Vicksburg, Mich. Filed Dec. 2, 1899. Serial No. 739,019. (No model.)

Claim.—1. A boiler feed-regulator comprising a casing, a steam-outlet pipe connected to the casing, an inwardly-projecting valve-seat, a steam-valve having a valve-stem and seating against the valve-seat, a horizontal shaft, a horizontally-arranged float-rod provided with a float, a crank-arm on the shaft connected with the valve-stem, a crank-arm on the shaft connected with the float-rod, an indicator secured to the casing, a valve having a valve-stem and controlling the indicator, and a bell-crank lever having one arm connected with the valve-stem of the indicator-valve and the other arm adapted to be engaged by the projecting end of the stem of the steam-valve.



2. A boiler feed-regulator comprising a casing having a steam-chest provided at top with oppositely-disposed valve-seats, a steam-outlet pipe connected to the valve-chest, steam-valves having valve-stems and seating against the valve-seats, a horizontal shaft, a lever mounted on the shaft and carrying the valves, a horizontally-arranged float-rod provided with a float, a crank-arm on the shaft connected with the float-rod, an indicator secured to the casing, a valve having a valve-stem and controlling the indicator and a bell-crank lever having one arm connected with the valve-stem of the indicator-valve and the other arm adapted to be engaged by the projecting end of one of the stems of the steam-valves.

683,022. PNEUMATIC-DESPATCH-TUBE APPARATUS. JAMES T. COWLEY, Lowell, Mass., assignor to the American Pneumatic Service Company, Dover, Del. Filed Feb. 26, 1900. Serial No. 6,465. (No model.)



Claim.—1. In an apparatus of the character specified, a transmission-tube, a gate closing said tube, a cylinder, a piston in said cylinder and connected to said gate, an air-supply, a communication between said cylinder and said air-supply, a valve controlling said air-supply, and mechanism operated by the traveling carrier for opening and holding said valve

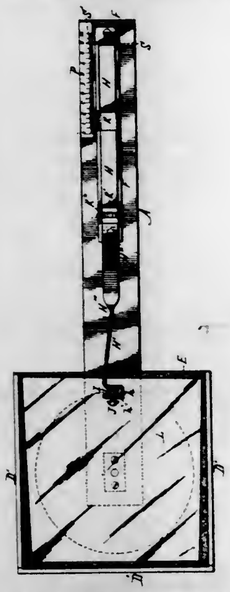
to open the gate, and mechanism moved by the carrier into its path of travel and operated thereby for closing the gate.

2. In an apparatus of the character specified, a transmission-tube, a gate for closing said tube, an air-supply for operating said gate, mechanism operated by the traveling carrier for opening and holding said valve to open the gate, and mechanism moved by the traveling carrier into its path of travel and operated thereby for closing the gate.

3. In an apparatus of the character specified, a transmission-tube, a gate for closing said tube, a cylinder, a piston in said cylinder and connected to said gate, an air-supply, a communication between said cylinder and said air-supply, a valve controlling said communication, mechanism operated by the traveling carrier for operating and holding said valve to open said gate, mechanism moved by the traveling carrier into its path of travel and operated thereby to release said valve, and means for moving said valve in the opposite direction to close the gate.

4. In an apparatus of the character specified, a transmission-tube, a gate closing said tube, a cylinder, a piston in said cylinder and connected to said gate, an air-supply, a communication between said cylinder and said air-supply, a valve controlling said communication, mechanism operated by the traveling carrier for operating said valve to open the gate, a yielding connection between said valve and operating mechanism, and mechanism moved by the traveling carrier into its path of travel and operated thereby for moving said valve to close the gate.

683,023. GLASS-CUTTING APPARATUS. TIMOTHY J. DONOVAN, Milton, Mass. Filed Apr. 12, 1901. Serial No. 55,488. (No model.)



Claim.—1. In a glass-cutting apparatus of the character described, a base; the glass-plate holder D pivotally mounted on said base; the spring tool-holder comprising the flat portion H, and the raised portions H′, H″, the portion H′ being formed into the holder A for the glass-cutting tool; and means for securing the portion H to the base and allowing it to slide thereon toward and from the glass-plate holder, substantially as set forth.

2. In a glass-cutting apparatus of the character described, a base; the glass-plate holder D pivotally mounted on said base and provided with the soft frictional surface E; the spring tool-holder comprising the flat portion H, spring-raised portions H′, H″ and holder A; the guides K, K′; the pointer S′ extending horizontally from the spring tool-holder; and a scale F on said base, substantially as described.

683,024. MEANS FOR PACKING LEAKS IN PIPES. JOSEPH DUNN, Chicago, Ill. Filed Feb. 23, 1901. Serial No. 48,633. (No model.)

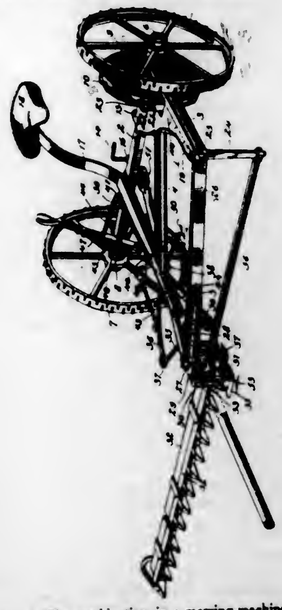
Claim.—1. In a device of the class described, the combination with a packing-ring, of a compressing-ring engaging over the same, said compressing-ring comprising a plurality of sections each of which is longitudinally movable with respect to the other and a clamp adapted to be rigidly secured on the pipe to which the packing is to be applied and acting to force the compressing-ring onto the packing-ring.



2. In a device of the class described, the combination with an annular packing-ring, of a two-part clamp, radial set-screws thereon adapted to positively engage a pipe, a plurality of set-screws parallel to the axis of the clamp the inner ends of which extend within an annular rabbet, compressing-rings comprising a plurality of sections each movable longitudinally of the other and rabbeted at one end of the same to engage the packing-ring the other end of the same being adapted to engage in the rabbet of the clamp in position to be engaged by said set-screws.

3. In a slip-joint for pipes, a clamp adapted to be rigidly secured on the pipe, an annular compressible packing-ring adapted to be secured on the pipe at a leak, a compressing-ring composed of sections each longitudinally movable with respect to the others and having an end recess to engage the packing-ring and a plurality of set-screws carried on said clamp and acting to force the compressing-ring onto the packing.

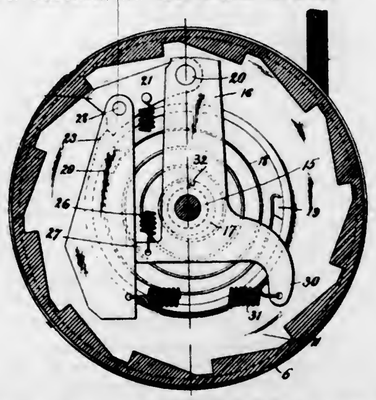
683,025. MOWING-MACHINE. EMILE P. DURAND, Sherman, Ill. Filed Sept. 22, 1900. Serial No. 30,780. (No model.)



Claim.—1. The combination, in a mowing-machine, of a frame, a transversely-disposed arm having one end pivoted thereto, a brace-rod pivotally connected to said frame and to said arm, a sleeve adapted to turn on said arm, means to turn said sleeve on said arm, and secure the same at any required adjustment, a shoe pivotally attached to said sleeve, the pivotal axis of said shoe being at right angles to that of said sleeve, whereby said shoe may be turned on said arm by turning said sleeve to raise or lower the front end of said shoe, the latter having an upwardly-projecting arm, an endwise-movable rod, connected to said arm and disposed parallel with said transversely-disposed pivoted arm, means to support and guide said rod, and a lever and means connecting the same to said rod, substantially as described.

2. The combination in a mowing-machine, of a frame, a transversely-disposed arm having one end pivoted thereto, a brace-rod pivotally connected to said frame and to said arm, a sleeve adapted to turn on said arm, means to turn said sleeve on said arm and secure the same at any required adjustment, a shoe pivotally attached to said sleeve, the pivotal axis of said shoe being at right angles to that of said sleeve, whereby said shoe may be turned on said arm by turning said sleeve to raise or lower the front end of said shoe, a finger-bar having one end rigidly attached to and carried by said shoe, the latter also having an upwardly-projecting arm, an endwise-movable rod, connected to said arm and disposed parallel with said transversely-disposed pivoted arm, means to support and guide said rod, a lever and means connecting the same to said rod, a cutter-bar on said finger-bar, a pitman, a flexible connection between the same and said cutter-bar, and means to reciprocate said pitman, substantially as described.

683,026. TROLLEY-CATCHER. CHARLES I. KARLL, New York, N. Y. Filed Feb. 26, 1901. Serial No. 48,944. (No model.)



Claim.—1. In a trolley-catcher, the combination with a drum, of a lever pivoted concentrically with said drum, a spring acting to cause said drum to rotate relatively to said lever, a pawl mounted on said lever adapted to engage said drum, to cause the drum and lever to rotate together, and means for automatically disengaging said pawl.

2. In a trolley-catcher, the combination with a drum, of a lever mounted concentrically with said drum, a spring engaging said drum and said lever tending to rotate them in opposite directions, a clutch connecting said drum and said lever, and means for automatically disengaging said clutch.

3. In a trolley-catcher, the combination with a drum, of a lever concentrically mounted with said drum, a spring engaging said drum and said lever to cause them to rotate in opposite directions, means for clutching said drum and said lever together against the action of said spring.

4. In a trolley-catcher, the combination with a rotary drum, of a lever mounted concentrically with said drum, a spring engaging said drum and said lever tending to cause them to rotate in opposite directions, means for clutching said drum and said lever together against the action of said spring, and means for automatically unclutching said lever from said drum and clutching it to a stationary member.

5. In a trolley-catcher, the combination with a drum, and rotatable member, mounted concentrically, of a spring engaging said drum and said rotatable member tending to rotate them in opposite directions, a clutch connecting said drum and said rotatable member, and means for automatically disengaging said clutch and holding said rotatable member against rotation.

6. In a trolley-catcher, the combination with a stationary support, of a drum and a rotatable member concentrically mounted, a spring engaging said drum and said rotatable member tending to rotate them in opposite directions, a clutch mounted on said rotatable member engaging either said drum or said stationary support, the engagement with the one causing the disengagement of the other.

7. In a trolley-catcher, the combination with a stationary support, of a shaft mounted in said support, a drum mounted on said shaft, a lever mounted on the hub of said drum, a spring connecting said lever with said drum, a pawl pivotally mounted on said lever normally engaging said drum, and means for automatically disengaging said pawl from said drum, and engaging it with said stationary support.

8. In a trolley-catcher, the combination with a stationary support of a drum mounted in said support, a rotatable member mounted concentrically with said drum, a spring connecting said drum and said rotatable member tending to rotate them in opposite directions, a pawl pivotally mounted on said rotatable member, normally engaging said drum, a centrifugally-controlled pawl pivotally mounted on said pawl, adapted by its engagement with said stationary support to disengage said pawl from said rotatable member and engage it with said stationary support.

9. In a trolley-catcher, the combination with a fixed support, of a drum, a spring normally under strain, having its one end in fixed, and its other end in releasable, engagement with said drum, and means whereby the releasable end of said spring is released from said drum and held by said fixed support to cause said drum to rotate under the action of said spring.

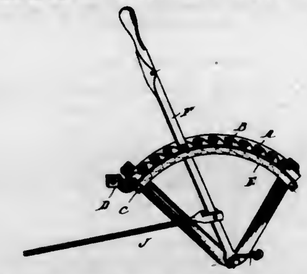
10. In a trolley-catcher, the combination with a stationary support, of a shaft mounted in said support, a drum mounted on said shaft, a spiral spring secured at its one end to said drum and at its other end to said shaft, and means for turning and locking in position said shaft to adjust the strain of said spiral spring.

11. In a trolley-catcher, the combination with a stationary support, of a shaft mounted in said support, a drum revolubly mounted on said shaft, a relatively strong spring normally under strain, adapted to be automatically released to rotate said drum and a relatively weak spiral spring having its outer end secured to said drum and its inner end secured to said shaft.

12. In a trolley-catcher, the combination with a stationary support, of a shaft mounted in said support, a drum revolubly mounted on said shaft, a relatively strong spring normally under strain, adapted to be automatically released to rotate said drum, a relatively weak spiral spring, having its outer end secured to said drum and its inner end secured to said shaft and means for turning and locking said shaft to adjust said relatively weak spring.

13. In a trolley-catcher, the combination with a stationary support, of a drum mounted in said support, a rotatable member mounted concentrically with said drum, a spring secured to said drum and said rotatable member tending to rotate them in opposite directions, a pawl mounted on said rotatable member, a spring acting on said pawl tending to hold it in engagement with said drum, a centrifugally-actuated pawl pivotally mounted on said first-named pawl, a ratchet on said stationary support, adapted to be engaged by said centrifugally-actuated pawl to release said first-named pawl from said drum and throw it into engagement with said stationary support.

683,027. VEHICLE-BRAKE. THOMAS J. EMERSON, Shuler, Ark. Filed Jan. 28, 1901. Serial No. 44,992. (No model.)



Claim.—In a vehicle-brake, a pivoted lever having a concaved plate attached intermediate its ends to the lever and having its lower end formed into a spring and holding its upper end in contact with the lever, substantially as described.

683,028. MATCH-SAFE. SAMUEL F. RUSSELL, Chicago, Ill. Filed Feb. 6, 1901. Serial No. 46,536. (No model.)



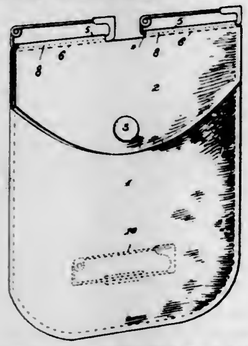
Claim.—1. In a match-safe, in combination, a cylindrical casing having a match-outlet, an oscillating receptacle journaled in the casing and provided with a slot having lips adapted to register with the match-outlet, and means for limiting the oscillatory movement of the receptacle.

2. In a match-safe, in combination, a cylindrical casing having a slot, an oscillating receptacle journaled in the casing provided with a slot

and having outwardly-extending lips adapted to register with the slot of the casing, and a flange provided at the upper edge of the slot in the casing in the path of one of the lips for limiting the movement of the receptacle.

3. In a match-safe, in combination, a cylindrical casing having a covered opening and a slot, an oscillating receptacle journaled in the casing and provided with a slot having outwardly-extending lips adapted to register with the slot of the casing, a flange formed at the upper edge of the slot of the casing in the path of one of the lips for limiting the movement of the magazine in one direction, an inwardly-extending flange adapted to abut against the cover of the receptacle to limit the movement of the magazine in the opposite direction, and means for moving the receptacle so that the lips thereof will be normally at the bottom of the casing.

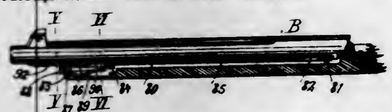
683,029. SAFETY-POCKET. GEORGE I. REYER, Shawnee, Okla. Filed June 17, 1901. Serial No. 64,883. (No model.)



Claim.—1. The combination of a purse having a closing-flap with elongated loops formed in the upper bend portion thereon on opposite sides of the center which is cut away, and safety-pins having their back bars movably held on the said loops.

2. The combination of a purse having a closing-flap with the central portion of the upper bend centrally cut away to form opposite elongated loops defined by lines of fastenings, and safety-pins having straight back bars movably held in the said loops and having their inner terminals free for operation.

683,030. BAYONET. TERJE A. FIDJELAND, Fontvedt, Norway. Filed Apr. 19, 1901. Serial No. 56,622. (No model.)



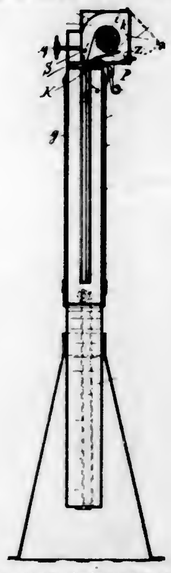
Claim.—In combination with the bayonet having a boss 81 at its rear end and a slot or notch 82 in front thereof, the projections 83 84 on the barrel of the gun to form holders for the bayonet, a pivoted locking-lever 86 having a finger-piece 88 at one end and a catch or boss 90 at the other, said boss being arranged to engage the notch 82 when the bayonet is drawn out, said bayonet having also the recess 91 to be engaged by the lock when the bayonet is in and a spring for pressing the locking-lever to engage the bayonet, substantially as described.

683,031. APPARATUS FOR DEVELOPING AND FIXING PHOTOGRAPHIC FILMS. RICHARD FLEISCHER, Wiesbaden, Germany. Filed May 27, 1899. Serial No. 718,517. (No model.)

Claim.—1. In a photographic developing apparatus, the combination of the developing-chamber with a case secured thereto and adapted to receive the photographic film on its spool, and means connected to said spool to transfer said film into the developing-chamber, substantially as described.

2. In a photographic developing apparatus, the combination of the developing-chamber with a case provided with bearings to receive a film-roll, means to rotate the film-roll from outside, and guides adjacent to the film-roll and adapted to direct the film to a slot leading into the developing-chamber, substantially as described.

3. In a photographic developing apparatus, the combination of the developing-chamber with a case provided with bearings to receive a film-roll, means to rotate the film-roll from the outside and guides extending from the film-roll to a slot leading into the developing-chamber, and guides extending from the film-roll to a slot in the detachable chamber, opening into the open air, substantially as described.



4. In a photographic developing apparatus, the combination of a developing-chamber with a casing having a slot, a case as described adapted to contain a film-roll and provided with means to feed a film through the said slot, and a cutter arranged to move over the slot and to be worked from the outside, substantially as described.

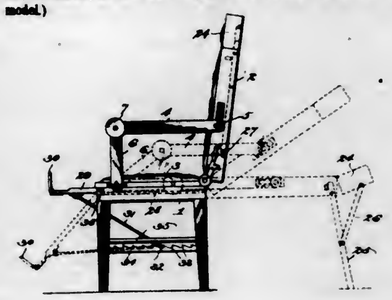
5. In a photographic developing apparatus, a case provided with a slot and means to feed a film through said slot, a frame opening toward the slot and adapted to receive the edges of the film, substantially as described.

6. In a photographic developing apparatus, the combination of a case provided with a slot and adapted to feed a sensitized medium through said slot, with a developing-chamber and a viewing-chamber with a frame receiving the sensitized medium and adapted to be moved from the developing-chamber into the viewing-chamber, substantially as described.

7. In a photographic developing apparatus, the combination of a viewing-chamber with a case adapted to receive a sensitized medium and a chamber adapted to receive a liquid, and means to transfer the sensitized medium from the first said case into the viewing-chamber and into the last said chamber, substantially as described.

8. In a photographic developing apparatus, the combination of a viewing-chamber with a case adapted to receive a sensitized medium, and a detachable chamber adapted to receive a liquid, and means to transfer the sensitized medium from the first said case into the viewing-chamber and into the last said detachable chamber, substantially as described.

683,032. COMBINATION CHAIR AND COUCH. BENJAMIN FRANKLIN, Rochester, N. Y. Filed May 26, 1900. Serial No. 18,115. (No model.)



Claim.—1. In a combined chair and couch, the combination, with the seat, of a back hinged thereto, a standard and an arm pivotally secured to the seat and back respectively upon each side of the chair, said standard and arm being perforated and pivotally secured together, one of them being slotted and the other one fitting within said slot, a spring-actuated plunger in the perforations in one side of the slotted member and a push-button in the perforations of the other side, and a bolt in each of the perforations of the other member in position to be forced longitudinally against the push-button when brought in alinement with the plunger.

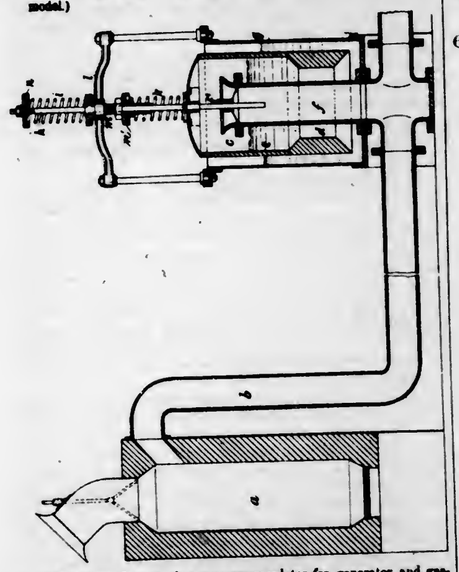
2. In a combined chair and couch, the combination, with the seat, of a back hinged thereto, the upper end of the back being provided with a hinged portion, hinged arms pivotally secured at their ends to the seat and back respectively, a leg pivotally secured to the outer end of the back, means for limiting the movement of the leg in two directions, one of which comprises a lock upon the back near the seat for engaging with the free end of the leg and holding it in its folded position, and a brace secured to the leg and to the hinged portion of the back to raise the latter when the leg is extended.

683,033. SPIRIT-LEVEL. EDWIN E. FREDERICK, Avalon, Pa., assignor of nine-sixteenths to William S. Gunn, same place. Filed July 8, 1899. Serial No. 723,164. (No model.)



Claim.—The combination with the holder 3 fitted and secured in a suitable opening in the stock and provided with the annular groove 12, the segmental slot 6 below the accompanying level-tube, and the graduated scale 17, of the carrier-ring 10 turning in the holder 3, and having the mark 18 on the outer side provided with the annular flange 11 lying in the groove 12, and with the opening 13 alined with the slot 6 in the holder, the adjusting-screw 16 having the thumb-nut 15 the glass tube 7 and its casing 8 mounted diametrically in the opening in the stock all constructed and arranged substantially as described for the purposes specified.

683,034. PRESSURE-REGULATOR FOR GAS-GENERATORS. HEINRICH GERDES, Berlin, Germany, assignor to The Firm of Julius Pintsch, same place. Filed Oct. 12, 1900. Serial No. 32,852. (No model.)



Claim.—1. In a suction pressure-regulator for generator and gas-engine installations, the combination of a gas-generator and the piping connecting the generator to the engine with a floating bell open to said piping and means for varying the buoyancy of the bell according to the varying resistance offered to the passage of the gas, whereby only so much gas is produced in the generator as is required by the engine, substantially as described.

2. In a suction pressure-regulator for generator and gas-engine installations, the combination of a gas-generator and the piping connecting the generator to the engine with a floating bell open to said piping and provided with means for automatically varying the buoyancy of the bell according to the varying resistance offered to the passage of the gas, whereby only so much gas is produced in the generator as is required by the engine, substantially as described.

3. In a suction pressure-regulator for generator and gas-engine installations, the combination of the piping connecting the generator and engine with a floating bell open to said piping and spring means acting on the float against both its upward and downward movements to diminish concussions in its oscillations, substantially as described.

4. In a suction pressure-regulator for generator and gas-engine installations, the combination of the piping connecting the generator and engine with a floating bell open to said piping, means for varying the buoyancy of the bell and two adjustable springs acting upon said bell, substantially as and for the purpose described.

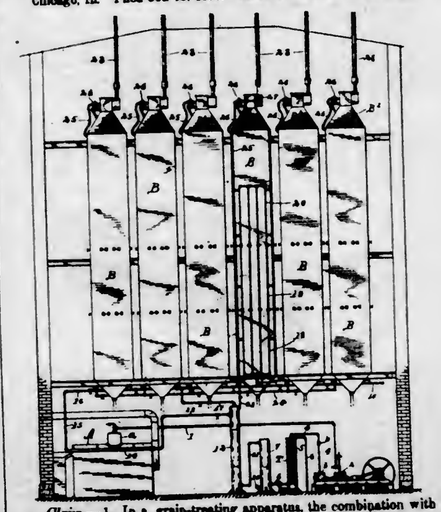
683,035. RAIL-JOINT. JOHN GILLEN, Fort Worth, Tex. Filed July 25, 1901. Serial No. 69,695. (No model.)



Claim.—1. A railway-rail chair constructed of a solid piece of metal provided throughout its length with a rail-receiving channel of a shape closely to embrace the base-web and under side of the tread of the rail, the chair being provided near its extremities with recesses to be engaged by the holding-spikes, and intermediate of its ends with a transverse recess to permit application of the fish-plates to the rails.

2. The combination with a railway-rail chair provided with a longitudinal rail-receiving recess shaped to conform to the contour of the base, web, and under side of the tread of the rail, and having intermediate of its ends a transverse recess, of rails housed in the rail-receiving recess, and provided at their meeting ends with elongated bolt-openings, fish-plates engaging the transverse recess and bearing against the under side of the tread of the rail, and bolts passed through the fish-plates and through the bolt-openings of the rails, substantially as described.

683,036. GRAIN-TREATING APPARATUS. GEORGE R. GORHAM, Chicago, Ill. Filed Oct. 13, 1896. Serial No. 608,452. (No model.)



Claim.—1. In a grain-treating apparatus, the combination with a bin having an exhaust at one end, of a series of perforated pipes extending thereinto, each pipe comprising a plurality of sections, the diameters of the respective sections gradually decreasing toward the exhaust end of the bin, and means for delivering dehydrated air into the interior of the bin through said pipes, substantially as described.

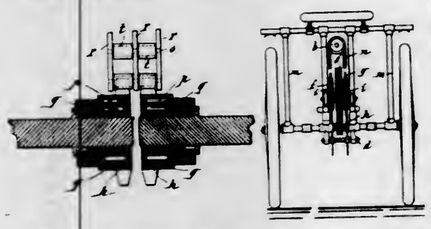
2. In combination, a plurality of bins, exhausts at one end of each bin, and means for forcing dehydrated air under pressure through the bins,

comprising suitable inlets thereinto, a heater, a compressor communicating therewith, a condensing-chamber T connected to the compressor, a settling-tank 7, a receiving-tank 12, and suitable connections between the tanks and the inlets to the bins, substantially as described

3. In combination, a plurality of bins, exhausts at one end of each bin, and means for forcing dehydrated air under pressure through the bins, comprising suitable inlets thereinto, a heater, a compressor communicating therewith, a condensing-chamber T connected to the compressor, a settling-tank adjacent the condensing-chamber, a pipe intermediate the same, a perforated baffle-plate *p* in said pipe, a receiving-tank 12, a pipe between the settling and receiving tanks, and connections between the receiving-tank and the bins, substantially as described.

4. In combination, a plurality of bins, exhausts at one end of each bin, suction-fans associated with each exhaust, a motor adjacent each fan, means for forcing dehydrated air under pressure into the bins, comprising suitable inlets thereinto, a heater, a compressor communicating therewith, a condensing-chamber T connected to the compressor, a condensing-tank adjoining the condensing-chamber, a receiving-tank 12, pipes leading from the receiving-tank to the inlets of the respective bins, and auxiliary pipes also leading from the receiving-chamber to the respective motors at the exhaust ends of the bins to supply an operating energy thereto, substantially as described.

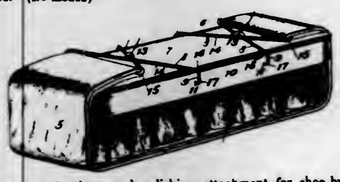
683,037. DRIVING MECHANISM FOR CYCLES. VENCESLAS GOURNY-WYSOCKI, Brussels, Belgium. Filed Dec. 8, 1899. Serial No. 739,659. (No model.)



Claim.—1. In combination in a vehicle having three or more wheels, driving-pedals, a pin-wheel, a pair of axles for the driving-wheels having their axes coincident and arranged independent of each other and the two pinions A arranged upon the said axles to receive movement from the pin-wheel, substantially as described.

2. In combination, a vehicle, the independent axles, pinions A, A, thereon, and a pin-wheel for driving the pinions consisting of three disks *r*, bolts and nuts connecting the disks, a series of pins *s* arranged around the disks, and hollow sleeves or cylinders *t* carried by the pins and arranged to gear with the teeth of the pinions A, substantially as described.

683,038. POLISHING ATTACHMENT FOR SHOE-BRUSHES. THOMAS O. GRILLS, Brooklyn, N. Y. Filed May 4, 1901. Serial No. 58,695. (No model.)



Claim.—1. An improved polishing attachment for shoe-brushes, comprising a flexible body-strip adapted to be secured across the bristles of the brush and provided at each end with a clamping member arranged for engagement with the back of the brush, each of said clamping members consisting of a plurality of spring-arms provided with pointed jaws.

2. An improved polishing attachment for shoe-brushes, comprising a flexible body-strip adapted to be secured across the bristles of the brush and provided at each end with a clamping member arranged for engagement with the back of the brush, each of said clamping members consisting of a plurality of slidably-connected and crossed spring-arms provided with pointed jaws.

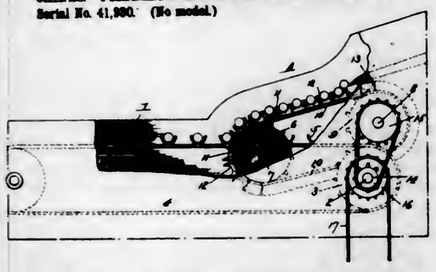
3. An improved polishing attachment for shoe-brushes, comprising a flexible body-strip adapted to be secured across the bristles of the brush and provided at each end with a clamping member arranged for engagement with the back of the brush, each of said clamping members consisting of two slidably-connected and crossed spring-arms provided with pointed jaws, said spring-arms of each clamping member being connected at their inner ends by a cross-bar with which the respective ends of the body-strip are connected.

4. In an improved polishing attachment of the class described, a body portion provided with a clamping member consisting of a single length of stiff spring-wire which is formed centrally into a cross-bar, the wire being angularly bent at the ends of the cross-bar to form spring-arms the outer ends of which are formed into pointed jaws, and means for maintaining said spring-arms in slidable connection and crossed relation.

5. In an improved polishing attachment of the class described, a body portion provided with a clamping member consisting of a single length of stiff spring-wire which is formed centrally into a cross-bar, the wire being angularly bent at the ends of the cross-bar to form spring-arms the outer ends of which are formed into pointed jaws, one of said spring-arms embodying an integral loop through which the other of said spring-arms is passed and whereby said spring-arms are maintained in slidably-connected and crossed relation.

6. An improved polishing attachment for shoe-brushes, comprising a body portion adapted to be secured across the bristles of the brush and provided with means for clamping the same to the brush, said clamping means consisting of spring-arms provided with pointed jaws.

683,039. FEEDING DEVICE FOR ARTICLE-MARKING MACHINES. FERDINAND J. HAESS, New York, N. Y. Filed Jan. 3, 1901. Serial No. 41,980. (No model.)



Claim.—1. The combination of two separated endless carrier-chains provided with coincident article-receiving troughs, a feed device between the carriers and comprised of a flexible endless belt or chain, chain-wheels therefor, transverse blocks secured centrally to said chain and abutting together at their sides when the chain is straight and having formed in their outer longitudinal faces article-receiving grooves substantially equal in width to the blocks whereby narrow ridges are formed between the grooves, means for positively driving the carrier-chains in unison, and means for positively driving the feed device slower than the carrier-chains, substantially as described.

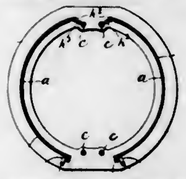
2. The combination, of two separated endless carrier-chains, troughs on each chain directly in line with corresponding troughs on the opposite chain, a feed-chain between the carrier-chains, chain-wheels therefor, transverse blocks secured centrally to said chain and abutting together at their sides when the chain is straight and having formed in their outer longitudinal faces article-receiving grooves substantially equal in width to the blocks whereby narrow ridges are formed between the grooves, means for positively driving the carrier-chains in unison, means for positively driving the feed device slower than the carrier-chains, and a feed-board extending over the feed device and adapted to deliver the articles directly into the grooves of the blocks on the straight part of the feed-chain, substantially as described.

3. The combination, of two horizontal shafts, a pair of separated sprocket-wheels on each of said shafts, parallel endless carrier-chains mounted on said sprocket-wheels whereby said chains will be moved in unison, short transverse troughs carried by each carrier-chain, those on one chain being in direct transverse line with those on the other chain, a space being left between the two series of troughs, a second pair of horizontal shafts, a sprocket-wheel mounted on each of these shafts, the wheel on the forward of these shafts being between the two carrier-chains, an endless feed-chain connecting these two sprockets, a short transverse block carried by each link of the feed-chain and adapted to pass between the carrier-chains, the sides of said blocks abutting together where the chain is straight and each block being formed with a longitudinal groove in its outer surface substantially equal in width to the block, means for positively driving the carrier-chains, and means for positively driving the feed-chain slower than the carrier-chains.

4. The combination, of two horizontal shafts, a pair of separated sprocket-wheels on each of said shafts, horizontal endless carrier-chains mounted on said wheels whereby said chains will be positively moved in unison, a series of short troughs carried by each chain, the troughs on one chain being directly in line with the corresponding troughs on the other chain, another pair of shafts, a chain-wheel on each shaft, the wheel on the forward one of these shafts being between the carrier-chains, a feed-chain mounted on these chain-wheels, short blocks carried by said feed-chain and arranged to have the side edges of adjoining blocks abut together where the chain is straight, each of said blocks being formed with a longitudinal groove in its outer surface substantially equal in width to the block, a feed-board above the feed-chain and adapted to deliver articles upon the straight part of the chain, means for positively driving the carrier-chains, and means for positively driving the feed-chain slower than the carrier-chains, substantially as described.

5. The combination of two separated endless flexible carriers, troughs on said carriers, an endless flexible feed device between the carriers and adapted to feed articles to the troughs on the carriers, means for driving the carriers, and means for driving the feed device slower than the carriers, whereby the troughs on the carriers may be more widely separated than those on the feed device.

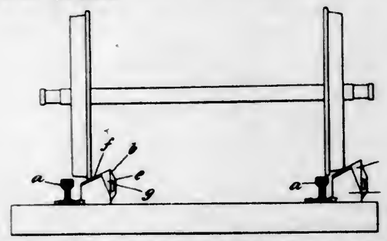
683,040. FASTENING FOR CANVAS APRONS EMPLOYED IN CERTAIN DESCRIPTIONS OF PHOTOPRINTING-FRAMES. JOSEPH HALDEN, Manchester, England. Filed Feb. 25, 1901. Serial No. 48,845. (No model.)



Claim.—1. In photoprinting apparatus, the herein-described means for securing the canvas aprons in position upon the printing-cylinder, consisting of spindles rotatably mounted in the heads pertaining to the cylinder and having catches thereon to engage with the edges of the apron.

2. For securing the canvas aprons in position in photoprinting apparatus, a spindle, extending along the printing-cylinder, rotatably mounted in the heads of the latter, and having laterally-formed projections adapted, upon the spindle being rotated, to engage the rod wherewith the apron is furnished, and to hold the apron in tension, substantially as herein described.

683,041. REPLACING-FROG FOR CARS OR LOCOMOTIVES. JOHN F. HANIGAN, Philadelphia, Pa. Filed July 10, 1901. Serial No. 67,751. (No model.)



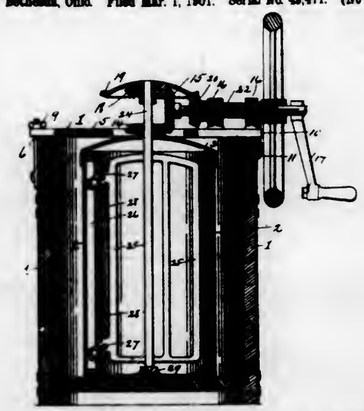
Claim.—1. A device of the character indicated comprising an enlarged body portion cut away to accommodate a railroad tie or sleeper and adapted to span at least three of said ties or sleepers, substantially as described.

2. A device of the character indicated, comprising a body portion having a flat crest and inclined portions leading thereto, guides mounted upon said inclined portions and strips upon the crest of the frog, substantially as described.

3. In combination a replacing-frog comprising an enlarged body portion adapted to span three or more railroad ties or sleepers, a portion cut away to receive one of said ties, a flat crest provided with strips, inclined ways leading to said crest, and provided with a pair of handles attached to the outside of said device for lifting and carrying the same, substantially as described.

4. In combination a replacing-frog comprising an enlarged body portion adapted to span three or more railroad ties or sleepers, a portion cut away to receive one of said ties, a flat crest provided with strips, inclined ways leading to said crest and provided with guides and means for lifting and carrying said device, substantially as described.

683,042. ICE-CREAM FREEZER. WOODWARD C. HARRISON, Bethesda, Ohio. Filed Mar. 1, 1901. Serial No. 49,471. (No model.)



Claim.—The herein-described ice-cream freezer, consisting of the tub 1, the interior-arranged freezing-can 2, the dasher arranged therein, said dasher consisting of a series of vertical angular bars 25, the scraper 26 movably connected to the said dasher, in a manner that will keep the said scraper in close contact with the side of the can, the pinion 14 attached to the top of the can, and in mesh with a driving-pinion 15, whereby the said can is given a rotatable movement, the pinion 18, and bevel-gear 19 operated by the driving-pinion 15, the pinion 20 in mesh with the said bevel-gear, and mounted upon a hollow shaft provided with a fly-wheel, in combination with a removable frame and means for attaching the same to the top of the tub, all arranged for service, as described.

683,043. HAY OR GRAIN UNLOADER AND STACKER. AYRON F. HAYNES, Dufur, Oreg. Filed Oct. 12, 1900. Serial No. 32,854. (No model.)



Claim.—In an apparatus of the character specified, the combination with a wagon having sides of unequal height, the lower side being provided in its upper edges with notches, of a net arranged on the bottom of the wagon and against the sides thereof, and having its transverse ropes seated in the said notches whereby to shield the rope from injury, said net being provided at the high side of the wagon with a ring, a pull-rope provided with means for detachably engaging the ring, an anchor-bar provided with depending teeth, and extension-ropes secured at their outer ends to the anchor-bar and at their inner ends to the side of the net at the lower side of the wagon, the extension-ropes being provided along their lengths with means for attachment to the net, whereby shortening or lengthening said ropes may be effected, as desired, substantially as and for the purpose described.

683,044. BED-PAN. RICHARD E. HOLDER, Columbus, Ind. Filed Oct. 24, 1900. Serial No. 34,303. (No model.)

Claim.—1. A bed-pan formed with a supporting-surface on its upper side, a horn formed thereon, the pan having an elongated receiving-slot in its upper surface and a discharge-opening in one end, said end being of such configuration that the pan may rest upon it in stable equilibrium when turned up to drain, the draining-opening being substantially in the same horizontal plane with the lowest part of said end when in such position, substantially as described.

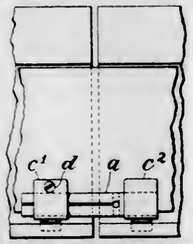
2. A bed-pan provided with a raised horn portion; an opening in the end of said horn portion, a flange extending across said opening, a second flange, extending across the end of the bed-pan and adapted to coöperate with the first flange and form a stable base for the pan when placed in draining position, substantially as shown and described.

3. A bed-pan having an upper portion formed with a main supporting-surface shelving inwardly toward an elongated opening, higher sur-

iliary supporting-surfaces connected with the lower main support by a comparatively abrupt inclined surface a born portion rising between the auxiliary supports, the said slotted elongated opening extending into the born, the said horn being provided with a draining-opening, substantially as described.



683,045. ELECTRIC COUPLING FOR CONDUCTORS. CHARLES HOLEMANN, Budapest, Austria-Hungary. Filed Mar. 5, 1901. Serial No. 50,000. (No model.)



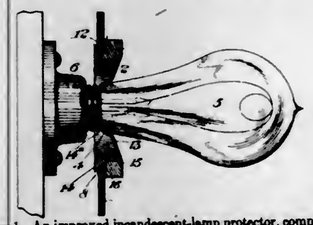
Claim.—1. An electric bond for separated conductors consisting of a plug spanning the gap between the rails, means for securing the plug to the adjacent rails constructed to permit relative movement of the plug and connections, and said plug being longitudinally slitted, substantially as described.

2. An electric bond for separated conductors consisting of a plug spanning the gap between the rails, means for securing one end of said plug to one of the conductors, and means for slidably securing the opposite end of the plug to the other adjacent conductor; said plug being longitudinally slitted, substantially as and for the purpose set forth.

3. An electric bond for separated conductors consisting of a plug spanning the gap between the rails, one of said rails being provided with a socket to which one end of the plug is attached and the other adjacent rail being provided with a socket in which the plug is slidably mounted, substantially as described.

4. An electric bond for separated conductors consisting of a plug spanning the gap between the rails, a socket attached to one conductor to which one end of the plug is rigidly secured, a split socket located on the adjacent end of the second conductor and in which the free end of the plug is slidably mounted, and means for compressing the split socket, substantially as described.

683,046. INCANDESCENT-LAMP PROTECTOR. JOHN M. HOWLEY, Bayonne, N. J. Filed June 20, 1901. Serial No. 65,317. (No model.)



Claim.—1. An improved incandescent-lamp protector, comprising a body-ring adapted for connection with the lamp-fitting and carrying a perforated flexible diaphragm through which the lamp-bulb is projected.

2. An improved incandescent-lamp protector, comprising a perforated flexible diaphragm through which the lamp-bulb is projected, and means for connecting said diaphragm with the lamp-fitting.

3. An improved incandescent-lamp protector, comprising a perforated flexible and elastic diaphragm through which the lamp-bulb is projected, and means for connecting said diaphragm with the lamp-fitting.

4. An improved incandescent-lamp protector, comprising a dished or concave perforated flexible diaphragm through which the lamp-bulb is projected, and means for connecting said diaphragm with the lamp-fitting.

5. An improved incandescent-lamp protector, comprising a dished or concave perforated flexible and elastic diaphragm through which the lamp-bulb is projected, and means for connecting said diaphragm with the lamp-fitting.

6. An improved incandescent-lamp protector, comprising a body-ring provided with a securing-flange adapted for connection with the lamp-fitting and with a perforated flexible diaphragm through which the lamp-bulb is projected.

7. An improved incandescent-lamp protector, comprising the body-ring provided with a rearwardly-projecting securing-flange having a rearwardly-beveled forward surface portion, said body-ring being provided with a rearwardly-beveled rearward surface portion, said body and said securing-flange being formed to receive the lamp-fitting between said beveled surface portions, and a perforated flexible diaphragm carried by said body-ring and through which the lamp-bulb is projected.

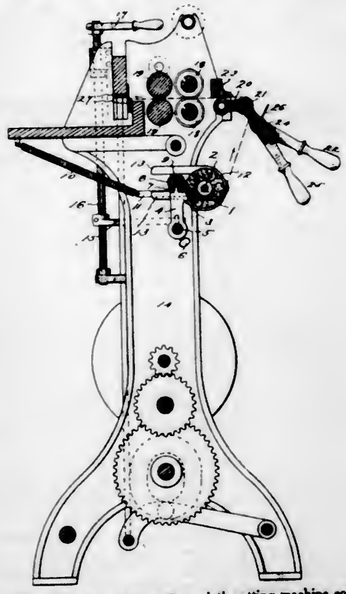
8. An improved incandescent-lamp protector, comprising a dished or concave perforated flexible diaphragm through which the lamp-bulb is projected, said diaphragm being provided with a reflecting forward surface portion, and means for connecting said diaphragm with the lamp-fitting.

9. The combination, with an incandescent-lamp bulb; of a protector consisting of a perforated diaphragm through which the lamp-bulb is projected, said diaphragm being provided with a reflecting forward surface portion, and means for connecting said diaphragm with the lamp-fitting.

10. An improved incandescent-lamp protector, comprising a dished or concave perforated diaphragm through which the lamp-bulb is projected, said diaphragm being provided with a reflecting forward surface portion, and means for connecting said diaphragm with the lamp-fitting.

11. An improved incandescent-lamp protector, comprising a body-ring adapted for connection with the lamp-fitting and carrying a perforated diaphragm through which the lamp-bulb is projected.

683,047. ADJUSTABLE GUIDE AND FLATTENER FOR CLOTH-CUTTING MACHINES. ARTHUR I. JACOBS, Hartford, Conn., assignor to the Smyth Manufacturing Company, same place. Filed June 11, 1901. Serial No. 64,059. (No model.)



Claim.—1. An attachment for a cloth-cutting machine comprising a cloth-roll holder, a longitudinally-movable rod supporting the holder, a rocker-arm connected with the rod, and a shaft with a handle for rocking the arm, substantially as specified.

2. An attachment for a cloth-cutting machine comprising a cloth-roll holder, a longitudinally-movable rod supporting the holder, yielding means adapted to be connected with the roll-bar for drawing the cloth-roll against a friction-bar, a rocker-arm connected with the rod, and a shaft with a handle for rocking the arm, substantially as specified.

against a friction-bar, a rocker-arm connected with the rod, and a shaft with a handle for rocking the arm, substantially as specified.

3. An attachment for a cloth-cutting machine comprising a cloth-roll holder, a longitudinally-movable rod supporting the holder, guard-plates movable along the rod, a rocker-arm connected with the rod, and a shaft with a handle for rocking the arm, substantially as specified.

4. An attachment for a cloth-cutting machine comprising a cloth-roll holder, a longitudinally-movable rod supporting the holder, yielding means adapted to be connected with the cloth-bar for drawing the cloth-roll against a friction-bar, guard-plates movable along the rod, a rocker-arm connected with the rod, and a shaft with a handle for rocking the arm, substantially as specified.

5. An attachment for a cloth-cutting machine comprising a longitudinally-movable rod, cloth-roll-holding brackets adjustable along the rod, springs adapted to be connected with the roll-bar for drawing the cloth-roll against a friction-bar, guard-plates movable along the cloth-bar between the supporting-brackets, a rocker-arm connected with the rod, and a shaft with a handle for rocking the arm, substantially as specified.

6. In combination with the guiding, feeding and cutting mechanisms of a cloth-shearing machine, a straightening-bar extending across the machine, levers pivoted to the side frames, and a stretching-bar carried by the movable levers, substantially as specified.

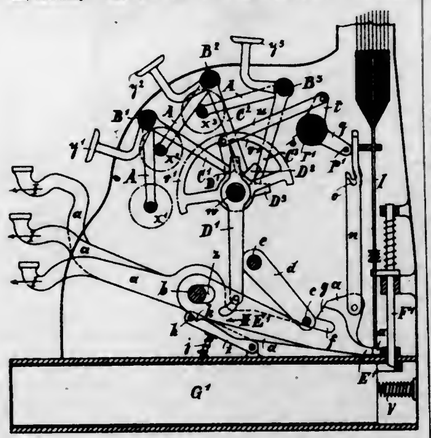
7. In combination with the guiding, feeding and cutting mechanisms of a cloth-shearing machine, a straightening-bar extending across the machine, levers pivoted to the side frames, a stretching-bar carried by the levers and a friction-plate carried by the levers and movable into and out of engagement with the stretching-bar, substantially as specified.

8. In combination with the guiding, feeding and cutting mechanisms of a cloth-shearing machine, a straightening-bar extending across the machine, levers pivoted to the side frames, a stretching-bar carried by the levers and movable above and below the rear edge of the straightening-bar, a friction-plate carried by the levers and a handle for moving the friction-plate into and out of engagement with the stretching-bar, substantially as specified.

9. In combination with the feeding and cutting mechanisms of a cloth-cutting machine, a movable cloth-guiding mechanism, springs for holding the cloth against a friction-bar, a straightening-bar and a stretching-bar movable with relation to the straightening-bar, substantially as specified.

10. In combination with the feeding and cutting mechanisms of a cloth-shearing machine, a movable cloth-guiding mechanism, a fixed straightening-bar, a movable stretching-bar, and a friction-bar movable with the stretching-bar, substantially as specified.

683,048. CASH-REGISTER. ERWIN H. JAHN, Westend, Germany, assignor of one-half to Dr. Paul Meyer, Actiengesellschaft, Berlin, Germany. Filed Mar. 28, 1901. Serial No. 53,280. (No model.)



Claim.—1. In a cash-register, the combination, the key-levers, each having a slot, a shaft common to the key-levers passing through the said slots, each key-lever having also a slot at its inner end, a key-coupler with which the key is coupled by means of said inner slot when the key is pulled out, a plurality of adding mechanisms, a common driving mechanism therefor, a special cash-drawer for each adding mechanism, a salesman's key for each adding mechanism which when operated brings its adding mechanism into engagement with the common driving mechanism and at the same time prepares the parts for the release of the corresponding cash-drawer, substantially as described.

2. In combination in a cash-register, key-levers, each having a slot z, a common shaft b, passing through the said slots, each key-lever having a further slot f, in its inner head end, a key-coupler c with which the said slot f couples when the key a is pulled out, a plurality of adding mechanisms x', x^2, x^3, a common driving mechanism v', v^2, v^3, v^4, a special cash-drawer G', G^2, G^3, for each adding mechanism, a salesman's key y', y^2, y^3, one for each adding mechanism which when operated brings its respective adding mechanism into engagement with the common driving mechanism, bolts for holding the cash-drawers said levers E', E^2, E^3, the said salesman's keys when operated serving to prepare for the release of the corresponding cash-drawer by coupling one of the levers E', E^2, E^3, with the coupler, the said lever releasing the bolt of the corresponding cash-drawer, substantially as described.

683,049. PITMAN CONNECTION. EDWARD A. JOHNSTON, Chicago, Ill. Filed Dec. 22, 1900. Serial No. 40,751. (No model.)



Claim.—1. A pitman connection, comprising coöperating spoons, a bolt passing through said spoons, a nut on said bolt, coöperating cams on said nut and one of said spoons, a spring attached to said nut and the other of said spoons, whereby said cams are caused to engage, and said spoons are forced into operative position.

2. A pitman connection, comprising coöperating spoons, a bolt passing through said spoons, a nut threaded on said bolt, coöperating cams on said nut and one of said spoons, a spiral spring attached to said nut and the other spoon, whereby said nut is caused to turn on the bolt and said coöperating cams are made to engage to force the spoons into operative relation.

3. A pitman connection, comprising coöperating spoons, a bolt passing through said spoons, a nut threaded on said bolt, cam-lugs on said nut working in a flanged orifice in one of said spoons, cams on the walls of said orifice, a spiral spring attached to said nut and the other spoon, whereby said cams are engaged to close the spoons, and means for disengaging said cams.

4. A pitman connection, comprising a fixed and a movable spoon, a bolt passing through said spoons, a wing-nut threaded on said bolt, cam-lugs on said nut working in a flanged orifice in said movable spoon, cams on the wall of said orifice coöperating with the cams on said nut, a spiral spring attached to said nut and said fixed spoon, and means for disengaging said cams to permit said spring to open the spoons.

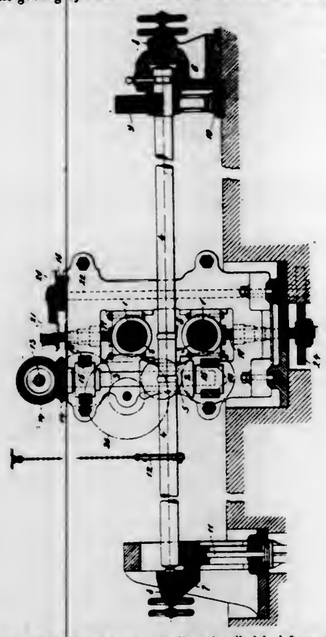
683,050. MECHANISM FOR THE PRODUCTION OF BOILER-PIPES, TUBING, &c. OTTO KLATTE, Dusseldorf, Germany. Filed Aug. 9, 1899. Serial No. 726,670. (No model.)

Claim.—1. A mill for rolling metal bodies of cylindrical form, comprising two horizontally-mounted, adjustable rolls and two vertically-mounted, adjustable rolls driven by means of suitable gearing, or a series of such pairs of rolls, arranged together so as to form a passage between them, a horizontal sectional spindle to receive the work to be rolled, passing through said passage, means for adjusting said spindle in the direction of its length and for adjusting it vertically and means for rotating said spindle, all substantially as described.

2. A mill for rolling metal bodies of cylindrical form, comprising two horizontally-mounted adjustable rolls and two vertically-mounted adjustable rolls driven by means of suitable gearing, or a series of such pairs of rolls, arranged together so as to form a passage between them, a horizontal spindle to receive the work to be rolled, passing through said passage, rings secured to the said spindle, means for adjusting said spindle in the direction of its length and for adjusting it vertically and means for rotating said spindle, all substantially as described.

3. A mill for rolling metal bodies of cylindrical form, comprising two horizontal, concaved rolls 1, 1 mounted in vertically-sliding bearings, two vertical, concaved rolls 2, 2 mounted in horizontally-sliding bearings and driven by suitable gearing 14, arranged so as to form a passage between them, a horizontal spindle 4 composed of three parts secured together, passing through said passage, rings 5 encircling the spindle and held in place by the meeting ends of its said parts, a pedestal 6 to support said spindle, provided with a screw-spindle 8 to adjust same in the direction of its length, a pedestal 7 to support the other end of said spindle, open above sliding vertically in a standard under the influence of a piston 11 and provided with a screw-spindle 8 for adjusting the said spindle in the direction of its length, a toothed wheel 9 mounted on said spindle, oper-

ated by a rack 10, pairs of screw-spindles 17 passing through the standards of the mill and operating the sliding bearings of the horizontal rolls, toothed wheels mounted on said screw-spindles operated through intermediate gearing by a toothed rack 18 and pairs of screw-spindles passing through the framing and operating the sliding bearings of the vertical rolls, toothed wheels 27 mounted on said screw-spindles operated through intermediate gearing by hand-wheel 26, all substantially as described.



4. In a mill for rolling metal bodies of cylindrical form, the means shown of supporting one end of the spindle for receiving the work, comprising a pedestal 7 open above sliding vertically in a standard, provided with a screw-spindle 8 for adjusting the said spindle in the direction of its length, said pedestal being attached below to the piston-rod of a cylinder operated by suitable power, substantially as described.

683,051. PAPER-CARRIAGE FEED DEVICE FOR PRINTING-TELEGRAPH MECHANISM. OSCAR L. KLEBER, Pittsburg, Pa. Filed Sept. 10, 1900. Serial No. 29,558. (No model.)

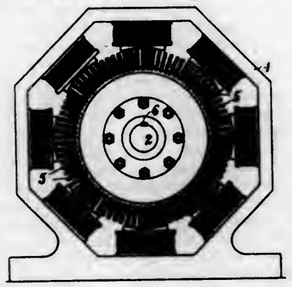


Claim.—1. In a paper-carriage feed mechanism for printing-telegraph machines, the combination with an intermittently-operating movable member, said member including a pawl, a standard, a shaft held to rotate in the standard and having vertical movement therein, a single drive-pinion, and a ratchet mounted upon the shaft, the ratchet having an operative engagement with the aforesaid pawl, of a reciprocating carriage, said carriage having a longitudinally-extending rack-bar and means governed by the reverse movement of the carriage for alternately moving the drive-pinion into and out of an operative connection with the rack-bar as specified.

2. The combination with the vertically-adjustable drive-pinion and means for intermittently rotating the pinion to the degree of one tooth; of a reciprocating carriage having a rack-bar with which the pinion engages, a pivotal latch for elevating the pinion, a spring-catch for holding the latch in its elevated position, a tripper on one end of the carriage for depressing the spring to release the latch and a second tripper on the other end of the carriage for shifting the latch to its elevated position as specified.

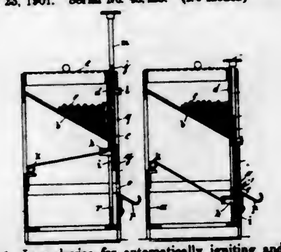
3. The combination with the armature-bar 12, the magnet 12*, the pawl 11, the standard 8, the shaft 9, rotatably mounted on the standard and having vertical movement therein, said shaft being normally forced to its lowermost position, the pinion, and the ratchet member 10, said ratchet member engaging the pawl 11 on the reciprocating carriage, said carriage having a toothed bar 7 having a non-toothed part 7*, a lifting-latch operatively connected with the pinion 9*, a tripper on one end of the carriage for engaging and setting the latch to a lifting position, and a second tripper on the opposite end of the carriage for engaging with and releasing the latch when the non-toothed part 7*, of the rack-bar comes into register with the pinion 9*, as hereinbefore described.

683,052. ARMATURE-CORE FOR ELECTRICAL MACHINES. GERHARD KOPPELMANN, Schlttorf, Germany. Filed June 15, 1901. Serial No. 64,764. (No model.)



Claim.—In armature-cores for electrical dynamos the combination of front plates between which are fixed metal bundles each comprising a number of metal plates insulated from each other, said bundles being separated from each other by air-gaps so that air can pass axially unimpeded through the armature and thus effecting a thorough cooling without increasing the magnetic resistance in the way of the fields of the lines of force.

683,053. DEVICE FOR AUTOMATICALLY IGNITING AND DELIVERING MATCHES. EMANUEL KOTTUSCH, Zurich, Switzerland. Filed Feb. 23, 1901. Serial No. 48,423. (No model.)



Claim.—1. In a device for automatically igniting and delivering matches, the combination of a box having an inclined partition and a horizontally-slotted front wall, between which and a front plate is provided a vertical space or slot, with two movably-arranged slides pressed upward by spring action and a horizontal slot arranged in the said front plate, in front of which is fixed a receiver, grooved in the center and with a slide pressed laterally against the said space or slot between the front wall and the front plate vertical of the box, by means of a spring, substantially as set forth.

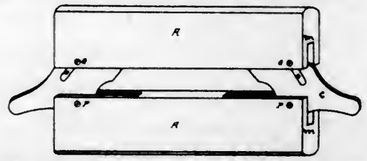
2. In a device for automatically igniting and delivering matches the combination of a box having a horizontally-slotted front wall between which and a front plate is provided a vertical space or slot in which are movably arranged two slides pressed upward by spring action, with a movably-arranged lateral slide of symmetrical cross-section pressed laterally against the said space or slot by means of a spring and being provided on each side below rounded portions with a striking-surface, substantially as set forth.

683,054. HEEL. BÉLA LÖDERER, Budapest, Austria-Hungary. Filed July 24, 1899. Serial No. 725,015. (No model.)

Claim.—In a spring-action heel, the combination with the loose inner sole and a metal plate protecting same of a hollow leather heel, a capsule inclosed in said heel, lateral pins fastened to the capsule, a ring having an outturned brim at its lower edge, said ring embracing said capsule and having vertical slots, a spiral spring being inclosed in said capsule, a circular plate forming the resting-place for the spring, upturned projections being punched in the edge of said plate, a frame having its inner edge upturned, said edge being inserted between the projections on the plate and the brim of the ring mentioned above, substantially as shown and described.

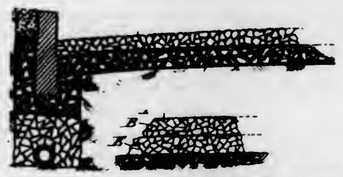


683,055. GARMENT-STRETCHER. WILLIAM K. MACKEY, Plainfield, N. J. Filed Mar. 7, 1900. Serial No. 7,647. (No model.)



Claim.—A trousers-stretcher comprising in combination two side bars connected at the ends by pivoted and slotted eccentric cams, said cams being pivoted on one bar and connected with the other bar by a pin working in said slot, and means for moving said cams on their pivots to expand or contract said bars.

683,056. ROADWAY. FREDERICK A. MALESTE and EDWARD SEYBOLT, Geneva, N. Y. Filed July 1, 1901. Serial No. 66,700. (No model.)



Claim.—1. A roadway comprising a foundation and a layer of broken stone of varying sizes thereon, the fragments of stone being individually coated with bituminous material, which, when the same are subjected to pressure, forms a bond, and the tops of the upper of said stones protruding above said bond to form a wearing-surface of stone.

2. A roadway comprising a foundation, a wearing-surface thereon consisting of broken stone of varying sizes, the fragments of stone being individually coated with bituminous material, which when the same are subjected to pressure, forms a bond and produces a rigid and unyielding wearing-surface of stone, with the voids or spaces between said stones being unfilled, and a top dressing laid between the protruding tops of said stones for smoothing the wearing-surface of the roadway without covering the tops of the stones.

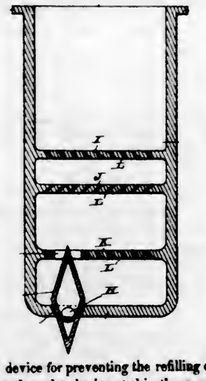
3. A roadway comprising a foundation, a wearing-surface thereon consisting of broken stone of varying sizes, the fragments of stone being individually coated with bituminous material, which, when the fragments are subjected to pressure, forms a bond and produces a rigid and unyielding wearing-surface of stone, and a top dressing of pitch mixed with sand or stone screenings laid between the protruding tops of the stones for smoothing the wearing-surface of the roadway without covering the tops of the stones.

4. The method of laying a roadway, which consists in preparing a suitable foundation, spreading evenly thereon a layer of broken stone coated with bituminous material, and then subjecting the same to compression to reduce the size of the voids and bond the fragments of stone together, the tops of the upper stones of said layer protruding above the bond and forming the wearing-surface of the roadway.

5. The method of laying a roadway, which consists in preparing a suitable foundation, spreading evenly thereon a layer of broken stone, the fragments of which have been previously coated with bituminous material, then subjecting the same to compression to reduce the size of the voids and bond the fragments together, the voids remaining unfilled, and finally adding a top dressing to fill the interstices between the protruding tops of the stone and smooth off the surface without covering the tops of the stones.

6. The method of laying a roadway, which consists in preparing a suitable foundation, spreading evenly thereon a layer of broken stone, the fragments of which have been previously coated with bituminous material, then subjecting the same to compression to reduce the size of the voids and bond the fragments together, and finally adding a top dressing of pitch combined with sand or stone screenings to fill the interstices between the protruding tops of the stones and smooth off the surface without covering the tops of the stones.

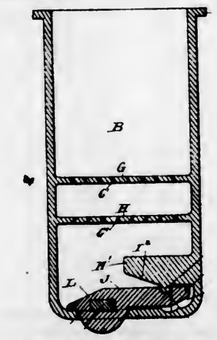
688,057. DEVICE FOR PREVENTING REFILLING OF VESSELS. WILLIAM J. MURRAY, New York, N. Y. Filed Jan. 23, 1900. Serial No. 2,556. (No model.)



Claim.—1. A device for preventing the refilling of vessels comprising a hollow stopper adapted to be inserted in the mouth of a vessel, and provided with an outlet-opening in the bottom, perforated partitions one of which is provided with an opening, a valve the lower end seated in the outlet-opening, and the upper end extending into the opening in the partition and adapted to be guided thereby, substantially as described.

2. A device for preventing the refilling of vessels comprising a hollow stopper adapted to be inserted in the mouth of a vessel and provided with an outlet-opening in the bottom, a series of perforated partitions one of which is provided with an opening, a hollow valve one end adapted to be seated in the outlet-opening and the opposite end to extend into and be guided by the opening in said partition, and a movable weight in said valve, substantially as described.

688,058. DEVICE FOR PREVENTING REFILLING OF VESSELS. WILLIAM J. MURRAY, New York, N. Y. Filed Jan. 23, 1900. Serial No. 2,557. (No model.)



Claim.—1. A device for preventing the refilling of vessels comprising a hollow stopper adapted to be inserted in the mouth of a vessel, and provided with an outlet-opening in the bottom, a bracket above said bottom, and a valve pivoted to the under side of the bracket, substantially as described.

2. A device for preventing the refilling of vessels comprising a hollow stopper adapted to be inserted in the mouth of a vessel and provided with an outlet-opening in the bottom, a bracket above said bottom beveled on its lower surface, a valve pivoted to the under side of the bracket the movement of which is limited by abutting against the beveled surface

of the bracket, and a series of perforated partitions, substantially as described.

3. A device for preventing the refilling of vessels comprising a hollow stopper adapted to be inserted in the mouth of a vessel and provided with an outlet-opening in the bottom, a bracket above said bottom beveled on its under surface and provided with a lug, and a valve having a groove with which said lug engages, substantially as described.

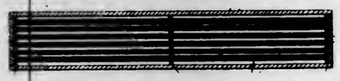
4. A device for preventing the refilling of vessels comprising a hollow stopper adapted to be inserted in the mouth of a vessel and provided with an outlet-opening in the bottom, a bracket above said bottom beveled on its under surface and provided with a lug, a socket between the bottom of the stopper and the bracket, a valve having a head adapted to engage said socket, and a groove with which the lug on the bracket engages, and a series of perforated partitions, substantially as described.

683,059. PHOTOGRAPHIC-PRINTING FRAME. ELTON W. MCCARLIN, Chicago, Ill., assignor to Morgan & Wright, same place. Filed May 15, 1901. Serial No. 60,381. (No model.)



Claim.—A pneumatic-printing frame comprising a glass plate; a main frame; a rubber mat having its marginal portion provided with raised elastic ribs adapted to engage the glass plate; a pad arranged within the space which is surrounded by the raised ribs of the mat, and means for clamping such marginal portion of the mat against the glass plate.

683,060. INSULATING CONSTRUCTION. TOBIAS NEW, Brooklyn, N. Y. Filed Feb. 11, 1901. Serial No. 46,812. (No model.)



Claim.—1. An insulating construction comprising a block having an outer closed covering and having a plurality of spaced partitions therein with air-spaces between them, each of said partitions being of cellular construction with a plurality of air-spaces therein, substantially as set forth.

2. An insulating construction comprising a closed wooden box having a plurality of spaced partitions therein, with air-spaces between them, said partitions consisting of thin flat sheets of paper spaced by corrugated sheets of paper, substantially as set forth.

3. An insulating construction built of separate blocks, each of said blocks consisting of a closed box having a plurality of spaced partitions therein with air-spaces between them, each of said partitions being of cellular construction with a plurality of air-spaces therein, substantially as set forth.

4. An insulating construction built up of separate blocks, each of said blocks comprising a closed wooden box having a plurality of spaced partitions therein, with air-spaces between them, and said partitions consisting of thin flat sheets of paper spaced by corrugated sheets of paper, substantially as set forth.

5. An insulating construction comprising a block having an outer closed covering and having a plurality of spaced partitions therein, with air-spaces between them, each of said partitions being of cellular construction with a plurality of air-spaces therein, and the covering and partitions being of wood fiber coated with a fireproof and waterproof composition, substantially as set forth.

6. An insulating construction comprising a closed wooden box having a plurality of spaced partitions, with air-spaces between them, said partitions consisting of thin, flat sheets of paper spaced by corrugated sheets of paper, and the box and partitions being coated with a fireproof and waterproof composition, substantially as set forth.

7. An insulating construction built up of separate blocks cemented together with a fireproof and waterproof composition and a layer of fibrous material between the blocks, each of said blocks being interiorly divided into a plurality of dead-air spaces, substantially as set forth.

8. An insulating construction built up of separate blocks cemented together with a fireproof and waterproof composition, each of said blocks being of wood fiber coated with a fireproof and waterproof composition, substantially as set forth.

9. An insulating construction built up of separate blocks cemented together with a fireproof and waterproof composition and a layer of fibrous material between the blocks, each of said blocks comprising a wooden box with interior spaced paper partitions of cellular form, and the partitions and box and joints thereof coated and filled with a fireproof and waterproof composition, substantially as set forth.

10. An insulating construction comprising a closed wooden box having a plurality of interior spaced paper partitions, each of said partitions consisting of two thin flat sheets spaced by a corrugated sheet, and said partitions being coated with a fireproof and waterproof composition, substantially as set forth.

683,061. PORTABLE FILTERING APPARATUS. HERMANN NORDTMEYER, Celle, Germany. Filed May 27, 1901. Serial No. 62,012. (No model.)



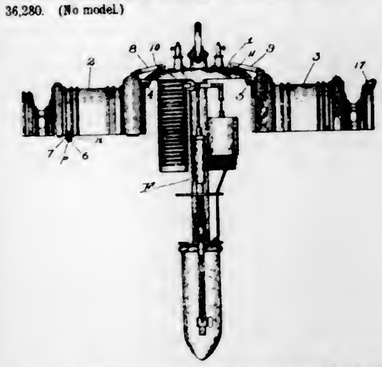
Claim.—1. A portable filtering apparatus comprising in combination, a filter, means for feeding the same, and a box adapted when open to form the stand of the filtering apparatus and when closed to serve as the packing and transporting case thereof.

2. A portable filtering apparatus comprising in combination a filter, means for feeding the same, a box, and means for holding said filter and feeding means fastened in the box when closed so that the box serves as a packing and transporting case, and for fastening the filter and feeding means outside of the box so that the latter serves as a stand for the apparatus when in use.

3. A portable filtering apparatus comprising in combination, a filter, means for feeding the same (as for example a pressure or suction pump or the like), and a box having a cover on the inner side of which said filter and feeding means are arranged, said box adapted when open to form the stand of the filtering apparatus, and when closed to serve as the packing and transporting case thereof.

4. A portable filtering apparatus comprising in combination, a filter, means for feeding the same (as for example a pressure or suction pump or the like), and a box having a cover on the inner side of which said filter and feeding means are arranged, said box adapted when open to form the stand of the filtering apparatus, and when closed to serve as the packing and transporting case thereof, a half *f* of a side of the box being fastened to the cover, the other half of said side being fastened to the box and hinged to the half *f*, whereby a secure support is obtained for the apparatus during its operation, and a bolt *i* on the bottom of the box for holding the cover in its open position.

683,062. INCLOSING STRUCTURE FOR ELECTRIC-ARC LAMPS. WILLIAM H. NORTHALL, Elwood, Ind. Filed Nov. 12, 1900. Serial No. 36,280. (No model.)



Claim.—1. The combination, in an inclosing casing for electric-arc lamps, of a cap carried by the frame of the lamp, two side parts hinged to said cap, and a globe-holding rim adapted to engage with and be carried by the lower edges of said side parts when the same are swung together, substantially as set forth.

2. The combination, in an inclosing casing for electric-arc lamps, of an overhanging cap or top piece carried by the frame of the lamp, side parts hinged to said cap-piece to swing under the same when in closed position and close the top of the casing, and hooks mounted on said side parts and adapted when said parts are swung open to engage with suitable engaging points on said cap piece and hold them open, substantially as set forth.

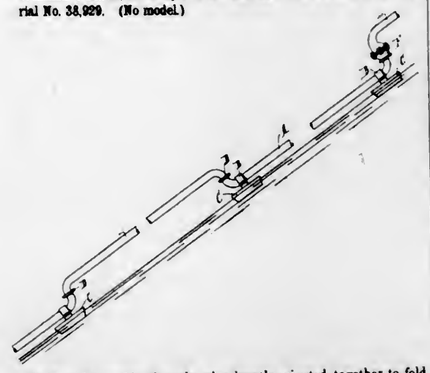
3. The combination, in an inclosing casing for electric-arc lamps, of a central top cap-piece secured to the frame of the lamp, side parts hinged thereto and adapted to swing under and against the same to close the top of the structure when the parts are in closed position, and to swing open and uncover the mechanism when desired, and a spring-catch 6 for holding the parts together provided with a push-pin whereby it may be disengaged, substantially as set forth.

4. The combination, in an inclosing casing for electric-arc lamps, with two side parts hinged to swing together, of a spring-catch for holding said side parts together, a push-pin carried by said spring-catch for operating the same, and a nut on said pin whereby said catch may be held from being pushed out of engagement and the parts thus locked together.

5. The combination, in an inclosing structure for electric-arc lamps, of a cap-piece, two side parts hinged thereto, a globe-holding rim adapted to fit into the bottom edges of said side parts, said globe-holding rim being formed at one side to rest on a ledge on one of said side parts and at the other to rest on a latch pivoted to the other side part, and said latch, substantially as shown and described.

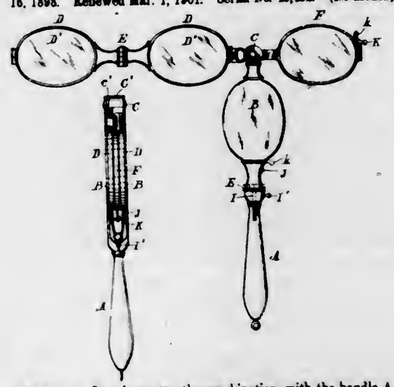
6. The combination, with an electric-arc lamp, of the cap-piece 1 secured to the frame thereof, side parts 2 and 3 hinged to said cap-piece, a globe-holding ring, 12, detachably secured to the lower edge of said side parts, and a globe 13 secured in said ring, the whole forming an inclosing casing for the lamp, substantially as shown and described.

683,063. MEANS FOR CONVEYING POWER TO DREDGES. WILLIAM O'BRIEN, Jr., Walport, New Zealand. Filed Dec. 6, 1900. Serial No. 38,929. (No model.)



Claim.—In combination, the pipe lengths pivoted together to fold in a horizontal plane, and the floats for sustaining said pipes, said pipe lengths being in different horizontal planes and having upwardly and downwardly extending ends to form the pivotal connection, substantially as described.

683,064. LORGNETTE. BENNET OSBORN, Jr., and CHARLES L. UHRY, Newark, N. J.; said Uhry assignor to said Osborn. Filed Feb. 16, 1898. Renewed Mar. 1, 1901. Serial No. 49,492. (No model.)



Claim.—1. In a lorgnette, the combination, with the handle A and case having pivot at one end of the case, with the lorgnette-frame D hinged thereon, of an auxiliary frame movable upon the pivot to and from the case, and the lens-frames jointed together to double within the case, substantially as herein set forth.

2. In a lorgnette, the combination, with a handle A and case having pivot at one end of the case, of the lorgnette-frame D jointed to double with an intermediate space, and an auxiliary frame movable upon the pivot and adapted to fit within such space, substantially as herein set forth.

3. In a lorgnette, the combination, with the handle A and case having pivot at one end of the case, of the lorgnette-frame D jointed to double with an intermediate space, a movable latch to hold the lorgnette-frame in the case, an auxiliary frame movable upon the pivot into the space between the lenses of the lorgnette-frame, and a catch to secure the auxiliary frame within the case, substantially as herein set forth.

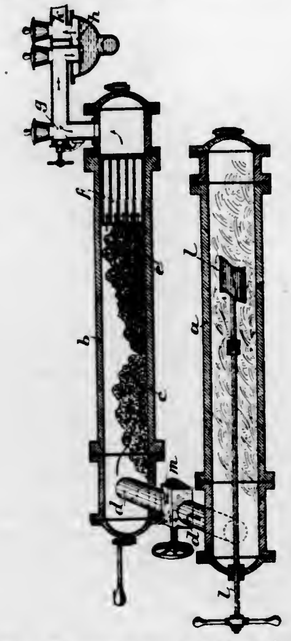
4. In a lorgnette, the combination, with the lorgnette-case having sides B connected at one end by handle A, and at the opposite end by pivot C with the lorgnette-frame D jointed upon such pivot, of an auxiliary frame hinged upon such pivot to fit with the lorgnette-frame between the sides B, and provided with a mirror, as and for the purpose set forth.

5. In a lorgnette, the combination, with the handle A and case having pivot at one end of the case, with the lorgnette-frame D hinged thereon, of the auxiliary frame F having the hinge-lug *c'* hinged upon the said pivot, and the frame connected with such hinge-lug by detachable fastening, as and for the purpose set forth.

6. In a lorgnette, the combination, with a handle A and case having pivot at one end of the case, of the lorgnette-frame D jointed to double with an intermediate space, and an auxiliary frame having an offset hinge-lug *c'* fitted to said pivot and adapted thereby to fit between the lenses of the lorgnette-frame when folded within the case, substantially as herein set forth.

7. In a lorgnette, the combination, with the handle A and case having pivot at one end of the case, of the lorgnette-frame D jointed to double with an intermediate space, a movable latch to hold the lorgnette-frame in the case, the auxiliary frame F having an offset hinge-lug *c'* fitted to said pivot and movable into the space between the lenses of the lorgnette-frame, and provided with the hook K and shoulder *k* as set forth, and the cross-bar J upon the frame to engage the said hook by elastic pressure, as and for the purpose set forth.

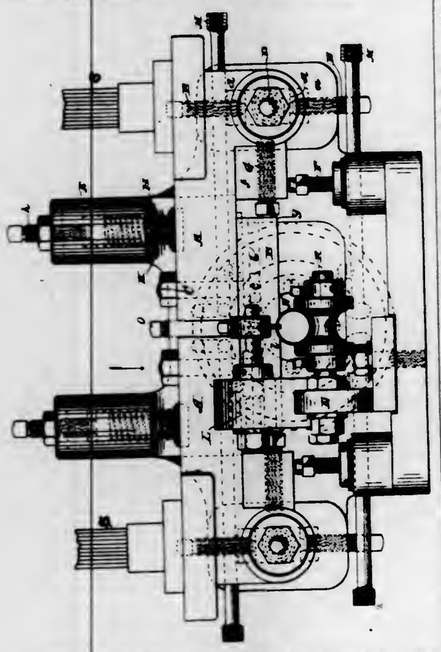
683,065. PROCESS OF PRODUCING ILLUMINATING-GAS. GEORGE OTTERMANN, Vienna, Austria-Hungary. Filed Dec. 14, 1899. Serial No. 740,291. (No specimens.)



Claim.—1. The process of producing gas from household refuse and similar organic waste substances, which consists in distilling the same, bringing the resulting gases in contact with heated neutral material, and then bringing said gases in contact with heated carbonaceous material.

2. The process of producing gas from household refuse and similar organic waste substances, which consists in distilling the same, bringing the resulting gases in contact with incandescent paper-ashes, and then bringing said gases in contact with heated carbonaceous material.

683,066. **ELECTRIC TUBE-WELDING MACHINE.** OTTO FARPART, Cleveland, Ohio, assignor to the Standard Welding Company, same place. Filed Sept. 1, 1900. Serial No. 28,750. (No model.)



Claim.—1. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the joint of a tube, and a die located in a different plane from said conducting devices transverse to the line of movement of the tube, substantially as set forth.

2. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the joint of a tube, and a die located in a plane transverse to the line of movement of the tube in rear of all planes transverse to the line of movement of the tube in which said conducting devices are located, substantially as set forth.

3. In a tube-welding machine, the combination of a carrier-bar, a bolt transverse thereto and having one portion supporting such carrier-bar while the other portion is supported in bearing-boxes adjustable to and from the axis of the bolt, a contact device connected to such carrier-bar by a bolt whose head is movable in a guideway longitudinal of such contact device, a screw engaging against the outer end of said contact device, a screw engaging said carrier-bar in a line parallel with the plane determined by the tube axis and joint and passing between such plane and the parallel plane in which said adjustable bearing-boxes are located, substantially as set forth.

4. In a tube-welding machine, the combination of a current-conducting device adapted to have contact with the edge portion of a tube-joint, and means adapted to adjust said conducting device so that its said contact-surface may at different times be at different angles to the plane determined by the tube axis and joint, substantially as set forth.

5. In a tube-welding machine, the combination of a current-conducting device adapted to have contact with the edge portion of a tube-joint, and means adapted to adjust said conducting device so as to cause different parts of its contact-surface to bear with different pressures against said edge portion, substantially as set forth.

6. In a tube-welding machine, the combination of a current-conducting device adapted to have contact with the edge portion of a tube-joint, and means adapted to adjust said conducting device so as to cause its part nearer to the tube-joint to bear upon said edge portion with a greater or less degree of pressure than its part farther from said joint, substantially as set forth.

7. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles and adapted to have contact respectively with the opposite edge portions of the joint of a tube, and adjusting means adapted to independently adjust each of said conducting devices to different angles relatively to their respective contact-surfaces of said opposite edge portions, substantially as set forth.

8. In a tube-welding machine, the combination of a carrier-bar, a contact device attached to one end portion of said bar, means engaging with the opposite end portion of said bar and adjustable in a plane substantially parallel with the plane determined by the tube axis and joint, a fulcrum for said bar in a line parallel with said two planes, substantially as set forth.

9. In a tube-welding machine, the combination of a current-conducting device adapted to have contact with the edge portion of a tube-joint, means adapted to adjust said conducting device so that its said contact-surface may at different times be at different angles to the plane determined by the tube axis and joint, elastic means adapted to exert pressure against said contact device in a line substantially parallel with said plane and passing between the latter and said conducting-device-adjusting means, substantially as set forth.

10. In a tube-welding machine, the combination of a carrier-bar, a contact device attached to one end portion of said bar, means engaging with the opposite end portion of said bar, and adjustable in a plane substantially parallel with the plane determined by the tube axis and joint, a fulcrum for said bar in a line parallel with said two planes and passing between them, elastic means bearing against said carrier-bar in a line substantially parallel with the plane determined by the tube axis and joint and passing between the latter and said fulcrum, substantially as set forth.

11. In a tube-welding machine, the combination of a carrier-bar, a contact device attached to the inner end portion of said bar, a bolt transverse to said bar and having one portion of its length supporting the outer end portion of said bar, boxes adjustable in a plane substantially parallel with the plane determined by the tube axis and joint and supporting the remaining length portion of said bolt, a pivot for said bar parallel with said two planes and passing between them, substantially as set forth.

12. In a tube-welding machine, the combination of a horizontal carrier-bar, a contact device attached to the lower side of the inner end portion of said bar, a bolt transverse to said bar and having one portion of its length supporting the outer end portion of said bar, vertically-adjustable boxes in which the remaining length portion of said bolt has bearing, a vertically-adjustable pivot which provides bearing for said bar located in a line parallel with the plane determined by the tube axis and joint and passing between such plane and the parallel plane in which said adjustable boxes are located, a vertically-adjustable elastic-pressure device bearing upon said bar substantially parallel with said pivot, substantially as set forth.

13. In a tube-welding machine, the combination of a current-conducting device adapted to have contact with the edge portion of a tube-joint, means adapted to adjust said conducting device so that its said contact-surface may at different times be at different angles to the plane determined by the tube axis and joint, and an electrode adjustable in itself or in its mechanical connection with said conducting-device-adjusting means, substantially as set forth.

14. In a tube-welding machine, the combination of a current-conducting device adapted to have contact with the edge portion of a tube-joint, means adapted to adjust said conducting device so that its said contact-surface may at different times be at different angles to the plane determined by the tube axis and joint, an electrode formed of flexible bands secured to said conducting-device-adjusting means, substantially as set forth.

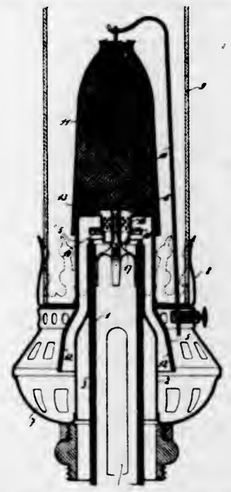
15. In a tube-welding machine, the combination of two electric-current-conducting devices respectively connected with opposite electric poles, and adapted to have contact respectively with the opposite edge portions of the joint of a tube, each such conducting device being adjustable from a point eccentric to the tube, substantially as set forth.

16. In a tube-welding machine, the combination of two electric-current-conducting devices adapted to have contact respectively with the opposite edge portions of the joint of a tube, means adapted to adjust said conducting devices at different angles to the plane determined by the tube axis and joint, electrodes connected to said conducting devices and adapted to adjust themselves in conformity with the adjustment of said conducting devices, substantially as set forth.

17. In a tube-welding machine, the combination of two electric-current-conducting devices adapted to have contact respectively with the opposite edge portions of the joint of the tube, and an electric transformer from which said conducting devices depend, substantially as set forth.

18. In a tube-welding machine, the combination of two electric-current-conducting devices adapted to have contact respectively with the opposite edge portions of the joint of a tube, and an electric transformer having horizontal carrier-bars to whose lower surfaces said conducting devices are connected, substantially as set forth.

683,067. **PETROLEUM-INCANDESCENT-LAMP BURNER.** HERMANN PITTNER and FRIEDRICH RICHTER, Vienna, Austria-Hungary. Filed Sept. 13, 1900. Serial No. 29,955. (No model.)



Claim.—1. In a petroleum-incandescent-lamp burner an air-jacket for the admission of the air, having its inner surface made non-reflecting and absorbent, as described, to prevent the reflection of radiating heat toward the passing current of air, by absorption of the heat.

2. In a petroleum-incandescent-lamp burner an air-jacket for the admission of the air, having its inner surface provided with a dark coating, substantially as and for the purpose described.

3. In a petroleum incandescent lamp a flame-distributer, the lower plate of which is provided at its inner edge with a cylindrical flange extending toward the wick-holder to deflect a possible luminous flame toward the outer current of air, the several plates of the flame-distributer being connected by a wall 15 having various perforations adapted to divide the entering current of air into two stronger currents, one of these currents serving to render the combustion more perfect and the other to carry the flame around the upper plate, substantially as and for the purpose described.

4. In a petroleum-incandescent-lamp burner the combination, with the inner and outer wick-holders 1 and 2, of the outer air-jacket 5 having a dull unburnished inner surface, substantially as and for the purpose described.

5. In a petroleum-incandescent-lamp burner the combination, with the inner and outer wick-holders 1 and 2, of the outer air-jacket 5 having its inner surface covered by a dark coating, substantially as and for the purpose described.

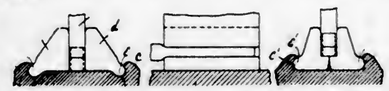
6. In a petroleum-incandescent-lamp burner the combination, with the inner and outer wick-holders and surrounding air-jackets, of a flame-distributer mounted above the said wick-holders and having a slightly-conical base-plate of smaller diameter than the inner diameter of the outer wick-holder, and having also a depending peripheral edge which extends toward the upper ends of the wick-holders, substantially as and for the purpose described.

7. The flame-distributer 6 having the base-plate 14 with the depending peripheral edge 16 and the lower flange 17, said base-plate being connected by means of the perforated wall 15 with the upper head portion 13.

8. The flame-distributer 6 having its base-plate 14 and head portion 13 connected by the wall 15 provided with alternating series of smaller and larger perforations, substantially as and for the purpose described.

683,068. **FORGE-DIE.** KARL PRÖTT, Hagen, Germany. Filed Dec. 22, 1900. Serial No. 40,742. (No model.)

Claim.—1. In a forge-die, a bed-plate, loosely and movably mounted cheeks supported on said bed-plate and a hammer mounted to frictionally directly engage the adjacent faces of said cheeks substantially as described.



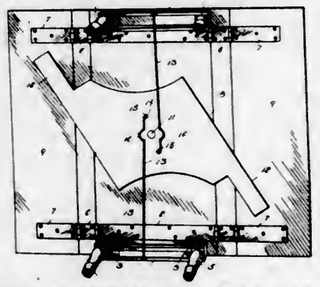
2. In a forge-die, a bed-plate, loosely and movably mounted cheeks having rounded tailpieces, and a hammer adapted to directly engage the adjacent faces of said cheeks, as set forth.

3. In a forge-die, a bed-plate and a plurality of rotatable cheeks thereon having their adjacent faces relatively disposed to be engaged directly by a hammer, as set forth.

4. In a forge-die, a bed-plate, a plurality of cheeks arranged pyramidally with their adjacent faces relatively disposed to be frictionally directly engaged by a hammer, as and for the purpose set forth.

5. In a forge-die, a bed-plate having parallel rounded grooves and inwardly-projecting flanges, and cheeks having rounded tailpieces loosely engaged in said groove and partially beneath said flanges for pivotal movement and having their adjacent faces relatively disposed and adapted to be frictionally engaged by a hammer, substantially as described.

683,069. **TABLE.** CHARLOTTE E. PUGH, Oakville, Oreg. Filed Dec. 1, 1900. Serial No. 38,360. (No model.)



Claim.—1. The combination with a cover, of leaves hinged thereto; legs hinged to opposite ends of the cover; a block pivoted to the under side of the cover and having projections to support the leaves; and rods secured at opposite ends to the legs and block respectively.

2. The combination with a cover; of leaves hinged to the cover; cross-strips hinged to the ends of the cover, legs extending from said cross-strips, a block pivoted to the cover and having projections to support the leaves, rods connected at opposite ends to the block and cross-strips respectively, the rods being secured to the block at opposite sides of its pivot.

3. The combination with a cover; of cross-strips hinged to the ends thereof, legs extending from said cross-strips, a block pivoted to the cover having projections to support the leaves, rods secured at their outer ends to the cross-strips, staples upon the block at opposite sides of its pivot, hooked ends to the rods detachably secured within said staples, and bowed portions to the rods adapted to engage and interlock with each other beneath the pivot of the block.

4. The combination with a cover; of cross-strips hinged at the ends thereof, legs extending from said cross-strips, a block pivoted to the cover, rods connected at their outer ends to the cross-strips and detachably secured at their inner ends to the block at opposite sides of its pivot, leaves hinged to the cover, and tongues extending from the block and adapted to support the leaves in raised position.

5. The combination with a cover; of strips secured thereto, lateral extensions hinged to said strips, cross-strips secured to said extensions, legs extending therefrom, leaves hinged to the ends of the first-mentioned strips and formed of hinged sections, table-leaves secured to each of said sections, a block pivoted to the cover, tongues extending therefrom and adapted to support the leaves in raised position, and rods secured at their outer ends to the cross-strips of the legs and detachably secured at their inner ends to the block at opposite sides of its fulcrum.

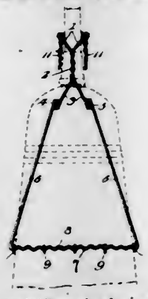
688,070. **PAPER-LIKE MATERIAL AND PROCESS OF MAKING SAME.** THEODOR ROSENTHAL, Nuremberg, Germany. Filed June 7, 1901. Serial No. 63,643. (No specimens.)

Claim.—1. An improved material resembling paper of great ab-

sorptive qualities composed of animal or human hair mixed with the usual paper materials in the rag-engine, and then treated in the usual manner in paper manufacture, substantially as hereinbefore described.

2. A process of manufacturing an improved material resembling paper, which consists in adding ten to fifteen per cent. of animal or human hair to the usual paper-making materials in the rag-engine, and then operating in the usual manner for paper-making substantially as hereinbefore set forth.

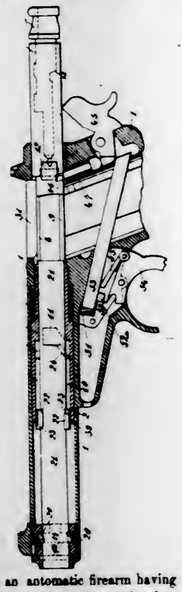
683,071. **BROOM-BRIDLE.** JOHN R. ROSS, Jonesville, La. Filed June 26, 1901. Serial No. 66,129. (No model.)



Claim.—1. A broom-bridle made of wire formed with an opening to engage over the handle of the broom, depending twisted sections below the opening uniting the opposite sections of the bridle, outwardly-extending limbs terminating in spring-coils, and depending flaring strands having their lower portions bent to horizontal alinement, and hooks uniting the opposite ends of the horizontal portions of the bridle.

2. A broom-bridle made of wire formed with an opening to engage over the handle of the broom, depending twisted sections below the opening uniting the opposite sections of the bridle, outwardly-exteoding limbs terminating in spring-coils, depending flaring strands having their lower portions bent to horizontal alinement and crimped, hooks on the horizontal portions to engage the fibers of the broom, and depending loops mounted on the wire of the opening through which the handle passes, whereby the bridle is held to the handle in adjusted position.

683,072. **AUTOMATIC FIREARM.** GEORGES ROTH and CHARLES KREKA, Vienna, Austria-Hungary. Filed Apr. 14, 1900. Serial No. 12,916. (No model.)



Claim.—1. In an automatic firearm having a movable barrel and breech-block the combination of a forward and rearward pair of locking-lugs on said barrel and means for imparting to the said barrel a combined rotary and longitudinal movement and an independent rotary movement so as to lock the barrel either to the breech-block or to the pistol-frame substantially as described.

2. In an automatic firearm, the combination of a sliding and rotary barrel and a sliding, non-rotary breech-block, having a spring to actuate the same forwardly after the recoil, a stationary locking-cylinder at the forward end of the pistol-frame and lugs on the forward barrel end to engage therewith, a pair of rear lugs on the said barrel and grooves in the breech-block having longitudinal extensions and spirally-shaped rear ends in which said rear lugs engage and means in connection with the forward locking-cylinder to partially turn the barrel at the commencement of the recoil movement and then to arrest the rearward progress of the barrel, whereupon the motion further rearwardly of the breech-block imparts by means of the said spiral grooves a rotary movement to the barrel to lock it in the rearward position substantially as described.

3. In an automatic firearm the combination of a longitudinally-movable barrel and a longitudinally-movable breech-block having a forward extension to partially inclose said barrel, a stationary locking-cylinder at the forward end of the barrel and means in connection therewith to impart to the barrel at the commencement of the recoil a combined longitudinal and rotary movement, and then to stop the longitudinal movement, and means in connection with the barrel and breech-block to subsequently impart rotary motion only to the barrel by the further movement of the breech-block backward, substantially as described.

4. In an automatic firearm having means for imparting a combined rotary and longitudinal motion to the barrel and a subsequent rotary motion only for the purpose specified the combination of a magazine mounted below the breech-block and pivots to support said magazine within a bow-shaped part of the pistol-frame so as to allow the same to be swung out of the pistol-frame laterally, said bow-shaped frame serving to close the lower end of the magazine when the same is in normal position, the said end being open for the discharge of the magazine-case when the magazine is swung aside, substantially as described.

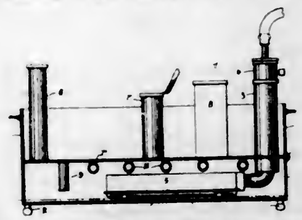
5. In an automatic firearm having means for imparting to the barrel a combined rotary and longitudinal movement at the commencement of the recoil and a subsequent rotary locking movement as and for the purpose specified, the combination of a magazine and means for enabling the same to be swung laterally out of the pistol-frame, a laterally-arranged lug on the said magazine to move into the path of movement of the breech-block and prevent the same from moving forward when the magazine is swung out in the manner and for the purpose substantially as described.

6. In combination, the breech-bolt having a shoulder 48, a hammer and a spring-pressed bolt 46 engaging the hammer, said bolt being raised into the path of the shoulder 48 when the hammer and breech-bolt are retracted, substantially as described.

7. In an automatic firearm of the class specified the combination of a bar 53 to arrest, with its rear end the hammer in its cocked position and having its forward end in connection with the trigger mechanism, said bar being located laterally of the magazine and means for moving the same longitudinally to release the hammer by the trigger movement in the manner and for the purpose substantially as described.

8. In an automatic firearm of the class specified the combination of a hammer and hammer-retaining bar 53, a stop at the lower forward end of said bar, a spring to normally press said bar toward the hammer, an angle-lever 52 pivotally mounted with its upper arm across the front end of said bar and a shoulder on its lower arm to extend into the path of motion of the said bar-stop and means in connection with the trigger for withdrawing said shoulder from the path of movement of the stop immediately the trigger is actuated and before the hammer is released and for returning the shoulder in front of the bar after the hammer has been actuated substantially as described.

683,073. **WATER-HEATER.** FRIDOLIN SCHIFFERLE, St. Louis, Mo. Filed May 17, 1901. Serial No. 60,702. (No model.)

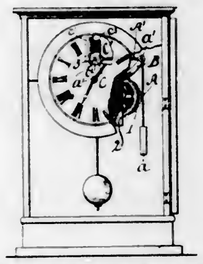


Claim.—1. A water-heater comprising a hollow casing having top and bottom walls, and vertical walls connecting the same, a burner located within the casing, the vertical walls of the latter being extended a suitable distance above the top wall or roof of the casing thereby forming a basin to be filled with water for purposes of weighting down the casing, substantially as set forth.

2. A water-heater comprising a hollow casing, a series of air-inlet flues and an escape-flue leading from the same, a burner within the casing, the vertical walls of the casing being extended a suitable distance above the roof thereof but below the top of the flues, thereby forming a basin adapted to be filled with water for purposes of weighting down the casing, substantially as set forth.

3. A water-heater comprising a hollow casing, a series of air-inlet flues and an escape-flue leading from the same, a burner confined within the casing, a series of water-tubes disposed across the casing above the burner, the vertical walls of the casing being extended a suitable distance above the roof thereof but below the top of the flues thereby forming a water-basin adapted to weight down the casing substantially as set forth.

683,074. **WINDING-INDICATOR FOR TIMEPIECES.** CARL E. A. SCHNAKE, Okawville, Ill. Filed Jan. 2, 1901. Serial No. 41,783. (No model.)

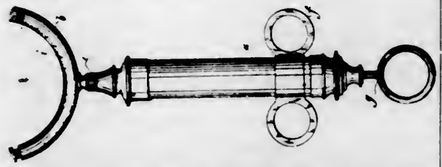


Claim.—1. In a winding-indicator, the combination with the face of a clock, having an opening therein, substantially as described; and guides upon the back of said face; of a two-colored plate, adapted to move in said guides, across said opening; a pin on said plate; and a slotted arm engaging said pin, and adapted and arranged to move said plate in said guides, across said opening; all substantially as and for the purpose set forth.

2. In a winding-indicator, the combination with the face of a clock, formed with an opening substantially as described; guides on the back surface of said face; a plate adapted to move in said guides; and a pin on said plate, of an arm pivotally attached by one end to a hanger, formed with a slot at its free end, to engage said pin, and by its motion to slide said plate in said guides, across said opening; and means as specified for supporting said hanger, and for actuating said arm, all substantially as and for the purpose set forth.

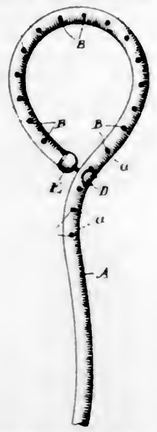
3. In a winding-indicator, the combination with the face of a clock, formed with an opening substantially as described; guides on the back surface of said face; a plate adapted to move in said guides; across said opening and a pin on said plate; of a hanger supported by the casing of said clock; a rod depending from, and pivotally attached to said hanger; a weight on the lower end of said rod, and said rod arranged and adapted to be moved by the spring of said clock, when nearly run down; an arm attached at one end to the pivot on which the said rod turns, moving with the said rod, formed with a slot at its free end, which engages said pin, and affords facility for moving said plate in said guides, across said opening; all substantially as and for the purpose set forth.

683,075. **APPLIANCE FOR CLEANING THE TEETH.** ADAM SCHNEIDER, Berlin, Germany. Filed Apr. 24, 1901. Serial No. 57,188. (No model.)



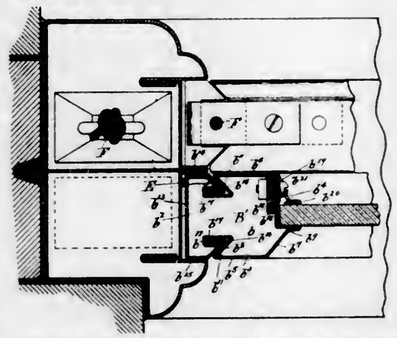
Claim.—An appliance for cleaning teeth comprising a bow-shaped tube having perforations and curved to conform to the rows of teeth, and an inlet to said tube arranged centrally thereof on its convex side leaving the horns of the bow projecting therefrom, substantially as described.

683,076. **BATH-HOSE.** WILLIAM L. SIMMONS, Chicago, Ill. Filed July 30, 1900. Serial No. 24,253. (No model.)



Claim.—The combination with a bath-hose having a series of perforations near one end, of a plug in that end, a hook secured in the plug and a washer embracing the shank of the book and the plug, and clenched about the hose behind the plug; substantially as described.

683,077. **WINDOW-FRAME AND WINDOW-SASH.** HENRY C. SMITH, Somerville, Mass. Filed Aug. 24, 1899. Serial No. 728,326. (No model.)



Claim.—1. A window-sash having a side rail made in two longitudinal sections, one of each sections forming a permanent part of said sash, the other of which is detachably secured as described, said sections having a bearing against each other along their entire length whereby one section of said sash is rendered incapable of any swinging movement relative to the other and both sections are adapted to be moved together vertically in the window-frame, as and for the purposes described.

2. A metallic window-sash having a side rail in two sections, one of which forms a permanent part of the window-sash and is formed to interlock with a portion of the other section of the rail, said other section of the rail being detachable from the first-named section and having interlocking sections to engage the interlocking parts of the permanent section of the rail, the interlocking sections of the said removable section engaging the interlocking sections of the fixed section by a longitudinal sliding movement of one upon the other.

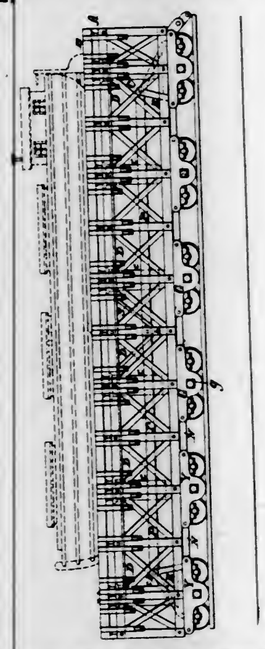
3. The combination of a metallic window-frame having permanent front and back stop-beads and a permanent central stop-bead, a metallic window-sash having a side rail in two parts or sections the outer of which is removable from the inner to narrow the same and is attached to the inner after the sash has been placed in position in the frame by a vertical movement with respect thereto, whereby the sash is made to fill between two of the beads.

4. The combination of a window-frame having permanent front and back stop-beads and a permanent central stop-bead with a window-sash having a side rail in two parts or sections, the outer of which is detachably secured to the inner and adapted to be attached thereto after the

sash has been placed in position in the frame, said sections having a bearing against each other along their entire length, whereby one section of said sash is rendered incapable of any swinging movement relative to the other, and both sections are adapted to be moved vertically in the window-frame, as described.

5. The combination in a metallic window-sash of the side rail made in two sections or parts one of which is detachable by a longitudinal movement with respect to the other and detachable in the same way thereto, and means for locking the two sections of the sash together when in engagement.

688,078. **MEANS FOR TRANSPORTING RIGID BODIES.** HENRY C. SPALDING, New York, N. Y. Filed Nov. 13, 1900. Serial No. 36,337. (No model.)



Claim.—1. The combination of a rigid burden-carrying platform provided with trucks and fluid-cylinders and plungers between the platform and trucks for supporting the platform by fluid contained in the cylinders, substantially as described.

2. The combination of a rigid platform and trucks, cylinders arranged longitudinally of the platform, and plungers in said cylinders supported by the trucks and supporting the platform by fluid contained in said cylinders, substantially as described.

3. The combination of a rigid platform and trucks, cylinders arranged longitudinally of the platform and plungers in said cylinders supported by the trucks and supporting the platform by fluid contained in said cylinders, and a pipe connecting the fluid-spaces of the cylinders throughout the series longitudinally of the platform, substantially as described.

4. The combination of the trucks, links N at opposite sides of and connecting said trucks, a rigid platform, cylinders arranged longitudinally of the platform and plungers supported by the trucks and supporting the platform by fluid contained in the cylinders, substantially as described.

5. The combination of the trucks, links N at opposite sides of and connecting said trucks, a rigid platform, cylinders arranged longitudinally of the platform, plungers supported by the trucks and supporting the platform by fluid contained in the cylinders, and a pipe connecting the fluid-spaces of the cylinders throughout the series longitudinally of the platform, substantially as described.

6. The combination of a rigid burden-carrying platform provided with trucks, and fluid-cylinders and plungers between the platform and trucks for supporting the former by fluid contained in the cylinders, and liquid-ballast tanks at opposite ends of the platform with valves for emptying said tanks, substantially as described.

7. The apparatus herein described, consisting of railway-planes joined by vertical curves, trucks traveling thereon, connecting-rods supported by said trucks, plungers on said connecting-rods, and cylinders containing a liquid or other fluid, said cylinders being connected longitudinally of the railway, and a rigid platform supported by said cylinders, substantially as described.

8. The combination with a rigid burden-carrying platform, of means for supporting said platform consisting of columns of liquid or other fluid connected together in series longitudinally of the movement of the platform so that the column may become shorter or longer by the flow of fluid through the series, substantially as described.

9. The combination with a rigid burden-carrying platform, of means for supporting said platform consisting of columns of liquid or other fluid arranged in a plurality of series of columns, the columns in each series being arranged and connected together longitudinally of the movement of the platform so that the columns may become shorter or longer by the flow of fluid through each series and the columns of the different series being disconnected so that no flow of fluid is permitted between the columns transversely to the movement of the platform, substantially as described.

10. The combination with a rigid burden-carrying platform, of trucks, fluid-cylinders and plungers between the platform and trucks for supporting the platform by fluid contained in the cylinders, links N connecting the trucks at opposite sides, and the connecting-bars P extending longitudinally of the platform and secured to the trucks and jointed to the platform between the points of connection to the trucks, substantially as herein set forth.

11. The combination of the forked vibratory connecting-rods *m*, the hauling-bar *n*, and the detent *o*, substantially as described.

12. The combination of the yokes with the angle-bars and the end cylinders, substantially as described.

13. The combination with a rigid burden-carrying platform provided with trucks, and longitudinal series of cylinders and plungers between the platform and trucks for supporting the platform by fluid contained in the cylinders, of means whereby fluid may be supplied to any or all of the longitudinal series of cylinders, substantially as and for the purposes set forth.

14. The combination of the trucks and the hollow hauling-bar connected to said trucks with cylinders mounted on said bar and having their fluid-spaces connected through the hollow hauling-bar, substantially as described.

15. The combination of the trucks, the hauling-bar and the cylinders mounted thereupon, with the plungers fitted into the said cylinders and the hook and strap, substantially as described.

16. The combination of the hollow hauling-bar, the cylinders mounted thereon, the plungers and the hook and strap with the clevis, substantially as described.

683,079. **COMPOSING-STICK.** HERBERT H. STALKER, Lansing, Mich. Filed Jan. 23, 1901. Serial No. 44,453. (No model.)



Claim.—1. The combination with a printer's composing-stick, of a clip attached to the bottom thereof between which and the stick copy can be placed and held, substantially as described.

2. In combination with a composing-stick, of a spring member attached to the back thereof adapted to confine copy between the same and the surface of the back, comprising a securing portion, and oppositely-disposed members D projecting slightly beyond the end of the stick, substantially as described.

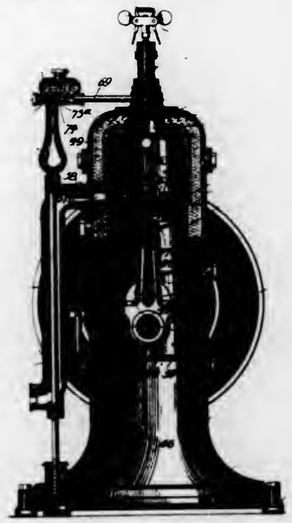
3. In combination with a composing-stick, of a spring member attached to the back thereof adapted to confine copy between the same and the surface of the back, comprising a securing portion, oppositely-disposed members D projecting slightly beyond the end of the stick, and a finger-piece secured to the spring member, substantially as described.

4. The combination with a printer's composing-stick, of a clip attached to the bottom thereof between which and the stick copy can be placed and held, and a finger-piece secured to said clip, substantially as described.

5. The combination with a printer's composing-stick, of a clip secured thereto and located at the back thereof, and a finger-piece projecting from the clip, substantially as described.

683,080. **GAS-ENGINE.** BENJAMIN F. STEWART, Chicago, Ill. Filed Sept. 20, 1900. Serial No. 30,537. (No model.)

Claim.—1. In a reciprocating gas-engine, in combination, a trunk having at one end a power-cylinder, at its opposite end a fuel-reservoir and an intermediate compression-chamber, a piston adapted to reciprocate within the cylinder, having a passage connecting the compression-chamber with the cylinder, a valve for the passage, a plate for retaining the valve in place having a tubular extension, a valve-governed induction-port arranged axially with the tubular extension, a valve-closed passage connecting the compression-chamber with the reservoir, and a connection between the reservoir and the cylinder.



2. In a reciprocating gas-engine, in combination, a trunk having at one end a power-cylinder, at its opposite end a fuel-reservoir and an intermediate compression-chamber, a piston adapted to reciprocate within the cylinder, a valve-closed passage connecting the compression-chamber with the reservoir, an exhaust-tube, an oil-pipe leading from the reservoir through the exhaust-tube, and a vapor-reservoir communicating with the oil-pipe and the cylinder.

3. In a gas-engine, in combination, a cylinder having a valve-closed fuel-induction port, a compression-chamber inclosing the engine-crank and having an induction-port, a piston reciprocating in the cylinder and having a passage opening from the compression-chamber to the cylinder, a valve carried by the piston, and a tube arranged axially to the fuel-induction port forming a continuation of the said passage.

4. In a gas-engine, a cylinder having an induction-port in its head, a compression-chamber inclosing the engine-crank and having an induction-port, a piston reciprocating in the cylinder and having a check-valve-closed passage opening from the compression-chamber to the cylinder, and a plate secured to the piston for retaining the check-valve in place and having a tubular flange forming a continuation of such passage for directing air-currents passing therethrough against the head of the cylinder.

5. In a gas-engine, in combination, a cylinder having a valve-closed fuel-induction port, a compression-chamber inclosing the engine-crank and having an induction-port, a piston reciprocating in the cylinder and having a passage opening from the compression-chamber to the cylinder, a valve carried by the piston, and a plate secured to the piston for retaining the valve in place and having a tubular flange arranged axially to the fuel-induction port and forming a continuation of the said passage.

6. In a gas-engine, a cylinder, a compression-chamber inclosing the engine-crank and having an induction-port, a piston reciprocating in the cylinder and having a check-valve-closed passage opening from the compression-chamber to the cylinder, a pitman pivotally secured to the piston within its body, and lateral deflecting-wings near the piston end of the pitman.

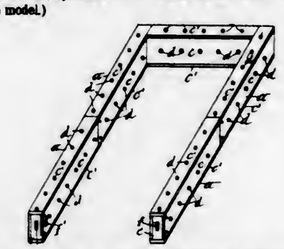
7. In a gas-engine, in combination, a cylinder, a piston reciprocating therein, a compression-chamber at the end of the cylinder and having an induction-port, the piston having an annular series of ports through its head, an annular valve for covering such ports and opening toward the cylinder, and a retaining-plate for the valve having a tubular flange forming a continuation of the passage.

8. In a gas-engine, in combination, a cylinder having a fuel-induction port in its head, an inwardly-opening valve for such port having a tubular stem, a reciprocating piston, a rod fixed to the piston and extending through the valve-stem and being provided with means for engaging such stem to open the valve as the piston approaches the limit of its outstroke.

9. In a gas-engine, in combination, a cylinder having a fuel-induction port in its head, an inwardly-opening valve for such port having a tubular stem, a stuffing-box fitted to such stem, a reciprocating piston, a rod fixed to the piston and extending through the valve-stem and being provided with means for engaging such stem to open the valve as the piston approaches the limit of its outstroke.

10. In a gas-engine, in combination, a cylinder, a tubular valve-casing set through the head thereof and having a lateral induction-port and constituting the induction-port of the cylinder, a stuffing-box applied to the outer end of such casing, an inwardly-opening valve applied to the inner end of the casing and having a tubular stem passing through the stuffing-box, a stuffing-box at the outer end of the valve-stem, a reciprocating piston, a rod fixed thereto and passing through the valve-stem, and means at the outer end of the rod for bearing upon the outer end of the stem to unseat the valve.

683,081. **CEMENT-WALK-CONSTRUCTING FRAME.** CORNELIUS J. SULLIVAN, Syracuse, N. Y. Filed Jan. 25, 1901. Serial No. 44,684. (No model.)



Claim.—1. A cement-walk-constructing frame consisting of longitudinal rails spliced detachably end to end and each of said rails formed with reinforcing vertical and horizontal stay-plates as set forth.

2. A cement-walk-constructing frame consisting of longitudinal rails spliced detachably end to end and each of said rails formed with reinforcing vertical and horizontal stay-plates disposed in line with corresponding plates on the adjacent rail as set forth.

3. A cement-walk-constructing frame consisting of scantlings disposed end to and and braced by longitudinal metal plates secured to the exterior of the scantling, and couplings detachably uniting said scantlings as set forth.

4. A cement-walk-constructing frame, consisting of scantlings disposed end to end, longitudinal metal plates embracing said scantlings, and couplings detachably uniting said scantlings as set forth.

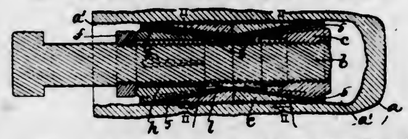
5. A cement-walk-constructing frame consisting of scantlings disposed end to end, a metallic block attached to the end of one of said scantlings and formed with a longitudinal channel extending from the exterior of the block and terminating in a socket at the interior of said block, and a hook projecting from the end of the adjacent scantling and interlocking with the aforesaid socket as set forth.

6. A cement-walk-constructing frame consisting of rails and flexible plates extending longitudinally from the ends of said rails as and for the purpose set forth.

7. A cement-walk-constructing frame consisting of scantlings, metal plates embracing said scantlings, and flexible plates extending longitudinally from the ends of the scantlings as set forth.

8. A cement-walk-constructing frame consisting of longitudinal rails and transverse bars disposed between said rails, metallic blocks secured to the ends of the longitudinal rails and provided with lateral channels terminating in sockets in the interiors of the blocks, and coupling-hooks projecting from the ends of the transverse bars and interlocked with the aforesaid sockets as set forth.

688,082. **EXPANSION-BOLT.** JOHN C. SUNDERER, Cleveland, Ohio. Filed June 30, 1900. Serial No. 22,233. (No model.)



Claim.—1. A device of the character indicated, comprising a bolt two reversely-arranged sleeves *c* and *h* mounted upon the shank of the bolt and tapering externally and arranged with their smaller ends adjacent to each other, the outer sleeve being loosely mounted upon the bolt

and the inner sleeve being screw-threaded internally so as to form a nut engaging threads of the bolt's shank, an abutment upon the bolt at the larger end of the loosely-mounted sleeve and arranged to prevent endwise displacement of the said sleeve in the direction of the head of the bolt, and two shells *e* and *l* composed of displaceable material and embracing the nut-forming sleeve and the loosely-mounted sleeve, respectively, substantially as and for the purpose set forth.

2. A device of the character indicated, comprising a bolt *b*, two reversely-arranged sleeves mounted upon the bolt and arranged with their smaller ends adjacent to each other, the sleeve next adjacent to the free extremity of the shank being screw-threaded internally so as to form a nut engaging threads of the bolt's shank, the other sleeve being loosely mounted upon the shank, a nut *f* upon the bolt's shank, at the larger end of the loosely-mounted sleeve, and arranged to prevent endwise displacement of the said sleeve in the direction of the head of the bolt, two reversely-arranged expansible shells mounted upon the different sleeves, respectively, and tapering internally, with the smaller ends of their sleeve-engaging bores adjacent to each other, substantially as and for the purpose set forth.

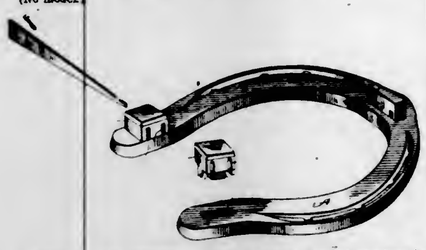
3. A device of the character indicated, comprising a bolt *b*, two reversely-arranged sleeves mounted upon the bolt and arranged with their smaller ends adjacent to each other, the sleeve next adjacent to the free extremity of the shank being screw-threaded internally so as to form a nut engaging threads of the bolt's shank, the other sleeve being loosely mounted upon the shank, a nut *f* upon the bolt's shank and preventing endwise displacement of the last-mentioned or loosely-mounted sleeve in the direction of the head of the bolt, tongues 5 formed upon and externally of each of the sleeves, the expansible shells *e* and *l* embracing the different sleeves, respectively, and provided each with external ribs 2 and internal grooves 3, all arranged and operating substantially as shown, for the purpose specified.

683,083. FRUIT-DRIER. ERASTUS N. THOMAS and GAMALIEL L. THOMPSON, Jefferson, Oreg. Filed Feb. 26, 1901. Serial No. 48,910. (No model.)



Claim.—A fruit-drier having a tunnel with the doors *a a'* and grooves a^1, the trays B provided with the notches *b*, the obtuse-angled stack-props having the upper catches *c* and lower projections *c'*, the trip-frame D movable up and down to act upon said catches and projections in the grooves a^2 and the trip-lever F, all combined constructed and arranged substantially in the manner and for the purpose set forth.

683,084. HORSESHOE. MILTON R. THURBER, Lehman, Pa., assignor of two-thirds to Henry Smith Thomas, same place, and Frank Louder Stroud, Dallas, Pa. Filed May 10, 1901. Serial No. 59,643. (No model.)



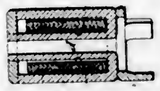
Claim.—1. The combination with a horseshoe having openings for the calk-shanks extending through the same from the bottom of the shoe to the top, the bottom portions of said openings being of greater diameter than the top portions, with inclined deflecting-shoulders at the entrance to said narrow portions and retaining-recesses extending laterally from said deflecting-shoulders, of calks having central shanks seated in the narrow inner portions of the openings, and side retaining-lugs seating against and deflected into the retaining-recesses by the inclined shoulders; substantially as described.

2. The combination with a horseshoe having openings for the calk-shanks extending through the same from the bottom of the shoe to the top, the bottom portions of said openings being of greater diameter than the top portions with inclined deflecting-shoulders at the entrance to said narrower portions and retaining-recesses extending laterally from said deflecting-shoulders, of calks having central shanks seating in the narrow inner portions of the openings, shoulders seating against the shoe for limiting inward movement of the shanks, and side retaining-lugs seating against and deflected into the retaining-recess by the inclined shoulders; substantially as described.

3. The combination with a horseshoe having openings for the calk-shanks extending through the same from the bottom of the shoe to the top, the bottom portions of said openings being of greater diameter than the top portions with inclined deflecting-shoulders at the entrances of said narrow portions and retaining-recesses extending laterally from said deflecting-shoulders, of calks having central shanks seated in the narrow inner portions of the openings, and side retaining-lugs seating against and deflected into the retaining-recesses by the inclined shoulders, the spaces between the central shank and retaining-lugs being extended beyond the bottom surface of the shoe to form openings for the insertion of a withdrawing-wedge; substantially as described.

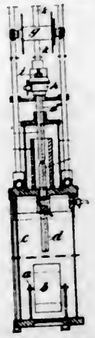
4. The combination with a horseshoe having openings for the calk-shanks extending through the same from the bottom of the shoe to the top, the bottom portions of said openings being of greater diameter than the top portions, with inclined deflecting-shoulders at the entrance to said narrower portions and retaining-recesses extending laterally from said deflecting-shoulders, of calks having central shanks seating in the narrow inner portions of the openings, shoulders seating against the shoe for limiting inward movement of the shanks, and side retaining-lugs seating against and deflected into the retaining-recesses by the inclined shoulders, the spaces between the central shank and retaining-lugs being extended beyond the bottom surface of the shoe and shoulders on the calks to form openings for the insertion of a withdrawing-wedge; substantially as described.

683,085. MANUFACTURE OF FILAMENTS FOR INCANDESCING ELECTRIC LAMPS. WILLIAM L. VOELKER, London, England, assignor to Theron Clark Crawford, New York, N. Y. Filed July 30, 1900. Serial No. 25,337. (No specimens.)



Claim.—The herein-described method of producing carbid filaments for electric incandescing lamps, consisting in soaking a long-fiber cotton thread or cellulose filament in a solution of a readily-decomposible salt or salts of the metal or metals intended to form the metallic base of the carbid, drying and spooling the same, packing the spool with powdered carbon and carbid of the kind required in a sealed crucible and subjecting the same to a temperature adapted to convert the salt or salts into oxid or oxide, passing the filament thus carbonized through an electric arc while surrounded by a cylinder or like envelop composed of the aforesaid metallic base and inclosed within a vessel charged with hydrogen or like gas incapable of supporting combustion, substantially as set forth.

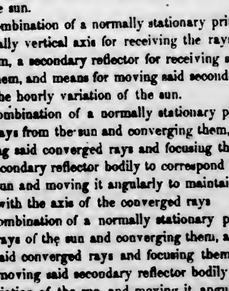
683,086. MANUFACTURE OF FILAMENTS FOR INCANDESCING ELECTRIC LAMPS. WILLIAM L. VOELKER, London, England, assignor to Theron Clark Crawford, New York, N. Y. Original application filed July 30, 1900, Serial No. 25,337. Divided and this application filed Nov. 19, 1900. Serial No. 37,092. (No model.)



Claim.—For employment in the manufacture of carbid filaments for incandescing electric lamps, the herein-described apparatus constructed substantially as set forth comprising a pair of longitudinally-perforated carbon electrodes, a cylinder composed of the metal or metals forming

the metallic base of the carbid and arranged about the opposed extremities of the electrodes, an inclosing vessel and means for drawing the filaments through the arc.

683,087. THROUGHWAY-TAP. JAMES WESTLEY, Levenshulme, England. Filed July 2, 1901. Serial No. 66,887. (No model.)



Claim.—In combination, the tap *o* and its casing having a projection *g*, a packing having an upwardly-opening notch engaging said projection and having its upper edge plain and a gland bearing on said plain edge to adjust the packing, substantially as described.

683,088. SYSTEM FOR COLLECTING AND UTILIZING SOLAR HEAT. KNUT C. WIDMER, New York, N. Y. Filed Apr. 27, 1900. Serial No. 14,638. (No model.)

Claim.—1. The combination of a normally stationary primary reflector for receiving the rays from the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, and means for moving said secondary reflector to correspond with the hourly variation of the sun.

2. The combination of a normally stationary primary reflector having a substantially vertical axis for receiving the rays from the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, and means for moving said secondary reflector to correspond with the hourly variation of the sun.

3. The combination of a normally stationary primary reflector for receiving the rays from the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, and means for moving said secondary reflector bodily to correspond with the hourly variation of the sun and moving it angularly to maintain its central axis in fixed relation with the axis of the converged rays

4. The combination of a normally stationary primary reflector for receiving the rays of the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, and means for simultaneously moving said secondary reflector bodily to correspond with the hourly variation of the sun and moving it angularly to maintain its central axis in fixed relation with the axis of the converged rays.

5. The combination of a normally stationary primary reflector for receiving the rays of the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, and a clockwork for moving said secondary reflector to correspond with the hourly variation of the sun.

6. The combination of a normally stationary primary reflector for receiving the rays of the sun and converging them, a convex secondary reflector for receiving said converged rays and focusing them, and means for moving said secondary reflector to correspond with the hourly variation of the sun.

7. The combination of a normally stationary primary reflector for receiving the rays from the sun and converging them, and a secondary reflector for receiving said converged rays and focusing them, said primary reflector being adjustable to correspond with the daily variation of the sun, and said secondary reflector being movable to correspond with the hourly variation of the sun.

8. The combination of a normally stationary primary reflector for receiving the rays from the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, means for moving said secondary reflector to correspond with the hourly variation of the sun, and a furnace in which said rays are focused.

9. The combination of a normally stationary primary reflector for receiving the rays from the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, a furnace, and means for moving said secondary reflector to maintain the focus of said rays within said furnace during the variation of the sun.

10. A complete spherically-curved reflector comprising a number of sectional reflectors each of which is spherically curved.

11. A complete spherically-curved reflector comprising a number of sectional reflectors each of which is spherically curved and of the same degree of curvature as the complete reflector.

12. A complete spherically-curved reflector comprising a number of sectional reflectors each of which is spherically curved, said sectional reflectors being bodily adjustable independently of each other.

13. A complete spherically-curved reflector comprising a number of sectional reflectors each of which is spherically curved, means for varying the degree of curvature of said complete reflector, and means for correspondingly varying the degree of curvature of each of said sectional reflectors.

14. A cover for a solar furnace comprising a series of transparent plates and a grill between each adjacent pair of said plates.

15. The combination with a cover for a solar furnace comprising a series of transparent plates and a grill between each adjacent pair of said plates, of means for circulating a cooling fluid between said plates.

16. The combination with a cover for a solar furnace comprising a series of transparent plates and a grill between each adjacent pair of plates, of means for circulating a cooling fluid under pressure between said plates.

17. The combination with a cover for a high-pressure furnace, comprising a series of plates, of means for introducing an outward pressure between each adjacent pair of plates.

18. The combination with a cover for a high-pressure furnace comprising a series of plates, of means for introducing a body of fluid under pressure between each adjacent pair of plates.

19. The combination with a cover for a high-pressure furnace comprising a series of plates and means for maintaining said plates separate from each other, of means for introducing an outward pressure between each adjacent pair of plates.

20. The combination with a cover for a high-pressure furnace comprising a series of plates, and means for maintaining said plates separate from each other, of means for introducing a body of fluid under pressure between each adjacent pair of plates.

21. The combination with a cover for a high-pressure furnace comprising a series of plates, and a grill between each adjacent pair of plates for maintaining said plates separate from each other, of means for introducing an outward pressure between each adjacent pair of plates.

22. The combination with a cover for a high-pressure furnace comprising a series of plates, of means for introducing an outward pressure between each adjacent pair of plates, the pressures between successive pairs being reduced outwardly.

23. The combination with a cover for a high-pressure furnace comprising a pair of plates, of means for introducing an outward pressure between said plates, said pressure being less than the pressure in said furnace.

24. The combination with a primary reflector for receiving the rays from the sun and converging them, and a secondary reflector for receiving said converged rays and focusing them, of a solar furnace having a cover comprising a series of transparent plates and a grill between each adjacent pair of plates, said rays being passed through said cover and focused within said furnace.

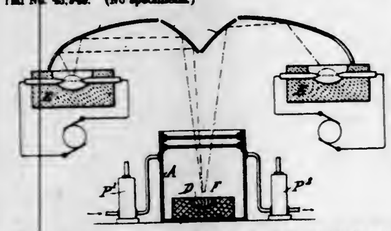
25. The combination with a primary reflector for receiving the rays from the sun and converging them, and a secondary reflector for receiving said converged rays and focusing them, of a solar furnace having a cover comprising a series of transparent plates, and means for circulating

a cooling fluid between said plates, said rays being passed through said cover and focused within said furnace.

26. The combination of a normally stationary primary reflector for receiving the rays from the sun and converging them, a secondary reflector for receiving said converged rays and focusing them, a furnace, and means for moving said secondary reflector bodily so as to constantly receive said converged rays and angularly so as to constantly focus said rays within said furnace.

27. The combination of a normally stationary primary reflector having a substantially vertical axis, for receiving the rays from the sun and converging them, a secondary reflector arranged above said primary reflector, for receiving said converged rays and focusing them, a furnace, and means for moving said secondary reflector bodily so as to constantly receive said converged rays and angularly so as to constantly focus said rays within said furnace.

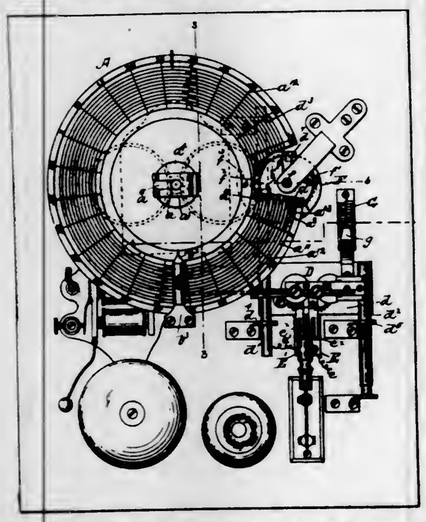
683,089. **REDUCING OXIDS OR OTHER METALLIC COMPOUNDS.** KNUT C. WIDEEN, Brooklyn, N. Y. Filed Jan. 19, 1901. Serial No. 43,949. (No specimens.)



Claim.—1. The process of reducing oxids which consists in putting them into a furnace and forming a vacuum in said furnace, and then closing the same and submitting the oxide to a temperature greater than that of the oxyhydrogen-blowpipe and which alone is sufficient to separate the oxygen.

2. The process of extracting aluminium from its oxid which consists in putting the oxid into a furnace and forming a vacuum in said furnace, and then closing the same and submitting the oxids to a temperature greater than that of the oxyhydrogen-blowpipe and which alone is sufficient to separate the oxygen.

683,090. **RECORDING-CLOCK.** FREDRICK WILLIAMS, Revere, Mass. Filed Aug. 11, 1899. Serial No. 726,914. (No model.)



Claim.—1. In a watchman's clock, a rotary dial, an electromagnet, the coils of which are parallel with the axis of said dial, an armature located in a plane substantially parallel with said dial and operated by said electromagnet, said armature carrying an arm provided at its extremity with a recording device, in combination with one or more circuit-closers in circuit with said electromagnet, whereby the closing of the circuit will cause a movement of said armature in a line parallel with the axis of the dial and cause the recording device to move at right angles to the plane of said dial to make a record thereon, as set forth.

2. In a watchman's clock, a rotary recording-dial and means whereby it is rotated, a carriage and means whereby it is reciprocated, an electromagnet mounted on said carriage, an armature also mounted on said carriage and operated by said electromagnet and carrying a recording device adapted to register on said dial, and one or more circuit-closers each in circuit with said electromagnet, as and for the purposes set forth.

3. The combination with a recording-dial and a recording-marker of a clock of the kind described, an electromagnet, a post carrying an armature hinged thereto, a spring controlling the movements of said armature, said armature lying in a plane substantially parallel with the plane of said dial, and said electromagnet being located to move said armature in a line parallel with the axis of said dial, said armature being provided with means for adjustably holding said recording-marker said means consisting of two adjustable points suitably mounted upon the farther side of said recording-marker from said aramature, and a point located between said recording-marker and said armature, and also between said adjustable points, as and for the purposes set forth.

4. The combination with a recording-dial and a recording-marker, of a clock of the kind described, an electromagnet, a post carrying an armature hinged thereto, a spring controlling the movements of said armature, said armature lying in a plane parallel with the plane of said dial and said electromagnet being located to move said armature in a line parallel with the axis of said dial, said armature being provided with two slotted posts each having a set-screw, the slots in said posts being adapted to receive and hold said recording-marker, and a movable bearing-point located on said armature between said slotted posts, whereby said recording-marker is adjustably held in said posts between the screws thereof and said bearing-point, as and for the purposes set forth.

5. In a clock of the kind described, a recording-dial, a carriage, an electromagnet and its armature mounted on said carriage, a recording-tool connected to said armature and located to make record on said dial, means whereby said carriage is reciprocated in a direction parallel with the plane of said dial and sliding means for maintaining electric connection between said electromagnet and a source of electricity, all as and for the purposes set forth.

6. In a clock of the kind described, a recording-dial, a carriage, an electromagnet and its armature located on said carriage, means for making a record on said dial carried by said armature, means whereby said carriage is reciprocated, a pair of electric contact-plates located on said carriage and electrically connected with said electromagnet, and a pair of fixed contact-plates connected with a source of electricity and in sliding contact with the contact-plates mounted on said carriage whereby electrical contact may be maintained between said electromagnet and said source of electricity during the reciprocation of said carriage, as and for the purposes set forth.

7. The combination in a recording-clock of a recording-dial having a spiral line, mark or course upon it and radial marks or lines separating the said spiral line, mark or course into divisions, means for holding and rotating it, a slide, an electro magnet or magnets mounted upon the slide to be movable therewith, an armature also mounted upon said slide to be movable therewith and adapted to be moved by the magnet or magnets when energized in one direction, and by a spring in the reverse, a recording point or device mounted upon or carried by said armature and adapted to be moved thereby, and means for continuously and slowly moving said slide in one direction, whereby the recording point or device is maintained in line with said spiral line, mark or course on the dial, and means for energizing the magnet as desired, whereby the said recording point or device may be actuated to make impressions or imprints upon the dial, as and for the purposes set forth.

8. In a recording-clock a recording-dial, means for holding and rotating it, a slide, means for moving it slowly and continuously in one direction for any desired interval of time and for returning it at the end of such interval to its initial position, one or more magnets mounted upon said slide to be movable therewith, an armature also mounted upon said slide to be movable therewith, and adapted to be moved by the magnet or magnets when energized in one direction, and by a spring in the reverse direction, and a recording point or device attached to said armature to be moved thereby, as and for the purposes described.

9. In a recording-clock, a recording-dial, means for holding and rotating it, a slide, means for moving it slowly and continuously in one direction for any desired interval of time and for returning it at the end of each interval to its initial position, one or more magnets mounted upon said slide to be movable therewith, an armature also mounted upon said slide to be movable therewith, and adapted to be moved by the magnet or magnets when energized in one direction, and by a spring in the reverse direction, a recording point or device attached to said armature to be moved thereby, a plate past which the dial is moved adjacent to the striking end of the recording point or device and a platen to support the dial when struck by the recording point or device and at a point opposite the same, as and for the purposes set forth.

10. The combination of a clock-movement, a dial-arbor, turned thereby, a dial mounted on the arbor, a cam also turned by the clock-movement at the same rate of rotation as the arbor constructed to impart a continuous movement in one direction during its complete rotation and to then permit the immediate return to initial position of the thing moved, a slide or carriage connected with said cam to be moved thereby and to be returned as specified, a recording point or device carried by said slide and movable therewith having electrically-actuated devices carried by said slide for actuating said recording point or device, line-wires connected therewith and a platen to support the dial during the recording action of the recording point or device.

11. The combination in a recording-clock of a carriage, a cam for continuously moving it for a given period of time in one direction and for then permitting it to be immediately moved backward to its initial position, means connecting the slide, with the cam comprising a slide-rod upon which the carriage is mounted, and which has a cam-pin to engage the cam, an electrically-actuated recording point or device mounted on said slide to be movable therewith, as and for the purposes described.

12. The combination in a recording-clock of a carriage, a cam for continuously moving it for a given period of time in one direction and for then permitting it to be immediately moved backward to its initial position, means connecting the slide with the cam comprising a slide-rod upon which the carriage is mounted, and which has a cam-pin to engage the cam, an electrically-actuated recording point or device mounted on said slide to be movable therewith, and means for maintaining an electric connection with said electrically-operated devices during the movement of the slide.

13. In a clock of the character specified, the slide, means for moving it as described, the recording point or device mounted on said slide to be moved therewith, a stationary scale and an indicator extending from the slide to coöperate with the scale in the setting of the recording device.

14. The combination in a recording-clock of a rotating recording-dial, a slide, a recording point or device mounted thereon, means for electrically actuating it also mounted upon the slide, a cam for slowly moving the slide in one direction, means for recording the cam and devices for setting or adjusting the cam with respect to its operating means and the dial-rotating mechanism.

15. The combination in a recording-clock of a rotating recording-dial having a spiral line, mark or course upon it, radial marks or lines separating said spiral line, mark or course into divisions, a platen, a slide, a cam for slowly moving it in one direction, means for adjusting the cam, a recording point or device carried by the slide, means for electrically actuating the same mounted upon said slide and adapted to be operated from a distance more or less remote therefrom, means for returning said slide and recording point or device and its actuating mechanism to their initial position, and a bell or alarm actuated simultaneously with the vibration of the said recording point or device.

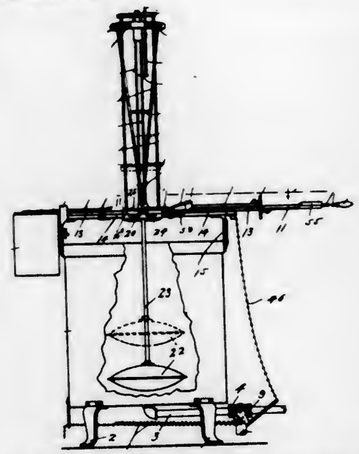
16. The combination in a recording-clock, of a carriage, a cam for continuously moving it for a given period of time in one direction and for then permitting it to be immediately moved backward to its initial position, means connecting the slide with the cam, an electrically-actuated recording point or device mounted on said slide to be movable therewith and a cushion or buffer for checking the return or backward movement of said carriage, as and for the purposes set forth.

17. In a recording-clock, in combination with a recording-dial and a recording-marker, an electromagnet and an armature located in proximity thereto, said armature being provided with two slotted posts each having a set-screw, and a movable bearing located between said posts upon said armature, said recording-marker being located in the slots in said posts and resting upon said bearing-point and being clamped between it and said set-screws, as and for the purposes set forth.

683,091. **MILK-DISPENSING MACHINE.** CHRISTIAN W. WINTHER, Miner, S. D. Filed Apr. 13, 1901. Serial No. 56,635. (No model.)

Claim.—1. The combination with a measuring-tank, of a three-way valve yieldingly held in a position for filling, and movable into a position for discharging from said receptacle, a sliding lock-bolt with connections to said valve, for setting the same in position for filling, a vertically-movable lock-bar for locking said lock-bolt, a trip-wedge movable with said lock-bar, a float in said receptacle, an anvil connected to the stem of said float, and adapted to receive the quantity-check and carry the same into action on said wedge, substantiallly as described.

2. The combination with a measuring-receptacle, of valve mechanism controlling the flow into and from the same, a lock for setting the said valve in a position for filling, a float within said receptacle provided with a projecting stem, an anvil adjustably secured on said stem for the purpose set forth, and adapted to receive the quantity-check, and a trip for said lock involving a wedge which is subject to the quantity-check, substantially as described.



3. The combination with a measuring-receptacle, of valve mechanism therefor yieldingly held in a position for discharging, a lock for holding said valve mechanism in a position to fill said receptacle, and means for tripping said lock under the action of the quantity-check, comprising a float, an anvil, or check-holder, a wedge, and means for adjusting said wedge to vary the degrees of its divergence, substantially as described.

4. The combination with a measuring-receptacle, of valve mechanism yieldingly held in a position for discharging, a lock for holding said valve mechanism in a position for filling, a float in said receptacle provided with a vertical stem, an anvil secured to said float-stem, and a trip for said lock involving a wedge made up of a pair of bars pivoted or fulcrumed at the apex of the wedge and adjustable at the base thereof, substantially as described.

5. The combination with a measuring-receptacle, of valve mechanism yieldingly held in a position for discharging, a lock, connections for setting and securing said valve mechanism in a position for filling, a guide for the quantity-check involving a vertically-movable anvil, a float in said receptacle having a stem which acts upon said anvil to raise the same, a driving-plunger for forcing the quantity-checks onto said anvil, and for moving said lock to set said valve in position to fill it, and a trip for said lock involving a wedge which is subject to the quantity-check which is raised by the anvil, substantially as described.

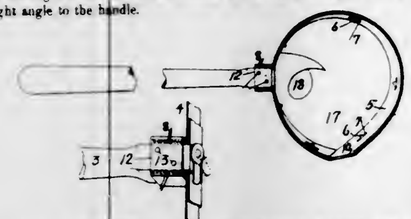
6. The combination with a measuring-tank and a float therein provided with a vertical stem, a valve mechanism yieldingly held in a position for discharging from said receptacle, a guide for the quantity-checks involving a vertically-movable anvil or section connected to said float-stem, a driving-plunger for delivering the quantity-checks over said guide and to said anvil, a vertically-movable lock-bar, a lock-bolt connected to the said valve mechanism and provided with a part which is subject to the quantity-check which is moved onto said anvil, which lock-bolt is moved by said quantity-check into a position where it is locked by said lock-bar, and a trip for said lock involving a wedge which is subject to the raised quantity-check, substantially as described.

7. The combination with a measuring-receptacle, of valve mechanism yieldingly held in a position to fill said receptacle, a lock for holding said valve mechanism in a position for discharging, a guide for the quantity-checks involving a vertically-movable anvil, a float in said receptacle having a stem to which said anvil is connected, a trip for said lock involving a wedge subject to the raised quantity-check, a check-feeding plunger for feeding the quantity-checks to the said anvil, a pawl or detent for locking said plunger and releasing the same when the said lock is released, and a cut-off stop serving to prevent the feeding of checks while the said anvil is raised, substantially as described.

683,092. **INSECT-CATCHER.** EDWARD N. WOOD, Elmira, N. Y. Filed May 25, 1901. Serial No. 61,927. (No model.)

Claim.—1. In an insect-catcher, a funnel provided with an adhesive interior, and means for moving it through the air, said funnel having the form of a frustum of an oblique cone with its longer side immediately opposite the mouth of the funnel and directly in the path of insects caught

by moving the funnel, and its shorter side arranged at approximately a right angle to the handle.



2. In an insect-catcher, a funnel made of folded fly-paper with an adhesive interior, means for moving it through the air, a frame to hold the funnel and connect it to the handle, the funnel being detachable from the frame, and means for detachably securing the funnel to the frame whereby a used funnel may be removed and a fresh funnel readily substituted in said frame.

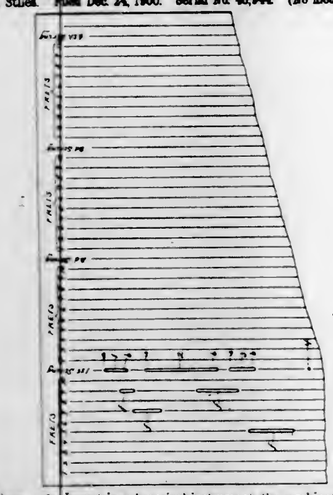
3. In an insect-catcher, a funnel provided with an adhesive interior, means for moving it through the air, and a frame, said frame comprising strips to embrace the edge of the funnel on opposite sides thereof.

4. In an insect-catcher, a funnel provided with an adhesive interior, means for moving it through the air, and a frame, said frame comprising flexible strips to embrace the edge of the funnel on opposite sides thereof.

5. In an insect-catcher, a funnel provided with an adhesive interior, means for moving it through the air, and a frame, said frame comprising flexible strips to embrace the edge of the funnel on opposite sides thereof, the funnel being formed of an angular sheet and the strips bent to aline with the corner of the angular sheet.

6. In an insect-catcher, a funnel provided with an adhesive interior, means for moving it through the air, and a frame, said frame comprising flexible strips to embrace the edge of the funnel on opposite sides thereof and provided with lugs to detachably connect it to a handle.

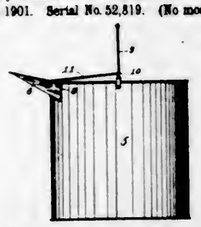
683,093. **NOTE-SHEET FOR STRINGED MUSICAL INSTRUMENTS.** FREDERICK W. WOOD and EDWARD H. STILES, Jr., Kansas City, Mo.; said Wood assignor, by mesne assignments, of one-third to said Stiles. Filed Dec. 24, 1900. Serial No. 40,944. (No model.)



Claim.—1. In a stringed musical instrument, the combination, with reciprocating pickers which strike the strings at the advancing and retreating movements of the pickers, and with any preferred fretting mechanism, of a music-sheet provided with a plurality of lines of perforations for controlling the pickers for the strings, and a plurality of perforations for controlling the fretting-fingers for changing the tones of the strings, said perforations for controlling the pickers for the strings being each of sufficient length to embrace the time for sounding two consecutive notes, whereby one of the notes is caused to be sounded by the advancing end of the perforation, and the next note is caused to be sounded by the retreating end of the same perforation; substantially as described.

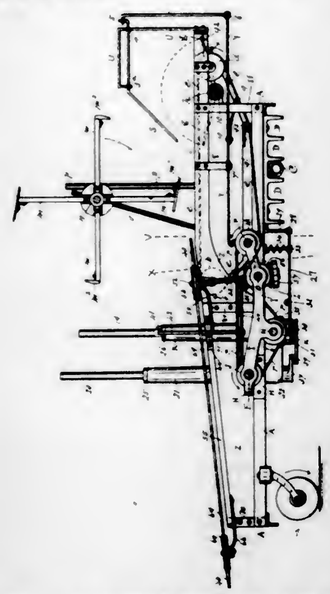
2. In a stringed musical instrument, the combination, of a music-sheet provided with a series of lines of perforations, comprising as many groups of said lines as there are strings to be depressed at the frets, one line in each group containing perforations for controlling the pickers for the strings, the remaining lines in each group corresponding in number to the number of frets, and perforations in said lines for controlling the fretting-fingers for changing the tones of the string, each of said perforations for controlling the pickers being of such a length as to embrace the time for sounding two consecutive notes; a reciprocatory picker which picks the string at the advancing and retreating movements of the picker, and any preferred fretting mechanism; said note-sheet and said picker coacting to cause two notes to be sounded by each of said perforations for controlling the pickers, substantially as described.

683,094. **PAINT-POT.** BENJAMIN R. WOODLEY, Chicago, Ill. Filed Mar. 25, 1901. Serial No. 52,819. (No model.)



Claim.—A pail having a portion of its side wall at the top thereof cut out to form an opening, and an outwardly-projecting inclined shelf having upturned edges, said shelf and edges being joined to the edge of the opening in the wall of the pail, forming a brush-support and spout adapted to conduct drippings into the pail, a wiping-bar secured at each end outside of the wall of the pail to the upturned edges of the spout and extending across the mouth thereof, a perforation in one of the upturned edges of the spout, and a rod looped at one end to the bail, outside the plane of the wall of the pail, and having at its other end a hook adapted to detachably engage the perforation in the edge of the spout outside the plane of the wall of the pail.

683,095. **MACHINE FOR SHOCKING GRAIN.** THOS. A. WOOLEY and HERBERT FOX, Hamilton, Canada. Filed Oct. 15, 1900. Serial No. 33,069. (No model.)



Claim.—1. In a machine for shocking grain, a frame, sides secured to said frame by means of straps, an inner sheaf-receptacle supported by said sides, at the receiving end of the machine, spaces formed between the said receptacle and said sides, sprockets in said spaces and journaled

in bearings on said sides and in the sheaf-receptacle; chains on said sprockets, transverse slats on said chains to place the butts of the sheaves and means to drive said sprockets, substantially as specified.

2. In a machine for shocking grain, a frame, sides secured to said frame, an inner sheaf-receptacle supported by said sides, sprockets journaled between said sides and receptacle, chains on said sprockets, transverse slats on said chains, a spring-board pivoted at the receiving end of the receptacle, said transverse slats capable of operating said spring-board to place the butts of the sheaves downward to allow the transverse slats to place the sheaves into the shock-receptacle of the machine, and actuating mechanism for said sprockets, substantially as specified.

3. In a machine for shocking grain, a frame, sides secured to said frame, an inner sheaf-receptacle supported by said sides, a bent trip-lever with end crank suspended over the receiving end of the sheaf-receptacle, a support for said trip-lever, said support fastened to the receiving end of the machine, a stop-lever pivoted to the side of the machine at the receiving end, a vertical rod connecting said stop-lever and crank, a catch and clutch, the opposite end of said lever capable of releasing said catch and clutch upon the reception of a sheaf which engages the said suspended bent rod to allow the sheaf to be placed into position by mechanism, substantially as specified.

4. In a machine for shocking grain, a sheaf-receptacle and a shock-receptacle, a frame to support said receptacles, sprockets mounted on the ends of the sheaf-receptacle, and on the outer sides thereof; chains on said side sprockets, lower side sprockets to receive said chains, and side rollers mounted on the lower part of the sides of the sheaf-receptacle, said chains passing under said rollers, transverse slats on said chains, said rollers to allow freedom of transit to said slats, and an opening at the junction of the floors of said receptacles to allow the operation of the transverse slats, substantially as specified.

5. In a machine for shocking grain, a frame, sides secured to said frame, an inner sheaf-receptacle supported by said sides, sprockets mounted between said sides and receptacle, a lower transverse shaft below said receptacle and mounted on said frame, sprockets on said shaft, oppositely-disposed chains engaging with said sprockets, side rollers pivoted to the lower part of said receptacle and adapted to guide said chains, transverse slats on the chains, a spring-board pivoted to the receiving end of said receptacle, the transverse slats capable of engaging with the under side of said spring-board at the reception of each sheaf, and to place the butt-ends of the sheaves downward, to allow said transverse slats to forward the sheaves, toward the discharging end of the machine, and actuating mechanism connected to said shaft, substantially as specified.

6. In a machine for shocking grain, a frame, a sheaf-receptacle and a shock-receptacle secured on said frame, a bent trip-lever suspended over the receiving end of said sheaf-receptacle, a crank on the forward end of the horizontal part of said trip-lever, a bent supporting-rod for said trip-lever, said supporting-rod fastened to the receiving end of the machine, a stop-lever pivoted to the side of the machine, at the receiving end thereof, a vertical rod connecting the end of said stop-lever and crank, a catch and clutch, the opposite end of said lever capable of releasing said catch and clutch, upon the reception of a sheaf which engages the said suspended bent rod, to allow the sheaf to be placed into position, oppositely-disposed sprockets mounted on the outer sides of the sheaf-receptacle, a transverse shaft capable of revolving in bearings on said frame and underneath said sheaf-receptacle, sprockets on said shaft, chains with transverse slats on said sprockets, guide-rollers at the receiving end of the sheaf-receptacle for said chains, and actuating mechanism for said shaft, substantially as specified.

7. In a machine for shocking grain, a frame, a sheaf-receptacle secured to said frame, a vertical side post with lower extension transversely secured on said frame, a vertically-adjustable transverse bearing on said post, a reel mounted on said bearing and immediately over the said receptacle and means for revolving the reel one half-revolution at the reception of each sheaf in the receptacle, substantially as specified.

8. In a machine for shocking grain, a frame, a sheaf-receptacle secured to said frame, a reel capable of revolving over said receptacle, a vertical side post with lower part extending transversely on said frame and fastened thereto, a vertically-adjustable bearing on said post to support said reel, a main transverse drive-shaft mounted on said frame and revolved by an attached binder-machine, and actuating mechanism connecting said main shaft to said reel to revolve the same one half-turn at each reception of a sheaf, substantially as specified.

9. In a machine for shocking grain, a frame, a sheaf-receptacle secured to said frame, a reel, a vertical side post with lower extension transversely secured on the upper side of said frame, a transverse bearing on said post, said bearing capable of vertical adjustment, said reel capable of revolving with its shaft in said bearing, an inclined shaft capable of revolving in a lower bearing on said frame, an upper sleeve for said shaft, a vertically-adjustable arm on said post, a slot in said arm to allow said arm to fasten to said incline-shaft sleeve, a gear-wheel secured on the shaft of the reel, a gear-wheel secured on said incline shaft to mesh into said wheel and drive the reel by actuating mechanism connected to said incline shaft to revolve the reel one half-revolution at the reception of a sheaf, substantially as specified.

10. In a machine for shocking grain, a frame, sides secured to said frame, a vertical knotter-shaft column and a vertical needle-shaft column, said columns connected by an oblique tube secured to the under side of said frame, vertical shafts through said columns, collars on said shafts resting on the columns, said sides inclining downward toward the discharge end of the machine, outer flanges on said sides, and supported by said columns, horizontally-inclined sprockets with chains supported by said flanges, at both ends thereof, horizontally-inclined discharging-arms, attached to said chains, and actuating mechanism connected to said sprockets at the receiving end of the shock-receptacle, to revolve said discharging-arms one half-revolution, substantially as specified.

11. In a machine for shocking grain, a frame, a shock-receptacle forming a part thereof, said receptacle widening out toward and to the discharging end thereof, the sides of said receptacle inclining downward toward and to the said discharging end, flanges on said sides, sprockets mounted at both ends of said inclined flanges and supported by said flanges and capable of revolving with chains in line with said inclines, arms on said chains, upright inclined shafts, at right angles to said chains, lower bearings secured to the frame for said shafts, the upper end of said shafts supported by said upper flange-bearings, said upper incline sprockets secured on said incline shafts, lower sprockets on said shafts, a chain connecting said sprockets, and actuating mechanism to revolve the chains with arms one half-revolution at the discharge of each shock, substantially as specified.

12. In a machine for shocking grain, a frame, sides secured to said frame, a sheaf-receptacle secured to said sides at the receiving end of the machine, said sides and frame widened out at the shock-discharging end of the machine, a shock-receptacle between said widened-out parts, said sides being widened out to facilitate the discharge of said shock, said sides of the shock-receptacle inclining downward toward and to the discharging end of the machine to facilitate the discharge of the shock in a vertical position, and an opening formed between the floors of said receptacles, spaces formed in the sheaf-receptacle, sprockets mounted in said spaces, chains on said sprockets, transverse slats on said chains to place the sheaves, said floor opening to allow said slats to operate, and mechanism to actuate said sprockets to revolve the same one half-revolution at the reception of each sheaf, substantially as specified.

13. a machine for shocking grain, a frame, a sheaf-receptacle and a shock binding and discharging receptacle supported on said frame, adjusting-bars having a series of recesses said bars secured to the under side of the frame immediately below said sheaf-receptacle, a transverse tube fitting in any of the said recesses to support the said part of the machine and to adjust the machine endwise, said tube extending to and secured to a binder-machine, a pin through the outer end of said tube to engage with the outer side of the recessed adjusting-bar farthest from the binder, and a strap or collar on the said extending part of the tube to engage with the side of the adjusting-bar next to the binder to hold the shock-machine in position, substantially as specified.

14. In a machine for shocking grain, a frame widened out at the discharging end and supported on caster-wheels, sides secured to the frame, a shock-receptacle between said sides, upper flanges on the sides to strengthen the same, vertical needle and knotter shaft columns in position, an oblique tube connecting said columns, said tube fastened to the under side of said frame, said flanges fastened to said columns, a main shaft, a bracket-bearing with side projection, secured to the side of the machine next to the connected binder, to support said main shaft, a sprocket secured on said main shaft, a transverse shaft supported by said bracket-bearing, and a bearing on the frame of the machine, a sprocket mounted loosely on said transverse shaft, a bearing on the lower part of the knotter-column, a shaft in said bearing, and in the lower part of said bracket-bearing, a sprocket mounted loosely on said shaft, an intermediate shaft journaled in said bracket-bearing, and in a bearing secured to the frame, a sprocket mounted loosely on said shaft, a chain connecting said sprockets, and mechanism connected to the sprockets to transmit power to the machine as described.

15. In a machine for shocking grain, a frame, sides secured to said frame, a sheaf-receptacle in said sides at the sheaf-receiving end thereof, a transverse spring-board pivoted to the sides of said receptacle and extending to the end of the machine, coil tension-springs on the pivotal ends of said spring-board to normally incline said board toward the receiving end of the machine.

16. In a machine for shocking grain, a frame, a vertical side post with transverse lower extension, secured on and to said frame, a reel suitably mounted on a transverse shaft, a transverse bearing secured to said post, said reel capable of revolving with its shaft in said bearing, a gear-wheel secured on said shaft, an incline shaft in a lower bearing secured to said frame, a bearing or sleeve on said incline shaft, said bearing ad-

justably connected to an arm on said post, a gear-wheel secured on said incline shaft above said sleeve, to mesh into the gear-wheel on the said reel-shaft, a gear-wheel secured on the lower part of the incline shaft, a transverse shaft capable of revolving in bearings secured to said frame, a gear-wheel on said transverse shaft to mesh into said lower wheel, a loosely-revolving sprocket on the opposite end of the transverse shaft, a bearing connected to the frame, said opposite end of the transverse shaft supporting the connected bearing, a clutch connected to said sprocket, a catch on said clutch and means to actuate to stop said clutch to revolve said reel one half-revolution at the reception of each sheaf, substantially as specified.

17. In a machine for shocking grain, a frame, sides secured to said frame, opposite incline shafts supported in bearings on the sides of said frame, a sprocket with bevel-wheel to revolve loosely on the lower end of one of said shafts, and below said frame, a bevel-wheel secured on the same said shaft, a shaft at right angles with said frame and journaled in said bearing, a connecting-bearing secured to the frame as a bearing for the other end of said shaft, a sprocket to run loosely on said shaft, a clutch and bevel-wheel secured on said shaft, said bevel-wheel to drive said wheels on the incline shaft, a chain transversely connecting said sprockets on the incline shafts, discharge-arm chains driven by said inclined shafts, and mechanism to actuate said clutch to operate said discharge-arm chains one half-revolution at the charge of each shock, substantially as specified.

18. In a machine for shocking grain, a frame, sides secured to said frame, a floor on said frame, said sides inclining downward to the discharging end of said frame, inclined shafts on each side of the frame, and located at the beginning of said inclined portion of the sides, and at right angles therewith, bearings on the sides of the frame for the lower parts of said shafts, sprockets secured on the upper parts of said shafts, upper strengthening-flanges on the incline sides, bearings secured to said flanges to support said shafts, sprockets at the discharging end of said flanges, bearings secured to said incline flanges to support said sprockets, chains connecting said sprockets, arms secured to said chains, to discharge the shock, sprockets secured to the lower ends of said shafts and a transversely-operating chain connecting said lower sprockets, and means for actuating said chains with arms at the discharge of each shock, substantially as specified.

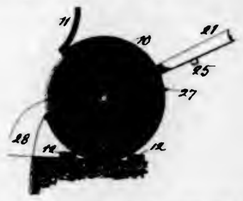
19. In a machine for shocking grain, a frame, sides secured to said frame, vertical needle and knotter columns with lower oblique tube fastened obliquely to the under side of said frame, vertical needle and knotter shafts supported by said columns, collars on said shafts resting on said columns, a cam on the knotter-shaft collar, a vertical rod to engage with said cam, a horizontal stop-bar, the lower end of said rod pivoted to said stop-bar, a main drive-shaft, collars on said shaft to hold loosely one end of said stop-bar which is loosely connected on said shaft and between said collars, an incline lip on said vertical rod, a shaft O, chains carrying discharge-arms driven thereby, said discharge-arms to engage with said lip to lower said rod, a clutch with catch secured on said shaft, the other end of said stop-bar to engage with said catch at the said lowering of the vertical rod to cause said clutch to stop, and allow the discharge-arm chains to stop, at one half-revolution at the discharge of each shock, as described.

20. In a machine for shocking grain, a frame, sides secured to said frame, an inner sheaf-receptacle secured to said sides, sprockets mounted between said sides and receptacle, lower sprockets on a transverse shaft, chains connecting said mounted sprockets of the receptacle, and said lower sprockets, chain-guide rollers mounted on the lower receiving end of said receptacle to engage with said chains, transverse slats on said chains to place the sheaves in position in the shock-receptacle, a stop-lever pivoted to a side of the machine, a branch on said lever, said transverse bars to engage with said branch to raise one end of said lever and cause the depression of the other end of said lever, a catch on a clutch, a transverse shaft, said clutch secured to said shaft, the depressed end of said lever to engage said catch to cause said transverse slats to stop at one half-revolution of the chains at the reception of each sheaf, substantially as specified.

21. In a machine for shocking grain, a bent transverse tube with casters suitably mounted on the ends thereof, a lower longitudinal plate, the central part of said plate fastened to the central part of said tube, an upper longitudinal plate, a frame, needle and knotter columns, with lower oblique tube fastened to said frame, one end of said upper longitudinal plate fastened to said oblique tube, and the other end of said upper plate fastened to said frame at the discharging end thereof, brackets fastened to the under side of said upper plate, near the ends thereof, and brackets fastened to the upper side of said lower plate, to conform therewith, a longitudinal rod passing through said brackets, as a pivotal center to said transverse caster-tube, and braces connecting said caster-tube to the said lower plate, as described.

683,096. MOVABLE EARTH-BOX. SILAS ADEIT, Jamestown, Ohio. Filed Dec. 5, 1900. Serial No. 38,726. (No model.)

Claim.—1. A movable earth-box for the purpose described, of cylindrical shape and of a length coextensive with a grave, a door in the side thereof and means to hold it closed, the same intended to receive and hold the diggings resulting from the excavation of a grave while resting on its side and lengthwise of its periphery alongside of the latter and adapted to be moved while so loaded and so resting on its round side to and from the grave and to be manipulated for the purpose of dumping its contents, such moving and manipulation of the device being by rolling the box while resting on its side and lengthwise of its periphery.



2. A movable earth-box adapted to receive and hold the diggings resulting from the excavation of a grave, the same being of cylindrical shape, an opening in the side thereof of a length coextensive with the grave on which the device is used, a door for this opening, means to hold it closed, a central projection at each end of the box and notches circularly arranged around the same, permitting temporary attachment of an implement for the purpose of moving and manipulating the box while loaded and for dumping its contents, such moving and manipulation being by rolling the box while resting on its side and lengthwise of its periphery.

3. A movable earth-box adapted to receive and hold the diggings resulting from the excavation of a grave, the same being of cylindrical shape, an opening in the side thereof of a length coextensive with the grave on which the device is used, a door for this opening, means to hold it closed, a wheel at each end of the box of a diameter less than the diameter of this latter, axles for these wheels and two bearings for these axles in each end of the box and which they may interchangeably occupy for the purpose of either supporting the box on the wheels or for permitting the same to occupy a position in which it rests on its side and lengthwise of its periphery.

4. A movable earth-box adapted to receive and hold the diggings resulting from the excavation of a grave, the same being of cylindrical shape, an opening in the side thereof of a length coextensive with the grave on which the device is used, a door for this opening, means to hold it closed, a wheel at each end of the box, an axle for each, notches circularly arranged around such ends, and an implement for manipulating the box being adapted to be received by one of the notches mentioned and having a notch in its end adapted to engage the axle of one of the wheels.

5. A movable earth-box adapted to receive and hold the diggings resulting from the excavation of a grave, the same being of cylindrical shape, an opening in the side thereof of a length coextensive with the grave on which the device is used, a door for this opening, means to hold it closed, a wheel at each end of the box, an axle for each, notches circularly arranged around such ends, a projection 24 inside of the box and opposite the opening therein and an implement having a notch in its end and a lateral projection 25 and adapted to engage the box for manipulating the same in the various ways, substantially as indicated.

6. A movable earth-box adapted to receive and hold the diggings resulting from the excavation of a grave, the same being of cylindrical shape, an opening in the side thereof of a length coextensive with the grave on which the device is used, a door for this opening, means to hold it closed, a wheel at each end of the box of a diameter less than the diameter of this latter, axles for these wheels, two bearings for these axles in each end of the box and which they may interchangeably occupy for the purpose of either supporting the box on the wheels or for permitting the same to occupy a position in which it rests on its side and lengthwise of its periphery, notches 23 arranged around each of its ends, a projection 24 inside of the box and opposite the opening therein and an implement having a notch in its end and a lateral projection 25 and adapted to either engage one of the axles of the wheels and one of the notches 23 for the purpose of manipulating the box while loaded, or by engaging projection 24 and with its projection 25 in engagement with the edge of the opening, serving as a tongue for moving the box while empty, being held in this latter position by the closed door.

683,097. WEATHER-STRIP AND SASH-FASTENER. FRANK ALLEN, Memphis, Tenn. Filed Jan. 25, 1901. Serial No. 44,749. (No model.)

Claim.—1. The combination with a window-sash, of a channel-bar secured thereto, and an adjustable plate secured to the window-frame and projecting into said channel-bar, with eccentric-headed screws for adjusting said plate, substantially as described.



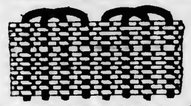
2. The combination with a window-sash and channel-bars secured thereto on opposite sides thereof, of metal plates projecting into said channel-bars from opposite sides of the sash, and eccentric-headed screws for adjusting the position of one of said plates, substantially as described.

3. The combination with a window-sash, of a channel-bar secured thereto, with notches therein, an adjustable plate secured to the window-frame and projecting into said channel-bar, and a bolt mounted on said plate and adapted to engage in said notches, substantially as described.

4. The combination with a window-sash and channel-bars secured thereto on opposite sides thereof, of metal plates projecting into said channel-bars from opposite sides of the sash, notches on the plate inside the window, means for adjusting the position of the latter plate, and a bolt mounted on said plate and adapted to engage in said notches, substantially as described.

5. The combination with a window-sash, of a channel-bar secured thereto, with notches therein, an adjustable plate secured to the window-frame and projecting into said channel-bar, eccentric-headed screws for adjusting said plate, and a bolt mounted on said plate and adapted to engage in said notches, substantially as described.

683,098. ELECTRIC CLOTH OR FABRIC. LOUIS BAECKER, Detroit, Mich., assignor of one-half to Elias Aberle, same place. Filed June 24, 1901. Serial No. 65,797. (No specimens.)

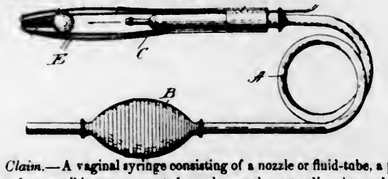


Claim.—1. An electric cloth or fabric for electrotherapeutic uses formed of zinc and copper wires or strips constituting the warp of the fabric, and woof-threads interwoven with the warp insulating the zinc and copper the one from the other adjacent to the woof, said fabric adapted to be made electric when in use by the presence of the body and the temperature of the wearer.

2. An electric cloth or fabric for electrotherapeutic uses having copper and zinc interwoven therewith at suitable intervals, said zinc and copper formed of wire or strips coiled into spiral form, said fabric adapted to be made electric when in use by the presence of the body and the temperature of the wearer.

3. An electric cloth or fabric for electrotherapeutic uses having zinc and copper interwoven therewith, said zinc and copper portions of the fabric formed of wire or strips coiled over corresponding interior cords, said cords interwoven in said fabric, said fabric adapted to be made electric when in use by the presence of the body and the temperature of the wearer.

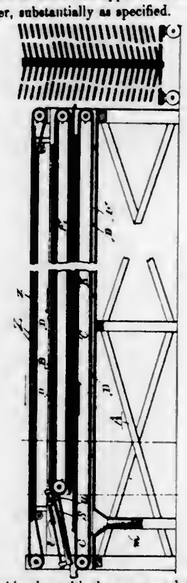
683,099. SYRINGE. ARTHUR E. BONESTEEL, Central City, Colo. Filed Jan. 7, 1901. Serial No. 42,408. (No model.)



Claim.—A vaginal syringe consisting of a nozzle or fluid-tube, a plurality of expansible arms mounted on the nozzle, extending beyond the end of the nozzle and having their inner ends doubled inward on themselves, a ball or globular guard secured to the said inwardly-turned ends of the expansible arms in axial alinement with the nozzle, a collar mounted on the nozzle, and an operating-rod slidably mounted in said collar, projecting beyond the nozzle, within the expansible arms, and having its end secured to the ball or globular guard.

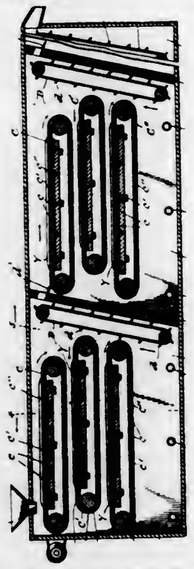
683,100. APPARATUS FOR FACILITATING PACKING. LOUIS S. BURBANK, Worcester, Mass., assignor, by mesne assignments, to the Natural Food Company, Niagara Falls, N. Y. Filed Dec. 21, 1899. Serial No. 741,073. (No model.)

Claim.—1. The combination with an upper endless tray-carrier, and a lower endless tray-carrier moving in the opposite direction, and extending at one end, beyond the upper tray-carrier, of the lateral intermittently-acting slideways at the end of the upper carrier and above the extension of the lower carrier, substantially as specified.



2. The combination with the upper and lower chambers, and the upper and lower tray-carriers respectively located therein, of the lateral packing-ledges of the frame, the waste chutes and openings, the carton-carrier, and the automatic drop device for the trays at the end of the upper carrier and over an extended portion of the lower carrier, substantially as specified.

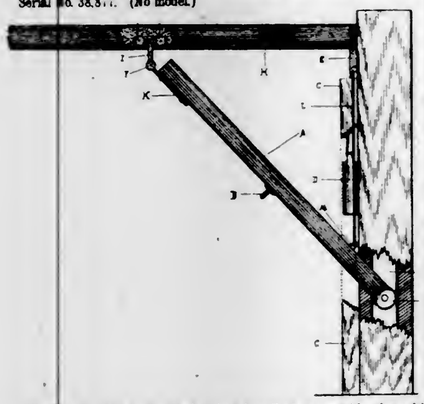
683,101. APPARATUS FOR CURING OR DRYING GRAIN. LOUIS S. BURBANK, Worcester, Mass., assignor, by mesne assignments, to the Natural Food Company, Niagara Falls, N. Y. Filed Dec. 30, 1899. Serial No. 742,122. (No model.)



Claim.—Apparatus for the purpose described, consisting of a series of chambers having each means for regulating the temperature and moi-

ture, traveling carriers having means for adjusting their speed, and formed of the endless straps, the transverse slats having end portions adapted to have a hinged or pivotal movement with respect to the main portions thereof, the removable aprons, the lateral guides, and transfer-elevators forming means of communication from one chamber to the next, substantially as specified.

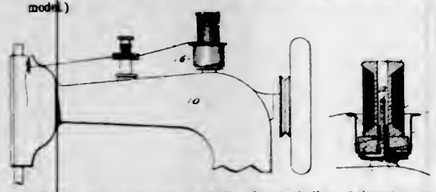
683,102. DOOR-OPERATING DEVICE. CLARENCE L. COLBY, New Paris, Ohio, and CHARLES F. PERLLE, Richmond, Ind. Filed Dec. 6, 1900. Serial No. 38,877. (No model.)



Claim.—1. In a device of the class described, the combination with a door-opening, of vertical guides at the sides thereof, an upwardly-movable door having members on its lower end which travel in the guides, a track extending out horizontally at the top of the door-opening, a depending arm having a roller at its upper end which is adapted to travel on the upper face of the track said arm being pivoted to the top of the door, whereby the latter is sustained by the arm and roller, and counterbalancing-weights for the door.

2. In a device of the class described, the combination with a door-frame, of a box-like casing or track having a longitudinal slot in its bottom and extending out horizontally from the top of the frame, vertical guides, a door having its lower end guided by said guides, a truck provided with rollers which travel in the casing, with the rollers bearing thereon, and an arm depending from said truck and pivotally connected to the top of said door, whereby the door can be made to assume a horizontal position parallel with the casing or track, when raised.

683,103. TENSION DEVICE FOR SEWING-MACHINES. CHAS. A. CRIST, New York, N. Y. Filed July 10, 1900. Serial No. 23,123. (No model.)

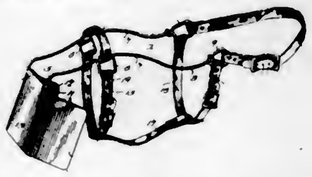


Claim.—In a device for regulating the unwinding of thread or the like, the combination with a spindle and a spool, of a perforated block adapted to closely fit against one of the ends of said spool and to revolve therewith, means for detachably securing said block to the spool, a stationary guide for maintaining the thread, after it leaves the spool, above the elevation of the under side of said block, and a split ring, adapted to fixedly engage with said spindle, attached to said guide and extending into the lower portion of the perforation in said block and adapted to constitute the axis around which said block revolves.

683,104. CALF-WEANER. DANIEL DAGGETT, Lexington, Nebr. Filed July 30, 1901. Serial No. 70,285. (No model.)

Claim.—1. A calf-weaner comprising a frame having its side portions provided with means of attachment to a halter, and its front portion provided with a downwardly-disposed offset, and a shield hinged to the offset and of greater width than the same, substantially as and for the purpose specified.

2. In a calf-weaner, a frame having its front portion provided with a cross-bar and shoulders adjacent thereto, the side portions of the frame being provided at one end and intermediate of their ends with eyes to be engaged by the members of a suitable halter, and a shield hinged to the cross-bar and being of greater width than the space between the shoulders, substantially as described.

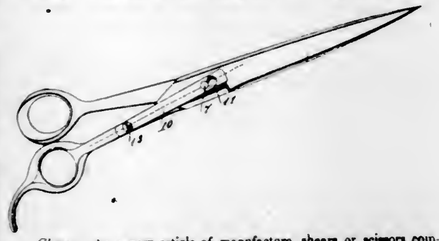


3. In a calf-weaner, a frame having its front portion provided with a cross-bar and shoulders adjacent thereto, the members of the frame being provided at one end, and intermediate of their ends with eyes to be engaged by the members of a suitable halter, and an approximately semicircular shield having a tongue hinged to the cross-bar, the shield having side wings extending laterally beyond the frame members, substantially as described.

4. In a calf-weaner, the combination with a frame supporting a shield of greater width than the frame, the members of the frame being provided at one end and intermediate of their ends with eyes, of a nose-strap and jaw-strap engaging the intermediate set of eyes, a throat-latch and a head-strap engaging the terminal eyes, and a tie-strap connecting the jaw-strap and throat-latch, substantially as described.

5. In a device of the character specified, the combination with the blab, of prongs or prods projecting rearward from the lower edge thereof, substantially as described.

683,105. SHEARS OR SCISSORS. PATRICK DESNOYERS, Magog, Canada. Filed Feb. 13, 1901. Serial No. 47,111. (No model.)



Claim.—As a new article of manufacture, shears or scissors comprising suitable members each having a handle, one of said handles being provided with a socket 14, a fulcrum-pin passing loosely through said members and provided at one end with a head 8 that is adapted to engage with one of the members and formed near its other end with notches 9, a leaf-spring having a bowed curvature and provided near one end with a keyhole-slot adapted to receive the notched end of the fulcrum-pin, and a set-screw mounted near the other end portion of said bowed spring and adapted to enter the socket 14, one end of the bowed spring bearing upon one of the shear members and the other end of the spring being adjustably supported by the set-screw, whereby the intermediate portion of the spring is normally bowed outward to maintain the spring in its adjusted position and to draw the fulcrum-pin head against one of the shear members.

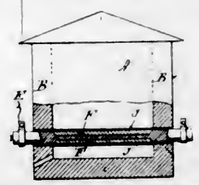
683,106. POWDER CHARGE. PAUL DU BUIT, Paris, France. Filed Sept. 27, 1900. Serial No. 31,328. (No specimens.)



Claim.—A charge of powder consisting of a plurality of sheets of suitable composition and of varying thickness, the said sheets provided with tapering elongations and being rolled up to present all of said elongations in the same direction, substantially as and for the purpose described.

683,107. SMELTING-FURNACE. LEONARD S. DUMOULIN, Flushing, N. Y. Filed Oct. 13, 1899. Serial No. 733,456. (No model.)

Claim.—1. In heat-producing devices for the smelting of ores and the fusing of minerals in furnaces, an electric furnace, a conductor consisting of a bar of high resisting material extending through the furnace-chamber having the portion thereof within the furnace of less diameter than its ends and a covering of insulating refractory material surrounding the reduced portion, of sufficient thickness and strength to support the reduced portion of the rod, the ends of the rod being without covering and supporting the ends of the covering of the reduced portion; substantially as described.



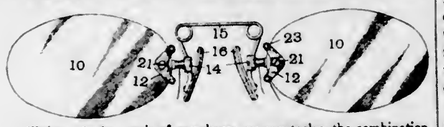
2. In heat-producing devices for the smelting of ores and the fusing of minerals in furnaces, an electric furnace, a conductor consisting of a bar of high resisting material extending through the furnace-chamber having the portion thereof within the furnace of less diameter than its ends, the rods being tapered between its ends and the reduced portion, and a covering of insulating refractory material surrounding the reduced portion of sufficient thickness and strength to support the reduced portion, and having its ends extending onto and supported by the tapered portions; substantially as described.

3. In heat-producing devices for the smelting of ores and the fusing of minerals in furnaces, an electric furnace, a conductor consisting of a bar of high resisting material extending through the furnace-chamber, having the portion thereof within the furnace of less diameter than its ends and a covering of insulating refractory material surrounding the reduced portion, the exterior diameter of the covering being substantially the same as that of the ends of the bar; substantially as described.

4. In heat-producing devices for the smelting of ores and the fusing of minerals in furnaces, an electric furnace, a conductor-bar of high resisting material extending through the furnace-chamber, having a portion thereof covered by non-conducting refractory material, and a tube of refractory material having its ends secured in the walls of the furnace, and having its interior diameter corresponding substantially with the exterior diameter of the covering of the conductor-bar; substantially as described.

5. In heat-producing devices for the smelting of ores and the fusing of minerals in furnaces, an electric furnace, a conductor consisting of a bar of high resisting material extending through the furnace-chamber, having the portion thereof within the furnace of less diameter than its ends, a covering of insulating refractory material surrounding the reduced portion, the exterior diameter of the covering being substantially the same as that of the ends of the bar, and a tube of refractory material having its ends secured in the walls of the furnace and surrounding the conductor, the interior diameter of the tube being such that the conductor may be readily inserted therein; substantially as described.

683,108. EYEGLASSES OR SPECTACLES. JOSEPH C. DUROUAUX, St. Louis, Mo. Filed July 1, 1901. Serial No. 66,643. (No model.)



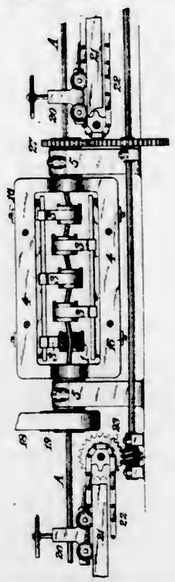
Claim.—1. In a pair of eyeglasses or spectacles, the combination with a lens, of a clamping-plate fitting against one side of said lens, a frame-supporting member carried by said clamping-plate, a second clamping-plate fitting on the other side of said lens, a clamping-screw passing through both of said clamping-plates and said lens, and a pin connecting said clamping-plates, said pin being situated at one side of said clamping-screw and bearing against the edge of the lens to prevent the rotation of the same on said clamping-screw.

2. In a pair of eyeglasses or spectacles, the combination with a lens, of a clamping-plate fitting against one side of said lens, a frame-supporting member carried by said clamping-plate, a second clamping-plate fitting on the other side of said lens, a clamping-screw passing through both of said clamping-plates and said lens, and a pin rigidly carried by one of said clamping-plates and passing freely through an opening in the other of said plates, said pin being situated at one side of the clamping-screw and bearing against the edge of the lens to prevent the rotation of the same on said clamping-screw.

3. In a pair of eyeglasses or spectacles, the combination with a lens, of a clamping-plate fitting against one side of said lens, a frame-supporting member carried by said clamping-plate, a second clamping-plate fitting on the other side of said lens, a clamping-screw passing through both of said clamping-plates and said lens, and a pair of pins connecting said clamping-plates, one of said pins being situated at each side of the clamping-screw and bearing against the edge of the lens to prevent the rotation of the same on said clamping-screw.

4. In a pair of eyeglasses or spectacles, the combination with a lens, of a clamping-plate fitting against one side of said lens, a frame-supporting member carried by said clamping-plate, a second clamping-plate fitting against the other side of said lens, a clamping-screw passing through both of said clamping-plates and said lens, and a pair of pins rigidly carried by one of said clamping-plates and passing freely through openings in the other of said plates, one of said pins being situated at each side of the clamping-screw and bearing against the edge of the lens to prevent the rotation of the same on said clamping-screw.

683,109. MACHINE FOR POLISHING OR BURNISHING METAL BARS OR RODS. CHARLES S. DUTTON, Perth Amboy, N. J. Filed Dec. 11, 1900. Serial No. 39,480. (No model.)



Claim.—1. In a machine for polishing or burnishing metal rods or bars, the combination of a polishing-ring having a central opening which is adapted to effect rolling contact of the ring with the periphery of a rod or bar of circular section, a supporting-frame a bearing adjustably secured therein and in which said polishing-ring is mounted rotatably, and means for adjusting said polishing-bearing in the supporting-frame, toward or from the axial line of a rod or bar traversing longitudinally through the central opening of the polishing-ring.

2. In a machine for polishing or burnishing metal bars or rods, the combination of a supporting-frame, a plurality of polishing-rings, each having a central opening which is adapted to effect rolling contact of the ring with the peripbery of a rod or bar of circular section and being mounted rotatably in the supporting-frame, and means for adjusting one or more of the polishing-rings in the supporting-frame so as to vary the relation of its axis of rotation to that of an adjoining polishing ring or rings.

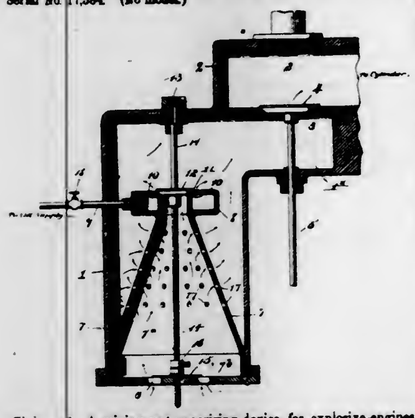
3. In a machine for polishing or burnishing metal bars or rods, the combination of a revolving frame, with a plurality of polishing-rings, each having a central opening within which the ring and the periphery of a rod or bar of circular section contact, said rings being arranged in series along said frame, and means for revolving the frame.

4. In a machine for polishing or burnishing metal rods or bars, the combination of a revolving frame having hollow trunnions, a series of polishing-rings arranged within said frame between its trunnions, means for adjusting the rings relatively to the axis of the frame, and means for revolving the frame.

5. In a machine for polishing or burnishing metal rods or bars, the combination of a revolving frame, a series of polishing-rings within said

frame adjustably supported on the opposite sides thereof, and means for revolving the frame.

683,110. **MIXING AND VAPORIZING DEVICE FOR EXPLOSIVE-ENGINES.** FRED W. FELRATH, Dayton, Ind. Filed May 21, 1900. Serial No. 17,384. (No model.)



Claim.—1. A mixing and vaporizing device for explosive-engines comprising an oil-vaporizing chamber having communication with the outer air at its lower end and with the combustion-cylinder at its upper end, a hollow chamber having a perforated wall providing an interior chamber and oil-distributing inner surface, a valve-disk controlling communication between the vaporizing-chamber and the combustion-cylinder, an oil-feed having a feed-outlet and located in the vaporizing-chamber, a valve-disk controlling the feed-outlet and means for operating said valve-disk of the oil-feed by the air-pressure caused by the suction of the combustion-cylinder.

2. A mixing and vaporizing device for explosive-engines comprising an oil-vaporizing chamber having communication with the outer air at its lower end and with the combustion-cylinder at its upper end, a hollow conical chamber having a perforated wall providing an interior chamber and oil-distributing inner surface, a valve-disk controlling communication between the vaporizing-chamber and the combustion-cylinder, an oil-feed having a feed-outlet and located in the vaporizing-chamber, an upper valve-disk controlling the feed-outlet, a lower valve-disk controlling the communication with the outer air, and a sliding rod connecting the upper and lower valve-disks.

3. A mixing and vaporizing device for explosive-engines comprising an oil-vaporizing chamber having communication with the outer air at its lower end, and with the combustion-cylinder at its upper end, a hollow conical chamber having a circular base and perforated wall providing an interior chamber and oil-distributing inner surface, and an oil-feed adapted to feed the oil onto the said inner surface of the conical chamber.

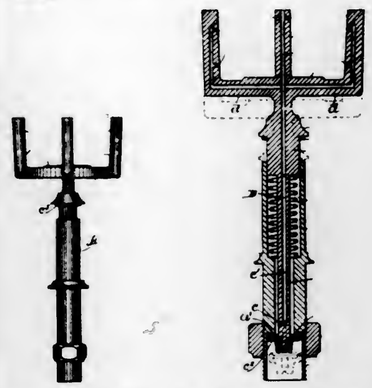
4. A mixing and vaporizing device for explosive-engines comprising a vaporizing-chamber having communication with the outer air and with the combustion-cylinder, a valve-disk controlling the communication to said combustion-cylinder, a conical chamber arranged within said vaporizing-chamber to receive the incoming air as said valve-disk is operated, and an oil-receptacle arranged to feed the oil onto the upper part of the interior surface of said conical chamber, and automatically-operating means for controlling the flow of oil, substantially as described and for the purpose set forth.

5. A mixing and vaporizing device for explosive-engines comprising a vaporizing-chamber having communication with the outer air and with the combustion-cylinder, a valve-disk controlling the communication to said cylinder, a perforated conical chamber arranged to receive the incoming air as said valve-disk is operated, and having an opening at its smaller end, an oil-receptacle arranged to feed the oil onto the interior surface of said conical chamber through its smaller end opening, and automatically-operating means for controlling the oil flow, substantially as described and for the purpose set forth.

6. A mixing and vaporizing device for explosive-engines comprising a vaporizing-chamber having communication with the outer air and with the combustion-cylinder, a valve-disk controlling the communication to said cylinder, an open-ended conical chamber arranged to receive the incoming air as said valve-disk is operated, an annular oil-receptacle supported at the top of said conical chamber and having outlets leading to the opening therethrough, a reciprocating rod extending through the end opening of the conical chamber, having a valve-disk to receive the pressure of the incoming air and a valve-disk closing the oil-outlets, substantially as described and for the purpose set forth.

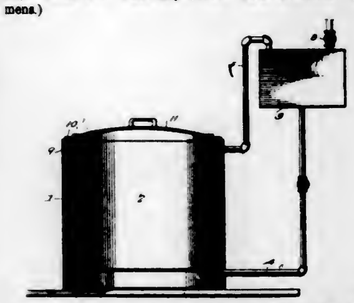
7. A mixing and vaporizing device for explosive-engines comprising a vaporizing-chamber, having communication with the outer air and with the combustion-cylinder, a valve-disk controlling the communication to said cylinder, an oil-receptacle arranged within said vaporizing-chamber, having its outlet above the highest point of the oil-supply therein, an open-ended interior chamber adapted to receive the incoming air and distribute the oil in the top thereof, and means for automatically controlling the oil flow, substantially as described and for the purpose set forth.

683,111. **GLASS-WASHER.** JOSEPH FISHER and WILLIAM WEINSHENKER, Chicago, Ill. Filed June 24, 1901. Serial No. 65,774. (No model.)



Claim.—In a glass-washer, the combination with a tube, having its cavity enlarged at its lower portion to form a valve-casing and at its upper portion to receive a spring, of a hollow stem located in said tube and having its upper portion enlarged to form a shoulder against which one end of said spring will rest, a valve located on the lower end of the stem, the said stem having openings in its lower portion but above the valve and also provided with an annular shoulder on its upper portion to impinge the upper end of the tube, a spring located in the upper portion of the said tube, and surrounding a part of the stem to actuate the same, a series of arms having upward extensions provided with openings in their inner surfaces and connected to the upper portion of the stem, a central extension or upright having a vertical opening in its upper end and transverse openings near said end, said arms and extensions having channels and openings communicating with the hollow of the stem for the passage of water, and a ring uniting said arms at their outer portions, substantially as described.

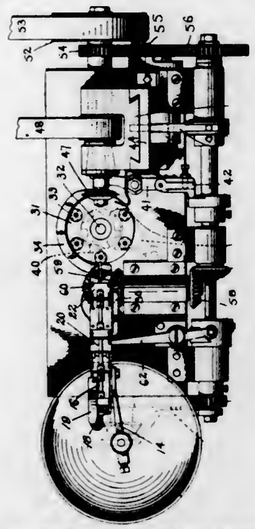
683,112. **PROCESS OF PRESERVING FRUIT.** ALBERT P. GAINES, Fayetteville, Ark. Filed May 4, 1900. Serial No. 15,525. (No specimens.)



Claim.—1. The herein-described process of preserving fruit, which consists in boiling the fruit in a bath of melted sugar in viscid condition produced by the indirect application of steam heat to the sugar, and then in drying the fruit to expel the moisture therefrom.

2. The herein-described process of preserving fruit, which consists in placing in a suitable bolder a quantity of sugar, reducing the same to a viscid syrup through the agency of indirectly-applied steam heat, placing the fruit in the syrup and boiling it until the fruit is thoroughly saturated with the syrup, and then drying the fruit until the moisture is expelled.

683,113. **AUTOMATIC SCREW-SLOTTING MACHINE.** WILLIAM H. GATES, Worcester, Mass. Filed June 4, 1900. Serial No. 18,930. (No model.)



Claim.—1. In a machine for slotting screws, the combination of an inclined guideway, a horizontal guideway leading therefrom, an escapement comprising a transversely-movable piece having offset blades or fingers for permitting one screw at a time to pass down the inclined guideway to the horizontal guideway, a rotary head or turret having notches or recesses for receiving screws, a horizontally-movable slide, a spring-pressed pusher or plunger operated by said slide for carrying screws along the horizontal guideway into the notches or recesses of the rotary head or turret, and a lever actuated by a cam on the horizontally-movable slide for operating the escapement, substantially as described.

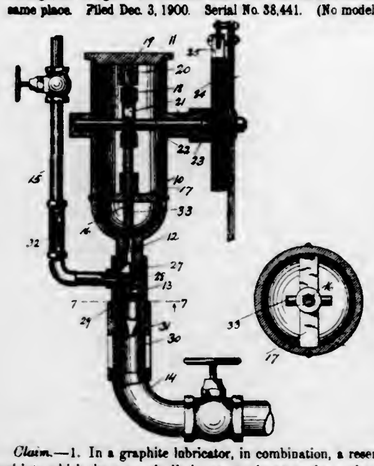
2. In a machine for slotting screws, the combination of a receptacle for receiving a quantity of screws in undetermined positions, a rotary head or turret having a plurality of adjustable sections which may be set to different positions to present notches or recesses of different sizes for receiving screws, a slotting-saw, a selecting and separating mechanism for transferring screws from the receptacle to the rotary head or turret, and means for turning the rotary head or turret to present screws in position to be acted upon by the slotting-saw, substantially as described.

3. In a machine for slotting screws, the combination of a rotary head or turret, adjustable dies or rotatable sections 33 mounted in said turret, so that the same can be set to present notches or recesses of different sizes for the reception of screws, a guard-plate for holding screws in position in said notches, a pusher or plunger movable transversely with respect to the axis of the rotary head or turret for forcing successive screws into place in the notches or recesses, and means for intermittently turning the rotary head or turret, substantially as described.

4. In a machine for slotting screws, the combination of a receptacle for receiving a quantity of screws in undetermined positions, a rotary head or turret, means for selecting screws from the receptacle and transferring them to notches or recesses in the rotary head or turret, a slotting-saw, and driving connections for intermittently turning the rotary head to present screws in proper position to be acted upon by the slotting-saw, said driving connections comprising a rotating driver, and a spring lock or latch, said parts being arranged so that the rotating driver will first release the spring-latch, and then engage with and actuate the driving gear or pinion of the rotary head or turret, substantially as described.

5. In a machine for slotting screws, the combination of a rotary hopper or receptacle, a pivoted selecting mechanism for delivering screws from the hopper or receptacle to an inclined guideway, an escapement comprising a transversely-movable slide having escapement-sections or offset blades, a lever connected to operate said slide, a horizontally-movable cam-actuated slide having a spring-pressed loose connection with a plunger or pusher, and having a cam-slot for operating the escapement-lever, a rotary head or turret having a plurality of recesses to which screws are transferred from the guideway, a locking mechanism for holding the rotary head in different relative positions, means for operating said rotary head, comprising a pinion, and a rotary driver, said parts being arranged so that the rotating arm will first release the locking device and then actuate the pinion, a cam-actuated clamp for securing successive screws in rigid position, and a cam-actuated vertically-movable carriage having a rotary saw or cutter for slotting the screws, substantially as described.

683,114. **GRAPHITE LUBRICATOR.** FREDERICK GIELOW, Sr., Chicago, Ill., assignor to Frederick Gielow, Jr., and Charles Burmeister, same place. Filed Dec. 3, 1900. Serial No. 38,441. (No model.)



Claim.—1. In a graphite lubricator, in combination, a reservoir, a barrel into which the reservoir discharges, a plunger reciprocating within the barrel, and means for withdrawing its advance end beyond the opening between the reservoir and barrel, a tube into which the barrel discharges, and a fluid-pipe leading into such tube

2. In a graphite lubricator, in combination, a reservoir, a barrel into which the reservoir discharges, a plunger reciprocating within the barrel and means for withdrawing its advance end beyond the opening between the reservoir and barrel, a tube into which the barrel discharges, and a conical spring-closed check-valve at the discharge end of the barrel.

3. In a graphite lubricator, in combination, a reservoir, a barrel into which the reservoir discharges, a plunger reciprocating within the barrel and means for withdrawing its advance end beyond the opening between the reservoir and the barrel, a tube into which the barrel discharges, a conical spring-closed check-valve at the discharge end of the barrel, and a fluid-pipe leading into the tube at the base of the valve.

4. In a graphite lubricator, in combination, a reservoir, a barrel having a flaring mouth leading directly therefrom, a plunger within the reservoir and reciprocating into and out of the barrel, and means for causing the reciprocation of the plunger.

5. In a graphite lubricator, in combination, a reservoir, a barrel leading directly therefrom, a plunger within the reservoir and reciprocating into and out of the barrel for forcing the graphite from the former into the latter, means for causing the reciprocation of the plunger, and a spring-closed check-valve applied to the delivery end of the barrel.

6. In a graphite lubricator, in combination, a reservoir, a barrel leading directly therefrom, a plunger within the reservoir and reciprocating into and out of the barrel, means for causing the reciprocation of the plunger, and a cross-arm on the plunger for agitating the contents of the reservoir, and forcing the same toward the barrel.

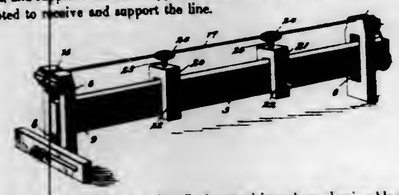
7. In a graphite lubricator, in combination, a reservoir, a barrel leading directly therefrom, a plunger reciprocating vertically within the reservoir and into and out of the barrel, and a triangular cross-arm carried by the plunger adapted to loosen up the graphite and force it toward the barrel.

8. In a graphite lubricator, in combination, a reservoir, a conveying-tube, a barrel in communication with the reservoir and opening into the conveying-tube and being flaring at its outer end, and means for forcing graphite through the barrel.

683,115. **STRAIGHT-EDGE.** DANIEL GILLION, Perry, Okla. Filed Jan. 9, 1901. Serial No. 42,695. (No model.)

Claim.—1. A device of the class described comprising a beam having blocks adjustably mounted thereon and adapted to receive and sup-

port a line, slides mounted upon the beam between the blocks, bearing members adjustably engaged with the slides for movement into contact with the line, said slides having means for holding them against movement, and supplemental line-supports slidably mounted on the blocks and adapted to receive and support the line.



2. A device of the class described comprising a beam having blocks adjustably mounted thereon and adapted to receive and support a line, slides mounted upon the beam between the blocks, and bearing members adjustably engaged with the slides for movement into contact with the line, said slides having means for holding them against movement.

3. A device of the class described comprising a beam having blocks adjustably connected therewith and adapted to receive and support a line, a foot pivotally connected with one of the blocks for movement into position to hold the device erect, slides disposed upon the beam intermediate of the blocks, and screws engaged with the slides and having flattened heads, said screws being adapted for adjustment to contact their heads with the line.

4. A device of the class described comprising a beam, blocks upon the beam and adapted to support a line, slides upon the beam, bearing members adjustably mounted upon the beam for movement into contact with the line, and supplemental line-supports slidably mounted on the blocks and adapted to receive and support the line.

683,116. PROCESS OF MAKING EXPLOSIVES. ADAM C. GIRARD, Paris, France. Filed Feb. 3, 1900. Serial No. 3,823. (No specimens.)

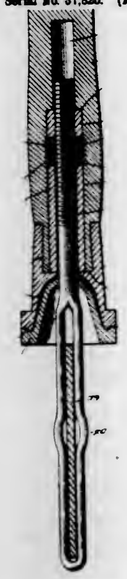
Claim.—1. The process of making explosives, consisting in forming a picrate in a suitable oil and adding a chlorate.

2. The process of making explosives consisting in forming a picrate in a suitable oil and adding another suitable nitrogen derivative and a chlorate.

3. The process of making explosives consisting in forming picrate of potassium in a suitable oil and adding perchlorate of potassium.

4. The process of making explosives consisting in forming picrate of potassium in a suitable oil and adding nitronaphthalese and perchlorate of potassium.

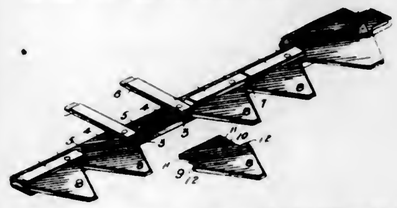
683,117. SAW-HANDLE. LUTHER K. HAAK, Luther, Mich. Filed Nov. 26, 1900. Serial No. 37,825. (No model.)



Claim.—1. A device of the class described comprising a wooden handle having a bore, a wooden sleeve arranged within the bore and provided with slots at its inner end, and a nut arranged within the handle and provided with wings extending into the slots of the sleeve and expanding the latter, said wings being provided at their outer faces with ribs embedded in the walls of the bore of the handle, substantially as described.

2. A device of the class described comprising a wooden handle, a nut arranged within the same, a sleeve constructed of expansible material and having its inner end engaged by the nut and expanded within the handle, a ferrule having upper and lower socket portions and provided with an interior seat receiving the handle, the lower socket portion being tapered and the ferrule being provided at its lower end with a rounded rib, and a tapering washer fitting within the lower socket portion of the ferrule and provided with an annular flange having a groove to receive the said rib, substantially as described.

683,118. CUTTER-BAR. WILLIAM H. HODGE, Union Star, Mo. Filed June 7, 1901. Serial No. 63,598. (No model.)



Claim.—1. In harvester cutting apparatus, the combination with a cutter-bar and cutting-knives, of means for attaching said knives, and a series of securing-plates above said knives, both ends of which form rabbet-joints with one another, substantially as described.

2. In harvester cutting apparatus, the combination of a cutter-bar, cutting-knives secured thereto, securing-plates attached to said cutter-bar, and forming rabbet-joints at the ends thereof, substantially as described.

3. In harvester cutting apparatus, the combination of a cutter-bar, pins secured therein, cutting-knives secured thereon, securing-plates attached to said cutter-bar, and forming rabbet-joints at the ends thereof, substantially as described.

4. In harvester cutting apparatus, the combination of a cutter-bar, pins secured therein, cutting-knives secured thereon, securing-plates attached to said cutter-bar, having a recess on their under sides and forming rabbet-joints at the ends thereof, whereby said plates are held against any vertical or lateral movement, substantially as described.

5. In harvester cutting apparatus, the combination of a cutter-bar, pins of different lengths secured therein, cutting-knives secured thereon, securing-plates attached to said cutter-bar, having a recess on their under sides adapted to be engaged by the longer of said pins, and forming rabbet-joints at the ends thereof, substantially as described.

6. In harvester cutting apparatus, the combination of a cutter-bar, pins secured therein, cutting-knives secured thereon, blocks secured on said cutter-bar, securing-plates secured on said blocks, having a recess in the under sides thereof, and forming rabbet-joints at the ends thereof, substantially as described.

7. In harvester cutting apparatus, the combination of a cutter-bar, pins of different lengths secured therein, cutting-knives secured thereon, blocks secured on said cutter-bar, securing-plates secured on said blocks having a recess in the under sides thereof, adapted to be engaged by the longer of said pins, and forming rabbet-joints at the ends thereof, substantially as described.

8. In harvester cutting apparatus, the combination of a cutter-bar, pins of different lengths secured therein, blocks secured on said cutter-bar, cutting-knives having perforations therein, and cut-away portions in the sides thereof, projecting corners formed by said cut-away portions adapted to abut said blocks, securing-plates having a recess in the under side thereof, adapted to be engaged by the longer of said pins in said cutter-bar, and rabbet-joints formed by the overlapping portions of said securing-plates, whereby the same are securely held against any vertical or lateral movement, substantially as described.

683,119. BLUE MONOAZO DYE. OSKAR KALTWASSER and HUGO JAENICHEN, Berlin, Germany, assignors to Actien-Gesellschaft für Anilin Fabrikation, same place. Filed July 13, 1901. Serial No. 67,999. (No specimens.)

Claim.—The new monoazo dye obtained by combining diazotized 4-chloro-2-amidophenol sulfonic acid with 1.8-amidonaphthol-2.4-disulfonic acids; said dye being in the form of its acid sodium salt a dark powder, easily soluble in water to a bluish-red solution the coloration of which changes to red-violet on the addition of sodium carbonate and to a fine red on the addition of caustic-soda lie; the dye dissolving easily in concentrated sulfuric acid to a red-violet solution, which by dilution with ice-water turns bluish-red; being hardly soluble in alcohol to a bluish-red solution; producing on wool, when fixed with the aid of copper salts, fine blue shades of an extraordinary fastness.

683,120. BLACK DISAZO DYE. OSKAR KALTWASSER and HUGO JAENICHEN, Berlin, Germany, assignors to Actien-Gesellschaft für Anilin Fabrikation, same place. Filed July 12, 1901. Serial No. 68,000. (No specimens.)

Claim.—The new disazo dye obtained by first combining 1.8-amidonaphthol-4-sulfonic acid in an acid solution with alpha-diazo-naphthalene and coupling further the monoazo dyestuff thus obtained in an alkaline solution with the diazo compound of a 4-chloro-2-amidophenol sulfonic acid, the dye forming in the dry state a dark powder, hardly soluble in alcohol, easily soluble in water to dark-blue solutions; the aqueous solution remaining unchanged on the addition of a small quantity of caustic-soda lye, but being precipitated by an excess of this agent; the die being likewise precipitated from its aqueous solution in the form of bluish-black flakes by the addition of mineral acids; dissolving easily in concentrated sulfuric acid to a dark-blue solution, being separated from this solution by dilution with ice-water in the form of bluish-black flakes; producing on wool from an acid-bath black shades which by a subsequent treatment with an alkali-bichromate are deepened and assume at the same time an extraordinary fastness to soap and to milling.

683,121. LACING-STUD. JOSEPH S. KITCHELL, Vincennes, Ind. Filed Apr. 4, 1901. Serial No. 54,312. (No model.)



Claim.—As an improved article of manufacture, a lacing-stud, having a stem therewith, a roller mounted and adapted to rotate thereon, a sleeve with a flange also mounted in said stem, the sleeve having a shoulder, and an extension, the free end of the stem being extended beyond the extension of said sleeve, all constructed and arranged to operate substantially as shown and described.

683,122. POLISHING-WHEEL. CHARLES A. KNILL, Beloit, Wis. Filed Jan. 23, 1899. Serial No. 703,115. (No model.)



Claim.—1. In a polishing-wheel, in combination, a wheel, two annular flanges on the periphery thereof, an air-tube between the annular flanges, a covering for the air-tube, means for securing the covering in position on the wheel, an endless polishing-band, and means for attaching the polishing-band to the wheel to prevent "creeping" of the band.

2. In a polishing-wheel, in combination, a wheel, two annular flanges on the periphery thereof, an air-tube between the annular flanges, a covering for the air-tube having an opening therein, means for securing the covering to the annular flanges, an endless polishing-band having a stud for entering the opening in the covering for the air-tube, to prevent the "creeping" of the polishing-band.

3. In a polishing-wheel, in combination, a wheel, two annular flanges on the periphery of said wheel having screw-threaded openings in said flanges, an air-tube between the annular flanges, an air-valve for the air-tube, a covering for the air-tube, which said covering has a series of perforations near its edges, a securing-ring for each annular flange, which ring is provided with openings coincident with the screw-threaded openings in the annular flanges, screws for said openings, and an endless polishing-band.

4. In a polishing-wheel, in combination, a wheel, two annular flanges on the periphery of said wheel having screw-threaded openings in said flanges, an air-tube between the flanges, an air-valve for the air-tube, a covering for the air-tube, which covering is provided with notches along its edges, a series of perforations near its edges and two longitudinally-elongated openings, a securing-ring for each annular flange, which ring has openings coincident with the screw-threaded openings in the annular flange, screws for said openings, and an endless polishing-band having studs for engaging the longitudinally-elongated openings in the covering for the air-tube, for preventing the "creeping" of the polishing-band.

683,128. POLISHING-WHEEL. CHARLES A. KNILL, Beloit, Wis. Filed Sept. 6, 1900. Serial No. 29,124. (No model.)



Claim.—1. In a polishing-wheel, in combination, a body portion; an air-tube on the periphery thereof; and a tape of a constant length, fixed at its ends with relation to said body portion, and adapted to engage said tube and hold the same firmly against the periphery of said body portion.

2. In a polishing-wheel, in combination, a body portion; an air-tube helically arranged on the face thereof; a tape fixed at its ends with relation to said body portion, which tape extends through said air-tube and is of a constant length just sufficient to encircle the body portion thereof and thereby hold said tube firmly against the periphery thereof; and a polishing-band adapted to lie upon said air-tube.

3. In a polishing-wheel, in combination, a body portion comprising a rim having a helical groove in the peripheral face thereof, and an opening through said rim near each end of said groove; an air-tube in said groove; a tape fixed at its ends with relation to said body portion, which tape extends through said air-tube and is of a length just sufficient to encircle the body portion and thereby hold said tube firmly against the periphery thereof; an air-valve for each end of said air-tube, which valves extend through said openings in said rim; a cover for said air-tube; and an endless polishing-band.

683,124. ELEVATING-STAIRWAY. HERMAN O. LANGE, Muskegon, Mich. Filed June 2, 1899. Serial No. 719,082. (No model.)

Claim.—1. In a traveling staircase, the combination of step and riser cross-strips pivoted at their edges and forming an endless band forming a movable platform, the step and riser cross-strips being properly proportioned and having grooves therein which form continuous grooves parallel with the edges of the band, and fingers projecting from a fixed platform toward which the movable platform travels, adapted to enter the grooves and form protective guides, substantially as described.

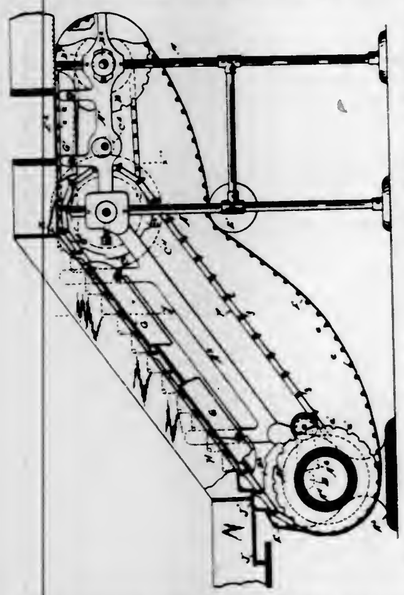
2. The combination of an endless band formed of rigid plates pivoted at their edges, each alternate pivot carrying extended guides and suitable external guides for holding the band in place while formed as a stairway, substantially as described.

3. The combination of a driving mechanism, stop-wheels adapted to carry an endless band formed of transverse rigid plates pivoted at their edges, means for lifting the band from engagement with the lower stop-wheel, and means, as an endless chain with suitable stops thereon, driven by appropriate mechanism, to engage projections in the band simultaneously with said lifting, and compel the uprising portion of said band to assume a staircase form, substantially as described.

4. The combination of an endless band formed of rigid plates pivoted at their edges so arranged that one section thereof travels above the opposite section and adapted to be crimped at one portion of its travel and uncrimped at another portion of its travel, means substantially as described for crimping said band, and guides for holding the band in place while being crimped, substantially as described.

5. In a traveling stairway, the combination of an endless band formed of horizontal strips hinged at their edges with projections at the hinged portions; carrying-wheels having properly-spaced notches in their pe-

riphery on which said band is adapted to travel; means for holding said band firmly upon said carrying-wheels, endless chains made of rigid links hinged at their extremities and carrying at a point opposite the hinges properly-spaced projections to engage the alternate hinge projections in the band; sprocket-wheels to carry said chain, the sprocket-wheels at the bottom of the ways being arranged above the carrying-wheels for the band in such manner that the chain is brought into engagement with the band as it travels, and, by means of the chain and suitable guides, transformed into a stairway; and means at the top of said inclined ways, whereby said chain is detached from the band and the band allowed to assume the position of a traveling platform, substantially as described.



8. The combination of a driving mechanism, an endless band formed of transverse pivoted plates, at their edges, pairs of carrying-wheels adapted to carry said band, means for disengaging the band from one pair of carrying-wheels and transferring it to a carrying-chain, and means to compel the portion of the band in the process of disengagement to assume a staircase form, substantially as described.

7. A movable stairway, consisting of a continuous set of treads and risers adapted to travel upward in an inclined way at right angles to each other, said treads and risers being pivotally connected and adapted to assume a position in the same horizontal plane on reaching an upper landing, the said risers being so arranged that they may oscillate upon said treads when the treads and risers are turned in a horizontal plane, substantially as described.

8. The combination of an endless band made up of jointed links and traveling over a pair of wheels, said wheels, a sprocket-chain, means upon the sprocket-chain to engage the band whereby the sprocket-chain catches each alternate joint of the band, a pair of sprocket-wheels encircled by said sprocket-chain, means whereby said band, its carrying-wheels, and said sprocket-wheels are simultaneously driven, one pair of band-wheels and one pair of sprocket-wheels being arranged in such relation that the sprocket-chain releases the band from band-wheels and transfers the carrying of the band to the sprocket-chain and simultaneously shortens the travel whereby the band is crimped upon its joints, and guides for controlling its movement, substantially as described.

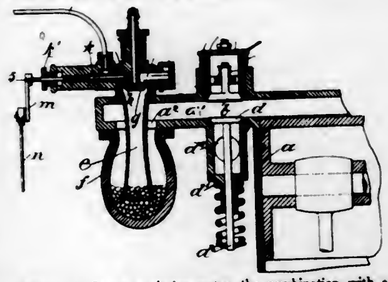
9. The combination of an endless band composed of joints, each hinged to the other, carrying-wheels therefor, a sprocket-chain located in proximity thereto and adapted to engage predetermined joints of the band, one pair of sprocket-wheels carrying said chain having its center of movement eccentric to one pair of the wheels carrying the band, and means whereby the sprocket-wheels are compelled to rotate in unison with the band-wheels, the parts being so arranged that the sprocket-chain lifts the band from the band-wheels and simultaneously shortens its travel whereby the band is crimped, substantially as described.

10. The combination of an articulated endless band, band-wheels having horizontal axes for supporting and carrying the same, so that one portion of said band is vertically above the other portion, means for holding the band in engagement with the band-wheels, a sprocket-chain adapted to engage at predetermined intervals with said band and support the same, means on said band at predetermined intervals to engage said chain, means for carrying the sprocket-chain, said means having a vertical offset from the means carrying the band whereby on rotation said band is transferred vertically to the sprocket-chain and crimped, substantially as described.

11. The combination of an articulated endless band, band-wheels for carrying the same, means for supporting and holding the band in engagement with one pair of the band-wheels, a sprocket-chain adapted to engage at predetermined intervals with said band, means on said band at predetermined intervals to engage said chain, means for carrying the sprocket-chain, said means having an offset from the means carrying the band whereby on rotation said band is transferred to a plane parallel to the tangent of the band-wheels and to the sprocket-chain and crimped, means for retransferring said band from said sprocket-chain to another pair of supporting band-wheels, and means whereby said transfer is simultaneously accompanied by a transformation of said band from the crimped form to a plane form, substantially as described.

12. In an elevating-conveyer having horizontal and inclined portions, a band combined with means for causing flexure of the band for carrying sections of the load throughout the length of the inclined portions combined with means for causing flexure of the band into substantially horizontal sections, with means for causing the sections to oscillate upon each other when flexed into horizontal form and vice versa, substantially as described.

688,125. VAPORIZING DEVICE FOR EXPLOSIVE-ENGINES. LÉON LAURENT and EUGÈNE CLERGET, Dijon, France. Filed Mar. 16, 1900. Serial No. 8,977. (No model.)

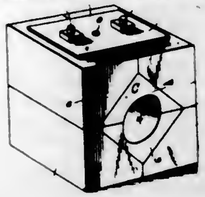


Claim.—1. In an explosion-motor, the combination with a tube made of a metallic or refractory substance, of a metallic vessel, a body of fragments of metallic or refractory substance placed within said vessel, the outlet of said tube being located within said body, and means for supplying hydrocarbon, water and air to said tube.

2. In an explosion-motor, the combination with a tube made of a metallic or refractory substance, of a heated metallic vessel into which said tube extends, a valve at the outer end of said tube, a seat with two concentric zones upon which said valve rests an air-inlet in communication with one of said zones, an inlet for hydrocarbon and an inlet for water communicating with the other zone, and means for regulating the flow through said openings.

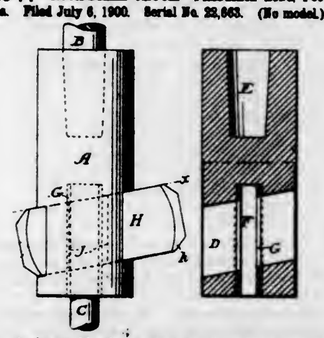
3. In an explosion-motor, the combination with a tube made of metallic or refractory substance, of a heated metallic vessel into which said tube extends, a valve at the outer end of said tube, a seat with two concentric zones upon which said valve rests, an air-inlet communicating with the outer zone, an inlet for hydrocarbon and an inlet for water communicating the inner zone around the spindle of the valve, and means for regulating the flow through said inlets.

688,126. SLIDING BLOCK OR BEARING. CARL V. LIEQUIST, Clay Center, Kans. Filed Mar. 9, 1901. Serial No. 50,530. (No model.)



Claim.—A block consisting of two main sections having straight engaging faces and each section consisting of at least two parts, said block having a rectangular opening, a rectangular bushing fitted in said opening, said bushing including two parts having straight engaging faces alined with said first-mentioned faces, bolts passing through said sections and through recesses at edges of the bushing, and plates fitted against the block, having holes to receive said bolts.

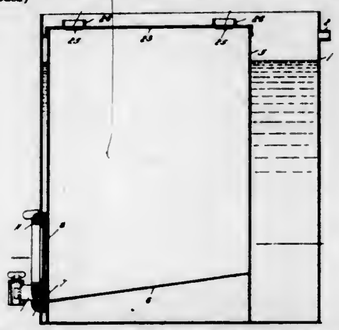
688,127. ROCK-DRILL CHUCK. FREDERICK LOBB, Footscray, Victoria. Filed July 6, 1900. Serial No. 22,663. (No model.)



Claim.—1. In combination, a chuck having a bore for a bit-shank, and a keyway through the chuck inclined in relation to said bore and communicating with the chuck-bore, a bit-shank, and a key for the inclined keyway having an incision across its inner face parallel with the bore for the bit-shank and gradually deepening from the inner face of the key to a depth such that when the deepest part of the incision is beside the bore the key does not project into the bore and hence does not clamp the bit-shank, said key however wedging the bit-shank when the key is driven forward, substantially as described.

2. In combination a chuck having tapered bore for piston-rod, bore for bit-shank and inclined keyway communicating with bit-shank bore, a bit-shank, and a key having an incision set at an angle on face of key and which is gradually deepened from the face-level of key substantially as and for the purposes described.

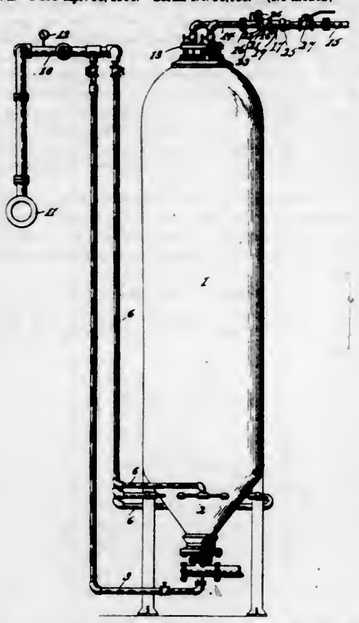
688,128. CREAM-SEPARATOR. ADAM D. LOGSDON and HECTOR KIBELS, Bluffton, Ohio. Filed Apr. 1, 1901. Serial No. 53,839. (No model.)



Claim.—1. A cream-separator comprising, in combination, an outer sheet-metal vessel provided with an opening, an inner sheet-metal vessel provided with a sight-opening, and a discharge-opening immediately below the same, a disk-shaped coupling having a threaded annular rib surrounded externally by a shoulder and provided within said rib with a threaded faucet-opening at the bottom, and a vertically-extending sight-opening immediately above the same, said annular rib extending through the opening in the outer vessel, a washer located between the shoulder of the disk-shaped coupling and the body of the outer vessel, and a threaded annulus or ring-nut mounted on the threaded annular rib externally of the outer vessel and adapted to clamp the same against the washer, a transparent medium closing the sight-opening, and a faucet screwing into the faucet-opening, said disk-shaped coupling being permanently secured to the inner vessel, with its sight and faucet openings registering with the sight and discharge openings thereof, substantially as described.

2. A cream-separator comprising, in combination, an outer sheet-metal vessel provided with an opening, an inner sheet-metal vessel having an inclined bottom, a discharge-opening at the lower end thereof, and a vertically-extending sight-opening immediately above said discharge-opening, a disk-shaped coupling secured to said inner vessel and having a threaded annular rib surrounded externally by a shoulder and provided within said rib with a threaded faucet-opening registering with the discharge-opening of the inner vessel, and a vertically-extending sight-opening immediately above the same registering with the sight-opening of the inner vessel and closed by a transparent medium, a faucet screwing into said faucet-opening and lying within the outer periphery of the annular rib, said annular rib extending through the opening in the outer vessel, a washer located between the shoulder of the disk-shaped coupling and the body of the outer vessel, and a threaded annulus or ring provided with projections and mounted on the threaded annular rib externally of the outer vessel and adapted to clamp the same against the washer, substantially as described.

688,129. SULFITE-DIGESTER. WILLIAM A. LUKE, Covington, Va. Filed Apr. 16, 1901. Serial No. 56,100. (No model.)



Claim.—1. In a digester, the combination of the central steam-inlet nozzle, the side steam-inlet nozzles located at points above central nozzle, a gage to indicate the pressure of incoming steam, a relief-pipe, a relief-nozzle secured in said pipe, whereby the pressure may be maintained within said relief-pipe, and a gage to indicate said relief-pressure substantially as described.

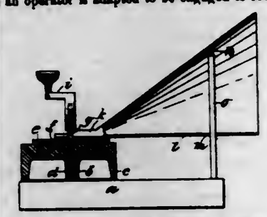
2. In a pulp-digester, the combination with the shell thereof, of a central steam-nozzle having the bore of its outer end made smaller than the bore of the nozzle proper, a series of steam-nozzles located at points above said central nozzle, hollow plugs secured in the outer end of said latter nozzles, substantially as described.

3. In a pulp-digester, the combination with the top thereof, of a relief-pipe suitably connected thereto, a relief-nozzle secured in said pipe, and means for determining the pressure within said pipe, substantially as described.

4. In a pulp-digester, the combination with the top thereof, of a relief-pipe suitably connected therewith, a collar having a flange thereon, a stem having a flange thereon, a plug interposed between the flanges of said collar and stem, having smaller bore than said collar and stem, and a gage interposed between said collar and digester, substantially as described.

688,130. TOY GRAPHOPHONE. THOMAS H. MACDONALD, Bridgeport, Conn., assignor to American Graphophone Company, Washington, D. C. Filed Feb. 21, 1899. Serial No. 706,411. (No model.)

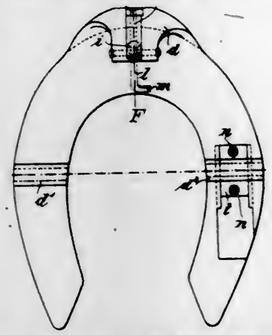
Claim.—1. In a graphophone, a weighted disk having a flat face or surface against which a record-tablet is adapted to be supported, said disk being adapted when put in motion to store up energy and act as a fly-wheel and speed-regulator, a central bearing on which the disk is supported and adapted to be rotated, a crank projecting centrally from the disk and having a depression or recess at its upper extremity in which the finger of an operator is adapted to be engaged to rotate the disk.



2. A graphophone consisting of a base, a weighted disk having a flat upper face for supporting a record-tablet, said disk being adapted when put in motion to store up energy and act as a fly-wheel and speed-regulator, a pin projecting upwardly from one end of the base and having a conical point, said pin loosely engaging in a centrally-located socket in the under side of the disk, a short spindle projecting upwardly from the center of the disk, a crank on said spindle for rotating the weighted disk, a horn having a reproducer attached to its small end and having a perforation through its lower side, an upright post on the other end of the base passing through the perforation in the horn, and a bearing-point attached to the inside of the horn opposite to the perforation and engaging the top of said post.

3. The combination with the tablet-holder, of a horn having a reproducer attached to its small end, and having a perforation through one side, an upright post passing through said perforation, and a bearing-point attached to the inside of the horn opposite to the perforation, and engaging the top of said post.

683,131. HORSESHOE. EMERICH VON MARSÓVSZKY, Budapest, Austria-Hungary. Filed Aug. 17, 1899. Serial No. 727,583. (No model.)



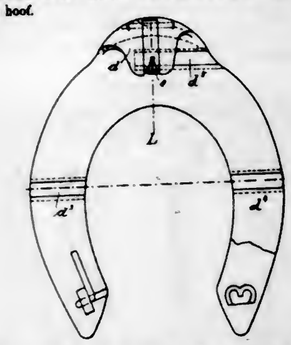
Claim.—1. The combination with supports adapted to be fastened to the hoof, of a horseshoe having projections adapted to slidingly dovetail with said supports fastened to the hoof in such a manner as to permit of lateral expansion of the hoof, and means for securing the connection between the said projections and the said supports.

2. The combination with supports a' adapted to be fastened to the hoof and having dovetail slots h in a direction transverse to the hoof, of a horseshoe having dovetail projections d' d^3 adapted to engage in said slots, and means at the toe for securing the shoe against lateral sliding upon the hoof, substantially as and for the purpose described.

683,132. HORSESHOE. EMERICH VON MARSÓVSZKY, Budapest, Austria-Hungary. Original application filed Aug. 17, 1899, Serial No. 727,583. Divided and this application filed Sept. 14, 1900. Serial No. 30,089. (No model.)

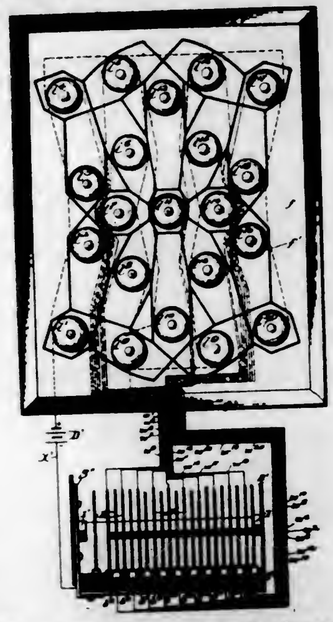
Claim.—1. The combination with a plurality of separate attachments adapted to be fixed permanently to the hoof, of a horseshoe adapted to engage said attachments, said attachments and shoe having respectively dovetail bars and slots parallel to one another.

2. The combination with a plurality of separate attachments adapted to be fixed permanently to the hoof, of a horseshoe adapted to engage said attachments, said attachments and shoe having respectively dovetail bars and slots parallel to one another, and transverse to the fore-and-aft axial line of the hoof.



3. The combination with a plurality of separate attachments adapted to be fixed permanently to the hoof, of a horseshoe adapted to engage said attachments, said attachments and shoe having respectively dovetail bars and slots parallel to one another, and a locking-lever pivoted to said shoe and adapted to engage in a slot in one of said attachments for preventing accidental displacement of the shoe.

683,133. INTERCHANGEABLE ELECTRIC DISPLAY APPARATUS. GEORGE I. MASON, New York, N. Y., assignor to the Mason Monogram Company, of New York. Filed Sept. 10, 1896. Serial No. 605,232. (No model.)



Claim.—1. The combination with a lamp-box of a removably-seated monogrammic framework comprising varied-shaped compartments that are arranged within a given field in such relative position, as to provide means within said field, whereby any letter of the alphabet or numeral can be successively blocked out in light, substantially as and for the purpose set forth.

2. A monogrammic framework comprising in its organization varied-shaped compartments that are arranged within a given field in such relative position, as to provide elements of letters when illuminated, whereby any letter of the alphabet or numeral can be successively blocked out in light within said field, substantially as described.

3. The combination with a lamp-box, having darkened inner walls and a series of ventilative openings, of a removably-seated monogrammic framework mounted in said box and a removable transparent covering seated upon the face of said monogrammic framework.

4. An illuminating character or symbol device, comprising a chamber having a transparent face and a back wall and also having partition-walls, said partition-walls being arranged on angular lines to form at the front of the chamber a series of light-openings that are shaped to form elements of letters, substantially as described.

5. The combination with an inclosing casing, having darkened inner walls and a plurality of ventilative openings, of an interior monogrammic framework or shell having an open front provided with a transparent covering and comprising partitions that extend at right angles to said covering, to form monogrammic elements; and means for illuminating the spaces formed by said partitions, substantially as described.

6. The combination with an inclosing casing for display-lights, having darkened walls and a plurality of incandescent lamps projecting interiorly, of a monogrammic framework or shell having an open front and a back plate that is provided with a light-excluding flange and that is adapted to be disposed within said inclosing casing, said framework having at its front a transparent covering, and that is provided with angularly-arranged reflective partitions that extend at right angles to said covering to form monogrammic elements about the lamps projecting therein, substantially as described.

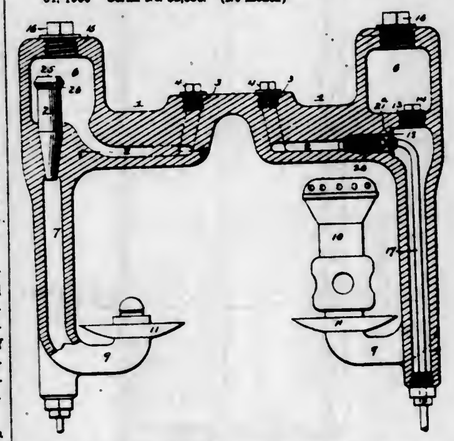
7. In a portable lamp-box for displaying lights comprising an outer containing case, provided with a bank of lamps and ventilating-holes, and a transparent lid therefor, the combination of an inner shell having interiorly a compartment structure with open front, and exteriorly a light-excluding flange extension that is adapted to rest between the walls of the shell and the box; and lamps arranged to penetrate into the respective compartments; and a switch mechanism mounted thereon and electrically connected with the lamps in said box and with a source of electrical supply substantially as set forth.

8. The combination with a rectangular-shaped lamp-box having a transparent lid, of a rectangular-shaped shell or framework adapted to be introduced into the body of said box, said framework comprising side walls and backing-plate, and a series of permanently-attached, angularly-arranged, dividing plates or partitions that extend from bottom to top and thereacross, thereby forming a combined series of separated open-top compartments for inclosing the lamps in said lamp-box, the back plate of said shell having a plurality of holes that correspond and register with the lamps, whereby they are permitted to fit over the lamps when the shell is introduced in said box; and a fastening device for normally holding said framework or shell longitudinally disposed at a suitable distance from the lamp-supporting wall to provide a suitable air-space; and a light-excluding flange extension projecting outwardly from the walls of said shell and adapted to fit snugly in said lamp-box substantially as described.

9. The combination with a rectangular-shaped lamp-box having a transparent lid, of a substantially rectangular-shaped shell or framework adapted to be introduced into the body of said box, said framework comprising the following-arranged compartment structure made up of elements as follows: an octagonal-shaped compartment from each plane of which radiate eight drawn-out heptagons, the vertical and horizontal extending pairs of which terminate in pyramidal-shaped ends; the structure thus formed being surrounded by a compartment-border comprising twelve irregular hexagonal figures, that are divided in configuration as follows: those at the corners forming nearly-regular hexagon extensions; the side paths of which consist of drawn-out hexagons comprising in their configuration, oblique and acute angles extending from the respective planes of the abutting acute angles of the corners and meeting at the apex of the adjacent acute angles of the oppositely-disposed member of the pair; while the end pairs comprise irregular drawn-out hexagons, the exterior portion of which consists each of a two-sided configuration, one member of which is formed in a curve, while the other drawing at an angle thereto and extends in an acute angle to the apex of the adjacent like figure; and a back plate having a plurality of holes that correspond and register with the lamps, whereby they are permitted to fit over the lamps when the shell is introduced in said box, the whole arranged as and for the purpose set forth.

10. The combination with a series of electric lamps of circuits extending from each lamp to a source of current-supply, a switch for synchronously introducing the current to a given number of lamps, said switch comprising a series of rotary contact-disks corresponding to the number of lamps, and which are mounted and keyed concentrically to a single shaft, each of said disks having segmental peripheral extensions and interspaces arranged adjacent to each other to afford contacts for different combinations of lamp-circuits, said contact extensions being adapted to be brought into operative relations successively with coöperating circuit-selecting spring-raised contacts insularly mounted in the pathway directly beneath the respective disks; and a dial arranged concentrically with said shaft and disks, whereby the relative lineal groupings of the peripheral contacts can be indicated when in operative relation to the commutator-plates; and a releasing means for allowing the indicator band and disk to be returned to normal position.

683,184. HYDROCARBON-BURNER. JAMES A. MASON, Philadelphia, Pa., assignor to Charles J. Wilson, New York, N. Y. Filed Oct 31, 1900. Serial No. 35,058. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of a retort, a dome integral with said retort and communicating with one end thereof, a leg depending from the retort and having a vapor-duct communicating with the dome, an oil-pipe passing through said leg and communicating with the retort and a burner communicating with the vapor-duct for heating the retort.

2. In a hydrocarbon-burner, the combination of a retort, a burner for heating the same, a duct for conveying vapor to the burner, a self-cleaning strainer in the inlet end of said duct, an oil-pipe communicating with the retort and a self-cleaning strainer on the outlet end of said oil-pipe, each of said self-cleaning strainers comprising a shell partially filled with movable particles.

3. In a hydrocarbon-burner, the combination with a retort, means for feeding oil thereto, a burner and means for feeding vapor from the retort to the burner, of a self-cleaning strainer comprising shells one within the other and spaced apart, the inner shell having slots and movable particles partially filling the shells.

4. A strainer for a hydrocarbon-burner comprising concentric shells spaced apart, the inner shell having slots, shot partially filling the space within the inner shell and shot partially filling the space between said shells.

5. A strainer for a hydrocarbon-burner comprising concentric shells spaced apart and having conical lower ends, the inner shell having openings in its wall and shot partially filling said shells.

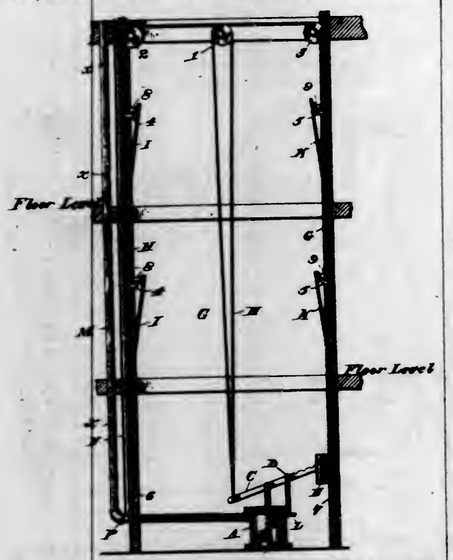
6. A strainer for a hydrocarbon-burner comprising concentric shells spaced apart, the inner shell having openings in its wall, shot partially filling said shells, and a cap on said shells having a closed top and openings in its side wall.

683,185. CLOSURE-CONTROLLING APPARATUS. JOHN A. MILLER, Baltimore, Md., assignor of one-third to William H. Coleman and William M. Wilson, Washington, D. C. Filed June 15, 1901. Serial No. 64,669. (No model.)

Claim.—1. In an apparatus of the class described, a series of closures, a fluid-cylinder with piston, lever and fulcrum attachment substantially as described, connections by rope or cable between one arm of the lever and each of the closures, a supply-pipe and an exhaust-pipe for said cylinder or air-tank said exhaust-pipe being fitted with fuse-plugs, and a system of weights as and for the purposes above set forth.

2. In an apparatus of the class described, a series of closures, means for releasing and maintaining the same in position, comprising a fluid-cylinder with piston, lever and fulcrum attachment, rope or cable connections between one arm of said lever and each of the closures, a supply and an exhaust pipe for said cylinder, a valve on said exhaust-pipe which may be opened by hand, and connections between said valve and each floor of the building as and for the purposes set forth.

3. In an apparatus of the class described, a series of closures, a fluid-cylinder provided with piston, lever and fulcrum attachment, connections between one arm of the lever and each of the closures whereby when the pressure in said tank or cylinder is reduced said closures are simultaneously moved to a closed position as and for the purposes above set forth.



4. In an apparatus of the class described, a series of closures, a fluid-cylinder provided with a piston to which is attached one arm of a lever operating on a fulcrum and to the other arm of which lever is fitted a weight, means for normally maintaining said lever at one limit of its stroke, connections between the piston-arm of said lever and each of said closures whereby they are maintained in open position when said lever is in its normal position, and means for permitting said lever to move to the other limit of its stroke thereby releasing said closures as and for the purposes set forth.

5. In an apparatus of the class described, a series of closures, a fluid-cylinder provided with a piston which is attached to one arm of a lever operating on a fulcrum to the other arm of which lever is attached a weight, said piston being attached to the arm of the lever in such a way as to control it, connections between the piston-arm of said lever and each of the closures, devices for forcing air or fluid into said cylinder to maintain said lever at that limit of its travel which holds the closures open and devices for opening the exhaust-pipe of said fluid-cylinder, whereby said lever is permitted to move to the other limit of its travel thereby releasing said connections and permitting said closures to move to a closed position as and for the purposes set forth.

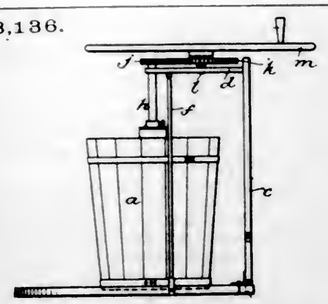
6. In a fire-door apparatus for elevator-shafts, a series of closures arranged at different landings, a fluid-cylinder with piston and lever attachment substantially as described, connections between the lever attachment and each of the closures, hydraulic or pneumatic means for normally maintaining the lever at one limit of its travel and automatic means for moving said lever to the other limit of its travel thus opening said closures as and for the purpose set forth.

683,186. CHURN. IDA M. MURPHY, New York, N. Y. Filed Dec. 22, 1900. Serial No. 40,728. (No model.)

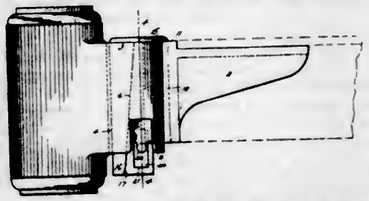
Claim.—1. A churn comprising a tub, a dasher mounted to rotate within the tub and means for rotating the dasher, the said dasher being provided on its periphery with tapered wings and abrupt-faced beaters alternately arranged and air-ducts leading through the body of the dasher in proximity to the bases of the said tapered wings in communication with an air-passage leading to the external air, substantially as set forth.

2. In combination, a tub, a dasher mounted to rotate within the tub and means for rotating the dasher, the said dasher being provided, on its periphery, with tapered wings and abrupt-faced abutments alternately arranged and further provided with different horizontal series of air-ducts leading to the interior of the tub in proximity to the bases of the tapered wings in communication with an air-passage leading through the body of the dasher to the external air, substantially as set forth.

683,136.



683,187. CORNER-FASTENING FOR BEDSTEADS. ABRAM S. MYERS, Springfield, Ohio, assignor of one-half to John T. Ricks, same place. Filed Oct. 29, 1900. Serial No. 34,753. (No model.)



Claim.—1. A corner-fastening for bedsteads comprising two members, the one provided with a seat to receive and support the other, said members having vertical apertures, one of which is tapering, the abutting walls of said apertures having registering vertical slots, in combination with a clamping-key having a tapering body to fit the corresponding aperture, a head to enter the other aperture, and a connecting web or neck extending through the slots, substantially as described.

2. A corner-fastening for bedsteads comprising a post-head provided with an extension having a seat to receive and support a rail-fitting and having a vertical tapering aperture provided with a vertical slot in its terminal wall, a rail-fitting having a head adapted to the seat of the first-mentioned member and provided with a vertical aperture having a vertically-slotted terminal wall, and a clamping-key having a tapering body to fit the aperture in the head extension, a head to enter the aperture in the rail-fitting, and a connecting web or neck extending through the slots in the abutting terminal walls of the two other members, substantially as described.

3. In a corner-fastening for bedsteads, the combination, with two apertured members to be united, of a clamping-key adapted to engage both of said members, on one of which it is permanently mounted, said key being capable of longitudinal movement relatively to the member on which it is mounted, and stops to limit said movement and prevent the removal of the key, substantially as described.

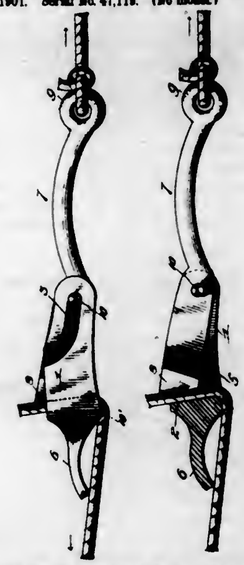
4. In a corner-fastening for bedsteads, the combination, with two members having apertures, one of which is tapering, of a clamping-key permanently mounted on one of said members, longitudinally movable relatively thereto, and having a tapering body to fit the correspondingly-shaped aperture, and a head to enter the other apertare, and stops to limit the movement and prevent the removal of the key, substantially as described.

5. In a corner-fastening for bedsteads, the combination, with two members having key-apertures, one of which is tapering, of a clamping-key having a tapering body and a head for said apertures, and means for limiting the motion of said key relatively to the member on which it is mounted, said means comprising a groove or recess in one of said parts, provided with a terminal stop-shoulder, and a tongue or projection on the other of said parts, said tongue being bent to engage said stop-shoulder after the key is inserted, substantially as described.

6. In a corner-fastening for bedsteads, the combination, with two members having vertical apertures, one of which is tapering, the abutting walls of said apertures being slotted, of a key having a tapering body to fit the correspondingly-shaped aperture, a head to enter the other aperture, and a connecting web or neck extending through the slots, said key being provided with a groove or recess having a stop-shoulder, and the taperingly-slotted members having an integral tongue or projection bent to engage said groove or recess after the key is inserted, substantially as described.

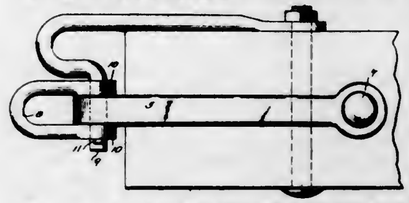
7. In a corner-fastening for bedsteads, the combination, with a post-head provided with an extension having a tapering aperture, the terminal wall whereof is slotted, of a reversible rail-fitting having a straight aperture with a slotted terminal wall, a clamping-key permanently mounted on the post member, longitudinally movable relatively thereto, and comprising a tapering body portion having a limited sliding motion in the aperture thereof, a straight head to enter the aperture of the rail-fitting, and a connecting web or neck extending through the slots, and stops to limit the motion of the key and prevent its removal, substantially as described.

683,188. CLOTHES-LINE CLAMP. GEORGIA PARK, New York, N. Y., assignor of one-half to W. H. Sloates, Plymouth, N. Y. Filed Feb. 13, 1901. Serial No. 47,119. (No model.)



Claim.—A rope-clamp, comprising, in combination, a frame provided with a fixed jaw and with a downwardly and forwardly curved slot intersected by a vertical slot, said fixed jaw having a curved downwardly-projecting and outwardly-extending lip adapted to bear upon the clamped end of the rope and to act as a fulcrum for obtaining a tighter bearing upon the end of the rope, and a lever located in the vertical slot and provided with studs which are seated in said downwardly and forwardly curved slot, said lever being provided with a jaw coacting with the said fixed jaw, substantially as described.

683,139. PLOW-GUIDE. REUBEN C. PATTERSON, Summit, Ga., assignor of one-half to O. L. Patterson, same place. Filed July 13, 1901. Serial No. 68,243. (No model.)



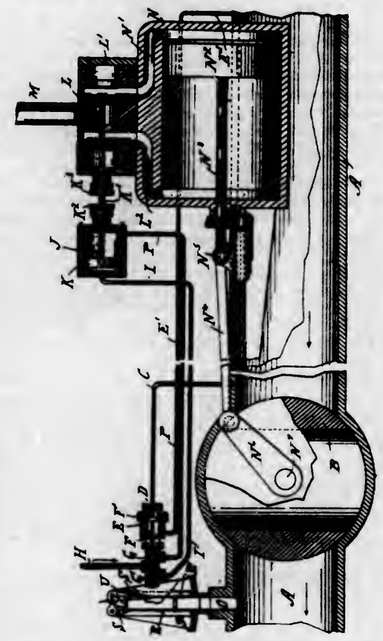
Claim.—1. An attachment for plows consisting of a pivoted guide provided with a loop adapted to be located at either side of a plow-beam, said loop being provided with a pivot extending transversely of the plow-beam and adapted to pass through a plow-clevis, and a supplemental clevis or link mounted on the pivot, substantially as described.

2. An attachment for plows comprising a guide consisting of a longitudinal bar designed to be arranged at one side of a plow-beam, and a transverse arm or loop arranged at one side of the plow-beam and provided at its inner side with a pivot, and a centrally-arranged supplemental clevis or link mounted on the pivot, substantially as described.

3. An attachment for plows comprising a reversible guide provided with an arm or loop designed to be arranged at either side of a plow-beam, and having a transverse pivot extending from its inner side and adapted to pass through a plow-clevis, and a centrally-arranged approximately U-shaped supplemental clevis or link mounted on the pivot and adapted to straddle a plow-clevis, substantially as described.

4. The combination with a plow, and a plow-clevis, of a guide consisting of a longitudinal bar arranged at one side of the plow-beam and pivoted at its rear end to the same, the transverse arm or loop adapted to be connected to a whiffletree and located at the front of the plow-beam at one side of the clevis, and the transverse pivot passing through the clevis and extending from the inner side of the arm or loop, and the supplemental clevis or link straddling the plow-clevis and mounted on the pivot, substantially as described.

683,140. TERMINAL FOR PNEUMATIC-DESPATCH-TUBE APPARATUS. OTTO S. PIER, Malden, Mass., assignor to the American Pneumatic Service Company, Dover, Del. Filed Oct. 19, 1900. Serial No. 33,612. (No model.)



Claim.—1. In an apparatus of the character described, a terminal, a valve normally closing said terminal, a cylinder, a piston in said cylinder and connected to said valve, an air-supply for operating said valve, a connection between said cylinder and said air-supply, a valve for controlling said connection, and mechanism operated by the variation of pressure produced by the traveling carrier for opening said valve in the terminal to allow the carrier to pass, and mechanism operated by the pressure at the rear of the traveling carrier for closing said valve after the carrier has passed.

2. In an apparatus of the character described, a terminal, a valve normally closing said terminal, mechanism operated by the variation of pressure in the terminal produced by the traveling carrier for opening said valve to allow the carrier to pass, and mechanism operated by the pressure at the rear of the carrier after it passes said valve for closing said valve.

3. In an apparatus of the character described, a terminal, a valve normally closing said terminal, mechanism controlled by the air-pressure in the terminal for closing said valve and operated by the variation of pressure in the terminal produced by the traveling carrier for opening said valve to allow the carrier to pass, and mechanism for closing said valve after the carrier has passed.

4. In an apparatus of the character described, a terminal, a valve normally closing said terminal, an air-supply for operating said valve, a valve controlling said air-supply, mechanism operated by the variation of

pressure in the terminal produced by the traveling carrier for operating said air-controlling valve to open the valve in the terminal to allow the carrier to pass, and mechanism out of the path of the traveling carrier for closing said valve after the carrier has passed.

5. In an apparatus of the character described, a terminal, a valve normally closing said terminal, a source of compressed air for operating said valve, a valve controlling said compressed air, mechanism operated by the variation of pressure in the terminal produced by the traveling carrier for operating said air-controlling valve to open the valve in the terminal to allow the carrier to pass, and mechanism operated by the pressure at the rear of the carrier for operating said air-controlling valve for closing the valve in the terminal after the carrier has passed.

6. In an apparatus of the character described, a terminal, a valve normally closing said terminal, an air-supply for operating said valve, a valve controlling said air-supply, mechanism operated by the variation of pressure in the terminal produced by the traveling carrier for operating said air-controlling valve to open the valve in the terminal to allow the carrier to pass, and mechanism out of the path of the traveling carrier and operated by the pressure at the rear of the traveling carrier for operating said air-controlling valve for closing the valve in the terminal after the carrier has passed.

7. In an apparatus of the character described, a terminal, a valve normally closing said terminal, a cylinder, a piston in said cylinder and connected to said valve, an air-supply for operating said valve, a connection between said cylinder and said air-supply, a valve for controlling said connection, mechanism intermediate said terminal and said air-controlling valve adapted by the normal pressure in the terminal to hold the terminal valve closed and upon the variation of pressure in said terminal produced by the traveling carrier to be actuated to open said valve in the terminal, and mechanism for closing said valve after the carrier has passed.

8. In an apparatus of the character described, a terminal, a valve normally closing said terminal, a cylinder, a piston in said cylinder and connected to said valve, an air-supply for operating said valve, a connection between said cylinder and said air-supply, a valve for controlling said connection, mechanism intermediate said terminal and said air-controlling valve adapted by the normal pressure in the terminal to hold the terminal valve closed and upon a variation of pressure in said terminal produced by the traveling carrier to be actuated to open said valve in the terminal, and mechanism operated by the variation of pressure in the terminal produced by the traveling carrier for closing the terminal valve after the carrier has passed.

9. In an apparatus of the character described, a terminal, a valve normally closing said terminal, a cylinder, a piston in said cylinder and connected to said valve, an air-supply for operating said valve, a connection between said cylinder and said air-supply, a valve for controlling said connection, mechanism intermediate said terminal and said air-controlling valve adapted by the normal pressure in the terminal to hold the terminal valve closed and upon a variation of pressure in said terminal produced by the traveling carrier to be actuated to open said valve in the terminal, and mechanism consisting of movable vanes operated by the pressure at the rear of the carrier after it has passed the terminal valve for closing said valve.

10. In an apparatus of the character described, a terminal, a valve normally closing said terminal, a cylinder, a piston in said cylinder and connected to said valve, an air-supply for operating said valve, a connection between said cylinder and said air-supply, a valve for controlling said connection, mechanism intermediate said terminal and said air-controlling valve adapted by the normal pressure in the terminal to hold the terminal valve closed and upon a variation of pressure in said terminal produced by the traveling carrier to be actuated to open said valve in the terminal, mechanism consisting of movable vanes operated by the pressure at the rear of the carrier after it has passed the terminal valve for closing said valve, and means for returning said vanes to their normal position after the discharge of the carrier from the tube onto the receiving-table.

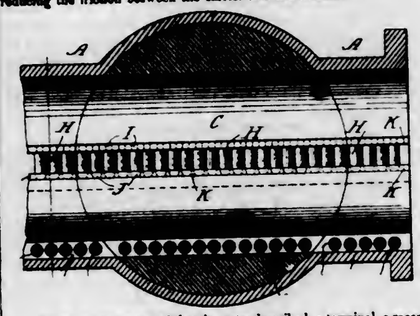
688,141. TERMINAL FOR PNEUMATIC-DESPATCH APPARATUS. OTTO S. PIKE, Malden, Mass., assignor to the American Pneumatic Service Company, Dover, Del. Filed Dec. 10, 1900. Serial No. 39,266. (No model.)

Claim.—1. In an apparatus of the character described, a terminal into which sliding carriers are inserted for transmission, and means in said terminal for reducing the friction between the sliding carrier and the terminal.

2. In an apparatus of the character described, a terminal, antifriction-rollers in said terminal for reducing the friction between the carrier and the terminal.

3. In an apparatus of the character described, a terminal, and antifriction-rollers located in the bottom of said terminal for reducing the friction between the carrier and the terminal.

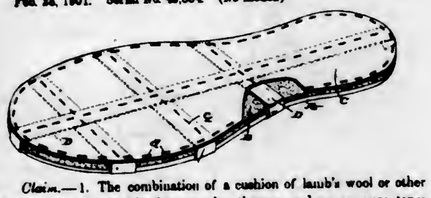
4. In an apparatus of the character described, a terminal, and antifriction-rollers having concave surfaces and located in said terminal for reducing the friction between the carrier and the terminal.



5. In an apparatus of the character described, a terminal, a recess in said terminal, and antifriction-rollers located in said recess for reducing the friction between the carrier and the terminal.

6. In an apparatus of the character described, a terminal, recesses in the bottom and sides of said terminal, and antifriction-rollers located in said recesses for reducing the friction between the carrier and the terminal.

688,142. CUSHION-SHOE. ADAM REED, St. Joseph, Mo. Filed Feb. 28, 1901. Serial No. 49,334. (No model.)



Claim.—1. The combination of a cushion of lamb's wool or other fibrous material, a soft-leather covering thereon, and one or more tapes of material that is not liable to stretch like soft leather interposed between and connected to the cushion of fibrous material and the soft-leather covering and extending from edge to edge thereof.

2. The combination of an insole a cushion of lamb's wool or other fibrous material arranged thereon, a soft-leather covering arranged over the cushion, and one or more tapes of material that is not liable to stretch like soft leather, interposed between the cushion of fibrous material and the soft-leather covering, and connected thereto, and extending beyond the edges of the cushion and covering and connected to the insole at the under side thereof.

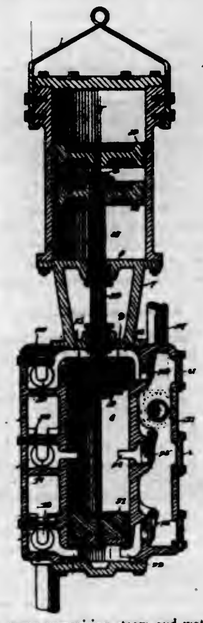
3. The combination of the insole, the cushion, the cushion-covering of soft leather, the tapes D interposed between the cushion and cushion-covering and disposed lengthwise and crosswise thereof, and having their ends extended beyond the edge of the cushion and covering and connected to the insole at the under side thereof, stitches extending through and connecting the cushion-covering the tapes and the cushion, and stitches extending through and connecting the insole, the cushion and the cushion-covering adjacent to the edges thereof.

683,143. PUMP. WESLEY M. REQADES, Joplin, Mo. Filed Feb. 14, 1901. Serial No. 47,332. (No model.)

Claim.—1. A duplex pump comprising steam and water cylinders disposed in axial alinement, an inlet-chamber for the water-cylinder including separate compartments communicating with the center and ends of the cylinder respectively, the compartment at one end communicating around the end of the cylinder, a suction-pipe for the compartments, inwardly-opening valves disposed to control the communications between the compartments and pipe, ports connecting the center and ends of the water-cylinder with the exhaust-chamber, said ports having outwardly-opening valves, pistons in the steam-cylinder, pistons in the water-cylinder, connections between the corresponding pistons of the cylinders, and means for supplying steam alternately between and at the outer ends of the pistons of the steam-cylinders to reversely move the water-pistons

2. A duplex pump comprising steam and water cylinders disposed in axial alinement, a piston in each cylinder having a common hollow piston-rod, additional pistons in the cylinders disposed beyond the outer ends of the first pistons and having a common piston-rod passed through

the hollow rod, an inlet-chamber having ports communicating with the ends and central portion of the water-cylinder, a suction-pipe having individual connections with the ports, inwardly-opening controlling-valves for the ports, an exhaust-chamber, ports connecting the exhaust-chamber with the end and central portions of the water-cylinder, outwardly-opening controlling-valves for said ports, and a valve mechanism having actuating means disposed for operation by a piston in the water-cylinder for directing steam between and at the outer ends of the steam-pistons alternately.

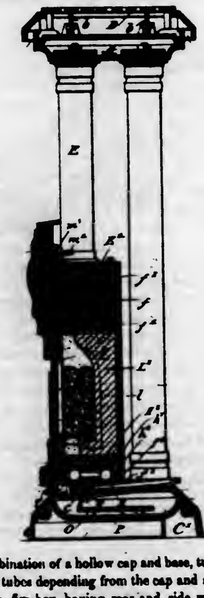


3. A duplex pump comprising steam and water cylinders disposed in axial alinement, a casting connecting the adjacent ends of the cylinders and including plates forming heads for the cylinders, pistons in the cylinders and having a common hollow piston-rod, additional pistons in the cylinders beyond the first-named pistons and having a common rod passed through the hollow cylinder, inlet and exhaust chambers for the water-cylinder having valved ports communicating with the central portion and ends of the cylinder, a valve mechanism for the steam-cylinder adapted to direct steam between and at the outer ends of the steam-pistons alternately, a striker-rod having its ends disposed slidably in the adjacent heads of the cylinders for alternate engagement by the innermost pistons, and connections between said rod and cut-off valve for operating the latter.

4. A pump comprising aliving steam and water cylinders having pistons therein, a hollow rod connecting the pistons, additional pistons beyond the first-named pistons and having a common rod passed through the hollow rod, inlet and exhaust chambers disposed at opposite sides of the water-cylinder, said inlet-chamber including separate compartments communicating with the central and end portions of the cylinder respectively, a suction-pipe communicating with the separate compartments, controlling-valves between said pipe and compartments, valved ports between the exhaust-chamber and the central and end portions of the water-cylinder respectively, means for directing steam between and at the outer ends of the steam-pistons alternately, said means having actuating mechanism disposed in the path of movement of one of the pistons in the water-cylinder for operation thereby and a suspending-bail connected with the steam-cylinder.

688,144. GAS-HEATER. EDMOND W. T. RICHMOND, Romford, England. Filed Dec. 17, 1900. Serial No. 40,138. (No model.)

Claim.—1. The combination of a hollow cap and base, tubes connecting them, an open-faced fire-box mounted on the base and communicating at the top with a short tube or tubes connected with the cap, flanges projecting from the wall of the box near its lower end, a burner removably mounted thereon, a gas connection to the burner extending from the rear of the apparatus across the top face of the base, a fire-brick fuel-holder fitting within the box above the burner and having a bottom portion upon which the fuel partly rests, and a fuel-guard applied at the front of the fireplace and having lawardly-projecting fingers upon which also the artificial fuel partly rests.



2. The combination of a hollow cap and base, tubes connecting them, one or more short tubes depending from the cap and secured at their lower ends in a plate, a fire-box having rear and side walls resting upon the base and its top formed by said plate, a burner located at the bottom of said box, a pipe for conveying gas to the burner entering the rear of the fire-box, a fire-brick fuel-holder located above the burner and having side wings, a rear wall and a relatively narrow bottom portion, a fuel-guard applied at the front of the fire-box and having inwardly-projecting fingers partly supporting the artificial fuel and located in a plane above the upper surface of the bottom portion of the fire-brick.

3. The combination of a hollow cap, a hollow base having an opening in the bottom thereof, tubes connecting the hollow cap and base, a fire-box adjacent to the base, a burner located at the bottom of the fire-box, a fuel-holder located above the burner, one or more tubes connecting the top of the fire-box and the hollow cap, a baffle-plate supported within the base opposite the opening in the bottom thereof, and a water-pan located under the opening.

4. The combination of a hollow cap, a hollow base having an opening in the bottom thereof tubes connecting the hollow cap and base, a fire-box mounted on the base, a burner at the bottom of the fire-box, a fire-brick fuel-holder for artificial fuel located above the burner, tubes connecting the top of the fire-box and the hollow cap and a water-pan located under the base opposite the opening therein.

5. The combination of a hollow cap and base, tubes connecting them, a fire-box mounted on the base and having inwardly-projecting flanges near its bottom, a burner removably seated on said flanges, a jet for supplying the gas to the burner attached to the front portion thereof, a pipe for supplying gas to the jet entering the rear of the apparatus and connected at its front end with the jet, a fire-brick fuel-holder located above the burner, tubes connecting the top of the fire-box and the hollow cap, and a fuel-guard applied at the front of the fire-box and having inwardly-projectiug fingers serving to partly support the artificial fuel.

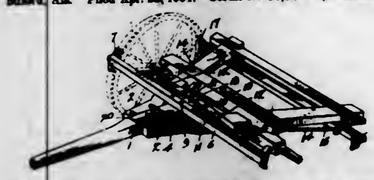
6. The combination of a hollow cap, a hollow base, tubes connecting them one or more tubes depending from the hollow cap, a plate in which their lower ends are secured, an open-face box interposed between the base and said plate which forms the top thereof, a fire-brick fuel-holder located in the box, a burner located in the bottom of the box, and a fuel-guard applied across the open face of the box.

7. The combination of a hollow cap, a hollow base, tubes connecting them one or more tubes depending from the cap, a plate in which their lower ends are secured, an open-face box mounted on the base and of which said plate is the top, a burner located in the bottom of the box and having projections h^1, and a fire-brick fuel-holder located within the box and resting upon said projections.

8. The combination of a hollow cap, a hollow base, tubes connecting them one or more tubes depending from the cap, a plate in which their lower ends are secured, an open-face box interposed between the plate

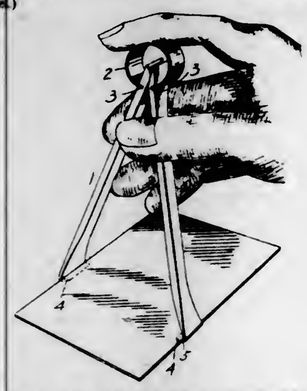
and base and of which the plate forms the top, a burner located at the bottom of the box, and a fire-brick fuel-holder located in the box and adapted to hold artificial fuel to be heated by the flame from the burner.

683,145. **AUTOMATIC VEHICLE-BRAKE.** LOUIS H. RICKLES, Buford, Ala. Filed Apr. 22, 1901. Serial No. 56,949. (No model.)



Claim.—The combination of the front axle, the front bounds, the tongue having a limited movement between the front bounds and provided at its rear end with a loop, the front brake-bar provided with the removable fastening device 9 engaging the tongue, the rear brake-bar, the levers 11 having their inner ends loosely arranged in the loop of the tongue and provided between their ends with removable pivots engaging the front bounds and fulcruming the levers thereon, and the links 10 and 14 extending from the inner and outer arms of the levers and connecting the same with the front and rear brake-bars, the said fastening device 9 and pivots 12 being adapted to be removed to detach the front brake-bar from the tongue and the levers from the front bounds to change the fulcrum of the levers, substantially as described.

683,146. **PHOTOGRAPHIC-PLATE HOLDER.** WILLIAM L. ROBERTSON, Lebanon, N. H. Filed July 8, 1901. Serial No. 67,422. (No model.)



Claim.—A photographic-plate holder, consisting of two bars, the inner faces of the upper ends of which are rounded and the outer faces of which are provided with transverse kerfs and the lower ends of which are provided with inwardly-projecting hooks or flanges having sharp edges above which are formed seats, and a bow-spring extending over the upper ends of said bars and having serrated ends to engage said transverse kerfs, substantially as set forth.

683,147. **DRENCHING-BIT.** THOMAS H. RUSH, Lamb, Va. Filed May 9, 1901. Serial No. 59,433. (No model.)



Claim.—1. In a drenching-bit, the combination with a tubular bit-bar having inlet and outlet openings, of a drench-receptacle movably mounted on one extremity of said bar, and a cap removably engaging the said bar extremity whereby the receptacle may be withdrawn from the bar to adapt the latter to be used as an ordinary driving-bit.

2. In a drenching-bit, the combination with a tubular bit-bar having inlet and outlet openings, of a drench-receptacle movably mounted on one extremity of said bar, the receptacle being also free to rotate on said bar, a removable securing device engaging the extremity of the bar on which the receptacle is mounted to permit the said receptacle to be withdrawn from the bar, and valve means in the lower portions of the receptacle and removable with the latter from the bar, a tubular closure being removably mounted in the upper end of said receptacle and capable of use as a measuring and pouring device.

3. In a drenching-bit, the combination with a tubular bit-bar having inlet and outlet openings, of a drench-receptacle fitted over one extremity of the bar and withdrawable from the latter, a keeper connected to and extended above the top portion of the receptacle and provided with a slot in its upper end, and a suspending device for the bit having a headed projection which removably engages the upper slotted end of the keeper.

4. In a drenching-bit, the combination with a bit-bar, of sectional cheek-pieces pivoted at their upper ends to each other and normally having their inner edges in contact, the inner edges of the cheek-pieces having opposing recesses in the lower end portions thereof to adjustably engage said bit-bar, and clamping devices mounted in the lower ends of the sections and adapted to movably secure the cheek-pieces on the opposite portions of the bar.

683,148. **FEED-WATER REGULATOR FOR BOILERS.** RICHARD SCHULZ, Berlin, Germany. Filed May 3, 1900. Serial No. 15,389. (No model.)

Claim.—1. A feed-water regulator, comprising a valve-casing having a feed branch and a feed-water-distributing chamber having ports in its opposite walls, a valve for each of said ports, a valve-spindle common to both valves and having endwise motion in the valve-casing, an internally-threaded sleeve into which said spindle is screwed, said sleeve held against rotation but moving endwise with the spindle, and means for revolving the spindle without interfering with its endwise movement, whereby said spindle may be screwed more or less into or out of said sleeve; in combination with a float-reciprocated rod connected with the sleeve, substantially as and for the purpose set forth.

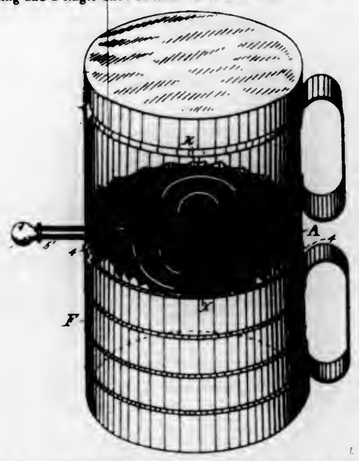
2. A feed-water regulator, comprising a valve-casing having a feed branch, and a feed-water-distributing chamber having ports in its opposite walls, a valve for each of said ports, a valve-spindle common to both valves and having endwise motion in the valve-casing, an internally-threaded sleeve into which said spindle is screwed, said sleeve held against rotation but moving endwise with the spindle, means for revolving the spindle without interfering with its endwise movement whereby said spindle may be screwed more or less into or out of said sleeve, and means limiting the movements of the spindle in either direction; in combination with a float-reciprocated rod connected with the sleeve, substantially as and for the purpose set forth.

3. The combination with the valve-spindle *h*, the valve-casing and the sleeve *c* into which the spindle is screwed, said sleeve held against rotation but having endwise motion in the casing, and said spindle provided with a slot l^2; of the spindle *k* connected with the valve-spindle by a pin passing through the aforesaid slot, and means for revolving the spindle *k*, substantially as and for the purpose set forth.

4. The combination with the valve-casing *a* having a graduated index on its outer face, the valve-spindle *h* having rotary and endwise motion in said casing and provided with an elongated slot l^2, and the sleeve *c* screwed to the valve-spindle and having a perforated lug, said sleeve held against rotation in its bearing but free to move endwise with the valve-spindle; of the revolvable spindle *k* having a bearing of polygonal form in cross-section, a sleeve fitting said bearing and provided with a handle *i* and pointer *i'*, adapted to travel over the aforesaid scale, and a lock-nut for locking the spindle *k* against rotation, substantially as and for the purpose set forth.

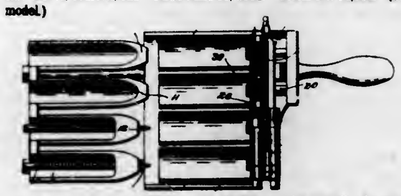
683,149. **FLOUR-SIFTER.** ELDORA B. SIMMONS, Seattle, Wash. Filed Sept. 6, 1900. Serial No. 29,215. (No model.)

Claim.—1. A reversible sifter; comprising a thimble having a handle, a detachable cap at one end, and a fixed flat sieve across the opposite end, and a cup detachably engaged by the rim with the sieve end, and a compound agitator consisting of two flat elliptic spirals separated to embrace the sieve each having a stem projecting through the body of the casing and a single knob fastened to both stems.



2. A reversible sifter; comprising a thimble having a handle, a flat sieve fixed across one end, a cap detachably connected at the opposite end by a lap-joint, a cup detachably engaged by the rim in a lap-joint at the sieve end, an aperture in the body of the thimble at each side of the sieve diametrically opposite the handle, a compound agitator consisting of two flat elliptic spirals separated to embrace the sieve and each formed of a single piece of wire with the outer end bent at right angles to the extreme major diameter midway its length and projected through the relative one of said apertures as a stem and a single knob engaged with both stems.

683,150. **CARTRIDGE PRIMING OR DEPRIMING APPARATUS.** IRA SILVIS, Grafton, Cal. Filed June 18, 1901. Serial No. 64,964. (No model.)



Claim.—1. In an apparatus for depriming cartridge-shells, the combination of a bed-plate adapted to serve as a support for the shells, a sliding carriage carrying a guide and holder adapted to enter the shell, an extracting-pin carried by said holder to extract the primer in the shell, and means for operating said carriage, substantially as described.

2. In a depriming apparatus for cartridge-shells, the combination of a bed-plate adapted to support the shells, a movable guide and holder adapted to enter the shell, an adjustable extracting-pin mounted upon said holder for extracting the primer in the shell, and means for moving said holder into and out of the shell, substantially as described.

3. In a depriming apparatus for cartridge-shells, the combination of a bed-plate adapted to support the shell and having a head for the closed end of the shell to bear against, a sliding carriage, a holder and guide mounted on said carriage and adapted when the carriage is moved in one direction to enter the shell and extract the primer carried by said cartridge-shell, and an operating-lever for sliding the carriage, substantially as described.

4. In a depriming apparatus for cartridge-shells, the combination of a bed-plate provided with spaced flanges, one serving as a support for the headed end of the shell, and the other as a stop for the primers extracted therefrom, said flanges forming between them a conductor for the downward passage of the primers, a sliding carriage, a holder and guide mounted on said carriage and adapted to be moved into and out of the shell, an adjustable primer-extractor carried by said holder, and means for operating the carriage, substantially as described.

5. In a priming and depriming apparatus for cartridge-shells, the combination of a base-plate provided upon one side of its center with a shoulder for the heads of the shells to be deprimed to bear against, a primer-head arranged upon the opposite side of the center of the bed-plate for the headed ends of the shells to be primed to bear against, a carriage slidably mounted upon the bed-plate, a plurality of holders and guides mounted upon the carriage and adapted to be moved into and out of the shells, the guides upon one side of the center of the device being provided with extracting-pins and the guides upon the other side of the center of the device being provided with anvils or supports for the priming-chambers, a hopper for supplying the primers to the primer-head, anvils adapted to be projected upon the movement of the holders and guides to seat the primers in their chambers in the shell, and operating means for sliding the carriage to effect the simultaneous priming of one set of shells and the depriming of the other shells, substantially as described.

6. In a priming and depriming apparatus for cartridge-shells, the combination of a supporting-plate on which the shells are adapted to rest, a support against which the heads of the shells to be deprimed are adapted to rest, a priming-head against which the heads of the shells to be primed are adapted to rest, two sets of holders and guides adapted to be inserted into and withdrawn from the shell to act as supports and extractors, means for feeding the primers into operative position in the priming-head, and operating mechanism for effecting a simultaneous acting of the parts to deprime the one set of shells and to prime the other set of shells, substantially as described.

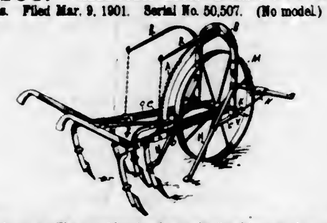
7. In a cartridge-shell-priming apparatus, the combination of a bed-plate, a priming-head provided with a feed-opening, a hopper in communication with said opening, a supporting device adapted to be moved into the shell to support the same while the primer is being seated, and means for operating said supporting device to bring the shell into position for the seating of the primer therein, substantially as described.

8. In a cartridge-shell-priming device, the combination of a bed-plate, a movable spring-retracted priming-head provided with feed-openings, pins serving as guides for the primer-head and adapted to project into said openings to serve as anvils to seat the primers, holders and guides adapted to enter the shells and to force them against the priming-head, and means for operating said holders and guides, substantially as described.

9. In a cartridge-priming apparatus, the combination of a bed-plate, a priming-head movably mounted thereon and provided with feed-openings, a spring for retracting the priming-head, a hopper upon the priming-head to feed the primers to said openings, a sliding carriage, holders and guides mounted upon the carriage and adapted to be forced into and out of the shells and to bring the shells to bear against the priming-head, and means for operating the carriage, substantially as described.

10. In a cartridge-priming apparatus, the combination of a bed-plate, a priming-head mounted thereon and provided with feed-openings, guide-pins for the priming-head adapted when the head is moved outwardly to project in said openings and serve as anvils to seat the primers, a spring for retracting the primer-head, an adjustable hopper mounted upon the primer-head and having a series of feed-chutes, either of which is adapted to be brought into communication with the feed-openings, means for holding the hopper in adjusted position, a sliding carriage, holders and guides mounted upon said carriage and adapted to enter the shells and force them against the priming-head, and means for operating the carriage, substantially as described.

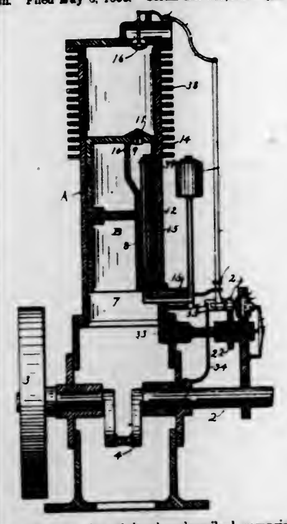
683,151. **WHEEL-CULTIVATOR.** EVERETT S. SLOUGH, Quincy, Kans. Filed Mar. 9, 1901. Serial No. 50,507. (No model.)



Claim.—1. The combination in a wheel-cultivator of an arch for a frame having rigidly fastened to it two backwardly and downwardly extending legs, which legs are braced from the lower ends of the arch, said arch-frame being rigidly fastened to the clevis-bars and to the respective ends of the spindle in the center of which spindle a supporting-wheel is journaled, as set forth.

2. The combination in a wheel-cultivator of an arch-frame, a spindle in the center of which is journaled a supporting-wheel, the rigid center beam attached to the spindle by means of pipes on either side, said pipes fitting in clamps adjustable by means of a screw, an adjustable clamping-plate between said pipes at the rear of the center beam, all substantially as set forth.

683,152. EXPLOSIVE-GAS ENGINE. VICTOR ST. JOHN, Fairmont, Minn. Filed May 8, 1899. Serial No. 716,073. (No model.)



Claim.—1. A gas-engine of the class described, comprising the cylinder, the piston working in said cylinder, its actuating-crank, the passage in said piston, the pipe connecting said passage with the source of gas-supply, and the valve arranged in said piston between said passage and the interior of the cylinder, whereby upon the working stroke of said piston the rushing of the air through said passage and valve will carry the gas into the cylinder.

2. A gas-engine of the class described, comprising the cylinder, the piston working therein, its actuating-crank, the passage through said piston, the valve normally closing said passage, the gas-inlet pipe leading from said passage to a source of supply, the valve closing said pipe, the exhaust-valve for the cylinder, the gear driven from the main crank-shaft, and the cam carried by said gear and operatively connected with the exhaust-valve and inlet-pipe valve, and so constructed as to open the exhaust-valve, and to open the valve closing the inlet-pipe when the exhaust-valve is carried to closed position.

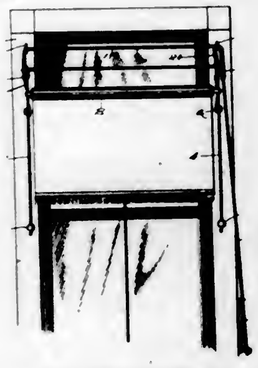
683,153. MAIL-BAG MOUTH OR CLOSURE. SIMON P. STEELE, Auburn, Nebr. Filed Dec. 7, 1900. Serial No. 39,078. (No model.)



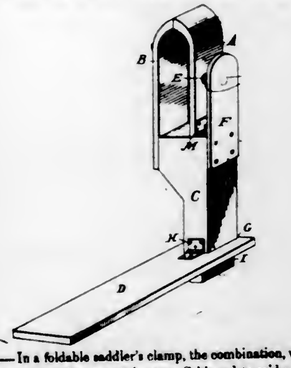
Claim.—A mail-bag mouth or closure, comprising four members hinged together, two of which, when the bag is closed, are adapted to lie in a straight line, and the other two at an angle to the first two members, tenons carried by one side and one end, mortises provided on the other side and other end, with which the tenons coact, a portion of the tenons on one side being cut away, a staple provided at one side of the closure, the tenon at the point of attachment to the staple being cut away or recessed, and a lock secured to the other side of the closure and, when the mouth is closed, engaging the recess of the tenon, the lock having its keyhole arranged in its upper edge, substantially as described.

683,154. WINDOW-SHADE HANGER. HENRY H. STRATTON, Chattanooga, Tenn. Filed Jan. 11, 1901. Serial No. 42,905. (No model.)

Claim.—A guide member for adjustable shade-roller brackets, comprising an upper pointed fastening to be driven into a window-frame and having a longitudinally-projected head provided with a perforation, a flexible cord passed through the perforation, a stop provided upon the upper end of the cord and drawn against the head of the upper fastening, and a lower pointed fastening, having an enlarged head provided with a vertical conical opening or socket extending entirely through the head, and a lateral entrance-slot intersecting both top and bottom edges of the conical opening and communicating therewith for its entire length, the lower end portion of the cord being passed laterally through the slot and into the conical opening and having a knot formed therein and seated snugly in the conical opening.

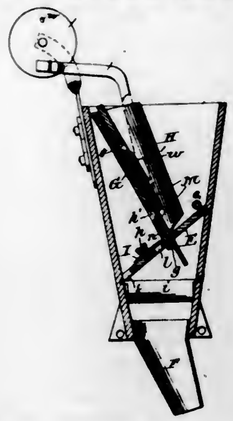


683,155. SADDLER'S CLAMP. GEORGE H. THOMPSON, East Freedom, Pa. Filed Jan. 28, 1901. Serial No. 44,986. (No model.)



Claim.—In a foldable saddler's clamp, the combination, with the seat D, having an opening therein, of the stem C hinged to said seat and having its lower end reduced and passed through such opening, the jaws A and B carried by said stem, the jaw A being hinged thereto; the standard F spaced apart from and parallel with the jaw A, and the spring E between the standard and the jaw A, as set forth.

683,156. SEED-PLANTER. ALONZO F TRIMBLE, Lonoak, Ga. Filed Nov. 14, 1900. Serial No. 36,485. (No model.)

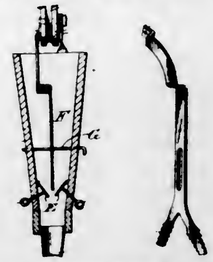


Claim.—1. In a seed-planter, the combination with a hopper, provided on its outer side walls with arms, having forward and rearward extensions, a peripheral grooved wheel mounted between the rear extensions, and a peripheral grooved pulley journaled to the rear portion of the hopper, a drive-chain traveling in the grooves of the wheel and pulley whereby the wheel and pulley are rotated, the forward ends of said arms being detachably secured to the plow-beam and the hopper loosely mounted between the handles of the plow, substantially as specified.

2. In a seed-planter the combination with a hopper, having a peripheral grooved drive-wheel, with a peripheral grooved pulley journaled above the same, a chain mounted in the grooves of the wheel and pulley, an inclined bottom secured in the hopper, provided with an end opening and a central opening, a seed-receptacle, with a seed-regulator therein, mounted in the hopper, an adjustable slide for regulating the size of the central opening, a shaft pivoted to the seed-regulator, and a crank-arm on said shaft connected to said pulley substantially as specified.

3. In a seed-planter, the combination with a hopper, having mounted therein a seed-receptacle which is pivoted to the side walls of the hopper, of a seed-regulator mounted in the seed-receptacle having two adjustable plates, adapted to have vertical endwise movement within the receptacle, and the said plates of the said regulator, having interchangeable openings therein, substantially as specified.

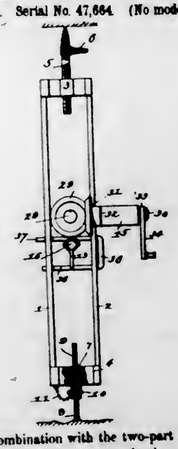
683,157. COTTON-SEED PLANTER. ALONZO F. TRIMBLE, Lonoak, Ga. Filed Feb. 7, 1901. Serial No. 46,337. (No model.)



Claim.—1. In a cotton-seed planter, the combination with the hopper, having adjustable chutes therein, of a lever with serrated forked ends, connected in the hopper, and means connected to said lever to operate the same, substantially as specified.

2. In a cotton-seed planter, the combination with the hopper, having adjustable chutes therein, of a slotted lever, with serrated forked ends, a rod passing through the sides of the hopper and through the slot of the lever, the said lever being provided with a crank-arm, and means connected to said arm, whereby to give the same a vertical up-and-down movement, substantially as specified.

683,158. COAL OR ROCK DRILL. ISAAC WAFFLING, Peoria, Ill. Filed Feb. 16, 1901. Serial No. 47,664. (No model.)



Claim.—1. In combination with the two-part boxing the parts being hinged to each other, one of said parts having a tubular bearing 15 carrying power devices, and a depending body, the feed-nut consisting of the dovetailed sections 24 and 25 each having a supplemental locking means comprising lips bent back upon the parts of the boxing, the transverse opening 17, extending through the depending body, means for supporting said boxing in a suitable frame-support and a thread-bar engaged by the power devices, substantially as described.

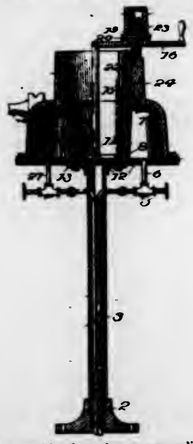
2. In combination with a suitable support with perforations arranged at intervals in its body, of a feed-nut and support having a depending body integral therewith, a transverse opening cutting through said body, a flared or winged extension of said depending body provided with semicircular notches or serrations in its edge and a yoke-pin arranged to engage the perforations in the support and the transverse opening and serrations in the feed-nut, substantially for the purpose described.

3. In combination, the support of the standards 1 and 2, connected at their upper and lower ends by suitable castings with a threaded spindle engaging a nut in the upper casting, an extensible sliding shoe in the lower casting provided with perforations in its body and fixed in desired positions by means of a pin or similar device engaging said perforations and perforation in the casting, of a feed-nut comprising hinged sections 12 and 20 detachably carried in the support arranged with semicircular threaded linings 24 and 25 dovetailed in said sections and each provided with lips 27 arranged to be bent back upon the outer faces of the hinged sections, and a thread-bar and power mechanism engaging said bar, substantially as described and shown.

4. In combination, the boxing comprising two hinged sections, the lower section provided with a stationary arm and a depending body, a transverse opening through said body, a series of semicircular notches arranged on the lower edge of the body, said notches struck on an arc of a circle from the transverse opening, of suitable means for supporting the hinged sections to adapt them for use in connection with a drill-support through the medium of a pin or similar device having lateral extensions adapted to be inserted through the transverse opening and to engage either of the semicircular notches, substantially as herein described.

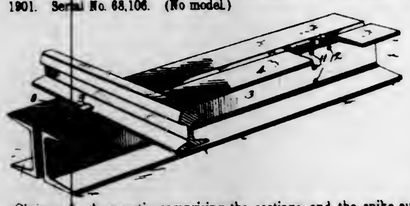
5. A coal or rock drill, comprising a support of two standards connected top and bottom, each with apertures throughout its length, a feed-nut of two hinged sections 12 and 20, the section 12 provided with the extended body 14 and depending body 13 and a yoke-pin for detachably securing the feed-nut in adjusted positions in said frame, dovetailed threaded linings secured in the sections and engaged by a thread-bar actuated through mechanism carried in the extended body 14, a threaded spindle engaging the connecting device at the upper end of the standards, and the adjustable shoe 8 arranged with a series of apertures detachably fixed in the lower connecting device of the standards by a pin 10 slipped through an aperture in the support and a corresponding aperture in the shoe 8, substantially in the manner and for the purpose described.

683,159. COLLAR TURNING AND IRONING MACHINE. GUSTAV WEINSCHENKER and WALLIE S. SCHOELLER, Canal Dover, Ohio. Filed Mar. 27, 1901. Serial No. 53,144. (No model.)



Claim.—The combination of a steam-cylinder, steam and return pipes connected thereto, an upward-extended annular flange provided with a cut-out portion, a heating-block located below the cut-out portion in the flange and stopped at its upper end, a fixed post, a handle-bar journaled to the post and provided with an upward-extended portion, and the stopped ironing-roller carried by the handle-bar, substantially as and for the purpose specified.

683,160. RAILROAD-TIE. BENJAMIN F. WHITE, Lebanon, Pa., assignor of one-half to Horace L. Fritz, Manheim, Pa. Filed July 12, 1901. Serial No. 68,106. (No model.)



Claim.—1. A cross-tie comprising the sections, and the spike-engaging devices interposed between and spacing the sections, substantially as described.

2. A cross-tie provided with a stationary block, and having a clamping-block pivotally mounted on it and spaced from the stationary block to receive a spike and arranged to clamp the same, substantially as described.

3. A cross-tie comprising the sections spaced apart, the stationary block arranged between and rigidly secured to the sections, and the clamping-blocks pivotally mounted between the sections and spaced from the stationary block, substantially as described.

4. A cross-tie comprising the sections spaced apart, and blocks interposed between the sections and spaced apart to receive a spike and arranged to clamp the same, substantially as described.

5. A cross-tie comprising the sections spaced apart, the stationary block rigidly secured between the sections, and the clamping-block located between the sections and spaced from the stationary block, and pivoted above its center, substantially as and for the purpose described.

683,161. POLYCHROME PRINTING-BLOCK. WILLIAM G. WHITE, Anerley, and ROBERT A. A. WHITE, Rotherhithe, England. Filed Feb. 12, 1901. Serial No. 46,283. (No specimens.)

Claim.—1. A color-printing composition resulting from the mixture of stearic acid, vegetable wax, linseed-oil, resin, alkali, the proportion of alkali being less than the saponification equivalent of the stearic acid, and coloring-matter, substantially as described.

2. A color-printing composition resulting from the mixture of stearic acid, vegetable wax, linseed-oil, resin, alkali, the proportion of alkali being less than the saponification equivalent of the stearic acid, acetate of chrome and coloring-matter, substantially as described.

3. A color-printing composition resulting from the mixture of stearic acid, vegetable wax, linseed-oil, resin, carbonate of soda, the proportion of soda being less than the saponification equivalent of the stearic acid, and coloring-matter in substantially the proportions specified.

4. A color-printing composition resulting from the mixture of stearic acid, vegetable wax, linseed-oil, resin, carbonate of soda, the proportion of soda being less than the saponification equivalent of the stearic acid, acetate of chrome, and coloring-matter in substantially the proportions specified.

683,162. MACHINE FOR POLYCHROMATIC PRINTING. WILLIAM G. WHITE, Anerley, and ROBERT A. A. WHITE, Rotherhithe, England. Filed Feb. 12, 1901. Serial No. 46,984. (No model.)

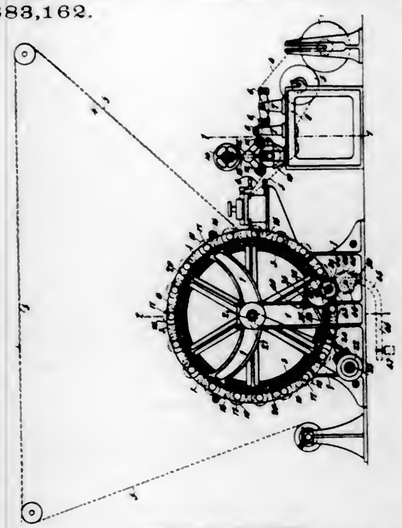
Claim.—1. The combination of a printing-cylinder, a trough for containing damping liquid, a roller in the trough, a pair of hanging frames, a pair of rollers mounted in the frames one on each side of the first roller, nuts forming part of the frames, a pair of vertical screws in the nuts, and means for turning the screws.

2. The combination of a printing-cylinder, a toothed wheel coaxial with the cylinder, a series of pinions gearing with the wheel, a series of pressing-rolls arranged around the cylinder and pivoted eccentrically to the pinions, a pinion driving the wheel, a ratchet-wheel fixed to the pinion, a weighted arm free to rotate about the axis of the pinion and a pawl pivoted to the arm and engaging with the ratchet-wheel.

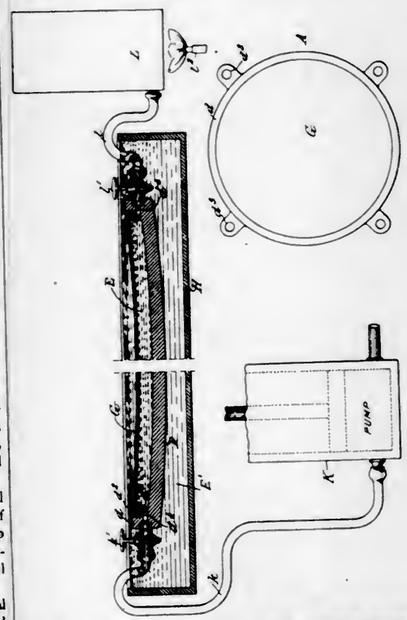
3. The combination of a printing-cylinder, a toothed wheel coaxial with the cylinder, a series of pinions gearing with the wheel, plates fixed to the sides of the pinions, a series of pressing-rolls arranged around the cylinder and pivoted to the plates eccentrically to the pinions and means for rotating the wheel.

4. The combination of a printing-cylinder, a toothed wheel coaxial with the cylinder, a series of pinions gearing with the wheel, plates fixed to the sides of the pinions, a series of pressing-rolls arranged around the cylinder and pivoted to the plates eccentrically to the pinions, a pinion driving the wheel, a ratchet-wheel fixed to the pinion, a weighted arm free to rotate about the axis of the pinion and a pawl pivoted to the arm and engaging with the ratchet-wheel.

683,162.



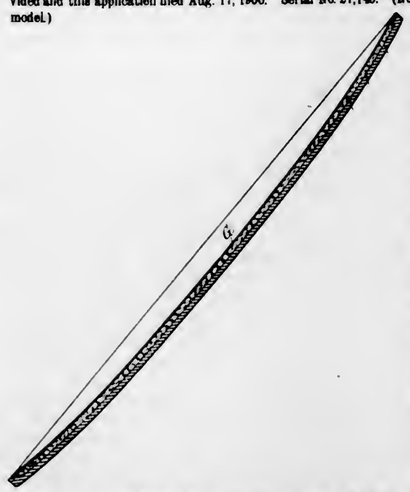
683,163. PROCESS OF MAKING CURVED MIRRORS. KNUT C. WIDEEN, New York, N. Y. Original application filed Apr. 27, 1900. Serial No. 14,638. Divided and this application filed June 12, 1900. Serial No. 20,087. (No specimens.)



Claim.—1. The process of making a curved mirror having a hard backing which consists in supporting a mirror at its edges, submitting said mirror to differing pressures of a fluid on the face and a fluid on the back thereof to curve said mirror, and then hardening the fluid on the back to form a hard backing.

2. The process of making a curved mirror having a stearin backing which consists in supporting a mirror at its edges, submitting said mirror to the pressure of the atmosphere on its face, and to the pressure of fluid stearin on the back thereof, said pressures differing so as to curve said mirror, and solidifying said stearin.

683,164. CURVED REFLECTOR. KNUT C. WIDEEN, New York, N. Y. Original application filed Apr. 27, 1900, Serial No. 14,638. Divided and this application filed Aug. 17, 1900. Serial No. 27,143. (No model.)



Claim.—1. In a reflector, the combination of a curved mirror, a frame forming with said mirror a closed chamber at the back of said mirror, and a backing filling said chamber and fitting said mirror closely, said backing being solid at ordinary temperatures.

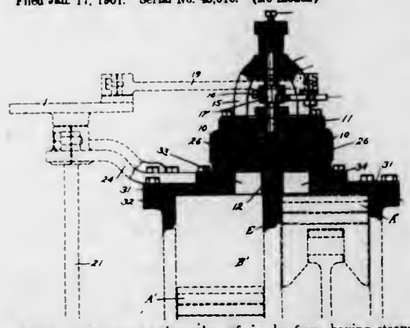
2. In a reflector, the combination of a curved mirror, a frame forming with said mirror a closed chamber at the back of said mirror, and a backing of stearin filling said chamber and fitting said mirror closely.

3. In a reflector, the combination of a curved mirror, a frame forming a chamber at the back of said mirror, and a solid backing filling said chamber, said chamber being closed by said mirror whereby a difference of pressure may be maintained between said backing and the atmosphere to maintain the curvature of said mirror.

4. In a reflector, the combination of a curved mirror, a frame forming a chamber at the back of said mirror, and a backing of solid stearin filling said chamber, said chamber being closed by said mirror whereby a difference of pressure may be maintained between said backing and the atmosphere to maintain the curvature of said mirror.

5. In a reflector, the combination of a curved mirror, a frame forming a chamber at the back of said mirror, and a solid backing filling said chamber, said chamber being closed by said mirror whereby a difference of pressure may be maintained between said backing and the atmosphere to maintain the curvature of said mirror, and a plunger entering said chamber and movable to vary the pressure therein.

683,165. VALVE FOR STEAM-ENGINES. CHARLES M. WILCOX, New Paris, Ohio, assignor of one-half to Charles W. Bloom, same place. Filed Jan. 17, 1901. Serial No. 43,610. (No model.)



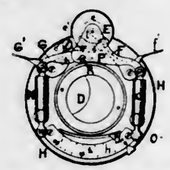
Claim.—1. A steam-engine valve, of circular form, having steam-spaces in the face thereof, an upwardly-projecting stem and pivot and a downwardly-projecting pivot, all substantially as shown and described and for the purposes set forth.

2. In a steam-engine, the combination with a valve-seat having supply and exhaust ports or passages, of a valve-chest, an oscillating valve having steam-chambers in its face adapted to coact with the ports aforesaid and located in the valve-chest and provided with a stem which is journaled in the valve-chest, and an adjusting-screw on the valve-chest which is stepped against the end of the valve-stem, whereby the valve is prevented from bearing against the valve-chest.

3. In a steam-engine, the combination with a valve-seat having supply and exhaust ports or passages, of a valve-chest, an oscillating valve having steam-chambers in its face adapted to coact with the ports aforesaid and located in the valve-chest, an adjusting-screw on the valve-chest which is stepped against the end of the valve-stem, and a pivot or journal projecting from the valve and journaled or stepped in the valve-seat, whereby the valve is centered and prevented from lateral or longitudinal displacement by steam-pressure.

4. In a steam-engine, the combination with admission and exhaust ports or passages therein, of a valve-chest secured thereto, a yoke rising above the valve-chest, an oscillating valve in the chest having chambers to coact with the ports aforesaid, a stem secured to said valve which is journaled in the valve-chest, an adjusting-screw on the yoke which is stepped against the end of the stem, a slotted arm having a collar adjustably connected to the valve-stem between the yoke and the valve-chest, and an operating-arm having an adjustable connection with the slot in the aforesaid arm and connected to the operative parts of the engine for oscillating the valve.

683,166. PHOTOGRAPHIC SHUTTER. CHARLES G. WOODHEAD, Altringham, England, assignor to the Thornton Pickard Manufacturing Company, Limited, same place. Filed June 29, 1900. Serial No. 22,074. (No model.)



Claim.—1. In a photographic shutter, the combination with the shutter-leaves D and the rotating disk E for operating the same, of the pinion e attached to the disk, the pivoted quadrant F for rotating the same, and the pivoted lever G to release the disk, substantially as described.

2. In a photographic shutter, the combination with the shutter-leaves D, the supporting-levers d' d^2, the connecting-lever d, the springs L and K and rotary disk E, of the pneumatic timer O, the lever P connected to the disk E and pivoted upon a movable adjustable fulcrum R, the pivoted lever S carrying the fulcrum R at one end and the index-pointer r at the other, and the link T attached to the connecting-lever P and to the disk E, substantially as described.

3. In a photographic shutter, the combination with two shutter-leaves D of the rotary operating-disk E, the two springs K and L to actuate the movable parts, the pin e attached to the disk, the quadrant F to set the disk, the lever G to engage the projections e' e^2 on the periphery of the disk, the pneumatic timing device O connected to the disk, the connecting lever P mounted upon a movable fulcrum, the lever S carrying the movable fulcrum at one end, and the link T pivoted at t t', by which the connecting-lever P is attached to the rotary disk E, substantially as described.

4. The combination with a rotary disk for operating the shutter, of the pneumatic timer O connected to the disk by a lever P mounted upon a movable fulcrum, the connecting-lever P, a lever carrying the movable fulcrum, and the link T pivoted to the lever P and to the disk, substantially as described.

683,167. REVERSIBLE RATCHET. LYNCHBURG ADAMS, Santa Rosa, Cal. Filed Mar. 20, 1901. Serial No. 52,071. (No model.)



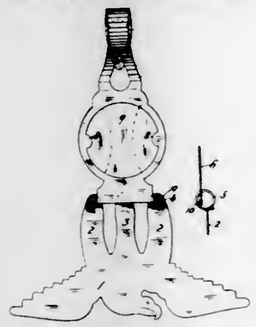
Claim.—1. A ratchet having hubs axial therewith upon opposite sides and formed integral with it, and a central opening to serve as a wrench, plates within which the hubs are journaled, said plates extending to one side, a handle pivoted upon a pin between said plates, having pawls formed upon opposite sides of its inner end and integral therewith, said handle being tarnable so that one of said pawls will be disengaged and the other engaged with the ratchet, and a member pivotally secured between its

ends to the handle and having one end engaging one of the first-named plates whereby its opposite end may be moved to turn the handle about its pin and to engage one of the pawls with the ratchet.

2. A ratchet having hubs integral therewith and projecting from opposite ends, and having an opening formed therethrough to serve as a wrench or driver, plates having holes made therethrough in which the hubs are journaled and turnable, a shoulder-pin passing through the plates and forming a pivot, a handle fulcrumed upon said pivot having pawls formed upon opposite sides of the inner end and adapted to alternately engage the ratchet upon opposite sides, a spring pivoted upon the handle having one end engaging one of the plates to which the handle is fulcrumed, and means for pressing the spring to one side or the other whereby the handle is turned upon its pivot, and one of the pawls engaged with the ratchet.

3. A ratchet having cylindrical hubs upon opposite sides and a central driving-opening made axially through it, plates between which the hubs of the ratchet are journaled and turnable, a handle turnable between said plates having pawls formed upon its inner end and adapted to engage opposite sides of the ratchet, a spring pivoted upon the handle having one end formed to engage with one of the plates between which the handle is fulcrumed, an opening formed in the enlarged end upon the opposite side of the fulcrum-pin, an eccentric pivoted and turnable in said opening so as to press upon either one side or the other of the opening and correspondingly turn the handle to engage either one of the pawls with the ratchet.

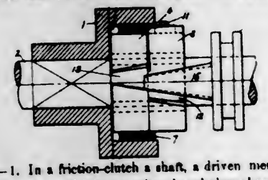
683,168. **HAT-HANGER.** WILLIAM V. BLEHA, St. Louis, Mo. Filed Dec. 14, 1900. Serial No. 39,922. (No model.)



Claim.—1. A hat-hanger comprising a supporting-plate adapted to be inserted between the hat and inner band thereof, outwardly-projecting arms and an intermediate resilient tongue carried by the plate and made integral therewith, openings at the outer ends of the arms, loops stamped integrally with the arms, the free ends of the loops being passed through the openings, a hanging lever having laterally-projecting trunnions mounted in and embraced by the loops, the free end of the tongue bearing against the base of the hanging lever and adapted to retain the same in a closed or open position, substantially as set forth.

2. A hat-hanger comprising a supporting-plate adapted to be inserted between the hat and inner band thereof, outwardly-projecting arms, and an intermediate outwardly-flexed resilient tongue, all stamped from a single piece of metal, openings formed in the arms, terminal loops bent outwardly from the body of the arms, the free ends of the loops being passed through said openings, a hanging lever having basal laterally-projecting trunnions supported and loosely embraced by the loops, and a terminal hook for said lever, the free end of the tongue bearing against the lever a suitable distance beyond the lower edge thereof, the parts operating substantially as, and for the purpose set forth.

683,169. **FRICTION-CLUTCH.** VICTOR R. BROWNING, Lakewood, Ohio. Filed Jan. 7, 1901. Serial No. 43,413. (No model.)



Claim.—1. In a friction-clutch a shaft, a driven member mounted loosely on the shaft, two driving members loosely keyed on said shaft and turning with the same, a spring within the driven member having its ends abutting the driving members, and means for moving said driving members with reference to each other to cause them to expand the spring into frictional engagement with the driven member.

2. In a frictional clutch a driven member, driving members mounted in axial alinement therewith, a spring within a portion of said driven member having its ends abutting the driving members, and means for causing said driving members to expand the spring to cause it to engage frictionally with the driven member.

3. In a reversible friction-clutch, a driven member, a friction device for engaging and turning the same, two driving members for driving the friction device, and means whereby a change in direction of rotation of the driving members results in changing the load from one driving member to the other.

4. In a friction-clutch a driven member, a shaft, a pair of disks keyed loosely on said shaft and in axial alinement with the driven member, a spring having its ends engaging the disks, and means for rotating the disks relatively to each other to cause the spring to enter into driving engagement with the driven member.

5. In a reversible friction-clutch, a driven member, a spring for frictionally engaging and turning the same, driving members engaging each end of the spring to drive the same, and means whereby a change in rotation of the driving members results in throwing the load from one driving member to the other.

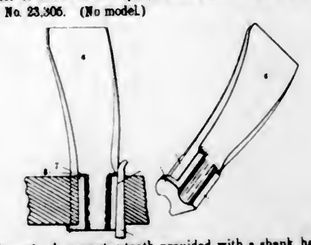
6. In a reversible friction-clutch, a shaft, a driven member mounted loosely on said shaft, a pair of driving disks or collars loosely connected with said shaft, a coiled spring within the driven member and closely hugging the driving-disks, the ends of the spring abutting the disks, and means to move the disks relatively to each other to expand the spring into engagement with the driven member.

7. In the reversible friction-clutch, a driven member, a shaft, a pair of driving members loosely keyed to said shaft, a spring within the driven member having its ends abutting the driving members, and means for rotating the disks in opposite directions to expand the spring into engagement with the driven member.

8. In a friction-clutch a driven member, a spring for driving said member, and disks for driving said spring, a lug on one of said disks provided with an inclined face, a slotted wedge on said lug abutting one end of the spring, and a set-screw passing through the slot and securing the wedge to the lug.

9. In a friction-clutch a driven member, a driving-spring within said driven member, a shaft, a pair of disks or collars keyed to said shaft, the key-seats in the disks being larger than the coöperating keys, lugs on the disks abutting the ends of the spring, a sliding yoke-collar on the shaft provided with a plurality of wedge-fingers, depressions in the disks normally out of line with one another, but which are forced into line when the wedge-fingers are pushed inwardly, thus rotating the disks in opposite directions to expand the spring into driving contact with the driven member.

683,170. **SEPARATOR-TOOTH.** HARRY C. CLAY, Columbus, Ind., assignor to Reeves & Company, same place. Filed July 12, 1900. Serial No. 23,805. (No model.)



Claim.—1. A separator-tooth provided with a shank having three sides parallel to a common axis, a lip projecting from the end of one of said sides, and a fourth side inclined toward said axis.

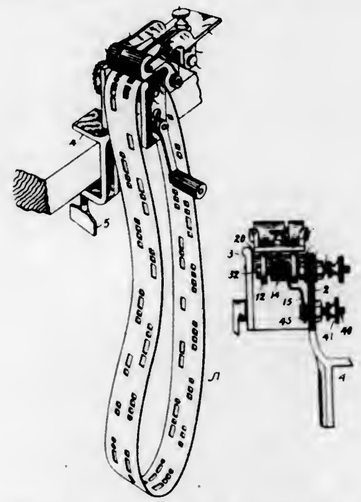
2. A separator-tooth provided with a shank having one side inclined to the axis of the tooth, and a lip projecting from the lower end of one of the other sides.

3. The combination with a supporting-bar having perforations formed therethrough with the walls of each of said perforations all parallel to the axis of perforation, of a tooth adapted to be inserted therein, said tooth being provided with a shank having all but one of its sides parallel to a common axis, the remaining side inclined to said axis, a lip projecting from one of the first-mentioned sides, and a wedge adapted to be inserted in said perforation so as to coöperate with the inclined side of the shank of the tooth.

4. A separator-tooth provided with a shank having one side inclined to the axis of the tooth and toward the end of the shank, and a lip projecting from the lower end of one of the other sides.

5. A separator-tooth provided with a shank having three sides parallel to a common axis, a lip projecting from the end of one of said sides, and a fourth side inclined toward said axis toward the end of the shank.

683,171. **TRANSMITTER FOR EDUCATIONAL PURPOSES.** CHARLES S. COMINS, Quincy, Mass. Filed Apr. 6, 1901. Serial No. 54,738. (No model.)



Claim.—1. In a transmitting device, the combination with a tape having two rows of perforations at equal distances from the respective edges thereof, of a feeding device therefor constructed to keep the same from lateral divergence, and circuit-closing devices including a finger permanently set to engage one of said rows of perforations but capable of being raised for permitting the removal of the tape, whereby the return of the tape in a reversed position presents to the finger the other of said rows of perforations, substantially as described.

2. In a transmitting device, the combination with a tape having two rows of perforations at equal distances from the respective edges thereof, of the feeding device comprising the rotative metal cylinder and the non-conducting roll elastically pressed against said cylinder, said roll being formed with an annular groove near one end, means for preventing the tape from lateral divergence, and a spring-finger normally pressed against said cylinder in said groove; said roll and finger being constructed to be raised away from the cylinder to permit the removal of the tape and its replacement in a reversed position in order to present to said finger either of the two rows of perforations, substantially as described.

3. In a transmitting device, the combination of the tape; the side frame; the cylinder supported by said frame and feeding the tape; the bolt rigidly projecting from the said frame but insulated therefrom; the clip pivoted on said bolt and having the contact-finger and the roll; the binding-post connected with said frame and thereby adapted to render said cylinder one terminal of an electric circuit; and a thumb-nut turning on said bolt for connecting the same and said finger with the other terminal of the circuit, substantially as described.

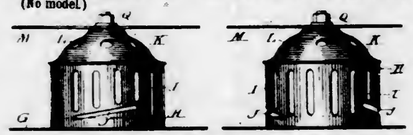
4. The combination with the revoluble metallic cylinder of the roll elastically pressed thereon and having an annular groove near one end, and the contact-finger located within said groove and pressed against said cylinder; said cylinder being roughened or knurled about its periphery midway between its ends, substantially as described.

683,172. **ELECTRICAL BLOCK-SIGNAL SYSTEM.** SAMUEL L. FOSTER, San Francisco, Cal., assignor to the Market Street Railway Company, same place. Filed Oct. 16, 1900. Serial No. 33,201. (No model.)

Claim.—In an electrical signal, a pair of solenoids, a core-rod common to both solenoids and adapted to be moved longitudinally in one direction by one solenoid and in the opposite direction by the other solenoid, a fixed sleeve between said solenoids surrounding said core-rod, and having a cam-slot, a projection on the core-rod engaging in said slot to cause the rotation of said core, when the latter is moved longitudinally by the solenoids, and a target operatively connected with said core-rod and turned thereby, substantially as described.



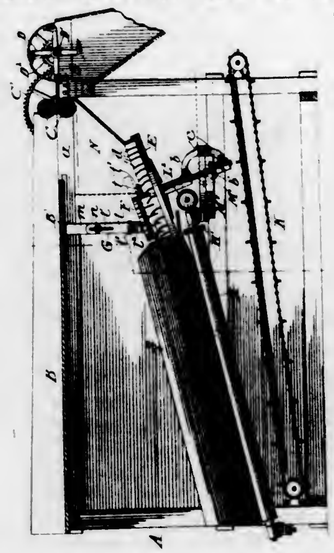
683,173. **VENTILATOR.** JAMES H. FRANCIS, Nettleton, Miss., assignor, by direct and mesne assignments, of two-thirds to Phil Barbour Jones, Nashville, Tenn. Filed Feb. 23, 1901. Serial No. 48,615. (No model.)



Claim.—1. An air-receiver comprising a cylindrical body portion H made of metal and having slots I; a top K; a securing-flange G; a flanged plate N seated within the cylindrical body portion H, said plate being provided with holes O; a shield-plate M; and deflectors R supported by bolt P; the said bolt P being passed through the flanged plate N and shield M and the parts clamped together by a nut.

2. The combination with a car, of a pipe C extended along one side thereof and located adjacent the floor and side wall below the windows, said pipe having a series of holes D through the side of the pipe which faces the wall; two perpendicular pipes E one at each end of the pipe C and extending from said pipe C to the roof of the car; and two air-receivers B one at each end of the car and located over the open ends of pipes E, each of said air-receivers comprising a metallic body portion H having slots, a top K, a perforated plate N, and a bolt P, and deflectors R supported by bolt P; two of said deflecting-plates being located in a plane parallel with the length of the car, and the other two plates being located in a plane at right angles to the plane of the other two plates; whereby when the car is in motion the air will pass through the slots I, strike two of the deflecting-plates R of each air-receiver and be delivered downwardly into pipes E E and thence to pipe C simultaneously from opposite ends of the car.

683,174. **CORN-HUSKING MACHINE.** JAMES E. GOODHUE, St. Charles, Ill. Filed Feb. 15, 1901. Serial No. 47,443. (No model.)



Claim.—1. In a corn-husking machine, the combination with the husk-removing mechanism of a husk-loosening device provided in advance of the husk-removing mechanism and comprising approximately parallel supports, one of which is movable to advance the ears of corn between them, and cooperating husk engaging and loosening fingers projecting from both the supports into the path of the ears of corn and adapted to yield relatively under the feeding pressure of the ears of corn to avoid injury to the kernels.

2. In a corn-husking machine, the combination with the husk-removing mechanism of a husk-loosening device provided in advance of the husk-removing mechanism and comprising a stationary support and a rotary support forming a passage between them for the ears of corn, means for turning the rotary support to feed the ears of corn through said passage, and cooperating husk engaging and loosening fingers projecting from both the supports into the path of the ears of corn and adapted to yield relatively under the feeding pressure of the ears of corn to avoid injury to the kernels.

3. In a corn-husking machine, the combination, with the husk-removing mechanism, of a husk-loosening device, supported in advance of the husk-removing mechanism, and comprising an upper stationary support, provided with downward-projecting fingers, and a lower rotary support, approximately parallel with the stationary support and having upwardly-projecting fingers, and means for turning the rotary support, substantially as and for the purpose set forth.

4. In a corn-husking machine, the combination, with the corn-husking mechanism, of a husk-loosening device comprising a lower rotary support, having upwardly-projecting fingers, means for rotating said support, and an upper support, approximately parallel with the lower support, provided with downwardly-projecting fingers and vertically adjustable with relation to said lower support, substantially as and for the purpose set forth.

5. In a corn-husking machine, the combination, with the husk-removing mechanism, of a husk-loosening device, comprising a lower rotary support having upwardly-projecting fingers, means for rotating said support, and an upper stationary support, approximately parallel with the lower support, provided with downwardly-projecting fingers and hinged at one side, substantially as and for the purpose set forth.

6. In a corn-husking machine, the combination, with the husk-removing mechanism, of a husk-loosening device comprising upper and lower approximately parallel supports, one of which is movable, finger sockets and recesses in the adjacent faces of said supports, and spring-fingers in said sockets mounted to yield into said recesses, substantially as and for the purpose set forth.

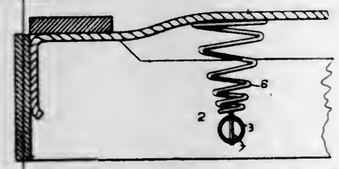
7. In a corn-husking machine, the combination, with the husk-removing mechanism, of a husk-loosening device comprising upper and lower approximately parallel supports, one of which has means for moving it, and spring-fingers on said supports comprising lengths of wire bent between ends to produce arms and coils, one arm being fastened to the support and the other arm extending yieldingly in the direction of the other support, substantially as set forth.

8. In a corn-husking machine, the combination, with a husk-removing roller H, of a companion husk-removing roller I provided with longitudinally-extending recesses p, teeth p' separating the recesses, and cam-surfaces p^2 at the forward sides of the teeth, substantially as and for the purpose set forth.

9. In a corn-husking machine, the combination, with a husk-removing roller H, of a companion husk-removing roller I provided with longitudinally-extending recesses p, teeth p' separating the recesses, cam-surfaces p^2 at the forward sides of the teeth, and break-joint surfaces p^3 interposed in the recesses, substantially as and for the purpose set forth.

10. In a corn-husking machine, the combination, with the husk-removing mechanism, of a husk-loosening device comprising upper and lower supports, one of which is rotary, spring-fingers upon the supports and a finger-cleaning device movable into the path of the fingers on the rotary support, substantially as and for the purpose set forth.

683,175. **BED-BOTTOM AND UPHOLSTERY SUPPORT.** JOHN HOEY, San Francisco, Cal. Filed June 11, 1901. Serial No. 64,100. (No model.)



Claim.—1. The combination in a bed-bottom of the side and end rails, a woven-wire fabric stretched between said ends, conical spiral springs, the bases of which form a support for the woven-wire fabric, transverse tubular rods extending between the sides, underlying and forming a rigid support for the springs and having their ends fitted to the inner sides of the side rails, and having holes bored through them, and straight extensions at the lower ends of the springs fitting into said holes.

2. The combination in a bed-bottom of the end and side bars, a woven-wire fabric stretched over the top, spiral springs having their axes vertical, upon the upper ends of which the woven-wire fabric is supported, tubular rods extending transversely between the sides and fitted to the inner surfaces thereof, said rods underlying the springs and forming a rigid support therefor and having holes made vertically through them, the lower ends of the springs having straight extensions adapted to pass through the holes whereby the springs are rigidly held upright.

3. The combination with the bed-bottom, the side and end frames, the woven-wire fabric stretched over the top between the end frames, spiral springs upon the upper ends of which the woven-wire fabric rests, tubular rods extending transversely beneath the springs and forming a rigid support therefor and having their opposite ends fitting holes in the inner surfaces of the sides of the bed-bottom frame, said tubes having transverse holes or slots near the ends, with pins passing therethrough and also through the side rails and locking them into the side rails, holes made vertically through the tubes and approximately axial with the lines of the springs, said springs having straight extensions from the lower ends fitting into the holes whereby the springs are maintained in an upright position.

683,176. **BINDER.** FRANK M. HOGLEN, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,240. (No model.)



Claim.—1. In a binding device in combination, an elastic post for holding loose sheets, covers, and means for securing said covers to said post.

2. In a binding device in combination, an elastic post for holding loose sheets, covers, and means for detachably securing said covers to said post.

3. In a binding device in combination, an elastic post for holding loose sheets, screw-threads on the ends of said post, covers, and fastening devices attached to said covers and engaging the threads of said post.

4. In a binding device in combination, an elastic post for holding leaves, screw-threads on the ends of said post, covers, and clamping devices attached to said covers detachably engaging the threads of said post.

5. In a binding device in combination, an elastic post for holding leaves, covers, and clamping devices attached to said covers detachably engaging said post.

6. In a binding device in combination, an elastic post for holding leaves, a cover, and a clamping device detachably secured to said cover, and engaging said post.

7. In combination, a spiral spring-post for a binding device, a cover, a clamping device mounted on said cover adapted to engage the ends of said post.

8. In a binding device in combination, elastic posts for holding leaves, covers and means for removably attaching each of said covers to said posts.

9. In a binding device in combination, an elastic post for holding loose sheets, a cover, a slidable clamping device mounted on said cover and in detachable engagement with said post, and means to control said clamping device.

10. In a binding device in combination, an elastic post for holding loose sheets, a cover, a slidable clamping device mounted on said cover and in detachable engagement with said post, and a screw to control said clamping device.

11. In a binding device in combination, a flexible post for holding leaves, a cover, a projection carried by said cover and extending into the end of said post, and a clamping device carried by the cover and engaging said post adjacent said projection.

12. In a binding device in combination, an elastic post for binding loose sheets, a cover, a clamping device attached to said cover and in detachable engagement with said post, and key-operated means for moving said clamping device.

13. In a binding device in combination, a spiral spring-post for holding loose sheets, covers, and means for securing said post to said covers.

14. In a binding device in combination, an elastic post for holding loose sheets, covers, means for securing said covers to said post, and means for varying the length of said post.

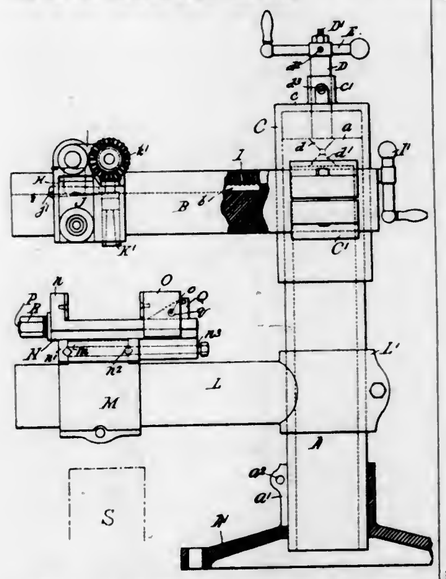
683,177. **PAINT-REMOVING COMPOSITION.** PHILLIP J. HOPE, Everett, Mass. Filed Dec. 10, 1900. Serial No. 39,352. (No specimens.)

Claim.—1. The herein-described solvent for paint and other coated surfaces, which results from the mixing of air-slaked lime, soda-ash, water, and paraffin-oil, substantially as described.

2. The herein-described solvent for paint and other coated surfaces, which results from the mixing of air-slaked lime, and white soda-ash in equal quantities, water forming a thin paste therewith, and a small quantity of paraffin-oil, substantially as described.

3. The herein-described solvent for paint and other coated surfaces, which results from the mixing of air-slaked lime, white soda-ash, water forming a thin paste therewith, and paraffin-oil, in the proportions of three pounds each of the lime and soda-ash, and two liquid ounces of the oil, substantially as described.

683,178. **MACHINE-TOOL.** CALVIN JACKSON, Reading, Pa. Filed Dec. 26, 1899. Serial No. 741,502. (No model.)



Claim.—1. In a machine-tool the combination with a column, of a horizontal arm provided with a cap-sleeve rotatably mounted on said column and a screw mechanism for adjusting the same vertically on said column, substantially as set forth.

2. In a machine-tool the combination with a hollow column having a closed top with a central interiorly and exteriorly countersunk opening, of a horizontal arm provided with a cap-sleeve rotatably mounted on said column and an adjusting-screw passing through the closed end of said cap-sleeve and having a fixed head engaging the exterior countersink and a secondary head engaging the interior countersink and adjustably connected to the adjusting screw substantially as set forth.

3. In a machine-tool the combination with a horizontal swinging arm of cylindrical form, adjustable on its own axis and provided with a longitudinal feed-screw, of a tool-carriage comprising a stock slidable on said arm, by means of a nut engaged by said feed-screw, and separate tool-holders carried by said stock around the swinging arm.

4. In a machine-tool the combination with a horizontal swinging arm of cylindrical form provided with a horizontal feed-screw, of a tool-carriage comprising a stock slidable on said arm by means of a nut engaged by said feed-screw and a rotary tool-holder mounted in said stock and in gear with said nut so as to simultaneously move the carriage.

5. In a machine-tool the combination with a supporting-arm, of a tool-carriage thereon comprising a stock slidable on said arm and tool-holders mounted in said stock in planes at right angles to each other substantially as set forth.

6. In a machine-tool the combination with a horizontal swinging arm of cylindrical form of a tool-carriage comprising a stock adjustably carried on said arm, and separate tool-holders mounted in said stock around said arm and each adapted to be set into operative position by proper adjustment of the stock substantially as set forth.

7. In a machine-tool having a column and a cylindrical horizontal work-arm carrying movably mounted thereon, a work-clamping device comprising a pivot ring or stock adjustably secured to said cylindrical arm, and a rotary planer-chuck mounted on said pivot-ring substantially as set forth.

8. In a machine-tool a work-clamping device comprising a table having a fixed jaw at one end thereof, a jaw slidable on said table, a clamping screw-rack sliding on said table, and a toothed key adapted to rigidly connect said slidable jaw and said slidable rack when firmly inserted between them and when withdrawn to disconnect the same.

9. In a machine-tool a work-clamping device comprising a table having a fixed jaw at one end thereof, a jaw slidable on said table, a clamping screw-rack sliding on said table, and a separately-formed toothed key loosely attached to said movable jaw and having a limited movement adapted to engage or disengage the latter from said screw-rack.

683,179. **VALVE DEVICE.** JOHN KELLY, Chicago, Ill. Filed May 10, 1901. Serial No. 59,621. (No model.)



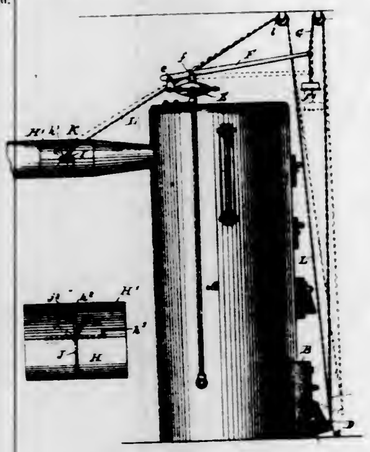
Claim.—1. In a valve device, the combination with the shell having an inlet and an outlet, at which it is adapted to be coupled into a flush-pipe, a water-supply opening communicating with said inlet and a closing-head at one end, of a packed annular valve-seat interposed in the shell between said inlet and outlet, a piston-valve comprising a cup confined in said seat and provided with openings and with a stem protruding through said head, a stuffing-box comprising a cup on the inner side of said head and a packed disk head on the stem fitting within said cup, and a pivotal gravity-handle having a cam-head bearing against the protruding end of said stem, substantially as and for the purpose set forth.

2. In a valve device, the combination with the shell having an inlet and an outlet, at which it is adapted to be coupled into a flush-pipe, a water-supply opening communicating with said inlet and a closing-head at one end, of a packed valve-seat interposed in the shell between said inlet and outlet, a piston-valve confined in said seat and provided with a stem protruding through said head, a gravity-handle pivotally supported on a bearing on said head and having a cam-head bearing against the protruding end of said stem, and a set-screw working in said cam-head against said bearing for setting the handle at any desired angle to said stem, substantially as and for the purpose set forth.

683,180. **DAMPER AND DAMPER-CONTROLLING MECHANISM.** ROBERT G. LATHAM, Manchester, N. H. Filed Apr. 24, 1900. Serial No. 14,022. (No model.)

Claim.—The combination with a house-heater and a thermostat including a pivoted lever, of a draft-plate, a flexible connection between the

lever and plate, a damper, means for arresting the damper when fully closed, means for automatically swinging the damper into full open position and an independent flexible connection between said damper and draft-plate, said connection being of such a length that it will hold said damper in closed position when the plate is fully closed, substantially as described.



683,181. METHOD OF MAKING SOAP CAKES. HENRY E. MERRIMAN, Albany, N. Y. Filed May 5, 1900. Serial No. 15,585. (No specimens.)

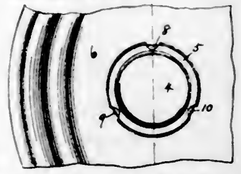


Claim.—1. The method herein described, to produce a soap cake, which consists in producing a solid cake of soap of preferred form and color, then making through the same in a preferred direction a perforation of an arbitrary design, in cross direction, and also producing from a second cake of soap of substantially the same character as that of the said previously-perforated cake, but of a contrasting color a body of form and proportions corresponding with the form and proportions of the perforation provided in said first soap cake, next inserting this latter color-contrasting body of soap within the perforation provided in the first cake and then uniting the adjacent surfaces of the said exterior and interior body portions of the cake by applying extra pressure to all the sides and ends of the same, substantially as set forth.

2. The method herein described to produce cakes of soap, which consists in producing two similar lots of primary cakes of like form and of substantially the same character of soap, of which those of one lot are of color contrasting with that of those of the other lot, next producing from each of the primary cakes of the respective color-contrasting lots an exterior body-piece which has through it a perforation of arbitary form of design which is in cross area and porportions similar to that through the other cakes, and an interior body-piece of outline of form and proportion in correspondence with the perforations in the respective exterior body-pieces, next producing two new lots of soap cakes from the exterior and interior body-pieces, now produced from the original two lots of color-contrasting primary cakes, by combining the respective interior body-pieces produced from the primary cakes of one color lot, with the exterior body-pieces, respectively, produced from the primary cakes of the other lot so that the interior body-pieces of like color may be enveloped within the exterior body-pieces of the different and contrasting color, and then uniting the adjacent surfaces of the exterior and interior body portions of the respective cakes, of the said two new lots by extra pressure applied to all the sides and ends of the same, substantially as set forth.

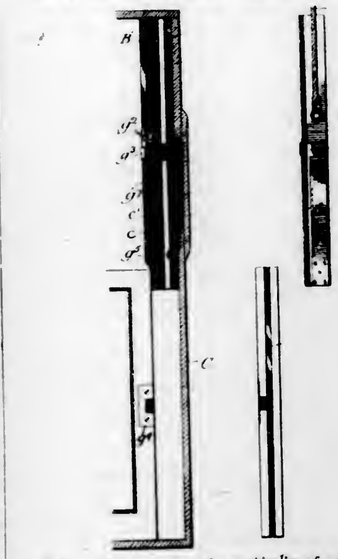
683,182. BUNG-HOLE STOPPER OR SEAL FOR METALLIC KEGS. JOSEPH H. MCLELLAND, Wayne, N. J. Filed Apr. 24, 1901. Serial No. 57,436. (No model.)

Claim.—1. In a metallic vessel, a closing device consisting of the head having a centrally-depressed portion, provided with an opening or bung-hole, which is formed by cutting a piece out of said depressed portion, leaving a flat annular edge around the bung-hole at the bottom of the shoulders which are formed by depressing the central portion of the head, and tongues cut out of, and integral with, the said flat annular depressed portion surrounding the bung-hole, and raised upwardly to permit the insertion under the same of the edge of a metallic bung, in combination with a metallic bung formed like a shallow dish having a sunken portion adapted to fit snugly into the said bung-hole, and provided with an annular flange adapted to rest on the annular flat depressed portion of the head which surrounds the bung-hole, to cover the openings made by raising said tongues, and to be held there in place by the lowering of said tongues down over the annular flange of the bong below the level of the top of the vessel, substantially as set forth.



2. In a vessel for explosives, a metallic head, provided with a circular opening, and an annular depressed portion surrounding said opening, two or more tongues cut out of, and forming an integral part of, said annular depressed portion surrounding said opening, in combination with a metallic bung having a dished or depressed portion forming a substantially vertical annular wall around the bottom thereof, and adapted to fit tightly down through, and into, said circular opening in the head, said bung having an outwardly-projecting annular flat flange at the top thereof adapted to pass under the elevated tongues in the annular flat depressed portion of the head, and to rest upon said depressed portion, and to cover the holes in said portion, said tongues being adapted to be lowered over the outwardly-projecting flange of said bung, for tightly sealing the vessel, substantially as set forth.

683,183. WINDOW. JOHN P. W. PATILLO, Chicago, Ill. Filed July 23, 1900. Serial No. 24,509. (No model.)



Claim.—1. In a window, the combination of a two-sash frame, a sash, a soapending-stile, a lock on said stile engaging a part on said sash, and a recess at the upper portion of the frame for permitting said lock to be moved to free the suspending-stile from the sash, said frame being adapted to prevent movement of the lock except when the stile is in an elevated position, substantially as and for the purpose set forth.

2. In a window, the combination of a two-sash frame having a pulley-stile provided at its upper portion with a slot, a sash, a suspending-stile, a lock carried by the stile engaging said sash and adapted to enter said slot when the stile is in an elevated position, and pivotal means for supporting the sash, substantially as and for the purpose set forth.

3. In a window, the combination with the frame, of a sash, a suspending-stile, pivotally joined to one vertical edge thereof, a suspending-stile at the opposite vertical edge provided with a lock-recess, a pivoted lock-piece carried by said last-named stile adapted to engage said recess, and a spring bearing against said lock-piece and against said frame, substantially as and for the purpose set forth.

4. In a window, the combination with a sash and a detachable suspending-stile of a lock-piece having a vertical arm *g* pivotally connected to the stile, a horizontal arm *g'* projecting into a recess in the sash, a thumb-piece on said horizontal arm, and a spring, substantially as and for the purpose set forth.

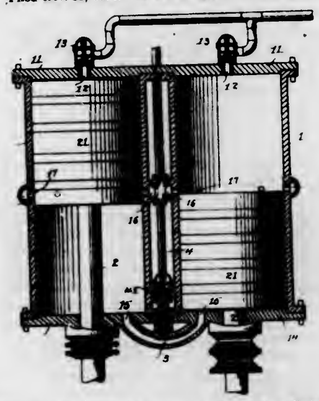
683,184. CLAMP. JAMES P. ROCKWELL, East Windsor Hill, Conn. Filed June 27, 1901. Serial No. 66,218. (No model.)



Claim.—1. A clamp consisting of four rectangularly-arranged blocks each of which is connected with both of the adjacent blocks by a pair of screws, one pair extending at right angles to the other pair, substantially as specified.

2. A clamp consisting of four rectangularly-arranged blocks connected together in pairs by compression and expansion screws and each one of the pairs connected with each of the other of the pairs by compression and expansion screws, substantially as specified.

683,185. COMPRESSOR. WILLIAM F. SINGER, New York, N. Y., assignor to the Singer Automatic Ice Machine Company, Jersey City, N. J. Filed Nov. 15, 1900. Serial No. 36,614. (No model.)



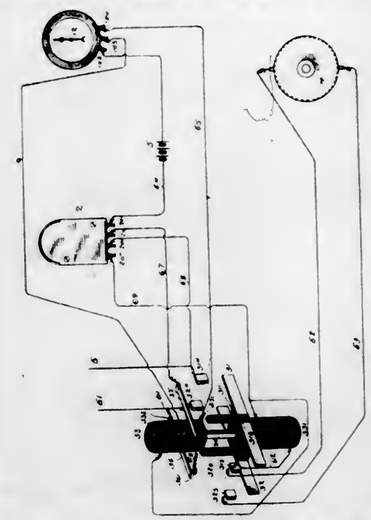
Claim.—1. In a pump and in combination, twin cylinders side by side, annular passage-ways surrounding said cylinders and connected at their point of nearest approach, a plurality of openings or ports connecting said passage-ways with the interiors of the cylinders, pistons arranged for alternate reciprocation and adapted to uncover said ports or openings when retracted and to close the same during the greater part of their stroke, a passage-way connecting the cylinders at the rear of the pistons, a relief-tube connecting the said passage-way with the said connected annular passage-ways and the suction, a valve interposed in said relief-tube, and a tube for the suction extending from said annular passage-way, substantially as set forth.

2. In a pump and in combination, twin cylinders side by side, annular passage-ways surrounding said cylinders and connected at their point of nearest approach, a plurality of openings or ports connecting said passage-ways with the interiors of the cylinders, pistons arranged for alternate reciprocation and adapted to uncover said ports or openings when retracted and to close the same during the greater part of their stroke, a passage-way connecting the cylinders at the rear of the pistons, a relief-tube connecting the said passage-way with the said connected annular passage-ways and the suction, a valve interposed in said relief-tube, a tube for the suction extending from said annular passage-way, and valves 13 in the outer surface of the cylinders communicating with apertures from the cylinder on one side and outlet or discharge pipes for conveying away the fluid under pressure, substantially as set forth.

3. In a single-acting pump and in combination, two cylinders having parallel axes, annular passage-ways surrounding said cylinders at substantially their middle points a suction-tube connected with said annular passage-ways, a plurality of ports connecting said annular passage-ways with the interiors of the cylinders, piston-heads arranged for alternate reciprocation and adapted to uncover said ports when retracted and to close same during the greater part of their stroke, a passage-way connecting said cylinders at the rear of said pistons, a relief-tube connecting said last-named passage-way with the suction and an automatic valve in said relief-tube, substantially as described.

4. In a single-acting pump and in combination two cylinders having parallel axes, annular passage-ways surrounding said cylinders at substantially their middle points, a suction-tube connecting with said annular passage-ways, a plurality of ports connecting said annular passage-ways with said cylinder, said ports forming the only fluid-inlet openings into said cylinder, piston-heads arranged for alternate reciprocation and adapted to uncover said ports when retracted and to close same during the greater part of their stroke, a passage-way connecting said cylinders at the rear of said pistons, a relief-tube connecting said last-named passage-way with the suction and an automatic valve in said relief-tube, substantially as described.

683,186. THERMOSTATIC SWITCH. WILLIAM F. SINGER, New York, N. Y., assignor to the Singer Automatic Ice Machine Company, Jersey City, N. J. Filed Jan. 14, 1901. Serial No. 43,287. (No model.)



Claim.—1. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, device for completing circuit whereby said switch-operating mechanism is energized and thermostat electrically connected with means for releasing said circuit-completing device, substantially as described.

2. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, independently-actuated device for

completing circuit whereby said switch-operating mechanism is energized and thermostat electrically connected with means for releasing said circuit device, substantially as described.

3. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, device for completing circuit whereby said switch-operating mechanism is energized, thermostat electrically connected with means for releasing said circuit-completing device and means for breaking the local circuit between said thermostat and said releasing means when said switch is closed or opened, substantially as described.

4. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, device for completing circuit whereby said switch-operating mechanism is energized, thermostat electrically connected with means for releasing said circuit-completing device, and means for breaking the circuit between said switch-operating mechanism and its source of energy when said switch is closed or opened, substantially as described.

5. In combination motor, main line, switch in said line, electrically-actuated switch-operating mechanism adapted both to close and to open said switch by a positive movement, means for completing circuit whereby said switch-operating mechanism is energized and thermostat electrically connected with said circuit-completing means, substantially as described.

6. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, circuit including source of energy, said switch-operating mechanism and circuit-closing device and thermostatically-actuated means for operating said circuit-closing device, substantially as described.

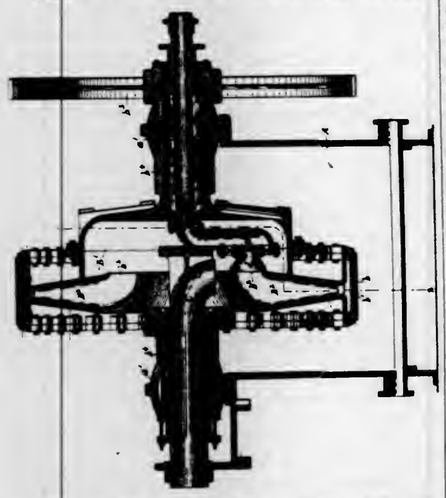
7. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, circuit including source of energy, said switch-operating mechanism and independently-actuated circuit-closing device and thermostatically-actuated means for releasing said circuit-closing device, substantially as described.

8. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, circuit including source of energy, said switch-operating mechanism and circuit-closing device and thermostatically-actuated means for operating said circuit-closing device, substantially as described.

9. In combination, motor, main line, switch in said line, electrically-actuated switch-operating mechanism, circuit-closing device whereby said switch operating mechanism is energized, thermostat, three-wire connection between said thermostat and said circuit-closing device and a subsidiary switch as 35 operated by said main-switch-operating mechanism and adapted to alternately form part of two different circuits between said thermostat and said circuit-closing device, substantially as described.

683,187. APPARATUS FOR DRYING BICARBONATE OF SODA.

ERNEST SOLVAY, Brussels, Belgium, assignor to the Solvay Process Co., Syracuse, N. Y. Filed Apr. 17, 1896. Serial No. 587,994. (No model.)



Claim.—1. A drying apparatus comprising a receptacle for receiving the moist or fluent material to be dried, a filtering-body partially surrounded by air or other drying fluid and having a portion of its surface movable into engagement with said material, said filtering-body being provided with a series of chambers projecting from its inner surface, a conduit or passage for withdrawing a given amount by weight of the moisture or liquid in the moist or fluent material and the air or other drying fluid from the inner side of the filtering-surface at a greater speed than a similar amount of said moisture or liquid and air or other drying fluid feeds through the filtering-surface from the outer side thereof, and a second conduit or passage unconnected with the former conduit or passage for subjecting said chambers successively to an increased pressure after the removal of the filtered material from the corresponding portions of the outer side of the filtering-surface and during the passage of the moisture or liquid and the air or other drying fluid through an adjacent portion of said surface, into the corresponding chamber, substantially as and for the purpose specified.

2. A drying apparatus comprising a receptacle for receiving the moist or fluent material to be dried, a filtering-body partially surrounded by air or other drying fluid and having a portion of its surface movable into engagement with said material, a conduit or passage connected to the interior of the filtering-body and adapted to be connected with means for maintaining a partial vacuum within the filtering-body and retaining the material in position on the exterior face of said body, and a second conduit or passage connected to the interior of the filtering-body for raising the pressure within a portion of the filtering-body after the removal of the filtered material from the corresponding portion of the filtering-surface and during the maintenance of the partial vacuum within an adjacent portion of said body by the first conduit or passage, substantially as and for the purpose described.

3. A drying apparatus comprising a receptacle for receiving the material to be dried, and a filtering-body, having a portion of its surface movable into engagement with said material, and provided with a series of chambers extending from one side of said surface, and formed with openings thereinto, and a conduit or passage provided with a yielding branch for successively communicating with said openings and subjecting the chambers to a pressure different from that previously therein, substantially as and for the purpose specified.

4. A drying apparatus comprising a receptacle for receiving the material to be dried, and a filtering-body having a portion of its surface movable into engagement with said material, and provided with a main chamber, a series of branch chambers extending from one side of said surface and communicating with the main chamber, means for removing the filtered material from said opposite side, and a conduit or passage communicating with the main chamber, said conduit or passage operating to subject the branch chambers after the removal of the filtered material to a pressure different from that on the opposite side of said surface after removal of the filtered material, substantially as and for the purpose set forth.

5. A drying apparatus comprising a receptacle for receiving the material to be dried, a filtering-body, having a portion of its surface movable into engagement with said material, and provided with a main chamber, a series of branch chambers extending from one side of said surface and communicating with the former chamber, a conduit or passage communicating with the main chamber for subjecting the branch chambers to a pressure different from that on the opposite side of said surface, and a second conduit or passage for subjecting said branch chambers to a pressure different from the former pressure, substantially as and for the purpose specified.

6. A drying apparatus comprising a receptacle for receiving the material to be dried, and a filtering-body, having a portion of its surface movable into engagement with said material, and provided with a main chamber, a series of branch chambers extending from one side of said surface and having openings communicating with the former chamber, a conduit or passage communicating with the main chamber for subjecting the branch chambers to a pressure different from that on the opposite side of said surface, and a second conduit or passage having a yielding branch for communicating with said openings and subjecting the chambers to a pressure different from the former pressure therein, substantially as and for the purpose set forth.

7. A drying apparatus comprising a receptacle for receiving the material to be dried, and a filtering-body, having a portion of its surface movable into engagement with said material, and provided with a main chamber, a series of branch chambers extending from one side of said surface and having openings communicating with the former chamber, a conduit or passage communicating with the main chamber for subjecting the branch chambers to a pressure different from that on the opposite side of said surface, a second conduit or passage provided with a yielding wall, and a branch projecting from the wall for successively communicating with said openings and subjecting the chambers to a pressure different from the former pressure therein, substantially as and for the purpose specified.

8. A drying apparatus comprising a receptacle for receiving the material to be dried, a revoluble filtering-body, having a portion of its surface movable into engagement with said material, and provided with a main chamber, and a series of branch chambers extending from one side of said surface and having openings communicating with the former chamber, a stationary conduit communicating with the main chamber for subjecting the branch chambers to a pressure different from that on the opposite side of said surface, and a second stationary conduit for communicating with said openings and subjecting the chambers to a pressure different from the former pressure therein, substantially as and for the purpose described.

9. A drying apparatus comprising a receptacle for receiving the material to be dried, a revoluble filtering-body, having a portion of its surface movable into engagement with said material, and provided with a main chamber, and a series of branch chambers extending from one side of said surface and having openings communicating with the former chamber, a stationary conduit communicating with the main chamber for subjecting the branch chambers to a pressure different from that on the opposite side of said surface, and a second stationary conduit connected to the former conduit and formed with a laterally-projecting branch for successively communicating with said openings and subjecting the chambers to a pressure different from the former pressure therein, substantially as and for the purpose set forth.

10. A drying apparatus comprising a receptacle for receiving the material to be dried, a revoluble filtering-body, formed with opposite hollow trunnions and having a portion of its surface movable into engagement with said material, said body being provided with a main chamber, and a series of branch chambers extending from one side of said surface and having openings communicating with the former chamber, a stationary conduit projecting through one hollow trunnion and communicating with the main chamber for subjecting the branch chambers to a pressure different from that on the opposite side of said surface, and a second stationary conduit projecting through the other hollow trunnion and communicating with said openings connected to the former conduit and formed with a laterally-projecting branch for successively communicating with said openings and subjecting the chambers to a pressure different from the former pressure therein, substantially as and for the purpose specified.

688,188. PROCESS OF TREATING LIME.

FRANK N. SPEAR, Los Angeles, Cal. Filed Apr. 24, 1901. Serial No. 57,252. (No specimens.)

Claim.—1. The process for treating lime which consists in first slaking quicklime, and then and when in a finely-divided condition, bringing the slaked lime into contact with carbonic-acid gas.

2. The process for treating lime which consists in first finely dividing the quicklime, slaking it by contact with a moist vapor, such as steam, and then and while in a finely-divided condition, bringing the slaked lime into contact with carbonic-acid gas.

3. The process for treating lime which consists in finely dividing the quicklime, and then bringing the same into contact with a moist vapor, such as steam and carbonic-acid gas.

4. The process for treating lime which consists in first finely dividing the quicklime, and then subjecting the same to the action of steam in a closed chamber, and to the action of carbonic-acid gas also in a closed chamber.

5. The process for treating lime which consists in finely dividing the quicklime, slaking it by contact with steam, and then bringing it into contact with carbonic-acid gas obtained from a calcining-kiln.

6. As an article of manufacture lime which as quicklime has been slaked and while in a finely-divided condition subjected to the action of carbonic-acid gas.

7. An article of manufacture lime which as a quicklime has been reduced to a finely powdered or pulverized condition and slaked by contact with steam and then and while still in a finely-divided condition brought into contact with a carbonic-acid gas.

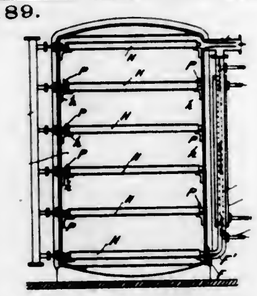
8. As an article of manufacture finely-divided lime that as a quicklime was subjected while in a finely-divided condition to the action of steam and carbonic-acid gas.

688,189. VACUUM DRYING APPARATUS.

ERNST STROHM, Berlin, Germany. Filed Oct. 24, 1896. Renewed July 15, 1901. Serial No. 68,439. (No model.)

Claim.—In a vacuum drying apparatus, the combination with a casing, of a vapor-outlet pipe having branches leading from the upper and lower parts of the casing that from the lower part leading upward and joining the other branch, and means for heating the said upwardly-extending pipe.

688,189.



688,190. BROWN DYE AND PROCESS OF MAKING SAME.

RICHARD TAGGESELL, Buffalo, N. Y., assignor to Schoellkopf, Hartford & Hanna Company, same place. Filed Nov. 15, 1900. Serial No. 36,636. (Specimens.)

Claim.—1. The herein-described method of producing a dyestuff which consists in diazotizing a meta-amidotolyloxaminsulfo-acid, combining the resulting diazo compound with gamma-amidonaphtholsulfo-acid in an alkaline solution, heating the resulting compound with a saponifying agent, tetrazotizing the product and combining this tetrazo compound with a meta-diamin of the benzene series, substantially as set forth.

2. The herein-described method of producing a dyestuff which consists in diazotizing a meta-amidotolyloxaminsulfo-acid, combining the resulting diazo compound with gamma-amidonaphtholsulfo-acid in an alkaline solution, heating the resulting compound with a saponifying agent, tetrazotizing the product, combining this tetrazo compound with a meta-diamin of the benzene series, and combining the resulting dyestuff with two molecules of a diazotized amidosulfo-acid, substantially as set forth.

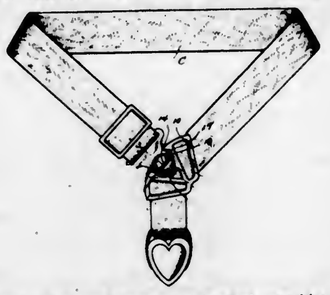
3. The herein-described new dyestuff, derived from meta-amidotolyloxaminsulfo-acid, represented by the general formula:

Meta-tolyloxdiaminsulfo-acid < asu-gamma-amidonaphtholsulfo-acid-azo-meta-diamin, asu-meta-diamin,

being a dark powder, easily soluble in water, which it colors brown, soluble in concentrated sulfuric acid, which it colors brown and from which it is precipitated in dark flakes upon adding water, and dyeing unmordanted cotton a dark brown, substantially as set forth.

688,191. MAN'S GARTER CLASP.

PHILO B. TINGLEY, New York, N. Y. Filed Dec. 11, 1900. Serial No. 39,471. (No model.)



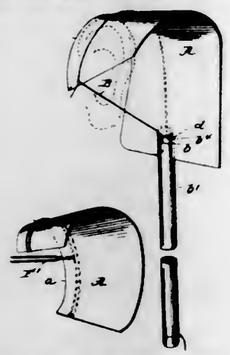
Claim.—A clasp of the character described, comprising a member having a raised boss with a substantially straight slot across it at right angles to the line of approach of the other member and recesses at the end of the slot, a coöperating member having an elongated opening, one side of said opening being bounded by a curved rigid bar or loop whereby said bar or loop will be retained in the slot when lying therein in a plane parallel with the plane of the boss member, the length of the opening in the bar member being such that said bar member may oscillate or swing relatively to the boss member.

688,192. APPARATUS FOR ASSISTING THE HEARING.

ALFRED F. WATOR, Philadelphia, Pa. Filed Feb. 17, 1899. Serial No. 705,809. (No model.)

Claim.—1. In a device for increasing the volume of sound to the human ear, in combination a sheet of resilient material, a holder connected to said sheet, there being orifices in opposite sides of said holder,

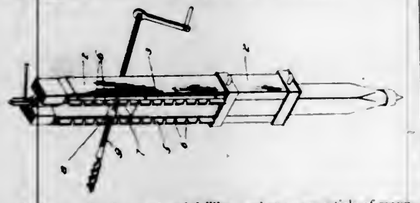
a string passing through one of said orifices, extending up along one side of said sheet to and through an orifice in the corner, then down the opposite side of said sheet through the opposite orifice in the holder, said string being provided with knots.



2. In a device for increasing the volume of sound to the human ear, in combination a sheet of resilient material, a holder connected to said sheet, there being orifices in opposite sides of said holder, a string passing through one of said orifices, extending up along one side of said sheet to and through an orifice in the corner, then down the opposite side of said sheet through the opposite orifice in the holder, said string being provided with knots, the surface of said sheet being parabolic.

3. In a device for increasing the volume of sound to the human ear, in combination a sheet of resilient material, a holder connected to said sheet, there being orifices in opposite sides of said holder, a string passing through one of said orifices, extending up along one side of said sheet to and through an orifice in the corner, then down the opposite side of said sheet through the opposite orifice in the holder, said string being provided with knots, and one edge of said sheet being curved to conform to the head behind the ear.

683,193. COAL-AUGER POST. CECIL R. ANDERSON, Allegheny, Pa. Filed July 16, 1900. Serial No. 23,704. (No model.)



Claim.—1. In the art of coal-drilling, and as a new article of manufacture, an elongated metallic plate or strip adapted to be secured to a coal-auger post and having a straight projecting edge adapted to extend beyond the face of the post, said edge being formed with a succession of supporting-points, substantially as shown and described.

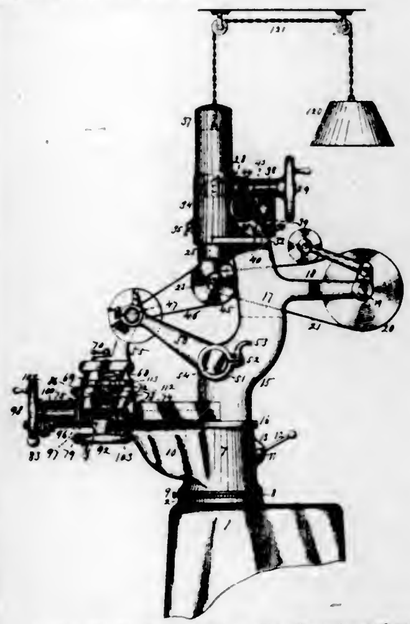
2. In the art of coal-drilling, and as a new article of manufacture, the elongated right-angle plate 4, branch 3 of the plate being flat and unnotched and branch 5 formed with notches 6, substantially as shown and described.

3. In the art of coal-drilling, the combination with a wood post, including essentially two separated uprights, of a pair of elongated metallic plates secured to and projecting from the longitudinal edges of the wood uprights, said plates being formed with corresponding open transverse notches, substantially as shown and described.

4. In the art of coal-drilling, the combination of a post, and a pair of vertically-elongated right-angle plates secured to and projecting from the post, the projecting edges of the plates being parallel and formed with corresponding trunnion-notches, substantially as shown and described.

688,194. TOOL OR CUTTER GRINDING MACHINE. JOHN BATH, Whitman, Mass. Filed Dec. 31, 1900. Serial No. 41,552. (No model.)

Claim.—1. In a tool and cutter grinding machine, the stationary frame 15 supported on a suitable pedestal and provided with the rearwardly-recessed portion 17; a vertically-adjustable holder; the horizontal spindle 23 sustained by said holder; mechanism for driving the spindle; the horizontal arm 54 supported by a socket 119 sustained by the frame; the arm 50 having its rear end adjustably rotatively supported by the arm; and suitable jaws at the outer end of said arm 50 for supporting a grinding-spindle, substantially as set forth.



2. In a tool and cutter grinding machine, the stationary frame 15 supported on a suitable pedestal and provided with the rearwardly-recessed portion 17; a vertically-adjustable holder; the horizontal spindle 23 sustained by said holder; mechanism for driving the spindle; an arm swinging vertically from the frame and adapted to support a grinding-spindle; the vertical tubular post 34 supported by the frame; the holder 25 sliding vertically in said post; mechanisms for imparting quick and slow vertical movements respectively to the holder and for locking the same at any desired height; the horizontal spindle or shaft 23 supported by the holder at its lower end; the arm 50 swinging vertically from the frame and capable of being set at any desired angle and adapted to hold the grinding-spindle; and a pulley on said spindle or shaft 23, whereby rotation is communicated to the grinding-spindle by means of a belt, whereby the spindle or shaft 23 may be raised by lifting the holder, and pressure applied to the belt at speed, substantially as described.

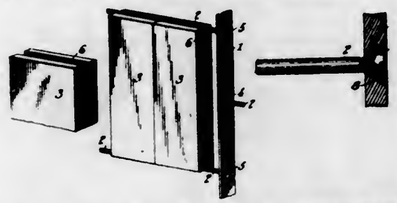
3. In a tool and cutter grinding machine, the stationary frame 15 supported on a suitable pedestal and provided with the rearwardly-recessed portion 17; a vertically-adjustable holder; the horizontal spindle 23 for supporting a grinding-wheel for external work; a suitably-supported grinding-tool for internal work, said spindle being in a raised position whereby the emery-wheels are always suspended above the work; mechanism for lowering the holder which sustains the spindle; and mechanism for driving the spindle, substantially as set forth.

4. In a tool and cutter grinding machine, the frame; the under bed 75 sliding in the frame; mechanism for imparting lateral or backward-and-forward movement to the bed; the upper bed 72 sliding on the bed 75; mechanism for imparting quick and slow longitudinal movements as desired thereto with relation to the under bed 75; and the table 69 supported by the bed 72 and adapted to rotate thereon, substantially as described.

5. In a tool and cutter grinding machine, the frame; the under bed 75 sliding in the frame; mechanism for imparting lateral or backward-and-forward movement to the bed; the upper bed 72 sliding on the bed 75; mechanism for imparting quick and slow longitudinal movements as desired thereto with relation to the under bed 75; the table 69 rotatively supported by the bed 72; the wings 107 and 108 extending horizontally from the opposite ends of the table and provided with the curved slots 109; clamping-bolts extending from the bed 72 up through said slots; the plate 113 supported by a bracket extending from one end of the bed, said plate being located beyond one of said wings and provided with a slot which is concentric with the slot in said wing; a clamping-bolt extending through the slot in the plate to the bracket; an arm extending horizontally from the wing toward the plate; and set-screws extending horizontally from the plate on opposite sides of and against said arm, substantially as set forth.

6. In a tool and cutter grinding machine, the head-stock 55 provided with the lips 59 and 60; the vertical pin 61 extending through said lips and engaging the under lip by means of its threaded portion; the annular flange or collar 63 rigid on the pin between the lips; the thimble or case 64 surrounding the pin above the upper lip; the handle 65 on the pin; the bushing 66 surrounding the pin within the upper lip; and a suitable set-screw extending through the upper lip against said bushing, substantially as described.

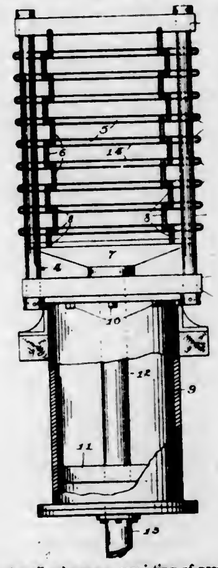
683,195. FIREPROOF PARTITION. ANDREW G. BEAH, New York, N. Y. Filed Apr. 20, 1901. Serial No. 56,699. (No model.)



Claim.—1. In fireproof partitions, the combination with parallel metal studs provided with longitudinally-extending slots, of parallel stringer-rods having their ends slidingly mounted in said slots, fireproof blocks insertible between the studs and provided in their meeting edges with grooves coextensive with such edges to receive and conceal the stringer-rods, and means for fastening the rods after they have been adjusted to the blocks.

2. In fireproof partitions, parallel metal studs, in combination with parallel stringer-rods having their ends movably mounted in openings in the studs, means for fastening one end of each rod adjacent to a door or like opening in the partition consisting of a tapered and flush-seating nut, and rows of fireproof blocks having their opposite edges grooved to engage with opposite sides of each of the stringer-rods and entirely conceal the latter, the rods forming locks for preventing lateral movement of the abutting edges of the blocks, substantially as described.

683,196. OIL-CAKE PRESS. EDGAR C. BURRR, Minneapolis, Minn. Filed Aug. 8, 1900. Serial No. 26,227. (No model.)



Claim.—1. An oil-cake press, consisting of press-plates adapted to receive a molding-pan thereon provided with an ejector, mechanism for operating said plates, and means carried by said plates for engaging the ejector of the molding-pan.

2. A machine of the class described, consisting in combination with press-plates adapted to receive a molding-pan thereon provided with an ejector, of mechanism for operating said plates, and stops for the ejector of the molding-pan.

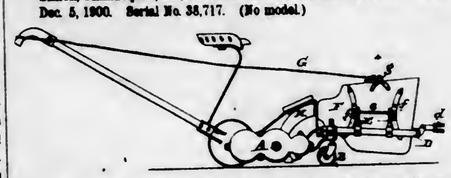
3. An oil-cake press, consisting of plates adapted to receive a molding-pan thereon, provided with an ejector, drive mechanism for operating said plates, lugs for engaging the ejector of the molding-pan, and cloths carried by rollers on said plates.

4. An oil-cake press, consisting of press-plates between which the meal is adapted to be placed, and cloths passing around each of said plates; whereby as the cake is withdrawn the cloths are stripped, for the purposes specified.

5. In a machine of the class described, a frame carrying press-plates, having cloths which render around each of said plates, for stripping the cakes, in combination with suitable drive mechanism for said plates.

6. An oil-cake press, consisting of press-plates, adapted to receive a molding-pan thereon, provided with an ejector, and having cloths passing around the same, and lugs carried by the plates for guiding the pan and engaging the ejector; said plates being protected by cloths passing around the same, whereby as the cakes are removed from the press said cloths are adapted to strip.

683,197. LAWN-MOWER. JOHN F. BRAUN and WILLIAM P. M. BRAUN, Philadelphia, Pa., executors of JOHN BRAUN, deceased. Filed Dec. 5, 1900. Serial No. 38,717. (No model.)



Claim.—The combination of a lawn-mower, with a forwardly-projecting and overhanging frame D rigidly secured thereto so as to move as a unit with the lawn-mower and having its sides provided with upright socket portions E, a receptacle F provided with longitudinal hinge-rods on each side each comprising brackets and a longitudinal rod *e*, whereby said receptacle may be supported upon said rods in the socket portions E and rocked in either direction.

683,198. MEANS FOR FASTENING ARTIFICIAL TEETH. JOHN G. BURCHELL, Atlantic City, N. J. Filed Apr. 30, 1901. Serial No. 58,164. (No model.)



Claim.—1. The combination of a tooth having a seat extending thereacross in a straight transverse direction from one side edge of the tooth fully to the opposite side edge thereof and disposed in a horizontal plane in relation to the tooth, and a plate having an angularly-bent terminal portion endwise applicable to the said seat from either side edge of the tooth, the said angularly-bent terminal portion being coextensive with the seat and the plate projecting inwardly from the tooth and of a width approximately equal to the transverse extent of the tooth whereby a more firm securement of the tooth can be obtained.

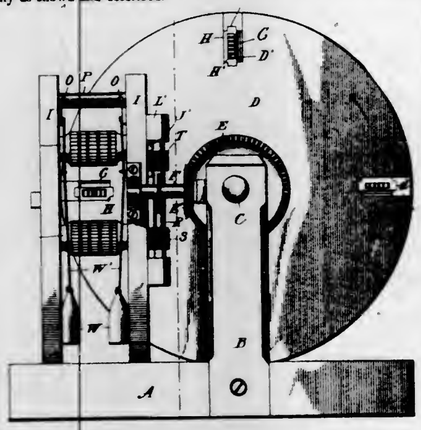
2. The combination of a tooth having a seat structure extending the full transverse width of one side of said tooth fully from one side edge of the latter to the other, and a doubled plate having the terminals reversely inclined to form an open space between them and endwise applicable to said seat structure from either side edge portion of the tooth, the said plate and terminal structure being coextensive in width or transverse extent with the seat structure.

688,199. EXCELSIOR-MAKING MACHINE. ALBERT A. DUNN, Glenfield, N. Y. Filed Apr. 26, 1901. Serial No. 57,598. (No model.)

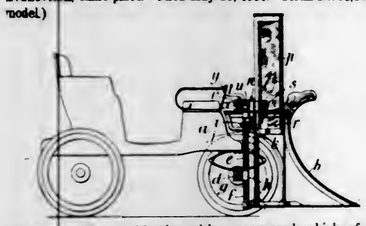
Claim.—1. In combination, in an excelsior-cutter a disk having a series of peripheral slots, flanges about three marginal edges of each slot, a casing carrying slitting-knives mounted in oppositely-disposed grooves in said flanges, a headed screw mounted in one end of said casing adapted to rest in a recess in one of said flanges, and adjusting-screws passing through a flange at right angles to said grooved flanges, and adapted to engage and hold the casing in the peripheral slot as set forth.

2. In an excelsior-cutting apparatus the combination with rotary disk, cutting-knives, standard, stationary feed-roll, an arm projecting laterally from said standard, an antifriction-wheel journaled at its outer end

and engaging the face of the disk adjacent to its edge, journaled blocks L mounted on said standard, pivotal pins carried by said blocks, cords secured to the pivotal pins on the journaled blocks, and weights fastened to the ends of said cords, a feed-roll journaled in said blocks, a rod or shaft journaled near the upper end of the standard, arms projecting laterally from said shaft and links having pivotal connection with said pins with said arms, one of the arms being extended in an opposite direction to form a lever whereby the journaled blocks may be raised and lowered, substantially as shown and described.



683,200. MOTOR-VEHICLE. EDWIN S. DORÉ and GUSSER EVANOVITCH, London, England; said Evanovitch assignor to Lissie Anne Evanovitch, same place. Filed May 20, 1901. Serial No. 61,171. (No model.)



Claim.—1. The combination with a motor road-vehicle of a guard or shield of approximately V or double-crescent shape in horizontal section, the said guard being secured to the front-wheel axle and being provided with means for raising or lowering it relatively with the said axle, substantially, as, and for the purpose, hereinbefore described.

2. In a motor road-vehicle, the combination with a guard or shield fitted to the front-wheel axle, of upright screw-threaded rods which engage screw-threaded lugs or nuts upon the axle and of means for rotating the said rods, substantially as, and for the purpose, hereinbefore described.

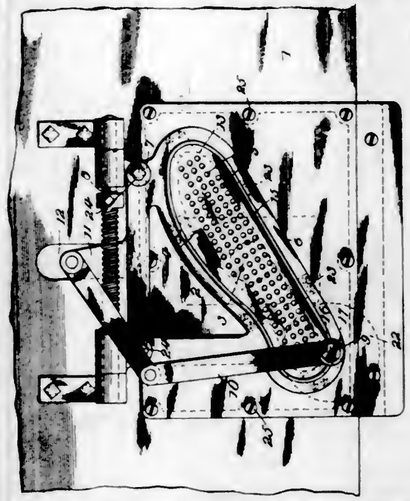
3. In a motor road-vehicle, the combination with a front guard or shield fitted to the front axle thereof of an additional guard which telescopes in the main guard, substantially as, and for the purpose, hereinbefore described.

4. In a motor-vehicle the combination with a main guard or shield, supported in front of the body of the vehicle, of a supplemental windguard, adapted to be raised above the body of the vehicle to protect the occupants of the vehicle from wind and dust, and means for adjusting said supplemental guard vertically, substantially as described.

5. In a motor-vehicle the combination with a main guard or shield supported in front of the body of the vehicle, of a supplemental windguard, telescoping in the main guard, and adapted to be raised above the body of the vehicle to protect the occupants from wind and dust, and means for adjusting said supplemental guard vertically, substantially as described.

6. In a motor-vehicle, the combination with a main guard adjustably secured to the vehicle mechanism for adjusting said guard vertically, a supplemental guard connected with said main guard and adapted to move vertically with respect thereto and mechanism for adjusting said supplemental guard vertically with respect to the main guard, substantially as described.

683,201. CIGAR-WRAPPER CUTTER. NAPOLEON DU BRUL, Cincinnati, Ohio. Filed May 4, 1901. Serial No. 58,765. (No model.)



Claim.—1. In a cigar-wrapper-cutting machine, the combination of a cutting-table having air-suction perforations grouped so as to leave a cutting-path, a guide supported above the table constructed with an opening conforming to the wrapper to be cut, and with a vertical flange surrounding said opening, a tool-support extending over the cutting-table from a point outside the cutting area, a tool mounted to turn upon a vertical axis in the tool-support, a guide-roller on the tool impinging one side of the guide-flange and causing the tool to traverse a path conforming to the wrapper to be cut, a rotary cutter on the tool vertically beneath the guide-roller and rotating upon an axis that intersects the vertical axis of the tool, and a plurality of alining-rollers impinging the other side of the guide-flange, and holding the axis of the cutter at all times normal to the path in which it travels.

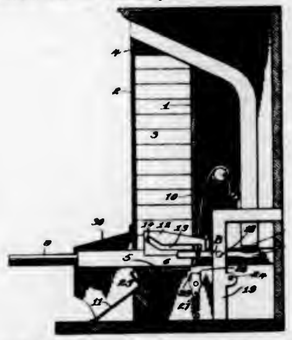
2. In a cigar-wrapper cutter, the combination of a table upon which the leaf is laid for cutting out the wrapper and rolling it around the bunch, a tool coöperating with the table to cut the wrapper from the leaf, a guide formed with a directing-track which determines the path of said coöperating tool, means for holding the wrapper upon the table by air-suction, positioned so as to hold the length of the wrapper at an angle to the front of the machine, and an upwardly-swinging mounting holding the guide above the table with the length of its track at an angle to the front of the table, corresponding to the angle at which wrapper is held, whereby the wrapper is cut in position for convenient and rapid rolling and the tool gravitates to one point whenever the guide is released.

3. In a cigar-wrapper-cutting machine, the combination of a platen upon which the wrapper is cut, having air-suction perforations grouped to leave an uninterrupted cutting-path conforming to the wrapper to be cut, and disposed so as to have the greater diameter of the group extending diagonally rearward at an angle to the front of the platen, a guide comprising an open frame with a perpendicular flange conforming to the cutting-path, means for supporting the guide over the table and swinging it vertically upward therefrom, a floated tool coöperating with the table to cut out a wrapper, and means carried by the tool engaging opposite sides of the guide's flange for confining the tool thereon; the position of the guide corresponding to that of the cutting-path whereby the tool gravitates to one point when the guide is raised and the guiding-flange preventing disengagement of the tool when the guide is in vertical position.

4. In a cigar-wrapper cutter, the combination of the cutting-table, the coöperating tool, and the guide having a track or edge defining the path of the tool, having a support by which it is swung into and out of operative position over the table and having presser-feet projecting therefrom for holding the leaf in position.

683,202. AUTOMATIC VENDING-MACHINE. EDWARD C. GREWER, Scranton, Pa. Filed June 5, 1901. Serial No. 63,268. (No model.)

Claim.—1. In a vending-machine the combination with a pivoted lever having one arm adapted to extend across the end of the coin-chute and to receive the coin, and having a projection upon its opposite arm, of a reciprocative slide having a shoulder normally in front of said projection and a surface adapted to engage and tilt the lever so as to eject the coin therefrom when the slide is operated.

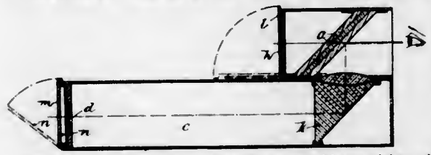


2. In a vending-machine a reciprocative slide having a longitudinal slot therein, said slot having an upwardly-inclined portion at its forward end and a notch at its rear end, in combination with a pivoted lever having one arm adapted to extend across the end of the coin-chute, and a pin on its opposite arm normally resting within the notch.

3. In a vending-machine a reciprocative slide having a longitudinal slot therein, said slot having an upwardly-inclined portion at its forward end and a notch at its rear end, in combination with a pivoted lever having one arm adapted to extend across the end of the coin-chute, and a pin on its opposite arm normally resting within the notch, and means for preventing a reverse movement of the slide after it is started in either direction and until it reaches the end of its required movement.

4. In a vending-machine a reciprocative slide, a plate connected with said slide and having a longitudinal slot therein, said slot having an upwardly-inclined portion at its forward end and a notch at its rear end, in combination with a pivoted lever having one arm adapted to extend across the end of the coin-chute and a pin on its opposite arm normally resting within the notch, and means for preventing a reverse movement of the slide after it is started in either direction and until it reaches the end of its required movement.

683,203. SIGHTING DEVICE FOR GUNS. HOWARD GRUBB, Dublin, Ireland. Filed Dec. 26, 1900. Serial No. 41,152. (No model.)



Claim.—1. A sighting device for guns, comprising a sight and means whereby luminous rays proceeding therefrom to the eye of an observer are rendered parallel to one another.

2. A sighting device for guns, comprising a sight and means whereby luminous rays proceeding therefrom can be rendered parallel to one another and there is produced an image that can be superposed upon and viewed simultaneously with a distant object.

3. A sighting device for guns, comprising a sight, means for rendering luminous rays proceeding therefrom parallel to one another, and a surface from which an image of the sight produced by the parallel luminous rays can be reflected and caused to enter the eye of an observer simultaneously with a view of a distant object.

4. A sighting device for guns, comprising a sight, means for rendering luminous rays proceeding therefrom parallel to one another, and reflecting-surfaces whereby views of the sight and a distant object can be superposed and viewed simultaneously.

5. A sighting device for guns, comprising a sight, means whereby luminous rays proceeding therefrom can be rendered parallel before reaching the eye of an observer, and means whereby the brilliancy of a distant object, as seen by the said sighting device, can be diminished.

6. A sighting device for guns, comprising a sight, means for illuminating said sight, and means whereby luminous rays proceeding from said sight can be rendered parallel before reaching the eye of an observer.

7. A sighting device for guns comprising a sight, a lamp for illuminating said sight, and means whereby luminous rays proceeding from said sight can be rendered parallel to one another.

8. A sighting device for guns, comprising a sight, means whereby luminous rays proceeding therefrom are rendered parallel, and one or more inclined surfaces through which a distant object can be viewed and from which an image of the sight produced by the parallel rays will be reflected in a backward direction.

9. A sighting device for guns, comprising a sight, means whereby luminous rays proceeding therefrom are rendered parallel, one or more pieces of transparent material having parallel surfaces inclined to the line of sight through said device, through which a distant object can be seen, and by which an image of the sight will be reflected in a backward direction.

10. A sighting device for guns, comprising a sight, an object-glass whereby luminous rays proceeding therefrom are rendered parallel, and one or more reflecting-surfaces arranged at an angle to the line of sight and upon which the parallel luminous rays are projected so as to produce a phantom image of said sight.

11. A sighting device for guns, comprising a tube, a diaphragm carried by said tube and bearing a design constituting the sight proper, means whereby luminous rays proceeding from said design or sight are rendered parallel, and a transparent body through which a distant object can be seen and having one or more inclined surfaces upon which the parallel luminous rays are projected so as to produce an image of said design or sight.

12. A sighting device for guns, comprising a tube provided with a diaphragm bearing a design constituting the sight proper, a transparent body having one or more inclined reflecting-surfaces external to said tube and through which a distant object can be seen, and an object-glass arranged to render luminous rays proceeding from said diaphragm parallel to one another and to direct said parallel rays onto said inclined reflecting surface or surfaces

13. A sighting device for guns, comprising a tube provided with a diaphragm bearing a design constituting the sight proper, an object-glass capable of rendering luminous rays proceeding from said design parallel to one another, a transparent body through which a distant object can be viewed and from which an image of the design or sight, produced by the parallel luminous rays will be reflected, and transparent material arranged in front of said transparent body and capable of reducing the brilliancy of said distant object as seen through said transparent body.

14. A sighting device for guns, comprising a tube provided with a diaphragm bearing a design constituting the sight proper, means for directing light upon said diaphragm, an object-glass capable of rendering luminous rays proceeding from said diaphragm parallel to one another, and a inclined surface from which parallel rays both from the illuminated design and from a distant object can be caused to simultaneously enter the eye of an observer.

15. In a sighting device for guns, a tube provided with a diaphragm bearing a transparent design to constitute the sight proper, an object-glass arranged to render luminous rays proceeding from said design parallel to one another, and an inclined surface from which an image of the design produced by the parallel rays will be reflected and through which a distant object can be simultaneously viewed.

16. A sighting device for guns, comprising a tube provided with a diaphragm bearing a transparent design to constitute the sight proper, a reflecting-surface external to said tube, inclined in a backward direction to the line of sight through said device, and through which a distant object can be viewed, a reflecting-surface within said tube whereby luminous rays proceeding from said design are reflected onto the external reflecting-surface and thence backward, and means arranged to render said rays parallel to one another before they reach the external reflecting-surface.

17. A sighting device for guns, comprising a tube having its axis parallel to the line of sight through said device, a diaphragm arranged at the forward part of said tube and bearing a design constituting the sight proper, one or more reflecting-surfaces external to said tube, inclined backward to the line of sight, and through which a distant object can be seen, a reflecting-surface whereby luminous rays from said design are bent at right angles and directed toward said inclined surface or surfaces, and an object-glass for rendering said rays parallel to one another before impinging upon said external reflecting surface or surfaces.

18. A sighting device for guns, comprising a tube provided with a diaphragm bearing a design constituting the sight proper, a transparent body external to said tube and inclined backward to the axis thereof, a right-angled prism having its inclined surface arranged to reflect luminous rays proceeding from said design onto the external reflecting-surface, and an object-glass arranged to render said rays parallel to one another before reaching the last-mentioned surface.

19. A sighting device for guns, comprising a tube provided with a diaphragm bearing a design constituting the sight proper, pieces of transparent parallel glass arranged external to said tube and inclined backward to the axis of said tube, a right-angled prism arranged within said tube so as to reflect luminous rays coming from said diaphragm onto the in-

clined surfaces of the parallel glass, and an object-glass arranged between said prism and pieces of parallel glass so as to render the luminous rays parallel to one another.

20. A sighting device for guns, comprising a tube having a diaphragm carrying the sight proper, a transparent body external to said tube and having one or more backwardly-inclined reflecting-surfaces, means for rendering luminous rays proceeding from said diaphragm and sight parallel to one another and directing them onto said inclined reflecting surface or surfaces, and transparent material adapted to be placed adjacent to said transparent body and to diminish the brilliancy of a distant object as seen through said transparent body.

21. A sighting device for guns, comprising a tube having a diaphragm carrying the sight proper, a transparent body external to said tube and having one or more backwardly-inclined reflecting-surfaces, means for rendering luminous rays proceeding from said diaphragm and sight parallel to one another and directing them onto said inclined reflecting surface or surfaces, and an incandescent electric lamp arranged to illuminate said diaphragm and sight.

22. A sighting device for guns, comprising a sighting-tube having one or more pieces of parallel transparent glass arranged across the axis thereof and inclined backward to said axis, a collimating-tube having a diaphragm provided with a transparent design, and means whereby luminous rays from said diaphragm are rendered parallel and directed onto the inclined surfaces of said transparent material.

23. A sighting device for guns, comprising a sighting-tube having one or more pieces of parallel glass extending across the same and inclined backward to the axis of said tube, a collimating-tube arranged parallel to said sighting-tube and provided with a diaphragm bearing a transparent design constituting the sight proper, a right-angled prism arranged in said collimating-tube so as to reflect luminous rays coming from said sight onto the inclined surfaces of the parallel glass, and an object-glass for rendering said luminous rays parallel.

24. A sighting device for guns, comprising a sighting-tube having one or more pieces of parallel transparent glass arranged across the axis thereof and inclined backward to said axis, a collimating-tube having a diaphragm provided with a transparent design, means whereby luminous rays from said diaphragm are rendered parallel and directed onto the inclined surfaces of said transparent material, and transparent material adapted to be placed in front of said parallel glass and diminish the brilliancy of a distant object as seen through said parallel glass.

25. A sighting device for guns, comprising a sighting-tube having one or more pieces of parallel transparent glass arranged across the axis thereof and inclined backward to said axis, a collimating-tube having a diaphragm provided with a transparent design, means whereby luminous rays from said diaphragm are rendered parallel and directed onto the inclined surfaces of said transparent material, and means whereby an additional amount of external light can be directed upon said diaphragm.

26. The combination with a gun of a sighting device adjustably mounted thereon and comprising a sight and means whereby luminous rays proceeding therefrom are rendered parallel before reaching the eye of an observer.

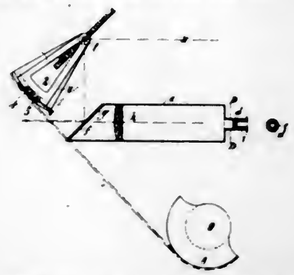
27. The combination with a gun of an adjustable sighting device comprising a sight, means whereby luminous rays proceeding therefrom are rendered parallel, and a reflecting-surface whereby views of the sight and a distant object can be superposed and viewed simultaneously.

28. A sighting device for guns, comprising a sight, means whereby luminous rays proceeding therefrom are rendered parallel, and a transparent body having a surface from which parallel luminous rays both from the sight and from a distant object can be caused to simultaneously proceed in a backward direction, said surface being coated with a film of a reflecting medium that will increase the reflecting power of said surface while allowing of the passage of rays of light therethrough.

683,204. SIGHTING APPARATUS FOR BARBETTE OR OTHER GUNS. HOWARD GRUBB, Dublin, Ireland. Filed May 23, 1901. Serial No. 61,613. (No model.)

Claim.—1. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its protecting means, of a sight proper, means for rendering luminous rays proceeding therefrom parallel, a reflecting-surface through which an image of the sight produced by the parallel rays can be seen, reflecting means arranged to receive luminous rays from a distant object and reflect them onto said reflecting-surface so that images of the distant object and sight can be superposed and viewed simultaneously, and mechanism for causing said reflecting means to turn through a vertical angle half that through which said gun is turned in a vertical plane.

2. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its protecting means, of a sighting device comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and a reflecting-surface constituting a lower reflector through which an image of the sight produced by the parallel rays can be seen, an upper inclined reflector arranged to receive luminous rays from a distant object and reflect them onto said lower reflector so that images of the distant object and sight can be superposed and viewed simultaneously, means for causing said sighting device and upper reflector to turn horizontally with and to the same extent as said gun, and means for causing said upper reflector to turn through half the vertical angle through which said gun turns when the same is elevated.



3. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its protecting means, of a sighting device comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and a lower reflector inclined to the horizontal and through which an image of the sight produced by parallel rays can be seen, an upper reflector inclined to the horizontal and arranged to receive luminous rays from a distant object and reflect them downward onto said lower reflector so that images of the distant object and sight can be superposed and viewed simultaneously, means for causing said sighting device and reflecting means to turn horizontally with and to the same extent as said gun, means for adjusting said sighting device and upper reflector in a lateral angular manner relatively to said gun, and means for causing said upper reflector to turn through half the vertical angle through which said gun turns when the same is elevated.

4. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its protecting means, of a sighting device comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and a lower reflector inclined to the horizontal and through which an image of the sight produced by parallel rays can be seen, an upper reflector inclined to the horizontal and arranged to receive luminous rays from a distant object and reflect them downward onto said lower reflector so that images of the distant object and sight can be superposed and viewed simultaneously, a holder mounted to turn about a horizontal axis and wherein said upper reflector is mounted to also turn about a horizontal axis, means for adjusting said upper reflector about its horizontal axis relatively to said holder, means for causing said sighting device and upper reflector with its holder to turn horizontally with and to the same extent as said gun, and means for causing said holder and upper reflector to turn through a vertical angle half that through which said gun turns when the same is elevated.

5. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its protecting means, of a sighting device comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and a lower reflector inclined to the horizontal and through which an image of the sight produced by parallel rays can be seen, an upper reflector inclined to the horizontal and arranged to receive luminous rays from a distant object and reflect them downward onto said lower reflector so that images of the distant object and sight can be superposed and viewed simultaneously, means for causing said sighting device and reflecting means to turn horizontally with and to the same extent as said gun, means for causing said upper reflector to turn through half the vertical angle through which said gun turns when the same is elevated, and a concave lens adapted to be brought in front of said upper reflector and to be afterward moved out of position, substantially as described for the purpose specified.

6. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its protecting means, of a sighting device carried by the gun-mounting and comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and a lower reflector inclined to the horizontal and through which an image of the sight produced by parallel rays can be seen, an upper reflector inclined to the horizontal and arranged to receive luminous rays from a distant object and reflect them downward onto said lower reflector so that images of the distant object and sight can be superposed and viewed simultaneously, a holder connected to said sighting device, mounted to turn about a horizontal axis and wherein said upper reflector is mounted to also turn about a horizontal axis, means for adjusting said upper reflector relatively to said holder, and means for causing said holder and upper reflector to turn through a vertical angle half that through which said gun turns when the same is elevated.

7. In sighting apparatus for barbette and other protected guns, the combination with a gun and its protecting means, of a sighting device comprising a tube provided at one end with a diaphragm bearing a luminous sight, at the other end with a reflecting-surface arranged at an angle to the horizontal and through which an image of the sight can be seen, and at an intermediate part with means for rendering luminous rays coming from the sight parallel before they reach the said reflecting-surface, a reflecting device comprising a plane mirror arranged directly above the inclined surface of the sighting device and at an angle of forty-five degrees to the longitudinal axis of the gun when this axis is horizontal, a holder mounted to turn about a horizontal axis and wherein said mirror is mounted to also turn about a horizontal axis, means for adjusting said mirror about its horizontal axis relatively to said holder, and means whereby said holder and mirror will, when the gun is elevated, be caused to turn about their common horizontal axis through a vertical angle half that through which the gun is turned, substantially as described for the purpose specified.

8. In sighting apparatus for a barbette or other protected gun, the combination with the gun and its mounting and protecting means, of a sighting device mounted to turn about a vertical axis on said gun-mounting and comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and an inclined lower reflector through which an image of the sight produced by the parallel rays can be seen, means for adjusting said sighting device in a lateral direction on said gun-mounting, a sector-shaped mirror-holder attached to said sighting device and capable of moving about a horizontal axis, a mirror-carrier mounted to turn about a horizontal axis in said holder, an inclined mirror fixed to said carrier above the lower inclined reflector, a sector-shaped segment fixed to one of the gun-trunnions and having half the radius of the mirror-holder, and a flexible connector between said mirror-holder and trunnion-segment, substantially as described.

9. The combination with a gun and a barbette inclosing the same and provided at the top with a chamber having an opening in its front wall, of a sighting device capable of being adjusted in a lateral angular direction on a normally stationary part of the gun-mounting and comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and an inclined reflecting-surface through which an image of the sight produced by parallel rays can be seen, an inclined reflector located in the barbette-chamber opposite the opening therein, a pivoted holder connected to said sighting device so as to turn therewith in a lateral angular manner when the same is adjusted relatively to the gun and wherein said inclined reflector can be adjusted about a horizontal axis independently of the gun, and means for causing said holder and inclined upper reflector to move through half the angle through which said gun turns when the same is elevated

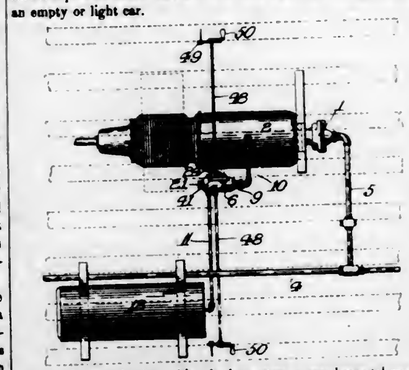
10. The combination with a gun and a barbette inclosing the same and provided at the top with a chamber having an opening in its front wall, of a sighting device comprising a sight proper, means for rendering luminous rays proceeding therefrom parallel, and an inclined reflecting-surface through which an image of the sight produced by parallel rays can be seen, a carriage capable of being adjusted in a lateral angular direction on the gun-mounting about a vertical axis and to which said sighting device is attached, a sector-shaped holder mounted to turn about a horizontal axis in said carriage, an inclined mirror located in said barbette-chamber opposite the opening therein, a carrier mounted to turn about a horizontal axis on said holder and to which said mirror is fixed, means for adjusting said carrier and mirror in said holder for elevation adjustment, a circular segment secured to one of the gun-trunnions and made of half the radius of said holder, and a flexible connection between said holder and segment, substantially as described for the purposes specified.

683,205. FLUID-PRESSURE BRAKE. MAURY W. HIBBARD, Chicago, Ill., assignor to Richard Fitzgerald, same place. Filed Mar. 25, 1901. Serial No. 52,797. (No model.)

Claim.—1. In combination with an air-brake system, a supplemental reservoir and means for positively connecting such supplemental reservoir with the usual auxiliary reservoir when greater braking pressure is desired for loaded cars, and means for regulating the brake-cylinder pressure to a predetermined amount when such reservoirs are disconnected on an empty or light car.

2. In combination with an air-brake system, a supplemental reservoir and combined means for connecting such supplemental reservoir and the auxiliary reservoir of the brake system and for bleeding the auxiliary reservoir.

3. In combination with an air-brake system, a supplemental reservoir, a casing having a chamber communicating with such reservoir and with the auxiliary reservoir of the brake system, a valve in such chamber controlling the communication with the supplemental reservoir, means for operating such valve, and means for regulating the brake-cylinder pressure to a predetermined amount when such reservoirs are disconnected on an empty or light car.



4. In combination with a brake system, a supplemental reservoir, a casing having a chamber communicating with the supplemental reservoir, with the auxiliary reservoir, with a blow-down device and with the brake-cylinder, and means for controlling the communication with the supplemental reservoir and the said communication with the brake-cylinder and blow-down device.

5. In combination with an air-brake system, a casing communicating with the auxiliary reservoir of such system, with the brake-cylinder and with a blow-down device and means in said casing for controlling connection between said brake-cylinder communication and with the blow-down device.

6. In combination with an air-brake system, a blow-down device adapted to be put in connection with a brake-cylinder and means for cutting such device into and out of connection with the brake-cylinder.

7. In combination with an air-brake system, a supplemental reservoir, a casing having a chamber provided with ports communicating with such supplemental reservoir, with the auxiliary reservoir of the brake system, with the brake-cylinder, and with the blow-down device, and valve mechanism forming connection with the brake-cylinder port and blow-down port when the supplemental-reservoir port is closed, and closing said connection when the supplemental-reservoir port is opened.

8. In combination with an air-brake system, valve mechanism cooperating therewith to produce a predetermined braking pressure in the brake-cylinder and capable of producing a higher pressure therein, and also having means for bleeding the auxiliary reservoir of the brake system.

9. In combination with an air-brake system, a supplemental reservoir, a casing having a valve governing ports to said supplemental reservoir, to the auxiliary reservoir of the brake system, to the brake-cylinder of such system and to a blow-down device, the valve in one position closing the port to atmosphere and the port to the supplemental reservoir and connecting the brake-cylinder port with the port to the blow-down, in a second position disconnecting the brake-cylinder port and the port to the blow-down and opening the supplemental port and in a third position closing all ports except the auxiliary-reservoir port and the port to atmosphere whereby the auxiliary reservoir is bled.

10. In combination with an air-brake system, a supplemental reservoir, a casing having a chamber with ports communicating with such supplemental reservoir, the auxiliary reservoir of the brake system, with the brake-cylinder, with a blow-down device and with the atmosphere, and valve mechanism therein for governing said ports.

11. In combination with an air-brake system, a supplemental reservoir, a casing having a chamber with ports communicating with such supplemental reservoir, the auxiliary reservoir of the brake system with the brake-cylinder, with a blow-down device and with the atmosphere, a valve governing said ports and connecting the brake-cylinder port with the port to the blow-down device and at the same time cutting off the two reservoirs from each other and also closing the port to atmosphere, and also closing the brake-cylinder port and port to the blow-down device when the port to the supplemental reservoir is opened and also capable of opening said port to atmosphere when all the other ports are closed except the auxiliary-reservoir port.

12. In combination with an air-brake system, a supplemental reservoir, a blow-down device, a casing having a chamber with ports to the supplemental reservoir, to the auxiliary reservoir of the brake system, to

the brake-cylinder, to the blow-down device and to the atmosphere, a slide-valve governing said ports and having a recess adapted to connect the brake-cylinder port and the port to the blow-down device, and also having a passage to connect the chamber with the atmosphere and means for operating said valve.

13. In combination with an air-brake system, a supplemental reservoir, a blow-down device, a casing having a chamber with ports to the supplemental reservoir, to the auxiliary reservoir of the brake system, to the brake-cylinder, to the blow-down device and to the atmosphere, a valve in such chamber for governing said ports, a lever working through said ports to atmosphere and operatively connected to the valve, and means for actuating such lever.

14. In combination with an air-brake system, a supplemental reservoir, a blow-down device, a casing having a chamber with ports to the supplemental reservoir, to the auxiliary reservoir of the brake system, to the brake-cylinder and to the blow-down device, a slide-valve governing said ports, said casing having a side opening, a lever operating through said opening and coöperating with said valve to actuate it and means for operating the lever.

15. In combination with an air-brake system, a supplemental reservoir, a blow-down device, a casing having a chamber with ports to the supplemental reservoir, to the auxiliary reservoir of the brake system, to the brake-cylinder, and to the blow-down device, a slide-valve governing said ports and having a socket 36, said casing having a side opening, a lever whose end passes through said opening and enters said socket to operate the valve, and means for actuating the lever.

16. In combination with an air-brake system, a supplemental reservoir, a casing having a chamber with ports to such supplemental reservoir, and to the auxiliary reservoir of the brake system and having projecting arms or lugs, a valve governing the connection between said ports, said casing also having a side opening adjacent to such valve, a lever pivoted in said lugs and having its end operatively connected to the valve and means for actuating the lever.

17. In combination with an air-brake system, a supplemental reservoir, a blow-down device, a casing having a chamber with ports to the supplemental reservoir, to the auxiliary reservoir of the brake system, to the brake-cylinder, to the atmosphere and to the blow-down device, a valve governing said ports and a spring tending to resist the valve when moved to open the said port to atmosphere.

18. In combination with an air-brake system, a supplemental reservoir, a blow-down device, a casing having a chamber with ports to the supplemental reservoir, to the auxiliary reservoir of the brake system, to the brake-cylinder, to the atmosphere and to the blow-down device, a valve governing said ports, and a spring carried by the valve and adapted to strike the end of the chamber in its further movement when it opens the said port to atmosphere.

19. In combination with an air-brake system, a valve for regulating the brake-cylinder pressure and bleeding the auxiliary reservoir, an operating-rod on the car extending to convenient reach of the trainmen, operative connection between such rod and valve, a bracket on the car having indications designating the different positions of the valve, and a crank or handle on the rod and movable over the face of the bracket.

20. In combination with an air-brake system, a valve for regulating the brake-cylinder pressure and bleeding the auxiliary reservoir, an operating-rod on the car extending to convenient reach of the trainmen, operative connection between such rod and valve, a bracket on the car having indications designating the different positions of the valve and a handle on such rod and movable over the face of the bracket.

21. In combination with an air-brake system, a valve for regulating the brake-cylinder pressure, a lever for operating such valve and having a bifurcated end, a crank-shaft having a crank coöperating with such bifurcation, and an operating-rod connected to said shaft.

22. In combination with an air-brake system having a blow-down device or pressure-regulating device for the brake-cylinder, a supplemental reservoir and a valve device adapted to connect the brake-cylinder with said pressure-regulator, and at other times to connect the auxiliary reservoir with the supplemental reservoir, said valve device having means for bleeding the auxiliary reservoir and maintaining the pressure in the supplemental reservoir.

23. In combination with an air-brake system a supplemental reservoir and manually-actuated means for causing a braking of the car with only the auxiliary-reservoir pressure or with both the auxiliary-reservoir and supplemental-reservoir pressures combined, and means for regulating the brake-cylinder pressure to a predetermined amount when the auxiliary reservoir alone is used.

24. In combination with an automatic air-brake system operating with a single brake-cylinder, means for permitting, when the car is empty, a braking pressure decreasing from a predetermined maximum to a predetermined minimum at every application of the brakes, and permitting full braking pressure when the car is loaded.

25. In combination with an air-brake system a supplemental reservoir and a valve device manually actuated to connect such reservoir with the usual auxiliary reservoir when the car is loaded whereby the triple valve vents a certain predetermined pressure into the brake-cylinder when the car is empty and vents a greater pressure into the brake-cylinder when the car is loaded, the action being effected by the same train-pipe reduction so that a loaded and an empty car in a train each performs its proportionate braking.

26. In combination with an air-brake system, a valve for regulating the brake-cylinder pressure and bleeding the auxiliary reservoir, an operating-rod on the car, operative connections between such rod and valve, a bracket on the car having indications designating the "empty," "loaded," and "bleed" positions of the valve, a handle on such rod movable over the face of the bracket and means whereby such handle and rod, after being turned to "bleed" position, are restored to one of the other said positions.

27. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded, in combination with means adapted to communicate with the brake-cylinder for regulating said partial pressure to a predetermined amount.

28. In combination with an air brake system, means for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded and means for regulating said partial pressure to a predetermined amount, said regulating means being cut out of service when full braking pressure is produced.

29. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded and a pressure-reducing valve device for reducing the brake-cylinder pressure to a predetermined amount for obtaining said partial braking pressure, said valve device being cut out of service when full braking pressure is produced.

30. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded, and a pressure-reducing valve device adapted to communicate with the brake-cylinder for reducing the pressure therein to a predetermined amount, said communication being under the control of said means whereby the valve device will communicate with the brake-cylinder when partial braking pressure is desired but will be excommunicated when full braking pressure is desired.

31. In combination with an air-brake system, means for producing a partial braking pressure for a car empty and producing full braking pressure for a car loaded, a pressure-producing valve device adapted to communicate with the brake-cylinder, and means for rendering said valve device operative or inoperative.

32. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir, a valve device adapted to connect said two reservoirs together when the car is loaded, a pressure-reducing valve having communication with the brake-cylinder, said communication being under the control of the said valve device.

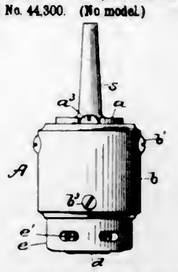
33. In combination with an air-brake system, a reservoir supplemental to the usual auxiliary reservoir and adapted to communicate therewith, a valve device adapted to control the communication between said reservoirs, opening said communication for full braking pressure and closing the same for partial braking pressure and a pressure-reducing valve having communication with the brake-cylinder for reducing the pressure therein to a predetermined amount, which communication is controlled by said valve device whereby the reducing-valve will be in operative communication with the brake-cylinder when the said two reservoirs are non-communicating but will be cut out of communication with the brake-cylinder when the two reservoirs are put into communication.

683,206. LOCK. MAURICE F. HUTCHISON, Floris, Va., assignor of one-half to Rudolph Charles Eichberg, Alexandria, Va. Filed Dec. 27, 1900. Serial No. 41,227. (No model.)



Claim.—The combination of base-plate 1; a lock-casing secured thereto; plate-springs 5, within said casing; an abutment or shoulder 15, on said springs; an arrow-shaped projection adapted to enter the lock-casing and be engaged by said springs 5; a housing formed on the lock-casing for the arrow-shaped projection; an additional housing on the casing provided with a keyhole-slot, and a keyhole-slot in the locking-casing at an angle to the first-mentioned keyhole-slot, substantially as set forth.

683,207. MILLING-TOOL. SAMUEL D. KEENE, Providence, R. I., assignor to Lorenzo P. Sturtevant, North Swansea, Mass. Filed Jan. 22, 1901. Serial No. 44,300. (No model.)



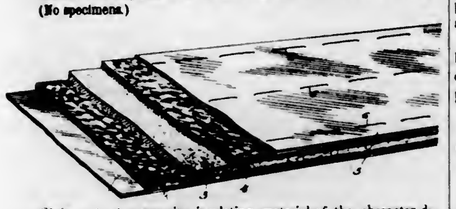
Claim.—1. In a milling-tool having a suitably-mounted annular cutting member, inner and outer independently-movable spring-pressed friction members having said cutting member located between said friction members, substantially as described and for the purpose set forth.

2. In a revoluble milling-tool, the combination with the head or body portion and an annular cutter secured thereto, of an inner or central spring-pressed endwise-movable friction member, an outer spring-pressed endwise-movable friction member, both being adapted to revolve axially in unison with the cutter, and having the latter located between said friction members, substantially as described and for the purpose set forth.

3. In a revoluble milling-tool, the combination with a driving-head and the cutter member secured thereto, of inner and outer spring-pressed independently-movable friction members having said cutter interposed between them and concentric therewith, the said friction members being adapted to revolve in unison with the driving-head, substantially as hereinbefore set forth.

4. The combination with the driving-head or cutter-holder *a* and an endwise-movable spring-pressed central friction member *d* adjustably secured thereto, of a casing *b* adjustably secured to said head, an endwise-movable spring-pressed friction member *e* attached to and adapted to revolve in unison with said casing, and an annular cutter removably secured to said driving-head and located between the adjacent peripheral sides or faces of the said friction members, substantially as described.

683,208. COMPOSITE INSULATING MATERIAL. GEORGE KELLY, Mineralpoint, Wis. Filed June 25, 1901. Serial No. 65,981. (No specimens.)



Claim.—1. A composite insulating material of the character described, composed of mineral wool and a sustaining-body of flax fiber.

2. A composite insulating material composed of layers of mineral wool and flax fiber in a loose, dry condition and in intimate relation.

3. A composite insulating material composed of alternate layers of mineral wool and flax fiber, and means for securing said layers in intimate relation.

4. A composite insulating material composed of alternate layers of mineral wool and flax fiber, and a flexible cover.

5. A composite insulating material composed of alternate layers of mineral wool and flax fiber, a flexible cover for said layers, and stitches passing through the several layers and cover.

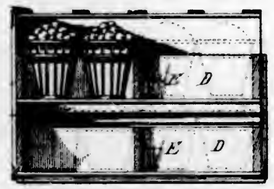
6. A composite insulating material composed of alternate layers of mineral wool and flax fiber, from which fiber the gums and lignates have been removed.

7. A composite insulating material composed of mineral fiber and degummed and delignated cellulose fiber of flax.

8. A composite insulating material composed of alternate layers of mineral wool, degummed and delignated cellulose fiber of flax, a flexible cover for said layers, and stitches securing the layers and cover in intimate relation.

683,209. FRUIT-SHIPPING CRATE. MARTIN KILIAN, Nappanee, Ind. Filed July 12, 1901. Serial No. 68,071. (No model.)

Claim.—In combination with a crate for shipping berries, &c., a series of superimposed sliding trays, the edges of the open face of the crate being recessed, a bar closing one recess, a locking-strip having a recessed end designed to enter said closed recess and provided with a shoulder adapted to rest upon said bar, a strap fastened to the upper end of said strip and designed to engage a pin on the crate to hold said strip against the outer faces of the trays, and a suitable slatted door, as set forth.



683,210. ALIMENTARY EXTRACT AND METHOD OF MAKING SAME. EDWARD C. L. KREMEL, London, England, assignor of two-thirds to Thomas Hill-Jones, same place. Filed Sept. 13, 1897. Serial No. 651,516. (No specimens.)

Claim.—1. The process of preparing an alimentary extract from yeast which consists in subjecting it to a temperature which will kill the yeast-cells without coagulating all of the proteid matter, hydrating such proteid matter as is coagulated or insoluble to convert it into peptones, separating the solid matter, and condensing the resulting fluid, substantially as described.

2. The process of preparing an alimentary extract from yeast which consists in adding common salt to the yeast, subjecting it to a temperature sufficient to kill the yeast-cells without coagulating all of the proteid matter, adding a digestive material to hydrate the proteid matter and convert it into peptones removing the solid matter and condensing the liquid, substantially as described.

3. An alimentary compound prepared from yeast consisting of the contents of the yeast-cells, including substantially all of the albuminous proteid matter, converted into soluble peptones.

683,211. FIRE-EXTINGUISHING COMPOUND. OLIVER C. LACEY, Newport News, Va., assignor to New York Fire Proof Company, same place. Filed Feb. 27, 1901. Serial No. 49,133. (No specimens.)

Claim.—1. In a fire-extinguishing compound, consisting of a dry powder comprising the bicarbonate of soda, manganese chlorid, sulfate of ammonia, and kaolin, substantially as described.

2. A dry powdered fire-extinguishing compound, consisting of the bicarbonate of soda, one hundred pounds, manganese chlorid twelve per cent.; sulfate of ammonia three per cent.; dry powdered kaolin twelve per cent., substantially as described.

683,212. FIREPROOFING COMPOUND. OLIVER C. LACEY, Newport News, Va., assignor to New York Fire Proof Company, same place. Filed Feb. 27, 1901. Serial No. 49,134. (No specimens.)

Claim.—1. A fireproofing compound, consisting of manganese chlorid, silicon, ammonium chlorid, sulfate of ammonia and water, substantially as described.

2. A fireproofing compound, consisting of manganese chlorid two pounds, silicon one-half pound, ammonium chlorid one pound, sulfate of ammonia one-half pound, substantially as described.

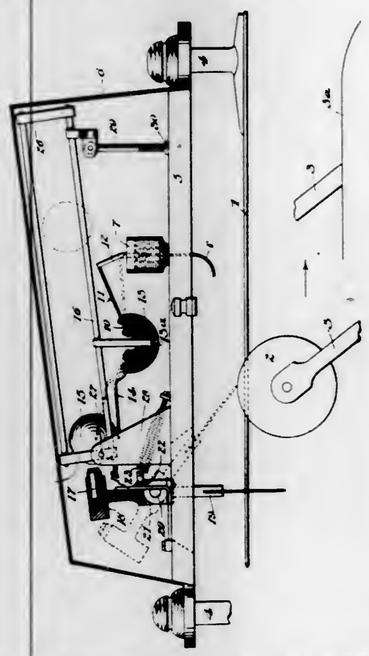
683,218. ELECTRIC SWITCH. KING W. MANSFIELD and WILLIAM R. THOMPSON, South Norwalk, Conn. Filed July 6, 1900. Serial No. 22,731. (No model.)

Claim.—1. In an electric apparatus in combination, a switch-arm normally separated from its coöperating terminals, a movable device adapted to rest in one position, automatic means to strike said movable device a quick blow and move the same to a distance, thereby releasing said switch-arm and causing the same to complete the circuit, and means to cause said movable device to automatically return to its former position and reopen said circuit.

2. In an electrical apparatus in combination, a switch, means to automatically throw the same when released, a movable device adapted to rest in one position, automatic means to strike said movable device a quick blow and move the same to a distance thereby releasing said switch and causing the same to be thrown, and means to cause said movable device to automatically return to its former position and throw back said switch.

3. In an electrical apparatus in combination, a switch adapted to be

automatically thrown when released, a rolling device adapted to rest in one position and hold said switch from being thrown, an inclined track for said device sloping upward from said position of rest, automatic means to strike said rolling device a quick blow and impel the same to a distance up said inclined track thereby releasing said switch and causing the same to be thrown, said inclined track being adapted to cause said device to automatically roll down to its former position and throw back said switch.



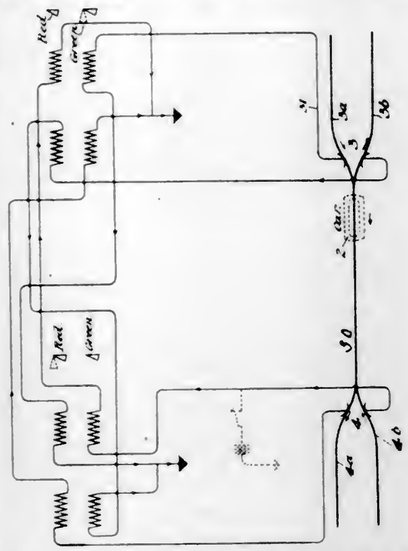
4. In an electrical apparatus in combination, a normally open electric circuit, a signal controlled thereby, a switch adapted to automatically close said circuit when released, an inclined track, a rolling device adapted to rest at the bottom of said track, means projecting from said switch into the path of movement of said rolling device at its point of rest whereby said device normally holds said switch open, a spring-actuated head and a lever connected therewith, said head being adapted to strike said rolling device and impel the same to a distance up said track thereby releasing said switch and closing said circuit, said track being adapted to cause said device to automatically return after an interval to its former position and reopen said switch.

5. In an electrical device in combination, an inclined track, a rolling device adapted to travel up the same by the momentum imparted to it and downward by gravity and come to rest at a point on said track, a switch having a part projecting into the path of movement of said device whereby said switch is held from being thrown, means to impart an impulse to said device to cause the same to travel up said track and release said projecting part and cause said switch to be thrown, said device being adapted to then roll down said track and strike said projecting part and throw said switch back to its former position.

6. In an electrical device in combination, an inclined track, a ball adapted to travel up the same by momentum imparted to it, and down by gravity, and come to rest at a point on said track, an automatically-thrown switch having a part projecting into the path of movement of said ball at said point of rest whereby said rolling device holds said switch from being thrown, a spring-pressed lever adapted to be drawn back against the force of said spring and released, a part moved by said lever, said part being adapted to strike and impart an impulse to said ball to cause the same to travel up said track and release said switch, said ball being adapted to then roll down said track and move said switch back to its former position.

7. In an electrical apparatus in combination, an inclined track, a device automatically movable up and down thereon, means to impart an impulse to said device, a switch separate from said device, and a connection between the same and said device whereby said switch is automatically thrown and returned on the movement of said device.

688,214. SIGNAL SYSTEM. KING W. MANSFIELD and WILLIAM R. THOMPSON, South Norwalk, Conn. Filed July 31, 1900. Serial No. 24,366. (No model.)



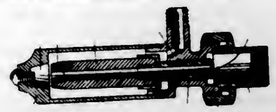
Claim.—1. In a signal system in combination, a track, a pair of visual signals of different appearance at each of a plurality of points along said track, means located at each of said points and electrically connected with and controlling by positive action a signal of each pair whereby one signal of each pair may be substantially simultaneously set, or the other signal of each pair discontinued, from either point, and a mechanical interlock between all of said signals which are located at either point.

2. In a signal in combination, a pair of solenoids, a core for the same, said core being movable into said solenoids alternately, a movable signal, a connection between said core and signal to move the latter and including a rotatable shaft having a cam-face and a portion in contact with said cam-face and moved by said core to rotate said shaft and throw said signal.

3. In a signal in combination, a pair of opposed solenoids, a core for the same, said core being movable into said solenoids alternately, a semaphore-signal, a connection between said core and signal to move the latter and including a rotatable shaft having a curved slot therein and a projection on said core located in said slot to rotate said shaft and throw said semaphore.

4. In combination, a pair of opposed solenoids, a core movable into the same alternately, a semaphore-arm connected with said core and adapted to be set thereby, a second pair of opposed solenoids, a movable core for the latter, a second semaphore-arm connected with said latter core and adapted to be set thereby, and a lock to prevent the setting of both semaphore-arms at the same time.

688,215. AIR-VALVE. JAMES P. MARSH, Chicago, Ill. Filed Jan. 25, 1896. Serial No. 576,841. (No model.)



Claim.—1. In a relief-valve, the combination of a valve-body with an expansion-valve in said body, an inlet which opens into said valve-body, a valve-seat in said body and opposed to said valve so that when the seat and valve are in contact a closed chamber is formed, a discharge-pipe connected with said body, an adjusting part connected with that end of the valve opposite to the seat and accessible through the chamber or inclosure whence leads the discharge-pipe, so that the adjusting part is permanently inclosed.

2. In a relief-valve, the combination of a valve-body with a tubular expansion-valve projecting upwardly in said body, a valve-seat in the upper end of said body and opposed to the upper end of said valve, so that when the seat and valve are in contact a closed chamber is formed about the valve, an inlet which opens into said chamber at its lower end, a discharge-pipe connected with said body below, an adjusting part connected with the lower end of the valve and accessible through the chamber or inclosure whence leads the discharge-pipe, so that said adjusting part is permanently inclosed.

3. In a relief-valve, the combination of a valve-body with a tubular expansion-valve in said body, a valve-seat in said body and opposed to one end of said valve, so that when the seat and valve are in contact a closed chamber is formed, an inlet which opens into said chamber, a discharge-pipe connected with said body, an adjusting part connected with that end of the valve opposite to the seat and within the chamber or inclosure whence leads the discharge-pipe, so that such adjusting part is permanently inclosed, said adjusting part comprising a screw-threaded portion projecting at one end into the valve-chamber and at the other end into the inclosure below, and means in the chamber below for turning said screw-threaded part.

688,216. THERAPEUTIC BATTERY. JOSEPH A. MIFFLIN, Indianapolis, Ind., assignor to the Oxypolar Company, same place. Filed June 10, 1901. Serial No. 63,995. (No model.)



Claim.—1. An apparatus of the type set forth, consisting of a plurality of metallic cylinders or cells, a pair of wire cables connected at one of their ends to said cells, contact-plates connected at the other ends of said wires and means for throwing one or more of said cells in circuit with said wires.

2. The combination with a plurality of metallic cylinders or shells containing current-generators, of a pair of wire cables connected at one of their ends to said shells, contact-plates connected to the other ends of said cables and provided with bands and means for placing one or more of said shells and current-generators in or out of circuit with said cables.

3. A current-inciter, a pair of conducting-wires connected at one end to the poles of said current-inciter, contact-plates having bands attached to the other ends of said wires, a second current-inciter having its poles connected with the poles of the first generator or inciter, a switch in the circuit between the two current-inciters, and a dial to indicate the number of inciting-cells in circuit.

4. An apparatus of the type set forth, consisting of a current-inciter of more than one cell, means for connecting the cells in series, a dial, a marker, a pair of conducting wires to convey the current and contact-plates provided with suitable bands at the other ends of the wires from the inciter.

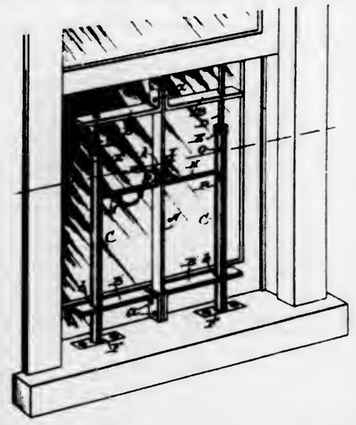
5. In an instrument of the kind specified, a plurality of shells containing current-generators, a movable circuit maker and breaker to make and break the current-conducting circuit between the generators, a dial on the outside of the instrument with characters designating the number of generators in circuit, a marker on the movable circuit maker and breaker working in conjunction with said dial, a pair of wire cables attached at one of their ends to the generators and forming part of the circuit therefrom and contact-plates having straps by which the plates are secured to the body of the patient.

6. A pair of cylinders or shells each containing a current-generator, a pin alined with the longitudinal axis of the cylinders upon which the cylinders are rotatably mounted, a current-carrier between the two cylinders, a switch to make and break said connection, wire cables connected at one of their ends to the generators, a dial on the outside of the instrument and an indicator working in conjunction therewith to indicate the circuit connection between the generators, contact-plates on the ends of the wires and straps on the contact-plates.

7. A metal cylinder having a metal closure at one end and a closure of insulating material at the other, a metal shell secured to said metal closure, a metal plug outside of said end insulation, a second shell secured to said plug, an axially-located pin rotatively connecting said parts, said pin being insulated from the metal plug, a metal sleeve mounted on the pin in the cylinder and insulated from the pin and metal cylinder end, said sleeve having a radial pin, means for rotating the sleeve, a wire cable connected at one of its ends to said sleeve, a metal post projected into the cylinder in the path of the pin on the sleeve said post passing through the insulated end of the cylinder into the metal plug, a second post seated in the insulated end of the cylinder and projected into the path of the pin on the sleeve, a metal spring connecting the metal sleeve with the cylinder, a second wire cable passing into the cylinder and thence through its metal end into the shell, a current-generator in said shell having one of its poles connected with the shell and the other with the last-named wire cable, and a second current-generator located in the other cell having one of its poles connected with the wall of the shell and the other to the axially-located pin.

8. A short cylinder having a shell containing a current-generator at one end, a second shell rotatably secured to the other end of the short cylinder and also having a current-generator, a switch throwing one or both cells in circuit by the rotative movement of the last-named shell, an index-dial on the outside of the cylinder to note the relation of the generators and a pair of wires having electrodes connected with the current-generators.

688,217. WINDOW-GUARD. FRANK B. MOWER, Chicago, Ill. Filed Mar. 8, 1901. Serial No. 50,386. (No model.)



Claim.—1. In a window-guard, the combination of a central vertical member A, having lateral members B, B, extending from each side, at the crown thereof, and the lateral members B', B', extending from each side at the base thereof, said lateral members having the necessary holes therein to receive such rods and bars as may be used in constructing a window-guard, and the vertical member A, having holes in the center thereof to receive a lock or lock-pin, said central vertical member with the lateral members thereto attached constituting the framework to receive the rods and bars of a window-guard.

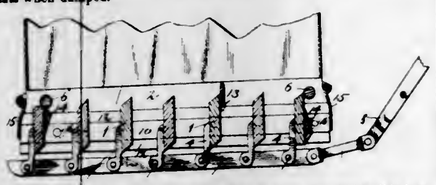
2. In a window-guard, the combination of the tubular members C, C, each having a slot with a plurality of notches therein, the T-shaped bolt-bar members D H, D H, the lock-pin guard members I, I, on the free ends of the bolt-bar members D H, D H, the screw-cap members E, E, having holes in the top thereof, to guide the bolt-bar members D H, D H, in the tubular members C, C, the whole constituting locking members in a window-guard.

3. In a window-guard, the combination of a central vertical member A, having the lateral members B, B, extending from each side at the crown thereof, and the lateral members B', B', extending from each side at the base thereof, in which lateral members B', B', are fastened tubular members C, C, projecting normally beyond a line flush with the base of the central vertical member A, so as to fit into the socket members F, F, sunk in a window-sill, window-sash or door-frame, said tubular members C, C, each having a slot cut therein with notches in the side thereof, and receiving the bolt-bar members D H, D H, passing upward through the lateral members B, B, into the socket members G, G, sunk and fastened in a window-sill, window-sash, or door-frame, the bolt-bar members D H, D H, operating in the slot cut in the tubular members C, C, the screw-cap members E, E, fastened on the tubular members C, C, and guiding the bolt-bar members D H, D H, the lock-pin guard members I, I, fastened on the free swinging ends of the members D H, D H, the socket members F, F, to receive the lower ends of the tubular members C, C, the socket members G, G, to receive the upper ends of the members D H, D H, said members D H, D H, being T-shaped rods inserted in the tubular members C, C, in such manner as to permit the stem of the T to operate in the slots in said tubular members, and swing backward to the point of contact with the central vertical member A where it may be locked.

688,218. LOCOMOTIVE ASH-PAN. RAMON M. MCELROY and JACKSON A. MCELROY, Newton, Miss. Filed Mar. 5, 1901. Serial No. 49,719. (No model.)

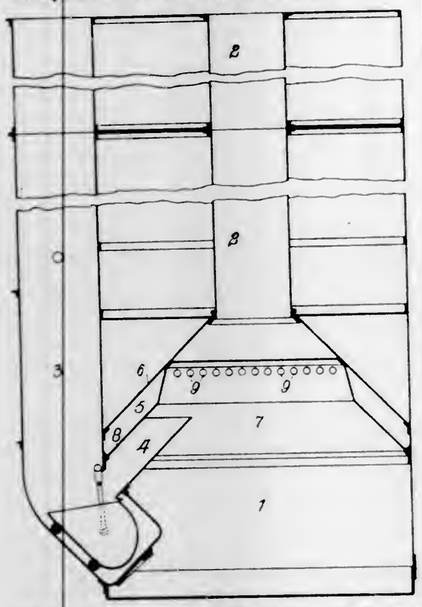
Claim.—1. An ash-pan having ways formed in its sides, detachable slide-bars having bearings formed in the same adapted to be secured in said ways, slats forming the bottom of the pan, means for dumping the

slats, and brace-rods at front and rear of the device forming stops for the slats when dumped.



2. An ash-pan having ways formed in its sides, detachable slide-bars having bearings formed in the same adapted to be secured in said ways, slats, means for dumping the slats, brace-rods at front and rear of the device limiting play of the slats, and end pieces on the front and rear slats to prevent escape of material from the pan.

683,219. CAISSON. WILLIAM H. MCFADDEN, Pittsburg, Pa., assignor to the Consolidated Mining and Dredging Company, same place. Filed Apr. 19, 1901. Serial No. 56,588. (No model.)



Claim.—1. A combination of a caisson, a U-shaped shaft or tunnel having one branch opening into the working chamber of the caisson and the other branch extending above the water-level and the reservoir connected to the tunnel at a point below the level of water in the branch opening into the working chamber and subjected to the same pressure of air as is maintained in the working chamber, substantially as set forth.

2. The combination of a caisson, a U-shaped shaft or tunnel having one branch opening into the working chamber, and the other branch extending above the water-level, and a reservoir connected to the branch opening into the working chamber and having air-inlet ports above the normal level of the water therein, substantially as set forth.

683,220. WHEEL. SAMUEL F. NEILL and JULIEN E. TINKER, Bradford, Pa., assignors of three-fifths to Pulaski B. Broughton, Samuel L. Rhodes, and Moses Cohn, same place. Filed Feb. 23, 1901. Serial No. 48,522. (No model.)

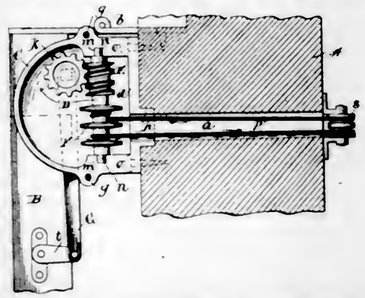
Claim.—1. The combination with a wheel, of an annular auxiliary tread of less diameter than the tread of the wheel, provided with an attaching-flange and means for securing said attaching-flange to the wheel, substantially as described.

2. The combination with a wheel, of an annular auxiliary tread on each side of the wheel of less diameter than the tread of the wheel each provided with an inwardly-extending attaching-flange adapted to be secured to the wheel, and an outwardly-extending flange, said outwardly-extending flanges forming lateral retaining-walls for the wheel-tire, substantially as described.



3. The combination with a wheel, of an annular auxiliary tread on each side of the wheel, of less diameter than the tread of the wheel, each provided with means for attaching it to the wheel, and with an inwardly-extending flange at its outer edge to prevent sand and mud from running over said auxiliary tread, substantially as described.

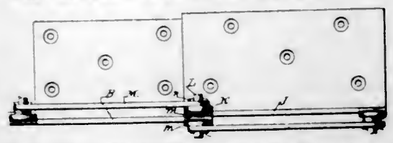
683,221. SHUTTER-WORKER. HENRY OSBORNE, Springfield, Mass., assignor, by mesne assignments, to Novelty Blind Operator Company. Filed Mar. 8, 1901. Serial No. 50,357. (No model.)



Claim.—1. In a shutter-worker, the combination with a casing, a gear rotatably mounted in the casing and having one end of its shaft projecting out of the casing, and means for operating the shutter from the said projecting end of the gear-shaft; of a shaft rotatably mounted in the casing at right angles to the gear-shaft and parallel with the attaching side of the casing, a worm mounted on said last-mentioned shaft and arranged to engage said gear, the attaching side of the casing having an aperture therein located opposite to said worm-shaft, and a winding means projecting through said aperture and arranged to rotate said worm-shaft.

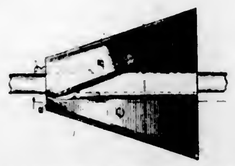
2. In a shutter-worker, the combination of two-part casing comprising the attaching-plate *d*, and the shell-sections C, C, which contain the oppositely-disposed journal-sockets *i*, *i*, arranged parallel with the attaching-plate, and the oppositely-disposed journal-sockets *m*, *m*, also arranged parallel with the attaching-plate and at right angles to said journal-sockets; a shaft journaled in the said sockets *i*, *i*, and projecting through one of them out of the casing; means for operating a shutter from said projecting end of the shaft; a gear mounted on said shaft inside of the casing; a shaft journaled in the said sockets *m*, *m*; a worm mounted on the said latter shaft and arranged to engage said gear; a double sheave also mounted on said latter shaft; said attaching-plate having an aperture located opposite to said sheaves; and a winding means engaging said sheaves and operating through said aperture.

683,222. HINGE. JOHN M. PEARSON, Valley Junction, Iowa. Filed June 18, 1901. Serial No. 65,007. (No model.)



Claim.—A reverse-motion hinge composed of two members and each member consisting of a flat main portion adapted to be fixed to a gate or post and having a right-angled extension at its lower edge, a lug at each end of said extension and one of said lugs projected in a plane above the extension and the other in a plane below the extension and one of the lugs provided with a pivot projecting upward and the other lug provided with a pivot projected downward, a straight metal strap connected at its ends with the pivots projecting upward and a straight metal strap connected with the pivots projecting downward as shown and described for the purposes stated.

683,223. PORTABLE RAILWAY-FROG. WILLIAM H. PRITCHARD, Indianapolis, Ind. Filed Jan. 15, 1901. Serial No. 43,306. (No model.)

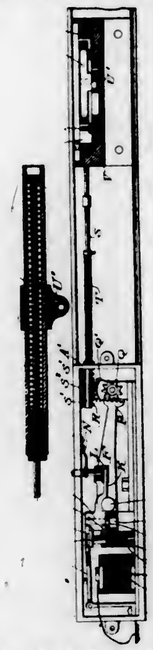


Claim.—1. A portable frog for the purposes specified having an under side longitudinal groove to receive the rail, a lug to engage the side of the rail, lateral forwardly-tapering inclined planes on either side of the groove and a wedge inserted at the front of the frog opposite the lug and between the frog and the rail, upon which the frog is tightened by the forward movement of the frog thereon, substantially as described and shown.

2. A portable frog for the purposes specified having an under side longitudinal groove with sides and top coextensive with said groove forming a middle flange to receive the rail and having inclined planes on either side of said middle flange starting below the top of the rail and rising to above the rail, said inclined planes having a forward taper and having outside flanges, the outer plane having a transverse obliquity and passing over the rail and merging with the forward end of the inner plane, substantially as described and shown.

3. A portable frog for the purposes specified having an under side longitudinal groove with sides and top coextensive with said groove, forming a middle flange to receive the rail and having inclined planes on either side of said middle flange starting from a level below the top of the rail when in place and rising above the level of the rail-top, one of said planes dropping below the rail-top level at its upper end and its second plane passing over the rail giving a taper to the end of the middle flange, and merging with the first plane, said second plane having a transverse obliquity with its outer edge the higher, both of said planes having a forward taper and having outside flanges, substantially as described and shown.

683,224. AUTOMATICALLY-OPERATED RAILWAY-SWITCH. IRA ROBBINS, Philadelphia, Pa. Filed Oct. 29, 1900. Serial No. 34,750. (No model.)



Claim.—1. In a railway-switch, a magnet, an armature therefor, a head adapted to be engaged by said armature, a foot connected with said head, a lever by which said foot is carried, said head being pivotally mounted on said lever, and a plunger along the line of a railroad adapted to be depressed by a passing car, whereby when the magnet is energized said lever will be operated.

2. In a railway-switch, a plunger, a lever, a foot mounted on said lever and adapted to be engaged by said plunger, whereby said lever may be operated, a head on said foot, and an armature adapted to engage with said head, said head being pivotally mounted on said lever and provided with a tongue which is adapted to be engaged with a member of said armature, said member and head having inclined contacting faces.

3. In a railway-switch, an armature, a lever, and a foot mounted on said lever, said foot being provided with a head having inclined faces and said armature being adapted to engage with said faces, whereby said foot is rotated and caused to enter said lever, in combination with a plunger which is adapted to be operated by a passing train and engaged with said foot, thus depressing said lever and causing the operation of a connection of the switch-shifting mechanism.

4. In a railway-switch, a lever adapted to be operated by a passing train, a connection with a switch-shifting mechanism, and gearing intermediate of said lever and connection, a track and a friction-roller on said connection adapted to run on said track, a lever having openings therein at an angle to each other, a foot adapted to enter one of said openings, and a plunger adapted to enter the other opening.

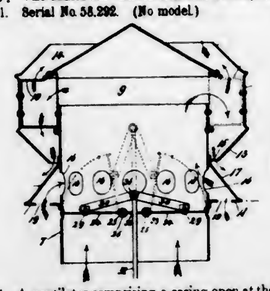
5. In a railway-switch, a lever, a foot adapted to intersect the same, a plunger adapted to be advanced by a passing car and engage said foot and thus operate said lever, in combination with electrically-actuated means for causing the movement of said foot, said foot being mounted on said lever and adapted to enter an opening therein.

6. In a railway-switch, a member adapted to be operated by a passing car, a lever provided with a movable attachment, and means for electrically operating said attachment, whereby it may be placed in the path of said member and said lever accordingly operated, said lever having a toothed member, a pinion with which said lever engages, a toothed member connected with said pinion, a rack meshing with the second-named toothed member, a rod connected with said rack, and switch-moving mechanism attached to said head.

7. In a railway-switch, a longitudinally-extending slide, an ear connected with said slide and the primary mechanism of the switch, a dog mounted on said slide, an auxiliary slide, with which said dog may engage in opposite directions, and a fixed abutment on the opposite sides of which said dog may ride, the first-named slide being tubular and containing a compressible cushion, whereby when said cushion is actuated, the first-named slide receives motion and with it said ear.

8. In a railway-switch, a tubular slide, a cushion therein, an ear mounted on said slide and connected with the primary mechanism of the switch, a double-acting dog mounted on said slide, a transversely-movable slide, said dog being adapted to engage with opposite portions of the latter-named slide, and an abutment on a fixed member against the opposite sides of which said dog may ride, said transversely-movable slide having the switch-piece connected with it, and said ear being a unitary member of said tubular slide.

683,225. VENTILATOR. DAVID J. ROSEN, Brooklyn, N. Y. Filed May 1, 1901. Serial No. 58,292. (No model.)



Claim.—1. A ventilator comprising a casing open at the bottom and provided with a cover between which and the casing is an air port or passage, an annular shield or guard supported around said port or passage at a distance from the casing and the cover, and provided both at the top and bottom with inwardly-directed flanges or rims, said casing being also provided with annularly-arranged air ports or passages and with a downwardly and outwardly directed shield or guard above the same, and a transverse support secured in said casing below said air ports or passages and dampers hinged to said support and adapted to close the passage through said casing, and means for opening and closing said dampers, substantially as shown and described.

2. A ventilator comprising a casing open at the bottom and provided with a cover between which and the casing is an air port or passage, an annular guard or shield inclosing said port or passage, air ports or passages formed in the side walls of said casing, a downwardly and outwardly directed shield or guard inclosing said air ports or passages, and dampers mounted in said casing and adapted to close the passage therethrough, substantially as shown and described.

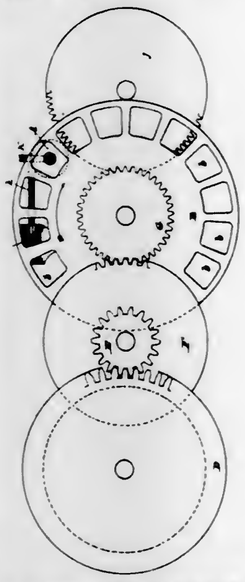
3. A ventilator comprising a casing open at the bottom and having an air port or passage at the top, and a shield or guard inclosing the same, said casing being also provided with air ports or passages and with a downwardly and outwardly directed shield or guard inclosing the same, substantially as shown and described.

4. A ventilator comprising a casing open at the bottom and provided with a conical top which is supported thereover, and between which and the casing is an air port or passage, an annular shield inclosing said air port or passage and provided at the top with an upwardly and inwardly directed flange, and at the bottom with a downwardly and inwardly directed flange, said casing being also provided with annularly-arranged ports or passages and with a downwardly and outwardly directed shield or guard inclosing the same, substantially as shown and described.

5. A ventilator comprising a casing open at the bottom and provided with a conical top which is supported thereover, and between which and the casing is an air port or passage, an annular shield inclosing said air port or passage and provided at the top with an upwardly and inwardly directed flange, and at the bottom with a downwardly and inwardly directed flange, said casing being also provided with annularly-arranged ports or passages and with a downwardly and outwardly directed shield or guard inclosing the same, and dampers mounted within said casing and adapted to close the passage therethrough, substantially as shown and described.

6. A ventilator of the class described, comprising a casing open at the bottom and top and provided with side ports or passages, a support mounted transversely in said casing below said side ports or passages, dampers hinged to said support, springs for holding said dampers normally open and devices for closing said dampers, substantially as shown and described.

683,226. CUTTING-OFF MECHANISM FOR PLASTIC MATERIAL. WILLIAM R. SAUNDERS, Cleveland, Ohio. Filed Jan. 8, 1901. Serial No. 42,511. (No model.)



Claim.—1. In mechanism for cutting plastics the combination of a cutting-off wheel located in the path of the moving mass of plastic material, a constantly-acting power tending to rotate said wheel, an escapement restraining the rotation of said wheel, and a wheel in contact with the plastic material and rotated by the movement thereof and causing the release of the escapement at defined intervals, substantially as described.

2. In mechanism for cutting plastics the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a constantly-acting power tending to rotate said wheel, an escapement restraining the rotation of said wheel, and a wheel seated in the die in contact with the plastic material and rotated by the movement thereof and causing the release of the escapement at defined intervals, substantially as described.

3. In mechanism for cutting plastics the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a spring tending to rotate said wheel, an escapement restraining the rotation of said wheel, and a wheel in contact with the plastic material and rotated by the movement thereof and causing the release of the escapement at defined intervals, substantially as described.

4. In cutting-off mechanism of the class described the combination with the die of a cut-off wheel located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate the cutting-off wheel, an escapement restraining the rotation of said wheel, and a wheel in contact with the plastic material and rotated by the movement thereof and operating to cause the release of the escapement at defined intervals, substantially as described.

5. In cutting-off mechanism of the class described the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate the cutting-off wheel, an escapement restraining the rotation of said wheel, and a wheel in contact with the plastic material and rotated by the movement thereof and operating a lever to cause the release of the escapement at defined intervals, substantially as described.

6. In cutting-off mechanism of the class described the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate the cutting-off wheel, an escapement restraining the rotation of said wheel, and a wheel in contact with the plastic material and rotated by the movement thereof and operating a series of levers to cause the release of the escapement at defined intervals, substantially as described.

7. In cutting-off mechanism of the class described the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate the cutting-off wheel, an escapement restraining the rotation of said wheel, a wheel in contact with the plastic material and rotated by the movement thereof, a disk rotated by said wheel and having a projecting pin, and a lever adapted to operate the escapement and having one end, projecting in the path traversed by said pin, whereby said lever is intermittently moved by said pin to operate the escapement, substantially as described.

8. In cutting-off mechanism of the class described the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate the cutting-off wheel, a forked escapement restraining the rotation of said wheel, a wheel seated in the die in contact with the plastic material and rotated by the movement thereof, a worm rigid with said wheel, a toothed disk engaging said worm and having a projecting pin, and a lever projecting in the path of said pin and acting to throw the escapement-fork when engaged by said pin, substantially as described.

9. In cutting-off mechanism of the class described the combination with the die of a cutting-off wheel located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate the cutting-off wheel, a forked escapement restraining the rotation of said wheel, a wheel seated in the die in contact with the plastic material and rotated by the movement thereof, a worm rigid with said wheel, a toothed disk engaging said worm and having a projecting pin, a rock-shaft carrying the escapement-fork, and a lever projecting in the path of said pin and acting to throw the escapement-fork when engaged by said pin, substantially as described.

10. In cutting-off mechanism of the class described the combination with the die of a disk having circumferentially-arranged openings located in the path of the moving mass of plastic material, a spring-actuated train of gears normally acting to rotate said cutting-off disk, an escapement restraining the rotation of said disk, and a wheel seated in the die in contact with the plastic material and rotated by the movement thereof and operating by each rotation to cause the release of the escapement at defined intervals, substantially as described.

11. The combination, with the die, of the wheel K seated therein and in contact with the material forced through the die, the worm K^1, the disk L, having pin *l*, the levers *m*, *n*, rock-shaft o^2 bearing fork *p*, the ratchet-disk H geared to the cutting-off disk B, and the spring C also geared to said cutting-off disk, substantially as and for the purposes described.

12. The combination with a press for molding plastic material of a cutting-off mechanism operated by a spring and a connection from said spring to a moving part of the press, whereby the spring is automatically rewound by the action of the press substantially as described.

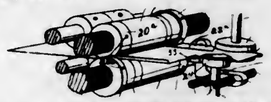
13. The combination with a press for molding plastic material of a cutting-off mechanism operated by a spring and a connection from said spring to a moving part of the press, whereby the retraction of the plunger from the cylinder of the press rewinds the spring, substantially as described.

14. The combination with a press for molding plastic material and a cutting-off mechanism operated by a spring, of a pulley connected to the spring and a cord wound upon said pulley and attached to a moving part of the press, whereby the spring is automatically rewound by the action of the press; substantially as described.

15. The combination with a press for molding plastic material and a cutting-off mechanism operated by a spring, of a pulley connected to the spring a cord wound upon said pulley and attached to a moving part of the press, and means, substantially such as described, for disconnecting the pulley from the spring to prevent the overwinding of the spring.

16. The combination with a press for molding plastic material of a cutting-off mechanism operated by a spring, a gear connected to the spring for winding the same, a ratchet operating when rotated to turn said gear and wind the spring, a pulley carrying a dog which engages said ratchet, a cord wound upon said pulley and attached to a moving part of the press, and a cord attached to said dog and wound up by the rotation of said gear, whereby the pulley is automatically disconnected from said gear when the spring is fully wound up, substantially as described.

683,227. SHEET-METAL-EDGING MACHINE. JULIUS H. SCHLAFLY, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed July 8, 1901. Serial No. 67,405. (No model.)



Claim.—1. In a sheet-metal-edging machine, shafts provided with right and left hand screw-threads, cylinders located upon said shafts having non-screw-threaded apertures, dies located at opposite ends of said cylinders and means for imparting rotary motion to the screw-threaded shafts carrying the cylinders and dies, substantially as and for the purpose specified.

2. In a sheet-metal-edging machine screw-threaded shafts having mounted thereon cylinders, dies located at one end of each cylinder and at the opposite end thereof filling-rings mounted upon the screw-threaded shafts and retaining-collar dies located at opposite ends from the location of the dies, substantially as and for the purpose specified.

3. In a sheet-metal-edging machine the combination of a frame provided with detachable feed-rollers, dies mounted upon a rotatable shaft and adjustable to or from each other, cylinders located between the adjustable dies, horizontal dies located in the path of the metal sheet and means for independently rotating the horizontal dies, substantially as and for the purpose specified.

4. In a sheet-metal-edging machine, a system of dies adapted to turn right-angle flanges and means for rotating the dies, a system of dies adapted to fold the right-angle flanges, and means for rotating the dies, substantially as and for the purpose specified.

5. In a sheet-metal-edging machine, two shafts each provided with right and left hand screw-threads, dies located upon the right and left hand screw-threads and adjustable laterally thereon and cylinders located between the right-angle-adjusting dies, folding-dies located in the path of the metal sheet and folding-dies formed in pairs and arranged to fold in opposite directions, and means for rotating the edging and folding dies, substantially as and for the purpose specified.

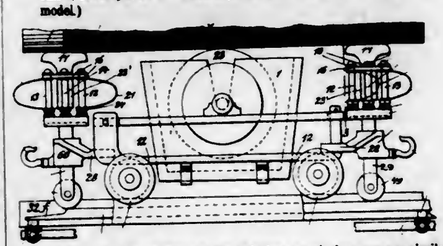
6. In a sheet-metal-edging machine rotatable edging-dies adjustable to and from each other, folding-dies located in the path of the metal sheet, said folding-dies formed in pairs and rotatable independent with each other and the pairs adjustable to and from each other and adjustable guide-flanges located between the edging and the folding dies, substantially as and for the purpose specified.

7. In an edging-machine the combination of feed-rolls, right and left hand screw-threaded shafts having mounted thereon edging-dies and collars, feed edging-dies and die-collars adjustable to and from each other upon the right and left hand screw-threaded shafts and cylinders located between the adjusting-dies and collar-dies, said cylinders provided with non-screw-threaded apertures and the dies arranged to turn flanges upon the opposite side of the sheet, substantially as and for the purpose specified.

8. The combination of adjustable edging-dies and die-collars mounted upon shafts and rotatable therewith, folding-dies formed in pairs one of each pair provided with a groove and the other of each pair formed with a folding-flange, and said dies provided with folding-flanges located above and below the path of the sheet, substantially as and for the purpose specified.

9. The combination of the frame, feed-rollers mounted upon shafts journaled to said frame, edging-dies located in the path of the metal sheet and adapted to form flanges upon opposite sides of the sheet folding-dies located in the path of the sheet and rotatable independent of each other and guide-flanges located between the edging-dies and folding-dies, substantially as and for the purpose specified.

683,228. APPARATUS FOR COLORING YARNS. WILLIAM SHAW, Brooklyn, N. Y. Filed Sept. 10, 1897. Serial No. 651,161. (No model.)



Claim.—1. In an apparatus for printing or coloring yarns or similar material, the combination with the color-wheel, of a spreader or rubber having a substantially straight bearing along the front of its operative spreading or rubbing surface, the surface in front of such bearing gradually deflecting downward from the rubbing-surface, such straight bearing being constructed and positioned to act upon color at the side of a printed portion of a streak next to an unprinted portion of the yarn and to overlap and act upon a portion of the uncolored yarn laterally outside of said colored portion which is to be printed upon subsequently, and means for applying lighter pressure to portion of the rubbing-surface directly adjoining the front bearing than is applied to portion of the rubbing-surface in the rear thereof, said pressures being applied in directions at right angles to the drum.

2. In an apparatus for printing or coloring yarns or similar material, the combination with the color-wheel, of a spreader or rubber positioned to act upon color at the side of a printed portion of a streak next to an unprinted portion of the yarn laterally outside of said colored portion and which is to be printed upon subsequently, said spreader or rubber having a rounding rear bearing extending over such unprinted portion of the yarn, and means for holding the front portion of the rubbing-surface against the yarn under lighter pressure than is imparted to portion of the rubbing-surface in the rear thereof.

3. In apparatus for printing or coloring yarns, the combination with the yarn-drum and the distributing-wheel, of a rubbing appliance in front and another rubbing appliance in the rear of said wheel, each rubbing appliance adjusted to extend over the path of the color-wheel which the same has to follow in making the streak in course of application and over the preceding streak, proper supports adapted to enforce contact of said appliances with the yarn simultaneously, and means for keeping said rubbing appliances out of action simultaneously, substantially as specified.

4. In apparatus for printing carpet-yarns, the combination with the yarn-drum and the distributing-wheel, of a rubbing appliance in front and another rubbing appliance in the rear of said wheel, each rubbing appliance adjusted to extend over the path of the color-wheel which the same has to follow in making the streak in course of application and over the preceding streak, proper supports adapted to enforce contact of said appliances with the yarn simultaneously, and means for keeping said rubbing appliances out of action simultaneously, substantially as specified.

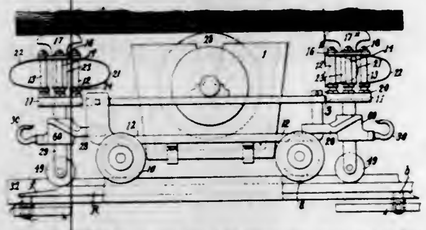
5. In apparatus for printing carpet-yarns, the combination with the yarn-drum and the distributing-wheel, of a rubbing appliance adapted to travel in contact with the yarn in front and in the rear of the distributing-wheel, a spring on each side of the central portion and a spring supporting the front portion and another the rear portion of the rubbing appliance, substantially as specified.

6. In apparatus for printing carpet-yarns, the combination with the yarn-drum and the distributing-wheel, of a rubbing appliance adapted to travel in contact with the yarn in front and in the rear of the distributing-wheel, springs for supporting its forward end, its rear end and the intermediate portion, the elastic upward pressure so exerted being greater upon the intermediate portion than upon the end portions, substantially as specified.

683,229. METHOD OF COLORING YARNS. WILLIAM SHAW, Brooklyn, N. Y. Original application filed Sept. 10, 1897, Serial No. 651,161. Divided and this application filed Nov. 16, 1900. Serial No. 36,700. (No specimens.)

Claim.—1. The improvement in the art of coloring yarns, which consists in successively printing streaks of color of given widths upon the yarn side by side, and subjecting during the printing of a streak the whole

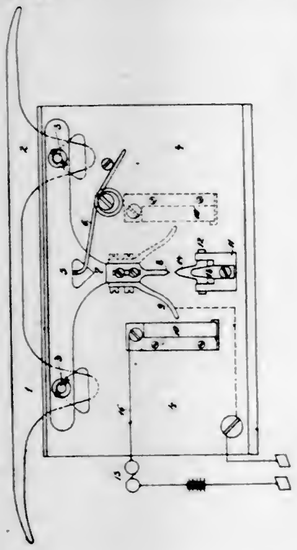
width of the previous streak to a rubbing action together with the unprinted yarn to be covered by the streak in course of application, thereby forcing coloring-matter from such previous streak into the area to be covered by said streak in course of application, extending the streak in course of application to the space upon which coloring-matter had been so spread, and simultaneously subjecting the whole width of the printed portion of the streak in course of application to a rubbing action.



2. The method of printing and distributing color upon yarn or similar material, which consists in applying a streak of color to the yarn and subjecting while said streak is still in wet condition, and while the yarn is properly supported, that edge of it which is next the unprinted yarn and a portion of the unprinted yarn at the side of said edge to a rubbing operation so as to distribute color from said edge laterally beyond its deposition on the yarn and upon the yarn upon which the next streak is to be printed, while subjecting during such rubbing operation the yarn so treated to progressively-increasing pressures exerted at right angles to the surfaces along which such yarn is supported, and subsequently applying a streak of color to the unprinted yarn upon which color has been so distributed.

3. The method of printing and distributing color upon yarn or similar material, which consists in applying a streak of color to the yarn and subjecting while said streak is still in wet condition and while the yarn is properly supported, that edge of it which is next the unprinted yarn and a portion of the yarn at the side of said edge to a rubbing operation so as to distribute color from said edge laterally beyond its deposition on the yarn and upon the yarn upon which the next streak is to be printed, while subjecting during such rubbing operation the yarn so treated to progressively-increasing pressures exerted at right angles to the surfaces along which such yarn is supported, and subsequently applying a streak of color to the unprinted yarn upon which color has been so distributed, the front edges of the yarn-surfaces which are thus simultaneously subjected to rubbing actions being substantially straight.

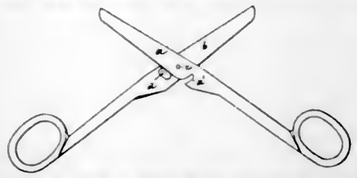
683,230. **ELECTRIC-CIRCUIT CLOSER FOR RAILWAY-TRACKS.** FRITZ SOCK, Magdeburg, Germany. Filed Feb. 25, 1901. Serial No. 48,720. (No model.)



Claim.—1. A circuit-closer for railway-tracks, comprising the combination with a suitable support of a spring-supported rail and pins or bolts on such rail freely displaceable in any direction upon pressure from above within openings of the support, a conically-shaped guide to guide the rail in its movement, substantially as described.

2. A circuit-closer for railway-tracks, comprising the combination of a spring-supported rail, of a contact-piece connected thereto, a cooperating contact and a pivoted conical guide adapted to be engaged by the contact-piece, said guide being spring-pressed so as to yield under pressure upon the middle of the rail, substantially as described.

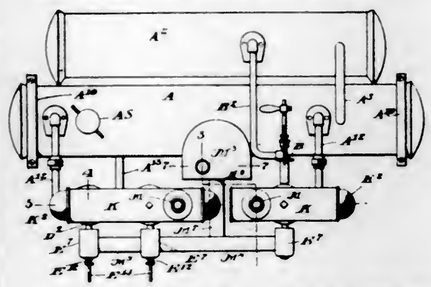
683,281. **SCISSORS.** CUNO STAHL, Ohligs, Germany. Filed July 8, 1901. Serial No. 67,409. (No model.)



Claim.—1. Scissors or similar instruments composed of two blades, a pivot removably connecting the same, and a pin on one of said blades that enters a slot in the other blade, substantially as specified.

2. Scissors or similar instruments composed of two blades *a*, and *b*, a pivot *c*, connected to blade *a*, and passing loosely through blade *b*, and a pin *d*, connected to blade *b*, and entering a slot in blade *a*, when the blades are closed, substantially as specified.

683,282. **CARBURETER.** JOSEPH STUBBERS, Covington, Ky., assignor to the Incandescent Light and Stove Company, Cincinnati, Ohio. Filed Apr. 20, 1900. Serial No. 13,631. (No model.)



Claim.—1. In a gas-machine, the combination of a generator having absorbent material and being so arranged that the absorbent material is in communication with the gasolene supplied from the tank, a tank air-tight so that an air-pressure can be created therein; a conduit suitably arranged from the top of the generator to the top of the tank, gas-exits located in said generator, and means for maintaining the level of the gasolene in the generator at a point below the gas-exits, substantially as and for the purposes specified.

2. In a gas-machine, the combination of a gasolene-tank connected to the generator, suitable means for conveying the gasolene from tank into generator, suitable means for heating the generator, a generator having a gas-exit and suitable means for utilizing this gas to heat the contents of the gasolene-tank for generating pressure therein, suitable means whereby the pressure in the tank will regulate the heating means of this tank, substantially as and for the purposes specified.

3. In a gas-machine, the combination of a tank connected to a generator, gas-exit in said generator located at a higher level than the gasolene in the tank, absorbent material in said generator to convey the gasolene supplied from the tank to a given height in the generator, a conduit or passage-way from the upper part of the generator, into an air or gaseous space of the tank, commingling-tube in line with the gas or vapor exits, the gas-delivery pipe having one or more burners, subflame-burner, a pipe leading from the gas-delivery pipe to the subflame-burner, a valve which is closed or partially closed by pressure in the tank when a certain pressure has been reached, and opened when the pressure has been diminished and through which the gas must pass to get to the subflame-burner, substantially as and for the purposes specified.

4. In a gas-machine, the combination of a tank connected to a generator, a gas-exit in said generator, located at a higher level than the gasolene in tank, suitable means for conveying gasolene from the tank into the generator, a conduit or passage-way from the upper part of the generator into the air or gaseous space of the tank, commingling-tube in line with the gas or vapor exit, a gas-delivery pipe having one or more burners, a subflame-burner, a pipe leading from the gas-delivery pipe to the subflame-burner, a valve, which is closed or partially closed by pressure in the tank when a certain pressure has been reached and opened when the pressure has been diminished through which gas must pass to get to the subflame-burner, substantially as and for the purposes specified.

5. In a gas-machine, the combination of a gasolene-tank, a generator and suitable means for heating same, one or more gas-exits in said generator, supply-pipe for one or more burners, branch pipe leading from the supply-pipe to the subflame-burner, subflame-burner suitably arranged to heat the contents of the gasolene-tank, a valve controlled by the pressure in said tank to increase the supply of gas to the subflame-burner when the pressure is low and to decrease the supply of gas to the subflame-burner when the desired pressure has been reached, substantially as and for the purposes specified.

6. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator, a tank or reservoir for containing the liquid hydrocarbon, means for supplying liquid hydrocarbon from the tank or reservoir to the lower part of the generator, a pipe affording communication between the upper part of the generator and the upper part of the tank or reservoir, means for creating pressure in the generator and tank, a subburner for heating the upper part of the generator, and a device in the generator for maintaining the liquid hydrocarbon at a given level in the generator, substantially as and for the purposes specified.

7. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator having means for discharging hydrocarbon vapor from it, devices for collecting such discharged vapor and for mixing the same with air, a tank or reservoir for containing the liquid hydrocarbon, means for supplying liquid hydrocarbon from the tank or reservoir to the lower part of the generator, a subburner for heating the upper part of the generator, a device in the generator for elevating the liquid hydrocarbon up to the point in the generator which is heated by said subburner, and a pipe affording communication between the upper part of the generator and the upper part of the tank or reservoir, substantially as and for the purposes specified.

8. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator having means for discharging hydrocarbon vapor from it, devices for collecting such discharged vapor and for mixing the same with air, a tank or reservoir for containing the liquid hydrocarbon, means for supplying liquid hydrocarbon from the tank or reservoir to the generator, said supplying means and tank or reservoir being arranged and adapted to afford a varying level of the liquid hydrocarbon within the generator, a subburner for heating the generator, a device in the generator for elevating the liquid hydrocarbon to the front in the generator which is heated by said subburner, and means for discharging vapor from the generator to the tank or reservoir, substantially as and for the purposes specified.

9. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator, provided with means for discharging vapor from it, a tank or reservoir for supplying liquid hydrocarbon to the generator, means for maintaining equivalent pressures in the generator and in the tank, a subburner for heating the generator, and means controlled by the pressure in the tank or reservoir, for supplying hydrocarbon to said subburner, substantially as and for the purposes specified.

10. In an apparatus for supplying gas from liquid hydrocarbon, the combination of a generator provided with means for discharging vapor from it, a tank or reservoir for supplying liquid hydrocarbon to the generator, means for maintaining equivalent pressures in the generator and the tank or reservoir, a subburner for heating the generator, means for supplying hydrocarbon to said subburner, and a device actuated from the variation in pressure within the tank or reservoir, and arranged to control the said means supplying hydrocarbon to the subburner, substantially as and for the purposes specified.

11. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator provided with means for discharging vapor from it, a tank or reservoir for supplying liquid hydrocarbon to the generator, means for maintaining equivalent pressures in the generator and in the tank or reservoir, a subburner for heating the generator, a pipe for supplying hydrocarbon to said subburner, a valve controlling the flow of hydrocarbon through the pipe, and a device actuated from the variations in pressure within the tank or reservoir and arranged to actuate the said valve, substantially as and for the purposes specified.

12. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator having means for discharging hydrocarbon vapor from it, devices for collecting such discharged vapor and for mixing the same with air, a tank or reservoir for containing the liquid hydrocarbon, means for supplying liquid hydrocarbon from the tank or reservoir to the generator, means for maintaining equivalent pressures in the generator and in the tank or reservoir, a subburner for heating the generator, and means controlled from the variations in pressure in the tank or reservoir, for supplying hydrocarbon to the subburner, substantially as and for the purposes specified.

13. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator provided with means for discharging vapor from it, a tank or reservoir for supplying liquid hydrocarbon to the generator, means for maintaining equivalent pressures in the tank or reservoir and in the generator, means for collecting the vapor discharged from the generator and for mixing such discharged vapor with air, a service-pipe through which said mixed vapor and air is adapted for passage, a subburner for heating the generator, a pipe leading from the service-pipe to the subburner, and a device actuated from the variations in pressure in the tank or reservoir and arranged to control the flow of vapor and air through the last-named pipe to the subburner, substantially as and for the purposes specified.

14. In an apparatus for generating gas from liquid hydrocarbon, the combination of a generator having an orifice for the discharge of hydrocarbon vapor, devices for collecting such discharged vapor and for mixing the same with air, a valve controlling the discharge-orifice of the generator, a tank or reservoir for supplying liquid hydrocarbon to the generator, means for maintaining equivalent pressures in the tank or reservoir and in the generator, a service-pipe arranged to receive the discharged vapor and air from the mixing and collecting devices, a subburner for heating the generator, a pipe leading from the service-pipe to the subburner, and a device actuated from the variations in pressure in the tank or reservoir and arranged to control the flow of vapor and air through the last-named pipe to the subburner, substantially as and for the purposes specified.

15. In a gas-machine, the combination of a gasolene-tank connected to the generator, suitable means for conveying the gasolene from tank into generator, suitable means for heating the generator, a generator having a gas-exit, suitable means whereby the pressure in the tank will regulate the heating means of the generator and the tank, substantially as and for the purposes specified.

16. In a gas-machine, the combination of a gasolene-tank connected to the generator, a suitable means for conveying the gasolene from the tank into generator, suitable means for heating the generator, a generator having two gas-exits, suitable means for utilizing the gas discharged at one of the exits for heating the contents of the gasolene-tank and generating more pressure, and suitable means whereby the pressure in the tank will regulate the heating means of the generator and the tank, substantially as and for the purposes specified.

17. In an apparatus for generating gas, the combination of a generator having a gas-exit, and provided with a heating device, a reservoir connected to the generator and adapted to hold gas under pressure and mechanism actuated from the variations in pressure within the reservoir and arranged to control the heating device of the generator, and means for enabling the hot gas or vapor from the generator to heat the tank, substantially as and for the purposes specified.

18. In an apparatus for generating gas, the combination of a generator having a gas-exit and provided with a heating device, having means for supplying it with gas from the generator-exit, a reservoir connected to the generator and adapted to hold gas under pressure, and mechanism actuated from the variations in gas-pressure within the reservoir and arranged to control the heating device of the generator, and means for enabling the hot gas or vapor from the generator to heat the tank, substantially as and for the purposes specified.

19. An apparatus for generating gas comprising a generator, a reservoir, a burner-pipe, connections between said parts, and mechaniam, actuated from variations in pressure within the apparatus, for controlling the operation of the generator, substantially as and for the purposes specified.

20. An apparatus for generating gas comprising a generator, a reservoir, connections between said parts whereby equal pressures are maintained therein, burner-pipe, and mechanism, actuated from variations in pressure within the apparatus, for controlling the operation of the generator, substantially as and for the purposes specified.

21. An apparatus for generating gas comprising a generator, a heating device therefor, a reservoir, a burner-pipe, connections between said parts whereby gas is supplied from the generator to the other parts, and mechanism, actuated from variations in pressure within the apparatus, for controlling the connection of the heating device, substantially as and for the purposes specified.

22. In an apparatus for generating gas, the combination of a generator having a gas-exit, and provided with a heating device, a reservoir connected to the generator and adapted to hold gas under pressure, a

valve controlling the heating device for the generator, and mechanism, actuated from the variations in gas-pressure within the reservoir and arranged to control the valve of the heating device, substantially as and for the purposes specified.

23. An apparatus for generating gas comprising two generators each having a gas-exit and means actuated from the gas discharged at the exit of one generator for regulating the operation of the other generator, substantially as and for the purposes specified.

24. In an apparatus for generating gas, the combination of a tank and generator, a service-pipe adapted to receive vapor and air from the generator, burners adapted to receive the enriched gas or vapor from the service-pipe, said burners being for general use, means for heating the contents of the tank, and means actuated from variations of the pressure in the tank for controlling the heating means, substantially as and for the purposes specified.

25. An apparatus for generating gas comprising two generators each having a gas-exit and provided with a heating device and means actuated from the gas discharged at the exit of one generator for controlling the heating device of the other generator, substantially as and for the purposes specified.

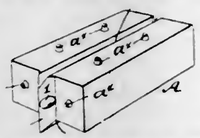
26. An apparatus for generating gas comprising a tank or reservoir, two generators each having a gas-exit, a connection between the gas-exit of one generator and the tank or reservoir, a burner-pipe having connection with the gas-exit of the other generator, and means, actuated from the gas discharged at the exit of one generator for regulating the operations of the other generator, substantially as and for the purposes specified.

27. In a gas-machine, the combination of a gasolene-tank, a generator having a gas-exit, supply-pipe for one or more burners, branch pipe leading from the supply-pipe to the subflame-burner, subflame-burner suitably arranged to heat the contents of the gasolene-tank, mechanism controlled by the pressure in said tank to increase the supply of gas to subflame-burner when the pressure is low and to decrease the supply of gas to the subflame-burner when the desired pressure has been reached, substantially as and for the purposes specified.

28. In an apparatus for generating gas, the combination of a generator having a gas-exit, a reservoir connected to the generator, and adapted to hold gas under pressure, and mechanism actuated from the variations in pressure within the reservoir and arranged to control the operation of the generator, substantially as and for the purposes specified.

29. In a gas-machine, the combination of a tank connected to a generator and so constructed that a pressure can be created therein, gas-exit in said generator located at a higher level than the gasolene in the tank, absorbent material in said generator to convey the gasolene supplied from the tank to a given part in the generator, a conduit or passage-way from the upper part of the generator into an air or gaseous space of the tank, substantially as and for the purposes specified.

683,233. SELF-CENTERING BUILDING-BRICK. ANDREW I. SVAN, New York, N. Y. Filed Feb. 1, 1901. Serial No. 45,556. (No model.)



Claim.—1. A building-brick having lugs of equal height on its upper and one end surface, a longitudinal V-shaped groove formed in and extended centrally across its upper surface and a similarly-shaped groove communicating therewith and formed in and extended vertically across one end surface, a V-shaped rib extended horizontally across its lower surface and a similarly-shaped rib extended therefrom on one end surface, the angles of the sides of the ribs being of lesser pitch than the angles of the sides of the grooves, substantially as shown and described.

2. As a new article of manufacture, a building-brick having a right-angular groove which is V-shaped in cross-section and an oppositely-located right-angular rib which is V-shaped in cross-section, the angles forming the sides of the said rib being of lesser pitch than the angles forming the sides of the grooves, substantially as shown and described.

3. As a new article of manufacture a building-brick having lugs of equal height and oppositely-located V-shaped grooves and ribs, the angles of the ribs being of lesser pitch than the angles of the grooves, substantially as shown and described.

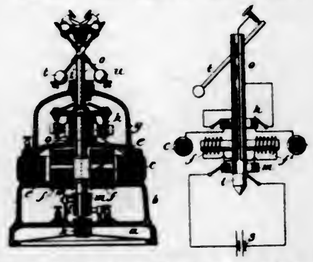
4. As a new article of manufacture, a building-brick having lugs of equal height and oppositely-located V-shaped grooves and ribs, said ribs having concaved recesses in their sides and formed at angles of lesser degree than the angles of the said grooves, substantially as shown and described.

683,234. CIGAR OR CIGARETTE HOLDER. ROLLAND THOMPSON, New York, N. Y. Filed Mar. 26, 1901. Serial No. 53,011. (No model.)



Claim.—A cigar-holder comprising a mouthpiece with a cavity therein, a tube socketed within and projecting out into said cavity, said tube having a shield at the projecting end of such diameter as to partially close the cavity and lateral holes behind the shield communicating with the duct of said tube, as set forth.

683,235. MOTOR-GENERATOR. RENÉ THURY, Geneva, Switzerland. Filed Jan. 11, 1900. Serial No. 1,060. (No model.)



Claim.—1. In an apparatus for producing polyphase electric currents of constant frequency and in combination, a continuous-current motor comprising an annular stationary armature, a revolving differentially-wound field, a ball-governor for cutting in and out the differential coils of said field for the purpose of controlling the speed of the apparatus and means for collecting the polyphase current directly from the armature, substantially as set forth.

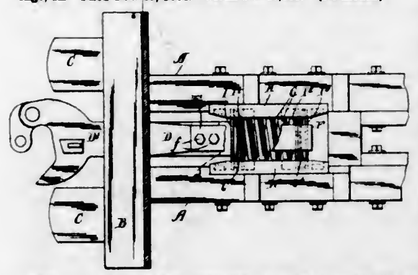
2. In a motor-generator, the combination with a base, frame and source of electrical energy, of an armature, a hollow vertical shaft mounted in said frame, differentially-wound revolving field-coils, slip-rings on the lower end of said shaft, one of which is insulated from the shaft and the other in direct connection therewith, a centrifugal governor on the upper end of said shaft, electrical connections from said source of energy to the said slip-rings, electrical connections from said slip-rings through the said governor and the differential coils of said revolving fields to cut the same in and out with any variation of the speed and means for collecting a polyphase current directly from the armature, substantially as and for the purposes set forth.

3. In a motor-generator, the combination with a base, frame and source of electrical energy, of an armature, a hollow vertical shaft mounted in said frame, revolving differential field-coils, slip-rings on the lower end of said shaft one of which is insulated therefrom and the other in direct electrical connection therewith, electrical connections from the said source of power to the said slip-rings and therefrom through the direct windings of said differential field-coils and means for collecting a polyphase current directly from the armature, substantially as and for the purposes set forth.

4. In a motor-generator the combination with a base, frame and source of electrical energy, of an armature, a hollow vertical shaft mounted in said frame, differential field-coils, slip-rings on the lower end of said shaft one of which is insulated therefrom and the other in direct electrical connection therewith, a commutator on said frame, revolving brushes bearing on said commutator and fixed in a holder secured to said shaft, electrical connections from the source of said energy to the said slip-rings and therefrom through the said brushes, commutator and armature and means for collecting a polyphase current directly from the armature, substantially as and for the purposes set forth.

5. In a motor-transformer the combination with a base, frame, source of electrical energy and means for distributing the alternating current generated, of a stationary armature, a hollow vertical shaft mounted in said frame, differentially-wound revolving fields secured to said shaft, a centrifugal governor secured to the upper end of said shaft, a stationary commutator on said frame, brushes secured to said shaft and bearing on said commutator, slip-rings on the lower end of said shaft one of which is insulated therefrom and the other in direct electrical connection therewith, and electrical connections from said source of energy to the said slip-rings and therefrom, by independent circuits, through the said brushes, commutator and armature, through the direct windings of said revolving fields, and through the said governor and differential windings of said revolving fields, substantially as and for the purposes set forth.

683,236. DRAFT-RIGGING FOR CARS. JAMES M. WAGER, Chicago, Ill. Filed Feb. 16, 1901. Serial No. 47,663. (No model.)



Claim.—1. A draft-rigging comprising draft-sills provided with opposite shoulders, a draw-bar, a coiled draw-bar spring, a straight follower-plate engaged at its middle with the draw-bar and adapted for contact at its ends with said shoulders, and a curved follower-plate interposed between the said flat plate and the end of the said coiled spring.

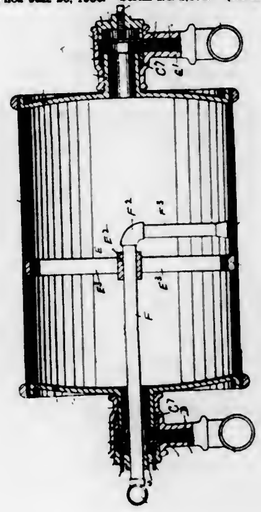
2. A draft-rigging comprising draft-sills provided with opposite forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, two straight follower-plates which engage the draw-bar and are adapted to bear against the said shoulders, and curved follower-plates interposed between the ends of the coiled spring and the said straight follower-plates.

3. A draft-rigging comprising draft-sills provided with opposite shoulders, a draw-bar, a straight follower-plate, the ends of which are located in position to engage the said shoulders, a second straight follower-plate located in contact with the end of said coiled spring and one or more curved follower-plates interposed between the said straight follower-plates.

4. A draft-rigging comprising draft-sills provided with forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, and two sets of spring follower-plates interposed between the draw-bar and the ends of the said coiled spring, each of said sets of plates embracing a flat follower-plate located in contact with the draw-bar, with its ends in position to engage the shoulders on the draft-sill, a second flat follower-plate located in contact with the end of the coiled spring, and curved follower-plates interposed between said straight follower-plates.

5. A draft-rigging comprising draft-sills provided with outer and intermediate forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, and two sets of spring follower-plates, each set comprising two flat plates and a curved plate or plates interposed between said flat plates, the outer flat plate of each set being adapted for contact with the outer shoulders of the draft-sills, and the inner flat plate of each set being adapted for contact at their ends with the intermediate shoulders on the draft-sills.

683,237. DRYING-CYLINDER. JAMES H. WHITTLE, Worcester, Mass. Filed Jan. 20, 1900. Serial No. 2,192. (No model.)

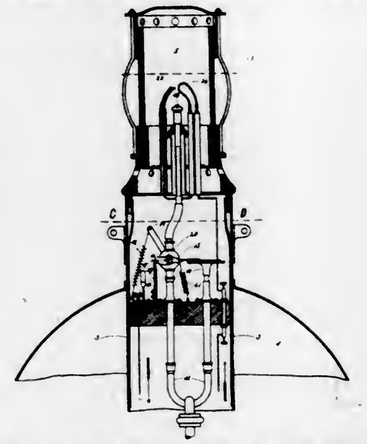


Claim.—1. The combination with a rotating metal drying-cylinder, having hollow gudgeons at its opposite ends for the admission of steam to the interior of the cylinder, of an exhaust-pipe held concentrically in one of said hollow gudgeons and extending to the central section of said cylinder, with its inner end turned downwardly, and a journal-bearing for said exhaust-pipe supported by and rotating with said cylinder, substantially as described.

2. In a sheet-metal drying-cylinder, the combination with a rotating cylinder, of hollow gudgeons at its opposite ends, means for supplying steam through said gudgeons to the opposite ends of the cylinder, an exhaust-pipe held concentrically in one of said hollow gudgeons and having its inner and open end extending to the central section of said cylinder and bent downwardly to a point near the periphery of the cylinder, and a journal-bearing supported by the interior of said cylinder, whereby the inner end of said exhaust-pipe is supported, substantially as described.

3. The combination with a sheet-metal cylinder, having heads provided with hollow gudgeons, of closed stuffing-boxes forming bearings for said gudgeons, means for supplying steam to the opposite ends of said cylinder through its hollow gudgeons, an exhaust-pipe supported at its outer end by one of said stuffing-boxes, a wheel inclosed within said cylinder having a rim carried by said cylinder, and a hub connected with said rim by a series of spokes, said hub forming a journal-bearing for the inner end of said exhaust-pipe, substantially as described.

683,238. NIGHT LIGHT BUOY. CONRAD C. A. R. WIESE, Hamburg, Germany. Filed Nov. 18, 1899. Serial No. 737,387. (No model.)



Claim.—1. A life-buoy composed of a float, a carbid-receptacle having a water-inlet, an expansible bulb communicating with the carbid-receptacle, a lever actuated thereby and adapted to close an electric circuit, a platinum igniting-wire in circuit, a burner, and a lead wire in proximity to the burner and also in circuit, substantially as specified.

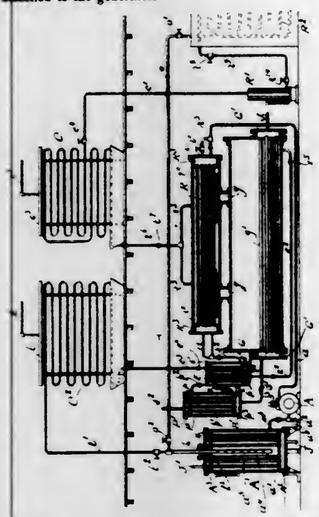
2. A life-buoy composed of a float, an upwardly-extending tube, a carbid-receptacle and a battery within the lower end of the tube, a circuit and contact-points, a burner within the upper end of the tube, an expansible bulb communicating with the carbid-receptacle, a lever actuated thereby and adapted to close the circuit, a platinum igniting-wire and a lead wire in circuit and arranged in proximity to the burner, substantially as specified.

3. A life-buoy composed of a float, a carbid-receptacle, an expansible bulb communicating therewith, a lever actuated thereby, a spring engaged by the lever, a gas-cock having a pin adapted to be engaged by the spring, a spring-influenced lever mounted upon the gas-cock, a contact adapted to be engaged by the lever, a burner, and a platinum wire and lead wire in circuit and arranged in proximity to the burner, substantially as specified.

683,239. ABSORPTION REFRIGERATING-MACHINE. WILLIAM WILSON, Brooklyn, N. Y., assignor of one-fifth to Charles B. Harris, New York, N. Y. Filed Aug. 23, 1900. Serial No. 27,808. (No model.)

Claim.—1. In an absorption refrigerating-machine, a generator with adjustable tubes; a rectifier with adjustable tubes; connections between said generator and rectifier; separating-plates in the rectifier; a condenser connected to rectifier; an absorber; expansion-coils connected with absorber; cooling-coils connected with absorber; piping from expansion-

coils and cooling-coils terminating in a perforated pipe in the absorber; an exchanger with adjustable tubes; a circulating-pump, with its suction-pipe leading from the absorber, and its discharge-pipe entering the rectifier, and from thence to the exchanger; a by-pass in said discharge-pipe, connecting the same directly to the said exchanger; steam inlet and outlet pipes attached to the generator.

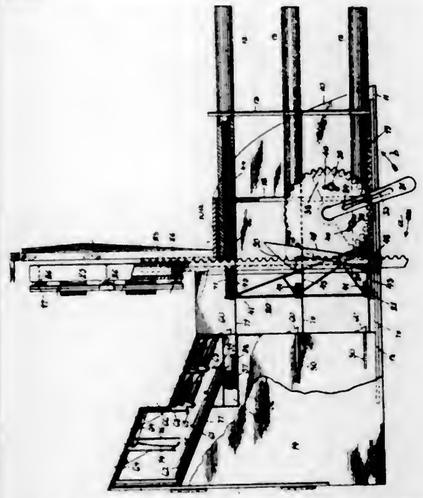


2. In an absorption refrigerating-machine; a generator with adjustable tubes; a rectifier with adjustable tubes; connections between the rectifier and generator; an absorber with adjustable tubes; a circulating-pump, with its suction-pipe leading from the absorber, and its discharge-pipe entering the rectifier; an exchanger connected to rectifier with piping; a by-pass in the aforesaid pump-discharge pipe connecting the pump directly with the exchanger, condenser-coils connecting with the outlet of rectifier; cooling-coils connected with the exchanger; an absorber connected with outlet of said cooling-coils; expansion-coils connected with the outlet of the cooling-coils; a perforated pipe in the absorber connected with outlet of both cooling-coils and expansion-coils; adjustable tubes with stuffing-boxes and packing in the absorber; water inlet and outlet pipes for the absorber; a liquid-refrigerant receiver connected with condenser and expansion-coils; an expansion-cock in piping between receiver and expansion-coils; a preliminary generator connected with the exchanger and main generator; steam-piping entering the main generator, and leading from the main generator to preliminary generator, and from thence leaving the system.

3. An absorption refrigerating-machine, comprising a pump A, a rectifier R, discharge-piping of said pump leading to the rectifier, a by-pass r in said piping, a generator G connected to the rectifier with connections g, an exchanger E, piping e^2 leading from the generator to the exchanger, outlet-piping e' running from the exchanger, cooling-coils C^2 connecting with piping e^3, spray-piping l, l over cooling-coils C^2, outlet-piping r^4, r^4 leading from the rectifier, condenser C with spray-piping c^2 connected with the pipe r^4 of rectifier, piping r^3 leading from the rectifier to the exchanger, a preliminary generator P, piping e running from the exchanger to the preliminary generator, outlet-piping p leading from the preliminary generator to the main generator, a steam-pipe s connected to generator G, outlet-steam piping s' connecting the generator and preliminary generator P, and exhaust-steam pipe s^2 leading from preliminary generator, an absorber A', piping l' connecting cooling-coils C^2 and the absorber A', a receiver R', piping c' connecting receiver and condenser, expansion-coils R^2, piping r^5 connecting the receiver and expansion-coils, outlet-piping o leading from the expansion-coils R^2 to the absorber.

683,240. MACHINE-GUN. FEDERICO ALESSI, New York, N. Y. Filed Jan. 21, 1901. Serial No. 44,021. (No model.)

Claim.—1. A machine-gun, comprising a main frame in which the barrels are mounted, a supplemental frame connected therewith, a vertically-movable breech-block mounted between said frames and adjacent to the ends of the barrels of the gun and provided with firing-pins, a longitudinally-movable cartridge-receiver frame adapted to move in the supplemental frame, and provided with cartridge-receivers means for feeding cartridges into said receivers, a spring-operated hammer connected with the breech-block casing, a dog adapted to operate said hammer, and a shaft mounted transversely of the main frame and adapted to operate the vertically-movable breech-block, the longitudinally-movable cartridge-receiver frame and said dog, and means for feeding cartridges into the receivers of the cartridge-receiver frame, substantially as shown and described.



2. In a machine-gun, a main frame in which the barrels are mounted, a vertically-movable breech-block provided with firing-pins and having rack-bars, a longitudinally-movable cartridge-receiver frame adapted to feed the cartridge into the barrels and provided with rack-bars, means for feeding the cartridges into the receivers of the cartridge-receiver frame, and a shaft mounted transversely of the main frame, and provided with gears for operating said rack-bars, substantially as shown and described.

3. In a machine-gun, a main frame in which the barrels are mounted, a vertically-movable breech-block having firing-pins provided with rack-bars, a longitudinally-movable cartridge-receiver frame adapted to feed the cartridge into the barrels and provided with rack-bars, means for feeding the cartridges into the receivers of the cartridge-receiver frame, and a shaft mounted transversely of the main frame, and provided with gears for operating said rack-bars, said breech-block being also provided with a spring-operated hammer, and means for operating the same, substantially as shown and described.

4. In a machine-gun, a frame in which the barrels are mounted, a vertically-movable breech-block having firing-pins provided with vertical rack-bars, and a spring-operated hammer, a longitudinally-movable cartridge-receiver frame provided with horizontal rack-bars, a spring-operated firing-dog pivoted at one side of the frame, a shaft passing through said frame, and provided with gears for operating the rack-bars of the breech-block and the rack-bars of the cartridge-receiver frame, said shaft being provided with a crank-lever, and a spring-operated dog for actuating the firing-dog, substantially as shown and described.

5. In a machine-gun, a frame in which the barrels are mounted; a supplemental frame rearwardly thereof, a longitudinally-movable cartridge-receiver frame, provided with cartridge-receivers, and adapted to feed the same into the barrels of the gun, pivoted dog supported rearwardly of the cartridge-receiver frame and adapted to remove the empty cartridges from said frame, and means for feeding the cartridges into the receivers of the cartridge-receiver frame, substantially as shown and described.

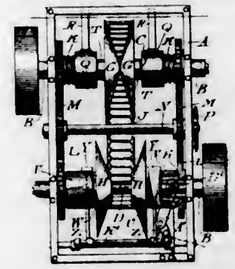
6. In a machine-gun, a casing having longitudinal spaces 55 formed therein, a longitudinally-movable spring-operated slide in each of said spaces, an upwardly and backwardly inclined support arranged over said slide, casings for receiving cartridge-boxes arranged over said support, and means for feeding the cartridges successively from said boxes, substantially as shown and described.

7. A machine-gun comprising a main frame in which the barrels are placed, and having a backwardly-directed extension or supplemental frame, said supplemental frame being provided with cartridge-box casings adapted to receive cartridge-boxes, a vertically-movable breech-block at the end of the main frame, means for feeding the cartridges into the barrels of the gun, and means for operating the breech-block and for discharging the cartridges, substantially as shown and described.

8. In a machine-gun a main frame in which the barrels are placed, a vertically-movable breech-block at the end of the main frame and provided with firing-pins, a longitudinally-movable cartridge-receiver frame at the rear of the main frame and provided with rack-bars, said breech-block being also provided with rack-bars, a shaft provided adjacent to each end with a circular gear and a segmental gear adjustably connected with each of said circular gears, said circular gears and segmental gears being adapted to operate in connection with the rack-bars of the breech-block and with the rack-bars of the longitudinally-movable frame, substantially as shown and described.

9. In a machine-gun, a main frame in which the barrels are mounted, a vertically-movable breech-block at the end of said frame and provided with firing-pins, a supplemental frame arranged rearwardly of the main frame a longitudinally-movable cartridge-receiver frame mounted in said supplemental frame and adapted to feed the cartridge into the barrel, devices for feeding the cartridges into the receivers of said frame, and means for operating the breech-block and supplemental frame, substantially as shown and described.

683,241. SPEED-CHANGING MECHANISM. JOHN M. ANCK, Philadelphia, Pa. Filed Mar. 30, 1901. Serial No. 53,590. (No model.)



Claim.—1. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, a suitably-mounted longitudinally-movable member situated beyond the outer end of each of said cone-disks, means situated at the outer end of each of said members for moving the same in opposite directions, the said means of each shaft being geared together and to the means on the other shaft to move the members on each shaft in opposite directions and to move corresponding members on both shafts in opposite directions, and a belt trained around said cone-disks.

2. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, a suitably-mounted longitudinally-movable collar situated beyond the outer end of each of said cone-disks, a suitably-mounted rotatable sleeve situated at the outer end of each of said collars and having screw-threaded engagement therewith, said sleeves being geared together to move in unison, and a belt trained around said cone-disks.

3. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, a suitably-mounted longitudinally-movable collar situated beyond the outer end of and engaging each of said cone-disks, means for holding said collars against rotation, a suitably-mounted sleeve situated at the outer end of each of said collars and having screw-threaded engagement therewith, the screw-threaded engagement between the sleeves and collars on each shaft being right and left hand and the screw-threaded engagement between corresponding sleeves and collars on different shafts being right and left hand, said sleeves being geared together to move in unison, and a belt trained around said cone-disks.

4. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, interiorly-screw-threaded collars loosely mounted on said shaft, said collars being held against rotation, exteriorly-screw-threaded rotatable sleeves suitably mounted and engaging said collars, said sleeves being provided with gears, a shaft having gears rigid therewith and engaging the said gears of the sleeves, and a belt trained around said cone-disks.

5. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, a suitably-mounted longitudinally-movable collar situated beyond the outer end of each of the cone-disks of one shaft, each of said collars being provided with arms engaging guides parallel with said shaft, a suitably-mounted longitudinally-movable collar situated beyond the outer end of each of the cone-disks of the other shaft and held against rotation, said collars engaging said cone-disks, means situated at the outer end of each of said collars for moving the collars on each shaft in opposite directions and the corresponding collars on different shafts in opposite directions, and a belt trained around said cone-disks.

6. In a speed-changing mechanism, a frame having bearings, driving and driven shafts mounted in said bearings, cone-disks rotatable with and longitudinally movable upon said shafts, a suitably-mounted longitudinally-movable collar situated beyond the outer end of and engaging each of said cone-disks, said collars being held against rotation, a sleeve rotatably mounted upon each of said bearings and at the outer end of said collars and having screw-threaded engagement with the latter, means for rotating said sleeves in unison, and a belt trained around said cone-disks.

7. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, means situated beyond the outer end of each of said cone-disks for moving said cone-disks in opposite directions and for moving the cone-disks of different shafts at speeds that vary relatively to each other, each of said means comprising a longitudinally-movable non-rotatable member and a longitudinally-immovable rotatable member, the longitudinally-immovable rotatable members being geared together to move in unison, and a belt trained around said cone-disks.

8. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, means situated beyond the outer end of each cone-disk for moving the same in opposite directions and for causing the cone-disks on one shaft to move faster during a portion of their movement and slower during the remaining portion of their movement than the cone-disks on the other shaft, each of said means comprising a longitudinally-movable non-rotatable member and a longitudinally-immovable rotatable member, said longitudinally-immovable rotatable members being geared together to move in unison, and a belt trained around said cone-disks.

9. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movably thereon, means common to the cone-disks on both shafts for moving the cone-disks on each shaft and corresponding cone-disks on different shafts in opposite directions, the connection between said means and cone-disks being such that when said means are operated at a constant rate of speed, the cone-disks on one shaft move at a constant rate of speed throughout their entire movement and the cone-disks on the other shaft move at a varying rate of speed, and a belt trained around said cone disks.

10. In a speed-changing mechanism, driving and driven shafts, cone-disks rotatable therewith and longitudinally movable thereon, means common to the cone-disks on both shafts for moving the cone-disks on each shaft and corresponding cone-disks on different shafts in opposite directions, the connection between said means and cone-disks being such that when said means are operated at a constant rate of speed the cone-disks on one shaft move at a constant rate of speed throughout their entire movement and the cone-disks on the other shaft move at a rate of speed that varies from fast to slow as they approach each other and vice versa as they recede, and a belt trained around said cone-disks.

11. In a speed-changing mechanism, driving and driven shafts, cone-disks, longitudinally-movable collars engaging the cone-disks of one of the shafts, longitudinally-movable collars upon the other shaft, washers situated between said last-mentioned collars and the cone-disks, said washers being longitudinally movable upon the shaft relative to said collars, means for moving said collars longitudinally upon the shaft, means for moving said washers relative to said collars, and a belt trained around said cone-disks.

12. In a speed-changing mechanism, driving and driven shafts, cone-disks, longitudinally-movable collars engaging the cone-disks of one of the shafts, longitudinally-movable collars upon the other shaft, washers situated between said last-mentioned collars and cone-disks, a wedge situated between said collars and said washers, means for moving said collars longitudinally and for actuating said wedges to move the washers relative to the collars, and a belt trained around said cone-disks.

13. In a speed-changing mechanism, driving and driven shafts, cone-disks, longitudinally-movable collars engaging the cone-disks of one of the shafts, longitudinally-movable collars upon the other shaft, washers situated between said last-mentioned collars and the cone-disks, a wedge situated between said washers and collars and longitudinally movable relative thereto, means for moving said collars longitudinally upon the shaft and for moving said wedges, whereby during a portion of the movement said washers are moved away from said collars and during the remaining portion of the movement they are allowed to approach said collars, and a belt trained around said cone-disks.

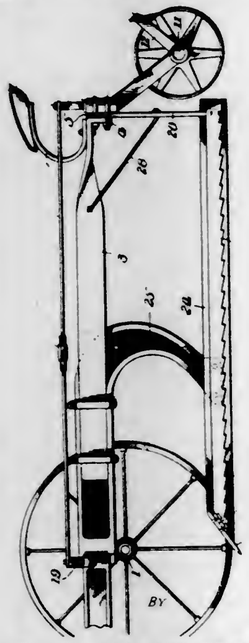
14. In a speed-changing mechanism, driving and driven shafts, cone-disks, longitudinally-movable collars engaging the cone-disks of one of the shafts, longitudinally-movable collars upon the other shaft, washers situated between said last-mentioned collars and the cone-disks, wedges situated between said collars and washers, sleeves having screw-threaded engagement with said collars, means for moving said sleeves, a connection between one of said collars and said wedges to move the latter, whereby

the washers are moved relatively to the collars, and a belt trained around said cone-disks.

15. In a speed-changing mechanism, driving and driven shafts, cone-disks, longitudinally-movable collars engaging the cone-disks of one of the shafts, longitudinally-movable collars upon the other shaft, washers situated between said last-mentioned collars and the cone-disks, wedges situated between said collars and washers, sleeves having screw-threaded engagement with said collars, said wedges being carried by arms extending from a rock-shaft, a connection between said rock-shaft and one of said collars whereby the former is rocked by reason of the longitudinal movement of the latter, and a belt trained around said cone-disks.

16. In a speed-changing mechanism, driving and driven shafts, cone-disks, longitudinally-movable collars engaging the cone-disks of one of the shafts, longitudinally-movable collars upon the other shaft, washers situated between said last-mentioned collars and the cone-disks, wedges situated between said collars and washers, sleeves having screw-threaded engagement with said collars, said wedges being carried by arms projecting from a rock-shaft, a lever connected at one end with one of said collars, links connecting the other end of said lever with said rock-shaft, whereby the latter is rocked by reason of the longitudinal movement of the former, and a belt trained around said cone-disks.

683,242. **COMBINED PLOW AND BRUSH-CUTTER.** LESLIE R. ARNETT, Boise, Idaho. Filed Mar. 4, 1901. Serial No. 50,280. (No model.)



Claim.—1. In a weed-cutter, the combination with the sulky, beam and sheth of a plow, of an attachment carrying cutter-blades, means for connecting the attachment to the beam and sheth a caster-wheel secured to the attachment and a rod connected to the sulky and attachment for guiding the wheel.

2. In a weed-cutter, the combination with the sulky, of a frame, a connection between the sulky and frame, cutting-blades attached to the frame at the rear and converging at the front, a guide-board having its lower edges depending below the edges of the cutter-blades and means for joining the parts together, substantially as described.

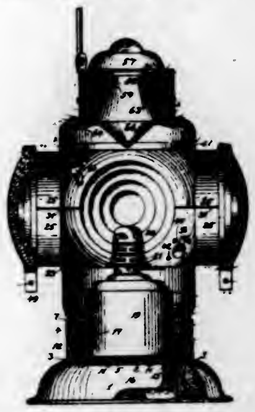
3. The combination in a weed-cutter, of a truck, cutter-blades V-shaped in plan, a guide-board depending below the edges of the cutter-blades and means for connecting the parts with the truck, substantially as described.

4. The combination in a weed-cutter, of cutter-blades V-shaped in a plan, a guide-board intermediate of and extending rearwardly from the apex of the cutter-blades to which the cutter-blades are secured at their forward ends and a shovel-like extremity on the forward portion of the guide-board, substantially as described.

5. The combination in a weed-cutter of a sulky having a beam and sheth, a guide-board secured to the sheth, said guide-board having a slot in its forward end and a shovel-like projection, cutter-blades with their lower edges above the plane of the lower edge of the guide-board, said cutter-blades having angular ends lying in the slot of the guide-board and bolted to the shovel-like extension, a frame having depending members to which the rear ends of the cutter-blades are secured, a connection between the plow-beam and the frame, a rear truck for supporting the frame, an adjustable connecting-rod placed diagonally of the longitudinal center, and arms on the sulky-tongue and the standard of the rear truck to which the connecting-rod is pivoted, substantially as described.

6. In a weed-cutter, the combination with the sulky-beam and sheth of an ordinary sulky-plow, of a guide-board secured to the sheth and having a shovel-like end and an opening back of the shovel, cutter-blades having angular ends lying in the openings and bolted to the shoval-like end, said blades diverging toward the rear and set with their cutting edges outside of the vertical plane of their top edges, a frame having depending members with laterally and rearwardly disposed extremities, to which the rear ends of the cutter-blades are secured, a connection between the frame and the beam, a journal-bearing secured on the frame, a bracket having a standard journaled in the bearing a wheel on the bracket, a scraper on an extension of the bracket, bearing against the periphery of the wheel, arms on the standard and on the tongue of the sulky, an adjustable connecting-rod stationed diagonally across the longitudinal center and connecting the arms as and for the purpose described.

683,243. **SIGNAL-LAMP.** ROBERT J. ARMOUR, Newark, N. J. Filed Mar. 24, 1897. Serial No. 629,043. (No model.)



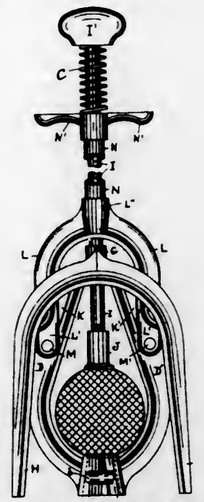
Claim.—1. In a lamp of the character herein specified, a body-base formed of a single piece of metal, having a flanged ring near the bottom, an inwardly-projecting bead, an outwardly-projecting bead, and a straight ring or shoulder above said last-mentioned bead, substantially as shown and described.

2. A lamp-body having a receptacle for an oil-pot in its lower portion, and a movable top portion whereby access may be had to the interior of the lamp-body from above, and having intermediate the said portions of the body an outwardly-curved breast portion which is perforated at 32 for the passage of the shaft and button of the wick-raiser, such perforation being enlarged at its upper, outer end; in combination with an oil-pot supported in the lower part of the lamp-body, and a burner carried thereby and provided with a wick-raising shaft, the burner being arranged in the zone of the said curved breast, and the said wick-raising shaft extending outward through the said opening, 32, whereby the burner and oil-pot may be removed by direct upward movement, substantially as set forth.

3. In a lamp-body having an outwardly-curved breast above the receptacle for the oil-pot, an opening therein for the passage of the wick-shaft button when the oil-pot is inserted or removed vertically, in combination with a pivoted door for closing said opening, arranged substantially as shown and described.

683,244. **MEANS FOR FORMING TEES FOR GOLF-BALLS.** WILLIAM K. BODA and WILLIAM J. BODA, Dayton, Ohio. Filed Mar. 11, 1901. Serial No. 50,541. (No model.)

Claim.—1. The combination with a ball, of a mold adapted to form a support for such ball, means for supporting the ball on the mold whereby said ball is caused to form an inclosure for the top of the mold during the formation of said support, said support being thereby provided with a concavity in its upper end in which the ball is supported after the removal of the mold.



2. In a device for the purposes specified, the combination with a handle, of pivotal arms attached thereto, a two-part mold secured to said pivotal arms and adapted to form a sand tee, the said mold providing a support for a ball during the formation of the tee, and which ball is supported on said tee after the removal of the mold.

3. In an implement for the purposes specified, the combination with a handle, of pivotal arms attached thereto, a two-part mold connected to said arms and adapted to form a sand tee, said mold providing a support for the ball during the formation of said tee, and means for holding the ball in such supported position and from which position the said ball is subsequently deposited on said tee by the removal of the mold.

4. In an implement for making sand tees, the combination with a handle, jaws manipulated by such handle, the lower end of such jaws being provided with a mold wherein a sand tee is formed, such mold providing a support for a ball during the formation of said tee, and an adjustable clamp adapted to hold the ball between itself and the mold in rigid contact with the mold during such operation of forming the sand tee.

5. In a device for molding sand tees, the combination with a ball, of a handle, jaws connected thereto and manipulated thereby, said jaws having a parting mold at their lower ends which in conjunction with said ball is adapted to form a sand tee, means acting from above for rigidly supporting said ball during the formation of a tee, and in a position to be deposited upon such tee after the removal of the mold, by such removal, the ball being left in a supported position on the tee.

6. In a device for forming sand tees or golf-ball supports, the combination of a handle or rod, jaws pivoted thereto, such jaws having a mold at their lower ends adapted to form a sand tee, a tubular handle inclosing said rod, a connection between such tubular handle and said jaws by means of which the latter are opened, a clamp secured to such rod and whereby a ball is held in position during the formation of the sand tee and in a position to be subsequently deposited on said sand tee after the latter has been formed, the said ball forming its seat in the tee during the formation of said tee.

7. In a device for forming sand tees or ball-supports, a handle consisting of two independently-movable parts, spreading jaws operated by one of said parts, the lower ends of said jaws being provided with a mold, a connection between the other member of said handle and said jaws whereby such jaws are manipulated, and means for holding a ball in rigid contact with the mold in a position to coöperate with said mold in the formation of a sand tee or ball-support.

8. An implement for forming sand tees and depositing a ball thereon, said implement comprising two spreading members, a two-part mold, means for opening and closing said spreading members to form a sand tee and to deliver said sand tee with a ball thereon, and means for holding such ball above the sand tee during the formation of such sand tee.

9. In a device for forming sand tees for golf-balls, the combination of a cone-shaped mold, a spring-controlled telescopic handle therefor, the said handle providing means for manipulating the mold in forming a sand tee, and for subsequently delivering said sand tee from the mold, substantially as specified.

683,245. **CAR-SEAL.** LEWIS A. BROWN, St. Louis, Mo., assignor to Peranite Seal Company, same place. Filed Nov. 12, 1900. Serial No. 36,235. (No model.)

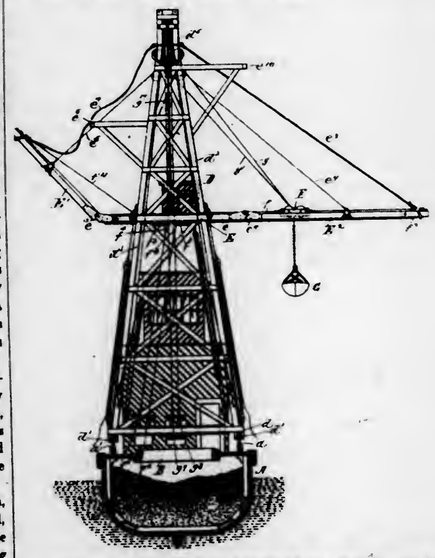


Claim.—1. The combination in a seal, of a frangible body having an opening, a spring embedded in the body outside the opening and having both ends projecting therein and bearing close against each other, and a wire shackle having one end rigid with the said body, and a shoulder formed on each side of its free end and adapted to abut directly against the ends of the spring within the opening, substantially as specified.

2. In a seal, the combination of a brittle body, a spring-casing within the said body, a spring embedded within the body outside the spring-casing and having both of its ends projecting down into the casing and bearing against each other, a wire shackle having one end rigid with the body, and a shoulder formed on each side of its free end to be engaged directly by both ends of the spring, substantially as specified.

3. A seal, consisting of a frangible body having an opening formed therein, a spring-casing within the body, a spring outside the casing and having both ends projecting down into the casing, one at each side, the portions of the spring in the casing being unbent, in combination with a wire shackle having one end rigid with the said body, oppositely-formed shoulders integral with the other end of the wire and adapted to abut directly against both ends of the said spring to prevent outward movement, and a suitable shield carried by the shackle to bear against the outer side of the body to limit the inward movement of the shackle and to cover the opening into which it is inserted, substantially as specified.

683,246. **LIGHTER OR BARGE FOR HANDLING COAL OR OTHER MATERIAL.** JEREMIAH CAMPBELL, Newton, Mass. Filed Nov. 16, 1900. Serial No. 36,692. (No model.)



Claim.—1. An apparatus for handling portable material comprising a lighter or vessel for receiving and transporting the material, and a material-handling device mounted on said lighter or vessel to be moved therewith and comprising a tower or support, a boom carried by said tower

or support, a trolley movable lengthwise said boom, a grab movable from and toward the trolley and means for closing and opening it and for moving the trolley upon the boom, said tower having an opening in one side from a point just above its base to said boom whereby said grab may be moved laterally on said boom and also having an opening through said base, as described.

2. An apparatus for handling portable material comprising a floatable or buoyant support, a tower mounted upon said support, a boom carried by said tower, a trolley movable lengthwise said boom, a grab movable vertically from and toward the trolley, means for closing and opening it and for moving the trolley upon the boom, said tower having an opening in one side from a point just above its base to said boom whereby the movement of said trolley upon said boom may begin when said grab has been moved to a point just above said support, said tower also having an opening down through its base, as and for the purposes described.

3. In an apparatus for handling portable material the combination of a lighter or vessel for receiving, holding and transporting the material, with means for loading and discharging said material mounted upon the said lighter or vessel comprising a tower or support having a well or space in line with the hatch of the said lighter or vessel, a boom extending from the tower or support near the upper end of said well or space, a trolley movable upon said boom, a grab carried by said trolley and having vertical movements, and means for opening and closing the grab.

4. An apparatus for receiving, holding, transporting and discharging coal or similar material comprising a lighter or vessel having a hatch, a tower or support mounted on the lighter or vessel having an unobstructed well or space over the hatch of the lighter or vessel or a portion thereof and also having a lateral opening from said space, a boom carried by the tower or support, extending from above the center of said space outwardly horizontally, a trolley movable on said boom, and material hoisting and lowering appliances movable horizontally by said trolley and extending through the trolley.

5. The combination of a vessel or lighter for receiving, holding, transporting and delivering coal or other material in bulk, having a long hatch extending lengthwise the vessel or lighter, with means for loading and discharging said material into and from said vessel or lighter and mounted upon the vessel or lighter upon both sides of the hatch to be adjustable lengthwise the said hatch.

6. The combination of a vessel or lighter for receiving, holding, transporting and delivering coal or other material in bulk, having a long hatch and rails or supports upon each side of the hatch with material-handling devices mounted upon said rails or supports to be movable lengthwise the hatch and comprising a tower or support having an unobstructed central space in line with the hatch and opening laterally upon each side, a boom or track at the upper end of said space extending from both sides of the tower, and material-handling devices mounted upon said boom or track to be movable upon any portion thereof and in either direction from the central space of the tower and also, in whole or in part, to be movable vertically with respect to said boom or track.

7. The combination of a vessel for receiving, holding, transporting and delivering coal or other material, having a long hatch and rails or other supports at the sides thereof, with means for loading and discharging said material mounted upon said rails or supports to be movable thereon lengthwise the hatch and comprising a support or tower having a central well in line with the hatch and lateral opening from said well on each side thereof, a boom extending across said tower at the upper end of said well and also from each side thereof, a trolley mounted upon said boom to be movable upon any part thereof and carrying a grab vertically movable with respect to the trolley, the said grab and means for closing and opening the grab.

8. The combination of a vessel, lighter, or other buoyant supporting and transferring means, a tower or support mounted thereon having an opening extending across it, and a central opening or well extending downward therethrough, a boom or similar instrumentality above said openings and extending from each side of the tower or support, a material-handling device movable horizontally upon said boom or other similar instrumentality, and also vertically in relation thereto whereby said vertical and horizontal movements of said handling device may occur simultaneously.

9. The combination of a buoyant supporting and transferring device, a support or tower mounted upon said device having an opening extending through it, laterally and a central opening or well extending downward through it, a boom over said openings extending from both sides of the tower or support, a trolley movable upon any portion of said boom, a grab carried by said trolley, and vertically movable with relation thereto, and means for opening and closing the grab whereby said grab may be moved horizontally and operated when just clear of said supporting device, as and for the purposes described.

10. The combination of a lighter or vessel having a hatch extending for a large portion of its length, a rail upon each side of said hatch, a truck mounted upon said rail to span the hatch and having a central opening over the hatch, a tower mounted upon the truck to be supported and movable thereby, having a central space in line with the opening in the truck, and an opening from one or both sides thereof, a horizontal boom above said space extending from one or both sides of said tower, a movable trolley mounted upon said boom, a vertically-movable grab carried by said trolley, and means for closing and opening the grab.

11. A tower or support carrying a central boom-section, said tower comprising two side sections arranged opposite one another and connected above the level of said boom-section but so separated below said boom as to form a vertical passage from said boom-section to a point below the bottom of said side sections, a trolley mounted upon said boom-section to be movable horizontally thereon, a grab carried by said trolley vertically movable with respect thereto and means for opening and closing said grab, whereby the load carried by said trolley may be moved in either direction from a point at the base of the tower, as set forth.

12. A tower carrying a stationary boom-section, said tower comprising two side sections arranged opposite one another connected above the level of the boom and separated below it, said boom being located over the passage so formed, in combination with a movable boom-section extending from said stationary section and supported thereon, a trolley movable upon either or both sections at will, and a grab carried by said trolley and movable vertically with relation to it, and means for closing and opening the grab, as described.

13. The combination of a tower or support having a central space and an opening at one side of said space, a boom over said space adapted to be moved in whole or in part into and out of an operative horizontal position, a trolley adjustable in position upon said boom and movable thereon to carry the grab, and the grab carried by the trolley and movable vertically with respect to it at any point above the level of the base of said tower.

14. The combination of the tower or support having a central well and openings from each side of said well, a boom-section over the well and extending from each side of the tower or support, a movable boom-section at each end of the said first-named section adapted to be moved into and out of operative relation therewith, a trolley adapted to be operated upon all the sections or any one or more of them, and a grab carried by said trolley and vertically movable with relation to it, said openings extending from said boom-section downward to the base of said tower and serving to allow the grab to be moved horizontally when it has cleared said base, as and for the purposes described.

15. The combination of a vessel or lighter, a tower or support mounted thereon to be movable therewith, having a central well and openings at each side thereof, a boom-section over said well, movable boom-sections at each end of the first-named section, adapted to be moved into and out of operative relation therewith, a trolley movable upon said boom-sections or one or more of them, a grab carried by said trolley and vertically movable with relation to it, said openings extending from said boom-section downward to the base of said tower and serving to allow the grab to be moved horizontally when it has cleared said base, as and for the purposes described.

16. The combination of the tower or support having a central well and openings upon each side thereof, a boom-section at the upper end of the well, a movable boom extension at each end of said section, one of which extensions is considerably longer than the other, a trolley movable upon one or more of said boom-sections, and a grab carried by said trolley and movable vertically with relation thereto, said openings extending from said boom-section downward to the base of said tower and serving to allow the grab to be moved horizontally when it has cleared said base, as and for the purposes described.

17. A tower carrying a boom-section, said tower comprising two side sections arranged opposite one another and connected above the level of said boom-section, whereby there is formed a central well extending downward from under said boom-section and open on two sides, in combination with a boom extension and means for moving it into and out of operative relation with said section and for holding it in operative relation thereto.

18. A tower carrying a boom-section, said tower comprising two side sections arranged opposite one another and connected above the level of said boom-section, whereby there is formed a central well extending downward from under said boom-section and open on two sides, in combination with a boom extension and means for moving it into and out of operative relation with said section and for holding it in operative relation thereto, and devices for holding it out of operative relation therewith, as described.

19. The combination of a tower or support having a fixed boom-section, a movable boom-section and a trolley-rope sheave or block interchangeable in position with regard to the outer end of the movable extension and the end of the fixed section, as and for the purposes described.

20. The combination of a tower or support having a fixed boom-section, a movable boom extension adapted to be moved into and out of operative relation with the fixed section, and a trolley-rope sheave or block attached to either the movable boom extension or to the fixed portion thereof, and means for fastening it in either place.

21. The combination of a tower or support, a fixed boom-section, a movable boom extension adapted to be moved into and out of operative relation with the fixed section, and provided with guides for a carriage supporting the trolley-rope sheave with said carriage, and trolley-rope sheave movable in said guides from an operative relation at the end of the movable boom-section to an operative relation at the end of the stationary boom-section, as and for the purposes described.

22. The combination of a tower or support, a fixed boom-section, a movable boom-section adapted to be moved into and out of operative relation with the fixed section, a carriage, a trolley-rope sheave mounted thereon, the said carriage being movable from the end of the fixed boom-section lengthwise the movable extension, and means for moving said carriage from the tower.

23. The combination of the tower or support, a fixed boom-section, a movable boom-section, a trolley-rope sheave, and means for moving it lengthwise the boom, comprising a line and pulley at the outer end of the extension over which the line runs, and a pulley on the tower over which the line also runs.

24. The combination of a tower or support having a central well, and lateral openings extending from the top to the bottom of said well, a fixed boom-section at the upper end of the well extending from each side of the tower, a movable boom extension at each end of the fixed section adapted to be independently moved into and out of operative relation thereto, a trolley movable upon the boom and its extensions, and a vertically-movable grab carried by the trolley.

25. The combination of a tower or support having a central well, lateral openings extending from the top to the bottom thereof, a fixed boom-section at the upper end of the well, a movable boom extension at each end of said fixed section, and independent means connecting each of said extensions to the tower or support for holding the same in operative relation with each other and the fixed section, and for moving one or both of them out of operative relation with each other and to the fixed section.

26. The combination of the tower or support having the central well and the lateral openings, a fixed boom-section at the upper end of the well, a movable boom extension at each end of said fixed section, means for independently moving said boom extensions into and out of operative position, and a trolley-rope sheave upon each extension adapted to be independently moved on said extension to the end of the fixed section, and vice versa.

27. The combination of a tower or support having a central well and an opening upon each side thereof, a fixed boom-section at the upper end of the well, a movable boom extension at each end of the fixed section movable into and out of operative relation thereto independently, whereby one or both of them may be used therewith, or it may be used without either of them, the trolley, its operating-rope of an extent sufficient to permit the trolley to be moved the full length of the entire boom, and the trolley-sheaves over which the trolley-rope extends independently movable lengthwise the boom extensions to the fixed section of the boom.

28. The combination of a vessel or lighter, a tower or support mounted thereon having a central well and lateral openings, a boom-section at the upper end of the well, a movable boom extension at each end of said boom-section, the trolley, the trolley-rope, the adjustable trolley-rope sheaves, and means for independently moving the boom extensions and for moving the trolley-rope sheaves from points on the deck of the vessel or lighter or upon the tower adjacent thereto.

29. The combination of the tower or support having a well extending through its base, a boom-section having an unobstructed longitudinal opening, a boom-section in said opening, a boom extension movable with respect to the said section and having an unobstructed longitudinal opening, a trolley movable upon the section and the extension, a grab and grab-operating ropes carried by the trolley and extending through the longitudinal opening in the boom section and extension to pass from one to the other without obstruction.

30. The combination of a tower comprising two side sections and a boom-section connected to said side sections whereby there is formed a well having two side openings in said tower, said well also extending below the base of said side sections, said boom having a longitudinal opening, in combination with a trolley mounted upon said boom, a grab and its operating rope or ropes carried by said trolley and extending through the longitudinal opening of said boom and adapted to extend through the openings in said well, one or more pulleys for said operating rope or ropes supported by said tower above the level of said boom-section and a trolley-operating rope extending to the end of the boom and having its return portion out of line with the grab rope or ropes, whereby the operation of said return-rope will not interfere with the operation of said grab rope or ropes, as described.

31. The combination of the sectional boom, the trolley, the grab, its operating rope or ropes, the trolley-rope, a trolley-rope-sheave carriage movable lengthwise the boom, and the trolley-rope sheave set obliquely in said carriage, as and for the purposes described.

32. The combination of the sectional boom, the trolley movable upon one or more of the sections of the boom, a trolley-rope, a trolley-rope-sheave carriage, a sheave, the carriage having a locking hole or recess, locking holes or recesses in the sectional boom and a locking pin or bolt to engage the said holes or recesses and the locking-hole of the sheave-carriage.

33. The combination of a sectional boom having an unobstructed longitudinal opening, a guiding-recess upon each side of said opening with a sliding carriage having extensions to enter said recesses and sheave obliquely mounted in said carriage and so that its upper end shall be in line with the center of the longitudinal opening and its lower end shall be out of line with the center of said opening, and means for attaching said carriage to the sectional boom at two or more points thereof.

34. The combination of a vessel or lighter having a longitudinal hatch, a rail or support upon each side of the hatch, a truck mounted upon said rails or supports to be movable lengthwise the hatch having a central opening, a tower carried by the truck having a well in line with said opening, and also having lateral openings, a boom at the upper end of the well, a trolley movable upon the boom, a grab carried by the trolley and vertically movable with relation thereto, and means for locking the truck in a fixed or stationary position to the vessel or lighter.

35. A tower or support comprising two sides joined together at the base and at the top only and open below and through its base, having one section of a boom supported by one side and another section of the boom supported by the other side, whereby said tower is provided with a well below said boom adapted for the vertical operation of a grab, and lateral openings adapted for the movement of a grab along the length of said boom in either direction, in combination with a trolley running upon said boom and a grab carried thereby, as described.

36. The combination of a movable truck having a vertical opening through its center, a tower mounted thereon comprising two side sections united at their base by or upon said truck and at their top, whereby an unobstructed well is formed between said sections, said well having an opening at both sides, a boom mounted on said tower above said well, one section of said boom being supported by one side of said tower, the other section being supported by its other side, a movable trolley mounted upon said boom, a grab carried by the trolley, a grab-operating rope or ropes extending through the trolley to the upper end of the tower and having an unobstructed movement in both directions lengthwise the boom and from the upper end of the tower, whereby said grab may be moved vertically through said well, and laterally through the side openings thereof, said vertical and said lateral movements being simultaneous, and may be operated in any position, as and for the purposes described.

37. The combination of the tower having a well and lateral openings at each side thereof, the boom at the upper end of the well, the movable trolley on said boom, the grab, its operating-ropes passing through the trolley and the rope-guiding rolls g^3, g^3, g^4, and pulleys g^5, g^6, at the upper end of the tower arranged in relation to each other to operate as described.

38. In a hoisting apparatus, the combination of a grab, an operating-rope and a hoisting-rope running therefrom, two pulleys suitably mounted and located side by side, the one to receive said hoisting-rope, the other to receive said operating-rope, and three guide-rolls, two located on the same horizontal line, the third located below and between said first-named two as described and in the same plane therewith, one of said upper rolls serving as a guide for said hoisting-rope, the other for said operating-rope, and the third or lower roll serving as a guide for either of said ropes, as and for the purposes set forth.

39. The combination of a tower or support, a grab, a weighing apparatus, a pulley mounted on said weighing apparatus, and a hoisting-rope attached to said grab and passing over said pulley, as and for the purposes described.

40. The combination of a grab, its operating rope or ropes, one or more pulleys carrying said operating rope or ropes, and a weighing apparatus supporting said pulley or pulleys, whereby said grab and its contents may be weighed during the action of hoisting it, as described.

41. The combination of a tower or support composed of two sections joined together at the base and the top only, a boom carried by said tower or support, a trolley mounted to travel on said boom, said tower carrying weighing apparatus provided with one or more pulleys, a grab and a grab-operating rope or ropes passing over said pulleys, and means for operating said grab and said trolley, whereby the contents of said grab may be weighed between its loading-point and the point of delivery of its load.

42. The combination of a grab, means for hoisting and lowering it,

and a weighing apparatus comprising a beam or lever supporting said hoisting means, whereby said grab is always supported by said weighing apparatus, as and for the purposes described.

43. The combination of a grab, its hoisting and operating rope, pulleys over which said ropes run, a weighing instrumentality having a movable portion adapted to be counterbalanced to perform the weighing operation, and pulleys carried by said movable portion over which said hoisting and operating ropes run, as set forth.

44. The combination of a grab, a weighing-scale having a movable section and a scale indicator or beam connected therewith, said movable section carrying one or more pulleys, and said grab having connected to it one or more ropes passing over said pulleys, as and for the purposes described.

45. The combination of the grab, its operating-ropes, the pulleys g^3, g^4, the support for the same, a scale beam or lever hung at the upper end of the tower connected at one end with said pulley-support, a rod connecting the other end of said scale beam or lever with the weighing devices located at a distance from said scale beam or lever.

46. The combination of a tower or support having a boom, and a trolley movable upon the boom, a grab carried by the trolley and vertically movable therewith, and a weighing instrumentality by means of which the contents of the grab is weighed in the grab between the point of loading and the point of delivery, said weighing instrumentality carrying one or more pulleys and said grab having attached thereto one or more operating-ropes passing over said pulleys, as and for the purposes described.

47. An apparatus for handling coal or other material comprising a tower & support, a boom, a trolley movable upon the boom, a grab movable vertically with regard to the trolley, and a weighing device for weighing the contents of the grab in the grab, said weighing device carrying one or more pulleys and said grab having connected to it one or more operating-ropes passing over said pulleys, whereby said grab is always supported from said weighing device, as and for the purposes set forth.

48. The combination of a vessel or lighter having a long hatch, a rail or support upon each side of the hatch, a truck mounted upon said rails or supports, having a central opening, a tower or support, a boom carried thereby, a trolley movable on the boom, a grab carried by the trolley, and vertically movable with regard to it, a stationary engine mounted upon the vessel or lighter, the trolley-operating rope and grab-operating ropes leading as described to the base of the tower and thence to the operating-engine, means for taking up or lengthening said ropes as the travel of the trolley is increased or diminished, and as the tower is moved toward and from the engine, and devices for locking the tower stationary to the vessel or lighter.

49. The combination of the vessel or lighter having a long hatch, a rail or support on each side of the hatch, a truck mounted on said rails or supports, a tower carried by said truck, a boom mounted on said tower, a trolley movable upon said boom, a grab carried by the trolley and vertically movable with respect thereto, a stationary engine upon said vessel or lighter, and means connecting the truck with the stationary engine whereby it is adapted to be moved in one direction or the other upon said rails or supports by said engine.

50. The combination of a tower or support, having a well with an opening upon one or both sides thereof, a fixed boom-section over said well, a movable boom-section at one or both ends of said fixed boom-section, a movable section or sections, means for adjusting the length of travel of said trolley upon said fixed and said movable section or sections, an engine, a trolley-operating rope connected with the engine, means for lengthening or shortening it as the travel of the trolley is lengthened or shortened, a grab carried by the trolley and means for moving it vertically with relation thereto and for closing and opening it.

51. The combination of a tower or support having a central well open on both sides through its base, a fixed boom-section over the well, a movable boom extension at each end of the fixed section and devices for handling coal or other material movable on said boom and its extensions, whereby said coal or other material may be moved vertically, and also may be moved horizontally when raised vertically above said base.

52. The combination of a tower or support having a central well and a fixed boom-section located over said well, said well being open on one side from the level of said boom-section to its base, a movable extension at one end of said fixed boom-section, and devices for handling coal or other material movable vertically and movable horizontally at all points between said base and said boom-section, as described.

53. The combination of a movable section of a boom, coal-handling devices movable lengthwise it, and a topping-lift in two sections separated to permit the movement of the coal-handling devices between them and joined to a common operating-tackle whereby the operation of said tackle will operate the two sections of said topping-lift and apply thereto equal force to lift said boom, as and for the purposes described.

54. The combination of a movable boom-section, coal-handling devices movable thereon, a tower carrying said boom-section and also carrying two pulleys at or near its top, a topping-lift in two sections, one section passing over each of said pulleys, and one end of each section being attached to the end of said boom, the other end of said topping-lift passing downward and spreading, pulleys located to guide the lower ends of said topping-lift sections to a common tackle, and said tackle, all arranged together substantially as described.

55. The combination of a tower or support having a central well and a boom located above said well, said well being open on one side from the level of said boom to its base, and said boom comprising a fixed section and a movable section at one end thereof, located in line with the open side of said well, devices for handling coal or other material movable horizontally and movable vertically comprising a trolley adapted to run upon said boom and a grab provided with suitable hoisting-ropes passing over sheaves in said trolley, and means whereby said trolley may be moved in either direction along the horizontal portions of said boom, as and for the purposes described.

56. The combination of a tower or support having a central well and a boom located above said well, said well being open on two opposing sides from the level of said boom to its base, and said boom comprising a fixed section having at each end thereof a movable section located over one of the open sides of said well, devices for handling coal or other material movable horizontally and vertically, comprising a trolley adapted to run on said boom, and a grab provided with suitable hoisting-ropes passing over sheaves in said trolley, and means whereby said trolley may be moved in either direction along the horizontal portion of said boom, as described.

57. An apparatus for handling portable material comprising a tower, a continuous horizontal trolley-boom supported entirely by said tower and extending on both sides thereof, a grab-rope-moving trolley adapted to move along said boom, and a grab and means for moving it vertically toward and from said trolley as said trolley is being moved along said boom, said boom having a clear passage throughout its length for the movement of said grab in either direction below it, of sufficient height to permit of a diagonal or inclined path of the grab, whereby said grab may be moved simultaneously vertically and horizontally and may be caused to describe a substantially direct path from its point of loading to its point of discharge, or vice versa, as set forth.

58. An apparatus for handling portable material comprising a tower, a continuous horizontal trolley-boom supported entirely by said tower and extending on both sides thereof, one extension being longer than the other, a grab-rope-moving trolley adapted to move along said boom in either direction, and a grab and means for moving it vertically toward and from said trolley, said boom being supported at a height above the base of said tower sufficient to permit of a diagonal or inclined path of the grab within the lines of the tower and whereby said grab may be moved vertically toward and from the trolley during any and all portions of the movement of the trolley on said boom, and simultaneously with said vertical movement may be moved horizontally by said trolley a longer distance on one side of said tower from the center thereof than on the other, as set forth.

59. An apparatus for handling portable material comprising a tower, a continuous horizontal boom supported entirely by said tower and extending on both sides thereof, a grab-rope-moving trolley adapted to move along said boom or any part of it in either direction, and a grab and means for moving it vertically toward and from said trolley, said boom being supported at a height above the base of said tower sufficient to permit of a diagonal or inclined path of the grab within the lines of the tower and said trolley and grab being operatable upon either boom extension, and transferable from one extension to the other during the operation of said grab by the connecting boom-section, the extensions of said boom-section having a movable relation to said connecting boom-section, as described.

60. An apparatus for handling portable material comprising a tower and a boom extending across it, and projecting at each side therefrom, a grab-rope-moving trolley adapted to move along said boom or any part of it in either direction, whereby all sections of said boom are usable at will, and means for operating said trolley comprising one or more ropes and means for pulling them and one or more pulleys over which said rope or ropes pass, said pulley or pulleys being located on said boom upon the section or sections of said boom in use, being adjustable at will, as described.

61. In a hoisting apparatus two pulleys suitably mounted and located side by side, each adapted to receive and support a rope and three guide-rolls, two located in the same horizontal line, the third located below and between said first-named two as described, and in the same plane therewith, one of said upper rolls serving as a guide to one of said pulleys, the other as a guide to the other of said pulleys, and the third or lower roll serving as a guide for the rope passing over either of said pulleys, as described.

62. The combination in a device for handling portable material of a tower, a trolley-boom, extending horizontally from one side of the tower across the line of the tower to a point at the other side of the tower, and also elevated above the base of the tower sufficient to permit of a continuous linear diagonal path of the grab within the lines of the tower and to provide a clear operative space below all parts of it in which the grab may be moved both vertically and horizontally at the same time, a trolley for moving the grab-ropes lengthwise the boom mounted upon said tower, means for moving the trolley, and means for moving the grab vertically with respect to the trolley, adapted to be simultaneously operated with the means for moving the trolley, whereby the grab is moved in a continuous linear diagonal path and upon the portion of the boom within the line of the tower as well as upon the portion of the boom which extends from the tower.

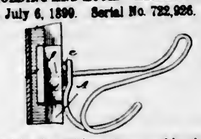
683,247. COMPOUND RULE ATTACHMENT. GEORGE Y. CARTER, Arlington, N. J. Filed Mar. 30, 1901. Serial No. 53,595. (No model.)



Claim.—1. The combination with the rule *a* and separable center block, of a block *b*, separably fastened upon said rule and having a straight-edge *k*, formed at right angles to the bearing b^2, against which the said rule is fastened and having a pencil-opening *g* and funnel, the said block being in sections, and adapted to be clamped upon rules of various widths, substantially as set forth.

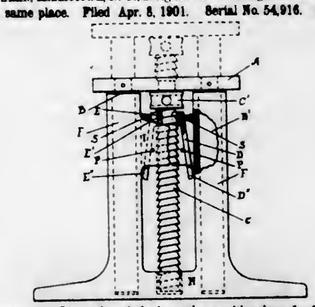
2. The rule attachment herein described comprising the sections b', b^2, adjustably connected and provided with a straight-edge *k*, and pencil-point perforation and screws *e*, *f*, all arranged and operating, substantially as set forth.

683,248. MOLDING AND HOOK. HARRISON O. CHASE, San Francisco, Cal. Filed July 6, 1899. Serial No. 722,926. (No model.)



Claim.—The combination with a picture-rod having a T-shaped slot therein, of a head fitted to the wider portion of the slot and a shank fitted to the narrower portion thereof, of the hook proper having a threaded extension screwed into the end of said shank, substantially as described.

683,249. PRINTER'S FURNITURE AND LOCK-UP. ROBERT B. COCHRAN, Middletown, N. Y., assignor to the Morgans and Wilcox Mfg. Co., same place. Filed Apr. 8, 1901. Serial No. 54,916. (No model.)



Claim.—1. In a printer's lock-up the combination of a foot part and a head part, a screw journaled in one of said parts, dogs connected to the other of said parts, means for placing the thrust of said screw on said dogs, and inclined surfaces on which said dogs may be supported and on which they may be caused to slide by the thrust of said screw.

2. In a printer's lock-up the combination of a foot part and a head part, a screw journaled in one of said parts, dogs connected to the other of said parts, means for placing the thrust of said screw on said dogs, inclined surfaces on which said dogs may be supported and on which they may be caused to slide into closer engagement with said screw by the thrust of the same, means which may tend to hold said dogs in retractile engagement with said screw, and means for disengaging said dogs from said screw.

3. In a printer's lock-up the combination of a foot part and a head part, a screw journaled in one of said parts, dogs connected to the other of said parts, means for placing the thrust of said screw on said dogs, inclined surfaces on which said dogs may be supported and on which they may be caused to slide by said screw thrust, fulcrums on which said dogs may be rocked to disengage them from said screw, and means for operating said screw.

4. In a printer's lock-up the combination of a head part and a foot part suited to move only longitudinally on each other; a screw journaled in said head part; inclined surfaces on said foot part; dogs, provided with lugs or ears, attached to said foot part in such place and manner that when the two parts are in operative position said screw may lie between said dogs with which the thread may engage, and said lugs may rest on said inclined surfaces, receive the thrust of said screw, and may be thereby moved on said inclined surfaces in such manner that said dogs may be brought in closer engagement with said screw; means for disengaging said dogs from said screw; and means for operating said screw.

5. In a printer's lock-up the combination of a head part and a foot part suited to move only longitudinally on each other; a screw journaled in said head part; inclined surfaces on said foot part; dogs, provided with lugs, loosely attached to said foot part in such place and manner that when the two parts are in operative position said screw may lie between said dogs with which its thread may engage, and said lugs may rest on said inclined surfaces on said foot part and receive the thrust of said screw; an extension on each of said dogs; parts on said foot part suited to serve as a fulcrum for each of said dogs; means for pressing the extensions on said dogs against and rocking them on said fulcrums which may release said dogs from engagement with said screw; and means for operating said screw.

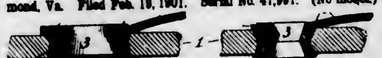
6. In a printer's lock-up the combination of a head part and a foot part suited to move longitudinally on each other; a screw journaled in said head part; dogs, provided with lugs on their heads, other extensions from said heads, and lugs on the lower end of said extensions; a hole in said foot part in which said extensions may lie and be retained by said lugs; fulcrums in said hole against which said extensions may rest, said dogs being so placed in said hole that when the two parts are in operative position said screw may lie in said hole between said dogs; means which may tend to keep said dogs in engagement with said screw; and means for operating said screw.

7. In a printer's lock-up the combination of a head part and a foot part suited to move only longitudinally on each other; a screw journaled in said head part; a hole in said foot part in which said screw may lie; V-form surfaces on said foot part at the top of said hole; dogs each having lateral lugs on its head, and an extension downward from said head, and lateral lugs at the lower end of said extension, which may lie on either side of the said screw in engagement therewith with said lateral lugs on said heads resting on said V-surfaces, said extensions lying in said hole and said lugs on said extension projecting laterally beneath the walls of said hole; fulcrums for said extensions which lie between them and said screw; springs operating between said foot part and said dogs which may tend to keep them in engagement with said screw; and means for operating said screw.

8. In a printer's lock-up the combination of a foot part and a head part, said foot part having parallel ways and said head part having parallel guides which may operate in said ways; a screw journaled in said head part; a turret-head on said screw; a hole in said foot part in which said screw may lie; V-form surfaces on said foot part at the top of said hole; dogs, each having lateral lugs on its head, an extension downward from said head, and lateral lugs at the lower end of said extension, which may lie on either side of said screw in engagement therewith with said lateral lugs on said heads resting on said V-surfaces, said extensions lying in said hole, and the lugs on said extensions projecting laterally beneath the walls of said hole; pins across said hole between said extensions and said screw; and springs operating between said foot part and said dogs.

9. In a printer's lock-up the combination between the foot part H having hollow cylindrical extensions F F, and cross-pieces I I; the head part A having guides B B suited to move longitudinally in the hollow extensions F F, the screw C with turret-head C' journaled in a central hole through the head A; the dogs D and E having lateral head-lugs D' D' and E' E', and extensions or tails with lateral lugs D'' D'' and E'' E''; springs S S seated in recesses S' S'; and pins P P, all substantially as and for the purpose described.

683,250. ELECTRIC RAIL-BOND. SAMUEL P. COWARDIN, Richmond, Va. Filed Feb. 19, 1901. Serial No. 47,997. (No model.)



Claim.—1. An electric rail-bond comprising an outer ferrule, and an inner expanded ferrule for pressing and holding the outer ferrule in

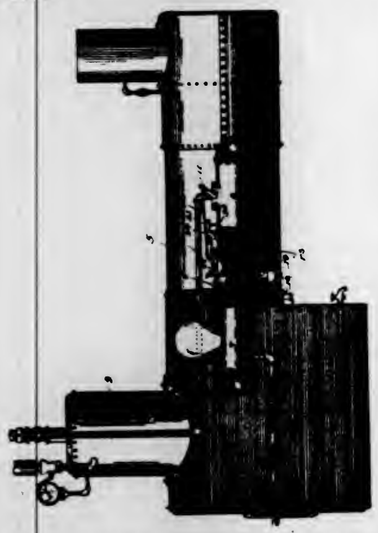
contact with a rail member, one ferrule being of a comparatively harder material than the other ferrule, substantially as described.

2. An electric rail-bond comprising an outer ferrule to fit in an opening in a rail member and an inner ferrule of varying dimensions fitting within the outer ferrule and of a comparatively harder material than the outer ferrule, said inner ferrule serving to expand the outer ferrule and hold it in its expanded condition, substantially as described.

3. An electric rail-bond comprising two outer ferrules lying within an opening in a rail member with their adjacent ends contiguous to each other, and an inner ferrule fitting within the outer ferrules and expanded to hold the outer ferrules in contact with the wall of the opening in the rail member, said outer ferrules each having conductors leading therefrom, substantially as described.

4. The combination with a rail member having an opening formed with a wall of varying dimensions, of a rail-bond comprising an outer ferrule to fit in said opening and having its outer face conforming to the shape of the opening in the rail member, and an inner ferrule fitting within the outer ferrule and having its outer face conforming to the inner face of the outer ferrule, said inner ferrule being shaped to prevent end movement in either direction and expanded to hold the outer ferrule in contact with the wall of the opening in the rail member, substantially as described.

683,251. FEED-WATER REGULATOR AND ALARM. CHARLES R. CRABTREE, Manchester, Ill. Filed Apr. 13, 1901. Serial No. 55,708. (No model.)



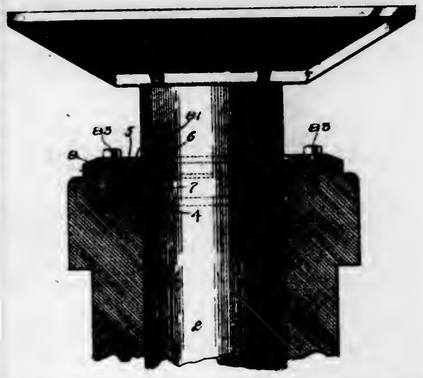
Claim.—1. The combination with a boiler, of a pump, a piston-rod forming part of the pump, a steam-supply between the boiler and pump and having a controlling-throttle, a float operated by the water in the boiler to open and close the throttle, an alarm, and means operatively connected to the piston-rod for operating said alarm.

2. The combination with a boiler, of a pump operatively connected thereto and adapted to feed to the boiler, a steam-supply leading from the boiler to the pump, a throttle in said steam-supply, a float-box connected with the boiler, a float therein, means for operatively connecting the float and throttle, an alarm, a piston-rod forming part of the pump and a movable rod having one end disposed in operative relation to the alarm and its opposite end in operative relation to said piston-rod.

3. The combination with a boiler, of a transparent float-box having upper and lower connections with said boiler, a float in said box adapted to be raised and lowered by the water from the boiler, a feed-water pump having a discharge-pipe communicating with the boiler, a steam-pipe leading from the boiler to the pump, a throttle-valve controlling the steam-supply, mechanism operatively connecting the float to the throttle-valve, an alarm, and mechanism operatively connecting the piston-rod of the pump to said alarm.

4. The combination with a boiler, of a float-box connected therewith, a float in said box, a pump having as one of its elements a piston-rod 35, a discharge-pipe leading from the pump to the boiler, a steam-supply pipe leading from the boiler to the pump, a throttle controlling said steam-supply, a lever 11 on said throttle, bell-crank lever 27 pivoted to a fixed point and having its arms connected respectively to the float and to the lever 11, an alarm 31, a movable rod 33 for operating the same, said rod 33 being reciprocated by the piston-rod of the pump, and a hand-lever arranged for operative connection with the mechanism connecting the float and the throttle-valve, substantially as specified.

683,252. PISTON-PACKING FOR HYDRAULIC PRESSES. JOHN J. CRAWFORD, Winchester, Mass. Filed Mar. 11, 1901. Serial No. 50,568. (No model.)

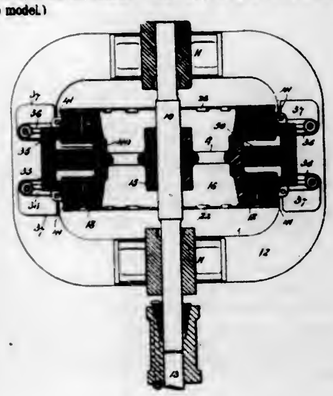


Claim.—1. The combination with the piston, and the cylinder having the enlargement 4 of its bore, the annular groove 5, and the fixed intermediate annular rib, of the molded packing fitting over said rib having the outer flange occupying the said annular groove and the inner flange occupying the said enlargement, and the cap clamping said packing against the said rib, substantially as described.

2. The combination with the piston, and the cylinder having the enlargement 4 of its bore, the annular groove 5, and the fixed intermediate annular rib, of the molded packing fitting over the said rib having the outer flange occupying the said groove and the inner flange occupying the said enlargement, and the cap having the grooved seat engaging the crown of the packing and clamping the latter against the said rib, substantially as described.

3. The combination with the piston, and the cylinder having the enlargement 4 of its bore, the annular groove 5, and the fixed intermediate annular rib, of the molded packing fitting over the said rib having the outer flange occupying the said groove and the inner flange occupying the said enlargement, the segmental cap having the grooved seat engaging the crown of the packing and clamping the latter against the said rib, and also having the outer bearing-ring to rest upon the cylinder, and means to secure the cap in place, substantially as described.

683,253. ELECTRIC GENERATOR OR MOTOR. PHILIP J. DARLINGTON, Montreal, Canada. Filed Aug. 15, 1898. Serial No. 688,586. (No model.)



Claim.—1. An electric generator comprising a stationary armature-frame consisting of an annular yoke; a pair of laminated rings built up upon the interior of said yoke one adjacent to each side thereof and having a space between them; means for retaining said laminated rings against displacement; an axially-movable rotary inductor comprising an annular series of pole projections located near each end thereof and in the same planes as said laminated rings; a field-spool located between said laminated rings and of sufficient width to project between said series of pole projections, said yoke being divided in a plane at right angles to its axis and on a line midway of the axial length of the space between the laminated rings, the divided parts being movable away from and toward one another, substantially as described and for the purpose set forth.

2. In an electric generator or motor, a stationary armature-frame upon which the laminated rings are built, consisting of an annular yoke divided in a plane at right angles to its axis, the inner face of said yoke between said laminated rings being grooved as at 51 to receive the field-spool, the divided parts being movable away from and toward one another, means for detachably connecting the divided parts of said yoke together, and an axially-movable rotary inductor mounted within said armature for the purpose set forth.

3. An electric generator comprising a rim; a series of segmental sections upon said rim; the adjacent faces of said rim and segmental sections having a series of registering transverse slots; a series of keys of I shape in cross-section adapted to take into said registering slots; and means for retaining said segmental sections against lateral displacement, substantially as and for the purpose set forth.

4. An electric generator comprising a rim having its edges circumferentially grooved; a series of laminated segmental sections built up upon said rim a series of clips recessed adjacent to one end to form flanges to take into the grooved edges of said rim, and the other ends of said clips overlapping the faces of the end laminæ of said segmental sections; and means for retaining said laminated segmental sections against displacement away from said rim, substantially as and for the purpose set forth.

5. In an electric generator, a rim; two annular series of laminated sections built up upon the face of said rim, one series being located adjacent to each edge of said rim, and a circumferential perimetrical groove being formed in the face of said rim adjacent to each series; the series of clips 22 angular in cross-section adapted to extend across the face of the inner laminæ of said laminated segmental section and having their outer lower corners notched to register with one of said perimetrical grooves; the series of keys 25, for preventing the lateral displacement of the laminated sections in one direction; means for preventing lateral displacement thereof in the opposite direction, and means for preventing radial displacement thereof, substantially as and for the purpose set forth.

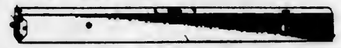
6. An electric generator or motor, comprising a stationary armature-frame consisting of an annular yoke divided in a plane at right angles to its axis, the divided parts being movable away from and toward one another and formed with annular centripetal extensions at their outer edges, a laminated ring built up upon each of said centripetal extensions, the adjacent faces of said centripetal extensions and laminated rings having a series of registering transverse slots, keys I-shaped in cross-section adapted to take into said registering slots and means for retaining said laminated rings against lateral displacement, for the purpose set forth.

7. An electric generator or motor, comprising a stationary armature-frame consisting of an annular yoke divided in a plane at right angles to its axis, the divided parts being movable away from and toward one another and formed with annular centripetal extensions at their outer edges, said centripetal extensions having their edges circumferentially grooved; a laminated ring built up upon each of said centripetal extensions, means for retaining said laminated rings against centripetal displacement, and a series of clips 47 recessed to form flanges to take into the grooved edges of said yoke, substantially as and for the purpose set forth.

8. An electric generator or motor, comprising a stationary armature-frame consisting of an annular yoke divided in a plane at right angles to its axis, the divided parts being movable away from and toward one another and formed with annular centripetal extensions at their outer edges, said centripetal extensions having their edges circumferentially grooved, a laminated ring built up upon each of said centripetal extensions, the adjacent faces of said centripetal extensions and laminated rings having a series of registering transverse T-slots cut therein, a key I-shaped in cross-section adapted to take into said registering slots; and a series of clips 47 recessed to form flanges to take into the grooved edges of said yoke, substantially as and for the purpose set forth.

683,254. COMBINATION-TOOL FOR SQUARING PURPOSES. ANDRE DELIN, Everett, Mass. Filed July 12, 1900. Serial No. 23,230. (No model.)

Claim.—1. The combination with a level provided with a pocket, a blade slidably mounted in said pocket, a cap on the end of the level partially closing said pocket, and means on one edge near one end of said blade for engaging said cap to hold the blade in position at right angles to the level, substantially as described.



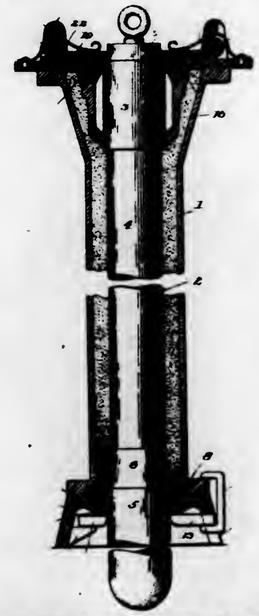
2. In combination with a level provided with a pocket, a blade slidably mounted in said pocket, a cap on the end of the level partially closing said pocket, means on one edge near the end of said blade for engaging said cap to hold the blade in position at right angles to the level, and means for preventing the withdrawal of the blade from the level, substantially as described.

3. In combination with a level provided with a pocket, a blade slidably mounted in said pocket, a cap on the end of said level partially closing said pocket and provided with slots, and tongues provided on one edge near one end of said blade for engaging in said slots when the blade is partially withdrawn from the level and turned at a right angle thereto, substantially as described.

4. In combination with a level provided with a pocket, a blade slidably mounted in said pocket and having on one edge near one end one or more engaging devices and upturned portions, and a cap on the level having slots therein for the passage therethrough of the blade whereby on withdrawing the blade, said upturned portions will engage the under side of said cap to prevent the withdrawal of the blade and upon turning the blade to a position at right angles to the level, said engaging devices may be brought into engagement with said cap to hold the blade in position, substantially as described.

5. In combination with a level provided with a pocket, a blade slidably mounted in said pocket, a cap on the end of said level partially closing said pocket and having an opening, means carried by the blade for engagement with said cap whereby the blade may be held in a position at right angles to the level, and a slide-plate provided with means for engaging said cap, whereby to close the opening therein when said blade is within the pocket, substantially as described.

683,255. APPARATUS FOR FORMING PIPE-MOLDS. JACOB K. DUHMOE, Philadelphia, Pa. Filed Dec. 27, 1900. Serial No. 41,187. (No model.)



Claim.—1. In a pipe-molding apparatus, the combination with the flask of a movable former centrally located therein having an enlarged flaring compressing-section near its lower end, an enlarged guide-section formed on the upper portion of the former, a bell-pattern having a central bore fitting the enlarged sections of the former, a guide-plate secured to the upper end of the flask adapted to hold and center the bell-pattern, and mechanism carried by the guide-plate for centering and guiding the former during its withdrawal.

2. In a pipe-molding apparatus, the combination with the flask of a movable former centrally located therein having an enlarged flaring compressing-section near its lower end, an enlarged guide-section formed on the upper portion of the former, a bell-pattern having a central bore fitting the enlarged sections of the former, a guide-plate secured to the upper end of the flask adapted to hold and center the bell-pattern, and mechanism carried by the said guide-plate for centering and guiding the former during its withdrawal and a removable guide-plate located in the flask-bottom having a central bore through which the lower section of the former passes, substantially as described.

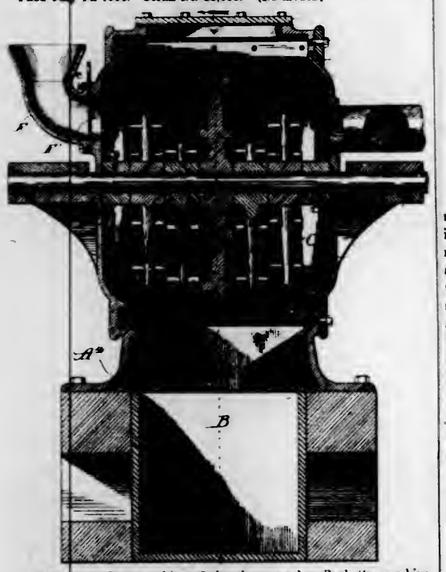
3. In a pipe-molding apparatus, the combination with the flask, of a movable former centrally located therein, an enlarged section formed on the upper portion of the former, a bell-pattern having a central bore into which the collar of the former fits, a guide-plate adapted to the upper end of the flask having a central opening for centering and holding the bell-pattern, and a series of spring-pressed fingers adapted to bear against the sides of the former, for the purpose described.

4. The combination with the flask, of a movable former located therein, an enlarged section formed on the upper portion of said former, a bell-pattern having a central bore fitting the enlarged section of the former, a guide-plate secured to the upper end of the flask adapted to hold and center the bell-pattern, and a series of radially-disposed yielding fingers pivoted to the guide-plate having their inner ends adapted to bear against the sides of the former, substantially as described.

5. The combination with the flask, of a movable former located therein, an enlarged section formed on the upper portion of said former, a bell-pattern having a central bore fitting the enlarged section of the former, a guide-plate secured to the upper end of the flask adapted to hold and center the bell-pattern, a series of radially-disposed fingers pivoted at one end to the guide-plate having their inner free ends bearing against the sides of the former, and springs adapted to bear against the upper faces of said pivoted fingers for keeping them in yielding contact with the former during its withdrawal, substantially as described.

6. In a pipe-molding apparatus, the combination of the flask, a removable former located in said flask, having its lower end extending through the bottom of same and adapted to be withdrawn to compress the sand, a removable guide-plate located in the flask-bottom having a central bore through which the lower section of the former passes, an outwardly-projecting lug formed on the bottom of the guide-plate, a shoulder carried by the inner wall of the flask-base adapted to support said lug, a projecting tongue formed on the opposite side of the guide-plate adapted to a recess in the said wall of the flask-base, and a clamp for securing said tongue to the flask-frame, substantially as described.

683,256. PULVERIZING-MILL. JAMES W. DRUITT, Oakpark, Ill. Filed July 14, 1900. Serial No. 23,633. (No model.)



Claim.—1. In a machine of the character described, the combination of a casing having ends provided on their inner surfaces with annular shoulders, one of said casing ends being removable, an annular screen having a longitudinal joint whereat the margins are detachably connected, said screen being secured to said shoulders and forming with the inclosing wall of the casing an annular space, a removable hand-plate for the casing adjacent to said joint, and a rotary beater within said screen, substantially as and for the purpose set forth.

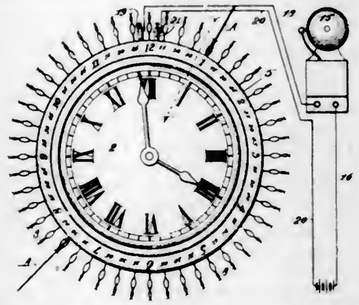
2. In a machine of the character described, the combination of a cylindrical casing having one integrally-formed end provided on its inner surface with an annular shoulder, a removable end for the casing provided on its inner surface with an annular shoulder, an annular screen having a longitudinal joint whereat the margins are detachably connected, said screen being wrapped upon said shoulders, bolt connection at the meeting margins of said screen, a removable hand-hole cover applied to the cylindrical portion of the casing adjacent to said joint, and a rotary beater within the screen, substantially as and for the purpose set forth.

3. In a machine of the character described, the combination of a casing, a screen supported between the ends thereof and forming with the inclosing-casing walls an annular chamber, and a rotary beater within said screen, said beater being supplied with radial beater-arms arranged in sets, each having a central arm and flanking arms arranged successively in advance of each other as the casing ends are approached, whereby the arms tend to hurl the material to the longitudinal center, substantially as and for the purpose set forth.

4. In a machine of the character described, the combination of a casing, a screen, a rotary beater, a feed-inlet, an air-inlet, a receptacle for the finished pulverized material, an air-outlet connected with said receptacle, and a dust-collecting device at said outlet comprising a centrally-located outwardly-dished disk of less diameter than the outlet, substantially as and for the purpose set forth.

5. In a machine of the character described, the combination of a casing, a screen, a rotary beater, a feed-inlet, an air-inlet, a receptacle for the finished pulverized material, an air-outlet connected with said receptacle, a dust-collecting device at said outlet, and a return-pipe connecting said outlet-pipe with said casing and serving to conduct air and carried-over material back to the machine, substantially as and for the purpose set forth.

683,257. ELECTRIC PROGRAM-CLOCK. BENJAMIN DUBINSKI, San Antonio, Tex. Filed Apr. 1, 1901. Serial No. 53,919. (No model.)

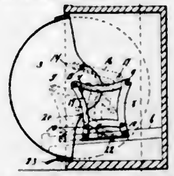


Claim.—1. In a reminder-clock, the combination with a clock-movement of a casing having circuit connection with an electric bell, a ring having circuit connection with said bell, a series of card-holders loosely arranged in said ring and adapted to be projected inwardly in said ring, an arm carried by said clock-movement, a slotted slide adjustably connected to said arm, a contact having a rearwardly-projecting perforated lug at right angles thereto, a pin pivotably securing the arm and lug together, and a spring coiled around the said pin, the ends of said spring being rigidly secured in said lug and head of the pin respectively whereby the contact is held normally in line with the slide, said contact being adapted to engage the inner ends of said card-holders, substantially as described.

2. In a reminder-clock, the combination with a clock-movement and a contact-arm carried by said movement, an apertured ring, a series of spring-actuated card-holders mounted in said ring, said card-holders comprising notched shanks adapted for engagement with said ring, and outer heads having waving prongs arranged to receive cards, substantially as and for the purpose set forth.

683,258. HAT-CASE. ALPHONSE R. DU BOIS, Flint, Mich. Filed Apr. 8, 1901. Serial No. 54,770. (No model.)

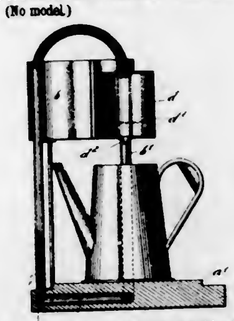
Claim.—1. In a device for the purpose set forth, the combination of a case, a semicircular door pivoted to rotate in said case, a pin projecting from the end of said door and passing through a guide-slot in the end of the case, a movable shelf within the case adapted to slide transversely thereof, a pivoted bell-crank lever having a slotted end engaging said pin, a second bell-crank lever pivotally engaging said shelf, means pivotally connecting said levers to cause them to work in unison whereby said shelf is actuated upon the opening and closing of the door.



2. In a device for the purpose set forth, the combination of a case, a semicircular door pivoted to the case, slides mounted in the case and carrying brackets which support the shelves, a system of levers connecting said door with said slides whereby the slides are caused to reciprocate as the door is actuated.

3. In a device for the purpose set forth, the combination of a case, reciprocatory slides mounted therein, frames attached to said slides and carrying the hat-shelves, a pivoted door, pins carried by the ends of the door, slotted levers engaging said pins, slotted levers engaging said slides and links connecting said levers.

683,259. COFFEE OR TEA MAKING APPARATUS. CHARLES G DURRE and LOUIS P. DURRE, New Orleans, La. Filed Oct. 6, 1900. Serial No. 32,222. (No model.)



Claim.—1. The combination of a flat base capable of sustaining on its upper side a culinary vessel and provided with an interior chamber, a water-reservoir sustained on the base above the same, a pipe passing from said reservoir downward to and communicating with said chamber in the base, and a delivery-pipe passing upward from the base and communicating with the chamber therein, the delivery-pipe having its discharge end turned downward, for the purpose specified.

2. The combination of a flat base capable of sustaining on its upper side a culinary vessel and provided with an interior chamber, a water-reservoir sustained on the base above the same, a pipe passing from said reservoir downward to and communicating with the chamber in the base, and a delivery-pipe of less capacity than the first-named pipe, the delivery-pipe passing upward from the base and communicating with the chamber therein, the upper end of the delivery-pipe being turned downward to discharge the water into a vessel on the base.

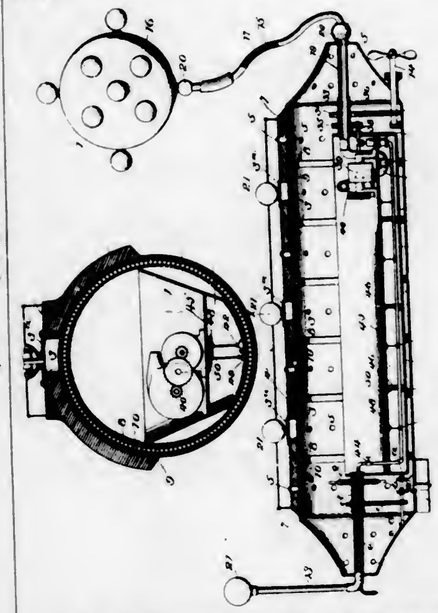
683,260. LIFE-BOAT. JOHN E. DYHART, Cadiz, Ohio. Filed Nov. 22, 1900. Serial No. 37,400. (No model.)

Claim.—1. In combination with a boat, a valved float, a flexible tube connecting the float with the boat and having a ball-and-socket connection with each.

2. Means for supplying air to a boat, the same consisting of a float studded with automatically-actuated valves, each communicating with the interior thereof, substantially as set forth.

3. Means for supplying air to a boat, the same consisting of a float composed of inner and outer concentric shells, the inner shell having a crown portion depressed or of less radius than the major portion of the shell, whereby the space between it and the outer shell is greater than the space between the major portion of the inner shell and the outer shell, and automatic valves applied to the outer shell and normally closed by contact with the inner shell and adapted to open when opposite the said depressed portion of the inner shell, substantially as set forth.

4. Means for supplying air to a boat, consisting of inner and outer concentric shells spaced apart and free to move one upon the other, the inner shell having its lower portion provided with a ballast and its upper portion of less radius forming a depressed crown and having the part connecting the said depressed crown with the remaining portion of the shell forming an obtuse angle, and valves applied to the outer casing and normally closed by contact with the inner shell and adapted to open when opposite the aforesaid depressed crown of the inner shell, substantially as set forth.



5. Means for supplying air to a boat consisting of inner and outer concentric shells adapted to move freely one upon the other, automatic valves applied to the outer shell, and caster-bearings between the two shells consisting of oppositely-disposed cups having antifriction-bearings between matching parts and provided with caster-wheels, substantially as set forth.

6. A boat comprising inner and outer hulls, the inner hull having a compartment in its lower portion to receive ballast, and a valved pipe in communication with the said compartment at one end and adapted to have its opposite end submerged, substantially as set forth.

7. A boat comprising inner and outer hulls, the inner hull having a compartment in its lower portion to receive ballast, a valved pipe in communication with said compartment and having its outer end submerged, and a pump applied to said pipe, as and for the purpose set forth.

8. A boat comprising inner and outer hulls, the inner hull having its lower portion provided with independent compartments, and a pipe extending through the several compartments and having valved communication with each and having its outer end submerged, substantially as set forth.

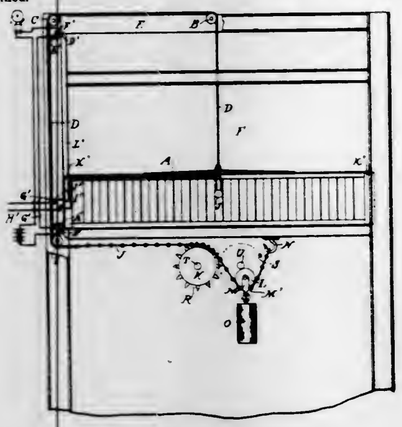
9. In a boat comprising inner and outer hulls, the inner hull having its lower portion subdivided into a series of compartments, a pipe having valved communication with each of the compartments and adapted to have its outer end submerged, and valves applied to the lower portion of the partitions separating the compartments to effect communication therebetween, substantially as set forth.

10. In combination, inner and outer hulls, a pipe constituting an axis common to said hulls and constituting a passage-way between the inner hull and the outer air, and a tubular shaft rotatably mounted upon said pipe and provided with gearing to transmit motion to the part to be operated, substantially as set forth.

683,261. BRIDGE-GATE. ERNST EISERT, Milwaukee, Wis. Filed Dec. 3, 1900. Serial No. 38,387. (No model.)

Claim.—In a drawbridge-gate, the combination of the respective ends of a bridge; of segmental rack-bars P and Q, each describing arcs of a different circle and with the respective bridge-abutments of the pinions

R and S, adapted to mesh with each other and with the rack-bars P and Q respectively; pinion-supporting shafts T and U, having journal-bearings in said abutments; sprocket-gear K supported upon said shaft T; sprocket-chain J operating upon said gear K; counterweight O suspended from said sprocket-chain; frame E supported from said abutment over the approach to said bridge; gate A having guide-bearings in said frame; and flexible connections D communicating from said gate over suitable supports with said sprocket-chain J, substantially as and for the purpose specified.



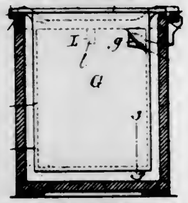
683,262. ACETYLENE-GAS BURNER. ALFRED C. EINSTEIN, St. Louis, Mo. Filed Apr. 15, 1901. Serial No. 55,893. (No model.)



Claim.—1. As a new article of manufacture, a gas-burner tip provided with a mixing-chamber and a series of air-ducts having their inner ends positioned to enter said mixing-chamber at a tangent to the wall thereof, substantially as described.

2. A gas-burner tip having a mixing-chamber and provided with a series of air-ducts extending from the exterior of the tip into said mixing-chamber at a tangent to the wall of said mixing-chamber and positioned at an angle to the bottom wall of said chamber, substantially as described.

683,263. ELECTROLYTIC PRODUCTION OF CATHODE-PLATES. ELSIE G. ELLIOTT and VALENTINE KISSNER, Perth Amboy, N. J. Filed Dec. 29, 1900. Serial No. 41,442. (No model.)



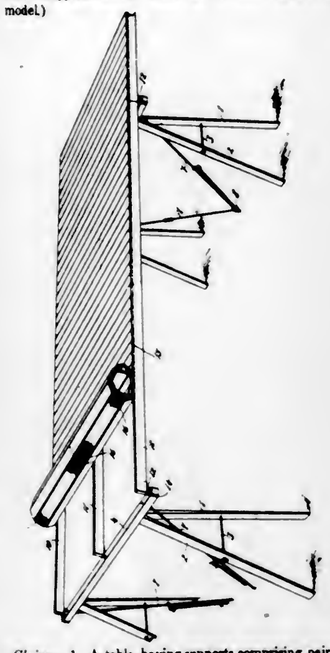
Claim.—1. A metallic cathode-plate for receiving removable sheet-metal deposits upon its immersed surface and formed with one or more scratch-grooves therein whereby the deposited coating is rendered separable along said grooves.

2. A metallic cathode for receiving removable sheet-metal deposits upon both its sides throughout its immersed surface said plate being partially immersed in an electrolytic solution from which metal may be deposited from a suitable anode and formed with a scratch-groove upon its exterior, whereby the metal electrodeposited upon said cathode while covering its immersed surface is rendered separable along the line of the groove during deposit.

3. An electrodeposited starter sheet or base for a cathode element formed with a detachable portion adjacent to the central part of its top edge.

4. A cathode-plate of soft metal provided with an electrodeposited metal frame or binding extending continuously about its immersed edges together with a sheet or coating substantially continuous therewith upon the surface of the plate, and means for rendering the deposited sheet or coating separable along the inner edges of the binding.

683,264. PORTABLE TABLE. JOHN M. FLEMISTER, Vigan, Luzon, Philippine Islands. Filed Dec. 13, 1900. Serial No. 39,811. (No model.)



Claim.—1. A table, having supports comprising pairs of legs at opposite sides, cross-pieces to which the upper ends of said legs are removably attached, flexible connections between the pairs of legs of a side, side strips adapted for removable engagement with said cross-pieces, and the folding or rolling top, substantially as specified.

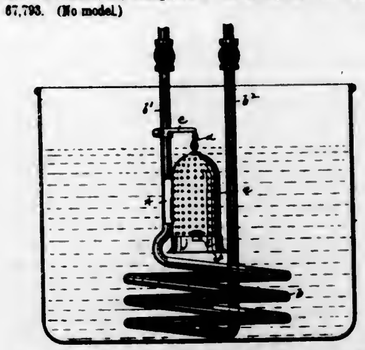
2. A table, comprising supports, each support consisting of two pairs of legs, each pair being flexibly connected together, a cross-strip with which the upper ends of said legs are removably engaged, guy-ropes attached to said cross-strips, anchoring devices for the ropes, side strips having removable engagement with the cross-strips, and a rolling top for the table, substantially as specified.

3. A table, comprising supports, each support consisting of two pairs of legs, metal plates on the upper ends of said legs adapted to engage in mortises formed in cross-strips, cross-strips in which said mortises are formed, said cross-strips also having mortises for receiving hook portions of side and center strips, side strips and center strips, hook portions on said side strips and center strips for removably engaging in the mortises formed in the cross-pieces, and a rolling top for the table, substantially as specified.

4. A table, comprising supports, each support consisting of divergent legs at opposite sides, the two legs of a side being flexibly connected together, cross-pieces with which the upper ends of said legs removably engage, guy-ropes attached to the cross-pieces, anchoring devices for the ropes, longitudinal strips for removably engaging with the cross-pieces, and a top for the table consisting of a number of strips flexibly connected together, substantially as specified.

5. A table, comprising supporting devices, each supporting device consisting of a cross-piece having mortises near its ends, and mortises for receiving hook portions of side and center strips, legs having metal plates at the upper ends bent relatively to the legs so that when engaged with said mortises the legs of a side will diverge downward, guy-ropes attached to the cross-pieces, anchoring devices for the said ropes, side strips, center strips, metal hook portions extended downwardly from the ends of said strips, and adapted to removably engage in the mortises formed in the cross-pieces, and the rolling or folding top for the table, substantially as specified.

683,265. HAIR-STRAINER FOR HATTERS' KETTLES. MANNING R. FOSTER, Jr., Orange, N. J. Filed July 10, 1901. Serial No. 67,793. (No model.)



Claim.—1. The improved strainer for hatters' kettles or machine-boxes comprising a perforated bell or dome adapted to be arranged within the kettle and an inverted funnel, the larger end of which lies at the mouth of the bell and the smaller end of which extends upward into the said bell, a chamber being formed between the funnel and the bell to entrap the hair, substantially as set forth.

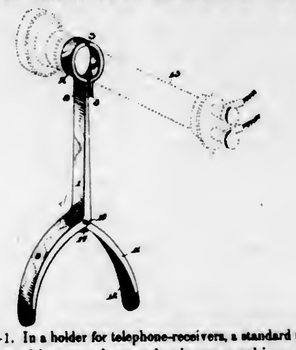
2. The combination with the steam-pipe and coil, of a bracket, a perforated bell or dome suspended from said bracket and a funnel for conducting the water into said perforated dome, substantially as set forth.

3. The combination with coiled pipe having a vertical extension, of a bracket adjustably secured to said extension, a suspended strainer having a funnel-shaped part for conducting the boiling water thereto, substantially as set forth.

4. The combination with suspensory perforated dome, of a separable funnel leading the water into said dome, substantially as set forth.

5. The combination with the perforated dome having a holder at one side and suspensory means at the top, of a separable funnel and means for holding said parts removably together, substantially as set forth.

683,266. TELEPHONE-RECEIVER. SAMUEL J. FRIEDMAN, McKeesport, Pa. Filed Feb. 23, 1901. Serial No. 48,433. (No model.)



Claim.—1. In a holder for telephone-receivers, a standard terminating at its lower end in a curved arm and at its upper end in a semicircular portion, combined with a semicircular clamp hinged to said semicircular portion, a curved arm pivoted to the standard to operate with the first-mentioned curved arm, and a spring interposed between said arms and connected to the inner faces thereof at their upper end to normally draw the pivoted arm toward the other arm, substantially as described.

2. In a holder for telephone-receivers, the combination of a standard, an arm rigidly secured thereto at its lower extremity, a hinged arm secured to said arm, said arm clamping the shoulder, a spring arranged between said arms to normally retain said arms together, and a clamp arranged at the upper end of said standard to receive and retain the telephone-receiver, substantially as specified.

3. In a holder for telephone-receivers, the combination of a standard, an arm rigidly secured thereto at its lower extremity, a hinged arm pivotally secured at the junction of said standard and arm, a spring interposed between said arms, a semicircular portion formed integral with and at the upper extremity of said standard, a semicircular hinged portion corresponding with said semicircular portion pivotally secured thereto, and fastening means for retaining said semicircular portions together, substantially as described.

688,267. EDUCATIONAL MEDIUM. HELEN B. FROEHLICH, New York, N. Y. Filed June 8, 1900. Serial No. 19,575. (No model.)

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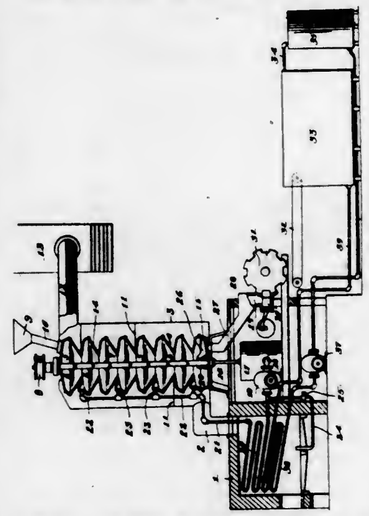
Claim.—1. As a new article of manufacture, an educational medium such as a book, chart, card or the like used for studying and teaching the syllabification of words, and having words thereon visually syllabicated by color, as set forth.

2. As a new article of manufacture, an educational medium used for teaching the syllabification of words, and having thereon words, the syllables of which appear in contrasting colors, as set forth.

3. As a new article of manufacture, an educational medium used for teaching the syllabification of words and having words thereon, the contiguous syllables of a word appearing in different colors, as set forth.

4. As a new article of manufacture, an educational medium used for teaching the syllabification of words and having words thereon, the contiguous syllables of a word appearing in different colors, the unaccented syllables being in colors other than black, and the accented syllables being of a neutral color or black, as set forth.

683,268. PROCESS OF TREATING SAWDUST OR OTHER GRANULAR MATERIAL. JOSHUA G. GARDNER, Baltimore, Md., assignor of one-half to John Mitchell, Jr., Washington, D. C. Filed May 23, 1900. Renewed Feb. 19, 1901. Serial No. 48,002. (No specimens.)

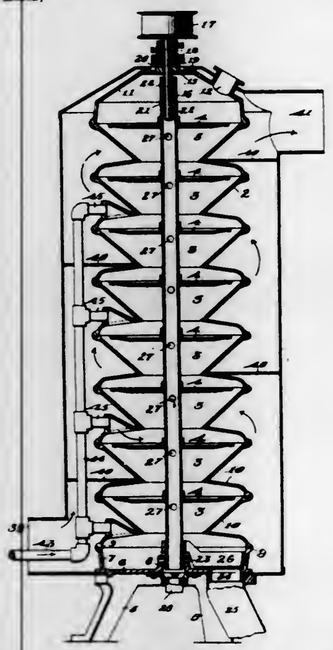


Claim.—1. The process of treating sawdust, or other material, for drying, seasoning or carbonizing the same, which consists in separating the particles or grains of material by centrifugal force, simultaneously exposing the separated particles or grains to the action of hot gases to vaporize and remove volatile matter, drawing off the evolved gases or vapors, separating the condensible by-products contained in such gases or vapors, reheating the non-condensible gases or vapors and utilizing the same for the heating of continuously-supplied quantities of fresh material by direct contact therewith simultaneous with the subjecting of the material to the action of the hot gases and centrifugal force, simultaneously discharging the particles or grains of seasoned material and forming the same into briquets, substantially as described.

2. The process of treating sawdust, or other material, for drying, seasoning or carbonizing the same, which consists in separating the particles or grains of material by centrifugal force, simultaneously exposing the separated particles or grains to the action of hot gases to vaporize and remove volatile matter, drawing off the evolved gases or vapors, separating the condensible by-products contained in such gases or vapors, reheating the non-condensible gases or vapors and utilizing the same for the heating of continuously-supplied quantities of fresh material by direct contact therewith simultaneous with the subjecting of the material to the ac-

tion of the hot gases and centrifugal force, simultaneously discharging the particles or grains of seasoned material, forming the same into briquets, carbonizing the briquets to convert the same into fuel, collecting the condensible products obtained in the carbonizing of the briquets, reheating the non-condensible gases from the carbonizing operation, and utilizing the reheated gases in the carbonization of more briquets, substantially as set forth.

683,269. **DRYING APPARATUS.** JOSHUA G. GARDNER, Baltimore, Md., assignor of one-half to John Mitchell, Jr., Washington, D. C. Filed May 23, 1900. Renewed Mar. 2, 1901. Serial No. 49,645. (No model.)



Claim.—1. In a centrifugal apparatus for drying, seasoning or carbonizing granular material, a retort comprising a series of communicating retort-chambers, a plurality of centrifugal disks mounted respectively in the several retort-chambers, a rotary hollow shaft connected to said disks, means for externally heating said retort, means for feeding material into the uppermost retort-chamber and for discharging treated material from the lowermost retort-chamber, a condenser suitably connected to said shaft and adapted to receive from the retort-chambers the gases or vapors evolved from the material treated in the retort, means for drawing off the non-condensible vapors or gases from said condenser, means for reheating said non-condensible gases or vapors, and means connected thereto for returning said reheated gases or vapors to said retort-chambers.

2. In centrifugal apparatus for drying, seasoning or carbonizing granular materials, the combination of a retort comprising a number of communicating retort-chambers, a heating jacket or casing for said retort, a tubular rotary shaft extended through the retort-chambers, centrifugal disks located in the several retort-chambers and mounted on said tubular rotary shaft, the said tubular rotary shaft being provided with apertures for the exit from the several retort-chambers of gases or vapors evolved from the material treated therein, means for feeding material into the uppermost retort-chamber, discharge devices at the bottom of the retort for removing the treated material, a furnace for heating the retort casing or jacket, and pipes for conducting hot gases into the retort, substantially as described.

3. In centrifugal apparatus for drying, seasoning or carbonizing granular materials, the combination of a retort comprising a number of superposed and communicating retort-chambers and having a feed-inlet in the uppermost chamber and a discharge leading from the lower chamber, a heating jacket or casing for said retort, a vertically-arranged tubular rotary shaft suspended through the communicating retort-chambers, said tubular rotary shaft being provided with apertures for the passage of gas or vapor from the retort-chambers and into said shaft, a number of centrifugal disks mounted on said tubular rotary shaft and respectively arranged in the several retort-chambers, means for heating the retort from the exterior, and pipes for conducting hot gas to the interior of the retort, substantially as described.

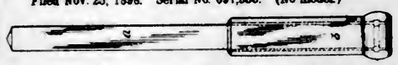
4. In centrifugal apparatus for drying, seasoning or carbonizing granular materials, the combination of a retort comprising a number of communicating retort-chambers and having a base-plate provided with a centrally-located upwardly-projecting annular flange or nipple, a rotary tubular shaft suspended through the several communicating retort-chambers and having its lower end received in said nipple, non-conducting packing surrounding the lower end of said tubular shaft and secured to said nipple, the said rotary tubular shaft being provided with apertures for exit of gas from the retort-chambers into said tubular shaft, a number of centrifugal disks mounted on the rotary tubular shaft and arranged respectively in the several chambers, a rotary spindle through which said shaft is suspended at its upper end, said spindle being provided with a driving-pulley and with ball-bearings and non-conducting packing, a heating jacket or casing surrounding the retort, a condenser having an inlet-pipe communicating with the lower end of the tubular rotary shaft, for passage of gas from the retort to said condenser, and means for discharging treated material from the retort, substantially as described.

5. In centrifugal apparatus for drying, seasoning or carbonizing granular materials, the combination of a retort comprising a number of communicating retort-chambers, each approximately in the form of a truncated cone, a tubular rotary shaft extended through the retort-chambers and provided with apertures for exit of gas from said chambers and into said shaft, a number of centrifugal disks mounted on said shaft and arranged respectively in the several retort-chambers, the uppermost retort-chamber being provided with a feed-inlet arranged to discharge material upon the uppermost centrifugal disk, a discharge-chute leading from the bottom of the retort, a rotary sweep carried by the lower end of said rotary tubular shaft, a heating jacket or casing surrounding the retort, pipes for conducting hot gases into the retort, and a pipe for conducting gas away from the lower end of the tubular rotary shaft, substantially as described.

6. In centrifugal apparatus for drying, seasoning or carbonizing granular materials, the combination of a retort comprising a number of communicating retort-chambers constructed in sections superposed one on another, a rotary tubular shaft extended through the retorts and provided with passages for the exit of gas, centrifugal disks mounted on and actuated through said shaft, said disks being severally arranged in the retort-chambers, means for feeding material into the uppermost retort-chamber to be received therein on the uppermost centrifugal disk, and devices for discharging treated material from the lower part of the retort, substantially as described.

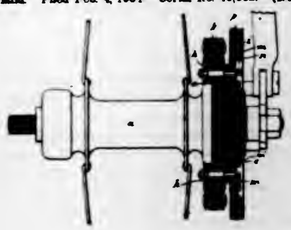
7. In centrifugal apparatus for drying, seasoning or carbonizing granular materials, the combination of a retort, a rotary tubular shaft extended vertically through the retort, a number of centrifugal disks mounted on and actuated by said shaft, a heating jacket or casing surrounding the retort and provided at its lower end with an inlet-flue and at its upper end with an outlet-flue, baffles arranged in said jacket or casing to cause the heating medium to circulate around the retort, and pipes for conducting hot gases to the interior of the retort, substantially as described.

683,270. **FENCE-POST.** RICHARD H. GEIGER, Pittsburg, Pa. Filed Nov. 25, 1898. Serial No. 697,353. (No model.)



Claim.—The combination with a fence-post body having one or more transverse grooves in the lower part thereof, of a hollow non rotting or rusting base fitting around the same and having one or more interior grooves and a filling of setting material between the post-body and hollow base.

683,271. **FREE-WHEEL VELOCIPEDE.** ANTONY GIEBE, Bristol, England. Filed Feb. 4, 1901. Serial No. 46,002. (No model.)



Claim.—1. The combination of an axle, a wheel thereon, a pedaling mechanism, a double-acting clutch for connecting said pedaling mechanism with said wheel, a spring for holding said clutch open, and means for overcoming the tension of said spring to lock the clutch in back-pedaling.

2. The combination of an axle, a wheel thereon, a pedaling mechanism, a double-acting clutch for connecting said pedaling mechanism with said wheel, a spring for holding said clutch open, means for overcoming the tension of said spring to lock the clutch in back-pedaling, and means for regulating the tension of said spring.

3. The combination of an axle, a wheel thereon, a pedaling mechanism, a double-acting clutch for connecting said pedaling mechanism with said wheel, a spring for holding said clutch open, and a brake for overcoming the tension of said spring to lock the clutch members for back-pedaling.

4. In a velocipede, the combination of an axle, a wheel thereon, a pedaling mechanism, a double-acting clutch for connecting said pedaling mechanism with said wheel, and a brake adapted to perform the double function of braking the wheel and of uniting the clutch members for back-pedaling.

5. The combination of two rotary parts, one of which is provided with two sets of recesses tapering in opposite directions, balls disposed in said recesses, springs normally forcing said balls in contact with the other rotary part for locking said parts together, a brake-disk provided with pins extending into said recesses, a torsional spring connected with one of said parts and with said brake-disk, a brake-band for operating against said brake-disk, and a brake-lever connected with said brake-band.

6. The combination of an axle, a wheel thereon, a pedaling mechanism, a double-acting clutch for connecting said pedaling mechanism with said wheel, a spring for regulating the tension of said clutch, and a brake for retarding the movement of the free wheel when lightly applied, and for overcoming the tension of said spring and locking the clutch members together for back-pedaling when more forcibly applied, whereby the back-pedaling movement may be employed to further brake the wheel.

7. In a velocipede, the combination of an axle, a wheel thereon, a sprocket-wheel, a ring disposed in said sprocket-wheel and having recesses therein tapering alternately in opposite directions, said ring being fixed to said wheel, balls disposed in said recesses, springs disposed in said recesses for normally forcing said balls in contact with the sprocket-wheel for locking it to said ring, a disk provided with pins extending into said recesses for forcing the balls of one set of recesses back against the tension of their springs, means disposed on said wheel and connected with the pin-disk for holding the ring and sprocket-wheel apart, and a brake connected with said means for connecting the ring and sprocket-wheel for back-pedaling.

8. The combination of a wheel, a pedaling mechanism connected therewith, a ring connected to said wheel, a disk having pins adapted to act on said ring to free it from said pedaling mechanism, an adjustable spring connecting said disk to the wheel, and a brake adapted to act on said disk to overcome said spring and connect the ring to the pedaling mechanism for back-pedaling.

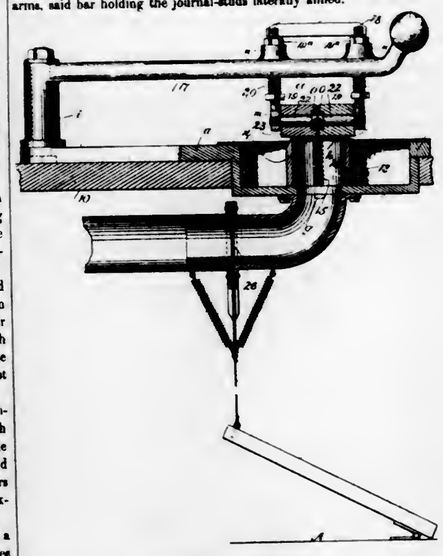
9. The combination of a wheel, a ring connected therewith having tapered recesses therein, spring-actuated balls disposed in said recesses, a disk provided with pins adapted to force the balls against their springs to obtain a free wheel, a spring connected to said wheel and to said disk, and a brake-band adapted to engage said disk and perform the double function of a brake and a releasing device for the pins whereby a rigid wheel is obtained for back-pedaling.

10. The combination of a wheel, a ring connected therewith having tapered recesses therein, spring-actuated balls disposed in said recesses, a disk provided with pins adapted to force said balls against their springs to obtain a free wheel on back-pedaling, a spring connected to said wheel and to said disk, a brake-band adapted to perform the double function of a brake, and a releasing device for the pins whereby a rigid wheel is obtained for back-pedaling, and means for adjusting the tension of said spring to regulate the point at which the brake-power shall exceed that of the spring.

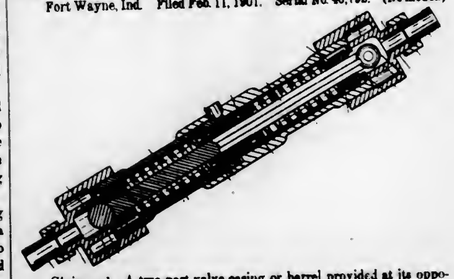
683,272. **CIGAR-WRAPPER-CUTTING MACHINE.** WILLIAM S. GLEIM, Lancaster, Pa. Filed July 19, 1901. Serial No. 68,912. (No model.)

Claim.—1. The combination, with a table, a depending exhaustion-chamber thereon, and a hollow die in said chamber, having a sharp top edge, of a lever pivoted at one end on the table, spaced adjustable and spring-pressed arms depending from the lever above the die, and having axial slots in their upper ends, a laterally-extended journal-stud on the lower end of each arm, a roller held to rotate on each journal-stud, and a keeper-bar loosely held at its ends in the axial slots formed in the upper ends of the arms.

2. The combination, with the roller-supports, comprising a pivoted lever, hanger-arms loosely held in spaced perforations in the lever near its free end, said arms having each an axial slot in the upper end, and adjusting-nuts mounted on the arms, of a coiled spring on each arm seated on a nut and bearing upon the lever, a laterally-projected journal-stud on the lower end of each arm, a roller loosely mounted and held upon each stud, and a keeper-bar engaged near its ends in the axial slots in the arms, said bar holding the journal-studs laterally alined.



683,273. **AUTOMATIC CYLINDER-COCK.** SYLVESTER P. GREY, Fort Wayne, Ind. Filed Feb. 11, 1901. Serial No. 46,792. (No model.)



Claim.—1. A two-part valve casing or barrel provided at its opposite ends with a valve-chamber having inlet and outlet openings; a ball-valve mounted in said chamber and adapted to normally close said outlet-opening; an operating-plunger loosely mounted in said casing and adapted to open said valves as described; auxiliary valves seated as shown on the said valve-chamber in coöperative relation with the said ball-valves; and means for so supporting the said auxiliary valves upon their seat against the normal steam-pressure that they will open by the increased water-pressure thereon.

2. In an automatic cylinder-cock, a two-part barrel-casing; a pair of main ball-valves mounted in said casing and operated by the boiler-pressure; a pair of auxiliary or emergency valves in coöperative relation with the said main valves respectively and adapted to resist the normal steam-pressure, but adapted to be opened by the additional fluid-pressure from condensation; and means for yieldingly supporting the said auxiliary valves in position.

3. The combination in an automatic cylinder-cock of a two-part valve barrel or casing having at its opposite ends a valve-chamber for a ball-valve, and provided with a seat for the auxiliary valves; a pair of ball-valves operated by the steam-pressure; a pair of spring-pressed auxiliary valves seated on said valve-chamber in coöperative relation with the said ball-valves respectively, and adapted to be operated by the emergency fluid-pressure against the tension of said springs.

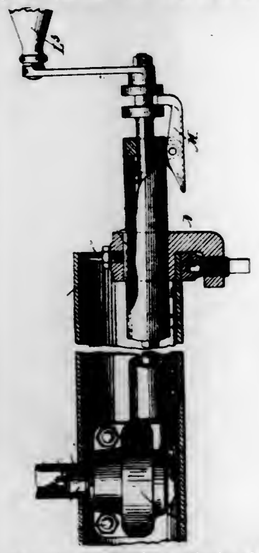
4. An automatic compound cylinder-cock having opposite relief-valves operated by the boiler-pressure in such a relation to each other that the closing of one will open the other, and only one of said valves can be closed at the same time, and provided with a pair of spring-pressed

safety-valves normally closed, arranged in coöperative relation with the said relief-valves, and adapted to be opened by additional fluid-pressure.

5. An automatic cylinder-cock having a pair of oppositely-arranged relief-valves alternately opened by a single coacting plunger under boiler-pressure as shown, and a pair of safety-valves normally closed and in coöperative relation with the said respective relief-valves, and adapted to be opened by excessive fluid-pressure.

6. The combination in an automatic cylinder-cock of a two-part valve barrel or casing provided upon its opposite ends with main-valve chambers having inlet and outlet openings; ball-valves mounted in said chambers and adapted to be alternately operated by an actuating-plunger under boiler-pressure; auxiliary valves mounted in said barrel in coöperative relation with said main valves and adapted to be actuated only by the additional water-pressure; and means for normally supporting the said auxiliary valves in position against the boiler-pressure.

683,274. TUBE-EXPANDING APPARATUS. FRANK G. HAMPSON, Clapham, England. Filed June 4, 1901. Serial No. 63,130. (No model.)



Claim.—1. In a tube-expander the combination of a supporting-frame, a cylindrical frame capable of rotatory movement therein, a roller-carriage free to rotate within the cylindrical frame means operated by the rotation of the latter for imparting endwise movement to the carriage, means for rotating the cylindrical frame and means for controlling and arresting the rotation of the same.

2. In a tube-expander the combination of a supporting-frame a hollow cylinder capable of rotatory movement therein, a roller-carriage free to rotate within the cylinder an expanding-mandrel arranged centrally of the carriage, means operated by the rotation of the cylinder for imparting endwise movement to the carriage, means for rotating the mandrel and moving it endwise and means, controlled by the mandrel, for giving rotatory movement to the cylinder and for arresting the same.

3. In a tube-expander the combination of a supporting-frame, having two vertical slots, a hollow cylinder capable of rotatory movement within the frame and having two cam-slots each extending around part of its circumference, from above downward a ring adapted to slide within the cylinder and having two pins each engaging one of the cam-slots and one of the vertical slots, a roller-carriage engaged with the ring so as to freely rotate therein, and means to partially rotate the cylinder within the frame to impart endwise movement to the ring and the carriage substantially as set forth.

4. In a tube-expander the combination of a supporting-frame, having two vertical slots a hollow cylinder capable of rotatory movement within the frame, having two cam-slots each extending around a part of its circumference from above downward, and a recess in its bottom edge, a ring adapted to slide within the cylinder and having two pins each engaging one of the cylinder cam-slots and one of the frame vertical slots, a roller-carriage rotatably engaged in the ring, an expanding-mandrel arranged centrally of the carriage having a tapered operative portion, an angular prolongation and a recess between these two portions, means to rotate and give endwise movement to the mandrel, a sliding catch adapted to engage the cylinder-recess and having a body through which the mandrel passes, a guiding-plate for the catch and its body, means to rotate the guiding-plate and a spring tending to hold the catch engaged within the recess, the catch and the hole in its body through which the mandrel passes being so proportioned relatively to the angular prolongation and the recess of the mandrel that the catch is engaged in the cylinder-recess when its body corresponds with the mandrel-recess and withdrawn from the same when its body corresponds with the angular prolongation substantially as set forth.

5. In a tube-expander the combination with a supporting-frame, a hollow cylinder capable of rotatory movement therein and having a recess in its lower edge and a rotatable catch adapted to engage said recess to rotate the cylinder of a plate or offset having beveled ends adapted to engage the catch and remove it from the cylinder-recess when the cylinder has completed one-half of a revolution in either direction substantially as and for the purpose set forth.

6. In a tube-expander the combination of a supporting-frame, a roller-carriage free to rotate and to move endwise therein, an expanding-mandrel arranged centrally of the carriage, and means, operated by a single spindle to impart endwise movement to the carriage and to the mandrel or to revolve the mandrel.

7. In a tube-expander the combination with a supporting-frame, a threaded nut free to rotate therein, an expanding-mandrel with a threaded end engaged in the nut, a gear-wheel above the nut, engaged with the mandrel so as to rotate the latter but permit of its free endwise movement, a sliding bolt controlled by a spring to lock the nut and wheel together and a second gear-wheel engaged with the first to rotate the same, of a spindle capable both of rotation and of endwise movement having an end pin adapted to engage the sliding bolt and force it back against the tension of its spring to release the first gear-wheel from the nut and to lock the latter when the spindle is in its forward position, and to release the bolt and nut when the spindle is drawn back, and having an angular portion engaged with the second gear-wheel, so as to rotate the latter when the spindle is in either position endwise substantially as set forth.

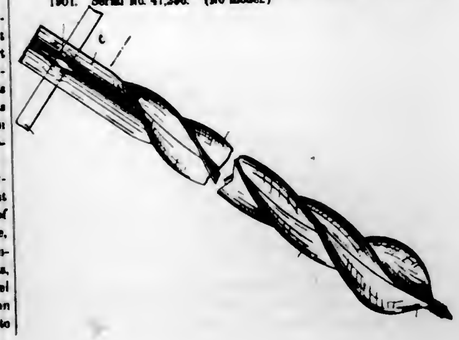
8. In a tube-expander the combination with a frame and casing-shaft and an operating-spindle carried thereby capable both of rotatory and endwise movement and operative in two endwise positions of two collars on the spindle and a spring-controlled catch carried on the casing-shaft adapted to engage between the collars, or behind one collar substantially as and for the purpose set forth.

9. In a tube-expander the combination with a casing-shaft of a clamp carried thereon, so as to be capable of endwise but not of rotatory movement, means to fix the clamp on the shaft at any desired point and a screw-controlled jaw adapted to engage the tube within which a smaller tube is to be expanded, substantially as set forth.

10. In a tube-expander the combination with the casing-shaft of a clamp carried thereon so as to be capable of endwise but not of rotatory movement, means to fix the clamp on the shaft at any desired point and a screw-controlled jaw adapted to engage the tube within which a smaller tube is to be expanded and an index or pointer lying in the same longitudinal plane as the mandrel substantially as and for the purpose set forth.

11. In a tube-expander, the combination with the casing-shaft of a clamp carried thereon so as to be capable of endwise but not of rotary movement, a set-screw for fixing the clamp on the shaft and a screw-controlled jaw adapted to engage the tube within which a smaller tube is to be expanded said screw constituting an index or pointer lying in the same longitudinal plane as the mandrel; substantially as described.

683,275. BORING INSTRUMENT FOR BUILDING OR MINING PURPOSES. EMIL HARTUNG, Mühlhausen, Germany. Filed Feb. 14, 1901. Serial No. 47,296. (No model.)



Claim.—1. The combination with a casing-shaft and an operating-spindle carried thereby capable both of rotatory and endwise movement and operative in two endwise positions of two collars on the spindle and a spring-controlled catch carried on the casing-shaft adapted to engage between the collars, or behind one collar substantially as and for the purpose set forth.

2. In a tube-expander the combination with a supporting-frame, a hollow cylinder capable of rotatory movement therein and having a recess in its lower edge and a rotatable catch adapted to engage said recess to rotate the cylinder of a plate or offset having beveled ends adapted to engage the catch and remove it from the cylinder-recess when the cylinder has completed one-half of a revolution in either direction substantially as and for the purpose set forth.

3. In a tube-expander the combination of a supporting-frame, a roller-carriage free to rotate and to move endwise therein, an expanding-mandrel arranged centrally of the carriage, and means, operated by a single spindle to impart endwise movement to the carriage and to the mandrel or to revolve the mandrel.

4. In a tube-expander the combination with a supporting-frame, a threaded nut free to rotate therein, an expanding-mandrel with a threaded end engaged in the nut, a gear-wheel above the nut, engaged with the mandrel so as to rotate the latter but permit of its free endwise movement, a sliding bolt controlled by a spring to lock the nut and wheel together and a second gear-wheel engaged with the first to rotate the same, of a spindle capable both of rotation and of endwise movement having an end pin adapted to engage the sliding bolt and force it back against the tension of its spring to release the first gear-wheel from the nut and to lock the latter when the spindle is in its forward position, and to release the bolt and nut when the spindle is drawn back, and having an angular portion engaged with the second gear-wheel, so as to rotate the latter when the spindle is in either position endwise substantially as set forth.

5. In a tube-expander the combination with a frame and casing-shaft and an operating-spindle carried thereby capable both of rotatory and endwise movement and operative in two endwise positions of two collars on the spindle and a spring-controlled catch carried on the casing-shaft adapted to engage between the collars, or behind one collar substantially as and for the purpose set forth.

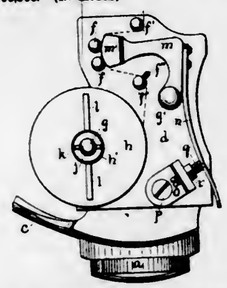
6. In a tube-expander the combination with a casing-shaft of a clamp carried thereon, so as to be capable of endwise but not of rotatory movement, means to fix the clamp on the shaft at any desired point and a screw-controlled jaw adapted to engage the tube within which a smaller tube is to be expanded, substantially as set forth.

7. In a tube-expander the combination with the casing-shaft of a clamp carried thereon so as to be capable of endwise but not of rotatory movement, means to fix the clamp on the shaft at any desired point and a screw-controlled jaw adapted to engage the tube within which a smaller tube is to be expanded and an index or pointer lying in the same longitudinal plane as the mandrel substantially as and for the purpose set forth.

8. In a tube-expander, the combination with the casing-shaft of a clamp carried thereon so as to be capable of endwise but not of rotary movement, a set-screw for fixing the clamp on the shaft and a screw-controlled jaw adapted to engage the tube within which a smaller tube is to be expanded said screw constituting an index or pointer lying in the same longitudinal plane as the mandrel; substantially as described.

Claim.—The herein-described instrument constituting a combined boring-tool and earth-specimen exhibitor, having a portion of its length formed with a series of helical threads and the remaining portion of its length formed with vertical threads, the latter threads forming straight and undisturbed exhibition-grooves as described, the upper portion of the instrument having the vertical threads being provided with an eye formed through the threads, and a handle mounted in the said eye and inclosed by the threads, substantially as shown and described.

683,276. TENSION DEVICE FOR MACHINES FOR BRAIDING WHIPS. CHARLES W. HASELER, Westfield, Mass. Filed June 28, 1901. Serial No. 66,388. (No model.)



Claim.—1. A tension device of the class hereinbefore named, comprising a plate, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and locking means for the arm, adapted to engage said tailpiece.

2. A tension device of the class hereinbefore named, comprising a plate, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and locking and adjusting means for the arm, adapted to engage said tailpiece.

3. A tension device of the class hereinbefore named, comprising a plate, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and a locking member pivotally hung on the plate, adapted to engage said tailpiece.

4. A tension device of the class hereinbefore named, comprising a plate, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and locking and adjusting means for the arm, consisting of a block with a screw adapted to engage said tailpiece, said block being pivotally hung on the plate.

5. A tension device of the class hereinbefore named, comprising a plate carrying a stud having a spool thereon, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and locking means for the arm, adapted to engage said tailpiece.

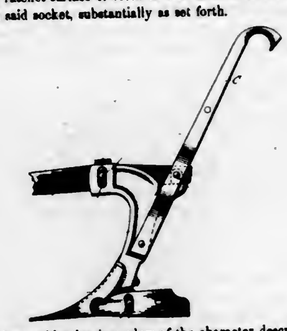
6. In a tension device of the class hereinbefore named, in combination with a plate carrying a stud having a spool thereon and means to retard the rotation of said spool, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and locking means for the arm, adapted to engage said tailpiece, substantially as set forth.

7. The combination, in a tension device of the class hereinbefore named, of a plate carrying a stud having a spool and washer thereon, a spring bearing against said spool and washer, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, and locking means for the arm, adapted to engage said tailpiece, substantially as set forth.

8. The combination, in a tension device of the class hereinbefore named, of a plate carrying a stud having a spool thereon, a pressure-arm pivotally hung on said plate and provided with a resilient tailpiece, a stop fixed to the plate adjacent to the head of said arm, guides suitably arranged relative to the arm, and locking means for the arm, adapted to engage said tailpiece, substantially as set forth.

683,277. PLOW-STOCK. BENJAMIN P. HATCHELL, Effingham, S. C. Filed Jan. 12, 1901. Serial No. 43,995. (No model.)

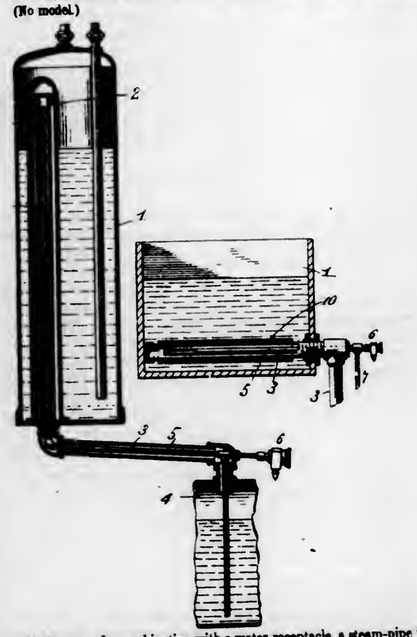
Claim.—1. The combination in a plow of the character described, of the bracket or angular casting adapted to catch upon the plow-beam and let into a recess or socket in the side of the forward end of the standard or stock, and a bolt effecting connection between said parts, said casting or bracket having a ratchet-surface or teeth adapted to engage a corresponding ratchet-surface or teeth on the inside of said standard, juxtaposed with said socket, substantially as set forth.



2. The combination in a plow of the character described of a stock having a rearwardly-extended arm provided with a perforated lug with a beam having a fixed pivot or stud engaging the perforations of said lug, substantially as set forth.

3. The combination in a plow of the character described, of a stock having a rearwardly-extended arm provided with a perforated lug to which is pivoted a beam with an angular bracket or casting adapted to be adjusted vertically within a recess or socket in the forwardly-extended arm of the stock to provide for the raising and lowering of the beam, substantially as set forth.

683,278. APPARATUS FOR HEATING WATER. EDWIN W. HIGBEE, Northampton, Mass. Filed Apr. 2, 1900. Serial No. 11,081. (No model.)



Claim.—1. In combination with a water-receptacle, a steam-pipe in said receptacle having a closed inner end, a vent-pipe entering said steam-pipe at a point outside of said receptacle, and extending in said pipe nearly to the closed end thereof, said vent-pipe having communication with the outer atmosphere and a valve on the vent-pipe, outside of the steam-pipe, substantially as described.

2. The combination with a steam-generator and a water-receptacle of a steam-pipe extending from said generator to, and into said receptacle, the end of said pipe in the latter being closed; a vent-pipe extending from a point near the closed end of said steam-pipe, and within the latter, to a point in said generator below the water-line therein, a branch having communication with the outer atmosphere on said vent-pipe, and an automatic valve on said branch, substantially as described.

3. The combination with a water-receptacle, of a steam-pipe therein having a closed inner end, a jacket for said pipe, whereby a space is maintained between said pipe and the water in the receptacle, a vent-tube having communication with the outer atmosphere and lying partly within said steam-pipe and partly outside thereof, and a valve on the outer portion of said tube, substantially as described.

4. The combination with a steam-generator of a water-receptacle, a steam-pipe therein having a closed end, a vent-pipe having communication with the outer atmosphere entering said steam-pipe at a point outside of said receptacle, and extending therein nearly to said closed end, an automatic valve on said vent-pipe outside of the steam-pipe, and a drip-pipe connected with the steam-pipe and extending to and entering said generator below the water-level thereof, substantially as described.

5. In a water-heater, the combination of a water-receptacle, a steam-pipe in said receptacle, a vent-pipe partly within said steam-pipe and projecting therefrom at a point outside of the water-receptacle, said vent-pipe having communication with the outer atmosphere, and a valve for governing the exit of said vent-pipe, substantially as described.

6. In a water-heater, the combination of a water-receptacle, a steam-pipe in said receptacle, a jacket for said steam-pipe, a vent-pipe having communication with the outer atmosphere partly within said steam-pipe and projecting therefrom at a point outside of the water-receptacle, and a valve for governing the exit of said vent-pipe, substantially as described.

7. In a water-heater, the combination of a water-receptacle, a steam-pipe entering said receptacle and arranged to discharge the water of condensation therefrom by gravity, a vent-pipe having communication with the outer atmosphere situated partly within the steam-pipe and projecting therefrom at a point outside of the water-receptacle and a valve for governing the exit of said vent-pipe, substantially as described.

8. In a water-heater, the combination of a water-receptacle, a steam-pipe entering said receptacle and arranged to discharge the water of condensation therefrom by gravity, a vent-pipe having communication with the outer atmosphere situated partly within the steam-pipe and projecting therefrom at a point outside of the water-receptacle, and an automatic valve for governing the exit of said vent-pipe, substantially as described.

9. In a water-heater, the combination of a water-receptacle, a steam-pipe entering said receptacle and arranged to discharge the water of condensation therefrom by gravity, a jacket for said steam-pipe, a vent-pipe having communication with the outer atmosphere situated partly within the steam-pipe and projecting therefrom at a point outside of the water-receptacle, and an automatic valve for governing the exit of said vent-pipe, substantially as described.

683,279. CONTROL SYSTEM FOR ELECTRIC CARS. CARL HOCHGRAEF, Vienna, Austria-Hungary, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Filed Jan. 22, 1900. Renewed Aug. 2, 1901. Serial No. 70,751. (No model.)

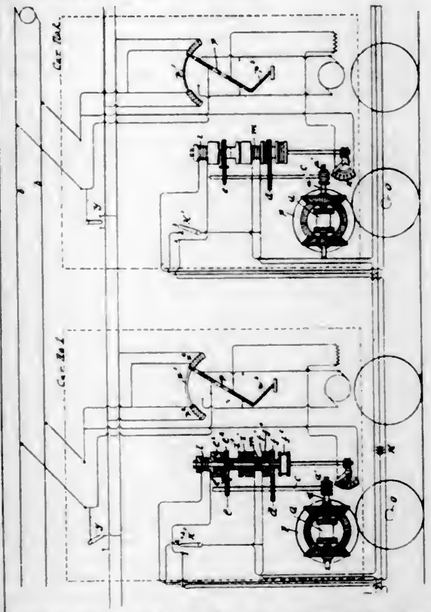
Claim.—1. In a wheeled vehicle, the combination with a shaft of the vehicle, of a gear-wheel *q* receiving rotary motion from the shaft and adapted thereby to be rotated in either direction, a second gear-wheel *r* receiving its motion from the gear-wheel *q*, a bevel-gear *s* receiving motion from the gear-wheel *r*, bevel-gears *t*, *t*, driven by the bevel-gear *s*, a ratchet *v*, and pawls carried by the bevel-gears *t*, *t*, and engaging the ratchet *v* whereby the latter is rotated in a single uniform direction irrespective of the direction of travel of the vehicle, substantially as described.

2. In a system of electric railway, the combination with a plurality of motor-cars in a single train, each having a controller for the corresponding propelling-motor, of means upon each of said cars operated by contact with the roadway for actuating a corresponding controller, and means upon a single car for operatively connecting the controller-actuating means with the controllers upon the several cars, substantially as described.

3. In a system of electric railway, the combination with a plurality of motor-cars in a single train, each having a controller adapted to graduate and regulate the current through a corresponding propelling-motor, of means upon each of said cars operated by contact with the roadway for actuating a corresponding controller, and means upon a single car for operatively connecting the controller-actuating means with the controllers upon the several cars, substantially as described.

4. In a system of electric railway, the combination with a plurality of motor-cars in a single train, each having a controller for the corresponding propelling-motor, of means upon each of said cars operated by contact with the roadway for actuating a corresponding controller, and a single actuating means for operatively connecting the controller-actuating means with the controllers at the same time, substantially as described.

5. In a system of electric railway, the combination with a plurality of motor-cars in a single train, each having a controller adapted to graduate and regulate the current through a corresponding propelling-motor, of means upon each of said cars operated by contact with the roadway for actuating a corresponding controller, and a single actuating means for operatively connecting the controller-actuating means with the controllers at the same time, substantially as described.



6. In a system of electric railway, the combination with a plurality of motor-cars in a single train, of controllers for the propelling-motors of the train, controller-actuating means operated by contact with the roadway, and means upon a single car for operatively connecting the controller-actuating means with the controllers upon the several cars, substantially as described.

7. In a system of electric railway, the combination with a plurality of motor-cars in a single train, of controllers serving to graduate and regulate the current through the propelling-motors, controller-actuating means operated by contact with the roadway, and means upon a single car for operatively connecting the controller-actuating means with the controllers upon the several cars, substantially as described.

8. In a system of electric railway, the combination with a plurality of motor-cars in a single train, of controllers for the propelling-motors of the train, a plurality of controller-actuating means operated by contact with the roadway, and a single car for operatively connecting the controller-actuating means with the controllers at the same time, substantially as described.

9. In a system of electric railway, the combination with a plurality of motor-cars in a single train, of controllers serving to graduate and regulate the current through the propelling-motors, a plurality of controller-actuating means operated by contact with the roadway, and a single actuating means for operatively connecting the controller-actuating means with the controllers at the same time, substantially as described.

10. The combination with a wheeled vehicle provided with a propelling-motor and a controller for the motor, of a controller-actuating means, and means including an element having rolling contact with the roadway for operating the controller-actuating means, substantially as described.

11. The combination with a wheeled vehicle provided with a propelling-motor and a controller serving to increase and decrease the current through the propelling-motor, a controller-actuating means operated by contact with the roadway, and means whereby said actuating means may effect the operation of the controller in reverse directions, substantially as described.

12. The combination with a wheeled vehicle provided with a propelling-motor and a controller therefor, of a controller-actuating means operated by contact with the roadway, and means whereby the controller-actuating means may cause the operation of the controller in reverse directions while the vehicle is traveling in a single direction, substantially as described.

13. In an electric-railway system, a train comprising a plurality of motor-cars, each provided with a traction motor or motors and a motor-controller, means upon each motor-car operated by contact with the roadway for actuating the controller on that car, means upon each motor-car for operatively connecting the controller-actuating means with the controller, means for simultaneously controlling the operation of the said connecting means from any desired point on the train, and auxiliary means for opening and closing the motor-circuits.

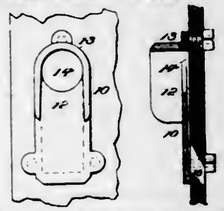
14. In an electric-railway system, a train comprising a plurality of motor-cars, each provided with a traction motor or motors and a motor-controller, means upon each motor-car operated by contact with the roadway for actuating the controller on that car, means upon each motor-car for operatively connecting the controller-actuating means with the controller, means for simultaneously controlling the operation of the said connecting means from any desired point on the train, and auxiliary means for controlling from any desired point on the train the connection between the motor-circuits and the source of supply.

15. In an electric-railway system, a train comprising a plurality of motor-cars, each provided with a traction motor or motors and a motor-controller, means upon each motor-car operated by contact with the roadway for actuating the controller on that car, means upon each motor-car for operatively connecting the controller-actuating means with the controller, and a train system comprising means for simultaneously controlling the operation of said connecting means and means for initially effecting the control of the traction-motors.

16. In an electric-railway system, a train comprising a plurality of motor-cars, each provided with a traction motor or motors and a motor-controller, means upon each motor-car operated by contact with the roadway for actuating the controller on that car, means upon each motor-car for operatively connecting the controller-actuating means with the controller, means upon each motor-car for controlling the circuit connection between the motor-circuits and the source of supply, and a train-control system for controlling from any desired point on the train the operation of said connecting means and said circuit-controlling means.

17. The combination with a wheel-vehicle provided with a propelling-motor and a controller therefor, of means operated by contact with the roadway for actuating the motor-controller, means for operatively connecting the controller-actuating means with the controller, and a control system comprising means for controlling the operation of the said connecting means, and auxiliary means for opening and closing the motor-circuits.

683,280. FRAUD-PREVENTING DEVICE FOR COIN-CONTROLLED MACHINES. MAURICE HOFHEIMER, New York, N. Y. Filed Nov. 3, 1900. Serial No. 35,327. (No model.)



Claim.—1. A protecting device for coin-controlled mechanism having a coin-guideway, an inlet for the coin, and an inner passage-way, said inlet forming a communication between said guideway and said passage-way, and an outer hood or shield in such relation to said inner passage-way that access cannot be had thereto in direct line with the passage of a coin therethrough, as set forth.

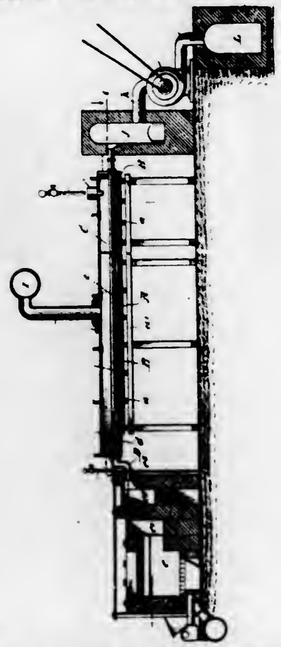
2. A protecting device for coin-controlled machines having a coin-guideway, an inlet for the coin, and an inner passage-way, said inlet forming a communication between said guideway and said passage-way, and an outer hood or shield partly surrounding said inlet and the sides of said guideway and projecting outwardly at right angles to said passage-way, as set forth.

3. A protecting device for coin-controlled machines having an inlet for a coin, a guideway leading to said inlet, and a passage-way leading from such inlet, and a hood or shield partly surrounding said inlet and extended along the sides of said guideway, said hood or shield being extended outwardly at right angles to said passage-way, substantially as set forth.

4. A protecting device for coin-controlled machines consisting of a casting formed at its front with a guideway terminating in an inlet-opening for a coin, a passage-way in or at the rear of said casting leading from said opening at right angles to the guideway, and a hood or shield projecting from the face of the casting around said opening and at right angles to said passage-way, substantially as set forth.

5. A protecting device for coin-controlled machines consisting of a casting formed at its front with a guideway terminating in an inlet-opening for a coin, a passage-way in or at the rear of said casting leading from said opening at right angles to the guideway, a chamber into which said passage-way opens having an inclined wall in line with the opening of the machine-casing, and a hood or shield projecting from the face of the casting around said opening and at right angles to said passage-way, substantially as set forth.

683,281. EVAPORATING APPARATUS. OTTOKAR HOFMANN, Argentine, Kans. Filed May 1, 1901. Serial No. 58,342. (No model.)



Claim.—1. An evaporating apparatus comprising a furnace; a precipitating-chamber for ashes and cinders behind the combustion-chamber of the furnace; an evaporating-pan; tubes extending through the evaporating-pan longitudinally and having connection at one end with the precipitating-chamber of the furnace; a cover for the evaporating-pan; a suction-pipe inserted in the cover to withdraw the vapors; a solution-supply at the end of the pan farthest from the furnace; and an overflow for the pan near the furnace, whereby the solution enters the pan in a continuous cold stream and leaves the pan at the overflow in a continuous concentrated hot stream.

2. An evaporating apparatus comprising a furnace; precipitating-chambers for the furnace, serving the purpose of precipitating ashes and cinders; a horizontally-mounted shallow evaporating-pan; tubes extending longitudinally through the pan and having connection with the rear precipitating-chamber of the furnace and with a fluid-pipe at one end, and with a draft-chamber at the other end; a controlled solution-supply remote from the furnace; and an overflow for the pan near the furnace, whereby the solution enters the pan in a continuous stream at common temperature and leaves the pan at the overflow in a hot concentrated condition.

683,282. STRING-FASTENER FOR MUSICAL INSTRUMENTS. GEORGE HOLT, Dixfield, Me. Filed Jan. 2, 1901. Serial No. 41,887. (No model.)



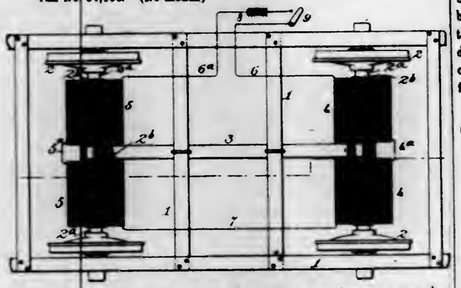
Claim.—1. A tailpiece for musical instruments, having a string-reel located below the tailpiece and journaled therein, a locking device movable up and down through the tailpiece and projecting above the same, said locking device being mounted to turn with the reel, and being adapted, when in one of its positions, for locking engagement with the tailpiece.

2. A string-reel for musical instruments, comprising a reel proper, a spindle held to turn with the reel but capable of moving lengthwise there-

of, and a stationary retaining device arranged to lock the spindle in one of its positions.

3. A string-reel for musical instruments, comprising a reel proper, a spindle held to turn with the reel but capable of moving lengthwise thereof, and a stationary locking-collar having a bayonet-slot adapted for locking engagement with a part of the spindle.

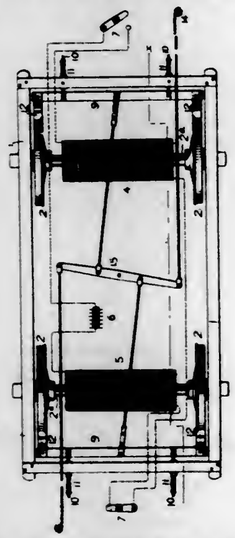
683,283. **ELECTROMAGNETIC TRACTION-INCREASING APPARATUS.** ALBERT A. HOWEY, Tacoma, Wash. Filed Nov. 20, 1900. Serial No. 37,168. (No model.)



Claim.—1. In an electromagnetic traction-increasing apparatus, the combination of wheels and axles, a sleeve mounted loosely upon each axle, a magnet or helix, each in two sections, mounted upon each of said sleeves, one section of each magnet being wound in one direction and the other section in the opposite direction, a bridge of magnetizible metal connecting the two sleeves, and wires by means of which the magnets are connected in a common circuit, substantially as set forth.

2. In an electromagnetic traction-increasing apparatus, the combination of wheels and axles, a sleeve mounted loosely upon each axle, a magnet or helix, each in two sections, mounted upon each of said sleeves, one section of each magnet being wound in one direction and the other section in the opposite direction, a bridge of magnetizable metal connecting the two sleeves, wires by means of which the magnets are connected in a common circuit, a generator, and means by which the magnets may be energized or demagnetized, substantially as set forth.

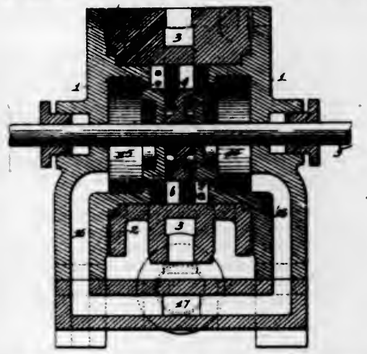
683,284. **ELECTROMAGNETIC BRAKE.** ALBERT A. HOWEY, Tacoma, Wash. Filed Nov. 22, 1900. Serial No. 37,338. (No model.)



Claim.—1. In an electromagnetic brake for a car, locomotive, or other wheeled vehicle adapted to be supported by metallic rails, the combination with wheels adapted to be magnetized and demagnetized, a brake-beam of magnetizable metal for each pair of wheels, shoes mounted upon each of said beams, independent means for drawing or moving the brake beams and shoes into or within the magnetic influence of the wheels, and independent means for drawing said shoes from contact with and out of the magnetic influence of said wheels upon the demagnetization of the latter, substantially as set forth.

2. In an electromagnetic brake for a car, locomotive, or other wheeled vehicle adapted to be supported by metallic rails, the combination with wheels adapted to be magnetized and demagnetized, a brake-beam of magnetizable metal for each pair of wheels, slide bolts or rods for connecting each of said brake-beams with the frame of the car, upon which rods the beam is capable of a sliding movement, shoes mounted upon each of said beams, means for mechanically forcing or moving the shoes into or within the magnetic influence of the wheels, and means for automatically withdrawing said shoes from contact with and out of the magnetic influence of said wheels upon the demagnetization of the latter, substantially as set forth.

683,285. **IMPACT AND REACTION MOTOR.** JULIUS L. HORNIG, St. Louis, Mo. Filed Dec. 10, 1900. Serial No. 39,271. (No model.)



Claim.—1. A motor, consisting of an impact-wheel within a suitable inclosure and having a number of curved or V-shaped buckets formed in its periphery and bridges between them, an injection-passage, and a plurality of reaction-pockets at the side of the said impact-wheel there being a greater number of the pockets than there are buckets in the wheel.

2. A motor, consisting of an impact-wheel within a suitable inclosure and having a number of curved or V-shaped buckets and bridges intervening between them, a number of injection-passages, and a plurality of reaction-pockets formed at each side of the said impact-wheel there being more of the reaction-pockets than there are buckets in the impact-wheel.

3. In a motor, an impact-wheel having a number of buckets and bridges between them, a series of pairs of injection-passages adapted to be intermittently opened and closed by the said bridges, and so arranged that an equivalent of one-half of the full capacity of all the passages will be admitted at all times to preserve complete uniformity and a series of opposite pockets at the sides of the impact-wheel.

4. In a motor, an impact-wheel having a series of buckets and intervening bridges, means for admitting a steady flow of elastic fluid into said buckets, and a series of pockets provided with different-sized outlets at the side of said wheel, adapted to receive and retain a part of the elastic fluid to utilize its reactive force against the other bridges.

5. In a motor, an impact-wheel having a series of buckets and intervening bridges, means for admitting a steady flow of elastic fluid into said buckets, and a series of pockets provided with different-sized outlets at each side of said wheel, adapted to receive and retain a part of the elastic fluid to utilize its reactive force against the other bridges.

6. In a motor, a casing having an annular passage formed therein, an impact-wheel having a number of V-shaped buckets and bridges between them, within said casing, suitable injection-passages leading from the annular passage to the face of the wheel to admit a steady flow of elastic fluid, and a series of different-sized pockets at the side of said wheel to receive and retain a part of the elastic fluid to utilize its expansive force against the bridges.

7. A motor consisting of a suitable casing forming an inclosure and having a series of opposite reaction-pockets arranged in pairs therein, an impact-wheel having a number of V-shaped buckets communicating with said pockets, contained in said inclosure, means for conveying elastic fluid into said buckets, separate reception-chambers, and means for discharging the elastic fluid therefrom through a common outlet.

8. In a motor, an impact-wheel, means for conveying the elastic fluid thereto, a series of pairs of reaction-pockets having different-sized outlets for receiving and discharging the elastic fluid, a reception-chamber at each side for receiving the discharge, and means for conveying it to a common discharge-pipe.

9. In a motor, the combination of an inclosing casing having a series of pairs of reaction and discharge pockets, an impact-wheel within the said casing, and having a smaller number of buckets formed therein than there are pockets, a passage around the wheel, in the casing, means for discharging the elastic fluid onto the wheel, from which it is discharged laterally into the pockets, reception-chambers for receiving the elastic fluid, and means for discharging it through a common outlet.

683,286. **PADLOCK.** WINFIELD S. HOUSER, Bellefonte, Pa., assignor of one-half to John H. Roan and James Justice, same place. Filed Jan. 17, 1901. Serial No. 43,234. (No model.)

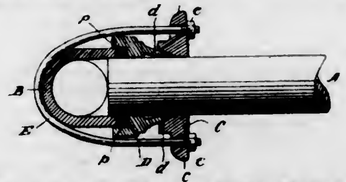


Claim.—1. A padlock consisting of two hinged members constituting a shackle, a locking-cylinder having rotary connection with one member and a pin and bayonet-slot connection with the other member, substantially as set forth.

2. A padlock consisting of two hinged members constituting a shackle, a locking-cylinder having a rotary connection with one member and a pin and bayonet-slot connection with the other member, and a spring rotating said cylinder and moving the same longitudinally, substantially as set forth.

3. A padlock consisting of two jaws pivoted together and constituting a shackle, a ward carried by one jaw, and a locking-cylinder having a pin-and-slot connection with one jaw and a pin and bayonet-slot connection with the other jaw, and a coil-spring connected to one end of the cylinder and exerting its energy to rotate and to move said cylinder longitudinally, substantially as set forth.

683,287. **PIPE-COUPLING.** ARTHUR H. HUTCHINSON, Waynesboro, Pa., assignor to Frick Company, same place. Filed July 24, 1901. Serial No. 69,466. (No model.)



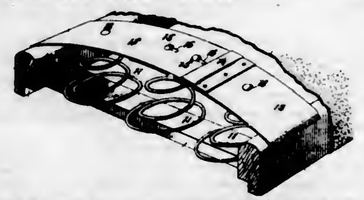
Claim.—1. In a pipe-coupling, the combination of the two parts to be coupled a gland with tapered opening surrounding one, a stuffing-box with compressible wings or flanges within said tapered opening and provided with a packing-ring in a counterbored seat on its opposite end, which end fits over the end of the other part, with the packing-ring seated against it, and clamping-bolts connected with the last-mentioned part and extending through the gland and provided with nuts, whereby the several parts may be securely clamped together, substantially as set forth.

2. In a pipe-coupling, the combination, of the two pipes, or parts to be coupled, the clamping part with spring or compressible portions engaging with one part and seated against the other a packing-ring being interposed between them and said clamping part having a flange which extends down around said packing-ring and the end of the other part, and means for drawing said parts together, substantially as set forth.

3. In a pipe-coupling, the combination of the pipe A, the return-bend B with openings adapted to receive the end of said pipe, the gland C with tapered central opening, the clamp stuffing-box D with projecting parts *d* and formed with a recess in its under side containing the packing-ring and the U-bolts E engaging the bend B and projecting through the gland C and provided with the nuts *e*, all substantially as described and for the purpose specified.

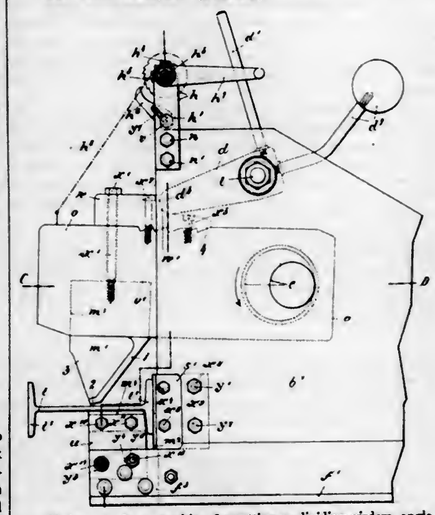
4. In a pipe-coupling the combination of the two sections of pipe, a gland with tapered opening surrounding each pipe, a stuffing-box with compressible fingers or flanges within said tapered opening provided with a packing-ring in counterbored seat on its opposite end, which end fits over the end of bend or other fitting, with the packing-ring seated against it and clamping-bolts connected with the bend or fitting, and extending through the gland and provided with nuts whereby the several parts may be securely clamped together substantially as set forth.

683,288. **CAR-SEAT.** LOUIS JAMSON, Brooklyn, N. Y. Filed May 2, 1901. Serial No. 58,457. (No model.)



Claim.—In a car-seat, the combination, with a body-frame and helical springs carried by the said frame, of shaping-strips of a spring material, constructed in sections, which sections meet and slide one upon the other at their inner ends, the outer ends of the sections having attachment to opposite members of the body-frame, the inner end of one section of a shaping-strip being provided with slots, rivets or bolts carried by one section of a shaping-strip and loosely passed through the slots in the opposing section, and a shield carried by one section of a shaping-strip, under which shield the free end of the opposing section of the shaping-strip has guided and protected motion.

683,289. **MACHINE FOR CUTTING OR DIVIDING GIRDERS, ANGLE-IRONS, &c.** HUGO JOHN, Erfurt, Germany. Filed Mar. 22, 1901. Serial No. 53,429. (No model.)



Claim.—1. In a machine for cutting or dividing girders, angle or section irons and the like, lateral cutters for the material, under cutters for supporting the material, upper cutters for the material, a holder for the upper cutters, a lifting device for the holder, means for connecting the lifting device to the holder for elevating the latter, and means connected with the lifting device for retaining the holder in an elevated position.

2. In a machine for cutting or dividing girders, angle or section irons and the like, a holder, an upper cutter carried by said holder, a pressure device engaging with said holder for retaining the upper cutter in engagement with the material during the cutting operation, a pair of under cutters upon which the material to be cut is mounted, a pair of lateral cutters adapted to engage the material, and means for reciprocating said holder and in connection with said pressure device adapted to impart a drawing punching and a drawing shearing cut to said upper cutter.

3. In a machine for cutting or dividing girders, angle or section irons and the like, a holder, a counter-bearing mounted thereon, an upper cutter carried by the holder, a pressure device engaging said counter-bearing, a pair of adjustable under cutters upon which the material to be cut is mounted, a pair of lateral cutters adapted to engage the material, and means for reciprocating said holder and in connection with the pressure device adapted to impart a drawing punching and a drawing shearing cut to the upper cutter.

4. In a machine for cutting or dividing girders, angle or section irons or the like, a holder, an upper cutter connected to said holder, a pivoted

pressure device engaging with the holder, under and lateral cutters, operating means for said holder for imparting a drawing punching and a drawing shearing cut to said upper cutter, and means for elevating and lowering said holder.

5. In a machine for cutting or dividing girders, angle or section irons and the like, a pair of side plates, a holder operating between them, an upper cutter carried by said holder, a pair of adjustable under cutters connected with said plates for supporting the material to be operated upon, a pair of lateral cutters connected with said plates, and operating means for said holder.

6. In a machine for cutting or dividing girders, angle or section irons and the like, a pair of side plates, a holder operating between them, an upper cutter connected thereto, a pressure device engaging with said holder, a pair of adjustable under cutters connected with said plates for supporting the material to be operated upon, a pair of lateral cutters connected with said plates, and operating means for said holder.

7. In a machine for cutting or dividing girders, angle or cutter irons and the like, a pair of side plates, a holder operating between them, an upper cutter connected thereto, a pressure device engaging with said holder, a pair of adjustable under cutters connected with said plates for supporting the material to be operated upon, a pair of lateral cutters connected with said plates, operating means for said holder; and means for elevating and lowering said holder.

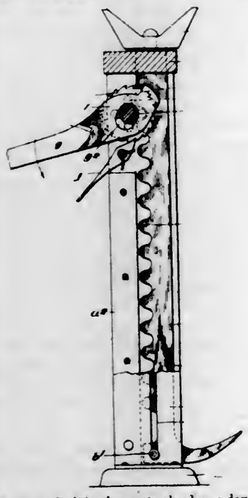
8. In a machine for cutting or dividing girders, angle or section irons and the like, a reciprocating upper cutter, operating means therefor, a pressure device for said cutter, means for elevating and lowering said cutter, a pair of adjustable under cutters, and a pair of lateral cutters arranged in suitable relation to said under cutters.

9. In a machine for cutting or dividing girders, angle or section irons and the like, a reciprocating holder, operating means therefor, a cutter secured to said holder and provided with a pair of cutting edges, a pivoted pressure device engaging with said holder, a pair of adjustable under cutters, and a pair of lateral cutters arranged in suitable relation to said under cutters.

10. In a machine for cutting angle-irons and the like, an upper cutter provided with a pair of cutting edges, means for reciprocating said cutter, a pressure device for retaining said cutter during the reciprocation thereof in engagement with the material being cut, means for elevating and lowering said upper cutter, a pair of under cutters for supporting the material to be cut, and a pair of lateral cutters adapted to engage the material during the cutting operation.

11. In a machine of the character described, under cutters for the material, lateral cutters for the material, an upper cutter provided with a pair of cutting edges, a holder connected thereto, means for reciprocating said holder, and a pressure device engaging the holder for retaining the upper cutter in engagement with the material to be cut during the operation of the holder.

683,290. JACK. JOHN A. JOHNSON, Hoquiam, Wash., assignor of one-half to Elkanah W. Karr, same place. Filed May 16, 1901. Serial No. 60,488. (No model.)

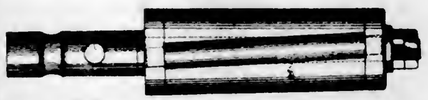


Claim.—1. A jack having a stand, a bar, a device engaging the bar to raise it, a wheel connected with said device, and a lever having a diagonal slot receiving the axis of the wheel to form the fulcrum of the lever and the lever having a laterally-turned end forming a stud which engages the periphery of the wheel.

2. A jack having a stand, a bar, a device engaging the bar to raise it, a wheel connected with said device, and a lever having a slot receiving the axis of the wheel and having a part engaged with the periphery of the wheel, whereby to drive it.

3. A jack having a stand, a bar, a device mounted on the stand and working with the bar to raise it, said device moving around a certain center, and a slidably-mounted lever, the fulcrum of which is coincident with the center of said bar-raising device, the lever having a part engageable with the bar-raising device to actuate it.

683,291. TUBE-EXPANDER. THOMAS R. JOHNSON, Joplin, Mo. Filed May 24, 1901. Serial No. 61,752. (No model.)



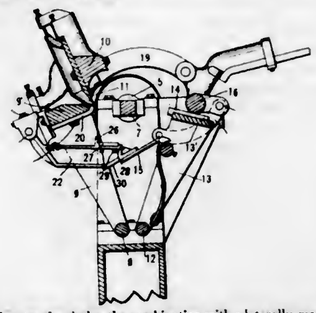
Claim.—1. A tube-expander, comprising a plurality of longitudinal segmental tapered body-sections which are assembled to form a tapered cylindrical body, the inner face of each section having a longitudinal groove, and opposite longitudinal side grooves, one of which increases in width from the larger end of the section and the other decreases in width in the same direction, the registered central grooves forming a tapered longitudinal bore for the body, and the registering side grooves forming longitudinal seats which are inclined at acute angles to the longitudinal axis of the body, the edges of the sections being separated to form outer open sides for the seats, rollers received within the respective seats and projected outwardly through the open sides thereof and also into the bore of the body, opposite circular heads applied to the corresponding ends of the body-sections and secured thereto, there being a central opening in each head to correspond with the bore of the body, and a rotatable tapered mandrel journaled in the bore and in frictional engagement with the rollers, one end of the mandrel being projected to form an operating part therefor.

2. A tube-expander, comprising a plurality of longitudinal segmental tapered body-sections which are assembled to form a tapered cylindrical body, each section having a central longitudinal groove in its inner face, and opposite longitudinal side grooves, the registering central grooves of the sections forming a longitudinal bore, and the registering side grooves forming seats, the longitudinal edges of the sections being separated to form outer open sides for the seats, rollers mounted in the respective seats and projected laterally in opposite directions outwardly through the open sides of the seats and inwardly into the bore, opposite circular heads applied to the corresponding ends of the body-sections, the inner side of each head having a plurality of seats corresponding to and snugly receiving the adjacent ends of the respective body-sections, fastenings connecting the heads to the body-sections, and a rotatable spindle mounted in the bore, in frictional engagement with the rollers and projected at the larger end of the body.

3. A tube-expander, comprising a plurality of longitudinal tapered segmental body-sections, which are assembled to form a tapered cylindrical body, each section having its inner face provided with a central longitudinal groove, and opposite longitudinal side grooves that extend to the outer edges of the section, the registered central grooves forming a longitudinal bore for the body, and the registered side grooves forming roller-seats, the edges of the sections being separated to form open outer sides for the seats, opposite circular heads applied to the respective ends of the body, and each head having openings to correspond with the ends of the respective seats, with inner marginal flanges surrounding the said openings, whereby depressed seats are formed for the snug reception of the adjacent ends of the corresponding body-sections, the body-sections and the heads having corresponding openings located between the seats, fastenings received in said openings, rollers mounted in the respective seats, and having terminal journals mounted in the flanged openings of the heads, and a mandrel rotatably mounted in the bore and in frictional engagement with the rollers, one end of the mandrel being projected to form an operating part.

683,292. HANDLE-TURNING LATHE. WILLIAM H. JOHNSON, Vredersburg, Ind. Filed Nov. 10, 1900. Serial No. 36,052. (No model.)

Claim.—1. In a turning-lathe, the combination with a laterally-movable knife, of a pressure-bar adjacent thereto and of less length than the knife, a swinging rest, an abutment carried by said rest in position to engage the material beyond the end of the pressure-bar and upon the same side as the knife, the pivotal support of said rest being upon the knife side of the plane containing the axis of the lathe and the cutting edge of the knife when in its inner position, and means for automatically throwing said abutment into engagement with the material operated upon immediately adjacent the cutting edge of the knife so as to exert a pressure substantially toward the axis.



2. In a turning-lathe, the combination with a laterally-movable knife, of a series of separated pressure-bars adjacent said knife, a series of swinging rests, an abutment carried by each of said rests in position to engage the material on the same side as the knife, the pivotal support of said rest being upon the knife side of the plane containing the axis of the lathe and the cutting edge of the knife when in its inner position, and means for automatically throwing said abutment into engagement with the material operated upon between the pressure-bars.

3. In a turning-lathe, the combination with a laterally-movable knife, of a pressure-bar adjacent thereto and of less length than the knife, a swinging rest, an abutment carried by said rest in position to engage the material beyond the end of the pressure-bar and upon the same side as the knife, a pivotal support for said rest upon the knife side of the plane containing the axis of the lathe and the cutting edge of the knife when in its inner position, means for adjusting the position of said pivotal support, and means for automatically throwing said abutment into engagement with the material operated upon immediately adjacent the cutting edge of the knife.

4. In a turning-lathe, the combination with a laterally-movable knife, of a pressure-bar adjacent thereto and of less length than the knife, a swinging rest, an abutment carried by said rest in position to engage the material beyond the end of the pressure-bar and upon the same side as the knife, the pivotal support of said rest being upon the knife side of the plane containing the axis of the lathe and the cutting edge of the knife when in its inner position, a wearing-plate mounted upon said rest adjacent said abutment and adjustable parallel with said abutment, and means for automatically throwing said abutment into engagement with the material operated upon immediately adjacent the cutting edge of the knife.

5. In a turning-lathe, the combination with a laterally-movable knife, of a pressure-bar adjacent thereto and of less length than the knife, a swinging rest, an abutment carried by said rest in position to engage the material upon the same side as the knife, the arrangement being such that as the knife is moved toward the axis the abutment will be swung up into engagement with the material and into close proximity to the cutting edge of the knife beyond the end of the pressure-bar.

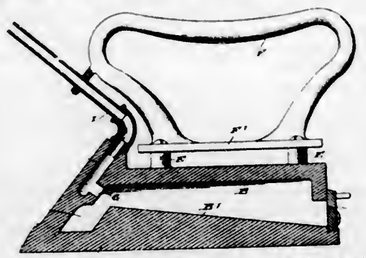
6. In a turning-lathe, the combination with a laterally-movable knife, of a series of separated pressure-bars adjacent said knife, a series of swinging rests, and an abutment carried by each of said rests in position to engage the material on the same side as the knife, the arrangement being such that as the knife is drawn toward the axis said abutment will be brought into engagement with the material and into close proximity to the cutting edge of the knife between the pressure-bars.

7. In a turning-lathe, the combination with a laterally-movable knife, of a pressure-bar adjacent thereto but extending only a portion of the length thereof, a movable rest, an abutment carried by said rest in position to engage the material on the same side as the knife, and means for simultaneously moving said knife and abutment toward the axis and bringing the abutment in its final position immediately adjacent the cutting edge of the knife beyond the end of the pressure-bar.

8. In a turning-lathe, the combination with a laterally-movable knife, of a swinging rest, a pair of parallel abutments 26 and 28 carried thereby, a removable wearing-plate mounted between said abutments, and means for adjusting said wearing-plate parallel with said abutments.

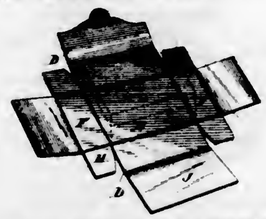
683,293. SAD-IRON. KARL A. KAISER, Long Island City, N. Y. Filed Dec. 13, 1900. Serial No. 39,623. (No model.)

Claim.—1. A sad-iron having a base with a point, a heating-chamber over said base and having the major portion of its bottom rising from said base, said major portion being inclined downwardly and rearwardly and terminating at its front end a distance from the front of the chamber, to form a space and thereby prevent overheating of said point, the bottom of said space being below the bottom of the heating-chamber, as set forth.



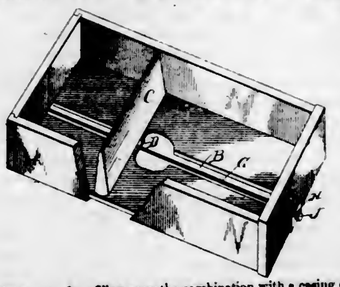
2. A sad-iron having a base with a point, a heating-chamber over said base and having the major portion of its bottom rising from said base, said major portion being inclined downwardly and rearwardly and terminating at its front end a distance from the front of the chamber, to form a space and thereby prevent overheating of said point, and a gas-burner in the front end of said chamber and arranged to deliver its flame to the upper portion of said bottom in a direction away from said space, as set forth.

683,294. WRAPPER. HENRY C. KARR, Washington, D. C. Filed July 1, 1901. Serial No. 66,708. (No model.)



Claim.—A wrapper for boxes and like packages having a base portion of the size and shape of the box to be wrapped, end-covering wings springing from opposite edges of the said base portion and adapted to be folded over the ends of the box and onto the top thereof, corner-covering lips springing from the sides of the said wings and adapted to fold against the sides of the box to cover the corners thereof, and top-covering wings springing from other edges of the base portion and adapted to fold against the sides of the box and over the top edges of the corner-covering lips to hold said lips against the box, one of said wings being folded down upon the end-covering wings to hold the same against the top of the box and the other of said wings being somewhat shorter and folded upon the first-mentioned of said wings and provided with a fastening device adapted to engage the said first-mentioned top-covering wing and thereby hold the entire wrapper around the box, the several wings and lips being otherwise disconnected.

683,295. FILING-CASE. WILLIAM D. KELLY and JOHN D. KELLY, Chicago, Ill. Filed Dec. 31, 1900. Serial No. 41,713. (No model.)



Claim.—1. In a filing-case, the combination with a casing of an adjustable follower and a self-acting friction-lock between said casing and follower, comprising a friction-plate and a loose connection between said friction-plate and said follower whereby the surface of said plate will be

drawn against and locked with a portion of said casing by the deflection of said follower from an unlocked position, substantially as described.

2. In a filing-case the combination with a casing of an adjustable self-locking follower working therein, a friction-plate and a loose connection between said friction-plate and said follower all so combined that said friction-plate will be drawn against and locked with the under side of said casing by the deflection of said follower from an unlocked position, substantially as described.

3. In a filing-case, the combination with a casing of an adjustable follower, and a friction-plate loosely attached to said follower in such a manner that said friction-plate will be drawn against and locked with a portion of said casing whenever pressure is applied to either side of said follower, substantially as described.

4. In a filing-case, the combination with a casing, of an adjustable follower, and a locking-plate loosely attached to said follower and arranged so that the upper surface of the locking-plate shall engage the under side of said casing whenever said follower is deflected from an unlocked position, substantially as described.

5. In a filing-case, the combination with a casing of an adjustable follower and a locking-plate, loosely connected with said follower by means of links, all so arranged that said locking-plate will be drawn against and will lock with a portion of said casing whenever said follower is deflected from an unlocked position.

6. In a filing-case, the combination with a casing, of an adjustable follower, and a friction-lock between said casing and follower comprising a friction-plate loosely attached to said follower so arranged that the upper surface of said plate will automatically engage the under surface of said casing whenever pressure is exerted against either face of said follower, substantially as described

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683,296. TAG. OTTO KONRAD, Oshkosh, Wis. Filed Feb. 14, 1901. Serial No. 47,341. (No model.)



Claim.—1. A tag, comprising two hinged sections, and means for locking said sections together at their free ends, said locking means comprising a pivoted member, inclosing the edge of one section, its face lying in the same plane as the outer face of one of said hinged members when the same are locked together, a lug carried by said pivoted member and adapted to pass above one of said hinged members, and means for moving said pivoted member, substantially as described.

2. A tag, comprising two hinged sections and means for locking the free ends of said sections together, said locking means comprising a clasp pivotally secured to one of said sections, a lug carried by said clasp and adapted to overhang the edge of the other of said sections for locking it to the first section, and means projecting beyond the tag for moving said lug into and out of operative position, substantially as described.

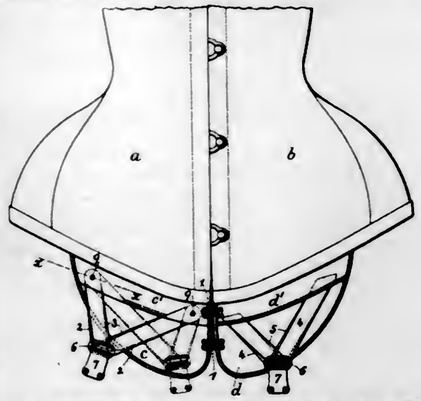
3. A tag comprising a section formed with an inclosing edge flange, a section hinged to the first section and arranged to fit, when folded, within the said edge flange, and a combined swinging lock and integral suspending-loop for holding the sections together and suspending the tag, the said loop also forming a handle for turning the said lock on its pivot, substantially as described.

683,297. CORSET ATTACHMENT. DANIEL KOPS, New York, N. Y. Filed May 15, 1901. Serial No. 60,309. (No model.)

Claim.—1. The combination with the portions or halves of a corset, of flap extensions connected to and extending below the lower front edge of the corset, and a pair of overlying crossing straps upon each flap extension secured at their respective ends to the flap extensions, slide-plates and tabs carried by said straps and to which the hose-supporters may be connected, said overlying straps providing for an adjustable movement of the parts to compensate for the line of draft of the hose-supporters according to the position of the body, substantially as set forth.

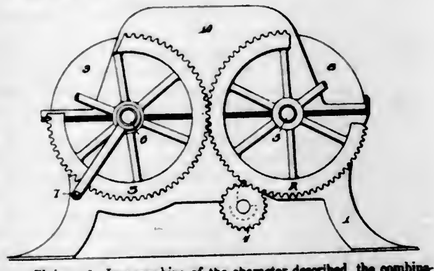
2. The combination with the portions or halves of a corset, of flap extensions connected to and extending below the lower front edge of the corset and having edge strips adjacent to the upper portions of the flap extensions, and a pair of overlying crossing straps upon each flap extension secured at their respective ends to the flap extensions, and edge strips, slide-plates and tabs carried by said straps and to which the hose-supporters may be connected, said overlying straps providing for an adjustable movement of the parts to compensate for the line of draft of the hose-supporters according to the position of the body, substantially as set forth.

3. The combination with the portions or halves of a corset, of flap extensions and strips along the upper edges thereof both sewed to the lower front edges of the corset portions and extending below the same, devices for connecting the said extensions at their central meeting edges, overlying straps in pairs upon each flap extension, slide-plates having parallel mortises through which said straps pass in opposite directions, tabs connected to the slide-plates, eyelets for connecting the respective ends of the pairs of overlying straps, eyelets passing through the aforesaid eyelets and through the material of the flap extensions and the edge strips and overturned against the faces of said fabric for holding the ends of the pairs of overlying straps to the flap extensions and between the same and the edge strips whereby the said straps with their connecting-eyelets are adapted to turn about the eyelets passing therethrough and connecting the same to the flap extensions, substantially as set forth.



4. The combination with the portions or halves of a corset, of flap extensions connected to and extending below the lower front edge of the corset, and a pair of overlying crossing straps upon each flap extension secured at their respective ends to the flap extensions, devices carried by said straps and to which the hose-supporters may be connected, said overlying straps providing for an adjustable movement of the parts to compensate for the line of draft of the hose-supporters according to the position of the body and performing the function of holding inward the flaps against the figure of the wearer, substantially as set forth.

683,298. MACHINE FOR FORMING AND PRINTING BUTTER CAKES. FRANK KRABAL, Pittsburg, Pa. Filed Dec. 6, 1900. Serial No. 38,942. (No model.)



Claim.—1. In a machine of the character described, the combination of two revoluble drums, tubular casings arranged in said drums, opposite heads arranged in the casing of one of said drums and connecting-rods between the opposite head and spring-pressed scrapers arranged in the casings of the other of said drums, substantially as described.

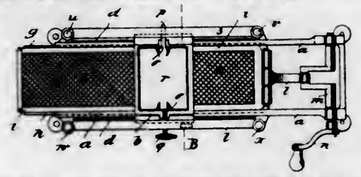
2. In a machine of the character described, the combination of a suitable frame, cog-wheels mounted on said frame, drums rotating in opposite directions on said cog-wheels, tubular casings arranged oppositely in said drums, a head in each of the tubular casings in one of said drums, a rod connecting the opposite heads, spring-pressed scrapers arranged in the casings of the other drum, a hopper arranged between said drums, a print-roll operating in contact with the first-named drum, and a cog-wheel on the print-roll meshing with one of said cog-wheels, substantially as described.

3. In a machine of the character described, the combination of a suitable frame, cog-wheels mounted on said frame, drums arranged to said cog-wheels operating in opposite directions, tubular casings secured in

said drums, heads secured in the casings of one of the said drums, connecting-rods secured to said heads, spring-pressed scrapers arranged in the casings of the opposite drum, a hopper attached between said drums, a cog-wheel meshing with one of said cog-wheels, a print-roll operated by the last-named cog-wheel, a semicircular shield arranged under one of said drums, and an adjustable slide and scraper all parts being arranged and operating for the purpose herein set forth

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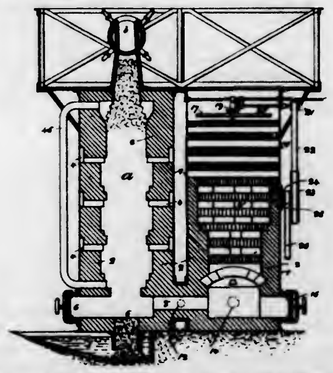
683,299. GRATER. WILLIAM W. KRONHEIM, Hanover, Germany. Filed May 21, 1901. Serial No. 61,327. (No model.)



Claim.—1. An improved grating-machine comprising in combination a suitable base-frame *a*, a disintegrator *k* adapted to be reciprocated in the aforesaid frame *a*, means for imparting motion to said disintegrator, consisting in a cranked axle *m* and a connecting-rod *l* between said cranked axle *m* and the disintegrator *k*, a receptacle *b* longitudinally movable on the frame *a;* vertical slots *o* in the side walls of the receptacle *b*, a lid fitting the interior of said receptacle and provided with a lateral extension to move in and project from one of the vertical slots *o*, a screw *q* adapted to move in the second slot *o* and to fit into a suitable hole in the lid *r*, and means for exerting pressure on the extension *p* and screw *q*, in order to force the substance or material in the receptacle *b* against the grating-surface, substantially as described and shown.

2. An improved grating-machine comprising in combination a suitable base-frame *a*, a disintegrator *k* adapted to be reciprocated in the aforesaid frame *a*, means for imparting motion to said disintegrator, consisting in a cranked axle *m* and a connecting-rod *l* between said cranked axle *m* and the disintegrator *k*, a receptacle *b* longitudinally movable and adjustable on the frame *a;* vertical slots *o* in the side walls of the receptacle *b*, a lid fitting the interior of said receptacle and provided with a lateral extension to move in and project from one of the lateral slots *o*, a screw *q* adapted to move in the second slot *o* and to fit into a suitable hole in the lid *r*, and means for exerting pressure on the extension *p* and screw *q*, in order to force the substance or material in the receptacle *b* against the grating-surface, said means consisting in longitudinal bars *s*, *t* in connection with the vertical bolts *u*, *v*, *w*, *x* which latter are constantly pulled downwardly by the agency of spiral springs *y*, suitably provided in connection with the frame *a* and the extremity of the vertical bolts, substantially as described and shown.

683,300. APPARATUS FOR THE MANUFACTURE OF GAS. HOWARD LANE, Birmingham, England. Filed May 7, 1901. Serial No. 59,142. (No model.)



Claim.—1. In combination in a gas-making apparatus, a generator, a regenerator, a connection between the lower ends of the generator and regenerator, means for introducing air beneath the raw fuel in the generator and for forcing the gaseous products of combustion downward in said generator and through said low connection to the regenerator means whereby air may be introduced in said low connection to complete combustion, the checker-work in the regenerator composed in its lower part of fire-brick and in its upper part of metal, a water-spray for directing water to the checker-work, means for scouring out the remnant of the gaseous products of combustion from said regenerator, means for directing the steam from the regenerator up through the fuel in the generator.

2. An apparatus for the manufacture of gas made from fuel and water and comprising a generator and a regenerator furnished with a fire-grate and water seal near the bottom and an aperture for feeding in the coal and a gas-outlet at the top as well as a series of air-inlet pipes and passages at intermediate points and a passage communicating with the regenerator, an air-inlet pipe and passage for a supplementary air-supply introduced into the passage between the generator and regenerator, an arrangement of checker-work within the regenerator, means for supplying and spraying water on the upper part of said checker-work, an outlet from the top of the regenerator to a chimney and a scavenging outlet from the bottom, and means for controlling the said air and water inlets and outlets, substantially as described.

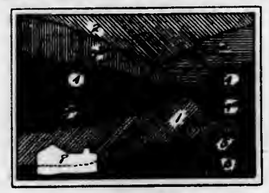
3. In combination, a generator, a regenerator, a connection between the lower ends of the same, a plurality of air-inlets in the generator arranged at different levels, an air-inlet to supply air to the products of combustion from the generator to complete said combustion, a spray-pipe at the upper end of the regenerator, a scavenging or scouring outlet at the lower end of the regenerator and means for controlling said inlets and outlets, substantially as described.

683,301. NOZZLE. DANIEL F. LEARY, San Francisco, Cal. Filed Oct. 26, 1900. Renewed Aug. 3, 1901. Serial No. 70,810. (No model.)



Claim.—A hose-nozzle having its bore tapered or converged to a given point and curved from, and in uninterrupted continuation of, its bottom surface, upward and forward of said point, and terminating above a line passing longitudinally through said bore, said bore also in front of, and in a plane above, said point having an upward and forward curved surface, substantially as set forth.

683,302. ART OF BUILDING PICTURES. JOHN A. LEE, Milton, Mass. Filed June 3, 1901. Serial No. 62,639. (No specimens.)



Claim.—1. A picture, composed of superimposed, overlapping, differently-colored sheets of material, the exposed edges of each sheet being shaped to form the outline of a detail of the picture, and the various details of the picture being illustrated by the outline aforementioned and by the contrast and harmony of the various colored parts of which the picture is composed.

2. A picture, composed of superimposed, overlapping sheets of material, secured upon a common base, the exposed edges of each sheet being shaped to form the outline of a detail of the picture, and said exposed edges being unsecured to the adjacent sheet or base, substantially as shown and described.

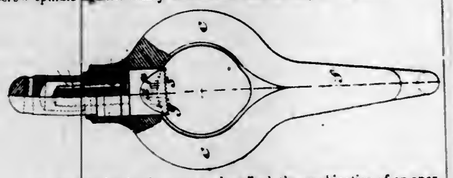
3. The method above described, of building a picture, consisting of superimposing overlapping sheets of differently-colored material, the exposed edges of each sheet being shaped to form the outline of a detail of the picture.

683,308. CHUCK FOR LATHES OR SIMILAR MACHINES. JACQUES LEBURBAU, Catenu, and GEORGES FORCHER, Paris, France. Filed Jan. 16, 1901. Serial No. 43,446. (No model.)

Claim.—1. In a lathe attachment of the character described, the combination with the perforated body having a depending tail and a socket formed in its upper part, of a vertically-movable spindle fitted in said socket, a clamping-head on the lower end of the spindle and means engaging with the spindle above its head for raising and lowering the same, substantially as set forth.

2. In a lathe attachment of the character described, the combination with the perforated body, of a depending tail made integral therewith, a

socket at the upper part of said body, a suitable socket rotatably mounted in the socket on the body, internal screw-threads in said rotatable socket, a screw-spindle engaged by said screw-threads, a clamping-head on the lower end of the screw-spindle, serving as a guide for the rectilineal descent of the said spindle and as a grip-piece, means for holding the rotatable socket against longitudinal movement, and means for holding the screw-spindle against rotary movement, substantially as set forth.



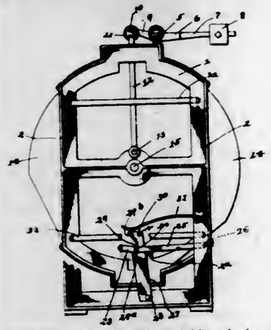
3. In a device for the purpose described, the combination of an apertured body having a passage extending from the aperture therein through one end, a clamping-screw extending into said passage, and provided with an external thread, an internally-threaded sleeve engaging said threaded stem and mounted to turn freely in said passage in the body, and means for preventing rotation of the clamping-spindle.

4. In a device for the purpose described, the combination of an apertured body having a passage extending from the aperture therein through one end, an internally-threaded sleeve rotatably mounted in said passage and projecting beyond the outer end thereof, means for preventing longitudinal movement of said sleeve within said passage, an externally-threaded spindle extending into and engaged by the threads in said sleeve, and a clamping-head at the inner end of said spindle adapted to be adjusted by said sleeve and spindle transversely of the aperture in the body.

5. In a device of the character described, the combination with the apertured body, of a clamping-head having a threaded stem mounted in a socket or passage formed in said body and opening into the aperture therein, an internally-threaded sleeve rotatably mounted in said socket and engaging said spindle, means for preventing longitudinal movement of the sleeve, and means for preventing rotary movement of the clamping-head and spindle.

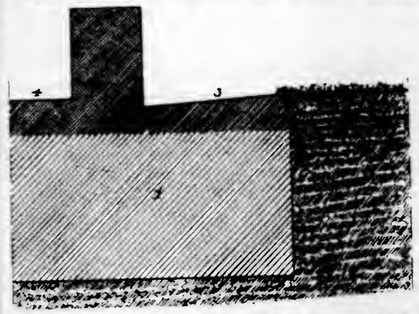
6. In a device of the character described, the combination of the apertured body having the depending tailpiece and having a socket or passage extending from the aperture in the body through the upper end thereof, a clamping-head having an externally-threaded spindle extending into said socket, an internally-threaded sleeve rotatably mounted in said socket and engaging the spindle therein, and a collar surrounding the spindle within said socket and clamping the sleeve therein against longitudinal movement and having means engaging the spindle of the clamping-head to prevent rotation thereof.

683,304. AUTOMATIC GRAIN-WEIGHING DEVICE. JOHN T. LENON, Columbus, Ohio. Filed Oct. 20, 1899. Serial No. 734,163. (No model.)



Claim.—In an automatic grain-weighing device, the combination with the inner and outer frame-standards 1 and 2, a drum journaled between said inner frame-standards and having a fixed central partition and upper and lower inlet and outlet openings on opposite sides of said partition and a bottom plate on said inner frame having a central outlet-opening, of a fulcrumed scale-yoke from which said inner frame is suspended, a crank-arm pivotally connected with one end of said drum, a bar 25 pivoted at one end to one of said inner frame-standards and at its remaining end to said crank-arm pin and a device connected with the stationary frame and adapted to contact with said crank-arm pin when the inner frame is lowered, substantially as specified.

683,305. CURB FOR SIDEWALKS, LAWNS, &c. LOUIS A. LEVIN, Philadelphia, Pa. Filed July 21, 1900. Serial No. 24,411. (No model.)



Claim.—A lawn-bordering curb consisting of a coping having on one side a depressed portion forming a gutter and on the other side a depressed portion extending inwardly from the coping on the side next to the lawn, said depressed portion being of sufficient width to permit a lawn-mower to travel over the edge of the lawn to cut the grass close to the said edge, substantially as described.

683,306. PORTABLE AUTOMATIC SHOWERING-POT. MORRIS H. LICHTEN, Philadelphia, Pa. Filed May 22, 1901. Serial No. 61,486. (No model.)



Claim.—1. A portable showering vessel, composed of a hollow body adapted to contain fluid, having a perforated base and a hollow grasping-neck at top narrowed in diameter centrally of its length and provided with an air-aperture; substantially as described.

2. A portable showering vessel, composed of a hollow body adapted to contain fluid, having a perforated base, a grasping-neck at top, said neck being provided with a top portion of flexible material adapted to be manually compressed and to return to normal position, and provided with an air-aperture; substantially as described.

3. A portable showering vessel, composed of a hollow body portion adapted to contain fluid, having a perforated base, and a hollow neck-like extension provided with an air-aperture, said body portion being constructed of compressible material adapted to remain normally distended and to be collapsed by pressure, and said neck portion of a flexible material operating with a spring-like tendency when released from longitudinal compression.

683,307. ADJUSTABLE SCREEN. EDWARD C. LIBBE, St. Louis, Mo. Filed Feb. 28, 1901. Serial No. 49,284. (No model.)

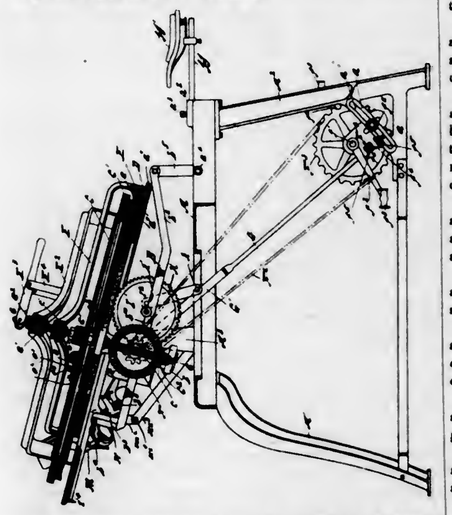
Claim.—1. An adjustable screen, comprising two frame-sections, each formed of double-folded sheet-metal strips having mating concave and convex formations on upper and lower edges, that slide one on the other, screen-cloth coverings for said sections held thereon by folded engagement of their marginal portions with the crevices between the laps or folds on the frame-sections, clips on ends of two frame-bars slidable on adjacent frame-bars, and means to hold the frame-sections from sliding.

2. An adjustable screen, comprising two frame-sections formed of sheet-metal strips folded at edges to stiffen each frame-bar, some of said bars having concave and convex formations which slide on each other, clips secured to two of the bars on one frame-section and adapted to fit and slide upon two frame-bars of the other frame-section, a clamp adapted to fit over two engaged frame-bars, one on each frame-section, and a set-screw passing through the body of the clamp to have bearing upon engaged portions of the frame-sections and prevent their sliding movement.

3. An adjustable screen, comprising two frame-sections formed of sheet-metal strips, each double-folded to provide two outside laps and a central lap thereon, and spaced apart to provide two crevices for each frame-bar, the upper and lower bars of the two frame-sections having mating concave and convex formations on their edges, which adapt them for interlocked slidable engagement, corner-pieces fitting in the angular corners of the frame-sections and secured thereto, screen wire-cloth coverings for the screen-frame sections, held thereon by entrance of their marginal portions within communicating crevices between the lapped portions of each frame-bar, clips on the ends of the two frame-bars and which hook upon adjacent frame-bars, and a clamp adapted to hold the frame-sections at any point of sliding adjustment.



683,308. TARGET-TRAP. HUGH C. LORD, Erie, Pa. Filed Mar. 25, 1901. Serial No. 52,758. (No model.)



Claim.—1. In a target-trap, a means for accelerating a target by a movement of the means past and in contact with the target.

2. In a target-trap, the combination of means for accelerating a target by a movement of the means past and in contact with the target; and means for increasing the force of contact as the target is accelerated.

3. In a target-trap, a continuously-operating means for accelerating a target by a movement of the means past and in contact with the target.

4. In a target-trap, the combination of a continuously-operating means for accelerating a target by a movement of the means past and in contact with the target; and means for increasing the force of contact as the target is accelerated.

5. In a target-trap, the combination of a continuously-operating means for accelerating the target; and means for delivering the targets to said means at a point on said means having the speed of the means at the point of discharge.

6. In a target-trap, the combination of a continuously-operating means for accelerating the target; and means for delivering the targets to said means at a point on said means having the speed of the means at the point of discharge, said accelerating means yieldingly engaging said target.

7. In a target-trap, the combination of a continuously-operating means for accelerating the target, said means engaging the target with a yielding resistance.

8. In a target-trap, a means for accelerating a target with greater speed at one side than at the other to impart rotary movement to the target, said acceleration being effected by a movement of the means past and in contact with the target.

9. In a target-trap, the combination of a means for accelerating a target by a movement of the means past and in contact with the target; and means for imparting to the target rotary motion.

10. In a target-trap, the combination of a continuously-operating means for accelerating a target by a movement of the means past and in contact with the target; and means for imparting to the target rotary motion.

11. In a target-trap, the combination of a continuously-operating means for accelerating the target with greater speed at one side than at the other to impart rotary motion to the target; and means for delivering the targets to said means at a point on said accelerating means having the speed of the accelerating means at the point of discharge.

12. In a target-trap, the combination of a means for accelerating the target by a movement of the means past and in contact with the target; means for engaging one side of the target and imparting to it a speed less than that of the body of the target to give it a rotary motion.

13. In a target-trap, the combination of a continuously-operated accelerating means; and a shoulder arranged in the path of a target actuated by the accelerating means and adapted to engage a side of the target to impart rotary motion to it and being in the direction of the discharge in line with the flight of the target.

14. In a target-trap, the combination of a continuously-operated accelerating means; and a shoulder arranged in the path of a target actuated by the accelerating means and adapted to yieldingly engage a side of the target to impart rotary motion to it and being in the direction at the discharge in line with the flight of the target.

15. In a target-trap, the combination of a supporting-plate; a guide adjacent to said plate; means for accelerating a target on said plate and against said guide; and a continuously-operating mechanism for acting upon said accelerating means.

16. In a target-trap, the combination of a supporting plate; a guide adjacent to said plate, said guide having a direction, at the discharge, in line with the direction of flight of the target; means for accelerating a target on said plate and against said guide; and a continuously-operating mechanism for acting upon said accelerating means to give to it its accelerating movement.

17. In a target-trap, the combination of a continuously-operating accelerating means; an annular driving-surface arranged on said means and adapted to accelerate a target by its engagement, said surface being arranged in the direction of the flight of the target at the discharge.

18. In a target-trap, the combination of a rotating accelerating means; and an annular driving-surface arranged on said means and adapted to accelerate the target by its engagement.

19. In a target-trap, the combination of a rotating accelerating means; an annular driving-surface arranged on said means and adapted to accelerate the target by its engagement; and means for increasing the force of the engagement of the driving-surface with the target.

20. In a target-trap, the combination of a rotating accelerating means; and an annular driving-surface on said means adapted to accelerate a target by a movement past and in engagement with the target.

21. In a target-trap, the combination of a rotating accelerating means; and an annular driving-surface on said means for accelerating a target with a rotary motion by its engagement therewith.

22. In a target-trap, the combination of a rotary accelerating means; an annular driving-surface on said means adapted to engage and accelerate a target; and a guide adjacent to said surface for guiding the target in relation thereto.

23. In a target-trap, the combination of a rotary accelerating means; an annular driving-surface on said means adapted to engage and accelerate a target; and a supporting-plate opposite said driving-surface and adapted to hold the target in engagement with said means.

24. In a target-trap, the combination of a rotary accelerating means; an annular driving-surface on said means adapted to engage and accelerate a target; a guide adjacent to said surface for guiding the target in relation thereto; and a supporting-plate opposite said driving-surface for holding said target in engagement.

25. In a target-trap, the combination of an accelerating means comprising a cushioning-brush arranged to engage the target; and means for imparting motion to the accelerating means.

26. In a target-trap, the combination of an accelerating means comprising a cushioning-brush arranged to engage the target; and means for imparting continuous motion to the accelerating means.

27. In a target-trap, the combination of an accelerating means comprising a brush forming a driving-surface to cushion a target and to accelerate a target by its engagement; and means for imparting motion to said accelerating means.

28. In a target-trap, the combination of an accelerating means comprising a brush forming a driving-surface to cushion a target and to accelerate a target by its engagement; and means for imparting continuous movement to said accelerating means.

29. In a target-trap, the combination with an accelerating means comprising an annular brush; and means for supporting and forcing the target into engagement with said brush.

30. In a target-trap, the combination of an accelerating means comprising an annular brush; a supporting-plate opposite said brush in position to support a target and to hold the target in engagement with said brush during the accelerating movement.

31. In a target-trap, the combination of an accelerating means comprising an annular brush; and an arc-shaped guide adjusted to said brush and adapted to guide a target in proper relation to said brush.

32. In a target-trap, the combination of an accelerating means comprising an annular brush, a supporting-plate opposite said brush to hold a target in contact with said brush; and an arc-shaped guide adjusted to said brush to guide a target in proper relation to said brush.

33. In a target-trap, the combination of an arc-shaped supporting-plate; and an accelerating means arranged over said plate; said means comprising a brush forming a driving-surface to engage a target on the plate and accelerate the target by its engagement.

34. In a target-trap, the combination of an arc-shaped supporting-plate; an accelerating means comprising a driving-brush arranged over said plate and an arc-shaped guide having a brush-cushion for guiding said target on said plate.

35. In a target-trap, the combination of an accelerating means; a brush for retarding one side of the target to give it a rotary motion.

36. In a target-trap, the combination of a continuously-operating accelerating means; and a brush for retarding one side of the target to give it a rotary motion.

37. In a target-trap, the combination of a continuously-operating accelerating means, having a driving-surface; and a brush-guide adjacent to said driving-surface, and in line with the direction of its movement, engaged by a target actuated by said driving-surface.

38. In a target-trap, the combination of a rotating accelerating means, having an annular driving-surface thereon; and an arc-shaped guide adjacent to said driving-surface, said guide being provided with a brush-cushion.

39. In a target-trap, the combination of an accelerating means comprising an annular brush; an arc-shaped guide adjacent to said brush and having a brush-cushion thereon.

40. In a target-trap, the combination of the disk, C; means for rotating said disk; the annular brush, C'; the plate, D, opposite said brush; and the arc-shaped guide, E, having the brush-cushion adjacent to the brush, C'.

41. In a target-trap, the combination of an accelerating means comprising an annular brush engaging the target with greater force at the side more remote from the axis of the brush-support; and said brush-support.

42. In a target-trap, the combination of a rotary accelerating means, having a driving-surface thereon; a supporting-plate opposite said driving-surface; a guide adjacent to said accelerating means and on said plate; and means for moving said guide away from said plate for the purpose described.

43. In a target-trap, the combination of a rotary accelerating means; a shaft by which said means is carried; a supporting-plate adjacent to said accelerating means; and means for adjusting said accelerating means toward and from said plate.

44. In a target-trap, the combination with an accelerating means comprising a brush, the elements of said brush being inclined in the direction of the accelerating movement of the accelerating means; means for imparting movement to said accelerating means.

45. In a target-trap, the combination of means for accelerating the target by a movement of the means past and in contact with the target; and means for varying the direction of the flight of said target.

46. In a target-trap, the combination of means for accelerating the target by a movement of the means past and in contact with the target; and means for automatically varying the direction of the flight of said target.

47. In a target, the combination of a continuously-operating means for accelerating a target by a movement of the means past and in contact with the target; and means for varying the direction of the flight of the target.

48. In a target-trap, the combination of a continuously-operating means for accelerating the target; and means for delivering the target to said means at a point on said means having the speed of the means at the point of discharge; and means for varying the direction of flight of the target.

49. In a target-trap, the combination of a continuously-operating means for accelerating a target; and means for varying the direction of the flight of the target irrespective of the starting of the accelerating movement of the target.

50. In a target-trap, the combination of an accelerating means; a guide for controlling the direction of the flight of the target; and means for oscillating said guide relatively to said accelerating means to vary the direction of the flight of the target.

51. In a target-trap, the combination of an accelerating means; a guide for controlling the direction of the flight of a target; and means for continuously oscillating said guide to vary the flight of the target.

52. In a target-trap, the combination of a continuously-operating accelerating means; a guide for controlling the direction of the flight of the target; and means for oscillating said guide to vary the flight of the target.

53. In a target-trap, the combination of a continuously-operating accelerating means; a guide for controlling the direction of the flight of the target; and means for continuously oscillating said guide to vary the flight of the target.

54. In a target-trap, the combination of a rotating accelerating means; a guide adjacent to said means for guiding the target in proper relation to said means and for controlling the direction of flight of the target; and means for varying the position of said guide to vary the direction of flight.

55. In a target-trap, the combination of a rotating accelerating means; a guide adjacent to said means for guiding the target in proper relation to said means and for controlling the direction of flight of the target; and means for continuously varying the position of said guide to vary the direction of flight.

56. In a target-trap, the combination of a supporting-plate; a guide adjacent to said plate; means for oscillating said guide on said plate; means for accelerating a target on said plate and against said guide.

57. In a target-trap, the combination of a supporting-plate; a guide adjacent to said plate; means for oscillating said guide on said plate; means for accelerating a target on said plate and against said guide; and a continuously-operating mechanism for operating upon said means and for actuating said oscillating guide.

58. In a target-trap, the combination of a rotating accelerating means; an arc-shaped guide adjacent to said accelerating means; means for locking said guide in different positions to vary the flight of the target; and means for securing said guide to a continuously-oscillating mechanism to automatically vary the direction of the flight of the target.

59. In a target-trap, the combination with a means for controlling the direction of flight of the target; means for locking said controlling means in one position; means for connecting said controlling means to automatically vary the flight of targets; and a spring for holding said locking and connecting means in an operative position.

60. In a target-trap, the combination with a means for controlling the direction of flight of targets; the link, I', controlling said means; means for locking said link in position; and a spring for holding said link in said locking position.

61. In a target-trap, the combination of the guide, E; the spider, E', carrying said guide; a journal for said spider; a rotating accelerating means adjacent to said guide; a plate opposite said accelerating means beneath said guide; and means for lifting said guide from said plate.

62. In a target-trap, the combination of the plate, D; the disk, C, having the brush, C' thereon; the guide, E; spider, E'; a journal for said spider; the link, I', on said guide; an oscillating lever adapted to be connected with said link; and means for driving said disk and oscillating lever.

63. In a target-trap, the combination with an accelerating means; of means for automatically actuating the trap to vary the elevation of the target.

64. In a target-trap, the combination of an accelerating means; a continuously-operating mechanism for actuating said means; and means actuated by said mechanism for continuously operating the trap to vary the elevation of the target.

65. In a target-trap, the combination of a continuously-operating accelerating means; and means for automatically actuating the trap to vary the elevation of the target.

66. In a target-trap, the combination of a continuously-operating accelerating means; a mechanism for actuating said accelerating means; and means operated by said mechanism for actuating the trap to continuously vary the elevation of the target.

67. In a target-trap, the combination of a continuously-operating accelerating means; means for automatically varying the direction of flight of the targets from said trap; and means for automatically increasing the elevation of the targets on quarter.

68. In a target-trap, the combination of an accelerating means; means for varying the direction of flight of the target; means for varying the elevation of the target; and means for continuously actuating each of said means.

69. In a target-trap, the combination of a means for accelerating a target by a movement of means past and in contact with the target; and means for automatically actuating the trap to vary the elevation of the target.

70. In a target-trap, the combination of a rotating accelerating means; a driving-surface on said means; an oscillating guide adjacent to said driving-surface, said guide controlling the direction of flight of said target; and means for automatically increasing the elevation of the trap with the guide arranged to throw targets at quarter.

71. In a target-trap, the combination of a rotating accelerating means; a driving-surface on said means; an oscillating guide adjacent to said surface; means for continuously oscillating said guide; and means for continuously actuating said trap to increase the elevation of the target at quarters.

72. In a target-trap, the combination of an accelerating means; and means for automatically varying the discharge velocity of the target.

73. In a target-trap, the combination of an accelerating means; a continuously-operating mechanism for actuating said means; and means actuated by said mechanism for automatically varying the discharge velocity of the target.

74. In a target-trap, the combination of a continuously-operating accelerating means; and means for automatically varying the discharge velocity of the target.

75. In a target-trap, the combination of a means for accelerating a target by a movement of the means past and in contact with the target; and means for varying the force of contact to vary the discharge velocity of the target.

76. In a target-trap, the combination of a means for accelerating a target by a movement of the means past and in contact with the target; and means for automatically varying the force of contact to vary the discharge velocity of the target.

77. In a target-trap, the combination of a continuously-operating means; a driving-surface on said means adapted to engage and accelerate a target; and means for varying the force of said engagement to vary the discharge velocity of the target.

78. In a target-trap, the combination of a rotating accelerating means adapted to accelerate a target by a movement of the means past and in contact with the target; and means for varying the discharge velocity of the target by varying the force of contact between said means and the target.

79. In a target-trap, the combination of an accelerating means comprising a brush for engaging a target and means for varying the force of contact of said brush upon the target.

80. In a target-trap, the combination of a continuously-operating accelerating means comprising a brush for engaging and accelerating a target by said engagement; and means for varying the force of engagement of the brush upon the target for varying the discharge velocity of the target.

81. In a target-trap, the combination of an accelerating means; a supporting-plate opposite said means; and means for varying the position of said supporting-plate relatively to the accelerating means to vary the discharge velocity of the target.

82. In a target-trap, the combination of a rotating accelerating means, having a driving-surface thereon, adapted to engage and accelerate a target by said engagement; a supporting-plate opposite said driving-surface; and means for varying the position of said plate relatively to said driving-surface to vary the discharge velocity of the target.

83. In a target-trap, the combination of an annular brush; means for rotating said brush; a supporting-plate opposite said brush; and means for automatically vibrating said plate to vary the discharge velocity of the target.

84. In a target-trap, the combination of means for accelerating a target; means for automatically varying the direction of flight of said target; and means for automatically varying the velocity of the target.

85. In a target-trap, the combination of means for accelerating a target; a continuously-operating mechanism for actuating said means; means for varying the direction of flight of said target; and means for automatically varying the discharge velocity of the target.

86. In a target-trap, the combination of an accelerating means; a continuously-operating mechanism for actuating said means; means actuated by said continuously-operating mechanism for varying the direction of the flight of the target; and means controlled by said continuously-operating mechanism for varying the discharge velocity of the target.

87. In a target-trap, the combination of a continuously-operating accelerating means; means for varying the direction of flight of the target; and means for automatically varying the discharge velocity of the target.

88. In a target-trap, the combination of a continuously-operating accelerating means; means for automatically varying the direction of flight of the target; and means for automatically varying the discharge velocity of the target.

89. In a target-trap, the combination of means for accelerating a target by a movement of the means past and in contact with the target; means for varying the direction of flight of the target; and means for automatically varying the discharge velocity of the target.

90. In a target-trap, the combination of means for accelerating a target; means for varying the elevation of the target; means for automatically varying the discharge velocity of the target.

91. In a target-trap, the combination of means for accelerating the target; means for varying the elevation of the target; means for varying the direction of flight of the target; and means for automatically varying the discharge velocity of the target.

92. In a target-trap, the combination of an accelerating means; means for automatically varying the elevation of the target; means for automatically varying the direction of the flight of the target; and means for varying the discharge velocity of the target.

93. In a target-trap, the combination of a rotary accelerating means; a driving-surface on said means; a plate opposite said driving-surface; means for vibrating said plate relatively to said driving-surface to vary the discharge velocity of the target; means for automatically tilting said plate and accelerating means to vary the elevation of the target a guide adjacent to said driving means; and means for automatically oscillating said guide to vary the direction of the flight of the target.

94. In a target-trap, the combination of a continuously-operating means for accelerating a target by a movement past and in contact with the target; and means for delivering targets to said means.

95. In a target-trap, the combination of a means for accelerating targets adapted to actuate a target by a movement of the means past and in contact with the targets; a continuously-operating mechanism for actuating said means; a delivering mechanism having a return movement and a delivery movement; and means actuated by said mechanism for operating said delivering mechanism in one direction.

96. In a target-trap, the combination with a means for accelerating targets by a movement past and in contact with the target; a continuously-operating mechanism for actuating said means a delivering mechanism; a spring for actuating said delivering mechanism for delivering a target; and means for coupling said delivering mechanism with said continuously-operating mechanism to return the parts to normal.

97. In a target-trap, the combination with a means for accelerating targets by a movement past and in contact with the target; a continuously operating mechanism for actuating said means; delivering mechanism; a spring for actuating said delivering mechanism for delivering a target; a mechanism for returning said delivering mechanism to normal; a friction-clutch for locking said mechanism with continuously-operating mechanism; and means for throwing said clutch out of engagement at the completion of the return movement of the delivering mechanism.

98. In a target-trap, the combination with a means for accelerating targets by a movement past and in contact with the target; a continuously-operating mechanism for actuating said means; delivering mechanism; a spring for actuating said delivering mechanism for delivering a target; a mechanism for returning said delivering mechanism to normal; a friction-clutch for locking said mechanism with said continuously-operating mechanism; and means for throwing said clutch out of engagement at the completion of the return movement of the delivering mechanism, and for locking said delivering mechanism in position against the tension of the spring at the completion of said movement.

99. In a target-trap, the combination of a rotating accelerating means; a driving-surface on said means; a guide adjacent to said driving-surface and in the plane of the target as it is accelerated; means for oscillating said guide; and a delivering means for carrying a target from without said guide to position in contact with said driving-surface.

100. In a target-trap, the combination of a rotary accelerating means; a driving-surface on said means; a supporting-plate opposite said driving-surface; a guide on said supporting-plate and in the plane of movement of the target on said plate; and means for delivering a target from without said guide to a position on said plate.

101. In a target-trap, the combination of an accelerating means; a driving-surface on said means; a plate opposite said means, said plate being pivoted; a continuously-operating mechanism for driving said accelerating means; an eccentric driven by said mechanism and operating upon said plate to vibrate said plate; a delivering mechanism for delivering targets upon said plate, the line of the axis of the pivot being adjacent to the point of delivery

102. In a target-trap, the combination of an accelerating means; a delivering mechanism for delivering targets to said means; a driving mechanism for driving said means; the friction-disk, P, driven by said driving means; the clutch-dog, q', for engaging said disk; a connecting mechanism between said clutch and said delivering mechanism, whereby said delivering mechanism may be moved in one direction by the action of said clutch; the trip-plate, q'; the trip-shoulder, r'; the swinging trip-arm,

U', arranged in the path of the trip-plate, q^4; and means for actuating the swinging trip-arm, U.

103. In a target-trap, the combination of an accelerating means; a delivering mechanism for delivering targets to said means; a driving mechanism for driving said means; the friction-disk, P, driven by said driving means; the clutch-dog, q', for engaging said disk; a connecting mechanism between said clutch and said delivering mechanism, whereby said delivering mechanism may be moved in one direction by the action of said clutch; the trip-plate, q^4; the trip-shoulder, r'; the swinging trip-arm, U', arranged in the path of the trip-plate, q^4; means for actuating the swinging trip-arm, U'; the stop, r^3; the stop-dog, q^6; and the trip-plate, q^3, on the stop-dog, said trip-plate, q^3, being arranged to rest on the swinging trip-arm, U', with the stop-dog in position against the stop, r^3.

104. In a target-trap, the combination of an accelerating means a continuously-operating mechanism for actuating said means; a magazine having a stop-dog normally closed at the bottom thereof; a presser-dog normally open adapted to engage the next to the bottom target when the stop-dog is open; and means actuated by said continuously-operating mechanism for actuating said magazine to open the stop-dog, close the presser-dog, and then close the stop-dog and open the presser-dog in one operation.

105. In a target-trap, the combination of an accelerating means; a mechanism for actuating said means; a magazine having a normally closed stop-dog; a normally open presser-dog; a cam operated by said actuating mechanism; a connecting mechanism between said cam and said magazine, said cam operating upon said connecting mechanism to open the stop-dog and to close the presser-dog, to form a pause in the movement of the connecting mechanism and then to permit a return movement of the connecting mechanism and magazine parts before the completion of the operation.

106. In a target-trap, the combination of an accelerating means; a mechanism for actuating said means; a magazine having a stop-dog normally closed and a presser-dog normally open; a cam; a clutch mechanism for locking said cam with the actuating mechanism; a connecting mechanism actuated by said cam for controlling the magazine, said cam operating upon said connecting mechanism to effect an opening of the stop-dog and closing of the presser-dog; a pause in the movement, the closing of the stop-dog and opening of the presser-dog; and a mechanism for throwing said clutch out of engagement at the completion of said operation.

107. In a target-trap, the combination of an accelerating means; a continuously-operating mechanism for actuating said means; a magazine adjacent to said accelerating means; a delivering mechanism arranged to carry a target from the magazine to the accelerating mechanism; means for coupling the delivering mechanism with a continuously-operating mechanism to effect a movement of said delivering mechanism in one direction; and means actuated by said continuously-operating mechanism for delivering a target from the magazine to the delivering mechanism.

108. In a target-trap, the combination of an accelerating means; a continuously-operating mechanism for actuating said means; a magazine; mechanism for delivering targets from the magazine to the accelerating means; a cam mechanism; means for locking said cam mechanism with a continuously-operating mechanism; and a connecting mechanism actuated by said cam mechanism for operating said delivering mechanism in one direction and for operating the magazine to deliver targets to the delivering mechanism.

109. In a target-trap, the combination of an accelerating means; a continuously-operating means for actuating said accelerating means; a cam mechanism; a clutch adapted to lock said cam mechanism with said continuously-operating means; spring-actuated levers operating against said cam; a trip mechanism for said clutch mechanism, said cam mechanism, tripping mechanism and clutch mechanism exerting force in a forward direction on said cam mechanism, in each position of the cam mechanism.

110. In a target-trap, the combination of a continuously-operating actuating means; a cam mechanism comprising a delivering-cam and magazine-cam; spring-actuated levers for operating against said cam, the cam-lever operating upon the magazine-cam being arranged to be at the point, X', when the lever upon the delivering-cam is at the point, X; a clutch mechanism for locking said cam mechanism with said continuously-operating mechanism; and means for tripping said clutch mechanism.

111. In a target-trap, the combination of the cams, S and T, the cam, S, having the working part, s^2, the straight portion, s^3, and escape portion, s^4, the cam T, having the shoulder, t, working portion, t', the straight portion, t^2 and escape-surface, t^3; a delivering mechanism; the magazine; a connecting mechanism operating upon said cams for actuating said delivering mechanism and magazine; and the clutch mechanism for locking said cam mechanism with the continuously-operating mechanism.

112. In a target-trap, the combination of a continuously-operating accelerating means; means for delivering targets to said means; a pull mechanism for controlling said delivering mechanism; means for automatically throwing said delivering mechanism out of action after a single delivering operation.

113. In a target-trap, the combination of a continuously-operating actuating means; the friction-disk, P; the clutch-disk, Q; the clutch-dog, q'; the trip-shoulder, r'; the trip-arm, U; the clutch-dog, q', having a trip part thereon adapted to come into the path of the shoulder, r' and the swinging arm, U; a stop, r^3; a stop-dog, q^6; a trip-plate on said stop-dog, q^3, adapted to come in the path of the trip-arm, U; the delivering-cam, S, on said clutch-plate, Q, having the working surface, s^2, the straight portion, s^3, and escape portion, s^4; the magazine-cam, T, on said clutch-plate, Q, having the shoulder, t, working portion, t', straight portion, t^2, and escape portion, t^3, thereon; levers operating upon said cams; a swinging delivering mechanism; a link connecting the lever working upon the delivering-cam with said swinging delivering mechanism; a magazine; a link connecting the magazine mechanism with the lever operating upon the magazine-cam, said magazine comprising a stop-dog and a presser-dog, and adapted to be operated by said cams to keep the stop-dogs normally closed and the presser-dogs normally open.

114. In a target-trap, the combination of an accelerating means; mechanism for delivering targets from a magazine to said accelerating means; the magazine comprising a frame-ring, m, a stop-dog, m^5, pivoted in said frame; a presser-dog, m^{15}, also pivoted in said frame and adapted to engage the next to the lowermost target; means for actuating said stop-dog; a spring secured to said presser-dog and tending to move said presser-dog inwardly; a connecting mechanism between said presser-dog and stop-dog for preventing the outward movement of the presser-dogs, except with an outward movement of the stop-dog, said connecting mechanism being disengaged from the presser-dog when the presser-dog engages the target.

115. In a target-trap, the combination of an accelerating means; mechanism for delivering targets from a magazine to said accelerating means; the magazine comprising a frame-ring, m, stop-dogs, m^5, pivoted therein; presser-dogs, m^{15}, also pivoted therein adapted to engage the next to the lowermost target; a mechanism connecting the presser-dog with the stop-dog, said mechanism preventing an inward movement of the presser-dog except with an outward movement of the stop-dog and compelling an outward movement of the presser-dog with an inward movement of the stop-dog; a spring tensioned on said presser-dog and tending to press said presser-dog inwardly.

116. In a target-trap, the combination of a tilting frame; a magazine carried by said frame; and means for maintaining said magazine at a fixed angle to a horizontal plane.

117. In a target-trap, the combination of an accelerating means; a swinging delivering mechanism for delivering a target to said means; a continuously-operating mechanism for actuating said accelerating means; means for coupling said delivering mechanism with said continuously-operating means for moving said delivering mechanism in one direction; and a pull mechanism operating upon said coupling mechanism to give to said delivering mechanism one movement only, either a delivering or a return movement with a single operation of the pulling mechanism.

118. In a target-trap, the combination of an accelerating means; a swinging delivering mechanism for delivering a target to said means; a continuously-operating mechanism for actuating said accelerating means; means for coupling said delivering mechanism with said continuously-operating means for moving said delivering mechanism in one direction; a pull mechanism operating upon said coupling mechanism to give to said delivering mechanism one movement only, either a delivering or a return movement with a single operation of the pulling mechanism; and a mechanism having a single operation for effecting two pulls at each single operation.

119. In a target-trap, the combination of an accelerating means; a swinging delivering mechanism for delivering a target to said means; a continuously-operating mechanism for actuating said accelerating means; means for coupling said delivering mechanism with said continuously-operating means for moving said delivering mechanism in one direction; a pull mechanism operating upon said coupling mechanism to give to said delivering mechanism one movement only, either a delivering or a return movement with a single operation of the pulling mechanism; a crank; and mechanism actuated by said crank for operating said pull mechanism twice, with each revolution of the crank.

120. In a target-trap, the combination of an accelerating means; a swinging delivering mechanism for delivering a target to said means; a continuously-operating mechanism for actuating said accelerating means; means for coupling said delivering mechanism with said continuously-operating means for moving said delivering mechanism in one direction; a pull mechanism operating upon said coupling mechanism to give to said delivering mechanism one movement only, either a delivering or a return movement with a single operation of the pulling mechanism; an electric releasing mechanism for said pull mechanism; and a switch operating with one complete movement for making two pulls on the pulling mechanism.

121. In a target-trap, the combination of an accelerating means; a swinging delivering mechanism for delivering a target to said means; a continuously-operating mechanism for actuating said accelerating means; means for coupling said delivering mechanism with said continuously-operating means for moving said delivering mechanism in one direction; a pull mechanism operating upon said coupling mechanism to give to said delivering mechanism one movement only, either a delivering or a return movement with a single operation of the pulling mechanism; an electric mechanism for operating said pull; a switch having a double contact for actuating said electric mechanism; and a crank operating over said contacts to give two pulls with each revolution of the crank.

122. In a target-trap, the combination of an accelerating means; a swinging delivering mechanism for delivering a target to said means; a continuously-operating mechanism for actuating said accelerating means; means for coupling said delivering mechanism with said continuously-operating means for moving said delivering mechanism in one direction; a pull mechanism operating upon said coupling mechanism to give to said delivering mechanism one movement only, either a delivering or a return movement with a single operation of the pulling mechanism; an electric mechanism for operating said pull; a switch comprising an insulating-block; a crank journaled on said block; a cam having a flat portion on said crank; a contact-brush operating upon said cam, adapted to stop the crank at a fixed position and two contacts in the path of said crank adapted to close the circuit through said crank, said contact being arranged on said insulating-block, to give the proper pause between the pull.

123. In a target-trap, the combination of an accelerating means; a continuously-operating means for actuating said accelerating means; and means actuated by said continuously-operating means for indicating a speed either above or below the desired maximum or minimum.

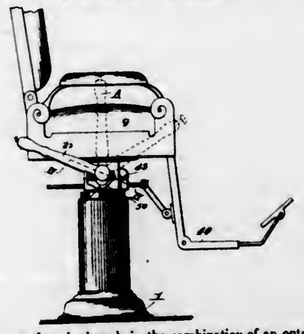
124. In a target-trap, the combination of a continuously-operating accelerating means; means actuated with said accelerating means for indicating a speed either above or below a desired minimum or maximum speed of said accelerating means.

125. In a target-trap, the combination of a continuously-operating accelerating means; a bell and a tappet, one carried by the operating means and one in a comparatively stationary part; and means for controlling the part on the accelerating means to permit of a movement out of the range of the stationary part with each speed of the accelerating means either above or below a desired maximum or minimum, respectively.

126. In a target-trap, the combination of an accelerating means; a tappet and gong, one carried by the accelerating means and the other held comparatively stationary, the one on the accelerating means being carried by a pivoted arm; a spring arranged to effect a centripetal action on the said pivoted arm to draw said arm and the element carried by said arm out of the range of the stationary element with a decrease in speed of the accelerating means, below a desired minimum, the tension on the spring permitting of an outward movement to carry the part on the pivoted arm without the range of the stationary part with an excess of speed.

127. In a target-trap, the combination of a rotating accelerating means; a guide adjacent to said accelerating means; a bell and gong, one carried with said guide and the other with the accelerating means; and means for raising said guide and the part carried by said guide out of the range of the indicating part carried by the accelerating means.

683,309. BARBER-CHAIR. JOHN R. LOWRY, St. Louis, Mo., assignor to August Kern Barber Supply Company, same place. Filed Mar. 1, 1901. Serial No. 49,448. (No model.)



Claim.—1. In a barber-chair, the combination of an outer cylinder suitably supported, an inner cylinder having a valved bottom, a plunger fitting within the inner cylinder and having a valved bottom, an operating-shaft to which said plunger is connected, and a lever fitting between said outer and inner cylinders and adapted to be moved by the turning of said shaft to lock the inner cylinder from rotation, substantially as set forth.

2. In a barber-chair, the combination of an outer cylinder suitably supported, an inner cylinder having a valved bottom, a plunger fitting in the inner cylinder and having a valved bottom, an operating-shaft, a rack-and-pinion connection between said shaft and plunger, a lever arranged within the inner cylinder and the lower end of which fits between the two cylinders, and a cam carried by said pinion and which is adapted to engage the upper end of said lever, substantially as set forth.

3. In a barber-chair, the combination of an outer cylinder suitably supported, an inner cylinder having a valved bottom, a plunger fitting within the inner cylinder and having a valved bottom, an operating-shaft journaled in the upper end of the inner cylinder, a rack-and-pinion connection between said shaft and plunger, a lever arranged within the inner cylinder and the bent lower end of which fits in a slot in the inner cylinder and is adapted to exert a binding force between the two cylinders when the lever is moved, a cam on said pinion adapted to move the upper end of said lever, and an arm on said pinion adapted to come against the upper end of said lever, and to limit the movement of the shaft when the cam has moved the lever to lock the cylinders together, substantially as set forth.

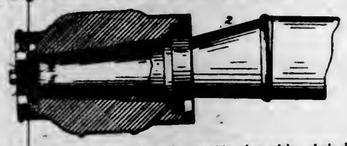
4. In a barber-chair, the combination of an outer cylinder suitably supported, an inner cylinder having a valved bottom, a plunger fitting within the inner cylinder and having a valved bottom, an operating-shaft, a rack-and-pinion connection between said shaft and plunger, a lever arranged within the inner cylinder and the lower end of which fits between the two cylinders, a cam on said pinion adapted to engage the upper end of said lever and a set-screw fitted in the upper end of the inner cylinder and which is adapted to arrest the movement of said lever by said cam, substantially as set forth.

5. In a barber-chair, the combination of an outer cylinder, suitably supported, an inner cylinder carrying the seat of the chair, an operating-shaft journaled in the inner cylinder, means connected to the shaft for pumping liquid from the inner cylinder into the outer cylinder, and means operated by the shaft for holding the back and foot-rest of the chair to any desired adjustment, and consisting of a rod connected to the foot-rest and which passes through the upper end of the inner cylinder, a clamping-arm fitting in an opening in the inner cylinder, and the outer end of which is perforated for the passage of said rod, a spring acting to depress the inner end of said arm, a lever pivoted to the inner cylinder and having an extension that projects beneath the inner end of said arm, a spring-actuated sleeve surrounding said shaft and having a finger adapted to be projected into the path of said lever, an operating-handle secured to said shaft, a bell-crank lever pivoted to said handle, and one end of which engages said sleeve, and a rod fitting within the handle the lower end of which bears against the other arm of said bell-crank lever, and the outer end of which projects beyond the end of the handle, substantially as set forth.

6. In a barber-chair, the combination of an outer cylinder suitably supported, an inner cylinder carrying the seat of the chair, an operating-shaft journaled in the inner cylinder, means connected to the shaft for pumping liquid from the inner cylinder into the outer cylinder, and means operated by the shaft for holding the back and foot rest of the chair to any desired adjustment, consisting of a rod connected to the foot-rest and which passes through the upper end of said inner cylinder, a clamping-arm fitting in an opening in the inner cylinder, and the outer end of which is perforated for the passage of said rod, a spring acting to depress the inner end of said arm, a lever pivoted to the inner cylinder and having an extension that projects beneath the inner end of said arm, an operating-shaft provided with a handle, and means carried by said shaft and handle for moving the said lever to lift the inner end of the clamping-arm; the perforation in said arm through which said rod passes being inclined to form corners 43ª and 43ᵇ, substantially as set forth.

7. In a barber-chair, the combination of an outer cylinder suitably supported, an inner cylinder carrying the seat of the chair, an operating-shaft journaled in the inner cylinder, means connected to the shaft for pumping liquid from the inner cylinder into the outer cylinder, and means operated by the shaft for holding the back and foot-rest of the chair to any desired adjustment, and consisting of a rod connected to the foot-rest and which passes through the upper end of the inner cylinder, a clamping-arm fitting in an opening in the inner cylinder and the outer end of which is perforated for the passage of said rod, a spring acting to depress the inner end of said arm, a lever pivoted to the inner cylinder, and having an extension that projects beneath the inner end of said arm, an operating-shaft provided with a handle, and means carried by said shaft and handle for moving said lever to lift the inner end of the clamping-arm, substantially as described.

683,310. HUB-ATTACHER. TARSE G. MANDT, Stoughton, Wis. Filed Aug. 13, 1901. Serial No. 71,949. (No model.)



Claim.—1. In a hub-attacher, the combination with a skein having a tenon thereon and a shoulder adjacent to said tenon bearing a series of radial symmetrical beveled teeth, of a nut provided with a shoulder having recesses therein, and a spring holding-ring secured to said nut and bearing rounded pawls located over said recesses and constructed to engage said teeth and to be forced to ride over the same, substantially as described.

2. In a hub-attacher the combination with a skein having a tenon thereon and a shoulder adjacent to said tenon bearing a series of radial symmetrically-beveled teeth, of a nut provided with a shoulder having concave recesses therein at diametrically opposite points, and a spring holding-ring secured to said nut and bearing pawls located over said recesses, said ring being sprung to bring said pawls at the highest points.

683,311. DRAWING-ROLL. FRANK M. MARCY, Worcester, Mass., assignor of one-half to Draper Company, Portland, Me., and Hopedale, Mass. Filed June 6, 1900. Serial No. 19,209. (No model.)



Claim.—1. As an article of manufacture, a drawing-roll having a leather cover provided with an enamel finish.

2. As an article of manufacture, a drawing-roll having a leather cover shellacked and impregnated with an enamel composition.

3. As an article of manufacture, a leather-covered drawing-roll having an enamel composition baked thereon.

4. As an article of manufacture, a drawing-roll having a leather cover impregnated with a mixture of linseed-oil, lampblack and a drier, as japan.

5. The process of finishing leather-covered drawing-rolls which consists in applying to the leather an enamel, and baking the same.

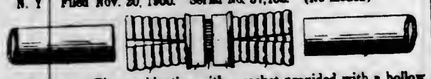
6. The process of finishing leather-covered drawing-rolls which consists in applying shellac to the leather, coating with an enamel, and baking the same.

7. The process of finishing leather-covered drawing-rolls which consists in applying to the leather a composition containing a viscous vehicle, a thickener, and a drier, and thereafter subjecting the same to a baking temperature.

8. The process of finishing leather-covered drawing-rolls which consists in removing the oil or grease from the leather, applying a composition of japan, lampblack and linseed-oil thereto, and thereafter baking the roll.

9. The process of finishing leather-covered drawing-rolls which consists in removing the oil or grease from the leather, applying a composition of japan, lampblack and linseed-oil thereto, and thereafter subjecting the roll to a baking temperature of substantially 150° Fahrenheit.

683,312. COUPLING DEVICE. JOSEPH MARQUARDT, New York, N. Y. Filed Nov. 20, 1900. Serial No. 37,152. (No model.)

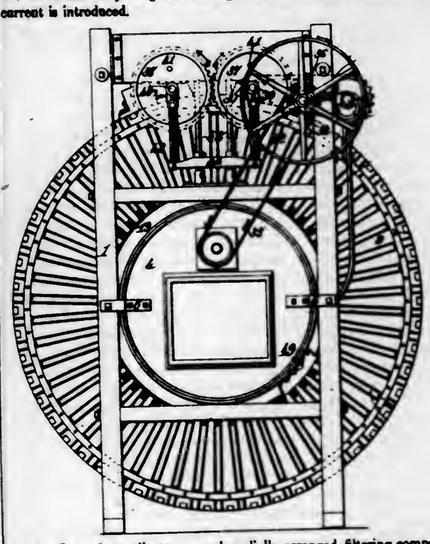


Claim.—1. The combination with a socket provided with a hollow spherical portion, of a coupling device comprising in its construction a hollow sheet-metal body having a spherical-shaped end adapted to embrace the spherical portion of the socket, a longitudinally-extending split externally-screw-threaded flaring end and a portion interposed between the two ends and of less diameter than the split ends.

2. A coupling device comprising a sheet-metal body portion having an internally and externally screw-threaded split end terminating in a portion of smaller diameter, and a nut for contracting said split end.

683,313. DUST-COLLECTOR. JOHN E. MITCHELL, St. Louis, Mo., assignor to the Mitchell-Parks Manufacturing Company, same place. Filed Aug. 28, 1900. Serial No. 28,059. (No model.)

Claim.—1. In a dust-collector, a reel, radially-arranged filtering-walls therein, separated from each other to form spaces, the adjacent pairs of said walls being closed at their inner and outer ends alternately to form inner and outer spaces, the inner spaces communicating at their inner ends with a central drum into which dust-laden air is introduced, and the outer spaces communicating with the outside, a ventilated cut-off or dust-receiving chamber in said drum communicating with and adapted to exclude dust-laden air from a plurality of said inner spaces, a nozzle communicating with and closing the open outer end of one of the outer spaces over said chamber, means for forcing a reverse current of air through said nozzle, and means for jarring the filtering-walls between which said reverse current is introduced.



2. In a dust-collector, a reel, radially-arranged filtering-compartments therein having open outer ends, the inner ends of said compartments forming or communicating with a central drum into which dust-laden air is introduced, a ventilated cut-off or dust-receiving chamber in said drum communicating with and adapted to exclude dust-laden air from the inner ends of a plurality of said compartments, a nozzle communicating with and closing the open outer end of one of the compartments in communication with said chambers, means for forcing a reverse current of air through said nozzle, and means for jarring the compartment receiving the current of air from said nozzle.

3. In a dust-collector, a reel, radially-arranged filtering-compartments therein having open outer ends, the inner ends of said compartments forming or communicating with a central drum into which dust-laden air is introduced, a ventilated cut-off or dust-receiving chamber in said drum communicating with and adapted to exclude dust-laden air from the inner ends of a plurality of said compartments, a nozzle communicating with and closing the open outer end of one of the compartments in communication with said chamber, means for forcing a reverse current of air through said nozzle, and means for simultaneously jarring the compartment receiving the current of air from said nozzle.

4. In a dust-collector, a reel radially-arranged filtering-compartments therein having open outer ends, the inner ends of said compartments forming or communicating with a central drum into which dust-laden air is introduced, a ventilated cut-off or dust-receiving chamber in said drum communicating with and adapted to exclude dust-laden air from the inner ends of a plurality of said compartments, an air-compressor, a nozzle thereon communicating with the open outer end of one of the compartments in communication with said chamber, a piston for forcing a reverse current of air through said nozzle, actuating means for said piston, and means thrown into operation by said actuating means for jarring the compartment receiving the current of air from said nozzle.

5. In a dust-collector, a cut-off chamber, a plurality of filtering-compartments in communication therewith, means for forcing a reverse current of air through the filtering-walls of one of said compartments and allowing it to escape through the walls of the adjacent compartment or compartments, and means thrown into operation by the reverse-current-actuating means for simultaneously jarring the filtering-compartments through which said reverse current passes.

6. In a dust-collector, a ventilated cut-off chamber, a plurality of filtering-compartments in communication therewith, an air-compressor for forcing a reverse current of air through the filtering-walls of the compartments in communication with said chamber, hammers for simultaneously jarring said filtering-compartments, and connections between said hammers and the piston of said compressor whereby the former are actuated by the latter.

7. In a dust-collector, a rotary reel, radially-arranged cloth-frames mounted in and carried by said reel, the inner ends of said cloth-frames communicating with and forming a central drum into which dust-laden air, under pressure, is introduced, a cut-off chamber in said drum in communication with, and adapted to exclude dust-laden air from, a plurality of said frames, an air-compressor comprising a box or cylinder having a nozzle thereon communicating with one of the cloth-frames which are in communication with said cut-off chamber, and a piston bodily movable in said box designed to force a reverse current of air through said nozzle and through the walls of the cloth-frame in communication therewith, actuating means for said piston, means for imparting an intermittent movement to said reel to bring said cloth-frames successively opposite said nozzle and means for jarring said frames simultaneously with the actuation of said piston, as and for the purpose set forth.

8. In a dust-collector, a rotary reel, radially-arranged cloth-frames mounted in and carried by said reel, the inner ends of said cloth-frames forming a central drum into which dust-laden air, under pressure, is introduced, a cut-off chamber in said drum in communication with, and adapted to exclude dust-laden air from, a plurality of said frames, an air-compressor comprising a box or cylinder having a nozzle thereon communicating with one of the cloth-frames which are in communication with said cut-off chamber, and a piston designed to force a reverse current of air through said nozzle and through the walls of the cloth-frame in communication therewith, a plurality of hammers pivotally mounted in said nozzle and adapted to strike the outer ends of said cloth-frames, connections between said hammers and said piston, whereby the former are actuated by the latter, actuating means for said piston, and means for imparting an intermittent movement to said reel for successively bringing said cloth-frames opposite said nozzle, as and for the purpose set forth.

9. In a dust-collector, cleaning mechanism for the filtering-surfaces, comprising a ventilated cut-off chamber, and means for forcing a reverse current of air through the filtering-surfaces in communication therewith, and a supplemental cut-off chamber for preventing the escape of fine particles of dust from the cleaned filtering-surfaces, the said supplemental chamber being located at a point opposite that at which the cleaned surfaces or filtering-walls receive the first gust of dust-laden air after passing from said cleaning mechanism.

10. In a dust-collector, a rotary reel, a series of radially-arranged cloth-frames mounted in and carried by said reel, the inner ends of said frames constituting a drum into which dust-laden air, under pressure, is introduced, a cut-off chamber in said drum in communication with, and adapted to exclude dust-laden air from, a plurality of said frames, means for cleaning the filtering-surfaces of the frames in communication with said chamber, and discharging the dust thereinto, and a supplemental cut-off chamber for preventing the escape of fine particles of dust which pass through the cleaned filtering-walls of said frame, the said supplemental chamber lying in contact with the periphery of said reel and located at a point opposite that at which the cleaned cloth-frames receive the first gust of dust-laden air from said drum after passing from the cut-off chamber.

11. In a dust-collector, a reel, a series of radially-arranged cloth-frames therein bodily movable independently of said reel, springs supporting said frames at their inner ends, and means for jarring said frames.

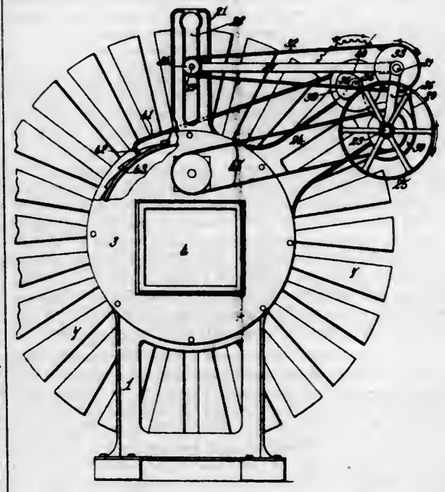
12. In a dust-collector, a rotary reel, a series of radially-arranged cloth-frames therein, bodily movable independently of said reel, the inner ends of said frames constituting a drum into which dust-laden air under pressure is introduced, springs supporting said frames at their inner ends, a cut-off or dead-air chamber in said drum, and means for jarring said frame in opposition to said springs as they are successively brought opposite said chamber.

13. In a dust-collector, a reel comprising a pair of rings constituting the hubs thereof, radially-extending, segmental spokes secured at their inner ends to said rings and separated one from the other, a ring connecting the spokes on each of said hubs, and longitudinally-extending rods or bars connecting the spokes on opposite hubs, a series of cloth-frames whose end pieces are provided with ribs which fit within the spaces between said spokes, and removable stops on said frames engaging the inner edges of the rings which connect said spokes.

14. In a dust-collector, a reel comprising a pair of rings constituting the hubs thereof, radially-extending, segmental spokes secured at their inner ends to said rings and separated one from the other, a ring connecting the spokes on each of said hubs, and longitudinally-extending rods or bars connecting the spokes on opposite hubs, a series of cloth-frames whose end pieces are provided with ribs which fit within the spaces between said spokes, springs interposed between the inner ends of said frames and said hubs, removable stops secured to said frames and engaging the inner edges of the rings which connect said spokes, and means for jarring said frames in opposition to said springs.

15. In a dust-collector, a reel whose heads are made up of radially-extending spokes separated one from the other, and cloth-frames removably mounted in said reel, each of said frames comprising segmental end pieces, a longitudinal strip connecting the inner ends of said end pieces, longitudinal strips connecting the outer ends of said end pieces, a sheet of filtering material connecting each of the outer longitudinal strips, with the inner longitudinal strip and secured to said end pieces and to said inner longitudinal strip, and lateral ribs on said end pieces fitting within the spaces between the spokes of said reel, as and for the purpose set forth.

683,314. DUST-COLLECTOR. JOHN E. MITCHELL, St. Louis, Mo., assignor to the Mitchell-Parks Mfg. Co., same place. Filed Feb. 27, 1901. Serial No. 48,133. (No model.)



Claim.—1. In a dust-collector, the combination with the filtering-walls thereof having plane surfaces, of a rotary cleaner, means for automatically rotating and bodily moving said cleaner, and means for causing the bodily movement of said cleaner in a straight line.

2. In a dust-collector, the combination with the filtering-walls thereof having plane surfaces, of a rotary cleaner, common operating means for automatically rotating and bodily moving said cleaner, and means for causing the bodily movement of said cleaner in a straight line.

3. In a dust-collector, the combination with two contiguous filtering-walls, of a rotary cleaner provided with blades designed to agitate said filtering-walls, means for automatically rotating and bodily moving said cleaner in contact with said walls and means for causing the bodily movement of said cleaner in a straight line.

4. In a dust-collector, the combination with an intermittently-rotatable reel, radially-arranged filtering-frames thereon each having straight walls parallel to the adjacent walls of the contiguous frames, the said walls being separated from each other and communicating with a central drum into which dust-laden air is introduced, and a cut-off chamber communicating with a plurality of said frames, of a rotary cleaner for the walls of said frames which are in communication with said cut-off chamber, means for automatically rotating and bodily moving said cleaner, and means for causing the bodily movement of said cleaner in a straight line.

5. In a dust-collector, the combination with an intermittently-rotatable reel, radially-arranged filtering-frames thereon separated from each other and communicating with a central drum into which dust-laden air is introduced, and a cut-off chamber communicating with a plurality of said frames, of a rotary cleaner for the filtering-walls of the frames which are in communication with said cut-off chamber, means for automatically rotating and bodily moving said cleaner back and forth between said frames in contact with said walls during the periods of rest of said reel, and guides for causing the bodily movement of said cleaner in a straight line.

6. In a dust-collector, the combination with an intermittently-rotatable reel, radially-arranged filtering-frames therein, separated from each other and communicating with a central drum into which dust-laden air is introduced, and a cut-off chamber communicating with a plurality of said frames, of a rotary cleaner for the walls of the frames which are in

communication with said cut-off chamber, the said cleaner comprising a shaft and flexible blades thereon, pivotally-mounted arms in which the ends of said shaft are mounted to turn, a movable support in which said arms are pivoted, a cam-shaft having cams thereon adapted to engage said arms for raising and lowering said cleaner, and a drive-shaft for rotating said cleaner and for rotating said cam-shaft, as and for the purpose set forth.

7. In a dust-collector, the combination with an intermittently-rotatable reel, radially-arranged filtering-frames therein, separated from each other and communicating with a central drum into which dust-laden air is introduced, and a cut-off chamber communicating with a plurality of said frames, of a rotary cleaner for the walls of the frames which are in communication with said cut-off chamber, the said cleaner comprising a shaft and flexible blades thereon, pivotally-mounted arms in which the ends of said shaft are mounted to turn, a movable support in which said arms are pivoted, a cam-shaft having cams thereon adapted to engage said arms for raising and lowering said cleaner, connections between said cam-shaft and said reel for imparting intermittent movement to the latter, and a drive-shaft for rotating said cleaner and said cam-shaft.

8. In a dust-collector, the combination with a reel, radially-arranged filtering-frames therein whose inner ends communicate with a central drum into which dust-laden air is introduced, and a cut-off chamber communicating with a plurality of said filtering-frames, of a rotary cleaner for removing the dust from the walls of the filtering-frames which are in communication with said cut-off chamber, the said cleaner comprising a shaft and flexible blades thereon, pivotally-mounted arms in which the ends of said shaft are mounted to turn, a movable support in which said arms are pivoted, a cam-shaft provided with cams adapted to engage said arms for moving said cleaner back and forth in the space between the filtering-frames which are in communication with said cut-off chamber, and to a point beyond the periphery of said reel, a ratchet on said reel, a pawl cooperating with said ratchet for imparting an intermittent movement to said reel, the said pawl being connected with and operated by said cam-shaft, and a drive-shaft for rotating said cleaner and said cam-shaft.

9. In a dust-collector, the combination with a reel, a series of radially-arranged filtering-frames therein whose inner ends communicate with a central drum into which dust-laden air is introduced, and a cut-off chamber communicating with a plurality of said frames, of fixed guides secured to the main frame at the opposite ends of said reel in line with said cut-off chamber and provided with elongated slots, a rotary cleaner, comprising a shaft bodily movable and guided in said slots and flexible blades secured to said shaft, a main drive-shaft, links pivoted thereto, a counter-shaft mounted in said links and geared with said drive-shaft, arms or rods pivoted at their opposite ends to said counter-shaft and to the cleaner-shaft, the said cleaner-shaft being rotated from said counter-shaft, a cam-shaft geared with said drive-shaft and having cams thereon adapted to engage said arms or rods for moving said cleaner back and forth in the space between the filtering-frames which are in communication with said cut-off chamber and to a point beyond the periphery of said reel, and means for imparting an intermittent movement to said reel, the same being thrown into operation when said cleaner is at a point beyond the periphery of said reel and said cleaner being moved back and forth during the periods of rest of said reel.

10. In a dust-collector, the combination with a reel having ratchet-teeth thereon, of means for imparting an intermittent movement to said reel, the same comprising a rotary shaft, a disk thereon, a pin secured eccentrically to said disk, and a pawl having one end hooked and adapted to engage said ratchet-teeth, and its other end recurved to form a shoulder and bent back upon itself to form a flange, said shoulder and flange being adapted to be engaged by said pin for moving said pawl in opposite directions, as and for the purpose set forth.

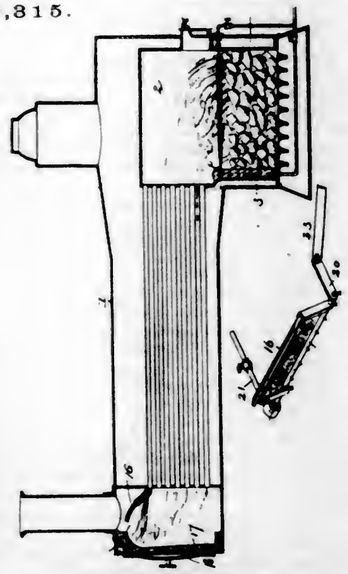
688,315. SPARK-ARRESTER. MORRIS MOORE, Danville, Va. Filed Mar. 26, 1901. Serial No. 52,966. (No model.)

Claim.—1. In combination with a smoke-box, of a concave deflector mounted in the door of said smoke-box and an adjustable deflector mounted on a horizontal axis and located to act in combinatinon with said stationary deflector to stop sparks.

2. In combination with a smoke-box provided with a smoke-stack, of a stationary deflector mounted in the forward end of said smoke-box, a spray-pipe traversing said smoke-box, and a deflector adjustably mounted on said spray-pipe and located to act in combination with said stationary deflector, substantially as described.

3. In combination with a smoke-box connected to a stack of a concave deflector mounted in the forward end of said smoke-box, a perforated spray-pipe extending transversely said smoke-box, of a concave deflector adjustably mounted on said spray-pipe, and located to act in combination with said concave deflector to stop sparks, substantially as described.

688,315.

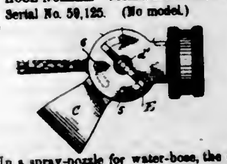


688,316. DETACHABLE UMBRELLA-COVER. EDGAR R. MURDOCK, Webster, Mass. Filed Mar. 30, 1901. Serial No. 51,967. (No model.)



Claim.—As an article of manufacture, a detachable umbrella-cover, comprising triangular sections secured together at a common center, and an imperforate center piece stitched onto the center of said umbrella-cover to reinforce the seams between the sections of the cover, the stitches securing the center piece inclosing an area exceeding that of the cross-section of either a wooden or steel umbrella-stick, within which a hole may be cut or punched to receive either a steel umbrella-rod or an ordinary wooden umbrella-stick as desired.

688,317. HOSE-NOZZLE. JOSEPH MCBOYLE, Oakland, Cal. Filed May 7, 1901. Serial No. 59,125. (No model.)

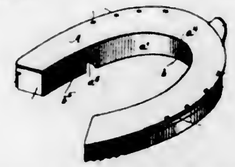


Claim.—1. In a spray-nozzle for water-hose, the combination with the enlarged body portion, of a nozzle-tube extending therefrom, a seat formed on the exterior of said nozzle-tube, a band loosely fitted therein, an upper and lower plate secured to said band, a disk rotatably held between said plates, an inclined spray-plate extending from said disk in advance of the nozzle-tube, and means whereby the rotary movement is imparted to the rotatable disk in order to give lateral movement to the spray-plate.

2. In a spray-nozzle for water-hose, the combination with the body portion thereof, of a nozzle-tube extending therefrom, a seat formed on the exterior of said nozzle-tube, a band loosely fitted within the said seat so as to permit of the nozzle-tube turning freely within the band, a disk rotatably secured to the band, an inclined spray-plate extending from said disk in advance of the discharge end of the nozzle-tube, and means whereby rotary movement is imparted to the said disk in order to give lateral movement to the spray-plate so as to place the same in or out of the stream discharged from the spray-nozzle.

688,318. ELASTIC HORSESHOE. SIDNEY MCCLOUD, Chicago, Ill. Filed Nov. 16, 1900. Serial No. 36,658. (No model.)

Claim.—1. A horseshoe comprising an upper horizontal plate or section, a lower horizontal plate or section yieldingly interlocked with said upper plate or section, flexible material secured in place between said horizontal plates or sections to act as a cushion, and flexible material secured in place directly beneath said lower horizontal plate or section to act as a non-slipping tread.



2. A horseshoe comprising an upper horizontal plate or section, a lower horizontal plate or section yieldingly interlocked with said upper horizontal plate or section, a pad of flexible material secured in position with a portion thereof interposed between said horizontal plates or sections to act as a cushion and a portion extending directly beneath said lower horizontal plate to act as a non-slipping tread.

3. A horseshoe comprising an upper horizontal plate or section, a lower horizontal plate or section yieldingly interlocked with said upper plate or section, flexible material secured in place between said horizontal plates or sections to act as a cushion, and flexible material secured in place directly beneath said lower horizontal plate or section to act as a non-slipping tread, one of said plates or sections being provided with a vertical, depending flange for supporting and protecting said cushion and said tread.

4. A horseshoe comprising a pair of yieldingly-interlocked horizontal plates, a pair of vertical, depending flanges, and flexible material interposed as a cushion between said plates and interposed as a non-slipping tread between said depending flanges and directly beneath the lower horizontal plate.

5. A horseshoe comprising an upper plate or section, a lower horizontal plate or section movably secured thereto, and a flexible pad grooved or recessed lengthwise to engage both the upper and lower surface of said lower plate or section, whereby a portion of said pad is located as a cushion between said plates or sections and a portion is exposed as a non-slipping tread beneath said lower plate or section.

6. A horseshoe comprising an upper horizontal plate or section provided at its inner edge with a depending flange, a lower horizontal plate or section movably connected thereto, and a flexible pad extending about and outside of said depending flange and connected to said lower plate or section, a portion of said pad being located between said upper and lower plates or sections to form a cushion and a portion extending beneath said lower plate or section to form a non-slipping tread.

7. A horseshoe comprising an upper horizontal plate or section provided at its inner edge with a depending flange, a lower horizontal plate or section having projections engaging said flange with cut-away portions between said projections, and a flexible pad extending about and outside of said depending flange and above and below said lower horizontal plate through said cut-away portions.

8. A horseshoe comprising an upper plate or section, a lower section movably connected thereto, and an elastic pad connected to said lower section to form a cushioned and non-slipping tread, said lower section comprising a depending vertical flange extending about and outside of said pad.

9. A horseshoe comprising an upper plate or section, a lower section, and a flexible pad forming a cushioned and non-slipping tread, said lower section comprising a depending vertical flange extending about and outside of said pad, said vertical flange being vertically corrugated at its toe portion.

10. A horseshoe comprising an upper horizontal plate or section provided with a depending flange, a lower horizontal plate or section provided with a depending flange, and flexible material interposed as a cushion between said horizontal plates or sections and interposed as a non-slipping tread between said depending flanges and beneath said lower horizontal plate or section.

11. A horseshoe comprising an upper horizontal plate or section provided with a depending flange, a lower horizontal plate or section provided with a depending flange, and a pad of flexible material having a groove engaging said lower horizontal plate, a portion of said pad interposed between said horizontal plates or sections to act as a cushion and a portion extending beneath said lower plate or section and between said depending flanges to act as a non-slipping tread.

12. A horseshoe comprising an upper horizontal plate or section provided with a depending flange, a lower horizontal plate or section provided with a depending flange and horizontal projections engaging the depending flange of the upper section with cut-away portions between said projections, and a pad of flexible material interposed between said depending flanges and extending above and below said lower horizontal plate through said cut-away portions.

13. A horseshoe comprising an upper plate or section, a lower plate or section arranged to movably interlock with said upper plate or section, each of said plates or sections being angular in cross-section, and a pad of flexible material arranged with a portion thereof intermediate the horizontal parts of said plates or sections to act as a cushion and with a portion between the vertical parts of said plates or sections and beneath the horizontal part of said lower plate to act as a non-slipping tread.

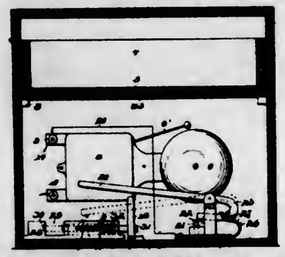
14. A horseshoe comprising an upper plate or section having its inner edge formed with a depending flange, a lower plate or section, and an intermediate elastic pad, one of said plates or sections being formed at its toe with a tongue or part adapted to engage the other of said sections, said upper section having its heel portions provided with flexible lugs or flanges adapted to be bent outwardly to secure the heel portions of the sections together.

15. A horseshoe comprising an upper plate or section, the toe portion whereof is provided with a depending flange having a slot or seat therein and the heel portion whereof is provided with depending lugs or flanges adapted to be folded outwardly, a lower plate or section provided at its toe with a tongue to enter the slot or seat of the upper section and provided at its heel portions with parts to be engaged by said outwardly-folded lugs, and an elastic pad extending between said upper and lower plates or sections.

16. A horseshoe comprising upper and lower plates or sections suitably connected together, and an intermediate elastic pad, the upper plate or section having its outer edge reverted upon itself and provided at such points with nail-holes.

17. A horseshoe comprising an upper plate or section having its inner edge provided with a depending flange, a lower plate or section provided with a vertical flange having horizontal projections extending inwardly therefrom, and an elastic pad arranged between said upper and lower sections and provided with slots or seats to receive the projections of the lower section, said pad extending beneath said lower section to form the tread of the shoe.

688,319. BURGLAR-ALARM. WILLIAM G. MCCLURE, Beaver-falls, Pa. Filed Nov. 14, 1900. Serial No. 36,494. (No model.)

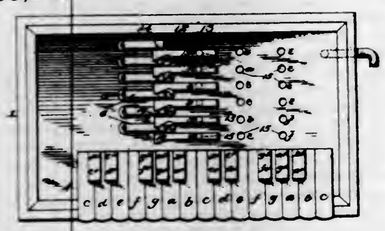


Claim.—In a burglar-alarm, the combination with the box or casing, of an electrically-operated alarm and mechanism for operating the alarm, said mechanism comprising in connection with a source of electrical supply and the circuits, a contact-plate mounted on the bottom of the casing, a contact-lever pivotally supported from said plate and provided with a curved end, a contact-arm supported on the bottom of the box or casing, a pin normally held elevated and in engagement with the curved end of the lever for holding said lever out of engagement with the contact-arm, said pin being held in its elevated position by the engagement thereof with the support for the box or casing and adapted upon the lifting of the box or casing to permit the fall of the contact-lever against the contact-arm to sound the alarm, and springs engaging the curved end of said lever for accelerating its downward movement when its support is removed, substantially as described.

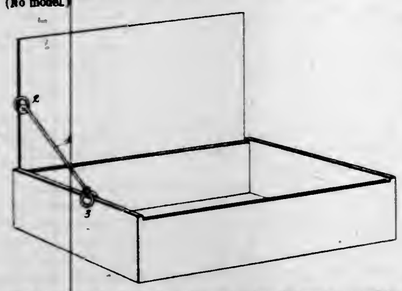
688,320. MUSICAL INSTRUMENT. HIRAM MCCREA, New Richmond, Ind. Filed Feb. 18, 1901. Serial No. 47,799. (No model.)

Claim.—In a musical instrument of the character described, the combination with an inclosing casing, of a wind instrument, an ordinary keyboard mounted thereon and corresponding note-producing devices, of an auxiliary keyboard above the ordinary keyboard and consisting of a row of keys, graduated bass notes, producing devices controlled thereby, keys alternating with the bass-note keys and graduated higher-note producers controlled thereby, said latter keys being provided with means whereby when each is actuated, one of the bass-note keys will also be simultaneously actuated to produce a chord, substantially as set forth.

688,820.

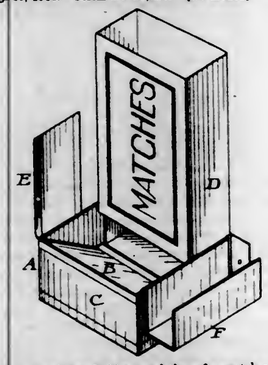


683,321. BOX-LID HOLDER. BERNHARD NEUBAUER and LAWRENCE GERSHAM, Nevada, Mo. Filed Mar. 5, 1901. Serial No. 49,904. (No model.)



Claim.—As an article of manufacture, a box-lid support, consisting of a straight rod or wire 1 coiled at one end to form a combined hook and spring-clamp 2 adapted to clamp firmly upon one edge of the lid of the box and having the coiled spring-clamp 3 at the opposite end and at a right angle to the said spring-clamp 2 and adapted to clamp upon the side of the box, substantially as specified.

683,322. MATCH-SAFE. HORATIO J. NOYES, Ashtabula, Ohio. Filed Aug. 10, 1900. Serial No. 26,457. (No model.)

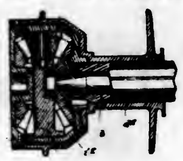


Claim.—A match-box holder consisting of a match-receptacle composed of a piece A, bent to form three sides, a piece B bent to form the partly-inclined bottom and the high back, and secured to the side piece A, the back above the sides made a little narrower to form the shoulders *b' b'* and adapted to hold the match-box D in the manner described, substantially as described.

683,323. COMPENSATING DRIVING-GEAR. ALDEN R. OSBORN, New York, N. Y. Filed Mar. 26, 1901. Serial No. 53,718. (No model.)

Claim.—1. A compensating driving-gear, comprising a tubular axle, a shaft arranged to turn therein, a wheel-hub at one end of the axle, through which hub said axle extends to mount the hub wholly on the axle, a second wheel-hub at the other end of the axle and having connection with the said shaft, and compensating gear adjacent to the first-named hub, for the purpose specified.

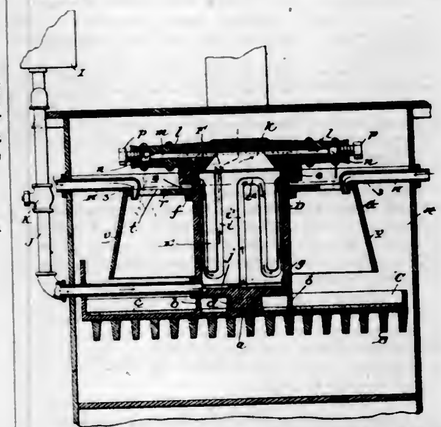
2. A compensating driving-gear, comprising a hollow axle, a shaft extending therethrough, wheel-hubs through which the ends of the hollow axle are extended, said hubs being mounted wholly on the axle and supported entirely thereby, one of said wheel-hubs having connection with the shaft, and compensating gearing adjacent to the other wheel-hub and connected respectively therewith and with the said shaft.



3. The combination of a hollow driving-axle, a shaft extending loosely therethrough, a driving-wheel mounted loosely on each end of the axle and carried wholly thereby, one of said wheels being fastened to the said shaft, and a compensating gear located outside of the other wheel and connecting together the said wheel, the axle and the shaft, for the purpose specified.

4. In a compensating gearing of the class set forth, the combination with the hollow axle, the shaft and the wheel-hub, of a gear fast to the wheel-hub, a gear fast to the shaft, and two additional gears intermeshed together and respectively meshed with the two first-mentioned gears.

683,324. VAPOR-BURNER. JOHN R. PENSYL and CHARLES W. PENSYL, Topeka, Kans. Filed Feb. 14, 1901. Serial No. 47,365. (No model.)

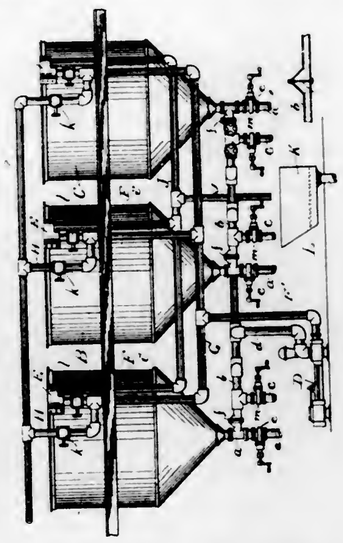


Claim.—In a vapor-burner, the combination of an oil-pan having a central socket and upwardly-extending projections surrounding the same, a generator comprising a casing resting on said projections of the pan and provided with a central depending lug snugly arranged in the socket of the pan, and also provided, adjacent to its upper end, with exterior lugs, lower and upper chambers in said casing, a core snugly fitting the casing and having a tortuous way in its side connecting the lower and upper chambers, passages leading from the upper chamber and terminating in downwardly-disposed discharges, a combustion-box having a central aperture in its top wall provided with offsets; said wall being adapted to rest on the exterior lugs of the generator-casing and having openings disposed below the discharge-apertures, air-induction pipes adapted to lead from the outside of a fire-box, when the burner is placed in same, and terminating in downwardly-disposed discharges arranged in apertures in the top wall of the combustion-box, and at points adjacent to the vertical planes of the said discharge apertures or jets, a hydrocarbon-tank, and a pipe leading from said tank through the oil-pan to the lower chamber of the generator.

683,325. EXTRACTION OF PRECIOUS METALS FROM THEIR ORES. HENRY J. PHILLIPS, London, England, assignor to the Golden Link Consolidated Gold Mines Limited, same place. Filed Nov. 13, 1899. Serial No. 736,872. (No specimens.)

Claim.—The herein-described method of extracting precious metals from refractory sulfid or telluride ores without roasting; which consists in subjecting the ore without roasting and in the form of a powder—under heat and pressure—to the action of alkaline polysulfids in solution of such weakness that same will have a selective action namely will dissolve the elements which are combined with the gold and for which the polysulfids have a greater affinity than for gold without dissolving the gold itself which latter is thus dissociated and can then be recovered by any known suitable process for recovering free gold.

683,326. PROCESS OF STEEPING AND WASHING GRAIN. WILLIAM H. PRINZ, Austin, Ill., assignor to the Saladin Pneumatic Malting Construction Co., Chicago, Ill. Filed Feb. 11, 1901. Serial No. 46,881. (No specimens.)



Claim.—1. The process of steeping grain, which consists in maintaining a constant circulation of water in said tanks, discharging a portion of said water, and introducing fresh water to replace the discharged water.

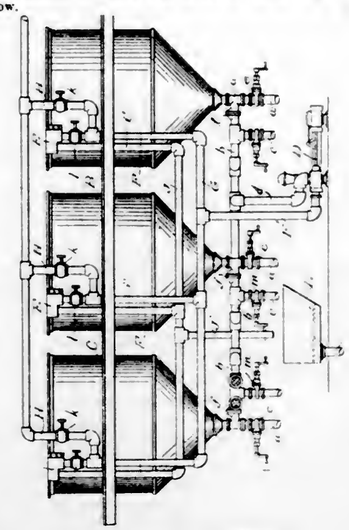
2. The process of steeping grain, which consists in maintaining a constant circulation of the water in the steep-tank by withdrawing water from the upper end and redelivering same at the lower end of the tank, discharging a portion of said water out of the circulation at a point above said first-named point of withdrawal, and introducing fresh water into the circulation to replace the discharged water.

3. The process of steeping grain which consists in maintaining practically constant circulation of the water and thereby agitating the grain, withdrawing a portion of said water at intervals and replacing same with fresh water, thereby maintaining a practically constant temperature in the tank, the withdrawn water being adapted to carry off diseased grain.

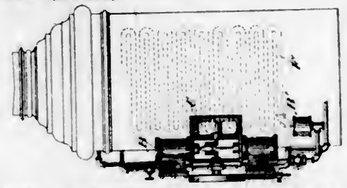
683,327. APPARATUS FOR STEEPING AND WASHING GRAIN. WILLIAM H. PRINZ, Austin, Ill., assignor to the Saladin Pneumatic Malting Construction Co., Chicago, Ill. Filed Feb. 11, 1901. Serial No. 46,882. (No model.)

Claim.—1. In an apparatus for steeping grain, the combination with a steep-tank, an overflow at its upper end, and a pump connected at its suction end with said overflow and at its delivery end with the lower end of said tank to produce circulation in said tank, of an overflow on said tank above said first-named overflow and adapted to receive water and grain from said tank, and connection between said last-named overflow and a receptacle adapted to receive grain carried off through said last-named overflow.

2. In an apparatus for steeping grain, the combination with a steep-tank, an overflow at its upper end, and a pump connected at its suction end with said overflow and at its delivery end with the lower end of said tank to produce circulation in said tank, and connection between said pump and a source of supply of fresh water, of an overflow on said tank above said first-named overflow and adapted to receive water and grain from said tank, and connection between said last-named overflow and a receptacle adapted to receive grain carried off through said last-named overflow.



683,328. FEED-PUMP ATTACHMENT FOR FIRE ENGINES. FRANK N. RAGGIO, Louisville, Ky. Filed Jan. 23, 1901. Serial No. 44,469. (No model.)



Claim.—1. The combination with the heating-coil and water-circulating pump and a valve for closing communication between the pump and the coil; of a device substantially as described whereby the pump is locked when the valve is closed, and is released when the valve is opened.

2. The combination with a pump, a water-circulating coil and a valve for regulating communication between the pump and the coil; of a bolt adapted to lock the pump when the valve is closed, said bolt being held in locking position by a projection on the valve-stem when the valve is closed and released when the valve is opened.

3. The combination of the heating-coil and water-circulating pump, a pipe connecting said pump and coil and a valve in said pipe; with a bolt for locking the pump, a spring for holding said bolt in unlocking position and a projection on the valve-stem adapted to hold said bolt in locking position when the valve is closed, for the purpose and substantially as described.

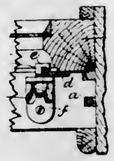
4. The combination of the pump, the heating-coil, the pipe connecting the pump with the heating-coil, and the valve in said pipe; with a bolt adapted to engage and lock the pump, and an arm on the lower end of said bolt adapted to rest upon the valve-stem so as to hold the bolt in engagement with the pump when the valve is closed, for the purpose and substantially as described.

5. The combination of the pump, the heating-coil, the pipe connecting the pump with the heating-coil, the valve in said pipe provided with a wheel or ring on its stem; with a bolt adapted to engage with the pump fly-wheel and lock the latter, an arm on the lower end of said bolt adapted to rest upon the ring on the valve-stem and hold the bolt in locking engagement with the fly-wheel when the valve is closed, and a spring for disengaging said bolt from the fly-wheel when the valve is opened, for the purpose and substantially as described.

683,329. WINDOW-FASTENER. JOHN REDMAN, Leeds, England. Filed Jan. 9, 1901. Serial No. 42,683. (No model.)

Claim.—In a window-sash fastener, the combination with the upper and lower sash, of a flat plate secured to and projecting beyond the inner

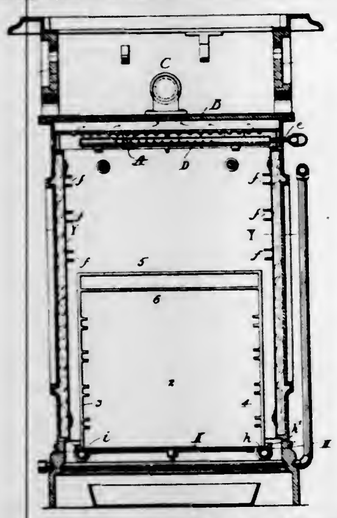
edge of the side stile of said upper sash, a fin portion formed integral with and at right angles to the projecting edge of said plate, a bracket secured to said lower sash, a clip provided with a hook end, loosely mounted in said bracket, adapted to engage with the fin on said plate, and a nut on said clip for clamping the hook end and plate together, substantially as described.



683,330. BOILER-CLEANING COMPOUND. JACKSON RICHARDS, Philadelphia, Pa., assignor to the United States Boiler Cleaning Compound Company, same place. Filed Feb. 25, 1901. Serial No. 48,828. (No specimens.)

Claim.—A compound for cleaning boilers, consisting of ground extract of logwood, ground potato starch and ground borax, in the proportions substantially as described.

683,331. GAS COOKING APPARATUS. EDMOND W. T. RICHMOND, Romford, England. Filed Dec. 14, 1900. Serial No. 39,855. (No model.)



Claim.—1. The combination with a fixed or stationary gas-cooker oven and a supplementary oven therein, and removable therefrom, comprising top, rear and side walls, and open at front and bottom, and having an oven-space above the top thereof in the cooker-oven, a gas-burner for heating the main oven, arranged outside of the supplementary oven, and a gas-burner discharging into the supplementary oven.

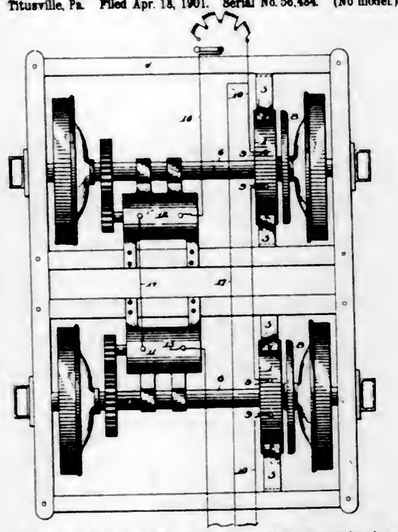
2. The combination with a gas-cooker oven, of a supplementary oven therein, and removable therefrom, comprising top, rear and side walls, and open at front and bottom, and provided with an oven-space above it in the cooker-oven, a gas-burner arranged at the top of said space in the cooker-oven, and gas-burners arranged at the bottom of the supplementary oven and discharging thereinto.

3. The combination of a fixed or stationary gas-cooker oven and a supplementary oven arranged therein, having a space between its rear end and the back of the main oven, and space on each side thereof, as well as a large oven-space above it in the main oven, gas-burners discharging directly into the open bottom of the supplementary oven, a gas-burner in rear of the supplementary oven, discharging directly into the main oven, and a gas-burner at the top of the main oven.

4. The combination of a gas-cooker oven, of the bottom side burners formed with seats on their upper surfaces to receive the lower edges of the side walls of a supplementary oven, and a supplementary oven within the main oven open at front and bottom, and having top and side walls, the latter of which rest upon the seats of the side burners.

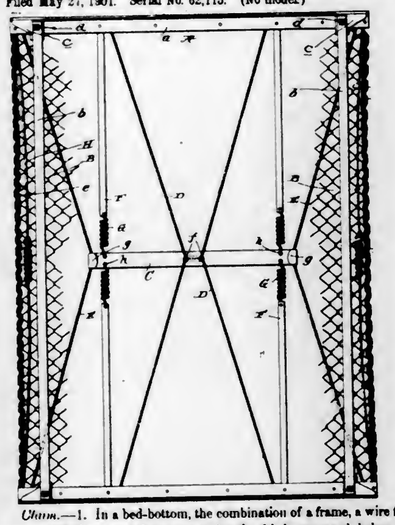
5. A supplementary oven for gas-stoves having a double top with one side hinged to the top so as to fold over upon the upper surface thereof, a back hinged to the top so as to fold over the inner surface thereof, and another side hinged to the back so as to fold over upon the outer side thereof.

683,332. ELECTROMAGNETIC BRAKE. ARNOLD A. ROBERTSON, Titusville, Pa. Filed Apr. 18, 1901. Serial No. 56,484. (No model.)



Claim.—In a device of the character described, an annular ring surrounding the car-axle, brackets for securing said ring to the truck-frame, said ring having a circular groove formed in one face thereof, a field-magnet in said groove, straps for securing said magnet in said groove, binding-posts on said rings, in combination with an annular iron disk keyed to the car-axle, said disk having a space between itself and the said ring, whereby an eddy-current is established in the disk and magnet upon the energizing of said magnet, the eddy-current opposing the rotation of said disk.

683,333. BED-BOTTOM. PATRICK B. ROONEY, New York, N. Y. Filed May 27, 1901. Serial No. 62,113. (No model.)



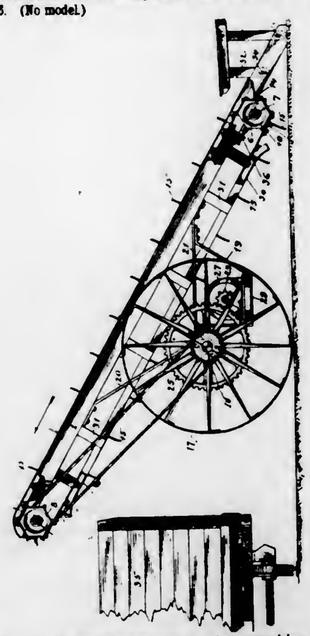
Claim.—1. In a bed-bottom, the combination of a frame, a wire fabric connected thereto, and a support for the fabric arranged below the same and comprising a bar having apertures arranged at opposite sides of and adjacent to its middle, and cables passed through said apertures of the bar, and having bights straddling the middle portion thereof and also having their ends connected to opposite bars of the frame.

2. In a bed-bottom, the combination of a frame, a wire fabric connected thereto, and a support for the fabric arranged below the frame and comprising a bar having apertures arranged adjacent to its middle and also having loops or eyes at its ends, V-shaped cables passed through said apertures of the bar and having bights straddling the middle portion thereof, and also having their ends connected to opposite bars of the frame, and cables resting at their middles in the loops or eyes at the ends of the bar and extending outwardly from said ends of the bar and connected at their ends to opposite bars of the frame.

3. In a bed-bottom, the combination of a frame, a wire fabric connected thereto, and a support for the fabric arranged below the same, and comprising a cross-bar having apertures arranged at its middle, cables passed through said apertures of the bar and having bights straddling the portion of the bar intermediate of the apertures therein, and also having their ends connected to opposite bars of the frame, longitudinal straps or bars connected at their outer ends to said opposite bars of the frame, and coiled springs interposed between and connected to said longitudinal bars and the cross-bar.

4. In a bed-bottom, the combination of a frame, a wire fabric connected thereto, and a support for the fabric arranged below the same and comprising a cross-bar having apertures arranged at its middle, and also having loops or eyes at its ends, V-shaped cables passed through said apertures of the bar and having bights straddling the middle portion thereof, and also having their ends connected to opposite bars of the frame, side cables resting at their middles in the loops or eyes at the ends of the bar and extending outwardly from said ends of the bar, and connected at their ends to opposite bars of the frame, longitudinal straps or bars disposed under the fabric; coiled springs interposed between and connected to said longitudinal bars and the cross-bar, longitudinally-disposed resilient rods connected at their outer ends to the frame and extending through or under the meshes of the fabric adjacent to the edges thereof, and coiled springs interposed between and connecting the said rods.

683,334. PORTABLE SUGAR-CANE ELEVATOR OR LOADER. AUGUST H. SCHIERHOLZ, San Francisco, Cal., assignor to Risdon Iron and Locomotive Works, same place. Filed Feb. 20, 1901. Serial No. 48,076. (No model.)



Claim.—1. A portable sugar-cane loader comprising a carriage, brackets pivoted to the axle of the carriage, a ladder secured to the brackets capable of a swinging movement, an endless conveyer working over said ladder, a platform adjacent the lower end of the ladder, and means connecting the platform to the ladder adapted to adjust the former at a proper inclination relative to the latter, substantially as described.

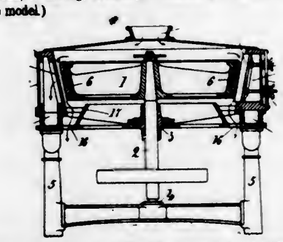
2. A portable sugar-cane loader comprising a suitable carriage, a ladder pivotally secured intermediate its ends to the axle of the carriage, a conveyer adapted to work over the ladder, and means for imparting motion to the conveyer comprising operating means on the axle of the carriage, connections between the same and the conveyer, a motor supported by the ladder and means for maintaining a constant communication between the motor and operating means on the axle irrespective of the adjustment of the ladder on its pivotal bearings, substantially as described.

683,335. WINDOW-CURTAIN FIXTURE. HENRY D. SCHMID, McKees Rocks, Pa. Filed Aug. 23, 1900. Serial No. 27,800. (No model.)



Claim.—In a curtain-fixture, the combination with a window-frame, of a substantially rectangular top plate, a substantially rectangular side plate secured at right angles thereto, a substantially rectangular front plate secured at right angles to said top and side plates, all of the aforesaid plates being made integral with one another, pins made integral with the under side of the said top plate, the said side plate having an aperture formed therein, a thumb-screw, keepers made integral with the said front plate, the said keepers having openings formed therein, a substantially V-shaped bracket, hooked ends made integral with the said bracket and adapted to engage in the apertures in the said keepers, said bracket having a slot formed therein, a hanger a thumb-screw mounted thereon, said thumb-screw adapted to operate in said slot, and brace-rods formed integral with said bracket, substantially as described.

683,336. GRAIN-DECORTICATING MACHINE. FRIEDRICH H. SCHULZ, Hamburg, Germany. Filed May 17, 1901. Serial No. 60,709. (No model.)



Claim.—1. In a decorticating-machine, the combination with a vertical revolving conical drum, of a stationary complementary conical screen surrounding said drum and scrapers positioned on the screen in substantially the direction of the resultant of the force of gravity and of the friction causing the decortication, substantially as and for the purpose set forth.

2. In a decorticating-machine, the combination with a revolving drum, of a stationary screen and scrapers thereon inclined in the direction of travel of the drum, said inclination being substantially in the direction of the resultant of the forces acting to carry the material to be decorticated between drum and screen, substantially as and for the purpose set forth.

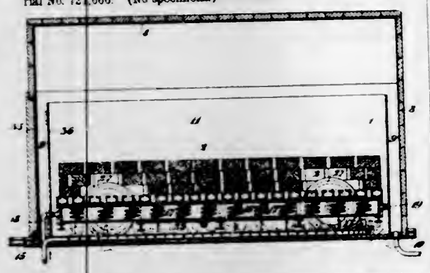
3. In a decorticating-machine, the combination with a revolving conical drum arranged to centrifugally deliver material to its working face, of a stationary conical screen and scrapers thereon arranged in substantially the direction of the resultant of the forces acting on the material during decortication, substantially as and for the purpose set forth.

4. In a decorticating-machine, the combination with a revolving conical drum and hopper arranged to deliver material at the center of a closed end of said drum, of a stationary conical screen, scrapers thereon arranged in substantially the direction of the resultant of the forces acting on the material during decortication, and means for adjusting the scrapers at each end, substantially as and for the purpose set forth.

5. In a decorticating-machine, the combination with a vertical re-

volving conical drum having closed ends and of greater diameter than length, and a feed-hopper arranged to deliver material onto the upper end thereof, of a complementary screen surrounding said drum, curved scrapers thereon positioned in a line substantially the resultant of the force of gravity and of that acting to decorticate the material, and a cone below the drum arranged to discharge material through delivery-orifices at its periphery, substantially as and for the purpose set forth.

683,337. PROCESS OF MAKING ARTIFICIAL SANDSTONE. WALTER SCHULTHESS, Zurich, Switzerland. Filed June 23, 1899. Serial No. 721,666. (No specimens.)

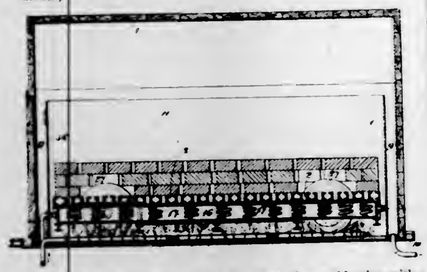


Claim.—1. In the art of making artificial stone from compounds containing silicic acid and calcium hydroxid (slaked lime) the improvement which consists in subjecting the previously-molded compound in a confined space to the action of low-pressure superheated steam, for the purposes set forth.

2. In the art of making artificial stone from compounds containing silicic acid and calcium hydroxid (slaked lime), the improvement which consists in subjecting the previously-molded compound in a confined space to the action of superheated steam at about atmospheric pressure, for the purposes set forth.

3. In the art of making artificial stone from compounds containing silicic acid and calcium hydroxid (slaked lime), the improvement which consists in heating steam of normal temperature to a temperature above 100 centigrade, allowing such steam to expand to about atmospheric pressure into a confined space containing the previously-molded compound, and subjecting the latter to the action of the superheated steam at about atmospheric pressure for a suitable length of time, for the purpose set forth.

683,338. APPARATUS FOR THE PRODUCTION OF COMPRESSED ARTIFICIAL SANDSTONE. WALTER SCHULTHESS, Zurich, Switzerland. Original application filed June 23, 1899, Serial No. 721,666. Divided and this application filed June 4, 1900. Serial No. 19,060. (No model.)



Claim.—1. In apparatus such as described, the combination with a steaming-chamber, of a chambered platform for the artificial-stone compound, means for causing a superheating fluid to circulate through said platform, superheating-pipes extending therethrough and means for causing steam to flow through said pipes into the aforesaid chamber, for the purpose set forth.

2. In apparatus such as described, the combination with a steaming-chamber, a chambered wheeled platform for the artificial-stone compound, means for causing a heating fluid to circulate through said platform, open-ended superheating-pipes extending therethrough and means causing steam to flow through said pipes into the aforesaid chamber, for the purposes set forth.

3. In apparatus such as described, the combination with a steaming-chamber, a chambered platform for the artificial-stone compound, means for causing a heating fluid to circulate through said platform, a steam-receiver below the same and superheating-pipes extending through the platform and opening into said receiver and into the aforesaid chamber, for the purposes set forth.

4. In apparatus such as described, the combination with a steaming-chamber, a platform for the artificial-stone compound divided longitudinally into a plurality of superheating-chambers, means for causing a heating fluid to circulate through said chambers, superheating-coils therein opening at one end into the steaming-chamber, and means for supplying steam to the opposite end of said coils, for the purpose set forth.

5. In apparatus such as described, the combination with a steaming-chamber, a wheeled platform for the artificial-stone compound divided longitudinally into superheating-chambers, means causing a heating fluid to circulate therethroogh, a steam-receiver below said platform and superheating-coils in said superheating-chambers opening into the receiver and into the steaming-chamber, for the purposes set forth.

6. In apparatus such as described, comprising an outer closed chamber provided with a suitable gate, an inner chamber open at top and bottom concentric with said outer chamber and having a gate in line with that of the outer chamber, and a base on which both chambers rest having an encompassing flange outside of the outer chamber; in combination with a chambered raised platform in the inner chamber, means for causing a heating fluid to circulate through said platform, a steam-receiver below the same, and superheating-coils contained in the platform and opening into said receiver and into the aforesaid inner chamber, for the purpose set forth.

7. In apparatus such as described comprising an outer closed chamber provided with a gate, an inner chamber open at top and bottom concentric with the outer chamber and having a gate in line with the gate of said outer chamber, a base on which said chambers rest, having an encompassing flange outside of the outer chamber; in combination with a chambered wheeled platform adapted to be run into the inner chamber, means for causing a heating fluid to circulate through the platform, a steam-receiver below the same, and superheating-pipes contained in said platform and opening into the inner chamber and into said receiver, for the purpose set forth.

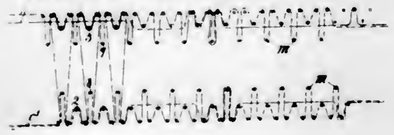
8. In apparatus such as described, comprising an outer chamber open at bottom, an open-ended inner chamber having baffle-plates secured to its vertical walls at a certain height, a base on which said chambers rest, provided with an encompassing flange outside the outer chamber, means for draining the inner chamber, a space between it and the outer chamber and the channel around the same, and a coil of perforated pipe on the base within the inner chamber; in combination with a wheeled truck adapted to be run into said inner chamber between the aforesaid baffle-plates to form a steam-receiver below the truck-body, the latter being chambered, means for supplying a heating fluid to said truck-body, and superheating-pipes contained in the truck-body and opening into the spaces above and below the same.

683,339. TOBACCO-PIPE. FRANK L. SCHULZ, Chicago, Ill., assignor, by direct and mesne assignments, to Charles W. Vail, same place. Filed Jan. 31, 1900. Serial No. 3,489. (No model.)



Claim.—The combination with a pipe having a stem provided on its bowl end with an upwardly-extending annular flange screw-threaded on its outer surface, and a bowl screw-threaded in its lower end to fit said screw-threaded portion of said stem, the opposing faces of said portions adjacent the interior opening being each provided with an annular groove adapted to receive and retain a ring of wire, of a foraminated screen provided with a circular wire frame adapted to fit within said grooves, when said portions of said pipe are screwed together and be retained in position, thereby.

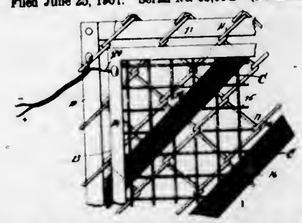
683,340. METHOD OF PRODUCING FIGURED DOUBLE-PILE FABRICS. RUDOLF SCHWARTZ, Crefeld, Germany. Filed May 27, 1899. Serial No. 718,579. (Specimens.)



Claim.—1. The mode of producing figured double-pile fabrics with frisé or mirror effects or both, which consists in forming the nap or pile for both ground fabrics and the frisé or mirror effects or both on one of said ground fabrics by means of one and the same warp, and forming the frisé or mirror effects or both on the other ground fabric by means of a special warp, for the purpose set forth.

2. The mode of producing figured double-nile fabrics, which consists in forming the nap or pile on both fabrics and the frisé or mirror effects or both on one of said ground fabrics by means of one and the same warp, forming the frisé or mirror effects or both on the other ground fabric by means of a special warp and forming the frisé-loops for both fabrics separately, for the purpose set forth.

683,341. ELECTRIC ALARM-MAT. ALBERT D. SHAW, New York, N. Y. Filed June 25, 1901. Serial No. 65,934. (No model.)



Claim.—1. A mat adapted for connection with an electric alarm device, which mat consists of an upper frame, a wire mesh carried by the said frame, a lower frame, a wire mesh carried by said lower frame, and interposed strips of elastic material attached to both the upper and lower meshes, the attachment between the elastic strips and the upper and lower meshes being such that the fastening devices connected with one mesh will be out of engagement with the opposing mesh, as set forth.

2. In a mat adapted for connection with an electric alarm device, the combination, with an upper and a lower element, the upper element consisting of a frame and wire strands interwoven to form a mesh, which strands extend diagonally of the frame across one another in zigzag or stepped direction, the strands being secured to each other where they contact and adjacent strands being connected with each other at the margin of the frame, the lower element consisting of a frame of lesser dimensions and a wire mesh secured to said frame, of an interposed element consisting of a series of diagonally-located elastic strips, metal fastening devices securing the upper strands of wire to the said strips, the lower strands of wire being cut away where the said fastening devices penetrate the said strips, the lower strands of wire having likewise a metallic connection with the elastic strips, the said connections occurring in the spaces formed by the crossing wires of the upper element of the mat, substantially as described.

3. In a mat adapted for connection with an electric alarm device, the combination, with an upper and a lower element, the upper element consisting of a frame and wire strands interwoven to form a mesh, which strands extend diagonally of the frame across one another in zigzag or stepped direction, the strands being secured to each other where they contact and adjacent strands being connected with each other at the margin of the frame, the lower element consisting of a frame of lesser dimensions and a wire mesh secured to said frame, of an interposed element consisting of a series of diagonally-located elastic strips, metal fastening devices securing the upper strands of wire to the said strips, the lower strands of wire being cut away where the said fastening devices penetrate the said strips, the lower strands of wire having likewise a metallic connection with the elastic strips, said connections occurring in the spaces formed by the crossing wires of the upper element of the mat, a marginal auxiliary frame in which the body of the mat is inclosed, and wires connected with the frames of the upper and lower elements, which wires are adapted for circuit connection with a battery and an alarm device, as described.

683,342. HOSE-COUPLING. HOWARD B. SHERMAN, Battlecreek, Mich., assignor to H. B. Sherman Manufacturing Company, same place. Filed Mar. 27, 1901. Serial No. 53,102. (No model.)



Claim.—1. A spun or wrought metal member for hose-couplings having its end turned upon itself to form a double thickness of metal, such double thick end being then flanged, for the purpose and substantially as described.

2. The combination of the union; with a spun or wrought metal coupling member having its union-engaging end turned upon itself to form a double thickness or reinforce of metal, such double thickness of metal being outturned to form a flange to hold the member to the union, for the purpose and substantially as described.

3. The combination of the union; with a spun or wrought metal coupling member having its union-engaging end turned upon itself to form a double thickness or reinforce of metal, such double thickness of metal being outturned to form a flange to hold the member to the union, and after the union is in place said member being expanded behind the union to form an annular retaining-shoulder to hold the union in place, for the purpose and substantially as described.

4. The herein-described wrought-metal coupling comprising the male member having an enlarged threaded part and a reduced hose-engaging part provided with annular corrugations; a union having internal threads to engage the threads of the male member, and a female member having its inner end inturned upon itself to form a double thickness, and such double thickness outturned to form a union-engaging flange, and also having annular hose-engaging corrugations, all substantially as and for the purpose described.

683,343. DISPLAY-STAND. WILLIAM H. SHRADER, Washington, D. C. Filed Aug. 27, 1900. Serial No. 28,206. (No model.)



Claim.—1. A display-stand comprising an elevatable standard, horizontally-disposed arms radially projecting from and vertically adjustable on the said standard and having the outer free ends upturned and screw-threaded, and a plurality of supporting devices removably mounted on said arms and having screw-sockets to fit the screw-threaded ends of said arms, a portion of said supporting devices having depending fulcrum-bars disposed rotatably and horizontally slidable in the upper portions of the screw-sockets therefor.

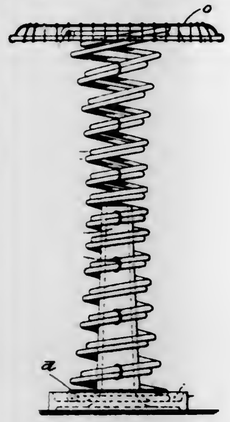
2. A display-stand comprising an elevatable standard, a laterally and longitudinally adjustable support removably mounted thereon, and an arm adjustably mounted on the standard and having an auxiliary support removably applied to the outer terminal thereof in a plane at a right angle to the same to coact with the first-named support.

3. A display-stand comprising an elevatable standard, an arm adjustably mounted thereon and having a screw-threaded terminal, and a supporting device for removable application to the said terminal of the arm and consisting of a screw-threaded socket having a set-screw in the upper end thereof, and an annular body having a depending fulcrum-bar disposed rotatably and horizontally slidable in the upper portion of the said socket.

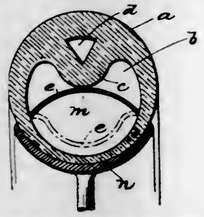
683,344. SUPPORT FOR BED NETTING. FINLAY SIM, North Attleboro, Mass. Filed Apr. 20, 1901. Serial No. 56,686. (No model.)

Claim.—As a new article of manufacture, a support for bed-netting consisting of a base provided with an upper circumferential channel, a hollow post projecting upwardly from said base, a double spiral spring

resting in said channel, and consisting of two independent springs superimposed one on the other, said spring inclosing the post and supporting a top, means for binding the adjacent coils of the spring at intervals, and a reticulated metal top attached to top of the double spiral, as described.



683,345. CUSHION-TIRE. FREDERICK W. SKINNER, Valley Falls, R. I., assignor to the Advance Tire Company, of South Dakota. Filed June 11, 1901. Serial No. 64,073. (No model.)



Claim.—The herein-described cushion-tire composed of the solid rubber body *a* with opening *d* and chamber *b* and rounded central inwardly-extending rib *c* opposite said opening, and thin portion *n* and the flexible diaphragm *e* within said chamber *b* and adapted to bear with its convex side against said rounded rib when the tire is inflated all substantially as shown and described.

683,346. SPRING-STUD FOR GLOVE-FASTENERS, &c. JOSEPH R. SMITH, Waterbury, Conn., assignor to the Waterbury Button Company, of Connecticut. Filed Nov. 6, 1900. Serial No. 35,619. (No model.)

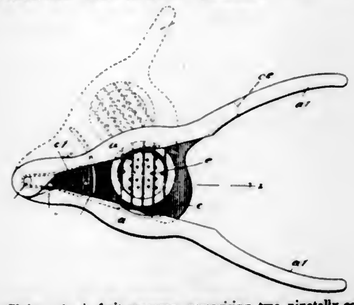


Claim.—1. A spring-stud for glove-fasteners and other uses combining the following three distinct elements, to wit: a spring-stud member provided with spring-arms terminating in a flange for securing it; a rivet member which has a flange embracing and securing the spring-stud member flange and has a second flange riveted over to hold the fabric; and a flange member concave on the side next to the fabric and coöperating with the said riveted-over flange of the rivet member to secure the fabric, substantially as set forth.

2. A spring-stud for glove-fasteners and other uses combining the following three distinct elements, to wit: a spring-stud member which has an exterior flange for securing it; a rivet member in which the said flange is secured; and an annular flange member through which the said rivet member protrudes and upon which it is secured, when turned over and riveted, to hold the fabric, substantially as set forth.

3. A spring-stud member of sheet metal having several arms terminating in enlargements which form an exterior flange for securing it, in combination with a rivet member for securing it to the fabric, which rivet member has a flange extending beneath, around and above the flange of the stud member and holding it exteriorly, confining the said enlargements in close contact with each other and thereby preventing the dislocation interiorly, said rivet member having also a second flange or annular portion to compress the fabric against its first said flange when riveted over, substantially as set forth.

683,347. FRUIT-SQUEEZER. PAUL F. SMITH, Denver, Colo. Filed Feb. 20, 1901. Serial No. 48,107. (No model.)



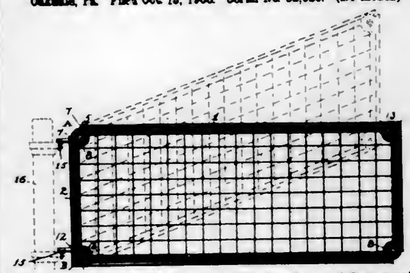
Claim.—1. A fruit-squeezer, comprising two pivotally-connected jaws serving to squeeze the fruit between them, a sieve, a carrier on which the sieve is mounted, the carrier being mounted to swing around the pivot of the jaws, and a spring pressing the carrier to throw it normally to one side of the jaws.

2. A fruit-squeezer, comprising squeezing devices, a movably-mounted sieve movable under the squeezing devices, and a spring pressing the sieve and holding it normally at one side of the squeezing devices, for the purpose specified.

3. A fruit-squeezer, comprising squeezing devices, a sieve, a carrier on which the sieve is mounted, the carrier being arranged to move into and out of proximity to the squeezing devices, and a spring actuating the carrier and holding the same normally out of proximity to the squeezing devices.

4. A fruit-squeezer, comprising squeezing devices, a swinging carrier, a spring engaging the carrier to hold it normally at one side of the squeezing devices, a cup-like sieve held by the carrier, and a grating extending over the mouth of the sieve.

683,348. ADJUSTABLE SWINGING GATE. WILLIAM M. SMITH, New Cumberland, W. Va., assignor of one-half to George A. McCandless, Oakdale, Pa. Filed Oct. 13, 1900. Serial No. 32,920. (No model.)



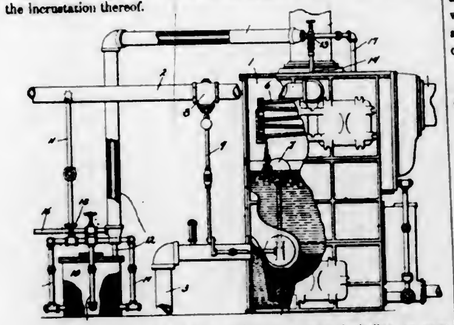
Claim.—A swinging gate, comprising a frame of four members hingedly connected at its four corners to permit the same being adjusted from a horizontal to an inclined position, and means of locking the same in said position, said locking means consisting of radial teeth formed upon the engaging surfaces of two of said hinge connections which are adapted to register or interlock with one another, as set forth.

683,349. APPARATUS FOR PURIFYING WATER. ADOLPH SOMER, Jr., Chicago, Ill. Filed Nov. 9, 1900. Serial No. 35,919. (No model.)

Claim.—1. The combination with a water system, of a tank containing a purifying agent, a discharge connection leading from the tank into the system, and means for preventing the incrustation of said connection.

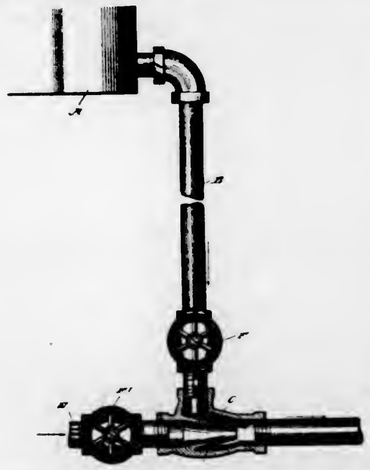
2. The combination with a water system, of a tank containing a purifying agent, a discharge connection leading from the tank into the system, and means for heating said discharge connection.

3. The combination with a water system, of a tank containing a purifying agent, a discharge connection leading from said tank into the system, and a heating-jacket applied to said discharge connection to prevent the incrustation thereof.



4. The combination, with a feed-water system, including an open heater, steam inlet and exhaust pipes, and a water-supply pipe, of a tank adapted to contain a purifying agent and supplied at its bottom with water under pressure, and a discharge connection leading from the upper portion of the tank into the heater system at a point where the water-pressure has been relieved.

683,350. METHOD OF DISPOSING OF THE SPENT LIQUOR IN WOOD-PULP MAKING. WILLIAM M. STONE, Keeseville, N. Y. Filed Dec. 1, 1900. Serial No. 38,359. (No specimens.)



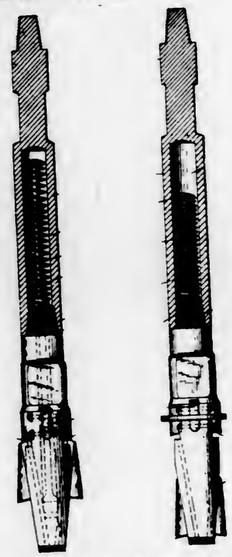
Claim.—The described method of dissipating the spent liquor of a pulp-digester, consisting in drawing off the liquor therefrom and forcing a fluid such as air under high pressure in contact with the liquor, whereby the latter is atomized, as described.

683,351. PHOTOGRAPHIC RETOUCHER. ANDREW SWAN, Rhinelander, Wis. Filed May 20, 1901. Serial No. 61,109. (No model.)



Claim.—In a photographic retoucher, the combination with a barrel, of a piston having secured to it so as to reciprocate therewith a hollow piston-rod to receive the lead, means for creating an air pressure and suction in alternation to reciprocate the piston and its attached pencil-carrying rod, said barrel being provided near its lower end with an air-vent, a valve to open and close the air-vent, and a collar connected to the valve and embracing the barrel and provided with a finger-lip whereby the valve may be operated to open and close the vent and thus regulate the air pressure and suction within the barrel for varying the pressure of stroke of the pencil-carrying rod, substantially as set forth.

683,352. UNDERREAMER. JOHN C. SWAN, Marietta, Ohio, assignor to Swan Machine & Tool Company, same place. Filed Dec. 10, 1900. Serial No. 39,404. (No model.)



Claim.—1. In an underreamer, the combination of a reamer-body having a tapered or wedge-shaped portion, a reaming-head arranged to be movable on said tapered or wedge-shaped portion, means for automatically moving the reaming-head to the base or thick end of the tapered or wedge-shaped portion, and means arranged to contact with the interior of the casing for holding the reaming-head at the narrow end of the tapered or wedge-shaped portion during the passage of the tool through the casing; substantially as described.

2. In an underreamer, the combination of a reamer-body having an oblique face formed thereon, an abutment at the upper end of the oblique face, retaining-ways along the oblique face, a reaming-head arranged to slide on the oblique face and to stop against the abutment, a spring above said abutment, connections between the spring and reaming-head for holding the reaming-head against the abutment and means arranged to contact with the interior of the casing for holding the reaming-head away from the abutment during the operation of lowering the tool through the casing; substantially as described.

3. In an underreamer, the combination of a reamer-body having a tapered or wedge-shaped portion, retaining-ways along the faces of the tapered or wedge-shaped portion, abutments at the upper ends of said faces, reaming-heads arranged to be movable on the tapered or wedge-shaped portion, a spring arranged to automatically move the reaming-heads into contact with said abutments and means arranged to contact with the walls of the well-casing for locking the spring against operation during the passage of the tool through the casing; substantially as described.

4. In an underreamer, the combination of a reamer-body, having a tapered or wedge-shaped lower portion, the lower end of which is adapted to enter the hole to be reamed or enlarged, abutments at the upper end of the tapered or wedge-shaped portion, reaming-heads movable on the tapered or wedge-shaped portion and arranged to stop against said abutments, yielding means for moving the reaming-heads to the wider end of the tapered or wedge-shaped portion into contact with said abutments, means arranged to contact with the interior of the casing for temporarily locking said yielding means against operation to hold the reaming-heads at the narrow end of the tapered or wedge-shaped portion, and means for retaining said locking means in operative position before the tool is inserted in the well-casing; substantially as described.

5. In an underreamer, the combination of a reamer-body, having a tapered or wedge-shaped lower portion, reaming-heads movable in ways on said tapered or wedge-shaped portion, a rod within the reamer-body having near its lower end a pin extending through a slot in the reamer-body, and carrying the reaming-heads, a spring arranged to force the rod and with it the reaming-heads, upward into expanded position, pins carried by the reamer-body having their inner ends adapted to engage a shoulder carried by the rod to hold the rod from upward movement, and means for holding the pins in engagement with the shoulder on the rod during the passage of the tool through the well-casing; substantially as described.

6. In an underreamer, the combination of a reamer-body, having a tapered or wedge-shaped lower portion, reaming-heads movable in ways on said tapered or wedge-shaped portion, a rod within the reamer-body having near its lower end a pin extending through a slot in the reamer-body, and carrying the reaming-heads, a spring arranged to force the rod and with it the reaming-heads, upward into expanded position, pins carried by the reamer-body having their inner ends adapted to engage a shoulder carried by the rod to hold the rod from upward movement, and means adapted to contact with the interior of the casing for holding the pins in engagement with the shoulder on the rod during the passage of the tool through the well-casing; substantially as described.

7. In an underreamer, the combination of a reamer-body having a tapered or wedge-shaped portion provided with ways, reaming-heads carried in said ways, a pin connecting the reaming-heads and movable therein, a longitudinal rod having a shoulder thereon within the reamer-body, through which the pin passes and is freely movable, means for moving the rod and means engaging the shoulder on the rod and arranged to contact with the interior of the casing for preventing the movement of the rod during the passage of the tool through the well-casing; substantially as described.

8. In an underreamer, the combination of a reamer-body having a tapered or wedge-shaped portion provided with ways, reaming-heads carried in said ways having their upper ends terminating at an oblique angle, and abutments formed on the reamer-body above the ways, having faces arranged at an oblique angle adapted to receive the upper ends of the reaming-heads and yielding means arranged above said reaming-heads for holding them against said abutments; substantially as described.

9. In an underreamer, the combination of a reamer-body having ways formed in its lower portion, reaming-heads carried in said ways, having their upper ends terminating at an oblique angle, and abutments formed on the reamer-body above the ways having their faces arranged at an oblique angle adapted to receive the upper ends of the reaming-heads whereby the force of the blow upon the abutments is directed inward toward the center of the reamer-body and yielding means for holding the reaming-heads against said abutments; substantially as described.

683,353. **ROPE-SOCKET.** JOHN C. SWAN, Marietta, Ohio, assignor to Swan Machine & Tool Company, same place. Filed Dec. 17, 1900. Serial No. 40,212. (No model.)



Claim.—1. A rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder formed therein in combination with a piston within the cylinder constructed to be secured to the rope by which the tools are supported, and means for maintaining a body of compressed gas within the cylinder above the piston; substantially as described.

2. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, and means for maintaining a body of compressed gas within the cylinder above the piston, the cylinder being provided with a valve-controlled inlet above the piston whereby said body of compressed gas may be introduced into the cylinder; substantially as described.

3. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, means for maintaining a body of compressed gas within the cylinder above the piston, means for closing the lower end of the cylinder and a valve-controlled outlet below the piston; substantially as described.

4. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, means for introducing and maintaining a body of compressed gas within the cylinder above the piston comprising a valve-controlled inlet above the piston, and means for closing the lower end of the cylinder and a valve-controlled outlet below the piston; substantially as described.

5. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, and a hollow piston-rod secured to the piston and extending through the upper end of the cylinder, through which the rope extends, the cylinder being provided with a valve-controlled inlet above the piston substantially as described.

6. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder and packing-box formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, means for maintaining a body of compressed gas within the cylinder above the piston, and a layer of lubricant above the piston; substantially as described.

7. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder and packing-box formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, a layer of lubricant above the piston and a layer of liquefied gas above the lubricant; substantially as described.

8. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools, and having a cylinder and packing-box formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, a layer of lubricant above the piston, and a layer of liquefied gas above the lubricant, the lubricant being of greater specific gravity than the liquefied gas; substantially as described.

9. The combination of a rope-socket for use in drilling wells, provided with means for securing it to the drilling-tools and having a cylinder and packing-box formed therein, a piston within the cylinder constructed to be secured to the rope by which the tools are supported, a layer of liquefied gas above the lubricant, and an inlet leading into the cylinder above the piston and means for closing the inlet; substantially as described.

10. In well-drilling apparatus, the combination of drilling-tools, a substantially inelastic rope for supporting the tools and elastic means interposed between the rope and tools comprising relatively movable parts secured respectively to the rope and tools and means for confining a body of compressed gas between said movable parts; substantially as described.

683,354. **PROCESS OF REFINING CRUDE MINERAL OILS AND THEIR DISTILLATES.** FELIX C. THIELE, New Orleans, La., assignor of three-fifths to John Finke and John M. Parker, same place. Filed May 23, 1901. Serial No. 61,545. (No specimens.)

Claim.—1. The process of refining crude mineral oils of the Lima type consisting in the addition of nitric acid thereto until sulfurous gases cease to be evolved; the conversion of the nitro and nitroso compounds into basic compounds by the addition of a nascent hydrogen-producing substance until in a tested portion nitrous gases cease to be evolved in the presence of sulfuric acid, and the removal of the newly-formed products by a subsequent acid treatment; substantially as specified.

2. The process of refining crude mineral oils of the Lima type consisting in the addition of nitric acid until sulfurous gases cease to be evolved, the conversion of said nitro and nitroso compounds into basic compounds by the addition of an alkali and a metallic substance until in a tested portion nitrous gases cease to be evolved in the presence of sulfuric acid; substantially as specified.

3. The process of refining mineral oils of the Lima type consisting in adding thereto nitric acid until the evolution of sulfurous gas ceases, removing or reducing the resultant compounds by the addition of an alkali and a metallic substance capable of producing hydrogen until in a tested portion the evolution of nitrous gas in the presence of sulfuric acid ceases; substantially as specified.

4. The process of refining mineral oils of the Lima type consisting in adding thereto nitric acid until the evolution of sulfurous gas ceases, removing or reducing the resultant compounds by the addition of an alkali and a metallic substance capable of producing hydrogen, until in a tested portion the evolution of nitrous gases in the presence of sulfuric acid ceases, and a subsequent washing of the oil with a dilute sulfuric acid, until the oil fails to color said acid, to remove the basic compounds; substantially as specified.

5. The process of refining crude mineral oils of the Lima type having a specific gravity not higher than 0.835, consisting in adding thereto not more than 0.5 per cent. by weight of nitric acid of specific gravity of 1.42 until the evolution of sulfurous gas ceases, and the addition of an alkali and a hydrogen-producing substance for the subsequent removal of the nitrolic acids and resultant compounds; substantially as specified

6. The process of refining crude mineral oils of the Lima type having a specific gravity not higher than 0.835, consisting in adding thereto not more than 0.5 per cent. by weight of nitric acid of specific gravity of 1.42 until the evolution of sulfurous gas ceases, and the subsequent removal of the nitrolic acids and resultant compounds by the addition of not more than 0.5 per cent. of soda-lye at not less than 35° Baumé and the addition thereto of a powdered metallic substance until, in a tested portion, the evolution of nitrous gas in the presence of sulfuric acid ceases; substantially as specified.

7. The process of refining crude mineral oils of the Lima type having a specific gravity not higher than 0.835, consisting in adding thereto not more than 0.5 per cent. by weight of nitric acid of specific gravity of 1.42 until the evolution of sulfurous gas ceases and the subsequent removal of the nitrolic acids and resultant compounds by the addition of not more than 0.5 per cent. of soda-lye at not less than 35° Baumé the addition thereto of a powdered metallic substance until in a tested portion, the evolution of nitrous gas in the presence of sulfuric acid ceases, a washing of the treated oil with water to remove free ammonia, and a washing of the oil with dilute sulfuric acid, until the oil fails to color said acid, to remove the formed organic amido compounds; substantially as specified.

8. The process of refining crude mineral oil of the Lima type, consisting in treating said oil with nitric acid until the evolution of sulfurous gas ceases, the addition of an alkali and a metallic substance capable of producing hydrogen with an alkali until in a tested portion nitrous gases cease to be evolved in the presence of sulfuric acid, and the subsequent washing of the treated oil with water to remove free ammonia therefrom, substantially as specified.

9. The process of removing the nitro and nitroso products from a crude mineral oil after treatment with nitric acid until the evolution of sulfurous gas ceases consisting in the addition thereto of a strong soda-lye and a metallic powder until in a tested portion nitrous gases cease to be evolved in the presence of sulfuric acid, subsequently agitating the mixture and then permitting the solid residue to precipitate; substantially as specified.

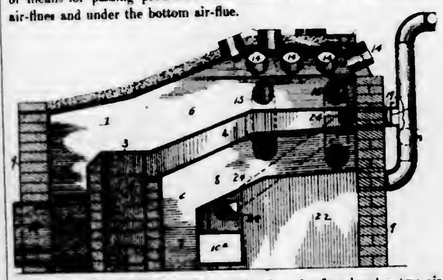
10. The process of refining crude mineral oils of the Lima type consisting in the addition of nitric acid thereto until sulfurous-acid gas ceases to be evolved, and the addition of a substance for producing nascent hydrogen for the removal of the newly-formed products by a subsequent treatment; substantially as specified.

11. The process of refining crude mineral oils of the Lima type consisting in adding thereto nitric acid until the evolution of sulfurous-acid gas ceases, reducing the resultant compounds by the addition of an alkali and metallic substance capable of producing hydrogen with the alkali, agitating a test portion of the mixture until dilated sulfuric acid ceases to generate nitrous acid from the oil; substantially as specified.

12. The process of refining crude mineral oils of the Lima type consisting in adding thereto nitric acid with which the oil is agitated until the evolution of sulfurous-acid gas ceases, an agitation of the treated oil with an alkali and a hydrogen-producing metal until in a test portion dilute sulfuric acid ceases to generate nitrous acid, a washing of the treated oil with water to remove free ammonia therefrom, the subsequent washing of the oil with dilute sulfuric acid until the oil fails to color said acid to remove the formed basic compounds, and the distillation of the oil; substantially as specified.

683,355. **HOT-AIR FURNACE.** JAMES TIBBS, Columbus, Ohio. Filed Mar. 28, 1901. Serial No. 53,210. (No model.)

Claim.—1. In a hot-air furnace, the combination with a fire-chamber and two air-flues having inlets at one end and outlets at the other end, of means for passing products of combustion successively between said air-flues and under the bottom air-flue.



2. In a hot-air furnace, the combination of a fire-chamber two air-flues, a smoke-flue communicating with the furnace-chamber and passing between the air-flues, pipes for conveying products of combustion from said smoke-flue into a space under the lower air-flue and a stack communicating with said space.

3. In a hot-air furnace, the combination of a fire-chamber approximately parallel air-flues spaced apart and forming a smoke-flue between them, pipes connected at their respective ends to said air-flues, means for controlling the passage of air through said pipes, and means for permitting the escape of hot air from the upper air-chamber.

4. In a hot-air furnace, the combination of a fire-chamber approximately parallel air-flues spaced apart and forming a smoke-flue between them, the upper air-flue having outlets for hot air, external pipes connected at their respective ends with the respective air-chambers, means for controlling the passage of air through said pipes, and means for controlling the passage of air from intermediate portions of said pipes.

5. In a hot-air furnace, the combination of two boxes or air-flues spaced apart and having a fire-chamber and a smoke-flue between them, said air-flues extending laterally from the fire-chamber and disposed so as to leave a space below the lower flue, pipes connecting the outer end of said smoke-flue with the inner end of the space under the lower air-flue, and a stack communicating with said space.

6. In a hot-air furnace, the combination of a fire-chamber two air-flues spaced apart and having a fire-chamber and a smoke-flue between them, the lower air-flue disposed so as to have a space below it, a stack communicating with the space under the lower air-flue and having a valved connection with the outer end of said smoke-flue, and pipes connecting the outer end of said smoke-flue with the inner end of the space under the lower air-flue.

7. In a hot-air furnace, the combination with a structure comprising an upright portion having a fire-chamber therein, and a hollow elongated extension projecting upwardly and outwardly from said upright portion, of a smoke-flue communicating with the fire-chamber and extending through the hollow extension of the casing, said smoke-flue made elongated in cross-section and extending from one side wall to the other of said hollow extension so as to divide the same into two chambers one above and the other below the smoke-flue, means for supplying said chambers with cold air, and means for conveying the heated air from the lower to the upper air-chamber and means for conducting heated air from the latter.

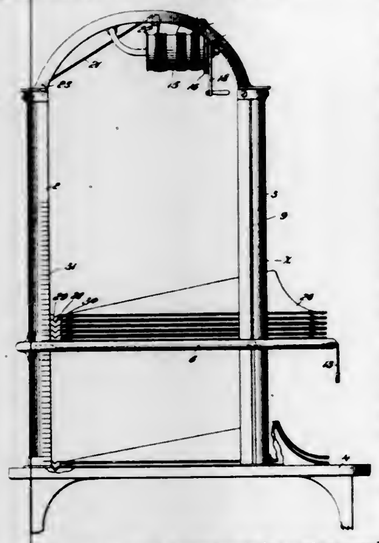
8. In a hot-air furnace, the combination with a structure comprising an upright portion having a fire-chamber therein and a hollow elongated extension projecting upwardly and outwardly from said upright portion, of a smoke-flue communicating with the fire-chamber and projecting longitudinally through the center of the same and extending from side to side thereof forming air-chambers above and below the smoke-flue, an inlet at the base of the upright structure in front of the fire-box to supply cold air to the chamber above the smoke-flue, a cold-air inlet-pipe communicating with the upright structure in rear of the fire-box for supplying cold air to the hot-air chamber below smoke-flue, hot-air outlet-pipes communicating with the upper end of the upper air-chambers in the elongated extension of the casing, and pipes connecting the lower with the upper air-chamber.

683,356. **DISPLAY-RACK.** ANDREW TODD, Piedmont, Ohio. Filed Dec. 27, 1900. Serial No. 41,192. (No model.)

Claim.—1. A display-rack, comprising standards, a carrier movable relatively to the standards and engaging around the same, means for moving said carrier, forms designed to be raised and lowered by the carrier, and spring-held devices on the carrier for engaging with the forms, substantially as specified.

2. A display-rack, comprising standards, a carrier passing around the standards and movable vertically relatively thereto, a winding-drum, connections between said drum and the carrier, a series of pallets or forms

arranged between the standards, and devices mounted on the carrier for engaging said pallets or forms, substantially as specified.



3. A display-rack, comprising tubular standards, a carrier surrounding the standards and movable vertically relatively thereto, boxings in the standards and connected with the carrier, bolts mounted to move in said boxings, means for simultaneously moving all of said bolts outward, means for moving them inward, and a series of pallets or forms designed to be engaged by said bolts, substantially as specified.

4. A display-rack, comprising tubular standards, blocks or boxings movable vertically in said standards, a carrier having connection with said blocks or boxings, bolts movable transversely in the blocks or boxings, a rope or cable connecting with the inner ends of the several bolts and having its ends extended outward through an opening in the carrier, the main portion of said rope or cable passing through the carrier, devices designed to be engaged by the bolts, and means for raising and lowering the carrier, substantially as specified.

5. A display-rack, comprising standards, a carrier extending around said standards and movable vertically with relation thereto, pallets arranged to move between the standards, engaging bolts for the pallets carried by the carrier, means for operating said bolts, and means for raising and lowering the carrier, substantially as specified.

6. A display-rack, comprising three standards, pallets or forms arranged between the standards, a carrier having devices for engaging with the pallets or forms, a drum in the upper portion of the device, and cables or ropes extending from said drum over pulleys and connecting with the carrier, substantially as specified.

683,357. CLUTCH FOR TRACTION-ENGINES. MARQUIS J. TODD, Buffalo, N. Y. Filed Aug. 3, 1901. Serial No. 71,397. (No model.)



Claim.—1. The combination with a fly-wheel, its shaft, the sliding sleeve, and the pinion, of arms carried by and perpendicular to said sleeve, the shoes, and means permitting such arms to move out of a perpendicular as the shoes are thrown out of engagement with the fly-wheel, substantially as set forth.

2. The combination with a fly-wheel, its shaft, the sliding sleeve, and the pinion, of the hinged radial arms normally perpendicular to the sleeve, the shoes, and means for normally holding such arms perpendicular to the sleeve and to permit them to move out of a perpendicular as the shoes are thrown out of engagement with the fly-wheel.

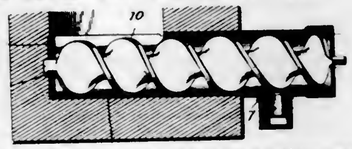
3. The combination with a fly-wheel, its shaft, the sliding sleeve, and the pinion, of the arms carried by and perpendicular to the sleeve, the shoes, and springs for normally holding such arms perpendicular to the sleeve and to permit them to move out of a perpendicular as the shoes are thrown out of engagement with the fly-wheel, substantially as set forth.

4. The combination with the fly-wheel, its shaft, the sliding sleeve, and the pinion, of arms pivotally secured to such sleeve, the shoes, the springs acting on the arms to hold them in their normal positions relatively to the sleeve, and stops to limit the movements of such arms on their pivots, substantially as set forth.

5. The combination with the fly-wheel having its rim beveled on its inner surface, its shaft, the sliding sleeve, and the pinion, of the arms hinged at their inner ends and normally perpendicular to said sleeve, the shoes beveled to conform to the bevel of the wheel-rim, and springs for normally holding the arms perpendicular and to permit them to be moved out of such perpendicular in the disengagement of the shoes from the wheel-rim, substantially as described.

6. The combination with the fly-wheel having its rim beveled on its inner surface, its shaft, the sliding sleeve, and the pinion, of the arms carried by said sleeve normally at right angles thereto, pivot-bearings for said arms allowing them to move toward and away from the fly-wheel, springs holding said arms in their normally perpendicular position, stops limiting the deflection of said arms, and beveled shoes on the outer ends of said arms, substantially as set forth.

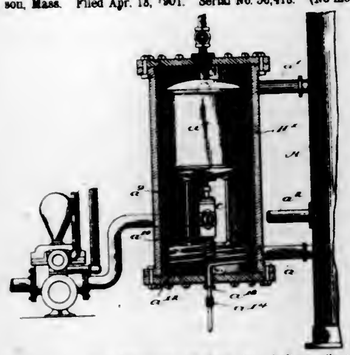
683,358. CHIMNEY-CLEANER. GEORGE O. TUCKER, Charleston, Ill. Filed June 14, 1901. Serial No. 64,534. (No model.)



Claim.—1. A soot-pan adapted to be built in a chimney comprising a semicylindrical portion, outwardly-flaring side walls integral with and extending upwardly from said portion, and a cylindrical portion integral with and extending forwardly from the semicylindrical portion and provided with a suitable discharge-outlet, and a suitable conveyer journaled on the end wall of the semicylindrical and cylindrical portions.

2. The combination of a soot-pan comprising a cylindrical portion, a semicylindrical portion integral therewith and extending therefrom, flaring side walls extending upward from said semicylindrical portion, an opening in the forward end of the cylindrical portion, a depending annular flange surrounding said opening and a cap detachably secured on said flange, a cap closing the outer end of the cylindrical portion and a spiral conveyer suitably journaled within said pan and means to revolve said conveyer.

683,359. FEED-WATER REGULATOR. JAMES E. WALSH, Hudson, Mass. Filed Apr. 18, 1901. Serial No. 56,418. (No model.)



Claim.—1. In a feed-water regulator for a boiler, a float arranged to rise and fall automatically as the water-level changes, a steam-delivery pipe, said pipe terminating within said float, a steam-inlet in said float permitting the steam to enter freely, and a device within said float and against which said pipe slides, one being provided with ports for the passage of steam into said pipe from said float, said ports being opened and closed by said sliding movement.

2. In a feed-water regulator for a boiler, a float arranged to rise and fall automatically as the water-level changes, a steam-delivery pipe, said pipe extending within said float, a steam-inlet in said float permitting the steam to enter freely, a device within said float and against which said pipe slides, one being provided with ports for the passage of steam into said pipe from said float, said ports being opened and closed by said sliding movement, and a drip-pipe secured to the bottom of said float and provided with an extensible connection for conducting away drippings.

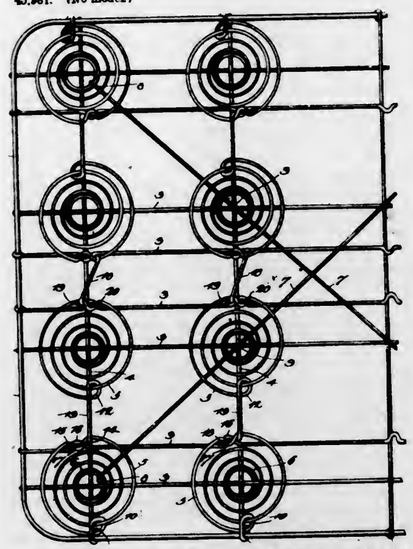
3. In a feed-water regulator for a boiler, a float arranged to rise and fall automatically as the water-level changes, said float having a guide-column extending vertically therein, and a steam-delivery pipe terminating in said float, the latter being guided thereon by said guide-column, said steam-pipe freely receiving steam from said float.

4. In a feed-water regulator for a boiler, a float arranged to rise and fall automatically as the water-level changes, said float being freely open to the entrance of steam at its upper side, a guide-column within the float, a steam-pipe terminating within the float, and coöperating with said guide-column, a drip-pipe for collecting the condensations from said float and from said steam-pipe, and means for conducting away the drippings from said drip-pipe.

5. In a feed-water regulator for a boiler, a float arranged to rise and fall automatically as the water-level changes, said float being freely open to the entrance of steam at its upper side, a guide-column within the float, and coöperating with said guide-column, opposite drip-pipes symmetrically secured to the bottom of said float, and a coil of pipe connected to said drip-pipes at one end and passing at its other end through the inclosure of the regulator for conducting the condensation away.

6. A feed-water regulator comprising a water-column containing a float, said float being open at its top to the free entrance of steam, a steam-pipe passing through the wall of said water-column and terminating within said float, a drip-pipe secured to the bottom of said float for catching the drippings from said steam-pipe and float and conducting the same from said water-column, a water-pipe passing across said water-column, a valve in said pipe, and a connection from said float to said valve for operating the latter by the movement of said float, thereby regulating the flow of water according to the position of the float.

683,360. BED-SPRING. ORLA H. WATKINS, Clinton, Iowa, assignor to Joseph K. Milner, same place. Filed Feb. 4, 1901. Serial No. 45,981. (No model.)

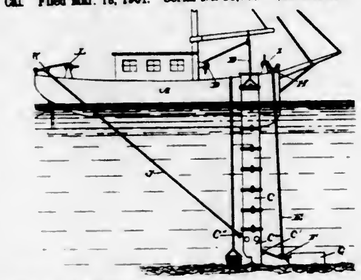


Claim.—1. In a device of the class set forth, the combination of upper and lower frames, the latter both having stringers and the lower frame exclusively in addition provided with cross-wires intersecting the stringers thereof, and a plurality of single springs of inverted conical form having their lower reduced portions located adjacent to the stringers and cross-wires of the lower frame, the said lower reduced portions of the springs being provided with single enlarged coils immediately next to the lowermost smallest coils thereof, said enlarged coils being close to the said smallest coils and having the extremities free for screwing the same into place on the lower intersecting stringers and cross-wires, the enlarged coils forming an integral part of the springs, the latter being also secured to the upper frame.

2. In a device of the class set forth, the combination of upper and lower frames, the latter both having stringers and the lower one provided in addition with cross-wires, a plurality of inverted conical springs connected to the frames, and a pair of lower diagonal braces secured at their coils to the lower ends of the springs at the corners of the device and passing over portions of the points of intersection of the stringers and cross-wires of the bottom frame, the said braces crossing each other at the center of the bottom portion of the complete device.

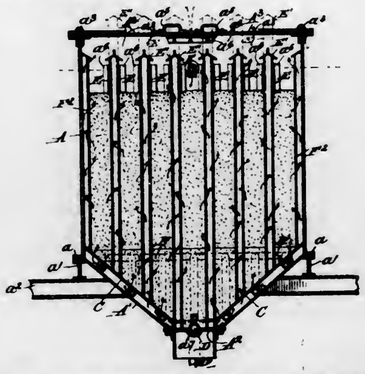
3. In a device of the class set forth, the combination of upper and lower frames having stringers, a plurality of inverted spring-coils vertically interposed between said frames and secured to the bottom one of the latter, the top coils of the said springs being above the plane of and extending in part over the stringers of the upper frame, the contiguous overlapped portions of the said top coils and the stringers having reversely-extending horizontal bends, the said top coils also having integral extensions at points diametrically opposite the location of the bends therein, the said extensions being first looped around the top coils and then projected away from the latter and provided at their projected terminals with right-angular deflected portions formed with seat-bends 14 and terminal hooks 15, said latter bends and terminals respectively engaging the bends of the stringers and the top coils of the springs, the extensions being projected over the top coils.

683,361. DIVING APPARATUS. JOHN L. WATSON, Los Angeles, Cal. Filed Mar. 18, 1901. Serial No. 51,770. (No model.)



Claim.—The combination with a barrel for diving purposes of the ropes E and J, the anchor G, the windlasses I and L, and the supporting-rope B, and windlass D.

683,362. APPARATUS FOR GERMINATING GRAIN. MAX WEIKERSFELD, Munich, Germany. Filed May 17, 1901. Serial No. 60,726. (No model.)



Claim.—1. The combination, with a stationary steeping-vat having an outlet in its bottom through which the grain may be removed, and

means for closing said outlet, of a plurality of movable hollow perforated partitions located in said vat, whereby by moving the partitions the grain may be discharged through the outlet, and means for forcing air into said hollow partitions.

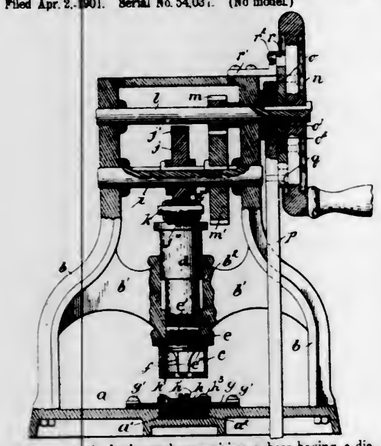
2. The combination, with a stationary steeping-vat having a hopper-bottom provided with an outlet through which the grain may be removed, and means for closing said outlet, of a plurality of movable hollow perforated partitions located in said vat, whereby by moving the partitions the grain may be discharged through the outlet, and means for forcing air into said hollow partitions.

3. The combination, with a stationary steeping-vat having a bottom, a perforated false bottom and an outlet through both whereby the grain may be removed from the vat, of a plurality of movable hollow perforated partitions located in the vat above the false bottom, whereby by moving the partitions, the grain may be discharged through the outlet, and means for supplying air beneath the false bottom.

4. The combination, with a stationary steeping-vat, having an outlet and means for closing the outlet, of a plurality of movable hollow perforated partitions arranged to divide the vat in strata, the perforated area per square unit being larger at the central portion of the partitions than at the ends of said partitions, and means for forcing air into the hollow partitions.

5. The combination, with a steeping-vat, having a hopper-bottom and a discharge-outlet in said bottom, of means for closing said outlet, a perforated false bottom conforming in shape to the shape of the hopper-bottom and provided with an opening registering with the outlet of the vat, a plurality of hollow perforated partitions removably located in the vat over said false bottom, means for supplying water to the vat, means for supplying air beneath the false bottom, and covers for the top of the vat.

683,363. **CHECK CUTTING OR PUNCHING MACHINE.** JOHN F. WERLE, Brooklyn, N. Y., assignor to James W. Irwin, New York, N. Y. Filed Apr. 2, 1901. Serial No. 54,037. (No model.)



Claim.—1. A check-punch comprising a base having a die, rigid uprights from the base provided with a rigid cross-bar having a vertical guide therethrough, a cap secured to the cross-bar at the lower end of said guide and over said die, a reciprocating plunger confined in said guide and provided with a cutter adapted to coöperate with said die and to project through and be withdrawn within said cap, and a rotary shaft mounted in said uprights and provided with eccentric operating means pivotally joined to the upper end of said plunger, substantially as described.

2. A check-punch comprising a base provided with a die, uprights rigid with the base, a cross-bar rigid with and connecting the uprights and provided with a vertical guide-opening therethrough above the die, a reciprocating plunger confined in said opening and having a cutter at its lower end, a rotary shaft mounted in said uprights, an eccentric rigid on said shaft above said plunger and provided with an eccentric-strap having a depending lug, a pivot-pin pivotally joining said lug to the upper end of said plunger, and manually-operated means for rotating said shaft, substantially as set forth.

3. In combination, a reciprocating cutter, operating means therefor, a bed having a recess, cushioning material in said recess opposite said cutter, a die-plate removably secured on the bed and over said cushioning material, and a removable die on said plate to coöperate with said cutter, substantially as described.

4. A check-punch comprising, a bed, a die-plate thereon, adjustable securing means therefor rendering said plate adjustable, independently-adjustable dies on said plate, clamping and adjusting means securing said dies on said plate, and an opposing reciprocating cutter adapted to coöperate with said dies, substantially as described.

5. In combination, a bed, independent dies adjustable toward and from each other, each die comprising a base portion having a raised rib one edge of which forms the cutting edge, clamping means for said dies, and reciprocating coöperating cutters provided with operating means, substantially as described.

6. In combination, a bed, a die-plate thereon having parallel slots therethrough, clamping means passing through said slots into the bed, dies on the plate having parallel slots, clamping means passing through said slots into the plate, and a reciprocating coöperating cutter-head having operating means, substantially as described.

7. In combination, a bed, a support comprising a fixed guide, a fixed stripping-cap at the lower end of the guide opposite the bed, a reciprocating plunger in said guide provided with a cutter-head in said cap having a cutting device adapted to project through the bottom of the cap and to be withdrawn above the bottom of the cap, and actuating means for said plunger, substantially as described.

8. In combination, a support comprising a cross-head formed with a vertical guide-opening, a reciprocating plunger confined therein, and provided with a detachable cutter-head at its lower end, a detachable cap secured to said cross-head beneath said opening and having a bottom opening for the passage of the cutter, a bed beneath said cap having a die to coöperate with said cutter, and means to reciprocate said plunger, substantially as described.

9. In combination, a bed, an upwardly-extending frame rigid with the base and having a rigid cross-bar formed with a vertical guide above the base and below the upper end of the frame, a stripping-cap secured at the lower end of said guide, a reciprocating plunger confined in said guide and provided with a cutter at its lower end, a rotary shaft mounted in said frame above said plunger, an eccentric pivotal connection between said shaft and plunger whereby the plunger is reciprocated by the rotation of the shaft, and manually-operated means for rotating said shaft, substantially as described.

10. In combination, a bed, a frame having a guide, a reciprocating plunger confined therein, a rotary shaft, an eccentric rigid on the shaft having a strap provided with a rigid projection fitting in and directly hinged to the upper end of the plunger, and means for rotating said shaft, substantially as described.

11. In combination, a bed, a frame having a guide, a reciprocating plunger confined in said guide, rotary means, an eccentric actuating connection between said means and said plunger, and manually-operated actuating devices for said means comprising a rotary hand-crank, and a swinging hand-lever loosely mounted with respect to the hand-crank, and a pawl-and-ratchet connection between the lever and said crank, substantially as described.

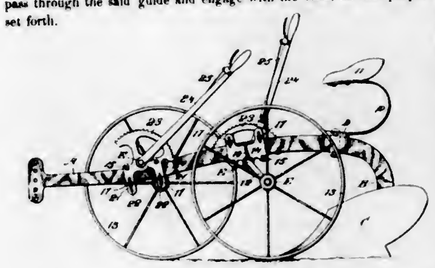
12. In combination, a frame, a reciprocating plunger having a cutter, actuating means for said plunger comprising a rotary shaft, a ratchet-wheel rigid with the shaft and having a hub, a pawl engaging said ratchet-wheel to prevent retrograde rotation thereof, a hand-lever at one end loosely confined on said hub, said lever provided with a pawl engaging the teeth of said wheel and arranged to run loosely over the teeth in one direction and to lock the lever and wheel together when either is moved in the opposite direction, substantially as described.

13. In combination, a bed, an upright support, a reciprocating plunger carrying a cutter, a rotary shaft, an eccentric operating connection between said shaft and said plunger, a counter-shaft, reducing-gearing from said counter-shaft to said first-mentioned shaft, a hand-crank rigid with said counter-shaft, a ratchet-wheel rigid with said counter-shaft, a hand-lever at one end loosely mounted with respect to said counter-shaft, and a swinging spring-held pawl carried by said lever and engaging the teeth of said ratchet-wheel, substantially as described.

683,364. **RIDING ATTACHMENT FOR WALKING-PLOWS.** EDWARD B. WINTERS, Coffeyville, Kans., assignor of one-half to William P. Brown, same place. Filed Feb. 26, 1901. Serial No. 48,902. (No model.)

Claim.—1. A riding attachment for plows, consisting of opposing plates, means for clamping the said plates to opposite sides of a plow-beam, one of the said plates being provided with a sleeve, the other plate having a rack formed at its upper portion, an axle passed through the said sleeve and through both of the plates, and an adjusting-lever for the axle attached thereto and provided with means for engagement with said rack, as described.

2. A riding attachment for plows, consisting of a clamp, which clamp comprises two opposing plates, bolts adjustably connecting the same, one of the plates having a sleeve extending outward therefrom and the other plate having a rack formed thereon, a crank-axle passed through the said sleeve and through both of the plates, a lever attached to the body portion of the axle, a guide carried by said lever, adapted to travel over the said rack, and a thumb-latch also carried by the lever and arranged to pass through the said guide and engage with the rack, for the purpose set forth.



683,365. **VEHICLE-TIRE.** WILLIAM J. WITTMANN, Rochester, N. Y. Filed June 21, 1901. Serial No. 65,434. (No model.)



Claim.—1. A tire, comprising a tube, an annular stay extending outwardly in a radial direction from the surface of the tube, and side pieces fitting opposite sides of the stay and the adjacent parallel portion of the tube, as set forth.

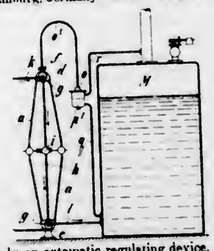
2. A tire, comprising a tube, an annular stay extending outwardly in a radial direction from the surface of the tube, side pieces fitting opposite sides of the stay and the adjacent parallel portion of the tube, and a covering or coating for the said tube, the side pieces and the stay, as set forth.

3. A tire, comprising a tube, an annular stay extending outwardly in a radial direction from the surface of the tube, said stay having side flanges for engaging the peripheral surface of the tube, and side pieces fitting opposite sides of the stay and its flanges as well as the adjacent peripheral portion of the tube, as set forth.

4. A tire, comprising a tube, an annular stay extending outwardly in a radial direction from the surface of the tube, said stay having side flanges for engaging the peripheral surface of the tube, side pieces fitting opposite sides of the stay and its flanges as well as the adjacent peripheral portion of the tube, and a core extending in an annular bore formed in the wall of said stay, as set forth.

5. A tire, comprising a tube, an annular stay extending outwardly in a radial direction from the surface of the tube, said stay having side flanges for engaging the peripheral surface of the tube, side pieces fitting opposite sides of the stay and its flanges as well as the adjacent peripheral portion of the tube, and a covering or coating for said tube, the side pieces and the stay, as set forth.

683,366. **SELF-ACTING BOILER FEED APPARATUS.** FRITZ WOERNER, Hamburg, Germany. Filed June 28, 1900. Serial No. 21,973. (No model.)



Claim.—1. In an automatic regulating device, a pair of steam-legs connected to an inlet-union at one end and an outlet-union at the other end, a valve connected to one of said legs and a valve-casing to the other, whereby both valve and valve-casing are caused to simultaneously move an equal extent, substantially as and for the purpose set forth.

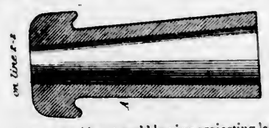
2. In an automatic regulating device, a pair of steam-legs connected to a steam-inlet union at one end and a steam-outlet union at the other end, each of said legs connected to a movable element of a suitable controlling device, and means for producing steam-pressure in said legs to cause them to separate to actuate the controlling device, substantially as and for the purpose set forth.

3. In an automatic regulating device, a pair of steam-legs connected to a steam-inlet union at one end and a steam-outlet union at the other end provided with a contracted steam-outlet, each of said legs connected to an element of suitable controlling device, substantially as and for the purpose set forth.

4. In an automatic regulating device, a pair of steam-legs, a steam-inlet union at one end and an outlet-union at the other end, a feed-water pipe between the steam-legs, a cut-off valve intermediate the end of said pipe, the casing of said valve connected to one of the legs and the valve-stem to the other, substantially as and for the purpose set forth.

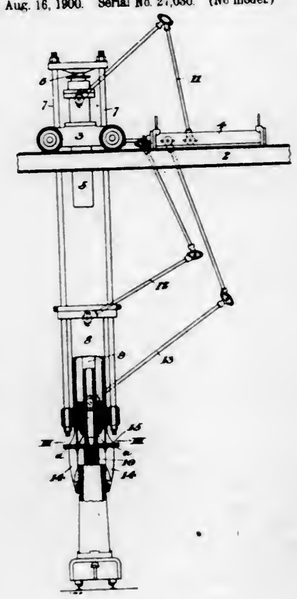
5. In combination, a boiler, a steam-pipe connected with the steam-space thereof, a cut-off valve controlled by variations in the level of the boiler-water and controlling the flow of steam through said pipe, an automatic feed-regulator comprising a pair of steam-legs, a feed-water pipe between said legs, a union connecting one end of the steam-legs and feed-water pipe with the aforesaid steam-pipe and with a water-supply pipe, respectively, a union connecting the opposite ends of said steam-legs and feed-water pipe, said union having a contracted steam-outlet port and a port in communication with the feed-water pipe and with the water-space of the boiler, and a cut-off device in said feed-water pipe comprising two coöperating members each connected with one of the steam-legs, whereby said members are moved in opposite directions by the contraction and expansion of the steam-legs, substantially as and for the purpose set forth.

683,367. **INGOT-MOLD.** FREDERICK W. WOOD, Baltimore, Md. Filed June 3, 1892. Renewed Nov. 13, 1894. Serial No. 528,627. (No model.)



Claim.—A cast-metal ingot-mold having projecting laterally from its opposite sides at or near the top, integral massive lugs with recessed shoulders at the lower ends adapted to engage with the supporting-arms of a mold-lifting device and shielding portions arranged to prevent lodgment of molten metal on the recessed shoulders, substantially as described.

683,368. **INGOT-STRIPPER.** FREDERICK W. WOOD, Baltimore, Md. Filed Aug. 16, 1900. Serial No. 27,030. (No model.)

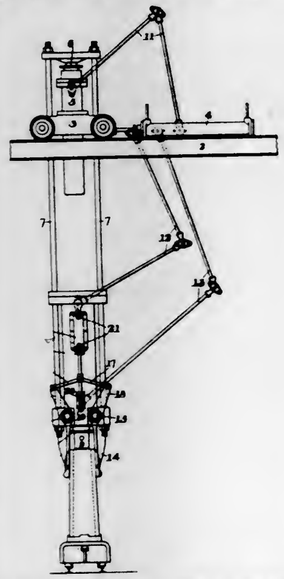


Claim.—1. An ingot-stripper having a plunger arranged to contact with the ingot, and a support having laterally-separable grips, mechanism for moving the support and plunger relatively to each other in a vertical direction to strip the ingot, and locking mechanism located on the stripper and arranged to clamp the grips in engagement with the mold-lugs during the stripping operation; substantially as described.

2. An ingot-stripper having a holding-down stop for the ingot and a lifting-motor connected with laterally-separable grips, arranged to engage projections on the mold, and locking mechanism located on the stripper arranged to prevent disengagement of the grips during the stripping operation; substantially as described.

3. An ingot-stripper having a holding-down stop for the ingot, a lifting-motor connected with laterally-separable grips arranged to engage projections on the mold, and locking mechanism located on the stripper and arranged to automatically lock or clamp the grips in engagement with the mold-lugs during the stripping operation; substantially as described.

683,369. **INGOT-STRIPPER.** FREDERICK W. WOOD, Baltimore, Md. Filed Nov. 24, 1900. Serial No. 37,632. (No model.)



Claim.—1. An ingot-stripper having a plunger arranged to contact with the ingot, and a support having laterally-separable grips, mechanism for moving the support and plunger relatively to each other in a vertical direction to strip the ingot, and a source of power located on the stripper and having connections arranged to force the grips inwardly toward each other during the stripping operation; substantially as described.

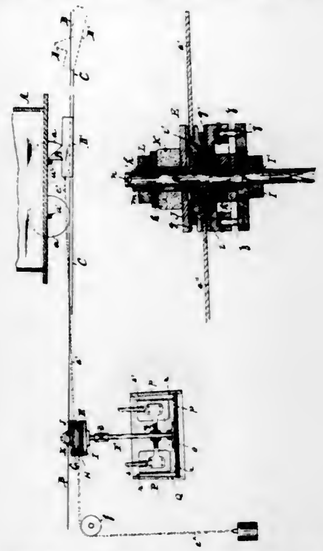
2. An ingot-stripper having a holding-down stop for the ingot, and a lifting-motor connected with laterally-separable grips, arranged to engage projections on the mold, and a source of power located on the stripper and having connections arranged to force the grips inwardly toward each other during the stripping operation; substantially as described.

3. An ingot-stripper having a plunger arranged to contact with the ingot, a support having laterally-separable grips, mechanism for moving the support and plunger relatively to each other in a vertical direction to strip the ingot, a fluid-actuated motor carried on and movable with the stripper mechanism, and connections between said motor and the grips arranged to force them inwardly toward each other during the stripping operation; substantially as described.

683,370. **CAR-CHECKING DEVICE.** ALFRED M. ACKLIN, Pittsburg, Pa. Filed June 15, 1900. Serial No. 20,422. (No model.)

Claim.—1. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, and ratchet mechanism for automatically permitting said hook to move along with said car.

2. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, ratchet mechanism for automatically permitting said hook to move with said car, and mechanism for automatically retarding the movement of said car.



3. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, and ratchet mechanism for automatically permitting said hook to move along with said car and release itself.

4. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, ratchet mechanism for automatically permitting said hook to move along with said car and release itself, and mechanism connected to said ratchet mechanism for automatically retarding the movement of said car.

5. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, and ratchet mechanism for automatically permitting said hook to move along with said car, release itself, and be returned to place.

6. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, ratchet mechanism for automatically permitting said hook to move along with said car, release itself, and be returned to place, and mechanism connected to said ratchet mechanism for automatically retarding the movement of said car.

7. In a car-checking device, the combination with a car, of a hook rigidly mounted on a traveling base for engaging with said car, a rope connected to said hook, a sheave mounted on a shaft and engaging said rope, and ratchet mechanism connected to said sheave and shaft for automatically permitting said hook to move along with said car, release itself and be returned to place.

8. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, and disks loosely mounted around and secured to said shaft for engaging with said sheave to automatically permit said hook to travel with the car, release itself and be returned to place.

9. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, a disk secured to said shaft, and disks loosely mounted around said shaft and engaging with said sheave and first-named disk for permitting said hook to travel with the car, release itself and be returned to place.

10. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, blades or arms mounted on said shaft, and ratchet mechanism interposed between said sheave and blades or arms to permit the sheave to rotate in one direction without rotating the blades or arms.

11. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, and a disk secured to said shaft and provided with a ratchet-face thereon, a sleeve loosely surrounding said shaft, disks secured to said sleeve and adapted to engage said sheave, and pawls on one of said disks adapted to engage with the ratchet-face on the first-named disk to permit said hook to travel with the car, release itself and be returned to place.

12. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, ratchet mechanism connected to said shaft for automatically permitting the hook to travel with said car, release itself and be returned to place, and mechanism connected to said shaft and engaging with fluid for retarding the movement of said car and hook.

13. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, ratchet mechanism connected to said shaft for automatically permitting the hook to travel with said car, release itself, and be returned to place, and revolving blades or arms connected to said shaft and engaging with fluid to retard the movement of said car and hook.

14. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, ratchet mechanism connected to said shaft for automatically permitting the hook to travel with said car, release itself and be returned to place, a tank surrounding said shaft, and blades or arms on said shaft adapted to engage with the liquid in the tank to retard the movement of said car and hook.

15. In a car-checking device, the combination with a car, of a hook engaging with said car, a rope connected to said hook, a sheave mounted on a shaft and engaging said rope, said rope passing over a second sheave and, having a weight at its free end, and mechanism connected to said first-named sheave and shaft adapted to engage with fluid for automatically permitting said hook to travel with the car, release itself and be returned to place.

16. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, and means engaging with the side face of said sheave for increasing or decreasing frictional contact on said sheave.

17. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, a disk engaging with said sheave, and means engaging with the side face of said disk for increasing or decreasing frictional contact on said sheave.

18. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, a disk engaging with said sheave, and a flexible connection adapted to engage with the side face of said disk for increasing or decreasing frictional contact on said sheave.

19. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, a disk engaging with said sheave, a washer on said shaft, and a rubber or flexible spring between said disk and washer for increasing or decreasing the frictional contact on said sheave.

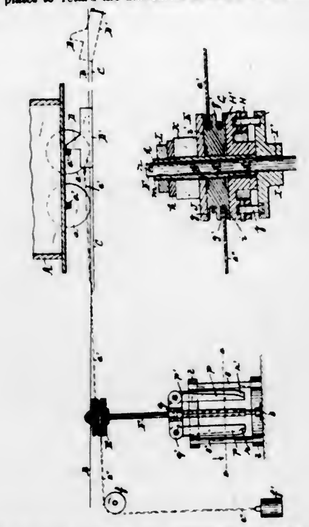
20. In a car-checking device, the combination with a car, of a hook engaging with said car, ropes connected to said hook and to a weight, a sheave mounted on a shaft and engaging with said ropes, a disk engaging with said sheave, a washer on said shaft, a nut on said shaft and engaging with said washer, and a rubber or flexible spring between said disk and washer for increasing or decreasing the frictional contact on said sheaves.

683,371. **CAR-CHECKING DEVICE.** ALFRED M. ACKLIN, Pittsburg, Pa. Filed Jan. 26, 1901. Serial No. 44,539. (No model.)

Claim.—1. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, mechanism connected to said shaft for permitting the hook to travel with the car, release itself and be returned to place, and arms connected to said shaft adapted to swing out and engage with stationary plates to retard the movement of said car and hook.

2. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, mechanism connected to said shaft for permitting the hook to travel with the car, release itself and be returned to place, and arms pivotally connected at one end to said shaft and their opposite ends adapted to swing out by centrifugal force and engage with stationary plates to retard the movement of the said car and hook.

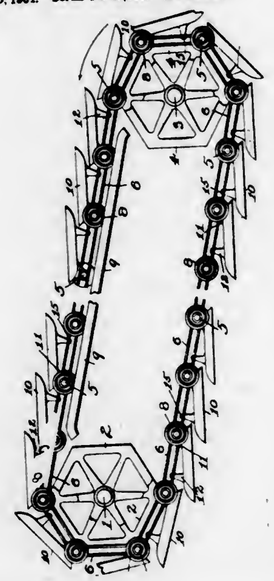
3. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, mechanism connected to said shaft for permitting the hook to travel with the car, release itself and be returned to place, and arms pivotally connected at one end to said shaft and their opposite ends adapted to swing out by centrifugal force and engage with inclined faces on stationary plates to retard the movement of said car and hook.



4. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, mechanism connected to said shaft for permitting the hook to travel with the car, release itself and be returned to place, and arms pivotally connected at one end to said shaft and their opposite ends adapted to swing out by centrifugal force, said opposite ends having inclined faces thereon and adapted to engage with inclined faces on stationary plates to retard the movement of said car and hook.

5. In a car-checking device, the combination with a car, of a hook engaging with said car, a shaft, mechanism connected to said shaft for permitting the hook to travel with the car, release itself and be returned to place, a collar secured to said shaft, and arms pivotally connected at one end to said collar and their opposite ends adapted to swing out by centrifugal force, said opposite ends having inclined faces thereon adapted to engage with inclined faces on stationary plates to retard the movement of said car and hook.

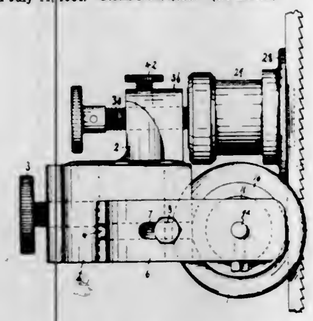
683,372. **CONVEYER.** ALFRED M. ACKLIN, Pittsburg, Pa. Filed Feb. 5, 1901. Serial No. 46,096. (No model.)



Claim.—1. In a conveyer, the combination with the parallel bars and the connecting-links thereof, of the pans or molds rigidly secured at one end to said links and having hooked lugs at their opposite end to engage said bars.

2. In a conveyer, the combination with the parallel bars and the connecting-links thereof, of the pans or molds rigidly secured at one end upon said links and having hooked lugs at their opposite ends to engage said bars, said pans or molds having bosses or extensions to engage upon said links at their connecting-points.

683,373. **BAND-SAW GUIDE.** WILLIAM E. ALLEN, Madison, Wis. Filed July 11, 1901. Serial No. 67,925. (No model.)



Claim.—1. A band-saw guide comprising a plate having a vertically-disposed arm and provided at opposite sides with grooves, the horizontal arms provided with slots and having ribs arranged in the said grooves, fastening devices passing through the slots and adjustably securing the arms to the plate, a transverse shaft supported by the arms, the parallel guide-disks mounted on the transverse shaft, the longitudinal screw mounted on the upwardly-extending arm, and the transverse guide-disk supported by the screw, substantially as described.

2. In a band-saw guide, the combination of a frame, a transverse shaft provided with opposite threaded portions, the rotary cylinder arranged on the shaft and having exterior screw-threads, the interiorly-threaded parallel guide-disks adjustably mounted on the threads of the cylinder, the locking nuts or rings also mounted on the threaded portion of the cylinder, the washers interlocked with the cylinder and interposed between the guide-disks and the nuts or rings, the cones adjustably mounted on the threaded portions of the shaft and arranged at the ends of the cylinder and extending into the same, the antifriction-balls interposed between the cones and the cylinder, the nuts mounted on the threaded portions of the shaft, and the washers interlocked with the shaft and interposed between the cones and the nuts, substantially as described.

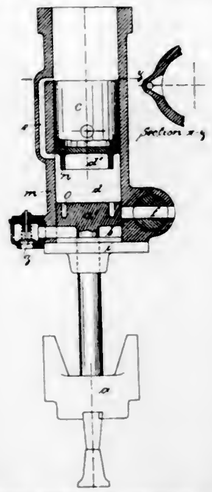
3. In a band-saw guide, the combination of a frame, and a vertically-disposed arm, a transverse shaft, the parallel guide-disks mounted on the shaft, the longitudinal screw disposed horizontally and provided with inner and outer threaded portions, the outer threaded portion engaging the upwardly-extending arm, the inner and outer cones provided with interior screw-threads and mounted on the outer threaded portion of the screw, the rotary cylinder provided with interior flanges having grooves and located opposite the cones, the antifriction-balls interposed between the cones and the flanges and arranged in the said grooves, means for locking the outer cone in its adjusted position, and a transversely-disposed guide-disk mounted on the said cylinder, substantially as described.

4. In a band-saw guide, the combination of a frame, a transverse shaft, a rotary cylinder provided within its ends with ball-races, cones mounted on the shaft and located within the ends of the cylinder, balls arranged within the said races, the interiorly-threaded parallel guide-disks mounted on the cylinder and engaging exterior threads of the same, and means for locking the disks in their adjusted position, substantially as described.

683,374. **PNEUMATIC HAMMER.** JEAN BÉCHÉ, Hückeswagen, Germany. Filed June 13, 1901. Serial No. 64,445. (No model.)

Claim.—1. In pneumatic hammers, consisting of a cylinder with two pistons, one of which is moved upward and downward by the vacuum and air-pressure arising by the movement of the other piston, the arrangement of a channel within the cylinder-wall, the upper opening of which channel is situated directly above the spot at which the operating-piston stands in its lowest position, the other end of which is connected with the space between the two pistons, substantially as set forth.

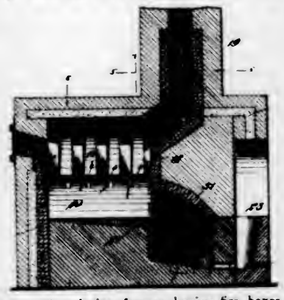
2. In pneumatic hammers, the combination with a cylinder, two pistons situated within the same, a channel provided within the cylinder-wall, said channel being adapted to connect this space between the two pistons with the atmosphere in the moment in which the upper operating-piston stands on its lowest point, of an annular projection provided on the lower surface of the upper operating-piston, and an annular groove corresponding to this projection in the lower hammer-piston, substantially as set forth.



3. In pneumatic hammers, the combination with a cylinder, two pistons situated within the same, a channel provided within the cylinder-wall, said channel being adapted to connect the space between the two pistons with the atmosphere in the moment, in which the operating-piston stands on its lowest point, an annular projection provided on the lower surface of the upper operating-piston, and an annular groove corresponding to this projection in the lower hammer-piston, of a cock connecting the cylinder with the atmosphere, and situated a short distance above the cylinder-bottom, substantially as set forth.

4. In pneumatic hammers, the combination with a cylinder, two pistons situated within the same, a channel provided within the cylinder-wall, said channel being adapted to connect the space between the two pistons with the atmosphere in the moment, in which the upper operating-piston stands on its lowest point, an annular projection provided on the lower surface of the upper operating-piston, an annular groove corresponding to this projection in the lower hammer-piston, a cock connecting the cylinder with the atmosphere and situated a short distance above the cylinder-bottom, of a valve situated directly above the cylinder-bottom, said valve being adapted to allow the atmosphere to enter but not to leave the space below the piston, substantially as described.

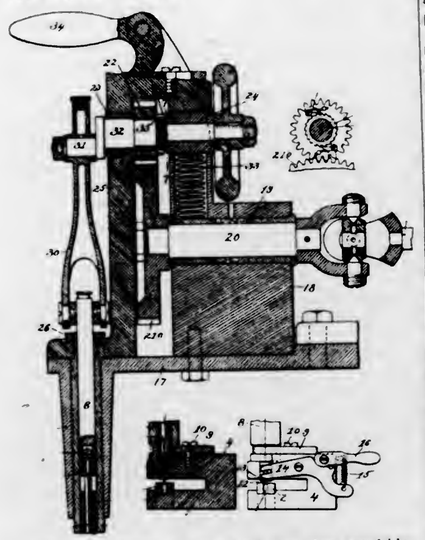
683,375. **REDUCING-FURNACE.** CHARLES BISHOP, San Francisco, Cal. Filed Jan. 3, 1901. Serial No. 41,980. (No model.)



Claim.—1. A reducing-furnace, having fire-boxes at its opposite sides, a series of arched plates arranged in the furnace and rearward of the fire-boxes, the said plates being perforated, inclined runways below the plates, a settling-tank for receiving material from the runways, and a bullion-pot having connection with the tank, substantially as specified.

2. A reducing-furnace, having fire-boxes, a series of arched perforated plates in the furnace rearward of the fire-boxes, a settling-tank forward of the plates and below the plane of the plates, an arch over the tank, and a bullion-pot communicating with the tank, substantially as specified.

683,376. **MACHINE FOR CUTTING ARTICLES FROM SHEET MATERIAL.** JAMES J. BREACH, Boston, Mass. Filed Sept. 21, 1900. Serial No. 30,643. (No model.)



Claim.—1. A machine for cutting articles from sheet material having, in combination, a reciprocating punch provided with a substantially straight cutting edge, a die coöperating therewith to support the material against the cut of the punch, and means located outside of the line of cut for movably supporting the punch and die to allow the cutting edge of the punch to be brought in line with the outline of the article to be cut out, substantially as described.

2. A machine for cutting articles from sheet material having, in combination, a reciprocating punch provided with a substantially straight cutting edge, a die coöperating therewith to support the material against the cut of the punch, a work-support, the support and punch with its die being relatively movable, and means located outside of the line of cut for movably supporting the punch and die to allow the cutting edge of the punch to be brought in line with the outline of the article being cut out, substantially as described.

3. A machine for cutting articles from sheet material having, in combination, a reciprocating punch provided with a substantially straight cutting edge, a die coöperating therewith to support the material against the cut of the punch, a work-support, the support and punch with its die being relatively movable, and means acting automatically to hold the punch and die with the cutting edge of the punch in line with the outline of the article being cut out, substantially as described.

4. A machine for cutting articles from sheet material having, in combination, a reciprocating punch provided with a substantially straight cutting edge and a die coöperating therewith to support the material against the cut of the punch traveling in a path corresponding to the outline of the article to be cut out, and means acting automatically to hold the punch and die with the cutting edge of the punch extending in the direction of travel, substantially as described.

5. A machine for cutting articles from sheet material having, in combination, a swiveling reciprocating punch provided with a substantially straight cutting edge, a die to support the material against the cut of the punch pivotally mounted concentrically with the swiveling axis of the punch and connections located outside of the line of cut to cause the punch and die to rotate in unison, substantially as described.

6. A machine for cutting articles from sheet material having, in combination, a swiveling reciprocating punch provided with a substantially straight cutting edge, a block pivotally mounted on the swiveling axis of the punch, a punch-guide and die carried by the block and a guiding-lug carried by the block arranged to enter the cut in the material back of the punch, substantially as described.

7. A machine for cutting articles from sheet material having, in combination, a swiveling reciprocating punch provided with a substantially straight cutting edge, a block pivotally mounted concentrically with the swiveling axis of the punch provided with a slot to receive the edge of a sheet of material, and a punch-guide and die carried by the block located on opposite sides of the slot, all portions of said block being outside of the line of cut, substantially as described.

8. A machine for cutting articles from sheet material having, in combination, a work-support, means for clamping a sheet of material thereon, and a reciprocating punch and die arranged to travel around said support, substantially as described.

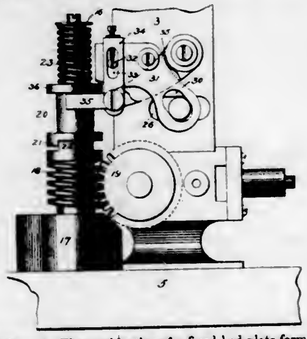
9. A machine for cutting articles from sheet material having, in combination, a work-support, a clamping member arranged to extend above said support through a hole in a sheet of material placed thereon, means for actuating said member to clamp the material, and means for cutting an article from said material, substantially as described.

10. A machine for cutting articles from sheet material having, in combination, a work-support, a clamping member comprising a slide extending through an opening in the support, provided with a clamping projection, and means for reciprocating said slide and moving it laterally to cause the clamping projection to engage a sheet of material placed on said support, substantially as described.

11. A machine for cutting articles from sheet material having, in combination, a work-support, a clamping member comprising a slide extending through an opening in said support provided with a clamping projection, means for reciprocating said slide, and a shoulder on the slide engaging the side of the opening for moving it laterally to engage a sheet of material placed on said support, substantially as described.

12. A machine for cutting articles from sheet material, having, in combination, a reciprocating punch provided with a substantially straight cutting edge, a die coöperating therewith to support the material against the cut of the punch, the punch and die being movable to allow the cutting edge of the punch to be brought in line with the outline of the article to be cut out, and connections located outside of the line of cut to cause the punch and die to move in unison, substantially as described.

683,377. **TAKE-UP MECHANISM FOR KNITTING-MACHINES.** JOHN C. BREWIN, Philadelphia, Pa. Filed Sept. 22, 1900. Serial No. 30,806. (No model.)



Claim.—1. The combination of a fixed bed-plate formed with a circular rack, a rotary ring mounted on the bed-plate, a take-up frame sustained by the ring, take-up rolls mounted in the frame, a vertical shaft mounted in bearings on the rotary ring, a pinion operatively connected with the shaft and engaging the rack, a worm mounted loosely on the shaft, a clutch member rotatable with the shaft and adapted to be engaged with the worm, a movable pressure-bar mounted in the take-up frame in position to engage the fabric, a weight acting on the bar, and connections between said bar and the clutch member for controlling the latter.

2. The combination with the take-up frame formed with horizontal guides, of a horizontal pressure-bar movable in said guides and adapted to engage the fabric, a horizontal rocking bar mounted in the take-up frame above the pressure-bar, a weight applied to the rocking bar, connections between the two bars, a take-up mechanism mounted in the frame, a clutch controlling the operation of the take-up mechanism, and a connection between the clutch and the pressure-bar.

3. The combination with the take-up frame of horizontal slots therein, a horizontal pressure-bar movable in said slots, a rocking bar above the same, arms on the rocking bar provided with slots in which the ends of the pressure-bar extend, a weight applied to the rocking bar, take-up mechanism mounted in the frame, a clutch controlling the operation of the same, and suitable connections between the clutch and pressure-bar.

4. The combination with a take-up frame, of a horizontally-movable pressure-bar, a rocking bar, connections between the same whereby the horizontal movements of the pressure-bar will rock the rocking bar, an arm projecting from the rocking bar, a vertical fixed guide, a weight movable vertically thereon and resting on the arm and tending to depress it, a take-up mechanism, a clutch controlling the operation of the same, and connections between said clutch and pressure-bar.

5. The combination of the take up frame, a horizontally-movable pressure-bar, a rocking bar above it, suitable connections between them, a weight applied to the rocking bar, a fixed guide-bar opposite the rocking bar in position to be engaged by the work, take-up rolls below the pressure-bar, a clutch controlling the operation of said rolls, and connections between the clutch and the pressure-bar.

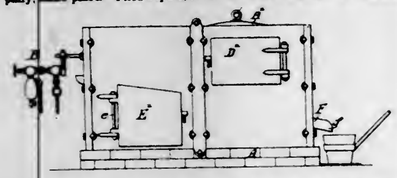
6. The combination of the take-up frame, take-up rolls, a vertical worm, a worm-wheel on the rolls engaged by the worm, a vertically-movable clutch member adapted to engage the worm, means for driving the clutch member, a spring acting on the clutch member to hold it in engagement with the worm, a horizontal pressure-bar, a weight acting on the same, a lever operated by said bar, and a finger engaging the clutch member in opposition to the pressure of the spring and disconnected from the clutch member, said finger being engaged by the lever.

7. The combination of the take-up frame, take-up rolls, a worm-wheel on one of the rolls, a vertical shaft, a worm mounted loosely on the shaft, a clutch member rotatable with the shaft and movable endwise, a spring acting to maintain the engagement of the clutch member with the worm, a lever pivoted to the frame and engaging beneath a collar on the clutch member and disconnected from the same, a horizontally-movable pressure-bar, a rocking bar, an arm on the rocking bar engaged by the pressure-bar, said arm engaging the lever, and a weight on the rocking bar.

8. The combination of a fixed bed-plate provided with an internal circular rack, a rotary ring mounted thereon, a take-up frame on the ring, a pinion carried by the ring and engaging the rack, a gear driven by this pinion, a vertical shaft, a pinion on the lower end of the shaft and engaged by the gear, a worm on the shaft, a clutch member for engaging the worm with the shaft, take-up rolls driven by the worm, a movable device engaging the fabric and suitable connections between the same and the clutch member.

9. The combination of a fixed bed-plate formed with a circular rack, a rotary ring mounted on the bed-plate, a take-up frame sustained by the ring, take-up rolls mounted in the frame, a driving-shaft mounted in bearings on the rotary ring, a pinion meshing with the rack and operatively connected with the driving-shaft, operative connections between the driving-shaft and the take-up rolls, a clutch driven by the shaft, a movable device adapted to engage the work with a predetermined pressure and suitable connections between the movable device and clutch.

683,378. **REVERBERATORY MELTING-FURNACE.** WILLIAM J. BROWN, Philadelphia, Pa., assignor of one-half to J. W. Paxson Company, same place. Filed Sept. 5, 1900. Serial No. 29,392. (No model.)



Claim.—1. The combination of a furnace with a melting-pot and a burner, said furnace having in it an opening for the burner, a combustion-chamber extending from said opening to and over the melting-pot, said chamber increasing in area of cross-section from the burner-opening until it reaches said pot, and flues beyond the melting-pot forming a continuation of the combustion-chamber and leading down the side of the pot, and then returning under the melting-pot to an outlet, substantially as described.

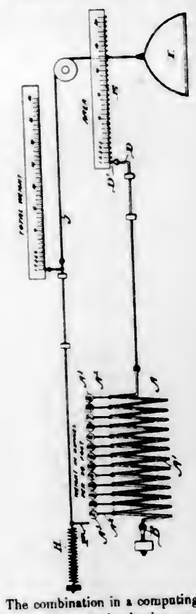
2. The combination of a melting-pot with a furnace having a combustion-chamber extending over said pot, down-flues at the front of the melting-pot, return-flues communicating with the down-flues, an oven with which the return-flues communicate, and an oil-burner discharging into the combustion-chamber, substantially as described.

3. The combination of a melting-furnace having a combustion-chamber and an inlet communicating therewith, an extension to the combustion-chamber, a melting-pot built into the furnace below said extension of the combustion-chamber, down-flues extending along one end of the melting-pot and return-flues extending under the melting-pot, a charging-opening for the melting-pot, a flue communicating with the extension of the combustion-chamber over the melting-pot, a damper for the said flue, and an oil-burner in front of the inlet to the combustion-chamber, substantially as described.

4. The combination in a melting-furnace, of a melting-pot built in the furnace, a tap-hole at the bottom of the melting-pot, a spout communicating with the tap-hole, a combustion-chamber back of the melting-pot and having an extension directly over the melting-pot, an inlet-opening to the combustion-chamber, an oil-burner directly in front of the said opening, down-flues and return-flues passing around the melting-pot, an oven with which the return-flues communicate, said oven being situated directly under the main portion of the combustion-chamber, a flue from the oven to the chimney, a flue from the combustion-chamber to the chimney, a charging-opening communicating with the combustion-chamber directly above the fire-pot, and a door closing said opening, substantially as described.

5. The combination in a melting-furnace, of a combustion-chamber, a melting-pot having an opening in its lower part and located beyond the combustion-chamber, the space above said pot forming a continuation of said chamber in the same straight line, flues extending down the end of the melting-pot and under the same, an opening in the furnace directly above the melting-pot, a cover for said opening, a charging-opening in the side of the furnace communicating with the space above the melting-pot, and a spout for carrying off the molten metal from the melting-pot, said spout running through the side of the furnace and connecting with the opening in said pot, substantially as described.

683,379. **COMPUTING APPARATUS.** HAROLD W. BYRON, Williamsport, Md. Filed May 12, 1900. Serial No. 16,501. (No model.)



Claim.—1. The combination in a computing apparatus of a longitudinally-expansible spreading device having a series of sections, and a total-weight indicator movable along the said device and registering with the sections thereof substantially as set forth.

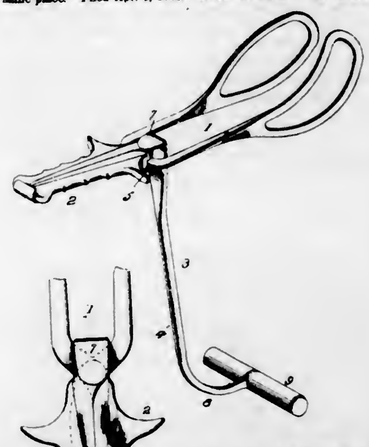
2. The combination in a computing apparatus of a longitudinally-expansible spreading device having a series of sections and indicators thereon, a total-weight indicator movable along said spreading device and registering with the indicators thereof, and an area-indicator relative to which the sections of the spreading devices are adjusted substantially as set forth.

3. In a computing apparatus, a longitudinally-expansible spreading device having sections which adjust together and apart and an indicator movable along said device in position to register with the sections thereof, substantially as set forth.

4. A computing apparatus comprising a longitudinally-expansible spreading device having sections movable together and apart, and a weighing-scale having an indicator movable along said spreading device and registering with the sections thereof, substantially as set forth.

5. In a computing apparatus a spreading device composed of a helical spring having its coils provided with indicating means, and an indicator movable along said spring and arranged to register with the indicating means on the coils thereof, substantially as set forth.

683,380. **OBSTETRICAL APPLIANCE.** PATRICK F. CASSIDY, Boston, Mass., assignor to Boston Bottle Wiring and Labeling Company, same place. Filed Apr. 6, 1901. Serial No. 54,661. (No model.)



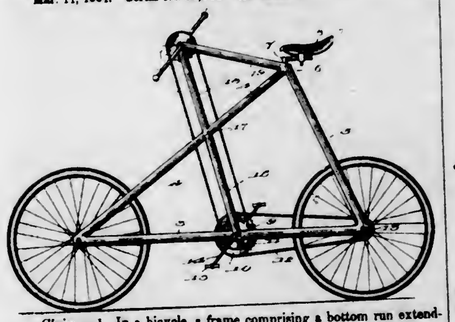
Claim.—1. The combination with a pair of forceps, of a tractor comprising a rigid bar extending at substantially right angles to the forceps at the inner end of the handle, and provided with means for fixedly engaging such handle at the ends thereof.

2. The combination with a pair of forceps, of a rigid tractor having two rigid hooks for engaging the forceps at two points.

3. The combination with a pair of forceps, of a rigid tractor comprising a depending bar, an arm extending therefrom and hooks at the ends of said arm for engaging the inner and outer ends of the handles of the forceps, as set forth.

4. The combination with a pair of forceps, of a tractor having hooks engaging such forceps at the outer and inner ends of the handles, and a bar extending at substantially right angles from the forceps at the point of engagement of said tractor with the inner end of the handle.

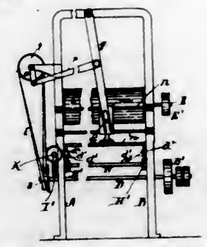
683,381. **BICYCLE.** ALTIA CHAMBERLIN, Fairbury, Nebr. Filed Mar. 11, 1901. Serial No. 50,644. (No model.)



Claim.—1. In a bicycle, a frame comprising a bottom run extending in a direct line with the wheel-axles, a main reach-bar and rear braces respectively connected with opposite ends of the bottom run and united at their upper extremities to form a triangular main frame, and an upper triangular extension-frame, the base of which is formed by a portion of the reach-bar.

2. In a bicycle, a frame comprising a bottom run extending in a direct line with the wheel-axles, a main reach-bar and rear braces respectively connected with opposite ends of the bottom run and united at their upper extremities to form a triangular main frame, a center strut connecting the bottom run and reach-bar and extending above the latter, and a top run connecting the apex of the main frame and the upper extremity of the strut.

683,382. **MANUFACTURE OF VELVET.** ROBERT CLEFF and ADOLF LANGEN, Krefeld, Germany. Filed Mar. 16, 1900. Serial No. 8,972. (No model.)

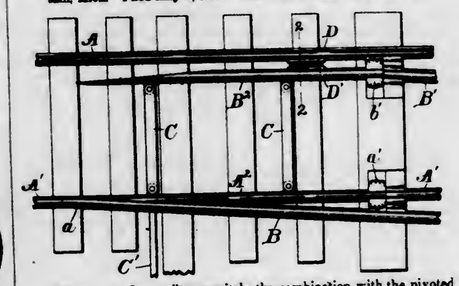


Claim.—1. In a machine of the character described, the combination with the frame thereof of a transverse table, rods parallel with the table, a frame horizontally slidable thereon, a vertical shaft mounted in said slidable frame, a card secured to the lower end of said shaft above the table, a pulley on the vertical shaft, a rotary horizontal drum journaled parallel with the table and rods, a belt connecting the drum and pulley and slidable on the drum, and means for sliding the frame on the rods, substantially as described.

2. In a machine of the character described, the combination with the frame thereof of a transverse table, rods parallel with the table, a frame horizontally slidable thereon, a vertical shaft mounted in said slidable frame, a card secured to the lower end of said shaft above the table, a pulley on the vertical shaft, a rotary horizontal drum journaled parallel with the table and rods, a belt connecting the drum and pulley and slidable on the drum, a pin projecting from the slidable frame, a lever pivoted to the frame of the machine at its upper end and having its lower end bifurcated and straddling said pin, a shaft at right angles to the drum and rod driven from the main shaft of the machine, a crank thereon, and a link connecting the bifurcated lever intermediate its ends with the crank, substantially as described.

3. In a machine of the character described, the combination with its frame of a transverse table mounted thereon, rods parallel therewith, slidable frame on said rods, a vertical shaft journaled in the slidable frame, a card secured to its lower end above the table, means for rotating the vertical shaft, a pin projecting from the slidable frame, a lever pivoted to the frame of the machine at its upper end and having its lower end bifurcated and straddling said pin, a shaft at right angles to the drum and rods driven from the main shaft of the machine, a crank thereon, and a link connecting the bifurcated lever intermediate its ends with the crank, substantially as described.

683,383. **RAILWAY-SWITCH.** JERRY M. CLIFFORD, Iron Mountain, Mich. Filed May 6, 1901. Serial No. 58,966. (No model.)

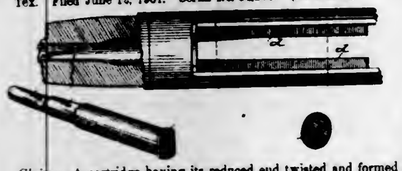


Claim.—1. In a railway-switch, the combination with the pivoted switch-point, of means mounted between the main rail of the main line and the pivoted switch-point, said means comprising a box or casing, one section of which is secured to the main rail of the main line and the other section to the switch-point, and resilient means interposed between said sections, within said casing, for holding the sections apart when the main line is open, substantially as described.

2. In a railway-switch, the combination with the pivoted switch-point, of means mounted between the main rail of the main line and the pivoted switch-point, said means comprising a box or casing composed of two sections, movable one within the other, one of said sections adapted to be secured to the main rail of the main line and the other section to said switch-point, lugs secured within said sections, and coiled springs supported by said lugs tending to separate said sections and hold the same apart when the main line is open, substantially as described.

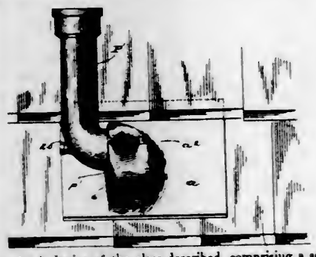
3. In a railway-switch, the combination with the pivoted switch-point and main-rail section, means for tying said switch-point and pivoted main-rail section together, means for opening and closing said switch, means mounted between the main rail of the main line and said pivoted switch-point, comprising a box or casing composed of two sections, one movable within the other, and resilient means interposed between said casing-sections for holding the pivoted rail-section in close contact with the main line when said main line is open, substantially as described.

683,384. CARTRIDGE FOR GUNS. WILLIAM F. COLE, Waco, Tex. Filed June 13, 1901. Serial No. 64,378. (No model.)



Claim.—A cartridge having its reduced end twisted and formed as an ellipse in cross-section and its flanged head provided with opposite flat sides as shown and described.

683,385. EXTERNAL JOINT FOR ESCAPE-PIPES. GEORGE T. COOPER, Natick, Mass. Filed Jan. 30, 1901. Serial No. 45,382. (No model.)



Claim.—1. A device of the class described, comprising a supporting-base having an opening therein, an external hood covering the opening and having an open mouth, and an annular seat in said mouth.

2. A device of the class described, comprising a supporting-base having an opening therein, an external hood covering the opening, and having an open mouth, and an annular seat of soft metal in said mouth, to form a joint above the roof between the adjacent inner and outer sections of an escape-pipe.

3. A device of the class described, comprising a metallic supporting-base having an opening therein and upturned around the opening to form an external protective hood having its mouth above and substantially at right angles to the base, an annular seat in the mouth of the hood, and a transverse support extended across the mouth.

4. A device of the class described, comprising a soft-metal base having an opening therein and adapted to rest upon the roof, an integral external hood surrounding the opening and having its mouth substantially at right angles to the base, and an integral annular seat within and forming the perimeter of the mouth of the hood.

5. A base having an opening therein and an external protective hood therefor, the mouth of the hood being substantially at right angles to the base, and an annular soft-metal seat in the mouth of the hood, combined with the inner and outer sections of the escape-pipe having their adjacent ends resting upon opposite faces of the annular seat, and means to force the said ends of the pipe-sections, upon the seat, to form a tight joint at the mouth of the hood.

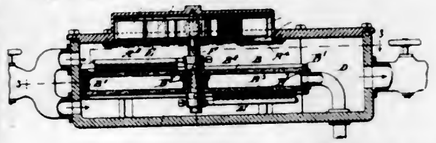
6. A metallic base having an opening therein and an external protective hood, the mouth of the latter being inturned to form an annular seat substantially at right angles to the base and external thereto, and an apertured bar extended across the mouth, combined with the inner and outer sections of the escape-pipe having their adjacent ends abutted against opposite faces of the annular seat, and a connecting-bolt in engagement with said sections and extended through the apertured bar, said bolt acting to rigidly secure the pipe-sections in engagement with the seat to form a tight joint thereat.

7. A metallic base having an opening therein and an external protective hood, having an open mouth, an annular seat in the mouth, and a supporting-bar extended diametrically across the mouth, combined with inner and outer sections of an escape-pipe having their adjacent ends abutted against opposite faces of the seat, a connecting-bolt in engagement with said sections and centrally located relative to their adjacent ends, whereby the outer section may be set at the desired angle with the inner section, the bolt passing through the supporting-bar at the center of the seat and rigidly holding the pipe-sections in adjusted position against the latter to form a tight joint thereat.

8. A device of the class described, comprising a supporting-base having an opening therein to receive the end of the inner section of an escape-pipe, an external hood surrounding said opening, and an annular seat within the mouth of the hood, to receive against its opposite faces the adjacent ends of the inner and outer sections of the escape-pipe.

9. A device of the class described, comprising a supporting-base having an opening therein to receive the end of the inner section of an escape-pipe, an external hood surrounding said opening, and an annular seat within the mouth of the hood, combined with inner and outer sections of an escape-pipe, and means to connect them at the desired angle with their adjacent ends pressed against opposite faces of the seat to form a tight joint thereat.

683,386. FILTER. WILLIAM E. CORLETT, Jennings, Okla. Filed Dec. 17, 1900. Serial No. 40,200. (No model.)



Claim.—1. A filter, having a filter-head comprising a skeleton frame in the form of a wheel with a hub, spokes and rim, filtering-walls set against the spokes of the wheel and the said rim to form filtering-compartments in the wheel, and an outlet for the filter liquid from the wheel, substantially as shown and described.

2. A filter, having a filter-head comprising a skeleton frame in the form of a wheel with a hub, spokes and rim, filtering-walls set against the spokes of the wheel and the said rim to form filtering-compartments in the wheel, and an outlet for the filtering liquid from the wheel, the said spokes being arranged to connect the compartments with each other, the said compartments containing filtering material, substantially as shown and described.

3. A filter, comprising a casing having a water-inlet, a filtering-head secured within the said casing and provided with a filtering-wall, an outlet leading from the head, a water-motor, brushes secured on the shaft of the said motor and engaging the face of the said wall, and a connection between the casing of the water-motor and the said casing, to permit the water discharged from the water-motor to pass into the casing to be filtered by the said head, substantially as shown and described.

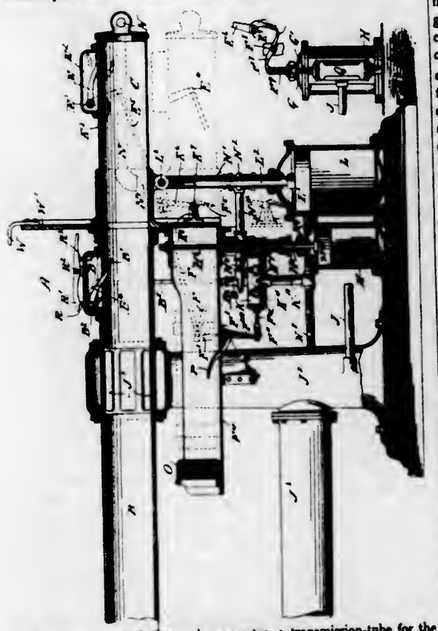
683,387. PNEUMATIC-DESPATCH-TUBE APPARATUS. JAMES T. COWLEY, Lowell, Mass., assignor to the American Pneumatic Service Company, Dover, Del. Filed Feb. 26, 1900. Serial No. 6,464. (No model.)

Claim.—1. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a vertically-reciprocating receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, and mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier.

2. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a vertically-reciprocating receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, and mechanism located in the path of the discharged carrier and operated thereby to move said valve to admit air into said cylinder to move the receiver to its normal position in alinement with the transmission-tube.

3. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a vertically-reciprocating receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein and mechanism located in the receiver in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier.

4. In a pneumatic-despatch-tube apparatus, a transmission-tube for the carriers, a vertically-reciprocating receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, mechanism located in the receiver in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder, to move the receiver from alinement with the transmission-tube for the discharge of the carrier, a valve controlling the flow of air-pressure into said receiver to discharge a carrier and adapted to be operated by the movement of the receiver from alinement with the transmission-tube to admit air to said receiver to discharge a carrier, and mechanism located in the path of the discharged carrier and operated thereby to move said cylinder-controlling valve to admit air into said cylinder to move the receiver to its normal position in alinement with the transmission-tube.



5. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a vertically-reciprocating receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, and mechanism located in the receiver in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier.

6. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a vertically-reciprocating receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, and mechanism located in the path of the discharged carrier and operated thereby to move said valve to admit air into said cylinder to move the receiver to its normal position in alinement with the transmission-tube.

7. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a movable receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, a receiving-table for receiving the discharged carrier, a gate closing the entrance to said table, a cylinder, a piston located in said cylinder and connected to said gate for operating the same, a valve controlling the admission of air-pressure to said gate-operating cylinder, mechanism for operating said valve and adapted to be operated by the movement of the receiver to admit air into said gate-operating cylinder to move the same and open the gate to allow the discharge of the carrier from the receiver onto the receiving-table.

8. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a movable receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, a receiving-table for receiving the discharged carrier, a gate closing the entrance to said table, a cylinder, a piston located in said cylinder and connected to said gate for operating the same, a valve controlling the admission of air-pressure to said gate-operating cylinder, mechanism for operating said valve and adapted to be operated by the movement of the receiver to admit air into said gate-operating cylinder to move the same and open the gate to allow the discharge of the carrier from the receiver onto the receiving-table, mechanism located in the path of the discharged carrier and operated thereby to move the valve controlling the flow of air to the receiver-operating cylinder to actuate the piston therein to move the receiver from alinement with the receiving-table into alinement with the transmission-tube, and mechanism operated by the movement of the receiver into alinement with the transmission-tube to cause the movement of the valve controlling the entrance of air into the gate-operating cylinder to operate the piston therein and close the said gate.

9. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a movable receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air-pressure into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, a valve controlling the flow of air-pressure into said receiver to discharge a carrier and adapted to be operated by the movement of the receiver from alinement with the transmission-tube to admit air to said receiver to discharge a carrier, and mechanism located in the path of the discharged carrier and operated thereby to move the valve controlling the flow of air-pressure to the receiver-actuating cylinder to admit air into said cylinder to move the receiver to its normal position in alinement with the transmission-tube.

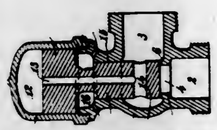
10. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a movable receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, an outlet from said receiver for the escape of air compressed by the traveling carrier, a valve actuated by the air compressed by the traveling carrier and adapted to close the escape of compressed air from the receiver to cushion a carrier in the receiver, and a valve located in the outlet from said receiver and operated by the traveling carrier to open said outlet to the atmosphere.

11. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a movable receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of the air into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, an outlet from said receiver for the escape of air compressed by the traveling carrier, a valve actuated by the air compressed by the traveling carrier and adapted to close the escape of compressed air from the receiver to cushion a carrier in the receiver, a valve located in the outlet from said receiver and operated by the traveling carrier to open said outlet to the atmosphere, and a catch adapted to hold said valve in its open position and adapted to be operated by the movement of the receiver to release said valve and allow the same to close.

12. In a pneumatic-despatch apparatus, a transmission-tube for the carriers, a movable receiver, a source of air-pressure, a cylinder having a piston connected to said receiver, a valve controlling the flow of air into said cylinder to operate the piston therein, mechanism located in the path of the traveling carrier and operated thereby to actuate said valve to admit air to said cylinder to move the receiver from alinement with the transmission-tube for the discharge of the carrier, a pipe communicating with said receiver and forming an exhaust from said cylinder, a valve actuated by the air compressed by the traveling carrier and adapted to close the escape of compressed air from the receiver to cushion the carrier in the receiver, means for opening said valve after the carrier is cushioned, an air-supply for discharging the carrier from the receiver, and a valve normally controlling the flow of air from said air-supply through said pipe and adapted to be opened by the movement of the receiver from aline-

ment with the transmission-tube to admit air into said pipe to discharge the carrier from said receiver.

683,388. REDUCING-VALVE. NELSON CURTIS, Boston, Mass. Filed Jan. 29, 1900. Renewed Mar. 5, 1901. Serial No. 49,922. (No model.)



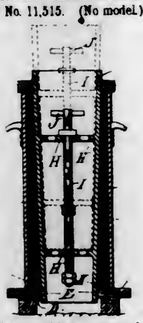
Claim.—1. A reducing-valve comprising a casing having inlet and outlet chambers, a valve-seat between said chambers, a valve adapted to close said seat against the pressure in the inlet-chamber, a closed cylinder removably attached to the valve-casing, a piston operating in said cylinder, a stem connecting said piston with the valve, and a duct through said stem connecting the outlet-chamber with the space between the outer end of the cylinder and the piston, there being a neutral space surrounding said stem between the valve and the inner end of the piston, provision being made for the passage of air to or from said space, the joint between the cylinder and valve-casing coinciding with or surrounding said space.

2. A reducing-valve comprising a casing having inlet and outlet chambers, a valve-seat between said chambers, a valve adapted to close to said seat against the pressure in the inlet-chamber, a closed cylinder made in one integral piece and removably attached to the valve-casing, a piston of larger area than the valve, operating in said cylinder, a stem connecting said piston with the valve, and a duct through said stem connecting the outlet-chamber with the space between the outer end of the cylinder and the piston, there being a neutral space surrounding said stem between the valve and the inner end of the piston, provision being made for the passage of air to or from said space, the joint between the cylinder and valve-casing coinciding with or surrounding said space.

3. A reducing-valve comprising a casing having inlet and outlet chambers, a valve-seat between said chambers, a valve adapted to close to said seat against the pressure in the inlet-chamber, a cylinder removably attached to the valve-casing, a piston of larger area than the valve, operating in said cylinder, a stem connecting said piston with the valve, a duct connecting the outlet-chamber with the space between the outer end of the cylinder and the piston, there being a neutral space surrounding said stem between the valve and the inner end of the piston, the joint between the cylinder and valve-casing coinciding with or surrounding said space, an aperture in the casing extending from said neutral space to the outlet-chamber, and a portion on the said stem closely fitting said aperture, said portion having a diameter at least as great as the diameter of the valve, whereby the latter may be removed through said aperture.

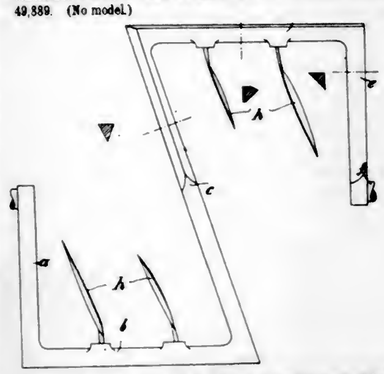
4. A reducing-valve having inlet and outlet chambers, a valve adapted to close to said seat against the pressure in the inlet-chamber, a closed cylinder removably attached to the valve-casing and provided with an extension, a piston operating in said cylinder, a spring in the cylinder extension bearing on the piston, means for varying the tension of the spring, a stem connecting the piston with the valve, and a duct through said stem connecting the outlet-chamber with the space between the outer end of the cylinder and the piston.

683,389. PIPE-MOLD. BENJAMIN R. DAVIDSON, Duarte, Cal. Filed Apr. 4, 1900. Serial No. 11,515. (No model.)



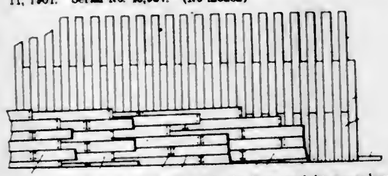
Claim.—In a mold for making cement pipe, the combination with a non-collapsible taper core, having its smaller end adapted to project below the end of the mold, of a base-block and an outer casing.

683,390. KNEADER FOR DOUGH-KNEADING MACHINES. OSKAR DROSCHÜTZ, Bautzen, Germany. Filed Mar. 5, 1901. Serial No. 49,889. (No model.)



Claim.—A kneader for dough-kneading machines, comprising a Z-shaped rotary agitator whose middle bar forms an acute angle with the adjoining arms which carry knives inclined thereto and having faces inclined to the plane of the kneader.

683,391. TANK. BENJAMIN F. ELLIS, Berkeley, Cal. Filed Feb. 11, 1901. Serial No. 46,927. (No model.)



Claim.—1. A tank comprising a circular base, upright staves having their sides at their lower ends in contact with the cylindrical periphery of said base, and nailed thereto, fitting closely side by side, and forming a complete annulus around said base, and concentric laminations, each lamination being formed of bent boards having abutting ends, the joints between the boards being broken vertically and horizontally and the whole firmly bound together by nails through the laminations and annulus, substantially as described.

2. A tank comprising a circular base, upright staves nailed at their lower ends to the periphery of said base, fitting closely side by side and forming a complete annulus around said base, and of length less than the height of the tank, and staves supported upon the first-named staves, vertically-successive staves having abutting ends, and annularly-successive staves breaking joints, and concentric laminations, each lamination being formed of bent boards having abutting ends, the joints between the boards being broken vertically and horizontally and the whole firmly bound together by nails through the laminations and annulus, substantially as described.

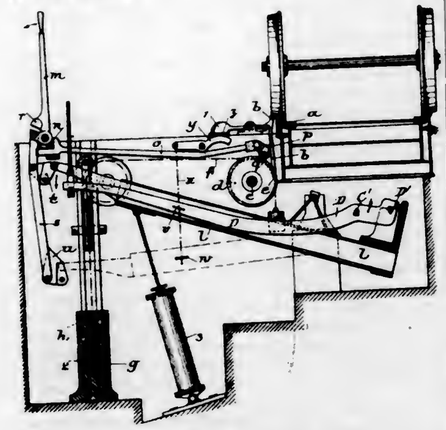
683,392. WEIGHING-MACHINE FOR RAILWAY-TRUCKS. CARL ENNING, Weidenau, Germany. Filed Mar. 29, 1900. Serial No. 10,674. (No model.)

Claim.—1. In a weighing-machine, the combination, with a scale-platform, and means for bringing said scale-platform into the weighing position, of a drum, mechanism intermediate the drum and said means for operating the latter, and a plurality of devices actuated by the passage of a vehicle onto the scale-platform and arranged to rotate the drum.

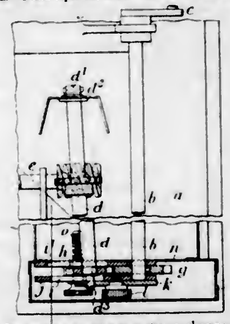
2. In a weighing-machine, the combination with a scale-platform, and a lever arranged to bring said platform into the weighing position, of a weight arranged to actuate said lever, means actuated by the passage of a vehicle onto the scale-platform, said means being arranged to lift the weight, and mechanism for connecting the weight to the lever whereby the latter may be operated.

3. In a weighing-machine, the combination with a scale-platform, and means for bringing the platform into the weighing position, of operating mechanism for actuating said means, disconnecting mechanism for maintaining said operating mechanism out of engagement with said means, and a device located in the path of the vehicle passing onto the scale-platform and arranged to disengage the operating mechanism from the control of the disconnecting mechanism.

4. In a weighing-machine, the combination with a scale-platform, and means for bringing the same into the weighing position, of mechanism in the path of a vehicle passing onto the scale-platform and arranged to operate said means, and a device for moving said mechanism from contact with said vehicle.



683,393. PREPAYMENT GAS-METER. JOHN D. FORSTER, London, England, assignor to Metropolitan Gas Meters, Limited, Old Kent Road, England. Filed Apr. 15, 1901. Serial No. 55,932. (No model.)



Claim.—1. In a prepayment gas-meter, a change mechanism comprising among its members two shafts, one movable with respect to the other, gearing connecting said shafts, a guide-plate having a bearing for the stationary shaft and a slotted aperture for receiving the movable shaft and an adjusting-plate detachably secured to said guide-plate and provided with a bearing-aperture engaging said movable shaft, substantially as described.

2. In a prepayment gas-meter, a change mechanism comprising among its members two shafts, one movable with respect to the other, gearing connecting said shafts, a guide-plate having a bearing for the stationary shaft and a slotted aperture for receiving the movable shaft and an adjusting-plate detachably secured to said guide-plate and provided with a series of bearing-apertures at different distances from its point of attachment to said guide-plate, said apertures being adapted to engage said movable shaft, substantially as described.

3. In a prepayment gas-meter, a change mechanism comprising among its members two shafts one movable with respect to the other, gearing connecting said shafts, a guide-plate having a bearing for the stationary shaft and a slotted aperture for receiving the movable shaft, a circular adjusting-plate provided with a central aperture, and a series of bearing-apertures for the movable shaft located at different distances from said central aperture and a set-screw engaging said central aperture and securing said adjusting-plate to said guide-plate, substantially as described.

683,394. VALVED PISTON. SAMUEL M. FULTON, Galt, Cal., assignor of one-half to Alden T. Ames, same place. Filed Sept. 24, 1900. Serial No. 30,973. (No model.)

Claim.—1. A valved piston comprising a hollow, cylindrical body having two seats disposed in different planes, an operating-stem connected to the upper seat, a cup-shaped valve or clapper provided with portions adapted to rest upon each of said seats and having an aperture in its top around said stem, and lugs provided upon the top of said clapper and engaging said stem to guide the valve and to provide a space between the top of the same and an adjacent contact member; substantially as specified.



2. A valved piston comprising a hollow, cylindrical body provided with an exterior packing and at its upper portion with a valve-seat, a centrally-disposed extension from said body composed of radially-disposed spaced ribs provided with an annular seat at the upper ends, a cup-shaped valve-clapper guided by said ribs to have its lower edge contact with the seat upon the body and at its top with the seat upon the extension, a fixed head above said clapper, and inwardly-extending lugs between said head and clapper to provide a space for the escape of liquid; substantially as specified.

3. A valved piston comprising a hollow, cylindrical body and an annular seat at its upper portion, radial ribs extending upward from said body and carrying at their upper ends a secondary valve-seat and a socket, a tubular connecting-stem secured within said socket, a cup-shaped valve or clapper provided with an aperture around said stem and guided by said ribs into contact with each of said valve-seats, and a movable piston-rod passing through said stem and body; substantially as specified.

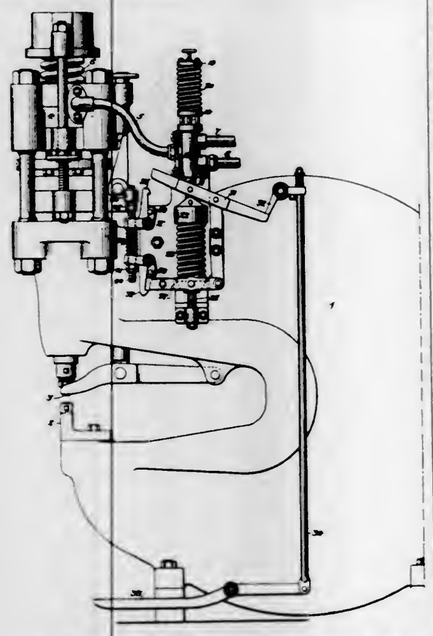
4. A valved piston comprising a coupling-head, a tubular stem extending downward therefrom, a hollow, cylindrical valve-body having an annular horizontal seat thereon, a socket for said stem supported by radial ribs extending upward from said body and provided with a secondary seat upon its top, a valve or clapper adapted to be guided by said ribs and to contact with each of said seats, and a reciprocatory rod passing through said stem and body and carrying a second piston thereon; substantially as specified.

5. A valved piston comprising a coupling-head, a tubular stem extending downward therefrom, a hollow, cylindrical valve-body having an annular seat thereon, a socket for said stem supported by radial ribs extending upward from said body and provided with a secondary seat, a valve or clapper having a discharge-passage around said stem and adapted to be guided by said ribs into contact with each of said seats, a valve-rod extending through said stem and valve, a contact-head secured to said stem above said valve, and inwardly-extending lugs upon the top of said valve adapted to engage said stem and also said head; substantially as specified.

683,395. HYDRAULIC PUNCH OR LIKE TOOL. ERWIN GRAVES, Camden, N. J., assignor to the Camden Iron Works, same place. Filed Oct. 27, 1900. Serial No. 34,573. (No model.)

Claim.—1. The combination of the plunger-cylinder of a punch or like tool, a valve-chest with valve and passages for controlling the flow of motive fluid under pressure into and from said plunger-cylinder, a constantly-acting pressure device tending to move said valve in one direction,

an intermittently-acting pressure device of greater power tending to move it in the opposite direction, a valve-locking device whereby said second pressure device is prevented from acting upon the valve, and means whereby a moving part of the punch or tool is caused to release said locking device, substantially as specified.



2. The combination of the plunger-cylinder of a punch or like tool, a valve-chest with valve and passages for controlling the flow of motive fluid under pressure into and from said plunger-cylinder, a constantly-acting pressure device tending to move said valve in one direction, an intermittently-acting pressure device of greater power tending to move it in the opposite direction, a valve-locking device whereby said second pressure device is prevented from acting upon the valve, means whereby a moving part of the punch or tool is caused to release said locking device, and a dash-pot for steadying the movement of the valve, substantially as specified.

3. The combination of the plunger-cylinder of a punch or like tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device tending to move said valve in one direction, another pressure device of greater power tending to move the valve in the opposite direction, means for energizing said second pressure device, provision for retaining it in the loaded condition, a trip for releasing said retainer, a valve-locking device whereby the second pressure device is prevented from moving the valve, and means operated by a reciprocating portion of the punch or other tool for releasing said locking device, substantially as specified.

4. The combination of the plunger-cylinder of a punch or like tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device tending to move said valve in one direction, another pressure device of greater power tending to move the valve in the opposite direction, means for energizing said second pressure device, provision for retaining it in the loaded condition, a trip for releasing said retainer, a valve-locking device whereby the second pressure device is prevented from moving the valve, means operated by a reciprocating portion of the punch or other tool for releasing said locking device, and a dash-pot for steadying the movement of the valve, substantially as specified.

5. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device for moving said valve in one direction, a pressure device of greater power for moving it in the opposite direction, means for energizing said second pressure device, a retainer for maintaining it in the loaded condition, valve-locking mechanism for preventing the high-pressure device from moving the valve and means whereby a moving portion of the punch or other tool releases the high-pressure retainer when at one extreme of its movement and releases the valve-locking device when at the other extreme of its movement, substantially as specified.

6. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device for moving said valve in one direction, a pressure device of greater power for moving it in the opposite direction, means for energizing said second pressure device, a retainer for maintaining it in the loaded condition, valve-locking mechanism for preventing the high-pressure device from moving the valve, means whereby a moving portion of the punch or other tool releases the high-pressure retainer when at one extreme of its movement and releases the valve-locking device when at the other extreme of its movement, and a dash-pot for steadying the movement of the valve, substantially as specified.

7. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device for moving said valve in one direction, a pressure device of greater power for moving it in the opposite direction, means for energizing said second pressure device, a retainer for maintaining it in the loaded condition, valve-locking mechanism for preventing the high-pressure device from moving the valve, means whereby the moving portion of the punch or other tool releases the high-pressure retainer when at one extreme of its movement, and releases the valve-locking device when at the other extreme of its movement, and a locking device under control of the attendant for holding the valve in inoperative position, substantially as specified.

8. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device for moving said valve in one direction, a pressure device of greater power for moving it in the opposite direction, means for energizing said second pressure device, a retainer for maintaining it in the loaded condition, valve-locking mechanism for preventing the high-pressure device from moving the valve, means whereby the moving portion of the punch or other tool releases the high-pressure retainer when at one extreme of its movement, and releases the valve-locking device when at the other extreme of its movement, a locking device under control of the attendant for holding the valve in inoperative position, and a dash-pot for steadying the movement of the valve, substantially as specified.

9. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to and from said plunger-cylinder, a pressure device for moving said valve in one direction, a pressure device of higher power for moving it in the opposite direction, fluid-actuated mechanism controlled by the valve for energizing said second pressure device, locking means for retaining said pressure device in the loaded condition, a valve-locking device whereby the movement of the valve by said high-pressure device is prevented and means for releasing said high-pressure retainer and valve-locking device, substantially as specified.

10. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to and from said plunger-cylinder, a pressure device for moving said valve in one direction, a pressure device of higher power for moving it in the opposite direction, fluid-actuated mechanism controlled by the valve for energizing said second pressure device, locking means for retaining said pressure device in the loaded condition, a valve-locking device whereby the movement of the valve by said high-pressure device is prevented, means for releasing said high-pressure retainer and valve-locking device, and a dash-pot for steadying the movement of the valve, substantially as specified.

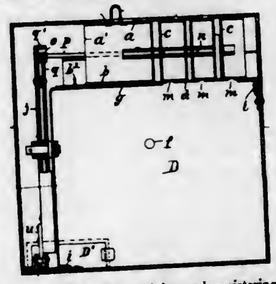
11. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device for moving the valve in one direction, a second pressure device of higher power for moving it in the opposite direction, fluid-pressure mechanism controlled by the valve for energizing said high-pressure device, means for retaining said high-pressure device in the loaded condition, means for locking the valve against movement by said high-pressure device, and automatic trips for said high-pressure retainer and valve-locking device operated by a reciprocating portion of the punch at the extremes of its movement, substantially as specified.

12. The combination of the plunger-cylinder of a punch or other tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to or from said plunger-cylinder, a pressure device for moving the valve in one direction, a second pressure device of higher power for moving it in the opposite direction, fluid-pressure mechanism controlled by the valve for energizing said high-pressure device, means for retaining said high-pressure device in the loaded condition, means for locking the valve against movement by said high-pressure device, automatic trips for said high-pressure retainer and valve-locking device operated by a reciprocating portion of the punch at its extremes of movement, and a dash-pot for steadying the movement of the valve, substantially as specified.

13. The combination of the plunger-cylinder of a punch or like tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to and from said plunger-cylinder, a pressure device for moving said valve in one direction, a second pressure device of greater power for moving the valve in the opposite direction, fluid-pressure mechanism under control of the valve for energizing said high-pressure device, a retainer for holding said high-pressure device in a loaded condition, locking mechanism for preventing movement of the valve by said high-pressure device, automatic trips for said high-pressure retainer and valve-locking device operated by a reciprocating portion of the punch at its extremes of movement, and a locking device under control of the attendant for retaining the valve in inoperative condition, substantially as specified.

14. The combination of the plunger-cylinder of a punch or like tool, a valve-chest having a valve and passages whereby motive fluid under pressure may be directed to and from said plunger-cylinder, a pressure device for moving said valve in one direction, a second pressure device of greater power for moving the valve in the opposite direction, fluid-pressure mechanism under control of the valve for energizing said high-pressure device, a retainer for holding said high-pressure device in a loaded condition, locking mechanism for preventing movement of the valve by said high-pressure device, automatic trips for said high-pressure retainer and valve-locking device operated by a reciprocating portion of the punch at its extremes of movement, a locking device under control of the attendant for retaining the valve in inoperative condition, and a dash-pot for steadying the movement of the valve, substantially as specified.

683,396. COIN SAVINGS-BANK. GEORGE HAVELL, Newark, N. J., assignor to Havell Manufacturing Company, of New Jersey. Filed Nov. 30, 1900. Serial No. 38,143. (No model.)



Claim.—1. A slider for coin receiving and registering banks, consisting of the rectangular sheet-metal shell with opposite transverse slots of diverse lengths in its opposite sides, and a series of flat coin-tubes of different widths in correspondence with such slots inserted transversely within the shell to form chambers for receiving coins of different sizes, substantially as herein set forth.

2. In a registering-bank having a case with a series of slots of diverse sizes to insert various coins, and registering mechanism to record the same, the combination, with the case having the series of slots, of a guideway underneath such slot, a slider fitted to such guideway and having transverse chambers corresponding with the said slots, and the bed of the guideway having slots suitably located to discharge the coins from the chambers when the slider is reciprocated, substantially as herein set forth.

3. In a registering-bank having a slot for the insertion of a coin, and a registering device to record the same, the combination, with the case having the coin-slot, of a rectangular guideway underneath such slot, a square sheet-metal slider fitted to such guideway and provided with transverse chamber to receive the coin, an aperture in the side of the slider intersecting such chamber, and a movable member of the registering mechanism projected into said aperture into the path of the coin to be moved by the same, as and for the purpose set forth.

4. In a registering-bank having a series of slots for the insertion of a coin, and a registering device to record the same, the combination, with the case having the coin-slider, of a rectangular guideway underneath such slot, a square sheet-metal slider fitted to such guideway and provided with transverse chamber to receive the coin, an aperture in the side of the slider intersecting such chamber, a lever with teeth projected into said aperture to intersect the paths of the several coins, and a registering mechanism actuated by such lever, substantially as herein set forth.

5. In a coin receiving and registering bank, the combination, with a case having a slot to insert the coin, and a slider to receive and discharge the same into the receptacle, of a ratchet-wheel with pawl actuated by the movement of the coin with the slider, a disk attached to such ratchet-wheel with flat rim upon its peripbery with index-numbers upon such rim, and a window in the case to expose such numbers successively, substantially as herein set forth.

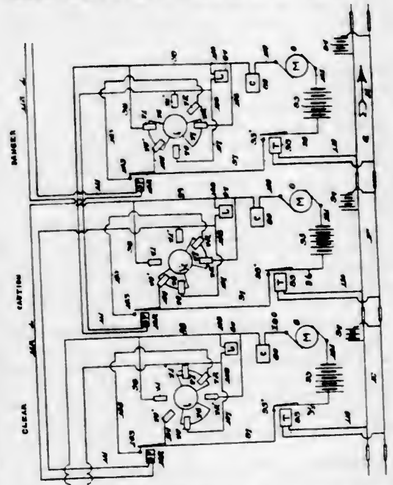
6. In a coin receiving and registering bank, the combination, with a rectangular body open at one side, of a cover fitted to such side, a bolt extended through such cover to secure it upon the body, a circular flaring nut applied to such bolt outside of the cover, and a malleable shell engaged loosely with such nut to turn freely upon the same, but collapsible when compressed by a suitable tool to grasp the nut, substantially as herein set forth.

7. A slider for coin receiving and registering banks, comprising a rectangular sheet-metal shell with opposite transverse slots of diverse lengths in the opposite sides, and a series of flat coin-tubes of different widths inserted transversely in the tube with their ends in such slots, and having shoulders near their ends to prevent their displacement, substantially as herein set forth.

8. A slider for coin receiving and registering banks, comprising the trough-shaped piece with tongues upon its edges, a bottom plate of greater width than the trough with slots to receive such tongues, a series of flat coin-tubes with shoulders near their opposite ends, and slots in the bottom plate and in the top of the trough-piece to hold such tubes transversely in the slider, substantially as herein set forth.

9. In a registering-bank having a slot for the insertion of a coin and a registering device to record the same, the combination, with the case having the coin-slot, of a guideway comprising a sheet-metal bed underneath such slot, gibs raised from such bed to form guides thereon, and a rectangular slider containing a transverse chamber to receive the coin, and a bottom plate with projecting edges fitted to the said gibs to slide beneath the same, substantially as herein set forth.

683,397. SIGNALING MECHANISM. REINHOLD HERMAN, Crafton, Pa. Filed Jan. 14, 1901. Serial No. 43,189. (No model.)



Claim.—1. In a signal mechanism, the combination of a signal having a bias to danger position, electrically-operated mechanism for electrically locking the signal at caution and clear positions, and a circuit-controller operated by the driving means for controlling the lock-circuit during the movement of the signal from danger to clear position, means normally acting to operate the circuit-controller during the movement of the signal from clear to danger position.

2. In a signal mechanism, the combination of a signal having a bias to danger position, means for locking the signal at caution and clear positions, and a circuit-controller electrically operated for controlling the lock-circuit during the movement of the signal from danger to clear position and mechanically operated during the movement of the signal from clear to caution or danger positions, the lock-circuit being normally closed.

3. In a signal mechanism, the combination of a signal having a bias to danger position, electrically-operated mechanism including a clutch-magnet and a lock-magnet for holding the signal at cantion and clear po-

sitions, a motor for operating said mechanism, and a circuit-controller electrically operated by train movements and adapted to continuously maintain a closed circuit through the clutch-magnet and motor during the movement of the signal to a caution and clear position, and through the lock-magnet at a caution and clear position.

4. In a signal mechanism, the combination of a signal automatically movable to danger and caution positions, electrically-operated mechanism including a clutch-magnet and a lock-magnet for shifting the signal and holding the same at caution and clear positions, a motor for operating said mechanism, and means in the motor-circuit and adapted to be operated by train movements for continuously maintaining a closed motor-circuit through the clutch-magnet during the movement of the signal to caution and clear position, and through the lock-magnet at caution and clear positions.

5. In a signal mechanism, the combination of a signal automatically movable to danger and caution positions, mechanism for shifting the signal to caution and clear positions, a motor for actuating said mechanism, an automatic rotary circuit-controller in the motor-circuit for continuously maintaining a closed motor-circuit during the shifting of the signal from danger to caution and from caution to clear positions, and means in the motor-circuit for holding the signal at caution position.

6. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism including a sector for shifting the signal to caution and clear positions, a motor for operating said mechanism, means in the motor-circuit for continuously maintaining a closed motor-circuit during the movement of the signal from danger to caution and from caution to clear, and electrically-controlled means for locking the signal at caution and clear positions.

7. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism including a sector for shifting the signal to caution and clear positions, said mechanism being controlled by train movements, a motor for actuating the mechanism through a motor-circuit that is closed during the shifting of the signal from danger to caution and from caution to clear positions, and means in the motor-circuit for continuously maintaining the same closed during said movement of the signal.

8. In a signal mechanism, the combination with two or more signals supported on the same post each having a bias to danger position and each automatically movable to danger or caution position independent of the other, of a signal-operating mechanism for shifting the signals to caution or clear positions, a single motor for operating the signals, said signals being operative independently or in unison, and electrically-controlled means for holding each signal at caution and clear positions.

9. In a signal mechanism, the combination of two or more signals each having a bias to danger position and suspended from the same post or support, mechanism for shifting the signals from caution and clear positions independently of or in unison with each other, a single motor for operating the signals, and electrically-controlled means for holding each signal at caution and clear positions.

10. In a signal mechanism, the combination of two or more signals each having a bias to danger position and suspended from the same post or support, mechanism for shifting each signal to caution and clear positions, a single motor for operating the signals, and means operated by train movements for electrically controlling each signal independent of the other.

11. In a signal mechanism, the combination of two signals each having a bias to danger position and suspended from the same post or support, the one signal governing one line, and the other signal governing the second line, mechanism for shifting the signals to caution and clear positions simultaneously or independently of each other, a common motor for actuating the mechanism to shift either or both signals, and electrically-controlled means for holding the signal or signals at caution and clear positions.

12. The combination of a drive-shaft, a sector mounted on said drive-shaft, a signal-arm connected to said sector, a driving clutch-wheel mounted on the shaft, an electrically-operated lock adapted to connect the sector to the clutch driving-wheel, a motor geared to the driving clutch-wheel, and a rotary circuit-controller on the drive-shaft, substantially as described.

13. The combination of a drive-shaft, a sector mounted on said shaft, a signal or semaphore arm connected to said sector, a driving clutch-wheel mounted on the shaft, means for locking said driving clutch-wheel to the sector, an electrically-controlled motor, a rotary circuit-connector included in the controlling-circuit of the motor, and a rotary circuit-controller on the drive-shaft, substantially as described.

14. The combination of a drive-shaft, a sector mounted on said shaft, a signal-arm connected to said sector, an electrically-operated lock adapted to hold the sector at certain positions, an operating-motor, with means on the drive-shaft and geared to said motor for operating the signal, said means being capable of immediate driving engagement upon the energizing of the motor irrespective of the position of the sector.

15. In a signal mechanism, the combination of a signal having a bias to danger position, means for shifting said signal, connections including a sector between the signal and the shifting means, a motor for operating the shifting means, a circuit-controller in the motor-circuit for controlling the circuit, said circuit-controller continuously maintaining a closed circuit during the movement of the signal from danger to caution and from caution to clear positions, means for holding the signal at caution position, and a rotary circuit-connector included in the motor-circuit.

16. The combination with a signal having a bias to and automatically held in the danger position, of signal-operating mechanism controlled by the movements of the train, a motor for operating said mechanism, means in the motor-circuit for continuously maintaining the same closed during the shifting of the signal from danger to caution and from caution to clear positions, and means for holding the signal at caution position.

17. In signal-operating mechanism, the combination with the signal having a bias to danger position and automatically held in the danger position, of operating mechanism for said signal, a motor for operating said mechanism to move the signal from danger to caution and from caution to clear positions, with means in the motor-circuit for continuously keeping the same closed during the shifting of the signal from danger to caution and from caution to clear positions, and means for holding the signal at caution and clear positions.

18. In combination with a signal having a bias to danger position, mechanism controlled by train movements to shift the signal from danger to caution and from caution to clear positions, a motor for operating said mechanism, a circuit-controller in the motor-circuit for continuously maintaining a closed circuit during the shifting of the signal from danger to caution and from caution to clear positions, means for holding the signal at caution position, and a rotary circuit-connector included in the motor-circuit.

19. The combination of a drive-shaft, a sector mounted on said drive-shaft, a signal-arm connected to said sector, a driving clutch-wheel mounted on said shaft with recesses or grooves in the side thereof, an electrically-operated lock adapted to connect the sector to the driving clutch-wheel by engagement with said recesses or grooves, and a dash-pot connected to said sector, substantially as described.

20. The combination of a drive-shaft, a sector mounted on said drive-shaft, a signal-arm connected to said sector, a driving clutch-wheel mounted on the drive-shaft, an electrically-operated lock adapted to connect the sector to the driving clutch-wheel, a motor geared to the drive-wheel, and means for adjusting said motor whereby the mesh of the gearing may be varied, substantially as described.

21. In a signal mechanism, the combination with a signal and signal-operating mechanism, of a box or casing for inclosing the signal-operating mechanism, said box or casing having separate compartments with independent openings to each compartment, a base for said box or casing, slotted lugs carried by said base, stay-bolts adjustably mounted in said slotted lugs, and an operating-motor adjustably mounted on one of said stay-bolts, substantially as described.

22. In a signaling mechanism, the combination with a signal and signal-operating mechanism, of a box or casing for inclosing the signal-operating mechanism, a base for said box or casing, slotted lugs carried by said base, stay-bolts adjustably mounted in said slotted lugs, and an operating-motor adjustably mounted on one of said stay-bolts whereby it may be alined with the operating mechanism, substantially as described.

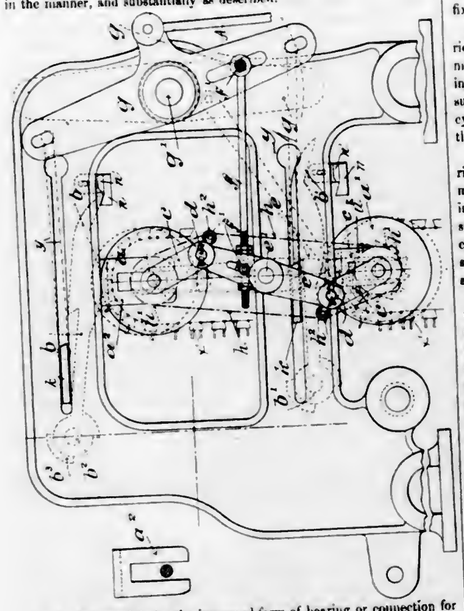
23. In a signaling mechanism, the combination with a signal and signal-operating mechanism, of a box or casing for inclosing the signal-operating mechanism and provided with a separate compartment for inclosing the track-relays, a base for said box or casing, stay-bolts adjustably mounted on said base, a motor for operating the mechanism adjustably mounted on one of said bolts, and a dash-pot adjustably mounted on another of said bolts whereby said motor and dash-pot may be adjusted and alined with the signal-operating mechanism, substantially as described.

683,398. LOOM-DOBBY. JOSEPH HIGHTON, Manchester, England. Filed Mar. 5, 1901. Serial No. 49,850. (No model.)

Claim.—1. In combination in a loom-dobby, and as a means for positively or directly actuating the hooks so as to dispense with the use of feelers or needles, the pattern cylinders or barrels *a*, *a'*, links or levers *c*, *c*, supporting same, pivoted levers *e* rocked from the usual compound levers *g*, said levers and links being surrounded by a chain *A*, said levers *e* being operated to elevate or lower each pattern-barrel as required which in turn work the hooks in the manner, for the purposes, and substantially as described.

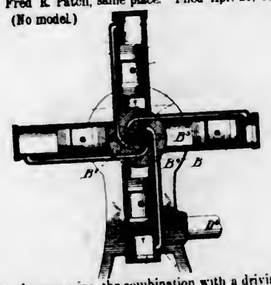
2. In combination, in a loom-dobby in which the cylinders act directly on the hooks, the cylinders *a*, *a'*, pivoted levers *e*, links *c c*, and connecting-rod *f*, the connecting-rod *f* rocking the levers *e*, which in turn control the raising and lowering of the cylinders which operate the hooks, in the manner, and substantially as described.

3. In combination, in a loom-dobby, cylinders *a a'* links *c c* and pivoted levers *e*, the levers *e* being actuated to raise and lower said cylinders which operate the sets of hooks *b b'*, griff-knives *k* for working hooks, and rests *n*, for said hooks when out of action, the combined parts acting, in the manner, and substantially as described.



4. In loom-dobbies the improved form of bearing or connection for securing or stringing together the hooks and balks, balks and jacks, &c., the bearing consisting of a part formed with a trunnion b^3, l^4 and two fins b^3, l^5, the trunnions engaging circular apertures l^2, m^2, and the fins engaging curved recessed slots l^2, m^3, so that in a working position the parts are securely connected together, in the manner and substantially as described.

683,399. ENGINE. WILLIAM A. HILL, Rutland, Vt., assignor of one-half to Fred R. Patch, same place. Filed Apr. 29, 1901. Serial No. 58,026. (No model.)



Claim.—1. In an engine, the combination with a driving-shaft having a series of channels therein, of a series of laterally-disposed cylinders carried thereby and communicating at opposite ends with said channels, pistons within said cylinders, independent connections for each cylinder pivotally secured at opposite ends to said pistons and a fixed point eccentric to the axis of said shaft, and a valve-chest on said shaft to control the feed and exhaust of the channels therein; substantially as specified.

2. In an engine, the combination with a driving-shaft having a series of channels therein, of a series of radially-disposed cylinders carried thereby, pistons within said cylinders, connections between said pistons and a fixed point eccentric to the axis of said shaft, a steam-chest having abutments to form inlet and exhaust chambers surrounding said driving-shaft and adapted to communicate successively with the several passages in said shafts, and channels extending from said shaft directly to the opposite ends of each cylinder; substantially as specified.

3. In an engine, the combination with a driving-shaft having a series of channels therein, of a series of radially-disposed cylinders carried thereby, each having ports at opposite ends thereof, pistons within said cylinders, connections between said pistons and a fixed point eccentric to the axis of said shaft, a steam-chest having cut-off abutments to form inlet and exhaust chambers surrounding said driving-shaft and adapted to communicate successively with the channels in said shaft which communicate with the opposite ends of each cylinder, and means for shifting said fixed point relatively to said shaft; substantially as specified.

4. In an engine, the combination with a driving-shaft having a series of channels therein, of a plurality of radially-disposed cylinders communicating at their opposite ends with said channels, a steam-chest having cut-off abutments to form inlet and exhaust chambers communicating successively with the channels in said shaft, pistons disposed within said cylinders, and means for connecting said pistons to a point eccentric to the axis of said shaft; substantially as specified.

5. In an engine, the combination with a driving-shaft having a series of channels therein, of a plurality of radially-disposed cylinders communicating at their opposite ends with said channels, a steam-chest having cut-off abutments to form inlet and exhaust chambers communicating successively with the channels in said shaft, pistons disposed within said cylinders, studs projecting laterally from said pistons, rods connecting said studs with a rotatably-mounted disk, and means for shifting said disk in a horizontal plane; substantially as specified.

6. In an engine, the combination with a driving-shaft having a series of channels therein, of a plurality of radially-disposed cylinders communicating at their opposite ends with said channels, a steam-chest having inlet and exhaust chambers communicating with the channels in said shaft, pistons disposed within said cylinders, studs projecting from said pistons, rods connecting said studs with a rotatably-mounted disk, a slide-plate upon which said disk is mounted, a pivoted lever connected to said plate, and means for retaining said lever in its adjusted position; substantially as specified.

7. In an engine, the combination with the driving-shaft, of a cylinder disposed radially thereto and having longitudinal opening therein, a piston within said cylinders, a slide-plate over said opening, a stud extending from the piston to said plate, a rod pivotally connected to said stud, and a shifting device pivoted to the opposite end of said rod; substantially as specified.

8. In an engine, the combination with the driving-shaft having a series of longitudinal channels therein, a steam-chest surrounding said shaft and provided at opposite sides with bridge-walls to form inlet and exhaust chambers, a cut-off valve located in said inlet-chamber and adapted to be shifted by the frictional contact with said shaft, and cylinders operatively connected to rotate said shaft; substantially as specified.

9. In an engine, the combination with a driving-shaft having a series of channels therein, a plurality of radially-disposed cylinders secured to said shaft, passages extending from said channels to the inner end of one cylinder and the outer end of an opposite cylinder, pistons in said cylinders operatively connected to rotate said shaft, and a valve-chest surrounding said shaft to alternately feed and exhaust each passage leading to the cylinders; substantially as specified.

10. In an engine, the combination with a driving-shaft having a series of channels therein, a plurality of radially-disposed cylinders secured to said shaft, passages extending from said channels to the inner end of one cylinder and the outer end of an opposite cylinder, a steam-chest surrounding said shaft and provided with inlet and exhaust chambers, pistons in said cylinders, rods extending from said pistons to a rotatable disk, and means for shifting said disk into a position either eccentric or concentric to the axis of said shaft; substantially as specified.

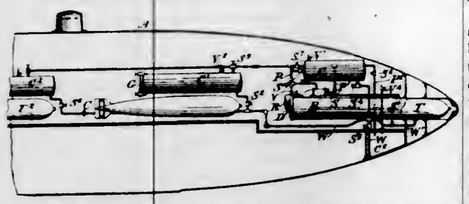
11. In an engine, the combination with a driving-shaft having a series of channels therein, a plurality of radially-disposed cylinders secured to said shaft, passages extending from said channels to the inner end of one cylinder and the outer end of an opposite cylinder, a steam-chest surrounding said shaft and provided with inlet and exhaust chambers, pistons in said cylinders, rods extending from said pistons to a rotatable disk, a slide-plate upon which said disk is mounted, and a pivoted controlling-lever adapted to shift said slide in a horizontal plane; substantially as specified.

12. In an engine, the combination with a driving-shaft having a series of channels therein, a plurality of radially-disposed cylinders secured to said shaft, passages extending from said channels to the inner end of one cylinder and the outer end of an opposite cylinder, a steam-chest surrounding said shaft and provided with inlet and exhaust chambers, pistons in said cylinders, rods extending from said pistons to a rotatable disk, a slide-plate upon which said disk is mounted, and a disconnected cut-off valve located in the inlet-chamber of said steam-chest and adapted to be shifted by frictional contact with the driving-shaft when the direction of rotation of the same is reversed; substantially as specified.

683,400. SUBMARINE BOAT. JOHN P. HOLLAND, Newark, N. J., assignor to Electric Boat Company, of New Jersey. Filed Apr. 26, 1900. Serial No. 14,482. (No model.)

Claim.—1. The combination with a submarine boat provided with

an expulsion-tube, of a tank or receptacle connected with said tube, and capable of holding a volume of water sufficient to completely fill the expulsion-tube when the latter contains a torpedo.



2. The combination with a submarine boat provided with an expulsion-tube, of a tank or receptacle connected therewith, and capable of holding a volume of water sufficient to fill said tube when it contains a torpedo, the center of volume of said tank being at the same distance from the center of buoyancy of the boat as is the center of volume of the space in said tube around the torpedo.

3. The combination with a submarine boat provided with an expulsion-tube, of a tank or receptacle connected therewith, and capable of holding a volume of water sufficient to fill said tube when it contains a torpedo, and means for transferring the contents of said tank to the expulsion-tube and vice versa, without altering the total weight of the boat, or disturbing its longitudinal trim.

4. The combination with a submarine boat, provided with an expulsion-tube, of a tank or receptacle located adjacent to said tube with its center of volume at the same distance from the center of buoyancy of the boat as that of the space around a torpedo in the tube, the capacity of said tank being equal to said space, valved pipes connecting said tank and tube, a source of compressed air, and valved pipes connecting said source with the tank and the tube.

5. The combination with a submarine boat provided with an expulsion-tube, of compensation-tanks each capable of holding a volume of water equal in weight to a torpedo and arranged with its center of volume at the same distance from the center of buoyancy of said boat as that of the corresponding torpedo, one of said tanks being situated above and over the expulsion-tube and the others at the sides of the boat over the respective spare torpedoes.

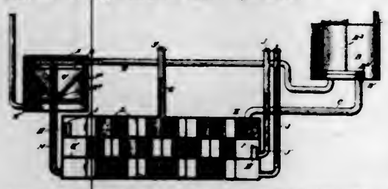
6. The combination with a submarine boat, provided with an expulsion-tube, of a compensation-tank capable of holding a volume of water equal to that displaced by a torpedo, said tank being connected with the expulsion-tube, exterior thereto, and lying with its center of volume at the same distance from the center of buoyancy as that of the torpedo when in the expulsion-tube.

7. The combination with a submarine boat provided with an expulsion-tube, of a compensation-tank adjacent to said tube, one or more spare torpedoes, a compensation-tank adjacent to each spare torpedo, and means for transferring water from said expulsion-tube to the transfer-tank, and thence to a compensation-tank.

8. The combination with a submarine boat provided with an expulsion-tube, of two tanks adjacent to said tube, whose combined capacities equal that of the tube, one or more spare torpedoes, a compensation-tank adjacent to each spare torpedo, a source of compressed air, and valved pipes for transferring the water which fills the expulsion-tube after firing, to the two adjacent tanks, and from one of them to a compensation-tank when the corresponding torpedo is being loaded.

9. The combination with a submarine boat provided with an expulsion-tube, of one or more spare torpedoes, a compensation-tank adjacent to each torpedo, and a gage-tube on each tank to indicate to the gunner the rate at which the compensation-tank is filling and the corresponding speed with which the torpedo should be moved forward.

683,401. CARBURETER. WILLIAM P. HOUZE, Paris, Tenn. Filed Oct. 16, 1900. Serial No. 33,210. (No model.)



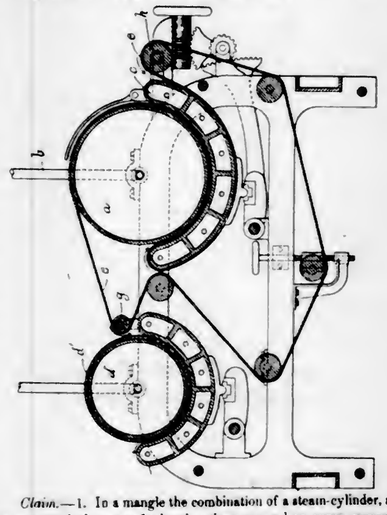
Claim.—1. In a carbureter, the combination of a carbureting-chamber, a mixer and equalizer, an air-receptacle in the air-supply to the carbureting-chamber communicating with the mixer and equalizer, and means in the air-receptacles for relatively increasing the supply of air to the carbureting-chamber and decreasing the supply to the mixer and equalizer, substantially as described.

2. In a carbureter, the combination of a carbureting-chamber, a mixer and equalizer, an air-receptacle in the air-supply to the carbureting-chamber communicating with the mixer and equalizer, and a valve located in the air-receptacle controlling the communications with the carbureting-chamber and with both the mixer and equalizer and adapted to relatively increase the supply of air to the carbureting-chamber and decrease the supply to the mixer and equalizer substantially as described.

3. In a carbureter the combination of a carbureting-chamber, a mixer and equalizer, an air-supply communicating with both the carbureting-chamber and the mixer and equalizer, and a single mechanism for controlling the communication of the air-supply with both the carbureting-chamber and the mixer and equalizer, whereby upon the operation of the single controlling mechanism the supply to the carbureting-chamber can be relatively decreased and the supply to the mixer and equalizer relatively increased, substantially as described.

4. In a carbureter, the combination of a carbureting-chamber, a mixer and equalizer, an air-receptacle communicating with the carbureting-chamber and with the mixer and equalizer, a rotatable valve in said air-receptacle having a plurality of pairs of ports, and adapted by the rotation thereof, to cause one port of a pair to register with the communication to the carbureting-chamber and the other port of the pair to register with the communication with the mixer and equalizer, and means for indicating the position of the valve, substantially as described.

683,402. MANGLE. CHARLES R. HOTT, Arlington, Mass., assignor to Empire Laundry Machinery Company, Portland, Me. Filed Aug. 24, 1900. Serial No. 27,921. (No model.)

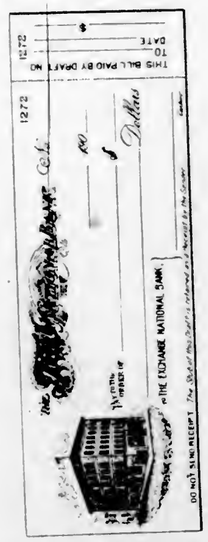


Claim.—1. In a mangle the combination of a steam-cylinder, a concavo-convex bed, means for heating the same and an apron arranged to travel against the convex surface of the bed and to pass thence between the bed and the cylinder and around the cylidner whereby the piece to be ironed may be carried by the apron in contact with both faces of the bed while the moisture is being simultaneously expelled from the apron by contact with the heated surface of the cylinder substantially as described.

2. In a mangle the combination of the unjacketed cylinder, the concavo-convex bed, means for heating said cylinder and said bed, a secondary cylinder, a concave bed coöperating therewith, and an apron arranged to travel over both surfaces of the first bed and around its coöperating cylinder and to deliver the piece being ironed to the second cylinder and bed substantially as described.

3. In a mangle the combination of the ironing-bed adapted to be heated and its coöperating unjacketed cylinder and means for heating said cylinder, a roll *g*, a secondary cylinder provided with a felt jacket, a heated bed arranged beneath said secondary cylinder to coöperate therewith, and an apron of felt arranged to pass between the first cylinder and its coöperating bed and around said cylinder and around the roll *g* substantially as described.

683,403. BANK-DRAFT. MANIE HYMAN, Denver, Colo. Filed Apr. 6, 1901. Serial No. 54,748. (No model.)



Claim.—1. A bank-draft or similar instrument employed in the payment of bills by mail, said instrument being provided with a detachable coupon containing data referring to the bill paid by the draft, and also data identifying the draft, the body of the draft containing data referring to the object of the coupon and containing instructions for the receiver of the draft.

2. A bank-draft or similar instrument, having a detachable coupon gummed on the back and containing on its face, data referring to the bill or invoice to be paid by the draft, and data identifying the draft, the body of the draft containing data referring to the object of the coupon and containing instructions for the receiver of the draft.

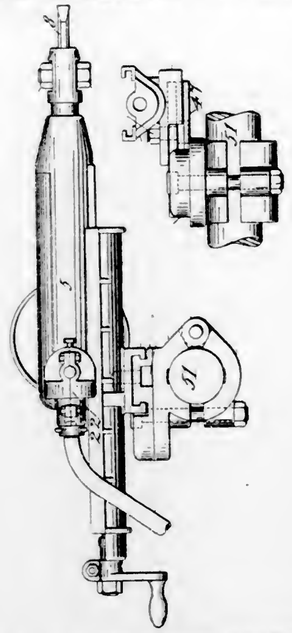
683,404. ROCK-DRILLING MACHINE. MANETHO C. JACKSON, Denver, Colo., assignor, by direct and mesne assignments, to the Gardner Electric Drill and Machinery Company, same place. Filed Dec. 20, 1899. Serial No. 741,031. (No model.)

Claim.—1. In a drill, the combination with a casing and a turning-drill and drill-shaft, of a yoke in axial alinement with the shaft, means for reciprocating the yoke, a sliding connection between the shaft and yoke, means for preventing the rotation of said yoke, stops on said shaft to the front and the rear of said sliding connection and a spring interposed between each stop and said connection, substantially as described.

2. In a rock-drilling machine, the combination with a guide-shell and suitable drilling mechanism mounted thereon, of a supporting-bar, a clamp embracing the bar, a plate bolted to the clamp and provided with a slot extending parallel with the bar, the guide-shell being provided with a depending part having an opening registering with the slot in the plate, and a bolt passing through the said opening and the said slot, the bolt being secured by a nut so that by loosening the nut the guide-shell and the machine supported thereon, may be shifted in a direction parallel with and independently of the supporting-bar without loosening the clamp on said bar.

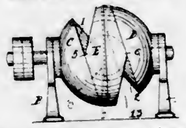
3. In a rock-drilling machine, the combination with a guide-shell and a suitable drilling mechanism mounted thereon, of a supporting-bar, a clamp embracing the bar, a plate bolted to the clamp and provided with a slot extending parallel with the bar, and a groove extending parallel with but larger than the slot, a part mounted on the guide-shell and coöperating with the plate, the said part having an opening registering with the slot of the plate, and a bolt passing through the slot and the opening in the coöperating part of the guide-shell, the head of the bolt engaging the groove in the plate, whereby as the nut is loosened the guide-shell may be shifted in a line parallel with the supporting-bar without loosening the clamp on the bar or moving the latter.

4. The combination with a guide-shell and drill mechanism mounted thereon, the guide-shell having an integral apertured depending part, a supporting-bar, a clamp attached to the bar, a plate attached to the clamp and having a slot extending parallel with the bar, the depending part of the shell being fashioned to interlock with said plate and slide thereon, the aperture in the shell part registering with the slot in the plate.



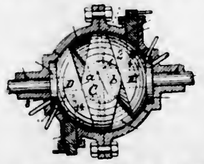
5. In a percussive drill, the combination of an inclosing shell, a drill-shaft guided therein, a sliding yoke having a resilient connection with the drill-shaft, and a crank-shaft mounted in the shell and connected to said yoke by means of a slot therein, said slot being curved as described to permit the crank to impart a quick forward movement and a relatively slow retractile movement to the yoke and drill-shaft as the crank rotates through the forward and backward strokes, respectively.

683,405. MECHANICAL MOVEMENT. FREDERICK W. JAEGER, New York, N. Y. Filed Dec. 24, 1900. Serial No. 40,856. (No model.)



Claim.—A mechanical movement comprising a sphere, a projecting abutment placed on each side of said sphere, and a double-nosed oscillating disk pivotally mounted on said sphere and having its projecting noses engaging with the coned surfaces of the abutments, whereby all points of said disk move in an arc with the pivot as a center while following the surfaces of the abutments, substantially as described.

683,406. DISCOIDAL ENGINE. FREDERICK W. JAEGER, New York, N. Y. Filed Feb. 7, 1901. Serial No. 46,307. (No model.)



Claim.—1. In an apparatus of the character specified, the combination of a casing, a shaft extending through said casing and rotatably mounted, a piston pivotally connected to oscillate about an axis at an angle to the shaft, and abutments on the sides of said piston engaged thereby; the adjacent or contacting surfaces of the piston and abutments being

formed to run together and relatively forming by means of projecting constituent noses a plurality of pockets on the sides of the piston gradually increasing and decreasing in volume on the same side of the piston during the cycle.

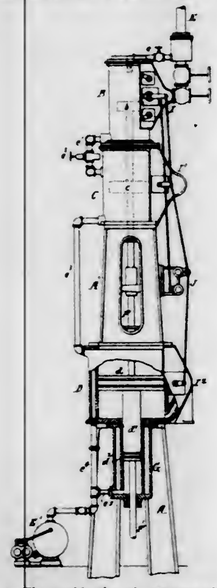
2. In an apparatus of the character specified, the combination of a casing, a shaft extending through said casing and rotatably mounted, a piston pivotally connected to oscillate about an axis at an angle to the shaft, and abutments on the sides of said piston engaged thereby; the surfaces of the piston adjacent to the abutments having projecting constituent noses contacting with the abutments and forming a plurality of pockets on the sides of the piston gradually increasing and decreasing in volume on the same side of the piston during the cycle.

3. In an apparatus of the character specified, the combination of a casing, a shaft extending through said casing and rotatably mounted, a piston pivotally connected to oscillate about an axis at an angle to the shaft, abutments on the sides of said piston engaged thereby; the adjacent or contacting surfaces of the piston and abutments being formed to run together and relatively forming by means of projecting constituent noses a plurality of pockets on each side of the piston gradually increasing and decreasing in volume on the same side of the piston during the cycle, and means for reversing the direction of motion of the piston.

4. In an apparatus of the character specified, the combination of a casing, a shaft extending through said casing and rotatably mounted, a piston pivotally connected to oscillate about an axis at an angle to the shaft, abutments on the sides of said piston engaged thereby; the adjacent or contacting surfaces of the piston and abutments being formed to run together and relatively forming by means of projecting constituent noses a plurality of pockets on each side of the piston gradually increasing and decreasing in volume on the same side of the piston during the cycle, and means for supplying and exhausting fluid from the pockets.

5. In an apparatus of the character specified, the combination of a casing, a shaft extending through said casing and rotatably mounted, a discoidal piston having an arched periphery engaging with a corresponding internal arched surface of the casing and pivotally connected to oscillate about an axis at an angle to the shaft, and abutments on the sides of said piston engaged thereby; the adjacent or contacting surfaces of the piston and abutments being formed to run together and relatively forming by means of projecting constituent noses a plurality of pockets on the sides of the piston gradually increasing and decreasing in volume on the same side of the piston during the cycle.

683,407. VERTICAL DIRECT-ACTING ENGINE. HERMAN A. JENSENIUS, Camden, N. J., assignor to the Camden Iron Works, same place. Filed Jan. 26, 1901. Serial No. 44,359. (No model.)



Claim.—1. The combination of a steam-engine having one or more cylinders vertically arranged, said cylinders being jacketed, another cylinder having its interior connected by piping to the jackets of the above-mentioned cylinders, a plunger in said other cylinder operatively connected to the pistons of said cylinders, the steam from said jackets acting on the plunger in said cylinder to counterbalance the weight of the unbalanced moving portions of the engine, substantially as described.

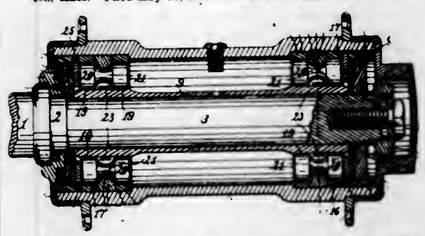
2. The combination in a triple-expansion engine having the cylinders vertically arranged, of the three cylinders, each cylinder being jacketed, pipes forming communication between the several jackets of the cylinders, a cylinder under the lowermost cylinder and connected by piping to the jackets of the engine-cylinders, a plunger extending from the piston of the lowermost cylinder and working in the cylinder communicating with the jackets said plunger being actuated by steam from said jackets to counterbalance the weight of the unbalanced moving portions of the engine, substantially as described.

3. The combination in a triple-expansion engine having the cylinders vertically arranged, of the three cylinders, one mounted above another, each cylinder being jacketed, a steam-supply pipe, a pipe leading from the steam-supply pipe to the jacket of the high-pressure cylinder, a pipe communicating the jacket of the high-pressure cylinder with the jacket of the intermediate cylinder, a pipe forming communication between the jacket of the intermediate cylinder with the jacket of the low-pressure cylinder, a pipe leading from the jacket of the low-pressure cylinder and connected to a suction-pump, a cylinder secured to the under side of the low-pressure cylinder and connected to the pipe leading to the pump or trap, a piston for each of the high, intermediate and low pressure cylinders, said pistons being connected together, a plunger connected to the low-pressure piston and working in the cylinder coupled to the jackets, and a rod coupling the said plunger to the pumping mechanism, substantially as described.

4. The combination in a triple-expansion engine having the cylinders vertically arranged, of the three cylinders one mounted above another, each cylinder being jacketed, a steam-supply pipe, pipes connecting the several cylinders, a pipe leading to a pump or trap, a cylinder under the lowermost cylinder of the series, a plunger in said cylinder for counterbalancing the unbalanced moving parts of the engine, said cylinder being connected to the jackets of the engine-cylinders, and a reducing-valve for regulating the pressure of steam in the counterbalancing-cylinder, substantially as described.

5. The combination in a steam-engine, having one or more cylinders vertically arranged, said cylinders being jacketed, a cylinder connected by piping to the jackets of the engine-cylinders, and a plunger in said cylinder coupled to the pump-rod and to one of the engine-pistons, substantially as described.

683,408. ANTIFRICTION-BEARING. DANIEL E KEMPSTER, Boston, Mass. Filed May 10, 1900. Serial No. 16,222. (No model.)



Claim.—1. A casing, a series of annularly-grooved load-sustaining rolls therein, ball-separators entering the grooves in the rolls and alternating with the rolls to separate each roll from the next roll in the series, a ring forming an inner track for the ball-separators, entering the grooves in the rolls and preventing the separators from moving inward, and an annular rib carried by the casing, forming an outer track for the ball-separators, preventing them from moving outward, entering the grooves in the rolls and preventing endwise movement of the rolls in relation to the casing, for the purpose set forth.

2. A casing, a series of annularly-grooved load-sustaining rolls, separators entering the grooves in the rolls alternating with the rolls to separate each roll from the next roll in the series, removable bushings placed within the casings forming outer tracks for the rolls which may be easily removed when desired and an intermediate removable bushing inserted with the other bushings forming an internal projecting retaining-rib entering the grooves in the rolls to prevent endwise displacement of the rolls and forming an outer track for the separators, for the purpose set forth.

3. A casing, a series of annularly-grooved rolls at each end of the casing, tracks for the rolls within the casing, separators at each end of the casing entering the grooves in the rolls alternating with the rolls to separate each roll from the next roll of the series, a retaining-rib projecting inwardly from the interior of the casing entering the grooves in a series of rolls to prevent endwise displacement of the rolls in relation to the casing, and end-thrust washers secured to the interior of the casing and projecting inwardly therefrom to prevent endwise moving of the casing in relation to a journal upon which the rolls travel, for the purpose set forth.

4. A journal, a casing, a series of annularly-grooved rolls at each end of the casing, tracks for the rolls upon the interior of the casing, separators entering the grooves in the rolls alternating with the rolls to separate each roll from the next roll in the series, an annular inwardly-projecting rib on the interior and at each end of the casing entering the grooves in the rolls to prevent endwise displacement of the rolls in relation to the casing, end-thrust washers secured to the interior of the casing and projecting inwardly therefrom to prevent endwise movement of the casing in relation to the journal, and means to adjust the end-thrust washers to take up wear, for the purpose set forth.

5. A journal, a casing, an antifriction-bearing contained therein, end-thrust washers within the casing to prevent endwise movement of the casing upon the journal, and means to adjust the end-thrust washers to take up wear, consisting of a collar on the journal, a second collar screwed upon the journal having locking projections, a cup-washer splined upon the journal also having locking projections interlocking with the projections on said collar, and means to hold the said projections in engagement with each other, for the purpose set forth.

6. In an antifriction-bearing, annularly-grooved rolls, an outer tubular casing counterbored at its ends, removable bushings placed within the counterbored portion forming tracks for the rolls and projecting ribs to enter the grooves in the rolls, the rib-forming bushing held in place by the track-forming bushings and the rib-forming bushing holding the rolls from longitudinal movement and means to retain said bushings within said counterbored portion of the casing, for the purpose set forth.

7. In an antifriction-bearing, an outer casing, series of rolls, separators therefor, combined with tracks for the rolls and separators formed by a plurality of introduced bushings of uniform outer diameters and of proper inner diameters to hold the rolls and separators in proper relation to each other, and means for securing said bushings in place within the casing, for the purpose set forth.

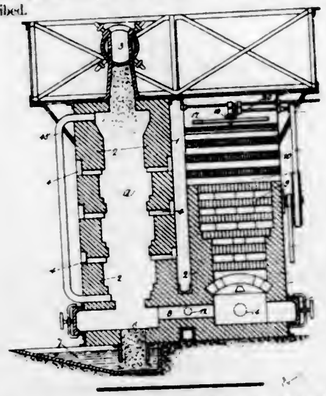
8. In a roller-bearing, a series of rolls provided midway their ends with an annular groove, a series of ball-separators one between each two of the rolls, entering the grooves in the rolls, an inner and an outer track for the separators also entering the grooves in the rolls and holding said separators in such positions relative to the rolls that they separate that a plane passing longitudinally through the axes of the rolls will also pass through the center of rotation of the separator which is between said rolls, for the purpose set forth.

9. In a roller-bearing, a casing, series of load-sustaining annularly-grooved rolls therein, tracks for said rolls within said casing, washers forming cylindrical chambers at the ends of the casing within which the rolls are located, internally-projecting ribs in the casing entering the grooves in the rolls to hold said rolls in position in relation to said casing, a shaft or journal, tracks for the rolls carried by the shaft or journal, collars on said shaft or journal, and antifriction-washers between said collars and the washer on the casing, for the purpose set forth.

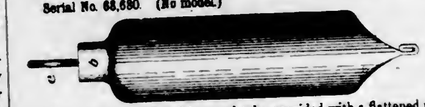
10. In a roller-bearing, a casing, series of load-sustaining annularly-grooved rolls therein, tracks for the rolls within said casing, washers within the ends of said casing forming cylindrical chambers at the ends of the casing within which the rolls are located, internally-projecting ribs within the casing entering the grooves in the rolls to hold them in proper position in relation to the casing, a shaft or journal, tracks for the rolls carried by said shaft or journal, collars on the shaft or journal, antifriction-washers between said collars and the washers on the casing, means to adjust the tracks upon the shaft or journal, and means to adjust the antifriction-washers, for the purpose set forth.

683,409. PROCESS OF MAKING GAS. HOWARD LANE, Birmingham, England. Filed July 9, 1901. Serial No. 67,632. (No specimens.)

Claim.—The herein-described process of making gas, consisting in introducing an air-blast beneath the raw fuel, forcing the gaseous products of combustion downward through the burning fuel located beneath the raw fuel, causing the gaseous products after leaving the burning fuel to flow upward to heat checker-work in a regenerator-chamber, furnishing a supply of air to the gaseous products of combustion before they reach the regenerator in order to complete combustion, then cutting off the air-supply and generating steam by causing water to contact in the form of spray with the highly-heated checker-work, passing this steam downward and scouring out the remnant of the gaseous products of combustion by the steam generated on the introduction of the water-spray, passing the superheated steam after scouring into and up through the coked and raw fuel, the superheated steam being decomposed into its constituent gases and the raw fuel being subjected to destructive distillation by the upward-flowing gases, the new gaseous products being formed by the admixture of the vapor with the upward-flowing gases, substantially as described.



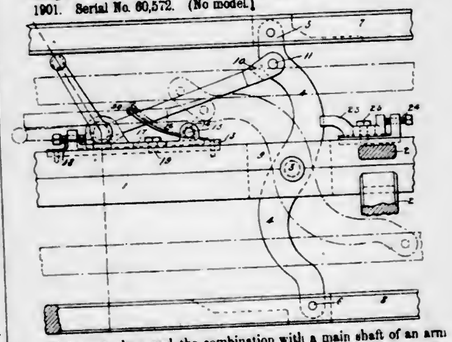
683,410. COLLAPSIBLE TUBE FOR CONTAINING SEMILIQUID SUBSTANCES. OSCAR MUSHNAN, New York, N. Y., assignor to Denison Manufacturing Company, Boston, Mass. Filed July 17, 1901. Serial No. 68,680. (No model.)



Claim.—1. A collapsible metal tube provided with a flattened rigid nozzle having a discharge-aperture and adapted to serve as a brush for spreading the contents of the tube, in combination with a pin provided with a head and serving as a seal or stopper.

2. A collapsible metal tube provided with a flattened rigid nozzle having a discharge-aperture and adapted to serve as a brush for spreading the contents of the tube, in combination with a pin provided with a head and serving as a seal or stopper, said pin extending down into the liquid contents of the tube.

683,411. REEL-LATCH. WILLIAM L. NORDEN, Hillsgrove, R. I., assignor of one-half to Svan B. Swanson, same place. Filed May 16, 1901. Serial No. 60,572. (No model.)

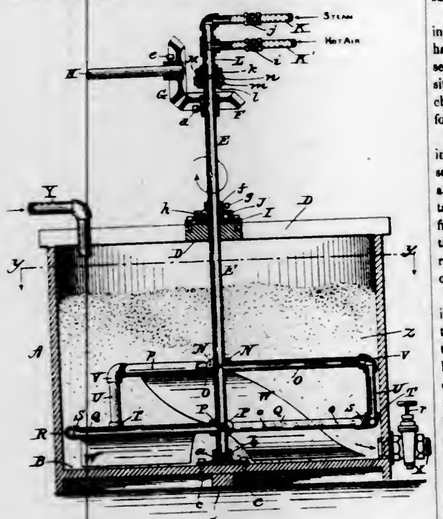


Claim.—1. In a reel, the combination with a main shaft of an arm pivotally mounted in said shaft, slats on either side of the shaft pivotally secured to the ends of said arm, a latch pivoted at one end to the arm, a lever-stud against whose surface the free end of the latch normally rests, a projection upon the lever-stud, normally contacting with the end of the latch, and means for turning the lever-stud.

2. In a reel, the combination with a main shaft of an arm pivotally mounted in said shaft, slats on either side of the shaft pivotally secured to the ends of said arm, a latch pivoted at one end to the arm, a lever-stud against whose surface the free end of the latch normally rests, a projection upon the lever-stud, normally contacting with the end of the latch, a spring bearing upon the trip-lever, and means for turning the lever-stud.

3. In a reel-latch, the combination of an axial arm pivotally mounted in the main shaft, a channeled dog also mounted thereon, a lever-stud mounted in said dog, a projection upon the lever-stud surface, and a latch pivoted at one end to the axial arm and normally bearing upon the surface of the lever-stud in the channel of the dog.

683,412. ORE-SEPARATOR. ADELBERT J. PERRY, Providence, R. I. Filed Apr. 30, 1901. Serial No. 58,205. (No model.)



Claim.—1. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, a vertical steam-pipe rotatably mounted in said receptacle by proper supports and having its lower end closed, means adapted to impart a rotary movement to said pipe, radial horizontal pipes opening from said vertical pipe and provided with perforations, radial arms extending horizontally from said vertical pipe, inclined blades or scrapers supported by said radial arms and extending close to the bottom of said receptacle, an inlet-pipe in the top of said receptacle, and an outlet-pipe extending from said receptacle at or near the bottom thereof, substantially as shown.

2. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, a vertical steam-pipe centrally mounted in said receptacle by proper supports and having its lower end closed, means adapted to impart a rotary movement to said pipe, a series of radial horizontal pipes opening from said vertical pipe, a second series of radial horizontal pipes opening from said vertical pipe and arranged in a plane below said first series and parallel therewith and provided with perforations, a circular pipe into which the radial pipes of said second series open, a plurality of vertical pipes connecting the radial pipes of the first series with said circular pipe, an inclined scraper or blade mounted on each of said upper radial pipes and supported by the companion lower radial pipe and extending close to the bottom of said receptacle, an inlet-pipe in the top of said receptacle, and an outlet-pipe extending from said receptacle at or near the bottom thereof, substantially as described.

3. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, a vertical pipe centrally mounted in said receptacle by proper supports and having its lower end closed, means adapted to impart a rotary movement to said vertical pipe, a pipe adapted to supply to said pipe steam under pressure from a proper source, a pipe adapted to supply hot air from a proper source to the said first-named pipe, a series of radial horizontal pipes opening from said vertical pipe, a second series of radial horizontal pipes opening from said vertical pipe and arranged in a plane below said first series and parallel therewith and provided with perforations, a circular pipe into which the radial pipes of said second series open, a plurality of vertical pipes connecting the radial pipes of the first series with said circular pipe, an inclined scraper or blade mounted on each of said upper radial pipes and supported by the lower companion radial pipe and extending close to the bottom of said receptacle, an inlet-pipe in the top of said receptacle, and an outlet-pipe extending from said receptacle at or near the bottom plane thereof, substantially as specified.

4. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, a vertical pipe centrally mounted in said receptacle by proper supports and having its lower end closed, means adapted to impart a rotary movement to said vertical pipe, a pipe adapted to supply to said pipe live steam from a proper source, a pipe adapted to supply hot air from a proper source to the first said pipe, a series of radial horizontal pipes opening from said vertical pipe and provided with perforations, means adapted to agitate and stir said pulverized ore, an inlet-pipe adapted to discharge a chemical solution in said pulverized ore, and an outlet-pipe extending from said receptacle at or near the bottom end thereof, substantially as set forth.

5. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, a rotatable agitator mounted in said receptacle and having a series of radial horizontal pipes perforated at one side thereof, a series of scrapers or blades mounted on said agitator and inclined opposite of the perforations of said pipe, and a rotatable pipe adapted to discharge a mixture of steam and air, from a proper source, through the perforations of said pipe into said pulverized ore, as set forth.

6. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, an agitator mounted in said receptacle and having a series of radial horizontal pipes each provided with a series of perforations at one side thereof, a series of scrapers or blades mounted on said agitator, a pipe adapted to supply to said agitator a mixture of steam and air from a proper source, and means adapted to rotate said agitator whereby the discharge of steam and air through the perforations of said pipes is directed toward the rear while the said scrapers or blades are moving in the opposite direction, as set forth.

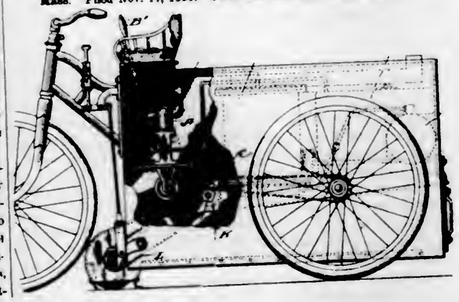
7. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, an agitator having a series of radial horizontal pipes integral therewith and provided each with a series of perforations at one side thereof, a series of blades carried by said agitator each of which blades bears against the side opposite the perforations of said pipes, a vertical pipe centrally mounted and rigidly secured to said agitator and communicating with each of the perforated pipes of the same, a pipe adapted to supply to said vertical pipe steam from a proper source, a pipe adapted to supply to said vertical pipe hot air from a proper source, with means adapted to impart a rotary motion to said vertical pipe, so constructed and arranged that the steam and hot air are discharged in jets through the perforations of said horizontal pipes into said pulverized ore while the blades are moving in the opposite direction, substantially as shown and described.

8. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, an agitator adapted to impart motion to said pulverized ore in said receptacle, an inlet-pipe in the top of said receptacle, an outlet-pipe extending from said receptacle at or near the bottom thereof, a steam-pipe adapted to discharge steam into said pulverized ore, and a pipe adapted to supply to said steam-pipe hot air from a proper source, substantially as described.

9. In a leaching apparatus, the combination of a receptacle for holding pulverized ore, an agitator adapted to impart motion to said pulverized ore in said receptacle, an inlet-pipe in the top end of said receptacle, an outlet-pipe extending from said receptacle at or near the bottom thereof, a perforated steam-pipe adapted to discharge steam into said pulverized ore, and a pipe adapted to discharge hot air under pressure into said steam-pipe, substantially as specified.

10. The improved leaching apparatus herein described, consisting of the tub A having the outlet-pipe X and the inlet-pipe Y, the pipes K and K' having the valves *j* and *i*, respectively, said pipes communicating with the branch pipe L, the vertical pipe E having a flange *m* and a closed lower end, the coupling M attached to the pipe L and having the annular flange *l*, the hub N upon the pipe E having four side openings, the pipes *o* inserted in said hub N, the hub P upon the pipe E having four side openings, the perforated pipes Q inserted in said hub P, the circular pipe R having the branches S into which the pipes Q, respectively, enter and also having the branches T, the pipes U entering the branches T, the elbows V connecting the pipes U and the pipes O, the curved inclined blades or scrapers W mounted on the pipes O, respectively, the shaft H rotatable by power and having the beveled gear G, and the beveled gear upon the pipe E and engageable with the beveled gear G, all combined and operating substantially as shown and for the purpose specified.

683,413. STREET-SWEEPER. ANDREW J. REYBOLDS, Boston, Mass. Filed Nov. 17, 1899. Serial No. 737,336. (No model.)



Claim.—1. In a tricycle-sweeper, a framework, the driving-chain for the tricycle, the intermediate gear-wheel driven by the chain, a brush carried by a rotating shaft mounted in the framework, and an elastic belt between said brush-shaft and the shaft of the driven gear-wheel, said brush-shaft being supported in pivoted arms.

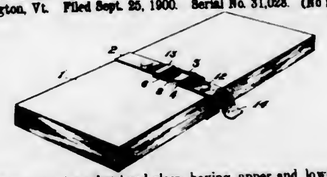
2. In a tricycle-sweeper, a framework, the driving-chain for the tricycle, the intermediate gear-wheel driven by the chain, a brush carried by a rotating shaft mounted in the framework, and an elastic belt between said brush-shaft and the shaft of the driven gear-wheel, said brush-shaft being supported in pivoted arms, and a handle for raising or lowering the arms and brush.

3. In a tricycle-sweeper, a framework, the driving-chain for the tricycle, the intermediate gear-wheel driven by the chain, a brush carried by a rotating shaft, and an elastic belt between said brush-shaft and the shaft of the driven gear-wheel, said brush-shaft being supported in pivoted arms, a handle for raising or lowering the arms and brush, and devices for holding the brush and its shaft in either an operative or an inoperative situation.

4. In a sweeper, a framework, the driving-chain, the intermediate shaft driven directly by said chain, a brush carried by a rotating shaft mounted in the framework, said brush-shaft being supported in pivoted arms, an elastic belt between said brush-shaft and the driven shaft, and means for varying the speed of the brush without changing the speed of the driven shaft.

5. In a sweeper, a framework, the driving-chain, the intermediate shaft driven directly by said chain, a brush carried by a rotating shaft mounted in the framework, said brush-shaft being supported in pivoted arms, an elastic belt between said brush-shaft and the driven shaft, belt-wheels of different sizes loose on said driven shaft and operating to drive said brush-shaft, and means for fixing either of said wheels to the driven shaft at will.

683,414. CLASP FOR FILE-BANDS. EDWARD L. SIBLEY, Bennington, Vt. Filed Sept. 25, 1900. Serial No. 31,028. (No model.)

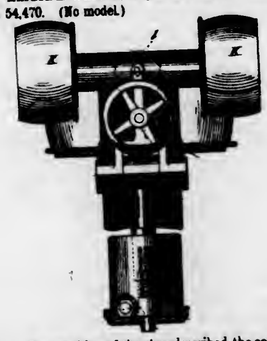


Claim.—1. A packet-band clasp having upper and lower frames, the frames being hinged together at their rear ends, and the upper frame having a lifter hinged thereto, substantially as and for the purpose set forth.

2. A clasp comprising an upper and a lower rectangular frame, the rear end of the lower frame being formed by the hinged bar of the upper frame, and the front of the upper frame by the hinged bar of the lifter, substantially as and for the purpose set forth.

3. The combination with a clasp comprising two superposed rectangular frames hinged together at their rear ends, and a lifter-bar hinged to the front end of the upper frame, of a packet-band one terminal portion of which is secured to the rear end of the frames and the other terminal portion formed with a loop through which the lifter-bar extends, substantially as and for the purpose set forth.

683,415. MACHINE FOR NUTTING AND FACING WAGON-SKEINS. ARTHUR L. WARNER, Carpentersville, Ill. Filed Apr. 5, 1901. Serial No. 54,470. (No model.)



Claim.—1. In a machine of the class described, the combination with a cutter-head of means for rotating said cutter-head, means upon said cutter-head for first rotating and then facing a nut and a tapered guide on said cutter-head, said guide having a vertically-cut-away portion to receive an end of said nut rotating and facing means, substantially as described.

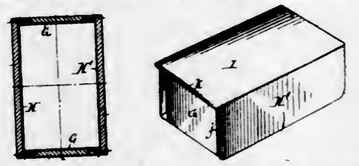
2. In a machine for nutting and facing wagon-skeins and the like, the combination with a cutter-head, of a central tapered guide-pin yieldingly mounted within said cutter-head, a pair of cutters mounted upon said cutter-head, vertical grooves upon the face of said guide-pin, constructed to receive one end of each of said cutters, and means for rotating said cutter-head, substantially as described.

3. In a machine for nutting and facing wagon-skeins and the like, the combination of a cutter-head, means upon said cutter-head for engaging the face of a nut, screwing the same home and then facing the same, means for rotating said cutter-head, and means for non-rotatively supporting a wagon-skein and for raising the same until the screw-threaded end thereof, with a nut mounted thereon, is brought in contact with said cutter-head, substantially as and for the purpose described.

4. In a machine of the class described, the combination with a cutter-head, having slots within the face thereof, of clamping-bolts mounted in said cutter-head transversely of said slots, slots in said bolts, cutter-bars seated within the slots in said cutter-head and within the slots in said bolts, means for tightening said bolts against said cutter-bars, whereby said cutter-bars are clamped between the opposing walls of said bolt-slots and said cutter-head slots, means for bringing the screw-threaded end of a skein with a nut mounted thereon in engagement with said cutter-head, and means for causing said cutter-head and said skein to rotate relatively whereby said nut is first screwed upon said skein and is then faced, substantially as described.

5. In a machine of the class described, the combination with a cutter-head, of a tapered guide on said cutter-head, means engaging said guide and mounted upon said cutter-head for engaging and then facing a nut, means for holding a nut against said nut engaging and facing means, and means for causing a relative rotation between the cutter-head and the nut to be faced, substantially as described.

683,416. PACKING-CASE FOR BUTTER, &c. FRANK E. WATTLES, Buffalo, N. Y. Filed Oct. 12, 1900. Serial No. 32,845. (No model.)



Claim.—1. The combination with a box having end and side walls, of a lining constructed of a single sheet and having a bottom piece, two end pieces arranged on opposite sides of the bottom piece, and flaps arranged along the vertical edges of the end and side pieces, the flaps on the adjacent edges of the end and side pieces being continuous and lapped against each other and secured between the edges of the end and side walls of the box, thereby forming inclined folds at the lower ends of the overlapping flaps, substantially as set forth.

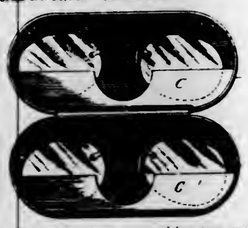
2. The combination with a box having end and side walls, of a lining constructed of a single sheet and having a bottom piece, two end pieces arranged at opposite ends of the bottom piece, two side pieces arranged on opposite sides of the bottom piece, and flaps arranged along the vertical edges of the end and side pieces, the flaps on the adjacent edges of the end and side pieces being doubled or folded vertically and secured between the end and side walls of the box, substantially as set forth.

3. The combination with a box having end and side walls, of a lining constructed of a single sheet and having a bottom piece, two end pieces arranged at opposite ends of the bottom piece, two side pieces arranged on opposite sides of the bottom piece, and flaps arranged along the vertical edges of the end and side pieces, the flaps on the adjacent edges of the end and side pieces being continuous and first lapped against each other to produce inclined folds at the lower ends thereof, then folded or doubled to produce a vertical seam between the same and then secured between the edges of the end and side walls of the box, substantially as set forth.

4. The combination with a box having a bottom, end, and side walls and a top, of a lining constructed of a single sheet and having a bottom piece, end and side pieces and a cover connected with one of the side pieces, the vertical edges of the end and side pieces having continuous flaps which are folded to form vertical seams and secured between the vertical edges of the end and side walls, and the upper horizontal edges of the end and side pieces and the unconnected edges of the cover having flaps which are folded together, to form horizontal seams which are se-

cured between the upper edges of the end and side walls and the top of the box, substantially as set forth.

683,417. CASE FOR EYEGLASSES OR SPECTACLES. JACOB WEINSTEIN, Chicago, Ill., assignor to Almer Coe, same place. Filed May 6, 1901. Serial No. 58,944. (No model.)



Claim.—1. A case for glasses comprising two sections hinged together, each of said sections having means for holding a pair of glasses, the said means of one section being located at the side thereof adjacent to the hinge and the said means of the other section being located at the side thereof remote from the hinge, substantially as described.

2. A case for glasses comprising two sections hinged together, each of said sections having means for holding a pair of glasses, the said means of one section being located at the side thereof adjacent to the hinge and the said means of the other section being located at the side thereof remote from the hinge, the walls of each section being graduated in height, the lower wall of one section and the higher wall of the other section being located at the hinge, substantially as described.

3. A case for glasses comprising two sections hinged together, each of said sections having at one side a pocket for holding a pair of glasses, the pocket of one section being located at the side adjacent to the hinge and the pocket of the other section being located at the side remote from the hinge, substantially as described.

683,418. PROCESS OF SPINNING YARN. CHARLES H. ARNOLD, Grosvenor Dale, Conn., assignor to Draper Company, Hopedale, Mass. Filed July 29, 1901. Serial No. 70,151. (No specimens.)

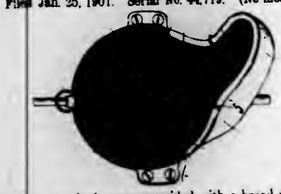
Claim.—1. An improvement in the process of spinning yarn, which consists in substituting a bobbin having a small and regularly-wound portion of yarn thereon for a bobbin whose end has broken down in starting up the frame after doffing; piecing up the broken end with the yarn on the substituted bobbin, and completing the spinning on the latter.

2. An improvement in the process of spinning yarn, which consists in regularly winding a portion of yarn upon a bobbin, to constitute a "doffer-bobbin;" substituting the same in a spinning-frame for a substantially bare bobbin whose end has broken down after doffing, piecing up the broken end with the yarn on the "doffer-bobbin," and completing the spinning of the yarn upon the latter in usual manner.

3. An improvement in the process of spinning yarn which consists in preparing a supply of "doffer-bobbins" by regularly spinning a small portion of yarn thereupon, substituting a "doffer-bobbin" for a bobbin whose end has broken down in starting the frame up after doffing, piecing up the broken end with the yarn on the "doffer-bobbin," and completing the spinning with the latter in the usual manner.

4. In yarn-spinning, doffing the frame and starting up, removing the bobbins whose ends have broken down in starting and replacing them by bobbins each having a previously and regularly wound portion of yarn thereon, piecing up the broken ends with the yarn on the substituted bobbins, and completing the spinning in the usual manner, whereby all the bobbins will be regularly and uniformly wound, and substantially alike as to the yarn lords thereupon.

683,419. URINAL-SCREEN. ERNEST E. BURSON, Los Angeles, Cal. Filed Jan. 25, 1901. Serial No. 44,719. (No model.)



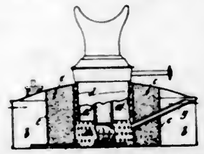
Claim.—1. A urinal-screen provided with a broad upper portion to fit over the outside of the upper portion of the urinal, and said screen being bent and contracted at the lower portion to fit into the horizontal portion of the urinal, and furnished with hooks to hook over the rim of the snout of the urinal.

2. A urinal-screen having a broad upper portion to fit outside the upper portion of the rim of the urinal, and said screen being contracted and bent at the lower portion to fit inside the horizontal portion of the urinal, and provided with hooks to hook over the rim of the horizontal portion of the urinal; and a rearwardly-projecting catch at the upper end of the screen to catch under the upper portion of the rim of the urinal.

3. A urinal-screen, the rim or border of which is formed in a bow at the upper portion and is bent rearwardly at the lower end of the upright portion to form offsets on the opposite sides of the screen-border, and then bent downward and forward and contracted to fit in the snout of a urinal and provided at the snout portion with two oppositely-arranged hooks to extend over the rim of the urinal-snout to support the snoot portion of the screen in the snout of the urinal.

4. A urinal-screen comprising a frame having a border member composed of a wire formed at one end in a ring to form a handle; thence bent laterally and downwardly on a wide radius approximately through a quadrant to form a shoulder approximately of the form of the upper portion of the urinal-rim; thence bent downwardly and rearwardly to form an offset to pass around the rim of the urinal; thence bent forwardly and then rearwardly in a loop to form a contracted snout to fit beneath the rim of the snout of the urinal; thence being bent to form an offset and shoulder corresponding to that first described, and fastened to the ring; a wire-netting formed in a receptacle, the edge of which is fastened to the said frame; and bracing-wires fastened to the border-wire and extending under the screen-netting; one of said wires being bent around the border-wire and extended and bent to form hooks to hook over the rim of the urinal.

683,420. LAMP FOR BURNING PETROLEUM, KEROSENE, &c. BENJAMIN H. COPELAND, Derby, England, assignor to Samuel Hall, same place. Filed Feb. 3, 1900. Serial No. 3,799. (No model.)



Claim.—1. In a lamp, the combination with a suitable burner, of an oil-reservoir supporting the burner above a central wick-chamber having a perforated peripheral wall, an annular body of absorbent material surrounding the perforate wall of the wick-chamber, an annular outer oil-chamber separated from the annular body of absorbent material by a perforate wall, and an air-tube forming a communication between the top of the outer annular oil-chamber and the central wick-chamber, substantially as shown and described.

2. In a lamp, the combination with a suitable burner, of an oil-reservoir supporting the burner above a central wick-chamber having a perforated peripheral wall, an annular body of absorbent material surrounding the perforate wall of the wick-chamber, and an annular outer oil-chamber separated from the annular body of absorbent material by a perforate annular wall, substantially as shown and described.

3. In a lamp, the combination with a suitable burner, of an oil-reservoir supporting the burner above a central wick-chamber having a perforated peripheral wall, an annular body of absorbent material surrounding the perforate wall of the wick-chamber, an annular outer oil-chamber separated from the annular body of absorbent material by a perforate wall, and an air-tube forming a communication between the upper portion of the outer annular oil-chamber and the lower portion of the central wick-chamber, substantially as shown and described.

4. In a lamp, the combination with a suitable burner, of an oil-reservoir supporting the burner above a central wick-chamber having a perforated peripheral wall, an annular body of absorbent material surrounding the perforate wall of the wick-chamber, an annular outer oil-chamber separated from the annular body of absorbent material by a perforate wall, and an air-supply pipe passing through the reservoir-body, substantially as shown and described.

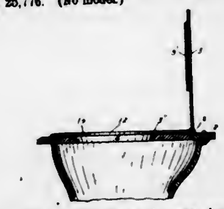
5. In a lamp, the combination with a suitable burner, of an oil-reservoir supporting the burner above a central wick-chamber having a perforated peripheral wall, an annular body of absorbent material surrounding the perforate wall of the wick-chamber, an annular outer oil-chamber separated from the annular body of absorbent material by a perforate wall, and an air-supply pipe having its outlet and upper end horizontal, passing through the reservoir-body, substantially as shown and described.

6. In a lamp, the combination with a burner, of an oil fount or reservoir having a central wick-chamber on which the burner is removably mounted, an annular outer oil-chamber, and an annular body of absorbent material located between the annular outer oil-chamber and the central wick-chamber, substantially as shown and described.

7. In a lamp, the combination with a burner, of an oil fount or reservoir having a central wick-chamber on which the burner is mounted, an annular outer oil-chamber, an annular body of absorbent material located between the annular outer oil-chamber and the central wick-chamber, and an air-tube forming a communication between the upper portion of the annular outer oil-chamber and the central wick-chamber, substantially as shown and described.

8. In a lamp, the combination with a burner, of an oil fount or reservoir having a central wick-chamber on which the burner is mounted, an annular outer oil-chamber, an annular body of absorbent material located between the annular outer oil-chamber and the central wick-chamber, oil-channels connecting the outer annular oil-chamber and the inner central wick-chamber at the bottom, and an air-tube forming a communication between the upper portion of the annular outer oil-chamber and the central wick-chamber, substantially as shown and described.

683,421. LID FOR CLOSET-SEATS. RICHARD R. COWLES, Scranton, Pa., assignor to Amy M. Cowles, same place. Filed Aug. 3, 1900. Serial No. 25,776. (No model.)



Claim.—1. In a device of the character described, a closet-seat, a hinged cover therefor comprising two laminæ of approximately the same size and hinged together, the outer edges of the lower lamina of the lid being entirely free from the upper lamina when the two are locked together, exposing the line of cleavage at the front and sides, a projection on the under side of the upper lamina adapted to fit within an opening of the lower lamina and lie flush with the under side of said lower lamina, and means for locking together the two laminæ, substantially as described.

2. In a device of the character described, a closet-seat, a hinged cover therefor comprising two laminæ of approximately the same size and hinged together, the outer edges of the lower lamina of the lid being entirely free from the upper lamina when the two are locked together, a projection on the under side of the upper lamina adapted to fit within an opening of the lower lamina, and means on the projection for engaging the inner edge of the opening of the lower lamina, substantially as described.

3. In a device of the character described, a hinged closet-seat, a hinged cover therefor comprising two laminæ of approximately the same size and hinged together, and also hinged in common with said seat to the hinges thereof, the outer edges of the laminæ of the lid being entirely free exposing the line of cleavage on the front and sides when the two are locked together, a projection on the under side of the upper lamina adapted to fit within an opening of the lower lamina and lie flush with the under side of the said lower lamina, and a spring-catch on the said projection arranged to engage the inner edge of the opening of the lower lamina, substantially as described.

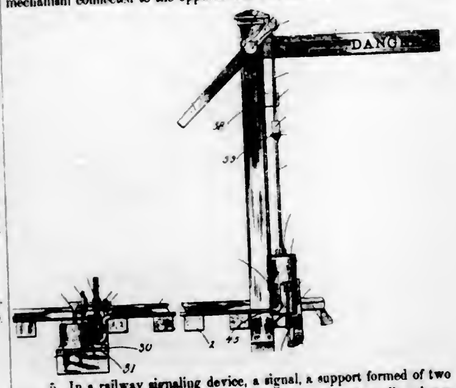
683,422. DANGER-SIGNAL FOR RAILWAYS. CYRUS S. DEAN, Fort Erie, Canada. Filed Oct. 2, 1900. Serial No. 31,803. (No model.)

Claim.—1. In a railway signaling device, rails, a signal, mechanism for operating said signal, a rigid beam, a support secured to the rails, a lever formed in two parts pivoted to the support and fulcrumed to the beam; said lever having operative connection with the mechanism for operating the signal.

2. In a railway signaling device, rails, a signal, an air-compressor, a two-part transverse support secured to the rails, an operating-lever connected to the air-compressor, and formed in two sections pivoted to the parts of the transverse support, and mechanism operatively connecting the air-compressor to the signal.

3. In a railway signaling device, rails, a signal, an air-compressor, an operating-lever having one end connected to the air-compressor and the opposite end fulcrumed on a fixed point, a two-part support secured to the rails and between the parts of which the lever is pivoted, an air-bell, a pipe between the air-bell and the air-compressor, and a connecting-rod between the signal and the air-bell, as set forth.

4. In a railway signaling device, a signal, a two-part transverse support secured to the rails and moving with the rails, a beam rigidly mounted beneath the rails, a lever pivoted between the parts of the support, and having its end supported from the beam and signal-operating mechanism connected to the opposite end of said lever.



5. In a railway signaling device, a signal, a support formed of two plates in parallel separated arrangement and secured to the rails, a beam beneath the rails, a lever pivoted between said plates, a box mounted on said beam, a ball in said box, and a screw-bar passed through the lever and the ball, substantially as set forth.

6. In a railway signaling device, a signal, a support formed of two plates in parallel separated arrangement and secured to the rails, a beam beneath the rails, a lever pivoted between said plates, upper and lower brackets mounted on the plates, a screw-bar passed through said upper and lower brackets and the lever, a beam beneath the rails, a box mounted on said beam, a ball in said box and a second screw-bar passed through the lever and the ball, substantially as set forth.

7. In a railway signaling device, a signal, a transverse support between the rails, a beam beneath the rails, a lever adjustably pivoted to said support and having an adjustable support on the beam and mechanism operatively connected to the signal and lever.

8. In a railway signaling device, a signal, a transverse support between the rails, a beam beneath the rails, a lever supported from the beam, a block pivoted to the lever, a screw-bar secured to the support and passed through the block and mechanism operatively connected to the signal and lever.

9. In a railway signaling device, a signal, a transverse support between the rails, a beam beneath the rails, a lever, two screw-bars; one pivoting the lever to the support and the other supporting the lever from the beam, and operating mechanism connected to the lever and signal.

10. In a railway signaling device, a signal, a transverse support secured to the rails, a lever pivoted to said support, a rack-bar pivoted to said lever, a shaft, a gear-wheel on said shaft meshing with the rack-bar, an air-compressor, a piston in said compressor, a crank-rod on the shaft pivoted to said piston, and operating connections between the air-compressor and the signal.

11. In a signaling device, the combination with the rails, of a support, clamps secured to said support, and having recesses in which the rails seat, a lever operated by the movement of said support, and a signal operated by the movement of said lever.

12. A railway signaling device, comprising a signal, a lever operated by the depressing of the rails on the passage of trains, a vertical rack-bar connected to said lever, a horizontal shaft, a gear-wheel on said shaft meshing with the rack-bar, a disk on said shaft, a cylinder forming an air-compressor, a piston in said cylinder, a crank-rod pivoted to the piston and disk and forming a piston-rod, and mechanism controlling the signal operatively connected to the air-compressor.

13. A railway signaling device, comprising a signal, a lever operated by the depressing of the rails on the passage of trains, a vertical rack-bar connected to said lever, a horizontal shaft, a gear-wheel on said shaft meshing with the rack-bar, a roller behind said rack-bar, a disk on said shaft, a cylinder forming an air-compressor, a piston in said cylinder, a crank-rod pivoted to the piston and disk and forming a piston-rod, and mechanism controlling the signal operatively connected to the air-compressor.

14. In a railway signaling device, a post, a shaft journaled in the upper portion of said post, a signal mounted on said shaft, a bar mounted on said shaft and having its longer end extending approximately opposite the signal and partially counterbalancing the said signal, operating mechanism, and a connecting-rod connecting the operating mechanism to the shorter end of said bar.

15. In a signaling device, the combination with the rails, of a transverse support, clamps secured to said support and having recesses in which the side flanges of the rails fit, a lever pivoted to the support and having one end fulcrumed beneath the rails and a signal operated by the movement of said lever.

16. In a signaling device, the combination with the rails, of a transverse support formed of two parallel plates, clamps secured to said support, and having recesses in which the side flanges of the rails fit, a lever pivoted between the plates of said support, and having one end fulcrumed beneath the rails and a signal operated by the movement of said lever.

17. In a signaling device, the combination with the rails, of a transverse support secured to said rails and composed of two separated parallel plates having transverse openings, a lever composed of two separated parallel plates having openings, blocks between said plates, and one of said blocks having side extensions fitting through the openings in the plates of the lever and the plates of the support, and a signal controlled from said lever.

18. In a railway signaling device, a signal, a transverse support secured to the rails and moving with said rails, a beam rigidly mounted beneath the rails, a lever pivoted to the support and fulcrumed on the beam and mechanism connecting the lever to the signal.

19. In a railway signaling device, a signal, a transverse support secured to the rails and moving with the rails, a beam rigidly mounted beneath the rails, a lever pivoted to the transverse support and having its end supported from the beam and signal-operating mechanism connected to the opposite end of said lever.

20. In a railway signaling device, a signal, a support secured to the rails, a beam beneath the rails, a lever pivoted to the support, a box mounted on said beam, a ball in said box, and a screw-bar passed through the lever and the ball, substantially as set forth.

21. In a railway signaling device, a signal, a support secured to the rails, a beam beneath the rails, a lever pivoted to the support, upper and lower brackets mounted on the support, a screw-bar passed through said upper and lower brackets and the lever, a beam beneath the rails, a box mounted on said beam, a ball in said box and a second screw-bar passed through the lever and the ball, substantially as set forth.

22. In a railway signaling device, a signal, a transverse support beneath the rails, a beam beneath the rails, a lever supported from the beam, a block secured to the support and pivoted to the lever, and mechanism operatively connecting the signal and lever.

23. In a railway signaling device, rails, a signal, a support, an unmovable beam, a lever, two screw-bars; one pivoting the lever to the support and the other supporting the lever from the beam, and operating mechanism connected to the lever and signal.

24. In a railway signaling device, a signal, a transverse support secured to the rails, a lever pivoted to said support, an air-compressor, a piston in said compressor, a crank-rod on the shaft pivoted to said piston, and operating connections between the air-compressor and the signal and the crank-rod and the lever.

25. A railway signaling device, comprising a signal, a lever operated by the depressing of the rails on the passage of trains, a vertical rack-bar connected to said lever, a horizontal shaft, a gear-wheel on said shaft meshing with the rack-bar, a disk on said shaft, a cylinder forming an air-compressor, a piston in said cylinder, a crank-rod pivoted to the piston and disk and forming a piston-rod, an air-bell, a pipe between the air-bell and air-compressor, and a rod connecting the signal and air-bell.

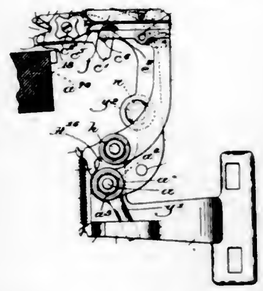
26. A railway signaling device, comprising a signal, a lever operated by the depressing of the rails on the passage of trains, a vertical rack-bar connected to said lever, a horizontal shaft, a gear-wheel on said shaft meshing with the rack-bar, a disk on said shaft, a cylinder forming an air-compressor, a piston in said cylinder, a crank-rod pivoted to the piston and disk and forming a piston-rod, an air-bell, a pipe between the air-bell and air-compressor, and a rod connecting the signal and air-bell; said rod consisting of two pivotally-jointed sections.

27. In a signaling device, the combination with the rails, of a transverse support, secured to said rails and formed in two parts, a lever pivoted between the parts of said support and operated by the movement of said support, and a signal operated by the movement of said lever.

683,423. THREAD-PARTING MECHANISM FOR LOOMS. CLARE H. DRAPER, Hopedale, Mass., assignor to Draper Company, same place. Filed July 20, 1901. Serial No. 68,999. (No model.)

Claim.—1. In an automatic filling-replenishing loom, a thread-parter and a thread-clamp, to act upon the thread of the filling-supply to be abandoned, said parter and clamp having one member in common, and means operating through such member to successively clamp and part the thread upon replenishment of filling.

2. In an automatic filling-replenishing loom, a thread-parter and a thread-clamp bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, the parter and clamp including a common movable member, and means acting therethrough to successively clamp and part the thread.



3. In an automatic filling-replenishing loom, a thread-parter and a thread-clamp, arranged in juxtaposition and adapted to act upon the thread of the filling-supply to be abandoned, a combined parting-blade and clamp member, forming one element of the parter and clamp, and means to effect the actuation of said element upon replenishment of filling, to first positively clamp and thereafter to part the thread.

4. In an automatic filling-replenishing loom, a thread-parter and a thread-clamp, arranged in juxtaposition and adapted to act upon the thread of the filling-supply to be abandoned, the parter including a fixed blade and the clamp a fixed member, a movable combined parting-blade and clamp member, located between and adapted to coöperate with the said fixed elements of the parter and clamp respectively, and means to move the combined blade and clamp member to successively clamp and part the thread.

5. In an automatic filling-replenishing loom, a thread-parter, and a thread-clamp, bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, the parter including a fixed blade and the clamp including a fixed jaw, arranged in parallelism and adjacent each other, a movable and combined blade and jaw, to coöperate with the said fixed members of the parter and clamp, and means to operate said blade-jaw to successively clamp and part the thread.

6. In an automatic filling-replenishing loom, a thread-parter, and a thread-clamp, bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, the parter including a fixed blade and the clamp including a laterally-yielding, fixed jaw, arranged adjacent each other and in parallelism, a blade-jaw movably mounted between them and coöperating with each of said fixed members, to clamp and part the thread, and means to effect the actuation of the blade-jaw upon replenishment of filling.

7. In an automatic filling-replenishing loom, a thread-parter, and a thread-clamp, bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, the parter including a fixed blade and the clamp including a fixed jaw, arranged in parallelism and adjacent each other, a movable and combined blade and jaw, to coöperate with the said fixed members of the parter and clamp, a device to open the said blade-jaw as the parter and clamp are moved into position to act upon the thread, and means to close said blade-jaw upon replenishment of filling to clamp and thereafter part the thread.

8. In an automatic filling-replenishing loom, a thread-parter and a thread-clamp bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, the parter including a fixed blade and the clamp including a laterally-yielding, fixed jaw, arranged adjacent each other and in parallelism, the acting edge of the blade being located below the clamping portion of the jaw, a blade movable between said members and having a cutting edge to coöperate with the fixed blade, and a flat face to coöperate with the jaw, and means to depress the movable blade to first clamp the thread between its flat face and the fixed jaw and thereafter to part the thread by coöperation of the cutting edge of said blade with the fixed blade.

9. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon the thread of the filling-carrier to be ejected, a movable member common to said parter and clamp, means to actuate said member to clamp and thereafter to part the thread upon change of filling, and a device to return said member to normal position relative to the parter and clamp.

10. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, bodily movable by or through the operation of the controlling means into position to act upon the thread of the filling-carrier to be ejected, a movable member common to said parter and clamp, means to actuate said member to clamp and thereafter to part the thread upon change of filling, and a relatively fixed device to move said member to open the parter and clamp as they are moved into position to act upon the thread.

11. In a loom provided with filling-replenishing mechanism, a shuttle adapted to carry a supply of filling, a thread-parter and a thread-clamp, each including a fixed member, arranged in parallelism, a common movable member between them, means operative upon a change of filling to operate said movable member and clamp the thread of the filling-carrier to be ejected and to thereafter part said thread while clamped, and an independent device to set the movable member in operative position prior to the next change of filling.

12. In a loom provided with filling-replenishing mechanism, the lay, a shuttle adapted to contain a supply of filling, a thread-parter and a thread-clamp, each including a fixed member, a common movable member having a parting edge and a clamping-face, and provided with a heel, to be engaged by the lay upon change of filling, the said movable member being thereby actuated to clamp, and thereafter to part the thread while clamped, and an independent device to move said movable member to open the parter and clamp prior to the next change of filling.

13. In a loom provided with filling-replenishing mechanism, controlling means therefor, a shuttle adapted to carry a supply of filling, a shuttle-feeler, a thread-parter and a thread-clamp mounted on said feeler, and including a relatively movable member common to both parter and clamp, to clamp and part the thread of the filling-carrier to be ejected upon change of filling, means to close said movable member when the parter and clamp are brought by movement of the feeler into position to act upon the thread, and an independent device to set the movable member in readiness to be actuated as the feeler moves into operative position.

14. In a loom provided with filling-replenishing mechanism, a shuttle-feeler having a thread-receiving notch in its end, a fixed parting-blade adjacent the notch, a clamping-jaw also mounted on the feeler, adjacent and parallel to the blade and having a thread-notch on its end, a parting-blade and clamp-jaw, combined, movably mounted on the feeler between the said fixed blade and jaw, the cutting edge of the former being located below the notch in the latter, means to move the shuttle-feeler into operative position prior to a change of filling, to thereby position the parting and clamping devices to act upon the thread of the filling-carrier to be ejected, and means to actuate the combined blade and clamp to clamp said thread between it and the fixed clamping-jaw and thereafter to part said thread while clamped.

15. In a loom provided with automatic filling-replenishing mechanism, means, including two relatively fixed members, and a third, movable member coöperating with each, to successively positively clamp and part the thread of the filling-supply to be abandoned, and means to operate said movable member upon replenishment of filling.

16. In an automatic filling-replenishing loom, an instrumentality bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, means to effect positive clamping of the thread and subsequent parting thereof, and means to move said instrumentality toward the edge of the cloth while the thread remains clamped.

17. In an automatic filling-replenishing loom, means bodily movable in a diagonal path, upon filling replenishment, to act upon the thread of the filling-supply to be abandoned, to positively clamp and thereafter part the thread, the return of said means to normal, inoperative position toward the edge of the cloth preventing breakage of the positively-clamped end of thread.

18. In an automatic filling-replenishing loom, a shuttle to contain a supply of filling, a shuttle-feeler, movable into operative position prior to filling change, parting and clamping means, mounted on the feeler and movable therewith into position to act upon the thread of the filling-carrier to be ejected, and an instrumentality to effect movement of said means toward the shuttle when the feeler is moved into operative position and upon return of the latter to normal position to move said means toward the edge of the cloth, to prevent breakage of the clamped end of filling.

19. In an automatic filling-replenishing loom, a shuttle adapted to contain a supply of filling, a shuttle-feeler, movable into operative position upon filling change, a connected thread parter and clamp, movable with, and also laterally toward and from, the feeler, means to effect such lateral movement away from the cloth as the feeler is operatively positioned and to effect reverse movement as the feeler resumes its normal position, to prevent breakage of the parted but clamped filling end, and means to actuate successively the clamp and parter, to clamp and thereafter part the thread of the filling-carrier to be ejected.

20. In a loom provided with filling-replenishing mechanism, a thread-cutting temple, a swinging support governed by said mechanism, a thread-parter and a thread-clamp, mounted on and laterally movable relatively to said support, a common, movable parting-blade and clamping-jaw, forming part of the parter, and clamp, the latter being bodily moved by the support into position to act upon the filling-thread upon actuation of the replenishing mechanism, means to operate the blade-jaw to clamp and then part the thread, and means to move the clamp and parter laterally toward the cloth upon return of the swinging support to normal position, to thereby bring the still clamped filling end into position, without breakage, to be severed by the temple-cutter.

21. In a loom provided with automatic filling-replenishing mechanism, means operative upon filling change to clamp and part the old filling-thread adjacent the shuttle, and means to thereafter part it adjacent the cloth, means to bodily move the clamping and parting means in a diagonal path into and out of normal position, to bring the filling end into range of the parting means upon bodily return of the parting and clamping means to normal position, to prevent strain upon the positively-clamped filling end, and a thread-catcher to engage the thread prior to parting thereof adjacent the cloth, thereby preventing weaving in of the severed piece of thread.

22. In a loom provided with automatic filling-replenishing mechanism, a temple thread-cutter, a thread parting and clamping device bodily movable into operative position to engage the spent filling adjacent the shuttle prior to actuation of the replenishing mechanism, a stationary thread-catcher located between the temple thread-cutter and the parting and clamping device, and means to actuate said device to clamp and thereafter to part the spent filling while clamped, the return of the said device to normal position carrying the still clamped filling end into engagement with the thread-catcher, and into the range of the temple thread-cutter.

23. In a loom provided with filling-replenishing mechanism a temple thread-cutter, a rocking support, a thread parter and clamp mounted thereon and movable, upon action of the said replenishing mechanism, into position to clamp and part the spent filling-thread adjacent the shuttle, a stationary thread-catcher to engage the filling end between the cloth and the shuttle, said thread-catcher including opposed jaws having their inner faces in contact with each other, and means to gradually work the filling end toward the outer ends of the jaws to be discharged therefrom, the inner ends of the jaws being flared to receive the thread.

24. In an automatic filling-replenishing loom, a temple thread-cutter, a thread-parter and a thread-clamp bodily movable upon replenishment of filling into position to act upon the spent filling-thread to clamp and thereafter part it near the shuttle, the parter and clamp including a common movable blade-jaw, means acting through the latter to successively clamp and part the thread near the shuttle, and a stationary thread-catcher including yieldingly-contacting jaws to receive the filling end between the cloth and shuttle.

25. In a loom provided with automatic filling-replenishing mechanism, a rocking support provided with a laterally-extended stud, a thread-parter, and a thread-clamp mounted upon said stud, and movable thereupon toward and from the support, means operative upon a change of filling to move the latter and bring the parter and clamp bodily into position to act upon the spent filling-thread between the cloth and the shuttle, means to clamp and thereafter to part the thread while said parter and clamp are nearer the shuttle, and means to move the parter and clamp laterally upon the stud and toward the cloth, as the rocking support returns to normal position, and a device to part the thread adjacent the cloth, such return movement of the rocking support while the filling-thread is clamped moving the latter into the range of the second parting device, the lateral movement of the clamp toward the cloth preventing undue tension upon and breakage of the clamped filling end prior to its severance adjacent the cloth.

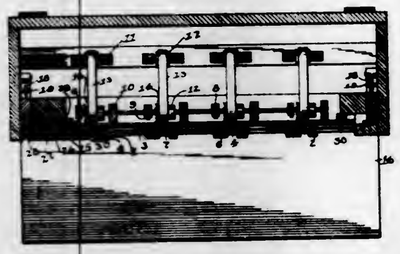
26. In an automatic filling-replenishing loom, an instrumentality bodily movable upon replenishment of filling into position to act upon the thread of the filling-supply to be abandoned, said means including fixed parting and clamping members, and a common coöperating, movable member, means to effect through said movable member positive clamping of the thread and subsequent parting thereof, and means to move said instrumentality toward the edge of the cloth while the thread remains clamped.

27. In an automatic filling-replenishing loom, means bodily movable in a diagonal path, upon filling replenishment, to act upon the thread of the filling-supply to be abandoned, said means including fixed members and a common coöperating and relatively movable member, to positively clamp and thereafter part the thread, the return of said means to normal, inoperative position toward the edge of the cloth preventing breakage of the positively-clamped end of thread.

28. In a loom, a shuttle, and a shuttle feeler or detector having in its end a substantially square notch to receive the point of the shuttle if the latter is improperly boxed, the shape of the notch reducing to a minimum the contact of its edges with the round shuttle-point, to thereby increase the clearance should the filling-thread enter the notch.

REISSUES.

11,938. VOTING-MACHINE. CLEMENT DE CROIS, Westport, Ind., assignor, by direct and mesne assignments, to Benjamin Baer, Paxton, Ill. Filed Apr. 13, 1901. Serial No. 56,791. Original No. 594,986, dated Dec. 7, 1897.



Claim.—1. A voting-machine including a series of registers provided each with a toothed wheel, a key adapted to engage any one of the toothed wheels, and a series of vertically-moving and also horizontally-moving lock-out members whereby the key may be prevented from engaging the toothed wheels.

2. A voting-machine including a main operating and lock-out bar combined, key-posts situated so as to be locked out by the vertical movement of the main operating and lock-out bar combined, a frame controlled vertically by the said bar and operating jointly with said bar so as to limit the horizontal movement thereof whereby said key-posts may also be locked out by the horizontal movement of said bar.

3. A voting-machine including a series of key-posts, a series of registers each provided with a toothed wheel mounted rotatively adjacent a key-post, vertically-moving lock-outs for the key-posts, also horizontally-moving lock-outs for the key-posts, and a key whereby the toothed wheels may be engaged.

4. A voting-machine including a rectangular frame, a main operating and lock-out bar mounted so as to slide longitudinally across the frame to a limited extent and in one of its positions supporting the frame, longitudinally-sliding lock-out bars mounted on the frame, means for elevating and depressing the lock-out bars, a series of registers so situated as to be in range of the lock-out bars, and an insertible key whereby the registers may be operated when not locked out.

5. A voting-machine including a vertically-sliding frame, a main operating-bar sliding longitudinally and whereby the frame may be suspended, longitudinally-sliding lock-out bars supported by the frame, a series of registers, a key whereby the registers may be operated and the lock-out bars actuated, and a follower whereby the lock-out bars may be actuated in a direction opposite to that in which they may be moved by the key.

6. A voting-machine including a series of registers, means for actuating the registers, a frame having projections thereon, a main operating-bar whereby the frame may be elevated when in contact with the projections and having notches wherein the projections may enter whereby the frame may be permitted to descend, means whereby the main operating-bar may be elevated, means whereby the registers may be operated, and lock-out members carried by the frame whereby operation of the registers may be prevented.

7. A voting-machine including a series of registers, a key for actuating the registers, a vertically-moving frame, a combined main operating-bar and lock-out bar controlling the vertical movement of the frame and having a plurality of notches and adjacent fingers at an edge thereof whereby the bar may be operated by the key when operating a register and whereby other registers may be locked out.

8. A voting-machine including a series of registers, means whereby the registers may be actuated, a vertically-moving frame, a series of longitudinally-moving members whereby the registers may be locked out supported by the vertically-moving frame, a follower engaging all the longitudinally-moving members and normally preventing the movement thereof, means whereby the follower may be withdrawn to permit the operation of said members, and means whereby the follower may be caused to return said members to their normal positions after having been operated.

9. A voting-machine including a series of registers each provided with a toothed or crown wheel, a key-post situated adjacent to a toothed wheel, a key having a socket to receive the key-post and having a blade to engage the teeth of the toothed wheel, a vertically-sliding frame, a series of lock-out bars mounted slidingly upon the frame and carried vertically thereby and having each a series of notches wherein the key may enter and operate the bar and a register and also lock out other registers.

10. A voting-machine including a series of registers, a series of key-posts situated adjacent to the registers, a key whereby the key-posts may be engaged and the registers operated, a vertically-sliding frame, a series of sliding lock-out bars mounted on the frame so as to be operated by the key and caused to prevent the engagement of other key-posts by the key, and a horizontally-sliding plate having notches and fingers at an edge thereof whereby when one of the lock-out bars may have been operated another lock-out bar and a plurality of registers may be closed against operation thereof.

11. A voting-machine including a series of registers, means whereby the registers may be actuated, a series of lock-out members whereby operation of the registers may be prevented, a plate having notches and adjacent fingers corresponding in number to the number of registers in a horizontal row, an arm attached to the plate whereby when engaged by a lock-out member said fingers may be moved and lock out a horizontal row of registers against operation thereof, and a follower whereby said arm may be engaged and the lock-out members that may have been operated moved back to their normal positions.

12. A voting-machine comprising a casing having keyholes therein, a plurality of registers, a key insertible in the keyholes whereby the registers may be engaged and operated, a sliding lock-out bar movably supported whereby the keyholes may be closed to the key and operation of the registers prevented, and means whereby the lock-out bar may be controlled.

13. A voting-machine comprising a casing having a front piece provided with a plurality of keyholes, a plurality of registers situated near the keyholes, a key insertible in the keyholes whereby the registers may be operated, a sliding lock-out bar movably supported whereby the keyholes may be closed to the key and the operation of the registers prevented, a frame whereby the lock-out bar may be moved across the keyholes and removed therefrom in a vertical direction, and means whereby the frame may be automatically operated by the voter when taking a position to vote.

14. A voting-machine comprising a casing having a front piece provided with a plurality of keyholes, a plurality of registers in proximity to the keyholes, a key insertible in the keyholes whereby the registers may be operated, a lock-out bar normally closing the keyholes to the key and having notches permitting the key to have access to a register and whereby the bar may be moved to close other keyholes to the key, and fingers on the lock-out bar whereby said other keyholes may directly be closed and the operation of the corresponding registers prevented.

15. A voting-machine comprising a casing having openings and keyholes therein, a longitudinally-sliding bar having notches at the lower edge thereof situate adjacent the keyholes, fingers attached to said bar adjacent to said notches, levers engaging said bar, and means suitably connected whereby said levers may be operated to elevate said bar automatically.

16. A voting-machine comprising a casing having a front piece provided with a plurality of keyholes and openings, registers situated adjacent said keyholes at said openings and provided with toothed wheels, longitudinally-movable lock-out bars supported adjacently to said keyholes, key-posts supported in positions ranging with said keyholes, and a key having a socket to receive said key-posts and having a blade whereby said toothed wheels may be engaged and the registers operated.

17. A voting-machine comprising a casing having a front piece provided with a plurality of keyholes and openings, registers situated adjacent said keyholes at said openings and provided with toothed wheels, key-posts supported in positions registering with said keyholes, a key attachable to said key-posts whereby to engage said toothed wheels and operate said registers, a longitudinally-movable main operating and lock-out bar combined having notches at an edge thereof to receive the key whereby the said bar may be moved longitudinally, fingers on said bar whereby said key-posts may be closed to the key, means whereby said bar may be elevated, a sliding plate having notches therein situate adjacent the notches in said bar and provided with fingers adjacent the notches therein, and means whereby said plate may be operated to also lock out the key from said posts.

18. In a voting-machine, a casing provided with a plurality of keyholes and openings, vote-registers situated adjacent said keyholes at said openings and provided with toothed wheels, longitudinally-movable bars situated adjacent said keyholes and provided with notches at edges thereof, key-posts situated opposite said keyholes, means whereby said bars may be elevated, and a key attachable to said key-posts only when said bars are elevated, whereby said vote-registers may be operated, and means whereby said bars may be depressed to lock out said registers.

19. In a voting-machine, a casing provided with a plurality of keyholes and openings, vote-registers mounted at said openings, toothed wheels mounted adjacent said keyholes and connected with said registers, said keyholes and openings and said toothed wheels and registers being arranged in horizontal rows having a series of each in each row, a main operating-bar situated adjacent the upper series of keyholes and provided adjacent said keyholes with notches and fingers, a plurality of lock-out bars situated adjacent the lower series of keyholes, a bar for each horizontal row below said upper series, a connection between said main operating-bar and the lock-out bars for raising the latter by the movement of the former, and means connected with the casing whereby the main operating-bar may be raised.

20. In a voting-machine, a casing provided with a plurality of keyholes and openings in horizontal serial rows, registers situated adjacent said openings and provided with toothed wheels situated adjacent said keyholes, a longitudinally-movable main operating-bar situated adjacent to the upper horizontal row of keyholes and provided with notches adjacent said keyholes and also provided with recesses in the upper edge thereof, means for elevating said bar, a frame having projections resting upon the upper edge of said bar adjacent said recesses, a plurality of guides situated on said frame, a plurality of lock-out bars mounted on said guides and provided with notches adjacent the lower rows of keyholes, and key-posts supported opposite said keyholes.

21. In a voting-machine, a casing provided with a plurality of keyholes and openings in horizontal rows, key-posts opposite said keyholes, toothed wheels adjacent said key-posts, vote-registers at said openings operated by said toothed wheels, a longitudinally-movable main operating-bar adjacent the upper row of keyholes and provided with recesses in its upper edge and notches in its lower edge and having a shoulder near one end thereof, a movable spring-pressed member connected to said casing and also connected with said main operating-bar for lifting the same, and a spring-pressed follower for engaging said shoulder and moving said operating-bar longitudinally, said follower being also connected with said movable spring-pressed member.

22. In a voting-machine, a casing provided with a plurality of keyholes and openings in horizontal rows, key-posts opposite said keyholes, toothed wheels adjacent said key-posts, vote-registers at said openings connected with said toothed wheels, a longitudinally-movable main operating-bar adjacent the upper row of keyholes and provided with recesses in its upper edge and a shoulder near one end thereof, a movable spring-pressed member connected to said casing and also connected with said main operating-bar for lifting the same, a spring-pressed follower for engaging said shoulder and moving said operating-bar longitudinally, said follower being also connected with said movable spring-pressed member, a lock-out plate for said upper row of key-posts and provided with a projecting arm whereby said plate may also be moved by said follower.

23. In a voting-machine, a casing provided with a plurality of keyholes, key-posts opposite said keyholes, toothed wheels adjacent said key-posts, vote-registers connected with said toothed wheels, a ballot supported at a side of each vertical row of keyholes, a longitudinally-movable main operating-bar adjacent the upper horizontal row of keyholes and provided with notches at its lower edge adjacent said keyholes, a movable spring-pressed member for lifting said operating-bar and whereby the same may be permitted to descend, a plurality of longitudinally-movable lock-out bars provided with notches adjacent the lower rows of keyholes, a frame carrying said lock-out bars and connected with said main operating-bar, a sliding plate situated adjacent said operating-bar and provided with fingers and notches adjacent the fingers thereof, an arm attached to said plate situated at the end of the said frame and over the ends of said lock-out bars, a spring-pressed follower situated opposite said arm, and a shoulder on said operating-bar also opposite said follower.

24. In a registering-machine, a casing having openings and keyholes therein, a longitudinally-sliding bar situated adjacent said keyholes, notches and fingers at the lower edge of said bar, and a movable platform in front of said casing and connected with said bar for moving the same.

25. In a registering-machine, a casing having a front piece provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, longitudinally-movable operating-bars situated adjacent said keyholes, posts opposite said keyholes, and a movable platform connected with said operating-bars for elevating the same.

26. In a registering-machine, a casing provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, longitudinally-movable bars situated adjacent said keyholes and provided with notches at their lower edges, posts situated opposite said keyholes, and a movable platform connected with said bars for raising the same.

27. In a registering-machine, a casing provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, a main operating-bar situated adjacent the upper keyholes and provided adjacent said keyholes with notches and fingers, a connection between said main operating-bar and a plurality of operating-bars for raising the latter by the movement of the former, and a movable platform connected with said operating-bar for raising the same.

28. In a registering-machine, a casing provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, a longitudinally-movable main operating-bar situated adjacent to the upper keyholes and provided with notches adjacent said keyholes, depressions in the upper edge of said main operating-bar, a movable platform connected with said operating-bar for raising the same, a frame having projections resting upon the upper edge of said main operating-bar adjacent said depressions, a plurality of lock-out bars situated in said frame and provided with notches adjacent the lower keyholes, and posts opposite said keyholes.

29. In a registering-machine, a casing provided with a plurality of keyholes and openings, posts opposite said keyholes, a longitudinally-movable main operating-bar adjacent the upper keyholes and provided with depressions in its upper edge and with a shoulder and notches in its lower edge, a movable spring-pressed platform in front of said casing connected with said main operating-bar for lifting the same, and a spring-pressed follower for moving said operating-bar longitudinally, connected with said movable platform.

30. In a registering-machine, a casing provided with a plurality of keyholes, posts opposite said keyholes, a longitudinally-movable operating-bar adjacent the upper keyholes and provided with notches at its lower edge adjacent said keyholes, a movable spring-pressed platform for lifting said operating-bar, a plurality of longitudinally-movable bars carried by a frame connected with said operating-bar, notches in said bars situated adjacent the lower sets of keyholes, a sliding plate situated adjacent said operating-bar and provided with fingers adjacent said notches therein, a downwardly-extending arm upon said sliding plate situated over the end of said frame and over the ends of said bars, and a spring-pressed follower situated opposite the said arm and a shoulder on said operating-bar and connected with said movable platform.

DESIGNS.

85,128. PENCIL. WILLIAM R. SCHUPP, Lamb, Mo. Filed Aug. 13, 1901. Serial No. 71,965. Term of patent 7 years.



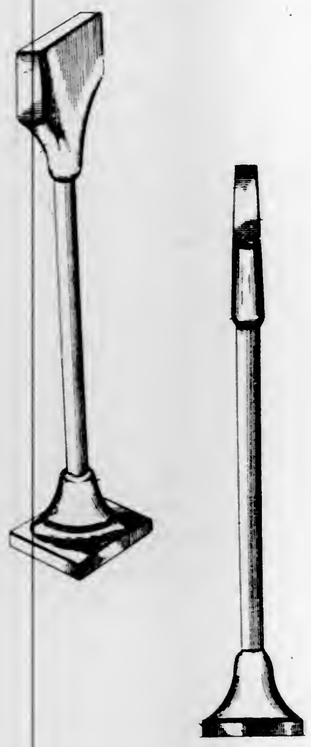
Claim.—The design for a pencil as herein shown and described.

85,129. HAT-BRUSH. TEMISTOCK PEDRINI, New York, N. Y. Filed Aug. 30, 1901. Serial No. 73,876. Term of patent 14 years.



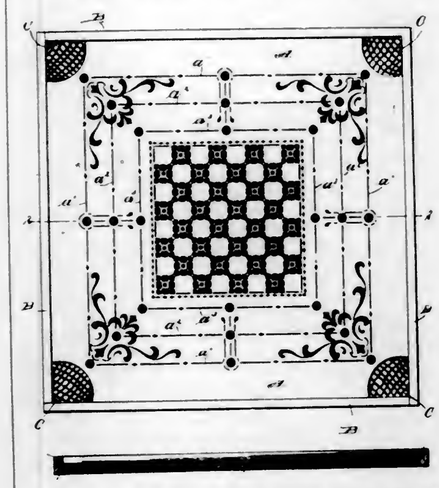
Claim.—The design for a hat-brush substantially as herein shown and described.

35,130. POST-TAMPER. JOHN ALLISON, Independence, Mo. Filed Aug. 14, 1901. Serial No. 72,079. Term of patent 14 years.



Claim.—The design for a post-tamper, herein shown and described.

35,131. GAME-BOARD. EDWARD MIKKELSEN, Chicago, Ill. Filed Aug. 29, 1901. Serial No. 73,760. Term of patent 3½ years.



Claim.—The design for a game-board, as herein shown and described.

35,132. TRIMMING. ALPHONSE H. KURSHEEDT, New York, N. Y., assignor to Kursheedt Manufacturing Company, of New York. Filed Aug. 24, 1901. Serial No. 73,210. Term of patent 7 years.



Claim.—The design for trimming substantially as herein shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 24, 1901.

37,099. VELVET-FACE AND SATIN-BACK RIBBONS. HORNIBROOK & CURTISS, New York, N. Y. Filed Aug. 9, 1901.



Essential feature.—A particular likeness of the artist Rembrandt. Used since January 1, 1899.

37,100. CERTAIN NAMED DRY GOODS. THOS. G. HILL & Co., Manchester, England. Filed Aug. 27, 1901.



Essential feature.—The symbol "88." Used since January, 1882.

37,101. CERTAIN NAMED DRY GOODS. THOS. G. HILL & Co., Manchester, England. Filed Aug. 27, 1901.



Essential feature.—The symbol "66." Used since January, 1882.

37,102. CERTAIN NAMED FABRICS. GRINNELL WILLIS, New York, N. Y. Filed Apr. 18, 1901.



Essential feature.—The representation of a bell shown in perspective in the act of swinging, with the clapper raised, and the bell-ringing devices, including the bell-support, bell-crank, and rope. Used since July 1, 1898.

37,103. FUR AND FABRIC GARMENTS. CLARK & WEINBERG, New York, N. Y. Filed Aug. 19, 1901.



Essential feature.—The representation of a shield, a crown above the shield, a mailed hand above the crown holding a dart, and an animal of the lion type represented as engaging the shield at one side. Used since July 1, 1901.

37,104. SHIRTS. S. LIEBOVITZ & SON, New York, N. Y. Filed July 30, 1901.

NETHERLAND GRAND

Essential feature.—The words "NETHERLAND GRAND." Used since January 1, 1901.

37,105. UNDERWEAR, EXCEPTING THEREFROM HOSIERY. COOPER UNDERWEAR Co., Kenosha, Wis. Filed Aug. 13, 1901.



Essential feature.—The representation of a domestic cat. Used since June 1, 1901.

37,106. LEATHER BOOTS AND SHOES. CARRUTHERS-JOHNS SHOE Co., Memphis, Tenn. Filed Aug. 21, 1901

FIGARO

Essential feature.—The word "FIGARO." Used since January 17, 1901.

37,107. REMEDY FOR SKIN AND BLOOD DISEASES. GEORGE R. REWICK, St. Louis, Mo. Filed Aug. 19, 1901.



Essential feature.—The pictorial representation of a sheep's head on a red circular background. Used since June 1, 1900.

37,108. MEDICINES FOR CERTAIN NAMED DISEASES. DR. J. C. BROWN MEDICAL CO., Albany, N. Y. Filed Aug. 23, 1901.

RUTERBA

Essential feature.—The word "RUTERBA." Used since November 25, 1900.

37,109. OINTMENT. ARTHUR COLLINS STEWART, Boston, Mass. Filed Aug. 14, 1901.

Claranol

Essential feature.—The word "CLARANOL." Used since February 1, 1901.

37,110. DISINFECTANTS AND GERMICIDES. GUSTAV A. STOERR, Elgin, Iowa. Filed Aug. 12, 1901.

TARSOL

Essential feature.—The word "TARSOL." Used since July 20, 1899.

37,111. TOILET SOAP. ALLEN CORELLIS, Chicago, Ill. Filed July 17, 1901.

BITTER SWEET

Essential feature.—The words "BITTER SWEET." Used since July 12, 1901.

37,112. SMOKING-TOBACCO, CHEWING-TOBACCO, CIGARS, CHEROOTS, AND CIGARETTES. B. MURATTI, SONS & CO., LIMITED, Manchester, England. Filed July 22, 1901.

NEB-KA

Essential feature.—The words "NEB-KA." Used since 1895.

37,113. SMOKING-TOBACCO, CHEWING-TOBACCO, CIGARS, CHEROOTS, AND CIGARETTES. B. MURATTI, SONS & CO., LIMITED, Manchester, England. Filed July 22, 1901.

ARISTON

Essential feature.—The word "ARISTON." Used since 1895.

37,114. SAUCE. YEATMAN & COMPANY, LIMITED, London, England. Filed July 6, 1901.

SAUCEARD

Essential feature.—The word "SAUCEARD." Used since April 10, 1901.

37,115. CERTAIN NAMED CREAMERY PRODUCTS. ST. CHARLES CONDENSING COMPANY, St. Charles, Ill. Filed July 10, 1901.

SILVER COW

Essential feature.—The words "SILVER COW." Used since January 2, 1901.

37,116. FLOUR. ARMED & BURR CO., Springfield, Ohio. Filed Apr. 20, 1898.



WILLIAM TELL

Essential feature.—The words "WILLIAM TELL" and the representation of William Tell shooting the apple off the head of his son, Used since August 15, 1897.

37,117. COMPOSITION PAINT. HOLLAPFELS COMPOSITIONS CO., LIMITED, Newcastle-on-Tyne, England. Filed Aug. 30, 1901.

DANBOLINE

Essential feature.—The word "DANBOLINE." Used since June, 1901.

37,118. TOOLS. WALDEMAR JULSRUD & CO., Mexico, Mexico. Filed July 27, 1901.



Essential feature.—The representation of two hammers above a beam, the handles of the hammers pointing away from each other. Used since July 19, 1901.

37,119. CERTAIN NAMED MACHINES. ADDRESSOGRAPH CO., Chicago, Ill. Filed Dec. 23, 1899.

GRAPHOTYPE

Essential feature.—The word "GRAPHOTYPE." Used since March 1, 1897.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED SEPTEMBER 24, 1901.

8,692.—*Title:* "EXCELSIOR." (For Cotton Goods.) HUGENOT MILLS, Greenville, S. C. Filed July 25, 1901.

8,693.—*Title:* "ALLEE SAMEE BISCUIT." (For Biscuits.) HARRY L. SCHLESINGER, Atlanta, Ga. Filed August 30, 1901.

8,694.—*Title:* "DR. BAKER'S LIQUID FOOD FOR VITALITY." (For Liquid Food.) B. FOWLER BAKER, Milwaukee, Wis. Filed August 30, 1901.

8,695.—*Title:* "CHAMPION TOMATO CATSUP." (For Tomato-Catsup.) THE E. C. FLACCUS COMPANY, Wheeling, W. Va. Filed August 28, 1901.

8,696.—*Title:* "GLORIO SOAP." (For Soap.) A. T. SMITH, American Fork, Utah. Filed August 30, 1901.

8,697.—*Title:* "HALF PRICE." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed August 28, 1901.

8,698.—*Title:* "LOUISIANA PURCHASE." (For Canned Goods, Cigars, and Beer.) EDWARD G. CHERBONNIER, St. Louis, Mo. Filed August 10, 1901.

8,699.—*Title:* "WINE." (For Wine.) JAMES MORONEY, Philadelphia, Pa. Filed August 10, 1901.

8,700.—*Title:* "WHISKEY." (For Whisky.) JAMES MORONEY, Philadelphia, Pa. Filed August 10, 1901.

8,701.—*Title:* "THE BACTERICIDAL REMEDY CO'S. CHOLEROUP." (For a Medicine.) THE BACTERICIDAL REMEDY Co., Wahoo, Nebr. Filed August 29, 1901.

8,702.—*Title:* "DANIEL'S CONCT. TINCT. PASSIFLORA INCARNATA OR MAY POP." (For a Medicine.) JOHN B. DANIEL, Atlanta, Ga. Filed August 29, 1901.

8,703.—*Title:* "ANTI CYST." (For a Medicine.) H. L. MILLER, St. Louis, Mo. Filed August 31, 1901.

PRINTS

REGISTERED SEPTEMBER 24, 1901.

401.—*Title:* "FACTORY TO POCKET." (For Watches and Jewelry.) HARRIET DOLL, New York, N. Y. Filed August 31, 1901.

402.—*Title:* "FRENCH DOLL." (For Toys and Novelties.) FRENCH NOVELTY CO., Bridgeport, Conn. Filed August 27, 1901.

403.—*Title:* "WOODLAND VIOLET SPECIALTIES." (For Perfumery and Toilet Supplies.) GEORGE E. TOOKER, New York, N. Y. Filed August 31, 1901.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Fourth Circuit.

CROWN CORK & SEAL CO. OF BALTIMORE CITY *v.* ALUMINUM STOPPER CO. OF BALTIMORE CITY *et al.*

Decided May 7, 1901.

1. PATENTS—VALIDITY—INFRINGEMENT—BOTTLE-STOPPER.

Painter's Reissued Patent No. 11,685, granted July 26, 1898, for a bottle-stopper, *Held* valid and infringed by stoppers made in accordance with Hall's Patent No. 541,203, granted June 18, 1895.

UTILITY OF INVENTION—COMPARATIVE UTILITY IMMATERIAL.

The grant of a patent is *prima facie* evidence of the utility of the invention, and this is not negatived by the fact that the device is susceptible of improvement or that like inventions are so far superior to it that they may entirely supersede the use of it. Comparative utility is no criterion of infringement. To negative utility, the defendant must show that the invention will not operate as claimed.

3. SAME—DISCLOSURE OF OPERATIVE INVENTION—DRAWINGS NOT EXPECTED TO EXHIBIT EXACT DIMENSIONS.

The drawings filed with the application in the Patent Office are not required or expected to exhibit the exact dimensions of the parts, and if the disclosure is such that an intelligent mechanic would so proportion the dimensions as to secure practical results utility is not negatived by the fact that a device made in strict conformity to the drawings is inoperative.

4. ABANDONMENT OF INVENTION—DOUBTS RESOLVED IN FAVOR OF PATENT.

An inventor may give to the public the benefits of his ingenuity, and such relinquishment may be either direct or it may be inferred from circumstances, and it may occur before application or thereafter. The law, however, does not favor forfeiture, and it being a question of fact whether there has been an abandonment all reasonable doubts must be resolved in favor of the patent.

5. SAME—ABANDONED EXPERIMENT DISTINGUISHED.

Where the inventor clearly manifests his intention to relinquish any rights to the invention which he has, the inchoate right to a patent cannot be resumed; but a mere abandonment of experiments on an incomplete invention with the expectation of again taking the matter up is not such relinquishment.

6. SAME—DELAY IN PATENT OFFICE—LIMIT SET BY LAW.

Abandonment is not established by alleged delays in the Patent Office where the applicant in each instance took the necessary action within the two years allowed him by statute within which to act. The law determines the measure of the applicant's rights, and the courts cannot exact any degree of diligence other than compliance with the statutory provisions, official regulations, and departmental regulations. If Congress thinks too long a time is allowed, it should change the law.

7. SAME—FAILURE TO MANUFACTURE DEVICE.

Abandonment cannot be predicated upon failure to put the patented device upon the market.

8. REISSUE—PATENT FAILING TO COVER INVENTION.

A reissue is authorized by the plain terms of the statute and by a long line of decisions of the Supreme Court where the patent had failed to clearly and adequately secure the invention upon which the original was founded and where the unquestionable object and effect of the reissue were to cover an invention not covered by the original claims.

9. SAME—DELAY—UNSKILLED INVENTOR.

In considering the question of delay in discovering the defect in the original patent and in making application for reissue some allowance may well be made for a mere inventor unskilled in the art of interpretation who could not upon a mere reading of his patent determine what his claims covered.

10. SAME—BROADENED CLAIM—INVENTION THE SAME.

Held that claim 5 of the reissue was warranted by the statement of invention in the original patent and that it does not exhibit any change in the nature of the invention described, but simply gives a more adequate description of such invention, which enlarges the claim without enlarging the invention.

11. SAME—INTERVENING RIGHTS—ESTOPPEL.

Where as a defense the defendants allege rights gained by manufacture of the invention after the issue of the patent and during the delay in making application for reissue, but it appears that they were notified two weeks after the issue of the patent that they were infringers and there was no unreasonable delay in applying for reissue, *Held* that there is no estoppel against the complainants and that the defendants must have known of their right to a reissue.

12. SAME—DECISION OF PATENT OFFICE ENTITLED TO WEIGHT.

Where the defendants were permitted to contest in the Patent Office the right of the complainants to a reissue applied for within seven months after the grant of the patent and all tribunals there sustained the complainants' rights, *Held* that while not conclusive the decision of the Patent Office is entitled to great weight.

13. PATENTABILITY—COMBINATION OF OLD ELEMENTS.

Where none of the elements referred to in the claim are in themselves new, but the invention consisted in combining them in a different manner from any heretofore suggested, and where the principles and functions in all are entirely different and they have only the shade of an unsubstantial resemblance, *Held* that the claim involves invention and is valid.

14. INFRINGEMENT — IDENTITY OF INVENTION — DIFFERENCE IN PHRASEOLOGY IMMATERIAL.

Where the defendants' stopper follows the same plan as Painter's and uses the same elements which coöperate in the same way to effect the same purpose, *Held* that there is infringement notwithstanding the different phraseology employed by the defendants in describing their stopper.

15. SAME—NOT AVOIDED BY IMMATERIAL CHANGES.

Infringement is not avoided by mere change of form, or renewal of parts, or reduction of dimensions, or the substitution of mechanical equivalents, or the studious avoidance of the literal definitions of specifications and claims, or the superadding of some improvement.

16. EQUITY—JURISDICTION—FAILURE TO SELL INVENTION.

Where the patent was recently granted and was involved in litigation to determine its validity, *Held* that the fact that the patentee has not made and sold the invention of his patent does not deprive a court of equity of jurisdiction to enjoin infringement.

APPEAL from the Circuit Court of the United States for the District of Maryland.

For opinion in court below see 100 Fed. Rep., 849.

Mr. W. Cabell Bruce and *Mr. Robert H. Parkinson* (*Mr. Wm. A. Fisher* on the brief) for the appellant.

Mr. Albert H. Walker (*Mr. W. E. Hoffman* on the brief) for the appellees.

Before GOFF and SIMONTON, Circuit Judges, and BRAWLEY, District Judge.

BRAWLEY, *J.*:

Prior to the inventions hereinafter to be described, which are the subject-matter of this controversy, the common method of stopping bottles was with cork, wood, rubber, or some other resilient material inserted longitudinally into the neck of the bottle and held there by its elastic lateral pressure in frictional contact with the circumference, supplemented in cases where gaseous liquids caused internal pressure by wire or twine on the outside of the bottle-head. About the year 1876 William Painter, foreman of the machine-shops of Murrell & Keizer, began experiments upon a device for bottle-stoppers, which culminated years afterward in patented inventions, the essential features of which lie in the forcible contact of a permanently expanded or flexed margin of a disk with the packing material held between the disk and bottle-surface. A rough draft purporting to show the original conception, drawn from memory by William Fifer, a workman then employed in the shops, but who has long since ceased any connection therewith, has been offered in evidence. These preliminary experiments, according to Fifer, were not successful. Fifer tells us that Painter said to him—

George, we'll have to try something else, as we can't get these bottles blown near enough to use this kind of cap—

and that he was then directed by Painter to—

lay all the parts and tools that he had used on the shelf until after awhile.

We have no direct testimony as to the later experiments. Fifer found other employment, and Painter has not testified in the case, the record showing that at the time the testimony was taken he was and had been for a long time previous thereto subject to nervous prostration, unable to stand the strain of business and the excitement incident to a long examination and cross-examination. Robert A. Hall entered into the service of Murrell & Keizer as an apprentice about the year 1873 and with the exception of about six months in 1889 has been continuously engaged in the machine-shops under the direction of Lewis R. Keizer, who conducts the business under the firm-name, his partner, Murrell, having long since died and Keizer being the sole owner thereof. Hall worked under the direction of Painter, whose first application for a patent for a bottle-stopper was filed June 5, 1885, and Letters Patent No. 327,099 were issued September 29, 1885, to William Painter and Lewis R. Keizer, to whom a one-half interest was assigned. This patent, with No. 449,882, application for which was filed March 7, 1890, covers what are known and may be hereinafter referred to as the "Rubber Seal Patents." On October 12, 1885, Painter filed an application for the patent out of which this controversy arises. The history of the proceedings in the Patent Office will be hereinafter referred to. Patent No. 540,072 was issued May 28, 1895. Application for reissue of the same was filed December 26, 1895, and July 26, 1898, it was reissued as No. 11,685. On November 5, 1889, June 16, 1890, and May 19, 1891, Painter filed applications for other patents, which were issued February 2, 1892—No. 468,226, No. 468,258, and No. 468,259. These last named cover what are known as the "Crown Seal Patents." Robert A. Hall filed his application for a patent for a bottle-sealing device February 28, 1894, and Letters Patent No. 541,203 issued June 18, 1895. All of Painter's patents were assigned to the Bottle Seal Company, of Baltimore, to whose rights and business the complainant company, organized and incorporated under the laws of Maryland in 1892, succeeded. The defendant, Keizer, was one of the organizers of the Bottle Seal Company, the stock in which he subsequently sold, but continues to receive a royalty of $2,000 or $3,000 a year from the complainant company on account of his interest in the rubber-seal patent. All of the machinery for the making of the rubber seals and crown-seals for the complainant company were manufactured in Keizer's shops under the direction of Hall from the date when those seals began to be used up to about the time of the obtaining of the Hall patent. This patent was assigned to the defendant company, a corporation organized under the laws of the State of Maryland, May 2, 1896. The defendant, Keizer, was the organizer and is the controlling stockholder and the active manager of this company, Hall being a stockholder therein. The complainant company manufactures and sells about thirty million stoppers per annum. The defendant company since its organization has been engaged in manufacturing and selling its stoppers to a considerable extent, the two being the only companies engaged in supplying the market with the bottle-stopping devices which originated with the Painter inventions. The bill of complaint was filed November 12, 1898, in the Circuit Court of the United States for the District of Maryland in equity and prayed for an injunction restraining the defendants from infringement and for an account, etc. The answer denied the infringement, alleged want of novelty and patentability, attacked the validity of the reissue, charged abandonment, fraud, and perjury, and set up an estoppel. The court below held that there was no infringement and ordered the bill dismissed on this ground, and a decree was entered accordingly, and the appeal from this decree brings the case here. It is necessary under the practice in this class of cases for this court to ascertain and decide whether the decree appealed from should have been rendered for the complainants or for the defendants, for if it should conclude that the court below erred on the question of infringement that conclusion will not avail

the appellants unless it should also decide all the other defenses against the appellees. It will be convenient to consider these defenses in the order in which they have been presented by the learned counsel for the defendants, and, like him, we will use the terms "complainants" and "defendants" instead of "appellant" and "appellees."

First. It is claimed that the original and reissued patent, No. 11,685, is void for want of utility. Utility being one of the qualities necessary to patentability, the granting of the patent is *prima facie* evidence of it, and this is not negatived by the fact that the device is susceptible of improvement or that like inventions are so far superior to it that they may entirely supersede the use of it. Comparative utility between machines or processes is no criterion of infringement, and comparative superiority or inferiority does not necessarily import noninfringement, nor does it tend to avoid infringement if the defendent's device is simpler and produces better results, unless the cause is due to a difference in function or mode of operation or some essential change in character. Differences in utility do not necessarily import differences of invention. The burden is upon the defendant in a case like this to prove want of utility. He must show either that it is theoretically impossible for such a device to operate or demonstrate by clear proof that a person skilled in the art to which the invention pertains has endeavored in good faith to make the patent work and has been unable to do so, and it follows that such evidence is overthrown or will be overthrown if it is demonstrated by practical experiments of credible persons that they have succeeded in producing by the patent process the results claimed by the patent. The defendants have undertaken to show by the expert Lorenz that the patent is a failure, that after experiments he could not succeed in stopping bottles by following the directions of the patent, and the expert Hall, being the person heretofore referred to, has undertaken to show theoretically that it is a failure. Lorenz was admittedly not familiar with the art, in that he had had no practical experience in connection with bottle-stoppers, and his experiments were conducted during a few hours on two separate days. It cannot be said that they proved any more than that a person not skilled in the art and without the special tools which presumably would be devised for the purpose was unable to accomplish practical results. The complainant's experts, Spear and Hawkins, testified that they had successfully sealed bottles in accordance with the patent, and the results of those experiments have been produced before the court. One of the reasons for the failure of the experiments of Lorenz and Hall may be found in the fact that they followed closely the directions in the drawing of the Painter patent as to the dimensions of the devices shown therein. The object of the drawings filed in the Patent Office is attained if they clearly exhibit the principles involved, and in a case like this rigid adherence to the dimensions thus exhibited is not required or expected, and if an intelligent mechanic would so proportion the dimensions as to secure practical results inutility is not demonstrated by experiments with material identical in form and proportion of parts with the drawings in the patent. The special reason assigned for lack of utility consists in the shortness of the flange of the cup which constitutes the bottle-stopper, and increase in the length of the flange would cure the defect. That is so obvious that no inventive faculty need be invoked to suggest it, and the learned counsel for the defendants admits in his argument that the bottle-stopper of Figure 6 in the Painter patent can be made useful by sufficiently increasing the length of its flange so as to increase the depth of the cup. We cannot think that a decision adverse to the utility and operativeness of this invention could safely rest on the ill-success of experiments made by those who were not specially skilled in the art and where it is not obvious that they were specially desirous of making their experiments succeed. Another ground upon which the learned counsel for the defendants relies is the failure of Fifer's experiments under Painter's directions in 1876. It is a novel contention that admitted failures during the preliminary stage of experiments should be adduced as evidence of want of utility in the perfected invention. Some stress is laid upon the fact that the complainant has never done anything toward introducing either of the forms of bottle-stoppers described in this patent, and the learned judge below seems to regard it as somewhat significant. This circumstance would seem to be entitled to some weight as tending to show that the patent was useless; but inasmuch as title to this patent was not finally secured until July 26, 1898, and the validity of it, in view of the contest made by the defendants, would have to be settled by litigation, common prudence would suggest delay in incurring the expense of providing the machinery and other appliances that would be necessary in order to put it upon the market, and as the complainant was and is supplying the market for this character of stoppers with sealing devices belonging to the same general class, some of them later in date of invention and containing certain improvements and advantages that have popularity and which have created a demand that complainant is fully supplying, all of these considerations are adequate reasons for any delay in the manufacturing of sealing devices under this particular patent, and no implication of lack of practical operativeness or utility in the invention can be drawn from such delay.

The second ground of defense is abandonment. Undoubtedly an inventor may give to the public the benefits of his ingenuity as persons may give away any other kind of property, and such relinquishment may be either direct or it may be inferred from circumstances. Where there is an entire abandonment of all expectation of succeeding in an invention and securing a patent under circumstances that justify the formation of the expectation that the ideas of the inventor will be always free to the public and the inventor clearly mani-

fests his intentions to relinquish any rights thereto, the inchoate right to the patent thus abandoned cannot be resumed; but the law does not favor forfeiture, and it being a question of fact whether there has been abandonment all reasonable doubts must be solved in favor of the patent. There may be abandonment before application or thereafter. Under the first head the sole reliance of the defendants is the testimony of Fifer, already cited, wherein it appears that the early experiments were unsuccessful, in that they only succeeded in getting one bottle to stand about forty pounds pressure, that bottle being the only one of the proper size. Whether non-success was due to the packing used in this experiment, which was of paper-felt, or whether delay in consummating the work was due to inability then to procure suitable bottles, or whether further tests with better tools or more accurate workmen were required, or whether modification of the device in other ways was contemplated, or whether Painter, who was then a poor man, could not give the time necessary to perfect this invention, being engaged in developing his other patents, which have since proved valuable, is left to conjecture; but whatever may have been the cause or causes of the delay there is an entire absence of proof either that he abandoned the hope of success or that he intended to abandon the invention to the public. His assistant was directed to "lay all parts and tools on the shelf until after awhile." This manifests an intention to resume experiments "after awhile," and results show that he did so resume, and later experiments enabled him to so far perfect his invention that his patent was applied for before any adverse rights accrued. There is no proof or suggestion even that there was any public use or sale or that any person except Fifer was informed of the abortive experiments. Experimental use for the purpose of testing the qualities of an invention is never public use; nor is there any proof that the delay operated to mislead others into taking up the invention and with greater diligence perfecting it. The case would be presented in a different aspect if another inventor had entered the field, induced by the supposed abandonment and misled by the delay. It is of no advantage to the public that an inventor should apply for his patent before he satisfies himself as to the best form in which to embody his invention, and the statute which provides that two years' public use shall work a forfeiture clearly has no application to a case of merely uncompleted experimentation.

Mr. Justice Swayne in *Wood* v. *Rolling-Mill Co.* (4 Fish Pat. Cas., 550; Fed. Cas., No. 17,941) says:

> Where it had not been abandoned to the public, and had not been in public use or on sale with the consent and allowance of the inventor, no lapse of time, however protracted, barred an application for a patent, nor, after it had been granted, affected its validity.

Numerous cases are cited to support the proposition, but it is so well established that we will not swell this opinion by citing them. In that case the invention was made in 1835. The patent was not taken out until 1851.

Again, it is strenuously urged that the delays in the Patent Office pending the application worked a forfeiture. The record shows that the inventor encountered serious difficulties in the securing of his patent, successive objections being interposed by the Examiners, necessitating appeals. In each case, however, the necessary steps were taken within the two years limited by the statute, and during the long period which intervened between the filing of the application and the issuance of the patent, although there are abundant signs of discouragement there are none of abandonment, for toward the end of each period of limitation he resumes the struggle, and although often stricken down he did by successive appeals and in strict conformity with the requirements of the statute, at last succeed in establishing his right to the patent. The argument of the learned counsel assumes that the inventor is under some sort of obligation to give the public the benefit of his invention as speedily as possible and that he is in fault for any avoidable delay. The inventor does not determine the measure of his rights or of his obligations. The law determines that for him, and if the Government thinks that more speed is desirable in the interest of the public it should change the law. The courts cannot do so. Nor can they exact of inventors any degree of diligence other than compliance with the statutory provisions, official regulations, departmental requirements, and formal demands which are prescribed by and for the officials and others charged with duties under the patent laws. Certain fixed periods are provided in sections 4894 and 4904, Revised Statutes, for securing progress in applications for patents. If the inventor is allowed two years after a judgment against him within which to take appeal, he may wait until the last day of the two years. If Congress thinks this is too long a time, it should fix another limitation; but courts cannot deny the benefits which the statute gives. There are no special reasons for invoking that power in this case if we had it, for it does not appear that during all these years of delay any other inventor was attempting to enter the field. This whole subject had full consideration in *U. S.* v. *American Bell Tel. Co.*, (79 O. G., 1362; 167 U. S., 224; 17 Sup. Ct., 807; 42 L. Ed., 144,) where there was a delay of fourteen years in the Patent Office. Nor can forfeiture be predicated upon failure to put the patented device upon the market. In some countries patentees are required to manufacture within a certain period after the granting of the patent; but there is no such requirement in our statute. Nor is this a mere paper patent, bought up only for the purpose of being laid away until it should be brought forth against a rival, as we have already shown in setting forth the reasons which explain and excuse the delay in putting this device upon the market.

The third defense is that there was no legal foundation for the surrender and reissue of the original Painter patent, and therefore the reissue is void for want of jurisdiction in the Commissioner to grant it. The fourth defense is that claim 5 of the reissued patent is void because it is broader than any claims in the original and because it was not applied for until after the lapse of an unreasonable time. The fifth defense is that the said claim 5 is not for the same invention as the original patent. These three defenses relating to the reissue will be considered together. The jurisdiction to grant the reissue is found in section 4916 of the Revised Statutes, which provides that—

> whenever any patent is inoperative or invalid by reason of a defective or insufficient specification or by reason of the patentee claiming as his own invention and discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident or mistake, and without any fraudulent or deceptive intention, the Commissioner, on the surrender of such patent and payment of the duty required by law, shall cause a new patent for the same invention and in accordance with the corrected specification to be issued to the patentee, etc.

The words of this section are largely borrowed from the opinion of Chief Justice Marshall in *Grant* v. *Raymond*, (6 Pet., 243; 8 L. Ed., 376.) In that case Grant had received a patent for an improved mode of manufacturing hat-bodies in 1821, and four years thereafter presented a petition stating that the specification of his patent was defective, praying that it might be canceled and a new and correct one granted embracing the improvements so far as they were set forth in certain new specifications, and although at that time there was no statute authorizing such proceeding the Letters Patent were canceled and a reissue granted, and the validity of this proceeding was sustained by the Supreme Court. A review of the earlier decisions of the Supreme Court would seem to show that by "defective or insufficient specifications" was meant any failure either to describe or claim the complete invention upon which the application for the patent was founded, and that "inadvertence or mistake" was used in antithesis to fraudulent intent, and that the right to reissue depends upon any failure to make specifications and claims legally adequate to their purpose, if due to any cause except an intention to deceive. The defendants contend that there is no jurisdiction in the Commissioner to reissue a patent, except where the facts exist which the statute prescribes as the foundation for his action. There have been numerous decisions as to how far the decision of the Commissioner as to the existence of the statutory grounds for reissue is conclusive, and in one of the earliest cases Justice Story, who participated in the decision of *Grant* v. *Raymond*, (6 Pet., 243; 8 L. Ed., 376,) says:

> I very much doubt whether his decision is or can be reviewable in any other place or in any other tribunal unless his decision is impeached on account of gross fraud and connivance between him and the patentee, or unless his excess of authority is manifest on the very face of the patent; as, for example, if the original patent were for a chemical combination, and the new amended patent were for a machine. In other cases it seems to me, the law having intrusted him with the authority to ascertain the facts and grant the patent, his decision, *bona fide* made, is conclusive.

In *Ball* v. *Langles* (18 O G., 1405; 102 U. S., 129; 26 L. Ed., 104) Justice Strong, in a case where the original patent was granted in 1856 and surrendered in 1869 and reissue granted in 1869 and 1870, uses this language:

> When the reissues of 1869 and 1870 were granted, the Commissioner of Patents had authority under the acts of Congress to grant reissues only in certain specified cases. These were whenever a patent was inoperative or invalid by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error had arisen by inadvertence, accident, or mistake, without any fraudulent or deceptive intention. The Commissioner was invested with authority to determine whether the surrendered patent was invalid by reason of a defective or insufficient specification, or because the patentee had claimed more than he had a right to claim as new, and, if he found such to be the case, and found, also, that an error had been due to inadvertence, accident, or mistake without fraud, his decision was conclusive, and not subject to review by the courts. But the law did not confer upon him jurisdiction to grant a reissue embracing new matter or a broader invention than what was revealed by the original specifications or drawings or models, except in some cases, where there was neither model nor drawing. A reissue for anything more is therefore inoperative and void. Accordingly this court has repeatedly held that if on comparing the reissue with its original the former appears on its face to be for a different invention than that described or indicated in the latter it must be declared invalid.

In *Miller* v. *Brass Co.* (21 O. G., 291; 104 U. S., 350; 26 L. Ed., 783, decided in 1881) a patent for an improvement in lamps was granted in 1860 for fourteen years and extended seven years longer. It was twice surrendered, and reissued once in 1873 and again in 1877. Mr. Justice Bradley in delivering the opinion of the court held that the court below was clearly right in holding that the invention specified in the reissued patent was not the same invention which was described and claimed in the original patent. He says:

> It is manifest on the face of the patent, when compared with the original, that the suggestion of inadvertence or mistake in the specification was a mere pretense, or, if not a pretense, the mistake was so obvious as to be instantly discernible in opening the Letters Patent, and the right to have it corrected was abandoned and lost by unreasonable delay.

Further:

> The pretense in this case that there was an inadvertence and oversight which had escaped the notice of the patentee for fifteen years is too bald for human credence. He simply appealed from the judgment of the Office in 1860 to its judgment in 1876,—from the Commissioner and Examiners of that date to the Commissioner and Examiners of this,—and upon a matter that was obvious upon the first inspection of the patent.

And he animadverts upon the evils which had grown up under the practice which allowed patents to be so expanded and idealized years after their first issue, for hundreds and thousands of mechanics who had just reason to suppose that the field of action was open had been obliged to discontinue their employments; that the granting of reissues for such purpose was an abuse of power, and says:

> When this is a matter apparent on the face of the instrument upon the mere comparison of the original patent with the reissue, it is competent for the courts to decide whether the delay was unreasonable, and whether the reissue was therefore contrary to law and void.

The court held in that case that the delay was altogether unreasonable and that the patent could not lawfully be reissued for the purpose of enlarging the claim and extending the scope of the patent. This case is thought to mark a new departure by the Supreme Court in the line of strict construction of the right of reissue. It must be interpreted in the light of the special circumstances which gave rise to it, of the evils that had grown up under the loose practice theretofore prevailing, and the remedy required in the interest of the public. The evil to be corrected was this: Unscrupulous speculators watching the development of successful inventions could in searching the records of prior inventions find one which might embody the same principles and, availing themselves of the opportunity given by the reissue law, embody in the older patent claims which it might have had, but did not, and the result would be that the owner of the later patent, who had spent time and money in the devel-

opment of a profitable business, would be confronted with a patent earlier in date than his, but reissued later, which would completely control his business. This evil certainly demanded correction. Again, there was a presumption—and generally it was a fact—that what was not claimed was not invented by the patentee, and the public had the right to use what was not claimed, either because it had not been invented by the patentee or because by his own act he had made it public property, if it was not so before. This case did not deny that a claim might be enlarged in a reissued patent, but held that there must be a *bona fide* mistake and that there must not be unreasonable delay, any considerable lapse of time affording opportunities and temptations to commit fraud when the circumstances of the original application had passed out of mind. It is interesting to note, as a part of the history of the development of the law on this subject, that so great a judge as Mr. Justice Miller, in *Mahn* v. *Harwood*, (30 O. G., 657; 112 U. S., 364; 6 Sup. Ct., 451; 28 L. Ed., 665,) expressed his dissent from the opinions of the Court in those cases, beginning with *Miller* v. *Brass Co.*, (21 O. G., 201; 104 U. S., 350; 26 L. Ed., 783,) wherein reissues had been held invalid. In connection with *Miller* v. *Brass Co.* it may not be without profit to refer to the case of *Giant Powder Co.* v. *California Powder Works* in 15 O. G., 289; 98 U. S., 126; 25 L. Ed., 77, where the opinion was delivered by Mr. Justice Bradley only a few years before as illustrating what he means when he speaks of a reissue for a different invention. That case shows that the Court fully recognizes the right to modify the claims so as to secure fully the invention described or attempted to be described in the original. The original patent was for a mode of exploding nitroglycerin. The reissue was for the composition, and the Court says:

> It is impossible not to say that they are for an entirely different invention than that secured, or attempted to be secured, by the original patent. If the patent had not been for the mode or process of exploding nitroglycerin, but for a process of compounding nitroglycerin with gunpowder or other substances, and inadvertently omitted to claim the exclusive right of the substance so produced, the case would have been one of very different consideration. If the last patent differs from the first only in stating more clearly and definitely the real principles of the invention, so that those who wish to pirate it may not be allowed to escape with impunity through the imperfection of the language used in the first, there has arisen one of the cases for which it was the intention of the act of Congress to provide.

And after pointing out the distinction that in the case before the Court the processes described in the original had no connection with the compounds or mixtures which were patented in the reissued patents and that the invention of one did not involve the invention of the other the learned judge says:

> These specifications may be amended so as to make it more clear and definite, the claim may be modified so as to make it more conformable as to the exact rights of the patentee, but the invention must be the same. The Legislature was willing to concede to the patentee the right to amend his specifications so as to fully describe and claim the very invention attempted to be secured by his original patent, and which was not fully secured thereby in consequence of inadvertence, accident, or mistake, but was not willing to give him the right to patch up his patent by the addition of other inventions, which, though they might be his, had not been applied for by him, or, if applied for, had been abandoned or waived. For such invention he is required to make a new application, subject to such rights as the public or other inventor may have acquired in the invention.

In *Beach* v. *Hobbs* (87 O. G., 1960; 92 Fed. Rep., 146; 34 C. C. A., 248) the circuit court of appeals, reviewing the decision of Judge Putnam in the same case, wherein he held after reviewing the decisions that the decision of the Commissioner upon mere questions of fact resting upon the applicant's allegation as to inoperativeness and inadvertence will not be reëxamined by the courts, says:

> If by reason of any inadvertence or mistake in the drawings or specifications a patent is rendered in part inoperative, and the patentee promptly applies for a reissue, and no substantial rights are affected or fraudulent intent charged, we think the Commissioner has a right, under section 4916 of the Revised Statutes, to cause a new patent to be issued, and that under such circumstances his decision is conclusive. We know of no authority in conflict with this proposition.

In *U. S.* v. *American Bell Tel. Co.* (79 O. G., 1362; 167 U. S., 267; 17 Sup. Ct., 809; 42 L. Ed., 144) Judge Brewer in delivering the opinion of the Court in 1896 says:

> But, further, Congress has established the Patent Office, and thereby created a tribunal to pass upon all questions of novelty and utility. It has given to that Office exclusive jurisdiction in the first instance, and has specifically provided under what circumstances its decision may be reviewed, either collaterally or by appeal. As stated in *Butterworth* v. *Hoe*, (112 U. S., 50; 5 Sup. Ct., 25; 28 L. Ed., 656,) that it was intended that the Commissioner of Patents, in issuing or withholding reissues, interferences, and extensions, should exercise quasi judicial functions, is apparent from the nature of the examinations and decisions he is required to make, and the modes required by law, according to which, exclusively, they may be reviewed.

In *Topliff* v. *Topliff*, (59 O. G., 1257; 145 U. S., 156; 12 Sup. Ct., 825; 36 L. Ed., 658,) decided in 1891, Mr. Justice Brown reviews the authorities and states what is the settled rule of that Court as to the power to reissue, and his summary is as follows:

> (1) That it shall be for the same invention as the original patent, as such invention appears from the specifications and claims of such original. (2) That due diligence must be exercised in discovering the mistake in the original patent, and that, if it be sought for the purpose of enlarging the claim, the lapse of two years will ordinarily, though not always, be treated as evidence of an abandonment of the new matter to the public to the same extent that a failure by an inventor to apply for a patent within two years of the public use or sale of his invention is regarded by the statutes as conclusive evidence of an abandonment of the patent to the public. (3) That this Court will not review the decision of a Commissioner upon a question of inadvertence, accident, or mistake, unless the matter is manifest from the record, but that the question whether the application was made within a reasonable time is in most, if not all, such cases, a question of law for the court. To hold that a patent can never be reissued for an enlarged claim would be not only to override the obvious intent of the statute, but would operate in many cases with great hardship upon the patentee. The specification and claim of a patent, particularly if the invention be at all complicated, constitutes one of the most difficult legal instruments to draw with accuracy, and, in view of the fact that valuable inventions are often placed in the hands of inexperienced persons to prepare such specifications and claims, it is not a matter of surprise that the latter frequently fail to describe with requisite certainty the exact invention of the patentee, and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention. Under such circumstances it would be manifestly unjust to deny him the benefit of a reissue to secure to him his actual invention, provided it is evident that there has been a mistake, and he has been guilty of no want of reasonable diligence in discovering it, and no third persons have, in the meantime, acquired the right to manufacture or sell what he failed to claim. The object of the patent law is to secure to the inventors monopoly of what they have actually invented or discovered, and it ought not to be defeated by a too strict and technical adherence to the letter of the statute or by application of artificial rules of interpretation.

In *Coon* v. *Wilson* (30 O. G., 889; 113 U. S., 268; 5 Sup. Ct., 537; 28 L. Ed., 963) the reissue was not founded on the invention described in the original, but upon an entirely distinct invention. The Court, holding it invalid, says:

> In the present case there was no mistake in the wording of the claim of the original patent. The description warranted no other claim; it did not warrant any claim covering the bands not short or sectional. The description in the reissue is not a more clear and satisfactory statement of what is described in the original patent, but it is a description of a different thing, so ingeniously worded as to cover collars with continuous long bands, and which have not short or sectional bands. The original patent industriously excluded from its scope the continuous band.

That case did not deal with the question whether a patentee can reissue to properly claim the invention exhibited in the original and included under the statement of invention therein, but with the question whether, under the circumstances there existing, he could properly reissue to embrace an invention that was not so included or exhibited. In the present case the reissue is strictly confined to the invention described in the original and included under the statement therein. It does not fall within the class of cases represented by *Miller* v. *Brass Co.* (21 O. G., 201; 104 U. S., 350; 26 L. Ed., 783) or *Coon* v. *Wilson*, (30 O. G., 889; 113 U. S., 268; 5 Sup. Ct., 537; 28 L. Ed., 963,) where a different invention is described in the claim, but in that other class where reissue is authorized by the plain terms of the statute and by a long line of decisions of the Supreme Court, where the patent had failed to clearly and adequately secure the invention upon which the original was founded, and where the unquestionable object and effect of the reissue were to cover an invention not covered by the original claims. In this class of cases there should not be applied a stricter rule of diligence than that applied by statute in case of public use before application for the patent, even if so strict a limitation as that is applicable. The suggestion in *Miller* v. *Brass Co.* and other like cases of two years as the ordinary limit of reasonable diligence was based not upon any such limitation in the statute, but upon the fact that the two years were allowed for amendments after action of the Patent Office, and two years was the limit of public use allowed before application for the patent. The learned counsel for defendants assumes that the subject is so simple that Painter should have discovered instantly upon reading the original patent the occasion for the reissue, if it existed. He forgets that what seems so simple and easy to him, a past-master of the subject, was not so to a mere inventor, unskilled in the art of interpretation, who could not upon a mere reading of his patent determine what his claims covered. Painter had no hesitation and no doubt what his invention covered, and almost immediately upon the hearing of the issue of Hall's patent he said that it was covered by his invention; but it was not until he was advised by his lawyer that he learned that his claims were not commensurate with his invention, and there was no delay then in filing his application for reissue. Some allowance may well be made for an unlearned man, when we remember that in the recent case of *Westinghouse* v. *Power-Brake Co.* (83 O. G., 1067; 170 U. S., 537; 18 Sup. Ct., 707; 42 L. Ed., 1136) the Supreme Court itself required three hearings before it could determine the meaning and scope of the patent claims, and the record in this case shows that such learned experts as General Spear and Mr. Walker differ radically as to what the claims of the original patent cover. The cases relied upon by counsel in support of his contention that an unreasonably long time passed between the granting of the original and the application for reissue are *Miller* v. *Brass Co.*, where there was a delay of about fourteen years; *Mahn* v. *Harwood*, (30 O. G., 657; 112 U. S., 364; 6 Sup. Ct., 451; 28 L. Ed., 665,) where there was a delay of about four years; *White* v. *Dunbar*, (37 O. G., 1002; 119 U. S., 52; 7 Sup. Ct., 72; 30 L. Ed., 303,) where the delay was about five years; *Hartshorn* v. *Barrel Co.*, (38 O. G., 540; 119 U. S., 674; 7 Sup. Ct., 421; 30 L. Ed., 539,) where there was a delay of nine or ten years; *Leggett* v. *Oil Co.*, (63 O. G., 1201; 149 U. S., 293; 13 Sup. Ct., 902; 37 L. Ed., 737,) which did not turn at all upon the question of delay in applying for the reissue, but was decided on other grounds which impeached the patent itself. The question of laches which arose in that case grew out of an alleged promise made in 1873, the bill seeking relief thereon not being filed until 1888, and *Dunham* v. *Manufacturing Co.*, (67 O. G., 1571; 154 U. S., 110; 14 Sup. Ct., 986; 38 L. Ed., 924,) which turned not upon any question of laches, but upon questions which have no application here, wherein the court decided that the patent had clearly not been infringed by the defendant. It will not be profitable to continue the citation of the numerous cases on this subject. Analysis of them will show that there is a distinction well marked between reissues broadening the claims of the original, but confined to the invention therein exhibited, which the courts sustain, and reissues that depart from the invention exhibited in the original and included under its statement of invention.

Where there has been an expansion of the patent to describe inventions substantially different from the original, covering nebulous combinations not exhibited therein, and where there has been protracted and unreasonable delay in face of the manufacture of articles not substantially covered by the original invention, the reissue has been held void; but the courts, recognizing the fact that the ordinary inventor is not usually skilled in technical rules of construction and is apt to suppose that his claims protect him in the essential elements mentioned in them, and that these claims and specifications are usually drawn by men who are strangers to and ignorant of the art within which they lie, and that even skilled solicitors are not infallible in framing technical documents, have sanctioned reissues which permit the framing of claims adequate to secure the full benefits of the inventions designed to be protected by the patent laws. The essential justice of allowing such reissue was recognized by Chief Justice Marshall in *Grant* v. *Raymond* (6 Pet., 243; 8 L. Ed., 376) before any statute was enacted, and the reissue in that case was sustained upon general principles of right and justice in face of the argument of Mr. Webster that the defendants had begun the infringing manufacture after the grant of the original, which was four years before the reissue, the result of which was to render

them liable for acts not within the description of the invention contained in the original patent, it not being denied that the machinery of the defendants while infringing the reissue did not infringe the original. The argument for the plaintiff in this case could not be more strongly stated than it was in that opinion, and a brief statement of the facts will show that it falls within the principles which have governed the courts in sustaining reissues and is free from the vices which have avoided them. After long years of contention in the Patent Office, during the progress of which many of the claims were disallowed and eliminated, the patent was issued May 28, 1895. The Hall patent application for which had been filed February 28, 1894, was issued June 18, 1895. On July 2, 1895, Painter requested Alexander to call on Keizer and inform him that Hall's patent was an infringement on his patent of May 28. There is some discrepancy in the testimony of Alexander and Keizer as to the exact conversation that took place, and the precise language used is unimportant. It is certain that within about a fortnight after Hall's patent was granted Painter, believing that it was an infringement, took measures to notify Keizer, who was an old associate and friend, of his belief, and that Keizer received some sort of notice. Painter at that time was in ill-health, broken down with nervous prostration, and shortly thereafter went abroad, where he remained until about the end of October. On November 8 Keizer, who represented

ing, where both sides had been represented by able counsel and not impeached by fraud or favoritism, has great persuasive force. It is argued here that the claim introduced by reissue is substantially the same as the third and twelfth claims in the original application. The comparison of this claim, which is No. 5 in the reissued patent, shows that it is vitally distinguished from them, and the testimony of a very competent expert, General Spear, points out the distinction and the Board of Appeals recognized it. It is also argued that claim No. 5 of the reissued patent is broader than any claim of the original patent. We are of opinion that this claim is germane to the invention exhibited in the original and is included under the statement of invention of the original. It does not exhibit any change in the nature of the invention described, and it simply gives a more adequate description of such invention, which enlarges the claim, but does not enlarge the invention. We are further of opinion that there has been in this case no unreasonable delay and no intervening right which forfeits or waives the right of reissue covered by the statute. The Hall patent was applied for in February, 1894, and the application for it could not have been induced by the limitations in the claims of the Painter patent, and there is no reason to believe that the course of the parties claiming under it was in any respect different from what it would have been if the original had been precisely in the terms of the reissue. Under all the

original patent and concealed that abandonment from the Patent Office in making his application. As we have already held that there was no abandonment, this charge is too trivial for further notice. The fraud alleged in the seventh defense is that Painter made a false oath in his application for reissue in stating that the errors and omissions were due to inadvertence, accident, or mistake. In that application Painter states that the specifications were hastily drawn up by R. D. O. Smith during a hurried visit of the deponent to Washington; that he retained no copy of the papers and took it for granted that if the papers and drawings should be found thereafter to be faulty they could and would be corrected or amended; that during the several years during which his case was pending these errors or omissions wholly escaped his own attention and he believes that they were unnoticed by his attorneys and by the Patent Office officials who acted upon it; that during that time he was engaged in developing another bottle-sealing system involving a previous invention and was encountering many difficulties, which almost completely absorbed his attention. There is no evidence before us that any of these statements are untrue. All of these papers were before the officials of the Patent Office, who had before them the record of the original application and had the best means of determining whether the facts alleged in this application for reissue were as stated. They determined them in favor of the application and granted the reissue upon

vention from a different point of view. He holds that—

> Painter's invention was not a new application of a scientific principle to obtain a useful result, but rather an improvement in material and mechanism of a known device.

In our view it represents a distinctly original conception so essentially unlike anything in the prior art that nothing earlier has been presented to us out of which the defendants could read the invention of the patent or either claim of it. There was no known device which could be converted into the Painter invention of any improvement short of rejection of the entire plan. The answer of the defendants, it is true, stated that this patent was void for want of novelty and referred to the prior invention of Young in Great Britain in 1848. This was urged by Hall's attorneys upon the attention of the officials of the Patent Office in the reissue proceedings and held by the Board of Examiners-in-Chief not to exhibit the Painter invention, and the defendants' own expert, Lorenz, testified that the Young patent was not a practical or operative device, and seems so far to have satisfied the learned counsel for defendants on that point that the Young patent was not introduced in evidence. And the Lenglet patent, No. 229,537, which the court refers to as showing that Painter should not be treated as a pioneer inventor, seems to us rather to illustrate the originality of Painter's conception than to furnish grounds for restricting it. Of course we do not mean that Painter's was the first device ever used for stopping the mouths of bottles, but it differs fundamentally from any preced-

defendants did not refer to them in his very full and able argument, it will be scarcely necessary to do more than glance at them. The Watts patent, No. 326,696, does not involve at all the principles of construction and action of the Painter patent. In that, it is true, there is a groove and shoulder in the mouth of the jar and the packing lies in the groove and upon the shoulder, but the cup is essentially different. It is not laterally expanded and is not capable of lateral expansion and has and can have no permanent flexion. The cap is clamped down by a removable clamp. In the Parker patent, No. 41,532, the disk acts like a solid plug and crowds the packing-ring laterally against the neck of the jar, and the patent expressly states that the disk is "inelastic." In the De La Vergne patent, No. 432,468, there is no disk having permanent flexion or anything like it. There is simply a plug intended to be air-tight, which has a latch to lock it in place. In the Van Vliet patent, No. 275,793, there is no groove in the mouth of the bottle and no cup-shaped disk having permanent flexion. In the Smith patent, No. 314,885, no imagination could convert a glass disk into a cup-shaped disk having permanent flexion, and there is cement or wax poured into an annular chamber around the edge of the disk. Seibold's patent, No. 271,527, is for a cartridge where there is no groove nor any cup-shaped disk. In the Atwood patent, No. 351,730, there is no peculiar cup-shaped disk. It seems to be a device for holding in a cork instead of being a substitute for a cork. In the Dennis patents, No. 205,234 and No. 295,235, there is no shoulder or groove, no cap in the first four claims and no groove, cap, or packing in the fifth claim. They relate to improvements in gun-wads. The principles and functions in all are entirely different, and they have only the shade of an unsubstantial resemblance. No other such device has been brought to our attention. It is true that none of the elements here referred to are in themselves new; but the invention consists in taking elements possessing different functions and coöperating them in a different manner from any heretofore suggested. The testimony shows that the complainant corporation and the defendant company have no competitors in furnishing bottle-stoppers which at all answer to the above description. About thirty millions of such bottle-stoppers were put upon the market by the complainant company alone during the last year, and the fact that until the Painter patents were issued no other bottle-stoppers of like character or based upon like principles were ever sold is of itself strong evidence of the originality of the Painter devices.

The claims of the Painter patent charged to be infringed are as follows:

1. The combination of a receptacle having a groove in the inside of its mouth and a shoulder projecting inward beyond the wall of the mouth above the groove, and a cup-shaped disk or plate of material having permanent flexion, all operating as set forth.

4. The combination of a receptacle having a groove in the inside of its mouth, and a shoulder projecting inward beyond the wall of the mouth of the groove, a cup-shaped disk or plate of material having permanent flexion, and a packing or stopper beneath and retained by the disk or plate, all operating as set forth.

5. The combination, substantially as hereinbefore described, of a bottle having an interior groove in its mouth, a packing or gasket in said groove, and a disk or plate of material having permanent flexion, which confines the packing in said groove, and maintains it in tight contact with the adjacent surface of the groove.

The claims of Hall's patent are as follows:

1. The combination, substantially as hereinbefore described, of a suitable bottle having a throat affording a sealing contact-surface, a hollow ductile metallic plug having a portion of its periphery expanded within the throat of the bottle, and having an accessible shoulder for engagement by a bottle-opener, and a sealing medium, which is in contact with said sealing contact-surface, and is securely maintained in its sealing position by said plug.

2. The combination, substantially as hereinbefore described, of a suitable bottle, a hollow, ductile metallic plug, which has a portion of its periphery expanded within the throat of the bottle, and has an accessible shoulder for engagement by a bottle-opener, and a gasket which is interposed between the metallic plug and the bottle, and is compressed and maintained in its sealing position by said plug.

3. A bottle-sealing device, embodying in combination a hollow plug, composed of strong but ductile metal, and an annular gasket mounted peripherally on the plug, substantially as described, the whole being adapted to freely enter the throat of a suitable bottle, and to be secured therein with sealing function, by peripherally expanding the portion of the plug which is adjacent to the sealing-gasket, and the latter enabling the metal to be indented and strongly engaged by a bottle-opener.

4. The combination, substantially as hereinbefore described, of a bottle having in its throat an annular shoulder, an annular packing or gasket, and a hollow, ductile metallic plug, peripherally expanded as described adjacent to said gasket and shoulder, and thereby not only compressing the gasket into sealing contact between the plug and the bottle, but also securing the plug and the gasket against displacement under internal pressure, and also affording within the plug an accessible shoulder for engagement by a bottle-opener.

The defendants' stopper follows the same plan as Painter's and uses the same elements, which coöperate in the same way to effect the same purpose. There is a change of phraseology in this, that what Painter describes as a "cup-shaped disk" is described by Hall as a "hollow, ductile metallic plug;" what Painter describes as "a material having permanent flexion" Hall describes as "strong but ductile metal;" what Painter describes as "packing" Hall describes as a "sealing medium." The walls of this cup-shaped disk or hollow plug are expanded in the same way into a like groove for an identical purpose and assume practically the same shape after the compression. In Hall's, as in Painter's, the part of the disk or plug which enters the bottle-neck is made slightly smaller in diameter than the bottle-neck. The only important difference between the two is that in the defendants' there is an outward flange on top of the cup-shaped disk or plug, which is described as "an accessible shoulder for engagement by a bottle-opener." This shoulder may serve an additional purpose and may be an improvement on Painter's patent; but even if it answers an additional purpose it would not thereby escape infringement. The essential operation, which is the sealing of bottles by the expansion of strong and ductile material against a packing in the groove of the bottle-neck, is the same. General Spear, who after long training in other careers became an Examiner in the Patent Office, passing through all the grades until he was Commissioner, and who has devoted much of his life to examining mechanisms and patented devices, testifies that certain of defendants' devices in evidence correspond exactly to the three claims of the Painter patent and that those made with the outward projection of the flange instead of the inward projection of the shoulder correspond in substance with each of these claims, the outward projection of the flange in Hall's patent

being the mechanical equivalent of the inward projection of the shoulder in the Painter patent. None of the experts examined by the defendants have disputed the testimony for the complainant on this point. The inward projection of the shoulder in the specification of the Painter patent seems to serve no other purpose than as a safegusrd against the metallic plate falling below the groove if it should happen to escape from the expanding-tool. In the defendants' patent this purpose is served by the contact of the disk with the shoulder in the bottle-neck. In one the glass surface expands inward; in the other the metal surface is expanded outward to secure the desired contact and prevent the metallic disk falling into the bottle. The outward flare of the disk above the groove in Hall's patent is the obvious equivalent of the inward projection of the glass below the groove in the Painter patent, this outward flare or accessible shoulder serving also the additional purpose of facilitating the opening of the bottles. Without producing the drawings of the patents and the exhibits, we doubt that the subject can be made more plain than by reproducing General Spear's description of the defendants' sealing device as shown in the exhibits. He describes it as—

a stopper consisting of a metallic plug of cup shape, having around its open end or margin an outwardly-turned flange, and adapted to fit into the mouth of the bottle with the open end upward; that is to say, the bottom of the cup being downward when it is inserted in the bottle. When the stopper is inserted in the bottle, in order to effect a closure it is forced outward or expanded, and this outward forcing causes the metal of the stopper to enter into a peripheral groove formed around the wall in the neck of the bottle near the mouth. A packing consisting of a band of rubber is interposed between the metal plug and the wall of the groove, and is forced by the expansion of the metal into the groove and against the wall, and is held therein by the metal, which retains its expanded shape after it is subjected to the expanding pressure. The stopper is retained in the bottle by the metal forced into the groove, and the pressure upon the packing between the metal and wall of the groove forms a seal which retains the contents of the bottle. I find this construction shown and described in the patent referred to in the question, (Painter's reissued patent, No. 11,085.) I find described and shown in that patent a bottle-stopper consisting of material substantially inelastic, which is expanded in the mouth of the bottle, and which, when expanded, retains its shape and holds its stopper in the bottle. Two forms of this stopper are shown in the patent and illustrated in the drawings. Both forms are cup-shaped; both are expanded in the mouth of the bottle, and in expanding are forced into a peripheral groove near the mouth of the bottle. In the form shown in the first four figures of the patent the cup-shaped stopper is inverted. In the form shown in Figs. No. 5 and No. 6 the bottom is downward. The form of the stopper which is used with the bottom downward is shown in Fig. No. 6, and consists of a shallow cup, described in the specification as being made of malleable metal, substantially inelastic, such as commercial tin. A packing is inserted in the mouth of the bottle and located in the groove, and, when the cup-shaped stopper is expanded therein, the walls of the cup are forced into the groove by a lateral movement of an expanding-tool shown in Fig. No. 5 of the drawings of the patent, and thus the metal is forced against the packing interposed between the cup and the wall of the groove, and the packing is compressed between the cup and the side wall, and a seal thereby formed, while the cup is held in the mouth of the bottle by its contact with its groove. The construction so far described I find in these exhibits.

After further description, in reply to a question whether the improvements in stoppers for bottles mentioned in the statement of invention of the complainant's patent are substantially embodied in the defendants' seals, he says:

The statement of invention found in the second paragraph of the complainant's patent appears to be a very broad one, and is stated in comparison with the prior state of the art existing at the time of the application of the patent. It lays an especial stress upon the stopper made of substantially inelastic material expanded within a bottle's mouth, and by reason of the nature of the material remaining in the expanded shape when so expanded; this is in contrast with the old form, in which the material forming the seal was held against the bottle-surface by pressure externally applied, and independent of the stopper itself. The exhibits are all included in this statement, and I find them included in the first, fourth, and fifth claims of the complainant's patent. Those claims included elements which I find in the exhibits, but the third claim is excluded by a clause therein which limits it to the "concave side downward of the disk." This arrangement I do not find in the exhibits.

Some stress is laid upon the fact that the inward projection of the shoulder in the exhibits showing the defendants' stopping device is very slight; but only a very slight projection is required if it is sufficient to arrest a disk that would pass through the bottle-mouth, as that is the only purpose which it serves. But the defendants' circulars recommend an alternative and preferred form of construction—the insertion of a gasket before the disk is applied. In such cases the gasket rests upon the lower shoulder of the groove and is compressed against it by the expansion of the disk. The statement of invention in claim No. 5 of the Painter patent lays no stress upon that part of a construction requiring a shoulder and does not refer to the relative diameter below the groove, and if claim No. 5 is so construed as to eliminate the shoulder, as we do construe it according to its plain words, the fact of infringement is so plain that in argument the defendants' counsel admitted that its "permanent-gasket system" infringes, if his many objections to claim No. 5 are overruled. Reference to some of the decisions of the Supreme Court will show that infringement is not avoided by mere change of form, or renewals of parts, or reductions of dimensions, or the substitution of mechanical equivalents, or the studious avoidance of the literal definition of specifications and claims, or the superadding of some improvement. The Court will look through the disguises, however ingenious, to see whether the inventive idea of the original patentee has been appropriated and whether the defendants' device contains the material features of the patent in suit and will declare infringement even when those features have been supplemented and modified to such an extent that the defendant may be entitled to a patent for the improvement. *Clough* v. *Manufacturing Co.* (22 O. G., 2157; 106 U. S., 164; 1 Sup. Ct., 188; 27 L. Ed., 134) and *Clough* v. *Manufacturing Co.* (22 O. G., 2241; 106 U. S., 178; 1 Sup. Ct., 198; 27 L. Ed., 138) illustrate such a case, where certain elements in a valve were held in one case to be equivalents of those in a former patent and to infringe, yet were so modified and improved as to sustain a later patent. In *Consolidated Valve Co.* v. *Crosby Valve Co.* (30 O. G., 991; 113 U. S., 157; 5 Sup. Ct., 513; 28 L. Ed., 939) the improvements covered by the patents had been held by the court below to involve only mechanical modifications of the prior art; yet the Supreme Court regarded the Richardson invention as a "pioneer invention," and although the defendant's valves departed widely from the terms of the claims in suit it was held that they had secured under a change in form and by the transposition from one member to another of certain functions the substance of the complainant's invention, and the claim was construed to cover these modifications. Says the Court, (page 171, 113 U. S.; page 521, 5 Sup. Ct., and page 943, 28 L. Ed.:)

Taught by Richardson and by the use of his apparatus, it is

not difficult for skilled mechanics to take the prior structures, and so arrange and use them as to produce more or less of the beneficial results first made known by Richardson; but prior to 1899, though these old patents and their descriptions were accessible, no valve was made producing any such result.

Richardson's invention was a safety-valve which while it automatically relieved the pressure of steam in the boiler did not in effecting that result reduce the pressure to such an extent as to make the relieving apparatus practically impossible because of the expenditure of time and fuel necessary to bring up the steam again to the proper working standard. His valve was the first which had a strictured orifice leading from the huddling-chamber to the open air to retard the escape of steam, enabling the valve to open and to close suddenly with small loss of pressure in the boiler. In the infringing patent the valve proper was an annulus and the extended surface was a disk. In Richardson's the valve proper was a disk and the extended surface an annulus surrounding the disk. The defendant's had two ground joints, and only the steam which passed through one of them passed through the stricture, while in Richardson's all the steam which passed into the air passed through the stricture. The Court says, (page 179, 113 U. S.; page 525, 5 Sup. Ct., and page 946, 28 L. Ed.:)

When the ideas necessary to success are made known, and a structure embodying those ideas is given to the world, it is easy for the skilful mechanic to vary the form by mechanism which is equivalent, and is therefore, in a case of this kind, an infringement.

These conclusions were based on the fact that no prior structure had produced the same result as Richardson's, although the Court of course did not mean that Richardson had produced the first valve. In the case before us it is clear that no bottle-stopping device at all similar to those exhibited were ever in use before Painter's first invention. How easy it was for Hall, who commenced work under him as an apprentice and for years was engaged in the same shop upon Painter's devices, to absorb the inventive idea and to produce the same result by some equivalent method. *Morley Sewing Machine Co.* v. *Lancaster* (47 O. G., 267; 129 U. S., 263; 9 Sup. Ct., 299; 32 L. Ed., 715) was for infringement of a patent for sewing on buttons. This was not the first button-sewing machine; but the Court described it as a "pioneer machine" and held that it was infringed by a machine that made use of elements which were individually considered quite different from those in the patent, saying, (page 290, 129 U. S.; page 308, 9 Supt. Ct., and page 725, 32 L. Ed.:)

The mechanical devices used by the defendants are known substitutes or equivalents for those employed in the Morley machine to effect the same results. And this is the proper meaning of the term "known equivalent," in reference to a pioneer machine such as that of Morley; otherwise, a difference in the particular devices used to accomplish a particular result in such a machine would always enable a defendant to escape the charge of infringement, provided such devices were new with the defendant in such a machine, because, as no machine for accomplishing the result existed before that of the plaintiff, the particular device alleged to avoid infringement could not have existed or been known as such a machine prior to the plaintiff's invention.

An instructive case cited in this opinion is that of *Proctor* v. *Bennis*, (36 Ch. Div., 740,) where Lords Justices Cotton, Bowen, and Fry delivered opinions. *Sessions* v. *Romadka* (59 O. G., 939; 145 U. S. 29; 12 Sup. Ct., 799; 36 L. Ed., 609) was for infringing a patent for a very simple spring-catch for trunks, and although the Court says that the mechanical devices used by the defendant when individually regarded differed considerably from those of the patentee, yet as he was the first to make this particular kind of catch he was regarded as a pioneer in the art, and therefore entitled to a sufficiently liberal construction of his patent to cover the defendant's methods. In another case the Supreme Court says:

Authorities concur that the substantial equivalent of a thing, in the sense of the patent law, is the same as the thing itself.

It is useless to multiply authorities. The three cases cited show how far the Supreme Court has gone to protect what it calls "pioneer invention." The Painter invention is more distinctly a pioneer invention than any of these. It requires no specially liberal construction of it, however, to make it cover the defendants' devices. In a late case in the Circuit Court of Appeals for the Sixth Circuit (*McCormick Mach. Co.* v. *Aultman, Miller & Co.*, 82 O. G., 1988; 69 Fed. Rep., 371; 16 C. C. A., 259) the court says:

The rule as to infringement of pioneer invention, which points the way to new products or results, is analogous to that applied in cases of infringement of process patents in which the discoverer is only required to point out one practical method of using his process, and is permitted to claim tribute from all who thereafter use the process, whether with his apparatus or with a different or improved means.

And refers to *Morley Sewing Machine Co.* v. *Lancaster* (47 O. G., 267; 129 U. S., 263; 9 Sup. Ct., 299; 32 L. Ed., 715) and other cases.

The ninth defense raises the question of equitable estoppel arising out of the conduct of Painter, who, as alleged, stood by for nearly seven months and saw Keizer and his associates organize a company and expend large sums of money in the development of the Hall patent. We need not repeat what has been already said upon this point in the discussion of the questions raised upon the reissue. Within two weeks after the issue of the Hall patent Painter sent a message to Keizer that he considered the Hall patent an infringement. A competent expert has testified that this patent infringed some of the claims of the original Painter patent. Keizer is presumed to have known the law which entitled Painter to a reissue. He was entirely familiar with the Painter inventions. He took his chances in the lottery of infringement and has lost and cannot be heard now to complain that he was misled.

The tenth defense is want of equity jurisdiction in cases of alleged infringement where the things covered by the patents have never been made or sold by the patentees. We have already disposed of this, in effect, in holding that the delay in manufacturing devices under this patent was explained by the litigation which impeached its validity and that no implications unfavorable to the patentee arose out of such delay. The complainant company was supplying the market with bottle-sealing devices of Painter's invention of the same general type. The "Crown Seals" made under the patents of 1892 are adapted to serve the same purpose. In them the metallic disk is placed over and outside of the mouth of the bottle instead of being placed inside of it. This is a cup-shaped disk, which in form and function is the same as shown in the patent in suit, made of material of the same kind, which stays in the form in which it is pressed. It is pressed into a groove, and by the same pressure the packing is held in contact forcibly with the surface of the bottle, the groove being outside instead of inside the bottle. The cases cited fall short of supporting this defense. In *Hoe* v. *Knap* (36 O. G., 1244; C. C., 27 Fed. Rep., 204) the patented device was a small part of a complicated machine, which in other respects the defendants were entitled to use. The court did not refuse to entertain jurisdiction, but under the circumstances refused an injunction in the interlocutory decree and allowed the defendants to use it on their giving bond. In the next case cited—*New York Paper Bag, Mach. & Mfg. Co.* v. *Hollingsworth & Whitney Co.*, (56 Fed. Rep., 224; 5 C. C. A., 490)—the decree of the circuit court which had taken jurisdiction was affirmed by the circuit court of appeals; but Judge Putnam in a short separate opinion expressed a doubt whether the case submitted was not one of mere legal right, wherein complainant should be left to his remedy at common law, if entitled to relief at all. But the same judge in the later case of *Packard* v. *Lacing Co.*, (33 U. S. App., 327; 16 C. C. A., 639; 70 Fed. Rep., 66,) wherein it was asserted that the patent in issue was a "paper patent" and there were no proofs that the patented machines had ever been constructed or put into use, held that—

the grant of the patent makes a *prima facie* case in this particular—

and jurisdiction was entertained. In the other case relied on—*Germain* v. *Wilgus*, (73 O. G., 1555; 67 Fed. Rep., 598; 14 C. C. A., 561)—the bill showed that the right claimed by the appellants in regard to their patent was being contested in a court of law and prayed that action be enjoined. The court held that—

a party having legal rights, unless some interposing equitable right is presented, has a constitutional guaranty that the facts he presents for determination shall be tried by a jury—

and as they found no equity in the bill it was dismissed. Some of the authorities cited deal with the question of the propriety of granting preliminary injunctions unless there had been a verdict of a jury or long acquiescence in the validity of the patent by the public. These have no bearing on the question of equity jurisdiction on final hearing. The principal case cited therein is *Root* v. *Railway Co.*, (21 O. G., 1112; 105 U. S., 189; 26 L. Ed., 975,) where a bill merely for an account of profits and damages against an infringer was dismissed because it did not appear that there was not a complete remedy at law; but Mr. Justice Mathews in the course of his opinion, referring to the statute which expressly vests the Court with jurisdiction "to grant injunctions according to the course and principles of courts of equity to prevent the violation of any right secured by patent," (now section 4921, Revised Statutes,) states the well-settled principles which fully sustained the jurisdiction in this case. (See *Shaw* v. *Cooper*, 7 Pet., 292; 8 L. Ed., 689; Walk. Pat., sec. 106.)

Upon the whole case we are of opinion that the complainant is entitled to the relief prayed in the bill. The inventive idea whereby a bottle-sealing device of great economy of material, great facility in operation, and great stability in maintenance was secured by the joint and coöperating action of elements which had never before been combined to accomplish the same purpose or operate in the same way was entirely original with Painter. Nothing in the prior art affects his patent. The defendants enjoyed the unusual opportunity of presenting to the trained experts of the Patent Office every substantial defense which has been presented here. The original and reissued patents were granted in strict accordance with the law. The claims therein clearly cover the invention disclosed in the defendants' patent, and the infringement is so apparent that the experts called by them have scarcely disputed it. Painter's invention is not one of those great epoch-marking discoveries like that of printing or the steam-engine or the electric telegraph, which opened to their inventors the portals of the Pantheon of the immortals. For such as these the love of fame and the glory of being benefactors of human kind served alike as motive and reward; but to the patient laborer in workshop and factory the incentive of fame and glory is absent. For them the stimulus of the rewards offered by our patent laws is needed to encourage by the hope of profit that zealous eagerness to improve processes, to remedy defects in machinery, to invent new methods and appliances for saving labor and cheapening production in the numberless articles that are in daily use. It is this stimulus that has made the American mechanic the most alert, observant, and studious of any in the world, and it is the indefinite multiplication of these small inventions and improvements that has wrought an industrial revolution and brought his country to the forefront of the world's commerce. It was the consciousness that in the knapsack of every private soldier there might be the baton of a marshal of France that inspired her soldiers to unparalleled achievements. In our unheroic industrial age the central processes of a nation's life lie in production and distribution. The protection and hope of profit held out by our patent laws inspires that stimulating energy which leads to experiment, invention, and all the resulting benefits. A refusal of that protection in a proper case will deaden and destroy it. The decree of the court below is reversed and the case remanded with instructions to grant the relief prayed for in the bill. Reversed.

Errata.

Errata correcting errors in Classification Order No. 1,425, as published in the OFFICIAL GAZETTE of September 17, 1901:

Revision of Classification.

(ORDER No. 1,425.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 9, 1901.

The following changes in classification are hereby directed:

In Division XXII all the subclasses under Class 89, Ordnance, are abolished, and the following are substituted:

CLASS 89.—ORDNANCE.

8. Accelerating.
Automatic—
2. Gas-operated.
3. Recoil-operated.
14. Barrels—
16. Composite.
15. Wound.
17. Breech-closures—
26. Gas-checks.
18. Key-locked.
19. Screw—
20. Interrupted—
21. Fixed-ammunition.
22. Transverse—
24. Sliding.
23. Sliding and swinging.
Breech-closures—
Transverse—
25. Swinging.
33. Cartridge-feeding—
35. Belts.
34. Holders.
27. Firing devices—
28. Electric.
45. Loading—
46. Hoisting apparatus.
47. Rammers.
9. Machine-guns—
11. Axially-moving breech-block.
10. Centrifugal.
12. Revolving-barrel.

Machine-guns—
13. Revolving-cylinder.
1. Miscellaneous.
37. Mounts—
38. Disappearing gun—
39. Counterpoise.
40. Field.
42. Recoil-checks—
43. Fluid.
44. Spring.
41. Training mechanisms.
6. Pneumatic—
7. Explosive-charge.
29. Practice-barrels.
4. Semi-automatic.
36. Shields.
32. Sights.
5. Submarine.
31. Tompions and valves.
30. Vents and stoppers.

CLASS 89.—ORDNANCE.

DEFINITIONS.

Class.

This class includes all guns and other cannon adapted to be mounted or supported otherwise than by hand, also the mounts, supports, or carriages, loading and hoisting mechanism, shields and sights.

Subclasses.

1. MISCELLANEOUS. Patents not classifiable in any of the other subclasses.

2. AUTOMATIC, GAS-OPERATED. Those guns which utilize the expansive force of the gases of explosion to automatically perform the entire cycle of operations comprising opening the breech, ejecting the shell, feeding in a new charge, and closing the breech. Usually by holding the safety-sear the charge is fired and the loading and firing continue until the sear is released or the ammunition no longer supplied.
(Note.—Search also class 42, FIRE-ARMS, subclass, Guns, gas-operated.)

3. AUTOMATIC, RECOIL-OPERATED. Those in which the recoil of the gun opens the breech, ejects the shell, inserts a new charge, and closes the breech. Usually a safety-sear is provided which, if held, permits the charge to be fired and the cycle of operations to be repeated so long as ammunition is supplied.
(Note.—Search also class 42, FIRE-ARMS, subclass, Guns, recoil-operated.)

4. SEMI-AUTOMATIC. Those guns which utilize the force of the explosion to open the breech and eject the cartridge-shell if present. A new charge inserted by hand or other separate means usually releases the breech-block, which then automatically closes. Some breech-blocks are, however, closed by hand.

5. SUBMARINE. Those adapted to be employed under water, usually for discharging torpedoes.

6. PNEUMATIC.—Those adapted to the use of compressed air or mixtures of air and other gases as the propelling agent.

7. PNEUMATIC EXPLOSIVE-CHARGE. Those in which the compression of the propelling-gas is secured by exploding a separate charge or in which the mixture is itself exploded.

8. ACCELERATING. Those in which several charges are successively exploded to produce an accelerating effect upon the projectile.

9. MACHINE-GUNS. Those in which mechanical means are employed to load, fire, and reload the gun or in which a holder containing a series of charges is mechanically shifted or fed to bring the charges successively to firing position.

10. MACHINE-GUNS, CENTRIFUGAL. Those which have no explosive charge, but depend upon centrifugal force to throw the projectile.

11. MACHINE-GUNS, AXIALLY-MOVING BREECH-BLOCK. Those in which the movement of the breech-block in opening and closing the breech is in line with the axis or bore of the gun.

12. MACHINE-GUNS, REVOLVING-BARREL. Those in which the barrels revolve during the loading operations. The Gatling and Hotchkiss type are here included.

13. MACHINE-GUNS, REVOLVING-CYLINDER. Those in which, like the common revolver, the cylinder containing the charges revolves to bring a new load or set of loads to firing position.

14. BARRELS. Those in which the novelty resides in the structure of the barrel or body of the gun or the shape or arrangement of the bore or firing-chamber.

15. BARRELS, WOUND. Those in which the barrel is strengthened by windings of wire, metal ribbon, rawhide, etc.

16. BARRELS, COMPOSITE. Those which are built up or formed of more than one piece.

17. BREECH-CLOSURES. Those in which the novelty resides in the breech-block, its operating mechanism, or the means for securing the block to the breech.

18. BREECH-CLOSURES, KEY-LOCKED. Those in which a locking-key is used to hold the block in the breech. The key may be radially thrown out, inserted behind the block, or otherwise employed.

19. BREECH-CLOSURES, SCREW. Those in which the breech-block is screwed into the breech.

20. BREECH-CLOSURES, SCREW, INTERRUPTED. Those in which the block is held in the breech by divided or interrupted screw-threads.

21. BREECH-CLOSURES, SCREW, INTERRUPTED, FIXED AMMUNITION. Those closures of the divided-screw-thread type adapted to fire charges inclosed in a rigid case.

22. BREECH-CLOSURES, TRANSVERSE. Those in which the block in opening or closing the breech moves transversely to the axis of the bore.

23. BREECH-CLOSURES, TRANSVERSE, SLIDING AND SWINGING. Those in which the breech-block has both a transverse sliding and then a swinging movement.

24. BREECH-CLOSURES, TRANSVERSE, SLIDING. Those in which the breech-block slides laterally to open the breech.

25. BREECH-CLOSURES, TRANSVERSE, SWINGING. Those in which a block is pivoted and has no movement except to swing transversely to the axis of the bore to open or close the breech.

26. BREECH-CLOSURES, GAS-CHECKS. Those in which the novelty resides in the means for checking the gases from escaping at the breech in those guns which fire loose charges.

27. FIRING DEVICES. Those in which the novelty lies in the lock or charge-exploding mechanism.
(Note.—Search also in this class the subclasses of 2, Automatic, gas-operated, and 3, Automatic, recoil-operated; all those under 9, Machine-guns; also, those under 20, Breech-Closures, screw, interrupted; 21, Breech-Closures, screw, interrupted, fixed-ammunition, and 24, Breech-Closures, transverse, sliding.

28. FIRING DEVICES, ELECTRIC. Apparatus for firing charges by electricity.

29. PRACTICE-BARRELS. Small barrels adapted to be inserted in the bore of larger guns in order to permit firing a small load for practice or any other purpose.

30. VENTS AND STOPPERS. Those in which the novelty resides in the vent or touch-hole or its stopper.

31. TOMPIONS AND VALVES. Those in which the novelty resides in the tompion or valve for closing the gun-muzzle or other opening in the barrel.

32. SIGHTS. Those in which the novelty resides in the mounting or arrangement of the sight or the traverse-indicators.
(Note.—Search also in class 42, FIRE-ARMS, subclass, Sights.)

33. CARTRIDGE-FEEDING. Those devices adapted to feed the cartridges to the gun.

34. CARTRIDGE-FEEDING, HOLDERS. Magazines, feed-cases, packages, etc., in which cartridges are regularly placed to be fed therefrom to the feeding-chute or other mechanism which directly supplies the gun.

35. CARTRIDGE-FEEDING, BELTS. Those in which the novelty resides in the feed-belt to which the cartridges are attached.
(Note.—Search also in class 180, ACCOUTREMENTS, subclass, Cartridge-Belts.)

36. SHIELDS. Gun-shields, body-attached shields, bullet-proof cloth, etc.

37. MOUNTS. Gun-supporting devices not classifiable in any of the other subclasses of this group.

38. MOUNTS, DISAPPEARING GUN. Those in which the gun is made to disappear after firing to be reloaded.

39. MOUNTS, DISAPPEARING GUN, COUNTERPOISE. Those which are balanced by a weight or weights.

40. MOUNTS, FIELD. Wheeled mounts, tripods, etc., adapted to be readily moved, as in field-service.

41. MOUNTS, TRAINING MECHANISM. Those in which the novelty resides in the means for positively moving the gun in pointing it.

42. MOUNTS, RECOIL-CHECKS. Those in which the novelty resides in the devices for taking up the force of the recoil.
(Note.—Search also in this class, subclasses 3, Automatic, recoil-operated, and 4, Semi-automatic.)

43. MOUNTS, RECOIL-CHECKS, FLUID. The recoil is checked by compression of air, water, or other liquid or gaseous material.

44. MOUNTS, RECOIL-CHECKS, SPRING. The recoil is taken up by the compression of a spring or springs.

45. LOADING. Those in which the novelty lies in the means or devices for getting the load into firing position in the gun and not included in the specific subclasses of this group.

46. LOADING, HOISTING APPARATUS. Apparatus for raising the load to the muzzle or breech of the gun.

47. LOADING, RAMMERS. Devices for ramming or pushing the load into the gun.

F. I. ALLEN,
Commissioner.

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OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—JULY-SEPTEMBER, 1901.

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DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—JULY–SEPTEMBER, 1901.

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*).]

ABANDONED APPLICATIONS.

(See Access to Pending or Abandoned Applications, 1.)

1. REVIVAL—DELAY NOT UNAVOIDABLE.
Where after the final rejection of the claims a party persists in presenting inadmissible amendments and makes no attempt to file an appeal, as the condition of the case requires, until eleven days before the year expires and through a mistake or clerical error then fails to file a proper appeal until after the time has expired, *Held* that the delay was not unavoidable and a revival is not warranted.
[*Ex parte* Warren, 2410.

2. SAME—INTENTIONAL DELAY—ACCIDENTS.
Where a party intentionally postpones proper action until the last of the time allowed, he assumes the risk from accidents, mistakes, and other circumstances which may then prevent action.
[Id.

3. SAME—DELAY UNAVOIDABLE FOR ENTIRE PERIOD.
To warrant the revival of an abandoned application, it must be shown that the delay was unavoidable for the entire period.
[Id.

ABANDONED EXPERIMENTS.

(See Interference, 16.)

ABANDONED INVENTIONS.

(See Patents, 3, 4.)

ABANDONMENT.

1. DELAY IN PATENT OFFICE—LIMIT SET BY LAW.
Abandonment is not established by alleged delays in the Patent Office where the applicant in each instance took the necessary action within the two years allowed him by statute within which to act. The law determines the measure of the applicant's rights, and the courts cannot exact any degree of diligence other than compliance with the statutory provisions, official regulations, and departmental regulations. If Congress thinks too long a time is allowed, it should change the law.
[*Crown Cork & Seal Co. of Baltimore City *v.* Aluminum Stopper Co. of Baltimore City *et al.*, 2573.

2. FAILURE TO MANUFACTURE DEVICE.
Abandonment cannot be predicated upon failure to put the patented device upon the market.
[*Id.

ACCESS TO APPLICATIONS.

(See Interference 9, 10, 12.)

ACCESS TO PENDING OR ABANDONED APPLICATIONS.

(See Copies of Pending Applications.)

1. PRIOR INTERFERENCE.
Where it appears that there was an interference between two applications and after judgment of priority had been finally rendered one of the applications became a patent and the other application became abandoned, *Held* that the patentee has no right to have access to the abandoned application merely because he previously had the right of inspection of the application when it was involved in the interference.
[*Ex parte* Warner, 1288.

2. DISCLOSURE IN PRIOR INTERFERENCE.
Applications are placed in interference by the Office without consulting the applicants, and disclosures are made to the interfering applicants during the interference as a matter of necessity. After the proceeding is ended the necessity for the disclosure is ended. The fact that a party has enjoyed a privilege temporarily through necessity does not entitle him to that privilege indefinitely against the protest of the other party.
[Id.

AFFIDAVITS.

(See Interference, 40, 41, 42; Motion to Dissolve Interference, 3, 4.)

AMENDMENTS.

(See Abandoned Applications, 1, 2; Appeal to the Examiners-in-Chief; Drawings; Interference, 5; Rejected Cases.)

1. WHEN THE SAME SHOULD BE ENTERED.
When an amendment is presented containing matters which in the opinion of the Examiner are both admissible and inadmissible, *Held* that inasmuch as the entire amendment cannot be entered no part of it should be, and the action of the Examiner refusing to enter the entire amendment was correct. (*Ex parte Stern*, 50 MS. Dec., 254.)
[*Ex parte* Pugh, 841.

2. AFTER FINAL REJECTION—RULE 68.
Where an amendment is filed after a final rejection, the same should not be entered unless accompanied by a duly-verified statement satisfactorily showing why said amendment was not earlier presented.
[*Ex parte* Landsing; 2063.

3. SAME—SAME.
Where an amendment is filed after a final rejection canceling the original claims and inserting in lieu thereof new claims, said new claims differing in scope from the original claims and not being merely the original claims presented in better form, *Held* that the amendment should not be entered for the purpose of appeal.
[Id.

ANALOGOUS DEVICES.

(See Infringement; Interference, 36.)

ANTICIPATION.

1. SUBSEQUENTLY-GRANTED PATENT—DATE OF APPLICATION.
Where a patent showing in the drawing but not describing or claiming the invention was granted to another three days after the appellants' case was filed on an application filed two years before that time, *Held* that the appellants' claims were properly rejected.
[*Millett and Reed *v.* Duell, Commissioner of Patents, 1241.

2. SAME—EVIDENCE OF THE STATE OF THE ART.
A patent granted after the appellants' filing date, but upon an application filed before, is evidence of the state of the art at the time as shown by the drawings and specifications of the application, and it is a state of the art and not the existence of a patent which determines a party's right to a patent.
[*Id.

3. PATENT NOT CLAIMING INVENTION—ABANDONMENT.
A patent is no less an anticipation because it does not claim the invention, since the failure to claim it simply implies either that he abandoned it to the public or that he regarded it as already well known to the art.
[*Id.

4. REFERENCE—DRAWING WITHOUT DESCRIPTION.
Disclosure in a drawing alone if sufficiently plain and clear may be sufficient to show an anticipation of an invention.
[*Id.

5. DISCLOSURE OF THE INVENTION—CONSTRUCTION OF REFERENCE.
Where the appellant claims a steam-gage having a tapering end, so that it may be secured in place without soldering, and the reference shows a similar gage, but contains no statement that solder is not used, *Held* that the patent is an anticipation and that there is no reason for assuming that the patentee intended to use solder when it is entirely unnecessary.
[*Id.

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Abandoned Applications; Amendments, 3; Interference, 13, 14, 18, 28, 30; Petition to the Commissioner of Patents.)

1. APPEAL ON GROUND THAT ONE OF THE PARTIES HAS NOT THE RIGHT TO MAKE A CLAIM.
Where an appeal is taken to the Commissioner from the decision of the Examiner refusing to dissolve the interference on the ground that one of the parties has the right to make a claim, *Held* that no appeal from such a decision can be taken and should be dismissed. (Rule 121.)
[Goss *v.* Scott, 842.

2. APPEAL ON GROUNDS RELATING TO THE MERITS.
Where an appeal is taken direct to the Commissioner from the decision of the Examiner refusing to dissolve the interference on grounds relating to the merits, *Held* that decisions on these motions when appealable go to the Examiners-in-Chief in the first instance, and an appeal direct to the Commissioner should be dismissed. (Rule 124.) [Id.

3. INTERFERENCE—MOTION TO DISSOLVE.
The proper practice on an interlocutory appeal is for the Commissioner to refuse to entertain said appeal from a favorable decision on the merits, and said appeal should be dismissed.
[Cammett *v.* Hallett, 1237.

APPEAL TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

(See Interference, 31, 32, 33.)

APPEAL TO THE EXAMINERS-IN-CHIEF.

(See Appeal to the Commissioner of Patents; Interference, 6, 41; Petition to Commissioner of Patents.)

EXAMINERS-IN-CHIEF—*EX PARTE* DECISION NOT BINDING ON EXAMINER IN INTERFERENCE.
Where on an *ex parte* appeal the Examiners-in-Chief held that H.'s application was a proper division of a prior application and that amendments to the prior case disclosing the subject-matter of the later did not involve new matter, *Held* that the Examiner should not consider such decision as absolutely binding upon him without considering the merits of the question when raised *inter partes* on a motion.
[Brill and Brill *v.* Hunter, 641.

APPLICATIONS.

(See Division of Application, 3; Drawings, 6.)

STATUTORY REQUIREMENTS—STRICT CONFORMITY NECESSARY.
Since the grant of a patent follows a course of statutory procedure resulting in the creation of a monopoly in derogation of the common-law rights of the public, *Held* that strict conformity to the terms of the statute is necessary and that any failure to comply with these conditions would render the patent granted fatally defective.
[*Ex parte* Nicholson, 1095.

BURDEN OF PROOF.

(See Interference, 1, 6, 7, 8, 21, 22, 23, 34, 35.)

CERTIFIED COPY OF AN APPLICATION AS EVIDENCE.

(See Interference, 12.)

CHANGE OF STRUCTURE.

(See Infringement, 2.)

CLAIMS.

(See Construction of Claims; Description; Interference, 5, 6.)

1. FIRST INVENTOR OF GENERIC INVENTION.
Where a party claims to be the first inventor of the generic invention, *Held* that this if true does not entitle him to claim specific forms not disclosed in his application.
[Brill and Brill *v.* Hunter, 641.

2. ELEMENTS SHOULD BE POSITIVELY INCLUDED.
Where an element is mentioned in a claim and intended to be included as an element of the combination, *Held* that it is in the interest of clearness and good form to positively and directly include it instead of making an indefinite reference to it.
[*Ex parte* Vincke, 2061.

3. MULTIPLICITY OF CLAIMS.
Where a method claim includes the step of *heating* and another claim includes the step of *heating over a water-bath*, *Held* that the latter claim is more limited than the former and both may properly be allowed in the same application if the state of the art so warrants.
[*Ex parte* Ach, 2411.

4. METHOD CLAIMS—FORM OF CLAIM.
Held that it is better form in a method claim to state that a mixture is *heated at a moderate temperature* than to state that the same is *heated over a water-bath*. [Id.

COMBINATION.

(See Claims, 2.)

COMMISSIONER OF PATENTS.

(See Interference, 30, 31, 32, 33; Petition to the Commissioner of Patents.)

CONSTRUCTION OF CLAIMS.

PATENTABILITY—COMBINATION OF OLD ELEMENTS.
Where none of the elements referred to in the claim are in themselves new, but the invention consisted in combining them in a different manner from any heretofore suggested, and where the principles and functions in all are entirely different and they have only the shade of an unsubstantial resemblance, *Held* that the claim involves invention and is valid.
[*Crown Cork & Seal Co. of Baltimore City *v.* Aluminum Stopper Co. of Baltimore City *et al.*, 2573.

CONSTRUCTION OF RULES.

(See Amendments, 4, 5; Copies of Pending Applications; Interference, 9, 11, 13, 22, 36; Reconsideration, 4, 5; Rejected Cases, 1; Rejection of Cases, 2.)

CONSTRUCTION OF STATUTES.

(See Abandonment, 1; Oath.)

COPIES OF PENDING APPLICATIONS.

(See Access to Pending or Abandoned Applications; Interference, 12.)

ACCESS TO ABANDONED APPLICATIONS.
A party is not entitled to copies of applications filed in this Office merely because he considers that they would be useful to him, since under Rule 15 applications are preserved in secrecy.
[*Ex parte* Warner, 1238.

DATE OF FILING APPLICATION.

(See Interference, 4.)

DECISIONS OF THE PATENT OFFICE AFFIRMED.

(See Interference, 31, 32, 33, 37; Reissues, 5.)

DEFENSE.

(See Reissues, 4.)

DELAY IN APPLYING FOR REISSUE.

(See Reissues, 2.)

DELAY IN FILING APPEAL.

(See Abandoned Applications.)

DELAY IN FILING APPLICATION.

(See Interference, 2, 3, 16.)

DELAY IN PROSECUTING AN APPLICATION IN THE PATENT OFFICE.

(See Abandonment; Interference, 4.)

DESCRIPTION.

DISCLOSURE OF INVENTION—NEW MATTER—RIGHT TO MAKE CLAIM.
Held that the vague and general statement that a coil-spring could be substituted for the spring shown without specifying the arrangement does not furnish a basis for claiming a particular arrangement which can be made by the use of coil-springs when it appears that other arrangements could be made.
[Brill and Brill *v.* Hunter, 641.

DILIGENCE.

(See Interference, 2, 3, 4, 31, 32, 33.)

DISCLOSURE OF INVENTION.

(See Access to Pending or Abandoned Applications, 2; Description, 1; Interference, 7, 8, 12, 20, 21, 35; Patents, 2.)

DIVISION OF APPLICATION.

(See Appeal to the Examiners-in-Chief, 1; Interference, 6, 7, 8, 9, 11, 19, 36.)

1. REQUIREMENT FOR DIVISION—CURSORY EXAMINATION.
In requiring division the citation of such references and other information as will enable the applicant to divide intelligently is not intended to involve an extended search into the art, but merely such cursory examination as will enable the Examiner to cite such references as he is aware of at that time.
[*Ex parte* Albert, 426.

2. SAME—SAME—PRESUMPTION THAT THE EXAMINER KNOWS OF NO REFERENCES.
Where in requiring division the Examiner without citing any references has given his reason for regarding the invention classifiable in his division as unpatentable and has not refused to cite references, *Held* that it is to be presumed that he knows of no references. A petition that he be required to cite them should be denied. [Id.

3. APPARATUS FOR PURIFYING WATER—STERILIZING APPARATUS.
Held that division was properly required between claims covering a filtering mechanism and claims covering a sterilizing apparatus, since the two are entirely independent of each other in structure and operation. Each performs its function without modifying the functions of the other, and each has been given a distinct place in the arts and in the classification of the Office.
[*Ex parte* McDonald, 1650.

4. REQUIREMENT FOR DIVISION—INDEPENDENCE OF INVENTIONS CLEAR—PROCESS AND PRODUCT—REFERENCES UNNECESSARY.
Where it is evident upon mere inspection that the process covered by one claim does not necessarily produce the article covered by another claim, *Held* that the independence of the inventions is clear and that it is not necessary for the Examiner to cite references or state reasons in support of his requirement for division.
[*Ex parte* Reid, 2099.

5. SAME—CITATION OF REFERENCES—PRACTICE.
It is the practice for the Examiners in requiring division to cite such references and give such information as to the state of the art as they possess without making any extended examination, so as to aid the applicant in making his election; but it is not the practice to make a regular action upon the merits. [Id.

DRAWINGS.

(See Anticipation, 1; Patents, 2.)

1. USELESS AMENDMENT, AFTER APPLICATIONS HAVE BEEN EXAMINED AND ARE PRACTICALLY READY FOR ISSUE—ENTRY REFUSED.
When it appears that the original drawing clearly shows the invention and that no objection has ever been made to the same by the chief draftsman as to form or by the Examiner as to merits, and it further appears that the application has been prosecuted practically to the point of allowance, *Held* that an amendment canceling the original drawing and substituting in lieu thereof a new drawing was properly refused entry into the case. To admit the same would necessitate a reëxamination of the entire case in all respects, with the exception of making a new search into the art. To thus cause the Examiners to perform additional unnecessary work is not fair to them or to other applicants who have pending applications on file awaiting action.
[*Ex parte* Pugh, 841.

2. NEW MATTER—AMENDMENTS TO THE DRAWING.
Where it appears that the changes sought to be made to the drawing include matter not originally shown and described and are not merely for the correction of clear and unmistakable errors of the draftsman, *Held* that such changes constitute new matter and should not be admitted.
[*Ex parte* Delbey, 1240.

3. SAME—AMENDMENTS TO THE DRAWING AND SPECIFICATION.
Where it appears that amendments sought to be made to the drawing and specification include matter not originally shown and described, though not affecting the claims in the case, the same could be made the basis for new claims, *Held* to constitute new matter and should not be admitted.
[Id.

4. AMENDMENT TO DRAWING—WHEN IMPROPER.
Where it appears that an addition sought to be made to certain figures of a drawing is not to correct what was unintentionally omitted from the drawing as originally filed or is not to correct a mere error on the part of the draftsman, but, on the other hand, seeks to add to these figures an unessential feature purposely omitted from them when originally filed, *Held* that such an addition to the drawing should not be permitted.
[*Ex parte* Johns, 1649.

5. SAME—SAME.
Where an addition sought to be made to certain figures of the drawing would only serve the purpose of allowing in the same application a certain claim drawn to specifically cover an avowedly different form of invention from another specific form of the same generic invention already covered by a specific claim, *Held* that said addition to the figures of the drawing should not be permitted. [Id.

6. MODIFICATIONS SHOULD BE SHOWN.
Modifications described in the specification should be shown in the drawings or the description canceled.
[*Ex parte* Peck, 2409.

EMPLOYER AND EMPLOYEE.

(See Interference, 25, 26, 27.)

ENLARGEMENT OF CLAIMS.

(See Reissues, 3.)

ESTOPPEL.

(See Interference, 39; Reissues, 4.)

EVIDENCE OF INVENTION.

(See Interference, 17.)

EXAMINATION OF APPLICATIONS.

(See Division of Application, 1; Drawings; Reconsideration; Rejection of Cases, 1.)

EXAMINATION OF CLAIMS—NOT A MERE FORMAL PROCEEDING.
The examination of claims is not a mere formal proceeding, but is essentially an examination into the merits of the case.
[*Ex parte* Broderick, 1430.

EXAMINER OF INTERFERENCES.

(See Interference, 40, 42.)

EXAMINERS.

(See Amendment, 1; Appeal to the Commissioner of Patents; Appeal to the Examiners-in-Chief; Division of Application, 4, 5; Drawings; Interference, 13, 14; Motion to Dissolve Interference, 1, 4; Petition to the Commissioner of Patents; Reconsideration, 1, 2, 3; Rejected cases, 2.)

EXAMINERS-IN-CHIEF.

(See Appeal to the Examiners-in-Chief.)

EXHIBITS.

(See Interference, 40, 42.)

FORFEITURE OF INVENTION.

(See Patents, 3, 4.)

FORMER DECISION AFFIRMED.

(See Interference, 2, 3.)

GENERIC CLAIMS.

(See Claims, 1.)

INFRINGEMENT.

(See Particular Patents; Patents, 1; Reissues, 4.)

1. IDENTITY OF INVENTION—DIFFERENCE IN PHRASEOLOGY IMMATERIAL.
Where the defendants' stopper follows the same plan as Painter's and uses the same elements which coöperate in the same way to effect the same purpose, *Held* that there is infringement notwithstanding the different phraseology employed by the defendants in describing their stopper.
[*Crown Cork & Seal Co. of Baltimore City *v.* Aluminum Stopper Co. of Baltimore City *et al.*, 2573.

2. NOT AVOIDED BY IMMATERIAL CHANGES.
Infringement is not avoided by mere change of form, or renewal of parts, or reduction of dimensions, or the substitution of mechanical equivalents, or the studious avoidance of the literal definitions of specifications and claims, or the superadding of some improvement. [*Id.

3. EQUITY—JURISDICTION—FAILURE TO SELL INVENTION.
Where the patent was recently granted and was involved in litigation to determine its validity, *Held* that the fact that the patentee has not made and sold the invention of his patent does not deprive a court of equity of jurisdiction to enjoin infringement. [*Id.

INJUNCTION.

(See Infringement, 3.)

INTERFERENCE.

(See Access to Pending or Abandoned Applications; Appeal to the Commissioner of Patents, 1, 3; Claims, 1; Description; Motion to Dissolve Interference, 1, 2; Petition to Commissioner of Patents; Trade-Marks, 16, 17.)

1. BURDEN OF PROOF—PATENT ISSUED DURING PENDENCY OF OPPONENT'S APPLICATION.
Where Read was the first to file his application, and while it was pending Miehle's application went to patent, *Held* that Read is the senior applicant and entitled to all of the advantages which his earlier application gives him.
[*Miehle *v.* Read, 426.

2. DILIGENCE—DECISION BELOW AFFIRMED.
Where it is shown that Miehle had a conception of the invention in June, but did nothing in regard to it until after Read entered the field and filed his application in the following December, *Held* that Miehle did not exercise diligence and that the decision of the Commissioner of Patents in favor of Read should be affirmed. [*Id.

3. SAME—FILING APPLICATION FOR PATENT.
Where the only excuse given for delay is that the party was engaged in other things which required his attention and it appears that he might at any time have had an application for a patent filed by devoting two hours to a conference with his attorney, *Held* that he was lacking in diligence. [*Id.

4. SAME—DILIGENCE IN PROSECUTING CASE IN OFFICE.
Where it was contended that a party was not diligent in the prosecution of his application in the Office, *Held* that this has no bearing on the question of priority, since his rights became fixed by the filing of his application, and they could not be lost and become vested in others by mere delay on his part in their prosecution. [*Id.

5. RIGHT TO MAKE CLAIMS—CHANGING INVENTION BY AMENDMENT TO APPLICATION.
Held that it is doubtful if Read is entitled to make the claims, since he appears to have so changed his claims as to cover an invention which he did not contemplate until after he saw Miehle's patent. (*Bechman* v. *Wood*, 89 O. G., 2462.) [*Id.

6. BURDEN OF PROOF—RIGHT TO MAKE THE CLAIM—APPEAL.
Held that the question whether the invention in issue was disclosed in a prior application, of which the one in interference is claimed to be a division, raised by a motion to shift the burden of proof is an interlocutory matter which will be considered upon direct appeal. It does not directly involve the right to make the claim, although the conclusion which is reached may indirectly affect that question.
[Brill and Brill *v.* Hunter, 641.

7. BURDEN OF PROOF—DIVISIONAL APPLICATIONS—DISCLOSURE IN ORIGINAL CASE.
Where an application in interference is claimed to be a division or continuation of a previous application, but it appears that the subject-matter of the issue was not disclosed in the original case as filed, *Held* that the applicant is not entitled to the date of the original case as fixing the burden of proof. [Id.

8. SAME—SAME—SAME.
Where the issue is limited to two springs for each motor, one above and the other below, and each bearing upon the free end of the motor, and the original case, of which this is claimed to be a continuation, disclosed merely a single plate-spring for each motor and said that a coil or other form of spring could be substituted for it, *Held* that the original case did not disclose the invention in issue and that the applicant is not entitled to its date. [Id.

9. RIGHT TO INSPECT APPLICATION—RULE 105.
Where a party relies upon a prior application, of which the one in interference is said to be a division, *Held* that the opposing party is entitled to see and obtain copies of the prior case unless the applicant takes advantage of Rule 105 and files certified copies of the parts relating to the invention in interference.
[Reece *v.* Fenwick, 643.

10. SAME—WITHHOLDING KNOWLEDGE FROM OPPONENT.
After the declaration of an interference each party has rights with respect to the other's application which he did not previously have and is not to be treated as a stranger without interest; but at the same time each is entitled to withhold from the other a knowledge of any part of his invention contained in the application which is not involved in or does not in any way relate to the subject-matter of the interference. [Id.

11. CONSTRUCTION OF RULE 105—DIVISIBLE INVENTION.
The words "part only of the invention" and "part or parts of the specification, claims, and drawings which cover the interfering matter" in Rule 105 mean everything contained in the original application except what may relate to a separate and independent invention, such as could be properly divided therefrom and sent to patent before the termination of the interference proceedings. [Id.

12. COPIES OF PARTS IN INTERFERENCE.
Where a party furnishes certified copies of parts of his application and it appears that the disclosure therein is sufficient to enable his opponent to intelligently determine all of the questions which he is entitled to raise by motions, *Held* that the copy is sufficient and may be used in place of the original. [Id.

13. MOTION TO DISSOLVE—SETTING A LIMIT OF APPEAL—NULLIFYING A RULE.
Where a motion was made to dissolve an interference on various grounds, some of which are appealable to the Commissioner under Rule 124, and the Examiner in his decision treated the grounds as raising only the question of the right of one of the parties to make the claims and decided that there was such right and refused to fix a limit of appeal, *Held* that the Examiner's refusal to fix a limit of appeal in effect nullifies Rule 124, which, it is apparent, he has no power to do. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.)
[Goss *v.* Scott, 842.

14. SAME—COMMISSIONER TAKING JURISDICTION OF APPEAL.
As each of the parties presented questions involving both merits and form for decision, *Held* that it would serve no useful purpose to remand the interference to the Examiner for the purpose of fixing a limit of appeal; but, on the contrary, such a course involves only unnecessary delay. The appeal having been taken was entertained. [Id.

15. INTERFERENCE IN FACT.
In an interference if the counts though identical in language cover mechanisms which differ very materially in construction and in operation there is no interference in fact. It is well settled that interferences are declared between things and not between words.
[Goss *v.* Scott, 842.

16. EVIDENCE—PRESUMPTION RAISED BY DELAY—ABANDONED EXPERIMENT.
Where A. claims to have reduced the invention to practice in July, 1897, and thereafter worked on other inventions, but did nothing with the one in controversy until he filed his application on January 14, 1899, and in the meantime M. perfected his invention, *Held* that the presumption is warranted that what was done by A. amounted to nothing more than an abandoned experiment until the contrary is clearly shown.
[*Adams *v.* Murphy, 845.

17. UNSATISFACTORY EVIDENCE.
Where A. and a member of his company identify certain studs as having been made in 1897 and positively identify certain dies as the ones used in their production and it subsequently appears that the dies referred to will not make the buttons, and it also appears that the memory of the witness is weak as to other matters, *Held* that the evidence is not clear and satisfactory and does not carry conviction with it. [*Id.

18. MOTION TO DISSOLVE—APPEAL.
Where an appeal is taken to the Commissioner from the decision of the Examiner refusing to dissolve the interference on the ground that one of the parties has the right to make a claim, *Held* that no appeal from such a decision can be taken and should be dismissed. (Rule 124.)
[Meyer *v.* Sarfert, 1037.

19. SAME—SAME—IRREGULARITY IN DECLARATION.
Where the irregularity is alleged to consist in the fact that M. has stated in his applications involved in the interference that they are divisions of a prior patent granted to him, *Held* that such a statement does not in any way affect the disclosure of the invention in either the patent or the applications. It merely calls attention to an alleged fact (*Bundy* v. *Rumbarger*, 92 O. G., 2002) and does not constitute such an "irregularity in declaring" the interference "as will preclude a proper determination of the question of priority." (Rule 122.) A motion to dissolve for this reason should be denied. [Id.

20. DISCLOSURE IN PATENT—RECORD OF OFFICE.
Where a patent discloses an invention, *Held* that the patent being part of the records of the Patent Office it is the duty of the Office to take notice of said disclosure. (*Fairfax* v. *Hutin et al.* v. *Pulten* v. *Steinmetz* v. *Scott*, 85 O. G., 1222.) [Id.

21. SAME—BURDEN OF PROOF.
The subsequent grant of a patent to one party does not affect the disclosure in the previous grant to another party. The burden of proof should not be on the party who first discloses the invention. [Id.

22. SAME—RULE 116 CONSTRUED.
The words "their completed application" used in Rule 116 are not limited to mean only the application involved in the interference. They refer to any completed application in which the invention is disclosed, by means of which judgment of priority would necessarily be rendered in favor of the party so disclosing, provided no testimony was taken. (Rule 114.) [Id.

23. SAME.
Where M. has been granted a patent which fully discloses the inventions in issue, so that priority of invention would be awarded to him should no testimony be taken, and after the grant of the same files applications for patents on said disclosed inventions, the claims of the issue having been held to be patentable in said applications, and said applications are placed in interference with previously-granted patents to S. which were granted subsequently to the grant of the patent to M., *Held* that M. being the first to disclose the invention, as shown by the records of the Patent Office, so that priority of invention would be awarded to M. should no testimony be taken, the burden of proof should be on S. [Id.

24. ORIGINALITY OF INVENTION—TESTIMONY BALANCED—CORROBORATING CIRCUMSTANCES.
Where each party claims to have disclosed to the other an invention jointly embodied in a machine and there is no other direct testimony on the subject, but the collateral circumstances—such as the previous experience of the parties, the refusal of M. to answer questions, and the contradiction by witnesses of statements made by him on other matters—tend to discredit M. and corroborate K., *Held* that the decision must be in favor of K. [*Miller *v.* Kelley, 1038.

25. SAME—EMPLOYER AND EMPLOYEE—PROBABILITIES.
Where K. was an expert machinist engaged in perfecting and improving match-making machinery upon which he had obtained a patent and he employed M. as a mechanic, who knew nothing of such machinery, to assist him in his work, and they produced the machine embodying the invention in controversy and each claimed it as his invention, *Held* that the probabilities are in favor of K. [*Id.

26. EMPLOYER AND EMPLOYEE—PRESUMPTION AS TO INVENTORSHIP.
As between an employer and a party employed for a special purpose matters merely auxiliary or tributary to the main invention can give to the employee no claim as an inventor, and in regard to such features as amount to independent inventions a presumption exists in favor of the employer as the author of the same which can only be overcome by conclusive and unequivocal proof. [*Id.

27. SAME—SAME—RIGHT TO INVENTION.
Although an employee is to be protected from the rapacity of the employer as much as the employer from the dishonesty of the employee, and if the employee makes an invention wholly independent of the employer it belongs to him and does not inure to the benefit of the employer, *Held* that in case of dispute as to a particular improvement the presumption is in favor of the employer. [*Id.

28. MOTION TO DISSOLVE—APPEAL.
Where it is contended by the appellant on appeal from the decision of the Examiner refusing to dissolve an interference that his opponent has not the right to assert claim to the invention in view of his concession of priority as a joint inventor in a former interference and it appears that to render a decision on that question adverse to the appellee would be to refuse him a patent, *Held* that the question involved goes to the merits and is not a mere interlocutory matter and the appeal should be dismissed.
[Cammett *v.* Hallett, 1237.

29. SAME—SAME.
Where a motion to dissolve alleges no interference in fact and irregularity and that one of the parties has not the right to make the claim and the Examiner renders a decision denying the motion on the ground that the party has the right to make the claim, *Held* that the Examiner properly set a limit of appeal, since the motion also alleged no interference in fact and irregularity. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.) [Id.

30. SAME—SAME.
Where a limit of appeal is set and an appeal is taken from the decision of the Examiner refusing to dissolve an interference, *Held* that it does not follow that the Commissioner will entertain and determine such an appeal when he is satisfied from a consideration of the case that the real question involved relates to the merits. (*Breul* v. *Smith*, 86 O. G., 1035.) [Id.

31. PRIORITY OF INVENTION—DECISION AFFIRMED.
Where S. conceived the invention in April, 1897, but did not reduce it to practice until November, 1899, and in the meantime devoted his energies to perfecting a machine for easily and economically applying the invention, whereas K. conceived in October, 1898, and reduced the invention to practice in April, 1899, *Held* that K. is to be regarded as the first inventor, and therefore the decision of the Commissioner of Patents is affirmed. [*Stapleton *v.* Kinney, 1432.

32. DILIGENCE—WORK ON AUXILIARY INVENTION.
Where S. had a conception of an improved retaining device for rubber tires and could have applied it to practical use at any time by means then well known in the art, although such means was crude and imperfect, but instead of so doing he devoted his time for more than two years to devising a simple and economical machine for applying the retaining device, *Held* that he did not exercise diligence in regard to the retaining device. [*Id.

33. SAME—SAME.
Although in some instances a device may be dependent for its practical use upon the invention of further or additional mechanical appliances, notwithstanding the fact that the two devices may be regarded as patentably distinct and separate in the Patent Office and in such case a pause in the perfection of one would be excused by due diligence in the completion of the other, *Held* that this is not such a case. [*Id.

34. BURDEN OF PROOF.
Where in so far as the Office records go one party appears to be the first inventor of the combination in controversy, *Held* that the burden of establishing a different state of facts should be placed upon his opponent.
[Sheppard *v.* Webb, 1647.

35. SAME—EARLIER APPLICATION DISCLOSING INVENTION.
Where a prior pending application of one party fully discloses the issue in controversy and the claims of the issue could have been made therein, if desired, instead of claims to another form, *Held* that such application is an Office record showing that he was in possession of the invention at that time, and therefore he is entitled to the benefit of its date in determining upon whom the burden of proof shall rest. [Id.

36. SAME—DIVISIONAL APPLICATION—DIFFERENCE IN STRUCTURE.
Where the application in interference is not, strictly speaking, a division of a previous application, since the devices disclosed contain specific differences in structure, but both embody the combination in controversy, *Held* that the applicant is entitled to the date of the original case under Rule 116. [Id.

37. PRIORITY—CONFLICTING TESTIMONY—DECISION AFFIRMED.
Where the testimony is conflicting and unsatisfactory, but supports the senior party's allegation of reduction to practice in 1897, as well as it does that of the junior party two years later, *Held* that the decision of the Commissioner in favor of the senior party should be affirmed.
[*Scott *v.* Scott, 1650.

38. SAME—PRESUMPTION AS TO PRIORITY.
Where the junior party admits that his efforts in the field of invention had been superinduced by a knowledge of a different invention by the senior party upon the same lines embodying the germ of the one in controversy and the question arises which of them was the inventor, *Held* that the presumption is in favor of the senior party. [*Id.

39. FAILURE TO ASSERT CLAIM TO INVENTION—ESTOPPEL.
Where the senior party informed the junior party that he had applied for a patent on the invention and the junior party made no protest and signified neither by word nor by act that the invention was his own, *Held* that it was then, if ever, he should have spoken. [*Id.

40. MOTION TO SET ASIDE DECISION OF EXAMINER OF INTERFERENCES—REHEARING—EX PARTE AFFIDAVITS.
Where an exhibit model referred to by witnesses in the record of one of the parties, though filed in the Patent Office, was not properly marked and identified and for that reason was not applied to the interference record and was not considered by the Examiner of Interferences in rendering his decision, *Held* that said exhibit cannot be identified and made a part of the record in the interference by *ex parte* affidavits filed by the witnesses who originally testified with respect to said exhibit.
[Hendler *v.* Graf, 2063.

41. TESTIMONY—EX PARTE AFFIDAVIT NOT CONSIDERED.
Where, after the taking of testimony was closed and the interference was on appeal to the Examiners-in-Chief, *ex parte* affidavits were filed by one of the parties to correct alleged errors and deficiencies in the testimony, *Held* that said affidavits should not be considered for the purpose for which they were presented. Affidavits may lay the foundation for the introduction of testimony, but they are not themselves testimony. (*Nielson* v. *Bradshaw*, 91 O. G., 644.) [Id

42. CORRECTION OF TESTIMONY—PROPER PRACTICE.
Where a *prima facie* case has been made out by reason of *ex parte* affidavits that the testimony as originally taken is defective through the fault of the officer before whom the testimony was taken in not properly marking an exhibit and that the incorrectly-marked exhibit sent to the Patent Office is, in fact, the exhibit referred to in the record, *Held* that the equities of the case demand the party in whose behalf the *prima facie* case has been made should be given an opportunity to prove that the exhibit on file in the Patent Office is, in fact, the exhibit referred to in his record, and further *Held* that said party should file a motion to set aside the decision of the Examiner of Interferences and to be permitted to take further testimony. [Id.

INTERLOCUTORY APPEALS.

(See Appeal to the Commissioner of Patents, 3; Interference, 28.)

INTERVENING RIGHTS.

(See Reissues, 4.)

INVENTION DESCRIBED BUT NOT CLAIMED.

(See Interference, 35.)

JURISDICTION.

(See Infringement, 3.)

LABELS.

(See Prints.)

LIMIT OF APPEAL.

(See Interference, 13, 14, 29, 30.)

MANUFACTURE OF PATENTED ARTICLES.

(See Abandonment.)

METHOD CLAIMS.

(See Claims, 3, 4.)

MOTION TO DISSOLVE INTERFERENCE.

(See Appeal to the Commissioner of Patents; Interference, 13, 18, 19, 28, 29, 30.)

1. SHOULD BE MADE AFTER PRELIMINARY STATEMENTS ARE APPROVED.
A motion to dissolve made before the preliminary statements are approved when as yet the parties have no right to inspect each other's applications should not be transmitted to the Primary Examiner except under those unusual circumstances which would render it just to hold all parties bound by the decision rendered. [Whipple v. Sharp, 2229.

2. PIECEMEAL MOTIONS.
The piecemeal disposition of motions to dissolve is not a method to be commended, and it is regarded as for the interests of all parties that motions be transmitted and decided only after each party is in full possession of the facts which may have a bearing upon the matter. A knowledge of the application without a knowledge of the actions which have been taken is not such full information. [Id.

3. PUBLIC USE NOT CONSIDERED—EX PARTE AFFIDAVITS.
The question of public use cannot properly be considered on a motion to dissolve, and in no event can mere *ex parte* affidavits warrant the rejection of a claim. [Davis v. Swift, 2169.

4. MOTION ALLEGING TWO GROUNDS, ONE OF WHICH IS IMPROPER—TRANSMISSION.
Where a motion to dissolve alleges public use and also anticipation by certain references, *Held* that the motion should be transmitted to the Primary Examiner to determine the question of anticipation. [Id.

NEW MATTER.

(See Appeal to the Examiners-in-Chief; Description; Drawings, 2, 3.)

OATH.

(See Application.)

1. DEFECTIVE OATH—KNOWLEDGE AND BELIEF—SECTION 4892, REVISED STATUTES.
An oath to an application stating that the applicant believes that the improvement was not known or used in the United States before his invention *Held* not a compliance with section 4892 of the Revised Statutes, since it is limited by its terms to the United States and fails to state that he "does not know" that the invention was ever before known.
[*Ex parte* Nicholson, 1035.

2. SAME—SAME.
The word "believe" in an oath cannot be held to include the whole meaning of the words "know and believe" as such in the statute, since knowledge and belief are different things and since effect must be given, if possible, to every clause and word of a statute. [Id.

PARTICULAR PATENTS.

PAINTER—No. 11,685—BOTTLE-STOPPER—REISSUE—VALIDITY—INFRINGEMENT.
Painter's Reissued Patent No. 11,685, granted July 26, 1898, for a bottle-stopper, *Held* valid and infringed by stoppers made in accordance with Hall's Patent No. 541,203, granted June 18, 1895.
[*Crown Cork & Seal Co. of Baltimore City v. Aluminum Stopper Co. of Baltimore City *et al.*, 2573.

PATENTS.

(See Interference, 39; Particular Patents; Reissues.)

1. UTILITY OF INVENTION—COMPARATIVE UTILITY IMMATERIAL.
The grant of a patent is *prima facie* evidence of the utility of the invention, and this is not negatived by the fact that the device is susceptible of improvement or that like inventions are so far superior to it that they may entirely supersede the use of it. Comparative utility is no criterion of infringement. To negative utility, the defendant must show that the invention will not operate as claimed.
[*Crown Cork & Seal Co. of Baltimore City v. Aluminum Stopper Co. of Baltimore City *et al.*, 2573.

2. SAME—DISCLOSURE OF OPERATIVE INVENTION—DRAWINGS NOT EXPECTED TO EXHIBIT EXACT DIMENSIONS.
The drawings filed with the application in the Patent Office are not required or expected to exhibit the exact dimensions of the parts, and if the disclosure is such that an intelligent mechanic would so proportion the dimensions as to secure practical results utility is not negatived by the fact that a device made in strict conformity to the drawings is inoperative. [*Id.

3. ABANDONMENT OF INVENTION—DOUBTS RESOLVED IN FAVOR OF PATENT.
An inventor may give to the public the benefits of his ingenuity, and such relinquishment may be either direct or it may be inferred from circumstances, and it may occur before application or thereafter. The law, however, does not favor forfeiture, and it being a question of fact whether there has been an abandonment all reasonable doubts must be resolved in favor of the patent. [*Id.

4. SAME—ABANDONED EXPERIMENT DISTINGUISHED.
Where the inventor clearly manifests his intention to relinquish any rights to the invention which he has, the inchoate right to a patent cannot be resumed; but a mere abandonment of experiments on an incomplete invention with the expectation of again taking the matter up is not such relinquishment. [*Id.

PETITION TO THE COMMSSIONER OF PATENTS.

(See Division of Application, 2.)

1. PETITION FROM DECISION OF EXAMINER REFUSING TO DISSOLVE.
Where a petition is taken to the Commissioner from the decision of the Examiner refusing to dissolve an interference on grounds some of which are appealable in the first instance to the Examiners-in-Chief and from others no appeal lies. *Held* that a petition will not be entertained by the Commissioner when it seeks to obtain indirectly a review of an Examiner's decision from which no direct appeal lies by merely misnaming the action and calling it a petition. (*Woodward* v. *Newton*, 85 O. G., 490.) [Goss v. Scott, 842.

2. DISCRETIONARY POWER OF COMMISSIONER.
The discretionary power of the Commissioner should be exercised only in exceptional cases, and then only to correct some palpable error in the decision of the Examiner which is clear and evident on its face. There should be no mooted question as to the patentability or non-patentability of a claim. (*Bender* v. *Hoffman*, 85 O. G., 1737.) [Id.

PRELIMINARY STATEMENTS.

(See Motion to Dissolve Interference, 1.)

PRIMA FACIE CASE.

(See Interference, 42.)

PRINTS.

PRINT OR LABEL.
A print or label consisting of "the word 'Ceroleum' in large heavy-faced type or letters of any appropriate size and style, with the words 'Dirt Proof Floor Dressing' printed in small block letters across the face of the said word 'Ceroleum' in a blank space or strip left in the center thereof and equal in width to about one-third of the width of the said word 'Ceroleum,' the said word or words to be printed or otherwise reproduced in any one or different colors desired," *Held* to only involve the expert skill of the type-setter (*ex parte Mahn*, 82 O. G., 1210) and not to present a print which involves an intellectual creation of such artistic merit as to warrant its registration. [*Ex parte* Miller, 1855.

PRIORITY OF INVENTION.

(See Claims, 1; Interference, 4, 17, 31, 32, 33, 37, 38.)

PROCESS AND PRODUCT.

(See Division of Application, 4, 5.)

PUBLIC USE AND SALE.

(See Motion to Dissolve Interference, 3, 4.)

RECONSIDERATION.

(See Examination of Applications; Rejected Cases, 2.)

1. RECONSIDERATION OF APPLICATION—MERE REQUEST INSUFFICIENT.
A mere request for reconsideration without distinctly and specifically pointing out the supposed errors in the Examiner's action is not sufficient to entitle the applicant to such reconsideration. [*Ex parte* Hahn, 1429.

2. SAME—EXPLANATION BY APPLICANT OF SUPPOSED ERRORS IN EXAMINER'S ACTION.
The requirement that the applicant point out the supposed errors in the Examiner's action before the case is placed in condition for appeal is reasonable and just and is necessary to a proper disposition of the work of the Office. [Id.

3. EXAMINATION OF APPLICATION—EXPLANATION BY APPLICANT AND EXAMINER.
The prosecution of a case before the Primary Examiner is not a mere matter of form, but is intended to finally dispose of the case upon its merits, and therefore the efforts of both the applicant and the Examiner should be directed to a thorough understanding of each other's positions. [Id.

4. REQUEST FOR RECONSIDERATION—COMPLIANCE WITH RULE 69.
Where the claim of an application has been rejected by the Examiner and a request is made that the claim be reconsidered as a "matter of form," *Held* that such a request is not a proper compliance with the provisions of Rule 69. [*Ex parte* Broderick, 1430.

5. SAME SAME.
It is necessary that a request for a reconsideration be accompanied with a statement distinctly and specifically pointing out the supposed error in the Examiner's action; otherwise the reëxamination would necessarily be merely a repetition of the first action on the claim. [Id.

RECORD OF A CASE.

(See Interference, 40.)

RECORDS OF THE PATENT OFFICE.

(See Interference, 20.)

REDUCTION TO PRACTICE.

(See Interference, 16.)

REFERENCES.

(See Division of Application, 1, 4, 5.)

REHEARING.

(See Examination of Applications; Interference, 40; Reconsideration.)

REISSUES.

1. PATENT FAILING TO COVER INVENTION.
A reissue is authorized by the plain terms of the statute and by a long line of decisions of the Supreme Court where the patent had failed to clearly and adequately secure the invention upon which the original was founded and where the unquestionable object and effect of the reissue were to cover an invention not covered by the original claims.
[*Crown Cork & Seal Co. of Baltimore City v. Aluminum Stopper Co. of Baltimore City *et al.*, 2573.

2. DELAY—UNSKILLED INVENTOR.
In considering the question of delay in discovering the defect in the original patent and in making application for reissue some allowance may well be made for a mere inventor unskilled in the art of interpretation who could not upon a mere reading of his patent determine what his claims covered. [*Id.

3. BROADENED CLAIM—INVENTION THE SAME.
Held that claim 5 of the reissue was warranted by the statement of invention in the original patent and that it does not exhibit any change in the nature of the invention described, but simply gives a more adequate description of such invention, which enlarges the claim without enlarging the invention. [*Id.

4. INTERVENING RIGHTS—ESTOPPEL.
Where as a defense the defendants allege rights gained by manufacture of the invention after the issue of the patent and during the delay in making application for reissue, but it appears that they were notified two weeks after the issue of the patent that they were infringers and there was no unreasonable delay in applying for reissue, *Held* that there is no estoppel against the complainants and that the defendants must have known of their right to a reissue. [*Id.

5. DECISION OF PATENT OFFICE ENTITLED TO WEIGHT.
Where the defendants were permitted to contest in the Patent Office the right of the complainants to a reissue applied for within seven months after the grant of the patent and all tribunals there sustained the complainants' rights, *Held* that while not conclusive the decision of the Patent Office is entitled to great weight. [*Id.

REJECTED CASES.

(See Abandoned Applications, 1; Amendments, 2, 3; Examination of Applications; Reconsideration.)

1. INCORPORATION OF AMENDMENT.
After a case is under final rejection an amendment inserting or substituting new claims should not be entered unless accompanied by a duly-verified statement setting forth satisfactory reasons why the amendment was not earlier presented or unless the claims presented differ from those under final rejection only in the matter of form, and it is requested that they be entered in order that the claims may be in better form for appeal. (Rule 68.)
[*Ex parte* Coddington, 1239.

2. FINAL REJECTION TECHNICALLY UNWARRANTED—REFUSAL TO REOPEN CASE.
Where after numerous actions in the case in which the Examiner states that there is nothing patentable presented the claims are finally rejected, although by reason of amendments they are not the same in all details as the claims before rejected, and the applicant thereafter presented two sets of claims substantially the same as those finally rejected and the Examiner while refusing to reopen the case stated that they were substantially the same and unpatentable, *Held* that the final rejection was technically unwarranted at the time, but that since there is a clear issue between the applicant and the Examiner no useful purpose would be served by reopening the case, and since substantially the same claims have been reconsidered by him it is directed that the last amendment be entered and the claims considered finally rejected.
[*Ex parte* Courville, 2061.

REJECTED CLAIMS.

(See Motion to Dissolve Interference, 3.)

REJECTION OF CASES.

2. FINAL REJECTION—NEW REASON FOR REJECTION.
Where in a letter of final rejection the Examiner for the first time stated that "the introductory words of a claim import no structure whatever into a claim," *Held* that such a statement is merely an elaboration or explanation of the grounds of rejection previously cited against the claims and does not constitute a new reason for rejection.
[*Ex parte* Coddington, 1239.

3. SAME—SAME.
The words "new * * reasons for rejection" in Rule 68 mean new "grounds involving the merits of the invention," such as are enumerated in Rule 133. [Id.

RIGHT TO INSPECT.

(See Interference, 9, 10.)

SPECIFICATIONS.

(See Drawings, 6.)

SPECIFIC CLAIMS.

(See Claims, 1.)

STATUTORY REQUIREMENTS TO OBTAIN A PATENT.

(See Applications.)

STATUTORY RIGHTS.

(See Abandonment, 2.)

SUITS FOR INFRINGEMENT.

(See Reissues, 1.)

TECHNICAL TERMS.

(See Interference, 11; Oath, 2.)

TESTIMONY.

(See Interference, 24, 39, 41, 42.)

IRRELEVANT TESTIMONY CONDEMNED.
The complication of the record by testimony which is irrelevant, immaterial, and utterly useless for the elucidation of the substantial issue between the parties and by useless and irrelevant controversies between counsel condemned.
[*Scott *v.* Scott, 1650.

TRADE-MARKS.

1. "PAIN-EASE"—DESCRIPTIVE.
The word "Pain-Ease" applied to a medicine refused registration on the ground that it is descriptive and advertising in character and is not a lawful trade-mark.
[*Ex parte* Evans & Shepard, 425.

2. DESCRIPTIVE WORDS—CHANGE IN THE ORDER OF WRITING.
Held that any manufacturer has the right to say that his medicine eases pain, and a mere reversal of the usual order in which the words are written does not give them such an arbitrary character as to make them registrable as a trade-mark. [Id.

3. "WAUKEASY" FOR CORN CURE—NOT DESCRIPTIVE.
Held that the word "Waukeasy" as applied to a corn cure is perhaps suggestive, but is not descriptive of the composition or qualities of the article or the direct result produced by its use, and is therefore registrable as a trade-mark.
[*Ex parte* Peek, 425.

4. MARKS INDICATING ORIGIN OR OWNERSHIP—SUGGESTIVE MARKS.
Where the primary object, purpose, and effect of a mark are to indicate origin or ownership of the goods, *Held* that the fact that it remotely suggests some advantage which may be derived from the use of the goods should not prevent its registration. [Id.

5. GEOGRAPHICAL—"ST. JOHNSBURY."
A mark for crackers consisting of the representation of a cracker with the word "St. Johnsbury" printed thereon in dotted letters *Held* essentially geographical and not registrable.
[*Ex parte* Cross, 643.

6. ANTICIPATION—CHINESE LAUNDRY.
A mark, the principal features of which consist of a Chinese laundry with a Chinaman in view ironing clothes at a table, refused registration because of a previous mark embodying the same general features although differing in details.
[*Ex parte* Lefebvre, 811.

7. SAME—DOUBTS RESOLVED IN FAVOR OF REGISTERED MARK.
Although the applicant's mark is not identical with the previous mark and it may be that in actual use the marks are so distinguished from each other by the acts of the parties and their methods of advertising that they would not infringe, *Held* that doubts on the question whether the marks would deceive purchasers should be resolved in favor of the registered mark. [Id.

8. NAME OF APPLICANT—ESSENTIAL FEATURE.
The name of the applicant not being registrable alone cannot properly be included as an essential feature of a mark to be registered.
[*Ex parte* Tabor, 1086.

9. SAME—ARBITRARY ARRANGEMENT OF LETTERS IN NAME.
Although the letters in the applicant's name if arbitrarily arranged so as to destroy the identity of the name would be registrable as a trade-mark, *Held* that where they are printed one after the other in regular order, so as to spell the name in the usual way, their arrangement cannot be considered arbitrary. [Id.

10. SAME—MANNER IN WHICH THE NAME IS PRINTED—IDENTITY NOT DESTROYED.
Where the name of the applicant is printed on the arms of a cross so that it can be read vertically or horizontally and the single letter "B" is used in both readings, *Held* that the arrangement is not such as to destroy the identity of the name and to render it so arbitrary and fanciful as to be registrable. [Id.

11. GEOGRAPHICAL NAME—ESSENTIAL FEATURE.
A geographical name not being registrable alone cannot properly be included as an essential feature of a mark to be registered.
[*Ex parte* Columbia Incandescent Lamp Company, 1086.

12. SAME—ARBITRARY ARRANGEMENT OF LETTERS IN NAME.
The fact that the letters are so arranged that the geographical name spelled by them plainly appears and gives the impression to the reader that the name is the essential feature of the mark, *Held* that this arrangement cannot be considered so arbitrary as to warrant registration. [Id.

13. SAME—MANNER IN WHICH NAME IS PRINTED—IDENTITY NOT DESTROYED.
When the geographical name is printed so that the letter "C" is made to form about three-fourths of a circular band and the band is completed by the letters "olumbia," *Held* that the arrangement is not such as to destroy the identity of the same and to render it so arbitrary and fanciful as to be registrable. [Id.

14. SAME—ASSOCIATION WITH ARBITRARY SYMBOLS.
A mark which is common property is not made the property of any one individual by associating with it certain arbitrary symbols which in themselves may be registrable. [Id.

15. IDENTITY OF MARKS—"SODAFOAM" AND "SEA FOAM."
Held that the word "Sodafoam" as a trade-mark for baking-powder so nearly resembles the registered mark "Sea Foam" as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers, and therefore registration should be refused.
[*Ex parte* Sodafoam Baking Powder Company, 1239.

16. INTERFERENCE IN FACT—"NATIONAL"—"NEW NATIONAL."
Held that there is an interference in fact between the mark "National" and the mark "New National," since the prefix "*New*" would merely convey the idea that it was an improved model or new machine put on the market by the same company.
[Carey *v.* New Home Sewing Machine Company, 1429.

17. CLASS OF MERCHANDISE.
Held that the machines sold by the parties belong to "the same class of merchandise" within the meaning of the trade-mark law, although they contain certain specific differences. They are both sewing-machines and belong to the same class of sewing-machines. [Id.

18. "BURT" FOR BOOTS AND SHOES—SURNAME.
The word "Burt" is refused registration as a trade-mark for boots and shoes on the ground that it is a surname. Neither the statute nor the decisions interpreting the same warrant the registration of an acknowledged surname as a trade-mark.
[*Ex parte* Edwin C. Burt Company, 1430.

19. SAME—SAME.
As prior to 1881 no one could exclusively appropriate a surname as a trade-mark, *Held* that the word "Burt," an acknowledged surname and the salient feature of applicant's name, cannot be registered as a trade-mark when applied to the products of the Edwin C. Burt Company notwithstanding its use prior to March 3, 1881. (*Ex parte Gale Mfg. Co.*, 85 O. G., 1907.) [Id.

20. CONSTRUCTION OF STATUTE—FOREIGN REGISTRATION.
Neither the statute nor the decisions interpreting the same warrant the registration of a trade-name which is not a lawful trade-mark for the purpose of obtaining registration in a foreign country. (Citing *ex parte Buffalo Pitts Co.*, 89 O. G., 2069.) [Id.

21. TECHNICAL TRADE-MARK—UNFAIR COMPETITION.
If the appellant has a right to protection under the law of "unfair competition" in its use of the word "Burt," said right does not make a technical trade-mark of the word "Burt." In order that the word "Burt" may constitute a lawful or technical trade-mark, it must be evident that the word "Burt" was from the very beginning the exclusive property of the appellant or its predecessors. That this is not so is self-evident. In the very nature of things a surname is not capable of being the exclusive property of but *one* person bearing that name. [Id.

22. INTERFERENCE IN FACT—DIFFERENCE IN COLOR.
Where one party states that it uses an orange-colored strand in the rope and the other party uses a red strand, but each describes the essential feature of his mark as consisting broadly in a "streak of distinctive color produced in or applied to a wire rope," *Held* that there is an interference in fact.
[Broderick & Bascom Rope Company *v.* Leschen & Sons Rope Company, 1647.

23. REGISTRABLE MARK—STATEMENT SUFFICIENTLY DEFINITE.
Where it is contended that an issue covering broadly a streak of distinctive color applied to a wire rope is too broad and indefinite to be the subject-matter of a lawful trade-mark, *Held* that the authorities support the Examiner's holding that it is registrable. [Id.

24. NO APPEAL FROM FAVORABLE DECISION.
Held, further, that there is no appeal from a favorable decision by the Examiner of Trade-Marks as to the registrability of a trade-mark, and his action will not be reviewed and reversed except in a clear case. [Id.

25. WORD-SYMBOL AND REPRESENTATION OF IVY—ALTERNATIVE.
Where applicants sought to register the word-symbol "Ivy" or the representation of ivy and showed in their drawing only a single ivy-leaf, *Held* that there was no objection to registering the mark as claimed by applicants.
[*Ex parte* S. Hecht & Son, 1648.

26. SAME—SAME.
Held that inasmuch as ivy is commonly known only by its leaves to persons not skilled in botany, ivy-leaves though shown singly would indicate to the mind the ivy-plant and not necessarily the leaves only of the ivy-plant. [Id.

27. SAME RULE AS TO ALTERNATIVE FORMS.
No arbitrary rule can be laid down to cover all cases where alternative forms are sought to be registered. (*Ex parte Taylor and Lockett*, 93 O. G., 2531.) It is a mere matter of judgment whether or not the word-symbol and the representation would convey to the mind of the ordinary purchaser the same thing. [Id.

28. "YALE" FOR BELT-SUPPORTERS—GEOGRAPHICAL WORD—PROPER NAME.
Held that the word "Yale" having a geographical significance and being a more or less common surname is not such an arbitrary word as would make it the sole property of any one individual, and its registration as a trade-mark should be refused.
[*Ex parte* Peats, 1649.

29. "MOBILE" FOR PLAYING-CARDS—GEOGRAPHICAL WORD.
The word "Mobile" refused registration as a trade-mark for playing-cards on the ground that it is geographical.
[*Ex parte* United States Playing Card Company, 1855.

30. GEOGRAPHICAL WORD.
The word "Mobile," which is the name of the principal seaport of the State of Alabama, situated on Mobile Bay, the site of the historic battle of Mobile Bay, *Held* to have a geographical meaning greater than any fanciful or arbitrary meaning which may be ascribed thereto. Registration should therefore be refused. (*Ex parte Little & Co.*, 85 O. G., 1221.) [Id.

31. USE IN FOREIGN COUNTRY—COMMON-LAW RIGHT.
Use of a trade-mark in a foreign country without such use in this country as to give a common-law right to the mark here does not entitle a party to registration. (*Richter v. Reynolds*, 67 O. G., 404; *Leprince v. Iler & Morris*, 92 O. G., 189.)
[Farmers Manufacturing Company *v.* W. R. Harrison & Co., 2002.

32. GOODS MADE IN THIS COUNTRY, BUT SOLD ABROAD—PUBLICITY OF USE.
While the use of a trade-mark upon goods manufactured and marked in this country, although sold abroad, might in some cases establish a common-law right here, *Held* that the business must be carried on with such publicity as to indicate to others in this country an intention to adopt the mark as a trade-mark. [Id.

33. SECRET USE OF MARK DOES NOT ESTABLISH RIGHT.
A single shipment to an agent or customer in Mexico of two machines bearing the mark where the mark was intentionally concealed, so that it could not be seen, and instructions were given to keep the fact of the shipment and marking secret, *Held* not such public use of the mark in this country as to establish a common-law right to it. [Id.

34. RIGHT RESTS UPON THE MANNER OF USING MARK.
Held that the common-law right to a trade-mark arises not from the intention of the user to acquire the right, but from the manner of its use. [Id.

35. UNFAIR COMPETITION—"AMERICAN BALL BLUE"—INJUNCTION GRANTED.
Where the complainants had built up a trade for "American Ball Blue" and "American Wash Blue," the respondents were properly enjoined from using the same words upon their blue on the ground of unfair competition, notwithstanding the descriptive character of the words.
[*Shaver *et al. v.* Heller & Merz Company, 2220.

36. GEOGRAPHICAL AND DESCRIPTIVE TERMS.
Geographical terms and words descriptive of character, quality, or place of manufacture or sale cannot be monopolized as trade-marks; but the use of such terms and words to palm off the goods of one manufacturer or vender as those of another and to carry on unfair competition may be lawfully enjoined to the same extent as the use of any other terms or symbols. [*Id.

37. SAME—FOUNDATION FOR SUIT—FRAUD—RIGHT TO MARK UNNECESSARY.
Suits to enjoin unfair competition in trade are founded upon the damage to the trade of the complainants by the fraudulent passing of the goods of one manufacturer for those of another, and no proprietary interest in the words, names, or means by which the fraud is perpetrated is requisite to maintain the suit. [*Id.

38. SAME—PACKAGES DIFFERENT, BUT DESCRIPTIVE WORDS THE SAME—FRAUD.
Where the appellants put their goods up in different-colored packages and in other ways differentiated the dress of their goods from that of those manufactured by the appellee, but where the bluing was ordinarily bought and ordered by its name "American Ball Blue," *Held* that the differences in the packages did not and could not prevent the fraud. [*Id.

39. SAME—NAME AND ADDRESS OF MANUFACTURER ON PACKAGE DOES NOT AVOID FRAUD.
The placing of the appellants' name and address upon the packages in addition to the appellee's mark is an aggravation and not a justification of the use of that mark, since it enabled them to derive greater benefit from their fraud. [*Id.

40. GOOD-WILL OF TRADE IN ARTICLE—NOT LOST BY PUTTING CUSTOMER'S NAME ON IT.
One does not lose the good-will of his trade in an article of his manufacture by placing upon it the names of his customers who are engaged in selling it, nor by the fact that the consumers know only the name and excellence of the article and neither know nor care who makes it. [*Id.

41. INJUNCTION—DESCRIPTIVE WORDS—MAY DESCRIBE, BUT NOT MISLEAD.
An injunction against the use of the words "American Ball Blue" does not prevent a description of the goods as being an American product, since that can be effected in many forms of expression without leading purchasers to believe that it is the product of the complainants. [*Id.

42. EXERCISE OF RIGHTS—INJURY TO NEIGHBORS.
The principle of law that no one may so exercise his own rights as to inflict unnecessary injury upon his neighbor is general and without exception. [*Id.

43. EQUITY—CLEAN HANDS.
He who comes into equity must do so with clean hands; but the inequity which will repel him must have an immediate and necessary relation to the equity for which he sues. It does not repel all sinners from courts of equity. [*Id.

44. DESCRIPTIVE WORD.
Held that the word "Carrom" or "Carom" is not descriptive of a certain game-board or the games played thereon, for while a carom is possible during the playing of the game it is no part of the game. It is the case of the use of a descriptive word in a non-descriptive sense.
[*Williams *et al. v.* Mitchell *et al.*, 2411.

45. DESCRIPTIVE WORD AND GEOGRAPHICAL AND PERSONAL NAMES—FRAUDULENT USE OF WORDS WHICH ARE NOT TECHNICAL TRADE-MARK.
While a descriptive word or a geographical or personal name cannot constitute a technical trade-mark, yet where an article has come to be known by the descriptive word one may not use that word to palm off his goods as the goods of another who has first adopted it and by which appellation the goods have become known. One may not use his own name for such purpose when it works a fraud. If he uses the descriptive word or a geographical name or his own name, it must be so used as not to deprive others of their rights or to deceive the public and the name must be accompanied with such indication that the thing manufactured is the work of the one making it as would unmistakably inform the public of the fact. [*Id.

46. MARK NOT APPEARING ON THE ARTICLE.
The fact that the word "Carrom" does not appear on the game-board of the defendants is held to be immaterial so long as the defendants advertise their boards as "carom-boards." (*Machine Manufacturers* v. *Wilson*, 3 App. Cas., 389.) [*Id.

47. UNFAIR COMPETITION—DAMAGES FOR PAST OFFENSES.
Where the defendants by their imitation of the complainants' advertisement have been guilty of deceiving purchasers and the public into believing that the game-boards of their make were the game-boards made by the complainants, *Held* that this constitutes an invasion of the complainants' rights and the complainants are entitled upon proper proof to compensation to the extent of the invasion. [*Id.

UTILITY.

(See Patents, 1, 2.)

VALIDITY OF PATENT.

(See Construction of Claims; Patents, 1, 3, 4; Reissues, 1.)

VALID PATENTS.

(See Reissues, 3, 5.)

WITNESSES.

(See Interference, 24.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING SEPTEMBER 30, 1901.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate Indexes for Designs, Trade-Marks, Labels, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
A. B. Dick Company. (See Dick, Albert B., assignor.)						
Aaron, William H., Stockton, Cal. Non-refillable bottle	680,405	Aug. 13	1264	278	96	1311
Aarons, Joseph, Detroit, Mich. Coin-controlled vending-machine	679,871	Aug. 6	293	63	96	1101
Abate, Frank J., assignor of one-half to N. J. Gartelman, New York, N. Y. Non-refillable bottle	679,981	Aug. 6	408	86	96	1123
Abbott, Henry, New York, N. Y., assignor to Calculagraph Company, New York, N. Y., and East Orange, N. J. Adjustable bearing	679,408	July 30	4070	908	96	902
Abel, Julius, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Blue sulfur dye and making same	679,100	July 23	3641	.....	96	792
Aberle, Elias. (See Baecker, Louis, assignor.)						
Abrahams, Nathan, St. Louis, Mo. Car-fender	680,212	Aug. 13	913	203	96	1243
Abrahamsohn, Robert. (See Meyer, Hartmann, and Abrahamsohn.)						
Abrahamson, Peter, San Francisco, Cal. Ventilator	679,982	Aug. 6	410	87	96	1123
Abrams, Albert A., St. Louis, Mo. Suspender-buckle	678,681	July 16	2514	562	96	546
Abrams, Albert A., St. Louis, Mo. Suspender-buckle	679,200	July 23	3641	813	96	792
Accumulatoren and Electricitats-Werke Actiengesellschaft, vorm. W. A. Boese & Co. (See Hobel, Heinrich F., assignor.)						
Acker, Charles, Rushville, Ill. Chair-seat	680,682	Aug. 13	1664	637	96	1392
Acklin, Alfred M., Pittsburg, Pa. Car-checking device	683,370	Sept. 24	3099	709	96	2542
Acklin, Alfred M., Pittsburg, Pa. Car-checking device	683,371	Sept. 24	3101	709	96	2543
Acklin, Alfred M., Pittsburg, Pa. Conveyer	683,372	Sept. 24	3103	710	96	2543
Ackroyd, Walter. (See Murray, Walter D., assignor.)						
Acme Harvester Company. (See Green, Henry, assignor.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Kaltwasser and Jaeschin, assignors.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Polikier, Heinrich, assignor.)						
Actien-Gesellschaft zur Verwerthung der Österr und Ungar Patente Th. Langer. (See Polic and Zimmermann, assignors.)						
Adam, Angus G. (See Cogeen, Harry, assignor.)						
Adams, Elizabeth M., Portland, Oreg. Waist and skirt supporter	680,106	Aug. 6	713	158	96	1187
Adams, F. Clifford. (See Hotaling, Sheridan P., assignor.)						
Adams, George B., Irvington, N. J. Cuff-holder	680,956	Aug. 20	2336	518	96	1551
Adams, George E., New Britain, Conn. Garment-supporter	677,911	July 9	1107	255	96	250
Adams, George E., New Britain, Conn. Suspenders	680,558	Aug. 13	1538	338	96	1367
Adams, George E., New Britain, Conn. Suspenders	680,679	Aug. 20	1788	398	96	1437
Adams, George E., Glens Falls, N. Y. Leaf-turner	681,778	Sept. 3	280	45	96	1911
Adams, Harold E., and O. R. Stapfer, Paterson, N. J. Reed for creel-frames	682,777	Sept. 17	2043	461	96	2307
Adams, Johann P. H., St. Paul, Minn. Keyboard for musical instruments	682,014	Sept. 3	675	146	96	1999
Adams, Johann P. H., St. Paul, Minn. Musical notation	682,015	Sept. 3	676	147	96	1999
Adams, John J. (See Webb, George E., assignor.)						
Adams Laundry Machinery Company. (See Sharp, Alonzo, assignor.)						
Adams, Lynchburg, Santa Rosa, Cal. Reversible ratchet	683,167	Sept. 24	2728	628	96	2465
Adams, Peter H. (See Paca, William S., assignor.)						
Adams, Walter H., Sound Beach, Conn. Brake for vehicles	677,846	July 9	961	226	96	223
Adams & Westlake Company. (See Mosher and Hamm, assignors.)						
Adamson, Charles E., Muncie, Ind. Wad for cartridges	681,091	Aug. 20	2593	573	96	1602
Addicks, John E., *et al.* (See Kelley, Alexander, assignor.)						
Addington, Charles A., *et al.* (See Gary, Albert D., assignor.)						
Addington, William H., *et al.* (See Gary, Albert D., assignor.)						
Addleman, John S., assignor of two-thirds to A. A. Armstrong, Cleveland, Ohio. Exercising apparatus	681,664	Aug. 27	3689	826	96	1841
Adelsperger, Dow L., assignor to Foos Manufacturing Company, Springfield, Ohio. Grinding-mill	678,111	July 9	1479	341	96	322
Adelsperger, Dow L., assignor to Foos Manufacturing Company, Springfield, Ohio. Grinding or crushing mill	682,157	Sept. 10	917	205	96	2067
Adelsperger, Dow L., assignor to Foos Manufacturing Company, Springfield, Ohio. Apparatus for grinding, crushing, or feeding	682,158	Sept. 10	921	205 206	96	2068
Adriance, Platt & Company. (See Brown, Thomas S., assignor.)						
Adsit, Silas, Jamestown, Ohio. Movable earth-box	683,096	Sept. 24	2618	601	96	2444
Advance Tire Company. (See Skinner, Frederick W., assignor.)						
Aeckersberg, Katharine E., New York, N. Y. Skirt-supporter	678,151	July 9	1550	357	96	336
Aermotor Company. (See Dyer, Robert M., assignor.)						
Agner, Harry M. (See Varner, Mosher, and Agner.)						
Aiken, Charles W. (See Mitchell, Albion L. F., assignor.)						
Aiken, Emilie S., Boston, Mass. Veiling display-stand	680,450	Aug. 13	1339	298	96	1327

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Aiken, Stephen F., *et al.* (See Titus and Covert, assignors.)						
Ainley, Harry F., London, England. Two-reel sewing-machine	683,008	Sept. 17	2473	560 / 561	96	2304
Aitken, William. (See Sinclair and Aitken.)						
Ajax Manufacturing Company. (See Blakeslee, John R., assignor.)						
Akers, Alfred. (See Harpham and Akers.)						
Akers, Frederick I. E., Chicago, Ill. Dumping-vehicle	677,847	July 9	992	226	96	223
Akers, Julian E., assignor to J. Timms, Columbus, Ohio. Dust-guard	677,611	July 2	508	121	96	108
Aktiebolaget Automatgevär. (See Kjellman and Andersson, assignors.)						
Aktiebolaget L. M. Ericsson & Co. (See Ericsson, Lars M., assignor.)						
Albach, Riley, Mount Gilead, Ohio. Husking-peg	681,176	Aug. 27	2753	611	96	1655
Alban, Carlos, Panama, Colombia. Geographical clock	682,016	Sept. 3	677	147	96	1999
Albert, Elmer E., Malta, Idaho. Rotary engine	677,581	July 2	348	84	96	75
Albert, Otto. (See Sawyer and Albert.)						
Albert, Otto, assignor to Shaw Electric Crane Company, Muskegon, Mich. Spring chock or buffer	678,531	July 16	2291	516	96	502
Albig, Jacob H., *et al.* (See Dixon, Thomas, assignor.)						
Albig, John W., *et al.* (See Dixon, Thomas, assignor.)						
Albrecht, Herman S. (See Schoellhorn and Albrecht.)						
Alden, George I., Worcester, Mass. Automatic hydraulic gravity-valve	679,717	Aug. 6	1	1	96	1043
Alderson, William C. (See Cornell, Elijah B., assignor.)						
Aldis, Hugh L., County of Middlesex, England. Photographic lens	682,017	Sept. 3	678	147	96	1999
Aldrich, Robert and W. T., Millville, Mass., assignors to themselves, F. L. Cleveland and G. H. Baker, Woonsocket, R. I. Carbureting device for explosive-engines	682,596	Sept. 17	1093	387	96	2241
Aldrich, William T. (See Aldrich, Robert and W. T.)						
Alessi, Federico, New York, N. Y. Machine-gun	682,240	Sept. 24	2862	657 / 658	96	2492
Alexander, Andrew L., Piedmont, S. C. Seed-planter	677,612	July 2	509	122	96	108
Alexander, Edwin M., Sykesville, Md. Corn-planter	681,427	Aug. 27	3215	716	96	1745
Alexander, Elmer P., Yeagertown, Pa. Forging-press	678,291	July 9	1816	419	96	388
Alexander, Jacob, New York, N. Y. Eyeglasses	677,912	July 9	1108	256	96	250
Alexander, Jesse H., Labelle, Mo. Combined harrow and planter	681,944	Sept. 3	552	116	96	1976
Alexander, Scott W., Los Angeles, Cal. Yielding automatic adjustable car-fender	677,582	July 2	349	84, 85	96	75
Alexander, Urbana D., Canonsburg, Pa. Machine for making pipe-elbows	681,177	Aug. 27	2754	611 / 612	96	1655
Alison, William H., San Francisco, Cal. Piston-packing	681,388	Aug. 27	3146	700	96	1731
Allan, William. (See Michaelson, James M., assignor.)	682,515	Sept. 10	1547	351	96	2188
Allard, Eugène, Cannes, France. Molding and frying implement	683,013	Sept. 24	2487	565	96	2417
Allder, Thomas, Jr., and T. H. Streater, London, England. Seat or stage for window-cleaners or the like	681,606	Aug. 27	3559	791	96	1813
Allen, Augustus N., Scranton, Pa. Smoothing-iron handle	678,211	July 9	1660	382	96	367
Allen, Benjamin F., Portland, Me. Antifriction drawer-slide	679,100	July 23	3446	769	96	750
Allen, Charles F., San Francisco, Cal. Ore-washer	677,492	July 2	273	68	96	56
Allen, Charles H., Marlboro, Mass. Welt-guide for sewing-machines	682,159	Sept. 10	923	206	96	2068
Allen, Charles W., Philadelphia, Pa. Fastener for envelops	677,491	July 2	272	68	96	59
Allen, Clyde, Hazleton, Iowa. Igniter for gas-engines	679,872	Aug. 6	296	63	96	1102
Allen, David H., Miamisburg, Ohio. Tobacco-pipe-charging device						
Allen, Edward A., Rumford Falls, Me., and H. K. Moore, Lynn, Mass., assignors, by mesne assignments, to Moore Electrolytic Company, Portland, Me., and Boston, Mass. Electrolyzing salts of alkali metals	680,191	Aug. 6	864	198	96	1217
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Buttonhole-sewing machine	677,891	July 2	97	21, 22	96	22
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine presser-foot-lifting device	678,926	July 23	3074	687	96	677
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine needle-bar mechanism	678,927	July 23	3075	687	96	678
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Guide for carpet-sewing machines	678,928	July 23	3076	688	96	678
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Overseam for sewed articles	681,669	Sept. 3	1	1	96	1865
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Overseam for sewed articles	681,670	Sept. 3	2	1	96	1865
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Overseam for sewed articles	681,671	Sept. 3	3	1	96	1865
Allen, Everett P., assignor of one-half to W. C. Hill, Chicago, Ill. Radiator-valve	677,551	July 2	400	95	96	85
Allen, Everett P., assignor of one-half to W. C. Hill, Chicago, Ill. Valve for radiators	677,552	July 2	401	95, 96	96	85
Allen, Frank, Memphis, Tenn. Weather-strip and sash-fastener	683,097	Sept. 24	2690	608	96	2444
Allen, Frank H., Norwich, Conn. Meat-tenderer	682,018	Sept. 3	680	147	96	2000
Allen, Fred M., assignor of one-third to L. W. Rand, Esmond, Ill. Calf trough and rack	679,295	July 30	3681	856	96	849
Allen, George, Franklin, Pa. Furnace	680,107	Aug. 6	715	159	96	1187
Allen, James V., Ontario, N. Y. Street-sweeper	679,296	July 30	3682	856	96	849
Allen, Martin G., Decorah, Iowa. Non-refillable bottle	677,913	July 9	1109	256	96	250
Allen, Samuel F., Chicago, Ill. Frictional driving mechanism	679,270	July 23	3766	840 / 841	96	817
Allen, Walter L., assignor to Thompson & Norris Company, Brooklyn, N. Y. Paper-tube machine	679,011	July 23	3340	724 / 725 / 726	96	710
Allen, William E., Madison, Wis. Band-saw guide	683,373	Sept. 24	3104	710	96	2544
Alley, Frederick L., Lynn, Mass. Take-up mechanism for sewing-machines	679,409	July 30	4072	908	96	902
Allgood, Job W., Jersey, Ga. Wagon-jack	680,751	Aug. 20	1948	426	96	1474
Allington & Curtis Manufacturing Company. (See Allington, William E., assignor.)						
Allington, William E., assignor to Allington & Curtis Manufacturing Company, East Saginaw, Mich. Dust-collector	678,451	July 16	2142	484	96	470
Allis, Thomas V., Bridgeport, Conn. Apparatus for hot-rolling metal to thin gages. (Reissue)	11,927	Aug. 20	2744	608 / 609	96	1632
Allis, Thomas V., Bridgeport, Conn. Hot-rolling metal to thin gages. (Reissue)	11,928	Aug. 20	2747	609	96	1633
Allison, Daniel K., assignor to D. K. Allison, Troy, and F. A. Foster, Dayton, Ohio. Cash-indicator	679,250	July 23	3720	881	96	806
	679,164	July 23	3566	796 / 797	96	776
Allison, Samuel B., New Orleans, La. Fiber-separating machine	677,914	July 9	1111	256	96	251
Allison, Samuel B., deceased, New Orleans, La.; C. A. Dorrestein, administrator. Fiber-separating machine	679,201	July 23	3643	813	96	798
Allison, William, and P. H. Keefe, Pittsburg, Pa. Liquid-drawing device	677,731	July 2	717	171	96	151
Allred, William P., Corydon, Iowa. Portable book-support	680,011	Aug. 6	548	117 / 118	96	1158
Allwardt, Henry A., Detroit, Mich. Soda-water apparatus						

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Allyne, Edmund E. (See Pomeroy and Allyne.)						
Almorth, Gustav A., Cambridge, Mass. Protractor	679,602	July 30	4546	1023	96	999
Almqvist, August, A. W. Kastberg, G. A. Cahling, and P. A. Sjöqvist, Skönsberg, Sweden. Watch-protector	682,019	Sept. 3	681	148	96	2000
Alphin, Gilbert E., Mount Olive, N. C. Fumigating apparatus	678,212	July 9	1661	382	96	358
Alsip, Frank, Chicago, Ill. Brick-drier	679,816	Aug. 6	190	41	96	1061
Alsip, Frank, Chicago, Ill. Kiln	679,817	Aug. 6	192	41, 42	96	1061
Alsip, Frank, Chicago, Ill. Portable conservatory	679,818	Aug. 6	194	42	96	1061
Alsip, Frank, Chicago, Ill. Kiln-furnace	679,819	Aug. 6	196	42	96	1062
Alsip, Samuel H., Belleville, Ill. Coking-table furnace	682,231	Sept. 10	1060	239	96	2098
Alston, Mathew, Hamilton, Ill. Currycomb	679,933	Aug. 6	412	87	96	1124
Altena, Fritz. (See Lindenberg, Altena, and Fischer.)						
Altenbaugh, John A., Pittsburg, Pa. Combined harrow and roller	682,399	Sept. 10	1347	305	96	2148
Althausse, Maximilian C. L., Billwärder-an-der-Bille, assignor to Fabrik Chemischer Praeparate von Dr. Richard Sthamer, Hamburg, Germany. Producing pure saponin solutions	679,202	July 23	3644	.....	96	798
Althausse, Maximilian C. L., Billwärder-an-der-Bille, assignor to Fabrik Chemischer Praeparate von Dr. Richard Sthamer, Hamburg, Germany. Obtaining hydrocellulose	679,203	July 23	3645	.....	96	798
Althausse, Maximilian C. L., Billwärder-an-der-Bille, assignor to Fabrik Chemischer Praeparate von Dr. Richard Sthamer, Hamburg, Germany. Obtaining hydrocellulosa	679,204	July 23	3647	.....	96	798
Aman, Stephan, Port Richmond, N. Y. Boiler	680,188	Aug. 6	859	192	96	1216
Ambler, Arthur A., Chicago, Ill. Car-truck	682,348	Sept. 10	1263	285	96	2130
Ambrose, Robert L., Tarrytown, assignor to Rand Drill Company, New York, N. Y. Valveless rock-drill	681,428	Aug. 27	3217	716	96	1745
American Alkali Company. (See Rhodin, Brodde E. F., assignor.)						
American Automatic Fan Company. (See Cease, Nicholas W., assignor.)						
American Bell Telephone Company. (See Burgess and Wilder, assignors.) (Reissue.)						
American Bell Telephone Company. (See Stetson, Almon B., assignor.)						
American Bicycle Company. (See Thompson, Alfred, assignor.)						
American Can Company. (See Hodgson, John G., assignor.)						
American Can Company. (See Norton, Edwin, assignor.)						
American Can Company. (See Norton, Horatio N., assignor.)						
American Car & Foundry Company. (See Johnston, Joseph G., assignor.)						
American Car & Foundry Company. (See King, George L., assignor.)						
American Construction Company. (See Green, Edward A., assignor.)						
American Dredging Company. (See Bradley, William J., assignor.)						
American Graphophone Company. (See Macdonald, Thomas H., assignor.)						
American Luxfer Prism Co. (See Jordan, Lewis H., assignor.)						
American Match Machine Company. (See Calkins, Almon B., assignor.)						
American Match Machine Company. (See Calkins, Arthur N., assignor.)						
American Multiplex Talking Machine Company. (See Gomber, George W., assignor.)						
American Pneumatic Service Company. (See Cowley, James T., assignor.)						
American Pneumatic Service Company. (See Pike, Otto S., assignor.)						
American Railway Electric Light Co. (See Kennedy, Patrick, assignor.)						
American Rubber Filling Company. (See Mayer, Nelson B., assignor.)						
American Separator Company. (See Collins and Hartmann, assignors.)						
American Shade Machine Company. (See Colpitts, Calvin N., assignor.)						
American Soda Fountain Company. (See Sutton, Joshua W., assignor.)						
American Steam Gauge Company. (See Manning, Coleman J., assignor.)						
American Steel and Wire Company. (See Brittan, Henry M., assignor.)						
American Sugar Refining Company. (See Mahoudeau, Frederic, assignor.)						
American Telephone and Telegraph Company. (See Yorke, George M., assignor.)						
American Tobacco Company. (See Heinrich, Emil C. R., assignor.)						
American Tobacco Company. (See Tuttle, Washington I., assignor.)						
American Tobacco Company. (See Williams, George M., assignor.)						
American Type Founders Company. (See Benton, Linn B., assignor.)						
American Type Founders' Company. (See Ziegler, George H., assignor.)						
American Waltham Watch Company. (See Ohlson, Olof, assignor.)						
American Wood Fireproofing Company. (See Geisler, Joseph F., assignor.)						
Ames, Alden T. (See Fulton, Samuel M., assignor.)						
Ames, William H., *et al.* (See Hubbell, Thomas J., assignor.)						
Amory, Robert. (See Sisson, Isaac H., assignor.)						
Amory, Robert. (See Vinton, John H., assignor.)						
Ams, Max, New York, N. Y. Sheet-metal can	678,091	July 9	1438	332	96	313
Anck, John M., Philadelphia, Pa. Electric railway	678,213	July 9	1663	382	96	358
Anck, John M., Philadelphia, Pa. Speed-changing mechanism	683,241	Sept. 24	2866	658	96	2493
Anderson, Burdis, Boardman, N. C. Cloth measuring and winding machine	679,101	July 23	3448	769	96	750
Anderson, Cecil R., Allegheny, Pa. Coal-auger post	683,193	Sept. 24	2769	636	96	2474
Anderson, Charles A. and O., Portland, Oreg. Camp cooking utensil	679,588	July 30	4429	995	96	975
Anderson, Charles D., Chicago, Ill. Armature for dynamo-electric machines	677,392	July 2	99	22	96	23
Anderson, Charles D., Chicago, Ill. Casing for dynamo-electric machines	677,533	July 2	352	85, 86	96	76
Anderson, Charles D., Chicago, Ill. Dynamo-electric machine	682,898	Sept. 17	2269	512 / 513	96	2353
Anderson, Frank C., assignor of two-thirds to G. W. Zapf and S. Jones, Cincinnati, Ohio. Frog for railway-rails	681,908	Sept. 3	468	95	96	1958
Anderson, George B., Washington, D. C. Motor-vehicle	680,307	Aug. 13	1081	239	96	1275
Anderson, George B., Philadelphia, Pa. Swimming-bag	682,160	Sept. 10	924	206	96	2068
Anderson, Gustav O., Chicago, Ill. Crayon-sharpener	679,196	July 23	3511	785	96	764
Anderson, Hans. (See Gibbard and Anderson.)						
Anderson, Harry, Omaha, Nebr. Car	677,916	July 9	1113	257	96	251
Anderson, Henry S., Springfield, Mass. Apparatus for electrolysis of the salts of alkali metals	678,851	July 23	2917	658	96	647
Anderson, Oscar. (See Anderson, Charles A. and O.)						
Anderson, Phillip, Denver, Colo. Stove	682,778	Sept. 17	2045	462	96	2307
Anderson, Richard R., Albion, Iowa. Educational chart	677,915	July 9	1112	256	96	251
Anderson, Sven J., Waltham, Mass. Incandescent igniting-tube for gas-engines	681,384	Aug. 27	3147	701	96	1732
Andersson, Gustaf L. (See Kjellman and Andersson.)						
Andresen, Christian, Dollerup, Germany. Mowing or reaping machine	682,124	Sept. 3	854	191 / 192	96	2084
Andrews, Charles B., Lebanon, Pa., assignor to Diamond Match Company, Chicago, Ill. Machine for making box-trays	678,152	July 9	1552	357 / 358	96	336
Andrews, Charles B., Lebanon, Pa., assignor to Diamond Match Company, Chicago, Ill. Match-box-shuck machine	680,012	Aug. 6	550	118	96	1153
Andrews, Frederick C. (See Colman, William R., assignor.)						
Andrews, John K., Elgin, Ill. Flower-pot	681,672	Sept. 3	4	1	96	1865
Angelovich, Joseph R., San Francisco, Cal. Bouquet-holder	681,673	Sept. 3	4	2	96	1865
Angerer, Victor, and A. R. Cline, assignors to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Casting-clamp for track structures	678,214	July 9	1664	383	96	358

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Angle, Edward H., St. Louis, Mo. Tooth-regulator	678,452	July 16	2144	485	96	470
Angle, Edward H., St. Louis, Mo. Tooth-regulator	678,453	July 16	2145	485	96	470
Angle, John W., Smithton, Mo. Rope or wire stretcher	681,291	Aug. 27	2973	660	96	1699
Augstadt, Wilson B., and K. H. Cleaver, Reading, Pa. Making fertilizers	683,014	Sept. 24	2498	.....	96	2417
Annett, Albert, East Jeffrey, N. H., assignor to Annett Manufacturing Company, of New Hampshire. Machine for applying glue to wooden box-rims	678,471	July 16	2169	489	96	475
Annett, Leslie R., Boise, Idaho. Combined plow and brush-cutter	683,242	Sept. 24	2869	658 / 659	96	2494
Annett Manufacturing Company. (See Annett, Albert, assignor.)						
Annulo Stopper Company. (See Stern, Arnold, assignor.)						
Ansenheimer, Jacob F., Cincinnati, Ohio. Package for holding liquids	677,918	July 9	1118	258	96	252
Anstaett, Christian C., Elgin, Ill. Bread	678,454	July 16	2147	.....	96	470
Anstaett, Christian C., Elgin, Ill. Making bread	678,455	July 16	2147	.....	96	471
Anti-Bursting Pipe Company. (See Hopkins, Nevil M., assignor.)						
Anton & Alfred Lehmann Aktiengesellschaft. (See Lewin, Simon, assignor.)						
Anton, Christopher L., Monongahela, Pa. Miner's lamp	678,852	July 23	2918	658	96	647
Anzelewitz, Abraham, New York, N. Y. Winding and setting mechanism for watches	682,968	Sept. 17	2890	541	96	2378
Appelhans, Harriet, *et al.* (See Applehans, Charles, assignor.)						
Appelhans, Hermine, *et al.* (See Applehans, Charles, assignor.)						
Appelhans, Valeska, *et al.* (See Applehans, Charles, assignor.)	677,558	July 2	403	96	96	86
Appleby, John F., Chicago, Ill. Automatic grain-binder	677,898	July 2	101	22	96	24
Applegate, Robert O., Kansas City, Mo. Vapor-burning lamp	678,771	July 16	2746	618	96	591
Applehans, Charles, assignor to J. O'Connell, H., H., and V. Appelhans, and J. H. Barnes, Norwich, Conn. Beer-drawing apparatus	679,668	July 30	4547	1023	96	999
Appleton, Alfred E., Oldbury, England. Hand signaling-lamp	680,013	Aug. 6	553	119	96	1153
Appleton, Charles J., Ravenswood, N. Y. Overseaming sewing-machine	680,014	Aug. 6	556	119	96	1154
Arbes, Joseph, New York, N. Y. Blind-stitch sewing-machine						
Arcade Manufacturing Company. (See Schermack, John J., assignor.)						
Archibald, Walter B. (See Kyle, Jessee C., assignor.)						
Arend, Francis J., *et al.* (See Berrigan, John J., assignor.)						
Argles, Alice M., Wimbledon, England. Coin-freed mechanism for goods-delivery machines	678,153	July 9	1555	358 / 359	96	337
Armatage, Robert, Attica, Ohio. Bale-tie	681,471	Aug. 27	3311	756	96	1764
Armeny, Gyulo, New York, N. Y. Diamond-polishing machine	677,613	July 2	511	122 / 123	96	108
Armour & Company. (See Sharp, William E., assignor.)						
Armour, Robert J., Newark, N. J. Signal-lamp	683,243	Sept. 24	2871	659	96	2494
Armstead, James H., Indianapolis, Ind., assignor of one-half to J. T. Armstead, Duluth, Minn. Measuring-tool	679,820	Aug. 6	199	42	96	1082
Armstead, John T. (See Armstead, James H., assignor.)						
Armstrong, A. A. (See Addleman, John S., assignor.)						
Armstrong, Albert H., Schenectady, N. Y., assignor to General Electric Company, of New York. Motor-control system	678,853	July 23	2919	658 / 659	96	647
Armstrong, Albert H., Schenectady, N. Y., assignor to General Electric Company, of New York. Control of induction-motors	678,854	July 23	2925	659	96	648
Armstrong, Arthur H., Sandwich, assignor of one-half to S. M. Einstein, Attleboro, Mass. Nut-lock for rail-splices	681,904	Sept. 3	469	96	96	1958
Armstrong, Charles G., Chicago, Ill., assignor to J. E. Heg, Rahway, N. J. Heat-regulating device	680,471	Aug. 13	1372	300	96	1334
Armstrong, Frederick S., Franklin, Conn., M. C. Weaver and M. A. Barber, North Attleboro, Mass. Transferable clamp lamp-bracket	680,680	Aug. 20	1784	398	96	1437
Armstrong, John, Ealing, England. Apparatus for treatment of ores	677,614	July 2	515	123	96	109
Armstrong, John E., Santa Cruz, Cal. Automatic water-elevator	682,378	Sept. 10	1308	295	96	2140
Armstrong, Walter S., Ruthven, Iowa. Railway-switch	681,665	Aug. 27	3091	826	96	1841
Arnaud, Albert L. (See Verneuil, Godefroy-Lebeuf, and Arnaud.)						
Arndt, Max, Aix-la-Chapelle, Germany. Gas-analysis apparatus	678,154	July 9	1558	359	96	338
Arndt, Max, Aix-la-Chapelle, Germany. Apparatus for gas analysis	678,215	July 9	1666	383 / 384	96	339
Arnodin, Ferdinand J., Châteauneuf, France. Counterbalanced and jointed suspension-bridge	680,906	Aug. 20	2242	493	96	1531
Arnold, Charles H., Grosvenor Dale, Conn., assignor to Draper Company, Hopedale, Mass. Spinning yarn	683,418	Sept. 24	3196	.....	96	2562
Arnold, Daniel J. C., New London, Ohio. Metal wheel	680,633	Aug. 13	1664	367	96	1392
Arnold, Engelbert, O. S. Bragstad, and J. L. La Cour, Carlsruhe, Germany. Arrangement of non-inductive windings	677,917	July 9	1117	258	96	252
Arnold, Horace L., Brooklyn, assignor to J. A. Hill, New York, N. Y. Reversing mechanism	677,498	July 2	275	69	96	60
Arnold, Horace L., Brooklyn, N. Y., assignor to J. A. Hill, East Orange, N. J. Clutch	677,615	July 2	517	124	96	110
Arnold, Lucien H., Chicago, Ill. Tooth-brush	682,836	Sept. 17	2164	486	96	2331
Arnold, Newton M., Helena, Mont. Wagon coupling-pole	678,855	July 23	2930	660	96	648
Arnold, Wilber E., Madisonville, Ohio. Composite grinding-rolls	679,821	Aug. 6	199	43	96	1088
Arnoult, Henry T. d', Paris, France. Accumulator-plate	682,899	Sept. 17	2271	513	96	2353
Arthur, Alexander J., Fort Dodge, Iowa. Farm-gate	682,161	Sept. 10	1672	380	96	2213
Asar, Mario R. d', Genoa, Italy. Means for locating source of sound	682,584	Sept. 10	1672	380	96	2342
Asche, Otto, Boulogne-sur-Seine, France. Drawing-die	682,966	Sept. 17	2217	501	96	2342
Ash, Horace W. (See Scott, Warren, and Ash.)						
Ashby, James A. (See Ashby, John A., assignor.)						
Ashby, John A., Blueash, Ohio, assignor to himself, and J. A. Ashby, Bellevue, Ky. Sheet-music holder and turner	678,827	July 9	1881	433	96	400
Asher, Abraham, *et al.* (See Mariner, Abbott L., assignor.)						
Asher, William J., Willimantic, Conn. Starching-machine	680,559	Aug. 13	1539	339	96	1367
Ashley, Frank M., New York, N. Y. Electric railway	677,848	July 9	964	226 / 227	96	228
Ashley, Frank M., New York, N. Y. Electric railway	677,849	July 9	965	227	96	224
Atchason, Thomas, Newark, N. J. Trace-fastener	678,711	July 16	2651	597	96	573
Atherton, Frederick L. (See Meyer, Florian, assignor.)						
Atkins, John E., Meriden, Conn. Mop	680,308	Aug. 13	1069	239	96	1275
Atkins, John W., assignor of one-half to W. T. Henry, Redland, Ind. Ter. Kitchen-cabinet	681,923	Sept. 3	316	64	96	1928
Atlantic Acetylene Burner Company. (See Harris, John, assignor.)						
Atwell, Fred W., Fox Lake, Ill. Clevis	679,523	July 30	4308	968	96	948
Atwood, George F., *et al.* (See Coun, Willard H., assignor.)						
Atwood-Morrison Company. (See Morrison, Walter G., assignor.)						
August Kern Barber Supply Company. (See Lowry, John B., assignor.)						
Augustieu, Edwin. (See Klemme and Augustieu.)						
Aull Bros. Paper & Box Co. (See Wolf, Henry L. R., assignor.)						
Aumann, Louis A. (See Lane and Aumann.)						
Austen, Joseph F., Milwaukee, Wis. Gasket-cutter	681,945	Sept. 3	555	117	69	1977

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Austin Cartridge Company. (See Morris, William L., assignor.)						
Austin, Frederick C. (See Rhodes, Jay B., assignor.)						
Automatic Scale Company. (See Points, John W., assignor.)						
Automatic Speed Governor Company. (See Kemmerer, Charles D., assignor.)						
Automatic Target Machine Company. (See McCullough, John L., assignor.)						
Automatic Vacuum Canning Company. (See Norton, Edwin, assignor.)						
Avedisyan, Avedis D., Boston, Mass. Non-refillable bottle	677,919	July 9	1119	258	96	253
Avery, Colby M., Chicago, Ill., assignor to Chisholm, Boyd & White Company, of Illinois. Pulverizing calcium oxid or lime	682,837	Sept. 17	2165	.....	96	2331
Avery Manufacturing Company. (See Bartholomew, John B., assignor.)						
Avézard, Auguste F., Jr., and J. E. Clerc, Paris, France. Filter for purifying water	680,681	Aug. 20	1785	393	96	1497
Aylworth, Daniel W. (See Cady, Frank P., assignor.)						
Ayres, Harlow J. (See Simmons, William H., assignor.)						
Ayres, William V. K., Newark, N. J. Non-refillable bottle	681,178	Aug. 27	2756	612	96	1655
B. Gloekler Company. (See Schlarb, Louis M., assignor.)						
Baak, Herman, Charter Oak, Iowa. Threshing-machine straw-carrier	682,516	Sept. 10	1547	351	96	2188
Babbitt, James M., assignor of one-half to D. Hill, Carthage, Mo. Lifting-jack	677,920	July 9	1121	258	96	253
Babcock, Charles M., *et al.* (See Creed, John J., assignor.)						
Babcock, James R., assignor of one-fourth to T. Paradis, Fort Pierre, S. D. Wheeled plow or cultivator	681,012	Aug. 20	2443	540	96	1571
Babcock & Wilcox Co. (See Higgins, Campbell P., assignor.)						
Babcock, Eugène, Sermerieu, France. Means for preserving railway-carriages from injury in case of collision	680,831	Aug. 20	2110	460	96	1505
Bachman, Frank E., Buffalo, N. Y. Filter	678,532	July 16	2292	517	96	568
Bachmann, George J., and G. McConnell, Muskegon, Mich. Potato-planter	682,900	Sept. 17	2272	513	96	2353
Bachus, John, Jersey City, N. J. Adjustable door-frame	680,015	Aug. 6	557	120	96	1154
Backus, Abram C., Whiteplains, N. Y. Top	680,957	Aug. 20	2389	513	96	1551
Backus, Charles F. (See Barker, James, assignor.)						
Backus, Hiram A., Evans, N. Y. Lever	679,873	Aug. 6	297	68, 64	96	1102
Bacon, Abbott L., Franklin, Mass. Sand-box for cars	677,554	July 2	404	97, 98	96	86
Bacon, H. Clark, *et al.* (See Mack, Henry A., assignor.)						
Bade, Ferdinand, Norwood, N. J. Water-supplying device for poultry	682,779	Sept. 17	2345	502	96	2308
Bader, Edward, assignor of one-half to M. Bauman, St. Louis, Mo. Metallic packing	677,931	July 9	1146	264	96	258
Badische Anilin & Soda Fabrik. (See Abel, Julius, assignor.)						
Badische Anilin & Soda Fabrik. (See Bohn, René, assignor.)						
Badische Anilin & Soda Fabrik. (See Julius, Paul, assignor.)						
Badische Anilin & Soda Fabrik. (See Stiegelmann, Armand J., assignor.)						
Badische Anilin & Soda Fabrik. (See Voigtländer-Tetzner, Walter, assignor.)						
Badt, Francis B., Chicago, Ill. Electric-arc lamp	681,179	Aug. 27	2757	612	96	1655
Baecker, Louis, assignor of one-half to F. Aberle, Detroit, Mich. Electric cloth or fabric	683,098	Sept. 24	2921	602	96	2445
Baer, Benjamin. (See De Croes, Clement, assignor.) (Reissue.)						
Baer, Samuel W., assignor of one-third to C. J. Haden, Atlanta, Ga. Railway-switch	680,634	Aug. 13	1665	398	96	1393
Baer, William J. (See Thornley and Baer.)						
Baethig, Henry. (See Svenson, Claes A., assignor.)						
Bahnemann, Otto E., Gera, Mich. Adjustable shelving	682,517	Sept. 10	1549	351 / 352	96	2189
Bahrenburg, William, Belleville, Ill. Vehicle-door	679,822	Aug. 6	200	43	96	1083
Bailer, Otto P., Memphis, Tenn. Eyeglasses	681,092	Aug. 20	2394	573	96	1602
Bailey, Alexander, assignor to National Brass Manufacturing Company, Cincinnati, Ohio. Garment-hook	678,155	July 9	1561	360	96	339
Bailey, Alfred J. (See Bailey, William H. and A. J.)						
Bailey, Charles E., Providence, assignor to W. R. Talbot, North Kingston, R. I. Article provided with heads of leather	679,823	Aug. 6	201	43	96	1083
Bailey, Charles J., Newton, Mass. Water-bag	679,524	July 30	4309	968	96	948
Bailey, Harvey J. (See Tribble, William, assignor.)						
Bailey, James B., Monte Bello, Canada. Clothes-line	682,518	Sept. 10	1551	352	96	2189
Bailey, Leonard C., Florence, Colo. Bottle	681,774	Sept. 3	232	45	96	1911
Bailey, Ralph W., West Newbury, Mass. Protractor attachment for center-finding instruments	679,934	Aug. 6	413	87	96	1124
Bailey, Samuel R., Amesbury, Mass. Carriage-spring	681,093	Aug. 20	2595	573	96	1602
Bailey, Samuel R., Amesbury, Mass. Carriage-spring	681,094	Aug. 20	2595	573	96	1602
Bailey, William H. and A. J., Salford, England. Valve for water-gages	682,162	Sept. 10	928	207	96	2069
Bain, Francis M., Ann Arbor, Mich. Washboiler	677,394	July 2	104	23	96	24
Baird, Edward P., Evanston, assignor to Baird Manufacturing Company, Chicago, Ill. Toll apparatus for telephones	678,632	July 16	2515	563	96	546
Baird, Edward P., Evanston, assignor to Baird Manufacturing Company, Chicago, Ill. Telephone toll apparatus	678,633	July 16	2523	564	96	548
Baird Manufacturing Company. (See Baird, Edward P., assignor.)						
Baird, William H., Burlington, Iowa. Brush	678,431	July 16	2094	476	96	459
Baker, Alfred L., and A. W. Taylor, Bakers, Mich. Luggage-carrier	680,213	Aug. 13	914	203	96	1243
Baker, Andrew A., and F. F. Heffernan, Pittsburg, Pa. Switch-throwing device	677,618	July 2	524	125	96	111
Baker, Cicero M., Whitesboro, Tex. Gate	679,589	July 30	4430	995 / 996	96	975
Baker, David B., Tacoma, Wash. Wood split pulley	677,555	July 2	407	98	96	87
Baker, Eber, *et al.* (See Richards, Jesse D., assignor.)						
Baker, Frederick H. (See Baker, Shevlin, and Baker.)						
Baker, George H., *et al.* (See Aldrich, Robert and W. T., assignors.)						
Baker, George S., London, England. Conveyer apparatus	680,214	Aug. 13	916	203 / 204 / 205 / 206	96	1243
Baker, George S., J. A., and W. K., London, England. Apparatus for mixing flour, &c.	680,882	Aug. 20	2111	461	96	1505
Baker & Hamilton. (See Cowley, William A., assignor.)						
Baker, James H., G. F. Shevlin, and F. H. Baker, Saratoga Springs, N. Y. Valve for wood-pulp digesters, &c	682,838	Sept. 17	2165	489	96	2331
Baker, James H., G. F. Shevlin, and F. H. Baker, Saratoga Springs, N. Y. Diaphragm-screen	682,839	Sept. 17	2168	489	96	2332
Baker, James M., Providence, R. I. Shut-off nozzle for firemen's hose	680,016	Aug. 6	559	120	96	1154
Baker, Joseph A. (See Baker, George S., J. A., and W. K.)						
Baker, Joseph C., Warren, Tex. Engine	681,180	Aug. 27	2759	612 / 613	96	1656
Baker, Milton M., San Francisco, Cal. Solar water-heater and steam-generator	679,451	July 30	4152	982	96	917
Baker, Milton M., assignor to Sunshine Water Heater Co., San Francisco, Cal. Solar oven and cooker	681,095	Aug. 20	2596	574	96	1602
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Weft replenishing and controlling mechanism for looms	681,164	Aug. 20	2717	602 / 603	96	1627

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Weft controlling and replenishing mechanism for looms	681,165	Aug. 20	2721	603, 604	96	1627
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Weft replenishing and controlling mechanism for looms	681,647	Aug. 27	3644	815, 816, 817	96	1831
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Weft-replenishing mechanism for looms	681,905	Sept. 3	470	98	96	1959
Baker, William J., Newport, Ky. Laundry-tag	678,156	July 9	1563	360	96	339
Baker, William J., Newport, Ky. Window-screen	678,216	July 9	1669	384	96	369
Baker, William K. (See Baker, George S., J. A., and W. K.)						
Bakken, Thore A., De Soto, Wis. Coupling for whiffletrees	680,108	Aug. 6	716	150	96	1187
Balada, Alfredo. (See Fusal, Antenore, assignor.)						
Baldt, Frederick, Sr., Chester, Pa. Anchor	677,619	July 2	525	125	96	111
Baldwin, Alfred, Goffs Falls, N. H. Tension device for loom-shuttles	680,682	Aug. 20	1786	393, 394	96	1437
Baldwin, David G. (See Wintz, Jefferson D., assignor.)						
Baldwin, William D., administrator. (See Dyer, Louise.)						
Baldwin, William H., Ainsworth, Nebr. Windmill	681,181	Aug. 27	2761	613	96	1656
Baldwin, William J., Brooklyn, N. Y. Device for feeding fuel to furnaces	681,429	Aug. 27	3221	717	96	1746
Ball, Albert, Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Coal-mining machine	680,683	Aug. 20	1798	394	96	1438
Ball, Arthur R., Melvern, Kans. Adding-machine	681,292	Aug. 27	2973	660	96	1699
Ball, Henry P., assignor to General Incandescent Arc Light Company, New York, N. Y. Circuit-breaker	678,991	July 23	3208	717	96	702
Ball, Samuel C., and J. J. Gibson, Chicago, Ill. Railway-crossing	679,874	Aug. 6	300	64	96	1108
Ballance, J. H. (See Kennedy, Louis H., assignor.)						
Ballou, Barton A., *et al.* (See Potter, James E., assignor.)						
Ballou, Frederick A., *et al.* (See Potter, James E., assignor.)						
Balthazard, Victor. (See Desgrez and Balthazard.)						
Bamberger, Alfred H. (See Gleason, Michael J., assignor.)						
Banford, Walter. (See Haden and Howarth, assignors.)						
Bancker, Samuel S., New York, N. Y. Rope-fastener	678,533	July 16	2295	517	96	503
Bancroft, Frank H., assignor of one-half to H. M. Rich, Gardner, Mass. Press for bending wood	679,287	July 30	3894	856	96	849
Bancroft, James E., assignor to International Canning Company, Toledo, Ohio. Washing and scalding apparatus for fruit	678,828	July 9	1884	433	96	401
Banfield, Edwin F., New York, N. Y. Lighting device for gas-burners	681,842	Sept. 3	346	70	96	1935
Banning, Hancock, and F. C. Carey, Los Angeles, Cal. Wave-motor	680,893	Aug. 20	2113	461	96	1506
Bansen, Fritz. (See Wehner, Maltner, and Bansen.)						
Baragwaneth, Henry D., Chicago, Ill. Condenser	679,491	July 30	4243	955, 956	96	984
Barber, Ada S. (See Barber, William, assignor.)						
Barber, Benjamin B., Baltimore, Md. Sash-fastener	681,404	Aug. 27	3171	706	96	1737
Barber, John M., St. Charles, Ill. Wire-fence machine	681,081	Aug. 20	2480	549	96	1578
Barber, Mabel A. (See Armstrong, Weaver, and Barber.)						
Barber, Maximilian T., Manchester, England. Guard for platen printing-machines	679,691	July 30	4607	1084	96	1014
Barber, William, assignor to A. S. Barber, Brooklyn, N. Y. Vehicle-frame	682,901	Sept. 17	2276	514	96	2454
Barbour, Thomas J., San Francisco, Cal. Hoist mechanism for mine-shafts	681,430	Aug. 27	3222	717	96	1746
Barbour, William B., Trenton, N. J. Tobacco-pipe	677,620	July 2	526	125	96	112
Barclay, Charles A., Brougham, Canada. Attachment for the cure of balking and kicking horses	678,217	July 9	1671	384	96	360
Bardsley, Henry, Providence, R. I. Shuttle-box-operating mechanism for looms	681,648	Aug. 27	3649	817, 818	96	1832
Bardwell, Arthur F. (See Maxim and Bardwell.)						
Bardwell, Arthur F., Mount Vernon, N. Y. Multiple-cylinder explosive-engine	680,907	Aug. 20	2245	493, 494	96	1532
Bardwell, Arthur F., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Sand-blast machine	681,867	Sept. 3	392	79	96	1944
Bareuther, Carl, Eger, Austria-Hungary. Printing-machine for yarn or warp-threads	682,780	Sept. 17	2047	462, 463, 464	96	2308
Barger, William M., Webster City, Iowa. Reel-carrier	681,182	Aug. 27	2763	614	96	1657
Bargquist, Carl N., Pelican Lake, Minn. Bundle-carrying attachment for harvesters	677,021	July 2	527	126	96	112
Barker, James, Detroit, Mich. Trial or daily balance sheet	681,431	Aug. 27	3225	718	96	1747
Barker, James, assignor to C. F. Backus, Detroit, Mich. Loose-leaf ledger	681,432	Aug. 27	3226	718	96	1747
Barker, John H., and J. A. Ewing, Cambridge, England. Electric meter	678,929	July 23	3077	688, 689	96	678
Barker, Ruben F. (See Corry and Barker.)						
Barkey, John L., Toronto, Canada. Lamp-chimney	679,590	July 30	4431	996	96	975
Barlow, Joseph E., Maybeury, W. Va. Car-door fastener	681,607	Aug. 27	3560	791	96	1813
Barlow, Thomas L., Boston, Mass. Machine for cleaning tires and rims of wheels	678,992	July 23	3205	718	96	702
Barnekov, Charles W., Perth Amboy, N. J., assignor of one-half to F. E. Wood, New York, N. Y. Camera	679,271	July 23	3768	841	96	817
Barnes, Albert L. (See Seitz, Henry J., assignor.)						
Barnes, Alexander T., Henderson, N. C. Grave-digger's dump-cart	677,921	July 9	1123	259	96	253
Barnes, John E. L. (See Sloan and Barnes.)						
Barnes, John H., *et al.* (See Applehans, Charles, assignor.)						
Barnes, Joshua B., Springfield, Ill. Wrench	680,560	Aug. 13	1543	339	96	1368
Barnes, Willard F., Klamathon, Cal. Crosscut gang-saw	683,015	Sept. 24	2489	565	96	2417
Barnes, William M., Philadelphia, Pa. Ironing-machine	679,718	Aug. 6	3	1	96	1043
Barnes, William M., Philadelphia, Pa. Shirt-hanger for driers	681,674	Sept. 3	5	2	96	1895
Barnet, Thomas Sydney, New South Wales. Time-indicator for telephones	677,331	July 2	1	1	96	3
Barnett, Charles M. (See Clark, Cornelius S., assignor.)						
Barney, Nathan, New York, N. Y. Cover for cases, &c	677,622	July 2	520	126	96	112
Barnhart, Harry J. (See King and Barnhart.)						
Barns, James M., New Brighton, Pa. Centering device for lining up engines	679,591	July 30	4432	996	96	975
Barnum, Christine M., Haworth, N. J. Attachment for corsets	679,547	July 30	4350	977	96	958
Baron, Albert L., Brooklyn, N. Y. Filter	681,433	Aug. 27	3227	718	96	1748
Baron, Alfred L., and J. F. Haffey, Tiffin, Ohio; said Haffey assignor to said Baron. Top for receptacles	677,850	July 9	966	227	96	224
Baron, Bernhard. (See Pollard, Edward T., assignor.)						
Baron, Bernhard, London, England. Soda-water fountain	677,751	July 2	759	181, 182	96	160
Barr, Andrew J., and J. W. Weil, Mansfield, Ohio. Clasp for holding ties	680,109	Aug. 6	718	159	96	1187
Barr, James C. and V. E., Amanda, Ohio. Sash-cord fastener	681,385	Aug. 27	3148	701	96	1732
Barr, John B., Kansas City, Kans. Amalgamator	679,355	July 30	3957	895	96	878

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Barr, Virgil E. (See Barr, James C. and V. E.)						
Barrett, Charles R., and E. C. Phillips, Chicago, Ill. Bowling-alley pin	679,225	July 23	3648	813	96	703
Barrett, Charles R., and E. C. Phillips, Chicago, Ill. Locking-socket for incandescent electric lamps	679,226	July 23	3649	814	96	703
Barrett, Charles R., and E. C. Phillips, Chicago, Ill. Implement for extracting bungs, &c.	689,517	Aug. 13	1476	325	96	1355
Barri, Martin, Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube apparatus	681,013	Aug. 20	2448	540, 541	96	1571
Barri, Martin, Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch apparatus	681,014	Aug. 20	2448	541, 542	96	1572
Barrick, Jacob L., Wellington, Ohio. Truck	680,561	Aug. 13	1544	339	96	1368
Barrington, William A., Louisville, Ky. Distillation coffee-pot	680,938	Aug. 20	2340	514	96	1552
Barron, John C., Ellisville, Miss. Standard for logging-cars	677,556	July 2	409	98	96	87
Barron, Walter J., Brooklyn, assignor to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	677,623	July 2	531	127	96	112
Barron, Walter J., Brooklyn, assignor to Densmore Typewriter Co., Syracuse, N. Y. Type-writing machine	677,922	July 9	1124	259	96	254
Barsalou, Henry, Momence, Ill. Combined elevator and dump for wagon-beds	679,207	July 23	3650	814	96	704
Bartholomees, Charles F. (See Wood, Benjamin, assignor.)	682,519	Sept. 10	1551	352	96	2180
Bartholomew, Casslus M., Nelsonville, Ohio. Toy bird	677,494	July 2	280	69	96	61
Bartholomew, George E., assignor of one-half to A. A. Engle, Buffalo, N. Y. Roller-bearing	677,333	July 2	5	2	96	4
Bartholomew, John B., Peoria, Ill. Thresher-belt guide	677,332	July 2	2	1	96	3
Bartholomew, John B., assignor to Avery Manufacturing Company, Peoria, Ill. Traction-engine	682,602	Sept. 17	1798	412	96	2261
Bartholomew, Seth, Sturgis, Mich. Piano-truck	680,110	Aug. 6	719	159, 160	96	1188
Bartle, Newton D. (See Sharpe, John E., assignor.)						
Barton, Delbert E., Minneapolis, Minn. Wheel box and axle	682,593	Sept. 10	1688	385	96	2216
Basehore, Horace E. (See Kraft and Basehore.)						
Bashore, David, Walla Walla, Wash. Gate	678,218	July 9	1673	385	96	360
Bassett, Charles F., Chicago, Ill., assignor to C. Fairchild, New York, N. Y. Mechanical cashier	682,781	Sept. 17	2050	464	96	2305
Bassett, Fred H., Waterbury, Conn. Curtain-fixture	680,309	Aug. 13	1683	240	96	1276
Bassett Jewelry Co. (See Nevins, David D., assignor.)						
Bassett, Miles, Kokomo, Ind. Clothes-drier	677,923	July 9	1130	260	96	255
Bassett, Norman C., Boston, Mass., assignor to General Electric Company, of New York. Electric switch	679,356	July 30	3959	886	96	878
Bassett, Norman C., Lynn, Mass., assignor to General Electric Company, of New York. Worm-gearing	678,634	July 16	2528	564	96	549
Batchelor, George T., *et al.* (See Hancock, Henry J., assignor.)	680,369	Aug. 13	1199	265	96	1297
Batchelor, Watson, New York, N. Y. Apparatus for unloading cars	680,215	Aug. 13	921	206	96	1241
Bates, Frank L., San Francisco, Cal. Furnace fire-door and attachment	677,924	July 9	1131	260	96	255
Bates, William H., Jackson, Mich. Cushion-spring and support-wire	683,194	Sept. 24	2770	637, 638	96	2474
Bateson, Robert, Fall River, Mass. Weft-fork	680,834	Aug. 20	2114	461	96	1506
Bath, John, Waltham, Mass. Tool or cutter grinding machine	678,635	July 16	2529	565	96	549
Bathurst, Frederick, Southfield, England. House-wiring	681,608	Aug. 27	3562	792	96	1818
Battenfeld, John N., assignor of one-half to H. J. Uhl, Cleveland, Ohio. Apparatus for making re-pressed bricks	679,012	July 23	3250	726	96	711
Bauer, Julius, *et al.* (See Bowers, John, assignor.)	679,548	July 30	4351	977	96	958
Baughman, George P., Whatcheer, Iowa. Combined scoop and sifter	679,137	July 23	3512	785	96	705
Bauman, Meyer. (See Rader, Edward, assignor.)	683,016	Sept. 24	2490	565, 566	96	2417
Baumann, Robert. (See Wurmb and Baumann.)	682,447	Sept. 10	1480	323, 324	96	2165
Baumgarten, Albert, Freeport, Ill. Device for applying caps to bottles	681,484	Aug. 27	3228	718, 719	96	1748
Baumgarten, Josef, New York, N. Y. Necktie-fastener	682,663	Sept. 17	1799	412	96	2261
Baur, Wilhelm. (See Oxnard and Baur.)						
Baxter, David. (See Baxter, James and D.)	678,092	July 9	1439	332	96	313
Baxter, Edmund G., Matanzas, Cuba. Nut-plate lock	682,400	Sept. 10	1348	305	96	2148
Baxter, James and D., Chicago, Ill. Filling-machine	680,216	Aug. 13	923	206	96	1244
Bay State Metal Wheel Company. (See Siebert, Otto W., assignor.)	682,163	Sept. 10	929	207, 208	96	2060
Bayerdoerfer, Frank, Brooklyn, N. Y. Apparatus for recording speed of vehicles	682,349	Sept. 10	1366	286	96	2130
Bayless, Thomas B., Lexington, Ky. Fruit-car	681,405	Aug. 27	3172	706	96	1737
Bayley, James L., Spokane, Wash. Timber-dolly	683,195	Sept. 24	2774	638	96	2475
Baynes, Edward C., assignor, by mesne assignments, to Empire Metallic Bedstead Company, Buffalo, N. Y. Metallic bedstead	680,835	Aug. 20	2115	461	96	1506
Beach, Albert W., Knoxville, Pa. Rail-joint	682,902	Sept. 17	2279	514	96	2354
Beach, Arthur T., Brooklyn, N. Y. Sad-iron	680,684	Aug. 20	1792	395	96	1438
Beall, Charles W., New York, N. Y. Sleeping-car	683,374	Sept. 24	3106	710, 711	96	2544
Beall, Thomas H. C., Cicero, Ind. Washing-machine	681,609	Aug. 27	3563	792	96	1813
Bealmear, James I., Baltimore, Md. Umbrella-tip retainer	680,111	Aug. 6	722	160	96	1188
Beam, Andrew G., New York, N. Y. Fireproof partition	681,610	Aug. 27	3565	792, 793	96	1814
Beamisderfer, Joseph A., Palmyra, Pa. Nut-lock	682,448	Sept. 10	1432	324	96	2165
Bean, John, Los Gatos, Cal. Spraying-pump	679,231	July 9	1696	389	96	366
Beardsley & Hubbs Manufacturing Company. (See Darling, Rolla R., assignor.)	682,232	Sept. 10	1061	239	96	2093
Beatty, Robert P., Cleveland, Ohio. Package	677,395	July 2	106	23	96	24
Bêché, Jean, Hückeswagen, Germany. Pneumatic hammer	682,449	Sept. 10	1433	324, 325, 326, 327	96	2165
Bechi, Guy de, Paris, France, assignor to General Metal Reduction Company, Limited, London, England. Treating zinc-bearing complex ores	681,675	Sept. 3	6	2	96	1866
Bechman, Henry F., assignor to E. C. Nichols, Battlecreek, Mich. Rewinding and inserting mechanism						
Bechman, Henry F., assignor to Duplex Printing Press Company, Battlecreek, Mich. Printing-machine						
Bechtold, William S., Newark, N. J. Hair-retainer						
Bechtolsheim, Clemens von, Munich, Germany. Pneumatic or hydraulic milking apparatus						
Beck, Charles A., Good Springs, Nev. Producing metallic oxids from copper ores by ammonium solutions						
Beck, J. Frank. (See Van Wormer, John R., assignor.)						
Beck, Kilian, New York, N. Y. Guitar attachment						
Beck, Marshall, Moline, assignor of two-thirds to J. W. Skinkle and D. K. Hill, Chicago, Ill. Machine for gathering and handling hay						
Beck, Melvin H., and J. R. Caynor, Victor, Colo. Chair for mining-cages						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Becke, Max, and A. Beil, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Dyeing with sulfur dyes	680,472	Aug. 13	1376	.....	96	1334
Becker, Henry L., Washington, D. C. Shoe attachment	682,314	Sept. 10	1927	273	96	2190
Beckert, John H., St. Louis, Mo. Trolley for electric cars	679,492	July 30	4245	956	96	985
Beckman, Edward O., Piper City, Ill. Harvester-reel	678,432	July 16	2095	476	96	460
Beckwith, Dean A., New York, N. Y. Adjustable shelf and support therefor	677,694	July 2	532	127	96	113
Beckwith, Louis B., assignor to L. C. White Company, Waterbury, Conn. Separable and detachable button	682,782	Sept. 17	2052	464	96	2309
Bee, John H., and T. B. Campbell, Jr., New Kensington, Pa. Safety watch-holder	681,676	Sept. 3	8	3	96	1866
Behler, George, Threeoaks, Mich. Nut-lock	679,985	Aug. 6	415	88	96	1125
Behringer, Stefan, Budapest, Austria-Hungary. Plow	681,677	Sept. 3	9	3	96	1866
Beil, Albert. (See Becke and Beil.)						
Belcher, John D., St. John, Canada. Corset	680,112	Aug. 6	795	161	96	1189
Belfield, Thomas B., Philadelphia, Pa. Check-valve	681,611	Aug. 27	3570	798	96	1815
Belknap, Charles E., Grand Rapids, Mich. Wagon running-gear	679,498	July 30	4247	956	96	985
Bell, Charles H., Brooklyn, assignor to F. W. Hillard, Tottenville, N. Y. Type-writer	682,020	Sept. 3	682	148 149	96	2000
Bell, John E., Casky, Ky. Stove-hood	680,959	Aug. 20	2342	514	96	1552
Bell, Louis, Newton Center, Mass., assignor to General Electric Company, of New York. Electric metering system	679,138	July 23	3514	785	96	765
Bell, Thomas. (See Metcalfe and Bell.)						
Bell, William A., *et al.* (See Creed, John J., assignor.)						
Bell, William C., Syracuse, N. Y. Roofing-seamer	679,719	Aug. 6	5	2	96	1044
Bellah, Andrew J., Visalia, assignor to T. E. Clark, Tulare County, Cal. Device for perforating well tubes or casings	678,856	July 23	2930	660	96	648
Bellamy, Charles H., assignor to M. R. Isaacs, Philadelphia, Pa. Sizing and treating or preparing same	681,435	Aug. 27	3282	.....	96	1748
Bellamy, Charles H., assignor to M. R. Isaacs, Philadelphia, Pa. Manufacture of casein and casein glue	681,436	Aug. 27	3284	.....	96	1749
Bellas, Thomas R., assignor of one-half to W. B. Rees, Joplin, Mo. Rotary engine	677,752	July 2	761	188 188	96	161
Belle Pre Bottle Company of Washington, D. C. (See Miller, John D., assignor.)						
Bement, William O., assignor to Wire Goods Company, Worcester, Mass. Feeding mechanism for feeding articles having eyes or loops	681,491	Aug. 27	3348	743 744	96	1771
Bendall, Thomas M., Memphis, Tenn. Display-case	682,908	Sept. 17	2280	514	96	2355
Bender, Horace G., Akron, Ohio. Machine for cutting rolls of woven fabric	678,371	July 16	1985	451 452	96	438
Bender, Horace G., Akron, Ohio. Lithographic-press blanket	680,752	Aug. 20	1949	427	96	1474
Bender, Horace G., assignor of one-half to Globe Sign Company, Akron, Ohio. Printing-machine	678,472	July 16	2171	489 490	96	475
Benedict, George W., and J. J. Graf, assignors to Union Light & Heat Company, Cincinnati, Ohio. Acetylene-gas generator	677,334	July 2	7	2	96	4
Benjamin, William T., Newark, N. J. Apparatus for marking buttonhole-flies	677,557	July 2	410	99	96	87
Bennett, Charles A., Dover, N. J. Valve for fluid compressors and engines	678,534	July 16	2295	518	96	508
Bennett & Company, T. E. (See Simpson, John H., assignor.)						
Bennett, George H., New York, N. Y. Floor-tile	681,946	Sept. 3	556	117	96	1977
Bennett, George L., Chicago, Ill. Dental forceps	682,597	Sept. 17	1696	387	96	2241
Bennett, John H., Worcester, Mass. Spinning-ring holder	678,930	July 23	3080	699	96	678
Bennett, John H., Worcester, Mass. Valve for oil-holes	678,931	July 23	3081	699	96	679
Bennett, Joseph A. (See Kinsler, George B., assignor.)						
Bennett, Paul J., Cheneyville, La. Nail-grab	682,021	Sept. 3	693	149	96	2002
Bennett, Robert J., Chicago, Ill. Reed-organ	678,329	July 9	1895	434	96	401
Bennett, Walter G., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Folding-machine	681,678	Sept. 3	10	3, 4	96	1867
Benoit, Anatole, J. Guéniffet, and J. Nicault, Paris, France. Machine for making pasted tubes for cigarettes	678,636	July 16	2531	566 567	96	550
Benseth, Peder M., Fairhaven, Wash. Fish-trap	682,022	Sept. 3	694	149	96	2002
Bensinger, Moses, assignor to Brunswick-Balke-Collender Co., Chicago, Ill. Refrigerator	677,431	July 2	176	42	96	40
Benson, Andrew. (See Eaton and Benson.)						
Benson, Andrew, assignor of three-fourths to J. P. Price and R. P. Price, Chicago, Ill., and J. B. Benson. Hub for vehicle-wheels	680,424	Aug. 13	1296	284	96	1317
Benson, Andrew, and J. B., assignors of one-half to R. P. and J. P. Price, Chicago, Ill., Motor-vehicle	679,045	July 23	3323	742 743	96	726
Benson, Charles C., San Diego, Cal. Barbed band-fence	677,925	July 9	1132	260	96	255
Benson, Hezekiah A., Bridgeport, Conn. Rotary engine	679,986	Aug. 6	418	88	96	1125
Benson, Hezekiah A., Bridgeport, Conn. Rotary engine	679,987	Aug. 6	422	89	96	1126
Benson, John B. (See Benson, Andrew and J. B.)						
Benson, John B., *et al.* (See Benson, Andrew, assignor.)						
Bentley, George F., Fort Worth, Tex. Railway-track lifting-jack	681,775	Sept. 3	288	45	96	1911
Bentley, Thomas, Franklin, Mass., assignor of one-half to Draper Company, Portland, Me., and Hopedale, Mass. Means for preventing singles in roving-machines, &c	681,612	Aug. 27	3571	794	96	1815
Benton, Linn B., Milwaukee, Wis., assignor to American Type Founders Company, New York, N. Y. Type-dressing machine	680,685	Aug. 20	1798	395 396	96	1439
Benziger Brothers. (See Nehr, Herman F., assignor.)						
Berberich, Charles A., Brooklyn, N. Y. Window attachment	681,437	Aug. 27	3235	719	96	1749
Berg, Eric, San Francisco, Cal. Acetylene-gas generator	679,711	July 30	4642	1044	96	1020
Berg, Ernst J., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	679,102	July 23	3452	770	96	751
Berger Manufacturing Company. (See Schlafly, Julius H., assignor.)						
Berger, Paul E., *et al.* (See English and Cooney, assignors.)						
Berghof, August A. (See Ohl, Theberath, and Berghof.)						
Bergin, Daniel S., Chicago, Ill. Electric system for railways	681,298	Aug. 27	2976	661	96	1700
Bergman, Adam, Sacramento, Cal. Mouthpiece	680,113	Aug. 6	726	161	96	1189
Bergman, Amos C., New York, N. Y. Practice-clavier	681,438	Aug. 27	3236	719	96	1749
Bergman, Amos C., assignor to A. M. Virgil, New York, N. Y. Practice-clavier	679,692	July 30	4609	1024	96	1014
Bergman, Benjamin J., New York, N. Y. Thread-controlling device for sewing-machines	680,192	Aug. 6	866	193 194	96	1218
Bergman, Erick P., and A. E. Renard, Concordia, Kans. Buckle	680,370	Aug. 13	1200	265	96	1298
Berkley, Benjamin F., Acton, Tex. Gate	680,758	Aug. 20	1950	427	96	1474
Bermann, Leon. (See Nelson, Oscar, assignor.)						
Bernard, William A., assignor to William Schollhorn Company, New Haven, Conn. Nippers, pliers, &c	678,637	July 16	2533	567	96	550
Bernstein, L., *et al.* (See Tiller, Thomas J., assignor.)						
Bernstrom, John, *et al.* (See Berrigan, John J., assignor.)						
Berrigan, John J., Orange, N. J., assignor to F. J. Arend, New York, N. Y., and J. Bernstrom, Stockholm, Sweden. Centrifugal machine	677,926	July 9	1133	260 261	96	255

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Berry, Arthur F., London, England. Electrical transformer	682,520	Sept. 10	1552	352 353	96	2189
Berry, Charles A., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Safe boltwork mechanism	680,686	Aug. 20	1801	396 397	96	1440
Berry, Matthew S. Chandler, Me. Rowlock	677,982	July 9	1147	264	96	258
Berthe, Albert, Jersey City, N. J. Holder for ash-cans, &c	679,449	July 30	4149	981	96	917
Besse, Irvin, assignor to Victor Manufacturing Company, Newburyport, Mass. Device for closing sliding fire doors or shutters	682,164	Sept. 10	980	208	96	2069
Bessey, Ira F., and W. A. Black, Brooklyn, N. Y. Gas-fitting	681,188	Aug. 27	2766	614	96	1657
Bessler, Vetal, Brooklyn, N. Y. Piano-action	678,698	July 16	2534	508	96	550
Best, William N. (See Hynes and Best.)						
Bethlehem Steel Company. (See Meigs and Hammer, assignors.)						
Bettendorf Metal Wheel Company. (See Einfeldt, Emil, assignor.)						
Bettendorf, William P., Davenport, Iowa. Body and truck bolster or railway-cars	679,494	July 30	4248	957	96	985
Betts, Anson G., Upper Troy, N. Y. Apparatus for treating metals by electrolysis	679,357	July 30	3961	896 897	96	879
Betts, Anson G., Lansingburg, N. Y. Refining lead by electrolysis	679,824	Aug. 6	203	43	96	1083
Betts, Frank J., East Orange, N. J. Soap-cage	679,208	July 23	3652	815	96	794
Betzold, John J., Fresno, Cal. Filter	678,857	July 23	2981	660	96	649
Bevier, Andries, New York, assignor, by mesne assignments, to E. Childs, Sayville, N. Y. Preserving wood	681,032	Aug. 20	2481	550	96	1578
Bevitt, Edwin D., Cincinnati, Ohio. Sheet-metal ware	679,272	July 23	3760	841	96	817
Beynon, Gomer G., Des Moines, Iowa. Churn	681,386	Aug. 27	3149	701	96	1732
Bezanson, John G., Somerville, Mass. Traction system for use with cable-roads in handling coal	681,906	Sept. 3	472	97	96	1959
Bibb, Judson, and E. R. Duncan, Colorado Springs, Colo. Feed-water regulator for steam-boilers	679,209	July 23	3653	815	96	794
Biehl, Jacob, Seymour, Ind. Latch	677,432	July 2	179	43	96	40
Biele, Carl F., New York, N. Y. Door-knob	677,625	July 2	533	127	96	113
Bigelow Carpet Company. (See Lyon, Alvin S., assignor.)						
Bigelow, George S. (See Needham, Charles S., assignor.)						
Bigg, Austen, Toowoomba, Queensland. Hoe	678,585	July 16	2299	518	96	504
Biggar, Sanford D., *et al.* (See Pocock, Stephen H., assignor.)						
Billing, Francis, *et al.* (See Inshaw, John G., assignor.)						
Billing, Frederick, *et al.* (See Inshaw, John G., assignor.)						
Billings, William J. (See Mauer and Billings.)						
Bilz, John A., Pleasanton, Cal. Vineyard-plow	677,495	July 2	281	70	96	61
Bingay, Robert V. (See Sutter and Bingay.)						
Binkley, John S., Atchison, Kans. Bridle	682,125	Sept. 3	855	192	96	2085
Binns, David, Campchase, Ohio. Corn-harvester	677,927	July 9	1138	261 262	96	256
Birch, John H. (See Foley, James S., assignor.)						
Birch, Joseph F., Jr., Washington, D. C. Ash-sifter	678,932	July 23	3062	689 690	96	679
Bird, George, Jr., East Chicago, Ind. Machine for rolling horseshoe-blanks	680,754	Aug. 20	1951	427	96	1474
Bird, George W., *et al.* (See Pratt, Eber W., assignor.)						
Birdsall, Edward T., assignor to Desberon Motor-Car Co., New Rochelle, N. Y. Means for connecting differential gearing to driving-axles of vehicles	677,771	July 2	830	192	96	170
Birdsall, Edward T., New Rochelle, assignor to Desberon Motor-Car Co., New York, N. Y. Explosive-engine	679,410	July 30	4073	909	96	903
Birdsey, Isaac W., assignor to Birdsey, Somers and Company, Bridgeport, Conn. Corset	680,960	Aug. 20	2243	514	96	1552
Birdsey, Somers and Company. (See Birdsey, Isaac W., assignor.)						
Birkel, Benedict H., *et al.* (See Huntley, Edward C., assignor.)						
Birkholz, Richard, Milwaukee, Wis., assignor to Liquid Carbonic Acid Mfg. Co., Chicago, Ill. Apparatus for cleansing faucets and their connections	680,836	Aug. 20	2110	462	96	1506
Birmingham Iron Foundry. (See Brewster, Frank H., assignor.)						
Birmingham, William E., Philadelphia, Pa. Spectacle or eyeglass case	677,753	July 2	760	188	96	161
Birnie, William P., Springfield, and C. W. Gay, West Springfield, assignors to United States Automatic Box Machinery Company, Boston, Mass. Set-up and secured collapsible or knockdown box	681,472	Aug. 27	3312	736	96	1764
Bisbee, Edgar C., Minneapolis, Minn. Oil-cake press	683,196	Sept. 24	2775	638 639	96	2475
Bisch, Louis. (See Harzmeier and Bisch.)						
Bishop, Charles, San Francisco, Cal. Reducing-furnace	683,375	Sept. 24	3108	711	96	2544
Bisler, Gustav A., Philadelphia, Pa. Work-bench	678,639	July 16	2335	503	96	550
Bisler, Gustav A., Philadelphia, Pa. Attachment for machines for covering paper boxes, lids, &c	679,592	July 30	4433	997	96	976
Bissett, John H., assignor of one-half to C. F. Wert, Anderson, Ind. Switch throwing and locking mechanism	679,593	July 30	4435	997	96	976
Bissinger, Benjamin, Chattanooga, Tenn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Needle-bar cutter attachment for sewing-machines	678,993	July 23	3207	718	96	703
Bitner, Harry, Berwyn, Ill. Terminal for pneumatic carriers	677,928	July 9	1141	262	96	257
Bittner, Oliver F., *et al.* (See Huntley, Edward C., assignor.)						
Bixon, Frank P. (See Russell and Bixon.)						
Bjarnason, Bjarni, Seattle, Wash. Dynamo-electric machine	678,157	July 9	1564	360 361	96	389
Bjorgo, A. H. (See Bloker, Charles, assignor.)						
Black, Amos R., near Lamar, Colo. Arrastre or scouring-mill	681,033	Aug. 20	2484	550	96	1579
Black, Amos R., near Lamar, Colo. Amalgamator	681,034	Aug. 20	2487	550	96	1580
Black, Wesley A. (See Bessey and Black.)						
Blackburn, John T. D., Albany, N. Y. Wagon attachment for supporting chutes	682,909	Sept. 17	2392	541	96	2378
Blackman, John J., New Britain, assignor of one-half to G. P. Bradstreet, Thomaston, Conn. Surface-finishing for floors, ceilings, &c	683,009	Sept. 17	2474	561	96	2394
Blackmore, Henry S., Mount Vernon, N. Y. Making carbids	681,096	Aug. 20	2598	.....	96	1603
Blackmore, Henry S., Mount Vernon, N. Y. Generating acetylene gas	682,521	Sept. 10	1557	.....	96	2190
Blackmore, James E., Newark, N. J. Pistol for firing flash-light cartridges	682,181	Sept. 3	802	193 194	96	2086
Blackwell, Charles, assignor to G. W. Blackwell, Vinita, Ind. Ter. Hay-rake	682,182	Sept. 3	804	194	96	2086
Blackwell, G. W. (See Blackwell, Charles, assignor.)						
Blades, Leonard J., assignor to National Ticket Case Co., Chicago, Ill. Ticket case and holder	678,953	July 23	3084	690	96	679
Blaetz, Jacob H., assignor to R. Pilling and R. Madeley, Philadelphia, Pa. Hosiery	682,904	Sept. 17	2282	515	96	2355
Blagdon-Richards, Albert F., Swansea, England. Spring for velocipede-saddles	678,372	July 16	1987	452 453	96	438
Blair, C. A., *et al.* (See Johnson, William H., assignor.)						
Blaisdell, Hiram W., Yuma, Ariz. Ter. Conveyer	679,875	Aug. 6	801	64, 65	96	1108

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Blaisdell, Philo C. (See Gray, Edward, assignor.)						
Blake, Charles G., Chicago, Ill. Mausoleum	680,908	Aug. 20	2247	494	96	1532
Blake, Franklin, trustee. (See Parker, William H., assignor.)						
Blake, John L., New York, N. Y. Motor	679,876	Aug. 6	304	65, 66	96	1104
Blake, Thede P., Lamar, Nebr. Drill	681,035	Aug. 20	2489	551	96	1580
Blakeney, Albert A. (See Rogers and Blakeney.)						
Blakeslee, John R., Glenville, assignor to Ajax Manufacturing Company, Cleveland, Ohio. Rivet-making machine	680,217	Aug. 13	924	206 207 208	96	1244
Blakeslee, John R., Glenville, assignor to Ajax Manufacturing Company, Cleveland, Ohio. Making jaw-rods	680,218	Aug. 13	930	208 209	96	1245
Blakeslee, John R., Glenville, assignor to Ajax Manufacturing Company, Cleveland, Ohio. Die	680,219	Aug. 13	931	209	96	1246
Blanchard, Charles H., Batavia, Ohio. Automatic egg-boiler	681,184	Aug. 27	2767	614	96	1657
Blanchard, Harry G., Bay, Ark. Attachment for shingle-sawing machines	677,534	July 2	355	86	96	76
Blanchette, Jeffrie, Chippewa Falls, Wis. Draft-equalizer	679,988	Aug. 6	425	89	96	1126
Bland, John C., Jr., Sewickley, Pa. Vaporizer for explosive-engines	682,905	Sept. 17	2283	515	96	2356
Bland, Mortimer A., Charlotte, N. C. Mold for fibrous articles	680,887	Aug. 20	2118	462	96	1597
Blandin, Walker H., Sedalia, Mo. Display-rack	679,210	July 23	3655	815	96	795
Blaney, William M., Homer, N. Y. Device for removing butter, &c., from vessels	677,782	July 2	718	171	96	152
Blase, Henry F., *et al.* (See Sewell and Seger, assignors.)						
Blaser, Christ, Berwick, Kans. Hay-knife	678,373	July 16	1989	458	96	439
Bléha, William V., St. Louis, Mo. Hat-hanger	683,168	Sept. 24	2729	628	96	2466
Bleichert & Co., Adolf. (See Pfaffenbach, Rudolf, assignor.)						
Blessing, Guy P., assignor of one-half to F. N. Gillespie, New Milford, Pa. Auxiliary spacing device for type-writing machines	679,013	July 23	3251	726 727	96	711
Blessing, Ira H., Albany, N. Y. Telegrapher's finger-guard	681,185	Aug. 27	2768	615	96	1658
Blethrow, Harry C., *et al.* (See Walker, William S., assignor.)						
Bliden, Albert, New York, N. Y. Overseaming sewing-machine	679,067	July 23	3365	749 750	96	734
Bliss, Herbert, Sheboygan, Wis. Disk cutting and boring machine	681,294	Aug. 27	2979	661 662	96	1700
Bloch, Ferdinand, *et al.* (See Hauslehner, Leopold, assignor.)						
Block, Wesley S. (See Lavigne, Joseph P., assignor.)	679,594	July 30	4436	997	96	976
Bloemker, Henry W., Philadelphia, Pa. Machine for making paper tubes	680,114	Aug. 6	728	161	96	1189
Bloker, Charles, assignor of one-half to A. H. Bjorgo, Kensett, Iowa. Animal-trap						
Blood, Charles W. H., Boston, and F. F. Woods, Brookline, assignors to S. A. Woods Machine Company, Boston, Mass. Gage for setting cutter-head blades	678,712	July 16	2652	597	96	574
Bloom, Charles W. (See Wilcox, Charles M., assignor.)						
Blomster, Johan, and C. J. E. Gustafsson, Boras, Sweden; said Blomster assignor to said Gustafsson. Alarm apparatus for bicycles, &c	679,825	Aug. 6	206	44	96	1083
Blomstrom, Carl H., assignor to Lake Shore Engine Works, Marquette, Mich. Vaporizer for internal-combustion engines	680,115	Aug. 6	729	161 162	96	1190
Blomstrom, Carl H., assignor to Lake Shore Engine Works, Marquette, Mich. Governing mechanism for internal-combustion engines	680,116	Aug. 6	731	162	96	1190
Blood, John B., Newburyport, Mass. Dynamo-electric machine	681,295	Aug. 27	2982	692	96	1701
Blood, Robert C., Philadelphia, Pa. Machine for printing stockings, &c	680,687	Aug. 20	1804	397 398	96	1441
Bloom, John S., Winthrop, Iowa. Machine for crushing and cutting corn	680,755	Aug. 20	1953	428	96	1475
Blue, Charles E., Wheeling, W. Va. Machine for the manufacture of glassware	679,664	July 30	4548	1023 1024	96	1000
Blue, Charles E., Wheeling, W. Va. Machine for manufacture of glassware	682,906	Sept. 17	2286	515	96	2356
Bluemel, Frederick R. (See Stevens, Harrold, and Bluemel.)						
Blum, Ferdinand, assignor to Pharmaceutisches Institut Ludwig Wilhelm Gans, Frankfort-on-the-Main, Germany. Halogen albumen and making same	678,330	July 9	1886	------	96	901
Blumenthal & Company, Sidney. (See Stolzenberg, Frederick, assignor.)						
Blumle, Francis X., Emportium, Pa. Summer-house	679,103	July 23	3454	770	96	752
Boardman, Samuel H., *et al.* (See Hoyle, William E., assignor.)						
Bobrick, Gabriel A., Los Angeles, Cal. System for utilizing liquid air or other gases for purposes of refrigeration and power	683,010	Sept. 17	2476	561	96	2394
Bocorselski, Frank E., Springfield, Mass. Universal joint	678,098	July 9	1440	332	96	313
Boda, William J. (See Boda, William K. and W. J.)	683,244	Sept. 24	2872	659	96	2464
Boda, William K. and W. J., Dayton, Ohio. Means for forming tees for golf-balls						
Boekel, Julius. (See Boekel, William and J.)	682,522	Sept. 10	1558	354	96	2190
Boekel, William and J., Philadelphia, Pa. Sterilizer-case	682,664	Sept. 17	1800	413	96	2261
Boekel, William and J., Philadelphia, Pa. Impact water-motor						
Boerner, Henry. (See Wise, Harry, assignor.)	679,014	July 23	3254	727	96	712
Boger, Jerome O., Redlands, Cal. Plow	682,907	Sept. 17	2287	516	96	2356
Bohem, Anthony O., assignor to C. & G. Bohem, Philadelphia, Pa. Pie-rack						
Bohem, C. & G. (See Bohem, Anthony O., assignor.)	681,387	Aug. 27	3151	701	96	1732
Bohlig, Martin, St. Paul, Minn. Combined speculum and medicine-distributer	681,613	Aug. 27	3373	------	96	1815
Bohn, René, Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyeing	682,523	Sept. 10	1559	------	96	2190
Bohn, René, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Blue dye and making same	679,288	July 30	3825	857	96	850
Bohrer, William, Montreal, Canada. Hand-guide for pianos	679,595	July 30	4437	998	96	977
Bollinger, Charles A., Pleasant Valley, N. D. Plow	682,850	Sept. 10	1298	296	96	2181
Boliman, Philip H., Abbeville, S. C. Bobbin	682,401	Sept. 10	1349	305	96	2148
Bolster, John W. (See Watkins, William D., assignor.)	680,117	Aug. 6	738	162	96	1190
Bolton, George W., Jr., Detroit, Mich. Repair-tool	681,492	Aug. 27	3355	744 745	96	1772
Boman, Claes W., assignor to Eagle Pencil Company, New York, N. Y. Fountain-pen						
Bonagente, Crispino, Turin, Italy. Mounting for ordnance	680,756	Aug. 20	1955	428	96	1475
Bond, Ed F., Athens, assignor to North American Manufacturing Co., Bogart, Ga. Portable axle turning and threading device	683,099	Sept. 24	2925	602	96	2445
Bonesteel, Arthur E., Central City, Colo. Syringe	679,596	July 30	4438	998	96	977
Bonfiglietti, Aurelio, Paris, France. Tire for wheeled vehicles	682,524	Sept. 10	1560	354	96	2191
Bonnemaison, Juan E., Buenos Ayres, Argentina. Box	678,858	July 23	3253	660	96	649
Bonvillain, Philibert, Paris, France. Oil or other filter press						
Boone, Charles H., *et al.* (See Hoerichs, Edward, assignor.)	680,635	Aug. 13	1667	368 369	96	1393
Bootes, John T., Wilmington, Del. Rotary engine	679,211	July 23	3656	815	96	795
Booth, Jacob, Reynoldsville, Pa. Railway-tie	677,686	July 2	534	127	96	115
Booth, John W., Washington, Mo. Snap-hook	677,687	July 2	536	128	96	114
Booth, John W., Washington, Mo. Snap-hook	677,851	July 9	968	228	96	224
Booth, Thomas C., New Brunswick, N. J. Brush for paste-tubes						

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Booty, Obed A., Sunnyhill, La. Plow	682,598	Sept. 17	1695	387	96	2241
Borger, Frank. (See La Mar, Andrewvill, assignor.)						
Borglum, Miller L. (See Michelsen and Borglum.)						
Borries, August von, Hanover, Germany. Valve for compound engines	679,212	July 23	3657	816	96	795
Bosenbury, William C., assignor to Starr Piano Company, Richmond, Ind. Pedal-action for musical instruments	678,859	July 23	2994	661	96	649
Bossert Electric Construction Company. (See Bossert, William F., assignor.)						
Bossert, William F., Utica, N. Y. Electric switch	681,776	Sept. 3	238	45	96	1012
Bossert, William F., assignor to Bossert Electric Construction Company, Utica, N. Y. Outlet-box for interior conduits	682,233	Sept. 10	1063	240	96	2023
Boston Bottle Wiring and Labeling Company. (See Cassidy, Patrick F., assignor.)						
Boston Display Rack Company. (See Carver, James W., assignor.)						
Boston Electric Hose Signal Co. (See Sargent, Howard, assignor.) (Reissue.)						
Boswell, George G. F., assignor of one-half to V. H. Lockwood, Indianapolis, Ind. Spring-clevis for whiffletrees	681,947	Sept. 3	558	117	96	1077
Bosworth, William, *et al.* (See Huffman, Orlando, assignor.)						
Bottlers Machinery Company. (See Stahl, Rudolph F., assignor.)						
Boudreaux, Louis. (See Mauchin and Boudreaux.)						
Boughn, William R., *et al.* (See Norris, Everett E., assignor.)						
Boulet, Joseph, Beverly, Mass. Micrometer-indicator	682,450	Sept. 10	1443	327	96	2166
Bourcart, Paul. (See Gros and Bourcart.)						
Bourgade, Raphaël, L. E. de. (See Lance, Bourgade, and Schmitz.)						
Bourgeois, Henry, Tourouvre, France. Incubator for fish	680,838	Aug. 20	2119	462	96	1597
Bourne, Theodore F., Montclair, N. J. Temporary binder	677,028	July 2	537	128	96	114
Bovy, Victor, New York, N. Y. Corset-busk	678,718	July 16	2654	597	96	573
Bowe, George J., Hydepark, Mass. Fire-box for steam-boiler furnaces	679,720	Aug. 6	6	2	96	1044
Bowen, George A., assignor to S. A. Cook & Company, Medina, N. Y. Furniture	678,210	July 9	1675	385	96	361
Bowen, Handy H., and F. T. Harmon, Chicago, Ill.; said Harmon assignor to said Bowen. Support for cameras or photographic apparatus	681,614	Aug. 27	3374	794	96	1816
Bowen, Harry J. (See Bowen, Joseph A., assignor.)						
Bowen, Joseph A., Millvale, assignor of one-half to H. J. Bowen, Wilkinsburg, Pa. Connecting-plug for telegraph-switchboards	681,868	Sept. 3	393	80	96	1044
Bower, Adolphus C., assignor to H. E. Farnsworth, Newkirk, Okla. Ter. Box-opening tool	679,495	July 30	4252	957	96	936
Bowerbank, John W., Jersey City, N. J. Lubricating device	681,615	Aug. 27	3375	794	96	1816
Bowers, Charles H. (See King, William M., Sr., assignor.)						
Bowers, John, assignor to H. C. Miller and J. Bauer, Milwaukee, Wis. Sectional post for binders	683,011	Sept. 17	2478	562	96	2395
Bowers, John C., and E. Dool, Aledo, Ill. Egg-tester	682,023	Sept. 3	695	150	96	2002
Bowie, William S., assignor of one-half to G. T. Horan, Boston, Mass. Couch	681,186	Aug. 27	2769	615	96	1658
Bowie, William S., assignor of one-half to G. T. Horan, Boston, Mass. Couch-bed	681,187	Aug. 27	2772	615	96	1658
Bowman, Arthur M., Bellevue, Pa. Metallic tie	677,754	July 2	764	184	96	161
Bowman, Charles M., Lebanon, Pa. Fireproof book	681,097	Aug. 20	2999	574	96	1693
Bowman, Edward A., *et al.* (See Shafer, Frank B., assignor.)						
Bowman, Eric G. (See Welr, Frank M., assignor.)						
Bowman, Milton J., Kinzers, Pa. Bunching-machine	681,679	Sept. 3	14	4, 5	96	1857
Bowman, Robert J., Alexandria, La. Vacuum-pan	682,451	Sept. 10	1445	327	96	2166
Bowness, Walter S., Moncton, Canada. Non-refillable bottle	680,220	Aug. 13	932	209	96	1246
Bowron, John, Hamilton, Canada. Target-trap	679,229	July 30	3827	857	96	850
Boyd, George H., and T. D. West, Sharpsville, Pa. Gear-wheel	680,688	Aug. 20	1805	398	96	1441
Boyd, Hamilton K., Kittanning, Pa. Gas burner and heater	680,473	Aug. 13	1377	300 301	96	1234
Boyd, Thomas A., Glasgow, Scotland. Roving, spinning, or analogous machine	680,017	Aug. 6	559	120	96	1155
Boylan, Nicholas J. (See Wolf, George S., assignor.)						
Boynton, Charles S. (See Moore and Boynton.)						
Brabrook, George H., Taunton, Mass. Producing soft-metal castings	681,527	Aug. 27	3410	756	96	1784
Braddock Machine Manufacturing Company. (See Pryde and Gauerman, assignors.)						
Bradford, Charles S., West Union, Ohio, assignor of one-half to H. J. Thompson. Washing-machine	677,029	July 2	539	128	96	114
Bradley & Hubbard Mfg. Co. (See Penfield, William A., assignor.)						
Bradley, Norval. (See Travis, John T., assignor.)						
Bradley, William J., assignor to American Dredging Company, Philadelphia, Pa. Cutter-head for hydraulic dredges	682,024	Sept. 3	696	150	96	2002
Bradrick, Belle. (See Shafer, John W., assignor.)						
Bradshaw, Charles, and W. S. Tobey, Hope, Kans. Combined weed-cutter and corn-cultivator	682,025	Sept. 3	697	150	96	2002
Bradshaw, Charles T., Philadelphia, Pa. Device for distributing odors	680,690	Aug. 20	1806	398	96	1441
Bradstreet, George P. (See Blackman, John J., assignor.)						
Brady, Edward Y., *et al.* (See Clarke, John J., assignor.)						
Brady, Eugene F., Altoona, Pa. Roundhouse	677,929	July 9	1142	262 263	96	257
Brady, James B., *et al.* (See Rudolph, Charles, assignor.)						
Brady, John F., Chicago, Ill. Steam-turbine	679,358	July 30	3936	887	96	839
Bragstad, Ole S. (See Arnold, Bragstad, and La Cour.)						
Brainard, Edwin F., assignor of one-half to F. J. Pierce, Gardner, Mass. Chair bottom or back	679,939	Aug. 6	427	90	96	1127
Brainard, William S., West Bridgewater, Mass. Attachment for channeling-machines	682,315	Sept. 10	1203	273 274	96	2120
Brake, Charles H., Hawarden, Iowa. Time-indicator	680,018	Aug. 6	561	121	96	1155
Brakeley, Harry H., Bordentown, N. J. Machine for shelling peas or beans	682,903	Sept. 17	2283	516	96	2357
Braley, James E., and W. R. O'Neill, Mineral, Ohio. Nut-lock	680,116	Aug. 6	733	162	96	1191
Bramwell, Clarence C., Hyde Park, Mass. Gas-engine	678,821	July 16	2844	642	96	613
Branch, Joseph G., St. Louis, Mo. Apparatus for distributing or feeding coal-oil or other hydrocarbons	677,755	July 2	764	184	96	162
Brandt, Joseph H., Norristown, Pa. Ball-bearing	678,772	July 16	2748	618	96	591
Brandt, Oscar S. (See Ray and Brandt.)						
Brannon, John W., Marquand, Ohio. Nut-lock	680,690	Aug. 20	1808	398	96	1442
Branson, Louise A., Lowell, Mass. Ash-sifter	678,934	July 23	3367	691	96	679
Brantingham, Barclay, Hocking, Iowa. Dumping-cage for mines	682,525	Sept. 10	1361	354	96	2191
Brase, August F., St. Louis, Mo. Grain-separator	677,680	July 2	540	128	96	114
Braucht, Katie D., guardian. (See Braucht, Roy L.)						
Braucht, Roy L., minor, Minneapolis, Minn.; K. D. Braucht, guardian, assignor to W. S. Nott Company. Clamp for leather-stretching machines	680,757	Aug. 20	1956	429	96	1475
Braun, Frederick W. (See Calkins, Albert C., assignor.)						
Braun, John, deceased; J. F. and W. P. M. Braun, Philadelphia, Pa., executors. Lawn-mower	683,197	Sept. 24	2776	639	96	2475

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Braun, John F., *et al.*, executors. (See Braun, John.)						
Braun & Sons, John. (See Deck, Henry, assignor.)						
Braun, William P. M., *et al.*, executors. (See Braun, John.)						
Bray, Simeon L., Evansville, assignor to W. J. Schaefer, Petersburg, Ind. Fruit-jar holder.	677,723	July 2	719	171	96	152
Breach, James J., Boston, Mass. Machine for cutting articles from sheet material	678,935	July 23	3088	691 692 693	96	679
Breach, James J., Boston, Mass. Machine for cutting articles from sheet material	683,376	Sept. 24	3109	712	96	2545
Breda, Gottlieb, New York, N. Y. Cuff-button	677,681	July 2	541	129	96	115
Breeden, Howard H., assignor of one-third to C. B. Neal, Millville, N. J. Register	680,502	Aug. 13	1545	340	96	1368
Breeding, Robert H. (See Welsh and Breeding.)						
Breeding, Robert H., Philadelphia, Pa. Card record or index	679,549	July 30	4353	977	96	958
Breitfield, Bernard O., Philadelphia, Pa. Boring-tool holder	680,425	Aug. 13	1297	285	96	1317
Breiller, Jean, Brussels, and E. Marius, Uccle, Belgium. Speed-regulator for explosive-engines	680,758	Aug. 20	1957	429 430	96	1476
Bremer, Hugo, Neheim, Germany. Electrode for arc-lamps	679,877	Aug. 6	309	66	96	1105
Bremer, Hugo, Neheim, Germany. Electric-arc lamp	679,878	Aug. 6	310	66	96	1105
Bremser, Anton, and J. M. Fultz, Quincy, Ill.; said Fultz assignor to said Bremser. Convertible rocking-chair, couch, and merry-go-round	682,234	Sept. 10	1065	240	96	2094
Brett, Edward S., Coventry, England. Drop-stamp	(677,433)	July 2	180	43	96	40
Brett, Edward S., Coventry, England. Clutch	679,350	July 30	3968	887	96	880
Brett, George, Toronto, Canada. Device for tightening hoops on round silos, water-tanks, barrels, &c	679,139	July 23	3516	786	96	765
Brett, William H., *et al.* (See Kraushaar, George J., assignor.)						
Breul, Richard A., Bridgeport, Conn. Furniture-nail machinery	680,889	Aug. 20	2120	462 463 464	96	1507
Brewer, Albert G., Hopkinton, Mass. Press for leather-cutting, &c	680,189	Aug. 6	861	192 193	96	1217
Brewer, Charles A., Noroton Heights, Conn. Hand-stamp	679,290	July 30	3829	857	96	850
Brewer, Frank A., Jr., Watsonville, Cal. Dental forceps	680,119	Aug. 6	734	163	96	1191
Brewer, Horatio J., New York, N. Y. Table	677,622	July 2	542	129 130	96	115
Brewer, Horatio J., New York, N. Y. Zinc element for galvanic batteries	677,623	July 2	543	136	96	115
Brewin, John C., Philadelphia, Pa. Take-up mechanism for knitting-machines	683,377	Sept. 24	3113	712 713	96	2545
Brewster, Francis W., London, assignor to Myers' Screw Propeller Syndicate, Limited, Manchester, England. Screw-propeller	680,671	Aug. 13	1758	396 397	96	1412
Brewster, Frank H., assignor to Birmingham Iron Foundry, Derby, Conn. Bias-cutting machine	681,015	Aug. 20	2453	543	96	1573
Briggs, Frederick H., Boston, Mass. Pool-table	680,759	Aug. 20	1960	430	96	1476
Brigham, Henry M., and S. M. Meyer, New York, N. Y. Device for lighting lamps by electricity	680,636	Aug. 13	1609	369	96	1398
Bright, Jacob A., and W. D. Depriest, Mount Sidney, Va., assignors to W. L., C. T., and E. Lyon, Baltimore, Md. Machine for folding or edging metal sheets	677,993	July 9	1149	265	96	258
Brinckle, Addington L., Philadelphia, assignor of one-half to B. C. Fox and W. O. McClurg, Chester, Pa. Telephone-receiver-support lock	681,396	Aug. 27	2984	663	96	1701
Brinkmann, Heinrich, Munich, Germany. Thrust-bearing	677,434	July 2	181	43, 44	96	40
Brion, Adolph E., New York, N. Y. Sheet-steel pulley	(680,691	Aug. 20	1808	399	96	1442
Bristol, Howard C., East Tawas, Mich. Life-preserver	679,721	Aug. 6	7	3	96	1044
British Uralite Company. (See Friswell, Richard J., assignor.)						
Brittan, Henry M., assignor to American Steel and Wire Company, San Francisco, Cal. Stress apparatus	680,371	Aug. 13	1201	265	96	1298
Brittell, George, Albion, Nebr. Combined end-gate and scoop-board	679,165	July 23	3598	797	96	777
Britton, Joseph A., New York, N. Y. Door check and alarm	(680,199	Aug. 6	963	193	96	1217
Broadt, Morris S., Bloomsburg, Pa. Folding pigeonholes	680,451	Aug. 13	1340	294	96	1327
Brockton Supply Company. (See Dunn, George F., assignor.)						
Brodbeck, Adolf, Nashville, Tenn. Air-car	682,970	Sept. 17	2393	541 542	96	2378
Bromley, Emmet A., Brighton, Colo. Reservoir outlet-valve	679,940	Aug. 6	428	90	96	1127
Bronori, Frank, Bennington, Vt. View mechanism for slot-machines	678,986	July 23	3007	693	96	681
Bronori, Frank, Bennington, Vt. Vending-machine	679,879	Aug. 6	313	66	96	1106
Bronson, Otto A., Minneapolis, Minn. Coin-controlled weighing device	680,221	Aug. 13	933	209 210	96	1246
Brook, Frank, and J. S. Gaunt, Huddersfield, England; said Brook assignor to said Gaunt. Workman's time-recorder	682,133	Sept. 3	865	194	96	2036
Brooke, Robert G., Macclesfield, England. Steam-trap	682,526	Sept. 10	1563	355	96	2191
Brooks, Byron A., Brooklyn, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	678,473	July 16	2173	490 491	96	475
Brooks, Byron A., Brooklyn, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	679,360	July 30	3960	888 889	96	880
Brooks, Charles E., Marshall, Mich. Hernial truss	682,235	Sept. 10	1066	240	96	2094
Brooks, Edward J., East Orange, N. J. Snap-seal	679,104	July 23	3455	770	96	752
Brooks, Edward J., East Orange, N. J. Seal	679,411	July 30	4074	909	96	908
Brooks, Everett W., *et al.* (See Nistle, George W., assignor.)						
Brooks, Everett W., *et al.* (See Sharpneck, William S., assignor.)	679,291	July 30	3880	858	96	851
Brooks, James M., Molena, Ga. Wheeled earth-scraper	682,783	Sept. 17	2054	465	96	2309
Brooks, Sewell A., Springville, N. Y. Scaffold	681,188	Aug. 27	2776	616	96	1659
Brophy, John P., assignor to Cleveland Machine Screw Company, Cleveland, Ohio. Attachment for automatic lathes	681,189	Aug. 27	2777	616 617	96	1659
Brophy, John P., assignor to Cleveland Machine Screw Company, Cleveland, Ohio. Speed-changing device for automatic lathes	679,525	July 30	4310	909	96	949
Brophy, Michael M., London, England. Cock or valve	678,831	July 9	1898	434	96	401
Brothers, Charles A., Richmond, Va. Collar-fastener						
Broughton, Pulaski B., *et al.* (See Neill and Tinker, assignors.)						
Broughton, William C., Gloucester, England. Treating disintegrated slate mixture for the manufacture of articles	681,190	Aug. 27	2779	------	96	1660
Brower, Hiram B., Quaker Farms, Conn., assignor to F. W. Wood, New York, N. Y. Dust-guard	679,880	Aug. 6	314	67	96	1106
Brower, Hiram B., Quaker Farms, Conn., assignor to Wood's Car Seal and Manufacturing Company, Chicago, Ill. Seal-lock	681,191	Aug. 27	2780	617	96	1660
Brower, John J., Weston, Mich. Grain-mill	678,536	July 16	2300	518	96	504
Brown, Alexander E., Cleveland, Ohio, assignor to Brown Hoisting Machinery Company, of Delaware. Hoisting and conveying machine	682,666	Sept. 17	1804	414 415	96	2202
Brown, Alfred T., assignor to Warner Elevator Manufacturing Company, Cincinnati, Ohio. Controlling mechanism for elevators	679,361	July 30	3965	889	96	881

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brown and Sharpe Manufacturing Company. (See Carleton, Cyrus, assignor.)						
Brown and Sharpe Manufacturing Company. (See Gabriel, Charles R., assignor.)						
Brown and Sharpe Manufacturing Company. (See Parker, John, assignor.)	683,017	Sept. 24	2493	566	96	2318
Brown, Andrew E., Leadville, Colo. Weather-strip						
Brown, Charles F. (See Eddy, Brown, and Hickey.)						
Brown, Charles F. (See Marshall, Dana K., assignor.)						
Brown, Charles F., trustee. (See Carleton, Roswell, assignor.)						
Brown, Charles T., and F. W. Leuthesser, assignors to Monash-Younker Co., Chicago, Ill. Steam-trap	679,826	Aug. 6	207	41	96	1084
Brown, Charles W., *et al.* (See Owen, Charles F., assignor.)	681,616	Aug. 27	3577	794	96	1816
Brown, Daniel, Newark, N. J. Acetylene-gas lamp	680,222	Aug. 13	936	------	96	1247
Brown, Daniel W., Westplains, Mo. Tanning compound						
Brown, David H. (See Harraman, Chapman, Severin, and Brown.)	680,120	Aug. 6	735	163	96	1191
Brown, Edgar W., Dayton, Ohio. Electric fan	682,236	Sept. 10	1067	240 241	96	2094
Brown, Edward C., Rochester, N. Y. Sprayer	682,237	Sept. 10	1070	241	96	2095
Brown, Edward C., Rochester, N. Y. Spraying apparatus	681,809	Sept. 3	396	80	96	1945
Brown, Elmer E., assignor to himself and G. H. Brown, Mount Joy, Pa. Witch-loom	678,094	July 9	1441	332 333	96	313
Brown, Eugene H., Troy, N. Y. Folding-machine for collar-blanks, &c	678,374	July 16	1989	453	96	459
Brown, George E., Chicago, Ill. Orthodontia wrench						
Brown, George H. (See Brown, Elmer E., assignor.)	682,134	Sept. 3	869	195	96	2037
Brown, George T., assignor of one-half to J. D. Brown, Baltimore, Md. Lamp-burner	677,496	July 2	288	70	96	61
Brown, Henry S., New York, N. Y. Plaiting-machine	677,852	July 9	969	228	96	224
Brown, Herbert O., and J. R. Donnelly, Fairfield, Me. Carbureter	678,095	July 9	1443	333 334	96	313
Brown, Herbert S., New York, N. Y. Electrically-operated musical instrument						
Brown Hoisting Machinery Company. (See Brown, Alexander E., assignor.)	680,637	Aug. 13	1670	369	96	1391
Brown, Horace P., San Francisco, Cal. Manifolding-sheet	680,563	Aug. 13	1548	340	96	1369
Brown, Howard N., Boston, Mass. Holdfast	680,019	Aug. 6	563	121	96	1155
Brown, James, Pawtucket, R. I. Holding-socket for bobbins						
Brown, James D. (See Brown, George T., assignor.)						
Brown, John P., *et al.* (See Marshall, John J., assignor.)	681,948	Sept. 3	560	118	96	1978
Brown, John W., assignor to Collins Plow Company, Quincy, Ill. Riding-plow	679,827	Aug. 6	210	45	96	1084
Brown, Lacortus F., Galena, Kans. Lifting-jack						
Brown, Lewis A. (See Lang, Albert B., assignor.)	683,245	Sept. 24	2875	660	96	2495
Brown, Lewis A., assignor to Peramite Seal Company, St. Louis, Mo. Car-seal	680,372	Aug. 13	1202	266	96	1298
Brown, Orlando W., Pittsburg, Pa. Mechanical movement	682,238	Sept. 10	1072	242	96	2095
Brown, Perry, Wilmington, Del. Car-coupling	681,098	Aug. 20	2601	574	96	1603
Brown, Robert S., assignor to New Britain Machine Company, New Britain, Conn. Tool-rack	681,617	Aug. 27	3578	795	96	1816
Brown, Sidney G., Bournemouth, England. Telegraphic apparatus	677,772	July 2	802	192 193	96	170
Brown, Stuart A., Mount Fair, Va. Electric whistle	680,310	Aug. 13	1064	240	96	1270
Brown, Theodore P., Worcester, Mass. Case or cabinet for automatic piano-players	683,018	Sept. 24	2494	566	96	2418
Brown, Thomas E., Star Prairie, Wis. Rail-joint	679,213	July 23	3659	810	96	796
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Cutter mechanism for harvesters	677,396	July 2	107	23	96	24
Brown, Thomas W., Chattanooga, Tenn. Fence-post	679,507	July 30	4439	998 999	96	977
Brown, William, Plainfield, N. J. Apparatus for providing wooden shells or other articles with longitudinal openings or ducts of polygonal cross-section	683,378	Sept. 24	3115	713	96	2546
Brown, William J., assignor of one-half to J. W. Paxson Company, Philadelphia, Pa. Reverberatory melting-furnace	682,165	Sept. 10	981	209	96	2070
Brown, William M., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Contact device for electric railways	680,311	Aug. 13	1086	240	96	1270
Brown, William P. (See Winters, Edward B., assignor.)	682,599	Sept. 17	1696	387 388	96	2241
Browne, George H., Cambridge, Mass. Book	678,456	July 16	2148	485	96	471
Browne, Thomas R., Altoona, Pa. Differential-piston valve and pump	682,665	Sept. 17	1801	413	96	2261
Browne, William G., Kingston, N. Y. Egg-beater	679,251	July 23	3724	832 833	96	808
Browneil & Co. (See Little, Clarence B., assignor.)	678,987	July 23	3698	698 694	96	681
Browning, Earl H., Cleveland, Ohio. Device for handling coal or other materials	678,096	July 9	1446	834 835	96	314
Browning, George, Hinsdale, assignor of one-half to W. H. Powell, Chicago, Ill. Cash-register	678,097	July 9	1450	835	96	315
Browning, John M., Ogden, Utah. Automatic gun	683,169	Sept. 24	2780	698	96	2466
Browning, Tillie J., Philadelphia, Pa. Hook	679,412	July 30	4076	909	96	908
Browning, Tillie J., Philadelphia, Pa. Hook	682,668	Sept. 17	1808	415	96	2202
Browning, Victor R., Lakewood, Ohio. Friction-clutch	681,297	Aug. 27	2986	663	96	1702
Bruce, Lucien F., Springfield, Mass. Cartridge-clip						
Bruce, William M., Toronto, Canada. Dental articulator						
Bruckman, Fredrick A., Plainview, Oreg. Land-roller						
Bruckman, John. (See McFarland, James D., Jr., assignor.)						
Brückner, Albert. (See Gruss and Brückner.)	677,397	July 2	107	23, 24	96	25
Bruening, William, New York, N. Y. Hydrocarbon-motor						
Brüggemann, Johann H. T. (See Southcott, James H., assignor.)						
Brumbaugh, M. P. (See Dollinger, George W., assignor.)						
Brumell, Henry P. H., Buckingham, Canada. Apparatus for separating or concentrating minerals or ores	678,860	July 23	2936	661	96	650
Brunhoff, Edward. (See Switzer, Maurice, assignor.)	678,220	July 9	1678	385	96	802
Brunker, William A., Farmersburg, Ind. Trap	679,598	July 30	4444	999	96	979
Brunner, Danton O., assignor of one-half to E. P. Clayton, Somerset, Ohio. Paper-stapler	682,667	Sept. 17	1807	415	96	2203
Bruns, Paul, Hanover, Germany. Machine for forming tiles						
Brunswick-Balke-Collender Co. (See Bensinger, Moses, assignor.)						
Brunswick-Balke-Collender Company. (See Goldenbogen, Frederick, assignor.)						
Brunswick Refrigerating Company. (See Francke, William J., assignor.)	682,166	Sept. 10	983	209	96	2070
Brush, William P., Jersey City, N. J. Washboard						
Bryan, Thomas A., *et al.* (See Hoerichs, Edward, assignor.)	679,214	July 23	3661	817	96	796
Bryant, Robert M., Riderville, Ala. Locomotive	682,784	Sept. 17	2055	465	96	2309
Bryant, Thomas, assignor of one-half to A. H. Wethey, Butte, Mont. Dumping-skip	682,971	Sept. 17	2394	542	96	2378
Bryson, James H., assignor to Wagner Electric Manufacturing Company, St. Louis, Mo. Electrostatic measuring instrument	683,019	Sept. 24	2495	566	96	2419
Buchan, Thomas J., *et al.* (See Kraushaar, George J., assignor.)						
Buchanan, Robert J., Pittsburg, Pa. Temporary binder						
Bucher and Gibbs Plow Company. (See Ream, George W., assignor.)	682,826	Sept. 17	2187	483	96	2326
Buck, George W., Louisville, Ky. Open fireplace						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Buck, Henry A., West Stafford, Conn. Piston for rotary engines	679,105	July 23	3457	771	96	752
Buck, Henry A., West Stafford, Conn. Rotary engine	679,106	July 23	3458	771	96	752
Buck, Henry A., West Stafford, Conn. Hot-water tank	679,107	July 23	3459	771	96	753
Buck, John A., Brooklyn, N. Y. Hoof-pad	677,497	July 2	285	70	96	62
Buckeye Malleable Iron and Coupler Company. (See Timms, James, assignor.)						
Buckham, George T. (See Dawson and Buckham.)						
Buckley, William E. (See Hope and Buckley.)						
Buell, Azel C. (See Graham, Buell, and Salisbury.)						
Buente, Charles F., Allegheny, Pa. Fireproof floor construction	681,870	Sept. 3	899	80	96	1945
Buer, August, Hanover, Germany. Horseshoe-pad	677,398	July 2	109	24	96	25
Buerstatte, Julius H. C., Manitowoc, Wis. Electric soldering device for can-capping machines	677,335	July 2	8	2	96	4
Buffington, Leroy S., Minneapolis, Minn., assignor to Buffington Light Company, of New Jersey. Acetylene-gas-generating lamp	677,984	July 9	1151	265, 266	96	259
Buffington, Leroy S., Minneapolis, Minn., assignor to Buffington Light Co., of West Virginia. Carbid-cartridge for acetylene-gas generators	677,985	July 9	1155	266	96	259
Buffington, Leroy S., Minneapolis, Minn., assignor to Buffington Light Co., of West Virginia. Expansible carbid-cartridge for acetylene-gas generators	677,986	July 9	1157	266	96	259
Buffington Light Company. (See Buffington, Leroy S., assignor.)						
Buffum, Herbert H., Abington, Mass. Carbureter for explosive-engines	680,961	Aug. 20	2344	515	96	1562
Buford, Algernon S. (See Jobson, Frank L., assignor.)						
Bugbee, George W., Delhi, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Bending-machine	680,700	Aug. 20	1961	430, 431	96	1476
Buhle, Louis. (See Wiseburn and Buhle.)						
Buhner, Albert H., San Francisco, Cal. Parallel-ruler	682,452	Sept. 10	1446	328	96	2167
Buhoup, Harry C., *et al.* (See Rawles, John, assignor.)						
Buhoup, Harry C., Chicago, Ill., assignor to McConway and Torley Company, Pittsburg, Pa. Car-coupling	677,435	July 2	184	44, 45	96	41
Buker, Harry G., *et al.* (See Lowe, Julius P., assignor.)						
Bull, Anders, Cologne, Germany. Method by which several telegraphic messages can be transmitted at the same time through one conductor or by wireless telegraphy	681,099	Aug. 20	2002	575	96	1608
Bull, Henry C., assignor of one-half to A. Watling, London, England. Extracting gold from sea-water	679,215	July 23	3668	817	96	797
Bullard, Albert M., assignor to Western Electric Company, Chicago, Ill. Apparatus for telephone-lines	679,068	July 23	3367	750	96	734
Bullard, Edgar R., Springfield, Mass. Camera	679,881	Aug. 6	315	67	96	1105
Bulling, Anton, Munich, Germany. Vaporizer	678,714	July 16	2655	598	96	576
Bummert, Benjamin L., Minneapolis, Minn. Necktie-fastener	678,688	July 9	1452	335	96	318
Bunch, Joel N. (See Smith, John A., assignor.)						
Bungeroth, Rudolf, Dusseldorf, Germany. Wrought-metal pipe	682,020	Sept. 3	696	150	96	2003
Bunker, Thomas, Redoak, Iowa. Rolling-mill	679,418	July 30	4078	909	96	908
Bunsen, George C., Milwaukee, Wis. Life-preserver	680,452	Aug. 13	1342	294	96	1328
Bunting, William, Jr., Brookline, Mass. Combination supply and waste apparatus	682,453	Sept. 10	1448	328	96	2167
Bunting, William, Jr., assignor to Meyer-Sniffen Company, Limited, New York, N. Y. Washbasin	679,882	Aug. 6	318	67	96	1106
Burbank, Louis S., Worcester, Mass., assignor, by mesne assignments, to Natural Food Company, Niagara Falls, N. Y. Marking-machine	681,192	Aug. 27	2782	617	96	1660
Burbank, Louis S., Worcester, Mass., assignor, by mesne assignments, to Natural Food Company, Niagara Falls, N. Y. Apparatus for facilitating packing	683,100	Sept. 24	3623	602, 608	96	2445
Burbank, Louis S., Worcester, Mass., assignor, by mesne assignments, to Natural Food Company, Niagara Falls, N. Y. Apparatus for curing or drying grain	683,101	Sept. 24	3624	603	96	2445
Burbridge, Ora, Farmington, Ill. Filter	677,773	July 2	806	198	96	170
Burchell, John G., Atlantic City, N. J. Means for fastening artificial teeth	683,196	Sept. 24	3778	640	96	2475
Burdick, Alberne H., Dunellen, N. J. Fruit-jar	681,871	Sept. 3	401	81	96	1945
Burdick, James T., Jr., Friendship, N. Y. Wagon-body	682,167	Sept. 10	934	209	96	2070
Burg, Hubert, Mollkirch, Germany. Type-writing machine	681,036	Aug. 20	2490	551, 552	96	1580
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Speed-regulator for explosive-engines	679,883	Aug. 6	320	68	96	1107
Burger, Franz, and H. M. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Propulsion mechanism for boats	678,938	July 23	3108	694, 695	96	682
Burgess, Harold F., Vancouver, Canada. Propulsion of vessels	682,027	Sept. 3	698	151	96	2003
Burgess, Percival G., Mexico, Mexico, and H. W. Wilder, Albany, N. Y., assignors to American Bell Telephone Company, Boston, Mass. Telephone-circuits. (Reissue)	11,992	July 23	3815	855	96	825
Burgess, Robert, *et al.* (See Lehan, William A., assignor.)						
Burgess, Robert, New Bedford, Mass. Loom and filling-carrier therefor	679,941	Aug. 6	429	90	96	1127
Burgmann, Hugo, Altona, Germany. Retort gas-furnace	677,336	July 2	10	2	96	5
Burke, Eugene, Lakeview, Oreg. Pencil-sharpener	679,942	Aug. 6	431	90	96	1127
Burke, Frederick C. (See Hagerman, Judson E., assignor.)						
Burkhardt, Gustave, Chicago, Ill. Fountain oiling device	680,193	Aug. 6	869	194	96	1218
Burkhart, Henry A. (See Kennedy and Burkhart.)						
Burkhart, William, assignor of one-half to G. B. Updegraff, Williamsport, Pa. Combined drill and countersink	679,698	July 30	4612	1095	96	1015
Burmeister, Charles, *et al.* (See Gielow, Frederick, Sr., assignor.)						
Burnham, William H. (See Hoxie and Burnham.)						
Burns, Charles O., New York, N. Y., and E. A. Strauss, Chicago, Ill., assignors to C. O. Burns Co., of New York. Coin-receptacle	679,216	July 23	3665	817	96	797
Burns, Jeremiah D., Washington, D. C., assignor of one-half to C. G. Quast, Baltimore, Md. Button	680,121	Aug. 6	737	163	96	1191
Burr, William H., Philadelphia, Pa. Wrench	677,937	July 9	1159	266	96	260
Burrell, Henry, Glasgow, Scotland. Cargo-steamer	683,092	Aug. 20	1809	399, 400	96	1442
Burroughs, Charles F., Newark, N. J. Valve for hydraulic presses	678,994	July 23	3809	718	96	708
Burroughs, Charles F., Newark, N. J. Printer's chase	682,840	Sept. 17	2170	490	96	2333
Burrows, Joseph A., Akron, Ohio. Rubber-tire-setting machine	680,312	Aug. 13	1087	240, 241	96	1276
Burrows, Lester P. (See Miller, Andrew H., assignor.)						
Burrows, Linus P., Washington, D. C. Desulfurizing ores	680,313	Aug. 13	1088	241	96	1277
Burrows, William R. (See Howell and Burrows.)						
Burry, John, Fort Lee, N. J. Telegraph apparatus	677,535	July 2	356	87	96	77
Burry, John, Fort Lee, N. J. Printing-telegraph	680,698	Aug. 20	1811	400, 401, 402, 403, 404	96	1442
Burson, Ernest E., Los Angeles, Cal. Urinal screen	683,419	Sept. 24	3197	733	96	2568
Burson, William W., assignor to himself, R. Emerson, and W. A. Talcott, Chicago, Ill. Knit mitten	680,672	Aug. 13	1759	387	96	1412

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burt, James H. (See Stauffer, Peter S., assignor.)						
Burt, William J., Burtsboro, Ga. Resawing-machine	682,909	Sept. 17	2201	516, 517	96	2457
Burton, Charles V., London, England. Tube-expander	677,930	July 9	1144	263, 264	96	257
Burton, Charles W. and E. M., Royal Center, Ind. Pneumatic straw-stacker	680,761	Aug. 20	1966	431	96	1478
Burton, Edward M. (See Burton, Charles W. and E. M.)						
Burton, George D., Boston, Mass. Apparatus for heating furnace-blasts	679,450	July 30	4150	981	96	917
Burton, George D., Boston, Mass. Ore roasting and distilling apparatus	679,452	July 30	4153	982, 983	96	917
Burton, Matthew, Batavia, Ill. Meat-cutter	679,884	Aug. 6	322	68	96	1107
Busch, Max. (See Deutsch, John H., assignor.)						
Busenbenz, Jacob J., Chicago, Ill. Hydrocarbon-burner	679,015	July 23	3256	727	96	712
Busselle, Arthur S., Ottumwa, Iowa. Basket attachment for desks	677,634	July 2	544	130	96	115
Butcher, Charles, Cambridge, Mass. Disappearing and safety hitching-post	680,638	Aug. 13	1671	369, 370	96	1394
Butcher, Frank, Healdsburg, Cal. Means for preserving fruits and their juices	679,943	Aug. 6	433	91	96	1128
Butkus, John A. (See Butkus, Joseph and J. A.)						
Butkus, Joseph and J. A., Baltimore, Md. Bottle-stoppering machine	681,949	Sept. 3	562	118, 119, 120	96	1978
Butler, Braxton R., Fayetteville, N. C. Bed-spring-making machine	682,028	Sept. 3	699	151	96	2003
Butler, Edward, Gateshead, England. Compound explosion-engine	678,715	July 16	2656	599	96	573
Butler, John D., assignor of one-half to E. F. Young, Dunn, N. C. Apparatus for preserving fruit	678,537	July 16	2391	519	96	504
Butler, Paul, Lowell, Mass. Cartridge-machine	681,298	Aug. 27	2987	663, 664, 665	96	1702
Butler, Paul, Lowell, Mass. Cartridge-shell-trimming machine	681,299	Aug. 27	2998	665, 666	96	1703
Butler, Paul, Lowell, Mass. Machine for packing articles into boxes	681,300	Aug. 27	3004	666, 667	96	1704
Butler, Paul, Lowell, Mass. Machine for scoring bullets	682,600	Sept. 17	1703	389	96	2242
Buttler, William, Redkey, Ind. Apparatus for the manufacture of sheet-glass	679,292	July 30	3882	858	96	851
Buttler, William, Redkey, Ind. Manufacture of window-glass	679,298	July 30	3884	858	96	851
Byers, John F., Ravenna, Ohio. Motor-vehicle construction	679,471	July 30	4186	940	96	923
Byrne, Rosa L., Cincinnati, Ohio. Drainer or colander	681,473	Aug. 27	3313	737	96	1764
Byrnes, James J., Brooklyn, N. Y. Incandescent burner	682,527	Sept. 10	1564	355	96	2192
Byron, Harold W., Williamsport, Md. Computing apparatus	682,910	Sept. 17	2202	517, 518	96	2358
Byron, Harold W., Williamsport, Md. Computing apparatus	688,379	Sept. 24	3117	714	96	2546
C. B. Cottrell & Sons Company. (See Cottrell, Charles P., assignor.)						
C. O. Burns Co. (See Burns and Strauss, assignor.)						
Cabrié, Prosper, New York, N. Y. Manufacture of artificial stone	677,853	July 9	970	.....	96	225
Cabrié, Prosper, New York, N. Y. Manufacture of artificial stone	679,828	Aug. 6	211	.....	96	1084
Cady, Frank P., Cleveland, Ohio, assignor to D. W. Aylworth, South Haven, Mich. Die	678,158	July 9	1566	361	96	339
Cady, John C., Jr., *et al.* (See Mayrhofer, Joseph C., assignor.)						
Cady, Palmer M., assignor of one-half to C. J. Kaighin, San Francisco, Cal. Necktie-holder	677,951	July 9	1180	272	96	264
Cahling, Gustaf A. (See Almqvist, Kastberg, Cahling, and Sjöqvist.)						
Cairns, Adam, Glasgow, Scotland. Substitute for rubber or gutta-percha	680,426	Aug. 13	1298	.....	96	1318
Calculagraph Company. (See Abbott, Henry, assignor.)						
Calder, Arthur R., Steelton, Pa. Gas-producer	679,885	Aug. 6	324	68, 69	96	1108
Caldwell, Eugene W., New York, N. Y. Electric-current interrupter	677,498	July 2	287	71	96	62
Caldwell, Eugene W., New York, N. Y. Interrupting electric currents	677,499	July 2	288	71	96	62
Caldwell, Jack, assignor to Perfection Hitcher Manufacturing Company, Kansas City, Mo. Horse-hitcher	682,972	Sept. 17	2396	542	96	2379
Caldwell, John, assignor to W. S. Nott Company, Minneapolis, Minn. Leather-stretching device	680,840	Aug. 20	2126	464	96	1508
Caldwell, John, assignor to W. S. Nott Company, Minneapolis, Minn. Leather-stretching device	682,785	Sept. 17	2057	466	96	2310
Caldwell, John, assignor to W. S. Nott Company, Minneapolis, Minn. Leather-stretching device	682,786	Sept. 17	2059	466	96	2310
Caldwell, Robert, Auckland, New Zealand. Lancet	677,756	July 2	707	184	96	162
Caldwell, William L., assignor of two-thirds to J. W. Rapp and H. L. Easton, New York, N. Y. Stud for building construction	682,316	Sept. 10	1210	274	96	2120
Calhoon, W. W., *et al.* (See Johnson, William H., assignor.)						
Calhoun, James L. and W. H., Chicago, Ill. Carbon copying device	679,722	Aug. 6	8	3	96	1045
Calhoun, William H. (See Calhoun, James L. and W. H.)						
Calkins, Albert C., assignor to F. W. Braun, Los Angeles, Cal. Ore-sampling machine	682,528	Sept. 10	1565	355	96	2192
Calkins, Albert C., assignor to F. W. Braun, Los Angeles, Cal. Automatic blowpipe	682,529	Sept. 10	1567	356	96	2192
Calkins, Almon B., Franklin, N. J., assignor to American Match Machine Company, New York, N. Y. Rotary cutter mechanism	682,787	Sept. 17	2061	466, 467	96	2311
Calkins, Arthur N., Franklin, N. J., assignor to American Match Machine Company, New York, N. Y. Match-splint carrier	681,872	Sept. 3	402	81	96	1945
Calkins, Daniel N., assignor to Rochester Germicide Co., Rochester, N. Y. Disinfectant-holder	681,100	Aug. 20	2004	575	96	1609
Call, Delmer W., assignor to National Malleable Castings Company, Cleveland, Ohio. Hub-band	681,666	Aug. 27	3692	826	96	1841
Call, Delmer W., assignor to National Malleable Castings Company, Cleveland, Ohio. Hub-band	681,667	Aug. 27	3693	826	96	1842
Callahan, Joseph N., and J. D. Short, Henrietta, N. C. Vehicle-brake	677,635	July 2	546	130	96	115
Callahan, Owen P., New York, N. Y. Car-coupling	682,827	Sept. 17	2139	488	96	2320
Callender, Monroe N., San Francisco, Cal. Dental engine	682,317	Sept. 10	1210	274	96	2120
Callender, William C., Piqua, Ohio. Bracket	678,112	July 9	1481	342	96	323
Camden Iron Works. (See Graves, Irwin, assignor.)						
Camden Iron Works. (See Jensenius, Herman A., assignor.)						
Cameron, Alexander A. (See Spencer and Cameron.)						
Cameron, Henry S. (See Morrison and Cameron.)						
Cameron, Louis O., Bellevue, Pa. Heater	680,223	Aug. 13	937	210	96	1247
Cameron, Murdick, Duluth, Minn. Meat or vegetable cutter	677,337	July 2	11	3	96	5
Cameron, William T., and W. A. Purks, Philadelphia, Pa. Garbage-receptacle	681,498	Aug. 27	3357	745	96	1772
Camp, Erasmus T., Gadsden, Ala. Apparatus for vaporizing medicinal agents	680,122	Aug. 6	738	164	96	1191
Camp, Ferdinand de, Berlin, Germany. Apparatus for producing coal-dust and carrying it into furnaces	679,046	July 23	3326	748	96	727

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Camp, Joseph E., Washington, Ill. Catch for end-gates	683,020	Sept. 24	2496	567	96	2419
Camp, Julian E., Brooklyn, Ill. Vehicle-wheel	680,224	Aug. 13	988	211	96	1247
Campbell Bosworth Machinery Company. (See Dodge and Wilson, assignors.)						
Campbell, Caroline M. (See Freeman, Thomas J. A., assignor.)						
Campbell, Edward, assignor to himself and C. J. Wardrope, Winnipeg, Canada. Washing-machine	677,686	July 2	548	131	96	116
Campbell, Edward R. East Ryegate, Vt. Nut-lock	678,640	July 16	2536	568	96	551
Campbell, George W., Kenton, Ohio. Lever-jack	682,601	Sept. 17	1707	390	96	2243
Campbell, Harry H., and E. M. Hawkins, Steelton, Pa. Gas-engine	682,788	Sept. 17	2063	467 468	96	2311
Campbell, Jeremiah, Newton, Mass. Apparatus for handling coal or other material	682,168	Sept. 10	936	210	96	2071
Campbell, Jeremiah, Newton, Mass. Lighter or barge for handling coal or other material	683,246	Sept. 24	2876	660 661	96	2495
Campbell, John, Matteawan, assignor of three-fourths to E. L. Tompkins, Fishkill Landing, N. Y. Manufacture of etched metal rules	679,599	July 30	4446	999	96	979
Campbell, Leon W., Woonsocket, R. I., assignor of one-half to M. Campbell, Boston, Mass. Top roll	678,538	July 16	2302	519	96	504
Campbell, Malcolm. (See Campbell, Leon W., assignor.)						
Campbell Printing Press & Manufacturing Company. (See Bennett, Walter G., assignor.)						
Campbell Printing Press & Manufacturing Company. (See Huson, Winfield S., assignor.)						
Campbell Printing Press & Manufacturing Company. (See Wood, Henry A. W., assignor.)						
Campbell, Thomas B. (See Bee and Campbell.)						
Canda, Ferdinand E. (See Smyser, Louis B., assignor.)						
Canda, Ferdinand E., New York, N. Y., and L. B. Smyser, Elizabeth, N. J.; said Smyser assignor to said Canda. Motor-vehicle	677,854	July 9	970	228 229	96	225
Cannaday, Winfield S., Florence, Ala., assignor of one-third to A. B. Paxton, Alexandria, Ind. Vehicle-wheel	679,294	July 30	3835	859	96	852
Cannon, Joseph W., *et al.* (See Gary, Albert D., assignor.)						
Cannon, Orin H., Decatur, Ill. Adjustable window-shade and lace-curtain fixture	678,159	July 9	1567	361	96	340
Cantrell, George W., and W. J. Empey, Spokane, Wash. Railway-switch	679,886	Aug. 6	325	69	96	1108
Cantrill, Henry A., Springfield, Ill. Scale-rack	682,169	Sept. 10	936	211	96	2071
Capen, Thomas W., assignor to Gates Iron Works, Chicago, Ill. Rock and ore pulverizer	682,170	Sept. 10	939	211	96	2071
Capewell, George J., Hartford, Conn. Metal-cutting shears	678,474	July 16	2181	491 492	96	478
Caplan, August. (See Cohn, Samuel, assignor.)						
Carbaugh, Conrad A., Johnstown, Pa. Rail-joint	682,911	Sept. 17	2294	518	96	2358
Carbolite Construction Company. (See Davis, Augustine, assignor.)						
Carew, Patrick C., Gloucester, Mass. Picture-frame support	678,221	July 9	1579	386	96	362
Carey, Arthur M. Middlesbrough, England. Acetylene-gas generator	678,375	July 16	1991	454	96	439
Carey, Frank C. (See Banning and Carey.)						
Carichoff, Eugene R., assignor to Otis Elevator Company, East Orange, N. J. Controlling apparatus for elevators	677,891	July 9	1046	245 246	96	239
Carkin, Charles S., Keene, N. H. Hoof-pad	682,789	Sept. 17	2066	468	96	2312
Carleton, Cyrus, assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Hair-clipper	679,944	Aug. 6	434	91	96	1128
Carleton Electric Company. (See Carleton, Henry G., assignor.)						
Carleton, George A., Jr., Edgewater, N. J. Feed-bag	678,641	July 16	2537	568	96	551
Carleton, Henry G., assignor to Carleton Electric Company, New York, N. Y. Electric signaling system	678,475	July 16	2182	492	96	478
Carleton, Roswell, Boston, assignor to C. F. Brown, trustee, Reading, Mass. Awl mechanism for shoe-sewing machines	678,589	July 16	2308	519 520	96	505
Carlisle, James W., Algiers, Ind. Corn-harvester	681,777	Sept. 3	289	46	96	1913
Carlson, Carl A., Chicago, Ill. Chair	678,376	July 16	1998	454	96	439
Carlson, Emanuel, assignor of one-half to J. Kahn, Los Angeles, Cal. Printing-press	679,458	July 30	4156	983	96	918
Carlson, Gabriel, assignor to Confectioners' Machinery and Manufacturing Company, Springfield, Mass. Starch-printer	679,550	July 30	4354	977 978	96	958
Carlton, Harvey B., and C. E. Hutchings, assignors to Rochester Optical and Camera Company, Rochester, N. Y. Extension-bed for photographic cameras	682,029	Sept. 3	701	151 152	96	2008
Carmody, Patrick E., Ansonia, Conn. Mechanism for removing snow from railways, highways, &c.	678,716	July 16	2659	599 600	96	575
Carnahan, Cyrus M., Allegheny, Pa. Bolster	682,318	Sept. 10	1212	275	96	2121
Carnay, William B., L. and C. Schwarz, Ballston Spa, N. Y. Frost-guard for refrigerator-buildings	679,526	July 30	4312	969	96	949
Carnes, James W., assignor of one-half to H. W. Dauchey, Waynesburg, Ohio. Valley for roofs	678,995	July 23	3211	719	96	704
Carney, Charles J., and J. C. Gorton, Dunkirk, N. Y. Riveting-machine	681,878	Sept. 3	405	81 82	96	1946
Carney, Frank E., Denver, Colo. Game apparatus	678,824	July 16	2346	542	96	613
Carney, Thomas, Dayton, Ohio. Grain-drill	681,087	Aug. 20	2493	552 553	96	1581
Caron, Albert, Haus Ellenbach, Germany, assignor to Farbenfabriken of Elberfeld Co., of New York. Culture of bacteria	679,600	July 30	4448	.....	96	979
Caron, Albert, Haus Ellenbach, Germany, assignor to Farbenfabriken of Elberfeld Co., of New York. Fertilizing agricultural crops	679,601	July 30	4449	.....	96	979
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Edwin P., *et al.* (See Marshall, John J., assignor.)						
Carpenter, Franklin R., Denver, Colo. Treating ores	678,457	July 16	2150	.....	96	471
Carpenter, Henry, Edmond, Okla. Ter. Draft-equalizer	678,717	July 16	2662	600	96	575
Carr, David M., Rochester, N. Y. Cord-adjuster for electrical conductor-cords	679,829	Aug. 6	212	45	96	1085
Carr, Emory M., Newcastle, Ind. Engine-governor	677,855	July 9	973	229	96	225
Carr, Emory M., Newcastle, Ind. Steam-pump governor	677,940	July 9	1162	267	96	260
Carr, Howard, assignor to San Francisco Arms Company, San Francisco, Cal. Magazine-gun	681,439	Aug. 27	3238	719 720 721	96	1749
Carr, Walter C. (See Webber, William O., assignor.)						
Carrick, Charles C. (See Henry and Carrick.)						
Carrier, Lyman, Joliet, Ill. Railway-gate	679,496	July 30	4254	957 958	96	987
Carroll, Charles J., *et al.* (See Haselip, Joseph N., assignor.)						
Carroll, Fred A., assignor of one-half to H. B. Turner, Penn Yan, N. Y. Switch-operating mechanism	680,090	Aug. 6	563	121 122	96	1155
Carruthers, John, and E. J. Fithian, Grove City, Pa. Clutch	682,126	Sept. 3	856	192	96	2085
Carruthers, John, and E. J. Fithian, Grove City, Pa. Clutch	682,127	Sept. 3	857	192	96	2085

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Carruthers, John, and E. J. Fithian, Grove City, Pa. Clutch	682,128	Sept. 3	858	193	96	2085
Carryl, Henry D., New York, N. Y. Brush	680,427	Aug. 13	1299	285	96	1318
Carryl, Henry D., New York, assignor to J. R. Hay, Nutley, N. Y. Ladder	680,428	Aug. 13	1300	285 286	96	1318
Carson, Edgar F., South Bend, Ind. Game-board	677,938	July 9	1160	267	96	260
Carson, Edgar F., South Bend, Ind. Game-board	677,939	July 9	1161	267	96	260
Carstens, Alexander, and J. H. Henley, Leadville, Colo. Safety apparatus for setting cage-chairs in mining-shafts	677,437	July 2	188	46	96	42
Carter, Curtis C., Jacksonville, Ill. Wire-fence machine	677,757	July 2	768	184 185	96	162
Carter, George F., Corsicana, Tex. Oil-purifier	680,639	Aug. 13	1672	370	96	1394
Carter, George Y., Arlington, N. J. Compound rule attachment	683,247	Sept. 24	2886	662	96	2499
Carter, John R., Augusta, Ky., and J. E. Hausfeld, assignors to E. H. Huenefeld, Cincinnati, Ohio. Stove-door and frame therefor	679,880	Aug. 6	213	45	96	1085
Carter, Rice and Company Corporation. (See Jenkins, Charles D., assignor.)						
Carter's Ink Company. (See Raymond, Freeborn F., 2d., assignor.)						
Cartter, Richard W., West Springfield, Mass. Sterilizer	682,171	Sept. 10	941	212	96	2072
Cartwright, Charles P. (See Elwell, James A., assignor.)						
Cartwright, William H., Blakeley, Minn. Educational appliance	677,952	July 9	1181	272	96	264
Carver, Charles B., Elk Rapids, Mich. Measuring-machine	680,640	Aug. 13	1674	370 371	96	1394
Carver, George A. (See Haines, John H. J., assignor.)						
Carver, James W., Auburn, Me., assignor to Boston Display Rack Company, of New Hampshire. Sample-display rack	678,356	July 16	1951	447	96	431
Casaday, William L., South Bend, Ind. Boiler-tube cleaner and driving mechanism therefor	679,728	Aug. 6	11	3,4	96	1045
Cassassar, William L., Beaverfalls, Pa. Rail-joint	681,088	Aug. 20	2499	554	96	1582
Case, Frank E. (See Potter and Case.)						
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company, of New York. Rheostat	677,941	July 9	1163	267 268	96	260
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company, of New York. System of motor control	678,861	July 23	2937	661	96	650
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric brake	679,302	July 30	3978	889 890	96	882
Case, Ora E. (See Lord, Charles W., assignor.)						
Casey, Michael E., Mansfield, Ohio. Adjustable swinging manhole-plate	677,637	July 2	549	131	96	116
Casperke, Charles A., Brandenburg, Ky. Series telephone system	682,090	Sept. 3	705	152	96	2004
Cassella & Co., Leopold. (See Kertesz, Adolf, assignor.)						
Cassidy, Patrick F., Boston, Mass. Stopper	680,518	Aug. 13	1477	325	96	1355
Cassidy, Patrick F., assignor to Boston Bottle Wiring and Labeling Company, Boston, Mass. Labeling-machine	678,832	July 16	2878	649 650	96	618
Cassidy, Patrick F., assignor to Boston Bottle Wiring and Labeling Company, Boston, Mass. Bottle-labeling machine	678,833	July 16	2882	650 651	96	619
Cassidy, Patrick F., assignor to Boston Bottle Wiring and Labeling Company, Boston, Mass. Paste-applying device	681,101	Aug. 20	2606	575	96	1604
Cassidy, Patrick F., assignor to Boston Bottle Wiring and Labeling Company, Boston, Mass. Obstetrical appliance	683,380	Sept. 24	3118	714	96	2547
Casson, Thomas, London, England. Solo attachment for musical instruments	678,718	July 16	2663	600	96	575
Castner Electrolytic Alkali Company. (See Mauran, Max, assignor.)						
Castner, George L., Clarksville, Tenn. Duplicate-whist scoring device	682,012	Sept. 17	2295	518	96	2358
Cataract Tool and Optical Company. (See De Zeng, Henry L., Jr., assignor.)						
Caton, Fred E., assignor to Caton's Foundry and Machine Company, San Jose, Cal. Can-filling machine	680,762	Aug. 20	1967	432	96	1478
Caton's Foundry and Machine Company. (See Caton, Fred E., assignor.)						
Caudry, Bailey C., Coffeeville, Kans. Device for removing or elevating lamp-chimneys	678,089	July 23	3105	695	96	682
Cavanaugh, William M., New York, N. Y. Seat for cobblers' chairs	678,857	July 16	1953	447	96	431
Caynor, Julius R. (See Beck and Caynor.)						
Cayton, Thomas A. (See Meyer, Svend M., assignor.)						
Cayuta Wheel & Foundry Company. (See Loetzer, Christian E., assignor.)						
Cease, Nicholas W., assignor to American Automatic Fan Company, Richmond, Va. Fan attachment for sewing-machines	681,193	Aug. 27	2783	618	96	1660
Ceipek, Norbert, Vienna, Austria-Hungary. Apparatus for filling cartridge-like envelops	679,665	July 30	4552	1024	96	1001
Century Motor Vehicle Company. (See Van Wagoner, William, assignor.)						
Century Post Co. (See Keeney, Alanson M., assignor.)						
Cesák, Wenzel, Milwaukee, Wis. Fastening device	679,724	Aug. 6	14	4	96	1046
Chadbourne, Joseph H., *et al.* (See Pierce, John, assignor.)						
Chaddock, William H., Allegan, Mich. Pinch-cock	682,172	Sept. 10	942	212	96	2072
Chadsey, Effie M., Durango, Colo. Spring-clasp	680,763	Aug. 20	1970	432	96	1475
Chalmers, Harvey, assignor to H. Chalmers & Son, Amsterdam, N. Y. Button-drilling machine	680,909	Aug. 20	2248	494 495	96	1532
Chalmers & Son, Harvey. (See Chalmers, Harvey, assignor.)						
Chalmers, William J. (See Robeson, Anthony M., assignor.)						
Chamberlain, John G., *et al.* (See Weddell, Edward G., assignor.)						
Chamberlin, Altia, Fairbury, Nebr. Bicycle	683,381	Sept. 24	3119	714	96	2547
Chamberlin, Walter H., *et al.* (See Zeng, Henry L. de, assignor.)						
Chambers, Arthur E., assignor to Western Novelty Company, Kalamazoo, Mich. Boat	681,363	Aug. 27	3105	689	96	1724
Chambers Brothers Company. (See King and Chambers, assignors.)						
Chambers, Cyrus, Jr. (See King and Chambers.)						
Chambers, John E., Chicago, Ill. Standard for optical instruments	678,642	July 16	2538	569	96	551
Chambers, John E., Chicago, Ill. Chin-rest for opthalmometers	681,494	Aug. 27	3358	745	96	1772
Chambers, William H. (See Penn, Louis T., assignor.)						
Chandler, Alphonso L., Chicago, Ill. Miter-box	680,021	Aug. 6	565	122	96	1156
Chandler, Bartlett B., Jr., Nevada City, Cal. Center-line level	679,602	July 30	4450	999	96	979
Chandler, Dana G., Sylvania, Ohio. Mole-trap	678,222	July 9	1680	386	96	362
Chandler, Orvin H., Clinton, S. C. Measuring-faucet	679,295	July 30	3836	859	96	852
Chantler, Israel B., Sewickley, Pa. Electric switch for alarms	681,495	Aug. 27	3359	745	96	1773
Chapin, Daniel S., assignor of one-half to E. L. Wires, Milford, Mass. Roller cotton-gin	681,194	Aug. 27	2785	618	96	1661
Chapin, Henry A. (See Hastings and Walkins, assignors.)						
Chapman, Abner J. (See Nichols, Robert J., assignor.)						
Chapman, Fred O. (See Harraman, Chapman, Severin, and Brown.)						
Chapman, Frederick B. (See Chapman, Joseph A., assignor.)						
Chapman, Joseph A., Bay City, Wis., assignor of one-half to F. B. Chapman, St. Paul, Minn. Toy or game	682,790	Sept. 17	2067	468	96	2312
Chapman, Mark C. (See Chapman, Matthew T. and M. C.)						
Chapman, Matthew T. and M. C., Aurora, Ill. Pumping apparatus	677,438	July 2	189	46,47	96	42

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chapman, Robert E., Cherokee, Tex. Baling-press	680,841	Aug. 20	2129	465	96	1508
Chapman, Robert J., Lowell, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Spinning-frame	680,194	Aug. 6	870	194	96	1219
Chapman, William, Washington, D. C., assignor to Electro-Magnetic Traction Company, of West Virginia. Electric railway	681,089	Aug. 20	2500	554	96	1582
Chapman, William W., Prescot, England. Mold for casting baths or other vessels	682,841	Sept. 17	2172	490	96	2333
Chappell, Frank M., Pittsburg, Pa. Feed-water regulator	679,273	July 23	3771	842	96	817
Chappell, Frank V., *et al.* (See Miller, Frank, assignor.)	679,603	July 30	4450	1000	96	979
Chappell, Thomas J., Grovelake, Minn. Neck-yoke attachment	680,406	Aug. 13	1265	278	96	1311
Charles, Albion P., Iola, Kans. Steam-engine	680,022	Aug. 6	568	122	96	1156
Charles, Oliver D., Homestead, Pa. Non-spillable cuspidor	678,940	July 23	3106	695	96	683
Charlton, Richard B., Milwaukee, Wis., assignor to Continuous Rail Joint Company of America, of New Jersey. Machine for sawing bars of iron into lengths				696		
Charlton, Richard B., Milwaukee, Wis., assignor to Continuous Rail Joint Co. of America, of New Jersey. Railway-rail joint	680,195	Aug. 6	874	194	96	1219
Charlton, Richard B., Milwaukee, Wis., assignor to Continuous Rail Joint Co. of America, of New Jersey. Railway-rail-joint plate	680,196	Aug. 6	875	195	96	1220
Charlton, Richard B., Milwaukee, Wis., assignor to Continuous Rail Joint Co. of America, of New Jersey. Railway-rail joint	680,197	Aug. 6	877	195	96	1220
Chase, Harrison O., San Francisco, Cal. Molding and hook	683,248	Sept. 24	2887	602	96	2499
Chase, Henry E., Cambridge, Mass. Spool or bobbin	678,540	July 16	2307	520	96	505
Chase, James L., Ayer, Mass. Roof-bracket	681,649	Aug. 27	3653	818	96	1832
Chase, Oscar L., *et al.* (See Van Note, Jacob E., assignor.)						
Chase-Shawmut Co. (See Whiton, Morris F., assignor.)						
Chattanooga Pipe and Foundry Company. (See Hedges, Mertland M., assignor.)	682,239	Sept. 10	1075	243	96	2096
Chattaway, John J., assignor to W. A. Force, Brooklyn, N. Y. Traction drum or roller	680,694	Aug. 20	1840	.....	96	1450
Chaveriat, Charles. (See Geisel, Paul, assignor.)	681,406	Aug. 27	3173	707	96	1737
Chavot, Henri V., and A. Hozana, Paris, France. Manufacture of alloys of iron or steel						
Chavous, Harry A., Lima, Ohio. Bouillon-boiler						
Chemische Fabrik Rhenania. (See Uebel, Carl, assignor.)						
Chesney, Cummings C. (See Kelly, John F., assignor.)	682,351	Sept. 10	1269	286	96	2131
Chesney, Cummings C., and W. J. Lloyd, Pittsfield, Mass. Frequency-indicator						
Chevalier, Jean. (See Hanzer and Chevalier.)						
Chew, William M., near Petersburg, assignor of one-half to J. L. Robinson, Petersburg, Ind. Wire-fence machine	678,160	July 9	1598	361	96	340
Chicago Corset Company. (See Gardner, Marshall B., assignor.)						
Chicago Handle Bar Co. (See Spencer, George G., assignor.)						
Chick, Edward G. (See Hodges and Chick.)						
Chief Husker and Shredder Company. (See Teeguarden and Himes, assignors.)	680,314	Aug. 13	1090	241	96	1277
Childs, Allie K., Leoti, Kans. Windmill						
Childs, Eversley. (See Bevier, Andries, assignor.)						
Chisholm and Moore Manufacturing Company. (See Moore, Edward Y., assignor.)						
Chisholm, Boyd & White Company. (See Avery, Colby M., assignor.)	682,031	Sept. 3	706	152	96	2004
Chisolm, Caspar A., Charleston, S. C. Tree-protector	680,225	Aug. 13	940	211	96	1247
Chorlton, Isaac, and W. J. Wentworth, Manchester, England. Rotary cutter	681,102	Aug. 20	2607	576	96	1604
Chott, Peter A., St. Louis, Mo. Suspender attachment for waists or shirts	677,558	July 2	414	99	96	88
Chrisman, Horace, Wilkinsburg, Pa., assignor to Pittsburg Meter Company, of Pennsylvania. Fluid-meter	679,945	Aug. 6	437	91	96	1128
Christensen, Niels A., Milwaukee, Wis. Air-brake system	680,842	Aug. 20	2131	465	96	1509
Christensen, Niels A., Milwaukee, Wis. Valve for compressors	681,103	Aug. 20	2608	576	96	1604
Christensen, Niels A., Milwaukee, Wis. Brake-lever system for railway-cars	678,223	July 9	1681	386	96	362
Christian, Robert W., Bannack, Mont. Centrifugal pump	677,942	July 9	1165	268	96	261
Christie, Athelstan H., Milwaukee, Wis. Traveling-bag	680,123	Aug. 6	739	164	96	1192
Christie, Benjamin B., Dayton, Ohio. Heating stove or furnace	681,680	Sept. 3	17	5	96	1868
Chrysler, William L., and W. A. Parker, Woodlake, Nebr. Hame-clip	677,638	July 2	551	131	96	117
Church, Duane H., Newton, Mass. Balance-staff for watches	679,363	July 30	3988	890	96	882
Churchill, James R., Sheffield, and F. G. Seeley, Hathersage, England. Friction-clutch	679,414	July 30	4079	910 911 912	96	904
Churchill, Robert H., Marinette, Wis. Emery-wheel	678,292	July 9	1818	419	96	388
Ciegler, Samuel, San Francisco, Cal. Combined suspenders, shoulder-brace, and belt	681,618	Aug. 27	3583	795	96	1817
Cincinnati Shaper Company. (See Steen and Seybold, assignors.)						
Claeys, Constant. (See Janin, John V., assignor.)	677,639	July 2	553	131 132	96	117
Clapham, Thomas S., Keighley, England. Cover for gas-purifiers	681,016	Aug. 20	2456	543	96	1573
Clark, Adelbert A., Marion, N. Y. Ground-marker	681,950	Sept. 3	571	120	96	1980
Clark, Andrew, Kansas City, Mo. Hinge-pin						
Clark Automatic Telephone Switch-Board Company. (See Clark, Emery A., assignor.)	678,161	July 9	1570	362	96	340
Clark, Bainbridge P., Choteau, Mont. Animal-shears	678,225	July 9	1686	387	96	363
Clark, Bainbridge P., Choteau, Mont. Animal-shears	678,208	July 9	1819	419	96	388
Clark, Cornelius S., assignor of three-eighths to C. M. Barnett, Norfolk, Va. Nut-lock	682,682	Sept. 3	707	152 153	96	2005
Clark, Edward B., assignor of one-half to H. Napay, Pittsburg, Pa. Switch-turner	679,887	Aug. 6	326	69	96	1108
Clark, Ellsworth E. (See Clark, Omar E. and E. E.)						
Clark, Elwood L., Buckeye, Mich. Ladder-hook						
Clark, Emery A., Sioux City, Iowa, assignor, by mesne assignments, to Clark Automatic Telephone Switch-Board Company, Providence, R. I. System of electrical intercommunication	681,951	Sept. 3	573	121	96	1980
Clark, Emma F. (See Clark, Percival L., assignor.)	681,195	Aug. 27	2788	619	96	1661
Clark, Erving D., Syracuse, N. Y. Uniting tubular metallic frames	681,196	Aug. 27	2789	619	96	1661
Clark, Erving D., Syracuse, N. Y. Tubular metallic frame	682,402	Sept. 10	1350	305	96	2149
Clark, Frank H., Chicago, Ill. Draft-rigging for railway-cars	679,296	July 30	3839	859 860	96	853
Clark, Fred, assignor of one-half to C. D. Schwab, Clearlake, Minn. Fish-hook	681,388	Aug. 27	3152	702	96	1732
Clark, Harry B., Derry Station, Pa. Detachable alligator-jaw for wrenches	678,611	July 16	2466	552 553	96	536
Clark, Herbert, Knoxville, Pa. Printer's galley	678,224	July 9	1685	386	96	363
Clark, Huber, administrator. (See Morrison, Walter G.)	681,608	Aug. 27	3694	.....	96	1842
Clark, Hugh D., Columbus, Ohio. Burial-case protector						
Clark, Isaac M., Lompoc, Cal. Spraying trees, &c						
Clark, Jesse L. (See Hess and Clark.)	678,719	July 16	2464	600 601	96	575
Clark, John E., Janesville, Wis. Tire bolter and cutter						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clark, John L., and F. G. Hamilton, Stevens Point, Wis. Car-door fastener	682,530	Sept. 10	1568	356	96	2198
Clark, Laurel L., Galesburg, Ill. Tobacco-moistener	682,319	Sept. 10	1214	275	96	2121
Clark, Nelson B., Beverly, Mass. Cigar-box	682,867	Sept. 17	2218	501	96	2342
Clark, Omar E. and E. E., Vicksburg, Mich. Boiler-feed regulator	683,021	Sept. 24	2498	567	96	2419
Clark, Percival L., assignor to E. F. Clark, Bristol, Conn. Lantern-pinion	677,856	July 9	975	229	96	225
Clark, Thomas E. (See Bellah, Andrew J., assignor.)						
Clark, William F., Kidwell, W. Va. Non-refillable bottle	679,415	July 30	4082	912	96	904
Clarke, Benjamin F., San Francisco, Cal. Ventilator and dust-arrester	679,108	July 23	3460	772	96	753
Clarke, John J., assignor of two-thirds to W. J. Hendricks, Washington, D. C., and E. Y. Brady, Muncie, Ind. Ball-bearing for wheels, &c	680,641	Aug. 13	1675	371	96	1394
Clarke, Michael F., Farmington, N. Mex. Ter. Marking-tool	678,643	July 16	2539	569	96	551
Clarke, Richard T., Columbus, Ohio. Button attachment for suspender-ends	680,429	Aug. 13	1302	286	96	1318
Clarke, Richard T., Columbus, Ohio. Suspender and trousers connection	680,430	Aug. 13	1303	286	96	1319
Clarke, Timothy F., St. Clair, Pa. Squib	680,564	Aug. 13	1549	341	96	1369
Clasen, Hans P. H., Flensburg, Germany. Bottle-closing device with cork stopper	681,104	Aug. 20	2610	576	96	1605
Classen, Carl, New York, N. Y. Swimming apparatus for attachment to the legs	682,379	Sept. 10	1310	295	96	2140
Clatworthy, William, Warrington, England. Wire-cutter	682,033	Sept. 3	709	153	96	2005
Clawson, Leonard E., San Francisco, Cal. Smoke-condenser for chimneys	679,666	July 30	4555	1024	96	1002
Claxton, Frederic J. (See Ryland, Marion W., assignor.)	677,338	July 2	12	3	96	5
Clay, Harry C., assignor to Reeves & Company, Columbus, Ind. Cross-head	683,170	Sept. 24	2732	628	96	2466
Clay, Harry C., assignor to Reeves & Company, Columbus, Ind. Separator-tooth						
Clayton Aniline Company. (See Green and Meyenberg, assignors.)						
Clayton, Elisha P. (See Brunner, Danton O., assignor.)						
Cleal, Joseph P. (See Hunt, Charles J., assignor.)						
Cleal, Joseph P., Dayton, Ohio, assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J. Cash-register	677,500	July 2	290	71,72	96	62
Cleaver, Kilburn H. (See Angstadt and Cleaver.)						
Cleff, Robert, and A. Langen, Krefeld, Germany. Manufacture of velvet	683,382	Sept. 24	3120	714	96	2547
Clement, Henry K., Laporte, Ind. Grain-sieve	677,857	July 9	977	230	96	226
Clément, Paul, Wasquehal, France. Weft-replenishing loom	682,084	Sept. 3	711	153 154	96	2005
Clerc, Jules E. (See Avézard and Clerc.)						
Clerget, Eugéne. (See Laurent and Clerget.)						
Clerk, William B., *et al.* (See Kelley, Alexander, assignor.)						
Clerke, Frederick W. (See Posener and Clerke.)						
Cleveland Block Company. (See Ervin, James M., assignor.)						
Cleveland, Francis D., Winchester, Mass. Can-filling machine	678,862	July 23	2940	662	96	651
Cleveland, Fred L., *et al.* (See Aldrich, Robert and W. T., assignors.)						
Cleveland Machine Screw Company. (See Brophy, John P., assignor.)						
Cleveland Punch and Shear Works Company. (See Doolittle, John F., assignor.)						
Cliff, George H. (See Cliff and Wardlaw.)						
Cliff, John H. and G. H., and T. D. Wardlaw, Dundas, Canada. Gas-burner	681,907	Sept. 3	474	97	96	1959
Clifford, Jerry M., Iron Mountain, Mich. Railway-switch	683,383	Sept. 24	3121	715	96	2547
Cline, Albert R. (See Angerer and Cline.)						
Clinger, Fred D., assignor of three-fourths to O. N. Olson, W. Sperry, and S. E. Ware, Owatonna, Minn. Pump bucket or piston	680,565	Aug. 13	1550	341	96	1369
Clizbe, Adelbert R., Plymouth, Ind. Grinding-machine	681,440	Aug. 27	3250	721 722	96	1752
Closz and Howard Manufacturing Company. (See Closz, Charles, assignor.)						
Closz, Charles, Webster City, Iowa. Grain-separating screen	682,670	Sept. 17	1813	416	96	2264
Closz, Charles, assignor to Closz and Howard Manufacturing Company, Webster City, Iowa. Grain-separating screen	682,669	Sept. 17	1811	415 416	96	2263
Clothier, Conrad F., Jr., and F. S. Pecke, Philadelphia, Pa. Permanent way	679,047	July 23	3327	743 744	96	727
Clough, Augustus A., Denver, Colo. Dust-trap for street-sweepers	682,156	Sept. 3	912	203	96	2045
Cloutier, Noe, Attleboro, Mass. Can-opener	682,581	Sept. 10	1570	356	96	2198
Clover, Benton L., *et al.* (See Owen, Charles F., assignor.)						
Clover, Howard K., Omaha, Nebr. Boiler-feeder	679,252	July 23	3728	833	96	809
Clow, Willis F. (See Hughes and Clow.)						
Cloyes, James H., Chicago, Ill. Button-support for tufting-machines	677,559	July 2	415	100	96	88
Cluett, Sanford L., Hoosick Falls, N. Y. Valve gate or covering	679,364	July 30	3984	891	96	883
Coates, John E., *et al.* (See Laux, Mathias, assignor.)						
Coburn, Byron, Leroy, N. Y. Tool-post for lathes	679,297	July 30	3841	860	96	853
Cochran, Robert B., assignor to Morgans and Wilcox Mfg. Co., Middletown, N. Y. Printer's furniture and lock-up	683,249	Sept. 24	2888	662	96	2499
Cochrane, Douglas M. B. H., London, England. Tea or coffee pot	678,720	July 16	2997	601	96	576
Cochrane, Thomas W., Rochester, N. Y. Game-counter	681,528	Aug. 27	3411	757	96	1784
Coddington, Cephas D., assignor of one-half to O. C. Robertson, Decatur, Ill. Clothpiler	680,407	Aug. 13	1267	279	96	1312
Coe, Almer. (See Weinstein, Jacob, assignor.)						
Coe, Henry H., Palmesville, Ohio. Veneer-cutting machine	680,642	Aug. 13	1677	371	96	1395
Coe, Walter H., Providence, R. I. Package-roll for holding and applying metallic leaf	678,162	July 9	1571	362	96	340
Coes, Loring, assignor to Coes Wrench Company, Worcester, Mass. Wrench	680,124	Aug. 6	741	164	96	1192
Coes Wrench Company. (See Coes, Loring, assignor.)						
Coffey, Daniel S., St. Paul, Minn. Copy-holder	678,541	July 16	2308	520	96	505
Coffin, Charles P., assignor to Michigan Barrel Company, Grand Rapids, Mich. Refrigerator shelf-support	682,035	Sept. 3	717	155	96	2006
Cogeen, Harry, assignor of one-half to A. G. Adams, Goldfield, Colo. Cap-crimping tool	680,648	Aug. 13	1678	372	96	1395
Cogswell, John W. (See Koch and Cogswell.)						
Cohen, Simon, Erie, Pa. Safety attachment for watches	681,017	Aug. 20	2457	544	96	1574
Cohn, Moses, *et al.* (See Neill and Tinker, assignors.)						
Cohn, Samuel, assignor of one-half to A. Caplan, New York, N. Y. Sewing-machine for gathering the mouths of tubular structures	678,542	July 16	2309	521	96	506
Colahan, Charles, Chicago, Ill. Grain-binder	677,943	July 9	1166	268	96	262
Colbert, Carl. (See Neuber, Tambour, and Colbert.)						
Colby, Clarence L., New Paris, Ohio, and C. F. Peelle, Richmond, Ind. Door-operating device	683,102	Sept. 24	2625	603 604	96	2446
Coldren, William P., assignor of one-half to G. F. Lauser, Lebanon, Pa. Jar-top	680,125	Aug. 6	742	164	96	1192
Coldwell, Harry T., Newburgh, N. Y., and F. B. Sharpe, Portland, Me. Adjustable supporting device	677,758	July 2	770	185	96	163
Coldwell, Joseph, and C. G. Gildard, Fall River, Mass. Warp stop-motion for looms. (Reissue)	11,923	July 30	4652	1046	96	1022
Cole, Bert A. (See Ryther and Cole.)						
Cole, Charles D., Sullivan, Ill. Car-loader	679,048	July 23	3329	744	96	727
Cole, John N., assignor of one-half to W. W. Kelley, Des Moines, Iowa. Automatic band-cutter and self-feeder	679,725	Aug. 6	15	4.5	96	1046

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Cole, John T., Malmaison, Va. Fertilizer-distributer	679,208	July 30	3841	860	96	854
Cole, William F., Waco, Tex. Cartridge for guns	683,384	Sept. 24	3122	715	96	2548
Coleman, Clarence W. (See Coleman, Clyde J., assignor.)						
Coleman, Clyde J., assignor, by mesne assignments, to C. W. Coleman, Chicago, Ill. Refrigeration system	677,845	July 2	951	224	96	200
Coleman, Edgar P., Chicago, Ill. Governor	680,198	Aug. 6	878	195 196	96	1220
Coleman, George D., Boston, Mass. Metallic surface-sheathing	682,173	Sept. 10	943	212	96	2072
Coleman, George D., Boston, Mass. Making metallic surface-sheathing	682,174	Sept. 10	945	212	96	2072
Coleman, George D., Boston, Mass. Antifouling coating	682,913	Sept. 17	2298	518	96	2359
Coleman, George D., Boston, Mass. Antifouling coating	682,914	Sept. 17	2300	519	96	2359
Coleman, George D., Boston, Mass. Antifouling coating	679,888	Aug. 6	327	70	96	1108
Coleman, James M., Yazoo City, Miss. Planter	677,944	July 9	1168	269	96	262
Coleman, Joseph H., Beardstown, Ill. Pen						
Coleman, William H., *et al.* (See Miller, John A., assignor.)	682,240	Sept. 10	1076	243	96	2096
Coleman, William R., Quincy, Ill. Baling-press	679,946	Aug. 6	438	92	96	1129
Collar, Adoniram J., Yreka, Cal. Extensible fly-escape	681,844	Sept. 3	352	70	96	1935
Collar, Adoniram J., Yreka, Cal. Window fly-escape and closure	681,681	Sept. 3	17	5	96	1868
Collewuie, Friedrich, Hamburg, Germany. Water-gage	681,619	Aug. 27	3584	795 796	96	1818
Collier, Arthur T., St. Albans, assignor of one-half to E. O. Goss, London, England. Means for securing tires to wheels of road-vehicles	677,560	July 2	417	100	96	89
Collier, Louis, Cripplecreek, Colo. Ore-bucket dumper and chute	677,858	July 9	978	230	96	226
Collier, William H., Jackson, Tenn. Valve-actuating mechanism	681,166	Aug. 20	2728	604 605	96	1629
Collin, George W., Bridgeport, Conn. Acetylene-gas generator	680,315	Aug. 13	1091	242	96	1277
Collins, Edson B., Chicago, Ill. Flexible shafting	682,791	Sept. 17	2069	468	96	2312
Collins, Francis E., Conshohocken, Pa. Damper-regulator	680,566	Aug. 13	1551	341	96	1370
Collins, Frank W., Rockland, Me. Package for shipping shell-fish, &c	679,947	Aug. 6	439	92	96	1129
Collins, Jeremiah F., Brockton, Mass. Hinged split follower	679,274	July 23	3774	842	96	818
Collins, John W., Duluth, Minn. Expansible flue-cutter	682,320	Sept. 10	1216	276	96	2121
Collins, John W., Richmond, Va. Stock-releasing device						
Collins Plow Company. (See Brown, John W., assignor.)						
Collins, Thomas, and E. L. Hartmann, Bainbridge, N. Y., assignors to American Separator Company, of New York. Centrifugal cream-separator	679,948	Aug. 6	441	92, 98	96	1129
Collis, Fred L., Iowa Falls, Iowa. End-gate	677,945	July 9	1169	269	96	262
Collon, Eugène, Cannes, France. Machine for folding table-napkins or other flat linen articles	677,436	July 2	186	45	96	41
Colman, Charles T., Elwood, Ind. Windmill	679,109	July 23	3462	772	96	754
Colman, William R., assignor of one-half to F. C. Andrews, Quincy, Ill. Baling-press.	678,941	July 23	3109	696	96	683
Colorado Iron Works Company. (See Nesmith, John W., assignor.) (Reissue.)						
Colpitts, Calvin N., Boston, Mass., assignor to American Shade Machine Company, Boston, Mass., and Portland, Me. Cloth-cutting and folding machine	678,099	July 9	1454	335 336	96	816
Colpitts, Calvin N., Boston, Mass., assignor to American Shade Machine Company, Boston, Mass., and Portland, Me. Cloth cutting and folding machine	678,100	July 9	1459	336	96	817
Colt's Patent Fire Arms Manufacturing Company. (See Peard, James J., assignor.)						
Columbia and Electric Vehicle Company. (See Maxim and Bardwell, assignors.)						
Colvin, Henry F., Philadelphia, Pa. Steam-engine	679,949	Aug. 6	443	93	96	1130
Colvin, Henry F., Philadelphia, Pa. Steam-engine	679,950	Aug. 6	446	94	96	1131
Comins, Charles S., Quincy, Mass. Transmitter for educational purposes	680,696	Aug. 20	1842	404	96	1450
Comins, Charles S., Quincy, Mass. Transmitter for educational purposes	683,171	Sept. 24	2733	629	96	2467
Comins, Frank B., Sharon, Mass. Picker-staff-checking device	677,561	July 2	419	100	96	89
Comins, Frank B., Sharon, Mass. Pneumatic picker-checking device	677,562	July 2	421	101	96	89
Comins, Frank B., Sharon, Mass. Picker-staff controller	677,563	July 2	422	101	96	90
Compton, James E., Lynn, Mass. Rotary brush	680,990	Aug. 20	2402	530	96	1502
Compton, Melvin D., East Orange, N. J. Acetylene-gas generator	679,726	Aug. 6	17	5	96	1046
Comstock, Charles, Richmond, Va. Pneumatic-railway system	680,843	Aug. 20	2132	466 467	96	1509
Comstock, Edwin M., Cascade Valley, N. Y. Center punch and gage	677,339	July 2	13	3	96	5
Conde, Alonzo B., Delmar, N. Y. Reflector	682,602	Sept. 17	1708	380	96	2344
Condict, George H., assignor to Electric Vehicle Co., New York, N. Y. Elevator and transfer-crane for storage batteries	682,175	Sept. 10	946	213	96	2073
Condict, George H., assignor to Electric Vehicle Co., New York, N. Y. System and apparatus for loading and unloading storage-batteries from motor-vehicles	682,973	Sept. 17	2400	544 545	96	2379
Condiff, Griff, Connellsville, Pa. Rail-joint	680,023	Aug. 6	569	123	96	1156
Condon, Henry F., Dekalb, Ill. Pipe-bending machine	682,671	Sept. 17	1815	416	96	2264
Condra, Isaac N., Seymour, Iowa. Portable straw-stacker	681,175	Aug. 20	2743	608	96	1632
Confectioners' Machinery and Manufacturing Company. (See Carlson, Gabriel, assignor.)						
Conger, Charles A., Oakland, Cal. Rein-holder	679,951	Aug. 6	449	94	96	1131
Conger Manufacturing Company. (See Watrous and Van Benschoten, assignors.)						
Conkling, Allen, Chicago, Ill. Soap-dish	679,110	July 23	3463	773	96	754
Conley Camera Company. (See Henderson, Charles C., assignor.)						
Conley, Edward, deceased, New York, N. Y.; J. Conley, administrator. Beating-engine	678,226	July 9	1688	387	96	364
Conley, Edward, deceased, New York, N. Y.; J. Conley, administrator. Bed-roll	678,227	July 9	1689	387	96	364
Conley, James, administrator. (See Conley, Edward.)	681,874	Sept. 3	408	82	96	1947
Conley, Merit G., Longmont, Colo. Bedstead	677,399	July 2	110	24	96	25
Conlin, Andrew J., Cambridge, assignor to Simplex Electrical Company, Boston, Mass. Electric vulcanizer	678,543	July 16	2311	521 522	96	506
Conner, George F., Port Huron, Mich. Combined dumper and spreader	679,451	July 30	4157	933 934	96	918
Conner, George F., Port Huron, Mich. Pump	680,910	Aug. 20	2253	495	96	1533
Conner, John L., Washington, D. C. Can-opener	678,311	July 9	1355	427	96	395
Conners, Daniel O., Salem, Mass. Lug strap and holder						
Connerth, Daniel, Chunchula, Ala., and J. Rothweiler, Chicago, Ill. Safety-blind for horses	681,682	Sept. 3	18	6	96	1868
Connolly, Frank H. (See Skinner and Connolly.)	682,403	Sept. 10	1352	306	96	2149
Conover, Charles F., New York, N. Y. Condensing apparatus						
Consolidated Car-Heating Company. (See McElroy, James F., assignor.)						
Consolidated Fastener Company. (See Devine, William P., assignor.)						
Consolidated Fastener Company. (See Long, Thomas, assignor.)						
Consolidated Fastener Company. (See Washburne, James V., assignor.)						
Consolidated Mining and Dredging Company. (See McFadden, William H., assignor.)	677,430	July 2	194	47	96	43
Contardo, Ramon C., Sevres, France. Electric-arc furnace						
Continuous Rail Joint Company of America. (See Charlton, Richard B., assignor.)						
Converse, Atherton D., Winchendon, Mass. Stop-motion for mechanical toys	682,454	Sept. 10	1450	328	96	2168

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Converse, Frederic S., *et al.*, trustees. (See Steiger, Andrew W., assignor.)	682,135	Sept. 3	871	195	96	2037
Conway, Arnett, assignor of one-half to T. K. Manson, Louisville, Ky. Cattle-guard	681,620	Aug. 27	3585	796	96	1818
Cook & Company, S. A. (See Bowen, George A., assignor.)						
Cook, Frank B., Oskaloosa, Kans. Vehicle brake mechanism	679,952	Aug. 6	450	95	96	1132
Cook, John H., Brooklyn, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Door-closing apparatus						
Cook, Ray. (See Ostrander and Cook.)	677,850	July 9	980	230	96	226
Cook, Thomas E., and G. J. Streng, Detroit, Mich. Water-heater and pipe-cleaning apparatus	679,604	July 30	4452	1000	96	980
Cook, Walter H., New Orleans, La. Apparatus for cooking cotton-seed meats	681,621	Aug. 27	3586	796 797	96	1819
Cook, Warren R., Pittsburg, Pa. Fuse-holder	680,644	Aug. 13	1679	372	96	1395
Cook, William P., Richmond, Ind. Shoe-fastening	682,341	Sept. 10	1078	243	96	2096
Cooke, Manly, Vista, Iowa. Wrench	680,226	Aug. 13	941	211	96	1247
Cooley, Charles F., Hot Springs, Ark. Check-punch	682,086	Sept. 3	718	155	96	2006
Cooley, George P., Kansas City, Kans. Animal-muzzle	680,645	Aug. 13	1681	372 373	96	1395
Cooley, William H., Brockport, N. Y. Means for limiting transfer privileges	680,646	Aug. 13	1695	373 374	96	1399
Cooley, William H., Brockport, N. Y. Means for limiting transfer privileges						
Coomber, James, Chicago, assignor, by mesne assignments, of one-half to A. Krieg, Freeport, Ill. Cork-extractor	678,773	July 16	2749	619	96	592
Coombs, Edward B. (See Van Orden and Coombs.)						
Coon, Silas, Ashland, Ky., assignor of one-fourth to H. M. Ware, Huntington, W. Va. Nut-lock	678,163	July 9	1573	362	96	341
Cooney, Luke, Jr. (See English and Cooney.)	682,455	Sept. 10	1451	329	96	2168
Cooper, George A., Pittston, Pa. Respiratory hood	683,385	Sept. 24	3123	715	96	2548
Cooper, George T., Natick, Mass. External joint for escape-pipes	681,650	Aug. 27	3655	818 819	96	1884
Cooper, John E., Withernsea, England. Antifriction mechanism for axle-shafts of rail-way-carriages or other vehicles						
Cooper, Madison, Minneapolis, Minn. Indirect air-circulating system for cold-storage apparatus	677,536	July 2	358	87	96	77
Cooper, William F., Meriden, Conn. Acetylene-gas lamp	681,197	Aug. 27	2790	619	96	1662
Cooper, William S., Jr., and J. Dorricott, Philadelphia, Pa. Water-closet tank	679,299	July 30	3845	860	96	854
Cope, James H. (See Lemmon and Cope.)	682,037	Sept. 3	720	155	96	2006
Cope, Jennie, Essary Springs, Tenn. Andiron						
Copeland, Benjamin H., assignor to S. Hall, Derby, England. Lamp for burning petroleum, kerosene, &c.	683,490	Sept. 24	3199	733	96	2562
Copithorn, John T., Hingham, Mass. Rotary motor	681,843	Sept. 3	350	70	96	1935
Copland, Virginia I., Washington, D. C. Erasing-shield	680,227	Aug. 13	942	212	96	1248
Coppage, Benjamin D., Wilmington, Del., assignor to Edgmoor Iron Company, of Delaware, Boiler	680,696	Aug. 20	1844	404 405	96	1451
Corbett, James R., Rochester, N. Y. Fastener for casket-covers	679,727	Aug. 6	18	5	96	1046
Cordovez, Julia E., Panama, United States of Colombia. Telegraph-relay	680,024	Aug. 6	570	123 124	96	1157
Corduan, Frank H., assignor to J. B. Peck, Brooklyn, N. Y. Electric-light-wire molding	678,544	July 16	2314	522	96	507
Corey, William W., St. Louis, Mo. Fire-hydrant	678,545	July 16	2315	522	96	507
Corlett, William E., Jennings, Okla. Ter. Filter	683,386	Sept. 24	3125	715 716	96	2548
Cormery, Henry R. M., Baugé, France. Steering-gear for motor-vehicles	680,764	Aug. 20	1971	432 433	96	1479
Cormier, Frank S., Moncton, Canada. Propeller-governor	678,228	July 9	1691	388	96	365
Cornelius, William A., Homestead, Pa. Lubricating device	681,529	Aug. 27	3412	757	96	1784
Cornell, Elijah B., assignor of one-half to W. C. Alderson, Philadelphia, Pa. Making gas	682,088	Sept. 3	720	155 156	96	2007
Cornell, Elijah B., assignor of one-half to W. C. Alderson, Philadelphia, Pa. Gas-generator	682,089	Sept. 3	723	156	96	2007
Cornell, Elijah B., assignor of one-half to W. C. Alderson, Philadelphia, Pa. Gas-retort	682,040	Sept. 3	725	156	96	2008
Cornell, Evan W., assignor of one-half to J. W. Page, Adrian, Mich. Wire fence	680,647	Aug. 13	1711	375	96	1408
Cornell, John M., New York, N. Y. Drawer-guide for steel furniture	680,127	Aug. 6	744	165	96	1198
Cornell, Oliver H. P., Brooklyn, N. Y. Machine for cutting off and crozing barrel-staves	679,166	July 23	3559	797 798	96	777
Cornell, Oliver H. P., Brooklyn, N. Y. Manufacture of barrels	679,276	July 23	3778	843	96	819
Cornell, Oliver H. P., Brooklyn, N. Y. Barrel	679,277	July 23	3780	844	96	819
Cornell, Oliver H. P., Brooklyn, N. Y. Barrel	679,728	Aug. 6	19	6	96	1047
Cornell, Oliver H. P., Brooklyn, N. Y. Machine for making and driving staples	679,729	Aug. 6	20	6, 7	96	1047
Cornely, Emile and R., Paris, France. Attachment for embroidering-machines	677,958	July 9	1184	273	96	265
Cornely, Robert. (See Cornely, Emile and R.)						
Corning Brake Shoe Company. (See Gorton, William E., assignor.)						
Corrie, David. (See Smith and Corrie.)	682,456	Sept. 10	1453	329	96	2169
Corriveau, Edmond N., Stonington, Conn. Bread-cutter	682,842	Sept. 17	2174	491	96	2333
Corron, César, Lyons, France. Machine for treating thread	679,551	July 30	4356	978	96	959
Corry, Michael, and R. F. Barker, Marinette, Wis. Log-turner	681,105	Aug. 20	2611	576	96	1605
Corry, William, Cincinnati, Ohio. Fireproof safe						
Corson, Asa G. (See Corson, Edgar N., assignor.)						
Corson, Edgar N., assignor of one-half to A. G. Corson, Los Angeles, Cal. Speed-regulator for explosive-engines	678,546	July 16	2319	522	96	508
Corson, John M., U. S. Army. Tent	681,301	Aug. 27	3014	667 668	96	1706
Corson, William L., assignor to Union Gas Engine Co., San Francisco, Cal. Exhaust mechanism for explosive-engines	681,441	Aug. 27	3252	772	96	1753
Cortland, Harvey, and J. T. Hume, Pittsburg, Pa.; said Hume assignor to said Cortland. Automatic fire-alarm system	677,946	July 9	1172	269 270	96	963
Cortland, Harvey, and J. T. Hume, Pittsburg, Pa.; said Hume assignor to said Cortland. Automatic fire-alarm	677,954	July 9	1185	273	96	965
Costello, John E., Providence, R. I. Letter-box	680,911	Aug. 20	2255	496	96	1534
Cotner, David R., assignor of one-half to W. W. Hester, Bardwell, Ky. Chair	682,672	Sept. 17	1818	417	96	2264
Cotta, Félix. (See Palas and Cotta.)						
Cotter, Henry D., and J. W. A. Gardam, Brooklyn, assignors to W. Gardam & Son, New York, N. Y. Dipping-needle compass	682,585	Sept. 10	1674	380	96	2313
Cottier, William T., Portland, Oreg. Car ventilation	682,176	Sept. 10	948	213	96	2073
Cotton Seed Oil Syndicate. (See Stanley, John C. W., assignor.)						
Cottrell, Charles P., Westerley, R. I., assignor to C. B. Cottrell & Sons Co., Jersey City, N. J., Stonington, Conn., and New York, N. Y. Mechanical movement	680,474	Aug. 13	1378	301 302	96	1335
Cottrell, Charles P., Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y., and Stonington, Conn. Mechanical movement	680,765	Aug. 20	1973	433	96	1479

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Cottrell, William C., Ashury Park, assignor of one-half to H. Fields, Freehold, N. J. Trolley-wheel	680,567	Aug. 13	1552	341	96	1370
Couchman, George A., Garfield, Kans. Draft-equalizer	678,644	July 16	2540	569	96	552
Coughlan, Merrett G., Chicago, Ill. Folding crate	679,780	Aug. 6	25	8	96	1048
Coun, Willard H., Toronto, Canada, assignor to G. F. Atwood, West Chazey, N. Y., and E. A. Messenger, Boston, Mass. Flash-boiler	681,198	Aug. 27	2792	620	96	1602
Coup, Sadie H., Akron, Ohio. Steamer	681,106	Aug. 20	2611	577	96	1605
Courll, John H. (See Trussell, James, assignor.)						
Courtney, William J., New York, N. Y., assignor to H. H. Westinghouse, Pittsburg, Pa. Rubber hose	678,850	July 16	2914	657	96	626
Couston, James, and J. Finlayson, Perth, Western Australia. Apparatus for calking and cutting pipe	680,228	Aug. 13	943	212	96	1248
Covel, Milo, Chicago, Ill. Apparatus for gold-mining	677,537	July 2	359	87	96	77
Cover, Harvey S., South Bend, Ind. Respirator	681,622	Aug. 27	3588	797	96	1819
Covert, Dor C. (See Titus and Covert.)						
Cowan, James W., Geneseo, N. Y. Dental-floss holder	677,947	July 9	1174	270	96	263
Cowan, James W., Geneseo, N. Y. Package of dental floss	678,101	July 9	1461	337	96	318
Cowan, John, Edinburgh, Scotland. Water-tube boiler	681,623	Aug. 27	3589	797, 798, 799	96	1819
Coward, Percie H., San Francisco, Cal. Obtaining salt	681,407	Aug. 27	3174	707	96	1737
Cowardin, Samuel P., Richmond, Va. Electric rail-bond	683,250	Sept. 24	2890	662	96	2499
Cowart, Laurance P., Redding, Tex. Device for measuring logs	677,948	July 9	1176	271	96	263
Cowles, Alfred H., assignor to Electric Smelting and Aluminum Co., Cleveland, Ohio. Obtaining volatile elements from their compounds	679,253	July 23	3730	833	96	809
Cowles, Alfred H., assignor to Electric Smelting and Aluminum Co., Cleveland, Ohio. Electric furnace	681,107	Aug. 20	2613	577	96	1605
Cowles, Amy M. (See Cowles, Richard R., assignor.)						
Cowles, Richard R., assignor to A. M. Cowles, Scranton, Pa. Lid for closet-seats	683,421	Sept. 24	3201	733	96	2563
Cowles, William B., assignor to Long Arm System Company, Cleveland, Ohio. Mechanism for moving armored hatches, &c	681,624	Aug. 27	3591	799	96	1819
Cowles, William B., assignor to Long Arm System Company, Cleveland, Ohio. Automatic pneumatic regulator for motors	681,625	Aug. 27	3596	799, 800	96	1821
Cowles, William B., assignor to Long Arm System Company, Cleveland, Ohio. Pneumatic indicator system	681,626	Aug. 27	3600	800, 801	96	1823
Cowley, Abbie H. (See Rencher, Dora, assignor.)						
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube apparatus	677,759	July 2	772	185, 186	96	163
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube apparatus	680,697	Aug. 20	1846	405	96	1451
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch apparatus	680,698	Aug. 20	1848	406	96	1452
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch apparatus	680,699	Aug. 20	1850	406	96	1452
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube apparatus	680,700	Aug. 20	1852	407	96	1453
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Store-service apparatus	681,040	Aug. 20	2501	554	96	1582
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube carrier	681,041	Aug. 20	2504	554	96	1583
Cowley, James T., Lowell, Mass., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube apparatus	681,108	Aug. 20	2616	577, 578	96	1606
Cowley, James T., Lowell, assignor to Planters Compress Company, Boston, Mass. Bale of fibrous material	679,831	Aug. 6	214	45	96	1085
Cowley, James T., Lowell, assignor to Planters Compress Company, Boston, Mass. Bale-staying device	679,832	Aug. 6	215	46	96	1085
Cowley, James T., Lowell, assignor to Planters Compress Company, Boston, Mass. Apparatus for baling fibrous material	679,833	Aug. 6	218	46, 47	96	1086
Cowley, James T., Lowell, Mass., assignor to American Pneumatic Service Company, Dover, Del. Pneumatic-despatch-tube apparatus	683,022	Sept. 24	2499	567, 568	96	2419
Cowley, James T., Lowell, Mass., assignor to American Pneumatic Service Company, Dover, Del. Pneumatic-despatch-tube apparatus	683,387	Sept. 24	3126	716	96	2548
Cowley, William A., Benicia, assignor to Baker & Hamilton, San Francisco, Cal. Road-cart	681,496	Aug. 27	3360	746	96	1773
Cowper-Coles, Sherard O., Westminster, England. Apparatus for use in electrodeposition of metals	680,408	Aug. 13	1269	279, 280	96	1312
Cowperthwait, Allan, and N. O. Lindstrom, New York, assignors to A. B. See and W. L. Tyler, Brooklyn, N. Y. Electric switch	677,340	July 2	14	4	96	6
Cox, Albert W., and D. M. Leland, Chicago, Ill. Refuse-burner	678,803	July 23	2943	662	96	651
Cox, E. H. (See Krohn, Gustave A., assignor.)						
Cox, Edward D., *et al.* (See Orr, Edward E., assignor.)						
Cox, Edward M., and W. Reed, Portland, Oreg. Adjustable arm for supporting telephone-receivers	681,408	Aug. 27	3177	707	96	1738
Cox, Frank P., and C. E. Holmes, Lynn, Mass., assignors to General Electric Company, of New York. Multirate meter	679,472	July 30	4188	940, 941	96	924
Cox, Frederick W., Toronto, Canada. Reflector	678,942	July 23	3111	697	96	684
Cox, James B., Chicago, Ill. Bumping-post	681,442	Aug. 27	3255	722	96	1753
Cox, Joseph L., assignor to Duplex Printing Press Company, Battlecreek, Mich. Printing-press	680,128	Aug. 6	746	165, 166	96	1193
Cox, William, assignor to J. M. and A. M. Smith, Toronto, Canada. Motor gear-case for electric cars	678,377	July 16	1995	455	96	440
Coy, Charles H., Boston, Mass. Making explosive powder	681,908	Sept. 3	475	.....	96	1900
Cozzens, Josephine M. (See Troxell, Charles C., assignor.)						
Crabtree, Charles B., Manchester, Ill. Feed-water regulator and alarm	683,251	Sept. 24	2893	663	96	2500
Crabtree, William H., Dorrance, Kans. Device for inserting inner tubes into pneumatic tires	679,217	July 23	3666	818	96	797
Craig, Alexander M., Westport, Canada. Trace-coupling	681,443	Aug. 27	3256	723	96	1754
Craig, Andrew, Lawrence, Mass. Weather-strip	679,497	July 30	4256	958	96	937
Craig, William C. (See Graham, Craig, and Shinault.)						
Craig, William D., Kansas City, Mo. Liquid-holding vessel	681,952	Sept. 3	579	121	96	1960
Cramer, Charles W., Scranton, Pa. Liquid dispensing and measuring apparatus	679,254	July 23	3732	833, 834	96	810
Crandall, Jesse A., Brooklyn, assignor to F. Raymond, Kings County, N. Y. Soup-spoon	680,648	Aug. 13	1712	376	96	1408
Crane and Breed Manufacturing Company. (See Warther, Frank, assignor.)						
Crane, Merrill C., New Bedford, Mass. Work-holder	681,199	Aug. 27	2794	620	96	1663
Crans, Francis A., Waverly, N. Y. Trolley	682,608	Sept. 17	1709	390	96	2244

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Crary, Thomas F., Middleport, Ohio. Manufacture of stovepipe-elbows, &c	677,341	July 2	15	4	96	6
Crary, William P., New York, N. Y. Acetylene-gas-generating lamp	677,400	July 2	112	25	96	26
Craven, Phinehas P., Manchester, England. Machinery for spinning, doubling, and twisting	679,416	July 30	4083	912	96	904
Crawford, John J., Winchester, Mass. Piston-packing for hydraulic presses	683,252	Sept. 24	2894	663	96	2500
Crawford, McGregor and Canby Co. (See Mattern, George W., assignor.)						
Crawford, Theron C. (See Voelker, William L., assignor.)						
Crawley Scenic and Pleasure Railway Company. (See Hosea, Lewis M., assignor.)						
Creed, John J., assignor of two-thirds to C. M. Babcock and W. A. Bell, McDonoghville, La. Draft-gear for freight-cars	680,130	Aug. 6	748	166	96	1193
Creelman, William J., assignor to General Manufacturing Company, Rochester, N. Y. Automatic regulator for smoke-preventing devices	679,455	July 30	4159	934	96	919
Cremer, Henry, Chicago, Ill. Non-refillable bottle	678,102	July 9	1463	337	96	319
Crépet, Victor, and C. J. Dumoulin, Lyons, France. Decorating plaited fabrics	678,164	July 9	1573	362	96	341
Cressy, George W. (See Westphal, Peter J., assignor.)						
Crew, William A., Salisbury, Md. Sarcophagus	677,640	July 2	554	132	96	117
Crider, Henry M., York, Pa. Lamp-stove	682,130	Sept. 3	860	193	96	2036
Crigler, John M., Saybrook, Ill. Grave-vault	680,766	Aug. 20	1975	4 3, 434	96	1480
Crim, Azro C., *et al.* (See Day and Neal, assignors.)						
Crist, Charles A., New York, N. Y. Tension device for sewing-machines	683,103	Sept. 24	2626	604	96	2446
Crites, George B., Chicago, Ill. Receptacle for sugar or other powdered or pulverized materials	679,834	Aug. 6	225	47	96	1088
Crocker, Adams, Fitchburg, Mass. Metal-working machine	679,278	July 23	3781	844, 845, 846	96	819
Crocker, Charles D., Hartford, Conn. Pilot-light	681,018	Aug. 20	2458	544	96	1574
Crocker, John H., Buffalo, N. Y. Machine for bending gutters	679,417	July 30	4084	912, 913	96	905
Crocker, Ralph W. (See Madigan and Crocker.)						
Crocker, Seth S., Bridgewater, Mass. Fountain-pen	678,547	July 16	2321	523	96	509
Croizat, Vittorio, Turin, Italy. Gas-lamp lighting or extinguishing apparatus	680,568	Aug. 13	1558	342	96	1370
Crombie, Herbert S., assignor to Jefferson Manufacturing Company, Woburn, Mass. Union-coupling	680,649	Aug. 13	1713	376	96	1408
Crompton & Knowles Loom Works. (See Hutchins, George F., assignor.)						
Crompton & Knowles Loom Works. (See Ryon, Eppa H., assignor.)						
Crompton & Knowles Loom Works. (See Wyman, Horace, assignor.)						
Crompton, William H., and W. Horrocks, Radcliffe, England. Mercerizing apparatus	680,131	Aug. 6	750	167	96	1194
Cronin, Frederick J., Utica, N. Y. Door	682,821	Sept. 10	1218	276	96	2122
Cronin, Frederick J., Utica, N. Y. Door	682,822	Sept. 10	1219	276	96	2122
Cronkite, Charles M., assignor of one-tenth to J. E. Hilliard, Lansing, Mich. Electro-magnetic safety system for railways	681,474	Aug. 27	3314	737	96	1765
Croppi, Jules C., and L. Edant, Paris, France. Apparatus for flushing water-closets, &c	679,069	July 23	3370	750, 751	96	785
Crosby Company. (See Crosby, William H., assignor.)						
Crosby, William H., assignor to Crosby Company, Buffalo, N. Y. Screw-nut	680,901	Aug. 20	2403	530	96	1563
Cross, Henry A., Camden, Me. Appliance for making plasters	679,498	July 30	4257	958	96	937
Cross, Jerome L. (See Durant, Napoleon, assignor.)						
Cross, William A., Chicago, Ill. Warehouse-door	681,958	Sept. 3	580	121	96	1980
Crossley, Albert D., South Norwalk, Conn. Trolley-wire hanger	679,953	Aug. 6	458	95	96	1182
Croswhite, William P., Clark, Mo. Wire-fence reel	678,378	July 16	1996	455	96	440
Crowe, Patrick H., Meadville, Pa. Game	682,041	Sept. 3	726	157	96	2007
Crowell, Luther C., assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Bed-motion	678,358	July 16	1953	447	96	481
Crowell, Luther C., assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Bed-motion for bed-and-cylinder printing-machines	678,476	July 16	2194	493	96	481
Crowley, William A. H., Boston, Mass. Buckle	682,586	Sept. 10	1675	381	96	2213
Crown Gold Milling Company. (See Wood, Frederick W., assignor.)						
Crowsley, Ernst A. (See Shaw-Mackenzie and Crowsley.)						
Crudginton, James F., Bridgeport, Conn. Carriage-lowering attachment for milling-machines	680,962	Aug. 20	2345	515	96	1558
Crueger, Hermann, assignor of one-half to M. N. Moorman, Jr., and E. Purcell, Jr., Roanoke, Va. Laundering-iron heater	678,165	July 9	1574	363	96	341
Cudney, Frederick, Detroit, Mich. Machine for printing paper bags	680,409	Aug. 13	1270	280	96	1312
Culbertson, Laban H., and W. Kirkpatrick, Dexter, Mo. Baling-press	681,200	Aug. 27	2796	620, 621	96	1663
Cummings, James, assignor of one-half to J. M. Hally, Victor, Colo. Bridge-gate	682,532	Sept. 10	1570	356, 357	96	2193
Cummings, Thaddeus L., Hagerty, Iowa. Band-cutter and feeder for threshing-machines	682,042	Sept. 3	727	157	96	2008
Cumms, Frank F., Rutland, Vt. Leather-working machine	682,915	Sept. 17	2301	519, 520	96	2359
Cunningham, John J., assignor to Gurney Foundry Company, Limited, Toronto, Canada. Water-heater for range-boilers	679,552	July 30	4359	979	96	960
Cunningham, Levi G., Shellrock, Iowa. Galvanic battery	677,955	July 9	1187	274	96	265
Curley, John L., Hamilton, Ohio. Thill-coupling	681,844	Aug. 20	2134	467	96	1509
Curley, Percy G., Charlestown, Mass. Fastener for car-doors	682,242	Sept. 10	1079	243	96	2096
Currier, Arthur, and A. B. Dodge, assignors to Dodge Needle Company, Manchester, N. H. Machine for inserting latch-pivots into latch-needles	682,533	Sept. 10	1571	357, 358	96	2193
Curtain Supply Company. (See Forsyth, George H., assignor.)						
Curtis, Frank C., assignor to Sturgess Governor Engineering Company, Troy, N. Y. Speed-regulator	680,701	Aug. 20	1854	407	96	1453
Curtis, Georgianna E., Auburn, N. Y. Curtain-fixture	681,201	Aug. 27	2797	621	96	1663
Curtis, Henry B., Leyton, England. Child's convertible chair and go-cart	682,916	Sept. 17	2304	520, 521	96	2360
Curtis, Henry E., New York, assignor to Yost Writing Machine Company, Ilion, N. Y. Type-writing machine	679,954	Aug. 6	455	95, 96	96	1183
Curtis, Lucius H., Salt Lake City, Utah. Stove or furnace	681,444	Aug. 27	3257	723	96	1754
Curtis, Nelson, Boston, Mass. Valve	679,456	July 30	4162	935	96	919
Curtis, Nelson, Boston, Mass. Reducing-valve	683,388	Sept. 24	3130	717	96	2550
Curtis, Omar M., Wolcott, N. Y. Furnace	682,673	Sept. 17	1819	417	96	2265
Curtis, Timothy A., Newark, N. J. Machine for threading tape into edgings	680,475	Aug. 13	1383	302	96	1335
Curts, William H., Michle, Mich. Cap for wagon-poles	681,875	Sept. 3	409	82	96	1947
Cuscaden, George W., C. F. Klotz, and H. A. Cuscaden, Louisville, Ky. Machine for molding ice-cream	682,243	Sept. 10	1079	244	96	2096
Cuscaden, Harry A. (See Cuscaden, Klotz, and Cuscaden.)						
Cushing, John J. (See Hauss, David J., assignor.)						
Cushing, Joseph L., Lowell, Mass. Emergency-brake	682,457	Sept. 10	1454	329, 330	96	2169

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cushman, Edward S., Centerville, Iowa. Cooling-can	681,876	Sept. 3	410	83	96	1947
Cutcheon, Frederick R. M., St. Paul, Minn. Timed electric switch for multiple-rate meter systems	680,316	Aug. 13	1092	242, 243	96	1278
Cuthbertson, William B., New Brighton, Pa. Rotary explosive-engine	677,949	July 9	1177	271, 272	96	263
Cutrer, John W., Clarksdale, Miss. Record	678,229	July 9	1692	388	96	365
Cutter, Charles W., Denver, Colo. Dust-pan	677,950	July 9	1179	272	96	264
Cutter, Harriet F., executrix. (See Robinson, Frederick F.)						
Cutting, Frederick C., Rochester, N. Y., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-despatch-tube apparatus	681,042	Aug. 20	2505	555	96	1583
Cutting, John T., New York, N. Y. Tobacco-box	681,627	Aug. 27	3604	801	96	1823
Cutts, Charles C., *et al.* (See Reese, Henry D., assignor.)						
Cuzner, George J., assignor to Hoover & Gamble Company, Miamisburg, Ohio. Spinning-machine	681,628	Aug. 27	3605	802	96	1824
Cyphers, Lawrence C., Pittsburg, Pa. Rail-joint	681,043	Aug. 20	2507	555	96	1584
D. M. Sechler Carriage Company. (See Englund, Ernst E., assignor.)						
D'Olier, Henry, Jr., Philadelphia, Pa. Carbon break for electric switches	681,112	Aug. 20	2624	580	96	1608
Daemicke, Paul J., Chicago, Ill. Refrigerator	678,612	July 16	2467	553	96	537
Daggett, Daniel, Lexington, Nebr. Calf-weaner	683,104	Sept. 24	2628	604	96	2446
Dahl, Louis, Mineral, Tex. Attachment for suspenders	682,043	Sept. 3	729	158	96	2008
Dahlhaus, Charles A., Brazil, Ind. Vehicle-axle	681,629	Aug. 27	3607	802	96	1824
Dain, Joseph, Jr., assignor to Dain Manufacturing Company, Carrollton, Mo. Hay-loader.	681,778	Sept. 3	240	46, 47	96	1913
Dain Manufacturing Company. (See Dain, Joseph, Jr., assignor.)						
Daisy Manufacturing Co. (See Hamilton, Clarence J., assignor.)						
Daley, Owen, assignor to United States Steel Lock Company, Lyons, Iowa. Knob	678,458	July 16	2151	485	96	471
Dalton, Richard, Wilmette, Ill. Excavating apparatus	677,538	July 2	361	87, 88, 89	96	78
Dalumi, Julius A., New York, N. Y. Sign	682,177	Sept. 10	950	214	96	2073
Dancyger, Simon. (See Schmidt, Theodore, assignor.)						
Dangler, Charles L., Cleveland, Ohio. Combined heating and igniting attachment	678,645	July 16	2541	569, 570	96	552
Daniel, Jacob H., Owensboro, Ky. Harvester	679,255	July 23	3736	834	96	810
Daniels, William H., Duluth, Minn. Grain-car door	680,132	Aug. 6	751	167	96	1194
Danielson, Ernst, Stockholm, Sweden. Rotor for alternating-current generators	678,646	July 16	2544	570	96	552
Darling, Edwin E., Anaconda, Mont. Electric brake-release	680,317	Aug. 13	1095	243, 244	96	1278
Darling, Rolla R., Cleveland, assignor to Beardsley & Hubbs Manufacturing Company, Mansfield, Ohio. Power-transmitting mechanism	679,365	July 30	3987	891	96	883
Darling, Rolla R., Cleveland, assignor to Beardsley & Hubbs Manufacturing Company, Mansfield, Ohio. Motor-vehicle	679,366	July 30	3989	891	96	884
Darling, Rolla R., Cleveland, assignor to Beardsley & Hubbs Manufacturing Company, Mansfield, Ohio. Gas-engine	679,367	July 30	3990	892	96	884
Darling, Truman A., Anaheim, Cal. Can-opener	679,695	July 30	4454	1000	96	980
Darlington, Philip J., Montreal, Canada. Electric generator or motor	683,253	Sept. 24	2895	663, 664	96	2500
Darnell, Rowland J., Memphis, Tenn. Machine for making wire bale-tie loops	677,956	July 9	1188	274	96	265
Darrah, James N. (See Melen, Charles F., assignor.)						
Dart, Fred W., *et al.* (See Mettler, Caspar W. and A., assignors.)						
Dart, Joseph, *et al.* (See Mettler, Caspar W. and A., assignors.)						
Dauchey, Hawley W. (See Carnes, James W., assignor.)						
Davenport, Arthur B., Jr., assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Casting-clamp for track structures	678,166	July 9	1576	363	96	341
Davenport, William S., New Bedford, Mass. Metal-working machine	681,845	Sept. 3	353	71, 72	96	1936
Davidson, Ezekiel. (See Goughnour, George R., assignor.)						
Davidson, Samuel C., Belfast, Ireland. Rotary fan and pump	679,499	July 30	4259	958, 959	96	937
Davidson, Samuel C., Belfast, Ireland. Centrifugal fan	681,389	Aug. 27	3153	702	96	1733
Davidson, Samuel C., Belfast, Ireland. Furnace	682,674	Sept. 17	1820	417, 418, 419	96	2265
Davie, Pascal. (See Froehling, Henry, assignor.)						
Davis, Albert D., Yonkers, N. Y. Focusing-hood for cameras	677,501	July 2	292	72, 73	96	63
Davis, Albert G., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric meter	677,967	July 9	1191	275	96	267
Davis, Albert G., and W. B. Potter, Schenectady, N. Y., assignors to General Electric Company, of New York. Means for controlling electric motors	678,167	July 9	1577	363	96	341
Davis, Augustine, assignor to Carbolite Construction Company, Chicago, Ill. Gas-holder.	680,199	Aug. 6	883	196	96	1221
Davis, Calvin R., assignor to South Bend Iron Works, South Bend, Ind. Disk plow	682,244	Sept. 10	1081	244	96	2097
Davis, Calvin R., assignor to South Bend Iron Works, South Bend, Ind. Plow	682,587	Sept. 10	1677	381	96	2214
Davis Chair Company. (See McCloud, Smith N., assignor.)						
Davis, Della, Guthrie, Okla. Ter. Mixing apparatus	680,229	Aug. 13	945	212	96	1248
Davis, Elmino D., Chicago, Ill. Animal-trap	681,497	Aug. 27	3362	746	96	1772
Davis, Frank E., La Crosse, Wis. Cultivator	678,108	July 9	1464	337, 338	96	319
Davis, Frederick G., Chicago, Ill. Manufacture of vehicle-tires	680,569	Aug. 13	1556	342	96	1370
Davis, George. (See Springer and Davis.)						
Davis, George A., assignor to Stow & Davis Furniture Company, Grand Rapids, Mich. Extension-table	678,834	July 16	2885	651	96	620
Davis, George W., Tiffin, Ohio, and D. C. Ripley, assignors to United States Glass Company, Pittsburg, Pa. Apparatus for forming stems on articles of glassware	681,530	Aug. 27	3414	757	96	1784
Davis, Guy W., Portland, Me. Water-still	678,230	July 9	1694	388	96	365
Davis, Herbert P., assignor to G. P. Gehring, West Philadelphia, Pa. Wireless telegraphy	682,974	Sept. 17	2406	545	96	2380
Davis, James W., Traverse City, Mich. Clothes-drier	679,606	July 30	4456	1000	96	981
Davis, John C., Kansas City, Mo. Compress	678,943	July 23	3112	697	96	684
Davis, John H., assignor to United States Graphite Company, Glens Falls, N. Y. Graphite-separator	679,473	July 30	4190	941	96	924
Davis, John T., San Francisco, Cal. Briqueting-machine	678,359	July 16	1957	448	96	432
Davis, Joseph C. (See Gillespie and Davis.)						
Davis, Miles L., Lancaster, Pa. System of water filtration and purification	677,641	July 2	556	133	96	117
Davis, Morgan, Jr. (See Devers, William J., assignor.)						
Davis, Nathan H., Philadelphia, Pa. Truss	678,379	July 16	1998	455	96	440
Davis, Nathan H., Philadelphia, Pa. Truss	678,380	July 16	1999	455	96	441
Davis, Samuel. (See Thomas, Chauncey T., assignor.)						
Davis, Samuel, New York, N. Y. Miner's-lamp support	680,133	Aug. 6	753	167	96	1195

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Davis, Samuel M., San Francisco, Cal. Adjustable invalid's table	679,667	July 30	4557	1025	96	1002
Davis, William M., Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company. Telephone-exchange system	679,731	Aug. 3	26	8	96	1048
Davis, Wilishire M., Springfield, Mo. Electric belt	682,380	Sept. 10	1311	295	96	2140
Davisson, Benjamin R., Duarte, Cal. Pipe-mold	683,389	Sept. 24	3132	717	96	2550
Daw, Zacharias W., London, England. Valve mechanism for engines for compressing air or gases	679,955	Aug. 6	458	96, 97	96	1184
Dawley, Daniel D., assignor to Payton & Kelley Co., Providence, R. I. Button or stud	678,477	July 16	2197	498	96	482
Dawsey, Hayden, Merom, Ind. Press	678,548	July 16	2322	523	96	509
Dawson, Arthur T., and G. T. Buckham, Westminster, assignors to Vickers, Sons & Maxim, Limited, Sheffield, England. Percussion firing-gear for breech-loading ordnance	681,109	Aug. 20	2619	578, 579	96	1607
Dawson, Arthur T., and G. T. Buckham, London, assignors to Vickers Sons & Maxim, Limited, Sheffield, England. Breech mechanism for breech-loading ordnance	681,531	Aug. 27	3415	757, 758	96	1785
Dawson, Thomas, Salem, assignor of three-fourths to W. L. Wood, Beverley, Mass. Leather-seasoning machine	681,651	Aug. 27	3657	819, 820	96	1834
Dawson, Thomas, Salem, assignor, by mesne assignments, to D. W. Murphy, Beverly, Mass. Leather-staking machine	681,909	Sept. 3	477	97	96	1960
Dawson, William R., assignor of one-half to R. S. Guess, Augusta, Ga. Cleaning attachment for rakes	677,774	July 2	807	193	96	171
Day, Francis, Brixton, England. Till	680,964	Aug. 20	2350	516	96	1553
Day, Sherman P., and C. E. Neal, assignors of one-half to J. M. Meloy and A. C. Crim, Sellersburg, Ind. Track-fastening	677,342	July 2	18	4	96	6
Day, Shubael T., and D. S. Hall, Denison, Iowa. Chalk-holder	680,702	Aug. 20	1858	407	96	1454
Day, William A., assignor to Gorham Manufacturing Company, Providence, R. I. Metal article	679,218	July 23	3667	818	96	797
Day, William C., Rumford Falls, assignor to G. W. Ridlon, West Paris, Me. Lock and latch	682,975	Sept. 17	2408	545	96	2381
De Carlo, Emilio, Triest, Austria-Hungary. Pipe-stopper	682,045	Sept. 3	732	158	96	2009
De Croes, Clement, Westport, Ind., assignor to B. Baer, Paxton, Ill. Voting-machine. (Reissue)	11,933	Sept. 24	3212	735	96	2566
De Forest, Albert T., *et al.* (See Martin, Thomas H., assignor.)						
De Kaiser, Isaac, Pittsburg, and C. W. Hadfield, Braddock, Pa., assignors to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Mica-splittiug machine	677,775	July 2	808	193	96	171
De Kandó, Koloman, Budapest, Austria-Hungary. Electrical contact apparatus	680,134	Aug. 6	751	168	96	1195
De La Mater, Frank L. (See Gernsey, William W., assignor.)						
De Long, Frank E., Philadelphia, Pa. Paper-fastener	680,026	Aug. 6	577	120	96	1157
De Man, Alphonse, Detroit, Mich. Fire-resisting door and door-frame	680,912	Aug. 20	2256	496	96	1534
De Mayo, Joseph, Mount Vernon, N. Y. Coat	678,696	July 23	3211	719	96	704
De Witt, Emil F., Lansingburg, N. Y. Device for applying sand to railway-rails	677,833	July 2	926	220	96	194
De Witt, John I., Bluffton, Ind. Plow	680,651	Aug. 13	1716	377	96	1408
De Zeng, Henry L., Jr., assignor to Cataract Tool and Optical Company, Buffalo, N. Y. Telescopic mounting for guns	681,302	Aug. 27	2798	621	96	1604
Deaderick, John G. (See Mallory, Deaderick, and Ullathorne.)						
Dean, Alexander. (See Oviatt and Dean.)						
Dean, Charles H., assignor to Stall and Dean Manufacturing Company, Brockton, Mass. Base-ball mitt	677,958	July 9	1193	275	96	267
Dean Company, G. A. (See Smith, Noyes J., assignor.)	683,422	Sept. 24	3202	734	96	2563
Dean, Cyrus S., Fort Erie, Canada. Danger-signal for railways	682,044	Sept. 3	730	158	96	2008
Dean, George W., Fort Erie, Canada, assignor of one-half to G. B. Nye, Buffalo, N. Y. Scale-removing device	679,553	July 30	4360	979	96	960
Dearborn, Charles A., New York, N. Y. Feeding mechanism for sewing-machines	682,458	Sept. 10	1456	330	96	2169
Deck, Alfred, Franklin Township, Montgomery County, Ind. Telephone-protector	681,688	Sept. 3	19	6	96	1868
Deck, Henry, assignor to J. Braun & Sons, Philadelphia, Pa. Adjustable ball-bearing						
Decker, Abram I. (See Stone, Peter J., assignor.)						
Decker, Frederick S. (See Smith, Lowndes G., assignor.)						
Deckert, Harry C., assignor to M. C. Wetmore Tobacco Company, St. Louis, Mo. Package	677,642	July 2	558	133	96	118
Decroly, Raphaël, Renaix, Belgium. Beehive	680,025	Aug. 6	573	124, 125	96	1157
Dederick, Peter K., Loudonville, N. Y. Baling-press	679,732	Aug. 6	28	8, 9	96	1049
Deere & Company. (See Poole, Staley D., assignor.)						
Deere & Mansur Company. (See Hunt, Wilson P., assignor.)						
Deering Harvester Company. (See Packer, George W., assignor.)						
Deering Harvester Company. (See Ryther, Frank A., assignor.)						
Deering Harvester Company. (See Shively, Joseph M., assignor.)						
Deering Harvester Company. (See Stone, John A., assignor.)						
Deering, William. (See Ellis, George H., assignor.)						
Defiance Machine Works. (See Ensign, George A., assignor.)						
Defiance Machine Works. (See Seymour, Charles, assignor.)						
Dekin, Albert A., Glenfield, N. Y. Excelsior-making machine	688,199	Sept. 24	2779	640, 641	96	2475
Del Manzo, Ernest, assignor to Wisconsin Malleable Iron Company, Milwaukee, Wis. Tie-plate	680,767	Aug. 20	1977	434	96	1480
Delaney, Henry J., Milwaukee, Wis. Painting-machine	677,843	July 2	19	5	96	6
Delattre, Jules, Dorignies-Flers, France. Apparatus for purifying water	680,992	Aug. 20	2405	531	96	1568
Delavan, Willard M., Pittsfield, Mass., and W. L. Fenn, Hartford, Conn. Voting-machine	678,825	July 16	2886	651, 652	96	621
Delehanty, William E., Troy, N. Y. Connection for pipes	682,046	Sept. 3	734	159	96	2009
Delfos, Cornelis F., Pretoria, South African Republic. Crushing or pulverizing machine	680,650	Aug. 13	1714	376	96	1408
Delin, Andre, Everett, Mass. Combination-tool for squaring purposes	683,254	Sept. 24	2898	664	96	2501
Delius, George. (See Tatro and Delius.)						
Delivouk, Louis. (See George and Delivouk.)						
Demarest, Charles S. (See Root and Demarest.)						
Demmler, Albert J., Wellsville, Ohio. Annealing-box	682,404	Sept. 10	1358	306	96	2149
Demmler, Albert J., Wellsville, Ohio. Annealing-box	682,459	Sept. 10	1457	330	96	2169
Demorest, William H., Jr., New York, N. Y. Stone-carrier	678,944	July 23	3113	697	96	684
Dempster, John T. H., Schenectady, N. Y., assignor to General Electric Company, of New York. Coil-retaining device	678,864	July 23	2944	662	96	651
Denckla, Nelsine P., Denver, Colo. Cloth folding and holding device	678,945	July 23	3114	698	96	685
Denes, John, assignor of one-half to S. Slesinger, Wilmington, Del. Sliding-door fastener	682,675	Sept. 17	1825	419	96	2266
Denis, George A., Philadelphia, Pa. Soldering-iron	680,519	Aug. 13	1478	336	96	1355
Denmead, James H., Westpoint, Va., assignor of one-half to H. E. Stanford, New York, N. Y. Bottle stopper and seal	680,476	Aug. 13	1388	302	96	1336
Dennis, Felix H., Merkel, Tex. Baling-press	680,410	Aug. 13	1272	280	96	1313

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dennison Manufacturing Company. (See Mussinan, Oscar, assignor.)						
Densmore Typewriter Company. (See Barron, Walter J., assignor.)						
Dental Manufacturing Company. (See Williams, James L., assignor.)						
Denton, John, Paterson, N. J. Valve for water-closets	679,368	July 30	3991	892	96	884
Denton, John, Paterson, N. J. Flush-tank valve	681,302	Aug. 27	3016	668	96	1707
Denton, Sherman F., Wellesley, Mass. Display-mount	681,110	Aug. 20	2620	579	96	1607
Denzer, Frederick E., and J. Hullt, Hood River, Oreg. Bicycle coaster-brake	682,976	Sept. 17	2410	546	96	2381
Deppe, Nelson R., Maysville, N. C. Lumber-jack	680,230	Aug. 13	946	213	96	1248
Deppe, Nelson R., Maysville, N. C. Lumber-jack	680,231	Aug. 13	947	213	96	1249
Depriest, William D. (See Bright and Depriest.)						
Derby, Walter N., Lyna, N. H. Extension-ladder	678,549	July 16	2323	523	96	509
Dercum, Herman J., trustee. (See Shinn, Albert J., assignor.)						
Desberon Motor-Car Co. (See Birdsall, Edward T., assignor.)						
Deschambault, Aquila, Marshall, Minn. Water-tank	677,959	July 9	1194	275	96	207
Deschamps, Joseph, Hazelhurst, Pa. Quick water-heating device	680,027	Aug. 6	578	126	96	1157
Desgrez, Alexandre, and V. Balthazard, Paris, France. Apparatus for regenerating and purifying air	680,028	Aug. 6	579	126	96	1158
Desnoyers, Patrice, Magog, Canada. Shears or scissors	683,105	Sept. 24	2930	604	96	2446
Detroit Motor Works. (See Hardy, Roy E., assignor.)						
Detweiler, Joshua B., Nappanee, Ind. Step-ladder	680,318	Aug. 13	1097	244	96	1278
Deulin, Fernand E., Jeannette, Pa. Frying-pan	681,044	Aug. 20	2568	555	96	1584
Deutsch, John H., assignor of one-half to M. Busch, Dallas, Tex. Piano attachment	677,890	July 9	981	231	96	226
Deutsche Gold & Silber Scheide Anstalt vorm. Roessler. (See Pfleger, Johannes, assignor.)						
Devaney, Charles S., Brooklyn, N. Y. Toy	680,703	Aug. 20	1859	408	96	1454
Devantery, Joseph, assignor to Locomobile Company of America, New York, N. Y. Pump	677,776	July 2	810	194	96	171
Devers, William J., assignor of one-half to M. Davis, Jr., Scranton, Pa. Rail-joint	679,956	Aug. 6	462	97	96	1135
Devine, William P., Boston, Mass., assignor to Consolidated Fastener Company, Portland, Me. Stud for fasteners	680,373	Aug. 13	1268	266	96	1298
Devoe, Arnot K., Boston, Mass. Filing-spindle	678,721	July 16	2667	601	96	576
Dexter Folder Company. (See Dexter, Talbot C., assignor.)						
Dexter, Talbot C., Pearl River, N. Y. Feed-gage for printing-presses	680,966	Aug. 20	2353	517 518	96	1554
Dexter, Talbot C., Pearl River, N. Y. Automatic protector for printing-presses	680,967	Aug. 20	2356	518 519	96	1554
Dexter, Talbot C., Pearl River, N. Y. Device for controlling the action of printing-presses	681,445	Aug. 27	3258	723 724 725	96	1754
Dexter, Talbot C., Pearl River, N. Y. Automatic guard for printing-presses	681,954	Sept. 3	581	122 123	96	1961
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, Pearl River and New York, N. Y. Device for cutting register slits or openings in printed sheets	679,219	July 23	3667	818	96	798
Dey, James G. S., Syracuse, N. Y. Garment	681,955	Sept. 3	584	123	96	1961
Diamond Match Company. (See Andrews, Charles B., assignor.)						
Dibbens, Ernest A., assignor to C. G. Fawkes, Denver, Colo. Resilient or elastic tire	682,977	Sept. 17	2412	546	96	2382
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Stencil-printing machine	679,140	July 23	3517	786 787	96	766
Dick, Emil, Baden, Austria-Hungary. System of electrically lighting railway-carriages	682,978	Sept. 17	2413	546 547	96	2382
Dick, Harry C., Philadelphia, Pa. Hat-protector	679,111	July 23	3464	773	96	754
Dickenson, Richardson W., Sioux Falls, S. D. Index-cabinet	681,409	Aug. 27	3180	708	96	1738
Dickerson, Edmund A. (See Krises, Joseph, assignor.)						
Dickerson, Edward N. (See Roberts, Isaiah L., assignor.)						
Dickerson, Edward N., *et al.* (See Kendall, Edward D., assignor.)						
Dickerson, Edward N., Stovall, N. C. Self-starting explosive-engine	681,111	Aug. 20	2622	579 580	96	1607
Dickerson, Edwin N., New York, N. Y. Acetylene-gas burner	678,550	July 16	2325	524	96	509
Dickerson, William M., Indianapolis, Ind. Saw-set	680,282	Aug. 13	948	213	96	1249
Dickey, Marion F., Pendletonville, Tex. Wireworking-tool	682,604	Sept. 17	1710	390	96	2244
Dickinson, Arthur L., Binghamton, N. Y. Tabulating-scale	681,630	Aug. 27	3008	802	96	1824
Dickinson, Charles. (See Drew and Dickinson.)						
Dickinson, Joseph H. (See Miller and Dickinson.)						
Dickson, Edward, assignor to Robin Hood Powder Company, Swanton, Vt. Explosive	678,890	July 16	1961	------	96	433
Dieckmann, Ferdinand, Cincinnati, Ohio. Elbow-forming machine	678,946	July 23	3117	698	96	685
Diedrich, Ernst, Hamburg, Germany. Blind for the eyes of animals	680,673	Aug. 13	1762	388	96	1413
Diehl, Philip, and A. Grieb, Elizabeth, N. J., assignors to Singer Manufacturing Company of New Jersey. Circularly-moving-hook sewing-machine	678,947	July 23	3119	698 699	96	686
Diehl, Philip, and M. Hemleb, Elizabeth, N. J., assignors to Singer Manufacturing Company, of New Jersey. Alternating pressers for sewing-machines	681,684	Sept. 3	21	6	96	1868
Diescher, Samuel, Pittsburg, Pa., assignor to South Bend Iron Works, South Bend, Ind. Grinding-machine	678,865	July 23	2945	662 663 664	96	651
Diesel Motor Company of America. (See Scott, Walter W., assignor.)						
Dieterich, Fred G., Washington, D. C. Formaldehyde-generator	677,643	July 2	359	133 134	96	118
Dietrich, Robert, Merseburg, Germany. Separator for cellulose	681,498	Aug. 27	3363	746	96	1773
Dietz, Conrad, Cincinnati, Ohio. Mechanical movement	678,459	July 16	2152	486	96	471
Diggins, Alexander J., Harvard, Ill. Vehicle-body	679,369	July 30	3994	893	96	884
Dille, John V., assignor of one-half to H. G. Helfinger, Kansas City, Mo. Combined dust-pan and broom-holder	681,303	Aug. 27	3017	669	96	1707
Dillingham, Frank, *et al.* (See Wolfe, Andrew C., assignor.)						
Dillow, George W. (See Miller, John W., assignor.)						
Dimmick Concentrating Company. (See Dimmick, Joseph O., assignor.)						
Dimmick, Jacob K., Philadelphia, Pa. Apparatus for forming pipe-molds	683,255	Sept. 24	2899	665	96	2501
Dimmick, Joseph O., assignor to Dimmick Concentrating Company, Denver, Colo. Ore sizer and classifier	678,551	July 16	2326	524	96	509
Dion, Léon, Boston, Mass. Electric-traction road	681,410	Aug. 27	3181	708	96	1739
Dion, Léon, Boston, Mass. Electric-traction road	682,381	Sept. 10	1313	296	96	2141
Dion, Léon, Boston, Mass., assignor to Electrical Safety Traction Company, of West Virginia. Electric-traction road	680,704	Aug. 20	1860	408	96	1454
Diss, Louis P., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	678,552	July 16	2327	524	96	510
Diss, Louis P., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	681,846	Sept. 3	360	72	96	1987
Distelhurst, George E., Berwick, Pa. Display-rack for mattresses, &c	680,965	Aug. 20	2352	517	96	1553
Dixon, Frederic E. (See Jones, Albert P., assignor.)						
Dixon, Henry L. (See Mount, Lambton J., assignor.)						
Dixon, Richard B., Toronto, Canada. Ball-caster	682,047	Sept. 3	734	159	96	2009

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dixon, Thomas, assignor of one-half to J. H. and J. W. Albig, McKeesport, Pa. Lubricator and heater	680,570	Aug. 13	1557	842	96	1371
Doan & Gates Company. (See Ellis, Charles S., assignor.)						
Doan, John M., assignor of one-half to E. W. Synwolt, Mishawaka, Ind. Tire	682,917	Sept. 17	2306	521	96	2360
Doane, Samuel E., Marlboro, Mass. Electrical coulomb-meter	680,233	Aug. 13	949	214	96	1249
Dobbin, Clarence E. (See Freeman and Dobbin.)						
Dobell, John L., Harlesden, England. Diaphragm for electric batteries	681,582	Aug. 27	3417	------	96	1785
Dobler, Charles J., New York, N. Y. Barrel-washing machine	678,613	July 16	2473	554	96	539
Dock, Herman, Philadelphia, Pa. Center-grinder attachment for lathes	680,845	Aug. 20	2135	467	96	1510
Dockery, Mattie F., Whitewater, Wis. Number-chart	680,411	Aug. 13	1276	281	96	1313
Dodge, Avery B. (See Currier and Dodge.)						
Dodge, Charles H. (See McDowell, James L., assignor.)						
Dodge, Henry A., and W. Wilson, assignors to Campbell Bosworth Machinery Company, Boston, Mass. Throat-plate for sewing-machines	681,956	Sept. 3	585	123	96	1982
Dodge Needle Company. (See Currier and Dodge, assignors.)						
Dodson, Harry E., and L. C. Evans, assignors to P. P. Mast & Company, Springfield, Ohio. Grain-drill	677,564	July 2	424	101	96	90
Dodson, Roy, Dallas, Tex. Hame-fastener	679,418	July 30	4087	913	96	905
Doeppe, Charles L. A. (See Millhiser and Doeppe.)						
Dolan, Edward J., Philadelphia, Pa. Acetylene-gas burner	678,553	July 16	2330	525	96	511
Dolan, James J., Sandwich, Ill., assignor to Sandwich Manufacturing Co., of Illinois. Tank-heater	679,554	July 30	4364	980	96	961
Dolling, Raphael S., Swayzee, Ind. Filler for packing-cases	678,647	July 16	2546	570	96	553
Dollinger, George W., assignor of one-half to M. P. Brumbaugh, Altoona, Pa. Nut-lock	681,475	Aug. 27	3317	737 738	96	1765
Dominguez, Manuel F., Philadelphia, Pa. Cigar-box	681,685	Sept. 3	22	7	96	1869
Donahue, William M., Lindsey, Pa. Track-rail connection	682,918	Sept. 17	2307	521	96	2360
Donaldson, Edwin. (See Ross and Donaldson.)						
Donaldson, William R., *et al.* (See Worth, William O., assignor.)						
Donnelly, George B., assignor of one-half to T. J. Peden, Chicago, Ill. Clamp for railway-frogs	682,196	Sept. 3	872	195	96	2087
Donnelly, John R. (See Brown and Donnelly.)						
Donner, Carl, Frankfort-on-the-Main, Germany. Machine for removing down or pullings from fur or pelts	679,835	Aug. 6	226	47	96	1088
Donovan, Ernest E., assignor to E. B. Story, North Grafton, Mass. Temporary fastener for shoes	677,589	July 2	367	89	96	79
Donovan, Timothy J., Milton, Mass. Glass-cutting apparatus	683,023	Sept 24	2501	568	96	2420
Dool, Edward. (See Bowers and Dool.)						
Dooley, Harry L., Rock Island, Ill., assignor to H. D. Macdona, New York, N. Y. Dropping mechanism for corn-planters	682,178	Sept. 10	951	214 215	96	2074
Dooley, Thomas B., Malden, assignor to E. D. Wiggin, trustee, Boston, Mass. Equalizing mechanism for vehicle-wheels	677,401	July 2	114	25	96	26
Dooley, Thomas B., Malden, assignor to E. D. Wiggin, trustee, Boston, Mass. Preliminary vaporizer for hydrocarbon-burners	677,402	July 2	114	25	96	26
Doolittle, John F., assignor to Cleveland Punch and Shear Works Company, Cleveland, Ohio. Punching and shearing machine	677,644	July 2	564	134 135	96	119
Doré, Edwin S., and G. Evanovitch; said Evanovitch assignor to L. A. Evanovitch, London, England. Motor-vehicle	683,200	Sept. 24	2781	641	96	2476
Doremus, Willard D., assignor to Rex Cigar Vending Company, Washington, D. C. Vending-machine	682,792	Sept. 17	2070	469	96	2313
Dorion, John H., Springfield, Mass. Support and take-up device for cable-suspended electric lamps	679,607	July 30	4457	1001	96	981
Dorn, Charles I., Bardsdale, Cal. Sand-line and pump or bailer connection	679,889	Aug. 6	329	70	96	1109
Dorrestein, C. A., administrator. (See Allison, Samuel B., assignor.)						
Dorricott, John. (See Cooper and Dorricott.)						
Dougherty, John C., Long Valley, Pa. Automatic journal-protecting device	677,960	July 9	1195	276	96	207
Dougherty, William M. (See Snail and Dougherty.)						
Douglas, George W., assignor to Market Street Railway Company, San Francisco, Cal. Railway-car	677,961	July 9	1196	276	96	208
Douglas, George W., assignor to Market Street Railway Company, San Francisco, Cal. Track-brake for railway-cars	677,962	July 9	1197	276 277	96	208
Douglass, Benjamin B., Mountaingrove, Mo. Holder	682,605	Sept. 17	1712	390	96	2244
Douthat, Christian S., Riffemead, Va. Grubber	682,048	Sept. 3	736	159	96	2009
Dove, Lionel, London, England. Permutation-padlock	679,419	July 30	4088	913	96	905
Dow, Fred F., *et al.* (See Walsh, William A., assignor.)						
Dowman, George, Atlanta, Ga. Cowl	681,877	Sept. 3	411	83	96	1947
Downen, William M., St. John, Cal. Plow attachment	680,846	Aug. 20	2137	468	96	1510
Downes, Louis W., Providence, R. I. Electric fuse or cut-out	680,968	Aug. 20	2360	519	96	1555
Downes, Louis W., Providence, R. I. Electric fuse	682,919	Sept. 17	2309	522	96	2360
Downing, James, and H. G. Willetts, Pittsburg, Pa. Furnace	682,843	Sept. 17	2177	491	96	2334
Doyle, Henry. (See Jones, William T., assignor.)						
Doyle, Percy, *et al.* (See Jackson, Hampton E., assignor.)						
Drake, Bernard M., assignor of one-half to Nernst Electric Light, Limited, London, England. Incandescent electric lamp	677,440	July 2	196	48	96	43
Drake, Ira C., Orting, Wash. Hasp-lock	682,170	Sept. 10	955	215	96	2074
Draper, Clare H., assignor to Draper Company, Hopedale, Mass. Thread-parting mechanism for looms	6-8,423	Sept. 24	3205	734 735	96	2564
Draper Company. (See Arnold, Charles H., assignor.)						
Draper Company. (See Bentley, Thomas, assignor.)						
Draper Company. (See Chapman, Robert J., assignor.)						
Draper Company. (See Draper, Clare H., assignor.)						
Draper Company. (See Draper, George O., assignor.)						
Draper Company. (See Draper and Roper, assignors.)						
Draper Company. (See Hyde, Kirkley, assignor.)						
Draper Company. (See Janelle, Oscar, assignor.)						
Draper Company. (See Lane and Aumann, assignors.)						
Draper Company. (See Marcy, Frank M., assignor.)						
Draper Company. (See Northrop, James H., assignor.)						
Draper Company. (See Northrop, Jonas, assignor.)						
Draper Company. (See Phelps, Leonard M., assignor.)						
Draper Company. (See Roper, Charles F., assignor.)						
Draper Company. (See Stimpson, Edward S., assignor.)						
Draper, George O., assignor to Draper Company, Hopedale, Mass. Filling-carrier for loom-shuttles	682,584	Sept. 10	1578	358	96	2195
Draper, William F., and C. F. Roper, Hopedale, Mass., assignors to Draper Company, Hopedale, Mass., and Portland, Me. Loom	678,294	July 9	1821	420	96	389

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Dreeben, Israel L. (See Haltom, Samuel, assignor.)						
Dreman, Edward F., Cleveland, Ohio. Fabric-twisting machine	682,245	Sept. 10	1084	245	96	2097
Dressler, Henry W., Cincinnati, Ohio. Jacketed vessel	678,460	July 16	2158	486	96	471
Drew, George F., Brunswick, and C. Dickinson, Lisbon Falls, Me. Means for cooling calender-rolls	680,135	Aug. 6	755	168	96	1195
Drewett, Thomas J. C., London, England. Flong for stereomolds	678,381	July 16	2000	.....	96	441
Dreyfus, Louis. (See Hauser, Josef, assignor.)						
Driefer, Conrad L., San Francisco, Cal. Saw-set	678,648	July 16	2547	570	96	558
Driggs, Louis L., New York, N. Y., assignor of one-half to W. H. Driggs, Washington, D. C. Parapet-mount for guns	679,112	July 23	3465	773 / 774	96	754
Driggs, Louis L., New York, N. Y., assignor of one-half to W. H. Driggs, Washington, D. C. Mount for field artillery	679,113	July 23	3468	774 / 775	96	755
Driggs, Louis L., New York, N. Y., assignor of one-half to W. H. Driggs, Washington, D. C. Firing mechanism for breech-loading ordnance	679,114	July 23	3472	776	96	756
Driggs, Louis L., New York, N. Y., assignor of one-half to W. H. Driggs, Washington, D. C. Subcaliber mechanism for breech-loading rifles	679,115	July 23	3476	777	96	757
Driggs, Louis L., New York, N. Y., assignor of one-ha.f to W. H. Driggs, Washington, D. C. Safety-lock for breech mechanism for guns	679,116	July 23	3479	777	96	758
Driggs, William H. (See Driggs, Louis L., assignor.)						
Driggs, William H., U. S. Navy. Recoil-mount for artillery	682,535	Sept. 10	1579	349 / 350	96	2195
Driscoll, William, Brockville, Canada. Railway foot-guard	680,571	Aug. 13	1558	343	96	1371
Driskill, James B., Henderson, Ky. Post-hole auger	677,408	July 2	116	25,26	96	26
Drory, Edward, Berlin, Germany. Means for charging gas-retorts	682,798	Sept. 17	2074	469 / 470	96	2313
Droschütz, Oskar, Bautzen, Germany. Kneader for dough-kneading machines	683,300	Sept. 24	3132	717	96	2550
Drosness, Vitold, New York, N. Y. Wristband	680,477	Aug. 13	1389	308	96	1337
Druitt, James W., Oakpark, Ill. Pulverizing-mill	683,256	Sept. 24	2901	665 / 666	96	2502
Dryden, Charles P., assignor of one-half to G. B. Dryden, Chicago, Ill. Soft-tread horse-shoe	681,411	Aug. 27	3183	708	96	1739
Dryden, George B. (See Dryden, Charles P., assignor.)						
Du Bois, Charles F., Denver, Colo. Pelton wheel	682,979	Sept. 17	2418	547 / 548	96	2382
Du Boise, Alfonse R., Flint, Mich. Hat-case	683,258	Sept. 24	2904	666	96	2502
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-wrapper cutter	683,201	Sept. 24	2783	641	96	2476
Du Buit, Paul, Paris, France. Powder-charge	683,106	Sept. 24	2631	605	96	2446
Du Mont, Charles S., Buffalo, N. Y. Bit-brace	682,263	Sept. 10	1115	253	96	2104
Dubinski, Benjamin, San Antonio, Tex. Electric program-clock	683,257	Sept. 24	2903	666	96	2502
Dubord, Jacob. (See Rhode and Dubord.)						
Dubray, Jerry E., Madera, Cal. Lumber-coupling	680,029	Aug. 6	581	127	96	1158
Duchamp, Jean M., Lyons, and R. Philippe, St. Rambert-L'Ile-Barbe, France. Liquid-meter	679,016	July 23	3257	727 / 728	96	712
Duck, Joseph G. (See Labadie, William D., assignor.)						
Duckgeischel, Henry J. (See Gaede and Duckgeischel.)						
Duenkel, Charles L. (See Mockridge, Joseph B., assignor.)	679,555	July 30	4365	980	96	961
Dufaux, Henri, Geneva, Switzerland. Motocycle						
Duff, Edward J., assignor to United Alkali Company, Limited, Liverpool, England. Apparatus for the treatment of producer-gases	682,920	Sept. 17	2310	522	96	2361
Duffner, Matthew, Allegheny, Pa. Toy	681,499	Aug. 27	3365	747	96	1774
Duffy, Frank O., New Bedford, Mass. Loom temple-roll	679,608	July 30	4458	1001	96	981
Dugan, Daniel A., Brooklyn, N. Y. Circular handsaw	682,868	Sept. 17	2219	501	96	2342
Dumoulin, Casimir J. (See Crépet and Dumoulin.)						
Dumoulin, Leonard S., Flushing, N. Y. Smelting-furnace	683,107	Sept. 24	2632	605	96	2446
Dunbar, Charles L. (See Dunbar, Henry D. and C. L.)						
Dunbar, Henry D., North Hartland, Vt., and C. L. Dunbar, Lebanon, N. H. Balanced slide-valve	682,921	Sept. 17	2312	522 / 523	96	2361
Duncan, Edwin R. (See Bibb and Duncan.)						
Duncanson, William A., assignor of one-half to A. A. Winot, Brockton, Mass. Hydraulic cable safety device	682,536	Sept. 10	1583	359	96	2196
Dungan, Thomas A., Chicago, Ill. Ventilator	677,344	July 2	21	5	96	7
Dunlap Machinery Company. (See Hug, Edward M., assignor.)						
Dunlap, William A., Pittsburg, Pa. Enameling metal	679,300	July 30	3847	.....	96	854
Dunn, George F., assignor of one-half to Brockton Supply Company, Brockton, Mass. Folding machine	677,404	July 2	118	26,27	96	27
Dunn, Jesse A., Chicago, Ill. Dental clamp	677,595	July 2	428	102	96	91
Dunn, Joseph, Chicago, Ill. Means for packing leaks in pipes	683,024	Sept. 24	2502	568	96	2420
Dunn, Patrick H., Rome, N. Y. Leg-fastener	682,460	Sept. 10	1458	390	96	2170
Dunn, William. (See Nies, Frederick H., assignor.)						
Dunn, William N., Martinsburg, W. Va. Cloth-piler	682,922	Sept. 17	2314	523	96	2362
Dünner, Johannes, Berne, Switzerland. Machine for washing plates or other dishes	681,113	Aug. 20	2626	580	96	1608
Dunning, Joseph, Rutherford, N. J. Collar	681,114	Aug. 20	2627	580	96	1609
Duplex Printing Press Company. (See Bechman, Henry F., assignor.)						
Duplex Printing Press Company. (See Cox, Joseph L., assignor.)						
Dupuis, Eugene, New York, N. Y. Stop-watch	678,382	July 16	2002	456	96	441
Durand, Emile P., Sherman, Ill. Mowing-machine	683,025	Sept. 24	2503	568 / 569	96	2420
Durant, Edward G., Pasadena, Cal. Machine for the manufacture of hollow terra-cotta and clay ware	677,861	July 9	984	231 / 232	96	227
Durant, Napoleon, North Adams, assignor of one-half to J. L. Cross, Adams, Mass. Trolley	679,220	July 23	3671	819	96	798
Durel, Charles G. and L. P., New Orleans, La. Coffee or tea making apparatus	683,259	Sept. 24	2906	667	96	2503
Durel, Louis P. (See Durel, Charles G. and L. P.)						
Durham, Richard T., Richmond, Va. Coin-operated machine	677,063	July 9	1200	277	96	269
Durham, Shilo W., San Jose, Cal. Non-refillable bottle	680,319	Aug. 13	1098	244	96	1279
Durning, Charles. (See Park and Durning.)						
Durouaux, Joseph C., St. Louis, Mo. Eyeglasses or spectacles	683,108	Sept. 24	2634	605	96	2447
Dürr, Ludwig, Bremen, Germany. Vapor-burner	678,295	July 9	1826	420	96	390
Durrin, Warren A., Woodville, Wis. Bath-cabinet	681,631	Aug. 27	3608	802	96	1824
Duryea, Charles E., Elizabeth, N. J. Explosive-engine for motor-vehicles	682,606	Sept. 17	1712	390 / 391	96	2245
Dutcher, Frank and W., Fostoria, Ohio. Signal-torch	682,587	Sept. 10	1584	360	96	2196
Dutcher, Warren. (See Dutcher, Frank and W.)						
Dutempte, William R., Auburn, R. I. Diaphragm tube-plate for phonographs	680,431	Aug. 13	1304	286	96	1319
Dutton, Charles S., Perth Amboy, N. J. Machine for polishing or burnishing metal bars or rods	683,109	Sept. 24	2635	605	96	2447

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Duvall, Jephthah P., Waverly, Iowa. Rope-clamp	678,866	July 23	2948	664	96	652
Dvorácek, Pankrác. (See Holub and Dvorácek.)						
Dwyer, Elmer F., Lynn, Mass. Coil for electromagnets and insulating material therefor	677,802	July 9	987	232	96	224
Dyer, George F., Beverly, Mass. Vaporizer for explosive-engines	680,572	Aug. 13	1560	343	96	1371
Dyer, Louise, deceased, Bayswater, England; W. D. Baldwin, administrator. Corset	677,441	July 2	196	48	96	44
Dyer, Robert M., assignor to Aermotor Company, Chicago, Ill. Pump connection	678,554	July 16	2331	525	96	511
Dyer, Walter, assignor of one-half to A. E. Stevens, Chicago, Ill. Automatic vending-machine	681,686	Sept. 3	23	7	96	1869
Dyer, William H. (See Spencer, Edwin L., assignor.)						
Dyke, Martin. (See Garrett, Charles B., assignor.)	683,260	Sept. 24	2907	667	96	2503
Dysart, John E., Cadiz, Ohio. Life-boat						
E. Kirstein Sons Company. (See Threehouse, Mortimer A., assignor.)						
Eagle Pencil Company. (See Boman, Claes W., assignor.)						
Eames, George M., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sectional table or bench	677,442	July 2	198	48,49	96	44
Earhart, David S., De Land, Fla. Weaving-machine	680,705	Aug. 20	1861	408 / 409	96	1455
Earll, Charles I., New York, N. Y. Trolley-catcher	683,026	Sept. 24	2504	569	96	2421
Early, Earl J., Philadelphia, Pa. Storage and display device	679,474	July 30	4192	941	96	925
Eastern Carbon Works. (See Mills, William, assignor.)						
Eastman, Clyde J., Fort Worth, Tex. Cable-power	681,632	Aug. 27	3610	803	96	1825
Eastman, George, assignor to Eastman Kodak Company, Rochester, N. Y. Photographic-roll holder	677,443	July 2	199	49	96	44
Eastman Kodak Company. (See Eastman, George, assignor.)						
Easton, Henry L., *et al.* (See Caldwell, William L., assignor.)	680,573	Aug. 13	1562	343	96	1372
Eastwood, Joseph, San Francisco, Cal. Hydrocarbon-burner	682,180	Sept. 10	956	215	96	2075
Eastwood, Joseph, San Francisco, and E. M. Hoagland, East Oakland, Cal. Well-casing perforator	679,141	July 23	3522	787	96	767
Eaton, Edward N., Chicago, Ill. Testing device	677,566	July 2	430	102	96	91
Eaton, Elon, Edwards, N. Y. Milk-can-securing means	682,923	Sept. 17	2319	521	96	2363
Eaton, Elon, Edwards, N. Y. Can-support						
Eaton, Hiram W., Jr., and A. Benson, Bradford, Pa. Bull-wheel for oil or Artesian wells	678,774	July 16	2752	619	96	592
Eaton, Hiram W., Jr., and A. Benson, Bradford, Pa. Sand-reel for oil or Artesian wells	680,234	Aug. 13	950	214	96	1249
Ebeling, Phillip, Findlay, Ohio. Forming hollow glass articles	682,980	Sept. 17	2420	548	96	2383
Eben, Reinhold, Paderborn, Germany. Transfer-table	680,574	Aug. 13	1563	344	96	1372
Eberman, Joseph W., Brooklyn, assignor of five-eighths to W. F. Steele, New York, N. Y. Thermostat for operating valves	678,332	July 9	1890	434	96	402
Eccles, Robert, Ballywalter, Ireland. Gearing for cycles	680,235	Aug. 13	952	214	96	1250
Eck, Joseph, Dusseldorf, Germany. Roller for calendering-machines	682,607	Sept. 17	1716	391	96	2245
Ecker, Erastus E., St. Georges, Del. Breeching	679,609	July 30	4459	1001	96	981
Eckert, William A., Buffalo, N. Y. Self-righting receptacle for toothpicks, matches, &c	679,610	July 30	4461	1001	96	982
Economy Furnace Company. (See Quinn, John J., assignor.)						
Edant, Lucien. (See Croppi and Edant.)	681,208	Aug. 27	2801	621	96	1664
Eddy, Charles J., Seattle, Wash. Fruit-gatherer						
Eddy Electric Manufacturing Company. (See Heath, Harry E., assignor.)						
Eddy, Herbert E., C. F. Brown, and J. J. Hickey, Rumford Falls, Me. Gas-cooling apparatus	679,117	July 23	3481	777	96	758
Edelen, William R., Washington, D. C. Burglar-alarm or door-signal	679,957	Aug. 6	468	97	96	1135
Edgell, Charles N., Gardner, Mass. Hose-nozzle	679,733	Aug. 6	32	10	96	1049
Edgington, George W., Coalville, Utah. Air-brake	681,045	Aug. 20	2509	555	96	1584
Edgmoor Iron Company. (See Coppage, Benjamin D., assignor.)						
Edison, Thomas A., Llewellyn Park, N. J. Reversible galvanic battery	678,722	July 16	2668	602	96	576
Edison, Thomas A., Llewellyn Park, N. J. Apparatus for screening or sizing very fine materials	679,500	July 30	4262	960	96	988
Edison, Thomas A., Llewellyn Park, N. J. Making metallic duplicate phonograph-records	680,520	Aug. 13	1479	326	96	1356
Edmondson, Ira, Blue, Miss. Turf and land cutter	679,801	July 30	3848	861	96	855
Edmunds, Eri A., Brooklyn, N. Y. Automatic brake	680,706	Aug. 20	1863	409	96	1455
Edmundson, William, Denver, Colo. Picture-hanging nail	681,500	Aug. 27	3366	747	96	1774
Edsall, Seely, Plainfield, N. J. Fishing rod and reel combined	681,687	Sept. 3	27	7	96	1870
Edson, Frank C., Leroy, N. Y. Foldable egg-crate	678,649	July 16	2549	571	96	553
Edwards, Edgar A., Cincinnati, Ohio. Indicating copy-holder	679,302	July 30	3849	861	96	855
Edwards, Edgar A., Cincinnati, Ohio. Churn	682,588	Sept. 10	1678	381	96	2213
Edwards, Frank W., Logansport, Ind. Lubricator	682,961	Sept. 17	2422	548 / 549	96	2384
Edwards, Harold, Schenectady, N. Y., assignor to General Electric Company, of New York. Regulation of dynamo-electric machines	680,236	Aug. 13	953	215	96	1250
Edwards, Isaac L., Aurora, Ill. Trace-fastener	677,345	July 2	22	5	96	7
Edwards, M. J., *et al.* (See King, Phineas F., assignor.)						
Edwards, Oliver M., Syracuse, N. Y. Window	681,688	Sept. 3	28	8	96	1870
Edwards, Thomas C., Philadelphia, Pa. Sad-iron	679,256	July 23	3738	835	96	811
Egan, William H., Galesburg, Ill. Lawn-rake	678,461	July 16	2154	486	96	472
Ehrlich, Leo. (See Fassett, Francis K., assignor.)						
Ehrlich, Leo, St. Louis, Mo. Cash-register	681,633	Aug. 27	3612	803 / 804	96	1825
Eichberg, Rudolph C. (See Hutchison, Maurice F., assignor.)						
Eichelbaum, Georg, Berlin, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Producing albumoses	682,181	Sept. 10	959	.....	96	2075
Eichert, John, Pittsburg, Pa. Ruler	678,650	July 16	2552	571	96	554
Elmer, August. (See Schwanhausser and Elmer.)						
Elnert, Ernst, Milwaukee, Wis. Bridge-gate	683,261	Sept. 24	2910	667	96	2503
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Illinois. Making wheels	682,982	Sept. 17	2428	549	96	2384
Einstein, Alfred C., St. Louis, Mo. Acetylene-gas generator	680,969	Aug. 20	2362	519 / 520	96	1556
Einstein, Alfred C., St. Louis, Mo. Acetylene-gas burner	683,262	Sept. 24	2911	668	96	2504
Einstein, Samuel M. (See Armstrong, Arthur H., assignor.)						
Eisenbeis, Fritz, Wellesweiler, and F. Garelly, Jr., Saarbrücken, Germany. Stone-cutting machine	677,444	July 2	208	50	96	45
Ekman, Carl F., Marshalltown, Iowa. Fender	678,232	July 9	1698	389	96	356
Elden, Leonard L., Boston, Mass. Circuit-breaker	680,652	Aug. 13	1717	377	96	1404

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Electric Boat Company. (See Holland, John P., assignor.)						
Electric Gas Lighting Company. (See Thomson, Henry C., assignor.)						
Electric Resistance & Heating Company. (See Swinburne, James, assignor.)						
Electric Smelting and Aluminum Co. (See Cowles, Alfred H., assignor.)						
Electric Typewriter Company. (See Ennis, George H., assignor.)						
Electric Vehicle Co. (See Condict, George H., assignor.)						
Electrical Safety Traction Company. (See Dion, Léon, assignor.)						
Electro-Magnetic Traction Company. (See Chapman, William, assignor.)						
Electro-Magnetic Traction Company. (See Woods, Granville T., assignor.)						
Elger, William D. (See Schneider, Carl, assignor.)						
Eliet, Constant, Lorient, France, assignor to himself, and G. L. Mouchel, London, England. Concrete floor	681,364	Aug. 27	3106	689 / 690	96	1724
Elinoff, Harry, Pittsburg, Pa. Ledger or account-book	681,046	Aug. 20	2510	556	96	1584
Elkins, Charles D., Pine Bluff, Ark. Shingling-bracket	677,645	July 2	567	135	96	119
Ellenbecker, John, Port Washington, Wis. Revolving chair	679,958	Aug. 6	466	98	96	1136
Ellenbecker, John, Port Washington, Wis. Revolving chair	682,844	Sept. 17	2178	492	96	2334
Ellings, Theron N., New York, N. Y., assignor to F. M. White, Boston, Mass. Ventilated shoe	682,182	Sept. 10	960	216	96	2076
Elliot, Henry, St. Louis, Mo. Railway-frog	677,646	July 2	570	135	96	120
Elliot, Henry, St. Louis, Mo. Railway-frog	677,647	July 2	571	136	96	120
Elliott, Elmer G., and V. Kishner, Perth Amboy, N. J. Electrolytic production of cathode-plates	683,263	Sept. 24	2912	668	96	2504
Elliott, Robert B., Sugarridge, Ohio. Combined wagon box and rack	681,204	Aug. 27	2801	622	96	1664
Elliott, Robert H., Carthage, Mo. Clothes-line reel	680,320	Aug. 13	1100	244	96	1279
Elliott, William N., Memphis, Tenn. Sawmill log-turner	681,047	Aug. 20	2511	556	96	1584
Ellis, Benjamin F., Berkeley, Cal. Tank	683,391	Sept. 24	3133	717	96	2550
Ellis, Charles S., assignor to Doan & Gates Company, Chicago, Ill. Upholsterer's tufting-table	680,575	Aug. 13	1565	344	96	1372
Ellis, George H., Chicago, assignor, by mesne assignments, to W. Deering, Evanston, Ill. Manufacture of twine from unretted flax-straws	679,694	July 30	4613	1085	96	1015
Ellis, George H., Chicago, assignor to W. Deering, Evanston, Ill. Flax-sliver	679,695	July 30	4614	1085	96	1015
Ellis, George V., assignor to T. F. Kenney, New York, N. Y. Automatic starting apparatus	681,048	Aug. 20	2512	556	96	1585
Ellis, Millard F., Ghent, Ky. Animal-poke	682,049	Sept. 3	737	159	96	2010
Ellithorp, Orren S., Chicago, Ill. Tongue-truck for harvesters	679,896	Aug. 6	227	48	96	1098
Ellsworth, Jonathan F., Hyannis, Nebr. Mower	681,446	Aug. 27	3263	725 / 726	96	1755
Elmblad, Hjalmar, assignor to Surerus and Greenhill, Chicago, Ill. Lettering or hand-printing machine	679,556	July 30	4366	980 / 981	96	961
Elwell, James A., assignor of one-half to C. P. Cartwright, Seattle, Wash. Piano-pedal	681,390	Aug. 27	3154	702	96	1733
Ely, Charles C., New York, N. Y. Index scrap-book and leaves therefor	679,734	Aug. 6	34	10	96	1049
Emans, John, Ottawa, Ohio. Combined corn-husking bench and fodder-binder	679,735	Aug. 6	36	10	96	1050
Emans, John, Ottawa, Ohio. Corn-husking implement and twine-cutter	680,090	Aug. 6	582	127	96	1158
Emerson, John H., Quincy, Ill. Collar-fastener	679,118	July 23	3482	778	96	758
Emerson, Ralph, *et al.* (See Burson, William W., assignor.)						
Emerson, Thomas J., Shuler, Ark. Vehicle-brake	683,027	Sept. 24	2507	569	96	2421
Emmerich, Rudolf, Munich, Germany. Preserving meats	680,374	Aug. 13	1204	.....	96	1298
Emming, Carl, Weidenau, Germany. Weighing-machine for railway-trucks	683,302	Sept. 24	3134	718	96	2550
Empey, William J. (See Cantrell and Empey.)						
Empire Laundry Machinery Company. (See Hoyt, Charles R., assignor.)						
Empire Metallic Bedstead Company. (See Baynes, Edward C., assignor.)						
Empire Time Recorder Company. (See Heene, Edward G., assignor.)						
En Holm, Oscar A., Pleasantville, assignor of one-half to H. W. Hedge, New York, N. Y. Electric clock	681,779	Sept. 3	244	47	96	1914
Enders, Eduard, Dusseldorf, Germany. Hat-fastener	678,723	July 16	2673	602	96	577
Engel, John J., *et al.* (See Walker, William S., assignor.)						
Englar, Preston B., Taneytown, Md. Mail-box	680,847	Aug. 20	2138	468	96	1510
Engle, Albert A. (See Bartholomew, George E., assignor.)						
English, Peter, Benton Harbor, Mich., and L. Cooney, Jr., assignors of three-fourths to P. E. Berger, Chicago, Ill., and F. W. Gridley, Syracuse, N. Y. Rotary engine	680,478	Aug. 13	1890	303 / 304	96	1337
English, Peter, Benton Harbor, Mich., and L. Cooney, Jr., Chicago, assignors of three-fourths to P. E. Berger, Chicago Ridge, Ill., and F. W. Gridley, Syracuse, N. Y. Rotary engine	680,479	Aug. 13	1892	304	96	1337
Englund, Ernst E., Moline, Ill., assignor to D. M. Sechler Carriage Company, of Illinois. Corn-planter	679,557	July 30	4369	981	96	962
Engstrom, Frank H., Canbridge Springs, Pa. Combination-tool	677,964	July 9	1201	277	96	269
Ennis, Frank Clare, Iowa. Oiling attachment for trombones	677,965	July 9	1202	277	96	269
Ennis, George H., Troy, assignor, by mesne assignments, to Electric Typewriter Company, Buffalo, N. Y. Electric type-writer	681,957	Sept. 3	587	123 / 124	96	1988
Enock, Arthur G., Willesden, England. Compressor and pump	679,716	July 30	4051	1045 / 1046	96	1028
Enos, Emilius, Racine, Wis. Folding scaffold	679,959	Aug. 6	468	98	96	1136
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Spoke-finishing machine	679,611	July 30	4462	1002 / 1003	96	988
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Polishing-machine	680,576	Aug. 13	1566	344 / 345	96	1373
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Automatic spoke facing and tapering machine	681,049	Aug. 20	2515	556 / 557	96	1585
Enterprise Machine Company. (See Westman, Emil, assignor.)						
Enterprise Manufacturing Company of Pennsylvania. (See Hopkins, Cabel B., assignor.)						
Eppler, Ferdinand, Berlin, Germany. Metal ornamentation	678,388	July 16	2003	456	96	441
Epstein, Eugene J., St. Louis, Mo. Cigar-cutter	678,614	July 16	2480	554	96	540
Epstein, Moses. (See Walcoff and Epstein.)						
Epstein, Wilhelm, and E. Rosenthal, Frankfort-on-the-Main, Germany. Brown sulfur dye and making same	681,689	Sept. 3	43	.....	96	1872
Erben, Hermann F. T., Schenectady, N. Y., assignor to General Electric Company, of New York. Magnet-coil	678,168	July 9	1579	364	96	342
Erben, Walter, Philadelphia, Pa. Apparatus for separating solvent vapor from air	682,050	Sept. 3	737	160	96	2010
Erickson, Andrew M., Barrett, Minn. Cutter	678,651	July 16	2554	571	96	554
Erickson, Sarah P. E., Scandia, Kans. Tank-car for preventing vegetable growth on railway-beds	677,445	July 2	203	50	96	45
Ericson, Nels E., Ridgway, Pa. Mantle-support	680,031	Aug. 6	585	127	96	1158
Ericsson, Lars M., assignor to Aktiebolaget L. M. Ericsson & Co., Stockholm, Sweden. Telephone switch apparatus	681,878	Sept. 3	413	83,84	96	1948

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Erie Exploration Company. (See Erie, James P., assignor.)						
Erie, James P., New York, N. Y., assignor to Erie Exploration Company, New York, N. Y., and Dover, Del. Apparatus for agitating and heating air	682,323	Sept. 10	1222	277	96	2122
Erie, James P., New York, N. Y., assignor to Erie Exploration Company, New York, N. Y., and Dover, Del. Electric heater	682,324	Sept. 10	1225	277 / 278	96	2123
Ermold, George, Elizabeth, N. J., assignor to George Ermold Company, New York, N. Y. Tonsilotome	678,333	July 9	1892	434 / 435	96	402
Ermold, George, Elizabeth, N. J., assignor to George Ermold Company, New York, N. Y. Tonsilotome	678,334	July 9	1894	435	96	403
	680,480	Aug. 13	1894	305	96	1338
Ernst, Albert C., Newcastle, Pa. Envelop	679,221	July 23	3673	.....	96	799
Ernst, Otto, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Black polyazo dye and making same	680,848	Aug. 20	2139	468	96	1510
Erny, Wilhelm, Halle-on-the-Saale, Germany. Zinc electrode for electric batteries	677,446	July 2	204	51	96	45
Ervin, James M., assignor to Cleveland Block Company, Cleveland, Ohio. Tackle-block	679,303	July 30	3851	861	96	855
Esch, Paul, Milwaukee, Wis. Mustache-guard	681,533	Aug. 27	3418	758	96	1785
Esch, William G., Manitowoc, Wis. Twine-holder						
Eschler, Richard T. (See Richter and Eschler.)	681,412	Aug. 27	3184	709	96	1739
Essex, George B., assignor to G. B. Essex Brass Company, Detroit, Mich. Lubricator	682,845	Sept. 17	2180	492	96	2335
Esson, William B., London, England. Electric cable for three-phase alternating currents	683,028	Sept. 24	2508	570	96	2421
Estell, Samuel F., Chicago, Ill. Match-safe	681,690	Sept. 3	44	9	96	1872
Esterly, Charles E., Lawrence, Kans. Blowpipe	678,948	July 23	3122	690	96	686
Estes, Eugene, Los Angeles, Cal. Extension-table	683,029	Sept. 24	2509	570	96	2422
Estes, George L., Shawnee, Okla. Ter. Safety-pocket	677,346	July 2	23	5	96	?
Estes, William J., Shawnee, Okla. Ter. Vehicle-top	678,462	July 16	2156	486	96	472
Etheridge, Harry, McKeesport, Pa. Coagulant-feeder	682,183	Sept. 10	961	216	96	2076
Etheridge, Harry, McKeesport, Pa. Globe-tester	677,447	July 2	206	51	96	46
Ethier, Victor, Webster, Mass. Stovepipe-holder						
Eudelin, Maurice A., Paris, France. Motor for automobiles driven by explosion of inflammable vapors	680,237	Aug. 13	956	215	96	1250
Eugster, Johann J., New Riegel, Ohio. Machine for making communion-wafers	677,648	July 2	572	136	96	121
Eustice, Daniel L., Galena, Ill. Machine for mixing and packing axle-grease	682,608	Sept. 17	1717	392	96	2245
Evanovitch, Gusser. (See Doré and Evanovitch.)						
Evanovitch, Lissie A. (See Doré and Evanovitch, assignors.)	679,612	July 30	4467	1008	96	988
Evans, Edwin F., Fredericksburg, Tex. Water-tank						
Evans, Louis C. (See Dodson and Evans.)	678,867	July 23	2950	664	96	658
Evans, Lyman H., assignor to W. M. Randleman, Des Moines, Iowa. Mop-wringer	679,613	July 30	4468	1003	96	984
Evans, William J., Pittsburg, Pa. Rail-joint	679,017	July 23	3258	728	96	713
Everaerd, Bernard, Gladstone, Mich. Saw-set	680,186	Aug. 6	756	168	96	1195
Evered, Joshua, Duluth, Minn. Apparatus or engine for reciprocating saws, &c						
Everest, Augustine R., Lynn, Mass., assignor to General Electric Company, of New York. Flux-screen for transformers	678,233	July 9	1700	390	96	306
	681,958	Sept. 3	590	125	96	1988
Everett, William J., Indianapolis, Ind. Washing-machine	682,246	Sept. 10	1085	245	96	2098
Everhart, John W., Grand Rapids, Mich. Jar cover and clamp	679,049	July 23	3330	744	96	727
Eversmann, Henry, Cincinnati, Ohio. Fire-extinguishing apparatus	678,113	July 9	1482	342	96	323
Everson, John Q., Pittsburg, Pa. Draft-regulator						
Evolution Cycle Company. (See Nichols, Marion L., assignor.)	682,676	Sept. 17	1826	420	96	2266
Ewald, William E., Chicago, Ill. Multiple-cylinder engine	677,347	July 2	24	6	96	?
Ewan, John T., Bethalto, Ill. Grain-scouring machine	680,768	Aug. 20	1979	434 / 435	96	1480
Ewart, John K., Glasgow, Scotland. Brake mechanism for railway or other wagons						
Ewing, James A. (See Barker and Ewing.)						
Excelsior Automatic Knitting Machine Company. (See Johns, Will R., assignor.)						
Excelsior Knitting Machine Manufacturing Company. (See Hirner, Emil A., assignor.)	680,707	Aug. 20	1864	409 / 410	96	1455
Faber, Frank M., Riverside, assignor to Stirling Company, Chicago, Ill. Steam-boiler	680,321	Aug. 13	1101	245	96	1279
Faber, Wilhelm, Berlin-Westend, Germany. Carriage for type-writers						
Fabrik Chemischer Praeparate von Dr. Richard Sthamer. (See Althausse, Maximillan C. L., assignor.)	682,247	Sept. 10	1086	245 / 246	96	2098
Fair, Gust A., Orion, Ill. Wagon						
Fairbank, Herbert A. (See Hulburd, Byron H., assignor.)						
Fairbanks, Arthur H. (See Fairbanks, George L. and A. H.)	682,405	Sept. 10	1354	307	96	2149
Fairbanks, George L. and A. H., Worcester, Mass. Lathe						
Fairbrother, Guy L., and A. H. Mathewson, Thompsonville, Conn.; said Fairbrother assignor to said Mathewson. Electrical controller attachment	681,167	Aug. 20	2730	605	96	1629
Fairchild, Charles. (See Bassett, Charles F., assignor.)						
Fairchild, Frank J., assignor to Hand Truck Attachment Company, Limited, Detroit, Mich. Truck attachment	679,279	July 23	3792	846	96	821
Fake, George J. (See Wood, William, assignor.)						
Falk Company. (See Rogginger, John, assignor.)						
Fanning, John T., Minneapolis, Minn. Transmitting-dynamometer	682,461	Sept. 10	1459	331	96	2170
Farbenfabriken of Elberfeld Co. (See Caron, Albert, assignor.)						
Farbenfabriken of Elberfeld Co. (See Eichelbaum, Georg, assignor.)						
Farbenfabriken of Elberfeld Co. (See Hofmann, Fritz, assignor.)						
Farbenfabriken of Elberfeld Co. (See Israel and Kothe, assignors.)						
Farbenfabriken of Elberfeld Co. (See Ulrich and Heidenreich, assignors.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Becke and Bell, assignors.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Ernst, Otto, assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Krauss and Wach, assignors.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Liebrecht, Arthur, assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Pauli and Krauss, assignors.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Reuter, Baptist, assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Schirmacher, Karl, assignor.)	678,652	July 16	2554	572	96	554
Farley, Henry F., assignor of one-half to W. Kelley, Kalona, Iowa. Rotary engine	678,234	July 9	1708	390	96	307
Farley, James, Waukesha, Wis., and J. Meehan, Chicago, Ill. Automatic lubricator						
Farley, Owen B. (See Rambler, Homer F., assignor.)	679,142	July 23	3523	787	96	767
Farmer, Arcidas R., St. Louis, Mo. Elevator						
Farmer, Elkana W., *et al.* (See Studebaker, William A., assignor.)	682,051	Sept. 3	739	160	96	2010
Farnet, Ludovic A., Montereau, France. System of bonding or jointing rails in railways	677,502	July 2	294	73	96	68
Farnham, Frank G., Honesdale, Pa. Rotary brush						
Farnsworth, H. E. (See Bower, Adolphus C., assignor.)						
Farnsworth, Philip, Schenectady, N. Y., assignor to General Electric Company, of New York. Surface-contact railway	677,906	July 9	1203	278	96	269
	678,114	July 9	1482	342	96	328
Farr, Eugene M., Washington, D. C. Aerial vessel						
Farrar, William M., Hoboken, N. J. Apparatus for supplying compressed air to movable motors and hoists	680,849	Aug. 20	2140	469	96	1511

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Farrell, Charles, Cairo, Ill. Can-opener	681,205	Aug. 27	2802	622	96	1664
Farrell, Thomas C., Washington, N. J. Combined box-cap and shoe-plank holder	677,649	July 2	574	136	96	121
Farwell, Harry C. (See Weller, John C., assignor.)						
Fassett, Francis K., assignor to L. Ehrlich, St. Louis, Mo. Roller side bearing	682,406	Sept. 10	1355	307	96	2150
Faucett, Eugene V., Wilmington, Del. Friction-clutch	681,847	Sept. 3	362	73	96	1988
Faulkner, Nellie A. (See Groom, Isaac E., assignor.)						
Faust, Gustav, Brooklyn, N. Y. Hanger	680,322	Aug. 13	1102	245	96	1279
Fawkes, Charles G. (See Dibbens, Ernest A., assignor.)						
Fawkes, Joseph W., Sr., Burbank, Cal. Fruit grader, cutter, and pitter	680,375	Aug. 13	1205	266 / 267	96	1299
Fay, Fred E., Los Angeles, Cal. Machine for ironing edges of collars and cuffs or other starched articles	678,949	July 23	3124	700	96	686
Fayerweather and Ladew. (See Krom, Stephen R., assignor.)						
Federal Glue Company. (See Kelsey, Lovell L., assignor.)						
Feehan, John S. (See Northgraves, William, assignor.)						
Fehling, Paul, Berlin, Germany. Lock	679,119	July 23	3483	778	96	759
Felbaum, Fred W., Dayton, Ind. Mixing and vaporizing device for explosive-engines	683,110	Sept. 24	2637	606	96	2448
Felbel, Jacob. (See Stickney and Gabrielson, assignors.)						
Felbel, Jacob, New York, assignor to Yost Writing Machine Company, Ilion, N. Y. Type-writing machine	679,960	Aug. 6	469	98	96	1136
Felgenhauer, Charles E., Racine, Wis. Engine	678,384	July 16	2005	456	96	441
Feller, Frank C., *et al.* (See Young, William J., assignor.)						
Fellows, Joseph, Philadelphia, Pa. Food-slicer	680,032	Aug. 6	524	127 / 128	96	1159
Fellows, Joseph, Philadelphia, Pa. Sharpening device for cutters	680,033	Aug. 6	586	128	96	1159
Fellows, Joseph, Philadelphia, Pa. Sharpening device for food slicers or cutters	680,137	Aug. 6	739	169	96	1196
Felt, George H., New York, N. Y., assignor, by mesne assignments, to Metallic Web Company, of New York. Metallic beam	681,304	Aug. 27	3018	669	96	1707
Felter, George C., Haverstraw, N. Y. Game apparatus	682,052	Sept. 3	740	160	96	2010
Fenn, Wilson L. (See Delavan and Fenn.)						
Fenner, Augustus M., Linesville, Pa. Building-block	680,138	Aug. 6	761	169	96	1197
Fenner, Jess B., assignor to J. W. Ruger Manufacturing Company, Buffalo, N. Y. Muffler for gas or other engines	681,391	Aug. 27	3155	702	96	1733
Fenno, John E., Hoisington, Kans. Grade-climbing attachment for shoes	681,959	Sept. 3	591	125	96	1983
Fenstermacher, William E., Beloit, Kans. Rural mail-box	677,967	July 9	1207	278	96	270
Ferchland, Ernst, Brooklyn, N. Y. Leather-pad fastening for billiard-cues	682,677	Sept. 17	1828	420	96	2296
Ferguson, Arthur C., Brooklyn, N. Y. Printer's blanket	680,577	Aug. 13	1570	345	96	1374
Ferguson, Arthur C., Saratoga Springs, N. Y. Portable type-writer	682,137	Sept. 3	873	195 / 196	96	2088
Ferguson, Charles H., Chicago, assignor of one-half to Wilcox Manufacturing Company, Aurora, Ill. Portable grindstone	681,879	Sept. 3	420	84, 85	96	1948
Ferguson, Louis L., New York, N. Y. Apparatus for measuring errors of refraction in the human eye	679,890	Aug. 6	330	70	96	1109
Ferguson, S. M. (See Wilkison, Joseph E., assignor.)						
Fergusson, James F. (See Payne and Fergusson.)						
Fergusson, William P., Colorado, Tex. Lubricator attachment for wheel-hubs	680,850	Aug. 20	2142	469	96	1511
Féron, Arthur C., New York, N. Y. Carving and delineation machine	679,120	July 23	3484	778	96	759
Ferracioli, John, New York, N. Y. Broiler	678,235	July 9	1705	390	96	367
Ferris, Frank E. (See Ferris, Thomas R. and F. E.)						
Ferris, Frank E., assignor to Leland & Faulconer Manufacturing Company, Detroit, Mich. Machine for generating gear-teeth	678,385	July 16	2008	457 / 458	96	442
Ferris, Henry L., assignor to Hunt, Helm, Ferris & Company, Harvard, Ill. Corn snapping, cutting, and husking machine	680,200	Aug. 6	884	196	96	1221
Ferris, Sarah E., administratrix. (See Ferris, Thomas R. and F. E.)						
Ferris, Thomas R., deceased, (S. E. Ferris, Monroe, administratrix,) and F. E. Ferris, Detroit, Mich.; said S. E. Ferris assignor to said F. E. Ferris. Combination hoe and weeder	677,405	July 2	121	27	96	28
Ferry, George M., and D. Laing, Duquesne, Pa. Ladle-car	680,139	Aug. 6	763	170	96	1197
Ferry, Thomas, Wilmington, Del. Mustache-guard	680,578	Aug. 13	1572	346	96	1374
Fesler, James C., *et al.* (See Smith, Charles H., assignor.)						
Feurt-Martin Manufacturing and Supply Company. (See Feurt and Martin, assignors.)						
Feurt, William A., and H. H. Martin, assignors to Feurt-Martin Manufacturing and Supply Company, Maryville, Mo. Acetylene-gas-generating apparatus	682,407	Sept. 10	1358	307 / 308	96	2150
Feustermaker, John R., *et al.* (See Wyman, George H., assignor.)						
Fichett, Walter. (See Wormwood, Alfred R., assignor.)	683,080	Sept. 24	2510	570	96	2422
Fidjeland, Terje A., Fostvedt, Norway. Bayonet						
Fields, Houston. (See Cottrell, William C., assignor.)	678,836	July 16	2000	452	96	621
Fike, John, Leipsic, Ohio. House-moving truck	679,222	July 23	3674	819	96	799
Filiatrault, Edward J., Duluth, Minn. Parallel adjustable swing-joint						
Fink, Henry C. (See Kruse, Theodore H., assignor.)						
Fink, Lewis. (See Schneider and Perfier, assignors.)						
Finke, John, *et al.* (See Thiele, Felix C., assignor.)	677,734	July 2	720	171	96	152
Finkenrath, Adolf, Barmen, Germany. Set of drawers						
Finlayson, James. (See Couston and Finlayson.)	677,735	July 2	721	172	96	152
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press.						
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Using offset-webs	677,736	July 2	723	172	96	153
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press.	677,737	July 2	725	173	96	153
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press.	677,738	July 2	728	173 / 174	96	154
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press.	677,739	July 2	730	174	96	154
Firm, Joseph L., assignor to Goss Printing Press Company, Chicago, Ill. Printing-press.	680,851	Aug. 20	2143	469	96	1511
Firth, Annie, South Attleboro, Mass. Curling-iron heater	678,169	July 9	1582	364	96	342
Firth, David, Kimberly, Canada. Fire-escape	682,846	Sept. 17	2182	492 / 493	96	2335
Fischer, Bernhard, Heidelberg, Germany. Stirring apparatus for undried malt						
Fischer, Fritz. (See Lindenberg, Altena, and Fischer.)						
Fischer, Gustav, Riesa, assignor of four-fifths to M. Richter, Dresden, Germany, F. Woda, H. Mestern, and P. Pallester, Vienna, Austria-Hungary. Oil-feed for carbureters	679,018	July 23	3260	728	96	713
Fischer, Gustav, Riesa, assignor of four-fifths to M. Richter, Dresden, Germany, F. Woda, H. Mestern, and P. Pallester, Vienna, Austria-Hungary. Carbureter	679,019	July 23	3261	728 / 729	96	713
Fischer, Max H. (See Warman, William A., assignor.)						
Fischer, Max H., West Orange, N. J. Baking-powder	679,305	July 30	3854	------	96	856
Fish, Frank H. (See Shepard and Fish.)						
Fish, Walter C., Lynn, Mass., assignor to General Electric Company, of New York. Carbon brush	677,348	July 2	26	6	96	8

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fish, Walter C., Lynn, Mass., assignor to General Electric Company, of New York. Electric measuring instrument	678,236	July 9	1706	391	96	367
Fish, Walter C., Lynn, Mass., assignor to General Electric Company, of New York. Electric meter	679,304	July 30	3851	861	96	855
Fish, Walter C., Lynn, Mass., assignor to General Electric Company, of New York. Electric lighting by low-frequency currents	682,184	Sept. 10	962	216	96	2076
Fishbach, Henry, *et al.* (See Huffman, Orlando, assignor.)						
Fisher, Amos, Crestline, Ohio. Heating apparatus	681,019	Aug. 20	2459	544 / 545	96	1574
Fisher, Harvey L., assignor of three-fourths to D. Smith and E. Rector, Chicago, Ill. Coin-delivery apparatus	679,887	Aug. 6	228	48, 49	96	1088
Fisher, Jacob F., New York, N. Y. Nut-lock	681,418	Aug. 27	3185	709	96	1739
Fisher, Joseph, and W. Weinshenker, Chicago, Ill. Glass-washer	683,111	Sept. 24	2639	606	96	2448
Fithian, Edwin J. (See Carruthers and Fithian.)						
Fitler, Charles H., Philadelphia, Pa. Machine for cutting and shaping wood or other material	682,185	Sept. 10	964	216 / 217 / 218	96	2076
Fitzgerald, Richard. (See Hibbard, Maury W., assignor.)						
Fitzgibbons Boiler Co. (See Fitzgibbons, David, assignor.)						
Fitzgibbons, David, assignor to Fitzgibbons Boiler Co., Oswego, N. Y. Steam-boiler	681,865	Aug. 27	3110	691	96	1724
Fitzhugh, William H., Bay City, Mich. Electric-arc lamp	678,386	July 16	2017	458	96	445
Fitzsimmons, John C., Pittsburg, Pa. Metallic railway-tie	678,463	July 16	2136	487	96	472
Flakker, Frederick W., assignor of one-half to J. B. Prandergast, Wheaton, Minn. Grain-sack holder	678,387	July 16	2018	458 / 459	96	445
Flammiger, Gustave A., Leipsic-Plagwitz, Germany. Device for cleaning show-windows	678,861	July 16	1962	448	96	433
Flanagan, William H., Grants Pass, Oreg. Type-writing machine	679,068	July 30	4558	1025	96	1002
Flanders, Philip W., Elkhorn, Wis. Rail-tie	682,924	Sept. 17	2321	524	96	2363
Flanigan, Robert, Baltimore, Md. Spinning-tool	681,960	Sept. 3	592	125	96	1983
Flannery, John L. (See Schmidt, Joseph, Jr., assignor.)						
Flautt, Melvin A., assignor to Geiser Manufacturing Company, Waynesboro, Pa. Driving mechanism for elevators	681,476	Aug. 27	3319	738	96	1765
Flegal, Jacob S., assignor of one-fourth to J. Simandl, St. Paul, Minn. Metallic railway-tie	678,464	July 16	2158	487	96	472
Fleischer, Richard, Wiesbaden, Germany. Apparatus for developing and fixing photographic films	683,081	Sept. 24	2510	570	96	2422
Fleischmann, Joseph, Allegheny, Pa. Spinning-top and holder	680,323	Aug. 13	1103	245	96	1280
Fleming, James H., Newark, N. J. Centrifugal cream-separator	682,138	Sept. 3	876	196	96	2039
Fleming, John G. (See Giles and Fleming.)						
Fleming, Joseph W., assignor of one-half to S. P. Sipe, Philadelphia, Pa. Safety-gate for elevators	679,614	July 30	4469	1003 / 1004	96	984
Fleming, Richard, Corning, Ohio. Floor or sidewalk	682,462	Sept. 10	1461	331	96	2170
Flemister, John M., Vigan, Luzon, Philippine Islands. Portable table	683,264	Sept. 24	2915	668	96	2504
Fletcher, Charles T., Worcester, Mass., assignor to Locomobile Company of America, New York, N. Y. Compensating gear for vehicles	677,968	July 9	1207	278 / 279	96	270
Fletcher, John W., Chicago, Ill. Nut-lock	679,223	July 23	3675	819	96	799
Flinn, Richard J., West Roxbury, Mass. Gage-cock for steam-boilers	680,998	Aug. 20	2406	531	96	1563
Flint, Robert J., assignor of one-half to Frank Curtis Company, Decatur, Ill. Electric clock	682,678	Sept. 17	1829	420 / 421	96	2266
Flitcroft, James E., assignor of two-thirds to G. W. O'Brien and J. T. Reid, Jr., Ocean Grove, N. J. Machine for painting tin	681,961	Sept. 3	593	125 / 126	96	1983
Flora, Ellsworth E., assignor to D. K. Tripp, Chicago, Ill. Machine for ruling photographic screens	679,070	July 23	3373	751 / 752	96	786
Flower, Henry E., Philadelphia, Pa. Device for locking or anchoring railway-cars on sidings	680,034	Aug. 6	588	128	96	1160
Floyd, Halleck, Dublin, Ind. Spark-arrester	680,140	Aug. 6	764	170	96	1197
Floyd, John, Philadelphia, Pa. Underground electric conductor for street-railways	679,615	July 30	4470	1004	96	984
Flynn, Peter H., New York, N. Y. Bridle	678,388	July 16	2020	459	96	446
Foersterling, Hermann, Schlachtensee, Germany. Device for applying liquids to film-strips, &c	679,891	Aug. 6	333	70	96	1110
Foley, James S., assignor of one-half to J. H. Birch, West Bromwich, England. Type-writing machine	682,248	Sept. 10	1088	246	96	2098
Foley, Thomas F., Clinton, Iowa. Cigarette-former	680,708	Aug. 20	1867	410	96	1456
Folger, William B., Cincinnati, Ohio. Water-heater	680,769	Aug. 20	1980	435	96	1480
Foltz, Irving E., Rockford, Ill. Comb	681,206	Aug. 27	2803	622	96	1665
Foos Manufacturing Company. (See Adelsperger, Dow L., assignor.)						
Forbes, John S. (See Waterhouse and Forbes.)						
Force, William A. (See Chattaway, John J., assignor.)						
Ford, George R., St. Louis, Mo. Sad-iron	680,970	Aug. 20	2365	520	96	1556
Ford, John C., Macon, Mo. Buggy-top raiser	679,838	Aug. 6	295	49	96	1090
Ford, William H., Lowell, assignor to Ringset Company, Boston, Mass. Milling-tool	679,143	July 23	3525	788	96	767
Ford, William H., Lowell, assignor to Ringset Company, Boston, Mass. Vise	679,257	July 23	3740	835	96	811
Ford, William H., Lowell, assignor to Ringset Company, Boston, Mass. Vise	678,791	July 16	2781	626	96	597
Ford, William M., Chicago, Ill. Playing-card	678,950	July 23	3120	701	96	688
Fordney, William J., Lancaster, Pa. Fare register and recorder	681,414	Aug. 27	3187	709 / 710	96	1740
Fordyce, Edmond A., Chicago, Ill., assignor to A. S. Temple, trustee, Boston, Mass. Pneumatic-despatch-tube system	681,534	Aug. 27	3419	759	96	1785
Fordyce, Edmond A., Chicago, Ill., assignor to A. S. Temple, trustee, Boston, Mass. Terminal device for pneumatic-despatch-tube systems	678,615	July 16	2481	555	96	540
Forg, Peter, Somerville, Mass. Boiler	677,448	July 2	208	51	96	46
Forker, William H., Meadville, Pa. Wheeled earth-scraper						
Forrester, Abraham M., assignor of one-half to L. F. Hale, Philadelphia, Pa. Heating attachment for gas-burners	677,650	July 2	575	137	96	122
Forrester, Peter C., Springvalley, Ill. Concentrator	682,058	Sept. 3	741	161	96	2010
Forrester, Samuel, Allegheny, Pa. Pen or pencil holder	681,305	Aug. 27	3019	669	96	1707
Forsheim, Joseph, assignor to W. C. Popper, New York, N. Y. Concealed-hinge locket	682,352	Sept. 10	1271	286	96	2131
Forslund, Hugo W., assignor to Lake Street Manufacturing Company, Chicago, Ill. Carrier for pneumatic-despatch tubes	682,408	Sept. 10	1305	308	96	2151
Förster, Friedrich W., Burlington, Iowa. Tire and felly drill	678,555	July 16	2334	525	96	511
Förster, Friedrich W., Burlington, Iowa. Screw-thread-cutting machine	680,971	Aug. 20	2366	520	96	1556
Forster, John D., London, assignor to Metropolitan Gas Meters, Limited, Old Kent Road, England. Prepayment gas-meter	683,398	Sept. 24	3136	718	96	2551
Forsyth, George H., Chicago, Ill., assignor to Curtain Supply Company, Chicago, Ill., and Jersey City, N. J. Cable-clamp	682,847	Sept. 17	2183	498	96	2335
Forsythe, James, Onslow, Iowa. Expansion-drill	680,376	Aug. 13	1212	267	96	1300
Fortier, Arthur R., Wauwatosa, Wis. Motor stop and motion indicator	681,634	Aug. 27	3614	804	96	1826
Fortier, George W., Grand Rapids, Mich. Nut-lock	678,773	July 16	2754	620	96	598

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fosdick & Holloway Machine Tool Company. (See Herman, William, assignor.)						
Foss, Albert R., and L. W. Litch, assignors to Fosslitch Leather Co., Lynn, Mass. Making artificial leather	680,579	Aug. 13	1573	346	96	1374
Fosslitch Leather Co. (See Foss and Litch, assignors.)						
Foster, Abraham L., assignor of two-thirds to L. H. and E. F. Whiteman, Lacrosse, Kans. End-gate	682,054	Sept. 3	743	161	96	2011
Foster, Frank A., *et al.* (See Allison, Daniel K., assignor.)						
Foster, George B. (See McPherson, Arthur G., assignor.)						
Foster, Jackson W., Jacksonville, Fla. Heating device	677,969	July 9	1209	279	96	270
Foster, Jacob, Altoona, Pa. Transom lifter and lock	681,207	Aug. 27	2804	622	96	1665
Foster, Julian A., Salem, Wis. Car-replacer	682,609	Sept. 17	1720	392	96	2246
Foster Machine Company. (See McKean, John O., assignor.)						
Foster, Manning R., Jr., Orange, N. J. Hair-strainer for hatters' kettles	683,265	Sept. 24	2916	669	96	2505
Foster, Robert. (See Long and Foster.)						
Foster, Robert F., Brooklyn, N. Y., assignor to Hamilton-Foster Fog-Signal Company, Ridgefield, Conn. Valve device	680,852	Aug. 20	2145	470	96	1512
Foster, Robert F., Brooklyn, N. Y., assignor to Hamilton-Foster Fog-Signal Company, Ridgefield, Conn. Apparatus for signaling	680,853	Aug. 20	2147	470 471	96	1512
Foster, Robert F., Brooklyn, N. Y., assignor to Hamilton-Foster Fog-Signal Company, Ridgefield, Conn. Signaling	680,854	Aug. 20	2148	471	96	1513
Foster, Samuel L., assignor to Market Street Railway Company, San Francisco, Cal. Electrical block-signal system	683,172	Sept. 24	2735	629	96	2467
Fouché, Edmond, Paris, France. Gas-burner	682,055	Sept. 3	744	161	96	2011
Fouché, Frédéric, Paris, France. Sheet-metal box	680,238	Aug. 13	959	215	96	1250
Fouché, Frédéric, Paris, France. Soldering-tool	680,580	Aug. 13	1574	346 347	96	1374
Foulk, George D. (See Simpkins, Frank, assignor.)						
Fowler, Alfred B., Central Falls, R. I., assignor to United Shoe Machinery Company, Paterson, N. J. Rounding and channeling machine	682,679	Sept. 17	1831	421 422	96	2267
Fowler, Chester F., Columbia City, Oreg., assignor to G. Page, Sara, Wash. Saw-gage	677,406	July 2	122	28	96	28
Fowling, John W., Albia, Iowa. Dental impression-cup	681,535	Aug. 27	3423	759	96	1746
Fox, Benjamin C., *et al.* (See Brincklé, Addington L., assignor.)						
Fox, David, Valley Station, assignor of one-fourth to G. J. Mosher, Truro, Nova Scotia, Canada. Trace-chain	682,588	Sept. 10	1586	360	96	2196
Fox, Edward H., Olympia, Wash. Fastening device for trunks	679,224	July 23	3076	819	96	709
Fox, Henry, Bay City, Mich. Dumping device for wagons	677,971	July 9	1216	279	96	272
Fox, Herbert. (See Wooley and Fox.)						
Fox, Ivan, Lansdowne, Pa. Spectacle-frame	680,239	Aug. 13	960	216	96	1251
Fox, James I. (See Oliver, Dionysious E., assignor.)						
Foy, Alphonse L., Brooklyn, N. Y. Furnace	680,521	Aug. 13	1481	326	96	1356
Fragner, John G., assignor of one-half to C. H. Wallinger, Monroe, Mich. Cattle-stanchion	679,839	Aug. 6	236	50	96	1090
Frame, Robert, Newport, R. I. Ash-can	681,208	Aug. 27	2805	623	96	1665
Frampton, George M., Pendleton, Ind. Window-shade	679,736	Aug. 6	37	11	96	1050
Francis, James H., Nettleton, Miss., assignor of two-thirds to P. B. Jones, Nashville, Tenn. Ventilator	683,173	Sept. 24	2736	629	96	2467
	681,209	Aug. 27	2806	623 624	96	1665
Franck, Emil J., Collingdale, Pa. Knitting-machine	680,674	Aug. 13	1763	388	96	1413
Franck, Julius, St. Louis, Mo. Pricking-machine						
Francke, William J., assignor to Brunswick Refrigerating Company, New Brunswick, N. J. Compressor	677,508	July 2	266	74	96	63
	682,249	Sept. 10	1089	------	96	2499
Frank, Adolph, Charlottenberg, Germany. Making carbon pigment	678,776	July 16	2755	620	96	593
Frank C. Patten Company. (See Patten and Haugen, assignors.)						
Frank, Crist, Philadelphia, Pa. Chisel-gage						
Frank Curtis Company. (See Flint, Robert J., assignor.)						
Frank, John J., Schenectady, N. Y., assignor to General Electric Company, of New York. Transformer	677,970	July 9	1211	279	96	271
	681,477	Aug. 27	3320	738	96	1766
Franke, August H., St. Louis, Mo. Oil-filter	677,407	July 2	123	28	96	28
Frankenberg, Frederick G., Chicago, Ill. Tobacco-stripping machine	683,032	Sept. 24	2512	571	96	2422
Franklin, Benjamin, Rochester, N. Y. Combination chair and couch	682,983	Sept. 17	2429	549 550	96	2385
Frantz, Hiram A., Allentown, assignor of one-half to W. A. Wieder, Cementon, Pa. Motor-vehicle	679,669	July 30	4561	1026	96	1008
Franz, Friedrich, Brooklyn, N. Y. Short-turning gear for vehicles						
Fraser, Horatio W. (See Hays, Benjamin F., assignor.)	677,449	July 2	209	51	96	46
Fraser, Peter, Fulham, England. Combined calendar, pen, and pencil						
Frederick, Edwin E., assignor of nine-sixteenths to W. S. Gunn, Avalon, Pa. Spirit-level	683,083	Sept. 24	2514	571	96	2423
	678,389	July 16	2021	459	96	446
Frederick, Fred, Omaha, Nebr. Acetylene-gas generator	677,616	July 2	522	124	96	111
Frederick, Louis, Baldwin Township, Pa. Tongs						
Fredrick, John E., assignor to Kokomo Steel & Wire Company, Kokomo, Ind. Wire fence	680,201	Aug. 6	885	197	96	1221
Freeborn, Franklin D. (See Thornton, Freeborn, and Hillier.)						
Freeman-Dobbin Fireproofing Company. (See Freeman and Dobbin, assignors.)						
Freeman, George R., Turtlecreek, assignor of one-half to T. Oakley, Wilkinsburg, Pa. Combined ironing-board and clothes-rack	680,202	Aug. 6	887	197	96	1221
	677,567	July 2	431	102 103	96	91
Freeman, John R., Providence, R. I. Flume-screen	678,335	July 9	1896	436	96	403
Freeman, Marcus L., and C. E. Dobbin, assignors to Freeman-Dobbin Fireproofing Company, New York, N. Y. Fireproof floor construction	678,237	July 9	1707	391	96	368
Freeman, Thomas J. A., Jersey City, N. J., assignor to C. M. Campbell, New York, N. Y. Swimming-shoe						
Frees, Benjamin M. (See Radell, Anthony H., assignor.)						
Freese, Edward, and L. Levy, assignors of three-eighths to S. Levy, New York, N. Y., H. L. Rosen, and A. Marks. Non-refillable bottle	680,412	Aug. 13	1277	281	96	1314
	679,961	Aug. 6	471	98,99	96	1137
French, Joseph, Woonsocket, R. I. Mechanism for feeding cards or the like	678,178	July 16	2108	494	96	482
French, Lamartine M., assignor of one-fourth to H. H. Northrop, Chicago, Ill. Piano	680,453	Aug. 13	1343	294	96	1328
French, Mansfield J., Syracuse, N. Y. Apparatus for treating calcium hydrate	681,306	Aug. 27	3019	669	96	1707
Frenkel, Siegfried, Halle-on-the-Saale, Germany. Fly-catcher	678,479	July 16	2200	494 495	96	482
Frerot, Charles, Rheims, France. Machine for making paper tubes	681,050	Aug. 20	2517	557	96	1586
Freschl, Alfred, Chicago, Ill. Upholstery apparatus	682,139	Sept. 3	877	196	96	2039
Freschl, Alfred, Chicago, Ill. Tufting cushions	681,935	Aug. 27	3616	804	96	1826
Fretz, Samuel S., Philadelphia, Pa. Umbrella-runner	682,539	Sept. 10	1586	360	96	2197
Freuler, Daniel, Joliet, Ill. Compasses						
Freund, Frederick W., assignor of two-thirds to H. A. Robinson, Akron, and W. M. Viall, Barberton, Ohio. Pile-block	679,306	July 30	3855	862	96	856

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Freystädtler, Eugen von, Budapest, Austria-Hungary. Combined case and mount or carriage for guns	678,890	July 16	2022	459 460	96	446
Fribourg, Amedée L., assignor of one-half to H. C. Fribourg, Denver, Colo. Liquid-soap holder	682,680	Sept. 17	1836	422	96	2268
Fribourg, Henrietta C. (See Fribourg, Amedée L., assignor.)						
Frick Company. (See Hutchinson, Arthur H., assignor.)						
Friebel, Oswald, Newark, N. J. Sweater	680,085	Aug. 6	590	129	96	1160
Friedlander, Edward D., Chicago, Ill. Knitting-machine	681,415	Aug. 27	3189	710	96	1740
Friedländer, Leonhard. (See Lissauer, Willi, assignor.)						
Friedman, Samuel J., McKeesport, Pa. Telephone-receiver	683,266	Sept. 24	2917	669	96	2505
Friedmann, Louis, Vienna, Austria-Hungary. Lubricating-pump	677,617	July 2	523	125	96	111
Friez, Julien P., Baltimore, Md. Recording water-gage	681,536	Aug. 27	3423	759 760	96	1786
Frings, Martin. (See Seeds and Frings.)						
Frisbee, David D., Detroit, Mich. Apparatus for oiling fellies	682,594	Sept. 10	1689	385	96	2216
Frisbie, Floyd F., Ledgedale, Pa. Shoe-sole protector and braking device for bicycle-riders	679,527	July 30	4313	969	96	949
Friswell, Richard J., assignor of one-half to British Urolite Company, Limited, London, England. Manufacture of refractory materials	682,140	Sept. 3	879	------	96	2039
Frizell, Herbert L., Boston, Mass. Ladder	677,651	July 2	576	137	96	122
Froeba, George, New Britain, Conn. Lock	678,556	July 16	2335	525 526	96	512
Froehlich, Helen B., New York, N. Y. Educational medium	683,267	Sept. 24	2918	669	96	2505
Froehling, Henry, assignor to P. Davie, Richmond, Va. Extracting nicotin	678,362	July 16	1963	449	96	454
Froehling, Henry, assignor to P. Davie, Richmond, Va. Apparatus for extracting nicotin	678,391	July 16	2025	460	96	446
Frost, Geo. M. (See Moore, Lawrence K., assignor.)						
Fry, John E., Philadelphia, assignor to G. Westinghouse, Pittsburg, Pa. Manufacturing gas	680,770	Aug. 20	1963	435	96	1481
Fuchs, Frædrich, Elizabeth, N. J. Rotary engine	681,537	Aug. 27	3426	760	96	1787
Fuchs, Maximilian J., Stamford, Conn. Machine for making bronze-powder	681,447	Aug. 27	3266	726	96	1755
Fugate, Lake E., Seattle, Wash. Pistol-holder	681,392	Aug. 27	3156	703	96	1732
Fugua, Owen C., *et al.* (See Graham, Elias, assignor.)						
Fuld, Manes E., Baltimore, Md. Portable electric battery	677,652	July 2	577	137	96	122
Fulghum, Edgar W., *et al.* (See Whittaker and Turner, assignors.)						
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company, of New Jersey. Bag-frame catch	677,653	July 2	578	138	96	122
Fuller, Charles W., Chelsea, Mass. Extension-table	681,366	Aug. 27	3112	691	96	1725
Fuller, Henry H., Syracuse, N. Y. Stand	680,771	Aug. 20	1986	436	96	1481
Fuller, Warren A., Cherryfield, N. C. Well-fixture	679,907	July 30	3855	862	96	856
Fulton, H. H. (See Morrow, Alexander P., assignor.)						
Fulton, Samuel M., assignor of one-half to A. T. Ames, Galt, Cal. Valved piston	683,394	Sept. 24	3137	719	96	2551
Fultz, John M. (See Bremser and Fultz.)						
Fulwider, James H., Perkins, Okla. Ter. Anvil attachment	681,538	Aug. 27	3428	761	96	1787
Funck, Martin, St. Louis, Mo. Sounding-box for musical instruments	680,240	Aug. 13	961	216	96	1251
Funderburgh, George W., Springvalley, Ohio. Chicken-coop	678,288	July 9	1708	391	96	368
Funk, Carlyle B., Chicago, Ill. Printing-press	677,408	July 2	124	28 29 30	96	28
Furber, Frederick M., Haverhill, Mass. Scouring or buffing machine	681,636	Aug. 27	3617	804 805	96	1826
Furlong, James E., Providence, R. I. Cushion-tire	679,280	July 23	3793	846	96	821
Furman, Lemuel, assignor of one-half to C. Glave, Bay City, Mich. Rope-clamp	680,481	Aug. 13	1396	305	96	1338
Fusal, Antenore, assignor to A. Balada, Biella, Italy. Manufacture of felt	680,522	Aug. 13	1482	------	96	1356
Fyans, Fraser and Blackway Co. *et al.* (See Lehau, William A., assignor.)						
Fyfe, Paul P. I., Concord, N. C. Station-indicator	681,539	Aug. 27	3429	761 762	96	1787
Fyfe, Paul P. I., Concord, N. C. Station-indicator	681,540	Aug. 27	3436	767 768	96	1789
G. B. Essex Brass Company. (See Essex, George B., assignor.)						
Gabel, Charles, Andrew, Iowa. Combination wagon-body	680,581	Aug. 13	1576	347 348	96	1375
Gabriel, Charles R., assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Milling-machine	680,482	Aug. 13	1397	305	96	1338
Gabrielson, Carl. (See Stickney and Gabrielson.)						
Gaede, Samuel A., and H. J. Duckgelschel, Chicago, Ill. Machine for setting rubber tires	678,653	July 16	2557	572 573	96	555
Gaffney, Charles E., Pawtucket, and F. A. Tibbetts, Providence, R. I. Electric switch	682,540	Sept. 10	1588	360 361	96	2197
Gagarin, Prince Andreas, St. Petersburg, Russia. Adjustable curved ruler	677,349	July 2	28	6	96	8
Gagnon, Jean B., assignor of one-half to A. Paquette, Montreal, Canada. Swing	678,336	July 9	1897	436	96	403
Gaillard, Ella N., Easton, Md. Clasp for hose-supporters	678,654	July 16	2359	573	96	555
Gaines, Albert P., Fayetteville, Ark. Preserving fruit	683,112	Sept. 24	2040	606	96	2448
Galbreath, William, Yates Township, Ill. Machine for handling grain	679,737	Aug. 6	38	11	96	1050
Galer, Herbert. (See Swaney, Fletcher D., assignor.)						
Gallagher, George S., assignor, by mesne assignments, to L. J. Hunt, New York, N. Y. Furnace	680,653	Aug. 13	1722	378	96	1404
Gallagher, Richard D., Jr., assignor to Standard Coupler Company, New York, N. Y., Draft or buffing rigging	677,654	July 2	582	138 139	96	123
Gallagher, Richard D., Jr., assignor to Standard Coupler Company, New York, N. Y. Draft or buffing rigging	681,210	Aug. 27	2809	624	96	1666
Gallagher, Richard D., Jr., assignor to Standard Coupler Company, New York, N. Y. Draft or buffing rigging	681,880	Sept. 3	422	85	96	1948
Gallaher, James. (See Koy and Kveton, assignors.)						
Galloway, William, assignor to A. Thomson, Glasgow, Scotland. Hygienic heel-support	682,141	Sept. 3	880	196	96	2039
Galvin, Frank P., Buffalo, N. Y. Pipe-wrench	681,910	Sept. 3	480	98	96	1960
Gamas, Octave, Wallace, Cal. Tire-setter	681,501	Aug. 27	3368	747	96	1774
Gammelgaard, Peter N., Cappeln, Germany. Alarm apparatus for indicating low level of water in boilers	678,131	July 9	1513	348 349	96	329
Ganahl, Chas. F. de. (See Sewall, Robert H. F., assignor.)						
Gangloff, Louis, Hagenau, Germany. Apparatus for pasteurizing liquids in bottles	678,724	July 16	2674	602 603	96	577
Ganter, Francis X., Baltimore, Md. Glass show-case	680,523	Aug. 13	1484	326	96	1356
Garchey, Louis A., Demi-Lune, France. Photographic process and product	679,501	July 30	4264	------	96	938
Gardam, Joseph W. A. (See Cotter and Gardam.)						
Gardam & Son, William. (See Cotter and Gardam, assignors.)						
Garding, Leonard, Denver, Colo. Print and card cutting board	679,167	July 23	3572	798	96	778

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gardner, Arthur C., Brockton, Mass. Music-portfolio	677,972	July 9	1217	280	96	272
Gardner Electric Drill and Machinery Company. (See Jackson, Manetho C., assignor.)						
Gardner, Joshua G., Baltimore, Md., assignor of one-half to J. Mitchell, Jr., Washington, D. C. Treating sawdust or other granular material	683,268	Sept. 24	2919	669	96	2505
Gardner, Joshua G., Baltimore, Md., assignor of one-half to J. Mitchell, Jr., Washington, D. C. Drying apparatus	683,269	Sept. 24	2922	670	96	2506
Gardner, Marshall B., Aurora, assignor to Chicago Corset Company, Chicago, Ill. Clasp for garment-supporters	679,457	July 30	4166	935	96	920
Gardner, William J., Brooklyn, N. Y. Ear-coverer	678,170	July 9	1588	364	96	343
Garelly, Ferdinand, Jr. (See Eisenbeis and Garelly.)						
Garland, Michael, and D. Lumgair, assignors to M. Garland Company, Bay City, Mich. Steam-engine	680,524	Aug. 13	1485	327	96	1357
Garner, Frank E., Long Meadow, Mass. Thread guide and cleaner	679,121	July 23	3486	779	96	759
Garnier, Honoré, Paris, France. Stud	682,541	Sept. 10	1560	361	96	2197
Garnier, Joe, Chattanooga, Tenn. Cock	679,071	July 23	3576	752	96	736
Garnsey, Everett N., New York, N. Y. Apparatus for use in laying floors	680,483	Aug. 13	1399	306	96	1338
Garretson, Thomas B., Oskaloosa, Iowa. Adjustable stilt	680,454	Aug. 13	1346	294	96	1328
Garrett, Charles B., assignor of one-half to M. Dyke, Minneapolis, Minn. Electric detector for valves	681,211	Aug. 27	2811	624	96	1666
Garrett, Henry, Pendleton, Oreg. Lawn-mower	679,020	July 23	3263	729	96	714
Garrett, James C., San Francisco, Cal. Foot-rest	682,325	Sept. 10	1227	278	96	2123
Gartelman, Nicholas J. (See Abate, Frank J., assignor.)	679,738	Aug. 6	41	11	96	1051
Garwood, Joshua L., Butte, Mont. Dredging apparatus	677,655	July 2	588	140	96	124
Gary, Albert D., assignor of three-fifths to J. W. Cannon, C. A. and W. H. Addington, Lavonia, Ga. Spring attachment for fish-hooks	682,056	Sept. 3	746	161	96	2011
Gary, François C. (See Ricard and Gary.)						
Garzoust, Joseph S., New York, N. Y. Contact for underground trolleys	682,794	Sept. 17	2075	------	96	2313
Gasch, Friedrich A., Hönningen-on-the-Rhine, Germany. Obtaining zinc solutions free from iron and manganese compounds	681,307	Aug. 27	3020	670	96	1707
Gately, John H., Bellows Falls, Vt. Paper-making machine	683,113	Sept. 24	2641	606 / 607	96	2449
Gates Iron Works. (See Capen, Thomas W., assignor.)	678,557	July 16	2339	526	96	512
Gates, William H., Worcester, Mass. Automatic screw-slotting machine	681,448	Aug. 27	3268	727	96	1756
Gathmann, Emil, Washington, D. C. Gun	678,725	July 16	2677	608	96	578
Gathmann, Emil, assignor to Gathmann Torpedo Gun Company, Chicago, Ill. Projectile	678,392	July 16	2029	460 / 461	96	447
Gathmann Torpedo Gun Company. (See Gathmann, Emil, assignor.)	682,186	Sept. 10	967	218	96	2077
Gauen, Charles F., St. Louis, Mo. Hat-fastener	681,449	Aug. 27	3270	727	96	1756
Gauerman, Henry. (See Pryde and Gauerman.)	681,824	Sept. 3	317	64	96	1929
Gauhe, Otto, Oberlahnstein, Germany. Machine for pickling and washing sheet metal	681,652	Aug. 27	3660	820	96	1835
Gault, William P., Cincinnati, Ohio. Stone carving and dressing machine	679,558	July 30	4373	981	96	1873
Gaunt, Joseph S. (See Brook and Gaunt.)	681,691	Sept. 3	46	9	96	1873
Gavin, Patrick E., Rochester, N. Y. Rail-joint	680,324	Aug. 13	1104	245	96	1280
Gay, Charles F., Spokane, Wash. Switch mechanism	681,308	Aug. 27	3021	670	96	1708
Gay, Chauncey W. (See Birnie and Gay.)	678,393	July 16	2030	461	96	448
Gay, Chauncey W., West Springfield, Mass. Paper-box machine	678,726	July 16	2678	------	96	578
Gays, Henry W., Ottawa, Canada. Envelop for repeated use						
Geddes, Warren W., Kendallville, Ind. Box-lid supporter and card-holder						
Gedge, Burton H., Anderson, Ind. Game						
Geen, Philip, Richmond, England. Artificial fishing-bait						
Geery, James, Lancaster, Mo. Hay-derrick						
Gehre, Fritz R. L., Bregenz, Austria-Hungary. Artificial stone						
Gehring, Gustave P. (See Davis, Herbert P., assignor.)						
Gehring, Gustave P. (See Midgley, Frederick W., assignor.)						
Gehring, Gustave P. (See Shoemaker, Harry, assignor.)						
Gehring, Marie V. (See Shoemaker, Harry, assignor.)						
Gehring, Marie V., *et al.* (See Shoemaker, Harry, assignor.)	681,212	Aug. 27	2813	625	96	1666
Gehringer, Adam, Philadelphia, Pa. Cart shovel and scraper	680,096	Aug. 6	591	129	96	1160
Gehrung, Julien A., St. Louis, Mo. Electrical signaling system	680,325	Aug. 13	1104	246	96	1280
Geiger, Charles M., Salt Lake City, Utah. Compensation-regulator for watches	683,270	Sept. 24	2926	670	96	2506
Geiger, Richard H., Pittsburg, Pa. Fence-post	681,051	Aug. 20	2520	558	96	1586
Geisel, Paul, Rochester, N. Y., assignor to C. Chaveriat, Chicago, Ill. Potato-digger	678,171	July 9	1584	365	96	343
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Commutator for electric machines	679,308	July 30	3857	862	96	856
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Insulator	682,353	Sept. 10	1272	287	96	2131
Geiser Manufacturing Company. (See Flautt, Melvin A., assignor.)	679,739	Aug. 6	42	12	96	1051
Geisler, Joseph F., New York, N. Y. Filter	678,727	July 16	2679	608	96	578
Geisler, Joseph F., assignor to American Wood Fireproofing Company, New York, N. Y. Fireproofing wood						
Geldermann, Frederick H., Paterson, N. J. Chenille-machine						
General Electric Company. (See Armstrong, Albert H., assignor.)						
General Electric Company. (See Bassett, Norman C., assignor.)						
General Electric Company. (See Bell, Louis, assignor.)						
General Electric Company. (See Berg, Ernst J., assignor.)						
General Electric Company. (See Case, Frank E., assignor.)						
General Electric Company. (See Cox and Holmes, assignors.)						
General Electric Company. (See Davis, Albert G., assignor.)						
General Electric Company. (See Davis and Potter, assignors.)						
General Electric Company. (See Dempster, John T. H., assignor.)						
General Electric Company. (See Edwards, Harold, assignor.)						
General Electric Company. (See Erben, Hermann F. T., assignor.)						
General Electric Company. (See Everest, Augustine R., assignor.)						
General Electric Company. (See Farnsworth, Philip, assignor.)						
General Electric Company. (See Fish, Walter C., assignor.)						
General Electric Company. (See Frank, John J., assignor.)						
General Electric Company. (See Geisenhöner, Henry, assignor.)						
General Electric Company. (See Hall, John L., assignor.)						
General Electric Company. (See Haskins, Caryl D., assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Higham, Daniel, assignor.)						
General Electric Company. (See Hobart, Henry M., assignor.)						
General Electric Company. (See Hoffman, Joseph, assignor.)						
General Electric Company. (See Holmes, Charles E., assignor.)						
General Electric Company. (See Howell and Burrows, assignors.)						

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General Electric Company. (See Johnston, Thomas J., assignor.)						
General Electric Company. (See Larson, Carl W., assignor.)						
General Electric Company. (See Mackintosh, Frederick, assignor.)						
General Electric Company. (See Moody, Walter S., assignor.)						
General Electric Company. (See Potter and Case, assignors.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Pratt, William H., assignor.)						
General Electric Company. (See Priest, Edward D., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Rice, Edwin W., Jr., assignor.)						
General Electric Company. (See Riddell, John, assignor.)						
General Electric Company. (See Sargent, Howard R., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Stevens, George E., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Tournier, Julius C., assignor.)						
General Electric Company. (See Van Slyck, Charles H., assignor.)						
General Electric Company. (See Vaughen, Frank G., assignor.)						
General Engineering Company. (See Weaver, Robert T., assignor.)						
General Incandescent Arc Light Company. (See Ball, Henry P., assignor.)						
General Incandescent Arc Light Company. (See Hallberg, Josef H., assignor.)						
General Manufacturing Company. (See Creelman, William J., assignor.)						
General Metal Reduction Company. (See Bechi, Guy de, assignor.)						
Generelly, Laurent E., New Orleans, La. Pump	679,892	Aug. 6	393	71	96	1110
Gentle, Charles, Hamilton, Canada. Stove, range, or the like	681,309	Aug. 27	3022	670	96	1708
Genzlinger, Fred, Phœnix, Ariz. Ter. Perambulator	681,911	Sept. 3	481	98	96	1961
George Ermold Company. (See Ermold, George, assignor.)						
George, Frederick H., Minneapolis, Minn., assignor to W. S. Nott Company. Frame for stretching leather	680,855	Aug. 20	2149	472	96	1513
George, Frederick J., Elgin, and L. Delivouk, Chicago, Ill., assignors to F. A. Owen, Danville, N. Y. Card-cutting machine	677,504	July 2	299	74, 75	96	64
George M. Clark & Company. (See Harvey, John G., assignor.)						
George, Walter B., Homer City, Pa. Framework for buildings	678,728	July 16	2680	604	96	578
Gerard, Walter, St. Bernard, Ohio. Trolley-wire support	682,187	Sept. 10	968	218	96	2077
Gerdes, Heinrich, assignor to Firm of J. Pintsch, Berlin, Germany. Pressure-regulator for gas-generators	683,084	Sept. 24	2515	571	96	2428
Gerdum, Albert, Cleveland, Ohio. Lip attachment for lawn-sprinklers	682,964	Sept. 17	2431	550	96	2385
Gerecke, Otto, Markneukirchen, Germany. Musical string instrument	682,925	Sept. 17	2323	524	96	2368
Gerfen, Ernest E., Union City, Ind. Razor-strop	681,020	Aug. 20	2462	545	96	1575
Gerlach, Georg, Berlin, Germany. Photographic-printing apparatus	679,740	Aug. 6	45	12	96	1052
Gerlach, Rudolph P., Cleveland, Ohio. Sawing or cutting machine	678,729	July 16	2682	604	96	579
Germain, Ernest, Paris, France. Cushion-tire	682,057	Sept. 3	746	162	96	2011
Germanson, Julius M., assignor to Western Malleable and Grey Iron Manufacturing Company, Milwaukee, Wis. Revolving chair	682,795	Sept. 17	2076	470	96	2314
Gernsey, William W., North Harvey, assignor of one-half to F. L. De La Mater, Harvey, Ill. Folding egg-crate	679,309	July 30	3859	862	96	857
Gervais, Charles E., assignor of one-half to W. S. Jessup, New York, N. Y. Lamp	678,655	July 16	2561	573	96	556
Gharky, William D., Philadelphia, Pa. Telephone-receiver	677,409	July 2	130	30	96	29
Gharky, William D., Philadelphia, Pa. Operator's suspension set for telephone-switchboards	677,410	July 2	132	31	96	30
Gharky, William D., Philadelphia, Pa. Lightning-arrester	677,973	July 9	1218	280	96	272
Gheen, John W., Portland, Oreg. Fire-pot	682,463	Sept. 10	1462	331	96	2170
Ghegan, John J., Newark, N. J., assignor to J. H. Bunnell & Company, of New York. Telegraphic instrument	678,394	July 16	2031	461	96	448
Ghegan, John J., Newark, N. J., assignor to J. H. Bunnell & Company, of New York. Telegraphic instrument	678,395	July 16	2033	462	96	448
Gherassimoff, Nicolas, St. Petersburg, Russia. Dam	677,656	July 2	589	140 / 141	96	125
Gianese, Benvenuto, Genoa, Italy. Life-boat	677,760	July 2	775	186	96	164
Gibbard, William F., and H. Anderson, Eureka, Cal. Drying shingles	680,141	Aug. 6	765	170 / 171	96	1197
Gibbins, Patrocles A., New York, N. Y. Electric incandescent lamp	681,692	Sept. 3	48	9	96	1873
Gibbons, Pierce F., Chicago, Ill. Butter-cutter	681,912	Sept. 3	482	98, 99	96	1961
Gibbs, Antony, Bristol, England. Free-wheel velocipede	683,271	Sept. 24	2927	670 / 671	96	2506
Gibbs Electric Signal Company. (See Gibbs, Harry T., assignor.)						
Gibbs, Harry T., assignor to Gibbs Electric Signal Company, Portsmouth, R. I. Signal for electric railways	681,780	Sept. 3	247	47, 48	96	1914
Gibbs, Samuel W., and C. Monteith, Somerset, Mass. Strap connection	677,505	July 2	302	75	96	65
Gibbs, William E., Fanwood, N. J. Boiler-feed apparatus	677,863	July 9	989	222	96	228
Gibbs, William E., Fanwood, N. J., assignor to Humphreys & Glasgow, New York, N. Y. Prepayment fluid-meter	677,974	July 9	1220	280 / 281	96	273
Gibson, John J. (See Ball and Gibson.)						
Giebeler, Eduard, Brooklyn, N. Y. Micrometer-calipers	679,958	July 23	3741	885	96	811
Gielow, Frederick, Sr., assignor to F. Gielow, Jr., and C. Burmeister, Chicago, Ill. Graphite lubricator	683,114	Sept. 24	2644	607 / 608	96	2449
Gies, William, Jr., St. Marys, Pa. Box-lid holder	677,506	July 2	303	75	96	65
Giesy, Edward H., assignor to A. M. Stearns, Wyoming, and H. H. Giesy, Lancaster, Ohio. Refrigerator	682,589	Sept. 10	1679	382 / 383	96	2214
Giesy, Henry H., *et al.* (See Giesy, Edward H., assignor.)						
Gifford, George W., assignor of one-half to H. L. Read. Kinsley, Kans. End-gate	682,610	Sept. 17	1722	393	96	2346
Gifford, Robert L., *et al.* (See Nistle, George W., assignor.)						
Giglio, Massimino, Boston, Mass. Blind-fastener	680,241	Aug. 13	963	216	96	1251
Gilbert, James M., Dallas, Tex. Dental apparatus	677,975	July 9	1224	281 / 282	96	273
Gildard, Christopher G. (See Coldwell and Gildard.) (Reissue.)						
Giles, Harvey. (See Smith and Giles.)						
Giles, Harvey, South Boundbrook, assignor to Ideal Cash Register Company, New Boundbrook, N. J. Cash-register	677,976	July 9	1226	282	96	274
Giles, Harvey, South Boundbrook, and J. G. Fleming, assignors to Ideal Cash Register Company, New Boundbrook, N. J. Cash-register	677,864	July 9	990	232 / 233	96	226
Gilfillan, Essington N., and E. T. McKaig, Chicago, Ill., assignors to New York Labeling Machine Company, of New York. Labeling-machine	682,611	Sept. 17	1724	393 / 394	96	2346
Gilfillan, Thomas G., assignor of one-half to S. A. Pursel, Union, Oreg. Truss-bridge	678,239	July 9	1709	391 / 392	96	368
Gill, Edwin R., New York, N. Y. Means for coiling flexible material	682,142	Sept. 3	881	197	96	2089

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gillen, John, Fort Worth, Tex. Rail-joint	683,085	Sept. 24	2516	572	96	2428
Gillenwater, Edward, *et al.* (See Richards, Jesse D., assignor.)						
Gillespie, Albert C., and J. C. Davis, Pittsfield, Ill. Insect-exterminator	681,825	Sept. 3	318	65	96	1929
Gillespie, Delos S., Los Angeles, Cal. Wave-motor	681,913	Sept. 3	485	99	96	1902
Gillespie, Frank N. (See Blessing, Gay P., assignor.)						
Gillett, Oscar F. (See Holcomb, Linus, assignor.)						
Gillette, William R., Chicago, Ill. Combined mop head and wringer	678,240	July 9	1710	392	96	368
Gillham, Robert J., Kissimmee, Fla. Blotter	678,313	July 9	1857	427	96	396
Gilli, Francesco, Florence, Italy. Device for drying warps, yarns, or the like	680,037	Aug. 6	597	130	96	1162
Gilliom, Daniel, Perry, Okla. Ter. Straight-edge	683,115	Sept. 24	2647	608	96	2449
Gilmer, John G., St. Petersburg, Fla. Electric conveyer	678,312	July 9	1856	427	96	396
Gilmore, Howard, Boston, Mass. Incandescent electric lamp	680,242	Aug. 13	963	216 217	96	1251
Gilpatric, Harry, Springfield, Vt. Incandescent-electric-light support	680,918	Aug. 20	2257	496	96	1534
Gilson, Thomas, Providence, R. I. Picker mechanism for looms	678,241	July 9	1711	392	96	369
Gioda, Gaetano, New York, N. Y. Repeating pistol	680,243	Aug. 13	964	217	96	1252
Gioda, Gaetano, New York, N. Y. Comb-cleaner	681,478	Aug. 27	3322	738	96	1766
Girard, Adam C., Paris, France. Making explosives	683,116	Sept. 24	2648	.....	96	2450
Girardville, Paul N. L., Paris, France. Shut-off valve device for gas-pipes and nozzles	678,702	July 16	2782	626	96	597
Giraud, Eugène F., Doulaincourt, France. Chain-making machine	677,568	July 2	435	103	96	92
Girouard, Raoul, Westbrook, Me., assignor to S. D. Warren & Company, Boston, Mass. Liquid-feed device for electrolytic apparatus	679,050	July 23	3331	744	96	727
Giroud, Peter G., Binghamton, N. Y., assignor to International Time Recording Company, of New Jersey. Time-stamp	678,656	July 16	2563	573 574	96	556
Giroud, Peter G., Binghamton, N. Y., assignor to International Time Recording Company, of New Jersey. Time-recorder	678,777	July 16	2756	620	96	598
Giroud, Peter G., Newark, N. J., assignor to International Time Recording Company, of New Jersey. Plunger for time-stamps	678,778	July 16	2757	620	96	598
Gist, Lane, Lake City, Iowa. Watering-trough	680,772	Aug. 20	1987	436	96	1482
Glauber, Joseph H., Cleveland, Ohio. Coupling-joint	682,950	Sept. 10	1090	247	96	2099
Glave, Charles. (See Furman, Lemuel, assignor.)						
Gleason, James E. (See Gleason, William and J. E.)						
Gleason, Michael J., assignor to A. H. Bamberger, New York, N. Y. Umbrella-runner	678,868	July 23	2952	664	96	653
Gleason Tool Company. (See Gleason, William and J. E., assignors.)						
Gleason, William and J. E., assignors to Gleason Tool Company, Rochester, N. Y. Gear-planer	678,337	July 9	1808	436 437 438	96	404
Gleazen, Silas, Fort Collins, Colo. Tire-heater	681,213	Aug. 27	2814	625	96	1667
Gleim, William S., Lancaster, Pa. Cigar-wrapper-cutting machine	683,272	Sept. 24	2929	671	96	2507
Glenn, James M., Cincinnati, Ohio. Combined chest, settee, and bed	678,465	July 16	2159	487	96	473
Glenn, John, St. Louis, Mo. Vehicle-tire	681,310	Aug. 27	3024	670	96	1708
Glidden, Joseph F., DeKalb, Ill. Stock trough or tank	678,104	July 9	1467	338	96	320
Glidden, Joseph F., DeKalb, Ill. Dam	678,105	July 9	1468	338	96	320
Glisson, Amos A., Fort Worth, Tex. Trade-book	679,741	Aug. 6	46	12,13	96	1052
Globe Development Company. (See Scott, Barton W., assignor.)						
Globe Sign Company. (See Bender, Horace G., assignor.)						
Globe-Wernicke Company. (See Tobey, Fred W., assignor.)						
Gloeden, Conrad, Friedrichshagen, Germany. Machine for the manufacture of cigarettes	682,542	Sept. 10	1591	361	96	2197
Glore, George W., *et al.* (See Pratt, Eber W., assignor.)	681,214	Aug. 27	2816	625	96	1667
Glover, Charles, New Britain, Conn. Pedal						
Glynn, Thomas E., *et al.* (See Laux, Mathias, assignor.)						
Gobisch, Edward L., Jersey City, N. J. Smoke-preventing attachment for lamp-burners	679,616	July 30	4472	1005	96	985
Gocher, George, Johnstown, Pa. Water-wheel	678,869	July 23	2953	665	96	653
Gocht, Louis, Chemnitz, Germany. Means for locking nuts and bolt-heads	680,709	Aug. 20	1868	410	96	1456
Godbe, Ernest L., Salt Lake City, Utah. Leaching ores	682,612	Sept. 17	1727	394	96	2247
Goddard, Wilfred H., Chelsea, Mass. Detachable can-holder	679,742	Aug. 6	51	13	96	1052
Godefroy-Lebeuf, Alexander L. (See Verneuil, Godefroy-Lebeuf, and Arnaud.)						
Godley, George F., Philadelphia, Pa. Lubricator	681,848	Sept. 3	365	73	96	1838
Godman, John E. (See Paggett, Charles G., assignor.)						
Goehring, Anton, Edgeley, N. D. Grain-weigher	682,926	Sept. 17	2923	525	96	2264
Goehst, John H., and C. M. Wilkes, Chicago, Ill. Outlet for electric conductors	681,416	Aug. 27	3194	711	96	1742
Goerz, C. P. (See Mixner, André, assignor.)						
Gogel, Jacob, Toledo, Ohio. Tire-heater	680,455	Aug. 13	1347	295	96	1328
Gogel, Jacob, Toledo, Ohio. Fifth-wheel	682,927	Sept. 17	2925	525	96	2264
Goldbach, Louis, *et al.* (See Tiller, Thomas J., assignor.)						
Goldberg, Joseph, New York, N. Y. Clasp	682,354	Sept. 10	1274	287	96	2132
Golden Link Consolidated Gold Mines. (See Phillips, Henry J., assignor.)						
Goldenbogen, Frederick, assignor to Brunswick-Balke-Collender Company, Chicago, Ill. Column for interior cabinet-work	681,417	Aug. 27	3196	711	96	1742
Goldenbogen, Frederick, Chicago, Ill., assignor to Brunswick-Balke-Collender Company, of Ohio. Column for interior woodwork	681,693	Sept. 3	49	9	96	1873
Goldin, Joseph, *et al.* (See Rothe, John C., assignor.)						
Goldman, Henry, Chicago, Ill. Parallel-ruler	677,777	July 2	811	194	96	172
Goldman, Henry, Chicago, Ill. Registering device	681,781	Sept. 3	250	48	96	1915
Goldsmith, Byron B., New York, N. Y. Fountain-pen	678,466	July 16	2161	487 488	96	473
Goll, Richard, Frankfort-on-the-Main, Germany. Apparatus for equalizing air-currents	681,215	Aug. 27	2817	626	96	1667
Goltermann, Hermann, East Orange, N. J. Atomizer	678,242	July 9	1712	392	96	369
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Rubber gearing	680,654	Aug. 13	1724	378	96	1405
Gooch, Benjamin F. (See Westbrook, John A., assignor.)						
Goode, Richard N., *et al.* (See Tiller, Thomas J., assignor.)						
Goode, Wyatt L., *et al.* (See Tiller, Thomas J., assignor.)						
Goodell, Zina. (See Hall, Benjamin F., assignor.)						
Goodhue, James E., St. Charles, Ill. Corn-husking machine	683,174	Sept. 24	2737	629 630	96	2467
Goodier, Nicholas, and T. Pollitt, Manchester, England. Motor mechanism	682,928	Sept. 17	2926	525 526	96	2264
Gooding, Charles S., Brookline, and F. Hausmann, assignors to Siegel Labeling Machine Company, Boston, Mass. Bottle-labeling machine	680,972	Aug. 20	2268	521	96	1556
Goodlad, Robert, Southsea, England. Speed-indicator	682,929	Sept. 17	2329	527	96	2365
Goodrich, Judson A. (See Shay, William H., assignor.)						
Goodwin, John M., New York, N. Y. Dumping-scow	678,657	July 16	2567	574	96	557
Gordon, Edward S., Santa Rosa, Cal. Combined harrow and crusher	681,849	Sept. 3	367	73	96	1908

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gordon, John W., Marietta, Ohio. Railway-switch	682,058	Sept. 3	747	162	96	2012
Gordon, Louis H., Allegheny, assignor to A. Laughlin, Sewickley, Pa. Soaking-pit cover	681,115	Aug. 20	2627	581	96	1609
Gordon, Thomas, assignor to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Incandescent vapor-burner	681,851	Sept. 3	369	74	96	1939
Gordon, Thomas, assignor to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Incandescent vapor-burner	681,852	Sept. 3	370	74	96	1939
Gordon, Walter T., Juniper, Oreg. Treadle mechanism	682,355	Sept. 10	1275	287	96	2132
Gore, Kossuth, Berkeley, Cal. Motor	680,038	Aug. 6	596	130	96	1162
Gore, Kossuth, Berkeley, Cal. Windmill	680,039	Aug. 6	601	131	96	1163
Gorham, George R., Chicago, Ill. Grain-treating apparatus	683,086	Sept. 24	2517	572	96	2428
Gorham Manufacturing Company. (See Day, William A., assignor.)						
Gorman, Frank, Mount Oliver, Pa. Mold for making chilled rolls	679,743	Aug. 6	52	13	96	1052
Gorton, John C. (See Carney and Gorton.)						
Gorton, Robert, Newton, Mass. Garment-supporter	682,543	Sept. 10	1593	362	96	2198
Gorton, William E., assignor to Corning Brake Shoe Company, Corning, N. Y. Brake-shoe	678,997	July 23	3212	719	96	704
Gorton, William S., Cleveland, Ohio. Tube-welding machine	681,694	Sept. 3	51	10	96	1873
Gosienieckl, Francis X. L., New York, N. Y. Closet-bowl	681,541	Aug. 27	3439	763	96	1790
Goss, Edgar O. (See Collier, Arthur T., assignor.)						
Goss, Ossian W. (See Wright, William H., assignor.)						
Goss Printing Press Company. (See Firm, Joseph L., assignor.)						
Gotcher, Samuel A., St. Louis, Mo. Water-heater for the feet, &c	679,528	July 30	4315	970	96	949
Gotham, Darwin B. (See Rogers, Herbert W., assignor.)						
Gothier, Frank, Lancaster, N. H. Stone-lifter	677,507	July 2	805	75,76	96	66
Gotshall, Charles J., trustee. (See McNall, Frank E., assignor.)						
Gottsmann, Joseph, Newark, N. J. Apparatus for setting saw-teeth	680,484	Aug. 13	1401	806	96	1339
Goughnour, George R., Middlebranch, assignor of one-half to E. Davidson, Canton, Ohio. Clutch	679,744	Aug. 6	54	13	96	1053
Goughnour, Henry S., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Dust-guard	679,021	July 23	3264	729	96	714
Gouin, Jean F. (See Nessel and Gouin.)						
Goulaeff, Erast E., St. Petersburg, Russia. Construction of vessels	681,962	Sept. 3	595	126	96	1984
Gould, Howard W., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Sewing and indenting machine	680,142	Aug. 6	767	171 172	96	1197
Gould, John M. G., Boston, Mass. Electromagnetically-operated door-opener	682,796	Sept. 17	2077	470	96	2314
Gourny-Wysocki, Venceslas, Brussels, Belgium. Driving mechanism for cycles	683,087	Sept. 24	2519	572 573	96	2424
Graf, John J. (See Benedict and Graf.)						
Graff, Harry H., Pittsburg, Pa. Portable boiler	681,542	Aug. 27	3440	763	96	1790
Graham, Alexander C., *et al.* (See Huntley, Edward C., assignor.)						
Graham, Benjamin J., A. C. Buell, and H. L. Salisbury, Springfield, Mass. Acetylene-gas generator	681,168	Aug. 20	2781	605 606	96	1630
Graham, Charles K. (See Toupikof and Graham.)						
Graham, Charles K., London, England. Paper-making machine	682,544	Sept. 10	1594	362	96	2198
Graham, Elias, assignor of two-thirds to S. McBride, Hazeldell, and O. C. Fugua, Casey, Ill. Mail-bag-delivery apparatus	682,980	Sept. 17	2330	527	96	2365
Graham, George, Port Arthur, Tex. Life-preserver	679,502	July 30	4266	960	96	988
Graham, Isaac N., W. C. Craig, and G. W. Shinault, Deerfield, Va. Cutter-bar for harvesters or mowers	677,977	July 9	1230	282	96	275
Graham, John, Philadelphia, Pa. Hydrocarbon-burner	681,782	Sept. 3	252	48	96	1916
Graham, John E., Roanoke, Va. Strut for wrecking-cars	679,840	Aug. 6	237	50	96	1090
Graham, Levi P., Decatur, Ill. Corn-planter	680,326	Aug. 13	1107	246 247	96	1280
Graham, Sidney J., Oakland, Ky. Apparatus for automatically receiving and delivering mail-bags	678,558	July 16	2341	526 527	96	513
Graham-Yooll, Frederick R., Edinburgh, Scotland. Stopper for infants' feeding-bottles	682,464	Sept. 10	1463	332	96	2171
Gramlich, George M. (See Jaeger, Heinrich F. W., assignor.)						
Granbery, Eugene T., New York, N. Y. Machine for transferring mail-bags	677,978	July 9	1232	283	96	275
Granger Foundry & Machine Company. (See Honeyman, Henry W., assignor.)						
Granges, John C. des, San Francisco, Cal. Excavating and gold-saving apparatus	677,844	July 2	948	224	96	199
Grant, Charles W., Derby, Conn., assignor, by mesne assignments, to F. J. Nevins, Brooklyn, N. Y. Tool-holder	677,350	July 2	29	7	96	9
Grant, Freeman, Stonington, Me. Power-transmitting device	681,116	Aug. 20	2020	581	96	1609
Grant, James L., Johnson City, Tenn. Sawmill	678,658	July 16	2569	575	96	557
Grant, Peter, Marquette, Mich. Thread-waxing attachment for sewing-machines	680,582	Aug. 13	1577	348	96	1375
Grass, Henry, Flowerdale, Victoria. Fountain-pen	682,188	Sept. 10	971	219	96	2078
Grasselli Chemical Company. (See Lihme, Iens P., assignor.)						
Graves, Earl, Kokomo, Ind., assignor of one-half to A. Myers, Cincinnati, Ohio. Breech-loading firearm	680,973	Aug. 20	236.	521	96	1557
Graves, Erwin, assignor to Camden Iron Works, Camden, N. J. Hydraulic punch or like tool	683,395	Sept. 24	3139	719 720	96	2551
Gray, Charles A., Kansas City, Kans., assignor to Gray Pneumatic Carrier Co., Kansas City, Mo. Pneumatic-despatch-tube system	682,985	Sept. 17	2432	550 551	96	2385
Gray, Edward, assignor of one-half to P. C. Blaisdell, Bradford, Pa. Pneumatic liquid-raising apparatus	681,216	Aug. 27	2818	626	96	1667
Gray, George F. and H. N., and R. South, San Francisco, Cal. Brick-kiln	680,914	Aug. 20	2258	496 497	96	1534
Gray, Harry N. (See Gray and South.)						
Gray, John W., Oakland, Cal. Liquid-balance	682,382	Sept. 10	1314	296	96	2141
Gray, Niel, Jr., assignor to Oswego Machine Works, Oswego, N. Y. Paper-cutting machine	680,655	Aug. 13	1725	378 379	96	1405
Gray, Niel, Jr., assignor to Oswego Machine Works, Oswego, N. Y. Hand-clamping device for paper-cutting machines	680,656	Aug. 13	1727	380	96	1406
Gray Pneumatic Carrier Co. (See Gray, Charles A., assignor.)						
Gray Telephone Pay Station Company. (See Gray, William, assignor.)						
Gray, Thomas S. (See McClary and Gray.)						
Gray, William, assignor to Gray Telephone Pay Station Company, Hartford, Conn. Telephone toll apparatus	682,986	Sept. 17	2435	551	96	2386
Grayson, Horace, assignor to H. H. Williams, Providence, R. I. Barrel-tap	682,797	Sept. 17	2080	471	96	2315
Greacen, Stanley, Bloomfield, N. J. Carpet-sweeper fender	677,413	July 2	133	31	96	80
Greely, Adolphus W., Washington, D. C. Telegraph and cable code	678,363	July 16	1964	.....	96	434
Green, Arthur G., Heaton Moor, and A. Meyenberg, assignors to Clayton Aniline Company, Limited, Clayton, Manchester, England. Dyeing thiosulfate colors	681,117	Aug. 20	2630	.....	96	1609
Green, Edward A., Brooklyn, assignor to American Construction Company, New York, N. Y. Amusement-railway	678,243	July 9	1714	393	96	369

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Green, George S., Philadelphia, Pa. Back-pedaling brake	680,244	Aug. 13	967	218	96	1252
Green, Henry, assignor to Acme Harvester Company, Pekin, Ill. Manually-operated attachment for mowers	680,915	Aug. 20	2260	497	96	1585
Green, James O., and H. T. Martin, Whitewater, Wis. Machine for converting peat into compact non-fibrous substances for use as fuel	682,059	Sept. 3	749	162	96	2012
Green, John H., assignor of one-half to H. Harris, Springfield, Ill. Buff-wheel attachment for sewing-machines	681,783	Sept. 3	254	49	96	1916
Green & Sons, Robert. (See MacLearn, John P., assignor.)	682,189	Sept. 10	972	219, 220	96	2078
Green, Squire T., Bee Spring, Ky. Manufacture of flour	678,480	July 16	2203	495	96	488
Green, Thomas W., assignor to Wilbraham Baker Blower Company, Philadelphia, Pa. Impeller for rotary blowers	680,143	Aug. 6	771	172	96	1198
Greenawalt, Peter C., Reading, assignor of one-half to Wrightsville Hardware Company, Wrightsville, Pa. Detachable handle for sad-irons	682,409	Sept. 10	1367	308	96	2151
Greene, Benjamin F., Sheridan, Pa. Thread-protector	682,848	Sept. 17	2184	493	96	2336
Greene, Darwin A., Brooklyn, N. Y. Wood-bundling machine	682,849	Sept. 17	2186	493, 494	96	2336
Greene, Darwin A., Brooklyn, N. Y. Wood-bundling machine	682,590	Sept. 10	1683	383	96	2215
Greer, Thomas J., St. Helena, Cal. Graduated lawn or garden sprinkler	678,659	July 16	2571	576	96	558
Gregg, Albert A., Buffalo, Wyo. Cot	678,616	July 16	2482	555	96	541
Gregory, Albert J., *et al.* (See Walsh, William A., assignor.)	682,931	Sept. 17	2332	527	96	2365
Gregory, Eugene, Battlecreek, Mich. Device for teaching bookkeeping	681,695	Sept. 3	54	10	96	1874
Gregory, John W., assignor to Sunlight Manufacturing and Supply Company, St. Joseph, Mo. Acetylene-gas machine	678,870	July 23	2564	665	96	654
Grell, Frederick W., Collegepoint, N. Y. Comb	683,202	Sept. 24	2785	642	96	2476
Grever, Albert R., Philadelphia, Pa. Filter	683,273	Sept. 24	2931	671, 672	96	2507
Grewer, Edward C., Scranton, Pa. Automatic vending-machine	678,617	July 16	2484	555	96	541
Grey, Sylvester P., Fort Wayne, Ind. Automatic cylinder-cock	678,837	July 16	2892	652	96	621
Gridley, Francis W., *et al.* (See English and Cooney, assignors.)	681,543	Aug. 27	3442	783	96	1790
Grieb, Alfred. (See Diehl and Grieb.)	681,021	Aug. 20	2463	545, 546	96	1575
Griffin, Anthony J., New York, N. Y. Guiding device for trolleys	681,311	Aug. 27	3025	671	96	1708
Griffin, Charles W., assignor to Taylor, Stiles & Company, Riegelsville, N. J. Machine for cutting paper-stock	679,745	Aug. 6	55	14	96	1053
Griffin, William B., Glens Falls, N. Y. Spring-gear for vehicles	683,098	Sept. 24	2521	574	96	2434
Griffith, Charles H., assignor to Winchester Repeating Arms Co., New Haven, Conn. Breech-loading cannon	677,657	July 2	592	141, 142	96	125
Griffith, Frederick T. (See Hommel, Jacob, assignor.)	680,583	Aug. 13	1578	348	96	1375
Griffith, John L., *et al.* (See Rawles, John, assignor.)	682,090	Sept. 3	750	163	96	2012
Griffiths, Ebenezer F., Philadelphia, Pa. Prepayment gas-meter	681,696	Sept. 3	55	10, 11	96	1874
Griffiths, Spencer M., assignor of one-half to C. Pierson, Philadelphia, Pa. Scarf	677,508	July 2	306	76	96	66
Grills, Thomas O., Brooklyn, N. Y. Polishing attachment for shoe-brushes	678,172	July 9	1586	365	96	343
Grimes, Walter, and C. C. Wakefield, London, England. Sight-feed lubricator	677,540	July 2	309	89, 90	96	79
Grimm, Paul H., Glencove, assignor of one-half to M. H. Treadwell, New York, N. Y. Combined steam-condenser and oil-separator	682,798	Sept. 17	2082	471	96	2315
Grimshaw, Frank B., Clark, S. D. Oil-can	682,061	Sept. 3	752	------	96	2013
Grinnell, Henry B., New York, N. Y. Apparatus for hauling electric cables	682,143	Sept. 3	883	197	96	2040
Grisez, Peter N., and J. S. Walch, Montague, Cal. Boiler-leveling device	678,467	July 16	2163	488	96	473
Grisham, Lawrence. (See Neubauer and Grisham.)	677,450	July 2	210	------	96	46
Grist, Benjamin W., assignor to F. A. Riehlé, Philadelphia, Pa. Adjustable stroke mechanism	682,251	Sept. 10	1091	247, 248	96	2099
Groebli, Joseph A., assignor to Kursheed Manufacturing Company, New York, N. Y. Feeding device for plaiting-machines	682,798	Sept. 17	2082	471	96	2315
Groeschel, Edwin W., Bayonne, N. J. Corset-clasp	682,061	Sept. 3	752	------	96	2013
Groke, Gustav H. R. (See Martin, David W., assignor.)	682,143	Sept. 3	883	197	96	2040
Grollet, Camille, Paris, France. Extracting gold from ores, &c	678,467	July 16	2163	488	96	473
Grommer, Frederick L., *et al.* (See Martin, Thomas H., assignor.)	677,450	July 2	210	------	96	46
Groom, Isaac E., Marysville, assignor of one-half to N. A. Faulkner, Marshall County, Kans. Mowing-machine	682,251	Sept. 10	1091	247, 248	96	2099
Groomes, Asal, Detroit, Mich. Submarine telescope	678,660	July 16	2572	576	96	558
Gros, Fernand, and P. Bourcart, Remiremont, France. Mercerizing	681,450	Aug. 27	3271	727, 728	96	1756
Groshon, John A., New York, N. Y. Rotary engine	677,509	July 2	308	76	96	66
Gross, Harry A. (See Hills and Southard, assignors.)	681,312	Aug. 27	3030	671	96	1709
Gross, Vincent. (See Poehlman and Gross.)	683,203	Sept. 24	2787	642, 643	96	2477
Grothe, William, assignor to White Sewing Machine Company, Cleveland, Ohio. Slack-thread-controlling device for sewing-machines	683,204	Sept. 24	2792	643, 644	96	2478
Groupe, Andrew V., Moore, assignor of one-half to L. R. Schwerin, Philadelphia, Pa. Braiding-machine	678,481	July 16	2204	496	96	483
Grove, Mary E., Pittsburg, Pa. Skirt-supporter	679,746	Aug. 6	56	14	96	1053
Grozier, James H., Hartford, Conn. Combined pipe collar and flange	679,225	July 23	3678	820	96	800
Grubb, Howard, Dublin, Ireland. Sighting device for guns	678,559	July 16	2347	528	96	514
Grubb, Howard, Dublin, Ireland. Sighting apparatus for barbette or other guns	677,541	July 2	371	90, 91	96	80
Grubbs, Harry G., Allegheny, Pa. Flushing cuspidor	678,244	July 9	1715	398	96	370
Grueby, William H., Chelsea, Mass. Building construction	678,115	July 9	1484	342	96	328
Gruhlkey, Daniel, Marseilles, Ill. Railway-switch	678,245	July 9	1717	398	96	370
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Current-collector or trolley for electric railways	678,779	July 16	2759	621	96	594
Gruschow, Robert H., and H. H. Osborn, assignors of one-third to D. MacLean, Chicago, Ill. Signaling device	679,420	July 30	4089	913	96	905
Gruss, Rudolph, and A. Brückner, Jersey City, N. J. Doll-face	679,559	July 30	4374	982	96	963
Guéniffet, Julien. (See Benoit, Guéniffet, and Nicault.)	677,865	July 9	998	234	96	220
Guenther, Robert, Jersey City, N. J. Window-scaffold	678,730	July 16	2684	604	96	579
Guess, Ryerson S. (See Dawson, William R., assignor.)						
Gufford, William S. (See Hembree, Elihue M., assignor.)						
Guimaraes, Julio, Berlin, Germany. Oil-stove						
Guinn, John A., assignor to F. Hooker, Baltimore, Md. Ball-bearing						
Guinzburg, Henry A., assignor to I. B. Kleinert Rubber Company, New York, N. Y. Duplex stocking-supporter						
Guinzburg, Henry A., assignor to I. B. Kleinert Rubber Company, New York, N. Y. Combined corset-clasp lock and stocking-supporter						
Guldlin, Olaf N., Fort Wayne, Ind. Gas-washer						
Gunderson, Iver, Lac qui Parle, Minn. Animal-poke						

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Gunn, William S. (See Frederick, Edwin E., assignor.)						
Gurney Foundry Company. (See Cunningham, John J., assignor.)						
Gurney, Frederick W., Roan Mountain, Tenn. Wood pulley	680,994	Aug. 20	2406	531	96	1568
Gustafsson, Carl J. E. (See Blomster and Gustafsson.)						
Gutermuth, Max F., Darmstadt, Germany. Valve	680,245	Aug. 13	968	218	96	1252
Guthridge, Frank M., Chicago, Ill. Combined chair and display-rack	679,617	July 30	4473	1005	96	985
Guthrie, H. W. (See Guthrie, Sherman C., assignor.)						
Guthrie, Sherman C., Findlay, assignor of one-half to H. W. Guthrie, Elmore, Ohio. Explosive fire-alarm	681,687	Aug. 27	3619	805	96	1826
H. B. Sherman Manufacturing Company. (See Sherman, Howard B., assignor.)						
H. B. Smith Machine Company. (See Vivarttas, William O., assignor.)						
H. Mueller Manufacturing Co. (See Mueller, Philip, assignor.)						
H. Wetter Manufacturing Company. (See Turney, James P., assignor.)						
Haak, Luther K., Luther, Mich. Saw-handle	683,117	Sept. 24	2649	609	96	2450
Haas, Phaon N., Allentown, Pa. Nail or screw set	682,681	Sept. 17	1839	423	96	2268
Haase, Leo G., Oakpark, Ill. Cement-post-molding machine	680,432	Aug. 13	1305	287	96	1319
Haaz, Frank, *et al.* (See Phillips, Albert, assignor.)						
Haaz, Ignatius, *et al.* (See Phillips, Albert, assignor.)						
Haberman, Frederick, assignor to National Enameling & Stamping Company, New York, N. Y. Street-sweeper's cart	680,856	Aug. 20	2151	472	96	1513
Haberstroh, Albert, Boston, Mass. Adhesive fastener	682,062	Sept. 3	754	163	96	2013
Haberstroh, Albert, Boston, Mass. Adhesive fastener	682,063	Sept. 3	754	163	96	2013
Hadaway, John B., *et al.* (See Orr, Edward E., assignor.)						
Haden, Charles J. (See Baer, Samuel W., assignor.)						
Haden, John, and R. Howarth, assignors of one-third to W. Bamford, Paterson, N. J. Stopping device for looms	679,370	July 30	3996	898	96	885
Hadfield, Charles W. (See De Kaiser and Hadfield.)						
Hadley, James E., Cedarbluffs, Nebr. Combined door-closer and fly-scare	680,857	Aug. 20	2152	473	96	1513
Hadlock, Clark W., assignor of one-half to A. E. Smolt, Newton, Kans. Book-holder and leaf-turner	678,731	July 16	2685	605	96	579
Hafelfinger, Emil F., Weehawken, N. J. Motor-bicycle	682,682	Sept. 17	1840	423, 424	96	2269
Hafer, John W., Harrisburg, Pa. Suspenders	678,251	July 9	1723	395	96	372
Haffey, James F. (See Baron and Haffey.)						
Haffner, Balthasar, Maurer, N. J. Building-block	677,351	July 2	31	7	96	9
Hafner, Emil, Mülhausen, Germany. Testing-valve	677,569	July 2	437	103, 104	96	92
Hagen, Christian. (See Hammond, Robert O., assignor.)						
Hagen, Ferdinand J., New York, N. Y. Feeding device for article-marking machines	683,089	Sept. 24	2592	574	96	2424
Hagerman, Judson F., assignor of one-half to F. C. Burke, Marinette, Wis. Grapple	678,173	July 9	1387	365	96	344
Haglin, Charles F., Minneapolis, Minn. Fireproof flooring	682,683	Sept. 17	1842	424	96	2269
Hahn, John N., Cleveland, Ohio. Shipping-crate for globes	677,979	July 9	1284	283	96	275
Haines, John H. J., New York, assignor to G. A. Carver, Brooklyn, N. Y. Ice-machine	679,096	July 30	4015	1035, 1036	96	1015
Hakemeyer, Charles, Paterson, N. J. Snap-hook	682,684	Sept. 17	1844	424	96	2269
Hakemeyer, Charles, Paterson, N. J. Snap-hook	682,685	Sept. 17	1845	425	96	2270
Halden, Joseph, Manchester, England. Fastening for canvas aprons employed in certain descriptions of photoprinting-frames	683,040	Sept. 24	2525	574	96	2425
Hale and Kilburn Manufacturing Company. (See Hale, Henry S., assignor.)						
Hale and Kilburn Manufacturing Company. (See Koehler, Frank G., assignor.)						
Hale and Kilburn Manufacturing Company. (See Old, Ansborn F., assignor.)						
Hale, Henry S., Philadelphia, Pa., assignor to Hale and Kilburn Manufacturing Company, of Pennsylvania. Car-seat	681,784	Sept. 3	254	49	96	1916
Hale, Lizzie F. (See Forrester, Abrahani M., assignor.)						
Haley, Edwin J. (See Krug and Haley.)						
Halgren, Charles O. K., Bayonne, N. J. Box-opener	678,780	July 16	2759	621	96	594
Hall, Benjamin, Nevada City, Cal. Roasting-furnace	677,510	July 2	309	76, 77	96	66
Hall, Benjamin F., assignor of one-half to Z. Goodell, Salem, Mass. Die and die-holder for punching-machines	682,613	Sept. 17	1729	395	96	2247
Hall, Benjamin F., assignor of one-half to Z. Goodell, Salem, Mass. Punching-machine	682,686	Sept. 17	1846	425	96	2270
Hall, Charles M., Niagara Falls, N. Y. Purifying bauxite	678,732	July 16	2687	------	96	580
Hall, Charles S. (See Tolman, Edward K., assignor.)						
Hall, Delia S. (See Day and Hall.)						
Hall, Herbert L., Rochester, N. Y. Dashboard	677,761	July 2	776	186	96	164
Hall, John L., Schenectady, N. Y., assignor to General Electric Company, of New York. Signal system	679,310	July 30	3860	863	96	857
Hall, Samuel. (See Copeland, Benjamin H., assignor.)						
Hall, T. R., *et al.* (See Pendleton, John B., assignor.)						
Hall, Zachary T., Philadelphia, Pa. Handle for washboilers or other receptacles	682,064	Sept. 3	755	163	96	2013
Hallanan, Michael, New York, N. Y. Horseshoe	681,544	Aug. 27	3443	764	96	1790
Hallanan, Michael, New York, N. Y. Horseshoe-shaping device	681,545	Aug. 27	3443	764	96	1791
Hallberg, Josef H., assignor to General Incandescent Arc Light Company, New York, N. Y. Electric-arc lamp	678,482	July 16	2205	496	96	483
Hallberg, Josef H., assignor to General Incandescent Arc Light Company, New York, N. Y. Electric-arc lamp	678,483	July 16	2206	496	96	484
Hallberg, Josef H., assignor to General Incandescent Arc Light Company, New York, N. Y. Electric-arc lamp	678,560	July 16	2350	528	96	515
Hallé, Clifford R. S. J., London, England. Key for pianofortes	682,065	Sept. 3	756	164	96	2013
Hallé, Clifford R. S. J., London, England. Wrest-plank for pianofortes	682,066	Sept. 3	756	164	96	2013
Hallé, Clifford R. S. J., London, England. Piano string-plate	682,067	Sept. 3	757	164	96	2013
Haller, Amos B., Brunswick, Md. Signal attachment for headlights	680,773	Aug. 20	1987	486, 487, 551	96	1482
Hallock, Daniel Y., York, Pa. Potato-digger	682,987	Sept. 17	2487	552	96	2387
Hally, James M. (See Cummings, James, assignor.)						
Halsey, William S., Pittsburg, Pa. Pneumatic hoist	679,421	July 30	4090	914, 497	96	906
Halsey, William S., Pittsburg, Pa. Speed-varying mechanism	680,916	Aug. 20	2263	498	96	1585
Halsey, William S., Pittsburg, Pa. Pneumatic hoist	681,853	Sept. 3	871	75	96	1989
Haltom, Samuel, Henderson, assignor of one-half to I. L. Dreeben, Dallas, Tex. Truck	682,932	Sept. 17	2337	508	96	2306
Hamblen, Samuel, Hot Springs, Ark. Wheel for bicycles	682,687	Sept. 17	1848	426	96	2270
Hamblet, George W., Lawrence, Mass. Paper-slitting machine	682,068	Sept. 3	758	164	96	2014
Hamelback, Jacob A., Zanesville, Ohio. Curtain-fixture	680,584	Aug. 13	1580	348	96	1376
Hamill, Maggie E. (See Souder and Hamill.)						
Hamilton, Alexander, Alhambra, Cal. Fruit-picker's sack	681,169	Aug. 20	2735	606	96	1630
Hamilton, Clarence J., assignor to Daisy Manufacturing Co., Plymouth, Mich. Repeating air-rifle	679,670	July 30	4562	1026	96	1008

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Hamilton-Foster Fog-Signal Company. (See Foster, Robert F., assignor.)						
Hamilton, Frank G. (See Clark and Hamilton.)	677,511	July 2	311	77	96	67
Hamilton, Joseph H., Huddleston, Va. Car-door opener	680,858	Aug. 20	2153	473	96	1514
Hamilton, Milton A., Detroit, Mich. Acetylene-gas generator	680,144	Aug. 6	773	.....	96	1198
Hamm, William S. (See Mosher and Hamm.)						
Hammer, John, Tacoma, Wash. Compound for renovating fabrics	682,869	Sept. 17	2221	501	96	2342
Hammer, Sigard A. S. (See Meigs and Hammer.)	682,465	Sept. 10	1464	382	96	2171
Hammerly, Richard, New York, N. Y. Fire-escape						
Hammesfahr, Ernst, Foche, Germany. Fastening device for horseshoe-calks	679,868	Aug. 6	334	71	96	1110
Hammond, George B. (See Kendrick, Thomas, assignor.)	681,313	Aug 27	3031	672	96	1710
Hammond, H. Herbert. (See Schneider, George, assignor.)	682,252	Sept. 10	1096	248	96	2100
Hammond, Myron B., Bridgeport, Conn. Hose-supporting device	683,274	Sept. 24	2633	672 673	96	2508
Hammond, Myron B., Bridgeport, Conn. Garment-clasp						
Hammond, Robert O., Depew, assignor to C. Hagen, Buffalo, N. Y. Music-leaf turner						
Hampson, Frank G., Clapham, England. Tube-expanding apparatus	678,396	July 16	2084	402	96	449
Hampton, Samuel, assignor of one-half to R. A. Nelles, Rapid City, Canada. Rotary plow	677,740	July 2	733	175	96	155
Hancock, Henry J., New York, N. Y., assignor to G. T. Batchelor, South Orange, N. J., and S. Stenson, Seacliff, N. Y. Needle-feed chain-stitch sewing-machine	681,785	Sept. 3	256	49,50	96	1916
Hand Truck Attachment Company. (See Fairchild, Frank J., assignor.)	678,252	July 9	1724	395	96	372
Handiges, Philip T., Detroit, assignor to Michigan Malleable Iron Company, Delray, Mich. Machine for molding car-axle boxes	682,059	Sept. 3	759	165	96	2014
Handley, Peter F., Jacksonville, Ill. Hand-lever						
Handly, Thomas F., Allegheny, Pa. Fire-extinguisher	679,962	Aug. 6	475	99	96	1137
Handman, George W., *et al.* (See McKinley, Joseph S., assignor.)						
Handschumacher, John, San Francisco, Cal. Sliding door	679,296	July 23	3080	820	96	800
Haney-Campbell Company. (See McEvoy, James F., assignor.)						
Haney, William R., Dayton, Ohio. Roll-paper holder and cutter						
Hanfeld, H. & E. (See Waite, Henry E., assignor.)	681,963	Sept. 3	595	126	96	1984
Hanft, Benjamin P., Paterson, N. J. Holder for condensed-milk cans	683,041	Sept. 24	2536	575	96	2425
Hanigan, John F., Philadelphia, Pa. Replacing-frog for cars or locomotives	679,671	July 30	4564	1026	96	1004
Hannigan, Charles T., Providence, R. I. Syringe-nozzle						
Hannum, Frank A. (See Morgan and Hannum.)	678,246	July 9	1717	394	96	370
Hansel, Howell, New York, N. Y. Rope-grip	679,311	July 30	3863	864	96	857
Hansen, James P., San Francisco, Cal. Food-cooler						
Hansen, Rasmus P., Erindslev Sogn Rödby, Denmark. Incandescent igniter for explosive-motors	682,983	Sept. 17	2340	526	96	2367
Hanson, William, Philadelphia, Pa. Nut-lock	679,618	July 30	4474	1005	96	985
Hanzer, Paul, and J. Chevalier, Petit Ivry, France. Drop-hammer	680,525	Aug. 13	1487	327	96	1357
Harbach, William L. (See Hornbostel, Ernst A., Sr., assignor.)						
Harbaugh, Howard E., Kenosha, Wis. Knitting-machine	681,546	Aug. 27	3444	764 765	96	1791
Hardesty, David W., Allegheny, Pa. Non-explosive oil-can	679,141	July 23	3526	786	96	767
Hardin, Orion G. (See Palmer and Hardin.)						
Hardy, Edward D., and W. W. Rebuschatis, Washington, D. C. Type-locking device	682,466	Sept. 10	1465	332	96	2171
Hardy, Roy E., assignor to Detroit Motor Works, Detroit, Mich. Lubricator	679,590	July 30	4376	982	96	964
Hare, Charles E., *et al.* (See Sturgess, George F., assignor.)						
Hare, John R., Baltimore, Md. Phonograph	678,174	July 9	1588	365	96	344
Harger, John S., assignor of one-fifth to S. Steenberg, Chicago, Ill. Rotary engine	678,398	July 9	1907	438	96	405
Hargraves, William H., J. S. Heilig, Allentown, and J. Roberts, Catasauqua, Pa. Buttonhole attachment for sewing-machines	678,397	July 16	2036	462	96	449
Hargraves, William H., J. S. Heilig, Allentown, and J. Roberts, Catasauqua, Pa. Tacking attachment for sewing-machines	678,398	July 16	2040	463	96	449
Harig, Henry, Cincinnati, Ohio. Sash-pulley frame	680,710	Aug. 20	1869	410	96	1457
Harleman, Peter J., Boston, Mass. Device for removing water of condensation	680,040	Aug. 6	602	131	96	1164
Harlin, George C., Stockton, Cal. Car-coupling	682,253	Sept. 10	1098	249	96	2100
Harmet, Henri, St. Etienne, France. Compressing liquid steel	679,072	July 23	3377	752	96	737
Harmon, Anan B., Rochester, N. Y. Web-holding device for wage-scales, &c	677,412	July 2	134	31	96	90
Harmon, Francis T. (See Bowen and Harmon.)						
Harmon, Nathaniel B., Brooklyn, N. Y., assignor of one-half to C. M. Hart, Boston, Mass. Adjustable chair-back	679,312	July 30	3864	864	96	858
Harper, Alphonso K., Fairfield, Iowa. Combination-tool	678,247	July 9	1718	394	96	371
Harper, Daniel W., Memphis, Tenn., assignor to Toledo Cash Register Company, Toledo, Ohio. Cash-register	679,073	July 23	3378	753 754	96	737
Harper, Daniel W., Memphis, Tenn., assignor, by mesne assignments, to Toledo Cash Register Company, Dover, Del. Cash-register	679,074	July 23	3386	754 755 756	96	738
Harper, Daniel W., Memphis, Tenn., assignor, by mesne assignments, to Toledo Cash Register Company, Dover, Del. Cash-register	679,075	July 23	3397	756 757 758	96	741
Harpham, Fred M., and A. Akers, Akron, Ohio. Combined skylight and ventilator	677,512	July 2	312	77	96	67
Harpold, Clay, Cleburne, Tex. Exterminating Johnson grass	678,468	July 16	2164	.....	96	474
Harraman, William L., F. O. Chapman, C. Severin, and D. H. Brown, Grand Junction, Colo. Combined gold washer and amalgamator for placer-mining	682,545	Sept. 10	1596	362	96	2199
Harrier, James H., North Industry, Ohio. Slaking lime	680,246	Aug. 13	969	218	96	1292
Harriman, Henry L., New York, N. Y. Weft-replenishing mechanism for looms	678,781	July 16	2761	622	96	594
Harrington, Allen W., assignor to Harris & Harrington, New York, N. Y. Tubular bell for chiming clocks	679,458	July 30	4167	935 936	96	920
Harriott, Alexander M., Rye, N. Y. Mail-bag holder	680,041	Aug. 6	604	131	96	1164
Harris, Abraham B., Etter, Va. Shoestring-fastener	679,022	July 23	3266	720	96	714
Harris Automatic Press Company. (See McNutt, John F., assignor.)						
Harris, Charles B. (See Wilson, William, assignor.)	680,377	Aug. 13	1214	267	96	1300
Harris, Charles E., Cooksville, Canada. Cattle-guard	682,614	Sept. 17	1731	395	96	2248
Harris, Edward E., Aberdeen, Wash. Means for attaching saw-teeth						
Harris & Harrington. (See Harrington, Allen W., assignor.)						
Harris, Herbert. (See Green, John H., assignor.)						
Harris, John, Cleveland, Ohio, assignor, by mesne assignments, to Atlantic Acetylene Burner Company, Jersey City, N. J. Gas-burner	681,052	Aug. 20	2522	558	96	1587
Harris, Robert C. (See Hunt, Arthur E., assignor.)						
Harris, William E., *et al.* (See Walker, William H., assignor.)	679,145	July 23	3528	788	96	768
Harris, William E., Niles, Ohio. Annealing-box						
Harris, William T., Louisville, Ky. Apparatus for returning exhaust-steam to steam-boilers	677,866	July 9	1001	234	96	280
Harris, William W., London, assignor to P. Pfleiderer, County of Middlesex, England. Refrigerating apparatus	681,314	Aug. 27	3082	672 673	96	1710
Harrison, Henry H., New York, N. Y. Cigarette-maker	681,053	Aug. 20	2526	558	96	1588

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Harrison, J. F., *et al.* (See Johnson, William H., assignor.)						
Harrison, James R., assignor to J. I. Case Threshing Machine Company, Racine, Wis. Automatic clutch mechanism	682,591	Sept. 10	1684	383 384	96	2215
Harrison Wagon Company. (See Robbins, Isaac, assignor.)						
Harrison, Woodward C., Bethesda, Ohio. Ice-cream freezer	683,042	Sept. 24	2527	575	96	2425
Harrisson, George A., assignor of one-half to W. C. Mitchell, Lafayette, Ind. Police-nippers	679,841	Aug. 6	238	50	96	1091
Harrold, Henry E. (See Stevens, Harrold, and Bluemel.)						
Harry, Hugh W. and T. C., Dallas, Tex. Knockdown tank	679,146	July 23	3529	789	96	768
Harry, Thomas C. (See Harry, Hugh W. and T. C.)						
Hart, Alfred, Harvey, Ill. Mower	680,247	Aug. 13	971	219	96	1252
Hart, Claude M. (See Harmon, Nathaniel B., assignor.)						
Hart & Cooley Company. (See Hart, Howard S., assignor.)						
Hart, Frederick, Poughkeepsie, N. Y. Machine for stapling, folding, and stacking pamphlets	678,561	July 16	2351	528 529	96	515
Hart, Frederick, assignor to Samuel Crump Machine Company, Poughkeepsie, N. Y. Machine for cleaning printers' rollers	678,484	July 16	2206	496 497	96	484
Hart, Harry S., assignor to Rodger Ballast Car Company, Chicago, Ill. Convertible dump-car	677,352	July 2	31	7, 8	96	9
Hart, Howard S., assignor to Hart & Cooley Company, New Britain, Conn. Register, ventilator, or the like	680,657	Aug. 13	1720	380	96	1406
Hart, Hubert C., Unionville, Conn. Machine for making washers	682,070	Sept. 3	763	165 166	96	2015
Hart, Loren D., Nora Springs, Iowa. Washing-machine	679,147	July 23	3532	789	96	768
Hart, Thomas J., assignor to Sherwood Manufacturing Company, Buffalo, N. Y. Valve	682,688	Sept. 17	1849	426	96	2270
Hartig, William F., Evansville, Ind. Plow or cultivator shovel	681,547	Aug. 27	3447	765	96	1791
Hartman, George W., Kansas City, Kans. Photographic-printing frame	678,661	July 16	2374	576	96	558
Hartmann, Charles, Chicago, Ill. Separable hinge	682,071	Sept. 3	767	166 167	96	2016
Hartmann, Ernest L. (See Collins and Hartmann.)						
Hartmann, Heinrich. (See Meyer, Hartmann, and Abrahamsohn.)						
Hartung, Charles C., assignor to E. Walsh, Jr., St. Louis, Mo. Machine for rolling configured wire-glass	681,786	Sept. 3	257	50	96	1917
Hartung, Charles C., assignor to E. Walsh, Jr., St. Louis, Mo. Apparatus for making corrugated glass	681,787	Sept. 3	260	50, 51	96	1917
Hartung, Emil, Mühlhausen, Germany. Boring instrument for building or mining purposes	683,275	Sept. 24	2636	673	96	2508
Harvey, Claude L., and J. H. Nieman, Petersburg, Nebr. End-gate	681,881	Sept. 3	425	86	96	1949
Harvey, John G., assignor to George M. Clark & Company, Chicago, Ill. Water-heater	681,697	Sept. 3	59	11	96	1875
Harzmeier, Charles, St. Louis, and L. Bisch, Jefferson Barracks, Mo. Attachment for lathes	678,662	July 16	2576	577	96	559
Hasenbach, Wilhelm, assignor to Verein Chemischer Fabriken, Mannheim, Germany. Making sulfuric anhydrid	681,608	Sept. 3	60	.....	96	1875
Hasenfus, Frederick M., Jr., Philadelphia, Pa. Collar-button and necktie-fastener	678,493	July 16	2577	577	96	559
Hasey, George H., Taunton, Mass. Soaping device	682,956	Sept. 10	1977	287	96	2182
Haskell, Olcott, San Rafael, Cal. Drawing-board	678,562	July 16	2359	529	96	516
Haskins, Caryl D., Schenectady, N. Y., assignor to General Electric Company, of New York. Maximum-current indicator	677,980	July 9	1235	283	96	235
Haskins, Caryl D., Newton, Mass., assignor to General Electric Company, of New York. Device for recording meter readings	678,871	July 23	2956	665	96	654
Haslam, James, Bolton, England. Driving-roller	678,175	July 9	1588	366	96	344
Haslett, William H., Keston, assignor of one-half to H. S. Russell, London, England. Apparatus for heating air or gases	682,190	Sept. 10	977	220	96	2078
Haslett, William H., Keston, assignor of one-half to H. S. Russell, London, England. Apparatus for lining casks, &c	682,191	Sept. 10	978	220	96	2078
Hassler, Anton, and J. T. Watters, Oakland, Cal. Clamping apparatus	680,859	Aug. 20	2155	473 474	96	1514
Hassler, Charles W., Westfield, Mass. Tension device for machines for braiding whips	683,276	Sept. 24	2637	673	96	2509
Hastings, Cornelius C., assignor to Milton Bradley Company, Springfield, Mass. Color-box	680,658	Aug. 13	1730	380	96	1406
Hastings, Herbert C., and L. E. Walkins, assignors to H. A. Chapin, Springfield, Mass. Means for supporting and manipulating contact-shoes of electrically-propelled railway-cars	677,741	July 2	734	175	96	155
Hatch, Reuben, Grand Rapids, Mich. Sectional bookcase	681,479	Aug. 27	3323	739	96	1706
Hatchell, Benjamin P., Effingham, S. C. Plow-stock	683,277	Sept. 24	2639	673 674	96	2509
Hatfield, Andrew L., assignor to F. N. Riggs, Newark, N. J. Electric-switch railway	677,778	July 2	812	194	96	172
Haugen, Gunder. (See Patten and Haugen.)						
Haultain, Herbert E. T., Salmo, Canada. Sampling apparatus	680,526	Aug. 13	1488	327	96	1357
Haupt, Charles de, Brussels, Belgium. Apparatus for gasifying hydrocarbons	679,697	July 30	4616	1036	96	1015
Hauser, Josef, assignor to L. Dreyfus, Frankfort-on-the-Main, Germany. Cash-register	682,546	Sept. 10	1508	363 364 365	96	2199
Hauser, Theodore, Chicago, Ill. Folding bed	680,042	Aug. 6	605	132	96	1164
Hausfeld, Joseph E. (See Carter and Hausfeld.)						
Hauslebner, Leopold, assignor to I. Landauer and F. Bloch, Vienna, Austria-Hungary. Manufacturing packing for flanges and stuffing-boxes	680,860	Aug. 20	2158	475	96	1514
Hausmann, Fred. (See Gooding and Hausmann.)						
Hauss, David J., assignor of one-half to J. J. Cushing, Cincinnati, Ohio. Electric-motor controller	678,664	July 16	2578	577 578	96	559
Haussamen, Henry L., Grafton, N. D. Combined manifolding writing-tablet and holder	682,251	Sept. 10	1699	249	96	2120
Haussmann, Hermann, Chicago, Ill. Plow	680,248	Aug. 13	976	219 220	96	1253
Haussner, Konrad, Elsenach, Germany. Field-carriage for quick-firing guns	680,585	Aug. 13	1581	349	96	1376
Haussner, Konrad, Elsenach, Germany. Field-carriage for quick-firing guns	682,072	Sept. 3	769	167	96	2016
Havard, William T., Hennessey, Okla. Ter. Machine for cleaning wheat	678,733	July 16	2698	605	96	580
Havell, George, Newark, N. J., assignor to Havell Manufacturing Company, of New Jersey. Coin savings-bank	683,306	Sept. 24	3144	721	96	2353
Havell Manufacturing Company. (See Havell, George, assignor.)						
Havens, Joseph D. (See Irving, Junius B., assignor.)						
Havens, Joseph G., Trenton, N. J., assignor to Underwood Stemming Machine Company, of New Jersey. Tobacco-stripping machine	678,485	July 16	2214	497 498 499	96	485
Haward, Robert E., assignor of one-half to L. F. McClure, Kansas City, Mo. Pressure-regulator	678,872	July 23	2957	665	96	654
Hawk, Robert M., Warren Papermills, N. J. Screen-cleaner and stuff-regulator	681,518	Aug. 27	3449	765	96	1792

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Hawkins, Edgar M. (See Campbell and Hawkins.)						
Hawkins, Irving L., Windsor, N. Y. Tool for paper-hangers or other mechanics	680,586	Aug. 13	1583	349	96	1376
Hawkins, John W., Cuyahoga Falls, Ohio. Vehicle-tire	677,867	July 9	1008	234	96	231
Hawkins, William E., New York, N. Y. Base for standing lamps	681,217	Aug. 27	2922	626	96	1668
Hawkins, William H., Springfield, Mass. Stub-holder for check-books	679,503	July 30	4267	960	96	939
Hawkinson, Charles H., Chicago, Ill. Combined sash lift and lock	677,961	July 9	1237	284	96	276
Hawley, Charles G. (See Schutz, Joseph M., assignor.)						
Hawley, Reinaldo W., assignor of two-thirds to W. W. White, Atlanta, Ga., and R. Sylvester, Washington, D. C. Device or implement for facilitating the counting of money or the like	681,054	Aug. 20	2527	558	96	1588
Hawley, William D., Syracuse, N. Y. Record-sheet	680,145	Aug. 6	773	172	96	1198
Haworth, Lysander L., Decatur, Ill. Scoop-board for wagon-beds	681,490	Aug. 27	3325	739	96	1767
Hawver, George A., Jackson, Ohio. Breastpin or the like	681,393	Aug. 27	3156	708	96	1734
Hay, James R. (See Carryl, Henry D., assignor.)						
Hay, William G., Liverpool, England. Colt gun	680,327	Aug. 13	1112	247	96	1281
Hayden, Frederick B., Belleville, assignor to W. R. Noe, East Orange, N. J. Lamp	680,413	Aug. 13	1280	281	96	1314
Hayden, William F., State Center, Iowa. Dust-cap and oil-guard for vehicle-axles	678,253	July 9	1725	395	96	372
Haynes, Avison F., Dufur, Oreg. Hay or grain unloader and stacker	683,043	Sept. 24	2528	575	96	2425
Hays, Benjamin F., assignor to H. W. Fraser, New York, N. Y. Machine for coating tablets	678,399	July 16	2042	463	96	449
Hayward, Al, Warsaw, Ind. Heater for watering-tanks	681,418	Aug. 27	3199	711	96	1742
Hayward, Dallas B. (See Hayward, Thomas S., assignor.)						
Hayward, Thomas S., assignor of one-half to D. B. Hayward, Easton, Md. Hammock-support	679,993	Aug. 6	477	99 / 100	96	1138
Haywood, Daniel H., assignor to B. W. Wrenn, New York, N. Y. Regulator	677,762	July 2	778	187 / 188	96	165
Hazelip, Edwin, administrator. (See Hazelip, Joseph N.)						
Hazelip, Joseph N., deceased; E. Hazelip, administrator, assignor to C. J. Carroll and G. P. Steinbach, Baltimore, Md. Exercising or rowing machine	682,668	Sept. 17	2439	552	96	2387
Hazen, Jesse F., Effing, N. H. Corner-bracket	682,192	Sept. 10	979	221	96	2078
Head, Reuben M., Allegheny, Pa. Reversible driving-gear	678,486	July 16	2221	499 / 500	96	486
Headford, Edward H., Dubuque, Iowa. Adjustable fire-back	677,451	July 2	211	52	96	46
Headson, Frank A., assignor of one-half to L., H., M., and J. Pottlitzer, Lafayette, Ind. Governor for steam-engines	678,469	July 16	2165	488	96	474
Headson, Frank A., assignor of one-half to L., H., M., and J. Pottlitzer, Lafayette, Ind. Rotary engine	682,255	Sept. 10	1101	249 / 250	96	2101
Headson, Frank A., assignor of one-half to L., H., M., and J. Pottlitzer, Lafayette, Ind. Rotary engine	682,256	Sept. 10	1103	250	96	2101
Heald, Alfred, Philadelphia, Pa. Woven fabric	678,734	July 16	2689	606	96	580
Healey, Patrick J., Hydepark, Mass. Automatic flusher for sewers or drains	680,974	Aug. 20	2371	522	96	1557
Healy, James F., Florence, Mass. Coin-registering bank	678,563	July 16	2362	530 / 531	96	516
Heaney, John W., Los Angeles, Cal. Device for lighting fires in fire-engines	681,788	Sept. 3	261	51	96	1918
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric arc lamp	678,873	July 23	2960	666	96	655
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric motor	678,874	July 23	2961	666	96	655
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric motor	678,875	July 23	2963	666	96	655
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric-arc lamp	678,876	July 23	2964	667	96	655
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric-arc lamp	678,951	July 23	3133	702	96	688
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric-arc lamp	678,952	July 23	3135	702	96	689
Heard, William H., London, Canada. Spraying apparatus	679,504	July 30	4268	960 / 961	96	939
Heath, Harry E., assignor to Eddy Electric Manufacturing Company, Windsor, Conn. System of electrical distribution	678,998	July 23	3214	719	96	704
Heaton, John J., West Burlington, Iowa. Nut-lock	680,861	Aug. 20	2159	475	96	1514
Heberer, Adam, Berkeley, Cal. Device for introducing and distributing air to furnaces	682,592	Sept. 10	1686	384	96	2216
Hecken, Wilhelm L. A., Hamburg, Germany. Screw-driver with adjustable side claws	680,043	Aug. 6	607	132	96	1165
Hedge, Homer W. (See En Holm, Oscar A., assignor.)						
Hedges, Edward G., Newark, N. J. Compression swing basin-cock	681,315	Aug. 27	3034	673	96	1710
Hedges, Mertland M., assignor to Chattanooga Pipe and Foundry Company, Chattanooga, Tenn. Apparatus for coating iron pipes	677,570	July 2	438	104	96	93
Heene, Edward G., assignor, by mesne assignments, to Empire Time Recorder Company, Cleveland, Ohio. Employee's time-recorder	678,433	July 16	2097	477 / 478	96	460
Heffernan, Florence F. (See Baker and Heffernan.)						
Heffernan, John T., Seattle, Wash. Piston-valve	677,982	July 9	1237	284	96	276
Heffner, George W., Dayton, Ohio. Bridge construction	677,571	July 2	441	105	96	93
Heft, Nathan H., Bridgeport, Conn. Railway-truck	680,567	Aug. 13	1584	350	96	1376
Heg, James E. (See Armstrong, Charles G., assignor.)						
Hege & Co., C. A. (See Hege Constantine A., assignor.)						
Hege, Constantine A., Salem, N. C. Machine for cutting cross-ties	681,218	Aug. 27	2923	626 / 627	96	1668
Hege, Constantine A., assignor to C. A. Hege & Co., Salem, N. C. Machine for hulling coffee, &c	680,588	Aug. 13	1587	351	96	1377
Heggem, Charles O., assignor to Russell & Company, Massillon, Ohio. Beater for threshing-machines	682,193	Sept. 10	980	221	96	2079
Heidenreich, Frederick W., Hedrick, Iowa. Kiln	679,842	Aug. 6	239	51	96	1091
Heidenreich, Karl. (See Ulrich and Heidenreich.)						
Helder, Henry J., Templeton, Iowa. Disk-harrow attachment	677,658	July 2	594	142	96	196
Heikel, Robert. (See Sievert and Heikel.)						
Heilig, John S. (See Hargraves, Heilig, and Roberts.)						
Heimbucher, Gottlieb A., Chicago, Ill. Device for operating fans on rocking-chairs	682,467	Sept. 10	1467	332 / 333	96	2171
Heineke, Martin, Springfield, Ill. Straw-stacker	679,148	July 23	3533	789	96	799
Heineke, Martin, Springfield, Ill. Straw-stacker	679,227	July 23	3681	820	96	800
Heineke, Martin, Springfield, Ill. Straw-stacker	679,228	July 23	3682	820	96	800
Heineke, Martin, Springfield, Ill. Straw-stacker	679,259	July 23	3744	836	96	812
Heinig, Frederick E., assignor to C. Pope, Louisville, Ky. Machine for making hollow cones from sheet metal	682,551	Sept. 10	1608	367 / 368	96	2201
Heinig, Frederick E., assignor to C. Pope, Louisville, Ky. Machine for securing metallic tip-covers to cigars	682,552	Sept. 10	1611	368	96	2201

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Heinitsh, Margaret M., Philadelphia, Pa., and J. T. Moriarty, New Bedford, Mass. Shoe-lacing	680,249	Aug. 13	979	220	96	1254
Heinrich, Emil C. R., West Hoboken, N. J., assignor to American Tobacco Company, of New Jersey. Cutting mechanism	680,378	Aug. 13	1215	268	96	1301
Heintz, John A. (See Schill and Heintz)						
Heintz, John A., Menomonie, Wis. Sleigh	682,934	Sept. 17	2341	528 / 529	96	2367
Heitland, John H., Quincy, Ill., assignor of one-half to D. O. Lane, Palmyra, Mo. Fireplace-heater	677,542	July 2	382	92	96	82
Helferstay, J. S. (See White, John L., assignor.)						
Helfinger, Henry G. (See Dille, John Y., assignor.)						
Helios-Upton Company. (See Spencer, Thomas, assignor.)						
Heller, August, Graz, Austria-Hungary. Automatic locking device for doors, &c	679,023	July 23	3267	730	96	714
Helling, Charles H. S., Alameda, Cal. Cover for pots, kettles, &c	680,917	Aug. 20	2264	498	96	1536
Helmke, William. (See Roth and Helmke.)						
Hembree, Elihue M., Roswell, assignor of one-half to W. S. Gufford, Atlanta, Ga. Fastening device	680,711	Aug. 20	1870	411	96	1457
Hembrey, William F., assignor of one-half to T. Lawson and T. Keen, Hutchinson, Ark. Vehicle-hub	679,313	July 30	3865	864	96	858
Hemleb, Martin. (See Diehl and Hemleb.)						
Hemsted, Edwin, Toronto, Canada. Pneumatic tire for bicycles	677,983	July 9	1239	284	96	276
Henderson, Charles C., assignor to Conley Camera Company, Spring Valley, Minn. Magazine-camera	680,208	Aug. 6	888	197 / 198	96	1222
Henderson, Elmer O. (See Johnson, John A., assignor.)						
Henderson, James, assignor to Sheffield Car Company, Three Rivers, Mich. Stand-pipe	680,328	Aug. 13	1112	247	96	1281
Henderson, Parker A. (See Reese, Henry D., assignor.)						
Henderson, Samuel, and W. Taylor, Dayton, Ohio. Overshoe for horses	681,022	Aug. 20	2466	546	96	1575
Hendler, John J., assignor to International Light and Heat Company, Kansas City, Mo. Acetylene-gas apparatus	679,964	Aug. 6	478	100	96	1138
Hendricks, Walter L. (See Throop and Hendricks.)						
Hendricks, William J., *et al.* (See Clarke, John J., assignor.)						
Hendry, William R., Paullina, Iowa. Threshing-machine attachment	678,564	July 16	2368	531	96	518
Henkle, Edward A., Philadelphia, Pa. Pad-holder	680,589	Aug. 13	1591	352	96	1378
Henkle, Edward A., Philadelphia, Pa. Pad-holder	681,118	Aug. 20	2631	581	96	1609
Henley, James H. (See Carstens and Henley.)						
Henley, Milton C., New York, N. Y. Gas-ventilator for mains	679,619	July 30	4475	1005	96	985
Henneker, Henry J. (See Schulte, Joseph, Jr., assignor.)						
Henning, Augusta, Perth Amboy, N. J. Garment-supporter	679,122	July 23	3488	770	96	760
Henning, Frederick G., Perth Amboy, N. J. Combination-tool	679,260	July 23	3745	836	96	812
Henris, John E., Saratoga, Cal. Traction-engine	680,918	Aug. 20	2366	498	96	1536
Henry, Andrew L., Ladoga, Ind. Letter-box	677,763	July 2	786	188	96	167
Henry, Robert C., and C. C. Carrick, Siloam Springs, Ark. Lamp-extinguisher	682,615	Sept. 17	1722	395	96	2248
Henry Vogt Machine Company. (See Thurstensen, Soren, assignor.)						
Henry, William, and G. O. Herrmann, Indianapolis, assignors to L. R. Lindley, Anderson, Ind. Coin-carrier	680,995	Aug. 20	2411	531	96	1564
Henry, William T. (See Atkins, John W., assignor.)	681,789	Sept. 3	263	51	96	1918
Hensley, Frank A., Gonzales, Tex. Boiler	680,527	Aug. 13	1490	328	96	1358
Henthorne, Henry, Newark, Ohio. Nut-lock	682,617	Sept. 17	1734	396	96	2248
Herbs, Joseph, Redlands, Cal. Automatic device for covering beds	677,984	July 9	1240	284	96	276
Herbst, John G., Port Chester, N. Y. Hinge	678,565	July 16	2360	531	96	518
Herbst, John H., Elmira, N. Y. Measuring-faucet	679,422	July 30	4092	914	96	906
Heritage, Jesse C., Minneapolis, Minn. Case for fishing-rods	677,659	July 2	596	142	96	126
Herman, Reinhold, Crafton, Pa. Relay	683,397	Sept. 24	3146	721 / 722 / 723	96	2553
Herman, William, assignor to Fosdick & Holloway Machine Tool Company, Cincinnati, Ohio. Drilling-machine	679,672	July 30	4566	1026 / 1027	96	1004
Hermanson, Ivar, Denver, Colo. Rotary engine	679,229	July 23	3682	821	96	801
Herrburger, Joseph, Paris, France. Repeating action for upright pianos	682,616	Sept. 17	1734	395	96	2248
Herring, Kate G., Bridgewater, Va. Bag-fastening	678,176	July 9	1590	366	96	344
Herrington, Elias S., Payette, Idaho. Fish-scaling implement	677,548	July 2	384	92	96	82
Herrmann, George O. (See Henry and Herrmann.)						
Hersey Manufacturing Company. (See Tilden, James A., assignor.)						
Herwig, John, Baltimore, Md. Device for lowering coffins into graves	680,528	Aug. 13	1491	328	96	1358
Herzog, Felix B., and S. S. Wheeler, New York, N. Y.; said Wheeler assignor to said Herzog. Electrical signaling apparatus	680,590	Aug. 13	1593	352	96	1378
Hess, Charles B., New York, and J. M. Stoughton, Yonkers, assignors to Mechanical Improvements Company, New York, N. Y. Writing-machine	679,674	July 30	4571	1027 / 1028	96	1006
Hess, Edward B., Brooklyn, N. Y., assignor, by mesne assignments, to Ross Attachment and Machine Company, of New York. Overseaming attachment for sewing-machines	678,877	July 23	2966	667	96	656
Hess, Edward B., Brooklyn, assignor to Mechanical Improvements Company, New York, N. Y. Writing-machine	679,673	July 30	4570	1027 / 1028	96	1005
Hess, Edward B., Brooklyn, assignor to Mechanical Improvements Company, New York, N. Y. Writing-machine	679,675	July 30	4577	1028 / 1029	96	1007
Hess, Edward B., Brooklyn, assignor to Mechanical Improvements Company, New York, N. Y. Writing-machine	681,638	Aug. 27	3620	805	96	1827
Hess, Gilbert, and J. L. Clark, Ashland, Ohio. Box or package	679,747	Aug. 6	57	14	96	1053
Hess, Henry K., Philadelphia, Pa. Steam-propelled vehicle	682,194	Sept. 10	981	221	96	2079
Hess, Wendell, Jr., assignor to International Machinery Co., Troy, N. Y. Starching-machine	680,774	Aug. 20	1989	437	96	1482
Hestand, Hardy, and A. R. Matthews, Dundee, Tex. Rotary engine	682,073	Sept. 3	770	167 / 168	96	2016
Hester, Willis W. (See Cotner, David R., assignor.)						
Heston, William, Homestead, Pa. Piston-valve	682,689	Sept. 17	1851	426	96	2271
Hetherington, Edwin, Cedar Rapids, Iowa. Window-shade machine	682,074	Sept. 3	773	168	96	2017
Hetzel, Frederic V., assignor to Link Belt Engineering Company, Philadelphia, Pa. Carhaul	678,254	July 9	1726	396	96	372
Heuer, John P., Pittsburg, Pa. Rail-joint	682,468	Sept. 10	1468	333	96	2172
Heusner, George F., Portland, Oreg. Trolley-guide	680,919	Aug. 20	2267	499	96	1536
Hevenor, Harvey, Salamanca, N. Y. Washing-machine	678,177	July 9	1591	367	96	344
Hewitt, Joseph M. (See Wolfe, Andrew C., assignor.)						
Hewitt, Peter C., trustee. (See Hewitt, Peter C., assignor.)						
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Electric lamp	682,690	Sept. 17	1851	426 / 427	96	2271
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Operating electric lamps	682,691	Sept. 17	1861	427 / 428	96	2272

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Manufacturing electric lamps	682,092	Sept. 17	1868	428	96	2273
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Starting apparatus and circuit for electric lamps	682,093	Sept. 17	1873	428	96	2273
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Electric gas or vapor lamp and electrode therefor	682,094	Sept. 17	1875	428	96	2274
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Controlling gas or vapor electric lamps	682,095	Sept. 17	1877	429	96	2275
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Producing light by electricity	682,096	Sept. 17	1882	429	96	2276
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Apparatus for producing electric light	682,097	Sept. 17	1885	429	96	2276
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Inclosing case for electric lamps	682,098	Sept. 17	1889	429	96	2276
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Manufacturing vapor or gas lamps	682,099	Sept. 17	1890	430	96	2277
Hewlett, Alfred M., Kewanee, Ill. Heating apparatus	677,764	July 2	787	188 / 189	96	167
Hewlett, Alfred M., Kewanee, Ill. Gate-valve	679,051	July 23	3333	745	96	728
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Circuit-breaker	677,253	July 2	34	9	96	10
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Synchronizing alternating-current machines	678,178	July 9	1592	367	96	345
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Locating grounds on electric circuits	678,878	July 23	2972	667	96	657
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric railway	679,314	July 30	3866	865	96	858
Hewson, Elizabeth, Newark, N. J. Corset-fastener	681,699	Sept. 3	61	11	96	1875
Heymann, Edward and F. W., assignors to E. Heymann, Jamaica Plain, Mass. Driving mechanism	678,364	July 16	1965	449	96	484
Heymann, Emma. (See Heymann, Edward and F. W., assignors.)						
Heymann, Frank W. (See Heymann, Edward and F. W.)						
Heyne, Jacob. (See Heyne, Jesse and J.)						
Heyne, Jesse and J., Philadelphia, Pa. Steam bake-pan	681,502	Aug. 27	3370	747	96	1774
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Fastening for safe or vault plates	679,371	July 30	3997	893	96	885
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Safe or vault	679,372	July 30	4002	894	96	886
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Plate for safes or vaults	679,373	July 30	4005	894	96	887
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Bolt mechanism for safe or vault doors	679,374	July 30	4006	895	96	887
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. False front for safes or vaults	679,375	July 30	4010	895	96	888
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Safe or vault front	679,376	July 30	4011	895	96	889
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Safe or vault hinge	679,377	July 30	4013	896	96	889
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Locking mechanism for safes or vaults	679,378	July 30	4017	896 / 897	96	890
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Safe or vault door bolting mechanism	679,379	July 30	4022	897	96	892
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Safe or vault	679,380	July 30	4025	898	96	893
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Cellular safe	679,381	July 30	4028	898	96	894
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard, Rodman, Ely Safe Company, New York, N. Y. Safe or vault	679,382	July 30	4029	898 / 899	96	894
Hibbard, Maury W., assignor to R. Fitzgerald, Chicago, Ill. Fluid-pressure brake	683,305	Sept. 24	2706	644 / 645	96	2479
Hibbard, Rodman, Ely Safe Company. (See Hibbard, Henry D., assignor.)						
Hickey, James J. (See Eddy, Brown, and Hickey.)						
Hickey, Maurice, and F. G. Kellogg, Tacoma, Wash. Air-brake	680,456	Aug. 13	1348	295	96	1328
Hickey, Thomas E., *et al.* (See Miller, Frank, assignor.)						
Hickley, Arthur H., Rock Ferry, England. Electrical starting and regulating switch	682,618	Sept. 17	1736	396 / 397	96	2249
Hickman, Joseph W., Dayton, Ohio. Elevator-brake	681,790	Sept. 3	264	51	96	1918
Hickok, Lester E. (See Wilcox, Frank E., assignor.)						
Hicks, Bohn C., assignor to Hicks Motor Cycle Company, Chicago, Ill. Motor-vehicle	681,219	Aug. 27	2826	628	96	1669
Hicks, Bohn C., assignor to Hicks Motor Cycle Company, Chicago, Ill. Motor-vehicle	681,220	Aug. 27	2828	628 / 629	96	1669
Hicks, Edgar J., Indianapolis, Ind. Saw-set	681,055	Aug. 20	2528	559	96	1588
Hicks, John W., Chicago, Ill. Rotary engine	681,914	Sept. 3	486	99 / 100	96	1902
Hicks Motor Cycle Company. (See Hicks, Bohn C., assignor.)						
Hicks, Norman P., Brooklyn, N. Y. Box-lid opener or closer	677,660	July 2	598	143	96	127
Higbee, Edwin W., Northampton, Mass. Apparatus for heating water	683,278	Sept. 24	2940	674	96	2509
Higgins, Campbell P., Roselle, N. J., assignor to Babcock & Wilcox Co., New York, N. Y. Heater for sectional steam-boilers	682,989	Sept. 17	2441	558	96	2287
Higgins, Henry. (See Robinson and Higgins.)						
Higgins, James H., Whitwell, Tenn. Coal-pick	682,144	Sept. 3	885	197	96	2040
Higham, Daniel, Winthrop Highlands, Mass. Phonic apparatus	678,566	July 16	2370	532	96	518
Higham, Daniel, Winthrop Highlands, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	677,985	July 9	1241	285	96	277
Higham, Daniel, Winthrop Highlands, Mass., assignor to General Electric Company, of New York. Electric arc-lamp. (Reissue)	11,930	Sept. 3	914	203 / 204	96	2045
Higham, Harry W., Sanderstead Hill, England, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	682,870	Sept. 17	2222	502	96	2242
Highfield, John S., St. Helens, England. Apparatus for regulating pressure in electric mains connected to storage batteries	677,661	July 2	599	143	96	127
	683,398	Sept. 24	3155	723 / 724	96	2554
Highton, Joseph, Manchester, England. Loom-dobby	680,379	Aug. 13	1220	293	96	1302
Hightower, Thomas J. (See Hill, Eldridge T., assignor.)						
Higley, Christina J., New York, N. Y. Garment-supporter	677,354	July 2	37	9	96	10
Hildahl, John T., Sparta Township, Minn. Saw-set	680,975	Aug. 20	2373	522	96	1557
Hildreth, Henry A., Auburn, Me. Shoe-tag holder	681,394	Aug. 27	3157	708	96	1734
Hile, Isaiah W., Sunbury, Pa. Combination table and stool	682,195	Sept. 10	988	221	96	2080
Hilker, Edward, Chicago, Ill. Combined mop and brush						

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Hill, Almon F., Portland, Me. Acetylene-gas generator	679,620	July 30	4475	1006	96	985
Hill, Daniel, Graff, Iowa. Cultivator	678,879	July 23	2974	668	96	658
Hill, David K., *et al.* (See Beck, Marshall, assignor.)						
Hill, Davis. (See Babbitt, James M., assignor.)						
Hill, Ebenezer, South Norwalk, Conn. Air-compressor	678,487	July 16	2223	500	96	487
Hill, Edward K. (See Kaczander and Hill.)						
Hill, Eldridge T., and T. J. Hightower, Murfreesboro, Tenn. Baling-press	680,712	Aug. 20	1872	411	96	1457
Hill, Ernest R., Wilkinsburg, Pa. Electropneumatic controlling system	682,828	Sept. 17	2141	484 / 485	96	2327
Hill, Harry M., St. Louis, Mo. Electrical water-heater	678,314	July 9	1858	428	96	396
Hill, Harry M., St. Louis, Mo. Electrode for water-heaters	678,782	July 16	2765	623	96	595
Hill, Henry H., St. Louis, Mo. Optical instrument	683,012	Sept. 17	2480	562	96	2305
Hill, John A. (See Arnold, Horace L., assignor.)						
Hill, John G. (See Wildermuth and Hill.)						
Hill-Jones, Thomas. (See Kressel, Edward C. L., assignor.)						
Hill, Milton. (See Perkins and Hill.)						
Hill, Thomas, Jersey City, N. J. Dumping-wagon	678,470	July 16	2167	489	96	474
Hill, Thomas, Jersey City, N. J. Push-wagon for street-cleaning purposes	680,250	Aug. 13	980	220	96	1254
Hill, Thomas, Jersey City, N. J. Push-wagon	680,251	Aug. 13	984	221	96	1255
Hill, Walter S. (See Williams and Hill.)						
Hill, William A., assignor of one-half to F. R. Patch, Rutland, Vt. Engine	683,399	Sept. 24	3157	724	96	2555
Hill, William C. (See Allen, Everett P., assignor.)						
Hilland, John W., New York, N. Y. Expansible pulley	678,665	July 16	2581	578	96	560
Hillard, Charles J. (See Smith and Hillard.)						
Hillard, Frederic W. (See Bell, Charles H., assignor.)						
Hiller, William. (See Thornton, Freeborn, and Hiller.)						
Hillerson, Hill H., Champaign County, Ill. Gate	682,075	Sept. 3	774	168 / 169	96	2017
Hilliard, James E. (See Cronkite, Charles M., assignor.)						
Hills, Richard C., Denver, Colo. Manufacture of briquet material	678,290	July 9	1827	421	96	390
Hills, Richard C., and A. M. Southard, Denver, assignors to H. A. Gross, Walsenburg, Colo. Door check and closer	678,839	July 9	1913	439	96	406
Hillstrom, Jacob E., Michigan City, Ind. Saw-filing machine	679,748	Aug. 6	58	14, 15	96	1053
Hilton, Arthur G. (See Wallace and Hilton.)						
Himebaugh, Jacob E., Lake, Ohio. Apple-butter machine	682,196	Sept. 10	985	222	96	2080
Himes, Joseph B. (See Teeguarden and Himes.)						
Himmelwright, Abraham L. A., New York, N. Y., assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction and making same	681,700	Sept. 3	62	12	96	1876
Hindbjorgen, Nils S., Hendricks, Minn. Mower	681,816	Aug. 27	3096	673 / 674	96	1710
Hines, Curtis T., West Monroe, La. Cultivator	682,076	Sept. 3	778	169 / 170	96	2018
Hines, Walter P., Portsmouth, assignor of one-half to A. N. Palmer, Norfolk, Va. Trolley-switch	681,119	Aug. 20	2633	582	96	1610
Hinkamp, Frank. (See Kitten, Joseph W., assignor.)						
Hinz, Jacob, Jr., Canastota, S. D. Device for marking the ears of animals	682,257	Sept. 10	1105	251	96	2102
Hipolito, Espiridion, Los Angeles, Cal. Pivoted window	677,544	July 2	385	92	96	82
Hircock, John T. M., Birmingham, England. Steering of cycles	679,561	July 30	4377	982	96	964
Hircock, John T. M., Birmingham, England. Tricycle, &c.	680,862	Aug. 20	2160	475	96	1515
Hirner, Emil A., assignor to Excelsior Knitting Machine Manufacturing Company, Allentown, Pa. Presser-bit for knitting-machines	681,451	Aug. 27	3273	728	96	1756
Hirsch, Abraham. (See Hochspeier, William F., assignor.)						
Hirsch, Leo, Chicago, Ill. Index-book	680,044	Aug. 6	608	132	96	1165
Hirsch, Robert, assignor of one-half to W. B. Voth, Milwaukee, Wis. Core and pole-piece for field-magnets of dynamos or motors	681,317	Aug. 27	3038	674	96	1711
	681,318	Aug. 27	3040	675	96	1711
Hirschfeld, Carl, Nordhausen, Germany. Pay-table	679,749	Aug. 6	61	15	96	1054
Hirt, Louis J., Brookline, Mass. Coke-oven	682,547	Sept. 10	1600	365	96	2190
Hirt, Ludwig, assignor to Maschinenfabrik Grevenbroich, vormals Langen & Hundhausen, Grevenbroich, Germany. Diffusion apparatus	679,149	July 23	3534	790	96	769
Hirth, Carl A., Stuttgart, Germany. Lubricator	680,529	Aug. 13	1492	328	96	1358
Hisey, Elmer T., East Palestine, Ohio. Clevis	679,529	July 30	4316	970	96	950
Hitchcock, Alfred E., *et al.* (See Sturgess, George F., assignor.)						
Hitchcock, Sanford L., Louisville, Ky. Adjustable speaker's stand or pulpit	680,204	Aug. 6	894	198	96	1223
Hoadley, Alfred H., Worcester, Mass., assignor to Pneumatic Carriage Company, New York, N. Y. Motor						
Hoagland, Ellery M. (See Eastwood and Hoagland.)						
Hobart, Henry M., Berlin, Germany, assignor to General Electric Company, of New York. Regulation of dynamo-electric machines	677,355	July 2	38	10	96	11
	678,999	July 23	3215	720	96	705
Hobbs, Clarence W., Worcester, Mass. Paper-slitting machine	677,986	July 9	1242	285	96	277
Hobel, Heinrich F., assignor to Accumulatoren and Electricitats-Werke Actiengesellschaft, vorm. W. A. Boese & Co., Berlin, Germany. Making accumulator-electrodes	681,895	Aug. 27	3158	703 / 704	96	1734
Hobgood, Robbert E., Dexter, Miss. Harrow	678,618	July 16	2485	555	96	541
Hobson, William K., Santa Maria, Cal. Plow	683,279	Sept. 24	2942	674 / 675	96	2510
Hochenegg, Carl, Vienna, Austria-Hungary, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Control system for electric cars	680,485	Aug. 13	1407	307	96	1340
Hochspeier, William F., assignor of one-half to A. Hirsch, Jersey City, N. J. Musical instrument	680,457	Aug. 13	1350	295	96	1329
Hockett, Aaron L., Mastodon, Miss. Cotton-chopper	680,976	Aug. 20	2374	522	96	1558
Hockett, Aaron L., Mastodon, Miss. Cotton-chopper	681,419	Aug. 27	3200	712	96	1742
Hodge, Charles J., Houghton, Mich. Adjustable eccentric of mineral or ore washing jigs	678,785	July 16	2691	606	96	580
Hodges, Clarence B., Detroit, Mich. Low-water alarm	681,639	Aug. 27	3023	805 / 806	96	1828
Hodges, Clarence B., Detroit, Mich. Lubricator	680,146	Aug. 6	775	172	96	1199
Hodges, Cornelius C., and E. G. Chick, Watertown, Mass. Car-vestibule	683,118	Sept. 24	2650	609	96	2450
Hodges, William H., Union Star, Mo. Cutter-bar	678,179	July 9	1594	368	96	345
Hodgkins, Nelson C., assignor of one-half to L. H. Sanford, Augusta, Me. Recovering sulfurous acid	681,023	Aug. 20	2467	547	96	1576
Hodgson, John G., Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Power-press						
Hoe, Robert. (See North, Thomas M., assignor.)						
Hoe, Robert. (See Read, George F., assignor.)						
Hoe, Robert. (See Roesen, Oscar, assignor.)						
Hoe, Robert. (See Spalckhaver, William, assignor.)						
Hoe, Robert. (See White, Joseph, assignor.)						
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoég, Johan A., Christiania, Norway. Distributing-box for powders	678,400	July 16	2044	464	96	450

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hoehl, Henry P. (See Ruenzel, Henry G., assignor.)						
Hoelsche, George J. J., Allegheny, Pa. Hand brick-carrier	680,591	Aug. 13	1597	352	96	1379
Hoepfner, Louis, Philadelphia, Pa. Damper	677,572	July 2	448	106	96	94
Hoerger, William, Faribault, Minn. Wheel-axle	681,120	Aug. 20	2636	582	96	1610
Hoerichs, Edward, assignor to T. A. Bryan, C. H. Boone, and E. Hoerichs, Baltimore, Md. Non-refillable bottle	677,418	July 2	137	31	96	31
Hoerr, Henry W., St. Louis, Mo. Pipe-hanger	677,765	July 2	789	189	96	167
Hoetger, Mathias, Elkhart, Ind. Button	681,850	Sept. 3	368	74	96	939
Hoey, John, San Francisco, Cal. Bed-bottom and upholstery support	683,175	Sept. 24	2740	630	96	1468
Hoff, Charles, and G. H. Klotter, Cincinnati, Ohio. Machine for making fire-kindlers, &c.	682,410	Sept. 10	1369	308 309	96	2152
Hoff, Olaf, Minneapolis, Minn. Fireproof grain bin and floor	681,508	Aug. 27	3371	748	96	1775
Hoffman, Augustus L., *et al.*, trustees. (See Steiger, Andrew W., assignor.)						
Hoffman, Charles E., New Albany, Ind. Porcelain-crown facer	682,077	Sept. 3	784	171	96	2029
Hoffman, Fred. G., *et al.* (See Norris, Everett E., assignor.)						
Hoffman, James H., assignor of one-half to I. Mastin, Springdale, Wash. Check-book	681,915	Sept. 3	488	100	96	1993
Hoffman, Joseph, Schenectady, N. Y., assignor to General Electric Company, of New York. Conduit-plow	678,880 679,750	July 23 Aug. 6	2977 64	668 16	96 96	659 1054
Hoffmann, Charles, Sandusky, Ohio. Truck						
Hofheimer, Maurice, New York, N. Y. Fraud-preventing device for coin-controlled machines	683,280	Sept. 24	2946	675	96	2511
Hofmann, Fritz, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Salicylic ether of quinin	678,401 678,255	July 16 July 9	2045 1728	------ ------	96 96	450 373
Hofmann, Josef, Berlin, Germany. Regenerating accumulator-electrodes	683,281	Sept. 24	2948	675	96	2511
Hofmann, Ottokar, Argentine, Kans. Evaporating apparatus	682,326	Sept. 10	1229	------	96	2124
Hofmeier, Julius, Vienna, Austria-Hungary. Making an adhesive from blood fibrin						
Hogan, Daniel, New York, N. Y., and C. W. Meinecke, Jersey City, N. J., assignors to Meinecke & Co., New York, N. Y. Cushion	682,871	Sept. 17	2226	502	96	2343
Hogan, James T., Jersey City, N. J., assignor to National Machine Co., of New York. Clamp for holding buttons	679,751	Aug. 6	65	16	96	1054
Hogan, James T., Jersey City, N. J., assignor to National Machine Company, New York, N. Y. Machine for sewing buttons to fabrics	679,752 683,176	Aug. 6 Sept. 24	66 2741	16, 17 631	96 96	1054 2468
Ho-glen, Frank M., New York, N. Y. Binder	678,567	July 16	2373	582	96	519
Hogue, Adolor, Woonsocket, R. I. Picker-staff rocker and check	678,106	July 9	1469	339	96	320
Hohl, Jacques, West Hoboken, N. J. Loom	679,000	July 23	3218	720	96	705
Holaubek, Marie, Vienna, Austria-Hungary. Vehicle-wheel having resilient tire	681,319	Aug. 27	3040	675	96	1711
Holcomb, Ellsworth A., Waterloo, Iowa. Line-guide				411		
Holcomb, Linus, assignor of one-half to O. F. Gillett, Amboy, Ill. Attachment for sulky-cultivators	680,718	Aug. 20	1873	412	96	1457
Holcomb, Walter S., and D. H. Thurston, Plymouth, Iowa. Rotary engine	680,252 678,315	Aug. 13 July 9	986 1861	221 428	96 96	1255 896
Holden, Elbridge G., San Antonio, Tex. Ink-fountain						
Holden, Henry P. (See Watkins, Charles V., assignor.)						
Holder, Richard E., Columbus, Ind. Bed-pan	683,044 679,965	Sept. 24 Aug. 6	2529 481	576 100	96 96	2425 1139
Holdt, Frederick von, Alcott, Colo. Clay trough for irrigating-ditches						
Holland, Benjamin, Providence, R. I. Means for holding loose members of machines upon ends of studs or shafts	679,843	Aug. 6	242	51	96	1092
Holland, John P., Newark, N. J., assignor to Electric Boat Company, of New Jersey. Submarine boat	681,221	Aug. 27	2830	629	96	1670
Holland, John P., Newark, N. J., assignor to Electric Boat Company, of New Jersey. Submarine vessel	681,222	Aug. 27	2832	629	96	1670
Holland, John P., Newark, N. J., assignor to Electric Boat Company, of New Jersey. Submarine boat	683,400	Sept. 24	3160	725	96	2555
Holland, Joseph, assignor to W. G. Kendall, Providence, R. I. Cushion-tire	678,340	July 9	1915	439	96	407
Holland, William J., Erie, Tex. Vehicle-hub	679,290	July 23	3084	821	96	801
Hollands Manufacturing Company. (See Renner, Henry F., assignor.)						
Hollatz, Earnest, Chicago, Ill. Tufting-table	680,147	Aug. 6	775	173	96	1199
Hollenberger, John A., Hagerstown, Md. Waste-valve for washbowls, bath-tubs, &c.	680,592	Aug. 13	1598	353	96	1379
Hollerith, Herman, Washington, D. C. Apparatus for perforating record-cards	682,197	Sept. 10	967	222	96	2080
Holman, Rufus, Boston, Mass. Chair	682,700	Sept. 17	1892	430	96	2277
Holmberg, Anna, *et al.* (See Holmberg, Charles G., assignor.)						
Holmberg, Charles G., assignor to A. Holmberg, J. M. Wheeler, and L. H. Pier, Woonsocket, S. D. Crank mechanism	682,935	Sept. 17	2344	529	96	2368
Holmberg, Victor, assignor of one-half to J. A. Wolford, Rochester, N. Y. Attachment for milling-machines	678,341	July 9	1917	439 440	96	407
Holmes, Charles E. (See Cox and Holmes.)						
Holmes, Charles E., Lynn, Mass., assignor to General Electric Company, of New York. Circuit-breaker	678,881	July 23	2980	669	96	659
Holmes, George L., Chicago, Ill. Chain-belt connection	680,920	Aug. 20	2209	499	96	1537
Holmes, Horace A., Manton, Mich. Acetylene-gas generator	677,452	July 2	213	52	96	47
Holmes, John. (See Troxler, Gustavus, Jr., assignor.)						
Holmes, Shedrick, Brunswick, Ga. Lantern-carrier	677,987	July 9	1243	285 298	96	277
Holmes, Watson M., Hoosick Falls, N. Y., assignor to Planters Compress Company, Boston, Mass. Bale tie or band	679,844	Aug. 6	242	51	96	1092
Holmes, Watson M., Hoosick Falls, N. Y., assignor to Planters Compress Company, Boston, Mass. Bale-stay band	679,845	Aug. 6	244	52	96	1092
Holmes, William W. (See Mussetter, McCarthy, and Holmes.)						
Holst, Karl G., Waterbury, Conn. Lathe-dog	680,775	Aug. 20	1991	438	96	1483
Holt, George, Dixfield, Me. String-fastener for musical instruments	683,292	Sept. 24	2949	676	96	2511
Holt, George C., and J. W. McDaniel, Chicago, Ill. Hydrocarbon-vapor burner	677,766	July 2	790	189	96	167
Holt, John, Aston, England. Roller-bearing	681,549	Aug. 27	3449	766	96	1792
Holub, Bohumil, and P. Dvorácek, Vinohrady-Prague, Austria-Hungary. Acetylene-gas generator	679,315	July 30	3870	865	96	860
Holzman Brothers. (See Lewis, George E., assignor.)						
Holzmann, Charles, Budapest, Austria-Hungary. Electric coupling for conductors	683,045	Sept. 24	2580	576	96	2426
Hommel, Jacob, assignor of one-half to F. T. Griffith, Los Angeles, Cal. Refrigerator-car	679,966	Aug. 6	482	101	96	1189
Honegger, Theodore, *et al.* (See McElroy, Thomas L., assignor.)	683,283	Sept. 24	2950	676	96	2512
Honey, Albert A., Tacoma, Wash. Electromagnetic traction-increasing apparatus	683,284	Sept. 24	2952	676	96	2512
Honey, Albert A., Tacoma, Wash. Electromagnetic brake						
Honeyman, Henry W., Pawtucket, assignor to Granger Foundry & Machine Company, Providence, R. I. Grinding device	680,863	Aug. 20	2160	475	96	1515
Hood, Charles L., St. Louis, Mo. Time fire-lighter	682,411	Sept. 10	1372	309	96	2153
Hood, Hiram Q., Carthage, Mo. Measuring-faucet	681,320	Aug. 27	3041	675	96	1711
Hook, Arthur S., Ottawa, Ill. Door-hanger	680,996	Aug. 20	2413	532	96	1564
Hooker, Frederick. (See Guinn, John A., assignor.)						
Hookham, George, Birmingham, England. Electric clock	678,958	July 23	3139	708	96	690

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Hooper, George K., Dedham, Mass. Tempering molding-sand	678,488	July 16	2225	------	96	487
Hooper, James B., Melrose, Mass. Fastener for shoe-laces	678,107	July 9	1474	340	96	321
Hoopes, Henry T. (See Kennedy and Hoopes.)						
Hoover, Frank K., and A. J. Mason, Kansas City, Mo. Excavating apparatus	679,475	July 30	4194	941	96	925
Hoover, Frank K., and A. J. Mason, Kansas City, Mo. Excavating apparatus	679,505	July 30	4270	961	96	940
Hoover & Gamble Company. (See Cuzner, George J., assignor.)						
Hoover, Jacob D., assignor of one-half to G. H. Kinzel, Winchester, Va. Grain-car door	681,321	Aug. 27	3042	675	96	1711
Hope, John, and W. E. Buckley, Liverpool, England. Starting means for autocars	679,024	July 23	2267	730 731	96	714
Hope, Phillip J., Everett, Mass. Paint-removing composition	683,177	Sept. 24	2744	------	96	2469
Hopkins, Cabel B., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sharpening attachment for beef-shaving machines	680,045	Aug. 6	609	138	96	1165
Hopkins, Cabel B., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sharpening attachment for meat-cutters	680,148	Aug. 6	777	178	96	1200
Hopkins, Harvey L., assignor of one-half to L. C. Rollo, Chicago, Ill. Shears	677,662	July 2	602	143	96	127
Hopkins, Nevil M., Washington, D. C., assignor, by mesne assignments, to Anti-Bursting Pipe Company, of Pennsylvania. Faucet	680,329	Aug. 13	1113	248	96	1282
Hopkins, Randolph C., Glenville, assignor to Patterson-Sargent Company, Cleveland, Ohio. Sheet-metal receptacle	682,799	Sept. 17	2083	471	96	2315
Hopkinson, John, Bradford, England. Treating wool-grease	680,977	Aug. 20	2375	------	96	1558
Hoppes, John J., Springfield, Ohio. Induction-chamber and oil-eliminator	677,356	July 2	89	10	96	11
Hopwood, Clarence M. (See Watson and Hopwood.)						
Horan, George T. (See Bowie, William S., assignor.)						
Horie, Francis A., Boston, Mass. Display-box	680,659	Aug. 13	1731	380	96	1407
Horn & Brannen Manufacturing Company. (See Horn, Herman, assignor.)						
Horn, Herman, Philadelphia, Pa., assignor to Horn & Brannen Manufacturing Company, of Pennsylvania. Switch for electric lights	678,180	July 9	1596	368	96	345
Hornbostel, Ernst A., Sr., assignor of one-half to W. L. Harbach, Des Moines, Iowa. Typewriter	679,231	July 23	3685	821 822	96	801
Hornich, William, Jr., Vailsburg, assignor to R. Liebmann, East Orange, N. J. Button	679,052	July 23	3337	745	96	720
Hornig, Julius L., St. Louis, Mo. Impact and reaction motor	683,285	Sept. 24	2953	676 677	96	2512
Hornsby, William, and D. Roberts, Grantham, England. Steam-generator	680,568	Aug. 13	1600	358 354	96	1379
Horrall, George L., Olney, Ill. Incubator	678,882	July 23	2981	669	96	659
Horrocks, William. (See Crompton and Horrocks.)						
Horsburgh, Frank. (See Scullin, Terance, assignor.)						
Horspool, Francis L., and J. J. Kelly, Ogden, Utah. Furnace-door and deflector-plate	681,701	Sept. 3	64	12	96	1876
Horton Basket Machine Company. (See Horton, Emmet, assignor.)						
Horton Basket Machine Company. (See Locke, Sylvanus D., assignor.)						
Horton, Emmet, Elmira, assignor to Horton Basket Machine Company, New York, N. Y., Machine for making baskets	680,149	Aug. 6	778	173 174 175	96	1200
Horvath, Louis, Los Angeles, Cal. Lawn-sprinkler	679,393	July 30	4082	899	96	895
Hosea, Lewis M., assignor, by mesne assignments, to Crawley Scenic and Pleasure Railway Company, Cincinnati, Ohio. Brake for single-track railways	679,676	July 30	4581	1029	96	1008
Hoshor, Joseph C., assignor to himself and T. E. Platt, Paterson, N. J. Conveyer-chain	677,742	July 2	786	175	96	155
Hotaling, Sheridan P., assignor of one-half to F. C. Adams, Ira, N. Y. Toe-rail for vehicles	677,743	July 2	787	176	96	156
Houghland, Frank H., St. Louis, Mo. Box	681,322	Aug. 27	3043	676	96	1712
Houghland, Frank H., St. Louis, Mo. Box	681,323	Aug. 27	3045	676	96	1712
Houghton, Edwin S., Brainerd, Minn. Jeweler's blast-lamp	680,921	Aug. 20	2272	499	96	1538
Houghton, Lewis T., Worcester, Mass. Thread-guide support for spinning or twisting machines	677,968	July 9	1246	286	96	277
Houpt, Georgie M. (See Mears, Elmer E. E., assignor.)						
Housberg, John W., Pittsburg, Pa. Curtain-fixture	679,677	July 30	4582	1029	96	1009
Housden, Thomas P., San Antonio, Tex. Electric marine governor	681,640	Aug. 27	3026	807	96	1828
House, Charles E., Canton, Ohio. Head-rest	679,423	July 30	4093	914	96	907
House, George V., Mount Vernon, N. Y. Hernial truss	682,986	Sept. 17	2345	529	96	2368
House, Thomas P. R., Uniontown, Pa. Slat-hook for bed-slats	682,078	Sept. 3	785	171	96	2030
Houser, Winfield S., assignor of one-half to J. H. Roan and J. Justice, Bellefonte, Pa. Padlock	683,286	Sept. 24	2956	677	96	2513
Houston, David H. (See Turner, Charles F., assignor.)						
Houze, William P., Paris, Tenn. Carbureter	683,401	Sept. 24	3162	725	96	2556
Howard, Augustus, San Francisco, Cal. Copying-press	681,826	Sept. 3	319	65	96	1929
Howard, Charles B., Greenriver, Wyo. Dust-proof sleeve for watch-pendants	680,594	Aug. 13	1601	354	96	1380
Howard, Franklin E., Buffalo, N. Y. Shade-holder for candles	682,079	Sept. 3	786	171	96	2030
Howard, Leon D., assignor of one-half to W. W. and E. F. Waite, Blunt, S. D. Horse-detacher	681,550	Aug. 27	3451	766	96	1792
Howard, Myron W., Camanche, Iowa. Fence-post	681,641	Aug. 27	3029	807	96	1829
Howarth, Richard. (See Haden and Howarth.)						
Howe, Andrew F., and E. C. Owen, Granite City, Ill. Ball-bearing	678,619	July 16	2487	556	96	541
Howe, John C., assignor of one-half to J. M. Kaminsky and C. E. Prouse, Indianapolis, Ind. Machine for straightening and trimming links of chain belts	677,744	July 2	788	176 177	96	156
Howe, William H., Toledo, Ohio. Boiler-flue cleaner	681,854	Sept. 3	374	75	96	1940
Howell, David, Omaha, Nebr. Stump-puller	681,094	Aug. 20	2469	547	96	1576
Howell, John W., and W. R. Burrows, Newark, N. J., assignors to General Electric Company, of New York. Apparatus for producing vacuums	677,989	July 9	1247	286	96	278
Howland, Matthew M., Providence, R. I. Self-locking pliers	677,414	July 2	139	32	96	31
Howland, Matthew M., Providence, R. I. Locking-pliers	682,701	Sept. 17	1898	430	96	2278
Howland, William L., Monmouth, Ill. Oil-can	679,123	July 23	3488	779	96	760
Howley, John M., Bayonne, N. J. Incandescent-lamp protector	683,046	Sept. 24	2581	576	96	2426
Hoxie, Vernon, Adrian, Mich. Wire fence	678,954	July 23	3140	708	96	690
Hoxie, Vernon, Adrian, Mich. Die for joining intersecting fence-wires	678,955	July 23	3142	704	96	690
Hoxie, Vernon, and W. H. Burnham, Adrian, Mich. Feed mechanism for wire-fabric machines	681,916	Sept. 3	489	101	96	1903
Hoyle, William E., assignor to R. F. Morse and S. H. Boardman, Providence, R. I. Pneumatic tire	680,776	Aug. 20	1992	438	96	1483
Hoyt, Charles R., Arlington, Mass., assignor to Empire Laundry Machinery Company, Portland, Me. Mangle	683,402	Sept. 24	3165	725	96	2556
Hoyt, Edwin W., Stamford, N. Y. Ensilage-cutter	679,168	July 23	3574	798	96	776
Hoyt, Will F., Dowagiac, Mich. Disk grain-drill	679,348	July 9	1719	394	96	371
Hoyt, William E., Ravenswood, W. Va. Freight-car door	679,181	July 9	1597	369	96	346
Hoyt, William E., New York, N. Y. Sewing-machine treadle	682,702	Sept. 17	1895	431	96	2278

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Hozana, Albert. (See Chavot and Hozana.)						
Hub Motor Company. (See Newman and Ledwinka, assignors.)						
Hubbard, Arthur O., Minneapolis, Minn. Producing wood-and-wire fabrics	682,619	Sept. 17	1737	397, 398	96	2249
Hubbard, Arthur O., Minneapolis, Minn. Wood-and-wire fabric	682,620	Sept. 17	1739	398, 399	96	2249
Hubbell, Arthur Y., Newdorp, assignor to Hubbell Manufacturing Co., New York, N. Y. Detergent composition	681,324	Aug. 27	3046	------	96	1712
Hubbell, Drusilla, *et al.* (See Hubbell, Thomas J., assignor.)						
Hubbell, Harvey, Bridgeport, Conn. Electric-switch shell	679,316	July 30	3872	865	96	860
Hubbell Manufacturing Co. (See Hubbell, Arthur Y., assignor.)						
Hubbell, Thomas J., assignor to D. Hubbell and W. H. Ames, Watsonville, Cal. Cultivator	678,489	July 16	2225	501	96	487
Huber, Edward. (See Miller, Jacob W., assignor.)						
Huber, Edward, Marion, Ohio. Friction-clutch	677,573	July 2	444	106	96	94
Huber, Sigmund V., Pittsburg, Pa. Rolling-mill	680,978	Aug. 20	2876	523, 524	96	1558
Huber, Sigmund V., Pittsburg, Pa. Run-out mechanism for rolling-mills	681,642	Aug. 27	3030	807, 808, 809, 810, 811, 812	96	1829
Huberti, Victor, Berlin, Germany. Safety device for automotor-vehicles	681,025	Aug. 20	2470	547	96	1576
Hudson, Asher J., *et al.* (See Sanderlin, Thomas M., assignor.)						
Hudson, Charles R., Warren, Ind. Clarifying apparatus	681,170	Aug. 20	2736	606	96	1630
Hudson, George P., *et al.* (See Sanderlin, Thomas M., assignor.)						
Hudson, Joseph N., Clinton, Ky. Combined standard and log-block for wagon-bolsters	682,090	Sept. 3	787	171	96	2020
Hudson, William H., Mount Vernon, N. Y. Perforating-machine	681,121	Aug. 20	2637	582	96	1611
Huenefeld, Ernst H. (See Carter and Hausfeld, assignors.)						
Huestis, Charles A., Yonkers, N. Y. Calipers	677,574	July 2	445	106	96	94
Huffman, Orlando, assignor of two-thirds to H. Fishbach and W. Bosworth, Beatrice, Nebr. Trap	681,791	Sept. 3	266	52	96	1918
Huffman, Orlando, assignor of two-thirds to H. Fishbach and W. Bosworth, Beatrice, Nebr. Window or door screen	681,792	Sept. 3	267	52	96	1919
Hug, Carl F., U. S. Navy. Photographic-camera attachment	678,400	July 16	2227	501	96	488
Hug, Edward M., assignor of one-half to Dunlap Machinery Company, New York, N. Y. Stand for sewing-machines	680,660	Aug. 13	1788	381	96	1407
Hughes, Bert, Harrisville, N. Y. Machine for making wooden dishes	682,987	Sept. 17	2347	530	96	1969
Hughes, Charles, London, England. Loom for weaving tufted fabrics	682,548	Sept. 10	1601	365, 366, 367	96	2200
Hughes, Edward B., and W. F. Clow, Colorado Springs, Colo. Dandelion-extractor	682,623	Sept. 17	1744	400	96	2250
Hughes, John M., Bowling Green, Ky. Churn	682,800	Sept. 17	2084	471	96	2215
Hughes, Johnson, Wissahickon, Pa. Automatic brake	679,001	July 23	3219	720, 721	96	705
Hughes, Ralph T., Saltburn, England. Machinery for pressing bricks or the like	679,846	Aug. 6	246	59	96	1092
Hughes, Richard J., Dedham, Wis. Syringe	678,568	July 16	2374	532	96	519
Hughes, Russell M., San Antonio, Tex. Cuff-holder	677,663	July 2	603	143	96	127
Hughes, Samuel F., Fort Madison, Iowa. Treadle-guide for cultivators	678,736	July 16	2692	606	96	581
Hulburd, Byron H., assignor of one-half to H. A. Fairbank, Sacramento, Cal. Truck attachment	679,621	July 30	4477	1006	96	986
Huleatt, Blanche C. (See Sabin and Huleatt.)						
Hulett, Frank E., Akron, Ohio. Locomotive revolving crane	682,703	Sept. 17	1896	431, 432	96	2278
Hulett, George H., assignor of one-half to Webster, Camp and Lane Machine Company, Akron, Ohio. Loading or unloading apparatus	679,967	Aug. 6	483	101	96	1139
	679,622	July 30	4476	1006, 1007	96	986
Hulings, James H., Parsons, W. Va. Hand-oiler	678,788	July 16	2767	623	96	595
Hull, Scott H., Oskaloosa, Iowa. Hip-strap connector	681,825	Aug. 27	3046	676	96	1712
Hullt, John. (See Denzer and Hullt.)						
Hullt, John, Hood River, Oreg. Handle-bar	681,223	Aug. 27	2883	630	96	1671
Hulquist, Andrew D., Chicago, Ill. Lock for adjustable back-frames of account-books, ledgers, &c	681,551	Aug. 27	3452	767	96	1792
Hulse, James H., and F. P. Wilkin, Salt Lake City, Utah; said Hulse assignor to said Wilkin. Cheese-marker	679,562	July 30	4378	962	96	964
Hulse, James V., Brooklyn, N. Y. Bending and twisting tool	680,150	Aug. 6	791	175, 176	96	1202
Hülss, John. (See Nagengast and Hülss.)						
Hultman, Carl A. W., Stockholm, Sweden. Electric cable	680,151	Aug. 6	793	176	96	1203
Hultman, Carl A. W., Stockholm, Sweden. Underground conduit for electric conductors	681,504	Aug. 27	3372	749	96	1775
Hultquist, Charley, Jerome, Ariz. Ter. Rock-drill	682,327	Sept. 10	1230	278	96	2124
Hume, John T. (See Cortland and Hume.)						
Humpal, Josephine, David City, Nebr. Photograph-exhibitor	682,990	Sept. 17	2449	553	96	2288
Humphrey, Alexander F., Allegheny, Pa. Toy gun	682,621	Sept. 17	1741	399	96	2249
Humphrey, Francis M., Pendleton, Oreg. Election-booth, knockdown structure, &c	682,622	Sept. 17	1742	399	96	2250
Humphrey, Francis M., Pendleton, Oreg. Double-deck car						
Humphreys & Glasgow. (See Gibbs, William E., assignor.)						
Hunt, Arthur E., assignor of one-half to R. C. Harris, Nichols, N. Y. Driven-well filter	679,169	July 23	3675	799	96	778
Hunt, Charles J., assignor of one-half to J. P. Cleal, Dayton, Ohio. Self-opening umbrella	680,661	Aug. 13	1734	381	96	1407
Hunt, Charles W., West New Brighton, N. Y. Conveyer	679,894	Aug. 6	336	71	96	1110
Hunt, Helm, Ferris & Company. (See Ferris, Henry L., assignor.)						
Hunt, Henry S., Newark, N. Y. Metallic receptacle	679,170	July 23	3677	799	96	778
Hunt, James G., Tribune, Ky. Fence	678,071	July 9	1408	322	96	306
Hunt, Leavitt J. (See Gallagher, George S., assignor.)						
Hunt, Wilson P., assignor to Deere & Mansur Company, Moline, Ill. Dip painting apparatus	682,412	Sept. 10	1374	310	96	2153
Huntex Company. (See Skinner, Henry A., assignor.)						
Huntley, Edward C., assignor of seven-eighths to M. J. Huntley, Chicago, Ill., A. Weyhenmeyer, O. F. Bittner, Mauchchunk, B. H. Birkel and A. C. Graham, South Bethlehem, Pa. Apparatus for sharpening files	680,152	Aug. 6	795	176, 177	96	1203
Huntley, Minnie J., *et al.* (See Huntley, Edward C., assignor.)						
Huntress, John H., Janesville, Wis. Nut-lock	678,787	July 16	2668	606	96	581
Hurd, George, Albert Lea, Minn. Box	678,491	July 16	2228	501	96	488
Hurd, Judson B., Washington, D. C. Dining-room service apparatus	681,122	Aug. 20	2641	588	96	1611

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hurlbut, Rufus H., Sudbury, Mass. Cutting-off mechanism	678,569	July 16	2375	583, 584	96	519
Hurley, Edward N. (See Kimman, Henry J., assignor.)						
Hurst, Charles, Brooklyn, N. Y. Machine for leveling electrotypes	681,964	Sept. 3	596	120	96	1984
Hüser, Caspar, Brückhausen, Germany. Roll for rolling-mills	678,666	July 16	2583	578	96	599
Huson, Winfield S., Taunton, Mass., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Mechanical movement	680,433	Aug. 13	1808	287, 288	96	1320
Hussey, Charles A., New York, N. Y., assignor to W. P. Pinckard, Birmingham, Ala. Electric switch	678,492	July 16	2220	501, 502	96	488
Hutchings, Charles, assignor to Rochester Optical and Camera Company, Rochester, N. Y. Extension-bed for photographic cameras	682,081	Sept. 3	788	172	96	2021
Hutchings, Charles E. (See Carlton and Hutchings.)						
Hutchings, George C., St. Louis, Mo. Fire-extinguisher	678,249	July 9	1720	394	96	371
Hutchings, George C., St. Louis, Mo. Fire-extinguisher	678,250	July 9	1722	395	96	371
Hutchings, George C., and O. C. Wiesner, Kansas City, Mo. Automatic fire-extinguisher bracket	679,563	July 30	4379	963	96	964
Hutchins, George F., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Bag-loom	679,895	Aug. 6	337	71, 72	96	1110
Hutchinson, Arthur H., assignor to Frick Company, Waynesboro, Pa. Pipe-coupling	683,287	Sept. 24	2957	677	96	2518
Hutchinson, Charles, Green Island, N. Y. Cash-receptacle	678,620	July 16	2489	556	96	542
Hutchison, John, Jackson, Mich. Roller-bearing	681,793	Sept. 3	268	52	96	1919
Hutchison, Maurice F., Floris, assignor of one-half to R. C. Eichberg, Alexandria, Va. Lock	683,206	Sept. 24	2892	645	96	2480
Hutin, Maurice, and M. Leblanc, assignors to Société Anonyme pour la Transmission de la Force par l'Électricité, Paris, France. Apparatus for transforming alternating into continuous currents	681,965	Sept. 3	599	127, 128	96	1985
Huxley, Charles E., assignor of two-thirds to F. Wahl and G. E. Ricker, Quincy, Ill. Valve	681,794	Sept. 3	269	52	96	1919
Hyde, Arthur S., Hartford, assignor to Whitlock Coil Pipe Company, Elmwood, Conn. Exhaust-head	677,357	July 2	41	10	96	11
Hyde, Arthur S., Hartford, assignor to Whitlock Coil Pipe Company, Elmwood, Conn. Exhaust-head	677,358	July 2	42	10	96	11
Hyde, Kirkley, Lowell, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Pick-finder for looms	677,513	July 2	312	77, 78	96	67
Hyde, Mary A., New York, N. Y. Means for preserving seals in traps of water-closets, urinals, washbasins, sinks, &c	680,380	Aug. 13	1221	269	96	1302
	679,150	July 23	3586	790	96	709
Hyland, Thomas B., Pittsburg, Pa. Brake for cars	683,408	Sept. 24	3166	726	96	2557
Hyman, Manie, Denver, Colo. Bank-draft	678,621	July 16	2493	557	96	543
Hynes, Samuel B., and W. N. Best, Los Angeles, Cal. Railway-road furnace						
I. B. Kleinert Rubber Company. (See Guinzburg, Henry A., assignor.)						
Ideal Cash Register Company. (See Giles Harvey, assignor.)						
Ideal Cash Register Company. (See Giles and Fleming, assignors.)						
Ideal Cash Register Company. (See Smith and Giles, assignors.)						
Ideal Cash Register Company. (See Smith and Jarvis, assignors.)						
Ihart, John P., New York, N. Y. Preparing materials for purifying gas	680,777	Aug. 20	1991	------	96	1483
Ihlder, John D., Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Electromagnet	677,859	July 2	43	11	96	12
Ihlenfeld, Richard. (See Manasse and Ihlenfeld.)						
Ill, Henry, Newark, N. J. Outlet-box	680,922	Aug. 20	2273	499, 500	96	1538
Ilsen & Company. (See Noyes, Charles W., assignor.)						
Immell, Omer F., assignor of one-half to G. L. Solberg, Blair, Wis. Door-manipulator	678,738	July 16	2694	607	96	581
Incandescent Light and Stove Company. (See Stubbers, Joseph, assignor.)						
Indiana Development Company. (See Steel, Harry L., assignor.)						
Ingels, Marion, Leanna, Kans. Broom-corn harvester	679,753	Aug. 6	68	17, 18	96	1055
Ingersoll-Sergeant Drill Company. (See Sergeant and Preilwitz, assignors.)						
Ingledue, Charles W., Lima, Ohio. Manifolding account device	681,917	Sept. 3	491	101	96	1963
Ingram, George C., South Tacoma, Wash. Horseshoer's knife	682,938	Sept. 17	2350	530	96	2309
Ingram, James E., Baltimore, Md. Portable savings-bank	680,046	Aug. 6	610	133	96	1166
Inman, Claude C. (See Inman, William M. and C. C.)						
Inman, Horace, Amsterdam, N. Y. Weighing and filling machine	679,968	Aug. 6	485	102	96	1140
Inman, William M., Randsburg, and C. C. Inman, Bishop, Cal. Sack-holder	680,881	Aug. 13	1224	269	96	1303
Inshaw, John G., assignor of two-thirds to F. and F. Billing, Birmingham, England. Manufacture of hollow blooms for producing tubes, hollow shafting, axles, &c., from common puddled iron or other metals	680,595	Aug. 13	1608	854	96	1380
International Burglar Proof Sash Balance and Lock Company. (See Wallace and Hilton, assignors.)						
International Canning Company. (See Bancroft, James E., assignor.)						
International Light and Heat Company. (See Hendler, John J., assignor.)						
International Machine Co. (See Smith, Myron A., assignor.)						
International Machinery Co. (See Hess, Wendell, Jr., assignor.)						
International Time Recording Company. (See Giroud, Peter G., assignor.)						
Intractable Ore Treatment Company. (See Peterson, Elias, assignor.)						
Irr, Joseph, Jr., Cleveland, Ohio. Refrigerating and tapping box	681,056	Aug. 20	2529	559	96	1585
Irvine, Hugh A., Niagara Falls, N. Y. Reduction of ores or compounds	681,967	Aug. 27	3112	691	96	1725
Irving, Junius B., assignor of one-half to J. D. Havens, Kansas City, Mo. Loose-sheet holder	681,653	Aug. 27	3665	821	96	1836
Irwin, D. Frank. (See Wallace, Irwin, and Smith.)						
Irwin, Herbert E., Galesburg, Ill. Detachable tire	680,486	Aug. 13	1409	307	96	1340
Irwin, James W. (See Werle, John F., assignor.)						
Irwin, Joseph E., Marietta, Ohio. Pump	682,469	Sept. 10	1469	333, 334	96	2172
Isaacs, John D. (See Wallace and Isaacs.)						
Isaacs, Mone R. (See Bellamy, Charles H., assignor.)						
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Guanidin compound and making same	677,514	July 2	318	------	96	68
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Mixed guanidin derivatives and making same	677,515	July 2	319	------	96	69
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Red azo dye and making same	677,516	July 2	320	------	96	69
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Red azo dye and making same	677,517	July 2	322	------	96	69
Israel, Gustav, Chicago, Ill. Protecting-plate for horses' hoofs	677,990	July 9	1250	286	96	278
Ivens, Edmund M., New Orleans, La. Centrifugal pump mechanism for deep wells	682,939	Sept. 17	2351	531	96	2370
Ivers, William H., Dedham, Mass. Pedal for pianofortes or organs	682,196	Sept. 10	990	222	96	2061
Iversen, Michael, Stoughton, Wis. Attachment for hot-air registers	681,552	Aug. 27	3454	767	96	1792

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ives, Charles A., New York, N. Y. Fire-escape	682,082	Sept. 3	702	172	96	2022
Ives, Louis, Dearborn, Mich. Automatic door opening or closing device	679,847	Aug. 6	348	52	96	1093
Ivory, James W., Philadelphia, Pa. Tooth or dental clamp	678,182	July 9	1598	369	96	346
J. A. Fay & Egan Company. (See Bugbee, George H., assignor.)						
J. E. Mergott Company. (See Fuller, Albert F., assignor.)						
J. H. Bunnell & Company. (See Ghegan, John J., assignor.)						
J. I. Case Threshing Machine Company. (See Harrison, James R., assignor.)						
J. R. Bricker and Company. (See Snavely, Samuel K., assignor.)						
J. W. Paxson Company. (See Brown, William J., assignor.)						
J. W. Paxson Company. (See Warren, Ambrose G., assignor.)						
J. W. Ruger Manufacturing Company. (See Fenner, Jess B., assignor.)						
Jaccard, Eugene G. E., *et al.* (See Smith, Thomas, assignor.)						
Jacks, David. (See Orton, Gerrit V., assignor.)						
Jackson, Calvin, Reading, Pa. Machine-tool	683,178	Sept. 24	2745	631, 632	96	2499
Jackson, Hampton E., assignor of one-half to C. Leib, H. Skehan, and P. Doyle, Anderson, Ind. Railway-track	680,153	Aug. 6	798	177	96	1204
Jackson, Manetho C., assignor to Gardner Electric Drill and Machinery Company, Denver, Colo. Rock-drilling machine	683,404	Sept. 24	3167	726	96	2557
	678,493	July 16	2234	502, 503	96	490
Jackson, Ralph, Altringham, England. Carbureter	681,927	Sept. 3	321	65	96	1929
Jackson, William G., assignor to L. H. Moise, San Francisco, Cal. Hair-crimper	681,224	Aug. 27	2896	630	96	1671
Jacob, Abram H., Larned, Kans. Dental forceps	677,518	July 2	324	78, 79	96	70
Jacobs, Arthur I., assignor to Smyth Manufacturing Company, Hartford, Conn. Shearing-machine						
Jacobs, Arthur I., assignor to Smyth Manufacturing Company, Hartford, Conn. Variable-speed mechanism	681,702	Sept. 3	65	12	96	1876
Jacobs, Arthur I., assignor to Smyth Manufacturing Company, Hartford, Conn. Adjustable guide and flattener for cloth-cutting machines	683,047	Sept. 24	2533	576, 577	96	2426
	680,979	Aug. 20	2379	525	96	1558
Jacobs, Claus B., Roland, Iowa. Cornstalk-loader	681,708	Sept. 3	66	12	96	1877
Jacobson, Benjamin, New York, N. Y. Removable back for picture-frames						
Jacobson, Harry D. (See Tripp and Jacobson.)						
Jacobson, Percy I. (See Tripp and Jacobson.)						
Jacobson, Peter, Milwaukee, Wis. Railway air-brake drain-cup	680,330	Aug. 13	1114	248	96	1282
Jacques, Louis A. (See Leger, Narcisse, assignor.)						
Jacquot, Albert, Wilmington, Del. Measuring instrument for fitting horse-collars	681,553	Aug. 27	3454	767	96	1798
Jaeger, Carl H., Leipsic, Germany. Rotary blower	680,596	Aug. 13	1604	354	96	1380
Jaeger, Frederick W., New York, N. Y. Mechanical movement	683,405	Sept. 24	3170	726	96	2557
Jaeger, Frederick W., New York, N. Y. Discoidal engine	683,406	Sept. 24	3171	727	96	2557
Jaeger, Heinrich F. W., assignor of one-half to G. M. Gramlich, Sandusky, Ohio. Car-axle box	682,704	Sept. 17	1898	432	96	2279
Jaesschin, Hugo. (See Kaltwasser and Jaesschin.)						
Jagger, Eli, Werneth, England. Apparatus for placing driving-belts	679,317	July 30	3873	866	96	860
Jahn, Konrad R., Copenhagen, Denmark. Stopper for bottles, jars, or similar containers	682,357	Sept. 10	1277	288	96	2132
Jahnz, Erwin H., Westend, assignor of one-half to P. Meyer, Actiengesellschaft, Berlin, Germany. Cash-register	683,048	Sept. 24	2585	577, 578	96	2427
	682,083	Sept. 3	703	173	96	2023
James, Henry B., London, England. Means for elevating platforms	677,664	July 2	604	144	96	128
James, John E., assignor of one-half to J. H. King and H. M. Willson, Worthington, Pa. Heating-stove	681,554	Aug. 27	3456	767	96	1798
Jamieson, Arthur E., Detroit, Mich. Self-inking rubber stamp	681,704	Sept. 3	67	13	96	1877
Jamieson, Marcus W., Warren, Pa. Gas-engine	681,705	Sept. 3	71	14	96	1878
Jamieson, Marcus W., Warren, Pa. Gas-engine						
Janelle, Belonie, assignor of two-thirds to H. F. Straw and H. E. Parker, Manchester, N. H. Weft-fork clearer for looms	682,553	Sept. 10	1614	369	96	2202
Janelle, Oscar, Manchester, N. H., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Loom	680,778	Aug. 20	1905	438	96	1488
	678,207	July 9	1829	421, 422	96	390
Janin, John V., assignor of one-half to C. Claeys, Seattle, Wash. Life-raft						
Jansen, Alexander D., Johannesburg, South African Republic. Discharge-door for ey-and-tanks	680,154	Aug. 6	799	177	96	1204
	683,288	Sept. 24	2958	678	96	2513
Janson, Louis, Brooklyn, N. Y. Car-seat	681,225	Aug. 27	2837	630	96	1672
Janssen, John H., Woonsocket, S. D. Gearing for well-drilling apparatus						
Japanese Tissue Mills. (See Perkins and Pope, assignors.)						
Jared, Comer Y., Alexandria, Tenn. Corn-planter	681,795	Sept. 3	270	53	96	1919
Jarvis, Harold. (See Smith and Jarvis.)						
Javal, Eugène A., Neuilly, France. Acetylene-gas generator	677,991	July 9	1251	287	96	278
Jaynes, Samuel P. (See Newman, John Z., assignor.)						
Jeffers, Howard W. (See Klippelt and Jeffers.)						
Jefferson, Eugene D., Lowell, Mass. Gate-valve	680,714	Aug. 20	1875	412	96	1458
Jefferson Manufacturing Company. (See Cromble, Herbert S., assignor.)						
Jeffery, Thomas B. (See Thompson, Robert W., assignor.)						
Jeffery, Thomas B., Chicago, Ill. Hydrocarbon-spraying device for gasolene-engines	677,767	July 2	790	189, 190	96	168
Jeffery, Thomas B., Chicago, Ill. Starting device for explosive-engines	680,923	Aug. 20	2275	500	96	1589
Jeffery, Thomas B., Chicago, Ill. Controlling device for motor-vehicle driving-trains	682,801	Sept. 17	2086	472	96	2316
Jeffery, Thomas B., and R. W. Thompson, Chicago, Ill.; said Thompson assignor to said Jeffery. Motor-vehicle driving mechanism	678,622	July 16	2496	557, 558	96	543
Jeffrey, Alexander, *et al.* (See Pettengill, Frederick B., assignor.)						
Jeffrey Manufacturing Company. (See Shoemaker and Willson, assignors.)						
Jelinek, Matthias W., Blackhawk, Colo. Safety cage-chair. (Reissue)	11,921	July 9	1949	446	96	414
Jenkins, Charles D., assignor to Carter, Rice and Company Corporation, Boston, Mass. Propelling mechanism for vessels	681,706	Sept. 3	72	15	96	1878
	682,850	Sept. 17	2189	494	96	2336
Jenkins, Henry, McKees Rocks, Pa. Horseshoe	679,564	July 30	4380	968	96	965
Jenkins, John. (See Tunney, John J., assignor.)						
Jenkins, Mary C., Kansas City, Kans. Colander	682,705	Sept. 17	1899	432	96	2279
Jenkins, Wilton F., Richmond, Va. Contact device for conduit electric railways	682,706	Sept. 17	1901	432	96	2280
Jenkins, Wilton F., Richmond, Va. Contact device for conduit electric railways	682,707	Sept. 17	1903	433	96	2280
Jenkins, Wilton F., Richmond, Va. Contact device for conduit electric railways						
Jenkins, Wilton F., Richmond, Va. Suspensory device for trailing contacts for conduit electric railways	682,708	Sept. 17	1905	433	96	2281
	682,709	Sept. 17	1907	433	96	2281
Jenkins, Wilton F., Richmond, Va. Insulator	682,710	Sept. 17	1908	434	96	2281
Jenkins, Wilton F., Richmond, Va. Bond for electric-railway conductors	682,711	Sept. 17	1909	434	96	2281
Jenkins, Wilton F., Richmond, Va. Conduit for electric railways	678,667	July 16	2584	578, 579	96	560
Jenks, Samuel M., Madison, S. D. Conveyer mechanism	682,258	Sept. 10	1106	251	96	2102
Jensen, Soren, assignor of one-half to J. Loyd, Providence, R. I. Paint or window cleaner						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jensenius, Herman A., assignor to Camden Iron Works, Camden, N. J. Vertical direct-acting engine	683,407	Sept. 24	3174	727	96	2558
Jernander, August. (See Landin and Jernander.)						
Jervis, Benjamin F., Connellsville, Pa. Combined penholder and knife eraser	679,623	July 30	4480	1007	96	986
Jessup, John K., assignor of one-half to O. M. West, Mound City, Kans. Insect-exterminator	679,848	Aug. 6	249	53	96	1093
Jessup, William S. (See Gervais, Charles E., assignor.)						
Jewell, Ira H., Chicago, Ill. Coagulant and making same	681,892	Sept. 3	426		96	1949
Jinnette, John W., Chicago, Ill. Measure for paper bags	677,892	July 9	1051	246	96	240
Jobson, Frank L., Richmond, Va. Electric temperature-indicator	682,084	Sept. 3	794	173	96	2028
Jobson, Frank L., assignor of one-half to A. S. Buford, Richmond, Va. Railway-car-ventilating apparatus	682,872	Sept. 17	2227	502	96	2344
Jocelyn, Albert H., deceased, Brooklyn, N. Y.; A. H. Jocelyn, executor. Amalgamating apparatus	678,183	July 9	1599	369	96	346
	680,597	Aug. 13	1606	355	96	1380
Joel, Henry F., London, England. Dynamo-electric machine and electric motor						
John, Hugo, Erfurt, Germany. Machine for cutting or dividing girders, angle-irons, &c.	683,389	Sept. 24	2959	678, 679	96	2518
Johns, Will R., Rockford, Ill., assignor to Excelsior Automatic Knitting Machine Company, Norristown, Pa. Knitting-machine	678,883	July 23	2985	670, 671	96	660
Johnson, Albert W. (See Lavigne and Johnson.)						
Johnson, Andrew J., Arbuckle, Cal. Apparatus for bluestoning seed	677,902	July 9	1252	287	96	279
Johnson, Asahel B., Pittsburg, Pa. Perforated mensuration-scales	679,261	July 23	3745	836	96	812
Johnson, Benjamin F. (See Sallade, Jacob, assignor.)						
Johnson, Charles, Ely, Minn. Railway-spike	682,712	Sept. 17	1911	434	96	2282
Johnson, Charles J., and W. H. Springer, Minneapolis, Minn., assignors, by mesne assignments, to Northwestern Compo-Board Company. Machine for manufacturing compo-board	679,698	July 30	4617	(1086, 1087, 1088)	96	1016
Johnson, Charles M., New York, N. Y. Delivery-switch	681,057	Aug. 20	2580	559	96	1588
Johnson, Charles S., Brownville, Me. Double-cylinder engine	680,382	Aug. 13	1225	269, 270	96	1303
Johnson, Clarence O., New York, N. Y. Car-ventilating apparatus	679,754	Aug. 6	73	18	96	1056
Johnson, Eldridge R., Philadelphia, Pa. Sound-box for talking-machines	679,896	Aug. 6	340	72	96	1111
Johnson, Eldridge R., Philadelphia, Pa. Machine for leading sound-records	681,918	Sept. 3	494	102	96	1903
Johnson Electric Service Company. (See Winkenwerder, Henry, assignor.)						
Johnson, Frank E., Greensburg, Pa., assignor to J. P. Kelly, Brooklyn, N. Y., and G. M. Jones, Pittsburg, Pa. Handle for stop and waste cocks	678,132	July 9	1514	349	96	329
Johnson, Frank J., Hartford, Conn. Combined steam and hot-water heater	681,226	Aug. 27	2838	630, 631	96	1672
Johnson, Frank P., Waltham, Mass. Unloading device	678,108	July 9	1475	340	96	322
Johnson, G. Fred. (See Kelley, Edward J., assignor.)						
Johnson, George W., Piper City, Ill. Grain-dump and elevator	680,331	Aug. 13	1115	248, 249	96	1282
Johnson, Hans G., Waukon, Iowa. Bicycle	680,980	Aug. 20	2384	526	96	1559
Johnson, James E., Perry, N. Y. Thill-coupling	678,184	July 9	1608	370	96	346
Johnson, James G., Carthage, Ill. Currycomb	681,707	Sept. 3	73	15	96	1878
Johnson, James W., Savage, S. C. Plow	681,227	Aug. 27	2840	631	96	1672
Johnson, John A. (See Swonson, John E., assignor.)						
Johnson, John A., assignor of one-half to E. W. Karr, Hoquiam, Wash. Jack	683,290	Sept. 24	2963	679	96	2514
Johnson, John A., and E. O. Henderson, Okoboji, Iowa. Balanced valve	679,755	Aug. 6	74	19	96	1056
Johnson, John C., Dallas, Tex. Trace-fastener	681,855	Sept. 3	375	75	96	1940
Johnson, John G., Ishpeming, Mich. Drilling-machine	679,318	July 30	3874	866	96	860
Johnson, John W. (See Wilson, Leander, assignor.)						
Johnson, Joseph E., Jr., Pittsburg, Pa. Stock-line recorder for blast-furnaces	677,665	July 2	606	144, 145	96	128
Johnson, Montgomery H., Utica, N. Y. Electric switch	680,981	Aug. 20	2385	526	96	1559
Johnson, Rowland C., and J. B. Martin, Brooklyn, N. Y. Water-closet	679,459	July 30	4169	936	96	920
Johnson, Thomas C., assignor to Winchester Repeating Arms Co., New Haven, Conn. Automatic firearm	681,481	Aug. 27	3327	739, 740	96	1767
Johnson, Thomas R., Joplin, Mo. Tube-expander	683,291	Sept. 24	2964	679	96	2514
Johnson, William H., Atlantic City, N. J. Combined tray-stand and napkin-receptacle	677,545	July 2	387	92	96	83
Johnson, William H., Veedersburg, Ind. Handle-turning lathe	683,262	Sept. 24	2965	679, 680	96	2514
Johnson, William H., assignor to W. W. Calhoon, J. A. Mitchell, J. F. Harrison, and C. A. Blair, Carthage, Mo. Belt-tightener	678,842	July 9	1919	440	96	407
	683,049	Sept. 24	2537	578	96	2427
Johnston, Edward A., Chicago, Ill. Pitman connection						
Johnston, James S., assignor of one-half to K. Magner, Utica, N. Y. Neck-marking machine	678,784	July 16	2769	623	96	595
Johnston, Joseph B. (See Konhorst, Henry, assignor.)						
Johnston, Joseph G., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Cope-pattern	678,256	July 9	1729	396	96	373
Johnston, Lawrence M., Dayton, Ohio. Vaporizer for explosive-engines	679,053	July 23	3339	745	96	729
Johnston, Leune J., Petaluma, Cal. Expansible pulley	679,076	July 23	3408	759	96	742
Johnston, Thomas J., Schenectady, N. Y., assignor to General Electric Company, of New York. Protecting generators in transmission plants	678,185	July 9	1605	370	96	347
Johnston, Thomas J., Schenectady, N. Y., assignor to General Electric Company, of New York. Combined switch and circuit-breaker	679,151	July 23	3537	790	96	769
Johnston, Washington T., assignor to Lottman Brothers Manufacturing Company, Houston, Tex. Canopy-frame	678,739	July 16	2695	607	96	581
Jones, Albert F., Salem, assignor, by mesne assignments, to Vaughn Machine Company, Boston, Mass. Leather-dressing machine	681,856	Sept. 3	377	76	96	1941
Jones, Albert P., assignor of one-half to F. E. Dixon, Toronto, Canada. Skate	678,402	July 16	2046	464	96	450
Jones, Arthur W., Washington, Kans. Washing-machine	680,506	Aug. 13	1609	355	96	1381
Jones, Daniel, Canton, Minn. Fuel compound	680,864	Aug. 20	2161		96	1515
Jones, Elmer M., assignor to W. H. Morehouse, Savannah, Ga. Can or vessel	679,171	July 23	3577	799	96	779
Jones, Everly A., Cass City, Mich. Animal-poke	680,253	Aug. 13	987	221	96	1256
Jones, Francis W., New York, N. Y. Telegraph switching apparatus	677,453	July 2	214	53	96	47
Jones, Francis W., New York, N. Y. Protection of multiple-telegraph instruments	677,519	July 2	325	79	96	70
Jones, George M., *et al.* (See Johnson, Frank E., assignor.)						
Jones, Harry S. (See Jones, Harvey P. and H. S.)						
Jones, Harry S., assignor to Jones Perpetual Ledger Company, Chicago, Ill. Loose-leaf binder	682,851	Sept. 17	2190	494	96	2336
Jones, Harvey P. and H. S., Chicago, Ill., assignors to Jones Perpetual Ledger Company, of Illinois. Punch	680,599	Aug. 13	1610	356	96	1381
Jones, Jake, Washington, Ind. Combined car-replacer and wheel-shoe	681,228	Aug. 27	2841	631	96	1673

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jones, John H. (See Smith, Hugh, assignor.)						
Jones, Lewis E., Milford, Ill. Windmill	680,530	Aug. 13	1493	328 / 329	96	1358
Jones, Macon L., Montgomery, Ala. Self-restoring fuse-block	679,897	Aug. 6	343	73	96	1112
Jones Perpetual Ledger Company. (See Jones, Harry S., assignor.)						
Jones Perpetual Ledger Company. (See Jones, Harvey P. and H. S., assignors.)						
Jones, Phil B. (See Francis, James H., assignor.)						
Jones, Richard O. (See Lloyd and Jones.)						
Jones, Ruel A., Stanford, Ky. Necktie-clasp	680,600	Aug. 13	1611	356	96	1381
Jones, Salmon, *et al.* (See Anderson, Frank C., assignor.)						
Jones, Walter, Niagara Falls, N. Y. Hose-reel	677,998	July 9	1254	287 / 288	96	279
Jones, William A., West Brighton, N. Y. Motor	678,570	July 16	2377	534	96	519
Jones, William J., Denver, Colo. Apparatus for carbonating liquids	682,145	Sept. 3	886	198	96	3040
Jones, William M., San Francisco, Cal. Lubricant for commutators	680,155	Aug. 6	801	------	96	1205
Jones, William T., New Westminster, Canada. Oar-making machine	677,768	July 2	793	190 / 191	96	168
Jones, William T., assignor of one-half to H. Doyle, San Francisco, Cal. Can-heading machine	678,494	July 16	2235	503	96	490
Joos, Edward, *et al.* (See McKinley, Joseph S., assignor.)						
Jordan, Adolph, and F. Schingel, St. Louis, Mo. Cowl	680,865	Aug. 20	2161	476	96	1515
Jordan, Hugh L., Santa Paula, Cal. Hydrant or other water-pipe coupling	681,420	Aug. 27	3208	712 / 713	96	1743
Jordan, Lewis H., assignor to American Luxfer Prism Co., Chicago, Ill. Sash-frame	682,199	Sept. 10	991	223	96	2081
Josse, Emil, Wilmersdorf, Germany. Means for sealing parts of machinery	679,898	Aug. 6	344	73	96	1112
Joy, Francisco D., Glendora, Cal. Metal hose-coupling and washer	682,873	Sept. 17	2229	508	96	2344
Joyce, James C., Florida, N. Y. Holdback	681,708	Sept. 3	74	15	96	1878
Joyce, Thomas H., Brooklyn, N. Y. Side apron for vehicles	679,624	July 30	4481	1007	96	986
Judge, Thomas A., Sheffield, England. Construction of tubes from single strips of metal	682,713	Sept. 17	1912	434	96	2282
Judson, Dalus W., Barrie, Canada. Bicycle-frame	679,565	July 30	4382	988	96	905
Julius, Paul, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Orange dye and making same	679,172	July 23	3578	------	96	779
Jungbauer, Joseph, St. Paul, Minn. Cuff-holder	680,715	Aug. 20	1876	413	96	1458
Jungnickel, Max, Rathenow, Germany. Machine for grinding facets on glasses for spectacles	681,396	Aug. 27	3159	704	96	1734
Junker, John B., assignor of one-half to F. Kremp, Indianapolis, Ind. Clothes-drier	681,397	Aug. 27	3160	704	96	1734
Just, John A., Syracuse, N. Y. Caseln powder	682,549	Sept. 10	1605	367	96	2200
Justice, James, *et al.* (See Houser, Winfield S., assignor.)						
Kaczander, Leopold, New York, N. Y., and E. K. Hill, Worcester, Mass., assignors to Nathan Manufacturing Company, New York, N. Y. Oiler	682,550	Sept. 10	1606	367	96	2200
Kaeferle, Fritz, Hanover, Germany. Pressure-reducing apparatus	682,085	Sept. 3	796	173	96	2023
Kahn, John. (See Carlson, Emanuel, assignor.)						
Kahoa, Charles V., assignor of one-half to C. N. Ruark, Russell, Iowa. Machine for making wire fences	679,969	Aug. 6	486	102	96	1140
Kaighin, Charles J. (See Cady, Palmer M., assignor.)	679,625	July 30	4488	1008	96	986
Kaiser, John, and W. Stocker, Pittsburg, Pa. Rail-joint	683,208	Sept. 24	2967	680	96	2515
Kaiser, Karl A., Long Island City, N. Y. Sad-iron	677,575	July 2	447	107	96	95
Kale, Zachary T., Newcastle, Va. Vehicle-hub						
Kaltwasser, Oskar, and H. Jaesschin, assignors to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Blue monoazo dye	683,119	Sept. 24	2952	------	96	2450
Kaltwasser, Oskar, and H. Jaesschin, assignors to Actien-Gesellschaft für Anilin Fabrika tion, Berlin, Germany. Black disazo dye	683,120	Sept. 24	2953	------	96	2451
Kaminski, Louis, St. Louis, Mo. Plate-easel and rack	679,530	July 30	4317	970	96	950
Kaminsky, Julius M., *et al.* (See Howe, John C., assignor.)						
Kammer, John von der, Chicago, Ill. Sprouting apparatus	679,124	July 23	3489	779 / 780	96	760
Kammerer, Otto, Charlottenburg, Germany. Steering mechanism for guideless lifts	681,555	Aug. 27	3457	768	96	1793
Kandó, Koloman von, Budapest, Austria-Hungary. Apparatus for cutting into and out of circuit liquid rheostats operated by means of compressed air	677,454	July 2	216	53	96	47
Kandó, Koloman von, Budapest, Austria-Hungary. Switch for multiphase alternating-current motors	677,455	July 2	217	53	96	48
Kane, Maurice, Austin, Ill. Wind-break for harvesting-machines	678,571	July 16	2380	534	96	520
Kane, Thomas. (See Smith, Uzziel P., assignor.)						
Karlow, Edward, assignor of one-half to C. F. Schippell, New York, N. Y. Phonograph-reproducer	681,058	Aug. 20	2532	560	96	1589
Karlson, Henry C., New York, N. Y. Nut-lock	677,546	July 2	390	93	96	88
Karr, Elkanah W. (See Johnson, John A., assignor.)						
Karr, Henry C., Washington, D. C. Wrapper	683,294	Sept. 24	2968	680	96	2515
Kässbauer, Paul, assignor to E. Mytteis, Vienna, and O. Lenck, Oedenburg, Austria-Hungary. Regulating device for electric-arc lamps	682,554	Sept. 10	1615	369	96	2202
Kastberg, Adolf W. (See Almqvist, Kastberg, Cahling, and Sjöqvist.)						
Katz, Samuel, Des Moines, Iowa. Garment-clasp	678,668	July 16	2586	579	96	561
Katzenberger, Oscar, assignor of one-half to H. Uhl San Antonio, Tex. Lock	678,956	July 23	3144	704	96	690
Katzenstein, Leopold, New York, N. Y. Metallic packing	682,200	Sept. 10	994	223 / 224	96	2081
Katzki, Albert, Erie, Pa. Pipe-cutter	680,866	Aug. 20	2163	476	96	1516
Kaulfersch, Franz, Bautzen, Germany. Machine for forming and fastening rivets or clamps	681,709	Sept. 3	75	15,16	96	1879
Kealy, W. P. (See Taylor, Harry P., assignor.)						
Kean, John. (See Ward and Kean.)	682,086	Sept. 3	797	173	96	2023
Kearney, Thomas F., New York, N. Y. Cross-bridge	682,358	Sept. 10	1278	288	96	2133
Keating, John H., Chicago, Ill. Razor-strop						
Keats, John, Bagnall, assignor to Phoenix Boot Machinery Company, Limited, Street, England. Lasting attachment for sewing-machines	680,156	Aug. 6	801	178	96	1205
Keefe, Patrick H. (See Allison and Keefe.)	679,970	Aug. 6	489	108	96	1141
Keeler, Herbert E., New York, N. Y. Tension-screw						
Keen, Thomas, *et al.* (See Hembrey, William F., assignor.)						
Keene, Samuel D., Providence, R. I., assignor to L. P. Sturtevant, North Swansea, Mass. Milling-tool	683,207	Sept. 24	2803	645		2481
Keeney, Alanson M., *et al.* (See Snedeker, James W., assignor.)	680,157	Aug. 6	808	179		1205
Keeney, Alanson M., assignor to Century Post Co., Adrian, Mich. Letter-box	677,360	July 2	46	11		12
Keeney, Charles H., Milwaukee, Wis. Electric-current controller	678,298	July 9	1881	422		301
Keiley, John D., assignor of one-half to C. B. Martin, New York, N. Y. Brake mechanism						
Keith, Alexander E. (See Snell, Oscar, assignor.)	678,495	July 16	2340	504	96	491
Keith, Jonathan, Cookville, Tex. Rotary engine						

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Keith, William R., Coalcreek, Tenn. Clevis	682,361	Sept. 10	1282	289	96	2134
Keithley, Herbert R., Wilson, N. Y. Machine for manufacturing tubular bodies	682,359	Sept. 10	1279	288	96	2133
Keithley, Herbert R., Wilson, N. Y. Manufacturing tubular bodies	682,360	Sept. 10	1281	289	96	2133
Keller, Charles E., Los Angeles, Cal. Boot-heel	682,940	Sept. 17	2353	531	96	2370
Keller, Jeremiah. (See Keller, Morris, assignor.)						
Keller, Morris, assignor of one-half to J. Keller, David City, Nebr. Rotary engine	678,740	July 16	2397	607 / 608	96	582
Kellerman, James M., Los Angeles, Cal. Expanding underreamer and drill	679,384	July 30	4083	899 / 900	96	895
Kelley, Alexander, Wilmington, assignor of two-thirds to W. B. Clerk, Wilmington, and J. E. Addicks, Claymont, Del. Match-making machine	681,452	Aug. 27	3275	728 / 729	96	1757
Kelley, Edward B. (See Piper, Robert H., assignor.)	678,572	July 16	2382	535	96	521
Kelley, Edward F., South Norwalk, Conn. Rear-hub coaster and brake	680,663	Aug. 13	1738	381 / 382	96	1408
Kelley, Edward J., Norfolk, Va. Trolley-stand	680,662	Aug. 13	1736	381	96	1408
Kelley, Edward J., Baltimore, Md., assignor to G. F. Johnson, Norfolk, Va. Trolley-stand	680,924	Aug. 20	2278	501	96	1539
Kelley, John H., Philadelphia, Pa. Casting	682,201	Sept. 10	995	224	96	2081
Kelley, Lillius M., Colo, Iowa. Mail-bag						
Kelley, W. W. (See Cole, John N., assignor.)						
Kelley, William. (See Farley, Henry F., assignor.)						
Kellogg, Fortunatus G. (See Hickey and Kellogg.)						
Kellogg, Henry W., *et al.* (See Worth, William O., assignor.)						
Kelly, Charles F., *et al.* (See Sullivan, Daniel, assignor.)	683,208	Sept. 24	2905	646	96	2481
Kelly, George, Mineralpoint, Wis. Composite insulating material						
Kelly, George J. (See Horspool and Kelly.)						
Kelly, Harold, Biddeford, assignor of one-half to E. M. Lang, Jr., Portland, Me. Device for plumbing spinning-spindles	677,964	July 9	1255	288	96	279
Kelly, John, Chicago, Ill. Valve device	688,179	Sept. 24	2747	632	96	2469
Kelly, John D. (See Kelly, William D. and J. D.)	679,476	July 30	4196	942	96	926
Kelly, John F., Pittsfield, Mass. Electrolyzing and washing apparatus	682,714	Sept. 17	1913	435	96	2282
Kelly, John F., Pittsfield, Mass. Means for protecting circuits						
Kelly, John F., assignor of one-half to C. C. Chesney, Pittsfield, Mass. Electrical instrument	678,957	July 23	3148	704	96	691
Kelly, John T., *et al.* (See Johnson, Frank E., assignor.)	683,295	Sept. 24	2970	680	96	2515
Kelly, William D. and J. D., Chicago, Ill. Filing-case	682,413	Sept. 10	1377	311	96	2153
Kelsay, Thomas B., Meadville, Pa. Switch-operating mechanism	678,316	July 9	1863	428	96	397
Kelsey, John, Detroit, Mich. Umbrella-handle						
Kelsey, Lovell L., Guilford, Conn., assignor to Federal Glue Company, Jersey City, N. J. Apparatus for making glue	681,229	Aug. 27	2842	631 / 632	96	1673
Kelso, Wilber M., Chicago, Ill. Antiseptic-applying apparatus	679,262	July 23	3746	836 / 837	96	812
Kemline, Ludwig, Pinole, Cal. Plane	679,424	July 30	4094	915	96	907
Kemmerer, Charles D., Weissport, assignor to Automatic Speed Governor Company, Limited, Kennett Square, Pa. Speed governor for fans	681,710	Sept. 3	77	16	96	1879
Kemp & Burpee Manufacturing Company. (See Zbornik, John, assignor.)						
Kemp, Charles E., assignor of one-half to C. M. Kemp, Baltimore, Md. Fluid-ejector	680,388	Aug. 13	1227	270	96	1304
Kemp, Clarence M. (See Kemp, Charles E. and C. M.)						
Kemper, Claude S., Cameron, Mo. Furrow-opener attachment	679,025	July 23	3269	731	96	715
Kempkes, Peter, Garner, Iowa. Draft attachment for binders	678,741	July 16	2699	606	96	582
Kempster, Daniel E., Boston, Mass. Antifriction-bearing	681,643	Aug. 27	3634	813	96	1890
Kempster, Daniel E., Boston, Mass. Antifriction-bearing	683,406	Sept. 24	3175	727 / 728	96	2558
Kendall, Edward D., Brooklyn, N. Y., assignor to E. D. Kendall and E. N. Dickerson, Stovall, N. C. Generating chlorin and treating ores with same	681,059	Aug. 20	2534	------	96	1589
Kendall, Webber G. (See Holland, Joseph, assignor.)	677,415	July 2	140	32	96	31
Kendall, Webber G., Providence, R. I. Cushion-tire	678,317	July 9	1864	429	96	397
Kendall, Webber G., Providence, R. I. Cushion-tire						
Kendler, Jos., *et al.* (See Tiller, Thomas J., assignor.)						
Kendrick, Thomas, Swansea Valley, assignor to G. B. Hammond, Neath, England. Apparatus for coating tin, terne, or like plates	677,666	July 2	609	145 / 146	96	129
Kennedy, D. Ed., *et al.* (See Reese, Henry D., assignor.)	681,711	Sept. 3	80	16	96	1880
Kennedy, Gordon R., Winchester, Canada. Nut-lock	678,742	July 16	2700	608 / 609	96	582
Kennedy, Julian, Pittsburg, Pa. Metal-transfer device	678,743	July 16	2701	609	96	583
Kennedy, Julian, Pittsburg, Pa. Bosh-plate	678,785	July 16	2770	624	96	595
Kennedy, Julian, Pittsburg, Pa. Bosh-plate	679,971	Aug. 6	490	103	96	1141
Kennedy, Julian, Pittsburg, Pa. Pinion-housing	679,462	July 30	4173	937	96	921
Kennedy, Leander, and H. A. Burkhart, Fitzgerald, Ga. Office-indicator	681,123	Aug. 20	2644	584	96	1612
Kennedy, Louis H., assignor of one-half to J. H. Ballance, Dunn, N. C. Caster						
Kennedy, Patrick, Brooklyn, N. Y., assignor to American Railway Electric Light Co., of West Virginia. Means for controlling electric currents	681,712	Sept. 3	82	16, 17	96	1880
Kennedy, Walter, Allegheny, Pa. Roof for boilers	679,460	July 30	4171	936 / 937	96	920
Kennedy, Will J., Erie, Pa. Thill-coupling	679,461	July 30	4172	937	96	921
Kennedy, William B., and H. T. Hoopes, New Brighton, Pa. Steam and hot-air flue-cleaner	679,756	Aug. 6	75	19	96	1056
Kennefick, John F., Cripplecreek, Colo. Pipe	682,470	Sept. 10	1471	334	96	2172
Kenney, David T., North Plainfield, assignor to S. L. Schoonmaker, Plainfield, N. J. Valve for water-closets	678,496	July 16	2241	504	96	491
Kenney, Teresa F. (See Ellis, George V., assignor.)						
Kent, William J., Brooklyn, N. Y. Roller-skate	681,368	Aug. 27	3114	691	96	1725
Kenyon, Bertrand P., Grand Rapids, Mich. Furniture-caster	679,849	Aug. 6	250	53	96	1093
Keogh, Thomas A., West Hoboken, N. J. Wheel-securing device	677,520	July 2	326	79	96	70
Keough, George H., assignor of one-half to J. H. Sutherland, Detroit, Minn. Ironing-table	678,403	July 16	2647	464	96	450
Kern, William C., Peoria, Ill. Jar-cover	679,077	July 23	3409	759	96	743
Kerr, Robert H., West Salem, Ohio. Knockdown barrel	678,257	July 9	1730	397	96	373
Kersteter, Charles W., Akron, Ohio. Induction-valve	681,888	Sept. 3	429	96	96	1949
Kertesz, Adolf, Mainkur, near Frankfort-on-the-Main, Germany. Mercerizing-machine	679,425	July 30	4095	915	96	907
Kertesz, Adolf, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Producing blue sulfur dyes	678,884	July 23	2996	------	96	661
Kessel, Henry A., *et al.* (See La Burt, John, assignor.)						
Kessler, Jacques L., Clermont-Ferrand, France. Apparatus for concentrating sulfuric acid	680,867	Aug. 20	2165	476	96	1516
Kessler, John A., Philadelphia, Pa. Ship's door	677,868	July 9	1005	235	96	231

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Kestler, Nicholas A. (See Nichols, Charles B., assignor.)						
Keuffel & Esser Company. (See Van Hoesen, Theodore W., assignor.)						
Keyser, Charles H., Chicago, Ill. Advertising device	678,669	July 16	2588	579, 580	96	561
Kibele, Hector. (See Lugibihl and Kibele.)						
Kidder, Albert A., Springfield, Mass. Coin-holder	682,852	Sept. 17	2192	495	96	2337
Kidder Press Company. (See Meisel, Francis, assignor.)						
Kieley, John F., San Jose, Cal. Can-holding device	680,925	Aug. 20	2278	501	96	1539
Kiernan, Thomas V., Providence, R. I. Spectacle-frame	681,707	Sept. 3	275	53	96	1921
Kieserling, Richard, Sr., Cincinnati, Ohio. Hat-fastener	682,715	Sept. 17	1914	435	96	2282
Kightlinger, William, Marysville, Ohio. Elastic tire	680,332	Aug. 13	1117	249	96	1282
Kilbourn, Edward E., New Brunswick, N. J. Knitting-machine	679,281	July 23	3798	846, 847, 848, 849, 850, 851, 852	96	821
Kilbourn, Washington H., Greenfield, Mass. Track-sanding device	681,796	Sept. 3	273	53	96	1920
Kilbourne, Charles E. (See Milkman, George W., assignor.)						
Kilburn, John, *et al.* (See Walsh, William A., assignor.)						
Kilian, Martin, Nappanee, Ind. Fruit-shipping crate	683,209	Sept. 24	2806	646	96	2481
Killeen, Michael J., Sauk Center, Minn. Draft-equalizer	678,497	July 16	2243	504	96	492
Killen, William E. (See Morrow, Wesley W., assignor.)						
Killough, John M., Waco, Tex. Harrow	681,230	Aug. 27	2845	632	96	1673
Kimball, Perley L., assignor to Vermont Farm Machine Company, Bellows Falls, Vt. Vertical-shaft bearing	679,078	July 23	3410	759	96	743
Kimble, Solomon M., assignor to G. Setzer and A. Serr, Corunna, Mich. Mold for brick or artificial stone	679,232	July 23	3699	822	96	802
Kimman, Henry J., assignor of one-half to E. N. Hurley, Chicago, Ill. Drill	682,555	Sept. 10	1616	369, 370	96	2203
Kincheloe, Charles F., Quincy, Ill. Gas or other cock	679,899	Aug. 6	345	73	96	1112
King, Carl G., Evansville, Ind. Combined collar-button and necktie-retainer	680,047	Aug. 6	611	133	96	1166
King, George I., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. End bracing for box-cars	678,258	July 9	1732	397	96	373
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Underframing for box-cars	678,573	July 16	2385	535	96	521
King, George I., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Bolster for railway-cars	678,885	July 23	2997	672	96	662
King, George I., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Bolster for railway-cars	678,886	July 23	2998	672	96	662
King, George I., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Underframing for railway rolling-stock	678,958	July 23	3149	705	96	691
King, George W., and H. J. Barnhart, assignors to Marion Steam Shovel Company, Marion, Ohio. Excavator	681,231	Aug. 27	2847	633	96	1674
King, Howard K., Philadelphia, and C. Chambers, Jr., Overbrook, assignors to Chambers Brothers Company, Philadelphia, Pa. Brick-machine	678,259	July 9	1733	397, 398, 399	96	374
King, Jesse H., *et al.* (See James, John E., assignor.)						
King, John D., Mount Sterling, Ky. Washing-machine	680,414	Aug. 13	1282	282	96	1315
King, John H., Garrity, Ala. Milk-pail	680,779	Aug. 20	1996	438	96	1480
King, John P., Philadelphia, Pa. Tobacco-pipe	679,079	July 23	3410	759	96	743
King, Lester B., Staunton, Ill. Steam-separator for use in steam-engines	679,678	July 30	4584	1029	96	1009
King, Phineas F., assignor of two-thirds to C. H. Tucker and M. J. Edwards, Cleveland, Ohio. Automatic smoke-preventer	682,471	Sept. 10	1472	334, 335	96	2172
King, William M., Sr., Alexandria, Va., assignor of one-fourth to C. H. Bowers, Washington, D. C. Car-platform closure	679,080	July 23	3411	760	96	743
Kinghorne, William, Westport, Md. Bottle-sprinkler	681,556	Aug. 27	3459	768	96	1794
Kingsland, Oliver H., New York, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Thermal door-closing apparatus	680,415	Aug. 13	1283	282	96	1315
Kingsland, Oliver H., New York, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Door-closing apparatus	680,458	Aug. 13	1351	296	96	1329
Kingsland, William, London, England. Ratchet-operated electric switch	678,260	July 9	1741	400	96	375
Kingzett, Charles T., Chiselhurst, England. Fumigating and disinfecting	680,384	Aug. 13	1230	270	96	1304
Kinlen, Mathew L., Kansas City, Mo. Ditching-machine	681,857	Sept. 3	378	76	96	1941
Kinley, Joseph R., Chicago, Ill. Hub-attaching device	678,744	July 16	2702	609	96	583
Kinnare, John W., Chicago, Ill. Mortar-board	680,487	Aug. 13	1411	307	96	1341
Kinnear Mfg. Co. (See Martindale, Edward S., assignor.)						
Kinnear, William R., Columbus, Ohio. Means for securing channels or guideways of fire-resisting blinds or doors	681,326	Aug. 27	3048	676	96	1712
Kinnear, William R., Columbus, Ohio. Fire-resisting door, blind, or the like	682,328	Sept. 10	1231	278	96	2124
Kinraide, Thomas B., Boston, Mass. Static machine	682,208	Sept. 10	968	224	96	2092
Kinsler, George B., assignor of one-half to J. A. Bennett, Hartford, Conn. Universal joint	677,869	July 9	1005	235	96	232
Kintner, Charles J., New York, N. Y. Electrical annunciator	678,116	July 9	1485	348	96	324
Kintner, Charles J., New York, N. Y. Bung for barrels, kegs, or casks	682,202	Sept. 10	996	224	96	2092
Kinzel, George H. (See Hoover, Jacob D., assignor.)						
Kip, Frederic E. (See Baker and Kip.)						
Kirk, Joseph E., Sistersville, W. Va. Pumping apparatus	677,547	July 2	391	93	96	84
Kirkpatrick, Joseph F. (See Maxwell, Robert, assignor.)						
Kirkpatrick Saddle Company. (See Reid, Charles R., assignor.)						
Kirkpatrick, William. (See Culbertson and Kirkpatrick.)						
Kirschen, Paul, Dresden, Germany. Box for distributing powdery or pasty substances	677,667	July 2	611	146	96	129
Kirstein, Louis E., *et al.* (See Mariner, Abbott L., assignor.)						
Kishner, Valentine. (See Elliott and Kishner.)						
Kiss, Ernest J., Fort Wayne, Ind. Amalgamator	681,232	Aug. 27	2849	633	96	1674
Kistler, Samuel L., *et al.* (See Pettengill, Frederick B., assignor.)						
Kitchell, Joseph S., Vincennes, Ind. Lacing-stud	683,121	Sept. 24	2654	509	96	2451
Kitchen, Alfred, Dunnville, Canada. Rotary engine	681,919	Sept. 3	495	102	96	1964
Kitsee, Isidor, Philadelphia, Pa. Evaporating-pan	677,416	July 2	141	32, 33	96	32
Kitsee, Isidor, Philadelphia, Pa. Device for indicating leaks in insulation of electric conductors	682,204	Sept. 10	999	225	96	2092
Kitsee, Isidor, Philadelphia, Pa. Recording device	682,205	Sept. 10	1001	225	96	2093
Kitten, Joseph W., assignor of one-half to F. Hinkamp, Chicago, Ill. Carbureter	682,853	Sept. 17	2192	495	96	2337
Kitto, Walter, Hammersmith, England. Crushing or pulverizing apparatus	682,087	Sept. 3	797	174	96	2023
Kittrell, James W., Smiths Landing, N. Y. Rotary cooling apparatus	677,870	July 9	1007	235	96	232

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Kitts, Charles A., Oswego, N. Y. Steam-boiler	677,779	July 2	814	195	96	172
Kjellin, Fredrik A., Gysinge, Sweden. Electric furnace	682,088	Sept. 3	799	174	96	2023
Kjellman, Rudolf H., and G. L. Andersson, assignors to Aktiebolaget Automatgevär, Stockholm, Sweden. Automatic firearm	680,488	Aug. 13	1413	308	96	1341
Klatte, Otto, Dusseldorf, Germany. Mechanism for the production of boiler-pipes, tubing, &c.	683,050	Sept. 24	2539	578, 579	96	2427
Klaui, Carl, New Haven, Conn. Pencil-holder attachment for dividers	677,995	July 9	1256	288	96	279
Kleber, Oscar L., Pittsburg, Pa. Paper-carriage feed device for printing-telegraph mechanism	683,051	Sept. 24	2541	579	96	2428
Klein, Johann, Frankenthal, Germany. Suction-valve for pumps	681,233	Aug. 27	2852	634	96	1674
Kleinert, Georg, Dresden, Germany. Eyeglasses	677,906	July 9	1257	288	96	280
Kleist, Eugene de, North Tonawanda, N. Y. Automatic musical instrument	677,769	July 2	797	191	96	169
Kleist, Eugene de, North Tonawanda, N. Y. Tune-controlling device for musical instruments	679,026	July 23	3270	732	96	715
Klemme, Herman, and E. Augustien, Sheboygan, Wis. Coupling-hook for extension-ladders	679,385	July 30	4037	900	96	896
Klever, Friedrich W., Jr., Solingen, Germany. Scissors	681,827	Aug. 27	3049	677	96	1718
Klickman, Rudolph, Chicago, Ill. Knife	682,624	Sept. 17	1745	400	96	2250
Klinder, William, Parkview, N. J. Tuning-hammer	680,926	Aug. 20	2279	501	96	1540
Kline, John, Beloit, Wis. Drainer	678,404	July 16	2048	464, 465	96	451
Kling, Charles, Chicago, Ill. Metal-shearing machine	679,566	July 30	4383	983, 984	96	965
Kling, Herman, Larned, Kans. Thimble-lid holder	680,716	Aug. 20	1877	413	96	1458
Kling, Peter M., Elizabeth, N. J. Railway Ferris wheel	678,670	July 16	2589	580	96	561
Kling, Peter M., Elizabeth, N. J. Car-truck	682,716	Sept. 17	1916	435	96	2283
Kling, Peter M., Elizabeth, N. J. Switch-operating mechanism	678,574	July 16	2388	535	96	522
Klippelt, James R., and H. W. Jeffers, Allegheny, Pa. Corn-harvester	681,026	Aug. 20	2471	548	96	1576
Klitzke, Charles A., Reedsburg, Wis.						
Klotter, George H. (See Hoff and Klotter.)						
Klotz, Charles F. (See Cuscaden, Klotz, and Cuscaden.)						
Knapp, George F., St. Louis, Mo. Box-fastener	677,576	July 2	448	107	96	95
Knight, Howard F., Croydon, England. Clutch mechanism	677,417	July 2	144	33	96	52
Knight, Robert A. (See Potter, Frank W., assignor.)						
Knight, Walter H., New York, N. Y., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-motor regulator. (Reissue)	11,918	July 2	956	225	96	201
Knill, Charles A., Beloit, Wis. Polishing-wheel	683,122	Sept. 24	2655	609	96	2451
Knill, Charles A., Beloit, Wis. Polishing-wheel	683,123	Sept. 24	2656	610	96	2451
Knipe, Oliver C., Norristown, Pa. Hub-cap for vehicles	681,966	Sept. 3	603	128	96	1985
Knoll & Company. (See Vieth, Hermann, assignor.)						
Knothe Brothers. (See Sawyer, Albert E., assignor.)						
Knott, Jacob, Paterson, N. J. Conveyer for dye-houses	679,757	Aug. 6	77	19	96	1057
Knowlton, George A., Natick, assignor to C. L. Leonard, Westboro, Mass. Attachment for grinding shank-cutters for boot or shoe trimming machines	679,027	July 23	3272	732	96	716
Knox, Harry A., Springfield, Mass. Valve mechanism for explosive-engines	679,152	July 23	3541	791	96	771
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Manufacturing coke	680,780	Aug. 20	1997	439	96	1484
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Maintaining specific atmospheres and temperatures	680,781	Aug. 20	2000	439	96	1484
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Manufacturing gas	680,782	Aug. 20	2004	439	96	1484
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Manufacture of coke	680,783	Aug. 20	2007	440	96	1485
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Manufacturing gas	680,784	Aug. 20	2008	440	96	1485
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Producing gas	680,785	Aug. 20	2012	440	96	1486
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Apparatus for producing gas	680,786	Aug. 20	2015	440	96	1486
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Gas-manufacturing system	680,787	Aug. 20	2018	441, 442, 443	96	1486
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Apparatus for the manufacture of gas	680,788	Aug. 20	2022	443	96	1487
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Apparatus for the manufacture of gas	680,789	Aug. 20	2025	443	96	1487
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Apparatus for the manufacture of coke	680,790	Aug. 20	2029	443	96	1488
Knox, William J., assignor to G. Westinghouse, Pittsburg, Pa. Apparatus for manufacturing coke and gas	680,791	Aug. 20	2031	444	96	1488
Knupp, Lenna M. (See Knupp, Michael L., assignor.)						
Knupp, Michael L., Toledo, assignor to L. M. Knupp, Thomasboro, Ill. Wheelwright-machine	681,171	Aug. 20	2737	607	96	1631
Koch, Benjamin F., Brooklyn, N. Y., and J. W. Cogswell, Hoboken, N. J. Lid-holder for vessels	679,125	July 23	3491	780	96	760
Koch, Benno, Hebron, N. D. Lifting device for animals	678,117	July 9	1491	344	96	324
Koch, Emil, Gross-Lichterfelde, Germany. Bicycle	680,048	Aug. 6	612	134	96	1166
Koch, James W., Reynolds, Pa. Railway-switch and automatic operating device	682,717	Sept. 17	1917	436	96	2283
Koedding, William. (See Lempe and Koedding.)						
Koehler, Frank G., St. Louis, Mo. Car-seat	679,081	July 23	3415	760	96	744
Koehler, Frank G., St. Louis, Mo., assignor, by mesne assignments, to Hale and Kilburn Manufacturing Company, Philadelphia, Pa. Car-seat	678,299	July 9	1837	422	96	392
Koelling, Fritz H., Augusta, Mo. Aligning-bar for railway-tracks	680,833	Aug. 13	1118	249	96	1283
Koenig, Matthew, assignor of one-third to O. Schroder, New York, N. Y. Automatic cut-off valve	681,172	Aug. 20	2739	607	96	1631
Koeth, Edward D. C., Tipton, Mo. Tool	677,770	July 2	799	191	96	170
Koetschau, Alfred J. (See Schulz, Fritz A., assignor.)						
Kohnen, Joseph W., Buffalo, N. Y. Can	682,941	Sept. 17	2354	531	96	2370
Kohnle, Frederick, Dayton, Ohio. Shipping-tag	682,718	Sept. 17	1919	436	96	2284
Kokomo Steel & Wire Company. (See Fredrick, John E., assignor.)						
Konhorst, Henry, Evansville, Ind., assignor of one-half to J. B. Johnston, Henderson, Ky. Brick-kiln	682,829	Sept. 17	2150	485	96	2328
Konley, Frank. (See Neely, Konley, and Macomber.)						
Konrad, Otto, Oshkosh, Wis. Tag	683,296	Sept. 24	2972	681	96	2516
Koopman, Elias B. (See Royle and Wynne, assignors.)						
Kopisch, William, Billings, Okla. Ter. Dough-raiser	679,679	July 30	4585	1030	96	1009
Koppelmann, Gerhard, Schüttorf, Germany. Armature-core for electrical machines	683,052	Sept. 24	2543	580	96	2428
Kops, Daniel, New York, N. Y. Corset attachment	683,297	Sept. 24	2973	681	96	2516
Körzinger, Georg E. J. (See Nettlich and Körzinger.)						
Kossl, Frank, and A. J. Kraft, Milwaukee, Wis. Combined punching and riveting machine	681,328	Aug. 27	3049	677	96	1718
Kothe, Richard. (See Israel and Kothe.)						
Kothmann, William H., Fieldcreek, Tex. Plow	677,997	July 9	1258	289	96	280

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kottusch, Emanuel, Zurich, Switzerland. Device for automatically igniting and delivering matches	683,053	Sept. 24	2544	580	96	2428
Koy, August, and J. Kveton, Sealy, assignors of one-third to J. Gallaher, Bonus, Tex. Insect-destroyer	679,319	July 30	3878	866 867	96	861
Koyl, Charles H., New York, N. Y. Purifying water	677,668	July 2	612	-----	96	129
Koyl, Charles H., New York, N. Y. Apparatus or softening and purifying water	677,669	July 2	613	146 147	96	129
Krabal, Frank, Pittsburg, Pa. Machine for forming and printing butter cakes	683,298	Sept. 24	2975	581	96	2516
Krabill, George W., Milford, Nebr., assignor of one-half to P. M. Smith, Canton, Ohio. Plumb-level	679,506	July 30	4274	902	96	940
Kraft, Andrew J. (See Kossl and Kraft.)						
Kraft, Edward L., and H. E. Basehore, York, Pa. Turbine water-wheel	678,498	July 16	2244	504 505	96	492
Krahn, Alvin W. (See Meyer, Alfred J., assignor.)						
Kramer Manufacturing Company. (See Ward, John, assignor.)						
Krantz, Hubert, Brooklyn, N. Y. Electrical conduit and box	680,254	Aug. 13	988	221	96	1256
Krapacek, Anton, Kreuzberg, Austria-Hungary. Cleaning device for water-gages	678,671	July 16	2590	580	96	561
Krause, Charles H., Southlake Linden, Mich. Stamp-machine	678,300	July 9	1587	422	96	392
Krause, Charles H., Southlake Linden, and H. C. Krause, Point Mills, Mich. Ore-crusher	681,254	Aug. 27	2863	694	96	1675
Krause, Henry C. (See Krause, Charles H. and H. C.)						
Kraushaar, George J., assignor of three-fourths to W. H. Brett and T. J. Buchan, Cleveland, Ohio. Shelf book-support	679,054	July 23	3344	745	96	730
Krauss, Constantin. (See Pauli and Krauss.)						
Krauss, Constantin, and J. Wach, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Making sulfur trioxid	677,670	July 2	615	147	96	129
Krebs, Martha, Gross Peterwitz, Germany. Cinder-sifter	681,798	Sept. 3	276	54	96	1021
Kremp, Frederick. (See Junker, John B., assignor.)						
Kressel, Edward C. L., assignor of two-thirds to T. Hill-Jones, London, England. Alimentary extract and making same	683,210	Sept. 24	2807	-----	96	2481
Krieg, Andreas. (See Coomber, James, assignor.)						
Krippel, August, Vienna, Austria-Hungary. Smoke-consuming furnace and apparatus in connection therewith	678,261	July 9	1743	400 401 402	96	375
Krises, Joseph, assigner of one-half to E. A. Dickerson, Brooklyn, N. Y. Hat-cleaning pad	680,531	Aug. 13	1497	329	96	1359
Krnka, Charles. (See Roth and Krnka.)						
Krohn, Gustave A., Coarse Gold, assignor of one-half to E. H. Cox, Madera, Cal. Pumping apparatus	681,828	Sept. 3	822	65	96	1030
Krohn, Gustave A., Coarse Gold, assignor of one-half to E. H. Cox, Madera, Cal. Valve for pumping-engines	681,829	Sept. 3	824	66	96	1030
Krom, Stephen R., Plainfield, N. J., assignor to Fayerweather and Ladew, New York, N. Y. Leather-working machine	680,927	Aug. 20	2281	501 502	96	1540
Kronheim, William W., Hanover, Germany. Grater	683,299	Sept. 24	2976	682	96	2517
Kronheimer and Oldenbusch Company. (See Oldenbusch, Ernest, assignor.)						
Kroulik, Joseph, Rochester, N. Y. Binocular microscope	678,848	July 16	2918	657	96	626
Krueger, Henry, Minneapolis, Minn. Line-guide for reels	679,850	Aug. 6	251	53	96	1004
Krug, William H., Washington, D. C., and E. J. Haley, New York, N. Y. Bleaching leather	680,334	Aug. 13	1119	-----	96	1288
Kruschke, Herman O., Aurorahville, Wis. Heating attachment for culverts, &c	678,118	July 9	1492	344	96	325
Kruse, Theodore H., assignor of one-half to H. C. Fink, Montrose, Colo. Fruit-picker	679,320	July 30	3860	867	96	861
Kruse, Theodore H., assignor of one-half to H. C. Fink, Montrose, Colo. Fruit-picker	681,329	Aug. 27	3053	-----	96	1713
Küettner, Berthold, London, England. Making secondary-battery plates	682,719	Sept. 17	1920	436 437	96	2284
Kughler, John H., Sr., Danville, Ill. Safety appliance for elevators	680,416	Aug. 13	1285	282	96	1315
Kuhles, Friedrich, Maywood, N. J. Non-refillable bottle	678,499	July 16	2345	505	96	492
Kuhlmann, Frederick J., Cincinnati, Ohio. Furnace	682,720	Sept. 17	1923	437	96	2284
Kuhns, Benjamin F., Indianapolis, Ind. Combined cultivator and harrow	678,365	July 16	1908	449	96	434
Kunneke, George H., New York, N. Y., assignor to New Jersey Wire Cloth Company, Trenton, N. J. Centering-support						
Kursheedt Manufacturing Company. (See Groebli, Joseph A., assignor.)						
Kveton, John. (See Koy and Kveton.)						
Kyle, Jessee C., assignor of one-half to W. B. Archibald, Birmingham, Ala. Cotton-mattress-forming device	677,780	July 2	816	195	96	173
Kyle, John A., assignor of one-half to G. McCargo, Pittsburg, Pa. Material for protecting sheets, &c., in tinning	679,972	Aug. 6	491	-----	96	1141
Kyle, Neil J., *et al.* (See Porter and Wittke, assignors.)						
Kyle, Robert M., *et al.* (See Porter and Wittke, assignors.)						
Kynaston, Josiah W., Liverpool, England. Electrolytic decomposing-cell	679,477	July 30	4197	942 943	96	926
L. C. White Company. (See Beckwith, Louis B., assignor.)						
L. Schreiber & Sons Company. (See Schreiber, Charles C., assignor.)						
L'Espreance, Gilbert and J. G., Detroit, Mich. Limekiln	677,418	July 2	146	34	96	32
L'Espreance, John G. (See L'Espreance, Gilbert and J. G.)						
La Burt, John, assignor of two-thirds to A. E. Spencer and H. A. Kessel, Brooklyn, N. Y. Display-book	679,900	Aug. 6	347	73	96	1113
La Cour, Jens L. (See Arnold, Bragstad, and La Cour.)						
La Mar, Andrewvill, assignor of one-half to F. Borger, Shelbyville, Ind. Combination-wardrobe	680,206	Aug. 6	898	199	96	1224
La May, Arthur C., assignor to Warnica Company, Rochester, N. Y. Photographic-plate holder	681,920	Sept. 3	498	103	96	1064
La Société Piguet & Cie. (See Piguet, Charles, assignor.)						
La Voo, George W., Pittsburg, Pa., assignor to National Tube Company, New York, N. Y. Making small pipe-couplings	679,507	July 30	4275	902	96	940
Labadie, William D., South Bend, Ind., assignor of one-half to J. G. Duck, Milwaukee, Wis. Vertical steam-separator	680,717	Aug. 20	1879	413	96	1459
Labadie, William D., South Bend, Ind., assignor of one-half to J. G. Duck, Milwaukee, Wis. Ejector for steam-traps	680,718	Aug. 20	1880	413	96	1459
Lacey, Oliver C., assignor to New York Fire Proof Company, Newport News, Va. Fire-extinguishing compound	683,211	Sept. 24	2808	-----	96	2481
Lacey, Oliver C., assignor to New York Fire Proof Company, Newport News, Va. Fire-proofing compound	683,212	Sept. 24	2809	-----	96	2481
Lacoste, Louis, Montreal, Canada. Device for braking the speed of ships	681,713	Sept. 3	86	17, 18	96	1881
Ladd, John S., Boston, Mass. Lasting-machine	677,781	July 2	817	195	96	178
Lafever, Minard, Battlecreek, Mich. Governor for band-cutters and feeders	678,938	July 16	2894	653	96	633
Lafever, Minard, Battlecreek, Mich. Friction-clutch for traction-engines	680,205	Aug. 6	895	198	96	1223
Lagerqvist, Carl A. (See Richmann and Lagerqvist.)						
Laing, David. (See Ferry and Laing.)						
Lake, Lewis T., Royerton, Ind. Pitman-rod	681,027	Aug. 20	1474	548	96	1577

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lake Shore Engine Works. (See Blomstrom, Carl H., assignor.)						
Lake Shore Rubber Company. (See Moomy, Joseph G., assignor.)						
Lake Street Manufacturing Company. (See Forslund, Hugo W., assignor.)						
Lally, Michael, North Lawrence, Ohio. Spring-seat	681,124 678,186	Aug. 20 July 9	2645 1606	584 370 871	96 96	1612 847
Lamacchia, Ottavio, Bridgeport, Conn. Watchmaker's tool	678,745	July 16	2703	609	96	583
Lamarre, Charles B. de, and N. Taltavull, Biloxi, Miss. Boat	680,792	Aug. 20	2084	444	96	1489
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, of Pennsylvania. Alternating-current induction-motor	680,793	Aug. 20	2085	444	96	1489
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, of Pennsylvania. Dynamo-electric generator	682,948	Sept. 17	2357	532	96	2371
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Changing frequency of alternating currents	682,942	Sept. 17	2355	532	96	2370
Lamme, Benjamin G., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Rotary transformer						
Lamp Manufacturing Company. (See Welch, William H. I., assignor.)						
Lamson Consolidated Store Service Company. (See Barri, Martin, assignor.)						
Lamson Consolidated Store Service Company. (See Cowley, James T., assignor.)						
Lamson Consolidated Store Service Company. (See Cutting, Frederick C., assignor.)						
Lamson Consolidated Store Service Company. (See Sheppard, William H., assignor.)						
Lancashire, Joseph H. (See Worsey, James W., assignor.)	677,577	July 2	449	107	96	95
Lancaster, Howard N., Chicago, Ill. Dental forceps	679,973	Aug. 6	492	103 104	96	1141
Lance, Denis, R. L. E. de Bourgade, and L. Schmitz, Paris, France. Electric furnace	682,362	Sept. 10	1283	289	96	2134
Landauer, Isidor, *et al.* (See Hauslehner, Leopold, assignor.)	681,799	Sept. 3	257	-----	96	1921
Landgren, Carl A., Kenosha, Wis. Flat-iron heater	681,060	Aug. 20	2535	560	96	1589
Landin, John, and A. Jernander, Stockholm, Sweden. Igniting composition for matches	680,417	Aug. 13	1286	282	96	1316
Landis, Frank F., Waynesboro, Pa. Picker for threshing-machines	678,575	July 16	2889	536	96	522
Landis, Israel L., Chicago, Ill. Gate						
Landreth, Clarence P., Quincy, Mass. Manufacturing belting						
Lane, Benjamin R., *et al.* (See Shafer, Frank B., assignor.)						
Lane, D. O. (See Heitland, John H., assignor.)	678,576	July 16	2892	536	96	523
Lane, George M., Newark, N. J. Electric-arc lamp	683,800	Sept. 24	2977	682 683	96	2517
Lane, Howard, Birmingham, England. Apparatus for the manufacture of gas	683,409	Sept. 24	3180	728 729	96	2559
Lane, Howard, Birmingham, England. Making gas	680,601	Aug. 13	1612	356 357	96	1381
Lane, John J., and L. A. Aumann, Chicopee, Mass., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Filling-replenishing loom	679,758	Aug. 6	79	19	96	1057
Lang, Albert B., assignor of one-half to L. A. Brown, St. Louis, Mo. Key-keeper	679,478	July 30	4199	943	96	926
Lang, Edward M., Jr. (See Kelly, Harold, assignor.)	688,124	Sept. 24	2857	610 611	96	2451
Lang, Jacob R., Rockport, Ind. Menstrual receptacle and uterine supporter						
Lange, Herman O., Muskegon, Mich. Elevating-stairway	679,680	July 30	4586	1030	96	1009
Langen, Adolf. (See Cleff and Langen.)	682,944	Sept. 17	2359	532	96	2371
Langer, Gustave F. H., Chicago, Ill. Mattress or cushion	679,759	Aug. 6	80	20	96	1057
Langley, Thomas F., Corvallis, Oreg. Turn-table	680,335	Aug. 13	1120	249 250	96	1283
Lanston Monotype Machine Company. (See Pierpont, Frank H., assignor.)	682,259	Sept. 10	1107	251	96	2102
Lanz, John, Pittsburg, Pa. Forming plates or blanks of varying widths	677,782	July 2	819	196	96	173
Lanz, John, Pittsburg, Pa. Railway cross-tie	678,405	July 16	2049	465	96	451
Lanz, John, Pittsburg, Pa. Picket fence	679,028	July 23	3274	732	96	716
Lanz, Jörg, Vienna, Austria-Hungary. War game	678,887	July 23	2999	672	96	662
Large, Edward. (See Marland and Large.)	677,456	July 2	218	54	96	48
Larkin, Maurice D., Dayton, Ohio. Relief-valve	681,800	Sept. 3	279	54 55 56	96	1921
Larmore, Walter H., Anderson, Ind. Burglar-proof bar for window-gratings	679,974	Aug. 6	493	-----	96	1142
Larson, Carl W., Schenectady, N. Y., assignor to General Electric Company, of New York. Resistance device	688,180	Sept. 24	2749	682	96	2469
Larson, Gilbert, Bothell, Wash. Railway	677,457	July 2	220	54	96	48
Lasche, Oskar, Berlin, Germany. Stationary armature and inductor	679,082	July 23	3416	760 761	96	744
Laska, August L., assignor to Firm of K. Oehler, Anilin- & Anilinfarben Fabrik, Offenbach-on-the-Main, Germany. Blue-red disazo dye and making same	679,681	July 30	4588	1030	96	1010
Latham, Robert G., Manchester, N. H. Damper and damper-controlling mechanism	679,284	July 23	3813	855	96	825
Lathbury, Benjamin B., Philadelphia, and H. S. Spackman, Ardmore, Pa. Apparatus for calcining cement	682,874	Sept. 17	2230	503	96	2344
Latta, Emmit G., Friendship, N. Y. Velocipede-frame						
Latta, Milton, Burwell, Nebr. Sand-point						
Lau, Wilhelm, Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Armature-winding						
Laubscher, Alexander, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Hemmer for sewing-machines						
Laughlin, Alex. (See Williams, William B., assignor.)						
Laughlin, Alexander. (See Gordon, Louis H., assignor.)						
Laughlin, Alexander, Sewickley, and J. Reuleaux, Wilkinsburg, Pa.; said Reuleaux assignor to said Laughlin. Heating-furnace	680,997	Aug. 20	2413	532 533	96	1564
Lauman, August H., Allegheny, Pa. Treating lime	678,500	July 16	2246	-----	96	493
Laurent, Léon, and E. Clerget, Dijon, France. Vaporizing device for explosive-engines	683,125	Sept. 24	2661	611	96	2452
Lausen, Hans C., Newman, Cal. Bedstead attachment	677,671	July 2	615	147	96	130
Lauser, Grant F. (See Coldren, William P., assignor.)						
Lautenbacher, Hannah A. (See Lautenbacher, Jeremiah C., assignor.)						
Lautenbacher, Jeremiah C., assignor to H. A. Lautenbacher, Schuylkill Haven, Pa. Garment	681,061	Aug. 20	2536	560 561	96	1589
Laux, Christian, Frankfort-on-the-Main, Germany. Multiplying attachment for cameras	681,714	Sept. 3	88	18	96	1881
Laux, Mathias, assignor of two-thirds to T. E. Glynn and J. E. Coates, Little Rock, Ark. Cinder-hopper	679,083	July 23	3418	761	96	745
Lavigne, Joseph P., New Haven, Conn., assignor to W. S. Block, New York, N. Y. Screw-machine	677,871	July 9	1008	236 237 238	96	232
Lavigne, Joseph P., assignor to Yale Motor Company, New Haven, Conn. Pipe-wrench	678,959	July 23	3151	705	96	692
Lavigne, Joseph P., and A. W. Johnson, assignors to Yale Motor Company, New Haven, Conn. Pipe-wrench	678,960 681,830	July 23 Sept. 3	3152 926	705 66	96 96	692 1931
Lawler, James J., Mount Vernon, N. Y. Steam-trap						

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Lawrence, Benjamin, deceased, New York, N. Y.; L. Lawrence, administratrix. Letter-file	678,501	July 16	2247	506	96	498
Lawrence, Charles S., Plainfield, assignor of one-half to F. McConick, Friendship, Wis. Wood-preserving compound	682,363	Sept. 10	1285	.....	96	2134
Lawrence, Edward M. (See Lawrence, Elias P. and E. M.)						
Lawrence, Elias P. and E. M., Lubec, Me. Drier	678,072	July 9	1405	323	96	306
Lawrence, Louisa, administratrix. (See Lawrence, Benjamin.)						
Lawson, Thomas, New York, N. Y. Dumping-car	682,206	Sept. 10	1008	225	96	2083
Lawson, Thomas, New York, N. Y. Dumping-car	682,329	Sept. 10	1232	279	96	2124
Lawson, Tye, *et al.* (See Hembrey, William F., assignor.)						
Lawton, George B., Boston, Mass. Line-indicator	679,386	July 30	4038	900	96	896
Laybourne, Richard, C. W. E. Marsh, and B. Price, Newport, England. Apparatus for rolling tubes	681,557	Aug. 27	3460	768 769	96	1794
	681,715	Sept. 3	89	18, 19	96	1881
Layne, Mahlon E., Rock Rapids, Iowa. Machine for tamping concrete	677,783	July 2	820	196	96	173
Le Fevre, George A., New York, N. Y. Controlling device for electrical door-openers	680,720	Aug. 20	1892	414	96	1459
Le Lande, Lester R., Los Angeles, Cal. Sign	679,626	July 30	4484	1008	96	987
Leach, Arthur E., Winthrop, Mass. Sterilizing apparatus						
Leach, Frederic J., *et al.*, trustees. (See Steiger, Andrew W., assignor.)	682,089	Sept. 3	800	175	96	2023
Leach, Orville L., Providence, R. I. Medicinal electrode	680,868	Aug. 20	2167	477	96	1516
Leadbeater, Tom, Leeds, England. Sole and heel for boots or shoes						
Leader, Adam H., *et al.* (See Matthias, William C., assignor.)	683,301	Sept. 24	2990	668	96	2517
Leahy, Daniel F., San Francisco, Cal. Nozzle	678,187	July 9	1608	371	96	347
Leary, Charles C., Belmore, Ohio. Check-row planter	679,627	July 30	4485	1008	96	987
Leavy, Joseph, and I. Roggen, New York, N. Y. Printing mechanism for labels or tickets						
Leblanc, Maurice. (See Hutin and Leblanc.)	679,851	Aug. 6	253	53	96	1094
Leckband, Theodor H. J., Des Moines, Iowa. Governor for gas-generators, &c	678,406	July 16	2050	465	96	451
Leder, George, Demopolis, Ala. Cotton-picker	682,721	Sept. 17	1924	437	96	2285
Leder, George, Demopolis, Ala. Temperature-finder for stored cotton-seed, &c						
Ledwinka, Joseph. (See Newman and Ledwinka.)	678,407	July 16	2052	466	96	452
Lee, Harold, East Orange, N. J. Bulkhead-door	683,302	Sept. 24	2980	683	96	2517
Lee, John A., Milton, Mass. Building pictures	682,090	Sept. 3	801	175	96	2024
Lee, John E., Conshohocken, Pa. Surgical-dressing packer	678,119	July 9	1494	344	96	325
Lee, Thomas, Home City, Ohio. Switch-valve for pneumatic conveyers						
Lee, Willis C., and M. F. Moore, assignors to Morden Frog & Crossing Works, Chicago, Ill. Adjustable switch-rod	679,153	July 23	3545	791	96	772
	680,869	Aug. 20	2169	477	96	1517
Lefler, Edmund S., Jonesboro, Ill. Can-opener						
Leger, Narcisse, Valleyfield, assignor to L. A. Jacques, Montreal, Canada. Potato-harvester	681,644	Aug. 27	3637	813 814	96	1830
Lehan, William A., assignor of two-thirds to R. Burgess, New Bedford, and Fyans, Fraser and Blackway Co., Fall River, Mass. Flier	682,556	Sept. 10	1618	370	96	2208
	681,028	Aug. 20	2476	549	96	1577
Lehmann, Emil A., Brooklyn, N. Y. Link cuff-button	679,628	July 30	4487	1008	96	987
Lehmann, James F., New York, N. Y. Detachable base for measuring-glasses						
Lehner, Friedrich, Zurich, Switzerland, assignor to Vereinigte Kunstseide-Fabriken, A. G., Frankfort-on-the-Main, Germany. Manufacturing artificial horsehair	680,719	Aug. 20	1881	.....	96	1459
	682,414	Sept. 10	1378	311	96	2154
Lehr, Louis, New York, N. Y. Device for forming finger-ring molds						
Lehureau, Jacques, Cateau, and G. Porcher, Paris, France. Chuck for lathes or similar machines	683,308	Sept. 24	2982	684	96	2517
Leib, Clarence, *et al.* (See Jackson, Hampton E., assignor.)						
Leicht, Emil, Winona, Minn. Gazing and face-marking attachment for mortising-machines	677,998	July 9	1259	289 290	96	280
	679,531	July 30	4318	970 971	96	950
Leidy, James C., Galesburg, Ill. Automatic car-coupling						
Leilich, Francis T., San Francisco, Cal. Stop mechanism for sewing or other machines	677,784	July 2	822	196	96	174
Leipziger Werkzeug Maschinen Fabrik, vormals W. V. Pittler, A. G. (See Pittler, Julius W. von, assignor.)	682,207	Sept. 10	1007	226	96	2083
Leisster, William H., Stonington, Ill. Trap-nest	682,625	Sept. 17	1746	400	96	2251
Leiter, L. Z. (See Moss, Robert S., assignor.)						
Leivy, Solomon, East St. Louis, Ill. Car-fender						
Leland, Davis M. (See Cox and Leland.)						
Leland & Faulconer Manufacturing Company. (See Ferris, Frank E., assignor.)	678,262	July 9	1746	402	96	376
Lembacher, Alois, Galatz, Roumania. Producing relief-pictures	682,308	Sept. 10	1007	226	96	2084
Lemen, David S., Milwaukee, Wis. Combination ticket-punch	682,309	Sept. 10	1008	226	96	2084
Lemmert, August, Baltimore, Md. Device for expanding finger-rings	682,472	Sept. 10	1475	335	96	2173
Lemmon, John, and J. H. Cope, Colerain, Ohio. Heat-indicator	683,304	Sept. 24	2983	684	96	2518
Lemon, John T., Columbus, Ohio. Automatic grain-weighing device						
Lempe, Frederick W., and W. Koedding, St. Louis, Mo. Apparatus for purifying liquids by electrolysis	677,578	July 2	449	107 108	96	95
Lenck, Oskar, *et al.* (See Kässbauer, Paul, assignor.)						
Lengweiler, Wilhelm, Wangen, Algau, Germany. Ring-spinning machine	678,408	July 16	2054	466	96	452
Lengweiler, Wilhelm, Wangen, Algau, Germany. Ring-spinning machine	678,409	July 16	2058	467	96	452
Lenhart, Philip F., Brooklyn, N. Y. Non-refillable bottle	679,173	July 23	3580	799	96	779
Lennon, Watson S., Tucson, Ariz. Ter. Car-coupling	679,629	July 30	4488	1009	96	987
Lentz, Hugo, Brünn, Austria-Hungary. Centrifugal engine-governor	679,055	July 23	3945	746	96	730
Leonard, Charles L. (See Knowlton, George A., assignor.)						
Leonard, Harry W. (See Woods, Granville T., assignor.)						
Leonard, Harry W., East Orange, N. J. Electrically-heated tool	678,410	July 16	2059	468	96	453
Leonard, Harry W., New York, N. Y. Electric-circuit controller	681,716	Sept. 3	94	19	96	1882
Leonard, William F., Columbus, Ohio. Elevator	680,871	Aug. 20	2175	478	96	1518
Leschinski, Fritz, Philadelphia, Pa. Polishing device	682,210	Sept. 10	1010	226	96	2084
Lessenberry, Mathew E., Gibson, Tenn. Baling-press	678,120	July 9	1495	344 345	96	325
Lessing, Wilhelm, Gesecke, Germany. Revolving adjustable kiln	678,411	July 16	2061	468	96	453
Lessing, Wilhelm, Gesecke, Germany Burning cement, gypsum, &c	678,412	July 16	2063	468 469	96	454
Lester, George W., Chicago, Ill. Thill-coupling	682,091	Sept. 3	802	175	96	2024
Letson, Samuel W., C. G. W. Talen, and R. E. L. Reynolds, New Orleans, La. Sliding door	678,366	July 16	1999	450	96	434
Leu, Frederick, Collegepoint, N. Y., assignor to M. C. Rosenfeld, Boston, Mass. Device for attaching rubber washers to bottle-stoppers	680,870	Aug. 20	2173	478	96	1517
Leubrie, Louise, *et al.* (See Teed, Oliver F., assignor.)						
Leuthesser, Fred W. (See Brown and Leuthesser.)						
Levalley, Christopher W., Milwaukee, Wis. Chain	682,092	Sept. 3	802	175	96	2024
Leve, Robert E., New York, N. Y. Electric cloth-cutting machine	678,253	July 9	1747	402	96	376
Leveen, Bengt. S., Albany, N. Y. Combined table, chair, and stool	681,235	Aug. 27	2955	684	96	1675
Levi, Harry, Philadelphia, Pa. Go-cart	680,049	Aug. 6	613	134	96	1166
Levin, Louis A., Philadelphia, Pa. Curb for sidewalks, lawns, &c	683,305	Sept. 24	2985	684	96	2518

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Levis, Thomas R. (See Pugh, William J., assignor.)						
Levy, David A., St. Louis, Mo. Skirt-supporter	680,872	Aug. 20	2177	479	96	1518
Levy, Leo. (See Freese and Levy.)						
Levy, Max, Philadelphia, Pa. Grating or screen for photomechanical printing processes	680,928	Aug. 20	2288	502	96	1540
Levy, Samuel, *et al.* (See Freese and Levy, assignors.)						
Levy, Simon H. (See Quitman, Edwin L., assignor.)						
Lewenthal, Isaac, New York, N. Y. Belt-buckle	680,929	Aug. 20	2284	502	96	1541
Lewicki, Wladimir von, *et al.* (See Masionka, Kornel, assignor.)						
Lewin, Simon, assignor to Anton & Alfred Lehmann Aktiengesellschaft, Berlin, Germany. Manufacture of imitation Crimean or Persian fur goods	682,557	Sept. 10	1619	370	96	2208
	680,980	Aug. 20	2285	503	96	1541
Lewis, Charles W., New York, N. Y. Packing-box	682,945	Sept. 17	2360	533	96	2471
Lewis, Ellis S. G., Perkinston, Miss. Blacking-brush	681,558	Aug. 27	3464	769	96	1794
Lewis, Frank A., Omaha, Nebr. Thimble-attacher						
Lewis, George E., Brooklyn, assignor to Holzman Brothers, New York, N. Y. Machine for cutting cloth	679,056	July 23	3947	746	96	731
Lewis, John S., assignor to W. Tod & Company, Youngstown, Ohio. Outlet-valve for air-compressors	681,921	Sept. 3	500	103	96	1965
Lewis, Joseph E., Hartford, assignor to Whitlock Coil Pipe Company, Elmwood, West Hartford, Conn. Steam-separator	677,521	July 2	327	80	96	71
Lewis, Preston, *et al.* (See Orr, Edward E., assignor.)						
Lewis, Willard I., Walpole, Mass. Automatic cloth-guiding device	678,121	July 9	1496	345	96	325
Ley, Gustave, Westphalia, Kans. Window-blind regulator	681,967	Sept. 3	604	128	96	1985
Leyendecker, Hans, Cologne-Ehrenfeld, Germany. Alloy	682,330	Sept. 10	1235	.....	96	2125
Leyland, James, Rutherford, N. J. Mounting wheels on vehicles	678,413	July 16	2065	469	96	454
Libbe, John H. W., Toledo, Ohio. Trench-digging machine	677,522	July 2	328	80	96	71
Libby, Edwin A., Keene, N. H. Bedstead attachment	677,672	July 2	617	147	96	130
Library Bureau. (See Meleney, George B., assignor.)						
Lichten, Moses H., Philadelphia, Pa. Portable automatic showering-pot	683,306	Sept. 24	2986	684	96	2518
Lieb, Charles A., New York, N. Y. Motor-vehicle	680,602	Aug. 13	1615	357	96	1382
Lieberthal, Hyman, Chicago, Ill. Wheel	680,255	Aug. 13	989	222	96	1256
Lieberthal, Hyman, Chicago, Ill. Wheel	680,256	Aug. 13	991	222	96	1256
Liebmann, Rudolph. (See Hornich, William, Jr., assignor.)						
Liebrecht, Arthur, Frankfort-on-the-Main, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Compound of silver and gelatose and making same	681,482	Aug. 27	3336	.....	96	1769
	680,158	Aug. 6	806	179	96	1205
Light, Frank M., Edgerton, Ohio. Seat for vehicles, &c	681,125	Aug. 20	2646	584	96	1612
Lightfoot, John K., Cumberland, Md. Wheel				176		
				177	96	2024
				178		
Lignières, René D. de, Paris, France. Control of alternating-current motors	682,098	Sept. 3	804			
Lihme, Iens P., assignor to Grasselli Chemical Company, Cleveland, Ohio. Making sodium sulfid and lithopone	680,608	Aug. 13	1617	.....	96	1383
	680,050	Aug. 6	615	.....	96	1167
Limb, Claude M. J., (dit Claudius,) Lyons, France. Producing barium carbid	683,307	Sept. 24	2987	685	96	2518
Linck, Edward C., St. Louis, Mo. Adjustable screen	678,628	July 16	2499	558	96	544
Lincoln, Martha L., Providence, R. I. Hat-fastener	679,174	July 23	3581	800	96	779
Lincoln, Paul M., Niagara Falls, N. Y. Power-factor meter						
Lincoln, Paul M., Niagara Falls, N. Y. Frequency or speed indicating and regulating device	679,175	July 23	3584	800	96	780
	677,523	July 2	332	81	96	71
Lind, Samuel, Davenport, Iowa. Car-fender						
Lind, Williard W., and J. C. McKee, Caldwell, Idaho. Apparatus for removing and separating bran from grain	679,233	July 23	3691	823	96	802
Lind, Williard W., and J. C. McKee, Caldwell, Idaho. Removing and separating bran from grain	679,234	July 23	3693	824	96	803
	679,176	July 23	3588	801	96	781
Linden, Andrew J., Hitterdal, Minn. Fire-alarm	682,722	Sept. 17	1925	437 438	96	2285
Lindenberg, Gustav, F. Altena, and F. Fischer, Barmen, Germany. Meat-cutter						
Lindenthal, Gustav, New York, N. Y. Manufacture of wire links for tension members of bridges, &c	678,672	July 16	2591	581	96	561
	682,723	Sept. 17	1927	488	96	2285
Lindgren, August, Moline, Ill., assignor to Moline Plow Company, of Illinois. Plow-clevis						
Lindley, Lee R. (See Henry and Herrmann, assignors.)						
Lindsay, Alexander M., Jr., Leesburg, Va. Corn-planter	682,473	Sept. 10	1476	335 336	96	2173
Lindsay, George W., *et al.* (See Ozment, David B., assignor.)						
Lindsay, James M., *et al.* (See Ozment, David B., assignor.)						
Lindsay, William C., Newport, Vt. Seal-bolt	679,084	July 23	3490	762	96	745
Lindsey, William A., Wilkinsburg, Pa. Polishing-machine	678,109	July 9	1476	340	96	322
Lindstrom, Nils O. (See Cowperthwait and Lindstrom.)						
Lindstrom, Nils O., assignor to A. B. See and W. L. Tyler, New York, N. Y. Electric-elevator controller	679,760	Aug. 6	82	20	96	1058
	679,292	July 23	3808	852	96	824
Ling, Charles N., Aberdeen, S. D. Combined trace-buckle and hame-tug oop	682,094	Sept. 3	806	178	96	2024
Lingenberg, Christian, Hattenheim, Germany. Apparatus for manufacturing chair-seats.						
Link Belt Engineering Company. (See Hetzel, Frederic V., assignor.)						
Linn, John A., Pagosa Springs, Colo. Ballot-box	678,786	July 16	2771	624	96	595
Linnekogel, Heinrich, Stuttgart, Germany. Treating ramie fiber	679,508	July 30	4277	.....	96	941
Linquist, Carl V., Clay Center, Kans. Sliding block or bearing	682,126	Sept. 24	2668	611	96	2452
Linton, George E., Worcester, Mass. Electric switch	680,396	Aug. 13	1123	250	96	1283
Linton, Joseph, Manchester, Va. Machine for grinding calender-rolls	678,961	July 23	3153	706	96	692
Linton, Zebulon Z., Fernwood, Miss. Band-saw-mill attachment	679,085	July 23	3421	782	96	745
Lion, Alexander L., Paris, France. Apparatus for purifying gases	679,761	Aug. 6	84	20	96	1058
Lippincott, Jesse O., and G. Meredith, Philadelphia, Pa. Candlestick	678,264	July 9	1749	408	96	376
Liquid Carbonic Acid Mfg. Co. (See Birkholz, Richard, assignor.)						
Lissauer, Willi, assignor to L. Friedländer, Berlin, Germany. Working leather	680,604	Aug. 13	1618	.....	96	1383
Lissauer, Willi, assignor to L. Friedländer, Berlin, Germany. Preparing hides for the manufacture of leather	680,605	Aug. 13	1619	.....	96	1383
Litch, Lemuel W. (See Foss and Litch.)						
Liter, Harry T., Blue Springs, Mo. Elevating-truck	682,095	Sept. 3	807	178	96	2024
Littauer, Lucius N. (See Murphy, William B., assignor.)						
Little, Clarence B., assignor to Brownell & Co., Dayton, Ohio. Air-compressor	678,839	July 16	2896	653	96	622
Little, John T., Jr. (See Wingfield and Little.)						
Littlefield, Frank A., assignor to Nashua Machine Company, Nashua, N. H. Steam-trap	682,260	Sept. 10	1110	252	96	2103
Livesay, Charles E., Ealing, England. Water module or delivery regulator	677,361	July 2	50	12	96	18
Livingston, Henry J., Baltimore, Md. Composition of matter for increasing the strength and durability of cements, &c	682,724	Sept. 17	1928	.....	96	2286
	681,126	Aug. 20	2648	584	96	1612
Livingston, James, Philadelphia, Pa. Woven fabric						
Lloyd, John, Fortyfort, W. Lloyd, Tamaqua, and R. O. Jones, Jeanesville, Pa. Steam-eliminator	677,458	July 2	222	54, 55	96	49

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Lloyd, William. (See Lloyd and Jones.)						
Lloyd, William J. (See Chesney and Lloyd.)						
Locke, Bradford H., Denver, Colo. Clutch	677,872	July 9	1014	289	96	288
Locke, Sylvanus D., Brooklyn, assignor to Horton Basket Machine Company, New York, N. Y. Basket-making machine	680,721	Aug. 20	1883	414 415 416	96	1460
Lockett, Abner P., Knoxville, Tenn. Fruit-jar	681,717	Sept. 3	100	20	96	1884
Lockhart, John W. (See Miller, Henry E., assignor.)						
Lockwood, Rhodes. (See Turner, Charles L., assignor.)						
Lockwood, Rhodes, *et al.* (See Lockwood, Rhodes G., assignor.)						
Lockwood, Rhodes G., assignor of two-thirds to R. and W. N. Lockwood, Boston, Mass. Machine for punching nipples, &c	682,626	Sept. 17	1747	401	96	2251
Lockwood, Virgil H. (See Boswell, George G. F., assignor.)						
Lockwood, William N., *et al.* (See Lockwood, Rhodes G., assignor.)						
Locomobile Company of America. (See Devantery, Joseph, assignor.)						
Locomobile Company of America. (See Fletcher, Charles T., assignor.)						
Locomobile Company of America. (See Macker, George A., assignor.)						
Locomobile Company of America. (See Speirs, John C., assignor.)						
Löderer, Béla, Budapest, Austria-Hungary. Heel	683,054	Sept. 24	2545	580	96	2428
Lodge & Shipley Machine Tool Company. (See Lodge, William, assignor.)						
Lodge & Shipley Machine Tool Company. (See Morrison, Walter S., assignor.)						
Lodge, William, assignor to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Engine-lathe	680,606	Aug. 13	1620	357	96	1368
Loeper, geboren Mühlenbeck, Anna von, Rostock, Germany. Potato-digger	680,257	Aug. 13	992	222	96	1257
Loeper, geboren Mühlenbeck, Anna von, Rostock, Germany. Threshing-machine	680,258	Aug. 13	994	223	96	1257
Loetzer, Christian E., assignor to Cayuta Wheel & Foundry Company, Sayre, Pa. Hydrant	677,302	July 2	53	12	96	14
Loewenbach, Hugo, Milwaukee, Wis. Toilet-paper cabinet	678,481	July 16	2105	478	96	461
Loffer, Solomon E., *et al.* (See Walker, William H., assignor.)						
Lohsen, Hermann, Brunswick, Germany. Stretcher or litter	681,559	Aug. 27	3464	769	96	1795
Loichot, Charles J., Canton, Ohio. Shears	682,351	Sept. 10	1112	252	96	2103
Lombard, Charles E., East Wilton, Me. Automatic fire-alarm	681,128	Aug. 20	2650	586	96	1613
Lombard, Charles E., assignor of one-half to J. Walker, East Wilton, Me. Fire-alarm system	681,127	Aug. 20	2649	585	96	1613
Long, Albert, Lawrence, and R. Foster, Methuen, Mass. Drawing-off device for circle-combs	679,975	Aug. 6	494	104 105	96	1142
Long & Allstatter Company. (See Long, John M. W., assignor.)						
Long, Andrew. (See Spring and Long.)						
Long Arm System Company. (See Cowles, William B., assignor.)						
Long, Elmer C., Monroe City, assignor of one-third to E. P. Nelson, St. Louis, Mo. Rotary engine	680,259	Aug. 13	995	224	96	1257
Long, Frederick, Footscray, Victoria. Rock-drill chuck	683,127	Sept. 24	2664	612	96	2458
Long, John M. W., assignor to Long & Allstatter Company, Hamilton, Ohio. Disk plow	680,337	Aug. 13	1124	250	96	1284
Long, John R., Springfield Township, Ohio. Brick-pressing machine	682,383	Sept. 10	1315	296 297	96	2141
Long, Otis A. (See Wohlgamuth and Williams, assignors.)						
Long, Robert, assignor to J. J. McLaughlin, Toronto, Canada. Siphon-filler	678,502	July 16	2250	506	96	498
Long, Thomas, Boston, Mass., assignor to Consolidated Fastener Company, Portland, Me. Tack-button	679,702	Aug. 6	85	20	96	1059
Long, William R., St. Louis, Mo., assignor, by mesne assignments, to St. Louis Trust Company, of Missouri. Refining grape-sugar	679,426	July 30	4096	915	96	907
Long, William R., St. Louis, Mo., assignor, by mesne assignments, to St. Louis Trust Company, of Missouri. Sugar-refining apparatus	679,403	July 30	4175	937	96	921
Longden, Charles E., Hamden, Conn. Stopper for water-bags	682,854	Sept. 17	2195	495	96	2337
Look, Luther, assignor to New Standard Concentrator Co., Los Angeles, Cal. Ore-concentrator	678,798	July 16	2788	627	96	598
Loomis, Gilbert J., Westfield, Mass. Running-gear for horseless carriages	681,092	Aug. 20	2537	561	96	1590
Loomis, Henry L., Bloomington, Ill. Sash-lock	679,464	July 30	4176	938	96	922
Looney, Daniel. (See Penrose, Richard A., assignor.)						
Löper, Carl, Lichtenberg, near Berlin, Germany. Muffler for steam or gas motors	682,096	Sept. 3	809	178	96	2025
Lorain Steel Company. (See Brown, William M., assignor.)						
Lorain Steel Company. (See Goughnour, Henry S., assignor.)						
Lorain Steel Company. (See Merrick, Frank A., assignor.)						
Lorain Steel Company. (See Merrick and Stull, assignors.)						
Lorain Steel Company. (See Prindle, William E., assignor.)						
Lorain Steel Company. (See Stiff, Henry C., assignor.)						
Lorain Steel Company. (See Stull, Emmett W., assignor.)						
Lord, Charles W., assignor of one-half to O. E. Case, Providence, R. I. Hat-pin	680,873	Aug. 20	2178	479	96	1518
Lord, Hugh C., Erie, Pa. Target-trap	683,308	Sept. 24	2989	695 696	96	2519
Lothrop, Llewellyn D., Gloucester, Mass. Fog-horn	680,874	Aug. 20	2179	479	96	1518
Lott, William E., Mineola, Tex. Cutting implement	677,419	July 2	148	34	96	33
Lottman Brothers Manufacturing Company. (See Johnston, Washington T., assignor.)						
Lotz, Henry F. W., Philadelphia, Pa. Game-table	681,330	Aug. 27	3054	677	96	1714
Loubery, César R., Paris, France. Telegraphing, indicating time, or actuating mechanism electrically	678,746	July 16	2705	610	96	584
Louden, William, Fairfield, Iowa. Door-hanger	677,524	July 2	358	81	96	72
Love, John S., Edgewood, Pa. Device for operating railway switch-bars	679,682	July 30	4589	1081	96	1010
Love, Patrick H., Franklin, Tex. Mower or reaper	682,875	Sept. 17	2282	504	96	2345
Lovejoy, George W., Tehachapi, Cal. Distributing-machine	681,801	Sept. 3	280	56	96	1921
Lovekin, Luther D., Philadelphia, Pa. Flanging-machine	682,725	Sept. 17	1998	438 439 440	96	2286
Lovekin, Luther D., Philadelphia, Pa. Flanging-machine	682,726	Sept. 17	1984	440 441	96	2286
Loveland, Byron S. (See Whitney and Loveland.)						
Loveridge, Frederick H., assignor to Western Electric Company, Chicago, Ill. Machine for making glass caps	677,548	July 2	394	94	96	84
Loverin, Cora E., administratrix. (See Loverin, True.)						
Loverin, True, deceased; C. E. Loverin, Nashua, N. H., administratrix. Carriage-wheel	677,525	July 2	385	81	96	72
Lovett, Joseph S. H., assignor to I. C. Wilson, S. K. Robbins, and B. L. Stokes, Trenton, N. J., executors of Samuel K. Wilson, deceased. Hose-machine	682,558	Sept. 10	1688	371	96	2304
Lovett, Thomas J., Chicago, Ill. Treating metal-bearing rock	679,901	Aug. 6	347	74	96	1113
Lovis, Henry C., New York, N. Y. Sterilized surgical dressing	681,483	Aug. 27	3337	741	96	1760
Low, Abbot A. (See Tuck and Wassmann, assignors.)						
Low, Abbot A., Brooklyn, N. Y. Quoit	678,265	July 9	1750	402	96	377

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Low, Abbot A., Brooklyn, N. Y. Calendar	681,831	Sept. 3	328	66,67	96	1931
Low, Abbot A., Brooklyn, N. Y. Means for safely sealing vessels	681,968	Sept. 3	605	129	96	1986
Lowden, Amos H. (See Thorpe, Joseph L., assignor.)						
Lowe, Arthur H., Fitchburg, Mass. Means for handling baggage	679,567	July 30	4385	984	96	966
Lowe, Charles H., Milwaukee, Wis. Necktie	679,763	Aug. 6	87	21	96	1059
Lowe, Ida B., *et al.* (See Lowe, Julius P., assignor.)						
Lowe, Julius P., assignor to G. E. Whipple, I. B. Lowe, and H. G. Buker, Boston, Mass. Coal screen and bagger	678,840	July 16	2897	654	96	623
Lowentraut, Peter. (See Tomaskoff, William, assignor.)						
Lowery, Thomas F., Bowdon, N. D. Flax-cleaner	677,999	July 9	1262	290	96	280
Lowry, John B., assignor to August Kern Barber Supply Company, St. Louis, Mo. Barber-chair	683,309	Sept. 24	3003	686 687	96	2523
Loyd, Joseph. (See Jensen, Soren, assignor.)						
Lucas, George, Brooklyn, N. Y. Bottle	682,855	Sept. 17	2196	496	96	2338
Lucas, George F., New York, N. Y. Emery-steel	678,301	July 9	1889	428	96	398
Lucas, Henry M., Cleveland, Ohio. Power-press	681,063	Aug. 20	2540	562	96	1591
Luce, Louis L., Mount Vernon, Wash. Bicycle handle-bar	679,086	July 23	3424	763	96	746
Luck, Wilhelm, Groitzsch, Germany. Poultry-killing apparatus	682,331	Sept. 10	1236	279	96	2126
Lucking, Fidelis, Detroit City, Minn. Secondary electric clock	680,532	Aug. 13	1498	329	96	1359
Ludlow, Rodney F., Philadelphia, Pa. Mold for making castings	677,549	July 2	398	95	96	85
Ludwig & Co. (See Salyer, Harry M., assignor.)						
Ludwig, Edmund B., Kansas City, Mo. Vapor-burner	680,260	Aug. 13	998	224	96	1258
Ludwig, Edmund B., Kansas City, Mo. Carbureter	682,211	Sept. 10	1011	227	96	2084
Ludwig, Edmund B., Kansas City, Mo. Carbureter	681,802	Sept. 3	281	56,57	96	1921
Luellen, Lawrence W., Olathe, Kans. Voting-machine	681,803	Sept. 3	283	57	96	1922
Luellen, Lawrence W., Olathe, Kans. Voting-machine	682,727	Sept. 17	1937	441 442	96	2287
Luellen, Lawrence W., Olathe, Kans. Voting-booth	680,051	Aug. 6	615	134	96	1167
Lueteke, Charles, Greencastle, Ind. Bread or candy dividing machine	678,825	July 16	2847	642 643 644 645	96	613
Lufkin, John W., Boston, Mass. Automatic buttonhole cutting and stitching machine	678,000	July 9	1263	290	96	280
Lufsky, Charles, Chicago, Ill. Pigeonhole-table	678,888	July 23	3000	672	96	663
Luger, John, Jr., North St. Paul, Minn. Detachable table-leg	683,128	Sept. 24	2665	612	96	2453
Lugibihl, Adam D., and H. Kibele, Bluffton, Ohio. Cream-separator	677,873	July 9	1015	289	96	288
Luhr, Philip, Orange, N. J., assignor to Manhattan General Construction Company, of New York. Electric-arc lamp	678,343	July 9	1921	440 441	96	408
Luhr, Philip, Orange, N. J., assignor to Manhattan General Construction Company, New York, N. Y. Gas-check for inclosed-arc lamps	678,344	July 9	1924	401 402 403 404	96	408
Luis, Wilhelm, Cassel, Germany. Boiler-locking lid	680,607	Aug. 13	1621	357 358	96	1388
Luke, Charles, Milford, assignor to New Haven Novelty Machine Company, New Haven, Conn. Prepayment attachment for meters	679,630	July 30	4490	1009	96	988
Luke, William A., Covington, Va. Sulfite-digester	683,129	Sept. 24	2666	612 613	96	2453
Lukes, William, Newark, N. J., assignor to Tower Manufacturing and Novelty Company, New York, N. Y. Perforating device	678,577	July 16	2895	587	96	523
Lumgair, David. (See Garland and Lumgair.)	682,097	Sept. 3	810	179	96	2025
Lundberg, Adolf S., West Everett, Mass. Curtain-fixture and pole-bracket	679,029	July 23	3275	733	96	716
Lundquist, Frank A., Chicago, Ill., assignor to M. E. Richardson, trustee, Sterling, Kans. Calling device for telephone-exchanges	11,919	July 2	958	225	96	202
Luppino, Joseph, New Haven, Conn. Adjustable support for chair-backs. (Reissue)	680,338	Aug. 13	1126	250	96	1284
Luther, Charles F., Pawtucket, R. I. Automatic railway-switch	682,212	Sept. 10	1014	227	96	2085
Lutwyche, Edgar J., Chicago, Ill. Mold for blown glass	682,474	Sept. 10	1481	336	96	2174
Lutz, Daniel, assignor to Thomas Manufacturing Company, Springfield, Ohio. Hay-rake	677,579	July 2	452	108	96	95
Lutz, George, Cambridge, Mass. Sounding-board for pianos	679,177	July 23	3589	801	96	781
Lykke, Christian E., Grand Island, Nebr. Corn-chopper	680,434	Aug. 13	1313	288	96	1321
Lyle, William P., Philadelphia, assignor of two-thirds to F. B. Marvel, Avondale, and P. J. Lynch, Westgrove, Pa. Puzzle	680,261	Aug. 13	999	224 225	96	1258
Lyman, John M., Cincinnati, Ohio. Starch breaker and grader	682,146	Sept. 3	888	198	96	2041
Lynch, Harry B., Versailles, Pa. Apparatus for coating pipes or bars	682,147	Sept. 3	891	198 199	96	2041
Lynch, Harry B., Versailles, Pa. Apparatus for coating pipes or bars	678,367	July 16	1970	450	96	435
Lynch, Michael A., and H. Wilson, Washington, D. C. Fuse for explosive projectiles	682,728	Sept. 17	1942	442	96	2288
Lynch, Michael A., and H. Wilson, Washington, D. C. Percussion-fuse for explosive projectiles	680,052	Aug. 6	617	135	96	1167
Lynch, P. J., *et al.* (See Lyle, William P., assignor.)						
Lynch, Thomas A., Brooklyn, N. Y. Soap cake	681,922	Sept. 3	502	104	96	1905
Lynch, Willoughby. (See Whitson, James M., assignor.)						
Lyon, Alvin S., Lowell, assignor to Bigelow Carpet Company, Lowell and Clinton, Mass. Apparatus for stretching and drying rugs						
Lyon, Cardiff T., *et al.* (See Bright and Depriest, assignors.)						
Lyon, Edgar, *et al.* (See Bright and Depriest, assignors.)						
Lyon, William L., *et al.* (See Bright and Depriest, assignors.)						
Lyon, William T., Oregon City, Oreg. Dental appliance	682,098	Sept. 3	811	179	96	2025
M. C. Dizer and Company, *et al.* (See Orr, Edward E., assignor.)						
M. C. Wetmore Tobacco Company. (See Deckert, Harry C., assignor.)						
M. Garland Company. (See Garland and Lumgair, assignors.)						
MaGirl, Patrick. (See Wolcott and MaGirl.)	682,148	Sept. 3	894	199	96	2042
MacCarthy, Timothy J., Holyoke, Mass. Buckle	678,017	July 9	1288	295	96	285
MacClyment, Harry A., Hammond, Ind., and W. F. Sims, Chicago, Ill. Mold for shaping ice	679,275	July 23	3776	843	96	818
MacCormack, John, Bayonne, N. J., assignor to R. C. Peabody, Brooklyn, N. Y. Automatic stoker	677,788	July 2	480	198	96	175
MacFarlane, Walter, Seattle, Wash. Pipe-boiler	679,852	Aug. 6	255	54	96	1094
MacKay, Edmund, Jersey City, N. J. Cracker-stacking machine	679,237	July 23	3700	826	96	804
MacKay, Stewart, North Chelmsford, Mass. Safety-tread for sidewalks						
MacLean, Donald. (See Gruschow and Osborn, assignors.)						
MacLearn, John P., assignor to R. M. Green & Sons, Philadelphia, Pa. Valve mechanism for siphon-valves or draft-tubes	678,841	July 16	2899	654	96	623

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Macbeth, James, Buffalo, N. Y. Hoisting-crane	677,874	July 9	1018	239, 240	96	234
Macbeth, James, Buffalo, N. Y. Hoisting-crane	678,188	July 9	1612	372	96	348
Macdona, Henry D. (See Dooley, Harry L., assignor.)						
Macdonald, Thomas H., Bridgeport, Conn. Making sound-records	682,991	Sept. 17	2443	558	96	2368
Macdonald, Thomas H., Bridgeport, Conn. Sound-record	682,992	Sept. 17	2445	558	96	2368
Macdonald, Thomas H., Bridgeport, Conn., assignor to American Graphophone Company, of West Virginia. Graphophone	679,236	July 23	3699	825	96	803
Macdonald, Thomas H., Bridgeport, Conn., assignor to American Graphophone Company, of West Virginia. Graphophone	680,339	Aug. 13	1128	251	96	1284
Macdonald, Thomas H., Bridgeport, Conn., assignor to American Graphophone Company, of West Virginia. Combined graphophone and motor	680,794	Aug. 20	2086	445	96	1489
Macdonald, Thomas H., Bridgeport, Conn., assignor to American Graphophone Company, Washington, D. C. Toy graphophone	683,130	Sept. 24	2669	618	96	2453
Mack, Bernard F., *et al.* (See Mack, Henry A., assignor.)						
Mack, Ernest H., Keuka College, N. Y. Device for feeding and watering poultry	682,627	Sept. 17	1750	401	96	2252
Mack, Harry C., *et al.* (See Mack, Henry A., assignor.)						
Mack, Henry A., assignor to H. C. and B. F. Mack and H. C. Bacon, Weatherly, Pa. Bobbin	682,559	Sept. 10	1624	371	96	2304
Mack, William E., Oswego, N. Y. Thermo-electric regulator for valves or dampers	680,262	Aug. 13	1000	225	96	1258
Macker, George A., Westboro, Mass., assignor to Locomobile Company of America, New York, N. Y. Engine-protector for motor-vehicles	677,875	July 9	1020	240	96	234
Mackey, William K., Plainfield, N. J. Garment-stretcher	683,055	Sept. 24	2546	580	96	2429
Mackintosh, Edward D., New York, N. Y. Centrifugal machine	681,804	Sept. 3	286	57	96	1922
Mackintosh, Edward D., New York, N. Y. Water-motor	681,805	Sept. 3	287	58	96	1923
Mackintosh, Frederick, Schenectady, N. Y., assignor to General Electric Company, of New York. Automatic switch	679,321	July 30	3881	807	96	862
Macomber, Charles J. (See Neely, Konley, and Macomber.)						
Macy, Jethro L., Des Moines, Iowa. Incubator	679,764	Aug. 6	88	21	96	1059
Madden, Emma F., Chicago, Ill. Lace	678,962	July 23	3151	705	96	692
Maddux, Charles D., Mobeetie, Tex. Lid or plate lifter	680,263	Aug. 13	1008	225	96	1259
Madeley, Richard, *et al.* (See Blaetz, Jacob H., assignor.)						
Madigan, John J., and R. W. Crocker, assignors to Yakima Valley Fruit Company, Seattle, Wash. Jar or bottle closure	680,053	Aug. 6	618	135	96	1167
Madison, John H., Petaluma, Cal. Incubator-heater	682,802	Sept. 17	2088	472	96	2316
Madlener, Otto. (See Madlener, Philip and O.)						
Madlener, Philip and O., Milwaukee, Wis. Carbonating apparatus	677,580	July 2	454	108	96	96
Maetzold, Georg. (See Roth and Helmke, assignors.)						
Magaldi, Emilio, Buenos Ayres, Argentina. Belt-chain	680,159	Aug. 6	806	179	96	1206
Magarity, Marie J., Wilmington, Del. Vitrified brick	679,427	July 30	4098		96	907
Magaro, Petro, No. 3, Steelton, Pa. Lock	681,560	Aug. 27	3465	769	96	1795
Magner, Katherine. (See Johnston, James S., assignor.)						
Magnetic Piano Company. (See Powers, Timothy B., assignor.)						
Magnien, Ernest P. F., Amiens, France. Machine for manufacturing chocolate	680,489	Aug. 13	1414	308	96	1341
Mahan, Dennis H., U. S. Navy. Stretcher	677,673	July 2	618	148	96	130
Maher, William, Denver, Colo. Wire-stretcher	682,998	Sept. 17	2446	554	96	2288
Mahoudeau, Frederic, assignor to American Sugar Refining Company, New York, N. Y. Automatic stop for sugar-drying apparatus	678,747	July 16	2707	610	96	584
Maignen, Jean A., Philadelphia, Pa. Filter	677,893	July 9	1052	246	96	240
Maines, Potter F., Philadelphia, Pa. Brace	680,931	Aug. 20	2286	508	96	1541
Malatesta, Louis. (See Raggio and Malatesta.)						
Maldeis, Henry B., Montreal, Canada. Leather-working machine	682,808	Sept. 17	2099	472, 473	96	2316
Malette, Frederick A., and E. Seybolt, Geneva, N. Y. Roadway	683,056	Sept. 24	2546	581	96	2429
Mallett, John P., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, of Pennsylvania. Strap-coil for electrical machines	680,795	Aug. 20	2088	445	96	1490
Mallett, John P., assignor to Northern Electrical Manufacturing Company, Madison, Wis. Supporting device for brush-holders	681,421	Aug. 27	3204	713	96	1743
Mallmann, James, Sheboygan, Wis. Calculating-machine	680,340	Aug. 13	1129	251, 252	96	1285
Mallmann, James, Sheboygan, Wis. Calculating-machine	680,341	Aug. 13	1138	253, 254	96	1286
Mallory, George W., Guilds, Canada. Door-check	678,889	July 23	3001	673	96	663
Mallory, William B., J. G. Deaderick, and J. L. Ullathorne, Memphis, Tenn. Nut-lock	678,414	July 16	2066	469	96	454
Mallory, William B., J. L. Ullathorne, and J. G. Deaderick, Memphis, Tenn. Nut-lock	678,415	July 16	2067	469	96	454
Mallory, William B., J. L. Ullathorne, and J. G. Deaderick, Memphis, Tenn. Nut-lock	678,011	July 9	1280	298	96	284
Maltby, Anson, New York, N. Y. Hoop	681,923	Sept. 3	508	104	96	1965
Maltby, Lewis C., assignor to E. S. Stokes, trustee, Washington, D. C. Rotary engine						
Malted Cereals Company. (See Moore and Boynton, assignors.)						
Maltner, Carl. (See Wehner, Maltner, and Bansen.)						
Manahan, Joseph A., New York, N. Y. Chair	680,608	Aug. 13	1622	358	96	1383
Manasse, Wilhelm, and R. Ihlenfeld, Berlin, Germany. Preserving meat	681,286	Aug. 27	2856		96	1675
Manchin, Paul, and L. Boudreaux, Paris, France. Vessel or ship	682,631	Sept. 17	1758	402	96	2253
Mandt, Targe G., Stoughton, Wis. Hub-attacher	683,310	Sept. 24	3006	667	96	2524
Manes, John, San Francisco, Cal., assignor to Suspension Beam Scale Co., of California. Weighing-machine	677,526	July 2	396	82	96	72
Manewal, Louis A. (See Rosborough, John, assignor.)						
Mangon, Jacques, Brussels, Belgium. Cartridge	682,364	Sept. 10	1286	290	96	2134
Manhattan General Construction Company. (See Luhr, Philip, assignor.)						
Manlove, Joseph L., Milton, Ind. Gate	680,054	Aug. 6	619	135	96	1167
Mann, James H., Leeds, England. Steam-vehicle for common roads	682,262	Sept. 10	1113	252, 253	96	2103
Manning, Bowman & Company. (See Seips, Michael, assignor.)						
Manning, Coleman J., Medford, assignor to American Steam Gauge Company, Boston, Mass. Recording-gage of steam-pressure on boilers	677,674	July 2	619	148, 149	96	131
Manning, Guy E., assignor to W. H. Manning, Dayton, Ohio. Combined hedge and wire fence	679,976	Aug. 6	497	105	96	1142
Manning, Wm. H. (See Manning, Guy E., assignor.)						
Mansfield, Henry C., Chico, Cal. Boot or shoe drier	680,264	Aug. 13	1008	226	96	1259
Mansfield, King W., and W. R. Thompson, South Norwalk, Conn. Electric switch	683,213	Sept. 24	2809	646	96	2481
Mansfield, King W., and W. R. Thompson, South Norwalk, Conn. Signal system	683,214	Sept. 24	2811	647	96	2482
Manson, George W., New York, N. Y. Motor-cycle	678,963	July 23	3155	705	96	692
Manson, George W., New York, N. Y. Mud-guard for bicycles	679,631	July 30	4492	1010	96	988
Manson, George W., New York, N. Y. Support for bicycles	679,765	Aug. 6	91	21	96	1060
Manson, Thomas K. (See Conway, Arnett, assignor.)						
Mantey, Eberhard F. W. von, Kiel, Germany. Mechanism for transmitting the readings of ships' compasses to distant points	677,581	July 2	455	109	96	96

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Maquay, Samuel W., Chertsey, England. Primary battery	682,475	Sept. 10	1482	336	96	2174
Maratta, Hardesty G., Chicago, Ill. Scenic structure	678,012	July 9	1281	293	96	283
Marchand, Edmond E., Paris, France. Hydraulic propeller for ships	682,213	Sept. 10	1015	228	96	2085
Marcy, Frank M., Worcester, Mass. Spinning-ring	678,266	July 9	1751	403	96	377
Marcy, Frank M., Worcester, Mass., assignor of one-half to Draper Company, Portland, Me., and Hopedale, Mass. Drawing-roll	683,311	Sept. 24	3007	687	96	2524
Mariner, Abbott L., Medford, assignor to L. E. Kirstein and A. Asher, Boston, Mass. Eyeglass-case	677,785	July 2	824	197	96	174
Marinier, Ernest E., and E. L. Navolt, Paris, France. Machine for simultaneously printing and embossing paper	680,533	Aug. 13	1499	330	96	1359
Marion Steam Shovel Company. (See King and Barnhart, assignors.)						
Marius, Emile. (See Brellier and Marius.)						
Marker, Stephen A., Newark, N. J. Workman's check-receiver	679,766	Aug. 6	91	22	96	1060
Market Street Railway Company. (See Douglas, George W., assignor.)						
Market Street Railway Company. (See Foster, Samuel L., assignor.)						
Markle, Alvan, Hazleton, Pa. Rail-bond	679,062	July 23	3221	721	96	706
Marks, Abraham, *et al.* (See Freese and Levy, assignors.)						
Marks, Edward S., Auburn, N. Y., assignor to Ohio Tool Company, of New York. Plane	680,055	Aug. 6	621	136	96	1168
Marks, Edward S., Auburn, N. Y., assignor to Ohio Tool Company, of New York. Plane	680,056	Aug. 6	621	136	96	1168
Marland, William W., and E. Large, Oldham, England. Coin-controlled mechanism for prepayment meters	680,875	Aug. 20	2181	480	96	1519
Maroff, John, Tillamook, Oreg. Rudder	682,476	Sept. 10	1484	337	96	2175
Marquardt, Joseph, New York, N. Y. Pipe-hanger	680,609	Aug. 13	1624	358	96	1383
Marquardt, Joseph, New York, N. Y. Coupling device	683,312	Sept. 24	3008	688	96	2524
Marriott, Benjamin, Plain City, Utah. Lifting-jack	678,508	July 16	2251	500	96	494
Marsden, Mark W., Philadelphia, Pa. Machine for making bricks	679,858	Aug. 6	257	55	96	1095
Marsh, Charles W., E. (See Laybourne, Marsh, and Price.)						
Marsh, James P., Chicago, Ill. Air-valve	683,215	Sept. 24	2814	648	96	2482
Marshall, Dana K., Manchester, N. H., assignor to C. F. Brown, Reading, Mass. Automatically-operated stringed musical instrument	678,318	July 9	1866	429, 430	96	397
Marshall, Dana K., Manchester, N. H., assignor to C. F. Brown, Reading, Mass. Automatically-operated stringed musical instrument	678,319	July 9	1870	429, 431	96	398
Marshall, James, Fall River, Mass. Apparatus for coloring carroted skins	679,178	July 23	3591	802	96	781
Marshall, John J., Leeds, England, assignor to J. P. Brown, Minneapolis, Minn., W. H. Seward and E. P. Carpenter, London, England. Automatic weighing-machine	680,160	Aug. 6	807	180	96	1206
Marshall, Lewis C., East Walpole, Mass. Car-roof construction	678,189	July 9	1613	372	96	348
Marshall, Norman, Newton, Mass. Incandescent-lamp socket	680,932	Aug. 20	2288	508	96	1541
Marsóvszky, Emerich von, Budapest, Austria-Hungary. Horseshoe	683,131	Sept. 24	2670	613	96	2454
Marsóvszky, Emerich von, Budapest, Austria-Hungary. Horseshoe	683,132	Sept. 24	2671	614	96	2454
Mart, Thomas, Brooklyn, N. Y. Window-cleaner	680,057	Aug. 6	622	136	96	1168
Martel, William A., Brandon, Canada. Smoke-consumer	682,477	Sept. 10	1485	337	96	2175
Martens, Peter, New York, N. Y. Making ornamented leather	682,415	Sept. 10	1379	312	96	2151
Martin, Charles B. (See Kelley, John D., assignor.)						
Martin, David W., assignor of one-half to G. H. R. Groke, Portage, Pa. Nut-lock	682,876	Sept. 17	2234	504	96	2315
Martin, Edouard, Paris, France. Manufacture of compound plates of steel or iron and copper	682,632	Sept. 17	1760		96	2253
Martin, Ernest J., Fall River, Mass. Corset-steel	679,977	Aug. 6	497	105	96	1142
Martin, George T., Smith's Falls, Canada. Variable-speed gearing for bicycles	681,718	Sept. 3	101	20	96	1884
Martin, Harry T. (See Green and Martin.)						
Martin, Henry H. (See Feurt and Martin.)						
Martin, James B. (See Johnson and Martin.)						
Martin, John P., Ely, Nev. Dust-excluder	682,478	Sept. 10	1486	337	96	2175
Martin, John S., Baughman township, Ohio. Fence	680,342	Aug. 13	1155	255	96	1289
Martin, Percy P., Snyder, Tex. Sediment-collector for coffee-pots, &c	682,214	Sept. 10	1018	228	96	2086
Martin, Richard D., Alderson, Ind. Ter. Drawing-machine for coke-ovens	681,064	Aug. 20	2542	562, 563	96	1591
Martin, Thomas H., assignor of two-thirds to F. L. Grommer and A. T. De Forest, Cleveland, Ohio. Apparatus for indicating the level of charges in furnaces	680,490	Aug. 13	1417	309	96	1342
Martin, Timothy S., Butte, Mont. Radiator	677,876	July 9	1021	240, 241	96	235
Martin, William B., Fayetteville, Tenn. Type-writer attachment	677,582	July 2	458	109	96	97
Martindale, Edward S., assignor to Kinnear Mfg. Co., Limited, Warren, Pa. Acetylene-gas generator	680,161	Aug. 6	809	180, 181	96	1206
Marvel, Frederick B., *et al.* (See Lyle, William P., assignor.)						
Marzolf, Alfred E., Chicago, Ill. Turn-table	679,179	July 23	3593	802	96	782
Maschinenfabrik Grevenbroich, vormals Langen & Hundhausen. (See Hirt, Ludwig, assignor.)						
Maschinenfabrik Rüti, vormals Caspar Honegger. (See Peter, Julius, assignor.)						
Maslonka, Kornel, Neu-Sandec, assignor of three-fourths to S. Walorski, Rudawa, near Cracow, J. Pilawski and W. von Lewicki, Cracow, Austria-Hungary. Seal-lock	682,560	Sept. 10	1625	372	96	2205
Mason, Arthur J. (See Hoover and Mason.)						
Mason, Buck, Trenton, Mo. Quick-turning vehicle-gear	681,237	Aug. 27	2857	634, 635	96	1675
Mason, Earl P., Newport, R. I. Controlling means for motors	678,013	July 9	1282	293	96	284
Mason, George L., New York, N. Y., assignor to Mason Monogram Company, of New York. Interchangeable electric display apparatus	683,133	Sept. 24	2672	614, 615	96	2454
Mason, Isaac, Brooklyn, N. Y. Washstand	680,584	Aug. 13	1502	330	96	1360
Mason, James A., Philadelphia, Pa., assignor to C. J. Wilson, New York, N. Y. Hydro-carbon-burner	683,134	Sept. 24	2675	615	96	2455
Mason, Joseph M., Philadelphia, Pa. Washer-making machine	679,699	July 30	4022	1038, 1039	96	1016
Mason Monogram Company. (See Mason, George L., assignor.)						
Masters, William F., Brooklyn, N. Y. Tire for vehicle-wheels	682,633	Sept. 17	1761	402	96	2253
Mastin, Israel. (See Hoffman, James H., assignor.)						
Mather, William, Manchester, England. Apparatus for dyeing, &c	682,099	Sept. 3	813	179, 180	96	2026
Mathews, Frank V., Rochester, N. Y. Photographic-plate holder	682,804	Sept. 17	2097	474	96	2318
Mathews, George W., assignor of one-half to W. Stokes, Chicago, Ill. Steam-boiler	679,582	July 30	4822	971	96	951
Mathewson, Albert H. (See Fairbrother and Mathewson.)						
Mathias, Louis J., Toledo, Ohio. Nut-lock	677,461	July 2	228	56	96	50
Mathieu, Joseph C. E., Neuilly, France. Carbureting apparatus for explosion-motors	679,887	July 30	4041	901	96	897
Mathy, Joseph, Washington, D. C. Crate	678,826	July 16	2895	645	96	615
Matson, Frank A., Omaha, Nebr. Scoop-board	678,578	July 16	2396	537	96	523
Mattern, George W., assignor to Crawford, McGregor & Cranby Co., Dayton, Ohio. Golf-club	677,811	July 2	879	210	96	185

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Matthews, Arthur R. (See Hestand and Matthews.)						
Matthews, Frederick I., New York, N. Y. Automatic advertising device	682,416	Sept. 10	1380	312	96	2154
Matthews, Harold C., Pottersville, N. J. Combined talking and picture-exhibiting machine	678,890	July 23	3002	673, 674	96	662
Matthews, James M., San Antonio, Tex. Hitching-post	681,129	Aug. 20	2652	585	96	1613
Matthews, Joseph, New Bedford, Mass. Bicycle-racing machine	678,673	July 16	2593	581, 582	96	592
Matthews, Robert, Manchester, England. Ammunition-hoist	679,632	July 30	4493	1010	96	968
Matthews, Robert, Manchester, England. Mechanical rammer	682,100	Sept. 3	814	180, 181, 182	96	2026
Matthias, William C., assignor to A. H. Leader, H. H. Roland, Reading, and A. Murdock, Hamburg, Pa. Sparking igniter for explosive-engines	682,856	Sept. 17	2199	496	96	2338
Mattimore, Patrick W., *et al.* (See Shoup, James T., assignor.)						
Mauer, Mathias, and W. J. Billings, New York, N. Y. Bushing for electrical conduits	682,215	Sept. 10	1019	228	96	2086
Mauk, William J., Troy, Ala., assignor, by mesne assignments, to Oliver Typewriter Company, Chicago, Ill. Tabulating attachment for type-writers	678,579	July 16	2397	537	96	521
Mauran, Max, Niagara Falls, N. Y., assignor, by mesne assignments, to Castner Electrolytic Alkali Company, of Virginia. Rotary pump	680,722	Aug. 20	1894	416, 417	96	1403
Maurer, George H., Washington, D. C. Bill-file	680,385	Aug. 13	1231	271	96	1301
Maurer, Ruth J., La Crosse, Wis. Depurator	680,723	Aug. 20	1895	417	96	1403
Mauro, John, assignor of one-half to T. F. O'Grady, Paterson, N. J. Toy	677,745	July 2	743	177	96	157
Maxham, Lowell M., and A. B. Upham, Boston, Mass. Traction-motor	678,122	July 9	1498	345, 346	96	326
Maxim, Hiram P., and A. F. Bardwell, Hartford, Conn., assignors, by mesne assignments, to Columbia and Electric Vehicle Company, Jersey City, N. J. Detachable traction-strap	681,173	Aug. 20	2741	607	96	1631
Maxim, Hudson, Brooklyn, N. Y. Cartridge	677,527	July 2	337	82	96	73
Maxim, Hudson, Brooklyn, N. Y. Cartridge	677,528	July 2	338	82, 83	96	73
Maxwell, Robert, assignor of one-half to J. F. Kirkpatrick, Topeka, Kans. Addressing-machine	682,216	Sept. 10	1020	229	96	2086
Maxwell, Walker A., Marianna, Fla. Hook and eye	678,207	July 9	1752	404	96	377
Mayer, Nelson B., Newark, N. J., assignor to American Rubber Filling Company, New York, N. Y. Composition of matter	681,484	Aug. 27	3338	.....	96	1769
Mayers, Charles H., Washington, D. C. Time operating mechanism	679,683	July 30	4590	1031	96	1010
Mayrhofer, Joseph C., assignor to J. C. Cady, Jr., and R. B. Ward, New York, N. Y. Arc-lamp	682,101	Sept. 3	817	182	96	2027
McAlpine, James G., Jr., Gilroy, Cal. Fountain-comb	680,435	Aug. 13	1314	288	96	1321
McArdle, Hugh P., Bainbridge, Ohio. Automatic means for throwing switches	678,782	July 16	2713	611	96	585
McAuliffe, John W., Providence, R. I. Collar-button	679,157	July 23	3355	794	96	774
McBerty, Frank R. (See Scribner and McBerty.)						
McBerty, Frank R., Downers Grove, assignor to Western Electric Company, Chicago, Ill. Calling appliance for telephone-switchboards	678,369	July 16	1976	450, 451	96	426
McBerty, Frank R., Downers Grove, assignor to Western Electric Company, Chicago, Ill. Supervisory signal for telephone systems	682,782	Sept. 17	1949	443	96	2280
McBerty, Frank R., Evanston, assignor to Western Electric Company, Chicago, Ill. Telephone-exchange apparatus	680,879	Aug. 20	2188	482	96	1520
McBerty, Frank R., Evanston, assignor to Western Electric Company, Chicago, Ill. Connection-register for telephone-exchanges	680,880	Aug. 20	2191	483	96	1521
McBerty, Frank R., Evanston, assignor to Western Electric Company, Chicago, Ill. Selective calling-key for party-lines	680,881	Aug. 20	2195	483	96	1521
McBoyle, Joseph, Oakland, Cal. Hose-nozzle	682,317	Sept. 24	3019	691	96	2525
McBride, John H., Des Moines, Iowa. Clothes-line	680,882	Aug. 20	2197	483	96	1522
McBride, Samuel, *et al.* (See Graham, Elias, assignor.)						
McBrien, Frank, Newark, N. J., assignor to Union Switch & Signal Company, Swissvale, Pa. Railway signaling	681,060	Aug. 20	2178	549	96	1578
McCabe, James W., New York, N. Y. Ornamenting cardboard, &c.	677,459	July 2	224	55	96	49
McCafferty, Henry M., Montrose, Colo. Plow	682,783	Sept. 17	1953	443	96	2280
McCaffrey, John, Lawrence, Mass. Hub for friction-clutches	679,060	July 23	3355	747	96	732
McCall, Harry M., assignor to Pittsburgh Gas Engine Company, Pittsburg, Pa. Governor for explosive-engines	679,389	July 30	4044	901, 902	96	897
McCall, James W., Parton, Ill. Machine for straightening empty tin cans	679,772	Aug. 6	101	23	96	1002
McCall, Thomas J., Tarentum, Pa. Wall-tie	679,324	July 30	3887	868	96	863
McCandless, George A. (See Smith, William M., assignor.)						
McCandless, James A., Omaha, Nebr. Automatic sash-lock	677,967	July 2	63	14	96	16
McCann, Thomas E., Philadelphia, Pa. Filter	679,536	July 30	4333	973	96	951
McCargo, Grant. (See Kyle, John A., assignor.)						
McCarron, Charles. (See McCarron, Joseph, C., and J. J.)						
McCarron, John J. (See McCarron, Joseph, C., and J. J.)						
McCarron, Joseph, C., and J. J., New Orleans, La. Oil-press cloth	679,182	July 23	3397	803	96	783
McCarthy, Ed., *et al.* (See Rembert, Henry, assignor.)						
McCarthy, Felix, Pottstown, Pa. Automatic relief-valve	679,390	July 30	4046	902	96	898
McCarthy, James. (See Mussetter, McCarthy, and Holmes.)						
McCartney, William M., Chicago, Ill. Variable friction-gearing	679,509	July 30	4390	986	96	967
McCarty, Richard J., Kansas City, Mo. Railway-rail joint	678,006	July 9	1273	292	96	282
McCarty, William, Chicago, Ill. Box for preserving specimens	681,400	Aug. 27	3161	705	96	1735
McCaslin, Elton W., assignor to Morgan & Wright, Chicago, Ill. Photographic-printing frame	683,059	Sept. 24	2550	581, 582	96	2490
McCathie, Fannie E., Port Jervis, N. Y. Collar	682,111	Sept. 3	892	185	96	2089
McCauley, Thomas H., Port Arthur, Canada. Axle-lubricator	680,388	Aug. 13	1234	271	96	1305
McCausland, Joseph H., Lampasas, Tex. Churn	677,684	July 2	633	152	96	193
McCheeley, Hugh M., Berea, Ohio. Horseshoe	680,801	Aug. 20	2051	447	96	1492
McClarty, Rufus E., and T. S. Gray, Dodd, Tex. Barrel-stand	681,246	Aug. 27	2880	638	96	1679
McClaskey, Riley, Rockwood, Wyo. Vehicle	677,595	July 2	461	110	96	97
McClatchey, Augustus F., Aurora, assignor to F. M. Steele and E. D. Owen, Chicago, Ill. Electric prospecting apparatus	681,654	Aug. 27	3698	821	96	1887
McCleen, Samuel N., Cleveland, Ohio. Gun-carriage for heavy ordnance	678,909	July 23	3168	708, 709	96	695
McCleer, Lawrence N. (See McCleer, Neil T. and L. N.)						
McCleer, Neil T. and L. N., Gregory, Mich. Frame building	681,247	Aug. 27	2881	638	96	1680
McClellan, Jackson, Brooklyn, N. Y. Bookbinding-machine	680,802	Aug. 20	2052	447, 448	96	1492
McClelland, Joseph H., Wayne, N. J. Bunghole stopper or seal for metallic kegs	683,182	Sept. 24	2753	633	96	2470
McCloskey, William, Essex, Canada. Device for stretching wire	679,856	Aug. 6	263	56	96	1096
McCloud, Sidney, Chicago, Ill. Elastic horseshoe	683,318	Sept. 24	3021	691	96	2526

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
McCloud, Smith N., assignor to Davis Chair Company, Marysville, Ohio. Adjustable spring-back chair	681,599	Aug. 27	3475	772	96	1797
McClure, Lewis F. (See Haward, Robert E., assignor.)						
McClure, William G., Beaverfalls, Pa. Burglar-alarm	683,319	Sept. 24	3024	692	96	2527
McClurg, Frank R., Pittsburg, Pa. Hose-bridge	679,570	July 30	4391	986	96	967
McClurg, William O., *et al.* (See Brincklé, Addington L., assignor.)						
McCobb, Frank W. (See McCobb, William P., assignor.)						
McCobb, William P., assignor to F. W. McCobb, Boston, Mass. Attachment for stoves	678,123	July 9	1502	346	96	326
McCollam, Patrick G., Easton, Conn. Propelling mechanism for bicycles	680,725	Aug. 20	1899	418	96	1464
McColough, Nelson J., *et al.* (See Shafer, Frank B., assignor.)						
McConick, Frank. (See Lawrence, Charles S., assignor.)						
McConnell, George. (See Bachmann and McConnell.)						
McConnell, James C., Cornelia, Ga. Manufacturing leather	677,868	July 2	64	.....	96	16
McConnell, John, *et al.* (See Walsh, William A., assignor.)						
McConway and Torley Company. (See Buhoup, Harry C., assignor.)						
McCool, William A., Beaver Falls, Pa., assignor, by mesne assignments, to Shelby Steel Tube Company, Cleveland, Ohio. Machine for drawing metal	678,753	July 16	2715	611	96	586
McCool, William A., Beaver Falls, Pa., assignor, by mesne assignments, to Shelby Steel Tube Company, Cleveland, Ohio. Die for metal-drawing machines	678,780	July 16	2778	625	96	597
McCord, Charles J., Grand Rapids, Minn., assignor of one-half to M. M. Mulhall, Baltimore, Md. Brush-handle	682,264	Sept. 10	1116	253	96	2104
McCormick, Wallace H., Budd, Ill. Brooder	681,455	Aug. 27	3287	731	96	1760
McCourt, Newton W., Bradford, Pa. Hinge	677,685	July 2	635	152	96	134
McCrea, Hiram, New Richmond, Ind. Musical instrument	683,320	Sept. 24	3025	692	96	2527
McCrory, William J., Rochester, Pa. Rail-joint	680,538	Aug. 13	1510	332	96	1362
McCue, Roger, Alpine, Tex. Wire-fencing tool	681,806	Sept. 3	292	58	96	1924
McCullough, John L., Brooklyn, N. Y., assignor to Automatic Target Machine Company, of New York. Target apparatus	679,325	July 30	3886	868, 869	96	863
McCullough, Piercy, B., Philadelphia, Pa. Device for forming models of crownless tooth-roots	680,389	Aug. 13	1235	272	96	1305
McCully, Richard P., Brooklyn, N. Y. Bristle-probang	680,936	Aug. 20	2295	505	96	1542
McCune, James B., Newcastle, Pa. Railway-rail	679,391	July 30	4048	903	96	898
McCune, Orlando B., and C. Mull, Iola, Kans. Bicycle-fan	681,565	Aug. 27	3473	772	96	1796
McDaniel, Bill H., Kosse, Tex. Churning-machine	677,586	July 2	463	111	96	98
McDaniel, John W. (See Holt and McDaniel.)						
McDermott, Charles H., Duluth, Minn. Railway-track	681,567	Aug. 27	3478	772	96	1797
McDonald, Alexander C., *et al.* (See Titus and Covert, assignors.)						
McDonald, James C., Davenport, Iowa. Skirt and waist supporter	680,883	Aug. 20	2198	484	96	1522
McDonnell, Patrick F. (See McMillin, Henry C., assignor.)						
McDowell, James L., assignor of one-half to C. H. Dodge, St. Louis, Mo. Spring-motor vehicle	679,773	Aug. 6	102	24	96	1002
McElroy-Grunow Electric Railway System. (See Grunow, William, Jr., assignor.)						
McElroy, Jackson A. (See McElroy, Ransom M. and J. A.)						
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Electric heater	682,649	Sept. 17	2365	534	96	2372
McElroy, Ransom M. and J. A., Newton, Miss. Locomotive ash-pan	683,218	Sept. 24	2819	649	96	2483
McElroy, Thomas L., Brooklyn, assignor of two-thirds to F. A. Thomas, New York, and T. Honegger, New Brighton, N. Y. Trolley	677,881	July 9	1027	242	96	236
McEvoy, James F., assignor to Haney-Campbell Company, Dubuque, Iowa. Package-fastener	678,895	July 23	3020	676	96	656
McFadden, William H., assignor to Consolidated Mining and Dredging Company, Pittsburg, Pa. Calsson	683,219	Sept. 24	2820	649	96	2484
McFarland, Charles A., *et al.* (See Wyman, George H., assignor.)						
McFarland, James D., Jr., assignor of one-half to J. Bruckman, San Francisco, Cal. Wrench	682,384	Sept. 10	1319	298	96	2142
McFarland, James D., Jr., assignor of one-half to J. Bruckman, San Francisco, Cal. Rotary explosive-engine	682,385	Sept. 10	1320	298	96	2142
McFarland, James M., Los Angeles, Cal. Metal-worker's protractor-pattern	678,018	July 9	1230	295	96	285
McGhee, John W., Adrian, Mo. Automatic closure for elevator-hatchways	682,858	Sept. 17	2201	497	96	2338
McGovern, George, Richmond, Va. Portable gas-lamp	679,061	July 23	3350	748	96	732
McGovern, George, Richmond, Va. Combination water-cooler	680,890	Aug. 13	1247	272	96	1305
McGrath, John T., Stratford, Canada. Flue-cutter	680,166	Aug. 6	826	183	96	1200
McGregor, Ewen, Mangaonoho, New Zealand. Apparatus for excavating, dredging, transporting, and elevating earth, &c	678,419	July 16	2073	471	96	455
McIlvain, George H., *et al.* (See Rawles, John, assignor.)						
McIntosh, Thomas M., Pontiac, Ill. Thimble	678,896	July 23	3021	676	96	656
McIntyre, Robert L., Toronto, Canada. Automatic fire-shutter	678,678	July 16	2593	583	96	593
McIntyre, Robert S., Riverside, Cal. Tree-prop bracket	678,679	July 16	2599	584	96	594
McKaig, Eddy T. (See Gilfillan and McKaig.)						
McKallip, John C., Athens, Ohio. Gas-burner	678,824	July 16	2500	558, 559	96	544
McKean, John O., assignor to Foster Machine Company, Westfield, Mass. Winding-machine	678,507	July 16	2256	507, 508	96	495
McKean, John O., assignor to Foster Machine Company, Westfield, Mass. Winding-machine	681,723	Sept. 3	112	21, 22	96	1886
McKee, Henry B., Syracuse, N. Y. Ice-tongs	679,181	July 23	3508	803	96	783
McKee, Joseph C. (See Lind and McKee.)						
McKenna, Edward D., Brooklyn, N. Y. Manifold-book	682,222	Sept. 10	1037	234	96	2089
McKenna, William S., Mineralridge, Ohio, assignor of one-half to H. Whiteley, Wilmington, Del. Heating-furnace	680,726	Aug. 20	1901	418	96	1464
McKenney, Deborah P., Boston, Mass. Combination corset-stay and dress-holder	679,480	July 30	4209	946	96	928
McKenzie, Charles D., Sabina, Ohio. Egg-tester	680,498	Aug. 13	1427	313	96	1344
McKenzie, Dougal J., and F. Sargent; said McKenzie assignor to McKenzie Furnace Company, Chicago, Ill. Furnace	679,240	July 23	3704	826	96	804
McKenzie Furnace Company. (See McKenzie and Sargent, assignors.)						
McKenzie, James A., Hancock, Mich. Rotary engine	679,392	July 30	4049	903	96	898
McKenzie, John, Troy, N. Y. Hydrant	679,466	July 30	4179	938	96	922
McKibben, Charles R., Pittsburg, Pa. Pipe-bending machine	681,334	Aug. 27	3060	678	96	1715
McKibbin, George. (See Paglughl, Anthony, assignor.)						
McKinley, Joseph S., assignor of one-half to E. Joos, G. W. Handman, and W. Wehrman, Cincinnati, Ohio. Ink-distributer	678,019	July 9	1292	296	96	285
McKinney, William C., New Brighton, assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Drain-board	678,008	July 9	1277	292	96	283
McKinney, William C., and J. F. Whitehead, New Brighton, assignors to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Tub-foot fastener	678,007	July 9	1275	292	96	283

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
McKnight, Thomas R., assignor to Western Wheeled Scraper Company, Aurora, Ill. Wheeled scraper	681,886	Sept 3	434	87,88	96	1350
McKnight, William, Ebensburg, Pa. Saw-tooth gage	679,634	July 30	4496	1011	96	980
McKnight, William A., Liverpool, England. Rail-point	682,112	Sept. 3	833	185, 186	96	2030
McLachlan, John, Chicago, Ill. Paving-block	681,248	Aug. 27	2882	638	96	1680
McLaughlin, Andrew C., Austin, Tex. Making ammonium ichthyol sulfonate	681,568	Aug. 27	3480	.....	96	1716
McLaughlin, John J. (See Long, Robert, assignor.)						
McLean, Charles D., Roxbury, Mass. Shingle-bundler	682,734	Sept. 17	1954	443	96	2290
McLeod, William S., Kingsville, Canada. Pump	678,069	July 9	1278	293	96	283
McLoughlin, John, Boston, Mass. Blowpipe	677,686	July 2	636	152	96	134
McManus, William V., New York, N. Y. Preparing rubber adulterant	680,266	Aug. 13	1006	226	96	1260
McMillin, Henry C., assignor of one-half to P. F. McDonnell, Clarksburg, W. Va. Plastering composition	678,010	July 9	1279	.....	96	283
McMullin, Frank R., Chicago, Ill. Electric sparker for gas-engines	682,336	Sept. 10	1243	280	96	2126
McNall, Frank E., Minneapolis, Minn., assignor to C. J. Gotshall, trustee, Bloomington, Ill. Thresher and separator	678,897	July 23	3021	677, 678	96	666
McNally, Robert J. (See Schaffer, Philip F., assignor.)						
McNamara, Edward M., and J. D. O'Reilly, Chicago, Ill. Acetylene-gas generator	679,774	Aug. 6	104	24	96	1062
McNamara, John A., Brighton, Wis. Hub-attaching device	681,569	Aug. 27	3480	773	96	1798
McNamee, James A., Cambridge, Mass. Making damp-proof cellars or underground compartments	680,391	Aug. 13	1238	272	96	1306
McNeal, Seth D., Jonesville, Mich. Memorial tablet	682,950	Sept. 17	2996	534	96	2373
McNeil, James, Allegheny, Pa. Valve-gear for explosive-engines	682,880	Sept. 17	2245	506, 507	96	2347
McNutt, John F., Warren, assignor to Harris Automatic Press Company, Niles, Ohio. Feeder for printing-presses	678,754	July 16	2717	612	96	580
McPartland, John H., Burlington, Iowa. Rail-clutch	678,020	July 9	1295	296	96	280
McPherson, Alexander L., Oakland, Cal. Plug for casings of oil-wells	679,398	July 30	4050	904	96	808
McPherson, Arthur G., Highland Park, assignor of one-half to G. B. Foster, Chicago, Ill. Boiler-feed regulator	680,347	Aug. 13	1102	256	96	1200
McPherson, J. Gordon, Toronto, Canada. Speculum	682,832	Sept. 17	2158	487	96	2330
McQuarrie, James L., assignor to Western Electric Company, Chicago, Ill. Telephone-exchange system	681,724	Sept. 3	114	22	96	1886
McRae, Kate H., Cripplecreek, Colo. Cake-beater	677,421	July 2	150	35	96	34
McRay, William S., Cosmopolis, Wash. Display rack or stand	679,008	July 23	3222	721	96	703
McReynolds, John C. (See Price, James T., assignor.)						
McRoberts, Mortimer, San Francisco, Cal. Packing-case for incandescent mantles	682,735	Sept. 17	1955	444	96	2290
McRoy, John T., Chicago, Ill. Underground conduit	678,508	July 16	2260	508	96	495
McRuer, Duncan, Pauls Valley, Ind. Ter. Game apparatus	681,570	Aug. 27	3482	773	96	1798
McSherry Mfg. Company. (See Moehring, Christ, assignor.)						
McVay, Thomas M., Summerfield, Ohio. Neck-yoke fastening	677,369	July 2	66	14	96	16
McVea, Harris, Vanceville, La. Fertilizer-distributer	681,571	Aug. 27	3481	774	96	1799
McWane, James R., Lynchburg, Va. Molding and casting apparatus	682,484	Sept. 10	1403	239, 240	96	2177
McWane, James R., Lynchburg, Va. Molding apparatus	682,485	Sept. 10	1497	340	96	2177
McWane, James R., Lynchburg, Va. Molding apparatus	682,486	Sept. 10	1501	340, 341	96	2179
McWhorter, Tyler. (See Zearing and McWhorter.)						
Meals, Jacob P., Rawlings, Wyo. Animal-hopple	677,583	July 2	459	110	96	97
Mears, Elmer E. E., Munhall, Pa. Hydraulic valve mechanism	679,767	Aug. 6	94	22	96	1061
Mears, Elmer E. E., Munhall, Pa., assignor of one-half to G. M. Houpt, Mansfield, Ohio. Mill appliance	681,065	Aug. 20	2548	563	96	1594
Mechanical Accountant Company. (See Turck, Joseph A., assignor.)						
Mechanical Improvements Company. (See Hess, Edward B., assignor.)						
Mechanical Improvements Company. (See Hess and Stoughton, assignors.)						
Medlik, Anton, Dresden, Germany. Pianoforte	680,876	Aug. 20	2183	480, 481	96	1519
Meehan, James. (See Farley and Meehan.)						
Meehan, John, Brooklyn, N. Y. Junction-box and adapter for electrical installation	679,057	July 23	3348	746	96	731
Mehlsen, Christian, Brooklyn, N. Y. Depth-indicator for vessels	680,491	Aug. 13	1418	309	96	1342
Meigs, John F., South Bethlehem, and S. A. S. Hammer, Bethlehem, Pa., assignors to Bethlehem Steel Company, Bethlehem, Pa. Breech mechanism	680,386	Aug. 13	1232	271	96	1304
Meigs, Mary L. (See Meigs, Nathan J., assignor.)						
Meigs, Nathan J., assignor of one-half to M. L. Meigs, Westhaven, Conn. Carpet-fastener	682,805	Sept. 17	2068	474	96	2318
Meinecke, Christian W. (See Hogan and Meinecke.)						
Meinecke, Christian W., Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Bottle-stopper	680,162	Aug. 6	812	181	96	1207
Meinecke, Christian W., Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Ice or water bag	680,610	Aug. 13	1027	358	96	1384
Meinecke & Co. (See Hogan and Meinecke, assignors.)						
Meinecke & Co. (See Meinecke, Christian W., assignor.)						
Meinhardt, J. D. (See Reinhart, Max, assignor.)						
Meisel, Francis, Boston, Mass., assignor to Kidder Press Company, of West Virginia. Inking apparatus for printing-presses	677,877	July 9	1022	241	96	235
Meistrell, Henry F., New York, N. Y. Folding crib	677,675	July 2	621	149	96	131
Melaun, Franz, Charlottenburg, Germany. Rail-joint	679,087	July 23	3425	763, 764	96	746
Melen, Charles F., Evergreen, assignor to J. N. Darrah, New York, N. Y. Type-writing machine	682,830	Sept. 17	2151	486, 487	96	2329
Meleney, George B., Chicago, Ill., assignor to Library Bureau, Boston, Mass. Card-ledger desk	677,796	July 2	825	197	96	174
Mellen, George E., Chicago, Ill. Tripod-stay	679,058	July 23	3349	747	96	731
Mellis, Andrew B., Glasgow, Scotland. Boy's drill-rifle	679,768	Aug. 6	97	22	96	1061
Mellott, John W., Pittsburg, Pa. Hall gas-heater	679,684	July 30	4593	1031	96	1011
Meloy, John M., *et al.* (See Day and Neal, assignors.)						
Mendenhall, Clarence M., Bloomington, Ill. Car-door	679,633	July 30	4495	1011	96	980
Mendenhall, Elbert V., Los Angeles, Cal. Standing note-book	681,882	Sept. 3	329	67	96	1931
Mengis, Morris C., Sheepshead Bay, N. Y. Means for automatically reviving exhausted telephone pulsations	682,332	Sept. 10	1237	279	96	2125
Mengis, Morris C., Brooklyn, N. Y. Telephone-transmitter	682,333	Sept. 10	1240	280	96	2125
Mennessier, Joseph E., Paris, France. Knife-sharpening device	680,492	Aug. 13	1419	309, 310, 311	96	1342
Mercader, Camille, Braddock, and C. L. Wilmot, Pittsburg, Pa. Skelp-handling apparatus	678,794	July 16	2785	627	96	598

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mercer, John S., Asheville, N. C. Combined baby carriage and cradle	682,479	Sept. 10	1486	337, 338	96	2175
Merck, Firm of E. (See Pip, Wilhelm, assignor.)						
Meredith, Glenn. (See Lippincott and Meredith.)						
Mereness, Henry E., Albany, N. Y. Making soap cakes	680,181	Sept. 24	2750	638	96	2470
Mergenthaler Linotype Co. (See Muehleisen, Carl, assignor.)						
Mergenthaler Linotype Co. (See Vinton, Frank A., assignor.)						
Mergenthaler Linotype Company. (See Mergenthaler, Ottmar, assignor.)						
Mergenthaler Linotype Company. (See Rogers, John R., assignor.)						
Mergenthaler, Ottmar, Baltimore, Md., assignor, by mesne assignments, to Mergenthaler Linotype Company, New York, N. Y. Linotype-machine	678,268	July 9	1758	404, 405, 406, 407	96	877
Meriam, Joseph B., Cleveland, Ohio. Apparatus for charging storage batteries of automobile vehicles	680,535	Aug. 13	1503	330	96	1360
Merk, Martin, Amsterdam, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Ribbon-spool and ribbon	681,719	Sept. 3	105	20	96	1885
Merrick, Frank A., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Commutator for dynamo-electric machines	678,904	July 23	3157	707	96	688
Merrick, Frank A., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Circuit-breaker	682,217	Sept. 10	1026	229, 230	96	2087
Merrick, Frank A., and E. W. Stull, Johnstown, Pa., assignors to Lorain Steel Company, of Pennsylvania. Controller for electric-railway motors	681,453	Aug. 27	3280	729, 730	96	1758
Merrick, Frank W., Boston, Mass. Seam-closing strip	679,978	Aug. 6	499	106	96	1143
Merrill, Cassius M., Louisville Ky. Computing-scale	680,796	Aug. 20	2089	445, 446	96	1490
Merrill, Elijah H., San Francisco, Cal. Removable valve-seat	678,014	July 9	1285	294	96	284
Merrill, George A., South Framingham, Mass. Railway season-ticket	682,102	Sept. 3	818	182	96	2027
Merrill, Grant M., Paterson, N. J. Combined strainer and valve	678,001	July 9	1264	200	96	281
Merrill, John C., Westphalia, Kans. Steam and gas generating apparatus	677,878	July 9	1024	241	96	235
Merry, George G. S., Boston, Mass. Weighing, lifting, and grip machine	678,345	July 9	1027	442, 443	96	409
Mershon, Ralph D., New York, N. Y., assignor to Westinghouse Electric & Manufacturing Company, of Pennsylvania. Electromagnetic motor or reciprocating engine	680,797	Aug. 20	2043	446	96	1491
Merz, Frank J., Newark, N. J. Combined match-holder and ash-receiver	680,933	Aug. 20	2289	503, 504	96	1541
Meserve, John B., *et al.* (See Sundean, John M., assignor.)						
Messenger, Elmar A., *et al.* (See Coun, Willard H., assignor.)						
Messenger Press Company. (See Woodruff, Leslie B., assignor.)						
Messer, Charles, Coraopolis, Pa. Hot-air furnace	677,676	July 2	622	149	96	131
Messinger, George F., Tatamy, Pa. Threshing-machine	681,238	Aug. 27	3462	635	96	1676
Messiter, Edwin H., San Luis Potosi, Mexico. Storing and averaging materials in bulk	677,677	July 2	624	149, 150	96	132
Messmer, Ferdinand, St. Louis, Mo. Cooling-coil	682,634	Sept. 17	1762	403	96	2253
Mestern, Hugo, *et al.* (See Fischer, Gustav, assignor.)						
Metallic Web Company. (See Felt, George H., assignor.)						
Metcalf, Abraham T., and V. D. Simons, Battlecreek, Mich. Burglar-proof device for safes	680,962	Aug. 20	2387	526	96	1560
Metcalfe, Arthur W., Belfast, Ireland. Yarn-winding machine	679,428	July 30	4100	916, 917	96	908
Metcalfe, John, and T. Bell, Roscoe, Pa. Barrel-carrier	678,416	July 16	2069	470	96	455
Methven, Daniel, Oakley, Cal. Snap-hook	679,088	July 23	3427	764	96	746
Metropolitan Gas-Meters. (See Forster, John D., assignor.)						
Metteta1, Frederick. (See Williams, John E., assignor.)						
Mettler, Adolf. (See Mettler, Caspar W. and A.)						
Mettler, Caspar W. and A., assignors to J. and F. W. Dart, Hartford, and F. C. Rockwell, West Hartford, Conn. Composition of matter for fire-kindlers	678,346	July 9	1930	.....	96	409
Metz, Herman A., Brooklyn, N. Y. Electric switch	682,729	Sept. 17	1945	442	96	2288
Metzel, Anton, Wheatland, Minn. Sulky-cultivator	681,239	Aug. 27	2868	635, 636	96	1676
Meunier, Alfred J., Cleveland, Ohio. Bicycle-fork	680,493	Aug. 13	1421	311	96	1342
Meunier, Emile and E., Roubaix, France. Comb-dabbing mechanism	682,946	Sept. 17	2861	533	96	2372
Meunier, Eugene. (See Meunier, Emile and E.)						
Mey, Frederick H. C., Buffalo, N. Y. Malting and drying apparatus	677,787	July 2	827	197, 198	96	175
Meyenberg, Alexander. (See Green and Meyenberg.)						
Meyenberg, John, Kent, Wash. Making substitutes for mothers' milk	682,108	Sept. 3	820	.....	96	2027
Meyer, Actiengesellschaft, Paul. (See Jahnz, Erwin H., assignor.)						
Meyer, Alfred J., assignor of one-fourth to A. W. Krahn, Milwaukee, Wis. Adding-machine	681,240	Aug. 27	2865	636	96	1676
Meyer, Emil, Jersey City, N. J., assignor to E. R. Meyer, Nyack, N. Y. Auxiliary pot-handle	680,056	Aug. 6	623	136	96	1168
Meyer, Emma R. (See Meyer, Emil, assignor.)						
Meyer, Florian, assignor of one-half to F. L. Atherton, Paterson, N. J. Twisting and doubling machine	682,947	Sept. 17	2362	533	96	2372
Meyer, Frederick W., Jersey City, N. J. Marine fire-indicating system	678,787	July 16	2775	625	96	596
Meyer, Johann F. W., Scheune, near Stettin, Germany. Chemical apparatus	679,388	July 30	4043	901	96	897
Meyer, Joseph, Bondhill, Ohio. Heating-diaphragm	680,494	Aug. 13	1422	311	96	1343
Meyer, Max, New York, N. Y. Quinin methyl-dihydrazin perchlorate and making same	681,505	Aug. 27	3374	.....	96	1775
Meyer, Otto A., Milwaukee, Wis. Horseshoe	679,922	July 30	3884	868	96	862
Meyer, Paul, H. Hartmann, and R. Abrahamsohn, Berlin, Germany. Electrical hot-wire-measuring instrument	679,769	Aug. 6	98	23	96	1061
Meyer-Sniffen Company. (See Bunting, William, Jr., assignor.)						
Meyer, Svend M. (See Brigham and Meyer.)						
Meyer, Svend M., assignor of one-half to T. A. Cayton, Brooklyn, N. Y. Electric-arc lamp	679,700	July 30	4623	1039	96	1017
Meyer, William C., Boston, Mass. Jack for holding boots or shoes	677,550	July 2	398	95	96	85
Meyers, Nicholas, assignor to P. C. Meyers, Buffalo, N. Y. Air-pump	681,398	Aug. 27	3161	705	96	1735
Meyers, Peter C. (See Meyers, Nicholas, assignor.)						
Meyssonnier, Jean L. A., Privas, France. Apparatus for filling or emptying reservoirs automatically	682,480	Sept. 10	1488	338	96	2176
Michael, Otto, Freiburg, Germany. Crucible-furnace	678,674	July 16	2593	582	96	562
Michaelson, James M., assignor of one-third to W. Allan, North Tonawanda, N. Y. Egg-timer	679,701	July 30	4625	1040	96	1017
Michaud, Henri, Limoges, France, assignor to Potters Decorative Supply Company, Limited, Hanley, England. Machine for coloring or powdering lithographic or other transfer sheets	677,678	July 2	625	150	96	132

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Michelsen, John H., and M. L. Borglum, Butte, Mont. Feed-box for ore-concentrators	681,561	Aug. 27	3467	770	96	1795
Michigan Barrel Company. (See Coffin, Charles P., assignor.)						
Michigan Malleable Iron Company. (See Handiges, Philip T., assignor.)						
Middaugh, William A., Kalamazoo, Mich. Hernial truss	677,879	July 9	1025	242	96	236
Middleton, George, London, England. Base-frame for absorbing vibration or tremor	682,104	Sept. 3	821	182 / 183	96	2027
Middleton, James C., East Palatka, Fla. Device for cleaning ships' bottoms	681,502	Aug. 27	3468	770	96	1795
Middleton, Lee, Clarksville, Mo. Cheese-press	678,965	July 23	3158	707	96	693
Midgley, Frederick W., assignor of one-half to G. P. Gehring, Philadelphia, Pa. Carding-machine	682,806	Sept. 17	2008	474	96	2318
Mignault, Armand, Salem, Mass. Lung-protector	681,806	Sept. 3	288	58	96	1923
Milburn, Thomas T., Columbia, S. C. Cotton-chopper	680,536	Aug. 13	1505	331	96	1361
Miles, Walter T., Lawrence, Mass. Calendering-machine	680,495	Aug. 13	1423	312	96	1343
Milkman, George W., New York, N. Y., assignor to C. E. Kilbourne, Fairhaven, Vt. Combination massage-roller and exerciser	681,331	Aug. 27	3055	677	96	1714
Millard, James W., *et al.* (See Pocock, Stephen H., assignor.)						
Miller, Albert W. W. (See Slocomb, Charles E., assignor.)						
Miller, Alexander B., Newark, N. J. Electrical call or alarm device	680,059	Aug. 6	624	137	96	1169
Miller, Alexander C., *et al.* (See Wade, Harry C., assignor.)						
Miller, Alfred P., assignor to Miller Car Lock & Seal Company, Chicago, Ill. Car-seal	679,979	Aug. 6	500	106	96	1142
Miller, Andrew H., assignor of one-half to L. P. Burrows, Chesaning, Mich. Incandescent electric lamp	678,320	July 9	1872	481	96	308
Miller, Asbury R., Lockhaven, Pa. Suspenders	681,924	Sept. 3	505	104	96	1906
Miller, Benjamin C., Cumberland, Md. Bandaging-table	679,980	Aug. 6	501	106	96	1143
Miller Car Lock & Seal Company. (See Miller, Alfred P., assignor.)						
Miller, Conrad, Leadville, Colo. Hub-attaching device	682,105	Sept. 3	822	183	96	2028
Miller, Frank, assignor of two-thirds to F. V. Chappell and T. E. Hickey, New London, Conn. Combined chock and guide	681,399	Aug. 27	3163	705	96	1735
Miller, George H., Bloomington, Ill. Water-closet-flushing apparatus	680,459	Aug. 13	1355	296	96	1330
Miller, Henry C., *et al.* (See Bowers, John, assignor.)						
Miller, Henry C., Waterford, N. Y. Collar-trimming machine	678,002	July 9	1265	291	96	281
Miller, Henry E., assignor of one-half to J. W. Lockhart, Kansas City, Mo. Machine for molding popcorn	682,481	Sept. 10	1489	338	96	2176
Miller, Henry V., *et al.* (See Wade, Harry C., assignor.)						
Miller, Jacob H. (See Miller, John C., assignor.)						
Miller, Jacob W., assignor of one-half to E. Huber, Marion, Ohio. Harrow	679,854	Aug. 6	259	56	96	1095
Miller, James E., Edgewood Park, Pa., assignor to Westinghouse Electric & Manufacturing Company, of Pennsylvania. Mechanism for generating variable electromotive force	680,798	Aug. 20	2045	446	96	1491
Miller, John A., Baltimore, Md., assignor of one-third to W. H. Coleman and W. M. Wilson, Washington, D. C. Closure-controlling apparatus	683,135	Sept. 24	2677	615 / 616	96	2455
Miller, John C., assignor to J. H. Miller, Canton, Ohio. Sterilizing liquids	678,891	July 23	3006	674	96	694
Miller, John C., assignor to J. H. Miller, Canton, Ohio. Apparatus for sterilizing liquids	678,892	July 23	3008	675	96	694
Miller, John C., assignor to J. H. Miller, Canton, Ohio. Apparatus for sterilizing and cooling liquids	678,893	July 23	3010	675	96	694
Miller, John D., assignor to Belle Pre Bottle Company of Washington, D. C., Washington, D. C. Gloss-molder's tool	681,454	Aug. 27	3285	731	96	1759
Miller, John J. A., Denver, Colo. Wrench	677,529	July 2	342	83	96	73
Miller, John W., assignor of one-half to G. W. Dillow, Dongola, Ill. Handle for saw-blades	677,679	July 2	627	150	96	132
Miller, Michael J., *et al.* (See Sewell and Seger, assignors.)						
Miller, Thomas S., South Orange, N. J., and J. H. Dickinson, Atlanta, Ga. Hoisting and conveying device	680,034	Aug. 20	2291	504	96	1542
Miller, Walter H., Orange, N. J. Platform-motor for phonographs, &c	680,090	Aug. 6	627	137 / 138	96	1169
Millhiser, Clarence, and C. L. A. Doeppe, assignors to Millhiser Manufacturing Company, Richmond, Va. Bag-machine	678,788	July 16	2777	625	96	597
Millhiser Manufacturing Company. (See Millhiser and Doeppe, assignors.)						
Millingar, Henry, Merchantville, N. J. Flower-pot	681,066	Aug. 20	2350	564	96	1503
Mills, Anson, Washington, D. C. Seamless woven pocket	682,877	Sept. 17	2236	504 / 505	96	2345
Mills, Anson, Washington, D. C., and T. C. Orndorff, Worcester, Mass. Cartridge belt or bandolier	677,680	July 2	628	151	96	133
Mills, John D., Aransas Pass, Tex. Churn	682,334	Sept. 10	1241	280	96	2126
Mills, William, Elizabeth, assignor to Eastern Carbon Works, Rahway, N. J. Electric battery	682,417	Sept. 10	1882	312	96	2154
Mills, William C., Rowlett, Tex. Cotton-seed planter	680,496	Aug. 13	1425	312	96	1343
Milmoe, Michael J., and W. S. Porter, Chicago, Ill. Fluid-clutch	681,422	Aug. 27	3205	713 / 714	96	1743
Milner, Joseph K. (See Watkins, Orla H., assignor.)						
Milton Bradley Company. (See Hastings, Cornelius C., assignor.)						
Mims, Giles D. (See Pope and Mims.)						
Mingler, Frank, Leetonia, Ohio. Railway-tie	680,460	Aug. 13	1358	296 / 297	96	1331
Minium, Allen L., Downing, Mo. Cream-separator	681,720	Sept. 3	107	21	96	1865
Minns, Walter J., New York, N. Y. Combined sink and washtub	682,482	Sept. 10	1491	339	96	2176
Minor, Jesse, Pittsburg, Pa. Hockey-stick	682,807	Sept. 17	2100	474	96	2318
Minor, Jesse C., Ware, Mass. Checkrein-connector	681,485	Aug. 27	3339	741	96	1769
Minton, Daniel J. (See Searles and Minton.)						
Minturn, Joseph A., assignor to Oxypolar Company, Indianapolis, Ind. Therapeutic battery	683,216	Sept. 24	2815	648	96	2483
Mitchell, Albion L. F., East Boston, Mass., assignor of one-half to C. W. Aiken, East Orange, N. J. Weighing-machine	679,154	July 23	3547	791 / 792	96	772
Mitchell, Alexander L., Rumford Falls, Me. Electric mandolin-player	677,584	July 2	460	110	96	97
Mitchell Bissell Co. (See Mitchell, Henry R., assignor.)						
Mitchell, David, assignor of fifty-one one-hundredths to W. and E. A. Reeves, New Haven, Conn. Dust-pan	678,849	July 16	2918	657	96	626
Mitchell, Frank E., Oshkosh, Wis. Globe	680,461	Aug. 13	1360	297	96	1331
Mitchell, Frank H., New York, N. Y. Lock for cigar or other boxes	679,090	July 23	3276	738	96	716
Mitchell Gas Generator and Burner Company. (See Mitchell, Willis, assignor.)						
Mitchell, Henry R., Haddonfield, N. J., assignor to Mitchell-Bissell Co., New York, N. Y. Line-guide for fishing-rods	682,730	Sept. 17	1946	442	96	2288
Mitchell, J. A., *et al.* (See Johnson, William H., assignor.)						
Mitchell, John, Jr. (See Gardner, Joshua G., assignor.)						
Mitchell, John E., assignor to Mitchell-Parks Manufacturing Company, St. Louis, Mo. Dust-collector	683,313	Sept. 24	3010	688 / 689	96	2521

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Mitchell, John E., assignor to Mitchell-Parks Mfg. Co., St. Louis, Mo. Dust-collector	683,314	Sept. 24	3014	689 / 690	96	2525
Mitchell-Parks Manufacturing Company. (See Mitchell, John E., assignor.)						
Mitchell, William C. (See Harrisson, George A., assignor.)						
Mitchell, Willis, Maiden, assignor to Mitchell Gas Generator and Burner Company, Boston, Mass. Vapor-burner	681,833	Sept. 3	331	67	96	1882
Mitscherlich, Alexander, Freiburg, Germany. Utilizing waste sulfite liquor and product therefrom	681,241	Aug. 27	2869	617	96	1677
Mitzner, Ellsworth A., Thelma, Ind. Rail-joint	679,902	Aug. 6	349	74	96	1113
Mix, Edward H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Combined time and combination lock	677,363	July 2	57	13	96	15
Mixuer, André, Graz, assignor to C. P. Goerz, Friedenau, Germany. Photographic magazine-camera	677,460	July 2	226	55, 56	96	49
Mjöen, John F. T., Christiania, Norway. Spitting-pot	681,333	Aug. 27	3059	678	96	1715
Moberg, Fred E. (See Moberg, Thure F. and F. E.)						
Moberg, Thure F. and F. E., Boston, Mass. Spinning-ring	682,418	Sept. 10	1883	312	96	2155
Mockridge, Joseph B., New York, N. Y., assignor of one-half to C. L. Duenkel, Jersey City, N. J. Combined car and grain door	679,855	Aug. 6	260	50	96	1096
Modern Tool Company. (See Wallace, Jacob B., assignor.)						
Moehring, Christ, assignor to McSherry Mfg. Company, Middletown, Ohio. Bearing for disk drills	680,061	Aug. 6	623	138 / 139	96	1170
Moeller, Charles W. H. (See Thoele and Moeller.)						
Moeslein, Valentine, New York, N. Y. Construction of floors, partitions, or the like	680,062	Aug. 6	625	139	96	1171
Moise, L. H. (See Jackson, William G., assignor.)						
Moline Plow Company. (See Lindgren, August, assignor.)						
Möller, Gustav, Berlin, Germany. Forming pieces of raw cement	678,748	July 16	2708	.....	96	584
Möller, Johan P., Pankow, Germany. Glove	680,343	Aug. 13	1158	255	96	1289
Molloy, Edmond, Philadelphia, Pa. Fireproof floor and girder	677,420	July 2	149	34	96	33
Monahan, Louis J. (See Termaat and Monahan.)						
Monahan, Louis J., Oshkosh, Wis. Screw-cutting attachment for lathes	679,288	July 23	3701	826	96	804
Monash-Younker Co. (See Brown and Leuthesser, assignors.)						
Moninger, James H., Columbus, Ohio. Vehicle	678,015	July 9	1286	294	96	284
Monjeau, Cleophas, Middletown, Ohio. Purifying water	681,884	Sept. 3	431	87	96	1950
Monk, Henry, Cambridge, Mass. Roller-bearing	679,509	July 30	4277	962	96	941
Monroe Optical Company. (See Williams, George L., assignor.)						
Monteith, Charles. (See Gibbs and Monteith.)						
Montgomery, James H., Denver, Colo. Aerial wire-rope tramway	682,149	Sept. 3	895	199 / 200	96	2042
Montgomery, John J., Santa Clara, Cal. Concentrator	679,155	July 23	3549	793	96	773
Montgomery, Jordan S., F. G. and R. R. Owen, Jr., Franklin, Ky. Belt-placer	680,063	Aug. 6	626	139	96	1171
Moody, Walter S., Schenectady, N. Y., assignor to General Electric Company, of New York. Current-collecting device	680,265	Aug. 13	1005	226	96	1250
Moomy, Joseph G., assignor to Lake Shore Rubber Company, Erie, Pa. Pneumatic tire	678,504	July 16	2252	506	96	494
Moon, Thomas E., Sabina, Ohio. Liquid-pump	681,807	Sept. 3	289	58	96	1923
Mooney, John A., Brooklyn, assignor of one-third to F. F. Wilson, Rockville Center, N. Y. Feather-renovator	678,966	July 23	3159	707	96	693
Moore, Arthur L., Cleveland, Ohio. Pulley	682,419	Sept. 10	1884	313	96	2155
Moore Carving Machine Company. (See Yarnell, Charles S., assignor.)						
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Alternating-current dynamo	678,191	July 9	1615	373 / 374	96	349
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Vacuum-tube lighting	678,302	July 9	1839	423 / 424	96	393
Moore, David W., Jr. (See Wilson, Allen F., assignor.)						
Moore, Edward Y., assignor to Chisholm and Moore Manufacturing Company, Cleveland, Ohio. Controlling valves of fluid-motors	679,533	July 30	4328	971 / 972	96	951
Moore, Edward Y., assignor to Chisholm and Moore Manufacturing Company, Cleveland, Ohio. System of controlling pneumatic motors of cranes, hoisting mechanism, &c	679,534	July 30	4325	972	96	972
Moore, Edward Y., assignor to Chisholm and Moore Manufacturing Company, Cleveland, Ohio. Carriage for cranes	679,535	July 30	4330	973	96	953
Moore Electrical Company. (See Moore, Daniel M., assignor.)						
Moore Electrolytic Company. (See Allen and Moore, assignors.)						
Moore, Frank L., *et al.* (See Van Note, Jacob E., assignor.)						
Moore, George, Ellsworth, Iowa. Railway-switch	680,537	Aug. 13	1500	331 / 332	96	1361
Moore, Hugh K. (See Allen and Moore.)						
Moore, James E., Bozeman, Mont. Farm-gate	677,804	July 2	59	13	96	15
Moore, James R., and C. S. Boynton, assignors to Malted Cereals Company, Burlington, Vt. Making malted flour	678,749	July 16	2709	.....	96	585
Moore, Lawrence K., assignor of one-half to G. M. Frost, Moro, Oreg. Oil-rack	680,344	Aug. 13	1159	256	96	1290
Moore, Leslie R., Newton, Mass. Rubber cement	680,387	Aug. 13	1238	.....	96	1305
Moore, Miles F. (See Lee and Moore.)						
Moore, Morris. (See Morris, John O., assignor.)						
Moore, Morris, Danville, Va. Spark-arrester	683,315	Sept. 24	3018	690	96	2526
Moore, Moses M., assignor to T. W. Snow, Chicago, Ill. Water stand-pipe	682,106	Sept. 3	825	183 / 184	96	2028
Moore, Samuel, Norwalk, Ohio. Piano	682,335	Sept. 10	1242	280	96	2126
Moore, William J. P., London, England. Steam-valve for duplex pumps	682,808	Sept. 17	2100	475 / 476	96	2319
Moore, William R., Eden, N. Y. Lifting-jack	681,029	Aug. 20	2477	549	96	1578
Moore, Walter B., *et al.* (See Pierce, John, assignor.)						
Mooring, Kenneth, Rockland, Ohio. Bailer	680,163	Aug. 6	814	181	96	1207
Moorman, Marcellus N., Jr., *et al.* (See Crueger, Hermann, assignor.)						
Moran Flexible Steam Joint Company. (See Moran, Thomas W., assignor.)						
Moran, Thomas W., assignor to Moran Flexible Steam Joint Company, Louisville, Ky. Flexible pipe-joint	678,842	July 16	2802	654 / 655	96	624
Morden, Bishop S., Buffalo, N. Y. Vehicle-axle	679,180	July 23	3594	803	96	782
Morden Frog & Crossing Works. (See Lee and Moore, assignors.)						
Morehouse, William H. (See Jones, Elmer M., assignor.)						
Moreland, Henry J., Pittsburg, Pa. Piston-rod packing	678,750	July 16	2710	611	96	585
Morel, Alexander D., Jeanerette, La. Well-strainer	682,488	Sept. 10	1498	339	96	2177
Moresi, Alexander D., Jeanerette, La. Well-strainer	680,877	Aug. 20	2184	481	96	1519
Morgan, Charles, Des Moines, Iowa. Dyer's identification-tag apparatus	677,880	July 9	1027	242	96	236
Morgan, Edmund C., Chicago, Ill. Mining coal	677,681	July 2	629	151	96	133
Morgan, William E., Mound City, Ill. Automatic weather-strip for doors	681,563	Aug. 27	3409	770	96	1795
Morgan, William H., and F. A. Hannum, Ware, Mass. Stop-motion for carding-machines						
Morgan & Wright. (See McCaslin, Elton W., assignor.)						
Morgans and Wilcox Mfg. Co. (See Cochran, Robert B., assignor.)						
Morgeneier, Robert, Ashland, Wis. Lining for pulp-digesters	681,242	Aug. 27	2871	687	96	1678

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Moriarty, Joseph T. (See Heinitsh and Moriarty.)						
Morin, Joseph F., Lawrence, Mass. Barrel-cover	678,675	July 16	2595	582	96	562
Morin, Louis P., St. Hyacinthe, Canada. Hen's nest	679,323	July 30	3885	808	96	903
Morin, W. A. (See Wulff, John P., assignor.)						
Morison, Donald B. (See Weighton and Morison.)						
Morley Pharmaceutical Company. (See Vickers, Laura H., assignor.)						
Morral, Samuel E. and W. W., Morral, Ohio. Machine for cutting green corn from the cob	679,156	July 23	3553	738	96	774
Morral, William W. (See Morral, Samuel E. and W. W.)						
Morris, John O., Richmond, assignor to M. Moore, Danville, Va. Steam-boiler furnace	679,981	Aug. 6	508	107	96	1143
Morris, William L., assignor to Austin Cartridge Company, Cleveland, Ohio. Wad-feeding device	678,827	July 16	2866	645 646	96	616
	679,181	July 23	3596	808	96	783
Morrison, Elma E., Anthony, Fla. Folding umbrella	677,365	July 2	60	14	96	15
Morrison, Frank, Hamilton, Mont. Snap-hook	681,564	Aug. 27	3470	771	96	1796
Morrison, John E., and H. S. Cameron, Clarksdale, Miss. Cotton-press						
Morrison, Walter G., deceased, Willimantic, H. Clark administrator, assignor to Atwood-Morrison Company, Stonington, Conn. Doubling-frame	682,878	Sept. 17	2287	505	96	2346
Morrison, Walter S., St. Louis, Mo., assignor to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Lubricator	680,345	Aug. 13	1160	256	96	1200
Morrissey, James F., assignor to E. N. Parker, Springfield, Mass. Connection-piece for pneumatic-tire valves	681,067	Aug. 20	2550	564	96	1593
	679,465	July 30	4178	938	96	922
Morrow, Alexander P., Elmira, N. Y. Roller-bearing						
Morrow, Alexander P., assignor of one-half to H. H. Fulton, Elmira, N. Y. Friction-clutch for bicycles	679,982	Aug. 6	504	107	96	1144
Morrow, Wesley W., Springfield, assignor of one-half to W. E. Killen, Jacksonville, Ill. Exhaust-nozzle for engines	682,107	Sept. 3	828	184	96	2029
Morrow, William V., Los Angeles, assignor of one-half to P. Taminelli, Santa Maria, Cal. Music-leaf turner	681,332	Aug. 27	3057	678	96	1714
Morse, Arcil B., Baraboo, Wis. Power-transmitting device for windmills	680,799	Aug. 20	2047	446 447	96	1491
Morse, Charles H., Cambridge, Mass. Trolley-signal	678,894	July 23	3012	676	96	664
Morse, Ernest L., New Bedford, Mass. Coaster-brake for bicycles	677,682	July 2	681	151	96	133
Morse, Randolph F., *et al.* (See Hoyle, William E., assignor.)						
Morton, Henry E. (See Morton, Matthew and H. E.)				230		
Morton, Matthew and H. E., Muskegon Heights, Mich. Shaper	682,218	Sept. 10	1028	231	96	2087
Moseley & Stoddard Manufacturing Company. (See Stoddard, Ralph, assignor.)				232		
Mosher, Author P. (See Varner, Mosher, and Agner.)						
Mosher, Geo. J. (See Fox, David, assignor.)						
Mosher, John A., and W. S. Hamm, Chicago, Ill., assignors to Adams & Westlake Company, of Illinois. Piping system for gas distribution	680,346	Aug. 13	1161	256	96	1200
Mosier, William G., Greenville, Miss. Razor-strop	678,676	July 16	2596	582	96	562
Moskowitz, Morris, assignor to J. H. Young, trustee, New York, N. Y. Electric regulator	682,219	Sept. 10	1033	233	96	2088
Moskowitz, Morris, assignor to J. H. Young, trustee, New York, N. Y. Automatic reversing switch	682,220	Sept. 10	1034	233	96	2088
	682,221	Sept. 10	1036	233	96	2088
Mosler, Moses, Cincinnati, assignor to Mosler Safe Company, Hamilton, Ohio. Safe						
Mosler Safe Company. (See Mosler, Moses, assignor.)						
Moss, Albert A., Plymouth, Pa. Car-coupling	677,366	July 2	61	14	96	15
Moss, John B., Morris, Ill. Siding-marker	678,269	July 9	1771	407	96	379
Moss, Robert S., assignor to L. Z. Leiter, Chicago, Ill. Making coal-gas	679,059	July 23	3351	747	96	732
Mossberg, John F., Minneapolis, Minn. Cataphoric pad	679,239	July 23	3703	826	96	804
Motormobile Company. (See Mott, Samuel D., assignor.)						
Mott, Frederick W., Dunton, N. Y. Device for washing carriages	678,967	July 23	3162	707	96	694
Mott, Samuel D., Passaic, assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Apparatus for making boiler-coils	681,243	Aug. 27	2875	637	96	1678
Mott, Samuel D., Passaic, assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Water-circulator for boilers	681,244	Aug. 27	2877	637	96	1679
Mott, Samuel D., Passaic, assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Driving-gear for automobiles	681,721	Sept. 3	108	21	96	1885
Mott, Samuel D., Passaic, assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Coil for steam-boilers	681,722	Sept. 3	111	21	96	1886
Mott, Samuel D., Passaic, assignor, by mesne assignments, to Motormobile Company, Jersey City, N. J. Water-feed for boilers	682,628	Sept. 17	1752	401	96	2252
Mouchel, Gustave L. (See Eliet, Constant, assignor.)						
Mount, Lambton L., Auckland, New Zealand, assignor to H. L. Dixon, Pittsburg, Pa. Glass tank-furnace	682,365	Sept. 10	1286	290	96	2134
Movshovitch, Max M., New York, N. Y. Time-regulator for electric motors	682,108	Sept. 3	829	184	96	2029
Mowatt, Alexander. (See Mowatt, James M. and A.)						
Mowatt, James M. and A., Springfield, Ohio. Protector for woodworking-machines	678,016	July 9	1267	294	96	284
Mowen, Daniel H., Myersville, Md. Broom-holder	678,270	July 9	1772	408	96	379
Mower, Frank B., Chicago, Ill. Window-guard	683,217	Sept. 24	2817	648	96	2483
Mrock, Albert F., Chicago, Ill. Tufted fabric	678,347	July 9	1981	443	96	410
Muehleisen, Carl, Berlin, Germany, assignor to Mergenthaler Linotype Co., of New York, Linotype-machine	679,479	July 30	4200	943 944 945 946	96	926
Mueller, Charles F., Elizabeth, N. J. Tool-handle	680,497	Aug. 13	1426	312	96	1343
Mueller, Philip, assignor to H. Mueller Manufacturing Co., Incorporated, Decatur, Ill. Check-valve	678,271	July 9	1773	408	96	379
	681,245	Aug. 27	2878	.....	96	1679
Muir, Alexander, Cleveland, Ohio. Heating-stove and attachment						
Muirhead, Alexander, Shortlands, England. Telegraphic transmitting, receiving, and translating arrangement	678,505	July 16	2253	507	96	494
Mull, Charlie. (See McCune and Mull.)						
Mullane, Dennis, Houston, Tex. Bale-band fastening	678,751	July 16	2711	611	96	585
Mullaney, Patrick J., Chicago, Ill. Excavator or machine for unloading cars	679,908	Aug. 6	350	74, 75	96	1113
Muller, Edward A., assignor to Springfield Machine Tool Company, Springfield, Ohio. Engine-lathe	679,568	July 30	4387	985	96	966
Muller, Frederick J., near Cardiff, Ala. Balance-sheet blotter	682,948	Sept. 17	2963	534	96	2372
Muller, William G. E., Paterson, N. J. Surgical jaw splint and support	678,417	July 16	2070	470	96	455
Mullhall, Martin M. (See McCord, Charles J., assignor.)						
Mumby, George, Hilo, Hawaii. Lug used in coupling, tightening, and fastening metal hoops or rods about casks, tanks, &c	680,462	Aug. 13	1361	297	96	1331
Mummery, Edwin G., Detroit, Mich. Hydrocarbon-burner	682,629	Sept. 17	1754	402	96	2252
Mummery, Edwin G., Detroit, Mich. Hydrocarbon-vapor stove	682,630	Sept. 17	1756	402	96	2252
Münchmeyer, William H., Scott, W. Va. Snap-hook	680,800	Aug. 20	2050	447	96	1492
Muncie Gas Engine & Supply Co. (See Neely, Konley, and Macomber, assignors.)						
Munger, Robert S., Birmingham, Ala. Baling-machine	680,164	Aug. 6	816	182	96	1208

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Munger, Robert S., Birmingham, Ala. Cotton elevator, cleaner, and feeder	680,165	Aug. 6	820	182 183	96	1208
Munson, Corydon W. (See Shepler, Pius L., assignor.)						
Munson, Katherine C., Winthrop, Mass. Railway snow-plow	682,731	Sept. 17	1947	443	96	2288
Murdock, Alexander, *et al.* (See Matthias, William C., assignor.)						
Murdock, Edgar B., Webster, Mass. Detachable umbrella-cover	683,316	Sept. 24	3018	691	96	2526
Murdock, Henry D., Pittsburg, Pa. Adjustable insulator	682,831	Sept. 17	2157	497	96	2289
Murdock, James, Jr., Cincinnati, Ohio. Metallic seal	682,857	Sept. 17	2200	496	96	2338
Murphy, Charles E. (See Sevier, John R., assignor.)						
Murphy, Dennis W. (See Dawson, Thomas, assignor.)						
Murphy, Edward E., Revere, Mass., assignor to New Era Carbonator Company, Charlestown, W. Va. Carbonating apparatus	678,368	July 16	1974	450	96	435
Murphy, Ida M., New York, N. Y. Churn	683,136	Sept. 24	2979	616 617	96	2456
Murphy, James C., Canton, Wis. Speed-governor	678,418	July 16	2072	470	96	455
Murphy, Robert E., Lowell, Mass. Skein-washing-machine	680,878	Aug. 20	2186	481 482	96	1519
Murphy, William B., New York, assignor to L. N. Littauer, Gloversville, N. Y. Fastening device for gloves, &c	680,935	Aug. 20	2203	504 505	96	1542
Murphy, William P., McKeesport, Pa. Folding crate	677,688	July 2	632	151	96	133
Murray, Daniel, New York, N. Y. Glass-blowing machine	677,580	July 2	344	83, 84	96	74
Murray, George W., Skidmore, Mo. Grave-vault	682,109	Sept. 3	830	185	96	2029
Murray, James, assignor to Seamless Rubber Co., New Haven, Conn. Syringe	682,110	Sept. 3	831	185	96	2030
Murray, Stephen D., Dallas, Tex. Condenser for cotton-gins	682,879	Sept. 17	2243	506	96	2347
Murray, Thomas E., New York, N. Y. Electric sign	678,677	July 16	2596	583	96	563
Murray, Walter D., assignor of one-half to W. Ackroyd, Portland, Me. Spokeshave	679,702	July 30	4026	1040	96	1018
Murray, William J., New York, N. Y. Device for preventing refilling of vessels	683,057	Sept. 24	2548	581	96	2429
Murray, William J., New York, N. Y. Device for preventing refilling of vessels	683,058	Sept. 24	2549	581	96	2429
Mussetter, Fleming W., J. McCarthy, Chicago Heights, and W. W. Holmes, assignors to Q. & C. Company, Chicago, Ill. Duplex centering-machine	680,724	Aug. 20	1896	417	96	1463
Mussinan, Oscar, New York, N. Y., assignor to Dennison Manufacturing Company, Boston, Mass. Collapsible tube for containing semiliquid substances	683,410	Sept. 24	3182	729	96	2559
Myers, Abraham. (See Graves, Earl, assignor.)						
Myers, Abram S., assignor of one-half to J. T. Ricks, Springfield, Ohio. Corner-fastening for bedsteads	683,137	Sept. 24	2680	617	96	2456
Myers, Charles E., Huntertown, Ind. Tank-heater	678,506	July 16	2255	507	96	495
Myers, Francis M., Millersburg, Ind. Voting-machine	678,968	July 23	3164	708	96	694
Myers, Jacob, Hoorn, Netherlands. Electrode for secondary or storage batteries	678,133	July 9	1516	349	96	320
Myers, Leopold, Birmingham, England. Locking device for compasses, &c	678,003	July 9	1270	291	96	281
Myers, Mary T., Lamoille, Iowa. Jar and jar-cover	681,885	Sept. 3	433	87	96	1950
Myers, Samuel L., Texarkana, Ark. Fountain-comb	678,004	July 9	1270	291	96	282
Myers' Screw Propeller Syndicate. (See Brewster, Francis W., assignor.)						
Myers, William M., St. Joseph, Mo. Folding rule	678,005	July 9	1271	292	96	282
Mygatt, Otis A., New York, N. Y. Lamp-shade	679,770	Aug. 6	98	23	96	1061
Mygatt, Otis A., New York, N. Y. Lamp shade or globe	679,771	Aug. 6	100	23	96	1061
Myttles, Eugen, *et al.* (See Kässbauer, Paul, assignor.)						
"N. L." Syndicate. (See Posener and Clerke, assignors.)						
Naber, Moses H., assignor, by mesne assignments, to E. G. Pauling, Chicago, Ill. Bicycle saddle-support	679,537	July 30	4335	974	96	955
Nachtigal, Franz, Alexandrowsk, Russia. Machine for cutting corn or the like	682,487	Sept. 10	1505	341	96	2179
Naef, Paul, New York, N. Y. Apparatus for making bleaching-powder	678,970	July 23	3171	709	96	695
Nagel, Henry R. (See Nagel, John D. and H. R.)						
Nagel, John D. and H. R., Bushnell, Ill. Oat stock-feed and producing same	677,587	July 2	464	111	96	98
Nagel, John D. and H. R., Bushnell, Ill. Rolled-oats process	677,780	July 2	831	198	96	175
Nageldinger, John, New York, N. Y. Device for drawing effervescent liquids	680,499	Aug. 13	1430	313	96	1344
Nagengast, Joseph, Bayonne, and J. Hülss, Elizabeth, N. J. Faucet	677,687	July 2	627	158	96	131
Nagy, Julius, assignor to Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg A. G., Nuremberg, Germany. Construction of foundations	680,803	Aug. 20	2057	448	96	1493
Napay, Hosea. (See Clark, Edward B., assignor.)						
Narsh, Joseph M., Charleston, W. Va., assignor of two-thirds to H. C. Yeiser and O. H. L. Wernicke, Cincinnati, Ohio. Adjustable tug-hook for harness	682,561	Sept. 10	1629	373	96	2206
Nash, Chester, Oregon, Ill. Nut-lock	678,680	July 16	2600	584	96	564
Nashua Machine Company. (See Littlefield, Frank A., assignor.)						
Nathan Manufacturing Company. (See Kaczander and Hill, assignors.)						
National Biscuit Company. (See Shaner, John W., assignor.)						
National Brass Manufacturing Company. (See Bailey, Alexander, assignor.)						
National Cash Register Company. (See Cleal, Joseph P., assignor.)						
National Casket Company. (See Pidrick, William H., assignor.)						
National Enameling and Stamping Co. (See Richman, Solomon, assignor.)						
National Enameling & Stamping Company. (See Haberman, Frederick, assignor.)						
National Machine Company. (See Hogan, James T., assignor.)						
National Machine Tool Company. (See Schellenbach, William L., assignor.)						
National Malleable Castings Company. (See Call, Delmer W., assignor.)						
National Malleable Castings Company. (See Stephenson, John W., assignor.)						
National Pneumatic Service Company. (See Woltman, August, assignor.)						
National Ticket Case Co. (See Blades, Leonard J., assignor.)						
National Tube Company. (See La Voo, George W., assignor.)						
National Tube Company. (See Patterson, Peter, assignor.)						
Natural Food Company. (See Burbank, Louis S., assignor.)						
Naumann, Robert, New York, N. Y. Dog-trip for printing-presses	682,951	Sept. 17	2367	534	96	2373
Navolt, Eugène L. (See Marinier and Navolt.)						
Neal, Charles B. (See Breeden, Howard H., assignor.)						
Neal, Charles E. (See Day and Neal.)						
Neal, George S. and H. C., Eddyville, N. Y. Automatic wagon-brake	682,881	Sept. 17	2246	507	96	2347
Neal, Henry C. (See Neal, George S. and H. C.)						
Neave, John H., Rainow, England. Machine for treating hat-bodies	677,882	July 9	1030	242	96	236
Nederland, Johan, Philadelphia, Pa. Armor-plate	679,326	July 30	3892	870 871	96	864
Needham, Charles S., Decatur, assignor of one-half to G. S. Bigelow, Chicago, Ill. Car draft-rigging	682,562	Sept. 10	1631	373	96	2206
Neely, Ira L., Fairmount, Ind., assignor of one-half to L. G. Neely, St. Marys, Ohio. Link-movement for engines	679,857	Aug. 6	264	57	96	1096
Neely, L. G. (See Neely, Ira L., assignor.)						
Neely, Lemon G., F. Konley, and C. J. Macomber, St. Marys, Ohio, assignors, by mesne assignments, to Muncie Gas Engine & Supply Co., Muncie, Ind. Connecting-rod for engines	678,021	July 9	1297	296	96	287

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Neesham, James. (See Neesham, John B., assignor.)						
Neesham, John B., Pittsburg, assignor of one-half to J. Neesham, Allegheny, Pa. Apparatus for forming sand molds	682,113	Sept. 3	834	186, 187	96	2551
Neff, Stewart M., New York, N. Y. Pipe-jointer	681,869	Sept. 3	892	59	96	1924
Nehr, Herman F., assignor to Benziger Brothers, New York, N. Y. Combined crucifix, font, and candelabrum	682,952	Sept. 17	2308	535	96	2373
Neider, Fred A., Augusta, Ky. Producing tufting-buttons	677,588	July 2	466	111	96	98
Neider, Fred A., Augusta, Ky. Making metal washers	677,883	July 9	1031	243	96	237
Neill, Samuel F., and J. E. Tinker, assignors of three-fifths to P. B. Broughton, S. L. Rhodes, and M. Cohn, Bradford, Pa. Wheel	683,020	Sept. 24	2821	649	96	2181
Neilly, Daniel, Bradford, Canada. Running-gear for baby-carriages	680,727	Aug. 20	1905	419	96	1405
Nelles, Robert A. (See Hampton, Samuel, assignor.)						
Nelson, Charles, St. Louis, Mo. Cover for ice-cream cabinets	681,335	Aug. 27	2061	678	96	1715
Nelson, Edmund P. (See Long, Elmer C., assignor.)						
Nelson, Edward, Kansas City, Mo. Wrapping-machine	680,004	Aug. 6	637	139, 140, 141	96	1171
Nelson, Knud, Chicago, Ill. Photographic-camera stand	682,809	Sept. 17	2102	477	96	2019
Nelson, Oscar, Brooklyn, assignor to L. Bermann, New York, N. Y. Window-screen	679,538	July 30	4336	974	96	955
Nernst Electric Light. (See Drake, Bernard M., assignor.)						
Nesmith, John W., assignor to Colorado Iron Works Company, Denver, Colo. Blast-furnace. (Reissue)	11,925	Aug. 6	909	201, 202	96	1226
Ness, Ole A., Zumbrota, Minn. Air-brake coupling	682,882	Sept. 17	2252	508	96	2219
Nessel, Jacques, and J. F. Gouin, Brest, France. Long-distance relay magnetic telephone	678,509	July 16	2261	508, 509	96	406
Nettlefolds, Limited. (See Symons, William E., assignor.)						
Nettlich, Otto G. L., Berlin, and G. E. J. Körzinger, Radebeul, Germany. Shaving-brush	678,971	July 23	3172	709	96	696
Neubauer, Bernhard, and L. Grisham, Nevada, Mo. Box-lid holder	683,321	Sept. 24	3026	692	96	2528
Neuber, Franz, Vienna-Neustadt, J. Tambour, and C. Colbert, Vienna, Austria-Hungary. Safety locking device for firearms	678,420	July 16	2075	471	96	456
Neuber, George, assignor of one-half to F. Orf, Easton, Pa. Self-lubricating journal-box	678,580	July 16	2401	538	96	524
Neudecker, Gottlieb, Chicago, Ill. Measuring-funnel and strainer	682,223	Sept. 10	1039	234	96	2089
Neudermann, Soleman, Des Moines, Iowa. Cabinet-maker's work-bench	682,883	Sept. 17	2223	508	96	2049
Neuman, Victor von, Vienna, Austria-Hungary. Detonator for railway signaling	677,387	July 2	91	19	96	52
Neumayer, Ludwig, Merseburg, Germany. Divider and bag-filler for powders	678,272	July 9	1774	408	96	380
Neustätter, Emil. (See Neustätter, Otto, assignor.)						
Neustätter, Otto, assignor to E. Neustätter, Munich, Germany. Skiascope-optometer	678,435	July 16	2107	478	96	402
Nevins, David D., Providence, R. I., assignor to Bassett Jewelry Co., of New Jersey. Medallion-locket	681,336	Aug. 27	3062	679	96	1715
Nevins, Frank J. (See Grant, Charles W., assignor.)						
Nevins, Thomas J., St. Louis, Mo. Window-screen	681,249	Aug. 27	2883	639	96	1680
New Britain Machine Company. (See Brown, Robert S., assignor.)						
New Era Carbonator Company. (See Murphy, Edward E., assignor.)						
New Haven Novelty Machine Company. (See Luke, Charles, assignor.)						
New Jersey Wire Cloth Company. (See Himmelwright, Abraham L. A., assignor.)						
New Jersey Wire Cloth Company. (See Kunneke, George H., assignor.)						
New Jersey Wire Cloth Company. (See Orr, William, assignor.)						
New Standard Concentrator Co. (See Look, Luther, assignor.)						
New, Tobias, Brooklyn, N. Y. Insulating construction	683,050	Sept. 24	2551	582	96	2489
New York Bottlers' Supplies Manufacturing Co., Ltd. (See Schweizer, Eugene J., assignor.)						
New York Fire Proof Company. (See Lacey, Oliver C., assignor.)						
New York Labeling Machine Company. (See Gilfillan and McKaig, assignors.)						
Newbauer, Jesse, San Francisco, Cal. Waist-lining	680,675	Aug. 13	1764	388	96	1413
Newberry, Spencer B., Sandusky, Ohio. Basic fire-brick compound	677,688	July 2	638	.....	96	135
Newbold, William L. (See Sage, Horace, assignor.)						
Newcomer, Samuel A., St. Louis, Mo. Washing-machine	678,681	July 16	2601	584	96	564
Newcorn, Morris S., New York, N. Y. Fish-trap	679,827	July 30	3994	871	96	864
Newdyke, William, Denoon, Wis. Door	682,635	Sept. 17	1763	403	96	2253
Newell, Emerson R., New York, N. Y. Mooring device	678,275	July 9	1776	409	96	380
Newgarden, Max, New York, N. Y. Apparatus for marking and trimming edges of skirts	681,572	Aug. 27	3487	774	96	1799
Newhall, Henry B. (See Cook, John H., assignor.)						
Newhall, Henry B. (See Kingsland, Oliver H., assignor.)						
Newhall, Henry B., Jr., assignor to H. B. Newhall, Sr., Plainfield, N. J. Automatic electric stop for elevators	679,004	July 23	2223	721, 722	96	707
Newman, Frederick J., and J. Ledwinka, Chicago, Ill., assignors to Hub Motor Company, of New Jersey. Electrically-propelled vehicle	680,804	Aug. 20	2058	449	96	1404
Newman, John Z., assignor of one-fourth to S. P. Jaynes, Pennington Gap, Va. Door-indicator	677,884	July 9	1032	243	96	237
Newton, Florence L., Philadelphia, Pa. Waist-lengthener	678,755	July 16	2720	612	96	587
Newton, Robert, Jerseyville, Ill. Land roller and pulverizer	680,267	Aug. 13	1008	225	96	1260
Newton, William J., New York, N. Y. Electrical flush receptacle and plug	681,725	Sept. 3	118	22	96	1888
Ney, Jacob, assignor to V. L. Ney Company, Canton, Ohio. Hay-elevator track	681,810	Sept. 3	294	59	96	1924
Nézeraux, Placide, Fives-Lille, France. Condensing apparatus	677,462	July 2	229	56, 57	96	50
Nézeraux, Placide, Fives-Lille, France. Condensing apparatus	681,726	Sept. 3	120	23	96	1888
Nicault, Jules. (See Benoit, Guéniffet, and Nicault.)						
Nichols, Benjamin, Jamestown, N. Y. Brushing, grinding, or polishing machine	677,589	July 2	466	111, 112	96	98
Nichols, Charles B., assignor of one-half to N. A. Kestler, Washington, D. C. Burial-casket	678,348	July 9	1982	443	96	410
Nichols, Charles B., Westpark, assignor to Nichols-Lintern Company, Cleveland, Ohio. Track-sander	682,150	Sept. 3	897	200	96	2042
Nichols, Edwin C. (See Bechman, Henry F., assignor.)						
Nichols, Elmer P., Stamford, Conn. Shoulder-blade extractor	680,436	Aug. 13	1315	280	96	1321
Nichols-Lintern Company. (See Nichols, Charles B., assignor.)						
Nichols, Marion L., Westfield, N. J., assignor to Evolution Cycle Company, Washington, D. C. Bicycle driving mechanism	679,283	July 23	3809	853, 854	96	824
Nichols, Roberts J., Thackerville, Ind. Ter., assignor of one-half to A. J. Chapman, Gainesville, Tex. Hay stacking and loading device	681,337	Aug. 27	3063	679	96	1716
Nichols, William E., Winchenden, Mass. Head-cutting machine	678,022	July 9	1299	296, 297	96	287
Nichols, William W., St. Louis, Mo. Mattress	681,573	Aug. 27	3488	775	96	1799
Nicholson, Charles, Brooklyn, N. Y. Street-car fender	678,028	July 9	1308	297, 298	96	288
Nicholson, Hugh G., Bellevue, Ireland. Frog for use in connection with overhead conductors of electrical tramways or railways	677,463	July 2	230	57	96	50

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nicholson, Jesmond T., Wilkesbarre, Pa. Shaft-coupling	679,328	July 30	3895	871	96	865
Nicholson, John H. (See Stiefel and Nicholson.)						
Nicholson, Walter L., Edholm, Nebr. Portable elevator	682,224	Sept. 10	1040	234	96	2090
Niéll, Magnus, London, England. Changing-bag for cameras	681,250	Aug. 27	2884	639	96	1680
Nielsen, Rasmus A., Copenhagen, Denmark. Manufacture of incandescing media for incandescent lighting	682,337	Sept. 10	1244	281	96	2126
Nieman, John H. (See Harvey and Nieman.)						
Nies, Frederick H., assignor of one-half to W. Dunn, Brooklyn, N. Y. Shoe-form	682,366	Sept. 10	1287	290	96	2134
Nigg, Anton, Merrill, Iowa. Wire-stretcher	681,251	Aug. 27	2885	639	96	1680
Nightingale, Josiah E., Danvers, Mass. Dog-releasing device	680,268	Aug. 13	1009	227	96	1260
Niles, Walter L. C., Lynn, Mass. Shoe-form	682,225	Sept. 10	1043	235	96	2090
Nishwitz, Cornelia R. B., administratrix. (See Nishwitz, Frederick.)						
Nishwitz, Frederick, deceased; C. R. B. Nishwitz, Millington, N. J., administratrix. Harrow	680,728	Aug. 20	1906	419	96	1405
Nishwitz, Frederick, deceased; C. R. B. Nishwitz, Millington, N. J., administratrix. Harrow	680,729	Aug. 20	1909	420	96	1406
Nistle, George W., assignor of two-thirds to E. W. Brooks and R. L. Gifford, Chicago, Ill. Brake	677,464	July 2	232	57	96	51
Niswonger, Jesse A. (See Nushawg and Niswonger.)						
Nitterauer, Charles W., Duluth, Minn. Engine-lathe	680,167	Aug. 6	827	184	96	1210
Nittler, Michael. (See Winterlich, Hans J., assignor.)						
Noack, William H., Cleveland, Ohio. Butter-cutter	681,098	Aug. 20	2552	564	96	1594
Nobis, Leopold, and A. Wenzel, Vienna, Austria-Hungary. Producing elastic concrete material	679,158	July 23	3556	.....	96	774
Noble, Andrew, and G. Stuart, assignors to W. G. Armstrong, Whitworth & Company, Limited, Newcastle-upon-Tyne, England. Time-fuse	679,858	Aug. 6	965	57	96	1097
Noble, Boughton T., Southington, Conn. Screw-driver or kindred tool	680,065	Aug. 6	644	141	96	1173
Noble, Donald, London, England, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Feed mechanism for sewing-machines	680,664	Aug. 13	1742	382	96	1409
Noble, Donald, London, England, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Stopping mechanism for sewing-machines	680,665	Aug. 13	1744	383	96	1409
Noble, Jay, St. Louis, Mo. Safety-lock for railway-switches	682,265	Sept. 10	1117	253	96	2104
Noe, William R. (See Hayden, Frederick B., assignor.)						
Nolan, James P., Middletown, Conn. Puzzle	680,348	Aug. 13	1165	257	96	1291
Nolen, James G., Chicago, Ill. Telephone-transmitter	678,972	July 23	3172	710	96	696
Norcross, Levi W., Paris, Tex. Piano	677,465	July 2	233	58	96	51
Nordberg, Bruno V., assignor to Nordberg Manufacturing Company, Milwaukee, Wis. Valve-gear for engines	680,666	Aug. 13	1746	383	96	1410
Nordberg, Bruno V., Milwaukee, Wis., assignor to Nordberg Manufacturing Company of Wisconsin. Valve-gear for engines	680,667	Aug. 13	1749	384	96	1410
Nordberg Manufacturing Company. (See Nordberg, Bruno V., assignor.)						
Norden, Eric, Wilmington, N. C. Steam-engine indicator	678,421	July 16	2077	472	96	456
Norden, William L., assignor of one-half to S. B. Swanson, Hillsgrove, R. I. Reel-latch	683,411	Sept. 24	3188	729	96	2550
Nordtmeyer, Hermann, Celle, Germany. Portable filtering apparatus	683,061	Sept. 24	2553	582	96	2430
Norris, Edward R., Jacksonville, Fla. Barrel-cover hanger	678,024	July 9	1305	208	96	288
Norris, Everett E., assignor of one-half to F. G. Hoffman and W. R. Boughn, Randolph, Nebr. Spool-holder for sewing-machines	678,756	July 16	2721	613	96	587
Norris, Jewett L., assignor of one-half to T. H. Ricketts, Columbus, Ohio. Trousers-stretcher	680,269	Aug. 13	1010	227	96	1261
Norris, Richard, Philadelphia, Pa. Garment-hanger	680,168	Aug. 6	830	184	96	1210
North American Manufacturing Co. (See Bond, Ed F., assignor.)						
North, Stanley C., Canandaigua, N. Y. Making carbureted air	678,973	July 23	3174	710	96	696
North, Thomas M., assignor to R. Hoe, New York, N. Y. Inking mechanism for printing-presses	681,252	Aug. 27	2886	639, 640	96	1681
North, Thomas M., assignor to R. Hoe, New York, N. Y. Printing-machine	681,253	Aug. 27	2890	640, 641	96	1682
Northall, William H., Elwood, Ind. Inclosing structure for electric-arc lamps	683,062	Sept. 24	2554	583	96	2430
Northcott, William P., Chicago, Ill. File-binder	680,849	Aug. 13	1165	257	96	1291
Northern Electrical Manufacturing Company. (See Mallett, John P., assignor.)						
Northgraves, William, Perth, Canada, assignor of one-half to J. S. Feehan, Dekalb, Ill. Display-rack	677,780	July 2	883	198, 199	96	176
Northrop, Henry H. (See French, Lamartine M., assignor.)						
Northrop, James H., Tustin, Cal., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Thread-parting mechanism for looms	681,069	Aug. 20	2554	565	96	1591
Northrop, Jonas, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Filling-replenishing mechanism for looms	680,169	Aug. 6	831	184	96	1211
Northrop, Jonas, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Filling-replenishing loom	682,563	Sept. 10	1032	373	96	2236
Northrop, Sandford. (See Steinbrenner, Andrew G., assignor.)						
Northway, Winslow P., Minneapolis, Minn. Gyrator	681,254	Aug. 27	2895	641, 642	96	1682
Northwestern Compo-Board Company. (See Johnson and Springer, assignors.)						
Norton, Downes E., Hampton Hill, England. Bicycle, tricycle, &c	682,953	Sept. 17	2370	535	96	2373
Norton, Edwin, Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Automatic sheet-metal rolling-mill	680,998	Aug. 20	2417	534, 535	96	1565
Norton, Edwin, Maywood, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Vacuum-sealing can	680,999	Aug. 20	2422	535	96	1566
Norton, Edwin, Maywood, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Vacuum-sealing jar	681,130	Aug. 20	2653	586	96	1614
Norton, Edwin, Maywood, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Vacuum-sealing key-opening preserving-jar	681,131	Aug. 20	2654	586	96	1614
Norton, Edwin, Maywood, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Vacuum-sealing preserving-jar	681,132	Aug. 20	2657	586	96	1615
Norton, George W., Philadelphia, Pa. Bench-vise	680,589	Aug. 13	1512	332	96	1362
Norton, Horatio N., Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Machine for soldering bail-ears on bodies of cans or other vessels	681,000	Aug. 20	2423	535, 536	96	1566
Norton, Horatio N., Oakpark, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Apparatus for manufacturing tin-plate	681,255	Aug. 27	2896	642, 643	96	1683
Norton, James, Springfield, Mass. Shutter-worker	677,894	July 9	1053	247	96	240
Nosal, Mark, Humphrey, Nebr. Top-box fastener for wagons	679,539	July 30	4338	974	96	955
Nourse, Frank P., assignor to H. V. Otto, Alexandria, Ind. Gas, oil, and water separator	681,369	Aug. 27	3116	692	96	1725
Novelty Blind Operator Company. (See Osborne, Heman, assignor.)						
Noyes, Charles W., assignor of one-half to Ilsen & Company, Cincinnati, Ohio. Phonograph reproducer and recorder	679,467	July 30	4180	988	96	922

Alphabetical list of patentees, July to September, inclusive—Continued.

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Noyes, Horatio J., Ashtabula, Ohio. Match-safe	683,322	Sept. 24	3027	692	96	2728
Nuhring, Charles. (See Thompson and Nuhring.)						
Nushawg, George W., and J. A. Niswonger, Dayton, Ohio. Door-check	678,790	July 16	2780	626	96	597
Nye, George B. (See Dean, George W., assignor.)						
Nyhus, Christian, Villisca, Iowa. Garment-fastener	679,304	July 30	4052	904	96	899
O'Brien, George W., *et al.* (See Flitcroft, James E., assignor.)						
O'Brien, Jacques A. E. M. P. B., Paris, France. Apparatus for transforming steam	682,488	Sept. 10	1507	341	96	2180
O'Brien, James H., New York, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	680,805	Aug. 20	2061	449	96	1494
O'Brien, Jeremiah F., Jr., Madison, N. J. Sliding door	682,338	Sept. 10	1246	281	96	2127
O'Brien, William, Jr., Waipori, New Zealand. Means for conveying power to dredges	683,063	Sept. 24	2555	583	96	2431
O'Carroll, Martin, Oskaloosa, Iowa. Bobèche-lifter	678,998	July 23	3025	678	96	667
O'Connell, James, *et al.* (See Applehans, Charles, assignor.)						
O'Conner, William E., Loudon, Tenn. Automatic cut-off for cisterns	682,420	Sept. 10	1385	313	96	2155
O'Grady, Thomas F. (See Mauro, John, assignor.)						
O'Grady, Thomas F. (See Salomone, Rocco, assignor.)						
O'Meara, Denis H., Worcester, Mass. Vehicle-wheel	679,571	July 30	4393	966 967	96	968
O'Neil, Charles E., Toledo, Ohio. Decorating-machine	679,983	Aug. 6	506	107	96	1144
O'Neil, John, New York, N. Y. Fireproof floor and ceiling	681,969	Sept. 3	605	129	96	1986
O'Neill, Thomas H., Auburn, N. Y. Game	681,925	Sept. 3	507	105	96	1967
O'Neill, William R. (See Braley and O'Neill.)						
O'Reilly, James D. (See McNamara and O'Reilly.)						
O'Reilly, James T., Lawrence, Mass., assignor to W. J. Feeley Company, Incorporated, Providence, R. I. Candelabrum	679,984	Aug. 6	508	108	96	1144
O'Rourke, John F., New York, N. Y. Subterranean or subaqueous dam or foundation construction	678,581	July 16	2403	538 539	96	525
O'Rourke, John F., New York, N. Y. Constructing subterranean or subaqueous dams or foundations	678,582	July 16	2406	539 540	96	525
O'Rourke, John F., New York, N. Y. Tunnel construction	678,758	July 16	2725	614	96	568
O'Shea, Timothy, Chicago, Ill. Floor and ceiling construction	678,683	July 16	2908	585	96	564
Oakes, Harry. (See Tippit, William H., assignor.)						
Oakley, Thomas. (See Freeman, George R., assignor.)						
Obenchain, Thomas J., Louisville, Ky. Steam-turbine	678,811	July 16	2820	636	96	607
Oblosser, Ulysses C., Rohrsburg, Pa. Clamp for bed-rails	682,386	Sept. 10	1322	299	96	2143
Obry, Ludwig, Triest, Austria-Hungary. Apparatus for automatically firing ships' guns	678,757	July 16	2722	613	96	587
Obry, Ludwig, Triest, Austria-Hungary. Apparatus for discharging ships' guns	680,066	Aug. 6	645	142	96	1173
Ocumpaugh, Charles H., Rochester, N. Y. Sash-band fastener	679,904	Aug. 6	352	75	96	1113
Ocumpaugh, Charles H., Rochester, N. Y. Door-check	679,905	Aug. 6	353	76	96	1114
Oehler, Anilin- & Anilinfarben Fabrik, Firm of K. (See Laska, August L., assignor.)						
Oettinger, Henry, New York, N. Y. Dotting attachment for pens	681,574	Aug. 27	3489	775	96	1900
Offenbacher, Emil, Markt Redwitz, Germany. Manufacture of pattern-rollers	681,727	Sept. 3	120	23	96	1888
Ogle, John L., Maitland, Mo. Pliers	680,540	Aug. 13	1513	332	96	1392
Ohio Cultivator Company. (See Wiswall, William J., assignor.)						
Ohio Tool Company. (See Marks, Edward S., assignor.)						
Ohl & Co., George A. (See Ohl, Theberath, and Berghof, assignors.)						
Ohl, George A., Sr., and George A., Jr., F. W. Theberath, and A. A. Berghof, Newark, N. J., assignors to G. A. Ohl & Co., of New Jersey. Power-press	679,081	July 23	3279	733 734	96	717
Ohl, George A., Sr., and George A., Jr., F. W. Theberath, and A. A. Berghof, Newark, N. J., assignors to G. A. Ohl & Co., of New Jersey. Power-shears	680,987	Aug. 20	2296	505 506	96	1543
Ohlson, Olof, assignor to American Waltham Watch Company, Waltham, Mass. Watch-barrel	677,689	July 2	639	153	96	135
Ohlsson, Olof, Newark, N. J. Centrifugal purifying-machine	680,270	Aug. 13	1012	227	96	1261
Ohlsson, Olof, Södertelje, Sweden. Automatic shaft-coupling device	680,541	Aug. 13	1515	333	96	1393
Old, Ausborn F., New York, N. Y., assignor to Hale and Kilburn Manufacturing Company, of Pennsylvania. Water-cooler	680,371	Aug. 13	1014	228	96	1261
Oldenbusch, Ernest, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company, of New York. Box for postage or other stamps	682,564	Sept. 10	1635	374	96	2207
Oldfield, Fred, Chicago, Ill. Ellipsograph	677,590	July 2	409	112	96	99
Oldfield, Tom, and J. A. Schofield, Halifax, England. Cushioned driving device	680,170	Aug 6	833	185	96	1211
Oldham, Samuel, Philadelphia, Pa. Stone-dressing machine	681,256	Aug. 27	2902	643	96	1684
Olds, Ransom E., Lansing, Mich. Mixing and controlling device for gas-engines	679,263	July 23	3751	837	96	813
Oliver, Dionysious E., assignor of one-half to J. I. Fox, Bovina, Miss. Adjustable sand-pipe	678,682	July 16	2602	584	96	561
Oliver Typewriter Company. (See Mauk, William J., assignor.)						
Oliver, William H., Chicago, Ill. Lifting-jack	680,790	Aug. 20	1912	420 421	96	1467
Olson, John W. (See Olson, Olof R., assignor.)						
Olson, Nels, Burlington, Iowa. Fishing-bob	682,954	Sept. 17	2371	536	96	2374
Olson, Oliver N., *et al.* (See Clinger, Fred D., assignor.)						
Olson, Olof R., assignor of one-half to J. W. Olson, Kansas City, Mo. Lawn-swing	678,192	July 9	1619	374	96	349
Olson, Olof R., assignor of one-half to J. W. Olson, Kansas City, Mo. Lawn or house swing	678,349	July 9	1684	443	96	410
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Loop-spreader mechanism for sewing-machines	677,422	July 2	152	35	96	84
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper-operating mechanism for sewing-machines	679,906	Aug. 6	354	76	96	1114
Opalite Tile Company. (See Sage, Henry J., assignor.)						
Opalla, Arthur, Chicago, Ill., assignor to Opalla Struben Manufacturing Company. Loose-leaf binder	682,389	Sept. 10	1247	281 282	96	2127
Opalla Struben Manufacturing Company. (See Opalla, Arthur, assignor.)						
Oran, William L., Kingston, Tenn. Harrow	681,070	Aug. 20	2557	565	96	1594
Orf, Frederick. (See Neuber, George, assignor.)						
Organ, Thomas O., Philadelphia, Pa. Feed-water purifier	682,884	Sept. 17	2254	509	96	2349
Orkan Lufttrocknungsapparat Actien-Gesellschaft. (See Roesser, Rudolf, assignor.)						
Ornsdorff, Thomas C. (See Mills and Orndorff.)						
Orr, Edward E., assignor of four-fifths to M. C. Dizer and Company, P. Lewis, Weymouth, J. B. Hadaway, Brockton, and E. D. Cox, Boston, Mass. Insole	681,506	Aug. 27	3375	749	96	1776
Orr, William, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction and making same	681,798	Sept. 3	121	23	96	1888
Ortner, Johannes, Paderborn, Germany. Pot for cooking purposes	677,466	July 2	235	59	96	52
Orton, Gerrit V., assignor of one-twentieth to D. Jacks, Monterey, Cal. Vehicle-wheel	678,025	July 9	1306	298	96	288
Osborn, Alden E., New York, N. Y. Automobile vehicle	680,668	Aug. 13	1753	395	96	1411
Osborn, Alden E., New York, N. Y. Compensating driving-gear	683,323	Sept. 24	3027	693	96	2528
Osborn, Bennet, Jr., and C. L. Uhry, Newark, N. J.; said Uhry assignor to said Osborn. Lorgnette	683,064	Sept. 24	2556	583	96	2431

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Osborn, Howard H. (See Gruschow and Osborn.)						
Osborne, Heman, Springfield, Mass., assignor, by mesne assignments, to Novelty Blind Operator Company. Shutter-worker	683,221	Sept. 24	2822	650	96	2481
Osborne, John H., Anderson, Ind. Thill-coupling	679,082	July 23	3286	734	96	718
Osgood, Frederick M., Manchester, N. H. Garment-hanger	678,073	July 9	1406	323	96	306
Osgood, Horatio B. (See Winans, Daniel M., assignor.)						
Osley, Willard A., Wethersfield, Conn. Pliers	678,583	July 16	2410	540	96	525
Oster, Herman W., assignor to Oster Manufacturing Company, Cleveland, Ohio. Locking mechanism for die-heads	679,241	July 23	3706	827	96	805
Oster Manufacturing Company. (See Oster, Herman W., assignor.)						
Ostergren Manufacturing Company. (See Ostergren, Oscar P., assignor.)						
Ostergren, Oscar P., New York, N. Y., assignor to Ostergren Manufacturing Company, of New Jersey. Apparatus for refrigeration of atmospheric air	679,907	Aug. 6	356	76	96	1114
Ostrander, Ira W., and R. Cook, Yorkshire, N. Y. Mold for chimney-caps	679,329	July 30	3896	872	96	865
Ostrom, Freeland W., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Buttonhole-sewing machine	679,184	July 23	3599	804 805	96	788
Oswego Machine Works. (See Gray, Niel, Jr., assignor.)						
Otis Elevator Company. (See Carichoff, Eugene R., assignor.)						
Otis Elevator Company. (See Ihlder, John D., assignor.)						
Ottermann, George, Vienna, Austria-Hungary. Producing illuminating-gas	683,065	Sept. 24	2557	.....	96	2431
Otto, Gustav, Jersey City, N. J. Ether-inhaler	681,338	Aug. 27	3064	679	96	1716
Otto, Harry V. (See Nourse, Frank P., assignor.)						
Outten, Warren B., St. Louis, Mo. Sound-box	677,690	July 2	640	153	96	135
Owens, Wellington, Silverton, Colo. Drill-bit sharpener	682,565	Sept. 10	1636	374	96	2207
Overton, Alfred E., New York, N. Y. Antifriction-bearing	682,859	Sept. 17	2234	497	96	2339
Oviatt, Ellen M., and A. Dean, Denver, Colo. Apparatus for desulfurizing ores	680,171	Aug. 6	834	185	96	1211
Owen, Charles F. assignor to C. W. Brown and B. L. Clover, Chicago, Ill. Machine for turning off crank-pins, &c	681,071	Aug. 20	2558	565 566	96	1595
Owen, Elmo C. (See Howe and Owen.)						
Owen, Ernest D., *et al.* (See McClatchey, Augustus F., assignor.)						
Owen, Felix G. (See Montgomery and Owen.)						
Owen, Frederick A. (See George and Delivouk, assignors.)						
Owen, George A., Springfield, Mass. Mail-service system	677,423	July 2	153	35 36 37 38	96	34
Owen, George A., Springfield, Mass. Transmission system for mail or other service	677,424	July 2	164	39	96	37
Owen, George A., Springfield, Mass. Revolving firearm	678,274	July 9	1779	409	96	381
Owen, George A., Springfield, Mass. Railway-sleeper and rail support and connection	680,272	Aug. 13	1015	228	96	1261
Owen, James C., Spirit Lake, Iowa. Oil-can	682,736	Sept. 17	1956	444	96	2280
Owen, Marshall B., Granite City, Ill. Mold-facing	678,124	July 9	1503	.....	96	327
Owen, Oscar L., assignor to Whitin Machine Works, Incorporated, Whitinsville, Mass. Spinning-machine	677,791	July 2	837	190	96	176
Owen, Robert R., Jr. (See Montgomery and Owen.)						
Owens, Michael J., and A. R. Wilson, assignors to Toledo Glass Co., Toledo, Ohio. Machine for fire-finishing glass articles	682,595	Sept. 10	1601	385 386	96	2217
Oxnard, James G., and W. Baur, New York, N. Y. Extracting sugar from molasses	682,737	Sept. 17	1957	444	96	2290
Oxypolar Company. (See Minturn, Joseph A., assignor.)						
Oyler Plow Company. (See Oyler, William R., assignor.)						
Oyler, William R., assignor to Oyler Plow Company, Akron, Ohio. Cultivator-shovel	680,669	Aug. 13	1755	386	96	1411
Ozment, David B., assignor of two-thirds to J. M. and G. W. Lindsay, Gainesville, Tex. Lock	678,899	July 23	3026	678	96	667
P. P. Mast & Company. (See Dodson and Evans, assignors.)						
Paca, William S., assignor of one-half to P. H. Adams, Erie, Pa. Mechanism for removing or replacing switchboard-jacks	682,566	Sept. 10	1638	374	96	2207
Pace, Cloide, Farmland, Ind. Wire-fence machine	682,226	Sept. 10	1043	235	96	2090
Pack, John F., Rochester, N. Y. Pineapple-eye snip	681,339	Aug. 27	3065	679	96	1716
Packer, George W., assignor to Deering Harvester Company, Chicago, Ill. Apparatus for handling, cleaning, and distributing castings	677,691	July 2	642	153 154	96	135
Packer, George W., assignor to Deering Harvester Company, Chicago, Ill. Chuck or die for pointing or rounding ends of bolts	679,540	July 30	4338	974	96	955
Packer, George W., assignor to Deering Harvester Company, Chicago, Ill. Overhead traveling crane	681,575	Aug. 27	3490	775 776 777	96	1800
Padden, Robert W., Kansas City, Mo. Horseshoe	681,370	Aug. 27	3116	692	96	1725
Page, Alfred, Georgetown, S. C. Wagon-standard	678,303	July 9	1845	424	96	393
Page, Arthur L., Haverhill, Mass. Skirt-supporter	679,099	July 23	3428	764	96	746
Page, Charles G., Oakpark, Ill. Pneumatic tire and inner tube therefor	678,510	July 16	2262	509	96	496
Page, George. (See Fowler, Chester F., assignor.)						
Page, Harvey S., assignor to L. B. Page, St. Louis, Mo. Broom-sewing machine	677,591	July 2	470	112 113	96	99
Page, J. Wallace. (See Cornell, Evan W., assignor.)						
Page, Lois B. (See Page, Harvey S., assignor.)						
Pagett, Charles H., assignor of one-half to J. E. Godman, Lafayette, Ind. Smoking-pipe	680,806	Aug. 20	2066	450	96	1495
Paglinghi, Anthony, Fort Lee, N. J., assignor to G. McKibbin, New York, N. Y. Perpetual ledger	681,001	Aug. 20	2425	536	96	1597
Paige, David O., Detroit, Mich. Apparatus for racking beer	678,584	July 16	2411	540 541 542	96	525
Paint, John G., Port Hawkesbury, Canada. Cigar	679,541	July 30	4341	975	96	956
Painter, Gwynne E., Baltimore, Md. Signaling apparatus	681,371	Aug. 27	3118	693	96	1726
Pai-te, Henry T., Philadelphia, Pa. Rosette	682,114	Sept. 3	838	187	96	2031
Palas, Hippolyte, and F. Cotta, Marseilles, France. Manufacturing copper sulfates	679,985	Aug. 6	509	108	96	1145
Pallester, Paul, *et al.* (See Fischer, Gustav, assignor.)						
Palm, George W., Roundrock, Tex. Cotton-topping machine	682,738	Sept. 17	1960	444 445	96	2291
Palm, Oliver, Albany, Tex. Cane-topper	677,426	July 2	169	40, 41	96	38
Palmer, Albert N. (See Hines, Walter P., assignor.)						
Palmer, Edgar F., and O. G. Hardin, Louisville, Ky. Combination sofa-bed and wardrobe-couch	678,026	July 9	1307	299	96	288
Palmer, Edgar M., Hartford, Conn. Waistband-fastener	677,885	July 9	1033	243	96	287
Palmer, Harry A., Erie, Pa. Means for securing resilient tires to vehicle-wheels	680,392	Aug. 13	1238	273	96	1306
Palmer, John, *et al.* (See Walsh, William A., assignor.)						
Palmer, Ralph L., Manus, Conn. Sparking igniter for explosive-engines	680,884	Aug. 20	2199	484	96	1522

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Pank, Christopher W., Chicago, Ill. Grinding-mill	679,775	Aug. 6	105	24	96	1093
Paquette, Arthur. (See Gagnon, Jean B., assignor.)						
Paradis, Telesphar. (See Babcock, James R., assignor.)						
Parish, Edward W., London, England. Apparatus for supplying hot liquids	680,611	Aug. 13	1628	359	96	1384
Park, Alexander, and C. Durning, Cleveland, Ohio. Manufacture of shovels	681,340	Aug. 27	3065	680	96	1716
Park, Georgia, New York, assignor of one-half to W. E. Shoales, Plymouth, N. Y. Clothes-line clamp	683,138	Sept. 24	2682	617	96	2457
Park, William R. (See Rait, James, assignor.)						
Parker, Benjamin F., East Nashville, Tenn. Match safe or box	680,612	Aug. 13	1630	359	96	1385
Parker, Charles E., Orange, N. J. Bale of fibrous material	678,134	July 9	1517	350	96	330
Parker, Charles E., Orange, N. J. Feeding device for cotton-presses, &c.	679,695	July 30	4497	{1011 / 1012	96	989
Parker, Charles E., Orange, N. J. Baling-press	680,393	Aug. 13	1240	273	96	1306
Parker, Erastus N. (See Morrissey, James F., assignor.)						
Parker, Eugene J., Worcester, assignor to himself and A. S. Paton, Leominster, Mass. Trolley-stand	680,437	Aug. 13	1316	289	96	1321
Parker, Harry E., *et al.* (See Janelle, Belonie, assignor.)						
Parker, James W., Rock Island, Ill. Corn-planter	679,185	July 23	3609	{805 / 806	96	785
Parker, James W., Rock Island, Ill. Land-marker for corn-planters	679,186	July 23	3612	806	96	786
Parker, John, assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Variable-speed mechanism	682,227	Sept. 10	1050	{235 / 236	96	2091
Parker, John A., Bellefontaine, Ohio. Portfolio	682,266	Sept. 10	1118	254	96	2105
Parker, John M., *et al.* (See Thiele, Felix C., assignor.)						
Parker, Walter A. (See Chrysler and Parker.)						
Parker, William F., New York, N. Y. Corner plate, strip, or bead and clip therefor	682,489	Sept. 10	1509	342	96	2180
Parker, William H., Boundbrook, assignor to F. Blake, trustee, Passaic, N. J. Match-machine	682,228	Sept. 10	1051	236	96	2091
Parker, William S., Austin, Tex. Mold	680,273	Aug. 13	1018	{228 / 229	96	1262
Parker, William S., Austin, Tex. Burial-vault	682,421	Sept. 10	1389	313	96	2156
Parkhurst, Edward G., Hartford, Conn., assignor of one-half to L. E. Warren, New York, N. Y. Magazine-firearm	679,908	Aug. 6	358	76, 77	96	1115
Parkinson, Arthur. (See Ryder and Parkinson.)						
Parkman, Elwin A. (See Spaulding, Fred R., assignor.)						
Parks, Lewis F., Cincinnati, Ohio. Gaining cutter-head	682,810	Sept. 17	2104	477	96	2319
Parks, William, Crawford, Colo. Strawberry-runner cutter	679,395	July 30	4053	904	96	899
Parmelee, Samuel B., Saratoga Springs, N. Y. Indexed folder or pamphlet	680,350	Aug. 13	1166	257	96	1291
Parmelee, Wilbur F., Middletown, Conn. Adjustable folding chair	679,636	July 30	4502	1012	96	999
Parmiter, Philip J., Salisbury, England. Machine for flat-hoeing and thinning turnips	679,090	July 23	3431	{764 / 765	96	747
Parpart, Otto, assignor to Standard Welding Company, Cleveland, Ohio. Electric tube-welding machine	683,066	Sept. 24	2559	{584 / 585	96	2462
Parrott, Andrew, Sumner, Iowa. Carpet-stretcher	681,257	Aug. 27	2983	643	96	1684
Parshall, George S., Sistersville, W. Va. Spark-arrester for locomotives	682,422	Sept. 10	1390	313	96	2156
Parson, Henry E., Brooklyn, N. Y. Smoke-consuming furnace	681,456	Aug. 27	3288	731	96	1760
Parson, Henry E., Brooklyn, N. Y. Smoke-consuming furnace	681,457	Aug. 27	3290	732	96	1760
Parsons, Albert S., Berkeley, Cal. Motor-carriage	681,576	Aug. 27	3507	777	96	1803
Parsons, Edward H., Bournville, and L. B. Taylor, Bournbrook, England. Gun-sight	682,739	Sept. 17	1961	445	96	2291
Parsons, Henry, Marlboro, Mass. Machine for cutting leather, &c.	681,811	Sept. 3	295	59	96	1925
Parsons, John, *et al.* (See Sturgess, George F., assignor.)						
Parsons, Lawrence, Birr, Ireland. Apparatus for straining water	682,994	Sept. 17	2448	{554 / 555	96	2389
Parsons, William C., Pennington Gap, Va. Horse-detaching device	680,351	Aug. 13	1167	{257 / 258	96	1291
Partridge, Amos S., St. Louis, Mo. Ore roasting and desulfurizing furnace	680,613	Aug.	1632	{359 / 360	96	1385
Partridge, Archibald E., Seattle, Wash. Ledger	682,490	Sept. 10	1511	342	96	2181
Pasteur Vaccine Company. (See Thomas, Onésime, assignor.)						
Patch, Fred R. (See Hill, William A., assignor.)						
Patch, Fred R., Rutland, Vt. Double-platen planer	681,926	Sept. 3	500	106	96	1907
Paterson, John, Nelson, Canada. Hydraulic air-compressor	682,811	Sept. 17	2108	477	96	2320
Paterson, John E., Chicago, Ill., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	678,511	July 16	2264	{509 / 510	96	576
Patillo, John P. W., Chicago, Ill. Window	683,183	Sept. 24	2755	{633 / 634	96	2470
Paton, Alexander S. (See Parker, Eugene J., assignor.)						
Paton, Walter, Carlisle, England. Jacquard mechanism for looms	682,115	Sept. 3	839	{187 / 188	96	2031
Patrick, Arch W., New Cambria, Kans. Grain-grinder	678,812	July 16	2622	636	96	998
Patrick, Henry W., Birmingham, England. Clutch	677,592	July 2	474	113	96	100
Patten, Frank C., and G. Haugen, assignors to Frank C. Patten Company, Sycamore, Ill. Hay-fork carrier	679,986	Aug. 6	511	{108 / 109}	96	1145
Patten, John, assignor to Patten Vacuum Ice Machine Company, Baltimore, Md. Air or gas pump	679,225	July 23	3605	825	96	808
Patten, Lorenzo D., Mansfield, Ohio. Kneading-board	679,987	Aug. 6	513	109	96	1145
Patten Vacuum Ice Machine Company. (See Patten, John, assignor.)						
Patterson, John C., Seattle, Wash. Box-opener	680,352	Aug. 13	1169	258	96	1292
Patterson, O. L. (See Patterson, Reuben C., assignor.)						
Patterson, Peter, McKeesport, Pa., assignor to National Tube Company, New York, N. Y. Making lap-weld tubing	682,423	Sept. 10	1391	314	96	2156
Patterson, Ralph J., Woburn, Mass. Steam-engine controller	680,172	Aug. 6	886	185	96	1212
Patterson, Ralph J., Woburn, Mass. Steam-engine	680,731	Aug. 20	1916	421	96	1468
Patterson, Reuben C., assignor of one-half to O. L. Patterson, Summit, Ga. Plow-guide	683,139	Sept. 24	2683	618	96	2457
Patterson, Rufus L., New York, N. Y. Closure for containing vessels	682,995	Sept. 17	2450	555	96	2389
Patterson-Sargent Company. (See Hopkins, Randolph C., assignor.)						
Patzer, August C., Sanborn, Wis. Sleigh-brake	681,072	Aug. 20	2561	566	96	1556
Paul, Almarin B., San Francisco, Cal. Concentrator	680,998	Aug. 20	2304	506	96	1544
Pauli, Julius S., Chicago, Ill. Game and apparatus for playing same	679,988	Aug. 6	514	109	96	1145
Pauli, Philipp, and C. Krauss, assignors to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Making sulfur trioxid	677,692	July 2	640	155	96	137
Pauling, Edward G. (See Naber, Moses H., assignor.)						
Paulle, Leonard, Minneapolis, Minn. Shelf-support	678,125	July 9	1504	346	96	327
Paulsen, Paul K., Irwin, Iowa. Account-ledger	680,173	Aug. 6	889	186	96	1212
Paulson, Chris E., Boyd, Minn. Hay rake and cocker	682,229	Sept. 10	1053	{237 / 238}	96	2092

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Pauly, Jacob M. (See Thompson, Ralph P., assignor.)						
Pavlik, George, Boston, Mass. Brush	680,394	Aug. 13	1241	273	96	1306
Paxton, Andrew B. (See Cannaday, Winfield S., assignor.)						
Payn, Samuel G., Jr., Bath-on-Hudson, N. Y. Magnetic device for restoring and aiding hearing	681,341	Aug. 27	3066	680	96	1716
	682,491	Sept. 10	1512	342	96	2181
Payne, Joseph A., and J. F. Fergusson, Gloucester, Mass. Ash-sifter						
Payton & Kelley Co. (See Dawley, Daniel D., assignor.)						
Payton, Walter, Richmond, England. Portable fluid-pressure hammer	678,759	July 16	2726	614	96	588
Payton, Walter, Richmond, England. Fluid-pressure hammer	682,492	Sept. 10	1518	343	96	2181
Peabody, Royal C. (See MacCormack, John, assignor.)						
Peach, Fred L., Dalton, Mass. Flower-stand	678,681	July 9	1318	300	96	291
Peard, James J., assignor to Colt's Patent Fire Arms Manufacturing Company, Hartford, Conn. Revolver	680,274	Aug. 13	1021	229	96	1262
Pearse, Henry, Campana, Argentina. Grinding-machine	677,593	July 2	475	{113 / 114}	96	100
Pearson, John M., Valley Junction, Iowa. Hinge	683,220	Sept. 24	2824	650	96	2484
Pease, Lewis E., New York, N. Y. Suspender-end	681,073	Aug. 20	2563	566	96	1556
Peats, Alfred H., New York, N. Y. Clasp	679,542	July 30	4342	975	96	956
Peck, John B. (See Cordiuan, Frank H., assignor.)						
Pecke, Francis S. (See Clothier and Pecke.)						
Peckham, Edgar, Kingston, N. Y. Car-truck	681,342	Aug. 27	3067	680	96	1716
Peddecord, Louis W., St. Joseph, Mo. Shirt or shirt-waist case	678,027	July 9	1360	299	96	289
Peden, Thomas J. (See Donnelly, George B., assignor.)						
Pedley, William E., Riverside, Cal. Paper tube	679,264	July 23	3752	837	96	813
Peek, Walter K., New York, N. Y. Display-box	679,909	Aug. 6	362	77	96	1115
Peelle, Charles F. (See Colby and Peelle.)						
Peet, Rolland J., Hamilton, N. Y. Elastic valve attachment for pneumatic tires	682,387	Sept. 10	1324	290	96	2143
Peirce, Arthur H., Chicago, Ill. Self-locking seal	679,126	July 23	3492	780	96	761
Peloux, Albert, assignor to Société pour l'Exploitation de Compteurs Électriques, Rittener & Co., Geneva, Switzerland. Motor-meter for alternating currents	681,002	Aug. 20	2425	{536 / 537}	96	1567
Pelton, Charles H., Springfield, Ohio. Hitch for grain-drills	681,970	Sept. 3	607	129	96	1986
Pelton Fireproof Construction Company. (See Pelton, John C., assignor.)						
Pelton, John C., assignor to Pelton Fireproof Construction Company, New York, N. Y. Building construction	679,776	Aug. 6	107	24	96	1093
	679,777	Aug. 6	108	.....	96	1093
Peltzer, Georges, Verviers, Belgium. Extracting fat from wool	678,804	July 9	1845	424	96	304
Pembleton, William E., Wittenberg, Wis. Telephone-circuit						
Pendleton, John B., assignor of two-thirds to T. R. Hall and E. H. Rhodes, Strawn, Tex. Apparatus for automatically applying germicides	680,807	Aug. 20	2067	450	96	1496
	682,493	Sept. 10	1516	343	96	2182
Pendleton, Robert E., Redbluff, Cal. Carrying-case						
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Combined wick-stop and flame-extinguisher	678,126	July 9	1505	346	96	327
Penn, Louis T., assignor of two-thirds to W. H. Chambers, Augusta, Ark. Sand-shield	681,729	Sept. 3	124	23	96	1889
Pennington, John, Camden, N. Y. Combination-undergarment	679,572	July 30	4395	987	96	968
Pennsylvania Globe Gas Light Company. (See Gordon, Thomas, assignor.)						
Pennsylvania Globe Gas Light Company. (See Slinack, Victor H., assignor.)						
Penrose, Hallack A. (See Schmitt, Edward D., assignor.)						
Penrose, Richard A., assignor of one-tenth to D. Looney, Philadelphia, Pa. Time-damper-regulator	681,971	Sept. 3	608	130	96	1986
Pensyl, Charles W. (See Pensyl, John R. and C. W.)						
Pensyl, John R. and C. W., Topeka, Kans. Vapor-burner	683,324	Sept. 24	3030	694	96	2528
Pentecost, William A., Worcester, Mass. Elevator mechanism	680,353	Aug. 13	1172	258	96	1293
Peoples, Ulysses S. G., and C. F. Walther, Baltimore, Md. Galley-lock	677,693	July 2	650	155	96	137
Peramite Seal Company. (See Brown, Lewis A., assignor.)						
Perew, Louis P., North Tonawanda, N. Y. Cigar cutter and lighter	678,760	July 16	2729	{614 / 615}	96	588
Perfection Hitcher Manufacturing Company. (See Caldwell, Jack, assignor.)						
Perfler, Joseph. (See Schneider and Perfler.)						
Perino, Giuseppe, Rome, Italy. Machine-gun	682,230	Sept. 10	1055	{238 / 239}	96	2092
Perkins Electric Switch Manufacturing Company. (See Thomas, George B., assignor.)						
Perkins, Gardner H., Cazenovia, N. Y. Mower	679,989	Aug. 6	516	{109 / 110}	96	1146
Perkins, George T., and M. Hill, Cleveland, Minn. Railway-joint	681,075	Aug. 20	2564	567	96	1556
Perkins, John L., Holyoke, and C. E. Pope, South Hadley, assignors to Japanese Tissue Mills, Holyoke, Mass. Crape paper	681,074	Aug. 20	2564	566	96	1556
Perkins, Thomas S., Idlewood, Pa. Starting apparatus for electric motors	681,133	Aug. 20	2659	587	96	1615
Perkins, Thomas S., Idlewood, Pa., assignor to Westinghouse Electric & Manufacturing Company, of Pennsylvania. Rheostat	680,808	Aug. 20	2069	450	96	1496
Perkins, William C., New Haven, Conn. Gas-jet cage	679,159	July 23	3557	794	96	775
Perks and Sons, John. (See Perks and Salmon, assignors.)						
Perks, John, and W. C. Salmon, assignors to J. Perks and Sons, Wolverhampton, England. Manufacture of hoes	682,833	Sept. 17	2159	{487 / 488}	96	2389
Perky, Henry D., Worcester, Mass. Machine for reducing food material to form and distributing same	678,127	July 9	1506	347	96	327
Perky, Henry D., Worcester, Mass. Pneumatic panning or distributing machine	678,625	July 16	2502	{559 / 560}	96	544
Perky, Henry D., Worcester, Mass. Continuous heating and baking machine	681,655	Aug. 27	3071	{821 / 822}	96	1837
Perky, Henry D., Worcester, Mass. Continuous cutting-machine	681,656	Aug. 27	3074	823	96	1837
Perrault, Samuel, *et al.* (See Sansoucy, Charles E., assignor.)						
Perry, Adelbert J., Providence, R. I. Ore-separator	683,412	Sept. 24	3184	730	96	2560
Perry, Alvy G., Coldwater, Miss. Standard adapted for cultivator shares or shovels	677,694	July 2	659	155	96	137
Perry, David P., Chicago, Ill. Storage battery	678,436	July 16	2108	479	96	402
Perry, David P., Chicago, Ill. Storage battery	678,512	July 16	2267	510	96	497
Perry, William S., Newark, N. J. Type-writer escapement-wheel	682,636	Sept. 17	1764	403	96	2254
Peteler, Francis, Minneapolis, Minn. Ore or gravel car	679,693	July 23	3287	735	96	718
Peter, John S., Fort Worth, Tex. Press	680,542	Aug. 13	1516	333	96	1363
Peter, Julius, assignor to Maschinenfabrik Rüti, vormals Caspar Honegger, Rüti, Switzerland. Thread-parter for weft-replenishing looms	679,694	July 23	3290	{735 / 736}	96	719
Peters, George B., Smithbranch, Ky. Coin-holder	682,740	Sept. 17	1962	445	96	2291
Peters, John C., Fort Wayne, Ind. Gearing for washing-machines	681,423	Aug. 27	3208	714	96	1744
Petersen, Axel, Hellerup, Denmark. Lock	681,372	Aug. 27	3122	693	96	1726
Peterson, Alfred, *et al.* (See Whittaker and Turner, assignors.)						
Peterson, Andrew N., *et al.* (See Sansoucy, Charles E., assignor.)						
Peterson, George H., Nemaha County, Nebr. Wagon-bed	681,134	Aug. 20	2660	587	96	1616
Peterson, Martin A., Sioux City, Iowa. Propelling mechanism for vessels	678,193	July 9	1623	375	96	350

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Peterson, Peter A., Lake Mills, Iowa. Corn-planter	678,900	July 23	3020	678 679	96	667
Petersson, Elias, Brussels, Belgium, assignor, by mesne assignments, to Intractable Ore Treatment Company, Limited, London, England. Extracting arsenic, antimony, or tellurium from sulfurous ores	679,330	July 30	3807	872	96	865
Petford, John T., Haigh, near Wigan, England. Metallic bedstead	682,885	Sept. 17	2255	509	96	2350
Petree, Wesley A., Mizpah, N. C. Hoisting apparatus	681,135	Aug. 20	2902	587	96	1616
Pettengill, Frederick B., assignor of three-fourths to A. Jeffrey and S. L. Kistler, Los Angeles, Cal. Stamp-mill	681,858	Sept. 3	379	77	96	1941
Petterson, John, Mingo Junction, Ohio. Ratchet-drill	678,128	July 9	1508	348	96	328
Pettibone, William. (See Reissmann, Frederick, assignor.)						
Pfaffenbach, Rudolf, assignor to A. Bleichert & Co., Leipsic, Germany. Gripping device for suspended cable or rope railways	682,307	Sept. 10	1120	254 255	96	2105
Pfleger, Johannes, assignor to Deutsche Gold & Silber Scheide Anstalt vorm. Roessler, Frankfort-on-the-Main, Germany. Making indoxyl derivatives	680,395	Aug. 13	1242	------	96	1307
Pfleger, Johannes, assignor to Deutsche Gold & Silber-Scheide-Anstalt, vorm. Roessler, Frankfort-on-the-Main, Germany. Making cyanids	682,741	Sept. 17	1904	446	96	2291
Pfleiderer, Paul. (See Harris, William W., assignor.)						
Pfleiderer, Paul. (See Reese, Louis C., assignor.)						
Pharis, Charles S., Syracuse, N. Y. Dumping-wagon	681,927	Sept. 3	513	106 107	96	1968
Pharmaceutisches Institut Ludwig Wilhelm Gans. (See Blum, Ferdinand, assignor.)						
Phelan, John M. J., San Francisco, Cal. Mitering and tool-guiding device	679,708	July 30	4628	1040 1041	96	1018
Phelps, Ethel M., New York, N. Y. Separable button	679,910	Aug. 6	363	77	96	1115
Phelps, Ethel M., New York, N. Y. Button-fastener	679,911	Aug. 6	365	77	96	1116
Phelps, Leonard M., Pittsfield, assignor, by mesne assignments, to Draper Company, Hopedale, Mass. Protector mechanism for looms	681,373	Aug. 27	3124	693 694	96	1727
Philbrick, Warren W., Seattle, Wash. Matcher-head	681,458	Aug. 27	3292	732	96	1761
Philbrick, Warren W., Seattle, Wash. Matcher-head	681,459	Aug. 27	3294	733	96	1761
Philippe, Raoul. (See Duchamp and Philippe.)						
Philippi, Jacob. (See Pisko and Philippi.)						
Phillips, Albert, assignor of two-thirds to F. Haaz, New York, N. Y., and I. Haaz, Philadelphia, Pa. Garment	679,778	Aug. 6	109	25	96	1003
Phillips, Elwood C. (See Barrett and Phillips.)						
Phillips, Elwood C., Chicago, Ill. Implement for operating spring-bungs	679,160	July 23	3558	794	96	755
Phillips, Elwood C., Chicago, Ill. Watchcase-pendant	680,067	Aug. 6	647	142	96	1173
Phillips, Henry J., assignor to Golden Link Consolidated Gold Mines, Limited, London, England. Extraction of precious metals from their ores	688,325	Sept. 24	3092	------	96	2528
Phillips, John T., Lowell, Mass. Self-lubricating bearing	682,208	Sept. 10	1124	255	96	2106
Phillips, Simeon G., Rahway, N. J. Condenser	682,340	Sept. 10	1249	282	96	2127
Phillips, William E., Chester, England. Hand digging implement	680,275	Aug. 13	1023	229	96	1263
Phoenix Boot Machinery Company. (See Keats, John, assignor.)						
Pickering, Frederick S., Olathe, Kans. Rotary engine	680,068	Aug. 6	648	142 143	96	1171
Pickles, Charles K., assignor to R. G. Speer, St. Louis, Mo. Carbureter	678,194	July 9	1024	375	96	350
Pidrick, William H., Rochester, assignor to National Casket Company, Oneida, N. Y. Fastener for casket-covers	681,136	Aug. 20	2903	587	96	1616
Pieper, Alphonse F. (See Pieper, Oscar H. and A. F.) (Reissue.)						
Pieper, Oscar H. and A. F., Rochester, N. Y. Dental engine. (Reissue)	11,920	July 2	959	225	96	202
Pier, Loren H., *et al.* (See Holmberg, Charles G., assignor.)						
Pierce, Edward A., Boston, Mass. Fence-wire tightener	680,438	Aug. 13	1318	289	96	1322
Pierce, Frank J. (See Brainard, Edwin F., assignor.)						
Pierce, John, Milton, assignor of two-thirds to J. H. Chadbourne, Watertown, and W. B. Moore, Swampscott, Mass. Rocking separator and stop for lacing-hook-setting machines	670,028	July 9	1311	299 300	96	289
Pierpont, Frank H., Horley, England, assignor to Lanston Monotype Machine Company, Washington, D. C. Micrometer	679,779	Aug. 6	110	25	96	1004
Pierson, Charles. (See Griffiths, Spencer M., assignor.)						
Pietsch, Albert, Milwaukee, Wis. Attachment for stringed instruments	677,427	July 2	171	41	96	39
Pigueron, Henry C., New York, N. Y. Game	682,388	Sept. 10	1325	299	96	2143
Piguet, Charles, assignor to La Société Piguet & Cie., Lyon-Vaise, France. Rotary cut-off valve	677,870	July 2	67	15	96	16
Pike, Otto S., Malden, Mass., assignor to American Pneumatic Service Company, Dover, Del. Terminal for pneumatic-despatch-tube apparatus	688,140	Sept. 24	2984	618	96	2457
Pike, Otto S., Malden, Mass., assignor to American Pneumatic Service Company, Dover, Del. Terminal for pneumatic-despatch apparatus	688,141	Sept. 24	2987	618	96	2458
Pilawski, Josef, *et al.* (See Maslonka, Kornel, assignor.)						
Pilling, Ella K., Philadelphia, Pa. Combined waist-lengthener and corset	682,812	Sept. 17	2110	478	96	2320
Pilling, Robert, *et al.* (See Blaetz, Jacob H., assignor.)						
Pillsbury, George M. (See York, John E., assignor.)						
Pinckard, William P. (See Hussey, Charles A., assignor.)						
Pinkerton, William B., Cottonplant, Ark. Propeller	678,275	July 9	1788	410	96	381
Pintsch, Firm of Julius. (See Gerdes, Heinrich, assignor.)						
Pip, Wilhelm, assignor to Firm of E. Merck, Darmstadt, Germany. Producing piperidin	680,543	Aug. 13	1517	------	96	1368
Piper, Robert H., assignor of one-third to E. B. Kelley, Wakefield, Mass. Buttonhole-casing	677,702	July 2	838	200	96	177
Pisko, Emanuel, New York, N. Y. Die for cutting out cigar-wrappers	677,793	July 2	839	200	96	177
Pisko, Emanuel, and J. Philippi, New York, N. Y. Cigar or cigarette making machine	680,069	Aug. 6	651	143 144 145	96	1174
Pittler, Julius W. von, assignor to Leipziger Werkzeug Maschinen Fabrik, vormals W. V. Pittler, A. G., Leipsic-Gohlis, Germany. Slide-rest for lathes	677,695	July 2	652	155	96	137
Pittner, Hermann, and F. Richter, Vienna, Austria-Hungary. Petroleum-incandescent-lamp burner	688,067	Sept. 24	2502	585	96	2433
Pitts, Charles C., Raynham, Mass. Match-safe	680,276	Aug. 13	1024	230	96	1263
Pitts, George T., Fall River, Mass., assignor to U. S. Bobbin and Shuttle Company, Providence, R. I. Spool	681,137	Aug. 20	2664	588	96	1616
Pitts, Thomas W., Gainesville, Fla. Safety-pin	678,626	July 16	2505	560	96	545
Pittsburg Meter Company. (See Chrisman, Horace, assignor.)						
Pittsburgh Gas Engine Company. (See McCall, Harry M., assignor.)						
Plaistridge, Frank H., Los Angeles, Cal. Fly-paper bracket	680,403	Aug. 13	1002	297	96	1331
Planters Compress Company. (See Cowley, James T., assignor.)						
Planters Compress Company. (See Holmes, Watson M., assignor.)						
Planters Compress Company. (See Stoddard, Charles F., assignor.)						
Plass, Herbert E., New York, N. Y. Portable electric lamp	682,742	Sept. 17	1965	446	96	2291

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Platt, Lawrence P., and F. Warga, Hastings, Pa. Car-fender	678,761	July 16	2731	615	96	589
Platt, Thomas E. (See Hoshor, Joseph C., assignor.)						
Player, Ralph, *et al.* (See Weddell, Edward G., assignor.)						
Plummer, Clarence H., Waukesha, Wis. Can-filling machine	679,780	Aug. 6	111	25	96	1004
Pneumatic Carriage Company. (See Hoadley, Alfred H., assignor.)						
Pocock, Stephen H., assignor of one hundred and fifty-one two hundredths to A. G. Russell, J. W. Millard, and S. D. Biggar, Hamilton, Canada. Automatic register or recorder	678,350	July 9	1036	444	96	411
Poe, James G., Dallas, Tex. Syringe attachment	682,269	Sept. 10	1125	255	96	2106
Poehlman, Nicholas, and V. Gross, Baltimore, Md. Cue-tip fastener	682,886	Sept. 17	2256	509	96	2350
Poindexter, John W., Cynthiana, Ky. Seed-tube for grain-drills	682,311	Sept. 1	1252	282 283	96	2128
Poindexter, Robert E., Indianapolis, Ind. Hay-rack for wagons	680,070	Aug 6	656	145	96	1175
Points, John W., Washington, D. C., assignor to Automatic Scale Company. Price-scale	677,794	July 2	840	200 201	96	177
Poliakoff, Joseph, Charlottenburg, Germany. Photophonograph, photophone, or similar device	680,614	Aug. 13	1634	360 361	96	1385
Polic, Charles, and J. Zimmermann, assignors to Actien-Gesellscharft zur Verwerthung der Österr und Ungar Patente Th. Langer, Vienna, Austria-Hungary. Draft-regulating apparatus for furnaces of stationary boilers	681,250	Aug. 27	2906	644	96	1685
Polikier, Heinrich, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Blue acid dye	680,732	Aug. 20	1918	------	96	1468
Polinkowsky, Lipa, assignor to Siemens & Halske Aktiengesellschaft, Berlin, Germany. Microphone and telephone installation	681,374	Aug. 27	3128	694	96	1727
Poll, Matthias, Albuquerque, N. Mex. Steam-engine	682,748	Sept. 17	1966	446	96	2292
Pollard, Edward T., assignor to B. Baron, London, England. Machine for packing cigarette-mouthpieces	677,594	July 2	477	114 115	96	101
Pollard, Frederick, Cleveland, Ohio. Apparatus for grinding large plates or sheets of glass	682,744	Sept. 17	1968	446 447	96	2292
Pollard, Frederick R., Lebanon, N. H. Window-washer	681,258	Aug. 27	2904	644	96	1684
Pollard, Norvel A., Sheppards, Va. Insect-exterminator	681,859	Sept. 3	880	77	96	1942
Pollitt, Thomas. (See Goodier and Pollitt.)						
Pomeroy, Le Dru R., and E. E. Allyne, assignors to C. S. Van Wagoner, Cleveland, Ohio. Spring-hinge	681,577	Aug. 27	3508	778	96	1804
Pontious, Oliver E., Wauseon, Ohio. Wrench	681,260	Aug. 27	2909	644	96	1686
Pool, Peter J., Toledo, Ohio. Oar	680,885	Aug. 20	2200	484	96	1522
Pool, Robert C., Tyler, Tex. Buckle	680,464	Aug. 13	1363	298	96	1332
Poole, Harvey E., Columbus, Ohio. Switch-operating mechanism	678,256	July 9	1784	410	96	382
Poole, Staley D., Moline, Ill. Double cultivator	678,602	July 9	1319	301	96	291
Poole, Staley D., assignor to Deere & Company, Moline, Ill. Flexible harrow	680,939	Aug. 20	2206	507	96	1545
Poore, Charles, Western Springs, Ill. Machine for removing snow and ice	678,277	July 9	1786	411	96	382
Poore, John B., Scranton, Pa. Steam pumping-engine	679,850	Aug. 6	266	57, 58	96	1097
Pope, Charles E. (See Perkins and Pope.)						
Pope, Curran. (See Heinig, Frederick E., assignor.)						
Pope, Frederick B., Augusta, Ga., and G. D. Mims, Parksville, S. C. Bat-forming mechanism	681,645	Aug. 27	3040	814 815	96	1871
Pope, Joseph H., Brockton, Mass., assignor, by mesne assignments, to United Shoe Machinery Company, of New Jersey. Last	678,129	July 9	1509	348	96	328
Pope, Ralph W., Elizabeth, N. J. Cabinet file-box	680,354	Aug. 13	1175	259	96	1293
Popper, William C. (See Forsheim, Joseph, assignor.)						
Porcher, Georges. (See Lehureau and Porcher.)						
Porteous, Thomas T. (See Rogers, Frederick H., assignor.)						
Porter, Cyrus K., Buffalo, N. Y. Brick or block pavement	681,834	Sept. 3	333	68	96	1932
Porter, David W., Sewickley, Pa. Hydraulic valve for presses	681,066	Aug. 20	2205	507	96	1596
Porter, Ernest, Wallace, W. Va. Safety temper-screw	682,813	Sept. 17	2111	478	96	2321
Porter, William L., and R. Wittke, Oconto, Wis.; said Porter assignor to R. M. and N. J. Kyle, Chicago, Ill. Tipping-machine	681,657	Aug. 27	3075	823 824	96	1838
Porter, William S. (See Milmoe and Porter.)						
Portugal-Hirschberg, Fanny, Chicago, Ill. Abdominal supporter	682,270	Sept. 10	1127	255	96	2106
Portville Basket Co. (See Sitterly, Henry J., assignor.)						
Posener, Alfred M., London, and F. W. Clerke, Tottenham, assignors to "N. L." Syndicate, Limited, County of Middlesex, England. Making waterproof fabric and product thereof	680,733	Aug. 20	1919	------	96	1468
Posener, Alfred M., London, and F. W. Clerke, Tottenham, assignors to "N. L." Syndicate, Limited, County of Middlesex, England. Making waterproof fabric and product thereof	680,734	Aug. 20	1920	------	96	1468
Post, John H., Andover, Conn. Embroidery-hoop	679,510	July 30	4278	902	96	941
Post, John H., Andover, Conn. Embroidery-hoop	682,271	Sept. 10	1129	256	96	2106
Postlethwait, Isaac, New Mayville, Pa. Scissors	681,972	Sept. 3	609	130	96	1986
Potdevin, Adolph. (See Toepel, Widmayer, and Potdevin.)						
Potter, Edson, Greensburg, Ind. Mail-bag catcher	678,278	July 9	1787	411 412	96	382
Potter, Frank W., assignor to R. A. Knight, Springfield, Mass. Photographic-plate rack	681,658	Aug. 27	3079	824	96	1839
Potter, George D., Wallace, Idaho. Dumping-barrow	677,467	July 2	236	59	96	52
Potter, George D., Wallace, Idaho. Conveyer	679,573	July 30	4396	987	96	968
Potter, George D., Wallace, Idaho. Automatic ore-sampler	679,574	July 30	4398	988	96	969
Potter, Henry N., Halensee, Germany, assignor to G. Westinghouse, Pittsburg, Pa. System of electric lighting on constant-current circuits	680,809	Aug. 20	2070	450	96	1496
Potter, James E., assignor to B. A. and F. A. Ballou, Providence, R. I. Collar-button	678,762	July 16	2732	615 616	96	589
Potter, Joseph L., Indianapolis, Ind. Hoisting and conveying apparatus	681,138	Aug. 20	2664	588	96	1616
Potter, W. Josiah, Waterloo, Iowa. Washing-machine	681,973	Sept. 3	610	130	96	1987
Potter, William B. (See Davis and Potter.)						
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Electrical distribution	677,371	July 2	68	15	96	17
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. System of motor control	678,029	July 9	1314	300	96	290
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Third-rail insulator	678,195	July 9	1626	376	96	351
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric-railway system	679,331	July 30	3900	872	96	866
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Surface-contact railway	679,332	July 30	3903	873	96	866
Potter, William B., and F. E. Case, Schenectady, N. Y., assignors to General Electric Company, of New York. Electric-control system	678,196	July 9	1627	376 377	96	351

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Potters Decorative Supply Company. (See Michaud, Henri, assignor.)						
Pottlitzer, Herman, *et al.* (See Headson, Frank A., assignor.)						
Pottlitzer, Julius, *et al.* (See Headson, Frank A., assignor.)						
Pottlitzer, Leo, *et al.* (See Headson, Frank A., assignor.)						
Pottlitzer, Max, *et al.* (See Headson, Frank A., assignor.)						
Potts, William E., Jr., and C. A. Ruckel, Whitehall, Ill. Car-coupling	681,646	Aug. 27	3643	815	96	1881
Poulin, Etienne, Jr., St. Germain de Grantham, Canada. Railway-crossing frog	681,077	Aug. 20	2567	567, 568	96	1597
Poulson, Britton, Fort Wayne, Ind. Mechanical movement	681,486	Aug. 27	3340	741	96	1769
Poulson, Niels, Brooklyn, N. Y. Lock for elevator-doors	678,422	July 16	2079	472	96	456
Powell, Charles E., Philadelphia, Pa. Feed-bag	678,684	July 16	2605	585	96	565
Powell, John B., Philadelphia, Pa. Repeating mechanism for phonographs	682,424	Sept. 10	1392	314	96	2156
Powell, Myron H., Muskegon, Mich. Stocking	680,355	Aug. 13	1177	259	96	1298
Powell, William H. (See Browning, George, assignor.)						
Power, Michael, Toronto, Canada. Railway-track cleaner	677,606	July 2	653	156	96	137
Power, Michael, Toronto, Canada. Shoe for truing up car-wheels	679,781	Aug. 6	114	25	96	1065
Powers, Francis W., West Lafayette, Ind. Automatic means for supplying water to stock	680,615	Aug. 13	1636	361	96	1386
Powers, Timothy B., New York, N. Y., assignor to Magnetic Piano Company, of New Jersey. Automatic piano	681,261	Aug. 27	2910	644, 645	96	1686
Powers, Timothy B., New York, N. Y., assignor to Magnetic Piano Company, of New Jersey. Electric piano-player	681,730	Sept. 3	125	24, 25	96	1889
Powers, Timothy B., New York, N. Y., assignor to Magnetic Piano Company, of New Jersey. Case for perforated music-sheets for musical instruments	682,272	Sept. 10	1130	256	96	2106
Prael, Fred W., Fairhaven, Wash. Can-cutting machine	678,901	July 23	3030	679	96	668
Prandergast, John B. (See Flakker, Frederick W., assignor.)						
Pratt, Alexander C., assignor to Pratt Mining Machinery Co., San Francisco, Cal. Feeder for stamp-mills	677,795	July 2	844	201	96	178
Pratt, Eber W., assignor of one-half to G. W. Bird and G. W. Glore, Ipava, Ill. Gate	679,660	Aug. 6	518	110	96	1146
Pratt Mining Machinery Co. (See Pratt, Alexander C., assignor.)						
Pratt, Philip W., Boston, Mass. Crutch	679,468	July 30	4182	989	96	923
Pratt, William H., Lynn, Mass., assignor to General Electric Company, of New York. Electric meter	679,333	July 30	3905	873	96	867
Prawiz, William F., *et al.* (See Teed, Oliver F., assignor.)						
Prellwitz, William. (See Sergeant and Prellwitz.)						
Preslar, Charles F., Cincinnati, Ohio. Packing device for tubular wells	677,468	July 2	237	59	96	52
Preslar, Charles F., Cincinnati, Ohio. Packing device for tubular wells	677,706	July 2	845	201	96	178
Prest, Edward J. (See Taft, Jerome F., assignor.)						
Preston, Henry C. and O., Hornellsville, N. Y. Dust-beater	678,585	July 16	2416	542	96	526
Preston, Henry C. and O., Hornellsville, N. Y. Dust-beater	678,586	July 16	2417	542	96	526
Preston, Otniel. (See Preston, Henry C. and O.)						
Prensser, Richard F., Washington, D. C. Car-fender	678,974	July 23	3178	711	96	696
Preusser, Richard F., Washington, D. C. Car-fender	678,975	July 23	3180	711	96	697
Preuthun, John F., Philadelphia, Pa. Ventilating-skylight	679,912	Aug. 6	367	78	96	1116
Price, Benjamin. (See Laybourne, Marsh, and Price.)						
Price, J. D., *et al.* (See Wade, Harry C., assignor.)						
Price, James T., assignor of one-half to J. C. McReynolds, Lincoln, Ill. Crupper-buckle	680,544	Aug. 13	1518	333	96	1368
Price, John P., *et al.* (See Benson, Andrew, assignor.)						
Price, John P., *et al.* (See Benson, Andrew and J. B., assignors.)						
Price, Levi, Los Angeles, Cal. Bed-awning or mosquito-bar	678,197	July 9	1633	377	96	352
Price, Milbert F., Iowa City, Iowa. Coin-controlled vending apparatus	681,731	Sept. 3	139	25, 26	96	1892
Price, Milbert F., Iowa City, Iowa. Coin-controlled apparatus	681,732	Sept. 3	140	26	96	1892
Price, Robert P., *et al.* (See Benson, Andrew, assignor.)						
Price, Robert P., *et al.* (See Benson, Andrew and J. B., assignors.)						
Price, Thomas J., Danville, Pa. Machine for making tubing	679,469	July 30	4184	989	96	923
Pridmore, John W., Chicago, Ill. Pitman connection	682,745	Sept. 17	1973	447	96	2298
Priest, Edward D., Schenectady, N. Y., assignor to General Electric Company, of New York. Electrical conductor	678,090	July 9	1317	300	96	290
Priest, Edward D., Schenectady, N. Y., assignor to General Electric Company, of New York. Electrical conductor	680,277	Aug. 13	1025	230	96	1263
Prince, Charles W., Kansas City, Mo. Hitching device	679,354	July 30	3907	873	96	867
Prindle, Adoniram J., *et al.* (See Shafer, Frank B., assignor.)						
Prindle, William E., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Railway-track structure	681,262	Aug. 27	2912	645	96	1686
Prindle, William E., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Car-truck	682,273	Sept. 10	1135	256	96	2107
Pringle, John N. (See Roblin, Edwin, assignor.)						
Prinz, William H., Austin, assignor to Saladin Pneumatic Malting Construction Co., Chicago, Ill. Furnace for driers	677,697	July 2	655	156	96	138
Prinz, William H., Austin, assignor to Saladin Pneumatic Malting Construction Co., Chicago, Ill. Malt-drier	677,698	July 2	656	156, 157	96	138
Prinz, William H., Austin, assignor to Saladin Pneumatic Malting Construction Co., Chicago, Ill. Steeping and washing grain	683,326	Sept. 24	3033	694	96	2529
Prinz, William H., Austin, assignor to Saladin Pneumatic Malting Construction Co., Chicago, Ill. Apparatus for steeping and washing grain	683,327	Sept. 24	3035	695	96	2529
Pritchard, William H., Indianapolis, Ind. Portable railway-frog	683,223	Sept. 24	2825	650	96	2485
Pritchette, Andrew B., Elizabeth, N. J. Garment-hanger	680,356	Aug. 13	1177	259	96	1294
Pritz, Horace L. (See White, Benjamin F., assignor.)						
Procunier, Frank G., Chicago, Ill. Ceiling-plate for combination light-fixtures	677,595	July 2	479	115	96	101
Prokesch, Samuel J., New York, N. Y. Belt	682,071	Aug. 6	657	145	96	1175
Prosser, Henry K., Washington, D. C. Device for removing closures from bottles or jars	680,072	Aug. 6	658	146	96	1175
Prosser, Henry K., Washington, D. C. Non-refillable bottle	680,073	Aug. 6	659	146	96	1176
Prött, Karl, Hagen, Germany. Forge-die	683,068	Sept. 24	2563	585, 586	96	2433
Proud, Frank E., Orange, Cal. Fruit-cleaning machine	682,814	Sept. 17	2112	478	96	2321
Prouse, Clinton E., *et al.* (See Howe, John C., assignor.)						
Prouty, John T., Paddock, Nebr. Releasing device for buggy-tops	680,735	Aug. 20	1922	421	96	1469
Prouty, Theodore C., Midland, Mich. Hydraulic coupling	679,005	July 23	3227	722	96	707
Prüsmann, Carl, Magdeburg, assignor to Schäffer & Budenburg, Magdeburg-Buckau, Germany. Injector	679,127	July 23	3494	780	96	761
Pryde, David, and H. Gauerman, assignors to Braddock Machine Manufacturing Company, Braddock, Pa. Air-compressor	679,335	July 30	3909	874	96	868
Puffer, William F., Newton, Ala. Combined rule and square	682,637	Sept. 17	1765	403	96	2254
Pugh, Charlotte E., Oakville, Oreg. Table	683,069	Sept. 24	2565	586	96	2433
Pugh, William J., Davenport, Iowa, assignor of one-half to T. R. Levis, Rochester, N. Y. Multiple-cylinder explosive-engine	680,616	Aug. 13	1638	361, 362	96	1386

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pulger, Jacob A., Menasha, Wis. Broom-handle extension-coupling	677,372	July 2	69	15	96	17
Pullen, Leon W., Camden, N. J. Motor-vehicle	680,074	Aug. 6	661	146	96	1176
Pullman Automatic Ventilator Company. (See Pullman, Charles L., assignor.)						
Pullman, Charles L., Pequanac, N. J., assignor to Pullman Automatic Ventilator Company, Washington, D. C. Ventilation of vehicles, buildings, &c	678,130	July 9	1511	348	96	328
	682,996	Sept. 17	2453	555	96	2389
Pumpelly, James K., Chicago, Ill. Electrode	682,860	Sept. 17	2205	497, 498	96	2339
Punchard, John H., London, England. Band-brake wheel	682,815	Sept. 17	2115	------	96	2321
Purcell, Biship, Portageville, Mo. Welding metals	679,336	July 30	3911	874	96	868
Purcell, Ed., Jr., *et al.* (See Crueger, Hermann, assignor.)						
Purcell, John N., Conifer, assignor of one-half to J. S. Wilson, Meeker, Colo. Buckle						
Pure Food Company. (See Stoddard, William O., Jr., assignor.)						
Purks, William A. (See Cameron and Purks.)						
Purnell, Richard H., Rosedale, Miss. Combined stalk-cutter and rake	679,991	Aug. 6	519	110, 111	96	1146
Pursel, Samuel A. (See Gilfillan, Thomas G., assignor.)						
Purvis, Robert C., Laurel Springs, N. J., assignor of one-half to B. Wilmsen, Philadelphia, Pa. Doll	681,974	Sept. 3	611	131	96	1987
Q. & C. Company. (See Mussetter, McCarthy, and Holmes, assignors.)						
Quast, Charles G. (See Burns, Jeremiah D., assignor.)						
Quesenberry, Thomas. (See Quesenberry, Walker, assignor.)						
Quesenberry, Walker, assignor of one-half to T. Quesenberry, Phillips, Va. Animal-trap	680,617	Aug. 13	1640	362	96	1387
	681,139	Aug. 20	2607	588	96	1617
Quigley, James, Philadelphia, Pa. Tool-holder for metal-working machines	681,507	Aug. 27	3376	749	96	1776
Quinn, James, Bagaley, Pa. Rail-joint	680,500	Aug. 13	1432	313, 314	96	1344
Quinn, John J., assignor to Economy Furnace Company, New York, N. Y. Fuel-saving and smoke-consuming device for furnaces	678,902	July 23	3033	680	96	668
Quinn, Martin J., assignor to A. Taylor, Toronto, Canada. Advertising device for doors	679,396	July 30	4054	904, 905	96	899
Quisling, Rasmus H., Christiansand, Norway. Time-fuse for projectiles	681,487	Aug. 27	3341	741	96	1769
Quist, John, assignor of one-half to J. H. Stevens, Mystic, Iowa. Wrench	682,907	Sept. 17	2454	556	96	2300
Quitman, Edwin L., assignor of one-half to S. H. Levy, Chicago, Ill. Veterinary dental file	677,699	July 2	657	157	96	138
Raap, Gustav, assignor to "Selas" Gesellschaft mit Beschränkter Haftung, Berlin, Germany. Gas and air mixer	679,860	Aug. 6	269	58	96	1097
Rabbitt, Samuel E., Washington, D. C. Fireproof partition for buildings	682,274	Sept. 10	1137	257	96	2108
Rabbitt, Samuel E., Washington, D. C. Fireproof partition for buildings	681,508	Aug. 27	3377	749, 750	96	1776
Raby, Richard, York, Pa. Metallic railway-tie	678,279	July 9	1789	412	96	882
Race, George R., assignor of one-half to J. P. Wood, Philadelphia, Pa. Loom	682,342	Sept. 10	1253	283	96	2128
Radell, Anthony H., assignor to B. M. Frees, Chicago, Ill. File-sharpening apparatus						
Rae, John C. (See Roney, John, assignor.)						
Raggio, Charles A., and L. Malatesta, Chicago, Ill. Draft-regulator for furnaces or stoves	680,075	Aug. 6	663	147	96	1177
	683,328	Sept. 24	3036	695	96	2529
Raggio, Frank N., Louisville, Ky. Feed-pump attachment for fire-engines	682,746	Sept. 17	1974	447	96	2298
Rait, James, Newton, assignor to W. R. Park, Taunton, Mass. Display-clip						
Rambler, Homer F., Versailles, assignor of one-half to O. B. Farley, McKeesport, Pa. Fruit-picker	679,265	July 23	3753	838	96	814
Rand, Charles A. A., Chicago, Ill. Grain-binder	679,397	July 30	4056	905	96	899
Rand, Charles A. A., Chicago, Ill. Tension device for twine or cord	681,140	Aug. 20	2608	589	96	1617
Rand Drill Company. (See Ambrose, Robert L., assignor.)						
Rand, Leon W. (See Allen, Fred M., assignor.)						
Randleman, W. M. (See Evans, Lyman H., assignor.)						
Ranger, John N., Evansville, Ind. Surgical instrument	681,975	Sept. 3	614	131	96	1987
Rangnow, Otto, Philadelphia, Pa. Trunk	677,596	July 2	489	115	96	101
Rapp, John W., *et al.* (See Caldwell, William L., assignor.)						
Rapp, John W., New York, N. Y. Door	678,903	July 23	3035	680	96	669
Rasmussen, Peter, assignor of one-third to J. Russell, Iron Mountain, Mich. Drag or grapple	681,733	Sept. 3	142	26	96	1893
	679,242	July 23	3708	827	96	805
Rateau, Auguste C. E., Paris, France. Steam-regenerative accumulator	680,886	Aug. 20	2201	484, 485	96	1523
Rath, Charles, Los Angeles, Cal. Wheeled scraper	680,076	Aug. 6	664	------	96	1177
Rath, Wilhelm, Bottmingen, Switzerland. Producing non-alcoholic malt liquor	678,685	July 16	2606	585	96	565
Rathbone, John R., St. Louis, Mo. Automatic switch-thrower	681,976	Sept. 3	615	131	96	1988
Rathvon, William R., Florence, Colo. Book-rest	682,275	Sept. 10	1138	257	96	2108
Rathvon, William R., Florence, Colo. Combined index and reference-indicator	681,343	Aug. 27	3070	681	96	1717
Rau, Rodolphe, Schiltigheim, Germany. Manufacturing iron columns	682,998	Sept. 17	2455	556	96	2300
Rauen, Frederick W., St. Paul, Minn. Separable hinge	677,373	July 2	70	15, 16	96	17
Rauhoff, John M., Chicago, Ill. Bicycle-handle	677,469	July 2	238	60	96	52
Rawles, John, assignor of eleven-sixteenths to J. L. Griffith, G. H. McIlvain, East Galesburg, and H. C. Buhoup, Chicago, Ill. Draft-rigging for railway-cars	678,763	July 16	2734	616	96	589
Rawlinson, Joseph, Garston, near Liverpool, England. Chain mortising-machine	682,425	Sept. 10	1305	314, 315	96	2157
Ray, Francis B., and O. S. Brandt, New York, N. Y. Saddle for bicycles, &c						
Raymond, Francis. (See Crandall, Jesse A., assignor.)						
Raymond, Freeborn F., 2d, Newton, Mass., assignor, by mesne assignments, to United Shoe Machinery Company, of New Jersey. Heel or sole molding machine	681,344	Aug. 27	3070	681	96	1717
Raymond, Freeborn F., 2d., Newton, assignor to Carter's Ink Company, Boston, Mass. Paste pot or jar	682,276	Sept. 10	1139	258	96	2108
Read, George F., assignor to R. Hoe, New York, N. Y. Printing-machine	679,187	July 23	3614	806, 807	96	786
Read, Harry L. (See Gifford, George W., assignor.)						
Ream, George W., assignor to Bucher and Gibbs Plow Company, Canton, Ohio. Riding attachment for harrows	678,370	July 16	1984	451	96	438
Rearick, Seymour P. (See Rosenholz, Carl A., assignor.)						
Rebuschatis, William W. (See Hardy and Rebuschatis.)						
Rector, Alcorn, Hot Springs, Ark., assignor to W. Somerville, St. Louis, Mo. Gas-lamp	678,513	July 16	2269	510	96	497
Rector, Edward, *et al.* (See Fisher, Harvey L., assignor.)						
Redfield, Edward E., Grants Pass, Oreg. Engine	679,637	July 30	4507	1013	96	991
	683,329	Sept. 24	3037	695, 696	96	2529
Redman, John, Leeds, England. Window-fastener	679,035	July 23	3291	736	96	720
Redmond, Daniel H., Philadelphia, Pa. Umbrella-rib						
Reece Folding Machine Company. (See Reece, George, assignor.)						
Reece, George, Wollaston, assignor to Reece Folding Machine Company, Boston, Mass. Machine for folding collar-blanks, &c	680,174	Aug. 6	840	186	96	1212

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Reed, Adam, St. Joseph, Mo. Cushion-shoe	683,142	Sept. 24	2687	619	96	2458
Reed, John C., Allegheny, Pa. Flask for molding	678,976	July 23	3182	711	96	697
Reed, John C., Allegheny, Pa. Molding apparatus	678,977	July 23	3183	712	96	697
Reed, Samuel J., Onset, Ark. Well-drilling machine	680,819	Aug. 20	2071	451	96	1497
Reed, Walter. (See Cox and Reed.)	681,375	Aug. 27	3132	695	96	1729
Reed, Wilson, Norfolk, Va. Means for alining drills.						
Reedy, William H., *et al.* (See Rice, Joseph, assignor.)						
Reedy, William L., *et al.* (See Rice, Joseph, assignor.)	679,782	Aug. 6	115	26	96	1095
Reenstierna, Gustaf L., Winchester, Mass. Puzzle	680,811	Aug. 20	2073	451	96	1497
Rees, John K., Louisville, Ky. Sash-lock						
Rees, William B. (See Bellas, Thomas R., assignor.)						
Reese, Henry D., Abbeville, S. C., assignor to D. E. Kennedy and C. C. Cutts, Cordele, and P. A. Henderson, Seville, Ga. Eye-tester	682,638	Sept. 17	1767	404	96	2254
Reese, Louis C., London, assignor to P. Pfleiderer, Hillcrest, Wellington, England. Apparatus for extracting matter from liquids	679,575	July 30	4401	988	96	969
Reeves & Company. (See Clay, Harry C., assignor.)						
Reeves, Edwin A., *et al.* (See Mitchell, David, assignor.)						
Reeves, Edwin A., New Haven, Conn. Automatic vending-machine	678,033	July 9	1323	301, 302	96	292
Reeves, John A., Goldsboro, N. C. Fertilizer-distributer attachment for plows	681,578	Aug. 27	3510	778	96	1804
Reeves, Robert H., London, England. Apparatus for treating sewage	681,579	Aug. 27	3512	779	96	1804
Reeves, William, *et al.* (See Mitchell, David, assignor.)						
Regnier, Eugene S., assignor of one-half to L. M. Richards, Galesburg, Ill. Vegetable, fruit, or other slice and making same	678,511	July 16	2270	510, 511	96	408
Rehfuss, John G. (See Tily and Rehfuss.)						
Rehfuss, Martin O. (See Tily and Rehfuss.)						
Reichenbach, Fritz, Berlin, Germany. Internal-combustion engine	682,567	Sept. 10	1638	374	96	2208
Reichmann, Friedrich A., and C. A. Lagerqvist, Varberg, Sweden. Mercerizing short-staple cotton	682,494	Sept. 10	1518	------	96	2182
Reid, Charles R., assignor to Kirkpatrick Saddle Company, Springfield, Ohio. Clip for bicycle-saddles	679,913	Aug. 6	368	78	96	1117
Reid, John A., New York, N. Y., assignor to Singer Manufacturing Company, of New Jersey. Sewing-machine power-table	678,978	July 23	3185	712	96	698
Reid, John T., Jr., *et al.* (See Flitcroft, James E., assignor.)						
Reid, Robert H., assignor to J. H. Shipway, New York, N. Y. Grinding and polishing machine	682,999	Sept. 17	2456	556	96	2300
Reidel, H., *et al.* (See Rembert, Henry, assignor.)	678,764	July 16	2735	616	96	589
Reimold, Julius C. F., Metropolitan, N. Y. Bung-tap	682,426	Sept. 10	1397	315	96	2158
Reinhardt, Franz C., Paterson, N. J. Bust-former						
Reinhart, Max, Portland, Oreg., assignor of one-half to J. D. Meinhardt, San Francisco, Cal. Game	680,175	Aug. 6	842	186	96	1213
Reissmann, Frederick, Westpoint, assignor to W. Pettibone, New York, N. Y. Adjustable rack	677,797	July 2	846	202	96	178
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Induction-motor	678,034	July 9	1325	302, 303	96	292
Rembert, Henry, assignor of one-third to N. Weekes, E. McCarthy, and H. Reidel, Galveston, Tex. Bat compressing and feeding mechanism for cotton-presses	681,928	Sept. 3	515	108	96	1908
Renaker, Walter C. (See Welling, John E., assignor.)						
Renard, Arthur E. (See Bergman and Renard.)						
Rencher, Dora, assignor of one-fourth to A. H. Cowley, Salt Lake City, Utah. Garment-fitter	678,515	July 16	2272	511	96	498
Renner, Henry F., assignor to Hollands Manufacturing Company, Erie, Pa. Bench-vise	680,439	Aug. 13	1319	290	96	1322
Rensing, Carl, Berlin, Germany. Hardening artificial stone or the like	681,580	Aug. 27	3513	------	96	1804
Repeating Torpedo & Novelty Co. (See Wythe, William H., assignor.)						
Repke, Ernst. (See Wegner and Repke.)						
Reuleaux, Josef. (See Laughlin and Reuleaux.)						
Reus, John D., Castroville, Tex. Riding-plow	682,747	Sept. 17	1975	447, 448	96	2294
Reuter, Baptist, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Salicylate of dimethyl-amido-phenyl-dimethyl-pyrazolone and making same	680,278	Aug. 13	1026	------	96	1263
Rew, Henry C., Chicago, Ill. Apparatus for the manufacture of gas	678,487	July 16	2111	479	96	463
Rex Cigar Vending Company. (See Doremus, Willard D., assignor.)						
Reynolds, Andrew J., Boston, Mass. Street-sweeper	683,413	Sept. 24	3187	730, 731	96	2560
Reynolds, George H., Mansfield Depot, Conn. Piston	680,465	Aug. 13	1304	298	96	1332
Reynolds, John R., assignor to Smyth Manufacturing Company, Hartford, Conn. Signature-holding arm for book-sewing machines	681,509	Aug. 27	3379	750	96	1776
Reynolds, Orrin A., Covington, Ky. Locking means	679,337	July 30	3913	874, 875	96	868
Reynolds, Robert E. L. (See Letson, Talen, and Reynolds.)						
Reynolds, Samuel and S. J., Plymouth, Pa. Journal-box	677,374	July 2	71	16	96	17
Reynolds, Samuel J. (See Reynolds, Samuel and S. J.)						
Reynolds, William H. B., Houston, Tex. Ventilating apparatus	680,887	Aug. 20	2203	485, 486	96	1523
Rhind, Frank, Bridgeport, Conn. Flush-tank	682,568	Sept. 10	1640	375	96	2208
Rhoades, Curtis U., Poolville, N. Y. Device adapted for operating kettle-lids	677,597	July 2	481	115	96	101
Rhoades, Weslie M., Joplin, Mo. Pump	683,143	Sept. 24	2689	619	96	2458
Rhoads, George A., Wilmington, Del. Leather-stuffing machine	680,545	Aug. 13	1519	334	96	1364
Rhoads, Warren L., Lansdowne, Pa. Wave-power apparatus	680,357	Aug. 13	1190	259	96	1294
Rhode, Schiller A., and J. Dubord, Manitowoc, Wis. Sparking-igniter for explosive-engines	679,243	July 23	3709	828	96	806
Rhodes, E. H., *et al.* (See Pendleton, John B., assignor.)	682,343	Sept. 10	1255	284	96	2128
Rhodes, Jay B., Harvey, assignor to F. C. Austin, Chicago, Ill. Dump-car	681,376	Aug. 27	3133	695	96	1729
Rhodes, Samuel L., *et al.* (See Neill and Tinker, assignors.)						
Rhodes, Wilson E., assignor of one-half to F. M. Rowe, Corry, Pa. Writing-tablet	680,440	Aug. 13	1320	290	96	1322
Rhodin, Brodde E. F., Sault Ste. Marie, Canada, assignor to American Alkali Company, Camden, N. J. Electrolytic apparatus	680,441	Aug. 13	1321	290	96	1322
Rhodin, Brodde E. F., Sault Ste. Marie, Canada, assignor to American Alkali Company, Camden, N. J. Electrode for electrolytic cells	677,798	July 2	847	202	96	178
Riblet, George E., Erie, Pa. Heater	680,736	Aug. 20	1922	421, 422	96	1469
Riblet, George E., Erie, Pa. Steam-generator	681,977	Sept. 3	616	131	96	1988
Ricard, Jean M., and F. C. Gary, Toulouse, France. Sparking plug						
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	677,375	July 2	73	16	96	18

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Dynamo-electric machine	678,904	July 23	3036	680	96	669
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Controlling high-potential circuits	678,905	July 23	3037	680	96	669
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	679,006	July 23	3228	722, 723	96	708
Rice, Joseph, assignor of two-thirds to W. I. and W. H. Reedy, Chicago, Ill. Means for operating elevator gates or doors	679,861	Aug. 6	271	59	96	1097
Rice, William G., Philadelphia, Pa. Valve-gearing	679,992	Aug. 6	520	111	96	1147
Rich, Abraham L., Salt Lake City, Utah. Coffee-pot	677,700	July 2	662	158	96	140
Rich, Henry M. (See Bancroft, Frank H., assignor.)						
Richards, David. (See Richards, Thomas, assignor.)						
Richards, David, Pantyffynnon, England. Receptacle for transporting bottles, &c	682,495	Sept. 10	1519	344	96	2182
Richards, Edwin R., Laud, Ind. Horse-detaching appliance	681,734	Sept. 3	144	27	96	1898
Richards, Francis H., Hartford, Conn. Looper for sewing-machines	678,627	July 16	2505	560, 561	96	545
Richards, Francis H., Hartford, Conn., assignor to J. E. Tracy, Plainfield, N. J. Sewing-machine	679,511	July 30	4279	963	96	941
Richards, Hubert P., New Britain, Conn., assignor to J. E. Tracy, Plainfield, N. J. Looper for sewing-machines	677,886	July 9	1034	243, 244	96	237
Richards, Hubert P., New Britain, Conn., assignor to J. E. Tracy, Plainfield, N. J. Sewing-machine	679,914	Aug. 6	370	78, 79	96	1117
Richards, Jackson, assignor to United States Boiler Cleaning Compound Company, Philadelphia, Pa. Boiler-cleaning compound	683,330	Sept. 24	3088	------	96	2530
Richards, Jesse D., Wabash, assignor of one-half to E. Gilienwater and E. Baker, Sims, Ind. Automatic vehicle-brake	680,358	Aug. 13	1181	260	96	1295
Richards, John, San Francisco, Cal. Centrifugal pump	678,198	July 9	1635	377	96	352
Richards, John, San Francisco, Cal. Centrifugal pump	678,199	July 9	1636	377	96	353
Richards, John, San Francisco, Cal. High-pressure rotary pump	681,581	Aug. 27	3514	779, 780	96	1805
Richards, Louisa M. (See Regnier, Eugene S., assignor.)						
Richards, Thomas, assignor of nine-twentieths to D. Richards, Chicago, Ill. Lock	678,305	July 9	1817	425	96	394
Richards, Thomas C., Winsted, Conn. Candle-lamp	681,263	Aug. 27	2914	645	96	1687
Richards, Thomas C., Winsted, Conn. Shade-holder for lamps	681,582	Aug. 27	3517	780	96	1805
Richardson, Charles A. (See St. John, John C., assignor.)						
Richardson, Fred A., Lowell, Mass. Twine-cutter	681,978	Sept. 3	616	132	96	1988
Richardson, M. E., trustee. (See Lundquist, Frank A., assignor.)						
Richardson, Marshal A., Windsor, Ill. Wrench	681,979	Sept. 3	618	132	96	1988
Richardson, Thomas D., Philadelphia, Pa. Shirt-waist holder and skirt-supporter	678,765	July 16	2737	616	96	589
Riches, Henry R., assignor to Wool, Hide & Skin Syndicate, Limited, Cheshunt, England. Removing hair, wool, fur, or the like from hides or skins	682,560	Sept. 10	1641	375	96	2208
Richheimer, Isaac D., Chicago, Ill. Coffee-cooling apparatus	681,897	Sept. 3	433	88	96	1951
Richman, Solomon, assignor to National Enameling and Stamping Co., New York, N. Y. Washtub with wringer attachment	680,279	Aug. 13	1027	230	96	1263
Richmond, Edmond W. T., Romford, England. Grilling attachment for gas-stoves	682,748	Sept. 17	1976	448	96	2294
Richmond, Edmond W. T., Romford, England. Gas-heater	683,144	Sept. 24	2691	619, 620	96	2459
Richmond, Edmond W. T., Romford, England. Gas cooking apparatus	683,331	Sept. 24	3088	696	96	2530
Richter, Charles, and R. T. Eschler, Camden, N. J. Electric automobile-motor	680,618	Aug. 13	1642	362	96	1387
Richter, Charles, and R. T. Eschler, Camden, N. J. Electric traction-motor	680,619	Aug. 13	1644	363	96	1388
Richter, Friedrich. (See Pittner and Richter.)						
Richter, Max, *et al.* (See Fischer, Gustav, assignor.)						
Richter, Ottokar, Kiel, Germany. Steam-valve	677,470	July 2	240	60	96	53
Ricker, Adolph J., assignor to Stowell Manufacturing & Foundry Company, South Milwaukee, Wis. Track for sliding doors	682,427	Sept. 10	1308	316	96	2158
Ricker, George E., *et al.* (See Huxley, Charles E., assignor.)						
Ricketts, Thomas H. (See Norris, Jewett L., assignor.)						
Rickles, Louis H., Buford, Ala. Automatic vehicle-brake	683,145	Sept. 24	2694	620	96	2460
Ricks, John T. (See Myers, Abram S., assignor.)						
Ricksecker, Alva C. (See Smith, Frank L., assignor.)						
Riddell, John, Schenectady, N. Y., assignor to General Electric Company, of New York. Coil-forming apparatus	678,280	July 9	1790	412, 413	96	383
Riddle, Napoleon B., Riddle, La. Nut-lock	680,501	Aug. 13	1434	314	96	1345
Rider, George, Rensselaer, N. Y. Piano-violin	678,516	July 16	2272	511	96	498
Rider, Timothy B., Fitch Bay, Canada. Acetylene-gas generator	679,862	Aug. 6	274	59, 60	96	1098
Ridgway, George E., Brentwood, Ashley, England. Apparatus for spreading liquids onto filter-beds	678,979	July 23	3186	713	96	698
Ridlon, George W. (See Day, William C., assignor.)						
Riehlé, Frederick A. (See Grist, Benjamin W., assignor.)	681,812	Sept. 3	297	60	96	1925
Riles, Elias E., New York, N. Y. Support for telephone apparatus	681,813	Sept. 3	298	60	96	1925
Riles, Elias E., New York, N. Y. Support for telephone-transmitters or other apparatus	678,813	July 16	2824	637	96	608
Riggs, Addison H., Asbury Park, N. J. Nut-tapping machine	678,814	July 16	2827	637	96	609
Riggs, Addison H., Asbury Park, N. J. Tap						
Riggs, Frederick N. (See Hatfield, Andrew L., assignor.)						
Riley, John, Greencastle, Ind. Suspender-end	679,783	Aug. 6	116	26	96	1005
Riley, William K., Lake City, Colo. Engine	682,389	Sept. 10	1326	299, 300	96	2143
Ringset Company. (See Ford, William H., assignor.)						
Rioux, William, Fall River, Mass. Shuttle-guard for looms	681,460	Aug. 27	3295	733	96	1761
Ripley, Daniel C. (See Davis and Ripley.)						
Ripley-Howland Manufacturing Company. (See Simonds, Edwin A., assignor.)						
Risdon Iron and Locomotive Works. (See Schierholz, August H., assignor.)						
Risk, James V., Monroe, La. Saw-clamp	682,277	Sept. 10	1140	258	96	2109
Rist, Joseph, St. Louis, Mo. Combined cigar-cutter and match-safe	680,359	Aug. 13	1182	260, 261	96	1295
Ritter, Frank, Rochester, N. Y. Dental chair. (Reissue)	11,931	Sept. 17	2480	562, 563	96	2295
Ritter, Gilbert P. (See Williams and Ritter.)						
Ritter, William F., Cincinnati, Ohio. Electric-arc lamp	678,517	July 16	2271	511, 512	96	498
Rittman, Christian A., Sandusky, Ohio. Changeable gear	682,861	Sept. 17	2207	498	96	2339
Ritzer, Conrad J., Schenectady, N. Y. Variable-pressure electric-current transformer	678,518	July 16	2276	512	96	499
Roach, Adolphus E. (See Spillman and Roach.)						
Roan, John H., *et al.* (See Houser, Winfield S., assignor.)						
Robbins, Ira, Philadelphia, Pa. Automatically-operated railway-switch	683,224	Sept. 24	2826	650, 651	96	2485

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Robbins, Isaac, assignor to Harrison Wagon Company, Grand Rapids, Mich. Adjustable wagon-rack	680,620	Aug. 13	1646	363	96	1388
Robbins, Samuel K., *et al.*, executors. (See Lovett, Joseph S. H., assignor.)						
Roberts, David. (See Hornsby and Roberts.)	678,980	July 23	3187	713	96	698
Roberts, Durald H., Detroit, Mich. Lubricator	682,496	Sept. 10	1520	344	96	2182
Roberts, Ellwood W., Brooklyn, N. Y. Coin-carrier	683,000	Sept. 17	2458	557	96	2391
Roberts, Isaiah L., assignor of one-third to E. N. Dickerson, New York, N. Y. Obtaining aluminium hydrate by electrolysis	679,685	July 30	4594	1082	96	1011
Roberts, Jacob. (See Hargraves, Heilig, and Roberts.)	682,749	Sept. 17	1977	448 / 449	96	2294
Roberts, James L., Pontiac, Ill. Cream-separator	683,382	Sept. 24	3040	696 / 697	96	2530
Roberts, John G., Idaho Springs, Colo. Ore-concentrator	680,176	Aug. 6	843	186 / 187	96	1213
Robertson, Arnold A., Titusville, Pa. Electromagnetic brake	683,146	Sept. 24	2696	621	96	2460
Robertson, George, Durango, Colo. Gold separator or washer	683,001	Sept. 17	2459	557	96	2391
Robertson, Oscar C. (See Coddington, Cephas D., assignor.)	681,510	Aug. 27	3381	750	96	1777
Robertson, William L., Lebanon, N. H. Photographic-plate holder	680,963	Aug. 20	2348	515 / 516	96	1553
Robeson, Anthony M., Douglas, Alaska, assignor to W. J. Chalmers, Chicago, Ill. Car-axle	678,519	July 16	2277	512	96	499
Robin Hood Powder Company. (See Dickson, Edward, assignor.)	681,364	Aug. 27	2916	646	96	1687
Robinson, Albert W., Sharptown, Md. Machine for producing blanks	681,511	Aug. 27	3382	751	96	1777
Robinson, Frederick W., deceased; H. F. Cutter, executrix, East Lyme, Conn. Extracting wool-fat	677,799	July 2	849	202	96	179
Robinson, Grant W., Lodi, Wis. Garden-tool	680,502	Aug. 13	1434	314	96	1345
Robinson, Henry A., *et al.* (See Freund, Frederick W., assignor.)	677,598	July 2	482	116	96	102
Robinson, Henry C., Jacksboro, Tex. Singletree-hook and trace-securing device	677,599	July 2	483	116 / 117	96	102
Robinson, Joseph L. (See Chew, William M., assignor.)	678,766	July 16	2738	617	96	590
Robinson, Lawrence E., Butler, Pa. Reversible clutch-pulley						
Robinson, Martina T., Bloomsburg, Pa. Closet-seat						
Robinson, Thomas A., Paterson, N. J. Gauze-loom						
Robinson, Warren H., Keene Valley, N. Y. Sand-band						
Robinson, William J., and H. Higgins, Annan, Scotland. Chemical apparatus						
Roblin, Edwin, assignor of one-half to J. N. Pringle, Belleville, Canada. Cutter-bar for mowers or reapers						
Rochester Germicide Co. (See Calkins, Daniel N., assignor.)						
Rochester Optical and Camera Company. (See Carlton and Hutchings, assignors.)						
Rochester Optical and Camera Company. (See Hutchings, Charles, assignor.)	679,512	July 30	4287	963 / 964	96	943
Rock, Melvin F., Homer, N. Y. Bicycle-pump						
Rockwell, Frederick C., *et al.* (See Mettler, Caspar W. and A., assignors.)	680,621	Aug. 13	1647	363	96	1389
Rockwell, James D., New York, N. Y. Disinfecting device	683,184	Sept. 24	2756	634	96	2471
Rockwell, James P., East Windsor Hill, Conn. Clamp	678,423	July 16	2660	472 / 473	96	457
Rockwell, Walter S., New York, N. Y. Furnace	681,814	Sept. 3	302	60	96	1925
Rockwell, Warren C., assignor of one-half to W. F. Stine, Mount Carmel, Pa. Lamp-shade holder	677,800	July 2	850	202 / 203	96	179
Rockwood, William J., Monrovia, Cal. Manufacture of mosaic art panels	678,085	July 9	1327	303	96	202
Rodemeier, John, Freeport, Ill. Truck for moving buildings	678,424	July 16	2082	473	96	457
Rodenberger, Mabery C., East St. Louis, Ill. Tool-holder	681,265	Aug. 27	2915	646	96	1687
Roderick, Thomas, Columbus, Ohio. Mantle-support						
Rodes, Charles E. (See Stone, Columbus, assignor.)						
Rodger Ballast Car Company. (See Hart, Harry S., assignor.)						
Roe, Arthur W. (See Slater and Roe.)	678,281	July 9	1798	414	96	383
Roe, James P., Pottstown, Pa. Puddling-machine	678,282	July 9	1801	415	96	384
Roe, James P., Pottstown, Pa. Puddling-furnace						
Roepper, Charles W. (See Scholl, George P., assignor.)	679,266	July 23	3754	838 / 839	96	814
Roesen, Oscar, assignor to R. Hoe, New York, N. Y. Rotary printing-machine	680,280	Aug. 13	1028	230 / 231	96	1264
Roesser, Rudolf, assignor to Orkan Lufttrocknungsapparat Actien Gesellschaft, Vienna, Austria-Hungary. Blowing-fan	677,701	July 2	668	158	96	140
Roger, John, Denver, Colo. Ore-roasting furnace	678,686	July 16	2607	585	96	565
Rogers, Frank A., New Orleans, La. Coin-holder and carrier	680,622	Aug. 13	1649	364	96	1389
Rogers, Frank M., and A. A. Blakeney, Franklinville, Md. Loom-picker						
Rogers, Frederick H., assignor of one-half to T. T. Porteous, San Jacinto, Cal. Automatic electric cut-out	677,843	July 2	947	224	96	199
Rogers, Herbert W., assignor of one-half to D. B. Gotham, Watertown, N. Y. Dust-pan	678,906	July 23	3038	681	96	670
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	678,036	July 9	1328	303 / 304 / 305 / 306 / 307 / 308 / 309 / 310 / 947 / 948	96	293
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	679,481	July 30	4211	949 / 950 / 951	96	928
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	679,482	July 30	4223	951	96	930
Roggen, Isaac. (See Leavy and Roggen.)	677,801	July 2	850	204 / 205	96	179
Roggingr, John, assignor to Falk Company, Milwaukee, Wis. Printing-telegraph	679,338	July 30	3914	875	96	868
Rohrbeck, Fritz, St. Veit-on-the-Triesting, Austria-Hungary. Bush for two-part belt-pulleys	677,802	July 2	858	205	96	181
Rohrer, Elwood. (See Rohrer, John B., assignor.)	682,278	Sept. 10	1142	258	96	2109
Rohrer, John B., assignor to E. Rohrer, Philadelphia, Pa. Office-desk	678,587	July 16	2418	542	96	527
Roland, Henry H., *et al.* (See Matthias, William C., assignor.)	680,670	Aug. 13	1757	396	96	1412
Roller, George W., Mundell, Ark. Tobacco-pipe						
Rollo, Louis C. (See Hopkins, Harvey L., assignor.)						
Roney, John, assignor of one-half to J. C. Rae, Woonsocket, R. I. Bobbin-holder						
Rönneberg, Emil F., Leipsic, Germany. Appointment-calendar						

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Rontke, Albert, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Overseaming sewing-machine	681,735	Sept. 3	145	27	96	1893
Rooney, Patrick B., New York, N. Y. Bed-bottom	683,333	Sept. 24	3041	697	96	2530
Roop, Rosanna, Montgomery, W. Va. Meat-tenderer	681,266	Aug. 27	2917	646	96	1688
Root, Edward S., and C. S. Demarest, New York, N. Y. Valve for gas or other pipes	679,543	July 30	4343	975	96	956
Roper, Charles F. (See Draper and Roper.)						
Roper, Charles F., assignor to Draper Company, Hopedale, Mass. Shuttle-checking means for looms	680,623	Aug. 13	1650	364	96	1389
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Shuttle-checking means for looms	678,321	July 9	1873	481	96	399
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Mechanical movement	678,767	July 16	2739	617	96	590
Rosborough, John, assignor of one-half to L. A. Manewal, St. Louis, Mo. Cake-icing machine	681,929	Sept. 3	518	108 / 109	96	1969
Roscow, Richard. (See Taylor, James H., assignor.)	682,344	Sept. 10	1257	------	96	2129
Rosell, Claude A. O., assignor to J. A. Scriven, New York, N. Y. Medicated fabric	682,367	Sept. 10	1287	------	96	2135
Rosell, Claude A. O., assignor to J. A. Scriven, New York, N. Y. Fabric	682,639	Sept. 17	1768	404	96	2255
Rosen, David J., Brooklyn, N. Y. Trolley	683,225	Sept. 24	2828	651	96	2485
Rosen, David J., Brooklyn, N. Y. Ventilator						
Rosen, Harry L., *et al.* (See Freese and Levy, assignors.)	678,425	July 16	2683	473	96	457
Rosenbusch, Heinrich, Munich, Germany. Facing-tile	678,981	July 23	3188	------	96	699
Rosenfeld, Lazar, Vienna, Austria-Hungary. Dust-absorbent						
Rosenfeld, Max C. (See Leu, Frederick, assignor.)	680,896	Aug. 13	1243	274	96	1307
Rosenhain, Walter, London, England. Counting device	680,940	Aug. 20	2308	507	96	1545
Rosenheim, Wallace. (See Sheridan, Michael, assignor.)	679,688	July 30	4509	1013	96	991
Rosenheimer, Edward T., Pelham, N. Y. Curling-iron heater	677,471	July 2	241	61	96	53
Rosenholz, Carl A., assignor of one-third to S. P. Rearick, Wardner, Idaho. Cigar cutter and lighter	681,736	Sept. 3	148	28	96	1894
Rosenthal, August, assignor to Rosenthal Husker Company, Milwaukee, Wis. Combined corn-husker and fodder-shredder						
Rosenthal, August, assignor to Rosenthal Husker Company, Milwaukee, Wis. Corn-husking machine						
Rosenthal, Emil. (See Epstein and Rosenthal.)						
Rosenthal Husker Company. (See Rosenthal, August, assignor.)						
Rosenthal, Samuel, *et al.* (See Rothe, John C., assignor.)	683,070	Sept. 24	2566	------	96	2483
Rosenthal, Theodor, Nuremberg, Germany. Paper-like material and making same	680,360	Aug. 13	1184	261 / 262	96	1295
Rosett, Max, New York, N. Y. Form and record book	678,426	July 16	2084	474	96	457
Rosi, Emilio, Arquata-Scrivia, and G. Vacotti, Serravalle-Scrivia, Italy. Electric clock						
Ross Attachment and Machine Company. (See Hess, Edward B., assignor.)						
Ross Attachment and Machine Company. (See Ross and Donaldson, assignors.)	679,429	July 30	4102	917 / 918	96	908
Ross, Hugh R., Belfast, Ireland. Loom						
Ross, John D., *et al.* (See Sharpneck, William S., assignor.)						
Ross, John G., and H. M. Taggart, Philadelphia, Pa. Adjustable adhesive supporting plaster or bandage	679,903	Aug. 6	522	111	96	1147
Ross, John R., Jonesville, La. Broom-bridle	683,071	Sept. 24	2567	586	96	2434
Ross, Moyer Manufacturing Company. (See Ross, Simon, assignor.)						
Ross, Simon, assignor to Ross, Moyer Manufacturing Company, Cincinnati, Ohio. Hub for polishing-brushes	680,418	Aug. 13	1287	283	96	1316
Ross, Simon, assignor to Ross, Moyer Manufacturing Company, Cincinnati, Ohio. Beading-machine	680,624	Aug. 13	1652	364	96	1390
Ross, Thomas H., and E. Donaldson, Brooklyn, assignors to Ross Attachment and Machine Company, New York, N. Y. Sewing-machine attachment for overedge stitching	678,907	July 23	3039	681	96	670
Ross, Thomas H., and E. Donaldson, Brooklyn, assignors to Ross Attachment and Machine Company, New York, N. Y. Sewing-machine attachment for overedge stitching	678,908	July 23	3044	682	96	671
Rosskopf, Heinrich, Steglitz, Germany. Bicycle-stand	680,177	Aug. 6	844	187	96	1213
Rostin, Heliodor, and S. Szubert, Berlin, Germany. Gas-burner	681,980	Sept. 3	620	132	96	1980
Roth, Georges, Vienna, Austria-Hungary. Automatic firearm	681,737	Sept. 3	149	28	96	1894
Roth, Georges, and C. Krnka, Vienna, Austria-Hungary. Automatic firearm	683,072	Sept. 24	2568	587	96	2484
Roth, Henry G., Minneapolis, Minn. Display-fixture	678,687	July 16	2609	586	96	566
Roth, Henry G., Minneapolis, Minn. Display-fixture	678,688	July 16	2610	586	96	566
Roth, Henry G., Minneapolis, Minn. Display-fixture	678,689	July 16	2612	587	96	566
Roth, Henry G., Minneapolis, Minn. Display-fixture	678,690	July 16	2613	587	96	566
Roth, Henry G., Minneapolis, Minn. Display-fixture	678,691	July 16	2614	587 / 588	96	566
Roth, Henry G., Minneapolis, Minn. Wall display-fixture and curtain	680,888	Aug. 20	2206	486	96	1523
Roth, Henry G., Minneapolis, Minn. Weighing-scale						
Roth, Henry G., assignor of one-half to C. E. Wyman, Minneapolis, Minn. Tea or coffee pot	678,692	July 16	2615	588	96	567
Roth, Joseph, and W. Helmke, assignors of one-third to G. Maetzold, London, England. Railway signalling	681,377	Aug. 27	3135	695 / 696 / 697	96	1780
Roth, Wilhelm, Columbus, Nebr. Cultivator	682,279	Sept. 10	1144	258 / 259	96	2109
Rothe, John C., Brooklyn, assignor to J. Goldin, S. Rosenthal, M. Wolfsohn, and J. Schreiber, New York, N. Y. Unhairing-machine	677,425	July 2	168	40	96	88
Rothweiler, Josef. (See Connerth and Rothweiler.)						
Rouse, Claude D. (See Rouse, Elisha A., C. D., and N. L.)						
Rouse, Elisha A., C. D., and N. L., Bozeman, Mont. Gate	682,955	Sept. 17	2372	536	96	2374
Rouse, Harry B., Chicago, Ill. Printer's composing-stick	680,546	Aug. 13	1520	334	96	1364
Rouse, Harry B., Chicago, Ill. Printer's composing-stick	680,547	Aug. 13	1521	334	96	1364
Rouse, Harry B., Chicago, Ill. Printer's composing-stick	680,625	Aug. 13	1653	364	96	1390
Rouse, Nelson L. (See Rouse, Elisha A., C. D., and N. L.)						
Rowe, F. M. (See Rhodes, Wilson E., assignor.)						
Rowe, Margaret E. (See Rowe, Wesley O., assignor.)						
Rowe, Wesley O., assignor of one-half to M. E. Rowe, Yonkers, N. Y. Mail-box	678,698	July 16	2617	589	96	567
Rowland, Thomas F., New York, N. Y. Plate-metal arch	677,472	July 2	244	61,62	96	53
Rowland, Thomas F., New York, N. Y. Welding-machine	682,640	Sept. 17	1769	404 / 405	96	2255
Rowland, Thomas F., Jr., Brooklyn, assignor to T. F. Rowland, Sr., New York, N. Y. Circular-flanging machine	681,512	Aug. 27	3384	751 / 752	96	1778
Roy, William O., Montreal, Canada. Permanent foundation-post	681,738	Sept. 3	151	28	96	1894
Royal, Richard E., Tell City, Ind. Vegetable-cutter	677,473	July 2	247	62	96	54
Royle, George, West Kensington, and W. R. Wynne, Kensington; said Royle assignor of one-half to E. B. Koopman, London, England. Optical toy	678,351	July 9	1942	444 / 445	96	412

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Royle, Vernon, Paterson, N. J. Beveling-machine	678,037	July 9	1342	310, 311	96	295
Royle, Vernon, Paterson, N. J. Insulating-machine	678,038	July 9	1345	311	96	295
Royle, Vernon, Paterson, N. J. Insulating-machine	678,039	July 9	1348	311	96	296
Royle, Vernon, Paterson, N. J. Machine for punching jacquard-cards	678,040	July 9	1349	311	96	296
Rozell, William M. (See Shepherd, Alfred, assignor.)						
Ruark, C. N. (See Kahoa, Charles V., assignor.)						
Rubber and Celluloid Harness Trimming Co. (See Schreiner, Joseph, assignor.)						
Rubber and Celluloid Harness Trimming Co. (See Walker, George, assignor.)						
Rübel, Walter. (See Wescher and Wollenhaupt, assignors.)						
Rubin, Max, New York, N. Y. Suspension-clasp	678,982	July 23	3188	713	96	699
Ruck, Johannes, Oldenfelde, near Alt-Rahlstedt, Germany. Acetylene-generator for life-saving apparatus	677,600	July 2	486	117	96	102
Ruckel, Carroll A. (See Potts and Ruckel.)						
Ruddell, George B. (See Spelman, Henry H., assignor.)						
Ruddick, John J., Newton, Mass. Electric signal	678,135	July 9	1518	350	96	330
Rudolf, Charles, Chicago, Ill. Seat	679,915	Aug. 6	376	79	96	1118
Rudolph, Charles, Paris, France, assignor to C. T. Schoen, Philadelphia, Pa., and J. B. Brady, New York, N. Y. Flexible metallic tubing	680,988	Aug. 20	2388	527	96	1560
Ruenzel, Henry G., assignor of one-half to H. P. Hoehl, Milwaukee, Wis. Bowling-alley	682,750	Sept. 17	1981	449	96	2295
Ruff, Frederick A., Detroit, Mich. Electric igniter	681,739	Sept. 3	152	28	96	1894
Ruggles, Horatio B., Boston, Mass. Door-bedstead	678,828	July 16	2868	646	96	616
Rühling, Julius, Gera, Germany. Apparatus for preventing freezing of water-pipes	682,497	Sept. 10	1520	344	96	2182
Rumpf, William L. G., Chicago, Ill. Horse-checking device	680,861	Aug. 13	1187	262	96	1295
Rusby, Joseph H., Nutley, N. J. Electric-light attachment	682,116	Sept. 3	842	188	96	2032
Rush, Andrew. (See Rush, Henry and A.)						
Rush, Henry and A., Rimerton, Pa.; said A. Rush assignor to said Henry Rush. Horse-shoe	679,704	July 30	4631	1041	96	1018
Rush, Thomas H., Lamb, Va. Drenching-bit	683,147	Sept. 24	2696	621	96	2460
Russell, Alexander G., *et al.* (See Pocock, Stephen H., assignor.)						
Russell, Bridgman, London, England. Pump	677,474	July 2	240	62, 63	96	54
Russell, Cassius C., St. Joseph, Mo. Pocket pencil-holder	680,281	Aug. 13	1029	231	96	1264
Russell, Charles W., Providence, R. I. Cloth-drying machine	678,136	July 9	1522	350, 351	96	331
Russell, Clifton B., assignor of one-half to H. E. Ryder, Marlboro, Mass. Electrical switch-operating mechanism	680,626	Aug. 13	1654	365	96	1390
Russell & Company. (See Heggem, Charles O., assignor.)						
Russell, Edwin A., Newark, Ohio. Station-indicator	682,428	Sept. 10	1400	316	96	2158
Russell, Evans E., New Haven, Conn. Reproducer for phonographs	681,081	Sept. 3	621	132	96	1999
Russell, Herbert S. (See Haslett, William H., assignor.)						
Russell, James T. (See Timmis, Walter S., assignor.)						
Russell, John. (See Rasmussen, Peter, assignor.)						
Russell, William M., and F. P. Bixon, New York, N. Y. Pulverizing-mill	677,702	July 2	695	158, 159	96	141
Rust, Robert S., Front Royal, Va. Surface cattle-guard	683,092	Sept. 17	2460	357	96	2391
Rutledge, Walter S., *et al.* (See Wyman, George H., assignor.)						
Ruud, Edwin, Pittsburg, Pa. Automatic cut-off for gas-service pipes	682,345	Sept. 10	1258	284, 285	96	2129
Ryan, Michael B., London, England. Exercising-machine	679,784	Aug. 6	117	26	96	1065
Ryder, Andrew V., Cadiz, Ohio. Cultivator	679,576	July 30	4403	989	96	970
Ryder, George A., Bolton, England, and A. Parkinson, Paisley, Scotland. Coupling for drawing-rollers	678,588	July 16	2419	543	96	527
Ryder, Henry, Boston, Mass. Manila rope	682,641	Sept. 17	1773	405	96	2256
Ryder, Henry, Boston, Mass. Machine for making Manila rope	682,751	Sept. 17	1982	449	96	2295
Ryder, Herbert E. (See Russell, Clifton B., assignor.)						
Ryder Manufacturing Company. (See Stewart, Thomas D., assignor.)						
Ryer, Elmer L., New York, N. Y. Opthalmoscope	679,696	July 23	3292	736, 737	96	720
Ryland, Marion W., Spokane, Wash., assignor to F. J. Claxton, Victoria, British Columbia, Canada. Hame-tug	679,188	July 23	3019	807	96	788
Ryon, Eppa H., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Reed-motion for looms	679,863	Aug. 6	277	60	96	1099
Ryon, Eppa H., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom.	682,429	Sept. 10	1402	316	96	2159
Rystrom, Charles, *et al.* (See Smith, Charles H., assignor.)						
Ryther, Frank A., assignor to Deering Harvester Company, Chicago, Ill. Corn-shocker	681,513	Aug. 27	3387	752	96	1778
Ryther, William J., and B. A. Cole, St. Paul, Minn., assignors to Smith Premier Typewriter Company, Syracuse, N. Y. Attachment for type-writers	679,785	Aug. 6	118	27	96	1066
S. A. Woods Machine Company. (See Blood and Woods, assignors.)						
S. D. Warren & Company. (See Girouard, Raoul, assignor.)						
S'Jongers, Franciscus. (See Van Wesemael and S'Jongers.)						
Sabin, Belle C., and B. C. Huleatt, Harvey, Ill. Powder-puff	679,398	July 30	4057	905	96	809
Sabin, Herbert B., Cleveland, Ohio. Telephone-transmitter-arm joint	680,077	Aug. 6	665	147	96	1177
Sachs, Joseph, Hartford, Conn. Means for controlling electric-motor vehicles	682,642	Sept. 17	1775	405	96	2256
Sackett, August J., Baltimore, Md. Disintegrating-mill	678,983	July 23	3189	714	96	699
Saegmuller, George N., Washington, D. C. Compound lens	678,306	July 9	1849	425	96	394
Sage, Henry J., Beaver, assignor to Opalite Tile Company, Pittsburg, Pa. Apparatus for bending glass	682,570	Sept. 10	1643	375	96	2208
Sage, Henry J., Beaver, assignor to Opalite Tile Company, Pittsburg, Pa. Apparatus for bending glass	682,571	Sept. 10	1643	376	96	2208
Sage, Horace, Richland, assignor of one-half to W. L. Newbold, Rushville, Ind. Railway-switch	679,189	July 23	3020	807, 808	96	788
Saladin Pneumatic Malting Construction Co. (See Prinz, William H., assignor.)						
Saldaña, Telipe, Paris, France. Means for braking electricity-meters	681,885	Sept. 3	334	68	96	1932
Salisbury, George P., New Haven, Conn., assignor to Western Cartridge Company, East Alton, Ill. Cartridge-shell	678,628	July 16	2509	561	96	545
Salisbury, Herbert L. (See Graham, Buell, and Salisbury.)						
Sallade, Jacob, Milton, Pa., assignor of one-half to B. F. Johnson, Richmond, Va. Envelop.	681,659	Aug. 27	3680	824	96	1839
Salmon, William C. (See Perks and Salmon.)						
Salomone, Rocco, assignor of one-half to T. F. O'Grady, Paterson, N. J. Car-fender	682,643	Sept. 17	1777	406	96	2257
Salyer, Harry M., assignor to Ludwig & Co., New York, N. Y. Automatic controlling-valve	678,427	July 16	2085	474	96	458
Samuel Crump Machine Company. (See Hart, Frederick, assignor.)						
San Francisco Arms Company. (See Carr, Howard, assignor.)						
Sandberg, Fritz A., Brighton, Minn. Rotary plow	679,389	July 30	3915	875, 876	96	869

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Sanderlin, Thomas M., assignor of one-half to G. P. and A. J. Hudson, Norfolk, Va. Street-car fender and brake	680,178	Aug. 6	845	187, 188	96	1213
Sanders, Edward A., Saginaw, Mich. Chimney-cowl	682,430	Sept. 10	1404	317	96	2159
Sanderson, George L., Antesfort, Pa. Stadia-rod	678,041	July 9	1350	312	96	296
Sandwich Manufacturing Co. (See Dolan, James J., assignor.)						
Sanford, Lewis H. (See Hodgkins, Nelson C., assignor.)						
Sansone, Concetta. (See Sansone, Joseph, assignor.)						
Sansone, Joseph, assignor to C. Sansone, Des Moines, Iowa. Combined scissors and comb for barbers' use	681,740	Sept. 3	152	29	96	1895
Sansoucy, Charles E., assignor of two-thirds to A. N. Peterson and S. Perrault, Eveleth, Minn. Cattle-guard	682,431	Sept. 10	1406	317	96	2159
Santee, Charles L., Plymouth, Wis. Rocking-chair	679,864	Aug. 6	280	61	96	1099
Sarafian, Hentir, New York, N. Y. Lamp-wick	684,401	Aug. 27	3165	705	96	1785
Sargent, Allan C., Graniteville, Mass. Carbureter	680,941	Aug. 20	2309	507	96	1545
Sargent, Frederick. (See McKenzie and Sargent.)						
Sargent, Howard, assignor to Boston Electric Hose Signal Co., Boston, Mass. Electric hose signal system. (Reissue)	11,924	July 30	4658	1046, 1047	96	1024
Sargent, Howard R., Schenectady, N. Y., assignor to General Electric Company, of New York. Rack-insulator	678,042	July 9	1352	312	96	297
Sargent, William D., Chicago, Ill. Coupling device	682,644	Sept. 17	1778	406	96	2257
Sattley, Archibald, and I. A. Weaver, Springfield, Ill. Combined lister plow and planter	682,956	Sept. 17	2374	536, 537	96	2374
Sauer, Emil L., Chicago, Ill. Steam-engine valve	678,984	July 23	3191	714, 715	96	699
Saunders, Addison T., Akron, Ohio. Support for photographic cameras	681,345	Aug. 27	3072	681	96	1717
Saunders, William E., Cleveland, Ohio. Cutting-off mechanism for plastic material	683,226	Sept. 24	2830	651, 652	96	2486
Saurer, Adolph, Arbon, Switzerland. Fuel-feed device for explosive-engines	681,267	Aug. 27	2919	646, 647	96	1688
Savage, George E., Meriden, Conn. Cooking utensil	681,982	Sept. 3	622	133	96	1989
Savale, Louis C., Paterson, N. J. Automobile	678,520	July 16	2278	512, 513	96	499
Sawyer, Albert E., Brooklyn, assignor to Knothe Brothers, New York, N. Y. Cast-off for suspenders	679,994	Aug. 6	523	111	96	1147
Sawyer, Harry, Muskegon, Mich. Gearing for washing-machines	681,424	Aug. 27	3210	714, 715	96	1744
Sawyer, Harry, and O. Albert, assignors to Shaw Electric Crane Company, Muskegon, Mich. Spring chock or buffer	678,589	July 16	2420	543	96	527
Saxon, Samuel A., Sang, Ark. Grappling device	682,752	Sept. 17	1983	449	96	2296
Say, Zoe B., Nickleville, Pa. Index	679,513	July 30	4289	964	96	944
Sayre, Thomas E., Beloit, Wis. Box-fastener	682,117	Sept. 3	844	188	96	2032
Scarr, Abraham C., Harriston, Canada. Whiffletree	681,583	Aug. 27	3518	780	96	1836
Schaaf, Adolph K., Smithville, Ohio. Cider-press	678,428	July 16	2087	474, 475	96	458
Schaaf, Frank P., Chandlerville, Ill. Tire-bolting machine	679,091	July 23	3432	765	96	747
Schaefer, Adam, Beardstown, Ill. Car-door fastener	682,645	Sept. 17	1779	407	96	2257
Schaefer, Andrew, Louisville, Ky. Broom for street-sweeping or other rough sweeping	682,280	Sept. 10	1146	259	96	2110
Schaefer, William J. (See Bray, Simeon L., assignor.)						
Schaeffer, Daniel W., assignor of one-half to A. Schantz, Jr., Dayton, Ohio. Varnisher's mask	680,419	Aug. 13	1288	283	96	1316
Schaerer, Otto, Zurich, Switzerland. Apparatus for the manufacture of cutters	677,887	July 9	1040	244	96	238
Schäfer & Budenburg. (See Prüsmann, Carl, assignor.)						
Schäfer, Julius, Bonn, Germany. Making odorless fish-powder	678,283	July 9	1802		96	384
Schaffer, Jakob, New York, N. Y. Medicine-chest	678,284	July 9	1803	415	96	384
Schaffer, Philip F., assignor of one-half to R. J. McNally, Philadelphia, Pa. Ball-bearing hub	679,965	Aug. 6	524	112	96	1147
Schaffner, Henry L., Florence, Italy. Pendulum-level	679,577	July 30	4406	989	96	970
Schallberger, Christian, Seattle, Wash. Compound for protecting timber	678,201	July 9	1640		96	354
Schaller, Wilhelm, Wiesbaden, Germany. Safe-keeping device for wearing-apparel	678,694	July 16	2618	589	96	567
Schantz, Adam, Jr. (See Schaeffer, Daniel W., assignor.)						
Scharfberg, Moritz. (recte Moses.) Berlin, Germany. Turbine for water-mains	677,376	July 2	74	16	96	18
Scharkofsky, Rudolph, Cleveland, Ohio. Tenpin	682,498	Sept. 10	1521	344	96	2183
Schau, William, Sheffield, Ala. Tire-tightener	679,161	July 23	3560	794, 795	96	775
Schellenbach, William J., assignor to National Machine Tool Company, Cincinnati, Ohio. Variable-speed mechanism	683,068	Sept. 17	2461	558	96	2391
Scheloske, Robert, St. Marys, Kans. Puzzle	680,282	Aug. 13	1030	241	96	1264
Schenk, Henry H., Memphis, Mo. Traction excavating machine	682,862	Sept. 17	2238	498, 499, 500	96	2340
Scherer, John, Menekaunee, Wis. Sawmill set-works	679,037	July 23	3295	737	96	720
Schermack, John J., assignor to Arcade Manufacturing Company, Freeport, Ill. Cork-puller	683,004	Sept. 17	2466	558, 559	96	2393
Scheuber, August W., assignor to M. Zinn, New York, N. Y. Safety-razor	679,639	July 30	4510	1013, 1014	96	991
Scheuer, Simon, Cleveland, Ohio. Filler for egg-crates	682,646	Sept. 17	1780	407	96	2257
Schierholz, August H., assignor to Risdon Iron and Locomotive Works, San Francisco, Cal. Portable sugar-cane elevator or loader	683,334	Sept. 24	3042	697	96	2531
Schifferle, Fridolin, St. Louis, Mo. Water-heater	683,053	Sept. 24	2571	587	96	2484
Schildknecht, Louis, Astoria, N. Y. Drive-chain	679,578	July 30	4407	990	96	971
Schill, Mathias, Farm Hill, and J. A. Heintz, Menomonie, Wis. Adjustable screen for grain or seeds	682,281	Sept. 10	1146	259, 260	96	2110
Schimmel, Fridolin, Faribault, Minn. Bridge-bearing for pianos	679,916	Aug. 6	377	79	96	1118
Schinburg, Sam, New York, N. Y. Turret	678,429	July 16	2088	475	96	458
Schingel, Fred. (See Jordan and Schingel.)						
Schippell, Charles F. (See Karlow, Edward, assignor.)						
Schirmacher, Karl, Soden, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Black disazo dye and making same	680,283	Aug. 13	1031		96	1264
Schirmer, Gustav, Chicago, Ill. Medicament device	681,741	Sept. 3	154	29	96	1895
Schlafly, Julius H., assignor to Berger Manufacturing Company, Canton, Ohio. Sheet-metal-edging machine	683,227	Sept. 24	2838	652	96	2487
Schlarb, Louis M., Allegheny, assignor to B. Gloekler Company, Pittsburg, Pa. Curing meats	682,572	Sept. 10	1644	376	96	2209
Schlesinger, Louis, Chicago, Ill. Type-writer	681,980	Sept. 3	521	109, 110	96	1970
Schleyder, Charles, Zdic, Austria-Hungary. Steam-boiler furnace	679,640	July 30	4511	1014	96	992

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Schliemann, Ernst, Hamburg, Germany. Producing wax-like bodies by the action of oxidizing agents	677,703	July 2	609	150	96	141
Schlueter, Frederick A., Newark, N. J. Penholder and blotter attachment	680,942	Aug. 20	2311	508	96	1546
Schmaus, Simon, assignor of one-half to J. Schneider, Buffalo, N. Y. Toy bank	677,601	July 2	488	117	96	163
Schmid, Benjamin W., Kalamazoo, Mich. Temporary binder	678,438	July 16	2113	479	96	463
Schmid, Henry D., McKees Rocks, Pa. Window-curtain fixture	683,335	Sept. 24	3044	698	96	2531
Schmidt, Joseph, Jr., assignor, by mesne assignments, to J. L. Flannery, Chicago, Ill. Box-stapling machine	678,815	July 16	2828	637 698	96	609
Schmidt, Theodore, assignor of one-half to S. Dancyger, Dayton, Ohio. Paper box	679,917	Aug. 6	378	80	96	1118
Schmitt, Edward D., assignor to H. A. Penrose, Baltimore, Md. Target-trap	679,162	July 23	3563	795 796	96	776
Schmitt, Wilhelm, Schwelm, Germany. Machine for the manufacture of cask-like vessels	680,442	Aug. 13	1822	291	96	1323
Schmitz, Frank, Chicago, Ill. Banana-shipping case	682,282	Sept. 10	1148	260	96	2110
Schmitz, Léon. (See Lance, Bourgade, and Schmitz.)	679,340	July 30	3917	876	96	809
Schmucker, Emanuel D., Ayr, Ind. Rolling gate	683,074	Sept. 24	2572	588	96	2435
Schnake, Carl E. A., Okawville, Ill. Winding-indicator for timepieces	678,521	July 16	2280	513	96	500
Schnautz, Frederick W., New York, N. Y. Arch for fire-chambers	683,075	Sept. 24	2572	588	96	2435
Schneider, Adam, Berlin, Germany. Appliance for cleaning the teeth				450		
Schneider, August and J. Perfler, assignors of one-third to L. Fink, Columbus, Ohio. Computing-machine	682,755	Sept. 17	1986	451 452	96	2296
Schneider, Carl, assignor to W. D. Elger, Brooklyn, N. Y. Seam for sewed articles	682,283	Sept. 10	1149	260 261	96	2110
Schneider, George, assignor of one-half to H. H. Hammond, Baltimore, Md. Toy	679,996	Aug. 6	526	112	96	1148
Schneider, Jacob. (See Schmaus, Simon, assignor.)						
Schoeller, Wallie S. (See Weinschenker and Schoeller.)						
Schoellhorn, August, and H. S. Albrecht, St. Louis, Mo. Pulverizer	681,983	Sept. 3	624	133	96	1989
Schoellhorn, August, and H. S. Albrecht, St. Louis, Mo. Pulverizer	681,984	Sept. 3	627	133 134	96	1990
Schoellkopf, Hartford & Hanna Company. (See Taggesell, Richard, assignor.)						
Schoen, Charles T., *et al.* (See Rudolph, Charles, assignor.)	680,984	Aug. 20	2390	527	96	1560
Schoen, Charles T., Philadelphia, Pa. Flexible tube	678,695	July 16	2619	589 590	96	567
Schoenhut, Fredrick, Brooklyn, N. Y. Ladder						
Schofield, Joseph A. (See Oldfield and Schofield.)						
Scholl, George P., assignor to C. W. Roepper, Philadelphia, Pa. Electrolytic process of obtaining metals from their fused compounds	679,997	Aug. 6	527	.....	96	1148
Schönauer, Otto, Steyr, Austria-Hungary. Apparatus for automatically returning work-tables of milling-machines	681,584	Aug. 27	3519	781	96	1806
Schoneman, Leon C., New York, N. Y. Toilet-disinfecting apparatus	680,179	Aug. 6	848	188		1214
Schoonmaker, Sylvanus L. (See Kenney, David T., assignor.)	678,202	July 9	1641	378	96	354
Schorp, Joseph J., and G. Siglinger, St. Louis, Mo. Harness-saddle	677,475	July 2	251	63	96	55
Schrade, George, Walden, N. Y. Center-punch	677,803	July 2	860	205 206	96	182
Schrader, John C., Dover, N. J. Machine for mixing explosives	682,390	Sept. 10	1328	300	96	2144
Schrader, John C., Dover, N. J. Machine for packing explosive gelatin	679,430	July 30	4103	918	96	908
Schratwieser, Jacob, Brooklyn, N. Y. Floor and ceiling construction						
Schreiber, Charles C., assignor to L. Schreiber & Sons Company, Cincinnati, Ohio. Cellar-door	681,985	Sept. 3	628	134	96	1990
Schreiber, Jacob, *et al.* (See Rothe, John C., assignor.)						
Schreiner, Joseph, Newark, N. J., assignor to Rubber and Celluloid Harness Trimming Co., of New Jersey. Brush	681,931	Sept. 3	528	111	96	1971
Schreuder, Andrew M., Woodbridge, N. J. Rotary fan	679,579	July 30	4408	990	96	971
Schroder, Otto. (See Koenig, Matthew, assignor.)	682,284	Sept. 10	1150	261	96	2111
Schroder, Poul F., Chicago, Ill. Child's cradle	682,756	Sept. 17	1997	453	96	2298
Schroeder, John C., and G. P. Spangler, York, Pa. Artificial denture	683,336	Sept. 24	3045	698	96	2531
Schule, Friedrich H., Hamburg, Germany. Grain-decorticating machine	678,439	July 16	2114	479	96	463
Schuler, Louis, Göppingen, Germany. Drawing-press	679,865	Aug. 6	282	61	96	1100
Schult, Lars G., Chicago, Ill. Loose-leaf binder						
Schulte, Joseph, Jr., assignor of one-half to H. J. Henneker, Monterey, Cal. Bicycle brake and support	677,804	July 2	864	207	96	182
Schultheiss, Walter, Zurich, Switzerland. Making artificial sandstone	683,337	Sept. 24	3047	698	96	2532
Schultheiss, Walter, Zurich, Switzerland. Apparatus for the production of compressed artificial sandstone	683,338	Sept. 24	3049	699	96	2532
Schulz, Frank L., assignor to C. W. Vail, Chicago, Ill. Tobacco-pipe	683,339	Sept. 24	3051	699	96	2532
Schulz, Fritz A., assignor of one-half to A. J. Koetschau, Chicago, Ill. Axle-skein	682,432	Sept. 10	1407	318	96	2199
Schulz, Richard, Berlin, Germany. Feed-water regulator for boilers	683,148	Sept. 24	2698	621	96	2460
Schumann, Francis, Philadelphia, Pa. Main stop-valve	681,986	Sept. 3	629	134	96	1990
Schumann, Francis, Philadelphia, Pa. Stop-valve	681,987	Sept. 3	631	135	96	1991
Schumann, Hermann G., London, England. Apparatus for drying printed or varnished metal sheets	681,346	Aug. 27	3073	682	96	1718
Schumann, Otto, Philadelphia, Pa. Street sweeper or cleaner	681,514	Aug. 27	3390	752	96	1779
Schurig, Paul, assignor of one-half to G. Stein, Berlin, Germany. Cistern for water-closets	678,843	July 16	2903	655	96	624
Schürmann, Carl, Dusseldorf, Germany. Braiding-machine	682,887	Sept. 17	2256	509 510	96	2350
Schutt, Duny A., Peru, Ind. Lamp-socket	681,268	Aug. 27	2921	647	96	1688
Schutte, Henry D., New York, N. Y. Lady's collar	678,696	July 16	2620	590	96	568
Schutte, Louis, Philadelphia, Pa. Valve	680,737	Aug. 20	1925	422	96	1470
Schutz, Joseph M., Minneapolis, Minn., assignor of one-half to C. G. Hawley, Minneapolis, Minn., and Chicago, Ill. Coffee compound and making same	680,889	Aug. 20	2209	486	96	1524
Schwab, Carl D. (See Clark, Fred, assignor.)						
Schwanhausser, Frederick, Jersey City, N. J., and A. Eimer, New York, N. Y. Pencil for oxyhydrogen-lights	681,488	Aug. 27	3342	742	96	1769
Schwartz, Rudolf, Crefeld, Germany. Producing figured double-pile fabrics	683,340	Sept. 24	3051	699 700	96	2532
Schwarz, Charles. (See Carnay and Schwarz.)						
Schwarz, Louis. (See Carnay and Schwarz.)	678,051	July 9	1305	315	96	300
Schweiger, Joseph B., Beaverdam, Wis. Scrubbing-brush	678,285	July 9	1804	416	96	385
Schweikart, John, Detroit, Mich. Ice-cutter						
Schweiser, Eugene J., assignor to New York Bottlers' Supplies Manufacturing Co., Ltd., New York, N. Y. Machine for filling bottles or siphons	680,362	Aug. 13	1189	262	96	1295
Schwer, Henry H., Verona, Pa. Rail-joint	677,704	July 2	670	159	96	141
Schwerin, Lorenz R. (See Groupe, Andrew V., assignor.)						
Scior, John, Mansfield, Ohio. Bung-hole bushing	680,397	Aug. 13	1216	275	96	1297

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Scofield, Edson M. (See Thacher, Edwin, assignor.)						
Scott, Albert T., Defiance, Iowa. Windmill	677,835	July 2	865	207	96	183
Scott, Barton W., assignor to Globe Development Company, San Jose, Cal. Coin-controlled vending-machine	682,573	Sept. 10	1645	376 377	96	2209
Scott, George W., and J. A. Strom, Pullman, Ill. Feed-water heater	678,200	July 9	1637	378	96	353
Scott, Henry F., Brockton, Mass., assignor, by mesne assignments, to United Shoe Machinery Company, of New Jersey. Last	678,137	July 9	1524	351	96	331
Scott, Jacob R., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Leather-skiving machine	681,847	Aug. 27	3075	683	96	1718
Scott, Jacob R., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Sole-buffing machine	681,833	Sept. 3	235	68	96	1932
Scott, Jacob R., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Sole-buffing machine	681,837	Sept. 3	237	68	96	1933
Scott, James A., Boston, R. L. Warren, Newton, and H. W. Ash, Cambridge, assignors to Warren Brothers Company, Boston, Mass. Portable clamp	678,043	July 9	1353	312	96	297
Scott, John E., Philadelphia, Pa. Thimble for shoe-lasts	679,514	July 30	4201	964	96	944
Scott, John E., Philadelphia, Pa. Thimble for shoe-lasts	679,515	July 30	4202	964	96	944
Scott, John E., Philadelphia, Pa. Block-fastener for shoe-lasts	681,515	Aug. 27	2393	753	96	1780
Scott, Robert, North Yakima, Wash. Page-indicator	680,363	Aug. 13	1190	263	96	1296
Scott, Robert E., Fort Scott, Kans. End sill for cars	678,697	July 16	2621	590	96	568
Scott, Robert W., *et al.* (See Williams and Swinglehurst, assignors.)						
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Knitting-machine needle	677,806	July 2	867	207	96	183
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Magazine-firearm	680,207	Aug. 6	900	199	96	1224
Scott, Robert W., and H. Swinglehurst, Philadelphia, assignors to said Scott and L. N. D. Williams, Ashbourne, Pa. Rib-knitting machine	679,641	July 30	4513	1015	96	992
Scott, Rumsey W., New York, N. Y. Motor-controller	681,269	Aug. 27	2924	647 648	96	1689
Scott, Walter, Plainfield, N. J. Sheet-delivery apparatus	678,044	July 9	1355	312 313	96	298
Scott, Walter W., assignor to Diesel Motor Company of America, New York, N. Y. Valve-reversing mechanism for explosive-engines	682,757	Sept. 17	1998	453	96	2298
Scovill Manufacturing Company. (See Stanley, Frederick E., assignor.)						
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Coin-collector for telephone toll-lines	677,807	July 2	869	208	96	183
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Connection-counter for telephone-exchanges	680,890	Aug. 20	2211	487	96	1524
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Connection-counter for telephone-lines	681,742	Sept. 3	154	29	96	1895
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone call-bell	681,744	Sept. 3	159	30	96	1896
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Service-meter for telephone-exchanges	681,860	Sept. 3	382	77	96	1942
Scribner, Charles E., Chicago, Ill., assignor to Western Electric Company, of Illinois. Supervisory signal for telephone-switchboards. (Reissue)	11,929	Aug. 20	2750	610	96	1633
Scribner, Charles E., Chicago, and F. R. McBerty, Evanston, assignors to Western Electric Company, Chicago, Ill. Switchboard for telephone-lines	681,743	Sept. 3	157	29	96	1895
Scriven, Jeremiah A. (See Rosell, Claude A. O., assignor.)	682,647	Sept. 17	1781	407	96	2258
Scullin, Terance, assignor to F. Horsburgh, Cleveland, Ohio. Truck						
Seamless Rubber Co. (See Murray, James, assignor.)	680,398	Aug. 13	1247	275	96	1307
Seargeant, William F., Marshall, Mo. Slat-and-wire-fence machine	680,399	Aug. 13	1253	276	96	1308
Seargeant, William F., Marshall, Mo. Slat-and-wire-fence machine	678,296	July 9	1805	416	96	385
Searles, Ambrose M., Geneseo, Ill. Cogged gearing						
Searles, Charles P., and D. J. Minton, Columbus, Ohio; said Searles assignor to said Minton. Bottle	678,208	July 9	1642	378	96	354
Sears, Charles, Cleveland, Ohio. Type-writer escapement	682,758	Sept. 17	2001	453 454	96	2298
Sears, Charles and R. H., Cleveland, Ohio; said R. H. Sears assignor to said Charles Sears. Type-writing machine	682,759	Sept. 17	2005	454	96	2300
Sears, Richard H. (See Sears, Charles and R. H.)						
Seaton, Leonard T., Piano, Ill. Can-washer	682,285	Sept. 10	1152	262	96	2111
Seaver, John W., assignor to Wellman-Seaver Engineering Company, Cleveland, Ohio. Fuel-feeding mechanism for blast-furnaces	682,957	Sept. 17	2376	537	96	2375
Seawright, James R., Atlanta, Ga. Roll-paper cutter	681,745	Sept. 3	161	30	96	1896
See, Alonzo B., *et al.* (See Cowperthwait and Lindstrom, assignors.)						
See, Alonzo B., *et al.* (See Lindstrom, Nils O., assignor.)						
See, Alonzo B., Brooklyn, assignor of one-half to W. L. Tyler, New York, N. Y. Elevator-brake	678,352	July 9	1343	445	96	412
See, Charles A., Chicago, Ill. Dress-shield fastener	681,141	Aug. 20	2670	580	96	1618
See, Horace, New York, N. Y. Cushioning device for fluid-conduits	679,786	Aug. 6	120	27	96	1066
See, Horace, New York, N. Y. Screen for photographic lenses	681,003	Aug. 20	2427	537	96	1567
Seeds, Thomas M., Jr., and M. Frings, Philadelphia, Pa. Plane	682,958	Sept. 17	2378	538	96	2375
Seeley, Frederick G. (See Churchill and Seeley.)						
Seger, Daniel T. (See Sewell and Seger.)						
Seifert, John W., assignor to Waco Cotton Machine Manufacturing Company, Waco, Tex. Cotton cleaner and distributer	682,816	Sept. 17	2116	479	96	2321
Seiffer, Edward G., Evansville, Ind. Hose-supporter	680,543	Aug. 13	1436	315	96	1345
Seips, Michael, Meriden, Conn., assignor to Manning, Bowman & Company, of Connecticut. Electrically-heated cooking utensil	678,522	July 16	2281	513	96	500
Seitz, Henry J., assignor of one-half to A. L. Barnes, Philadelphia, Pa. Machine for loading coal, &c	681,142	Aug. 20	2671	580	96	1618
"Selas" Gesellschaft mit Beschränkter Haftung. (See Raap, Gustav, assignor.)						
Séligmann-Lui, Gustave, Paris, France. Counting telephonic messages	679,998	Aug. 6	528	112	96	1148
Seltner, Wilhelm, Schlan, Austria-Hungary. Mining-machine	678,045	July 9	1358	313 314	96	298
Senff, Friedrich, Brooklyn, N. Y. Apparatus for clearing obstructions from water-closets, sewer-pipes, or the like	679,007	July 23	3231	723	96	708
Seng Company. (See Seng, Wendelin P., assignor.)						
Seng, Wendelin P., assignor to Seng Company, Chicago, Ill. Spring-catch	682,959	Sept. 17	2378	538	96	2375
Senich, John, Pasadena, assignor of one-half to P. Yelich, Los Angeles, Cal. Bottle-stopper	679,516	July 30	4294	965	96	944
Sergeant, Henry C., Westfield, N. J., and W. Prellwitz, Easton, Pa., assignors to Ingersoll-Sergeant Drill Company, New York, N. Y. Direct-acting engine	679,999	Aug. 6	530	112 118	96	1149
Serpollet, Leon, Paris, France. Valve-gear mechanism for single-acting engines	680,000	Aug. 6	532	113 114	96	1149
Serpollet, Leon, Paris, France. Tube-boiler	681,746	Sept. 3	162	30,31	96	1896

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Serr, Adam, *et al.* (See Kimble, Solomon M., assignor.)						
Serrazanetti, Giulio, Castenaso, Italy. Means for damming torrents	680,738	Aug. 20	1927	422	96	1470
Setzer, George, *et al.* (See Kimble, Solomon M., assignor.)						
Severin, Charles. (See Harraman, Chapman, Severin, and Brown.)						
Sevier, John R., assignor of one-half to C. E. Murphy, Browning, Mo. Wire-stretcher	681,747	Sept. 3	164	31	96	1897
Sevigny, Zoel. (See Tessier and Sevigny.)						
Sewall, Harry B., administrator. (See Sewall, Samuel.)						
Sewall, Robert H. F., New Orleans, La., assignor of one-half to C. F. de Ganahl, Tampico, Mexico. Steam feeding mechanism	681,005	Sept. 17	2468	559	96	2593
Sewall, Samuel, deceased, Tewksbury, Mass.; H. B. Sewall, administrator. Filling-remover for looms	679,517	July 30	4295	965	96	945
Seward, William H., *et al.* (See Marshall, John J., assignor.)						
Sewell, John W., and D. T. Seger, assignors of one-half to H. F. Blase and M. J. Miller, Covington, Ky. Apparatus for destructive distillation of garbage	682,118	Sept. 3	846	188 199	96	2032
Seybold, Charles. (See Steen and Seybold.)						
Seybold, Charles, Dayton, Ohio. Tying and bundling machine	678,138	July 9	1526	351 352	96	333
Seybold, Edward. (See Malette and Seybolt.)						
Seymour, Charles, assignor to Defiance Machine Works, Defiance, Ohio. Sawing-machine	680,078	Aug. 6	667	147 148	96	1177
Seymour, Eugeley D., Chicago, Ill. Wire-rope conveyer or train	681,888	Sept. 3	439	88, 89	96	1952
Shadbolt, William O., Brooklyn, N. Y. Dumping-wagon	682,834	Sept. 17	2161	488	96	2331
Shafer, Frank B., assignor to A. J. Prindle, E. A. Bowman, B. R. Lane, Howell, N. J. McColough, Ithaca, and V. L. Stark, Byron, Mich. Vapor generator and burner	682,286	Sept. 10	1153	262	96	2111
Shafer, John W., assignor of one-half to B. Bradrick, Chicago, Ill. Triple valve	682,499	Sept. 10	1522	345	96	2188
Shafer, Warren, Lagrange, Ga. Truss-bridge	682,500	Sept. 10	1523	345	96	2188
Shaner, John W., Williamsport, Pa., assignor to National Biscuit Company, Chicago, Ill. Wrapper-pasting device	682,817	Sept. 17	2118	479	96	2323
Shapiro, William, Brooklyn, N. Y. Pocket-support	680,627	Aug. 13	1656	365	96	1390
Sharp, Alonzo, assignor to Adams Laundry Machinery Company, Troy, N. Y. Ironing-machine	677,808	July 2	873	208 209	96	184
Sharp, Charles C. (See Stone and Sharp.)						
Sharp, William E., assignor to Armour & Company, Chicago, Ill. Double-deck car	680,943	Aug. 20	2313	508 509	96	1546
Sharp, William E., assignor to Armour & Company, Chicago, Ill. Double-deck car	680,944	Aug. 20	2315	509	96	1546
Sharpe, Fred B. (See Coldwell and Sharpe.)						
Sharpe, John E., Oneida, assignor of one-half to N. D. Bartle, Guilford, N. Y. Insulator for electric wires	679,544	July 30	4346	975	96	957
Sharpneck, William S., assignor of two-thirds to J. D. Ross and E. W. Brooks, Chicago, Ill. Multiple-piston explosive-engine	680,985	Aug. 20	2391	527	96	1560
Sharrer, Harry E., Hammond, Ind. Device for lifting and handling invalids	677,602	July 2	489	118	96	103
Shattuck Manufacturing Company. (See Shattuck, William P., assignor.)						
Shattuck, William P., assignor to Shattuck Manufacturing Company, Minneapolis, Minn. Envelop	680,908	Aug. 13	1197	264 265	96	1297
Shattuck, William P., assignor to Shattuck Manufacturing Co., Minneapolis, Minn. Variable-speed gearing	682,391	Sept. 10	1331	300 301	96	2145
Shaver, Alfred, Troy, N. Y. Bur-wheel support for knitting-machines	680,945	Aug. 20	2317	510	96	1547
Shaver, Thomas. (See Sifford and Shaver.)						
Shaw, Albert D., New York, N. Y. Electric alarm-mat	683,341	Sept. 24	3053	700	96	2533
Shaw Electric Crane Company. (See Albert, Otto, assignor.)						
Shaw Electric Crane Company. (See Sawyer and Albert, assignors.)						
Shaw-Mackenzie, John A., and E. A. Crowsley, London, England. Saddle or seat support	677,705	July 2	671	159	96	141
Shaw, William, Brooklyn, N. Y. Apparatus for coloring yarns	683,228	Sept. 24	2835	653	96	2487
Shaw, William, Brooklyn, N. Y. Coloring yarns	683,229	Sept. 24	2839	653	96	2487
Shay, William H., Newburgh, assignor to J. A. Goodrich, New York, N. Y. Vacuum-valve	677,888	July 9	1041	245	96	298
Shea, Thomas, Philadelphia, Pa., assignor to United Shoe Machinery Company, Paterson, N. J. Lasting-machine	681,516	Aug. 27	3394	753	96	1780
Shears, Edward C., assignor to Splint-Gate Bandage Company, Lakota, N. D. Shield for wounds	679,918	Aug. 6	378	80	96	1118
Shearson, William H., *et al.* (See Snedeker, James W., assignor.)						
Sheehan, John, Ossining, N. Y. Brake-shoe	679,787	Aug. 6	122	27	96	1066
Sheffield Car Company. (See Henderson, James, assignor.)						
Sheffield, George S., assignor to Sheffield Manufacturing Company, Burroak, Mich. Corn-planter	680,739	Aug. 20	1928	422	96	1470
Sheffield, Lucius T., New York, N. Y. Railway appliance	679,841	July 30	3918	876	96	869
Sheffield Manufacturing Company. (See Sheffield, George S., assignor.)						
Shelby Steel Tube Company. (See McCool, William A., assignor.)						
Shelden, Charles W., Clearfield, Iowa. Adjustable carriage for grain-harvesters	678,046	July 9	1359	314	96	299
Shepard, Charles H., Brooklyn, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	677,706	July 2	672	160 161	96	142
Shepard, Charles H., Brooklyn, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	677,707	July 2	677	161	96	143
Shepard, Harry H., and F. H. Fish, Bristol, R. I. Hose	680,504	Aug. 13	1498	315	96	1346
Shepherd, Alfred, assignor of one-half to W. M. Rozell, Malta Bend, Mo. Harness-buckle	681,988	Sept. 3	632	135	96	1991
Shepler, Pius L., assignor of one-fifth to C. W. Munson, Toledo, Ohio. Adjustable cutter for harvesters	681,815	Sept. 3	302	60, 61	96	1926
Shepler, Pius L., assignor of one-fifth to C. W. Munson, Toledo, Ohio. Cutter for mowers or harvesters	681,816	Sept. 3	304	61	96	1926
Sheppard, William H., New York, N. Y., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Pneumatic-tube terminal	681,078	Aug. 20	2569	568	96	1597
Sheridan, Michael, assignor to W. Rosenheim, New York, N. Y. Disinfecting apparatus	680,812	Aug. 20	2076	451 452	96	1498
Sherk, Isaac L., Ann Arbor, Mich. Cleaner for bolting-sieves	680,466	Aug. 13	1366	208	96	1332
Sherman, Frank C., Pontiac, Mich. Steam cooking vessel	679,768	July 16	2742	617	96	591
Sherman, Howard B., assignor to H. B. Sherman Manufacturing Company, Battlecreek, Mich. Hose-coupling	683,342	Sept. 24	3054	700	96	2533
Sherrill, Isaac W. (See Welles, Howard W., assignor.)						
Sherwood, George R., Kearney, Nebr. Manufacture of fibrous products	680,079	Aug. 6	668	------	96	1178
Sherwood Manufacturing Company. (See Hart, Thomas J., assignor.)						
Sherwood, Morgan A., Washington, D. C. Stage-illusion apparatus. (Reissue.)	11,926	Aug. 13	1778	891 892	96	1416
Shevlin, George F. (See Baker, Shevlin, and Baker.)						
Shields Flexible Joints Company. (See Shields, George W., assignor.)						
Shields, George W., assignor to Shields Flexible Joints Company, Louisville, Ky. Three-ball metallic flexible-joint coupling	677,809	July 2	876	210	96	184

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shields, Joseph W., Philadelphia, Pa. Garment-pocket	679,866	Aug. 6	284	61	96	1100
Shinault, George W. (See Graham, Craig, and Shinault.)						
Shinn, Albert J., assignor to H. J. Dercum, trustee, Philadelphia, Pa. Recovering zinc	678,816	July 16	2832	638	96	610
Shipherd, William C., Cleveland, Ohio. Thill-coupling	682,760	Sept. 17	2068	454	96	2300
Shipley, Thomas, York, Pa. Ice-making apparatus	681,348	Aug. 27	3080	681	96	1719
Shipway, John H. (See Reid, Robert H., assignor.)						
Shirk, William S., Anderson, Ind. Ribbon-feed device for type-writing machines	679,686	July 30	4595	1032	96	1011
Shirk, William S., Anderson, Ind. Type-writing machine	681,270	Aug. 27	2968	648 649	96	1691
Shively, Joseph M., Alfred, Kans., assignor to Deering Harvester Company, Chicago, Ill. Corn-shocker	681,517	Aug. 27	3390	753	96	1780
Shoales, W. E. (See Park, Georgia, assignor.)						
Shoemaker, Harry, assignor to G. P. Gehring, Philadelphia, Pa. Induction-coil	678,047	July 9	1361	314	96	299
Shoemaker, Harry, assignor to M. V. Gehring, Philadelphia, Pa. Wireless telegraphy	680,001	Aug. 6	535	114	96	1149
Shoemaker, Harry, assignor of one-half to G. P. Gehring, Philadelphia, Pa. Wireless-telegraph system	680,002	Aug. 6	537	114	96	1150
Shoemaker, Harry, assignor to G. P. and M. V. Gehring, Philadelphia, Pa. Inductance-coil	678,353	July 9	1944	445	96	413
Shoemaker, Harry, assignor to G. P. and M. V. Gehring, Philadelphia, Pa. Autotorpedo	680,595	Aug. 13	1440	316	96	1346
Shoemaker, Rankin L., New Comerstown, and F. R. Willson, Jr., assignors to Jeffrey Manufacturing Company, Columbus, Ohio. Portable elevating-machine	681,378	Aug. 27	3138	697 698 699	96	1730
Shoemaker, William H., Chicago, Ill. Grass-catcher for lawn-mowers	680,467	Aug. 13	1367	208 209	96	1332
Short, Horace L., New Malden, England. Sound-increasing device	677,476	July 2	253	63	96	55
Short, Jefferson D. (See Callahan and Short.)						
Short, Robert L., Cliftonpark, Ohio. Toy cannon	681,079	Aug. 20	2570	568	96	1597
Shortell, Thomas E., Pittsburg, Pa. Nut-lock	677,603	July 2	492	118	96	104
Shoup, James T., assignor to M. R. Shoup and P. W. Mattimore, Detroit, Mich. Skirt-supporter	678,500	July 16	2422	543	96	528
Shoup, Mettie R., *et al.* (See Shoup, James T., assignor.)						
Shoup, Samuel, Wilmington, Del. Manifolding sales-book	680,284	Aug. 13	1092	231 232	96	1264
Shoupe, Samuel W., Hagerstown, Md. Combination-lock	678,709	July 16	2743	617	96	591
Shrader, William H., Washington, D. C. Display-stand	683,343	Sept. 24	3056	701	96	2533
Shuart, Henry, Buffalo, and O. B. Thompson, North Tonawanda, N.Y. Registering-chair	681,989	Sept. 3	634	135	96	1992
Shue, Philip H., Ouray, Colo. Ore-concentrator	681,271	Aug. 27	2993	649 650	96	1692
Shunk, Frank A., Streator, Ill. Glass-mold-operating machine	678,287	July 9	1805	416 417	96	385
Shuping, Charles L. (See Shuping, Jacob A. and C. L.)						
Shuping, Jacob A. and C. L., Morganton, N. C. Subsoil attachment for plows	680,400	Aug. 13	1258	276	96	1300
Sibley, Edward L., Bennington, Vt. Clasp for file-bands	683,414	Sept. 24	3189	731	96	2561
Siday, George A., London, England. Bridle, tie, or like fitting for painters' brushes	681,900	Sept. 3	635	135	96	1992
Sides, Charles E., Norfolk, Va. Oil-can	681,272	Aug. 27	2937	650	96	1692
Siebenhaar, Otto W., Ladoga, Wis. Elastic-heel horseshoe	679,088	July 23	3299	738	96	721
Siebert, Otto W., West Gardner, assignor to Bay State Metal Wheel Company, East Templeton, Mass. Go-cart	682,119	Sept. 3	847	189 190	96	2033
Siegel Labeling Machine Company. (See Gooding and Hausmann, assignors.)						
Siegmann, Heinrich, Grossenwieder, Germany. Device for automatically closing or opening railway-gates	678,430	July 16	2089	475 476	96	458
Siemens & Halske Aktiengesellschaft. (See Polinkowsky, Lipa, assignor.)						
Siemens & Halske Electric Company of America. (See Hochenegg, Carl, assignor.)						
Siemens & Halske Electric Company of America. (See Lau, Wilhelm, assignor.)						
Sierer, Joseph K., New York, N. Y. Tile floor, wall, &c	680,468	Aug. 13	1369	209	96	1333
Sievert, Paul T., Dresden, and R. Heikel, Deuben, Germany; said Heikel assignor to said Sievert. Apparatus for use in the manufacture of sheet-glass	679,705	July 30	4033	1041	96	1019
Sifford, John A., and T. Shaver, Cherry Valley, Ark. Clamping device for log-wagons	679,342	July 30	3920	877	96	870
Siglinger, George. (See Schorp and Siglinger.)						
Sikes, James F., Palma Sola, Fla. Drain	680,548	Aug. 13	1522	335	96	1364
Silbiger, Adolphus, Vienna, Austria-Hungary. Folding chest or box	678,204	July 9	1643	379	96	354
Silvis, Ira, Grafton, Cal. Cartridge priming or depriming apparatus	683,150	Sept. 24	2701	622	96	2461
Sim, Finlay, North Attleboro, Mass. Support for bed-netting	683,344	Sept. 24	3057	701	96	2533
Simandl, John. (See Flegal, Jacob S., assignor.)						
Simering, John C., Baltimore, Md. Cigarette-wrapper	680,008	Aug. 6	539	114	96	1151
Simmerman, John, Dayton, Ohio. Street-railway switch	677,889	July 9	1042	245	96	298
Simmons, William H., assignor of one-half to H. J. Ayres, San Jose, Cal. Composition for closing punctures in pneumatic tires	680,420	Aug. 13	1290	------	96	1316
Simmons, William L., Chicago, Ill. Bath-hose	683,076	Sept. 24	2573	588	96	2485
Simms, John R., Linden, Cal. Refrigerator	680,004	Aug. 6	539	115	96	1151
Simon, Paul, Waltham, Mass. Tool for shaving lacing-strips	678,591	July 16	2423	543	96	528
Simonds, Edwin A., Somerville, assignor to Ripley-Howland Manufacturing Company, Boston, Mass. Jeweler's tool	681,080	Aug. 20	2571	569	96	1598
Simonini, Angelo, Gloucester City, N. J. Automatic gas-igniting device	680,813	Aug. 20	2078	452	96	1498
Simons, Louis W., Jordan, N. Y. Cattle-stanchion	679,431	July 30	4104	918	96	908
Simons, Venning D. (See Metcalf and Simons.)						
Simonson, Flavel, Sterling, Ill. Pencil-clip for dividers	679,432	July 30	4105	919	96	909
Simpkins, Frank, Greenville, assignor of one-half to G. D. Foulk, Maydale, Pa. Well-drilling apparatus	679,244	July 23	3711	828	96	806
Simplex Electrical Company. (See Conlin, Andrew J., assignor.)						
Simpson, James, New York, N. Y. Flushing apparatus with valve-controlling apparatus for same	679,687	July 30	4596	1032	96	1012
Simpson, John H., assignor to T. E. Bennett & Company, Providence, R. I. Garment-supporter	678,523	July 16	2281	513	96	500
Sims, David P., Lincoln, Nebr. Leakage-guard for water-motors	682,346	Sept. 10	1261	285	96	2129
Sims, David P., Lincoln, Nebr. Foot-switch	682,347	Sept. 10	1262	285	96	2129
Sims, George, Little Metis, Canada. Starter for foot-power machines	679,190	July 23	3622	808	96	788
Sims, William F. (See MacClyment and Sims.)						
Sinclair, Daniel, and W. Aitken, London, England, assignors to Western Electric Company, Chicago, Ill. Telephone-exchange system	679,788	Aug. 6	123	27	96	1067
Singer Automatic Ice Machine Company. (See Singer, William F., assignor.)						
Singer Manufacturing Company. (See Allen, Edward B., assignor.)						
Singer Manufacturing Company. (See Diehl and Grieb, assignors.)						
Singer Manufacturing Company. (See Diehl and Hemleb, assignors.)						
Singer Manufacturing Company. (See Reid, John A., assignor.)						
Singer Manufacturing Company. (See Rontke, Albert, assignor.)						
Singer, William F., New York, N. Y., assignor to Singer Automatic Ice Machine Company, Jersey City, N. J. Compressor	679,343	July 30	3921	877	96	870

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Singer, William F., New York, N. Y., assignor to Singer Automatic Ice Machine Co., Jersey City, N. J. Rod-packing	679,344	July 30	3922	877	96	870
Singer, William F., New York, N. Y., assignor to Singer Automatic Ice Machine Company, Jersey City, N. J. Compressor	680,185	Sept. 24	2757	634	96	2471
Singer, William F., New York, N. Y., assignor to Singer Automatic Ice Machine Company, Jersey City, N. J. Thermostatic switch	680,186	Sept. 24	2759	634 635	96	2471
Sipe, Samuel P. (See Fleming, Joseph W., assignor.)						
Siple, Lynn W., Cherokee, Iowa. Tube-cutter	679,483	July 30	4224	932	96	980
Siskron, Eldora B., Seattle, Wash. Flour-sifter	680,149	Sept. 24	2700	621	96	2460
Sisson, Isaac H., Providence, R. I., assignor to R. Amory, Bar Harbor, Me. Machine for making wire button-fasteners	679,423	July 30	4106	919 920	96	909
Sisson, Isaac H., Providence, R. I., assignor to R. Amory, Bar Harbor, Me. Button-attaching machine	679,434	July 30	4110	920 921 922	96	910
Sisson, James F., Kahoka, Mo. Well-drilling machine	682,287	Sept. 10	1155	262 263	96	2112
Sitterly, Henry J., Brockton, assignor to Portville Basket Co., Portville, N. Y. Basket and cover therefor	678,985	July 23	3194	715	96	700
Sjöqvist, Per A. (See Almqvist, Kastberg, Cahling, and Sjöqvist.)						
Skehan, Harry, *et al.* (See Jackson, Hampton E., assignor.)						
Skilton, James A., Brooklyn, N. Y. Fountain-pen	682,574	Sept. 10	1648	377	96	2209
Skilton, James A., Brooklyn, N. Y. Fountain-pen	682,575	Sept. 10	1653	378	96	2210
Skinkle, Jacob W., *et al.* (See Beck, Marshall, assignor.)						
Skinner, Alba A., Greene, N. Y. Incubator	678,053	July 9	1368	316	96	300
Skinner, Albert L., *et al.*, executors. (See Skinner and Connolly.)						
Skinner, Burr R., Calmar, Iowa. Heated lunch-box	681,991	Sept. 3	637	136	96	1992
Skinner, Charles E., *et al.*, executors. (See Skinner and Connolly.)						
Skinner, Frederick W., Valley Falls, R. I., assignor to Advance Tire Company, of South Dakota. Cushion-tire	683,345	Sept. 24	3058	701	96	2534
Skinner, Halcyon, deceased; A. L. and C. E. Skinner, executors, and F. H. Connolly, Yonkers, N. Y. Needle-loom	681,004	Aug. 20	2428	537	96	1568
Skinner, Henry A., assignor to Huntex Company, Worcester, Mass. Keyless toy bank	677,895	July 9	1054	247	96	241
Skirrow, John F., East Orange, N. J. Electrical stop for engines	679,518	July 30	4297	999	96	945
	681,932	Sept. 3	530	111 112	96	1971
Skirrow, John F., East Orange, N. J. Telegraphic recording apparatus	682,433	Sept. 10	1408	318	96	2160
Skirrow, John F., East Orange, N. J. Resonator	680,080	Aug. 6	670	148	96	1178
Skogvold, Jens C., Kongsberg, Norway. Holder for books, newspapers, &c.	679,642	July 30	4516	1015 1016	96	998
Slater, George L., and A. W. Roe, Buchanan, Mich. Coin-controlled apparatus	682,909	Sept. 17	2381	538	96	2376
Slazenger, Frank L., New York, N. Y. Wooden golf-club	678,770	July 16	2745	618	96	591
Slesinger, Samuel. (See Denes, John, assignor.)						
Slewing, Robert R., Lajunta, Colo. Acetylene-gas lamp	679,245	July 23	3712	828 829	96	806
Slinack, Victor H., assignor to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Hydrocarbon-burner	682,818	Sept. 17	2120	479 480	96	2322
Sloan, Robert A., and J. E. L. Barnes, Liverpool, England. Switch for electromotors	681,143	Aug. 20	2673	590	96	1619
Slocomb, Charles E., Boston, Mass., assignor to A. W. W. Miller, South Orange, N. J. Shoe-nail	683,151	Sept. 24	2705	622	96	2461
Slough, Everett S., Quincy, Kans. Wheel-cultivator	681,992	Sept. 3	638	136	96	1992
Slusser, Clyde, Danville, Ill. Flasher for electric lamps	678,052	July 9	1366	316	96	300
Slye, Linneaous T., Upper Sandusky, Ohio. Building	679,688	July 30	4599	1032 1033	96	1012
Small, Walter W., Cherryfield, Me. Steering device	680,364	Aug. 13	1191	263	96	1296
Smead, Isaac D., Cincinnati, Ohio. Radiator	682,288	Sept. 10	1159	263	96	2112
Smillie, George W., Newark, N. J. Car-coupling	682,289	Sept. 10	1161	263	96	2112
Smillie, George W., Newark, N. J. Car-coupling						
Smith, Alexander M., *et al.* (See Cox, William, assignor.)						
Smith, Belon B., Pensacola, Fla. Pen attachment	678,909	July 23	3048	682	96	672
Smith, Charles G., Lakeland, Mich. Bed-spring	681,748	Sept. 3	166	32	96	1897
Smith, Charles H., Pittsburg, Pa. Expansion-bolt	681,817	Sept. 3	305	61	96	1926
Smith, Charles H., assignor of two-thirds to J. C. Fesler, Oregon, and C. Rystrom, Rockford, Ill. Lock-nut	678,629	July 16	2510	561	96	546
Smith, Charles S., Milwaukee, Wis. Wheel-bearing for vehicles	678,048	July 9	1361	314	96	299
Smith, Douglas, *et al.* (See Fisher, Harvey L., assignor.)						
Smith, Edward J., Pittsburg, and C. J. Hillard, Bennett, Pa. Nail-machine	679,128	July 23	3496	781 782	96	762
Smith, Eldridge J., assignor of one-half to T. A. Wickersham, Washington, D. C. Tilting vessel-holder	682,576	Sept. 10	1660	378	96	2211
Smith, Elmer S., Boundbrook, N. J., and H. Jarvis, Buffalo, N. Y., assignors to Ideal Cash Register Company, New Boundbrook, N. J. Cash-register	677,890	July 9	1043	245	96	239
Smith, Elmer S., Boundbrook, and H. Giles, South Boundbrook, assignors to Ideal Cash Register Company, New Boundbrook, N. J. Cash-register	677,896	July 9	1056	247 248 249 250	96	241
Smith, Frank L., assignor of one-half to A. C. Ricksecker, Chicago, Ill. Combined gate and globe valve reseating machine	682,368	Sept. 10	1289	290 291	96	2135
	682,151	Sept. 3	898	200 201	96	2043
Smith, Fredrick G., Bloomfield, N. J. Street-railway switch	677,477	July 2	253	63	96	55
Smith, George, and D. Corrie, Polmont, Scotland. Electric detonator-fuse	680,469	Aug. 13	1370	299	96	1353
Smith, George A., Alberni, Canada. Cork-extractor	681,889	Sept. 3	441	89	96	1952
Smith, George F., Monroe, Me. Reclining-chair	682,961	Sept. 17	2382	539	96	2376
Smith, George H., Baldwinsville, Mass. Convertible high-chair and rocker						
Smith, George H., Cedar Rapids, Iowa, assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	677,746	July 2	744	178	96	157
Smith, George L., Carson, Iowa. Farm-gate	680,506	Aug. 13	1442	316	96	1346
Smith, George W., Petersburg, Ill. Rotary engine	679,129	July 23	3499	782	96	762
Smith, Harper F., Philadelphia, Pa. Vapor-burner	678,829	July 16	2870	646 647	96	617
Smith, Henry C., Somerville, Mass. Window-frame and window-sash	683,077	Sept. 24	2574	588 589	96	2435
Smith, Henry G., Ithaca, N. Y. Agricultural-implement tooth	677,478	July 2	254	64	96	55
Smith, Henry I., assignor of one-half to C. P. Walsh, Buffalo, N. Y. Hatchway-cover fastening	677,604	July 2	492	118	96	104
Smith, Henry R., Stamford, Conn. Paper-holder	682,962	Sept. 17	2383	539	96	2376
Smith, Hiram B., Sr., Atlanta, Ga. Book-rest	682,761	Sept. 17	2009	455	96	2301
Smith, Hobart E., New Haven, Conn. Shaft-coupling	681,861	Sept. 3	384	78	96	1943

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Smith, Hugh, assignor of one-half to J. H. Jones, Watervliet, N. Y. Trolley	681,933	Sept. 3	538	113	96	1973
Smith, James A., Brooklandville, Md. Lawn-boot	682,888	Sept. 17	2258	510	96	2350
Smith, John, and R. Walker, South Shields, England. Wall-socket for water or other pipes	679,399	July 30	4059	905	96	900
Smith, John A., assignor of one-fourth to J. N. Bunch, Kingston, Ark. Bearing-spindle for vehicle-axles	678,524	July 16	2282	514	96	500
Smith, John C., Massapeag, Conn. Buckle	681,402	Aug. 27	3166	706	96	1736
Smith, John G., Carthage, Tenn. Track-brake	680,180	Aug. 6	849	188	96	1214
Smith, John J., Pierce City, Mo. Coupling-brake	680,676	Aug. 13	1765	388 389	96	1413
Smith, John M., *et al.* (See Cox, William, assignor.)						
Smith, Joseph H. (See Wallace, Irwin, and Smith.)						
Smith, Joseph R., Manorville, Pa. Railway-bed	679,867	Aug. 6	285	62	96	1100
Smith, Joseph R., Waterbury, Conn., assignor to Waterbury Button Company, of Connecticut. Spring-stud for glove-fasteners, &c	683,346	Sept. 24	3058	701	96	2534
Smith, Lowndes G., Columbus, Tex., assignor of one-half to F. S. Decker, New Orleans, La. Railway-ticket, &c	678,354	July 9	1945	445 446	96	413
Smith, Lyman T., New Haven, Conn. Valve for pneumatic tires	679,519	July 30	4300	966	96	946
Smith, Myron A., assignor to International Machine Co., New York, N. Y. Sugar-melter	678,440	July 16	2116	480	96	464
Smith, Noyes J., assignor to G. A. Dean Company, Attleboro, Mass. Chatelaine-pin	681,934	Sept. 3	540	113	96	1974
Smith, Obadiah C., Greeley, Colo. Movable gate and dredge	679,163	July 23	3566	796	96	776
Smith, Patrick C., Indianapolis, Ind. Invalid's bed	680,814	Aug. 20	2061	452	96	1499
Smith, Paul F., Denver, Colo. Fruit-squeezer	683,347	Sept. 24	3060	702	96	2534
Smith, Peter M. (See Krabill and Smith.)						
Smith Premier Typewriter Company. (See Ryther and Cole, assignors.)						
Smith, Robert J., Ottawa, Canada. Overalls	678,049	July 9	1364	315	96	300
Smith, Samuel P., St. Paris, Ohio. Calk attachment for horseshoes	682,501	Sept. 10	1525	345	96	2183
Smith, Sidney S., Denmark, Me. Door stop and holder	679,400	July 30	4059	906	96	900
Smith, Thomas, Hopewell, N. Mex. Ter., assignor of one-half to E. G. E. Jaccard and A. C. Sweet, Kansas City, Mo. Furnace	677,812	July 2	881	210 211	96	186
Smith, Thomas C., assignor to Union Metallic Cartridge Company, Bridgeport, Conn. Mushroom-bullet	680,549	Aug. 13	1523	335	96	1364
Smith, Thomas C., assignor to Union Metallic Cartridge Company, Bridgeport, Conn. Making partly-covered bullets	680,550	Aug. 13	1524	335	96	1364
Smith, Uzziel P., assignor of one-half to T. Kane, Chicago, Ill. Pneumatic tire	677,810	July 2	877	210	96	185
Smith, William C., Cleveland, Ohio. Lock for elevator-gates	678,050	July 9	1364	315	96	300
Smith, William C., Medford, Mass. Automobile	680,891	Aug. 20	2213	487	96	1525
Smith, William D., assignor of one-half to G. H. Taber, Jr., Philadelphia, Pa. Automatic stop for governors for steam-engines	679,706	July 30	4634	1041	96	1019
Smith, William M., New Cumberland, W. Va., assignor of one-half to G. A. McCandless, Oakdale, Pa. Adjustable swinging gate	683,348	Sept. 24	3061	702	96	2534
Smolt, Alfred E. (See Hadlock, Clark W., assignor.)						
Smyser, Louis B. (See Canda and Smyser.)						
Smyser, Louis B., Elizabeth, N. J., assignor to F. E. Canda, New York, N. Y. Driving mechanism for motor-vehicles	677,897	July 9	1079	250 251	96	245
Smyth, Ezra, Greencastle, Ind. Wrecking-frog	681,349	Aug. 27	3081	684 685	96	1719
Smyth, Joseph E., Pasadena, Cal. Machine for gathering signatures	679,039	July 23	3300	738 739 740	96	721
Smyth, Joseph E., assignor to N. E. Smyth, Chicago, Ill. Bookbinding machinery	679,401	July 30	4060	906	96	900
Smyth Manufacturing Company. (See Jacobs, Arthur I., assignor.)						
Smyth Manufacturing Company. (See Reynolds, John R., assignor.)						
Smyth, Nettie E. (See Smyth, Joseph E., assignor.)						
Smythe, Thomas E., Galion, Ohio. Pipe-wrench	680,285	Aug. 13	1034	232	96	1265
Snail, William M., and W. M. Dougherty, St. Joseph, Mo. Trunk	680,892	Aug. 20	2215	487 488	96	1525
Snavely, Samuel K., assignor to J. R. Bricker and Company, Lititz, Pa. Cigar-mold	678,986	July 23	3195	715 716	96	700
Snedeker, James W., assignor to A. M. Keeney, W. H. Shearson, and S. S. Withington, Adrian, Mich. Post	680,740	Aug. 20	1929	423	96	1470
Snell, Frederic A., Providence, R. I. Feeding mechanism for tack-machines	681,935	Sept. 3	540	113 114	96	1874
Snell, Lord O., Athens, Pa. Checkrein-securer	680,946	Aug. 20	2318	510	96	1547
Snell, Oscar, assignor of one-half to A. E. Keith, Chicago, Ill. Internal-combustion engine	677,898	July 9	1081	251 252	96	245
Snow, Columbus W., Mentor, Mo. Weeder	681,585	Aug. 27	3521	781	96	1806
Snow, James F., Pawtucket, R. I. Trolley-arm for electric cars	681,891	Sept. 3	444	90	96	1953
Snow, Sparrow A., Arlington, and A. Taylor, Boston, Mass.; said Snow assignor to said Taylor. Fruit or vegetable masher	678,844	July 16	2905	655	96	624
Snow, Theodore W. (See Moore, Moses M., assignor.)						
Snow, Theodore W., Chicago, Ill. Valve-actuating device	681,890	Sept. 3	443	89, 90	96	1952
Snyder, Cadwell B., Chicago, Ill. Nut-lock	679,435	July 30	4115	922	96	911
Snyder, Henry, New York, N. Y. Polishing-wheel	678,054	July 9	1372	317	96	301
Snyder, John. (See White and Snyder.)						
Snyder, Robert H., Worcester, Mass. Rolling-mill	679,919	Aug. 6	880	80	96	1118
Soady, Frank, Pekin, Ill. Egg-boiler	681,936	Sept. 3	542	114	96	1974
Société Anonyme pour la Transmission de la Force par l'Électricité. (See Hutin and Leblanc, assignors.)						
Société pour l'Exploitation de Compteurs Électriques, Rittener & Co. (See Peloux, Albert, assignor.)						
Sock, Fritz, Magdeburg, Germany. Electric-circuit closer for railway-tracks	683,230	Sept. 24	3042	658	96	2488
Sohége, Paul, Paris, France. Composition for the manufacture of tiles, roofings, linings, or the like	682,502	Sept. 10	1536	------	96	2184
	679,040	July 23	3310	740	96	728
Sohn, Joseph G., Complin, Cal. Washing-machine						
Solberg, George L. (See Immell, Omer F., assignor.)						
Solvay, Ernest, Brussels, Belgium, assignor to Solvay Process Co., Syracuse, N. Y. Apparatus for drying bicarbonate of soda	683,187	Sept. 24	2761	635	96	2472
Solvay Process Co. (See Solvay, Ernest, assignor.)						
Somers, Etta E., *et al.* (See Somers, George B., assignor.)						
Somers, Fred W., *et al.* (See Somers, George B., assignor.)						
Somers, George B., assignor of two-thirds to N. R., F. W., and E. E. Somers, Oceanville, N. J. Carpet-fastener	678,910	July 23	3049	668	96	672
Somers, Norris R., *et al.* (See Somers, George B., assignor.)						
Somerville, William. (See Rector, Alcorn, assignor.)						
Sonn, Emanuel J., New York, N. Y. Atomizer	679,436	July 30	4116	922	96	911

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sorge, Adolph, Jr., Chicago, Ill. Apparatus for purifying water	683,349	Sept. 24	3002	702	96	2534
Souder, Oliver G., Tiffin, and M. E. Hamill, Fostoria, Ohio. Moistener or softener for wall-paper, paint, &c	682,702	Sept. 17	2910	455	96	2301
South Bend Iron Works. (See Davis, Calvin R., assignor.)						
South Bend Iron Works. (See Diescher, Samuel, assignor.)						
South, Richard. (See Gray and South.)						
Southard, Abraham M. (See Hills and Southard.)						
Southcott, James H., assignor of one-half to J. H. T. Brüggemann, Adelaide, South Australia. Nailing-machine	679,808	Aug. 6	286	62	96	1100
Southwick, George W., Franklin, Mass. Vehicle-tire	678,055	July 9	1373	317	96	301
Southworth, Preston B., Mayville, Oreg. Hook	680,005	Aug. 6	540	115	96	1151
Spacke, Fred W., assignor to Speed Changing Pulley Company, Indianapolis, Ind. Speed-varying pulley	681,144	Aug. 20	2674	590	96	1619
Spacke, Fred W., assignor to Speed Changing Pulley Company, Indianapolis, Ind. Self-contained speed-varying pulley	681,145	Aug. 20	2677	591	96	1620
Spackman, Henry S. (See Lathbury and Spackman.)						
Spahr, Otto A., Millersburg, Ohio. Primary battery	681,690	Aug. 27	3081	824	96	1889
Spalckhaver, William, assignor to R. Hoe, New York, N. Y. Rotary printing-machine	679,191	July 23	3024	808 809 589	96	789
Spalding, Henry C., New York, N. Y. Means for transporting rigid bodies	683,078	Sept. 24	2576	590 591	96	2486
Spangler, George C., Pittsburg, Pa. Necktie attachment	681,749	Sept. 3	167	32	96	1897
Spangler, George P. (See Schroeder and Spangler.)						
Spaulding, Fred R., Waterville, assignor to E. A. Parkman, Fairfield, Me. Piazza-swing	682,369	Sept. 10	1295	291	96	2137
Spaulding, Joseph W., Tecumseh, Nebr. Work-holder	682,290	Sept. 10	1162	264	96	2113
Spear, Frank N., Los Angeles, Cal. Treating lime	683,188	Sept. 24	2762	------	96	2473
Spear, Frank R., Chicago, Ill. Composite brake-shoe	678,139	July 9	1528	352	96	333
Speed Changing Pulley Company. (See Spacke, Fred W., assignor.)						
Speer, Robert G. (See Pickles, Charles K., assignor.)						
Speirs, Albert S., New York, N. Y. Tobacco-pipe attachment	683,006	Sept. 17	2470	559	96	2393
Speirs, John C., Worcester, Mass., assignor to Locomobile Company of America, New York, N. Y. Hydrocarbon-burner	677,899	July 9	1083	252	96	246
Spelman, Henry H., assignor of one-half to G. B. Ruddell, New York, N. Y. Device for making cigarettes	678,110	July 9	1477	341	96	322
Spence, Howard, Manchester, England. Producing titanium compounds	681,993	Sept. 3	639	------	96	1993
Spencer, Albert E., *et al.* (See La Burt, John, assignor.)						
Spencer, Alexander H. (See Stacy, George B., assignor.)						
Spencer, Edwin L., assignor of one-half to W. H. Dyer, Canon City, Colo. Rotary engine	679,689	July 30	4003	1023	96	1013
Spencer, George G., Chicago, Ill., assignor to Chicago Handle Bar Co., of Illinois. Steering device for bicycles	677,428	July 2	173	42	96	30
Spencer, Ira H., Hartford, Conn. Variable-speed device	682,763	Sept. 17	2912	455 456	96	2301
Spencer, Joseph B., Cordele, and A. A. Cameron, McRae, Ga.; said Spencer assignor to said Cameron. Bedstead	679,643	July 30	4519	1016 1017	96	994
Spencer, Thomas, assignor to Helios-Upton Company, Philadelphia, Pa. Electric-arc lamp	677,605	July 2	404	119	96	104
Sperry, Willis, *et al.* (See Clinger, Fred D., assignor.)						
Spillman, William H., and A. E. Roach, Leamington, Canada. Whiffletree	680,006	Aug. 6	541	115	96	1151
Spink, Cassius M., assignor of one-half to C. E. Wolfe, Cygnet, Ohio. Sucker-rod elevator	681,937	Sept. 3	543	114	96	1974
	681,802	Sept. 3	445	90	96	1953
Spiro, Charles, New York, N. Y. Ribbon-shifting mechanism						
Splint-Gate Bandage Company. (See Shears, Edward C., assignor.)						
Splitdorf, Henry, New York, N. Y. Dry battery	682,648	Sept. 17	1783	408	96	2258
Sporland, Henry, Chicago, Ill. Candy-making machine	682,819	Sept. 17	2121	480	96	2323
Spring, Daniel T., and A. Long, Wheeling, W. Va. Engine-house appliance	681,081	Aug. 20	2574	569	96	1598
Springborn, William J., *et al.* (See Young, William J., assignor.)						
Springer, Charles, and G. Davis, Newark, N. J. Cornet attachment	679,644	July 30	4522	1017	96	994
Springer, William H. (See Johnson and Springer.)						
Springfield Machine Tool Company. (See Muller, Edward A., assignor.)						
Springsteen, Nelson E., Royaloak, Mich. Ticket-printing machine	682,889	Sept. 17	2259	510	96	2350
Sprink, Lambert, Milwaukee, Wis. Cutter-head for planing-machines	678,795	July 16	2787	627	96	599
St. Arnaud, Arthur, Ste. Geneviève de Batiscan, Canada. Joint for stovepipes	677,813	July 2	884	211	96	186
St. Clair, Charles B., East St. Louis, Ill. Clothes-line pole	677,606	July 2	406	119	96	105
St. Hilaire, Camille and E., Wilson, Mich. Combination furniture	680,208	Aug. 6	901	199	96	1224
St. Hilaire, Ettienne. (See St. Hilaire, Camille and E.)						
St. John, John C., assignor of one-third to C. A. Richardson, Boston, Mass. Pick-key for zithers	678,140	July 9	1529	352	96	333
	683,152	Sept. 24	2706	623	96	2462
St. John, Victor, Fairmont Minn. Explosive-gas engine						
St. Louis Trust Company. (See Long, William R., assignor.)						
Stacy, George B., Boston, Mass., assignor to A. H. Spencer, New York, N. Y. Automatic tire-inflater	677,708	July 2	679	161	96	143
Stacy, George B., Boston, Mass., assignor to A. H. Spencer, New York, N. Y. Automatic tank-pump for automobiles	677,709	July 2	680	162	96	144
Stacy, George B., Boston, Mass., assignor to A. H. Spencer, New York, N. Y. Air-pump for pneumatic tires	677,710	July 2	682	162	96	144
	679,920	Aug. 6	392	90	96	1118
Stadel, Adolph, Jersey City, N. J. Radiator	678,056	July 9	1374	317	96	301
Stadlinger, Charles H., Buffalo, N. Y. Tooth-powder box	679,092	July 23	3357	748	96	732
Staedeli, Felix, and G. Vogt, New York, N. Y. Stop-cock	679,845	July 30	3924	877	96	871
Stafford, Samuel G., Bellevue, Pa. Oil-can						
Stahl, Rudolph F., assignor to Bottlers Machinery Company, Boston, Mass. Labeling-machine	680,966	Aug. 20	2392	528	96	1561
	679,192	July 23	3029	810	96	790
Stalcup, Thomas P., Butte, Nebr. Whiffletree	683,079	Sept. 24	2579	592	96	2436
Stalker, Herbert H., Lansing, Mich. Composing-stick						
Stall and Dean Manufacturing Company. (See Dean, Charles H., assignor.)						
Stallsmith, Joseph F., Topeka, Kans. Corn-harvester	681,818	Sept. 3	307	62	96	1926
	683,231	Sept. 24	2843	654	96	2488
Stamm, Cuno, Ohligs, Germany. Scissors						
Standard Automatic Fire Alarm Company. (See Zoeller, Theodore J., assignor.)						
Standard Coupler Company. (See Gallagher, Richard D., Jr., assignor.)						
Standard Sanitary Manufacturing Company. (See McKinney, William C., assignor.)						
Standard Sanitary Manufacturing Company. (See McKinney and Whitehead, assignors.)						
Standard Seamless Tube Company. (See Stiefel and Nicholson, assignors.)						
Standard Welding Company. (See Parpart, Otto, assignor.)						
Standley, Francis M., Lagrande, Oreg. Hay-fork	681,146	Aug. 20	2679	591	96	1620

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Stanford, Harold E. (See Denmead, James H., assignor.)						
Stanley, Charles E., Canton, Ohio. Trolley-guard	680,286	Aug. 13	1035	232	96	1265
Stanley, Ellis J., Lanark, Ill. Stovepipe-lock	679,690	July 30	4006	1033	96	1013
Stanley, Francis E. and F. O., Newton, Mass. Steam-generating apparatus	678,911	July 23	3050	683	96	672
Stanley, Francis E. and F. O., Newton, Mass. Steam-generating apparatus	678,912	July 23	3051	683	96	672
Stanley, Frederick E., assignor to Scovill Manufacturing Company, Waterbury, Conn. Tack-fastened button	679,707	July 30	4035	1042	96	1019
Stanley, Freelan O. (See Stanley, Francis E. and F. O.)						
Stanley, John C. W., London, England. Apparatus for bleaching oleaginous matters	681,274	Aug. 27	2940	651	96	1693
Stanley, John C. W., assignor to Cotton Seed Oil Syndicate, Limited, London, England. Bleaching oils	681,273	Aug. 27	2939	650 651	96	1693
Stanley Rule & Level Company. (See Traut, Justus A., assignor.)						
Stapf, Frederick W., Brooklyn, assignor to J. A. Wilbur, New York, N. Y. Rivet-teeding apparatus	677,711	July 2	683	162	96	144
Stapf, Frederick W., Brooklyn, assignor to J. A. Wilbur, New York, N. Y. Spiral-jointed sheet-metal pipe	677,712	July 2	687	163	96	146
Stapf, Frederick W., Brooklyn, assignor to J. A. Wilbur, New York, N. Y. Pipe-cutting mechanism	680,443	Aug. 13	1323	291 292	96	1323
Stapfer, Otto R. (See Adams and Stapfer.)						
Stapleton, Charles W., New York, N. Y. Rubber tire	677,814	July 2	886	211	96	186
Starbuck, Robert B., Mattoon, Ill. Velocipede driving mechanism	680,741	Aug. 20	1930	423	96	1471
Stark, Charles A., Union City, Pa. Chair-seat-surfacing machine	682,820	Sept. 17	2125	481	96	2323
Stark, Eli A., and T. Winship, Toledo, Ohio, assignors to Toledo Steam and Air Motor Company. Fluid-pressure engine	679,437	July 30	4117	922 923	96	911
Stark, Virgil L., *et al.* (See Shafer, Frank B., assignor.)						
Stark, Wilhelm, Vienna, Austria-Hungary. Tooth-brush	680,365	Aug. 13	1192	263	96	1296
Starkey, Charles T., Attalla, Ala. Combined seed-planter and fertilizer-distributer	679,488	July 30	4121	923 924	96	912
Starkey, Charles T., Attalla, Ala. Cotton-seed planter and fertilizer-distributer	682,963	Sept. 17	2384	530	96	2376
Starr Piano Company. (See Bosenbury, William C., assignor.)						
Starrett, Laroy S., Athol, Mass. Square	680,815	Aug. 20	2082	453	96	1490
Startup, Charles L., Ellenville, N. Y. Elevator	679,484	July 30	4226	952	96	930
Stäubli, Hermann, Horgen, Switzerland. Shedding mechanism for looms	680,181	Aug. 6	850	188 189 190	96	1214
Stauffer, Peter S., assignor to J. H. Burt, Springfield, Mass. Register	679,789	Aug. 6	126	28	96	1067
Staver, Joseph, Quimby, Iowa. Tender for traction-engines	680,366	Aug. 13	1193	263 264	96	1296
Stearns, Alfred M., *et al.* (See Giesy, Edward H., assignor.)						
Stearns, Frank L., Los Angeles, Cal. Tool for turning zinc-shavings	678,796	July 16	2788	628	96	599
Stebbins, Albert H., Little Rock, Ark. Ore-concentrator	679,869	Aug. 6	288	62	96	1101
Stebbins, George A., Watertown, N. Y. Apparatus for producing bisulfite liquor	681,586	Aug. 27	3522	781	96	1806
Steel, Harry L., assignor to Indiana Development Company, Dayton, Ind. Corn-harvester	679,708	July 30	4036	1042 1043	96	1019
Steele, Frederick M., *et al.* (See McClatchey, Augustus F., assignor.)						
Steele, Simon P., Auburn, Nebr. Mail-bag mouth or closure	683,153	Sept. 24	2707	623	96	2402
Steele, Wilbur F. (See Eberman, Joseph W., assignor.)						
Steele, William O., Philadelphia, Pa. Asphaltum or granolithic filled floor or trench plate	680,287	Aug. 13	1069	232 233	96	1265
Steele, William O., assignor of one-half to C. T. Wright, Philadelphia, Pa. Manhole-frame and cover	681,994	Sept. 3	641	136	96	1993
Steele, William O., assignor of one-half to C. T. Wright, Philadelphia, Pa. Manhole-frame and cover	681,995	Sept. 3	642	136 137	96	1993
Steen, Emma L. N., New York, N. Y. Buttonhole and ruffling gage for shears	678,288	July 9	1810	417	96	386
Steen, James C., Cincinnati, and C. Seybold, Dayton, assignors to Cincinnati Shaper Company, Cincinnati, Ohio. Shaping-machine	679,063	July 23	3358	748 749	96	733
Steenberg, Sara. (See Harger, John S., assignor.)						
Steenbock, Henry, New York, N. Y. Zither	678,525	July 16	2284	514	96	500
Steiert, Albert, Philadelphia, Pa. Window-stop	680,081	Aug. 6	671	149	96	1178
Steiger, Andrew W., Boston, Mass., assignor, by mesne assignments, to A. L. Hoffman, F. S. Converse, and F. J. Leach, trustees, Lyons, N. Y. Driving connection for type-bars	677,480	July 2	175	42	96	30
Steiger, Andrew W., Boston, Mass., assignor, by mesne assignments, to A. L. Hoffman, F. S. Converse, and F. J. Leach, trustees, Lyons, New York. Type-writer	680,551	Aug. 13	1526	335 336	96	1305
Stein, Gustav. (See Schurig, Paul, assignor.)						
Stein, William S., *et al.* (See Sundean, John M., assignor.)						
Steinbach, George P., *et al.* (See Hazelip, Joseph N., assignor.)						
Steinberg, Jacob, McKeesport, Pa. Curtain-hanger	682,764	Sept. 17	2015	456	96	2302
Steinberg, Jacob S., and G. Van Handorf, Cincinnati, Ohio. Collapsible shipping-crate	678,057	July 9	1376	317	96	301
Steinbrenner, Andrew G., assignor to S. Northrop, St. Louis, Mo. Draft-rigging for railway-cars	681,819	Sept. 3	310	62	96	1927
Steiner, Charles, Sault Ste. Marie, Mich. Storage of mechanical energy	678,141	July 9	1532	352	96	333
Steiner, George A., Salt Lake City, Utah. Attachment for washing-machines	680,987	Aug. 20	2396	528 529	96	1561
Steinert, Morris, New Haven, Conn. Upright-pianoforte action	679,485	July 30	4027	952	96	931
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric-arc lamp	678,058	July 9	1377	318	96	302
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Compounding alternator	678,289	July 9	1818	417	96	387
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	679,008	July 23	3233	723 724	96	709
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	679,062	July 23	3434	765	96	748
Stelzer, Max A., Nausslitz, Germany. Game apparatus	680,803	Aug. 20	2217	488	96	1526
Stenson, Samuel, *et al.* (See Hancock, Henry J., assignor.)						
Stenz, Henry, Chicago, Ill. Electric-arc lamp	680,082	Aug. 6	671	149	96	1178
Stephens, Fredrick D., German Valley, N. J. Heater	679,520	July 30	4301	966 967	96	946
Stephenson, John W., Toledo, assignor to National Malleable Castings Company, Cleveland, Ohio. Railway-track appliance	681,820	Sept. 3	311	63	96	1927
Stephenson, Joseph, Boone, Iowa. Knockdown water-tank	678,913	July 23	3053	683	96	672
Stern, Arnold. New York, N. Y., assignor to Annulo Stopper Company, of New Jersey. Bottle-stopper	677,900	July 9	1085	252	96	246
Sterzing, Albert A. E., New York, N. Y. Windmill	677,747	July 2	750	178 179 180	96	159

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Stetson, Almon B., Malden, assignor to American Bell Telephone Company, Boston, Mass. Telephone-exchange apparatus	682,152	Sept. 3	901	201	96	2043
Stetson, James B., San Francisco, and W. J. Thomas, Sausalito, Cal. Steam-boiler	682,765	Sept. 17	2016	456	96	2282
Stevens, Arthur L., New York, N. Y. Safety-stop for vehicles	680,444	Aug. 13	1329	292	96	1324
Stevens, Aurelius E. (See Dyer, Walter, assignor.)						
Stevens, Benjamin A., Toledo, Ohio. Latch	677,718	July 2	688	168	96	146
Stevens, Benjamin A., Toledo, Ohio. Heat-insulating wall	681,938	Sept. 3	544	114	96	1074
Stevens, George E., Lynn, Mass., assignor to General Electric Company, of New York. Globe-holder for arc-lamps	677,377	July 2	76	17	96	18
Stevens, George H., Toledo, Ohio. Duplicating phonograms. (Reissue)	11,917	July 2	953	225	96	201
Stevens, J. H. (See Quist, John, assignor.)						
Stevens, Manford A. (See Stevens, Omar and M. A.)						
Stevens, Omar and M. A., New Salem, Ind. Gate	678,797	July 16	2789	628	96	599
Stevens, Perley E., St. Paul, Minn. Shears	678,441	July 16	2117	480	96	464
Stevens, Richard H., Braddock, Pa. Tongs	681,518	Aug. 27	3398	753	96	1781
Stevens, Richard H., Braddock, Pa. Speed-changing mechanism	681,519	Aug. 27	3399	754	96	1781
Stevens, William J., London, H. E. Harrold, Lewisham, and F. R. Bluemel, London, England. Mud-guard for cycles	680,816	Aug. 20	2083	453	96	1499
Stevenson, William S. (See Weathers and Stevenson.)						
Steward, John A., East Clarendon, Vt. Soldering-machine for can-seams	678,442	July 16	2118	480	96	464
Steward, John A., East Clarendon, Vt. Machine for coating can-covers	682,821	Sept. 17	2127	481	96	2324
Steward, John F., Chicago, Ill. Mowing-machine	678,059	July 9	1379	318	96	302
Steward, John F., Chicago, Ill. Corn-husking machine	682,291	Sept. 10	1163	264	96	2113
	683,080	Sept. 24	2580	592 / 593	96	2486
Stewart, Benjamin F., Chicago, Ill. Gas-engine						
Stewart, Charles P., Oakland, Cal. Apparatus for the recovery of gold from cyanid solutions	678,526	July 16	2285	514	96	501
Stewart, David, Govan, Scotland. Spanner or pipe-wrench	680,742	Aug. 20	1931	423	96	1471
Stewart, Edgar J., Des Plaines, Ill. Excelsior-making machine	679,799	July 30	4628	1043	96	1019
Stewart, John W., Tyrone, Pa. Automatic lubricator for slide-valves	677,901	July 9	1085	252	96	246
Stewart, Mary A. (See Stewart, William J., assignor.)						
Stewart, Richard C., Jr., and W. A., Covington, Ky. Operating means for cell-doors	680,288	Aug. 13	1037	233	96	1295
Stewart, Thomas D., Chicago, Ill., assignor, by mesne assignments, to Ryder Manufacturing Company, Binghamton, N. Y. Flat-iron	680,307	Aug. 13	1195	264	96	1297
Stewart, Wallace A. (See Stewart, Richard C., Jr., and W. A.)						
Stewart, William J., Glasgow, assignor of one-half to M. A. Stewart, Ardmore, Scotland. Appliance for working tramway or railway points	680,007	Aug. 6	542	115 / 116	96	1151
	679,790	Aug. 6	128	28	96	1067
Stewart, William W., Brooklyn, N. Y. Fountain-pen						
Stickney, Burnham C., and C. Gabrielson, Elizabeth, N. J., assignors to J. Felbel, Borough of Manhattan, N. Y. Type-writing machine	681,750	Sept. 3	168	32	96	1897
Stiefel, Ralph C., Ellwood City, and J. H. Nicholson, Pittsburg, Pa., assignors to Standard Seamless Tube Company, of Pennsylvania. Crane for pickling-tanks, &c.	681,275	Aug. 27	2942	651 / 652	96	1693
Stiegelmann, Armand J., assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Making indigo from indigo-leuco compounds	680,894	Aug. 20	2218	------	96	1526
Stiff, Henry C., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Portable connecting-track	678,987	July 23	3197	716	96	709
Stiff, Henry C., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Railway-crossing structure	678,988	July 23	3199	716	96	701
Stiles, Edward H., Jr. (See Wood and Stiles.)						
Still, William J., Toronto, Canada. Storage battery	678,443	July 16	2124	481	96	466
Stilwell, Edwin R., Dayton, Ohio. Feed-water heater and purifier	681,893	Sept. 3	448	90	96	1954
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Weft-replenishing loom	677,607	July 2	496	119	96	105
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Weft-replenishing loom	677,608	July 2	499	120	96	105
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Loom	680,743	Aug. 20	1932	424	96	1471
Stine, Wm. F. (See Rockwell, Warren C., assignor.)						
Stirling Company. (See Faber, Frank M., assignor.)	679,791	Aug. 6	130	28, 29	96	1068
Stöckel, Frants C., Copenhagen, Denmark. Brake-controlling apparatus						
Stocker, William. (See Kaiser and Stocker.)	679,207	July 23	3760	840	96	815
Stockett, Charles W., Jr., Baltimore, Md. Writing-tablet or blank-book holder	678,527	July 16	2286	515	96	501
Stockinger, Andreas, Vienna, Austria-Hungary. Hair-fastener						
Stockwell, Emory, assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Device for controlling the operation of electrical devices	681,862	Sept. 3	386	78	96	1943
Stockwell, George W., Greenville, Miss. Hunter's headlight or lantern	681,996	Sept. 3	643	137	96	1993
Stoddard, Charles F., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Wire-tightener	679,870	Aug. 6	292	62	96	1101
	680,895	Aug. 20	2220	488 / 489	96	1526
Stoddard, Edgar R., Detroit, Mich. Elevator attachment						
Stoddard, Ralph, assignor to Moseley & Stoddard Manufacturing Company, Rutland, Vt. Silo	680,008	Aug. 6	544	116	96	1152
Stoddard, William O., Jr., Madison, N. J., assignor to Pure Food Company, of New Jersey. Apparatus for desiccating eggs	677,902	July 9	1067	253	96	246
	681,350	Aug. 27	3082	685	96	1719
Stoelting, Charles T., St. Louis, Mo. Street-car fender						
Stokes, Barclay L., *et al.*, executors. (See Lovett, Joseph S. H., assignor.)						
Stokes, Evan S., trustee. (See Maltby, Lewis C., assignor.)						
Stokes, Walter. (See Mathews, George W., assignor.)	680,744	Aug. 20	1934	424	96	1471
Stolz, Frank D., Chicago, Ill. Hot-water heating attachment to furnaces						
Stolzenberg, Frederick, assignor to S. Blumenthal & Company, Shelton, Conn. Warp-tension device for looms	681,520	Aug. 27	3400	754	96	1781
	677,378	July 2	77	17	96	19
Stone, Columbus, assignor of one-half to C. E. Rodes, Manchester, Tenn. Bicycle-tire	681,147	Aug. 20	2680	591 / 592	96	1620
Stone, John A., assignor to Deering Harvester Company, Chicago, Ill. Corn-harvester	680,817	Aug. 20	2084	453	96	1499
Stone, Julius F., Columbus, Ohio, and C. C. Sharp, Boomer, W. Va. Dumping-car	680,445	Aug. 13	1333	292	96	1325
Stone, Junius H., Bridgeport, Conn. Cork insulating-strip						
Stone, Peter J., Athens, Pa., assignor of one-half to A. I. Decker, Waverley, N. Y. Grain-door	677,379	July 2	78	17	96	19
	679,064	July 23	3361	749	96	733
Stone, Reuben R., New York, N. Y. Bottle-filling machine	683,850	Sept. 24	3064	703	96	2535
Stone, William M., Keesville, N. Y. Disposing of the spent liquor in wood-pulp making	680,818	Aug. 20	2085	454	96	1500
Stones, William G., Blackburn, England. Steam-generator	683,189	Sept. 24	2765	636	96	2473
Storch, Ernst, Berlin, Germany. Vacuum drying apparatus	680,988	Aug. 20	2396	529	96	1561
Storer, Simon B., Syracuse, N. Y. Magnetic speed-indicator	682,370	Sept. 10	1296	------	96	2137
Storp, Maximilian, Hamburg, Germany. Manufacture of tiles, plates, slabs, &c.						
Story, Edwin B. (See Donovan, Ernest E., assignor.)						
Stoughton, Joseph M. (See Hess and Stoughton.)						
Stout, Hiram C., Alliance, Ohio. Combined step-ladder and table	677,714	July 2	689	163 / 164	96	146

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Stow & Davis Furniture Company. (See Davis, George A., assignor.)						
Stow, Nelson, Binghamton, N. Y. Brush	681,148	Aug. 20	2681	592	96	1621
Stowell Manufacturing & Foundry Company. (See Ricker, Adolph J., assignor.)						
Strasburger, Rachel, Butte, Mont. Abdominal supporter	682,503	Sept. 10	1527	346	96	2184
Strater, Herman, Boston, Mass. Apparatus for draft beer or ale	682,766	Sept. 17	2018	456	96	2302
Stratton, Henry H., Chattanooga, Tenn. Window-shade hanger	683,154	Sept. 24	2709	623	96	2462
Straub, Alfred H. F., Lacenter, Wash. Wrench	681,751	Sept. 3	172	32	96	1899
Strauss, Emil A. (See Burns and Strauss.)						
Straw, Herman F., *et al.* (See Janelle, Belonie, assignor.)						
Streater, Thomas H. (See Allder and Streater.)						
Streeper, Daniel H., Norristown, Pa. Automatic bib on water-cock	678,693	July 16	2628	590 / 591	96	508
Strehl, Henry L., Fairlawn, N. J. Paper-cutting machine	682,767	Sept. 17	2019	457	96	2302
Streng, George J. (See Cook and Streng.)						
Stretch, Drew, Liverpool, England. Tow-head	678,798	July 16	2790	628	96	599
Stretch, Elisha, East Orange, N. J. Trap-nest	681,752	Sept. 3	173	33	96	1899
Strieffler, Edward, Bisbee, Ariz. Ter. Harmonica	681,753	Sept. 3	175	33	96	1899
Strieffler, Edward, Bisbee, Ariz. Ter. Musical instrument	682,504	Sept. 10	1528	346	96	2184
Strom, John A. (See Scott and Strom.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Davis, William M., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Webster, Harry G., assignor.)						
Strong, Asa B., Perrydale, Oreg. Attachment for plows	682,505	Sept. 10	1531	347	96	2185
Strothenke, Frank, Milwaukee, Wis. Cuspidor	680,009	Aug. 6	545	116	96	1152
Stroud, Frank L., *et al.* (See Thurber, Milton R., assignor.)						
Struss, Henry W., New York, N. Y. Radiator	682,649	Sept. 17	1783	408	96	2278
Stuart, George. (See Noble and Stuart.)						
Stuart, George, assignor to W. G. Armstrong, Whitworth & Co., Limited, Newcastle-upon-Tyne, England. Mechanical primer for guns	679,692	Aug. 6	131	29	96	1068
Stuart, Luttrell H., Chicago, Ill. Attaching-plug for electric wires	681,461	Aug. 27	3296	733	96	1761
Stubbers, Joseph, Covington, Ky., assignor to Incandescent Light and Stove Company, Cincinnati, Ohio. Carburetor	683,232	Sept. 24	2843	654 / 655	96	2488
Studebaker, Lyman J., *et al.* (See Studebaker, William A., assignor.)						
Studebaker, William A., assignor of two-thirds to L. J. Studebaker, Denver, and E. W. Farmer, Boulder, Colo. Gasolene-lamp	680,446	Aug. 13	1334	292	96	1325
Stufflebeam, Edward F., Berdan, Ill. Sled	681,587	Aug. 27	3524	782	96	1807
Stull, Emmett W. (See Merrick and Stull.)						
Stull, Emmett W., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Controller for electric motors	678,914	July 23	3054	684	96	673
Stull, Emmett W., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Controller for electric motors	678,989	July 23	3200	717	96	701
Stuparich, Paul J., San Francisco, Cal. Making photographic mounts	680,947	Aug. 20	2320	510	96	1547
Sturges, Lee, Elmhurst, Ill. Hub	677,429	July 2	174	42	96	39
Sturgess, George F., assignor of three-fourths to A. E. Hitchcock, J. Parsons, and C. E. Hare, Leicester, England. Driving and braking gear	681,351	Aug. 27	3083	685	96	1720
Sturgess Governor Engineering Company. (See Curtis, Frank C., assignor.)						
Sturgess Governor Engineering Company. (See Sturgess, John, assignor.)						
Sturgess, John, assignor to Sturgess Governor Engineering Company, Troy, N. Y. Speed-regulator	680,677	Aug. 13	1770	389 / 390	96	1415
Sturgess, John, assignor to Sturgess Governor Engineering Company, Troy, N. Y. Speed-regulator	680,745	Aug. 20	1936	424	96	1472
Sturgis, Herbert M., Kansas City, Mo. Automatic drop-fixture for shades	681,005	Aug. 20	2490	538	96	1568
Sturtevant, Lorenzo P. (See Keene, Samuel D., assignor.)						
Stutson, Norton, Washington Court House, Ohio. Garment-fastener	679,793	Aug. 6	132	------	96	1068
Sukalle, William, Santa Rosa, Cal. Lard cooling and mixing machine	682,292	Sept. 10	1164	264 / 265	96	2113
Sullivan, Cornelius J., Syracuse, N. Y. Cement-walk-constructing frame	683,081	Sept. 24	2584	593 / 594	96	2487
Sullivan, Daniel, assignor to C. F. Kelly and H. L. Weeke, St. Louis, Mo. Coin-controlled dispensing device	677,748	July 2	754	180	96	159
Sullivan, David J., Jermyn, Pa. Journal-bearing for mine-cars	681,907	Sept. 3	644	137	96	1993
Sullivan, John J., Ipswich, Mass. Thread-cutting device for sewing-machines	681,149	Aug. 20	2682	592	96	1621
Sullivan, Josiah L., Columbus, Ohio. Combined printing and addressing machine	679,193	July 23	3630	810	96	790
Sullivan Machinery Company. (See Ball, Albert, assignor.)						
Sullivan, Maurice, New York, N. Y. Fireproof covering	682,434	Sept. 10	1413	318	96	2161
Sullivan, Vernon L., Grandledge, Mich. Hot-air furnace	679,068	July 23	3437	766	96	748
Summerer, John C., Cleveland, Ohio. Expansion-bolt	682,082	Sept. 24	2585	594	96	2487
Summers, Bertrand S., assignor to Western Electric Co., Chicago, Ill. Copper alloy	680,819	Aug. 20	2089	------	96	1500
Summers, John C., and H. E. Yoder, Mount Hope, Ohio. Windmill	679,346	July 30	3925	878	96	871
Sundean, John M., assignor to J. B. Meserve and W. S. Stein, Lincoln, Nebr. Pocket-closure	681,661	Aug. 27	3684	825	96	1899
Sunlight Manufacturing and Supply Company. (See Gregory, John W., assignor.)						
Sunshine Water Heater Co. (See Baker, Milton M., assignor.)						
Surerus and Greenhill. (See Elmblad, Hjalmar, assignor.)						
Susdorf, Henry M., Rantoul, Ill. Tongue-support for vehicles	679,094	July 23	3439	766	96	748
Suspension Beam Scale Co. (See Manes, John, assignor.)						
Sutherland, John H. (See Keough, George H., assignor.)						
Sutter, Frederick C., Pittsburg, Pa., and R. V. Bingay, Montreal, Canada. Transformer	680,421	Aug. 13	1260	283	96	1316
Sütterlin, William L., Trenton, N. J. Oar-lock	680,289	Aug. 13	1042	233	96	1266
Suttie, Charles, Onehunga, New Zealand. Ore-crusher	680,401	Aug. 13	1250	207	96	1310
Sutton, John G., Pontiac, Mich. Gate and hinge therefor	680,896	Aug. 20	2222	489	96	1527
Sutton, Joshua W., Brooklyn, N. Y., assignor to American Soda Fountain Company, Boston, Mass. Syrup-jar	677,815	July 2	887	211	96	187
Svan, Andrew I., New York, N. Y. Self-centering building-brick	683,285	Sept. 24	2851	655	96	2490
Svensson, Claes A., assignor to H. Baethig, Buffalo, N. Y. Alarm-clock	681,403	Aug. 27	3167	706	96	1736
Swan, Andrew, Rhinelander, Wis. Photographic retoucher	683,351	Sept. 24	3065	703	96	2535
Swan, John C., assignor to Swan Machine & Tool Company, Marietta, Ohio. Un ierreamer	683,352	Sept. 24	3066	703	96	2535
Swan, John C., assignor to Swan Machine & Tool Company, Marietta, Ohio. Rope-socket	683,353	Sept. 24	3069	704	96	2536
Swan Machine & Tool Company. (See Swan, John C., assignor.)						
Swaney, Fletcher D., assignor of one-half to H. Galer, Kansas City, Kans. Churn	679,545	July 30	4347	976	96	957
Swank, Walter H., Dixon, Ill. Car-door fastener	681,150	Aug. 20	2681	593	96	1621
Swanson, Fred J., Jamestown, N. Y. Key-ring	681,894	Sept. 3	451	91	96	1954
Swanson, John, Greatbend, N. D. Fish-plate	682,435	Sept. 10	1414	319	96	2161

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Swanson, Svan B. (See Norden, William L., assignor.)						
Swanstrom, Otto, Frazee, Minn. Horseshoe	682,506	Sept. 10	1532	347	96	2185
Swearer, James A., and C. E. Toynbee, Parnassus, Pa. Making wire-glass plates	677,640	July 2	502	120	96	106
Swedin, John, assignor of one-half to M. Zatterberg, Chicago, Ill. Cock	680,447	Aug. 13	1335	298	96	1226
Sweeney, Peter, New York, N. Y. Journal-bearing	680,967	Aug. 20	2224	480	96	1527
Sweeney, William, New York, N. Y. Collar button or stud	681,588	Aug. 27	3325	782	96	1807
Sweet, Arthur C., *et al.* (See Smith, Thomas, assignor.)						
Sweet, John E., Syracuse, N. Y. Bicycle-support	679,794	Aug. 6	134	20	96	1069
Sweet, John E., Syracuse, N. Y. Changeable-speed gearing	682,507	Sept. 10	1533	347	96	2185
Sweigart, Webster W., Yorkroad, Md. Mail-box	679,645	July 30	4523	1017	96	995
Swendeman, Joseph E., Boston, Mass. Water-cooling tower	677,749	July 2	755	180 / 181	96	159
Swenson, George A., Brooklyn, N. Y. Fire-extinguisher	682,964	Sept. 17	2385	540	96	2377
Swenson, John S., assignor of one-half to L. Swenson, Cresco, Iowa. Stump-extractor	679,402	July 30	4002	906 / 907	96	901
Swenson, Lorens. (See Swenson, John S., assignor.)						
Swett, Joseph H. (See Swett, William R., assignor.)						
Swett, William R., Boundbrook, assignor to J. H. Swett, South Orange, N. J. Machine for boxing matches	677,816	July 2	888	212	96	187
Swezey, Moses C., New Haven, Conn. Cash-carrier	677,908	July 9	1090	253	96	247
Swift, John P., Pawtucket, R. I. Braiding-machine	681,998	Sept. 3	646	188 / 189	96	1993
Swift, John P., Pawtucket, R. I. Transmitting bodies by means of electromagnets	681,999	Sept. 3	650	139 / 140	96	1994
Swinburne, James, Westminster, assignor to Electric Resistance & Heating Company, Limited, London, England. Heater for electrolytic incandescent lamps	681,852	Aug. 27	3087	.....	96	1720
Swinglehurst, Harry. (See Scott and Swinglehurst.)						
Swinglehurst, Harry. (See Williams and Swinglehurst.)						
Switzer, Charles W., Atwater, Ill. Binder-reel	681,277	Aug. 27	2945	653	96	1694
Switzer, Maurice, New York, N. Y., assignor of one-half to E. Brunhoff, Hamilton, Ohio. Lock	678,060	July 9	1389	318	96	302
Swoboda, Hans O., New York, N. Y. Cut-out block	678,900	July 23	3202	717	96	702
Swonson, John E., Boone, assignor of one-half to J. A. Johnson, Stratford, Iowa. Wireless check-row corn-planter	682,153	Sept. 3	905	201 / 202	96	2044
Swonson, John E., assignor of two-thirds to J. A. Johnson, Stratford, Iowa. Corn-planter	682,154	Sept. 3	908	202	96	2044
Sykes, Bolivar N., assignor of one-half to J. T. Williams, Harrellsville, N. C. Knock-down box	680,628	Aug. 13	1657	365 / 366	96	1291
Sylvester, Richard, *et al.* (See Hawley, Rinaldo W., assignor.)						
Symons, William E., Rhiwderin, assignor to Nettlefolds, Limited, Birmingham, England. Electric-arc lamp	678,142	July 9	1531	333	96	333
Synwolt, Edward W. (See Doan, John M., assignor.)						
Szubert, Stanislaus. (See Rostin and Szubert.)						
Taber, George H., Jr. (See Smith, William D., assignor.)						
Tabler, Herbert K., Colmar, Ill. Windmill-regulator	678,061	July 9	1382	319	96	292
Tabor, Leroy, Elmira, N. Y. Machine for manufacturing screws	678,305	July 9	1645	379	96	354
Taft, Jerome F., assignor of one-half to E. J. Prest, Uxbridge, Mass. Non-refillable bottle	682,293	Sept. 10	1165	265	96	2113
Taggart, Howard M. (See Ross and Taggart.)						
Taggesell, Richard, assignor to Schoellkopf, Hartford & Hanna Company, Buffalo, N. Y. Brown dye and making same	683,190	Sept. 24	2766	.....	96	2473
Talsey, Fred R., Indianapolis, Ind. Trolley	678,148	July 9	1535	353	96	333
Talbot, William R. (See Bailey, Charles E., assignor.)						
Talcott, William A., *et al.* (See Burson, William W., assignor.)						
Talen, Charles G. W. (See Letson, Talen, and Reynolds.)						
Taltavull, Nicolo. (See Lamarre and Taltavull.)						
Tambour, Joseph. (See Neuber, Tambour, and Colbert.)						
Taminelli, Pio. (See Morrow, William V., assignor.)						
Tannett-Walker, Frederick W., Leeds, England. Power-hammer	678,528	July 16	2287	515 / 516	96	501
Taplin, Albert J., Vancouver, Canada. Propelling mechanism for vessels	678,290	July 9	1815	418	96	387
Tarbell, Grove S., Lockport, Ill. Magazine-hammer	678,062	July 9	1386	319	96	303
Tatro, Charles P., and G. Delius, Seattle, Wash. Electrolytic apparatus for extracting precious metals	682,155	Sept. 3	910	203	96	2045
Tatterson, Arthur P., Stockton, Cal. Forking, elevating, and conveying machine	679,489	July 30	4123	924 / 925	96	912
Tattu, Radu, Trenton, N. J. Automatic extinguisher for lamps	678,015	July 23	3055	684	96	673
Taylor, Adam. (See Quinn, Martin J., assignor.)						
Taylor, Arthur. (See Snow and Taylor.)						
Taylor, Arthur W. (See Baker and Taylor.)						
Taylor, Edgar G., Philadelphia, Pa. Hat block and gage	680,088	Aug. 6	672	149 / 150	96	1178
Taylor, Harry P., assignor of one-fourth to W. P. Keady, Howard, Oreg. Ore-concentrator	682,371	Sept. 10	1297	291 / 292	96	2137
Taylor, Henry H., Bridgeport, Conn. Waist-extender	681,278	Aug. 27	2946	653	96	1694
Taylor, Herbert B., Newark, N. J. Signaling apparatus	682,768	Sept. 17	2021	457	96	2368
Taylor, James H., assignor of one-half to R. Roscow, Pawtucket, R. I. Furnace for heating bars of metal	680,010	Aug. 6	547	117	96	1152
Taylor, John D., assignor to Taylor Signal Company, Buffalo, N. Y. Railway switching apparatus	681,589	Aug. 27	3526	782 / 783	96	1807
Taylor, Leslie B. (See Parsons and Taylor.)						
Taylor Signal Company. (See Taylor, John D., assignor.)						
Taylor, Stiles & Company. (See Griffin, Charles W., assignor.)						
Taylor, Warren H., Fairfield, assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Combination-lock	681,838	Sept. 3	339	69	96	1933
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Door-knob	682,000	Sept. 3	651	140	96	1994
Taylor, William O., Norristown, Pa. Ball-projector for use in playing games	682,965	Sept. 17	2386	540	96	2377
Taylor, Winston. (See Henderson and Taylor.)						
Teed, Oliver F., assignor, by mesne assignments, to himself, W. F. Prawiz, and L. Leubrie, Chicago, Ill. Cannon-pinion for watches	681,839	Sept. 3	342	69	96	1934
Teeguarden, Freeman M., and J. B. Himes, assignors to Chief Husker and Shredder Company, Newcastle, Ind. Corn husker and shredder	677,386	July 2	88	19	96	21
Teele, John W., Goldthwaite, Tex. Spike	682,753	Sept. 17	1984	450	96	2296
Teeter, William M., Cripplecreek, Colo. Door-catch	682,754	Sept. 17	1985	450	96	2296
Tefft, Charles E., Pawtucket, R. I. Blind-fastener	678,322	July 9	1875	431	96	399
Tempest, Wardell, Homestead, Pa. Tongs	679,440	July 30	4126	925	96	913

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Temple, Arthur S., trustee. (See Fordyce, Edmond A., assignor.)						
Tenti, Adrien, New York, N. Y. Broiler	679,130	July 23	3500	783	96	762
Terbush, Elmer E., and E. R. Willcox, Peekskill, N. Y. Cloth-folding apparatus	678,799	July 16	2702	608 / 620	96	600
Terlin, Henri, Luneville, France. Drawing compasses, calipers, &c	682,294	Sept. 10	1166	265	96	2113
Termaat, John D., and L. J. Monahan, Oshkosh, Wis. Sparking igniter for gas-engines	680,422	Aug. 13	1292	284	96	1317
Terry, Edward F., New York, N. Y. Pivot for masts of derricks	681,849	Sept. 3	343	69	96	1934
Tesar, Frank J., Chicago, Ill. Composition for cleaning or polishing furniture	682,835	Sept. 17	2163	.....	96	2331
Tessier, Joseph, and Z. Sevigny, New Bedford, Mass. Automatic fire-extinguisher	680,084	Aug. 6	675	150	96	1170
Tester, John W., Minneapolis, Minn. Glass-cutter	682,966	Sept. 17	2388	540	96	2377
Teter-Heany Developing Company. (See Heany, John A., assignor.)						
Thacher, Edwin, Paterson, N. J., assignor of one-half to E. M. Scofield, Youngstown, Ohio. Slide-rule	677,817	July 2	890	213	96	187
Thayer, Russell, Philadelphia, Pa. Motor-vehicle	678,063	July 9	1388	319 / 320	96	303
Thebarge, Alfred, Laconia, N. H. Non-refillable bottle	679,646	July 30	4524	1017	96	995
Theberath, Frederick W. (See Ohl, Theberath, and Berghof.)						
Theis, Hermann, Ohligs, Germany. Bullet-proof substance	678,004	July 9	1381	320	96	304
Theodore, Frank, Greenville, S. C. Tire for vehicles	681,151	Aug. 20	2685	593	96	1622
Thew Automatic Shovel Company. (See Thew, Richard, assignor.)						
Thew, Richard, assignor to Thew Automatic Shovel Company, Lorain, Ohio. Unloading apparatus	677,610	July 2	504	120 / 121	96	107
Thiele, Felix C., assignor of three-fifths to J. Finke and J. M. Parker, New Orleans, La. Refining crude mineral oils and their distillates	683,354	Sept. 24	3072	.....	96	2336
Thim, Johan F., Chicago, Ill. Chronometer-escapement	681,060	Aug. 20	2431	538	96	1568
Thode, Gustav A., Osmond, Nebr. Lubricating device for gas-engines	680,820	Aug. 20	2090	455	96	1500
Thoele, Henry H., and C. W. H. Moeller, Florence, Ala. Device for opening or closing furnace-doors	680,989	Aug. 20	2260	520 / 530	96	1562
Thomas, Benjamin B., Rossville, Tenn. Welding	680,182	Aug. 6	852	.....	96	1215
Thomas, Chauncey T., assignor of one-half to S. Davis, Rushville, Ill. Lock	682,508	Sept. 10	1534	348	96	2185
Thomas Cotton Company. (See Thomas, William M., assignor.)						
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Cone friction-clutch	681,152	Aug. 20	2686	593	96	1622
Thomas, Erastus N., and G. L. Thompson, Jefferson, Oreg. Fruit-drier	683,083	Sept. 24	2587	594	96	2498
Thomas, Frederick A., *et al.* (See McElroy, Thomas L., assignor.)						
Thomas, George B., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Electrical rosette cut-out	677,479	July 2	235	64	96	55
Thomas, George B., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Electric switch	681,353	Aug. 27	3088	686	96	1720
Thomas, Henry S., *et al.* (See Thurber, Milton R., assignor.)						
Thomas, John G., Lima, Ohio. Communion-service	678,690	July 16	2025	501	96	569
Thomas, Luther B., Ringgold, La. Computing-scale dial	679,795	Aug. 6	135	30	96	1069
Thomas, Luther B., Ringgold, La. Computing spring-scale	680,085	Aug. 6	676	150	96	1170
Thomas Manufacturing Company. (See Lutz, Daniel, assignor.)						
Thomas, Mary K., Akron, Ohio. Syringe	677,480	July 2	236	64	96	55
Thomas, Morris, Sharon, Pa. Composition of matter for filtering or cleaning petroleum, &c	680,290	Aug. 13	1043	.....	96	1250
Thomas, Onésime, Verdun, assignor to Pasteur Vaccine Company, Paris, France. Machine for impregnating thread with virus	680,808	Aug. 20	2225	490	96	1527
Thomas, William, Pittsburg, Pa. Refrigerator	677,380	July 2	80	17	96	19
Thomas, William H., Jenkintown, Pa. Trellis or holding-rack for vegetables	680,507	Aug. 13	1442	317	96	1346
Thomas, William J. (See Stetson and Thomas.)						
Thomas, William M., Griffin, Georgia. Jury-list-stamping apparatus	678,307	July 9	1849	425	96	394
Thomas, William M., assignor to Thomas Cotton Company, Chicago, Ill. Cotton-baling press	678,630	July 16	2511	562	96	546
Thomas, William M., assignor to Thomas Cotton Company, Chicago, Ill. Cotton-press	681,082	Aug. 20	2575	569 / 570	96	1593
Thompson, Alexander M., Chicago, Ill. Foundry-clamp	677,818	July 2	893	213	96	188
Thompson, Alfred, Toledo, Ohio, assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Automobile	680,899	Aug. 20	2227	490	96	1527
Thompson, Alfred G., Brighton, Victoria. Harness-saddle	682,890	Sept. 17	2261	510	96	2351
Thompson, Ambrose F., Hunter's Hill, New South Wales. Sealing-buckle	678,700	July 16	2027	501	96	569
Thompson, David W., Chicago, Ill. Electric self-winding clock	677,819	July 2	895	213	96	188
Thompson, Elwin L., Baldwinsville, Mass. Convertible chair	677,382	July 2	82	18	96	20
Thompson, Elwin L., Baldwinsville, Mass. Convertible chair	677,383	July 2	84	18	96	20
Thompson, Gamaliel L. (See Thomas and Thompson.)						
Thompson, George H., East Freedom, Pa. Saddler's clamp	683,155	Sept. 24	2710	624	96	2402
Thompson, George W., Nashville, Tenn. Fire-extinguisher	677,715	July 2	699	161	96	146
Thompson, George W., Nashville, Tenn. Automatic fire-extinguisher	677,716	July 2	691	164	96	146
Thompson, Harvey J. (See Bradford, Charles S., assignor.)						
Thompson, Jacob A., McDonald, Pa. Trolley	682,392	Sept. 10	1337	303	96	2146
Thompson, Jacob A., McDonald, Pa. Safety-valve	682,393	Sept. 10	1338	303	96	2146
Thompson, John S., Liverpool, England. Artificial tooth	679,647	July 30	4525	1018	96	995
Thompson, Leslie H., Crowley, La. Strainer or filter for pump tubes or barrels	679,181	July 23	3501	783	96	762
Thompson & Norris Company. (See Allen, Walter L., assignor.)						
Thompson, Oron B. (See Shuart and Thompson.)						
Thompson, Ralph P., assignor of one-half to J. M. Pauly, Springfield, Ohio. Grinding machine	679,347	July 30	3926	878 / 879	96	871
Thompson, Robert. (See Thompson, William H. and R.)						
Thompson, Robert W. (See Jeffery and Thompson.)						
Thompson, Robert W., assignor to T. B. Jeffery, Chicago, Ill. Carriage-steering mechanism	678,144	July 9	1537	353 / 354	96	334
Thompson, Rolland, New York, N. Y. Cigar-holder	678,441	July 16	2126	481	96	466
Thompson, Rolland, New York, N. Y. Cigar or cigarette holder	683,234	Sept. 24	2852	655	96	2490
Thompson, Thomas C., and W. E. J. Webb, Manchester, England. Manufacture of printing-surfaces	678,065	July 9	1393	320	96	304
Thompson, Walter M., and C. Nuhring, Cincinnati, Ohio. Fire-extinguishing apparatus	680,291	Aug. 13	1043	234	96	1206
Thompson, William H. and R., London, England. Valve	680,209	Aug. 6	902	200	96	1225
Thompson, William R. (See Mansfield and Thompson.)						
Thomson, Allan. (See Galloway, William, assignor.)						
Thomson, David E., Edinburgh, Scotland. Manufacture of inlaid linoleum	681,158	Aug. 20	2688	594 / 595 / 596 / 597	96	1622
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	678,066	July 9	1395	321	96	304

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	678,916	July 23	3057	684	96	673
Thomson, George, Elizabeth, N. J. Manufacturing alloys containing copper and manganese	682,891	Sept. 17	2261	.....	96	2351
Thomson, Henry C., Boston, Mass., assignor, by mesne assignments, to Electric Gas Lighting Company, of Maine. Safety device for automatic electric gas-lighting apparatus	681,754	Sept. 3	176	33	96	1809
Thomson-Houston Electric Company. (See Knight, Walter H., assignor.) (Reissue.)	677,717	July 2	693	164	96	147
Thomure, George M., St. Louis, Mo. Bed-lounge	679,521	July 30	4303	1,067 / 1,068	96	947
Thordarson, Chester H., Chicago, Ill. Wire-insulating machine	681,895	Sept. 3	452	91, 92	96	1955
Thorens, Hermann, Ste. Croix, Switzerland. Mechanical musical instrument	680,678	Aug. 13	1776	390	96	1416
Thornburgh, George W., Denver, Colo. Concentrator	677,820	July 2	897	214	96	188
Thornley, William H., Reading, Pa. Melting, smelting, and crucible furnace	677,381	July 2	81	18	96	20
Thornley, William H., and W. J. Baer, Reading, Pa. Shears	679,648	July 30	4526	1018	96	935
Thornton, Albert E., Atlanta, Ga. Sifting-screen	682,650	Sept. 17	1784	408	96	2258
Thornton, George, F. D. Freeborn, and W. Hiller, Randolph, N. Y. Bed-pan	682,295	Sept. 10	1168	266	96	2114
Thornton Pickard Manufacturing Company. (See Woodhead, Charles G., assignor.)						
Thorpe, John T., Washington, D. C. Machine for forming paper tubes	682,760	Sept. 17	2023	457	96	2303
Thorpe, Joseph L., Fairfield, assignor of one-half to A. H. Lowden, Bridgeport, Conn. Lettering glass signs	682,394	Sept. 10	1328	303	96	2146
Thorpe, Thomas, Decatur, Ill. Marker for corn-planters	677,904	July 9	1001	233	96	247
Threehouse, Mortimer A., assignor to E. Kirstein Sons Company, Rochester, N. Y. Spectacle-case	677,384	July 2	86	18, 19	96	21
Throop, Charles G., and W. L. Hendricks, Chicago, Ill. Index	683,084	Sept. 24	2588	595	96	2458
Thurber, Milton R., assignor of two-thirds to H. S. Thomas, Lehman, and F. L. Stroud, Dallas, Pa. Horseshoe	681,279	Aug. 27	2917	653	96	1694
Thurman, William, Newkirk, Okla. Ter. Cuff-holder	681,755	Sept. 3	177	33, 34	96	1900
Thurstenson, Soren, assignor to Henry Vogt Machine Company, Louisville, Ky. Water-tube boiler						
Thurston, Daniel H. (See Holcomb and Thurston.)	682,892	Sept. 17	2262	511	96	2351
Thurston, Emma J., Deming, Wash. Toothpick	683,235	Sept. 24	2853	655	96	2499
Thury, René, Geneva, Switzerland. Motor-generator						
Tibbetts, Frank A. (See Gaffney and Tibbetts.)	681,590	Aug. 27	3529	783	96	1858
Tice, William, Philadelphia, Pa. Burner for incandescent gas-lamps	681,379	Aug. 27	3140	699	96	1730
Tidd, Arthur G., Northampton, Mass. Sash-holding device	679,649	July 30	4528	1018	96	935
Tieche, Ernest P., Newcastle, Pa. Endless-cable power-transmitter						
Tilden, Elbert G., assignor of one-half to H. M. Williamson, Denver, Colo. Damper-regulator	678,917	July 23	3060	684	96	674
Tilden, James A., Hyde Park, assignor to Hersey Manufacturing Company, South Boston, Mass. Treating spent grain	679,065	July 23	3362	.....	96	938
Tilghman, Granville M., West Norfolk, Va. Barrel	680,183	Aug. 6	853	190	96	1215
Tiller, Thomas J., assignor of three-fourths to W. L. and R. N. Goode, L. Goldback, J. Kendler, and H. Bernstein, Richmond, Va. Coking and steam-producing attachment for furnaces	679,796	Aug. 6	136	30	96	1060
Tillinghast, Henry A., Providence, R. I. Tentering-machine rail	679,797	Aug. 6	138	30	96	1059
Tillman, Marshall D., Wabash, Ind. Wrench	681,591	Aug. 27	3530	784	96	1858
Tillotson, Harry S., Philadelphia, Pa. Necktie-fastener	680,202	Aug. 13	1044	234	96	1267
Tily, Stephen B., J. G. and M. O. Rehfuss, assignors to J. Wanamaker, Philadelphia, Pa. Label-printing machine	677,821	July 2	899	214 / 215	96	189
Timm, Wilhelm, Berlin, Germany. Ram-machine for paving	678,918	July 23	3062	685	96	675
Timmis, Walter S., assignor of one-half to J. T. Russell, Brooklyn, N. Y. Opener for envelops or wrappers	679,066	July 23	3364	749	96	784
Timmis, Walter S., assignor of one-half to J. T. Russell, Brooklyn, N. Y. Machine for manufacturing envelops	679,021	Aug. 6	383	81, 82	96	1119
Timmis, Walter S., assignor of one-half to J. T. Russell, Brooklyn, N. Y. Opener for envelops or wrappers	682,296	Sept. 10	1171	267	96	2114
Timms, James. (See Akers, Julian E., assignor.)	678,529	July 16	2288	516	96	502
Timms, James, Columbus, Ohio. Dust-guard	683,355	Sept. 24	3076	704	96	2537
Timms, James, Columbus, Ohio. Hot-air furnace						
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Coupling	678,145	July 9	1539	354	96	334
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Draft-rigging for cars	679,194	July 23	3692	811 / 812	96	700
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Follower-plate for draft-gears of cars	681,896	Sept. 3	457	93	96	1956
Tincher, Thomas L., assignor to A. G. Wilmore, Chicago, Ill. Computing-scale	679,708	Aug. 6	139	31	96	1070
Tingley, Philo B., New York, N. Y. Man's garter clasp	683,191	Sept. 24	2767	636	96	2473
Tinker, John J., Hyde, England. Blotting-paper	681,592	Aug. 27	3531	784	96	1858
Tinker, Julien E. (See Neill and Tinker.)	681,593	Aug. 27	3532	784	96	1858
Tippit, William H., assignor of one-fourth to H. Oakes, Bluffs, Ill. Nut-lock	677,718	July 2	694	165	96	147
Titcomb, George E., Cleveland, Ohio. Unloading apparatus	679,710	July 30	4689	1043	96	1020
Titus, Emma W. (See Titus, Henry E., assignor.)						
Titus, Henry E., assignor to E. W. Titus, Plainfield, N. J. Pencil-sharpener	679,922	Aug. 6	387	83	96	1119
Titus, Richard, and D. C. Covert, Bowling Green, Ohio, assignors of three-fourths to S. F. Aiken and A. C. McDonald. Stuffing-box	681,175	Aug. 20	2694	597	96	1623
Tobey, Fred W., assignor to Globe Wernicke Company, Cincinnati, Ohio. Locking device	681,154	Aug. 20	2693	597	96	1623
Tobey, Henry A., Toledo, Ohio. Detachable guard-rail for bedsteads	678,308	July 9	1850	425	96	304
Tobey, Wallace S. (See Bradshaw and Tobey.)	678,097	July 9	1397	321	96	305
Tobin, Ellen E., Portland, Me. Broiling-oven	682,120	Sept. 3	849	190	96	2033
Tobler, Gustav, Berlin, Germany. Wheel for vehicles						
Toby, John W., Richland County, Ohio. Corn-planter	683,356	Sept. 24	3078	704 / 705	96	2537
Tod & Company, William. (See Lewis, John S., assignor.)						
Todd, Andrew, Piedmont, Ohio. Display-rack	683,357	Sept. 24	3079	705	96	2538
Todd, Dana. (See Todd, Martha P. and D.)	679,102	July 23	3502	783 / 784	96	703
Todd, Marquis J., Buffalo, N. Y. Clutch for traction-engines	682,822	Sept. 17	2131	482	96	2325
Todd, Martha P. and D., Minneapolis, Minn. Hand-loom						
Toepel, Micheal E., F. B. Widmayer, and A. Potdevin, New York, N. Y. Oil-engine						
Toledo Cash Register Company. (See Harper, Daniel W., assignor.)						
Toledo Glass Co. (See Owens and Wilson, assignors.)						
Toledo Steam and Air Motor Company. (See Stark and Winship, assignors.)						
Tolman, Edward K., assignor, by mesne assignments, to C. S. Hall, Worcester, Mass. Sad-iron	682,121	Sept. 3	850	190	96	2034

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Tomaskoff, William, assignor to P. Lowentraut, Newark, N. J. Pancake-turner	681,662	Aug. 27	3686	825	96	1810
Tomlin, George W., Galesburg, Ill. Garment	681,821	Sept. 3	312	63	96	1928
Tomlinson, John K., Pickaway, W. Va. Feed-water heater	678,809	July 16	2794	620	96	690
Tomoor, Louis G., Evanston, Ohio. Cleaning and polishing compound	678,919	July 23	3062	.....	96	675
Tompkins, Emory L. (See Campbell, John, assignor.)	680,552	Aug. 13	1520	336	96	1365
Tompkins, Ernest, Troy, N. Y. Bar for knitting-machines	678,340	July 16	2250	516	96	502
Tonkin, John J., Oswego, N. Y. Steam-boiler	677,822	July 2	901	215	96	189
Toof, John H., Concord, N. H. Apparatus for treating starch	679,195	July 23	3633	812	96	791
Toplis, William G., Philadelphia, Pa. Apparatus for purifying water or sewage	681,756	Sept. 3	180	34	96	1900
Toquet, Benjamin L., Westport, Conn. Nippers	680,184	Aug. 6	855	191	96	1215
Toupikof, Michel, St. Petersburg, and C. K. Graham, Zavod, Russia. Air or gas exhausting pump	678,920	July 23	3063	685	96	675
Tournier, Julius C., Schenectady, N. Y., assignor to General Electric Company, of New York. Lamp-socket						
Tower Manufacturing and Novelty Company. (See Lukes, William, assignor.)	678,074	July 9	1408	323	96	307
Town, George A., Framingham, Mass. Mail-carrier's wagon	678,592	July 16	2424	544	96	528
Towne, Fred H., Sisseton, S. D. Necktie-holder	681,156	Aug. 20	2695	598	96	1623
Towner, Arthur A., Smyrna, N. Y. Hand-sled						
Toynbee, Charles E. (See Swearer and Toynbee.)	682,372	Sept. 10	1299	292	96	2137
Trabue, Luther, Girard, Ill. Baling-press						
Tracy, J. Evarts. (See Richards, Hubert P., assignor.)						
Tracy, Jeremiah E. (See Richards, Francis H., assignor.)	680,548	Aug. 20	2321	510	96	1548
Transue, Oliver F., Alliance, Ohio. Horseshoe	681,351	Aug. 27	3069	686	96	1721
Trapp, Samuel M., Seattle, Wash. Combined ore heating, roasting, and smelting furnace	681,757	Sept. 3	180	35	96	1900
Traun, Heinrich, Hamburg, Germany. Insulator	678,809	July 9	1851	426	96	335
Traut, Justus A., assignor to Stanley Rule & Level Company, New Britain, Conn. Fence-support for carpenters' plows, &c	680,553	Aug. 13	1531	337	96	1365
Travis, John T., assignor of one-half to N. Bradley, Paterson, N. J. Reversing apparatus for dye-vats, &c	681,685	Aug. 20	2378	570	96	1799
Treadwell, Levi P., Danbury, Conn. Water-meter				234 / 235	96	1367
Treadwell, Munson H. (See Grimm, Paul H., assignor.)	680,398	Aug. 13	1045			
Treichler, Daniel H., Niagara Falls, N. Y. Acetylene-gas generator	682,893	Sept. 17	2263	511	96	2351
Tremain, Francis, Highgate, England. Conductor	680,746	Aug. 20	1940	425	96	1472
Tremblay, Thomas L., Rochester, N. Y. Cooking apparatus	680,821	Aug. 20	2091	455	96	1500
Tremere, Kean O., Frankfort, Ky. Hen's nest	681,521	Aug. 27	3401	735	96	1782
Tressel, Mary C., Canton, Ohio. Index-tab						
Trevette Machine Company. (See Trevette, Wentworth G., assignor.)						
Trevette, Wentworth G., assignor to Trevette Machine Company, Chicago, Ill. Signature-feeder for book-sewing machines	678,068	July 9	1398	322	96	305
Tribble, William, Alton, Ill. Game apparatus for trading purposes	677,905	July 9	1093	253 / 254	96	247
Tribble, William, assignor of one-fourth to H. J. Bailey, Alton, Ill. Coin-controlled vending-machine	681,084	Aug. 20	2579	570 / 571	96	1550
Trick, Edgar H., Niles, Ohio. Cuff-holder	679,799	Aug. 6	143	32	96	1071
Trimble, Alonzo F., Loneoak, Ga. Seed-planter	683,156	Sept. 24	2711	624	96	2462
Trimble, Alonzo F., Loneoak, Ga. Cotton-seed planter	683,157	Sept. 24	2712	624	96	2462
Trimmer, Ray F., Cleveland, Ohio. Shaft end for vehicles	682,486	Sept. 10	1415	310	96	2162
Tripp, Albert E., Castleton, Ind. Safety-shot device	678,593	July 16	2425	544	96	528
Tripp, Clarence A., Los Angeles, Cal. Hose-coupling	682,577	Sept. 10	1661	378	96	2211
Tripp, Dwight K. (See Flora, Ellsworth E., assignor.)						
Tripp, Thaxter N., Lynn, Mass. Wrapping-machine	682,823	Sept. 17	2133	482	96	2325
Tripp, Thomas M., P. I. and H. D. Jacobson, Liverpool, England. Slotting-machine	682,651	Sept. 17	1785	408 / 409	96	2258
Trovaton, Andrew, Sletten, Minn. Spring-support for vehicles	682,001	Sept. 3	653	140	96	1965
Trovaton, Andrew, McIntosh, Minn. Bolster-spring	682,002	Sept. 3	655	140	96	1965
Troxell, Charles C., Cornwall-on-the-Hudson, assignor of one-half to J. M. Cozzens, Newburgh, N. Y. Stone and dirt loading machine	677,823	July 2	903	215 / 216	96	189
Troxler, Gustavus, Jr., assignor to J. Holmes, Newark, N. J. Device for developing muscles of the hands and fingers	677,824	July 2	905	216	96	189
Trukenmiller, Oscar C., Mansfield, Ohio. Retort-radiator	680,470	Aug. 13	1371	289	96	1365
Trump, Fuller, Springfield, Ohio. Balancing device for wheel-shafts having end thrust	680,291	Aug. 13	1053	235	96	1366
Trussell, James, assignor of one-half to J. H. Courli, Chicago, Ill. Electric belt	680,620	Aug. 13	1650	366	96	1301
Tuck, William W., Brooklyn, and A. Wassmann, Astoria, assignors to A. A. Low, Brooklyn, N. Y. Explosion-engine	682,073	Sept. 3	670	141 / 142	96	1966
Tucker, Chas. H., *et al.* (See King, Phineas F., assignor.)	683,358	Sept. 24	3081	705	96	2538
Tucker, George O., Charleston, Ill. Chimney-cleaner	682,004	Sept. 3	662	143	96	1966
Tucker, James W., Vicksburg, Miss. Sectional display-rack	682,297	Sept. 10	1174	267	96	2115
Tucker, Margaret R., Riderville, Ala. Seat for sewing-machines, &c	677,385	July 2	87	.....	96	21
Tuckwell, John, Glasgow, Scotland. Manufacture of artificial marble	678,594	July 16	2428	544	96	529
Tully, John W., Kansas City, Mo. Case for tooth-brushes	678,595	July 16	2428	544	96	529
Tully, John W., Kansas City, Mo. Coin-controlled box	679,246	July 23	3714	820	96	807
Tunney, John J., assignor to J. Jenkins, Pittsburg, Pa. Lubricator	682,824	Sept. 17	2136	483	96	2326
Tunny, Patrick J., Northeast, Pa. Lawn-mower	678,701	July 16	2628	592	96	769
Tuor, Joseph B., St. Paul, Minn. Separable hinge	679,348	July 30	3982	880 / 881	96	873
Turck, Joseph A., Providence, R. I., assignor to Mechanical Accountant Company, Saco, Me. Calculating-machine	681,355	Aug. 27	3091	686	96	1721
Turnbull, George A., Chicago, Ill. Metallic lath	680,185	Aug. 6	856	191	96	1216
Turner, Charles F., assignor of one-half to D. H. Houston, Hunter, N. D. Stove-grate	681,758	Sept. 3	181	35	96	1900
Turner, Charles L., Malden, assignor to R. Lockwood, Boston, Mass. Atomizer	680,949	Aug. 20	2322	511	96	1548
Turner, Claude A. P., Minneapolis, Minn. Crystallizer	681,380	Aug. 27	3142	699	96	1731
Turner, Emerson P., Norwich, Conn. Adjustable device for hanging pictures	679,800	Aug. 6	144	32	96	1071
Turner, Frank H., Hartford, Conn. Cutting-machine	680,086	Aug. 6	677	151	96	1180
Turner, Frank H., Hartford, Conn. Machine for manufacturing rubber articles						
Turner, Henry B. (See Carroll, Fred A., assignor.)	679,650	July 30	4529	1019	96	936
Turner, Julius A., Southfield, Mass. Tension for braiding-carriers						
Turner, Peter F. (See Woods, Clinton E., assignor.)						
Turner, Walter V. (See Whittaker and Turner.)						
Turner, Walter V., *et al.* (See Whittaker and Turner, assignors.)						
Turney, Edward, Portland, Oreg. Friction-clutch	680,900	Aug. 20	2228	491	96	1528
Turney, James P., assignor to H. Wetter Manufacturing Company, Memphis, Tenn. Cut center for stoves	679,408	July 30	4065	907	96	901
Futeur, Julius, Cleveland, Ohio. Joist-hanger	679,349	July 30	3946	882	96	876
Tuttle, Washington I., Baltimore, Md., assignor to American Tobacco Company, New York, N. Y. Testing receptacles	679,486	July 30	4220	953	96	981

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drfg.	Official Gazette. Vol.	Official Gazette. Page.
Tuttle, Washington I., Baltimore, Md., assignor to American Tobacco Company, New York, N. Y. Testing apparatus	679,487	July 30	4232	953	96	992
Twyman, James L., Fairfield, Wash. Operating-lever for hand-cars, &c.	679,095	July 23	3440	705	96	749
Tyden, Emil, Hastings, Mich. Seal-lock for cans or bottles	679,208	July 23	3761	840	96	815
Tyler, James M., Bay St. Louis, Miss. Trap	679,196	July 23	3696	812	96	791
Tyler, Walter L. (See See, Alonzo B., assignor.)						
Tyler, Walter L., *et al.* (See Cowperthwait and Lindstrom, assignors.)						
Tyler, Walter L., *et al.* (See Lindstrom, Nils O., assignor.)						
Tyler, William W., Dayton, Ohio. Turbine water-wheel	678,817	July 16	2834	639	96	610
Tyre, James, Wilmington, Del. Combined eraser and drier	681,425	Aug. 27	3213	715	96	1744
U. S. Bobbin and Shuttle Company. (See Pitts, George T., assignor.)						
Udall, David K., St. Johns, Ariz. Ter. Agricultural machine	681,594	Aug. 27	3533	784 / 785	96	1808
Uebel, Carl, assignor to Chemische Fabrik Rhenania, Aachen, Germany. Making nitric acid	681,085	Aug. 20	2585	571	96	1600
Uhl, Harrison J. (See Battenfeld, John N., assignor.)						
Uhl, Hubert. (See Katzenberger, Oscar, assignor.)						
Uhry, Charles L. (See Osborn and Uhry.)						
Ullathorne, Joseph L. (See Mallory, Deaderick, and Ullathorne.)						
Ullmer, Joseph S., Williamsport, Pa. Automatic blending-machine	679,096	July 23	3442	767	96	749
Ullrich, Edgar J., Colorado Springs, Colo. Ice-making apparatus	680,087	Aug. 6	680	151 / 152	96	1180
Ullrich, Edgar J., Colorado Springs, Colo. Ice-making apparatus	680,088	Aug. 6	683	152	96	1181
Ulrich, Moritz, and K. Heidenreich, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Orange disazo dye and making same	678,323	July 9	1875	------	96	399
Ulsh, Joseph E., Altoona, Pa. Car-roof	679,801	Aug. 6	147	32	96	1072
Underwood Stemming Machine Company. (See Havens, Joseph G., assignor.)						
Underwood, William H., Parksburg, Pa. Device for releasing animals from stables	682,652	Sept. 17	1786	400	96	2258
Union, Frank L., Boston, Mass. Ground for plasterers	678,146	July 9	1541	355	96	335
Union Gas Engine Co. (See Corson, William L., assignor.)						
Union Iron Works. (See Thomas, Edwin E., assignor.)						
Union Light & Heat Company. (See Benedict and Graf, assignors.)						
Union Metallic Cartridge Company. (See Smith, Thomas C., assignor.)						
Union Special Sewing Machine Company. (See Onderdonk, Lansing, assignor.)						
Union Special Sewing Machine Company. (See Woodward, Russel G., assignor.)						
Union Switch & Signal Company. (See McBrien, Frank, assignor.)						
Union Typewriter Company. (See Brooks, Byron A., assignor.)						
Union Typewriter Company. (See Paterson, John E., assignor.)						
Union Typewriter Company. (See Smith, George H., assignor.)						
United Alkali Company. (See Duff, Edward J., assignor.)						
United Shoe Machinery Company. (See Fowler, Alfred B., assignor.)						
United Shoe Machinery Company. (See Gould, Howard W., assignor.)						
United Shoe Machinery Company. (See Pope, Joseph H., assignor.)						
United Shoe Machinery Company. (See Raymond, Freeborn F., 2d, assignor.)						
United Shoe Machinery Company. (See Scott, Henry F., assignor.)						
United Shoe Machinery Company. (See Scott, Jacob R., assignor.)						
United Shoe Machinery Company. (See Shea, Thomas, assignor.)						
United States Automatic Box Machinery Company. (See Birnie and Gay, assignors.)						
United States Boiler Cleaning Compound Company. (See Richards, Jackson, assignor.)						
United States Fender Company. (See Weiss, William F., assignor.)						
United States Glass Company. (See Davis and Ripley, assignors.)						
United States Graphite Company. (See Davis, John H., assignor.)						
United States Steel Lock Company. (See Daley, Owen, assignor.)						
Universal Talking Machine Company. (See Valiquet, Louis P., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., Jr., assignor.)						
Untiedt, Heinrich, Schweinfurt, Germany. Cold-sawing machine	680,089	Aug. 6	685	152	96	1181
Updegraff, George B. (See Burkhart, William, assignor.)						
Upham, Artemas B. (See Maxham and Upham.)						
Uren, Andrew, Seattle, Wash. Logging hook or dog	680,822	Aug. 20	2002	455	96	1501
Urie, William T., Kansas City, Mo. Mining-dredge	678,147	July 9	1542	355 / 356	96	335
Urie, William T., Kansas City, Mo. Steam-boiler	681,280	Aug. 27	2948	654	96	1694
V. L. Ney Company. (See Ney, Jacob, assignor.)						
Vacotti, Giuseppe. (See Rosi and Vacotti.)						
Vacuum Can & Jar Company. (See Wright, William H., assignor.)						
Vail, Charles W. (See Schulz, Frank L., assignor.)						
Valentine, Harry J., Hempstead, assignor to W. Vogel & Brothers, Brooklyn, N. Y. Spout for ink-bottles	677,719	July 2	697	166	96	148
Valentine, Harry J., Hempstead, assignor to W. Vogel and Brothers, Brooklyn, N. Y. Cigarette-making device	680,295	Aug. 13	1054	235	96	1258
Valentiner, Friedrich, Leipsic-Plagwitz, Germany. Tanning or dressing hides, skins, or the like	682,825	Sept. 17	2137	------	96	2326
Valiquet, Louis P., assignor to Universal Talking Machine Company, New York, N. Y. Sound-reproducer	679,923	Aug. 6	388	88	96	1120
Van Atta, Jeff D., Millersburg, Ohio. Cut-out cock for engineers' brake-valves	678,506	July 16	2480	545	96	529
Van Benschoten, Leroy. (See Watrous and Van Benschoten.)						
Van Camp, Benjamin F., assignor to Van Camp Burial Vault Company, Indianapolis, Ind. Mold for burial-vault sections	682,578	Sept. 10	1902	379	96	227
Van Camp Burial Vault Company. (See Van Camp, Benjamin F., assignor.)						
Van Court, Robert E., Newton, Iowa. Combined ladder and truck	680,402	Aug. 13	1261	277	96	1310
Van Denbergh, Frank P., Buffalo, N. Y. Manufacturing alkali silicates	677,906	July 9	1099	------	96	248
Van der Straeten, Charles, Brussels, Belgium. Feeding mechanism for shoe-sewing machines	681,276	Aug. 27	2943	652 / 653	96	1694
Van Derbeck, Mary N., Lincoln, Nebr. Scrubber	679,133	July 23	3503	784	96	763
Van Deusen, Charles H., Verona, Ill. Ironing-board	680,297	Aug. 13	1058	230	96	1269
Van Doren, Charles L., New York, N. Y. Garment-supporter	682,208	Sept. 10	1175	267 / 268	96	2115
Van Haanen, Edmund, Vienna, Austria-Hungary. Device for the production of continuous current in regular pulsations	678,803	July 16	2801	631	96	602
Van Handorf, George. (See Steinberg and Van Handorf.)						
Van Hoesen, Theodore W., Troy, N. Y., assignor to Keuffel & Esser Company, Hoboken, N. J. Target for leveling-rods	677,720	July 2	608	166	96	148
Van Hoozer, Albert L., Martinsville, Mo. Wireless check-row corn-planter	678,906	July 9	1647	379 / 380	96	355

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Van Keep, Paulus F. (See Verheggen, Van Mens, and Van Keep.)						
Van Mens, Daniel H. J. (See Verheggen, Van Mens, and Van Keep.)						
Van Note, Jacob E., Kansas City, Kans., assignor of one-half to F. I. Moore and O. L. Chase, Kansas City, Mo. Wrench	678,445	July 16	2127	481	96	466
Van Orden, Charles H., Catskill, and E. B. Coomus, New York, N. Y. Beach-protector	677,825	July 2	906	216 / 217	96	191
Van Slyck, Charles H., New York, N. Y., assignor to General Electric Company, of New York. Starting device for constant-current apparatus	678,039	July 9	1401	332	96	305
Van Wagoner, C. S. (See Pomeroy and Allyne, assignors.)						
Van Wagoner, William, assignor to Century Motor Vehicle Company, Syracuse, N. Y. Reversing mechanism for motor-vehicles	679,097	July 23	3443	707	96	749
Van Wesemael, Louis, and F. S'Jongers, Antwerp, Belgium. Road-sweeping and collecting cart	679,488	July 30	4236	954	96	983
Van Wormer, John R., assignor of one-half to J. F. Beck, Atlanta, Ga. Nestable paper box	680,186	Aug. 6	857	191	96	1216
Vance, William O., New Albany, Ind. Carbureter	682,509	Sept. 10	1535	348	96	2185
Vandandaigue, Andrew, Willowsprings, Mo. Tire-tightener	681,759	Sept. 3	182	35	96	1901
Vandeleur, Thomas P., Clarence Road, Island of Jersey. Bicycle-lock	677,907	July 9	1101	254	96	249
Vanderbilt, Cornelius, New York, N. Y. Railway-car	678,597	July 16	2431	545 / 546 / 547 / 548	96	529
Vanderbilt, Cornelius, New York, N. Y. Draft-gear for railway rolling-stock	678,801	July 16	2795	629 / 630	96	600
Vanderbilt, Cornelius, New York, N. Y. Car-truck	678,802	July 16	2798	630 / 631	96	601
Vanderbilt, Cornelius, New York, N. Y. Tender for locomotives, &c	681,760	Sept. 3	184	35 / 36 / 37 / 38	96	1901
Vanderbilt, Cornelius, New York, N. Y. Locomotive-boiler	682,437	Sept. 10	1416	319	96	2162
Vandervoort, Lois J., Guthrie, Okla. Ter. Trunk-harness	680,296	Aug. 13	1056	236	96	1269
Vanes, Arthur B., London, England. Latch	680,298	Aug. 13	1060	236	96	1270
Varley, Richard, Jr., Jersey City, N. J. Controlling means for electric circuits	677,926	July 2	908	217	96	191
Varley, Richard, Jr., Jersey City, N. J. Electrical sparking device for explosive-engines	679,041	July 23	3818	740	96	723
Varley, Richard, Jr., Jersey City, N. J. Electrical controlling means for winding-machines	679,924	Aug. 6	389	83 / 84 / 85	96	1120
Varner, Charles, A. P. Mosher, and H. M. Agner, Continental, Ohio. Buggy-crate	679,098	July 23	3444	707	96	749
Vaughan, David F., Haddonfield, N. J. Railway-frog	682,983	Sept. 17	2213	500	96	2341
Vaughan, Thomas M., Mattoon, Ill. Operating-table	679,802	Aug. 6	148	33	96	1072
Vaughen, Frank G., Schenectady, N. Y., assignor to General Electric Company, of New York. Preventing creeping in recording-wattmeters	678,075	July 9	1410	324	96	307
Vaughn Machine Company. (See Jones, Albert F., assignor.)						
Velasco, Baldomero V., Keywest, Fla. Horse-detacher	682,488	Sept. 10	1417	320	96	2162
Venning, Richard E., Charlestown, W. Va. Speculum	679,712	July 30	4047	1044	96	1021
Venuto, Rocco L., Kansas City, Mo. Electrical musical instrument	681,939	Sept. 3	545	115	96	1975
Verein Chemischer Fabriken. (See Hasenbach, Wilhelm, assignor.)						
Vereinigte Kunstseide-Fabriken, A. G. (See Lehner, Friedrich, assignor.)						
Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg A. G. (See Nagy, Julius, assignor.)						
Verheggen, Willem J. H., D. H. J. Van Mens, and P. F. Van Keep, Breda, Netherlands. Wheel	681,761	Sept. 3	191	38	96	1902
Vermont Farm Machine Company. (See Kimball, Perley L., assignor.)						
Verneuil, Auguste V. L., A. L. Godefroy-Lebeuf, and A. L. Arnaud, Paris, France. Extracting india-rubber	679,404	July 30	4066	------	96	901
Very, Alpha O., Springfield, Mass. Muffling device	681,522	Aug. 27	3402	755	96	1782
Very, Alpha O., Springfield, Mass. Starting device for internal-combustion engines	681,523	Aug. 27	3404	755	96	1782
Vézina, Alphonse, Hedleyville, Canada. Car-coupling	681,462	Aug. 27	3297	733 / 734	96	1762
Viall, Walter M., *et al.* (See Freund, Frederick W., assignor.)						
Vickers, Laura H., West Philadelphia, Pa., assignor to Morley Pharmaceutical Company, Wilmington, Del., and Philadelphia, Pa. Artificial ear-drum	679,925	Aug. 6	402	85	96	1122
Vickers, Sons & Maxim. (See Dawson and Buckham, assignors.)						
Victor Manufacturing Company. (See Besse, Irvin, assignor.)						
Vieth, Hermann, assignor to Knoll & Company, Ludwigshafen, Germany. Blacetate of anthrapurpurin and making same	678,070	July 9	1402	------	96	306
Villepigue, Auguste F., Dodge City, Kans. Refrigerator	677,481	July 2	257	64	96	56
Vilpou, Edouard, Blois, France. Means for actuating indicators upon moving trains	679,580	July 30	4410	990 / 991	96	971
Vincent, Pywell, Portland, Me. Door-check	681,426	Aug. 27	3214	716	96	1745
Vinton, Frank A., Baltimore, Md., assignor to Mergenthaler Linotype Co., of New York. Linotype-machine	678,810	July 9	1852	126 / 127	96	395
Vinton, John H., Boston, Mass., assignor to R. Amory, Bar Harbor, Me. Button-attaching implement	679,441	July 30	4129	925 / 926	96	914
Vinton, John H., Boston, Mass., assignor to R. Amory, Bar Harbor, Me. Button-attaching implement	679,442	July 30	4132	926	96	914
Vinton, John H., Boston, Mass., assignor to R. Amory, Bar Harbor, Me. Button-locator	679,443	July 30	4131	926	96	914
Vinton, John H., assignor to R. Amory, Boston, Mass. Button-attaching machine	679,444	July 30	4136	927 / 928	96	914
Vinton, John H., assignor to R. Amory, Boston, Mass. Button-attaching machine	679,445	July 30	4140	928 / 929	96	915
Virgil, Antha M. (See Bergman, Amos C., assignor.)						
Vivarttas, William O., Weehawken, assignor to H. B. Smith Machine Company, Smithville, N. J. Flooring-machine	677,721	July 2	609	166 / 167	96	148
Voelker, William L., London, England, assignor to T. C. Crawford, New York, N. Y. Manufacture of filaments for incandescent electric lamps	679,803	Aug. 6	151	34	96	1072
Voelker, William L., London, England, assignor to T. C. Crawford, New York, N. Y. Manufacture of filaments for incandescing electric lamps	679,926	Aug. 6	408	85	96	1122
Voelker, William L., London, England, assignor to T. C. Crawford, New York, N. Y. Manufacture of filaments for incandescing electric lamps	683,085	Sept. 24	2590	595	96	2438
Voelker, William L., London, England, assignor to T. C. Crawford, New York, N. Y. Manufacture of filaments for incandescing electric lamps	683,086	Sept. 24	2591	595	96	2438
Vogel & Brothers, William. (See Valentine, Harry J., assignor.)						
Vogt, Gustav. (See Staedeli and Vogt.)						
Vogt, Johannes C., Philadelphia, Pa. Steam-separator	678,702	July 16	2629	502	96	569

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Vohs, Charles J., New London, Wis. Washboard	679,804	Aug. 6	152	34	96	1072
Voigt, Otto H. C., Lübeck, Germany. Tag for bottles, &c	678,830	July 16	2875	647	96	618
Voigtländer-Tetzner, Walter, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Blue disazo dye	682,510	Sept. 10	1537	.....	96	2186
Volkers, Emil, Berlin, Germany. Microtelephone	679,495	July 30	4067	907	96	901
Volkerts, Oluf, Sac City, Iowa. Time fire-lighter	680,299	Aug. 13	1061	236	96	1270
Volkhardt, William, Stapleton, N. Y. Meter-box	681,762	Sept. 3	192	39	96	1903
Vorkeller, August F., Chicago, Ill. Rein support and lock	677,722	July 2	701	167	96	149
Vorreiter, Ansbert E., Aix-la-Chapelle, Germany. Electrical ignition apparatus	679,651	July 30	4520	1019	96	996
Voss, Frederick G., trustee. (See Zwillinger, Bernhard, assignor.)						
Voss, William, assignor to Whiting Foundry Equipment Co., Harvey, Ill. Automatic brake	681,489	Aug. 27	3343	742	96	1770
Voth, William B. (See Hirsch, Robert, assignor.)						
W. G. Armstrong, Whitworth & Co. (See Stuart, George, assignor.)						
W. G. Armstrong, Whitworth & Company. (See Noble and Stuart, assignors.)						
W. J. Feeley Company. (See O'Reilly, James T., assignor.)						
W. S. Nott Company. (See Braucht, Roy L., assignor.)						
W. S. Nott Company. (See Caldwell, John, assignor.)						
W. S. Nott Company. (See George, Frederick H., assignor.)						
Wach, Joseph. (See Krauss and Wach.)						
Waco Cotton Machine Manufacturing Company. (See Seifert, John W., assignor.)						
Wade, Harry C., assignor of three-fourths to J. D. Price, A. C. Miller, Aurora, and H. V. Miller, Bloomington, Ill. Rail-bond	678,076	July 9	1412	324	96	308
	678,921	July 23	3064	685	96	675
Wade, John E., Brooklyn, N. Y. Car-coupling	679,042	July 23	3317	741	96	724
Waggoner, Edward P., Syracuse, N. Y., assignor to T. H. Williams, Jersey City, N. J. Discharging apparatus						
Wagner Electric Manufacturing Company. (See Bryson, James H., assignor.)						
Wagner, Emil L., Aberdeen, S. D. Pulley	682,395	Sept. 10	1340	303 304	96	2146
Wagner, John, Milwaukee, Wis. Sidewalk-cover	677,388	July 2	93	19	96	22
Wagner, Rome V., Chicago, Ill. Developing static electricity	681,763	Sept. 3	194	39	96	1903
Wahl, Frederick, *et al.* (See Huxley, Charles E., assignor.)						
Waite, Edwin F., *et al.* (See Howard, Leon D., assignor.)						
Waite, Fred, Otley, England. Platen printing-press	677,389	July 2	94	20	96	22
Waite, Henry E., assignor to B. & E. Hanfeld, New York, N. Y. Apparatus for treating diseases	681,463	Aug. 27	3299	734	96	1762
Waite, William W., *et al.* (See Howard, Leon D., assignor.)						
Wakefield, Charles C. (See Grimes and Wakefield.)						
Walch, Jacob S. (See Grisez and Walch.)						
Walcoff, Nathan H., and M. Epstein, New York, N. Y. Envelop	681,595	Aug. 27	3535	785	96	1899
Walker, Charles R., Jamestown, N. D. Soap-delivery attachment for water-pipes	682,653	Sept. 17	1788	410	96	2259
Walker, Christopher W., Johnsonburg, Pa. Roofing compound	678,922	July 23	3065	.....	96	675
Walker Corset Company. (See Walker, Lillian G., assignor.)						
Walker, Friedus M., Detroit, Mich. Cash-register	680,508	Aug. 13	1443	317 318	96	1347
Walker, George, Newark, N. J., assignor to Rubber and Celluloid Harness Trimming Co., of New Jersey. Harness-saddle	681,940	Sept. 3	546	115	96	1955
Walker, George W., Philadelphia, Pa. Warp-measuring machine	681,157	Aug. 20	2996	598	96	1923
Walker, Jacob P., Havre de Grace, assignor to M. B. Walker, Baltimore, Md. Baling-press	681,356	Aug. 27	3093	687	96	1721
Walker, James. (See Lombard, Charles E., assignor.)						
Walker, John, assignor to Walter M. Lowney Company, Boston, Mass. Machine for wrapping chocolate drops or the like	681,281	Aug. 27	2950	654 655	96	1695
Walker, Joseph L., Columbus, Ky. Rotary engine	680,747	Aug. 20	1941	425	96	1473
Walker, Lillian G., Boston, Mass., assignor to Walker Corset Company, of Maine. Corset	681,663	Aug. 27	3667	825	96	1840
Walker, M. Barratt. (See Walker, Jacob P., assignor.)						
Walker, Millard F., Flatonia, Tex. Railway-signal	678,818	July 16	2836	639	96	611
Walker, Myron S., Evart, Mich. Fastening device	679,692	July 30	4531	1019	96	996
Walker, Robert. (See Smith and Walker.)						
Walker, William H., assignor of two-fifths to S. E. Loffer and W. E. Harris, Degraff, Ohio. Mail-box	682,005	Sept. 3	663	143	96	1997
Walker, William P., Macon, Mo. Dinner-pail	678,568	July 16	2440	548	96	531
Walker, William S., assignor of two-thirds to H. C. Blethrow, Pittsburg, and J. J. Engel, Mount Oliver Borough, Pa. Brush	683,007	Sept. 17	2472	560	96	2394
Walkins, Louis E. (See Hastings and Walkins.)						
Wall, George A., Providence, R. I. Automatic circuit-closer	679,446	July 30	4143	929	96	916
Wallace, Andrew, Jr., South Chicago, Ill. Car-loading apparatus	678,599	July 16	2442	548	96	531
Wallace, Florence E., administratrix. (See Wallace, Jacob B.)						
Wallace, Jacob, D. F. Irwin, and J. H. Smith, Plymouth, Ohio, assignors to Wallwinith Manufacturing Co., of Ohio. Cutter for rock-drills	681,381	Aug. 27	3143	700	96	1731
Wallace, Jacob B., deceased; F. E. Wallace, administratrix, assignor, by mesne assignments, to Modern Tool Company, Erie, Pa. Die	680,448	Aug. 13	1337	298	96	1326
Wallace, James H., and A. G. Hilton, assignors to International Burglar Proof Sash Balance and Lock Company, Incorporated, Providence, R. I. Sash-balance	678,600	July 16	2444	549	96	532
Wallace, James H., and A. G. Hilton, assignors to International Burglar Proof Sash-Balance and Lock Company, Incorporated, Providence, R. I. Sash-balance	681,863	Sept. 3	388	78	96	1943
Wallace, James H., and A. G. Hilton, assignors to International Burglar Proof Sash-Balance and Lock Company, Incorporated, Providence, R. I. Sash-balance	681,864	Sept. 3	389	79	96	1943
Wallace, James H., and A. G. Hilton, assignors to International Burglar Proof Sash-Balance and Lock Company, Incorporated, Providence, R. I. Sash-rack	681,865	Sept. 3	390	79	96	1944
Wallace, James H., and A. G. Hilton, assignors to International Burglar Proof Sash-Balance and Lock Company, Incorporated, Providence, R. I. Sash-balance	681,866	Sept. 3	391	79	96	1944
	681,822	Sept. 3	314	64	96	1928
Wallace, John H., and J. D. Isaacs, San Francisco, Cal. Tank	681,596	Aug. 27	3537	786	96	1899
Wallace, Thomas M., Marion, Ala. Ratchet plow-stock	682,894	Sept. 17	2264	511	96	2352
Waller, Peter A., Kewanee, Ill. Corn-husking implement						
Wallinger, Casimir H. (See Fragner, John G., assignor.)						
Wallwinith Manufacturing Co. (See Wallace, Irwin, and Smith, assignors.)						
Walorski, Stefan, *et al.* (See Masionka, Kornel, assignor.)						
Walsh, Charles P. (See Smith, Henry I., assignor.)						
Walsh, Edward, Jr. (See Hartung, Charles C., assignor.)						
Walsh, James E., Hudson, Mass. Feed-water regulator	683,359	Sept. 24	3082	706	96	2538
Walsh, John W., Burlington, Iowa. Boiler-tube	682,209	Sept. 10	1176	268	96	2115
Walsh, William A., assignor to F. F. Dow, J. Kilburn, J. McConnell, J. Palmer, and A. J. Gregory, Fredricton, Canada. Cork-extractor	682,129	Sept. 3	859	193	96	2025
Walter, Frank. (See Walter, Waldemar and F.)						
Walter M. Lowney Company. (See Walker, John, assignor.)						
Walter, Waldemar and F., Philadelphia, Pa. Time lamplighter	680,090	Aug. 6	685	152	96	1188

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Walters, Charles W., Richmond, Va. Toy	677,723	July 2	703	167	96	140
Walters, Cynthia L., Perkins, Okla. Ter. Hair-crimper	677,890	July 2	96	21	96	22
Walther, Charles F. (See Peoples and Walther.)						
Walther, Edward, Washington, Iowa. Air-pump	681,597	Aug. 27	3538	786	96	1899
	679,447	July 30	4144	930	96	916
Walthers, Charles F., Cincinnati, Ohio. Mail-pouch catcher						
Wanamaker, John. (See Tily and Rehfuss, assignors.)						
Wandell, Wilber S., Hebron, Ohio. Gas-lamp and ventilator	678,207	July 9	1650	380	96	355
Wands, John C., St. Louis, Mo. Air-brake controller	680,091	Aug. 6	686	153	96	1182
Wanee, Charles H., Indianapolis, Ind. Sparking igniter for gas-engines	681,897	Sept. 3	458	93	96	1956
Wanner, Charles A., Philadelphia, Pa. Conduit	681,158	Aug. 20	2998	598	96	1624
Wantling, Isaac, Peoria, Ill. Drill	678,845	July 16	2906	655	96	624
Wantling, Isaac, Peoria, Ill. Coal or rock drill	683,158	Sept. 24	2718	625	96	2403
Ward, Daniel O., Oakpark, Ill. Railway-tie plate	682,895	Sept. 17	2296	511	96	2332
Ward, John, assignor to Kramer Manufacturing Company, Indianapolis, Ind. Tufted cushion	682,654	Sept. 17	1789	410	96	2259
	681,598	Aug. 27	3538	786	96	1899
Ward, John A., Hubbard, Tex. Plow	680,554	Aug. 13	1533	337	96	1366
Ward, John N., Jacksonville, Ill. Binding books						
Ward, Robert H., *et al.* (See Mayrhofer, Joseph C., assignor.)						
Ward, William W., and J. Kean, Fairmount, Minn. Signaling device for cars	680,901	Aug. 20	2230	491	96	1528
Warde, John S., West New Brighton, N. Y. Meter	682,489	Sept. 10	1418	320	96	2163
Wardlaw, Thomas D. (See Cliff and Wardlaw.)						
Wardrope, Calvin J. (See Campbell, Edward, assignor.)						
Wardwell, Frank A., Methuen, Mass. Drop-box picker for looms	681,560	Aug. 27	3540	786	96	1810
Wardwell, Simon W., Jr., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Winding-machine	682,770	Sept. 17	2024	457 458	96	2303
Ware, H. M. (See Coon, Silas, assignor.)						
Ware, Silas E., *et al.* (See Clinger, Fred D., assignor.)						
Warga, Frank. (See Platt and Warga.)						
Warman, William A., Rochester, assignor of one-half to M. H. Fischer, New York, N. Y. Making screws	679,927	Aug. 6	404	85	96	1122
	681,282	Aug. 27	2955	655 656	96	1699
Warner, Albert R., Philadelphia, Pa. Hydrocarbon-vapor-burning lamp	683,415	Sept. 24	3190	732	96	2561
Warner, Arthur L., Carpentersville, Ill. Machine for nutting and facing wagon-skeins						
Warner Elevator Manufacturing Company. (See Brown, Alfred T., assignor.)						
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Inclosed-electric-arc lamp	678,446	July 16	2128	481	96	467
	681,464	Aug. 27	3300	734	96	1762
Warner, George L., New York, N. Y. Horseshoe	678,148	July 9	1546	356	96	335
Warner, William A., Bridgeport, Conn. Plating wood doors						
Warnica Company. (See Le May, Arthur C., assignor.)						
Warren, Ambrose G., assignor of one-half to J. W. Paxson Company, Philadelphia, Pa. Mixer for sand-blast apparatus	682,579	Sept. 10	1603	370	96	2211
Warren Brothers Company. (See Scott, Warren, and Ash, assignors.)						
Warren, Charles E., Los Angeles, Cal. Tea-kettle attachment	679,928	Aug. 6	405	86	96	1123
Warren, Edward C., Chicago, Ill. Rotary engine	680,509	Aug. 13	1447	318 319 320	96	1347
Warren, Edward C., Chicago, Ill. Rotary engine	680,510	Aug. 13	1453	320 321 322	96	1349
Warren, Lyman E. (See Parkhurst, Edward G., assignor.)						
Warren, Ralph L. (See Scott, Warren, and Ash.)						
Warth, Nathaniel G., Indianapolis, Ind. Electrical power-transmission system	682,300	Sept. 10	1177	268	96	2115
Warther, Frank, assignor to Crane and Breed Manufacturing Company, Cincinnati, Ohio. Cap for burial-casket lids	680,092	Aug. 6	689	153	96	1182
	678,708	July 16	2630	592	96	570
Washburne, James V., Waterbury, Conn. Penholder	681,086	Aug. 20	2586	571	96	1600
Washburne, James V., Waterbury, Conn., assignor to Consolidated Fastener Company, Portland, Me. Fastener for gloves, &c	679,522	July 30	4306	908	96	947
Wassell, Ann I. (See Wassell, Edwin D., assignor.)	678,601	July 16	2445	549	96	532
Wassell, Edwin D., assignor to A. I. Wassell, Pittsburg, Pa. Metallic vehicle-wheel	683,192	Sept. 24	2768	636	96	2473
Wassenich, Frank W., Boerne, Tex. Foot-board and guard-rail for street-cars						
Wassmann, August. (See Tuck and Wassmann.)						
Watch, Alfred F., Philadelphia, Pa. Apparatus for assisting the hearing	678,324	July 9	1877	432	96	400
Waterbury Button Company. (See Smith, Joseph R., assignor.)	680,950	Aug. 20	2323	511	96	1548
Waterhouse, Addison G., Springfield Township, Pa. Feeder for steam-boilers	680,951	Aug. 20	2326	511 512	96	1548
Waterhouse, Addison G., Springfield Township, Pa. Steam and vacuum pump						
Waterhouse, Addison G., Springfield Township, Pa. Hydraulic air-compressor						
Waterhouse, Addison G., and J. S. Forbes, Philadelphia, Pa., assignors to said Forbes. Apparatus for heating and sterilizing fluids	681,159	Aug. 20	2699	599	96	1624
Waterman, Isaac G., Santa Barbara, Cal. Electrical control of flow of water to basins of washstands or lavatory-bowls	682,006	Sept. 3	665	143 144	96	1997
	682,007	Sept. 3	667	144	96	1997
Waterman, Isaac G., Santa Barbara, Cal. Electromagnetic apparatus	681,087	Aug. 20	2587	572	96	1600
Watkins, Alfred, Hereford, England. Appliance for adjusting and working shutters and diaphragms of photographic cameras	678,819	July 16	2838	640	96	611
Watkins, Charles V., Vinegar's Landing, Washington, assignor of one-half to H. P. Holden, Washington, D. C. Ore washer and separator	678,149	July 9	1548	356	96	336
Watkins, Edmund J., Cambria, Mich. Vehicle-wheel	683,360	Sept. 24	3063	706	96	2539
Watkins, Orla H., assignor to J. K. Milner, Clinton, Iowa. Bed-spring	677,724	July 2	705	167 168	96	149
Watkins, William D., assignor of one-half to J. W. Bolster, San Jose, Cal. Automatic telephone-switch						
Watling, Arthur. (See Bull, Henry C., assignor.)						
Watrous, Edgar P., and L. Van Benschoten, assignors to Conger Manufacturing Company, Groton, N. Y. Stacker for threshing-machines	681,007	Aug. 20	2484	538	96	1708
	679,406	July 30	4069	907	96	902
Watson, Alfred W., Leyton, England. Drill	678,602	July 16	2447	549 550	96	532
Watson, Chauncey R., Jr., and C. M. Hopwood, assignors of one-fifth to C. R. Watson, Sr., Indianapolis, Ind. Keyway-cutter	682,301	Sept. 10	1180	269	96	2116
Watson, Edwin B., Upper Norwood, England. Dress-fastening	683,361	Sept. 24	3085	706	96	2539
Watson, John L., Los Angeles, Cal. Diving apparatus	681,088	Aug. 20	2589	572	96	1601
Watt, James N., and J. A. White, Pendleton, Oreg. Clasp						
Watters, John T. (See Hassler and Watters.)						
Wattles, Frank E., Buffalo, N. Y. Packing-case for butter, &c	683,416	Sept. 24	3193	732	96	2561
Waugh, James M., Chicago, Ill. Draft-rigging for cars	683,296	Sept. 24	2855	656	96	2401
Way, Charles H., Lansing, Mich. Inclosed-arc lamp	678,208	July 9	1651	380 381	96	356
Waynick, Jefferson W., Charlton, Iowa. Wrench or holder	681,283	Aug. 27	2967	656	96	1696

Alphabetical list of patentees, July to September, inclusive—Continued.

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Weatherly, John R., Sumter, S. C. Stalk-cutter	682,511	Sept. 10	1538	348	96	2186
Weathers, David N., and W. S. Stevenson, Marengo, Ind. Switch-operating device	677,827	July 2	911	217	96	192
Weaver, Ira A. (See Sattley and Weaver.)						
Weaver, Matilda C. (See Armstrong, Weaver, and Barber.)						
Weaver, Robert T., New York, N. Y., assignor to General Engineering Company, of New Jersey. Domestic water-filter	678,846	July 16	2908	656	96	625
Weaver, Robert T., New York, N. Y., assignor to General Engineering Company, of New Jersey. Filter	680,902	Aug. 20	2232	491	96	1529
Webb, George E., assignor of one-half to J. J. Adams, Worcester, Mass. Fuel-supply controller for hydrocarbon-engines	678,077	July 9	1413	324	96	308
Webb, Holstein W., Columbus, Ohio. Electrically-operated gas-burner	679,197	July 23	3037	812	96	792
Webb, William E. J. (See Thompson and Webb.)						
Webber, George S., Chicago, Ill. Shoe	681,808	Sept. 3	459	93, 94	96	1956
Webber, William O., Boston, Mass., assignor to W. C. Carr, New York, N. Y. Apparatus for preheating and moistening compressed air	681,357	Aug. 27	3095	687	96	1722
Webber, William O., Boston, Mass., assignor to W. C. Carr, New York, N. Y. Preheating and moistening compressed air, &c	681,358	Aug. 27	3097	688	96	1722
Weber, August, Jr., assignor to August Weber, Sr., Schenectady, N. Y. Glazing porcelain	681,405	Aug. 27	3301	734	96	1762
Weber, Frederick O. A., Cleveland, Ohio. Cow-milking apparatus	680,952	Aug. 20	2389	512	96	1549
Weber, George F., New York, N. Y. Pleasure-wheel	682,443	Sept. 10	1419	320, 321	96	2163
Weber, Herman, Lincoln, Nebr. Dampening-machine	679,497	July 30	4069	908	96	992
Webster, Camp and Lane Machine Company. (See Hulett, George H., assignor.)						
Webster, Edward C., East Shoreham, Vt. Ratchet-wrench	679,929	Aug. 6	406	86	96	1123
Webster, George, Christiana, Pa. Cord-adjuster for electric lamps	679,930	Aug. 6	407	86	96	1124
Webster, Harry G., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Test system for multiple switchboards	679,905	Aug. 6	153	34	96	1073
Webster, William L., New York, N. Y. Steam-turbine	681,284	Aug. 27	2958	656	96	1696
Weddell, Edward G., Tipton Green, assignor of two-thirds to J. G. Chamberlain and R. Player, Birmingham, England. Self-detaching hook for shaft-cages	678,801	July 16	2801	631	96	602
Weeke, Henry L., *et al.* (See Sullivan, Daniel, assignor.)						
Weekes, N., *et al.* (See Rembert, Henry, assignor.)						
Weeks, George T., Edon, Ohio. Rug-straightener	677,725	July 2	710	168	96	150
Weeks, William R., New York, N. Y. Elevator safety appliance	679,581	July 30	4411	991	96	972
Wegelin, Gottfried, Rondorf, Germany. Making lampblack	680,093	Aug. 6	690	153	96	1182
Wegner, Frederick A., Detroit, Mich. Coupling	677,508	July 9	1102	254	96	249
Wegner, Frederick A., Detroit, Mich. Thill-coupling	679,269	July 23	3765	840	96	816
Wegner, Frederick A., Detroit, Mich. Cattle-guard	682,008	Sept. 3	668	144	96	1998
Wegner, Frederick A., Detroit, Mich. Thill-coupling	682,655	Sept. 17	1790	410	96	2279
Wegner, Katharina, and E. Repke, Berlin, Germany. Apparatus for the treatment of curvatures, &c	681,174	Aug. 20	2742	607	96	1632
Wehner, Clemens, C. Maitner, and F. Bansen, Leipsic, Germany. Stop-valve	681,285	Aug. 27	2960	657	96	1697
Wehrman, William, *et al.* (See McKinley, Joseph S., assignor.)						
Weibezahl, Herman G., New York, N. Y. Pliers or kindred tool	681,160	Aug. 20	2701	599	96	1624
Weighton, Robert L., Newcastle-upon-Tyne, and D. B. Morison, Hartlepool, England. Steam-distributing valve for multiple-expansion engines	679,009	July 23	3445	768	96	750
Weil, Jacob W. (See Barr and Weil.)						
Weinschenker, Gustav, and W. S. Schoeller, Canal Dover, Ohio. Collar turning and ironing machine	683,159	Sept. 24	2715	625	96	2463
Weinshenker, William. (See Fisher and Weinshenker.)						
Weinstein, Jacob, assignor to A. Coe, Chicago, Ill. Case for eyeglasses or spectacles	683,417	Sept. 24	3105	733	96	2502
Weir, Frank M., assignor of one-half to E. G. Bowman, Monmouth, Ill. Non-resealable bottle	678,704	July 16	2832	592	96	570
Weir, James L., Chatham, Canada. Mechanical sugar-bowl	681,466	Aug. 27	3304	735	96	1763
Weisenfeld, Max, Munich, Germany. Apparatus for germinating grain	683,302	Sept. 24	3086	707	96	2539
Weiss, Carl W., New York, N. Y. Explosive-engine	680,953	Aug. 20	2332	512	96	1550
Weiss, William F., Camden, N. J., assignor to United States Fender Company, of New Jersey. Fender for vehicles	682,771	Sept. 17	2029	458	96	2304
Welch, William H. I., Bow, assignor to Lamp Manufacturing Company, Limited, London, England. Overhead regenerative gas-lamp	682,896	Sept. 17	2267	512	96	2352
Welin, Axel, London, England. Apparatus for raising or lowering ships' boats, &c	680,823	Aug. 20	2094	455, 456	96	1501
Welker, Louis, Sr., Williamsport, Pa. Table	677,726	July 2	711	168	96	150
Weller, John C., assignor to H. C. Farwell, Chicago, Ill. Window	681,008	Aug. 20	2438	538, 539	96	1570
Weller, John C., assignor to H. C. Farwell, Chicago, Ill. Window-sash	681,009	Aug. 20	2440	539	96	1570
Welles, Howard W., assignor of one-half to I. W. Sherrill, Poughkeepsie, N. Y. Combined school desk and chair	679,806	Aug. 6	155	34, 35	96	1073
Welles Manufacturing Company. (See Welles, Richard J., assignor.)						
Welles, Richard J., assignor, by mesne assignments, to Welles Manufacturing Company, New York, N. Y. Chair-bedstead	677,483	July 2	260	65	96	56
Welling, John E., assignor to W. C. Renaker, Cynthiana, Ky. Grain-tube connection	680,748	Aug. 20	1944	426	96	1473
Wellman, Charles H. (See Wellman, Samuel T. and C. H.)						
Wellman, Samuel T. and C. H., Cleveland, Ohio. Coke-oven	682,441	Sept. 10	1421	321	96	2163
Wellman, Samuel T. and C. H., assignors to Wellman Seaver Engineering Company, Cleveland, Ohio. Open-hearth steel-furnace	682,512	Sept. 10	1539	349	96	2186
Wellman-Seaver Engineering Company. (See Seaver, John W., assignor.)						
Wellman Seaver Engineering Company. (See Wellman, Samuel T. and C. H., assignors.)						
Wells, Charles G., Hartford, Conn. Handsaw	679,653	July 30	4333	1019	96	996
Wells, George W., Southbridge, Mass. Spectacle or eyeglass case	682,396	Sept. 10	1343	304	96	2147
Wells, James L., Cerrillos, N. Mex. Ter. Blast-furnace	682,009	Sept. 3	669	145	96	1998
Wells, Jesse O., Des Moines, Iowa. Buggy-top	680,094	Aug. 6	691	154	96	1183
Wells, Walter, Baltimore, Md. Toaster	680,095	Aug. 6	696	155	96	1183
Welsh, Elmer E., Lawrence, Kans. Spike-extractor	680,300	Aug. 13	1002	237	96	1270
Welsh, Frank B., and R. H. Breeding, Philadelphia, Pa. Card record and index	678,705	July 16	2832	593	96	570
Welsh, Pierre V. W., New York, N. Y. Photograph-plate	677,484	July 2	262	66	96	57
Weltlin, John, Sandusky, Ohio. Combined hose strap and hook	682,772	Sept. 17	2080	459	96	2305
Wentworth, Walter J. (See Chorlton and Wentworth.)						
Wenzel, Augustin. (See Nobis and Wenzel.)						
Werle, John F., Brooklyn, assignor to J. W. Irwin, New York, N. Y. Check cutting or punching machine	683,363	Sept. 24	3098	707	96	2540
Werner, Louis C., Broadbrook, Conn. Wireless electric-railway signaling system	677,828	July 2	912	217, 218	96	192
Wernette, William J., Remus, Mich. Burglar-alarm	679,654	July 30	4533	1020	96	997

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wernicke, Otto H. L., *et al.* (See Narsh, Joseph M., assignor.)						
Wert, Charles F. (See Bissett, John H., assignor.)						
Werum, William C., Toledo, Ohio. Washstand	679,807	Aug. 6	158	35	96	1074
Wescher, Max, and P. Wollenhaupt, Cologne, assignors to W. Rübel, Duisburg, Germany. Electric alarm	677,829	July 2	920	218, 219, 89	96	193
Weser, John A., New York, N. Y. Automatic musical instrument	681,764	Sept. 3	195	40, 41	96	1903
Weser, John A., New York, N. Y. Coin-controlled apparatus	681,765	Sept. 3	200	41, 42	96	1907
Wesson, Daniel B., Springfield, Mass. Safety device for revolvers	682,397	Sept. 10	1344	301	96	2147
West, George W., Middletown, N. Y. Locomotive	679,806	Aug. 6	160	35, 36	96	1074
West, O. M. (See Jessup, John K., assignor.)						
West, Richard K., Sharpsburg, Pa. Strainer-cleaning device for locomotives	680,096	Aug. 6	697	155	96	1183
West, Thomas D. (See Boyd and West.)						
Westbrook, Charles S., Ogdensburg, N. Y. Power shoveling device	681,941	Sept. 3	548	115	96	1975
Westbrook, James G., Ogdensburg, N. Y. Device for operating grain-shovels	679,448	July 30	4146	930, 931	96	916
Westbrook, John A., assignor of one-third to B. F. Gooch, Mason, Tex. Self-locking door-clamp for cotton-presses	678,923	July 23	3066	686	96	675
Westergaard, Helge, assignor of one-half to A. J. Zilker, Austin, Tex. Flue-cleaner for steam-boiler furnaces	681,490	Aug. 27	3345	742	96	1770
Western Cartridge Company. (See Sallsbury, George P., assignor.)						
Western Electric Co. (See Summers, Bertrand S., assignor.)						
Western Electric Company. (See Bullard, Albert M., assignor.)						
Western Electric Company. (See Loveridge, Frederick H., assignor.)						
Western Electric Company. (See McBerty, Frank R., assignor.)						
Western Electric Company. (See McQuarrie, James L., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.) (Reissue.)						
Western Electric Company. (See Scribner and McBerty, assignors.)						
Western Electric Company. (See Sinclair and Aitken, assignors.)						
Western Electric Company. (See Warner, Ernest P., assignor.)						
Western Malleable and Grey Iron Manufacturing Company. (See Germanson, Julius M., assignor.)						
Western Novelty Company. (See Chambers, Arthur E., assignor.)						
Western Wheeled Scraper Company. (See McKnight, Thomas R., assignor.)						
Westervelt, Samuel, Bloomfield, N. J. Clothes-pounder	680,555	Aug. 13	1534	388	96	1300
Westheimer, Thomas H., Americus, Ga. Grate	679,655	July 30	4534	1020	96	997
Westinghouse Electric and Manufacturing Company. (See De Kaiser and Hadfield, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Westinghouse, George, assignor.)						
Westinghouse Electric & Manufacturing Company. (See Mallett, John P., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Mershon, Ralph D, assignor.)						
Westinghouse Electric & Manufacturing Company. (See Miller, James E., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Perkins, Thomas S., assignor.)						
Westinghouse, George. (See Fry, John E., assignor.)						
Westinghouse, George. (See Knox, William J., assignor.)						
Westinghouse, George. (See Potter, Henry N., assignor.)						
Westinghouse, George, Pittsburg, Pa. Speed-changing gearing	680,825	Aug. 20	2096	457	96	1502
Westinghouse, George, Pittsburg, Pa. Means for utilizing gaseous products of combustion	680,826	Aug. 20	2099	458	96	1502
Westinghouse, George, Pittsburg, Pa. Gas-producer	680,827	Aug. 20	2101	458, 459	96	1503
Westinghouse, George, Pittsburg, Pa. Gas-producer	680,828	Aug. 20	2104	459	96	1503
Westinghouse, George, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Contact device for electric railways	680,824	Aug. 20	2095	456, 457	96	1501
Westinghouse, Herman H. (See Courtney, William J., assignor.)						
Westley, James, Levenshulme, England. Throughway-tap	683,087	Sept. 24	2502	595	96	2439
Westman, Emil, assignor to Enterprise Machine Company, Minneapolis, Minn. Feed-cup for explosive-engines	681,382	Aug. 27	3144	700	96	1731
Weston, Edward, Newark, N. J. Electrical measuring instrument	678,706	July 16	2834	593	96	570
Weston, Edward, Newark, N. J. Manufacturing movable coils for use in connection with electrical measuring instruments	678,707	July 16	2835	593, 594	96	570
Weston, Edward, Newark, N. J. Apparatus for constructing movable coils of electrical measuring instruments	678,708	July 16	2841	594, 595	96	571
Weston, Leroy A., Adams, Mass. Beer filter and cooler	681,841	Sept. 3	345	69	96	1934
Westphal, Peter J., Holyoke, assignor to G. W. Cressy, Springfield, Mass. Winding-machine	680,210	Aug. 6	905	200, 201, 324	96	1225
Wetherill, John P., South Bethlehem, Pa. Apparatus for desulfurizing ores or other substances	678,078	July 9	1415	325, 326	96	308
Wethey, A. H. (See Bryant, Thomas, assignor.)						
Weyand, Paul A., Maywood, Ill. Machinist's clamp	678,805	July 16	2802	602	96	602
Weyhenmeyer, Alfred, *et al.* (See Huntley, Edward C., assignor.)						
Whaley, James C., Uniontown, Pa. Mail-bag fastener and tag-holder	681,600	Aug. 27	3540	787	96	1810
Wheatcroft, Albert E., New York, N. Y. Hoof-shield	682,302	Sept. 10	1182	309	96	2116
Wheeler, Clifton H., Shorthills, N. J., assignor to Wheeler Condenser and Engineering Company, New York, N. Y. Cooling-tower	677,750	July 2	757	181	96	160
Wheeler Condenser and Engineering Company. (See Wheeler, Clifton H., assignor.)						
Wheeler, George A., New York, N. Y. Elevator	682,518	Sept. 10	1541	349	96	2187
Wheeler, John M., *et al.* (See Holmberg, Charles G., assignor.)						
Wheeler, Schuyler S. (See Herzog and Wheeler.)						
Wheeler & Wilson Manufacturing Company. (See Bissinger, Benjamin, assignor.)						
Wheeler & Wilson Manufacturing Company. (See Eames, George M., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Laubscher, Alexander, assignor.)						
Wheeler & Wilson Manufacturing Company. (See Noble, Donald, assignor.)						
Wheeler & Wilson Manufacturing Company. (See Ostrom, Freeland W., assignor.)						
Whelan, Martin O., Detroit, Mich. Copying-bath	678,447	July 16	2130	482	96	407
Whipple, George E., *et al.* (See Lowe, Julius P., assignor.)						
Whipple, James C., Chicago, Ill. Lace-curtain stretcher	680,301	Aug. 13	1064	237	96	1270
Whitaker, John H., Davenport, Iowa. Automatically operating doors	679,009	July 23	3237	734	96	710
White, Benjamin F., Lebanon, assignor of one-half to H. L. Pritz, Manheim, Pa. Railway-tie	683,160	Sept. 24	2716	625	96	2464

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
White, Carl, New Hope, Ky. Drying apparatus	681,942	Sept. 3	549	115, 116	96	1975
White, Charles W., Waco, Tex. Mattress-making machine	679,809	Aug. 6	161	36, 37	96	1074
White, Edward Y., San Antonio, Tex. Frame for motor-bicycles	677,485	July 2	263	66	96	57
White, Edward Y., San Antonio, Tex. Bicycle-frame	677,830	July 2	921	219	96	193
White, Fred M. (See Ellings, Theron N., assignor.)						
White, Frederick L., Boston, Mass. Multiple-cylinder piston-rod connection	678,150	July 9	1548	356, 357	96	336
White, James, and J. Snyder, Marshfield, Oreg. Oar-lock	682,967	Sept. 17	2389	540	96	2378
White, James P., Boston, Mass. Box-harp or zither	682,931	Sept. 10	1185	269, 270	96	2116
White, John L., assignor of one-half to J. S. Helferstay, Piedmont, W. Va. Tire-repairing tool	681,080	Aug. 20	2760	572	96	1601
White, Joseph, assignor to R. Hoe, New York, N. Y. Plate-holding and straining device	680,392	Aug. 13	1066	237, 238	96	1271
White, Joseph A. (See Watt and White.)						
White, Martin T., Maury City, Tenn. Pea-thresher	680,097	Aug. 6	668	155	96	1184
White, Robert A. A. (See White, William G. and R. A. A.)						
White Sewing Machine Company. (See Grothe, William, assignor.)						
White, Thomas E., Chicago, Ill. Variable measure	678,325	July 9	1879	432	96	400
White, Tilman, Jacksonville, Fla. Shaft and pulley coupling	681,090	Aug. 20	2592	572	96	1601
White, W. Woods, *et al.* (See Hawley, Rinaldo W., assignor.)						
White, William G., Anerley, and R. A. A. White, Rotherhithe, England. Polychrome printing-block	683,161	Sept. 24	2718	.....	96	2464
White, William G., Anerley, and R. A. A. White, Rotherhithe, England. Machine for polychromatic printing	683,162	Sept. 24	2719	625, 626	96	2464
White, William J., Cleveland, Ohio. Pneumatically-propelled vehicle	682,773	Sept. 17	2031	459	96	2305
Whitehead, John F. (See McKinney and Whitehead.)						
Whitehurst, Walter L., Baltimore, Md. Shuttle for wire-weaving looms	677,727	July 2	713	168	96	151
Whiteley, Henry. (See McKenna, William S., assignor.)						
Whiteman, Elbert F., *et al.* (See Foster, Abraham L., assignor.)						
Whiteman, Lewis H., *et al.* (See Foster, Abraham L., assignor.)						
Whiteman, Owen L., Coxsackie, N. Y. Valve-indicator	681,899	Sept. 3	469	94	96	1956
Whiteman, Owen L., Coxsackie, N. Y. Gate-valve	681,900	Sept. 3	402	94, 95	96	1957
Whiteman, Owen L., Coxsackie, N. Y. Hydrant	681,901	Sept. 3	464	95	96	1957
Whitfield Company. (See Whitfield, Marcy L., assignor.)						
Whitfield, Marcy L., assignor to Whitfield Company, Memphis, Tenn. Semicompound telescopic engine	678,709	July 16	2047	595, 596	96	572
Whitfield, Marcy L., assignor to Whitfield Company, Memphis, Tenn. Compound pressure-engine	678,806	July 16	2808	632, 633	96	603
Whitfield, Marcy L., assignor to Whitfield Company, Memphis, Tenn. Compound engine	678,807	July 16	2809	633, 634	96	605
Whitfield, Marcy L., assignor to Whitfield Company, Memphis, Tenn. Combined compound and semicompound engine	678,808	July 16	2812	634, 635	96	605
Whitfield, Marcy L., Memphis, Tenn., assignor to Whitfield Company, Lakeview, Miss. Compound pressure-engine	678,820	July 16	2839	640, 641	96	611
Whitin Machine Works. (See Owen, Oscar L., assignor.)						
Whiting, Albert E., Hexham, Victoria. Leg-rope attachment for securing cows for milking or the like	677,831	July 2	923	219	96	194
Whiting, Cecelia A., Tacoma, Wash. Mattress-holder	679,656	July 30	4536	1020	96	997
Whiting Foundry Equipment Co. (See Voss, William, assignor.)						
Whiting, Paul, East Las Vegas, N. Mex. Ter. Cylinder-valve	679,247	July 23	3715	829, 830	96	807
Whitlock Coil Pipe Company. (See Hyde, Arthur S., assignor.)						
Whitlock Coil Pipe Company. (See Lewis, Joseph E., assignor.)						
Whitney, Baxter D., and B. S. Loveland, Winchendon, Mass.; said Loveland assignor to said Whitney. Wood-turning lathe	678,847	July 16	2910	656	96	625
Whitney, William C., assignor to Wilmore Computing Scale Company, Newark, N. J. Computing-scale	682,373	Sept. 10	1301	293	96	2138
Whitton, Morris F., Hingham, assignor to Chase-Shawmut Co., Boston, Mass. Device for applying rail-bonds to rails	678,821	July 16	2841	641	96	612
Whitson, James M., South Mills, N. C., assignor of one-half to W. Lynch, Wallaceton, Va. Plow	679,713	July 30	4648	1045	96	1021
Whittaker, James M., New Bedford, Mass. Curtain-fixture	680,308	Aug. 13	1074	238	96	1274
Whittaker, William C., *et al.* (See Whittaker and Turner, assignors.)						
Whittaker, William C., and W. V. Turner, assignors to W. C. Whittaker, W. V. Turner, A. Peterson, and E. W. Fulghum, Raton, N. Mex. Ter. Pump	680,098	Aug. 6	701	156	96	1184
Whittle, James H., Worcester, Mass. Drying-cylinder	688,237	Sept. 24	2857	656	96	2491
Whitton, Robert, Northampton, England. Window-frame	681,467	Aug. 27	3306	735	96	1763
Wickersham, Stephen B., Phoenix, Arizona Ter. Device for overcoming dead-centers	678,608	July 16	2448	550	96	533
Wickersham, T. A. (See Smith, Eldridge J., assignor.)						
Wickham, John J., Washington, D. C. Crochet-needle	677,832	July 2	924	220	96	194
Wideen, Knut C., New York, N. Y. System for collecting and utilizing solar heat	683,088	Sept. 24	2593	596	96	2439
Wideen, Knut C., New York, N. Y. Making curved mirrors	683,163	Sept. 24	2721	626	96	2464
Wideen, Knut C., New York, N. Y. Curved reflector	683,164	Sept. 24	2723	626	96	2465
Wideen, Knut C., Brooklyn, N. Y. Reducing oxids or other metallic compounds	683,089	Sept. 24	2597	596	96	2440
Widmann, Rudolf, Munich, Germany. Etching	682,580	Sept. 10	1666	.....	96	2212
Widmann, Rudolf, Munich, Germany. Preparing relief printing-surfaces	682,581	Sept. 10	1667	.....	96	2212
Widmayer, Frank B. (See Toepel, Widmayer, and Potdevin.)						
Wiebe, Jacob A., Adelaida, Cal. Plow	679,489	July 30	4238	954, 955	96	993
Wieder, William A. (See Frantz, Hiram A., assignor.)						
Wieland, Charles F., Edwardsville, Ill. Machine for cutting screw-threads	682,774	Sept. 17	2032	459	96	2305
Wieland, Henry W., London, assignor to J. C. Wray, Lambeth, London County, England. Exerciser	680,556	Aug. 13	1585	388	96	1366
Wiese, Conrad C. A. E., Hamburg, Germany. Night light buoy	683,298	Sept. 24	2858	656	96	2491
Wiesner, Oscar C. (See Hutchings and Wiesner.)						
Wiest, Clayton F. and J. L., York, Pa. Box-tray machine	681,601	Aug. 27	3542	787, 788	96	1810
Wiest, Clayton F. and J. L., York, Pa. Box-tube machine	681,602	Aug. 27	3546	788, 789, 790	96	1811
Wiest, Jacob L. (See Wiest, Clayton F. and J. L.)						
Wiggin, Everett D., trustee. (See Dooley, Thomas B., assignor.)						
Wightman, Franklin W., Vassar, Mich. Soldering-clamp	680,304	Aug. 13	1076	238	96	1274
Wigner, Joseph W., Wabash, Ind. Apparatus for dyeing hats	682,010	Sept. 3	670	145	96	1998

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Wikschtröm, Jakob, Kiew, Russia. Wire-nail-making machine	680,511	Aug. 13	1464	322, 323	96	1352
Wilbraham Baker Blower Company. (See Green, Thomas W., assignor.)						
Wilbur, John A. (See Stapf, Frederick W., assignor.)						
Wilburn, Hugh, Valparaiso, Ind. Picker mechanism for stringed musical instruments	680,305	Aug. 13	1077	238	96	1274
Wilcomb, Frank, Norristown, Pa. Brake mechanism for knitting-machines	680,829	Aug. 20	2107	460	96	1504
Wilcox, Charles M., assignor of one-half to C. W. Bloom, New Paris, Ohio. Valve for steam-engines	683,165	Sept. 24	2724	627	96	2465
Wilcox, Frank E., assignor of one-half to L. E. Hickok, Mechanicsburg, Pa. Vehicle-gear	679,810	Aug. 6	167	37, 38	96	1075
Wilcox Manufacturing Company. (See Ferguson, Charles H., assignor.)						
Wilder, Henry W. (See Burgess and Wilder. (Reissue.)						
Wildermuth, William, and J. G. Hill, Rochester, Ind. Ironing-table	680,468	Aug. 13	1262	297, 298	96	1310
Wiley, Charles D., Pittsburg, Pa. Machine for producing twist-drills	680,903	Aug. 20	2234	492	96	1520
Wilhoft, Frank Y., New York, N. Y. Vaginal syringe	681,010	Aug. 20	2441	539	96	1570
Wilkes, Charles M. (See Goehst and Wilkes.)						
Wilkin, Frank P. (See Hulse and Wilkin.)						
Wilkison, Joseph E., Wellsville, assignor of one-half to S. M. Ferguson, East Liverpool, Ohio. Pipe-wrench	678,809	July 16	2817	635	96	606
Willcox, Elmer R. (See Terbush and Willcox.)						
Willetts, Harry G. (See Downing and Willetts.)						
Willhoit, Elmer T., Woodruff, Mo. Shoe-fastener	681,286	Aug. 27	2961	657	96	1697
William, Charles, Potosi, Mo. Stovepipe-elbow	678,810	July 16	2818	635	96	607
William Schollhorn Company. (See Bernard, William A., assignor.)						
William Wharton, Jr., & Company, Incorporated. (See Angerer and Cline, assignors.)						
William Wharton, Jr., & Company, Incorporated. (See Davenport, Arthur B., Jr., assignor.)	682,011	Sept. 3	672	146	96	1998
Williams, Ambrose, Elizabeth, Pa. Railway-tie	680,512	Aug. 13	1465	323	96	1352
Williams, Charles H., Jr., and G. P. Ritter, Chicago, Ill.; said Williams assignor to said Ritter. Car-bolster	681,766	Sept. 3	217	42	96	1909
Williams, Elmer J., West Superior, Wis. Neck-yoke snap	677,728	July 2	713	169	96	151
Williams, Elmer V., St. Louis, Mo. Grain-car door	679,657	July 30	4537	1020	96	997
Williams, Frank, Portland, Mo. Paper-rack	683,090	Sept. 24	2599	596, 597	96	2440
Williams, Fredrick, Revere, Mass. Recording-clock	678,448	July 16	2131	482	96	468
Williams, George L., Chicago, Ill., assignor to Monroe Optical Company, Rochester, N. Y. Mounting for rimless spectacles or eyeglasses	679,811	Aug. 6	168	38, 39	96	1076
Williams, George M., Baltimore, Md., assignor to American Tobacco Company, of New Jersey. Machine for boxing cigarettes						
Williams, George R. (See Wohlgamuth and Williams.)						
Williams, Henry H. (See Grayson, Horace, assignor.)						
Williams, Henry M. (See Burger, Franz, assignor.)						
Williams, Henry M. (See Burger and Williams.)						
Williams, James L., assignor to Dental Manufacturing Company, Limited, London, England. Cap for fixing crowns to teeth	679,714	July 30	4649	1045	96	1021
Williams, John E., assignor of one-half to F. Mettetal, Philadelphia, Pa. Whip and rein holder	680,099	Aug. 6	704	156	96	1185
Williams, John T. (See Sykes, Bolivar N., assignor.)						
Williams, Louis N. D. (See Scott, Robert W., assignor.)						
Williams, Louis N. D. (See Scott and Swinglehurst, assignors.)						
Williams, Louis N. D., *et al.* (See Williams and Swinglehurst, assignors.)						
Williams, Louis N. D., Ashbourne, and H. Swinglehurst, assignors to R. W. Scott, Philadelphia, and L. N. D. Williams, Ashbourne, Pa. Circular rib-knitting machine	681,161	Aug. 20	2704	599, 600	96	1625
Williams, Nelson J., Malden, and W. S. Hill, Winthrop, Mass. Curing and drying fish	680,680	Aug. 13	1661	366	96	1392
Williams, Otis, St. Johnsville, N. Y. Device for fastening sashes, doors, or shutters	677,486	July 2	265	66, 67	96	58
Williams, Otis, St. Johnsville, N. Y. Sash holder and fastener	678,604	July 16	2449	550	96	533
Williams, Otis, St. Johnsville, N. Y. Sash-fastener	680,749	Aug. 20	1945	426	96	1473
Williams, Otis, St. Johnsville, N. Y. Keeper-plate for fasteners of sashes	680,954	Aug. 20	2333	512	96	1550
Williams, Thomas A., Java, Ala. Flue for stills	678,079	July 9	1419	326	96	309
Williams, Thomas H. (See Waggoner, Edward P., assignor.)						
Williams, William B., Reading, assignor to A. Laughlin, Sewickley, Pa. Ribbed pipe	679,350	July 30	3948	882	96	876
Williams, William B., Reading, assignor to A. Laughlin, Sewickley, Pa. Manufacture of ribbed pipes	679,351	July 30	3949	883	96	876
Williams, William B., Reading, assignor to A. Laughlin, Sewickley, Pa. Manufacture of ribbed pipes	679,352	July 30	3950	884	96	876
Williams, William F., London, England. Securing elastic tires to wheels	682,012	Sept. 3	673	146	96	1999
Williams, William F., London, England. Elastic tire	682,442	Sept. 10	1423	321	96	2168
Williamson, Harry M. (See Tilden, Elbert G., assignor.)						
Willson, Freeman R., Jr. (See Shoemaker and Willson.)						
Willson, Hugh M., *et al.* (See James, John E., assignor.)						
Wilmore, Arthur G. (See Tincher, Thomas L., assignor.)						
Wilmore Computing Scale Company. (See Whitney, William C., assignor.)						
Wilmot, Clarence L. (See Mercader and Wilmot.)						
Wilmsen, Bernhard. (See Purvis, Robert C., assignor.)						
Wilson, Allen F., assignor of one-half to D. W. Moore, Jr., Clayton, N. J. Tool for finishing necks of bottles, &c	680,306	Aug. 13	1080	239	96	1275
Wilson, Amos R. (See Owens and Wilson.)						
Wilson, Charles H., Lynn, Mass. Sign for cars	681,468	Aug. 27	3308	735	96	1764
Wilson, Charles H., Lynn, Mass. Railway-switch	681,469	Aug. 27	3309	736	96	1764
Wilson, Charles J. (See Mason, James A., assignor.)						
Wilson, Elmer A., Niles, Ohio. Fuse-box	682,122	Sept. 3	852	191	96	2034
Wilson, Francis F. (See Mooney, John A., assignor.)						
Wilson, Harry. (See Lynch and Wilson.)						
Wilson, Harry H., Nasel, Wash. Chalk-line holder	680,557	Aug. 13	1536	388	96	1397
Wilson, Isabelle C., *et al.*, executors. (See Lovett, Joseph S. H., assignor.)						
Wilson, James G., New York, N. Y. Rolling metal shutter	682,304	Sept. 10	1191	270	96	2117
Wilson, Joel S. (See Purcell, John N., assignor.)						
Wilson, Leander, assignor of one-fourth to J. W. Johnson, Alpha, Ill. Baling-press	682,514	Sept. 10	1544	350, 351	96	2188
Wilson, Percy H., Olean, N. Y. Rolling shutter	680,100	Aug. 6	705	157	96	1185
Wilson, William. (See Dodge and Wilson.)						
Wilson, William, Brooklyn, assignor of one-fifth to C. B. Harris, New York, N. Y. Absorption refrigerating-machine	683,239	Sept. 24	2859	657	96	2491
Wilson, William A., Murphysboro, Ill. Automatic car-holding device	678,209	July 9	1656	381	96	357
Wilson, William M., *et al.* (See Miller, John A., assignor.)						
Wilson, William R., Denver, Colo. Hay-fever disk	682,123	Sept. 3	853	191	96	2034

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Wilt, Samuel W., Alvada, Ohio. Carpet or door strip	678,080	July 9	1420	326	96	369
Winans, Daniel M., assignor to H. B. Osgood, Binghamton, N. Y. Scale-beam with indicating-poise	679,010	July 23	3239	724	96	710
Winchester Repeating Arms Co. (See Griffith, Charles H., assignor.)						
Winchester Repeating Arms Co. (See Johnson, Thomas C., assignor.)						
Wing, Ezra, Oconomowoc, Wis. Copy-holder	682,456	Sept. 17	1791	410	96	2290
Winget, Charles L., Lyndon, Ill. Wire-reeling machine	677,487	July 2	266	67	96	58
Wingfield, Virgil M., and J. T. Little, Jr., Olathe, Kans. Nut-lock	680,101	Aug. 6	706	157	96	1185
Winkenwerder, Henry, assignor to Johnson Electric Service Company, Milwaukee, Wis. Temperature-regulating apparatus	680,423	Aug. 13	1293	284	96	1317
Winot, Ambrose A. (See Duncanson, William A., assignor.)						
Winship, Thomas. (See Stark and Winship.)						
Winter, B. G. (See Winter, Gordon, assignor.)						
Winter, Gordon, assignor of one-half to B. G. Winter, McBean, Ga. Cotton-seed planter	678,355	July 9	1048	446	96	413
Winters, Edward B., assignor of one-half to W. P. Brown, Coffeyville, Kans. Riding attachment for walking-plows	683,364	Sept. 24	3091	708	96	2540
Winther, Christian W., Miner, S. D. Milk-dispensing machine	683,091	Sept. 24	3004	597 598 599	96	2441
Wintherlich, Hans J., assignor of one-half to M. Nittler, Omaha, Nebr. Jar-cover	680,750	Aug. 20	1946	426	96	1474
Wintz, Jefferson D., assignor of one-half to D. G. Baldwin, New Orleans, La. Car-fender	680,955	Aug. 20	2334	513	96	1550
Wire Goods Company. (See Bement, William O., assignor.)						
Wires, Ephraim L. (See Chapin, Daniel S., assignor.)						
Wirt, Reuben D., Independence, Mo. Hasp-fastener	682,657	Sept. 17	1792	411	96	2290
Wirt, Zebulon, Monticello, Ind. Multicylinder-motor	678,081	July 9	1421	327 328	96	309
Wirth, Alexander, Parsons, Kans. Feed-water heater	680,513	Aug. 13	1468	323 324	96	1353
Wirtz, Max F., Dunellen, N. J. Pedal	679,043	July 23	3321	742	96	726
Wisconsin Malleable Iron Company. (See Del Manzo, Ernest, assignor.)						
Wise, Harry, assignor of three-fourths to H. Boerner, San Antonio, Tex. Car-brake	680,904	Aug. 20	2237	492 493	96	1530
Wiseburn, Frank P., Brooklyn, and L. Buhle, Woodhaven, N. Y. Means for securing hanks	677,488	July 2	269	67	96	58
Wishart, James M., Oakland, Cal. Solar heater	682,658	Sept. 17	1793	411	96	2290
Wiswall, William J., Kansas City, Mo., assignor to Ohio Cultivator Company, Bellevue, Ohio. Disk cultivator	680,211	Aug. 6	907	201	96	1226
Witham, George S., Madison, Me. Pulp-strainer	678,062	July 9	1424	328	96	310
Witham, George S., Madison, Me. Cleaner for paper-pulp screens	680,514	Aug. 13	1471	324	96	1354
Withington, Sherman S., *et al.* (See Snedeker, James W., assignor.)						
Witkowski, Charles, Boston, Mass. Hypodermic syringe	679,198	July 23	3639	813	96	732
Witt, George C., Cincinnati, Ohio. Receptacle for garbage or ashes	679,658	July 30	4539	1021	96	998
Witte, Augustus M., Chicago, Ill. Combined chimney-casing and sign	678,083	July 9	1427	329	96	310
Witte, Frank, Cincinnati, Ohio. Indicating savings-bank	679,490	July 30	4241	955	96	934
Witten, William S., Chicago, Ill. Gate	682,305	Sept. 10	1193	270	96	2117
Wittke, Carl, Columbus, Ohio. Mechanism for converting motion	678,326	July 9	1879	432	96	400
Wittke, Carl, Columbus, Ohio. Flue-cutter	682,864	Sept. 17	2215	500	96	2341
Wittke, Robert. (See Porter and Wittke.)						
Wittmann, William J., Rochester, N. Y. Vehicle-tire	683,365	Sept. 24	3062	708	96	2541
Woda, Fritz, *et al.* (See Fischer, Gustav, assignor.)						
Woerner, Fritz, Hamburg, Germany. Self-acting boiler-feed apparatus	683,366	Sept. 24	3063	708	96	2541
Wohlgemuth, Ulysses S., and G. R. Williams, assignors of one-tenth to O. A. Long, Findlay, Ohio. Feed-water purifier	682,398	Sept. 10	1345	305	96	2147
Wolcott, Clarence, and P. MaGirl, Bloomington, Ill. Culvert	678,605	July 16	2450	550	96	533
Wolf, George S., West Dover, assignor of three-fourths to N. J. Boylan, Cleveland, Ohio. Water-tube boiler	679,470	July 30	4185	939	96	923
Wolf, Henry L. R., assignor to Aull Bros. Paper & Box Co., Dayton, Ohio. Paper vessel	678,606	July 16	2452	551	96	534
Wolfe, Andrew C., Freeport, assignor of one-third to J. M. Hewitt, Allegheny, Pa. Railway-switch mechanism	678,084	July 9	1428	329 330	96	310
Wolfe, Andrew C., Freeport, assignor of one-third to J. M. Hewitt, Allegheny, Pa. Screw-wedge	678,085	July 9	1429	330	96	311
Wolfe, Andrew C., assignor of two-thirds to F. Dillingham and C. K. Wolfe, Denver, Colo. Gas or other explosive engine	681,102	Aug. 20	2207	600 601	96	1625
Wolfe, Charles E. (See Spink, Cassius M., assignor.)						
Wolfe, Charles K., *et al.* (See Wolfe, Andrew C., assignor.)						
Wolff, James, Chicago, Ill. Removable jacket for electric cables	681,470	Aug. 27	2310	736	96	1764
Wolford, Joseph A. (See Holmberg, Victor, assignor.)						
Wolfsohn, Meyer, *et al.* (See Rothe, John C., assignor.)						
Wolhaupter, David P., Washington, D. C. Bell	679,659	July 30	4140	1021	96	998
Wollenhaupt, Paul. (See Wescher and Wollenhaupt.)						
Wollensak, Andrew, Rochester, N. Y. Photographic shutter	679,134	July 23	3594	784	96	763
Woltman, August, assignor to National Pneumatic Service Company, Chicago, Ill. Terminal for pneumatic carriers	682,374	Sept. 10	1304	293	96	2139
Woltman, August, assignor to National Pneumatic Service Company, Chicago, Ill. Pneumatic carrier	682,375	Sept. 10	1305	294	96	2139
Wolyn, Axel H., Chicago, Ill. Supply-tanks for gasolene or the like	681,902	Sept. 3	467	95	96	1908
Womack, Isaac, Emmett, Idaho. Fence-machine	681,767	Sept. 3	218	43	96	1909
Wood, Allen L., Brooklyn, N. Y. Demijohn-frame	682,443	Sept. 10	1428	322	96	2164
Wood, Benjamin, Kansas City, Kans., assignor to C. F. Bartholomees, Kansas City, Mo. Corner-rounding woodworking-tool	681,360	Aug. 27	3099	698	96	1722
Wood, Edward N., Elmira, N. Y. Insect-catcher	683,092	Sept. 24	2907	599	96	2441
Wood, Frank M., Chicago, Ill. Call-signal	680,515	Aug. 13	1473	325	96	1354
Wood, Frank W. (See Brower, Hiram B., assignor.)						
Wood, Frederick E. (See Barnekov, Charles W., assignor.)						
Wood, Frederick W., Baltimore, Md. Ingot-mold	683,367	Sept. 24	3095	708	96	2541
Wood, Frederick W., Baltimore, Md. Ingot-stripper	683,368	Sept. 24	3096	709	96	2541
Wood, Frederick W., Baltimore, Md. Ingot-stripper	683,369	Sept. 24	3097	709	96	2542
Wood, Frederick W., assignor to Crown Gold Milling Company, San Francisco, Cal. Belt for ore-concentrators	679,248	July 23	3717	830	96	807
Wood, Frederick W. and E. H. Stiles, Jr., Kansas City, Mo.; said Wood assignor, by mesne assignments, of one-third to said Stiles. Note-sheet for stringed musical instruments	683,098	Sept. 24	2609	600	96	2442
Wood, Harvey M., Denver, Colo. Bicycle-lock	678,822	July 16	2843	641	96	612
Wood, Henry A. W., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Printing-machine	678,449	July 16	2182	488 489	96	468
Wood, James F., Zelda, Ohio. Saw-setting machine	679,249	July 23	3719	830	96	807

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wood, James J., Fort Wayne, Ind. Brush-holder	677,834	July 2	928	220	96	194
Wood, James J., Fort Wayne, Ind. Construction of electric motors	677,969	July 9	1103	255	96	249
Wood, James J., Fort Wayne, Ind. Electric-arc lamp	678,607	July 16	2454	551	96	534
Wood, John B., Cranston, R. I. Car-fender	681,361	Aug. 27	3100	688	96	1723
Wood, John P. (See Race, George R., assignor.)						
Wood, Joseph C., Worcester, Mass. Motor-vehicle	681,769	Sept. 3	224	43, 44	96	1910
Wood, Robert J. G., Leonia, N. J. Apparatus for treating and utilizing sewage	678,924	July 23	3067	686	96	676
Wood, William, Banta, assignor of one-half to G. J. Fake, Vernalis, Cal. Hank	682,376	Sept. 10	1306	294	96	2139
Wood, William D., West Haven, Conn. Railway-switch-operating apparatus	679,582	July 30	4414	991 992	96	972
Wood, William L. (See Dawson, Thomas, assignor.)						
Wood, William W., Tacoma, Wash. Cutting attachment for veneer-machines	681,362	Aug. 27	3102	689	96	1723
Woodbridge, Joseph L., Cambridge, Mass. Regulating double-current dynamo-electric machines	679,812	Aug. 6	177	39	96	1078
Woodbridge, Joseph L., Philadelphia, Pa. Means for regulating double-current dynamo-electric machines	679,813	Aug. 6	181	40	96	1078
Woodbury, Charles H. (See Woodbury, Seth H. and C. H.)						
Woodbury, Seth H. and C. H., Lynn, Mass. Easel	680,404	Aug. 13	1263	278	96	1310
Woodcock, Willard J., Brooklyn, N. Y. Ice-freezing plate	682,659	Sept. 17	1794	411	96	2290
Woodcock, William H., Lansdowne, Pa. Car construction	677,720	July 2	714	169 170	96	151
Woodhead, Charles G., assignor to Thornton Pickard Manufacturing Company, Limited, Altringham, England. Photographic shutter	683,166	Sept. 24	2726	627	96	2405
Woodhull, Morris, Dayton, Ohio. Hinged door for piano-box buggies	678,710	July 16	2650	596 597	96	573
Woodley, Benjamin R., Chicago, Ill. Paint-pot	683,094	Sept. 24	2610	600	96	2442
Woodman, Charles M., Chicago, Ill. Gun-cleaner	681,163	Aug. 20	2715	601	96	1626
Woodmansee, Harrison, Freeport, Ill. Means for mounting and lubricating pistons	680,449	Aug. 13	1388	293	96	1326
Woodruff, John W., Hamburg, N. Y. Silo	679,583	July 30	4417	992 993	96	973
Woodruff, Leslie B., assignor to Messenger Press Company, San Miguel, Cal. Hand cylinder printing-press	677,910	July 9	1104	255	96	249
Wood's Car Seal and Manufacturing Company. (See Brower, Hiram B., assignor.)						
Woods, Clinton E., assignor of two-thirds to P. F. Turner, Chicago, Ill. Insulating conductors	677,730	July 2	716	170	96	151
Woods, Edwin S., Chicago, Ill. Car-truck	680,516	Aug. 13	1475	325	96	1354
Woods, Francis A., assignor to Woods Non-Refillable Bottle Co., Chicago, Ill. Non-refillable bottle	680,905	Aug. 20	2239	493	96	1530
Woods, Frank F. (See Blood and Woods.)						
Woods, Granville T., New York, N. Y., assignor to Electro-Magnetic Traction Company, Washington, D. C. Electric-railway system	678,086	July 9	1430	330	96	311
Woods, Granville T., New York, N. Y., assignor, by mesne assignments, to H. W. Leonard, East Orange, N. J. Regulating and controlling electrical translating devices	681,768	Sept. 3	219	43	96	1909
Woods Non-Refillable Bottle Co. (See Woods, Francis A., assignor.)						
Woods, Sarah A., Flushing, N. Y. Water-bag	677,489	July 2	270	67	96	58
Woodward, Charles E. W., Chicopee, Mass. Fabric for use in the production of air-tight tubing	682,444	Sept. 10	1424	322	96	2164
Woodward, Elmer E., Rockford, Ill. Governor for water-wheels	679,353	July 30	3951	884 885	96	877
Woodward, Norman C., Hornellsville, N. Y. Loop-bar for draft devices	680,102	Aug. 6	709	157	96	1186
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Company, Chicago, Ill. Thread-manipulating device for sewing-machines	679,660	July 30	4542	1021 1022	96	998
Wool, Hide & Skin Syndicate. (See Riches, Henry R., assignor.)						
Woolery, John T., Fort Worth, Tex. Mattress-stuffing machine	679,584	July 30	4418	993	96	973
Woolery, John T., Fort Worth, Tex. Apparatus for making mattresses	679,585	July 30	4420	994	96	973
Wooley, Thomas A., and H. Fox, Hamilton, Canada. Machine for shocking grain	683,065	Sept. 24	2611	600 601	96	2442
Woolf, John L., New York, N. Y. Magnetic puzzle	678,608	July 16	2461	552	96	536
Woolman, Augustus C., assignor to S. Woolman, Bellefontaine, Ohio. Suspenders	682,582	Sept. 10	1698	379	96	2292
Woolman, Susannah. (See Woolman, Augustus C., assignor.)						
Woolsey, Warren A., Ypsilanti, Mich. Collapsible box	682,306	Sept. 10	1194	271	96	2117
Worden, Edson G., Scranton, Pa. Sliding-door hanger	678,609	July 16	2462	552	96	536
Worden, Edson G., Scranton, Pa. Door-hanger	678,610	July 16	2464	552	96	536
Wormwood, Alfred R., assignor of one-half to W. Fichett, Portland, Me. Spoon-holder	679,715	July 30	4650	1045	96	1021
Worsey, James W., St. Helens, assignor of two-thirds to J. H. Lancashire, Streatham, England. Treating complex ores	678,210	July 9	1658	381	96	357
Worsley, Otto G., Newark, Ill. Rock-drill	681,011	Aug. 20	2441	539	96	1570
Worsley, Willard J., Tinley Park, Ill. Teeth-separator	681,770	Sept. 3	227	44	96	1910
Worth, William O., Chicago, Ill., assignor of two-thirds to W. R. Donaldson, Louisville, Ky., and H. W. Kellogg, Battlecreek, Mich. Speed-regulator for explosive-engines	681,287	Aug. 27	2902	657 658 659	96	1697
Worth, William O., assignor of two-thirds to W. R. Donaldson, Chicago, Ill., and H. W. Kellogg, Battlecreek, Mich. Automatic lubricator	681,288	Aug. 27	2907	659	96	1698
Worthington, Harry A., Grinnell, Iowa. Lead-pencil initial-stamp	677,482	July 2	259	65	96	56
Worthington, Paul B., New York, N. Y. Formation of colored fabrics	677,835	July 2	930	220 221	96	195
Wray, George, Pittsburg, Pa. Street-car fender	679,586	July 30	4423	995	96	974
Wray, James A., Chicago, Ill. Square	680,530	Aug. 20	2108	460	96	1504
Wray, John C. (See Wieland, Henry W., assignor.)						
Wrenn, Beverly W. (See Haywood, Daniel H., assignor.)						
Wright, Allen J., Cleveland, Ohio. Feed-water regulator for steam-boilers	679,814	Aug. 6	185	40	96	1079
Wright, Charles T. (See Steele, William O., assignor.)						
Wright, Ernest W., Chicago, Ill. Button-polisher	681,771	Sept. 3	227	44	96	1910
Wright, Fred, Coldwater, Mich. Clothes-line	682,307	Sept. 10	1196	271	96	2118
Wright, Jacob P., New Haven, Conn., and J. N. Wright, Newark, N. J. Starting device for oil or gasolene engines for automobiles	680,103	Aug. 6	710	157 158	96	1186
Wright, James N. (See Wright, Jacob P. and J. N.)						
Wright, John M., David City, Nebr. Cultivator	677,836	July 2	931	221 222	96	195
Wright, Lewis T., Keswick, Cal. Roasting-furnace. (Reissue)	11,932	Sept. 17	2483	563 564	96	2296
Wright, Samson D., Cleveland, Ohio. Bracket for structural-iron frame construction	681,524	Aug. 27	3406	755	96	1782
Wright, Silas A., Springfield, Mo. Insect-trap	681,772	Sept. 3	229	44	96	1910
Wright, William H., Gilmanton, assignor of one-half to O. W. Goss, Lakeport, N. H. Stump-extractor	677,490	July 2	271	68	96	59
Wright, William H., assignor to Vacuum Can & Jar Company, New York, N. Y. Apparatus for treating food products	682,865	Sept. 17	2216	500	96	2341
Wrightnour, John S., Oil City, Pa. Refrigerator	677,837	July 2	934	222	96	196

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Wrightnour, John S., Oil City, Pa. Apparatus for rendering water pure and palatable	681,289	Aug. 27	2969	660	96	1699
Wrightsville Hardware Company. (See Greenawalt, Peter C., assignor.)						
Wulff, John P., assignor of one-half to W. A. Morin, Albert Lea, Minn. Hub	682,897	Sept. 17	2368	512	96	2352
Wurmb, Theodore H., and R. Baumann, St. Louis, Mo. Secondary electric clock	679,546	July 30	4348	976	96	957
Wurmb, Theodore H., and R. Baumann, St. Louis, Mo. Electromagnet	682,377	Sept. 10	1307	294	96	2139
Wyckoff, Seamans & Benedict. (See Diss, Louis P., assignor.)						
Wyckoff, Seamans & Benedict. (See Higham, Harry W., assignor.)						
Wyckoff, Seamans & Benedict. (See Merk, Martin, assignor.)						
Wyckoff, Seamans & Benedict. (See O'Brien, James H., assignor.)						
Wyckoff, Seamans & Benedict. (See Shepard, Charles H., assignor.)						
Wyman, Clark E. (See Roth, Henry G., assignor.)						
Wyman, George H., Los Angeles, Cal., assignor to W. S. Rutledge, J. R. Feustermaker, and C. A. McFarland, Dayton, Ohio. Leaf-support for desks	680,104	Aug. 6	711	158	96	1186
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Stop-motion for looms	682,445	Sept. 10	1426	322	96	2164
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Stop-motion for looms	682,446	Sept. 10	1428	323	96	2164
Wyman, Horace W., Worcester, Mass. Filling-replenishing mechanism for looms	677,838	July 2	937	222	96	196
Wynne, William R. (See Royle and Wynne.)						
Wythe, William H., Bloomfield, N. J. Detonating toy	679,661	July 30	4545	1022	96	999
Wythe, William H., Glenridge, assignor to Repeating Torpedo & Novelty Co., East Orange, N. J. Toy pistol	680,126	Aug. 6	748	165	96	1192
Yakima Valley Fruit Company. (See Madigan and Crocker, assignors.)						
Yale Motor Company. (See Lavigne, Joseph P., assignor.)						
Yale Motor Company. (See Lavigne and Johnson, assignors.)						
Yale & Towne Manufacturing Company. (See Bardwell, Arthur F., assignor.)						
Yale & Towne Manufacturing Company. (See Berry, Charles A., assignor.)						
Yale & Towne Manufacturing Company. (See Mix, Edward H., assignor.)						
Yale & Towne Manufacturing Company. (See Stockwell, Emory, assignor.)						
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)	678,087	July 9	1433	330	96	312
Yarlot, Scott W., Ney, Ohio. Stay-wire for fences						
Yarnell, Charles S., assignor to Moore Carving Machine Company, Minneapolis, Minn. Work-table	679,354	July 30	3956	885	96	878
Yeakle, James B., Baltimore, Md. Burglar-alarm	681,290	Aug. 27	2970	660	96	1699
Yeakley, Melvin A., Cleveland, Ohio. Pneumatic hammer	678,450	July 16	2139	483 / 484	96	469
Yeakley, Melvin A., Kamms, Ohio. Automobile	682,775	Sept. 17	2034	460 / 461	96	2305
Yeiser, Henry C., *et al.* (See Narsh, Joseph M., assignor.)						
Yelich, Peter. (See Senich, John, assignor.)						
Yeomans, Herbert W., Lowell, Mass. Reducing-wheel for steam-engine indicators	682,600	Sept. 17	1795	412	96	2260
Yoder, Homer E. (See Summers and Yoder.)						
York, John E., assignor of one-half to G. M. Pillsbury, Lowell, Wash. Vehicle running-gear	679,135	July 23	3508	784	96	764
Yorke, George M., New York, N. Y., assignor to American Telephone and Telegraph Company, of New York. Mechanical intercommunication between telephone-switch-boards	681,603	Aug. 27	3551	790	96	1811
Yost Writing Machine Company. (See Curtis, Henry E., assignor.)						
Yost Writing Machine Company. (See Felbel, Jacob, assignor.)						
Young, Cornelius, Selma, Ala. Cotton-seed hulling and reducing machine	672,088	July 9	1434	331	96	312
Young, Ernest F. (See Butler, John D., assignor.)						
Young, Francis H., Hoboken, N. J. Roller-bearing and lubricator	678,089	July 9	1436	331	96	312
Young, Frank N., Providence, R. I. Folding paper box	680,105	Aug. 6	712	158	96	1187
Young, James H., trustee. (See Moskowitz, Morris, assignor.)						
Young, John, California Junction, Iowa. Beet-harvester	681,525	Aug. 27	3406	756	96	1783
Young, John E., Trinidad, Colo. Car-loader	680,631	Aug. 13	1602	307	96	1392
Young, John N., Alameda, Cal. Anchor	677,839	July 2	940	223	96	197
Young, Luther A., St. Louis, Mo. Rubber-dam holder	682,308	Sept. 10	1198	271	96	2118
Young, Nelson, Eureka, Cal. Appliance for logging-railways	678,090	July 9	1437	331	96	312
Young, Walter D., Baltimore, Md. Feeder-cable holder for electric-railway systems	681,604	Aug. 27	3556	790	96	1812
Young, Walter D., Baltimore, Md. Crossover-switch for electric-railway systems	681,605	Aug. 27	3557	791	96	1812
Young, William J., assignor to F. C. Feller and W. J. Springborn, Cleveland, Ohio. Liquid-carbonating apparatus	681,526	Aug. 27	3408	756	96	1783
Zapf, George W., *et al.* (See Anderson, Frank C., assignor.)						
Zatterberg, Martin. (See Swedin, John, assignor.)						
Zbornik, John, Fort Atkinson, Iowa, assignor to Kemp & Burpee Manufacturing Company, Syracuse, N. Y. Fertilizer-distributer	682,309	Sept. 10	1199	272	96	2118
Zearing, James H., and T. McWhorter, Des Moines, Iowa. Engraving-plate	679,815	Aug. 6	189	41	96	1080
Zelley, Samuel S., Philadelphia, Pa. Window fastener and lock	682,013	Sept. 3	675	146	96	1999
Zellweger, John, St. Louis, Mo. Apparatus for collecting gases, vapors, and foreign particles from air	679,587	July 30	4424	995	96	974
Zeng, A. M. de, *et al.* (See Zeng, Henry L. de, assignor.)						
Zeng, Henry L. de, assignor to A. M. de Zeng, Philadelphia, Pa., and W. H. Chamberlin, Chicago, Ill. Opthalmoscope	679,044	July 23	3822	742	96	726
Zent, Schuyler W., Marion, Ohio. Multiple-cylinder explosive-engine	682,583	Sept. 10	1670	379 / 380	96	2212
Zerck, Otto C., Chicago, Ill. Combined music-stand and music-leaf turner	677,840	July 2	941	223	96	197
Ziegler, Alfred M., Boston, Mass. Suspenders	677,841	July 2	943	223	96	198
Ziegler, Alfred M., Boston, Mass. Cast-off for suspenders	677,842	July 2	945	223	96	198
Ziegler, Christian F., Chicago, Ill. Electric switch	681,943	Sept. 3	550	116	96	1976
Ziegler, George H., Philadelphia, Pa., assignor to American Type Founders' Company, Newark, N. J. Type-casting machine	678,881	July 16	2875	647 / 648 / 649	96	618
Zilker, Andrew J. (See Westergaard, Helge, assignor.)						
Zimmerman, Orrin C., Hampton, Iowa. Grain thresher and separator	680,187	Aug. 6	858	191	96	1216
Zimmermann, Charles E., Syracuse, N. Y. High or low water alarm	678,925	July 23	3070	687	96	676
Zimmermann, Johann. (See Polic and Zimmermann.)						
Zinn, Mary. (See Scheuber, August W., assignor.)						
Zitzmann, August, Cleveland, Ohio. Latch for elevator-gates	682,776	Sept. 17	2042	461	96	2307
Zoeller, Theodore J., Nashville, Tenn., assignor to Standard Automatic Fire Alarm Company, Huntsville, Ala. Electrical thermostat	682,661	Sept. 17	1797	412	96	2261
Zsigmondy, Richard, Jena, Germany. Producing coatings of metallic luster on ceramic objects, &c	682,310	Sept. 10	1202	------	96	2119
Zuckschwerdt, Sylvester, Leopoldshall, Germany. Making cyanids	682,311	Sept. 10	1204	------	96	2119
Zwicker, Julio G., Mexico, Mexico. Building construction	682,312	Sept. 10	1205	272	96	2119
Zwillinger, Bernhard, Ashland, Wis., assignor to F. G. Voss, trustee, New York, N. Y. Apparatus for carbonizing material	682,313	Sept. 10	1205	272 / 273	96	2119

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
A. J. Lindemann and Hoverson Co. (See Sorensen, Soren, assignor.)				
Abram Cox Stove Company. (See Rankin, Thomas I., assignor.)				
Abramson, Alfred C., and W. Person, assignors to East Rockford Mantel Company, Rockford, Ill. Sewing-machine cabinet	34,912	Aug. 6	96	1231
Adair, James, Edgeworth, Pa. Pen-rack	34,750	July 9	96	415
Alberger Company. (See Smith, Harry J., assignor.)				
Alexander Smith & Sons Carpet Company. (See Parton, Henry W., assignor.)				
Alexander Smith & Sons Carpet Company. (See Stengel, George J., assignor.)				
Alexander Smith & Sons Carpet Company. (See Thomas, Walter, assignor.)				
Allen, Augustus N., Scranton, Pa. Clamp member for smoothing-iron handles	35,077	Sept. 10	96	2221
Allen, Augustus N., Scranton, Pa. Smoothing-iron handle	35,078	Sept. 10	96	2221
Allison, John, Independence, Mo. Post-tamper	35,130	Sept. 24	96	2568
Armstrong, Charles C., Columbus, Ohio. Lamp	34,861	July 30	96	1025
Arms, Martin, Syracuse, N. Y. Clothes-sprinkler	35,103	Sept. 17	96	2309
Assmann, August, New York, N. Y. Picture-frame	35,021	Sept. 3	96	2047
Attwater, Henry P., Houston, Tex. Toy	34,850	July 23	96	892
Aylmer Drill Manufacturing Company. (See Aylmer, Henry, assignor.)				
Aylmer, Henry, Sherbrooke, assignor to Aylmer Drill Manufacturing Company, Montreal, Canada. Rock-drill stock	34,825	July 23	96	830
Babbitt, Seth W., assignor to International Silver Company, Meriden, Conn. Base member for solid or plated metal ware	35,092	Sept. 17	96	2307
Babcock, Charles G., Lander, Pa. Cream-cooler	35,007	Aug. 27	96	1845
Bailey, Charles A., Cromwell, Conn., assignor to A. L. Kesner, Philadelphia, Pa. Money-box	35,119	Sept. 17	96	2401
Banwell, James, assignor of two-thirds to C. W. Nokes and G. Counter, Cleveland, Ohio. Casing for catch-basins	34,798	July 16	96	630
Barclay, James S., Marion, Ind. Trace-holder member	35,085	Sept. 3	96	2049
Barnes, Harry A., Milwaukee, Wis., assignor to Premier Manufacturing Company, Hartford, Conn. Lower member of fifth-wheels	35,087	Sept. 3	96	2049
Barnes, Joshua B., Springfield, Ill. Thimble for stay-bolts for boiler-sheets	34,836	July 23	96	830
Barnes, Joshua B., Springfield, Ill. Wrench for stay-bolts for boiler-sheets	34,837	July 23	96	830
Barnes, Joshua B., Springfield, Ill. Wrench for stay-bolts for boiler-sheets	34,838	July 23	96	830
Barnhart, John F., Akron, Ohio. Penholder	35,059	Sept. 10	96	2218
Barrett, George L., Springfield, Ohio. Calendar-base	34,925	Aug. 13	96	1418
Bassett, Charles F., Allegheny, Pa. Window-shade fixture	34,714	July 2	96	204
Bauer, Moriz, Vienna, Austria-Hungary. Inhaler	34,904	Aug. 27	96	1843
Bay State Metal Wheel Company. (See Siebert, Otto W., assignor.)				
Baynes, Henry T., Buffalo, N. Y. Pipe	34,778	July 16	96	627
Baynes, James B. (See Bodman, Walter L., assignor.)				
Beach, Herman G., and H. W. Wilcox, Watertown, N. Y. Puzzle-board	35,015	Aug. 27	96	1847
Beard, James M. G., Fruita, Colo. Stationary plate for static machines	34,763	July 9	96	417
Beisel, Charles P., Wilkesbarre, Pa. Tray	34,920	Aug. 13	96	1417
Bendix, Vincent H., New York, N. Y. Rear frame for motor-cycles	34,902	Aug. 6	96	1229
Bennett, Charles A., Taunton, Mass., assignor to Reed and Barton Corporation, Taunton, Mass., and New York, N. Y. Handle for spoons, forks, or similar articles	34,746	July 9	96	414
Bennett, Ernest H., East Orange, N. J. Rug	35,084	Sept. 10	96	2222
Bennett, Ernest H., East Orange, N. J. Rug	35,085	Sept. 10	96	2222
Bennett, Ernest H., East Orange, N. J. Rug	35,086	Sept. 10	96	2222
Bennett, Ernest H., East Orange, N. J., assignor to John Bromley & Sons, Philadelphia, Pa. Rug	34,913	Aug. 6	96	1231
Bennett, Ernest H., East Orange, N. J., assignor to John Bromley & Sons, Philadelphia, Pa. Rug	34,914	Aug. 6	96	1231
Bennett, Ernest H., East Orange, N. J., assignor to John Bromley & Sons, Philadelphia, Pa. Rug	34,915	Aug. 6	96	1231
Bennett, Lena, New York, N. Y. Badge	34,771	July 16	96	626
Berry Manufacturing Company. (See Kerns, James, assignor.)				
Billy, Charles, Paris, France. Carriage-lamp	34,803	July 16	96	631
Bippart, Griscom & Osborn. (See Theberath, John H., assignor.)				
Bittner, John. (See Norden, Mortimer, assignor.)				
Bodman, Walter L., assignor to J. B. Baynes, Buffalo, N. Y. Vehicle-axle	34,829	July 23	96	829
Boepple, Johann F., Davenport, Iowa. Button	34,898	Aug. 6	96	1228
Bond, Arthur T., North Wilmington, assignor to A. M. Holbrook and E. A. Kelly, Winchester, Mass. Finger-ring	35,090	Sept. 17	96	2307
Bosselman, Andrew C., New York, N. Y. Cup	34,710	July 2	96	204
Boucher, Philippe. Woonsocket, R. I. Badge	35,088	Sept. 17	96	2307
Boyden, Estelle A., Worcester, Mass. Radiator-cleaning brush	34,789	July 16	96	629
Bradley, George W. (See Bradley, William H. and G. W.)				
Bradley, William H. and G. W., Philadelphia, Pa. Horseshoe	35,002	Aug. 27	96	1844
Brawner, Harry O., Baltimore, Md. Bottle-stopper	34,906	Aug. 27	96	1843
Brockelbank, Augustus, Ossining, N. Y. Snap-link	34,899	Aug. 6	96	1228
Bromley & Sons, John. (See Petzold, Adolph, assignor.)				
Bronson, Adelbert E., Jr., assignor to Bronson-Walton Company, Cleveland, Ohio. Coffee-mill shell	34,759	July 9	96	416
Bronson-Walton Company. (See Bronson, Adelbert E., Jr., assignor.)				
Brown, Charles T., and F. W. Leuthesser, assignors to Monash-Younker Company, Chicago, Ill. Steam-trap	34,878	July 30	96	1028
Brown, Jonathan T., Marblehead, assignor to O. A. Miller, Brockton, Mass. Hinge member for lasts	34,731	July 2	96	207
Brown, Jonathan T., Marblehead, assignor to O. A. Miller, Brockton, Mass. Hinge member for lasts	34,732	July 2	96	208
Buckeye Manufacturing Company. (See Hennepin, Herbert H., assignor.)				
Buckeye Manufacturing Company. (See Wolverton, Washington I., assignor.)				
Buermann, August, *et al.* (See Ridings, John G., assignor.)				
Burton, Roscoe C., Schenectady, N. Y. Wall-bracket	35,042	Sept. 3	96	2050
Call, Delmer W., assignor to National Malleable Castings Company, Cleveland, Ohio. Hub-band	35,036	Sept. 3	96	2049

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Canton Pump Company. (See Miller, Edgar E., assignor.)				
Capewell, George J., Hartford, Conn. Button-fastener	34,780	July 16	96	627
Carry, William, assignor of one-half to W. Shepley, Newport, R. I. Parcel-carrier	35,096	Sept. 17	96	2308
Carter, Alfred E. (See Carter, Charles M., assignor.)				
Carter, Charles M., Cuming City Precinct, Nebr., assignor of one-half to A. E. Carter, Havana, Cuba. Plow-shovel	34,795	July 16	96	630
Chance Brothers and Co. (See Woodward, Thomas J., assignor.)				
Chase, Walter W., Providence, R. I. Pin	34,856	July 30	96	1024
Child, Clinton C., Grinnell, Iowa. Corner-piece	35,089	Sept. 17	96	2307
Childers, Charles T., Galesburg, Ill. Fountain display-stand	35,012	Aug. 27	96	1846
Christmann, John A., Mount Pulaski, Ill. Picture-hanger	34,820	July 23	96	827
Clow, William E., Chicago, Ill. Sink	35,008	Aug. 27	96	1845
Clunies, Arthur B., assignor to Sill Stove Works, Rochester, N. Y. Fire-pot for stoves	34,979	Aug. 20	96	1638
Cohen, Ralph, Bayonne, N. J. Mantle-holder	34,804	July 16	96	631
Cole, Clarence, Troy, N. Y. Metal bar	34,792	July 16	96	629
Cole, Nathaniel, Ottawa, Ill. Single harness-loop	34,801	July 16	96	631
Conrad, John B., Chicago, Ill. Storage-battery plate	35,090	Sept. 3	96	2048
Cook, Edgar H., Brooklyn, N. Y. Case for coin-controlled weighing-machines	34,707	July 2	96	203
Cooper, Frank J., Toledo, Ohio. Wheelbarrow	34,934	Aug. 13	96	1419
Cooperative Foundry Company. (See Kennedy and King, assignors.)				
Cottle, Shubael, New York, N. Y. Chain fabric	35,057	Sept. 10	96	2217
Councer, Richard W., Egremont, England. Holder for fountain-pens	34,775	July 16	96	627
Counter, George, *et al.* (See Banwell, James, assignor.)				
Cribben, William H., Chicago, Ill. Stove	34,978	Aug. 20	96	1638
Croom, Alvis F., Dallas, Tex. Riding-saddle	34,766	July 9	96	417
Crowdus, Walter A., Chicago, Ill. Vehicle-frame	34,827	July 23	96	828
Crowdus, Walter A., Chicago, Ill. Axle-support for vehicle-frames	34,828	July 23	96	828
Cunningham, Walter C., Philadelphia, Pa., assignor to Open Tobacco Pipe Company, of New Jersey. Member for tobacco-pipe bowls	35,060	Sept. 10	96	2218
Davies, John P. (See Dean, John, assignor.)				
Davis, Nathan H., Philadelphia, Pa. Metal beam	34,721	July 2	96	205
Davis, Richard G., Lawrence, Mass. Saddletree	34,722	July 2	96	205
Dawson, Gibson H., R. C. Norton, and I. Shoudy, Rockford, Ill. Grave-marker	35,121	Sept. 17	96	2402
Day, George E. (See Ward and Day.)				
De Klyn, Benjamin F., New York, N. Y. Candy-mold section	34,823	July 23	96	828
Dean, John, assignor to J. P. Davies, Racine, Wis. Bridle-bit mouth-bar	35,001	Aug. 27	96	1841
Dearborn, Jennie S., Lakeport, N. H. Stopper-extractor	35,097	Sept. 17	96	2306
Dennerline, William A., Aurora, Ind. Music-rack	34,824	July 23	96	828
Dennett, Fred A., Sheboygan, Wis. Veneer-pressing member	34,942	Aug. 13	96	1421
Dennett, Fred A., Sheboygan, Wis. Veneer-pressing member	34,943	Aug. 13	96	1421
Dennett, Fred A., Sheboygan, Wis. Veneer-pressing member	34,944	Aug. 13	96	1421
Dennett, Fred A., Sheboygan, Wis. Veneer-pressing member	34,945	Aug. 13	96	1422
Dennett, Fred A., Sheboygan, Wis. Veneer-pressing member	34,946	Aug. 13	96	1422
Dennett, Fred A., Sheboygan, Wis. Veneer-pressing member	34,947	Aug. 13	96	1422
Dienelt, Herman. (See Siegener, William F., assignor.)				
Dietz, Sharpless M. (See Wray, John H., assignor.)	34,757	July 9	96	416
Dryden, Edgar L., College Springs, Iowa. Clothes-pin	34,901	Aug. 6	96	1220
Dudly, Albert, Menominee, Mich. Slide-piece for wrenches	35,098	Sept. 17	96	2308
Dunkley, Samuel J., Kalamazoo, Mich. Basket-cover				
East Rockford Mantel Company. (See Abramson and Person, assignors.)	34,970	Aug. 20	96	1636
Einfeldt, Emil, Davenport, Iowa. Yoke-plate	34,810	July 23	96	826
Eisenmann, John, Cleveland, Ohio. Flag				
Elk Knitting Mills Company. (See Hirsh, Julius, assignor.)	34,751	July 9	96	415
Ely, William H., Middletown, Conn. Eyeglass-bridge				
Embry, Charles R. (See McCurdy and Embry.)				
Empire Bottle & Supply Co. (See Nightingale, Charles T., assignor.)	34,716	July 2	96	204
Englund, Axel H., Philadelphia, Pa. Rail-bond	34,924	Aug. 13	96	1418
Estes, Ezra L., Shawnee, Okla. Ter. Rule	34,708	July 2	96	203
Evans, William J., assignor to McKesson & Robbins, New York, N. Y. Nasal cup				
Fahys Watch-Case Company. (See Habensack, Fred, assignor.)	34,865	July 30	96	1026
Feineman, Frederick J., St. Louis, Mo. Burial-casket handle	34,993	Aug. 27	96	1843
Ferry, Thomas, Wilmington, Del. Suspender member or band	34,923	Aug. 13	96	1418
Filor, Charles F., Trenton, N. J. Comb				
Finch, Serrin J. (See Hower and Finch.)	34,871	July 30	96	1027
Fisher, Warren C., Mount Vernon, Iowa. Picture-mat	34,926	Aug. 13	96	1418
Floyd, Clement V., Kansas City, Mo. Case for vending-machines				
Ford, John F. (See McVeety and Ford.)	35,067	Sept. 17	96	2307
Foringer, Henry H., Erie, Pa. Suppository	35,115	Sept. 17	96	2401
Forster, John C., Pittsburg, Pa. Puzzle member	34,933	Aug. 20	96	1634
Foster, Theodore W., Providence, R. I. Back for brushes or similar articles	34,954	Aug. 20	96	1634
Foster, Theodore W., Providence, R. I. Cover for toilet-boxes or similar articles	34,817	July 23	96	827
Fowler, Albert R., assignor of one-half to L. Schneider, Rochester, N. Y. Cigar-container	34,732	July 9	96	415
Fox, Irwin, Lansdowne, Pa. Nosepiece for spectacles or eyeglasses	34,782	July 16	96	628
Fox, John H., New York, N. Y. Bottle-filling nozzle	34,940	Aug. 13	96	1420
Frazier, James L., Peoria, Ill. Rope-coupling	35,081	Sept. 10	96	2221
Frazier, James L., Peoria, Ill. Rope-splicer	34,825	July 23	96	828
Frear, William B., Troy, N. Y. Tug-stop	35,095	Sept. 17	96	2308
Frederick, William, Newcastle, Pa. Violin-body	34,992	Aug. 27	96	1842
Freeman, Frank A., Philadelphia, Pa. Buckle-piece	34,991	Aug. 27	96	1842
Freeman, William, assignor to Harris Suspender Company, New York, N. Y. Buckle-piece	34,781	July 16	96	627
Freisinger, Victor, Atlantic City, N. J. Cup	34,904	Aug. 6	96	1220
Fuller, Rodolphus, Detroit, Mich. Engine-frame	34,773	July 16	96	626
Fussell, Arthur S. S., Philadelphia, Pa., assignor to Simons Bro. & Company. Ring	35,048	Sept. 3	96	2051
Gabel, John, Chicago, Ill. Merchandise-cabinet	34,985	Aug. 20	96	1639
Gaines, Lucy H., Chattanooga, Tenn. Game-board				
Galenski, Charles, *et al.* (See Popp and Geyer, assignors.)	35,109	Sept. 17	96	2399
Gallaher, Edward B., Philadelphia, Pa. Vehicle-body	35,110	Sept. 17	96	2400
Gallaher, Edward B., Philadelphia, Pa. Vehicle-body				
Garthe, John. (See Kehl and Garthe.)				
Geyer, Carl F. (See Popp and Geyer.)				
Gilson Manufacturing Company. (See Travers, Charles J., assignor.)	34,818	July 23	96	827
Glaser, Gustave D., assignor of one-half to A. Kohn, Chicago, Ill. Bottle	35,102	Sept. 17	96	2308
Goehst, John H., Chicago, Ill. Support and reflector for electric lamps	34,857	July 30	96	1024
Goldner, Simon, and L. Gottlieb, New York, N. Y. Ring for cluster-settings				
Goodwin, Lyman O., assignor to himself and G. L. Wright, North Andover, Mass. Valve for governors	34,717	July 2	96	205

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Goodwin, Lyman O., assignor to himself and G. L. Wright, North Andover, Mass. Cylinder for governors	34,718	July 2	96	205
Gordon, Peter J., assignor to H. A. Cary Company, New York, N. Y. Silversmith's stock	35,058	Sept. 10	96	2218
Gottlieb, Loul. (See Goldner and Gottlieb.)				
Goudie, George E., North Evanston, and H. H. Henley, Chicago, Ill. Picture-frame	34,886	Aug. 6	96	1227
Gould, Philip, Philadelphia, Pa. Pump member	34,736	July 16	96	630
Gounelle, Alfred, Marseilles, France. Bottle	34,880	July 30	96	1025
Granger, John W., Philadelphia, Pa. Eye for garment-hooks	34,960	Aug. 20	96	1635
Gray, William, Amesbury, Mass. Vehicle-lamp	34,753	July 9	96	415
Greene, Oscar H., Redbluff, Cal. Clothes-pin	34,713	July 2	96	204
Grigg, Millard W., Fort Mill, S. C. Dental-engine handpiece attachment	35,090	Sept. 10	96	2221
Griswold, Matthew, Jr., Erie, Pa. Gas-stove	34,977	Aug. 20	96	1637
Gross, Elizebeth, Philadelphia, Pa. Base for beer-coolers	34,755	July 9	96	415
Gschwend, Paul, Canton, Ohio. Stirrup	34,929	Aug. 13	96	1418
Guyot, Mary, Chicago, Ill. Chair	34,949	Aug. 13	96	1423
H. A. Cary Company. (See Gordon, Peter J., assignor.)				
H. F. Osborne Company. (See Osborne, Henry F., assignor.)				
Habensack, Fred, Sag Harbor, assignor to Fahys Watch-Case Company, New York, N. Y. Spoon or fork handle	34,858	July 30	96	1024
Hall, Mansir A., North Hartford, N. Y. Potato-hook	34,702	July 9	96	416
Hammann, John, Belleville, Ill. Anode-plate	35,071	Sept. 10	96	2220
Handy, Henry, Philadelphia, Pa. Cake or bread pan	35,040	Sept. 3	96	2050
Harrington, Fred M., Weedsport, N. Y. Broiler	34,725	July 2	96	206
Harris Suspender Company. (See Freeman, William, assignor.)				
Hartig, William F., Evansville, Ind. Shank for cultivator-standards	34,869	July 30	96	1026
Hatch, Tracy B., Menomonie, Wis. Storage-battery plate	35,072	Sept. 10	96	2220
Heard, Richard, Boston, Mass. Ruler	34,776	July 16	96	627
Heinz, Howard C., Pittsburg, Pa. Bottle	34,712	July 2	96	204
Henderson, Henry T., Keokuk, Iowa. Bed-plate for tire-setting machines	34,937	Aug. 13	96	1420
Henderson, Victor, Rosendale, Minn. Cotter-pin	34,938	Aug. 13	96	1420
Henley, Henry H. (See Goudie and Henley.)				
Hennegin, Herbert H., assignor to Buckeye Manufacturing Company, Anderson, Ind. Gas-engine body	34,905	Aug. 6	96	1229
Hennig, Charles T., Brooklyn, N. Y. Hammer	35,100	Sept. 17	96	2306
Hershey, William B. C., Columbus, Ohio. Vehicle-seat handhold	34,866	July 30	96	1026
Hershey, William B. C., Columbus, Ohio. Vehicle-seat handhold	34,867	July 30	96	1026
Hess, Charles H., assignor to Kearns-Gorsuch Bottle Company, Zanesville, Ohio. Bottle	34,956	Aug. 20	96	1634
Hess, Charles H., assignor to Kearns-Gorsuch Bottle Company, Zanesville, Ohio. Bottle	34,957	Aug. 20	96	1635
Higgins, Campbell P., Roselle, N. J. Header for sectional steam-generators	34,940	Aug. 20	96	1638
Hill, Richard C., Philadelphia, Pa. Button	35,026	Sept. 3	96	2047
Hilpert, George, Parkersburg, W. Va. Game-board	35,014	Aug. 27	96	1847
Hilson, Edward, New York, N. Y. Blank for cigarette-box caps	35,127	Sept. 17	96	2402
Hirsh, Julius, assignor to Elk Knitting Mills Company, Philadelphia, Pa. Undergarment	34,853	July 23	96	832
Hockman, Anthony W., Parkersburg, W. Va. Building-block	35,120	Sept. 17	96	2401
Hodges, Emery C., Farmer City, Ill. Tombstone or monument	34,743	July 2	96	209
Hodges, Emery C., Farmer City, Ill. Tombstone or monument	34,744	July 2	96	209
Holbrook, Aaron M., *et al.* (See Bond, Arthur T., assignor.)				
Hower, Aten B., and S. J. Finch, Ostrander, Ohio. Photographic mount	34,877	July 30	96	1028
Hull, Franc B., Oskaloosa, Iowa. Lawn-sprinkler	35,074	Sept. 10	96	2220
Hull, Scott H., Oskaloosa, Iowa. Lawn-sprinkler	35,073	Sept. 10	96	2220
Hunt, Jesse O., Cairo, Ill. Necktie-fastener	35,099	Sept. 17	96	2308
Hustyava, Stephen, New York, N. Y. Easel	35,020	Sept. 3	96	2047
Hutchison, Miller R., New York, N. Y. Sound-concentrator	34,963	Aug. 20	96	1635
Inskeep, Edmund A., Chicago, Ill. Nose-guard for eyeglasses	34,921	Aug. 13	96	1417
International Silver Co. (See Silber, Chris, assignor.)				
International Silver Company. (See Babbitt, Seth W., assignor.)				
Isenstein, Max, assignor to himself and L. M. Rosenberg, New York, N. Y. Belt	35,017	Aug. 27	96	1847
Jackson, Claude, *et al.* (See Ridings, John G., assignor.)				
Jamison, Thomas M., Memphis, Tenn. Lamp-fixture	34,822	July 23	96	827
Jammes, Albert F., New York, N. Y. Bottle	35,027	Sept. 3	96	2048
Jennings Brothers Manufacturing Company. (See Jennings and Mosman, assignors.)				
Jennings, Erwin M., and C. F. Mosman, assignors to Jennings Brothers Manufacturing Company, Bridgeport, Conn. Clock-case	34,815	July 23	96	827
Jewell, Edward W., Chicago, Ill. Casing for electrical meters	34,800	July 16	96	631
John Bromley & Sons. (See Bennett, Ernest H., assignor.)				
Johnson, Oliver W., Oakharbor, Ohio. Car-replacer	34,906	Aug. 6	96	1229
Jones, John F., and W. T. Stuckey, Montgomery, Ala. Shade-bracket	34,862	July 30	96	1025
Jones, William A., assignor of one-half to Swigart Optical Company, Toledo, Ohio. Eyeglass-guard	35,068	Sept. 17	96	2307
Jones, William A., assignor of one-half to Swigart Optical Company, Toledo, Ohio. Eyeglass-guard	35,094	Sept. 17	96	2307
Kampfe, Frederick, New York, N. Y. Advertising device	35,047	Sept. 3	96	2051
Kearns-Gorsuch Bottle Company. (See Hess, Charles H., assignor.)				
Kehl, James L., and J. Garthe, Northport, Mich. Thill-coupling plate	34,719	July 2	96	205
Keiper, Henry B., Lancaster, Pa. Stand for rotary blowers and forges	34,880	July 30	96	1026
Keiper, Henry B., Lancaster, Pa. Stand for rotary blowers and forges	34,881	July 30	96	1026
Keiper, Henry B., Lancaster, Pa. Gear-train casing for rotary blowers	34,882	July 30	96	1026
Keiper, Henry B., Lancaster, Pa. Gear-train and rotary-blower casing	34,883	July 30	96	1026
Keiper, Henry B., Lancaster, Pa. Gear-train casing for rotary blowers	34,884	July 30	96	1026
Keiper, Henry B., Lancaster, Pa. Gear-train casing for rotary blowers	34,885	July 30	96	1026
Kellogg, Charles H. (See Partyka, Edmund T., assignor.)				
Kelly, Edward A., *et al.* (See Bond, Arthur T., assignor.)				
Kenah, John F. (See Smith, Nathan, assignor.)				
Kendrick, William T., Montgomery, Ala. Slat-holder bracket	35,000	Aug. 27	96	1844
Kennedy, Charles E., Chicago, Ill. Bracket for combination ironing-boards	35,041	Sept. 3	96	2050
Kennedy, Thomas R., and E. J. King, assignors to Coöperative Foundry Company, Rochester, N. Y. Furnace-front	35,009	Aug. 27	96	1846
Kennedy, Thomas R., and E. J. King, assignors to Coöperative Foundry Company, Rochester, N. Y. Stove or range	35,010	Aug. 27	96	1846
Kent, William J., Brooklyn, N. Y., assignor to Revere Rubber Company, Boston, Mass. Hoof-pad	34,808	July 30	96	1026
Kerns, James, Defiance, assignor to Berry Manufacturing Company, Upper Sandusky, Ohio. Folder for baling-presses	35,039	Sept. 3	96	2050
Kesner, Abraham L. (See Bailey, Charles A., assignor.)				
King, Edward J. (See Kennedy and King.)				
King, Harry C., Baltimore, Md. Ruling-pen	35,025	Sept. 3	96	2047

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Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Kingsbury, Harry T., Keene, N. H. Toy-wagon-body blank	35,116	Sept. 17	96	2401
Kingsbury, Harry T., Keene, N. H. Toy-wagon body	35,117	Sept. 17	96	2401
Kinney, Herbert A., Chicago, Ill. Chair	34,756	July 9	96	415
Kirkham, John A., Portland, Oreg. Picture-frame	34,887	Aug. 6	96	1227
Kleinberger, Markus, New York, N. Y. Dress-chart	34,854	July 23	96	833
Kline, Lucien W. (See Tuckey and Kline.)				
Knoll, Jonas L., Lebanon, Pa. Bicycle-frame	34,908	Aug. 6	96	1229
Kohn, Alfred. (See Glaser, Gustave D., assignor.)				
Kraus, Otto, New York, N. Y. Necktie-fastener	34,961	Aug. 20	96	1635
Kursheedt, Alphonse H., New York, N. Y., assignor to Kursheedt Manufacturing Co., of New York. Trimming	35,124	Sept. 17	96	2402
Kursheedt, Alphonse H., New York, N. Y., assignor to Kursheedt Manufacturing Company, of New York. Trimming	35,132	Sept. 24	96	2508
Kursheedt Manufacturing Company. (See Kursheedt, Alphonse H., assignor.)				
Langmuir, Woodburn, New York, N. Y. Carriage tire and rim	34,802	July 16	96	631
Langmuir, Woodburn, New York, N. Y. Carriage tire and rim	34,974	Aug. 20	96	1637
Langmuir, Woodburn, New York, N. Y. Carriage tire and rim	34,975	Aug. 20	96	1637
Lee, Charles A., Saratoga Springs, N. Y. Cup	34,859	July 30	96	1025
Leigh, Otto, Newark, N. J. Back for brushes or similar articles	35,024	Sept. 3	96	2047
Leiter, Isaac H., New York, N. Y. Furniture-gimp	34,851	July 23	96	832
Lemay, Joseph, Bridgeport, Conn. Corset	34,874	July 30	96	1027
Leuthesser, Fred W. (See Brown and Leuthesser.)	34,816	July 23	96	827
Limeburner, John E., Swarthmore, Pa. Nosepiece for eyeglasses				
Linotype Company. (See Nadall, Berne, assignor.)	34,798	July 16	96	629
Litchfield, Edgar C. and H. L., Webster City, Iowa. Grain-grinder				
Litchfield, Henry L. (See Litchfield, Edgar C. and H. L.)	34,870	July 30	96	1026
Loeven, William, Chicago, Ill. Table	35,065	Sept. 10	96	2219
Lorenz, William A., Hartford, Conn. Can or jar	35,066	Sept. 10	96	2219
Lorenz, William A., Hartford, Conn. Can or jar	35,067	Sept. 10	96	2219
Lorenz, William A., Hartford, Conn. Can or jar	35,068	Sept. 10	96	2219
Lorenz, William A., Hartford, Conn. Can or jar	35,069	Sept. 10	96	2219
Lorenz, William A., Hartford, Conn. Can or jar	35,070	Sept. 10	96	2219
Lorenz, William A., Hartford, Conn. Can or jar	34,764	July 9	96	417
Lukens, Rudolph C., Academy, Pa. Railway-tie	34,997	Aug. 27	96	1843
MacLean, Phineas G., Boonton, N. J. Vending-machine case				
MacLullich, James M., assignor to Sirdar Rubber Company, Limited, London, England. Metallic wheel-rim	35,075	Sept. 10	96	2220
MacMonnies, Frank, New York, N. Y. Bottle	34,784	July 16	96	628
Mackson, Isadore, Buffalo, N. Y. Badge or similar article	34,811	July 23	96	826
Maguire, Charles F., Haverhill, Mass. Boot or shoe	34,733	July 2	96	208
Malmstrom, Peter E., New York, N. Y. Bottle	34,896	Aug. 6	96	1228
Mandt, Targe G., Stoughton, Wis. Bolster-plate for vehicles	35,106	Sept. 17	96	2399
Mandt, Targe G., Stoughton, Wis. Rub-iron	35,107	Sept. 17	96	2399
Mandt, Targe G., Stoughton, Wis. Evener-iron	35,108	Sept. 17	96	2399
Margulis, William, *et al.* (See Popp and Geyer, assignors.)	35,055	Sept. 10	96	2217
Marks, Louis B., Chicago, Ill. Display-card				
Marston, Wallace E. (See Martin, John F., assignor.)	34,788	July 16	96	629
Martin, John F., assignor of one-half to W. E. Marston, Marshall, Mich. Broom-holder	34,966	Aug. 20	96	1636
Maurer, George, Frankenlust Township, Mich. Hoe	35,049	Sept. 3	96	2051
Mawson, Frank, assignor of one-half to J. R. Mawson, Philadelphia, Pa. Shirt-waist former				
Mawson, John R. (See Mawson, Frank, assignor.)	34,799	July 16	96	631
Mayer, Charles J., Philadelphia, Pa. Rail-bond	34,894	Aug. 6	96	1228
Mayer, Isaac, New York, N. Y. Thermometer-frame	34,809	July 23	96	825
McCabe, James W., New York, N. Y. Photographic mount	34,832	July 23	96	829
McCaffrey, John, Lawrence, Mass. Hub for friction-clutches	34,767	July 9	96	418
McCaleb, Robert C., Waterloo, Iowa. Puzzle-board	35,019	Sept. 3	96	2046
McCurdy, Eneas J., and C. R. Embry, St. Louis, Mo. Statuette	34,895	Aug. 6	96	1228
McFaddin, Harrison D., New York, N. Y. Pitcher or mug	34,982	Aug. 13	96	1419
McGlehan, Isaac S., New York, N. Y. Pneumatic tire				
McKesson & Robbins. (See Evans, William J., assignor.)	34,779	July 16	96	627
McPherson, John J., Montgomery, Ala. Inhaler	34,999	Aug. 27	96	1844
McQueen, Ulysses G., New York, N. Y. Window-pulley bracket	34,968	Aug. 20	96	1636
McRoy, John T., Chicago, Ill. Conduit-section	34,907	Aug. 6	96	1230
McVeety, Charles, and J. F. Ford, Philadelphia, Pa. Ship's ventilator	34,982	Aug. 20	96	1639
Meinecke, Christian W., Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Cushion				
Meinecke, Christian W., Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Bag for ice or water	34,995	Aug. 27	96	1843
Meinecke & Co. (See Meinecke, Christian W., assignor.)	34,916	Aug. 13	96	1417
Messler, August J., Buffalo N. Y. Badge or similar article	35,131	Sept. 24	96	2508
Mikkelsen, Edward, Chicago, Ill. Game-board				
Miller, Edgar E., assignor to Canton Pump Company, Canton, Ohio. Lever-stand for steam-pumps	34,879	July 30	96	1028
Miller, George M. (See Slaymaker and Miller.)				
Miller, Oliver A. (See Brown, Jonathan T., assignor.)	35,098	Sept. 3	96	2050
Mitchell, Richard, Wooddale, Pa. Bushwhacker or brush-scythe	34,852	July 23	96	832
Mitzel, Harvey F., Barberton, Ohio. Bathing-cap				
Model Bottling Machinery Company. (See Wagner, Edward, assignor.)				
Monash-Younker Company. (See Brown and Leuthesser, assignors.)	34,826	July 23	96	828
Morehead, Charles H., Union City, Tenn. Trace-fastener	34,922	Aug. 13	96	1418
Morgan, Thomas, Buffalo, N. Y. Section for separable tobacco-pipes	34,797	July 16	96	630
Morrill, Roland, Benton Harbor, Mich. Body for stop-cocks				
Mosman, Charles F. (See Jennings and Mosman.)	35,054	Sept. 3	96	2052
Moyer, Harvey A., Syracuse, N. Y. Thill-coupling				
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of printing-type	34,872	July 30	96	1027
National Casket Company. (See Rappleyea and Sparks, assignors.)				
National Enameling & Stamping Co. (See Wagandt, Charles L., assignor.)				
National Malleable Castings Company. (See Call, Delmer W., assignor.)	35,112	Sept. 17	96	2400
Neukom, William J., Indianapolis, Ind. Chair				
Nightingale, Charles T., Chicago, Ill., assignor of one-half to Empire Bottle & Supply Co., New York, N. Y. Milk-bottle	34,919	Aug. 13	96	1417
Nokes, C. W., *et al.* (See Banwell, James, assignor.)	34,848	July 23	96	831
Norden, Mortimer, assignor to himself and J. Bittner, New York, N. Y. Electric-light sign	34,849	July 23	96	832
Norden, Mortimer, assignor to himself and J. Bittner, New York, N. Y. Electric-light sign				
Norton, Reuben C. (See Dawson, Norton, and Shoudy.)	34,831	July 23	96	829
Olds, Ransom E., Detroit, Mich. Vehicle-body				

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Olds, Ransom E., Detroit, Mich. Vehicle-body frame	35,076	Sept. 10	96	2220
Open Tobacco Pipe Company. (See Cunningham, Walter C., assignor.)				
Osborne, Henry F., Newark, N. J., assignor to H. F. Osborne Company, of New Jersey. Receptacle member for meat or other presses	35,079	Sept. 10	96	2221
Palmer, Isaac E., Middletown, Conn. Hammock-body	35,046	Sept. 3	96	2051
Panikoff, William L., New Haven, Conn. Badge or similar article	34,701	July 2	96	202
Parker, Nora, Oxford, Mich. Corset stay member	35,123	Sept. 17	96	2402
Parton, Henry W., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Carpet	35,050	Sept. 3	96	2052
Parton, Henry W., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Carpet	35,051	Sept. 3	96	2052
Partyka, Edmund T., assignor of one-half to C. H. Kellogg, Buffalo, N. Y. Rake-head	34,936	Aug. 13	96	1420
Paul, George, Hudson, Wis. Wagon-stake	34,720	July 2	96	205
Peck, Ralph L., Washington, D. C. Badge or similar article	34,988	Aug. 27	96	1842
Pedrini, Temistock, New York, N. Y. Hat-brush	35,129	Sept. 24	96	2507
Pelouze, William N., Chicago, Ill. Blank for scale frames or boxes	34,706	July 2	96	203
Person, William. (See Abramson and Person.)				
Peters, James W. S., Kansas City, Mo. Game-board	35,018	Aug. 27	96	1846
Peterson, David L. B., East Orange, N. J. Desk-box	34,787	July 16	96	628
Pettis, Clifton D., Chicago, Ill. Carline	35,003	Aug. 27	96	1844
Petzold, Adolph, Philadelphia, Pa., assignor to J. Bromley & Sons. Rug	34,740	July 2	96	209
Petzold, Adolph, Philadelphia, Pa., assignor to J. Bromley & Sons. Rug	34,741	July 2	96	209
Petzold, Adolph, assignor to John Bromley & Sons, Philadelphia, Pa. Rug	34,876	July 30	96	1028
Pierce, Frank H., Brooklyn, N. Y. Sawing-table	35,004	Aug. 27	96	1845
Pilling, Ella K., Philadelphia, Pa. Waist-lengthener	34,768	July 9	96	418
Pilling, Ella K., Philadelphia, Pa. Corset and waist-lengthener	34,867	July 16	96	632
Plano Manufacturing Company. (See Plopper, James A., assignor.)				
Plant, Alfred, Keyport, N. J. Tiling	34,742	July 2	96	209
Plopper, James A., assignor to Plano Manufacturing Company, Chicago, Ill. Chain-link	34,834	July 23	96	830
Pollard, Edwin, Silsden, England. Fire-kindler	34,981	Aug. 20	96	1638
Popp, Theodore L., and C. F. Geyer, assignors to C. Galenski, Buffalo, N. Y., and W. Margulis, Detroit, Mich. Case for jack-in-a-box or similar articles	34,805	July 16	96	632
Potdevin, Adolph. (See Toepel, Widmayer, and Potdevin.)				
Premier Manufacturing Company. (See Barnes, Harry A., assignor.)				
Pulcifer, Florence C., Port Huron, Mich. Jar-rubber	35,064	Sept. 10	96	2219
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Range	34,908	Aug. 6	96	1230
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Heating-stove	34,909	Aug. 6	96	1230
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Cooking-stove	34,910	Aug. 6	96	1230
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Portable range	35,113	Sept. 17	96	2400
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Heating-stove	35,114	Sept. 17	96	2400
Rappleyea, Nicholas, and W. A. Sparks, assignors to National Casket Company, Hoboken, N. J. Casket-lid	35,011	Aug. 27	96	1836
Rector, Charles L., Haymarket, Va. Spoke-socket	34,971	Aug. 20	96	1639
Reed and Barton Corporation. (See Bennett, Charles A., assignor.)				
Reed, James V., Yonkers, N. Y. Shaving-cup	34,709	July 2	96	203
Reese, Edward A., and R. L. St. Clair, Paris, Ill. Window-screen	34,863	July 30	96	1025
Rehmann, Gustave, Newark, N. J. Pocket-case	35,022	Sept. 3	96	2047
Renninger, George, Glenside, assignor to P. Wunderle, Edgehill, Pa. Box	34,785	July 16	96	628
Renninger, George, Glenside, assignor to P. Wunderle, Edgehill, Pa. Box	34,786	July 16	96	628
Revere Rubber Company. (See Kent, William J., assignor.)				
Reynolds, Frank G., Chicago, Ill. Frame for knife-sharpeners or glass-cutters	34,761	July 9	96	416
Richards, Thomas C., Winsted, Conn. Curtain or shade pull	34,790	July 16	96	629
Ricker, George A., Buffalo, N. Y. Bracket for electric wires and cables	35,028	Sept. 3	96	2048
Ricker, George A., Buffalo, N. Y. Bracket for electric wires and cables	35,029	Sept. 3	96	2048
Ridings, John G., assignor of two-thirds to C. D. Jackson, Amarillo, Tex., and A. Buermann, Newark, N. J. Bridle-bit	34,909	Aug. 20	96	1636
Roberts, Dugald H., Detroit, Mich. Lubricator-body	35,104	Sept. 17	96	2399
Rockwell, George L., Minneapolis, Minn. Badge	34,888	Aug. 6	96	1227
Rose, David, Lancaster, Pa. Cane or umbrella ring	34,705	July 2	96	203
Rosenberg, Louis M. (See Isenstein, Max, assignor.)				
Ruby, Solomon, St. Louis, Mo. Handle for spoons or similar articles	35,091	Sept. 17	96	2397
Ryan, William E., Washington, D. C. Badge	34,772	July 16	96	626
Sadler & Company, F. H. (See Sadler, Louis E., assignor.)				
Sadler, Louis E., assignor to F. H. Sadler & Company, Attleboro, Mass. Jewel-tray	34,984	Aug. 20	96	1639
Sanders, Louis, Brooklyn, N. Y. Belt	34,709	July 9	96	418
Schies, John, Anderson, Ind. Bottle	34,788	July 16	96	628
Schmidt, John F. W., Oshkosh, Wis. Boat-cleat	35,031	Sept. 3	96	2048
Schneider, Louis. (See Fowler, Albert R., assignor.)				
Schupp, William R., Lamb, Mo. Pencil	35,128	Sept. 24	96	2507
Sharp, William J., York, Pa. Game-board	35,093	Sept. 10	96	2221
Sheetz, Hallet E., Remington, Ind. Couch-rack	34,983	Aug. 20	96	1639
Shepley, William. (See Carry, William, assignor.)				
Sherman, William B., Providence, R. I. Badge	34,745	July 9	96	414
Shoudy, Israel. (See Dawson, Norton, and Shoudy.)				
Sickles, Louis, Philadelphia, Pa. Badge	34,702	July 2	96	202
Siebert, Otto W., West Gardner, assignor to Bay State Metal Wheel Company, East Templeton, Mass. Propelling-frame for children's carriages	34,983	Aug. 13	96	1419
Siegener, William F., assignor to H. Dienelt, Philadelphia, Pa. Shelf-paper	34,986	Aug. 20	96	1639
Siegener, William F., assignor to H. Dienelt, Philadelphia, Pa. Shelf-paper	34,987	Aug. 20	96	1639
Siegener, William F., assignor to H. Dienelt, Philadelphia, Pa. Paper dolly	35,016	Aug. 27	96	1847
Sierer, Joseph K., New York, N. Y. Tile	34,951	Aug. 13	96	1423
Silber, Chris, assignor to International Silver Co., Meriden, Conn. Handle for spoons, forks, or similar articles	34,774	July 16	96	626
Sill Stove Works. (See Clunies, Arthur B., assignor.)				
Simandy, Leopold, Colorado Springs, Colo. Tailor's pick	34,998	Aug. 13	96	1418
Simon, Nicholas, Neenah, Wis. Cheese-mold	34,726	July 2	96	206
Simon, Nicholas, Neenah, Wis. Cloth-holder for cheese-molds	34,758	July 9	96	416
Simons Bro. & Company. (See Fussell, Arthur S. S., assignor.)				
Simons Brother & Company. (See Weihman, Henry A., assignor.)	34,723	July 2	96	206
Simpson, Harry P., Pittsburg, Pa. Gas-stove leg				
Sirdar Rubber Company. (See MacLullich, James M., assignor.)	34,855	July 23	96	833
Skinner, John J., Paso Robles, Cal. Moldboard for plows				
Slaymaker, Samuel R., and G. M. Miller, Lancaster, Pa.; said Miller assignor to said Slaymaker. Padlock	34,998	Aug. 27	96	1843
Smith, Datus C., New York, N. Y. Barbed fence-wire	34,715	July 2	96	204
Smith, Datus C., New York, N. Y. Barbed fence-wire	34,838	July 23	96	829

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Smith, Dotus C., New York, N. Y. Barbed fence-wire	34,900	Aug. 6	96	1229
Smith, Edward C., Canton, Ohio. Vaporizer for incandescent lamps	34,821	July 23	96	827
Smith, Frank W., Gardner, Mass. Handle for spoons or similar articles	34,917	Aug. 13	96	1417
Smith, Harry J., assignor to Alberger Company, Buffalo, N. Y. Gas-engine frame or casing	34,935	Aug. 13	96	1420
Smith & Hemenway Company. (See Tower, Henry M., assignor.)				
Smith, Nathan, assignor of one-half to J. F. Kenah, Elizabeth, N. J. Support for hammocks	34,791	July 16	96	629
Smith, Perry C., Indianapolis, Ind. Cream-separator	34,727	July 2	96	207
Smith, Walthall R., Napa, Cal. Hair-pin	34,960	Aug. 27	96	1842
Smith, William T., Philadelphia, Pa. Woven fabric	34,734	July 2	96	208
Smith, William T., Philadelphia, Pa. Woven fabric	34,735	July 2	96	208
Smith, William T., Philadelphia, Pa. Woven fabric	34,736	July 2	96	208
Smith, William T., Philadelphia, Pa. Woven fabric	34,737	July 2	96	208
Smith, William T., Philadelphia, Pa. Woven fabric	34,738	July 2	96	209
Smith, William T., Philadelphia, Pa. Woven fabric	34,739	July 2	96	209
Snow, Andrew, Jr., New Bedford, Mass. Glass receptacle	35,062	Sept. 10	96	2218
Soderstrom, Oscar, Newark, N. J. Picture-frame	35,061	Sept. 10	96	2218
Sorensen, Soren, assignor to A. J. Lindemann and Hoverson Co., Milwaukee, Wis. Stove	34,911	Aug. 6	96	1230
Sparks, William A. (See Rappleyea and Sparks.)				
Spaulding, Suel J., Des Moines, Iowa. Display-frame for pasteboard boxes	35,122	Sept. 17	96	2402
St. Clair, Richard L. (See Reese and St. Clair.)				
Stanford, Joseph, Plumerville, Ark. Ax and saw-set	34,941	Aug. 13	96	1421
Stauffer, Benjamin G., Harrisburg, Pa. Electrotherapeutic device	34,964	Aug. 20	96	1635
Stebbins, Timothy, Davenport, Iowa. Casing for float-valves	34,948	Aug. 13	96	1422
Steugel, George J., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Carpet	35,052	Sept. 3	96	2052
Stewart, John W., Richmond, Va. Badge	35,018	Sept. 3	96	2046
Stickley, Gustave, Syracuse, N. Y. Library table-desk	35,044	Sept. 3	96	2051
Stickley, Gustave, Syracuse, N. Y. Table	35,045	Sept. 3	96	2051
Stickley, Gustave, Syracuse, N. Y. Chair-body	35,082	Sept. 10	96	2221
Stifel, Edward W. (See Stifel, William F., E. W., and H. G.)				
Stifel, Henry G. (See Stifel, William F., E. W., and H. G.)				
Stifel, William F., E. W., and H. G., Wheeling, W. Va. Fabric	35,125	Sept. 17	96	2403
Stoeber, George, O'Brien county, Iowa. Spring for binder-decks	34,794	July 16	96	630
Strater, Herman, Boston, Mass. Faucet-handle	34,864	July 30	96	1025
Stuckey, William T. (See Jones and Stuckey.)				
Swenson, Johan P., Chicago, Ill. Spool-holder	34,873	July 30	96	1027
Swigart Optical Company. (See Jones, William A., assignor.)				
Sykes, Payson T., Auburn, Me. Cigar or cigarette holder	35,023	Sept. 3	96	2047
Symons, Wilson E., Savannah, Ga. Brake-beam	35,033	Sept. 3	96	2049
Symons, Wilson E., Savannah, Ga. Brake-beam	35,105	Sept. 17	96	2399
Tavenner, James W., Bloomington, Ill. Game-board	35,118	Sept. 17	96	2401
Taylor, Columbus W., Huntington, W. Va. Nut-lock washer	34,939	Aug. 13	96	1420
Taylor, Henry H., Bridgeport, Conn. Waist-extender	34,875	July 30	96	1027
Telfer, John C., Kansas City, Mo. Lacing-stud blank	34,819	July 23	96	827
Thatcher, Frederick B., Providence, R. I. Bottle-stopple	34,955	Aug. 20	96	1634
Theberath, John H., Vailsburg, assignor to Bippart, Griscom & Osborn, Newark, N. J. Frame for brooches or pendants	34,703	July 2	96	203
Thomas, Walter, assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Carpet	35,053	Sept. 3	96	2052
Thompson, George, Vincennes, Ind. Stove	34,724	July 2	96	206
Timms, James, Columbus, Ohio. Locking-block for car-couplings	34,972	Aug. 20	96	1637
Tinkham, Willard, deceased; W. S. Tinkham, Situate, R. I., administrator. Harness-awl	35,101	Sept. 17	96	2396
Tinkham, Willard S., administrator. (See Tinkham, Willard.)				
Toepel, Michael E., F. B. Widmayer, and A. Potdevin, New York, N. Y. Casing for hydrocarbon-motors	35,005	Aug. 27	96	1845
Tonnemann, Max, Brooklyn, N. Y. Souvenir-plate	34,958	Aug 20	96	1635
Tower, Henry M., Spencer, Mass., assignor to Smith & Hemenway Company, New York, N. Y. Razor-case	34,748	July 9	96	414
Travers, Charles J., assignor to Gilson Manufacturing Company, Port Washington, Wis. Chair-hub plate	35,111	Sept. 17	96	2400
Tuckey, Henry W., San Francisco, and L. W. Kline, Alameda, Cal. Badge	35,056	Sept. 10	96	2217
Union Special Sewing Machine Co. (See Woodward, Russel G., assignor.)				
Van Buren, Jafew S., Albany, N. Y. Stove	34,950	Aug. 13	96	1423
Van Orden, John M., Newark, N. J. Corset	34,808	July 16	96	632
Vanderbilt, Cornelius, New York, N. Y. Locomotive-tender body or similar article	34,765	July 9	96	417
Victor Rubber Company. (See Webb, John G., assignor.)				
Wagandt, Charles L., Baltimore, Md., assignor to National Enameling & Stamping Co., of New Jersey. Grater	34,806	Aug. 6	96	1228
Wagner, Edward, assignor to Model Bottling Machinery Company, St. Louis, Mo. Bottle-holder	35,063	Sept. 10	96	2218
Wagner, Edward, assignor to Model Bottling Machinery Company, St. Louis, Mo. Bottle-holder	35,126	Sept. 17	96	2402
Wallace, Henry L., Wallingford, Conn. Handle for spoons, forks, or similar articles	34,812	July 23	96	826
Walsh, Arthur Q., New York, N. Y. Pipe	34,749	July 9	96	41
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,839	July 23	96	830
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,840	July 23	96	830
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,841	July 23	96	831
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,842	July 23	96	831
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,843	July 23	96	831
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,844	July 23	96	831
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,845	July 23	96	831
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	34,846	July 23	96	831
Wantling, Isaac, Peoria, Ill. Anchor for drilling-machines	34,965	Aug. 20	96	1636
Wantling, Isaac, Peoria, Ill. Anchor for drilling-machines	35,062	Sept. 3	96	2048
Ward, Almon G., and G. E. Day, Warren, Ohio. Bath-tub leg	34,976	Aug. 20	96	1637
Ward, Lee, Yancey, Tex. Antirattler for wagon-bodies	34,830	July 23	96	829
Wardell, Fred. (See Watson, Nelson M., assignor.)				
Washburne, James V., Waterbury, Conn. Safety-pin	34,899	Aug. 6	96	1227
Washburne, James V., Waterbury, Conn. Safety-pin	34,900	Aug. 6	96	1227
Washburne, James V., Waterbury, Conn. Safety-pin	34,901	Aug. 6	96	1227
Washburne, James V., Waterbury, Conn. Safety-pin	34,902	Aug. 6	96	1227
Watson, David W., assignor to E. West, Syracuse, N. Y. Knit fabric	34,952	Aug. 13	96	1423
Watson, Nelson M., assignor to F. Wardell, Detroit, Mich. Case for coin-controlled mechanism	34,754	July 9	96	1
Webb, John G., assignor to Victor Rubber Company, Springfield, Ohio. Vehicle-tire channel-rim	34,973	Aug. 20	96	1637
Weihman, Henry A., Philadelphia, Pa., assignor to Simons, Brother & Company. Back for brushes or similar articles	34,813	July 23	96	826
Weihman, Henry A., Philadelphia, Pa., assignor to Simons, Brother & Company. Back for brushes or similar articles	34,814	July 23	96	826
Weisgerber, Charles H., Philadelphia, Pa. Spoon	34,747	July 9	96	14

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

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Weisgerber, Harry E., Atlantic City, N. J. Rolling chair	35,043	Sept. 3	96	2050
West, Eugene. (See Watson, David W., assignor.)				
West, George R., Wilkinsburg, Pa. Plate	34,711	July 2	96	204
West, Thomas, Plymouth, Pa. Stocking or similar article	34,770	July 9	96	
Wheeler, Harold L., Buffalo, N. Y. Cup	34,918	Aug. 13	96	1417
White, Howard, Burmont, Pa. Ventilator-bar	35,006	Aug. 27	96	1845
Widmayer, Frank B. (See Toepel, Widmayer, and Potdevin.)				
Wilbraham, Catherine V., New York, N. Y. Puzzle-box	34,806	July 16	96	632
Wilcox, Harry W. (See Beach and Wilcox.)				
Willenburg, Louis J., Springvalley, Ohio. Barrel-truck	35,064	Sept. 3	96	2049
Williams, Charles E., Sheridan, Pa. Envelop-blank	34,777	July 16	96	627
Wilson, James G., New York, N. Y. Shutter-slat	34,967	Aug. 20	96	1636
Wilson, Thomas J., Stephenville, Tex. Ant-trap	34,927	Aug. 13	96	1418
Wittnauer, Albert, New York, N. Y. Brooch	34,959	Aug. 27	96	1842
Wolverton, Washington I., assignor to Buckeye Manufacturing Company, Anderson, Ind. Whiffletree-clip member	34,980	Aug. 13	96	1419
Wolverton, Washington I., assignor to Buckeye Manufacturing Company, Anderson, Ind. Whiffletree-clip member	34,981	Aug. 13	96	1419
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Co., Chicago, Ill. Sewing-machine needle-lever	34,728	July 2	96	207
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Co., Chicago, Ill. Sewing-machine needle-lever	34,729	July 2	96	207
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Co., Chicago, Ill. Sewing-machine frame	34,730	July 2	96	207
Woodward, Thomas J., Birmingham, assignor to Chance Brothers and Co., Limited, West Smethwick, near Birmingham, England. Plate-glass	34,847	July 23	96	831
Wray, John H., assignor of one-half to S. M. Dietz, Danville, Pa. Knife	34,897	Aug. 6	96	1228
Wright, George L. (See Goodwin, Lyman O., assignor.)				
Wunderle, Philip. (See Renninger, George, assignor.)				
Ziegler, Alfred M., Boston, Mass. Slide-buckle	34,962	Aug. 20	96	1635

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. Beller & Co., New York, N. Y. Skirts, capes, coats, cloaks, mantles, and waists	36,819	July 30	96	1030
A. Beller & Co., New York, N. Y. Skirts, capes, coats, cloaks, mantles, and waists	36,820	July 30	96	1030
A. H. Heisey & Co., Newark, Ohio. Pressed glassware	36,860	Aug. 6	96	1232
Addressograph Co., Chicago, Ill. Certain named machines	37,119	Sept. 24	96	2570
Afco Chemical Co., Jacksonville, Fla. Medicine for certain named diseases	36,966	Aug. 27	96	1850
Aktienbrauerei Zum Löwenbräu in München, Munich, Germany. Certain named beverages	36,925	Aug. 20	96	1642
Alexandre, Louis, London, England. Hair-dyes	36,915	Aug. 20	96	1641
Alpers, William C., New York, N. Y. Internal remedy in solid form	36,754	July 16	96	635
Ambrogi, Raffaello, Baltimore, Md. Medicine for certain named diseases	36,718	July 9	96	421
American Bicycle Company, Jersey City, N. J., and New York, N. Y. Mechanically-propelled vehicles except bicycles	37,025	Sept. 3	96	2056
American Bicycle Company, Jersey City, N. J., and New York, N. Y. Mechanically-propelled vehicles	37,026	Sept. 3	96	2056
American Compressed Food Co., Passaic, N. J. Compressed foods	36,683	July 2	96	212
American Compressed Food Co., Passaic, N. J. Compressed foods	36,684	July 2	96	212
American Consolidated Pine Fibre Company, New York, N. Y. Certain named pine-tree products	36,865	Aug. 6	96	1233
American Lucol Company, New York, N. Y. Paint	37,014	Sept. 3	96	2055
American Medicine Co., Waterbury, Conn. Preparation for certain named diseases	37,068	Sept. 17	96	2404
American Mineral Water Machine Co., New York, N. Y. Certain named bottled liquids	36,837	July 30	96	1031
American Sugar Refining Co., New York, N. Y. Hard sugar	37,051	Sept. 10	96	2225
American Sugar Refining Co., New York, N. Y. Hard sugar	37,082	Sept. 17	96	2405
American Sugar Refining Company, New York, N. Y. "A" sugar	36,678	July 2	96	211
Amsinck & Co., G., New York, N. Y. Coffee	36,935	Aug. 20	96	1643
Animal Trap Co., Abingdon, Ill. Certain named animal-traps	37,090	Sept. 17	96	2406
Ansted & Burk Co., Springfield, Ohio. Flour	37,116	Sept. 24	96	2570
Antikamnia Chemical Company, St. Louis, Mo. Medicinal tablets	37,071	Sept. 17	96	2404
Arkell Safety Bag Company, New York, N. Y. Paper bags and barrel-linings	36,798	July 23	96	836
Arkwright Mills, Spartanburg, S. C. Sheetings and drillings	36,954	Aug. 27	96	1848
Aspegren & Co., New York, N. Y. Seed-oils, lard, syrup, and honey	36,936	Aug. 20	96	1643
Aspegren & Co., New York, N. Y. Lard, syrup, and honey	36,937	Aug. 20	96	1643
Aspegren & Co., New York, N. Y. Oils, lard, syrup, dried and canned fruits, and honey	36,938	Aug. 20	96	1643
Aspegren & Co., New York, N. Y. Oils, lard, syrup, dried and canned fruits, and honey	36,939	Aug. 20	96	1644
Aspegren & Co., New York, N. Y. Seed-oils, lard, syrup, dried and canned fruits, and honey	36,940	Aug. 20	96	1644
Aspegren & Co., New York, N. Y. Seed-oils, lard, syrup, dried and canned fruits, and honey	36,941	Aug. 20	96	1644
Aspegren & Co., New York, N. Y. Cotton-seed oil and lard	37,092	Sept. 17	96	2406
Atlantic Match Co., Philadelphia, Pa. Matches	36,945	Aug. 20	96	1644
Atlantic Match Co., Philadelphia, Pa. Matches	36,946	Aug. 20	96	1644
Atlantic Match Co., Philadelphia, Pa. Matches	36,947	Aug. 20	96	1644
Atlas Portland Cement Co., New York, N. Y. Portland cement	36,987	Aug. 27	96	1852
B. Muratti, Sons & Co., Limited, Manchester, England. Smoking-tobacco, chewing-tobacco, cigars, cheroots, and cigarettes	37,112	Sept. 24	96	2570
B. Muratti, Sons & Co., Limited, Manchester, England. Smoking-tobacco, chewing-tobacco, cigars, cheroots, and cigarettes	37,113	Sept. 24	96	2570
Baer, Louis, New York, N. Y. Certain named wearing-apparel	36,664	July 2	96	210
Barnhart Bros. & Spindler, Chicago, Ill. Certain named printers' supplies	36,767	July 16	96	636
Barton, Ella M., Poughkeepsie, N. Y. Remedy for asthma	36,750	July 16	96	635
Batcheller, George C., New York, N. Y. Corsets	36,822	July 30	96	1030
Batcheller, George C., New York, N. Y. Corsets	36,823	July 30	96	1030
Bausher, Thomas D., Reading, Pa. Certain named fire-kindlers	36,686	July 2	96	212
Bausher, Thomas D., Reading, Pa. Fuel	36,858	July 30	96	1032
Beaumont et Fils, S., Roubaix, France. Hair-pins	36,960	Aug. 27	96	1849
Belknap & Co., W. B., Louisville, Ky. Guns	36,876	Aug. 6	96	1231
Bell, Hector J., St. Paul, Minn. Liquid anesthetic	36,672	July 2	96	211
Bergmann, Henry H., St. Louis, Mo. Candles	36,685	July 2	96	212
Bergwall, Victor, Worcester, Mass. Certain named medical compounds and toilet preparations	36,744	July 16	96	634
Binney & Smith, New York, N. Y. Blacks and colors	37,013	Sept. 3	96	2055
Bird & Co., J. A. & W., Boston, Mass. Roofing-felt	36,828	July 30	96	1031
Black Hawk Coffee & Spice Co., Waterloo, Iowa. Baking-powder	36,932	Aug. 20	96	1643
Black Hawk Coffee & Spice Co., Waterloo, Iowa. Spices	36,933	Aug. 20	96	1643
Black Hawk Coffee & Spice Co., Waterloo, Iowa. Coffee and tea	36,934	Aug. 20	96	1643
Blue Lick Springs Co., Blue Lick Springs and Carlisle, Ky. Mineral water	36,978	Aug. 27	96	1851
Blue Seal Supply Co., Boston, Mass. Non-alcoholic beverage	37,042	Sept. 10	96	2224
Bofiay Camera and Chemical Co., Newark, N. J. Cameras and photographic solutions	37,064	Sept. 17	96	2403
Bradley & Co., Hong Kong, China. Flour	36,805	July 23	96	837
Brandram Brothers & Co., Ld., London, England. White lead, saltpeter, brimstone roll, and flowers of sulfur	36,892	Aug. 13	96	1425
Bridgeport Crucible Co., Bridgeport, Conn. Crucibles	36,811	July 23	96	838
Bristol Door & Lumber Co., Boston, Mass. Certain named exterior and interior wooden finish for buildings	36,858	Aug. 6	96	1232
Brown, Wm., Sutton, Canada. Certain named internal and external remedies	36,716	July 9	96	421
Browning, Ira L., Rich, W. Va. Proprietary medicines	36,669	July 2	96	210
Bruns, Benjamin J., San Francisco, Cal. Certain named medicinal preparations and soap	36,961	Aug. 27	96	1849
Bull, Henry, Belleville, Canada. Compound for the cure of kidney diseases	36,848	July 30	96	1032
Butler, Annie S., London, England. Perfumed soaps and toilet preparations	37,075	Sept. 17	96	2404
California Manufacturing Co., San Francisco, Cal. Sash-weights	37,095	Sept. 17	96	2406
Calumet Tea & Coffee Co., Chicago, Ill. Baking-powder	36,832	July 30	96	1031
Canfield Rubber Co., Bridgeport, Conn., and New York, N. Y. Dress-shields	36,821	July 30	96	1030
Carnrick, John, New York, N. Y. Coffee compound	36,677	July 2	96	211
Carrara Paint Company, Chicago, Ill. Paints and pastes for paints	36,851	July 30	96	1032
Carruthers-Jones Shoe Co., Memphis, Tenn. Leather boots and shoes	37,106	Sept. 24	96	2569
Carson, Edgar F., South Bend, Ind. Game-boards	36,881	Aug. 13	96	1424
Carthage Tobacco Works, Carthage, Tenn. Smoking and chewing tobacco	36,873	Aug. 6	96	1234

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Catton, Bell & Co., San Francisco, Cal. Canned goods	36,889	Aug. 13	96	1425
Celluloid Company, Newark, N. J., and New York, N. Y. Collars, cuffs, shirt fronts, and bosoms	36,824	July 30	96	1030
Cereal Sugar Co., St. Louis, Mo. Sugar	36,765	July 16	96	636
Chadwick, Burg, Smethport and Bradford, Pa. Certain named medical compounds	36,753	July 16	96	635
Chapman Manufacturing Co., Chicago, Ill. Stomach and blood remedies	37,069	Sept. 17	96	2401
Charavet, Victor F. G., Paris, France. Toothpicks	36,758	July 16	96	636
Charleston Export & Commission Co., Charleston, S. C. Yarns, threads, and twine	36,932	Aug. 27	96	1848
Cheatham, William B., Baltimore, Md. Canned fruits, meats, and vegetables	37,006	Sept. 3	96	2054
Cheek, Norton, and Neal, Nashville, Tenn. Coffee	37,084	Sept. 17	96	2405
Chipman, William A., New York, N. Y. Sewing-machines and attachments	37,097	Sept. 17	96	2406
Clark and Compy., Limited, Paisley, Scotland. Spool-cotton or cotton thread	36,907	Aug. 20	96	1641
Clark and Compy., Limited, Paisley, Scotland. Spool-cotton or cotton thread	36,908	Aug. 20	96	1641
Clark, Henry S., New York, N. Y. Respiratory sedative and tonic	37,010	Sept. 3	96	2055
Clark Mile-End Spool Cotton Co., Newark, N. J. Sewing-thread	37,063	Sept. 17	96	2403
Clark & Weinberg, New York, N. Y. Fur and fabric garments	37,103	Sept. 24	96	2569
Classic Corset Company, Chicago, Ill. Corsets, corset-waists, bust-supporters, and stays	36,897	Aug. 20	96	1640
Classic Corset Company, Chicago, Ill. Bust girdles and stays for athletic and negligée wear	36,992	Sept. 3	96	2053
Clifford Chemical Co., Milwaukee, Wis. Tonic	36,674	July 2	96	211
Coats, J. & P., Limited, Paisley, Scotland. Spool-cotton or cotton thread	36,903	Aug. 20	96	1640
Coats, J. & P., Limited, Paisley, Scotland. Spool-cotton or cotton thread	36,904	Aug. 20	96	1640
Coats, J. & P., Limited, Paisley, Scotland. Spool-cotton or cotton thread	36,905	Aug. 20	96	1640
Coats, J. & P., Limited, Paisley, Scotland. Spool-cotton or cotton thread	36,906	Aug. 20	96	1640
Cobbs & Mitchell, Incorporated, Cadillac, Mich. Manufactured maple flooring	37,093	Sept. 17	96	2406
Collins Company, Collinsville, Conn. Axes, adzes, bush-hooks, and machetes	36,894	Aug. 13	96	1425
Colonial Biscuit Co., Philadelphia, Pa. Crackers, cakes, cookies, biscuits, bread, and pies	36,868	Aug. 6	96	1233
Columbian Photo Paper Co., Chicago, Ill. Photographic printing-paper	36,827	July 30	96	1030
Combination Rubber and Belting Company, New York, N. Y., and Bloomfield, N. J. Rubber packing, tubing, and hose	36,949	Aug. 20	96	1644
Conkling, Allen, Chicago, Ill. Toilet soap	37,111	Sept. 24	96	2570
Conron Bros., New York, N. Y. Chickens, turkeys, ducks, and geese	36,984	Aug. 27	96	1852
Continental Creamery Company, Denver, Colo., and Topeka, Kans. Butter and cheese	37,052	Sept. 10	96	2225
Cook Remedy Company, Chicago, Ill. Preparations for the treatment of a certain named disease	36,967	Aug. 27	96	1850
Cooper Underwear Co., Kenosha, Wis. Underwear, excepting therefrom hosiery	37,105	Sept. 24	96	2570
Cota, Napoleon, Burlington, Vt. Certain named liquid preparation	37,089	Sept. 10	96	2224
Coventry Company, Providence, R. I. Cotton goods	36,700	July 9	96	420
Crane, Joshua, Jr., Boston, Mass. Gas-burners	36,810	July 23	96	838
Crawford, William, New York, N. Y. Shoes	36,998	Sept. 3	96	2053
Crescent Bakery, Duluth, Minn. Bread, rolls, cake, pies, buns, and biscuits	36,809	July 23	96	837
Crocker, Eugene B., Providence, R. I. Certain named goods made of paper-pulp	36,826	July 30	96	1030
Crown Cordial & Extract Co., New York, N. Y. Prepared fruits and extracts from fruits	36,979	Aug. 27	96	1851
Crump's Manufacturing Company, West Bay City, Mich. Wooden pulleys	36,893	Aug. 13	96	1425
D. E. Wood Butter Co., Elgin, Ill. Butter	36,679	July 2	96	211
Dandicolle & Gaudin, Ld., London, England, and Bordeaux, France. Wines	36,838	July 30	96	1031
Davis Lead Company of Pittsburgh, Pittsburg, Pa. Lead	37,053	Sept. 10	96	2226
Deutsch, William M., Newark, N. J. Filters and filtration systems	36,895	Aug. 13	96	1426
Dodson-Braun Mfg. Co., St. Louis, Mo. Catsup	36,723	July 9	96	422
Dorsey, Jeremiah S., Columbia, Mo. Cough remedies	36,671	July 2	96	211
Doughten, Henry W., Moorestown, N. J. Insecticides	36,709	July 9	96	421
Dow, Frederick L., Haverhill, Mass. Men's and women's turn and welt shoes	36,738	July 16	96	633
Dr. J. C. Brown Medical Co., Albany, N. Y. Medicines for certain named diseases	37,108	Sept. 24	96	2570
Dr. Wilson Company, Baltimore, Md. Pills	36,919	Aug. 20	96	1642
Dreyfuss, Abraham, New York, N. Y. Disinfectants and deodorizers	37,076	Sept. 17	96	2404
Duquesne Brewing Co., Pittsburg, Pa. Lager beer	36,762	July 16	96	636
Duryea & Potter, New York, N. Y. Certain named glass	36,879	Aug. 13	96	1424
E. C. Atkins & Company, Indianapolis, Ind.; Memphis, Tenn.; Minneapolis, Minn.; Atlanta, Ga., and Portland, Oreg. Saws	36,832	July 30	96	1032
E. Cusenier Fils Aîné & Cie., Paris, Ornans, Charenton, and Marseilles, France; Mulhouse, Germany, and Brussels, Belgium. Brandy	36,816	July 23	96	838
E. Cusenier Fils Aîné & Cie., Paris, Ornans, Charenton, and Marseilles, France; Mulhouse, Germany, and Brussels, Belgium. Absinthe	36,872	Aug. 6	96	1233
E. Cusenier Fils Aîné & Cie., Paris, Ornans, Charenton, and Marseilles, France; Mulhouse, Germany, and Brussels, Belgium. Curaçao	36,887	Aug. 13	96	1425
Eastman Kodak Co., Rochester, N. Y. Platinum printing-out paper for photographic purposes	36,910	Aug. 20	96	1641
Eberle & Cie., J. N., Augsburg, Germany. Saws	37,094	Sept. 17	96	2406
Edgar Allen & Co., Limited, Sheffield, England. Steel	36,771	July 16	96	637
Edgar Allen & Co., Limited, Sheffield, England. Certain named tools and devices	36,772	July 16	96	637
Elbert & Gardner, New York, N. Y. Evaporated apples	36,722	July 9	96	422
Embalmers Supply Co., Westport, Conn. Liquid disinfectants	36,799	July 23	96	836
England, Henry C., Reading, Pa. Coaster-brakes	36,688	July 2	96	212
Eucaline Medicine Co., Dallas, Tex. Remedy for certain named diseases	36,968	Aug. 27	96	1850
F. R. Penn Tobacco Company, Reidsville, N. C. Plug-tobacco	36,841	July 30	96	1032
Fair Oaks Ranch Co., Lamanda, Cal. Wines	36,839	July 30	96	1031
Fanning, Frederick F., Providence, R. I. Proprietary medicine	36,885	Aug. 13	96	1424
Farbenfabriken of Elberfeld Co., New York, N. Y. Antipyretic and antiperiodic	37,011	Sept. 3	96	2055
Fearon, Daniel & Co., New York, N. Y. Gray and bleached sheetings, shirtings, drills, and jeans	36,787	July 23	96	835
Figprune Cereal Co., San Jose, Cal. Cereal preparation to be used as a beverage	37,040	Sept. 10	96	2224
Fort Orange Paper Company, Castleton, N. Y. Certain named paper	36,703	July 9	96	420
Fowler, Frank C., Moodus, Conn. Liquid hair-restorers	37,073	Sept. 17	96	2404
Frank G. Jones Shoe Co., Memphis, Tenn. Boots, shoes, and leather	36,696	July 9	96	419
Frank G. Jones Shoe Co., Memphis, Tenn. Boots, shoes, and leather	36,697	July 9	96	419
Frederick Stearns & Co., Detroit, Mich. Perfumery	37,007	Sept. 3	96	2054
Freiberg & Workum, Cincinnati, Ohio. Dry feed	36,764	July 16	96	636
Frey, Francis E., Lovettsville, Va. Brandy, whisky, wine, and gin	36,719	July 9	96	421
Fuchs & Lang Mfg. Co., New York, N. Y. Printing and lithographic inks	36,768	July 16	96	637
Geer Drug Co., Charleston, S. C. Certain named medical preparation	36,752	July 16	96	635
General Electric Company, Schenectady, N. Y. Portable photometric apparatus	36,989	Aug. 27	96	1852
Geo. W. Scott Investment Co., Atlanta, Ga. Sheetings and drills	36,788	July 23	96	835
George Lorenz Company, East Orange, N. J., and Toledo, Ohio. Certain named perfumery	36,779	July 16	96	638
Gerstendörfer Bros., New York, N. Y. Enamels, paints, varnishes, and stains	36,776	July 16	96	637
Gill Brothers and Company, Steubenville, Ohio. Glass lamp-chimneys, glass reflectors, and glass lantern-globes	36,725	July 9	96	422
Gillum & Rudy, Philadelphia, Pa. Combs	36,691	July 9	96	419
Goode, Thomas F., Buffalo Lithia Springs, Va. Mineral water	36,926	Aug. 20	96	1642
Goodluck Manufacturing Company, Chicago, Ill. Horseshoes	37,027	Sept. 3	96	2056
Graham, Robert, Pitlair, county of Fife, Scotland. Certain named food substances and ingredients and cereal beverages	36,720	July 9	96	422

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Grand Rapids Plaster Co., Grand Rapids, Mich. Wall-plaster	37,054	Sept. 10	96	2226
Grand Rapids Sticky Fly Paper Company, Grand Rapids, Mich. Sticky fly-paper	36,969	Aug. 27	96	1850
Graves, Eugene E., Black River, N. Y. Household or indoor games	36,705	July 9	96	420
Green, Charles C., Battlecreek, Mich. Flaked oats	36,981	Aug. 27	96	1851
H. B. Claflin Company, New York, N. Y. Spool-cotton, spool-silk, linen thread, and dress-bindings	36,818	July 30	96	1030
H. B. Claflin Company, New York, N. Y. Sheetings and drillings	36,857	Aug. 6	96	1232
H. B. Claflin Company, New York, N. Y. Spool cotton and thread	36,991	Sept. 3	96	2053
Hamburger & Co., New York, N. Y. Toy building-bricks	37,018	Sept. 3	96	2056
Hamley Brothers, London, England. Game	36,854	Aug. 6	96	1232
Harris, Minnie M., Washington, D. C. Preparation for the hair	36,863	Aug. 6	96	1233
Harvey & Otis, Providence, R. I. Badges	36,730	July 16	96	633
Hayward, Joseph R., Christchurch, New Zealand. Baking-powder	37,081	Sept. 17	96	2405
Hecht & Son, S., New York, N. Y. Cutlery	36,773	July 16	96	637
Heinritz, Lebrecht G., Holyoke, Mass. Fly-paper	37,065	Sept. 17	96	2404
Hemphill, Robert H., Hattiesburg, Miss. Self-propelled carriages and wagons	36,815	July 23	96	838
Hilborn, Louis B., Newark, N. J. Optical apparatus and devices	36,661	July 2	96	210
Hill & Co., Thos. G., Manchester, England. Certain named dry goods	37,100	Sept. 24	96	2569
Hill & Co., Thos. G., Manchester, England. Certain named dry goods	37,101	Sept. 24	96	2569
Hill, Harry C., Buffalo, N. Y. Remedy for indigestion	36,751	July 16	96	635
Hoefelmayr, Karl, Kempten, Germany. Cheese, butter, and preparations of milk	37,003	Sept. 3	96	2054
Hoeninghaus & Curtiss, New York, N. Y. Velvet-face and satin-back ribbons	37,099	Sept. 24	96	2569
Hoffman, Edward L., Buffalo, N. Y. Hair-restorer	36,916	Aug. 20	96	1641
Hoffman & Son, C., Enterprise, Kans. Wheat-flour	36,806	July 23	96	837
Hoffman & Son, C., Enterprise, Kans. Wheat-flour	36,829	July 30	96	1031
Hoffmann-La Roche & Co., F., Basle, Switzerland, and Grenzach, Germany. Remedy for certain named diseases	36,729	July 9	96	422
Hollingsworth & Whitney Company, Boston, Mass. Paper and paper bags and sacks	36,794	July 23	96	836
Holzapfels Compositions Co., Limited, Newcastle-on-Tyne, England. Composition paint	37,117	Sept. 24	96	2570
Hoople, William H., New York, N. Y. Baking-powder	36,804	July 23	96	837
Horton, Frederick B., South Manchester, Conn. Tooth-powder	36,845	July 30	96	1032
Hough, Azel C., South Butler, N. Y. Woven fabric for shades, screens, and curtains	36,909	Aug. 20	96	1641
Howard Bros., Buffalo, N. Y. Eye-salves	36,673	July 2	96	211
Hrnjak, Maximilian, Allegheny, Pa. Remedy for lung and throat diseases	36,964	Aug. 27	96	1849
Hudson County Consumers Brewing Co., West Hoboken, N. J. Lager-beer, ale, and porter	36,675	July 2	96	211
Huet, L., & E. Ligier, Paris, France. Certain named fancy metallic articles	37,036	Sept. 10	96	2223
Hunt, William, Seattle, Wash. Pickles or preserves	36,803	July 23	96	837
Hunter, Harry A., Minneapolis, Minn. Ale, wine, stout, and beer	36,763	July 16	96	636
Hurt & Son, S. C., Lynchburg, Va. Wheat-flour	36,982	Aug. 27	96	1851
Hygienic Food Co., St. Joseph, Mich. Breakfast-food	36,721	July 9	96	422
Illinois Sewing Machine Company, Chicago, Ill. Sewing-machines	36,950	Aug. 20	96	1644
J. C. Grant Chemical Company, Chicago, Ill. Alum baking-powder	37,050	Sept. 10	96	2225
J. Ellwood Lee Co., Conshohocken, Pa. Suspensories	36,710	July 9	96	421
J. P. Smith Shoe Co., Chicago, Ill. Men's boots and shoes	36,994	Sept. 3	96	2053
Jacobson, Fritz, Brooklyn, N. Y. Medicine for certain named diseases and vaporizers for evaporating same	36,862	Aug. 6	96	1232
James H. Hamlen & Son, Portland, Me. Certain named cooperage	36,687	July 2	96	212
James S. Kirk & Company, Jersey City, N. J., and Chicago, Ill. Soap	37,037	Sept. 10	96	2224
Jammes, Albert F., New York, N. Y. Perfumery, toilet water, face-powders, and sachet-powders	37,038	Sept. 10	96	2224
Job, Maison Pierre B., Perpignan, France. Cigarette-papers	36,970	Aug. 27	96	1850
Job, Maison Pierre B., Perpignan, France. Cigarette-papers	36,971	Aug. 27	96	1850
John Player & Sons, Limited, Nottingham, England. Smoking-tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff	36,975	Aug. 27	96	1851
John S. Brittain Dry Goods Co., St. Joseph, Mo. Certain named fabrics	37,032	Sept. 10	96	2223
Johnson, Eldridge R., Camden, N. J. Talking-machines and accessories	36,774	July 16	96	637
Johnson, Robert H. N., London, England. Certain named medicine	36,713	July 9	96	421
Joseph Dixon Crucible Co., Jersey City, N. J. Graphite	37,016	Sept. 3	96	2055
Joseph Dixon Crucible Co., Jersey City, N. J. Graphite	37,017	Sept. 3	96	2056
Joy, Byron H., Chicago, Ill. Hand-stamp	37,021	Sept. 3	96	2056
Julsrud & Co., Waldemar, Mexico, Mexico. Tools	37,118	Sept. 24	96	2570
Kansas City Oat Meal & Cereal Company, Kansas City, Mo. Certain named grain food products	36,815	July 23	96	838
Kerfoot, William A., Chicago, Ill. Pumps and windmills and their parts and supplies and devices therefor	36,867	Aug. 6	96	1233
King & Hamilton Co., Ottawa, Ill. Detachable chain-links	36,990	Aug. 27	96	1852
Knoll & Co., Ludwigshafen, Germany. Tonic	36,662	July 2	96	210
Kops Bros., New York, N. Y. Corsets	36,747	July 16	96	634
Kryger, Henry H., Minneapolis, Minn. Paints	36,955	Aug. 27	96	1848
Kunhardt & Co., New York, N. Y. Wheat-flour	37,015	Sept. 3	96	2055
Kuppenheimer & Co., B., Chicago, Ill. Waterproof coats	36,807	July 23	96	837
La Manufacture Dijonnaise des Biscuits Pernot, Dijon, France. Biscuits	36,690	July 9	96	419
La Manufacture Dijonnaise des Biscuits Pernot, Dijon, France. Biscuits	36,929	Aug. 20	96	1642
Lacto-Marrow Company, New York, N. Y. Certain named medical compounds	36,930	Aug. 20	96	1643
Lambert & Butler, Limited, London, England. Smoking-tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff	37,066	Sept. 17	96	2404
Lanier, Howard S., Danville, Va. Overalls, jackets, trousers, and shirts	36,972	Aug. 27	96	1850
Lanier, Howard S., Danville, Va. Overalls, jackets, trousers, and shirts	36,997	Sept. 3	96	2053
Lansing Sugar Company, Lansing, Mich. Granulated sugar	36,998	Sept. 3	96	2053
Laxakola Company, New York, N. Y. Digestive tablets	37,005	Sept. 3	96	2054
Leggett & Co., Francis H., New York, N. Y. Olives	36,712	July 9	96	421
Lenau, Anna, Providence, R. I. Cough-syrup	36,888	Aug. 13	96	1425
Lerken Chemical Company, Dayton, Ohio. Medicinal preparations for internal use	36,795	July 23	96	836
Lieber, Albert, Indianapolis, Ind. Malt extracts and peptonized malt foods	36,886	Aug. 13	96	1425
Liebovitz & Son, S., New York, N. Y. Overshirts	36,866	Aug. 6	96	1233
Liebovitz & Son, S., New York, N. Y. Shirts	36,734	July 16	96	633
Ligier, E. (See Huet & Ligier.)	37,104	Sept. 24	96	2569
Liquid Ozone Co., Chicago, Ill. Proprietary medicines	36,670	July 2	96	211
Livengood, Elizabeth & I. V. Kalbaugh, Uniontown, Pa. Facial preparations	36,914	Aug. 20	96	1641
Livierato Bros., New York, N. Y. Brown cotton sheetings	36,878	Aug. 13	96	1424
Louis Auerbach, New York, N. Y. Neckties	36,692	July 9	96	419
Lowenstein & Bros., B., Memphis, Tenn. Certain named wearing-apparel	36,665	July 2	96	210
Lucas, Charles W., Walnut Springs, Tex. Blood-purifier	36,963	Aug. 27	96	1849
Lydia E. Pinkham Medicine Co., Saco, Me., and Lynn, Mass. Certain named medical compounds	36,796	July 23	96	836
M. C. Wetmore Tobacco Co., St. Louis, Mo. Smoking and chewing tobacco, cigars, cigarettes, and snuff	36,842	July 30	96	1032
M. C. Wetmore Tobacco Company, St. Louis, Mo. Smoking and chewing tobacco, cigars, cigarettes, and snuff	36,843	July 30	96	1032

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Macbeth-Evans Glass Company, Pittsburg, Pa. Lamp chimneys and globes, glass tubes, and solid glass pieces	36,986	Aug. 27	96	1852
Mahoning Novelty Co., Youngstown, Ohio. Atomizer	36,861	Aug. 6	96	1232
Marks, Rothenberg & Co., Meridian, Miss. Men's and women's shoes	36,957	Aug. 27	96	1848
Marks, Rothenberg & Co., Meridian, Miss. Men's and boys' shoes	36,958	Aug. 27	96	1848
Marks, Rothenberg & Co., Meridian, Miss. Men's and women's shoes	36,959	Aug. 27	96	1849
Marks, Rothenberg & Co., Meridian, Miss. Men's and women's shoes	37,029	Sept. 10	96	2223
Marten, Albert S., Newark, N. J. Amplifying-horns	36,882	Aug. 13	96	1424
Mattatuck Manufacturing Co., Waterbury, Conn. Upholsterers' nails, tacks, and buttons	36,812	July 23	96	888
Mattie Mitchell Co., Cleveland, Ohio. Certain named food products	36,690	July 2	96	212
Mattie Mitchell Co., Cleveland, Ohio. Wheat-flour	36,860	Aug. 13	96	1425
Mayflower Mills, Fort Wayne, Ind. Wheat-flour	36,830	July 30	96	1031
McNally, Andrew, Chicago, Ill., and La Mirada, Cal. Tonic	36,748	July 16	96	635
McRae & Bevill, Memphis, Tenn. Shoes	36,900	Aug. 20	96	1640
McVoy, Vincen P., Pensacola, Fla. Liniment	36,849	July 30	96	1032
Meadville, Pa., Distilling Co., Limited, Buffalo, N. Y. Spirituous liquors	36,976	Aug. 27	96	1851
Messimy & Co., Vincent de, Chicago, Ill. Edulcorants	36,834	July 30	96	1031
Meyerstein, Harry H., Washington, D. C. Whisky	36,977	Aug. 27	96	1851
Midvale Steel Co., Philadelphia, Pa. Certain named forgings	36,728	July 9	96	422
Miller, Sloss & Scott, San Francisco, Cal., and New York, N. Y. Sewing-machines	36,775	July 16	96	637
Milwaukee Dustless Brush Co., Milwaukee, Wis. Brushes	36,985	Aug. 27	96	1852
Minor & Son, P. W., Batavia, N. Y. Boots and shoes	36,825	July 30	96	1030
Miró, Elias, (Sociedad en Comandita,) Havana, Cuba. Lard	36,983	Aug. 27	96	1851
Mistrot, Felix E., Galveston, Tex. Shoes	36,693	July 9	96	419
Mistrot, Felix E., Galveston, Tex. Shoes	36,694	July 9	96	419
Mistrot, Felix E., Galveston, Tex. Shoes	36,901	Aug. 20	96	1640
Molassine Company, Ld., London, England. Food for stock and other animals	36,891	Aug. 13	96	1425
Moninger, John A., Kansas City, Mo. Toilet and shaving soap	36,706	July 9	96	420
Moon's Magnetic Medicine Co., Chattanooga, Tenn. Certain named medicines	36,714	July 9	96	421
Mountain Valley Springs Company, Hot Springs, Ark. Water	36,871	Aug. 6	96	1233
Mülhens & Kropff, New York, N. Y. Toilet soap, perfumes, toilet water, cosmetics, and face-powder	36,707	July 9	96	420
Mülhens & Kropff, New York, N. Y. Toilet soap, perfumes, toilet water, cosmetics, and face-powder	36,708	July 9	96	421
Mullen, Mary E., Columbus, Ohio. Hair-tonic	36,917	Aug. 20	96	1641
Murphy Chair Co., Detroit, Mich. Chairs	36,814	July 23	96	888
National Metal Co., Glasgow, Scotland. Antifriction metals	37,019	Sept. 3	96	2056
National Shoe Co., Inc., Boston, Mass. Shoes, boots, and slippers	36,698	July 9	96	419
Neuralgyline Company, Sistersville, W. Va. Internal headache remedies in tablet form	36,717	July 9	96	421
New Century Baking Powder Co., Sandy Hill, N. Y. Baking-powder	36,931	Aug. 20	96	1643
New Haven Clock Company, New Haven, Conn. Clocks	36,988	Aug. 27	96	1852
Newell Bros. Manufacturing Company, Springfield, Mass.; New York, N. Y., and Chicago, Ill. Vegetable-ivory trousers-buttons	36,603	July 2	96	210
Nice, Eugene E., Philadelphia, Pa. Glue	36,944	Aug. 20	96	1644
North, Sophia, Arlington, Mass. Remedy for scalp diseases and tonic for the scalp	37,074	Sept. 17	96	2404
Oak, Claus, Topeka, Kans. Bread	37,004	Sept. 3	96	2054
Octorine Chemical Co., Chicago, Ill. Certain named toilet preparations	36,913	Aug. 20	96	1641
"Oculariam" Ärztliches Institut für Augengläser, G. M. B. H., Berlin, Germany. Eyeglasses	37,078	Sept. 17	96	2408
Ogden's, Limited, Liverpool, England. Smoking-tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff	36,973	Aug. 27	96	1850
Ogden's, Limited, Liverpool, England. Smoking-tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff	36,974	Aug. 27	96	1850
Ohl, William, Peoria, Ill. Granular effervescing salts	36,711	July 9	96	421
Oklahoma Drug Co., Oklahoma City, Okla. Ter. Proprietary medicine	36,746	July 16	96	634
Old Hickory Chair Co., Martinsville, Ind. Rustic furniture	36,689	July 2	96	212
Ontario Cigar Co., Oswego, N. Y. Cigars	37,060	Sept. 17	96	2406
Orne, William P., Boston, Mass. Laundry-tablet	37,079	Sept. 17	96	2405
Packard and Field, Brockton, Mass. Boots and shoes and leather	37,031	Sept. 10	96	2223
Page & Sandeman, London, England. Apricot brandy	36,840	July 30	96	1032
Parker, Holmes & Co., Boston, Mass. Certain named footwear	36,739	July 16	96	633
Pass Packing Company, Pass Christian, Miss. Certain named provisions	36,943	Aug. 20	96	1644
Passavant, Frères, St. Etienne, France. Ribbons	36,953	Aug. 27	96	1848
Pasteur Vaccine (United States and Canada) Company, Limited, London, England, and Chicago, Ill. Rodent virus	36,798	July 23	96	836
Paulus & Co., Jos. C., Philadelphia, Pa. Leather, canvas, or composition belts	36,790	July 23	96	836
Peek, Walter K., New York, N. Y. Tooth-powder, tooth-paste, or tooth-wash	37,072	Sept. 17	96	2404
Pendás & Alvarez, Y., New York, N. Y. Cigars, cigarettes, and smoking and chewing tobacco	37,044	Sept. 10	96	2224
Pendás & Alvaraz, Y., New York, N. Y. Cigars, cigarettes, and smoking and chewing tobacco	37,045	Sept. 10	96	2225
Pendás & Alvarez, Y., New York, N. Y. Cigars	37,046	Sept. 10	96	2225
Pendás & Alvarez, Y., New York, N. Y. Cigars	37,047	Sept. 10	96	2225
Pendás & Alvarez, Y., New York, N. Y. Cigars	37,048	Sept. 10	96	2225
Pendás & Alvarez, Y., New York, N. Y. Cigars	37,049	Sept. 10	96	2225
Pennsylvania Bottling & Supply Co., Ltd., Philadelphia, Pa. Carbonated or non-alcoholic beverages	37,041	Sept. 10	96	2224
Pennsylvania Match Co., Bellefonte, Pa. Matches	36,759	July 16	96	636
Pennsylvania Match Co., Bellefonte, Pa. Matches	36,760	July 16	96	636
Perdue, Levi W., Wilmot, Ark. Antimalarial remedies	36,992	Aug. 27	96	1849
Perroud, André, Lyons, France. Perfumery	36,844	July 30	96	1032
Peter's Nachfolger, F., Vienna, Austria-Hungary. Collars, cuffs, and shirt-fronts, (plastrons)	36,733	July 16	96	633
Pettifer & Sons, Stephen, Malmesbury, England. Medicinal preparation for sheep and cattle	37,012	Sept. 3	96	2055
Phenix Chemical Works, Brooklyn, N. Y. Paints, stains, or lacquers	36,801	July 23	96	837
Pioneer Implement Co., Council Bluffs, Iowa. Certain named agricultural implements and vehicles	37,028	Sept. 3	96	2056
Portland Packing Co., Portland, Me. Canned goods	37,091	Sept. 17	96	2406
Potter Drug & Chemical Corporation, Boston, Mass. Resolvent	36,920	Aug. 20	96	1642
Potter Drug & Chemical Corporation, Boston, Mass. Ointment	36,921	Aug. 20	96	1642
Prom, Brynjolf, Milton, N. D. Certain named medical compound	36,715	July 9	96	421
Raynor & Perkins Envelope Company, New York, N. Y. Bond writing-paper and envelops	36,855	Aug. 6	96	1232
Recco Pharmacal Co., Worcester, Mass. Medical compounds for internal use	36,735	July 16	96	635
Reed & Barton, Taunton, Mass. Silverware and tableware	36,890	Aug. 13	96	1424
Rees & Fineman, Minneapolis, Minn. Whisky	37,043	Sept. 10	96	2224
Reisinger, Hugo, New York, N. Y. Carbons for electrical purposes	36,875	Aug. 6	96	1234
Remick, George E., St. Louis, Mo. Remedy for skin and blood diseases	37,107	Sept. 24	96	2570
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes and leather for same	36,995	Sept. 3	96	2053
Richmond, Samuel A., San Francisco, Cal. Hair-tonic or hair-renewer	36,745	July 16	96	634
Rindge, Kalmbach, Logie & Co., Grand Rapids, Mich. Shoes, slippers, and boots	37,069	Sept. 17	96	2 03

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Robins, Charles A., La Crosse, Wis. Liniment	36,922	Aug. 20	96	1642
Roger Williams Silver Company, Providence, R. I. Certain named metal ware	36,769	July 16	96	637
Roger Williams Silver Company, Providence, R. I. Certain named metal ware	36,770	July 16	96	637
Rogers & Hubbard Co., Middletown, Conn. Certain named bone goods	37,020	Sept. 3	96	2056
San Antonio Brewing Ass'n., San Antonio, Tex. Malt liquors	37,086	Sept. 17	96	2405
San Antonio Brewing Ass'n., San Antonio, Tex. Malt liquors	37,087	Sept. 17	96	2406
San Antonio Brewing Ass'n., San Antonio, Tex. Malt liquors	37,088	Sept. 17	96	2406
San Antonio Brewing Ass'n., San Antonio, Tex. Malt liquors	37,089	Sept. 17	96	2406
Sanford Manufacturing Company, Chicago, Ill. Ink	36,850	July 30	96	1032
Sanford Mfg. Co., Chicago, Ill. Paste, mucilage, glue, and ink	36,883	Aug. 13	96	1424
Sarason, Leopold, Berlin, Germany. Concentrated albuminous food	36,831	July 30	96	1031
Schenck, Joseph H., Philadelphia, Pa. Certain named medical compounds	36,965	Aug. 27	96	1849
Schauer & Bro., New York, N. Y. Certain named leather products	37,060	Sept. 17	96	2403
Schneibel, George, Columbus, Ohio. Washing-powder	37,077	Sept. 17	96	2405
Schott & Gen, Jena, Germany. Glassware	36,859	Aug. 6	96	1232
Schrafft & Sons, W. F., Boston, Mass. Confectionery and chocolate	36,886	July 30	96	1031
Sehring Brewing Company, Fred, Joliet, Ill. Beer	37,000	Sept. 3	96	2054
Selby Smelting & Lead Co., San Francisco, Cal. Cartridges	37,022	Sept. 3	96	2056
Servatius, Michael F., Fargo, N. D. Preservatives and meat binders and fillers	36,761	July 16	96	636
Shannon & Mott Co., Des Moines, Iowa. Wheat-flour, pancake-flour, and breakfast-food	36,808	July 23	96	837
Sharp & Co., C. John, El Paso, Tex. Remedy for certain named diseases	37,008	Sept. 3	96	2055
Sichel, Isaac, San Antonio, Tex. Harness and saddlery	36,948	Aug. 20	96	1644
Slater, Rodger & Co., Ltd., Glasgow, Scotland. Whiskies	36,802	July 23	96	837
Slear Bros., Sunbury, Pa. Hosiery	36,737	July 16	96	633
Smaltz-Goodwin Company, Philadelphia, Pa. Shoes	36,902	Aug. 20	96	1640
Smith Bros. Co., Ltd., New Orleans, La. Molasses	36,835	July 30	96	1031
Smith Bros. Co., Ltd., New Orleans, La. Certain named canned provisions	36,870	Aug. 6	96	1233
Smith Bros. Co., Ltd., New Orleans, La. Certain named grocers' supplies	36,942	Aug. 20	96	1644
Smith Bros. Co., Ltd., New Orleans, La. Sugar-cane syrup	37,083	Sept. 17	96	2405
Smith Bros. Co., Ltd., New Orleans, La. Coffee	37,085	Sept. 17	96	2405
Snyder & Co., W. V., Newark, N. J. Ladies' shoes and umbrellas	36,791	July 23	96	836
Sonnehill, Daisey P., New York, N. Y. Certain named sanitary appliances	36,923	Aug. 20	96	1642
South Jersey Millers Association, Millville, N. J. Wheat and other flour	37,001	Sept. 3	96	2054
Specialty Mfg. Co., Philadelphia, Pa. Certain named toilet powders	36,884	Aug. 13	96	1424
St. Charles Condensing Company, St. Charles, Ill. Certain named creamery products	37,115	Sept. 24	96	2570
Stevens, George C., New York, N. Y. Certain named toilet preparations and soaps	36,668	July 2	96	210
Stewart, Arthur C., Boston, Mass. Ointment	37,109	Sept. 24	96	2570
Stillwell Light Company, Camden, N. J., and Philadelphia, Pa. Incandescent mantles for gas or vapor burners	37,024	Sept. 3	96	2056
Stoehr, Gustav A., Elgin, Iowa. Disinfectants and germicides	37,110	Sept. 24	96	2570
Stone, Charles H., New York, N. Y. Chains, watchcases, jewelry, and metal ingots	36,731	July 16	96	633
Stone-Ordean-Wells Co., Duluth, Minn. Canned goods	36,681	July 2	96	212
Stone-Ordean-Wells Co., Duluth, Minn. Canned goods	36,682	July 2	96	212
Stone-Ordean-Wells Co., Duluth, Minn. Certain named canned goods	36,833	July 30	96	1031
Sullivan, James F., Hartford, Conn. Hammers, trowels, levels, plumb-rules, jointing-rules, and broad chisels	36,813	July 23	96	888
Sykes & Ab. Kirschbaum & Co., New York, N. Y. Certain named wearing-apparel	36,736	July 16	96	633
T-Rheumatic Cure Co., Huntington, Ind. Medicine for the cure of rheumatism	36,918	Aug. 20	96	1642
Tabor, Thomas H., Ellijay, Ga. Washing solution	37,078	Sept. 17	96	2405
Tar Heel Chemical Co., Greensboro, N. C. Remedy for internal and external use	36,797	July 23	96	836
Tata & Co., Bombay, India, and New York, N. Y. Cotton goods	36,701	July 9	96	420
Tata & Co., Bombay, India, and New York, N. Y. Cotton goods	36,743	July 16	96	634
Thomas G. Plant Co., Boston, Mass. Misses' and children's shoes	36,792	July 23	96	836
Thomas, Myron F., Campello, Mass. Boots and shoes	37,057	Sept. 17	96	2403
Thomas, Myron F., Campello, Mass. Boots and shoes	37,058	Sept. 17	96	2403
Tincture Amal Mfg. Co., Ltd., Baltimore, Md. Remedy for certain named diseases	37,009	Sept. 3	96	2055
Townsend, Haworth N., New York, N. Y. Remedy for certain named diseases	37,067	Sept. 17	96	2404
Trefry, John W., Yarmouth, Canada. Rheumatism and kidney cure	36,756	July 16	96	635
Turner Hardware Co., Muscogee, Ind. Ter. Certain named hardware	36,726	July 9	96	422
Turvey, Vincent N., London, England. Drug for the treatment of drunkenness and drug habit	36,757	July 16	96	635
Union Bag & Paper Co., New York, N. Y. Paper bags	37,033	Sept. 10	96	2223
Union Fence Co., Dekalb, Ill. Wire-fencing	36,727	July 9	96	422
Union Metallic Cartridge Company, Bridgeport, Conn., and New York, N. Y. Paper shot-shells	36,778	July 16	96	638
United States Graphite Company, Saginaw, Mich. Powdered stove-polish	36,766	July 16	96	636
United States Playing Card Co., Cincinnati, Ohio. Playing-cards	36,732	July 16	96	633
United States Playing Card Co., Cincinnati, Ohio. Playing-cards	36,951	Aug. 27	96	1848
V. K. and A. H. Jones Company, Lynn, Mass. Boots and shoes	36,695	July 9	96	419
V. Scalzo Fruit Company, St. Louis, Mo. Cantaloups	36,869	Aug. 6	96	1233
Van Doren, Charles L., New York, N. Y. Suspenders and braces	36,898	Aug. 20	96	1640
Van Orden, John M., Newark, N. J. Corsets	36,735	July 16	96	633
Vernon & Sons, W., Liverpool, England. Corn, flour, meal, bread, bran, rolled oats, semolina, and pollard	36,928	Aug. 20	96	1642
Verus Pile Cure Company, Los Angeles, Cal. Remedy for a certain named disease	36,749	July 16	96	635
Vischer & Co., A., New York, N. Y. Metal doll-heads	36,704	July 9	96	420
Waldstein, Martin E., New York, N. Y. Liquid compound used as a substitute for court-plaster	36,846	July 30	96	1032
Walker, W. & H., Allegheny, Pa. Certain named laundry articles	37,080	Sept. 17	96	2405
Walsh, Arthur Q., New York, N. Y. Cigarettes	36,999	Sept. 3	96	2054
Walter M. Lowney Co., Boston, Mass. Bonbons	36,980	Aug. 27	96	1851
Ward, Hanbury & Co., London, England. Cotton fabrics	36,781	July 23	96	834
Ward, Hanbury & Co., London, England. Cotton fabrics	36,782	July 23	96	834
Ward, Hanbury & Co., London, England. Cotton fabrics	36,783	July 23	96	834
Ward, Hanbury & Co., London, England. Cotton fabrics	36,784	July 23	96	835
Ward, Hanbury & Co., London, England. Cotton fabrics	36,785	July 23	96	835
Ward, Hanbury & Co., London, England. Cotton fabrics	36,780	July 23	96	834
Ward, Hanbury & Company, London, England. Cotton fabrics	36,899	Aug. 20	96	1640
Warren Featherbone Co., Three Oaks, Mich. Certain named stiffening materials	36,924	Aug. 20	96	1642
Wash A Lone Soap Co., Omaha, Nebr. Soap	37,035	Sept. 10	96	2223
Watkins Cottrell Co., Richmond, Va. Pocket-knives, razors, and scissors	36,864	Aug. 6	96	1233
Weber, George C., Lowville, N. Y. Pills for certain named diseases	36,956	Aug. 27	96	1848
Weingarten Bros., New York, N. Y. Corsets	37,056	Sept. 17	96	2403
Weingarten Bros., New York, N. Y. Corsets	37,061	Sept. 17	96	2403
Weiss, Christian, Jr., Trossingen, Germany. Mouth-harmonicas	36,996	Sept. 3	96	2053
Weiss Manufacturing Co., New Orleans, La. Shirts, drawers, overalls, coats, and nightgowns	37,023	Sept. 3	96	2056
Welsbach Light Company, Philadelphia, Pa. Incandescent lights, parts thereof, and mantles, chimneys, globes, and shades therefor	37,002	Sept. 3	96	2054
Wertz, George W., Wernersville, Pa. Flour	36,800	July 23	96	836
West Indies Chemical Works, Limited, Spanish Town, Jamaica. Logwood extracts				

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
White Star Chemical Company, Salt Lake City, Utah. Boiler compounds	36,874	Aug. 6	96	1234
Whiting and Davis, Wrentham, Mass. Bracelets	36,690	July 9	96	419
Whitridge, White & Co., Baltimore, Md. Burlaps	36,789	July 23	96	835
Wiens Brush Co., Milwaukee, Wis. Brushes	36,724	July 9	96	422
Willcox & Gibbs Sewing Machine Co., New York, N. Y. Sewing-machines and sewing-machine attachments	37,068	Sept. 17	96	2406
William Mann Company, Philadelphia, Pa. Paper	36,911	Aug. 20	96	1641
William Mann Company, Philadelphia, Pa. Paper	36,912	Aug. 20	96	1641
Williams & Co., J. H., Brooklyn, N. Y. Pipe-wrenches	36,877	Aug. 6	96	1234
Willis, Grinnell, New York, N. Y. Certain named fabrics	36,666	July 2	96	210
Willis, Grinnell, New York, N. Y. Certain named fabrics	36,667	July 2	96	210
Willis, Grinnell, New York, N. Y. Certain named fabrics	36,786	July 23	96	835
Willis, Grinnell, New York, N. Y. Certain named fabrics	36,817	July 30	96	1030
Willis, Grinnell, New York, N. Y. Certain named fabrics	37,102	Sept. 24	96	2569
Wilson, Robert A., Portland, Oreg. Certain named cure for the tobacco habit	37,070	Sept. 17	96	2404
Winchell & Co., J. H., Haverhill, Mass. Boots and shoes	37,030	Sept. 10	96	2223
Winchester Repeating Arms Co., New Haven, Conn. Shot-shells and cartridges	36,996	Aug. 13	96	1426
Winslow, Rand & Watson, Boston, Mass. Java and Mocha coffee	36,676	July 2	96	211
Winterbottom Book Cloth Company, Limited, Manchester, England. Bookbinders' cloth	36,856	Aug. 6	96	1232
Wirt, Paul E., Bloomsburg, Pa. Fountain-pens	37,034	Sept. 10	96	2223
Wirth, Robert, Newark, N. J. Certain named drugs and medicines	36,847	July 30	96	1032
Wm. A. Stickney Cigar Co., St. Louis, Mo. Cigars and tobacco	36,927	Aug. 20	96	1642
Wm. Krause & Sons Cement Co., Philadelphia and Martins Creek, Pa. Cement	36,777	July 16	96	637
Yeatman & Company, Limited, London, England. Sauce	37,114	Sept. 24	96	2570
Yokoo, Komesuke, New York, N. Y. Cotton goods	36,740	July 16	96	634
Yokoo, Komesuke, New York, N. Y. Cotton goods	36,741	July 16	96	634
Yokoo, Komesuke, New York, N. Y. Cotton goods	36,742	July 16	96	634
Zaremba, Charles W., Riverside, Ill. Articles manufactured from wood-pulp	36,702	July 9	96	420
Zimmermann Brothers Clothing Company, Milwaukee, Wis. Certain named wearing-apparel	37,055	Sept. 17	96	2403

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Adams, Irwin M., New York, N. Y. "Liver-Ro." (For Liver-Tablets)	8,644	Sept. 3	96	2057
Adams, Irwin M., New York, N. Y. "Rumol." (For a Medicine)	8,671	Sept. 10	96	2227
Allen, Charles, Astoria, Oreg. "Dr. Rose's Hair Tonic and Scalp Invigorator." (For a Hair-Tonic and Scalp-Invigorator)	8,568	July 30	96	1033
Allen, Charles, Astoria, Oreg. "Allen's Antiseptic Toilet Cream." (For a Toilet Cream)	8,569	July 30	96	1033
American Lithographic Co., New York, N. Y. "Royal Harvest." (For Cigars)	8,573	Aug. 6	96	1235
American Lithographic Co., New York, N. Y. "Big Success." (For Cigars	8,574	Aug. 6	96	1235
American Lithographic Company, New York, N. Y. "Compliments of the Season." (For Cigars)	8,555	July 30	96	1033
American Lithographic Company, New York, N. Y. "Flor de Castillo." (For Cigars)	8,616	Aug. 27	96	1645
American Lithographic Company, New York, N. Y. "Flor de Castillo." (For Cigars)	8,617	Aug. 20	96	1645
American Lithographic Company, New York, N. Y. "Janita." (For Cigars)	8,618	Aug. 20	96	1645
Anthony, James, Richmond, Va. "Silas Johnson." (For Cigars)	8,556	July 30	96	1033
Arpe, William G., St. Louis, Mo. "Alpha." (For Baking-Powder)	8,595	Aug. 13	96	1427
B. F. Goodrich Company, Akron, Ohio. "Band-Box." (For Rubber Bands)	8,637	Sept. 3	96	2057
Bactericidal Remedy Co., Wahoo, Nebr. "The Bactericidal Remedy Co's. Choleroup." (For a Medicine)	8,701	Sept. 24	96	2571
Baker, B. Fowler, Milwaukee, Wis. "Dr. Baker's Liquid Food for Vitality." (For Liquid Food)	8,694	Sept. 24	96	2571
Bartgis & Bros., C. C., Baltimore, Md. "Barto's Pure Candies." (For Candy)	8,639	Sept. 3	96	2057
Beeman, Elbert, Waco, Tex. "Beeman's Sweetheart Gum." (For Chewing-Gum)	8,666	Sept. 10	96	2227
Beggs Sons & Co., C. W., Chicago, Ill. "Dr. Bell's Kidney Pills." (For a Medicine)	8,580	Aug. 6	96	1235
Beggs Sons & Co., C. W., Chicago, Ill. "Boro-Carbol Salve." (For a Salve)	8,581	Aug. 6	96	1232
Bent, Geo. P., Chicago, Ill. "In a Sphere of Its Own." (For Pianos)	8,585	Aug. 13	96	1427
Bentel, William C., New York, N. Y. "Wm. C. Bentel's Celery Tonic." (For a Nerve-Tonic)	8,550	July 23	96	839
Binney & Smith, New York, N. Y. "Columbian Black." (For Black)	8,561	July 30	96	1033
Binney & Smith, New York, N. Y. "Brilliant Black." (For Black)	8,562	July 30	96	1033
Binney & Smith, New York, N. Y. "Paris Black." (For Black)	8,563	July 30	96	1033
Binney & Smith, New York, N. Y. "Raven Black." (For Black)	8,564	July 30	96	1033
Blum, Leopold, Brooklyn, N. Y. "Shakespeare Rye." (For Whisky)	8,500	July 2	96	213
Bourdon, David A., Worcester, Mass. "Bourdon's Liniment." (For a Liniment)	8,625	Aug. 27	96	1853
Brady, J. T., St. Louis, Mo. "John Brady's T. Electric Salve." (For a Medicine)	8,678	Sept. 17	96	2407
Bridgeton Knife Co., Bridgeton, R. I. "Empress Kitchen Set." (For Kitchen-Cutlery)	8,511	July 2	96	213
Bridgeton Knife Co., Bridgeton, R. I. "White House Kitchen Set." (For Kitchen-Cutlery)	8,512	July 2	96	213
Brin, William H., Philadelphia, Pa. "Carmel Pure Best Tea." (For Tea)	8,545	July 23	96	839
Brown, George W., Brooklyn, N. Y. "Brown's Magnetic Liniment." (For a Liniment)	8,582	Aug. 6	96	1235
Busch, William, Brooklyn, N. Y. "Ryeoline." (For a Vegetable-Compound Oil)	8,592	Aug. 13	96	1427
Cherbonnier, Edward G., St. Louis, Mo. "Louisana Purchase." (For Canned Goods, Cigars, and Beer)	8,698	Sept. 24	96	2571
Clark-Hutchinson Chemical Co., Cleveland, Ohio. "Sanitaire." (For Disinfectants)	8,560	Aug. 13	96	1427
Cofateno Company, Minneapolis, Minn. "Cofateno." (For a Table Beverage)	8,663	Sept. 10	96	2227
Cole & Co., J. W., Black River Falls, Wis. "Cole's Cough Cure." (For a Medicine)	8,672	Sept. 10	96	2227
Collet, L. P., & E. N. Gagnier, Marlboro, Mass. "Syrup of Tar and Cod Liver Oil." (For a Medicine)	8,679	Sept. 17	96	2407
Consolidated Bottling Co., Huron, S. D. "Vitaqua." (For Mineral Water)	8,664	Sept. 10	96	2227
Consolidated Bottling Co., Huron, S. D. "Tatanka." (For Mineral Water)	8,665	Sept. 10	96	2227
Cordish, Isaac, and J. M. Pruzam, Baltimore, Md. "Cho-Lung." (For Tea)	8,686	Sept. 17	96	2407
Cotzhausen, Alfred von, Milwaukee, Wis. "Primos." (For Meats)	8,510	July 2	96	213
Cozine, Ralph W. E., Louisville, Ky. "Nervo Tablets." (For a Medicine)	8,566	July 30	96	1033
Crary, Charles A., Huntington, W. Va. "Almond Cream." (For Toilet Soap)	8,633	Aug. 27	96	1853
Croft & Allen Co., Philadelphia, Pa. "Swiss Milk Cocoa." (For Cocoa)	8,519	July 9	96	423
Dale, Minnie A., New York, N. Y. "Ideal Brilliant Nail Enamel." (For a Nail-Polish)	8,570	July 30	96	1033
Daniel, John B., Atlanta, Ga. "Daniel's Passiflora Koko-Kolo Syrup." (For a Syrup)	8,593	Aug. 13	96	1427
Daniel, John B., Atlanta, Ga. "Daniel's Conct. Tinct. Passiflora Incarnata or May Pop." (For a Medicine)	8,702	Sept. 24	96	2571
Darlington, Francis J., Pittsburg, Pa. "F. J. Darlington's Charcoal Chewing Gum." (For Chewing-Gum)	8,614	Aug. 20	96	1645
Dolan Mercantile Co., Atchison, Kans. "Elk." (For Coffee)	8,537	July 16	96	639
Dorion, Louis P. A., Haverhill, Mass. "Dr. Boston's Magic Tablets for Headache." (For a Medicine)	8,530	July 9	96	423
Downs, John M., Philadelphia, Pa. "The Keystone." (For Cigars)	8,499	July 2	96	213
Drake Hawley Co., Howard, S. D. "Thymozone Dandruff Cure and Hair Food." (For a Dandruff-Cure and Hair-Food)	8,523	July 9	96	423
Dunham, John, Minneapolis, Minn. "First President." (For Cigars)	8,513	July 9	96	423
Duquesne Brewing Co., Pittsburg, Pa. "Duquesne Beer." (For Lager-Beer)	8,515	July 9	96	423
Duquesne Brewing Co., Pittsburg, Pa. "Duquesne Export Beer." (For Lager-Beer)	8,516	July 9	96	423
Duquesne Brewing Co., Pittsburg, Pa. "Duquesne Beer." (For Lager-Beer)	8,517	July 9	96	423
E. C. Flaccus Company, Wheeling, W. Va. "Champion Mustard." (For Mustard)	8,690	Sept. 17	96	2407
E. C. Flaccus Company, Wheeling, W. Va. "Champion Tomato Catsup." (For Tomato-Catsup)	8,695	Sept. 24	96	2571
Elstereit, August, Whatcom, Wash. "Shaster's Sparkling Water." (For Mineral Water)	8,628	Aug. 27	96	1853
Elsworth, Edward, Buffalo, N. Y. "Force." (For Cereal Food Products)	8,620	Aug. 20	96	1645
Emil Starz Biochemic Laboratory Co., Helena, Mont. "Ozonine." (For Poisonous-Plant Antidote)	8,680	Sept. 17	96	2407
Enterprise Soap Works, Nashville, Tenn. "Pin." (For Soap)	8,682	Sept. 17	96	2407
F. L. Daggett & Co., Boston, Mass. "Daggett's Boston Chocolates." (For Confectionery)	8,577	Aug. 6	96	1235
Fischer, Louise V., Minneapolis, Minn. "Life Saving Cholera Cure." (For a Medicine)	8,507	July 2	96	213
Florence Mfg. Co., Florence, Mass. "Prophylactic." (For Tooth-Brushes)	8,584	Aug. 6	96	1235
Florence Mfg. Co., Florence, Mass. "The Prophylactic Tooth Brush." (For Tooth-Brushes)	8,587	Aug. 13	96	1427
Florida Fancy Pineapple Association, St. Petersburg, Fla. "Royal Palm Brand Fancy Pineapples." (For Pineapples)	8,596	Aug. 13	96	1427
Florida Fancy Pineapple Association, St. Petersburg, Fla. "Osceola Brand Fancy Pineapples." (For Pineapples)	8,597	Aug. 13	96	1427

Alphabetical list of registrants of labels, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Frank Jones Brewing Company, Limited, London, England, and Boston, Mass. "Nourishing Stout." (For Porter)	8,598	Aug. 13	96	1427
Frank Jones Brewing Company, Limited, London, England, and Boston, Mass. "India Pale Ale." (For Ale)	8,599	Aug. 13	96	1427
Frank Jones Brewing Company, Limited, London, England, and Boston, Mass. "Homestead." (For Ale)	8,600	Aug. 13	96	1427
Frey, Francis E., Lovettsville, Va. "Georgia Watermelon Wine." (For Wine)	8,607	Aug. 20	96	1645
Frey, Francis E., Lovettsville, Va. "Georgia Watermelon Gin." (For Gin)	8,608	Aug. 20	96	1645
Frey, Francis E., Lovettsville, Va. "Georgia Watermelon Brandy." (For Brandy)	8,609	Aug. 20	96	1645
Frey, Francis E., Lovettsville, Va. "Georgia Watermelon Whiskey." (For Whisky)	8,610	Aug. 20	96	1645
Fuessel, Kate, New York, N. Y. "Nonparell Window Shade Cloth." (For Window-Shade Cloth)	8,676	Sept. 17	96	2407
Gagnier, E. N. (See Collet & Gagnier.)	8,659	Sept. 10	96	2227
Garcia & Bros., F., New York, N. Y. "Havana Smokers." (For Cigars)	8,531	July 9	96	423
Goodman, Elias, New York, N. Y. "Sashbelt Trousers." (For Trousers)	8,661	Sept. 10	96	2227
Goyer & Co., C. W., Memphis, Tenn. "Goyer's Maple Syrup Blend." (For Syrup)	8,677	Sept. 17	96	2407
Gray Lithograph Co., New York, N. Y. "Granite Steel Ware." (For Granite-Ware)	8,522	July 9	96	423
Gulick, John G., Brooklyn, N. Y. "The Earl Gulick Antiseptic Tooth Powder." (For Tooth-Powder)	8,636	Sept. 3	96	2057
Hake, Ph., New York, N. Y. "Moss Agate Finish." (For Note-Paper and Envelops)	8,674	Sept. 17	96	2407
Hake, Ph., New York, N. Y. "Letteretes." (For Note-Paper and Envelops)	8,675	Sept. 17	96	2407
Hake, Ph., New York, N. Y. "Silk Moire." (For Note-Paper and Envelops)	8,538	July 16	96	639
Harrison & Co., W. H., Cincinnati, Ohio. "St. Nicholas Mocha and Java." (For Coffee)	8,506	July 2	96	213
Hayth, E. B. F., Milwaukee, Wis. "E. B. F. Hayth's Great Egyptian Salve." (For Salves)	8,630	Aug. 27	96	1853
Hazelwood Company, Limited, Spokane, Wash.; Portland, Oreg., and Sioux City, Iowa. "Hazelwood." (For Butter)	8,621	Aug. 20	96	1645
Henry Krug Packing Co., St. Joseph, Mo. "Gold Leaf Lard." (For Lard)	8,622	Aug. 20	96	1645
Henry Krug Packing Co., St. Joseph, Mo. "Lily Brand Leaf Lard." (For Lard)	8,611	Aug. 20	96	1645
Henry M. Bubel Co., Cincinnati, Ohio. "My Mammy." (For Whisky)	8,626	Aug. 27	96	1853
Higgins, Charles D., Greensboro, N. C. "Tar Heel Chill Cure." (For a Medicine)	8,505	July 2	96	213
Hood Chemical Co., Sparta, Ill. "Hood's Foot Friend." (For a Powder)	8,524	July 9	96	423
Howard Bros., Buffalo, N. Y. "What Ails Your Eyes." (For Eye-Water)	8,683	Sept. 17	96	2407
Imperial Chemical Mfg. Co., New York, N. Y. "Imperial Puritas Soap." (For Soap)	8,549	July 23	96	839
Independent Refining Co., Ltd., Oil City, Pa. "O-li-ene." (For Petroleum)	8,546	July 23	96	839
Jaros & Co., J. N., New York, N. Y. "The Flower of Russia." (For Tea)	8,595	Aug. 13	96	1427
Kantorowicz, Hermann, New York, N. Y. "Egyptian Pyramid Puzzle." (For Puzzles)	8,560	July 30	96	1033
Kelly, Henry D., Kansas City, Mo. "Kelium Blend Coffee." (For Coffee)	8,514	July 9	96	423
Kirstein & Co., H. L., Cincinnati, Ohio. "Ye Ancient Order of Whynot." (For Cigars)	8,557	July 30	96	1033
Koett & Mahannah, Burlington, Iowa. "I am a Buffalo." (For Cigars)	8,558	July 30	96	1033
Koett & Mahannah, Burlington, Iowa. "American." (For Cigars)	8,565	July 30	96	1033
L. Martin Company, Jersey City, N. J. "Sunset Carbon Black." (For Lampblack)	8,649	Sept. 10	96	2227
Lamkin & Foster, Boston, Mass. "Ped-reina." (For Shoes)	8,544	July 23	96	839
Lange, Clamor H., Cleveland, Ohio. "Grand Ma's Egg Noodles." (For Noodles)	8,645	Sept. 3	96	2057
Le Compte & Gayle Co., Frankfort, Ky. "Vin. Vigorans." (For a Medicine)	8,646	Sept. 3	96	2057
Le Compte & Gayle Co., Frankfort, Ky. "Chalgonia." (For a Medicine)	8,504	July 2	96	213
Leffingwell, Charles W., Jr., Whittier, Cal. "Eucalemo." (For a Toilet Preparation)	8,658	Sept. 10	96	2227
Leffingwell, Charles W., Jr., Whittier, Cal. "Lemonita." (For a Cleansing Preparation)	8,589	Aug. 13	96	1427
Lentz, John A., Phœnix, Ariz. "Antiseptine" (For an Antiseptic)	8,602	Aug. 13	96	1427
Lichtenstein, Samuel, Chicago, Ill. "Lockport Cigars." (For Cigars)	8,502	July 2	96	213
Lieber, Albert, Indianapolis, Ind. "Lithia-Malt." (For Malt Extracts)	8,553	July 30	96	1033
Lieber, Albert, Indianapolis, Ind. "Lithia-Malt." (For Malt Extracts and Peptonized Malt Foods)	8,689	Sept. 17	96	2407
Lockyer, Frank H., San Francisco, Cal. "Lockyer's Club House Poultry, Game & Meat Seasoning." (For Seasoning)	8,578	Aug. 6	96	1235
Lorenz, Louis R., Milwaukee, Wis. "Banquet." (For Macaroni)	8,520	July 9	96	423
Martin & Nurre, Blair, Nebr. "Antelope State Sugar Corn." (For Canned Goods)	8,521	July 9	96	423
Martin & Nurre, Blair, Nebr. "Missouri River Brand Sugar Corn." (For Canned Goods)	8,606	Aug. 20	96	1645
Massachusetts Breweries Co., Boston, Mass. "Red Fox Ale." (For Ale)	8,554	July 30	96	1033
Mau, Sadler & Co., San Francisco, Cal. "Dexter Special." (For Rye Whisky)	8,583	Aug. 6	96	1235
Maxcy Laboratory Co., Allston, Mass. "Maxcy's Violet Cream." (For Toilet Cream)	8,532	July 16	96	639
McKernan, Frank, Philadelphia, Pa. "Speedway Club." (For Whisky)	8,509	July 2	96	213
McLaughlin, Phil, Weymouth, Mass. "Gold Band Shoe Polish." (For Shoe-Polish)	8,643	Sept. 3	96	2057
Medlin Milling Co., Wolfe City, Tex. "20th Century." (For Flour)	8,642	Sept. 3	96	2057
Medlin Milling Co., Wolfe City, Tex. "White Wolf." (For Flour)	8,533	July 16	96	639
Medoc Vineyard Co., Littleton, N. C. "Meisch." (For Wine)	8,534	July 16	96	639
Medoc Vineyard Co., Littleton, N. C. "Scuppernong." (For Wine)	8,515	July 9	96	423
Mehlhop, H. H., Dubuque, Iowa. "Bonanza Japan Tea." (For Tea)	8,702	Sept. 24	96	2571
Miller, H. L., St. Louis, Mo. "Anti Cyst." (For a Medicine)	8,623	Aug. 20	96	1645
Miller, Henry F., Philadelphia, Pa. "Henry F. Miller's Enamel and Paint Eraser." (For an Enamel and Paint Eraser)	8,613	Aug. 20	96	1645
Milliken, Tomlinson Co., Portland, Me. "Manpurya." (For Tea)	8,692	Sept. 24	96	2571
Mills, Huguenot, Greenville, S. C. "Excelsior." (For Cotton Goods)	8,634	Sept. 3	96	2057
Mistrot, Felix E., Galveston, Tex. "Sole Comfort." (For Shoes)	8,635	Sept. 3	96	2057
Mistrot, Felix E., Galveston, Tex. "Sole Comfort." (For Shoes)	8,576	Aug. 6	96	1235
Moise & Co., Walter, Omaha, Nebr. "Slivovitz." (For an Alcoholic Liquor)	8,699	Sept. 24	96	2571
Moroney, James, Philadelphia, Pa. "Wine." (For Wine)	8,700	Sept. 24	96	2571
Moroney, James, Philadelphia, Pa. "Whiskey." (For Whisky)	8,603	Aug. 20	96	1645
Moses & Co., E., New York, N. Y. "Medallion." (For Satin and Velvet Ribbons)	8,604	Aug. 20	96	1645
Nelson & Co., J. C., Manistee, Mich. "Dr. Jensen's Catarrh Treatment." (For a Medicine for Catarrh)	8,668	Sept. 10	96	2227
Ogden & Shimer, Middletown, N. Y. "Mekko Cough Mixture." (For Cough Remedy)	8,624	Aug. 20	96	1645
Omaha Stove Repair Works, Omaha, Nebr. "Yellow Label Stove Polish." (For a Stove-Polish)	8,684	Sept. 17	96	2407
Orr, J. Love, Cleveland, Ohio. "Diamond." (For a Polish)	8,541	July 16	96	639
Pepsino Co., Covington, Ky. "Pepsino." (For a Breath-Perfume)	8,670	Sept. 10	96	2227
Perrin, C. A., Helena, Mont. "Perrin's Pile Specific." (For a Medicine)	8,527	July 9	96	423
Phipps, George, St. Paul, Minn. "Dr. Kane's Forest Root Cough Remedy." (For a Medicine)	8,528	July 9	96	423
Phipps, George, St. Paul, Minn. "Knapo-Curo." (For a Medicine)	8,529	July 9	96	423
Phipps, George, St. Paul, Minn. "Forest Root Extract." (For a Medicine)				
Pillsbury-Washburn Flour Mills Company, Limited, Minneapolis, Minn. "Pillsbury's Flaked Wheat Food." (For Wheat-Food)	8,619	Aug. 20	96	1645
Pinkus Bros., New York, N. Y. "Blue Lion Egyptian Cigarettes." (For Cigarettes)	8,559	July 30	96	1033
Port, George M., Boston, Mass. "The Penny Cobbler." (For a Leather-Dressing)	8,508	July 2	96	213
President's Company, Chicago, Ill. "President's Restorative Tablets." (For a Medicine)	8,526	July 9	96	423
Priscilla Mfg. Co., Rockland, Mass. "Priscilla Starch Polish." (For a Polish)	8,695	Sept. 17	96	2407
Pruzam, J. M. (See Cordish and Pruzam.)				
Ra Toilet Co., Dayton, Ohio. "Hazel Rum." (For a Toilet Preparation)	8,598	Aug. 13	96	1427
Reeves and Co., J. R., Anderson, Ind. "Rosewood Dandruff Cure." (For Dandruff Cure)	8,681	Sept. 17	96	2407

Alphabetical list of registrants of labels, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Rhodes, Moses W., Memphis, Tenn. "Rhodes' Electric Liniment." (For a Liniment)	8,567	July 30	96	1033
Ricketson, Louise D., New Bedford, Mass. "Cream of Roses." (For a Toilet Preparation)	8,571	July 30	96	1033
Roche, Herrick H., Kingston, Canada. "Canadian Herbs." (For a Medicine)	8,543	July 16	96	639
Rochester Woolen Mfg. Co., Rochester, Minn. "Direct from the Mill to the Man." (For Trousers)	8,572	Aug. 6	96	1235
Rohn, F. F., Milwaukee, Wis. "Export." (For Bottled Beer)	8,536	July 16	96	639
Rosenbush & Co., Al A., Boston, Mass. "Black Eagle Brand." (For Shoes)	8,648	Sept. 10	96	2227
Rosenfield & Co., M., Cripplecreek, Colo. "Rocky Mountain Sage Bitters." (For a Medicine)	8,605	Aug. 20	96	1645
Sadler, Erwin L., San Francisco, Cal. "Barrister." (For Gin)	8,547	July 23	96	839
Sadler, Erwin L., San Francisco, Cal. "Ole Varginy." (For Tobacco)	8,548	July 23	96	839
Saqui, Samuel, New York, N. Y. "Jenny Lind." (For Cigars)	8,539	July 16	96	639
Schlesinger, Harry L., Atlanta, Ga. "Allee Samee Biscuit." (For Biscuits)	8,693	Sept. 24	96	2571
Schmidt & Co., New York, N. Y. "Photo." (For Cigars)	8,540	July 16	96	639
Schmidt & Co., New York, N. Y. "I am a Buffalo." (For Cigars)	8,601	Aug. 13	96	1427
Schmidt & Co., New York, N. Y. "Shell Border." (For Cigars)	8,615	Aug. 20	96	1645
Schmidt & Co., New York, N. Y. "El Cubano Reciproco." (For Cigars)	8,627	Aug. 27	96	1853
Schmidt & Co., New York, N. Y. "King Dodo." (For Cigars)	8,649	Sept. 3	96	2057
Schmidt & Co., New York, N. Y. "Al. Hazzards' Gold Seal." (For Cigars)	8,641	Sept. 3	96	2057
Schmidt & Co., New York, N. Y. "I. M. O. K." (For Cigars)	8,660	Sept. 10	96	2227
Schmidt & Co., New York, N. Y. "Half Price." (For Cigars)	8,697	Sept. 24	96	2571
Siberian Transit Tea Co., New York, N. Y. "The Siberian Transit Tea." (For Tea)	8,662	Sept. 10	96	2227
Slater, Arthur, New Decatur, Ala. "Slater's Australian Rheumatism Cure." (For a Medicine)	8,542	July 16	96	639
Smith, A. T., American Fork, Utah. "Glorio Soap." (For Soap)	8,696	Sept. 24	96	2571
Standard Snuff Co., Nashville, Tenn. "Red Rose Sweet Scotch Snuff." (For Snuff)	8,575	Aug. 6	96	1235
Stanley Rule & Level Co., New Britain, Conn. "Bed Rock." (For Planes)	8,647	Sept. 3	96	2057
Staufer, W. B., St. Louis, Mo. "Staufer's Laundry Tablets." (For Laundry Tablets)	8,682	Aug. 27	96	1853
Stecher Lithographic Company, Rochester, N. Y. "Baby Brand." (For Canned Goods)	8,691	Sept. 17	96	2407
Stevens, Ida E., Whiteplains, N. Y. "Crown Ant Exterminator." (For an Ant-Exterminator)	8,673	Sept. 10	96	2227
Strader, Wilson P., Lexington, Ky. "Kentucky Belle." (For Whisky)	8,501	July 2	96	213
Sullivan & Co., C. F., Boston, Mass. "Rainbow Cocktail Manhattan." (For Manhattan Cocktails)	8,612	Aug. 20	96	1645
Sylvester & Son, J. B., Blue Hill, Me. "King of the Coast." (For Clams)	8,681	Aug. 27	96	1853
Taggart, G. C., Philadelphia, Pa. "Corson's Red Cross Capsules." (For Capsules)	8,525	July 9	96	423
Thomas, Dorr, St. Paul, Minn. "Plantation Tea." (For a Medicine)	8,579	Aug. 6	96	1235
Tinkler and Co., Philadelphia, Pa. "Minerva." (For Carpet-Chain)	8,651	Sept. 10	96	2227
Tinkler and Co., Philadelphia, Pa. "Housekeeper." (For Carpet-Chain)	8,652	Sept. 10	96	2227
Tinkler and Co., Philadelphia, Pa. "Economy." (For Carpet-Chain)	8,653	Sept. 10	96	2227
Tinkler and Co., Philadelphia, Pa. "Pearl." (For Carpet-Warp)	8,654	Sept. 10	96	2227
Tinkler and Co., Philadelphia, Pa. "Quaker City." (For Carpet-Warp)	8,655	Sept. 10	96	2227
Tinkler and Co., Philadelphia, Pa. "Fidelity." (For Carpet-Warp)	8,656	Sept. 10	96	2227
Tinkler and Co., Philadelphia, Pa. "Tioga." (For Carpet-Warp)	8,657	Sept. 10	96	2227
Tower Mfg. & Nov. Co., New York, N. Y. "Soapstone Slate Pencils." (For Slate-Pencils)	8,638	Sept. 3	96	2057
W. D. S. Co., Burton, Ohio. "Stryx Tonic." (For a Hair-Tonic)	8,503	July 2	96	213
Weber, C. H. W., Cincinnati, Ohio. "Colorado Extracted Alfalfa." (For Honey)	8,687	Sept. 17	96	2407
Weber, C. H. W., Cincinnati, Ohio. "White Clover." (For Honey)	8,688	Sept. 17	96	2407
Weinreich, Isaac J., Cincinnati, Ohio. "Cough Checkers." (For a Medicinal Confection)	8,551	July 23	96	839
Wellington Manufacturing Co., Philadelphia, Pa. "Mother's." (For Corn-Starch)	8,594	Aug. 13	96	1427
Welstenholme, Sons & Co., Thos., Philadelphia, Pa. "Kantshrink Yarn." (For Yarn and Fabrics and Garments made from such Yarn)	8,552	July 30	96	1033
Werner & Co., A., New York, N. Y. "Comet 'Sec.'" (For Wines)	8,535	July 16	96	639
William Richardson Company, Hornellsville, N. Y. "Top Notch." (For Shoes)	8,650	Sept. 10	96	2227
Wilson, Robert A., Portland, Oreg. "Hi-Hi Chewing Gum." (For a Medicinal Chewing-Gum)	8,667	Sept. 10	96	2227
Wilson, W. H., Hatboro, Pa. "Wilson's Absorbent." (For a Liniment)	8,591	Aug. 13	96	1427
Young & Smylie, Brooklyn, N. Y. "Young & Smylie's Why-Knot." (For Licorice)	8,629	Aug. 27	96	1853
Zappulla, Frank S., Brooklyn, N. Y. "Forest Tar Drops." (For Cough-Drops)	8,669	Sept. 10	96	2227

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
American Lithographic Co., New York and Buffalo, N. Y. "It's Around Behind the Barn." (For Wagons)	399	Sept. 17	96	2407
American Lithographic Company, New York and Buffalo, N. Y. "Take Off Your Hat to 'The Myers.'" (For Pumps, Haying-Tools, &c)	375	July 23	96	889
American Lithographic Company, New York and Buffalo, N. Y. "Nothing Gets Off the Farm If Fenced with Lamb Wire Fence." (For Wire Fence)	389	Aug. 27	96	1853
Atwood Suspender Co., Swanton, Vt. "The Nations' Choice." (For Suspenders)	372	July 16	96	639
Ayer & Son, N. W., Philadelphia, Pa. "Waterproof." (For Biscuits)	376	July 30	96	1033
Bernheim Bros., Louisville, Ky. "I. W. Harper Bourbon." (For Whisky)	386	Aug. 13	96	1427
Chanut & Co., J. M., New York, N. Y. "Chanut Ganterie Parisienne." (For Gloves)	365	July 2	96	213
Davenport, Harry W., Chicago, Ill. "Dr. H. W. Davenport's Combined Local and Systemic Tissue Treatment for Pyorrhœa Alveolaris." (For a Medicine)	397	Sept. 3	96	2057
Doll, Harriet, New York, N. Y. "Factory to Pocket." (For Watches and Jewelry)	401	Sept. 24	96	2571
Forbes Lithograph Manufacturing Company, Boston, Mass. "Will do What no other Soap Can do." (For Soap)	373	July 16	96	639
French Novelty Co., Bridgeport, Conn. "French Doll." (For Toys and Novelties)	402	Sept. 24	96	2571
Ginty, Edward C., Danbury, Conn. "Ginty's Bean Tablets." (For Baked Beans & Bean Tablets)	382	Aug. 6	96	1235
Gratz, Alfred, Philadelphia, Pa. "Makes Light Work." (For Welsbach Lamps)	391	Sept. 3	96	2057
Gratz, Alfred, Philadelphia, Pa. "A Steady Light Makes a Steady Hand." (For Welsbach Lamps)	392	Sept. 3	96	2057
Gratz, Alfred, Philadelphia, Pa. "I Am Disgusted with Imitations." (For Welsbach Mantles)	393	Sept. 3	96	2057
Gratz, Alfred, Philadelphia, Pa. "Can't Fool Me." (For Welsbach Mantles)	394	Sept. 3	96	2057
Gratz, Alfred, Philadelphia, Pa. "Don't Be It." (For Welsbach Mantles)	395	Sept. 3	96	2057
Gratz, Alfred, Philadelphia, Pa. "Economy Is Wealth." (For Welsbach Lamps)	396	Sept. 3	96	2057
Gratz, Alfred, Philadelphia, Pa. "Night's Comfort is—Light." (For Welsbach Lamps)	398	Sept. 10	96	2227
Henry M. Rubel Co., Cincinnati, Ohio. "Old Charlotte." (For Whisky)	385	Aug. 13	96	1427
J. M. Bour Company, Toledo Ohio. "Royal Garden." (For Iced Tea)	377	July 30	96	1033
Kopp, Robert, New York, N. Y. "Official Fire Insurance Record Watchman's Improved Time Detector." (For Watchmen's Improved Time-Detectors)	371	July 16	96	639
Lay, Harry M., Chicago, Ill. "Miller." (For Paper-Hangers' Trestles)	368	July 2	96	213
McCormick Harvesting Machine Company, Chicago, Ill. "Blowin His Bazoo." (For Harvesting Machinery)	367	July 2	96	213
Milwaukee Dustless Brush Co., Milwaukee, Wis. "The World's Only Dustless." (For Brushes)	383	Aug. 6	96	1235
National Paint & Varnish Co., Cleveland, Ohio. "The Paint Uncle Sam Uses." (For Mixed Paint)	374	July 16	96	639
Paris Skirt Co., New York, N. Y. "The Paris Skirt Co." (For Dress-Skirts)	370	July 9	96	423
Royal Tailors, Chicago, Ill. "Royal Fashions Fall 1901, Winter 1902." (For Clothing)	378	Aug. 6	96	1235
Royal Tailors, Chicago, Ill. "Pay Less and Dress Better." (For Clothing)	379	Aug. 6	96	1235
Royal Tailors, Chicago, Ill. "Pay Less and Dress Better." (For Clothing)	380	Aug. 6	96	1235
Royal Tailors, Chicago, Ill. "Pay Less and Dress Better." (For Clothing)	381	Aug. 6	96	1235
Saks & Company, Washington, D. C. "The Athlete." (For Men's Clothing)	400	Sept. 17	96	2407
Seiter & Kappes, New York, N. Y. "Fitzu." (For Shoes)	384	Aug. 13	96	1427
Seiter & Kappes, New York, N. Y. "The Herrick Shoe." (For Shoes)	387	Aug. 27	96	1853
Singer Manufacturing Co., New York, N. Y. "The Singer Seam." (For Sewing-Machines)	366	July 2	96	213
Sweet, Cora H., and L. G. Whitney, Grand Rapids, Mich. "Sweet-Whitney Music-Method." (For Musical Merchandise)	369	July 9	96	423
Tooker, George E., New York, N. Y. "Woodland Violet Specialties." (For Perfumery and Toilet Supplies)	403	Sept. 24	96	2571
Whiting Paper Co., Holyoke, Mass. "Whiting's Standard Papers." (For Writing-Paper)	390	Sept. 3	96	2057
Whitney, L. Gertrude. (See Sweet and Whitney.)	364	July 2	96	213
Williams, Clark & Co., Lynn, Mass. "La France Shoe." (For Shoes)	388	Aug. 27	96	1853
Wittemann Bros., New York, N. Y. "Rafter's Teas and Coffees are the Best." (For Tea and Coffee)				

DISCLAIMER.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
Brown, Horace F., Butte City, Mont.; disclaimer filed by patentee and licensee. Ore-roasting furnace	471,264	July 29, 1901	96	1041

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abdominal supporter	F. Portugal-Hirschberg	682,270	Sept. 10	1127	255	96	2106
Abdominal supporter	R. Strasburger	682,508	Sept. 10	1527	346	96	2184
Account device. Manifolding	C. W. Ingledue	681,917	Sept. 3	491	101	96	1963
Accumulator-plate	H. T. d'Arnoult	682,899	Sept. 17	2271	513	96	2353
Acid. Apparatus for concentrating sulfuric	J. L. Kessler	680,867	Aug. 20	2165	476	96	1516
Acid. Making nitric	C. Uebel	681,085	Aug. 20	2585	571	96	1600
Acid. Recovering sulfurous	N. C. Hodgkins	678,179	July 9	1594	368	96	345
Adding-machine	A. J. Meyer	681,240	Aug. 27	2865	636	96	1676
Adding-machine	A. R. Ball	681,292	Aug. 27	2973	660	96	1699
Adhesive fastener	A. Haberstroh	682,062	Sept. 3	754	163	96	2013
Adhesive fastener	A. Haberstroh	682,063	Sept. 3	754	163	96	2013
Adhesive from blood fibrin. Making an	J. Hofmeier	682,326	Sept. 10	1229	.....	96	2124
Adjustable rack	F. Reissmann	677,797	July 2	846	202	96	178
Adjustable screen	E. C. Linck	683,307	Sept. 24	2987	685	96	2518
Advertising device	C. H. Keyser	678,669	July 16	2588	579 / 580	96	561
Advertising device. Automatic	F. I. Matthews	682,416	Sept. 10	1380	312	96	2154
Advertising device for doors	M. J. Quinn	678,902	July 23	3083	680	96	668
Aerial vessel	E. M. Farr	678,114	July 9	1482	342	96	323
Agricultural-implement tooth	H. G. Smith	677,478	July 2	254	64	96	55
Agricultural machine	D. K. Udall	681,594	Aug. 27	3533	784 / 785	96	1808
Air agitating and heating apparatus	J. P. Erie	682,328	Sept. 10	1422	277	96	2122
Air. Apparatus for preheating and moistening compressed	W. O. Webber	681,357	Aug. 27	3095	687	96	1722
Air. Apparatus for refrigeration of atmospheric	O. P. Ostergren	679,907	Aug. 6	350	76	96	1114
Air. Apparatus for separating solvent vapor from	W. Erben	682,050	Sept. 3	737	160	96	2010
Air-brake	M. Hickey and F. G. Kellogg	680,456	Aug. 13	1348	295	96	1328
Air-brake	G. W. Edgington	681,045	Aug. 20	2509	555	96	1584
Air-brake controller	J. C. Wands	680,091	Aug. 6	686	153	96	1182
Air-brake coupling	O. A. Ness	682,882	Sept. 17	2252	508	96	2349
Air-brake drain-cup. Railway	P. Jacobson	680,330	Aug. 13	1114	248	96	1282
Air-brake system	N. A. Christensen	679,945	Aug. 6	437	91	96	1128
Air-compressor	E. Hill	678,487	July 16	2223	500	96	487
Air-compressor	C. B. Little	678,839	July 16	2896	653	96	622
Air-compressor	D. Pryde and H. Gauerman	679,334	July 30	3009	874	96	868
Air-compressor. Hydraulic	A. G. Waterhouse	680,951	Aug. 20	2326	511 / 512	96	1548
Air-compressor. Hydraulic	J. Paterson	682,811	Sept. 17	2108	477	96	2320
Air-compressor outlet-valve	J. S. Lewis	681,921	Sept. 3	500	103	96	1965
Air-currents. Apparatus for equalizing	R. Goll	681,215	Aug. 27	2817	626	96	1667
Air or gases. Apparatus for heating	W. H. Haslett	682,190	Sept. 10	977	220	96	2078
Air or other gases for refrigeration and power. System for utilizing liquid	G. A. Bobrick	683,010	Sept. 17	2476	561	96	2394
Air, &c. Preheating and moistening compressed	W. O. Webber	681,358	Aug. 27	3097	688	96	1722
Air regenerating and purifying apparatus	A. Desgrez and V. Balthazard	680,028	Aug. 6	579	126	96	1158
Air to movable motors and hoists. Apparatus for supplying compressed	W. M. Farrar	680,849	Aug. 20	2140	469	96	1511
Alarm: *See* Burglar-alarm. Electric alarm. Fire-alarm. High or low water alarm. Low-water alarm.							
Alarm-mat. Electric	A. D. Shaw	683,341	Sept. 24	3053	700	96	2533
Albumen and making same. Halogen	F. Blum	678,330	July 9	1886	.....	96	401
Albumoses. Producing	G. Elchelbaum	682,181	Sept. 10	959	.....	96	2075
Alimentary extract and making same	E. C. L. Kressel	683,210	Sept. 24	2807	.....	96	2481
Alkali metals. Apparatus for electrolysis of the salts of	H. S. Anderson	678,851	July 23	2917	658	96	647
Alkali metals. Electrolyzing salts of	E. A. Allen and H. K. Moore	680,191	Aug. 6	864	193	96	1217
Alkali silicates. Manufacturing	F. P. Van Denbergh	677,906	July 9	1099	.....	96	248
Alloy	H. Leyendecker	682,330	Sept. 10	1235	.....	96	2125
Alloy. Copper	B. S. Summers	680,819	Aug. 20	2089	.....	96	1500
Alloys containing copper and manganese. Manufacturing	G. Thomson	682,891	Sept. 17	2261	.....	96	2351
Alloys of iron or steel. Manufacture of	H. V. Chavot and A. Hozana	680,694	Aug. 20	1840	.....	96	1450
Alternator. Compounding	C. P. Steinmetz	678,289	July 9	1813	417	96	887
Aluminium hydrate by electrolysis. Obtaining	I. L. Roberts	683,000	Sept. 17	2458	557	96	2291
Amalgamating apparatus	A. H. Jocelyn	678,188	July 9	1599	369	96	346
Amalgamator	J. H. Barr	679,355	July 30	3057	895	96	978
Amalgamator	A. R. Black	681,084	Aug. 20	2487	550	96	1580
Amalgamator	E. J. Kiss	681,282	Aug. 27	2849	633	96	1674
Ammonium ichthyol sulfonate. Making	A. C. McLaughlin	681,568	Aug. 27	3480	.....	96	1798
Ammunition-hoist	R. Matthews	679,632	July 30	4493	1010	96	988
Anchor	F. Baldt, Sr.	677,619	July 2	525	125	96	111
Anchor	J. N. Young	677,839	July 2	940	223	96	197
Andiron	J. Cope	682,087	Sept. 3	720	155	96	2006
Animal-lifting device	B. Koch	678,117	July 9	1491	344	96	324
Animal-shears	B. P. Clark	678,161	July 9	1570	362	96	340
Animal-shears	B. P. Clark	678,225	July 9	1686	387	96	368

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Animal-trap	C. Bloker	680,114	Aug. 6	728	161	96	1189
Animal-trap	W. Quesenberry	680,617	Aug. 13	1640	362	96	1387
Animal-trap	E. D. Davis	681,497	Aug. 27	3362	746	96	1773
Animal-trap	E. Diedrich	680,673	Aug. 13	1762	388	96	1413
Animals. Blind for the eyes of	W. E. Harris	679,145	July 23	3528	788	96	768
Annealing-box	A. J. Demmler	682,404	Sept. 10	1353	306	96	2149
Annealing-box	A. J. Demmler	682,459	Sept. 10	1457	330	96	2169
Annealing-box	C. J. Kintner	678,116	July 9	1485	343	96	324
Annunciator. Electrical	H. Vieth	678,070	July 9	1402	.....	96	306
Anthrapurpurin and making same. Biacetate of	W. M. Kelso	679,262	July 23	3746	836 837	96	812
Antiseptic-applying apparatus	J. H. Fulwider	681,538	Aug. 27	3428	761	96	1787
Anvil attachment	W. Schaller	678,694	July 16	2618	589	96	567
Apparel. Safe-keeping device for wearing-	J. E. Hinaebaugh	682,196	Sept. 10	985	222	96	2060
Apple-butter machine	T. F. Rowland	677,472	July 2	244	61, 62	96	33
Arch. Plate-metal	O. Lasche	681,800	Sept. 3	279	54 55 56	96	1021
Armature and inductor. Stationary	G. Koppelmann	683,052	Sept. 24	2543	560	96	2428
Armature-core for electrical machines	C. D. Anderson	677,392	July 2	99	22	96	23
Armature for dynamo-electric machines	W. Lau	679,284	July 23	3813	855	96	825
Armature-winding	J. Nederland	679,326	July 30	3892	870 871	96	864
Armor-plate	A. R. Black	681,093	Aug. 20	2484	550	96	1579
Arrastre or scouring-mill	E. Petersson	679,330	July 30	3897	872	96	895
Arsenic, antimony, or tellurium from sulfurous ores. Extracting	L. L. Driggs	679,113	July 23	3468	774 775	96	755
Artillery mount. Field-	W. H. Driggs	682,535	Sept. 10	1579	358 359	96	2195
Artillery recoil-mount	R. Frame	681,208	Aug. 27	2805	623	96	1695
Ash-can	A. Berthe	679,449	July 30	4149	931	96	917
Ash-cans, &c. Holder for	W. J. Knox	680,781	Aug. 20	2000	439	96	1484
Atmospheres and temperatures. Maintaining specific	H. Goltermann	678,242	July 9	1712	392	96	369
Atomizer	E. J. Sonn	679,436	July 30	4116	922	96	911
Atomizer	C. L. Turner	681,758	Sept. 3	181	35	96	1960
Atomizer	C. R. Anderson	683,193	Sept. 24	2769	636	96	2474
Auger post. Coal-	J. B. Driskill	677,403	July 2	116	25, 26	96	26
Auger. Post-hole	J. Hope and W. E. Buckley	679,024	July 23	3267	730 731	96	714
Autocar starting means	J. Hughes	679,001	July 23	3219	720 721	96	705
Automatic brake	E. A. Edmunds	680,706	Aug. 20	1863	409	96	1455
Automatic brake	W. Voss	681,489	Aug. 27	3343	742	96	1770
Automatic brake	J. Farley and J. Meehan	678,234	July 9	1703	390	96	367
Automatic lubricator	W. O. Worth	681,288	Aug. 27	2997	659	96	1698
Automatic lubricator	S. H. Pocock	678,350	July 9	1696	444	96	411
Automatic register or recorder	M. Moskowitz	682,220	Sept. 10	1034	233	96	2068
Automatic reversing-switch	F. Macklntosh	679,321	July 30	3881	867	96	862
Automatic switch	L. C. Savale	678,520	July 16	2278	512 513	96	490
Automobile	W. C. Smith	680,891	Aug. 20	2213	487	96	1525
Automobile	A. Thompson	680,899	Aug. 20	2227	490	96	1527
Automobile	M. A. Yeakley	682,775	Sept. 17	2934	460 461	96	2305
Automobile	S. D. Mott	681,721	Sept. 3	108	21	96	1885
Automobile driving-gear	C. Richter and R. T. Eschler	680,618	Aug. 13	1642	362	96	1387
Automobile-motor. Electric	A. E. Osborn	680,668	Aug. 13	1753	385	96	1411
Automobile vehicle	J. B. Merlam	680,535	Aug. 13	1563	330	96	1360
Automobile vehicles. Apparatus for charging storage batteries of	G. B. Stacy	677,709	July 2	680	162	96	144
Automobiles. Automatic tank-pump for	M. A. Eufelin	680,237	Aug. 13	956	215	96	1250
Automobiles driven by explosion of inflammable vapors. Motor for	J. P. and J. N. Wright	680,103	Aug. 6	710	157 158	96	1186
Automobiles. Starting device for oil or gasolene engines for	H. Shoemaker	680,505	Aug. 13	1440	316	96	1346
Autotorpedo	H. F. W. Jaeger	682,704	Sept. 17	1898	422	96	2279
Axle box. Car-	P. T. Handiges	681,785	Sept. 3	256	49, 50	96	1916
Axle boxes. Machine for molding car-	A. M. Robeson	683,001	Sept. 17	2459	557	96	2391
Axle. Car-	W. F. Hayden	678,253	July 9	1725	395	96	372
Axle dust-cap and oil-guard. Vehicle-	D. L. Eustice	682,608	Sept. 17	1717	392	96	2245
Axle-grease mixing and packing machine	T. H. McCauley	680,388	Aug. 13	1234	271 818	96	1305
Axle-lubricator	J. E. Cooper	681,650	Aug 27	3655	819	96	1834
Axle-shafts of railway-carriages, &c. Antifriction mechanism for	F. A. Schulz	682,432	Sept. 10	1407	318	96	2160
Axle-skein	E. F. Bond	680,756	Aug. 20	1955	428	96	1475
Axle turning and threading device. Portable	B. S. Morden	679,180	July 23	3504	803	96	782
Axle. Vehicle-	C. A. Dahlhaus	681,620	Aug. 27	3007	802	96	1824
Axle. Vehicle-	W. Hoerger	681,120	Aug. 20	2036	582	96	1610
Axle. Wheel-	G. S. Green	680,244	Aug. 13	967	218	96	1252
Back-pedaling brake	A. Caron	679,600	July 30	4448	.....	96	979
Bacteria. Culture of	K. G. Herring	678,176	July 9	1590	366	96	344
Bag: *See* Feed-bag. Ice or water bag. Mail-bag. Swimming-bag. Traveling-bag. Water-bag.	A. F. Fuller	677,638	July 2	578	138	96	122
Bag-fastening	C. Millhiser and C. L. A. Doeppe	678,748	July 16	2777	625	96	597
Bag-frame catch	A. H. Lowe	679,567	July 30	4385	984	96	966
Bag-machine	K. Mooring	680,163	Aug. 6	814	181	96	1207
Baggage. Means for handling	J. and J. Heyne	681,502	Aug. 27	3370	747	96	1774
Bailer	M. H. Fischer	679,305	July 30	3854	.....	96	856
Bake-pan. Steam	J. W. Gray	682,382	Sept. 10	1314	296	96	2141
Baking-powder	J. Barker	681,431	Aug. 27	3225	718	96	1747
Balance. Liquid-	D. Mullane	678,751	July 16	2711	611	96	585
Balance sheet. Trial or daily							
Bale-band fastening							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bale for fibrous material	C. E. Parker	678,134	July 9	1517	350	96	330
Bale of fibrous material	J. T. Cowley	679,881	Aug. 6	214	45	96	1085
Bale-stay band	W. M. Holmes	679,845	Aug. 6	244	52	96	1092
Bale-staying device	J. T. Cowley	679,882	Aug. 6	215	46	96	1085
Bale-tie	R. Armatage	681,471	Aug. 27	3311	736	96	1764
Bale-tie loops. Machine for making wire	R. J. Darnell	677,956	July 9	1188	274	96	265
Bale tie or band	W. M. Holmes	679,844	Aug. 6	242	51	96	1092
Baling fibrous material. Apparatus for	J. T. Cowley	679,883	Aug. 6	218	46, 47	96	1096
Baling-machine	R. S. Munger	680,164	Aug. 6	816	182	96	1208
Baling-press	M. E. Lessenberry	678,120	July 9	1495	344 345	96	325
Baling-press	W. R. Colman	678,941	July 23	3109	696	96	688
Baling-press	P. K. Dederick	679,732	Aug. 6	28	8, 9	96	1049
Baling-press	C. E. Parker	680,393	Aug. 13	1240	278	96	1306
Baling-press	F. H. Dennis	680,410	Aug. 13	1272	280	96	1313
Baling-press	E. T. Hill and T. J. Hightower	680,712	Aug. 20	1872	411	96	1457
Baling-press	R. E. Chapman	680,841	Aug. 20	2129	465	96	1508
Baling-press	L. H. Culbertson and W. Kirkpatrick.	681,200	Aug. 27	2796	620 621	96	1663
Baling-press	J. P. Walker	681,356	Aug. 27	3068	687	96	1721
Baling-press	W. R. Coleman	682,240	Sept. 10	1076	243	96	2096
Baling-press	L. Trabue	682,372	Sept. 10	1299	292	96	2137
Baling-press	L. Wilson	682,514	Sept. 10	1544	350 351	96	2188
Baling press. Cotton-	W. M. Thomas	678,630	July 16	2511	562	96	546
Ball-projector for use in playing games	W. O. Taylor	682,965	Sept. 17	2386	540	96	2377
Ballot-box	J. A. Linn	678,786	July 16	2771	624	96	595
Banana-shipping case	F. Schmitz	682,282	Sept. 10	1148	260	96	2110
Band-brake wheel	J. H. Punchard	682,860	Sept. 17	2205	497 498	96	2339
Band-cutter and feeder governor	M. Lafever	678,898	July 16	2894	653	96	622
Band-cutter and self-feeder. Automatic	J. N. Cole	679,725	Aug. 6	15	4, 5	96	1046
Bandaging-table	B. C. Miller	679,980	Aug. 6	501	106	96	1143
Bank. Coin-registering	J. F. Healy	678,563	July 16	2362	530 531	96	516
Bank. Coin savings-	G. Havell	683,396	Sept. 24	3144	721	96	2553
Bank-draft	M. Hyman	683,403	Sept. 24	3166	726	96	2557
Bank. Indicating savings-	F. Witte	679,490	July 30	4241	955	96	934
Bank. Portable savings-	J. E. Ingram	680,046	Aug. 6	610	133	96	1166
Barber-chair	J. B. Lowry	683,300	Sept. 24	3003	686 687	96	2523
Barrel	O. H. P. Cornell	679,277	July 23	3780	844	96	819
Barrel	O. H. P. Cornell	679,728	Aug. 6	19	6	96	1047
Barrel	G. M. Tilghman	680,183	Aug. 6	853	190	96	1215
Barrel-carrier	J. Metcalfe and T. Bell	678,416	July 16	2069	470	96	455
Barrel-cover	J. F. Morlin	678,675	July 16	2595	582	96	502
Barrel-cover hanger	E. R. Norris	678,024	July 9	1305	296	96	288
Barrel. Knockdown	R. H. Kerr	678,257	July 9	1730	397	96	373
Barrel-stand	R. E. McClary and T. S. Gray	681,246	Aug. 27	2880	638	96	1679
Barrel-washing machine	C. J. Dobler	678,613	July 16	2473	554	96	539
Barrels. Manufacture of	O. H. P. Cornell	679,276	July 23	3778	843	96	819
Barrow. Dumping-	G. D. Potter	677,467	July 2	236	59	96	52
Basin. Wash-	W. Bunting, Jr	679,882	Aug. 6	318	67	96	1106
Basket and cover therefor	H. J. Sitterly	678,985	July 23	3194	715	96	700
Basket-making machine	E. Horton	680,149	Aug. 6	778	173 174 175 414	96	1200
Basket-making machine	S. D. Locke	680,721	Aug. 20	1883	415 416	96	1460
Bat-forming mechanism	F. B. Pope and G. D. Mims	681,645	Aug. 27	3640	814 815	96	1831
Bath: *See* Copying-bath.							
Bath-cabinet	W. A. Durrin	681,631	Aug. 27	3608	892	96	1824
Batteries. Diaphragm for electric	J. L. Dobell	681,532	Aug. 27	3417	.....	96	1785
Batteries. Elevator and transfer-crane for storage	G. H. Condict	682,175	Sept. 10	946	213	96	2073
Batteries from motor-vehicles. System and apparatus for loading and unloading storage-	G. H. Condict	682,973	Sept. 17	2400	543 544 545	96	2379
Battery: *See* Dry battery. Electric battery. Galvanic battery. Primary battery. Storage battery. Therapeutic battery.							
Battery plates. Making secondary	B. Kliettner	681,329	Aug. 27	3053	.....	96	1713
Battery zinc element. Galvanic-	H. J. Brewer	677,633	July 2	543	130	96	115
Bauxite. Purifying	C. M. Hall	678,732	July 16	2687	.....	96	580
Bayonet	T. A. Fidjeland	683,030	Sept. 24	2510	570	96	2422
Beach-protector	C. H. Van Orden and E. B. Coombs	677,825	July 2	906	216 217	96	191
Beading-machine	S. Ross	680,624	Aug. 13	1652	364	96	1300
Beam. Metallic	G. H. Felt	681,304	Aug. 27	3018	669	96	1707
Bearing. Adjustable	H. Abbott	679,408	July 30	4070	908	96	902
Bearing. Adjustable ball-	H. Deck	681,683	Sept. 3	19	6	96	1868
Bearing and lubricator. Roller-	F. H. Young	678,089	July 9	1436	331	96	312
Bearing. Antifriction-	D. E. Kempster	681,648	Aug. 27	3034	814	96	1830
Bearing. Antifriction-	A. E. Overton	682,850	Sept. 17	2204	497	96	2339
Bearing. Antifriction-	D. E. Kempster	683,408	Sept. 24	3175	727 728	96	2558
Bearing. Ball-	A. F. Howe and E. C. Owen	678,619	July 16	2487	556	96	541
Bearing. Ball-	J. H. Brandt	678,772	July 16	2748	618	96	591
Bearing. Ball-	J. A. Guinn	678,779	July 16	2759	621	96	594
Bearing for disk drills	C. Moehring	680,001	Aug. 6	633	138 139	96	1170
Bearing for wheels, &c. Ball-	J. J. Clarke	680,641	Aug. 13	1675	371	96	1394
Bearing. Roller-	G. E. Bartholomew	677,494	July 2	280	69	96	61

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bearing. Roller-	A. P. Morrow	679,465	July 30	4178	988	96	922
Bearing. Roller-	H. Monk	679,509	July 30	4277	962	96	941
Bearing. Roller-	J. Holt	681,549	Aug. 27	3449	766	96	1792
Bearing. Roller-	J. Hutchison	681,798	Sept. 3	268	52	96	1919
Bearing. Roller side	F. K. Fassett	682,406	Sept. 10	1355	307	96	2150
Bearing. Self-lubricating	J. T. Phillips	682,268	Sept. 10	1124	255	96	2106
Bearing-spindle for vehicle-axles	J. A. Smith	678,524	July 16	2282	514	96	500
Bearing. Thrust-	H. Brinkmann	677,434	July 2	181	43, 44	96	40
Bearing. Vehicle-wheel	C. S. Smith	678,048	July 9	1361	314	96	299
Bearing. Vertical-shaft	P. L. Kimball	679,078	July 23	3110	759	96	743
Beating-engine	E. Conley	678,226	July 9	1688	387	96	364
Bed and wardrobe-couch. Combination sofa-	E. F. Palmer and O. G. Hardin	678,026	July 9	1307	299	96	288
Bed-awning or mosquito-bar	L. Price	678,197	July 9	1633	377	96	352
Bed-bottom	P. B. Rooney	683,333	Sept. 24	3041	697	96	2530
Bed-bottom and upholstery support	J. Hoey	683,175	Sept. 24	2740	630	96	2468
Bed. Couch-	W. S. Bowie	681,187	Aug. 27	2772	615	96	1658
Bed. Folding	T. Hauser	680,042	Aug. 6	605	132	96	1164
Bed. Invalid's	P. C. Smith	680,814	Aug. 20	2081	452	96	1499
Bed-lounge	G. M. Thomure	677,717	July 2	603	164	96	147
Bed-motion	L. C. Crowell	678,358	July 16	1953	447	96	431
Bed-netting support	F. Sim	683,344	Sept. 24	3057	701	96	2533
Bed-pan	G. Thornton, F. D. Freeborn, and W. Hiller.	682,650	Sept. 17	1784	408	96	2258
Bed-pan	R. E. Holder	683,044	Sept. 24	2529	576	96	2425
Bed-rail clamp	U. C. Oblosser	682,396	Sept. 10	1322	299	96	2143
Bed-roll	E. Conley	678,227	July 9	1689	387	96	364
Bed-slat hook	T. P. R. House	682,078	Sept. 3	785	171	96	2020
Bed-spring	C. G. Smith	681,748	Sept. 3	166	32	96	1897
Bed-spring	O. H. Watkins	683,360	Sept. 24	3093	706	96	2539
Bed-spring-making machine	B. R. Butler	682,028	Sept. 3	699	151	96	2003
Beds. Automatic device for covering	J. Herbs	682,617	Sept. 17	1734	396	96	2248
Bedstead	J. B. Spencer and A. A. Cameron	679,643	July 30	4519	1016 1017	96	994
Bedstead	M. G. Conley	681,874	Sept. 3	408	82	96	1947
Bedstead attachment	H. C. Lausen	677,671	July 2	615	147	96	130
Bedstead attachment	E. A. Libby	677,672	July 2	617	147	96	130
Bedstead. Chair-	R. J. Welles	677,488	July 2	260	65	96	56
Bedstead corner-fastening	A. S. Myers	683,137	Sept. 24	2680	617	96	2456
Bedstead. Door-	H. B. Ruggles	678,828	July 16	2568	646	96	616
Bedstead. Metallic	E. C. Baynes	678,092	July 9	1439	332	96	313
Bedstead. Metallic	J. T. Petford	682,885	Sept. 17	2255	509	96	2350
Bedsteads. Detachable guard-rail for	H. A. Tobey	681,154	Aug. 20	2693	597	96	1623
Beehive	R. Decroly	680,025	Aug. 6	573	124 125	96	1157
Beer-drawing apparatus	C. Applehans	678,771	July 16	2746	618	96	591
Beer or ale. Apparatus for draft	H. Strater	682,766	Sept. 17	2018	456	96	2302
Bell	D. P. Wolhaupter	679,659	July 30	4540	1021	96	998
Belt	S. J. Prokesch	680,071	Aug. 6	657	145	96	1175
Belt connection. Chain-	G. L. Holmes	680,920	Aug. 20	2269	499	96	1537
Belt. Electric	J. Trussell	680,629	Aug. 13	1659	366	96	1891
Belt. Electric	W. M. Davis	682,380	Sept. 10	1311	295	96	2140
Belt-placer	J. S. Montgomery, F. G. and R. R. Owen, Jr.	680,063	Aug. 6	636	139	96	1171
Belt-tightener	W. H. Johnson	678,342	July 9	1919	440	96	407
Belts. Apparatus for placing driving-	E. Jagger	679,317	July 30	3873	866	96	869
Belting. Manufacturing	C. P. Landreth	678,575	July 16	2389	536	96	522
Bench: *See* Work-bench.	J. V. Hulse	679,502	July 30	4378	982	96	964
Bending and twisting tool	G. W. Bugbee	680,760	Aug. 20	1961	430 431	96	1476
Bending-machine	V. Royle	678,037	July 9	1342	310 311	96	295
Beveling-machine	D. H. Streeper	678,698	July 16	2623	590 591	96	568
Bib or water-cock. Automatic	E. Koch	680,048	Aug. 6	612	134	96	1166
Bicycle	H. G. Johnson	680,980	Aug. 20	2384	526	96	1559
Bicycle	A. Chamberlin	683,381	Sept. 24	3119	714	96	2547
Bicycle	J. Schulte, Jr.	677,804	July 2	864	207	96	182
Bicycle brake and support	E. L. Morse	677,682	July 2	631	151	96	153
Bicycle coaster-brake	F. E. Denzer and J. Hullt	682,976	Sept. 17	2410	546	96	2281
Bicycle coaster-brake	M. L. Nichols	679,283	July 23	3809	853 854	96	824
Bicycle driving mechanism	A. J. Meunier	680,493	Aug. 13	1421	311	96	1342
Bicycle-fork	E. Y. White	677,830	July 2	921	219	96	193
Bicycle-frame	D. W. Judson	679,565	July 30	4382	983	96	965
Bicycle-frame	E. Y. White	677,485	July 2	263	66	96	57
Bicycle frame. Motor-	A. P. Morrow	679,982	Aug. 6	504	107	96	1144
Bicycle friction-clutch	J. M. Rauhoff	677,373	July 2	70	15, 16	96	17
Bicycle-handle	L. L. Luce	679,086	July 23	3424	768	96	646
Bicycle handle-bar	T. P. Vandeleur	677,907	July 9	1101	254	96	249
Bicycle-lock	H. M. Wood	678,822	July 16	2443	541	96	512
Bicycle-lock	E. F. Hafelfinger	682,682	Sept. 17	1840	423 424	96	2309
Bicycle. Motor-	G. W. Manson	679,631	July 30	4402	1010	96	988
Bicycle mud-guard	P. G. McCollam	680,725	Aug. 20	1899	418	96	1464
Bicycle propelling mechanism	M. F. Rock	679,512	July 30	4287	963 964	96	948
Bicycle-pump	J. Matthews	678,673	July 16	2593	581 582	96	502
Bicycle-racing machine	F. F. Frisbie	679,527	July 30	4313	969	96	949
Bicycle riders. Shoe-sole protector and braking device for	C. R. Reid	679,918	Aug. 6	368	78	96	1117
Bicycle saddle-clip	M. H. Naber	679,537	July 30	4385	974	96	955
Bicycle saddle-support	H. Rosskopf	680,177	Aug. 6	844	197	96	1213
Bicycle-stand	G. G. Spencer	677,428	July 2	173	42	96	39
Bicycle steering device							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-support	G. W. Manson	679,765	Aug. 6	91	21	96	1060
Bicycle-support	J. E. Sweet	679,794	Aug. 6	134	29	96	1069
Bicycle, tricycle, &c	D. E. Norton	682,953	Sept. 17	2370	535	96	2378
Bicycle-wheel	S. Hamblen	682,687	Sept. 17	1848	426	96	2270
Bicycles, &c. Alarm apparatus for	J. Blomster and C. J. E. Gustafsson.	679,825	Aug. 6	206	44	96	1083
Bicycles, &c. Saddle for	F. B. Ray and O. S. Brandt	682,425	Sept. 10	1305	314 315	96	2157
Bicycles. Variable-speed gearing for	G. T. Martin	681,718	Sept. 3	101	20	96	1884
Billiard-cues. Leather-pad fastening for	E. Ferchland	682,677	Sept. 17	1828	420	96	2266
Bin: *See* Fireproof grain-bin.	F. M. Ho-glen	683,176	Sept. 24	2741	631	96	2468
Binder	P. Kempkes	678,741	July 16	2099	508	96	582
Binder draft attachment	L. G. Schult	679,865	Aug. 6	282	61	96	1100
Binder. Loose-leaf	A. Opalla	682,839	Sept. 10	1247	281 282	96	2127
Binder. Loose-leaf	H. S. Jones	682,851	Sept. 17	2190	494	96	2396
Binder. Loose-leaf	J. Bowers	683,011	Sept. 17	2478	562	96	2395
Binder-post. Sectional	C. W. Switzer	681,277	Aug. 27	2945	653	96	1694
Binder-reel	T. F. Bourne	677,628	July 2	537	128	96	114
Binder. Temporary	R. J. Buchanan	678,428	July 16	2113	479	96	468
Binder. Temporary	G. A. Stebbins	683,019	Sept. 24	2495	566	96	2419
Binder. Temporary	C. S. Du Mont	681,586	Aug. 27	3522	781	96	1806
Bisulfite liquor. Apparatus for producing	A. W. Robinson	682,263	Sept. 10	1115	253	96	2104
Bit: *See* Drenching-bit.	J. W. Nesmith. (Reissue)	681,510	Aug. 27	3381	750	96	1777
Bit-brace	J. L. Wells	11,925	Aug. 6	909	201 202	96	1226
Blank-producing machine	J. W. Nesmith. (Reissue)	682,009	Sept. 3	669	145	96	1998
Blast-furnace	P. Neef	678,970	July 23	3171	709	96	695
Bleaching-powder. Apparatus for making	J. S. Ulmer	679,096	July 23	3442	767	96	749
Blending-machine. Automatic	C. E. Tefft	678,322	July 9	1875	431	96	309
Blind-fastener	M. Giglio	680,241	Aug. 13	963	216	96	1251
Blind-fastener	G. Ley	681,967	Sept. 3	604	128	96	1985
Blind regulator. Window-							
Block: *See* Building-block. Pile-block. Fuse-block. Printing-block. Hat-block. Sliding block. Paving-block. Tackle-block.							
Blotter	R. J. Gillham	678,313	July 9	1857	427	96	306
Blotter. Balance-sheet	F. J. Muller	682,948	Sept. 17	2363	534	96	2372
Blower. Rotary	C. H. Jaeger	680,596	Aug. 13	1604	354	96	1380
Blowers. Impeller for rotary	T. W. Green	678,480	July 16	2208	495	96	483
Blowpipe	J. McLoughlin	677,686	July 2	636	152	96	134
Blowpipe	C. E. Esterly	681,690	Sept. 3	44	9	96	1872
Blowpipe. Automatic	A. C. Calkins	682,529	Sept. 10	1567	356	96	2192
Board: *See* Drain-board. Kneading-board. Drawing-board. Mortar-board. Game-board. Scoop-board. Ironing-board. Washboard.							
Boat	C. B. de Lamarre and N. Taltavull.	678,745	July 16	2708	609	96	583
Boat	A. E. Chambers	681,368	Aug. 27	3105	689	96	1724
Boat. Life-	B. Gianese	677,760	July 2	775	186	96	164
Boat. Life-	J. E. Dysart	683,260	Sept. 24	2907	667	96	2508
Boat. Submarine	J. P. Holland	681,221	Aug. 27	2880	629	96	1670
Boat. Submarine	J. P. Holland	683,400	Sept. 24	3160	725	96	2556
Boats, &c. Apparatus for raising or lowering ships'	A. Welln	680,823	Aug. 20	2094	455 456	96	1501
Bobbin	P. H. Bollman	682,350	Sept. 10	1268	286	96	2131
Bobbin	H. A. Mack	682,559	Sept. 10	1624	371	96	2204
Bobbin-holder	J. Roney	678,587	July 16	2418	542	96	527
Bobbin-holding socket	J. Brown	680,019	Aug. 6	563	121	96	1155
Bobèche-lifter	M. O'Carroll	678,898	July 23	3025	678	96	667
Boiler: *See* Bouillon-boiler. Portable boiler. Egg-boiler. Steam-boiler. Flash-boiler. Tube-boiler. Locomotive-boiler. Washboiler. Pipe-boiler. Water-tube boiler.							
Boiler	P. Forg	678,615	July 16	2481	555	96	540
Boiler	S. Aman	680,188	Aug. 6	859	192	96	1216
Boiler	B. D. Coppage	680,696	Aug. 20	1844	404 405	96	1451
Boiler	F. A. Hensley	681,789	Sept. 3	963	51	96	1918
Boiler-cleaning compound	J. Richards	683,390	Sept. 24	3088	------	96	2550
Boiler-coils. Apparatus for making	S. D. Mott	681,243	Aug. 27	2875	687	96	1678
Boiler-flue cleaner	W. H. Howe	681,854	Sept. 3	374	75	96	1940
Boiler furnace. Steam-	C. Schleyder	679,640	July 30	4511	1014	96	992
Boiler furnace. Steam-	J. O. Morris	679,981	Aug. 6	503	107	96	1143
Boiler header. Sectional steam-	C. P. Higgins	682,980	Sept. 17	2441	553	96	2387
Boiler-leveling device	P. N. Grisez and J. S. Walch	677,508	July 2	306	76	96	66
Boiler-locking lid	W. Luis	680,607	Aug. 13	1621	357 358	96	1388
Boiler-pipes, tubing, &c. Mechanism for the production of	O. Klatte	683,050	Sept. 24	2539	578 579	96	2427
Boiler-roof	W. Kennedy	679,460	July 30	4171	986 987	96	990

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boiler-tube	J. W. Walsh	682,209	Sept. 10	1176	268	96	2115
Boiler-tube cleaner and driving mechanism therefor	W. L. Casaday	679,723	Aug. 6	11	3,4	96	1045
Boiler water-circulator	S. D. Mott	681,244	Aug. 27	2877	637	96	1679
Boilers. Alarm apparatus for indicating low level of water in	P. N. Gammelgaard	678,131	July 9	1513	348 / 349	96	329
Boilers. Apparatus for returning exhaust-steam to steam-	W. T. Harris	677,866	July 9	1001	234	96	230
Boilers. Coil for steam-	S. D. Mott	681,722	Sept. 3	111	21	96	1886
Boilers. Recording-gage of steam-pressure on	C. J. Manning	677,674	July 2	619	148 / 149	96	131
Bolster	C. M. Carnahan	682,318	Sept. 10	1212	275	96	2121
Bolster-spring	A. Trovaton	682,002	Sept. 3	655	140	96	1995
Bolt: *See* Expansion-bolt. Seal-bolt.							
Book	G. H. Browne	680,311	Aug. 13	1086	240	96	1276
Book and leaves therefor. Index scrap-	C. C. Ely	679,734	Aug. 6	34	10	96	1049
Bookbinding	J. N. Ward	680,554	Aug. 13	1533	337	96	1366
Bookbinding-machine	J. McClellan	680,802	Aug. 20	2052	447 / 448	96	1492
Bookbinding machinery	J. E. Smyth	679,401	July 30	4060	906	96	900
Bookcase. Sectional	R. Hatch	681,479	Aug. 27	3323	739	96	1766
Book. Check-	J. H. Hoffman	681,915	Sept. 3	488	100	96	1962
Book. Form and record	M. Rosett	680,360	Aug. 13	1184	261 / 262	96	1295
Book-holder and leaf-turner	C. W. Hadlock	678,731	July 16	2685	605	96	579
Book. Index-	L. Hirsch	680,044	Aug. 6	608	132	96	1165
Book. Manifold-	E. D. McKenna	682,222	Sept. 10	1037	234	96	2089
Book. Manifolding sales-	S. Shoup	680,284	Aug. 13	1082	231 / 232	96	1264
Book-rest	W. R. Rathvon	681,976	Sept. 3	615	131	96	1988
Book-rest	H. B. Smith, Sr.	682,761	Sept. 17	2009	455	96	2301
Book. Standing note-	E. V. Mendenhall	681,832	Sept. 3	329	67	96	1931
Book-support. Portable	W. P. Allred	677,731	July 2	717	171	96	151
Book-support. Shelf	G. J. Kraushaar	679,054	July 23	3344	745	96	730
Book. Trade-	A. A. Glisson	679,741	Aug. 6	46	12,13	96	1052
Books, ledgers, &c. Lock for adjustable back-frames of account-	A. D. Hulquist	681,223	Aug. 27	2853	630	96	1671
Books, newspapers, &c. Holder for	J. C. Skogvold	680,080	Aug. 6	670	148	96	1178
Books. Stub-holder for check-	W. H. Hawkins	679,503	July 30	4267	960	96	939
Boot. Lawn-	J. A. Smith	682,888	Sept. 17	2258	510	96	2250
Boot or shoe drier	H. C. Mansfield	680,264	Aug. 13	1063	226	96	1259
Boot or shoe holding jack	W. C. Meyer	677,550	July 2	398	95	96	85
Boot or shoe trimming machines. Attachment for grinding shank-cutters for	G. A. Knowlton	679,027	July 23	3272	732	96	716
Boring instrument for building or mining purposes.	E. Hartung	683,275	Sept. 24	2936	673	96	2509
Boring-tool holder	B. O. Breitfield	680,425	Aug. 13	1207	285	96	1317
Bosh-plate	J. Kennedy	678,743	July 16	2701	609	96	583
Bosh-plate	J. Kennedy	678,785	July 16	2770	624	96	595
Bottle	C. P. Searles and D. J. Minton	678,209	July 9	1642	378	96	354
Bottle	L. C. Balley	681,774	Sept. 3	232	45	96	1911
Bottle	G. Lucas	682,855	Sept. 17	2196	496	96	2238
Bottle-caps. Device for applying	A. Baumgarten	679,012	July 23	3250	726	96	711
Bottle-closing device with cork stopper	H. P. H. Clasen	681,104	Aug. 20	2610	576	96	1905
Bottle-filling machine	R. R. Stone	679,064	July 23	3361	749	96	733
Bottle. Non-refillable	E. Hoerichs	677,413	July 2	137	32	96	31
Bottle. Non-refillable	M. G. Allen	677,913	July 9	1109	256	96	250
Bottle. Non-refillable	A. D. Avedisyan	677,919	July 9	1119	258	96	253
Bottle. Non-refillable	H. Cremer	678,102	July 9	1463	337	96	319
Bottle. Non-refillable	P. F. Lenhart	679,173	July 23	3580	799	96	779
Bottle. Non-refillable	W. F. Clark	679,415	July 30	4082	912	96	904
Bottle. Non-refillable	A. Thebarge	679,646	July 30	4521	1017	96	995
Bottle. Non-refillable	F. J. Abate	679,931	Aug. 6	408	86	96	1123
Bottle. Non-refillable	H. K. Prosser	680,073	Aug. 6	659	146	96	1176
Bottle. Non-refillable	W. S. Bowness	680,220	Aug. 13	982	209	96	1246
Bottle. Non-refillable	S. W. Durham	680,319	Aug. 13	1098	244	96	1279
Bottle. Non-refillable	W. H. Aaron	680,405	Aug. 13	1264	278	96	1311
Bottle. Non-refillable	E. Freese and L. Levy	680,412	Aug. 13	1277	281	96	1314
Bottle. Non-refillable	F. Kuhles	680,416	Aug. 13	1285	282	96	1315
Bottle. Non-refillable	F. A. Woods	680,905	Aug. 20	2239	493	96	1530
Bottle. Non-refillable	W. V. K. Ayres	681,178	Aug. 27	2756	612	96	1655
Bottle. Non-refillable	J. F. Taft	682,293	Sept. 10	1165	265	96	2118
Bottle. Non-refillable	F. M. Weir	678,704	July 16	2632	592	96	570
Bottle. Non-resealable	H. K. Prosser	680,072	Aug. 6	658	146	96	1175
Bottle or jar closures. Device for removing	E. J. Schweizer	680,302	Aug. 13	1189	262	96	1295
Bottle or siphon filling machine	H. J. Valentine	677,719	July 2	697	166	96	148
Bottle spout. Ink-	W. Kinghorne	681,556	Aug. 27	3459	768	96	1794
Bottle-sprinkler	A. Stern	677,900	July 9	1085	252	96	246
Bottle-stopper	J. Senich	679,516	July 30	4294	965	96	944
Bottle-stopper	C. W. Meinecke	680,162	Aug. 6	812	181	96	1207
Bottle-stopper	J. H. Denmead	680,476	Aug. 13	1388	302	96	1336
Bottle stopper and seal	F. R. Graham-Yooll	682,464	Sept. 10	1463	332	96	2171
Bottle-stopper. Infant's feeding-	F. Leu	680,870	Aug. 20	2173	478	96	1517
Bottle-stoppers. Device for attaching rubber washers to	J. and J. A. Butkus	681,949	Sept. 3	562	118 / 119 / 120	96	1978
Bottle-stoppering machine	K. R. Jahn	682,357	Sept. 10	1277	288	96	2132
Bottles, jars, &c. Stopper for	D. Richards	682,495	Sept. 10	1519	344	96	2182
Bottles, &c. Receptacle for transporting	A. F. Wilson	680,306	Aug. 13	1080	239	96	1275
Bottles, &c. Tool for finishing necks of	H. A. Chavous	681,406	Aug. 27	3173	707	96	1737
Bouillon-boiler	J. R. Angelovich	681,673	Sept. 3	4	2	96	1865
Bouquet-holder	H. G. Ruenzel	682,750	Sept. 17	1981	449	96	2295
Bowling-alley	C. R. Barrett and E. C. Phillips	679,205	July 23	3648	813	96	798

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Box: *See* Annealing-box. Ballot-box. Cigar-box. Coin-controlled box. Collapsible box. Color-box. Display-box. Earth-box. File-box. Furnace fire-box. Fuse-box. Knockdown box. Letter-box. Lunch-box. Mail-box. Meter-box. Miter-box. Musical-instrument sounding-box. Outlet-box. Packing-box. Paper box. Powder-distributing box. Refrigerating and tapping box. Sheet-metal box. Sound-box. Stamp-box. Stuffing-box. Tobacco-box. Tooth-powder box. Wheel-box.							
Box	G. Hurd	678,491	July 16	2228	501	96	488
Box	F. H. Houghland	681,822	Aug. 27	3043	676	96	1712
Box	F. H. Houghland	681,823	Aug. 27	3045	676	96	1712
Box	J. E. Bonnemaison	682,524	Sept. 10	1560	354	96	2191
Box-cap and shoe-plank holder. Combined	T. C. Farrell	677,649	July 2	574	136	96	121
Box-fastener	G. F. Knapp	677,576	July 2	448	107	96	95
Box-fastener	T. E. Sayre	682,117	Sept. 3	844	188	96	2032
Box for distributing powdery or pasty substances	P. Kirschen	677,667	July 2	611	146	96	129
Box-lid holder	W. Gies, Jr	677,506	July 2	393	75	96	65
Box-lid holder	B. Neubauer and L. Grisham	683,321	Sept. 24	3026	692	96	2528
Box-lid opener or closer	N. P. Hicks	677,690	July 2	598	143	96	127
Box-lid supporter and card-holder	W. W. Geddes	681,691	Sept. 3	46	9	96	1873
Box lock. Cigar or other	F. H. Mitchell	679,030	July 23	3276	733	96	716
Box-opener	C. O. K. Halgren	678,780	July 16	2750	621	96	594
Box-opener	J. C. Patterson	680,352	Aug. 13	1109	258	96	1292
Box-opening tool	A. C. Bower	679,495	July 30	4252	957	96	936
Box or package	G. Hess and J. L. Clark	679,747	Aug. 6	57	14	96	1053
Box-stapling machine	J. Schmidt, Jr	678,815	July 16	2928	637 / 638	96	609
Box-tray machine	C. F. and J. L. Wiest	681,601	Aug. 27	3542	787 / 788	96	1810
Box-tube machine	C. F. and J. L. Wiest	681,602	Aug. 27	3546	789 / 790	96	1811
Boxes. Machine for packing articles into	P. Butler	681,300	Aug. 27	3004	666 / 667	96	1704
Brace: *See* Bit-brace.							
Brace	P. F. Maines	680,931	Aug. 20	2286	503	96	1541
Bracket: *See* Corner-bracket. Fly-paper bracket. Lamp-bracket. Roof-bracket. Shingling-bracket. Tree-prop bracket.							
Bracket	W. C. Callender	678,112	July 9	1481	342	96	323
Braiding-carrier tension	J. A. Turner	679,650	July 30	4529	1019	96	996
Braiding-machine	A. V. Groupe	681,450	Aug. 27	3271	727 / 728	96	1756
Braiding-machine	J. P. Swift	681,968	Sept. 3	646	138 / 139	96	1993
Braiding-machine	C. Schürmann	682,887	Sept. 17	2256	509 / 510	96	2250
Brake: *See* Air-brake. Automatic brake. Back-pedaling brake. Bicycle-brake. Bicycle coaster-brake. Car-brake. Coupling-brake. Electric brake. Elevator-brake. Emergency-brake. Fluid-pressure brake. Railway-brake. Railway air-brake. Sleigh-brake. Track-brake. Vehicle-brake. Wagon-brake.							
Brake	G. W. Nistle	677,464	July 2	232	57	96	51
Brake-controlling apparatus	F. C. Stöcke	679,791	Aug. 6	130	28, 29	96	1068
Brake mechanism	J. D. Keiley	678,208	July 9	1831	422	96	391
Brake-shoe	W. E. Gorton	678,997	July 23	3212	719	96	704
Brake-shoe	J. Sheehan	679,787	Aug. 6	122	27	96	1066
Brake-shoe. Composite	F. R. Spear	678,139	July 9	1528	352	96	332
Bread	C. C. Anstaett	678,454	July 16	2147	------	96	470
Bread-cutter	E. N. Corriveau	682,456	Sept. 10	1453	329	96	2169
Bread. Making	C. C. Anstaett	678,455	July 16	2147	------	96	471
Bread or candy dividing machine	C. Lueteke	680,051	Aug. 6	615	104	96	1167
Breastpin or the like	G. A. Hawver	681,393	Aug. 27	3156	703	96	1734
Breech mechanism	J. F Meigs and S. A. S. Hammer	680,386	Aug. 13	1292	271	96	1304
Breeching	E. E. Ecker	679,609	July 30	4450	1001	96	981
Brick-carrier. Hand	G. J. J. Hoelsche	680,591	Aug. 13	1507	352	96	1370
Brick compound. Basic fire-	S. B. Newberry	677,688	July 2	638	------	96	135
Brick-drier	F. Alsip	679,816	Aug. 6	190	41	96	1081
Brick-kiln	G. F. and H. N. Gray and R. South	680,914	Aug. 20	2278	496 / 497	96	1534
Brick-kiln	H. Konhorst	682,829	Sept. 17	2150	485 / 497	96	2228
Brick-machine	H. K. King and C. Chambers, Jr.	678,259	July 9	1733	398 / 399	96	374
Brick-making machine	M. W. Marsden	679,853	Aug. 6	257	55	96	1095
Brick or artificial stone. Mold for	S. M. Kimble	679,232	July 23	3689	802	96	802
Brick-pressing machine	J. R. Long	682,383	Sept. 10	1315	296 / 297	96	2141

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brick. Self-centering building-	A. I. Svan	683,233	Sept. 24	2851	655	96	2490
Brick. Vitrified	M. J. Magarity	679,427	July 30	4098	.....	96	907
Bricks. Apparatus for making re-pressed	J. N. Battenfeld	678,635	July 16	2529	565	96	549
Bricks or the like. Machinery for pressing	R. T. Hughes	679,846	Aug. 6	246	52	96	1092
Bridge construction	G. W. Heffner	677,571	July 2	441	105	96	93
Bridge. Counterbalanced and jointed suspension-	F. J. Arnodin	680,906	Aug. 20	2242	493	96	1531
Bridge-gate	J. Cummings	682,532	Sept. 10	1570	356 / 357	96	2193
Bridge-gate	E. Einert	683,261	Sept. 24	2910	667	96	2508
Bridge. Truss-	T. G. Gilfillan	678,239	July 9	1709	391 / 392	96	368
Bridge. Truss-	W. Shafer	682,500	Sept. 10	1523	345	96	2183
Bridges, &c. Manufacture of wire links for tension members of	G. Lindenthal	678,672	July 16	2591	581	96	561
Bridle	P. H. Flynn	678,388	July 16	2020	459	96	446
Bridle	J. S. Binkley	682,125	Sept. 3	855	192	96	2085
Bridle	R. C. Hills	679,396	July 9	1827	421	96	390
Briquet material. Manufacture of	J. T. Davis	678,359	July 16	1957	448	96	432
Briqueting-machine	R. P. McCully	680,936	Aug. 20	2295	505	96	1542
Bristle-probang	J. Ferracioli	678,235	July 9	1705	390	96	367
Broiler	A. Tenu	679,130	July 23	3500	788	96	762
Broiler	M. J. Fuchs	681,447	Aug. 27	3266	736	96	1755
Bronze-powder. Machine for making	W. H. McCormick	681,455	Aug. 27	3287	731	96	1760
Brooder	J. R. Ross	683,071	Sept. 24	2567	586	96	2434
Broom-bridle	A. Schaefer	682,280	Sept. 10	1146	259	96	2110
Broom for street-sweeping, &c	J. A. Pulger	677,372	July 2	69	15	96	17
Broom-handle extension-coupling	D. H. Mowen	678,270	July 9	1772	408	96	379
Broom-holder	W. H. Baird	678,431	July 16	2094	476	96	459
Brush	G. Pavlik	680,394	Aug. 13	1941	273	96	1306
Brush	H. D. Carryl	680,427	Aug. 13	1999	285	96	1318
Brush	N. Stow	681,148	Aug. 20	2681	592	96	1621
Brush	J. Schreiner	681,981	Sept. 3	528	111	96	1971
Brush	W. S. Walker	683,007	Sept. 17	3472	560	96	2394
Brush	E. S. G. Lewis	682,945	Sept. 17	3260	533	96	2371
Brush. Blacking-	J. W. Tully	678,594	July 16	2428	544	96	529
Brush case. Tooth-	T. C. Booth	677,951	July 9	968	227	96	294
Brush for paste-tubes	C. J. McCord	682,264	Sept. 10	1116	253	96	2104
Brush-handle	J. J. Wood	677,834	July 2	928	220	96	194
Brush-holder	J. P. Mallett	681,421	Aug. 27	3204	713	96	1743
Brush-holder-supporting device	T. O. Grills	683,039	Sept. 24	2521	574	96	2424
Brush-polishing attachment. Shoe-	F. G. Farnham	677,562	July 2	294	73	96	68
Brush. Rotary	J. E. Compton	680,960	Aug. 20	2402	530	96	1562
Brush. Rotary	J. B. Schweiger	678,051	July 9	1365	315	96	300
Brush. Scrubbing-	O. G. L. Nettlich and G. E. J. Körzinger.	678,971	July 23	3172	709	96	696
Brush. Shaving-	W. Stark	680,365	Aug. 13	1192	263	96	1296
Brush. Tooth-	L. H. Arnold	682,836	Sept. 17	2164	489	96	2331
Brush. Tooth-	G. A. Silday	681,990	Sept. 3	635	135	96	1992
Brushes. Bridle, tie, or like fitting for painters'	S. Ross	680,418	Aug. 13	1287	288	96	1316
Brushes. Hub for polishing	B. Nichols	677,589	July 2	466	111 / 112	96	98
Brushing, grinding, or polishing machine	J. N. Purcell	679,336	July 30	3911	874	96	868
Buckle	E. P. Bergman and A. E. Renard	680,370	Aug. 13	1200	265	96	1298
Buckle	R. C. Pool	680,464	Aug. 13	1363	298	96	1332
Buckle	J. C. Smith	681,402	Aug. 27	3166	706	96	1736
Buckle	T. J. MacCarthy	682,148	Sept. 3	804	199	96	2043
Buckle	W. A. H. Crowley	682,586	Sept. 10	1675	381	96	2213
Buckle	C. N. Ling	679,282	July 23	3908	852	96	824
Buckle and hame-tug loop. Combined trace-	I. Lewenthal	680,929	Aug. 20	2284	502	96	1541
Buckle. Belt-	J. T. Price	680,544	Aug. 13	1518	333	96	1363
Buckle. Crupper-	A. Shepherd	681,998	Sept. 3	532	135	96	1991
Buckle. Harness-	A. F. Thompson	678,700	July 16	2027	501	96	509
Buckle. Sealing-	A. A. Abrams	678,631	July 16	2514	562	96	546
Buckle. Suspender-	A. A. Abrams	679,200	July 23	3641	813	96	792
Buckle. Suspender-	M. Woodhull	678,710	July 16	2650	596 / 597	96	573
Buggies. Hinged door for piano-box	J. O. Wells	680,094	Aug. 6	691	154	96	1183
Buggy-top	J. C. Ford	679,838	Aug. 6	235	49	96	1090
Buggy-top raiser	J. T. Prouty	680,795	Aug. 20	1922	421	96	1469
Buggy-top releasing device	L. T. Slye	678,052	July 9	1366	315 / 316	96	300
Building	B. Haffner	677,351	July 2	31	7	96	9
Building-block	A. M. Fenner	680,138	Aug. 6	761	169	96	1197
Building-block	W. H. Grueby	679,746	Aug. 6	56	14	96	1053
Building construction	J. C. Pelton	679,776	Aug. 6	107	24	96	1068
Building construction	J. G. Zwicker	682,312	Sept. 10	1205	272	96	2119
Building construction	W. L. Caldwell	682,316	Sept. 10	1210	274	96	2120
Building constructions. Stud for	N. T. and L. N. McCleer	681,247	Aug. 27	3261	698	96	1690
Building. Frame	W. B. George	678,728	July 16	2680	604	96	578
Building-framework	H. Lee	678,407	July 16	2032	466	96	452
Bulkhead-door	T. C. Smith	680,549	Aug. 13	1523	335	96	1364
Bullet. Mushroom-	H. Theis	678,064	July 9	1391	320	96	304
Bullet-proof substance	P. Butler	682,690	Sept. 17	1703	389	96	2242
Bullet-scoring machine	T. C. Smith	680,550	Aug. 13	1524	335	96	1364
Bullets. Making partly-covered	J. B. Cox	681,442	Aug. 27	3255	729	96	1753
Bumping-post	M. J. Bowman	681,679	Sept. 3	14	4, 5	96	1867
Bunching-machine	C. J. Kintner	682,202	Sept. 10	996	224	96	2088
Bung for barrels, kegs, or casks	J. H. McClelland	683,182	Sept. 24	2758	633	96	2470
Bung-hole stopper or seal for metallic kegs	C. R. Barrett and E. C. Phillips	680,517	Aug. 13	1476	325	96	1355
Bungs, &c. Implement for extracting	E. C. Phillips	679,160	July 23	3538	794	96	775
Bungs. Implement for operating spring-	C. C. A. E. Wiese	683,238	Sept. 24	2858	656	96	2491
Buoy. Night light	W. J. Wernette	679,654	July 30	4538	1020	96	997
Burglar-alarm	J. B. Yeakle	681,290	Aug. 27	3070	660	96	1699
Burglar-alarm	W. G. McClure	683,319	Sept. 24	3094	692	96	2527
Burglar-alarm or door-signal	W. R. Edelen	679,957	Aug. 6	468	97	96	1135
Burglar-proof bar for window-gratings	W. H. Larmore	679,028	July 23	3274	752	96	716

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burial-case protector	H. D. Clark	678,224	July 9	1685	386	96	368
Burial-casket	C. B. Nichols	678,348	July 9	1982	443	96	410
Burial-casket lids. Cap for	F. Warther	680,092	Aug. 6	689	153	96	1182
Burner: *See* Gas-burner / Hydrocarbon-burner. / Hydrocarbon-vapor burner. / Incandescent burner. / Refuse-burner. / Vapor-burner.	J. Scior	680,397	Aug. 13	1246	273	96	1307
Bushing. Bung-hole	F. C. Reinhardt	682,496	Sept. 10	1907	415	96	2158
Bust-former	F. Krabal	683,298	Sept. 24	2975	681	96	2516
Butter-cake forming and printing machine	W. H. Noack	681,098	Aug. 20	2552	564	96	1594
Butter-cutter	P. F. Gibbons	681,912	Sept. 3	482	98, 99	96	1961
Butter-cutter	W. M. Blaney	677,732	July 2	718	171	96	152
Butter, &c., from vessels. Device for removing	W. Hornich, Jr	679,052	July 23	3337	745	96	720
Button	J. D. Burns	680,121	Aug. 6	737	163	96	1191
Button	M. Hoetger	681,850	Sept. 3	368	74	96	1920
Button	F. M. Hasenfus, Jr	678,663	July 16	2577	577	96	550
Button and necktie-fastener. Collar-	C. C. King	680,047	Aug. 6	611	133	96	1166
Button and necktie-retainer. Combined collar-	J. H. Vinton	679,441	July 30	4129	925 / 926	96	914
Button-attaching implement	J. H. Vinton	679,442	July 30	4132	926	96	914
Button-attaching implement	I. H. Sisson	679,434	July 30	4110	920 / 921 / 922	96	910
Button-attaching machine	J. H. Vinton	679,444	July 30	4136	927 / 928	96	914
Button-attaching machine	J. H. Vinton	679,445	July 30	4140	928 / 929	96	915
Button. Collar-	J. E. Potter	678,762	July 16	2732	615 / 616	96	589
Button. Collar-	J. W. McAuliffe	679,157	July 23	3555	794	96	774
Button. Cuff-	G. Breda	677,681	July 2	541	129	96	115
Button-drilling machine	H. Chalmers	680,909	Aug. 20	2248	494 / 495	96	1532
Button-fastener	E. M. Phelps	679,911	Aug. 6	365	77	96	1116
Button-fasteners. Machine for making wire	I. H. Sisson	679,433	July 30	4106	919 / 920	96	909
Button-holding clamp	J. T. Hogan	679,751	Aug. 6	65	16	96	1051
Buttonhole-casing	R. H. Piper	677,792	July 2	838	200	96	177
Buttonhole cutting and stitching machine. Automatic	J. W. Lufkin	678,825	July 16	2847	642 / 643 / 644 / 645	96	618
Buttonhole-flies. Apparatus for marking	W. T. Benjamin	677,537	July 2	410	99	96	87
Button. Link cuff-	E. A. Lehmann	681,028	Aug. 20	2476	549	96	1577
Button-locator	J. H. Vinton	679,443	July 30	4134	926	96	914
Button or stud	D. D. Dawley	678,477	July 16	2197	493	96	482
Button or stud. Collar	W. Sweeney	681,588	Aug. 27	3525	782	96	1807
Button-polisher	E. W. Wright	681,771	Sept. 3	227	44	96	1910
Button. Separable	E. M. Phelps	679,910	Aug. 6	363	77	96	1115
Button. Separable and detachable	L. B. Beckwith	682,782	Sept. 17	2052	464	96	2309
Button. Tack-	T. Long	679,762	Aug. 6	85	20	96	1059
Button. Tack-fastened	F. E. Stanley	679,707	July 30	4035	1042	96	1019
Buttons. Producing tufting-	F. A. Nelder	677,588	July 2	466	111	96	98
Cabinet. Kitchen-	J. W. Atkins	681,823	Sept. 3	316	64	96	1928
Cable-clamp	G. H. Forsyth	682,847	Sept. 17	2183	493	96	2335
Cable-power	C. J. Eastman	681,632	Aug. 27	3610	808	96	1825
Cable safety device. Hydraulic	W. A. Duncanson	682,536	Sept. 10	1583	359	96	2196
Cage-chair. Safety	M. W. Jelinek. (Reissue)	11,922	July 9	1949	446	96	414
Cages. Self-detaching hook for shaft-	E. G. Weddell	678,804	July 16	2801	631	96	602
Caisson	W. H. McFadden	683,219	Sept. 24	2829	649	96	2484
Cake-beater	K. H. McRae	677,421	July 2	150	35	96	34
Cake-icing machine	J. Rosborough	681,929	Sept. 3	518	108 / 109	96	1909
Cake turner. Pan-	W. Tomaskoff	681,662	Aug. 27	3686	825	96	1840
Calcium hydrate. Apparatus for treating	M. J. French	680,453	Aug. 13	1343	294	96	1328
Calcium oxid or lime. Pulverizing	C. M. Avery	682,837	Sept. 17	2165	.....	96	2331
Calculating-machine	J. A. Turck	679,348	July 30	3982	880 / 881	96	873
Calculating-machine	J. Mallmann	680,340	Aug. 13	1129	251 / 252 / 253	96	1285.
Calculating-machine	J. Mallmann	680,341	Aug. 13	1138	254	96	1286
Calendar	A. A. Low	681,881	Sept. 3	328	66, 67	96	1931
Calendar. Appointment-	E. F. Rönneberg	680,670	Aug. 13	1757	896	96	1412
Calendar, pen, and pencil. Combined	P. Fraser	677,449	July 2	209	51	96	46
Calender-roll-grinding machine	J. Linton	678,961	July 23	3153	706	96	692
Calender-rolls. Means for cooling	G. F. Drew and C. Dickinson	680,135	Aug. 6	755	168	96	1195
Calendering-machine	W. T. Miles	680,495	Aug. 13	1423	312	96	1343
Calendering-machine roller	J. Eck	682,607	Sept. 17	1716	391	96	2245
Calf trough and rack	F. M. Allen	679,285	July 30	3821	856	96	849
Calipers	C. A. Huestis	677,574	July 2	445	106	96	94
Calipers. Micrometer-	E. Glebeler	679,258	July 23	3741	835	96	811
Call-signal	F. M. Wood	680,515	Aug. 13	1473	325	96	1354
Calling-key for party-lines. Selective	F. R. McBerty	680,881	Aug. 20	2195	483	96	1521
Camera	C. W. Barnekov	679,271	July 23	3768	841	96	817
Camera	E. R. Bullard	679,881	Aug. 6	315	67	96	1106
Camera attachment. Photographic-	C. F. Hug	678,490	July 16	2227	501	96	488
Camera extension-bed. Photographic-	H. B. Carlton and C. E. Hutchings.	682,029	Sept. 3	701	151 / 152	96	2008
Camera extension-bed. Photographic-	C. Hutchings	682,061	Sept. 3	788	172	96	2021
Camera focusing-hood	A. D. Davis	677,501	July 2	202	72, 73	96	68
Camera. Magazine-	C. C. Henderson	680,208	Aug. 6	888	197 / 198	96	1222
Camera multiplying attachment	C. Laux	681,714	Sept. 3	88	18	96	1881

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Camera. Photographic magazine	A. Mixner	677,460	July 2	226	55,56	96	49
Camera stand. Photographic	K. Nelson	682,809	Sept. 17	2102	477	96	2319
Camera support. Photographic	A. T. Saunders	681,345	Aug. 27	3072	681	96	1717
Cameras. Appliance for adjusting and working shutters and diaphragms of photographic	A. Watkins	681,087	Aug. 20	2587	572	96	1600
Cameras. Changing-bag for	M. Niéll	681,250	Aug. 27	2884	639	96	1680
Cameras or photographic apparatus. Support for	H. H. Bowen and F. T. Harmon	681,614	Aug. 27	3574	794	96	1816
Can: *See* Ash-can. Cooling-can. Oil-can. Sealing-can. Sheet-metal can.							
Can	J. W. Kohnen	682,941	Sept. 17	2354	531	96	2370
Can-cover-cutting machine	J. A. Steward	682,821	Sept. 17	2127	481	96	2324
Can-cutting machine	F. W. Prael	678,901	July 23	3080	679	96	668
Can-filling machine	F. D. Cleveland	678,862	July 23	2940	662	96	651
Can-filling machine	C. H. Plummer	679,780	Aug. 6	111	25	96	1064
Can-filling machine	E. E. Caton	680,702	Aug. 20	1967	432	96	1478
Can-heading machine	W. T. Jones	678,494	July 16	2235	508	96	490
Can-holder. Condensed-milk	B. P. Hanft	681,963	Sept. 3	595	136	96	1984
Can-holder. Detachable	W. H. Goddard	679,742	Aug. 6	51	13	96	1052
Can-holding device	J. F. Kleley	680,925	Aug. 20	2278	501	96	1539
Can-opener	T. A. Darling	679,605	July 30	4454	1000	96	980
Can-opener	E. S. Lefler	680,869	Aug. 20	2169	477	96	1517
Can-opener	J. L. Conner	680,910	Aug. 20	2253	495	96	1533
Can-opener	C. Farrell	681,205	Aug. 27	2862	632	96	1664
Can-opener	N. Cloutier	682,581	Sept. 10	1570	356	96	2198
Can or vessel	E. M. Jones	679,171	July 23	3577	790	96	779
Can-securing means. Milk	E. Eaton	677,566	July 2	430	102	96	91
Can-support	E. Eaton	682,923	Sept. 17	2319	524	96	2363
Can-washer	L. T. Seaton	682,285	Sept. 10	1152	262	96	2111
Cans. Machine for straightening empty tin	J. W. McCall	679,772	Aug. 6	101	23	96	1062
Candelabrum	J. T. O'Reilly	679,984	Aug. 6	508	108	96	1144
Candle-shade holder	F. E. Howard	682,079	Sept. 3	786	171	96	2020
Candlestick	J. O. Lippincott and G. Meredith	678,264	July 9	1749	408	96	376
Candy-making machine	H. Sporland	682,819	Sept. 17	2124	480	96	2323
Cane elevator or loader. Portable suzar-	A. H. Schierholz	683,334	Sept. 24	3042	697	96	2581
Cane-topper	O. Palm	677,426	July 2	109	40,41	96	38
Cannon. Breech-loading	C. H. Griffith	681,021	Aug. 20	2463	545 546	96	1575
Canopy-frame	W. T. Johnston	678,739	July 16	2695	607	96	581
Cap-crimping tool	H. Cogeen	680,643	Aug. 13	1678	372	96	1305
Car	H. Anderson	677,916	July 9	1113	257	96	251
Car. Air-	A. Brodbeck	682,970	Sept. 17	2393	541 542	96	2378
Car and grain door. Combined	J. B. Mockridge	679,853	Aug. 6	260	56	96	1096
Car body and truck bolster. Railway-	W. P. Bettendorf	679,494	July 30	4342	957	96	935
Car-bolster	C. H. Williams, Jr., and G. P. Ritter	680,512	Aug. 13	1465	323	96	1362
Car bolster. Railway-	G. I. King	678,895	July 23	2997	672	96	662
Car bolster. Railway-	G. I. King	678,896	July 23	2998	672	96	662
Car-brake	T. B. Hyland	679,150	July 23	3536	790	96	769
Car-brake	H. Wise	680,904	Aug. 20	2237	492 93	96	1530
Car-checking device	A. M. Acklin	683,370	Sept. 24	3099	709	96	2542
Car-checking device	A. M. Acklin	683,371	Sept. 24	3101	709	96	2543
Car construction	W. H. Woodcock	677,729	July 2	714	169 170	96	151
Car control system. Electric-	C. Hochenegg	683,279	Sept. 24	2942	674 675	96	2510
Car. Convertible dump-	H. S. Hart	677,352	July 2	31	7, 8	96	9
Car-coupling	A. A. Moss	677,366	July 2	61	14	96	15
Car-coupling	H. C. Buhoup	677,435	July 2	184	44, 45	96	41
Car-coupling	J. E. Wade	678,921	July 23	3064	686	96	675
Car-coupling	W. S. Lennon	679,629	July 30	4486	1009	96	987
Car-coupling	A. Vézina	681,462	Aug. 27	3297	733 734	96	1768
Car-coupling	W. E. Potts, Jr., and C. A. Ruckel	681,646	Aug. 27	3643	815	96	1831
Car-coupling	P. Brown	682,238	Sept. 10	1072	242	96	2095
Car-coupling	G. C. Harlin	682,253	Sept. 10	1098	249	96	2100
Car-coupling	G. W. Smillie	682,288	Sept. 10	1159	263	96	2112
Car-coupling	G. W. Smillie	682,289	Sept. 10	1161	263	96	2112
Car-coupling	O. P. Callahan	682,827	Sept. 17	2139	483	96	2326
Car-coupling. Automatic	J. C. Leldy	679,531	July 30	4318	970 971	96	950
Car-door	C. M. Mendenhall	679,633	July 30	4495	1011	96	980
Car-door fastener	W. H. Swank	681,150	Aug. 20	2684	593	96	1621
Car-door fastener	J. E. Barlow	681,607	Aug. 27	3560	791	96	1813
Car-door fastener	P. G. Curley	682,242	Sept. 10	1079	243	96	2096
Car-door fastener	J. L. Clark and F. G. Hamilton	682,580	Sept. 10	1569	356	96	2195
Car-door fastener	A. Schaefer	682,645	Sept. 17	1779	407	96	2257
Car door. Freight-	W. E. Hoyt	678,181	July 9	1597	369	96	346
Car door. Grain-	E. V. Williams	677,728	July 2	713	169	96	151
Car door. Grain-	W. H. Daniels	680,132	Aug. 6	751	167	96	1194
Car door. Grain-	J. D. Hoover	681,321	Aug. 27	3042	675	96	1711
Car-door opener	J. H. Hamilton	677,511	July 2	311	77	96	67
Car. Double-deck	W. E. Sharp	680,943	Aug. 20	2313	508 509	96	1546
Car. Double-deck	W. E. Sharp	680,944	Aug. 20	2315	509	96	1546
Car. Double-deck	F. M. Humphrey	682,622	Sept. 17	1742	399	96	2250
Car draft-gear. Freight-	J. J. Creed	680,130	Aug. 6	748	166	96	1198
Car draft-rigging	J. Timms	679,194	July 23	3632	811 812	96	790
Car draft-rigging	C. S. Needham	682,562	Sept. 10	1631	373	96	2306
Car draft-rigging	J. M. Waugh	683,236	Sept. 24	2855	656	96	2491
Car draft-rigging. Railway-	J. Rawles	677,469	July 2	236	60	96	58
Car draft-rigging. Railway-	A. G. Steinbrenner	681,819	Sept. 3	310	62	96	1967
Car draft-rigging. Railway-	F. H. Clark	682,402	Sept. 10	1350	306	96	2149

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car. Dump-	J. B. Rhodes	682,343	Sept. 10	1255	284	96	2128
Car. Dumping-	J. F. Stone and C. C. Sharp	680,817	Aug. 20	2064	453	96	1499
Car. Dumping-	T. Lawson	682,206	Sept. 10	1008	225	96	2083
Car. Dumping-	T. Lawson	682,329	Sept. 10	1232	279	96	2124
Car. Dumping-	G. I. King	678,258	July 9	1732	397	96	373
Car end bracing. Box-	R. E. Scott	678,697	July 16	2621	590	96	568
Car end sill	S. Lind	677,528	July 2	332	81	96	71
Car-fender	L. P. Platt and F. Warga	678,761	July 16	2731	615	96	589
Car-fender	R. F. Preusser	678,974	July 23	3178	711	96	699
Car-fender	R. F. Pruesser	678,975	July 23	3180	711	96	697
Car-fender	N. Abrahams	680,212	Aug. 13	913	203	96	1243
Car-fender	J. D. Wintz	680,955	Aug. 20	2331	513	96	1550
Car-fender	J. B. Wood	681,361	Aug. 27	3100	686	96	1728
Car-fender	S. Leivy	682,625	Sept. 17	1746	400	96	2251
Car-fender	R. Salomone	682,643	Sept. 17	1777	400	96	2257
Car fender and brake. Street-	T. M. Sanderlin	680,178	Aug. 6	845	187 188	96	1213
Car fender. Street-	C. Nicholson	678,023	July 9	1308	297 298	96	288
Car fender. Street-	G. Wray	679,586	July 30	4423	995	96	974
Car fender. Street-	C. T. Stoelting	681,350	Aug. 27	3082	685	96	1719
Car-fender. Yielding automatic adjustable	S. W. Alexander	677,532	July 2	349	84, 85	96	75
Car foot-board and guard-rail. Street-	F. W. Wassenich	678,601	July 16	2445	549	96	532
Car. Fruit-	T. B. Bayless	681,434	Aug. 27	3228	718 719	96	1748
Car-haul	F. V. Hetzel	678,254	July 9	1726	396	96	372
Car-holding device. Automatic	W. A. Wilson	678,209	July 9	1656	381	96	357
Car journal-bearing. Mine-	D. J. Sullivan	681,997	Sept. 3	644	137	96	1993
Car-loader	C. D. Cole	679,048	July 23	3329	744	96	727
Car-loader	J. E. Young	680,631	Aug. 13	1662	367	96	1392
Car-loading apparatus	A. Wallace, Jr.	678,599	July 16	2442	548	96	531
Car. Ore or gravel	F. Peteler	679,033	July 23	3287	735	96	718
Car-platform closure	W. M. King, Sr	679,080	July 23	3411	760	96	743
Car. Railway-	G. W. Douglas	677,961	July 9	1196	276	96	208
Car. Railway-	C. Vanderbilt	678,597	July 16	2431	545 546 547 548	96	529
Car-replacer	J. A. Foster	682,669	Sept. 17	1720	392	96	2246
Car-replacer and wheel-shoe. Combined	J. Jones	681,228	Aug. 27	2841	631	96	1673
Car-roof	J. E. Ulsh	679,801	Aug. 6	117	32	96	1072
Car-roof construction	L. C. Marshall	678,189	July 9	1613	372	96	348
Car sand-box	A. L. Bacon	677,554	July 2	404	97, 98	96	86
Car-seat	F. G. Koehler	678,260	July 9	1837	422	96	392
Car-seat	F. G. Koehler	679,081	July 23	3415	760	96	744
Car-seat	H. S. Hale	681,784	Sept. 3	254	49	96	1916
Car-seat	L. Janson	683,288	Sept. 24	2958	678	96	2513
Car-sign	C. H. Wilson	681,468	Aug. 27	3308	735	96	1764
Car signaling device	W. W. Ward and J. Kean	680,901	Aug. 20	2230	491	96	1528
Car. Sleeping-	C. W. Beall	682,163	Sept. 10	929	207 208	96	2069
Car track-brake. Railway-	G. W. Douglas	677,962	July 9	1197	276 277	96	208
Car underframing. Box-	G. I. King	678,573	July 16	2385	535	96	521
Car-unloading apparatus	W. Batchelor	678,634	July 16	2528	564	96	549
Car-ventilating apparatus	C. O. Johnson	679,754	Aug. 6	73	18	96	1056
Car-ventilating apparatus. Railway-	F. L. Jobson	682,872	Sept. 17	2227	502	96	2344
Car ventilation	W. T. Cottler	682,176	Sept. 10	948	213	96	2073
Car-vestibule	C. C. Hodges and E. G. Chick	680,146	Aug. 6	775	172	96	1199
Car-wheels. Shoe for truing up	M. Power	679,781	Aug. 6	114	25	96	1065
Cars. Brake-lever system for railway-	N. A. Christensen	681,103	Aug. 20	2608	576	96	1604
Cars. Excavator or machine for unloading	P. J. Mulianey	679,908	Aug. 6	350	74, 75	96	1113
Cars. Follower-plate for draft-gears of	J. Timms	681,896	Sept. 3	457	98	96	1956
Cars. Means for supporting and manipulating contact-shoes of electrically-propelled railway-	H. C. Hastings and L. E. Walkins	677,741	July 2	734	175	96	155
Cars. Motor gear-case for electric	W. Cox	678,377	July 16	1995	455	96	440
Cars on sidings. Device for locking or anchoring railway-	H. E. Flower	680,034	Aug. 6	588	128	96	1160
Cars, &c. Operating-lever for hand-	J. L. Twyman	679,095	July 23	3440	766	96	749
Cars. Strut for wrecking-	J. E. Graham	679,840	Aug. 6	287	50	96	1090
Carbid. Producing barium	C. M. J. (dit Claudius) Limb	680,050	Aug. 6	615	.....	96	1167
Carbids. Making	H. S. Blackmore	681,096	Aug. 20	2598	.....	96	1608
Carbon brush	W. C. Fish	677,348	July 2	26	6	96	8
Carbon pigment. Making	A. Frank	682,249	Sept. 10	1089	.....	96	2099
Carbonating apparatus	P. and O. Madlener	677,580	July 2	454	108	96	96
Carbonating apparatus	E. E. Murphy	678,368	July 16	1974	450	96	435
Carbonating apparatus. Liquid-	W. J. Young	681,528	Aug. 27	3408	756	96	1783
Carbonating apparatus. Liquid-	W. J. Jones	682,145	Sept. 3	886	198	96	2040
Carbonizing material. Apparatus for	B. Zwillinger	682,313	Sept. 10	1205	272 273	96	2119
Carbureted air. Making	S. C. North	678,973	July 23	3174	710	96	696
Carburetor	H. O. Brown and J. R. Connelly	677,852	July 9	969	228	96	224
Carburetor	C. K. Pickles	678,194	July 9	1624	375	96	350
Carburetor	R. Jackson	678,493	July 16	2234	502 503	96	490
Carburetor	G. Fischer	679,019	July 23	3261	728 729	96	718
Carburetor	A. C. Sargent	680,941	Aug. 20	2309	507	96	1545
Carburetor	E. B. Ludwig	682,211	Sept. 10	1011	227	96	2084
Carburetor	W. O. Vance	682,509	Sept. 10	1535	348	96	2185
Carburetor	J. W. Kitten	682,853	Sept. 17	2192	496	96	2337
Carburetor	J. Stubbers	683,282	Sept. 24	2843	654 655	96	2488
Carbureter	W. P. House	683,401	Sept. 24	3162	726	96	2556
Carbureter for explosive-engines	H. H. Buffum	680,961	Aug. 20	2344	515	96	1552
Carbureter oil-feed	G. Fischer	679,018	July 23	3260	728	96	713
Carbureting apparatus for explosion-motors	J. C. E. Mathieu	679,387	July 30	4041	901	96	897

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Carbureting device for explosive-engines	R. and W. T. Aldrich	682,506	Sept. 17	1668	387	96	2241
Card-cutting machine	F. J. George and L. Delivouk	677,504	July 2	299	74, 75	96	64
Card. Playing	W. M. Ford	678,791	July 16	2781	626	96	567
Card-punching machine. Jacquard	V. Royle	678,040	July 9	1349	311	96	296
Card record or index	R. H. Breeding	679,549	July 30	4353	977	96	958
Cards, &c. Mechanism for feeding	J. French	679,961	Aug. 6	471	98, 99	96	1187
Carding-machine	F. W. Midgley	682,806	Sept. 17	3099	474	96	2318
Carding-machine stop-motion	W. H. Morgan and F. A. Hannum	681,568	Aug. 27	3469	770	96	1795
Carpenters' plows, &c. Fence-support for	J. A. Traut	678,309	July 9	1851	426	96	395
Carpet-fastener	G. B. Somers	678,910	July 23	3049	683	96	672
Carpet-fastener	N. J. Meigs	682,805	Sept. 17	2098	474	96	2318
Carpet-fastener	S. W. Wilt	678,080	July 9	1420	326	96	309
Carpet or door strip	A. Parrott	681,257	Aug. 27	2908	643	96	1684
Carpet-stretcher	S. Greacen	677,411	July 2	133	31	96	80
Carpet-sweeper fender	J. S. Mercer	682,479	Sept. 10	1486	337, 338	96	2175
Carriage and cradle. Combined baby	A. S. Parsons	681,576	Aug. 27	3507	777	96	1803
Carriage. Motor	D. Neilly	680,727	Aug. 20	1905	419	96	1465
Carriage running-gear. Baby	G. J. Loomis	681,062	Aug. 20	2537	561	96	1590
Carriage running-gear. Horseless	S. R. Bailey	681,098	Aug. 20	2595	573	96	1602
Carriage-spring	S. R. Bailey	681,094	Aug. 20	2595	573	96	1602
Carriage-spring	R. W. Thompson	678,144	July 9	1537	353, 354	96	334
Carriage-steering mechanism	F. W. Mott	678,967	July 23	3162	707	96	694
Carriage-washing device	T. Loverin	677,525	July 2	395	81	96	72
Carriage-wheel							
Carrier:							
See Barrel-carrier. Brick-carrier. Coin-carrier. Hay-fork carrier. Luggage-carrier. Pneumatic carrier. Pneumatic-despatch-tube carrier. Stone-carrier.							
Carrying-case	R. E. Pendleton	682,493	Sept. 10	1516	343	96	2182
Cart. Grave-digger's dump	A. T. Barnes	677,921	July 9	1123	259	96	253
Cart. Road	W. A. Cowley	681,496	Aug. 27	3360	746	96	1773
Cart. Road-sweeping and collecting	L. Van Wesemael and F. S. Jongers	679,488	July 30	4236	954	96	933
Cart shovel and scraper	A. Gehringer	681,212	Aug. 27	2813	625	96	1696
Cartridge	H. Maxim	677,527	July 2	337	82	96	73
Cartridge	H. Maxim	677,528	July 2	338	82, 83	96	73
Cartridge	J. Mangon	682,364	Sept. 10	1285	290	96	2134
Cartridge belt or bandoleer	A. Mills and T. C. Orndorff	677,680	July 2	628	151	96	133
Cartridge-clip	L. F. Bruce	679,412	July 30	4076	900	96	903
Cartridge. Gun	W. F. Cole	683,384	Sept. 24	3122	715	96	2448
Cartridge-like envelops. Apparatus for filling	N. Ceipek	679,665	July 30	4532	1024	96	1001
Cartridge-machine	P. Butler	681,298	Aug. 27	2987	663, 664, 665	96	1702
Cartridge priming or depriming apparatus	I. Silvis	683,150	Sept. 24	2701	622	96	2461
Cartridge-shell	G. P. Salisbury	678,628	July 16	2509	561	96	545
Cartridge-shell-trimming machine	P. Butler	681,299	Aug. 27	2998	665, 666	96	1703
Cartridge-wad	C. E. Adamson	681,091	Aug. 20	2593	573	96	1602
Carving and delineation machine	A. C. Féron	679,120	July 23	3484	778	96	759
Case:							
See Banana-shipping case. Bookcase. Brush-case. Carrying-case. Display-case. Eyeglass-case. Eyeglass or spectacle case. Filing-case. Fishing-rod case. Hat-case. Packing-case. Shirt or shirt-waist case. Show-case. Spectacle or eyeglass case. Sterilizer-case. Ticket-case.							
Casein and casein glue. Manufacture of	C. H. Bellamy	681,436	Aug. 27	3234	.....	96	1749
Casein powder	J. A. Just	682,549	Sept. 10	1605	367	96	2200
Cash-carrier	M. C. Swezey	677,908	July 9	1090	253	96	247
Cash-indicator	D. K. Allison	679,250	July 23	3720	881	96	808
Cash-receptacle	C. Hutchinson	678,620	July 16	2489	556	96	542
Cash-register	J. P. Cleal	677,500	July 2	290	71, 72	96	62
Cash-register	H. Giles and J. G. Fleming	677,864	July 9	990	232, 233	96	228
Cash-register	E. S. Smith and H. Jarvis	677,890	July 9	1043	245, 247	96	239
Cash-register	E. S. Smith and H. Giles	677,896	July 9	1056	248, 249, 250	96	241
Cash-register	H. Giles	677,976	July 9	1226	292	96	274
Cash-register	D. W. Harper	679,073	July 23	3378	753, 754	96	737
Cash-register	D. W. Harper	679,074	July 23	3396	754, 755, 756	96	738
Cash-register	D. W. Harper	679,075	July 23	3397	756, 757, 758	96	741
Cash-register	G. Browning	679,251	July 23	3734	831, 832	96	808
Cash-register	F. M. Walker	680,508	Aug. 13	1443	317, 318	96	1347
Cash-register	L. Ehrlich	681,633	Aug. 27	3612	803, 804	96	1825
Cash-register	J. Hauser	682,546	Sept. 10	1598	364, 365	96	2199
Cash-register	E. H. Jahnz	683,048	Sept. 24	2535	577, 578	96	2427
Cashier. Mechanical	C. F. Bassett	678,218	July 9	1673	265	96	360

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cask-like vessels. Machine for manufacture of	W. Schmitt	680,442	Aug. 13	1322	291	96	1323
Casks, &c. Apparatus for lining	W. H. Haslett	682,191	Sept. 10	978	220	96	2078
Casket-cover fastener	J. R. Corbett	679,727	Aug. 6	18	5	96	1046
Casket-cover fastener	W. H. Pidrick	681,136	Aug. 20	2663	587	96	1616
Caster	L. H. Kennedy	681,123	Aug. 20	2644	584	96	1612
Caster. Ball	R. B. Dixon	682,047	Sept. 3	734	159	96	2009
Caster. Furniture	B. P. Kenyon	679,819	Aug. 6	250	53	96	1093
Casting	J. H. Kelley	680,924	Aug. 20	2278	501	96	1539
Casting baths or other vessels. Mold for	W. W. Chapman	682,841	Sept. 17	2172	490	96	2333
Casting-making mold	R. F. Ludlow	677,549	July 2	398	95	96	85
Castings. Apparatus for handling, cleaning, and distributing	G. W. Packer	677,691	July 2	642	153, 154	96	135
Castings. Producing soft-metal	G. H. Brabrook	681,527	Aug. 27	3410	756	96	1784
Cataphoric pad	J. F. Mossberg	679,239	July 23	3703	826	96	804
Catch. Spring	W. P. Seng	682,959	Sept. 17	2378	538	96	2375
Cathode-plates. Electrolytic production of	E. G. Elliott and V. Kishner	683,263	Sept. 24	2912	668	96	2504
Cattle-guard	C. E. Harris	680,377	Aug. 13	1214	267	96	1800
Cattle-guard	F. A. Wegner	682,008	Sept. 3	668	144	96	1998
Cattle-guard	A. Conway	682,135	Sept. 3	871	195	96	2037
Cattle-guard	C. E. Sansoucy	682,491	Sept. 10	1406	317	96	2159
Cattle-guard. Surface	R. S. Rust	683,002	Sept. 17	2460	557	96	2391
Ceiling-plate for combination light-fixtures	F. G. Procunier	677,595	July 2	479	115	96	101
Cell-doors. Operating means for	R. C., Jr., and W. A. Stewart	680,288	Aug. 13	1037	233	96	1265
Cellars or underground compartments. Making damp-proof	J. A. McNamee	680,391	Aug. 13	1238	272	96	1306
Cellulose-separator	R. Dietrich	681,498	Aug. 27	3393	746	96	1773
Cement-calcining apparatus	B. B. Lathbury and H. S. Spackman.	677,457	July 2	220	54	96	48
Cement. Forming pieces of raw	G. Möller	678,748	July 16	2708	.....	96	584
Cement, gypsum, &c. Burning	W. Lessing	678,412	July 16	2063	468, 469	96	454
Cement-walk-constructing frame	C. J. Sullivan	683,081	Sept. 24	2584	593, 594	96	2437
Cements, &c. Composition of matter for increasing the strength and durability of	H. J. Livingston	682,724	Sept. 17	1928	.....	96	2286
Centering-machine. Duplex	F. W. Mussetter, J. McCarthy, and W. W. Holmes.	680,724	Aug. 20	1896	417	96	1463
Centering-support	G. H. Kunneke	678,365	July 16	1908	449	96	434
Centrifugal machine	J. J. Berrigan	677,926	July 9	1133	260, 261	96	255
Centrifugal machine	E. D. Mackintosh	681,804	Sept. 3	286	57	96	1922
Chain	C. W. Levalley	682,092	Sept. 3	802	175	96	2024
Chain. Belt	E. Magaldi	680,159	Aug. 6	806	179	96	1206
Chain-belt links. Machine for straightening and trimming	J. C. Howe	677,744	July 2	738	176, 177	96	156
Chain. Conveyer	J. C. Hoshor	677,742	July 2	736	175	96	155
Chain. Drive	L. Schildknecht	679,578	July 30	4407	990	96	971
Chain-making machine	E. F. Giraud	677,568	July 2	435	103	96	92
Chain. Trace	D. Fox	682,538	Sept. 10	1586	360	96	2196
Chair:							
See Barber-chair. Cage-chair. Child's convertible chair. Convertible chair. Dental-chair. Folding chair. High chair. Mining-cage chair. Reclining-chair. Registering-chair. Revolving chair. Rocking-chair. Spring-back chair.							
Chair	C. A. Carlson	678,376	July 16	1993	454	96	439
Chair	J. A. Manahan	680,608	Aug. 13	1622	358	96	1383
Chair	D. R. Cotner	682,672	Sept. 17	1818	417	96	2264
Chair	R. Holman	682,700	Sept. 17	1892	430	96	2277
Chair	B. Franklin	683,032	Sept. 24	2512	571	96	2422
Chair and couch. Combination	F. M. Guthridge	679,617	July 30	4473	1005	96	985
Chair and display-rack. Combined	N. B. Harmon	679,312	July 30	3864	864	96	858
Chair-back. Adjustable	J. Luppino. (Reissue)	11,919	July 2	958	225	96	202
Chair-backs. Adjustable support for	E. F. Brainard	679,939	Aug. 6	427	99	96	1127
Chair bottom or back	C. Acker	680,632	Aug. 13	1664	367	96	1392
Chair-seat	C. A. Stark	682,820	Sept. 17	2125	481	96	2323
Chair-seat-surfacing machine	C. Lingenberg	682,094	Sept. 3	806	178	96	2024
Chair-seats. Apparatus for manufacturing	G. A. Helmbucher	682,467	Sept. 10	1467	332, 333	96	2171
Chairs. Device for operating fans on rocking	S. T. Day and D. S. Hall	680,702	Aug. 20	1858	407	96	1454
Chalk-holder	H. H. Wilson	680,557	Aug. 13	1536	338	96	1367
Chalk-line holder	W. S. Brainard	682,315	Sept. 10	1208	273, 274	96	2120
Channeling-machine attachment	R. R. Anderson	677,915	July 9	1112	256	96	251
Chart. Educational	M. F. Dockery	680,411	Aug. 13	1276	281	96	1313
Chart. Number	N. J. Smith	681,934	Sept. 3	540	118	96	1974
Chatelaine-pin	J. F. Werle	683,368	Sept. 24	3088	707	96	2540
Check cutting or punching machine	S. A. Marker	679,766	Aug. 6	91	22	96	1060
Check-receiver. Workman's	J. C. Minor	681,485	Aug. 27	3339	741	96	1769
Checkrein-connector	L. O. Snell	680,946	Aug. 20	2318	510	96	1547
Checkrein-securer	J. H. Hulse and F. P. Wilkin	681,551	Aug. 27	3452	767	96	1792
Cheese-marker	L. Middleton	678,965	July 23	3158	707	96	698
Cheese-press	W. J. Robinson and H. Higgins	677,599	July 2	483	116, 117	96	102
Chemical apparatus	J. F. W. Meyer	679,888	July 30	4043	901	96	897
Chemical apparatus	F. H. Geldermann	678,727	July 16	2679	608	96	578
Chenille-machine	A. Silbiger	678,204	July 9	1643	379	96	354
Chest or box. Folding	J. M. Glenn	678,465	July 16	2159	487	96	473
Chest, settee, and bed. Combined	H. B. Curtis	682,916	Sept. 17	2304	520, 521	96	2360
Child's convertible chair and go-cart	I. W. Ostrander and R. Cook	679,329	July 30	3896	872	96	865
Chimney-cap mold	A. M. Witte	678,068	July 9	1427	329	96	310
Chimney-casing and sign. Combined	G. O. Tucker	683,358	Sept. 24	3081	705	96	2538
Chimney-cleaner							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chimney-cowl	E. A. Sanders	682,430	Sept. 10	1404	317	96	2159
Chisel-gage	C. Frank	678,776	July 16	2755	620	96	593
Chlorin and treating ores with same. Generating	E. D. Kendall	681,059	Aug. 20	2534	.....	96	1589
Chock and guide. Combined	F. Miller	681,399	Aug. 27	3163	705	96	1735
Chock or buffer. Spring	O. Albert	678,531	July 16	2291	516	96	502
Chock or buffer. Spring	H. Sawyer and O. Albert	678,580	July 16	2420	543	96	527
Chocolate drops or the like. Machine for wrapping	J. Walker	681,281	Aug. 27	2950	654 655	96	1695
Chocolate-manufacturing machine	E. P. F. Magniez	680,489	Aug. 13	1414	308	96	1341
Chopper: *See* Corn-chopper. Cotton-chopper.							
Chronometer-escapement	J. F. Thim	681,006	Aug. 20	2431	538	96	1568
Chuck for lathes, &c.	J. Lehureau and G. Porcher	683,303	Sept. 24	2992	684	96	2517
Chuck or die for pointing or rounding ends of bolts.	G. W. Packer	679,540	July 30	4338	974	96	955
Chuck. Rock-drill	F. Long	683,127	Sept. 24	2964	612	96	2453
Churn	J. H. McCausland	677,694	July 2	633	152	96	184
Churn	F. D. Swaney	679,545	July 30	4347	976	96	957
Churn	G. G. Beynon	681,386	Aug. 27	3149	701	96	1732
Churn	J. D. Mills	682,334	Sept. 10	1241	280	96	2126
Churn	E. A. Edwards	682,588	Sept. 10	1678	381	96	2214
Churn	J. M. Hughes	682,800	Sept. 17	2084	471	96	2315
Churn	I. M. Murphy	683,136	Sept. 24	2979	616 617	96	2456
Churning-machine	B. H. McDaniel	677,586	July 2	468	111	96	98
Chutes. Wagon attachment for supporting	J. T. D. Blackburn	682,969	Sept. 17	2392	541	96	2378
Cider-press	A. K. Schaaf	678,428	July 16	2087	474 475	96	458
Cigar	J. G. Paint	679,541	July 30	4341	975	96	956
Cigar-box	M. F. Dominquez	681,685	Sept. 3	22	7	96	1869
Cigar-box	N. B. Clark	682,867	Sept. 17	2218	501	96	2342
Cigar-cutter	E. J. Epstein	678,614	July 16	2480	554	96	540
Cigar cutter and lighter	L. P. Perew	678,709	July 16	2729	614 615	96	588
Cigar cutter and lighter	C. A. Rosenholz	679,638	July 30	4509	1013	96	991
Cigar-cutter and match-safe. Combined	J. Rist	680,359	Aug. 13	1182	260 261	96	1295
Cigar-holder	R. Thompson	678,444	July 16	2126	481	96	466
Cigar-mold	S. K. Snavely	678,986	July 23	3195	715 716	96	709
Cigar or cigarette holder	R. Thompson	683,234	Sept. 24	2852	655	96	2490
Cigar or cigarette making machine	E. Pisko and J. Philippi	680,009	Aug. 6	651	143 144 145	96	1174
Cigar-wrapper cutter	N. Du Brul	683,201	Sept. 24	2783	641	96	2476
Cigar-wrapper-cutting machine	W. S. Gleim	683,272	Sept. 24	2929	671	96	2507
Cigar-wrappers. Die for cutting out	E. Pisko	677,793	July 2	839	200	96	177
Cigars. Machine for securing metallic tip-covers to	F. E. Heinig	682,552	Sept. 10	1611	368	96	2201
Cigarette-boxing machine	G. M. Williams	679,811	Aug. 6	168	38, 39	96	1076
Cigarette-former	T. F. Foley	680,708	Aug. 20	1867	410	96	1456
Cigarette-maker	H. H. Harrison	681,053	Aug. 20	2526	558	96	1588
Cigarette-making device	H. H. Spelman	678,110	July 9	1477	341	96	322
Cigarette-making device	H. J. Valentine	680,295	Aug. 13	1054	235	96	1208
Cigarette-mouthpieces. Machine for packing	E. T. Pollard	677,594	July 2	477	114 115	96	101
Cigarette-wrapper	J. C. Simering	680,003	Aug. 6	539	114	96	1151
Cigarettes. Machine for making pasted tubes for	A. Benoit, J. Guéniffet, and J. Nicault.	678,636	July 16	2581	566 567	96	550
Cigarettes. Machine for the manufacture of	C. Gloeden	682,542	Sept. 10	1591	361	96	2197
Circuit-breaker	E. M. Hewlett	677,353	July 2	34	9	96	10
Circuit-breaker	C. E. Holmes	678,881	July 23	2980	669	96	659
Circuit-breaker	H. P. Ball	678,991	July 23	3203	717	96	702
Circuit-breaker	L. L. Elden	680,652	Aug. 13	1717	377	96	1404
Circuit-breaker	F. A. Merrick	682,217	Sept. 10	1026	229 230	96	2087
Circuit-closer. Automatic	G. A. Wall	679,446	July 30	4143	929	96	916
Circuits. Controlling high-potential	E. W. Rice, Jr.	678,905	July 23	3087	690	96	669
Circuits. Means for protecting	J. F. Kelly	682,714	Sept. 17	1912	435	96	2282
Clamp: *See* Bed-rail clamp. Portable clamp. Button-holding clamp. Railway-frog clamp. Cable-clamp. Rope-clamp. Clothes-line clamp. Saddler's clamp. Dental clamp. Saw-clamp. Foundry-clamp. Soldering-clamp. Machinist's clamp. Tooth or dental clamp.							
Clamp	J. P. Rockwell	683,184	Sept. 24	2756	634	96	2471
Clamping apparatus	A. Hassler and J. T. Watters	680,859	Aug. 20	2155	473 474	96	1514
Clarifying apparatus	C. R. Hudson	681,170	Aug. 20	2796	606	96	1630
Clasp: *See* Corset-clasp. Hose-supporter clasp. Fire-band clasp. Necktie-clasp. Garment-clasp. Spring-clasp. Garment-supporter clasp. Suspension-clasp. Tie-holding clasp. Garter-clasp.							
Clasp	A. H. Peats	679,542	July 30	4342	975	96	956
Clasp	J. N. Watt and J. A. White	681,088	Aug. 20	2589	572	96	1601
Clasp	J. Goldberg	682,354	Sept. 10	1274	287	96	2132
Clasp	A. C. Bergman	679,692	July 30	4509	1004	96	1014
Clavier Practice	A. C. Bergman	681,438	Aug. 27	3236	719	96	1749

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cleaner: *See* Boiler-flue cleaner. Paint or window cleaner. Boiler-tube cleaner. Paper-pulp-screen cleaner. Comb-cleaner. Railway-track cleaner. Cotton-cleaner. Screen-cleaner. Flax-cleaner. Window-cleaner. Flue-cleaner. Gun-cleaner.							
Cleaning and polishing compound	L. G. Tomoor	678,919	July 23	3002	.....	96	675
Clevis	F. W. Atwell	679,523	July 30	4308	968	96	948
Clevis	E. T. Hisey	680,529	Aug. 13	1492	328	96	1358
Clevis	W. R. Keith	682,361	Sept. 10	1282	289	96	2134
Clevis. Plow	A. Lindgren	682,723	Sept. 17	1927	438	96	2285
Clevis. Whiffletree spring	G. G. F. Boswell	681,947	Sept. 3	558	117	96	1977
Clip: *See* Bicycle saddle-clip. Hame-clip. Cartridge-clip. Pencil-clip. Display-clip.							
Clipper. Hair	C. Carleton	679,944	Aug. 6	434	91	96	1126
Clock. Alarm	C. A. Svensson	681,403	Aug. 27	3167	706	96	1736
Clock. Electric	E. Rosi and G. Vacotti	678,426	July 16	2084	474	96	457
Clock. Electric	G. Hookham	678,953	July 23	3139	703	96	690
Clock. Electric	O. A. En Holm	681,749	Sept. 3	244	47	96	1914
Clock. Electric	R. J. Flint	682,678	Sept. 17	1829	420 421	96	2266
Clock. Electric program	B. Dubinski	683,257	Sept. 24	2903	666	96	2502
Clock. Electric self-winding	D. W. Thompson	677,819	July 2	895	213	96	188
Clock. Geographical	C. Alban	682,016	Sept. 3	677	147	96	1999
Clock. Recording	F. Williams	683,090	Sept. 24	2599	596 597	96	2440
Clock. Secondary electric	T. H. Wurmb and R. Baumann	679,546	July 30	4348	976	96	957
Clock. Secondary electric	F. Lucking	680,532	Aug. 13	1498	329	96	1359
Clocks. Tubular bell for chiming	A. W. Harrington	679,458	July 30	4167	935 936	96	920
Closet-bowl	F. X. L. Gosieniecki	681,541	Aug. 27	3439	763	96	1790
Closet-seat	M. T. Robinson	677,799	July 2	849	202	96	179
Closet-seat lid	R. R. Cowles	683,421	Sept. 24	3201	733	96	2563
Closure-controlling apparatus	J. A. Miller	683,135	Sept. 24	2677	615 616	96	2455
Cloth cutting and folding machine	C. N. Colpitts	678,099	July 9	1464	335 336	96	316
Cloth cutting and folding machine	C. N. Colpitts	678,100	July 9	1459	336	96	317
Cloth-cutting machine	G. E. Lewis	679,056	July 23	3347	746	96	731
Cloth-cutting machine. Electric	R. E. Leve	678,368	July 9	1747	402	96	376
Cloth-cutting machines. Adjustable guide and flattener for	A. I. Jacobs	683,047	Sept. 24	2533	576 577	96	2426
Cloth-drying machine	C. W. Russell	678,136	July 9	1522	350 351	96	331
Cloth folding and holding device	N. P. Denckla	678,945	July 23	3114	698	96	685
Cloth-folding apparatus	E. E. Terbush and E. R. Willcox	678,799	July 16	2792	628 629	96	600
Cloth-guiding device. Automatic	W. I. Lewis	678,121	July 9	1496	345	96	325
Cloth-piler	C. D. Coddington	680,407	Aug. 13	1267	279	96	1312
Cloth-piler	W. N. Dunn	682,922	Sept. 17	2814	523	96	2362
Clothes-drier	J. W. Davis	679,606	July 30	4456	1000	96	981
Clothes-drier	M. Bassett	680,309	Aug. 13	1083	240	96	1276
Clothes-drier	J. B. Junker	681,397	Aug. 27	3160	704	96	1734
Clothes-line	J. H. McBride	680,882	Aug. 20	2197	488	96	1522
Clothes-line	F. Wright	682,307	Sept. 10	1196	271	96	2118
Clothes-line	J. B. Bailey	682,518	Sept. 10	1551	352	96	2189
Clothes-line clamp	G. Park	683,136	Sept. 24	2982	617	96	2457
Clothes-line pole	C. B. St. Clair	677,606	July 2	496	119	96	105
Clothes-line reel	R. H. Elliott	680,220	Aug. 13	1100	244	96	1279
Clothes-pounder	S. Westervelt	680,555	Aug. 13	1534	338	96	1366
Clutch	H. W. Patrick	677,592	July 2	474	113	96	100
Clutch	H. L. Arnold	677,615	July 2	517	124	96	110
Clutch	B. H. Locke	677,872	July 9	1014	239	96	233
Clutch	E. S. Brett	679,359	July 30	3968	887	96	880
Clutch	G. R. Goughnour	679,744	Aug. 6	54	13	96	1053
Clutch	J. Carruthers and E. J. Fithian	682,126	Sept. 3	856	192	96	2035
Clutch	J. Carruthers and E. J. Fithian	682,127	Sept. 3	857	192	96	2035
Clutch	J. Carruthers and E. J. Fithian	682,128	Sept. 3	858	193	96	2035
Clutch. Cone friction	E. E. Thomas	681,152	Aug. 20	2686	593	96	1622
Clutch. Fluid	M. J. Milmoe and W. S. Porter	681,422	Aug. 27	3205	713 714	96	1743
Clutch for traction-engines. Friction	M. Lafever	680,205	Aug. 6	895	198	96	1223
Clutch. Friction	E. Huber	677,573	July 2	444	106	96	94
Clutch. Friction	J. R. Churchill and F. G. Seeley	679,414	July 30	4079	910 911 912	96	904
Clutch. Friction	E. Turney	680,900	Aug. 20	2228	491	96	1528
Clutch. Friction	E. V. Faucett	681,847	Sept. 3	362	73	96	1988
Clutch. Friction	V. R. Browning	683,169	Sept. 24	2730	628	96	2466
Clutch hub. Friction	J. McCaffrey	679,060	July 23	3355	747	96	732
Clutch mechanism	H. F. Knight	677,417	July 2	144	33	96	32
Clutch mechanism. Automatic	J. R. Harrison	682,591	Sept. 10	1684	383 384	96	2215
Clutch. Traction-engine	M. J. Todd	683,357	Sept. 24	3079	705	96	2538
Coagulant and making same	I. H. Jewell	681,882	Sept. 3	426	.....	96	1949
Coal, &c. Apparatus for handling	J. Campbell	682,168	Sept. 10	936	210	96	2071
Coal, &c. Device for handling	E. H. Browning	682,665	Sept. 17	1801	413	96	2261
Coal-dust and carrying it into furnaces. Apparatus for producing	F. de Camp	679,046	July 23	3326	743	96	727
Coal or rock drill	I. Wantling	683,158	Sept. 24	2713	625	96	2463
Coal-pick	J. H. Higgins	682,144	Sept. 3	885	197	96	2040
Coal screen and bagger	J. P. Lowe	678,840	July 16	2897	654	96	623

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Coal. Traction system for use with cable-roads in handling	J. G. Bezanson	681,906	Sept. 3	472	97	96	1959
Coaster and brake. Rear-hub	E. F. Kelley	678,572	July 16	2382	535	96	521
Coat	J. De Mayo	678,996	July 23	3211	719	96	704
Coating. Antifouling	G. D. Coleman	682,913	Sept. 17	2268	518	96	2359
Coating. Antifouling	G. D. Coleman	682,914	Sept. 17	2300	519	96	2359
Coating pipes or bars. Apparatus for	H. B. Lynch	682,146	Sept. 3	888	198	96	2041
Coating pipes or bars. Apparatus for	H. B. Lynch	682,147	Sept. 3	891	{108 {109	96	241
Coating tin, terne, or like plates. Apparatus for	T. Kendrick	677,666	July 2	609	{145 {146	96	129
Coatings of metallic luster on ceramic objects, &c. Producing	R. Zsigmondy	682,310	Sept. 10	1202	------	96	2119
Cobbler's-chair seat	W. M. Cavanaugh	678,357	July 16	1953	447	96	431
Cock	J. Garnier	679,071	July 23	3376	752	96	736
Cock	J. Swedin	680,447	Aug. 13	1385	298	96	1326
Cock. Automatic cylinder	S. P. Grey	683,273	Sept. 24	2931	{671 {672	96	2507
Cock. Compression swing basin	E. G. Hedges	681,315	Aug. 27	3084	673	96	1710
Cock for engineers' brake-valves. Cut-out	J. D. Van Atta	678,596	July 16	2430	545	96	529
Cock for steam-boilers. Gage	R. J. Flinn	680,993	Aug. 20	2406	531	96	1563
Cock. Gas or other	C. F. Kincheloe	679,899	Aug. 6	345	73	96	1112
Cock or valve	M. M. Brophy	679,525	July 30	4310	969	96	940
Cock. Pinch	W. H. Chaddock	682,172	Sept. 10	942	212	96	2072
Cock. Stop	F. Staedeli and G. Vogt	679,062	July 23	3357	748	96	732
Cocks. Handle for stop and waste	F. E. Johnson	678,132	July 9	1514	349	96	329
Coffee compound and making same	J. M. Schutz	680,889	Aug. 20	2209	486	96	1524
Coffee-cooling apparatus	I. D. Richhelmer	681,887	Sept. 3	438	88	96	1951
Coffee, &c. Machine for hulling	C. A. Hege	680,588	Aug. 13	1587	351	96	1377
Coffee or tea making apparatus	C. G. and L. P. Durel	683,259	Sept. 24	2906	667	96	2503
Coffee-pot	A. L. Rich	677,700	July 2	662	158	96	140
Coffee-pot. Distillation	W. A. Barrington	680,958	Aug. 20	2340	514	96	1552
Coffee-pots, &c. Sediment-collector for	P. P. Martin	682,214	Sept. 10	1018	228	96	2086
Coffins into graves. Device for lowering	J. Herwig	680,528	Aug. 13	1491	328	96	1358
Coil for electromagnets and insulating material therefor	E. F. Dwyer	677,802	July 9	987	232	96	226
Coil-forming apparatus	J. Riddell	678,280	July 9	1790	{412 {413	96	383
Coil-retaining device	J. T. H. Dempster	678,864	July 23	2944	662	96	651
Coiling flexible material. Means for	F. R. Gill	682,142	Sept. 3	881	197	96	2039
Coin-carrier	W. Henry and G. O. Herrmann	680,995	Aug. 20	2411	531	96	1564
Coin-carrier	E. W. Roberts	682,496	Sept. 10	1520	344	96	2182
Coin-controlled apparatus	G. L. Slater and A. W. Roe	679,642	July 30	4516	{1015 {1016	96	993
Coin-controlled apparatus	M. F. Price	681,732	Sept. 3	140	26	96	1892
Coin-controlled apparatus	J. A. Weser	681,765	Sept. 3	209	41,42	96	1907
Coin-controlled apparatus	J. W. Tully	678,595	July 16	2428	544	96	529
Coin-controlled box	M. Hofheimer	683,280	Sept. 24	2946	675	96	2511
Coin-controlled machines. Fraud-preventing device for	W. W. Marland and E. Large	680,875	Aug. 20	2181	480	96	1519
Coin-controlled mechanism for prepayment meters	H. L. Fisher	679,837	Aug. 6	228	48,49	96	1088
Coin-delivery apparatus	A. M. Argles	678,153	July 9	1555	{358 {359	96	337
Coin-freed mechanism for goods-delivery machines	G. B. Peters	682,740	Sept. 17	1992	445	96	2291
Coin-holder	A. A. Kidder	682,852	Sept. 17	2192	495	96	2337
Coin-holder	F. A. Rogers	678,696	July 16	2607	585	96	565
Coin holder and carrier	R. T. Durham	677,963	July 9	1200	277	96	269
Coin-operated machine	C. O. Burns and E. A. Strauss	679,216	July 23	3665	817	96	797
Coin-receptacle	W. J. Knox	680,791	Aug. 20	2031	444	96	1488
Coke and gas manufacturing apparatus	W. J. Knox	680,790	Aug. 20	2029	443	96	1488
Coke. Apparatus for the manufacture of	W. J. Knox	680,783	Aug. 20	2007	440	96	1485
Coke. Manufactnre of	W. J. Knox	680,780	Aug. 20	1997	439	96	1484
Coke. Manufacturing	L. J. Hirt	679,749	Aug. 6	61	15	96	1054
Coke-oven	S. T. and C. H. Wellman	682,441	Sept. 10	1421	321	96	2163
Coke-ovens. Drawing-machine for	R. D. Martin	681,064	Aug. 20	2542	{562 {563	96	1591
Coking-table furnace	S. H. Alsip	682,231	Sept. 10	1060	239	96	2093
Colander	M. C. Jenkins	679,564	July 30	4380	988	96	965
Cold-storage apparatus. Indirect air-circulating system for	M. Cooper	677,536	July 2	358	87	96	77
Collapsible box	W. A. Woolsey	682,306	Sept. 10	1194	271	96	2117
Collapsible or knockdown box. Set-up and secured	W. P. Birnie and C. W. Gay	681,472	Aug. 27	3312	736	96	1764
Collapsible tube for containing semiliquid substances	O. Mussinan	683,410	Sept. 24	3182	720	96	2559
Collar	J. Dunning	681,114	Aug. 20	2627	580	96	1609
Collar	F. E. McCathie	682,111	Sept. 3	882	185	96	2030
Collar-blanks, &c. Folding-machine for	E. H. Brown	678,094	July 9	1441	{332 {333	96	313
Collar-blanks, &c. Machine for folding	G. Reece	680,174	Aug. 6	840	186	96	1212
Collar-fastener	C. A. Brothers	678,331	July 9	1888	434	96	401
Collar-fastener	J. H. Emerson	679,118	July 23	3482	778	96	758
Collar. Lady's	H. D. Schutte	678,696	July 16	2620	590	96	568
Collar-trimming machine	H. C. Miller	678,002	July 9	1265	291	96	281
Collar turning and ironing machine	G. Weinschenker and W. S. Schoeller	683,159	Sept. 24	2715	625	96	2463
Color-box	G. C. Hastings	680,658	Aug. 13	1730	380	96	1406
Coloring yarns	W. Shaw	683,229	Sept. 24	2939	653	96	2487
Coloring yarns. Apparatus for	W. Shaw	683,228	Sept. 24	2935	653	96	2487
Column for interior cabinet-work	F. Goldenbogen	681,417	Aug. 27	3196	711	96	1742
Column for interior woodwork	F. Goldenbogen	681,693	Sept. 3	49	9	96	1873
Columns. Manufacturing iron	R. Rau	681,343	Aug. 27	3070	681	96	1717
Comb: *See* Currycomb. Fountain-comb.	I. E. Foltz	681,206	Aug. 27	2803	622	96	1665
Comb	F. W. Grell	681,695	Sept. 3	54	10	96	1874
Comb	G. Giola	681,478	Aug. 27	3322	738	96	1766
Comb-cleaner	E. and E. Meunier	682,946	Sept. 17	2961	533	96	2372
Comb-dabbing mechanism							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Combs. Drawing-off device for circle	A. Long and R. Foster	679,975	Aug. 6	494	{104 {105	96	1142
Combination-lock	S. W. Shoupe	678,769	July 16	2743	617	96	591
Combination-lock	W. H. Taylor	681,888	Sept. 3	339	69	96	1933
Communion-service	J. G. Thomas	678,699	July 16	2625	591	96	569
Communion-wafers. Machine for making	J. J. Eugster	677,648	July 2	572	136	96	121
Commutator. Electric-machine	H. Geisenhöner	678,171	July 9	1584	365	96	343
Commutator for dynamo-electric machines	F. A. Merrick	678,964	July 23	3157	707	96	695
Compass. Dipping-needle	H. D. Cotter and J. W. A. Gardam	682,585	Sept. 10	1674	380	96	2213
Compasses	D. Freuler	682,530	Sept. 10	1586	360	96	2197
Compasses, calipers, &c. Drawing	H. Terlin	682,294	Sept. 10	1166	265	96	2113
Compasses, &c. Locking device for	L. Myers	678,003	July 9	1270	291	96	281
Compasses to distant points. Mechanism for transmitting the reading of ships'	E. F. W. von Mantey	677,581	July 2	455	109	96	96
Compo-board. Machine for manufacturing	C. J. Johnson and W. H. Springer	679,698	July 30	4617	{1086 {1087 {1088	96	1016
Composing-stick	H. H. Stalker	683,079	Sept. 24	2579	592	96	2486
Composition of matter	N. B. Mayer	681,484	Aug. 27	3388	------	96	1769
Compound and semicompound engine. Combined	M. L. Whitfield	678,808	July 16	2812	{634 {635	96	605
Compound engine	M. L. Whitfield	678,807	July 16	2809	{633 {634	96	605
Compound pressure-engine	M. L. Whitfield	678,806	July 16	2803	{632 {633	96	603
Compound pressure-engine	M. L. Whitfield	678,820	July 16	2839	{640 {641	96	611
Compress	J. C. Davis	678,948	July 23	3112	697	96	684
Compressor	W. J. Francke	677,508	July 2	206	74	96	63
Compressor	W. F. Singer	679,343	July 30	3921	877	96	870
Compressor	W. F. Singer	683,185	Sept. 24	2757	634	96	2471
Compressor and pump	A. G. Enock	679,716	July 30	4651	{1045 {1046	96	1022
Computing apparatus	H. W. Byron	682,910	Sept. 17	2292	{517 {518	96	2358
Computing apparatus	H. W. Byron	683,379	Sept. 24	3117	714	96	2546
Computing-machine	A. Schneider and J. Perfler	682,755	Sept. 17	1986	{450 {451 {452	96	2206
Concentrator	J. J. Montgomery	679,155	July 23	3549	793	96	778
Concentrator	G. W. Thornburgh	680,678	Aug. 13	1776	390	96	1416
Concentrator	A. B. Paul	680,988	Aug. 20	2404	506	96	1544
Concentrator	P. C. Forrester	682,053	Sept. 3	741	161	96	2010
Concentrator	L. Nobis and A. Wenzel	679,158	July 23	3556	------	96	774
Concrete material. Producing elastic	M. E. Layne	681,715	Sept. 3	89	18, 19	96	1881
Concrete-tamping machine	P. J. Harleman	680,040	Aug. 6	602	131	96	1164
Condensation. Device for removing water of	H. D. Baragwanath	679,491	July 30	4243	{955 {956	96	934
Condenser	S. G. Phillips	682,340	Sept. 10	1249	282	96	2127
Condenser	P. H. Grimm	680,588	Aug. 13	1578	348	96	1375
Condenser and oil-separator. Combined steam	P. Nézeraux	677,462	July 2	229	56, 57	96	50
Condensing apparatus	P. Nézeraux	681,726	Sept. 3	120	23	96	1888
Condensing apparatus	C. F. Conover	682,408	Sept. 10	1352	306	96	2149
Condensing apparatus	F. Tremain	682,898	Sept. 17	2263	511	96	2351
Conductor	C. A. Wanner	681,158	Aug. 20	2698	598	96	1624
Conduit	J. Hoffman	678,880	July 23	2977	668	96	659
Conduit-plow	J. T. McRoy	678,508	July 16	2260	508	96	495
Conduit. Underground	H. See	679,786	Aug. 6	120	27	96	1066
Conduits. Cushioning device for fluid	W. F. Bossert	682,233	Sept. 10	1068	240	96	2093
Conduits. Outlet-box for interior	F. Alsip	679,818	Aug. 6	194	42	96	1081
Conservatory. Portable	E. L. Thompson	677,382	July 2	82	18	96	20
Convertible chair	E. L. Thompson	677,383	July 2	84	18	96	20
Convertible chair	G. D. Potter	679,578	July 30	4396	987	96	968
Conveyer	H. W. Blaisdell	679,875	Aug. 6	301	64, 65	96	1108
Conveyer	C. W. Hunt	679,894	Aug. 6	336	71	96	1110
Conveyer	A. M. Acklin	683,372	Sept. 24	3103	710	96	2543
Conveyer apparatus	G. S. Baker	680,214	Aug. 13	916	{203 {204 {205 {206	96	1243
Conveyer. Electric	J. G. Gilmer	678,312	July 9	1856	427	96	395
Conveyer mechanism	S. M. Jenks	678,667	July 16	2584	{578 {579	96	560
Conveyer or tram. Wire-rope	R. D. Seymour	681,888	Sept. 3	439	88, 89	96	1952
Conveyers. Switch-valve for pneumatic	T. Lee	678,119	July 9	1494	344	96	325
Cooking apparatus	T. L. Tremblay	680,746	Aug. 20	1940	435	96	1472
Cooking apparatus. Gas	E. W. T. Richmond	683,331	Sept. 24	3038	696	96	2530
Cooking cotton-seed meats. Apparatus for	W. H. Cook	679,604	July 30	4452	1000	96	980
Cooking utensil	G. E. Savage	681,982	Sept. 3	632	133	96	1989
Cooking utensil. Camp	C. A. and O. Anderson	679,588	July 30	4429	995	96	975
Cooking utensil. Electrically-heated	M. Seips	678,522	July 16	2281	513	96	509
Cooking vessel. Steam	F. C. Sherman	678,768	July 16	2742	617	96	591
Cooler: *See* Food-cooler. Water-cooler.	J. W. Kittrell	677,870	July 9	1007	235	96	232
Cooling apparatus. Rotary	E. S. Cushman	681,876	Sept. 3	410	83	96	1947
Cooling-can	F. Messmer	682,694	Sept. 17	1762	408	96	2253
Cooling-coil	C. H. Wheeler	677,750	July 2	757	181	96	160
Cooling-tower	G. W. Funderburgh	678,238	July 9	1708	391	96	368
Coop. Chicken	J. G. Johnston	678,256	July 9	1729	396	96	373
Cope-pattern	C. A. Beck	682,232	Sept. 10	1061	230	96	2093
Copper by ammonium solutions. Producing metallic oxids from	H. Palas and F. Cotta	679,985	Aug. 6	509	108	96	1145
Copper sulfates. Manufacturing	D. S. Coffey	678,541	July 16	2306	520	96	505
Copy-holder	E. Wing	682,656	Sept. 17	1791	410	96	2260
Copy-holder							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Copy-holder. Indicating	E. A. Edwards	679,302	July 30	3849	861	96	855
Copying-bath	M. O. Whelan	678,447	July 16	2130	482	96	467
Copying device. Carbon	J. L. and W. H. Calhoun	679,722	Aug. 6	8	3	96	1045
Copying-press	A. Howard	681,826	Sept. 3	319	65	96	1929
Cork-extractor	J. Coomber	678,773	July 16	2749	619	96	592
Cork-extractor	G. A. Smith	680,469	Aug. 13	1370	299	96	1333
Cork-extractor	W. A. Walsh	682,129	Sept. 3	859	193	96	2035
Cork-puller	J. J. Schermack	683,004	Sept. 17	2466	558 / 559	96	2383
Corn-chopper	C. E. Lykke	679,177	July 23	3569	801	96	781
Corn crushing and cutting machine	J. S. Bloom	680,755	Aug. 20	1953	428	96	1475
Corn from the cob. Machine for cutting green	S. E. and W. W. Morral	679,156	July 23	3553	793	96	774
Corn-husker and fodder-shredder. Combined	A. Rosenthal	677,471	July 2	241	61	96	53
Corn husker and shredder	F. M. Teeguarden and J. B. Hilmes	677,386	July 2	88	19	96	21
Corn-husking bench and fodder-binder. Combined	J. Emans	679,735	Aug. 6	36	10	96	1059
Corn-husking implement	P. A. Waller	682,894	Sept. 17	2264	511	96	2352
Corn-husking implement and twine-cutter	J. Emans	680,030	Aug. 6	582	127	96	1158
Corn-husking machine	A. Rosenthal	681,736	Sept. 3	148	28	96	1894
Corn-husking machine	J. F. Steward	682,291	Sept. 10	1163	264	96	2113
Corn-husking machine	J. E. Goodhue	683,174	Sept. 24	2737	629 / 630	96	2467
Corn, &c. Machine for cutting	F. Nachtigal	682,487	Sept. 10	1505	341	96	2179
Corn-shocker	F. A. Ryther	681,513	Aug. 27	3387	752	96	1778
Corn-shocker	J. M. Shively	681,517	Aug. 27	3396	753	96	1780
Corn snapping, cutting, and husking machine	H. L. Ferris	680,200	Aug. 6	884	196	96	1221
Cornstalk-loader	O. B. Jacobs	680,979	Aug. 20	2379	525	96	1558
Corner-bracket	J. F. Hazen	682,192	Sept. 10	979	221	96	2078
Corner plate, strip, or bead and clip therefor	W. F. Parker	682,489	Sept. 10	1509	342	96	2180
Cornet attachment	C. Springer and G. Davis	679,644	July 30	4522	1017	96	994
Corset	L. Dyer	677,441	July 2	196	48	96	44
Corset	J. D. Belcher	680,112	Aug. 6	725	161	96	1189
Corset	I. W. Birdsey	680,960	Aug. 20	2343	514	96	1532
Corset	L. G. Walker	681,663	Aug. 27	3687	825	96	1840
Corset	C. M. Barnum	679,547	July 30	4350	977	96	958
Corset attachment	D. Kops	683,297	Sept. 24	2973	681	96	2516
Corset attachment	V. Bovy	678,713	July 16	2654	597	96	573
Corset-busk	E. W. Groeschel	682,798	Sept. 17	2082	471	96	2315
Corset-clasp	H. A. Guinzburg	679,559	July 30	4374	982	96	963
Corset-clasp lock and stocking-supporter. Combined	E. Hewson	681,699	Sept. 3	61	11	96	1875
Corset-fastener	D. P. McKenney	679,480	July 30	4209	946	96	928
Corset-stay and dress-holder. Combination	E. J. Martin	679,977	Aug. 6	497	105	96	1142
Corset-steel	A. A. Gregg	678,659	July 16	2571	576	96	538
Cot	A. L. Hockett	680,457	Aug. 13	1350	295	96	1329
Cotton-chopper	T. T. Milburn	680,536	Aug. 13	1505	331	96	1361
Cotton-chopper	A. L. Hockett	680,976	Aug. 20	2374	522	96	1558
Cotton-chopper	J. W. Selfert	682,816	Sept. 17	2116	479	96	2321
Cotton cleaner and distributer	R. S. Munger	680,165	Aug. 6	820	182 / 183	96	1208
Cotton elevator, cleaner, and feeder	S. D. Murray	682,879	Sept. 17	2243	506	96	2347
Cotton-gin condenser	D. S. Chapin	681,194	Aug. 27	2785	618	96	1661
Cotton-gin. Roller	G. Leder	678,406	July 16	2050	465	96	451
Cotton-picker	W. M. Thomas	681,082	Aug. 20	2575	569 / 570	96	1598
Cotton-press	J. E. Morrison and H. S. Cameron	681,564	Aug. 27	3470	771	96	1796
Cotton-press self-locking door-clamp	J. A. Westbrook	678,923	July 23	3066	686	96	675
Cotton-presses. Bat compressing and feeding mechanism for	H. Rembert	681,928	Sept. 3	515	108	96	1968
Cotton-presses, &c. Feeding device for	C. E. Parker	679,635	July 30	4497	1011 / 1012	96	989
Cotton-topping machine	G. W. Palm	682,738	Sept. 17	1900	444 / 445	96	2291
Couch	W. S. Bowie	681,186	Aug. 27	2769	615	96	1658
Counting device	W. Rosenhain	680,396	Aug. 13	1243	274	96	1807
Counting of money or the like. Device or implement for facilitating the	R. W. Hawley	681,054	Aug. 20	2527	558	96	1588
Coupling: *See* Air-brake coupling. Car-coupling. Electric coupling. Hose-coupling. Hydraulic coupling. Joint-coupling. Lumber-coupling. Pipe-coupling. Shaft-coupling. Shaft and pulley coupling. Thill-coupling. Trace-coupling. Union-coupling. Whiffletree-coupling.							
Coupling	F. A. Wegner	677,908	July 9	1102	254	96	249
Coupling	J. Timms	678,145	July 9	1589	354 / 355	96	334
Coupling-brake	J. J. Smith	680,676	Aug. 13	1765	398 / 399	96	1413
Coupling device	W. D. Sargent	682,644	Sept. 17	1778	406	96	2257
Coupling device	J. Marquardt	683,312	Sept. 24	3008	688	96	2524
Coupling-joint	J. H. Glauber	682,250	Sept. 10	1090	247	96	2099
Cover for cases, &c	N. Barney	677,622	July 2	529	126	96	112
Cover for pots, kettles, &c	C. H. S. Helling	680,917	Aug. 20	2364	498	96	1536
Cowl	A. Jordan and F. Schingel	680,865	Aug. 20	2161	476	96	1515
Cowl	G. Dowman	681,877	Sept. 3	411	88	96	1947
Cows for milking or the like. Leg-rope attachment for securing	A. E. Whiting	677,881	July 2	928	219	96	194
Cracker-stacking machine	E. Mackay	679,852	Aug. 6	955	54	96	1094
Cradle. Child's	P. F. Schroder	682,284	Sept. 10	1150	261	96	2111
Crane-carriage	E. Y. Moore	679,585	July 30	4380	973	96	953
Crane for pickling-tanks, &c	R. C. Stiefel and J. H. Nicholson	681,275	Aug. 27	2942	651 / 652	96	1698
Crane. Hoisting	J. Macbeth	677,874	July 9	1018	239 / 240	96	234
Crane. Hoisting	J. Macbeth	678,188	July 9	1612	372	96	348

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Crane. Locomotive revolving	F. E. Hulett	682,703	Sept. 17	1896	431 / 432	96	2278
Crane. Overhead traveling	G. W. Packer	681,575	Aug. 27	3490	775 / 776	96	1800
Cranes, hoisting mechanism, &c. System of controlling pneumatic motors of	E. Y. Moore	679,584	July 30	4325	972	96	992
Crank mechanism	C. G. Holmberg	682,935	Sept. 17	2344	520	96	2368
Crank-pins, &c. Machine for turning off	C. F. Owen	681,071	Aug. 20	2558	565 / 566	96	1595
Crate	J. Mathy	678,826	July 16	2865	645	96	615
Crate. Buggy	C. Varner, A. P. Mosher, and H. M. Agner.	679,098	July 23	3444	767	96	749
Crate. Collapsible shipping	J. S. Steinberg and G. Van Handorf.	678,037	July 9	1376	317	96	301
Crate filler. Egg	S. Scheuer	682,646	Sept. 17	1790	407	96	2257
Crate. Foldable egg	F. C. Edson	678,649	July 16	2549	571	96	533
Crate. Folding	W. P. Murphy	677,683	July 2	632	151	96	133
Crate. Folding	M. G. Coughlan	679,730	Aug. 6	25	8	96	1048
Crate. Folding egg	W. W. Gernsey	679,300	July 30	3850	862	96	857
Crate for globes. Shipping	J. N. Hahn	677,979	July 9	1234	283	96	275
Crate. Fruit-shipping	M. Kulan	683,309	Sept. 24	2806	646	96	2481
Crayon-sharpener	G. O. Anderson	679,136	July 23	3511	785	96	764
Cream-separator	J. L. Roberts	679,685	July 30	4594	1032	96	1011
Cream-separator	A. L. Minlur	681,720	Sept. 3	107	21	96	1885
Cream-separator	A. D. Lugibihl and H. Kibele	683,128	Sept. 24	2665	612	96	2453
Cream-separator	T. Collins and E. L. Hartmann	679,948	Aug. 6	441	92,98	96	1120
Cream-separator. Centrifugal	J. H. Fleming	682,138	Sept. 3	876	196	96	2039
Cream-separator. Centrifugal	H. F. Meistrell	677,675	July 2	621	149	96	131
Crib. Folding	J. J. Wickham	677,832	July 2	924	220	96	194
Crochet-needle	T. F. Kearney	682,066	Sept. 3	797	173	96	2023
Cross-bridge	H. C. Clay	677,338	July 2	12	3	96	5
Cross-head	C. A. Hege	681,218	Aug. 27	2823	626 / 627	96	1668
Cross-ties. Machine for cutting	C. E. Hoffman	682,077	Sept. 3	784	171	96	2020
Crown facer. Porcelain	O. Michael	678,674	July 16	2593	582	96	592
Crucible-furnace	H. F. Nehr	682,952	Sept. 17	2968	535	96	2373
Crucifix, font, and candelabrum. Combined	W. Kitto	682,087	Sept. 3	797	174	96	2023
Crusher: *See* Ore-crusher.	C. F. Delfos	680,650	Aug. 13	1714	376	96	1408
Crushing or pulverizing apparatus	P. W. Pratt	679,468	July 30	4182	939	96	923
Crushing or pulverizing machine	C. A. P. Turner	680,949	Aug. 20	2822	511	96	1548
Crutch	N. Poehlman and V. Gross	682,886	Sept. 17	2256	509	96	2350
Crystallizer	R. M. Hughes	677,663	July 2	603	143	96	127
Cue-tip fastener	E. H. Trick	679,799	Aug. 6	143	32	96	1071
Cuff-holder	J. Jungbauer	680,715	Aug. 20	1876	413	96	1458
Cuff-holder	G. B. Adams	680,956	Aug. 20	2336	513	96	1551
Cuff-holder	W. Thurman	681,279	Aug. 27	2947	653	96	1694
Cuff-holder	J. M. Wright	677,836	July 2	931	221 / 222	96	195
Cultivator	F. E. Davis	678,108	July 9	1464	337 / 338	96	319
Cultivator	T. J. Hubbell	678,489	July 16	2225	501	96	487
Cultivator	D. Hill	678,879	July 23	2974	668	96	658
Cultivator	A. V. Ryder	679,576	July 30	4408	989	96	970
Cultivator	C. T. Hines	682,076	Sept. 3	778	169 / 170	96	2018
Cultivator	W. Roth	682,279	Sept. 10	1144	258 / 259	96	2109
Cultivator and harrow. Combined	B. F. Kuhns	682,720	Sept. 17	1928	437	96	2284
Cultivator attachment. Sulky	L. Holcomb	680,713	Aug. 20	1873	411 / 412	96	1457
Cultivator. Disk	W. J. Wiswall	680,211	Aug. 6	907	201	96	1226
Cultivator. Double	S. D. Poole	678,082	July 9	1319	301	96	291
Cultivator shares or shovels. Standard adapted for	A. G. Perry	677,694	July 2	650	155	96	137
Cultivator-shovel	W. R. Oyler	680,669	Aug. 13	1755	386	96	1411
Cultivator. Sulky	A. Metzel	681,289	Aug. 27	2863	635 / 636	96	1676
Cultivator. Wheel	E. S. Slough	683,151	Sept. 24	2705	622	96	2461
Cultivators. Treadle-guide for	S. F. Hughes	678,736	July 16	3092	606	96	581
Culvert	C. Wolcott and P. MaGirl	678,805	July 16	3450	550	96	533
Curb for sidewalks, lawns, &c	L. A. Levin	683,305	Sept. 24	2985	684	96	2518
Curling-iron heater	A. Firth	680,851	Aug. 20	2143	469	96	1511
Curling-iron heater	E. T. Rosenheimer	680,940	Aug. 20	2308	507	96	1545
Current apparatus. Starting device for constant-	C. H. Van Slyck	678,069	July 9	1401	322	96	305
Current-collecting device	W. S. Moody	680,265	Aug. 13	1005	226	96	1259
Current generators. Rotor for alternating	E. Danielson	678,646	July 16	2544	570	96	552
Current in regular pulsations. Device for the production of continuous	E. Van Haanen	678,808	July 16	2801	631	96	602
Current indicator. Maximum	C. D. Haskins	677,980	July 9	1235	283	96	275
Current machines. Synchronizing alternating	E. M. Hewlett	678,178	July 9	1592	367	96	345
Current-motor control. Alternating	R. D. de Lignières	682,098	Sept. 3	804	176 / 177 / 178	96	2024
Currents. Apparatus for transforming alternating into continuous	M. Hutin and M. Leblanc	681,965	Sept. 3	599	127 / 128	96	1985
Currents. Changing frequency of alternating	B. G. Lamme	682,948	Sept. 17	2357	532	96	2371
Currycomb	M. Alston	679,988	Aug. 6	412	87	96	1124
Currycomb	J. G. Johnson	681,707	Sept. 3	73	15	96	1878
Curtain-fixture	J. W. Housberg	679,677	July 30	4582	1029	96	1009
Curtain-fixture	J. M. Whittaker	680,908	Aug. 13	1074	238	96	1274
Curtain-fixture	J. A. Hamelback	680,584	Aug. 13	1580	348	96	1376
Curtain-fixture	G. E. Curtis	681,201	Aug. 27	2797	621	96	1663
Curtain-fixture	F. H. Bassett	682,781	Sept. 17	2050	464	96	2308
Curtain-fixture and pole-bracket	A. S. Lundberg	682,097	Sept. 3	810	179	96	2025
Curtain fixture. Window	H. D. Schmid	683,335	Sept. 24	3044	698	96	2531

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Curtain-hanger	J. Steinberg	682,761	Sept. 17	2015	456	96	2302
Curtain stretcher. Lace-	J. C. Whipple	680,301	Aug. 13	1064	237	96	1270
Curvature, &c. Apparatus for the treatment of.	K. Wegner and E. Repke	681,174	Aug. 20	2742	607	96	1692
Cushion: *See* Tufted cushion.							
Cushion	D. Hogan and C. W. Meinecke	682,871	Sept. 17	2226	502	96	2343
Cushion-spring and support-wire	W. H. Bates	680,215	Aug. 13	921	206	96	1244
Cuspidor	F. Strothenke	680,009	Aug. 6	545	116	96	1152
Cuspidor. Flushing	H. G. Grubbs	678,481	July 16	2204	495	96	483
Cuspidor. Non-spillable	O. D. Charles	680,022	Aug. 6	568	122	96	1156
Cut-off for cisterns. Automatic	W. E. O'Conner	682,420	Sept. 10	1385	313	96	2135
Cut-out block	H. O. Swoboda	678,990	July 23	3202	717	96	702
Cutter: *See* Band-cutter. Bread-cutter. Butter-cutter. Cigar-cutter. Cigar-wrapper cutter. Ensilage-cutter. Flue-cutter. Gasket-cutter. Glass-cutter. Ice-cutter. Keyway-cutter. Meat-cutter. Meat or vegetable cutter. Paper-cutter. Pipe-cutter. Rock-drill cutter. Rotary cutter. Stalk-cutter. Strawberry-runner cutter. Tube-cutter. Turf and land cutter. Twine-cutter. Vegetable-cutter. Weed-cutter. Wire-cutter.							
Cutter	A. M. Erickson	678,651	July 16	2554	571	96	554
Cutter-bar	W. H. Hodges	683,118	Sept. 24	2650	609	96	2450
Cutter-head blades. Gage for setting	C. W. H. Blood and F. F. Woods	678,712	July 16	2652	597	96	573
Cutter-head. Gaining	L. F. Parks	682,810	Sept. 17	2104	477	96	2319
Cutters. Apparatus for the manufacture of	O. Schaerer	677,887	July 9	1040	244	96	298
Cutting and boring machine. Disk	H. Bliss	681,294	Aug. 27	2979	661 692 691	96	1700
Cutting articles from sheet material. Machine for.	J. J. Breach	678,935	July 23	3098	692 698	96	679
Cutting articles from sheet material. Machine for	J. J. Breach	683,376	Sept. 24	3109	712	96	2545
Cutting implement	W. E. Lott	677,419	July 2	148	34	96	33
Cutting-machine	F. H. Turner	679,800	Aug. 6	144	32	96	1071
Cutting machine. Bias-	F. H. Brewster	681,015	Aug. 20	2453	543	96	1573
Cutting-machine. Continuous	H. D. Perky	681,656	Aug. 27	3674	823	96	1837
Cutting mechanism	E. C. R. Heinrich	680,378	Aug. 13	1215	268	96	1301
Cutting-off mechanism	R. H. Hurlbut	678,569	July 16	2375	533 534	96	519
Cyanid-tank discharge-door	A. D. Jansen	680,154	Aug. 6	799	177	96	1204
Cyanids. Making	S. Zuckschwerdt	682,311	Sept. 10	1204	.....	96	2119
Cyanids. Making	J. Pfleger	682,741	Sept. 17	1964	446	96	2291
Cycle driving mechanism	V. Gourny-Wysocki	683,037	Sept. 24	2519	572 573	96	2424
Cycle-gearing	R. Eccles	680,285	Aug. 13	952	214	96	1250
Cycle. Motor-	G. W. Manson	678,963	July 23	3155	706	96	692
Cycle mud-guard	W. J. Stevens, H. E. Harrold, and F. R. Bluemel.	680,816	Aug. 20	2083	453	96	1499
Cycles. Steering of	J. T. M. Hircock	679,561	July 30	4377	982	96	964
Dam	N. Gherassimoff	677,656	July 2	589	140 141	96	125
Dam	J. F. Glidden	678,105	July 9	1468	338	96	329
Dam or foundation construction. Subterranean or subaqueous	J. F. O'Rourke	678,581	July 16	2403	538 539	96	525
Dams or foundations. Constructing subterranean or subaqueous	J. F. O'Rourke	678,582	July 16	2406	539 540	96	525
Damming torrents. Means for	G. Serrazanetti	680,738	Aug. 20	1927	422	96	1470
Dampening-machine	H. Weber	679,407	July 30	4069	908	96	902
Damper	L. Hoepfner	677,572	July 2	443	106	96	94
Damper and damper-controlling mechanism	R. G. Latham	683,180	Sept. 24	2749	632	96	2469
Damper-regulator	E. G. Tilden	678,917	July 23	3060	684	96	674
Damper-regulator	F. E. Collins	682,791	Sept. 17	2069	468	96	2312
Damper-regulator. Time	R. A. Penrose	681,971	Sept. 3	608	130	96	1986
Dandelion-extractor	E. B. Hughes and W. F. Clow	682,623	Sept. 17	1744	400	96	2259
Dashboard	H. L. Hall	677,761	July 2	776	196	96	164
Dead-centers. Device for overcoming	S. B. Wickersham	678,603	July 16	9448	550	96	533
Decorating-machine	C. E. O'Neil	679,963	Aug. 6	506	107	96	1144
Delivery-switch	C. M. Johnson	681,057	Aug. 20	2530	559	96	1588
Demijohn-frame	A. L. Wood	682,443	Sept. 10	1423	322	96	2164
Dental apparatus	J. M. Gilbert	677,975	July 9	1224	281 292	96	273
Dental appliance	W. T. Lyon	682,698	Sept. 3	811	179	96	2025
Dental articulator	W. M. Bruce	682,668	Sept. 17	1808	415	96	2263
Dental chair	F. Ritter. (Reissue)	11,931	Sept. 17	2480	562 563	96	2395
Dental clamp	J. A. Dunn	677,565	July 2	428	102	96	91
Dental engine	O. H. and A. F. Pieper. (Reissue)	11,920	July 2	959	225	96	202
Dental engine	M. N. Callender	682,317	Sept. 10	1210	274	96	2120
Dental engine	J. W. Cowan	677,947	July 9	1174	271	96	263
Dental-floss holder	J. W. Cowan	678,101	July 9	1461	357	96	318
Dental-floss package	H. N. Lancaster	677,577	July 2	449	107	96	95
Dental forceps	F. A. Brewer, Jr.	680,119	Aug. 6	734	168	96	1191
Dental forceps	A. H. Jacob	681,294	Aug. 27	2696	630	96	1671
Dental forceps	G. L. Bennett	682,597	Sept. 17	1695	387	96	2241
Dental forceps	J. W. Fowlring	681,535	Aug. 27	3423	759	96	1786
Dental impression-cup	J. C. Schroeder and G. P. Spangler.	682,756	Sept. 17	1997	453	96	2298
Denture, Artificial	R. J. Maurer	680,723	Aug. 20	1895	417	96	1463
Depurator	E. F. Terry	681,840	Sept. 3	343	69	96	1934
Derricks. Pivot for masts of	H. W. Welles	679,806	Aug. 6	155	34, 35	96	1073
Desk and chair. Combined school	A. S. Busselle	677,634	July 2	544	130	96	115
Desk basket attachment							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Desk. Card-ledger	G. B. Meleney	677,786	July 2	825	197	96	174
Desk-leaf support	G. H. Wyman	680,104	Aug. 6	711	158	96	1185
Desk. Office-	J. B. Rohrer	677,802	July 2	858	205	96	181
Detergent composition	A. Y. Hubbell	681,324	Aug. 27	3046	.....	96	1712
Diamond-polishing machine	G. Armeny	677,613	July 2	511	122 123	96	108
Diaphragm-screen	J. H. Baker, G. F. Shevlin, and F. H. Baker.	682,839	Sept. 17	2168	489	96	2332
Die: *See* Drawing-die. Punching-machine die. Forge-die. Metal-drawing-machine die.							
Die	F. P. Cady	678,158	July 9	1566	361	96	339
Die	J. R. Blakeslee	680,219	Aug. 13	931	209	96	1246
Die	J. B. Wallace	680,448	Aug. 13	1337	298	96	1326
Die	H. W. Oster	679,241	July 23	3706	827	96	805
Die-head-locking mechanism	L. Hirt	682,547	Sept. 10	1600	365	96	2199
Diffusion apparatus							
Digger: *See* Potato-digger.							
Digging implement. Hand	W. E. Phillips	680,275	Aug. 13	1023	220	96	1263
Digging machine. Trench	J. H. W. Libbe	677,522	July 2	328	80	96	71
Dining-room service apparatus	J. B. Hurd	681,122	Aug. 20	2641	583	96	1611
Direct-acting engine	H. C. Sergeant and W. Prellwitz	679,999	Aug. 6	530	112 113	96	1149
Direct-acting engine. Vertical	H. A. Jensenius	683,407	Sept. 24	3174	727	96	2558
Discharging apparatus	E. P. Waggoner	679,042	July 23	3317	741	96	724
Discoidal engine	F. W. Jaeger	683,406	Sept. 24	3171	727	96	2557
Diseases. Apparatus for treating	H. E. Waite	681,463	Aug. 27	3299	734	96	1702
Disinfectant-holder	D. N. Calkins	681,100	Aug. 20	2604	575	96	1663
Disinfecting apparatus	M. Sheridan	680,812	Aug. 20	2076	451 452	96	1498
Disinfecting apparatus. Toilet-	L. C. Schoneman	680,179	Aug. 6	848	188	96	1214
Disinfecting device	J. D. Rockwell	680,621	Aug. 13	1647	393	96	1389
Disintegrating-mill	A. J. Sackett	678,983	July 23	3180	714	96	699
Dispensing apparatus. Coin-controlled	D. Sullivan	677,748	July 2	754	180	96	159
Display-box	W. K. Peek	679,009	Aug. 6	982	77	96	1115
Display-box	F. A. Horle	680,659	Aug. 13	1731	380	96	1407
Display-case	T. M. Bendall	682,903	Sept. 17	2280	514	96	2355
Display-clip	J. Rait	682,746	Sept. 17	1974	447	96	2293
Display-fixture	H. G. Roth	678,687	July 16	2609	586	96	599
Display-fixture	H. G. Roth	678,688	July 16	2610	586	96	599
Display-fixture	H. G. Roth	678,689	July 16	2612	587	96	599
Display-fixture	H. G. Roth	678,690	July 16	2613	587	96	599
Display-fixture and curtain. Wall	H. G. Roth	678,691	July 16	2614	587 588	96	599
Display-hook	J. La Burt	679,900	Aug. 6	347	73	96	1113
Display-mount	S. F. Denton	681,110	Aug. 20	2620	579	96	1597
Display-rack	W. Northgraves	677,799	July 2	888	198 199	96	176
Display-rack	W. H. Blandin	679,210	July 23	3655	815	96	795
Display-rack	A. Todd	683,356	Sept. 24	3078	704 705	96	2537
Display-rack for mattresses, &c.	G. E. Distelhurst	680,965	Aug. 20	2352	517	96	1553
Display rack or stand	W. S. McRay	679,003	July 23	3222	721	96	706
Display rack. Sample-	J. W. Carver	678,356	July 16	1951	447	96	481
Display-rack. Sectional	J. W. Tucker	682,004	Sept. 3	662	143	96	1936
Display-stand	W. H. Shrader	683,343	Sept. 24	3056	701	96	2533
Display-stand. Veiling	E. S. Aiken	680,450	Aug. 13	1339	293	96	1327
Distributing-machine	G. W. Lovejoy	681,801	Sept. 3	280	56	96	1921
Ditching-machine	M. L. Kinlen	681,857	Sept. 3	378	76	96	1941
Diving apparatus	J. L. Watson	683,361	Sept. 24	3085	706	96	2539
Doll	R. C. Purvis	681,974	Sept. 3	611	131	96	1987
Doll-face	R. Gruss and A. Brückner	678,244	July 9	1715	393	96	370
Door	J. W. Rapp	678,903	July 23	3035	680	96	669
Door	F. J. Cronin	682,821	Sept. 10	1218	276	96	2122
Door	F. J. Cronin	682,822	Sept. 10	1219	276	96	2122
Door	W. Newdyke	682,635	Sept. 17	1763	403	96	2253
Door	W. M. Teeter	682,754	Sept. 17	1985	450	96	2296
Door-catch	C. C. Schreiber	681,985	Sept. 3	628	134	96	1990
Door. Cellar-	G. W. Nushawg and J. A. Niswonger.	678,790	July 16	2780	626	96	597
Door-check	G. W. Mallory	678,889	July 23	3001	673	96	663
Door-check	C. H. Ocumpaugh	679,905	Aug. 6	353	76	96	1114
Door-check	P. Vincent	681,426	Aug. 27	3214	716	96	1745
Door-check	J. A. Britton	680,190	Aug. 6	893	193	96	1217
Door check and alarm	R. C. Hills and A. M. Southard	678,339	July 9	1913	430	96	406
Door check and closer	J. E. Hailey	680,857	Aug. 20	2152	473	96	1513
Door-closer and fly-scare. Combined	J. H. Cook	679,952	Aug. 6	450	95	96	1132
Door-closing apparatus	O. H. Kingsland	680,458	Aug. 13	1351	296	96	1329
Door-closing apparatus	O. H. Kingsland	680,415	Aug. 13	1283	282	96	1315
Door-closing apparatus. Thermal	J. Denes	682,675	Sept. 17	1825	419	96	2260
Door fastener. Sliding-	J. Bachus	680,015	Aug. 6	557	120	96	1154
Door-frame. Adjustable	P. J. Stone	677,379	July 2	78	17	96	19
Door. Grain-	W. Louden	677,524	July 2	333	81	96	72
Door-hanger	E. G. Worden	678,610	July 16	2464	552	96	536
Door-hanger	A. S. Hook	680,996	Aug. 20	2413	532	96	1564
Door-hanger	E. G. Worden	678,609	July 16	2462	552	96	536
Door hanger. Sliding-	J. Z. Newman	677,884	July 9	1032	243	96	237
Door-indicator	O. F. Immell	678,738	July 16	2694	607	96	581
Door-manipulator	J. M. G. Gould	682,796	Sept. 17	2077	470	96	2314
Door-opener. Electromagnetically-operated	G. A. Le Fevre	677,783	July 2	820	196	96	173
Door-openers. Controlling device for electrical	L. Ives	679,847	Aug. 6	248	52	96	1093
Door opening or closing device. Automatic	C. L. Colby and C. F. Peelle	683,102	Sept. 24	2625	603 604	96	2446
Door-operating device	S. W. Letson, C. G. W. Talen, and R. E. L. Reynolds.	678,366	July 16	1969	450	96	434
Door. Sliding	J. Handschumacher	679,962	Aug. 6	475	99	96	1137
Door. Sliding							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Door. Sliding	J. F. O'Brien, Jr.	682,338	Sept. 10	1246	281	96	2127
Door stop and holder	S. S. Smith	679,400	July 30	4059	906	96	900
Door track. Sliding	A. J. Ricker	682,427	Sept. 10	1308	316	96	2158
Door. Warehouse	W. A. Cross	681,953	Sept. 3	580	121	96	1980
Doors. Automatically operating	J. H. Whitaker	679,009	July 23	3237	724	96	710
Doors. Plating wood	W. A. Warner	678,148	July 9	1546	356	96	335
Double-cylinder engine	C. S. Johnson	680,382	Aug. 13	1225	269 / 270	96	1308
Doubling-frame	W. G. Morrison	682,878	Sept. 17	2237	505	96	2346
Dough-raiser	W. Kopisch	679,679	July 30	4585	1030	96	1009
Draft devices. Loop-bar for	N. C. Woodward	680,102	Aug. 6	709	157	96	1186
Draft-equalizer	M. J. Killeen	678,497	July 16	2243	504	96	492
Draft-equalizer	G. A. Couchman	678,644	July 16	2540	569	96	552
Draft-equalizer	H. Carpenter	678,717	July 16	2602	600	96	575
Draft-equalizer	J. Blanchette	679,698	Aug. 6	425	89	96	1126
Draft or buffing rigging	R. D. Gallagher, Jr.	677,654	July 2	582	138 / 139	96	123
Draft or buffing rigging	R. D. Gallagher, Jr.	681,210	Aug. 27	2809	624	96	1666
Draft or buffing rigging	R. D. Gallagher, Jr.	681,880	Sept. 3	422	85	96	1948
Draft-regulator	J. Q. Everson	678,113	July 9	1482	342	96	323
Drag or grapple	P. Rasmussen	681,733	Sept. 3	142	26	96	1893
Drain	J. F. Sikes	680,548	Aug. 13	1522	335	96	1364
Drain-board	W. C. McKinney	678,008	July 9	1277	292	96	283
Drainer	J. Kline	678,404	July 16	2048	464 / 465	96	451
Drainer or colander	R. I. Byrne	681,473	Aug. 27	3313	737	96	1764
Drawer-guide for steel furniture	J. M. Cornell	680,127	Aug. 6	744	165	96	1198
Drawer-slide. Antifriction	B. F. Allen	678,211	July 9	1660	382	96	357
Drawers. Set of	A. Finkenrath	677,734	July 2	720	171	96	152
Drawing-board	O. Haskell	678,562	July 16	2359	529	96	516
Drawing-die	O. Asche	682,866	Sept. 17	2217	501	96	2342
Drawing-press	L. Schuler	678,439	July 16	2114	479	96	468
Drawing-roll	F. M. Marcy	683,311	Sept. 24	3007	687	96	2524
Drawing-roller coupling	G. A. Ryder and A. Parkinson	678,588	July 16	2419	543	96	527
Dredges. Means for conveying power to	W. O'Brien, Jr.	683,063	Sept. 24	2555	583	96	2431
Dredging apparatus	J. L. Garwood	679,738	Aug. 6	41	11	96	1051
Drenching-pit	T. H. Rush	683,147	Sept. 24	2696	621	96	2460
Dress-shield fastener	C. A. See	681,141	Aug. 20	2670	589	96	1618
Drier: *See* Boot or shoe drier. Brick-drier. Clothes-drier. Fruit-drier. Malt-drier.							
Drier	E. P. and E. M. Lawrence	678,072	July 9	1405	323	96	306
Drier-furnace	W. H. Prinz	677,697	July 2	655	156	96	138
Driers. Shirt-hanger for	W. M. Barnes	681,674	Sept. 3	5	2	96	1865
Dry battery	H. Splitdorf	682,648	Sept. 17	1783	408	96	2258
Drying apparatus	C. White	681,942	Sept. 3	549	115 / 116	96	1975
Drying apparatus	J. G. Gardner	683,269	Sept. 24	2922	670	96	2506
Drying apparatus. Vacuum	E. Storch	683,189	Sept. 24	2765	636	96	2473
Drying-cylinder	J. H. Whittle	683,237	Sept. 24	2857	656	96	2491
Drying warps, yarns, &c. Device for	F. Gilli	680,037	Aug. 6	597	130	96	1102
Drill: *See* Coal or rock drill. Expansion-drill. Grain-drill. Ratchet-drill. Rock-drill. Tire and felly drill.							
Drill	I. Wantling	678,845	July 16	2906	655	96	624
Drill	A. W. Watson	679,406	July 30	4069	907	96	902
Drill	T. P. Blake	681,085	Aug. 20	2489	551	96	1580
Drill	H. J. Kimman	682,555	Sept. 10	1616	369 / 370	96	2303
Drill and countersink. Combined	W. Burkhart	679,693	July 30	4612	1035	96	1015
Drill-bit sharpener	W. Owens	682,565	Sept. 10	1636	374	96	2307
Drills. Machine for producing twist	C. D. Wiley	680,905	Aug. 20	2234	492	96	1529
Drills. Means for alining	W. Reed	681,375	Aug. 27	3132	695	96	1729
Drilling-machine	J. G. Johnson	679,318	July 30	3874	866	96	860
Drilling-machine	W. Herman	679,672	July 30	4566	1026 / 1027	96	1004
Driving device. Cushioned	T. Oldfield and J. A. Schofield	680,170	Aug. 6	883	185	96	1211
Driving mechanism	E. and F. W. Heymann	678,364	July 16	1965	449	96	434
Driving mechanism. Frictional	S. F. Allen	679,270	July 23	3766	840 / 841	96	817
Driving-roller	J. Haslam	678,175	July 9	1588	366	96	344
Dumper and spreader. Combined	G. F. Conner	678,543	July 16	2311	521 / 522 / 523	96	506
Dust-absorbent	L. Rosenfeld	678,981	July 23	3188	------	96	699
Dust-beater	H. C. and O. Preston	678,585	July 16	2416	542	96	526
Dust-beater	H. C. and O. Preston	678,586	July 16	2417	542	96	526
Dust-collector	W. E. Allington	678,451	July 16	2142	484	96	470
Dust-collector	J. E. Mitchell	683,313	Sept. 24	3010	688 / 689	96	2524
Dust-collector	J. E. Mitchell	683,314	Sept. 24	3014	689 / 690	96	2525
Dust-excluder	J. P. Martin	682,478	Sept. 10	1486	337	96	2175
Dust-guard	J. E. Akers	677,611	July 2	508	121	96	108
Dust-guard	J. Timms	678,529	July 16	2288	516	96	502
Dust-guard	H. S. Goughnour	679,021	July 23	3264	739	96	714
Dust-guard	H. B. Brower	679,880	Aug. 6	314	67	96	1106
Dust-guard	C. W. Cutter	677,960	July 9	1179	272	96	264
Dust-pan	D. Mitchell	678,849	July 16	2913	657	96	626
Dust-pan	H. W. Rogers	679,306	July 23	3088	681	96	670
Dust-pan	J. V. Dille	681,308	Aug. 27	3017	669	96	1707
Dust-pan and broom-holder. Combined	K. Schirmacher	680,368	Aug. 13	1081	------	96	1264
Dye and making same. Black disazo	O. Ernst	679,221	July 23	3673	------	96	799
Dye and making same. Black polyazo	R. Bohn	682,523	Sept. 10	1559	------	96	2100
Dye and making same. Blue							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Dye and making same. Blue-red disazo	A. L. Laska	679,974	Aug. 6	493	------	96	1142
Dye and making same. Blue sulfur	J. Abel	679,199	July 23	3641	------	96	792
Dye and making same. Brown	R. Taggesell	683,180	Sept. 24	2766	------	96	2467
Dye and making same. Brown sulfur	W. Epstein and E. Rosenthal	681,689	Sept. 3	43	------	96	1872
Dye and making same. Orange	P. Julius	679,172	July 23	3578	------	96	779
Dye and making same. Orange disazo	M. Ulrich and K. Heidenreich	678,323	July 9	1575	------	96	309
Dye and making same. Red azo	A. Isaael and R. Kothe	677,516	July 2	320	------	96	69
Dye and making same. Red azo	A. Israel and R. Kothe	677,517	July 2	322	------	96	69
Dye. Black disazo	O. Kaltwasser and H. Jaesschin	683,120	Sept. 24	2933	------	96	2451
Dye. Blue acid	H. Polikler	680,732	Aug. 20	1918	------	96	1468
Dye. Blue disazo	W. Voigtländer-Tetzner	682,510	Sept. 10	1537	------	96	2185
Dye. Blue monoazo	O. Kaltwasser and H. Jaesschin	683,119	Sept. 24	2932	------	96	2450
Dye-house conveyer	J. Knott	679,757	Aug. 6	77	19	96	1057
Dye. Producing blue sulfur	A. Kertesz	678,884	July 23	2966	------	96	661
Dye-vats, &c. Reversing apparatus for	J. T. Travis	680,553	Aug. 13	1531	337	96	1365
Dyeing	R. Bohn	681,613	Aug. 27	3573	------	96	1815
Dyeing, &c. Apparatus for	W. Mather	682,099	Sept. 3	813	179 / 180	96	2026
Dyeing thiosulfate colors	A. G. Green and A. Meyenberg	681,117	Aug. 20	2630	------	96	1609
Dyeing with sulfur dyes	M. Beck and A. Bell	680,472	Aug. 13	1376	------	96	1334
Dyer's identification-tag apparatus	C. Morgan	680,877	Aug. 20	2184	481	96	1519
Dynamo. Alternating-current	D. M. Moore	678,191	July 9	1615	373 / 374	96	349
Dynamometer. Transmitting	J. T. Fanning	682,461	Sept. 10	1459	331	96	2170
Ear-coverer	W. J. Gardner	678,170	July 9	1583	364	96	343
Ear-drum. Artificial	L. H. Vickers	679,925	Aug. 6	402	85	96	1122
Earth-box. Movable	S. Adsit	683,096	Sept. 24	2618	601	96	2444
Easel	S. H. and C. H. Woodbury	680,404	Aug. 13	1263	278	96	1310
Easel and rack. Plate	L. Kaminski	679,530	July 30	4317	970	96	950
Eccentric of mineral or ore washing jigs. Adjustable	C. J. Hodge	681,419	Aug. 27	3200	712	96	1742
Edge. Straight	D. Gilliom	683,115	Sept. 24	2647	606	96	2449
Educational appliance	W. H. Cartwright	677,952	July 9	1181	272	96	264
Educational medium	H. B. Froehlich	683,267	Sept. 24	2918	669	96	2505
Educational purposes. Transmitter for	C. S. Comins	680,695	Aug. 20	1842	404	96	1450
Educational purposes. Transmitter for	C. S. Comins	683,171	Sept. 24	2733	620	96	2467
Egg-beater	W. G. Browne	678,456	July 16	2148	485	96	471
Egg-boiler	F. Soady	681,986	Sept. 3	542	114	96	1974
Egg-boiler. Automatic	C. H. Blanchard	681,184	Aug. 27	2767	614	96	1657
Egg-desiccating apparatus	W. O. Stoddard, Jr	677,902	July 9	1087	253	96	246
Egg-tester	C. D. McKenzie	680,498	Aug. 13	1427	313	96	1344
Egg-tester	J. C. Bowers and E. Dool	682,023	Sept. 3	686	150	96	2002
Egg-timer	J. M. Michaelson	679,701	July 30	4625	1040	96	1017
Elbow-forming machine	F. Dieckmann	678,946	July 23	3117	698	96	685
Election-booth, knockdown structure, &c.	F. M. Humphrey	682,621	Sept. 17	1741	399	96	2249
Electric alarm	M. Wescher and P. Wollenhaupt	677,829	July 2	920	218 / 219	96	193
Electric-arc furnace	R. C. Contardo	677,439	July 2	194	47	96	43
Electric battery	W. Mills	682,417	Sept. 10	1382	312	96	2154
Electric battery. Portable	M. E. Fuld	677,652	July 2	577	137	96	122
Electric brake	F. E. Case	679,362	July 30	3978	889 / 890	96	892
Electric brake-release	E. E. Darling	680,317	Aug. 13	1095	243 / 244	96	1278
Electric cable	C. A. W. Hultman	680,150	Aug. 6	791	175 / 176	96	1202
Electric cable for three-phase alternating currents	W. B. Esson	682,845	Sept. 17	2180	492	96	2335
Electric-cable-hauling apparatus	H. B. Grinnell	681,696	Sept. 3	55	10, 11	96	1874
Electric cables. Removable jacket for	J. Wolff	681,470	Aug. 27	3310	736	96	1764
Electric-circuit controller	H. W. Leonard	681,716	Sept. 3	94	19	96	1882
Electric-circuit-controlling means	R. Varley, Jr	677,826	July 2	908	217	96	191
Electric circuits. Locating grounds on	E. M. Hewlett	678,878	July 23	2972	667	96	657
Electric cloth or fabric	L. Baecker	683,098	Sept. 24	2621	602	96	2445
Electric-conductor outlet	J. H. Goehst and C. M. Wilkes	681,416	Aug. 27	3194	711	96	1742
Electric conductors. Underground conduit for	C. A. W. Hultman	680,151	Aug. 6	793	176	96	1203
Electric control system	W. B. Potter and F. E. Case	678,196	July 9	1627	376 / 377	96	351
Electric coupling for conductors	C. Holzmann	683,045	Sept. 24	2580	576	96	2426
Electric-current controller	C. H. Keeney	677,360	July 2	46	11	96	12
Electric-current interrupter	E. W. Caldwell	677,498	July 2	287	71	96	62
Electric-current transformer. Variable-pressure	C. J. Ritzer	678,518	July 16	2276	512	96	499
Electric currents. Interrupting	E. W. Caldwell	677,499	July 2	288	71	96	62
Electric currents. Means for controlling	P. Kennedy	681,712	Sept. 3	82	16, 17	96	1880
Electric cut-out. Automatic	F. H. Rogers	677,843	July 2	947	224	96	199
Electric display apparatus. Interchangeable	G. L. Mason	683,133	Sept. 24	2672	614 / 615	96	2454
Electric furnace	D. Lance, R. L. E. de Bourgade, and L. Schmitz.	679,973	Aug. 6	492	103 / 104	96	1141
Electric furnace	A. H. Cowles	681,107	Aug. 20	2613	577	96	1605
Electric furnace	F. A. Kjellin	682,088	Sept. 3	799	174	96	2023
Electric generator. Dynamo	B. G. Lamme	680,793	Aug. 20	2035	444	96	1489
Electric generator or motor	P. J. Darlington	683,253	Sept. 24	2895	663 / 664	96	2500
Electric heater	J. P. Erie	682,324	Sept. 10	1225	277 / 278	96	2123
Electric heater	J. F. McElroy	682,949	Sept. 17	2365	534	96	2372
Electric light. Apparatus for producing	P. C. Hewitt	682,697	Sept. 17	1885	420	96	2276
Electric-light attachment	J. H. Rusby	682,116	Sept. 3	842	188	96	2032
Electric-light support. Incandescent	H. Gilpatric	680,913	Aug. 20	2257	496	96	1534
Electric-light switch	H. Horn	678,180	July 9	1596	368	96	345
Electric-light-wire molding	F. H. Corduan	678,544	July 16	2314	522	96	507
Electric lighting by low-frequency currents	W. C. Fish	682,184	Sept. 10	1602	216	96	2076
Electric lighting on constant-current circuits. System of	H. N. Potter	680,809	Aug. 20	2070	450	96	1496
Electric machine and electric motor. Dynamo	H. F. Joel	680,597	Aug. 13	1606	355	96	1380
Electric-machine casing. Dynamo	C. D. Anderson	677,533	July 2	852	85, 86	96	76

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Electric machine. Dynamo-	B. Bjarnason	678,157	July 9	1564	360 / 361	96	339
Electric machine. Dynamo-	E. W. Rice, Jr	678,904	July 23	3096	680	96	669
Electric machine. Dynamo-	J. B. Blood	681,295	Aug. 27	2982	662	96	1701
Electric machine. Dynamo-	C. D. Anderson	682,898	Sept. 17	2269	512 / 513	96	2353
Electric machines. Means for regulating double-current dynamo-	J. L. Woodbridge	679,813	Aug. 6	181	40	96	1078
Electric machines. Regulating double-current dynamo-	J. L. Woodbridge	679,812	Aug. 6	177	39	96	1078
Electric machines. Regulation of dynamo-	H. M. Hobart	677,355	July 2	38	10	96	11
Electric machines. Regulation of dynamo-	H. Edwards	680,236	Aug. 13	953	215	96	1250
Electric mains connected to storage batteries. Apparatus for regulating pressure in	J. S. Highfield	677,661	July 2	599	143	96	127
Electric meter	A. G. Davis	677,957	July 9	1191	275	96	207
Electric meter	J. H. Barker and J. A. Ewing	678,929	July 23	3077	688 / 689	96	678
Electric meter	W. C. Fish	679,304	July 30	3851	861	96	855
Electric meter	W. H. Pratt	679,333	July 30	3905	873	96	867
Electric metering system	L. Bell	679,138	July 23	3514	785	96	765
Electric motor	J. A. Heany	678,874	July 23	2961	666	96	655
Electric motor	J. A. Heany	678,875	July 23	2963	666	96	655
Electric-motor controller	D. J. Hauss	678,664	July 16	2578	577 / 578	96	559
Electric-motor controller	E. W. Stull	678,914	July 23	3054	684	96	673
Electric-motor controller	E. W. Stull	678,989	July 23	3200	717	96	701
Electric-motor controlling means	A. G. Davis and W. B. Potter	678,167	July 9	1577	363	96	341
Electric-motor regulator	W. H. Knight. (Reissue)	11,918	July 2	956	225	96	201
Electric-motor starting apparatus	T. S. Perkins	681,133	Aug. 20	2659	587	96	1615
Electric-motor time-regulator	M. M. Movshovitch	682,108	Sept. 3	829	184	96	2029
Electric motors. Construction of	J. J. Wood	677,909	July 9	1103	255	96	249
Electric regulator	M. Moskowitz	682,219	Sept. 10	1083	233	96	2088
Electric regulator for valves or dampers. Thermo-	W. E. Mack	680,262	Aug. 13	1000	225	96	1258
Electric signal	J. J. Ruddick	678,135	July 9	1518	350	96	330
Electric switch	A. Cowperthwait and N. O. Lindstrom.	677,340	July 2	14	4	96	6
Electric switch	N. C. Bassett	677,923	July 9	1130	260	96	255
Electric switch	C. A. Hussey	678,402	July 16	2229	501 / 502	96	488
Electric switch	G. E. Linton	680,336	Aug. 13	1123	250	96	1288
Electric switch	M. H. Johnson	680,981	Aug. 20	2385	526	96	1559
Electric switch	G. B. Thomas	681,353	Aug. 27	3098	686	96	1720
Electric switch	W. F. Bossert	681,776	Sept. 3	238	45	96	1912
Electric switch	C. F. Ziegler	681,943	Sept. 3	550	116	96	1976
Electric switch	C. E. Gaffney and F. A. Tibbetts	682,540	Sept. 10	1588	360 / 361	96	2197
Electric switch	H. A. Metz	682,729	Sept. 17	1945	442	96	2288
Electric switch	K. W. Mansfield and W. R. Thompson.	683,213	Sept. 24	2809	646	96	2481
Electric switch for alarms	I. B. Chantler	681,495	Aug. 27	3359	745	96	1773
Electric switch for multiple-rate meter systems. Timed	F. R. M. Cutcheon	680,316	Aug. 13	1092	242 / 243	96	1278
Electric switch. Ratchet-operated	W. Kingsland	678,260	July 9	1741	400	96	375
Electric-switch shell	H. Hubbell	679,316	July 30	3872	865	96	860
Electric switches. Carbon break for	H. D'Olier, Jr	681,112	Aug. 20	2624	580	96	1606
Electric traction-motor	C. Richter and R. T. Eschler	680,619	Aug. 13	1644	363	96	1388
Electric-traction road	L. Dion	680,704	Aug. 20	1960	408	96	1454
Electric-traction road	L. Dion	681,410	Aug. 27	3181	708	96	1739
Electric-traction road	L. Dion	682,381	Sept. 10	1313	296	96	2141
Electric-traction road	L. H. Stuart	681,461	Aug. 27	3296	733	96	1761
Electric wires. Attaching-plug for	A. B. Miller	680,059	Aug. 6	624	137	96	1169
Electrical call or alarm device	E. D. Priest	678,030	July 9	1317	300	96	290
Electrical conductor	E. D. Priest	680,277	Aug. 13	1025	230	96	1263
Electrical conductor	D. M. Carr	679,829	Aug. 6	212	45	96	1085
Electrical conductor-cords. Cord-adjuster for	H. Krantz	680,254	Aug. 13	988	221	96	1256
Electrical conduit and box	M. Mauer and W. J. Billings	682,215	Sept. 10	1019	228	96	2086
Electrical-conduit bushing	K. De Kandó	680,134	Aug. 6	754	168	96	1195
Electrical contact apparatus	G.L.Fairbrother and A.H.Mathewson.	681,167	Aug. 20	2730	605	96	1629
Electrical controller attachment	S. E. Doane	680,233	Aug. 13	949	214	96	1249
Electrical coulomb-meter	E. Stockwell	681,862	Sept. 3	386	78	96	1943
Electrical devices. Device for controlling the operation of	W. B. Potter	677,371	July 2	68	15	96	17
Electrical distribution	E. W. Rice, Jr.	677,375	July 2	73	16	96	18
Electrical-distribution system	H. E. Heath	678,998	July 23	3214	719	96	704
Electrical-distribution system	E. W. Rice, Jr	679,006	July 23	3228	722 / 723	96	708
Electrical-distribution system	C. P. Steinmetz	679,008	July 23	3233	723 / 724	96	709
Electrical-distribution system	C. P. Steinmetz	679,092	July 23	3434	765	96	748
Electrical-distribution system	E. J. Berg	679,102	July 23	3452	770	96	751
Electrical flush receptacle and plug	W. J. Newton	681,725	Sept. 3	118	22	96	1898
Electrical installation. Junction-box and adapter for	J. Meehan	679,057	July 23	3348	746	96	731
Electrical instrument	J. F. Kelly	678,957	July 23	3148	704	96	691
Electrical intercommunication. System of	E. A. Clark	681,951	Sept. 3	573	120 / 121	96	1980
Electrical machines. Strap-coil for	J. P. Mallett	680,795	Aug. 20	2038	445	96	1490
Electrical power-transmission system	N. G. Warth	682,300	Sept. 10	1177	268	96	2115
Electrical rosette cut-out	G. B. Thomas	677,479	July 2	255	64	96	55
Electrical transformer	A. F. Berry	682,520	Sept. 10	1552	352 / 353	96	2189
Electrical translating devices. Regulating and controlling	G. T. Woods	681,768	Sept. 3	219	43	96	1909
Electricity. Developing static	R. V. Wagner	681,763	Sept. 3	194	39	96	1903
Electricity-meters. Means for braking	F. Saldaña	681,835	Sept. 5	334	68	96	1932

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Electricity. Producing light by	P. C. Hewitt	682,696	Sept. 17	1882	429	96	2276
Electrode	J. K. Pumpelly	682,906	Sept. 17	2453	555	96	2289
Electrode for arc-lamps	H. Bremer	679,877	Aug. 6	909	66	96	1105
Electrode for electric batteries. Zinc	W. Erny	680,848	Aug. 20	2139	468	96	1510
Electrode for electrolytic cells	B. E. F. Rhodin	680,441	Aug. 13	1321	290	96	1322
Electrode for secondary or storage batteries	J. Myers	678,133	July 9	1516	349	96	320
Electrode for water-heaters	H. M. Hill	678,782	July 16	2765	623	96	595
Electrodes. Making accumulator-	H. F. Hobel	677,986	July 9	1242	285	96	277
Electrodes. Regenerating accumulator-	J. Hofmann	678,255	July 9	1728		96	373
Electrolytic apparatus	B. E. F. Rhodin	680,440	Aug. 13	1320	290	96	1322
Electrolytic apparatus. Liquid-feed device for	R. Girouard	679,050	July 23	3331	744	96	727
Electrolytic decomposing-cell	J. W. Kynaston	679,477	July 30	4197	942 / 943	96	926
Electrolyzing and washing apparatus	J. F. Kelly	679,476	July 30	4196	942	96	926
Electromagnet	J. D. Ihlder	677,359	July 2	48	11	96	12
Electromagnet	T. H. Wurmb and R. Baumann	682,377	Sept. 10	1307	294	96	2130
Electromagnets. Transmitting bodies by means of	J. P. Swift	681,999	Sept. 3	650	139 / 140	96	1994
Electromagnetic apparatus	I. G. Waterman	682,007	Sept. 3	667	144	96	1997
Electromagnetic brake	A. A. Honey	683,284	Sept. 24	2952	676	96	2512
Electromagnetic brake	A. A. Robertson	683,332	Sept. 24	3040	696 / 697	96	2539
Electromagnetic motor or reciprocating engine	R. D. Mershon	680,797	Aug. 20	2048	446	96	1491
Electromagnetic traction-increasing apparatus	A. A. Honey	683,283	Sept. 24	2950	676	96	2512
Electromotive force. Mechanism for generating variable	J. E. Miller	680,798	Aug. 20	2045	446	96	1491
Electromotor-switch	R. A. Sloan and J. E. L. Barnes	682,818	Sept. 17	2120	479 / 480	96	2322
Electropneumatic controlling system	E. R. Hill	682,828	Sept. 17	2141	484 / 485	96	2327
Electrotype-leveling machine	C. Hurst	681,964	Sept. 3	596	126 / 127	96	1984
Elevating-machine. Portable	R. L. Shoemaker and F. R. Willson, Jr.	681,378	Aug. 27	3138	697 / 698 / 699	96	1730
Elevator: *See* Cane-elevator. Portable elevator. Cotton-elevator. Water-elevator. Grain-dump elevator.							
Elevator	A. R. Farmer	679,142	July 23	3523	787	96	707
Elevator	C. L. Startup	679,484	July 30	4226	952	96	930
Elevator	W. F. Leonard	680,871	Aug. 20	2175	478	96	1518
Elevator	G. A. Wheeler	682,513	Sept. 10	1541	349	96	2187
Elevator	E. R. Stoddard	680,895	Aug. 20	2220	488 / 489	96	1526
Elevator attachment	A. B. See	678,352	July 9	1043	445	96	412
Elevator-brake	J. W. Hickman	681,790	Sept. 3	264	51	96	1918
Elevator-brake	N. O. Lindstrom	679,760	Aug. 6	82	20	96	1058
Elevator controller. Electric-	E. R. Carichoff	677,891	July 9	1046	245 / 246	96	239
Elevator controlling apparatus	A. T. Brown	679,861	July 30	3975	889	96	881
Elevator controlling mechanism	N. Poulson	678,422	July 16	2079	472	96	456
Elevator-door lock	M. A. Flautt	681,476	Aug. 27	3319	738	96	1765
Elevator driving mechanism	W. C. Smith	678,050	July 9	1364	315	96	300
Elevator-gate lock	J. Rice	679,861	Aug. 6	271	59	96	1097
Elevator gates or doors. Means for operating	W. A. Pentecost	680,353	Aug. 13	1172	258	96	1233
Elevator mechanism	W. R. Weeks	679,581	July 30	4411	991	96	972
Elevator safety appliance	J. H. Kughler, Sr.	682,719	Sept. 17	1920	436 / 437	96	2284
Elevator safety appliance	J. W. Fleming	679,614	July 30	4469	1003 / 1004	96	984
Elevator safety-gate	H. B. Newhall, Jr	679,004	July 23	3223	721 / 722	96	707
Elevators. Automatic electric stop for	F. Oldfield	677,590	July 2	469	112	96	99
Ellipsograph	E. and R. Cornely	677,953	July 9	1184	273	96	265
Embroidering-machine attachment	J. H. Post	679,510	July 30	4278	962	96	941
Embroidery-hoop	J. H. Post	682,271	Sept. 10	1129	256	96	2106
Embroidery-hoop	J. L. Cushing	682,457	Sept. 10	1454	329 / 330	96	2169
Emergency-brake	G. F. Lucas	678,301	July 9	1839	423	96	393
Emery-steel	R. H. Churchill	678,292	July 9	1818	419	96	388
Emery-wheel	W. A. Dunlap	679,300	July 30	3847		96	854
Enameling metal	F. L. Collis	677,945	July 9	1169	269	96	202
End-gate	C. L. Harvey and J. H. Nieman	681,881	Sept. 3	425	86	96	1949
End-gate	A. L. Foster	682,054	Sept. 3	749	161	96	2011
End-gate	G. W. Gifford	682,610	Sept. 17	1722	393	96	2246
End-gate	G. Brittell	679,165	July 23	3568	797	96	777
End-gate and scoop-board. Combined	J. E. Camp	683,020	Sept. 24	2496	567	96	2419
End-gate catch							
Engine: *See* Beating-engine. Gas-engine. Compound engine. Gas or other explosive engine. Compound pressure-engine. Internal-combustion engine. Dental engine. Direct-acting engine. Multiple-cylinder engine. Discoidal engine. Oil-engine. Double-cylinder engine. Pumping-engine. Explosion-engine. Rotary engine. Explosive-engine. Rotary explosive-engine. Fluid-pressure engine. Steam-engine. Telescopic engine. Traction-engine.							
Engine	C. E. Felgenhauer	678,384	July 16	2005	456	96	441
Engine	E. E. Redfield	679,697	July 30	4507	1018	96	991

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engine	J. C. Baker	681,180	Aug. 27	2759	612, 613	96	1656
Engine	W. K. Riley	682,389	Sept. 10	1326	299, 300	96	2143
Engine	W. A. Hill	683,399	Sept. 24	3157	724	96	2555
Engine connecting-rod	L. G. Neely, F. Konley, and C. J. Macomber.	678,021	July 9	1297	296	96	267
Engine controller. Steam	R. J. Patterson	680,172	Aug. 6	836	185	96	1212
Engine exhaust mechanism. Explosive	W. L. Corson	681,441	Aug. 27	3252	722	96	1753
Engine exhaust-nozzle	W. W. Morrow	682,107	Sept. 3	828	184	96	2020
Engine feed-cup. Explosive	E. Westman	681,382	Aug. 27	3144	700	96	1731
Engine-house appliance	D. T. Spring and A. Long	681,061	Aug. 20	2574	569	96	1598
Engine igniter. Gas	C. Allen	677,491	July 2	272	68	96	59
Engine indicator. Steam	E. Norden	678,421	July 16	2077	472	96	456
Engine indicators. Reducing-wheel for steam	H. W. Yeoman	682,660	Sept. 17	1795	412	96	2260
Engine link-movement	I. L. Neely	679,857	Aug. 6	264	57	96	1096
Engine-lubricating device. Gas	G. A. Thode	680,820	Aug. 20	2090	455	96	1500
Engine muffler. Gas or other	J. B. Fenner	681,391	Aug. 27	3155	702	96	1733
Engine piston. Rotary	H. A. Buck	679,105	July 23	3457	771	96	752
Engine speed-regulator. Explosive	E. N. Corson	678,546	July 16	2319	522	96	502
Engine speed-regulator. Explosive	J. Brellier and E. Marius	680,758	Aug. 20	1957	429, 430	96	1476
Engine speed-regulator. Explosive	W. O. Worth	681,287	Aug. 27	2962	657, 658, 659	96	1697
Engine-starting device. Explosive	T. B. Jeffery	680,923	Aug. 20	2275	500	96	1539
Engine-starting device. Internal-combustion	A. O. Very	681,523	Aug. 27	3404	755	96	1792
Engine-stop. Electrical	J. F. Skirrow	679,518	July 30	4297	996	96	945
Engine tender. Traction	J. Staver	680,366	Aug. 13	1198	263, 264	96	1296
Engine vaporizer. Explosive	L. M. Johnston	679,053	July 23	3339	745	96	729
Engine vaporizer. Explosive	G. F. Dyer	680,572	Aug. 13	1560	343	96	1371
Engine vaporizer. Explosive	J. C. Bland, Jr	682,905	Sept. 17	2288	515	96	2356
Engine vaporizing device. Explosive	L. Laurent and E. Clerget	683,125	Sept. 24	2961	611	96	2452
Engines. Centering device for lining up	J. M. Barns	679,591	July 30	4432	996	96	975
Engines. Electric sparker for gas	F. R. McMullin	682,336	Sept. 10	1243	240	96	2196
Engines. Electrical sparking device for explosive	R. Varley, Jr	679,041	July 23	3313	740	96	723
Engines. Fuel-feed device for explosive	A. Saurer	681,267	Aug. 27	2919	646, 647	96	1688
Engines. Fuel-supply controller for hydrocarbon	G. E. Webb	678,077	July 9	1413	324	96	308
Engines. Hydrocarbon-spraying device for gasolene	T. B. Jeffery	677,767	July 2	790	189, 190	96	168
Engines. Incandescent igniting-tube for gas	S. J. Anderson	681,384	Aug. 27	3147	701	96	1732
Engines. Mixing and controlling device for gas	R. E. Olds	679,263	July 23	3751	837	96	813
Engines. Mixing and vaporizing device for explosive	F. W. Felbaum	683,110	Sept. 24	2937	606	96	2448
Engines. Sparking igniter for explosive	S. A. Rhode and J. Dubord	679,243	July 23	3709	828	96	806
Engines. Sparking igniter for explosive	R. L. Palmer	680,884	Aug. 20	2199	484	96	1522
Engines. Sparking igniter for explosive	W. C. Matthias	682,856	Sept. 17	2199	496	96	2338
Engines. Sparking igniter for gas	J. D. Termaat and L. J. Monahan	680,422	Aug. 13	1292	284	96	1317
Engines. Sparking igniter for gas	C. H. Wanee	681,897	Sept. 3	458	98	96	1956
Engines. Speed-regulator for explosive	F. Burger	679,883	Aug. 6	320	68	96	1107
Engines. Vaporizer for internal-combustion	C. H. Blomstrom	680,115	Aug. 6	729	161, 162	96	1190
Engraving-plate	J. H. Zearing and T. McWhorter	679,815	Aug. 6	189	41	96	1090
Ensilage-cutter	E. W. Hoyt	679,168	July 23	3574	798	96	778
Envelop	W. P. Shattuck	680,368	Aug. 13	1197	264, 265	96	1297
Envelop	A. C. Ernst	680,480	Aug. 13	1394	305	96	1338
Envelop	N. H. Walcoff and M. Epstein	681,596	Aug. 27	3585	785	96	1809
Envelop	J. Sallade	681,659	Aug. 27	3690	804	96	1839
Envelop-fastener	C. W. Allen	682,159	Sept. 10	923	206	96	2068
Envelop for repeated use	H. W. Gays	679,558	July 30	4373	961	96	963
Envelop-manufacturing machine	W. S. Timmis	679,921	Aug. 6	388	81, 82	96	1119
Envelop or wrapper opener	W. S. Timmis	679,066	July 23	3364	749	96	734
Envelop or wrapper opener	W. S. Timmis	682,296	Sept. 10	1171	267	96	2114
Eraser and drier. Combined	J. Tyre	681,425	Aug. 27	3213	715	96	1744
Erasing-shield	V. I. Copland	680,227	Aug. 13	942	212	96	1248
Etching	R. Widmann	682,580	Sept. 10	1666	------	96	2212
Evaporating apparatus	O. Hofmann	683,281	Sept. 24	2948	675	96	2511
Evaporating-pan	I. Kitsee	677,416	July 2	141	32, 33	96	32
Excavating and gold-saving apparatus	J. C. des Granges	677,844	July 2	948	224	96	199
Excavating apparatus	R. Dalton	677,538	July 2	361	87, 88, 89	96	78
Excavating apparatus	F. K. Hoover and A. J. Mason	679,475	July 30	4194	941	96	985
Excavating apparatus	F. K. Hoover and A. J. Mason	679,505	July 30	4270	961	96	940
Excavating, dredging, transporting, and elevating earth, &c. Apparatus for	E. McGregor	678,419	July 16	2073	471	96	455
Excavating-machine. Traction	H. H. Schenk	682,862	Sept. 17	2208	498, 499, 500	96	2340
Excavator	G. W. King and H. J. Barnhart	681,281	Aug. 27	2847	638	96	1674
Excelsior-making machine	E. J. Stewart	679,709	July 30	4638	1043	96	1019
Excelsior-making machine	A. A. Dekin	683,199	Sept. 24	2779	640, 641	96	2475
Exerciser	H. W. Wieland	680,556	Aug. 13	1585	358	96	1366
Exercising apparatus	J. S. Addleman	681,664	Aug. 27	3689	826	96	1841
Exercising-machine	M. B. Ryan	679,784	Aug. 6	117	26	96	1065
Exercising or rowing machine	J. N. Hazelip	682,998	Sept. 17	2439	559	96	2397
Exhaust-head	A. S. Hyde	677,357	July 2	41	10	96	11
Exhaust-head	A. S. Hyde	677,358	July 2	42	10	96	11
Expansion-bolt	I. Church	679,363	July 30	3983	890	96	882
Expansion-bolt	C. H. Smith	681,817	Sept. 3	305	61	96	1926
Expansion-bolt	J. C. Summerer	683,082	Sept. 24	2585	594	96	2457

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Expansion-drill	J. Forsythe	680,876	Aug. 13	1212	267	96	1300
Explosion-engine	W. W. Tuck and A. Wassmann	682,008	Sept. 3	659	141, 142	96	1996
Explosive-engine. Compound	E. Butler	678,715	July 16	2656	598, 599	96	578
Explosive	E. Dickson	678,860	July 16	1961	------	96	433
Explosive-engine	E. T. Birdsall	679,410	July 30	4073	909	96	903
Explosive-engine	C. W. Weiss	680,953	Aug. 20	2332	512	96	1550
Explosive-engine for motor-vehicles	C. E. Duryea	682,606	Sept. 17	1712	390, 391	96	2245
Explosive-engine. Multiple-cylinder	W. J. Pugh	680,616	Aug. 13	1638	361, 362	96	1846
Explosive-engine. Multiple-cylinder	A. F. Bardwell	680,907	Aug. 20	2245	493, 494	96	1532
Explosive-engine. Multiple-cylinder	S. W. Zent	682,583	Sept. 10	1670	379, 380	96	2212
Explosive-engine. Multiple-piston	W. S. Sharpneck	680,985	Aug. 20	2391	527	96	1560
Explosive-engine. Self-starting	E. N. Dickerson	681,111	Aug. 20	2622	579, 580	96	1607
Explosive-mixing machine	J. C. Schrader	677,803	July 2	860	205, 206	96	182
Explosives. Making	A. C. Girard	683,116	Sept. 24	2648	------	96	2450
Extension-table	G. A. Davis	678,834	July 16	2885	651	96	620
Extension-table	E. Estes	678,948	July 23	3122	699	96	686
Extension-table	C. W. Fuller	681,366	Aug. 27	3112	691	96	1725
Extractor: *See* Cork-extractor. Spike-extractor. Dandelion-extractor. Stump-extractor. Shoulder-blade extractor.							
Eye. Apparatus for measuring errors of refraction in the human	L. L. Ferguson	679,890	Aug. 6	330	70	96	1109
Eye-tester	H. D. Reese	682,638	Sept. 17	1767	404	96	2254
Eyes or loops. Feeding mechanism for feeding articles having	W. O. Bement	681,491	Aug. 27	3348	743, 744	96	1771
Eyeglass-case	A. L. Mariner	677,785	July 2	824	197	96	174
Eyeglass or spectacle case	J. Weinstein	683,417	Sept. 24	3195	733	96	2562
Eyeglasses	J. Alexander	677,912	July 9	1108	256	96	250
Eyeglasses	G. Kleinert	677,966	July 9	1257	288	96	280
Eyeglasses	O. P. Bailer	681,092	Aug. 20	2594	573	96	1602
Eyeglasses or spectacles	J. C. Durouaux	683,108	Sept. 24	2934	605	96	2447
Fabric: *See* Medicated fabric. Wood-and-wire fabric. Tufted fabric. Woven fabric. Waterproof fabric.							
Fabric	C. A. O. Rosell	682,367	Sept. 10	1287	------	96	2135
Fabric. Machine for cutting rolls of woven	H. G. Bender	678,371	July 16	1985	451, 452	96	488
Fabric-renovating compound	J. Hammer	680,144	Aug. 6	773	------	96	1198
Fabrics. Decorating plaited	V. Crépet and C. J. Dumoulin	678,164	July 9	1573	362	96	341
Fabrics. Formation of colored	P. B. Worthington	677,835	July 2	930	220, 221	96	195
Fan and pump. Rotary	S. C. Davidson	679,499	July 30	4259	958, 959	96	937
Fan. Bicycle	O. B. McCune and C. Mull	681,565	Aug. 27	3478	772	96	1796
Fan. Blowing	R. Roesser	680,280	Aug. 13	1028	230, 231	96	1264
Fan. Centrifugal	S. C. Davidson	681,389	Aug. 27	3153	702	96	1733
Fan. Electric	E. W. Brown	680,120	Aug. 6	735	163	96	1191
Fan. Rotary	A. M. Schreuder	679,579	July 30	4408	990	96	971
Fans. Speed-governor for	C. D. Kemmerer	681,710	Sept. 3	77	16	96	1879
Fare register and recorder	W. J. Fordney	678,950	July 23	3129	701	96	688
Farm-gate	J. E. Moore	677,364	July 2	59	13	96	15
Farm-gate	G. L. Smith	680,506	Aug. 13	1442	316	96	1346
Farm-gate	A. J. Arthur	682,161	Sept. 10	926	206	96	2069
Fastening device	M. S. Walker	679,652	July 30	4531	1019	96	996
Fastening device	W. Ceeák	679,724	Aug. 6	14	4	96	1046
Fastening device	E. M. Hembree	680,711	Aug. 20	1870	411	96	1457
Fastening. Dress	E. B. Watson	682,301	Sept. 10	1180	269	96	2116
Faucet	J. Nagengast and J. Hülss	677,687	July 2	637	153	96	134
Faucet	N. M. Hopkins	680,329	Aug. 13	1113	248	96	1282
Faucet. Measuring	J. H. Herbst	678,565	July 16	2369	531	96	518
Faucet. Measuring	O. H. Chandler	679,295	July 30	3836	859	96	852
Faucet. Measuring	H. Q. Hood	681,320	Aug. 27	3041	675	96	1711
Faucets and their connections. Apparatus for cleansing	R. Birkholz	680,836	Aug. 20	2116	462	96	1506
Feather-renovator	J. A. Mooney	678,966	July 23	3159	707	96	668
Feed and producing same. Oat stock	J. D. and H. R. Nagel	677,587	July 2	464	111	96	98
Feed apparatus. Boiler	W. E. Gibbs	677,863	July 9	999	232	96	228
Feed apparatus. Self-acting boiler	F. Woerner	683,366	Sept. 24	3098	708	96	2541
Feed-bag	G. A. Carleton, Jr	678,641	July 16	2537	568	96	551
Feed-bag	C. E. Powell	678,684	July 16	2605	585	96	565
Feed. Boiler water	S. D. Mott	682,628	Sept. 17	17c2	401	96	2252
Feed regulator. Boiler	A. G. McPherson	680,347	Aug. 13	1162	256	96	1290
Feed regulator. Boiler	O. E. and E. E. Clark	683,021	Sept. 24	3498	567	96	2419
Feed-water heater	G. W. Scott and J. A. Strom	678,200	July 9	1637	378	96	353
Feed-water heater	J. K. Tomlinson	678,800	July 16	2794	629	96	600
Feed-water heater	A. Wirth	680,513	Aug. 13	1408	328, 329	96	1353
Feed-water heater and purifier	E. R. Stilwell	681,898	Sept. 3	448	90	96	1954
Feed-water purifier	U. S. Wohlgamuth and G. R. Williams.	682,398	Sept. 10	1345	305	96	2147
Feed-water purifier	T. O. Organ	682,884	Sept. 17	2254	509	96	2349
Feed-water regulator	F. M. Chappell	679,273	July 23	3771	842	96	817
Feed-water regulator	J. E. Walsh	683,359	Sept. 24	3082	706	96	2538
Feed-water regulator and alarm	C. B. Crabtree	683,251	Sept. 24	2808	663	96	2500
Feed-water regulator. Boiler	R. Schulz	683,148	Sept. 24	2698	621	96	2460

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Feed-water regulator for steam-boilers	A. J. Wright	679,814	Aug. 6	185	40	96	1079
Feed-water regulator. Steam-boiler	J. Bibb and E. R. Duncan	679,209	July 23	3033	815	96	794
Feeder. Boiler	H. K. Clover	679,252	July 23	3728	833	96	809
Feeder. Coagulant	H. Etheridge	678,462	July 16	2156	486	96	472
Feeder. Steam-boiler	A. G. Waterhouse	678,324	July 9	1877	432	96	400
Feeding and watering device. Poultry	E. H. Mack	682,627	Sept. 17	1750	401	96	2232
Felt. Manufacture of	A. Fusai	680,522	Aug. 13	1482	.....	96	1356
Fence	J. G. Hunt	678,071	July 9	1403	322	96	306
Fence	J. S. Martin	680,342	Aug. 13	1155	255	96	1289
Fence. Barbed band	C. C. Benson	677,925	July 9	1132	260	96	255
Fence. Combined hedge and wire	G. E. Manning	679,976	Aug. 6	497	105	96	1142
Fence-machine	I. Womack	681,767	Sept. 3	218	43	96	1909
Fence machine. Slat-and-wire	W. F. Seargeant	680,398	Aug. 13	1247	275	96	1307
Fence machine. Slat-and-wire	W. F. Seargeant	680,399	Aug. 13	1253	276	96	1308
Fence machine. Wire	C. C. Carter	677,757	July 2	768	184 186	96	162
Fence machine. Wire	W. M. Chew	678,160	July 9	1568	361	96	340
Fence machine. Wire	J. M. Barber	681,031	Aug. 20	2480	549	96	1578
Fence machine. Wire	C. Pace	682,226	Sept. 10	1043	235	96	2090
Fence-making machine. Wire	C. V. Kahoa	679,969	Aug. 6	488	102	96	1140
Fence. Picket	J. Lanz	682,250	Sept. 10	1107	251	96	2102
Fence-post	T. W. Brown	677,396	July 2	107	23	96	24
Fence-post	M. W. Howard	681,641	Aug. 27	3629	807	96	1829
Fence-post	R. H. Geiger	683,270	Sept. 24	2926	670	96	2506
Fence-post	W. P. Croswhite	678,378	July 16	1996	455	96	440
Fence reel. Wire	S. W. Yarlot	678,087	July 9	1433	330	96	312
Fence stay-wire	V. Hoxie	678,954	July 23	3140	708	96	990
Fence. Wire	J. E. Fredrick	680,201	Aug. 6	885	197	96	1221
Fence. Wire	E. W. Cornell	680,647	Aug. 13	1711	375	96	1403
Fence. Wire	E. A. Pierce	680,438	Aug. 13	1318	289	96	1322
Fence-wire tightener	V. Hoxie	678,955	July 23	3142	704	96	990
Fence-wires. Die for joining intersecting	R. McCue	681,808	Sept. 3	202	58	96	1924
Fencing tool. Wire							
Fender: *See* Car-fender. Vehicle-fender.							
Fender	C. F. Ekman	678,232	July 9	1668	389	96	366
Ferris wheel. Railway	P. M. Kling	678,670	July 16	2590	580	96	561
Fertilizer-distributer	J. T. Cole	679,208	July 30	3844	860	96	854
Fertilizer-distributer	H. McVea	681,571	Aug. 27	3484	774	96	1799
Fertilizer-distributer	J. Zbornik	682,309	Sept. 10	1199	272	96	2118
Fertilizers. Making	W. B. Angstadt and K. H. Cleaver	683,014	Sept. 24	2488	.....	96	2417
Fertilizing agricultural crops	A. Caron	679,601	July 30	4449	.....	96	979
Fiber-separating machine	S. B. Allison	677,914	July 9	1111	256	96	251
Fiber-separating machine	S. B. Allison	679,164	July 23	3566	796 797	96	776
Fibrous products. Manufacture of	G. R. Sherwood	680,079	Aug. 6	668	.....	96	1178
Fifth-wheel	J. Gogel	682,927	Sept. 17	2325	525	96	2364
Filaments for incandescing electric lamps. Manufacture of	W. L. Voelker	683,085	Sept. 24	2590	595	96	2438
Filaments for incandescing electric lamps. Manufacture of	W. L. Voelker	683,086	Sept. 24	2591	595	96	2438
File-band clasp	E. L. Sibley	683,414	Sept. 24	3189	731	96	2561
File. Bill	G. H. Maurer	680,385	Aug. 13	1231	271	96	1304
File-binder	W. P. Northcott	680,349	Aug. 13	1165	257	96	1291
File-box. Cabinet	R. W. Pope	680,354	Aug. 13	1175	259	96	1293
File. Letter	B. Lawrence	678,501	July 16	2247	506	96	493
File-sharpening apparatus	E. C. Huntley	680,152	Aug. 6	795	176 177	96	1203
File-sharpening apparatus	A. H. Radell	682,342	Sept. 10	1253	293	96	2128
Filing-case	W. D. and J. D. Kelly	683,295	Sept. 24	2970	680	96	2515
Filing-spindle	A. K. Devoe	678,721	July 16	2667	601	96	576
Filling-machine	J. and D. Baxter	683,016	Sept. 24	2490	565 566	96	2417
Film-strips, &c. Device for applying liquids to	H. Foersterling	679,891	Aug. 6	333	70	96	1110
Filter	O. Burbridge	677,773	July 2	806	198	96	170
Filter	J. A. Maignen	677,893	July 9	1052	246	96	240
Filter	F. E. Bachman	678,532	July 16	2292	517	96	503
Filter	J. J. Betzold	678,857	July 23	2931	660	96	649
Filter	A. R. Grever	678,870	July 23	2964	665	96	654
Filter	T. E. McCann	679,536	July 30	4333	973	96	954
Filter	R. T. Weaver	680,902	Aug. 20	2232	491	96	1529
Filter	A. L. Baron	681,433	Aug. 27	3227	718	96	1748
Filter	J. F. Geisler	682,353	Sept. 10	1272	297	96	2131
Filter	W. E. Corlett	683,386	Sept. 24	3125	715 716	96	2548
Filter and cooler. Beer	L. A. Weston	681,841	Sept. 3	345	69	96	1934
Filter-beds. Apparatus for spreading liquids onto	G. E. Ridgway	678,979	July 23	3186	713	96	998
Filter. Domestic water	R. T. Weaver	678,846	July 16	2908	656	96	625
Filter. Driven-well	A. E. Hunt	679,109	July 23	3575	799	96	778
Filter for purifying water	A. F. Avézard, Jr., and J. E. Clerc	680,681	Aug. 20	1785	398	96	1437
Filter. Oil	A. H. Franke	681,477	Aug. 27	3320	738	96	1766
Filter press. Oil or other	P. Bonvillain	678,858	July 23	2933	660	96	649
Filtering apparatus. Portable	H. Nordtmeyer	683,061	Sept. 24	2553	582	96	2490
Filtration and purification system. Water	M. L. Davis	677,641	July 2	556	133	96	117
Finger-ring-expanding device	A. Lemmert	682,209	Sept. 10	1008	226	96	2084
Finger-ring-mold-forming device	L. Lehr	682,414	Sept. 10	1378	311	96	2154
Fire-alarm	A. J. Linden	679,176	July 23	3588	801	96	781
Fire-alarm. Automatic	H. Cortland and J. T. Hume	677,954	July 9	1185	273	96	265
Fire-alarm. Automatic	C. E. Lombard	681,128	Aug. 20	2650	585	96	1613
Fire-alarm. Explosive	S. C. Guthrie	681,637	Aug. 27	3619	805	96	1826
Fire-alarm system	C. E. Lombard	681,127	Aug. 20	2649	585	96	1613
Fire-alarm system. Automatic	H. Cortland and J. T. Hume	677,946	July 9	1172	269 270	96	263
Firearm. Automatic	R. H. Kjellman and G. L. Andersson	680,488	Aug. 13	1413	308	96	1341
Firearm. Automatic	T. C. Johnson	681,481	Aug. 27	3327	729 740	96	1767
Firearm. Automatic	G. Roth	681,737	Sept. 3	149	28	96	1894

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Firearm. Automatic	G. Roth and C. Krnka	683,072	Sept. 24	2568	587	96	2434
Firearm. Breech-loading	E. Graves	680,973	Aug. 20	2369	521	96	1557
Firearm. Magazine	E. G. Parkhurst	679,908	Aug. 6	358	76.77	96	1115
Firearm. Magazine	R. W. Scott	680,207	Aug. 6	900	199	96	1224
Firearm. Revolving	G. A. Owen	678,274	July 9	1779	409	96	381
Firearm safety locking device	F. Neuber, J. Tambour, and C. Colbert	678,420	July 16	2075	471	96	456
Fire-back. Adjustable	E. H. Headford	677,451	July 2	211	52	96	46
Fire-chamber arch	F. W. Schnautz	678,521	July 16	2280	513	96	500
Fire doors or shutters. Device for closing sliding	I. Besse	682,164	Sept. 10	980	208	96	2069
Fire-engine feed-pump attachment	F. N. Raggio	683,328	Sept. 24	3036	695	96	2529
Fire-engines. Device for lighting fires in	J. W. Heaney	681,788	Sept. 3	261	51	96	1918
Fire-escape	D. Firth	678,160	July 9	1582	364	96	342
Fire-escape	C. A. Ives	682,082	Sept. 3	792	172	96	2022
Fire-escape	R. Hammerly	682,869	Sept. 17	2221	501	96	2342
Fire-extinguisher	G. W. Thompson	677,715	July 2	690	164	96	146
Fire-extinguisher	G. C. Hutchings	678,249	July 9	1720	394	96	371
Fire-extinguisher	G. C. Hutchings	678,250	July 9	1722	395	96	371
Fire-extinguisher	T. F. Handly	682,069	Sept. 3	759	165	96	2014
Fire-extinguisher	G. A. Swenson	682,964	Sept. 17	2385	540	96	2377
Fire-extinguisher	G. W. Thompson	677,716	July 2	691	164	96	146
Fire-extinguisher. Automatic	J. Tessier and Z. Sevigny	680,084	Aug. 6	675	150	96	1179
Fire-extinguisher. Automatic	G. C. Hutchings and O. C. Wiesner	679,563	July 30	4379	988	96	964
Fire-extinguisher bracket. Automatic	H. Eversmann	679,049	July 23	3330	744	96	747
Fire-extinguishing apparatus	W. M. Thompson and C. Nuhring	680,291	Aug. 13	1043	234	96	1295
Fire-extinguishing apparatus	O. C. Lacey	683,211	Sept. 24	2808	.....	96	2481
Fire-extinguishing compound	W. W. Corey	678,545	July 16	2315	522	96	507
Fire-hydrant	F. W. Meyer	678,787	July 16	2775	625	96	596
Fire-indicating system. Marine	C. W. and A. Mettler	678,346	July 9	1980	.....	96	409
Fire-kindlers. Composition of matter for	C. Hoff and G. H. Klotter	682,410	Sept. 10	1369	308 309	96	2152
Fire-kindlers, &c. Machine for making	O. Volkerts	680,299	Aug. 13	1061	236	96	1270
Fire-lighter. Time	C. L. Hood	682,411	Sept. 10	1372	309	96	2153
Fire-lighter. Time	J. M. Baker	680,016	Aug. 6	559	120	96	1154
Firemen's hose. Shut-off nozzle for	J. H. Heitland	677,542	July 2	382	92	96	82
Fireplace-heater	G. W. Buck	682,826	Sept. 17	2137	483	96	2326
Fireplace. Open	J. W. Gheen	682,463	Sept. 10	1462	331	96	2170
Fire-pot	C. M. Bowman	681,097	Aug. 20	2599	574	96	1603
Fireproof book	A. L. A. Himmelwright	681,700	Sept. 3	62	12	96	1876
Fireproof construction and making same	W. Orr	681,728	Sept. 3	121	23	96	1888
Fireproof construction and making same	M. Sullivan	682,434	Sept. 10	1413	318	96	2161
Fireproof covering	J. O'Neil	681,969	Sept. 3	605	120	96	1986
Fireproof floor and ceiling	E. Molloy	677,420	July 2	149	34	96	33
Fireproof floor and girder	M. L. Freeman and C. E. Dobbin	678,335	July 9	1806	436	96	402
Fireproof floor construction	C. F. Buente	681,870	Sept. 3	399	80	96	1945
Fireproof floor construction	C. F. Haglin	682,683	Sept. 17	1842	424	96	2269
Fireproof flooring	O. Hoff	681,503	Aug. 27	3371	748	96	1775
Fireproof grain-bin and floor	A. G. Beam	683,195	Sept. 24	2774	638	96	2475
Fireproof partition	S. E. Rabbitt	679,899	Aug. 6	269	58	96	1097
Fireproof partition for buildings	S. E. Rabbitt	682,274	Sept. 10	1137	257	96	2108
Fireproof partition for buildings	W. Corry	681,105	Aug. 20	2611	576	96	1605
Fireproof safe	O. C. Lacey	683,212	Sept. 24	2809	.....	96	2481
Fireproofing compound	J. F. Geisler	679,739	Aug. 6	42	12	96	1051
Fireproofing wood	W. R. Kinnear	681,326	Aug. 27	3048	676	96	1712
Fire-resisting blinds or doors. Means for securing channels or guideways of	A. De Man	680,912	Aug. 20	2256	496	96	1534
Fire-resisting door and door-frame	W. R. Kinnear	682,328	Sept. 10	1231	278	96	2124
Fire-resisting door, blind, &c.	R. L. McIntyre	678,678	July 16	2599	583	96	563
Fire-shutter. Automatic	N. J. Williams and W. S. Hill	680,630	Aug. 13	1661	366	96	1392
Fish. Curing and drying	F. Clark	679,296	July 30	3839	859 860	96	853
Fish-hook	A. D. Gary	677,655	July 2	588	140	96	124
Fish-hook spring attachment	H. Bourgeois	680,838	Aug. 20	2119	462	96	1507
Fish-incubator	J. Swanson	682,435	Sept. 10	1414	319	96	2161
Fish-plate	J. Schäfer	678,283	July 9	1802	.....	96	384
Fish-powder. Making odorless	E. S. Herrington	677,543	July 2	381	92	96	82
Fish-scaling implement	M. S. Newcorn	679,327	July 30	3884	871	96	864
Fish-trap	P. M. Benseth	682,022	Sept. 3	691	149	96	2002
Fish-trap	P. Geen	681,308	Aug. 27	3021	670	96	1708
Fishing-bait. Artificial	N. Olson	682,954	Sept. 17	2371	530	96	2374
Fishing-bob	S. Edsall	681,687	Sept. 3	27	7	96	1870
Fishing rod and reel combined	J. C. Heritage	679,422	July 30	4062	914	96	906
Fishing-rod case	H. R. Mitchell	682,730	Sept. 17	1946	442	96	2288
Fishing-rod line-guide	L. D. Lovekin	682,725	Sept. 17	1928	438 439 440	96	2286
Flanging-machine	L. D. Lovekin	682,726	Sept. 17	1934	440 441	96	2286
Flanging machine. Circular	T. F. Rowland, Jr	681,512	Aug. 27	3384	751 752	96	1778
Flash-boiler	W. H. Coun	681,198	Aug. 27	2792	620	96	1662
Flash-light cartridges. Pistol for firing	J. E. Blackmore	682,131	Sept. 3	892	193 194	96	2036
Flask: *See* Molding-flask.							
Flat-iron	T. D. Stewart	680,367	Aug. 13	1195	264	96	1297
Flat-iron heater	C. A. Landgren	682,362	Sept. 10	1283	289	96	2134
Flax-cleaner	T. F. Lowery	677,999	July 9	1262	290	96	280
Flax-sliver	G. H. Ellis	679,695	July 30	4614	1035	96	1015
Flexible tube	C. T. Schoen	680,984	Aug. 20	2390	527	96	1560
Flier	W. A. Lehan	682,556	Sept. 10	1618	370	96	2208
Flong for stereomolds	T. J. C. Drewett	678,381	July 16	2000	.....	96	441
Floor and ceiling construction	T. O'Shea	678,688	July 16	2608	585	96	564
Floor and ceiling construction	J. Schratwieser	679,480	July 30	4103	918	96	908
Floor. Concrete	C. Eliet	681,364	Aug. 27	3106	689 690	96	1724

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Floor or sidewalk	R. Fleming	682,462	Sept. 10	1461	331	96	2170
Floor or trench plate. Asphaltum or granolithic filled	W. O. Steele	680,287	Aug. 13	1086	232 223	96	1265
Floors. Apparatus for use in laying	E. N. Garnsey	680,488	Aug. 13	1399	306	96	1398
Floors, ceilings, &c. Surface-finishing for	J. J. Blackman	683,009	Sept. 17	2474	561	96	2394
Floors, partitions, or the like. Construction of	V. Moeslein	680,002	Aug. 6	635	139	96	1171
Flooring-machine	W. O. Vivarttas	677,721	July 2	699	166 167	96	148
Flour, &c. Apparatus for mixing	G. S., J. A., and W. K. Baker	680,882	Aug. 20	2111	461	96	1505
Flour. Making malted	J. R. Moore and C. S. Boynton	678,749	July 16	2709	.....	96	585
Flour. Manufacture of	S. T. Green	682,189	Sept. 10	972	219 220	96	2078
Flower-pot	H. Millingar	681,066	Aug. 20	2550	564	96	1593
Flower-pot	J. K. Andrews	681,672	Sept. 3	4	1	96	1805
Flower-stand	F. L. Peach	678,031	July 9	1318	300	96	291
Flue-cleaner. Steam and hot-air	W. B. Kennedy and H. T. Hoopes	679,756	Aug. 6	75	19	96	1056
Flue-cutter	J. T. McGrath	680,166	Aug. 6	826	183	96	1209
Flue-cutter	C. Wittke	682,864	Sept. 17	2215	500	96	2341
Flue-cutter	J. W. Collins	679,274	July 23	3774	842	96	818
Flue-cutter. Expansible	C. E. Kemp	680,383	Aug. 13	1227	270	96	1304
Fluid-ejector	A. G. Waterhouse and J. S. Forbes	681,159	Aug. 20	2699	599	96	1624
Fluid heating and sterilizing apparatus	H. Chrisman	677,558	July 2	414	99	96	88
Fluid-meter	W. E. Gibbs	677,974	July 9	1220	280 281	96	273
Fluid-meter. Prepayment	M. W. Hibbard	680,205	Sept. 24	2796	644 645	96	2479
Fluid-pressure brake	E. A. Stark and T. Winship	679,437	July 30	4117	922 923	96	911
Fluid-pressure engine	J. R. Freeman	677,567	July 2	431	102 103	96	91
Flume-screen	F. Rhind	682,568	Sept. 10	1640	375	96	2208
Flush-tank	J. Simpson	679,687	July 30	4596	1082	96	1012
Flushing apparatus with valve-controlling apparatus for same	S. Frenkel	681,306	Aug. 27	3019	669	96	1707
Fly-catcher	A. J. Collar	679,946	Aug. 6	428	92	96	1129
Fly-escape. Extensible	F. H. Plaistridge	680,463	Aug. 13	1362	297	96	1331
Fly-paper bracket	L. D. Lothrop	680,874	Aug. 20	2179	479	96	1518
Fog-horn	S. B. Parmelee	680,350	Aug. 13	1166	257	96	1291
Folder or pamphlet. Indexed	W. F. Parmelee	679,636	July 30	4592	1012	96	990
Folding chair. Adjustable	G. F. Dunn	677,404	July 2	118	26, 27	96	27
Folding-machine	W. G. Bennett	681,678	Sept. 3	10	3, 4	96	1867
Folding-machine	E. Collon	677,436	July 2	186	45	96	41
Folding table-napkins, &c. Machine for	J. F. Collins	679,947	Aug. 6	430	92	96	1120
Follower. Hinged split	J. P. Hansen	679,311	July 30	3863	864	96	857
Food-cooler	H. D. Perky	678,127	July 9	1506	347	96	327
Food material to form and distributing same. Machine for reducing	W. H. Wright	682,865	Sept. 17	2216	500	96	2341
Food products. Apparatus for treating	G. Sims	679,190	July 23	3622	808	96	788
Foot-power-machine starter	J. C. Garrett	682,325	Sept. 10	1227	278	96	2123
Foot-rest	D. P. Sims	682,347	Sept. 10	1262	285	96	2129
Foot-switch	K. Prött	683,068	Sept. 24	2563	585 586	96	2433
Forge-die	E. P. Alexander	678,291	July 9	1816	419	96	388
Forging-press							
Fork: *See* Bicycle-fork. Hay-fork.							
Forking, elevating, and conveying machine	A. P. Tatterson	679,439	July 30	4123	924 925	96	912
Formaldehyde-generator	F. G. Dieterich	677,643	July 2	559	133 134	96	118
Foundation-post. Permanent	W. O. Roy	681,738	Sept. 3	151	28	96	1894
Foundations. Construction of	J. Nagy	680,802	Aug. 20	2057	448	96	1493
Foundry-clamp	A. M. Thompson	677,818	July 2	898	213	96	188
Fountain: *See* Soda-water fountain.							
Fountain-comb	S. L. Myers	678,004	July 9	1270	291	96	282
Fountain-comb	J. G. McAlpine, Jr.	680,435	Aug. 13	1314	288	96	1321
Frame: *See* Door-frame. Spectacle-frame. Leather-stretching frame. Spinning-frame. Tubular metallic frame. Pulley-frame.							
Frequency-indicator	C. C. Chesney and W. J. Lloyd	682,351	Sept. 10	1269	286	96	2131
Frequency or speed indicating and regulating device	P. M. Lincoln	679,175	July 23	3584	800	96	780
Frog for cars or locomotives. Replacing-	J. F. Hanigan	683,041	Sept. 24	2526	575	96	2425
Frog for use in connection with overhead conductors of electrical tramways or railways	H. G. Nicholson	677,463	July 2	230	57	96	50
Frog. Wrecking	E. Smyth	681,349	Aug. 27	3081	684 685	96	1719
Fruit-cleaning machine	F. E. Proud	682,814	Sept. 17	2112	478	96	2321
Fruit-drier	E. N. Thomas and G. L. Thompson	683,083	Sept. 24	2587	594	96	2438
Fruit-gatherer	C. J. Eddy	681,203	Aug. 27	2801	621	96	1664
Fruit grader, cutter, and pitter	J. W. Fawkes, Sr.	680,375	Aug. 13	1205	266 267	96	1299
Fruit-jar	A. P. Lockett	681,717	Sept. 3	100	20	96	1884
Fruit-jar	A. H. Burdick	681,871	Sept. 3	401	81	96	1945
Fruit-jar	S. A. Snow and A. Taylor	678,844	July 16	2305	655	96	624
Fruit or vegetable masher	H. F. Rambler	679,265	July 23	3753	838	96	814
Fruit-picker	T. H. Kruse	679,320	July 30	3880	867	96	861
Fruit-picker	A. Hamilton	681,169	Aug. 20	2735	606	96	1630
Fruit-picker's sack	P. F. Smith	683,347	Sept. 24	3060	702	96	2534
Fruit-squeezer	J. E. Bancroft	678,328	July 9	1884	433	96	401
Fruit washing and scalding apparatus	F. E. Deulin	681,044	Aug. 20	2508	555	96	1584
Frying-pan	D. Jones	680,864	Aug. 20	2161	.....	96	1515
Fuel compound	C. T. Kingzett	680,384	Aug. 13	1230	270	96	1304
Fumigating and disinfecting	G. E. Alphin	678,212	July 9	1661	382	96	358
Fumigating apparatus	G. Neudecker	682,228	Sept. 10	1039	234	96	2089
Funnel and strainer. Measuring-							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fur goods. Manufacture of imitation Crimean or Persian	S. Lewin	682,557	Sept. 10	1619	370	96	2203
Fur or pelts. Machine for removing down or pullings from	C. Donner	679,835	Aug. 6	226	47	96	1088
Furnace: *See* Blast-furnace. Boiler-furnace. Coking-table furnace. Crucible-furnace. Drier-furnace. Electric furnace. Electric-arc furnace. Gas-furnace. Glass tank-furnace. Heating-furnace. Hot-air furnace. Kiln-furnace. Melting-furnace. Melting, smelting, and crucible furnace. Ore-roasting furnace. Ore roasting and desulfurizing furnace. Puddling-furnace. Railway-road furnace. Reducing-furnace. Roasting-furnace. Smelting-furnace. Smoke-consuming furnace. Steel-furnace.							
Furnace	T. Smith	677,812	July 2	881	210 211	96	186
Furnace	W. S. Rockwell	678,423	July 16	2080	472 473	96	457
Furnace	F. J. Kuhlmann	678,499	July 16	2245	505	96	492
Furnace	D. J. McKenzie and F. Sargent	679,240	July 23	3704	826	96	894
Furnace	G. Allen	680,107	Aug. 6	715	159	96	1187
Furnace	A. L. Foy	680,521	Aug. 13	1481	326	96	1356
Furnace	G. S. Gallagher	680,653	Aug. 13	1722	378	96	1404
Furnace	O. M. Curtis	682,673	Sept. 17	1819	417	96	2265
Furnace	S. C. Davidson	682,674	Sept. 17	1820	417 418 419	96	2265
Furnace	J. Downing and H. G. Willetts	682,843	Sept. 17	2177	491	96	2334
Furnace-blasts. Apparatus for heating	G. D. Burton	679,450	July 30	4150	931	96	917
Furnace-door and deflector-plate	F. L. Horspool and G. J. Kelly	681,701	Sept. 3	64	12	96	1876
Furnace-door opening or closing device	H. H. Thoele and C. W. H. Moeller.	680,989	Aug. 20	2399	520 530	96	1562
Furnace fire-box. Steam-boiler-	G. J. Bowe	679,720	Aug. 6	6	2	96	1044
Furnace fire-door and attachment	F. L. Bates	680,369	Aug. 13	1199	265	96	1297
Furnace flue-cleaner. Steam-boiler-	H. Westergaard	681,490	Aug. 27	3345	742	96	1770
Furnace for heating metal bars	J. H. Taylor	680,010	Aug. 6	547	117	96	1152
Furnace fuel-feeding device	W. J. Baldwiu	681,429	Aug. 27	3221	717	96	1746
Furnace fuel-feeding mechanism. Blast-	J. W. Seaver	682,937	Sept. 17	2376	537	96	2375
Furnace fuel-saving and smoke-consuming device	J. J. Quinn	680,500	Aug. 13	1432	313 314	96	1344
Furnace or stove draft-regulator	C. A. Raggio and L. Malatesta	680,075	Aug. 6	693	147	96	1177
Furnaces. Apparatus for indicating the level of charges in	T. H. Martin	680,490	Aug. 13	1417	309	96	1342
Furnaces. Coking and steam-producing attachment for	T. J. Tiller	679,796	Aug. 6	136	30	96	1060
Furnaces. Device for introducing and distributing air to	A. Heberer	682,592	Sept. 10	1686	384	96	2216
Furnaces. Hot-water heating attachment for	F. D. Stolz	680,744	Aug. 20	1934	424	96	1471
Furnaces of stationary boilers. Draft-regulating apparatus for	C. Polic and J. Zimmermann	681,259	Aug. 27	2906	644	96	1685
Furnaces. Stock-line recorder for blast	J. E. Johnson, Jr.	677,665	July 2	606	144 145	96	128
Furniture	G. A. Bowen	678,219	July 9	1075	235	96	361
Furniture cleaning or polishing composition	F. J. Tesar	682,835	Sept. 17	2163	.....	96	2331
Furniture. Combination	C. and E. St. Hilaire	680,208	Aug. 6	901	199	96	1224
Furrow-opener attachment	C. S. Kemper	679,025	July 23	3260	731	96	715
Fuse-block. Self-restoring	M. L. Jones	679,897	Aug. 6	343	73	96	1112
Fuse-box	E. A. Wilson	682,122	Sept. 3	852	191	96	2034
Fuse. Electric	L. W. Downes	682,010	Sept. 17	2309	522	96	2360
Fuse. Electric detonator	G. Smith and D. Corrie	677,477	July 2	253	63	96	55
Fuse for explosive projectiles	M. A. Lynch and H. Wilson	678,367	July 16	1970	450	96	435
Fuse for explosive projectiles. Percussion-	M. A. Lynch and H. Wilson	682,728	Sept. 17	1942	442	96	2288
Fuse for projectiles. Time-	R. H. Quisling	679,396	July 30	4054	904 905	96	899
Fuse-holder	W. R. Cook	681,621	Aug. 27	3586	796 797	96	1819
Fuse or cut-out. Electric	L. W. Downes	680,968	Aug. 20	2360	519	96	1555
Fuse. Time-	A. Noble and G. Stuart	679,858	Aug. 6	265	57	96	1097
Gage: *See* Chisel-gage. Saw-gage. Printing-press feed-gage. Saw-tooth gage. Water-gage.							
Galley-lock	U. S. G. Peoples and C. F. Walther.	677,698	July 2	650	155	96	137
Galvanic battery	L. G. Cunningham	677,955	July 9	1187	274	96	265
Galvanic battery. Reversible	T. A. Edison	678,722	July 16	2068	501	96	576
Game	M. Reinhart	680,175	Aug. 6	842	186	96	1213
Game	B. H. Gedge	680,324	Aug. 13	1104	245	96	1280
Game	T. H. O'Neill	681,925	Sept. 3	507	105	96	1967
Game	P. H. Crowe	682,041	Sept. 3	726	157	96	2007
Game	H. C. Pigueron	682,388	Sept. 10	1325	299	96	2143
Game and apparatus for playing same	J. S. Paul	679,968	Aug. 6	514	109	96	1145
Game apparatus	F. E. Carney	678,824	July 16	2346	642	96	613
Game apparatus	M. A. Stelzer	680,898	Aug. 20	2217	488	96	1526
Game apparatus	D. McRuer	681,570	Aug. 27	3482	773	96	1798
Game apparatus	G. C. Felter	682,052	Sept. 3	740	160	96	2010
Game apparatus for trading purposes	W. Tribble	677,905	July 9	1098	253 254	96	247
Game-board	E. F. Carson	677,988	July 9	1160	267	96	260
Game-board	E. F. Carson	677,989	July 9	1161	267	96	260
Game-counter	T. W. Cochrane	681,528	Aug. 27	3411	757	96	1784
Game-table	H. F. W. Lotz	681,330	Aug. 27	3054	677	96	1714

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Game. War	J. Lanz	677,782	July 2	819	196	96	173
Garbage. Apparatus for destructive distillation of	J. W. Sewell and D. T. Seger	682,118	Sept. 3	846	188 / 189	96	2032
Garbage or ashes receptacle	G. C. Witt	679,658	July 30	4539	1021	96	998
Garbage-receptacle	W. T. Cameron and W. A. Purks	681,493	Aug. 27	3357	745	96	1772
Garden-tool	G. W. Robinson	678,519	July 16	2277	512	96	499
Garment	A. Phillips	679,778	Aug. 6	109	25	96	1063
Garment	J. C. Lautenbacher	681,061	Aug. 20	2536	560 / 561	96	1589
Garment	G. W. Tomlin	681,821	Sept. 3	312	63	96	1928
Garment	J. G. S. Dey	681,955	Sept. 3	584	123	96	1981
Garment	S. Katz	678,668	July 16	2586	579	96	561
Garment-clasp	M. B. Hammond	681,313	Aug. 27	3031	672	96	1710
Garment-clasp	C. Nyhus	679,394	July 30	4052	904	96	899
Garment-fastener	N. Stutson	679,793	Aug. 6	132	29	96	1068
Garment-fastener	D. Rencher	678,515	July 16	2272	511	96	498
Garment-fitter	F. M. Osgood	678,073	July 9	1406	323	96	306
Garment-hanger	R. Norris	680,168	Aug. 6	830	184	96	1210
Garment-hanger	A. B. Pritchette	680,356	Aug. 13	1177	259	96	1294
Garment-hanger	A. Bailey	678,155	July 9	1561	360	96	399
Garment-hook	W. K. Mackey	683,055	Sept. 24	2546	580	96	2429
Garment-stretcher	G. E. Adams	677,911	July 9	1107	255	96	250
Garment-supporter	J. H. Simpson	678,323	July 16	2281	513	96	500
Garment-supporter	A. Henning	679,122	July 23	3488	779	96	760
Garment-supporter	C. J. Higley	680,379	Aug. 13	1220	268	96	1302
Garment-supporter	C. L. Van Doren	682,298	Sept. 10	1175	267 / 268	96	2115
Garment-supporter	R. Gorton	682,543	Sept. 10	1593	362	96	2198
Garment-supporter	M. B. Gardner	679,457	July 30	4166	935	96	920
Garment-supporter clasp	P. B. Tingley	683,191	Sept. 24	2767	636	96	2473
Garter clasp, Man's	M. Arndt	678,154	July 9	1558	359	96	338
Gas-analysis apparatus	M. Arndt	678,215	July 9	1666	383 / 384	96	359
Gas-analysis apparatus	G. Raap	677,699	July 2	657	157	96	198
Gas and air mixer	J. J. Hendler	679,964	Aug. 6	478	100	96	1138
Gas apparatus. Acetylene-	H. C. Rew	678,437	July 16	2111	479	96	463
Gas. Apparatus for the manufacture of	W. J. Knox	680,788	Aug. 20	2022	443	96	1487
Gas. Apparatus for the manufacture of	W. J. Knox	680,789	Aug. 20	2025	443	96	1487
Gas. Apparatus for the manufacture of	H. Lane	683,300	Sept. 24	2977	682 / 683	96	2517
Gas-burner	J. C. McKallip	678,624	July 16	2560	558 / 559	96	544
Gas-burner	J. Harris	681,052	Aug. 20	2522	558	96	1587
Gas-burner	J. H. and G. H. Cliff and T. D. Wardlaw.	681,907	Sept. 3	474	97	96	1959
Gas-burner	H. Rostin and S. Szubert	681,980	Sept. 3	620	132	96	1969
Gas-burner	E. Fouché	682,055	Sept. 3	744	161	96	2011
Gas burner, Acetylene-	E. N. Dickerson	678,559	July 16	2325	524	96	509
Gas burner, Acetylene-	E. J. Dolan	678,553	July 16	2320	525	96	511
Gas burner, Acetylene-	A. C. Einstein	683,202	Sept. 24	2911	668	96	2504
Gas burner and heater	H. K. Boyd	680,473	Aug. 13	1377	300	96	1334
Gas-burner, Electrically-operated	H. W. Webb	679,197	July 23	3037	812	96	792
Gas-burner heating attachment	A. M. Forrester	677,650	July 2	575	137	96	122
Gas-burner lighting device	E. F. Banfield	681,842	Sept. 3	346	70	96	1935
Gas-cooling apparatus	H. E. Eddy, C. F. Brown, and J. J. Hickey.	679,117	July 23	3481	777	96	758
Gas distribution. Piping system for	J. A. Mosher and W. S. Hamm	680,346	Aug. 13	1161	256	96	1290
Gas-engine	C. C. Bramwell	678,823	July 16	2844	642	96	613
Gas-engine	R. R. Darling	679,367	July 30	3990	862	96	884
Gas-engine	M. W. Jamieson	681,704	Sept. 3	67	13	96	1877
Gas-engine	M. W. Jamieson	681,705	Sept. 3	71	14	96	1878
Gas-engine	H. H. Campbell and E. M. Hawkins.	682,788	Sept. 17	2063	467 / 468	96	2311
Gas-engine	B. F. Stewart	683,080	Sept. 24	2580	592 / 593	96	2436
Gas engine, Explosive-	V. St. John	683,152	Sept. 24	2706	625	96	2462
Gas-fitting	I. F. Bessey and W. A. Black	681,183	Aug. 27	2766	614	96	1657
Gas-furnace, Retort	H. Burgmann	677,396	July 2	10	2	96	5
Gas. Generating acetylene	H. S. Blackmore	682,521	Sept. 10	1557	----	96	2190
Gas-generating apparatus. Acetylene-	W. A. Feurt and H. H. Martin	682,407	Sept. 10	1358	307 / 308	96	2150
Gas-generator	E. B. Cornell	682,039	Sept. 3	723	156	96	2007
Gas generator. Acetylene-	G. W. Benedict and J. J. Graf	677,334	July 2	7	2	96	4
Gas generator. Acetylene-	H. A. Holmes	677,452	July 2	213	52	96	47
Gas generator. Acetylene-	E. A. Javal	677,991	July 9	1251	287	96	278
Gas generator. Acetylene-	A. M. Carey	678,375	July 16	1991	454	96	439
Gas generator. Acetylene-	F. Frederick	678,389	July 16	2021	459	96	446
Gas generator. Acetylene-	B. Holub and P. Dvorácek	679,315	July 30	3870	865	96	860
Gas generator. Acetylene-	A. F. Hill	679,020	July 30	4475	1006	96	995
Gas generator. Acetylene-	E. Berg	679,711	July 30	4642	1044	96	1020
Gas generator. Acetylene-	M. D. Compton	679,726	Aug. 6	17	5	96	1046
Gas generator. Acetylene-	E. M. McNamara and J. D. O'Reilly.	679,774	Aug. 6	104	24	96	1062
Gas generator. Acetylene-	T. B. Rider	679,862	Aug. 6	274	59, 60	96	1098
Gas generator. Acetylene-	E. S. Martindale	680,161	Aug. 6	809	180 / 181	96	1206
Gas generator. Acetylene-	D. H. Treichler	680,293	Aug. 13	1045	234 / 235	96	1267
Gas generator. Acetylene	M. A. Hamilton	680,858	Aug. 20	2153	473	96	1514
Gas generator. Acetylene-	A. C. Einstein	680,969	Aug. 20	2362	519 / 520	96	1556
Gas generator. Acetylene-	G. W. Collin	681,166	Aug. 20	2728	604 / 605	96	1629
Gas generator. Acetylene-	B. J. Graham, A. C. Buell, and H. L. Salisbury.	681,168	Aug. 20	2731	605 / 606	96	1630
Gas-generator pressure-regulator	H. Gerdes	683,084	Sept. 24	2515	571	96	2423
Gas generators. Carbid-cartridge for acetylene-	L. S. Buffington	677,935	July 9	1155	266	96	259

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gas generators. Expansible carbid-cartridge for acetylene-	L. S. Buffington	677,936	July 9	1157	266	96	259
Gas-generators, &c. Governor for	T. H. J. Leckband	679,851	Aug. 6	258	53	96	1094
Gas-heater	E. W. T. Richmond	683,144	Sept. 24	2691	619 / 620	96	2459
Gas-heater. Hall	J. W. Mellott	679,684	July 30	4593	1031	96	1011
Gas-holder	A. Davis	680,199	Aug. 6	883	196	96	1221
Gas-igniting device. Automatic	A. Simonini	680,818	Aug. 20	2078	452	96	1498
Gas-jet cage	W. C. Perkins	679,159	July 23	3557	794	96	775
Gas-lighting apparatus. Safety device for automatic electric	H. C. Thomson	681,754	Sept. 3	176	33	96	1899
Gas machine. Acetylene-	J. W. Gregory	682,931	Sept. 17	2332	527	96	2365
Gas. Making	E. B. Cornell	682,038	Sept. 3	720	155 / 156	96	2007
Gas. Making	H. Lane	683,409	Sept. 24	3180	728 / 729	96	2559
Gas. Making coal-	R. S. Moss	679,059	July 23	3351	747	96	782
Gas. Manufacturing	J. E. Fry	680,770	Aug. 20	1983	435	96	1481
Gas. Manufacturing	W. J. Knox	680,782	Aug. 20	2004	439	96	1484
Gas. Manufacturing	W. J. Knox	680,784	Aug. 20	2008	440	96	1485
Gas. Manufacturing	W. J. Knox	680,787	Aug. 20	2018	441 / 442 / 443	96	1486
Gas-manufacturing system	E. F. Griffiths	681,311	Aug. 27	3025	671	96	1708
Gas-meter. Prepayment	J. D. Forster	683,398	Sept. 24	3136	718	96	2551
Gas-meter. Prepayment	F. P. Nourse	681,369	Aug. 27	3116	692	96	1725
Gas, oil, and water separator	A. C. Wolfe	681,162	Aug. 20	2707	600 / 601	96	1625
Gas or other explosive engine	P. N. L. Girardville	678,792	July 16	2782	626	96	597
Gas pipes and nozzles. Shut-off valve device for	J. P. Ihart	680,777	Aug. 20	1994	----	96	1483
Gas. Preparing materials for purifying	A. R. Calder	679,895	Aug. 6	324	68, 69	96	1108
Gas-producer	G. Westinghouse	680,827	Aug. 20	2101	458 / 459	96	1503
Gas-producer	G. Westinghouse	680,828	Aug. 20	2104	459	96	1503
Gas-producer	W. J. Knox	680,785	Aug. 20	2012	440	96	1486
Gas. Producing	W. J. Knox	680,786	Aug. 20	2015	440	96	1486
Gas-producing apparatus	G. Ottermann	683,065	Sept. 24	2557	584	96	2431
Gas. Producing illuminating	T. S. Clapham	677,639	July 2	553	131 / 132	96	117
Gas-purifier cover	A. L. Lion	679,761	Aug. 6	84	20	96	1058
Gas-purifying apparatus	E. B. Cornell	682,040	Sept. 3	725	156	96	2007
Gas-retort	E. Drory	682,798	Sept. 17	2074	469 / 470	96	2313
Gas-retort-charging means	E. Ruud	682,345	Sept. 10	1258	284 / 285	96	2129
Gas-service pipes. Automatic cut-off for	M. C. Henley	679,619	July 30	4475	1005	96	985
Gas-ventilator for mains	O. N. Guldlin	677,865	July 9	998	234	96	229
Gas-washer	E. J. Duff	682,920	Sept. 17	2310	522	96	2301
Gases. Apparatus for the treatment of producer-	J. Zellweger	679,587	July 30	4424	995	96	974
Gases, vapors, and foreign particles from air. Apparatus for collecting	G. Westinghouse	680,826	Aug. 20	2099	458	96	1502
Gaseous products of combustion. Means for utilizing	C. de Haupt	679,697	July 30	4616	1036	96	1015
Gasifying hydrocarbons. Apparatus for	J. F. Austen	681,945	Sept. 3	555	117	96	1877
Gasket-cutter							
Gate: See Bridge-gate, Elevator safety-gate, End-gate, Farm-gate, Movable gate, Railway-gate, Rolling gate, Swinging gate.	O. and M. A. Stevens	678,797	July 16	2789	628	96	599
Gate	C. M. Baker	679,589	July 30	4430	995 / 996	96	975
Gate	E. W. Pratt	679,990	Aug. 6	518	110	96	1146
Gate	J. L. Manlove	680,054	Aug. 6	619	135	96	1167
Gate	I. L. Landis	680,417	Aug. 13	1286	282	96	1316
Gate	B. F. Berkley	680,753	Aug. 20	1950	427	96	1474
Gate	H. H. Hillerson	682,075	Sept. 3	774	168 / 169	96	2017
Gate	W. S. Witten	682,305	Sept. 10	1193	270	96	2117
Gate	D. Bashore	682,598	Sept. 10	1688	385	96	2216
Gate	E. A., C. D., and N. L. Rouse	682,955	Sept. 17	2372	536	96	2374
Gate	J. G. Sutton	680,896	Aug. 20	2022	439	96	1527
Gate and hinge therefor	C. A. Rittman	682,861	Sept. 17	2207	498	96	2330
Gear. Changeable	A. E. Osborn	683,328	Sept. 24	3027	693	96	2528
Gear. Compensating driving	G. F. Sturgess	681,351	Aug. 27	3083	685	96	1720
Gear. Driving and braking	W. and J. E. Gleason	678,337	July 9	1898	436 / 437 / 438	96	404
Gear-planer	R. M. Head	678,486	July 16	2221	499 / 500	96	486
Gear. Reversible driving	F. E. Ferris	678,385	July 16	2008	457 / 458	96	442
Gear-teeth. Machine for generating	G. H. Boyd and T. D. West	680,688	Aug. 20	1805	398	96	1441
Gear-wheel	J. E. Sweet	682,507	Sept. 10	1533	347	96	2185
Gearing. Changeable-speed	A. M. Searle	678,286	July 9	1805	416	96	385
Gearing. Cogged	G. W. Gomber	680,054	Aug. 13	1724	378	96	1405
Gearing. Rubber	G. Westinghouse	680,825	Aug. 20	2096	457	96	1502
Gearing. Speed-changing	W. M. McCartney	679,569	July 30	4390	986	96	967
Gearing. Variable friction	W. P. Shattuck	682,391	Sept 10	1331	301 / 302	96	2145
Gearing. Variable-speed	N. C. Bassett	679,356	July 30	3959	886	96	878
Gearing. Worm	J. C. Schrader	682,390	Sept. 10	1328	300	96	2144
Gelatin. Machine for packing explosive							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Generator: *See* Electric generator. Formaldehyde-generator. Gas-generator. Motor-generator. Steam-generator. Vapor-generator.							
Generators in transmission plants. Protecting	T. J. Johnston	678,185	July 9	1605	370	96	347
Germicides. Apparatus for automatically applying	J. B. Pendleton	680,807	Aug. 20	2007	450	96	1496
Girders, angle-irons, &c. Machine for cutting or dividing	H. John	683,289	Sept. 24	2959	678 679	96	2518
Glass. Apparatus for making corrugated	C. C. Hartung	681,787	Sept. 3	260	50,51	96	1917
Glass. Apparatus for the manufacture of sheet-	W. Buttler	679,292	July 30	3832	858	96	851
Glass. Apparatus for use in the manufacture of sheet-	P. T. Sievert and R. Heikel	679,705	July 30	4633	1041	96	1019
Glass articles. Forming hollow	P. Ebeling	682,980	Sept. 17	2420	548	96	2382
Glass articles. Machine for fire-finishing	M. J. Owens and A. R. Wilson	682,595	Sept. 10	1691	385 386	96	2217
Glass-bending apparatus	H. J. Sage	682,570	Sept. 10	1643	375	96	2206
Glass-bending apparatus	H. J. Sage	682,571	Sept. 10	1643	376	96	2206
Glass-blowing machine	D. Murray	677,530	July 2	344	83, 84	96	74
Glass-cap-making machine	F. H. Loveridge	677,548	July 2	394	94	96	84
Glass-cutter	J. W. Tester	682,966	Sept. 17	2388	540	96	2377
Glass-cutting apparatus	T. J. Donovan	683,023	Sept. 24	2501	568	96	2420
Glass. Machine for rolling configured wire	C. C. Hartung	681,789	Sept. 3	257	50	96	1917
Glass. Manufacture of window	W. Buttler	679,293	July 30	3834	858	96	851
Glass mold. Blown	E. J. Lutwyche	682,212	Sept. 10	1014	227	96	2085
Glass-mold-operating machine	F. A. Shunk	678,287	July 9	1806	416 417	96	385
Glass-molder's tool	J. D. Miller	681,454	Aug. 27	3285	731	96	1759
Glass plates. Making wire	J. A. Swearer and C. E. Toynbee	677,609	July 2	502	120	96	106
Glass plates or sheets. Apparatus for grinding	F. Pollard	682,744	Sept. 17	1968	446 447	96	2292
Glass tank-furnace	L. L. Mount	682,365	Sept. 10	1286	290	96	2134
Glass-washer	J. Fisher and W. Weinshenker	683,111	Sept. 24	2939	666	96	2448
Glassware. Apparatus for forming stems on articles of	G. W. Davis and D. C. Ripley	681,530	Aug. 27	3414	757	96	1784
Glassware. Machine for manufacture of	C. E. Blue	682,966	Sept. 17	2286	515	96	2356
Glassware. Machine for the manufacture of	C. E. Blue	679,664	July 30	4548	1023 1024	96	1000
Globe	F. E. Mitchell	680,461	Aug. 13	1360	297	96	1371
Globe-tester	H. Etheridge	682,189	Sept. 10	961	216	96	2056
Glove	J. P. Möller	680,343	Aug. 13	1158	255	96	1289
Gloves, &c. Fastener for	J. V. Washburne	681,086	Aug. 20	2586	571	96	1600
Gloves, &c. Fastening device for	W. B. Murphy	680,935	Aug. 20	2293	504 505	96	1542
Glue-making apparatus	L. L. Kelsey	681,229	Aug. 27	2842	631 632	96	1673
Glue to wooden box-rims. Machine for applying	A. Annett	678,471	July 16	2160	489	96	475
Go-cart	H. Levi	680,049	Aug. 6	613	134	96	1166
Go-cart	O. W. Siebert	682,119	Sept. 3	847	189 190	96	2033
Gold from cyanid solutions. Apparatus for the recovery of	C. P. Stewart	678,526	July 16	2285	514	96	501
Gold from ores, &c. Extracting	G. Grollet	682,061	Sept. 3	752		96	2013
Gold from sea-water. Extracting	H. C. Bull	679,215	July 23	3663	817	96	797
Gold separator or washer	G. Robertson	680,176	Aug. 6	843	186 187	96	1213
Gold washer and amalgamator for placer-mining. Combined	W. L. Harraman, F. O. Chapman, C. Severin, and D. H. Brown.	682,545	Sept. 10	1506	362	96	2109
Golf-ball tees. Means for forming	W. K. and W. J. Boda	683,244	Sept. 24	2872	659	96	2494
Golf-club	G. W. Mattern	677,811	July 2	879	210	96	185
Golf-club. Wooden	F. L. Shazenger	682,960	Sept. 17	2381	538	96	2376
Governing mechanism for internal-combustion engines.	C. H. Blomstrom	680,116	Aug. 6	731	162	96	1190
Governor	E. P. Coleman	680,198	Aug. 6	878	195 196	96	1220
Governor. Centrifugal engine	H. Lentz	679,055	July 23	3345	746	96	730
Governor. Electric marine	T. P. Housden	681,640	Aug. 27	3026	807	96	1828
Governor. Engine	E. M. Carr	677,855	July 9	973	229	96	225
Governor. Explosive-engine	H. M. McCall	679,389	July 30	4044	901 902	96	897
Governor. Speed	J. C. Murphy	678,418	July 16	2072	470	96	455
Governor. Steam-engine	F. A. Headson	678,499	July 16	2165	488	96	474
Governors. Automatic stop for steam-engine	W. D. Smith	679,706	July 30	4634	1041	96	1019
Grain. Apparatus for removing and separating bran from	W. W. Lind and J. C. McKee	679,233	July 23	3661	823	96	862
Grain-binder	C. Colahan	677,943	July 9	1166	268	96	262
Grain-binder	C. A. A. Rand	679,397	July 30	4056	905	96	890
Grain-binder. Automatic	J. F. Appleby	677,553	July 2	403	96	96	86
Grain curing or drying apparatus	L. S. Burbank	683,101	Sept. 24	2924	603	96	2415
Grain-decorticating machine	F. H. Schule	683,336	Sept. 24	3045	698	96	2531
Grain-drill	H. E. Dodson and L. C. Evans	677,564	July 2	424	101	96	90
Grain-drill	T. Carney	681,037	Aug. 20	2403	552 553	96	1581
Grain-drill. Disk	W. F. Hoyt	678,248	July 9	1719	394	96	371
Grain-drill hitch	C. H. Pelton	681,970	Sept. 3	607	129	96	1996
Grain-drill seed-tube	J. W. Poindexter	682,341	Sept. 10	1252	282 283	96	2128
Grain-dump elevator	G. W. Johnson	680,331	Aug. 13	1115	248 249	96	1282
Grain-germinating apparatus	M. Weisenfeld	683,362	Sept. 24	3095	707	96	2530
Grain. Machine for handling	W. Galbreath	679,737	Aug. 6	38	11	96	1059
Grain-mill	J. J. Brower	678,536	July 16	2309	518	96	504
Grain or seed screen. Adjustable	M. Schill and J. A. Heintz	682,281	Sept. 10	1146	259 260	96	2110
Grain. Removing and separating bran from	W. W. Lind and J. C. McKee	679,234	July 23	3663	824	96	863

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Grain-scouring machine	J. T. Ewan	677,347	July 2	24	6	96	7
Grain-separating screen	C. Closz	682,669	Sept. 17	1811	415 416	96	2263
Grain-separating screen	C. Closz	682,670	Sept. 17	1813	416	96	2264
Grain-separator	A. F. Brase	677,639	July 2	540	128	96	114
Grain-shocking machine	T. A. Wooley and H. Fox	683,095	Sept. 24	2611	600 601	96	2442
Grain-shovel-operating device	J. G. Westbrook	679,448	July 30	4146	930 931	96	916
Grain. Steeping and washing	W. H. Prinz	683,326	Sept. 24	3033	694	96	2529
Grain steeping and washing apparatus	W. H. Prinz	683,327	Sept. 24	3035	695	96	2529
Grain-treating apparatus	G. R. Gorham	683,030	Sept. 24	2517	572	96	2423
Grain. Treating spent	J. A. Tilden	679,065	July 23	3342		96	733
Grain-tube connection	J. E. Welling	680,748	Aug. 20	1944	426	96	1473
Graphite lubricator	F. Gielow, Sr	683,114	Sept. 24	2644	607 608	96	2449
Graphite-separator	J. H. Davis	679,473	July 30	4190	941	96	924
Graphophone	T. H. Macdonald	679,236	July 23	3699	825	96	803
Graphophone	T. H. Macdonald	680,339	Aug. 13	1128	251	96	1284
Graphophone	T. H. Macdonald	680,794	Aug. 20	2036	445	96	1489
Graphophone and motor. Combined	T. H. Macdonald	678,173	July 9	1587	365	96	344
Grapple	J. E. Hagerman	682,752	Sept. 17	1983	449	96	2296
Grappling device	S. A. Saxon	678,468	July 16	2164		96	474
Grass. Exterminating Johnson	C. Harpold	679,655	July 30	4534	1030	96	997
Grate	T. H. Westheimer	683,209	Sept. 24	2976	682	96	2517
Grater	W. W. Kronheim	678,812	July 16	2822	636	96	608
Grinder. Grain	A. W. Patrick	682,969	Sept. 17	2456	556	96	2390
Grinding and polishing machine	R. H. Reid	682,158	Sept. 10	921	205 206	96	2068
Grinding, crushing, or feeding apparatus	D. L. Adelsperger	680,893	Aug. 20	2160	475	96	1515
Grinding device	H. W. Honeyman	677,593	July 2	475	113 114	96	100
Grinding-machine	H. Pearse	678,805	July 23	2945	662 663 664	96	651
Grinding-machine	S. Diescher	679,347	July 30	3926	878 879	96	871
Grinding-machine	R. P. Thompson	681,440	Aug. 27	3250	721 722	96	1752
Grinding machine. Tool or cutter	A. R. Clizbe	683,194	Sept. 24	2770	637 638	96	2474
Grinding-mill	J. Bath	678,111	July 9	1479	341	96	322
Grinding-mill	D. L. Adelsperger	679,775	Aug. 6	105	24	96	1063
Grinding or crushing mill	C. W. Pank	682,157	Sept. 10	917	205	96	2067
Grinding-rolls. Composite	D. L. Adelsperger	679,821	Aug. 6	199	43	96	1083
Grindstone. Portable	W. E. Arnold	681,879	Sept. 3	420	84, 85	96	1948
Grubber	C. H. Ferguson	682,048	Sept. 3	736	159	96	2009
Guanidin compound and making same	C. S. Douthat	677,514	July 2	318		96	68
Guanidin derivatives and making same. Mixed	A. Israel and R. Kothe	677,515	July 2	319		96	69
Guitar attachment	A. Israel and R. Kothe	677,895	July 2	106	23	96	24
Gun	K. Beck	678,557	July 16	2339	526	96	512
Gun. Automatic	E. Gathmann	678,937	July 23	3098	693 694	96	681
Gun-carriage for heavy ordnance	J. M. Browning	678,969	July 23	3168	708 709	96	695
Gun-cleaner	S. N. McClean	681,163	Aug. 20	2715	601	96	1626
Gun. Colt	C. M. Woodman	680,327	Aug. 13	1112	247	96	1281
Gun. Machine	W. G. Hay	682,230	Sept. 10	1055	298 299	96	2062
Gun. Machine	G. Perino	683,240	Sept. 24	2862	657 658 719	96	2492
Gun. Magazine	F. Alessi	681,439	Aug. 27	3228	720 721 773	96	1749
Gun parapet-mount	H. Carr	679,112	July 23	3465	774	96	754
Gun-sight	L. L. Driggs	682,789	Sept. 17	1961	445	96	2291
Gun sighting apparatus. Barbette or other	E. H. Parsons and L. B. Taylor	683,204	Sept. 24	2792	643 644	96	2478
Gun-sighting device	H. Grubb	683,208	Sept. 24	2787	642 643	96	2477
Guns. Apparatus for automatically firing ships'	L. Obry	678,757	July 16	2722	613	96	587
Guns. Apparatus for discharging ships'	L. Obry	680,066	Aug. 6	645	142	96	1173
Guns. Combined case and mount or carriage for	E. von Freystädtler	678,390	July 16	2622	453 469	96	446
Guns. Field-carriage for quick-firing	K. Haussner	680,585	Aug. 13	1581	349	96	1376
Guns. Field-carriage for quick-firing	K. Haussner	682,072	Sept. 3	769	167	96	2016
Guns. Mechanical primer for	G. Stuart	679,792	Aug. 6	131	29	96	1068
Guns. Safety-lock for breech mechanism for	L. L. Driggs	679,116	July 23	3479	777	96	758
Guns. Telescopic mounting for	H. L. De Zeng, Jr	681,202	Aug. 27	3298	621	96	1664
Gutter-bending machine	J. H. Crocker	679,417	July 30	4084	912 913	96	905
Gyrator	W. P. Northway	681,254	Aug. 27	2895	641 642	96	1682
Hair-crimper	C. L. Walters	677,390	July 2	96	21	96	22
Hair-crimper	W. G. Jackson	681,827	Sept. 3	321	65	96	1929
Hair-fastener	A. Stockinger	678,527	July 16	2286	515	96	501
Hair-retainer	W. S. Bechtold	682,448	Sept. 10	1432	324	96	2165
Hame-clip	W. L. Chrysler and W. A. Parker	681,680	Sept. 3	17	5	96	1898
Hame-fastener	R. Dodson	679,418	July 30	4087	913	96	905
Hammer. Drop	P. Hanzer and J. Chevalier	680,525	Aug. 13	1487	327	96	1357
Hammer. Fluid-pressure	W. Payton	682,402	Sept. 10	1513	343	96	2181
Hammer. Magazine	G. S. Tarbell	678,062	July 9	1386	310	96	303
Hammer. Pneumatic	M. A. Yeakley	678,450	July 16	2139	483 484	96	469

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hammer. Pneumatic	J. Bèché	683,374	Sept. 24	3100	710	96	2544
					711		
Hammer. Portable fluid-pressure	W. Payton	678,759	July 16	2726	614	96	588
Hammer. Power	F. W. Tannett-Walker	678,528	July 16	2287	515	96	501
					516		
Hammock-support	T. S. Hayward	679,963	Aug. 6	477	99	96	1138
					100		
Handle: *See* Bicycle-handle. Brush-handle. Pot-handle. Saw-handle. Saw-blade handle. Smoothing-iron handle. Tool-handle.							
Handle-bar	J. Hullt	681,325	Aug. 27	3046	676	96	1712
Handle for washboilers, &c	Z. T. Hall	682,064	Sept. 3	755	163	96	2013
Hands and fingers. Device for developing muscles of the	G. Troxler, Jr	677,824	July 2	905	216	96	190
Hanger: *See* Curtain-hanger. Door-hanger. Garment-hanger. Hat-hanger. Joist-hanger. Pipe-hanger. Shade-hanger. Trolley-wire hanger.							
Hanger	G. Faust	680,322	Aug. 13	1102	245	96	1279
Hank	W. Wood	682,376	Sept. 10	1306	294	96	2139
Hank-securing means	F. P. Wiseburn and L. Buhle	677,488	July 2	269	67	96	58
Harmonica	E. Strieffler	681,753	Sept. 3	175	33	96	1899
					269		
Harp or zither. Box	J. P. White	682,303	Sept. 10	1185	270	96	2116
Harrow	J. W. Miller	679,854	Aug. 6	250	56	96	1095
Harrow	F. Nischwitz	680,728	Aug. 20	1906	419	96	1465
Harrow	F. Nischwitz	680,729	Aug. 20	1909	420	96	1466
Harrow	W. L. Oran	681,070	Aug. 20	2557	565	96	1594
Harrow	J. M. Killough	681,230	Aug. 27	2845	632	96	1673
					703		
Harrow	R. E. Hobgood	681,395	Aug. 27	3158	704	96	1734
Harrow	E. S. Gordon	681,849	Sept. 3	367	73	96	1988
Harrow and crusher. Combined	J. H. Alexander	681,944	Sept. 3	552	116	96	1976
Harrow and planter. Combined	J. A. Altenbaugh	682,309	Sept. 10	1347	305	96	2148
Harrow and roller. Combined	H. J. Heider	677,658	July 2	594	142	96	126
Harrow attachment. Disk	S. D. Poole	680,939	Aug. 20	2306	507	96	1545
Harrow. Flexible	G. W. Ream	678,370	July 16	1984	451	96	438
Harrow riding attachment	J. H. Daniel	679,255	July 23	3736	834	96	810
Harvester	J. Young	681,525	Aug. 27	3409	756	96	1783
Harvester. Beet	M. Ingels	679,758	Aug. 6	68	17, 18	96	1065
Harvester. Broom-corn	C. N. Bargquist	677,621	July 2	527	126	96	112
Harvester bundle-carrying attachment	D. Binns	677,927	July 9	1138	261	96	256
					262		
Harvester. Corn	H. L. Steel	679,708	July 30	4036	1042	96	1019
					1043		
Harvester. Corn	C. A. Klitzke	681,026	Aug. 20	2471	548	96	1576
Harvester. Corn	J. A. Stone	681,147	Aug. 20	2680	591	96	1620
					592		
Harvester. Corn	J. W. Carlisle	681,777	Sept. 3	239	46	96	1913
Harvester. Corn	J. F. Stallsmith	681,818	Sept. 3	307	62	96	1926
Harvester cutter. Adjustable	P. L. Shepler	681,815	Sept. 3	302	60, 61	96	1926
Harvester cutter mechanism	T. S. Brown	679,213	July 23	3659	816	96	796
Harvester or mower cutter-bar	I. N. Graham, W. C. Craig, and G. W. Shinault.	677,977	July 9	1230	282	96	275
Harvester. Potato	N. Leger	681,644	Aug. 27	3037	813	96	1880
					814		
Harvester-reel	E. O. Beckman	678,432	July 16	2005	476	96	460
Harvesters. Adjustable carriage for grain	C. W. Shelden	678,046	July 9	1359	314	96	299
Harvesting-machines. Wind-break for	M. Kane	678,571	July 16	2280	534	96	520
Hasp-fastener	R. D. Wirt	682,057	Sept. 17	1732	411	96	2260
Hasp-lock	I. C. Drake	682,179	Sept. 10	955	215	96	2074
					149		
Hat block and gage	E. G. Taylor	680,083	Aug. 6	672	150	96	1178
Hat-body-treating machine	J. H. Neave	677,882	July 9	1030	242	96	236
Hat-case	A. R. Du Boise	683,258	Sept. 24	2904	666	96	2502
Hat-cleaning pad	J. Krises	680,531	Aug. 13	1497	329	96	1359
Hat-dyeing apparatus	J. W. Wigner	682,010	Sept. 3	670	145	96	1998
Hat-fastener	M. L. Lincoln	678,623	July 16	2499	558	96	544
Hat-fastener	E. Enders	678,723	July 16	2673	602	96	577
Hat-fastener	C. F. Gauen	678,725	July 16	2677	603	96	578
Hat-fastener	R. Kieserling, Sr	682,715	Sept. 17	1914	435	96	2282
Hat-fastener	W. V. Blöha	683,168	Sept. 24	2729	628	96	2466
Hat-hanger	C. W. Lord	680,873	Aug. 20	2178	479	96	1518
Hat-pin	H. C. Dick	679,111	July 23	3464	773	96	754
Hat-protector	M. R. Foster, Jr	683,265	Sept. 24	2916	669	96	2505
Hatters' kettles. Hair-strainer for	W. B. Cowles	681,624	Aug. 27	3501	799	96	1819
Hatches, &c. Mechanism for moving armored	H. I. Smith	677,604	July 2	492	118	96	104
Hatchway cover fastening	J. W. McGhee	682,858	Sept. 17	2201	497	96	2338
Hatchways. Automatic closure for elevator	J. Geery	678,393	July 16	2030	461	96	448
Hay-derrick	J. Ney	681,810	Sept. 3	294	59	96	1924
Hay-elevator track	W. R. Wilson	682,123	Sept. 3	853	191	96	2034
Hay-fever disk	F. M. Standley	681,146	Aug. 20	2679	591	96	1620
					108		
Hay-fork carrier	F. C. Patten and G. Haugen	679,986	Aug. 6	511	109	96	1145
					324		
					325		
Hay gathering and handling machine	M. Beck	682,449	Sept. 10	1433	326	96	2165
					327		
Hay-knife	C. Blaser	678,373	July 16	1989	453	96	439
Hay-loader	J. Dain, Jr	681,778	Sept. 3	240	46, 47	96	1913
Hay or grain unloader and stacker	A. F. Haynes	683,043	Sept. 24	2528	575	96	2425
Hay-rack for wagons	R. E. Poindexter	680,070	Aug. 6	656	145	96	1175

Alphabetical list of inventions. July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hay-rake	C. Blackwell	682,132	Sept. 3	864	194	96	2036
Hay-rake	D. Lutz	682,474	Sept. 10	1481	336	96	2174
Hay rake and cocker	C. E. Paulson	682,229	Sept. 10	1053	237	96	2102
					238		
Head-cutting machine	W. E. Nichols	678,022	July 9	1299	296	96	287
					297		
Headlight or lantern. Hunter's	G. W. Stockwell	681,996	Sept. 3	643	137	96	1998
Headlight signal attachment	A. B. Haller	680,773	Aug. 20	1987	436	96	1482
					437		
Head-rest	C. E. House	679,423	July 30	4093	914	96	907
Hearing. Apparatus for assisting the	A. F. Watch	683,192	Sept. 24	2768	636	96	2473
Hearing. Magnetic device for restoring and aiding	S. G. Payn, Jr	681,341	Aug. 27	3066	680	96	1716
Heat-indicator	J. Lemmon and J. H. Cope	682,472	Sept. 10	1475	335	96	2178
Heat-regulating device	C. G. Armstrong	680,471	Aug. 13	1372	300	96	1334
Heat. System for collecting and utilizing solar	K. C. Wideen	683,088	Sept. 24	2593	596	96	2439
Heater: *See* Curling-iron heater. Electric heater. Feed-water heater. Fireplace-heater. Flat-iron heater. Gas-heater. Incubator-heater. Laundering-iron heater. Solar heater. Steam and hot-water heater. Tank-heater. Tire-heater. Water-heater.							
Heater	G. E. Riblet	677,798	July 2	847	202	96	178
Heater	F. D. Stephens	679,520	July 30	4301	966	96	946
					967		
Heater	L. O. Cameron	680,223	Aug. 13	937	210	96	1247
Heating and baking machine. Continuous	H. D. Perky	681,655	Aug. 27	3671	821	96	1887
					822		
Heating and igniting attachment. Combined	C. I. Dangler	678,645	July 16	2541	569	96	552
					570		
Heating apparatus	A. M. Hewlett	677,764	July 2	787	188	96	167
					189		
Heating apparatus	A. Fisher	681,019	Aug. 20	2459	544	96	1574
					545		
Heating attachment for culverts, &c	H. O. Kruschke	678,118	July 9	1492	344	96	325
Heating device	J. W. Foster	677,969	July 9	1209	279	96	270
Heating-diaphragm	J. Meyer	680,494	Aug. 13	1422	311	96	1343
Heating-furnace	W. S. McKenna	680,726	Aug. 20	1901	418	96	1464
Heating-furnace	A. Laughlin and J. Reuleaux	680,997	Aug. 20	2413	532	96	1564
					533		
Heel	B. Löderer	683,054	Sept. 24	2545	580	96	2428
Heel. Boot	C. E. Keller	682,940	Sept. 17	2353	531	96	2370
Heel or sole molding machine	F. F. Raymond, 2d	681,344	Aug. 27	3070	681	96	1717
Heel-support. Hygienic	W. Galloway	682,141	Sept. 3	880	196	96	2039
Hides or skins. Removing hair, wool, fur, &c., from	H. R. Riches	682,569	Sept. 10	1641	375	96	2208
High chair and rocker. Convertible	G. H. Smith	682,961	Sept. 17	2382	539	96	2376
High or low water alarm	C. E. Zimmermann	678,925	July 23	3070	687	96	676
Hinge	N. W. McCourt	677,685	July 2	635	152	96	134
Hinge	J. G. Herbst	677,984	July 9	1240	284	96	276
Hinge	J. M. Pearson	683,222	Sept. 24	2824	650	96	2484
Hinge	A. Clark	681,950	Sept. 3	571	120	96	1980
Hinge-pin	H. D. Hibbard	679,377	July 30	4013	896	96	889
Hinge. Safe or vault	J. B. Tuor	678,701	July 16	2028	502	96	509
Hinge. Separable	C. Hartmann	682,071	Sept. 3	767	166	96	2016
					167		
Hinge. Separable	F. W. Rauen	682,998	Sept. 17	2455	556	96	2380
Hinge. Separable	L. R. Pomeroy and E. E. Allyne	681,577	Aug. 27	3508	778	96	1804
Hinge. Spring	S. H. Hull	678,785	July 16	2767	623	96	505
Hip-strap connector	J. Caldwell	682,972	Sept. 17	2396	542	96	2379
Hitcher. Horse	C. W. Prince	679,334	July 30	3907	873	96	867
Hitching device	J. M. Matthews	681,129	Aug. 20	2652	585	96	1618
Hitching-post	C. Butcher	680,638	Aug. 13	1671	369	96	1394
					370		
Hitching-post. Disappearing and safety	J. Minor	682,807	Sept. 17	2100	474	96	2378
Hockey-stick	A. Bigg	678,535	July 16	2299	518	96	504
Hoe	T. R. and F. E. Ferris	677,405	July 2	121	27	96	98
Hoe and weeder. Combination	J. Perks and W. C. Salmon	682,833	Sept. 17	2159	487	96	2380
					488		
Hoes. Manufacture of	P. J. Parmiter	679,090	July 23	3431	764	96	747
					765		
Hoeing and thinning turnips. Machine for flat	W. S. Halsey	679,421	July 30	4060	914	96	906
Hoist. Pneumatic	J. L. Potter	681,138	Aug. 20	2664	588	96	1616
Hoisting and conveying apparatus	T. S. Miller and J. H. Dickinson	680,984	Aug. 20	2291	504	96	1542
Hoisting and conveying device	A. E. Brown	682,666	Sept. 17	1804	414	96	2262
					415		
Hoisting and conveying machine	W. A. Petree	681,135	Aug. 20	2662	587	96	1616
Hoisting apparatus	J. C. Joyce	681,708	Sept. 3	74	15	96	1878
Holdback	B. B. Douglass	682,605	Sept. 17	1712	390	96	2244
Holder	H. N. Brown	680,563	Aug. 13	1548	340	96	1369
Holdfast	J. A. Buck	677,497	July 2	285	70	96	62
Hoof-pad	C. S. Carkin	682,789	Sept. 17	2066	468	96	2312
Hoof-pad	A. E. Wheatcroft	682,302	Sept. 10	1182	269	96	2116
Hoof-shield							
Hook: *See* Bed-slat hook. Display-hook. Fish-hook. Garment-hook. Ladder-hook. Ladder coupling-hook. Logging-hook. Singletree-hook. Snap-hook. Tug-hook.							
Hook	T. J. Browning	678,096	July 9	1446	334	96	314
					335		
Hook	T. J. Browning	678,097	July 9	1450	335	96	315
Hook	P. B. Southworth	680,005	Aug. 6	540	116	96	1151
Hook and eye	W. A. Maxwell	678,267	July 9	1752	404	96	377

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hoop:							
See Embroidery-hoop.							
Hoop	A. Maltby	678,011	July 9	1280	208	96	283
Hoops on round silos, water-tanks, barrels, &c. Device for tightening	G. Brett	679,139	July 23	3516	786	96	765
Hoops or rods about casks, tanks, &c. Lug used in coupling, tightening, and fastening metal	G. Mumby	680,462	Aug. 13	1361	207	96	1331
Hopper. Cinder-	M. Laux	679,083	July 23	3418	761	96	745
Hopple. Animal-	J. P. Meals	677,583	July 2	459	110	96	97
Horse-blind. Safety	D. Connerth and J. Rothweiler	681,582	Sept. 3	18	6	96	1868
Horse-checking device	W. L. G. Rumpf	680,961	Aug. 13	1187	262	96	1295
Horse-detacher	L. D. Howard	681,550	Aug. 27	3451	766	96	1702
Horse-detacher	B. V. Velasco	682,438	Sept. 10	1417	320	96	2102
Horse-detaching appliance	E. R. Richards	681,734	Sept. 3	144	27	96	1893
Horse-detaching device	W. C. Parsons	680,351	Aug. 13	1167	257 / 258	96	1291
Horsehair. Manufacture of artificial	F. Lehner	680,719	Aug. 20	1881		96	1459
Horse-overshoe	S. Henderson and W. Taylor	681,022	Aug. 20	2466	546	96	1575
Horses. Attachment for the cure of balking and kicking	C. A. Barclay	678,217	July 9	1671	384	96	360
Horse's-hoof-protecting plate	G. Israel	677,990	July 9	1250	286	96	278
Horseshoe	O. A. Meyer	679,322	July 30	3884	898	96	892
Horseshoe	H. and A. Rush	679,704	July 30	4031	1041	96	1018
Horseshoe	H. M. McChesley	680,801	Aug. 20	2451	447	96	1492
Horseshoe	O. F. Transue	680,948	Aug. 20	2821	510	96	1548
Horseshoe	R. W. Padden	681,370	Aug. 27	3116	692	96	1725
Horseshoe	G. L. Warner	681,464	Aug. 27	3300	734	96	1762
Horseshoe	M. Hallaman	681,544	Aug. 27	3443	764	96	1790
Horseshoe	O. Swanstrom	682,506	Sept. 10	1532	347	96	2185
Horseshoe	H. Jenkins	682,850	Sept. 17	2180	494	96	2296
Horseshoe	M. R. Thurber	683,084	Sept. 24	2588	595	96	2438
Horseshoe	E. von Marsóvszky	683,131	Sept. 24	2670	613	96	2454
Horseshoe	E. von Marsóvszky	683,132	Sept. 24	2671	614	96	2454
Horseshoe	G. Bird, Jr.	680,754	Aug. 20	1951	427	96	1474
Horseshoe-blanks. Machine for rolling	S. P. Smith	682,501	Sept. 10	1525	345	96	2183
Horseshoe calk attachment	E. Hammesfahr	682,465	Sept. 10	1464	332	96	2171
Horseshoe calk-fastening device	S. McCloud	683,318	Sept. 24	3021	691	96	2526
Horseshoe. Elastic	O. W. Siebenhaar	679,688	July 23	3299	738	96	721
Horseshoe. Elastic-heel	A. Buer	677,398	July 2	109	24	96	25
Horseshoe-pad	M. Hallaman	681,545	Aug. 27	3443	764	96	1791
Horseshoe-shaping device	C. P. Dryden	681,411	Aug. 27	3183	708	96	1739
Horseshoe. Soft-tread	C. P. Dryden	682,988	Sept. 17	2350	530	96	2369
Horseshoer's knife	G. C. Ingram	680,504	Aug. 13	1428	315	96	1346
Hose	H. H. Shepard and F. H. Fish	683,076	Sept. 24	2573	588	96	2435
Hose. Bath-	W. L. Simmons	679,570	July 30	4391	986	96	997
Hose-bridge	F. R. McClurg	682,577	Sept. 10	1661	378	96	2211
Hose-coupling	C. A. Tripp	683,342	Sept. 24	3054	700	96	2533
Hose-coupling	H. B. Sherman	682,873	Sept. 17	2229	503	96	2344
Hose coupling and washer. Metal	F. D. Joy	682,558	Sept. 10	1622	371	96	2204
Hose-machine	J. S. H. Lovett	679,723	Aug. 6	32	10	96	1049
Hose-nozzle	C. N. Edgell	683,317	Sept. 24	3019	691	96	2526
Hose-nozzle	J. McBoyle	677,993	July 9	1254	287 / 288	96	279
Hose-reel	W. Jones	678,850	July 16	2014	657	96	626
Hose. Rubber	W. J. Courtney	11,924	July 30	4658	1046 / 1047	96	1024
Hose signal system. Electric	H. Sargent. (Reissue)	682,772	Sept. 17	2030	459	96	2305
Hose strap and hook. Combined	J. Weltlin	680,503	Aug. 13	1436	315	96	1345
Hose-supporter	E. G. Seiffer	678,654	July 16	2559	573	96	535
Hose-supporter clasp	E. N. Gaillard	679,893	Aug. 6	334	71	96	1110
Hose-supporting device	M. B. Hammond	682,904	Sept. 17	2282	515	96	2355
Hosiery	J. H. Blaetz	677,676	July 2	622	149	96	131
Hot-air furnace	C. Messer	679,093	July 23	3437	766	96	748
Hot-air furnace	V. L. Sullivan	683,355	Sept. 24	3076	704	96	2537
Hot-air furnace	J. Timms	681,552	Aug. 27	3454	767	96	1792
Hot-air-register attachment	M. Iversen	679,107	July 23	3459	771	96	733
Hot-water tank	H. A. Buck	680,834	Aug. 20	2114	461	96	1506
House:							
See Summer-house.							
House-wiring	F. Bathurst	677,429	July 2	174	42	96	39
Hub	L. Sturges	682,897	Sept. 17	2268	512	96	2352
Hub	J. P. Wulff	683,310	Sept. 24	3006	687	96	2524
Hub-attacher	T. G. Mandt	678,744	July 16	2702	609	96	583
Hub-attaching device	J. R. Kinley	681,569	Aug. 27	3480	773	96	1798
Hub-attaching device	J. A. McNamara	682,105	Sept. 3	822	183	96	2028
Hub-attaching device	C. Miller	679,995	Aug. 6	524	112	96	1147
Hub. Ball-bearing	P. F. Schaffer	681,666	Aug. 27	3692	826	96	1841
Hub-band	D. W. Call	681,667	Aug. 27	3693	826	96	1842
Hub-band	D. W. Call	681,966	Sept. 3	663	128	96	1965
Hub cap. Vehicle-	O. C. Knipe	677,575	July 2	447	107	96	95
Hub. Vehicle-	Z. T. Kale	679,230	July 23	3684	821	96	801
Hub. Vehicle-	W. J. Holland	679,313	July 30	3895	854	96	858
Hub. Vehicle-	W. F. Hembrey	680,424	Aug. 13	1206	284	96	1317
Hub. Vehicle-wheel	A. Benson	680,850	Aug. 20	2142	469	96	1511
Hubs. Lubricator attachment for wheel-	W. P. Fergusson	681,176	Aug. 27	2753	611	96	1655
Husking-peg	R. Albach	677,302	July 2	53	12	96	14
Hydrant	C. E. Loetzer	679,466	July 30	4179	998	96	922
Hydrant	J. McKenzie	681,501	Sept. 3	464	95	96	1957
Hydrant	O. L. Whiteman	679,005	July 23	3227	722	96	707
Hydraulic coupling	T. C. Prouty	682,024	Sept. 3	696	150	96	2002
Hydraulic dredges. Cutter-head for	W. J. Bradley	677,899	July 9	1083	252	96	246
Hydrocarbon-burner	J. C. Speirs	679,015	July 23	3256	727	96	712
Hydrocarbon-burner	J. J. Busenbenz	679,245	July 23	3712	828 / 829	96	806
Hydrocarbon-burner	V. H. Slinack	680,573	Aug. 13	1562	343	96	1372
Hydrocarbon-burner	J. Eastwood	681,782	Sept. 3	252	48	96	1916
Hydrocarbon-burner	J. Graham						

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hydrocarbon-burner	E. G. Mummery	682,629	Sept. 17	1754	402	96	2252
Hydrocarbon-burner	J. A. Mason	683,134	Sept. 24	2675	615	96	2455
Hydrocarbon-burners. Preliminary vaporizer for	T. B. Dooley	677,402	July 2	114	25	96	26
Hydrocarbon-motor	W. Bruening	677,397	July 2	107	23, 24	96	25
Hydrocarbon-vapor burner	G. C. Holt and J. W. McDaniel	677,766	July 2	790	189	96	167
Hydrocellulose. Obtaining	M. C. L. Althausse	679,203	July 23	3645	------	96	703
Hydrocellulose. Obtaining	M. C. L. Althausse	679,204	July 23	3647	------	96	703
Ice-cream-cabinet cover	C. Nelson	681,335	Aug. 27	3461	678	96	1715
Ice-cream freezer	W. C. Harrison	683,042	Sept. 24	2527	575	96	2425
Ice-cream-molding machine	G. W. Cuscaden, C. F. Klotz, and H. A. Cuscaden.	682,243	Sept. 10	1079	244	96	2096
Ice-cutter	J. Schweikart	678,285	July 9	1804	415	96	385
Ice-freezing plate	W. J. Woodcock	682,659	Sept. 17	1794	411	96	2269
Ice-machine	J. H. J. Haines	679,696	July 30	4615	(1035 / 1036)	96	1015
Ice-making apparatus	E. J. Ullrich	680,087	Aug. 6	680	151 / 152	96	1180
Ice-making apparatus	E. J. Ullrich	680,088	Aug. 6	683	152	96	1181
Ice-making apparatus	T. Shipley	681,348	Aug. 27	3080	681	96	1719
Ice or water bag	C. W. Meinecke	680,610	Aug. 13	1627	358	96	1384
Ice-shaping mold	H. A. MacClyment and W. F. Sims.	679,183	July 23	3598	803	96	783
Ice-tongs	H. B. McKee	681,739	Sept. 3	152	28	96	1894
Igniter. Electric	F. A. Ruff	679,651	July 30	4530	1019	96	996
Ignition apparatus. Electrical	A. E. Vorreiter	683,285	Sept. 24	2953	676 / 677	96	2512
Impact and reaction motor	J. L. Hornig	682,527	Sept. 10	1564	355	96	2192
Incandescent burner	J. J. Byrnes	682,337	Sept. 10	1244	281	96	2126
Incandescent lighting. Manufacture of incandescing media for	R. A. Nielsen	682,735	Sept. 17	1955	444	96	2290
Incandescent mantles. Packing-case for	M. M. Roberts	678,053	July 9	1368	316	96	309
Incubator	A. A. Skinner	678,882	July 23	2981	669	96	659
Incubator	G. L. Horrall	679,704	Aug. 6	88	21	96	1059
Incubator	J. L. Macy	682,802	Sept. 17	2088	472	96	2316
Incubator-heater	J. H. Madison	677,384	July 2	86	18, 19	96	21
Index	C. G. Throop and W. L. Hendricks.	679,513	July 30	4280	964	96	944
Index	Z. B. Say	682,275	Sept. 10	1138	257	96	2108
Index and reference-indicator. Combined	W. R. Rathvon	681,400	Aug. 27	3180	708	96	1738
Index-cabinet	R. W. Dickenson	681,521	Aug. 27	3401	755	96	1782
Index-tab	M. C. Tressel						
Indicator:							
See Cash-indicator. Page-indicator. Current-indicator. Speed-indicator. Door-indicator.. Station-indicator. Engine-indicator. Telephone time-indicator. Frequency-indicator. Temperature-indicator. Heat-indicator. Time-indicator. Line-indicator. Timepiece winding-indicator. Micrometer-indicator. Valve-indicator. Office-indicator.							
Indigo from indigo-leuco compounds. Making	A. J. Stiegelmann	680,894	Aug. 20	2218	------	96	1526
Indoxyl derivatives. Making	J. Pfleger	680,395	Aug. 13	1242	------	96	1307
Inductance-coil	H. Shoemaker	678,353	July 9	1944	445	96	418
Induction-chamber and oil-eliminator	J. J. Hoppes	677,356	July 2	39	10	96	11
Induction-coil	H. Shoemaker	678,047	July 9	1361	314	96	299
Induction-motor	H. G. Reist	678,034	July 9	1325	302 / 303	96	292
Induction-motor. Alternating-current	B. G. Lamme	680,792	Aug. 20	2034	444	96	1489
Ingot-mold	F. W. Wood	683,367	Sept. 24	3095	708	96	2541
Ingot-stripper	F. W. Wood	683,368	Sept. 24	3096	709	96	2541
Ingot-stripper	F. W. Wood	683,369	Sept. 24	3097	709	96	2542
Inhaler. Ether-	G. Otto	681,338	Aug. 27	3061	670	96	1716
Injecter	C. Prüsmann	679,127	July 23	3494	780	96	761
Ink-distributer	J. S. McKinley	678,019	July 9	1292	296	96	285
Ink-fountain	E. G. Holden	678,315	July 9	1861	428	96	396
Insect-catcher	E. N. Wood	683,092	Sept. 24	2607	590	96	2441
Insect-destroyer	A. Koy and J. Kveton	679,319	July 30	3878	866 / 867	96	861
Insect-exterminator	J. K. Jessup	679,848	Aug. 6	249	53	96	1093
Insect-exterminator	A. C. Gillespie and J. C. Davis	681,825	Sept. 3	318	65	96	1929
Insect-exterminator	N. A. Pollard	681,859	Sept. 3	380	77	96	1942
Insect-trap	S. A. Wright	681,772	Sept. 3	220	44	96	1910
Insole	E. E. Orr	681,506	Aug. 27	3375	749	96	1776
Insulating conductors	C. F. Woods	677,730	July 2	716	170	96	151
Insulating construction	T. New	683,060	Sept. 24	2551	582	96	2430
Insulating-machine	V. Royle	678,038	July 9	1345	311	96	295
Insulating-machine	V. Royle	678,039	July 9	1348	311	96	296
Insulating machine. Wire-	C. H. Thordarson	679,521	July 30	4303	967 / 968	96	947
Insulating material. Composite	G. Kelly	683,208	Sept. 24	2805	646	96	2481
Insulating-strip. Cork	J. H. Stone	680,445	Aug. 13	1333	292	96	1325
Insulating wall. Heat-	B. A. Stevens	681,988	Sept. 3	544	114	96	1974
Insulation of electric conductors. Device for indicating leaks in	I. Kitsee	682,204	Sept. 10	960	225	96	2082
Insulator	H. Geisenhöner	679,308	July 30	3857	862	96	856
Insulator	H. Traun	681,757	Sept. 3	180	35	96	1900
Insulator	W. F. Jenkins	682,709	Sept. 17	1907	433	96	2281
Insulator. Adjustable	H. D. Murdock	682,851	Sept. 17	2157	487	96	2330
Insulator. Electric-wire	J. E. Sharpe	679,544	July 30	4316	955	96	957
Insulator. Rack-	H. R. Sargent	678,042	July 9	1352	312	96	297
Insulator. Third-rail	W. B. Potter	678,195	July 9	1626	376	96	351
Internal-combustion engine	O. Snell	677,898	July 9	1081	251 / 252	96	245
Internal-combustion engine	F. Reichenbach	682,567	Sept. 10	1638	374	96	2208
Invalid lifting and handling device	H. E. Sharrer	677,692	July 2	489	118	96	108

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Invalid's table. Adjustable	S. M. Davis	679,667	July 30	4557	1025	96	1002
Iron: *See* Flat-iron. Soldering-iron. Sad-iron.							
Iron frame construction. Bracket for structural	S. D. Wright	681,524	Aug. 27	3406	755	96	1782
Iron into lengths. Machine for sawing bars of	R. B. Charlton	678,940	July 23	3106	695, 696	96	683
Ironing-board	C. H. Van Deusen	680,297	Aug. 13	1058	236	96	1209
Ironing-board and clothes-rack. Combined	G. R. Freeman	680,302	Aug. 6	887	197	96	1221
Ironing edges of collars and cuffs or other starched articles. Machine for	F. E. Fay	678,949	July 23	3124	700	96	686
Ironing-machine	A. Sharp	677,808	July 2	873	208, 209	96	184
Ironing-machine	W. M. Barnes	679,718	Aug. 6	3	1	96	1043
Ironing-table	G. H. Keough	678,403	July 16	2047	464	96	450
Ironing-table	W. Wildermuth and J. G. Hill	680,408	Aug. 13	1262	277, 278	96	1310
Irrigating-ditch clay trough	F. von Holdt	679,965	Aug. 6	481	100	96	1139
Jack: *See* Lever-jack. Railway-track lifting-jack. Lifting-jack. Lumber-jack. Wagon-jack.							
Jack	J. A. Johnson	683,290	Sept. 24	2963	679	96	2514
Jar: *See* Fruit-jar. Syrup-jar. Sealing-jar.							
Jar and jar-cover	M. T. Myers	681,885	Sept. 3	433	87	96	1950
Jar-cover	W. C. Kern	679,077	July 23	3409	759	96	748
Jar-cover	H. J. Wintherlich	680,750	Aug. 20	1946	426	96	1474
Jar-cover	J. W. Everhart	682,246	Sept. 10	1085	245	96	2098
Jar cover and clamp	S. L. Bray	677,733	July 2	719	171	96	152
Jar holder. Fruit-	J. J. Madigan and R. W. Crocker	680,053	Aug. 6	618	135	96	1167
Jar or bottle closure	W. P. Coldren	680,125	Aug. 6	742	164	96	1192
Jar-top	J. R. Blakeslee	680,218	Aug. 13	930	208, 209	96	1245
Jaw-rods. Making	E. A. Simonds	681,080	Aug. 20	2571	569	96	1598
Jeweler's tool							
Joint: *See* Coupling-joint. Railway-rail joint. Pipe-joint. Stovepipe-joint. Rail-joint. Swing-joint. Railway-joint. Universal joint.							
Joint coupling. Three-ball metallic flexible	G. W. Shields	677,869	July 2	876	210	96	184
Joist-hanger	J. Tuteur	679,349	July 30	3946	882	96	876
Journal-bearing	P. Sweeney	680,897	Aug. 20	2224	489	96	1527
Journal-box	S. and S. J. Reynolds	677,374	July 2	71	16	96	17
Journal-box. Self-lubricating	G. Neuber	678,580	July 16	2401	538	96	524
Journal-protecting automatic device	J. C. Dougherty	677,960	July 9	1195	276	96	207
Kettle-lids. Device adapted for operating	C. U. Rhoades	677,597	July 2	481	115	96	101
Key: *See* Calling-key.							
Key-keeper	A. B. Lang	679,758	Aug. 6	79	19	96	1057
Key-ring	F. J. Swanson	681,894	Sept. 3	451	91	96	1954
Keyway-cutter	C. R. Watson, Jr., and C. M. Hopwood.	678,602	July 16	2447	549, 550	96	532
Kiln: *See* Brick-kiln. Revolving adjustable kiln. Limekiln.							
Kiln	F. Alsip	679,817	Aug. 6	192	41, 42	96	1081
Kiln	F. W. Heidenreich	679,842	Aug. 6	239	51	96	1091
Kiln-furnace	F. Alsip	679,819	Aug. 6	196	42	96	1082
Kneading-board	L. D. Patten	679,987	Aug. 6	513	109	96	1145
Kneading-machine kneader. Dough-	O. Droschütz	683,390	Sept. 24	3132	717	96	2550
Knife: *See* Hay-knife. Horseshoer's knife.							
Knife	R. Klickman	682,624	Sept. 17	1745	400	96	2250
Knitting-machine	W. R. Johns	678,883	July 23	2985	670, 671, 846, 847, 848, 849, 850, 851, 852	96	660
Knitting-machine	E. E. Kilbourn	679,281	July 23	3793		96	821
Knitting-machine	E. J. Franck	681,209	Aug. 27	2806	623, 624	96	1665
Knitting-machine	E. D. Friedlander	681,415	Aug. 27	3189	710	96	1740
Knitting-machine	H. E. Harbaugh	681,546	Aug. 27	3444	764, 765	96	1791
Knitting-machine brake mechanism	F. Wilcomb	680,929	Aug. 20	2107	460	96	1504
Knitting-machine bur	E. Tompkins	680,552	Aug. 13	1529	336	96	1365
Knitting-machine bur-wheel support	A. Shaver	680,945	Aug. 20	2317	510	96	1547
Knitting machine. Circular rib-	L. N. D. Williams and H. Swinglehurst.	681,161	Aug. 20	2704	599, 600	96	1625
Knitting-machine needle	R. W. Scott	677,806	July 2	867	207	96	188
Knitting-machine presser-bit	E. A. Hirner	681,451	Aug. 27	3373	728	96	1756
Knitting machine. Rib-	R. W. Scott and H. Swinglehurst.	679,641	July 30	4513	1015	96	992
Knitting-machine take-up mechanism	J. C. Brewin	683,377	Sept. 24	3113	712, 713	96	2545
Knob	O. Daley	678,458	July 16	2151	485	96	471
Knob. Door-	C. F. Biele	677,625	July 2	583	127	96	113
Knob. Door-	W. H. Taylor	682,000	Sept. 3	651	140	96	1994
Knockdown box	B. N. Sykes	680,628	Aug. 13	1657	365, 366	96	1391
Knockdown tank	H. W. and T. C. Harry	679,146	July 23	3529	789	96	768

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Labeling-machine	P. F. Cassidy	678,832	July 16	2878	649, 650	96	618
Labeling-machine	R. F. Stahl	680,986	Aug. 20	2392	528	96	1561
Labeling-machine	E. N. Gilfillan and E. T. McKaig	682,611	Sept. 17	1724	373, 374	96	2246
Labeling machine. Bottle-	P. F. Cassidy	678,833	July 16	2882	650, 651	96	619
Labeling machine. Bottle-	C. Gooding and F. Hausmann	680,972	Aug. 20	2368	521	96	1556
Lace	E. F. Madden	678,962	July 23	3154	706	96	692
Lace fastener. Shoe-	J. B. Hooper	678,107	July 9	1474	340	96	321
Lacing-hook-setting machines. Rocking separator and stop for	J. Pierce	678,628	July 9	1311	299, 300	96	289
Lacing. Shoe-	M. M. Heinitsh and J. T. Moriarty	680,249	Aug. 13	979	220	96	1254
Lacing-strips. Tool for shaving	P. Simon	678,591	July 16	2423	543	96	528
Ladder	H. L. Frizell	677,651	July 2	576	137	96	122
Ladder	F. Schoenhut	678,695	July 16	2619	589, 590	96	567
Ladder	H. D. Carryl	680,428	Aug. 13	1300	285, 286	96	1318
Ladder and table. Combined step-	H. C. Stout	677,714	July 2	689	163, 164	96	146
Ladder and truck. Combined	R. E. Van Court	680,402	Aug. 13	1261	277	96	1310
Ladder coupling-hook. Extension-	H. Klemme and E. Augustien	679,385	July 30	4037	900	96	896
Ladder. Extension-	W. N. Derby	678,549	July 16	2323	523	96	509
Ladder-hook	F. L. Clark	679,887	Aug. 6	826	69	96	1108
Ladder. Step-	J. B. Detweiler	680,318	Aug. 13	1097	244	96	1278
Ladle-car	G. M. Ferry and D. Laing	680,139	Aug. 6	763	170	96	1197
Lamp	C. E. Gervais	678,655	July 16	2561	573	96	556
Lamp	F. B. Hayden	680,413	Aug. 13	1280	281	96	1314
Lamp	R. R. Slewing	678,770	July 16	2745	618	96	591
Lamp. Acetylene-gas	W. F. Cooper	681,197	Aug. 27	2790	619	96	1662
Lamp. Acetylene-gas	D. Brown	681,616	Aug. 27	3577	794	96	1816
Lamp. Acetylene-gas	W. P. Crary	677,400	July 2	112	25	96	26
Lamp. Acetylene-gas-generating	L. S. Buffington	677,984	July 9	1151	265, 266	96	250
Lamp. Acetylene-gas-generating	P. C. Hewitt	682,694	Sept. 17	1875	428	96	2274
Lamp and electrode therefor. Electric, gas, or vapor	W. S. Wandell	678,207	July 9	1650	380	96	355
Lamp and ventilator. Gas-	J. C. Mayrhofer	682,101	Sept. 3	817	182	96	2027
Lamp. Arc-	W. E. Hawkins	681,217	Aug. 27	2822	626	96	1668
Lamp base. Standing-	F. S. Armstrong, M. C. Weaver, and M. A. Barber.	680,680	Aug. 20	1784	393	96	1487
Lamp-bracket. Transferable clamp	G. T. Brown	682,134	Sept. 3	869	195	96	2037
Lamp-burner	W. Tice	681,590	Aug. 27	3520	783	96	1808
Lamp burner. Incandescent-gas-	H. Pittner and F. Richter	683,067	Sept. 24	2562	585	96	2433
Lamp burner. Petroleum-incandescent-	E. L. Gobisch	679,616	July 30	4472	1005	96	985
Lamp-burners. Smoke-preventing attachment for	T. C. Richards	681,293	Aug. 27	2914	645	96	1687
Lamp. Candle-	J. L. Barkey	679,590	July 30	4431	996	96	975
Lamp-chimney	B. C. Caudry	678,939	July 23	3105	695	96	682
Lamp-chimney removing or elevating device	G. Webster	679,980	Aug. 6	407	86	96	1123
Lamp cord-adjuster. Electric-	P. C. Hewitt	682,690	Sept. 17	1851	426, 427	96	2271
Lamp. Electric	T. Spencer	677,605	July 2	494	119	96	104
Lamp. Electric-arc	P. Luhr	677,873	July 9	1015	230	96	238
Lamp. Electric-arc	D. Higham	677,985	July 9	1241	285	96	277
Lamp. Electric-arc	C. P. Steinmetz	678,058	July 9	1377	318	96	302
Lamp. Electric-arc	E. Thomson	678,066	July 9	1395	321	96	304
Lamp. Electric-arc	W. E. Symons	678,142	July 9	1584	333	96	333
Lamp. Electric-arc	W. H. Fitzhugh	678,386	July 16	2017	458	96	445
Lamp. Electric-arc	J. H. Hallberg	678,482	July 16	2205	496	96	483
Lamp. Electric-arc	J. H. Hallberg	678,483	July 16	2206	496	96	484
Lamp. Electric-arc	W. F. Ritter	678,517	July 16	2273	511, 512	96	498
Lamp. Electric-arc	J. H. Hallberg	678,560	July 16	2350	528	96	515
Lamp. Electric-arc	G. M. Lane	678,576	July 16	2392	536	96	523
Lamp. Electric-arc	J. J. Wood	678,607	July 16	2454	551	96	534
Lamp. Electric-arc	J. A. Heany	678,873	July 23	2960	666	96	655
Lamp. Electric-arc	J. A. Heany	678,876	July 23	2964	667	96	655
Lamp. Electric-arc	E. Thomson	678,916	July 23	3057	684	96	673
Lamp. Electric-arc	J. A. Heany	678,951	July 23	3123	702	96	688
Lamp. Electric-arc	J. A. Heany	678,952	July 23	3125	702	96	689
Lamp. Electric-arc	S. M. Meyer	679,700	July 30	4625	1039	96	1017
Lamp. Electric-arc	H. Bremer	679,878	Aug. 6	310	66	96	1105
Lamp. Electric-arc	H. Stenz	680,082	Aug. 6	671	149	96	1178
Lamp. Electric-arc	F. B. Badt	681,179	Aug. 27	2757	612	96	1655
Lamp. Electric-arc	D. Higham. (Reissue)	11,930	Sept. 3	914	208, 204	96	2045
Lamp. Electric incandescent	P. A. Gibbins	681,692	Sept. 3	48	9	96	1873
Lamp-extinguisher	R. C. Henry and C. C. Carrick	682,615	Sept. 17	1732	395	96	2248
Lamp-extinguisher. Automatic	R. Tattu	678,915	July 23	3055	684	96	673
Lamp for burning petroleum, kerosene, &c	B. H. Copeland	683,420	Sept. 24	3199	733	96	2562
Lamp. Gas-	A. Rector	678,513	July 16	2269	510	96	497
Lamp. Gasolene-	W. A. Studebaker	680,446	Aug. 13	1334	302	96	1325
Lamp globe-holder. Arc-	G. E. Stevens	677,377	July 2	76	17	96	18
Lamp. Hand signaling-	A. E. Appleton	679,663	July 30	4547	1023	96	999
Lamp. Hydrocarbon-vapor-burning	A. R. Warner	681,282	Aug. 27	2955	655, 656	96	1696
Lamp. Incandescent electric	B. M. Drake	677,440	July 2	196	48	96	43
Lamp. Incandescent electric	A. H. Miller	678,320	July 9	1372	431	96	398
Lamp. Incandescent electric	H. Gilmore	680,242	Aug. 13	963	216, 217	96	1251
Lamp. Inclosed-arc	C. H. Way	678,208	July 9	1651	380, 381	96	356
Lamp. Inclosed electric-arc	E. P. Warner	678,446	July 16	2128	481	96	467
Lamp. Jeweler's blast-	E. S. Houghton	680,921	Aug. 20	2272	499	96	1588
Lamplighter. Time	W. and F. Walter	680,090	Aug. 6	685	152	96	1182

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp lighting or extinguishing apparatus. Gas-	V. Croizat	680,568	Aug. 13	1553	342	96	1370
Lamp. Miner's	C. L. Anton	678,852	July 23	2918	658	96	647
Lamp. Overhead regenerative gas-	W. H. L. Welch	682,896	Sept. 17	2267	512	96	2352
Lamp. Portable electric	H. E. Plass	682,742	Sept. 17	1965	446	96	2291
Lamp. Portable gas-	G. McGovern	679,061	July 23	3356	748	96	732
Lamp protector. Incandescent-	J. M. Howley	683,046	Sept. 24	2531	576	96	2426
Lamp-regulating device. Electric-arc-	P. Kässbauer	682,554	Sept. 10	1615	369	96	2262
Lamp-shade	O. A. Mygatt	679,770	Aug. 6	98	23	96	1061
Lamp-shade holder	T. C. Richards	681,582	Aug. 27	3517	780	96	1805
Lamp-shade holder	W. C. Rockwell	681,814	Sept. 3	302	69	96	1925
Lamp shade or globe	O. A. Mygatt	679,771	Aug. 6	100	23	96	1061
Lamp. Signal-	R. J. Armour	683,243	Sept. 24	2871	659	96	2494
Lamp-socket	J. C. Tournier	678,920	July 23	3063	685	96	675
Lamp-socket	D. A. Schutt	681,268	Aug. 27	2921	647	96	1688
Lamp-socket	N. Marshall	680,362	Aug. 20	2288	508	96	1541
Lamp socket. Incandescent-	S. Davis	680,133	Aug. 6	753	167	96	1195
Lamp support. Miner's-	R. O. Applegate	677,363	July 2	101	22	96	24
Lamp. Vapor-burning	H. M. Brigham and S. M. Meyer	680,636	Aug. 13	1669	369	96	1398
Lamps by electricity. Device for lighting	P. C. Hewitt	682,695	Sept. 17	1877	420	96	2275
Lamps. Controlling gas or vapor electric	C. Slusser	681,992	Sept. 3	638	136	96	1992
Lamps. Flasher for electric	P. Luhr	678,343	July 9	1921	440 441	96	408
Lamps. Gas-check for inclosed-arc	J. Swinburne	681,352	Aug. 27	3087	-----	96	1720
Lamps. Heater for electrolytic incandescent	P. C. Hewitt	682,698	Sept. 17	1889	429	96	2276
Lamps. Inclosing case for electric	W. H. Northall	683,092	Sept. 24	2554	588	96	2430
Lamps. Inclosing structure for electric-arc	C. R. Barrett and E. C. Phillips	679,206	July 23	3049	814	96	798
Lamps. Locking-socket for incandescent electric	W. L. Voelker	679,803	Aug. 6	151	34	96	1072
Lamps. Manufacture of filaments for incandescent electric	W. L. Voelker	679,926	Aug. 6	403	85	96	1122
Lamps. Manufacture of filaments for incandescing electric	P. C. Hewitt	682,692	Sept. 17	1868	428	96	2273
Lamps. Manufacturing electric	P. C. Hewitt	682,690	Sept. 17	1890	430	96	2277
Lamps. Manufacturing vapor or gas	P. C. Hewitt	682,691	Sept. 17	1861	427 428	96	2272
Lamps. Operating electric	P. Luhr	678,344	July 9	1924	441 442	96	408
Lamps. Operating electric-arc	P. C. Hewitt	682,693	Sept. 17	1873	428	96	2273
Lamps. Starting apparatus and circuit for electric	J. H. Dorion	679,007	July 30	4457	1001	96	981
Lamps. Support and take-up device for cable-suspended electric	G. Wegelin	680,003	Aug. 6	690	153	96	1182
Lampblack. Making	R. Caldwell	677,756	July 2	767	184	96	102
Lancet	F. A. Bruckman	681,297	Aug. 27	2686	603	96	1702
Land-roller	R. Newton	680,267	Aug. 13	1008	226	96	1260
Land roller and pulverizer	S. Holmes	677,987	July 9	1243	285 286	96	277
Lantern-carrier	P. L. Clark	677,856	July 9	975	229	96	225
Lantern-pinion	W. Sukalle	682,292	Sept. 10	1164	264 265	96	2113
Lard cooling and mixing machine	J. H. Pope	678,129	July 9	1509	348	96	328
Last	H. F. Scott	678,137	July 9	1524	351	96	331
Last	J. E. Scott	681,515	Aug. 27	3393	753	96	1780
Last block-fastener. Shoe-	J. E. Scott	679,514	July 30	4291	964	96	944
Last thimble. Shoe-	J. E. Scott	679,515	July 30	4292	964	96	944
Last thimble. Shoe-	J. S. Ladd	677,781	July 2	817	195	96	173
Lasting-machine	T. Shea	681,516	Aug. 27	3394	753	96	1780
Lasting-machine	J. Biehl	677,132	July 2	179	43	96	40
Latch	B. A. Stevens	677,713	July 2	688	163	96	146
Latch	A. B. Vanes	680,298	Aug. 13	1069	236	96	1270
Latch. Elevator-gate	A. Zitzmann	682,776	Sept. 17	2042	461	96	2307
Latch-pivots into latch-needles. Machine for inserting	A. Currier and A. B. Dodge	682,533	Sept. 10	1571	357 358	96	2198
Lath. Metallic	G. A. Turnbull	681,355	Aug. 27	3091	686	96	1721
Lathe	G. L. and A. H. Fairbanks	682,405	Sept. 10	1354	307	96	2149
Lathe attachment	C. Harzmeier and L. Bisch	678,692	July 16	2576	577	96	559
Lathe attachment. Automatic	J. P. Brophy	681,188	Aug. 27	2776	616	96	1659
Lathe center-grinder attachment	H. Dock	680,845	Aug. 20	2135	467	96	1510
Lathe-dog	K. G. Holst	680,775	Aug. 20	1991	438	96	1493
Lathe. Engine-	E. A. Muller	679,568	July 30	4397	985	96	966
Lathe. Engine-	C. W. Nitterauer	680,167	Aug. 6	827	184	96	1210
Lathe. Engine-	W. Lodge	680,606	Aug. 13	1620	357 679	96	1388
Lathe. Handle-turning	W. H. Johnson	683,202	Sept. 24	2995	680	96	2514
Lathe screw-cutting attachment	L. J. Monahan	679,238	July 23	3701	826	96	804
Lathe slide-rest	J. W. von Pittler	677,695	July 2	652	155	96	137
Lathe tool-post	B. Coburn	679,297	July 30	3841	860	96	853
Lathe. Wood-turning	B. D. Whitney and B. S. Loveland	678,847	July 16	2910	656	96	625
Lathes. Speed-changing device for automatic	J. P. Brophy	681,189	Aug. 27	2777	616 617	96	1659
Laundering-iron heater	H. Crueger	678,165	July 9	1574	363	96	341
Lawn or garden sprinkler. Graduated	T. J. Greer	682,500	Sept. 10	1683	383	96	2215
Lawn-rake	W. H. Egan	678,461	July 16	2154	486	96	472
Lawn-sprinkler	L. Horvath	679,383	July 30	4032	899	96	895
Lawn-sprinkler lip attachment	A. Gerdum	682,984	Sept. 17	2431	550	96	2285
Lead by electrolysis. Refining	A. G. Betts	679,824	Aug. 6	263	43	96	1093
Leaf-turner	G. E. Adams	681,773	Sept. 3	230	45	96	1911
Leather. Article provided with head of	C. E. Bailey	679,823	Aug. 6	201	43	96	1093
Leather. Bleaching	W. H. Krug and E. J. Haley	680,334	Aug. 13	1119	-----	96	1293
Leather-dressing machine	A. F. Jones	681,856	Sept. 3	377	76	96	1941
Leather, &c. Machine for cutting	H. Parsons	681,811	Sept. 3	295	59	96	1925
Leather. Making artificial	A. R. Foss and L. W. Litch	680,579	Aug. 13	1573	346	96	1374
Leather. Making ornamented	P. Martens	682,415	Sept. 10	1379	312	96	2154
Leather. Manufacturing	J. C. McConnell	677,306	July 2	64	-----	96	16
Leather. Preparing hides for the manufacture of	W. Lissauer	680,605	Aug. 13	1619	-----	96	1393
Leather-seasoning machine	T. Dawson	681,651	Aug. 27	3057	819 820	96	1884
Leather-skiving machine	J. R. Scott	681,347	Aug. 27	3075	683	96	1718

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Leather-staking machine	T. Dawson	681,909	Sept. 3	477	97	96	1960
Leather-stretching device	J. Caldwell	680,840	Aug. 20	2126	464	96	1508
Leather-stretching device	J. Caldwell	682,785	Sept. 17	2057	466	96	2310
Leather-stretching device	J. Caldwell	682,786	Sept. 17	2059	466	96	2310
Leather-stretching frame	F. H. George	680,853	Aug. 20	2149	472	96	1513
Leather-stretching-machine clamp	R. L. Braucht	680,757	Aug. 20	1956	429	96	1475
Leather-stuffing machine	G. A. Rhoads	680,545	Aug. 13	1519	334	96	1364
Leather. Working	W. Lissauer	680,604	Aug. 13	1618	-----	96	1283
Leather-working machine	S. R. Krom	680,927	Aug. 20	2281	501 502	96	1540
Leather-working machine	H. B. Maldeis	682,803	Sept. 17	2089	472 473	96	2316
Leather-working machine	F. F. Cumms	682,915	Sept. 17	2301	519 520	96	2359
Ledger	A. E. Partridge	682,490	Sept. 10	1511	342	96	2181
Ledger. Account-	P. K. Paulsen	680,173	Aug. 6	839	186	96	1212
Ledger. Loose-leaf	J. Barker	681,432	Aug. 27	3226	718	96	1747
Ledger or account-book	H. Elinoff	681,016	Aug. 20	2310	536	96	1584
Ledger. Perpetual	A. Paglughi	681,001	Aug. 20	2425	536	96	1597
Leg-fastener	P. H. Dunu	682,460	Sept. 10	1458	330	96	2170
Lens. Compound	G. N. Saegmuller	678,206	July 9	1849	425	96	804
Letter-box	A. L. Henry	677,763	July 2	786	188	96	167
Letter-box	A. M. Keeney	680,157	Aug. 6	803	179	96	1205
Letter-box	J. E. Costello	680,911	Aug. 20	2255	496	96	1534
Lettering glass signs	J. L. Thorpe	682,769	Sept. 17	2023	457	96	2303
Lettering or hand-printing machine	H. Elmblad	679,556	July 30	4366	980 981	96	961
Level. Center-line	B. B. Chandler, Jr.	679,602	July 30	4450	999	96	979
Level. Pendulum-	H. L. Schaffner	679,577	July 30	4406	989	96	970
Level. Plumb-	G. W. Krabill	679,506	July 30	4274	962	96	940
Level. Spirit-	E. E. Frederick	683,033	Sept. 24	2514	571	96	2423
Lever	H. A. Backus	679,873	Aug. 6	297	63, 64	96	1102
Lever. Hand-	P. F. Handley	678,252	July 9	1724	395	96	372
Lever-jack	G. W. Campbell	682,601	Sept. 17	1707	389	96	2243
Lid-holder for vessels	B. F. Koch and J. W. Cogswell	679,125	July 23	3491	780	96	760
Lid or plate lifter	C. D. Maddux	680,203	Aug. 13	1003	225	96	1259
Life-preserver	G. Graham	679,502	July 30	4306	960	96	938
Life-preserver	H. C. Bristol	679,721	Aug. 6	7	3	96	1044
Life-preserver	G. C. Bunsen	680,452	Aug. 13	1342	294	96	1328
Life-raft	J. V. Janin	678,297	July 9	1829	421 422	96	390
Life-saving apparatus. Acetylene-generator for	J. Ruck	677,600	July 2	486	117	96	102
Lifter: *See* Bobèche-lifter. Stone-lifter. Lid or plate lifter.							
Lifting-jack	J. M. Babbitt	677,920	July 9	1121	258	96	253
Lifting-jack	B. Marriott	678,503	July 16	2251	506	96	494
Lifting-jack	L. F. Brown	679,827	Aug. 6	210	45	96	1084
Lifting-jack	W. H. Oliver	680,730	Aug. 20	1912	420 421	96	1467
Lifting-jack	W. R. Moore	681,029	Aug. 20	2477	549	96	1578
Lifts. Steering mechanism for guideless	O. Kammerer	681,555	Aug. 27	3457	768	96	1793
Light: *See* Pilot-light.							
Lighter or barge for handling coal, &c	J. Campbell	683,246	Sept. 24	2876	660 661	96	2465
Lightning-arrester	W. D. Gharky	677,973	July 9	1218	280	96	272
Limekiln	G. and J. G. L'Espreance	677,418	July 2	146	34	96	32
Lime. Slaking	J. H. Harrier	680,246	Aug. 13	969	218	96	1252
Lime. Treating	A. H. Lauman	678,500	July 16	2246	-----	96	493
Lime. Treating	F. N. Spear	683,188	Sept. 24	2763	-----	96	2473
Line-guide	E. A. Holcomb	681,319	Aug. 27	3040	675	96	1711
Line-indicator	G. B. Lawton	679,386	July 30	4038	900	96	896
Linoleum. Manufacture of inlaid	D. E. Thomson	681,153	Aug. 20	2688	594 595 596 597 303 304 305 306 307 308 309 310 404	96	1022
Linotype-machine	J. R. Rogers	678,036	July 9	1328	405 406 407	96	293
Linotype-machine	O. Mergenthaler	678,268	July 9	1753	426 427	96	377
Linotype-machine	F. A. Vinton	678,810	July 9	1852	943 944 945 946 947	96	395
Linotype-machine	C. Muehleisen	679,479	July 30	4200	948 949 950 951	96	926
Linotype-machine	J. R. Rogers	679,481	July 30	4211	952	96	928
Linotype-machine	J. R. Rogers	679,482	July 30	4223	951	96	930
Liquid dispensing and measuring apparatus	C. W. Cramer	679,254	July 23	3732	833 834	96	810
Liquid-drawing device	W. Allison and P. H. Keefe	679,201	July 23	3643	813	96	798
Liquid-holding vessel	W. D. Craig	681,952	Sept. 3	579	121	96	1960

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Liquid-meter	J. M. Duchamp and R. Philippe	679,016	July 23	3257	727, 728	96	712
Liquid-raising apparatus. Pneumatic	E. Gray	681,216	Aug. 27	2818	626	96	1667
Liquid-supplying apparatus. Hot-	E. W. Parish	680,611	Aug. 13	1628	359	96	1384
Liquids. Apparatus for extracting matter from	L. C. Reese	679,575	July 30	4401	988	96	969
Liquids by electrolysis. Apparatus for purifying	F. W. Lemp and W. Koedding	677,578	July 2	449	107, 108	96	95
Liquids. Device for drawing effervescent	J. Nageldinger	680,499	Aug. 13	1430	313	96	1344
Lithographic or other transfer sheets. Machine for coloring or powdering	H. Michaud	677,678	July 2	625	150	96	132
Lithographic-press blanket	H. G. Bender	680,752	Aug. 20	1949	427	96	1474
Loading coal, &c. Machine for	H. J. Seitz	681,142	Aug. 20	2071	589	96	1618
Loading machine. Stone and dirt	C. C. Troxell	677,823	July 2	903	215, 216	96	190
Loading or unloading apparatus	G. H. Hulett	679,907	Aug. 6	483	101	96	1139
Lock: *See* Bicycle-lock. Box-lock. Combination-lock. Elevator-door lock. Elevator-gate lock. Galley-lock. Hasp-lock. Nut-lock. Oar-lock. Sash-lock. Seal-lock. Time and combination lock.							
Lock	M. Switzer	678,060	July 9	1380	318	96	902
Lock	T. Richards	678,805	July 9	1847	425	96	894
Lock	G. Froeba	678,556	July 16	2335	525, 526	96	512
Lock	D. B. Ozment	678,899	July 23	3026	678	96	667
Lock	O. Katzenberger	678,956	July 23	3144	704	96	690
Lock	P. Fehling	679,119	July 23	3483	778	96	759
Lock	A. Petersen	681,872	Aug. 27	3122	693	96	1726
Lock	P. Magaro, No. 3	681,560	Aug. 27	3465	769	96	1735
Lock	C. T. Thomas	682,508	Sept. 10	1534	348	96	2185
Lock	M. F. Hutchison	683,206	Sept. 24	2892	645	96	2480
Lock	W. C. Day	682,975	Sept. 17	2408	545	96	2381
Lock and latch	J. Forsheim	682,352	Sept. 10	1271	286	96	2131
Locket. Concealed-hinge	D. D. Nevins	681,396	Aug. 27	3002	679	96	1715
Locket. Medallion-	F. W. Tobey	681,155	Aug. 20	2004	507	96	1623
Locking device	A. Heller	679,023	July 23	3267	730	96	714
Locking device for doors, &c. Automatic	O. A. Reynolds	679,337	July 30	3913	874, 875	96	868
Locking means	R. M. Bryant	679,214	July 23	3661	817	96	796
Locomotive	G. W. West	679,868	Aug. 6	160	35, 36	96	1074
Locomotive	R. M. and J. A. McElroy	683,218	Sept. 24	2819	649	96	2483
Locomotive ash-pan	C. Vanderbilt	682,437	Sept. 10	1416	319	96	2162
Locomotive-boiler	R. K. West	680,096	Aug. 6	697	155	96	1183
Locomotives. Strainer-cleaning device for	C. Vanderbilt	681,760	Sept. 3	181	35, 36, 37, 38	96	1001
Locomotives, &c. Tender for	M. Corry and R. F. Barker	679,551	July 30	4356	978	96	959
Log-turner	W. N. Elliott	681,077	Aug. 20	2511	556	96	1584
Log-turner, Sawmill	J. A. Sifford and T. Shaver	679,342	July 30	3920	876	96	870
Log-wagon clamping device	J. C. Barron	677,556	July 2	409	98	96	87
Logging-car standard	A. Uren	680,822	Aug. 20	2092	455	96	1501
Logging hook or dog	N. Young	678,090	July 9	1437	331	96	912
Logging-railway appliance	J. Hohl	678,106	July 9	1469	339	96	920
Loom	G. R. Race	678,279	July 9	1789	412	96	982
Loom	W. F. Draper and C. F. Roper	678,294	July 9	1821	420	96	989
Loom	H. R. Ross	679,429	July 30	4102	917, 918	96	908
Loom	E. S. Stimpson	680,743	Aug. 20	1932	424	96	1471
Loom	O. Janelle	680,778	Aug 20	1995	438	96	1483
Loom	E. H. Ryon	682,429	Sept. 10	1402	316	96	2159
Loom	R. Burgess	679,941	Aug. 6	429	90	96	1127
Loom and filling-carrier therefor	G. F. Hutchins	679,895	Aug. 6	397	71, 72	96	1110
Loom. Bag-	J. Highton	683,398	Sept. 24	3155	723, 724	96	2554
Loom-dobby	F. A. Wardwell	681,599	Aug. 27	3540	786	96	1810
Loom drop-box picker	S. Sewall	679,517	July 30	4295	905	96	945
Loom filling-remover	J. J. Lane and L. A. Aumann	680,601	Aug. 13	1612	356, 357	96	1381
Loom. Filling-replenishing	J. Northrop	682,563	Sept. 10	1632	373	96	2206
Loom. Filling-replenishing	H. W. Wyman	677,838	July 2	937	222	96	106
Loom filling-replenishing mechanism	J. Northrop	680,169	Aug. 6	831	184	96	1211
Loom filling-replenishing mechanism	C. Hughes	682,548	Sept. 10	1601	365, 366, 367	96	2200
Loom for weaving tufted fabrics	T. A. Robinson	680,502	Aug. 13	1494	314	96	1345
Loom. Gauze-	M. P. and D. Todd	679,132	July 23	3502	783, 784	96	763
Loom. Hand-	W. Paton	682,115	Sept. 3	859	185, 186	96	2031
Loom jacquard mechanism	H. Skinner and F. H. Connolly	681,004	Aug. 20	2428	537	96	1508
Loom. Needle-	K. Hyde	677,513	July 2	312	77, 78	96	67
Loom pick-finder	F. M. Rogers and A. A. Blakeney	680,622	Aug. 13	1649	364	96	1389
Loom-picker	T. Gilson	678,241	July 9	1711	392	96	869
Loom picker mechanism	L. M. Phelps	681,373	Aug. 27	3124	693, 694	96	1727
Loom protector mechanism	E. H. Ryon	679,863	Aug. 6	277	60	96	1099
Loom reed-motion	H. Stäubli	680,181	Aug. 6	850	188, 189, 190	96	1214
Loom shedding mechanism	H. Bardsley	681,648	Aug. 27	3649	817, 818	96	1882
Loom shuttle-box-operating mechanism	C. F. Roper	678,321	July 9	1873	431	96	899
Loom shuttle-checking means	C. F. Roper	680,623	Aug. 13	1650	364	96	1389
Loom-shuttle filling-carrier	G. O. Draper	682,534	Sept. 10	1578	358	96	2195
Loom shuttle-guard	W. Rioux	681,460	Aug. 27	3295	733	96	1761
Loom-shuttle tension device	A. Baldwin	680,682	Aug. 20	1786	393, 394	96	1437
Loom stop-motion	H. Wyman	682,445	Sept. 10	1426	322	96	2164
Loom stop-motion	H. Wyman	682,446	Sept. 10	1428	323	96	2164
Loom stopping device	J. Haden and R. Howarth	679,370	July 30	3996	898	96	885
Loom temple-roll	F. O. Duffy	679,608	July 30	4458	1001	96	981
Loom thread-parter. Weft-replenishing	J. Peter	679,084	July 23	3290	735, 736	96	719
Loom thread-parting mechanism	J. H. Northrop	681,069	Aug. 20	2554	565	96	1594
Loom thread-parting mechanism	C. H. Draper	683,423	Sept. 24	3205	734, 735	96	2564
Loom warp stop-motion	J. Coldwell and C. G. Gildard. (Reissue.)	11,923	July 30	4652	1046	96	1022
Loom warp-tension device	F. Stolzenberg	681,520	Aug. 27	3400	754	96	1781
Loom weft controlling and replenishing mechanism	W. H. Baker and F. E. Kip	681,165	Aug. 20	2721	602, 604	96	1627
Loom weft-fork clearer	B. Janelle	682,553	Sept. 10	1614	369	96	2202
Loom. Weft-replenishing	E. S. Stimpson	677,607	July 2	496	119	96	105
Loom. Weft-replenishing	E. S. Stimpson	677,608	July 2	499	120	96	105
Loom. Weft-replenishing	P. Clément	682,084	Sept. 3	711	153, 154	96	2005
Loom weft replenishing and controlling mechanism	W. H. Baker and F. E. Kip	681,164	Aug. 20	2717	602, 603	96	1627
Loom weft replenishing and controlling mechanism	W. H. Baker and F. E. Kip	681,647	Aug. 27	3644	815, 816, 817	96	1831
Loom weft-replenishing mechanism	H. I. Harriman	678,761	July 16	2761	622	96	594
Loom weft-replenishing mechanism	W. H. Baker and F. E. Kip	681,905	Sept. 3	470	96	96	1950
Loom: Witch-	E. E. Brown	681,869	Sept. 3	396	80	96	1945
Lorgnette	B. Osborn, Jr., and C. L. Uhry	683,064	Sept. 24	2556	588	96	2481
Low-water alarm	C. B. Hodges	678,735	July 16	2691	606	96	580
Lubricant for commutators	W. M. Jones	680,155	Aug. 6	801	.....	96	1205
Lubricating device	W. A. Cornelius	681,529	Aug. 27	3412	757	96	1784
Lubricating device	J. W. Bowerbank	681,615	Aug. 27	3575	794	96	1816
Lubricator: *See* Automatic lubricator. Axle-lubricator. Graphite lubricator.							
Lubricator	D. H. Roberts	678,960	July 23	3187	713	96	698
Lubricator	C. A. Hirth	679,149	July 23	3534	790	96	769
Lubricator	J. J. Tunney	679,246	July 23	3714	829	96	807
Lubricator	R. E. Hardy	679,560	July 30	4376	982	96	964
Lubricator	W. S. Morrison	680,845	Aug. 13	1160	256	96	1290
Lubricator	G. B. Essex	681,412	Aug. 27	3184	709	96	1739
Lubricator	C. B. Hodges	681,639	Aug. 27	3623	805, 806	96	1828
Lubricator	G. F. Godley	681,848	Sept. 3	365	73	96	1938
Lubricator	F. W. Edwards	682,981	Sept. 17	2422	548, 549	96	2384
Lubricator and heater	T. Dixon	680,570	Aug. 13	1557	342	96	1371
Lug strap and holder	D. O. Conners	678,811	July 9	1855	427	96	895
Luggage-carrier	A. L. Baker and A. W. Taylor	680,213	Aug. 13	914	208	96	1243
Lumber-coupling	J. E. Dubray	680,699	Aug. 6	581	127	96	1158
Lumber-jack	N. R. Deppe	680,230	Aug. 13	946	213	96	1248
Lumber-jack	N. R. Deppe	680,231	Aug. 13	947	213	96	1249
Lunch-box. Heated	B. R. Skinner	681,991	Sept. 3	637	136	96	1992
Lung-protector	A. Mignault	681,906	Sept. 3	288	58	96	1923
Machine-tool	C. Jackson	683,178	Sept. 24	2745	631, 632	96	2469
Machines upon ends of studs or shafts. Means for holding loose members of	B. Holland	679,843	Aug. 6	242	51	96	1092
Machinist's clamp	P. A. Weyand	678,805	July 16	2802	682	96	602
Magnet-coil	H. F. T. Erben	678,168	July 9	1579	364	96	842
Magnets of dynamos or motors. Core and pole-piece for field-	R. Hirsch	681,317	Aug. 27	3038	674	96	1711
Mail-bag	L. M. Kelley	682,201	Sept. 10	995	224	96	2081
Mail-bag catcher	E. Potter	678,278	July 9	1787	411, 412	96	882
Mail-bag-delivery apparatus	E. Graham	682,380	Sept. 17	2330	527	96	2365
Mail-bag fastener and tag-holder	J. C. Whaley	681,600	Aug. 27	3540	787	96	1810
Mail-bag holder	A. M. Harriott	680,041	Aug. 6	604	131	96	1164
Mail-bag mouth or closure	S. P. Steele	683,153	Sept. 24	2707	623	96	2462
Mail-bag-transferring machine	E. T. Granbery	677,978	July 9	1232	288	96	275
Mail-bags. Apparatus for automatically receiving and delivering	S. J. Graham	678,558	July 16	2341	526, 527	96	513
Mail-box	W. O. Rowe	678,698	July 16	2617	589	96	567
Mail-box	W. W. Sweigart	679,645	July 30	4528	1017	96	996
Mail-box	P. B. Englar	680,847	Aug. 20	2138	468	96	1510
Mail-box	W. H. Walker	682,005	Sept. 3	668	143	96	1997
Mail-box. Rural	W. E. Fenstermacher	677,967	July 9	1207	278	96	270
Mail or other service. Transmission system for	G. A. Owen	677,424	July 2	164	39	96	37
Mail-pouch catcher	C. F. Walthers	679,447	July 30	4144	929, 930	96	916
Mail-service system	G. A. Owen	677,423	July 2	153	35, 36, 37, 38	96	84
Malt-drier	W. H. Prinz	677,698	July 2	656	156, 157	96	138
Malt liquor. Producing non-alcoholic	W. Rath	680,076	Aug. 6	664	.....	96	1177
Malt-stirring apparatus. Undried-	B. Fischer	682,846	Sept. 17	2182	492, 493	96	2335
Malting and drying apparatus	F. H. C. Mey	677,787	July 2	827	197, 198	96	175

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Mandolin-player. Electric	A. I. Mitchell	677,584	July 2	460	110	96	97
Mangle	C. R. Hoyt	683,402	Sept. 24	3165	725	96	2556
Manhole frame and cover	W. O. Steele	681,994	Sept. 3	641	136	96	1993
Manhole frame and cover	W. O. Steele	681,995	Sept. 3	642	136 137	96	1993
Manhole-plate. Adjustable swinging	M. E. Casey	677,637	July 2	549	131	96	116
Manifolding-sheet	H. P. Brown	680,637	Aug. 13	1670	369	96	1394
Mantle-support	N. E. Ericson	680,091	Aug. 6	583	127	96	1158
Mantle-support	T. Roderick	681,265	Aug. 27	2916	646	96	1987
Marble. Manufacture of artificial	J. Tuckwell	677,385	July 2	87	.....	96	21
Marker. Ground-	A. A. Clark	681,016	Aug. 20	2456	543	96	1573
Marking-machine	L. S. Burbank	681,192	Aug. 27	2782	617	96	1660
Marking machine. Neck-	J. S. Johnston	678,784	July 16	2769	623	96	595
Marking machines. Feeding device for article-	F. J. Hagen	683,039	Sept. 24	2522	574	96	2424
Marking the ears of animals. Device for	J. Hinz, Jr.	682,557	Sept. 10	1105	251	96	2102
Marking-tool	M. F. Clarke	678,643	July 16	2539	569	96	551
Mask. Varnisher's	D. W. Schaeffer	680,419	Aug. 13	1288	283	96	1316
Massage-roller and exerciser. Combination	G. W. Milkman	681,331	Aug. 27	3055	677	96	1714
Mat: *See* Alarm-mat.							
Match-box-shuck machine	C. B. Andrews	680,012	Aug. 6	550	118	96	1153
Match-boxing machine	W. R. Swett	677,816	July 2	888	212	96	187
Match-holder and ash-receiver. Combined	F. J. Merz	680,933	Aug. 20	2289	508 504	96	1541
Match igniting composition	J. Landin and A. Jernander	681,799	Sept. 3	277	.....	96	1921
Match-machine	W. H. Parker	682,228	Sept. 10	1051	286	96	2091
Match-making machine	A. Kelley	681,452	Aug. 27	3275	728 729	96	1757
Match-safe	C. C. Pitts	680,276	Aug. 13	1024	230	96	1263
Match-safe	S. F. Estell	683,028	Sept. 24	2508	570	96	2421
Match-safe	H. J. Noyes	683,322	Sept. 24	3027	692	96	2528
Match-safe	B. F. Parker	680,612	Aug. 13	1630	359	96	1385
Match safe or box	A. N. Calkins	681,872	Sept. 3	402	81	96	1945
Match-splint carrier	E. Kottusch	683,053	Sept. 24	2544	580	96	2428
Matches. Device for automatically igniting and delivering	W. W. Philbrick	681,458	Aug. 27	3292	732	96	1761
Matcher-head	W. W. Philbrick	681,459	Aug. 27	3294	733	96	1761
Matcher-head	W. W. Nichols	681,573	Aug. 27	3488	775	96	1799
Mattress	J. C. Kyle	677,780	July 2	816	195	96	173
Mattress-forming device. Cotton-	C. A. Whiting	679,656	July 30	4536	1030	96	997
Mattress-holder	J. T. Woolery	679,585	July 30	4490	994	96	973
Mattress-making apparatus	C. W. White	679,809	Aug. 6	161	36, 37	96	1074
Mattress-making machine	G. F. H. Langer	679,680	July 30	4586	1080	96	1009
Mattress or cushion	J. T. Woolery	679,584	July 30	4418	998	96	973
Mattress-stuffing machine	C. G. Blake	680,908	Aug. 20	2247	494	96	1532
Mausoleum	J. W. Jinnette	677,892	July 9	1051	246	96	240
Measure for paper bags	T. E. White	678,325	July 9	1879	482	96	400
Measure. Variable	B. Anderson	679,101	July 23	3448	769	96	750
Measuring and winding machine. Cloth	L. P. Cowart	677,948	July 9	1176	271	96	263
Measuring device. Log-	J. F. Lehmann	679,628	July 30	4487	1008	96	987
Measuring-glasses. Detachable base for	W. C. Fish	678,236	July 9	1706	391	96	367
Measuring instrument. Electric	E. Weston	678,706	July 16	2634	598	96	570
Measuring instrument. Electrical	P. Meyer, H. Hartmann, and R. Abrahamsohn.	679,769	Aug. 6	98	23	96	1061
Measuring instrument. Electrical hot-wire-	J. H. Bryson	682,971	Sept. 17	2394	542	96	2378
Measuring instrument. Electrostatic	A. Jacquot	681,553	Aug. 27	3454	767	96	1798
Measuring instrument for fitting horse-collars	E. Weston	678,708	July 16	2641	594 595	96	571
Measuring instruments. Apparatus for constructing movable coils of electrical	E. Weston	678,707	July 16	2635	594 595	96	570
Measuring instruments. Manufacturing movable coils for use in connection with electrical	C. B. Carver	680,640	Aug. 13	1674	370 371	96	1394
Measuring-machine	G. W. Walker	681,157	Aug. 20	2606	598	96	1623
Measuring machine. Warp-	J. H. Armstead	679,890	Aug. 6	199	42	96	1088
Measuring-tool	M. Burton	679,864	Aug. 6	322	66	96	1107
Meat-cutter	G. Lindenberg, F. Altena, and F. Fischer.	682,722	Sept. 17	1925	437 438	96	2365
Meat-cutter	M. Cameron	677,337	uly 2	11	3	96	5
Meat or vegetable cutter	W. Manasse and R. Ihlenfeld	681,236	Aug. 27	2856	.....	96	1675
Meat. Preserving	R. Roop	681,266	Aug. 27	2917	646	96	1688
Meat-tenderer	F. H. Allen	682,018	Sept. 3	680	147	96	2000
Meat-tenderer	L. M. Schlarb	682,572	Sept. 10	1044	276	96	2109
Meats. Curing	R. Emmerich	680,374	Aug. 13	1204	.....	96	1298
Meats. Preserving	C. Steiner	678,141	July 9	1532	358	96	333
Mechanical energy. Storage of	C. Dietz	678,450	July 16	2152	486	96	471
Mechanical movement	C. F. Roper	678,767	July 16	2739	617	96	590
Mechanical movement	O. W. Brown	680,379	Aug. 13	1202	266	96	1298
Mechanical movement	W. S. Huson	680,433	Aug. 13	1308	287 288	96	1320
Mechanical movement	C. P. Cottrell	680,474	Aug. 13	1378	301 302	96	1335
Mechanical movement	C. P. Cottrell	680,765	Aug. 20	1973	433	96	1479
Mechanical movement	B. Poulson	681,486	Aug. 27	3340	741	96	1760
Mechanical movement	F. W. Jaeger	683,405	Sept. 24	3170	726	96	2557
Medicament device	G. Schirmer	681,741	Sept. 3	154	29	96	1895
Medicated fabric	C. A. O. Rosell	682,344	Sept. 10	1257	.....	96	2120
Medicinal agents. Apparatus for vaporizing	E. T. Camp	680,122	Aug. 6,	738	164	96	1191
Medicinal electrode	O. L. Leach	682,089	Sept. 3	800	175	96	2023
Medicine-chest	J. Schaffer	678,284	July 9	1808	415	96	384
Melting-furnace. Reverberatory	W. J. Brown	683,378	Sept. 24	3115	713	96	2546
Melting, smelting, and crucible furnace	W. H. Thornley	677,820	July 2	997	214	96	188
Memorial tablet	S. D. McNeal	682,950	Sept. 17	2366	534	96	2373
Menstrual receptacle and uterine supporter	J. R. Lang	679,478	July 30	4199	943	96	926
Mercerizing	F. Gros and P. Bourcart	677,450	July 2	210	.....	96	46
Mercerizing apparatus	W. H. Crompton and W. Horrocks	680,131	Aug. 6	750	167	96	1194
Mercerizing-machine	A. Kertesz	679,425	July 30	4095	915	96	907

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Mercerizing short-staple cotton	F. L. Reichmann and C. A. Lagerqvist.	682,494	Sept. 10	1518	.....	96	2182
Metal article	W. A. Day	679,218	July 23	3667	818	96	797
Metal bars or rods. Machine for polishing or burnishing	C. S. Dutton	683,109	Sept. 24	2635	605	96	2447
Metal-cutting shears	G. J. Capewell	678,474	July 16	2181	491 492	96	478
Metal-drawing machine	W. A. McCool	678,753	July 16	2715	611	96	586
Metal-drawing-machine die	W. A. McCool	678,789	July 16	2778	625	96	597
Metal ornamentation	F. Eppler	678,383	July 16	2003	456	96	441
Metal pipe. Wrought-	R. Bungeroth	682,026	Sept. 3	698	150	96	2003
Metal-shearing machine	C. Kling	679,566	July 30	4383	983 984	96	965
Metal sheets. Apparatus for drying printed or varnished	H. G. Schumann	681,346	Aug. 27	3073	682	96	1718
Metal sheets. Machine for folding or edging	J. A. Bright and W. D. Depriest	677,933	July 9	1149	265	96	258
Metal-transfer device	J. Kennedy	678,742	July 16	2700	608 609	96	582
Metal washers. Making	F. A. Neider	677,883	July 9	1031	243	96	237
Metal wheel	D. J. C. Arnold	680,633	Aug. 13	1664	367	96	1392
Metal-worker's protractor-pattern	J. M. McFarland	678,018	July 9	1290	295	96	285
Metal-working machine	A. Crocker	679,278	July 23	3781	844 845 846	96	819
Metal-working machine	W. S. Davenport	681,845	Sept. 3	358	71, 72	96	1986
Metal-working machines. Tool-holder for	J. Quigley	681,139	Aug. 20	2667	588	96	1617
Metals. Apparatus for use in electrodeposition of	S. O. Cowper-Coles	680,408	Aug. 13	1269	279 280	96	1312
Metals by electrolysis. Apparatus for treating	A. G. Betts	679,357	July 30	3961	886 887	96	879
Metals from their fused compounds. Electrolytic process of obtaining	G. P. Scholl	679,997	Aug. 6	527	.....	96	1148
Metallic leaf. Package-roll for holding and applying	W. H. Coe	678,162	July 9	1571	362	96	340
Metallic tie	A. M. Bowman	677,754	July 2	764	184	96	161
Metallic tubing. Flexible	C. Rudolph	680,983	Aug. 20	2388	527	96	1560
Meter: *See* Electric meter. Motor-meter. Fluid-meter. Multirate meter. Gas-meter. Power-factor meter. Liquid-meter. Water-meter.							
Meter	J. S. Warde	682,439	Sept. 10	1418	320	96	2163
Meter-box	W. Volkhardt	681,762	Sept. 3	192	39	96	1903
Meter readings. Device for recording	C. D. Haskins	678,871	July 23	2956	665	96	654
Meters. Prepayment attachment for	C. Luke	679,630	July 30	4490	1009	96	988
Mica-splitting machine	I. De Kaiser and C. W. Hadfield	677,775	July 2	808	193	96	171
Micrometer	F. H. Pierpont	679,779	Aug. 6	110	25	96	1064
Micrometer-indicator	J. Boulet	682,450	Sept. 10	1443	327	96	2166
Microphone and telephone installation	L. Polinkowsky	681,374	Aug. 27	3128	694	96	1727
Microscope. Binocular	J. Kroulik	678,848	July 16	2913	657	96	626
Microtelephone	E. Volkers	679,405	July 30	4067	907	96	901
Milk-dispensing machine	C. W. Winther	683,091	Sept. 24	2604	597 598 599	96	2441
Milk. Making substitutes for mothers'	J. Meyenberg	683,103	Sept. 3	890	.....	96	2027
Milking apparatus. Cow-	F. O. A. Weber	680,958	Aug. 20	2330	512	96	1549
Milking apparatus. Pneumatic or hydraulic	C. von Bechtolsheim	678,881	July 9	1696	389	96	366
Mill: *See* Arrastre or scouring-mill. Pulverizing-mill. Disintegrating-mill. Rolling-mill. Grain-mill. Sawmill. Grinding-mill. Stamp-mill. Grinding or crushing mill. Windmill.							
Mill appliance	E. E. E. Mears	681,065	Aug. 20	2548	563	96	1598
Milling-machine	C. R. Gabriel	680,482	Aug. 13	1397	305	96	1338
Milling-machine attachment	V. Holmberg	678,941	July 9	1917	439 440	96	407
Milling-machines. Apparatus for automatically returning work-tables of	O. Schönauer	681,584	Aug. 27	3519	781	96	1806
Milling-machines. Carriage-lowering attachment for	J. F. Crudginton	680,962	Aug. 20	2345	515	96	1553
Milling-tool	W. H. Ford	679,143	July 23	3525	788	96	767
Milling-tool	S. D. Keene	683,207	Sept. 24	2803	645	96	2481
Mine dumping-cage	B. Brantingham	682,525	Sept. 10	1561	354	96	2191
Mine-shafts. Hoist mechanism for	T. J. Barbour	681,430	Aug. 27	3222	717	96	1746
Mining apparatus. Gold-	M. Covel	677,587	July 2	359	87	96	77
Mining-cage chair	M. H. Beck and J. R. Caynor	681,675	Sept. 3	6	2	96	1866
Mining coal	E. C. Morgan	677,980	July 9	1027	242	96	296
Mining-dredge	W. T. Urie	678,147	July 9	1542	355 356	96	335
Mining-machine	W. Seltner	678,045	July 9	1358	313 314	96	298
Mining machine. Coal-	A. Ball	680,683	Aug. 20	1788	394	96	1438
Mining-shafts. Safety apparatus for setting cage-chairs in	A. Carstens and J. H. Henley	677,437	July 2	188	46	96	42
Minerals or ores. Apparatus for separating or concentrating	H. P. H. Brumell	678,860	July 23	2936	661	96	650
Mirrors. Making curved	K. C. Wideen	683,163	Sept. 24	2721	626	96	2464
Miter-box	A. L. Chandler	680,021	Aug. 6	565	122	96	1156
Mitering and tool-guiding device	J. M. J. Phelan	679,708	July 30	4628	1040 1041	96	1018
Mitt. Base-ball	C. H. Dean	677,968	July 9	1198	275	96	267
Mitten. Knit	W. W. Burson	680,672	Aug. 13	1759	387	96	1412
Mixer: *See* Gas and air mixer.							
Mixing apparatus	D. Davis	680,229	Aug. 13	945	212	96	1248

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mold: *See* Casting-making mold. Glass-mold. Ingot-mold. Chimney-cap mold. Pipe-mold. Cigar-mold.							
Mold	W. S. Parker	680,273	Aug. 13	1018	228	96	1292
					229		
Mold-facing	M. B. Owen	678,124	July 9	1503	----	96	327
Mold for fibrous articles	M. A. Bland	680,887	Aug. 20	2118	402	96	1507
Mold for making chilled rolls	F. Gorman	679,743	Aug. 6	52	13	96	1052
Mold-forming apparatus. Sand-	J. B. Neesham	682,118	Sept. 3	834	186	96	2030
					187		
Molding and casting apparatus	J. R. McWane	682,484	Sept. 10	1493	339	96	2177
					340		
Molding and frying implement	E. Allard	682,515	Sept. 10	1547	351	96	2188
Molding and hook	H. O. Chase	683,248	Sept. 24	2887	692	96	2499
Molding apparatus	J. C. Reed	678,977	July 23	3183	712	96	697
Molding apparatus	J. R. McWane	682,485	Sept. 10	1497	340	96	2177
Molding apparatus	J. R. McWane	682,486	Sept. 10	1501	340	96	2179
					341		
Molding apparatus	J. C. Reed	678,976	July 23	3182	711	96	697
Molding-flask	L. G. Haase	680,432	Aug. 13	1306	287	96	1319
Molding machine. Cement-post-	D. G. Chandler	678,222	July 9	1680	386	96	362
Mole-trap	E. R. Newell	678,273	July 9	1776	409	96	380
Mooring device	J. E. Atkins	680,808	Aug. 13	1082	239	96	1275
Mop	E. Hilker	682,195	Sept. 10	963	221	96	2080
Mop and brush. Combined	W. R. Gillette	678,240	July 9	1710	392	96	368
Mop head and wringer. Combined	L. H. Evans	678,867	July 23	2950	664	96	653
Mop-wringer	J. W. Kinnare	680,487	Aug. 13	1411	307	96	1341
Mortar-board	J. Rawlinson	678,768	July 16	2734	616	96	589
Mortising-machine. Chain	E. Leicht	677,998	July 9	1259	249	96	280
					250		
Mortising-machine gaging and face-marking attachment	W. J. Rockwood	677,800	July 2	850	202	96	179
					203		
Mosaic art panels. Manufacture of	C. Wittke	678,826	July 9	1879	432	96	466
Motion-converting mechanism	H. Dufaux	679,535	July 30	4305	980	96	961
Motocycle							
Motor: *See* Automobile-motor. Electric motor. Electric traction-motor. Electromagnetic motor. Hydrocarbon-motor. Impact and reaction motor. Induction-motor. Multicylinder-motor. Rotary motor. Traction-motor. Water-motor. Wave-motor.							
Motor	W. A. Jones	678,570	July 16	2377	534	96	519
Motor	J. E. Blake	679,876	Aug. 6	304	65.66	96	1104
Motor	K. Gore	680,088	Aug. 6	598	130	96	1102
Motor	A. H. Hoadley	680,204	Aug. 6	804	198	96	1223
Motor	A. H. Armstrong	678,854	July 23	2925	659	96	648
Motor control. Induction-	W. B. Potter	678,029	July 9	1314	300	96	290
Motor-control system	A. H. Armstrong	678,853	July 23	2919	658	96	647
					659		
Motor-control system	F. E. Case	678,861	July 23	2937	661	96	650
Motor-control system	R. W. Scott	681,269	Aug. 27	2924	647	96	1689
					648		
Motor-controller	E. P. Mason	678,013	July 9	1292	293	96	284
Motor-controlling means	R. Thury	683,235	Sept. 24	2853	655	96	2490
Motor-generator	N. Goodier and T. Pollitt	682,928	Sept. 17	2326	525	96	2364
					526		
Motor mechanism	A. Peloux	681,002	Aug. 20	2425	536	96	1567
					537		
Motor-meter for alternating currents	A. R. Fortier	681,634	Aug. 27	3614	804	96	1826
Motor stop and motion indicator	W. B. Cowles	681,625	Aug. 27	3596	799	96	1821
					800		
Motors. Autopneumatic regulator for	R. P. Hansen	682,983	Sept. 17	2340	523	96	2367
Motors. Incandescent igniter for explosive-	A. Bergman	680,113	Aug. 6	726	161	96	1189
Mouthpiece	O. C. Smith	679,163	July 23	3566	796	96	776
Movable gate and dredge	G. H. Perkins	679,989	Aug. 6	516	109	96	1146
					110		
Mower	A. Hart	680,247	Aug. 13	971	219	96	1252
Mower	N. S. Hindbjorgen	681,316	Aug. 27	3096	673	96	1710
					674		
Mower	J. F. Ellsworth	681,446	Aug. 27	3263	725	96	1735
					726		
Mower	H. Garrett	679,020	July 23	3268	729	96	714
Mower. Lawn-	P. J. Tunny	682,824	Sept. 17	2136	488	96	2326
Mower. Lawn-	J. Braun	683,197	Sept. 24	2776	639	96	2475
Mower. Lawn-	P. L. Shepler	681,816	Sept. 3	904	61	96	1926
Mower or harvester cutter	P. H. Love	682,875	Sept. 17	2282	504	6	2345
Mower or reaper	E. Roblin	678,766	July 16	2738	617	96	590
Mower or reaper cutter-bar	W. H. Shoemaker	680,467	Aug. 13	1367	298	96	1332
					299		
Mowers. Grass-catcher for lawn-	H. Green	680,915	Aug. 20	2260	497	96	1535
Mowers. Manually-operated attachment for	J. F. Steward	678,059	July 9	1379	318	96	302
Mowing machine	I. E. Groom	682,143	Sept. 3	883	197	96	2040
Mowing machine	E. P. Durand	683,025	Sept. 24	2503	568	96	2420
					569		
Mowing machine	C. Andresen	682,124	Sept. 3	854	191	96	2034
					192		
Mowing or reaping machine	A. O. Very	681,522	Aug. 27	3402	755	96	1782
Muffling device	Z. Wirt	678,081	July 9	1421	327	96	309
					328		
Multicylinder-motor	W. E. Ewald	682,676	Sept. 17	1886	420	96	2266
Multiple-cylinder engine	F. P. Cox and C. E. Holmes	679,472	July 30	4188	940	96	924
					941		
Multirate meter	J. A. Ashby	678,327	July 9	1881	493	96	400
Music holder and turner. Sheet-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Music-leaf turner	W. V. Morrow	681,332	Aug. 27	3057	678	96	1714
Music-leaf turner	R. O. Hammond	682,252	Sept. 10	1096	248	96	2100
Music-stand and music-leaf turner. Combined	O. C. Zerck	677,840	July 2	941	223	96	197
Musical instrument	W. F. Hochspeier	680,485	Aug. 13	1407	307	96	1340
Musical instrument	E. Strieffler	682,504	Sept. 10	1528	346	96	2184
Musical instrument	H. McCrea	683,320	Sept. 24	3025	692	96	2527
Musical instrument. Automatic	E. de Kleist	677,769	July 2	797	191	96	169
					39		
Musical instrument. Automatic	J. A. Weser	681,764	Sept. 3	195	40	96	1909
					41		
Musical instrument. Automatically-operated stringed	D. K. Marshall	678,818	July 9	1866	429	96	397
					430		
Musical instrument. Automatically-operated stringed	D. K. Marshall	678,819	July 9	1870	430	96	398
					431		
Musical instrument. Electrical	R. L. Venuto	681,989	Sept. 3	545	115	96	1975
Musical instrument. Electrically-operated	H. S. Brown	678,095	July 9	1443	333	96	314
					334		
Musical-instrument keyboard	J. P. H. Adams	682,014	Sept. 3	675	146	96	1999
Musical instrument. Mechanical	H. Thorens	681,895	Sept. 3	452	91.92	96	1955
Musical-instrument pedal-action	W. C. Bosenbury	678,859	July 23	2934	661	96	649
Musical-instrument sounding-box	M. Funck	680,240	Aug. 13	961	216	96	1251
Musical-instrument string-fastener	G. Holt	683,282	Sept. 24	2949	676	96	2511
Musical-instrument tune-controlling device	E. de Kleist	679,026	July 23	3270	732	96	715
Musical instruments. Case for perforated music-sheets for	T. B. Powers	682,272	Sept. 10	1180	256	96	2106
Musical instruments. Note-sheet for stringed	F. W. Wood and E. H. Stiles, Jr	683,098	Sept. 24	2609	600	96	2442
Musical instruments. Picker mechanism for stringed	H. Wilburn	680,305	Aug. 13	1077	238	96	1274
Musical instruments. Solo attachment for	T. Casson	678,718	July 16	2563	600	96	575
Musical notation	J. P. H. Adams	682,015	Sept. 3	676	147	96	1999
Musical string instrument	O. Gerecke	682,925	Sept. 17	2323	524	96	2363
Mustache-guard	P. Esch	679,303	July 30	3851	861	96	855
Mustache-guard	T. Ferry	680,578	Aug. 13	1572	346	96	1374
Muzzle. Animal-	G. P. Cooley	682,096	Sept. 3	718	155	96	2006
Nail: *See* Picture-hanging nail. Shoe-nail.							
Nail-grab	P. J. Bennett	682,021	Sept. 3	693	149	96	2002
Nail-machine	E. J. Smith and C. J. Hillard	679,128	July 23	3496	781	96	702
					782		
Nail machinery. Furniture-	R. A. Breul	680,839	Aug. 20	2120	462	96	1507
					463		
					464		
Nail-making machine. Wire-	J. Wikschtröm	680,511	Aug. 13	1464	322	96	1352
					323		
Nail or screw set	P. N. Haas	682,681	Sept. 17	1839	423	96	2368
Nailing-machine	J. H. Southcott	679,968	Aug. 6	280	62	96	1100
Necktie	C. H. Lowe	679,763	Aug. 6	87	21	96	1059
Necktie attachment	G. C. Spangler	681,749	Sept. 3	167	32	96	1897
Necktie-clasp	R. A. Jones	680,600	Aug. 13	1611	356	96	1381
Necktie-fastener	B. L. Bummert	678,098	July 9	1452	345	96	315
Necktie-fastener	J. Baumgarten	679,548	July 30	4351	977	96	958
Necktie-fastener	H. S. Tillotson	680,292	Aug. 13	1044	244	96	1207
Necktie-holder	P. M. Cady	677,951	July 9	1180	272	96	264
Necktie-holder	F. H. Towne	678,592	July 16	2424	544	96	528
Nest. Hen's	L. P. Morin	679,323	July 30	3885	868	96	893
Nest. Hen's	K. O. Tremere	680,821	Aug. 20	2091	455	96	1500
Nest. Trap-	E. Stretch	681,752	Sept. 3	173	33	96	1896
Nest. Trap-	W. H. Leisster	682,207	Sept. 10	1007	226	96	2083
Nicotin. Extracting	H. Froehling	678,362	July 16	1963	449	96	434
Nicotin-extracting apparatus	H. Froehling	678,391	July 16	2025	460	96	446
Nippers	B. L. Toquet	681,756	Sept. 3	180	34	96	1900
Nippers, pliers, &c.	W. A. Bernard	678,637	July 16	2533	567	96	550
Nippers. Police-	G. A. Harrisson	679,841	Aug. 6	288	59	96	1091
Non-inductive windings. Arrangement of	E. Arnold, O. S. Bragstad, and J. L. La Cour.	677,917	July 9	1117	258	96	252
Nozzle	D. F. Leahy	683,301	Sept. 24	2980	683	96	2517
Nut. Lock-	C. H. Smith	678,620	July 16	2510	561	96	546
Nut-lock	L. J. Mathias	677,461	July 2	228	56	96	50
Nut-lock	H. C. Karlson	677,546	July 2	390	93	96	83
Nut-lock	T. E. Shortell	677,608	July 2	492	118	96	104
Nut-lock	S. Coon	678,163	July 9	1573	362	96	341
Nut-lock	C. S. Clark	678,298	July 9	1819	419	96	388
Nut-lock	W. B. Mallory, J. G. Deaderick, and J. L. Ullathorne.	678,414	July 16	2066	469	96	454
Nut-lock	W. B. Mallory, J. L. Ullathorne, J. G. Deaderick.	678,415	July 16	2067	469	96	454
Nut-lock	E. R. Campbell	678,640	July 16	2536	568	96	551
Nut-lock	C. Nash	678,680	July 16	2600	584	96	564
Nut-lock	J. H. Huntress	678,737	July 16	2703	606	96	581
Nut-lock	G. W. Fortier	678,775	July 16	2754	620	96	593
Nut-lock	J. W. Fletcher	679,223	July 23	3675	819	96	799
Nut-lock	C. B. Snyder	679,435	July 30	4115	922	96	911
Nut-lock	W. Hanson	679,618	July 30	4474	1005	96	985
Nut-lock	G. Behler	679,985	Aug. 6	415	88	96	1125
Nut-lock	V. M. Wingfield and J. T. Little, Jr.	680,101	Aug. 6	706	157	96	1185
Nut-lock	J. E. Braley and W. R. O'Neill	680,118	Aug. 6	733	162	96	1191
Nut-lock	N. B. Riddle	680,501	Aug. 13	1434	314	96	1345
Nut-lock	H. Henthorne	680,527	Aug. 13	1490	328	96	1358
Nut-lock	J. W. Brannon	680,690	Aug. 20	1808	398	96	1442
Nut-lock	J. A. Beamisderfer	680,835	Aug. 20	2115	461	96	1506
Nut-lock	J. J. Heaton	680,861	Aug. 20	2159	475	96	1514
Nut-lock	J. F. Fisher	681,413	Aug. 27	3185	700	96	1739
Nut-lock	G. W. Dollinger	681,475	Aug. 27	3317	737	96	1765
					738		
Nut-lock	W. H. Tippit	681,593	Aug. 27	3532	784	96	1808
Nut-lock	G. R. Kennedy	681,711	Sept 3	80	16	96	1880

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Nut-lock	D. W. Martin	682,876	Sept. 17	2234	504	96	2345
Nut-plate lock	E. G. Baxter	679,137	July 23	3512	785	96	765
Nut. Screw-	W. H. Crosby	680,991	Aug. 20	2408	530	96	1562
Nut-tapping machine	A. H. Riggs	678,813	July 16	2284	637	96	908
Nuts and bolt-heads. Means for locking	L. Gocht	680,709	Aug. 20	1868	410	96	1456
Oar	F. J. Pool	680,885	Aug. 20	2200	484	96	1522
Oar-lock	W. L. Sütterlin	680,249	Aug. 13	1042	223	96	1266
Oar-lock	J. E. Chambers	682,967	Sept. 17	2389	540	96	2378
Oar-making machine	J. White and J. Snyder	677,768	July 2	798	{190 191	96	168
Oats process. Rolled-	W. T. Jones	677,789	July 2	831	198	96	175
Obstetrical appliance	J. D. and H. R. Nagel	683,380	Sept. 24	3118	714	96	2547
Odor-distributing device	P. F. Cassidy	680,689	Aug. 20	1806	398	96	1441
Office-indicator	C. T. Bradshaw	679,462	July 30	4173	987	96	921
Offset-webs. Method of using	L. Kennedy and H. A. Burkhart	677,739	July 2	723	172	96	153
Oil, &c. Apparatus for distributing or feeding coal-	J. L. Firm	677,755	July 2	764	184	96	162
Oil-cake press	J. G. Branch	683,196	Sept. 24	2775	{636 639	96	2475
Oil-can	E. C. Bisbee	679,123	July 23	3468	779	96	760
Oil-can	W. L. Howland	679,345	July 30	3924	877	96	871
Oil-can	S. G. Stafford	681,272	Aug. 27	2987	650	96	1692
Oil-can	C. E. Sides	682,060	Sept. 3	750	163	96	2012
Oil-can	F. B. Grimshaw	682,736	Sept. 17	1956	444	96	2290
Oil-can	J. C. Owen	679,144	July 23	3526	798	96	767
Oil-can. Non-explosive	D. W. Hardesty	682,822	Sept. 17	2131	482	96	2325
Oil-engine	M. E. Toepel, F. B. Widmayer, and A. Potdevin	679,182	July 23	3597	808	96	788
Oil-press cloth	J., C., and J. J. McCarron	680,639	Aug. 13	1672	370	96	1394
Oil-purifier	G. F. Carter	680,344	Aug. 13	1159	256	96	1290
Oil-rack	L. K. Moore	683,354	Sept. 24	3072	.....	96	2536
Oils and their distillates. Refining crude mineral-	F. C. Thiele	681,273	Aug. 27	2939	{650 651	96	1698
Oils. Bleaching	J. C. W. Stanley	682,550	Sept. 10	1606	367	96	2200
Oiler	L. Kaczander and E. K. Hill	679,622	July 30	4478	{1006 1007	96	986
Oiler. Hand-	J. H. Hulings	682,594	Sept. 10	1689	395	96	2216
Oiling apparatus. Felly-	D. D. Frisbee	680,193	Aug. 6	869	194	96	1218
Oiling device. Fountain	G. Burkhardt	681,274	Aug. 27	2940	651	96	1693
Oleaginous matters. Apparatus for bleaching	J. C. W. Stanley	679,802	Aug. 6	148	33	96	1072
Operating-table	T. M. Vaughan	681,494	Aug. 27	3358	745	96	1772
Ophthalmometers. Chin-rest for	J. E. Chambers	679,096	July 23	3292	{736 737	96	720
Opthalmoscope	E. L. Ryer	679,044	July 23	3322	742	96	726
Opthalmoscope	H. L. de Zeng	683,012	Sept. 17	2480	562	96	2395
Optical instrument	H. H. Hill	678,642	July 16	2538	569	96	551
Optical-instrument standard	J. E. Chambers	681,531	Aug. 27	3415	{757 758	96	1785
Ordnance. Breech mechanism for breech-loading	A. T. Dawson and G. T. Buckham	679,114	July 23	3472	776	96	756
Ordnance. Firing mechanism for breech-loading	L. L. Driggs	681,492	Aug. 27	3355	{744 745	96	1772
Ordnance-mounting	C. Bonagente	681,109	Aug. 20	2619	{578 579	96	1607
Ordnance. Percussion firing-gear for breech-loading	A. T. Dawson and G. T. Buckham	677,560	July 2	417	100	96	89
Ore-bucket dumper and chute	L. Collier	678,798	July 16	2783	627	96	598
Ore-concentrator	L. Look	679,969	Aug. 6	288	62	96	1101
Ore-concentrator	A. H. Stebbins	681,271	Aug. 27	2933	{649 650	96	1692
Ore-concentrator	P. H. Shue	682,371	Sept. 10	1297	{291 292	96	2137
Ore-concentrator	H. P. Taylor	682,749	Sept. 17	1977	{448 449	96	2294
Ore-concentrator belt	J. G. Roberts	679,248	July 23	3717	890	96	807
Ore-concentrator feed-box	F. W. Wood	681,561	Aug. 27	3467	770	96	1795
Ore-crusher	J. H. Michelsen and M. L. Borglum	680,401	Aug. 13	1259	277	96	1310
Ore-crusher	C. Suttie	681,284	Aug. 27	2953	634	96	1675
Ore-desulfurizing apparatus	C. H. and H. C. Krause	680,171	Aug. 6	894	185	96	1211
Ore heating, roasting, and smelting furnace. Combined	E. M. Oviatt and A. Dean	681,354	Aug. 27	3000	646	96	1721
Ore roasting and desulfurizing furnace	S. M. Trapp	680,613	Aug. 13	1632	{359 360	96	1385
Ore roasting and distilling apparatus	A. S. Partridge	679,472	July 30	4153	{982 983	96	917
Ore-roasting furnace	G. D. Burton	677,701	July 2	663	158	96	140
Ore-sampler. Automatic	J. Roger	679,574	July 30	4308	968	96	969
Ore-sampling machine	G. D. Potter	682,528	Sept. 10	1565	355	96	2192
Ore-separator	A. C. Calkins	683,412	Sept. 24	3181	730	96	2560
Ore sizer and classifier	A. J. Perry	678,551	July 16	2326	524	96	509
Ore-washer	J. O. Dimmick	679,100	July 23	3446	769	96	750
Ore washer and separator	C. F. Allen	678,819	July 16	2838	640	96	611
Ores, &c. Apparatus for desulfurizing	C. V. Watkins	678,078	July 9	1415	{324 325 326	96	308
Ores. Apparatus for the treatment of	J. P. Wetherill	677,614	July 2	515	123	96	109
Ores. Desulfurizing	J. Armstrong	680,313	Aug. 13	1088	241	96	1277
Ores. Leaching	L. P. Burrows	682,612	Sept. 17	1727	{393 394	96	2247
Ores or compounds. Reduction of	E. L. Godbe	681,367	Aug. 27	3112	691	96	1725
Ores. Treating	H. A. Irvine	678,457	July 16	2150	.....	96	471
Ores. Treating complex	F. R. Carpenter	679,210	July 9	1658	381	96	357
Ores. Treating zinc-bearing complex	J. W. Worsey	681,609	Aug. 27	3563	792	96	1813
Organ. Reed-	G. de Bechi	678,329	July 9	1885	434	96	401
Ornamenting cardboard, &c.	R. J. Bennett	677,459	July 2	224	55	96	49
Orthodontia wrench	J. W. McCabe	678,374	July 16	1989	453	96	439
Outlet-box	G. E. Brown	680,922	Aug. 20	2273	{499 500	96	1538
Oven and cooker. Solar	H. Ill	681,095	Aug. 20	2596	574	96	1602
	M. M. Baker						

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Oven. Broiling-	E. E. Tobin	678,308	July 9	1850	425	96	394
Overalls	R. J. Smith	678,049	July 9	1364	315	96	300
Oxids or other metallic compounds. Reducing	K. C. Wideen	683,089	Sept. 24	2597	596	96	2440
Oxyhydrogen-lights. Pencil for	F. Schwanhausser and A. Elmer	681,488	Aug. 27	3342	742	96	1769
Package	H. C. Deckert	677,642	July 2	558	133	96	118
Package	R. P. Beatty	680,684	Aug. 20	1792	395	96	1438
Package-fastener	J. F. McEvoy	678,895	July 23	3020	676	96	666
Package for holding liquids	J. F. Ansenheimer	677,918	July 9	1118	258	96	252
Packing. Apparatus for facilitating	L. S. Burbank	683,100	Sept. 24	2623	{602 608	96	2445
Packing-box	C. W. Lewis	680,980	Aug. 20	2285	508	96	1541
Packing-case filler	R. S. Doling	678,647	July 16	2546	570	96	553
Packing-case for butter, &c	F. E. Wattles	683,416	Sept. 24	3198	732	96	2561
Packing for flanges and stuffing-boxes. Manufacturing	L. Hauslehner	680,860	Aug. 20	2158	475	96	1514
Packing for hydraulic presses. Piston-	J. J. Crawford	683,252	Sept. 24	2894	663	96	2500
Packing. Metallic	E. Bader	677,981	July 9	1146	264	96	258
Packing. Metallic	L. Katzenstein	682,200	Sept. 10	994	{223 224	96	2081
Packing. Piston-	W. H. Alison	681,383	Aug. 27	3146	700	96	1731
Packing. Piston-rod	H. J. Moreland	678,750	July 16	2710	611	96	585
Packing. Rod-	W. F. Singer	679,344	July 30	3922	877	96	870
Pad: *See* Hat-cleaning pad. Horseshoe-pad. Hoof-pad.							
Pad-holder	E. A. Henkle	680,589	Aug. 13	1591	352	96	1378
Pad-holder	E. A. Henkle	681,118	Aug. 20	2031	581	96	1609
Padlock	W. S. Houser	683,336	Sept. 24	2956	677	96	2513
Padlock. Permutation-	L. Dove	679,419	July 30	4086	913	96	905
Page-indicator	R. Scott	680,903	Aug. 13	1190	263	96	1296
Pail. Dinner-	W. P. Walker	678,598	July 16	2440	548	96	531
Pail. Milk-	J. H. King	680,779	Aug. 20	1996	436	96	1483
Paint or window cleaner	S. Jensen	682,256	Sept. 10	1106	251	96	2102
Paint-pot	B. R. Woodley	683,094	Sept. 24	2610	600	96	2442
Paint-removing composition	P. J. Hope	683,177	Sept. 24	2744	.....	96	2469
Painting apparatus. Dip	W. P. Hunt	682,412	Sept. 10	1374	310	96	2158
Painting-machine	H. J. Delaney	677,343	July 2	19	5	96	6
Painting machine. Tin-	J. E. Flitcroft	681,961	Sept. 3	598	{125 126	96	1988
Pamphlet stapling, folding, and stacking machine	F. Hart	678,561	July 16	2351	{528 529	96	515
Pan: *See* Bake-pan. Frying-pan. Dust-pan. Vacuum-pan. Evaporating-pan.							
Panning or distributing machine. Pneumatic	H. D. Perky	678,625	July 16	2502	{559 560	96	544
Paper. Blotting-	J. J. Tinker	681,592	Aug. 27	3581	784	96	1806
Paper box	T. Schmidt	679,917	Aug. 6	378	80	96	1118
Paper box. Folding	F. N. Young	680,105	Aug. 6	712	158	96	1187
Paper-box machine	C. W. Gay	681,652	Aug. 27	3660	820	96	1835
Paper box. Nestable	J. R. Van Wormer	680,186	Aug. 6	857	191	96	1216
Paper boxes, lids, &c. Attachment for machines for covering	G. A. Bisler	679,592	July 30	4433	997	96	976
Paper cabinet. Toilet-	H. Loewenbach	678,434	July 16	2105	478	96	461
Paper. Crape	J. L. Perkins and C. E. Pope	681,074	Aug. 20	2564	566	96	1596
Paper cutter. Roll-	J. R. Seawright	681,745	Sept. 3	161	30	96	1896
Paper-cutting machine	N. Gray, Jr	680,655	Aug. 13	1725	{378 379	96	1405
Paper-cutting machine	H. L. Strehl	682,767	Sept. 17	2019	457	96	2302
Paper-cutting machines. Hand clamping device for	N. Gray, Jr	680,656	Aug. 13	1727	380	96	1406
Paper-fastener	F. E. De Long	680,026	Aug. 6	577	126	96	1157
Paper-hangers or other mechanics. Tool for	I. L. Hawkins	680,596	Aug. 13	1583	349	96	1376
Paper-holder	H. R. Smith	682,962	Sept. 17	2383	539	96	2376
Paper holder and cutter. Roll-	W. R. Haney	679,296	July 23	3680	820	96	800
Paper-like material and making same	T. Rosenthal	683,070	Sept. 24	2966	.....	96	2438
Paper-making machine	J. H. Gately	681,307	Aug. 27	3020	670	96	1707
Paper-making machine	C. K. Graham	682,544	Sept. 10	1594	362	96	2196
Paper, paint, &c. Moistener or softener for wall-	O. G. Souder and M. E. Hamill	682,762	Sept. 17	2010	455	96	2301
Paper-pulp-screen cleaner	G. S. Witham	680,514	Aug. 13	1471	324	96	1354
Paper-rack	F. Williams	679,657	July 30	4537	1020	96	997
Paper-slitting machine	C. W. Hobbs	678,999	July 23	3215	720	96	705
Paper-slitting machine	G. W. Hamblet	682,068	Sept. 3	758	164	96	2014
Paper-stapler	D. O. Brunner	679,598	July 30	4444	999	96	979
Paper-stock-cutting machine	C. W. Griffin	678,887	July 16	2892	652	96	621
Paper tube	W. E. Pedley	679,264	July 23	3752	837	96	813
Paper-tube-forming machine	J. T. Thorpe	682,295	Sept. 10	1168	266	96	2114
Paper-tube machine	W. L. Allen	679,011	July 23	3240	{724 725 726	96	710
Paper-tube-making machine	C. Frerot	678,479	July 16	2200	{494 495	96	482
Paper tubes. Machine for making	H. W. Bloemker	679,594	July 30	4436	997	96	976
Paper vessel	H. L. R. Wolf	678,606	July 16	2452	551	96	534
Paste-applying device	P. F. Cassidy	681,101	Aug. 20	2606	575	96	1604
Paste pot or jar	F. F. Raymond, 2d	682,276	Sept. 10	1139	258	96	2108
Pasting device. Wrapper-	J. W. Shaner	682,817	Sept. 17	2118	479	96	2322
Pasteurizing liquids in bottles. Apparatus for	L. Gangloff	678,724	July 16	2674	{602 603	96	577
Pattern-rollers. Manufacture of	E. Offenbacher	681,727	Sept. 3	120	23	96	1888
Pavement. Brick or block	C. K. Porter	681,834	Sept. 3	338	68	96	1932
Paving-block	J. McLachlan	681,348	Aug. 27	2882	638	96	1680
Pay-table	C. Hirschfeld	681,318	Aug. 27	3040	675	96	1711
Pea or bean shelling machine	H. H. Brakeley	682,908	Sept. 17	2288	516	96	2357
Peat into compact non-fibrous substances for use as fuel. Machine for converting	J. O. Green and H. T. Martin	682,059	Sept. 3	749	162	96	2012
Pedal	M. F. Wirtz	679,043	July 23	3321	742	96	726

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pedal	C. Glover	681,214	Aug. 27	28 6	625	96	1667
Pelton wheel	C. F. Du Bois	682,979	Sept. 17	2418	547 548	96	2382
Pen	J. H. Coleman	677,944	July 9	1168	209	96	262
Pen attachment	B. B. Smith	678,909	July 23	3048	682	96	672
Pen dotting attachment	H. Oettinger	681,574	Aug. 27	3489	775	96	1800
Pen. Fountain	B. B. Goldsmith	678,466	July 16	2161	487 488	96	473
Pen. Fountain	S. S. Crocker	678,547	July 16	2321	523	96	509
Pen. Fountain	W. W. Stewart	679,790	Aug. 6	128	28	96	1067
Pen. Fountain	C. W. Boman	680,117	Aug. 6	733	162	96	1190
Pen. Fountain	H. Grass	682,188	Sept. 10	971	219	96	2078
Pen. Fountain	J. A. Skilton	682,574	Sept. 10	1648	377	96	2209
Pen. Fountain	J. A. Skilton	682,575	Sept. 10	1653	378	96	2210
Pen. Fountain	J. V. Washburne	678,708	July 16	2030	592	96	570
Penholder	F. A. Schlueter	680,942	Aug. 20	2311	508	96	1546
Penholder and blotter attachment	B. F. Jervis	679,623	July 30	4480	1007	96	996
Penholder and knife eraser. Combined	S. Forrester	681,305	Aug. 27	3019	669	96	1707
Pen or pencil holder	F. Simonson	679,432	July 30	4105	919	96	909
Pencil-clip for dividers	C. Klaui	677,996	July 9	1256	268	96	279
Pencil-holder attachment for dividers	C. C. Russell	680,281	Aug. 13	1029	231	96	1264
Pencil-holder. Pocket	H. E. Titus	679,710	July 30	4689	1043	96	1020
Pencil-sharpener	E. Burke	679,942	Aug. 6	431	90	96	1127
Pencil-sharpener	F. Genzlinger	681,911	Sept. 3	481	96	96	1961
Perambulator	W. Lukes	678,577	July 16	2295	537	96	523
Perforating device	W. H. Hudson	681,121	Aug. 20	2687	582	96	1611
Perforating-machine	H. Hollerith	682,197	Sept. 10	987	222	96	2089
Perforating record-cards. Apparatus for	C. F. Clothier, Jr., and F. S. Pecke	679,047	July 23	3327	743 744	96	727
Permanent way	M. Thomas	680,290	Aug. 13	1043	------	96	1266
Petroleum, &c. Composition of matter for filtering or cleaning	D. Higham	678,566	July 16	2370	532	96	518
Phonic apparatus	G. H. Stevens. (Reissue)	11,917	July 2	953	225	96	201
Phonograms. Duplicating	J. R. Hare	678,174	July 9	1588	365	96	344
Phonograph	T. A. Edison	680,520	Aug. 13	1479	326	96	1356
Phonograph-records. Making metallic duplicate	J. B. Powell	682,424	Sept. 10	1392	314	96	2156
Phonograph repeating mechanism	E. Karlow	681,058	Aug. 20	2532	560	96	1589
Phonograph-reproducer	E. E. Russell	681,981	Sept. 3	621	132	96	1990
Phonograph-reproducer	C. W. Noyes	679,467	July 30	4140	926	96	992
Phonograph reproducer and recorder	W. R. Dutemple	680,481	Aug. 13	1304	296	96	1319
Phonographs. Diaphragm tube-plate for	W. H. Miller	680,060	Aug. 6	627	137 138	96	1169
Phonographs, &c. Platform-motor for	J. Humpal	682,327	Sept. 10	1220	278	96	2124
Photograph-exhibitor	P. V. W. Welsh	677,484	July 2	262	66	96	57
Photograph-plate	R. Fleischer	683,031	Sept. 24	2610	570	96	2422
Photographic films. Apparatus for developing and fixing	H. L. Aldis	682,017	Sept. 3	678	147	96	1999
Photographic lens	M. A. Seed	681,008	Aug. 20	2427	537	96	1567
Photographic-lens screen	P. J. Stuparich	680,947	Aug. 20	2320	510	96	1547
Photographic mounts. Making	A. C. La May	681,920	Sept. 3	498	103	96	1964
Photographic-plate holder	F. V. Mathews	682,804	Sept. 17	2097	474	96	2318
Photographic-plate holder	W. L. Robertson	681,658	Aug. 27	3679	824	96	1839
Photographic-plate rack	F. W. Potter	679,740	Aug. 6	45	12	96	1052
Photographic-printing apparatus	G. Gerlach	678,661	July 16	2574	576	96	558
Photographic-printing frame	G. W. Hartman	683,059	Sept. 24	2550	581 582	96	2490
Photographic-printing frame	E. W. McCaslin	679,501	July 30	4964	------	96	938
Photographic process and product	L. A. Garchey	683,351	Sept. 24	3065	703	96	2535
Photographic retoucher	A. Swan	677,443	July 2	199	49	96	44
Photographic-roll holder	G. Eastman	679,070	July 23	3373	751 752	96	786
Photographic screens. Machine for ruling	E. E. Flora	678,134	July 23	3504	784	96	763
Photographic shutter	A. Wollensak	683,166	Sept. 24	2726	627	96	2465
Photographic shutter	C. G. Woodhead	680,614	Aug. 13	1634	360 361	96	1385
Photophonograph-photophone or similar device	J. Poliakoff	683,040	Sept. 24	2625	574	96	2425
Photoprinting-frames. Fastening for canvas aprons employed in	J. Halden	677,465	July 2	233	58	96	51
Piano	L. W. Norcross	678,478	July 16	2198	494	96	482
Piano	L. M. French	682,335	Sept. 10	1242	280	96	2126
Piano	S. Moore	678,688	July 16	2634	598	96	550
Piano-action	V. Bessier	677,860	July 9	981	231	96	226
Piano attachment	J. H. Deutsch	681,261	Aug. 27	2910	644 645	96	1686
Piano. Automatic	T. B. Powers	680,876	Aug. 20	2188	480 481	96	1519
Pianoforte	A. Medlik	679,485	July 30	4227	952	96	931
Pianoforte action. Upright	M. Steinert	682,065	Sept. 3	756	164	96	2013
Pianoforte-key	C. R. S. J. Hallé	682,198	Sept. 10	990	222	96	2081
Pianoforte or organ pedal	W. H. Ivers	682,066	Sept. 3	756	164	96	2013
Pianoforte wrest-plank	C. R. S. J. Hallé	679,298	July 30	3825	857	96	850
Piano hand-guide	W. Bohrer	681,390	Aug. 27	3154	702	96	1738
Piano-pedal	J. A. Elwell	681,730	Sept. 3	125	24, 25	96	1869
Piano-player. Electric	T. B. Powers	680,810	Aug. 13	1094	240	96	1276
Piano-players. Case or cabinet for automatic	T. P. Brown	682,616	Sept. 17	1754	395	96	2248
Piano repeating action. Upright	J. Herrburger	677,579	July 2	452	108	96	95
Piano sounding-board	G. Lutz	682,067	Sept. 3	757	164	96	2013
Piano string-plate	C. R. S. J. Hallé	679,916	Aug. 6	377	79	96	1118
Pianos. Bridge-bearing for	F. Schimmel	677,502	July 2	421	101	96	89
Picker: *See* Cotton-picker. Fruit-picker. Loom-picker. Threshing-machine picker.							
Picker-checking device. Pneumatic	F. B. Comins	677,561	July 2	419	100	96	89
Picker-staff-checking device	F. B. Comins	677,563	July 2	422	101	96	90
Picker-staff controller	F. B. Comins						

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Picker-staff rocker and check	A. Hogue	678,567	July 16	2373	532	96	519
Picture-frame support	P. C. Carew	678,221	July 9	1679	386	96	302
Picture-frames. Removable back for	B. Jacobson	681,703	Sept. 3	66	12	96	1877
Picture-hanging device. Adjustable	E. P. Turner	681,389	Aug. 27	3142	699	96	1731
Picture-hanging nail	W. Edmundson	681,590	Aug. 27	3398	747	96	1774
Pictures. Building	J. A. Lee	683,302	Sept. 24	2980	683	96	2517
Pictures. Producing relief	A. Lembacher	678,262	July 9	1746	402	96	376
Pie-rack	A. O. Bohem	682,907	Sept. 17	2287	516	96	2356
Pigeonhole-table	C. Lutsky	678,000	July 9	1263	290	96	280
Pigeonholes. Folding	M. S. Broadt	680,451	Aug. 13	1340	294	96	1327
Pile-block	F. W. Freund	679,806	July 30	3855	862	96	856
Pile fabric. Producing figured double-	R. Schwartz	683,340	Sept. 24	3051	699 700	96	2532
Pilot-light	C. D. Crocker	681,018	Aug. 20	2458	544	96	1574
Pin: *See* Bowling-alley pin. Chatelaine-pin. Hat-pin. Hinge-pin. Safety-pin.							
Pineapple-eye snip	J. F. Pack	681,339	Aug. 27	3065	679	96	1716
Pinion-housing	J. Kennedy	679,971	Aug. 6	490	103	96	1141
Pipe: *See* Metal pipe. Ribbed pipe. Sand-pipe. Sheet-metal pipe. Smoking-pipe. Stand-pipe. Tobacco-pipe.							
Pipe	J. F. Kennefick	682,470	Sept. 10	1471	334	96	2172
Pipe-bending machine	C. R. McKibben	681,384	Aug. 27	3000	678	96	1715
Pipe-bending machine	H. F. Condon	682,571	Sept. 17	1815	416	96	2264
Pipe-boiler	W. MacFarlane	677,788	July 2	830	198	96	175
Pipe calking and cutting apparatus	J. Couston and J. Finlayson	680,228	Aug. 13	943	212	96	1248
Pipe-coating apparatus. Iron	M. M. Hedges	677,570	July 2	438	104	96	93
Pipe collar and flange. Combined	J. H. Grozier	681,812	Aug. 27	3080	671	96	1709
Pipe connection	W. E. Delehanty	682,046	Sept. 3	784	159	96	2009
Pipe-coupling	A. H. Hutchinson	683,287	Sept. 24	2957	677	96	2513
Pipe coupling. Hydrant or other water-	H. L. Jordan	681,420	Aug. 27	3308	712 713	96	1743
Pipe-couplings. Making small	G. W. La Voo	679,507	July 30	4275	902	96	940
Pipe-cutter	A. Katzki	680,866	Aug. 20	2163	476	96	1516
Pipe-cutting mechanism	F. W. Stapf	680,443	Aug. 13	1323	291 292	96	1323
Pipe-elbow-making machine	U. D. Alexander	681,177	Aug. 27	2754	611 612	96	1655
Pipe-hanger	H. W. Hoerr	677,765	July 2	789	189	96	167
Pipe-hanger	J. Marquardt	680,609	Aug. 13	1624	358	96	1383
Pipe-joint. Flexible	T. W. Moran	678,842	July 16	2002	654 655	96	624
Pipe-jointer	S. M. Neff	681,809	Sept. 3	292	59	96	1924
Pipe-mold	B. R. Davisson	683,389	Sept. 24	3132	717	96	2550
Pipe-mold-forming apparatus	J. K. Dimmick	683,255	Sept. 24	2899	665	96	2501
Pipe-stopper	E. De Carlo	682,045	Sept. 3	782	158	96	2009
Pipe wall-socket. Water or other	J. Smith and R. Walker	679,399	July 30	4059	905	96	900
Pipe-wrench	J. E. Wilkison	678,809	July 16	2817	685	96	606
Pipe-wrench	J. P. Lavigne	678,959	July 23	3151	705	96	692
Pipe-wrench	J. P. Lavigne and A. W. Johnson	678,960	July 23	3152	705	96	692
Pipe-wrench	T. E. Smythe	680,285	Aug. 13	1084	232	96	1265
Pipe-wrench	F. P. Galvin	681,910	Sept. 3	480	98	96	1960
Pipes. Apparatus for preventing freezing of water-	J. Rühling	682,497	Sept. 10	1520	344	96	2182
Pipes. External joint for escape	G. T. Cooper	683,385	Sept. 24	3128	715	96	2548
Pipes. Manufacture of ribbed	W. B. Williams	679,351	July 30	3949	883	96	876
Pipes. Manufacture of ribbed	W. B. Williams	679,352	July 30	3950	884	96	876
Pipes. Means for packing leaks in	J. Dunn	683,024	Sept. 24	2502	568	96	2420
Pipes. Soap-delivery attachment for water-	C. R. Walker	682,653	Sept. 17	1786	410	96	2259
Piperidin. Producing	W. Pip	680,543	Aug. 13	1517	------	96	1393
Pistol-holder	L. E. Fugate	681,392	Aug. 27	3156	708	96	1733
Pistol. Repeating	G. Gloda	680,243	Aug. 13	964	217	96	1252
Piston	G. H. Reynolds	680,465	Aug. 13	1364	298	96	1332
Piston-rod connection. Multiple-cylinder	F. L. White	678,150	July 9	1548	356 357	96	336
Piston. Valved	S. M. Fulton	683,304	Sept. 24	3137	719	96	2551
Pistons. Means for mounting and lubricating	H. Woodmanse	680,449	Aug. 13	1388	293	96	1326
Pit cover. Soaking	L. H. Gordon	681,115	Aug. 20	2627	581	96	1609
Pitman connection	J. W. Pridmore	682,745	Sept. 17	1973	447	96	2293
Pitman connection	E. A. Johnston	683,049	Sept. 24	2537	578	96	2427
Pitman-rod	L. T. Lake	681,027	Aug. 20	2474	548	96	1577
Plaiting-machine	H. S. Brown	677,496	July 2	283	70	96	61
Plaiting-machine feeding device	J. A. Groebli	677,540	July 2	309	89, 90	96	79
Plane	L. Kemline	679,494	July 30	4094	915	96	907
Plane	E. S. Marks	680,055	Aug. 6	621	136	96	1168
Plane	E. S. Marks	680,056	Aug. 6	621	136	96	1168
Plane	T. M. Seeds, Jr., and M. Frings	682,959	Sept. 17	2378	538	96	2375
Plane	F. R. Patch	681,926	Sept. 3	509	106	96	1967
Planer. Double-platen	L. Sprink	678,795	July 16	2787	627	96	509
Planing-machine cutter-head	J. M. Coleman	679,888	Aug. 6	327	70	96	1108
Planter	C. T. Starkey	679,488	July 30	4121	923 924	96	912
Planter and fertilizer-distributer. Combined seed-	C. T. Starkey	682,963	Sept. 17	2384	539	96	2376
Planter and fertilizer-distributer. Cotton-seed	C. C. Leary	678,187	July 9	1608	371	96	347
Planter. Check-row	P. A. Peterson	678,900	July 23	3029	678 679	96	607
Planter. Corn	J. W. Parker	679,185	July 23	3609	805 806	96	785
Planter. Corn	E. E. Englund	679,557	July 30	4309	981	96	962
Planter. Corn	L. P. Graham	680,326	Aug. 13	1107	246 247	96	1280
Planter. Corn	G. S. Sleffield	680,739	Aug. 20	1928	422	96	1470
Planter. Corn	E. M. Alexander	681,427	Aug. 27	3215	716	96	1745

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Planter. Corn-	C. Y. Jared	681,795	Sept. 3	270	53	96	1919
Planter. Corn-	J. W. Toby	682,120	Sept. 3	849	190	96	2083
Planter. Corn-	J. E. Swonson	682,154	Sept. 3	908	202	96	2044
Planter. Corn-	A. M. Lindsay, Jr	682,473	Sept. 10	1476	335, 336	96	2173
Planter. Cotton-seed	G. Winter	678,355	July 9	1948	446	96	418
Planter. Cotton-seed	W. C. Mills	680,496	Aug. 13	1425	312	96	1343
Planter. Cotton-seed	A. F. Trimble	683,157	Sept. 24	2712	624	96	2463
Planter dropping mechanism. Corn-	H. L. Dooley	682,178	Sept. 10	951	214, 215	96	2074
Planter land-marker. Corn-	J. W. Parker	679,186	July 23	3612	806	96	786
Planter marker. Corn-	T. Thorpe	682,394	Sept. 10	1338	308	96	2146
Planter. Potato-	G. J. Bachmann and G. McConnell	682,900	Sept. 17	2272	513	96	2353
Planter. Seed-	A. L. Alexander	677,612	July 2	509	122	96	108
Planter. Seed-	A. F. Trimble	683,156	Sept. 24	2711	624	96	2462
Planter. Wireless check-row corn-	A. L. Van Hoozer	678,306	July 9	1647	379, 380	96	355
Planter. Wireless check-row corn-	J. E. Swonson	682,153	Sept. 3	905	201, 202	96	2044
Plaster or bandage. Adjustable adhesive supporting	J. G. Ross and H. M. Taggart	679,998	Aug. 6	522	111	96	1147
Plasters. Appliance for making	H. A. Cross	679,498	July 30	4257	958	96	937
Plasterer's ground	F. L. Union	678,146	July 9	1541	355	96	335
Plastering composition	H. C. McMillin	678,010	July 9	1279	----	96	283
Plastic material. Cutting-off mechanism for	W. E. Saunders	683,226	Sept. 24	2880	651, 659	96	2486
Plate holding and straining device	J. White	680,302	Aug. 13	1066	237, 238	96	1271
Plates or blanks of varying widths. Forming	J. Lanz	679,759	Aug. 6	80	20	96	1057
Platforms. Means for elevating	H. B. James	682,088	Sept. 3	798	173	96	2022
Pleasure-wheel	G. F. Weber	682,440	Sept. 10	1419	320, 321	96	2163
Pliers	W. A. Osley	678,568	July 16	2410	540	96	525
Pliers	J. L. Ogle	680,540	Aug. 13	1513	333	96	1362
Pliers. Locking-	M. M. Howland	682,701	Sept. 17	1898	430	96	2278
Pliers or kindred tool	H. G. Weibezahl	681,160	Aug. 20	2701	590	96	1624
Pliers. Self-locking	M. M. Howland	677,414	July 2	159	33	96	81
Plow	W. H. Kothmann	677,997	July 9	1958	430	96	280
Plow	W. K. Hobson	678,618	July 16	2485	555	96	541
Plow	J. O. Boger	679,014	July 23	3354	727	96	712
Plow	J. A. Wiebe	679,489	July 30	4238	954, 955	96	939
Plow	C. A. Bollinger	679,595	July 30	4437	998	96	977
Plow	J. M. Whitson	679,713	July 30	4648	1045	96	1021
Plow	H. Haussmann	680,248	Aug. 13	976	219, 220	96	1253
Plow	J. I. De Witt	680,651	Aug. 13	1716	377	96	1408
Plow	J. W. Johnson	681,227	Aug. 27	2940	631	96	1672
Plow	J. A. Ward	681,598	Aug. 27	3538	786	96	1809
Plow	S. Behringer	681,677	Sept. 3	9	3	96	1806
Plow	C. R. Davis	682,587	Sept. 10	1677	381	96	2214
Plow	O. A. Booty	682,598	Sept. 17	1695	387	96	2241
Plow	H. M. McCafferty	682,733	Sept. 17	1958	443	96	2289
Plow and brush cutter. Combined	L. R. Annett	683,242	Sept. 24	2869	658, 659	96	2494
Plow and planter. Combined lister	A. Sattley and I. A. Weaver	682,956	Sept. 17	2374	536, 537	96	2374
Plow attachment	W. M. Downen	680,846	Aug. 20	2137	488	96	1510
Plow attachment	A. B. Strong	682,505	Sept. 10	1531	347	96	2185
Plow. Disk	J. M. W. Long	680,337	Aug. 13	1124	250	96	1284
Plow. Disk	C. R. Davis	682,244	Sept. 10	1061	244	96	2097
Plow fertilizer-distributer attachment	J. A. Reeves	681,578	Aug. 27	3510	779	96	1804
Plow-guide	R. C. Patterson	683,139	Sept. 24	2683	618	96	2457
Plow or cultivator shovel	W. F. Hartig	681,547	Aug. 27	3447	765	96	1791
Plow or cultivator. Wheeled	J. R. Babcock	681,012	Aug. 20	2443	540	96	1571
Plow. Riding-	J. W. Brown	681,948	Sept. 3	560	118	96	1978
Plow. Riding-	J. D. Reus	682,747	Sept. 17	1975	447, 448	96	2294
Plow riding attachment. Walking-	E. B. Winters	683,364	Sept. 24	3091	708	96	2540
Plow. Rotary	S. Hampton	678,396	July 16	2084	462	96	449
Plow. Rotary	F. A. Sandberg	679,839	July 30	3915	875, 876	96	809
Plow-stock	B. P. Hatchell	683,277	Sept. 24	2939	673, 674	96	2500
Plow-stock. Ratchet	T. M. Wallace	681,596	Aug. 27	3537	786	96	1809
Plow subsoil attachment	J. A. and C. L. Shuping	680,400	Aug. 13	1258	276	96	1309
Plow. Vineyard-	J. A. Bilz	677,495	July 2	281	70	96	61
Pneumatic carrier	A. Woltman	682,375	Sept. 10	1305	294	96	2139
Pneumatic carrier terminal	A. Woltman	682,374	Sept. 10	1304	293	96	2139
Pneumatic carriers. Terminal for	H. Bitner	677,928	July 9	1141	262	96	257
Pneumatic despatch apparatus	J. T. Cowley	680,698	Aug. 20	1848	406	96	1452
Pneumatic despatch apparatus	J. T. Cowley	680,699	Aug. 20	1850	406	96	1452
Pneumatic despatch apparatus	M. Barri	681,014	Aug. 20	2448	541, 542	96	1572
Pneumatic despatch-apparatus terminal	O. S. Pike	683,141	Sept. 24	2687	618	96	2458
Pneumatic despatch-tube apparatus	J. T. Cowley	677,759	July 2	772	185, 186	96	163
Pneumatic despatch-tube apparatus	J. T. Cowley	680,697	Aug. 20	1846	405	96	1451
Pneumatic despatch-tube apparatus	J. T. Cowley	680,700	Aug. 20	1852	407	96	1453
Pneumatic despatch-tube apparatus	M. Barri	681,013	Aug. 20	2444	540, 541	96	1571
Pneumatic despatch-tube apparatus	F. C. Cutting	681,042	Aug. 20	2505	555	96	1583
Pneumatic despatch-tube apparatus	J. T. Cowley	681,106	Aug. 20	2616	577, 578	96	1606
Pneumatic despatch-tube apparatus	J. T. Cowley	683,022	Sept. 24	2499	567, 568	96	2419
Pneumatic despatch-tube apparatus	J. T. Cowley	683,387	Sept. 24	3126	716	96	2548

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pneumatic-despatch-tube apparatus terminal	O. S. Pike	683,140	Sept. 24	2684	618	96	2457
Pneumatic-despatch-tube carrier	J. T. Cowley	681,041	Aug. 20	2504	554	96	1583
Pneumatic-despatch-tube carrier	H. W. Forslund	682,408	Sept. 10	1965	408	96	2151
Pneumatic-despatch-tube system	E. A. Fordyce	681,414	Aug. 27	3187	709, 710	96	1740
Pneumatic-despatch-tube system	C. A. Gray	682,985	Sept. 17	2432	550, 551	96	2285
Pneumatic-despatch-tube systems. Terminal device for	E. A. Fordyce	681,534	Aug. 27	3419	759	96	1785
Pneumatic hoist	W. S. Halsey	681,853	Sept. 3	371	75	96	1939
Pneumatic indicator system	W. B. Cowles	681,626	Aug. 27	3600	800, 801	96	1823
Pneumatic-tube terminal	W. H. Sheppard	681,078	Aug. 20	2569	568	96	1507
Pocket-closure	J. M. Sundean	681,661	Aug. 27	3684	825	96	1840
Pocket. Garment-	J. W. Shields	679,866	Aug. 6	284	61	96	1100
Pocket. Safety-	G. L. Estes	683,029	Sept. 24	2509	570	96	2422
Pocket. Seamless woven	A. Mills	682,877	Sept. 17	2236	504, 505	96	2345
Pocket-support	W. Shapiro	680,627	Aug. 13	1656	365	96	1390
Poke. Animal-	I. Gunderson	678,730	July 16	2684	604	96	579
Poke. Animal-	E. A. Jones	680,353	Aug. 13	987	221	96	1256
Poke. Animal-	M. F. Ellis	682,040	Sept. 3	737	159	96	2010
Pole cap. Wagon-	W. H. Curts	681,875	Sept. 3	409	82	96	1947
Pole. Wagon coupling-	N. M. Arnold	678,855	July 23	2980	660	96	648
Polishing device	F. Leschinski	682,210	Sept. 10	1C10	226	96	2084
Polishing-machine	W. A. Lindsey	678,109	July 9	1476	340	96	322
Polishing-machine	G. A. Ensign	680,576	Aug. 13	1566	344, 345	96	1378
Polishing-wheel	H. Snyder	678,054	July 9	1372	317	96	301
Polishing-wheel	C. A. Knill	683,122	Sept. 24	2655	609	96	2451
Polishing-wheel	C. A. Knill	683,123	Sept. 24	2656	610	96	2451
Pool-table	F. H. Briggs	680,759	Aug. 20	1960	430	96	1476
Popcorn-molding machine	H. E. Miller	682,481	Sept. 10	1489	338	96	2176
Porcelain. Glazing	A. Weber, Jr	681,465	Aug. 27	3301	734	96	1762
Portable boiler	H. H. Graff	681,542	Aug. 27	3440	763	96	1790
Portable clamp	J. A. Scott, R. L. Warren, and H. W. Ash	678,043	July 9	1358	312	96	297
Portable elevator	W. L. Nicholson	682,294	Sept. 10	1040	234	96	2000
Portable table	J. M. Flemister	683,264	Sept. 24	2915	668	96	2504
Portfolio	J. A. Parker	682,266	Sept. 10	1118	254	96	2105
Portfolio. Music-	A. C. Gardner	677,972	July 9	1217	280	96	272
Post: *See* Auger-post. Binder-post. Bumping-post. Fence-post. Foundation-post. Hitching-post.	J. W. Snedeker	680,740	Aug. 20	1920	428	96	1470
Post	J. Ortner	677,466	July 2	235	50	96	52
Pot: *See* Coffee-pot. Flower-pot. Paint-pot. Paste-pot. Showering-pot. Tea or coffee pot.	E. Meyer	680,058	Aug. 6	623	136	96	1168
Pot for cooking purposes	A. von Loeper	680,257	Aug. 13	992	222	96	1257
Pot-handle. Auxiliary	P. Geisel	681,051	Aug. 20	2520	558	96	1586
Potato-digger	D. Y. Hallock	682,987	Sept. 17	2437	551, 552	96	2287
Potato-digger	W. Luck	682,381	Sept. 10	1236	279	96	2125
Poultry-killing apparatus	P. Du Bult	683,106	Sept. 24	2631	605	96	2446
Powder charge	J. A. Hoëg	678,400	July 16	2044	464	96	450
Powder-distributing box	C. H. Coy	681,908	Sept. 3	475	----	96	1960
Powder. Making explosive	B. C. Sabin and B. C. Huleatt	679,398	July 30	4057	905	96	899
Powder-puff	L. Neumayer	678,272	July 9	1774	408	96	380
Powders. Divider and bag-filler for	P. M. Lincoln	679,174	July 23	3581	800	96	779
Power: *See* Cable-power.	G. A., Sr., and G. A. Ohl, Jr., F. W. Theberath, and A. A. Berghof	679,081	July 23	3279	733, 734	96	717
Power-factor meter	J. G. Hodgson	681,023	Aug. 20	2467	547	96	1576
Power-press	H. M. Lucas	681,068	Aug. 20	2540	562	96	1591
Power-press	G. A., Sr., and G. A. Ohl, Jr., F. W. Theberath, and A. A. Berghof	680,937	Aug. 20	2296	505, 506	96	1543
Power-shears	E. P. Tieche	679,649	July 30	4528	1018	96	995
Power-transmitter. Endless-cable	F. Grant	681,116	Aug. 20	2629	581	96	1600
Power-transmitting device	R. R. Darling	679,365	July 30	3987	891	96	883
Power-transmitting mechanism	C. P. Tatro and G. Delius	682,155	Sept. 3	910	208	96	2045
Precious metals. Electrolytic apparatus for extracting	H. J. Phillips	683,325	Sept. 24	3032	----	96	2528
Precious metals from their ores. Extraction of	J. D. Butler	678,537	July 16	2301	519	96	504
Preserving apparatus. Fruit-	A. P. Gaines	683,112	Sept. 24	2640	606	96	2448
Preserving fruit	E. Norton	679,943	Aug. 6	438	91	96	1128
Preserving fruits and their juices. Means for	F. Butcher	681,132	Aug. 20	2057	586	96	1615
Preserving-jar. Vacuum-sealing	E. Norton	681,131	Aug. 20	2654	586	96	1614
Preserving-jar. Vacuum-sealing key-opening	E. Norton	681,400	Aug. 27	3164	705	96	1735
Preserving specimens. Box for	W. McCarty						
Press: *See* Baling-press. Cheese-press. Cider-press. Copying-press. Cotton-press. Drawing-press. Filter-press. Forging-press. Oil-cake press. Power-press. Printing-press. Wood-bending press.							
Press	H. Dawsey	678,548	July 16	2322	523	96	509
Press	J. S. Peter	680,542	Aug. 13	1516	333	96	1393
Press for leather-cutting, &c	A. G. Brewer	680,189	Aug. 6	861	192, 193	96	1217
Pressure-reducing apparatus	F. Kaeferle	682,085	Sept. 3	796	173	96	2023
Pressure-regulator	R. E. Haward	678,572	July 23	2057	605	96	654

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pricking-machine	J. Franck	680,674	Aug. 13	1768	388	96	1413
Primary battery	O. A. Spahr	681,660	Aug. 27	3681	824	96	1839
Primary battery	S. W. Maquay	682,475	Sept. 10	1482	396	96	2174
Print and card cutting board	L. Garding	679,167	July 23	3572	798	96	778
Printed sheets. Device for cutting register slits or openings in	T. C. Dexter	679,219	July 23	3667	818	96	798
Printer. Starch-	G. Carlson	679,550	July 30	4354	977 978	96	958
Printer's blanket	A. C. Ferguson	680,577	Aug. 13	1570	345	96	1374
Printer's chase	C. F. Burroughs	682,840	Sept. 17	2170	490	96	2332
Printer's composing-stick	H. B. Rouse	680,546	Aug. 13	1520	334	96	1364
Printer's composing-stick	H. B. Rouse	680,547	Aug. 13	1521	334	96	1364
Printer's composing-stick	H. B. Rouse	680,625	Aug. 13	1653	364	96	1390
Printers' furniture and lock-up	R. B. Cochran	683,249	Sept. 24	2998	662	96	2499
Printer's galley	H. Clark	678,611	July 16	2466	552 553	96	596
Printers' rollers. Machine for cleaning	F. Hart	678,484	July 16	2206	496 497	96	484
Printing and addressing machine. Combined	J. L. Sullivan	679,193	July 23	3680	810	96	790
Printing and embossing paper. Machine for simultaneously	E. E. Marinier and E. L. Navoit	680,533	Aug. 13	1499	330	96	1359
Printing-block. Polychrome	W. G. and R. A. A. White	683,161	Sept. 24	2718	.....	96	2464
Printing-machine	H. A. W. Wood	678,449	July 16	2192	482 483	96	468
Printing-machine	H. G. Bender	678,472	July 16	2171	489 490	96	475
Printing-machine	G. F. Read	679,187	July 23	3614	806 807	96	786
Printing-machine	T. M. North	681,253	Aug. 27	2890	640 641	96	1692
Printing-machine	H. F. Bechman	681,610	Aug. 27	3565	792 793	96	1814
Printing machine. Address-	R. Maxwell	682,216	Sept. 10	1020	229	96	2096
Printing-machine bed-motion. Bed-and-cylinder	L. C. Crowell	678,476	July 16	2194	498	96	481
Printing-machine for yarn or warp-threads	C. Bareuther	682,780	Sept. 17	2047	462 463 464	96	2308
Printing-machine guard. Platen	M. T. Barber	679,691	July 30	4607	1094	96	1014
Printing machine. Label-	S. B. Tily, J. G. and M. O. Rebfuss	677,821	July 2	899	214 215	96	189
Printing machine. Polychromatic	W. G. and R. A. A. White	683,162	Sept. 24	2719	625 626	96	2464
Printing-machine. Rotary	W. Spalckhaver	679,191	July 23	3624	808 809	96	789
Printing-machine. Rotary	O. Roesen	679,266	July 23	3754	838 839	96	814
Printing machine. Stencil-	A. B. Dick	679,140	July 23	3517	786 787	96	766
Printing machine. Ticket-	N. E. Springsteen	682,889	Sept. 17	2259	510	96	2350
Printing mechanism for labels or tickets	J. Leavy and I. Roggen	679,627	July 30	4495	1008	96	967
Printing paper bags. Machine for	F. Cudney	680,409	Aug. 13	1270	280	96	1312
Printing-press	C. B. Funk	677,408	July 2	124	28 29 30	96	28
Printing-press	J. L. Firm	677,735	July 2	721	172	96	152
Printing-press	J. L. Firm	677,737	July 2	725	173	96	153
Printing-press	J. L. Firm	677,738	July 2	728	173 174	96	154
Printing-press	J. L. Firm	677,739	July 2	730	174	96	154
Printing-press	E. Carlson	679,458	July 30	4156	933	96	918
Printing-press	J. L. Cox	680,128	Aug. 6	746	165 166	96	1198
Printing-press	R. Naumann	682,951	Sept. 17	2297	534	96	2373
Printing-press dog-trip	T. C. Dexter	680,966	Aug. 20	2453	517 518	96	1554
Printing-press feed-gage	J. F. McNutt	678,754	July 16	2717	612	96	586
Printing-press feeder	T. C. Dexter	681,954	Sept. 3	581	122 123	96	1981
Printing-press guard. Automatic	L. B. Woodruff	677,910	July 9	1104	255	96	949
Printing-press. Hand cylinder	F. Meisel	677,877	July 9	1022	241	96	935
Printing-press inking apparatus	T. M. North	681,252	Aug. 27	2886	639 640	96	1681
Printing-press inking mechanism	F. Waite	677,389	July 2	94	20	96	22
Printing-press. Platen	T. C. Dexter	680,967	Aug. 20	2856	518 519	96	1554
Printing-presses. Automatic protector for	T. C. Dexter	681,445	Aug. 27	3258	723 724 725	96	1754
Printing-presses. Device for controlling the action of	M. Levy	680,928	Aug. 20	2283	502	96	1540
Printing processes. Grating or screen for photo-mechanical	R. C. Blood	680,687	Aug. 20	1804	397 398	96	1441
Printing stockings, &c. Machine for	T. C. Thompson and W. E. J. Webb	678,065	July 9	1398	320	96	804
Printing-surfaces. Manufacture of	R. Widmann	682,581	Sept. 10	1667	.....	96	2212
Printing-surfaces. Preparing relief	E. Gathmann	681,448	Aug. 27	3268	727	96	1756
Projectile	W. B. Pinkerton	678,275	July 9	1758	410	96	881
Propeller	E. E. Marchand	682,213	Sept. 10	1015	228	96	2085
Propeller for ships. Hydraulic	F. S. Cormier	678,228	July 9	1691	388	96	865
Propeller-governor	F. W. Brewster	680,671	Aug. 13	1758	386 387	96	1412
Propeller. Screw-	M. A. Peterson	678,198	July 9	1628	375	96	850
Propelling mechanism. Vessel	A. J. Taplin	678,290	July 9	1815	418	96	897
Propelling mechanism. Vessel	C. D. Jenkins	681,700	Sept. 3	72	15	96	1878
Propulsion mechanism for boats	F. Burger and H. M. Williams	678,988	July 23	3103	694 695	96	682
Propulsion of vessels	H. F. Burgess	682,027	Sept. 3	698	151	96	2003

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Prospecting apparatus. Electric	A. F. McClatchey	681,654	Aug. 27	3668	821	96	1837
Protractor	G. A. Almorth	679,662	July 30	4546	1023	96	999
Protractor attachment for center-finding instruments.	R. W. Bailey	679,984	Aug. 6	413	87	96	1124
Puddling-furnace	J. P. Roe	678,282	July 9	1801	415	96	884
Puddling-machine	J. P. Roe	678,281	July 9	1796	414	96	883
Puller: *See* Cork-puller. Stump-puller.							
Pulley	E. L. Wagner	682,395	Sept. 10	1340	303 304	96	2146
Pulley	A. L. Moore	682,419	Sept. 10	1384	313	96	2155
Pulley. Expansible	J. W. Hilland	678,665	July 16	2581	578	96	560
Pulley. Expansible	L. J. Johnston	679,076	July 23	3408	759	96	742
Pulley frame. Sash-	H. Harig	680,710	Aug. 20	1869	410	96	1457
Pulley. Reversible clutch-	L. E. Robinson	681,511	Aug. 27	3382	751	96	1777
Pulley. Self-contained speed-varying	F. W. Spaeke	681,145	Aug. 20	2677	591	96	1620
Pulley. Sheet-steel	A. E. Brion	680,691	Aug. 20	1808	399	96	1442
Pulley. Speed-varying	F. W. Spaeke	681,144	Aug. 20	2674	590	96	1619
Pulley. Wood	F. W. Gurney	680,964	Aug. 20	2408	531	96	1363
Pulley. Wood split	D. B. Baker	677,555	July 2	407	98	96	87
Pulleys. Bush for two-part belt-	F. Rohrbeck	679,338	July 30	3914	875	96	868
Pulp-digesters. Lining for	R. Morgeneier	681,242	Aug. 27	2871	637	96	1678
Pulp-digesters, &c. Valve for	J. H. Baker, G. F. Shevlin, and F. H. Baker.	682,838	Sept. 17	2165	489	96	2331
Pulp making. Disposing of the spent liquor in wood-	W. M. Stone	683,350	Sept. 24	3064	708	96	2535
Pulp-strainer	G. S. Witham	678,082	July 9	1424	328	96	810
Pulverizer	A. Schoellhorn and H. S. Albrecht	681,983	Sept. 3	624	133	96	1989
Pulverizer	A. Schoellhorn and H. S. Albrecht	681,984	Sept. 3	627	133 134	96	1990
Pulverizing-mill	W. M. Russell and F. P. Bixon	677,702	July 2	665	158 159	96	141
Pulverizing-mill	J. W. Drultt	683,256	Sept. 24	2901	665 666	96	2502
Pump	B. Russell	677,474	July 2	949	62, 63	96	54
Pump	J. Devantery	677,776	July 2	810	104	96	171
Pump	W. S. McLeod	678,009	July 9	1278	298	96	283
Pump	G. F. Conner	679,454	July 30	4157	983 984	96	918
Pump	L. E. Generelly	679,892	Aug. 6	333	71	96	1110
Pump	W. C. Whittaker and W. V. Turner	680,098	Aug. 6	701	156	96	1184
Pump	J. E. Irwin	682,469	Sept. 10	1469	333 334	96	2172
Pump	W. M. Rhoades	683,143	Sept. 24	2989	619	96	2458
Pump. Air-	N. Meyers	681,398	Aug. 27	3161	705	96	1735
Pump. Air-	E. Walther	681,597	Aug. 27	3538	786	96	1800
Pump. Air or gas	J. Patten	679,295	July 23	3695	835	96	808
Pump. Air or gas exhausting	M. Toupikof and C. K. Graham	680,184	Aug. 6	855	191	96	1215
Pump bucket or piston	F. D. Clinger	680,565	Aug. 13	1550	341	96	1369
Pump. Centrifugal	J. Richards	678,198	July 9	1635	377	96	852
Pump. Centrifugal	J. Richards	678,199	July 9	1636	377	96	853
Pump. Centrifugal	R. W. Christian	678,223	July 9	1661	385	96	862
Pump connection	R. M. Dyer	678,554	July 16	2331	535	96	511
Pump governor. Steam-	E. M. Carr	677,940	July 9	1162	267	96	260
Pump. High-pressure rotary	J. Richards	681,581	Aug. 27	3514	779 780	96	1805
Pump. Liquid-	T. E. Moon	681,807	Sept. 3	289	58	96	1923
Pump. Lubricating-	L. Friedmann	677,617	July 2	523	125	96	111
Pump mechanism for deep wells. Centrifugal	E. M. Ivens	682,989	Sept. 17	2351	531	96	2370
Pump. Rotary	M. Mauran	680,722	Aug. 20	1804	416 417	96	1403
Pump. Spraying-	J. Bean	682,902	Sept. 17	2279	514	96	2354
Pump. Steam and vacuum	A. G. Waterhouse	680,950	Aug. 20	2823	511	96	1548
Pump suction-valve	J. Klein	681,233	Aug. 27	2852	634	96	1674
Pump tubes or barrels. Strainer or filter for	L. H. Thompson	679,131	July 23	3501	788	96	762
Pumps. Steam-valve for duplex	W. J. P. Moore	682,808	Sept. 17	2100	475 476	96	2319
Pumping apparatus	M. T. and M. C. Chapman	677,438	July 2	189	46, 47	96	42
Pumping apparatus	J. E. Kirk	677,547	July 2	391	93	96	84
Pumping apparatus	G. A. Krohr	681,828	Sept. 3	322	65	96	1930
Pumping-engine. Steam	J. B. Poore	679,859	Aug. 6	966	57, 58	96	1097
Punch	H. P. and H. S. Jones	680,599	Aug. 13	1610	356	96	1381
Punch and gage. Center	E. M. Comstock	677,389	July 2	13	3	96	5
Punch. Center-	G. Schrade	677,475	July 2	251	68	96	55
Punch. Check-	C. F. Cooley	680,226	Aug. 13	941	211	96	1247
Punch. Combination ticket-	D. S. Lemen	682,208	Sept. 10	1007	226	96	2084
Punch, &c. Hydraulic	E. Graves	683,395	Sept. 24	3139	719 720	96	2551
Punching and riveting machine. Combined	F. Kossl and A. J. Kraft	681,328	Aug. 27	3049	677	96	1713
Punching and shearing machine	J. F. Doolittle	677,644	July 2	564	134 135	96	119
Punching-machine	B. F. Hall	682,686	Sept. 17	1846	425	96	2270
Punching-machine die and die-holder	B. F. Hall	682,613	Sept. 17	1729	395	96	2247
Punching nipples, &c. Machine for	R. G. Lockwood	682,626	Sept. 17	1747	401	96	2251
Purifying-machine. Centrifugal	O. Ohlson	680,270	Aug. 13	1012	227	96	1261
Push-wagon	T. Hill	680,251	Aug. 13	984	221	96	1255
Puzzle	G. L. Reenstierna	679,792	Aug. 6	115	26	96	1005
Puzzle	R. Scheloske	680,398	Aug. 13	1030	231	96	1264
Puzzle	J. P. Nolan	680,348	Aug. 13	1165	257	96	1291
Puzzle	W. P. Lyle	680,434	Aug. 13	1313	288	96	1321
Puzzle. Magnetic	J. L. Woolf	678,608	July 16	2461	552	96	536
Quinin methyl-dihydrazin perchlorate and making same.	M. Meyer	681,505	Aug. 27	3374	.....	96	1775
Quinin salicylic ether	F. Hofmann	678,401	July 16	2045	.....	96	450
Quolt	A. A. Low	678,205	July 9	1750	408	96	377

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rack: *See* Adjustable rack. Display-rack. Hay-rack. Oil-rack. Paper-rack. Pie-rack. Scale-rack. Tool-rack. Wagon-rack.							
Racking apparatus. Beer-	D. O. Paige	678,584	July 16	2411	540 541 542	96	525
Radiator	T. S. Martin	677,876	July 9	1021	240 241	96	235
Radiator	A. Stadel	679,920	Aug. 6	382	80	96	1118
Radiator	I. D. Smead	680,364	Aug. 13	1191	263	96	1296
Radiator	H. W. Struss	682,649	Sept. 17	1783	408	96	2258
Radiator	O. C. Trukenmiller	680,470	Aug. 13	1371	299	96	1333
Radiator. Resort-	E. P. Allen	677,551	July 2	400	95	96	85
Radiator-valve	E. P. Allen	677,552	July 2	401	96, 96	96	85
Radiator-valve	H. C. Wade	678,076	July 9	1412	324	96	308
Rail-bond	A. Markle	679,002	July 23	3221	721	96	706
Rail-bond	S. P. Cowardin	683,250	Sept. 24	2890	662	96	2490
Rail-bond. Electric	M. F. Whiton	678,821	July 16	2841	641	96	612
Rail-bonds to rails. Device for applying	J. H. McPartland	678,020	July 9	1296	296	96	296
Rail-clutch	W. M. Donahue	682,918	Sept. 17	2307	521	96	2260
Rail connection. Track-	H. H. Schwer	677,704	July 2	670	159	96	141
Rail-joint	F. Melaum	679,087	July 23	3425	783 784	96	746
Rail-joint	W. J. Evans	679,613	July 30	4468	1008	96	984
Rail-joint	J. Kaiser and W. Stocker	679,625	July 30	4488	1008	96	986
Rail-joint	E. A. Mitzner	679,902	Aug. 6	349	74	96	1113
Rail-joint	W. J. Devers	679,956	Aug. 6	462	97	96	1135
Rail-joint	G. Condiff	680,023	Aug. 6	569	123	96	1156
Rail-joint	W. J. McCrory	680,538	Aug. 13	1510	332	96	1302
Rail-joint	W. L. Casaseur	681,038	Aug. 20	2499	554	96	1582
Rail-joint	L. C. Cyphers	681,043	Aug. 20	2507	555	96	1584
Rail-joint	P. E. Gavin	681,449	Aug. 27	3270	727	96	1756
Rail-joint	J. Quinn	681,507	Aug. 27	3376	749	96	1776
Rail-joint	A. W. Beach	682,400	Sept. 10	1848	305	96	2148
Rail-joint	J. P. Heuer	682,468	Sept. 10	1468	333	96	2172
Rail-joint	C. A. Carbaugh	682,911	Sept. 17	2294	518	96	2256
Rail-joint	T. E. Brown	683,018	Sept. 24	2494	566	96	2418
Rail-joint	J. Gillen	683,085	Sept. 24	2516	572	96	2423
Rail-point	W. A. McKnight	682,112	Sept. 3	833	185 186	96	2080
Rail-splice nut-lock	A. H. Armstrong	681,904	Sept. 3	469	96	96	1958
Rail-tie	P. W. Flanders	682,924	Sept. 17	2321	524	96	2263
Railway	G. Larson	677,456	July 2	218	54	96	48
Railway. Amusement-	E. A. Green	678,943	July 9	1714	398	96	369
Railway appliance	L. T. Sheffield	679,341	July 30	3918	876	96	869
Railway-bed	J. R. Smith	679,807	Aug. 6	285	62	96	1100
Railway-beds. Tank-car for preventing vegetable growth on	S. P. E. Erickson	677,445	July 2	208	50	96	45
Railway brake. Single-track-	L. M. Hosea	679,676	July 30	4361	1029	96	1008
Railway-carriages from injury in case of collision. Means for preserving	E. Bachelier	680,831	Aug. 20	2110	460	96	1505
Railway-carriages. System for electrically lighting	E. Dick	682,978	Sept. 17	2413	546 547	96	2282
Railway-conductor bond. Electric-	W. F. Jenkins	682,710	Sept. 17	1908	434	96	2281
Railway conduit. Electric-	W. F. Jenkins	682,711	Sept. 17	1909	434	96	2281
Railway contact device. Conduit electric	W. F. Jenkins	682,705	Sept. 17	1899	432	96	2279
Railway contact device. Conduit electric	W. F. Jenkins	682,706	Sept. 17	1901	433	96	2280
Railway contact device. Conduit electric	W. F. Jenkins	682,707	Sept. 17	1908	433	96	2280
Railway contact device. Electric-	W. M. Brown	682,165	Sept. 10	981	209	96	2070
Railway cross-tie	J. Lanz	680,385	Aug. 13	1190	249 250	96	1288
Railway-crossing	S. C. Ball and J. J. Gibson	679,874	Aug. 6	300	64	96	1108
Railway-crossing frog	E. Poulin, Jr	681,077	Aug. 20	2567	567 568	96	1597
Railway-crossing structure	H. C. Stiff	678,998	July 23	3199	716	96	701
Railway danger-signal	C. S. Dean	683,422	Sept. 24	3002	734 735	96	2563
Railway. Electric	F. M. Ashley	677,848	July 9	964	226 227	96	223
Railway. Electric	F. M. Ashley	677,849	July 9	965	227	96	224
Railway. Electric	J. M. Anck	678,213	July 9	1663	368	96	358
Railway. Electric	E. M. Hewlett	679,314	July 30	3866	865	96	858
Railway. Electric	W. Chapman	681,089	Aug. 20	2600	554	96	1582
Railway. Electric-switch	A. L. Hatfield	677,778	July 2	812	194	96	172
Railway foot-guard	W. Driscoll	680,571	Aug. 13	1558	343	96	1371
Railway-frog	H. Elliot	677,646	July 2	570	135	96	120
Railway-frog	H. Elliot	677,647	July 2	571	135	96	120
Railway-frog	D. F. Vaughan	682,863	Sept. 17	2213	500	96	2241
Railway-frog	G. B. Donnelly	682,136	Sept. 3	872	195	96	2037
Railway-frog clamp	W. H. Pritchard	683,223	Sept. 24	2635	650	96	2495
Railway-frog. Portable	L. Carrier	679,496	July 30	4354	957 958	96	987
Railway-gate	H. Siegmann	678,430	July 16	2089	475 476	96	458
Railway-gates. Device for automatically closing or opening	G. T. Perkins and M. Hill	681,075	Aug. 20	2564	567	96	1596
Railway-joint	F. A. Merrick and E. W. Stull	681,458	Aug. 27	3280	729 730	96	1758
Railway-motor controller. Electric-	J. K. Ewart	680,768	Aug. 20	1979	484 485	96	1480
Railway or other wagons. Brake mechanism for	J. B. McCune	679,391	July 30	4048	908	96	898
Railway-rail	F. C. Anderson	681,908	Sept. 3	468	96	96	1958
Railway-rail frog	R. J. McCarty	678,006	July 9	1273	298	96	298
Railway-rail joint	R. B. Charlton	680,195	Aug. 6	874	194	96	1219
Railway-rail joint							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway-rail joint	R. B. Charlton	680,197	Aug. 6	877	195	96	1220
Railway-rail-joint plate	R. B. Charlton	680,196	Aug. 6	875	195	96	1220
Railway-rails. Device for applying sand to	E. F. de Witt	677,833	July 2	926	220	96	194
Railway-road furnace	S. B. Hynes and W. N. Best	678,621	July 16	2493	557	96	548
Railway rolling-stock. Draft-gear for	C. Vanderbilt	678,801	July 16	2795	629 630	96	600
Railway rolling-stock. Underframing for	G. I. King	678,958	July 23	3149	705	96	691
Railway-signal	M. F. Walker	678,818	July 16	2836	639	96	611
Railway signal. Electric-	H. T. Gibbs	681,780	Sept. 3	247	47, 48	96	1914
Railway signaling	F. McBrien	681,080	Aug. 20	2478	549	96	1578
Railway signaling	J. Roth and W. Helmke	681,377	Aug. 27	3135	695 696 697	96	1730
Railway signaling. Detonator for	V. von Neuman	677,387	July 2	91	19	96	22
Railway signaling system. Wireless electric-	L. C. Werner	677,828	July 2	912	217 218	96	192
Railway-sleeper and rail support and connection	G. A. Owen	680,272	Aug. 13	1015	228	96	1261
Railway-spike	C. Johnson	682,712	Sept. 17	1911	434	96	2222
Railway. Surface-contact	P. Farnsworth	677,956	July 9	1208	278	96	269
Railway. Surface-contact	W. B. Potter	679,332	July 30	3903	873	96	866
Railway-switch	H. Sage	679,189	July 23	3620	807 808	96	788
Railway-switch	D. Gruhlkey	679,225	July 23	3678	820	96	800
Railway-switch	G. W. Cantrell and W. J. Empey	679,386	Aug. 6	325	69	96	1108
Railway-switch	G. Moore	680,537	Aug. 13	1506	331 332	96	1361
Railway-switch	S. W. Baer	680,634	Aug. 13	1665	368	96	1398
Railway-switch	C. H. Wilson	681,469	Aug. 27	3309	736	96	1764
Railway-switch	W. S. Armstrong	681,665	Aug. 27	3691	826	96	1841
Railway-switch	J. W. Gordon	682,058	Sept. 3	747	169	96	2012
Railway-switch	J. M. Clifford	683,383	Sept. 24	3121	715	96	2547
Railway-switch and automatic operating device	J. W. Koch	682,717	Sept. 17	1917	436	96	2265
Railway-switch. Automatic	C. F. Luther	680,388	Aug. 13	1126	250	96	1284
Railway-switch. Automatically-operated	I. Robbins	683,294	Sept. 24	2896	650 651	96	2485
Railway switch-bars. Device for operating	J. S. Love	679,682	July 30	4589	1031	96	1010
Railway-switch mechanism	A. C. Wolfe	678,084	July 9	1428	329 330	96	310
Railway-switch-operating apparatus	W. D. Wood	679,582	July 30	4414	998	96	972
Railway-switch safety-lock	J. Noble	682,265	Sept. 10	1117	253	96	2104
Railway switch. Street-	J. Simmerman	677,899	July 9	1042	245	96	228
Railway switch. Street-	F. G. Smith	682,151	Sept. 3	898	200 201	96	2043
Railway switching apparatus	J. D. Taylor	681,589	Aug. 27	3526	782 783	96	1807
Railway system. Electric-	G. T. Woods	678,086	July 9	1430	330	96	311
Railway system. Electric-	W. B. Potter	679,331	July 30	3900	872	96	866
Railway system. Pneumatic-	C. Comstock	680,843	Aug. 20	2132	466 467	96	1509
Railway systems. Crossover-switch for electric-	W. D. Young	681,605	Aug. 27	3557	791	96	1812
Railway systems. Feeder-cable holder for electric-	W. D. Young	681,604	Aug. 27	3556	790	96	1812
Railway-tie	J. Booth	679,211	July 23	3656	815	96	795
Railway-tie	F. Mingler	680,460	Aug. 13	1358	296 297	96	1331
Railway-tie	A. Williams	682,011	Sept. 3	679	146	96	1998
Railway-tie	B. F. White	683,180	Sept. 24	2716	605	96	2464
Railway-tie. Metallic	J. C. Fitzsimmons	678,463	July 16	2158	487	96	472
Railway-tie. Metallic	J. S. Flegal	678,464	July 16	2158	487	96	472
Railway-tie. Metallic	R. Raby	681,508	Aug. 27	3377	749 750	96	1776
Railway-tie plate	D. O. Ward	682,895	Sept. 17	2266	511	96	2252
Railway-track	H. E. Jackson	680,153	Aug. 6	798	177	96	1204
Railway-track	C. H. McDermott	681,597	Aug. 27	3478	772	96	1797
Railway-track appliance	J. W. Stephenson	681,880	Sept. 3	311	63	96	1927
Railway-track cleaner	M. Power	677,696	July 2	653	156	96	137
Railway-track lifting-jack	G. F. Bentley	681,775	Sept. 3	283	45	96	1911
Railway-track structure	W. E. Prindle	681,968	Aug. 27	3912	845	96	1686
Railway-tracks. Aligning-bar for	F. H. Koelling	680,333	Aug. 13	1118	249	96	1288
Railway-tracks. Electric circuit-closer for	F. Sock	683,230	Sept. 24	2842	653	96	2488
Railways. Contact device for electric	G. Westinghouse	680,894	Aug. 20	2095	456 457	96	1501
Railways. Current-collector or trolley for electric	W. Grunow, Jr	678,559	July 16	2347	528	96	514
Railways. Electric system for	D. S. Bergin	681,998	Aug. 27	3976	861	96	1700
Railways. Electromagnetic safety system for	C. M. Cronkite	681,474	Aug. 27	3314	737	96	1765
Railways. Gripping device for suspended cable or rope	R. Pfaffenbach	682,257	Sept. 10	1130	254 255	96	2105
Railways. Suspensory device for trailing contacts for conduit electric	W. F. Jenkins	682,708	Sept. 17	1905	433	96	2281
Railways. System of bonding or jointing rails in	L. A. Farnet	682,051	Sept. 3	739	160	96	2010
Railways. Underground electric conductor for street-	J. Floyd	679,615	July 30	4470	1004	96	984
Rake: *See* Hay-rake. Lawn-rake.							
Rake-cleaning attachment	W. R. Dawson	677,774	July 2	807	193	96	171
Ram-machine for paving	W. Timm	678,918	July 23	3062	685	96	675
Ramie fiber. Treating	H. Linnekogel	679,508	July 30	4277		96	941
Rammer. Mechanical	R. Matthews	682,100	Sept. 3	814	180 181 182	96	2026
Range-boiler water-heater	J. J. Cunningham	679,552	July 30	4359	979	96	960
Ratchet-drill	J. Petterson	678,128	July 9	1508	348	96	328
Ratchet. Reversible	L. Adams	683,167	Sept. 24	2798	628	96	2465
Ratchet-wrench	E. C. Webster	679,929	Aug. 6	406	96	96	1128

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Razor. Safety	A. W. Scheuber	679,639	July 30	4510	1013 1014	96	991
Razor-strop	W. G. Mosier	678,676	July 16	2596	582	96	562
Razor-strop	E. E. Gerfen	681,020	Aug. 20	2462	545	96	1575
Razor-strop	J. H. Keating	682,358	Sept. 10	1278	288	96	2138
Razor-strop	H. S. Hunt	679,170	July 23	3577	799	96	778
Receptacle. Metallic	R. C. Hopkins	682,790	Sept. 17	2083	471	96	2315
Receptacle. Sheet-metal	A. L. Baron and J. F. Haffey	677,850	July 9	966	227	96	224
Receptacle-top	G. F. Smith	681,880	Sept. 3	441	99	96	1952
Reclining-chair	J. W. Cutrer	678,229	July 9	1602	388	96	365
Record	F. R. Welsh and R. H. Breeding	678,705	July 16	2632	593	96	570
Record and index. Card	W. D. Hawley	680,145	Aug. 6	773	172	96	1198
Record-sheet							
Recorder: *See* Time-recorder.							
Recording device	I. Kitsee	682,205	Sept. 10	1001	225	96	2083
Reducing-furnace	C. Bishop	683,375	Sept. 24	3108	711	96	2544
Reed for creel-frames	H. E. Adams and O. R. Stapfer	682,777	Sept. 17	2043	461	96	2307
Reel: *See* Binder-reel. Fence-reel. Clothes-line reel. Hose-reel.							
Reel-carrier	W. M. Barger	681,182	Aug. 27	2763	614	96	1657
Reel-latch	W. L. Norden	683,411	Sept. 24	3183	729	96	2530
Reel line-guide	H. Krueger	679,850	Aug. 6	251	53	96	1094
Reflector	F. W. Cox	678,942	July 23	3111	697	96	684
Reflector	A. B. Conde	682,602	Sept. 17	1708	389	96	2244
Reflector	K. C. Wideen	683,164	Sept. 24	2723	626	96	2465
Reflector. Curved	R. J. Friswell	682,140	Sept. 3	879	.....	96	2039
Refractory materials. Manufacture of	J. Irr, Jr	681,056	Aug. 20	2529	559	96	1588
Refrigerating and tapping box	W. W. Harris	681,314	Aug. 27	3082	672 673	96	1710
Refrigerating apparatus	W. Wilson	683,239	Sept. 24	2859	657	96	2491
Refrigerating-machine. Absorption	C. J. Coleman	677,845	July 2	951	234	96	200
Refrigeration system	W. Thomas	677,380	July 2	80	17	96	19
Refrigerator	M. Bensinger	677,481	July 2	176	43	96	40
Refrigerator	A. F. Villepigue	677,481	July 2	257	64	96	56
Refrigerator	J. S. Wrightnour	677,887	July 2	984	222	96	196
Refrigerator	P. J. Daemicke	678,612	July 16	2467	553	96	687
Refrigerator	J. R. Simms	680,004	Aug. 6	589	115	96	1151
Refrigerator	E. H. Giesy	682,589	Sept. 10	1679	368 368	96	2214
Refrigerator-building frost-guard	W. B. Carney, L. and C. Schwarz	679,526	July 30	4312	969	96	949
Refrigerator-car	J. Hommel	679,966	Aug. 6	482	101	96	1139
Refrigerator shelf-support	C. P. Coffin	682,695	Sept. 3	717	156	96	2006
Refuse-burner	A. W. Cox and D. M. Leland	678,863	July 23	2943	662	96	651
Register: *See* Automatic register. Fare-register. Cash-register.							
Register	P. S. Stauffer	679,789	Aug. 6	196	28	96	1067
Register	H. H. Breeden	680,562	Aug. 13	1545	340	96	1368
Register, ventilator, or the like	H. S. Hart	680,657	Aug. 13	1729	390	96	1406
Registering-chair	H. Shuart and O. B. Thompson	681,989	Sept. 3	634	135	96	1992
Registering device	H. Goldman	681,781	Sept. 3	250	48	96	1915
Regulator: *See* Blind-regulator. Damper-regulator. Draft-regulator. Electric regulator. Electro-motor regulator. Feed-regulator. Feed-water regulator. Pressure-regulator. Speed-regulator. Watch compensation-regulator.							
Regulator	D. H. Haywood	677,702	July 2	778	187 188	96	165
Rein-holder	C. A. Conger	679,951	Aug. 6	449	94	96	1131
Rein support and lock	A. F. Vorkeller	677,722	July 2	701	167	96	149
Relay	R. Herman	677,659	July 2	596	142	96	126
Releasing animals from stables. Device for	W. H. Underwood	682,652	Sept. 17	1786	409	96	2268
Releasing device. Dog-	J. E. Nightingale	680,268	Aug. 13	1009	227	96	1260
Releasing device. Stock-	J. W. Collins	682,320	Sept. 10	1216	276	96	2121
Repair-tool	G. W. Bolton, Jr	682,401	Sept. 10	1349	305	96	2148
Resawing-machine	W. J. Burt	682,909	Sept. 17	2201	516 517	96	2357
Reservoirs automatically. Apparatus for filling or emptying	J. L. A. Meyssonnier	682,480	Sept. 10	1488	338	96	2176
Resistance device	C. W. Larson	678,887	July 23	2999	672	96	662
Resonator	J. F. Skirrow	682,433	Sept. 10	1408	318	96	2160
Respirator	H. S. Cover	681,622	Aug. 27	3598	797	96	1819
Respirator hood	G. A. Cooper	682,455	Sept. 10	1451	329	96	2168
Reversing mechanism	H. L. Arnold	677,493	July 2	275	60	96	60
Revolver	J. J. Peard	680,274	Aug. 13	1021	229	96	1262
Revolver safety device	D. B. Wesson	682,397	Sept. 10	1344	304	96	2147
Revolving adjustable kiln	W. Leesing	678,411	July 16	2051	468	96	458
Revolving chair	J. Ellenbecker	679,958	Aug. 6	466	98	96	1126
Revolving chair	J. M. Germanson	682,795	Sept. 17	2076	470	96	2314
Revolving chair	J. Ellenbecker	682,844	Sept. 17	2178	492	96	2344
Rewinding and inserting mechanism	H. F. Bechman	680,111	Aug. 6	782	160	96	1188
Rheostat	F. E. Case	677,941	July 9	1163	267 268	96	260
Rheostat	T. S. Perkins	680,808	Aug. 20	2069	450	96	1496
Rheostats operated by means of compressed air. Apparatus for cutting into and out of circuit liquid	K. von Kandó	677,454	July 2	216	53	96	47
Ribbed pipe	W. B. Williams	679,350	July 30	3048	689	96	876
Ribbon-shifting mechanism	C. Spiro	681,892	Sept. 3	445	90	96	1953
Ribbon-spool and ribbon	M. Merk	681,719	Sept. 3	105	20	96	1885
Rifle. Boy's drill-	A. B. Mellis	679,768	Aug. 6	97	23	96	1061
Rifle. Repeating air-	C. J. Hamilton	679,670	July 30	4562	1026	96	1003
Rifles. Subcaliber mechanism for breech-loading	L. L. Driggs	679,115	July 23	3476	777	96	757

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Ring: *See* Key-ring. Spinning-ring.							
Rivet-feeding apparatus	F. W. Stapf	677,711	July 2	683	162	96	144
Rivet-making machine	J. R. Blakeslee	680,217	Aug. 13	924	206 207 208	96	1244
Rivets or clamps. Machine for forming and fastening	F. Kaulfersch	681,709	Sept. 3	73	15, 16	96	1879
Riveting-machine	C. J. Carney and J. C. Gorton	681,873	Sept. 3	405	81, 82	96	1946
Roadway	F. Malette and E. Seybolt	683,056	Sept. 24	2546	581	96	2429
Roasting-furnace	B. Hall	677,510	July 2	309	76, 77	96	66
Roasting-furnace	L. T. Wright. (Reissue)	11,932	Sept. 17	2483	563 564	96	2396
Rock and ore pulverizer	T. W. Capen	682,170	Sept. 10	989	211	96	2071
Rock-drill	O. G. Worsley	681,011	Aug. 20	2441	539	96	1570
Rock-drill	C. Hultquist	681,504	Aug. 27	3372	749	96	1775
Rock-drill cutter	J. Wallace, D. F. Irwin, and J. H. Smith.	681,381	Aug. 27	3143	700	96	1781
Rock-drill. Valveless	R. L. Ambrose	681,428	Aug. 27	3217	716	96	1745
Rock-drilling machine	M. C. Jackson	683,401	Sept. 24	3167	726	96	2557
Rock. Treating metal-bearing	T. J. Lovett	679,901	Aug. 6	347	74	96	1113
Rocking-chair	C. L. Santee	679,864	Aug. 6	280	61	96	1099
Rocking-chair, couch, and merry-go-round. Convertible	A. Bremser and J. M. Fultz	682,234	Sept. 10	1065	240	96	2094
Rod: *See* Pitman-rod. Stadia-rod.							
Roller: *See* Driving-roller. Land-roller.							
Rolling gate	E. D. Schmucker	679,340	July 30	3017	676	96	809
Rolling metal to thin gages. Apparatus for hot-	T. V. Allis. (Reissue)	11,927	Aug. 20	2744	608 609	96	1632
Rolling metal to thin gages. Hot-	T. V. Allis. (Reissue)	11,928	Aug. 20	2747	609	96	1633
Rolling-mill	T. Bunker	679,413	July 30	4078	909	96	903
Rolling-mill	R. H. Snyder	679,919	Aug. 6	380	80	96	1118
Rolling-mill	S. V. Huber	680,978	Aug. 20	2376	523 524	96	1558
Rolling-mill. Automatic sheet-metal	E. Norton	680,998	Aug. 20	2417	533 534 535	96	1565
Rolling-mill roll	C. Hüser	678,666	July 16	2583	578	96	560
Rolling-mill run-out mechanism	S. V. Huber	681,642	Aug. 27	3630	807 808 809 810 811 812	96	1829
Roof-bracket	J. L. Chase	681,649	Aug. 27	3653	818	96	1833
Roof-valley	J. W. Carnes	678,995	July 23	3211	719	96	704
Roofing compound	C. W. Walker	678,922	July 23	3065	.....	96	675
Roofing-seamer	W. C. Bell	679,719	Aug. 6	5	2	96	1044
Rope-clamp	J. P. Duvall	678,806	July 23	2948	604	96	652
Rope-clamp	L. Furman	680,481	Aug. 13	1396	305	96	1338
Rope-fastener	S. S. Bancker	678,533	July 16	2295	517	96	508
Rope-grip	H. Hansel	678,246	July 9	1717	394	96	370
Rope-making machine. Manila-	H. Ryder	682,751	Sept. 17	1982	449	96	2295
Rope. Manila	H. Ryder	682,641	Sept. 17	1773	404 405	96	2256
Rope or wire stretcher	J. W. Angle	681,291	Aug. 27	2973	660	96	1699
Rope-socket	J. C. Swan	683,353	Sept. 24	3069	704	96	2536
Rosette	H. T. Paiste	682,114	Sept. 3	838	187	96	2031
Rotary cutter	I. Chorlton and W. J. Wentworth	680,225	Aug. 13	940	211	96	1247
Rotary cutter mechanism	A. B. Calkins	682,787	Sept. 17	2061	466 467	96	2311
Rotary engine	E. E. Albert	677,531	July 2	348	84	96	75
Rotary engine	T. R. Bellas	677,752	July 2	761	182 183	96	161
Rotary engine	J. S. Harger	678,338	July 9	1907	438	96	405
Rotary engine	J. Keith	678,495	July 16	2240	504	96	491
Rotary engine	H. F. Farley	678,652	July 16	2554	572	96	554
Rotary engine	M. Keller	678,740	July 16	2697	607 608	96	582
Rotary engine	H. A. Buck	679,106	July 23	3458	771	96	752
Rotary engine	G. W. Smith	679,129	July 23	3490	782	96	762
Rotary engine	I. Hermanson	679,229	July 23	3632	821	96	801
Rotary engine	J. A. McKenzie	679,392	July 30	4040	903	96	898
Rotary engine	E. L. Spencer	679,689	July 30	4603	1033	96	1013
Rotary engine	H. A. Benson	679,936	Aug. 6	418	88	96	1125
Rotary engine	H. A. Benson	679,937	Aug. 6	422	89	96	1126
Rotary engine	F. S. Pickering	680,068	Aug. 6	648	142 143	96	1173
Rotary engine	W. S. Holcomb and D. H. Thurston	680,252	Aug. 13	986	221	96	1255
Rotary engine	E. C. Long	680,259	Aug. 13	995	224	96	1257
Rotary engine	P. English and L. Cooney, Jr	680,478	Aug. 13	1390	303 304	96	1337
Rotary engine	P. English and L. Cooney, Jr	680,479	Aug. 13	1392	304	96	1337
Rotary engine	E. C. Warren	680,509	Aug. 13	1447	318 319 320	96	1347
Rotary engine	E. C. Warren	680,510	Aug. 13	1453	320 321 322	96	1349
Rotary engine	J. T. Bootes	680,685	Aug. 13	1667	368 369	96	1898
Rotary engine	J. L. Walker	680,747	Aug. 20	1941	425	96	1473
Rotary engine	F. Fuchs	681,587	Aug. 27	3426	760	96	1787

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rotary engine	J. W. Hicks	681,914	Sept. 3	486	99	96	1962
Rotary engine					100		
Rotary engine	A. Kitchen	681,919	Sept. 3	496	102	96	1964
Rotary engine	L. C. Maltby	681,923	Sept. 3	508	104	96	1965
Rotary engine	H. Hestand and A. R. Matthews	682,073	Sept. 3	770	167	96	2016
					168		
Rotary engine	J. A. Groshon	682,251	Sept. 10	1091	247	96	2099
					248		
Rotary engine	F. A. Headson	682,255	Sept. 10	1101	249	96	2101
					250		
Rotary engine	F. A. Headson	682,556	Sept. 10	1108	250	96	2101
Rotary explosive-engine	W. B. Cuthbertson	677,949	July 9	1177	271	96	263
					272		
Rotary explosive-engine	J. D. McFarland, Jr	682,385	Sept. 10	1320	298	96	2142
Rotary motor	J. T. Copithorn	681,843	Sept. 3	350	70	96	1985
Roundhouse	E. F. Brady	677,929	July 9	1142	262	96	257
					263		
Rounding and channeling machine	A. B. Fowler	682,679	Sept. 17	1831	421	96	2267
					422		
Roving-machines, &c. Means for preventing singles in	T. Bentley	681,612	Aug. 27	3571	794	96	1815
Roving, spinning, or analogous machine	T. A. Boyd	680,017	Aug. 6	559	120	96	1155
Rowlock	M. S. Berry	677,932	July 9	1147	264	96	258
Rubber adulterant. Preparing	W. V. McManus	680,266	Aug. 13	1006	226	96	1260
Rubber articles. Machine for manufacturing	F. H. Turner	680,086	Aug. 6	677	151	96	1150
Rubber cement	L. R. Moore	680,387	Aug. 13	1233	.....	96	1305
Rubber-dam holder	L. A. Young	682,308	Sept. 10	1198	271	96	2118
Rubber. Extracting india-	A. V. L. Verneuil, A. L. Godefroy-Lebeuf, and A. L. Arnaud.	679,404	July 30	4066	.....	96	901
Rubber or gutta-percha substitute	A. Cairns	680,426	Aug. 13	1298	.....	96	1318
Rudder	J. Marolf	682,476	Sept. 10	1484	337	96	2175
Rug-straightener	G. T. Weeks	677,725	July 2	710	168	96	150
Rug stretching and drying apparatus	A. S. Lyon	681,922	Sept. 3	502	104	96	1965
Rule and square. Combined	W. F. Puffer	682,637	Sept. 17	1765	403	96	2254
Rule attachment. Compound	G. Y. Carter	683,247	Sept. 24	2896	662	96	2499
Rule. Folding	W. M. Myers	678,005	July 9	1271	292	96	282
Rule. Slide-	E. Thacher	677,817	July 2	890	213	96	187
Rules. Manufacture of etched metal	J. Campbell	679,599	July 30	4446	999	96	979
Ruler	J. Elchert	678,650	July 16	2552	571	96	554
Ruler. Adjustable curved	P. A. Gagarin	677,349	July 2	28	6	96	8
Ruler. Parallel-	H. Goldman	677,777	July 2	811	194	96	172
Ruler. Parallel-	A. H. Buhner	682,452	Sept. 10	1446	328	96	2167
Sack-holder	W. M. and C. C. Inman	680,381	Aug. 13	1224	269	96	1308
Sack holder. Grain-	F. W. Flakker	678,387	July 16	2018	458	96	445
					459		
Sad-iron	T. C. Edwards	679,256	July 23	3738	835	96	811
Sad-iron	A. T. Beach	680,216	Aug. 13	927	205	96	1244
Sad-iron	G. R. Ford	680,970	Aug. 20	2305	520	96	1556
Sad-iron	E. K. Tolman	682,121	Sept. 3	850	190	96	2034
Sad-iron	K. A. Kaiser	683,298	Sept. 24	2967	680	96	2515
Sad-iron	P. C. Greenawalt	680,143	Aug. 6	771	172	96	1198
Sad-irons. Detachable handle for	J. J. Schorp and G. Siglinger	678,202	July 9	1641	378	96	334
Saddle. Harness-	G. Walker	681,940	Sept. 3	546	115	96	1975
Saddle. Harness-	A. G. Thompson	682,890	Sept. 17	2261	510	96	2351
Saddle. Harness-	J. A. Shaw-Mackenzie and E. A. Crowsley.	677,705	July 2	671	159	96	141
Saddle or seat support	G. H. Thompson	683,155	Sept. 24	2710	624	96	2462
Saddler's clamp	M. Mosler	682,221	Sept. 10	1096	233	96	2086
Safe	C. A. Berry	680,686	Aug. 20	1801	396	96	1440
					397		
Safe boltwork mechanism	H. D. Hibbard	679,381	July 30	4028	898	96	894
Safe. Cellular	H. D. Hibbard	679,372	July 30	4002	894	96	886
Safe or vault	H. D. Hibbard	679,380	July 30	4025	898	96	893
Safe or vault	H. D. Hibbard	679,382	July 30	4029	898	96	894
					899		
Safe or vault	H. D. Hibbard	679,379	July 30	4022	897	96	892
Safe or vault door bolting mechanism	H. D. Hibbard	679,374	July 30	4006	895	96	887
Safe or vault doors. Bolt mechanism for	H. D. Hibbard	679,375	July 30	4010	895	96	888
Safe or vault false front	H. D. Hibbard	679,376	July 30	4011	895	96	889
Safe or vault front	H. D. Hibbard	679,378	July 30	4017	896	96	890
					897		
Safe or vault locking mechanism	H. D. Hibbard	679,373	July 30	4005	894	96	887
Safe or vault plate	H. D. Hibbard	679,371	July 30	3997	893	96	885
Safe or vault plate fastening	A. T. Metcalf and V. D. Simons	680,982	Aug. 20	2387	526	96	1560
Safes. Burglar-proof device for	T. W. Pitts	678,626	July 16	2506	560	96	545
Safety-pin	B. Reuter	680,278	Aug. 13	1026	.....	96	1263
Salicylate of dimethyl-amido-phenyl-dimethyl-pyrazolone and making same.	P. H. Coward	681,407	Aug. 27	3174	707	96	1737
Salt. Obtaining	H. E. T. Haultain	680,526	Aug 13	1488	327	96	1357
Sampling apparatus	W. H. Robinson	677,598	July 2	482	116	96	102
Sand-band	A. G. Warren	682,579	Sept. 10	1663	379	96	2211
Sand-blast apparatus. Mixer for	A. F. Bardwell	681,967	Sept. 3	392	79	96	1944
Sand-blast machine	C. I. Dorn	679,899	Aug. 6	329	70	96	1109
Sand-line and pump or bailer connection	D. E. Oliver	678,682	July 16	2602	584	96	564
Sand-pipe. Adjustable	M. Latta	679,681	July 30	4588	1030	96	1010
Sand-point	L. T. Penn	681,729	Sept. 3	124	28	96	1889
Sand-shield	G. K. Hooper	678,498	July 16	2225	.....	96	487
Sand. Tempering molding-	M. C. L. Althausse	679,302	July 23	3644	.....	96	798
Saponin solutions. Producing pure	W. A. Crew	677,640	July 2	554	132	96	117
Sarcophagus	J. H. Wallace and A. G. Hilton	678,600	July 16	2444	549	96	532
Sash-balance	J. H. Wallace and A. G. Hilton	681,863	Sept. 3	386	78	96	1943
Sash-balance	J. H. Wallace and A. G. Hilton	681,864	Sept. 3	389	79	96	1945
Sash-balance	J. H. Wallace and A. G. Hilton	681,866	Sept. 3	391	79	96	1944
Sash-balance	C. H. Ocumpaugh	679,904	Aug. 6	362	75	96	1118
Sash-band fastener	J. C. and V. E. Barr	681,385	Aug. 27	3148	701	96	1732
Sash-cord fastener	O. Williams	677,486	July 2	265	66, 67	96	58
Sash, door, or shutter fastening device							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sash-fastener	O. Williams	680,749	Aug. 20	1945	426	96	1473
Sash-fastener	B. B. Barber	681,404	Aug. 27	3171	706	96	1737
Sash-frame	L. H. Jordan	682,199	Sept. 10	991	223	96	2081
Sash holder and fastener	O. Williams	678,604	July 16	2449	550	96	538
Sash-holding device	A. G. Tidd	681,379	Aug. 27	3140	699	96	1730
Sash lift and lock. Combined	C. H. Hawkinson	677,981	July 9	1237	284	96	276
Sash-lock	H. L. Loomis	679,464	July 30	4176	938	96	922
Sash-lock	J. N. Rees	680,811	Aug. 20	2073	451	96	1497
Sash-lock. Automatic	J. A. McCandless	677,367	July 2	63	14	96	16
Sash-rack	J. H. Wallace and A. G. Hilton	681,865	Sept. 3	390	79	96	1944
Sash. Window-	J. C. Weller	681,009	Aug. 20	2440	530	96	1570
Sashes. Keeper-plate for fasteners of	O. Williams	680,954	Aug. 20	2333	512	96	1550
Saw-blade handle	D. A. Dugan	677,679	July 2	627	150	96	132
Saw. Circular hand-	J. V. Risk	682,868	Sept. 17	2219	501	96	2342
Saw-clamp	W. F. Barnes	682,277	Sept. 10	1140	258	96	2109
Saw. Crosscut gang-	J. G. Gardner	683,268	Sept. 24	2919	669	96	2505
Sawdust, &c. Treating	J. E. Hillstrom	679,748	Aug. 6	58	14, 15	96	1053
Saw-filing machine	C. F. Fowler	677,406	July 2	122	28	96	28
Saw-gage	W. E. Allen	683,373	Sept. 24	3104	710	96	2544
Saw guide. Band-	C. G. Wells	679,653	July 30	4583	1019	96	996
Saw. Hand-	L. K. Haak	683,117	Sept. 24	2649	609	96	2450
Saw-handle	J. L. Grant	678,658	July 16	2569	575	96	557
Sawmill	Z. Z. Linton	679,085	July 23	3421	782	96	745
Saw-mill attachment. Band-	J. Scherer	679,087	July 23	3295	787	96	720
Sawmill set-works	J. T. Hildahl	677,354	July 2	37	9	96	10
Saw-set	C. L. Driefer	678,648	July 16	2547	570	96	538
Saw-set	B. Everaerd	679,017	July 23	3258	728	96	713
Saw-set	W. M. Dickerson	680,232	Aug. 13	948	213	96	1249
Saw-set	E. J. Hicks	681,055	Aug. 20	2528	559	96	1588
Saw-setting machine	J. F. Wood	679,249	July 23	3719	830	96	807
Saw-teeth. Means for attaching	E. E. Harris	682,614	Sept. 17	1731	395	96	2248
Saw-tooth gage	W. McKnight	679,634	July 30	4496	1011	96	999
Saw-tooth-setting apparatus	J. Gottsmann	680,484	Aug. 13	1401	306	96	1339
Saws, &c. Apparatus or engine for reciprocating	J. Evered	680,136	Aug. 6	756	168	96	1195
Sawing-machine	C. Seymour	680,078	Aug. 6	667	147	96	1177
					148		
Sawing machine. Cold-	H. Untiedt	680,089	Aug. 6	685	152	96	1181
Sawing or cutting machine	R. P. Gerlach	678,729	July 16	2582	604	96	579
Scaffold	S. A. Brooks	682,783	Sept. 17	2054	465	96	2309
Scaffold. Folding	E. Enos	679,959	Aug. 6	468	96	96	1136
Scaffold. Window-	R. Guenther	678,115	July 9	1484	342	96	328
Scale-beam with indicating-poise	D. M. Winans	679,010	July 23	3289	724	96	710
Scale. Computing-	T. L. Tincher	679,708	Aug. 6	139	31	96	1070
Scale. Computing-	C. M. Merrill	680,796	Aug. 20	2039	445	96	1490
					446		
Scale. Computing-	W. C. Whitney	682,373	Sept. 10	1901	293	96	2138
Scale. Computing spring-	L. B. Thomas	680,085	Aug. 6	676	150	96	1179
Scale dial. Computing-	L. B. Thomas	679,795	Aug. 6	135	30	96	1069
Scale. Price-	J. W. Points	677,794	July 2	840	200	96	177
					201		
Scale-rack	H. A. Cantrill	682,169	Sept. 10	938	211	96	2071
Scale-removing device	G. W. Dean	682,044	Sept. 3	730	158	96	2008
Scale. Tabulating-	A. L. Dickinson	681,630	Aug. 27	3608	802	96	1824
Scale, Weighing-	H. G. Roth	680,988	Aug. 20	2206	486	96	1523
Scales. Perforated mensuration-	A. B. Johnson	679,261	July 23	3745	836	96	812
Scales. Web-holding device for wage-	A. B. Harmon	677,412	July 2	134	31	96	30
Scarf	S. M. Griffiths	679,745	Aug. 6	55	14	96	1053
Scenic structure	H. G. Maratta	678,012	July 9	1281	298	96	288
Scissors	F. W. Klever, Jr	681,827	Aug. 27	3049	677	96	1713
Scissors	I. Postlethwait	681,972	Sept. 3	609	130	96	1996
Scissors	C. Stamm	683,231	Sept. 24	2843	654	96	2488
Scissors and comb for barbers' use. Combined	J. Sansone	681,740	Sept. 3	152	29	96	1895
Scoop and sifter. Combined	G. P. Baughman	681,608	Aug. 27	3562	792	96	1818
Scoop-board	F. A. Matson	678,578	July 16	2396	537	96	523
Scouring or buffing machine	F. M. Furber	681,686	Aug. 27	3617	804	96	1826
					805		
Scow. Dumping-	J. M. Goodwin	678,657	July 16	2567	574	96	557
Scraper. Wheeled	C. Rath	680,886	Aug. 20	2201	484	96	1523
					485		
Scraper. Wheeled	T. R. McKnight	681,886	Sept. 3	434	87, 88	96	1950
Scraper. Wheeled earth-	W. H. Forker	677,448	July 2	208	51	96	46
Scraper. Wheeled earth-	J. M. Brooks	679,291	July 30	3830	858	96	851
Screen:							
See Adjustable screen. Coal-screen. Diaphragm-screen. Flume-screen. Grain-separating screen. Sifting-screen. Urinal-screen. Window-screen. Window or door screen.							
Screen-cleaner and stuff-regulator	R. M. Hawk	681,548	Aug. 27	3449	765	96	1792
Screening or sizing very fine materials. Apparatus for	T. A. Edison	679,500	July 30	4262	960	96	988
Screw-driver or kindred tool	B. T. Noble	680,065	Aug. 6	644	141	96	1173
Screw-driver with adjustable side claws	W. L. A. Hecken	680,043	Aug. 6	607	132	96	1165
Screw-machine	J. P. Lavigne	677,871	July 9	1008	236	96	282
					237		
					238		
Screw-manufacturing machine	L. Tabor	678,205	July 9	1645	379	96	354
Screw. Safety temper-	E. Porter	682,813	Sept. 17	2111	478	96	2321
Screw-slotting machine. Automatic	W. H. Gates	683,113	Sept. 24	2641	606	96	2449
					607		
Screw. Tension-	H. E. Keeler	679,970	Aug. 6	489	103	96	1141
Screw-thread-cutting machine	F. W. Förster	680,971	Aug. 20	2366	520	96	1556
Screw-thread-cutting machine	C. F. Wieland	682,774	Sept. 17	2032	459	96	2305
Screw-wedge	A. C. Wolfe	678,086	July 9	1499	330	96	311
Screws. Making	W. A. Warman	679,927	Aug. 6	404	85	96	1122

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scrubber	M. N. Van Derbeck	679,133	July 23	3503	784	96	763
Seal	E. J. Brooks	679,411	July 30	4074	909	96	903
Seal-bolt	W. C. Lindsay	679,084	July 23	3420	762	96	745
Seal. Car-	A. P. Miller	679,979	Aug. 6	500	106	96	1143
Seal. Car-	L. A. Brown	683,245	Sept. 24	2875	660	96	1660
Seal-lock	H. B. Brower	681,191	Aug. 27	2780	617	96	2205
Seal-lock	K. Masionka	682,560	Sept. 10	1625	372	96	815
Seal-lock	E. Tyden	679,268	July 23	3761	840	96	2338
Seal-lock for cans or bottles	J. Murdock, Jr	682,857	Sept. 17	2200	496	96	761
Seal. Metallic	A. H. Peirce	679,126	July 23	3402	780	96	752
Seal. Self-locking	E. J. Brooks	679,104	July 23	3455	770	96	1506
Seal. Snap-	E. Norton	680,999	Aug. 20	2422	535	96	1614
Sealing can. Vacuum-	E. Norton	681,130	Aug. 20	2953	586	96	1112
Sealing jar. Vacuum-	E. Josse	679,898	Aug. 6	344	73	96	1986
Sealing parts of machinery. Means for	A. A. Low	681,968	Sept. 3	605	129	96	1143
Sealing vessels. Means for safely	F. W. Merrick	679,978	Aug. 6	499	106	96	2110
Seam-closing strip	C. Schneider	682,283	Sept. 10	1149	260 / 261	96	
Seam for sewed articles							
Seat: *See* Chair-seat. Spring-seat. Closet-seat.							
Seat	C. Rudolf	679,915	Aug. 6	376	79	96	1118
Seat for sewing-machines, &c	M. R. Tucker	682,297	Sept. 10	1174	267	96	2115
Sectional table or bench	G. M. Eames	677,442	July 2	198	48, 49	96	44
Seed-bluestoning apparatus	A. J. Johnson	677,992	July 9	1252	287	96	279
Seed hulling and reducing machine. Cotton-	C. Young	678,088	July 9	1434	331	96	312
Separator: *See* Cellulose-separator. Grain-separator. Cream-separator. Graphite-separator. Gas, oil, and water separator. Ore-separator. Steam-separator. Gold-separator. Teeth-separator.							
Separator-tooth	H. C. Clay	683,170	Sept. 24	2732	628	96	2466
Sewage treating and utilizing apparatus	R. J. G. Wood	678,924	July 23	3067	696	96	676
Sewage-treating apparatus	R. H. Reeves	681,579	Aug. 27	3512	779	96	1804
Sewed articles. Overseam for	E. B. Allen	681,669	Sept. 3	1	1	96	1865
Sewed articles. Overseam for	E. B. Allen	681,670	Sept. 3	2	1	96	1865
Sewed articles. Overseam for	E. B. Allen	681,671	Sept. 3	3	1	96	1865
Sewers or drains. Automatic flusher for	P. J. Healey	680,974	Aug. 30	2371	522	96	1557
Sewing and indenting machine	H. W. Gould	680,142	Aug. 6	767	171 / 172	96	1197
Sewing buttons to fabrics. Machine for	J. T. Hogan	679,752	Aug. 6	66	16, 17	96	1054
Sewing-machine	F. H. Richards	679,511	July 30	4279	963	96	941
Sewing-machine	H. P. Richards	679,914	Aug. 6	370	78, 79	96	1117
Sewing-machine attachment for overedge stitching	T. H. Ross and E. Donaldson	678,907	July 23	3039	681	96	670
Sewing-machine attachment for overedge stitching	T. H. Ross and E. Donaldson	678,908	July 23	3044	682	96	671
Sewing-machine. Blind-stitch	J. Arbes	680,014	Aug. 6	556	119	96	1154
Sewing machine. Broom-	H. S. Page	677,591	July 2	470	112 / 113	96	99
Sewing-machine buff-wheel attachment	J. H. Green	681,783	Sept. 3	254	49	96	1916
Sewing machine. Buttonhole-	E. B. Allen	677,391	July 2	97	21, 22	96	22
Sewing machine. Buttonhole-	F. W. Ostrom	679,184	July 23	3509	804 / 805	96	788
Sewing-machine buttonhole attachment	W. H. Hargraves, J. S. Heilig, and J. Roberts.	678,397	July 16	2086	462	96	449
Sewing-machine. Circularly-moving-hook	P. Diehl and A. Grieb	678,947	July 23	3119	698 / 699	96	686
Sewing-machine fan attachment	N. W. Cease	681,193	Aug. 27	2783	618	96	1690
Sewing-machine feed mechanism	D. Noble	680,664	Aug. 13	1742	382	96	1409
Sewing-machine feeding mechanism	C. A. Dearborn	679,553	July 30	4360	979	96	960
Sewing-machine feeding mechanism. Shoe-	C. Van der Straeten	681,276	Aug. 27	2943	658 / 658	96	1694
Sewing-machine for gathering the mouths of tubular structures.	S. Cohn	678,542	July 16	2309	521	96	506
Sewing-machine guide. Carpet-	E. B. Allen	678,928	July 23	3076	688	96	678
Sewing-machine hemmer	A. Laubscher	682,874	Sept. 17	2239	508	96	2344
Sewing-machine lasting attachment	J. Keats	680,156	Aug. 6	801	178	96	1205
Sewing-machine loop-spreader mechanism	L. Onderdonk	677,422	July 2	152	35	96	34
Sewing-machine looper	H. P. Richards	677,886	July 9	1034	243 / 244	96	237
Sewing-machine looper	F. H. Richards	678,627	July 16	2505	560 / 561	96	545
Sewing-machine looper-operating mechanism	L. Onderdonk	679,906	Aug. 6	354	76	96	1114
Sewing-machine needle-bar cutter attachment	B. Bissinger	678,993	July 23	3207	718	96	708
Sewing-machine needle-bar mechanism	E. B. Allen	678,927	July 23	3075	687	96	678
Sewing-machine. Needle-feed chain-stitch	H. J. Hancock	677,740	July 2	733	175	96	155
Sewing-machine. Overseaming	A. Bliden	679,067	July 23	3365	749 / 750	96	734
Sewing-machine. Overseaming	C. J. Appleton	680,013	Aug. 6	553	119	96	1153
Sewing-machine. Overseaming	A. Rontke	681,735	Sept. 3	145	27	96	1893
Sewing-machine overseaming attachment	E. B. Hess	678,877	July 23	2966	667	96	656
Sewing-machine power-table	J. A. Reid	678,978	July 23	3185	712	96	698
Sewing-machine presser-foot-lifting device	E. B. Allen	678,926	July 23	3074	687	96	677
Sewing-machine slack-thread-controlling device	W. Grothe	678,660	July 16	2572	576	96	558
Sewing-machine spool-holder	E. E. Norris	678,756	July 16	2721	613	96	587
Sewing-machine stand	E. M. Hug	680,660	Aug. 13	1733	381	96	1407
Sewing-machine stopping mechanism	D. Noble	680,665	Aug. 13	1744	383	96	1409
Sewing-machine tacking attachment	W. H. Hargraves, J. S. Heilig, and J. Roberts.	678,398	July 16	2040	468	96	449
Sewing-machine take-up mechanism	F. L. Alley	679,409	July 30	4072	908	96	902
Sewing-machine tension device	C. A. Crist	683,103	Sept. 24	2626	604	96	2446
Sewing-machine thread-controlling device	B. J. Bergman	680,192	Aug. 6	866	193 / 194	96	1218
Sewing-machine thread-cutting device	J. J. Sullivan	681,149	Aug. 20	2688	592	96	1621
Sewing-machine thread-manipulating device	R. G. Woodward	679,660	July 30	4542	1021 / 1022	96	998

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine thread-waxing attachment	P. Grant	680,582	Aug. 13	1577	348	96	1375
Sewing-machine throat-plate	H. A. Dodge and W. Wilson	681,956	Sept. 3	585	123	96	1982
Sewing-machine treadle	W. E. Hoyt	682,702	Sept. 17	1895	431	96	2278
Sewing-machine. Two-reel	H. F. Ainley	683,008	Sept. 17	2473	560 / 561	96	2394
Sewing-machine welt-guide	C. H. Allen	677,492	July 2	273	68	96	59
Sewing-machines. Alternating presser for	P. Diehl and M. Hemleb	681,684	Sept. 3	21	6, 7	96	1868
Sewing machines. Awl mechanism for shoe-	R. Carleton	678,539	July 16	2303	519 / 520	96	505
Sewing machines. Signature-feeder for book-	W. G. Trevette	678,068	July 9	1398	322	96	305
Sewing machines. Signature-holding arm for book-	J. R. Reynolds	681,509	Aug. 27	3379	750	96	1776
Sewing or other machine stop mechanism	F. T. Leilich	677,784	July 2	822	196	96	174
Shade and lace-curtain fixture. Adjustable window-	O. H. Cannon	678,159	July 9	1567	361	96	340
Shade hanger. Window-	H. H. Stratton	683,154	Sept. 24	2709	623	96	2402
Shade machine. Window-	E. Hetherington	682,074	Sept. 3	773	168	96	2017
Shade. Window-	G. M. Frampton	679,736	Aug. 6	37	11	96	1050
Shades. Automatic drop-fixture for	H. M. Sturgis	681,005	Aug. 20	2480	538	96	1568
Shaft and pulley coupling	T. White	681,090	Aug. 20	2592	572	96	1601
Shaft-coupling	J. T. Nicholson	679,828	July 30	3895	871	96	865
Shaft-coupling	H. E. Smith	681,861	Sept. 3	384	78	96	1943
Shaft-coupling device. Automatic	O. Ohlsson	680,541	Aug. 13	1515	333	96	1363
Shaft end. Vehicle-	R. F. Trimmer	682,496	Sept. 10	1415	319	96	2162
Shafts having end thrust. Balancing device for wheel-	F. Trump	680,294	Aug. 13	1053	235	96	1268
Shafting. Flexible	E. B. Collins	680,315	Aug. 13	1091	242	96	1277
Shaper	M. and H. E. Morton	682,218	Sept. 10	1028	230 / 231 / 232	96	2087
Shaping-machine	J. C. Steen and C. Seybold	679,063	July 23	3358	748 / 749	96	733
Sharpening attachment for beef-shaving machines	C. B. Hopkins	680,045	Aug. 6	609	133	96	1165
Sharpening attachment for meat-cutters	C. B. Hopkins	680,148	Aug. 6	777	173	96	1200
Sharpening device. Cutter-	J. Fellows	680,033	Aug. 6	586	128	96	1159
Sharpening device for food slicers or cutters	J. Fellows	680,137	Aug. 6	759	169	96	1196
Sharpening device. Knife-	J. E. Mennessier	680,492	Aug. 13	1419	309 / 310 / 311	96	1342
Shearing-machine	A. I. Jacobs	677,518	July 2	324	78, 79	96	70
Shears: *See* Animal-shears. Power-shears. Metal-cutting shears.							
Shears	W. H. Thornley and W. J. Baer	677,381	July 2	81	18	96	20
Shears	H. L. Hopkins	677,662	July 2	602	143	96	127
Shears	P. E. Stevens	678,441	July 16	2117	480	96	464
Shears	C. J. Loichot	682,261	Sept. 10	1112	252	96	2103
Shears	E. L. N. Steen	678,288	July 9	1810	417	96	386
Shears buttonhole and ruffling gage	P. Desnoyers	683,105	Sept. 24	2690	604	96	2446
Shears or scissors	G. D. Coleman	682,174	Sept. 10	945	212	96	2072
Sheathing. Making metallic surface-	G. D. Coleman	682,173	Sept. 10	943	212	96	2072
Sheathing. Metallic surface-	W. Scott	678,044	July 9	1355	312 / 313	96	298
Sheet-delivery apparatus	J. B. Irving	681,653	Aug. 27	3665	821	96	1886
Sheet holder. Loose-	F. Fouché	680,238	Aug. 13	959	215	96	1250
Sheet-metal box	M. Ams	678,091	July 9	1438	332	96	313
Sheet-metal can	J. H. Schlafly	683,227	Sept. 24	2833	652	96	2487
Sheet-metal-edging machine	F. E. Heinig	682,551	Sept. 10	1608	367 / 368	96	2201
Sheet metal. Machine for making hollow cones from	O. Gauhe	678,392	July 16	2029	460 / 461	96	447
Sheet-metal pickling and washing machine	F. W. Stapf	677,712	July 2	687	163	96	146
Sheet-metal pipe. Spiral-jointed	E. D. Bevitt	679,272	July 23	3769	841	96	817
Sheet-metal ware	D. A. Beckwith	677,624	July 2	532	127	96	113
Shelf and support therefor. Adjustable	L. Paulle	678,125	July 9	1504	346	96	327
Shelf-support	O. E. Bahnemann	682,517	Sept. 10	1549	351 / 352	96	2189
Shelving. Adjustable	E. C. Shears	679,918	Aug. 6	378	80	96	1118
Shield for wounds	C. D. McLean	682,734	Sept. 17	1954	443	96	2290
Shingle-bundler	H. G. Blanchard	677,534	July 2	355	86	96	76
Shingle-sawing-machine attachment	W. F. Gibbard and H. Anderson	680,141	Aug. 6	765	170 / 171	96	1197
Shingles. Drying	C. D. Elkins	677,645	July 2	567	135	96	119
Shingling-bracket	F. W. Collins	680,569	Aug. 13	1351	341	96	1370
Shipping shell-fish, &c. Package for	J. C. Middleton	681,502	Aug. 27	3468	770	96	1795
Ships' bottoms. Device for cleaning	L. Lacoste	681,713	Sept. 3	86	17, 18	96	1881
Ships. Device for braking the speed of	J. A. Kessler	677,868	July 9	1005	235	96	231
Ship's door	L. W. Peddicord	678,027	July 9	1300	299	96	289
Shirt or shirt-waist case	T. D. Richardson	678,765	July 16	2737	616	96	589
Shirt-waist holder and skirt-supporter	G. S. Webber	681,898	Sept. 3	459	93, 94	96	1956
Shoe	H. L. Becker	682,314	Sept. 10	1207	273	96	2120
Shoe attachment	A. Reed	683,142	Sept. 24	2687	619	96	2458
Shoe. Cushion-	E. T. Willhoit	681,286	Aug. 27	2961	657	96	1697
Shoe-fastener	E. E. Donovan	677,539	July 2	367	89	96	79
Shoe-fastener. Temporary	W. P. Cook	680,644	Aug. 13	1679	372	96	1395
Shoe-fastening	W. L. C. Niles	682,225	Sept. 10	1043	235	96	2090
Shoe-form	F. H. Nies	682,366	Sept. 10	1287	290	96	2134
Shoe-form	J. E. Fenno	681,959	Sept. 3	591	125	96	1983
Shoe grade-climbing attachment	C. E. Slocomb	681,143	Aug. 20	2673	590	96	1619
Shoe-nail	A. B. Harris	679,022	July 23	3246	729	96	714
Shoestring-fastener	T. J. A. Freeman	678,237	July 9	1707	391	96	368
Shoe. Swimming-	T. N. Ellings	682,182	Sept. 10	960	216	96	2076
Shoe. Ventilated-	A. E. Tripp	678,593	July 16	2425	544	96	528
Shot device. Safety-	E. P. Nichols	680,436	Aug. 13	1315	299	96	1321
Shoulder-blade extractor							
Shovel: *See* Cart-shovel. Cultivator-shovel.							
Shovels. Manufacture of	A. Park and C. Durning	681,340	Aug. 27	3005	680	96	1716
Shoveling device. Power	C. S. Westbrook	681,941	Sept. 3	548	115	96	1975

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Show-case. Glass	F. X. Ganter	680,523	Aug. 13	1484	326	96	1356
Showering-pot. Portable automatic	M. H. Lichten	683,306	Sept. 24	2286	684	96	2518
Shutter. Rolling	P. H. Wilson	680,100	Aug. 6	705	157	96	1185
Shutter. Rolling metal	J. G. Wilson	682,304	Sept. 10	1191	270	96	2117
Shutter-worker	J. Norton	677,894	July 9	1053	247	96	240
Shutter-worker	H. Osborne	683,221	Sept. 24	2822	650	96	2484
Sidewalk-cover	J. Wagner	677,388	July 2	93	19	96	22
Siding-marker	J. B. Moss	678,269	July 9	1771	407	96	379
Sieve. Grain	H. K. Clement	677,857	July 9	977	230	96	236
Sieves. Cleaner for bolting	I. L. Sherk	680,466	Aug. 13	1366	298	96	1332
Sifter. Ash	J. F. Birch, Jr	678,932	July 23	3082	689 690	96	679
Sifter. Ash	L. A. Branson	678,334	July 23	3087	691	96	679
Sifter. Ash	J. A. Payne and J. F. Fergusson	682,491	Sept. 10	1512	342	96	2181
Sifter. Cinder	M. Krebs	681,796	Sept. 3	276	54	96	1921
Sifter. Flour	E. B. Siskron	683,149	Sept. 24	2700	621	96	2460
Sifting-screen	A. E. Thornton	679,648	July 30	4526	1018	96	995
Sight-feed lubricator	W. Grimes and C. C. Wakefield	677,657	July 2	592	141 142	96	125
Sign	L. R. Le Lande	680,720	Aug. 20	1882	414	96	1459
Sign	J. A. Dalumi	682,177	Sept. 10	950	214	96	2073
Sign. Electric	T. E. Murray	678,677	July 16	2596	583	96	563
Signal: *See* Call-signal. Railway danger-signal. Electric signal. Trolley-signal. Railway-signal.							
Signal system	J. L. Hall	679,310	July 30	3860	963	96	857
Signal system	K. W. Mansfield and W. R. Thompson	683,214	Sept. 24	2811	647	96	2182
Signal system. Electrical block	S. L. Foster	683,172	Sept. 24	2735	629	96	2467
Signaling	R. F. Foster	680,854	Aug. 20	2148	471	96	1513
Signaling apparatus	R. F. Foster	680,853	Aug. 20	2147	470 471	96	1512
Signaling apparatus	G. E. Painter	681,371	Aug. 27	3118	692 693	96	1726
Signaling apparatus	H. B. Taylor	682,768	Sept. 17	2021	457	96	2303
Signaling apparatus	F. B. Herzog and S. S. Wheeler	680,590	Aug. 13	1598	352	96	1378
Signaling apparatus. Electrical	R. H. Gruschow and H. H. Osborn	677,541	July 2	371	90, 91	96	80
Signaling device	R. Herman	683,397	Sept. 24	3146	721 722 723	96	2553
Signaling mechanism	H. G. Carleton	678,475	July 16	2182	492	96	478
Signaling system. Electric	J. A. Gehrung	680,096	Aug. 6	591	129	96	1160
Signaling system. Electrical	J. E. Smyth	679,089	July 23	3300	738 739 740	96	721
Signature-gathering machine	J. W. Woodruff	679,583	July 30	4417	992 993	99	973
Silo	R. Stoddard	680,008	Aug. 6	544	116	96	1152
Silo	A. Liebrecht	681,482	Aug. 27	3336	------	96	1769
Silver and gelatose and making same. Compound of	H. C. Robinson	681,264	Aug. 27	2916	646	96	1687
Singletree-hook and trace-securing device	W. J. Minns	682,482	Sept. 10	1491	339	96	2176
Sink and washtub. Combined	R. Loug	678,502	July 16	2250	506	96	493
Siphon-filler	C. H. Bellamy	681,435	Aug. 27	3233	------	96	1748
Sizing and treating or preparing same	A. P. Jones	678,402	July 16	2046	464	96	450
Skate	W. J. Kent	681,308	Aug. 27	3114	691	96	1725
Skate. Roller	R. E. Murphy	680,878	Aug. 20	2186	481 482	96	1519
Skein-washing machine	C. Mercader and C. L. Wilmot	678,794	July 16	2785	627	96	598
Skelp-handling apparatus	O. Neustätter	678,435	July 16	2107	478	96	402
Skiascope optometer	J. Marshall	679,178	July 23	3591	802	96	781
Skins. Apparatus for coloring carroted	T. Bryant	682,784	Sept. 17	2055	465	96	2309
Skip. Dumping	J. C. McDonald	680,883	Aug. 20	2196	484	96	1522
Skirt and waist supporter	M. E. Grove	677,509	July 2	306	76	96	66
Skirt-supporter	K. E. Aeckersberg	678,151	July 9	1550	357	96	336
Skirt-supporter	J. T. Shoup	678,590	July 16	2422	543	96	528
Skirt-supporter	A. L. Page	679,089	July 23	3428	764	96	746
Skirt-supporter	D. A. Levy	680,572	Aug. 20	2177	479	96	1518
Skirt-supporter	M. Newgarden	681,572	Aug. 27	3487	774	96	1799
Skirts. Apparatus for marking and trimming edges of	F. M. Harpham and A. Akers	677,512	July 2	312	77	96	67
Skylight and ventilator. Combined	J. F. Preuthun	679,912	Aug. 6	367	78	96	1116
Skylight. Ventilating	W. C. Broughton	681,190	Aug. 27	2779	------	96	1660
Slate mixture for the manufacture of articles. Treating disintegrated	E. F. Stufflebeam	681,587	Aug. 27	3524	782	96	1807
Sled	A. A. Towner	681,156	Aug. 20	2695	598	96	1623
Sled. Hand	J. A. Heintz	682,934	Sept. 17	2341	528 529	96	2367
Sleigh	A. C. Patzer	681,072	Aug. 20	2561	566	96	1596
Sleigh-brake	J. Fellows	680,082	Aug. 6	584	127 128	96	1159
Slicer. Food	C. V. Linquist	683,126	Sept. 24	2663	611	96	2452
Sliding block or bearing	F. Bronori	678,936	July 23	3097	692	96	681
Slot-machine view mechanism	T. M. Tripp, P. I. and H. D. Jacobson	682,651	Sept. 17	1785	408 409	96	2258
Slotting-machine	L. S. Dumoulin	683,107	Sept. 24	2632	605	96	2446
Smelting-furnace	L. E. Clawson	679,666	July 30	4555	1024	96	1002
Smoke-condenser for chimneys	W. A. Martel	682,477	Sept. 10	1485	337	96	2175
Smoke-consumer	H. E. Parson	681,456	Aug. 27	3288	731	96	1760
Smoke-consuming furnace	H. E. Parson	681,457	Aug. 27	3290	732	96	1760
Smoke-consuming furnace and apparatus in connection therewith	A. Krippel	678,261	July 9	1743	400 401 402	96	375
Smoke-preventer. Automatic	P. F. King	682,471	Sept. 10	1472	334 335	96	2172

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smoke-preventing devices. Automatic regulator for	W. J. Creelman	679,455	July 30	4159	934	96	919
Smoking-pipe	C. H. Pagett	680,806	Aug. 20	2066	450	96	1495
Smoothing-iron handle	A. N. Allen	681,606	Aug. 27	3559	791	96	1813
Snap-hook	F. Morrison	677,365	July 2	60	14	96	15
Snap-hook	J. W. Booth	677,626	July 2	534	127	96	113
Snap-hook	J. W. Booth	677,627	July 2	536	128	96	114
Snap-hook	D. Methven	679,088	July 23	3427	764	96	746
Snap-hook	W. H. Münchmeyer	680,800	Aug. 20	2050	447	96	1492
Snap-hook	C. Hakemeyer	682,684	Sept. 17	1844	424	96	2269
Snap-hook	C. Hakemeyer	682,685	Sept. 17	1845	425	96	2270
Snap-hook	C. Poore	678,277	July 9	1786	411	96	382
Snow and ice. Machine for removing	P. E. Carmody	678,716	July 16	2659	599 600	96	575
Snow from railways, highways, &c. Mechanism for removing	K. C. Munson	682,731	Sept. 17	1947	443	96	2288
Snow-plow. Railway	F. J. Betts	679,208	July 23	3652	815	96	794
Soap-cage	T. A. Lynch	680,052	Aug. 6	617	135	96	1167
Soap cake	H. E. Mereness	683,181	Sept. 24	2750	633	96	2470
Soap cakes. Making	A. Conkling	679,110	July 23	3463	773	96	754
Soap-dish	A. L. Fribourg	682,680	Sept. 17	1896	422	96	2268
Soap holder. Liquid	G. H. Hasey	682,356	Sept. 10	1277	287	96	2132
Soaping device	E. Solvay	683,187	Sept. 24	2761	635	96	2472
Soda. Apparatus for drying bicarbonate of	H. A. Allwardt	680,011	Aug. 6	548	117 118	96	1153
Soda-water apparatus	B. Baron	677,751	July 2	759	181 182	96	160
Soda-water fountain	I. P. Lihme	680,608	Aug. 13	1617	------	96	1383
Sodium sulfid and lithophone. Making	J. M. Wishart	682,658	Sept. 17	1793	411	96	2260
Solar heater	H. N. Norton	681,000	Aug. 20	2423	535 536	96	1566
Soldering bail-ears on bodies of cans or other vessels. Machine for	F. W. Wightman	680,304	Aug. 13	1076	238	96	1274
Soldering-clamp	J. H. C. Buerstatte	677,335	July 2	8	2	96	4
Soldering device for can-capping machines. Electric	G. A. Denis	680,519	Aug. 13	1478	326	96	1355
Soldering-iron	J. A. Steward	678,442	July 16	2118	480	96	464
Soldering machine. Can-seam	F. Fouché	680,580	Aug. 13	1574	346 347	96	1374
Soldering-tool	T. Leadbeater	680,868	Aug. 20	2167	477	96	1516
Sole and heel for boots or shoes	J. R. Scott	681,886	Sept. 3	335	68	96	1932
Sole-buffing machine	J. R. Scott	681,887	Sept. 3	337	68	96	1933
Sole-buffing machine	W. B. Outten	677,690	July 2	640	138	96	135
Sound-box	H. L. Short	677,476	July 2	253	63	96	55
Sound-increasing device	M. R. d'Asar	682,584	Sept. 10	1672	380	96	2213
Sound. Means for locating source of	T. H. Macdonald	682,992	Sept. 17	2445	553	96	2388
Sound-record	E. R. Johnson	681,918	Sept. 3	494	102	96	1963
Sound-records. Machine for leading	T. H. Macdonald	682,991	Sept. 17	2443	553	96	2986
Sound-records. Making	L. P. Valiquet	679,923	Aug. 6	388	83	96	1120
Sound-reproducer	D. Stewart	680,742	Aug. 20	1981	423	96	1471
Spanner or pipe-wrench	H. Floyd	680,140	Aug. 6	764	170	96	1197
Spark-arrester	M. Moore	683,315	Sept. 24	3018	600	96	2526
Spark-arrester	G. S. Parshall	682,422	Sept. 10	1390	313	96	2156
Spark-arrester. Locomotive	J. M. Ricard and F. C. Gary	681,977	Sept. 3	616	131	96	1988
Sparking plug	S. L. Hitchcock	679,529	July 30	4316	920	96	950
Speaker's stand or pulpit. Adjustable	M. A. Threehouse	677,904	July 9	1001	253	96	247
Spectacle-case	I. Fox	680,239	Aug. 13	960	216	96	1251
Spectacle-frame	T. V. Kiernan	681,797	Sept. 3	275	53	96	1921
Spectacle-frame	W. E. Birmingham	677,753	July 2	763	183	96	161
Spectacle or eyeglass case	G. W. Wells	682,396	Sept. 10	1343	304	96	2147
Spectacle or eyeglass case	M. Jungnickel	681,396	Aug. 27	3159	704	96	1734
Spectacles. Machine for grinding facets on glasses for	G. L. Williams	678,448	July 16	2131	482	96	468
Spectacles or eyeglasses. Mounting for rimless	R. E. Venning	679,712	July 30	4647	1044	96	1021
Speculum	J. G. McPherson	682,832	Sept. 17	2158	487	96	2330
Speculum	M. Bohlig	681,387	Aug. 27	3151	701	96	1732
Speculum and medicine-distributer. Combined	R. H. Stevens	681,519	Aug. 27	3399	754	96	1781
Speed-changing mechanism	J. M. Anck	683,241	Sept. 24	2866	658	96	2498
Speed-changing mechanism	I. H. Spencer	682,763	Sept. 17	2012	455 456	96	2301
Speed device. Variable	R. Goodlad	682,929	Sept. 17	2329	527	96	2365
Speed-indicator	S. B. Storer	680,988	Aug. 20	2396	529	96	1561
Speed-indicator. Magnetic	A. I. Jacobs	681,702	Sept. 3	65	12	96	1876
Speed mechanism. Variable	J. Parker	682,227	Sept. 10	1050	235 236	96	2091
Speed mechanism. Variable	W. L. Schellenbach	683,008	Sept. 17	2461	558	96	2391
Speed mechanism. Variable	F. Bayerdoerfer	682,447	Sept. 10	1430	323 324	96	2165
Speed-recording apparatus. Vehicle	J. Sturgess	680,077	Aug. 13	1770	389 390	96	1415
Speed-regulator	F. C. Curtis	680,701	Aug. 20	1854	407	96	1453
Speed-regulator	J. Sturgess	680,745	Aug. 20	1936	424	96	1472
Speed-regulator	W. S. Halsey	680,916	Aug. 20	2263	497 498	96	1585
Speed-varying mechanism	J. W. Teele	682,753	Sept. 17	1984	450	96	2296
Spike	E. E. Welsh	680,300	Aug. 13	1062	237	96	1270
Spike-extractor							
Spindle: *See* Bearing-spindle. Filing-spindle.							
Spinning, doubling, and twisting machinery	P. P. Craven	679,416	July 30	4063	912	96	904
Spinning-frame	R. J. Chapman	680,194	Aug. 6	870	194	96	1219
Spinning-machine	O. L. Owen	677,791	July 2	837	199	96	176
Spinning-machine	G. J. Cuzner	681,628	Aug. 27	3605	802	96	1824
Spinning machine. Ring	W. Lengweiler	678,408	July 16	2054	466	96	452
Spinning machine. Ring	W. Lengweiler	678,409	July 16	2058	467	96	452
Spinning or twisting machine thread-guide support	L. T. Houghton	677,988	July 9	1246	286	96	277
Spinning-ring	F. M. Marcy	678,266	July 9	1751	408	96	377
Spinning-ring	T. F. and F. E. Moberg	682,418	Sept. 10	1383	312	96	2155
Spinning-ring holder	J. H. Bennett	678,980	July 23	3080	689	96	678

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spinning-spindle plumbing device	H. Kelly	677,994	July 9	1255	288	96	279
Spinning-tool	R. Flanigan	681,960	Sept. 3	502	125	96	1983
Spinning yarn	C. H. Arnold	683,418	Sept. 24	3106	.....	96	2562
Spitting-pot	J. F. T. Mjöen	681,333	Aug. 27	3059	678	96	1715
Spoke facing and tapering machine. Automatic	G. A. Ensign	681,049	Aug. 20	2515	556 / 557	96	1585
Spoke-finishing machine	G. A. Ensign	679,611	July 30	4462	1002 / 1003	96	982
Spokeshave	W. D. Murray	679,702	July 30	4626	1040	96	1018
Spool	G. T. Pitts	681,137	Aug. 20	2664	588	96	1616
Spool or bobbin	H. E. Chase	678,540	July 16	2307	520	96	505
Spoon-holder	A. R. Wormwood	679,715	July 30	4650	1045	96	1021
Spoon. Soup	J. A. Crandall	680,648	Aug. 13	1712	376	96	1408
Sprayer	E. C. Brown	682,236	Sept. 10	1067	240 / 241	96	2094
Spraying apparatus	W. H. Heard	679,504	July 30	4298	960 / 961	96	989
Spraying apparatus	E. C. Brown	682,237	Sept. 10	1070	241	96	2095
Spraying trees, &c.	I. M. Clark	681,768	Aug. 27	3004	.....	96	1842
Spring: *See* Bed-spring. Bolster-spring. Carriage-spring. Cushion-spring.							
Spring-back chair. Adjustable	S. N. McCloud	681,566	Aug. 27	3475	772	96	1797
Spring-clasp	E. M. Chadsey	680,763	Aug. 20	1970	432	96	1479
Spring-seat	M. Lally	681,124	Aug. 20	2645	584	96	1612
Sprinkler: *See* Bottle-sprinkler. Lawn-sprinkler. Lawn or garden sprinkler.							
Sprouting apparatus	J. von der Kammer	679,124	July 23	3489	779 / 780	96	760
Square	L. S. Starrett	680,815	Aug. 20	2082	458	96	1499
Square	J. A. Wray	680,839	Aug. 20	2108	460	96	1504
Squaring purposes. Combination-tool for	A. Delin	683,254	Sept. 24	2898	664	96	2501
Squib	T. F. Clarke	680,564	Aug. 13	1549	341	96	1369
Stacker for threshing-machines	E. P. Watrous and L. Van Benschoten.	681,007	Aug. 20	2434	538	96	1568
Stacker. Pneumatic straw-	C. W. and E. M. Burton	680,761	Aug. 20	1966	431	96	1478
Stacker. Portable straw-	I. N. Condra	681,175	Aug. 20	2743	608	96	1632
Stacker. Straw-	M. Heineke	679,148	July 23	3533	789	96	769
Stacker. Straw-	M. Heineke	679,227	July 23	3681	820	96	800
Stacker. Straw-	M. Heineke	679,228	July 23	3682	820	96	800
Stacker. Straw-	M. Heineke	679,250	July 23	3744	836	96	812
Stacking and loading device. Hay	R. J. Nichols	681,337	Aug. 27	3003	679	96	1716
Stadia-rod	G. L. Sanderson	678,041	July 9	1350	312	96	296
Stage illusion apparatus	M. A. Sherwood. (Reissue)	11,926	Aug. 13	1778	391 / 392	96	1416
Stairway. Elevating-	H. O. Lange	680,124	Sept. 24	2657	610 / 611	96	2451
Stalk-cutter	J. R. Weatherly	682,511	Sept. 10	1438	348	96	2186
Stalk-cutter and rake. Combined	R. H. Purnell	679,991	Aug. 6	519	110 / 111	96	1146
Stamp box. Postage or other-	E. Oldenbusch	682,564	Sept. 10	1635	374	96	2207
Stamp. Drop-	E. S. Brett	677,433	July 2	180	43	96	40
Stamp. Hand-	C. A. Brewer	679,200	July 30	3829	857	96	850
Stamp. Lead-pencil initial-	H. A. Worthington	677,482	July 2	259	65	96	56
Stamp-machine	C. H. Krause	678,300	July 9	1837	422	96	202
Stamp-mill	F. B. Pettengill	681,858	Sept. 3	379	77	96	1941
Stamp-mill feeder	A. C. Pratt	677,795	July 2	844	201	96	178
Stamp plunger. Time-	P. G. Giroud	678,778	July 16	2757	620	96	593
Stamp. Self-inking rubber	A. E. Jamieson	681,554	Aug. 27	3456	767	96	1793
Stamp. Time-	P. G. Giroud	678,656	July 16	2563	573 / 574	96	556
Stamping apparatus. Jury-list-	W. M. Thomas	678,307	July 9	1849	425	96	394
Stanchion. Cattle-	L. W. Simons	679,431	July 30	4104	918	96	908
Stanchion. Cattle-	J. G. Fragner	679,389	Aug. 6	295	50	96	1090
Stand: *See* Barrel-stand. Bicycle-stand. Camera-stand. Display-stand. Flower-stand. Music-stand. Sewing-machine stand. Speaker's stand. Tray-stand. Trolley-stand. Washstand.							
Stand	H. H. Fuller	680,771	Aug. 20	1986	436	96	1481
Stand-pipe	J. Henderson	680,328	Aug. 13	1112	247	96	1281
Stand-pipe. Water	M. M. Moore	682,106	Sept. 3	825	183 / 184	96	2028
Staple making and driving machine	O. H. P. Cornell	679,729	Aug. 6	20	6, 7	96	1047
Starch breaker and grader	J. M. Lyman	680,261	Aug. 13	999	224 / 225	96	1258
Starch-treating apparatus	J. H. Toof	677,922	July 2	901	215	96	189
Starching-machine	W. J. Asher	680,559	Aug. 13	1539	339	96	1367
Starching-machine	W. Hess, Jr.	680,774	Aug. 20	1989	437	96	1482
Starting and regulating switch. Electrical	A. H. Hickley	682,618	Sept. 17	1736	396 / 397	96	2249
Starting apparatus. Automatic	G. V. Ellis	681,048	Aug. 20	2512	556	96	1585
Static machine	T. B. Kinraide	682,203	Sept. 10	998	224	96	2082
Station-indicator	P. P. I. Fyfe	681,539	Aug. 27	3429	761 / 762	96	1787
Station-indicator	P. P. I. Fyfe	681,540	Aug. 27	3436	762 / 763	96	1789
Station-indicator	E. A. Russell	682,428	Sept. 10	1400	316	96	2158
Stave cutting-off and crozing machine. Barrel-	O. H. P. Cornell	679,166	July 23	3569	797 / 798	96	777
Steam and gas generating apparatus	J. C. Merrill	677,878	July 9	1024	241	96	235
Steam and hot-water heater. Combined	F. J. Johnson	681,226	Aug. 27	2888	630 / 631	96	1672

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Steam-boiler	C. A. Kitts	677,779	July 2	814	195	96	172
Steam-boiler	J. J. Tonkin	678,580	July 16	2290	516	96	502
Steam-boiler	G. W. Mathews	679,582	July 30	4222	971	96	951
Steam-boiler	F. M. Faber	680,707	Aug. 20	1804	409 / 410	96	1455
Steam-boiler	W. T. Urie	681,280	Aug. 27	2948	654	96	1694
Steam-boiler	D. Fitzgibbons	681,365	Aug. 27	3110	691	96	1724
Steam-boiler	J. B. Stetson and W. J. Thomas	682,765	Sept. 17	2016	456	96	2302
Steam-boiler	J. and W. Lloyd and R. O. Jones	677,458	July 2	222	54, 55	96	49
Steam-eliminator	H. F. Colvin	679,949	Aug. 6	443	93	96	1130
Steam-engine	H. F. Colvin	679,950	Aug. 6	446	94	96	1131
Steam-engine	A. P. Charles	680,406	Aug. 13	1265	278 / 279	96	1311
Steam-engine	M. Garland and D. Lumgair	680,524	Aug. 13	1485	327	96	1357
Steam-engine	R. J. Patterson	680,731	Aug. 20	1916	421	96	1468
Steam-engine	M. Poll	682,743	Sept. 17	1966	446	96	2292
Steam-engine	L. B. King	679,678	July 30	4584	1020	96	1009
Steam-engine steam-separator	R. H. F. Sewall	683,005	Sept. 17	2468	550	96	2303
Steam feeding mechanism	F. E. and F. O. Stanley	678,911	July 23	3050	683	96	672
Steam-generating apparatus	F. E. and F. O. Stanley	678,912	July 23	3051	683	96	672
Steam-generating apparatus	W. Hornsby and D. Roberts	680,503	Aug. 13	1600	353 / 354	96	1379
Steam-generator	G. E. Riblet	680,736	Aug. 20	1922	421 / 422	96	1469
Steam-generator	W. G. Stones	680,818	Aug. 20	2085	451	96	1500
Steam or gas motor muffler	C. Löper	682,096	Sept. 3	809	178	96	2025
Steam-regenerative accumulator	A. C. E. Rateau	679,242	July 23	3708	827	96	805
Steam-separator	J. E. Lewis	677,521	July 2	327	80	96	71
Steam-separator	J. C. Vogt	678,702	July 16	2629	592	96	569
Steam-separator	W. D. Labadie	680,717	Aug. 20	1879	413	96	1459
Steam-separator. Vertical	J. A. E. M. P. B. O'Brien	682,488	Sept. 10	1507	341	96	2180
Steam-transforming apparatus	C. T. Brown and F. W. Leuthesser.	679,826	Aug. 6	207	44	96	1084
Steam-trap	J. J. Lawler	681,830	Sept. 3	826	66	96	1931
Steam-trap	F. A. Littlefield	682,260	Sept. 10	1110	252	96	2103
Steam-trap	R. G. Brooke	682,526	Sept. 10	1563	355	96	2191
Steam-trap	W. D. Labadie	680,718	Aug. 20	1880	413	96	1459
Steam-trap ejector	S. H. Coup	681,106	Aug. 20	2611	577	96	1605
Steamer	H. Burrell	680,602	Aug. 20	1809	399 / 400	96	1442
Steamer. Cargo-	H. Harmet	679,072	July 23	3377	752	96	737
Steel. Compressing liquid	S. T. and C. H. Wellman	682,512	Sept. 10	1539	349	96	2186
Steel-furnace. Open-hearth	E. Martin	682,632	Sept. 17	1760	.....	96	2253
Steel or iron and copper. Manufacture of compound plates of	W. W. Small	679,688	July 30	4599	1032 / 1033	96	1012
Steering device	R. W. Cartter	682,171	Sept. 10	941	212	96	2072
Sterilizer	W. and J. Boekel	682,522	Sept. 10	1558	354	96	2190
Sterilizer-case	J. C. Miller	678,893	July 23	3010	675	96	664
Sterilizing and cooling apparatus. Liquid	A. E. Leach	679,626	July 30	4484	1008	96	987
Sterilizing apparatus	J. C. Miller	678,892	July 23	3008	675	96	664
Sterilizing apparatus. Liquid-	J. C. Miller	678,891	July 23	3006	674	96	664
Sterilizing liquids	T. A. Williams	678,079	July 9	1419	326	96	309
Still-flue	G. W. Davis	678,230	July 9	1694	388	96	365
Still. Water-	T. B. Garretson	680,454	Aug. 13	1346	294	96	1328
Stilt. Adjustable	M. H. Powell	680,355	Aug. 13	1177	259	96	1293
Stocking	H. A. Guinzburg	679,420	July 30	4089	913	96	905
Stocking-supporter. Duplex	J. MacCormack	679,275	July 23	3776	843	96	818
Stoker. Automatic	W. Schulthess	683,348	Sept. 24	3049	699	96	2532
Stone. Apparatus for the production of compressed artificial sand-	F. R. L. Gehre	678,726	July 16	2678	.....	96	578
Stone. Artificial	W. H. Demorest, Jr	678,944	July 23	3113	697	96	684
Stone-carrier	W. P. Gault	682,186	Sept. 10	967	218	96	2077
Stone carving and dressing machine	F. Eisenbeis and F. Garelly, Jr	677,444	July 2	203	50	96	45
Stone-cutting machine	S. Oldham	681,256	Aug. 27	2902	643	96	1684
Stone-dressing machine	F. Gothier	677,507	July 2	305	75, 76	96	66
Stone-lifter	W. Schulthess	683,337	Sept. 24	3047	698	96	2532
Stone. Making artificial sand-	P. Cabrié	677,853	July 9	970	.....	96	225
Stone. Manufacture of artificial	P. Cabrié	679,828	Aug. 6	211	.....	96	1084
Stone. Manufacture of artificial	C. Rensing	681,580	Aug. 27	3513	.....	96	1804
Stone or the like. Hardening artificial							
Stopper: *See* Bottle-stopper. Pipe-stopper. Water-bag stopper.							
Stopper	P. F. Cassidy	680,518	Aug. 13	1477	325	96	1355
Storage and display device	E. J. Early	679,474	July 30	4192	941	96	925
Storage battery	D. P. Perry	678,436	July 16	2108	479	96	462
Storage battery	W. J. Still	678,443	July 16	2124	481	96	466
Storage battery	D. P. Perry	678,512	July 16	2267	510	96	497
Store-service apparatus	J. T. Cowley	681,040	Aug. 20	2501	554	96	1582
Storing and averaging materials in bulk	E. H. Messiter	677,677	July 2	624	149 / 150	96	132
Stove	P. Anderson	682,778	Sept. 17	2045	462	96	2307
Stove and attachment. Heating-	A. Muir	681,245	Aug. 27	2878	638	96	1679
Stove attachment	W. P. McCobb	678,123	July 9	1502	346	96	326
Stove cut center	J. P. Turney	679,403	July 30	4005	907	96	901
Stove-door and frame therefor	J. R. Carter and J. E. Hausfeld	679,830	Aug. 6	213	45	96	1085
Stove-grate	C. F. Turner	680,185	Aug. 6	856	191	96	1216
Stove grilling attachment. Gas-	E. W. T. Richmond	682,748	Sept. 17	1976	448	96	2294
Stove. Heating-	J. E. James	677,661	July 2	604	144	96	128
Stove-hood	J. E. Bell	680,959	Aug. 20	2342	514	96	1552
Stove. Hydrocarbon-vapor	E. G. Mummery	682,630	Sept. 17	1756	402	96	2252
Stove. Lamp-	H. M. Crider	682,130	Sept. 3	860	193	96	2036
Stove. Oil-	J. Guimaraes	678,245	July 9	1717	393	96	370
Stove or furnace	L. H. Curtis	681,444	Aug. 27	3257	728	96	1754
Stove or furnace. Heating	B. B. Christie	680,123	Aug. 6	739	164	96	1192
Stovepipe-elbow	C. William	678,810	July 16	2818	635	96	607
Stovepipe-elbows, &c. Manufacture of	T. F. Crary	677,341	July 2	15	4	96	6
Stovepipe-holder	V. Ethier	677,447	July 2	206	51	96	46

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stovepipe-joint	A. St. Arnaud	677,813	July 2	884	211	96	186
Stovepipe-lock	E. J. Stanley	679,690	July 30	4606	1038	96	1013
Stove, range, or the like	C. Gentle	681,309	Aug. 27	3022	670	96	1708
Strainer and valve. Combined	G. U. Merrill	678,001	July 9	1264	290	96	281
Straining apparatus. Water-	L. Parsons	682,994	Sept. 17	2448	554, 555	96	2389
Strap: *See* Lug-strap. Traction-strap.							
Strap connection	S. W. Gibbs and C. Montieth	677,505	July 2	302	75	96	65
Strawberry-runner cutter	W. Parks	679,395	July 30	4053	904	96	899
Street-cleaning purposes. Push-wagon for	T. Hill	680,250	Aug. 13	980	220	96	1254
Street-sweeper	J. V. Allen	679,286	July 30	3822	856	96	849
Street-sweeper	A. J. Reynolds	683,413	Sept. 24	3187	730, 731	96	2560
Street-sweeper dust-trap	A. A. Clough	682,156	Sept. 3	912	208	96	2045
Street sweeper or cleaner	O. Schumann	681,514	Aug. 27	3390	752	96	1779
Street-sweeper's cart	F. Haberman	680,856	Aug. 20	2151	472	96	1513
Stress apparatus	H. M. Brittan	680,371	Aug. 13	1201	265	96	1298
Stretcher	D. H. Mahan	677,673	July 2	618	148	96	130
Stretcher or litter	H. Lobsen	681,559	Aug. 27	3464	769	96	1795
Stringed-instrument attachment	A. Pietsch	677,427	July 2	171	41	96	39
Stroke mechanism. Adjustable	B. W. Grist	678,172	July 9	1586	365	96	343
Stud	H. Garnier	682,541	Sept. 10	1590	361	96	2197
Stud for fasteners	W. P. Devine	680,373	Aug. 13	1203	266	96	1298
Stud for glove-fasteners, &c. Spring-	J. R. Smith	683,346	Sept. 24	3058	701	96	2534
Stud. Lacing-	J. S. Kitchell	683,121	Sept. 24	2654	609	96	2451
Stuffing-box	R. Titus and D. C. Covert	679,922	Aug. 6	387	88	96	1119
Stump-extractor	W. H. Wright	677,490	July 2	271	68	96	59
Stump-extractor	J. S. Swenson	679,402	July 30	4062	906, 907	96	901
Stump-puller	D. Howell	681,024	Aug. 20	2469	547	96	1576
Sucker-rod elevator	C. M. Spink	681,987	Sept. 3	543	114	96	1974
Sugar-bowl. Mechanical	J. L. Weir	681,466	Aug. 27	3304	735	96	1768
Sugar-drying apparatus. Automatic stop for	F. Mahoudeau	678,747	July 16	2707	610	96	584
Sugar from molasses. Extracting	J. G. Oxnard and W. Baur	682,737	Sept. 17	1957	444	96	2290
Sugar-melter	M. A. Smith	678,440	July 16	2116	490	96	464
Sugar or other powdered or pulverized materials. Receptacle for	G. B. Crites	679,834	Aug. 6	225	47	96	1088
Sugar-refining apparatus	W. R. Long	679,463	July 30	4175	987	96	921
Sugar. Refining grape-	W. R. Long	679,426	July 30	4096	915	96	907
Sulfite-digester	W. A. Luke	683,129	Sept. 24	2666	612, 613	96	2458
Sulfite liquor and product therefrom. Utilizing waste	A. Mitscherlich	681,241	Aug. 27	2969	637	96	1677
Sulfur trioxid. Making	C. Krauss and J. Wach	677,670	July 2	615	147	96	129
Sulfur trioxid. Making	P. Paull and C. Krauss	677,692	July 2	649	155	96	137
Sulfuric anhydrid. Making	W. Hasenbach	681,698	Sept. 3	60	------	96	1875
Summer-house	F. X. Blumle	679,108	July 23	3454	770	96	759
Supply and waste apparatus. Combination	W. Bunting, Jr	682,453	Sept. 10	1448	328	96	2167
Supporting device. Adjustable	H. T. Coldwell and F. B. Sharpe	677,758	July 2	770	185	96	168
Surgical-dressing packer	J. E. Lee	682,090	Sept. 3	801	175	96	2024
Surgical dressing. Sterilized	H. C. Lovis	681,483	Aug. 27	3337	741	96	1760
Surgical instrument	J. N. Ranger	681,975	Sept. 3	614	131	96	1967
Surgical jaw splint and support	W. G. E. Muller	678,417	July 16	2070	470	96	455
Suspender and trousers connection	R. T. Clarke	680,430	Aug. 13	1303	286	96	1319
Suspender attachment	L. Dahl	682,043	Sept. 3	729	156	96	2008
Suspender attachment for waists or shirts	P. A. Chott	681,102	Aug. 20	2607	576	96	1604
Suspender cast-off	A. M. Ziegler	677,842	July 2	947	222	96	196
Suspender cast-off	A. E. Sawyer	679,904	Aug. 6	523	111	96	1147
Suspender end	J. Riley	679,783	Aug. 6	116	26	96	1065
Suspender-end	L. E. Pease	681,073	Aug. 20	2563	566	96	1596
Suspender-end	R. T. Clarke	680,429	Aug. 13	1302	286	96	1318
Suspender-end button attachment	A. M. Ziegler	677,841	July 2	943	223	96	196
Suspenders	J. W. Hafer	678,251	July 9	1723	395	96	372
Suspenders	G. E. Adams	680,558	Aug. 13	1538	338	96	1367
Suspenders	G. E. Adams	680,679	Aug. 20	1783	393	96	1437
Suspenders	A. R. Miller	681,924	Sept. 3	505	104	96	1966
Suspenders	A. C. Woolman	682,582	Sept. 10	1668	379	96	2212
Suspenders, shoulder-brace, and belt. Combined	S. Ciegler	681,618	Aug. 27	3583	795	96	1817
Suspension-clasp	M. Rubin	678,962	July 23	3188	713	96	699
Sweater	O. Friebel	680,035	Aug. 6	590	129	96	1160
Swimming apparatus for attachment to the legs	C. Classen	682,379	Sept. 10	1310	295	96	2140
Swimming-bag	G. B. Anderson	682,160	Sept. 10	924	206	96	2068
Swing	J. B. Gagnon	678,336	July 9	1397	436	96	408
Swing-joint. Parallel adjustable	E. J. Filiatrault	679,222	July 23	3674	819	96	799
Swing. Lawn-	O. R. Olson	678,192	July 9	1619	374	96	349
Swing. Lawn or house	O. R. Olson	678,349	July 9	1934	443	96	410
Swing. Piazza	F. R. Spaulding	682,369	Sept. 10	1205	291	96	2137
Swinging gate. Adjustable	W. M. Smith	683,348	Sept. 24	3061	702	96	2534
Switch: *See* Automatic switch. Foot-switch. Automatic reversing-switch. Railway-switch. Delivery-switch. Starting and regulating switch. Electric switch. Telephone-switch. Electric-light switch. Thermostatic switch. Electromotor-switch. Trolley-switch.							
Switch and circuit-breaker. Combined	T. J. Johnston	679,151	July 23	3537	790	96	789
Switchboard-jacks. Mechanism for removing or replacing	W. S. Paca	682,566	Sept. 10	1632	374	96	2207
Switchboards. Test system for multiple	H. G. Webster	679,805	Aug. 6	153	34	96	1073
Switch for multiphase alternating-current motors	K. von Kandó	677,455	July 2	217	53	96	48
Switch mechanism	C. F. Gay	681,824	Sept. 3	317	64	96	1939
Switch-operating device	D. N. Weathers and W. S. Stevenson	677,827	July 2	911	217	96	192
Switch-operating mechanism	H. E. Poole	678,276	July 9	1784	410	96	382
Switch-operating mechanism	J. R. Klippelt and H. W. Jeffers	678,574	July 16	2598	595	96	522

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Switch-operating mechanism	F. A. Carroll	680,020	Aug. 6	568	121, 122	96	1155
Switch-operating mechanism	T. B. Kelsay	682,413	Sept. 10	1877	311	96	2153
Switch-operating mechanism. Electrical	C. B. Russell	680,626	Aug. 13	1654	365	96	1390
Switch-rod. Adjustable	W. C. Lee and M. F. Moore	679,153	July 23	3545	791	96	772
Switch-thrower. Automatic	J. R. Rathbone	678,685	July 16	2606	585	96	565
Switch throwing and locking mechanism	J. H. Bissett	679,593	July 30	4435	997	96	976
Switch-throwing device	A. A. Baker and F. F. Heffernan	677,618	July 2	524	125	96	111
Switch-turner	E. B. Clark	682,032	Sept. 3	707	152, 153	96	2005
Switches. Automatic means for throwing	H. P. McArdle	678,752	July 16	2713	611	96	585
Syringe	M. K. Thomas	677,480	July 2	256	64	96	56
Syringe	R. J. Hughes	678,568	July 16	2374	532	96	519
Syringe	J. Murray	682,110	Sept. 3	831	185	96	2030
Syringe	A. E. Bonesteel	683,069	Sept. 24	2622	602	96	2445
Syringe attachment	J. G. Poe	682,269	Sept. 10	1125	255	96	2106
Syringe. Hypodermic	C. Witkowski	679,198	July 23	3639	813	96	792
Syringe-nozzle	C. T. Hannigan	679,671	July 30	4564	1026	96	1004
Syringe. Vaginal	F. Y. Wilhoft	681,010	Aug. 20	2441	539	96	1570
Syrup-jar	J. W. Sutton	677,815	July 2	887	211	96	187
Table: *See* Bandaging-table. Pigeonhole-table. Extension-table. Pool-table. Game-table. Portable table. Invalid's table. Sectional table. Ironing-table. Transfer-table. Operating-table. Tufting-table. Pay-table. Work-table.							
Table	H. J. Brewer	677,632	July 2	542	129, 130	96	115
Table	L. Welker, Sr.	677,736	July 2	711	168	96	150
Table	C. E. Pugh	683,069	Sept. 24	2565	586	96	2438
Table and stool. Combination	I. W. Hile	681,394	Aug. 27	3157	708	96	1734
Table, chair, and stool. Combined	B. S. Leveen	681,235	Aug. 27	3055	684	96	1675
Table-leg. Detachable	J. Luger, Jr	678,898	July 23	3000	672	96	668
Tablet and holder. Combined manifolding writing-	H. L. Haussamen	682,254	Sept. 10	1009	240	96	2100
Tablet-coating machine	B. F. Hays	678,399	July 16	2042	463	96	449
Tablet or blank-book holder. Writing-	C. W. Stockett, Jr.	679,267	July 23	3760	840	96	815
Tablet. Writing-	W. E. Rhodes	681,376	Aug. 27	3183	695	96	1729
Tack-machine feeding mechanism	F. A. Snell	681,935	Sept. 3	540	113, 114	96	1974
Tackle-block	J. M. Ervin	677,446	July 2	204	51	96	45
Tag	O. Konrad	683,296	Sept. 24	2972	681	96	2516
Tag for bottles, &c	O. H. C. Voigt	678,830	July 16	2875	647	96	618
Tag holder. Shoe-	H. A. Hildreth	680,975	Aug. 20	2373	522	96	1557
Tag. Laundry-	W. J. Baker	678,156	July 9	1563	360	96	339
Tag. Shipping-	F. Kohnle	682,718	Sept. 17	1919	436	96	2284
Talking and picture-exhibiting machine. Combined	H. C. Matthews	678,890	July 23	3002	673, 674	96	663
Talking-machines. Sound-box for	E. R. Johnson	679,806	Aug. 6	340	72	96	1111
Tank: *See* Flush-tank. Water-tank. Hot-water tank. Water-closet tank. Knockdown tank.							
Tank	J. H. Wallace and J. D. Isaacs	681,822	Sept. 3	314	64	96	1928
Tank	B. F. Ellis	683,391	Sept. 24	3133	717	96	2550
Tank-heater	C. E. Myers	678,506	July 16	2255	507	96	495
Tank-heater	J. J. Dolan	679,554	July 30	4364	980	96	961
Tank heater. Watering-	A. Hayward	681,418	Aug. 27	3109	711	96	1742
Tanks for gasolene or the like. Supply-	A. H. Wolyn	681,902	Sept. 3	467	95	96	1958
Tanning compound	D. W. Brown	680,222	Aug. 13	986	------	96	1247
Tanning or dressing hides, skins, &c	F. Valentiner	682,925	Sept. 17	2137	------	96	2326
Tap	A. H. Riggs	678,814	July 16	2827	637	96	609
Tap. Barrel-	H. Grayson	682,797	Sept. 17	2080	471	96	2315
Tap. Bung-	J. C. F. Reimold	678,764	July 16	2735	616	96	589
Tap. Throughway-	J. Weatley	683,087	Sept. 24	2592	595	96	2439
Tape into edgings. Machine for threading	T. A. Curtis	680,475	Aug. 13	1383	302	96	1335
Target apparatus	J. L. McCullough	679,325	July 30	3888	868, 869	96	863
Target for leveling-rods	T. W. Van Hoesen	677,720	July 2	698	166	96	148
Target-trap	E. D. Schmitt	679,162	July 23	3503	795, 796	96	776
Target-trap	J. Bowron	679,289	July 30	3827	857	96	850
Target-trap	H. C. Lord	683,308	Sept. 24	2989	685, 686	96	2519
Tea-kettle attachment	C. E. Warren	679,928	Aug. 6	406	86	96	1123
Tea or coffee pot	H. G. Roth	678,692	July 16	2615	588	96	567
Tea or coffee pot	D. M. B. H. Cochrane	678,720	July 16	2667	601	96	576
Tea or coffee pot	E. Gregory	678,616	July 16	2482	555	96	541
Teaching bookkeeping. Device for	J. L. Williams	679,714	July 30	4649	1045	96	1021
Teeth. Cap for fixing crowns to	A. Schneider	683,075	Sept. 24	2572	588	96	2435
Teeth-cleaning appliance	J. G. Burchell	683,198	Sept. 24	2778	640	96	2475
Teeth. Means for fastening artificial	W. J. Worsley	681,770	Sept. 3	327	44	96	1910
Teeth-separator	A. W. Greely	678,393	July 16	1964	------	96	434
Telegraph and cable code	J. Burry	677,535	July 2	356	87	96	77
Telegraph apparatus	F. W. Jones	677,519	July 2	325	79	96	70
Telegraph instruments. Protection of multiple-	O. L. Kleber	683,051	Sept. 24	2541	579	96	2428
Telegraph mechanism. Paper-carriage-feed device for printing-	J. Roggínger	677,801	July 2	850	204, 205	96	179
Telegraph. Printing-	J. Burry	680,698	Aug. 20	1811	400, 401, 402, 403, 404	96	1442
Telegraph-relay	J. E. Cordovez	680,024	Aug. 6	570	123, 124	96	1157

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drfg.	Official Gazette. Vol.	Official Gazette. Page.
Telegraph-switchboards. Connecting-plug for	J. A. Bowen	681,868	Sept. 3	393	80	96	1944
Telegraph switching apparatus	F. W. Jones	677,453	July 2	214	53	96	47
Telegraph system. Wireless	H. Shoemaker	680,002	Aug. 6	537	114	96	1150
Telegrapher's finger-guard	I. H. Blessing	681,185	Aug. 27	2768	615	96	1658
Telegraphic apparatus	S. G. Brown	681,617	Aug. 27	3578	795	96	1816
Telegraphic instrument	J. J. Ghegan	678,394	July 16	2081	461	96	448
Telegraphic instrument	J. J. Ghegan	678,395	July 16	2083	462	96	448
Telegraphic recording apparatus	J. F. Skirrow	681,932	Sept. 3	530	111 / 112	96	1971
Telegraphic transmitting, receiving, and translating arrangement	A. Muirhead	678,505	July 16	2253	507	96	494
Telegraphing, indicating time, or actuating mechanism electrically	C. R. Loubery	678,746	July 16	2705	610	96	584
Telegraphy. Method by which several telegraphic messages can be transmitted at the same time through one conductor or by wireless	A. Bull	681,099	Aug. 20	2602	575	96	1608
Telegraphy. Wireless	H. Shoemaker	680,001	Aug. 6	535	114	96	1149
Telegraphy. Wireless	H. P. Davis	682,974	Sept. 17	2406	545	96	2380
Telephone-apparatus support	E. E. Ries	681,812	Sept. 3	297	60	96	1925
Telephone call-bell	C. E. Scribner	681,744	Sept. 3	159	30	96	1896
Telephone-circuit	W. E. Pembleton	678,304	July 9	1845	424	96	394
Telephone-circuits	P. G. Burgess and H. W. Wilder. (Reissue.)	11,022	July 23	3815	855	96	825
Telephone-exchange apparatus	F. R. McBerty	680,879	Aug. 20	2188	482	96	1520
Telephone-exchange apparatus	A. B. Stetson	682,152	Sept. 3	901	201	96	2043
Telephone-exchange calling device	F. A. Lundquist	679,029	July 23	3275	733	96	716
Telephone-exchange system	W. M. Davis	679,731	Aug. 6	26	8	96	1048
Telephone-exchange system	D. Sinclair and W. Aitken	679,788	Aug. 6	123	27	96	1067
Telephone-exchange system	J. L. McQuarrie	681,724	Sept. 3	114	22	96	1896
Telephone-exchange system	C. E. Scribner	680,890	Aug. 20	2211	487	96	1524
Telephone-exchanges. Connection-counter for	F. R. McBerty	680,880	Aug. 20	2191	483	96	1521
Telephone-exchanges. Connection-register for	C. E. Scribner	681,860	Sept. 3	382	77	96	1942
Telephone-exchanges. Service-meter for	A. M. Bullard	679,068	July 23	3367	750	96	734
Telephone-line apparatus	C. E. Scribner and F. R. McBerty	681,743	Sept. 3	157	29	96	1895
Telephone-line switchboard	C. E. Scribner	681,742	Sept. 3	154	29	96	1895
Telephone-lines. Connection-counter for	J. Nessel and J. F. Gouin	678,509	July 16	2261	508 / 509	96	496
Telephone. Long-distance relay magnetic	A. Deck	682,458	Sept. 10	1456	330	96	2169
Telephone-protector	M. C. Mengis	682,332	Sept. 10	1237	279	96	2125
Telephone pulsations. Means for automatically reviving exhausted	W. D. Gharky	677,409	July 2	130	30	96	29
Telephone-receiver	S. J. Friedman	683,206	Sept. 24	2917	669	96	2505
Telephone-receiver	A. L. Brinckle	681,206	Aug. 27	2084	493	96	1701
Telephone-receiver-support lock	E. M. Cox and W. Reed	681,408	Aug. 27	3177	707	96	1738
Telephone-receivers. Adjustable arm for supporting	L. M. Ericsson	681,878	Sept. 3	413	83, 84	96	1948
Telephone switch apparatus	W. D. Watkins	677,724	July 2	705	167 / 168	96	149
Telephone-switch. Automatic	F. R. McBerty	678,309	July 16	1976	450 / 451	96	436
Telephone-switchboard calling appliance	G. M. Yorke	681,603	Aug. 27	3551	790	96	1811
Telephone-switchboards. Mechanical intercommunication between	W. D. Gharky	677,410	July 2	132	31	96	30
Telephone-switchboards. Operator's suspension set for	C. E. Scribner. (Reissue)	11,929	Aug. 20	2750	610	96	1633
Telephone-switchboards. Supervisory signal for	C. A. Casperke	682,030	Sept. 3	705	152	96	2004
Telephone system. Series	F. R. McBerty	682,732	Sept. 17	1949	443	96	2289
Telephone systems. Supervisory signal for	T. Barnet	677,331	July 2	1	1	96	3
Telephone time-indicator	E. P. Baird	678,632	July 16	2515	563	96	546
Telephone toll apparatus	E. P. Baird	678,633	July 16	2523	564	96	548
Telephone toll apparatus	W. Gray	682,086	Sept. 17	2435	551	96	2386
Telephone toll apparatus	C. E. Scribner	677,807	July 2	869	208	96	183
Telephone toll-line coin-collector	J. G. Nolen	678,972	July 23	3172	710	96	696
Telephone-transmitter	M. C. Mengis	682,333	Sept. 10	1240	280	96	2125
Telephone-transmitter	H. B. Sabin	680,077	Aug. 6	695	147	96	1177
Telephone-transmitter-arm joint	E. E. Ries	681,813	Sept. 3	298	60	96	1925
Telephone-transmitters or other apparatus. Support for	G. Séligmann-Lui	679,998	Aug. 6	528	112	96	1148
Telephonic messages. Counting	A. Groomes	678,467	July 16	2163	488	96	473
Telescope. Submarine	M. L. Whitfield	678,709	July 16	2647	595 / 596	96	572
Telescopic engine. Semicompound	G. Leder	682,721	Sept. 17	1924	437	96	2285
Temperature-finder for stored cotton-seed, &c	F. L. Jobson	682,084	Sept. 3	794	173	96	2022
Temperature-indicator. Electric	H. Winkenwerder	680,423	Aug. 13	1293	284	96	1317
Temperature-regulating apparatus	R. Scharkofsky	682,498	Sept. 10	1521	344	96	2183
Tenpin	J. M. Corson	681,301	Aug. 27	3014	667 / 668	96	1706
Tent	H. A. Tillinghast	679,797	Aug. 6	138	30	96	1070
Tentering-machine rail	E. G. Durant	677,861	July 9	984	231 / 232	96	227
Terra-cotta and clay ware. Machine for the manufacture of hollow	W. I. Tuttle	679,487	July 30	4232	953	96	982
Testing apparatus	E. N. Eaton	679,141	July 23	3322	787	96	767
Testing device	W. I. Tuttle	679,486	July 30	4220	953	96	981
Testing receptacles	J. A. Minturn	683,216	Sept. 24	2815	648	96	2483
Therapeutic battery	T. J. Zoeller	682,661	Sept. 17	1797	412	96	2261
Thermostat. Electrical	J. W. Eberman	678,332	July 9	1890	434	96	402
Thermostat for operating valves	W. F. Singer	683,186	Sept. 24	2759	634 / 635	96	2471
Thermostatic switch	J. E. Johnson	678,184	July 9	1603	370	96	346
Thill-coupling	J. H. Osborne	679,092	July 23	3286	734	96	718
Thill-coupling	F. A. Wegner	679,269	July 23	3765	840	96	816
Thill-coupling	W. J. Kennedy	679,461	July 30	4172	937	96	921
Thill-coupling	J. L. Curley	680,844	Aug. 20	2134	467	96	1509
Thill-coupling	G. W. Lester	682,091	Sept. 3	802	175	96	2024
Thill-coupling	F. A. Wegner	682,655	Sept. 17	1790	410	96	2259
Thill-coupling	W. C. Shipherd	682,760	Sept. 17	2008	454	96	2300
Thill-coupling	T. M. McIntosh	678,896	July 23	3021	676	96	666
Thimble	F. A. Lewis	681,558	Aug. 27	3464	769	96	1794
Thimble-attacher	H. Kling	680,716	Aug. 20	1877	413	96	1458
Thimble-lid holder	F. E. Garner	679,121	July 23	3486	779	96	759
Thread guide and cleaner	C. Corron	682,842	Sept. 17	2174	491	96	2333
Thread. Machine for treating	B. F. Greene	682,409	Sept. 10	1367	308	96	2151
Thread-protector	F. E. McNall	678,897	July 23	3021	677 / 678	96	666
Thresher and separator	O. C. Zimmerman	680,187	Aug. 6	858	191	96	1216
Thresher and separator. Grain	J. B. Bartholomew	677,933	July 2	5	2	96	4
Thresher-belt guide	M. T. White	680,067	Aug. 6	698	155	96	1184
Thresher. Pea	A. von Loeper	680,258	Aug. 13	904	223	96	1257
Threshing-machine	G. F. Messinger	681,238	Aug. 27	2862	635	96	1676
Threshing-machine	W. R. Hendry	678,564	July 16	2368	531	96	518
Threshing-machine attachment	T. L. Cummings	682,042	Sept. 3	727	157	96	2008
Threshing-machine band-cutter and feeder	C. O. Heggem	682,193	Sept. 10	980	221	96	2079
Threshing-machine beater	F. F. Landis	681,060	Aug. 20	2535	560	96	1589
Threshing-machine picker	H. Baak	682,516	Sept. 10	1547	351	96	2188
Threshing-machine straw-carrier	L. J. Blades	678,933	July 23	3084	690	96	679
Ticket case and holder	L. G. Smith	678,354	July 9	1945	445 / 446	96	413
Ticket, &c. Railway	G. A. Merrill	682,102	Sept. 3	818	182	96	2027
Tie: *See* Bale-tie. Railway-tie. Metallic tie. Railway cross-tie. Rail-tie. Wall-tie.							
Tie-holding clasp	A. J. Barr and J. W. Well	680,109	Aug. 6	718	159	96	1187
Tie-plate	E. Del Manzo	680,767	Aug. 20	1977	434	96	1480
Tile. Facing	H. Rosenbusch	678,425	July 16	2068	473	96	457
Tile. Floor	G. H. Bennett	681,946	Sept. 3	556	117	96	1977
Tile floor, wall, &c	J. K. Sierer	680,468	Aug. 13	1369	299	96	1333
Tile-forming machine	P. Bruns	682,667	Sept. 17	1807	415	96	2263
Tiles, plates, slabs, &c. Manufacture of	M. Storp	682,370	Sept. 10	1296	------	96	2137
Tiles, roofings, linings, &c. Composition for the manufacture of	P. Sohége	682,502	Sept. 10	1526	------	96	2184
Till	F. Day	680,964	Aug. 20	2350	516	96	1553
Timber-dolly	J. L. Bayley	682,668	Sept. 17	1799	412	96	2261
Timber-protecting compound	C. Schallberger	678,201	July 9	1640	------	96	354
Time and combination lock. Combined	E. H. Mix	677,363	July 2	57	13	96	15
Time-indicator	C. H. Brake	680,018	Aug. 6	561	121	96	1155
Time operating mechanism	C. H. Mayers	679,683	July 30	4590	1031	96	1010
Timepiece winding-indicator	C. E. A. Schnake	683,174	Sept. 24	2572	588	96	2435
Time-recorder	P. G. Giroud	678,777	July 16	2756	620	96	593
Time-recorder. Employee's	E. G. Heene	678,438	July 16	2097	477 / 478	96	460
Time-recorder. Workman's	F. Brook and J. S. Gaunt	682,133	Sept. 3	865	194	96	2036
Tin-plate-manufacturing apparatus	H. N. Norton	681,235	Aug. 27	2898	642 / 643	96	1683
Tinning. Material for protecting sheets, &c., in	J. A. Kyle	679,972	Aug. 6	491	------	96	1141
Tipping-machine	W. L. Porter and R. Wittke	681,657	Aug. 27	3675	823 / 824	96	1838
Tire	J. M. Doan	682,917	Sept. 17	2306	521	96	2360
Tire and felly drill	F. W. Förster	678,555	July 16	2334	525	96	511
Tire and inner tube therefor. Pneumatic	C. G. Page	678,510	July 16	2262	509	96	496
Tire. Bicycle	C. Stone	677,378	July 2	77	17	96	19
Tire bolter and cutter	J. E. Clark	678,719	July 16	2664	600 / 601	96	575
Tire-bolting machine	F. P. Schaaf	679,091	July 23	3432	705	96	747
Tire. Cushion	W. G. Kendall	677,415	July 2	140	32	96	31
Tire. Cushion	W. G. Kendall	678,317	July 9	1864	429	96	397
Tire. Cushion	J. Holland	678,340	July 9	1915	439	96	407
Tire. Cushion	J. E. Furlong	679,280	July 23	3703	846	96	821
Tire. Cushion	E. Germain	682,057	Sept. 3	746	162	96	2011
Tire. Cushion	F. W. Skinner	683,345	Sept. 24	3058	701	96	2534
Tire. Cushion	H. E. Irwin	680,486	Aug. 13	1409	307	96	1340
Tire. Detachable	W. Kightlinger	680,332	Aug. 13	1117	249	96	1282
Tire. Elastic	W. F. Williams	682,442	Sept. 10	1423	321	96	2163
Tire. Elastic	J. Gogel	680,455	Aug. 13	1347	295	96	1328
Tire-heater	S. Gleazen	681,213	Aug. 27	2814	625	96	1667
Tire-heater	G. B. Stacy	677,708	July 2	679	161	96	143
Tire-inflator. Automatic	U. P. Smith	677,810	July 2	877	210	96	185
Tire. Pneumatic	J. G. Moomy	678,504	July 16	2252	506	96	494
Tire. Pneumatic	W. E. Hoyle	680,776	Aug. 20	1992	488	96	1483
Tire. Pneumatic	E. Hemsted	677,983	July 9	1239	284	96	276
Tire. Pneumatic bicycle	J. I. White	681,089	Aug. 20	2590	572	96	1601
Tire-repairing tool	E. A. Dibbens	682,977	Sept. 17	2412	546	96	2382
Tire. Resilient or elastic	C. W. Stapleton	677,814	July 2	886	211	96	186
Tire. Rubber	O. Gamas	681,501	Aug. 27	3368	747	96	1774
Tire-setter	S. A. Gaede and H. J. Duckgeischel	678,658	July 16	2557	572 / 573	96	555
Tire-setting machine. Rubber	J. A. Burrows	680,312	Aug. 13	1087	240 / 241	96	1276
Tire-tightener	W. Schau	679,161	July 23	3560	704 / 705	96	775
Tire-tightener	A. Vandandaigue	681,759	Sept. 3	182	35	96	1901
Tire valve. Pneumatic	L. T. Smith	679,519	July 30	4300	966	96	946
Tire valves. Connection-piece for pneumatic	J. F. Morrissey	681,067	Aug. 20	2550	564	96	1593
Tire. Vehicle	J. W. Hawkins	677,867	July 9	1008	234	96	231
Tire. Vehicle	G. W. Southwick	678,055	July 9	1373	317	96	301
Tire. Vehicle	F. Theodore	681,151	Aug. 20	2685	593	96	1622
Tire. Vehicle	J. Glenu	681,310	Aug. 27	3024	670	96	1708
Tire. Vehicle	W. J. Wittmann	683,365	Sept. 24	3002	708	96	2541
Tire. Vehicle-wheel	W. F. Masters	682,638	Sept. 17	1761	402	96	2253
Tire. Wheeled-vehicle	A. Bonfiglietti	679,596	July 30	4438	998	96	977
Tires. Air-pump for pneumatic	G. B. Stacy	677,710	July 2	682	162	96	144
Tires. Composition for closing punctures in pneumatic	W. H. Simmons	680,420	Aug. 13	1290	------	96	1316

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Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tires. Device for inserting inner tubes into pneumatic	W. H. Crabtree	679,217	July 23	3666	818	96	797
Tires. Elastic valve attachment for pneumatic	R. J. Peet	682,387	Sept. 10	1324	299	96	2143
Tires. Manufacture of vehicle	F. G. Davis	680,569	Aug. 13	1556	342	96	1370
Tires to vehicle-wheels. Means for securing resilient	H. A. Palmer	680,392	Aug. 13	1238	273	96	1306
Tires to wheels of road-vehicles. Means for securing	A. T. Collier	681,619	Aug. 27	3584	795 796	96	1818
Tires to wheels. Securing elastic	W. F. Williams	682,012	Sept. 3	673	146	96	1999
Titanium compounds. Producing	H. Spence	681,993	Sept. 3	639		96	1998
Toaster	W. Wells	680,095	Aug. 6	696	155	96	1185
Tobacco-box	J. T. Cutting	681,627	Aug. 27	3604	801	96	1823
Tobacco-moistener	L. L. Clark	682,319	Sept. 10	1214	275	96	2121
Tobacco-pipe	W. B. Barbour	677,620	July 2	526	125	96	112
Tobacco-pipe	J. P. King	679,079	July 23	3410	759	96	748
Tobacco-pipe	G. W. Roller	682,278	Sept. 10	1142	258	96	2109
Tobacco-pipe	F. L. Schulz	683,389	Sept. 24	3051	699	96	2552
Tobacco-pipe	A. S. Speirs	683,006	Sept. 17	3470	569	96	2298
Tobacco-pipe attachment	D. H. Allen	679,872	Aug. 6	296	63	96	1108
Tobacco-pipe-charging device	F. G. Frankenberg	677,407	July 2	128	28	96	28
Tobacco-stripping machine	J. G. Havens	678,485	July 16	2214	497 498 499	96	485
Tobacco-stripping machine	L. Frederick	677,616	July 2	522	124	96	111
Tongs	W. Tempest	679,440	July 30	4126	925	96	913
Tongs	R. H. Stevens	681,518	Aug. 27	3396	753	96	1781
Tongs	H. M. Susdorf	679,094	July 23	3489	766	96	748
Tongue-support. Vehicle	G. Ermold	678,333	July 9	1892	434 435	96	408
Tonsilotome	G. Ermold	678,334	July 9	1894	435	96	408
Tonsilotome	E. D. C. Koeth	677,770	July 2	799	191	96	170
Tool	F. H. Engstrom	677,964	July 9	1901	277	96	269
Tool. Combination	A. K. Harper	678,247	July 9	1718	394	96	371
Tool. Combination	F. G. Henning	679,260	July 23	3745	836	96	812
Tool. Combination	H. W. Leonard	678,410	July 16	2039	468	96	458
Tool. Electrically-heated	C. F. Mueller	680,497	Aug. 13	1426	312	96	1343
Tool-handle	C. W. Grant	677,350	July 2	29	7	96	9
Tool-holder	M. C. Rodenberger	678,424	July 16	2082	473	96	457
Tool-holder	R. S. Brown	681,008	Aug. 20	2601	574	96	1608
Tool-rack	J. S. Thompson	679,647	July 30	4525	1018	96	995
Tooth. Artificial	J. W. Ivory	678,182	July 9	1598	369	96	346
Tooth or dental clamp	E. J. Thurston	682,892	Sept. 17	2262	511	96	2351
Toothpick	W. A. Eckert	679,610	July 30	4461	1001	96	982
Toothpicks, matches, &c. Self-righting receptacle for	C. H. Stadlinger	678,056	July 9	1374	317	96	301
Tooth-powder box	E. H. Angle	678,452	July 16	2144	485	96	470
Tooth-regulator	E. H. Angle	678,453	July 16	2145	485	96	470
Tooth-regulator	P. B. McCullough	680,389	Aug. 13	1285	272	96	1305
Tooth-roots. Device for forming models of crownless	A. C. Backus	680,957	Aug. 20	2339	513	96	1551
Top	J. Fleischmann	680,323	Aug. 13	1103	245	96	1290
Top and holder. Spinning	L. W. Campbell	678,538	July 16	2302	519	96	504
Top roll	F. and W. Dutcher	682,537	Sept. 10	1584	360	96	2196
Torch. Signal	D. Stretch	678,798	July 16	2790	628	96	599
Tow-head	C. W. Walters	677,723	July 2	708	167	96	149
Toy	J. Mauro	677,745	July 2	743	177	96	157
Toy	G. Schneider	679,996	Aug. 6	526	112	96	1148
Toy	C. S. Devaney	680,708	Aug. 20	1859	408	96	1454
Toy	M. Duffner	681,499	Aug. 27	3395	747	96	1774
Toy	S. Schmaus	677,601	July 2	488	117	96	108
Toy bank	H. A. Skinner	677,895	July 9	1054	247	96	241
Toy bank. Keyless	C. M. Bartholomew	682,519	Sept. 10	1551	352	96	2189
Toy bird	R. L. Short	681,079	Aug. 20	2570	568	96	1597
Toy cannon	W. H. Wythe	679,661	July 30	4545	1022	96	999
Toy. Detonating	T. H. Macdonald	683,130	Sept. 24	3669	613	96	2453
Toy graphophone	A. F. Humphrey	682,990	Sept. 17	3442	553	96	2388
Toy gun	G. Royle and W. R. Wynne	678,351	July 9	1942	444 445	96	412
Toy. Optical	J. A. Chapman	682,790	Sept. 17	3067	468	96	2312
Toy or game	W. H. Wythe	680,126	Aug. 6	743	165	96	1192
Toy pistol	A. D. Converse	682,454	Sept. 10	1450	328	96	2168
Toy stop-motion. Mechanical	A. M. Craig	681,443	Aug. 27	3256	728	96	1754
Trace-coupling	I. L. Edwards	677,345	July 2	22	5	96	7
Trace-fastener	T. Atchason	678,711	July 16	2651	597	96	573
Trace-fastener	J. C. Johnson	681,855	Sept. 3	375	75	96	1940
Trace-fastener	J. G. Smith	680,180	Aug. 6	849	198	96	1214
Track-brake	S. P. Day and C. E. Neal	677,342	July 2	18	4	96	6
Track-fastening	H. C. Stiff	678,967	July 23	3197	716	96	700
Track. Portable connecting	C. B. Nichols	682,150	Sept. 3	897	200	96	2042
Track-sander	W. H. Kilbourn	681,796	Sept. 3	273	53	96	1980
Track-sanding device	A. B. Davenport, Jr	678,166	July 9	1576	363	96	341
Track structures. Casting-clamp for	V. Angerer and A. R. Cline	678,214	July 9	1664	388	96	358
Track structures. Casting-clamp for	J. J. Chattaway	682,239	Sept. 10	1075	243	96	2096
Traction drum or roller	J. B. Bartholomew	677,332	July 2	2	1	96	3
Traction-engine	J. E. Henris	680,918	Aug. 20	2266	498	96	1536
Traction-engine	L. M. Maxham and A. B. Upham	678,122	July 9	1498	345 346	96	336
Traction-motor	H. P. Maxim and A. F. Bardwell	681,173	Aug. 20	2741	607	96	1631
Traction-strap. Detachable	E. Vilpou	679,580	July 30	4410	990 991	96	971
Trains. Means for actuating indicators upon moving	J. H. Montgomery	682,149	Sept. 3	895	199 200	96	2042
Tramway. Aerial wire-rope	W. J. Stewart	680,007	Aug. 6	542	115 116	96	1151
Tramway or railway points. Appliance for working	W. H. Cooley	680,645	Aug. 13	1681	372 373	96	1395
Transfer privileges. Means for limiting							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Transfer privileges. Means for limiting	W. H. Cooley	680,646	Aug. 13	1695	373 374	96	1399
Transfer-table	R. Eben	680,574	Aug. 13	1563	344	96	1372
Transformer	J. J. Frank	677,970	July 9	1211	279	96	271
Transformer	F. C. Sutter and R. V. Bingay	680,421	Aug. 13	1290	283	96	1316
Transformer. Rotary	B. G. Lamme	682,942	Sept. 17	2355	532	96	2370
Transformers. Flux-screen for	A. R. Everest	678,233	July 9	1700	390	96	366
Transom lifter and lock	J. Foster	681,907	Aug. 27	2804	622	96	1665
Transporting rigid bodies. Means for	H. C. Spalding	683,078	Sept. 24	2576	589 590 591	96	2436
Trap: *See* Animal-trap. Fish-trap. Insect-trap. Mole-trap. Steam-trap. Target-trap.							
Trap	W. A. Brunker	678,220	July 9	1678	385	96	362
Trap	J. M. Tyler	679,196	July 23	3636	812	96	791
Trap	O. Huffman	681,791	Sept. 3	266	52	96	1918
Traveling-bag	A. H. Christie	677,942	July 9	1165	268	96	261
Tray-stand and napkin-receptacle. Combined	W. H. Johnson	677,545	July 2	887	92	96	88
Trays. Machine for making box	C. B. Andrews	678,152	July 9	1552	357 358	96	336
Tread for sidewalks. Safety	S. MacKay	679,287	July 23	3700	826	96	804
Treadle mechanism	W. T. Gordon	682,355	Sept. 10	1275	287	96	2132
Tree-prop bracket	R. S. McIntyre	678,679	July 16	2599	584	96	564
Tree-protector	C. A. Chisolm	682,081	Sept. 3	706	152	96	2004
Trellis or holding-rack for vegetables	W. H. Thomas	680,507	Aug. 13	1442	317	96	1346
Tricycle, &c	J. T. M. Hircock	680,862	Aug. 20	2160	475	96	1515
Tripod-stay	G. E. Mellen	679,058	July 23	3349	747	96	731
Trolley	T. L. McElroy	677,881	July 9	1027	242	96	236
Trolley	F. R. Taisey	678,143	July 9	1535	353	96	333
Trolley	N. Durant	679,220	July 23	3671	819	96	798
Trolley	H. Smith	681,933	Sept. 3	588	113	96	1973
Trolley	J. A. Thompson	682,392	Sept. 10	1337	303	96	2146
Trolley	F. A. Crans	682,608	Sept. 17	1709	390	96	2244
Trolley	D. J. Rosen	682,689	Sept. 17	1768	404	96	2255
Trolley-arm for electric cars	J. F. Snow	681,891	Sept. 3	444	90	96	1953
Trolley-catcher	C. I. Earll	683,026	Sept. 24	2504	569	96	2421
Trolley contact. Underground	J. S. Garzousi	682,056	Sept. 3	746	161	96	2011
Trolley. Electric-car	J. H. Beckert	679,492	July 30	4245	956	96	935
Trolley-guard	C. E. Stanley	680,296	Aug. 13	1035	232	96	1295
Trolley-gulde	G. F. Heusner	680,919	Aug. 20	2267	499	96	1536
Trolley-gulding device	A. J. Griffin	678,617	July 16	2484	555	96	541
Trolley-signal	C. H. Morse	678,894	July 23	3012	676	96	664
Trolley-stand	E. J. Parker	680,437	Aug. 13	1316	289	96	1321
Trolley-stand	E. J. Kelley	680,662	Aug. 13	1736	381	96	1408
Trolley-stand	E. J. Kelley	680,663	Aug. 13	1738	381 382	96	1408
Trolley-switch	W. P. Hines	681,119	Aug. 20	2633	582	96	1610
Trolley-wheel	W. C. Costrell	680,567	Aug. 13	1552	341	96	1370
Trolley-wire hanger	A. D. Crossley	679,953	Aug. 6	453	95	96	1182
Trolley-wire support	W. Gerard	682,187	Sept. 10	968	218	96	2077
Trombone-oiling attachment	F. Ennis	677,965	July 9	1202	277	96	269
Trough: *See* Calf-trough.							
Trough or tank. Stock	J. F. Glidden	678,104	July 9	1467	338	96	320
Trousers-stretcher	J. L. Norris	680,269	Aug. 13	1010	227	96	1261
Truck	C. Hoffmann	679,750	Aug. 6	64	16	96	1054
Truck	J. L. Barrick	680,561	Aug. 13	1544	339	96	1368
Truck	T. Scullin	682,647	Sept. 17	1781	407	96	2258
Truck	S. Haltom	682,982	Sept. 17	2357	526	96	2366
Truck attachment	F. J. Fairchild	679,279	July 23	3702	846	96	821
Truck attachment	B. H. Hulburd	679,621	July 30	4477	1006	96	986
Truck. Car	C. Vanderbilt	678,802	July 16	2798	630 631	96	601
Truck. Car	E. S. Woods	680,516	Aug. 13	1475	325	96	1354
Truck. Car	E. Peckham	681,342	Aug. 27	3067	680	96	1716
Truck. Car	W. E. Prindle	682,273	Sept. 10	1135	256	96	2107
Truck. Car	A. A. Ambler	682,348	Sept. 10	1263	285	96	2130
Truck. Car	P. M. Kling	682,716	Sept. 17	1916	435	96	2283
Truck. Elevating	H. T. Liter	682,095	Sept. 3	807	178	96	2024
Truck for harvesters. Tongue	O. S. Ellithorp	679,836	Aug. 6	227	48	96	1088
Truck for moving buildings	J. Rodemeier	678,035	July 9	1327	303	96	292
Truck. House-moving	J. Fike	678,836	July 16	2690	652	96	621
Truck. Piano	S. Bartholomew	682,662	Sept. 17	1798	412	96	2261
Truck. Railway	N. H. Heft	680,587	Aug. 13	1584	350	96	1376
Trunk	O. Rangnow	677,596	July 2	480	115	96	101
Trunk	W. M. Snail and W. M. Dougherty	680,892	Aug. 20	2215	487 488	96	1525
Trunk-fastening device	E. H. Fox	679,234	July 23	3676	819	96	799
Trunk-harness	L. J. Vandervoort	680,296	Aug. 13	1056	236	96	1289
Truss	N. H. Davis	678,379	July 16	1998	455	96	440
Truss	N. H. Davis	678,380	July 16	1999	455	96	441
Truss. Hernial	W. A. Middaugh	677,879	July 9	1025	242	96	236
Truss. Hernial	C. E. Brooks	682,235	Sept. 10	1066	240	96	2094
Truss. Hernial	G. V. House	682,936	Sept. 17	2345	529	96	2368
Tub: *See* Washtub.							
Tub-foot fastener	W. C. McKinney and J. F. Whitehead.	678,007	July 9	1275	292	96	283
Tube: *See* Boiler-tube. Collapsible tube. Flexible tube. Paper tube.							
Tube-boiler	L. Serpollet	681,746	Sept. 3	162	30,31	96	1896
Tube-cutter	L. W. Siple	679,483	July 30	4224	952	96	980

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Tube-expander	C. V. Burton	677,980	July 9	1144	263	96	257
Tube-expander	T. R. Johnson	683,291	Sept. 24	2964	264	96	2514
Tube-expanding apparatus	F. G. Hampson	683,274	Sept. 24	2933	672	96	2508
Tube-rolling apparatus	R. Laybourne, C. W. E. Marsh, and B. Price.	681,557	Aug. 27	3460	673	96	1794
Tube-welding device. Electric	O. Parpart	683,066	Sept. 24	2559	768	96	2432
Tubes from single strips of metal. Construction of	T. A. Judge	682,718	Sept. 17	1912	584	96	2282
Tubes, hollow shafting, axles, &c., from common puddled iron or other metals. Manufacture of	J. G. Inshaw	680,595	Aug. 13	1603	434	96	1380
hollow blooms for	C. E. W. Woodward	682,444	Sept. 10	1424	322	96	2164
Tubing. Fabric for use in the production of air-tight	P. Patterson	682,423	Sept. 10	1391	314	96	2156
Tubing. Making lap-weld	T. J. Price	679,469	July 30	4184	939	96	923
Tubing-making machine	H. R. Keithley	682,359	Sept. 10	1279	288	96	2133
Tubular bodies. Machine for manufacturing	H. R. Keithley	682,360	Sept. 10	1281	289	96	2133
Tubular bodies. Manufacturing	E. D. Clark	681,196	Aug. 27	2789	619	96	1661
Tubular metallic frame	E. D. Clark	681,195	Aug. 27	2788	619	96	1661
Tubular metallic frames. Uniting	J. Ward	682,654	Sept. 17	1789	410	96	2259
Tufted cushion	A. F. Mrock	678,347	July 9	1931	443	96	410
Tufted fabric	A. Freschl	682,139	Sept. 3	877	196	96	2039
Tufting cushions	J. H. Cloyes	677,559	July 2	415	100	96	88
Tufting-machine button-support	E. Hollatz	680,147	Aug. 6	773	173	96	1199
Tufting-table	C. S. Ellis	680,575	Aug. 13	1565	344	96	1372
Tufting-table. Upholsterer's	M. W. Ryland	679,188	July 23	3619	807	96	788
Tug. Hame-	J. M. Narsh	682,561	Sept. 10	1629	373	96	2206
Tug-hook for hames. Adjustable	W. Klinder	680,926	Aug. 20	2279	501	96	1540
Tuning-hammer	J. F. O'Rourke	678,758	July 16	2725	614	96	588
Tunnel construction	T. J. Obenchain	678,811	July 16	2820	635	96	607
Turbine. Steam-	J. F. Brady	679,358	July 30	3966	887	96	880
Turbine. Steam-	W. L. Webster	681,284	Aug. 27	2958	656	96	1696
Turbine. Steam-	M. Scharfberg	677,376	July 2	74	657	96	18
Turbine. Water-main	I. Edmondson	679,301	July 30	3848	861	96	855
Turf and land cutter	A. E. Marzolf	679,179	July 23	3593	802	96	782
Turn-table	T. F. Langley	682,944	Sept. 17	2359	532	96	2371
Turn-table	S. Schinburg	678,429	July 16	2088	475	96	458
Turret	F. A. Richardson	681,978	Sept. 3	616	132	96	1988
Twine-cutter	G. H. Ellis	679,694	July 30	4618	1035	96	1015
Twine from unretted flax-straws. Manufacture of	W. G. Esch	681,533	Aug. 27	3418	758	96	1785
Twine-holder	C. A. A. Rand	681,140	Aug. 20	2068	589	96	1617
Twine or cord tension device	F. Meyer	682,947	Sept. 17	2362	533	96	2372
Twisting and doubling machine	E. F. Dreman	682,245	Sept. 10	1084	245	96	2097
Twisting machine. Fabric-	C. Seybold	678,188	July 9	1526	351	96	382
Tying and bundling machine	A. W. Steiger	677,430	July 2	175	42	96	89
Type-bar-driving connection	G. H. Ziegler	678,831	July 16	2875	647	96	618
Type-casting machine	L. B. Benton	680,685	Aug. 20	1793	395	96	1439
Type-dressing machine	E. D. Hardy and W. W. Rebuschatis.	682,466	Sept. 10	1465	332	96	2171
Type-locking device	E. A. Hornbostel, Sr.	679,231	July 23	3685	821	96	801
Type-writer	A. W. Steiger	680,551	Aug. 13	1529	335	96	1365
Type-writer	L. Schlesinger	681,930	Sept. 3	521	109	96	1970
Type-writer	C. H. Bell	682,020	Sept. 3	682	148	96	2000
Type-writer	W. B. Martin	677,582	July 2	458	109	96	97
Type-writer attachment	W. J. Ryther and B. A. Cole	679,785	Aug. 6	118	27	96	1066
Type-writer attachment	W. Faber	680,321	Aug. 13	1101	245	96	1279
Type-writer carriage	G. H. Ennis	681,957	Sept. 3	587	123	96	1982
Type-writer. Electric	C. Sears	682,758	Sept. 17	2001	454	96	2298
Type-writer escapement	W. S. Perry	682,636	Sept. 17	1764	408	96	2254
Type-writer escapement-wheel	A. C. Ferguson	682,137	Sept. 3	873	195	96	2038
Type-writer. Portable	W. J. Mauk	678,579	July 16	2397	537	96	524
Type-writer tabulating attachment	W. J. Barron	677,623	July 2	531	127	96	112
Type-writing machine	C. H. Shepard	677,706	July 2	672	160	96	142
Type-writing machine	C. H. Shepard	677,707	July 2	677	161	96	143
Type-writing machine	G. H. Smith	677,746	July 2	744	178	96	157
Type-writing machine	W. J. Barron	677,922	July 9	1124	250	96	254
Type-writing machine	B. A. Brooks	678,473	July 16	2173	490	96	475
Type-writing machine	J. E. Paterson	678,511	July 16	2264	509	96	496
Type-writing machine	L. P. Diss	678,532	July 16	2327	524	96	510
Type-writing machine	B. A. Brooks	679,360	July 30	3960	889	96	880
Type-writing machine	W. H. Flanagan	679,668	July 30	4558	1025	96	1002
Type-writing machine	H. E. Curtis	679,954	Aug. 6	455	95, 96	96	1133
Type-writing machine	J. Felbel	679,960	Aug. 6	499	98	96	1136
Type-writing machine	J. H. O'Brien	680,805	Aug. 20	2061	449	96	1494
Type-writing machine	H. Burg	681,036	Aug. 20	2490	551	96	1580
Type-writing machine	W. S. Shirk	681,270	Aug. 27	2928	648	96	1691

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Type-writing machine	B. C. Stickney and C. Gabrielson	681,750	Sept. 3	168	82	96	1897
Type-writing machine	L. P. Diss	681,846	Sept. 3	360	72	96	1937
Type-writing machine	J. S. Foley	682,248	Sept. 10	1068	246	96	2066
Type-writing machine	C. and R. H. Sears	682,739	Sept. 17	2005	454	96	2300
Type-writing machine	C. F. Melen	682,880	Sept. 17	2151	486	96	2329
Type-writing machine	H. W. Higham	682,870	Sept. 17	2222	502	96	2343
Type-writing machine ribbon-feed device	W. S. Shirk	679,686	July 30	4595	1022	96	1011
Type-writing machines. Auxiliary spacing device for	G. P. Blessing	679,018	July 23	3251	726	96	711
Umbrella-cover. Detachable	E. B. Murdock	683,316	Sept. 24	3018	691	96	2526
Umbrella. Folding	E. E. Morrison	678,816	July 9	1863	428	96	397
Umbrella-handle	D. H. Redmond	679,035	July 23	3291	736	96	720
Umbrella-rib	M. J. Gleason	678,868	July 23	2652	664	96	653
Umbrella-runner	S. S. Fretz	681,635	Aug. 27	3616	804	96	1836
Umbrella-runner	C. J. Hunt	680,661	Aug. 13	1734	381	96	1407
Umbrella. Self-opening	J. I. Bealmear	681,405	Aug. 27	3172	706	96	1737
Umbrella-tip retainer	J. Pennington	679,572	July 30	4395	987	96	968
Undergarment. Combination-	J. C. Swan	683,352	Sept. 24	3066	703	96	2535
Underreamer	J. M. Kellerman	679,384	July 30	4033	899	96	895
Underreamer and drill. Expanding	J. C. Rothe	677,425	July 2	168	900	96	28
Unhairing-machine	H. S. Cromble	680,649	Aug. 13	1713	40	96	1403
Union-coupling	G. B. Kinsler	677,869	July 9	1005	376	96	282
Universal joint	F. E. Bocorselski	678,093	July 9	1440	335	96	313
Unloading apparatus	R. Thew	677,610	July 2	504	120	96	107
Unloading apparatus	G. E. Titcomb	677,718	July 2	694	121	96	147
Unloading device	F. P. Johnson	678,108	July 9	1475	165	96	322
Upholstery apparatus	A. Freschl	681,050	Aug. 20	2517	340	96	1586
Urinal-screen	E. E. Burson	683,419	Sept. 24	3197	557	96	2562
Vacuum-pan	R. J. Bowman	682,451	Sept. 10	1445	733	96	2166
Vacuum-producing apparatus	J. W. Howell and W. R. Burrows.	677,969	July 9	1247	286	96	278
Vacuum-tube lighting	D. M. Moore	678,302	July 9	1889	423	96	393
Valve	N. Curtis	679,456	July 30	4162	424	96	919
Valve	W. H. and R. Thompson	680,209	Aug. 6	902	935	96	1225
Valve	M. F. Gutermuth	680,245	Aug. 13	968	200	96	1252
Valve	L. Schutte	680,737	Aug. 20	1925	218	96	1470
Valve	C. E. Huxley	681,794	Sept. 3	269	422	96	1919
Valve	T. J. Hart	682,688	Sept. 17	1849	52	96	2270
Valve	T. W. Snow	681,890	Sept. 3	443	426	96	1952
Valve-actuating device	W. H. Collier	677,858	July 9	978	39, 50	96	1952
Valve-actuating mechanism	J. P. Marsh	683,215	Sept. 24	2814	39	96	226
Valve. Air-	T. R. Browne	682,599	Sept. 17	1696	648	96	2492
Valve and pump. Differential piston	H. M. Salyer	678,427	July 16	2085	387	96	2241
Valve. Automatic controlling-	M. Koenig	681,172	Aug. 20	2739	388	96	158
Valve. Automatic cut-off	G. I. Alden	679,717	Aug. 6	1	607	96	1631
Valve. Automatic hydraulic gravity-	F. McCarthy	679,890	July 30	4046	1	96	1043
Valve. Automatic relief-	J. A. Johnson and E. O. Henderson.	679,755	Aug. 6	74	902	96	898
Valve. Balanced	H. D. and C. L. Dunbar	682,921	Sept. 17	2312	19	96	1056
Valve. Balanced slide-	P. Mueller	678,271	July 9	1773	522	96	2361
Valve. Check-	T. B. Belfield	681,611	Aug. 27	3570	408	96	379
Valve. Check-	A. von Borries	679,212	July 23	3657	798	96	1815
Valve. Compound engine-	P. Whiting	679,247	July 23	3715	816	96	795
Valve. Cylinder-	R. F. Foster	680,852	Aug. 20	2145	829	96	807
Valve device	J. Kelly	683,179	Sept. 24	2747	830	96	1512
Valve device	E. Y. Moore	679,583	July 30	4323	470	96	2469
Valve. Fluid-motor-controlling	J. Denton	681,802	Aug. 27	3016	971	96	951
Valve. Flush-tank	N. A. Christensen	680,842	Aug. 20	2131	972	96	1767
Valve for compressors	C. A. Bennett	678,584	July 16	2295	465	96	1509
Valve for fluid compressors and engines	R. L. Weighton and D. B. Morison.	679,099	July 23	3445	466	96	508
Valve for multiple-expansion engines. Steam-distributing	D. W. Porter	681,076	Aug. 20	2565	768	96	750
Valve for presses. Hydraulic	J. A. Hollenberger	680,592	Aug. 13	1598	567	96	1506
Valve for washbowls, bath-tubs, &c. Waste-	E. S. Root and C. S. Demarest	679,543	July 30	4343	358	96	1379
Valve. Gas or other pipe	A. M. Hewlett	679,051	July 23	3323	975	96	956
Valve. Gate-	E. D. Jefferson	680,714	Aug. 20	1875	745	96	728
Valve. Gate-	O. L. Whiteman	681,900	Sept. 3	462	412	96	1458
Valve gate or covering	S. L. Cluett	679,364	July 30	3984	94, 95	96	1957
Valve-gear. Engine	B. V. Nordberg	680,666	Aug. 13	1746	891	96	893
Valve-gear. Engine	B. V. Nordberg	680,667	Aug. 13	1749	383	96	1410
Valve-gear. Explosive-engine	J. McNeil	682,880	Sept. 17	2245	384	96	1410
Valve-gear mechanism for single-acting engines	L. Serpollet	680,000	Aug. 6	532	506	96	2347
Valve-gearing	W. G. Rice	679,992	Aug. 6	520	113	96	1149
Valve. Hydraulic-press	C. F. Burroughs	678,994	July 23	3209	114	96	1147
Valve-indicator	O. L. Whiteman	681,899	Sept. 3	460	111	96	708
Valve. Induction-	C. W. Kersteter	681,883	Sept. 3	420	94	96	1956
Valve. Main stop-	F. Schumann	681,986	Sept. 3	629	86	96	1949
Valve mechanism. Explosive-engine	H. A. Knox	679,152	July 23	3541	134	96	1900
Valve mechanism for engines for compressing air or gases	Z. W. Daw	679,955	Aug. 6	458	791	96	771
Valve mechanism for siphon-valves or draft-tubes	J. P. MacLearn	678,841	July 16	2899	96, 97	96	1134
Valve mechanism. Hydraulic	E. E. E. Mears	679,767	Aug. 6	94	654	96	938
Valve. Oil-hole	J. H. Bennett	678,931	July 23	3081	22	96	1061
Valve. Piston-	J. T. Heffernan	677,982	July 9	1237	649	96	679
Valve. Piston-	W. Heston	682,689	Sept. 17	1851	284	96	276
Valve. Pumping-engine	G. A. Krohn	681,829	Sept. 3	394	426	96	2271
					66	96	1980

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Valve. Reducing-	N. Curtis	683,388	Sept. 24	3130	717	96	2550
Valve. Relief-	M. D. Larkin	678,405	July 16	2049	465	96	451
Valve reseating machine. Combined gate and globe.	F. L. Smith	682,368	Sept. 10	1289	290 / 291	96	2135
Valve. Reservoir outlet-	E. A. Bromley	679,940	Aug. 6	428	90	96	1127
Valve-reversing mechanism for explosive-engines	W. W. Scott	682,757	Sept. 17	1998	453	96	2298
Valve. Rotary cut-off-	C. Piguet	677,370	July 2	67	15	96	16
Valve. Safety-	J. A. Thompson	682,303	Sept. 10	1338	308	96	2146
Valve-seat. Removable	E. H. Merrill	678,014	July 9	1285	294	96	284
Valve. Steam-	O. Richter	677,470	July 2	240	60	96	53
Valve. Steam-engine-	E. L. Sauer	678,964	July 23	3191	714 / 715	96	699
Valve. Steam-engine-	C. M. Wilcox	683,165	Sept. 24	2724	627	96	2465
Valve. Stop-	C. Wehner, C. Maltner, and F. Bansen.	681,285	Aug. 27	2060	657	96	1697
Valve. Stop-	F. Schumann	681,987	Sept. 3	631	135	96	1991
Valve. Testing-	E. Hafner	677,569	July 2	437	103 / 104	96	92
Valve. Triple-	J. W. Shafer	682,499	Sept. 10	1522	345	96	2133
Valve. Vacuum-	W. H. Shay	677,888	July 9	1041	245	96	288
Valve. Water-gage-	W. H. and A. J. Bailey	682,162	Sept. 10	928	207	96	2099
Valves. Automatic lubricator for slide-	J. W. Stewart	677,901	July 9	1085	252	96	946
Valves. Electric detector for	C. B. Garrett	681,211	Aug. 27	2811	624	96	1666
Vapor-burner	L. Dürr	678,295	July 9	1826	420	96	390
Vapor-burner	H. F. Smith	678,829	July 16	2870	646 / 647	96	617
Vapor-burner	E. B. Ludwig	680,200	Aug. 13	998	224	96	1258
Vapor-burner	W. Mitchell	681,333	Sept. 3	331	67	96	1982
Vapor-burner	J. R. and C. W. Pensyl	682,324	Sept. 24	3030	694	96	2528
Vapor-burner	T. Gordon	681,951	Sept. 3	369	74	96	1989
Vapor-burner. Incandescent	T. Gordon	681,952	Sept. 3	370	74	96	1989
Vapor-burner. Incandescent	F. B. Shafer	682,296	Sept. 10	1153	262	96	2111
Vapor generator and burner	A. Bulling	678,714	July 16	2655	598	96	573
Vaporizer	W. S. Parker	682,421	Sept. 10	1389	313	96	2156
Vault. Burial-	J. M. Crigler	680,766	Aug. 20	1975	453 / 454	96	1480
Vault. Grave-	G. W. Murray	682,109	Sept. 3	880	185	96	2029
Vault. Grave-	B. F. Van Camp	682,578	Sept. 10	1662	379	96	2211
Vault sections. Mold for burial-	R. E. Royal	677,473	July 2	247	62	96	54
Vegetable-cutter	E. S. Regnier	678,514	July 16	2270	510 / 511	96	498
Vegetable, fruit, or other slice and making same	R. McClaskey	677,585	July 2	461	110	96	97
Vehicle	J. H. Moninger	678,015	July 9	1286	294	96	284
Vehicle	A. J. Diggins	679,369	July 30	3004	808	96	884
Vehicle-body	J. N. Callahan and J. D. Short	677,635	July 2	546	130	96	115
Vehicle-brake	W. H. Adams	677,846	July 9	961	226	96	223
Vehicle-brake	T. J. Emerson	683,027	Sept. 24	2507	569	96	2421
Vehicle-brake	J. D. Richards	680,358	Aug. 13	1181	260	96	1295
Vehicle-brake. Automatic	L. H. Rickles	683,145	Sept. 24	2694	620	96	2469
Vehicle-brake. Automatic	F. B. Cook	681,620	Aug. 27	3565	796	96	1818
Vehicle brake mechanism	J. F. Byers	679,471	July 30	4186	940	96	928
Vehicle construction. Motor-	W. Bahrenburg	679,822	Aug. 6	900	48	96	1083
Vehicle-door	L. B. Smyser	677,897	July 9	1079	250 / 251	96	245
Vehicle driving mechanism. Motor-	T. B. Jeffery and R. W. Thompson	678,622	July 16	2496	567 / 568	96	543
Vehicle driving mechanism. Motor-	T. B. Jeffery	682,801	Sept. 17	2086	472	96	2316
Vehicle driving-trains. Controlling device for motor	F. I. E. Akers	677,847	July 9	962	226	96	223
Vehicle. Dumping-	F. J. Newman and J. Ledwinka	680,804	Aug. 20	2058	449	96	1494
Vehicle. Electrically-propelled	W. F. Weiss	682,771	Sept. 17	2029	458	96	2304
Vehicle-fender	J. H. Mann	682,262	Sept. 10	1113	252 / 253	96	2108
Vehicle for common roads. Steam-	W. Barber	682,901	Sept. 17	2276	514	96	2354
Vehicle-frame	F. E. Wilcox	679,810	Aug. 6	167	37, 38	96	1075
Vehicle-gear	C. T. Fletcher	677,968	July 9	1207	278 / 279	96	270
Vehicle-gear. Compensating	B. Mason	681,237	Aug. 27	2857	634 / 635	96	1675
Vehicle-gear. Quick-turning	F. E. Canda and L. B. Smyser	677,854	July 9	970	228 / 229	96	225
Vehicle. Motor-	R. Thayer	678,068	July 9	1388	319 / 320	96	308
Vehicle. Motor-	A. and J. B. Benson	679,045	July 23	3323	742 / 743	96	726
Vehicle. Motor-	R. R. Darling	679,366	July 30	3989	891	96	884
Vehicle. Motor-	L. W. Pullen	680,074	Aug. 6	661	146	96	1176
Vehicle. Motor-	G. B. Anderson	680,307	Aug. 13	1061	239	96	1275
Vehicle. Motor-	C. A. Lieb	680,602	Aug. 13	1615	357	96	1392
Vehicle. Motor-	B. C. Hicks	681,219	Aug. 27	2936	628	96	1669
Vehicle. Motor-	B. C. Hicks	681,220	Aug. 27	2938	628 / 629	96	1669
Vehicle. Motor-	J. C. Wood	681,709	Sept. 3	294	43, 44	96	1910
Vehicle. Motor-	H. A. Frantz	682,983	Sept. 17	2429	549 / 550	96	2385
Vehicle. Motor-	E. S. Doré and G. Evanovitch	683,200	Sept. 24	2781	641	96	2476
Vehicle. Pneumatically-propelled	W. J. White	682,773	Sept. 17	2081	459	96	2305
Vehicle reversing mechanism. Motor-	W. Van Wagoner	679,097	July 23	3443	767	96	749
Vehicle running-gear	J. E. York	679,135	July 23	3508	784	96	764
Vehicle safety-stop	A. L. Stevens	680,444	Aug. 13	1329	292	96	1324
Vehicle short-turning gear	F. Franz	679,669	July 30	4561	1020	96	1008
Vehicle side apron	T. H. Joyce	679,624	July 30	4481	1007	96	986
Vehicle spring-gear	W. B. Griffin	681,543	Aug. 27	3442	763	96	1790
Vehicle. Spring-motor	J. L. McDowell	679,773	Aug. 6	102	24	96	1062
Vehicle spring-support	A. Trovaton	682,001	Sept. 3	653	140	96	1905
Vehicle. Steam-propelled	H. K. Hess	682,194	Sept. 10	981	221	96	2070
Vehicle tire-rail	S. P. Hotaling	677,743	July 2	737	176	96	156

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle-top	W. J. Estes	677,346	July 2	23	5	96	7
Vehicle-wheel	G. V. Orton	678,025	July 9	1306	298	96	288
Vehicle-wheel	G. Tobler	678,067	July 9	1397	321	96	305
Vehicle-wheel	E. J. Watkins	678,149	July 9	1548	356	96	336
Vehicle-wheel	W. S. Cannaday	679,294	July 30	3885	850	96	852
Vehicle-wheel	D. H. O'Meara	679,571	July 30	4328	966 / 967	96	968
Vehicle-wheel	J. E. Camp	680,224	Aug. 13	998	211	96	1247
Vehicle-wheel having resilient tire	M. Holaubek	679,000	July 23	3218	720	96	705
Vehicle-wheel. Metallic	E. D. Wassell	679,522	July 30	4306	908	96	947
Vehicles. Engine-protector for motor-	G. A. Macker	677,875	July 9	1020	240	96	234
Vehicles. Means for connecting differential gearing to driving-axles of	E. T. Birdsall	677,771	July 2	800	192	96	170
Vehicles. Means for controlling electric motor-	J. Sachs	682,642	Sept. 17	1775	405	96	2256
Vehicles. Safety device for automotor-	V. Huberti	681,025	Aug. 20	2470	547	96	1576
Vehicles, &c. Seat for	F. M. Light	680,158	Aug. 6	806	179	96	1205
Vehicles. Steering-gear for motor-	H. R. M. Cormery	680,764	Aug. 20	1971	432 / 433	96	1479
Velocipede driving mechanism	R. B. Starbuck	680,741	Aug. 20	1930	423	96	1471
Velocipede-frame	E. G. Latta	679,082	July 23	3416	760 / 761	96	744
Velocipede. Free-wheel	A. Gibbs	683,271	Sept. 24	2927	670 / 671	96	2506
Velocipede-saddle spring	A. F. Blagdon-Richards	678,372	July 16	1987	452 / 453	96	438
Velvet. Manufacture of	R. Cleff and A. Langen	683,382	Sept. 24	3120	714	96	2547
Vending apparatus. Coin-controlled	M. F. Price	681,731	Sept. 3	139	25, 26	96	1892
Vending-machine	F. Bronori	679,879	Aug. 6	313	66	96	1105
Vending-machine	W. D. Doremus	682,792	Sept. 17	2070	469	96	2318
Vending-machine. Automatic	E. A. Reeves	678,083	July 9	1328	301 / 302	96	292
Vending-machine. Automatic	W. Dyer	681,696	Sept. 3	23	7	96	1869
Vending-machine. Automatic	E. C. Grewer	683,202	Sept. 24	2785	642	96	2476
Vending-machine. Coin-controlled	J. Aarons	679,871	Aug. 6	293	63	96	1101
Vending-machine. Coin-controlled	W. Tribble	681,084	Aug. 20	2579	570 / 571	96	1599
Vending-machine. Coin-controlled	B. W. Scott	682,573	Sept. 10	1645	376 / 377	96	2209
Veneer-cutting machine	H. H. Coe	680,642	Aug. 13	1677	371	96	1395
Veneer-machine cutting attachment	W. W. Wood	681,862	Aug. 27	3102	689	96	1728
Ventilating apparatus	W. H. B. Reynolds	680,887	Aug. 20	2203	485 / 486	96	1323
Ventilation of vehicles, buildings, &c	C. L. Pullman	678,130	July 9	1511	348	96	328
Ventilator: *See* Gas-ventilator.							
Ventilator	T. A. Dungan	677,344	July 2	21	5	96	7
Ventilator	P. Abrahamson	679,982	Aug. 6	410	87	96	1123
Ventilator	J. H. Francis	683,173	Sept. 24	2736	630	96	2467
Ventilator	D. J. Rosen	683,225	Sept. 24	2923	651	96	2485
Ventilator and dust-arrester	B. F. Clarke	679,108	July 23	3460	772	96	753
Vessel closure. Containing-	R. L. Patterson	682,925	Sept. 17	2450	555	96	2289
Vessel construction	E. E. Goulaeff	681,962	Sept. 3	595	126	96	1964
Vessel-holder. Tilting	E. J. Smith	682,576	Sept. 10	1660	378	96	2211
Vessel. Jacketed	H. W. Dressler	678,460	July 16	2153	486	96	471
Vessel or ship	P. Manchin and L. Boudreaux	682,681	Sept. 17	1758	402	96	2253
Vessel. Submarine	J. P. Holland	681,222	Aug. 27	2832	629	96	1670
Vessels. Depth-indicator for	C. Mehlsen	680,491	Aug. 13	1418	309	96	1342
Vessels. Device for preventing refilling of	W. J. Murray	683,057	Sept. 24	2548	581	96	2429
Vessels. Device for preventing refilling of	W. J. Murray	683,058	Sept. 24	2549	581	96	2429
Veterinary dental file	E. L. Quitman	682,997	Sept. 17	2454	556	96	2300
Vibration or tremor. Base-frame for absorbing	G. Middleton	682,104	Sept. 3	821	182 / 183	96	2027
Violin. Piano-	G. Rider	678,516	July 16	2272	511	96	498
Virus. Machine for impregnating thread with	O. Thomas	680,898	Aug. 20	2225	490	96	1527
Vise	W. H. Ford	679,257	July 23	3740	835	96	811
Vise. Bench-	H. F. Renner	680,439	Aug. 13	1319	290	96	1322
Vise. Bench-	G. W. Norton	680,539	Aug. 13	1512	332	96	1362
Volatile elements from their compounds. Obtaining	A. H. Cowles	679,253	July 23	3730	833	96	809
Voting-booth	L. W. Luellen	682,727	Sept. 17	1987	441 / 442	96	2287
Voting-machine	W. M. Delavan and W. L. Fenn	678,835	July 16	2886	651 / 652	96	621
Voting-machine	F. M. Myers	678,966	July 23	3164	708	96	694
Voting-machine	L. W. Luellen	681,802	Sept. 3	981	56, 57	96	1921
Voting-machine	L. W. Luellen	681,803	Sept. 3	983	57	96	1922
Voting-machine	C. De Croes. (Reissue)	11,983	Sept. 24	3212	725	96	2566
Vulcanizer. Electric	A. J. Conlin	677,399	July 2	110	24	96	25
Wad-feeding device	W. L. Morris	678,827	July 16	2866	645 / 646	96	616
Wagon	G. A. Fair	682,247	Sept. 10	1086	245 / 246	96	2098
Wagon-bed	G. H. Peterson	681,184	Aug. 20	2660	587	96	1616
Wagon-bed elevator and dump. Combined	H. Barsalou	679,207	July 23	3650	814	96	794
Wagon-bed scoop-board	L. L. Haworth	681,480	Aug. 27	3325	739	96	1767
Wagon-body	J. T. Burdick, Jr	682,167	Sept. 10	934	209	96	2070
Wagon-body. Combination	C. Gabel	680,581	Aug. 13	1576	347 / 348	96	1375
Wagon-bolsters. Combined standard and log-block for	J. N. Hudson	682,080	Sept. 3	787	171	96	2090
Wagon box and rack. Combined	R. B. Elliott	681,204	Aug. 27	2801	622	96	1664
Wagon-brake. Automatic	G. S. and H. C. Neal	682,861	Sept. 17	2246	507	96	2247
Wagon. Dumping-	T. Hill	678,470	July 16	2167	489	96	474
Wagon. Dumping-	C. S. Pharis	681,927	Sept. 3	513	106 / 107	96	1968
Wagon. Dumping-	W. O. Shadbolt	682,834	Sept. 17	2161	488	96	2331

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wagon-dumping device	H. Fox	677,971	July 9	1216	279	96	272
Wagon-jack	J. W. Allgood	680,751	Aug. 20	1948	426	96	1474
Wagon. Mail-carrier's	G. A. Town	678,074	July 9	1408	323	96	307
Wagon-rack. Adjustable	I. Robbins	680,020	Aug. 13	1646	363	96	1388
Wagon-running-gear	C. E. Belknap	679,498	July 30	4247	956	96	985
Wagon-skein nutting and facing machine	A. L. Warner	688,415	Sept. 24	3190	732	96	2561
Wagon-standard	A. Page	678,308	July 9	1845	424	96	308
Wagon top-box fastener	M. Nosal	679,539	July 30	4338	974	96	955
Waist and skirt supporter	E. M. Adams	680,106	Aug. 6	713	158	96	1187
Waistband-fastener	E. M. Palmer	677,885	July 9	1083	243	96	237
Waist-extender	H. H. Taylor	681,278	Aug. 27	2946	653	96	1694
Waist-lengthener	F. L. Newton	678,755	July 16	2720	612	96	587
Waist-lengthener and corset. Combined	E. K. Pilling	682,812	Sept. 17	2110	478	96	2320
Waist-lining	J. Newbauer	680,675	Aug. 13	1764	388	96	1413
Wall-tie	T. J. McCall	679,324	July 30	3987	896	96	893
Wardrobe. Combination	A. La Mar	680,206	Aug. 6	896	199	96	1294
Washboard	C. J. Vohs	679,804	Aug. 6	152	34	96	1072
Washboard	W. P. Brush	682,166	Sept. 10	983	209	96	2070
Washboiler	F. M. Bain	677,394	July 2	104	23	96	24
Washstand	W. C. Werum	679,807	Aug. 6	158	35	96	1074
Washstand	I. Mason	680,534	Aug. 13	1502	330	96	1390
Washstand	S. Richman	680,279	Aug. 13	1027	230	96	1263
Washtub with wringer attachment							
Washer: *See* Can-washer. Glass-washer. Gold-washer. Ore-washer. Window-washer.							
Washer-making machine	J. M. Mason	679,699	July 30	4622	1038, 1039	96	1016
Washer-making machine	H. C. Hart	682,070	Sept. 3	763	165, 166	96	2015
Washing-machine	C. S. Bradford	677,629	July 2	539	128	96	114
Washing-machine	E. Campbell	677,636	July 2	548	131	96	116
Washing-machine	H. Hevenor	678,177	July 9	1591	367	96	344
Washing-machine	S. A. Newcomer	678,681	July 16	2601	564	96	564
Washing-machine	J. G. Sohn	679,040	July 23	3310	740	96	723
Washing-machine	L. D. Hart	679,147	July 23	3532	799	96	798
Washing-machine	J. D. Kling	680,414	Aug. 13	1292	282	96	1315
Washing-machine	A. W. Jones	680,598	Aug. 13	1609	355	96	1381
Washing-machine	W. J. Everett	681,968	Sept. 3	560	125	96	1988
Washing-machine	W. J. Potter	681,973	Sept. 3	610	130	96	1987
Washing-machine	T. H. C. Beall	682,349	Sept. 10	1266	286	96	2130
Washing-machine	G. A. Steiner	680,987	Aug. 20	2396	528, 529	96	1561
Washing-machine attachment	J. C. Peters	681,423	Aug. 27	3208	714	96	1744
Washing-machine gearing	H. Sawyer	681,424	Aug. 27	3210	714, 715	96	1744
Washing-machine gearing	J. Dünner	681,113	Aug. 20	2026	580	96	1608
Washing plates or other dishes. Machine for	D. H. Church	677,698	July 2	551	131	96	117
Watch balance-staff	O. Ohlson	677,999	July 2	639	153	96	135
Watch-barrel	E. C. Phillips	680,067	Aug. 6	647	142	96	1173
Watchcase-pendant	C. M. Geiger	680,325	Aug. 13	1104	246	96	1280
Watch compensation-regulator	J. H. Bee and T. B. Campbell, Jr.	681,676	Sept. 3	8	3	96	1896
Watch-holder. Safety	O. Lamacchia	678,186	July 9	1606	370, 371	96	347
Watchmaker's tool	C. B. Howard	680,594	Aug. 13	1601	354	96	1389
Watch-pendants. Dust-proof sleeve for	A. Almqvist, A. W. Kastberg, G. A. Cahling, and P. A. Sjöqvist.	682,019	Sept. 3	681	148	96	2000
Watch-protector	S. Cohen	681,017	Aug. 20	2457	544	96	1574
Watch safety attachment	E. Dupuis	678,382	July 16	2002	456	96	441
Watch. Stop-	A. Anzelewitz	682,968	Sept. 17	2390	541	96	2378
Watch winding and setting mechanism	O. F. Teed	681,839	Sept. 3	342	69	96	1934
Watches. Cannon-pinion for	S. A. Woods	677,489	July 2	270	67	96	78
Water-bag	C. J. Bailey	679,521	July 30	4309	968	96	948
Water-bag	C. E. Longden	682,854	Sept. 17	2196	495	96	2337
Water-bag stopper	R. C. Johnson and J. B. Martin	679,459	July 30	4169	936	96	920
Water-closet	P. Schurig	678,843	July 16	2903	655	96	624
Water-closet cistern	G. H. Miller	680,459	Aug. 13	1355	296	96	1330
Water-closet flushing apparatus	W. S. Cooper, Jr., and J. Dorricott	679,299	July 30	3945	880	96	854
Water-closet tank	D. T. Kenney	678,496	July 16	2241	504	96	491
Water-closet valve	J. Denton	679,908	July 30	3991	892	96	884
Water-closet valve	J. C. Croppi and L. Edant	679,069	July 23	3370	750, 751	96	735
Water-closets, &c. Apparatus for flushing	F. Senff	679,007	July 23	3231	723	96	778
Water-closets, sewer-pipes, or the like. Apparatus for clearing obstructions from	M. A. Hyde	680,380	Aug. 13	1221	269	96	1302
Water-closets, urinals, washbasins, sinks, &c. Means for preserving seals in traps of	A. F. Old	680,271	Aug. 13	1014	228	96	1261
Water-cooler	G. McGovern	680,390	Aug. 13	1237	272	96	1305
Water-cooler. Combination	J. E. Swendeman	677,749	July 2	755	180, 181	96	159
Water-cooling tower	J. E. Armstrong	682,378	Sept. 10	1308	295	96	2140
Water-elevator. Automatic	F. Collewuie	681,681	Sept. 3	17	5	96	1908
Water-gage	A. Krapacek	678,671	July 16	2590	580	96	561
Water-gage-cleaning device	J. P. Friez	681,536	Aug. 27	3423	759, 760	96	1786
Water-gage. Recording	W. B. Folger	680,769	Aug. 20	1980	435	96	1480
Water-heater	J. G. Harvey	681,697	Sept. 3	59	11	96	1875
Water-heater	F. Schifferle	683,073	Sept. 24	2571	587	96	2484
Water-heater	T. E. Cook and G. J. Streng	677,869	July 9	980	220	96	226
Water-heater and pipe-cleaning apparatus	M. M. Baker	679,451	July 30	4152	962	96	917
Water-heater and steam-generator. Solar	H. M. Hill	678,314	July 9	1858	428	96	396
Water-heater. Electrical	S. A. Gotcher	679,598	July 30	4315	970	96	949
Water-heater for the feet, &c	E. W. Higbee	683,278	Sept. 24	2940	674	96	2500
Water-heating apparatus	J. Deschamps	680,027	Aug. 6	578	126	96	1157
Water-heating device. Quick	L. P. Treadwell	681,088	Aug. 20	2578	570	96	1590
Water-meter	C. E. Livesay	677,361	July 2	53	12	96	13
Water module or delivery regulator							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Water-motor	E. D. Mackintosh	681,805	Sept. 3	287	58	96	1923
Water-motor. Impact	W. and J. Boekel	682,664	Sept. 17	1800	413	96	2261
Water-motor leakage-guard	D. P. Sims	682,346	Sept. 10	1261	285	96	2120
Water or sewage purifying apparatus	W. G. Toplis	679,195	July 23	3633	812	96	791
Waterproof fabric and product thereof. Making	A. M. Posener and F. W. Clerke	680,733	Aug. 20	1910	.....	96	1468
Waterproof fabric and product thereof. Making	A. M. Posener and F. W. Clerke	680,734	Aug. 20	1920	.....	96	1468
Water pure and palatable. Apparatus for rendering	J. S. Wrightnour	681,289	Aug. 27	2969	660	96	1699
Water. Purifying	C. H. Koyl	677,668	July 2	612	.....	96	129
Water. Purifying	C. Monjeau	681,884	Sept. 3	431	87	96	1950
Water-purifying apparatus	J. Delattre	680,992	Aug. 20	2405	531	96	1568
Water-purifying apparatus	A. Sorge, Jr	683,349	Sept. 24	3062	702	96	2534
Water softening and purifying apparatus	C. H. Koyl	677,669	July 2	613	146, 147	96	129
Water-supplying device for poultry	F. Bade	682,779	Sept. 17	2045	462	96	2308
Water-tank	A. Deschambault	677,959	July 9	1194	275	96	267
Water-tank	E. F. Evans	679,612	July 30	4467	1003	96	983
Water-tank. Knockdown	J. Stephenson	678,913	July 23	3053	683	96	672
Water to basins of washstands, &c. Electrical control of flow of	I. G. Waterman	682,006	Sept. 3	665	143, 144	96	1997
Water to stock. Automatic means for supplying	F. W. Powers	680,615	Aug. 13	1636	361	96	1386
Water-tube boiler	G. S. Wolf	679,470	July 30	4185	939	96	928
Water-tube boiler	J. Cowan	681,623	Aug. 27	3589	797, 798, 799	96	1819
Water-tube boiler	S. Thurstensen	681,755	Sept. 3	177	33, 34	96	1900
Water-wheel	G. Gocher	678,869	July 23	2953	665	96	653
Water-wheel governor	E. E. Woodward	679,353	July 30	3951	884, 885	96	877
Water-wheel. Turbine	E. L. Kraft and H. E. Basehore	678,498	July 16	2244	504, 505	96	492
Water-wheel. Turbine	W. W. Tyler	678,817	July 16	2884	639	96	610
Watering-trough	L. Gist	680,772	Aug. 20	1987	436	96	1482
Wattmeters. Preventing creeping in recording	F. G. Vaughen	678,075	July 9	1410	324	96	307
Wave-motor	H. Banning and F. C. Carey	680,833	Aug. 20	2113	461	96	1505
Wave-motor	D. S. Gillespie	681,913	Sept. 3	485	99	96	1962
Wave-power apparatus	W. L. Rhoads	680,357	Aug. 13	1180	259	96	1294
Wax-like bodies by the action of oxidizing agents. Producing	E. Schliemann	677,703	July 2	669	159	96	141
Weaner. Calf-	D. Daggett	683,104	Sept. 24	2628	604	96	2446
Weather-strip	A. Craig	679,497	July 30	4256	958	96	937
Weather-strip	A. E. Brown	683,017	Sept. 24	2493	566	96	2418
Weather-strip and sash-fastener	F. Allen	683,097	Sept. 24	2620	602	96	2444
Weather-strip for doors. Automatic	W. E. Morgan	677,681	July 2	629	151	96	133
Weaving-machine	D. S. Earhart	680,705	Aug. 20	1861	408, 409	96	1455
Weed-cutter and corn-cultivator. Combined	C. Bradshaw and W. S. Tobey	682,025	Sept. 3	697	150	96	2002
Weeder	C. W. Snow	681,585	Aug. 27	3521	781	96	1906
Weft-fork	R. Bateson	677,924	July 9	1131	260	96	255
Weigher. Grain-	A. Goehring	682,926	Sept. 17	2323	525	96	2364
Weighing and filling machine	H. Inman	679,966	Aug. 6	495	102	96	1140
Weighing device. Automatic grain-	J. T. Lemon	683,304	Sept. 24	2983	684	96	2518
Weighing device. Coin-controlled	O. A. Bronson	680,221	Aug. 13	933	209, 210	96	1246
Weighing, lifting, and grip machine	G. G. S. Merry	678,345	July 9	1227	442, 443	96	409
Weighing-machine	J. Manes	677,526	July 2	336	82	96	72
Weighing-machine	A. L. F. Mitchell	679,154	July 23	3547	791, 792	96	772
Weighing-machine. Automatic	J. J. Marshall	680,160	Aug. 6	807	180	96	1206
Weighing-machine for railway-trucks	C. Emming	683,392	Sept. 24	3134	718	96	2550
Welding	B. B. Thomas	680,182	Aug. 6	852	.....	96	1215
Welding-machine	T. F. Rowland	682,640	Sept. 17	1769	404	96	2255
Welding machine. Tube-	W. S. Gorton	681,694	Sept. 3	51	10	96	1873
Welding metals	B. Purcell	682,815	Sept. 17	2115	.....	96	2321
Well-casing perforator	J. Eastwood and E. M. Hoagland	682,180	Sept. 10	956	215	96	2075
Well-casing plug. Oil-	A. L. McPherson	679,398	July 30	4050	904	96	898
Well-drilling apparatus	F. Simpkins	679,244	July 23	3711	828	96	806
Well-drilling apparatus. Gearing for	J. H. Janssen	681,235	Aug. 27	2837	630	96	1672
Well-drilling machine	S. J. Reed	680,810	Aug. 20	2071	451	96	1497
Well-drilling machine	J. F. Sisson	682,287	Sept. 10	1155	262, 263	96	2112
Well-fixture	W. A. Fuller	679,307	July 30	3855	862	96	856
Well-packing device. Tubular	C. F. Preslar	677,468	July 2	297	50	96	52
Well-packing device. Tubular	C. F. Preslar	677,796	July 2	845	201	96	178
Well-strainer	A. D. Morest	682,493	Sept. 10	1498	339	96	2177
Well tubes or casings. Device for perforating	A. J. Bellah	678,856	July 23	2930	660	96	648
Wells. Bull-wheel for oil or Artesian	H. W. Eaton, Jr., and A. Benson	678,774	July 16	2752	619	96	592
Wells. Sand-reel for oil or Artesian	H. W. Eaton, Jr., and A. Benson	680,234	Aug. 13	950	214	96	1249
Wheat-cleaning machine	W. T. Havard	678,788	July 16	2688	605	96	590
Wheel: *See* Band-brake wheel. Bicycle-wheel. Carriage-wheel. Emery-wheel. Ferris-wheel. Fifth-wheel. Gear-wheel. Metal wheel. Pelton wheel. Pleasure-wheel. Polishing-wheel. Trolley-wheel. Vehicle-wheel. Water-wheel.							
Wheel	H. Lieberthal	680,255	Aug. 13	989	222	96	1256
Wheel	H. Lieberthal	680,256	Aug. 13	991	222	96	1256
Wheel	J. K. Lightfoot	681,125	Aug. 20	2646	584	96	1612
Wheel	W. J. H. Verheggen, D. H. J. Van Mens, and P. F. Van Keep.	681,761	Sept. 3	191	38	96	1902
Wheel	S. F. Neill and J. E. Tinker	683,290	Sept. 24	2821	649	96	2484
Wheel box and axle	D. E. Barton	680,110	Aug. 6	719	159, 160	96	1188

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wheel-equalizing mechanism. Vehicle-	T. B. Dooley	677,401	July 2	114	25	96	26
Wheel-securing device	T. A. Keogh	677,520	July 2	326	79	96	70
Wheel tires and rims. Machine for cleaning	T. L. Barlow	678,992	July 23	3205	718	96	702
Wheelwright-machine	M. L. Knupp	681,171	Aug. 20	2737	607	96	1031
Wheels. Making	E. Einfeldt	682,982	Sept. 17	2428	549	96	2984
Wheels on vehicles. Mounting	J. Leyland	678,418	July 16	2065	469	96	454
Whiffletree	T. P. Stalcup	679,192	July 23	3629	810	96	790
Whiffletree	W. H. Spillman and A. E. Roach	680,006	Aug. 6	541	115	96	1151
Whiffletree	A. C. Scarr	681,583	Aug. 27	3518	790	96	1806
Whiffletree	T. A. Bakken	680,108	Aug. 6	716	159	96	1187
Whiffletree-coupling	J. E. Williams	680,099	Aug. 6	704	156	96	1185
Whip and rein holder	C. W. Hassler	683,276	Sept. 24	2667	673	96	2509
Whip-braiding-machine tension device	G. L. Castner	682,912	Sept. 17	2295	518	96	2358
Whist scoring device. Duplicate	S. A. Brown	677,172	July 2	802	192 198	96	170
Whistle. Electric	H. Sarafian	681,401	Aug. 27	3165	705	96	1735
Wick. Lamp-	W. A. Penfield	678,126	July 9	1505	346	96	327
Wick-stop and flame-extinguisher. Combined	J. O. McKean	678,507	July 16	2256	507 508	96	495
Winding-machine	P. J. Westphal	680,210	Aug. 6	905	200 201	96	1225
Winding-machine	J. O. McKean	681,723	Sept. 3	112	21,22	96	1886
Winding-machine	S. W. Wardwell, Jr.	682,770	Sept. 17	2024	457 458	96	2303
Winding machine. Yarn-	A. W. Metcalfe	679,428	July 30	4100	916 917	96	908
Winding-machines. Electrical controlling means for	R. Varley, Jr	679,924	Aug. 6	389	83 84 85	96	1120
Windmill	A. A. E. Sterzing	677,747	July 2	750	178 179 180	96	159
Windmill	A. T. Scott	677,805	July 2	865	207	96	183
Windmill	C. T. Colman	679,100	July 23	3462	772	96	754
Windmill	J. C. Summers and H. E. Yoder	679,346	July 30	3925	878	96	871
Windmill	K. Gore	680,039	Aug. 6	601	131	96	1168
Windmill	A. K. Childs	680,314	Aug. 13	1090	241	96	1277
Windmill	L. E. Jones	680,530	Aug. 13	1493	328 329	96	1358
Windmill	W. H. Baldwin	681,181	Aug. 27	3761	813	96	1636
Windmill-regulator	H. K. Tabler	678,061	July 9	1382	319	96	302
Windmills. Power-transmitting device for	A. B. Morse	680,799	Aug. 20	2047	446 447	96	1491
Window	J. C. Weller	681,008	Aug. 20	2438	538 539	96	1570
Window	O. M. Edwards	681,688	Sept. 3	28	8	96	1870
Window	J. P. W. Patillo	683,183	Sept. 24	2755	633 634	96	2470
Window attachment	C. A. Berberich	681,437	Aug. 27	3235	719	96	1749
Window-cleaner	T. Mart	680,057	Aug. 6	622	136	96	1168
Window-cleaners or the like. Seat or stage for	T. Allder, Jr., and T. H. Streater	683,013	Sept. 24	2487	565	96	2417
Window-cleaning device. Show-	G. A. Flammiger	678,361	July 16	1962	448	96	453
Window-fastener	J. Redman	683,329	Sept. 24	3087	695 696	96	2529
Window fastener and lock	S. S. Zelley	682,013	Sept. 3	675	146	96	1999
Window fly-escape and closure	A. J. Collar	681,844	Sept. 3	352	70	96	1985
Window-frame	R. Whitton	681,467	Aug. 27	3306	735	96	1763
Window frame and sash	H. C. Smith	683,077	Sept. 24	2574	588 589	96	2435
Window-guard	F. B. Mower	683,217	Sept. 24	2817	648	96	2488
Window or door screen	O. Huffman	681,792	Sept. 3	367	52	96	1919
Window, Pivoted	E. Hipolito	677,544	July 2	385	92	96	92
Window-screen	W. J. Baker	678,216	July 9	1569	384	96	360
Window-screen	O. Nelson	679,538	July 30	4336	974	96	955
Window-screen	T. J. Nevins	681,249	Aug. 27	2883	639	96	1680
Window-screen	A. Stelert	680,081	Aug. 6	671	149	96	1178
Window-stop	F. R. Pollard	681,258	Aug. 27	2904	644	96	1684
Window-washer	W. Clatworthy	682,033	Sept. 3	709	153	96	2005
Wire-cutter	V. Hoxie and W. H. Burnham	681,916	Sept. 3	489	101	96	1963
Wire-fabric machines. Feed mechanism for	C. L. Winget	677,487	July 2	266	67	96	58
Wire-reeling machine	A. Nigg	681,251	Aug. 27	2885	639	96	1680
Wire-stretcher	J. R. Sevier	681,747	Sept. 3	164	31	96	1897
Wire-stretcher	W. Maher	682,993	Sept. 17	2446	554	96	2388
Wire-stretcher	W. McCloskey	679,859	Aug. 6	263	56	96	1096
Wire-stretching device	C. F. Stoddard	679,870	Aug. 6	292	62	96	1101
Wire-tightener	W. I. Whitehurst	677,727	July 2	713	168	96	151
Wire-weaving-loom shuttle	M. F. Dickey	682,604	Sept. 17	1710	390	96	2244
Wireworking-tool	A. O. Hubbard	682,620	Sept. 17	1739	398 399	96	2249
Wood-and-wire fabric	A. O. Hubbard	682,619	Sept. 17	1737	397 398	96	2249
Wood-and-wire fabrics. Producing	F. H. Bancroft	679,287	July 30	3824	856	96	849
Wood-bending press	D. A. Greene	682,848	Sept. 17	2184	493	96	2336
Wood-bundling machine	D. A. Greene	682,849	Sept. 17	2186	493 494	96	2336
Wood-bundling machine	C. H. Fitler	682,185	Sept. 10	964	216 217 218	96	2076
Wood, &c. Machine for cutting and shaping	A. Bevier	681,032	Aug. 20	2481	550	96	1578
Wood. Preserving	C. S. Lawrence	682,863	Sept. 10	1285	.....	96	2134
Wood-preserving compound	B. Hughes	682,987	Sept. 17	2347	530	96	2369
Wooden dishes. Machine for making	W. Brown	679,597	July 30	4439	998 999	96	977
Wooden shells, &c., with longitudinal openings or ducts of polygonal cross-section. Apparatus for providing	J. M. and A. Mowatt	678,016	July 9	1287	294	96	284
Woodworking-machine protector	B. Wood	681,360	Aug. 27	3099	688	96	1792
Woodworking-tool. Corner-rounding							

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wool. Extracting fat from	G. Peltzer	679,777	Aug. 6	108	.....	96	1063
Wool-fat. Extracting	F. W. Robinson	680,963	Aug. 20	2348	515 516	96	1553
Wool-grease. Treating	J. Hopkinson	680,977	Aug. 20	2375	.....	96	1558
Work-bench	G. A. Bisler	678,639	July 16	2535	568	96	550
Work-bench. Cabinet-maker's	S. Neudermann	682,883	Sept. 17	2253	508	96	2349
Work-holder	M. C. Crane	681,199	Aug. 27	2794	620	96	1663
Work-holder	J. W. Spaulding	682,290	Sept. 10	1162	264	96	2113
Work-holder	C. S. Yarnell	679,354	July 30	3956	885	96	878
Work-table	A. Heald	678,784	July 16	2689	606	96	580
Woven fabric	J. Livingston	681,126	Aug. 20	2648	584	96	1612
Woven fabric	H. C. Karr	683,294	Sept. 24	2968	680	96	2515
Wrapper	E. Nelson	680,064	Aug. 6	637	139 140 141	96	1171
Wrapping-machine	T. N. Tripp	682,823	Sept. 17	2133	482	96	2325
Wrench: *See* Orthodontia wrench. Ratchet-wrench. Pipe-wrench.							
Wrench	J. J. A. Miller	677,529	July 2	342	83	96	73
Wrench	W. H. Burr	677,937	July 9	1159	266	96	260
Wrench	J. E. Van Note	678,445	July 16	2127	481	96	466
Wrench	L. Coes	680,124	Aug. 6	741	164	96	1192
Wrench	J. B. Barnes	680,560	Aug. 13	1543	339	96	1368
Wrench	O. E. Pontious	681,260	Aug. 27	2909	644	96	1686
Wrench	J. Quist	681,487	Aug. 27	3341	741	96	1769
Wrench	M. D. Tillman	681,591	Aug. 27	3530	784	96	1808
Wrench	A. H. F. Straub	681,751	Sept. 3	172	32	96	1889
Wrench	M. A. Richardson	681,979	Sept. 3	618	132	96	1968
Wrench	M. Cooke	682,241	Sept. 10	1078	243	96	2096
Wrench	J. D. McFarland, Jr	682,384	Sept. 10	1319	296	96	2142
Wrench	J. Waynick	681,283	Aug. 27	2967	656	96	1696
Wrench or holder	H. B. Clark	681,388	Aug. 27	3152	702	96	1782
Wrenches. Detachable alligator-jaw for							
Wringer: *See* Mop-wringer.							
Wristband	V. Drosness	680,477	Aug. 13	1389	303	96	1337
Writing-machine	E. B. Hess	679,673	July 30	4570	1027	96	1005
Writing-machine	E. B. Hess and J. M. Stoughton	679,674	July 30	4571	1027 1028	96	1006
Writing-machine	E. B. Hess	679,675	July 30	4577	1028 1029	96	1007
Writing-machine	E. B. Hess	681,638	Aug. 27	3620	805	96	1827
Yoke attachment. Neck-	T. J. Chappell	679,603	July 30	4450	1000	96	979
Yoke fastening. Neck-	T. M. McVay	677,369	July 2	66	14	96	16
Yoke snap. Neck-	E. J. Williams	681,766	Sept. 3	217	42	96	1909
Zinc. Recovering	A. J. Shinn	678,816	July 16	2882	638	96	610
Zinc shavings. Tool for turning	F. L. Stearns	678,796	July 16	2788	628	96	599
Zinc solutions free from iron and manganese compounds. Obtaining	F. A. Gasch	682,794	Sept. 17	2075	.....	96	2313
Zither	H. Steenbock	678,525	July 16	2284	514	96	500
Zithers. Pick-key for	J. C. St. John	678,140	July 9	1529	352	96	332

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Advertising device	F. Kampfe	35,047	Sept. 3	96	2051
Anode-plate	J. Hammann	35,071	Sept. 10	96	2220
Ant-trap	T. J. Wilson	34,927	Aug. 13	96	1418
Awl. Harness	W. Tinkham	35,101	Sept. 17	96	2398
Ax and saw-set	J. Stanford	34,941	Aug. 13	96	1421
Axle-support for vehicle-frames	W. A. Crowdus	34,828	July 23	96	826
Axle. Vehicle	W. L. Bodman	34,829	July 23	96	830
Badge	L. Sickles	34,702	July 2	96	202
Badge	W. B. Sherman	34,745	July 9	96	414
Badge	L. Bennett	34,771	July 16	96	626
Badge	W. E. Ryan	34,772	July 16	96	626
Badge	L Mackson	34,811	July 23	96	826
Badge, &c	G. L. Rockwell	34,888	Aug. 6	96	1227
Badge	J. W. Stewart	35,018	Sept. 3	96	2046
Badge	H. W. Tuckey and L. W. Kline	35,036	Sept. 10	96	2217
Badge	P. Boucher	35,088	Sept. 17	96	2393
Badge	W. L. Panikoff	34,701	July 2	96	202
Badge or similar article	A. J. Messler	34,916	Aug. 13	96	1417
Badge or similar article	R. L. Peck	34,988	Aug. 27	96	1842
Badge or similar article	J. Kerns	35,089	Sept. 3	96	2050
Baling-press folder	J. Banwell	34,798	July 16	96	630
Basin casing. Catch	S. J. Dunkley	35,098	Sept. 17	96	2398
Basket-cover	A. G. Ward and G. E. Day	34,976	Aug. 20	96	1637
Bath-tub leg	J. B. Conrad	35,030	Sept. 3	96	2048
Battery plate. Storage	T. B. Hatch	35,072	Sept. 10	96	2220
Battery plate. Storage	N. H. Davis	34,721	July 2	96	205
Beam. Metal	E. Gross	34,755	July 9	96	415
Beer-cooler base	L. Sanders	34,760	July 9	96	418
Belt	M. Isenstein	35,017	Aug. 27	96	1847
Belt	J. L. Knoll	34,908	Aug. 6	96	1229
Bicycle-frame	G. Stoeber	34,794	July 16	96	630
Binder-deck spring	H. B. Kelper	34,880	July 30	96	1028
Blowers and forges. Stand for rotary	H. B. Kelper	34,881	July 30	96	1028
Blowers and forges. Stand for rotary	H. B. Kelper	34,882	July 30	96	1029
Blowers. Gear-train casing for rotary	H. B. Kelper	34,884	July 30	96	1029
Blowers. Gear-train casing for rotary	H. B. Kelper	34,885	July 30	96	1029
Blowers. Gear-train casing for rotary	J. F. W. Schmidt	35,051	Sept. 3	96	2048
Boat-cleat	J. B. Barnes	34,836	July 23	96	830
Boiler-sheet stay-bolts. Thimble for	J. B. Barnes	34,837	July 23	96	830
Boiler-sheet stay-bolts. Wrench for	J. B. Barnes	34,838	July 23	96	830
Boiler-sheet stay-bolts. Wrench for	C. T. Maguire	34,733	July 2	96	206
Boot or shoe	H. C. Heinz	34,712	July 2	96	204
Bottle	J. Schies	34,783	July 16	96	626
Bottle	F. MacMonnies	34,784	July 16	96	626
Bottle	G. D. Glaser	34,818	July 23	96	827
Bottle	A. Gounelle	34,860	July 30	96	1025
Bottle	F. E. Malmstrom	34,896	Aug. 6	96	1226
Bottle	C. H. Hees	34,956	Aug. 20	96	1634
Bottle	C. H. Hees	34,957	Aug. 20	96	1635
Bottle	A. F. Jammes	35,027	Sept. 3	96	2048
Bottle	J. H. Fox	34,782	July 16	96	626
Bottle-filling nozzle	E. Wagner	35,068	Sept. 10	96	2218
Bottle-holder	E. Wagner	35,126	Sept. 17	96	2402
Bottle-holder	C. T. Nightingale	34,919	Aug. 13	96	1417
Bottle. Milk	H. O. Brawner	34,996	Aug. 27	96	1843
Bottle-stopper	F. B. Thatcher	34,955	Aug. 20	96	1634
Bottle-stopple	G. Renninger	34,785	July 16	96	626
Box	G. Renninger	34,786	July 16	96	626
Box	E. Hilson	35,127	Sept. 17	96	2402
Box caps. Blank for cigarette	D. L. B. Peterson	34,787	July 16	96	626
Box. Desk	R. C. Burton	35,042	Sept. 3	96	2050
Bracket. Wall	W. E. Symons	35,083	Sept. 3	96	2049
Brake-beam	W. E. Symons	35,105	Sept. 17	96	2399
Brake-beam	J. G. Ridings	34,969	Aug. 20	96	1636
Bridle-bit	J. Dean	35,001	Aug. 27	96	1844
Bridle-bit mouth-bar	F. M. Harrington	34,725	July 2	96	206
Broiler	A. Wittnauer	34,989	Aug. 27	96	1842
Brooch	J. H. Theberath	34,708	July 2	96	203
Brooch or pendant frame	J. F. Martin	34,788	July 16	96	629
Broom-holder	T. Pedrini	35,129	Sept. 24	96	2567
Brush. Hat	E. A. Boyden	34,789	July 16	96	629
Brush. Radiator-cleaning	H. A. Weihman	34,813	July 23	96	826
Brushes, &c. Back for	H. A. Weihman	34,814	July 23	96	826
Brushes, &c. Back for	O. Leigh	35,024	Sept. 3	96	2047
Brushes, &c. Back for	T. W. Foster	34,953	Aug. 20	96	1634
Brushes or similar articles. Back for	W. Freeman	34,991	Aug. 27	96	1842
Buckle-piece	W. Freeman	34,992	Aug. 27	96	1842
Buckle-piece	A. M. Ziegler	34,962	Aug. 20	96	1635
Buckle. Slide	A. W. Hockman	35,120	Sept. 17	96	2401
Building-block	F. J. Feineman	34,865	July 30	96	1026
Burial-casket handle	R. Mitchell	35,088	Sept. 3	96	2050
Bushwhacker or brush-scythe	J. F. Boepple	34,893	Aug. 6	96	1228
Button					

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Button	R. C. Hill	35,026	Sept. 3	96	2047
Button-fastener	G. J. Capewell	34,780	July 16	96	627
Cabinet. Merchandise-	J. Gabel	35,048	Sept. 3	96	2051
Calendar-base	G. L. Barrett	34,925	Aug. 13	96	1418
Can or jar	W. A. Lorenz	35,065	Sept. 10	96	2219
Can or jar	W. A. Lorenz	35,066	Sept. 10	96	2219
Can or jar	W. A. Lorenz	35,067	Sept. 10	96	2219
Can or jar	W. A. Lorenz	35,068	Sept. 10	96	2219
Can or jar	W. A. Lorenz	35,069	Sept. 10	96	2219
Can or jar	W. A. Lorenz	35,070	Sept. 10	96	2219
Candy-mold section	B. F. De Klyn	34,823	July 23	96	828
Cane or umbrella ring	D. Rose	34,705	July 2	96	208
Cap. Bathing-	H. F. Mitzel	34,852	July 23	96	832
Car-coupling locking-block	J. Timms	34,972	Aug. 20	96	1637
Car-replacer	O. W. Johnson	34,906	Aug. 6	96	1220
Carline	C. D. Pettis	35,008	Aug. 27	96	1844
Carpet	H. W. Parton	35,050	Sept. 3	96	2052
Carpet	H. W. Parton	35,051	Sept. 3	96	2052
Carpet	G. J. Stengel	35,052	Sept. 3	96	2052
Carpet	W. Thomas	35,053	Sept. 3	96	2052
Carpet	O. W. Siebert	34,983	Aug. 13	96	1419
Carriages. Propelling-frame for children's	N. Rappleyea and W. A. Sparks	35,011	Aug. 27	96	1846
Casket-lid	S. Cottle	35,057	Sept. 10	96	2217
Chain fabric	J. A. Plopper	34,884	July 23	96	830
Chain-link	H. A. Kinney	34,756	July 9	96	415
Chair	M. Guyot	34,949	Aug. 13	96	1423
Chair	W. J. Neukom	35,112	Sept. 17	96	2400
Chair	G. Stickley	35,062	Sept. 10	96	2221
Chair-body	C. J. Travers	35,111	Sept. 17	96	2400
Chair-hub plate	H. E. Weisgerber	35,043	Sept. 3	96	2050
Chair. Rolling	M. Kleinberger	34,854	July 23	96	833
Chart. Dress-	N. Simon	34,726	July 2	96	206
Cheese-mold	N. Simon	34,758	July 9	96	416
Cheese-mold cloth-holder	A. R. Fowler	34,817	July 23	96	827
Cigar-container	P. T. Sykes	35,023	Sept. 3	96	2047
Cigar or cigarette holder	E. M. Jennings and C. F. Mosman	34,815	July 23	96	827
Clock-case	O. H. Greene	34,713	July 2	96	204
Clothes-pin	E. L. Dryden	34,757	July 9	96	416
Clothes-pin	M. Arns	35,108	Sept. 17	96	2399
Clothes-sprinkler	J. McCaffrey	34,832	July 23	96	829
Clutch hub. Friction-	R. Morrill	34,797	July 16	96	630
Cock body. Stop-	A. E. Bronson, Jr	34,759	July 9	96	416
Coffee-mill shell	N. M. Watson	34,754	July 9	96	415
Coin-controlled mechanism case	C. F. Filor	34,923	Aug. 13	96	1418
Comb	J. T. McRoy	34,968	Aug. 20	96	1636
Conduit-section	C. C. Child	35,060	Sept. 17	96	2397
Corner-piece	J. M. Van Orden	34,808	July 16	96	632
Corset	J. Lemay	34,874	July 30	96	1027
Corset	E. K. Pilling	34,807	July 16	96	632
Corset and waist-lengthener	N. Parker	35,123	Sept. 17	96	2402
Corset stay member	V. Henderson	34,988	Aug. 13	96	1420
Cotter-pin	H. E. Sheetz	34,983	Aug. 20	96	1639
Couch-rack	C. G. Babcock	35,007	Aug. 27	96	1845
Cream-cooler	P. C. Smith	34,727	July 2	96	207
Cream-separator	W. F. Hartig	34,869	July 30	96	1026
Cultivator-standard shank	A. C. Bosselman	34,710	July 2	96	204
Cup	V. Freisinger	34,781	July 16	96	627
Cup	C. A. Lee	34,859	July 30	96	1025
Cup	H. L. Wheeler	34,918	Aug. 13	96	1417
Cup	T. C. Richards	34,790	July 16	96	629
Curtain or shade pull	C. W. Meinecke	34,982	Aug. 20	96	1639
Cushion	V. H. Bendix	34,902	Aug. 6	96	1220
Cycles. Rear frame for motor-	M. W. Grigg	35,080	Sept. 10	96	2221
Dental-engine handpiece attachment	G. Stickley	35,044	Sept. 3	96	2051
Desk. Library table-	L. B. Marks	35,055	Sept. 10	96	2217
Display-card	S. J. Spaulding	35,122	Sept. 17	96	2402
Display-frame for pasteboard boxes	C. T. Childers	35,012	Aug. 27	96	1846
Display-stand. Fountain	I. Wantling	34,965	Aug. 20	96	1636
Drilling-machine anchor	I. Wantling	35,032	Sept. 3	96	2048
Drilling-machine anchor	S. Hustyava	35,020	Sept. 3	96	2047
Easel	G. A. Ricker	35,028	Sept. 3	96	2048
Electric wire and cable bracket	G. A. Ricker	35,029	Sept. 3	96	2048
Electric wire and cable bracket	E. W. Jewell	34,800	July 16	96	631
Electrical-meter casing	B. G. Stauffer	34,964	Aug. 20	96	1635
Electrotherapeutic device	R. Fuller	34,904	Aug. 6	96	1220
Engine-frame	H. J. Smith	34,935	Aug. 13	96	1420
Engine frame or casing. Gas-	C. E. Williams	34,777	July 16	96	627
Envelop-blank	T. G. Mandt	35,106	Sept. 17	96	2399
Evener-iron	W. H. Ely	34,751	July 9	96	415
Eyeglass-bridge	W. A. Jones	35,093	Sept. 17	96	2397
Eyeglass-guard	W. A. Jones	35,094	Sept. 17	96	2397
Eyeglass-guard	E. A. Inskeep	34,921	Aug. 13	96	1417
Eyeglass nose-guard	J. E. Linebarner	34,816	July 23	96	827
Eyeglass-nosepiece	W. F. E. W., and H. G. Stifel	35,125	Sept. 17	96	2402
Fabric	W. T. Smith	34,734	July 2	96	208
Fabric. Woven	W. T. Smith	34,735	July 2	96	208
Fabric. Woven	W. T. Smith	34,736	July 2	96	208
Fabric. Woven	W. T. Smith	34,737	July 2	96	208
Fabric. Woven	W. T. Smith	34,738	July 2	96	209
Fabric. Woven	W. T. Smith	34,739	July 2	96	209
Faucet-handle	H. Strater	34,864	July 30	96	1025
Fence-wire. Barbed	D. C. Smith	34,715	July 2	96	204
Fence-wire. Barbed	D. C. Smith	34,893	July 23	96	829
Fence-wire. Barbed	D. C. Smith	34,900	Aug. 6	96	1229
Fifth-wheel lower member	H. A. Barnes	35,097	Sept. 3	96	2049
Finger-ring	A. T. Bond	35,090	Sept. 17	96	2397

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Fire-kindler	E. Pollard	34,981	Aug. 20	96	1638
Flag	J. Eisenmann	34,810	July 23	96	826
Furnace-front	T. R. Kennedy and E. J. King	35,009	Aug. 27	96	1846
Game-board	L. H. Gaines	34,985	Aug. 20	96	1639
Game-board	J. W. S. Peters	35,013	Aug. 27	96	1846
Game-board	G. Hilpert	35,014	Aug. 27	96	1847
Game-board	J. W. Tavenner	35,118	Sept. 17	96	2401
Game-board	E. Mikkelsen	35,131	Sept. 24	96	2568
Game-board	J. W. Granger	34,960	Aug. 20	96	1635
Garment-hooks. Eye for	H. H. Hennegin	34,905	Aug. 6	96	1220
Gas-engine body	H. B. Kelper	34,883	July 30	96	1029
Gear-train and rotary-blower casing	I. H. Leiter	34,851	July 23	96	832
Gimp. Furniture-	T. J. Woodward	34,847	July 23	96	831
Glass. Plate-	A. Snow, Jr	35,062	Sept. 10	96	2218
Glass receptacle	E. Walsh, Jr	34,839	July 23	96	830
Glass. Sheet-	E. Walsh, Jr	34,840	July 23	96	830
Glass. Sheet-	E. Walsh, Jr	34,841	July 23	96	831
Glass. Sheet-	E. Walsh, Jr	34,842	July 23	96	831
Glass. Sheet-	E. Walsh, Jr	34,843	July 23	96	831
Glass. Sheet-	E. Walsh, Jr	34,844	July 23	96	831
Glass. Sheet-	E. Walsh, Jr	34,845	July 23	96	831
Glass. Sheet-	E. Walsh, Jr	34,846	July 23	96	831
Glass. Sheet-	L. O. Goodwin	34,718	July 2	96	205
Governor-cylinder	C. L. Wagandt	34,898	Aug. 6	96	1228
Grater	G. H. Dawson, R. C. Norton, and I. Shoudy	35,121	Sept. 17	96	2402
Grave-marker	E. C. and H. L. Litchfield	34,708	July 16	96	629
Grinder. Grain-	W. R. Smith	34,990	Aug. 27	96	1842
Hair-pin	C. T. Hennig	35,100	Sept. 17	96	2398
Hammer	I. E. Palmer	35,046	Sept. 3	96	2051
Hammock-body	N. Smith	34,791	July 16	96	629
Hammock-support	N. Cole	34,801	July 16	96	631
Harness-loop. Single	G. Maurer	34,966	Aug. 20	96	1636
Hoe	W. J. Kent	34,868	July 30	96	1026
Hoof-pad	W. H. and G. W. Bradley	35,002	Aug. 27	96	1844
Horseshoe	D. W. Call	35,086	Sept. 3	96	2049
Hub-band	C. W. Meinecke	34,995	Aug. 27	96	1843
Ice or water bag	J. J. McPherson	34,779	July 16	96	627
Inhaler	M. Bauer	34,994	Aug. 27	96	1843
Inhaler	C. E. Kennedy	35,041	Sept. 3	96	2050
Ironing-boards. Bracket for combination	T. L. Popp and C. F. Geyer	34,805	July 16	96	632
Jack-in-a-box, &c. Case for	F. C. Pulcifer	35,064	Sept. 10	96	2219
Jar-rubber	L. E. Sadler	34,984	Aug. 20	96	1639
Jewel-tray	J. H. Wray	34,897	Aug. 6	96	1228
Knife	D. W. Watson	34,952	Aug. 13	96	1423
Knit fabric	J. C. Telfer	34,819	July 23	96	827
Lacing-stud blank	C. C. Armstrong	34,861	July 30	96	1025
Lamp	C. Billy	34,808	July 16	96	631
Lamp. Carriage-	T. M. Jamison	34,822	July 23	96	828
Lamp-fixture	J. H. Goehst	35,102	Sept. 17	96	2398
Lamp support and reflector. Electric	E. C. Smith	34,821	July 23	96	827
Lamp vaporizer. Incandescent-	W. Gray	34,753	July 9	96	415
Lamp. Vehicle-	J. T. Brown	34,731	July 2	96	207
Last hinge member	J. T. Brown	34,732	July 2	96	208
Last hinge member	S. H. Hull	35,073	Sept. 10	96	2220
Lawn-sprinkler	F. B. Hull	35,074	Sept. 10	96	2220
Lawn-sprinkler	C. Vanderbilt	34,765	July 9	96	417
Locomotive-tender body or similar article	D. H. Roberts	35,104	Sept. 17	96	2399
Lubricator-body	R. Cohen	34,804	July 16	96	631
Mantle-holder	C. Cole	34,792	July 16	96	629
Metal bar	S. W. Babbitt	35,092	Sept. 17	96	2397
Metal ware. Base member for solid or plated	C. A. Bailey	35,119	Sept. 17	96	2401
Money-box	M. E. Toepel, F. B. Widmayer, and A. Pondevin	35,005	Aug. 27	96	1845
Motor casing. Hydrocarbon-	W. A. Dennerline	34,824	July 23	96	828
Music-rack	W. J. Evans	34,708	July 2	96	203
Nasal cup	O. Kraus	34,961	Aug. 20	96	1635
Necktie-fastener	J. O. Hunt	35,099	Sept. 17	96	2398
Necktie-fastener	C. W. Taylor	34,989	Aug. 13	96	1420
Nut-lock washer	S. R. Slaymaker and G. M. Miller	34,998	Aug. 27	96	1843
Padlock	H. Handy	35,040	Sept. 3	96	2050
Pan. Cake or bread	W. F. Siegener	35,016	Aug. 27	96	1847
Paper doily	W. F. Siegener	34,986	Aug. 20	96	1639
Paper. Shelf-	W. F. Siegener	34,987	Aug. 20	96	1639
Paper. Shelf-	W. Carry	35,096	Sept. 17	96	2398
Parcel-carrier	J. F. Barnhart	35,059	Sept. 10	96	2218
Penholder	R. W. Conner	34,775	July 16	96	627
Penholder. Fountain-	J. Adair	34,750	July 9	96	415
Pen-rack	H. C. King	35,025	Sept. 3	96	2047
Pen. Ruling-	W. R. Schupp	35,128	Sept. 24	96	2567
Pencil	J. W. McCabe	34,809	July 23	96	826
Photographic mount	A. B. Hower and S. J. Finch	34,877	July 30	96	1028
Photographic mount	G. E. Goudie and H. H. Henley	34,886	Aug. 6	96	1227
Picture-frame	J. A. Kirkham	34,887	Aug. 6	96	1227
Picture-frame	A. Asamann	35,021	Sept. 3	96	2047
Picture-frame	O. Soderstrom	35,061	Sept. 10	96	2218
Picture-frame	J. A. Christmann	34,880	July 23	96	827
Picture-hanger	W. C. Fisher	34,871	July 30	96	1027
Picture-mat	W. W. Chase	34,856	July 30	96	1024
Pin	A. Q. Walsh	34,749	July 9	96	414
Pipe	H. T. Baynes	34,778	July 16	96	627
Pipe	H. D. McFaddin	34,895	Aug. 6	96	1228
Pitcher or mug	G. R. West	34,711	July 2	96	204
Plate	J. J. Skinner	34,855	July 23	96	833
Plow-moldboard	C. M. Carter	34,795	July 16	96	630
Plow-shovel	G. Rehmann	35,022	Sept. 3	96	2047
Pocket-case					

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Post-tamper	J. Allison	35,130	Sept. 24	96	2568
Potato-hook	M. A. Hall	34,782	July 9	96	416
Presses. Receptacle member for meat or other	H. F. Osborne	35,079	Sept. 10	96	2221
Pump member	P. Gould	34,798	July 16	96	630
Pumps. Lever-stand for steam-	E. E. Miller	34,879	July 30	96	1028
Puzzle-board	R. C. McCaleb	34,767	July 9	96	418
Puzzle-board	H. G. Beach and H. W. Wilcox	35,015	Aug. 27	96	1847
Puzzle-box	C. V. Wilbraham	34,806	July 16	96	632
Puzzle member	J. C. Forster	35,115	Sept. 17	96	2401
Rail-bond	A. H. Englund	34,716	July 2	96	204
Rail-bond	C. J. Mayer	34,799	July 16	96	631
Railway-tie	R. C. Lukens	34,764	July 9	96	417
Rake-head	E. T. Partyka	34,936	Aug. 13	96	1420
Range	T. I. Rankin	34,908	Aug. 6	96	1230
Range. Portable	T. I. Rankin	35,113	Sept. 17	96	2400
Razor-case	H. M. Tower	34,748	July 9	96	414
Ring	A. S. S. Fussell	34,773	July 16	96	626
Ring for cluster settings	S. Goldner and L. Gottlieb	34,857	July 30	96	1024
Rock-drill stock	H. Aylmer	34,885	July 23	96	830
Rope-coupling	J. L. Frazier	34,940	Aug. 13	96	1420
Rope-splicer	J. L. Frazier	35,081	Sept. 10	96	2221
Rub-iron	T. G. Mandt	35,107	Sept. 17	96	2399
Rug	A. Petzold	34,740	July 2	96	209
Rug	A. Petzold	34,741	July 2	96	209
Rug	A. Petzold	34,876	July 30	96	1028
Rug	E. H. Bennett	34,913	Aug. 6	96	1231
Rug	E. H. Bennett	34,914	Aug. 6	96	1231
Rug	E. H. Bennett	34,915	Aug. 6	96	1231
Rug	E. H. Bennett	35,084	Sept. 10	96	2222
Rug	E. H. Bennett	35,085	Sept. 10	96	2222
Rug	E. H. Bennett	35,086	Sept. 10	96	2222
Rule	E. L. Estes	34,934	Aug. 13	96	1418
Ruler	R. Heard	34,776	July 16	96	627
Saddle. Riding	A. F. Croom	34,766	July 9	96	417
Saddletree	R. G. Davis	34,722	July 2	96	205
Safety-pin	J. V. Washburne	34,889	Aug. 6	96	1227
Safety-pin	J. V. Washburne	34,890	Aug. 6	96	1227
Safety-pin	J. V. Washburne	34,891	Aug. 6	96	1227
Safety-pin	J. V. Washburne	34,892	Aug. 6	96	1227
Sawing-table	F. H. Pierce	35,004	Aug. 27	96	1845
Scale frame or box blank	W. N. Pelouze	34,706	July 2	96	208
Sewing-machine cabinet	A. C. Abramson and W. Person	34,912	Aug. 6	96	1231
Sewing-machine frame	R. G. Woodward	34,730	July 2	96	207
Sewing-machine needle-lever	R. G. Woodward	34,728	July 2	96	207
Sewing-machine needle-lever	R. G. Woodward	34,729	July 2	96	207
Shade-bracket	J. F. Jones and W. T. Stuckey	34,862	July 30	96	1025
Shade fixture. Window-	C. F. Bassett	34,714	July 2	96	204
Sharpeners or glass-cutters. Frame for knife-	F. G. Reynolds	34,761	July 9	96	416
Shaving-cup	J. V. Reed	34,709	July 2	96	208
Ship's ventilator	C. McVeety and J. F. Ford	34,907	Aug. 6	96	1230
Shirt-waist former	F. Mawson	35,049	Sept. 3	96	2051
Shutter-slat	J. G. Wilson	34,967	Aug. 20	96	1636
Sign. Electric-light	M. Norden	34,848	July 23	96	831
Sign. Electric-light	M. Norden	34,849	July 23	96	832
Silversmith's stock	P. J. Gordon	35,036	Sept. 10	96	2218
Sink	W. E. Clow	35,006	Aug. 27	96	1845
Slat-holder bracket	W. T. Kendrick	35,000	Aug. 27	96	1844
Smoothing-iron handle	A. N. Allen	35,078	Sept. 10	96	2221
Smoothing-iron handles. Clamp member for	A. N. Allen	35,077	Sept. 10	96	2221
Snap-link	A. Brockelbank	34,899	Aug. 6	96	1238
Sound-concentrator	M. R. Hutchison	34,968	Aug. 20	96	1635
Souvenir-plate	M. Tonnemann	34,958	Aug. 20	96	1635
Spectacles or eyeglasses. Nosepiece for	I. Fox	34,752	July 9	96	415
Spoke-socket	C. L. Rector	34,971	Aug. 20	96	1636
Spool-holder	J. P. Swenson	34,873	July 30	96	1027
Spoon	C. H. Welsgerber	34,747	July 9	96	414
Spoon or fork handle	F. Habensack	34,858	July 30	96	1024
Spoons, forks, &c. Handle for	C. A. Bennett	34,746	July 9	96	414
Spoons, forks, &c. Handle for	C. Silber	34,774	July 16	96	626
Spoons, forks, &c. Handle for	H. L. Wallace	34,812	July 23	96	826
Spoons, &c. Handle for	S. Ruby	35,091	Sept. 17	96	2397
Spoons or similar articles. Handle for	F. W. Smith	34,917	Aug. 13	96	1417
Static-machine stationary plate	J. M. G. Beard	34,768	July 9	96	417
Statuette	E. J. McCurdy and C. R. Embry	35,019	Sept. 3	96	2046
Steam-generators. Header for sectional	C. P. Higgins	34,980	Aug. 20	96	1638
Steam-trap	C. T. Brown and F. W. Leuthesser	34,878	July 30	96	1028
Stirrup	P. Gschwend	34,929	Aug. 13	96	1418
Stocking or similar article	T. West	34,770	July 9	96	418
Stopper-extractor	J. S. Dearborn	35,097	Sept. 17	96	2398
Stove	G. Thompson	34,724	July 2	96	206
Stove	S. Sorenson	34,911	Aug. 6	96	1230
Stove	J. S. Van Buren	34,950	Aug. 13	96	1422
Stove	W. H. Cribben	34,978	Aug. 20	96	1638
Stove. Cooking	T. I. Rankin	34,910	Aug. 6	96	1230
Stove fire-pot	A. B. Clunies	34,979	Aug. 20	96	1638
Stove. Gas	M. Griswold, Jr	34,977	Aug. 20	96	1637
Stove. Heating	T. I. Rankin	34,909	Aug. 6	96	1230
Stove. Heating	T. I. Rankin	35,114	Sept. 17	96	2400
Stove leg. Gas	H. P. Simpson	34,723	July 2	96	206
Stove or range	T. R. Kennedy and E. J. King	35,010	Aug. 27	96	1846
Suppository	H. H. Foringer	35,087	Sept. 17	96	2397
Suspender member or band	T. Ferry	34,998	Aug. 27	96	1843
Table	W. Loeven	34,870	July 30	96	1026
Table	G. Stickley	35,045	Sept. 3	96	2051
Tailor's pick	L. Simandy	34,928	Aug. 13	96	1418
Thermometer-frame	I. Mayer	34,804	Aug. 6	96	1228

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Thill-coupling	H. A. Moyer	35,054	Sept. 3	96	2052
Thill-coupling plate	J. L. Kehl and J. Garthe	34,719	July 2	96	205
Tile	J. K. Sierer	34,951	Aug. 13	96	1423
Tiling	A. Plant	34,742	July 2	96	209
Tire and rim. Carriage	W. Langmuir	34,802	July 16	96	631
Tire and rim. Carriage	W. Langmuir	34,974	Aug. 20	96	1637
Tire and rim. Carriage	W. Langmuir	34,975	Aug. 20	96	1637
Tire channel-rim. Vehicle	J. G. Webb	34,973	Aug. 20	96	1637
Tire. Pneumatic	I. S. McClehan	34,932	Aug. 13	96	1419
Tire-setting machines. Bed-plate for	H. T. Henderson	34,937	Aug. 13	96	1420
Tobacco-pipe bowls. Member for	W. C. Cunningham	35,060	Sept. 10	96	2218
Tobacco-pipes. Section for separable	T. Morgan	34,922	Aug. 13	96	1418
Toilet-boxes or similar articles. Cover for	T. W. Foster	34,954	Aug. 20	96	1634
Tombstone or monument	E. C. Hodges	34,743	July 2	96	209
Tombstone or monument	E. C. Hodges	34,744	July 2	96	209
Toy	H. P. Attwater	34,850	July 23	96	832
Toy-wagon body	H. T. Kingsbury	35,117	Sept. 17	96	2401
Toy-wagon-body blank	H. T. Kingsbury	35,116	Sept. 17	96	2401
Trace-fastener	C. H. Morehead	34,826	July 23	96	828
Trace-holder member	J. S. Barclay	35,085	Sept. 3	96	2049
Tray	C. P. Beisel	34,920	Aug. 13	96	1417
Trimming	A. H. Kursheedt	35,124	Sept. 17	96	2402
Trimming	A. H. Kursheedt	35,132	Sept. 24	96	2568
Truck. Barrel-	L. J. Willenburg	35,034	Sept. 3	96	2049
Tug-stop	W. B. Frear	34,825	July 23	96	828
Type. Font of printing-	B. Nadall	34,872	July 30	96	1027
Undergarment	J. Hirsch	34,853	July 23	96	832
Valve casing. Float-	T. Stebbins	34,948	Aug. 13	96	1422
Valve. Governor-	L. O. Goodwin	34,717	July 2	96	205
Vehicle-body	R. E. Olds	34,881	July 23	96	829
Vehicle-body	E. B. Gallaher	35,109	Sept. 17	96	2399
Vehicle-body	E. B. Gallaher	35,110	Sept. 17	96	2400
Vehicle-body frame	R. E. Olds	35,076	Sept. 10	96	2220
Vehicle bolster-plate	T. G. Mandt	35,106	Sept. 17	96	2399
Vehicle-frame	W. A. Crowdus	34,827	July 23	96	828
Vehicle-seat handhold	W. B. C. Hershey	34,866	July 30	96	1026
Vehicle-seat handhold	W. B. C. Hershey	34,867	July 30	96	1026
Vending-machine case	C. V. Floyd	34,926	Aug. 13	96	1418
Vending-machine case	P. G. MacLean	34,997	Aug. 27	96	1843
Veneer-pressing member	F. A. Dennett	34,942	Aug. 13	96	1421
Veneer-pressing member	F. A. Dennett	34,943	Aug. 13	96	1421
Veneer-pressing member	F. A. Dennett	34,944	Aug. 13	96	1421
Veneer-pressing member	F. A. Dennett	34,945	Aug. 13	96	1422
Veneer-pressing member	F. A. Dennett	34,946	Aug. 13	96	1422
Veneer-pressing member	F. A. Dennett	34,947	Aug. 13	96	1422
Ventilator-bar	H. White	35,006	Aug. 27	96	1845
Violin-body	W. Frederick	35,095	Sept. 17	96	2398
Wagon-body antirattler	L. Ward	34,880	July 23	96	829
Wagon-stake	G. Paul	34,720	July 2	96	205
Waist-extender	H. H. Taylor	34,875	July 30	96	1027
Waist-lengthener	E. K. Pilling	34,768	July 9	96	418
Weighing-machine case. Coin-controlled	E. H. Cook	34,707	July 2	96	208
Wheel-rim. Metallic	J. M. MacLulich	35,075	Sept. 10	96	2220
Wheelbarrow	F. J. Cooper	34,934	Aug. 13	96	1419
Whiffletree-clip member	W. I. Wolverton	34,930	Aug. 13	96	1419
Whiffletree-clip member	W. I. Wolverton	34,931	Aug. 13	96	1419
Window-pulley bracket	U. G. McQueen	34,999	Aug. 27	96	1844
Window-screen	E. A. Reese and R. L. St. Clair	34,803	July 30	96	1025
Wrenches. Slide-piece for	A. Dudly	34,901	Aug. 6	96	1229
Yoke-plate	E. Einfeldt	34,970	Aug. 20	96	1636

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Absinthe	E. Cusenier Fils Aîné & Cie	36,872	Aug. 6	96	1233
Agricultural implements and vehicles. Certain named	Pioneer Implement Co	37,028	Sept. 3	96	2056
Ale, wine, stout, and beer	H. A. Hunter	36,763	July 16	96	636
Anesthetic. Liquid	H. J. Bell	36,672	July 2	96	211
Animal-traps. Certain named	Animal Trap Co	37,096	Sept. 17	96	2406
Antipyretic and antiperiodic	Farbenfabriken of Elberfeld Co	37,011	Sept. 3	96	2055
Apparel. Certain named wearing	L. Baer	36,664	July 2	96	210
Apparel. Certain named wearing	B. Lowenstein & Bros	36,665	July 2	96	210
Apparel. Certain named wearing	Sykes & Ab. Kirschbaum & Co	36,736	July 16	96	633
Apparel. Certain named wearing	Zimmermann Brothers Clothing Company.	37,055	Sept. 17	96	2408
Apples. Evaporated	Elbert & Gardner	36,722	July 9	96	422
Atomizer	Mahoning Novelty Co	36,861	Aug. 6	96	1232
Axes, adzes, bush-hooks, and machetes	Collins Company	36,894	Aug. 13	96	1425
Badges	Harvey & Otis	36,730	July 16	96	633
Baking-powder	W. H. Hoople	36,804	July 23	96	837
Baking-powder	Calumet Tea & Coffee Co	36,882	July 30	96	1081
Baking-powder	New Century Baking Powder Co	36,961	Aug. 20	96	1643
Baking-powder	Black Hawk Coffee & Spice Co	36,982	Aug. 20	96	1643
Baking-powder	J. R. Hayward	37,081	Sept. 17	96	2405
Baking-powder	J. C. Grant Chemical Company	37,050	Sept. 10	96	2225
Baking-powder. Alum	F. Sehring Brewing Company	37,000	Sept. 3	96	2054
Beer	Hudson County Consumers Brewing Co.	36,675	July 2	96	211
Beer, ale, and porter. Lager	Duquesne Brewing Co	36,762	July 16	96	636
Beer. Lager	J. C. Paulus & Co	36,790	July 23	96	836
Belts. Leather, canvas, or composition	Figprune Cereal Co	37,040	Sept. 10	96	2224
Beverage. Cereal preparation to be used as a	Blue Seal Supply Co	37,042	Sept. 10	96	2224
Beverage. Non-alcoholic	Pennsylvania Bottling & Supply Co.	37,041	Sept. 10	96	2224
Beverages. Carbonated or non-alcoholic	Aktienbrauerei Zum Löwenbräu in München.	36,925	Aug. 20	96	1642
Beverages. Certain named	La Manufacture Dijonnaise des Biscuits Pernot.	36,929	Aug. 20	96	1642
Biscuits	La Manufacture Dijonnaise des Biscuits Pernot.	36,930	Aug. 20	96	1643
Biscuits	Binney & Smith	37,013	Sept. 3	96	2055
Blacks and colors	C. W. Lucas	36,968	Aug. 27	96	1849
Blood-purifier	White Star Chemical Company	36,874	Aug. 6	96	1234
Boiler compounds	Walter M. Lowney Co	36,990	Aug. 27	96	1851
Bonbons	Rogers & Hubbard Co	37,020	Sept. 3	96	2056
Bone goods. Certain named	Winterbottom Book Cloth Company.	36,856	Aug. 6	96	1232
Bookbinders' cloth	V. K. and A. H. Jones Company	36,695	July 9	96	419
Boots and shoes	P. W. Minor & Son	36,925	July 30	96	1080
Boots and shoes	J. H. Winchell & Co	37,080	Sept. 10	96	2223
Boots and shoes	M. F. Thomas	37,057	Sept. 17	96	2408
Boots and shoes	M. F. Thomas	37,058	Sept. 17	96	2408
Boots and shoes	Packard and Field	37,081	Sept. 10	96	2223
Boots and shoes and leather	Rice & Hutchins	36,995	Sept. 3	96	2053
Boots and shoes and leather for same	Carruthers-Jones Shoe Co	37,106	Sept. 24	96	2560
Boots and shoes. Leather	J. P. Smith Shoe Co	36,994	Sept. 3	96	2053
Boots and shoes. Men's	Frank G. Jones Shoe Co	36,696	July 9	96	419
Boots, shoes, and leather	Frank G. Jones Shoe Co	36,697	July 9	96	419
Boots, shoes, and leather	Whiting and Davis	36,690	July 9	96	419
Bracelets	E. Cusenier Fils Aîné & Cie	36,816	July 23	96	836
Brandy	Page & Sandeman	36,840	July 30	96	1082
Brandy. Apricot	F. E. Frey	36,719	July 9	96	421
Brandy, whisky, wine, and gin	C. Oak	37,004	Sept. 3	96	2054
Bread	Crescent Bakery	36,809	July 23	96	837
Bread, rolls, cake, pies, buns, and biscuits	Wiens Brush Co	36,724	July 9	96	422
Brushes	Milwaukee Dustless Brush Co	36,985	Aug. 27	96	1852
Brushes	Bristol Door & Lumber Co	36,858	Aug. 6	96	1232
Buildings. Certain named exterior and interior wooden finish for	Whitridge, White & Co	36,789	July 23	96	835
Burlaps	D. E. Wood Butter Co	36,679	July 2	96	211
Butter	Continental Creamery Company	37,052	Sept. 10	96	2226
Butter and cheese	Newell Bros. Manufacturing Company.	36,668	July 2	96	210
Buttons. Vegetable-ivory trousers	H. H. Bergmann	36,685	July 2	96	212
Candies	Boflay Camera and Chemical Co	37,064	Sept. 17	96	2408
Cameras and photographic solutions	W. B. Cheatham	37,006	Sept. 3	96	2054
Canned fruits, meats, and vegetables	Stone-Ordean-Wells Co	36,681	July 2	96	212
Canned goods	Stone-Ordean-Wells Co	36,682	July 2	96	212
Canned goods	Catton, Bell & Co	36,889	Aug. 13	96	1425
Canned goods	Portland Packing Co	37,091	Sept. 17	96	2406
Canned goods	Stone-Ordean-Wells Co	36,883	July 30	96	1081
Canned goods. Certain named	Smith Bros. Co	36,870	Aug. 6	96	1233
Canned provisions. Certain named	V. Scalzo Fruit Company	36,869	Aug. 6	96	1234
Cantaloups	H. Reisinger	36,875	Aug. 6	96	1234
Carbons for electrical purposes	United States Playing Card Co	36,732	July 16	96	633
Cards. Playing	United States Playing Card Co	36,951	Aug. 27	96	1848
Cards. Playing	R. H. Hemphill	36,815	July 23	96	838
Carriages and wagons. Self-propelled					

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cartridges	Selby Smelting & Lead Co	37,022	Sept. 3	96	2056
Catsup	Dodson-Braun Mfg. Co	36,723	July 9	96	422
Cement	Wm. Krause & Sons Cement Co	36,777	July 16	96	637
Cement. Portland	Atlas Portland Cement Co	36,967	Aug. 27	96	1852
Chain-links. Detachable	King & Hamilton Co	36,602	July 2	96	210
Chains, watchcases, jewelry, and metal ingots	C. H. Stone	36,731	July 16	96	633
Chairs	Murphy Chair Co	36,814	July 23	96	838
Cheese, butter, and preparations of milk	K. Hoefelmayr	37,003	Sept. 3	96	2054
Chickens, turkeys, ducks, and geese	Conron Bros	36,984	Aug. 27	96	1852
Cigarette-papers	Maison P. B. Job	36,970	Aug. 27	96	1850
Cigarette-papers	Maison P. B. Job	36,971	Aug. 27	96	1850
Cigarettes	A. Q. Walsh	36,999	Sept. 3	96	2054
Cigars	Y. Pendás & Alvarez	37,046	Sept. 10	96	2225
Cigars	Y. Pendás & Alvarez	37,047	Sept. 10	96	2225
Cigars	Y. Pendás & Alvarez	37,048	Sept. 10	96	2225
Cigars	Y. Pendás & Alvarez	37,049	Sept. 10	96	2225
Cigars	Y. Pendás & Alvarez	37,090	Sept. 17	96	2406
Cigars	Ontario Cigar Co	36,927	Aug. 20	96	1642
Cigars and tobacco	Wm. A. Stickney Cigar Co	37,044	Sept. 10	96	2224
Cigars, cigarettes, and smoking and chewing tobacco	Y. Pendás & Alvarez	37,045	Sept. 10	96	2225
Cigars, cigarettes, and smoking and chewing tobacco	New Haven Clock Company	36,988	Aug. 27	96	1852
Clocks	H. C. England	36,686	July 2	96	212
Coaster-brakes	G. Amsinck & Co	36,935	Aug. 20	96	1643
Coffee	Cheek, Norton and Neal	37,084	Sept. 17	96	2405
Coffee	Smith Bros. Co	37,095	Sept. 17	96	2406
Coffee	Black Hawk Coffee & Spice Co	36,934	Aug. 20	96	1643
Coffee and tea	J. Carnrick	36,677	July 2	96	211
Coffee compound	Winslow, Rand & Watson	36,676	July 2	96	211
Coffee. Java and Mocha	F. Peter's Nachfolger	36,733	July 16	96	633
Collars, cuffs, and shirt-fronts, (plastrons)	Celluloid Company	36,824	July 30	96	1080
Collars, cuffs, shirt-fronts, and bosoms	Gillum & Rudy	36,691	July 9	96	419
Combs	W. F. Schrafft & Sons	36,836	July 30	96	1081
Confectionery and chocolate	J. H. Hamlin & Son	36,687	July 2	96	212
Cooperage. Certain named	W. Vernon & Sons	36,928	Aug. 20	96	1642
Corn, flour, meal, bread, bran, rolled oats, semolina, and pollard.	J. M. Van Orden	36,735	July 16	96	633
Corsets	G. C. Batcheller	36,822	July 30	96	1080
Corsets	G. C. Batcheller	36,823	July 30	96	1080
Corsets	Kops Bros	36,955	Aug. 27	96	1848
Corsets	Weingarten Bros	36,956	Aug. 27	96	1848
Corsets	Weingarten Bros	37,056	Sept. 17	96	2403
Corsets	Classic Corset Company	36,897	Aug. 20	96	1640
Corsets, corset-waists, bust-supporters, and stays	Ward, Hanbury & Company	36,780	July 23	96	834
Cotton fabrics	Ward, Hanbury & Co	36,781	July 23	96	834
Cotton fabrics	Ward, Hanbury & Co	36,782	July 23	96	834
Cotton fabrics	Ward, Hanbury & Co	36,783	July 23	96	834
Cotton fabrics	Ward, Hanbury & Co	36,784	July 23	96	835
Cotton fabrics	Ward, Hanbury & Co	36,785	July 23	96	835
Cotton goods	Coventry Company	36,700	July 9	96	420
Cotton goods	Tata & Co	36,701	July 9	96	420
Cotton goods	K. Yokoo	36,740	July 16	96	634
Cotton goods	K. Yokoo	36,741	July 16	96	634
Cotton goods	K. Yokoo	36,742	July 16	96	634
Cotton goods	K. Yokoo	36,743	July 16	96	634
Cotton goods	Tata & Co	36,908	Aug. 20	96	1640
Cotton or cotton thread. Spool	J. & P. Coats	36,904	Aug. 20	96	1640
Cotton or cotton thread. Spool	J. & P. Coats	36,905	Aug. 20	96	1640
Cotton or cotton thread. Spool	J. & P. Coats	36,906	Aug. 20	96	1641
Cotton or cotton thread. Spool	J. & P. Coats	36,907	Aug. 20	96	1641
Cotton or cotton thread. Spool	Clark and Company	36,908	Aug. 20	96	1641
Cough-syrup	Clark and Company	36,795	July 23	96	836
Court-plaster. Liquid compound used as a substitute for	A. Lenau	36,846	July 30	96	1082
Crackers, cakes, cookies, biscuits, bread, and pies	M. E. Waldstein	36,868	Aug. 6	96	1233
Creamery products. Certain named	Colonial Biscuit Co	37,115	Sept. 24	96	2570
Crucibles	St. Charles Condensing Company	36,811	July 23	96	838
Curaçao	Bridgeport Crucible Co	36,887	Aug. 13	96	1426
Cutlery	E. Cusenier Fils Aîné & Cie	36,773	July 16	96	637
Disinfectants and deodorizers	S. Hecht & Son	37,076	Sept. 17	96	2404
Disinfectants and germicides	A. Dreyfuss	37,110	Sept. 24	96	2570
Disinfectants. Liquid	G. A. Stoehr	36,799	July 23	96	836
Doll-heads. Metal	Embalmers Supply Co	36,704	July 9	96	420
Dress-shields	A. Vischer & Co	36,821	July 30	96	1080
Drug for the treatment of drunkenness and drug habit	Canfield Rubber Co	36,757	July 16	96	635
Drugs and medicines. Certain named	V. N. Turvey	36,847	July 30	96	1082
Dry goods. Certain named	R. Wirth	37,100	Sept. 24	96	2569
Dry goods. Certain named	T. G. Hill & Co	37,101	Sept. 24	96	2569
Edulcorants	T. G. Hill & Co	36,834	July 30	96	1081
Enamels, paints, varnishes, and stains	V. de Messimy & Co	36,776	July 16	96	637
Eyeglasses	Gerstendörfer Bros	37,062	Sept. 17	96	2403
Fabrics. Certain named	"Ocularium" Ärztliches Institut für Augengläser, G. M. B. H.	36,666	July 2	96	210
Fabrics. Certain named	G. Willis	36,667	July 2	96	210
Fabrics. Certain named	G. Willis	36,796	July 23	96	835
Fabrics. Certain named	G. Willis	36,817	July 30	96	1080
Fabrics. Certain named	G. Willis	37,092	Sept. 10	96	2223
Fabrics. Certain named	John S. Brittain Dry Goods Co	37,102	Sept. 24	96	2569
Facial preparations	G. Willis	36,914	Aug. 20	96	1641
Feed. Dry	E. Livengood & I. V. Kalbaugh	36,764	July 16	96	636
Fencing. Wire	Freiberg & Workum	36,727	July 9	96	422
Filters and filtration systems	Union Fence Co	36,895	Aug. 13	96	1426
Fire-kindlers. Certain named	W. M. Deutsch	36,686	July 2	96	212
Flooring. Manufactured maple	T. D. Bausher	37,098	Sept. 17	96	2406
Flour	Cobbs & Mitchell	36,805	July 23	96	837
Flour	Bradley & Co	37,002	Sept. 3	96	2054
Flour	G. W. Wertz	37,116	Sept. 24	96	2570
Flour and breakfast-food. Wheat and pancake	Ansted & Burk Co	36,808	July 23	96	837
	Shannon & Mott Co				

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Flour. Wheat	C. Hoffman & Son	36,806	July 23	96	837
Flour. Wheat	Kunhardt & Co	36,807	July 23	96	837
Flour. Wheat	C. Hoffman & Son	36,829	July 30	96	1081
Flour. Wheat	Mayflower Mills	36,830	July 30	96	1081
Flour. Wheat	Mattie Mitchell Co	36,890	Aug. 13	96	1425
Flour. Wheat	S. C. Hurt & Son	36,982	Aug. 27	96	1851
Flour. Wheat and other	South Jersey Millers Association	37,001	Sept. 3	96	2054
Fly-paper	L. G. Heinritz	37,065	Sept. 17	96	2404
Fly-paper. Sticky	Grand Rapids Sticky Fly Paper Company.	36,969	Aug. 27	96	1850
Food. Breakfast	Hygienic Food Co	36,721	July 9	96	422
Food. Concentrated albuminous	L. Sarason	36,831	July 30	96	1081
Food for stock and other animals	Molassine Company	36,891	Aug. 13	96	1425
Food products. Certain named	Mattie Mitchell Co	36,680	July 2	96	212
Food products. Certain named grain	Kansas City Oat Meal & Cereal Company.	36,867	Aug. 6	96	1233
Food substances and ingredients and cereal beverages. Certain named	R. Graham	36,720	July 9	96	422
Foods. Compressed	American Compressed Food Co	36,683	July 2	96	212
Foods. Compressed	American Compressed Food Co	36,684	July 2	96	212
Footwear. Certain named	Parker, Holmes & Co	36,739	July 16	96	633
Forgings. Certain named	Midvale Steel Co	36,728	July 9	96	422
Fruits and extracts from fruits. Prepared	Crown Cordial & Extract Co	36,979	Aug. 27	96	1851
Fuel	T. D. Bausher	36,853	July 30	96	1082
Furniture. Rustic	Old Hickory Chair Co	36,680	July 2	96	212
Game	Hamley Brothers	36,854	Aug. 6	96	1232
Game-board	W. J. Sharp	37,083	Sept. 10	96	2221
Game-boards	E. F. Carson	36,881	Aug. 13	96	1424
Games. Household and indoor	E. E. Graves	36,705	July 9	96	420
Garments. Fur and fabric	Clark & Weinberg	37,103	Sept. 24	96	2569
Gas-burners	J. Crane, Jr	36,810	July 21	96	838
Girdles and stays for athletic and negligée wear. Bust	Classic Corset Company	36,992	Sept. 3	96	2053
Glass. Certain named	Duryea & Potter	36,879	Aug. 13	96	1424
Glass lamp-chimneys, glass reflectors, and glass lantern-globes.	Gill Brothers and Company	36,725	July 9	96	422
Glassware	Schott & Gen	36,859	Aug. 6	96	1232
Glassware. Pressed	A. H. Heisey & Co	36,860	Aug. 6	96	1232
Glue	E. E. Nice	36,944	Aug. 20	96	1645
Graphite	Joseph Dixon Crucible Co	37,016	Sept. 3	96	2055
Graphite	Joseph Dixon Crucible Co	37,017	Sept. 3	96	2056
Grocers' supplies. Certain named	Smith Bros. Co	36,942	Aug. 20	96	1644
Guns	W. B. Belknap & Co	36,876	Aug. 6	96	1234
Hair-dyes	L. Alexandre	36,915	Aug. 20	96	1641
Hair-pins	S. Beaumont et Fils	36,960	Aug. 27	96	1849
Hair. Preparation for the	M. M. Harris	36,863	Aug. 6	96	1233
Hair-restorers	E. L. Hoffman	36,916	Aug. 20	96	1641
Hair-restorers. Liquid	F. C. Fowler	37,073	Sept. 17	96	2401
Hair-tonic	M. E. Mullen	36,917	Aug. 20	96	1641
Hair-tonic or hair-renewer	S. A. Richmond	36,745	July 16	96	634
Hammers, trowels, levels, plumb-rules, jointing-rules, and broad chisels.	J. F. Sullivan	36,813	July 23	96	838
Hardware. Certain named	Turner Hardware Co	36,726	July 9	96	422
Harmonicas. Mouth	C. Weiss, Jr	37,061	Sept. 17	96	2403
Harness and saddlery	I. Sichel	36,948	Aug. 20	96	1644
Horns. Amplifying	A. S. Marten	36,882	Aug. 13	96	1424
Horseshoes	Goodluck Manufacturing Company.	37,027	Sept. 3	96	2056
Hosiery	Slear Bros	36,737	July 16	96	633
Incandescent lights, parts thereof, and mantles, chimneys, globes, and shades therefor.	Welsbach Light Company	37,028	Sept. 3	96	2056
Incandescent mantles for gas or vapor burners	Stillwell Light Company	37,024	Sept. 3	96	2056
Ink	Sanford Manufacturing Company	36,850	July 30	96	1082
Inks. Printing and lithographic	Fuchs & Lang Mfg. Co	36,768	July 16	96	637
Insecticides	H. W. Doughton	36,709	July 9	96	421
Kidney diseases. Compound for the cure of	H. Bull	36,848	July 30	96	1082
Knives, razors, and scissors. Pocket	Watkins Cottrell Co	37,035	Sept. 10	96	2223
Lamp chimneys and globes, glass tubes, and solid glass pieces.	Macbeth-Evans Glass Company	36,986	Aug. 27	96	1852
Lard	E. Miró	36,983	Aug. 27	96	1851
Lard, syrup, and honey	Aspegren & Co	36,937	Aug. 20	96	1643
Laundry articles. Certain named	W. & H. Walker	37,080	Sept. 17	96	2405
Laundry-tablet	W. P. Orne	37,079	Sept. 17	96	2405
Lead	Davis Lead Company	37,053	Sept. 10	96	2223
Lead, saltpeter, brimstone roll, and flowers of sulfur. White	Brandram Brothers & Co	36,892	Aug. 13	96	1425
Leather products. Certain named	Scheuer & Bro	37,060	Sept. 17	96	2403
Liniment	V. P. McVoy	36,849	July 30	96	1082
Liniment	C. A. Robins	36,922	Aug. 20	96	1642
Liquids. Certain named bottled	American Mineral Water Machine Co.	36,837	July 30	96	1081
Liquors. Malt	San Antonio Brewing Ass'n	37,086	Sept. 17	96	2405
Liquors. Malt	San Antonio Brewing Ass'n	37,087	Sept. 17	96	2406
Liquors. Malt	San Antonio Brewing Ass'n	37,088	Sept. 17	96	2406
Liquors. Malt	San Antonio Brewing Ass'n	37,089	Sept. 17	96	2406
Liquors. Spirituous	Meadville, Pa., Distilling Co	36,976	Aug. 27	96	1851
Logwood extracts	West Indies Chemical Works	36,800	July 23	96	836
Machines. Certain named	Addressograph Co	37,119	Sept. 24	96	2570
Malt extracts and peptonized malt foods	A. Lieber	36,866	Aug. 6	96	1233
Matches	Pennsylvania Match Co	36,759	July 16	96	636
Matches	Pennsylvania Match Co	36,760	July 16	96	636
Matches	Atlantic Match Co	36,945	Aug. 20	96	1644
Matches	Atlantic Match Co	36,946	Aug. 20	96	1644
Matches	Atlantic Match Co	36,947	Aug. 20	96	1644
Medical compound. Certain named	B. Prom	36,715	July 9	96	421
Medical compounds and toilet preparations. Certain named	V. Bergwall	36,744	July 16	96	634
Medical compounds. Certain named	B. Chadwick	36,753	July 16	96	635
Medical compounds. Certain named	Lydia E. Pinkham Medicine Co	36,796	July 23	96	836

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Medical compounds. Certain named	J. H. Schenck	36,965	Aug. 27	96	1849
Medical compounds. Certain named	Lacto-Marrow Company	37,066	Sept. 17	96	2404
Medical compounds for internal use	Recco Pharmacal Co	36,755	July 16	96	635
Medical preparation. Certain named	Geer Drug Co	36,752	July 16	96	635
Medicinal preparation for sheep and cattle	S. Pettifer & Sons	37,012	Sept. 3	96	2055
Medicinal preparations and soap. Certain named	B. J. Bruns	36,961	Aug. 27	96	1849
Medicinal preparations for internal use	Lerken Chemical Company	36,886	Aug. 13	96	1425
Medicinal tablets	Antikamma Chemical Company	37,071	Sept. 17	96	2404
Medicine. Certain named	R. H. N. Johnson	36,713	July 9	96	421
Medicine for certain named diseases	R. Ambrogi	36,718	July 9	96	421
Medicine for certain named diseases	Afco Chemical Co	36,967	Aug. 27	96	1950
Medicine for certain named diseases and vaporizers for evaporating same.	F. Jacobson	36,862	Aug. 6	96	1282
Medicine for the cure of rheumatism	T-Rheumatic Cure Co	36,918	Aug. 20	96	1642
Medicine. Proprietary	Oklahoma Drug Co	36,746	July 16	96	634
Medicine. Proprietary	F. F. Fanning	36,885	Aug. 13	96	1424
Medicines. Certain named	Moon's Magnetic Medicine Co	36,714	July 9	96	421
Medicines for certain named diseases	Dr. J. C. Brown Medical Co	37,108	Sept. 24	96	2570
Medicines. Proprietary	I. L. Browning	36,669	July 2	96	210
Medicines. Proprietary	Liquid Ozone Co	36,670	July 2	96	211
Metal ware. Certain named	Roger Williams Silver Company	36,769	July 16	96	637
Metal ware. Certain named	Roger Williams Silver Company	36,770	July 16	96	637
Metals. Antifriction	National Metal Co	37,019	Sept. 3	96	2056
Metallic articles. Certain named fancy	L. Huet & E. Ligier	37,036	Sept. 10	96	2223
Mineral water	T. F. Goode	36,926	Aug. 20	96	1642
Mineral water	Blue Lick Springs Co	36,978	Aug. 27	96	1851
Molasses	Smith Bros. Co	36,835	July 30	96	1081
Nails, tacks, and buttons. Upholsterers'	Mattatuck Manufacturing Co	36,812	July 23	96	838
Neckties	Louis Auerbach	36,692	July 9	96	419
Oats. Flaked	C. C. Green	36,981	Aug. 27	96	1851
Oil and lard. Cotton-seed	Aspegren & Co	37,092	Sept. 17	96	2406
Oils, lard, syrup, and honey. Seed	Aspegren & Co	36,936	Aug. 20	96	1643
Oils, lard, syrup, dried and canned fruits, and honey	Aspegren & Co	36,938	Aug. 20	96	1643
Oils, lard, syrup, dried and canned fruits, and honey	Aspegren & Co	36,939	Aug. 20	96	1644
Oils, lard, syrup, dried and canned fruits, and honey. Seed	Aspegren & Co	36,940	Aug. 20	96	1644
Oils, lard, syrup, dried and canned fruits, and honey. Seed	Aspegren & Co	36,941	Aug. 20	96	1644
Ointment	Potter Drug & Chemical Corporation.	36,921	Aug. 20	96	1642
Ointment	A. C. Stewart	37,109	Sept. 24	96	2570
Olives	F. H. Leggett & Co	36,888	Aug. 13	96	1425
Optical apparatus and devices	L. B. Hilborn	36,661	July 2	96	210
Overalls, jackets, trousers, and shirts	H. S. Lanier	36,997	Sept. 3	96	2053
Overalls, jackets, trousers, and shirts	H. S. Lanier	36,998	Sept. 3	96	2053
Overshirts	S. Liebovitz & Son	36,734	July 16	96	633
Paint	American Lucol Company	37,014	Sept. 3	96	2055
Paint. Composition	Holzapfels Compositions Co	37,117	Sept. 24	96	2570
Paints	H. H. Kryger	37,015	Sept. 3	96	2055
Paints and pastes for paints	Carrara Paint Company	36,851	July 30	96	1082
Paints, stains, or lacquers	Phenix Chemical Works	36,801	July 23	96	837
Paper	William Mann Company	36,911	Aug. 20	96	1641
Paper	William Mann Company	36,912	Aug. 20	96	1641
Paper and envelops. Bond writing	Raynor & Perkins Envelope Company.	36,855	Aug. 6	96	1282
Paper and paper bags and sacks	Hollingsworth & Whitney Company.	36,794	July 23	96	896
Paper bags	Union Bag & Paper Co	37,033	Sept. 10	96	2223
Paper bags and barrel-linings	Arkell Safety Bag Company	36,793	July 23	96	896
Paper. Certain named	Fort Orange Paper Company	36,703	July 9	96	421
Paper. Photographic printing	Columbian Photo Paper Co	36,827	July 30	96	1080
Paper-pulp. Certain named goods made of	E. B. Crocker	36,826	July 30	96	1080
Paste, mucilage, glue, and ink	Sanford Mfg. Co	36,883	Aug. 13	96	1424
Pens. Fountain	P. E. Wirt	37,034	Sept. 10	96	2223
Perfumery	A. Perroud	36,844	July 30	96	1082
Perfumery	Frederick Stearns & Co	37,007	Sept 3	96	2054
Perfumery. Certain named	George Lorenz Company	36,779	July 16	96	638
Perfumery, toilet water, face-powders, and satchet-powders	A. F. Jammes	37,038	Sept. 10	96	2224
Photographic purposes. Platinum printing-out paper for	Eastman Kodak Co	36,910	Aug. 20	96	1641
Photometric apparatus. Portable	General Electric Company	36,969	Aug. 27	96	1852
Pickles or preserves	W. Hunt	36,868	July 23	96	837
Pills	Dr. Wilson Company	36,919	Aug. 20	96	1642
Pills for certain named diseases	G. C. Weber	36,864	Aug. 6	96	1283
Pine-tree products. Certain named	American Consolidated Pine Fibre Company.	36,865	Aug. 6	96	1283
Pipe-wrenches	J. H. Williams & Co	36,877	Aug. 6	96	1284
Plaster. Wall	Grand Rapids Plaster Co	37,054	Sept. 10	96	2226
Preparation. Certain named liquid	N. Cota	37,039	Sept. 10	96	2224
Preparation for certain named diseases	American Medicine Co	37,068	Sept. 17	96	2404
Preparations for the treatment of a certain named disease	Cook Remedy Company	36,967	Aug. 27	96	1850
Preservatives and meat binders and fillers	M. F. Servatius	36,761	July 16	96	636
Printers' supplies. Certain named	Barnhart Bros. & Spindler	36,767	July 16	96	636
Provisions. Certain named	Pass Packing Company	36,943	Aug. 20	96	1644
Pulleys. Wooden	Crump's Manufacturing Company	36,893	Aug. 13	96	1425
Pulp. Articles manufactured from wood	C. W. Zaremba	36,702	July 9	96	420
Pumps and windmills and their parts and supplies and devices therefor.	W. A. Kerfoot	36,990	Aug. 27	96	1852
Remedies. Antimalarial	L. W Perdue	36,962	Aug. 27	96	1849
Remedies. Certain named internal and external	W. Brown	36,716	July 9	96	421
Remedies. Cough	J. S. Dorsey	36,671	July 2	96	211
Remedies in tablet form. Internal headache	Neuralgyline Company	36,717	July 9	96	421
Remedies. Stomach and blood	Chapman Manufacturing Co	37,069	Sept. 17	96	2404
Remedy for a certain named disease	Verus Pile Cure Company	36,749	July 16	96	635
Remedy for asthma	E. M. Barton	36,750	July 16	96	635
Remedy for certain named diseases	F. Hoffman-La Roche & Co	36,729	July 9	96	422
Remedy for certain named diseases	Eucaline Medicine Co	36,968	Aug. 27	96	1850
Remedy for certain named diseases	C. J. Sharp & Co	37,008	Sept. 3	96	2055
Remedy for certain named diseases	Tincture Amal Mfg. Co	37,009	Sept. 3	96	2055

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Remedy for certain named diseases	H. N. Townsend	37,067	Sept. 17	96	2404
Remedy for indigestion	H. C. Hill	36,751	July 16	96	635
Remedy for internal and external use	Tar Heel Chemical Co	36,797	July 23	96	836
Remedy for scalp diseases and tonic for the scalp	S. North	37,074	Sept. 17	96	2404
Remedy for skin and blood diseases	G. E. Remick	37,107	Sept. 24	96	2570
Remedy for throat and lung diseases	M. Hrujak	36,964	Aug. 27	96	1849
Remedy in solid form. Internal	W. C. Alpers	36,754	July 16	96	635
Resolvent	Potter Drug & Chemical Corporation.	36,920	Aug. 20	96	1642
Rheumatism and kidney cure	J. W. Trefry	36,756	July 16	96	635
Ribbons	Passavant Frères	36,953	Aug. 27	96	1848
Ribbons. Velvet-face and satin-back	Hoeninghaus & Curtiss	37,090	Sept. 24	96	2569
Roofing-felt	J. A. & W. Bird & Co	36,828	July 30	96	1081
Rubber packing, tubing, and hose	Combination Rubber and Belting Company.	36,949	Aug. 20	96	1644
Salts. Granular effervescing	W. Ohl	36,711	July 9	96	421
Salves. Eye	Howard Bros	36,673	July 2	96	211
Sanitary appliances. Certain named	D. P. Sonnehill	36,928	Aug. 20	96	1642
Sash-weights	California Manufactoring Co	37,095	Sept. 17	96	2406
Sauce	Yeatman & Company	37,114	Sept. 24	96	2570
Saws	E. C. Atkins & Company	36,852	July 30	96	1082
Saws	J. N. Eberle & Cie	37,094	Sept. 17	96	2406
Sedative and tonic. Respiratory	H. S. Clark	37,010	Sept. 3	96	2055
Sewing-machines	Miller, Sloss & Scott	36,775	July 16	96	637
Sewing-machines	Illinois Sewing Machine Company	36,950	Aug. 20	96	1644
Sewing-machines and attachments	W. A. Chipman	37,097	Sept. 17	96	2406
Sewing-machines and sewing-machine attachments	Willcox & Gibbs Sewing Machine Co.	37,098	Sept. 17	96	2406
Sheetings and drillings	H. B. Claflin Company	36,857	Aug. 6	96	1282
Sheetings and drillings	Arkwright Mills	36,954	Aug. 27	96	1848
Sheetings and drills	Geo. W. Scott Investment Co	36,788	July 23	96	835
Sheetings. Brown cotton	Liviérato Bros	36,878	Aug. 13	96	1424
Sheetings, shirtings, drills, and jeans. Gray and bleached	Fearon, Daniel & Co	36,787	July 23	96	835
Shells. Paper shot	Union Metallic Cartridge Company	36,778	July 16	96	638
Shirts	S. Liebovitz & Son	37,104	Sept. 24	96	2569
Shirts, drawers, overalls, coats, and nightgowns	Weiss Manufacturing Co	36,996	Sept. 3	96	2053
Shoes	F. E. Mistrot	36,693	July 9	96	419
Shoes	F. E. Mistrot	36,694	July 9	96	419
Shoes	McRae & Bevill	36,900	Aug. 20	96	1640
Shoes	F. E. Mistrot	36,901	Aug. 20	96	1640
Shoes	Smaltz-Goodwin Co	36,902	Aug. 20	96	1640
Shoes	W. Crawford	36,993	Sept. 3	96	2053
Shoes and umbrellas. Ladies'	W. B. Snyder & Co	36,791	July 23	96	836
Shoes, boots, and slippers	National Shoe Co	36,698	July 9	96	419
Shoes. Men's and boys'	Marks, Rothenberg & Co	36,958	Aug. 27	96	1848
Shoes. Men's and women's	Marks, Rothenberg & Co	36,957	Aug. 27	96	1848
Shoes. Men's and women's	Marks, Rothenberg & Co	36,959	Aug. 27	96	1849
Shoes. Men's and women's	Marks, Rothenburg & Co	37,020	Sept. 10	96	2223
Shoes. Men's and women's turn and welt	F. I. Dow	36,738	July 16	96	633
Shoes. Misses' and children's	Thomas G. Plant Co	36,792	July 23	96	836
Shoes, slippers, and boots	Rindge, Kalmbach, Logie & Co	37,060	Sept. 17	96	2403
Shot-shells and cartridges	Winchester Repeating Arms Co	36,896	Aug. 13	96	1426
Silverware and tableware	Reed & Barton	36,889	Aug. 13	96	1424
Skirts, capes, coats, cloaks, mantles, and waists	A. Beller & Co	36,819	July 30	96	1080
Skirts, capes, coats, cloaks, mantles, and waists	A. Beller & Co	36,820	July 30	96	1080
Soap	Wash A Lone Soap Co	36,924	Aug. 20	96	1642
Soap	James S. Kent & Company	37,087	Sept. 10	96	2224
Soap, perfumes, toilet water, cosmetics, and face-powder. Toilet	Mülhens & Kropff	36,707	July 9	96	420
Soap, perfumes, toilet water, cosmetics, and face-powder. Toilet	Mülhens & Kropff	36,708	July 9	96	421
Soap. Toilet	A Conkling	37,111	Sept. 24	96	2570
Soap. Toilet and shaving	J. A. Moninger	36,706	July 9	96	420
Soaps and toilet preparations. Perfumed	A. S. Butler	37,075	Sept. 17	96	2404
Spices	Black Hawk Coffee & Spice Co	36,933	Aug. 20	96	1643
Spool cotton and thread	H. B. Claflin Company	36,991	Sept. 3	96	2053
Spool-cotton, spool-silk, linen thread, and dress-binding	H. B. Claflin Company	36,818	July 30	96	1080
Stamp. Hand	B. H. Jov	37,021	Sept. 3	96	2056
Steel	Edgar Allen & Co	36,771	July 16	96	637
Stiffening materials. Certain named	Warren Featherbone Co	36,899	Aug. 20	96	1640
Stove-polish. Powdered	United States Graphite Company	36,766	July 16	96	636
Sugar	Cereal Sugar Co	36,765	July 16	96	636
Sugar. "A"	American Sugar Refining Company.	36,678	July 2	96	211
Sugar. Granulated	Lansing Sugar Company	37,005	Sept. 3	96	2054
Sugar. Hard	American Sugar Refining Co	37,051	Sept. 10	96	2225
Sugar. Hard	American Sugar Refining Co	37,082	Sept. 17	96	2405
Suspenders and braces	C. L. Van Doren	36,898	Aug. 20	96	1640
Suspensories	J. Ellwood Lee Co	36,710	July 9	96	421
Syrup. Sugar-cane	Smith Bros. Co	37,083	Sept. 17	96	2405
Tablets. Digestive	Laxakola Company	36,712	July 9	96	421
Talking-machines and accessories	E. R. Johnson	36,774	July 16	96	637
Thread. Sewing	Clark Mile-End Spool Cotton Co	37,063	Sept. 17	96	2403
Tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff. Smoking	Lambert & Butler	36,972	Aug. 27	96	1850
Tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff. Smoking	Ogden's, Limited	36,973	Aug. 27	96	1850
Tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff. Smoking	Ogden's, Limited	36,974	Aug. 27	96	1850
Tobacco, chewing-tobacco, cigars, cheroots, cigarettes, and snuff. Smoking	John Player & Sons	36,975	Aug. 27	96	1851
Tobacco, cigars, cheroots, and cigarettes. Smoking and chewing	B. Muratti, Sons & Co	37,112	Sept. 24	96	2570
Tobacco, cigars, cheroots, and cigarettes. Smoking and chewing	B. Muratti, Sons & Co	37,113	Sept. 24	96	2570

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Tobacco, cigars, cigarettes, and snuff. Smoking and chewing	M. C. Wetmore Tobacco Co	36,842	July 30	96	1032
Tobacco, cigars, cigarettes, and snuff. Smoking and chewing	M. C. Wetmore Tobacco Company	36,843	July 30	96	1032
Tobacco habit. Certain named cure for the	R. A. Wilson	37,070	Sept. 17	96	2404
Tobacco. Plug	F. R. Penn Tobacco Company	36,841	July 30	96	1032
Tobacco. Smoking and chewing	Carthage Tobacco Works	36,873	Aug. 6	96	1234
Toilet powders. Certain named	Specialty Mfg. Co	36,884	Aug. 13	96	1424
Toilet preparations and soaps. Certain named	G. C. Stevens	36,668	July 2	96	210
Toilet preparations. Certain named	Octorine Chemical Co	36,913	Aug. 20	96	1641
Tonic	Clifford Chemical Co	36,674	July 2	96	211
Tonic	Knoll & Co	36,747	July 16	96	634
Tonic	A. McNally	36,748	July 16	96	635
Tools	W. Julsrud & Co	37,118	Sept. 24	96	2570
Tools and devices. Certain named	Edgar Allen & Co	36,772	July 16	96	637
Toothpicks	V. F. G. Charavet	36,758	July 16	96	636
Tooth-powder	F. B. Horton	36,845	July 30	96	1032
Tooth-powder, tooth-paste, or tooth-wash	Hamburger & Co	37,072	Sept. 17	96	2404
Toy building-bricks	Cooper Underwear Co	37,018	Sept. 3	96	2056
Underwear, excepting therefrom hosiery	American Bicycle Company	37,105	Sept. 24	96	2569
Vehicles except bicycles. Mechanically-propelled	American Bicycle Company	37,025	Sept. 3	96	2056
Vehicles. Mechanically-propelled	Pasteur Vaccine (United States and Canada) Company.	37,026	Sept. 3	96	2056
Virus. Rodent	G. Schneibel	36,798	July 23	96	896
Washing-powder	T. H. Tabor	37,077	Sept. 17	96	2405
Washing solution	Mountain Valley Springs Company	37,078	Sept. 17	96	2405
Water	B. Kuppenheimer & Co	36,871	Aug. 6	96	1233
Waterproof coats	Slater, Rodger & Co	36,699	July 9	96	419
Whiskies	H. H. Meyerstein	36,802	July 23	96	837
Whisky	Rees & Fineman	36,977	Aug. 27	96	1851
Whisky	Dandicolle & Gaudin	37,043	Sept. 10	96	2224
Wines	Fair Oaks Ranch Co	36,838	July 30	96	1031
Wines	A. C. Hough	36,839	July 30	96	1031
Woven fabric for shades, screens, and curtains	Charleston Export & Commission Co.	36,909	Aug. 20	96	1641
Yarns, threads, and twine		36,952	Aug. 27	96	1848

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Al. Hazzards' Gold Seal." (For Cigars)	Schmidt & Co	8,641	Sept. 3	96	2057
"Allee Samee Biscuit." (For Biscuits)	H. L. Schlesinger	8,608	Sept. 24	96	2571
"Allen's Antiseptic Toilet Cream." (For a Toilet Cream.)	C. Allen	8,569	July 30	96	1033
"Almond Cream." (For Toilet Soap)	C. A. Crary	8,628	Aug. 27	96	1853
"Alpha." (For Bakinz-Powder)	W. G. Arpe	8,595	Aug. 13	96	1427
"American." (For Cigars)	Koett & Mahannah	8,558	July 30	96	1033
"Antelope State Sugar Corn." (For Canned Goods)	Martin & Nurre	8,520	July 9	96	423
"Anti Cyst." (For a Medicine)	H. L. Miller	8,708	Sept. 24	96	2571
"Antiseptine." (For an Antiseptic)	J. A. Lentz	8,589	Aug. 13	96	1427
"Baby Brand." (For Canned Goods)	Stecher Lithographic Company	8,691	Sept. 17	96	2407
"Band-Box." (For Rubber Bands)	B. F. Goodrich Company	8,637	Sept. 3	96	2057
"Banquet." (For Macaroni)	L. R. Lorenz	8,578	Aug. 6	96	1235
"Barrister." (For Gin)	E. L. Sadler	8,547	July 23	96	889
"Barto's Pure Candies." (For Candy)	C. C. Barigis & Bros	8,639	Sept. 3	96	2057
"Bed Rock." (For Planes)	Stanley Rule & Level Co	8,647	Sept. 3	96	2057
"Beeman's Sweetheart Gum." (For Chewing-Gum)	E. Beeman	8,666	Sept. 10	96	2227
"Big Success." (For Cigars)	American Lithographic Co	8,574	Aug. 6	96	1235
"Black Eagle Brand." (For Shoes)	A. A. Rosenbush & Co	8,648	Sept. 10	96	2227
"Blue Lion Egyptian Cigarettes." (For Cigarettes)	Pinkus Bros	8,559	July 30	96	1033
"Bonanza Japan Tea." (For Tea)	H. H. Mehlhop	8,518	July 9	96	424
"Boro-Carbol Salve." (For a Salve)	C. W. Beggs Sons & Co	8,581	Aug. 6	96	1233
"Bourdon's Liniment." (For a Liniment)	D. A. Bourdon	8,625	Aug. 27	96	1853
"Brilliant Black." (For Black)	Binney & Smith	8,562	July 30	96	1033
"Brown's Magnetic Liniment." (For a Liniment)	G. W. Brown	8,582	Aug. 6	96	1235
"Canadian Herbs." (For a Medicine)	H. H. Roche	8,543	July 16	96	630
"Carmel Pure Best Tea." (For Tea)	W. H. Brin	8,545	July 23	96	889
"Chalgonia." (For a Medicine)	Le Compte & Gayle Co	8,646	Sept. 3	96	2057
"Champion Mustard." (For Mustard)	E. C. Flaccus Company	8,690	Sept. 17	96	2407
"Champion Tomato Catsup." (For Tomato-Catsup)	E. C. Flaccus Company	8,695	Sept. 24	96	2571
"Cho-Lung." (For Tea)	I. Cordish and J. M. Pruzam	8,686	Sept. 17	96	2407
"Cofateno." (For a Table Beverage)	Cofateno Company	8,663	Sept. 10	96	2227
"Cole's Cough Cure." (For a Medicine)	J. W. Cole & Co	8,672	Sept. 10	96	2227
"Colorado Extracted Alfalfa." (For Honey)	C. H. W. Weber	8,687	Sept. 17	96	2407
"Columbian Black." (For Black)	Binney & Smith	8,561	July 30	96	1033
"Comet 'Sec.'" (For Wines)	A. Werner & Co	8,535	July 16	96	630
"Compliments of the Season." (For Cigars)	American Lithographic Company	8,555	July 30	96	1033
"Corson's Red Cross Capsules." (For Capsules)	G. C. Taggart	8,525	July 9	96	423
"Cough Checkers." (For a Medicinal Confection)	I. J. Weinreich	8,551	July 23	96	889
"Cream of Roses." (For a Toilet Preparation)	L. D. Ricketson	8,571	July 30	96	1033
"Crown Ant Exterminator." (For an Ant-Exterminator)	I. E. Stevens	8,673	Sept. 10	96	2227
"Daggett's Boston Chocolates." (For Confectionery)	F. L. Daggett & Co	8,577	Aug. 6	96	1235
"Daniel's Concl. Tinct. Passiflora Incarnata or May Pop." (For a Medicine.)	J. B. Daniel	8,702	Sept. 24	96	2571
"Daniel's Passiflora Koko-Kolo Syrup." (For a Syrup)	J. B. Daniel	8,593	Aug. 13	96	1427
"Dexter Special." (For Rye Whisky)	Mau, Sadler & Co	8,554	July 30	96	1033
"Diamond." (For a Polish)	J. L. Orr	8,684	Sept. 17	96	2407
"Direct from the Mill to the Man." (For Trousers)	Rochester Woolen Mfg. Co	8,572	Aug. 6	96	1235
"Dr. Baker's Liquid Food for Vitality." (For Liquid Food)	B. F. Baker	8,694	Sept. 24	96	2571
"Dr. Bell's Kidney Pills." (For a Medicine)	C. W. Beggs Sons & Co	8,580	Aug. 6	96	1235
"Dr. Boston's Magic Tablets for Headache." (For a Medicine.)	L. P. A. Dorion	8,530	July 9	96	423
"Dr. Jensen's Catarrh Treatment." (For a Medicine for Catarrh.)	J. C. Nelson & Co	8,604	Aug. 20	96	1645
"Dr. Kane's Forest Root Cough Remedy." (For a Medicine.)	G. Phipps	8,527	July 9	96	423
"Dr. Rose's Hair Tonic and Scalp Invigorator." (For a Hair-Tonic and Scalp-Invigorator.)	C. Allen	8,568	July 30	96	1033
"Duquesne Beer." (For Lager-Beer)	Duquesne Brewing Co	8,515	July 9	96	423
"Duquesne Beer." (For Lager-Beer)	Duquesne Brewing Co	8,517	July 9	96	423
"Duquesne Export Beer." (For Lager-Beer)	Duquesne Brewing Co	8,516	July 9	96	423
"E. B. F. Hayth's Great Egyptian Salve." (For Salves)	E. B. F. Hayth	8,506	July 2	96	218
"Economy." (For Carpet-Chain)	Tinkler and Co	8,653	Sept. 10	96	2227
"Egyptian Pyramid Puzzle." (For Puzzles)	H. Kantorowicz	8,586	Aug. 13	96	1427
"El Cubano Reciproco." (For Cigars)	Schmidt & Co	8,627	Aug. 27	96	1853
"Elk." (For Coffee)	Dolan Mercantile Co	8,537	July 16	96	630
"Empress Kitchen Set." (For Kitchen-Cutlery)	Bridgeton Knife Co	8,511	July 2	96	218
"Eucalemo." (For a Toilet Preparation)	C. W. Lettingwell, Jr	8,504	July 2	96	218
"Excelsior." (For Cotton Goods)	H. Mills	8,692	Sept. 24	96	2571
"Export." (For Bottled Beer)	F. F. Rohn	8,536	July 16	96	630
"F. J. Darlington's Charcoal Chewing Gum." (For Chewing-Gum.)	F. J. Darlington	8,614	Aug. 20	96	1645
"Fidelity." (For Carpet-Warp)	Tinkler and Co	8,656	Sept. 10	96	2227
"First President." (For Cigars)	J. Dunham	8,513	July 9	96	423
"Flor de Castillo." (For Cigars)	American Lithographic Company	8,616	Aug. 20	96	1645
"Flor de Castillo." (For Cigars)	American Lithographic Company	8,617	Aug. 20	96	1645
"Force." (For Cereal Food Products)	E. Elsworth	8,620	Aug. 20	96	1645
"Forest Root Extract." (For a Medicine)	G. Phipps	8,529	July 9	96	423
"Forest Tar Drops." (For Cough-Drops)	F. S. Zappulla	8,669	Sept. 10	96	2227
"Georgia Watermelon Brandy." (For Brandy)	F. E. Frey	8,609	Aug. 20	96	1645
"Georgia Watermelon Gin." (For Gin)	F. E. Frey	8,608	Aug. 20	96	1645
"Georgia Watermelon Whiskey." (For Whisky)	F. E. Frey	8,610	Aug. 20	96	1645
"Georgia Watermelon Wine." (For Wine)	F. E. Frey	8,607	Aug. 20	96	1645

Alphabetical list of labels, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Pages.
"Glorio Soap." (For Soap)	A. T. Smith	8,696	Sept. 24	96	2571
"Gold Band Shoe Polish." (For Shoe-Polish)	P. McLaughlin	8,509	July 2	96	213
"Gold Leaf Lard." (For Lard)	Henry Krug Packing Co	8,621	Aug. 20	96	1645
"Goyer's Maple Syrup Blend." (For Syrup)	C. W. Goyer & Co	8,661	Sept. 10	96	2227
"Grand Ma's Egg Noodles." (For Noodles)	C. H. Lange	8,544	July 23	96	839
"Granite Steel Ware." (For Granite-Ware)	Gray Lithograph Co	8,677	Sept. 17	96	2407
"Half Price." (For Cigars)	Schmidt & Co	8,697	Sept. 24	96	2571
"Havana Smokers." (For Cigars)	F. Garcia & Bros	8,659	Sept. 10	96	2227
"Hazel Rum." (For a Toilet Preparation)	Ra Toilet Co	8,588	Aug. 13	96	1427
"Hazelwood." (For Butter)	Hazelwood Company	8,630	Aug. 27	96	1853
"Henry F. Miller's Enamel and Paint Eraser." (For an Enamel and Paint Eraser.)	H. F. Miller	8,623	Aug. 20	96	1645
"Hi-Hi Chewing Gum." (For a Medicinal Chewing-Gum)	R. A. Wilson	8,667	Sept. 10	96	2227
"Homestead." (For Ale)	Frank Jones Brewing Company	8,600	Aug. 13	96	1427
"Hood's Foot Friend." (For a Powder)	Hood Chemical Co	8,505	July 2	96	213
"Housekeeper." (For Carpet-Chain)	Tinkler and Co	8,652	Sept. 10	96	2227
"I. M. O. K." (For Cigars)	Schmidt & Co	8,660	Sept. 10	96	2227
"I am a Buffalo." (For Cigars)	Koett & Mahannah	8,557	July 30	96	1033
"I am a Buffalo." (For Cigars)	Schmidt & Co	8,601	Aug. 13	96	1427
"Ideal Brilliant Nail Enamel." (For a Nail-Polish)	M. A. Dale	8,570	July 30	96	1033
"Imperial Purites Soap." (For Soap)	Imperial Chemical Mfg. Co	8,683	Sept. 17	96	2407
"In a Sphere of Its Own." (For Pianos)	G. P. Bent	8,585	Aug. 13	96	1427
"India Pale Ale." (For Ale)	Frank Jones Brewing Company	8,599	Aug. 13	96	1427
"Janita." (For Cigars)	American Lithographic Company	8,618	Aug. 20	96	1645
"Jenny Lind." (For Cigars)	S. Saqui	8,589	July 16	96	639
"John Brady's Electric Salve." (For a Medicine)	J. T. Brady	8,678	Sept. 17	96	2407
"Kantshrink Yarn." (For Yarn and Fabrics and Garments made from such Yarn.)	T. Welstenholme, Sons & Co	8,552	July 30	96	1033
"Kellum Blend Coffee." (For Coffee)	H. D. Kelly	8,560	July 30	96	1033
"Kentucky Belle." (For Whisky)	W. P. Strader	8,501	July 2	96	213
"King Dodo." (For Cigars)	Schmidt & Co	8,640	Sept. 3	96	2057
"King of the Coast." (For Clams)	J. B. Sylvester & Son	8,631	Aug. 27	96	1853
"Knapo-Curo." (For a Medicine)	G. Phipps	8,528	July 9	96	423
"Lemonita." (For a Cleansing Preparation)	C. W. Leffingwell, Jr	8,658	Sept. 10	96	2227
"Letterettes." (For Note-Paper and Envelops)	P. Hake	8,674	Sept. 17	96	2407
"Life Saving Cholera Cure." (For a Medicine)	L. V. Fischer	8,507	July 2	96	213
"Lily Brand Leaf Lard." (For Lard)	Henry Krug Packing Co	8,622	Aug. 20	96	1645
"Lithia-Malt." (For Malt Extracts)	A. Lieber	8,502	July 2	96	213
"Lithia-Malt." (For Malt Extracts and Peptonized Malt Foods.)	A. Lieber	8,553	July 30	96	1033
"Liver-Ro." (For Liver-Tablets)	I. M. Adams	8,644	Sept. 3	96	2057
"Lockport Cigars." (For Cigars)	S. Lichtenstein	8,602	Aug. 13	96	1427
"Lockyer's Club House Poultry, Game & Meat Seasoning." (For Seasoning.)	F. H. Lockyer	8,689	Sept. 17	96	2407
"Louisiana Purchase." (For Canned Goods, Cigars, and Beer.)	E. G. Cherbonnier	8,698	Sept. 24	96	2571
"Manpurya." (For Tea)	Milliken, Tomlinson Co	8,613	Aug. 20	96	1645
"Maxcy's Violet Cream." (For Toilet Cream)	Maxcy Laboratory Co	8,583	Aug 6	96	1235
"Medallion." (For Satin and Velvet Ribbons)	E. Moses & Co	8,603	Aug. 20	96	1645
"Meisch." (For Wine)	Medoc Vineyard Co	8,533	July 16	96	639
"Mekko Cough Mixture." (For Cough Remedy)	Ogden & Shimer	8,668	Sept. 10	96	2227
"Minerva." (For Carpet-Chain)	Tinkler and Co	8,651	Sept. 10	96	2227
"Missouri River Brand Sugar Corn." (For Canned Goods)	Martin & Nurre	8,521	July 9	96	423
"Moss Agate Finish." (For Note-Paper and Envelops)	P. Hake	8,636	Sept. 3	96	2057
"Mother's." (For Corn-Starch)	Wellington Manufacturing Co	8,594	Aug. 13	96	1427
"My Mammy." (For Whisky)	Henry M. Rubel Co	8,611	Aug. 20	96	1645
"Nervo Tablets." (For a Medicine)	R. W. E. Cozine	8,566	July 30	96	1033
"Nonparell Window Shade Cloth." (For Window-Shade Cloth.)	K. Fuessel	8,676	Sept. 17	96	2407
"Nourishing Stout." (For Porter)	Frank Jones Brewing Company	8,598	Aug. 13	96	1427
"O-li-ene." (For Petroleum)	Independent Refining Co	8,549	July 23	96	839
"Ole Varginy." (For Tobacco)	E. L. Sadler	8,548	July 23	96	839
"Osceola Brand Fancy Pineapples." (For Pineapples)	Florida Fancy Pineapple Association.	8,597	Aug. 13	96	1427
"Ozonine." (For Poisonous-Plant Antidote)	Emil Starz Biochemic Laboratory Co.	8,690	Sept. 17	96	2407
"Paris Black." (For Black)	Binney & Smith	8,563	July 30	96	1033
"Pearl." (For Carpet-Warp)	Tinkler and Co	8,654	Sept. 10	96	2227
"Ped-reina." (For Shoes)	Lamkin & Foster	8,649	Sept. 10	96	2227
"Pepsino." (For a Breath-Perfume)	Pepsino Co	8,541	July 16	96	639
"Perrin's Pile Specific." (For a Medicine)	C. A. Perrin	8,670	Sept. 10	96	2227
"Photo." (For Cigars)	Schmidt & Co	8,540	July 16	96	639
"Pillsbury's Flaked Wheat Food." (For Wheat-Food)	Pillsbury-Washburn Flour Mills Company.	8,619	Aug. 20	96	1645
"Pin." (For Soap)	Enterprise Soap Works	8,682	Sept. 17	96	2407
"Plantation Tea." (For a Medicine)	D. Thomas	8,579	Aug. 6	96	1235
"President's Restorative Tablets." (For a Medicine)	President's Company	8,526	July 9	96	423
"Primos." (For Meats)	A. von Cotzhausen	8,510	July 2	96	213
"Priscilla Starch Polish." (For a Polish)	Priscilla Mfg. Co	8,685	Sept. 17	96	2407
"Prophylactic." (For Tooth-Brushes)	Florence Mfg. Co	8,584	Aug. 6	96	1235
"Quaker City." (For Carpet-Warp)	Tinkler and Co	8,655	Sept. 10	96	2227
"Rainbow Cocktail Manhattan." (For Manhattan Cocktails.)	C. F. Sullivan & Co	8,612	Aug. 20	96	1645
"Raven Black." (For Black)	Binney & Smith	8,564	July 30	96	1033
"Red Fox Ale." (For Ale)	Massachusetts Breweries Co	8,606	Aug. 20	96	1645
"Red Rose Sweet Scotch Snuff." (For Snuff)	Standard Snuff Co	8,575	Aug. 6	96	1235
"Rhodes' Electric Liniment." (For a Liniment)	M. W. Rhodes	8,567	July 30	96	1033
"Rocky Mountain Sage Bitters." (For a Medicine)	M. Rosenfield & Co	8,645	Aug. 20	96	1645
"Rosewood Dandruff Cure." (For Dandruff Cure)	J. R. Reeves and Co	8,681	Sept. 17	96	2407
"Royal Harvest." (For Cigars)	American Lithographic Co	8,573	Aug. 6	96	1235
"Royal Palm Brand Fancy Pineapples." (For Pineapples)	Florida Fancy Pineapple Association.	8,596	Aug. 13	96	1427
"Rumol." (For a Medicine)	I. M. Adams	8,671	Sept. 10	96	2227
"Ryeoline." (For a Vegetable-Compound Oil)	W. Busch	8,592	Aug. 13	96	1427
"Sanitaire." (For Disinfectants)	Clark-Hutchinson Chemical Co	8,590	Aug. 13	96	1427
"Sashbelt Trousers." (For Trousers)	E. Goodman	8,531	July 9	96	423

Alphabetical list of labels, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Pages.
"Scuppernong." (For Wine)	Medoc Vineyard Co	8,534	July 16	96	639
"Shakespeare Rye." (For Whisky)	L. Blum	8,500	July 2	96	213
"Shaster's Sparkling Water." (For Mineral Water)	A. Elstereit	8,628	Aug. 27	96	1853
"Shell Border." (For Cigars)	Schmidt & Co	8,615	Aug. 20	96	1645
"Silas Johnson." (For Cigars)	J. Anthony	8,556	July 30	96	1033
"Silk Moire." (For Note-Paper and Envelops)	P. Hake	8,675	Sept. 17	96	2407
"Slater's Australian Rheumatism Cure." (For a Medicine)	A. Slater	8,542	July 16	96	639
"Silvovitz." (For an Alcoholic Liquor)	W. Mohse & Co	8,576	Aug. 6	96	1235
"Soapstone Slate Pencils." (For Slate-Pencils)	Tower Mfg. & Nov. Co	8,638	Sept. 3	96	2057
"Sole Comfort." (For Shoes)	F. E. Mistrot	8,634	Sept. 3	96	2057
"Sole Comfort." (For Shoes)	F. E. Mistrot	8,635	Sept. 3	96	2057
"Speedway Club." (For Whisky)	F. McKernan	8,532	July 16	96	639
"St. Nicholas Mocha and Java." (For Coffee)	W. H. Harrison & Co	8,538	July 16	96	639
"Staufer's Laundry Tablets." (For Laundry Tablets)	W. B. Staufer	8,632	Aug. 27	96	1853
"Stryx Tonic." (For a Hair-Tonic)	W. D. S. Co	8,508	July 2	96	213
"Sunset Carbon Black." (For Lampblack)	L. Martin Company	8,505	July 30	96	1033
"Swiss Milk Cocoa." (For Cocoa)	Croft & Allen Co	8,519	July 9	96	423
"Syrup of Tar and Cod Liver Oil." (For a Medicine)	L. P. Collet & E. N. Gagnier	8,679	Sept. 17	96	2407
"Tar Heel Chill Cure." (For a Medicine)	C. D. Higgins	8,626	Aug. 27	96	1853
"Tatanka." (For Mineral Water)	Consolidated Bottling Co	8,665	Sept. 10	96	2227
"The Bactericidal Remedy Co's. Choleroup." (For a Medicine.)	Bactericidal Remedy Co	8,701	Sept. 24	96	2571
"The Earl Gulick Antiseptic Tooth Powder." (For Tooth-Powder.)	J. G. Gulick	8,522	July 9	96	423
"The Flower of Russia." (For Tea)	J. N. Jaros & Co	8,546	July 23	96	839
"The Keystone." (For Cigars)	J. M. Downs	8,499	July 2	96	213
"The Penny Cobbler." (For a Leather-Dressing)	G. M. Port	8,508	July 2	96	213
"The Prophylactic Tooth Brush." (For Tooth-Brushes)	Florence Mfg. Co	8,587	Aug. 13	96	1427
"The Siberian Transit Tea." (For Tea)	Siberian Transit Tea Co	8,662	Sept. 10	96	2227
"Thymozone Dandruff Cure and Hair Food." (For a Dandruff-Cure and Hair-Food.)	Drake Hawley Co	8,523	July 9	96	423
"Tioga." (For Carpet-Warp)	Tinkler and Co	8,657	Sept. 10	96	2227
"Top Notch." (For Shoes)	William Richardson Company	8,650	Sept. 10	96	2227
"20th Century." (For Flour)	Medlin Milling Co	8,643	Sept. 3	96	2057
"Vin. Vigorans." (For a Medicine)	Le Compte & Gayle Co	8,645	Sept. 3	96	2057
"Vitaqua." (For Mineral Water)	Consolidated Bottling Co	8,664	Sept. 10	96	2227
"What Ails Your Eyes." (For Eye-Water)	Howard Bros	8,524	July 9	96	423
"Whiskey." (For Whisky)	J. Moroney	8,700	Sept. 24	96	2571
"White Clover." (For Honey)	C. H. W. Weber	8,688	Sept. 17	96	2407
"White House Kitchen Set." (For Kitchen-Cutlery)	Bridgeton Knife Co	8,512	July 2	96	213
"White Wolf." (For Flour)	Medlin Milling Co	8,642	Sept. 3	96	2057
"Wilson's Absorbent." (For a Liniment)	W. H. Wilson	8,591	Aug. 13	96	1427
"Wine." (For Wine)	J. Moroney	8,699	Sept. 24	96	2571
"Wm C. Beutel's Celery Tonic." (For a Nerve-Tonic)	W. C. Beutel	8,550	July 23	96	839
"Ye Ancient Order of Whynot." (For Cigars)	H. L. Kirstein & Co	8,514	July 9	96	423
"Yellow Label Stove Polish." (For a Stove-Polish)	Omaha Stove Repair Works	8,624	Aug. 20	96	1645
"Young & Smylie's Why-Knot." (For Licorice)	Young & Smylie	8,629	Aug. 27	96	1853

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"A Steady Light Makes a Steady Hand." (For Welsbach Lamps.)	A. Gratz	392	Sept. 3	96	2057
"Blowin His Bazoo." (For Harvesting Machinery)	McCormick Harvesting Machine Company.	367	July 2	96	213
"Can't Fool Me." (For Welsbach Mantles)	A. Gratz	394	Sept. 3	96	2057
"Chanut Ganterie Parisienne." (For Gloves)	J. M. Chanut & Co	365	July 2	96	213
"Don't Be It." (For Welsbach Mantles)	A. Gratz	395	Sept. 3	96	2057
"Dr. H. W. Davenport's Combined Local and Systemic Tissue Treatment for Pyorrhoea Alveolaris." (For a Medicine.)	H. W. Davenport	397	Sept. 3	96	2057
"Economy Is Wealth." (For Welsbach Lamps)	A. Gratz	396	Sept. 3	96	2057
"Factory to Pocket." (For Watches and Jewelry)	H. Doll	401	Sept. 24	96	2571
"Fitzu." (For Shoes)	Seiter & Kappes	384	Aug. 13	96	1427
"French Doll." (For Toys and Novelties)	French Novelty Co	402	Sept. 24	96	2571
"Ginty's Bean Tablets." (For Baked Beans & Bean Tablets.)	E. C. Ginty	382	Aug 6	96	1235
"I. W. Harper Bourbon." (For Whisky)	Bernheim Bros	386	Aug. 13	96	1427
"I Am Disgusted with Imitations." (For Welsbach Mantles)	A. Gratz	393	Sept. 3	96	2057
"It's Around Behind the Barn." (For Wagons)	American Lithographic Co	399	Sept. 17	96	2407
"La France Shoe." (For Shoes)	Williams, Clark & Co	364	July 2	96	213
"Makes Light Work." (For Welsbach Lamps)	A. Gratz	391	Sept. 3	96	2057
"Miller." (For Paper-Hangers' Trestles)	H. M. Lay	368	July 2	96	213
"Night's Comfort is—Light." (For Welsbach Lamps)	A. Gratz	398	Sept. 10	96	2227
"Nothing Gets Off the Farm if Fenced with Lamb Wire Fence." (For Wire Fence.)	American Lithographic Company	389	Aug. 27	96	1853
"Official Fire Insurance Record Watchman's Improved Time Detector." (For Watchmen's Improved Time-Detectors.)	R. Kopp	371	July 16	96	639
"Old Charlotte." (For Whisky)	Henry M. Rubel Co	385	Aug. 13	96	1427
"Pay Less and Dress Better." (For Clothing)	Royal Tailors	379	Aug. 6	96	1235
"Pay Less and Dress Better." (For Clothing)	Royal Tailors	380	Aug. 6	96	1235
"Pay Less and Dress Better." (For Clothing)	Royal Tailors	381	Aug. 6	96	1235
"Rafter's Teas and Coffees are the Best." (For Tea and Coffee.)	Wittemann Bros	388	Aug. 27	96	1853
"Royal Fashions Fall 1901, Winter 1902." (For Clothing)	Royal Tailors	378	Aug. 6	96	1235
"Royal Garden." (For Iced Tea)	J. M. Bour Company	377	July 30	96	1033
"Sweet-Whitney Music-Method." (For Musical Merchandise.)	C. H. Sweet and L. G. Whitney	369	July 9	96	423
"Take Off Your Hat to 'The Myers.'" (For Pumps, Haying-Tools, &c.	American Lithographic Company	375	July 23	96	839
"The Athlete." (For Men's Clothing)	Saks & Company	400	Sept. 17	96	2407
"The Herrick Shoe." (For Shoes)	Seiter & Kappes	387	Aug. 27	96	1853
"The Nations' Choice." (For Suspenders)	Atwood Suspender Co	372	July 16	96	639
"The Paint Uncle Sam Uses." (For Mixed Paint)	National Paint & Varnish Co	374	July 16	96	639
"The Paris Skirt Co." (For Dress-Skirts)	Paris Skirt Co	370	July 9	96	423
"The Singer Seam." (For Sewing-Machines)	Singer Manufacturing Co	366	July 2	96	213
"The World's Only Dustless." (For Brushes)	Milwaukee Dustless Brush Co	383	Aug. 6	96	1235
"Waterproof." (For Biscuits)	N. W. Ayer & Son	376	July 30	96	1033
"Whiting's Standard Papers." (For Writing-Paper)	Whiting Paper Co	390	Sept. 3	96	2057
"Will do What no other Soap Can do." (For Soap)	Forbes Lithograph Manufacturing Company.	373	July 16	96	639
"Woodland Violet Specialties." (For Perfumery and Toilet Supplies.	G. E. Tooker	403	Sept. 24	96	2571

DISCLAIMER.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Ore-roasting furnace	Horace F. Brown	471,264	Mar. 22, 1892	July 29, 1901	96	1041

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